

**TECHNICAL MANUAL
MAINTENANCE INSTRUCTIONS
UNIT MAINTENANCE
M1078 SERIES, 2 1/2-TON, 4 X 4,
LIGHT MEDIUM TACTICAL VEHICLES (LMTV)
VOLUME NO. 3 OF 5**

MODEL	NSN	EIC
TRK, CAR., LMTV, M1078		
W/WN	2320-01-380-1898	BHH
W/OWN	2320-01-354-3385	BHD
TRK, VAN, LMN, M1079		
W/WN	2320-01-360-1891	BHG
W/O WN	2320-01-354-3384	BHE
TRK, CHAS, LMN, M1080	2320-01-353-9098	BHC
TRK. CAR., LMtv, AIR DROP, M1081		
W/WN	2320-01-360-1899	BHJ
W/O WN	2320-01-355-3084	BHF

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EXHAUST SYSTEM MAINTENANCE
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COOLING SYSTEM MAINTENANCE
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ELECTRICAL SYSTEM MAINTENANCE
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TRANSMISSION MAINTENANCE
PAGE 8-1

PROPELLER SHAFT MAINTENANCE
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**WHEELS, TIRES, AND HUBS
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HEADQUARTERS, DEPARTMENTS OF THE ARMY AND THE AIR FORCE
17 JUNE 1998

WARNING SUMMARY

WARNING

EXHAUST GASES CAN KILL

1. **DO NOT** operate your vehicle engine in an enclosed area.
2. **DO NOT** idle vehicle engine with cab windows closed.
3. **DO NOT** drive vehicle with inspection plates or covers removed.
4. **BE ALERT** at all times for exhaust odors.
5. **BE ALERT** for exhaust poisoning symptoms, they are:
 - Headache
 - Dizziness
 - Sleepiness
 - Loss of Muscular Control
6. **IF YOU SEE** another person with exhaust poisoning symptoms:
 - Remove person from area.
 - Expose to open air.
 - Keep person warm.
 - Do not permit person to move.
 - Administer cardiopulmonary resuscitation, if necessary. *

* For cardiopulmonary resuscitation, refer to FM 21-11.

WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock. Batteries can explode from a spark. Battery acid is harmful to skin and eyes. Always wear eye protection and rubber gloves when working with batteries.

WARNING

Battery acid (electrolyte) is extremely harmful. Always wear safety goggles and rubber gloves, and do not smoke when performing maintenance on batteries. Injury will result if acid contacts skin or eyes. Wear rubber apron to prevent clothing being damaged.

WARNING SUMMARY (CONT)

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.

WARNING

- Dry Cleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles and gloves; use only in well ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent; the flashpoint for Type I Dry Cleaning Solvent is 100 degrees F (38 degrees C) and for Type II is 130 degrees F (50 degrees C). Failure to comply may result in serious injury or death to personnel.
- If personnel become dizzy while using Dry Cleaning Solvent, immediately get fresh air and medical help. If Dry Cleaning Solvent contacts skin or clothes, flush with cold water. If Dry Cleaning Solvent contacts eyes, immediately flush eyes with water and get immediate medical attention. Failure to comply may result in injury to personnel.

WARNING

Diesel fuel is flammable. If fuel is spilled, clean it up immediately. Failure to comply may result in serious injury or death to personnel.

WARNING

After Nuclear, Biological, or Chemical (NBC) exposure of vehicle, all air filters shall be handled with extreme caution. Unprotected personnel may experience serious injury or death if residual toxic agents or radioactive material are present. If vehicle is exposed to chemical or biological agents, servicing personnel shall wear protective mask, hood, protective overgarments, and chemical protective gloves and boots in accordance with FM-3-4. All contaminated air filters shall be placed in double-lined plastic bags and moved swiftly to a segregation area away from the worksite. The same procedure applies for radioactive dust contamination. The Company NBC team should measure radiation prior to filter removal to determine extent of safety procedures required per the NBC Annex to the unit Standard Operating Procedures (SOP). The segregation area in which the contaminated air filters are temporarily stored shall be marked with appropriate NBC placards. Final disposal of contaminated air filters shall be in accordance with local SOP. Decontamination operation shall be in accordance with FM-3-5 and local SOP. Failure to comply may result in serious injury or death to personnel.

WARNING

Diesel fuel is flammable. Do not fill fuel tank with engine running, while smoking, or when near an open flame. Never overfill the tank or spill fuel. If fuel is spilled, clean it up immediately. Failure to comply may result in serious injury or death to personnel.

WARNING

Adhesive sealant MIL-S-46163 can damage your eyes. Wear safety goggles/glasses when using; avoid contact with eyes. If sealant contacts eyes, flush eyes with water and get immediate medical attention. Failure to comply may result in injury to personnel.

WARNING

Use care when removing/installing springs. Springs are under tension and can act as projectiles when being removed. Failure to comply can cause injury to personnel.

WARNING

Retaining rings are under tension and can act as projectiles when released causing severe eye injury. Use care when removing retaining rings. Failure to comply may result in injury to personnel.

WARNING

Ensure exhaust system is cool before performing maintenance. Failure to comply may result in injury to personnel.

WARNING

Wear appropriate eye protection when working under vehicle due to the possibility of falling debris. Failure to comply may result in injury to personnel.

WARNING

Do not operate LMTV vehicle with muffler removed. Toxic exhaust fumes may enter cab, resulting in serious injury or death to personnel.

WARNING

Do not work on fuel system when engine is hot; fuel can be ignited by a hot engine.

WARNING SUMMARY (CONT)

WARNING

Post signs that read "NO SMOKING WITHIN 50 FEET" when working with open fuel, fuel lines or fuel tanks. Failure to comply may result in injury to personnel or damage to equipment.

WARNING

Exhaust pipe, transmission oil lines, and transmission scavenge pump hose may be hot to the touch. Extreme care should be taken when checking exhaust pipe, transmission oil lines, and transmission scavenge pump hose for leaks. Failure to comply may result in injury to personnel.

WARNING

Compressed air used for cleaning purposes will not exceed 30 psi (207 Kpa). Use only with effective chip guarding and personal protective equipment (goggles/shield, gloves, etc). Failure to comply may result in injury to personnel.

WARNING

Wheel drum weighs approximately 90 lb (41 Kg). Use the aid of an assistant to help remove wheel drum. Failure to comply may result in injury to personnel.

WARNING

Wheel drum weighs approximately 90 lb (41 kg). Use the aid of an assistant to help install wheel drum. Failure to comply may result in injury to personnel.

WARNING

Brake shoes may be covered with dust. Breathing this dust may be harmful to your health. Do not use compressed air to clean brake shoes. Wear a filter mask approved for use against brake dust. Failure to comply may result in injury to personnel.

WARNING

Engage spring brake before air chamber is removed or severe injury to personnel will occur.

WARNING

Ensure air chamber is caged prior to installation. Failure to comply may result in injury to personnel.

WARNING

Ensure that tire is totally deflated before removing self-locking nuts. Failure to comply may result in serious injury or death to personnel.

WARNING

Spring brakes must be caged before attempting replacement of a rear axle wheel stud. Failure to comply may result in severe injury to personnel.

WARNING

Wear protective goggles to protect against possible injury from release of high pressure air. Failure to comply may result in injury to personnel.

WARNING

Prolonged contact with lubricating oil (MIL-L-2104) may cause a skin rash. Skin and clothing that come in contact with lubricating oil should be thoroughly washed immediately. Saturated clothing should be removed immediately. Areas in which lubricating oil is used should be well ventilated to keep fumes to a minimum. Failure to comply may result in injury to personnel.

WARNING

Hydraulic fluid (MIL-H-5606) is TOXIC. Wear protective goggles and gloves; use only in well ventilated area; avoid contact with skin, eyes, and clothes. Skin and clothing that come in contact with hydraulic oil should be washed immediately. Saturated clothing should be removed immediately. Failure to comply may result in injury to personnel.

WARNING

Wire rope can become frayed or contain broken wires. Wear heavy leather-palmed gloves when handling wire rope. Frayed or broken wires can injure hands. Failure to comply may result in injury to personnel.

WARNING

Never let moving wire rope slide through hands, even when wearing gloves. A broken wire could cut through gloves and cut hands.

WARNING SUMMARY (CONT)

WARNING

Wear appropriate eye protection when removing rivets. Failure to comply may result in injury to personnel.

WARNING

Wear appropriate eye protection when drilling holes. Failure to comply may result in injury to personnel.

WARNING

Wear leather gloves at all times when handling winch cable. Do not allow cable to slide through hands even with gloves on. Broken wires may cause injury to personnel.

WARNING

Use extreme caution when working around moving cable. Failure to do so may result in serious injury to personnel.

WARNING

Caution must be exercised while cab is raised. Ensure that locking mechanism is functioning properly before proceeding. Failure to comply may result in death or serious injury to personnel and damage to equipment.

WARNING

Diesel fuel is flammable. Arctic heater components and fuel lines may contain small amounts of fuel. If fuel is spilled, clean up immediately. Failure to comply may result in serious injury or death to personnel.

WARNING

Coolant may be very hot and under pressure from engine operation. Ensure engine is cool before performing maintenance. Failure to comply may result in injury to personnel.

WARNING

Do not remove oil filter while engine is hot. Failure to comply may result in injury to personnel.

WARNING

Sling spreader weighs approximately 200 lbs (91 kgs). Attach a suitable lifting device prior to removal. Failure to comply may result in injury to personnel or damage to equipment.

WARNING

Remove all loose equipment from van body. Failure to comply may result in injury to personnel or damage to equipment.

WARNING

Van body weighs approximately 3,360 lbs (1525 kgs) empty. Attach a suitable lifting device prior to removal. Failure to comply may result in serious injury or death to personnel.

WARNING

Guide ropes must be attached at opposite corners of van body to aid in controlling van body during removal. Failure to comply may result in serious injury or death to personnel.

WARNING

Center of gravity will change depending on equipment installed in van body. Attach and adjust lifting device so that van body lifts level. Failure to comply may result in serious injury or death to personnel or damage to equipment.

WARNING

Pod frame weighs approximately 80 lbs (36 kgs). Attach a suitable lifting device prior to removal. Failure to comply may result in injury to personnel or damage to equipment.

WARNING

Do not install pod frame on van body for 72 hours after installing blind rivet nuts and spacers. Failure to comply may result in injury to personnel and/or damage to equipment.

WARNING

Goggles and gloves must be worn when working with glass. Failure to comply may result in injury to personnel.

WARNING SUMMARY (CONT)

WARNING

RH door assembly weighs approximately 85 lbs (39 kgs). Attach a suitable lifting device prior to removal. Failure to comply may result in injury to personnel or damage to equipment.

WARNING

LH door assembly weighs approximately 85 lbs (39 kgs). Attach a suitable lifting device prior to removal. Failure to comply may result in injury to personnel or damage to equipment.

WARNING

Wear appropriate eye protection when handling fluorescent lamps. Failure to comply may result in injury to personnel.

WARNING

Heavy objects/loads, such as tool boxes and heavy parts, must always be carried on the floor with the weight distributed as equally as possible between left and right sides of M1079 van. Failure to comply decreases the stability of the M1079 van and will increase the likelihood of a rollover.

Heavy cabinets must always be mounted as low as possible with the weight distributed as equally as possible between left and right sides of M1079 van. Remember to consider the weight of the items that will be stored in the cabinets. Failure to comply decreases the stability of the M1079 van and will increase the likelihood of a rollover.

Always keep in mind, when placing items inside the M1079 van, that heavier items must always be positioned as low as possible and the weight distributed is equally as possible between left and right sides of M1079 van. Failure to comply decreases the stability of the M1079 van and will increase the likelihood of a rollover.

WARNING

Diesel fuel is flammable. Arctic heater components and fuel hoses may contain small amounts of fuel. If fuel is spilled, clean it up immediately. Failure to comply may result in serious injury or death to personnel.

WARNING

Extreme care must be taken when lowering gravel deflector. Coolant hoses could be pulled loose. Failure to comply could result in serious eye injury.

WARNING

- Do not open coolant fill cap if temperature reads above 110°F (43°C). Steam or hot coolant is under pressure. Failure to comply may result in injury to personnel.
- Pressure in reservoir tank must be released before removing cap. Failure to comply may result in injury to personnel.

WARNING

Excess coolant may splash out when hoses are removed from swingfire pump. Wear appropriate eye protection. Failure to comply may result in injury to personnel.

WARNING

Excess coolant may splash out upon removal of hoses on swingfire tube jacket. Ensure proper eye protection is worn. Failure to comply may result in injury to personnel.

WARNING

Excess coolant may splash out upon removal of hoses from swingfire valve. Ensure proper eye protection is worn. Failure to comply may result in injury to personnel.

WARNING

Heater weighs approximately 120 lbs (54 kgs). Use the aid of an assistant when lifting. Failure to comply may result in injury to personnel.

WARNING

200 amp alternator weighs approximately 70 lbs (32 kgs). The aid of an assistant is required to install 200 amp alternator. Failure to comply may result in injury to personnel.

WARNING

Light Materiel Handling Crane (LMHC) mast weighs approximately 110 lbs (50 kgs). Attach a suitable lifting device prior to installation. Failure to comply may result in injury to personnel or damage to equipment.

WARNING

Light Materiel Handling Crane (LMHC) boom assembly weighs approximately 150 lbs (68 kgs). Use an assistant when removing LMHC boom assembly. Failure to comply may result in injury to personnel.

WARNING SUMMARY (CONT)

WARNING

Light Materiel Handling Crane (LMHC) boom weighs approximately 60 lbs (27 kgs). Attach a suitable lifting device prior to removal. Failure to comply may result in injury to personnel or damage to equipment.

WARNING

Light Materiel Handling Crane (LMHC) weighs approximately 250 lbs (114 kgs). Attach a suitable lifting device prior to removal. Failure to comply may result in injury to personnel.

WARNING

Use care when removing/installing springs. Springs are under tension and can act as projectiles when released. Failure to comply may result in injury to personnel.

WARNING

Air conditioner weighs approximately 300 lbs (136 kg). Attach a suitable lifting device prior to installation. Failure to comply may result in injury to personnel.

WARNING

Ensure cargo bed is free of equipment and debris, and is not warped or damaged in any way. Failure to comply may result in serious injury or death to personnel or damage to equipment.

WARNING

S-280 shelter weighs approximately 1500 lbs (680 kgs) empty. Attach a suitable lifting device prior to installation. Failure to comply may result in serious injury or death to personnel or damage to equipment.

TECHNICAL MANUAL
 NO. 9-2320-365-20-3

HEADQUARTERS
 DEPARTMENTS OF THE ARMY
 AND THE AIR FORCE
 Washington D.C., 17 June 1998

TECHNICAL ORDER
 NO. 36A12-1B-1095-2-3

Unit Maintenance Manual
M1078 SERIES, 2 1/2-TON, 4 x 4,
LIGHT MEDIUM TACTICAL VEHICLES (LMTV)
 VOLUME NO. 3 OF 5

MODEL	NSN	EIC
TRK, CAR., LMTV, M1078		
W/WN	2320-01 -360-1898	BHH
	2320-01-354-3385	BHD
TRK, VAN, LMTV, M1079		
W/WN	2320-01-360-1891	BHG
W/O WN	2320-01 -354-3384	BHE
TRK, CHAS, LMTV, M1080	2320-01-353-9098	BHC
TRK. CAR., LMTV, AIR DROP, M1081		
W/WN	2320-01-380-1899	BHJ
W/O WN	2320-01-355-3064	BHF

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes or if you know of any way to improve the procedures, please let us know. Mail your letter, DA Form 2082 (Recommended Changes to Publications and Bank Forms), or DA form 2028-2 located in the back of this manual direct to: Commander, U.S. Army Tank-automotive and Armaments Command, ATTN: AMSTA-AC-NMLI, Rock Island, Ill, 61299. A reply will be furnished to you.

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

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*This publication supersedes TM 9-2320-365-20-3 dated 1 October 1995.

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HOW TO USE THIS MANUAL

OVERVIEW

This technical manual (TM) is provided to help you maintain the LMTV at the Unit Maintenance level. Because of its size, it is divided into five volumes. Volume 3 contains the following major sections in order of appearance:

- **WARNING SUMMARY.** Provides a summary of the most important warnings that apply throughout the manual.
- **CHAPTER 4, FUEL SYSTEM MAINTENANCE**
- **CHAPTER 5, EXHAUST SYSTEM MAINTENANCE**
- **CHAPTER 6, COOLING SYSTEM MAINTENANCE**
- **CHAPTER 7, ELECTRICAL SYSTEM MAINTENANCE**
- **CHAPTER 8, TRANSMISSION MAINTENANCE**
- **CHAPTER 9, PROPELLER SHAFT MAINTENANCE**
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- **CHAPTER 13, STEERING SYSTEM MAINTENANCE**

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- **CHAPTER 14, FRAME, TOWING ATTACHMENTS, AND DRAWBARS MAINTENANCE**
- **CHAPTER 15, SUSPENSION MAINTENANCE**
- **APPENDIX A, REFERENCES.** Lists publications used with the LMTV.
- **APPENDIX B, MAINTENANCE ALLOCATION CHART.** The maintenance allocation chart denotes the level of maintenance which performs specific maintenance tasks and the time required. It also lists tools and special tools required for each task.
- **APPENDIX C, TOOLS IDENTIFICATION LIST.** Lists equipment used in the performance of maintenance and references publications which contain information regarding the equipment.
- **APPENDIX D, EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST.** Lists expendable and durable items used in the performance of maintenance.
- **APPENDIX E, ILLUSTRATED LIST OF MANUFACTURED ITEMS.** Illustrates and describes items that must be fabricated from bulk materials for repair of the LMTV.
- **APPENDIX F, TORQUE LIMITS.** Lists the standard torque values for specific attaching hardware.
- **APPENDIX G, MANDATORY REPLACEMENT PARTS.**
- **APPENDIX H, LUBRICATION ORDER.**
- **APPENDIX J, ADDITIONAL AUTHORIZATION LIST (AAL).**
- **SUBJECT INDEX.** Lists important subjects contained in volume 3 in alphabetical order and gives the associated paragraph number.

FINDING INFORMATION

There are several ways to find the information you need in this manual. They are as follows:

- **FRONT COVER INDEX.** The front cover index contains a list of the most important topics contained in each volume. It features a black box at the right edge of the cover which corresponds with a black box on the page containing the topic. The topics listed on the front cover are highlighted in the table of contents with a box.
- **TABLE OF CONTENTS.** Lists chapters, sections, appendixes, and indexes with page numbers in order of appearance.
- **CHAPTER INDEXES.** List paragraphs contained in the individual chapters with paragraph and page numbers in order of appearance.
- **SYMPTOM INDEX.** Lists malfunctions contained in the troubleshooting table with page numbers in order of appearance.

TROUBLESHOOTING

Troubleshooting is contained in chapter 2. When a malfunction occurs, look at the symptom index for the vehicle troubleshooting table in chapter 2. Find the malfunction in the index. Turn to the page number listed for the malfunction in the troubleshooting table. Perform the steps required to correct the malfunction. If you can't find the malfunction, or the malfunction is not corrected, notify your supervisor.

MAINTENANCE

- **SCHEDULED MAINTENANCE.** Your scheduled maintenance is located in Volume 1, table 2-1, PMCS. These checks and services are mandatory at the intervals listed. Always follow the WARNINGS and CAUTIONS.
- **UNSCHEDULED MAINTENANCE.** Unscheduled maintenance is located in chapters 3 thru 22. The PMCS and troubleshooting tables often reference you to these procedures. When you perform maintenance, look over the entire procedure before starting. Make sure you have the necessary tools and materials at hand. Always follow the WARNINGS and CAUTIONS.

FOLLOW THESE GUIDELINES WHEN USING THIS MANUAL:

- Become familiar with the entire maintenance procedure before beginning a maintenance task.
- Read all WARNINGS and CAUTIONS before performing any procedures.

CHAPTER 4 FUEL SYSTEM MAINTENANCE

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Section I. INTRODUCTION

4-1. INTRODUCTION

This chapter contains maintenance instructions for replacing, repairing, and adjusting fuel system components authorized by the Maintenance Allocation Chart (MAC) at the Unit Maintenance level.

Section II. MAINTENANCE PROCEDURES

4-2. INTAKE AIR CLEANER FILTER ELEMENT, AIR CLEANER ASSEMBLY, AND PARTICLE EXTRACTION TUBE REPLACEMENT

This task covers:

- | | |
|--|--|
| <ul style="list-style-type: none"> a. Intake Air Cleaner Filter Element Removal b. Intake Air Cleaner Filter Element Installation c. Intake Air Cleaner Assembly Removal (except M10811) d. M1081 Intake Air Cleaner Assembly Removal
Intake Air Cleaner Disassembly f. Intake Air Cleaner Assembly | <ul style="list-style-type: none"> g. M1081 Intake Air Cleaner Assembly
Installation h. Intake Air Cleaner Assembly Installation
(except M1081) i. Particle Extraction Tube Removal j. Particle Extraction Tube Installation k. Follow-On Maintenance |
|--|--|

INITIAL SETUP

Equipment Conditions

- Engine shut down (TM 9-2320-365-10).
- Cab raised (TM 9-2320-365-10).
- Batteries disconnected (para 7-48).
- Chemical detection unit removed, if equipped (TM 3-6665-225-12).
- Transmission oil fill tube removed (M1081 only) (para 8-13).

Tools and Special Tools

- Tool Kit, Genl Mech (Item 44, Appendix C)
- Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)
- Crowfoot Attachment, Socket Wrench (Item 6, Appendix B)
- Screwdriver Attachment, Socket Wrench (Item 46, Appendix B)
- Socket Set, Socket Wrench (Item 35, Appendix C)

Tools and Special Tools (Cont)

- Wrench, Torque, 0-200 lb-in. (Item 58, Appendix C)

Materials/Parts

- Rag, Wiping (Item 51, Appendix D)
- Gasket (Item 32, Appendix G)
- Filter Element (Item 18, Appendix G)
- Washer, Spring (2) (Item 278, Appendix G)
- Nut, Self-Locking (3) (Item 140, Appendix G)
- Nut, Self-Locking (3) (Item 134, Appendix G) (M1081)
- Nut, Self-Locking (3) (Item 141, Appendix G) (all models except M1081)

References

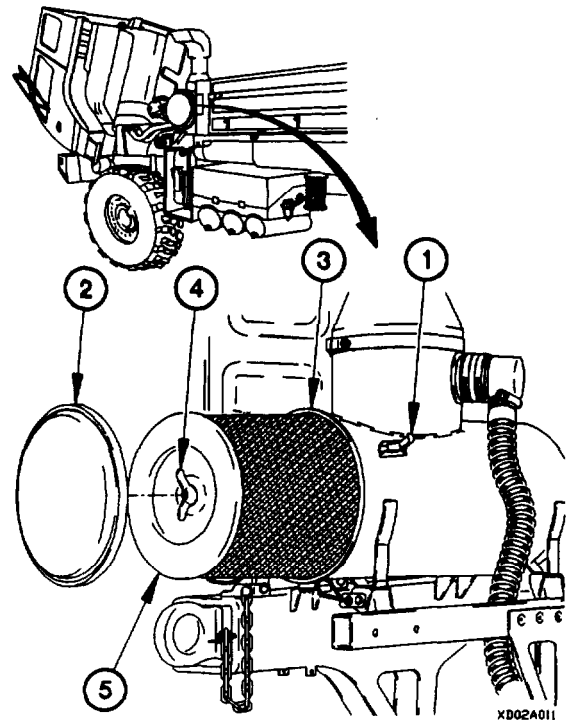
- TM 3-6665-225-12
- FM 3-4
- FM 3-5

WARNING

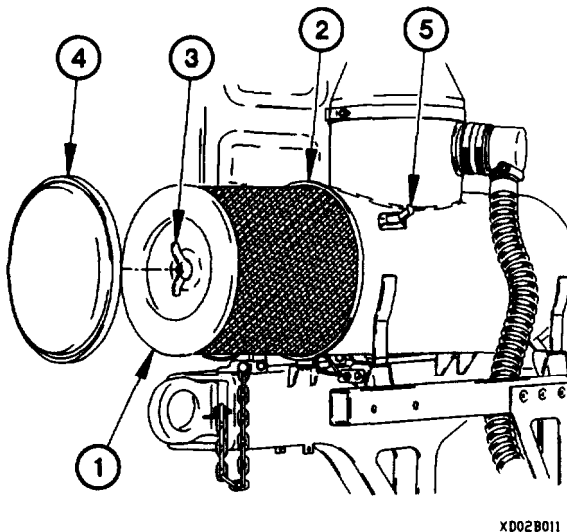
After Nuclear, Biological, or Chemical (NBC) exposure of vehicle, all air filters shall be handled with extreme caution. Unprotected personnel may experience serious injury or death if residual toxic agents or radioactive materials are present. If vehicle is exposed to chemical or biological agents, servicing personnel shall wear protective mask, hood, protective overgarments, and chemical protective gloves and boots in accordance with FM 34. All contaminated air filters shall be placed in double-lined plastic bags and moved swiftly to a segregation area away from the worksite. The same procedure applies for radioactive dust contamination. The Company NBC team should measure radiation prior to filter removal to determine extent of safety procedures required per the NBC Annex to the unit Standard Operating Procedures (SOP). The segregation area in which the contaminated air filters are temporarily stored shall be marked with appropriate NBC placards. Final disposal of contaminated air filters shall be in accordance with local SOP. Decontamination operation shall be in accordance with FM 3-5 and local SOP. Failure to comply may result in serious injury or death to personnel.

a. Intake Air Cleaner Filter Element Removal.

- (1) Unlatch three clasps (1) on cover (2).
- (2) Remove cover (2) from intake air cleaner housing (3).
- (3) Loosen wingnut (4) and remove filter element (5) from intake air cleaner housing (3). Discard filter element.



b. Intake Air Cleaner Filter Element Installation.



NOTE

Wipe inside of intake air cleaner housing with damp wiping rag.

- (1) Position filter element (1) in intake air cleaner housing (2).

CAUTION

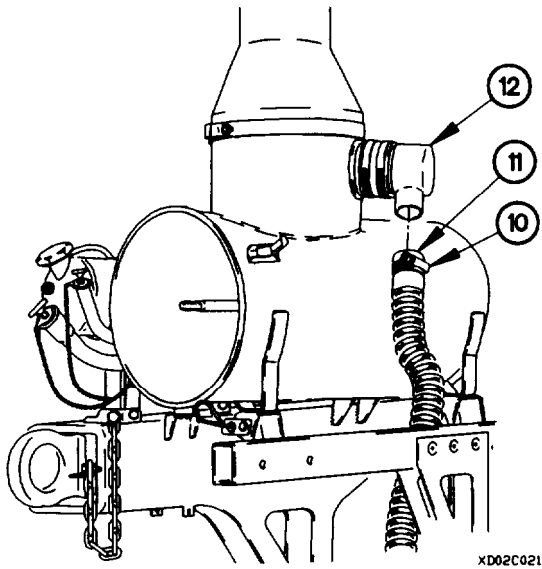
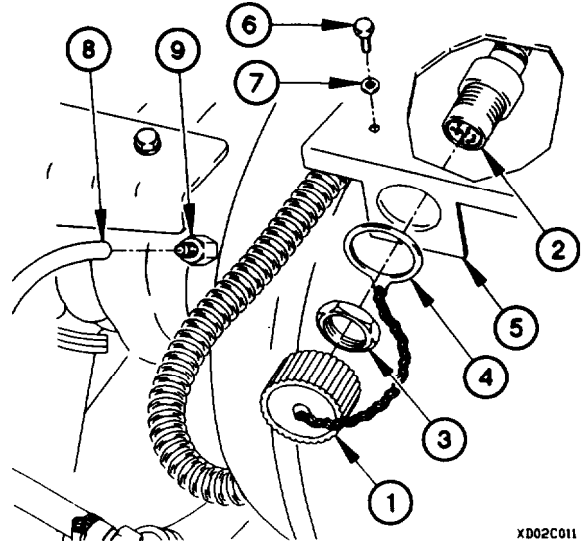
Tighten wingnut securely to prevent air leakage around air cleaner filter element. Do not overtighten. Failure to comply may result in damage to equipment.

- (2) Tighten wingnut (3) on filter element (1).
- (3) Install cover (4) on intake air cleaner housing (2) with three clasps (5).

4-2. INTAKE AIR CLEANER FILTER ELEMENT, AIR CLEANER ASSEMBLY, AND PARTICLE EXTRACTION TUBE REPLACEMENT (CONT)

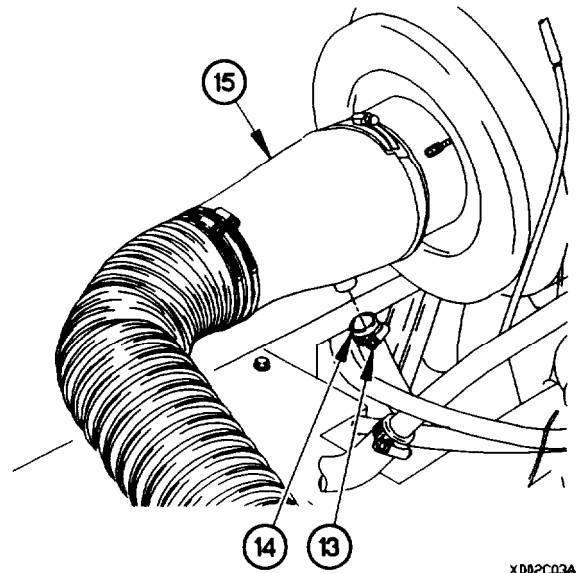
c. Intake Air Cleaner Assembly Removal (except M1091).

- (1) Remove dust cap (1) from connector J106 (2).
- (2) Remove nut (3), dust cap lanyard (4), and connector J106 (2) from chemical detector mounting bracket (5).
- (3) Remove four screws (6) and washers (7) from chemical detector mounting bracket (5).
- (4) Disconnect air filter restriction gauge hose (8) from air flow sensor (9).

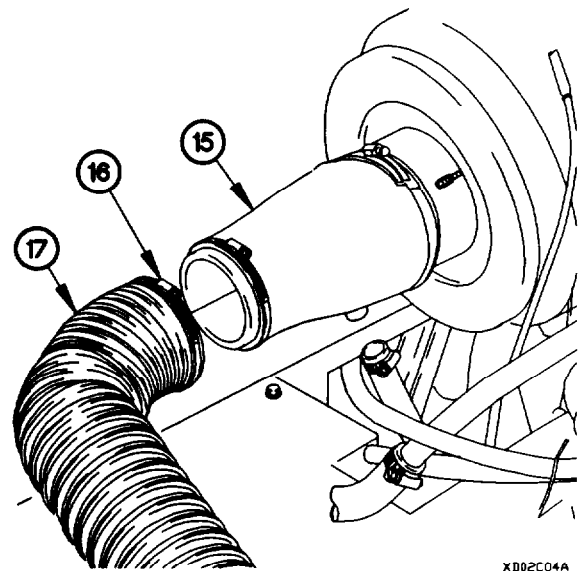


- (5) Loosen clamp (10) on particle extraction hose (11).
- (6) Remove particle extraction hose (11) from adapter (12).

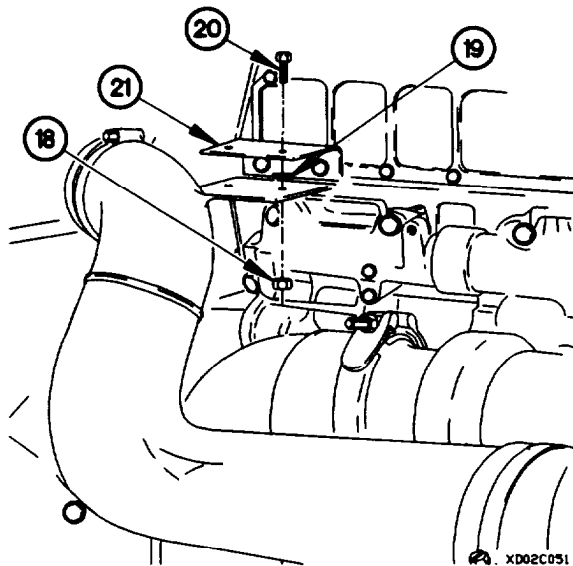
- (7) Loosen clamp (13) on air compressor intake hose (14).
- (8) Remove air compressor intake hose (14) from intake air cleaner boot (15).



- (9) Loosen clamp (16) on turbocharger intake hose (17).
- (10) Remove turbocharger intake hose (17) from intake air cleaner boot (15).



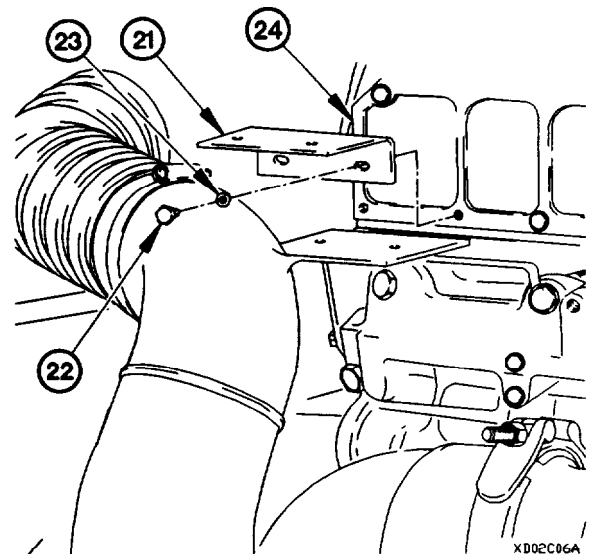
XD02C04A



XD02C051

- (11) Remove two nuts (18), spring washers (19) and screws (20) from bracket (21). Discard spring washers.

- (12) Remove two screws (22), washers (23), and bracket (21) from engine inlet manifold (24).



XD02C06A

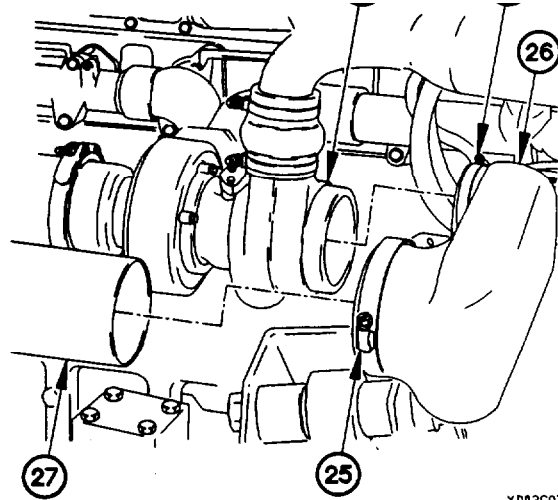
4-2. INTAKE AIR CLEANER FILTER ELEMENT, AIR CLEANER ASSEMBLY, AND PARTICLE EXTRACTION TUBE REPLACEMENT (CONT)

- (13) Loosen clamp (25) on turbocharger inlet coupling (26).
- (14) Remove turbocharger tube (27) from turbocharger inlet coupling (26).
- (15) Loosen clamp (28) on turbocharger inlet coupling (26).

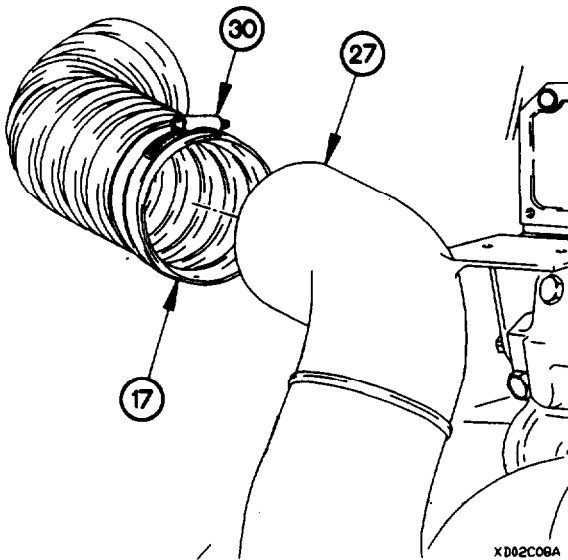
CAUTION

Cover turbocharger inlet with wiping rags after removing turbocharger inlet coupling. Failure to comply may result in damage to equipment.

- (16) Remove turbocharger inlet coupling (26) from turbocharger (29).



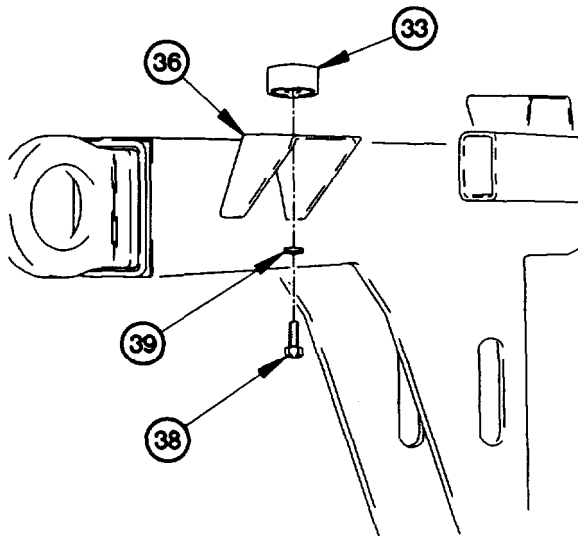
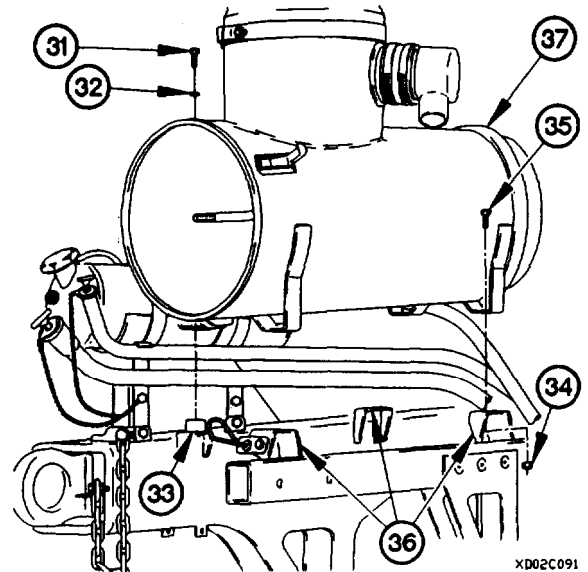
XD02C07A



XD02C08A

- (17) Loosen clamp (30) on turbocharger intake hose (17).
- (18) Remove turbocharger intake hose (17) from turbocharger tube (27).

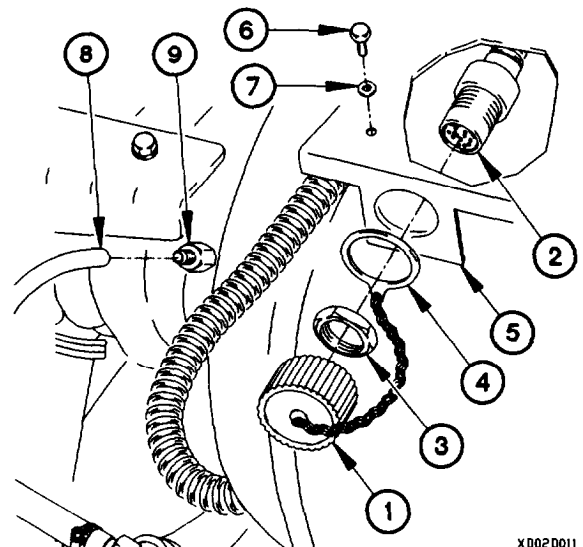
- (19) Remove screw (31) and washer (32) from resilient mount (33).
- (20) Remove three self-locking nuts (34) and screws (35) from mounting brackets (36). Discard self-locking nuts.
- (21) Remove intake air cleaner assembly (37) from three mounting brackets (36) and resilient mount (33).



- (22) Remove screw (38), washer (39), and resilient mount (33) from mounting bracket (36).

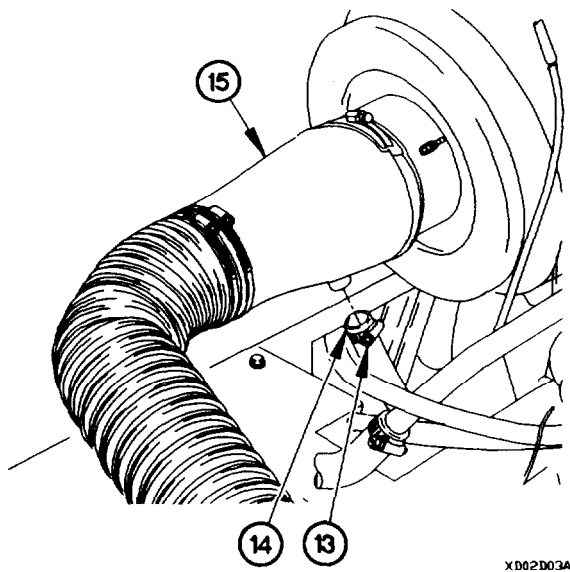
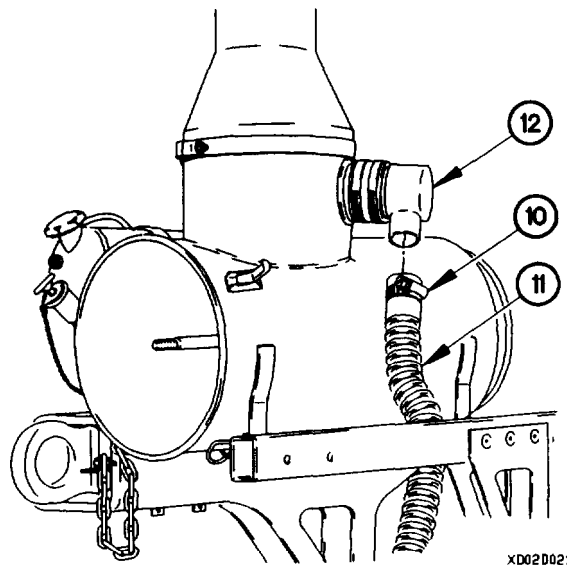
d. M1081 Intake Air Cleaner Assembly Removal.

- (1) Remove dust cap (1) from connector J106 (2).
- (2) Remove nut (3), dust cap lanyard (4), and connector J106 (2) from chemical detector mounting bracket (5).
- (3) Remove four screws (6) and washers (7) from chemical detector mounting bracket (5).
- (4) Disconnect air filter restriction gauge hose (8) from air flow sensor (9).



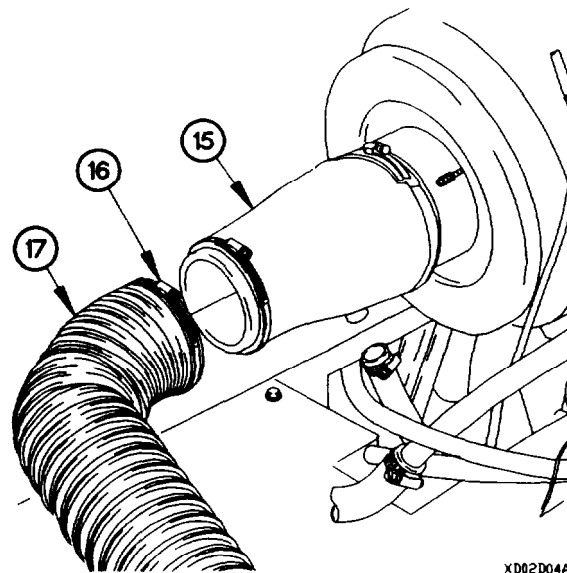
4-2. INTAKE AIR CLEANER FILTER ELEMENT, AIR CLEANER ASSEMBLY, AND PARTICLE EXTRACTION TUBE REPLACEMENT (CONT)

- (5) Loosen clamp (10) on particle extraction hose (11).
- (6) Remove particle extraction hose (11) from adapter (12).

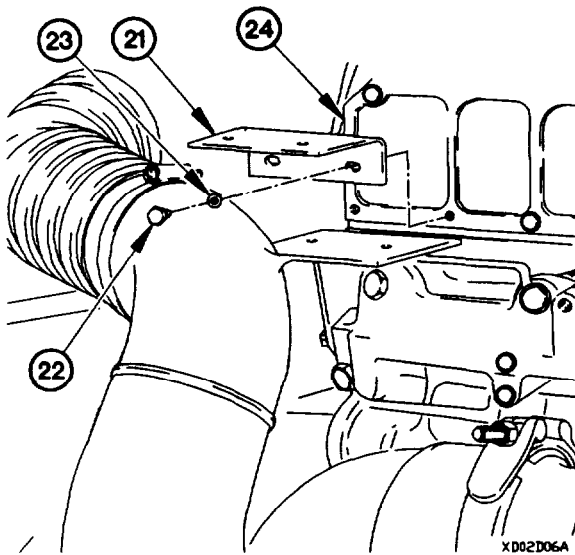
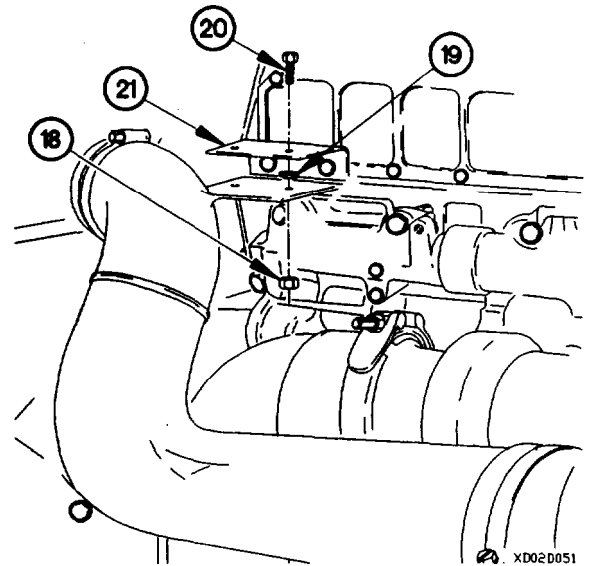


- (7) Loosen clamp (13) on air compressor intake hose (14).
- (8) Remove air compressor intake hose (14) from intake air cleaner boot (15).

- (9) Loosen clamp (16) on turbocharger intake hose (17).
- (10) Remove turbocharger intake hose (17) from intake air cleaner boot (15).



- (11) Remove two nuts (18), spring washers (19), and screws (20) from bracket (21). Discard spring washers.



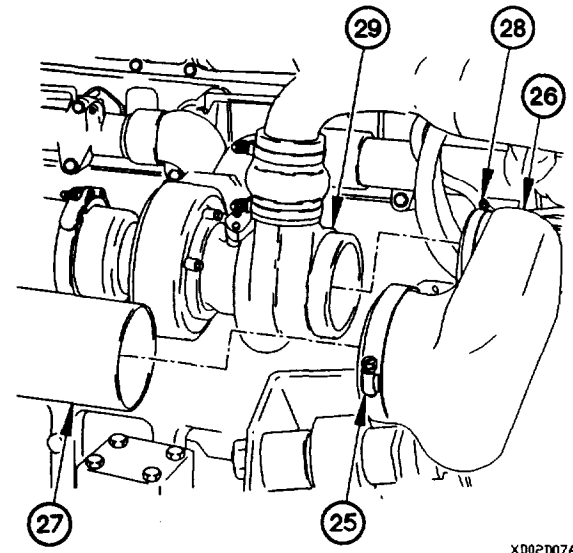
- (12) Remove two screws (22), washers (23), and bracket (21) from engine inlet manifold (24).

- (13) Loosen clamp (25) on turbocharger inlet coupling (26).
 (14) Remove turbocharger tube (27) from turbocharger inlet coupling (26).
 (15) Loosen clamp (28) on turbocharger inlet coupling (26).

CAUTION

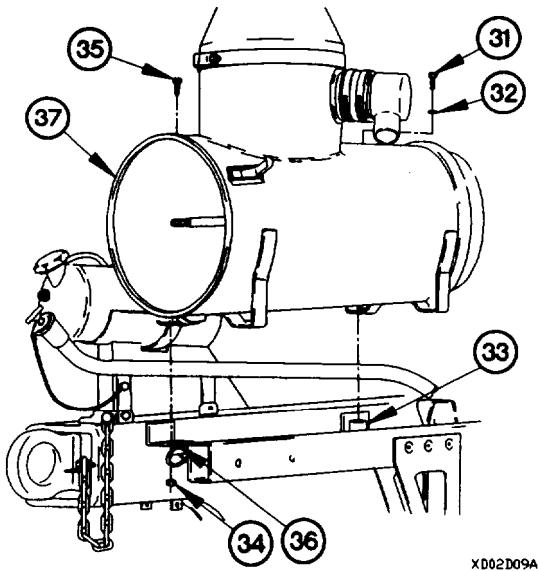
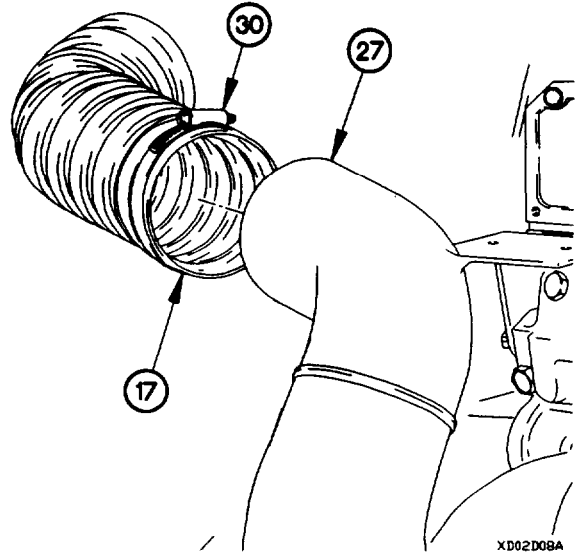
Cover turbocharger inlet with wiping rags after removing turbocharger inlet coupling. Failure to comply may result in damage to equipment.

- (16) Remove turbocharger inlet coupling (26) from turbocharger (29).



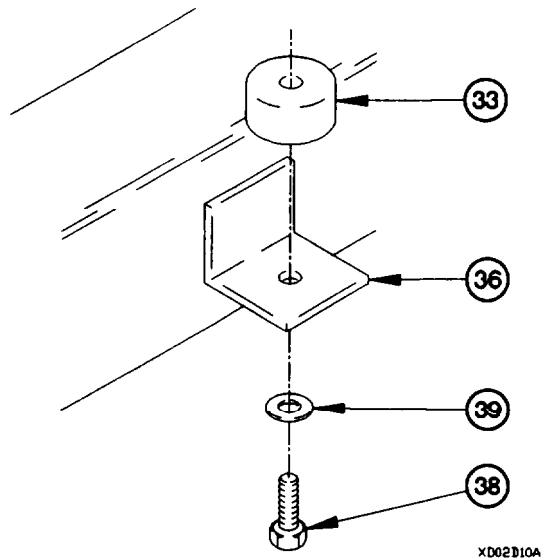
4-2. INTAKE AIR CLEANER FILTER ELEMENT, AIR CLEANER ASSEMBLY, AND PARTICLE EXTRACTION TUBE REPLACEMENT (CONT)

- (17) Loosen clamp (30) on turbocharger intake hose (17).
- (18) Remove turbocharger intake hose (17) from turbocharger tube (27).



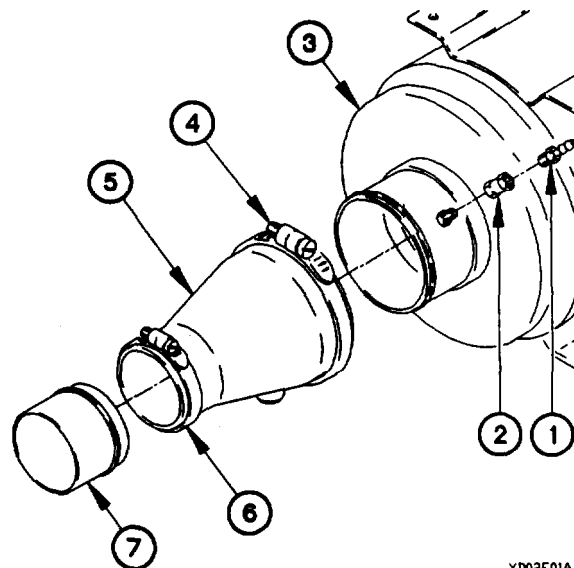
- (19) Remove screw (31) and washer (32) from resilient mount (33).
- (20) Remove three self-locking nuts (34) and screws (35) from mounting brackets (36). Discard self-locking nuts.
- (21) Remove intake air cleaner assembly (37) from mounting brackets (36) and resilient mount (33).

- (22) Remove screw (38), washer (39), and resilient mount (33) from mounting bracket (36).

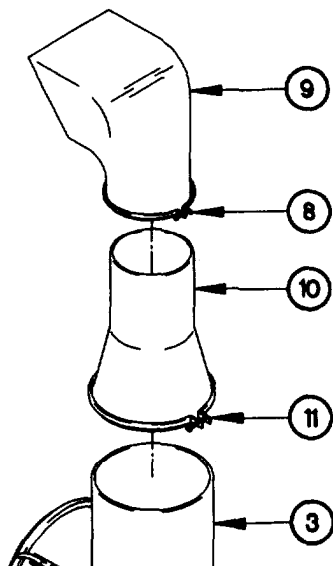


e. Intake Air Cleaner Disassembly.

- (1) Remove air flow sensor (1) from pipe coupling (2).
- (2) Remove pipe coupling (2) from intake air cleaner housing (3).
- (3) Loosen clamp (4) on intake air cleaner boot (5).
- (4) Remove intake air cleaner boot (5) from intake air cleaner housing (3).
- (5) Loosen clamp (6) on intake air cleaner boot (5).
- (6) Remove adapter (7) from intake air cleaner boot (5).



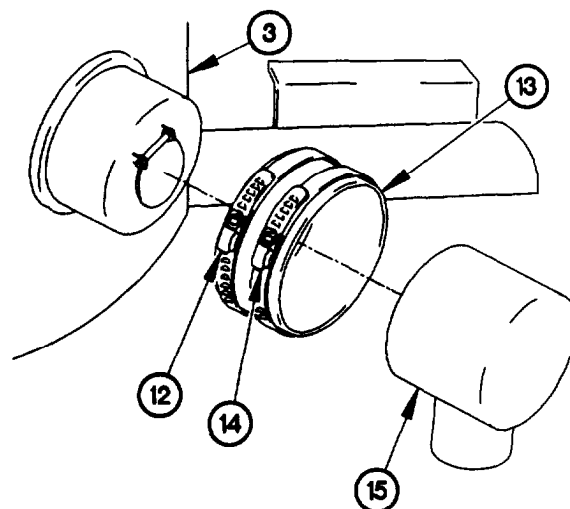
X002E01A



X002E02A

- (7) Loosen clamp (8) on air intake hood (9).
- (8) Remove air intake hood (9) from air intake adapter (10).
- (9) Loosen clamp (11) on air intake adapter (10).
- (10) Remove air intake adapter (10) from intake air cleaner housing (3).

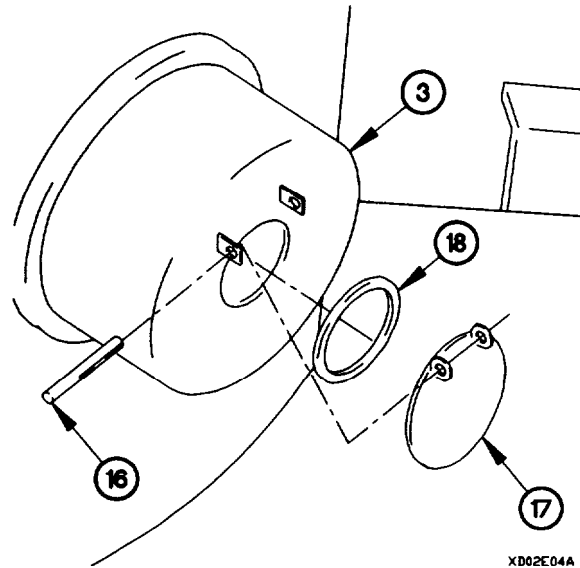
- (11) Loosen clamp (12) on resilient mount (13).
- (12) Remove resilient mount (13) from intake air cleaner housing (3).
- (13) Loosen clamp (14) on resilient mount (13).
- (14) Remove adapter (15) from resilient mount (13).



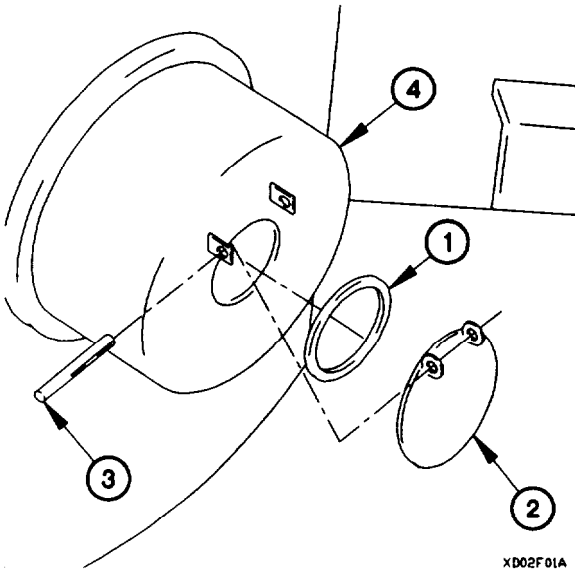
X002E03A

4-2. INTAKE AIR CLEANER FILTER ELEMENT, AIR CLEANER ASSEMBLY, AND PARTICLE EXTRACTION TUBE REPLACEMENT (CONT)

(15) Remove pin (16), air shutter (17), and gasket (18) from intake air cleaner housing (3). Discard gasket.



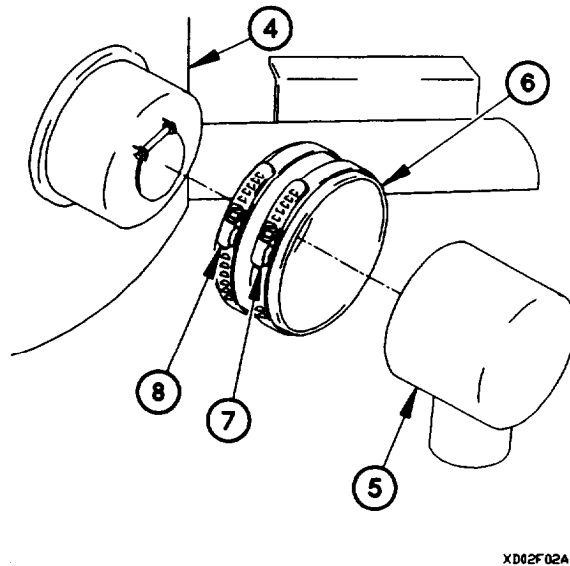
f. Intake Air Cleaner Assembly.



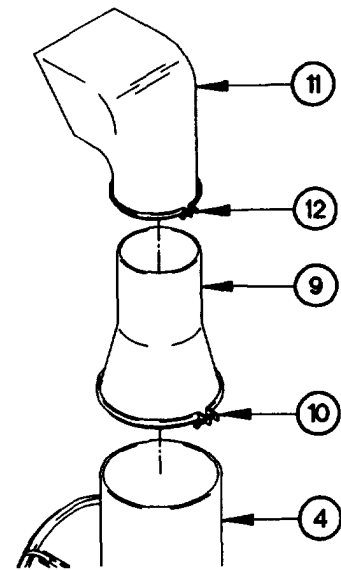
(1) Install gasket (1), air shutter (2), and pin (3) in intake air cleaner housing (4).

(2) Install adapter (5) on resilient mount (6) with clamp (7).

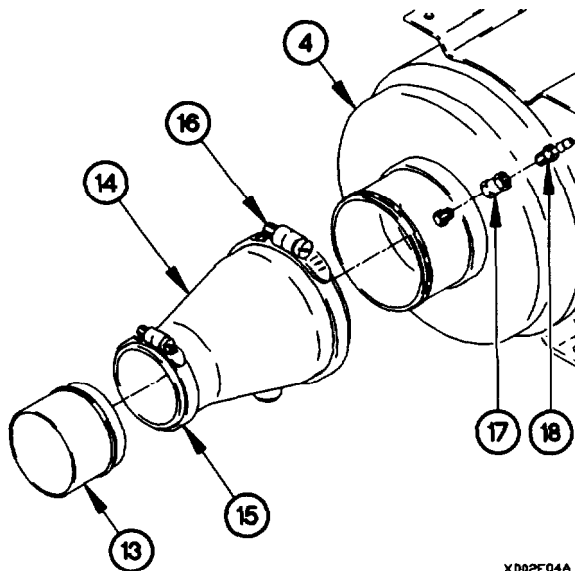
(3) Install resilient mount (6) on intake air cleaner housing (4) with clamp (8).



- (4) Position air intake adapter (9) on intake air cleaner housing (4) with clamp (10).
- (5) Tighten clamp (10) to 72-96 lb-in. (8-11 N•m).
- (6) Position air intake hood (11) on air intake adapter (9) with clamp (12).
- (7) Tighten clamp (12) to 72-96 lb-in. (8-11 N•m).



XD02F03A

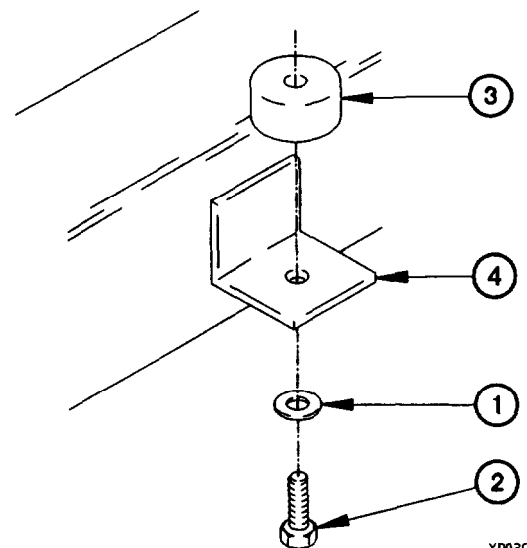


XD02F04A

- (8) Install adapter (13) in intake air cleaner boot (14) with clamp (15).
- (9) Position intake air cleaner boot (14) on intake air cleaner housing (4) with clamp (16).
- (10) Tighten clamp (16) to 36-48 lb-in. (4-5 N•m).
- (11) Install pipe coupling (17) in intake air cleaner housing (4).
- (12) Install air flow sensor (18) in pipe coupling (17).

g. M1081 Intake Air Cleaner Assembly Installation.

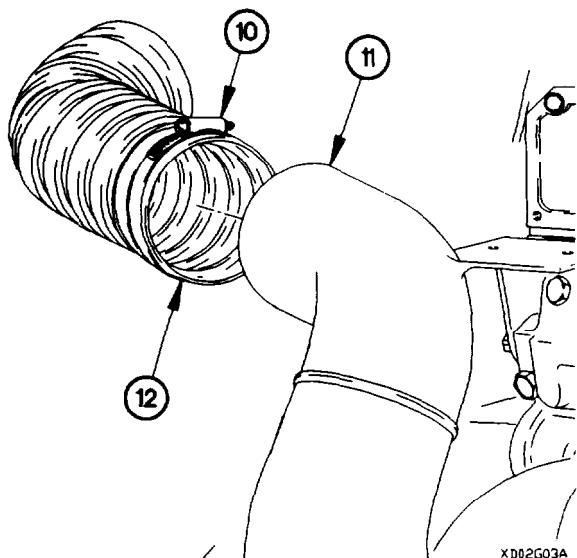
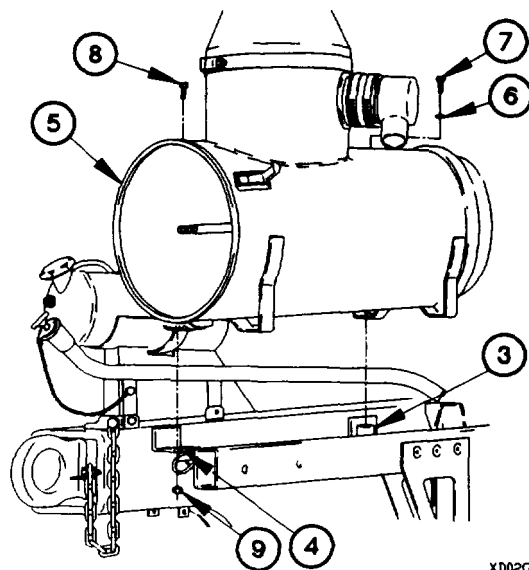
- (1) Position washer (1), screw (2), and resilient mount (3) on mounting bracket (4).
- (2) Tighten screw (2) to 40-46 lb-ft (54-62 N•m).



XD02G01A

4-2. INTAKE AIR CLEANER FILTER ELEMENT, AIR CLEANER ASSEMBLY, AND PARTICLE EXTRACTION TUBE REPLACEMENT (CONT)

- (3) Position intake air cleaner assembly (5) on mounting brackets (4).
- (4) Position washer (6) and screw (7) in resilient mount (3).
- (5) Position three screws (8) and self-locking nuts (9) in mounting brackets (4).
- (6) Tighten screw (7) to 40-52 lb-ft (54-70 N•m).
- (7) Tighten three self-locking nuts (9) to 40-52 lb-ft (54-70 N•m).

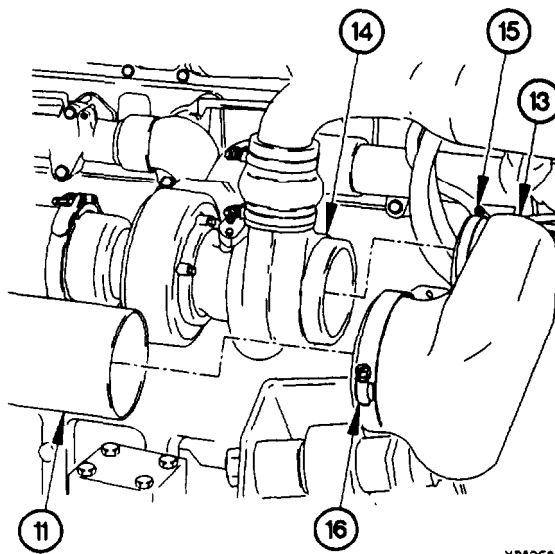


- (8) Position turbocharger intake hose (10) on turbocharger tube (11) with clamp (12).
- (9) Tighten clamp (12) to 36-48 lb-in. (4-5 N•m).

CAUTION

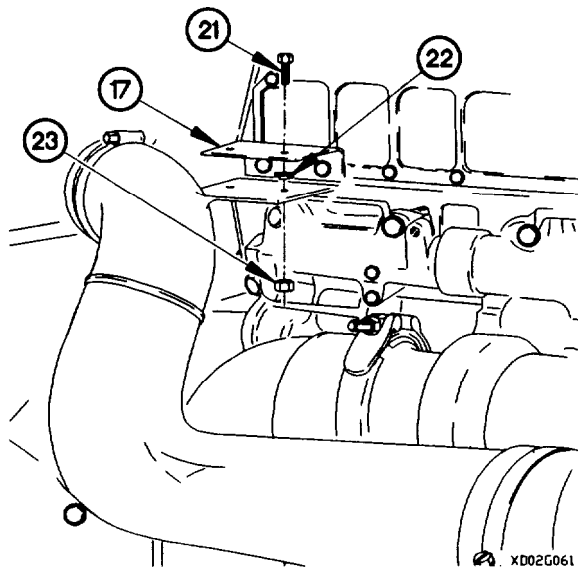
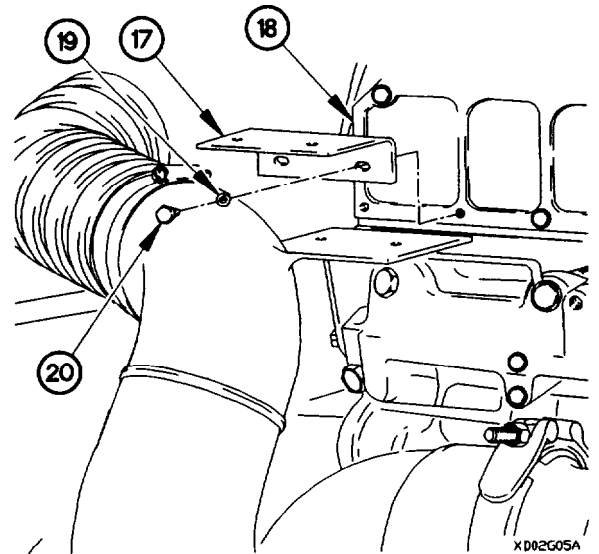
Distance between front edge of air duct and alternator fan shroud must be no less than 0.5 in. (1.27 cm). Failure to comply may result in damage to equipment.

- (10) Position air duct (13) on turbocharger (14) with clamp (15).
- (11) Tighten clamp (15) to 21-25 lb-in. (2-3 N•m).
- (12) Position turbocharger tube (11) in air duct (13) with clamp (16).
- (13) Tighten clamp (16) to 36-48 lb-in. (4-5 N•m).



(14) Position bracket (17) on engine inlet manifold (18) with two washers (19) and screws (20).

(15) Tighten two screws (20) to 15-25 lb-ft (20-34 N•m).

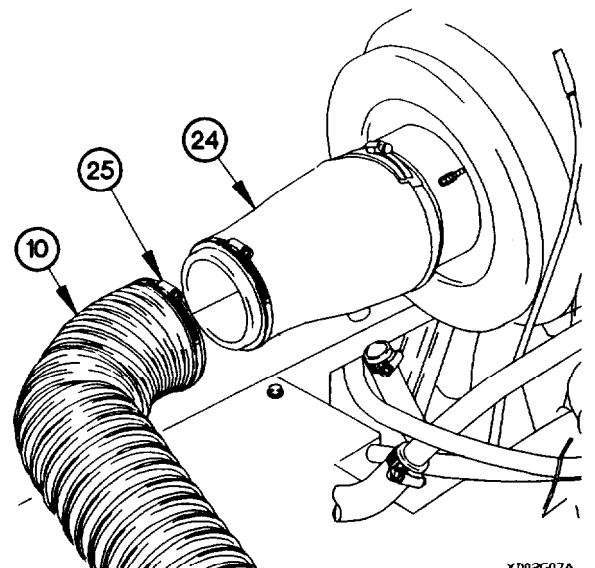


(16) Position two screws (21), spring washers (22), and nuts (23) in bracket (17).

(17) Tighten two nuts (23) to 22-26 lb-ft (30-35 N•m).

(18) Position turbocharger intake hose (10) on intake air cleaner boot (24) with clamp (25).

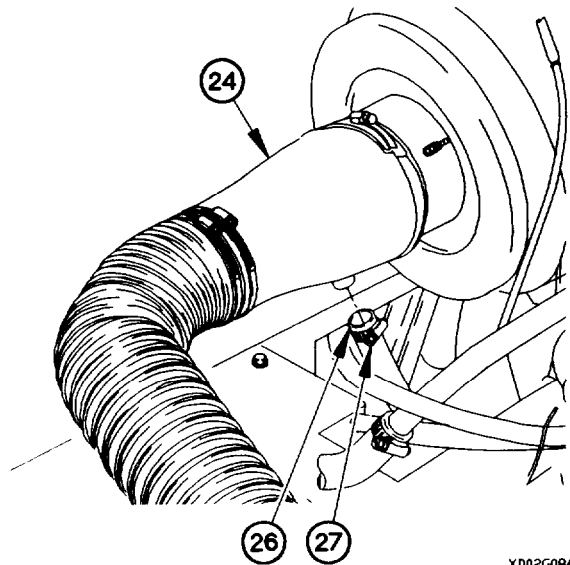
(19) Tighten clamp (25) to 36-48 lb-in. (4-5 N•m).



4-2. INTAKE AIR CLEANER FILTER ELEMENT, AIR CLEANER ASSEMBLY, AND PARTICLE EXTRACTION TUBE REPLACEMENT (CONT)

(20) Position air compressor intake hose (26) on intake air cleaner boot (24) with clamp (27).

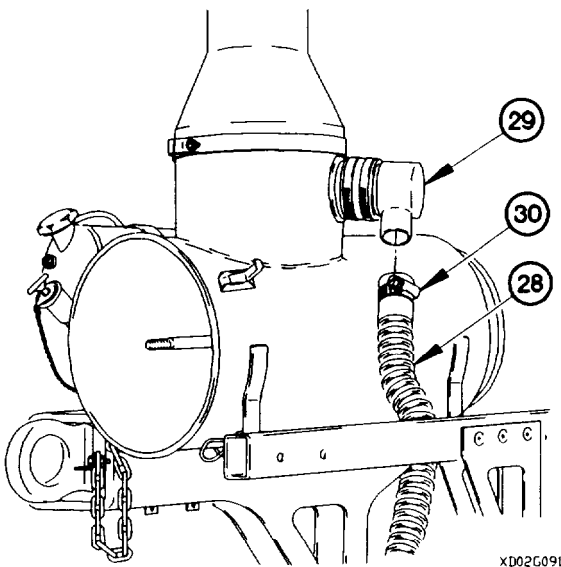
(21) Tighten clamp (27) to 36-48 lb-in. (4-5 N•m).



XD02G08A

(22) Position particle extraction hose (28) on adapter (29) with clamp (30).

(23) Tighten clamp (30) to 36-48 lb-in. (4-5 N•m).



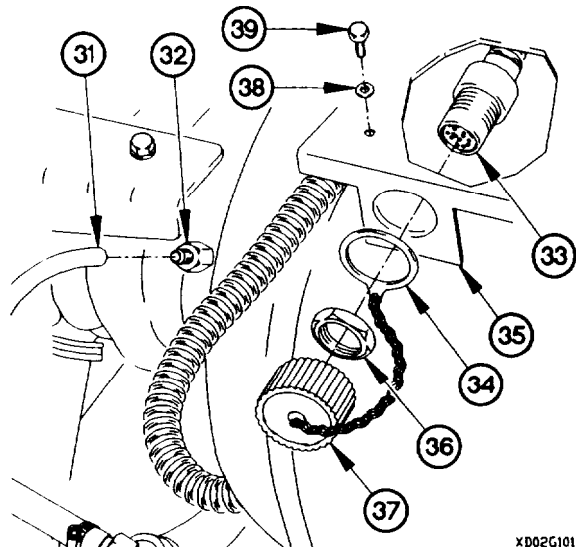
XD02G09I

(24) Connect air filter restriction gauge hose (31) to air flow sensor (32).

(25) Install connector J106 (33) and dust cap lanyard (34) on chemical detector mounting bracket (35) with nut (36).

(26) Install dust cap (37) on connector J106 (33).

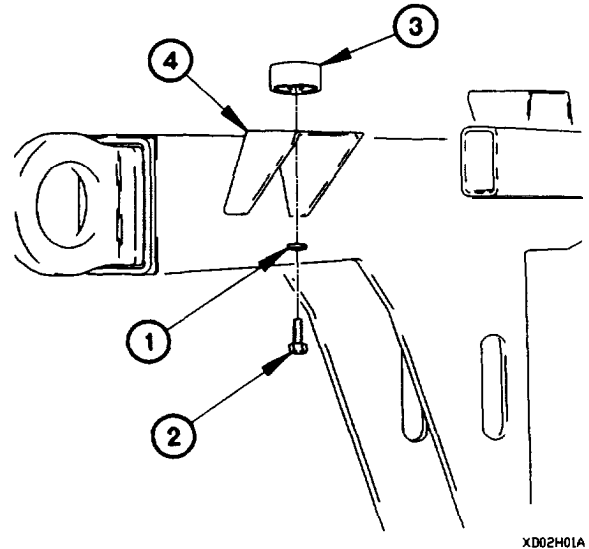
(27) Install four washers (38) and screws (39) in chemical detector mounting bracket (35).



XD02G10I

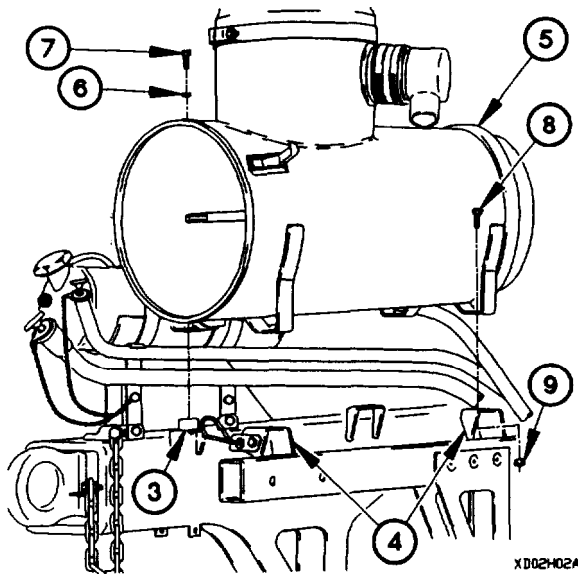
h. Intake Air Cleaner Assembly Installation (except M1081).

- (1) Position washer (1), screw (2), and resilient mount (3) on mounting bracket (4).
- (2) Tighten screw (2) to 40-52 lb-ft (54-70 N•m).



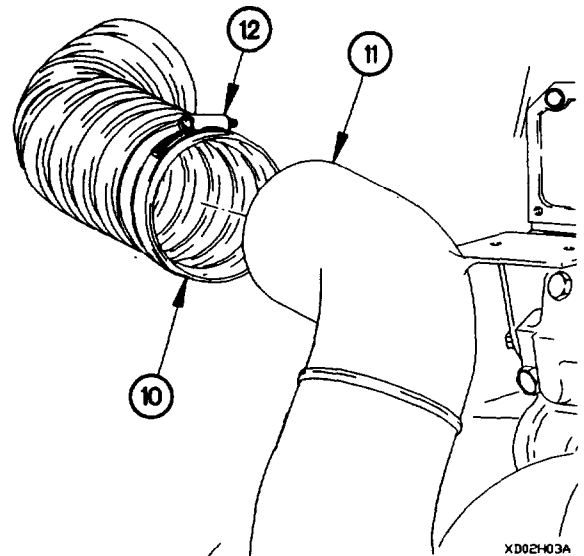
XD02H01A

- (3) Position intake air cleaner housing (5) on mounting brackets (4).
- (4) Position washer (6) and screw (7) in resilient mount (3).
- (5) Position three screws (8) and self-locking nuts (9) in mounting brackets (4).
- (6) Tighten screw (7) to 40-52 lb-ft (54-70 N•m).
- (7) Tighten three self-locking nuts (9) to 43-52 lb-ft (58-70 N•m).



XD02H02A

- (8) Position turbocharger intake hose (10) on turbocharger tube (11) with clamp (12).
- (9) Tighten clamp (12) to 36-48 lb-in. (4-5 N•m).



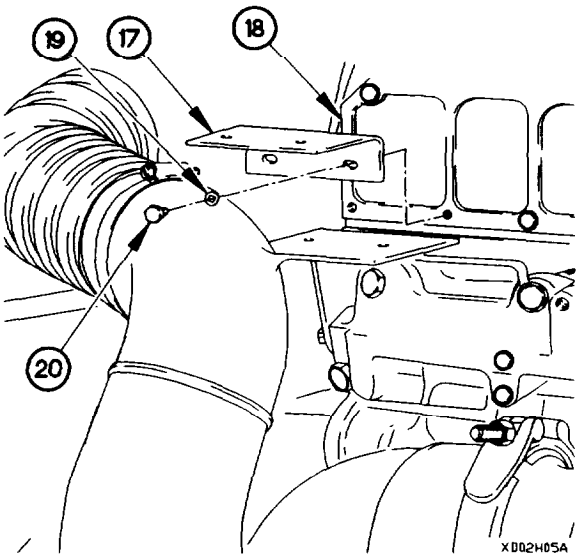
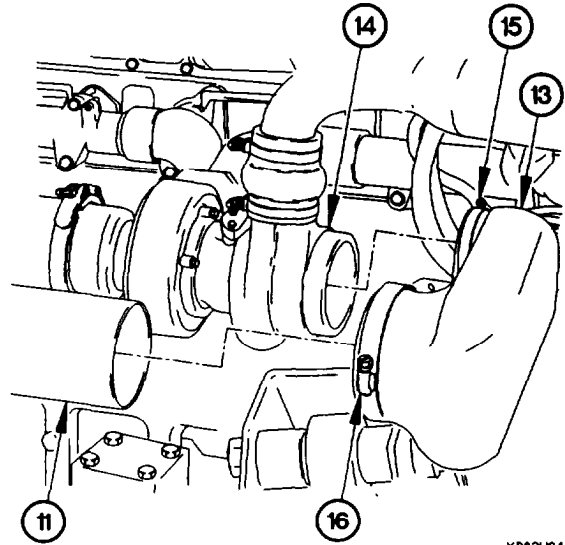
XD02H03A

4-2. INTAKE AIR CLEANER FILTER ELEMENT, AIR CLEANER ASSEMBLY, AND PARTICLE EXTRACTION TUBE REPLACEMENT (CONT)

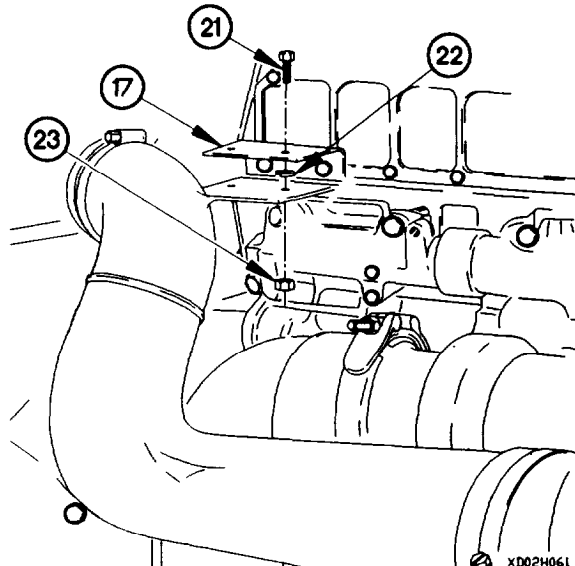
CAUTION

Distance between front edge of air duct and alternator fan shroud must be no less than 0.5 in. (1.27 cm). Failure to comply may result in damage to equipment.

- (10) Position air duct (13) on turbocharger (14) with clamp (15).
- (11) Tighten clamp (15) to 21-25 lb-in. (2-3 N•m).
- (12) Position turbocharger tube (11) in air duct (13) with clamp (16).
- (13) Tighten clamp (16) to 36-48 lb-in. (4-5 N•m).



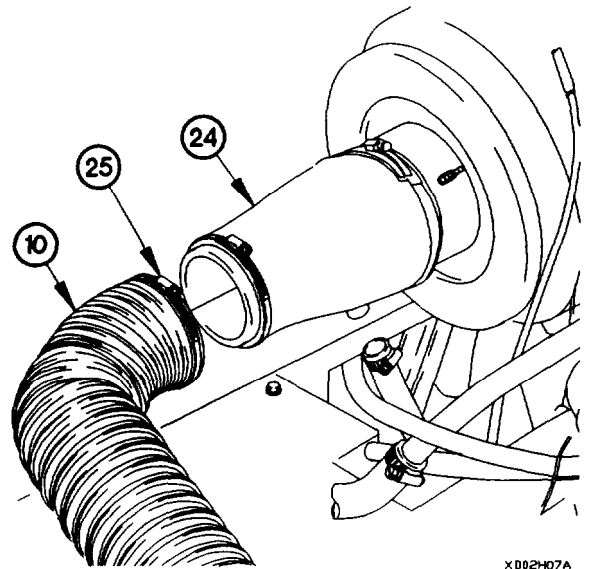
- (14) Position bracket (17) on engine inlet manifold (18) with two washers (19) and screws (20).
- (15) Tighten two screws (20) to 15-25 lb-ft (20-34 N•m).



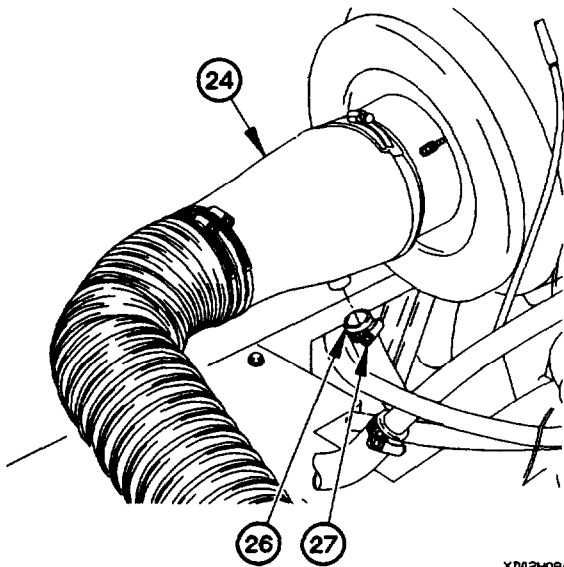
- (16) Position two screws (21), spring washers (22), and nuts (23) in bracket (17).
- (17) Tighten two nuts (23) to 22-26 lb-ft (30-35 N•m).

(18) Position turbocharger intake hose (10) on intake air cleaner boot (24) with clamp (25).

(19) Tighten clamp (25) to 36-48 lb-in. (4-5 N•m).



XD02H07A



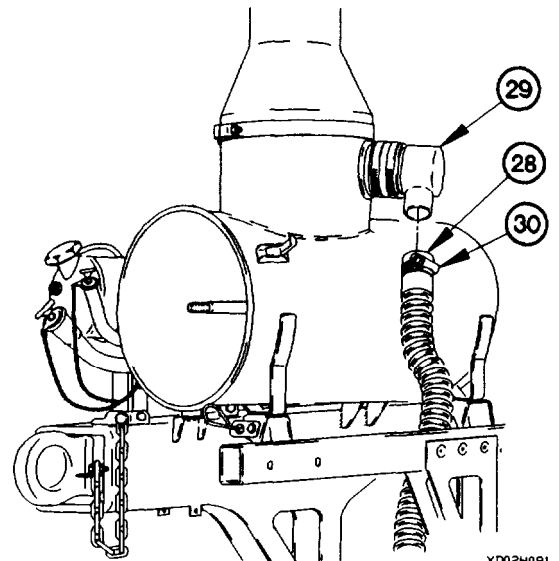
XD02H08A

(20) Position air compressor intake hose (26) on intake air cleaner boot (24) with clamp (27).

(21) Tighten clamp (27) to 36-48 lb-in. (4-5 N•m).

(22) Position particle extraction hose (28) on adapter (29) with clamp (30).

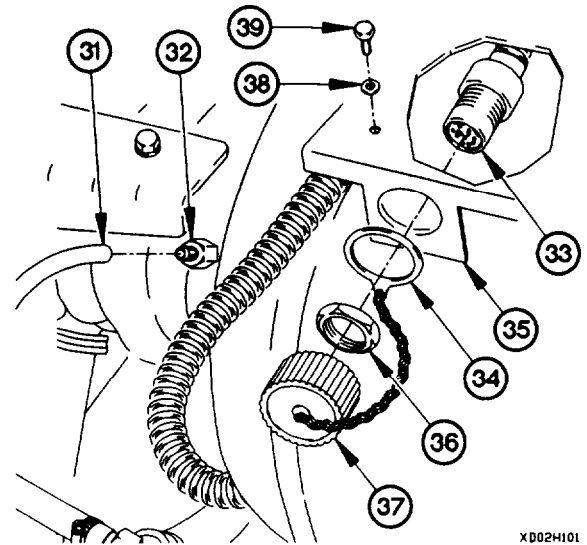
(23) Tighten clamp (30) to 36-48 lb-in. (4-5 N•m).



XD02H091

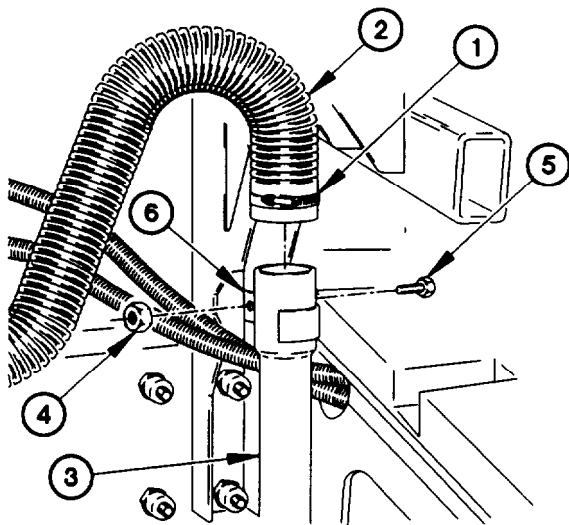
4-2. INTAKE AIR CLEANER FILTER ELEMENT, AIR CLEANER ASSEMBLY, AND PARTICLE EXTRACTION TUBE REPLACEMENT (CONT)

- (24) Connect air filter restriction gauge hose (31) to air flow sensor (32).
- (25) Install connector J106 (33) and dust cap lanyard (34) on chemical detector mounting bracket (35) with nut (36).
- (26) Install dust cap (37) on connector J106 (33).
- (27) Install four washers (38) and screws (39) in chemical detector mounting bracket (35).



XD02H101

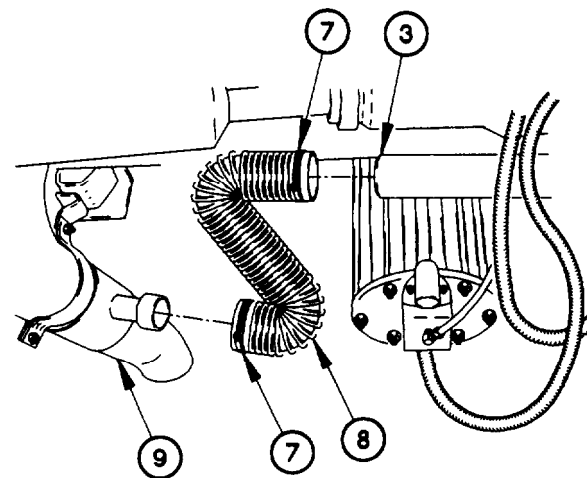
i. Particle Extraction Tube Removal.



XD02101A

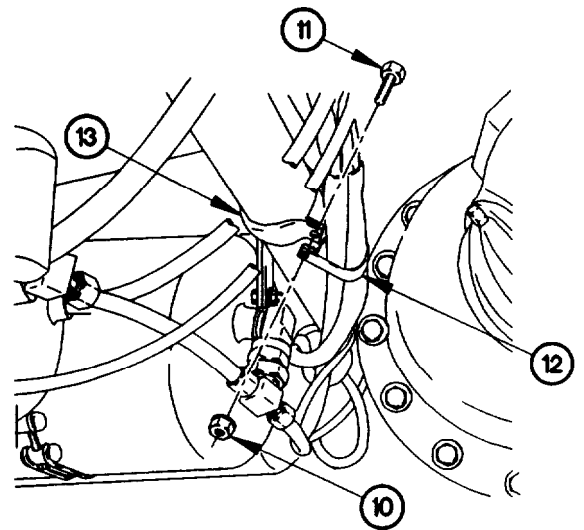
- (1) Loosen clamp (1) on particle extraction hose (2).
- (2) Remove particle extraction hose (2) from particle extraction tube (3).
- (3) Remove self-locking nut (4) and screw (5) from bracket (6). Discard self-locking nut.

- (4) Loosen two clamps (7) on particle extraction hose (8).
- (5) Remove particle extraction hose (8) from particle extraction tube (3) and tailpipe (9).

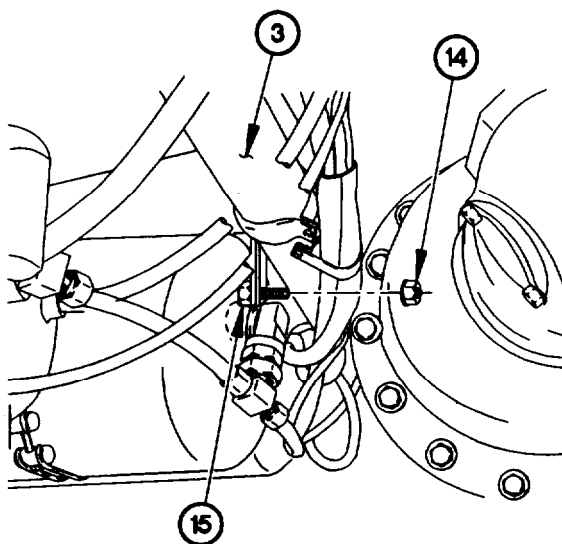


XD02102A

(6) Remove self-locking nut (10), screw (11), and Clamp (12) from clamp (13). Discard self-locking nut.



XD02103A



XD02104A

(7) Remove self-locking nut (14) from screw (15). Discard self-locking nut.

CAUTION

Use care when removing particle extraction tube from vehicle. Failure to comply may result in damage to equipment.

NOTE

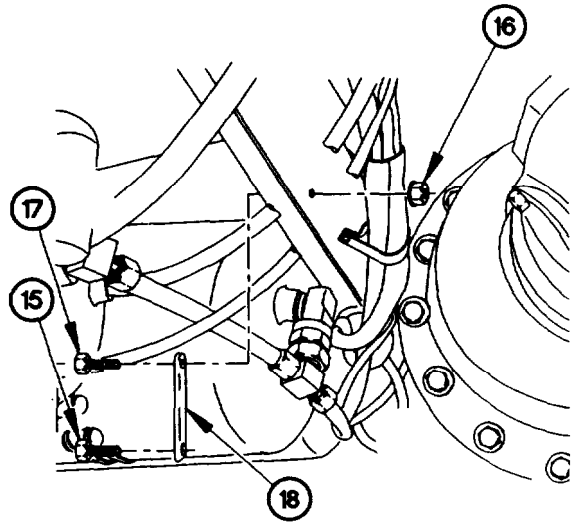
- Step (8) requires the aid of an assistant.
- Remove particle extraction tube toward front of vehicle.

(8) Remove particle extraction tube (3) from vehicle.

4-2. AIR CLEANER FILTER ELEMENT, AIR CLEANER ASSEMBLY, AND PARTICLE EXTRACTION TUBE REPLACEMENT (CONT)

(9) Remove self-locking nut (16), screw (17), bracket (18), and screw (15) from vehicle. Discard self-locking nut.

j. Particle Extraction Tube Installation.



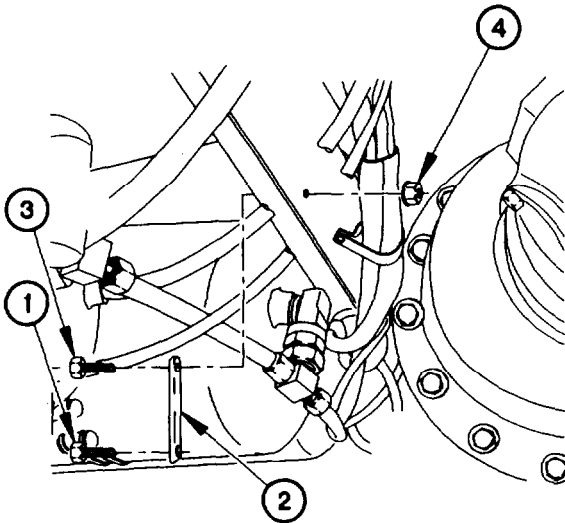
XD02105A

(1) Position screw (1), bracket (2), screw (3), and self-locking nut (4) on vehicle.

NOTE

Steps (2) through (5) require the aid of an assistant.

(2) Tighten self-locking nut (4) to 46-58 lb-ft (62-79 N•m).



XD02 J01A

CAUTION

Use care when installing particle extraction tube on vehicle. Failure to comply may result in damage to equipment.

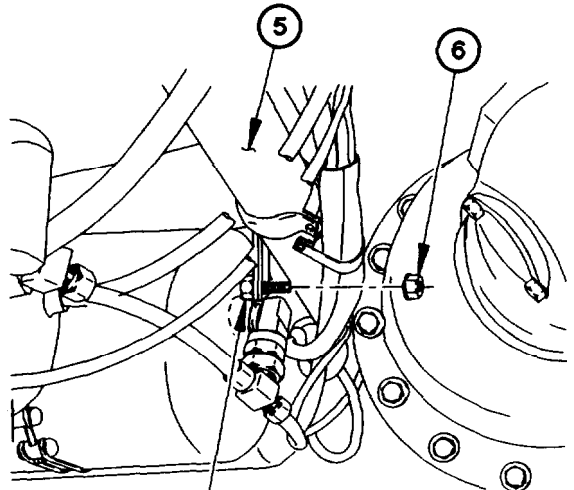
NOTE

Install particle extraction tube from front of vehicle.

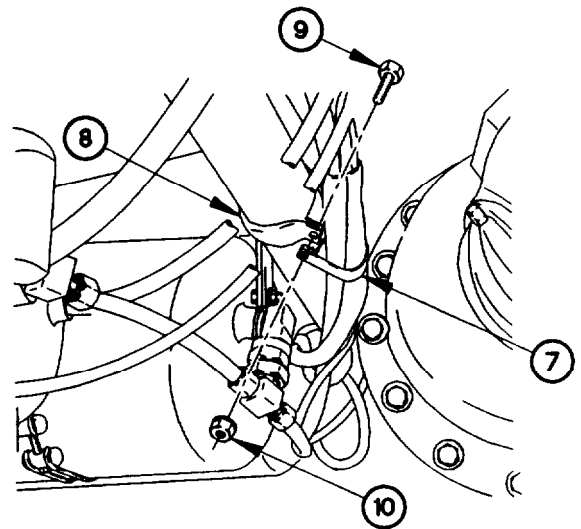
(3) Position particle extraction tube (5) on vehicle.

(4) Position self-locking nut (6) on screw (1).

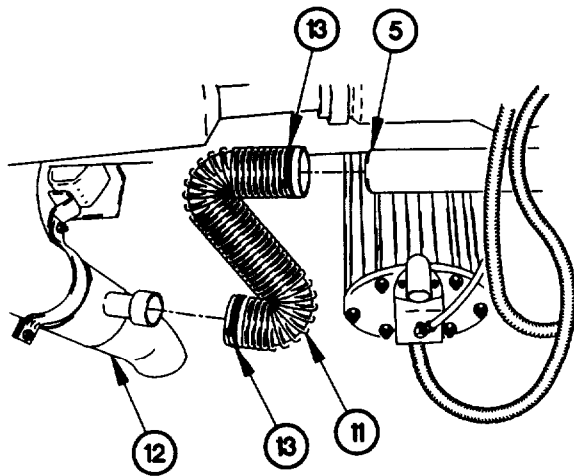
(5) Tighten self-locking nut (6) to 46-58 lb-ft (62-79 N•m).



- (6) Position clamp (7) on clamp (8) with screw (9) and self-locking nut (10).
- (7) Tighten self-locking nut (10) to 46-58 lb-ft (62-79 N•m).



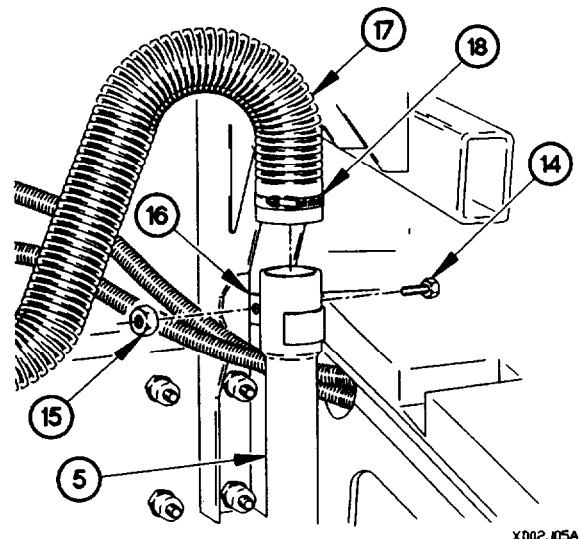
X1002_03A



X1002_04A

- (8) Position particle extraction hose (11) on tailpipe (12) and particle extraction tube (5) with two clamps (13).
- (9) Tighten clamp (13) to 36-48 lb-in. (4-5 N•m).

- (10) Position screw (14) and self-locking nut (15) on bracket (16).
- (11) Tighten self-locking nut (15) to 46-58 lb-ft (62-79 N•m).
- (12) Position particle extraction hose (17) on particle extraction tube (5) with clamp (18).
- (13) Tighten clamp (18) to 36-48 lb-in. (4-5 N•m).



X1002_05A

4-2. INTAKE AIR CLEANER FILTER ELEMENT, AIR CLEANER ASSEMBLY, AND PARTICLE EXTRACTION TUBE REPLACEMENT (CONT)

k. Follow-On Maintenance.

- (1) Install transmission oil fill tube (M1081 only) (para 8-13).
- (2) Install chemical detection unit, if equipped (TM 3-6665-225-12).
- (3) Connect batteries (para 7-48).
- (4) Lower cab (TM 9-2320-365-10).
- (5) Start engine (TM 9-2320-365-10).
- (6) Check for air leaks around hose and tube connections.
- (7) Check AIR FILTER RESTRICTION GAUGE (TM 9-2320-365-10).
- (8) Shut down engine (TM 9-2320-365-10).

End of Task.

4-3. FUEL PRESSURE REGULATING VALVE REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

- Engine shut down (TM 9-2320-365-10).
- Cab raised (TM 9-2320-365-10).

Tools and Special Tools

- Tool Kit, Genl Mech (Item 44, Appendix C)

Materials/Parts

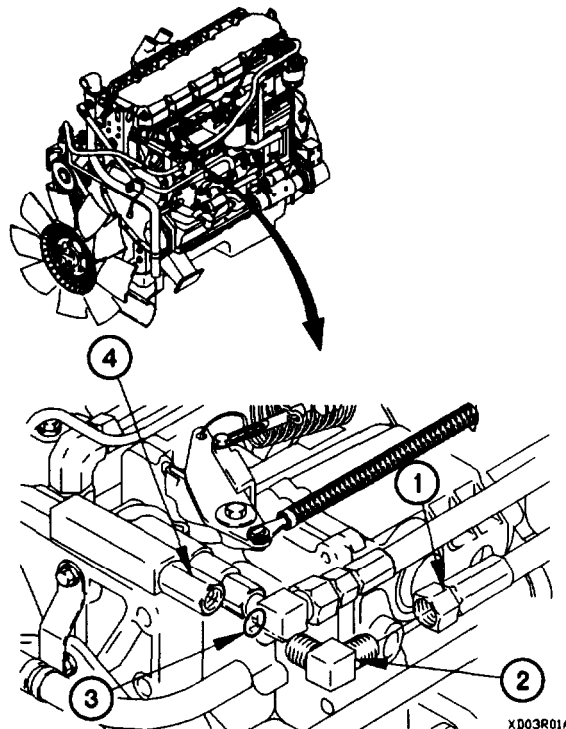
- Packing, Preformed (Item 187, Appendix G)
- Packing, Preformed (Item 180, Appendix G)
- Packing, Preformed (Item 177, Appendix G)

WARNING

Diesel fuel is flammable. If fuel is spilled, clean it up immediately. Failure to comply may result in serious injury or death to personnel.

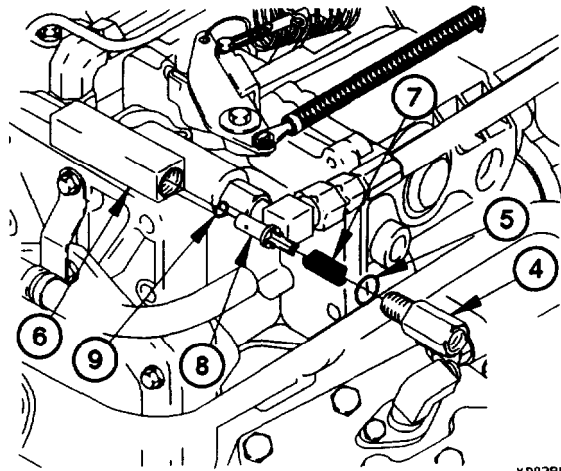
a. Removal.

- (1) Disconnect fuel return hose assembly (1) from 90-degree fitting (2).
- (2) Remove 90-degree fitting (2) and preformed packing (3) from adapter (4). Discard preformed packing.



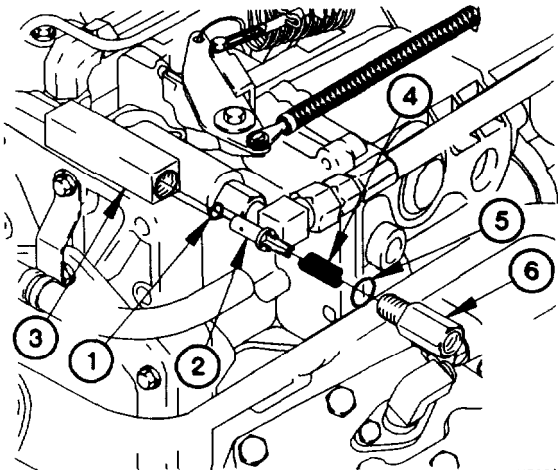
4-3. FUEL PRESSURE REGULATING VALVE REPLACEMENT (CONT)

- (3) Remove adapter (4) and preformed packing (5) from tube assembly (6). Discard preformed packing.
- (4) Remove spring (7) from tube assembly (6).
- (5) Remove fuel pressure regulating valve (8) and preformed packing (9) from tube assembly (6). Discard preformed packing.



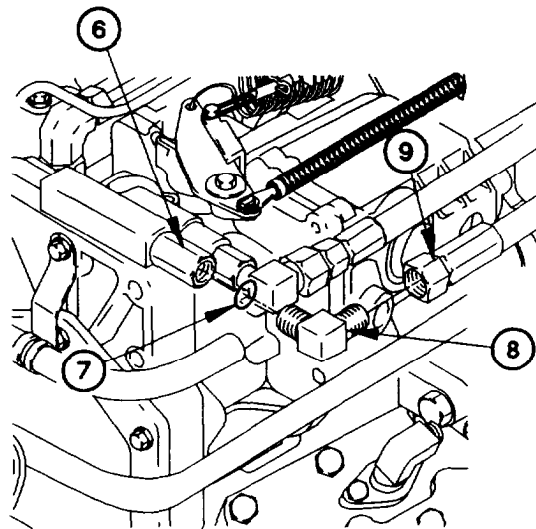
XD03R02A

b. Installation.



XD03I01A

- (1) Install preformed packing (1) and fuel pressure regulating valve (2) in tube assembly (3).
- (2) Install spring (4) in tube assembly (3).
- (3) Install preformed packing (5) and adapter (6) in tube assembly (3).



XD03I02A

- (4) Install preformed packing (7) and 90-degree fitting (8) in adapter (6).
- (5) Connect fuel return hose assembly (9) to 90-degree fitting (8).

c. Follow-On Maintenance.

- (1) Lower cab (TM 9-2320-365-10).
- (2) Start engine (TM 9-2320-365-10).
- (3) Raise cab (TM 9-2320-365-10).
- (4) Check for fuel leaks around regulating valve.
- (5) Check that engine runs smoothly at low idle speed.
- (6) Check that engine runs smoothly at high idle speed.
- (7) Lower cab (TM 9-2320-365-10).
- (8) Shut down engine (TM 9-2320-365-10).

End of Task.

4-4. TURBOCHARGER TO CHARGE AIR COOLER TUBE AND HOSES REPLACEMENT

This task covers

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Engine shut down (TM 9-2320-365-10).
Cab raised (TM 9-2320-365-10).

Materials/Parts

Cap and Plug Set (Item 15, Appendix D)

Tools and Special Tools

Tool Kit, Genl Mech (Item 44, Appendix C)
Wrench, Torque, 0-200 lb-in. (Item 58, Appendix C)
Socket Set, Socket Wrench (Item 35, Appendix C)

a. Removal.

NOTE

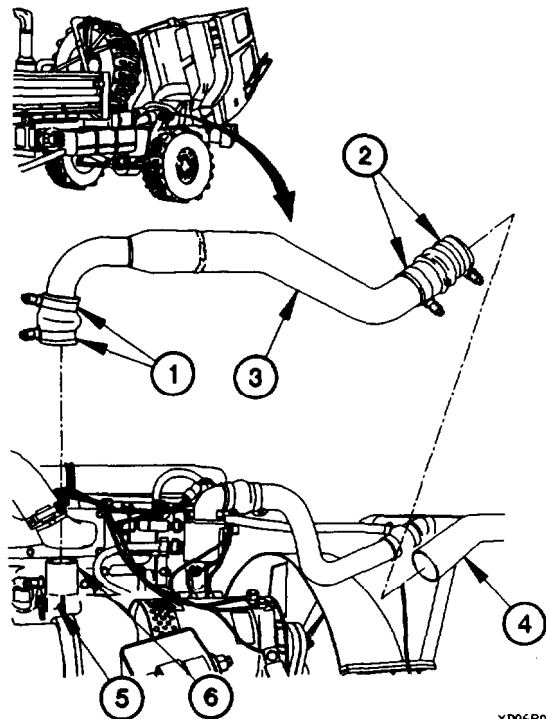
Note position of clamps prior to removal.

- (1) Loosen two hose clamps (1) and hose clamps (2) on turbocharger to charge air cooler tube (3).
- (2) Remove turbocharger to charge air cooler tube (3) from charge air cooler (4) and turbocharger (5).

CAUTION

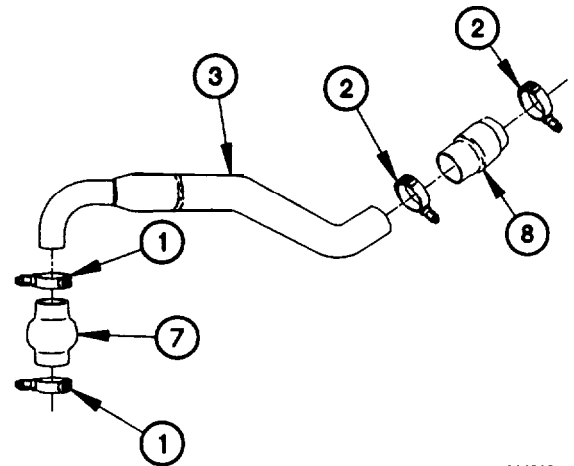
Cap or plug turbocharger outlet and charge air cooler inlet to prevent contamination of engine intake air system. Failure to comply may result in damage to equipment.

- (3) Cap or plug turbocharger outlet (6) and charge air cooler inlet (4).



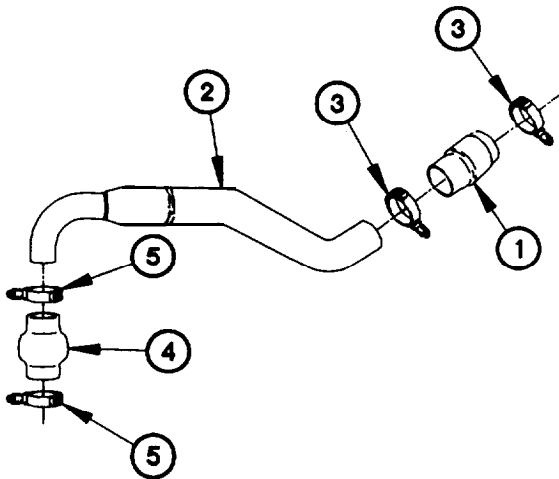
XD06R01A

- (4) Remove two clamps (1) and hose (7) from turbocharger to charge air cooler tube (3).
- (5) Remove two clamps (2) and hose (8) from turbocharger to charge air cooler tube (3).



XD06R02-

b. Installation.



XD06101A

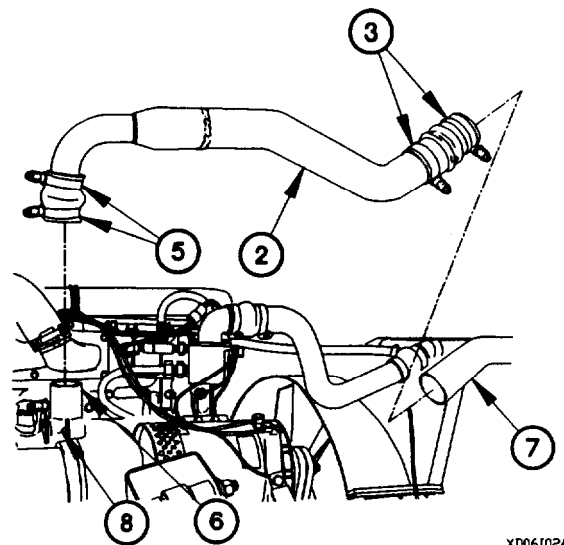
- (1) Position hose (1) on turbocharger to charge air cooler tube (2) with two clamps (3).
- (2) Position hose (4) on turbocharger to charge air cooler tube (2) with two clamps (5).

- (3) Remove caps or plugs from turbocharger outlet (6) and charge air cooler inlet (7).

CAUTION

Clamps at charge air cooler end of turbocharger to charge air cooler tube must be oriented as noted in removal. Failure to comply may result in damage to equipment.

- (4) Position turbocharger to charge air cooler tube (2) on charge air cooler (7) and turbocharger (8).
- (5) Tighten two hose clamps (2) and hose clamps (5) to 90-100 lb-in. (10-11 N•m).



XD06102A

**4-4. TURBOCHARGER TO CHARGE AIR COOLER TUBE AND HOSES REPLACEMENT
(CONT)**

c. Follow-On Maintenance.

- (1) Lower cab (TM 9-2320-365-10).
- (2) Start engine (TM 9-2320-365-10).
- (3) Raise cab (TM 9-2320-365-10).
- (4) Check for air leaks around turbocharger to charge air cooler tube.
- (5) Lower cab (TM 9-2320-365-10).
- (6) Shut down engine (TM 9-2320-365-10).

End of Task.

4-5. CHARGE AIR COOLER TO AIR INLET ELBOW TUBES AND HOSES REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Engine shut down (TM 9-2320-365-10).
Cab raised (TM 9-2320-365-10).

Tools and Special Tools

Tool Kit, Genl Mech (Item 44, Appendix C)
Screwdriver Attachment, Socket Wrench (Item 46, Appendix B)

Tools and Special Tools (Cont)

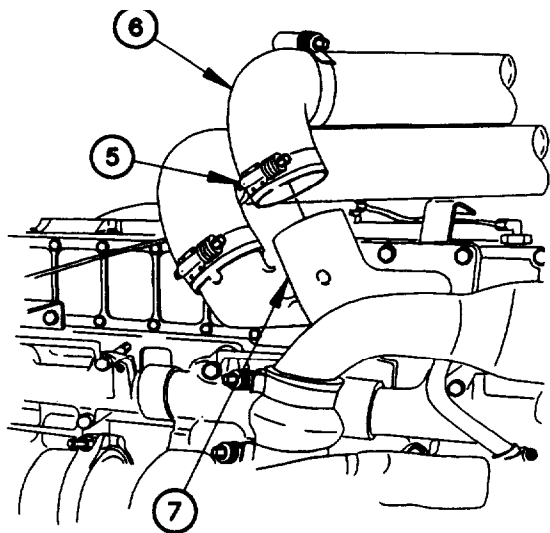
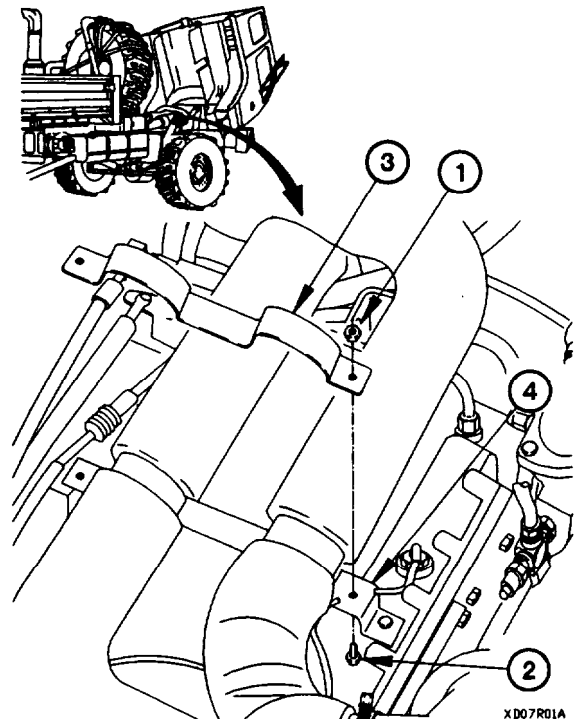
Socket Set, Socket Wrench (Item 35, Appendix C)
Wrench, Torque, 0-200 lb-in. (Item 58, Appendix C)
Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)

Materials/Parts

Nut, Self-Locking (2) (Item 138, Appendix G)

a. Removal.

- (1) Remove two self-locking nuts (1), screws (2), and upper charge air tube bracket (3) from lower charge air tube bracket (4). Discard self-locking nuts.



X007R02-

NOTE

Inner and outer charge air cooler to air inlet elbow tubes are removed the same way. Outer charge air cooler to air inlet elbow tube shown.

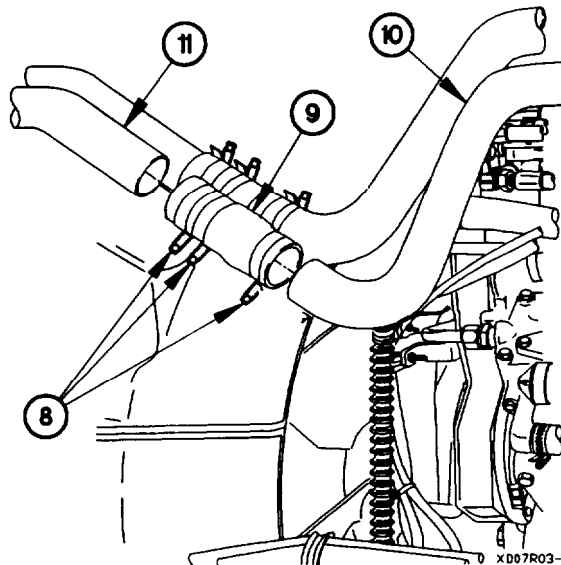
- (2) Loosen clamp (5) on hose (6).
- (3) Disconnect hose (8) from air inlet elbow (7).

**4-5. CHARGE AIR COOLER TO AIR INLET ELBOW TUBES AND HOSES REPLACEMENT
(CONT)**

NOTE

Note position of clamps prior to removal.

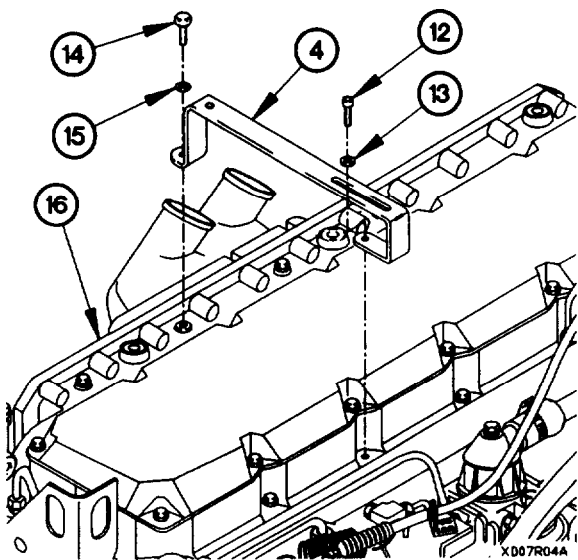
- (4) Loosen three clamps (8) on hose (9).
- (5) Remove charge air cooler to air inlet elbow tube (10) from hose (9).
- (8) Remove hose (9) from charge air cooler (11).



NOTE

Vehicle serial numbers 0001 through 3091 were originally equipped with a lower charge air tube bracket (part number 12421172). Vehicle serial numbers 3092 and higher were originally equipped with a lower charge air tube bracket (part number 12421172-001). Perform steps (7) and (8) on vehicle serial numbers 0001 through 3091 that have not previously had a valve cover or lower charge air tube bracket replaced.

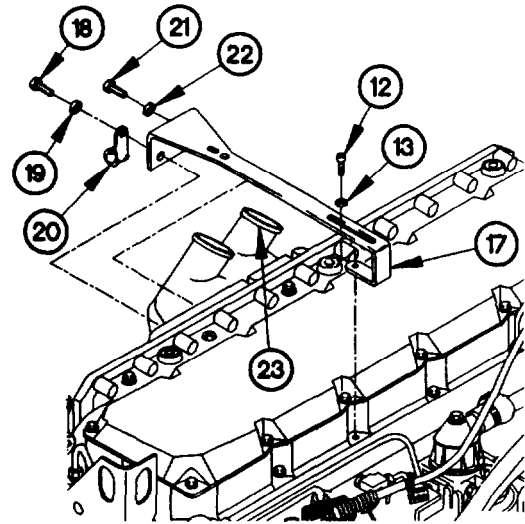
- (7) Remove screw (12) and washer (13) from lower charge air tube bracket (4).
- (8) Remove screw (14), washer (15), and lower Charge air tube bracket (4) from duct manifold (18).



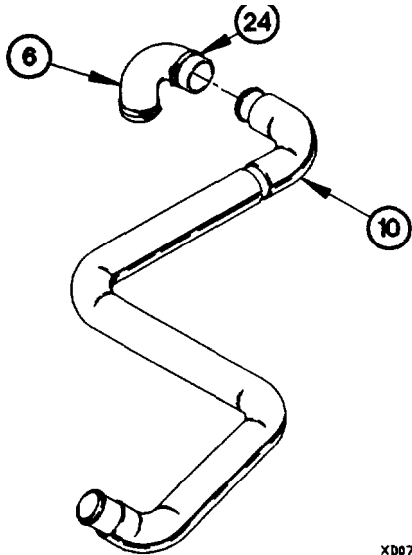
NOTE

Perform steps (9) through (11) on vehicle serial numbers 3091 and higher, and vehicle serial numbers 0001 through 3091 that have previously had a valve cover or lower charge air tube bracket replaced.

- (9) Remove screw (12) and washer (13) from lower charge air tube bracket (17).
- (10) Remove screw (18), washer (19), and clamp (20) from lower charge air tube bracket (17).
- (11) Remove screw (21), washer (22) and lower charge air tube bracket (17) from air inlet elbow (23).



XD07R05A



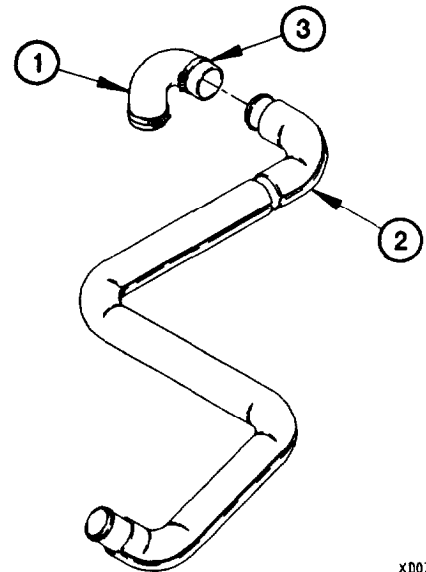
XD07R06-

(12) Loosen clamp (24) on hose (6).

(13) Remove hose (6) from charge air cooler to air inlet elbow tube (10).

b. Installation.

- (1) Position hose (1) on charge air cooler to air inlet elbow tube (2) with clamp (3).



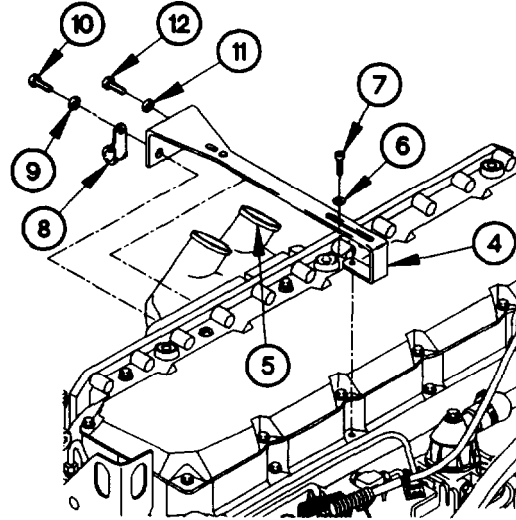
XD07101A

**4-5. CHARGE AIR COOLER TO AIR INLET ELBOW TUBES AND HOSES REPLACEMENT
(CONT)**

NOTE

Perform steps (2) through (5) on vehicle serial numbers 3091 and higher, and vehicle serial numbers 0001 through 3091 that have previously had a valve cover or lower charge air tube bracket replaced.

- (2) Position lower charge air tube bracket (4) on air inlet elbow (5) with washer (6) and screw (7).
- (3) Position clamp (8), washer (9), and screw (10) in lower charge air tube bracket (4).
- (4) Position washer (11) and screw (12) in lower charge air tube bracket (4).
- (5) Tighten screw (7), screw (10), and screw (12) to 15-25 lb-ft (20-34 N•m).

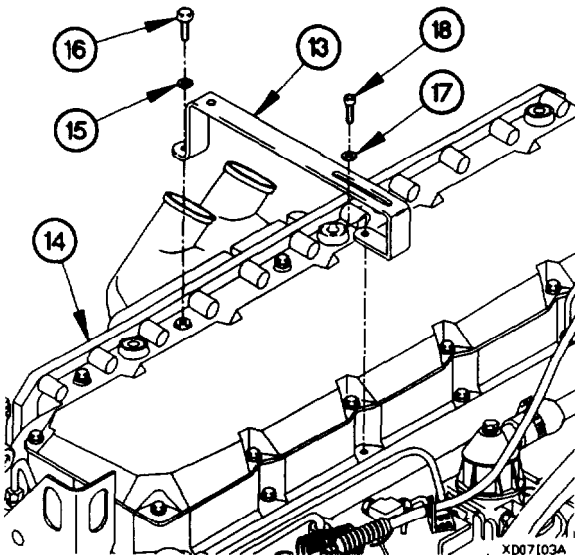


XD07102A

NOTE

Perform steps (6) through (8) on vehicle serial numbers 0001 through 3091 that have not previously had a valve cover or lower charge air tube bracket replaced.

- (6) Position lower charge air tube bracket (13) on duct manifold (14) with washer (15) and screw (16).
- (7) Position washer (17) and screw (18) in lower charge air tube bracket (13).
- (8) Tighten screws (16 and 18) to 15-25 lb-ft (20-34 N•m)



XD07103A

NOTE

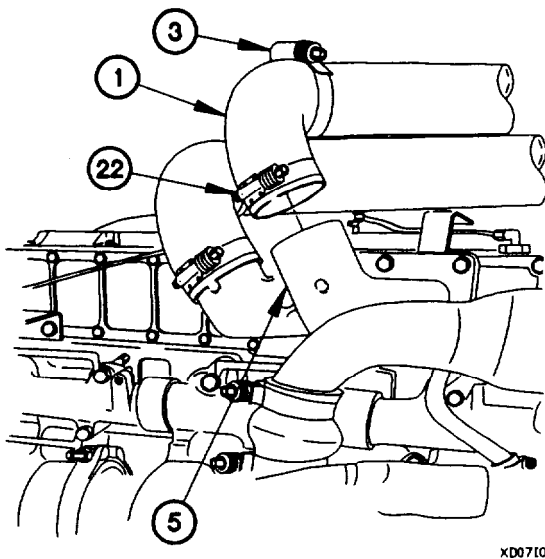
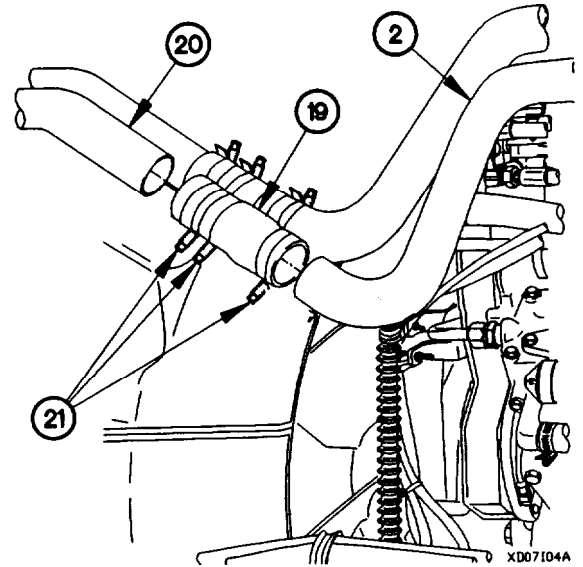
Inner and outer charge air cooler to air inlet elbow tubes are installed the same way. Outer charge air cooler to air inlet elbow tube shown.

- (9) Position hose (19) on charge air cooler (20) with three clamps (21).
- (10) Position charge air cooler to air inlet elbow tube (2) in hose (19).

CAUTION

Clamps at charge air cooler end of charge air cooler to air inlet elbow tube must be oriented with screw vertical. Failure to comply will cause interference with bottom of cab.

- (11) Tighten three clamps (21) to 90-100 lb-in. (7-8 N•m).



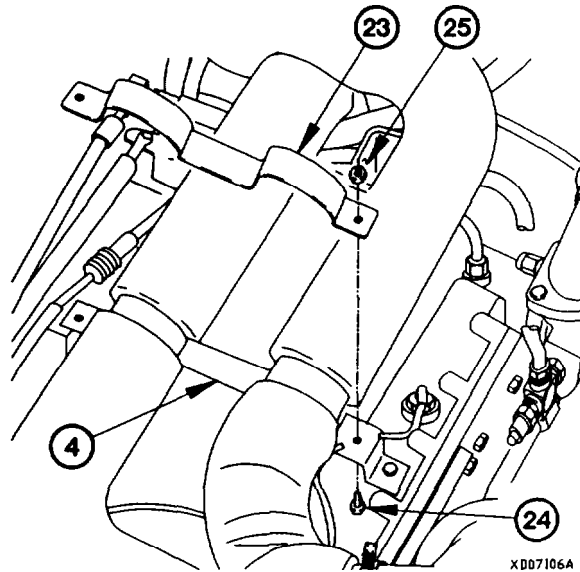
CAUTION

All clamps on engine air intake path must be positioned and tightened correctly. Failure to comply may allow foreign matter into engine air intake and result in engine failure.

- (12) Position hose (1) on air inlet elbow (5) with clamp (22).
- (13) Tighten clamps (3 and 22) to 90-100 lb-in. (7-18 N•m).

**4-5. CHARGE AIR COOLER TO AIR INLET ELBOW TUBES AND HOSES REPLACEMENT
(CONT)**

- (14) Position upper charge air tube bracket (23) on lower charge air tube bracket (4) with two screws (24) and self-locking nuts (25).
- (15) Tighten two self-locking nuts (25) to 20-26 lb-ft (27-35 N•m).



c. Follow-On Maintenance.

- (1) Lower cab (TM 9-2320-365-10).
- (2) Start engine (TM 9-2320-365-10).
- (3) Raise cab (TM 9-2320-365-10).
- (4) Check around charge air cooler to air inlet elbow tubes and hoses for air leaks.
- (5) Lower cab (TM 9-2320-365-10).
- (6) Shut down engine (TM 9-2320-365-10).

End of Task.

4- 6. FUEL RATIO CONTROL TUBE REPLACEMENT

This task covers:

- | | |
|-----------------|--------------------------|
| a. Removal | c. Follow-On Maintenance |
| b. Installation | |

INITIAL SETUP

Equipment Conditions

- Engine shut down (TM 9-2320-365-10).
- Cab raised (TM 9-2320-365-10).

Materials/Parts

- Packing, Preformed (2) (Item 183, Appendix G)
- Packing, Preformed (2) (Item 181, Appendix G)

Tools and Special Tools

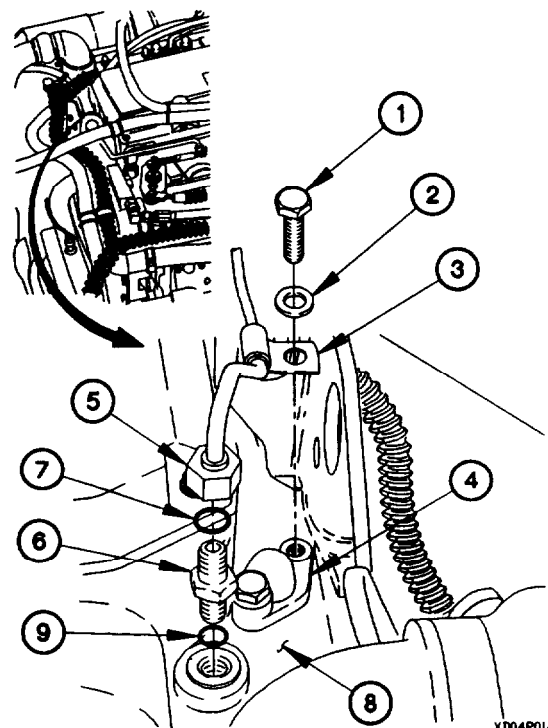
- Tool Kit, Genl Mech (Item 44, Appendix C)
- Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)

WARNING

Diesel fuel is flammable. If fuel is spilled, clean it up immediately. Failure to comply may result in serious injury or death to personnel.

a. Removal.

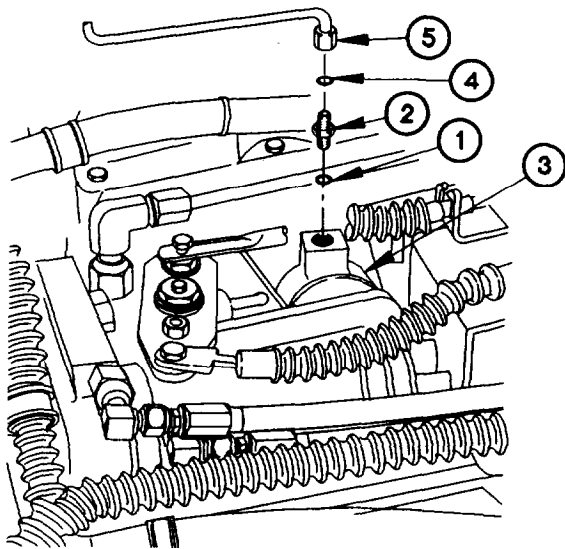
- (1) Remove screw (1), washer (2), and loop clamp (3) from pressure regulating orifice (4).
- (2) Disconnect fuel ratio control tube (5) from adapter (6).
- (3) Remove preformed packing (7) from adapter (6). Discard preformed packing.
- (4) Remove adapter (6) from inlet manifold (8).
- (5) Remove preformed packing (9) from adapter (6). Discard preformed packing.



4-6. FUEL RATIO CONTROL TUBE REPLACEMENT (CONT)

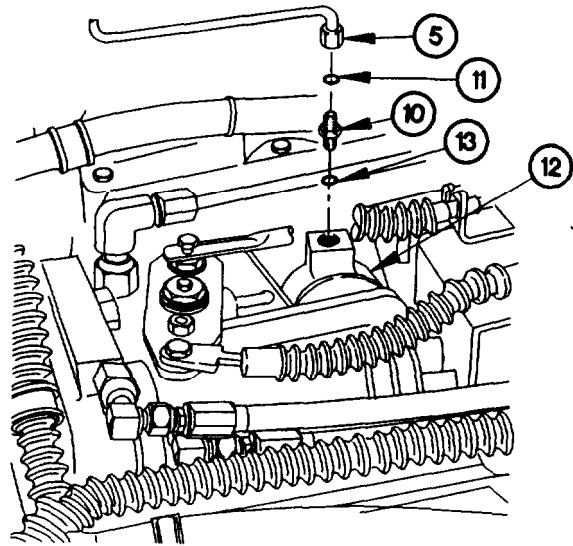
- (6) Remove fuel ratio control tube (5) from adapter (10).
- (7) Remove preformed packing (11) from adapter (10). Discard preformed packing.
- (8) Remove adapter (10) from fuel governor (12).
- (9) Remove preformed packing (13) from adapter (10). Discard preformed packing.

b. Installation.



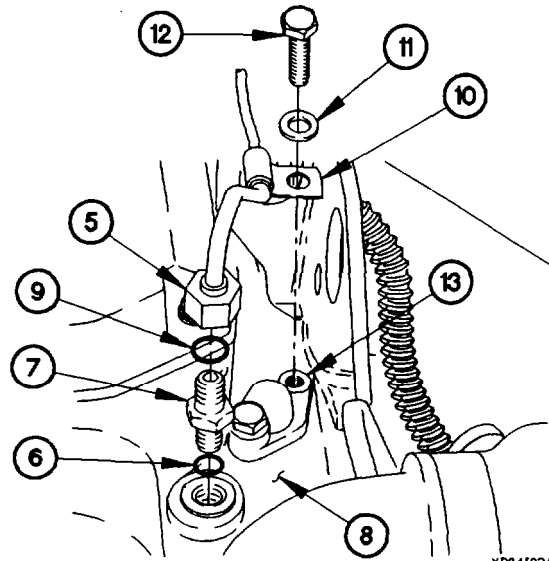
XD04101A

- (1) Install preformed packing (1) on adapter (2).
- (2) Install adapter (2) in fuel governor (3).
- (3) Install preformed packing (4) in adapter (2).
- (4) Connect fuel ratio control tube (5) to adapter (2).



XD04R02A

- (5) Install preformed packing (6) on adapter (7).
- (6) Install adapter (7) in inlet manifold (8).
- (7) Install preformed packing (9) on adapter (7).
- (8) Install fuel ratio control tube (5) on adapter (7).
- (9) Position loop clamp (10), washer (11), and screw (12) in pressure regulating orifice (13).
- (10) Tighten screw (12) to 15-25 lb-ft (20-34 N•m).



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c. Follow-On Maintenance.

- (1) Lower cab (TM 9-2320-365-10).
- (2) Start engine (TM 9-2320-365-10).
- (3) Raise cab (TM 9-2320-365-10).
- (4) Check for fuel leaks around fuel ratio control tube.
- (5) Check that engine runs smoothly at low idle speed.
- (6) Check that engine runs smoothly at high idle speed.
- (7) Lower cab (TM 9-2320-365-10).
- (8) Shut down engine (TM 9-2320-365-10).

End of Task.

4-7. ORIFICE TUBE ASSEMBLY REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Engine shut down (TM 9-2320-365-10).
 Cab raised (TM 9-2320-365-10).
 Fuel pressure regulating valve removed (para 4-3).
 Fuel ratio control tube removed (para 4-6).

Tools and Special Tools

Tool Kit, Genl Mech (Item 44, Appendix C)
 Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)

Materials Parts

Packing, Preformed (Item 186, Appendix G)

WARNING

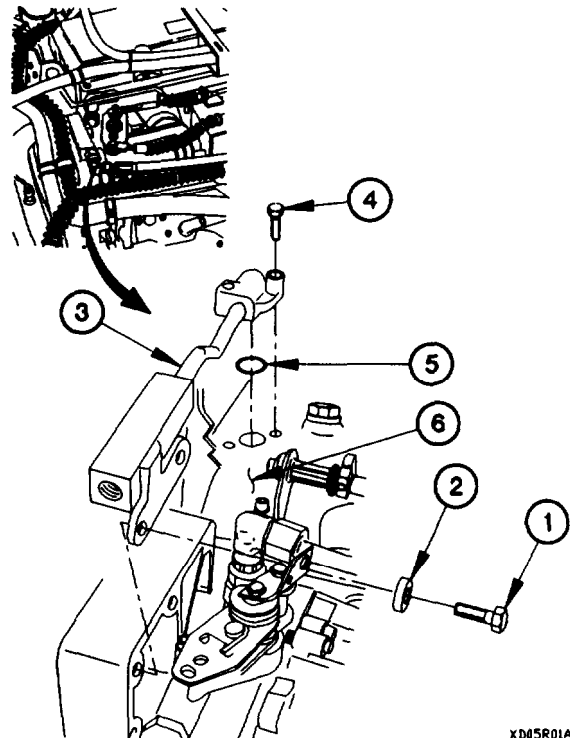
Diesel fuel is flammable. If fuel is spilled, clean it up immediately. Failure to comply may result in serious injury or death to personnel.

a. Removal.

- (1) Remove two screws (1) and washers (2) from orifice tube assembly (3).
- (2) Remove screw (4), orifice tube assembly (3), and preformed packing (5) from cylinder head (6). Discard preformed packing.

b. Installation.

- (1) Position preformed packing (5) on cylinder head (6).
- (2) Position orifice tube assembly (3) on cylinder head (6) with screw (4).
- (3) Position two washers (2) and screws (1) in orifice tube assembly (3).
- (4) Tighten screw (4) to 15-25 lb-ft (20-34 N•m).
- (5) Tighten two screws (1) to 33-47 lb-ft (45-64 N•m).



c. Follow-On Maintenance.

- (1) Install fuel ratio control tube (para 4-6).
- (2) Install fuel pressure regulating valve (para 4-3).
- (3) Lower cab (TM 9-2320-365-10).
- (4) Start engine (TM 9-2320-365-10).
- (5) Raise cab (TM 9-2320-365-10).
- (6) Check for fuel leaks around fuel ratio control tube and orifice tube assembly.
- (7) Check that engine runs smoothly at low idle speed.
- (8) Check that engine runs smoothly at high idle speed.
- (9) Lower cab (TM 9-2320-365-10).
- (10) Shut down engine (TM 9-2320-365-10).

End of Task.

4-8. FUEL TANK AND BRACKETS REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Batteries disconnected (para 7-48).

Tools and Special Tools

Tool Kit, Genl Mech (Item 44, Appendix C)
 Container (60 Gal (227 L) capacity)
 Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)
 Wrench, Torque, 0-600 lb-ft (Item 59, Appendix C)
 Socket Set, Impact (Item 33, Appendix C)

Materials/Parts

Rag, Wiping (Item 51, Appendix D)
 Ties, Cable, Plastic (Item 76, Appendix D)
 Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)
 Packing, Preformed (Item 193, Appendix G)
 Sealing Compound (Item 61, Appendix D)
 Primer, Sealing Compound (Item 50, Appendix D)
 Nut, Self-Locking (2) (Item 140, Appendix G)
 Nut, Self-Locking (8) (item 144, Appendix G)

Personnel Required

(2)

WARNING

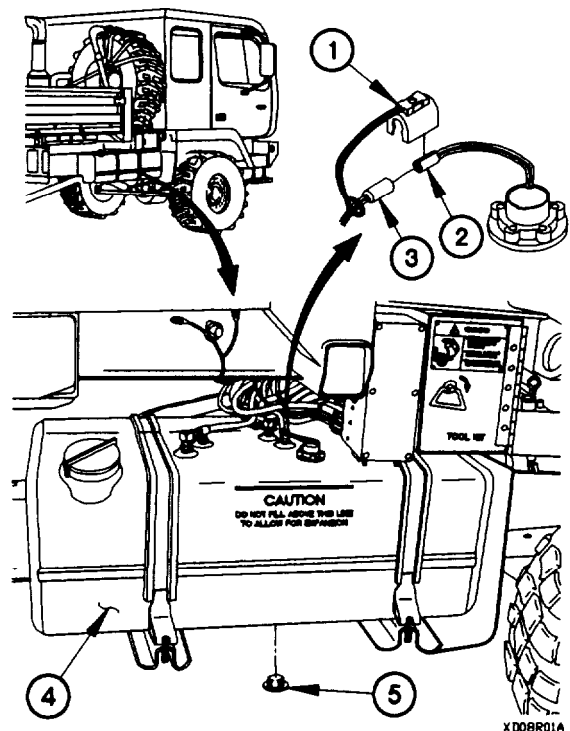
Diesel fuel is flammable. If fuel is spilled, clean it up immediately. Failure to comply may result in serious injury or death to personnel.

a. Removal.

NOTE

Remove plastic cable ties as required.

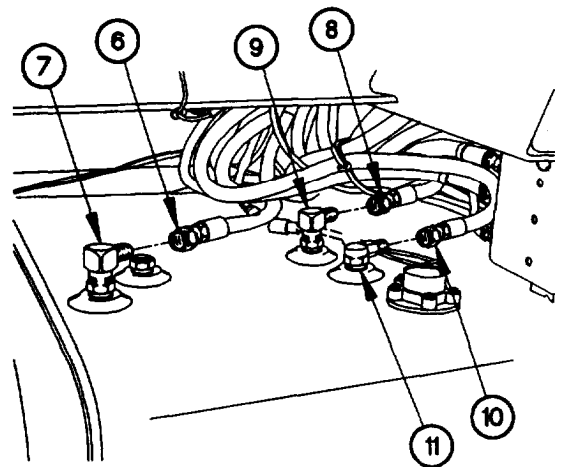
- (1) Disconnect connector clamp (1) from fuel level sending unit connector (2).
- (2) Disconnect fuel level sending unit connector (2) from connector P82 (3).
- (3) Position container under fuel tank (4).
- (4) Remove drain plug (5) from fuel tank (4) and drain fuel.



NOTE

Tag fuel hoses and connection points prior to disconnecting.

- (5) Disconnect fuel hose (6) from 90-degree pickup tube fitting (7).
- (6) Disconnect fuel hose (8) from 90-degree return fitting (9).
- (7) Disconnect fuel hose (10) from relief valve (11).



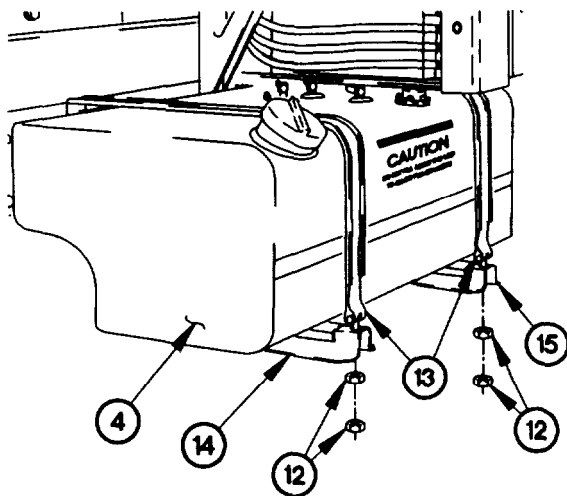
XD08R02-

- (8) Remove four nuts (12) from two straps (13).
- (9) Move two straps (13) away from fuel tank (4).

NOTE

Step (10) requires the aid of an assistant.

- (10) Remove fuel tank (4) from support brackets (14 and 15).



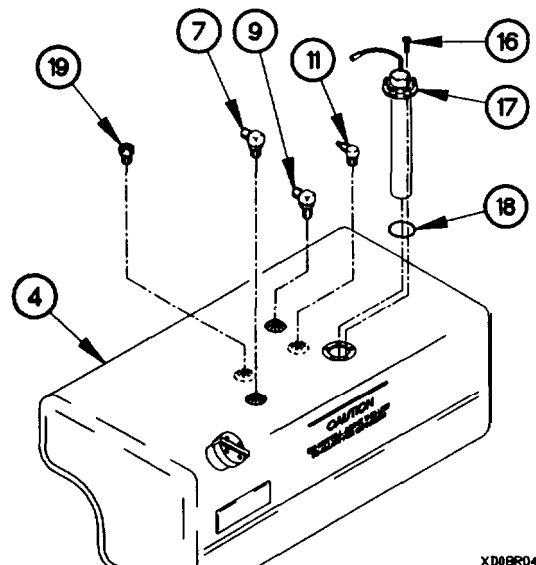
XD08R03A

- (11) Remove relief valve (11) from fuel tank (4).
- (12) Remove 90-degree pickup tube fitting (7) from fuel tank (4).
- (13) Remove 90-degree return fitting (9) from fuel tank (4).
- (14) Remove five screws (16), fuel level sending unit (17), and preformed packing (18) from fuel tank (4). Discard preformed packing.

NOTE

Perform step (15) on vehicles equipped with arctic heater kits.

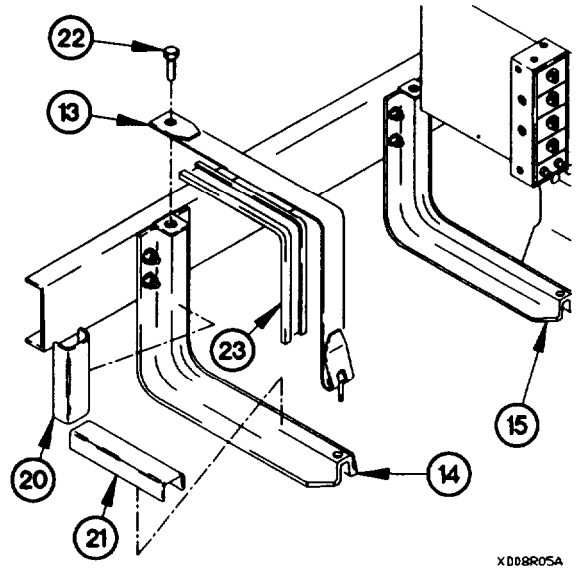
- (15) Remove arctic heater adapter fitting (19) from fuel tank (4).



XD08R04A

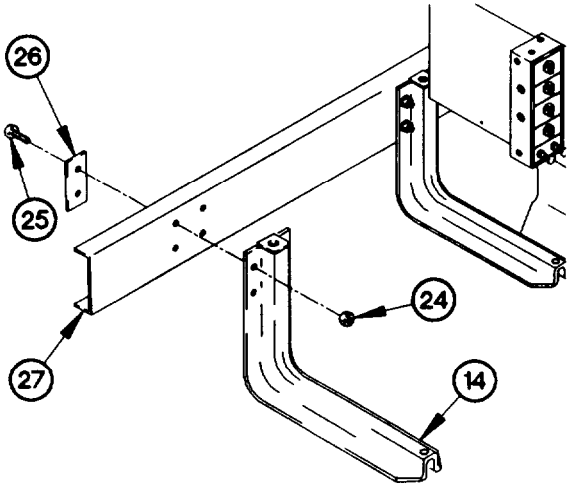
4-8. FUEL TANK AND BRACKETS REPLACEMENT (CONT)

- (16) Remove fuel tank insulators (20 and 21) from support brackets (14 and 15).
- (17) Remove two bolts (22) and straps (13) from support brackets (14 and 15).
- (18) Remove two insulator straps (23) from straps (13).



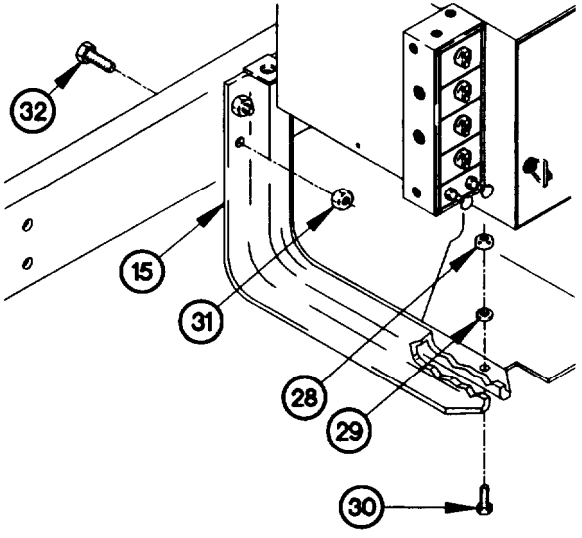
X008R05A

- (19) Remove four self-locking nuts (24), bolts (25), two plates (26), and support bracket (14) from frame rail (27). Discard self-locking nuts.



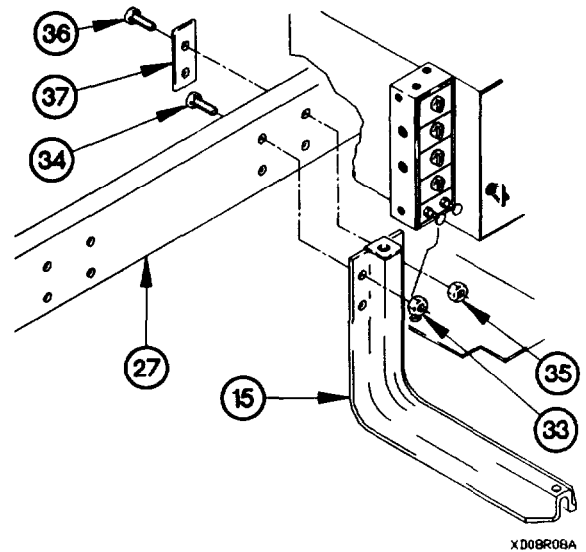
X008R06A

- (20) Remove two self-locking nuts (28), washers (29), and screws (30) from support bracket (15). Discard self-locking nuts.
- (21) Remove self-locking nut (31) and bolt (32) from support bracket (15). Discard self-locking nut.

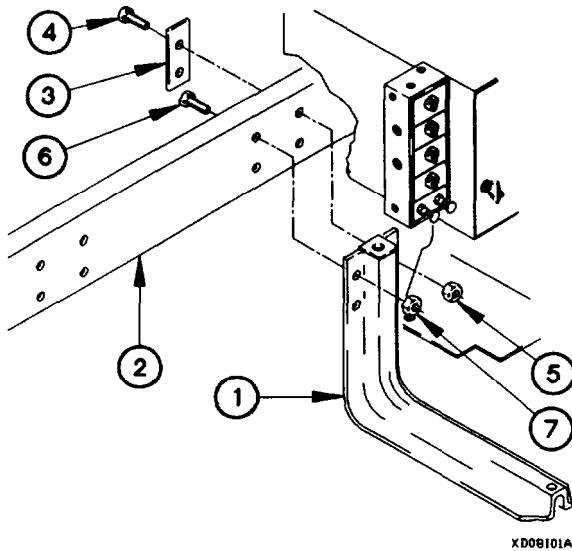


X008R07A

- (22) Remove self-locking nut (33) and bolt (34) from support bracket (15). Discard self-locking nut.
- (23) Remove two self-locking nuts (35), bolts (36), plate (37), and support bracket (15) from frame rail (27). Discard self-locking nuts.



b. Installation.



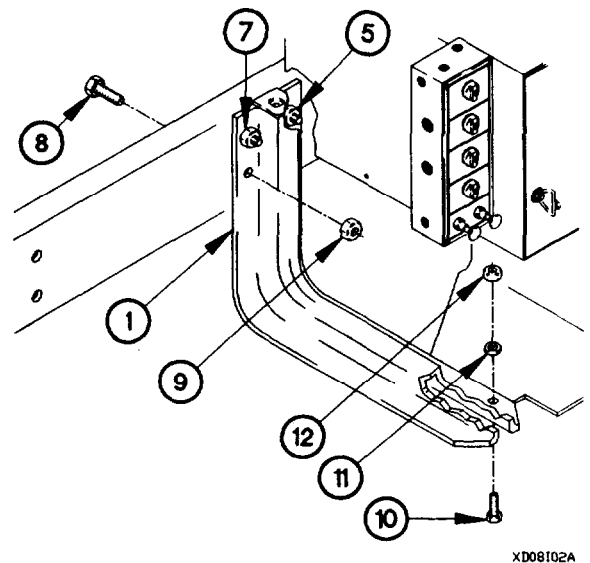
- (1) Position support bracket (1) on frame rail (2) with plate (3), two bolts (4), and self-locking nuts (5).
- (2) Position bolt (6) and self-locking nut (7) in support bracket (1).

- (3) Position bolt (8) and self-locking nut (9) in support bracket (1).

NOTE

Step (4) requires the aid of an assistant.

- (4) Tighten two self-locking nuts (5), and self-locking nuts (7 and 9) to 197-237 lb-ft (267-321 N•m).
- (5) Position two screws (10), washers (11), and self-locking nuts (12) in support bracket (1).
- (6) Tighten two self-locking nuts (12) to 43-52 lb-ft (58-70 N•m).



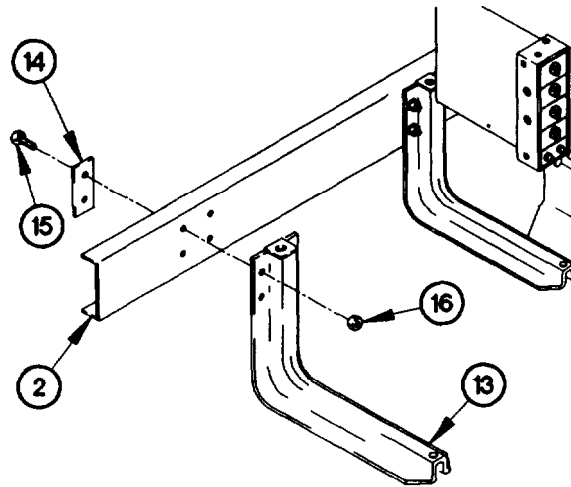
4-8. FUEL TANK AND BRACKETS REPLACEMENT (CONT)

- (7) Position support bracket (13) on frame rail (2) with two plates (14), four bolts (15), and self-locking nuts (16).

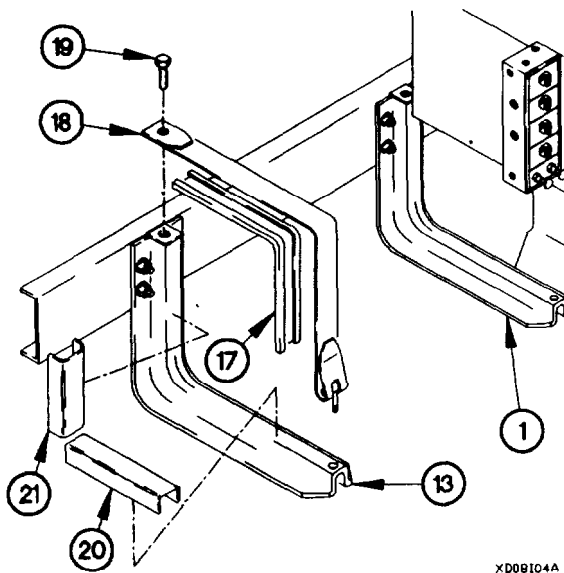
NOTE

Step (8) requires the aid of an assistant.

- (8) Tighten four self-locking nuts (16) to 197-237 lb-ft (267-321 N•m).



XD08103A



XD08104A

- (9) Install two insulator straps (17) on straps (18).
- (10) Position two straps (18) on support brackets (1 and 13) with bolts (19).
- (11) Tighten two bolts (19) to 76-94 lb-ft (103-127 N•m).
- (12) Install fuel tank insulators (20 and 21) on support brackets (1 and 13).

NOTE

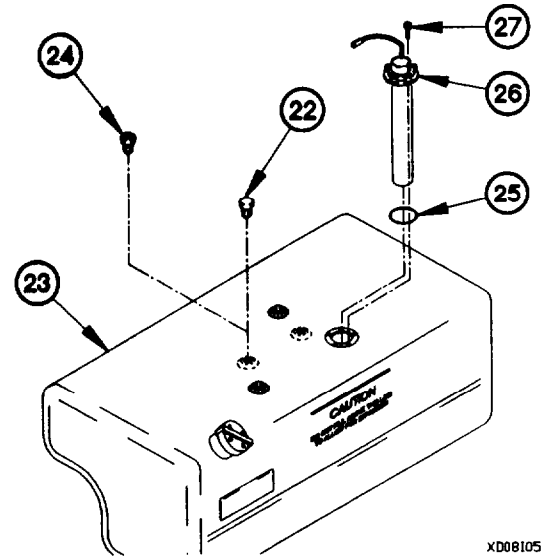
Perform steps (13) through (16) on vehicles equipped with arctic heater kits.

- (13) Remove plug (22) from fuel tank (23).

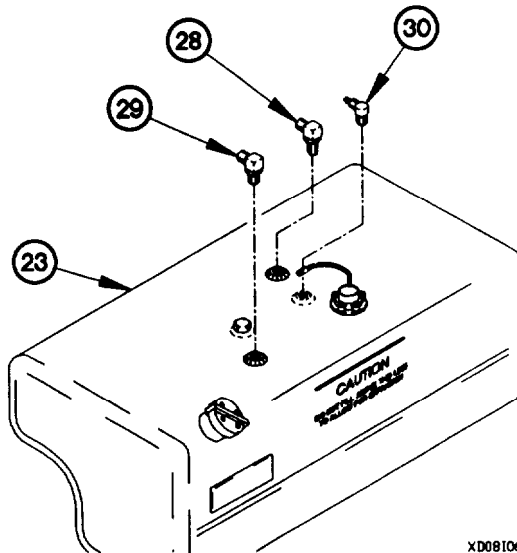
WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.

- (14) Apply sealing compound primer to threads of arctic heater adapter fitting (24).
- (15) Apply sealing compound to threads of arctic heater adapter fitting (24).
- (16) Install arctic heater adapter fitting (24) in fuel tank (23).
- (17) install preformed packing (25) and fuel level sending unit (26) in fuel tank (23) with five screws (27).



XD08105A



XD08106A

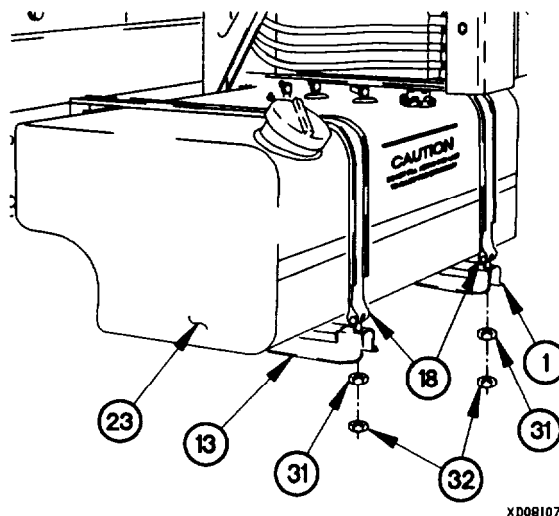
- (18) Apply sealing compound primer to threads of 90-degree return fitting (28), 90-degree pickup tube fitting (29), and relief valve (30).
- (19) Apply sealing compound to threads of 90-degree return fitting (28), 90-degree pickup tube fitting (29), and relief valve (30).
- (20) Install 90-degree return fitting (28) in fuel tank (23).
- (21) Install 90-degree pickup tube fitting (29) in fuel tank (23).
- (22) Install relief valve (30) in fuel tank (23).

4-8. FUEL TANK AND BRACKETS REPLACEMENT (CONT)

NOTE

Step (23) requires the aid of an assistant.

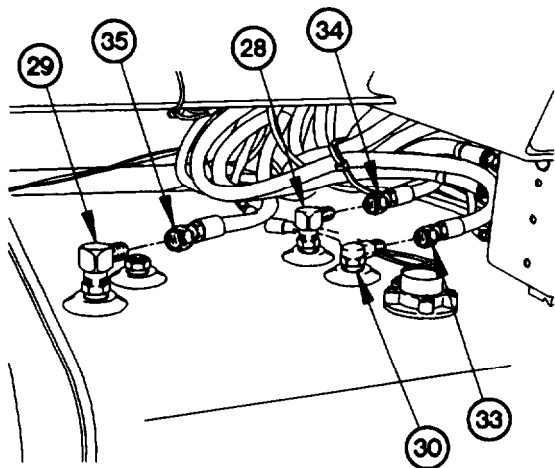
- (23) Install fuel tank (23) on support brackets (1 and 13) with straps (18).
- (24) Position two nuts (31) on two straps (18).
- (25) Tighten two nuts (31) to 76-94 lb-ft (103-127 N•m).
- (26) Install two nuts (32) on two straps (18).



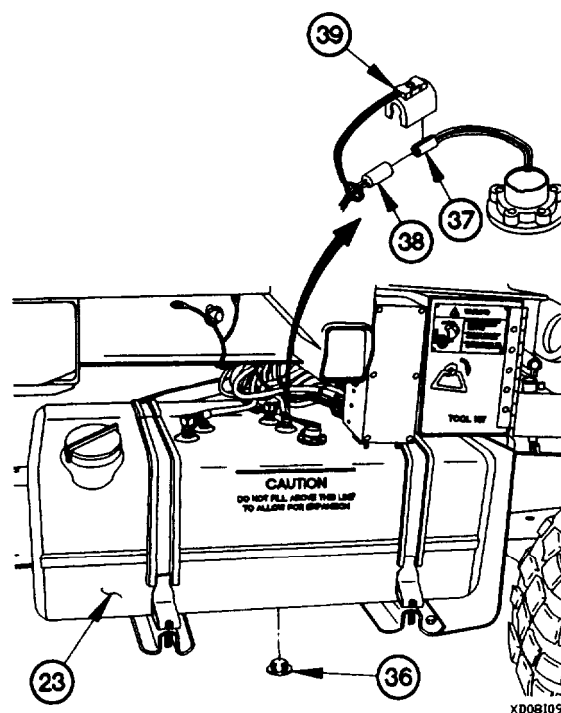
NOTE

Install plastic cable ties as required.

- (27) Connect fuel hose (33) to relief valve (30).
- (28) Connect fuel hose (34) to 90-degree return fitting (28).
- (29) Connect fuel hose (35) to 90-degree pickup tube fitting (29).



- (30) Install drain plug (36) in fuel tank (23).
- (31) Connect fuel level sending unit connector (37) to connector P82 (38).
- (32) Connect connector clamp (39) to fuel level sending unit connector (37).



c. Follow-On Maintenance.

- (1) Fill fuel tank (TM 9-2320-365-10).
- (2) Bleed fuel system (para 4-11).
- (3) Check for fuel leaks around hoses and fittings.
- (4) Connect batteries (para 7-48).
- (5) Start engine (TM 9-2320-365-10).
- (6) Check for fuel leaks around hoses and fittings.
- (7) Shut down engine (TM 9-2320-365-10).

End of Task.

4-9. FUEL HOSES REPLACEMENT

This task covers:

- | | |
|---|---|
| <ul style="list-style-type: none"> a. Fuel Supply Hose Removal b. Fuel Supply Hose Installation c. Fuel Transfer Hose Removal d. Fuel Transfer Hose installation e. Fuel Return Hose Removal | <ul style="list-style-type: none"> f. Fuel Return Hose Installation g. Fuel Tank Vent Hose Removal h. Fuel Tank Vent Hose Installation i. Follow-On Maintenance |
|---|---|

INITIAL SETUP

Equipment Conditions

- Batteries disconnected (para 7-48).
- Cab raised (TM 9-2320-365-10).
- Spare tire lowered (TM 9-2320-365-10).

Tools and Special Tools

- Tool Kit, Genl Mech (Item 44, Appendix C)
- Pan, Drain (Item 24, Appendix C)
- Wrench, Torque, 0-200 lb-in. (Item 58, Appendix C)
- Socket Set, Socket Wrench (Item 34, Appendix C)

Tools and Special Tools

- Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)

Materials Parts

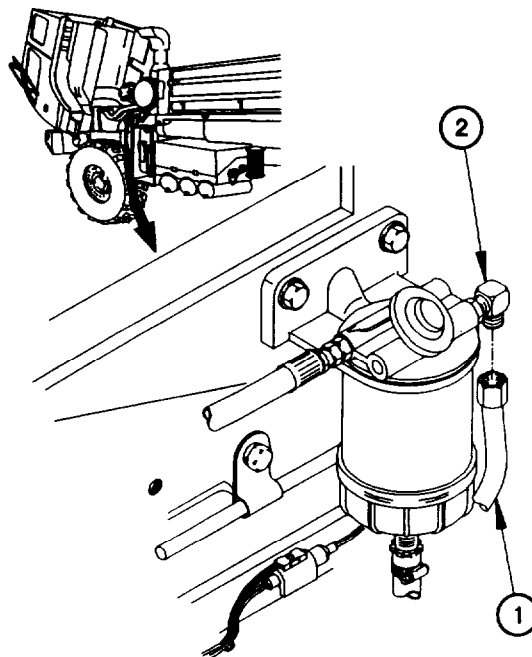
- Ties, Cable, Plastic (Item 76, Appendix D)
- Nut, Self-Locking (Item 134, Appendix G)
- Nut, Self-Locking (Item 140, Appendix G)



Diesel fuel is flammable. If fuel is spilled, clean it up immediately. Failure to comply may result in serious injury or death to personnel.

a. Fuel Supply Hose Removal.

- (1) Disconnect fuel supply hose assembly (1) from 90-degree fitting (2).



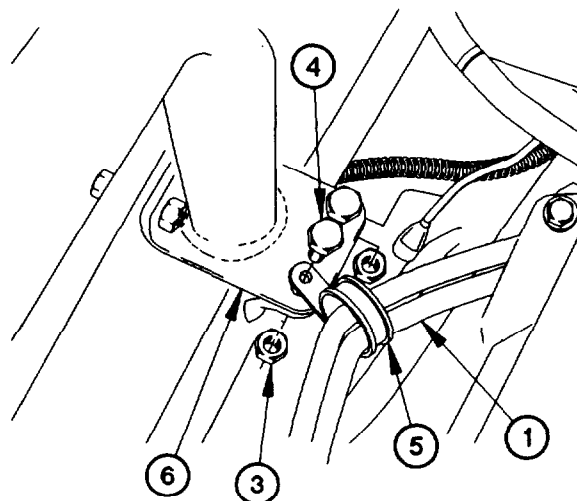
XD09A011

NOTE

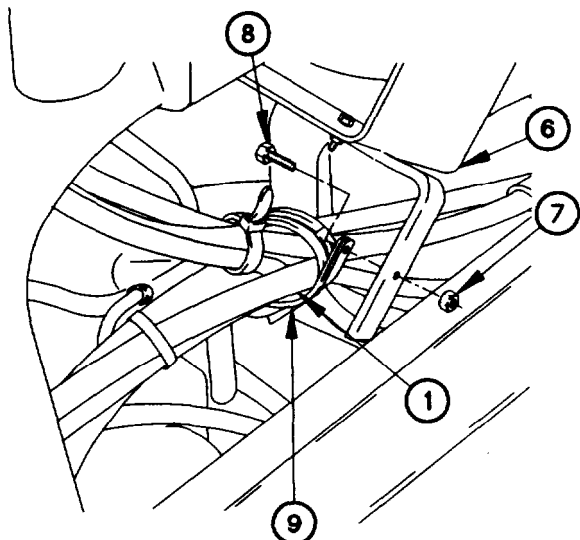
- Remove plastic cable ties as required.
- Perform steps (2) and (3) on vehicle serial number 3092 and higher, and vehicle serial numbers 0001 through 3091 that have previously had a spare tire retainer or fuel hose replaced.

(2) Remove self-locking nut (3), screw (4), and clamp (5) from spare tire retainer (6). Discard self-locking nut.

(3) Remove fuel supply hose assembly (1) from clamp (5).



XD09A021

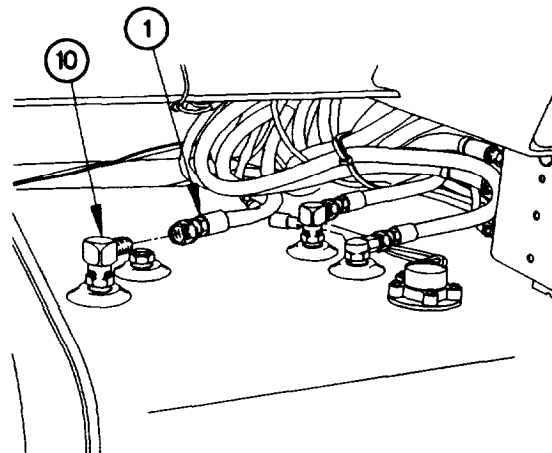


XD09A031

(4) Remove self-locking nut (7), screw (8), and clamp (9) from spare tire retainer (6). Discard self-locking nut.

(5) Remove fuel supply hose assembly (1) from clamp (9).

(6) Remove fuel supply hose assembly (1) from 90-degree fuel pickup tube fitting (10).

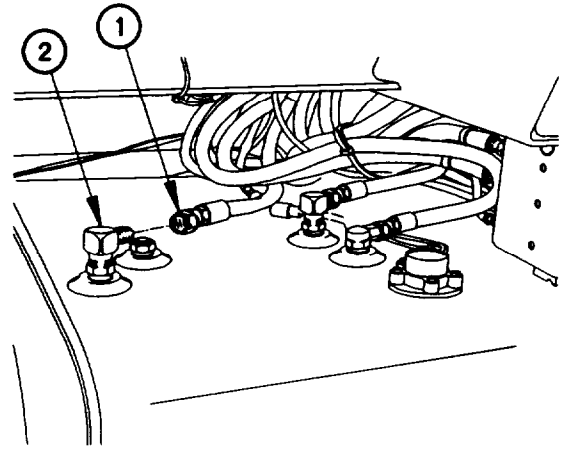


XD09A041

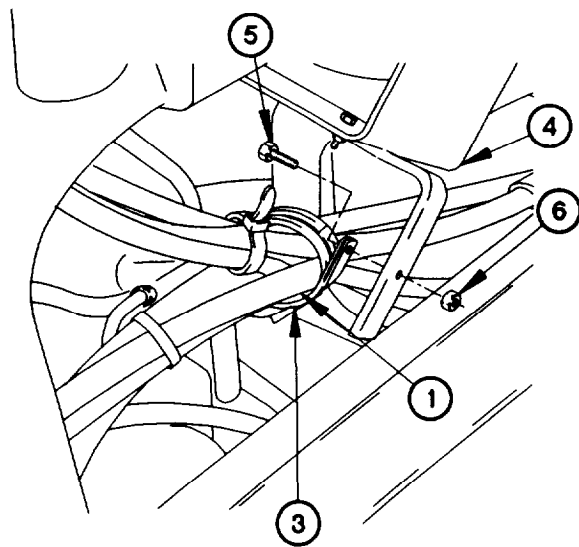
4-9. FUEL HOSES REPLACEMENT (CONT)

b. Fuel Supply Hose Installation.

(1) Install fuel supply hose assembly (1) on 90-degree fuel pickup tube fitting (2).



XD09B031



XD09B011

(2) Install fuel supply hose assembly (1) in clamp (3).

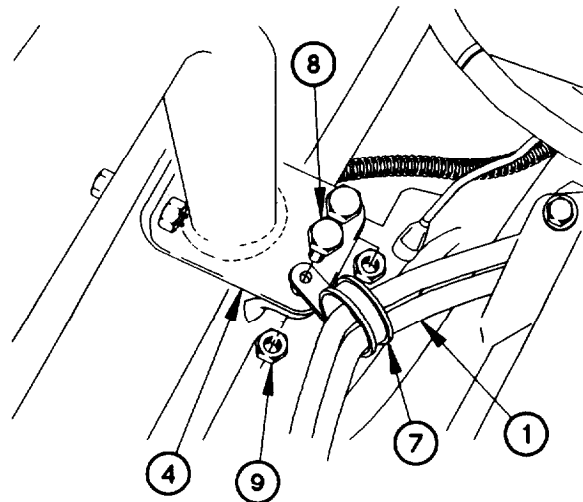
(3) Position clamp (3) on spare tire retainer (4) with screw (5) and self-locking nut (6).

(4) Tighten self-locking nut (6) to 87-107 lb-in. (10-12 N•m).

(5) Install fuel supply hose assembly (1) in clamp (7).

(6) Position clamp (7) on spare tire retainer (4) with screw (8) and self-locking nut (9).

(7) Tighten self-locking nut (9) to 43-52 lb-ft (56-71 N•m).

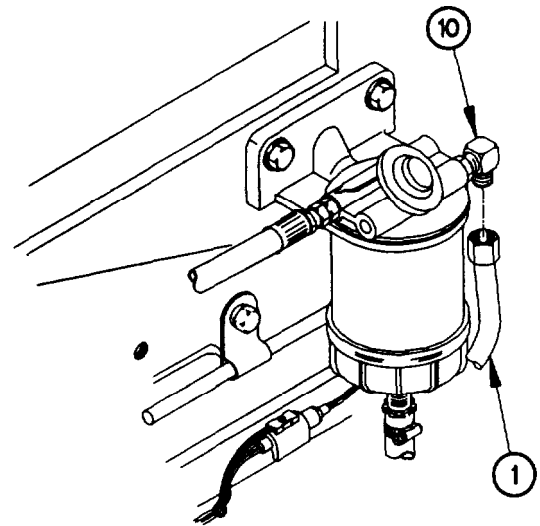


XD09B021

NOTE

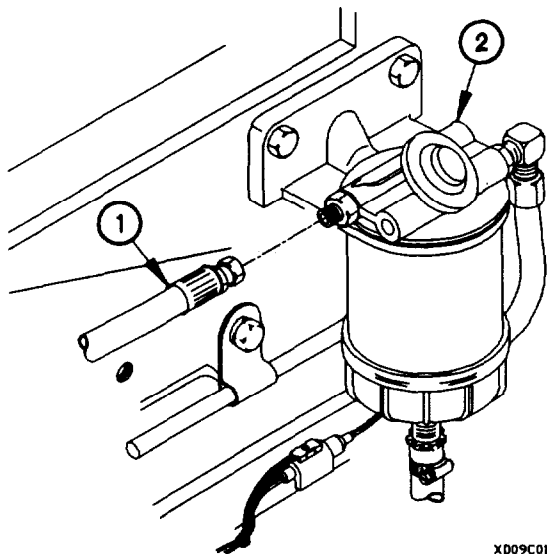
Install plastic cable ties as required.

- (8) Connect fuel supply hose assembly (1) to 90-degree fitting (10).



XD09B041

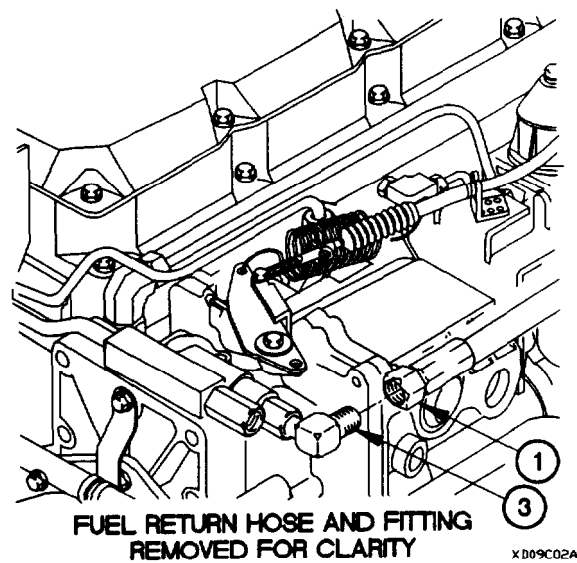
c. Fuel Transfer Hose Removal.



XD09C011

- (1) Disconnect fuel transfer hose assembly (1) from fuel/water separator (2).

- (2) Remove fuel transfer hose assembly (1) from 90-degree fitting (3).

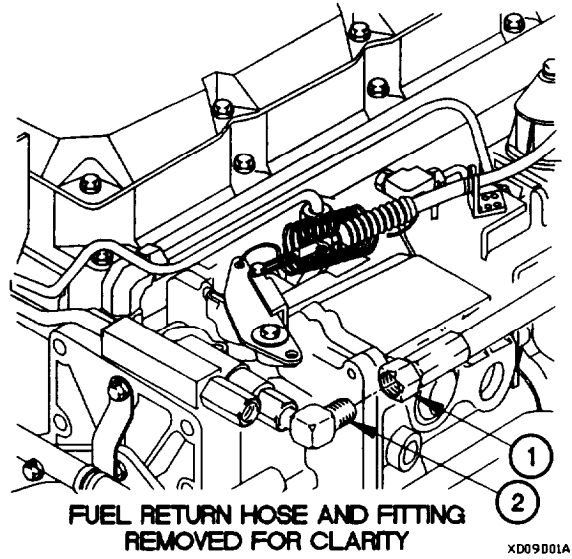
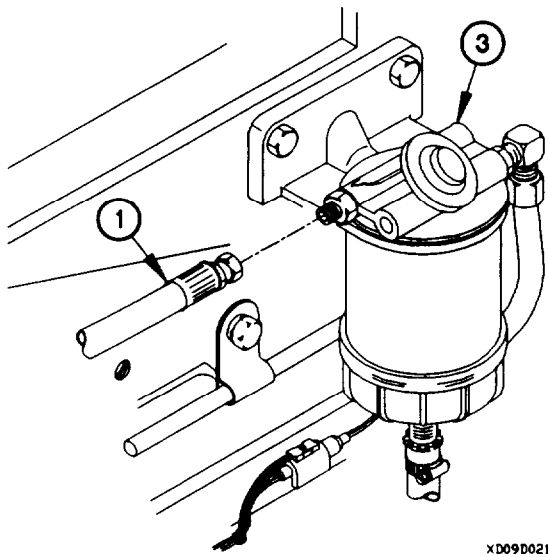


XD09C02A

4-9. FUEL HOSES REPLACEMENT (CONT)

d. Fuel Transfer Hose Installation.

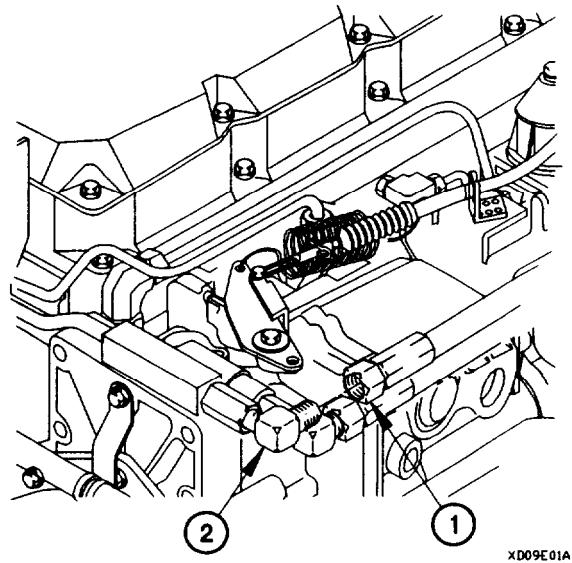
- (1) Install fuel transfer hose assembly (1) on 90-degree fitting (2).



- (2) Connect fuel transfer hose assembly (1) to fuel/water separator (3).

e. Fuel Return Hose Removal.

- (1) Disconnect fuel return hose assembly (1) from 90-degree fitting (2).

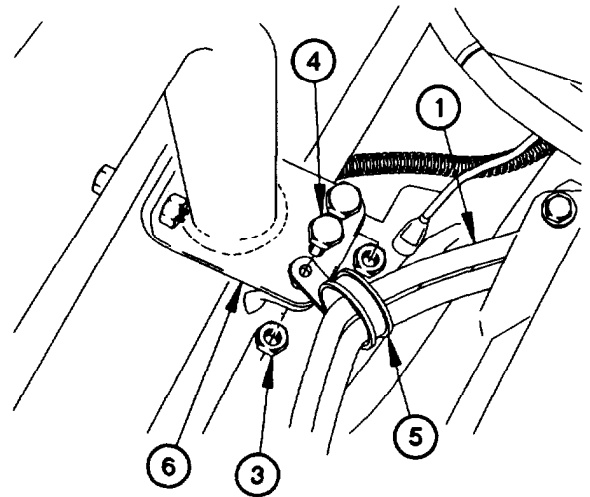


NOTE

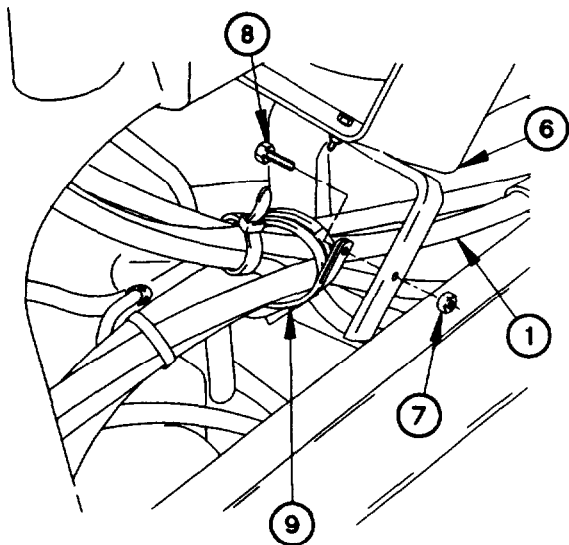
- Remove plastic cable ties as required.
- Perform steps (2) and (3) on vehicle serial number 3092 and higher, and vehicle serial numbers 0001 through 3091 that have previously had a spare tire retainer or fuel hose replaced.

(2) Remove self-locking nut (3), screw (4), and clamp (5) from spare tire retainer (6). Discard self-locking nut.

(3) Remove fuel return hose assembly (1) from clamp (5).



XD09E021

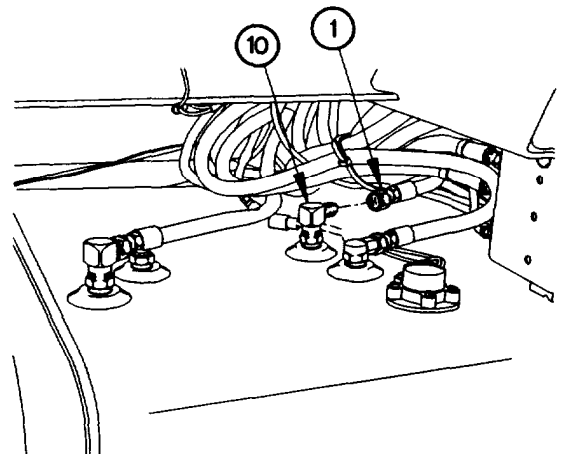


XD09E031

(4) Remove self-locking nut (7), screw (8), and clamp (9) from spare tire retainer (6). Discard self-locking nut.

(5) Remove fuel return hose assembly (1) from clamp (9).

(6) Remove fuel return hose assembly (1) from 90-degree return fitting (10).

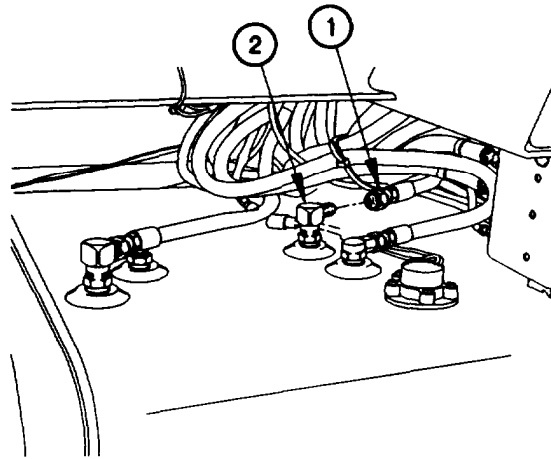


XD09E041

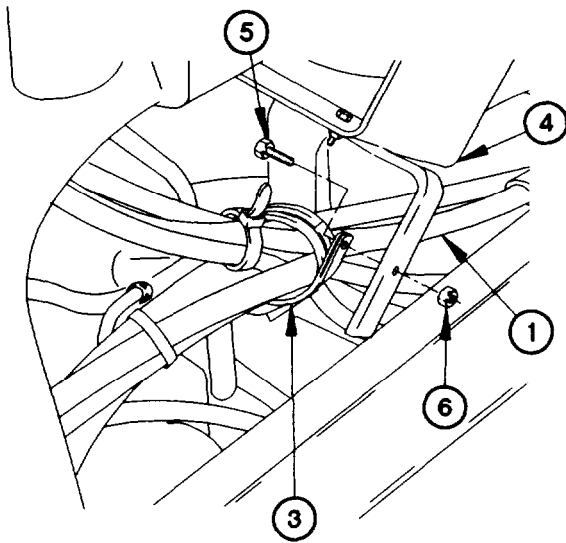
4-9. FUEL HOSES REPLACEMENT (CONT)

f. Fuel Return Hose Installation.

(1) Install fuel return hose assembly (1) on 90-degree return fitting (2).



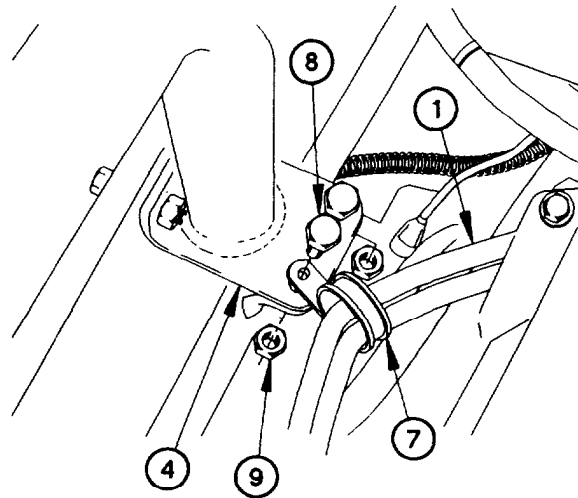
XD09F011



XD09F021

- (2) Install fuel return hose assembly (1) in clamp (3).
- (3) Position clamp (3) on spare tire retainer (4) with screw (5) and self-locking nut (6).
- (4) Tighten self-locking nut (6) to 87-107 lb-in. (10-12 N•m).

- (5) Install fuel return hose assembly (1) in clamp (7).
- (6) Position clamp (7) on spare tire retainer (4) with screw (8) and self-locking nut (9).
- (7) Tighten self-locking nut (9) to 43-52 lb-ft (56-71 N•m).

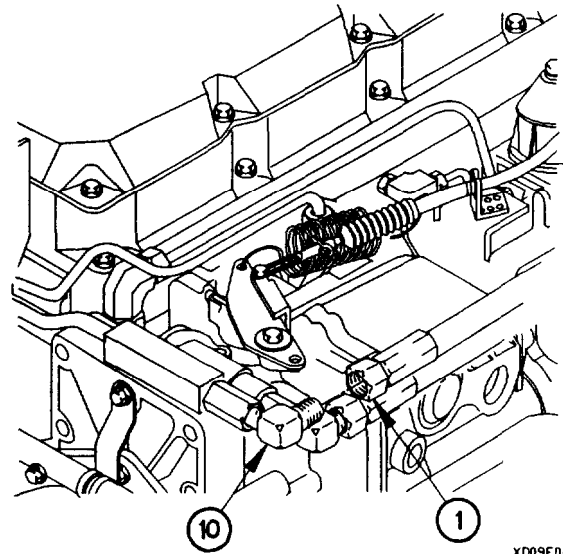


XD09F031

NOTE

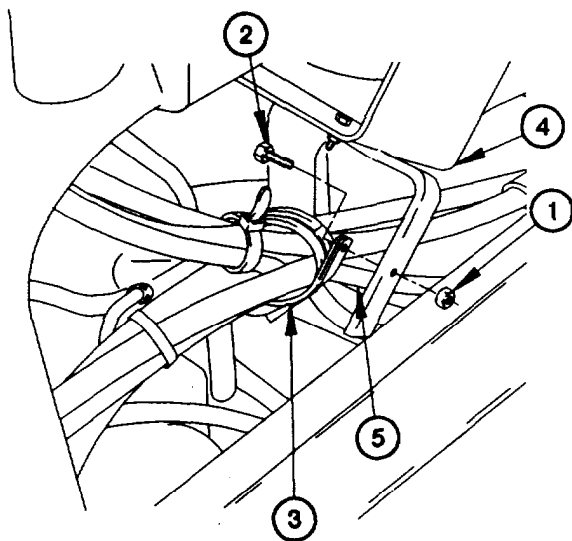
Install plastic cable ties as required.

- (8) Connect fuel return hose assembly (1) to 90-degree fitting (10).



XD09F041

g. Fuel Tank Vent Hose Removal.



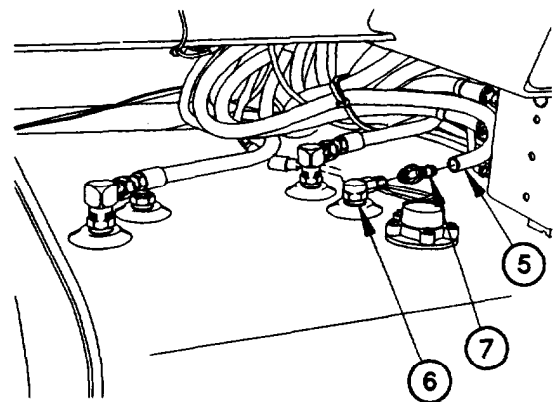
XD09G011

NOTE

Remove plastic cable ties as required.

- (1) Remove self-locking nut (1), screw (2), and clamp (3) from spare tire retainer (4). Discard self-locking nut.
- (2) Remove fuel tank vent hose (5) from clamp (3).

- (3) Remove fuel tank vent hose (5) from relief valve (6).
- (4) Remove adapter (7) from fuel tank vent hose (5).

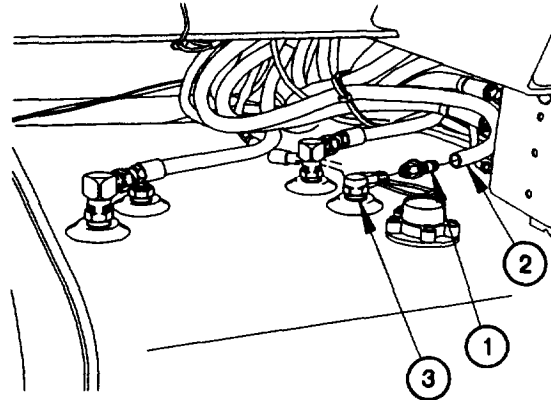


XD09G021

4-9. FUEL HOSES REPLACEMENT (CONT)

h. Fuel Tank Vent Hose Installation.

- (1) Install adapter (1) in fuel tank vent hose (2).
- (2) Install fuel tank vent hose (2) on relief valve (3).



XD09G031

NOTE

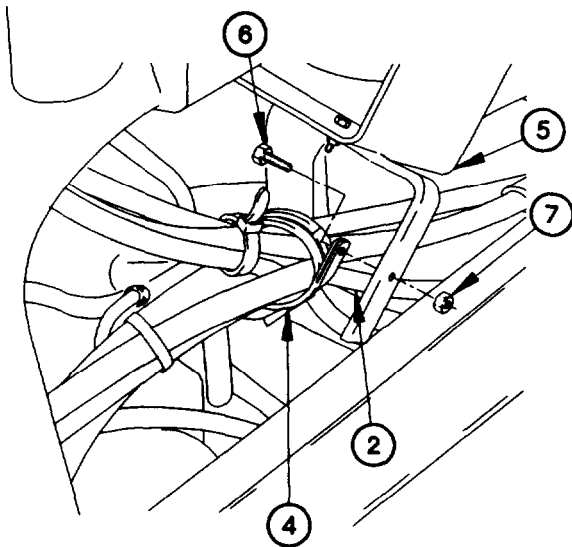
Install plastic cable ties as required.

- (3) Form a 180-degree bend in fuel tank vent hose (2).

CAUTION

Use care when installing fuel tank vent hose in clamp so that fuel tank vent hose is not pinched or crimped. Failure to comply may result in damage to equipment.

- (4) Install fuel tank vent hose (2) in clamp (4).
- (5) Position clamp (4) on spare tire retainer (5) with screw (6) and self-locking nut (7).
- (6) Tighten self-locking nut (7) to 87-107 lb-in. (10-12 N•m).



XD09G041

i. Follow-On Maintenance.

- (1) Bleed fuel system (para 4-11).
- (2) Lower cab (TM 9-2320-365-10).
- (3) Connect batteries (para 7-48).
- (4) Start engine (TM 9-2320-365-10).
- (5) Raise cab (TM 9-2320-365-10).
- (6) Check for fuel leaks around hoses and fittings.
- (7) Raise spare tire (TM 9-2320-365-10).
- (8) Lower cab (TM 9-2320-365-10).
- (9) Shut down engine (TM 9-2320-365-10).

End of Task.

4-10. FUEL FILTER TUBES REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

- Cab raised (TM 9-2320-365-10).
- Batteries disconnected (para 7-48).

Materials/Parts

- Packing, Preformed (4) (Item 157, Appendix G)
- Packing, Preformed (6) (Item 180, Appendix G)

Tools and Special Tools

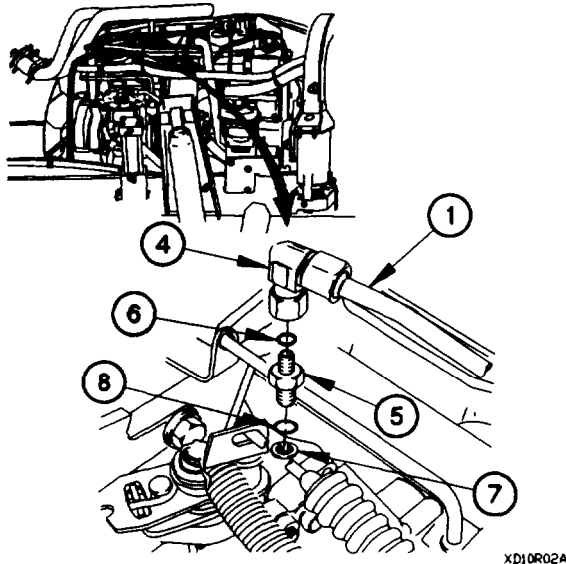
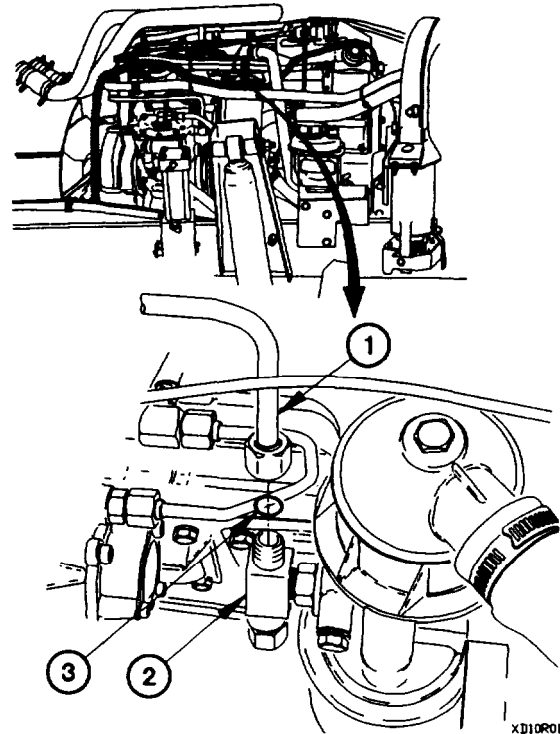
- Tool Kit, Genl Mech (Item 44, Appendix C)

WARNING

Diesel fuel is flammable. If fuel is spilled, clean it up immediately. Failure to comply may result in serious injury or death to personnel.

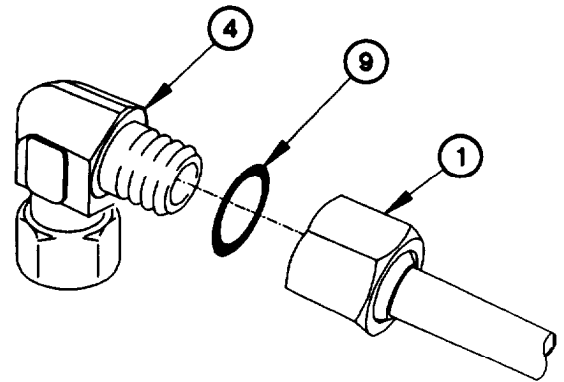
a. Removal.

- (1) Disconnect fuel tube assembly (1) from tee fitting (2).
- (2) Remove preformed packing (3) from tee fitting (2). Discard preformed packing.

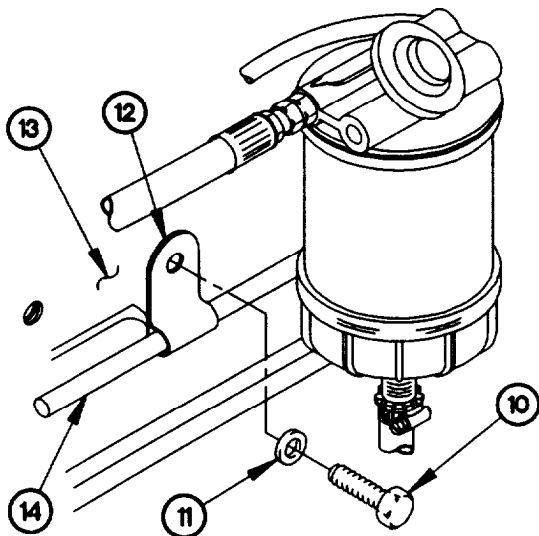


- (3) Remove fuel tube assembly (1) and 90-degree fitting (4) from adapter (5).
- (4) Remove preformed packing (6) from adapter (5). Discard preformed packing.
- (5) Remove adapter (5) from fuel governor (7).
- (6) Remove preformed packing (8) from adapter (5). Discard preformed packing.

- (7) Remove 90-degree fitting (4) from fuel tube assembly (1).
- (8) Remove preformed packing (9) from 90-degree fitting (4). Discard preformed packing.

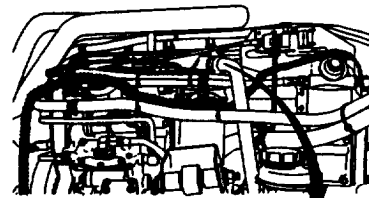


XD10R03-

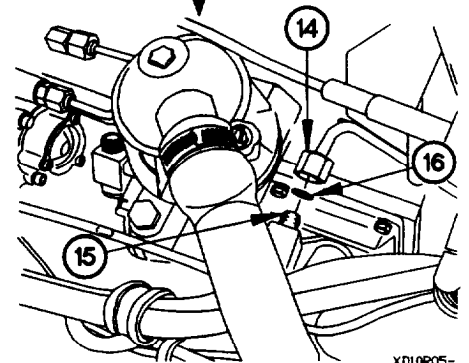


XD10R04-

- (9) Remove screw (10), washer (11), and clip (12) from cylinder head (13).
- (10) Remove clip (12) from fuel tube assembly (14).



- (11) Disconnect fuel tube assembly (14) from tee fitting (15).
- (12) Remove preformed packing (16) from tee fitting (15). Discard preformed packing.

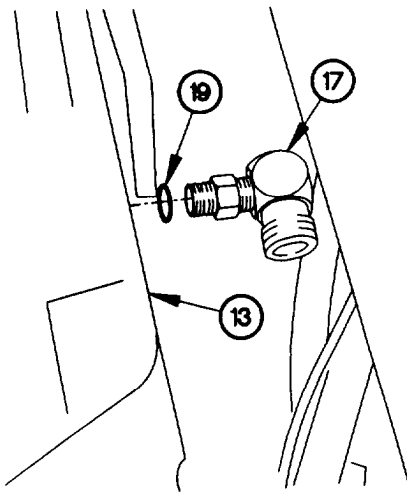
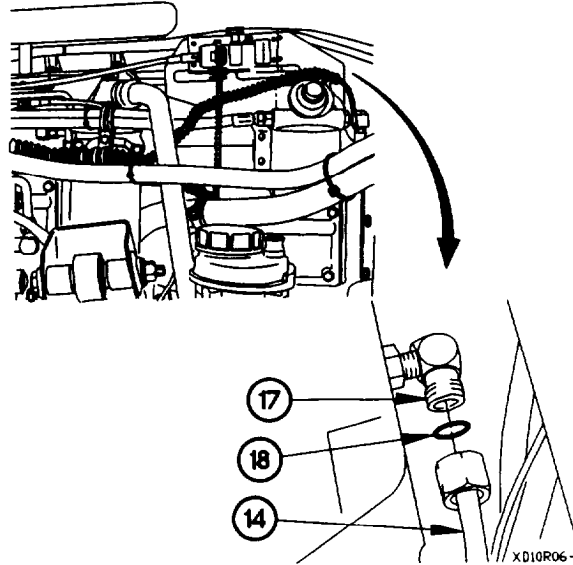


XD10R05-

4-10. FUEL FILTER TUBES REPLACEMENT (CONT)

(13) Remove fuel tube assembly (14) from 90-degree fitting (17).

(14) Remove preformed packing (18) from 90-degree fitting (17). Discard preformed packing



(15) Remove 90-degree fitting (17) from cylinder head (13).

(16) Remove preformed packing (19) from 90-degree fitting (17). Discard preformed packing.

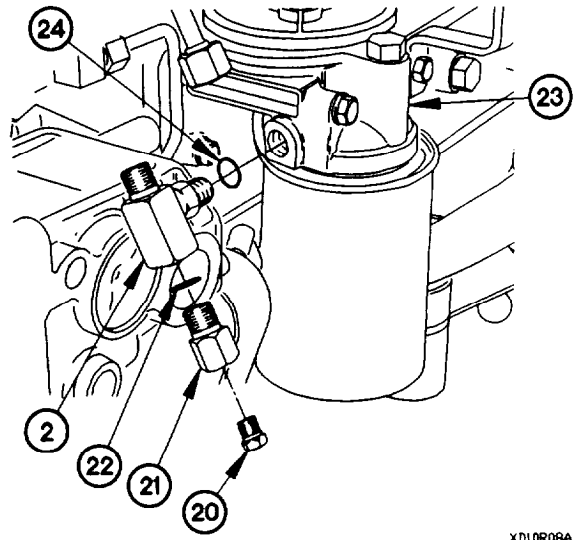
(17) Remove plug (20) from adapter (21).

(18) Remove adapter (21) from tee fitting (2).

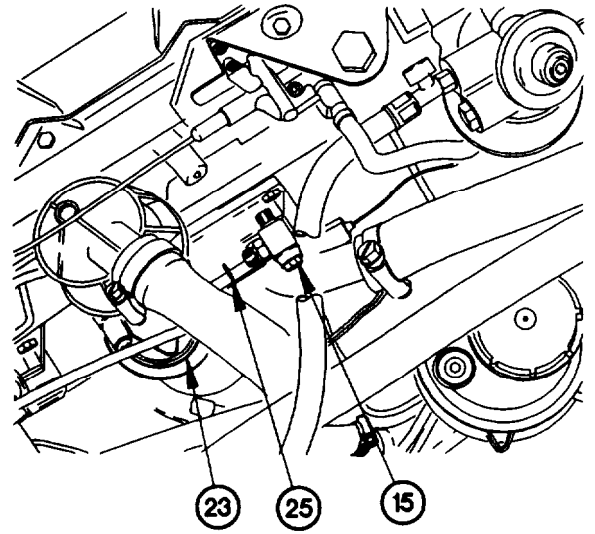
(19) Remove preformed packing (22) from adapter (21). Discard preformed packing.

(20) Remove tee fitting (2) from fuel filter base (23).

(21) Remove preformed packing (24) from tee fitting (2). Discard preformed packing.

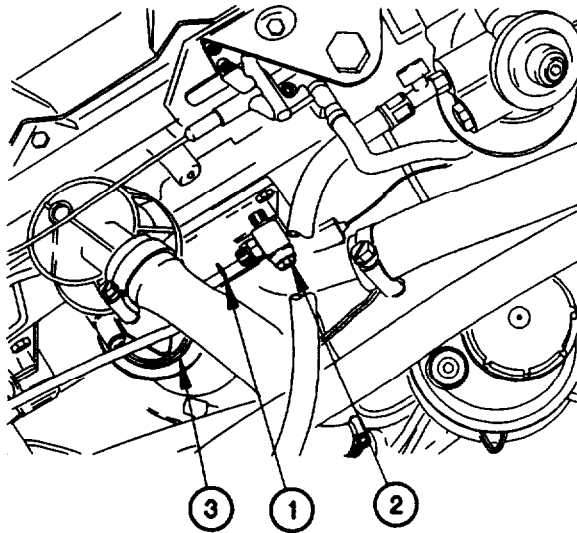


- (22) Remove tee fitting (15) from fuel filter base (23).
- (23) Remove preformed packing (25) from tee fitting (15). Discard preformed packing.



XD10R09A

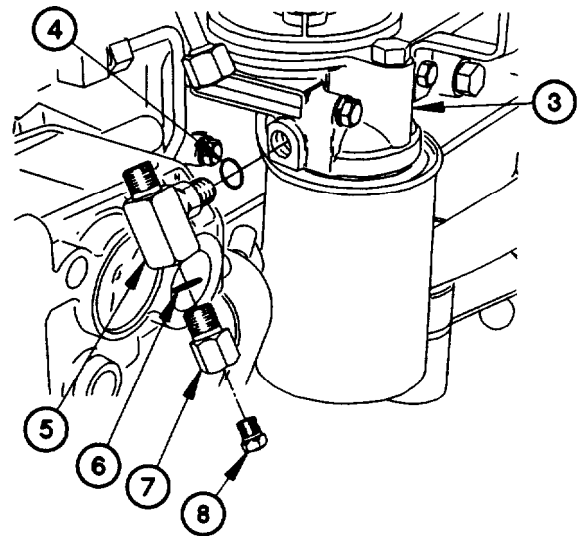
b. Installation.



XD10101-

- (1) Install preformed packing (1) on tee fitting (2).
- (2) Install tee fitting (2) in fuel filter base (3).

- (3) Install preformed packing (4) on tee fitting (5).
- (4) Install tee fitting (5) in fuel filter base (3).
- (5) Install preformed packing (6) on adapter (7).
- (6) Install adapter (7) in tee fitting (5).
- (7) Install plug (8) in adapter (7).

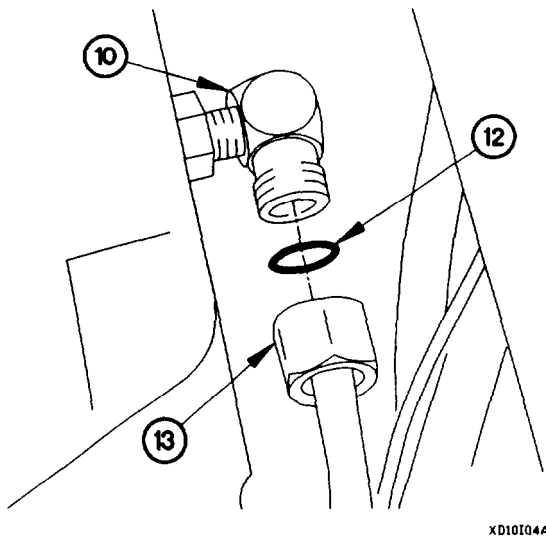
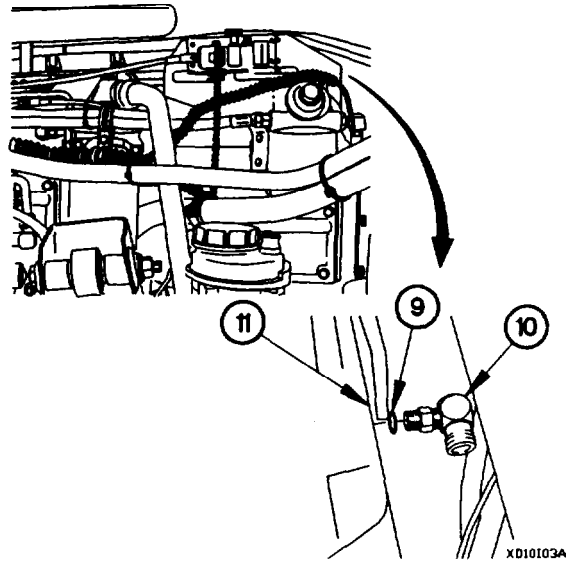


XD10102A

4-10. FUEL FILTER TUBES REPLACEMENT (CONT)

(8) Install preformed packing (9) on 90-degree fitting (10).

(9) Install 90-degree fitting (10) in cylinder head (11).

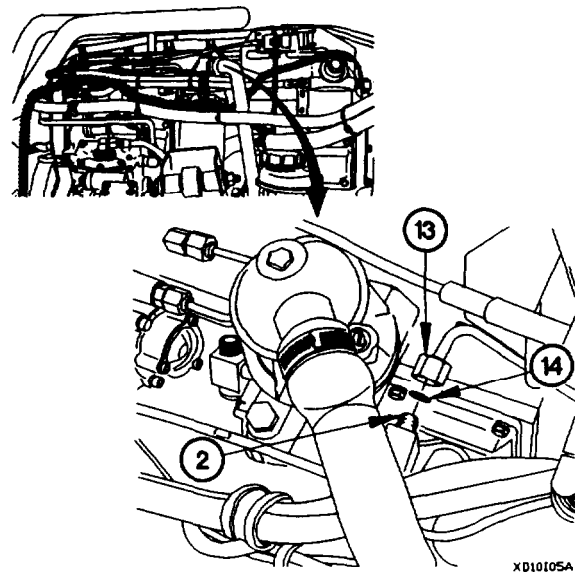


(10) Install preformed packing (12) on 90-degree fitting (10).

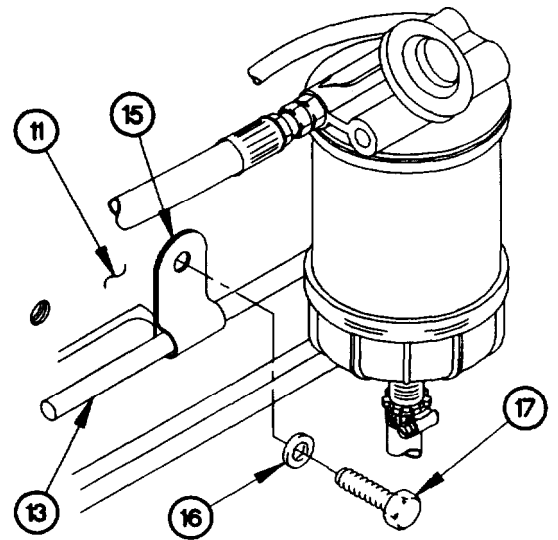
(11) Install fuel tube assembly (13) on 90-degree fitting

(12) Install preformed packing (14) on tee fitting (2).

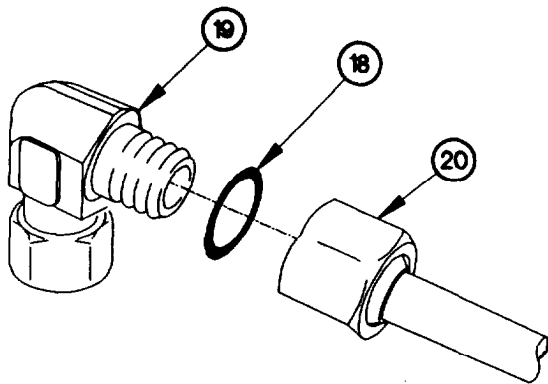
(13) Install fuel tube assembly (13) on tee fitting (2).



- (14) Install clip (15) on fuel tube assembly (13).
- (15) Install clip (15) on cylinder head (11) with washer (16) and screw (17).



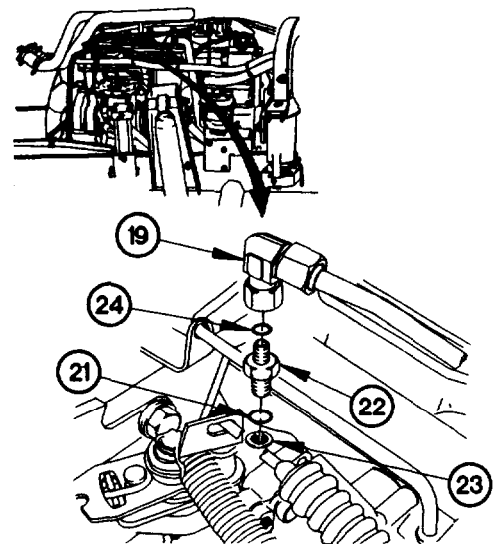
XD10106A



XD10107A

- (16) Install preformed packing (18) on 90-degree fitting (19).
- (17) Install fuel tube assembly (20) on 90-degree fitting (19).

- (18) Install preformed packing (21) on adapter (22).
- (19) Install adapter (22) in fuel governor (23).
- (20) Install preformed packing (24) on adapter (22).
- (21) Install 90-degree fitting (19) on adapter (22).



XD10108A

4-10. FUEL FILTER TUBES REPLACEMENT (CONT)

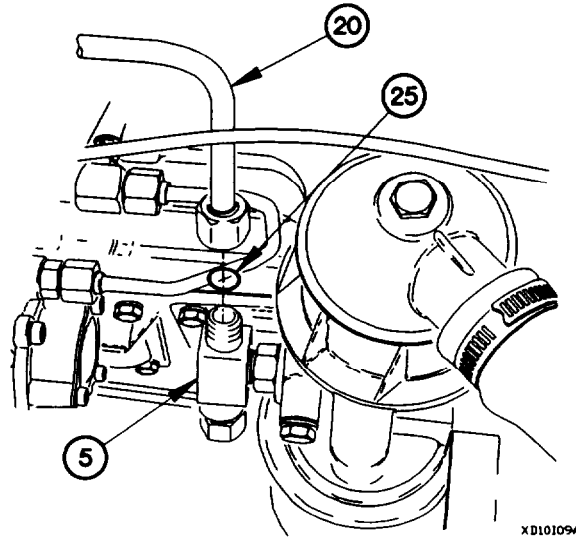
(22) Install preformed packing (25) on tee fitting (5).

(23) Install fuel tube assembly (20) on tee fitting (5).

c. Follow-On Maintenance.

- (1) Lower cab (TM 9-2320-365-10).
- (2) Connect batteries (para 7-48).
- (3) Start engine (TM 9-2320-365-10).
- (4) Check for fuel leaks under vehicle.
- (5) Raise cab (TM 9-2320-365-10).
- (6) Check for fuel leaks around tubes and fittings.
- (7) Lower cab (TM 9-2320-365-10).
- (8) Shut down engine (TM 9-2320-365-10).

End of Task.



4-11. FUEL SYSTEM BLEEDING

This task covers:

a. Bleeding

b. Follow-On Maintenance

INITIAL SETUP**Equipment Conditions**

Engine shut down (TM 9-2320-365-10).
Cab raised (TM 9-2320-365-10).

Materials/Parts

Ties, Cable, Plastic (Item 76, Appendix D)

Tools and Special Tools

Tool Kit, Genl Mech (Item 44, Appendix C)
Pan, Drain (Item 24, Appendix C)

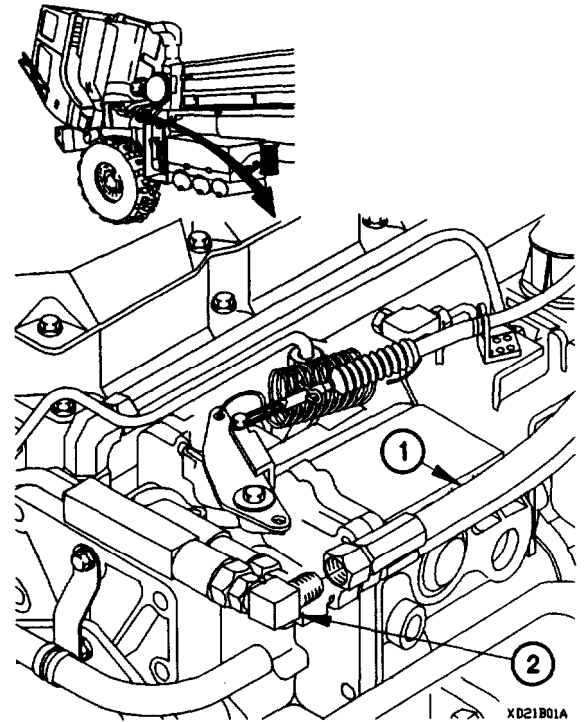
WARNING

Diesel fuel is flammable. If fuel is spilled, clean it up immediately. Failure to comply may result in serious injury or death to personnel.

a. Bleeding.**NOTE**

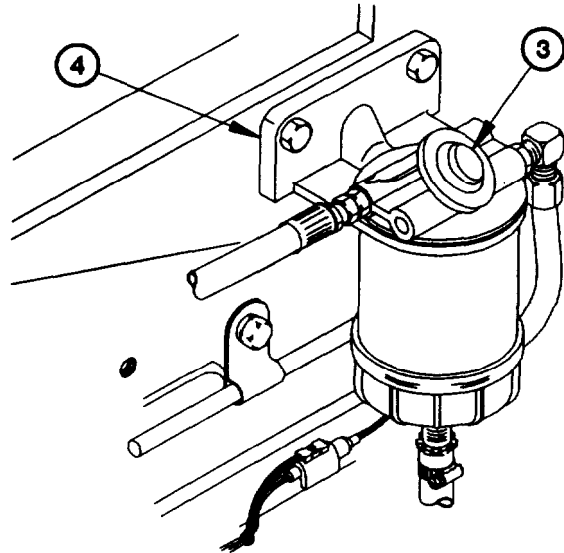
Remove plastic cable ties as required.

- (1) Position drain pan below fuel return hose assembly (1).
- (2) Disconnect fuel return hose assembly (1) from 90-degree fitting (2).
- (3) Direct fuel return hose assembly (1) into drain pan.

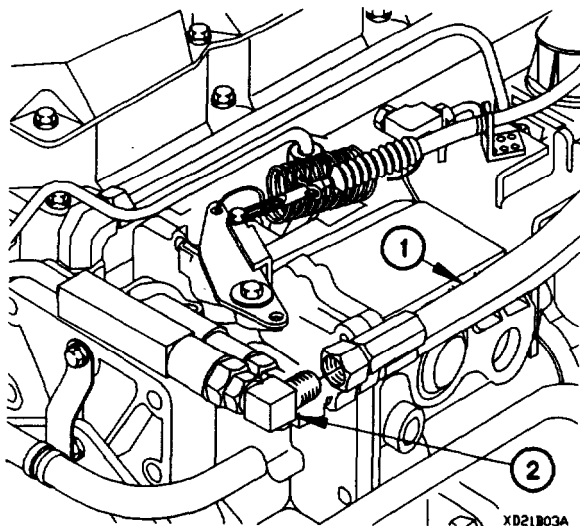


4-11. FUEL SYSTEM BLEEDING (CONT)

- (4) Depress button (3) on fuel/water separator (4) as many times as necessary to get a steady stream of clear fuel.



XD21B021



XD21B03A

NOTE

Install plastic cable ties as required.

- (5) Connect fuel return hose assembly (1) to 90-degree fitting (2).

b. Follow-On Maintenance.

- (1) Lower cab (TM 9-2320-365-10).
(2) Start engine and allow to run until engine runs smoothly (TM 9-2320-365-10).
(3) Shut down engine (TM 9-2320-365-10).

End of Task.

4-12. GOVERNOR LINKAGE REPLACEMENT

This task covers:

- | | |
|----------------|--------------------------|
| a. Removal | d. Installation |
| b. Disassembly | e. Follow-On Maintenance |
| c. Assembly | |

INITIAL SETUP

Equipment Conditions

Engine shut down (TM 9-2320-365-10).
Cab raised (TM 9-2320-365-10).

Materials/Parts

Pin, Cotter (Item 202, Appendix G)
Spacer, Ring (Item 260, Appendix G)

Tools and Special Tools

Tool Kit, Genl Mech (Item 44, Appendix C)
Crowfoot Attachment, Socket Wrench (Item 5, Appendix B)

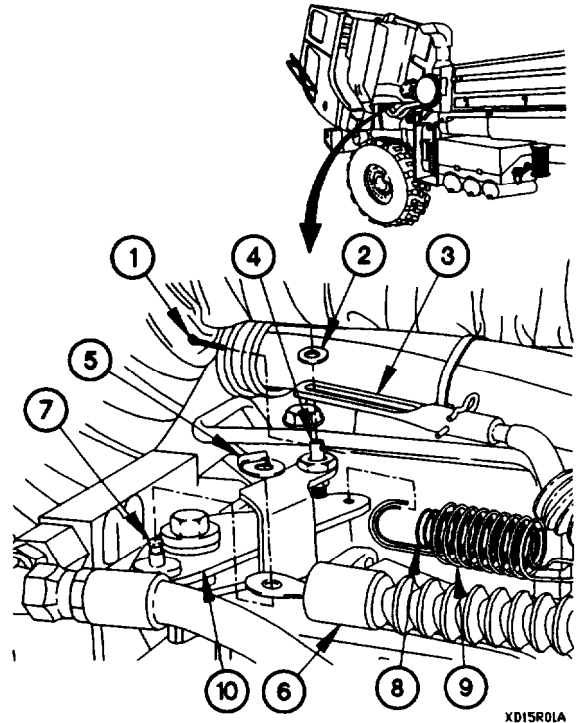
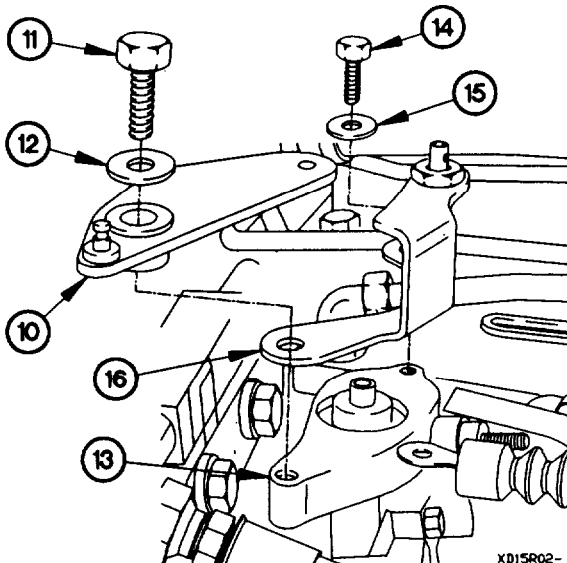
a. Removal.

- (1) Remove cotter pin (1), washer (2), and TPS cable assembly (3) from stud (4). Discard cotter pin.
- (2) Remove clip (5) and throttle control cable (6) from stud (7).

NOTE

Note position of two springs prior to removal.

- (3) Remove springs (8 and 9) from linkage plate (10).

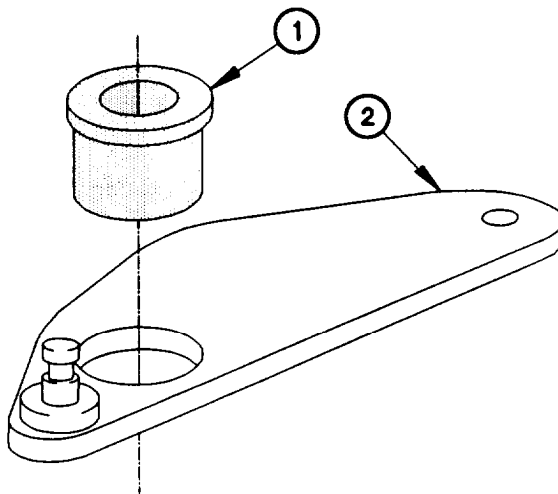


- (4) Remove bolt (11), washer (12), and linkage plate (10) from governor (13).
- (5) Remove bolt (14), washer (15), and sensor bracket (16) from governor (13).

4-12. GOVERNOR LINKAGE REPLACEMENT (CONT)

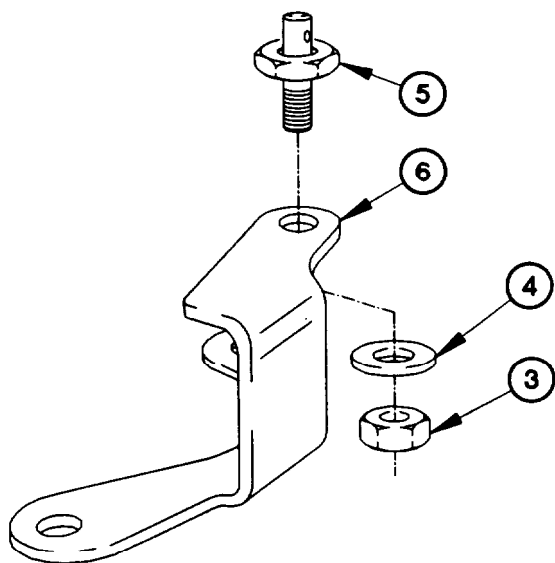
b. Disassembly.

(1) Remove ring spacer (1) from linkage plate (2). Discard ring spacer.



XD15R03-

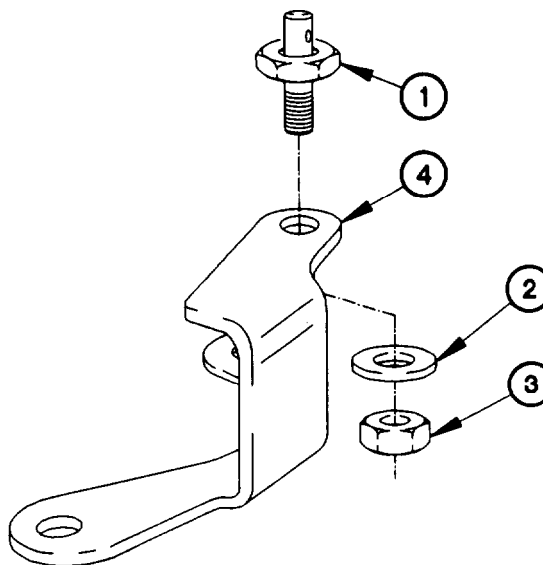
(2) Remove nut (3), washer (4), and stud (5) from sensor bracket (6).



XD15R04-

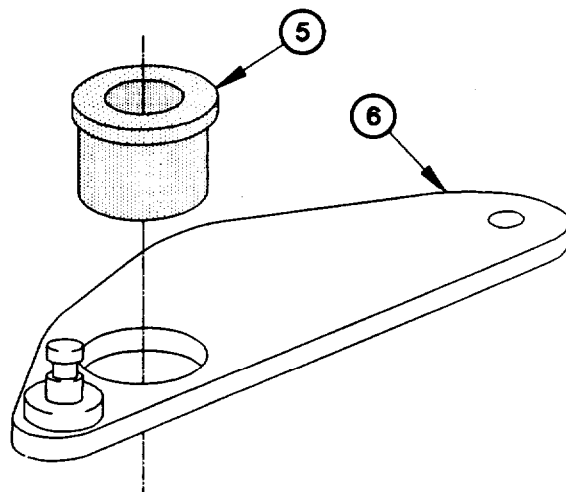
c. Assembly.

(1) Install stud (1), washer (2), and nut (3) on sensor bracket (4).



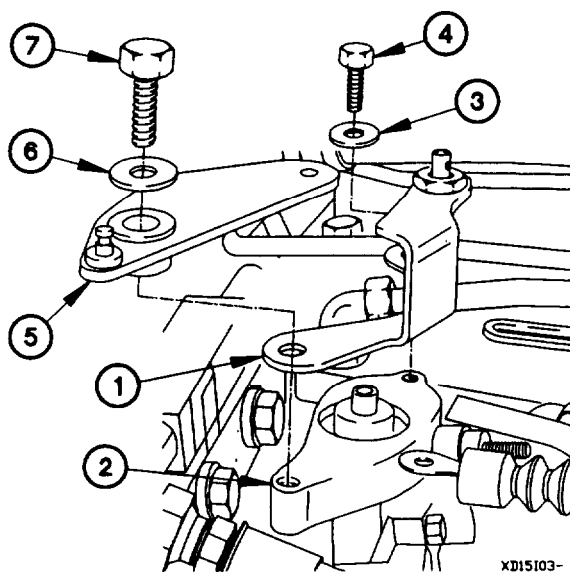
XD15101-

(2) Install ring spacer (5) in linkage plate (6).



xD15102-

d. Installation.



xD15103-

(1) Position sensor bracket (1) on governor (2) with washer (3) and bolt (4).

(2) Tighten bolt (4) to 9 lb-ft (12 N•m).

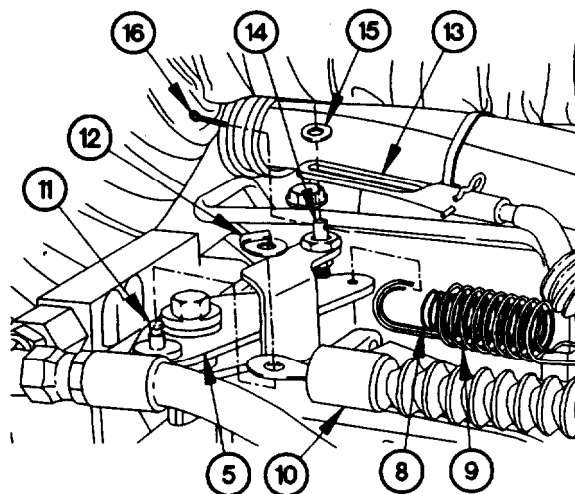
(3) Position linkage plate (5) on governor (2) with washer (6) and bolt (7).

(4) Tighten bolt (7) to 20 lb-ft (27 N•m).

(5) Install springs (8 and 9) on linkage plate (5).

(6) Install throttle control cable (10) on stud (11) with clip (12).

(7) Install TPS cable assembly (13) on stud (14) with washer (15) and cotter pin (16).



xD15104-

e. Follow-On Maintenance.

(1) Lower cab (TM 9-2320-365-10).

(2) Operate vehicle and check for proper engine operation (TM 9-2320-365-10).

End of Task.

4-13. FUEL/WATER SEPARATOR AND FILTER REPLACEMENT

This task covers:

- | | |
|---|---|
| <ul style="list-style-type: none"> a. Filter Removal b. Filter Installation c. Pump Head Removal | <ul style="list-style-type: none"> d. Pump Head Installation e. Follow-On Maintenance |
|---|---|

INITIAL SETUP

Equipment Conditions

- Cab raised (TM 9-2320-365-10).
- Batteries disconnected (para 7-48).

Tools and Special Tools

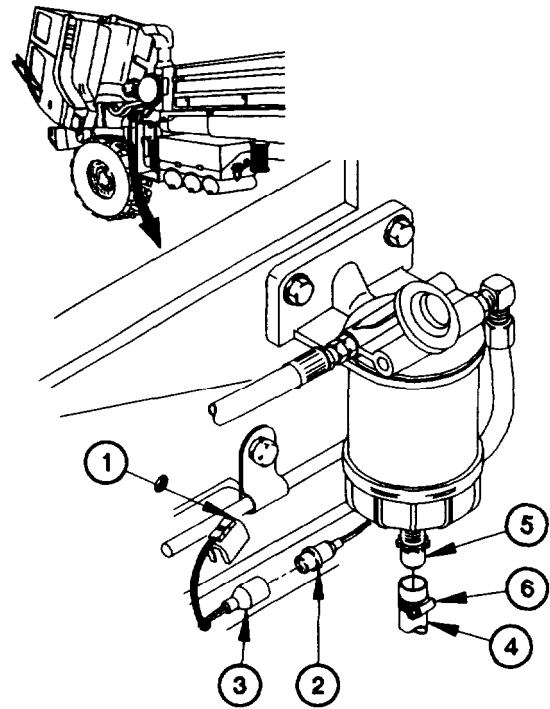
- Tool Kit, Genl Mech (Item 44, Appendix C)
- Pan, Drain (Item 24, Appendix C)

Materials/Parts

- Cloth, Cleaning (Item 17, Appendix D)
- Filter Element, Fluid (Item 14, Appendix G)
- Oil, Fuel, Diesel (Item 37, 38, or 39, Appendix D)
- Packing, Preformed (2) (Item 177, Appendix G)

WARNING

Diesel fuel is flammable. If fuel is spilled, clean it up immediately. Failure to comply may result in serious injury or death to personnel.



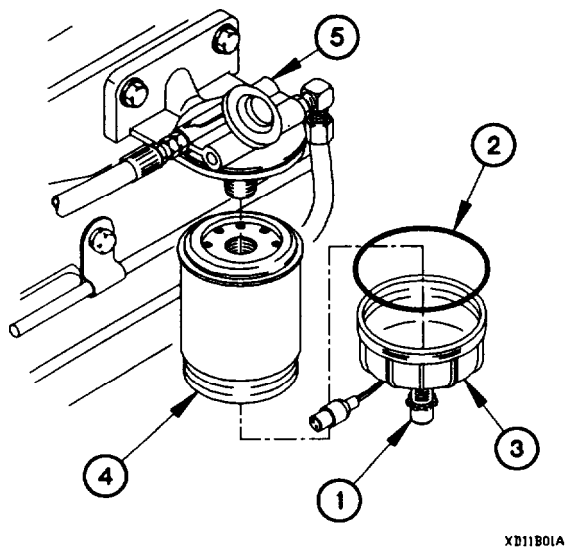
XD11A01A

a. Filter Removal.

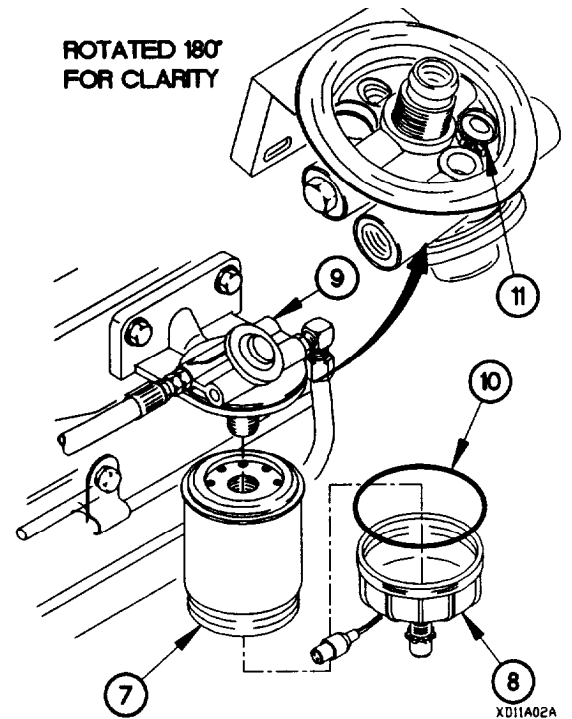
- (1) Disconnect connector clamp (1) from fuel/water separator connector (2).
- (2) Disconnect connector P33 (3) from fuel/water separator connector (2).
- (3) Position drain pan under hose (4).
- (4) Open drain valve (5) and allow fuel to drain.
- (5) Loosen clamp (6) on hose (4).
- (6) Remove hose (4) from drain valve (5).

- (7) Remove fluid filter element (7) and bowl assembly (8) from pump head (9).
- (8) Remove bowl assembly (8) from fluid filter element (7). Discard fluid filter element.
- (9) Remove preformed packing (10) from bowl assembly (8). Discard preformed packing.
- (10) Clean debris from valve (11) on bottom of pump head (9).

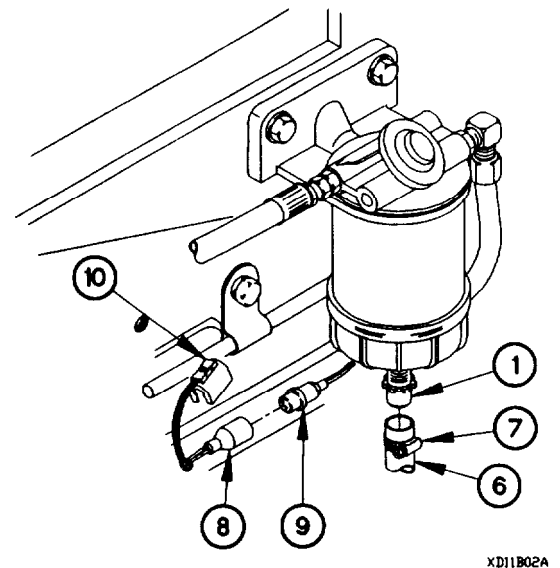
b. Filter Installation.



- (5) Install hose (6) on drain valve (1) with clamp (7).
- (6) Connect connector P33 (8) to fuel/water separator connector (9).
- (7) Connect connector clamp (10) on fuel/water separator connector (9).



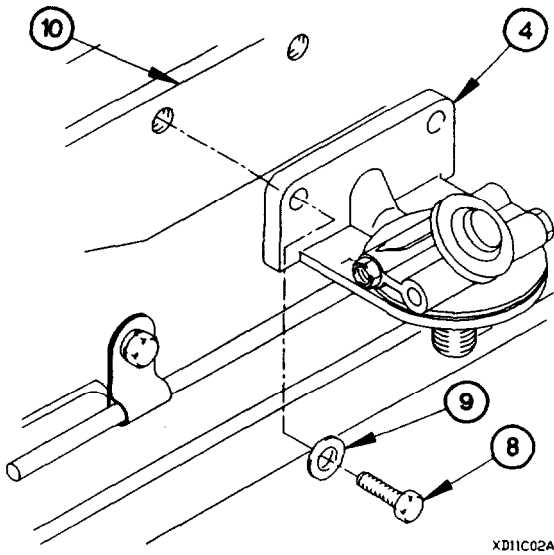
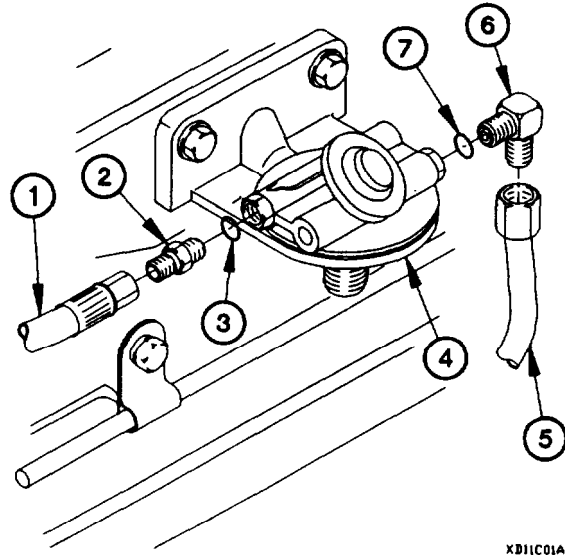
- (1) Close drain valve (1).
- (2) Install preformed packing (2) on bowl assembly (3).
- (3) Install bowl assembly (3) on fluid filter element (4).
- (4) Install fluid filter element (4) on pump head (5).



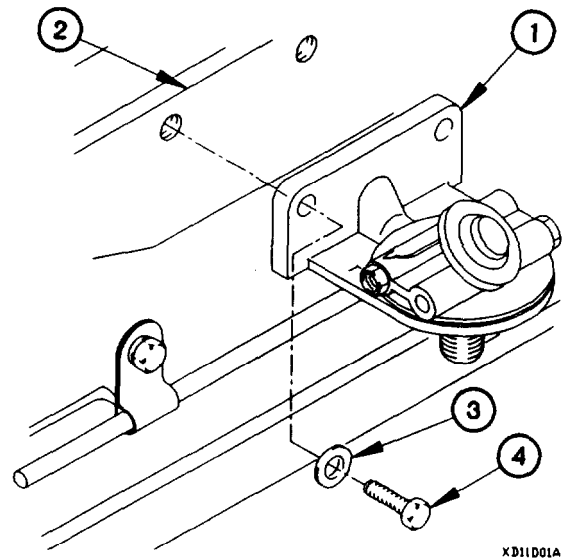
4-13. FUELWATER SEPARATOR AND FILTER REPLACEMENT (CONT)

c. Pump Head Removal.

- (1) Disconnect fuel transfer hose assembly (1) from adapter (2).
- (2) Remove adapter (2) and preformed packing (3) from pump head (4). Discard preformed packing.
- (3) Disconnect fuel supply hose assembly (5) from 90-degree fitting (6).
- (4) Remove 90-degree fitting (6) and preformed packing (7) from pump head (4). Discard preformed packing.



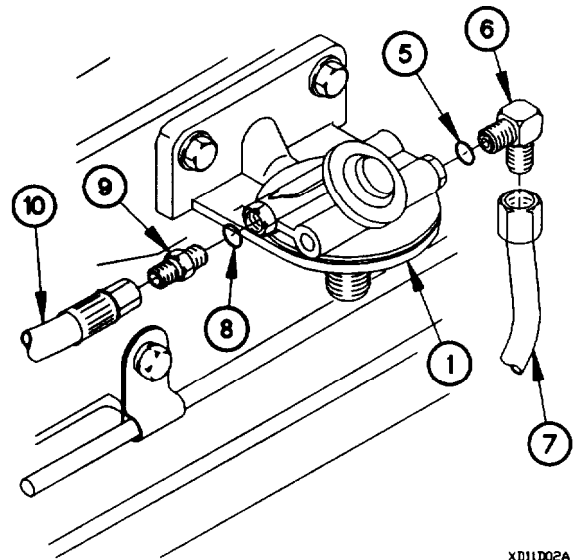
- (5) Remove two screws (8), washers (9), and pump head (4) from bracket (10).



d. Pump Head Installation.

- (1) Install pump head (1) on bracket (2) with two washers (3) and screws (4).

- (2) Install preformed packing (5) on 90-degree fitting (6).
- (3) Install 90-degree fitting (6) in pump head (1).
- (4) Install fuel supply hose assembly (7) on 90-degree fitting (6).
- (5) Install preformed packing (8) on adapter (9).
- (6) Install adapter (9) in pump head (1).
- (7) Install fuel transfer hose assembly (10) on adapter (9).



XD11D02A

e. Follow-On Maintenance.

- (1) Bleed fuel system (para 4-11).
- (2) Lower cab (TM 9-2320-365-10).
- (3) Connect batteries (para 7-48).
- (4) Start engine (TM 9-2320-365-10).
- (5) Check for fuel leaks under vehicle.
- (6) Raise cab (TM 9-2320-365-10).
- (7) Check engine compartment for fuel leaks.
- (8) Lower cab (TM 9-2320-365-10).
- (9) Shut down engine (TM 9-2320-365-10).

End of Task.

4-14. FUEL FILTER AND FILTER BASE REPLACEMENT

This task covers:

- | | |
|------------------------|-----------------------------|
| a. Filter Removal | d. Filter Base Installation |
| b. Filter Installation | e. Follow-On Maintenance |
| c. Filter Base Removal | |

INITIAL SETUP

Equipment Conditions

Cab raised (TM 9-2320-365-10).
Batteries disconnected (para 7-48).

Tools and Special Tools

Pan, Drain (Item 24, Appendix C)
Tool Kit, Genl Mech (Item 44, Appendix C)
Wrench, Torque, 0-200 lb-in. (Item 58, Appendix C)
Socket Set, Socket Wrench (Item 35, Appendix C)
Wrench, Strap, Adjustable (Item 56, Appendix C)

Materials/Parts

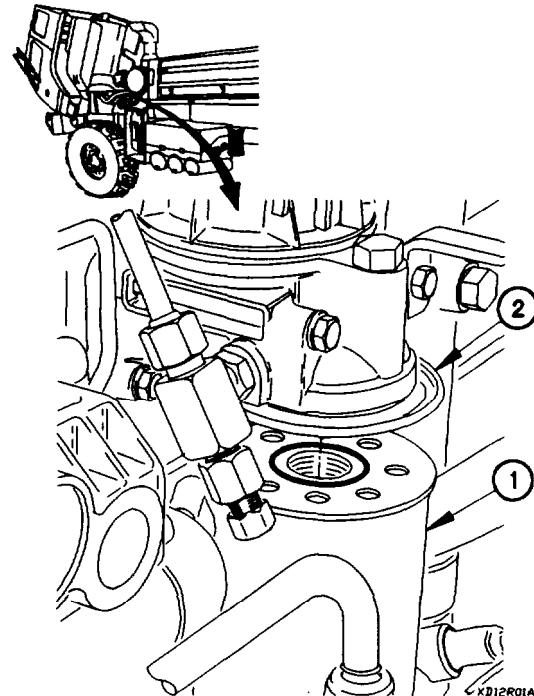
Filter, Fuel (Item 21, Appendix G)
Packing, Preformed (2) (Item 157, Appendix G)
Packing, Preformed (3) (Item 180, Appendix G)
Packing, Preformed (Item 184, Appendix G)
Gasket, Fuel Filter (Item 42, Appendix G)
Oil, Fuel, Diesel (Item 37, 38, or 39, Appendix D)

WARNING

Diesel fuel is flammable. If fuel is spilled, clean it up immediately. Failure to comply may result in serious injury or death to personnel.

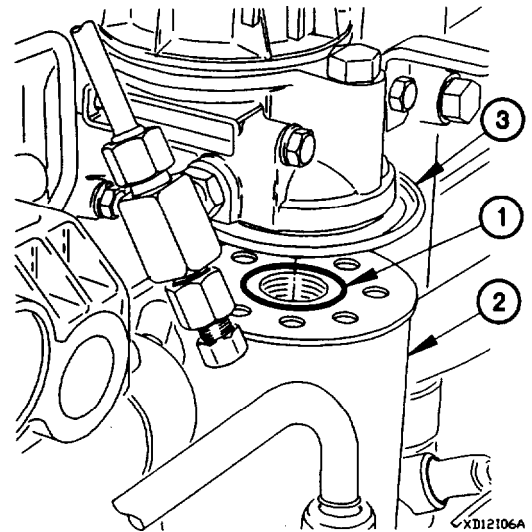
a. Filter Removal.

- (1) Position drain pan under filter element (1).
- (2) Remove filter element (1) from fuel filter base (2).

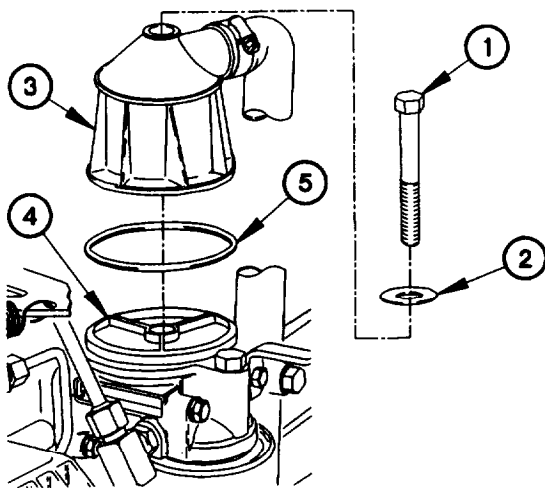


b. Filter Insallation.

- (1) Coat filter element seal (1) with a light coat of fuel.
- (2) Fill filter element (2) with diesel fuel.
- (3) Install filter element (2) on fuel filter base (3). Then turn 3/4-turn after filter element touches fuel filter base.



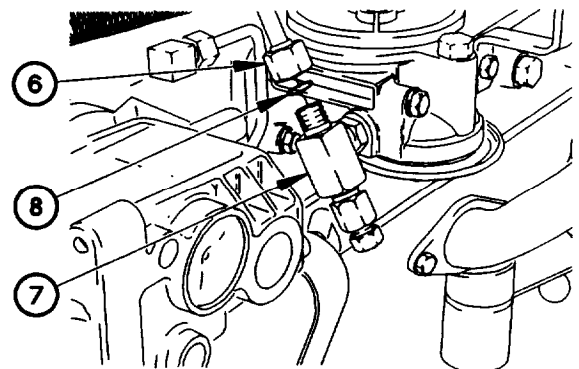
c. Filter Base Removal.



- (1) Remove screw (1) and washer (2) from top of crankcase breather (3).
- (2) Remove crankcase breather (3) from fuel filter base (4).
- (3) Remove preformed packing (5) from fuel filter base (4). Discard preformed packing.

XD12R02-

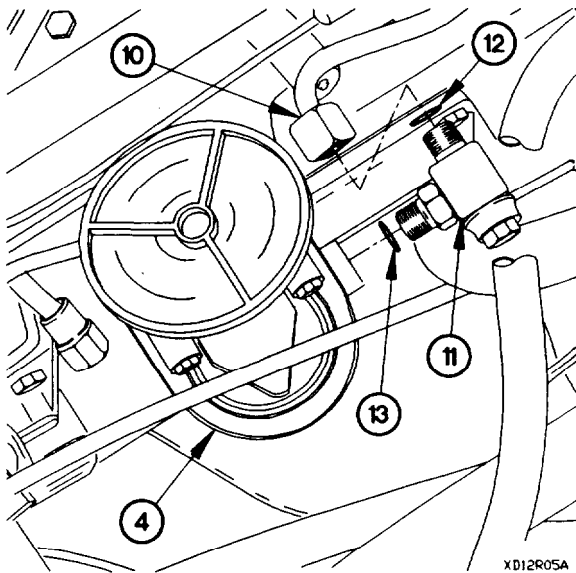
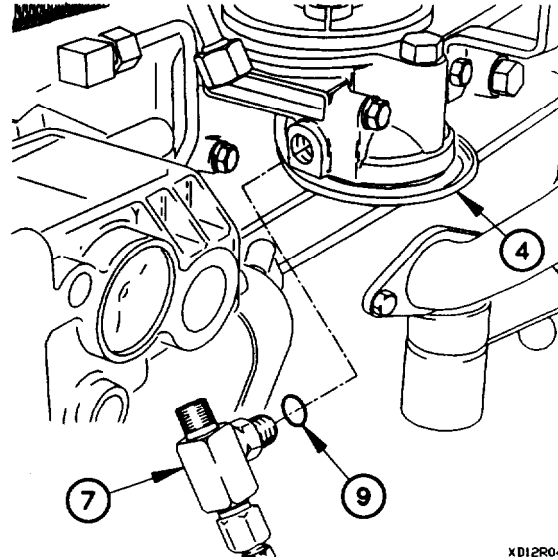
- (4) Disconnect fuel tube assembly (6) from tee fitting (7).
- (5) Remove preformed packing (8) from tee fitting (7). Discard preformed packing.



XD12R03A

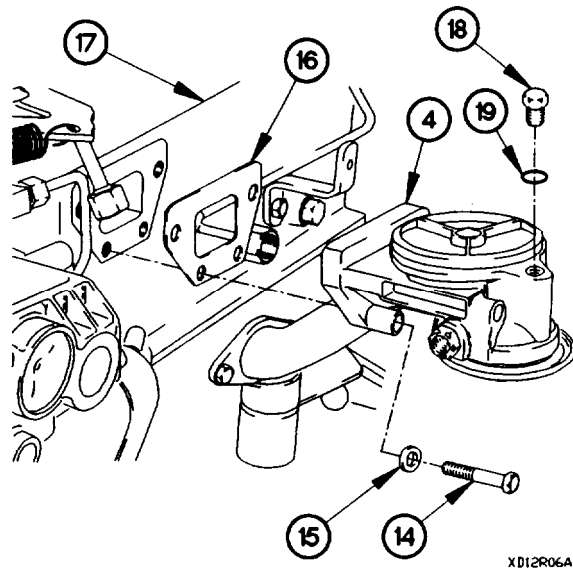
4-14. FUEL FILTER AND FILTER BASE REPLACEMENT (CONT)

- (6) Remove tee fitting (7) from fuel filter base (4).
- (7) Remove preformed packing (9) from tee fitting (7). Discard preformed packing.



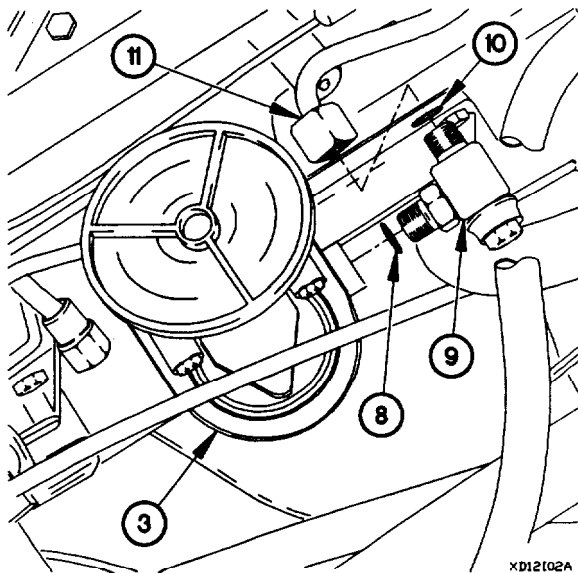
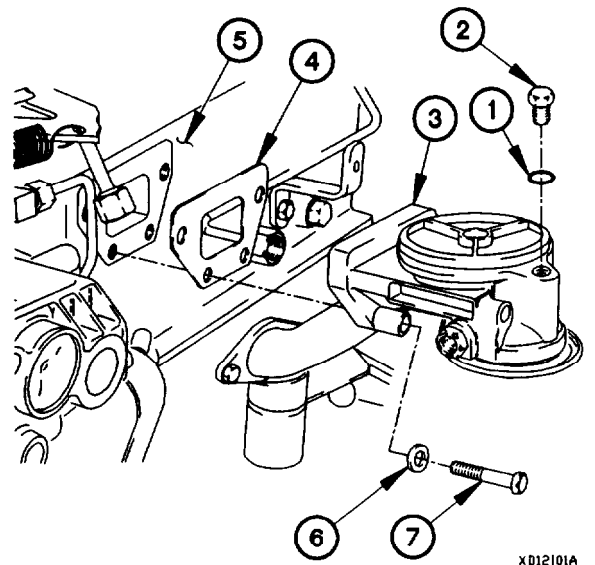
- (8) Disconnect fuel tube assembly (10) from tee fitting (11).
- (9) Remove preformed packing (12) from tee fitting (11). Discard preformed packing.
- (10) Remove tee fitting (11) from fuel filter base (4).
- (11) Remove preformed packing (13) from tee fitting (11). Discard preformed packing.

- (12) Remove four screws (14) and washers (15) from fuel filter base (4).
- (13) Remove fuel filter base (4) and gasket (16) from engine (17). Discard gasket.
- (14) Remove plug (18) from fuel filter base (4).
- (15) Remove preformed packing (19) from plug (18). Discard preformed packing.



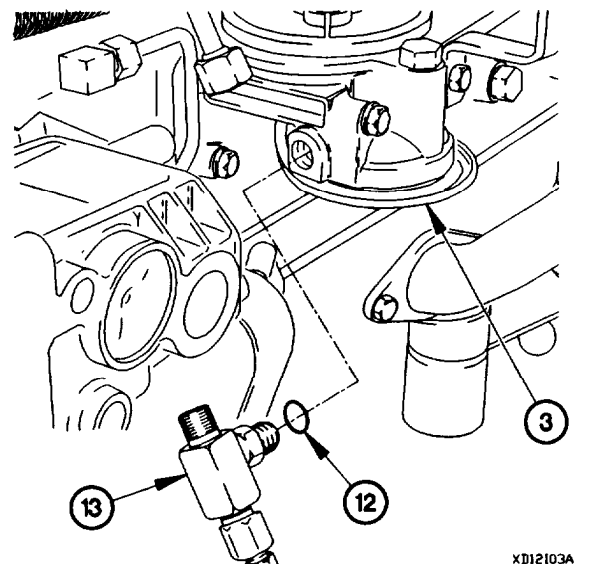
d. Filter Base Installation.

- (1) Install preformed packing (1) on plug (2).
- (2) Install plug (2) in fuel filter base (3).
- (3) Position fuel filter base (3) and gasket (4) on engine (5) with four washers (6) and screws (7).
- (4) Tighten four screws (7) to 96-144 lb-in. (11-16 N•m).



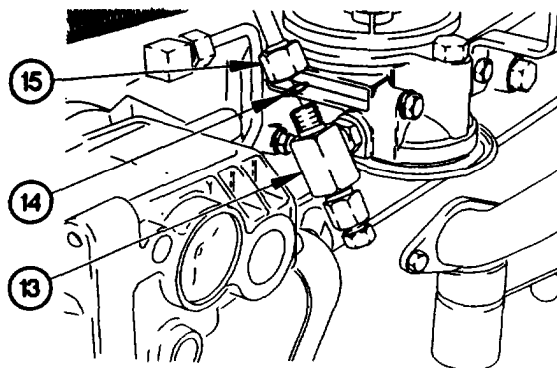
- (5) Install preformed packing (8) on tee fitting (9).
- (6) Install tee fitting (9) in fuel filter base (3).
- (7) Install preformed packing (10) on tee fitting (9).
- (8) Connect fuel tube assembly (11) to tee fitting (9).

- (9) Install preformed packing (12) on tee fitting (13).
- (10) Install tee fitting (13) in fuel filter base (3).

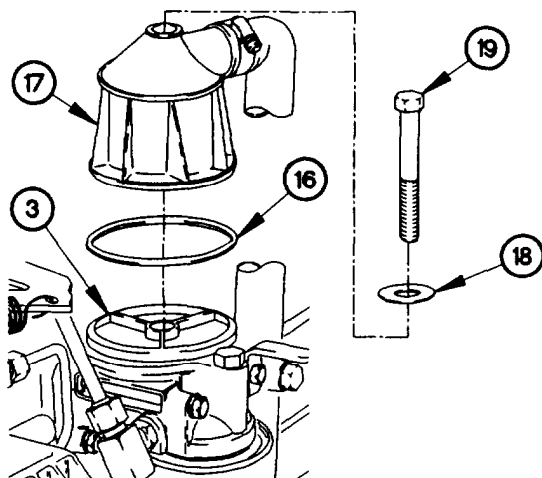


4-14. FUEL FILTER AND FILTER BASE REPLACEMENT (CONT)

- (11) Install preformed packing (14) on tee fitting (13).
- (12) Connect fuel tube assembly (15) to tee fitting (13).



XD12104A



XD12105A

- (13) Apply thin coat of lubricating oil to both sides of preformed packing (16).
- (14) Install preformed packing (16) on top of fuel filter base (3).
- (15) Position crankcase breather (17) on top of fuel filter base (3) with washer (18) and screw (19).
- (16) Tighten screw (19) to 96-144 lb-in. (11-16 N•m).

e. Follow-On Maintenance.

- (1) Bleed fuel system (para 4-11).
- (2) Lower cab (TM 9-2320-365-10).
- (3) Connect batteries (para 7-48).
- (4) Start engine (TM 9-2320-365-10).

- (5) Check for fuel leaks under vehicle.
- (6) Raise cab (TM 9-2320-365-10).
- (7) Check for fuel leaks around fuel filter.
- (6) Lower cab (TM 9-2320-365-10).
- (9) Shut down engine (TM 9-2320-365-10).

End of Task.

4-15. ETHER STARTING AID REPLACEMENT

This task covers:

- | | |
|--------------------------------|-----------------------------|
| a. Ether Cylinder Removal | e. Ether Valve Removal |
| b. Ether Cylinder Installation | f. Ether Valve Installation |
| c. Clamp Removal | g. Follow-On Maintenance |
| d. Clamp Installation | |

INITIAL SETUP

Equipment Conditions

- Batteries disconnected (para 7-48).
- Spare tire lowered (TM 9-2320-365-10).

Materials/Parts

- Gasket (Item 25, Appendix G)
- Nut, Self-Locking (4) (Item 137, Appendix G)

Tools and Special Tools

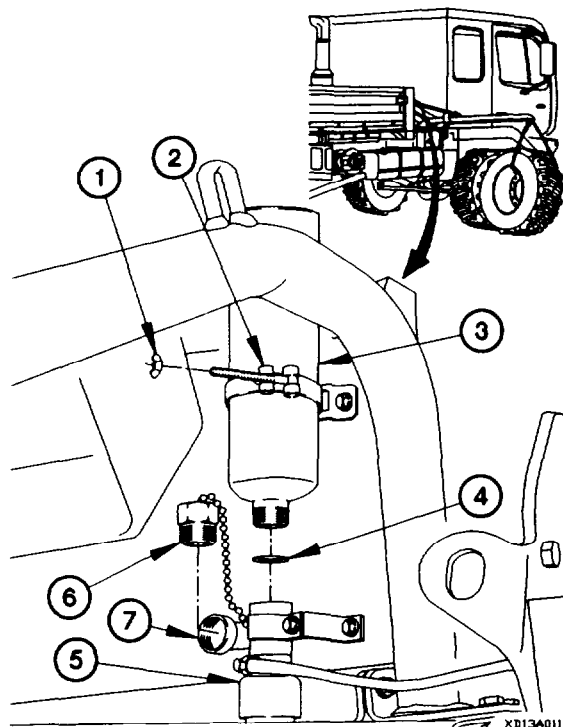
- Goggles, Industrial (Item 15, Appendix C)
- Tool Kit, Genl Mech (Item 44, Appendix C)
- Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)

WARNING

Starting fluid is toxic and highly flammable. Container is pressurized. NEVER heat container and NEVER discharge starting fluid in confined areas or near open flame. Failure to comply may cause serious injury or death to personnel.

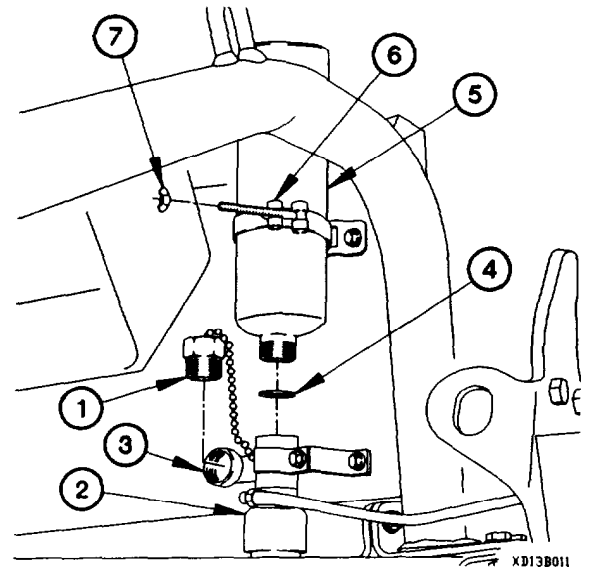
a. Ether Cylinder Removal.

- (1) Remove wingnut (1) from clamp (2).
- (2) Remove ether cylinder (3) and gasket (4) from ether valve (5). Discard gasket.
- (3) Remove ether cylinder (3) from clamp (2).
- (4) Remove cap (6) from cap retainer (7).
- (5) Install cap (6) on ether valve (5).

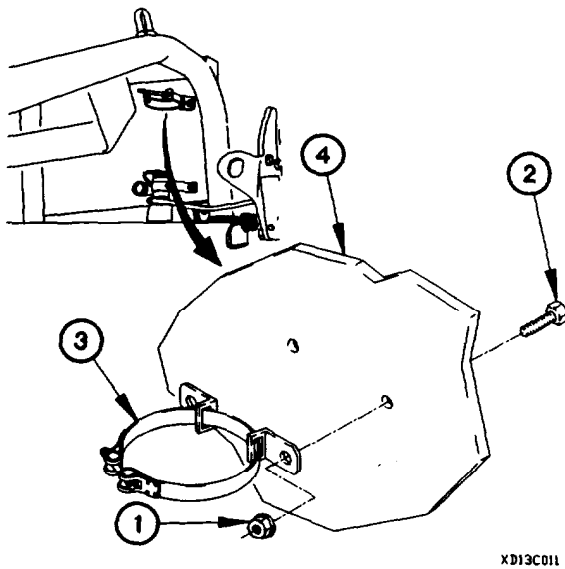


b. Ether Cylinder Installation.

- (1) Remove cap (1) from ether valve (2).
- (2) Install cap (2) on cap retainer (3).
- (3) Install gasket (4) in ether valve (2).
- (4) Position ether cylinder (5) in clamp (6).
- (5) Install ether cylinder (5) on ether valve (2).
- (6) Install wingnut (7) on clamp (6).



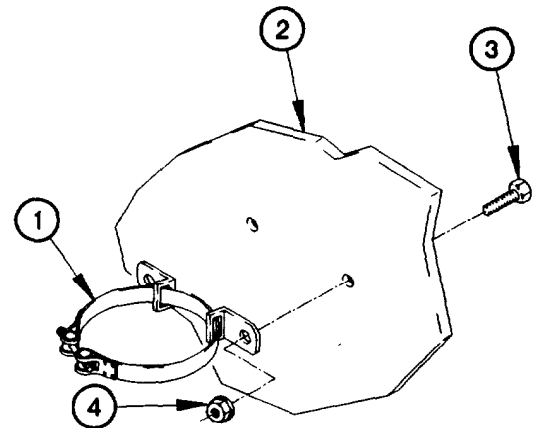
c. Clamp Removal.



Remove two self-locking nuts (1), screws (2), and clamp (3) from spare tire retainer (4). Discard self-locking nuts.

d. Clamp Installation.

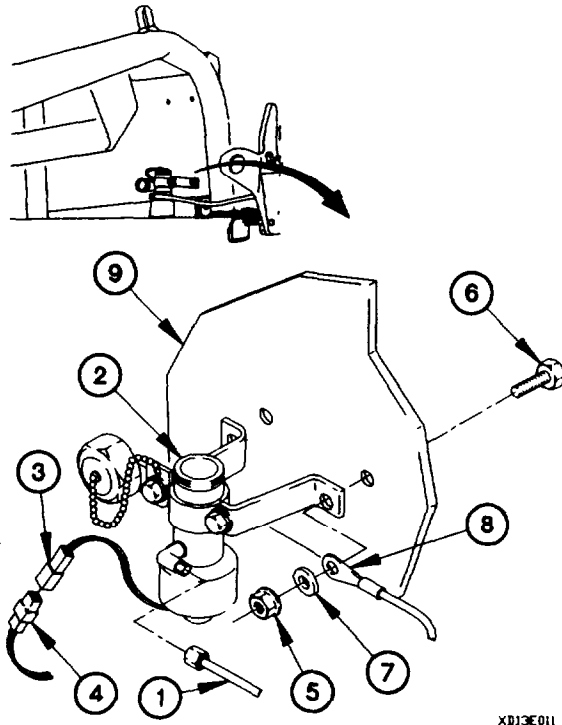
- (1) Position clamp (1) on spare tire retainer (2) with two screws (3) and self-locking nuts (4).
- (2) Tighten two self-locking nuts (4) to 20-25 lb-ft (29-35 N•m).



4-15. ETHER STARTING AID REPLACEMENT (CONT)

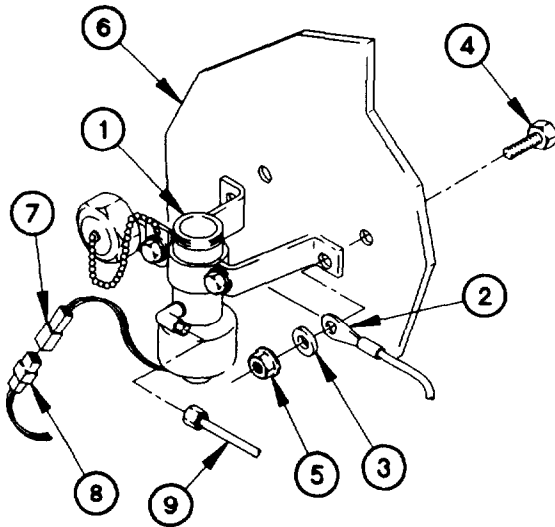
e. Ether Valve Removal.

- (1) Disconnect ether tube (1) from ether valve (2).
- (2) Disconnect ether valve electrical connector (3) from connector J93 (4).
- (3) Remove two self-locking nuts (5), screws (6), washers (7), terminal lug TL84 (8), and ether valve (2) from spare tire retainer (9). Discard self-locking nuts.



XD13E011

f. Ether Valve Installation.



XD13F011

- (1) Position ether valve (1), terminal lug TL84 (2), two washers (3), screws (4), and self-locking nuts (5) on spare tire retainer (6).
- (2) Tighten self-locking nuts (5) to 20-25 lb-ft (29-35 N•m).
- (3) Connect ether valve electrical connector (7) to connector J93 (8).
- (4) Connect ether tube (9) to ether valve (1).

g. Follow-On Maintenance.

- (1) Raise spare tire (TM 9-2320-365-10).
- (2) Connect batteries (para 7-48).
- (3) Operate ether starting aid (TM 9-2320-365-10) and check for ether leaks.

End of Task.

4-16. THROTTLE POSITION SENSOR (TPS) CABLE ASSEMBLY REPLACEMENT

This task covers:

a. Removal

b. Installation

INITIAL SETUP

Equipment Conditions

Batteries disconnected (para 7-48).
Cab raised (TM 9-2320-365-10).

Materials/Parts

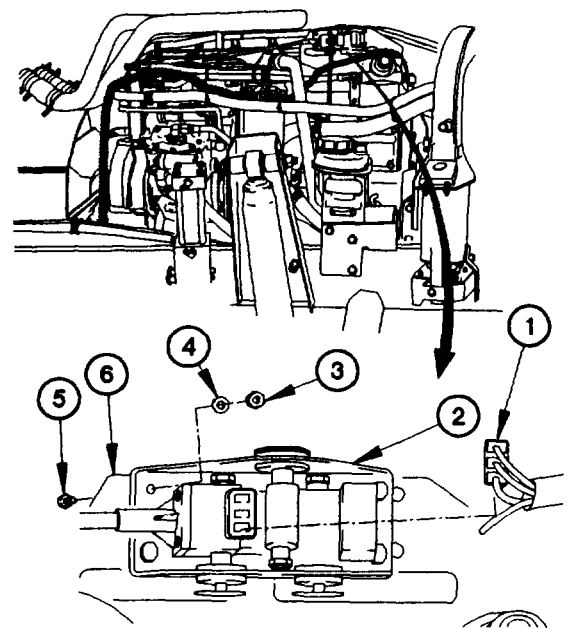
Pin, Cotter (Item 202, Appendix G)

Tools and Special Tools

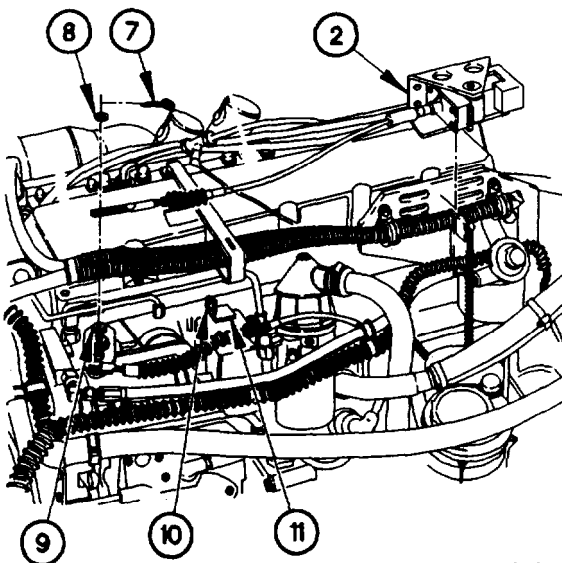
Tool Kit, Genl Mech (Item 44, Appendix C)

a. Removal.

- (1) Disconnect electrical connector (1) from TPS cable assembly (2).
- (2) Remove three nuts (3), washers (4), screws (5), and TPS cable assembly (2) from bracket (6).



XD14R01A



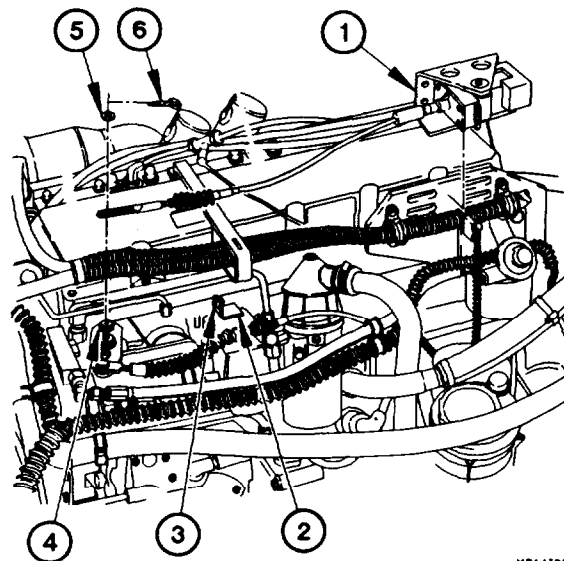
XD14R02I

- (3) Remove cotter pin (7) and washer (8) from stud (9). Discard cotter pin.
- (4) Remove TPS cable assembly (2) from stud (9).
- (5) Release latch (10) on clamp (11).
- (6) Remove TPS cable assembly (2) from clamp (11).
- (7) Remove TPS cable assembly (2) from engine.

4-16. THROTTLE POSITION SENSOR (TPS) CABLE ASSEMBLY REPLACEMENT (CONT)

b. Installation.

- (1) Position TPS cable assembly (1) in clamp (2).
- (2) Close latch (3) on clamp (2).
- (3) Position TPS cable assembly (1) on stud (4).
- (4) Install washer (5) and cotter pin (6) on stud (4).



XD141011

- (5) Install TPS cable assembly (1) on bracket (7) with three screws (8), washers (9) and nuts (10).
- (6) Connect electrical connector (11) to TPS cable assembly (1).
- (7) Lower cab (TM 9-2320-365-10).
- (8) Connect batteries (para 7-48).

NOTE

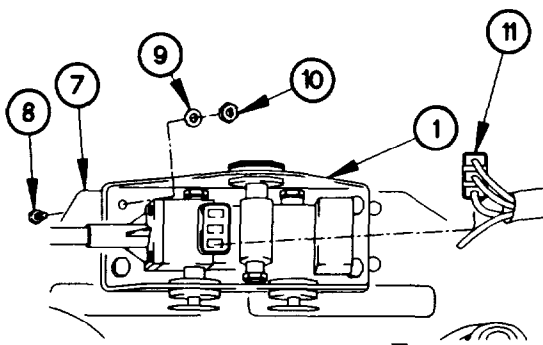
Wait until Neutral (N) indication appears in pushbutton shift selector display before positioning master power switch off.

- (9) Position master power switch on and off five times (TM 9-2320-365-10).

NOTE

TPS will self-adjust but vehicle will need to be operated through all gear ranges several times before correct shifting will be noticed.

Operate vehicle and check for smooth transmission shifting through all gear ranges (TM 9-2320-365-10).



XD141021

End of Task.

4-17. HAND THROTTLE LEVER REPLACEMENT/ADJUSTMENT

This task covers:

- a. Removal
- b. Installation/Adjustment
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Instrument panel assembly removed for access (para 7-15).

Tools and Special Tools

Tool Kit, Genl Mech (Item 44, Appendix C)
Scale, Weighing (Item 30, Appendix C)

Materials/Parts

Washer, Spring (Item 281, Appendix G)

a. Removal.

Remove nut (1), washer (2), spring washer (3), HAND THROTTLE lever (4), and friction disk (5) from dashboard (6). Discard spring washer.

b. Installation/Adjustment.

WARNING

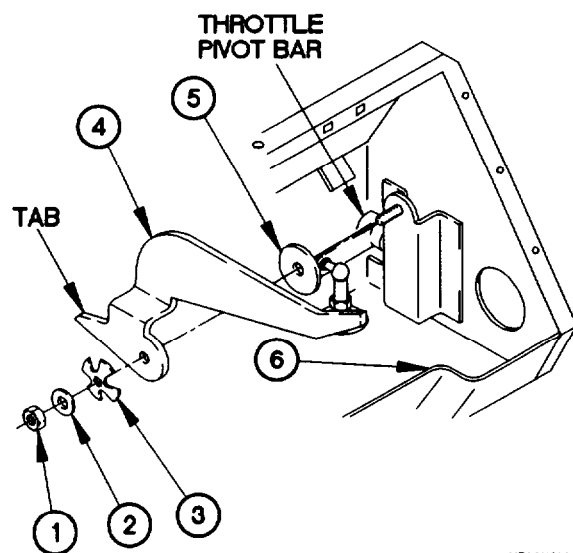
Tab of HAND THROTTLE lever must be positioned above throttle pivot bar. Failure to comply may result in injury to personnel or damage to equipment.

- (1) Position friction disk (5), HAND THROTTLE lever (4), spring washer (3), washer (2), and nut (1) on dashboard (6).

CAUTION

HAND THROTTLE lever nut must be tightened so that 9-11 lbs (40-49 N) of force is required to change position of HAND THROTTLE lever. Failure to comply may result in damage to equipment.

- (2) Tighten nut (1) on HAND THROTTLE lever (4).



XD16X01A

4-17. HAND THROTTLE LEVER REPLACEMENT/ADJUSTMENT (CONT)

c. Follow-On Maintenance.

- (1) Install instrument panel assembly (para 7-15).
- (2) Start engine (TM 9-2320-365-10).
- (3) Check for smooth operation of HAND THROTTLE lever.
- (4) Check high/low HAND THROTTLE lever positions (para 4-22).
- (5) Shut down engine (TM 9-2320-385-10).

End of Task.

4-18. THROTTLE CONTROL CABLE REPLACEMENT/ADJUSTMENT

This task covers:

- a. Removal
- b. Installation
- c. Adjustment
- d. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Engine shut down (TM 9-2320-365-10).
Steering wheel removed (para 13-2).

Materials/Parts

Grease, Molybdenum Disulfide (Item 25, Appendix D)

Tools and Special Tools

Tool Kit, Genl Mech (Item 44, Appendix C)

Personnel Required

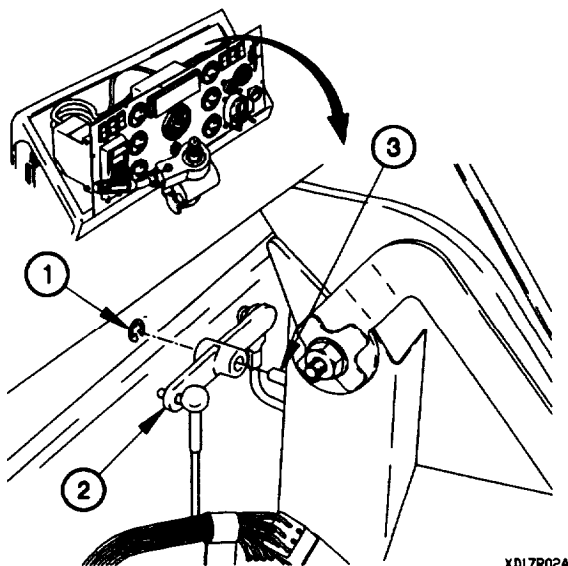
(2)

a. Removal.

- (1) Position master power switch to on (TM 9-2320-365-10).
- (2) Place wiper blades in the full left position (TM 9-2320-365-10).
- (3) Position master power switch to off (TM 9-2320-365-10).
- (4) Disconnect batteries (para 7-48).



XDI7R01-



XDI7R02A

- (5) Remove instrument panel assembly for access (para 7-15).

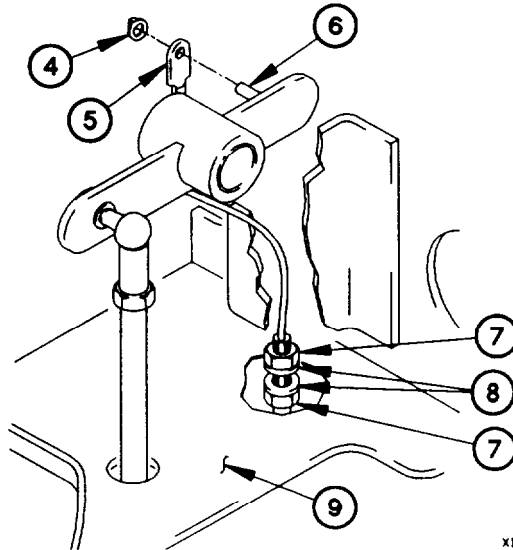


Retaining rings are under tension and can act as projectiles when released causing severe eye injury. Use care when removing retaining rings. Failure to comply may result in injury to personnel.

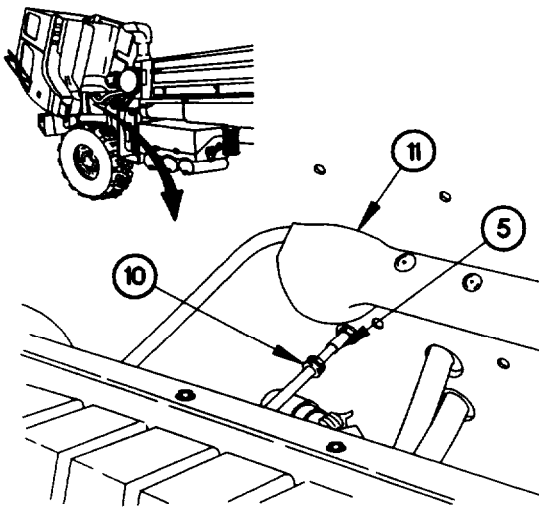
- (6) Remove retaining ring (1) and bellcrank (2) from stud (3).

4-18. THROTTLE CONTROL CABLE REPLACEMENT/ADJUSTMENT (CONT)

- (7) Remove clip (4) and throttle control cable (5) from stud (6).
- (8) Loosen two nuts (7) with washers (8) on throttle control cable (5).
- (9) Remove throttle control cable (5) from dashboard (9).



XD17R03A



XD17R04-

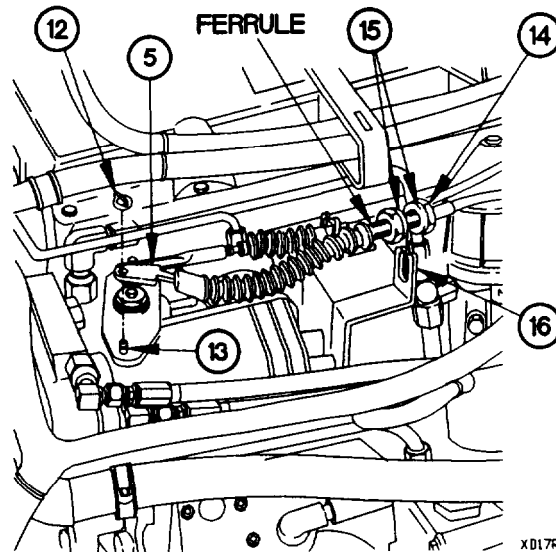
- (10) Raise cab (TM 9-2320-365-10).
- (11) Remove throttle control cable (5) and grommet (10) from cab (11).

- (12) Remove clip (12) and throttle control cable (5) from stud (13).

NOTE

Count threads showing on throttle control cable ferrule. Record this number prior to removal.

- (13) Loosen nut (14) with washers (15) on throttle control cable (5).
- (14) Remove throttle control cable (5) from bracket (16).

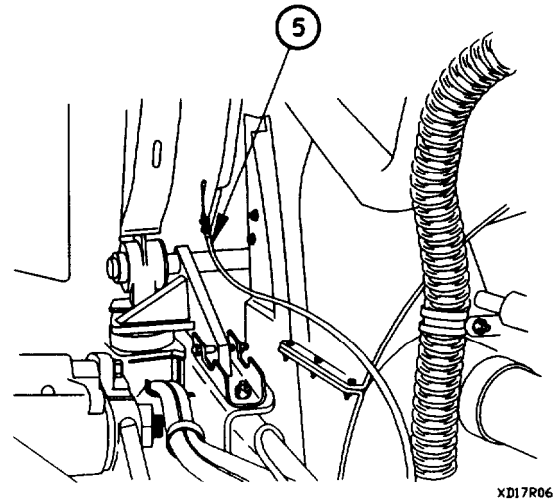


XD17R05A

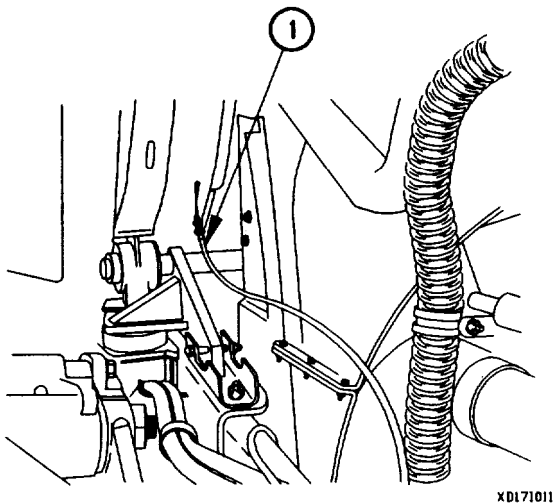
NOTE

- Note routing of throttle control cable prior to removal.
- Remove plastic cable ties as required.

(15) Remove throttle control cable (5) from vehicle.

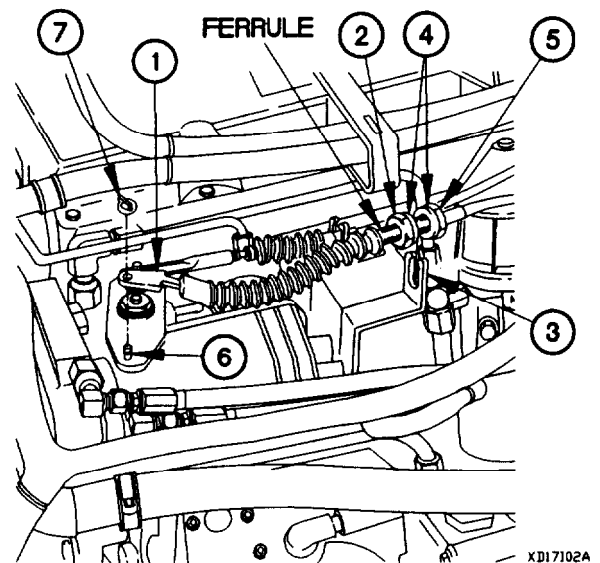


b. Installation.



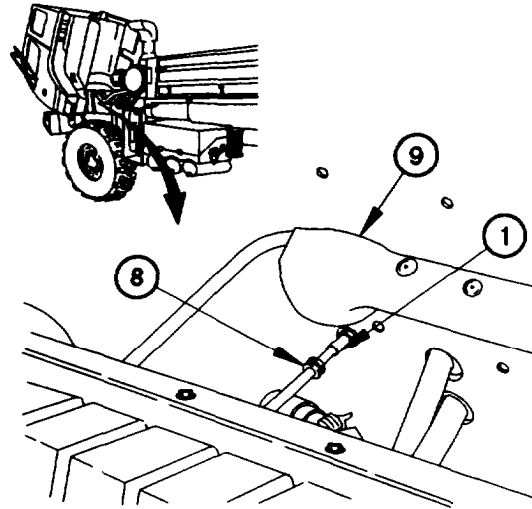
(1) Position throttle control cable (1) on vehicle.

- (2) Position nut (2) on throttle control cable (1) so that same number of threads are showing on ferrule as was recorded in removal.
- (3) Position throttle control cable (1) in bracket (3) with two washers (4) and nut (5).
- (4) Install throttle control cable (1) on stud (6) with clip (7).



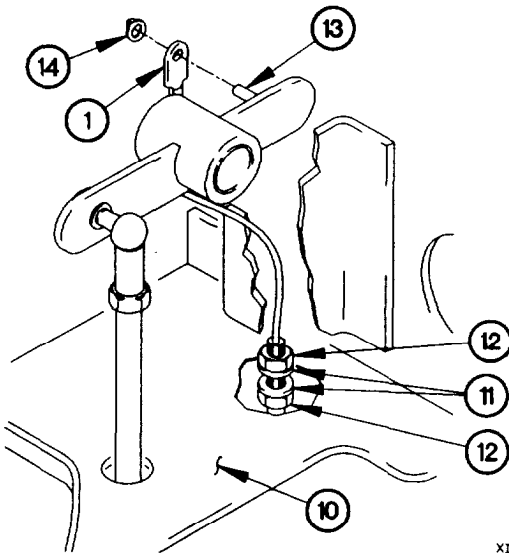
4-18. THROTTLE CONTROL CABLE REPLACEMENT/ADJUSTMENT (CONT)

- (5) Position grommet (8) and throttle control cable (1) in cab (9).
- (6) Lower cab (TM 9-2320-365-10).



XD17103A

- (7) Position throttle control cable (1) in dashboard (10) with two washers (11) and nuts (12).
- (8) Install throttle control cable (1) on stud (13) with clip (14).



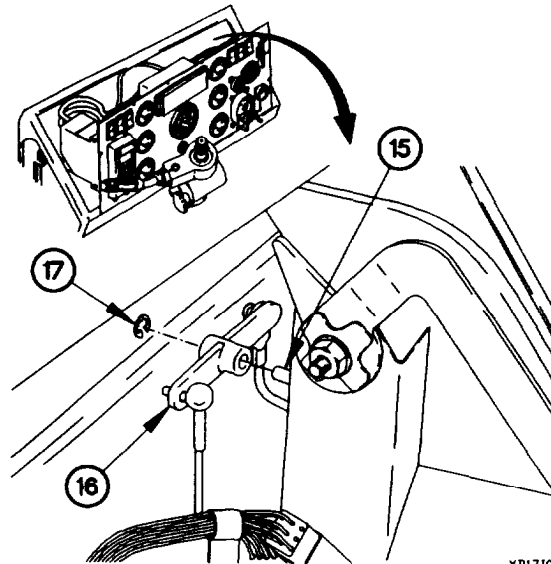
XD17104A

- (9) Apply grease to stud (15).

WARNING

Retaining rings are under tension and can act as projectiles when released causing severe eye injury. Use care when installing retaining rings. Failure to comply may result in injury to personnel.

- (10) Install bellcrank (16) on stud (15) with retaining ring (17).



XD17105A

c. Adjustment.

- (1) Raise cab (TM 9-2320-365-10).

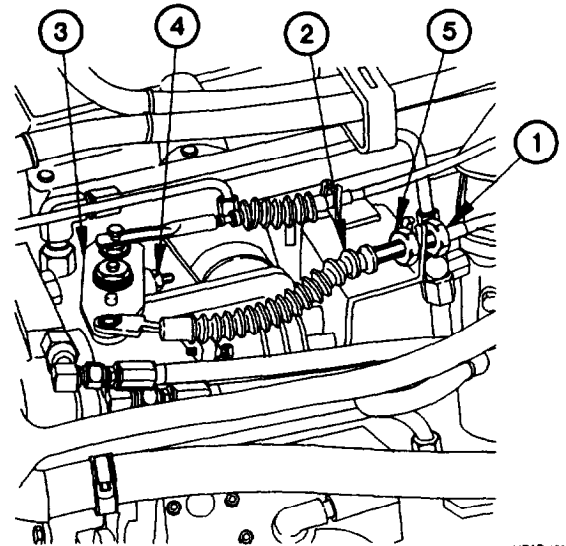
CAUTION

Ensure governor linkage rests against low idle stop with throttle control cable installed. Failure to comply may result in damage to equipment.

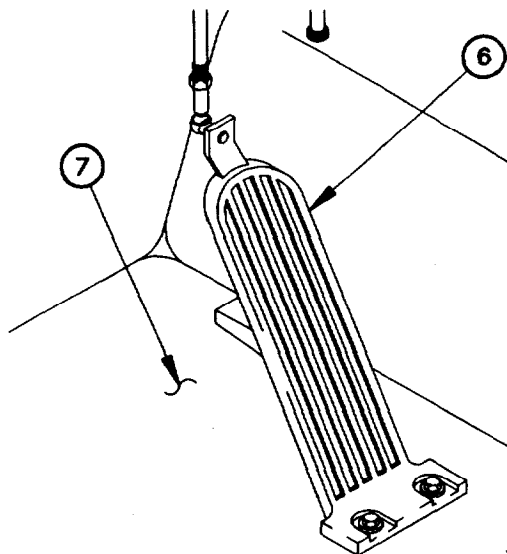
NOTE

Perform steps (2) and (3) if governor linkage does not contact low idle stop with throttle control cable installed.

- (2) Loosen nut (1) on throttle control cable (2) until governor linkage (3) contacts low idle stop (4).
 (3) Tighten nut (5) on throttle control cable (2).



XD17.J01-



XD17.J02-

WARNING

Use extreme care when opening cab door with cab raised. Failure to comply may result in injury to personnel or damage to equipment.

CAUTION

Ensure governor linkage contacts high idle stop with accelerator pedal fully depressed. Failure to comply may result in damage to equipment.

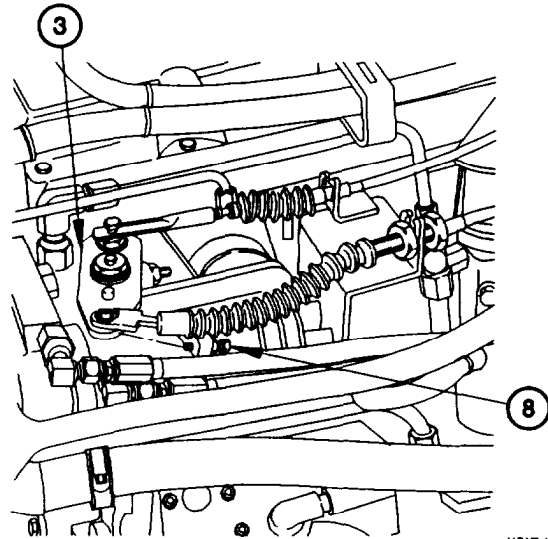
NOTE

Steps (4) through (7) require the aid of an assistant.

- (4) Depress accelerator pedal (6) to cab floor (7).

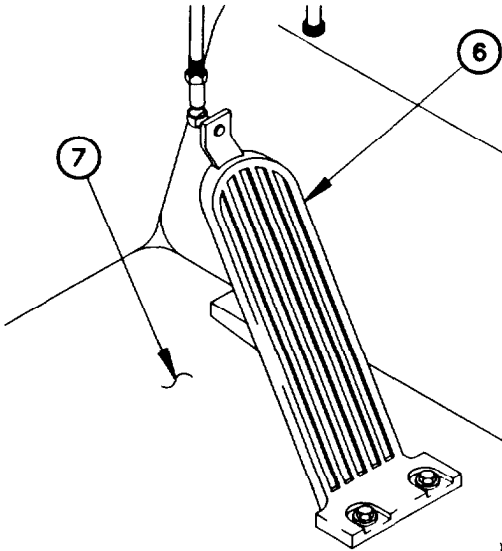
4-18. THROTTLE CONTROL CABLE REPLACEMENT/ADJUSTMENT (CONT)

(5) Observe movement of governor linkage (3) to high idle stop (8).



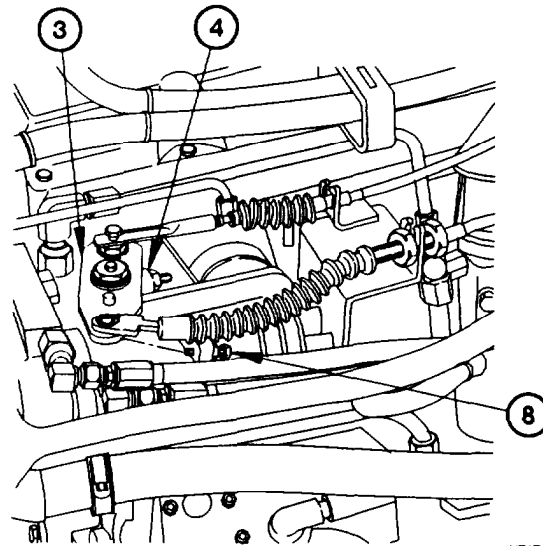
XD17.J03-

(6) Release accelerator pedal (6) from cab floor (7).



XD17.J02-

(7) Observe movement of governor linkage (3) from high idle stop (8) to low idle stop (4).



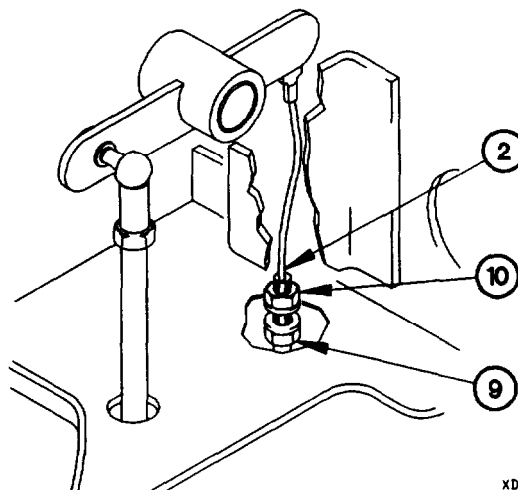
XD17.J041

- (8) Loosen nut (9) on throttle control cable (2).
- (9) Tighten nut (10) on throttle control cable (2).
- (10) Perform steps (4) through (9) until freeplay is removed from throttle control cable (2).

d. Follow-On Maintenance.

- (1) Lower cab (TM 9-2320-365-10).
- (2) Install instrument panel assembly (para 7-15).
- (3) Operate windshield wipers, position wipers stowed (TM 9-2320-365-10).
- (4) Start engine, check accelerator for smooth operation (TM 9-2320-365-10).
- (5) Check high/low HAND THROTTLE lever positions (para 4-22).
- (6) Shut down engine (TM 9-2320-365-10).

End of Task.



XD17J05A

4-19. THROTTLE CONTROL THREADED ROD REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Instrument panel assembly removed for access (para 7-15).

Materials/Parts

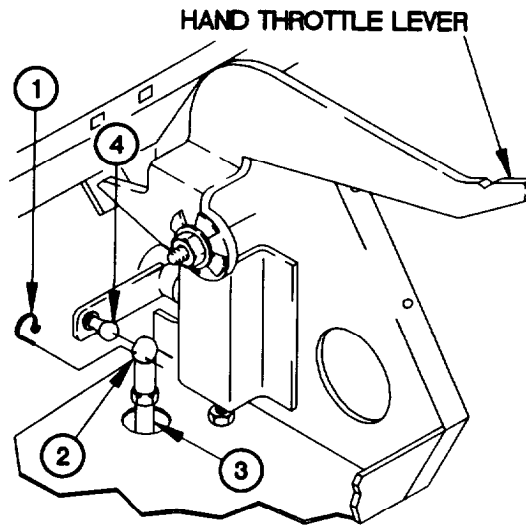
Grease, Molybdenum Disulfide (Item 25, Appendix D)

Tools and Special Tools

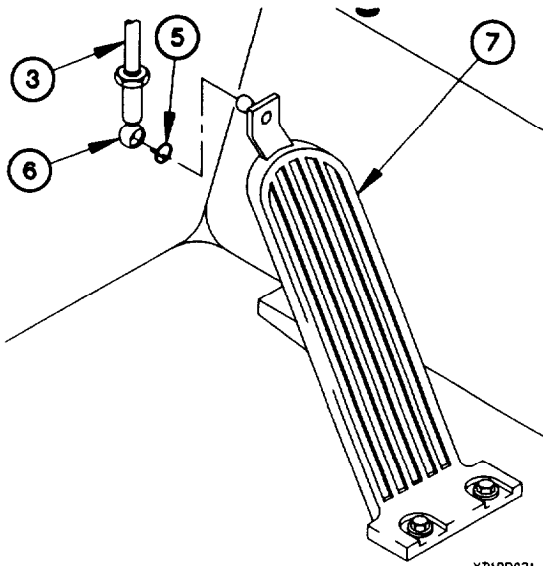
Tool Kit, Genl Mech (Item 44, Appendix C)

a. Removal.

- (1) Remove clip ring (1) from ball seat (2).
- (2) Remove ball seat (2) and threaded rod (3) from ball stud (4).



XD18R01A

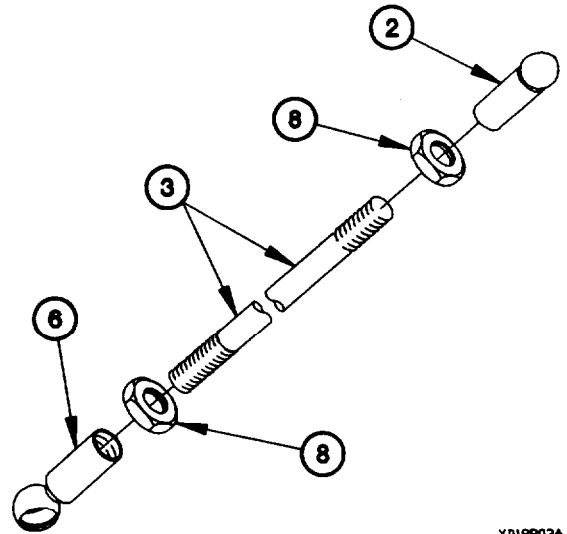


XD18R021

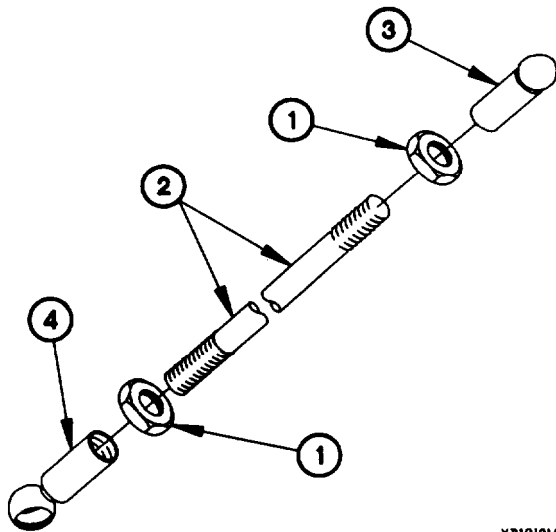
- (3) Remove clip ring (5) from ball seat (6).
- (4) Remove ball seat (6) and threaded rod (3) from accelerator pedal (7).

- (5) Loosen two jam nuts (8) behind ball seats (2 and 6).
- (6) Remove ball seats (2 and 6) and two jam nuts (6) from threaded rod (3).

b. Installation.



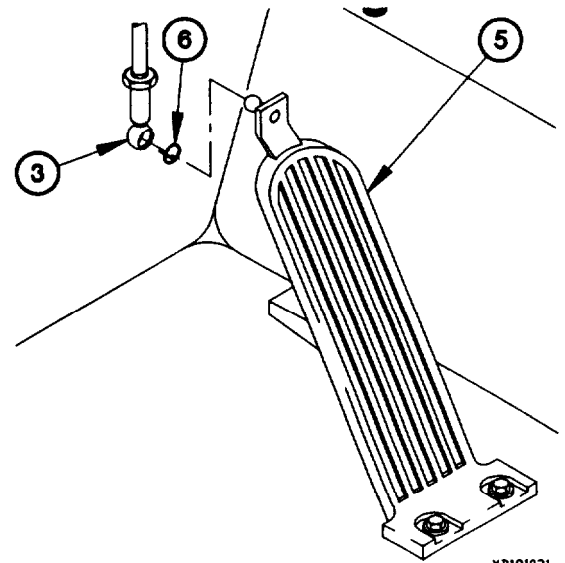
XDI8R03A



XDI8I01A

- (1) Install two jam nuts (1) to bottom of threads on threaded rod (2).
- (2) Install ball seats (3 and 4) on threaded rod (2) until ball seats contact two jam nuts (1).
- (3) Tighten two jam nuts (1) against ball seats (3 and 4).

- (4) Apply grease to inside of ball seat (3).
- (5) Install ball seat (3) in accelerator pedal (5).
- (6) Install clip ring (6) on ball seat (3).



XDI8I021

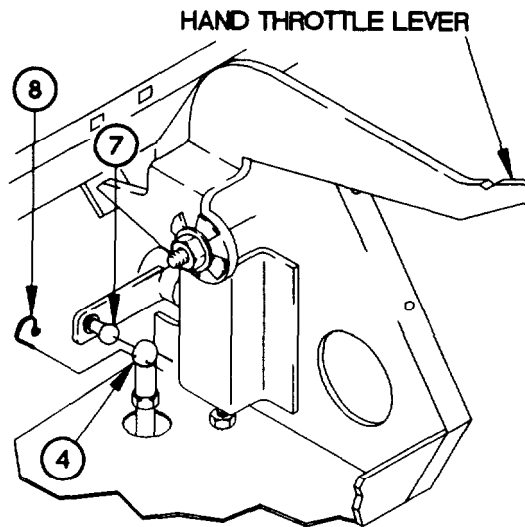
4-19. THROTTLE CONTROL THREADED ROD REPLACEMENT (CONT)

- (7) Apply grease to inside of ball seat (4).
- (8) Install ball seat (4) on ball stud (7).
- (9) Install clip ring (8) on ball seat (4).

d. Follow-On Maintenance.

- (1) Install instrument panel assembly (para 7-15).
- (2) Start engine (TM 9-2320-365-10).
- (3) Depress accelerator pedal and check for smooth operation.
- (4) Check high/low HAND THROTTLE lever positions (para 4-22).
- (5) Shut down engine (TM 9-2320-365-10).

End of Task.



XD18103A

4-20. THROTTLE CONTROL LEVER REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Steering wheel removed (para 13-2).

Materials/Parts

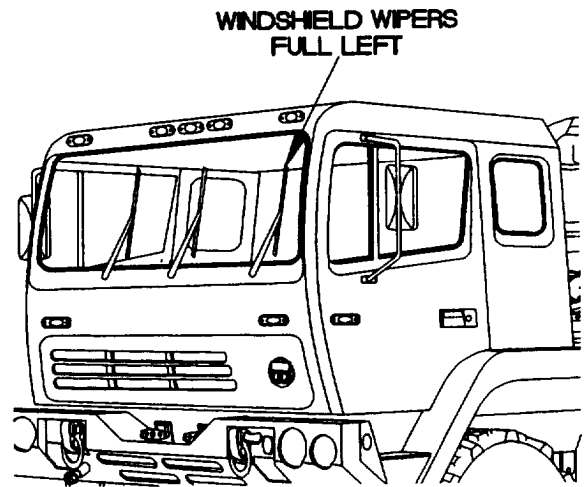
Grease, Molybdenum Disulfide (Item 25, Appendix D)
Washer, Spring (Item 277, Appendix G)

Tools and Special Tools

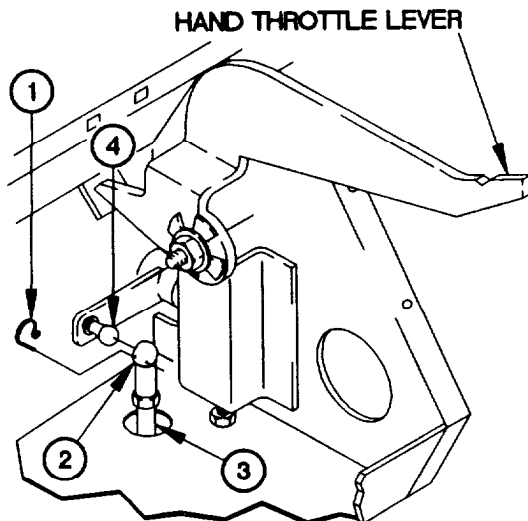
Tool Kit, Genl Mech (Item 44, Appendix C)

a. Removal.

- (1) Position master power switch to on (TM 9-2320-365-10).
- (2) Place wiper blades in the full left position (TM 9-2320-365-10).
- (3) Position master power switch to off (TM 9-2320-365-10).
- (4) Disconnect batteries (para 7-48).
- (5) Remove instrument panel assembly for access (para 7-15).



XD19R01A



XD19R02A

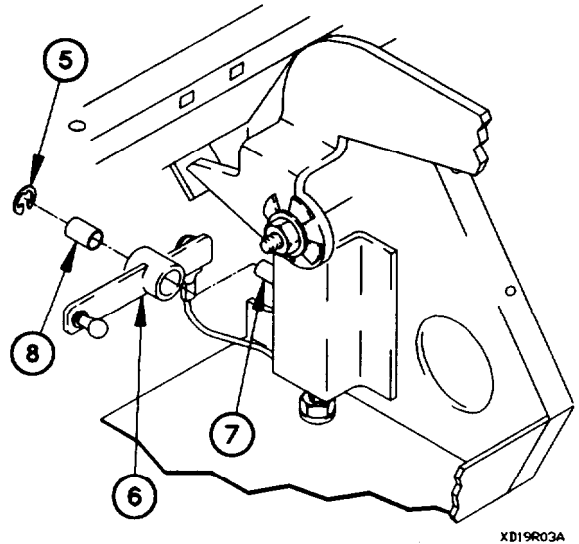
- (6) Remove clip ring (1) from ball seat (2).
- (7) Remove ball seat (2) with threaded rod (3) from ball stud (4).

4-20. THROTTLE CONTROL LEVER REPLACEMENT (CONT)

WARNING

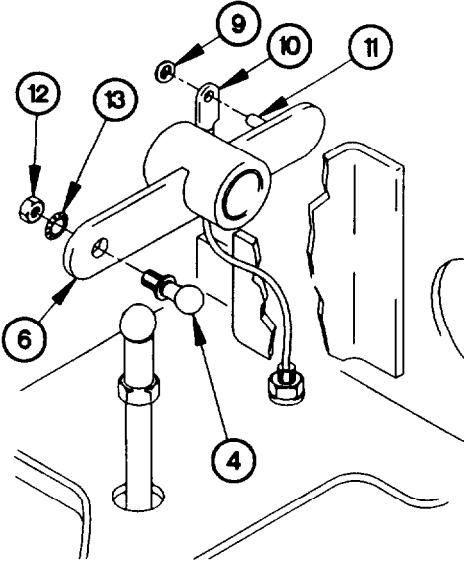
Use care when removing retaining rings. Retaining rings are under tension and can act as projectiles when released. Failure to comply may result in injury to personnel.

- (8) Remove retaining ring (5) and lever (6) from lever stud (7).
- (9) Remove bushing (8) from lever stud (7).



XD19R03A

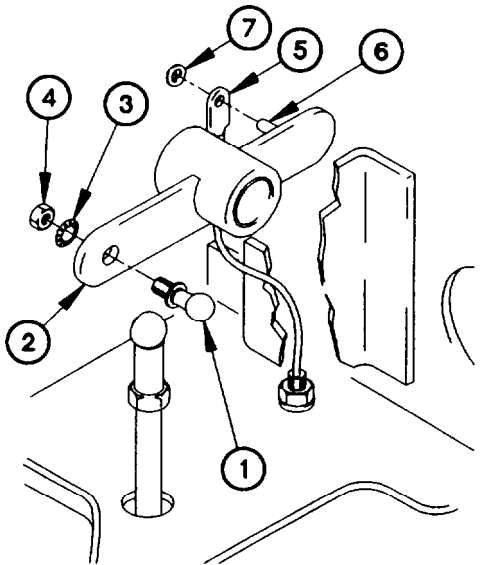
- (10) Remove clip (9) and throttle control cable (10) from stud (11).
- (11) Remove nut (12), spring washer (13), and ball stud (4) from lever (6). Discard spring washer.



XD19R04A

b. Installation.

- (1) Install ball stud (1) on lever (2) with spring washer (3) and nut (4).
- (2) Install throttle control cable (5) on stud (6) with clip (7).



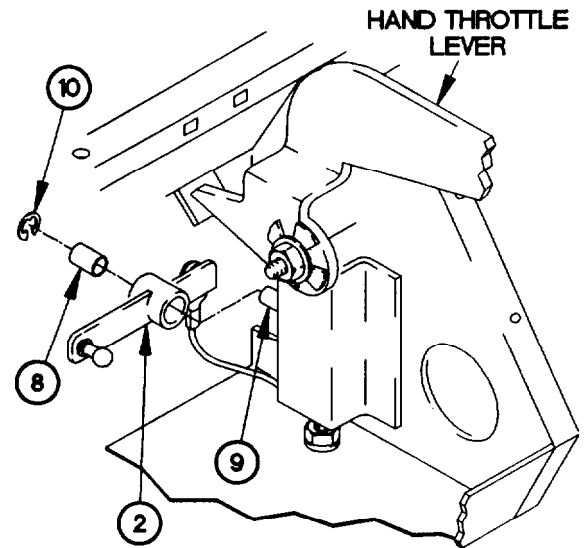
XD19I01A

- (3) Apply grease to bushing (8) and lever stud (9).

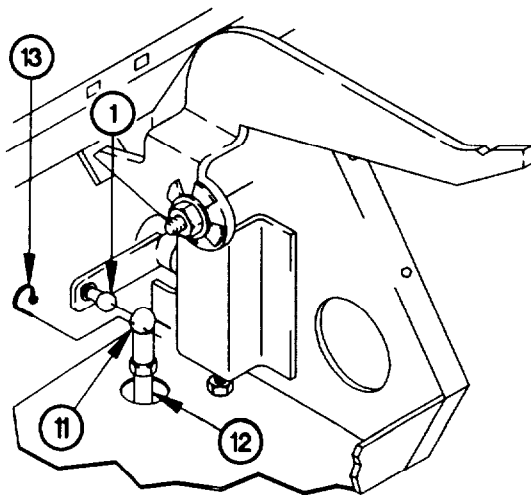
WARNING

Use care when removing retaining rings. Retaining rings are under tension and can act as projectiles when released. Failure to comply may result in injury to personnel.

- (4) Install bushing (8) and lever (2) on lever stud (9) with retaining ring (10).



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XDI9103A

- (5) Apply grease to ball stud (1).
- (6) Install ball seat (11) with threaded rod (12) on ball stud (1).
- (7) Install clip ring (13) on ball seat (11).

d. Follow-On Maintenance.

- (1) Install instrument panel assembly (para 7-15).
- (2) Start engine (TM 9-2320-365-10).
- (3) Position windshield wiper control to off (TM 9-2320-365-10).
- (4) Depress accelerator pedal and check for smooth operation.
- (5) Check high/low HAND THROTTLE lever positions (para 4-22).
- (6) Shut down engine (TM 9-2320-365-10).

End of Task.

4-21. ACCELERATOR PEDAL REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Engine shut down (TM 9-2320-365-10).

Tools and Special Tools

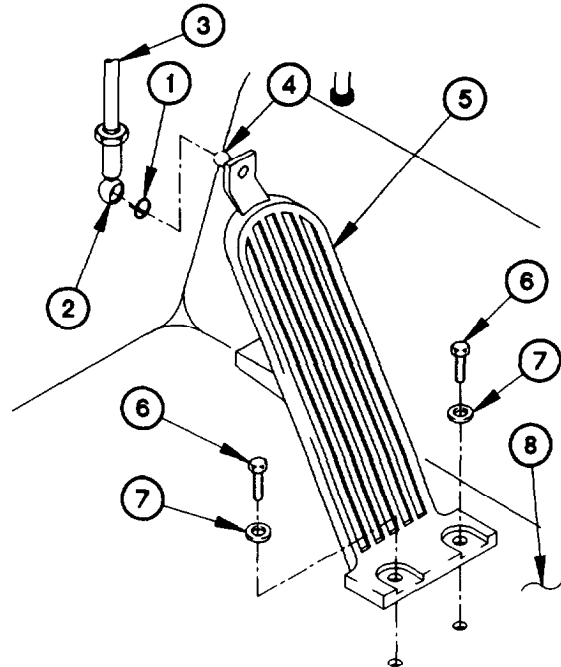
Tool Kit, Genl Mech (Item 44, Appendix C)
 Wrench, Torque, 0-200 lb-in. (Item 58, Appendix C)
 Socket Set, Socket Wrench (Item 35, Appendix C)

Materials/Parts

Grease, Molybdenum Disulfide (Item 25, Appendix D)

a. Removal.

- (1) Remove clip ring (1) from ball seat (2).
- (2) Remove ball seat (2) and threaded rod (3) from ball stud (4).
- (3) Remove two screws (6), washers (7), and accelerator pedal (5) from cab floor (8).



XD20X011

b Installation.

- (1) Position accelerator pedal (5) on cab floor (8) with two washers (7) and screws (6).
- (2) Tighten two screws (6) to 72-84 lb-in. (8-10 N•m).
- (3) Apply grease to inside of ball seat (2).
- (4) Install ball seat (2) and threaded rod (3) on ball stud (4).
- (5) Install clip ring (1) on ball seat (2).

c. Follow-On Maintenance.

- (1) Start engine (TM 9-2320-365-10).
- (2) Depress accelerator pedal and check for smooth operation.
- (3) Shut down engine (TM 9-2320-365-10).

End of Task.

4-22. CHECKING AND STENCILING HIGH/LOW HAND THROTTLE POSITIONS

This task covers:

- a. Checking High/Low Hand Throttle Positions
- b. Stenciling High/Low Hand Throttle Positions

Equipment Conditions

Engine shut down (TM 9-2320-365-10).

Tools and Special Tools

STE/ICE-R (Item 39, Appendix C)
 Gloves, Rubber (Item 13, Appendix C)
 Respirator, Air Filter (Item 29, Appendix C)

Materials/Parts

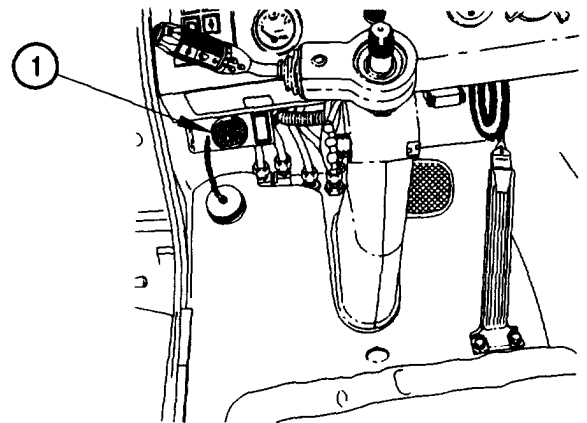
Rubber Stamp Set, Fixed Type (Item 54, Appendix D)
 Polyurethane Coating (Item 49, Appendix D)
 Ink, Marking Stencil (Item 27, Appendix D)
 Inking Pad, Rubber Stamp (Item 28, Appendix D)

References

TM 9-4910-571-12&P
 TB 43-0209

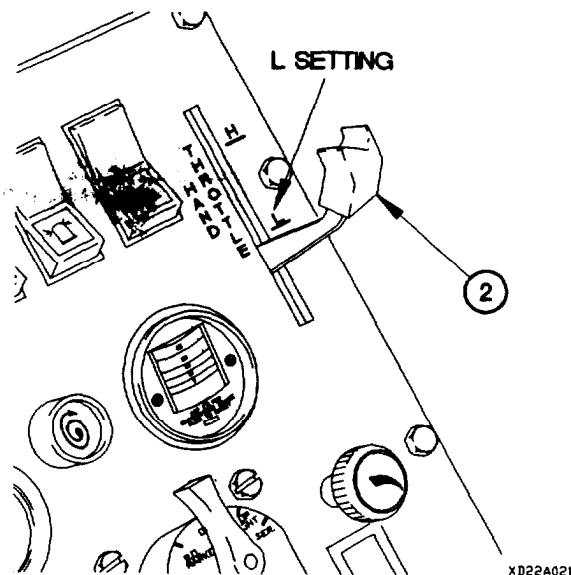
a. Checking High/Low Hand Throttle Positions.

- (1) Connect STE/ICE-R to DCA connector (1).
- (2) Start engine (TM 9-2320-365-10).



STEERING WHEEL
 REMOVED FOR
 CLARITY

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- (3) Position HAND THROTTLE lever (2) so that upper edge of lever is even with line below L setting.

NOTE

Acceptable engine RPM with HAND THROTTLE lever at L setting is 1250-1450 RPM.

- (4) Perform STE/ICE-R test #10.

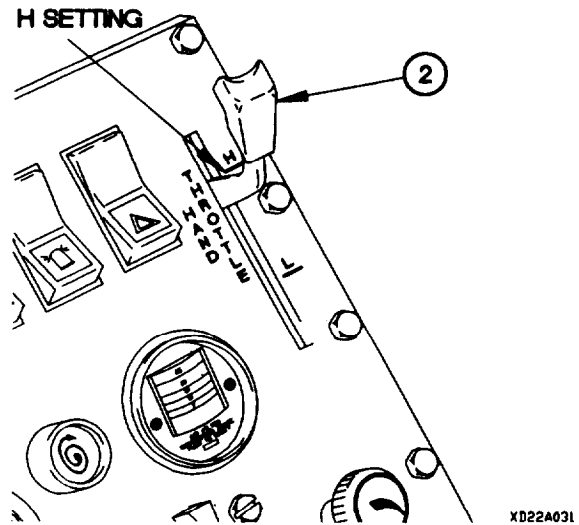
4-22. CHECKING AND STENCILING HIGH/LOW HAND THROTTLE POSITIONS (CONT)

- (5) Position HAND THROTTLE lever (2) so that upper edge of lever is even with line below H setting.

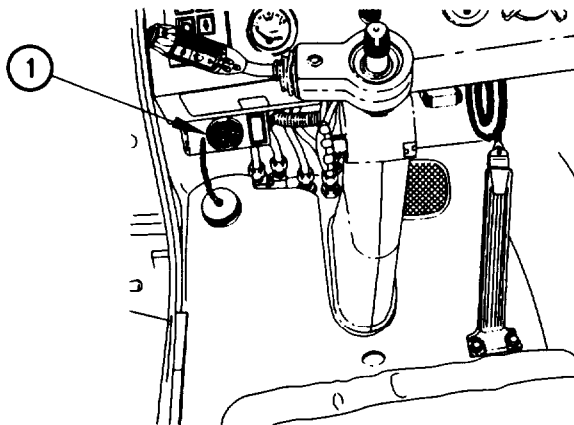
NOTE

Acceptable engine RPM with HAND THROTTLE lever at H setting is 2000-2200 RPM.

- (6) Perform STE/ICE-R test #10.
- (7) Perform subparagraph **b. Stenciling High/Low Hand Throttle Positions** if engine RPM results from steps (4) and (6) are not within acceptable limits.



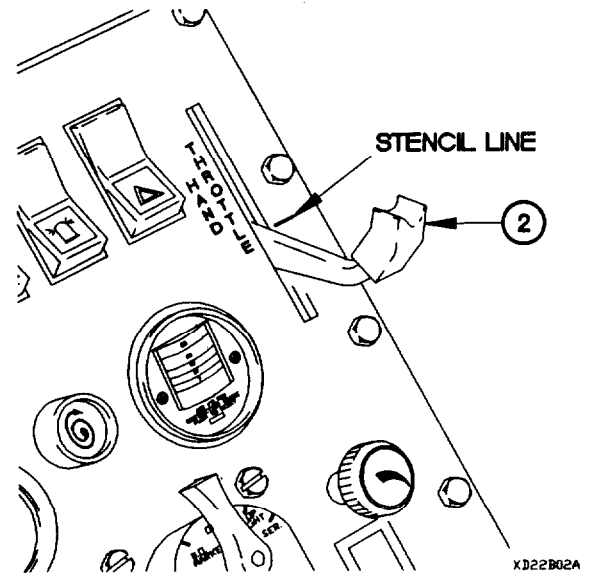
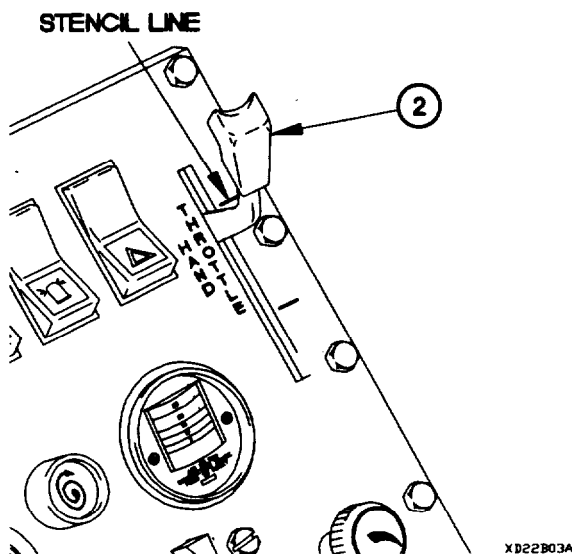
b. Stenciling High/Low Hand Throttle Positions.



**STEERING WHEEL
REMOVED FOR
CLARITY**

- (1) Paint over old high and low HAND THROTTLE lever position markings (TB 43-0209).
- (2) Connect STE/ICE-R to DCA connector (1).
- (3) Start engine (TM 9-2320-365-10).
- (4) Perform STE/ICE-R test #10.

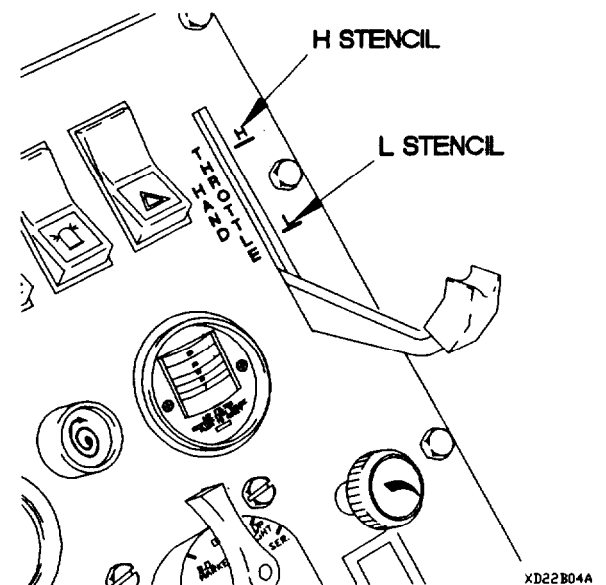
- (5) Raise engine RPM to 1350 using HAND THROTTLE lever (2).
- (6) Stencil a line even with top edge of HAND THROTTLE lever (2).



- (7) Raise engine RPM to 2100 using HAND THROTTLE LEVER (2).
- (8) Stencil a line even with top edge of HAND THROTTLE lever (2).
- (9) Lower engine RPM to idle using HAND THROTTLE lever (2).
- (10) Shut down engine (TM 9-2320-365-10).

- (11) Stencil L above lower line.
- (12) Stencil H above upper line.

End of Task.



**CHAPTER 5
EXHAUST SYSTEM MAINTENANCE**

Section I. INTRODUCTION 5-1
5-1. INTRODUCTION 5-1

Section II. MAINTENANCE PROCEDURES 5-2
5-2. MUFFLER AND EXHAUST HEAT SHIELDS REPLACEMENT 5-2
5-3. EXHAUST PIPE REPLACEMENT 5-8
5-4. TAILPIPE REPLACEMENT 5-13

Section I. INTRODUCTION

5-1. INTRODUCTION

This chapter contains maintenance instructions for replacing exhaust system components authorized by the Maintenance Allocation Chart (MAC) at the Unit Maintenance level.



Section II. MAINTENANCE PROCEDURES

5-2. MUFFLER AND EXHAUST HEAT SHIELDS REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Engine shut down (TM 9-2320-365-10).

Tools and Special Tools

- Goggles, Industrial (Item 15, Appendix C)
- Tool Kit, Genl Mech (Item 44, Appendix C)
- Drill, Electric, Portable (Item 7, Appendix C)
- Drill Set, Twist (Item 6, Appendix C)
- Drill, Twist (Item 8, Appendix C)
- Wrench, Torque, 0-200 lb-in. (Item 58, Appendix C)
- Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)
- Socket Set, Socket Wrench (Item 35, Appendix C)

Materials/Parts

- Nut, Self-Locking (2) (Item 141, Appendix G)
- Nut, Self-Locking (4) (Item 138, Appendix G)
- Nut, Self-Locking (Item 140, Appendix G)
- Nut, Self-Locking (2) (Item 119, Appendix G)
- Nut, Self-Locking (2) (Item 149, Appendix G)
- Washer, Flat (4) (Item 271, Appendix G)
- Screw, Cap (2) (Item 238, Appendix G)
- Grommet, Nonmetallic (6) (Item 48, Appendix G)

Personnel Required

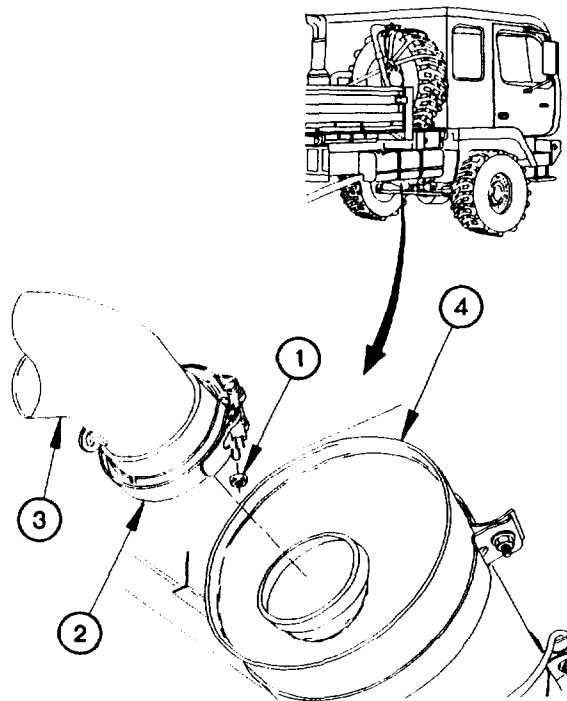
(2)

WARNING

- Wear appropriate eye protection when working under vehicle due to the possibility of falling debris. Failure to comply may result in injury to personnel.
- Ensure exhaust system is cool before performing maintenance. Failure to comply may result in injury to personnel.
- Do not operate vehicle with muffler removed. Toxic exhaust fumes may enter cab, resulting in serious injury or death to personnel.

a. Removal.

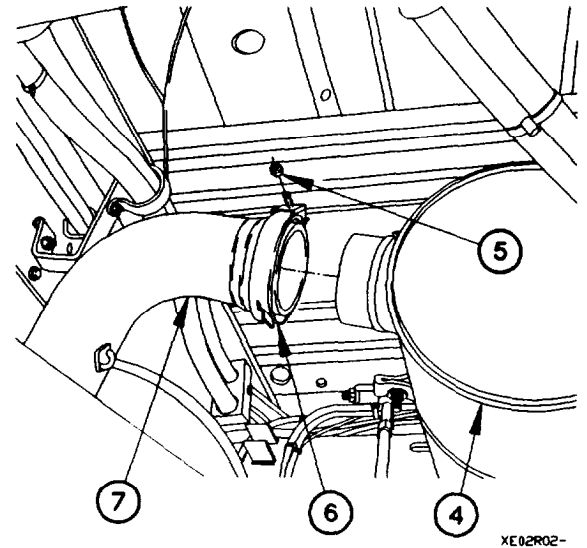
- (1) Remove self-locking nut (1) from clamp (2). Discard self-locking nut.
- (2) Disconnect exhaust pipe (3) from muffler (4).



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(3) Remove self-locking nut (5) from clamp (6). Discard self-locking nut.

(4) Disconnect tail pipe (7) from muffler (4).



NOTE

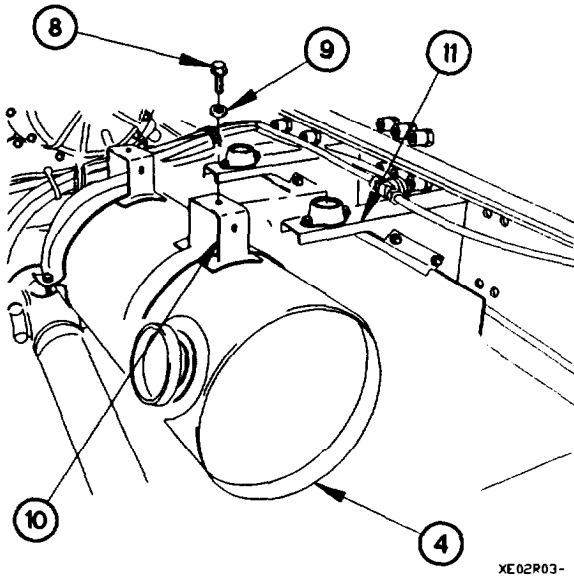
Vehicle serial numbers 0001 through 3091 were originally equipped with different mounting hardware than vehicle serial numbers 3092 and higher. Perform steps (5) through (7) on vehicle serial numbers 0001 through 3091 that have not previously had a muffler replaced.

(5) Remove two screws (8) and washers (9) from muffler straps (10).

NOTE

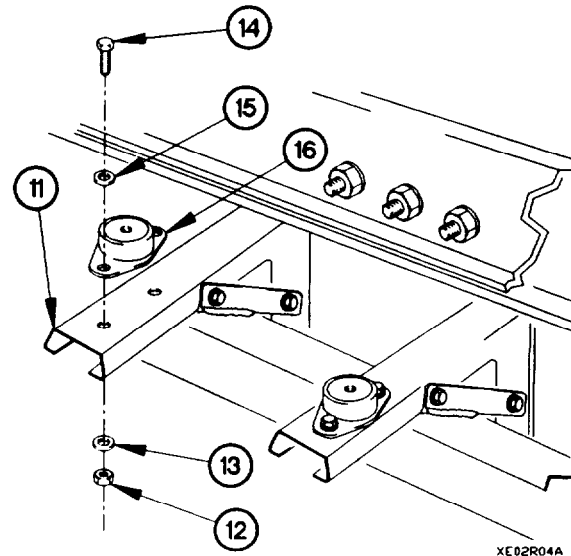
Step (6) requires the aid of an assistant.

(6) Remove muffler (4) from two muffler support brackets (11).

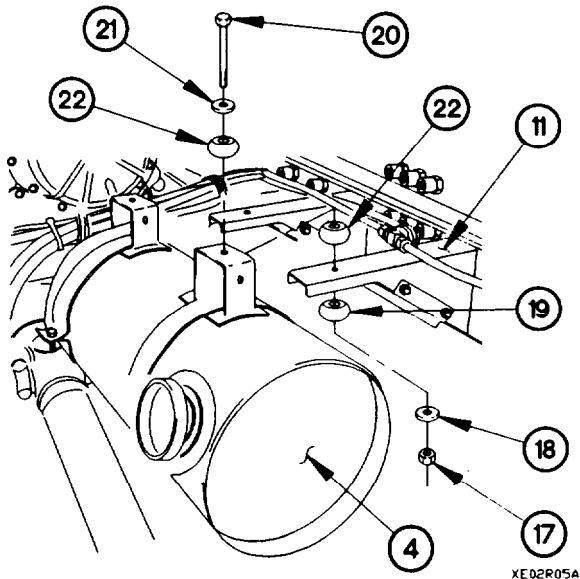


5-2. MUFFLER AND EXHAUST HEAT SHIELDS REPLACEMENT (CONT)

(7) Remove four nuts (12), washers (13), screws (14), washers (15), and two resilient mounts (16) from muffler support brackets (11). Discard nuts, washers, screws, and resilient mounts.



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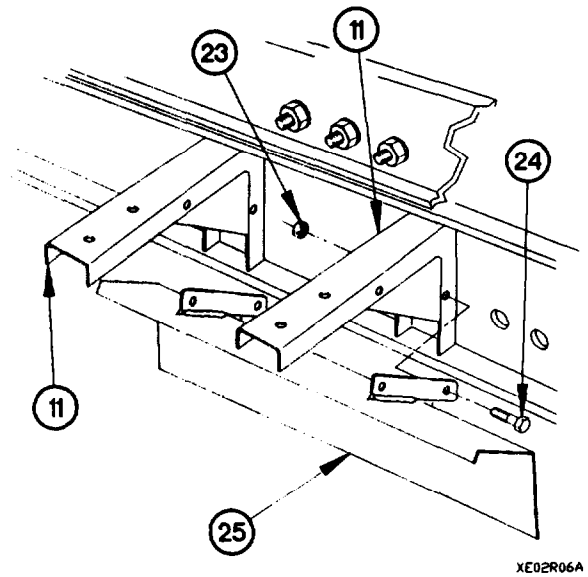


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NOTE

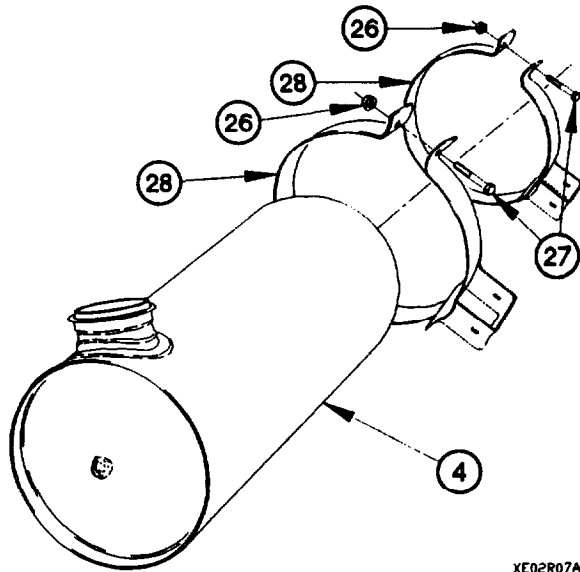
- Perform step (8) on vehicle serial numbers 3092 and higher, and vehicles that have previously had a muffler replaced.
 - Step (8) requires the aid of an assistant.
- (8) Remove two self-locking nuts (17), washers (18), rubber grommets (19), screws (20), washers (21), four rubber grommets (22), and muffler (4) from muffler support brackets (11). Discard self-locking nuts and rubber grommets.

- (9) Remove four self-locking nuts (23), screws (24), and exhaust heat shield (25) from two muffler support brackets (11). Discard self-locking nuts.



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- (10) Remove two self-locking nuts (26), screws (27), and muffler straps (28) from muffler (4). Discard self-locking nuts.



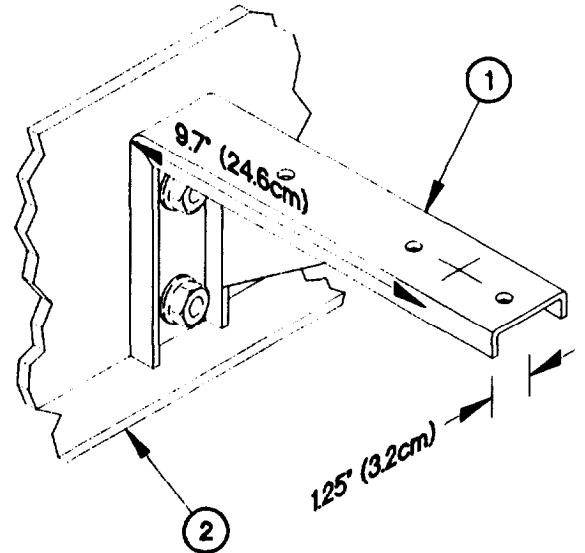
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b. Installation.

NOTE

Perform steps (1) through (5) on vehicle serial numbers 0001 through 3091 that have not previously had a muffler replaced.

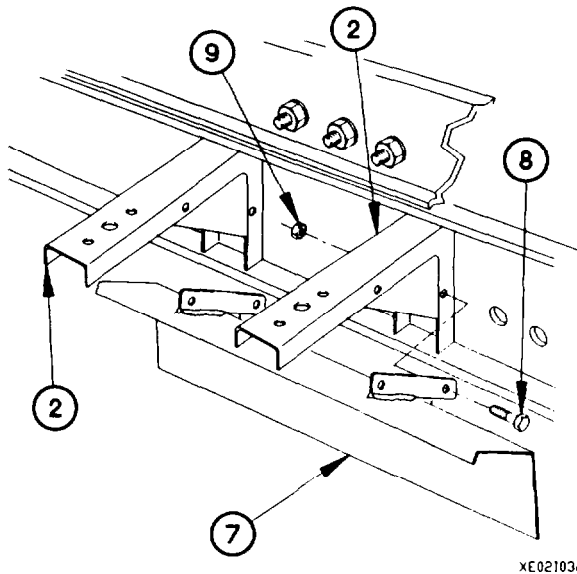
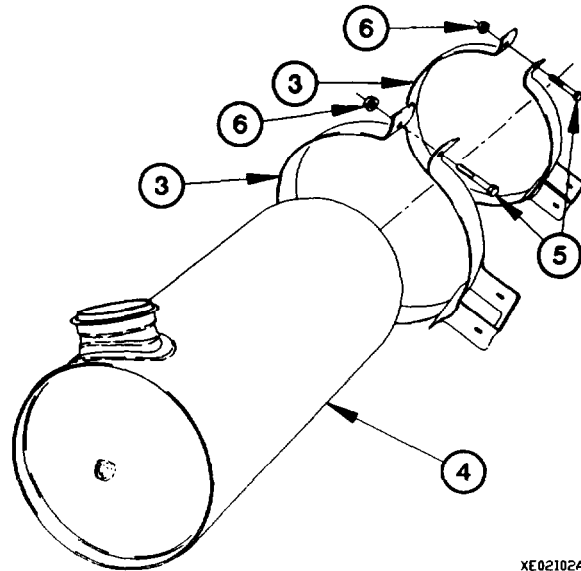
- (1) Scribe a line on muffler support bracket (1) 9.7 in. (24.6 cm) out from right frame rail (2).
- (2) Scribe a line on muffler support bracket (1) 1.25 in. (3.2 cm) from front edge of front muffler support bracket.
- (3) Drill a pilot hole at intersection of lines scribed in steps (1) and (2).
- (4) Enlarge pilot hole to 16.5 mm.
- (5) Perform steps (1) through (4) on rear muffler support bracket.



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5-2. MUFFLER AND EXHAUST HEAT SHIELDS REPLACEMENT (CONT)

(6) Position two muffler straps (3) on muffler (4) with two screws (5) and self-locking nuts (6).



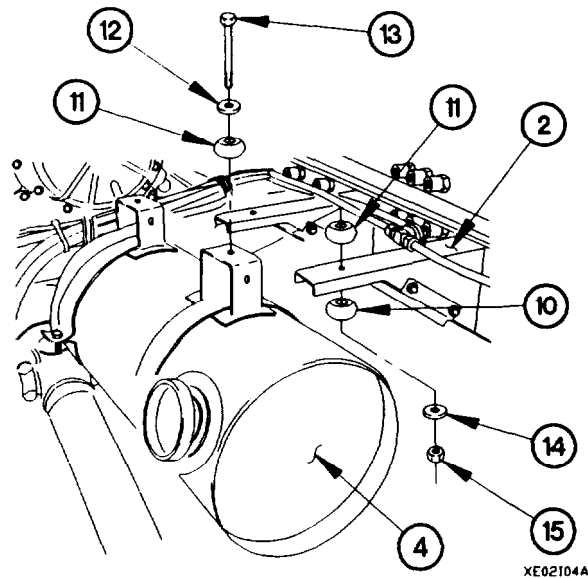
(7) Position exhaust heat shield (7) on two muffler support brackets (2) with four screws (8) and self-locking nuts (9).

(8) Tighten four self-locking nuts (9) to 25-29 lb-ft (34-39 N•m).

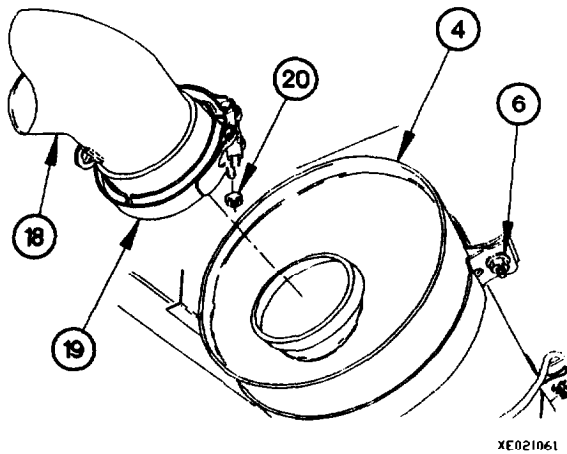
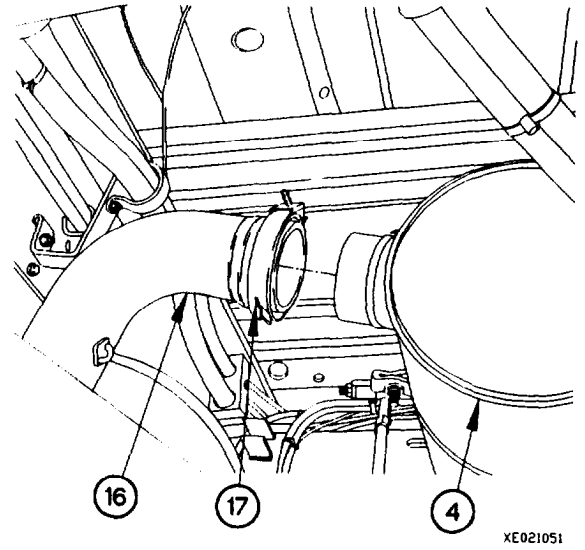
NOTE

Step (9) requires the aid of an assistant.

(9) Install muffler (4) on two muffler support brackets (2) with two rubber grommets (10), four rubber grommets (11), two washers (12), screws (13), washers (14), and self-locking nuts (15).



(10) Position tailpipe (16) on muffler (4) with clamp (17).



(11) Position exhaust pipe (18) on muffler (4) with clamp (19) and self-locking nut (20).

(12) Tighten self-locking nut (20) to 89-109 lb-in. (10-12 N•m).

(13) Tighten two self-locking nuts (6) to 31-39 lb-ft (42-53 N•m).

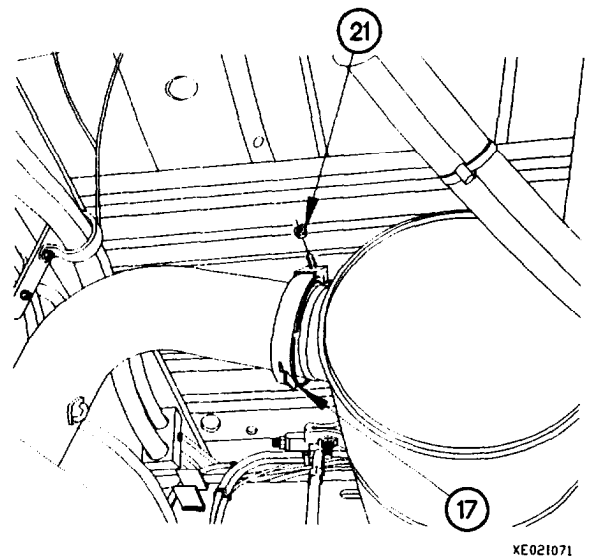
(14) Position self-locking nut (21) on clamp (17).

(15) Tighten self-locking nut (21) to 89-109 lb-in. (10-12 N•m).

c. Follow-On Maintenance.

- (1) Start engine (TM 9-2320-365-10).
- (2) Check around muffler for exhaust leaks, excessive noise, and vibration.
- (3) Shut down engine (TM 9-2320-365-10).

End of Task.



5-3. EXHAUST PIPE REPLACEMENT

This task covers:

- a. Removal
- b. Installation

c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

- Engine shut down (TM 9-2320-365-10).
- Cab raised (TM 9-2320-365-10).

Materials/Parts

- Nut, Self-Locking (2) (Item 140, Appendix G)
- Nut, Self-Locking (3) (Item 119, Appendix G)

Tools and Special Tools

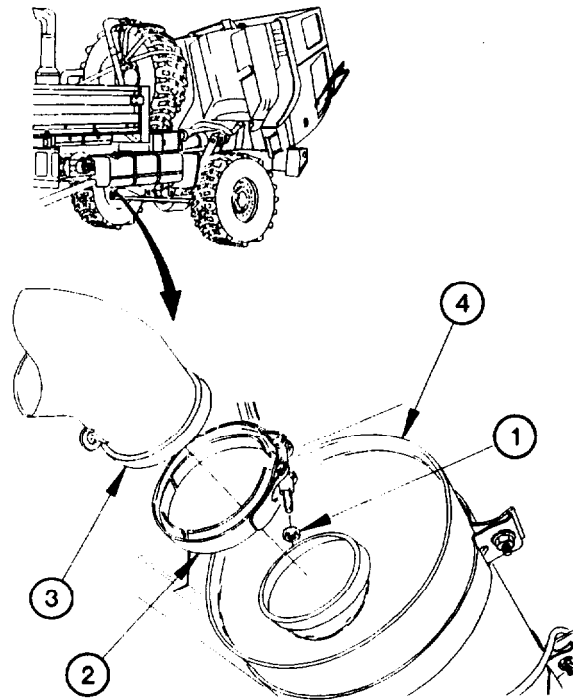
- Goggles, Industrial (Item 15, Appendix C)
- Tool Kit, Genl Mech (Item 44, Appendix C)
- Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)
- Wrench, Torque, 0-200 lb-in. (Item 58, Appendix C)
- Socket Set, Socket Wrench (Item 35, Appendix C)

WARNING

- Ensure exhaust system is cool before performing maintenance. Failure to comply may result in injury to personnel.
- Wear appropriate eye protection when working under vehicle due to the possibility of falling debris. Failure to comply may result in injury to personnel.
- Do not operate vehicle with exhaust pipe removed. Toxic exhaust fumes may enter cab, resulting in serious injury or death to personnel.

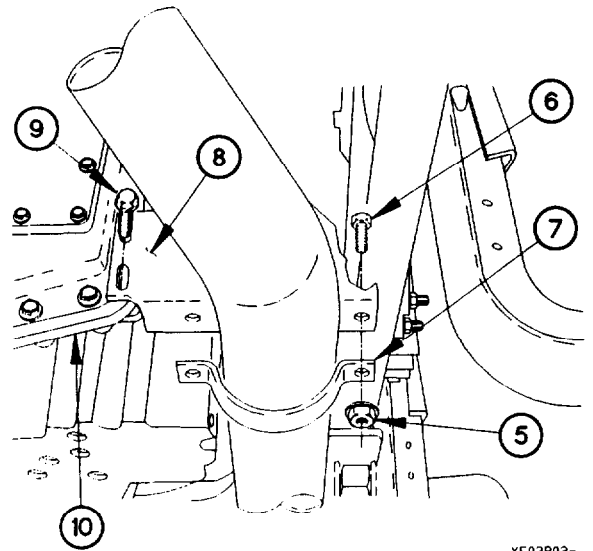
a. Removal.

- (1) Remove self-locking nut (1) from clamp (2). Discard self-locking nut.
- (2) Disconnect exhaust pipe (3) from muffler (4).
- (3) Remove clamp (2) from exhaust pipe (3).

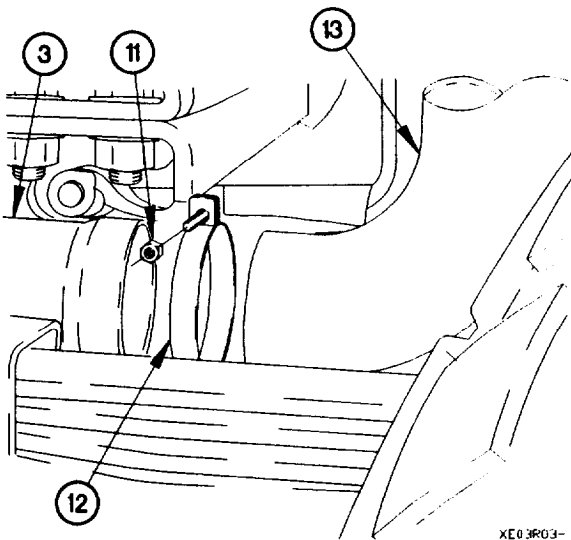


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- (4) Remove two self-locking nuts (5), screws (6), and loop clamp half (7) from exhaust bracket (8). Discard self-locking nut.
- (5) Remove two bolts (9) and exhaust bracket (8) from transmission (10).



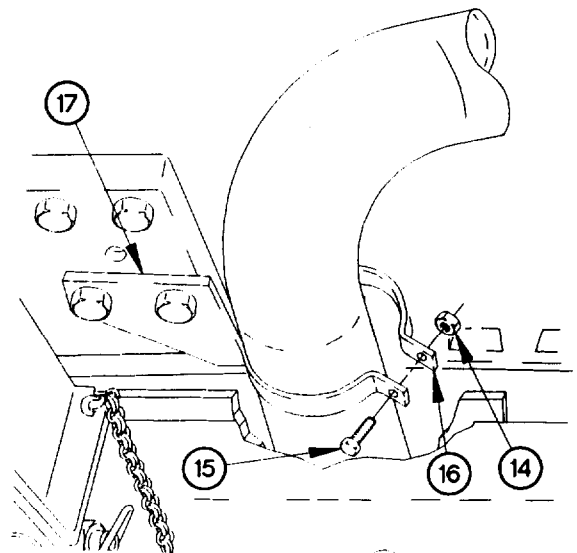
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XE03R03-

- (6) Remove self-locking nut (11) from clamp (12). Discard self-locking nut.
- (7) Remove exhaust pipe (3) from exhaust pipe (13).
- (8) Remove clamp (12) from exhaust pipe (3).

- (9) Remove two self-locking nuts (14), two screws (15), and loop clamp half (16) from exhaust pipe bracket (17). Discard self-locking nuts.

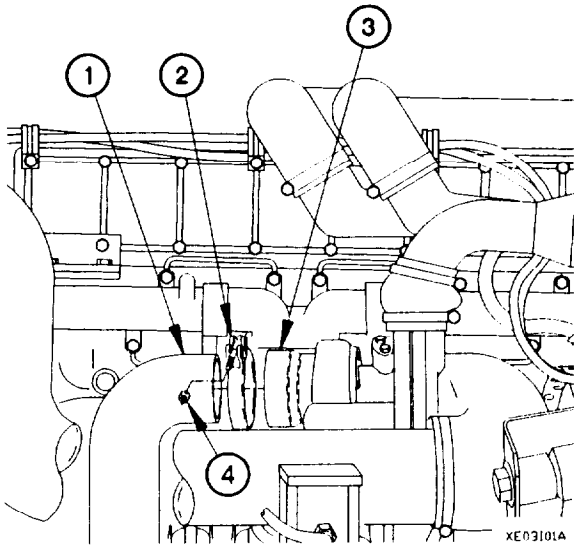
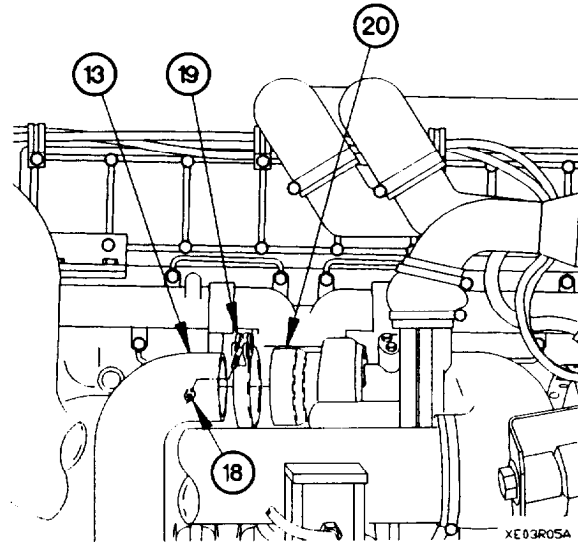


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5-3. EXHAUST PIPE REPLACEMENT (CONT)

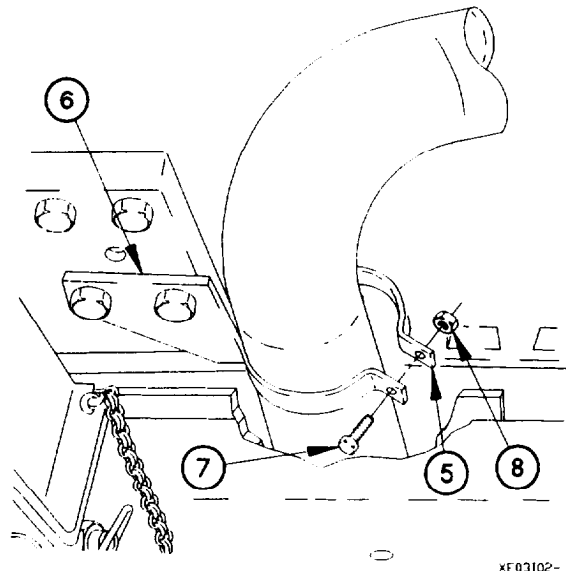
- (10) Remove self-locking nut (18) from clamp (19). Discard self-locking nut.
- (11) Remove exhaust pipe (13) from rear of turbocharger (20).
- (12) Remove clamp (19) from exhaust pipe (13).

b. Installation.

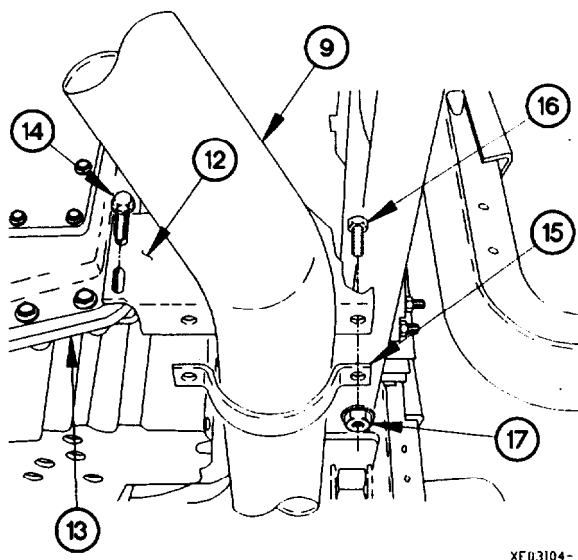
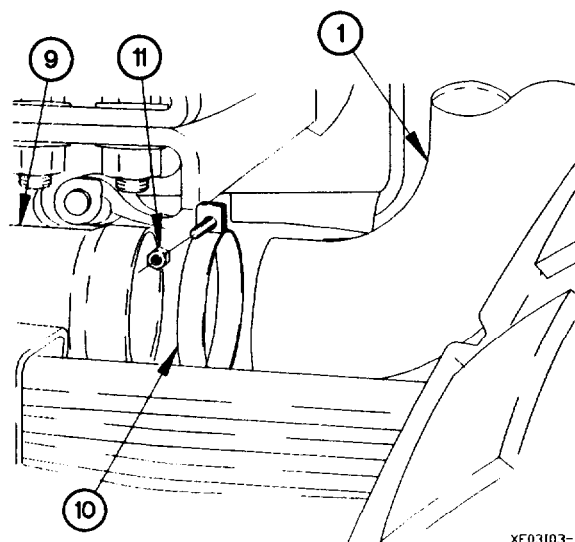


- (1) Install exhaust pipe (1) and clamp (2) to rear of turbocharger (3).
- (2) Position self-locking nut (4) on clamp (2).
- (3) Tighten self-locking nut (4) to 89-109 lb-in. (10-12 N•m).

- (4) Position loop clamp half (5) on exhaust pipe bracket (6) with two screws (7) and self-locking nuts (8).
- (5) Tighten two self-locking nuts (8) to 31-39 lb-ft (42-53 N•m).

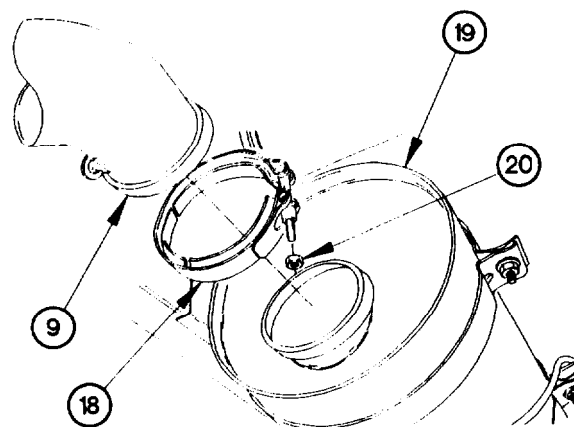


- (6) Position exhaust pipe (9) and clamp (10) on exhaust pipe (1).
- (7) Position self-locking nut (11) on clamp (10).
- (8) Tighten self-locking nut (11) to 89-109 lb-in. (10-12 N•m).



- (9) Position exhaust bracket (12) on transmission (13) with two bolts (14).
- (10) Tighten two bolts (14) to 44-55 lb-ft (60-75 N•m).
- (11) Position loop clamp half (15) on muffler exhaust pipe (9) with two screws (16) and self-locking nuts (17).
- (12) Tighten two self-locking nuts (17) to 31-39 lb-ft (42-53 N•m).

- (13) Position exhaust pipe (9) and clamp (18) on muffler (19).
- (14) Position self-locking nut (20) on clamp (18).
- (15) Tighten self-locking nut (20) to 89-109 lb-in. (10-12 N•m).



5-3. EXHAUST PIPE REPLACEMENT (CONT)

c. Follow-On Maintenance.

- (1) Lower cab (TM 9-2320-365-10).
- (2) Start engine (TM 9-2320-365-10).
- (3) Check for exhaust leaks, excessive noise, and vibration.
- (4) Shut down engine (TM 9-2320-365-10).

End of Task.

5-4. TAILPIPE REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Engine shut down (TM 9-2320-365-10).

Tools and Special Tools

Goggles, Industrial (Item 15, Appendix C)
 Tool Kit, Genl Mech (Item 44, Appendix C)
 Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)
 Wrench, Torque, 0-200 lb-in. (Item 58, Appendix C)
 Socket Set, Socket Wrench (Item 35, Appendix C)

Materials/Parts

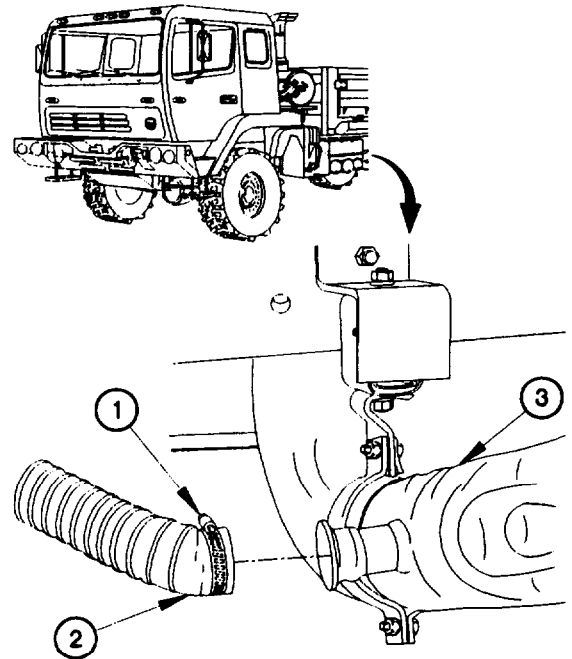
Nut, Self-Locking (4) (Item 140, Appendix G)
 Nut, Self-Locking (Item 119, Appendix G)

WARNING

- Ensure exhaust system is cool before performing maintenance. Failure to comply may result in injury to personnel.
- Wear appropriate eye protection when working under vehicle due to the possibility of falling debris. Failure to comply may result in injury to personnel.

a. Removal.

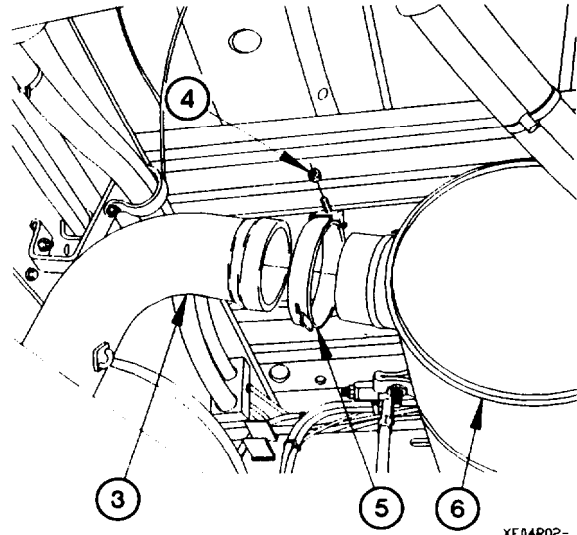
- (1) Loosen hose clamp (1) on particle extraction hose (2).
- (2) Remove particle extraction hose (2) from tailpipe (3).



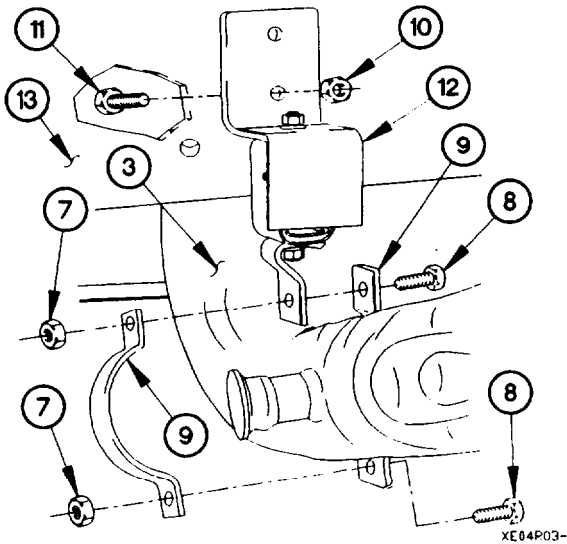
XE04R01-

5-4. TAILPIPE REPLACEMENT (CONT)

- (3) Remove self-locking nut (4) from clamp (5). Discard self-locking nut.
- (4) Disconnect tailpipe (3) from muffler (6).
- (5) Remove clamp (5) from tailpipe (3).

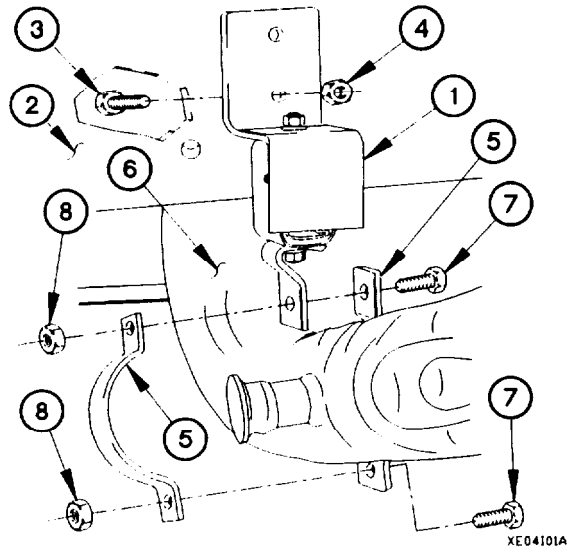


- (6) Remove two self-locking nuts (7), screws (8), and loop clamp halves (9) from tailpipe (3). Discard self-locking nuts.
- (7) Remove two self-locking nuts (10), screws (11), and tailpipe bracket (12) from frame (13). Discard self-locking nuts.

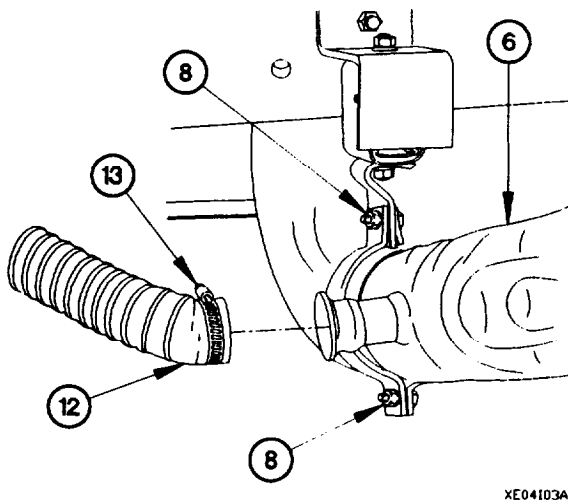
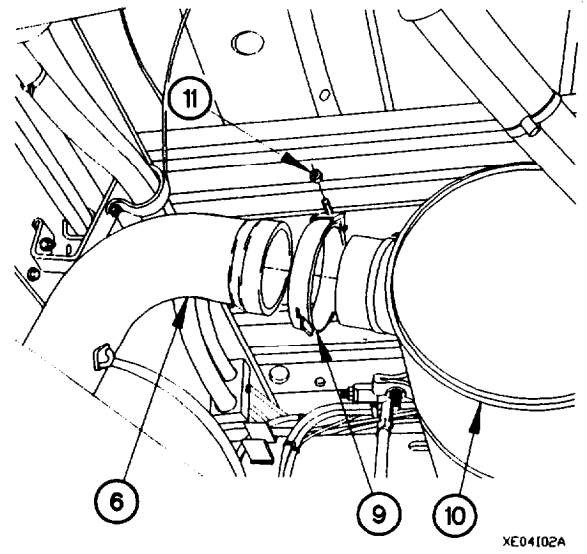


b. Installation.

- (1) Position tailpipe bracket (1) on frame (2) with two screws (3) and self-locking nuts (4).
- (2) Tighten two self-locking nuts (4) to 31-39 lb-ft (42-53 N•m).
- (3) Position two loop clamp halves (5) and tailpipe (6) on tailpipe bracket (1) with two screws (7) and self-locking nuts (8).



- (4) Position clamp (9) and tailpipe (6) on muffler (10).
- (5) Position self-locking nut (11) on clamp (9).
- (6) Tighten self-locking nut (11) to 89-109 lb-in. (10-12 N•m).



- (7) Tighten two self-locking nuts (8) to 31-39 lb-ft (42-53 N•m).
- (8) Install particle extraction hose (12) on tailpipe (6) with hose clamp (13).

c. Follow-On Maintenance.

- (1) Start engine (TM 9-2320-365-10).
- (2) Check around muffler and tailpipe for exhaust leaks.
- (3) Shut down engine (TM 9-2320-365-10).

End of Task.

CHAPTER 6 COOLING SYSTEM MAINTENANCE

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Section I. INTRODUCTION

6-1. INTRODUCTION

This chapter contains maintenance instructions for replacing and repairing cooling system components authorized by the Maintenance Allocation Chart (MAC) at the Unit Maintenance level.

Section II. MAINTENANCE PROCEDURES

6-2. RADIATOR/CHARGE AIR COOLER REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Radiator fan shrouds removed (para 6-4).

Tools and Special Tools

- Goggles, Industrial (Item 15, Appendix C)
- Tool Kit, Genl Mech (Item 44, Appendix C)
- Sling, Cargo (Item 31, Appendix C)
- Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)
- Screwdriver Attachment, Socket Wrench (Item 53, Appendix B)
- Adapter, Socket Wrench (Item 2, Appendix B)

Materials/Parts

- Antiseize Compound (Item 14, Appendix D)
- Lockwasher (6) (Item 91, Appendix G)
- Nut, Self-Locking (4) (Item 140, Appendix G)
- Grommet, Nonmetallic (Item 49, Appendix G)

Personnel Required

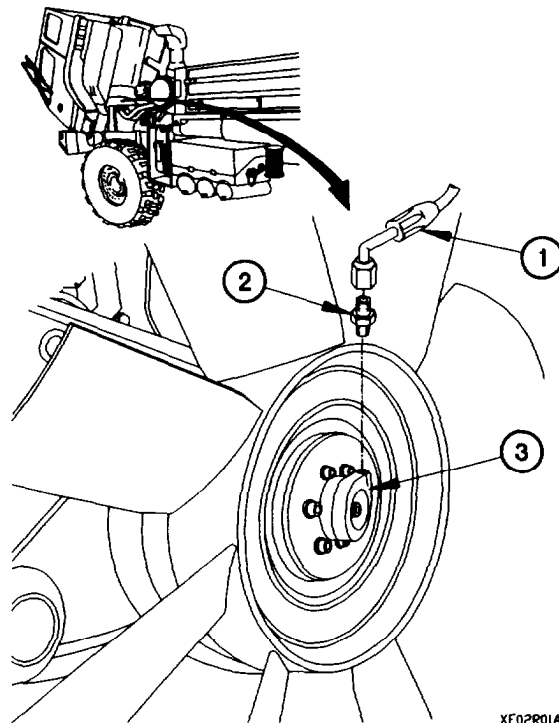
(2)

WARNING

Wear appropriate eye protection when working under vehicle due to the possibility of falling debris. Failure to comply may result in injury to personnel.

a. Removal.

- (1) Disconnect air hose (1) from fitting (2).
- (2) Remove fitting (2) from fan clutch assembly (3).



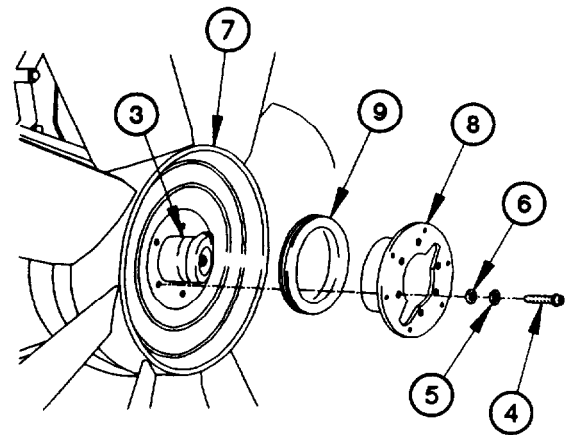
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- (3) Remove six screws (4), lockwashers (5), and washers (6) from engine fan (7). Discard lockwashers.

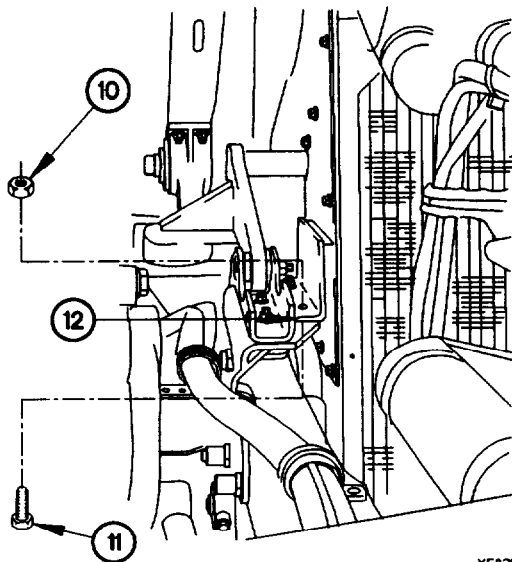
CAUTION

Mark front of engine fan before removing. Failure to comply may result in damage to equipment.

- (4) Remove engine fan (7) from fan clutch assembly (3).
- (5) Remove fan support plate (8) from engine fan (7).
- (6) Remove grommet (9) from engine fan (7). Discard grommet.



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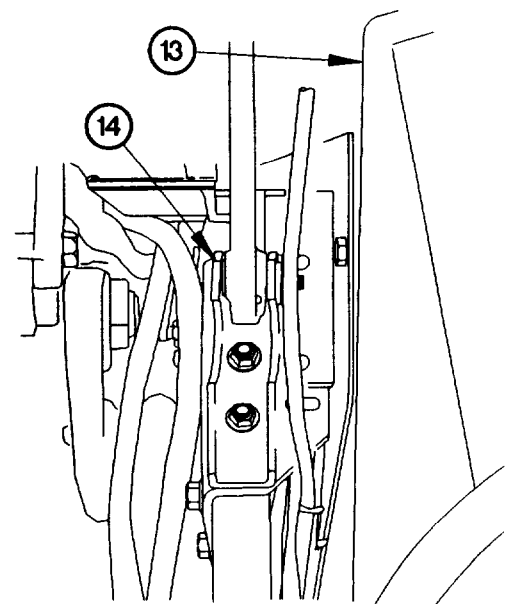


XF02R03A

- (7) Remove four self-locking nuts (10) and screws (11) from two radiator mounting brackets (12). Discard self-locking nuts.

NOTE

- Additional coolant may drain out of radiator during removal.
 - Steps (8) and (9) require the aid of an assistant.
- (8) Slide radiator (13) to the rear approximately four inches, enough to clear left and right cab hinge pins (14).

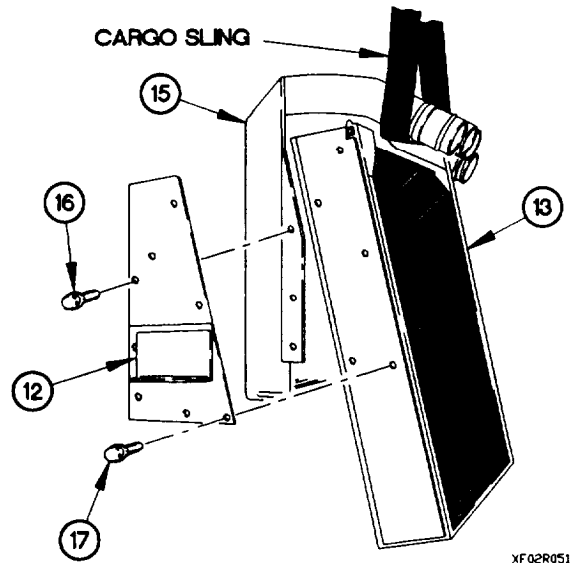


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6-2. RADIATOR/CHARGE AIR COOLER REPLACEMENT (CONT)

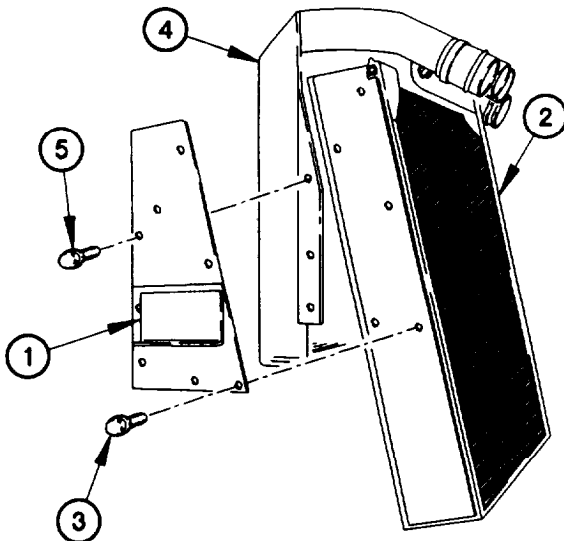
WARNING

- Radiator and charge air cooler assembly weigh approximately 160 lbs (73 Kgs). Attach a suitable lifting device prior to removal. Failure to comply may result in injury to personnel or damage to equipment.
- Cargo sling must be placed under charge air cooler inlet and outlet ports. Failure to comply may result in injury to personnel or damage to equipment.



- (9) Remove radiator (13) and charge air cooler (15) from vehicle.
- (10) Remove six screws (16) and charge air cooler (15) from two radiator mounting brackets (12).
- (11) Remove ten screws (17) and two radiator mounting brackets (12) from radiator (13).

b. Installation.



- (1) Position two radiator mounting brackets (1) on radiator (2) with ten screws (3).
- (2) Tighten ten screws (3) to 20-26 lb-ft (27-35 N•m).
- (3) Position charge air cooler (4) between two radiator mounting brackets (1) with six screws (5).
- (4) Tighten six screws (5) to 20-26 lb-ft (27-35 N•m).

WARNING

- Radiator end charge air cooler assembly weigh approximately 160 lbs (73 Kgs). Attach a suitable lifting device prior to installation. Failure to comply may result in injury to personnel or damage to equipment.
- Cargo sling must be placed under charge air cooler inlet port and outlet port. Failure to comply may result in injury to personnel or damage to equipment.

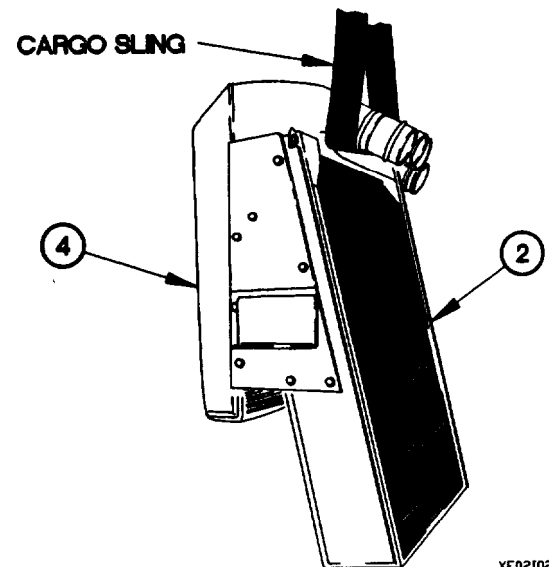
CAUTION

Use caution when lowering radiator and charge air cooler into vehicle. Failure to comply may result in damage to equipment.

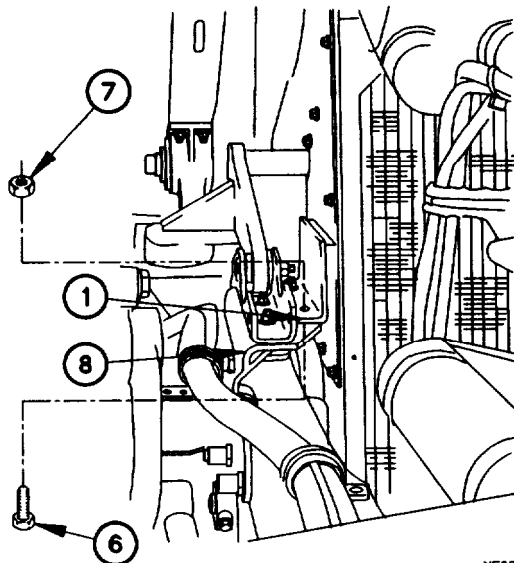
NOTE

Step (5) requires the aid of an assistant.

- (5) Position radiator (2) and charge air cooler (4) in vehicle.



XF02102-



XF02103-

- (6) Position four screws (6) and self-locking nuts (7) through frame rails (8) and two radiator mounting brackets (1).
- (7) Tighten four self-locking nuts (7) to 42-52 lb-ft (57-71 N•m).

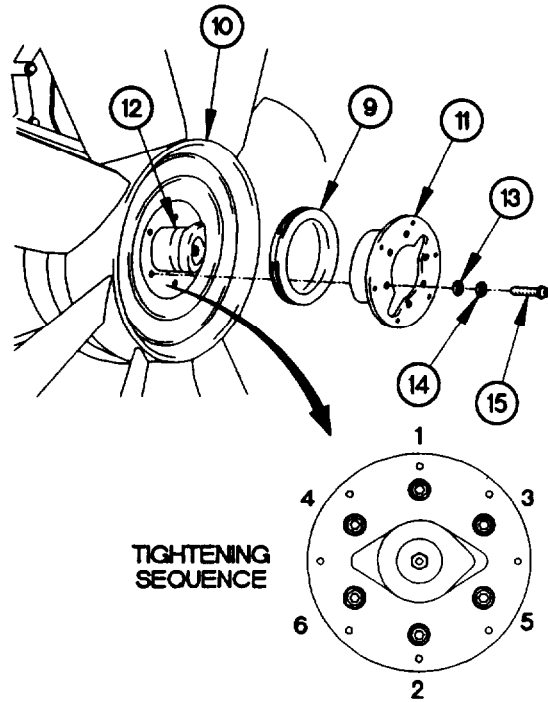
6-2. RADIATOR/CHARGE AIR COOLER REPLACEMENT (CONT)

- (8) Install grommet (9) on engine fan (10).
- (9) Install fan support plate (11) on engine fan (10).

CAUTION

Ensure engine fan is positioned with mark facing forward. Failure to comply may result in damage to equipment.

- (10) Position engine fan (10) and fan support plate (11) on fan clutch assembly (12) with six washers (13), lockwashers (14), and screws (15).
- (11) Tighten six screws (15) to 15 lb-ft (20 N•m) in sequence shown.
- (12) Re-tighten six screws (15) to 22-32 lb-ft (30-44 N•m) in sequence shown.



XF02104A

WARNING

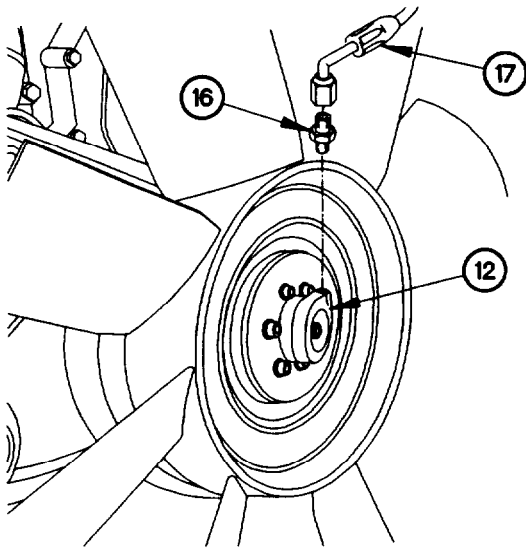
Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.

- (13) Apply antiseize compound to threads of fitting (16).
- (14) Install fitting (16) in fan clutch assembly (12).
- (15) Connect air hose (17) to fitting (16).

c. Follow-On Maintenance.

Install radiator fan shrouds (para 6-4).

End of Task.



XF02105-

6-3. RADIATOR OVERFLOW TANK AND BRACKET REPLACEMENT/REPAIR

This task covers:

- a. Radiator Overflow Tank Removal
- b. Radiator Overflow Tank Disassembly
- c. Radiator Overflow Tank Assembly
- d. Radiator Overflow Tank Installation
- e. Radiator Overflow Tank Bracket Removal
- f. Radiator Overflow Tank Bracket Installation
- g. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Engine shut down (TM 9-2320-365-10).
Cab raised (TM 9-2320-365-10).

Tools and Special Tools

Pan, Drain (Item 24, Appendix C)
Goggles, Industrial (Item 15, Appendix C)
Tool Kit, Genl Mech (Item 44, Appendix C)
Screwdriver Attachment, Socket Wrench (Item 44, Appendix B)
Socket Set, Socket Wrench (Item 35, Appendix C)

Tools and Special Tools (Cont)

Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)
Wrench, Torque, 0-200 lb-in. (Item 58, Appendix C)

Materials/Parts

Antiseize Compound (Item 14, Appendix D)
Nut, Self-Locking (2) (Item 148, Appendix G)
Nut, Self-Locking (3) (Item 140, Appendix G)
Antifreeze, Ethylene Glycol, Permanent (Item 13, Appendix D)

WARNING

Coolant may be very hot and under pressure from engine operation. Ensure engine is cool before performing maintenance. Failure to comply may result in injury to personnel.

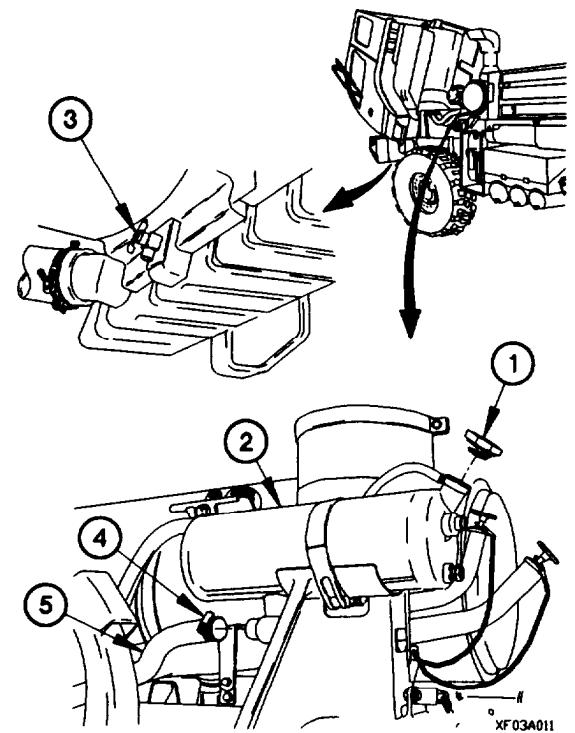
a. Radiator Overflow Tank Removal.

- (1) Remove radiator cap (1) from radiator overflow tank (2).
- (2) Position drain pan under radiator draincock (3).

WARNING

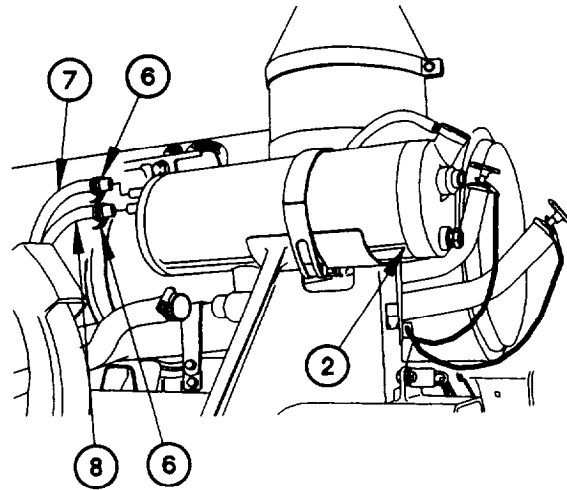
Wear appropriate eye protection when working under vehicle due to the possibility of falling debris. Failure to comply may result in injury to personnel.

- (3) Open radiator draincock (3) and drain approximately three gallons (11 L) of coolant.
- (4) Close radiator draincock (3).
- (5) Loosen hose clamp (4) on lower coolant hose (5).
- (6) Remove lower coolant hose (5) from radiator overflow tank (2).



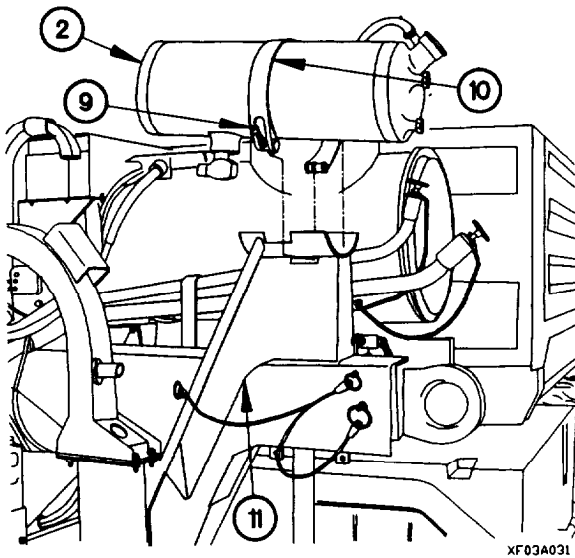
6-3. RADIATOR OVERFLOW TANK AND BRACKET REPLACEMENT/REPAIR (CONT)

- (7) Loosen two hose clamps (6) on upper coolant hoses (7 and 8).
- (8) Remove upper coolant hoses (7 and 8) from radiator overflow tank (2).



XF03A021

- (9) Loosen screw (9) and remove clamp (10) from bracket (11).
- (10) Remove radiator overflow tank (2) from bracket (11).



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b. Radiator Overflow Tank Disassembly.

NOTE

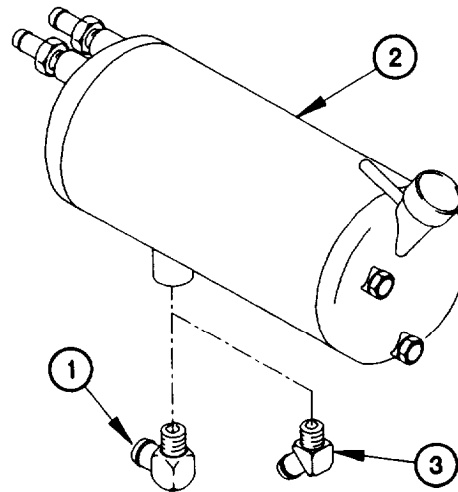
Perform step (1) on all models except M1081.

- (1) Remove 90-degree fitting (1) from radiator overflow tank (2).

NOTE

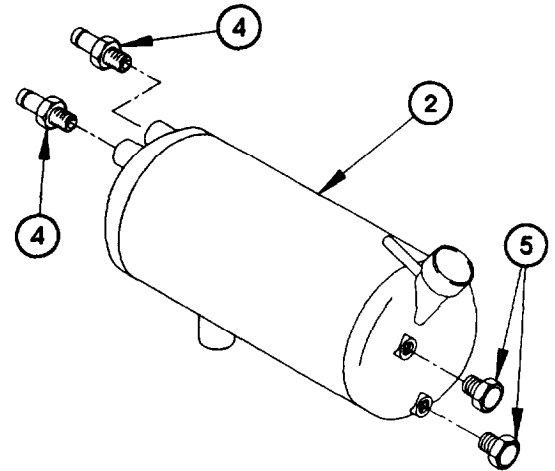
Perform step (2) on M1081.

- (2) Remove 45-degree fitting (3) from radiator overflow tank (2).



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- (3) Remove two adapters (4) from radiator overflow tank (2).
- (4) Remove two sightglasses (5) from radiator overflow tank (2).

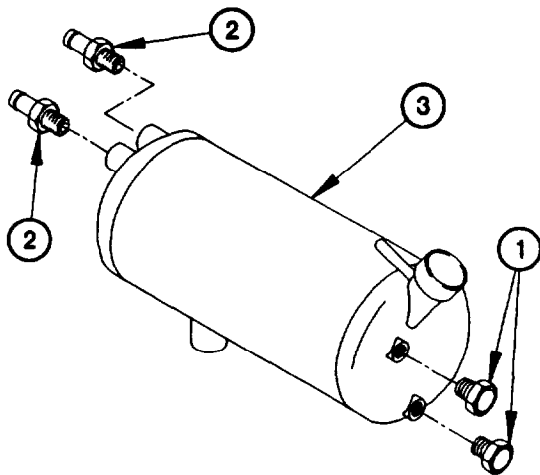


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c. Radiator Overflow Tank Assembly.

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.



XF03C01A

- (1) Apply antiseize compound to threads of two sightglasses (1) and adapters (2).
- (2) Install two sightglasses (1) in radiator overflow tank (3).
- (3) Install two adapters (2) in radiator overflow tank (3).

6-3. RADIATOR OVERFLOW TANK AND BRACKET REPLACEMENT/REPAIR (CONT)

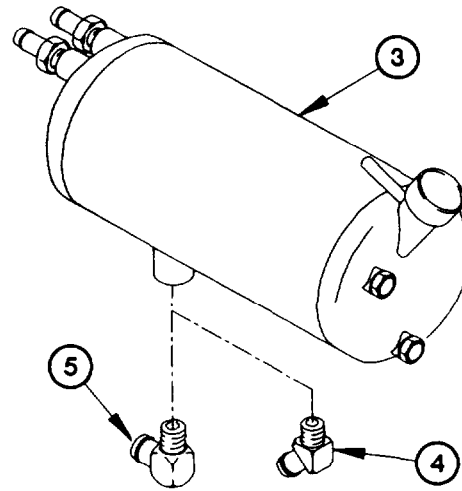
WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.

NOTE

Perform step (4) on M1081.

- (4) Install 45-degree fitting (4) in radiator overflow tank (3).



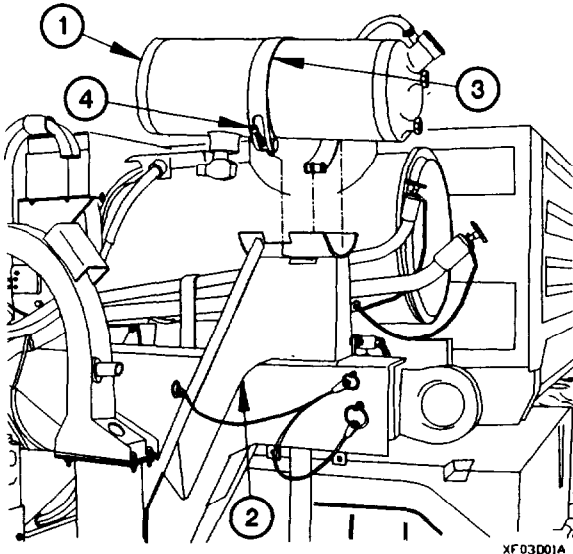
XF 03C02A

NOTE

Perform step (5) on all models except M1081.

- (5) Install 90-degree fitting (5) in radiator overflow tank (3).

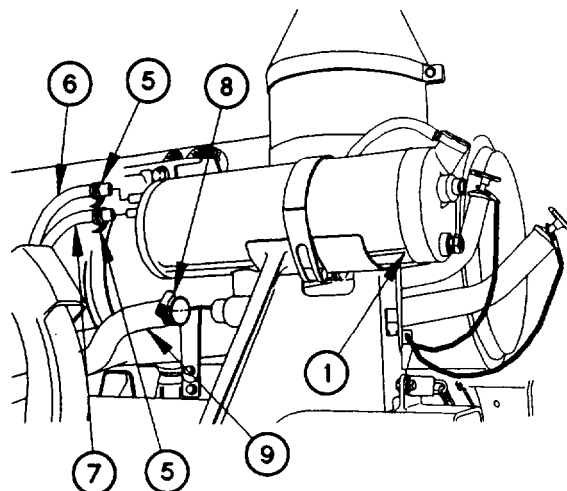
d. Radiator Overflow Tank Installation.



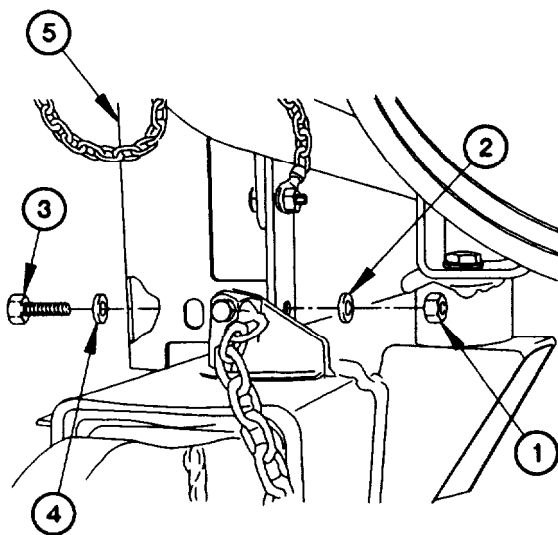
XF 03D01A

- (1) Position radiator overflow tank (1) on bracket (2) with clamp (3) and screw (4).
- (2) Tighten screw (4) to 23-29 lb-ft (31-39 N•m).

- (3) Position two hose clamps (5) and upper coolant hoses (6 and 7) on radiator overflow tank (1).
- (4) Position hose clamp (8) and lower coolant hose (9) on radiator overflow tank (1).
- (5) Tighten two hose clamps (5) and hose clamp (8) to 35-44 lb-in. (4-5 N•m).



e. Radiator Overflow Tank Bracket Removal.

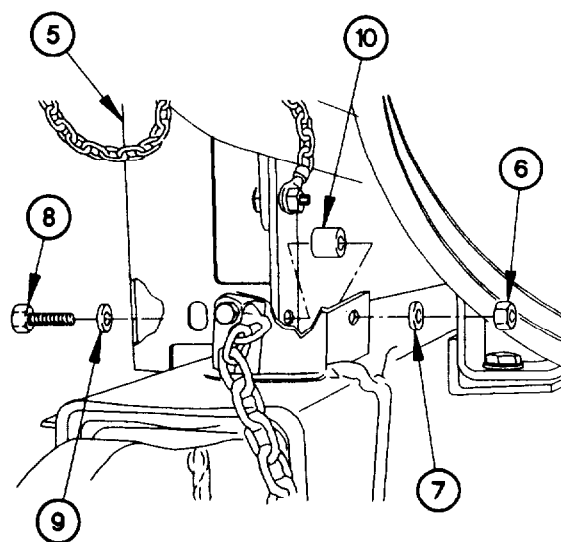


XF03E01A

NOTE

Perform step (2) on M1081.

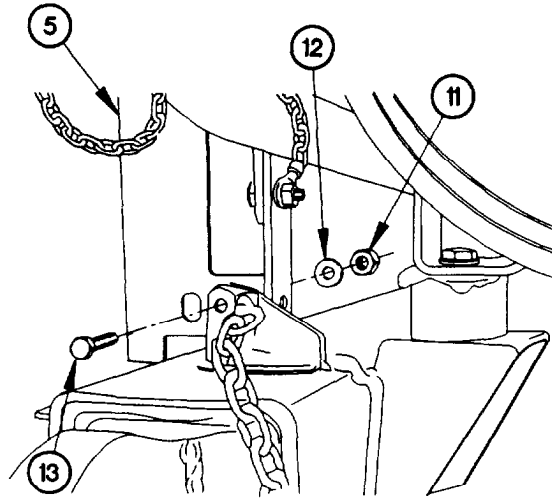
- (2) Remove self-locking nut (6), washer (7), screw (8), washer (9), and spacer (10) from radiator overflow tank bracket (5). Discard self-locking nut.



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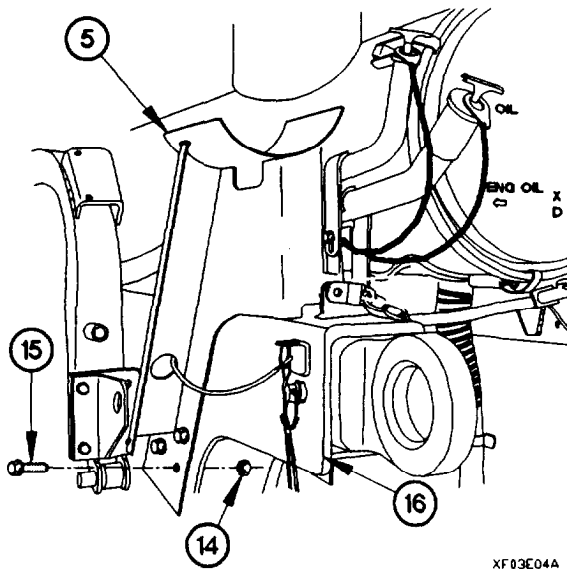
6-3. RADIATOR OVERFLOW TANK AND BRACKET REPLACEMENT/REPAIR (CONT)

- (3) Remove self-locking nut (11), washer (12), and screw (13), from radiator overflow tank bracket (5). Discard self-locking nut.



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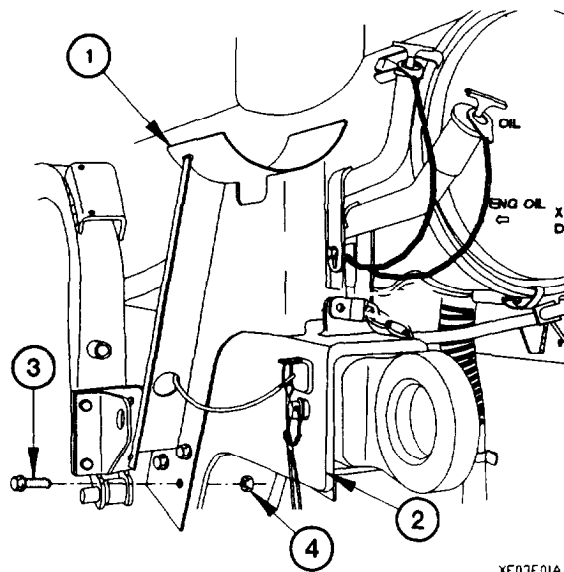
- (4) Remove three self-locking nuts (14), bolts (15), and radiator overflow tank bracket (5) from front lifting bracket (16). Discard self-locking nuts.



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f. Radiator Overflow Tank Bracket Installation.

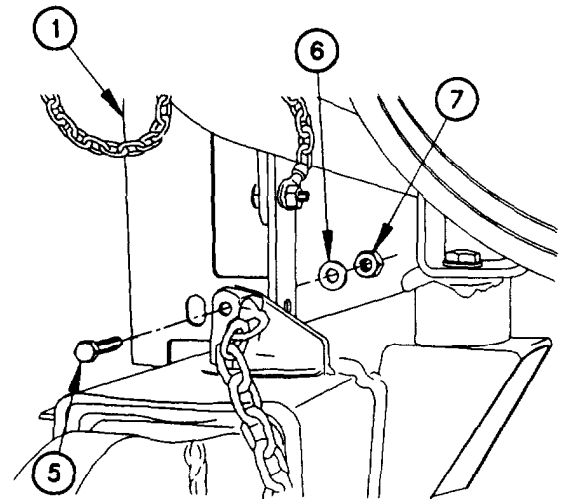
- (1) Position radiator overflow tank bracket (1) on front lifting bracket (2) with three bolts (3) and self-locking nuts (4).
- (2) Tighten three bolts (3) to 40-49 lb-ft (55-67 N•m).



XF03F01A

(3) Position screw (5), washer (6), and self-locking nut (7) in radiator overflow tank bracket (1).

(4) Tighten screw (5) to 21-26 lb-ft (29-35 N•m).



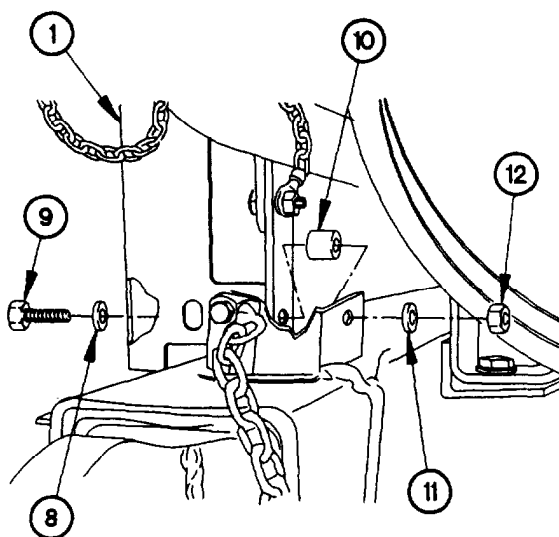
XF03F02A

NOTE

Perform steps (5) and (6) on M1081,

(5) Position washer (8), screw (9), spacer (10), washer (11), and self-locking nut (12) in radiator overflow tank bracket (1).

(6) Tighten self-locking nut (12) to 21-26 lb-ft (29-35 N•m).



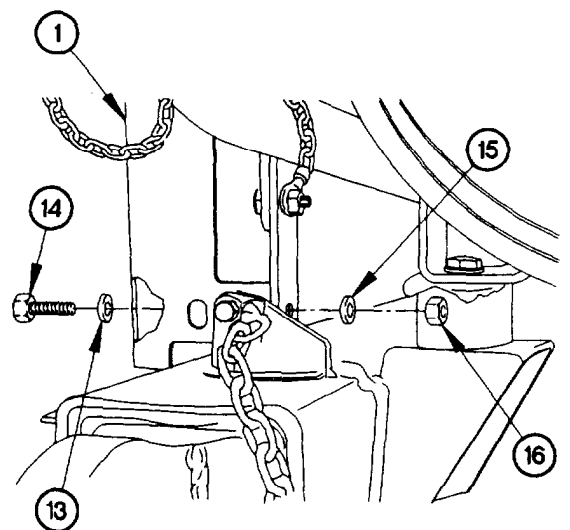
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NOTE

Perform steps (7) and (8) on all models except M1081.

(7) Position washer (13), screw (14), washer (15), and self-locking nut (16) in radiator overflow tank bracket (1).

(8) Tighten self-locking nut (16) to 21-26 lb-ft (29-35 N•m).



XF03F04A

6-3. RADIATOR OVERFLOW TANK AND BRACKET REPLACEMENT/REPAIR (CONT)

g. Follow-On Maintenance.

- (1) Add coolant to radiator overflow tank (TM 9-2320-365-10).
- (2) Lower cab (TM 9-2320-365-10).
- (3) Start engine (TM 9-2320-365-10).
- (4) Check for coolant leaks under vehicle.
- (5) Check coolant level after normal operating temperature is reached. Add coolant as needed (TM 9-2320-365-10).
- (6) Raise cab (TM 9-2320-365-10).
- (7) Check for coolant leaks around radiator overflow tank.
- (8) Lower cab (TM 9-2320-365-10).
- (9) Shut down engine (TM 9-2320-365-10).

End of Task.

6-4. RADIATOR FAN SHROUDS REPLACEMENT

This task covers:

- | | |
|---|--|
| a. Top Radiator Fan Shroud Removal | d. Bottom Radiator Fan Shroud Installation |
| b. Top Radiator Fan Shroud Installation | e. Follow-On Maintenance |
| c. Bottom Radiator Fan Shroud Removal | |

INITIAL SETUP

Equipment Conditions

Turbocharger to charge air cooler tube/hoses removed (para 4-4).

Charge air cooler to air inlet elbow tubes/hoses removed (para 4-5).

Upper coolant tube and hoses removed (para 6-9).

Tools and Special Tools

Goggles, Industrial (Item 15, Appendix C)

Container (52 qt (50 L) capacity)

Socket Set, Socket Wrench (Item 35, Appendix C)

Tools and Special Tools (Cont)

Tool Kit, Genl Mech (Item 44, Appendix C)

Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)

Wrench, Torque, 0-200 lb-in. (Item 58, Appendix C)

Wrench, Torque, 0-75 lb-in. (Item 86, Appendix B)

Materials/Parts

Nut, Self-Locking (6) (Item 116, Appendix G)

Antifreeze, Ethylene Glycol, Permanent (Item 13, Appendix D)

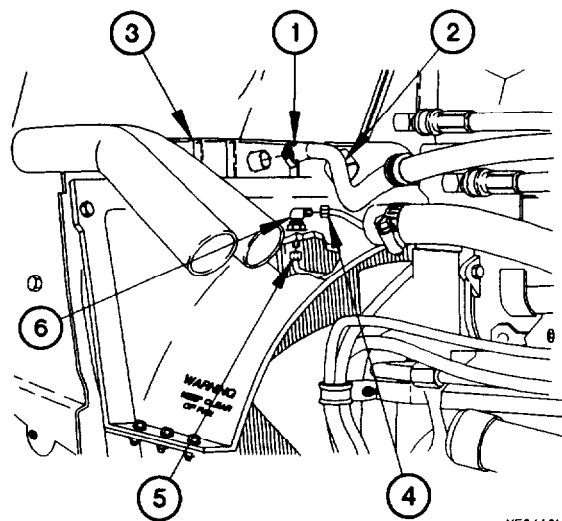
Antiseize Compound (Item 14, Appendix D)

WARNING

Wear appropriate eye protection when working under vehicle due to the possibility of falling debris. Failure to comply may result in injury to personnel.

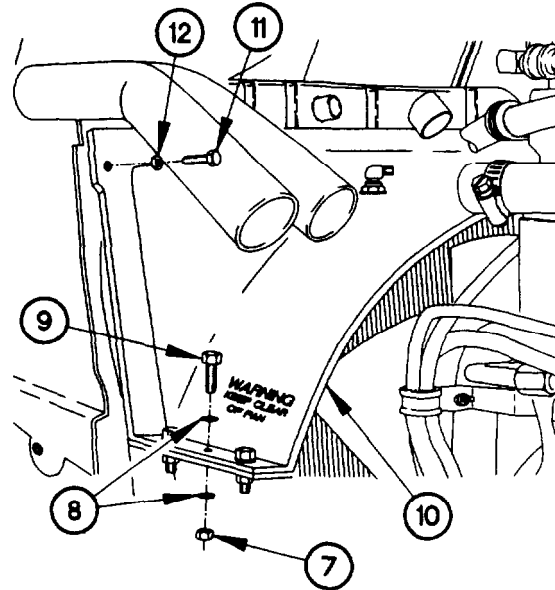
a. Top Radiator Fan Shroud Removal.

- (1) Loosen hose clamp (1) on radiator vent hose (2).
- (2) Disconnect radiator vent hose (2) from radiator (3).
- (3) Disconnect fan clutch hoses (4 and 5) from 90-degree fitting (6).

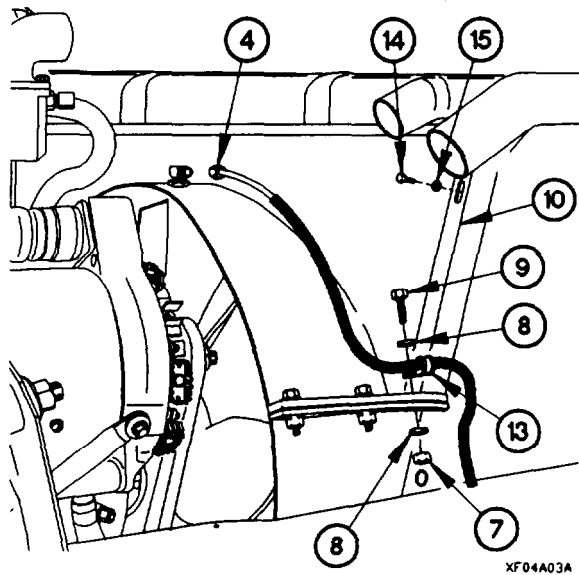


6-4. RADIATOR FAN SHROUDS REPLACEMENT (CONT)

- (4) Remove three self-locking nuts (7), six washers (8), and three screws (9) from left side of top radiator fan shroud (10). Discard self-locking nuts.
- (5) Remove screw (11) and washer (12) from left side of top radiator fan shroud (10).



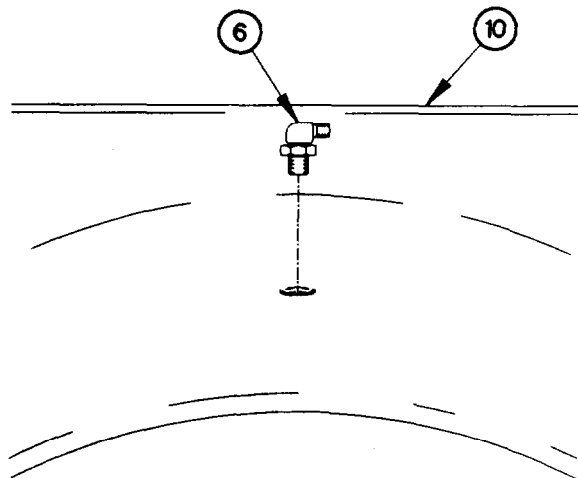
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- (6) Remove three self-locking nuts (7), six washers (8), three screws (9), clamp (13), and fan clutch hose (4) from right side of top radiator fan shroud (10). Discard self-locking nuts.
- (7) Remove screw (14) and washer (15) from right side of top radiator fan shroud (10).
- (8) Remove top radiator fan shroud (10) from vehicle.

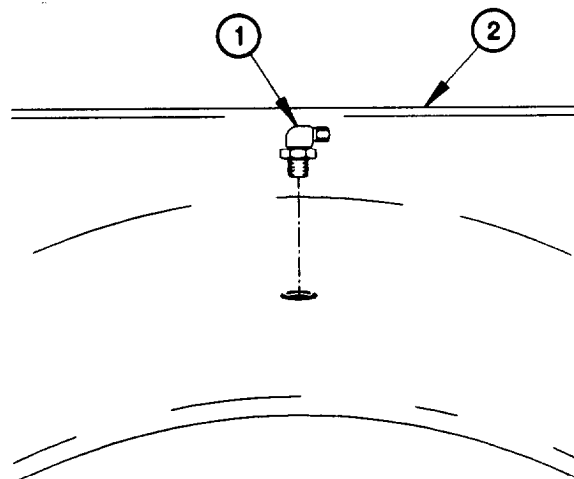
- (9) Remove 90-degree fitting (6) from top radiator fan shroud (10).



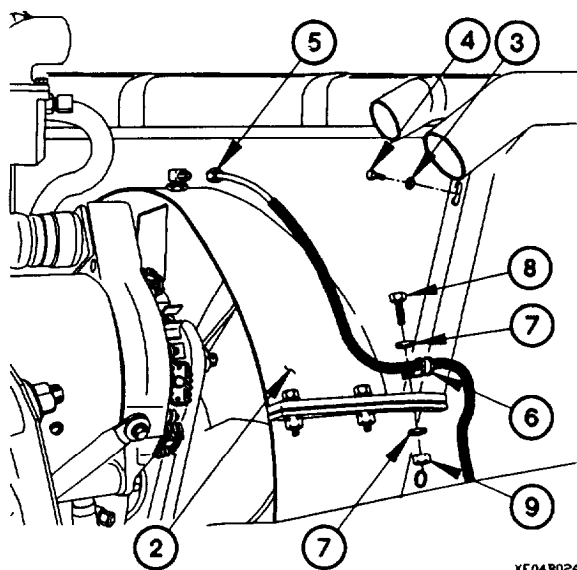
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b. Top Radiator Fan Shroud Installation.

- (1) Install 90-degree fitting (1) on top radiator fan shroud (2).



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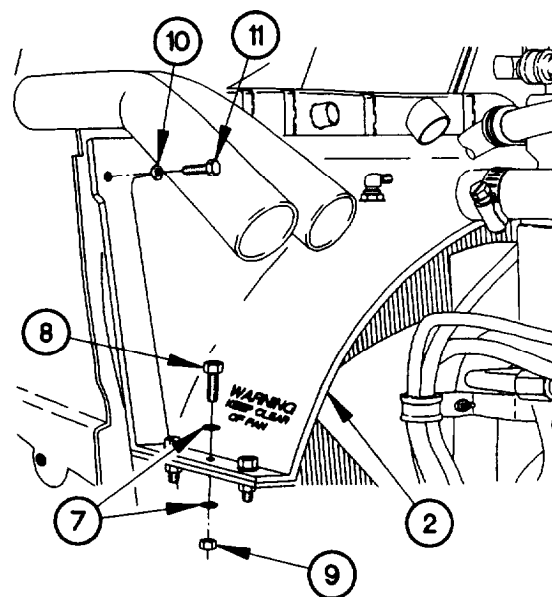
- (2) Position top radiator fan shroud (2) on vehicle.
- (3) Position washer (3) and screw (4) on right side of radiator fan shroud (2).
- (4) Tighten screw (4) to 21-26 lb-ft (28-35 N•m).
- (5) Position fan clutch hose (5), clamp (6), six washers (7), three screws (8) and self-locking nuts (9) on right side of top radiator fan shroud (2).
- (6) Tighten three self-locking nuts (9) to 72-96 lb-in. (8-11 N•m).

- (7) Install washer (10) and screw (11) on left side of top radiator fan shroud (2).

- (8) Tighten screw (11) to 21-26 lb-ft (28-35 N•m).

- (9) Position six washers (7), three screws (8), and self-locking nuts (9) on left side of top radiator fan shroud (2).

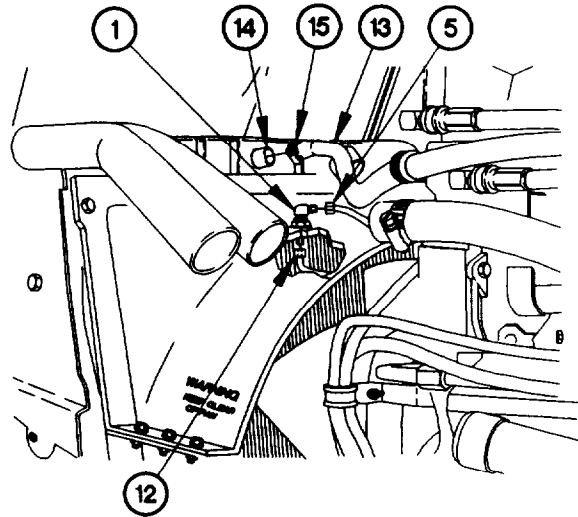
- (10) Tighten three self-locking nuts (9) to 72-96 lb-in. (8-11 N•m).



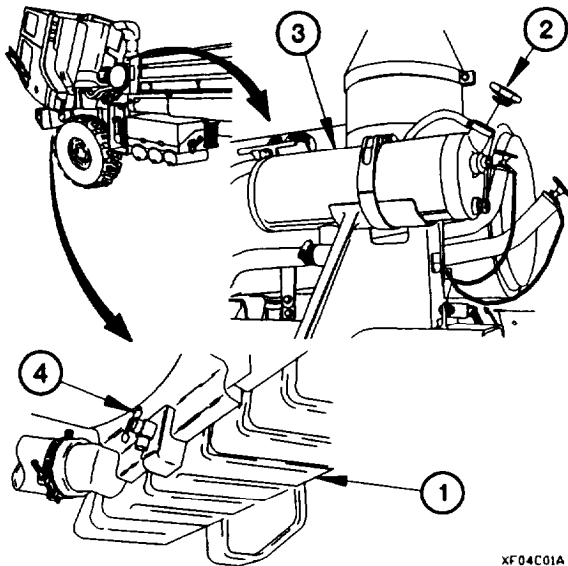
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6-4. RADIATOR FAN SHROUDS REPLACEMENT (CONT)

- (11) Connect fan clutch hoses (5 and 12) to 90-degree fitting (1).
- (12) Install radiator vent hose (13) on radiator (14) with hose clamp (15).

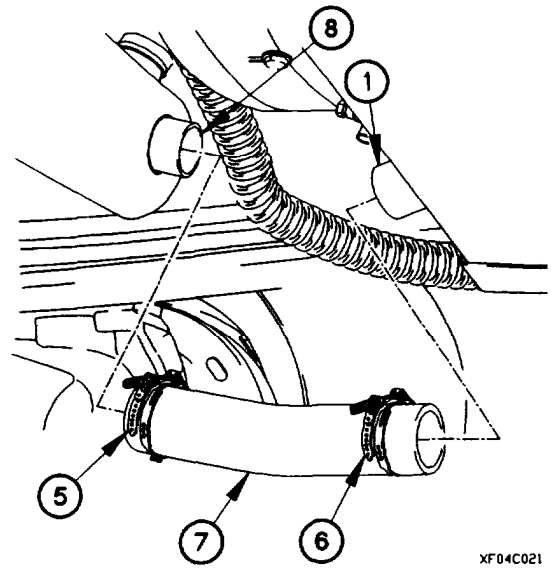


c. Bottom Radiator Fan Shroud Removal.

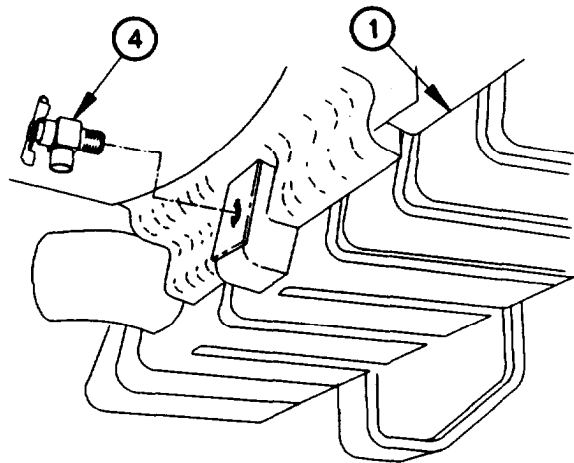


- (1) Position container under radiator (1).
- (2) Remove radiator cap (2) from radiator overflow tank (3).
- (3) Open radiator draincock (4) and drain coolant from radiator (1).
- (4) Close radiator draincock (4).

- (5) Loosen clamps (5 and 6) on lower coolant hose (7).
- (6) Remove lower coolant hose (7) from radiator (1) and transmission oil cooler (8).



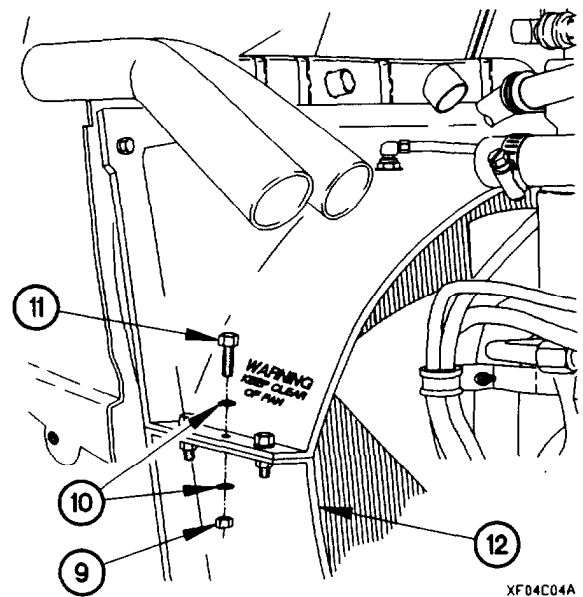
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- (7) Remove radiator draincock (4) from radiator (1).

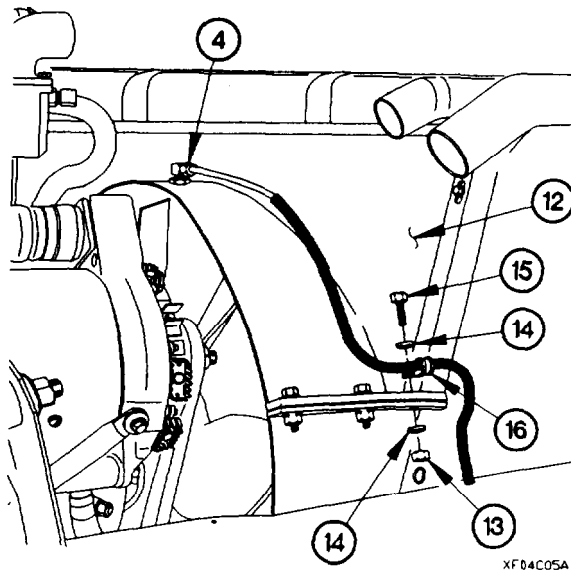
- (8) Remove three self-locking nuts (9), six washers (10), and three screws (11) from left side of bottom radiator fan shroud (12). Discard self-locking nuts.



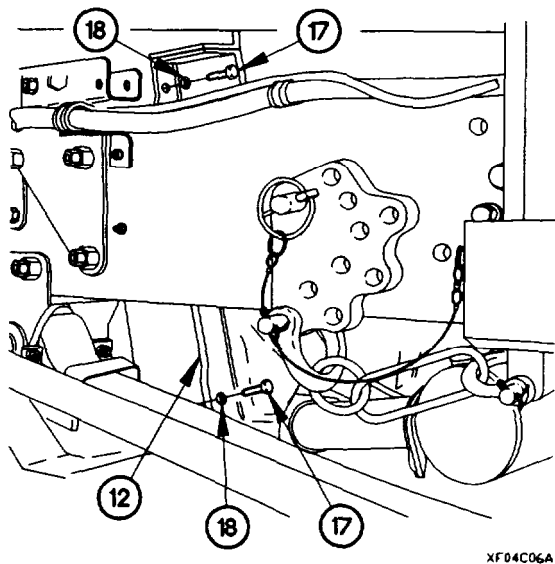
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6-4. RADIATOR FAN SHROUDS REPLACEMENT (CONT)

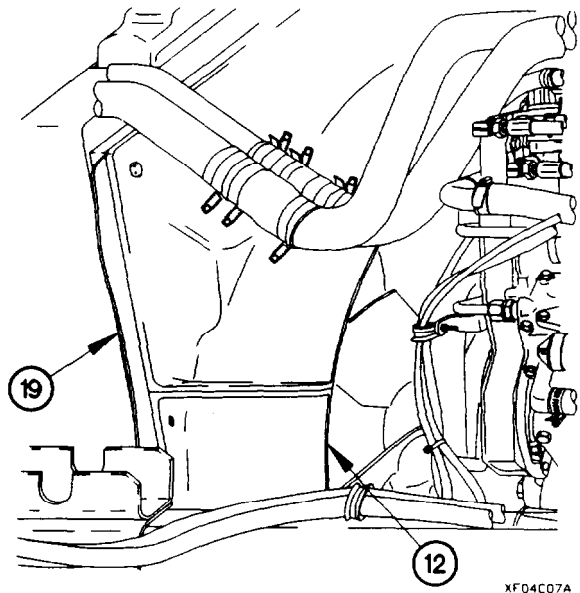
(9) Remove three self-locking nuts (13), six washers (14), three screws (15), clamp (16), and fan clutch hose (4) from right side of bottom radiator fan shroud (12). Discard self-locking nuts.



(10) Remove two screws (17) and washers (18) from each side of bottom radiator fan shroud (12).

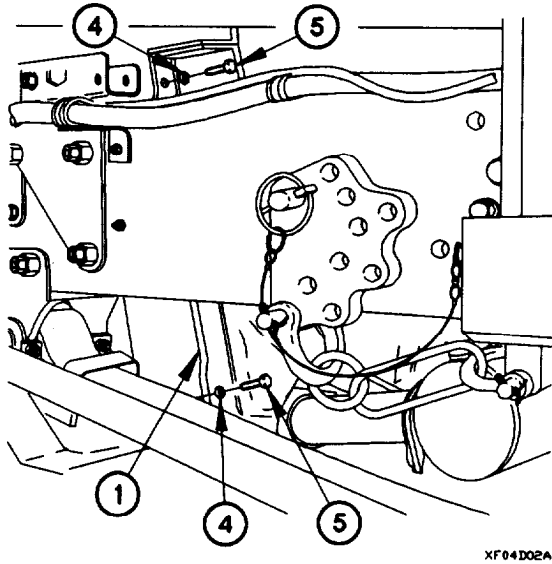
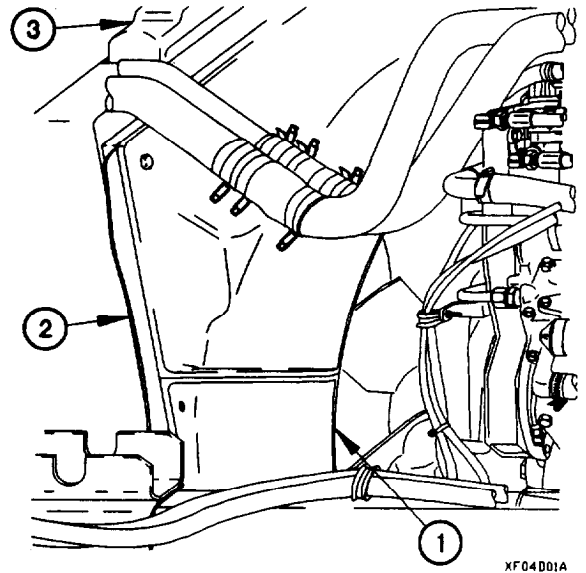


(11) Remove bottom radiator fan shroud (12) and two engine airflow baffles (19).



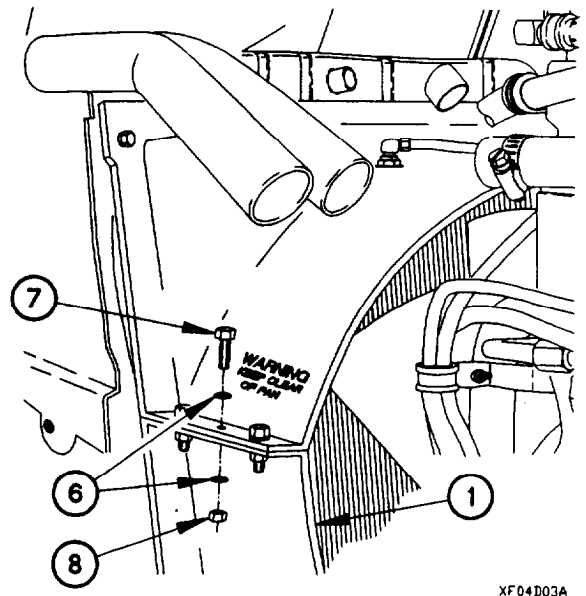
d. Bottom Radiator Fan Shroud Installation.

- (1) Position bottom radiator fan shroud (1) in mounting location.
- (2) Position two engine airflow baffles (2) between bottom radiator fan shroud (1) and radiator (3).



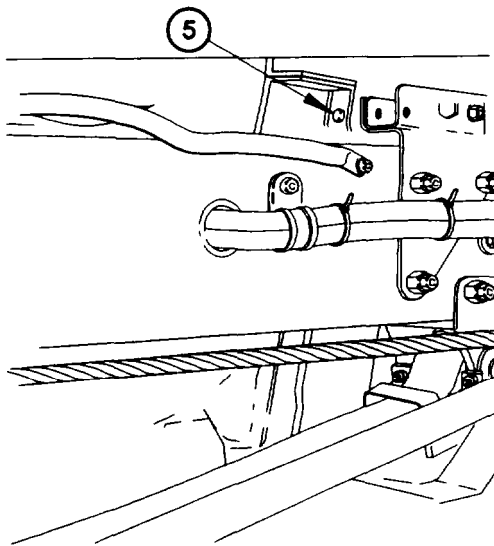
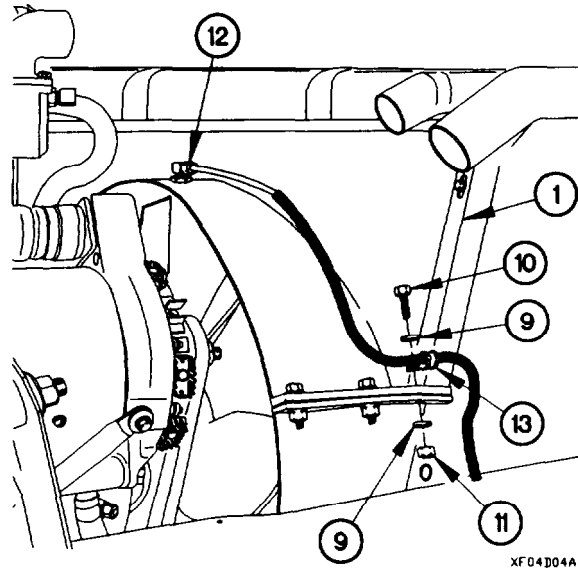
- (3) Position two washers (4) and screws (5) in each side of bottom radiator fan shroud (1).

- (4) Position six washers (6), three screws (7), and self-locking nuts (8) on left side of bottom radiator fan shroud (1).
- (5) Tighten three self-locking nuts (8) to 72-98 lb-in. (8-11 N•m).



6-4. RADIATOR FAN SHROUDS REPLACEMENT (CONT)

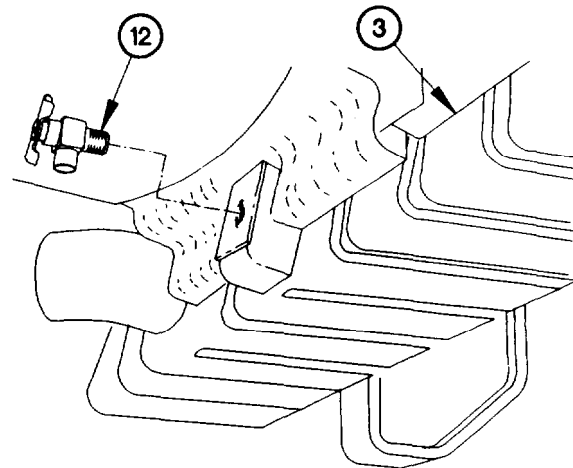
- (6) Position six washers (9), three screws (10), self-locking nuts (11), fan clutch hose (12), and clamp (13) on right side of bottom radiator fan shroud (1).
- (7) Tighten three self-locking nuts (11) to 72-96 lb-in. (8-11 N•m).



- (8) Tighten two screws (5) on each side of bottom radiator fan shroud (1) to 21-26 lb-ft (28-35 N•m).

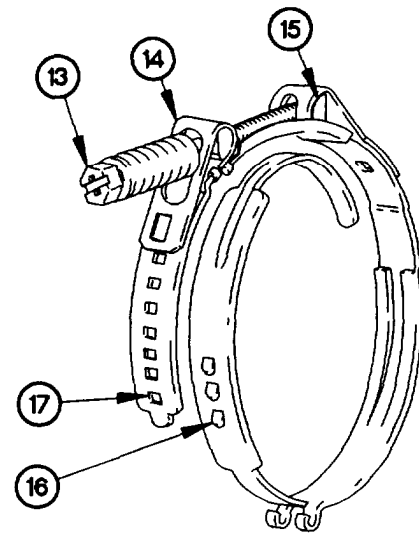
WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.



- (9) Apply antiseize compound to threads of radiator draincock (12).
- (10) Install radiator draincock (12) in radiator (3).

- (11) Loosen two screws (13) in clamps (14) as far as possible without disengaging screws from D-nuts (15).
- (12) Unhook clamp tabs (16) from tab windows (17).

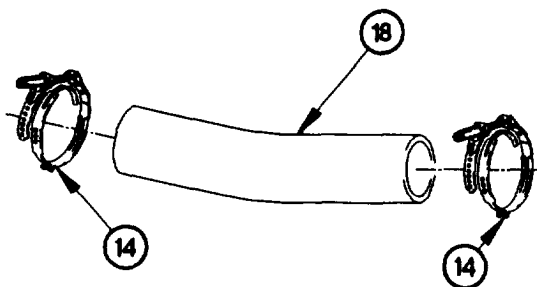


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CAUTION

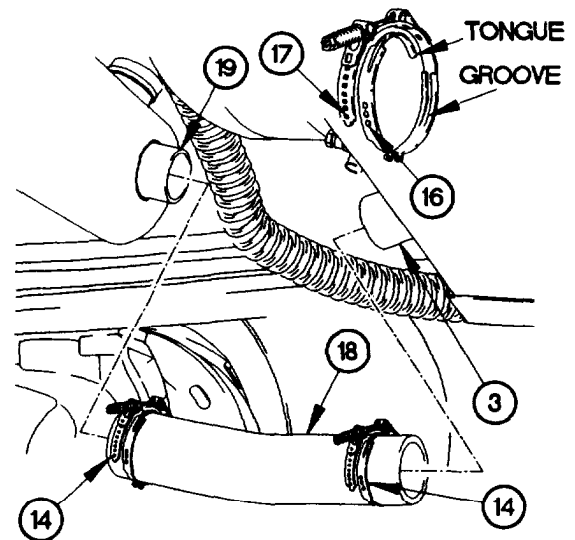
- Clamp tongue must be started in clamp groove. Failure to comply may result in damage to equipment.
- Position clamps so that screws will be toward center of vehicle and angled down.

- (13) Position two clamps (14) on lower coolant hose (18).



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- (14) Install lower coolant hose (18) between radiator (3) and transmission oil cooler (19).
- (15) Engage as many clamp tabs (16) as possible in tab windows (17) allowing little or no play between clamps (14) and lower coolant hose (18).
- (16) Tighten two clamps (14) to 12-18 lb-in. (1-2 N•m).



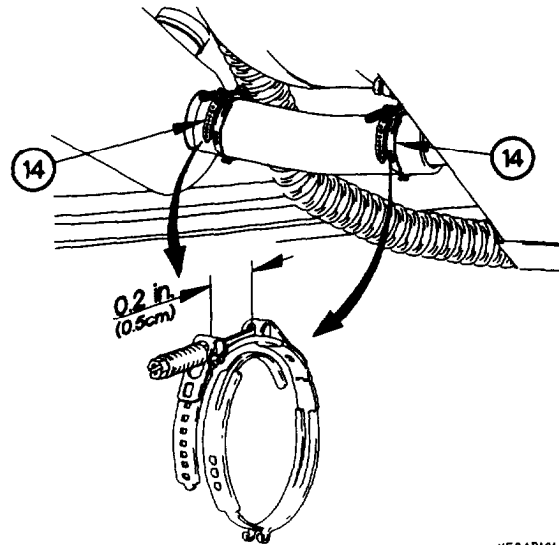
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6-4. RADIATOR FAN SHROUDS REPLACEMENT (CONT)

NOTE

Minimum allowable gap on clamp is 0.2 in. (0.5 cm). If gap is less than 0.2 in. (0.5 cm), remove and re-install clamp.

(17) Measure gap on two clamps (14).



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e. Follow-On Maintenance.

- (1) Install upper coolant tube and hoses (para 6-9).
- (2) Install charge air cooler to air inlet elbow tubes/hoses (para 4-5).
- (3) Install turbocharger to charge air cooler tube/hoses (para 4-4).
- (4) Add coolant to radiator overflow tank (TM 9-2320-365-10).
- (5) Check for coolant leaks under vehicle.
- (6) Start engine (TM 9-2320-365-10).
- (7) Check for coolant leaks under vehicle.
- (8) Check coolant level after normal operating temperature is reached. Add coolant as required.
- (9) Install radiator cap on radiator overflow tank.
- (10) Check for coolant leaks under vehicle.
- (11) Raise cab (TM 9-2320-365-10).
- (12) Check for coolant leaks in engine compartment.
- (13) Check to make sure engine fan does not contact fan shroud.
- (14) Lower cab (TM 9-2320-365-10).
- (15) Shut down engine (TM 9-2320-365-10).

End of Task.

6-5. THERMOSTAT REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Engine shut down (TM 9-2320-365-10).
Cab raised (TM 9-2320-365-10).

Tools and Special Tools (Cont)

Goggles, Industrial (Item 15, Appendix C)
Gloves, Rubber (Item 13, Appendix C)

Tools and Special Tools

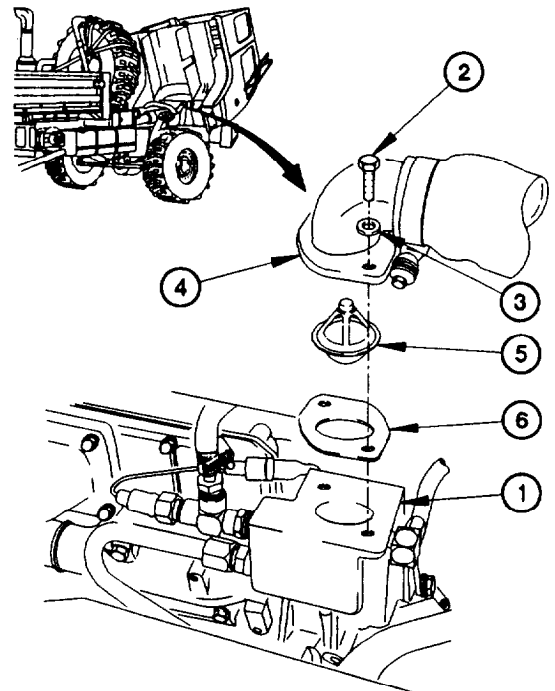
Tool Kit, Genl Mech (Item 44, Appendix C)
Pan, Drain (Item 24, Appendix C)

Materials/Parts

Gasket, Thermostat (Item 45, Appendix G)
Adhesive (Item 6, Appendix D)

a. Removal.

- (1) Position drain pan under thermostat housing (1).
- (2) Remove two screws (2) and washers (3) from outlet housing (4).
- (3) Remove outlet housing (4) from thermostat housing (1).
- (4) Remove thermostat (5) from thermostat housing (1).
- (5) Remove thermostat gasket (6) from thermostat housing (1). Discard thermostat gasket.
- (6) Remove thermostat gasket debris from outlet housing (4) and thermostat housing (1).



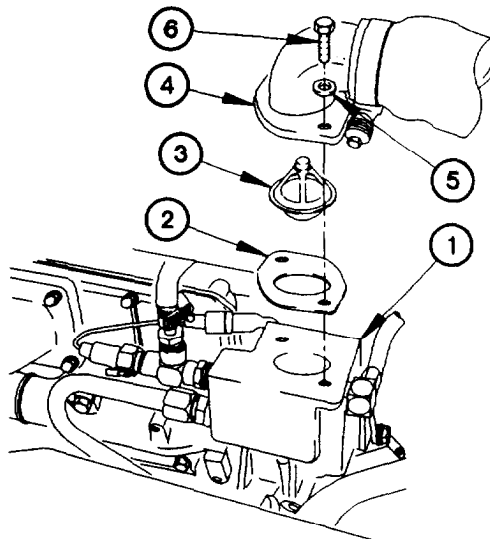
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6-5. THERMOSTAT REPLACEMENT (CONT)

b. Installation.

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.



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- (1) Apply adhesive to thermostat housing surface (1).
- (2) Position thermostat gasket (2) on thermostat housing (1).
- (3) Install thermostat (3) with long end up.
- (4) Apply adhesive to outlet housing (4) mating surface.
- (5) Install outlet housing (4) on thermostat housing (1) with two washers (5) and screws (6).

c. Follow-On Maintenance.

- (1) Lower cab (TM 9-2320-365-10).
- (2) Add coolant to bottom of radiator overflow tank filler neck (TM 9-2320-365-10).
- (3) Check for coolant leaks under vehicle.
- (4) Start engine (TM 9-2320-365-10).
- (5) Check coolant level after normal operating temperature is reached. Add coolant as required (TM 9-2320-365-10).
- (6) Raise cab (TM 9-2320-365-10).

- (7) Check thermostat housing for coolant leaks.
- (8) Install radiator cap on radiator overflow tank.
- (9) Lower cab (TM 9-2320-365-10).
- (10) Shut down engine (TM 9-2320-365-10).

End of Task.

6-6. THERMOSTAT HOUSING REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Thermostat removed (para 6-5).

Tools and Special Tools

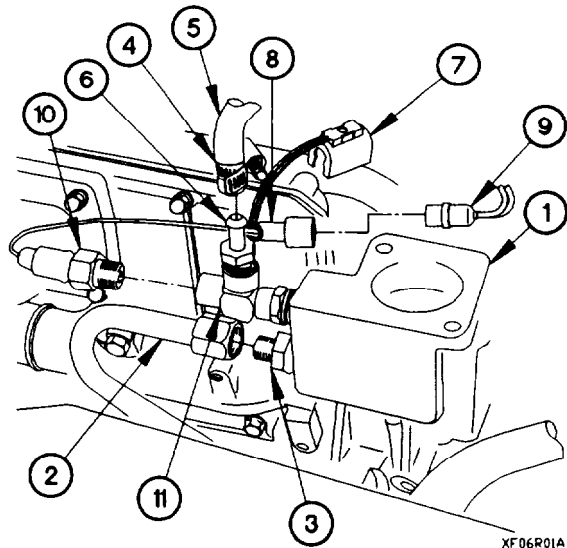
Tool Kit, Genl Mech (Item 44, Appendix C)
 Pan, Drain (Item 24, Appendix C)
 Goggles, Industrial (Item 15, Appendix C)
 Gloves, Rubber (Item 13, Appendix C)

Materials/Parts

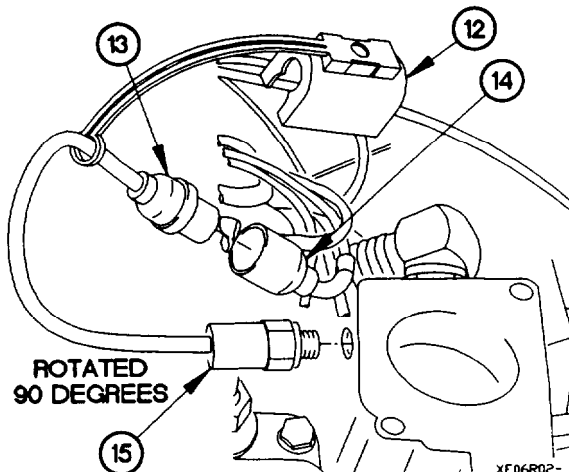
Gasket (Item 41, Appendix G)
 Packing, Preformed (Item 178, Appendix G)
 Adhesive (Item 6, Appendix D)
 Antifreeze, Ethylene Glycol, Permanent (Item 13, Appendix D)
 Antiseize Compound (Item 14, Appendix D)

a. Removal.

- (1) Position drain pan under thermostat housing (1).
- (2) Disconnect heater tube (2) from fitting (3).
- (3) Loosen hose clamp (4) on radiator fill hose (5).
- (4) Disconnect radiator fill hose (5) from fitting (6).
- (5) Disconnect connector clamp (7) from water temperature transducer connector (8).
- (6) Disconnect water temperature transducer connector (8) from connector P41 (9).
- (7) Remove water temperature transducer (10) from tee fitting (11).

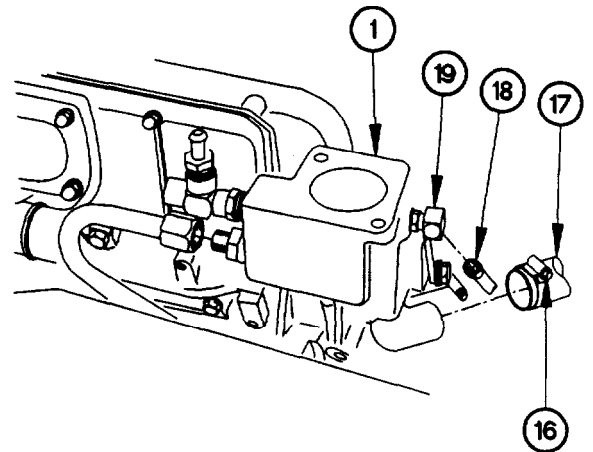


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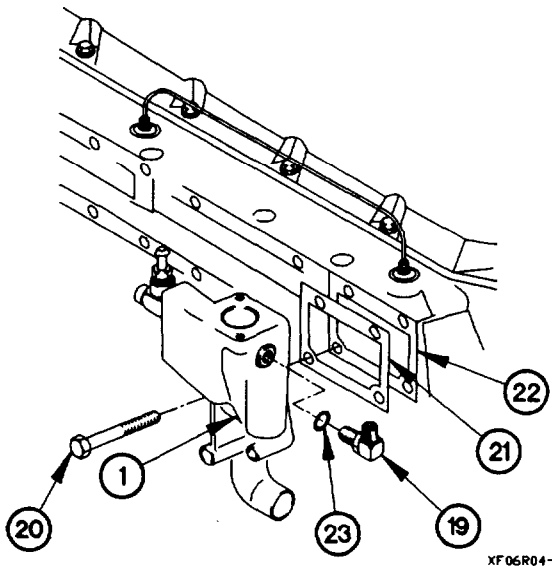


- (8) Disconnect connector clamp (12) from water temperature light switch connector (13).
- (9) Disconnect water temperature light switch connector (13) from connector P37 (14).
- (10) Remove water temperature light switch (15) from thermostat housing (1).

- (11) Loosen hose clamp (16) on transmission oil cooler hose (17).
- (12) Disconnect transmission oil cooler hose (17) from thermostat housing (1).
- (13) Disconnect compressor inlet coolant tube (18) from 90-degree fitting (19).



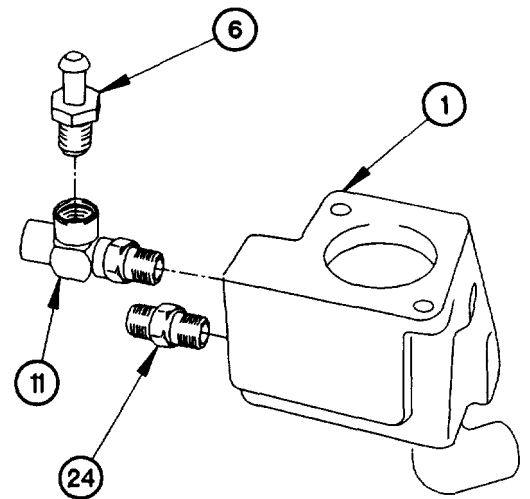
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- (14) Remove two screws (20) from thermostat housing (1).
- (15) Remove thermostat housing (1) and gasket (21) from engine block (22). Discard gasket.
- (16) Remove 90-degree fitting (19) from thermostat housing (1).
- (17) Remove preformed packing (23) from 90-degree fitting (19). Discard preformed packing.
- (18) Remove gasket debris from thermostat housing (1).

- (19) Remove tee fitting (11) from thermostat housing (1).
- (20) Remove fitting (6) from tee fitting (11).
- (21) Remove fitting (24) from thermostat housing (1).



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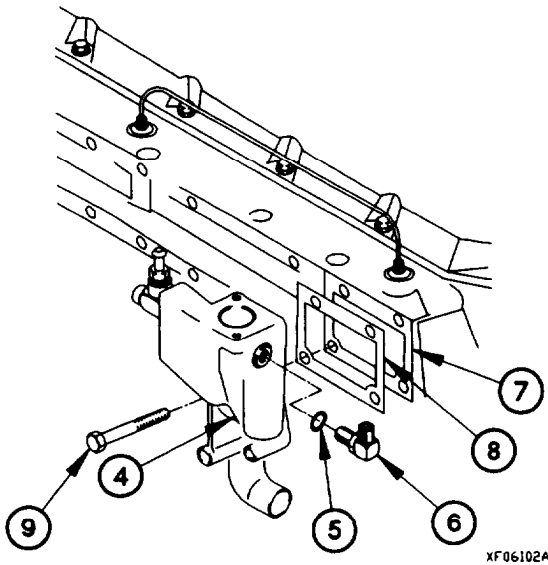
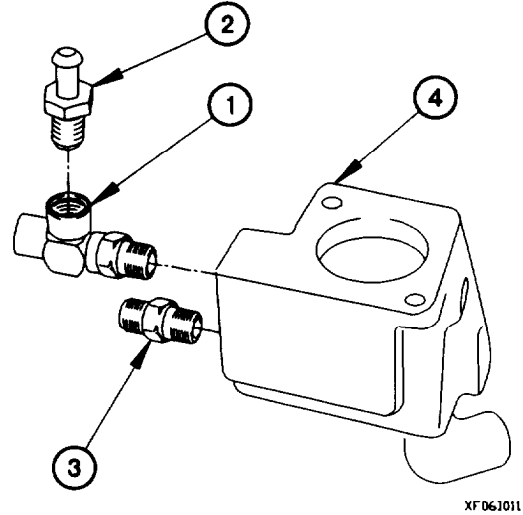
6-6. THERMOSTAT HOUSING REPLACEMENT (CONT)

b. Installation.

WARNING

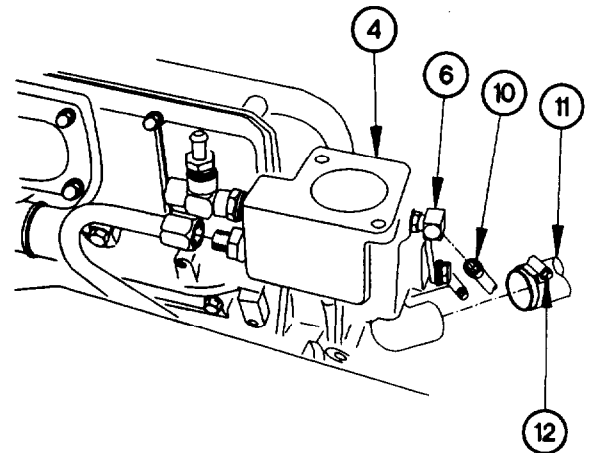
Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash with soap and water. Failure to comply may result in injury to personnel.

- (1) Apply adhesive to threads of tee fitting (1) and fittings (2 and 3).
- (2) Install fitting (2) in tee fitting (1).
- (3) Install tee fitting (1) in thermostat housing (4).
- (4) Install fitting (3) in thermostat housing (4).

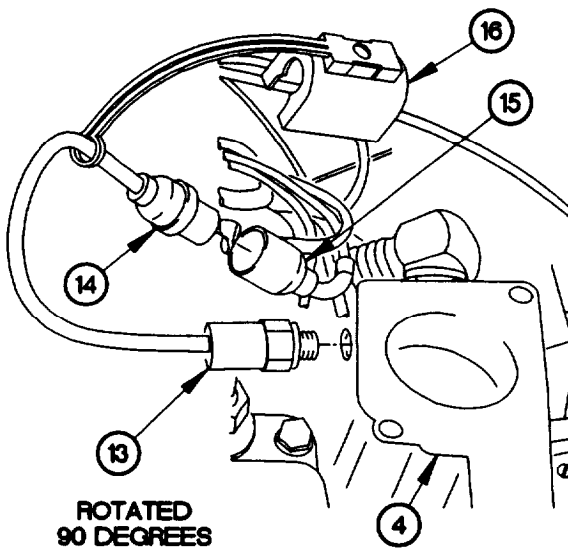


- (5) Install preformed packing (5) on 90-degree fitting (6).
- (6) Install 90-degree fitting (6) in thermostat housing (4).
- (7) Apply adhesive to surfaces of thermostat housing (4) and engine block (7).
- (8) Position gasket (8) on engine block (7).
- (9) Install thermostat housing (4) on engine block (7) with two screws (9).

- (10) Connect compressor inlet coolant tube (10) to 90-degree fitting (6).
- (11) Install transmission oil cooler hose (11) on thermostat housing (4) with hose clamp (12).



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WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash with soap and water. Failure to comply may result in injury to personnel.

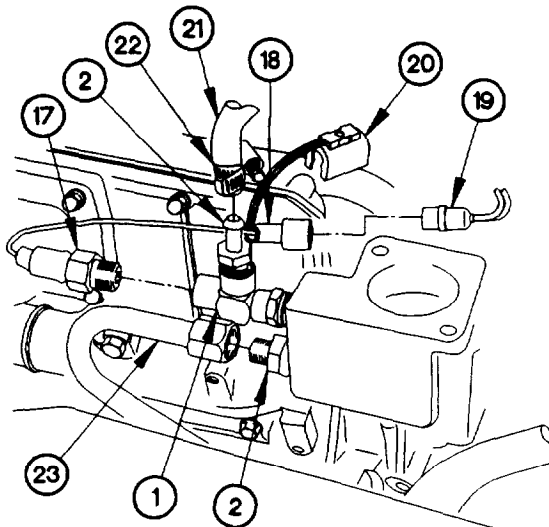
- (12) Apply antiseize compound to threads of water temperature light switch (13).
- (13) Install water temperature light switch (13) in thermostat housing (4).
- (14) Connect water temperature light switch connector (14) to connector P37 (15).
- (15) Connect connector clamp (16) on water temperature light switch connector (14).

6-6. THERMOSTAT HOUSING REPLACEMENT (CONT)

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash with soap and water. Failure to comply may result in injury to personnel.

- (16) Apply antiseize compound to threads of water temperature transducer (17).
- (17) Install water temperature transducer (17) in tee fitting (1).
- (18) Connect water temperature transducer connector (18) to connector P41 (19).
- (19) Connect connector clamp (20) on water temperature transducer connector (18).
- (20) Install radiator fill hose (21) on fitting (2) with hose clamp (22).
- (21) Connect heater tube (23) to fitting (2).



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c. Follow-On Maintenance.

- (1) Install thermostat (para 6-5).
- (2) Add coolant to radiator overflow tank (TM 9-2320-365-10).
- (3) Lower cab (TM 9-2320-365-10).
- (4) Start engine (TM 9-2320-365-10).
- (5) Check for coolant leaks under vehicle.
- (6) Check coolant level after normal operating temperature is reached. Add coolant as required (TM 9-2320-365-10).
- (7) Check for coolant leaks under vehicle.

- (8) Raise cab (TM 9-2320-365-10).
- (9) Check for coolant leaks at thermostat housing.
- (10) Lower cab (TM 9-2320-365-10).
- (11) Shut down engine (TM 9-2320-365-10).

End of Task.

6-7. COOLANT BYPASS TUBE REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

- Engine shut down (TM 9-2320-365-10).
- Cab raised (TM 9-2320-365-10).
- Batteries disconnected (para 7-48).

Tool and Special Tools

- Goggles, Industrial (Item 15, Appendix C)
- Container (52 qt (50 L) capacity)
- Tool Kit, Genl Mech (Item 44, Appendix C)
- Wrench, Torque, 0-75 lb-in. (Item 86, Appendix B)

Materials/Parts

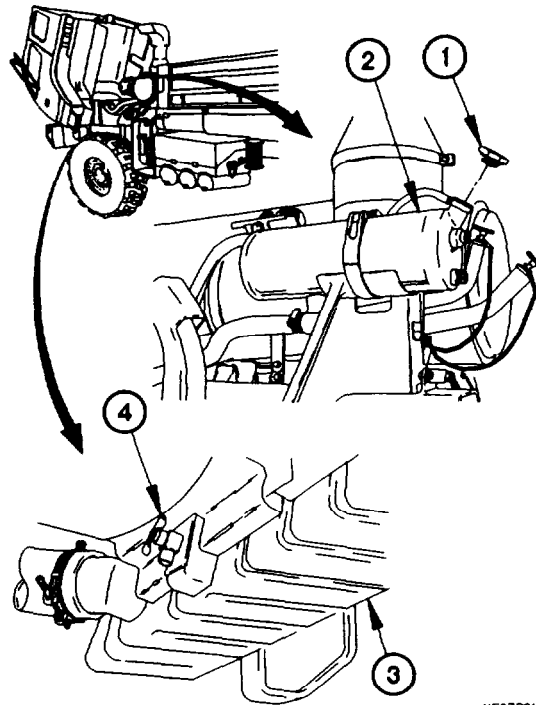
- Antifreeze, Ethylene Glycol, Permanent (Item 13, Appendix D)
- Antiseize Compound (Item 14, Appendix D)
- Nut, Self-Locking (Item 116, Appendix G)

WARNING

- Coolant may be very hot and under pressure from engine operation. Ensure engine is cool before performing maintenance. Failure to comply may result in injury to personnel.
- Wear appropriate eye protection when working under vehicle due to the possibility of falling debris. Failure to comply may result in injury to personnel.

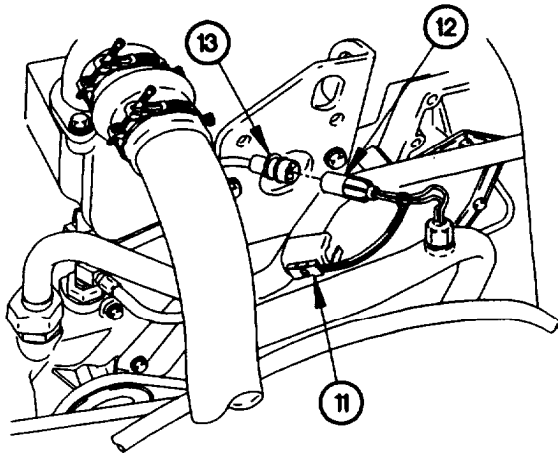
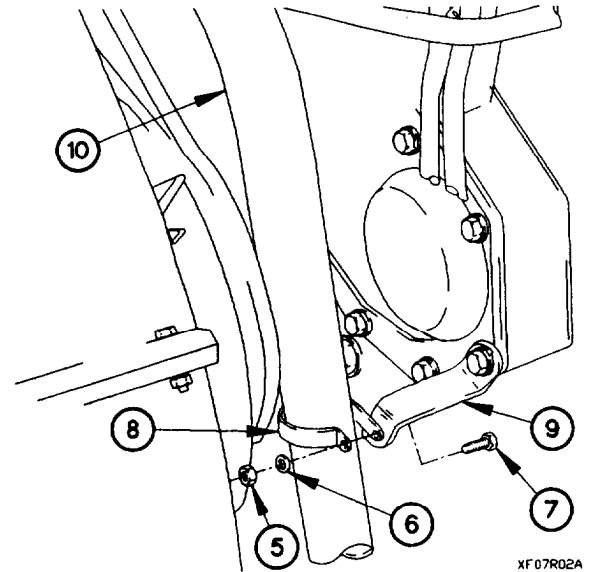
a. Removal.

- (1) Remove radiator cap (1) from radiator overflow tank (2).
- (2) Position container under radiator (3).
- (3) Open radiator draincock (4) and drain coolant.
- (4) Close radiator draincock (4).



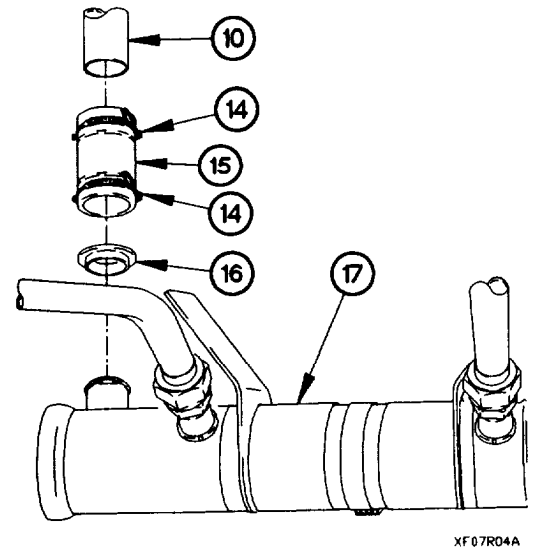
XF07R01A

- (5) Remove self-locking nut (5), washer (6), screw (7), and clamp (8) from bracket (9). Discard self-locking nut.
- (6) Remove clamp (8) from coolant bypass tube (10).



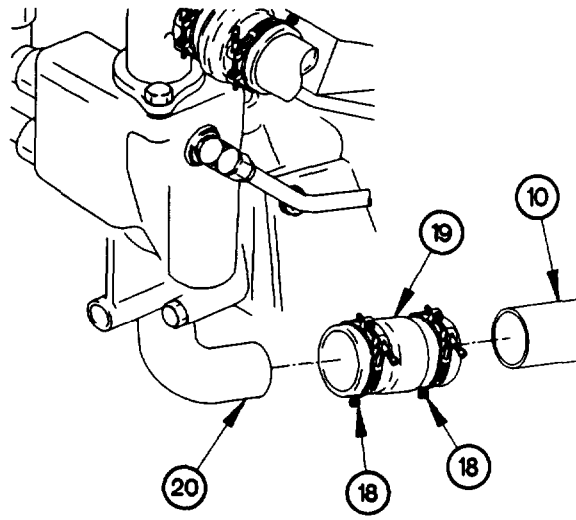
- (7) Disconnect connector clamp (11) from ether sensor connector (12).
- (8) Disconnect ether sensor connector (12) from connector P42 (13).

- (9) Loosen two clamps (14) on coolant hose (15).
- (10) Remove coolant hose (15) and flow restrictor (16) from transmission oil cooler (17).
- (11) Remove coolant hose (15) and two clamps (14) from coolant bypass tube (10).

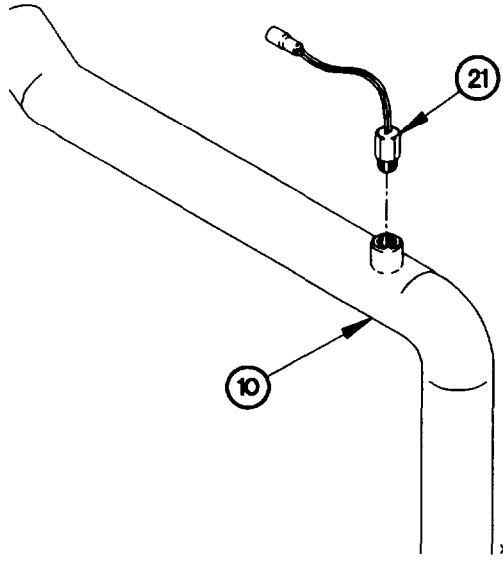


6-7. COOLANT BYPASS TUBE REPLACEMENT (CONT)

- (12) Loosen two clamps (18) on coolant hose (19).
- (13) Remove coolant bypass tube (10) from coolant hose (19).
- (14) Remove coolant hose (19) from thermostat housing (20).



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XF07R06A

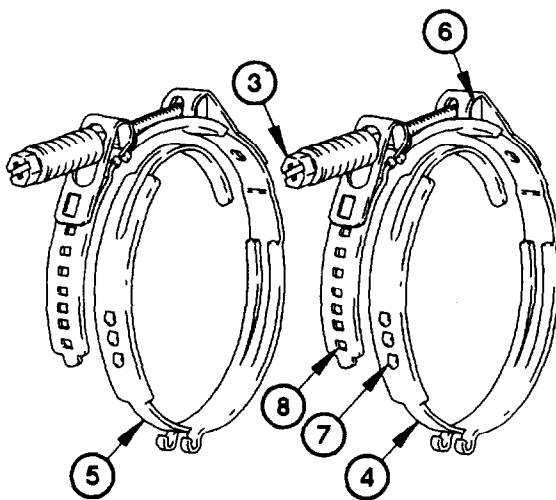
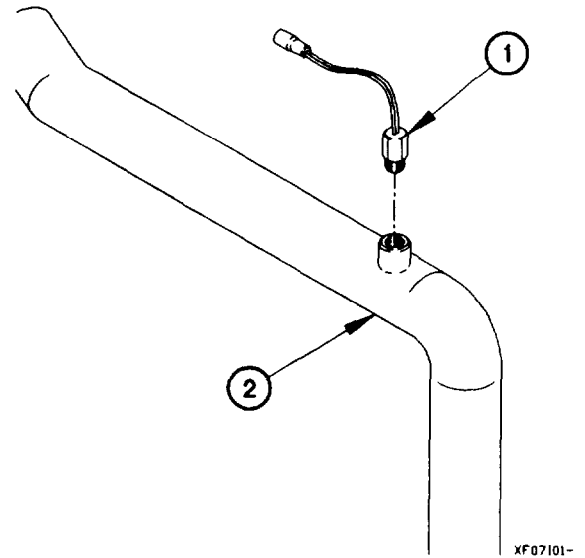
- (15) Remove ether sensor (21) from coolant bypass tube (10).

b. Installation.

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.

- (1) Apply antiseize compound to threads of ether sensor (1).
- (2) Install ether sensor (1) in coolant bypass tube (2).



NOTE

Both coolant hoses are assembled the same way. Only one shown.

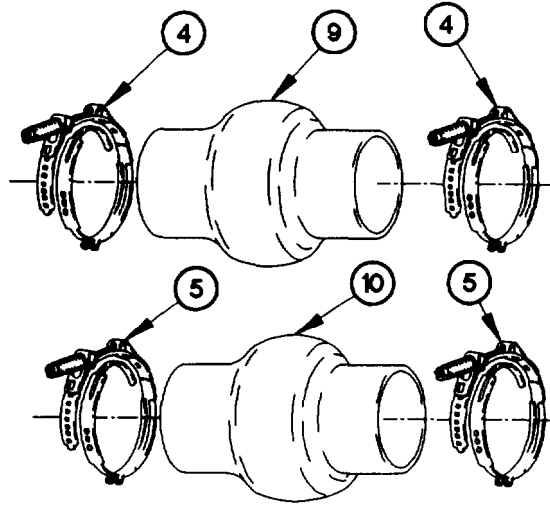
- 13) Loosen two screws (3) in clamps (4) and clamps (5) as far as possible without disengaging screws from D-nuts (6).
- (4) Unhook clamp tabs (7) from tab windows (8).

6-7. COOLANT BYPASS TUBE REPLACEMENT (CONT)

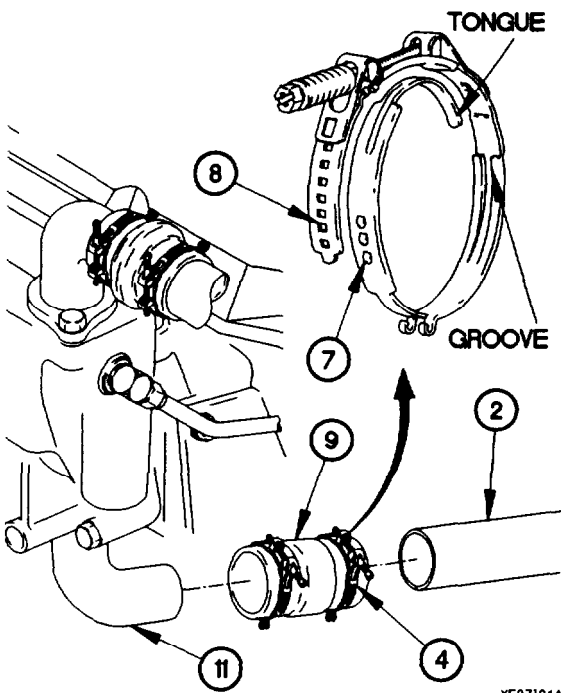
CAUTION

Clamp tongue must be started in clamp groove. Failure to comply may result in damage to equipment.

- (5) Position two clamps (4) on coolant hose (9).
- (6) Position two clamps (5) on coolant hose (10).



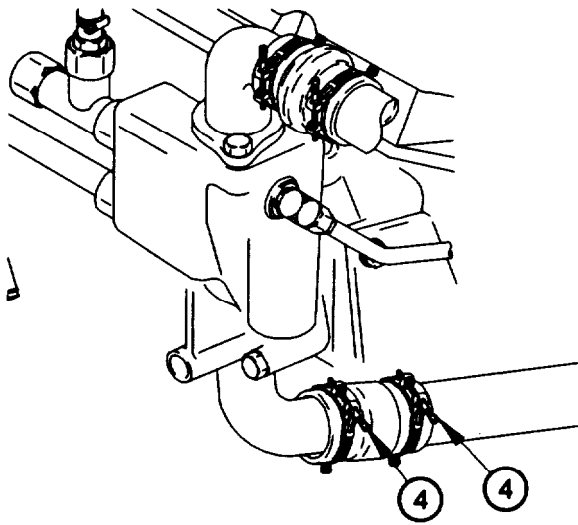
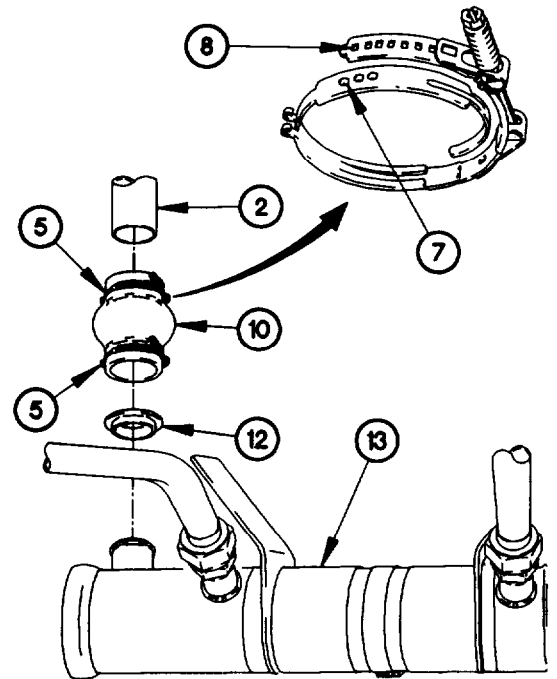
XF07103A



XF07104A

- (7) Position coolant hose (9) on thermostat housing (11).
- (8) Position coolant bypass tube (2) in coolant hose (9).
- (9) Engage as many clamp tabs (7) as possible in tab windows (8) allowing little or no play between two clamps (4) and coolant hose (9).

- (10) Position coolant hose (10) on coolant bypass tube (2).
- (11) Position flow restrictor (12) and coolant hose (10) on transmission oil cooler (13).
- (12) Engage as many clamp tabs (7) as possible in tab windows (8) allowing little or no play between two clamps (5) and coolant hose (10).
- (13) Tighten two clamps (5) to 12-18 lb-in. (1-2 N•m).

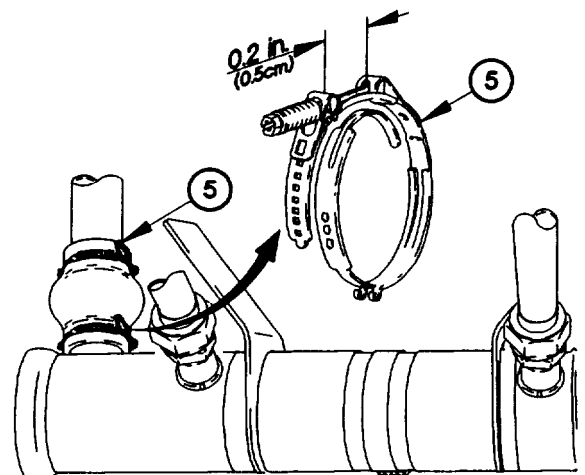


- (14) Tighten two clamps (4) to 12-18 lb-in. (1-2 N•m).

NOTE

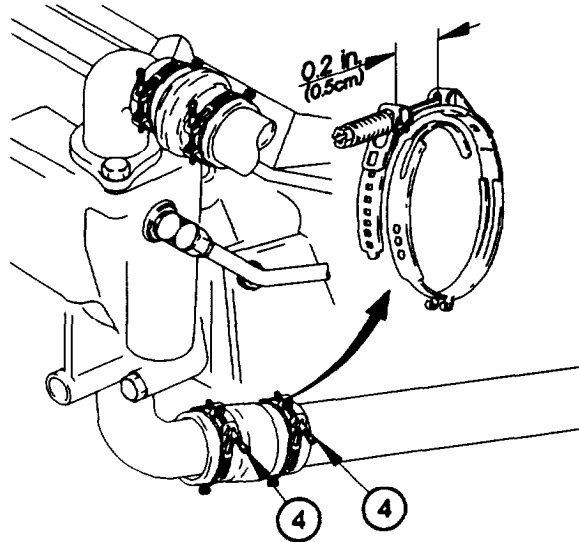
Minimum allowable gap on clamp is 0.2 in. (0.5 cm). If gap is less than 0.2 in. (0.5 cm), remove and re-install clamp.

- (15) Measure gap on two clamps (5).

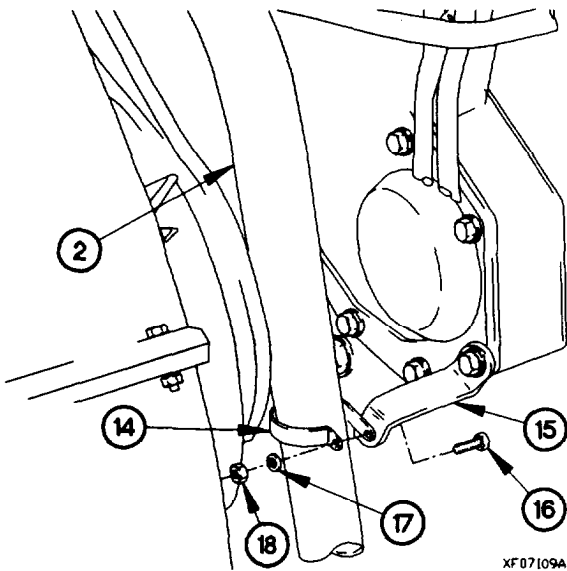


6-7. COOLANT BYPASS TUBE REPLACEMENT (CONT)

(16) Measure gap on two clamps (4).



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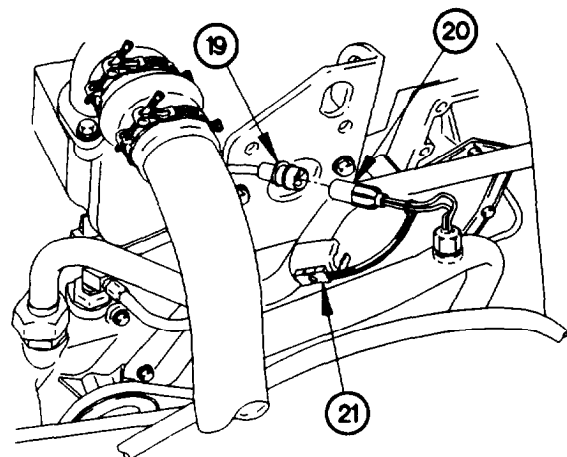
XF07109A

(17) Install clamp (14) on coolant bypass tube (2).

(18) Install clamp (14) on bracket (15) with screw (16), washer (17), and self-locking nut (18).

(19) Connect connector P42 (19) to ether sensor connector (20).

(20) Connect connector clamp (21) on ether sensor connector (20).



XF07110A

c. Follow-On Maintenance.

- (1) Connect batteries (para 7-48).
- (2) Add coolant to radiator overflow tank (TM 9-2320-365-10).
- (3) Lower cab (TM 9-2320-365-10).
- (4) Start engine (TM 9-2320-365-10).
- (5) Check for coolant leaks under vehicle.
- (6) Check coolant level after normal operating temperature is reached. Add coolant as required (TM 9-2320-365-10).
- (7) Install radiator cap on radiator overflow tank.
- (8) Check for coolant leaks under vehicle.
- (9) Raise cab (TM 9-2320-365-10).
- (10) Check around transmission oil cooler, thermostat, and coolant bypass tube for coolant leaks.
- (11) Lower cab (TM 9-2320-365-10).
- (12) Shut down engine (TM 9-2320-365-10).

End of Task.

6-8. PERSONNEL HEATER HOSES REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Engine shut down (TM 9-2320-365-10).

Tools and Special Tools

Goggles, Industrial (Item 15, Appendix C)
 Container (10 gal (38 L) capacity)
 Tool Kit, Genl Mech (Item 44, Appendix C)

Tools and Special Tools (Cont)

Wrench, Torque, 0-75 lb-in. (Item 86, Appendix B)
 Wrench, Torque, 0-200 lb-in. (Item 58, Appendix C)
 Socket Set, Socket Wrench (Item 35, Appendix C)

Materials/Parts

Ties, Cable, Plastic (Item 76, Appendix D)

WARNING

Coolant may be very hot and under pressure from engine operation. Ensure engine is cool before performing maintenance. Failure to comply may result in injury to personnel.

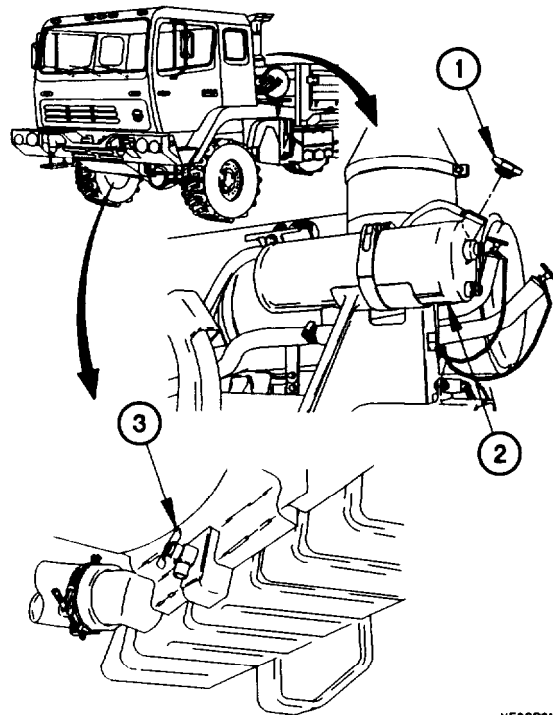
a. Removal.

- (1) Remove radiator cap (1) from radiator overflow tank (2).

WARNING

Wear appropriate eye protection when working under vehicle due to the possibility of falling debris. Failure to comply may result in injury to personnel.

- (2) Position container under radiator draincock (3).
- (3) Open radiator draincock (3) and drain approximately five gallons (19 L) of coolant.
- (4) Close radiator draincock (3).

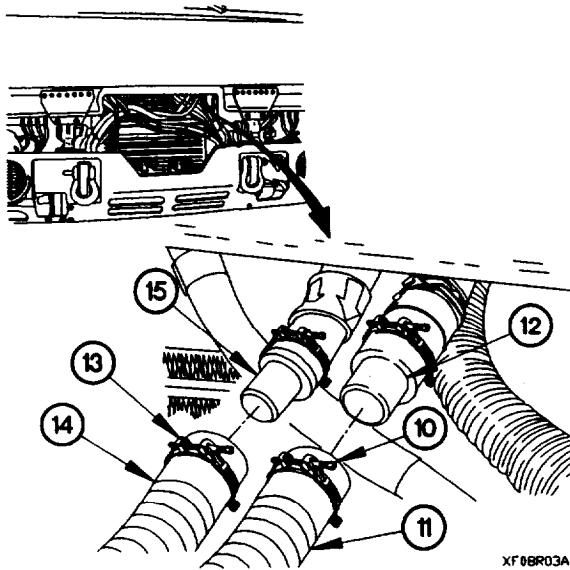
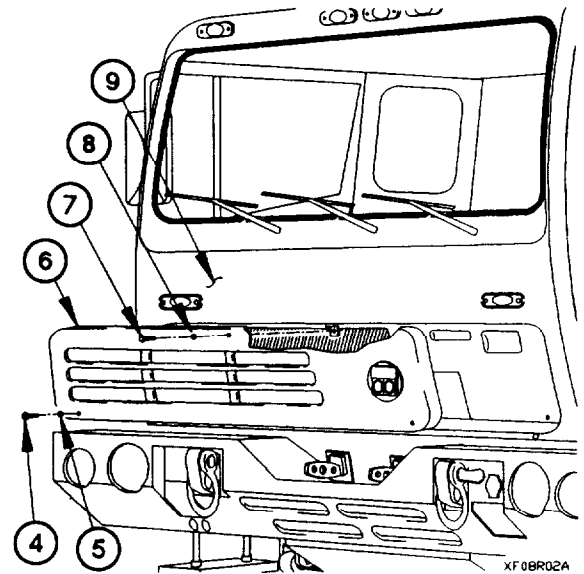


XF08R01A

NOTE

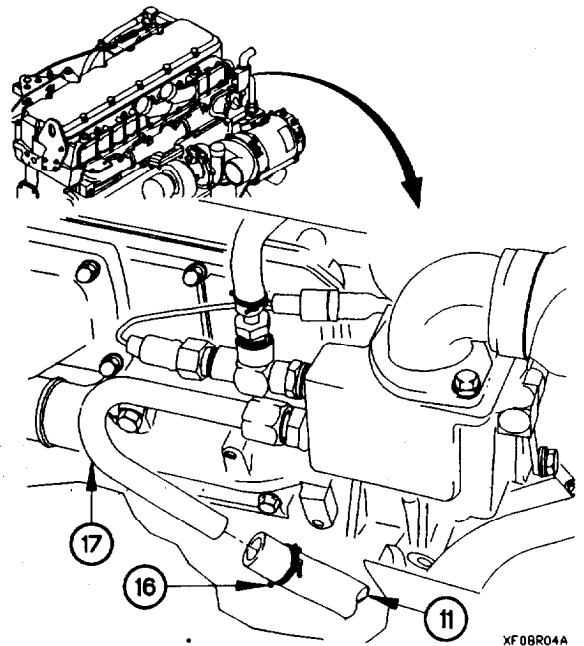
Remove plastic cable ties as required.

- (5) Remove two screws (4) and washers (5) from front grille (6).
- (6) Remove screw (7) and washer (8) from front grille (6).
- (7) Remove front grille (6) from cab (9).



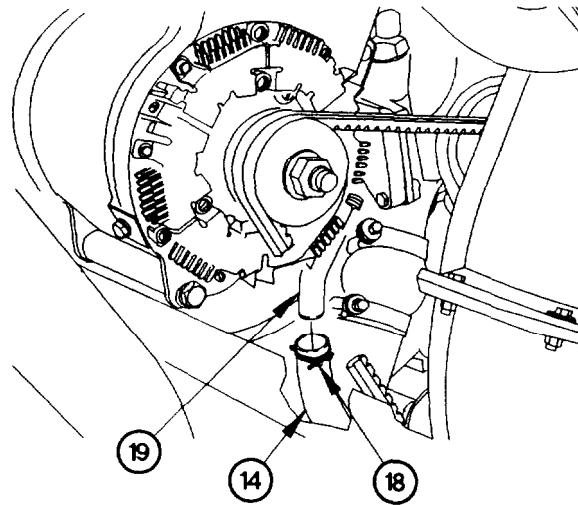
- (8) Loosen clamp (10) on heater inlet hose (11).
- (9) Remove heater inlet hose (11) from supply fitting (12).
- (10) Loosen clamp (13) on heater outlet hose (14).
- (11) Remove heater outlet hose (14) from return fitting (15).

- (12) Raise cab (TM 9-2320-365-10).
- (13) Loosen clamp (16) on heater inlet hose (11).
- (14) Remove heater inlet hose (11) from supply tube (17).



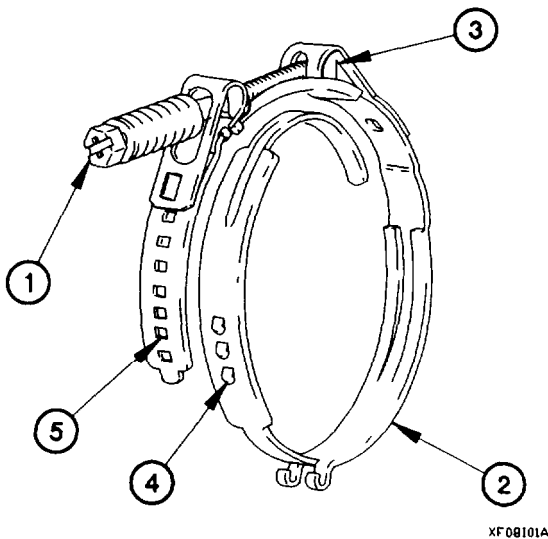
6-8. PERSONNEL HEATER HOSES REPLACEMENT (CONT)

- (15) Loosen clamp (18) on heater outlet hose (14).
- (16) Remove heater outlet hose (14) from return fitting (19).



XF08R05A

- (1) Loosen four screws (1) in clamps (2) as far as possible without disengaging screws from D-nuts (3).
- (2) Unhook clamp tabs (4) from tab windows (5).

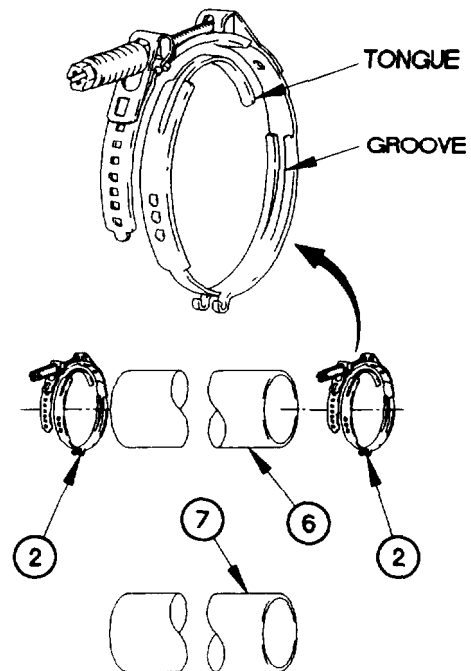


XF08I01A

CAUTION

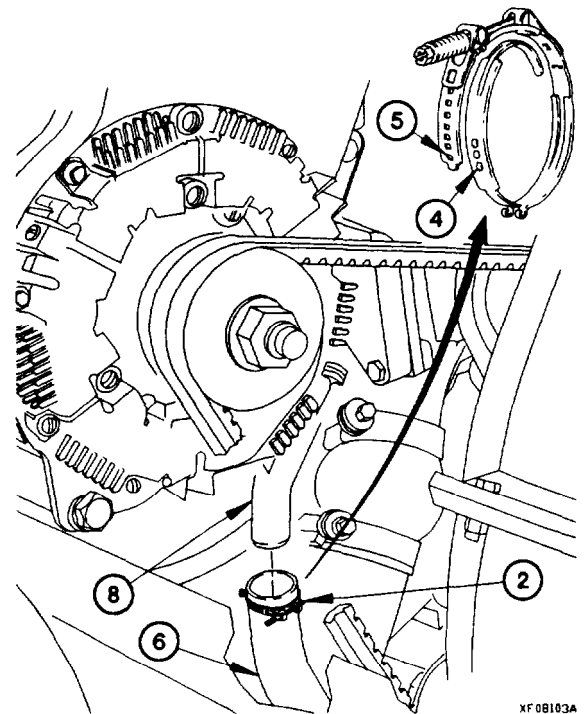
Clamp tongue must be started in clamp groove. Failure to comply may result in damage to equipment.

- (3) Position two clamps (2) on heater outlet hose (6).
- (4) Position two clamps (2) on heater inlet hose (7).

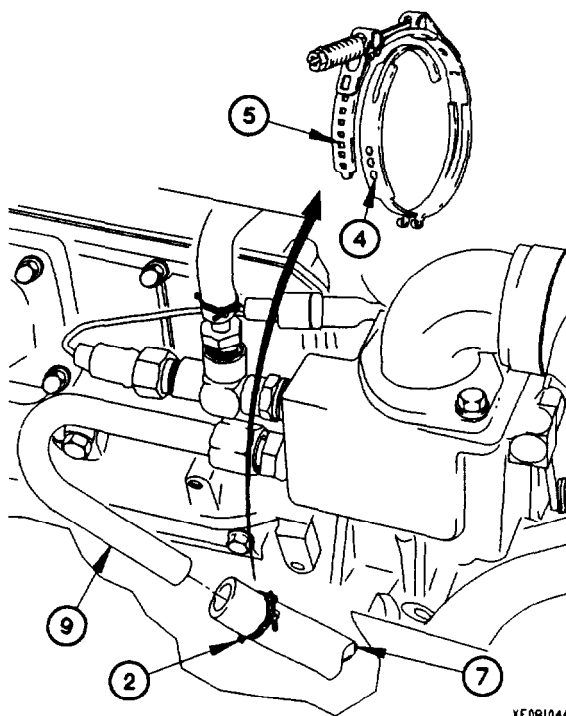


XF08I02A

- (5) Position heater outlet hose (6) on return fitting (8).
- (6) Engage as many clamp tabs (4) as possible in tab windows (5) allowing little or no play between clamp (2) and heater outlet hose (6).
- (7) Tighten clamp (2) to 12-18 lb-in. (1-2 N•m).



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XF08104A

- (8) Position heater inlet hose (7) on supply tube (9).
- (9) Engage as many clamp tabs (4) as possible in tab windows (5) allowing little or no play between clamp (2) and heater inlet hose (7).
- (10) Tighten clamp (2) to 12-18 lb-in. (1-2 N•m).

6-8. PERSONNEL HEATER HOSES REPLACEMENT (CONT)

(11) Lower cab (TM 9-2320-365-10).

NOTE

Heater outlet hose is marked with an arrow pointing down.

(12) Position heater outlet hose (6) on return fitting (10).

NOTE

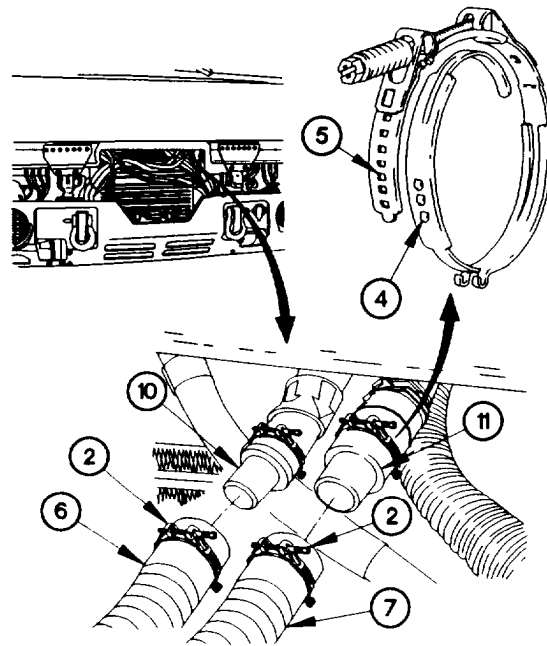
Heater inlet hose is marked with an arrow pointing up.

(13) Position heater inlet hose (7) on supply fitting (11).

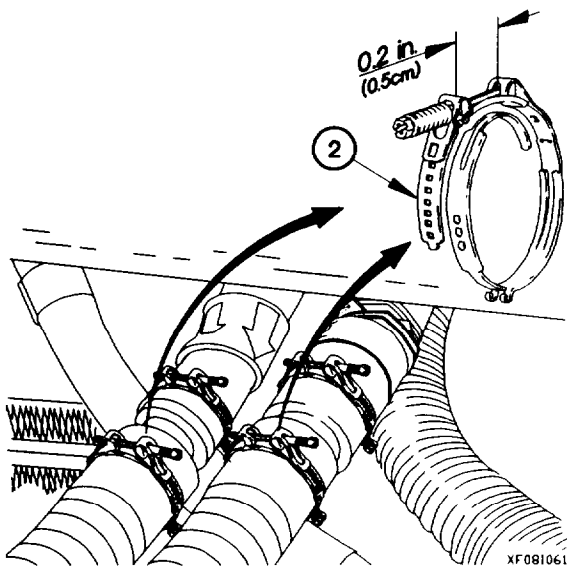
(14) Engage as many clamp tabs (4) as possible in tab windows (5) allowing little or no play between clamps (2) and heater outlet hose (6) and heater inlet hose (7).

(15) Tighten two clamps (2) to 12-18 lb-in. (1-2 N•m).

(16) Raise cab (TM 9-2320-365-10).



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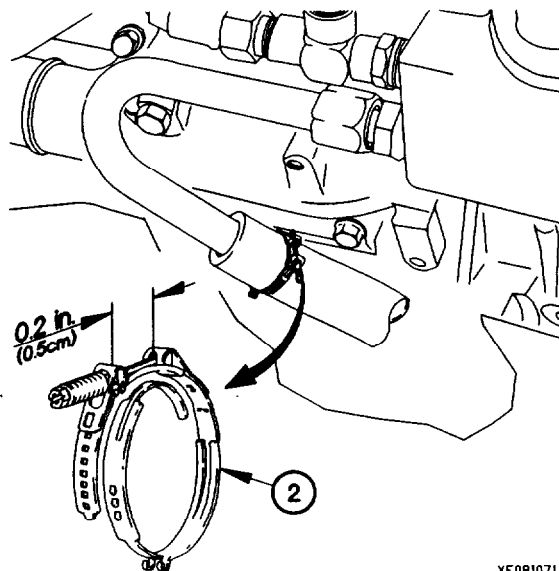
XF081061

NOTE

Minimum allowable gap on clamp is 0.2 in. (0.5 cm). If gap is less than 0.2 in. (0.5 cm), remove and re-install clamp.

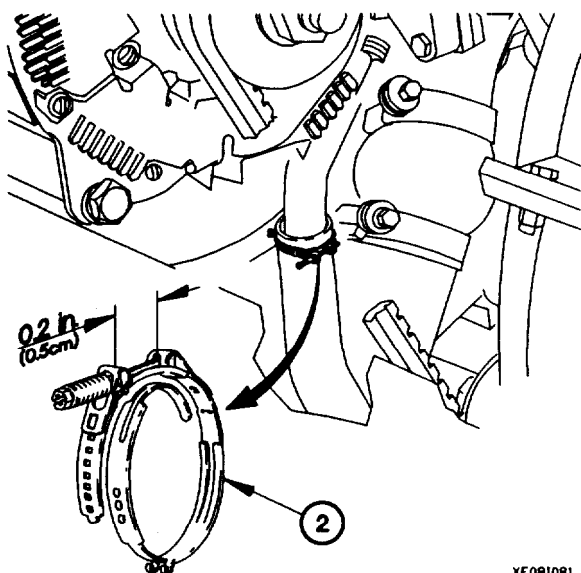
(17) Measure gap on two clamps (2).

(18) Measure gap on clamp (2).



XF081071

(19) Measure gap on clamp (2).



XF081081

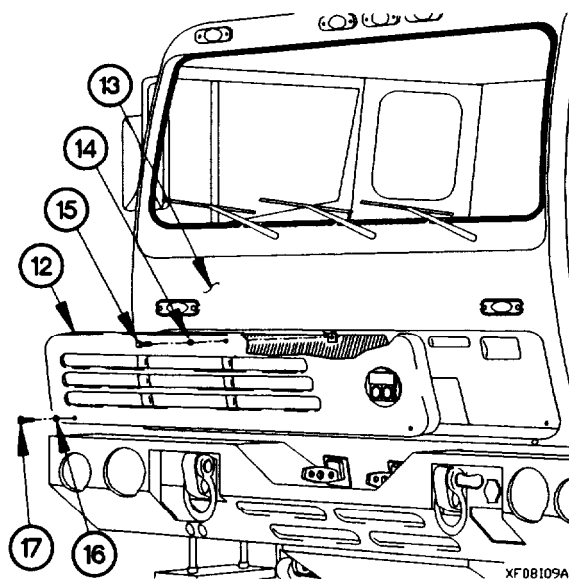
(20) Lower cab (TM 9-2320-365-10).

(21) Position front grille (12) on cab (13) with washer (14) and screw (15).

(22) Position two washers (16) and screws (17) in front grille (12).

(23) Tighten screw (15) to 48-60 lb-in. (5-7 N•m).

(24) Tighten two screws (17) to 24 lb-in. (3 N•m).



XF08109A

6-8. PERSONNEL HEATER HOSES REPLACEMENT (CONT)

c. Follow-On Maintenance.

- (1) Add coolant to radiator overflow tank (TM 9-2320-365-10).
- (2) Start engine (TM 9-2320-365-10).
- (3) Operate personnel heater (TM 9-2320-365-10).
- (4) Raise cab (TM 9-2320-365-10).
- (5) Check for coolant leaks around hoses and fittings.
- (6) Lower cab (TM 9-2320-365-10).
- (7) Shut down engine (TM 9-2320-365-10).

End of Task.

6-9. UPPER COOLANT TUBE AND HOSES REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

- Engine shut down (TM 9-2320-365-10).
- Cab raised (TM 9-2320-365-10).
- Batteries disconnected (para 7-48).

Materials/Parts

- Antifreeze, Ethylene Glycol, Permanent (Item 13, Appendix D)
- Antiseize Compound (Item 14, Appendix D)

Tools and Special Tools

- Pan, Drain (Item 24, Appendix C)
- Goggles, Industrial (Item 15, Appendix C)
- Tool Kit, Genl Mech (Item 44, Appendix C)
- Wrench, Torque, 0-75 lb-in. (Item 86, Appendix B)

WARNING

Coolant may be very hot and under pressure from engine operation. Ensure engine is cool before performing maintenance. Failure to comply may result in injury to personnel.

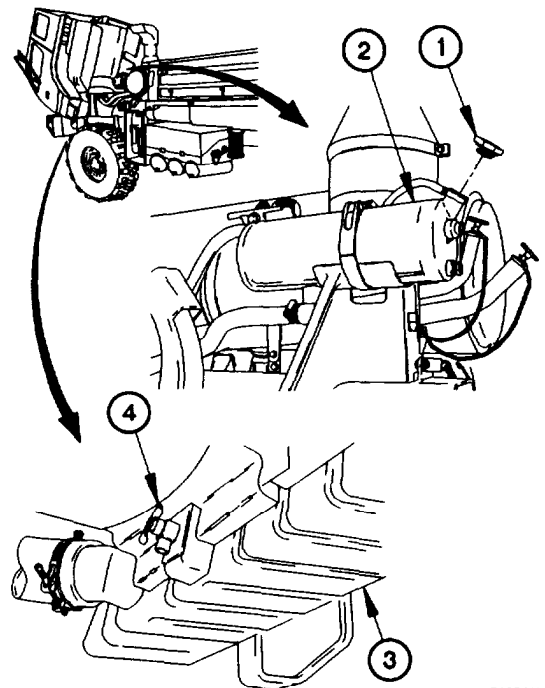
a. Removal.

- (1) Remove radiator cap (1) from radiator overflow tank (2).

WARNING

Wear appropriate eye protection when working under vehicle due to the possibility of falling debris. Failure to comply may result in injury to personnel.

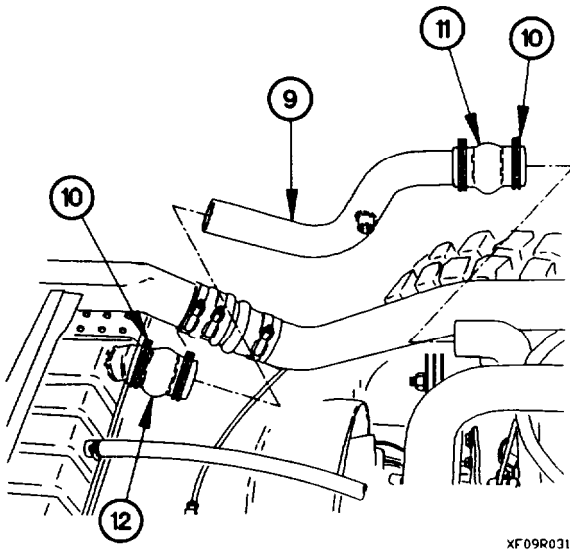
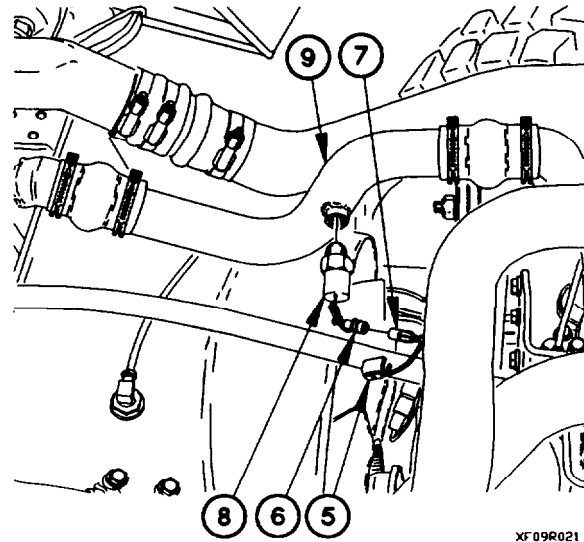
- (2) Position drain pan under radiator (3).
- (3) Open radiator draincock (4) and drain approximately one gallon of coolant.
- (4) Close radiator draincock (4).



XF09R011

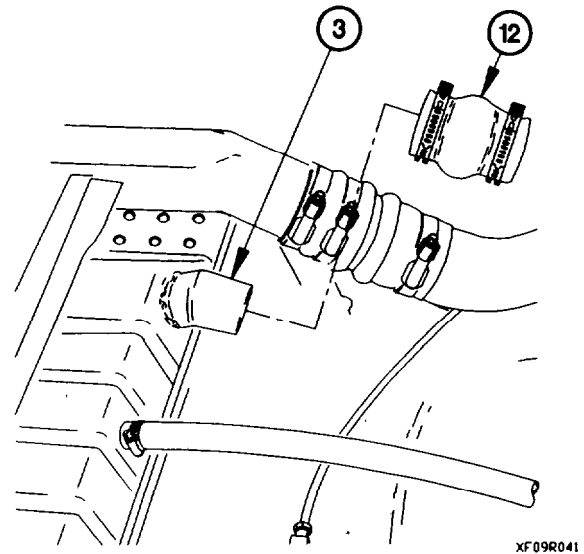
6-9. UPPER COOLANT TUBE AND HOSES REPLACEMENT (CONT)

- (5) Disconnect connector clamp (5) from water temperature switch electrical connector (6).
- (6) Disconnect water temperature switch electrical connector (6) from connector P36 (7).
- (7) Remove water temperature switch (8) from upper coolant tube (9).

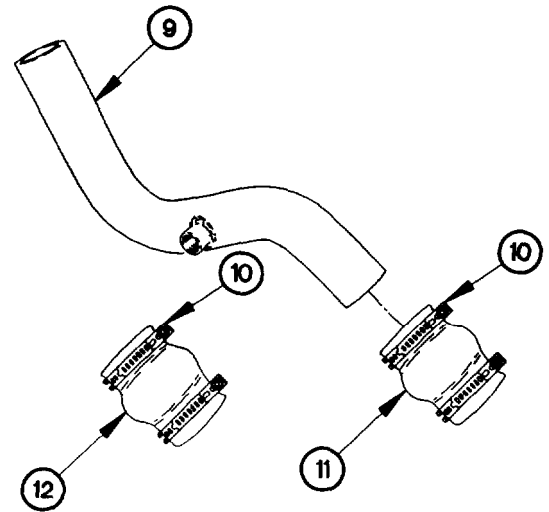


- (8) Loosen four hose clamps (10) on coolant hoses (11 and 12).
- (9) Slide coolant hose (11) completely onto upper coolant tube (9).
- (10) Remove upper coolant tube (9) from vehicle.

- (11) Remove coolant hose (12) from radiator (3).

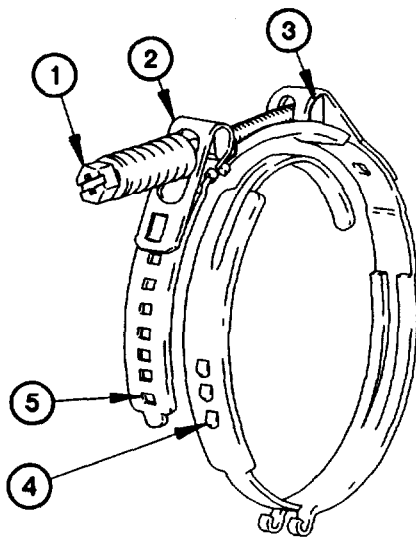


- (12) Remove coolant hose (11) from upper coolant tube (9).
- (13) Remove four clamps (10) from coolant hoses (11 and 12).



XF09R051

b. Installation.



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NOTE

Both coolant hoses are assembled the same way. One coolant hose shown.

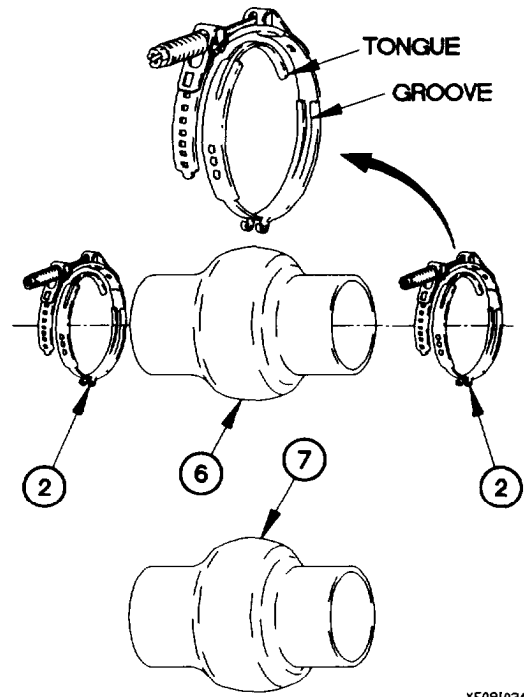
- (1) Loosen two screws (1) in clamps (2) as far as possible without disengaging screws from D-nuts (3).
- (2) Unhook clamp tabs (4) from tab windows (5).

6-9. UPPER COOLANT TUBE AND HOSES REPLACEMENT (CONT)

CAUTION

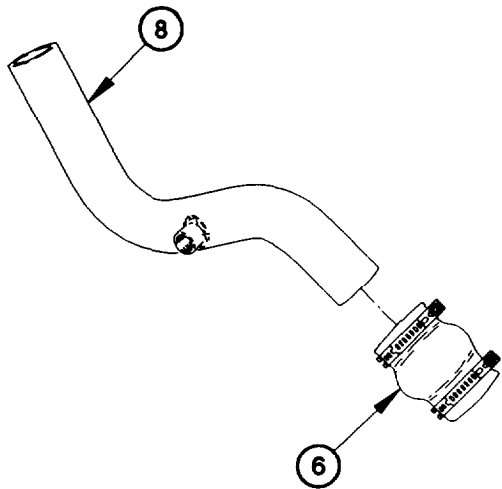
Clamp tongue must be started in clamp groove. Failure to comply may result in damage to equipment.

- (3) Position two clamps (2) on coolant hose (6).
- (4) Perform steps (1) through (3) on coolant hose (7).



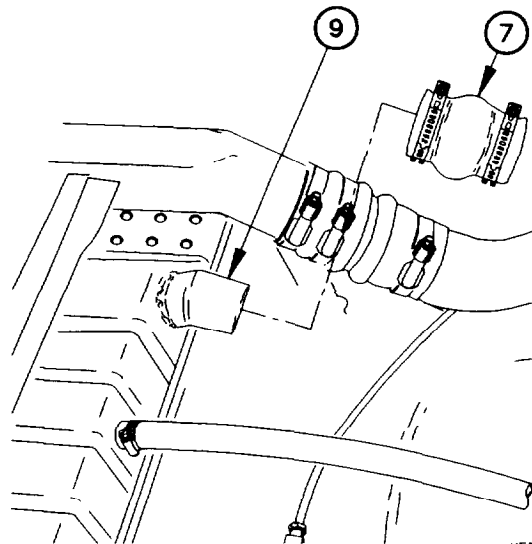
XF09102A

- (5) Position coolant hose (6) on upper coolant tube (8).



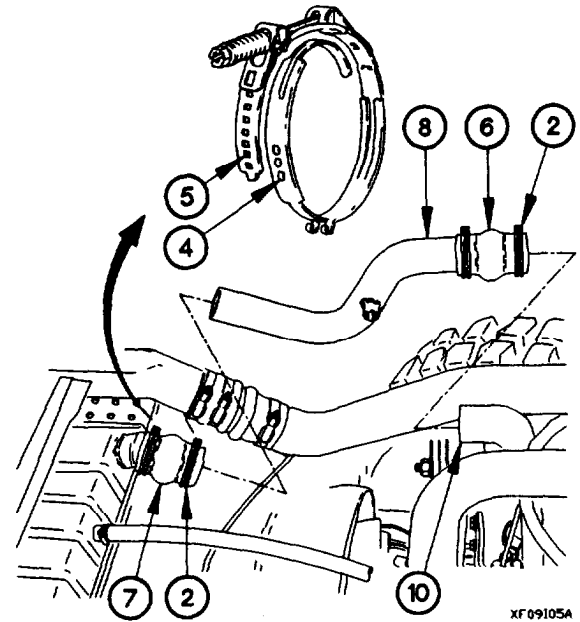
XF09103A

- (6) Position coolant hose (7) on radiator (9).

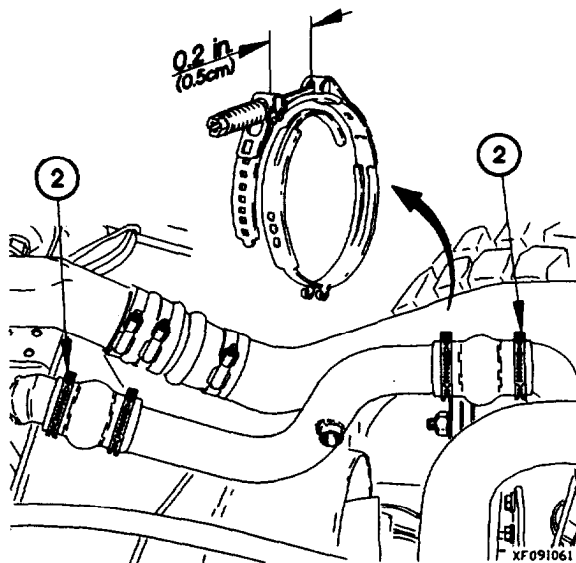


XF09104A

- (7) Position upper coolant tube (8) between coolant hose (7) and thermostat housing (10).
- (8) Slide coolant hose (6) onto thermostat housing (10).
- (9) Engage as many clamp tabs (4) as possible in tab windows (5) allowing little or no play between four clamps and two coolant hoses (6 and 7).
- (10) Tighten four clamps (2) to 12-18 lb-in. (1-2 N•m).



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NOTE

Minimum allowable gap on clamp is 0.2 in. (0.5 cm). If gap is less than 0.2 in. (0.5 cm), remove and re-install clamp.

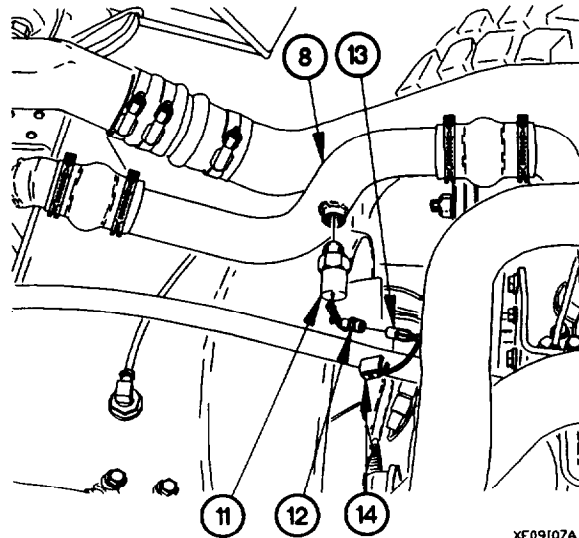
- (11) Measure gap on four clamps (2).

6-9. UPPER COOLANT TUBE AND HOSES REPLACEMENT (CONT)

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.

- (12) Apply antiseize compound to threads of water temperature switch (11).
- (13) Install water temperature switch (11) in upper coolant tube (8).
- (14) Connect water temperature switch electrical connector (12) to connector P36 (13).
- (15) Connect connector clamp (14) on water temperature switch electrical connector (12).



XF09107A

c. Follow-On Maintenance.

- (1) Connect batteries (para 7-48).
- (2) Add coolant to radiator overflow tank (TM 9-2320-365-10).
- (3) Start engine (TM 9-2320-365-10).
- (4) Check for coolant leaks under vehicle.
- (5) Remove radiator cap from radiator overflow tank.
- (6) Check coolant level after normal operating temperature is reached. Add coolant as required (TM 9-2320-365-10).
- (7) Install radiator cap on radiator overflow tank.
- (8) Raise cab (TM 9-2320-365-10).
- (9) Check for coolant leaks around hoses and fittings.
- (10) Lower cab (TM 9-2320-365-10).
- (11) Shut down engine (TM 9-2320-365-10).

End of Task.

6-10. LOWER COOLANT HOSE REPLACEMENT

This task covers:

- a. Removal
- b. Installation

c. Follow-On Maintenance

INITIAL SETUP**Equipment Conditions**

Engine shut down (TM 9-2320-365-10).

Tools and Special Tools

Goggles, Industrial (Item 15, Appendix C)
 Container (52 qt (50 L) capacity)
 Tool Kit, Genl Mech (Item 44, Appendix C)
 Wrench, Torque, 0-75 lb-in. (Item 86, Appendix B)

Materials/Parts

Antifreeze, Ethylene Glycol, Permanent
 (Item 13, Appendix D)

WARNING

Coolant may be very hot and under pressure from engine operation. Ensure engine is cool before performing maintenance. Failure to comply may result in injury to personnel.

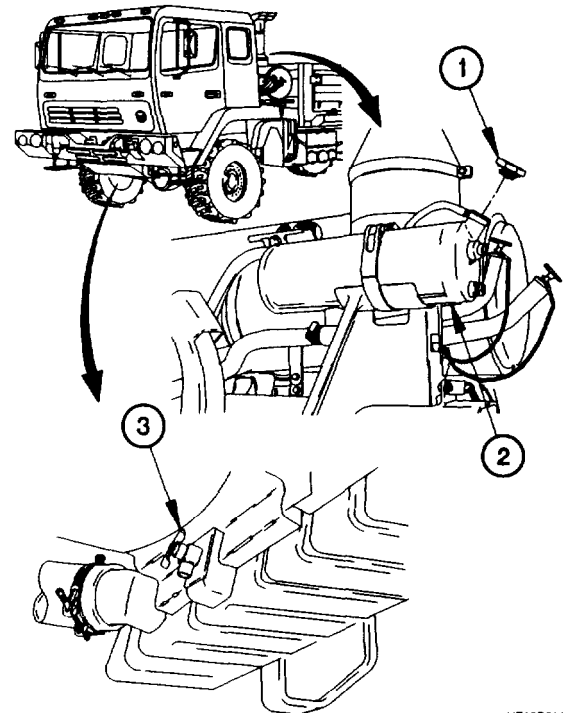
a. Removal.

- (1) Remove radiator cap (1) from radiator overflow tank (2).

WARNING

Wear appropriate eye protection when working under vehicle due to the possibility of falling debris. Failure to comply may result in injury to personnel.

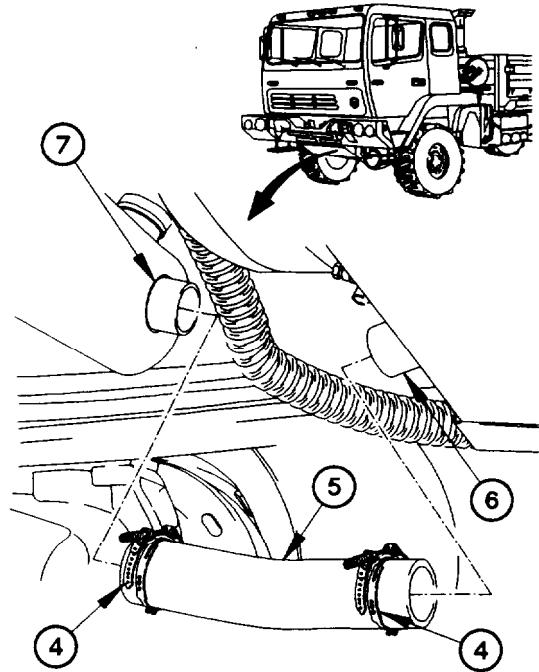
- (2) Position container under radiator draincock (3).
- (3) Open radiator draincock (3) and drain coolant.
- (4) Close radiator draincock (3).



XF10R01A

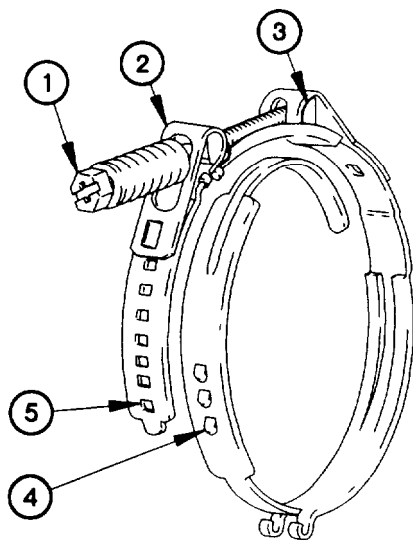
6-10. LOWER COOLANT HOSE REPLACEMENT (CONT)

- (5) Loosen two clamps (4) on lower coolant hose (5).
- (6) Remove lower coolant hose (5) from radiator (6) and transmission oil cooler (7).



XF10R021

b. Installation.



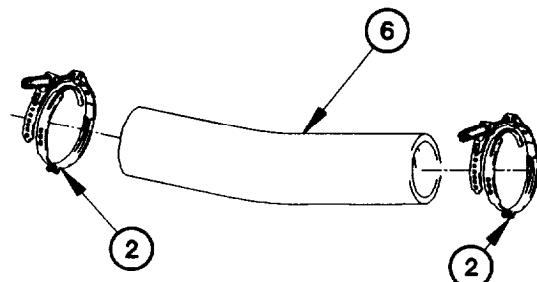
XF10101A

- (1) Loosen two screws (1) in clamps (2) as far as possible without disengaging screws from D-nuts (3).
- (2) Unhook clamp tabs (4) from tab windows (5).

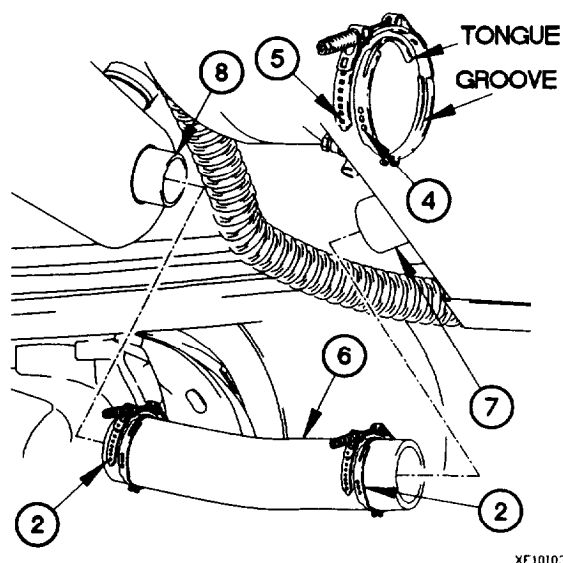
CAUTION

- Clamp tongue must be started in clamp groove. Failure to comply may result in damage to equipment.
- Position clamps so that screws will be toward center of vehicle and angled down.

(3) Position two clamps (2) on lower coolant hose (6).



XF10102A



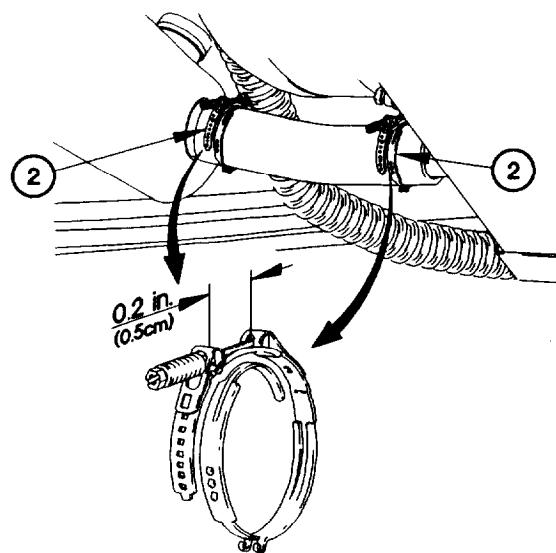
XF101031

- (4) Install lower coolant hose (6) between radiator (7) and transmission oil cooler (8).
- (5) Engage as many clamp tabs (4) as possible in tab windows (5) allowing little or no play between clamp and lower coolant hose (6).
- (6) Tighten two clamps (2) to 12-18 lb-in. (1-2 N•m).

NOTE

Minimum allowable gap on clamp is 0.2 in. (0.5 cm). If gap is less than 0.2 in. (0.5 cm), remove and re-install clamp.

(7) Measure gap on two clamps (2).



XF101041

6-10. LOWER COOLANT HOSE REPLACEMENT (CONT)

c. Follow-On Maintenance.

- (1) Add coolant to radiator overflow tank (TM 9-2320-365-10).
- (2) Install radiator cap on radiator overflow tank.
- (3) Start engine (TM 9-2320-365-10).
- (4) Check for coolant leaks around lower coolant hose.
- (5) Shut down engine (TM 9-2320-365-10).

End of Task.

6-11. AIR COMPRESSOR INLET AND OUTLET COOLANT TUBES REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Engine shut down (TM 9-2320-365-10).
Cab raised (TM 9-2320-365-10).

Materials/Parts

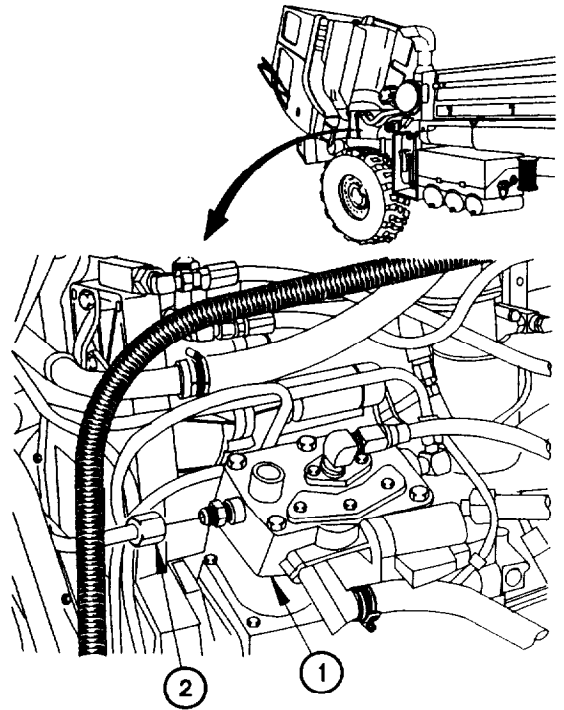
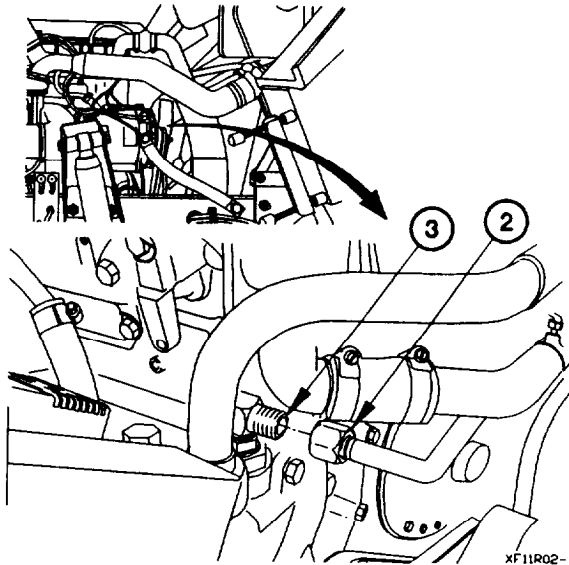
Antifreeze, Ethylene Glycol, Permanent (Item 13, Appendix D)

Tools and Special Tools

Pan, Drain (Item 24, Appendix C)
Tool Kit, Genl Mech (Item 44, Appendix C)

a. Removal.

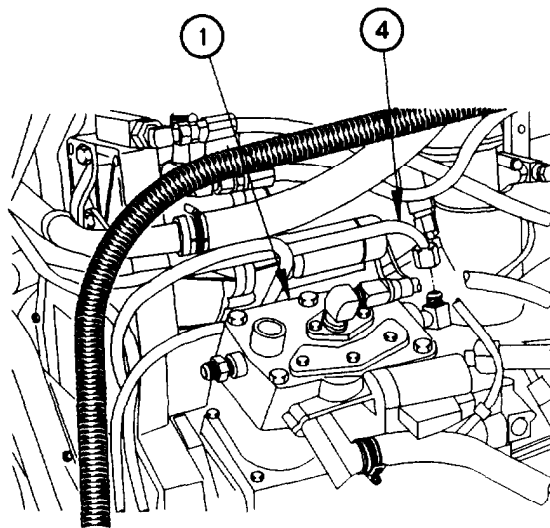
- (1) Position drain pan under air compressor (1).
- (2) Disconnect air compressor inlet coolant tube (2) from air compressor (1).



- (3) Disconnect air compressor inlet coolant tube (2) from water pump (3).
- (4) Remove air compressor inlet coolant tube (2) from vehicle.

6-11. AIR COMPRESSOR INLET AND OUTLET COOLANT TUBES REPLACEMENT (CONT)

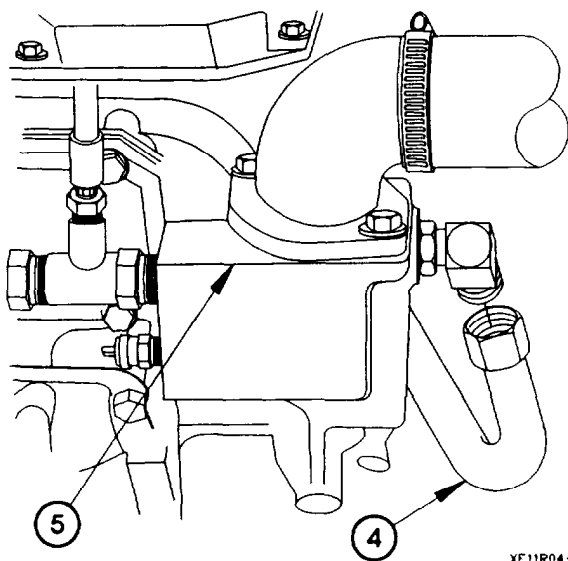
- (5) Disconnect air compressor outlet coolant tube (4) from air compressor (1).



XF11R03-

- (6) Disconnect air compressor outlet coolant tube (4) from thermostat housing (5).

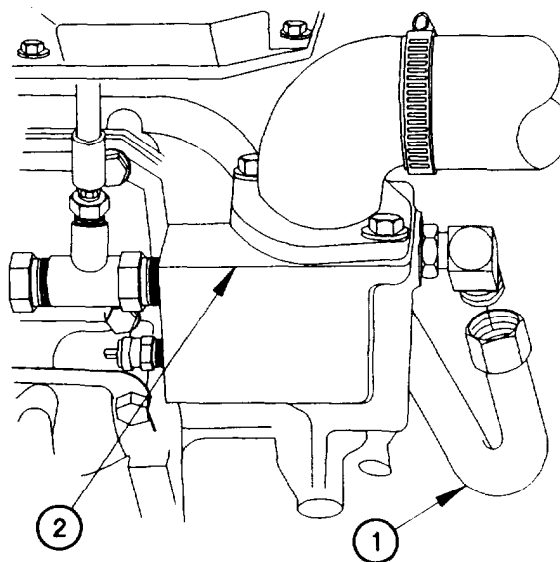
- (7) Remove air compressor outlet coolant tube (4) from vehicle.



XF11R04-

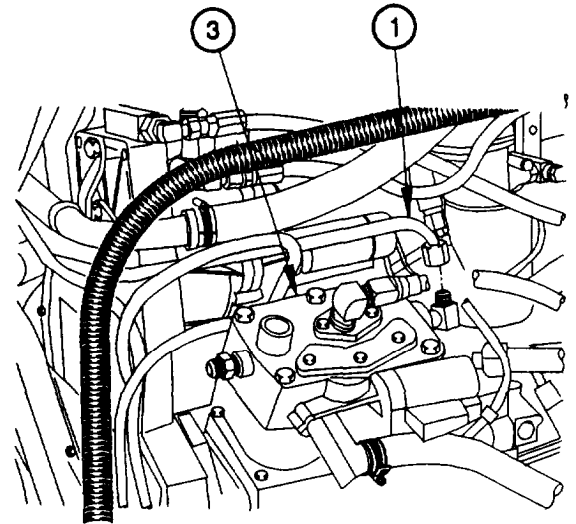
b. Installation.

- (1) Connect air compressor outlet coolant tube (1) to thermostat housing (2).

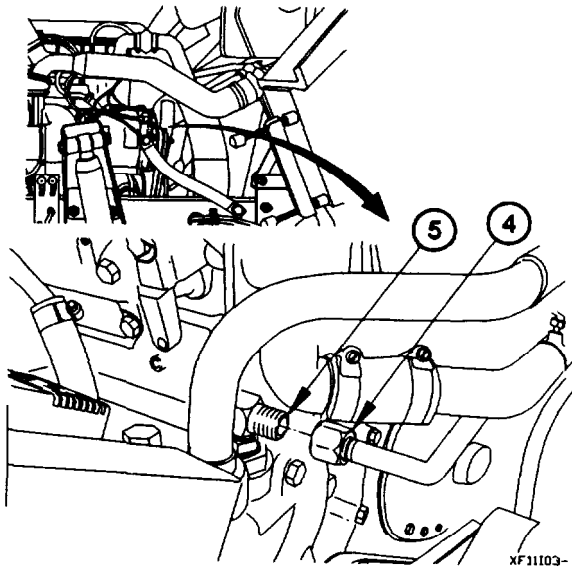


XF11I01-

(2) Connect air compressor outlet coolant tube (1) to air compressor (3).



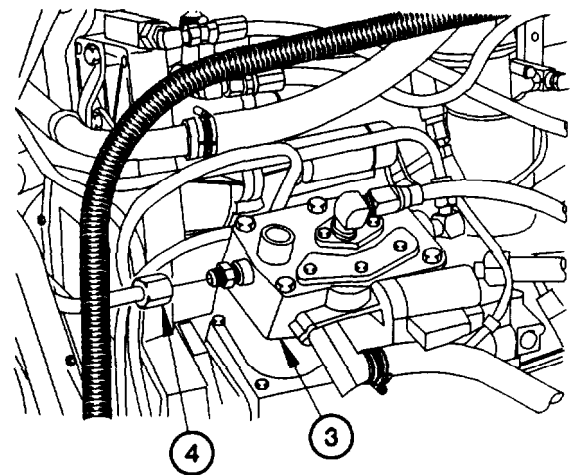
XF11102-



XF11103-

(3) Connect air compressor inlet coolant tube (4) to water pump (5).

(4) Connect air compressor inlet coolant tube (4) to air compressor (3).



XF11104-

6-11. AIR COMPRESSOR INLET AND OUTLET COOLANT TUBES REPLACEMENT (CONT)

c. Follow-On Maintenance.

- (1) Add coolant to radiator overflow tank (TM 9-2320-365-10).
- (2) Lower cab (TM 9-2320-365-10).
- (3) Start engine (TM 9-2320-365-10).
- (4) Check for coolant leaks under vehicle.
- (5) Check coolant level after normal operating temperature is reached. Add coolant as needed (TM 9-2320-365-10).
- (6) Install radiator cap on radiator overflow tank.
- (7) Raise cab (TM 9-2320-365-10).
- (8) Check for coolant leaks around coolant lines and fittings.
- (9) Lower cab (TM 9-2320-365-10).
- (10) Shut down engine (TM 9-2320-365-10).

End of Task.

6-12. WATER PUMP AND FITTINGS REPLACEMENT

This task covers:

- a. Water Pump Removal
- b. Water Pump Installation
- c. Fittings Removal
- d. Fittings Installation
- e. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

- 100 amp alternator removed, if equipped (para 7-2).
- 200 amp alternator removed, if equipped (para 20-56).
- Alternator brackets removed (para 7-4).

Tools and Special Tools

- Goggles, Industrial (Item 15, Appendix C)
- Container (52 qt (50 L) capacity)
- Tool Kit, Genl Mech (Item 44, Appendix C)
- Wrench, Torque, 0-75 lb-in. (Item 86, Appendix B)
- Wrench, Adjustable, Automotive (Item 51, Appendix C)
- Gage, Belt Tension (Item 15, Appendix B)
- Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)

Materials/Parts

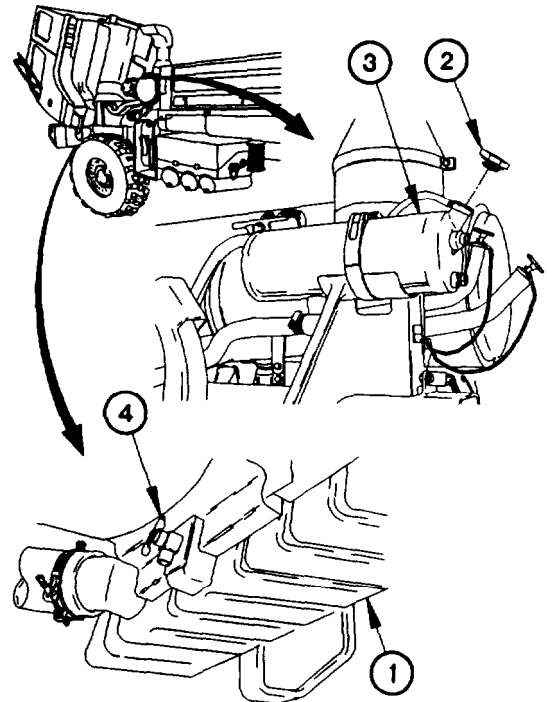
- Packing, Preformed (Item 172, Appendix G)
- Packing, Preformed (Item 191, Appendix G)
- Packing, Preformed (3) (Item 182, Appendix G)
- Packing, Preformed (2) (Item 179, Appendix G)
- Antifreeze, Ethylene Glycol, Permanent (Item 13, Appendix D)



Wear appropriate eye protection when working under vehicle due to the possibility of falling debris. Failure to comply may result in injury to personnel.

a. Water Pump Removal.

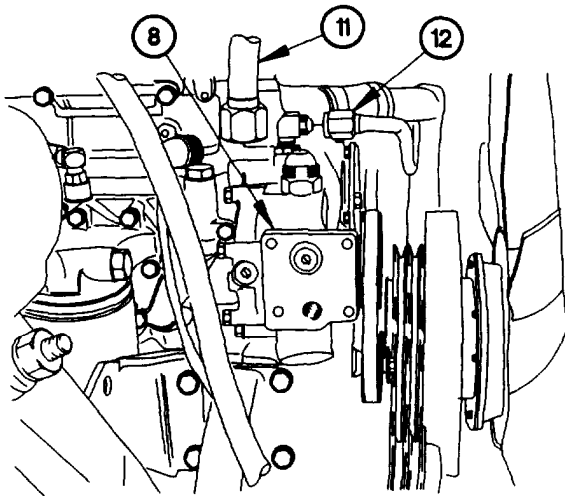
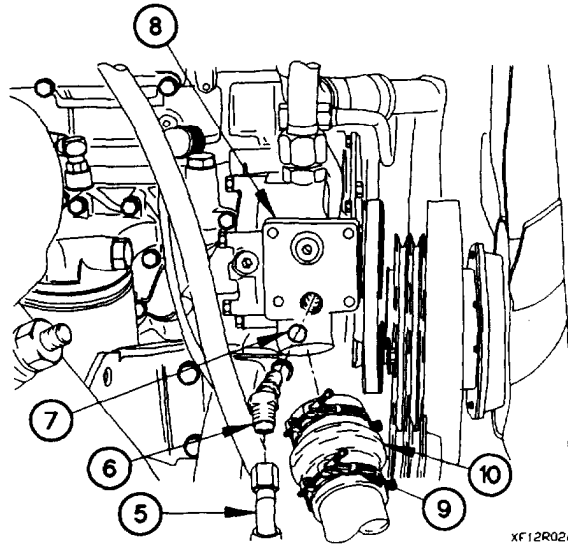
- (1) Position container under radiator (1).
- (2) Remove radiator cap (2) from radiator overflow tank (3).
- (3) Open radiator draincock (4) and drain coolant.
- (4) Close radiator draincock (4).



XF12R01A

6-12. WATER PUMP AND FITTINGS REPLACEMENT (CONT)

- (5) Disconnect heater supply tube (5) from fitting (6).
- (6) Remove 45-degree fitting (6) and preformed packing (7) from water pump (8). Discard preformed packing.
- (7) Loosen two clamps (9).
- (8) Remove coolant hose (10) from water pump (8).

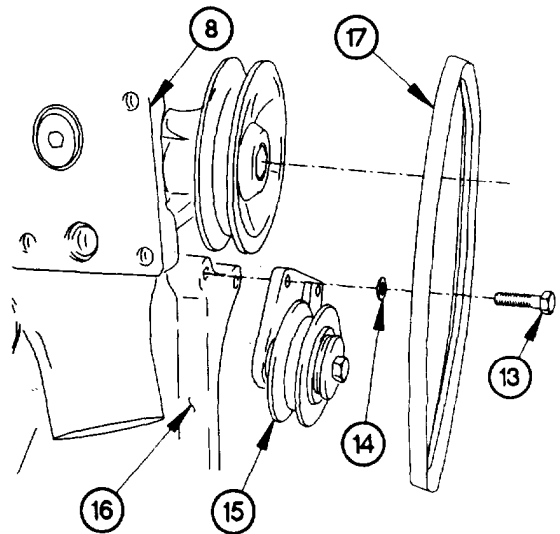


- (9) Disconnect coolant tubes (11 and 12) from water pump (8).

NOTE

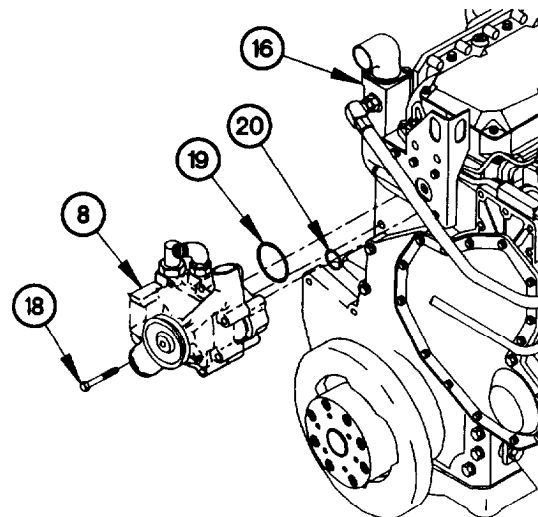
Note position and size of washers prior to removal.

- (10) Remove two screws (13), washers (14), and drive belt/tension pulley (15) from engine (16).
- (11) Remove water pump drive belt (17) from water pump (8).



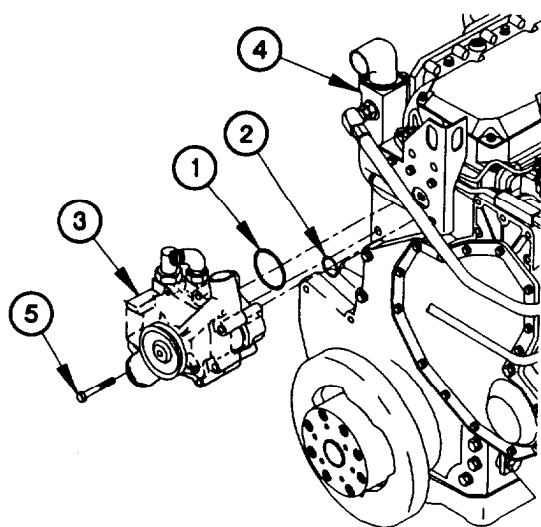
(12) Remove four screws (18) from water pump (8).

(13) Remove water pump (8) and preformed packings (19 and 20) from engine (16). Discard preformed packings.



XF12R05A

b. Water Pump Installation.



XF12101A

(1) Install preformed packings (1 and 2) in water pump (3).

(2) Position water Pump (3) on engine (4) with four screws (5).

(3) Tighten four screws (5) to 33-47 lb-ft (45-64 N•m).

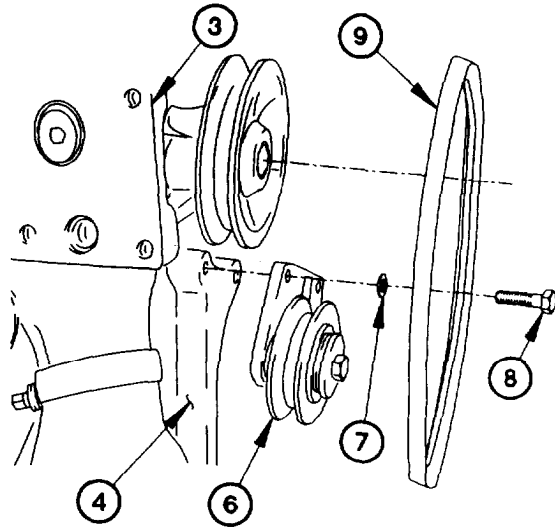
6-12. WATER PUMP AND FITTINGS REPLACEMENT (CONT)

- (4) Position drive belt/tension pulley (6) on engine (4) with two washers (7) and screws (8).
- (5) Install water pump drive belt (9) on water pump (3) and drive belt/tension pulley (6).

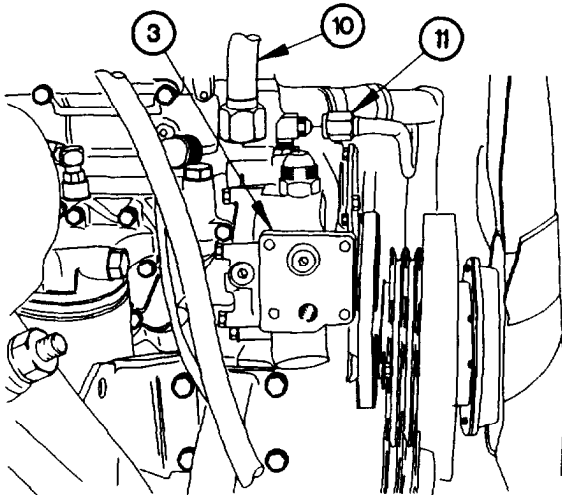
NOTE

Use square hole in drive belt/tension pulley to apply and maintain tension on drive belt while adjusting belt tension.

- (6) Adjust water pump drive belt (9) with drive belt/tension pulley (6) as follows:
 - a. New belt (less than 30 minutes running time) 115-125 lb (512-556 N).
 - b. Used belt 80-100 lb (356-444 N).
- (7) Tighten two screws (8) to 35 lb-ft (47 N•m).



XF 12102A

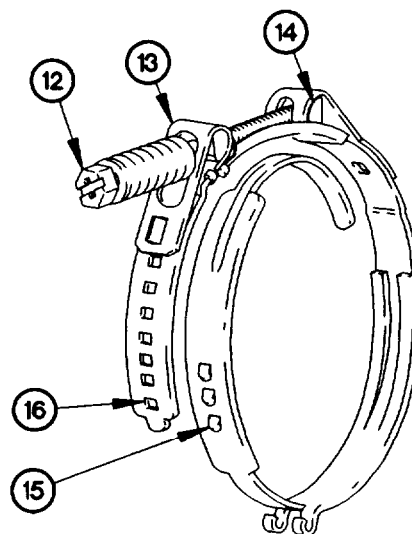


- (8) Connect coolant tubes (10 and 11) to water pump (3).

XF 12103A

(9) Loosen two screws (12) in clamps (13) as far as possible without disengaging screws from D-nuts (14).

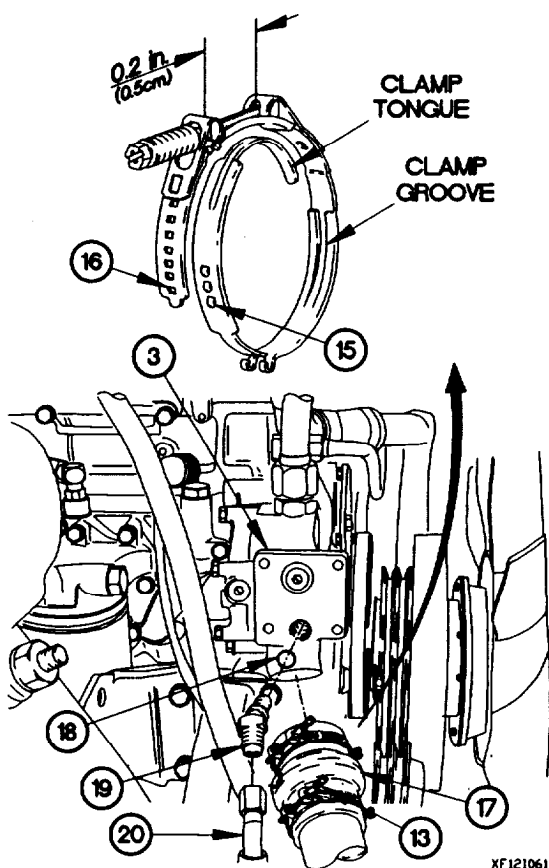
(10) Unhook clamp tabs (15) from tab windows (16).



XF12104A

CAUTION

- Clamp tongue must be started in clamp groove. Failure to comply may result in damage to equipment.
- Position clamps with screw heads facing forward so they do not interfere with alternator mount.



XF121061

- (11) Position coolant hose (17) on water pump (3).
- (12) Position two clamps (13) on coolant hose (17).
- (13) Engage as many clamp tabs (15) as possible in tab windows (16) allowing little or no play between clamp and coolant hose (17).
- (14) Tighten two clamps (13) to 12-18 lb-in. (1-2 N•m).

NOTE

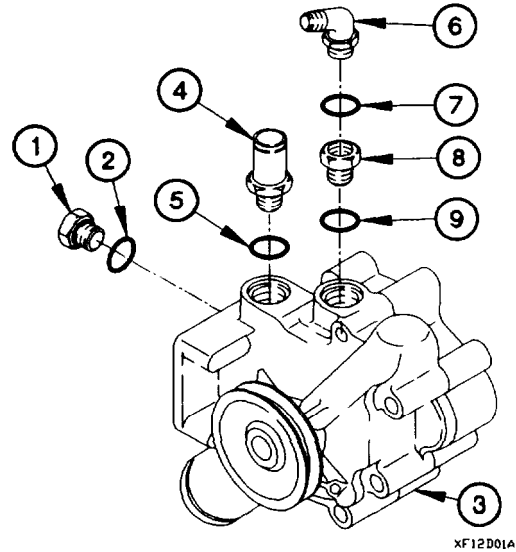
Minimum allowable gap on clamp is 0.2 in. (0.5 cm). If gap is less than 0.2 in. (0.5 cm), remove and re-install clamp.

- (15) Measure gap on two clamps (13).
- (16) Install preformed packing (18) and 45-degree fitting (19) in water pump (3).
- (17) Connect heater supply tube (20) to water pump (3).

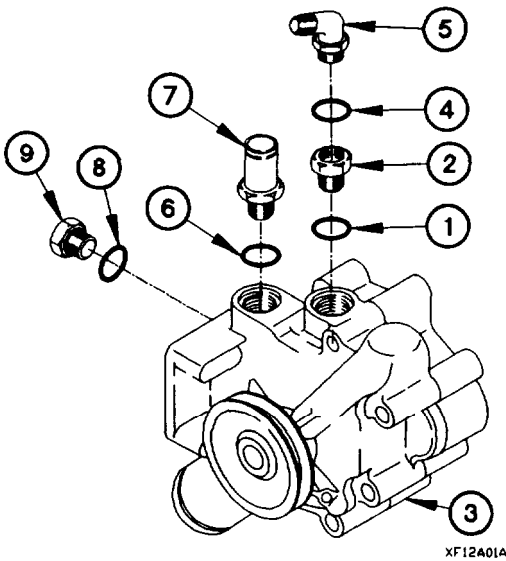
6-12. WATER PUMP AND FITTINGS REPLACEMENT (CONT)

c. Fittings Removal.

- (1) Remove plug (1) and preformed packing (2) from water pump (3). Discard preformed packing.
- (2) Remove connector (4) and preformed packing (5) from water pump (3). Discard preformed packing.
- (3) Remove fitting (6) and preformed packing (7) from pipe bushing (6). Discard preformed packing.
- (4) Remove pipe bushing (6) and preformed packing (9) from water pump (3). Discard preformed packing.



d. Fittings Installation.



- (1) Install preformed packing (1) on pipe bushing (2).
- (2) Install pipe bushing (2) in water pump (3).
- (3) Install preformed packing (4) on fitting (5).
- (4) Install fitting (5) in pipe bushing (2).
- (5) Install preformed packing (6) on connector (7).
- (6) Install connector (7) in water pump (3).
- (7) Install preformed packing (8) on plug (9).
- (8) Install plug (9) in water pump (3).

e. Follow-On Maintenance:

- (1) Install alternator bracket assembly (para 7-4).
- (2) Install alternator (para 7-2 or 20-56).
- (3) Add coolant to radiator overflow tank (TM 9-2320-365-10).
- (4) Lower cab (TM 9-2320-365-10).
- (5) Start engine (TM 9-2320-365-10).
- (6) Check for coolant leaks under vehicle.
- (7) Check coolant level after normal operating temperature is reached. Add coolant as required (TM 9-2320-365-10).
- (8) Raise cab (TM 9-2320-365-10).
- (9) Check for coolant leaks around water pump.
- (10) Lower cab (TM 9-2320-365-10).
- (11) Shut down engine (TM 9-2320-365-10).

End of Task.

6-13. DRIVE BELT AND TENSION PULLEY REPLACEMENT

This task covers:

- a. Removal
- b. Installation

c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Top radiator fan shroud removed (para 6-4).

Tools and Special Tools

Tool Kit, Genl Mech (Item 44, Appendix C)
 Gage, Belt Tension (Item 15, Appendix B)
 Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)

Materials/Parts

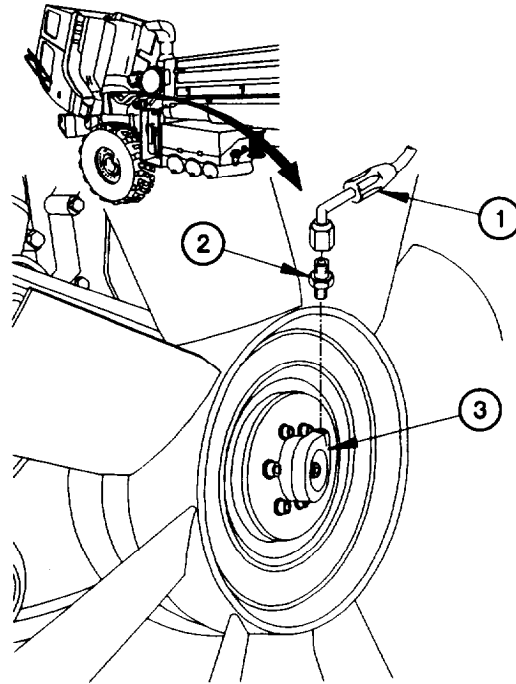
Antiseize Compound (Item 14, Appendix D)
 Lockwasher (6) (Item 91, Appendix G)
 Screw, Self-Locking (6) (Item 242, Appendix G)
 Grommet, Nonmetallic (Item 49, Appendix G)

a. Removal.

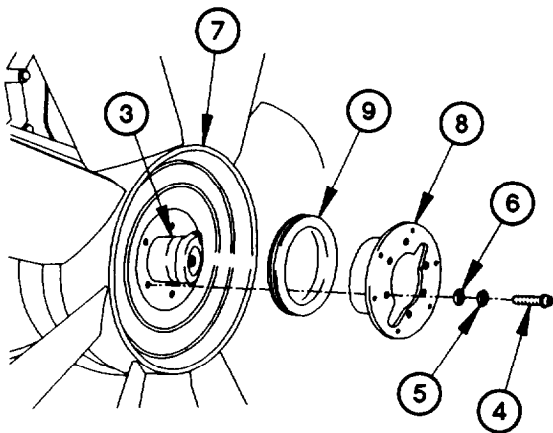
CAUTION

Mark front of engine fan before removing. Failure to comply may result in damage to equipment.

- (1) Remove air hose (1) from fitting (2) on fan clutch assembly (3).
- (2) Remove fitting (2) from fan clutch assembly (3).



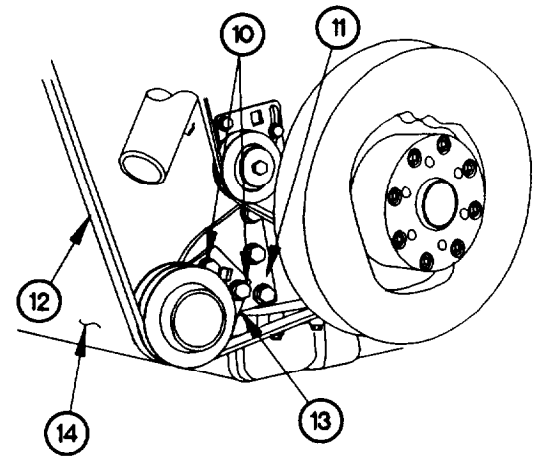
XF13R01A



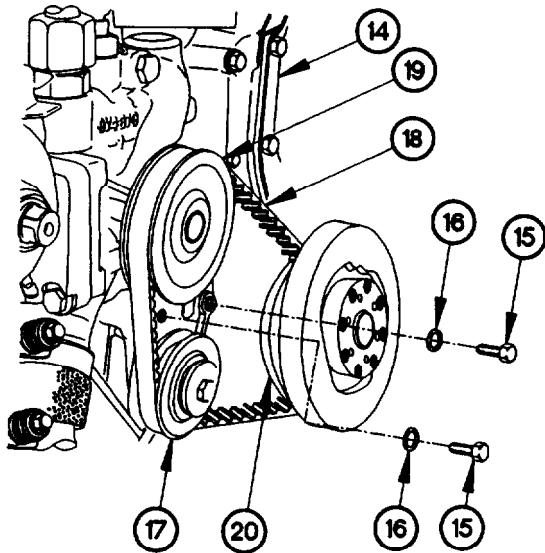
XF13R02A

- (3) Remove six screws (4), lockwashers (5), and washers (6) from engine fan (7). Discard lockwashers and screws.
- (4) Remove engine fan (7) from fan clutch assembly (3).
- (5) Remove fan support plate (8) from engine fan (7).
- (6) Remove grommet (9) from engine fan (7). Discard grommet.

- (7) Loosen two screws (10) from front of engine block (11).
- (8) Release alternator belts (12) tension by moving tension bracket (13) up.
- (9) Remove two alternator belts (12) from engine (14).



XF13R03-

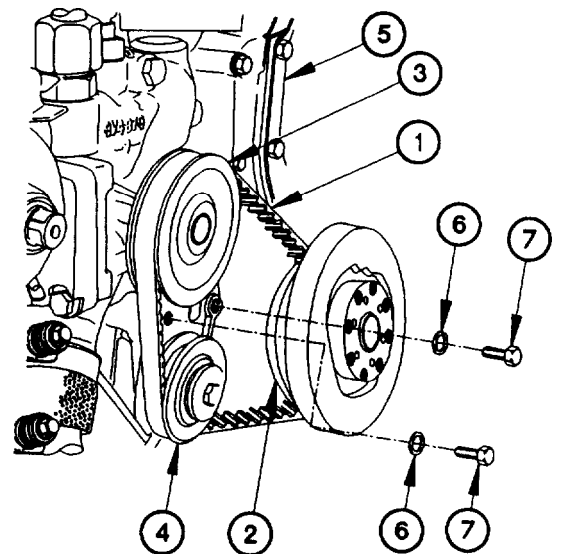


XF13R04A

- (10) Remove two screws (15), washers (18), and tension pulley (17) from engine (14).
- (11) Remove drive belt (18) from water pump pulley (19) and pulley damper (20).

b. Installation.

- (1) Install drive belt (1) on pulley damper (2) and water pump pulley (3).
- (2) Position tension pulley (4) on engine (5) with two washers (6) and screws (7).



XF13101A

6-13. DRIVE BELT AND TENSION PULLEY REPLACEMENT (CONT)

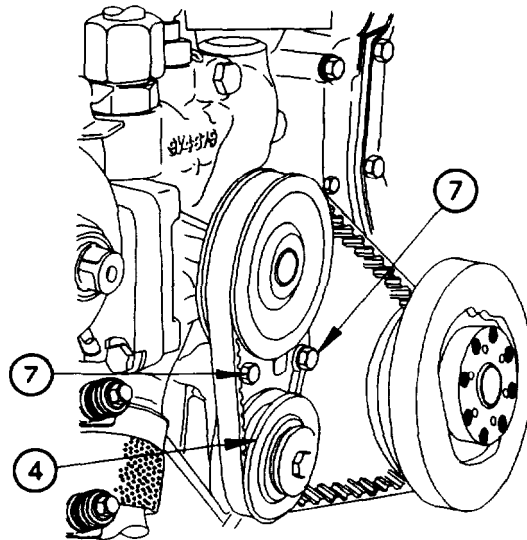
NOTE

Use square hole in drive belt/tension pulley to apply and maintain tension on drive belt while adjusting belt tension.

(3) Adjust water pump drive belt with drive belt/tension pulley (4) as follows:

- (a) New belt (less than 30 minutes running time) 115-125 lb (512-556 N).
- (b) Used belt 80-100 lb (356-444 N).

(4) Tighten two screws (7) to 35 lb-ft (47 N•m).



XF13102-

(5) Install two alternator belts (8) onto engine (5).

NOTE

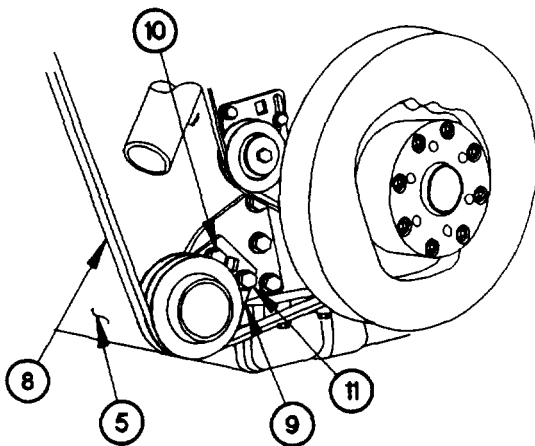
Use square hole in drive belt/tension bracket to apply and maintain tension on alternator belts while adjusting belt tension.

(6) Adjust alternator belts with tension bracket (9) as follows:

- (a) New belt (less than 30 minutes running time) 115-125 lb (512-556 N).
- (b) Used belt 80-100 lb (356-444 N).

(7) Tighten screw (10).

(8) Tighten screw (11) to 47 lb-ft (64 N•m).



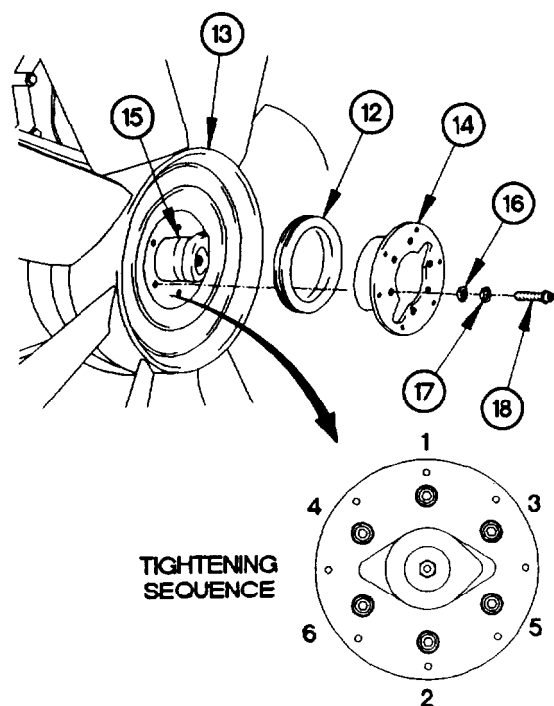
XF13103-

- (9) Install grommet (12) on engine fan (13).
- (10) Install fan support plate (14) on engine fan (13).

CAUTION

Ensure engine fan is positioned with mark facing forward. Failure to comply may result in damage to equipment.

- (1) Position engine fan (13) and fan support plate (14) on fan clutch assembly (15) with six washers (16), lockwashers (17), and screws (18).
- (12) Tighten six screws (18) to 15 lb-ft (20 N•m) in sequence shown.
- (13) Re-tighten six screws (18) to 22-32 lb-ft (30-44 N•m) in sequence shown.

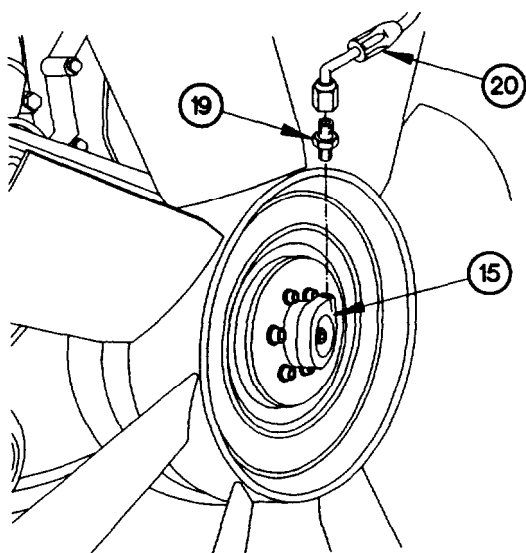


XF13104A

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.

- (14) Apply antiseize compound to threads of fitting (19).
- (15) Install fitting (19) on fan clutch assembly (15).
- (16) Connect air hose (20) to fitting (19).



XF13105-

c. Follow-On Maintenance.

Install top radiator fan shroud (para 6-4).

End of Task.

6-14. ENGINE FAN AND FAN CLUTCH ASSEMBLY REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Top radiator fan shroud removed (para 6-4).

Tools and Special Tools

Tool Kit, Genl Mech (Item 44, Appendix C)
 Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)
 Adapter, Socket Wrench (Item 2, Appendix B)
 Screwdriver Attachment, Socket Wrench (Item 53, Appendix B)

Materials/Parts

Antiseize Compound (Item 14, Appendix D)
 Grommet, Nonmetallic (Item 49, Appendix G)
 Lockwasher (6) (Item 91, Appendix G)
 Screw, Self-Locking (6) (Item 242, Appendix G)

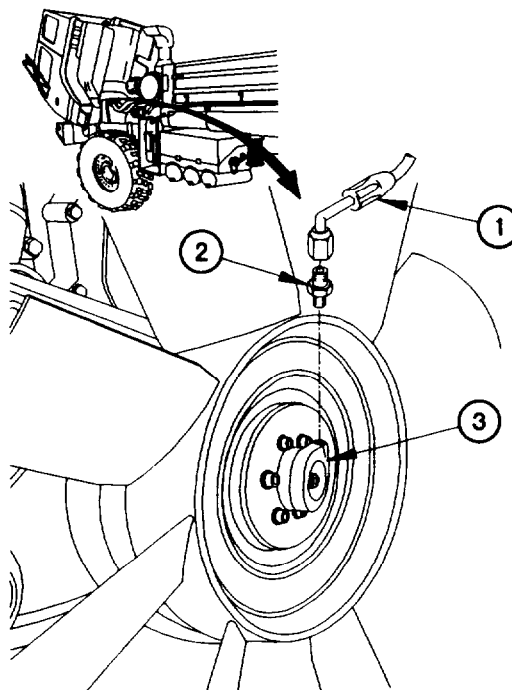
a. Removal.

CAUTION

Mark front of engine fan before removing. Failure to comply may result in damage to equipment.

(1) Disconnect air hose (1) from fitting (2) on fan clutch assembly (3).

(2) Remove fitting (2) from fan clutch assembly (3).



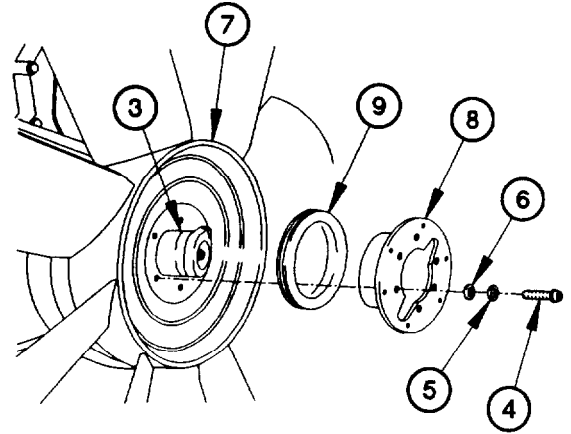
XF14R01A

- (3) Remove six screws (4), lockwashers (5), and washers (6) from engine fan (7). Discard lockwashers and screws.
- (4) Remove fan support plate (8) from engine fan (7).
- (5) Remove grommet (9) from engine fan (7). Discard grommet.

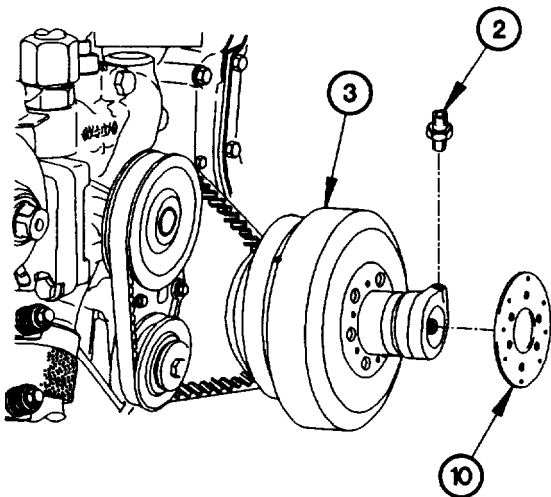
CAUTION

Mark front of engine fan before removal.
Failure to comply may result in damage to equipment.

- (6) Remove engine fan (7) from fan clutch assembly (3).



XF14R02A



XF14R03A

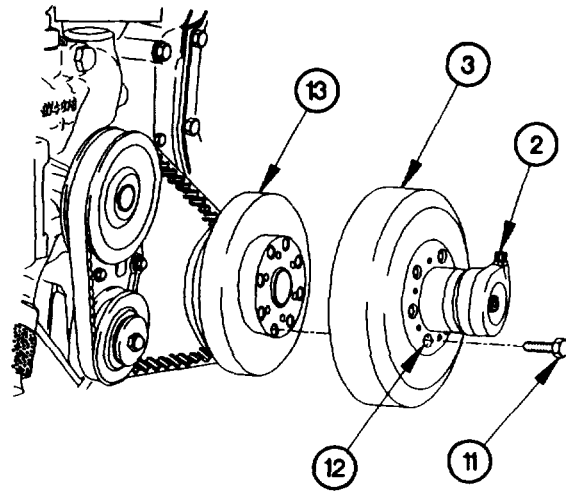
- (7) Remove spacer plate (10) from fan clutch assembly (3).
- (8) Install fitting (2) in fan clutch assembly (3).

6-14. ENGINE FAN AND FAN CLUTCH ASSEMBLY REPLACEMENT (CONT)

NOTE

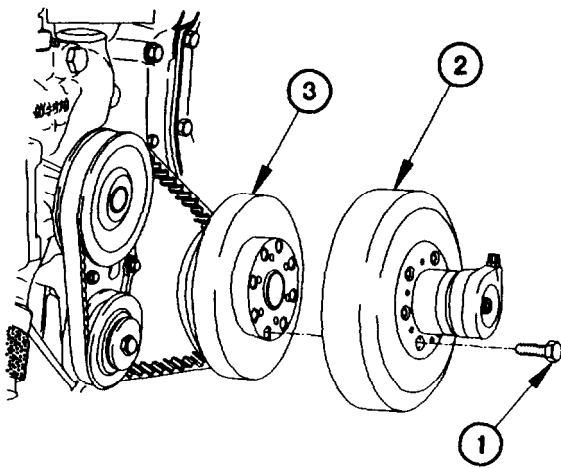
Application of 30 psi (207 kPa) air pressure to fan clutch will free rotation of fan clutch and allow removal of fan clutch screws.

- (9) Apply 30 psi (207 kPa) air pressure to fitting (2).
- (10) Turn fan clutch assembly (3) until bolts (11) are visible through fan clutch access holes (12).
- (11) Remove six bolts (11) from pulley damper (13).
- (12) Remove fan clutch assembly (3) from pulley damper (13).



XF14R04A

b. Installation.



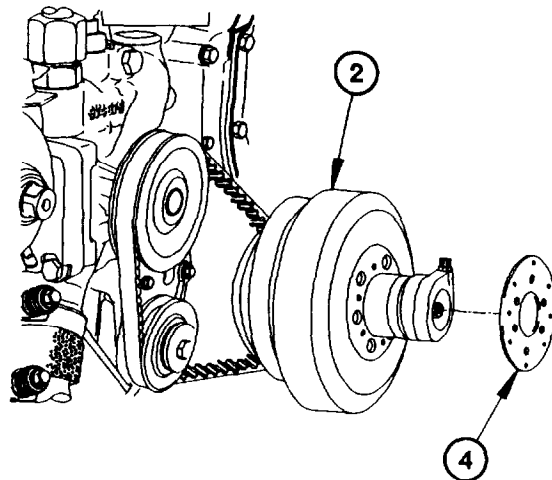
XF141011

- (1) Position bolt (1) through hole in fan clutch assembly (2).
- (2) Position fan clutch assembly (2) on pulley damper (3).
- (3) Position five bolts (1) on fan clutch assembly (2).
- (4) Tighten six bolts (1) to 43-52 lb-ft (58-70 N•m).

CAUTION

Spacer plate must be installed so that part number is visible after installation. Failure to comply may result in damage to equipment.

- (5) Install spacer plate (4) on fan clutch assembly (2) with part number facing outward.

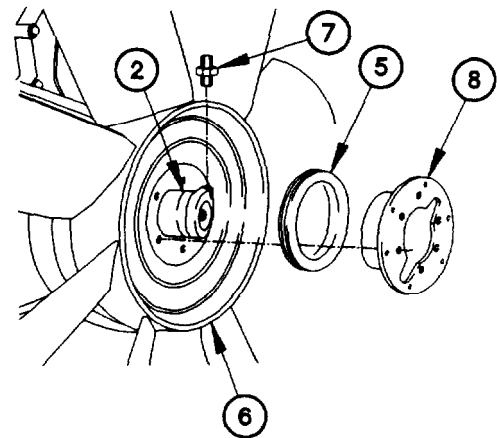


XF141021

- (8) Install grommet (5) on engine fan (6).
- (7) Remove fitting (7) from fan clutch assembly (2).
- (8) Install fan support plate (8) on engine fan (6).

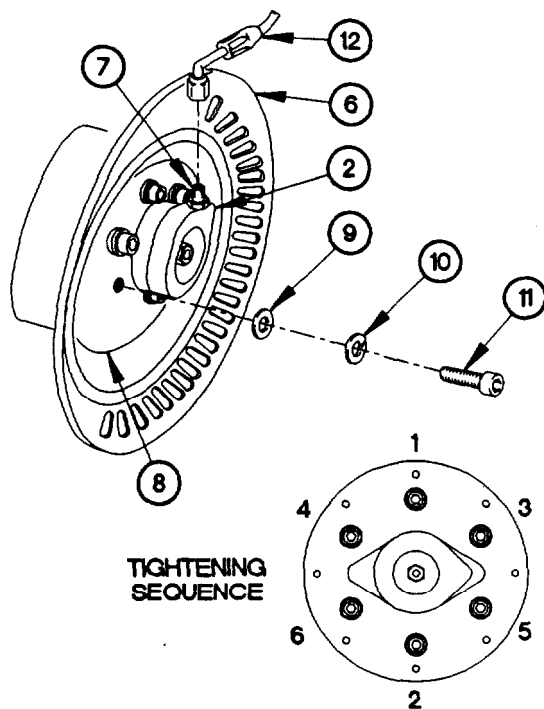
WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.



XF14103-

- (9) Apply antiseize compound to threads of fitting (7).
- (10) Install fitting (7) in fan clutch assembly (2).



XF14104A

CAUTION

Ensure engine fan is positioned with mark facing forward. Failure to comply may result in damage to equipment.

- (11) Position engine fan (6) and fan support plate (8) on fan clutch assembly (2) with six washers (9), lockwashers (10), and screws (11).
- (12) Tighten six screws (11) to 15 lb-ft (20 N•m) in sequence shown.
- (13) Re-tighten six screws (11) to 22-32 lb-ft (30-44 N•m) in sequence shown.
- (14) Connect air hose (12) to fitting (7).

6-14. ENGINE FAN AND FAN CLUTCH ASSEMBLY REPLACEMENT(CONT)

c. Follow-On Maintenance.

- (1) Install top radiator fan shroud (para 6-4).
- (2) Lower cab (TM 9-2320-365-10).
- (3) Start engine (TM 9-2320-365-10).
- (4) Check for coolant leaks under vehicle.
- (5) Raise cab (TM 9-2320-365-10).
- (6) Check for coolant leaks around radiator.
- (7) Lower cab (TM 9-2320-365-10).
- (8) Shut down engine (TM 9-2320-365-10).

End of Task.

CHAPTER 7

ELECTRICAL SYSTEM MAINTENANCE

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Section I. INTRODUCTION

7-1. INTRODUCTION

This chapter contains maintenance instructions for replacing, repairing and adjusting electrical components authorized by the Maintenance Allocation Chart (MAC) at the Unit Maintenance level.

Section II. MAINTENANCE PROCEDURES

7-2. 100 AMP ALTERNATOR REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Batteries disconnected (para 7-48).
Alternator belts removed (para 7-3).

Tools and Special Tools

Tool Kit, Genl Mech (Item 44, Appendix C)
Vise, Machinist (Item 46, Appendix C)
Caps, Vise Jaw (Item 4, Appendix C)
Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)
Wrench, Torque, 0-200 lb-in. (Item 58, Appendix C)
Socket Set, Socket Wrench (Item 35, Appendix C)

Materials/Parts

Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)
Nut, Self-Locking (Item 137, Appendix G)

Personnel Required

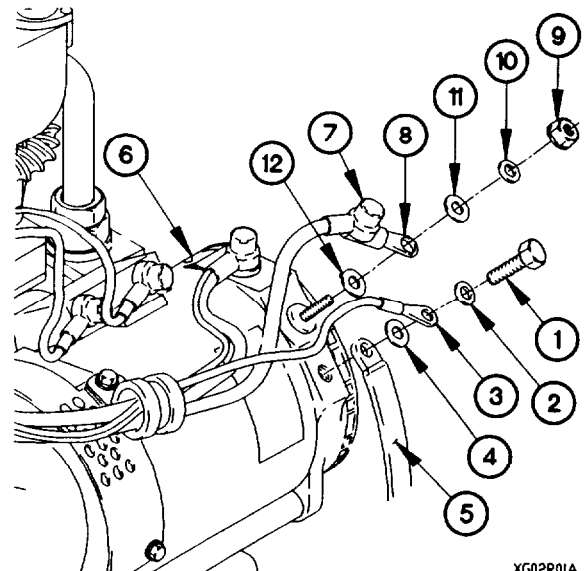
(2)

a. Removal.

NOTE

Tag wires and connection points prior to disconnecting.

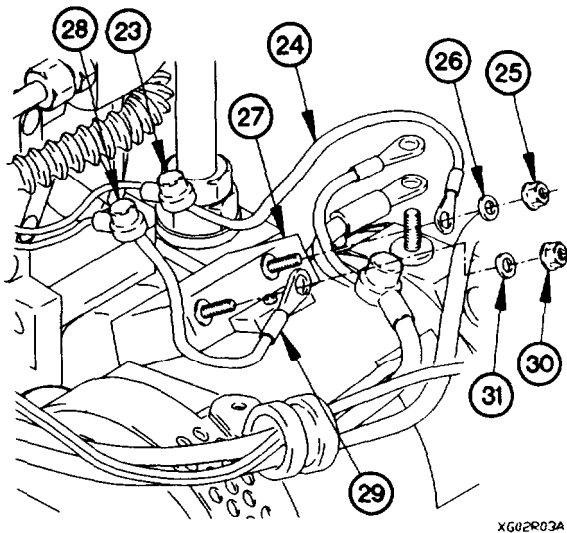
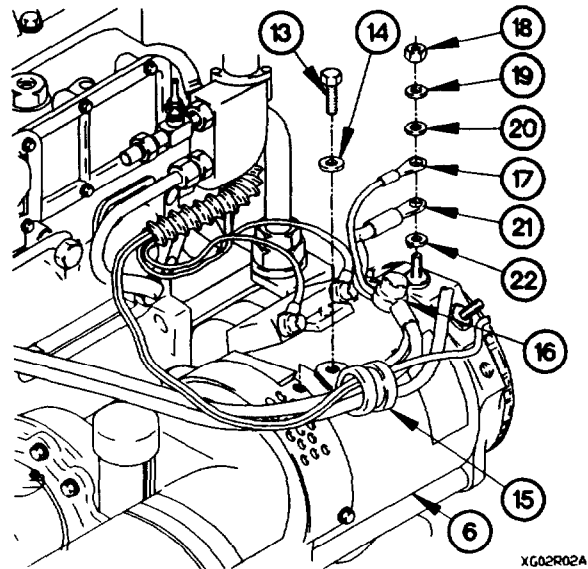
- (1) Remove screw (1), lockwasher (2), terminal lug TL5 (3), washer (4), and ground strap (5) from alternator (6).
- (2) Position washer (4), lockwasher (2), and screw (1) on alternator (6).
- (3) Lift dust boot (7) on terminal lug TL60 (8).
- (4) Remove self-locking nut (9), washer (10), insulation washer (11), terminal lug TL60 (8), and fuse (12) from alternator (6).
- (5) Position fuse (12), insulation washer (11), washer (10), and self-locking nut (9) on alternator (6).



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7-2. 100 AMP ALTERNATOR REPLACEMENT (CONT)

- (6) Remove screw (13), washer (14), and clamp (15) from alternator (6).
- (7) Lift dust boot (16) on terminal lug TL2 (17).
- (8) Remove self-locking nut (18), washer (19), insulation washer (20), terminal lugs TL2 (17) and TL6 (21), and fuse (22) from alternator (6).
- (9) Position fuse (22), insulation washer (20), washer (19), and self-locking nut (18) on alternator (6).



- (10) Lift dust boot (23) on terminal lug TL35 (24).
- (11) Remove self-locking nut (25), washer (26), and terminal lug TL35 (24) from voltage regulator (27).
- (12) Position washer (26) and self-locking nut (25) on voltage regulator (27).
- (13) Lift dust boot (28) on terminal lug TL110 (29).
- (14) Remove self-locking nut (30), washer (31), and terminal lug TL110 (29) from voltage regulator (27).
- (15) Position washer (31) and self-locking nut (30) on voltage regulator (27).

- (16) Remove nut (32), washer (33), screw (34), and washer (35) from alternator (6).
- (17) Remove self-locking nut (36), screw (37), and washer (38) from alternator (6). Discard self-locking nut.

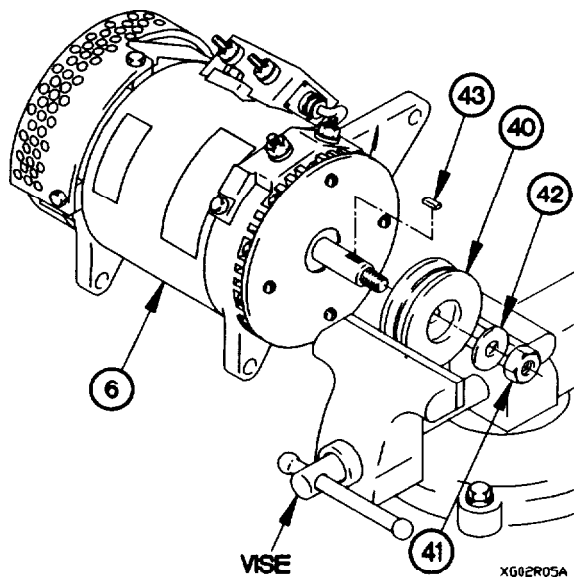
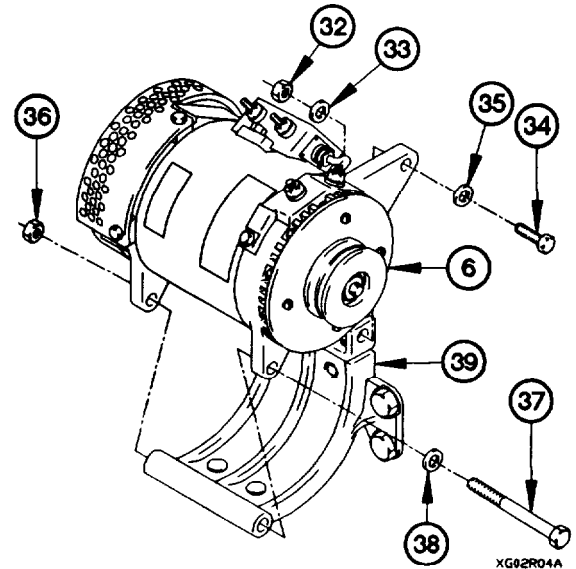
WARNING

Alternator weighs approximately 50 lbs (23 kgs). The aid of an assistant is required to remove alternator. Failure to comply may result injury to personnel.

NOTE

Step (18) requires the aid of an assistant.

- (18) Remove alternator (6) from support bracket (39).



CAUTION

Alternator pulley must be positioned in a vise equipped with vise jaw caps when loosening self-locking nut. Failure to comply may result in damage to equipment.

- (19) Position pulley (40) in vise.
- (20) Loosen self-locking nut (41).
- (21) Remove pulley (40) from vise.
- (22) Remove self-locking nut (41), washer (42), pulley (40), and key (43) from alternator (6).
- (23) Position washer (42) and self-locking nut (41) on alternator (6).

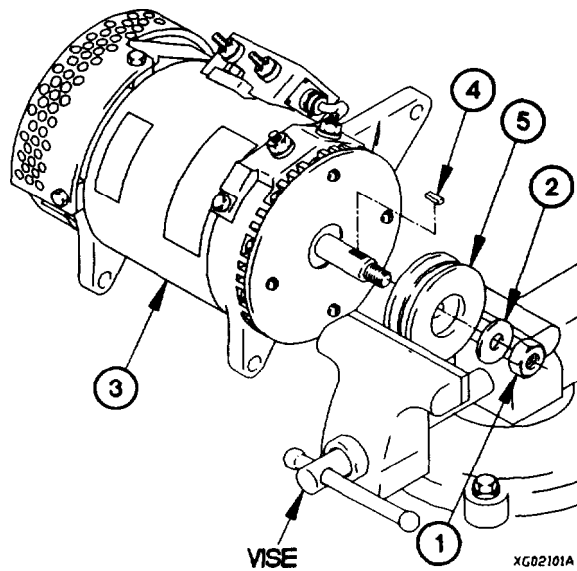
7-2. 100 AMP ALTERNATOR REPLACEMENT (CONT)

b. Installation.

- (1) Remove self-locking nut (1) and washer (2) from alternator (3).
- (2) Position key (4) and pulley (5) on alternator (3) with washer (2) and self-locking nut (1).

CAUTION

Alternator pulley must be positioned in a vise equipped with vise jaw caps when tightening self-locking nut. Failure to comply may result in damage to equipment.



- (3) Position pulley (5) in vise.
- (4) Tighten self-locking nut (1) to 120 lb-ft (163 N•m).
- (5) Remove pulley (5) from vise.

WARNING

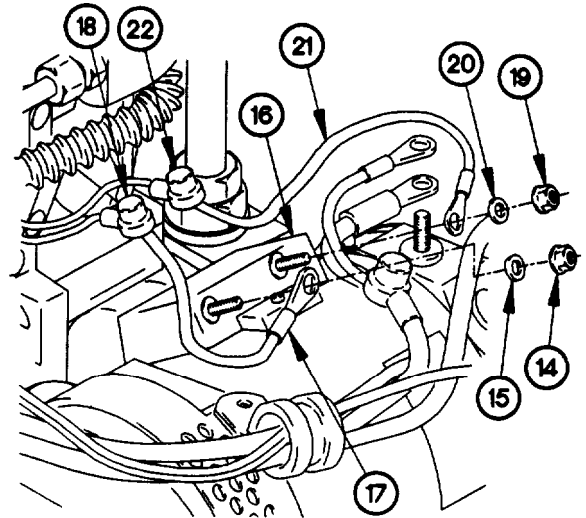
Alternator weighs approximately 50 lbs (23 kgs). The aid of an assistant is required to install alternator. Failure to comply may result in injury to personnel.

NOTE

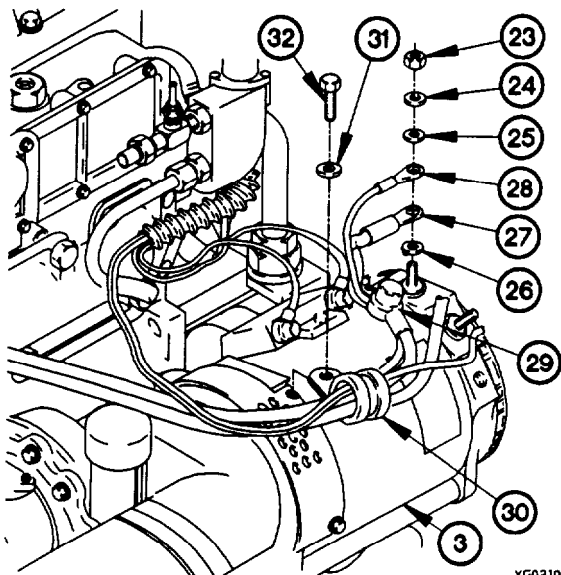
Step (6) requires the aid of an assistant.

- (6) Position alternator (3) on support bracket (6) with washer (7), screw (8), and self-locking nut (9).
- (7) Position washer (10), screw (11), washer (12) and nut (13) on alternator (3).
- (8) Tighten nut (13) to 18-22 lb-ft (24-30 N•m).
- (9) Tighten self-locking nut (9) to 44-56 lb-ft (60-76 N•m).

- (10) Remove self-locking nut (14) and washer (15) from voltage regulator (16).
- (11) Position terminal lug TL110 (17), washer (15), and self-locking nut (14) on voltage regulator (16).
- (12) Tighten self-locking nut (14) to 25 lb-in. (3 N•m).
- (13) Position dust boot (18) on terminal lug TL110 (17).
- (14) Remove self-locking nut (19) and washer (20) from voltage regulator (16).
- (15) Position terminal lug TL35 (21), washer (20), and self-locking nut (19) on voltage regulator (16).
- (16) Tighten self-locking nut (19) to 25 lb-in. (3 N•m).
- (17) Position dust boot (22) on terminal lug TL35 (21).



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- (18) Remove self-locking nut (23), insulation washer (24), washer (25), and fuse (26) from alternator (3).

CAUTION

Insulation washer must be installed with flat side up. Failure to comply may result in damage to equipment.

- (19) Position fuse (26), terminal lugs TL2 (27) and TL6 (28), washer (25), insulation washer (24), and self-locking nut (23) on alternator (3).
- (20) Tighten self-locking nut (23) to 40 lb-in. (5 N•m).
- (21) Position dust boot (29) on terminal lug TL6 (28).
- (22) Position clamp (30), washer (31), and screw (32) on alternator (3).
- (23) Tighten screw (32) to 80 lb-in. (9 N•m).

7-2. 100 AMP ALTERNATOR REPLACEMENT (CONT)

- (24) Remove self-locking nut (33), insulation washer (34), washer (35), and fuse (36) from alternator (3).

CAUTION

Insulation washer must be installed with flat side up. Failure to comply may result in damage to equipment.

- (25) Position fuse (36), terminal lug TL60 (37), washer (35), insulation washer (34) and self-locking nut (33) on alternator (3).

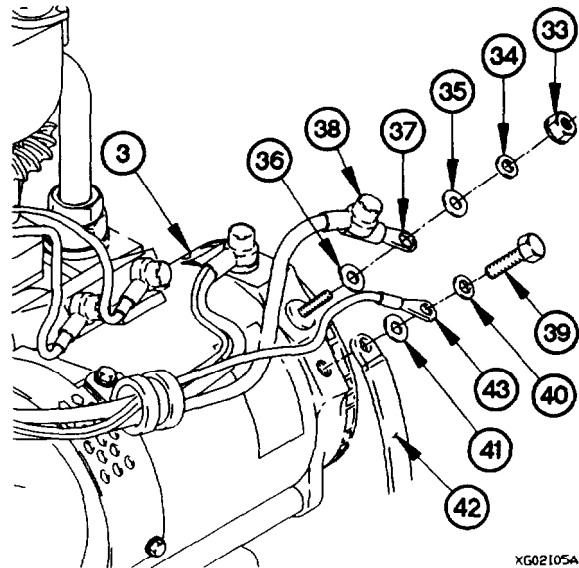
- (26) Tighten self-locking nut (33) to 40 lb-in. (5 N•m).

- (27) Position dust boot (38) on terminal lug TL60 (37).

- (28) Remove screw (39), lockwasher (40), and washer (41) from alternator (3).

- (29) Position ground strap (42), washer (41), and terminal lug TL5 (43) on alternator (3) with lockwasher (40) and screw (39).

- (30) Tighten screw (39) to 40 lb-in. (5 N•m).



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c. Follow-On Maintenance

- (1) Install alternator belts (para 7-3).
- (2) Connect batteries (para 7-48).
- (3) Start engine (TM 9-2320-365-10).
- (4) Check alternator operation (TM 9-2320-365-10).
- (5) Shut down engine (TM 9-2320-365-10).

End of Task.

7-3. ALTERNATOR BELTS REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

- Engine shut down (TM 9-2320-365-10).
- Cab raised (TM 9-2320-365-10).
- Air tanks drained (TM 9-2320-365-10).

Tools and Special Tools

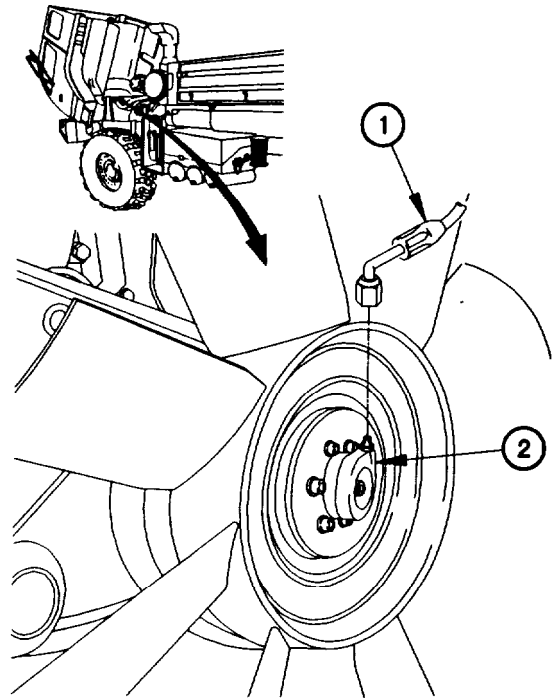
- Tool Kit, Genl Mech (Item 44, Appendix C)
- Gage, Belt Tension (Item 16, Appendix B)
- Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)

Personnel Required

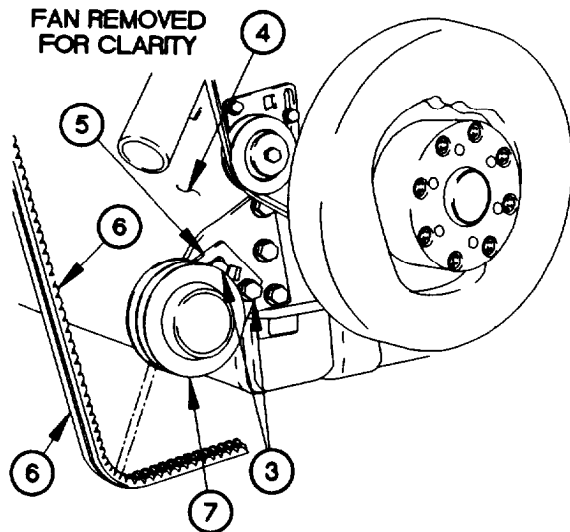
(2)

a. Removal.

- (1) Disconnect air hose (1) from fan clutch (2).



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XG04R02-

- (2) Loosen two screws (3) on front of engine block (4).
- (3) Move tension bracket (5) up.
- (4) Remove two alternator belts (6) from pulley (7).

7-3. ALTERNATOR BELTS REPLACEMENT (CONT)

b. Installation.

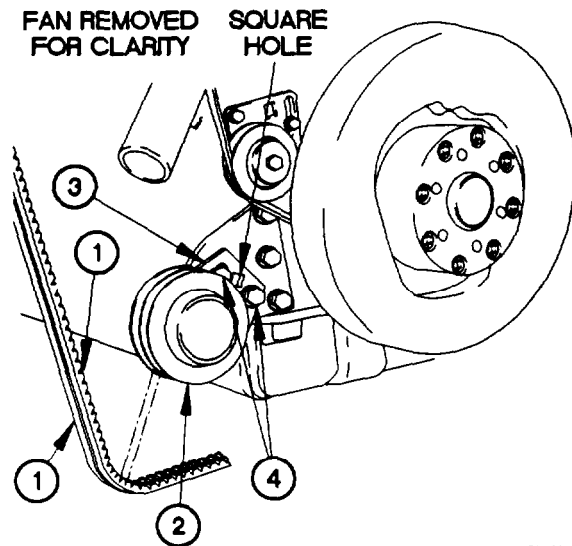
- (1) Position two alternator belts (1) on pulley (2).

CAUTION

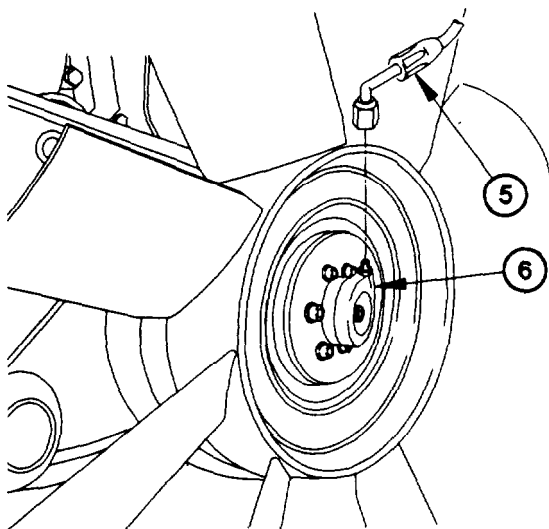
Tension bracket adjustment varies for new or reinstalled belts. New belts must be adjusted to 110-130 lbs (489-478 N), reinstalled belts must be adjusted to 80-100 lbs (356-444 N). Failure to comply may result in early belt failures.

NOTE

- Steps (2) and (3) require the aid of an assistant.
 - Use square hole in tension bracket to apply tension to alternator belts.
- (2) Push tension bracket (3) down until belt tension gage indicates correct tension for new or reinstalled belts (1).
- (3) Maintain belt tension and tighten two screws (4).



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XG04102-

- (4) Connect air hose (5) to fan clutch (6).

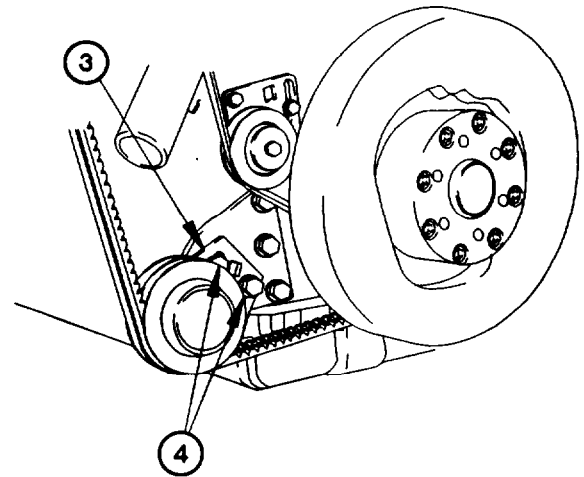
- (5) Lower cab (TM 9-2320-365-10).
- (6) Start engine and run for five minutes.
- (7) Shut down engine (TM 9-2320-365-10).
- (8) Raise cab (TM 9-2320-365-10).

NOTE

Check belt tension for proper tension for new or reinstalled belts.

- (9) Loosen one screw (4) and readjust tension bracket (3) for new or reinstalled belts, as required.
- (10) Tighten two screws (4) to 47 lb-ft (64 N•m).

FAN REMOVED
FOR CLARITY



XG04103-

c. Follow-On Maintenance.

- (1) Lower cab (TM 9-2320-365-10).
- (2) Start engine (TM 9-2320-365-10).
- (3) Check VOLTS gage for indication of 22-28 volts (TM 9-2320-365-10).
- (4) Shut down engine (TM 9-2320-365-10).

End of Task.

7-4. ALTERNATOR BRACKETS REPLACEMENT

This task covers:

- a. Support Brackets Removal
- b. Support Brackets Installation
- c. Belt Take-Up Bracket Removal
- d. Belt Take-Up Bracket Installation
- e. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

- 100 amp alternator removed, if equipped (para 7-2).
- 200 amp alternator removed, if equipped (para 20-56).

Tools and Special Tools

- Goggles, Industrial (Item 15, Appendix C)
- Tool Kit, Genl Mech (Item 44, Appendix C)
- Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)
- Gage, Belt Tension (Item 16, Appendix B)

Material Parts

- Sealing Compound (Item 62, Appendix D)
- Nut, Self-Locking (Item 148, Appendix G)

Personnel Required

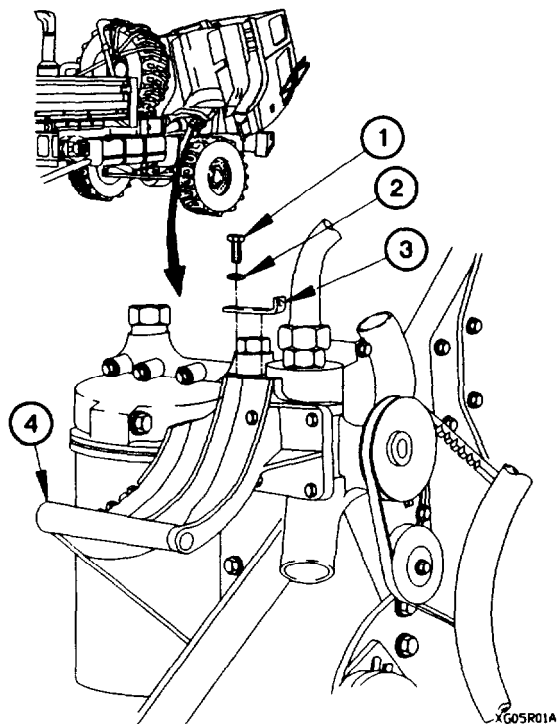
(2)

a. Support Brackets Removal.

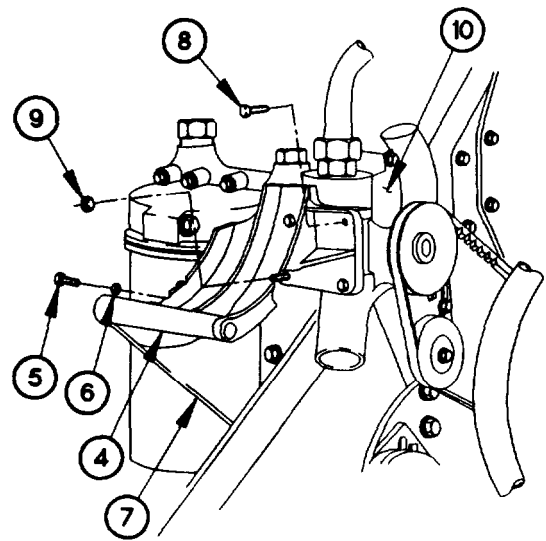
NOTE

Note location of different size screws for installation.

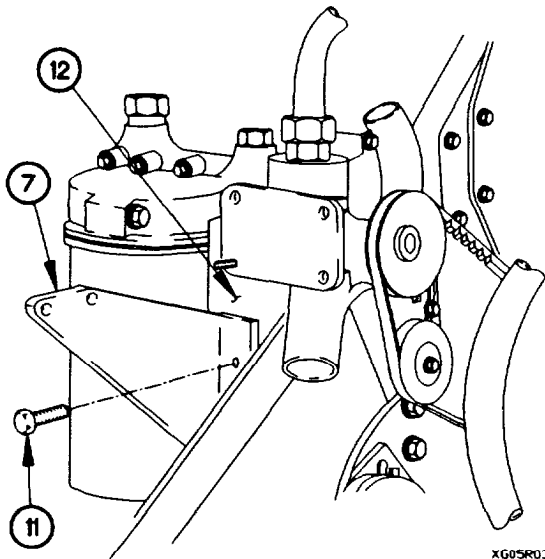
- (1) Remove two screws (1), washers (2), and belt adjusting arm (3) from alternator bracket (4).



- (2) Remove two screws (5) and washers (6) from alternator support bracket (7).
- (3) Remove three screws (8) from alternator bracket (4).
- (4) Remove self-locking nut (9) and alternator bracket (4) from thermostat housing (10). Discard self-locking nut.



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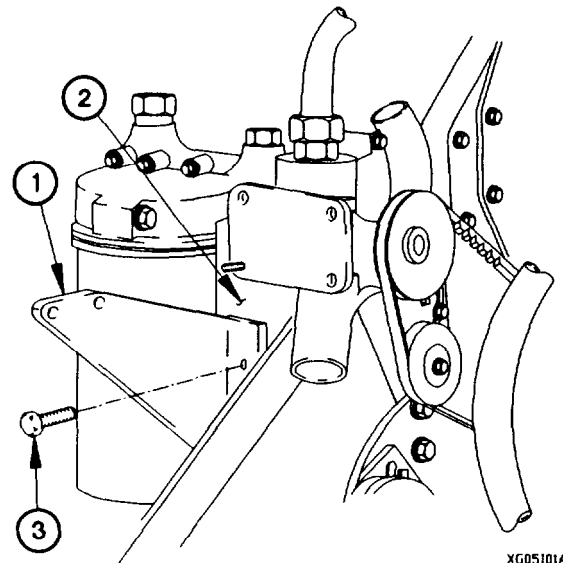


XG05R03A

- (5) Remove two screws (11) and alternator support bracket (7) from engine block (12).

b. Support Brackets Installation.

- (1) Position alternator support bracket (1) on engine block (2) with two screws (3).
- (2) Tighten two screws (3) to 121-147 lb-ft (164-200 N•m).



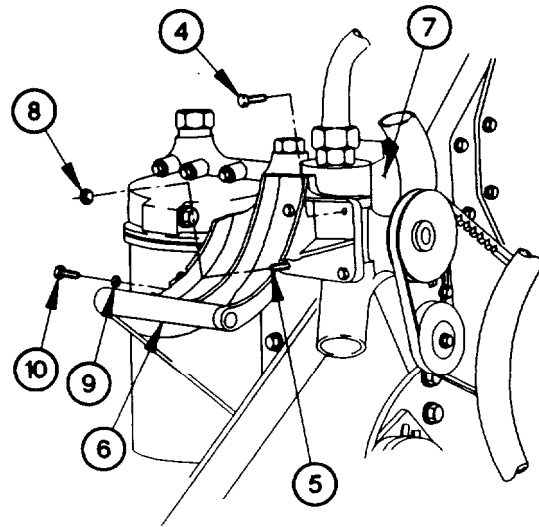
XG05101A

7-4. ALTERNATOR BRACKETS REPLACEMENT (CONT)

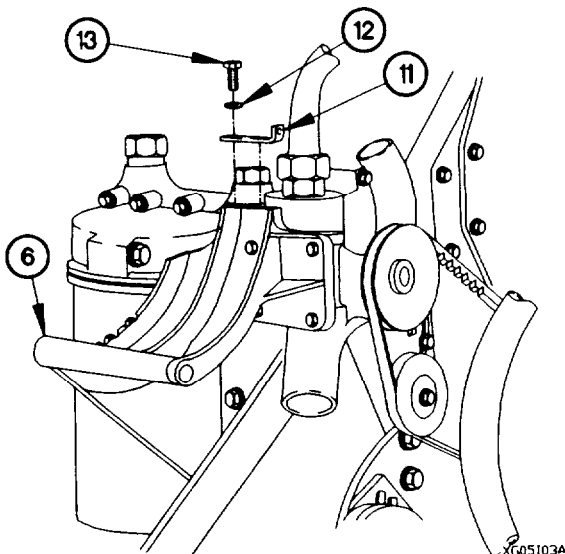
WARNING

Adhesive Sealant MIL-S-46163 can damage your eyes. Wear safety goggles when using; avoid contact with eyes. If sealant contacts eyes, flush eyes with water and get immediate medical attention. Failure to comply may result in injury to personnel.

- (3) Apply sealing compound to threads of three screws (4) and stud (5).
- (4) Position alternator bracket (6) on thermostat housing (7) with three screws (4).
- (5) Install self-locking nut (8) on stud (5).
- (6) Tighten three screws (4) to 18-22 lb-ft (24-30 N•m).
- (7) Position two washers (9) and screws (10) in alternator bracket (6).
- (8) Tighten two screws (10) to 121-147 lb-ft (164-200 N•m).



XG05102A



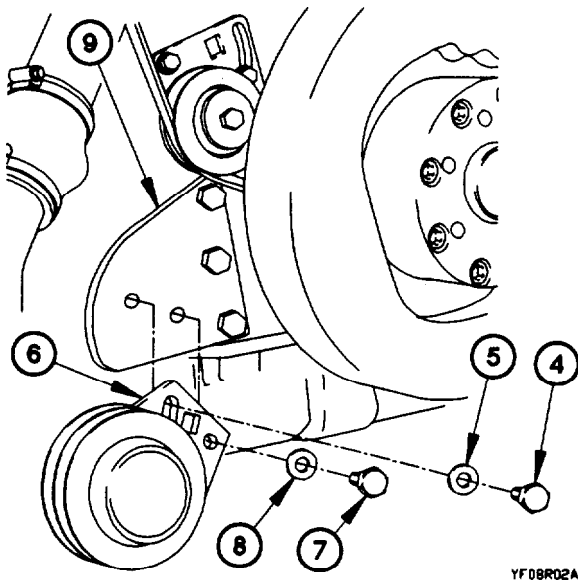
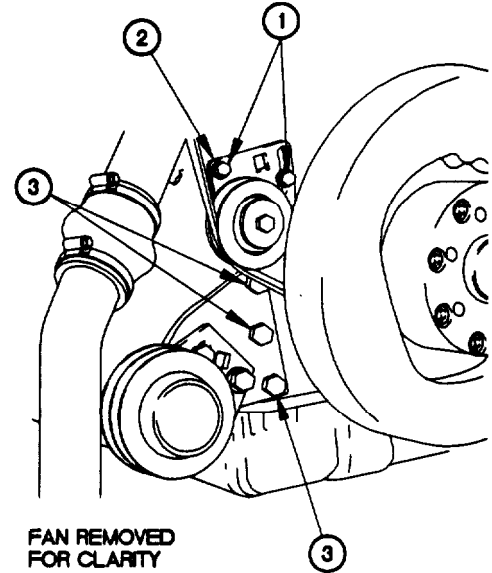
- (9) Position belt adjusting arm (11) on alternator bracket (6) with two washers (12) and screws (13).
- (10) Tighten two screws (13) to 18-22 lb-ft (24-30 N•m)

c. Belt Take-Up Bracket Removal.

WARNING

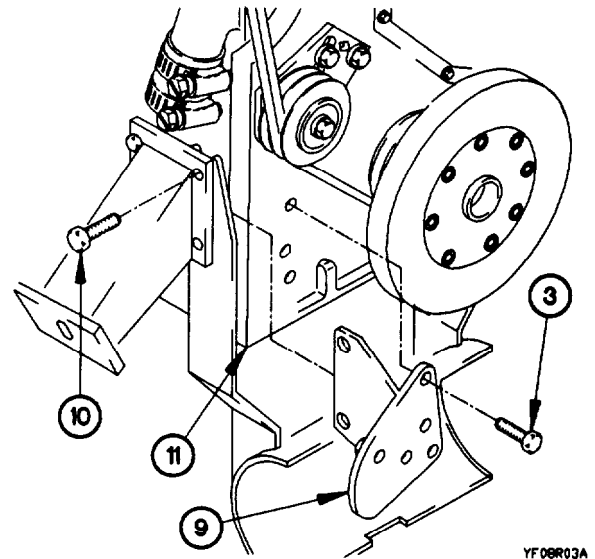
Wear appropriate eye protection when working under vehicle due to the possibility of falling debris. Failure to comply may result in injury to personnel.

- (1) Loosen two screws (1) on water pump pulley bracket (2).
- (2) Position water pump pulley bracket (2) for access to three screws (3).



- (3) Remove screw (4) and washer (5) from alternator belt take-up plate (6).
- (4) Remove screw (7), washer (8), and alternator belt take-up plate (6) from alternator belt take-up mounting bracket (9).

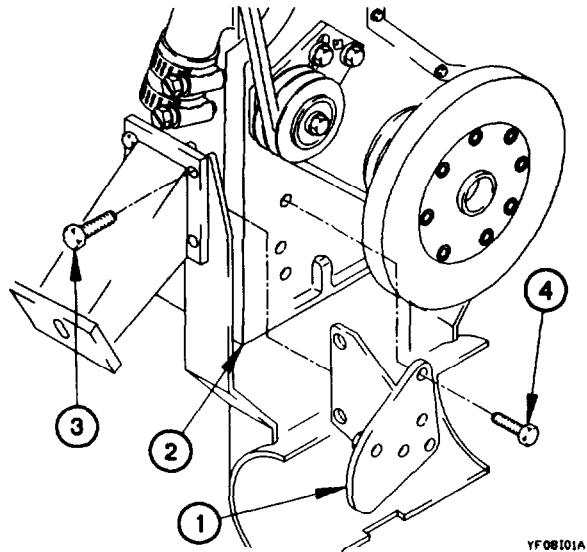
- (5) Remove three screws (3) from alternator belt take-up mounting bracket (9).
- (6) Remove two screws (10) and alternator belt take-up mounting bracket (9) from engine front cover (11).



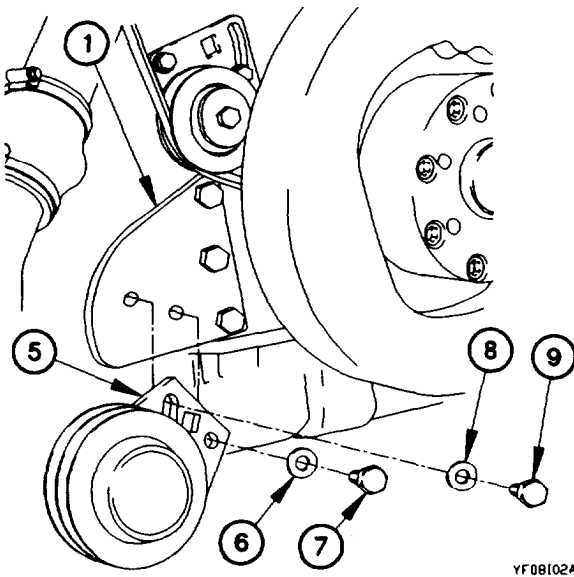
7-4. ALTERNATOR BRACKETS REPLACEMENT (CONT)

d. Belt Take-Up Bracket Installation.

- (1) Position alternator belt take-up mounting bracket (1) on engine front cover (2) with two screws (3).
- (2) Position three screws (4) in engine front cover (2).
- (3) Tighten two screws (3) to 121-147 lb-ft (164-200 N•m).
- (4) Tighten three screws (4) to 106-130 lb-ft (144-176 N•m).



- (5) Install alternator belt take-up plate (5) on alternator belt take-up mounting bracket (1) with washer (6) and screw (7).
- (6) Install washer (8) and screw (9) in alternator belt take-up plate (5).

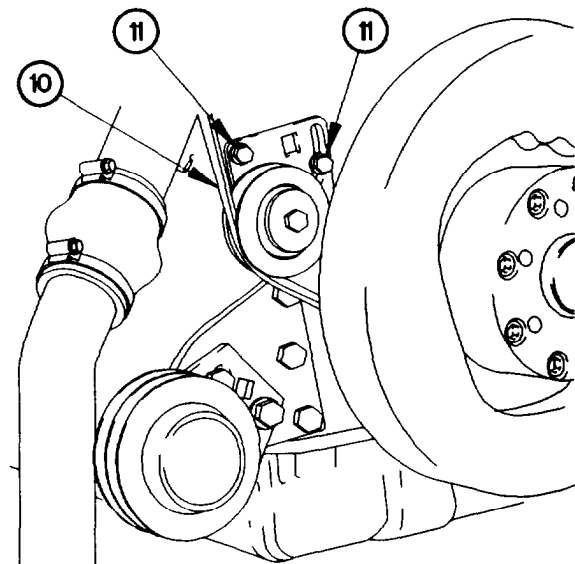


NOTE

- Steps (7) and (8) require the aid of an assistant.
- Use square hole in water pump belt pulley bracket to apply and maintain tension on water pump belt while adjusting belt tension.

(7) Adjust tension on water pump belt (10) to 80-100 lbs (356-444 N).

(8) Tighten two screws (11) to 35 lb-ft (47 N•m).



e. Follow-On Maintenance.

- (1) Install 200 amp alternator, if equipped (para 20-56).
- (2) Install 100 amp alternator, if equipped (para 7-2).
- (3) Start engine (TM 9-2320-365-10).
- (4) Check VOLTS gage for charge indication (TM 9-2320-365-10).
- (5) Shut down engine (TM 9-2320-365-10).

End of Task.

7-5. 100 AMP VOLTAGE REGULATOR REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Cab raised (TM 9-2320-365-10).
Batteries disconnected (para 7-48).

Tools and Special Tools

Tool Kit, Genl Mech (Item 44, Appendix C)
Wrench, Torque, 0-200 lb-in. (Item 58, Appendix C)
Socket Set, Socket Wrench (Item 35, Appendix C)

Materials/Parts

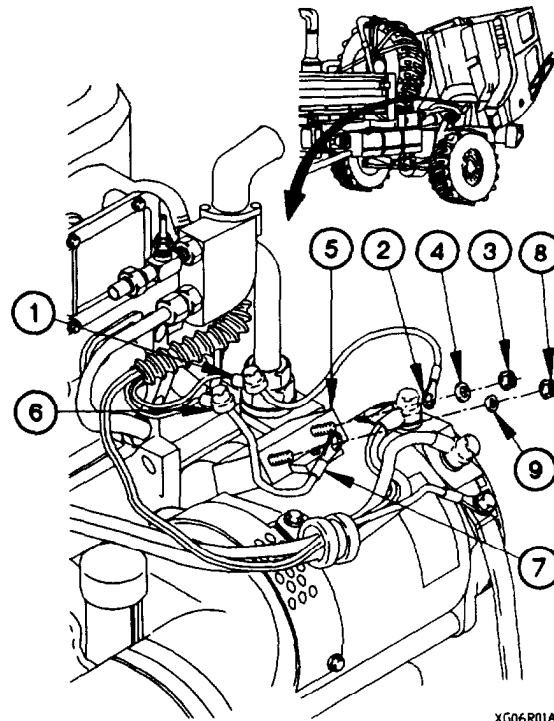
Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)
Lockwasher (2) (Item 100, Appendix G)
Nut, Self-Locking (Item 130, Appendix G)
Nut, Self-Locking (Item 131, Appendix G)
Sealing Compound (Item 64, Appendix D)

a. Removal.

NOTE

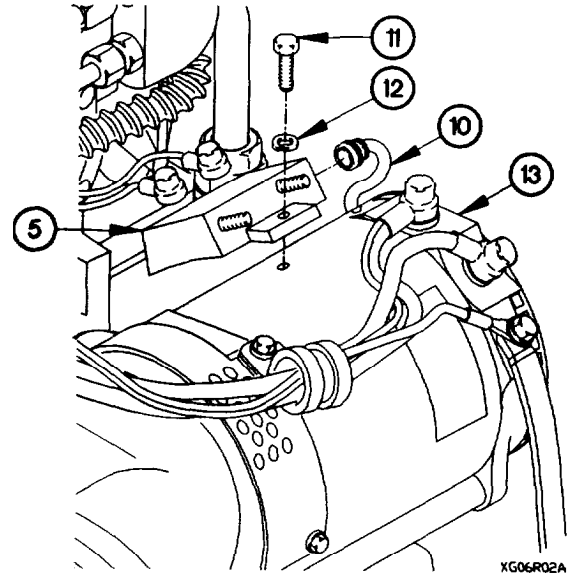
Tag wires and connection points prior to disconnecting.

- (1) Lift dust boot (1) on terminal lug TL35 (2).
- (2) Remove self-locking nut (3), washer (4), and terminal lug TL35 (2) from voltage regulator (5). Discard self-locking nut.
- (3) Lift dust boot (6) on terminal lug TL110 (7).
- (4) Remove self-locking nut (8), washer (9), and terminal lug TL110 (7) from voltage regulator (5). Discard self-locking nut.

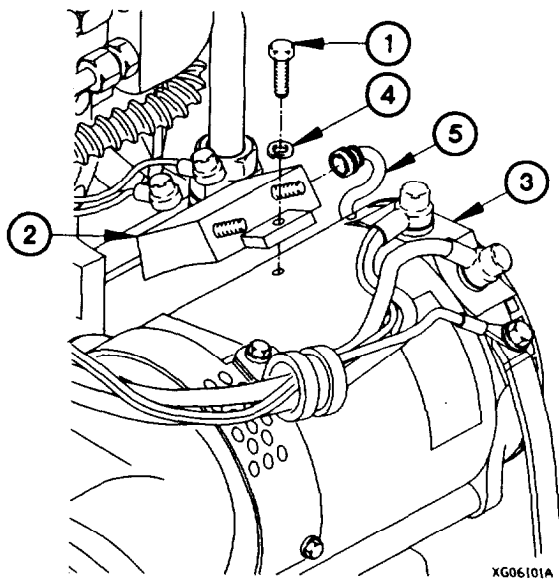


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- (5) Disconnect voltage regulator connector (10) from voltage regulator (5).
- (6) Remove two screws (11), lockwashers (12), end voltage regulator (5) from alternator (13). Discard lockwashers.



b. Installation.



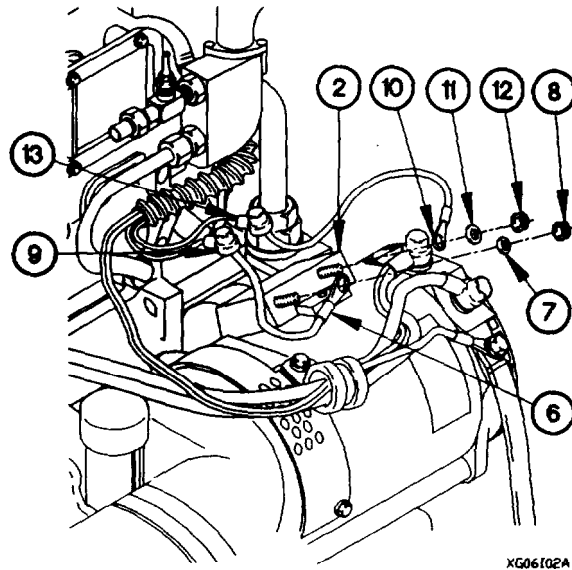
WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.

- (1) Apply sealing compound to threads of two screws (1).
- (2) Position voltage regulator (2) on alternator (3) with two lockwashers (4) and screws (1).
- (3) Tighten two screws (1) to 65 lb-in. (7 N•m).
- (4) Connect voltage regulator connector (5) to voltage regulator (2).

7-5. 100 AMP VOLTAGE REGULATOR REPLACEMENT (CONT)

- (5) Position terminal lug TL110 (6) on voltage regulator (2) with washer (7), and self-locking nut (8).
- (6) Tighten self-locking nut (8) to 25 lb-in (3 N•m).
- (7) Position dust boot (9) on terminal lug TL110 (6).
- (8) Position terminal lug TL35 (10) on voltage regulator (2) with washer (11), and self-locking nut (12).
- (9) Tighten self-locking nut (12) to 25 lb-in. (3 N•m).
- (10) Position dust boot (13) on terminal lug TL35 (10).



c. Follow-On Maintenance

- (1) Lower cab (TM 9-2320-365-10).
- (2) Connect batteries (para 7-48).
- (3) Start engine (TM 9-2320-365-10).
- (4) Check VOLTS gage for charge indication (TM 9-2320-365-10).
- (5) Shut down engine (TM 9-2320-365-10).

End of Task.

7-6. AUXILIARY STARTER SOLENOID REPLACEMENT

This task covers:

- a. Removal
- b. Installation

c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Batteries disconnected (para 7-48).
Cab raised (TM 9-2320-365-10).

Tools and Special Tools

Tool Kit, Genl Mech (Item 44, Appendix C)
Wrench, Torque, 0-200 lb-in. (Item 58, Appendix C)
Socket Set, Socket Wrench (Item 35, Appendix C)

Materials/Parts

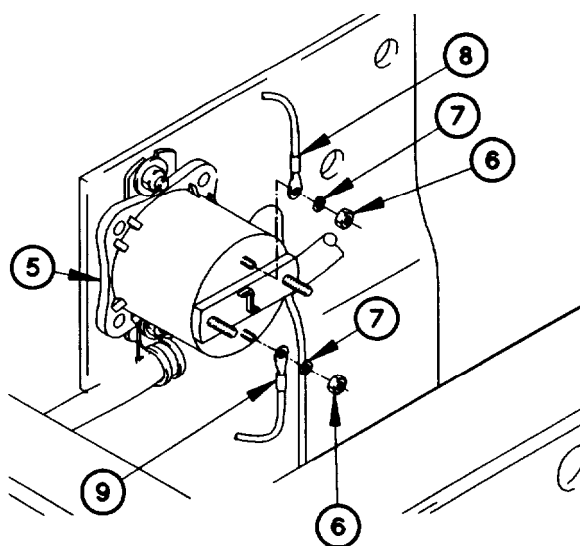
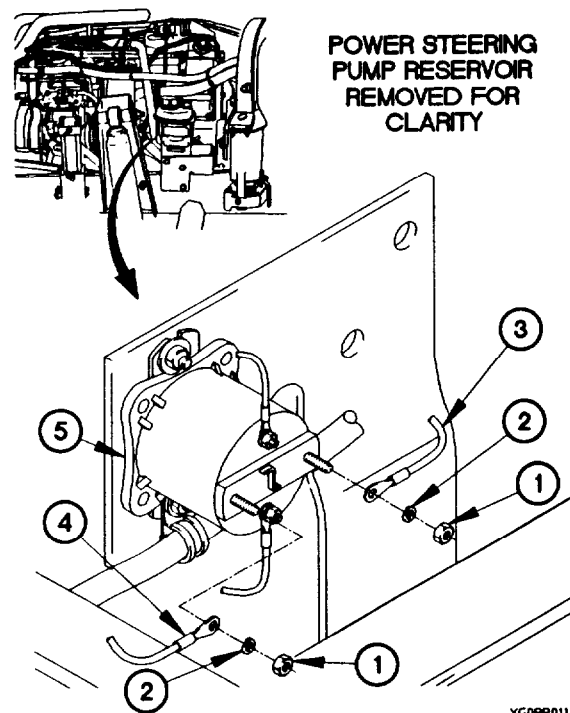
Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)
Adhesive (Item 10, Appendix D)
Lockwasher (2) (Item 93, Appendix G)
Lockwasher (2) (Item 96, Appendix G)
Nut, Self-Locking (2) (Item 141, Appendix G)

a. Removal.

NOTE

Tag wires and connection points prior to disconnecting.

- (1) Remove adhesive, two nuts (1), lockwashers (2), terminal lugs TL9 (3) and TL24 (4) from auxiliary starter solenoid (5). Discard lockwashers.



- (2) Remove adhesive, two nuts (6), lockwashers (7), terminal lugs TL23 (8) and TL33 (9) from auxiliary starter solenoid (5). Discard lockwashers.

7-6. AUXILIARY STARTER SOLENOID REPLACEMENT (CONT)

NOTE

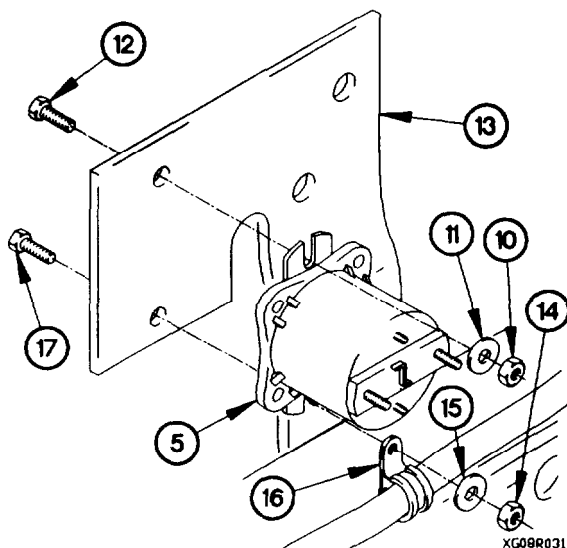
Perform steps (3) and (4) on vehicle serial number 7413 and higher, and vehicle serial numbers 0001 through 7412 which have previously had an auxiliary starter solenoid replaced.

- (3) Remove self-locking nut (10), washer (11), and screw (12) from bracket (13). Discard self-locking nut.
- (4) Remove self-locking nut (14), washer (15), clamp (16), screw (17), and auxiliary starter solenoid (5) from bracket (13). Discard self-locking nut.

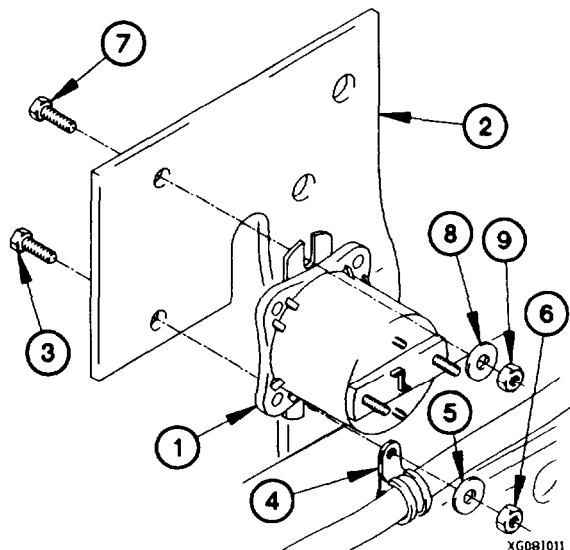
NOTE

Perform step (5) on vehicle serial numbers 0001 through 7412 which have not previously had an auxiliary starter solenoid replaced.

- (5) Remove self-locking nuts (10 and 14), washers (11 and 15), screws (12 and 17), and auxiliary starter solenoid (5) from bracket (13). Discard self-locking nuts.

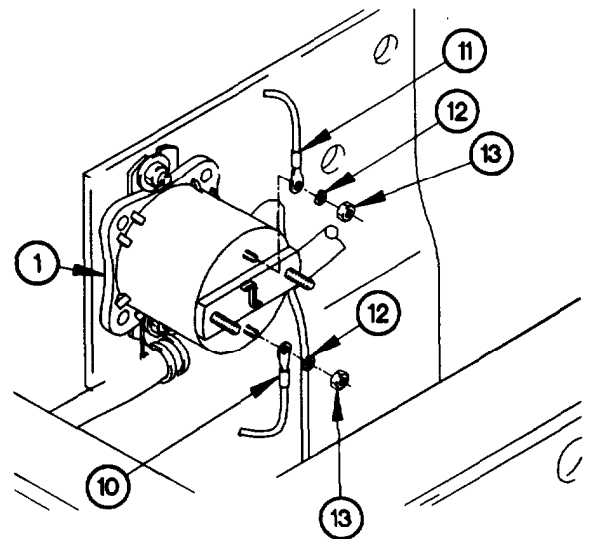


b. Installation.

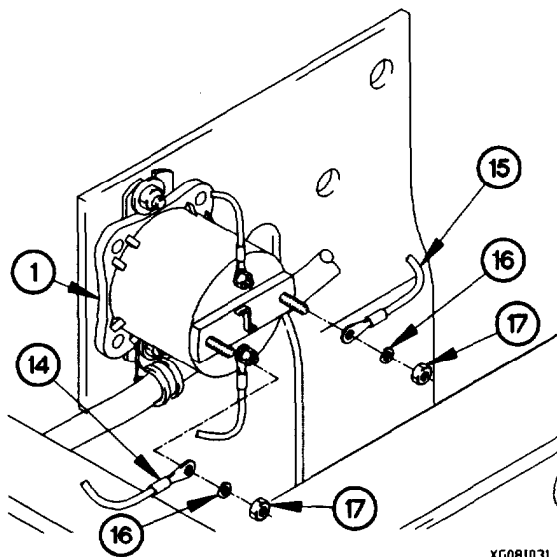


- (1) Position auxiliary starter solenoid (1) on bracket (2) with screw (3), clamp (4), washer (5), and self-locking nut (6).
- (2) Position screw (7), washer (8), and self-locking nut (9) in bracket (2).
- (3) Tighten self-locking nuts (6 and 9) to 96-120 lb-in. (11-14 N•m).

- (4) Install terminal lugs TL33 (10) and TL23 (11) on auxiliary starter solenoid (1) with two lockwashers (12) and nuts (13).



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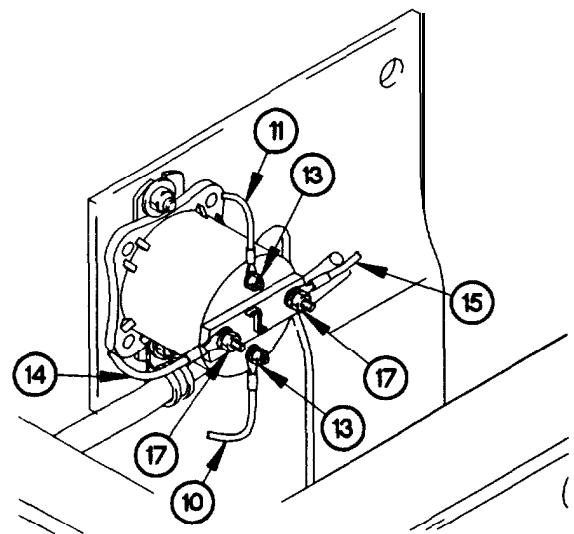
XG081031

- (5) Install terminal lugs TL24 (14) and TL9 (15) on auxiliary starter solenoid (1) with two lockwashers (16) and nuts (17).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.

- (6) Apply adhesive on nuts (13 and 17) and terminal lugs TL33 (10), TL23 (11), TL24 (14), and TL9 (15).



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7-6. AUXILIARY STARTER SOLENOID REPLACEMENT (CONT)

c. Follow-On Maintenance

- (1) Connect batteries (para 7-48).
- (2) Lower cab (TM 9-2320-365-10).
- (3) Start engine (TM 9-2320-365-10).
- (4) Shut down engine (TM 9-2320-365-10).

End of Task.

7-7. STARTING MOTOR REPLACEMENT

This task covers:

- | | |
|-----------------------------|---------------------------------|
| a. Removal (PN 1993991) | c. Installation (PN M0017703MD) |
| b. Removal (PN M00117703MD) | d. Follow-On Maintenance |

INITIAL SETUP

Equipment Conditions

Cab raised (TM 9-2320-365-10).
Batteries disconnected (para 7-48).

Tools and Special Tools

Goggles, Industrial (Item 15, Appendix C)
Tool Kit, Genl Mech (Item 44, Appendix C)
Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)
Sling, Endless (Item 32, Appendix C)
Wrench Set, Socket (Item 49, Appendix C)
Socket Set, Socket Wrench (Item 35, Appendix C)
Wrench, Torque, 0-200 lb-in. (Item 58, Appendix C)
Adapter, Socket Wrench (Item 2, Appendix B)

Tools and Special Tools (Cont)

Crowfoot Attachment, Socket Wrench (Item 9, Appendix B)

Materials/Parts

Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)
Adhesive (Item 8, Appendix D)
Adhesive (Item 10, Appendix D)
Bolt, Machine (3) (Item 2, Appendix G)
Gasket (Item 40, Appendix G)

Personnel Required

(2)

WARNING

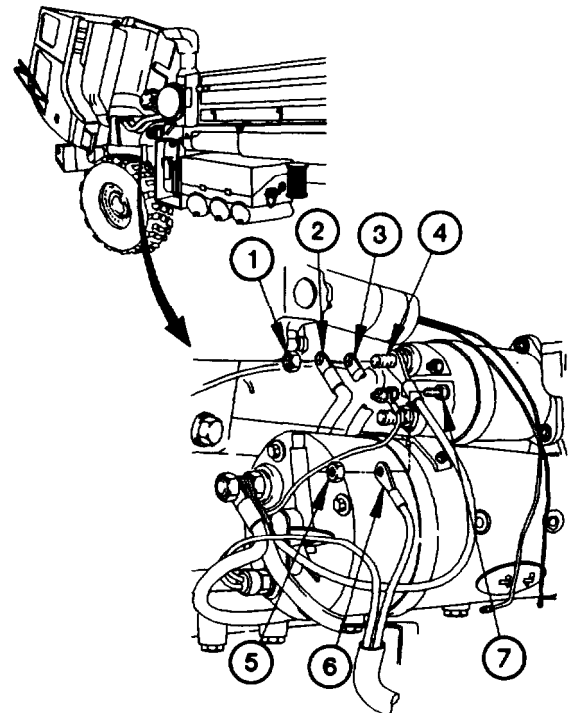
Wear appropriate eye protection when working under vehicle due to the possibility of falling debris. Failure to comply may result in injury to personnel.

a. Removal (PN 1993991).

NOTE

Tag wires and connection points prior to disconnecting.

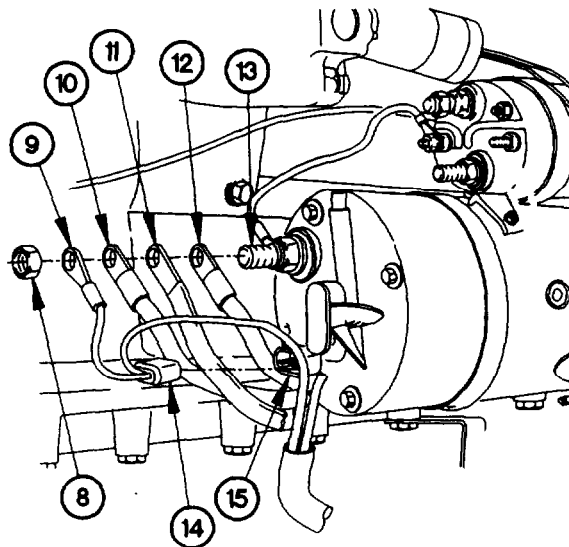
- (1) Remove adhesive, nut (1), terminal lugs TL55 (2) and TL12 (3) from solenoid terminal (4).
- (2) Position nut (1) on solenoid terminal (4).
- (3) Remove adhesive, nut (5), and terminal lug TL26 (6) from solenoid terminal (7).
- (4) Position nut (5) on solenoid terminal (7).



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7-7. STARTING MOTOR REPLACEMENT (CONT)

- (5) Remove adhesive, nut (8), terminal lugs TL25 (9), TL46 (10), ground strap (11), and terminal lug TL53 (12) from starting motor terminal (13).
- (6) Position nut (8) on starting motor terminal (13).
- (7) Disconnect connector P81 (14) from starting motor connector (15).



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- (8) Remove screw (16) from starting motor (17). Discard screw.

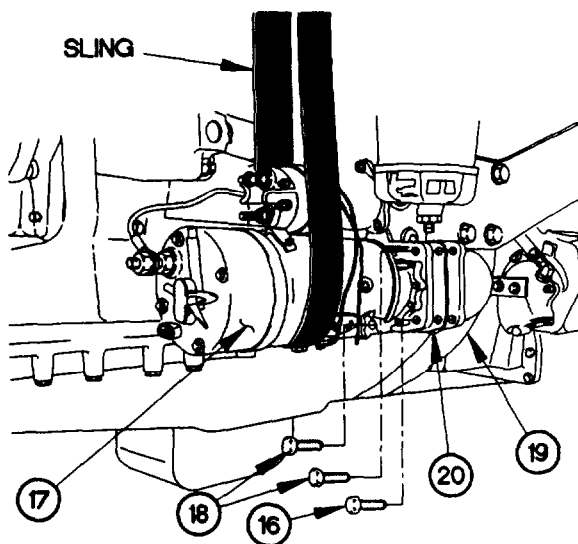
WARNING

Starting motor weighs approximately 60 lbs (27 kgs). Attach a suitable lifting device prior to removal. Failure to comply may result in injury to personnel or damage to equipment.

NOTE

Step (9) requires the aid of an assistant.

- (9) Remove two screws (18) and starting motor (17) from flywheel housing (19). Discard screws.
- (10) Remove gasket (20) from starting motor (17). Discard gasket.



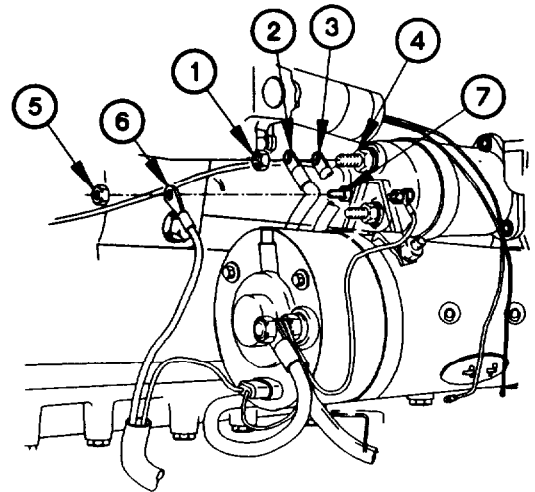
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b. Removal (PN M0017703MD).

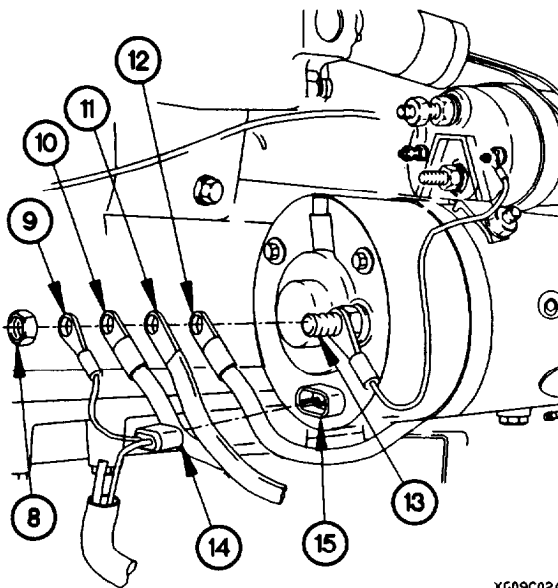
NOTE

Tag wires and connection points prior to disconnecting.

- (1) Remove adhesive, nut (1), terminal lugs TL55 (2) and TL12 (3) from solenoid terminal (4).
- (2) Position nut (1) on solenoid terminal (4).
- (3) Remove adhesive, nut (5), and terminal lug TL26 (6) from solenoid terminal (7).
- (4) Position nut (5) on solenoid terminal (7).



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- (5) Remove adhesive, nut (8), terminal lugs TL25 (9), TL46 (10), ground strap (11), and terminal lug TL53 (12) from starting motor terminal (13).
- (6) Position nut (8) on starting motor terminal (13).
- (7) Disconnect connector P81 (14) from starting motor connector (15).

7-7. STARTING MOTOR REPLACEMENT (CONT)

- (8) Remove screw (16) from starting motor (17). Discard screw.

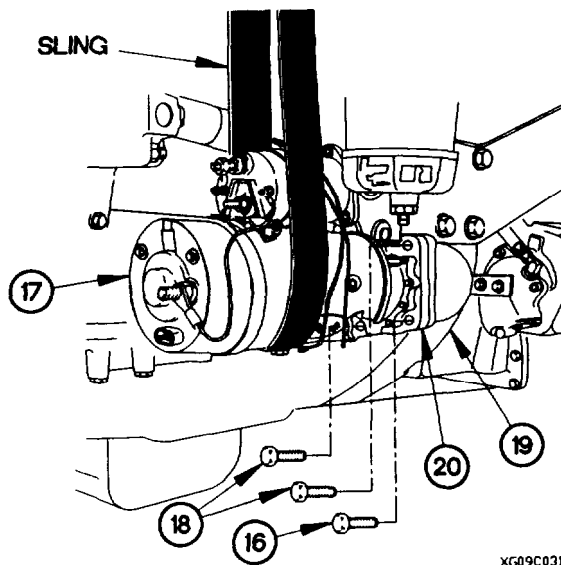
WARNING

Starting motor weighs approximately 60 lbs (27 kgs). Attach a suitable lifting device prior to removal. Failure to comply may result in injury to personnel or damage to equipment.

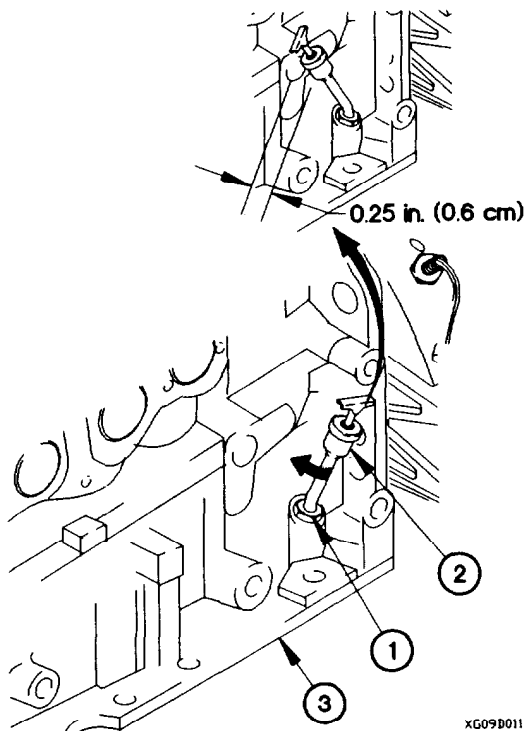
NOTE

Step (9) requires the aid of an assistant.

- (9) Remove two screws (18) and starting motor (17) from flywheel housing (19). Discard screws.
- (10) Remove gasket (20) from starting motor (17). Discard gasket.



c. Installation (PN M0017703MD).



NOTE

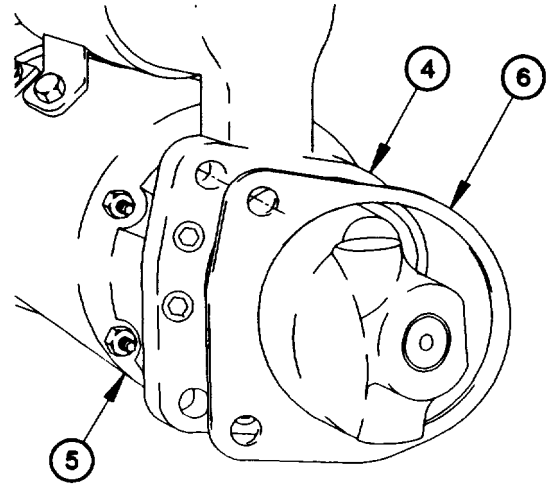
Perform steps (1) through (3) when replacing starting motor PN 1993991 with starting motor PN M0017703MD.

- (1) Loosen nut (1) on engine oil dipstick tube (2).
- (2) Turn engine oil dipstick tube (2) toward front of vehicle until top of engine oil dipstick tube is approximately 0.25 in. (0.6 cm) from engine block (3).
- (3) Tighten nut (1) on engine oil dipstick tube (2).

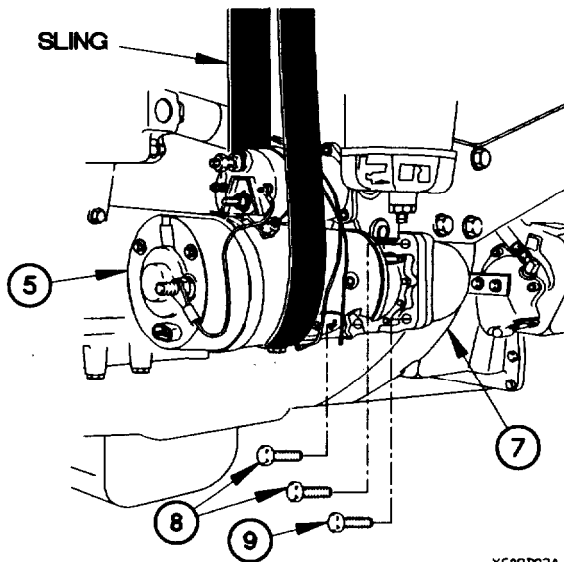
WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.

- (4) Apply a bead of adhesive around flange (4) of starting motor (5).
- (5) Install gasket (6) on starting motor (5).
- (6) Apply a bead of adhesive around gasket (6).



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XG09D03A

WARNING

Starting motor weighs approximately 60 lbs (27 kgs). Attach a suitable lifting device prior to installation. Failure to comply may result in injury to personnel or damage to equipment.

NOTE

- Step (7) requires the aid of an assistant.
- (7) Position starting motor (5) in flywheel housing (7) with two bolts (8).
- (8) Position bolt (9) in starting motor (5).
- (9) Tighten two bolts (8) and bolt (9) to 47 lb-ft (64 N•m).

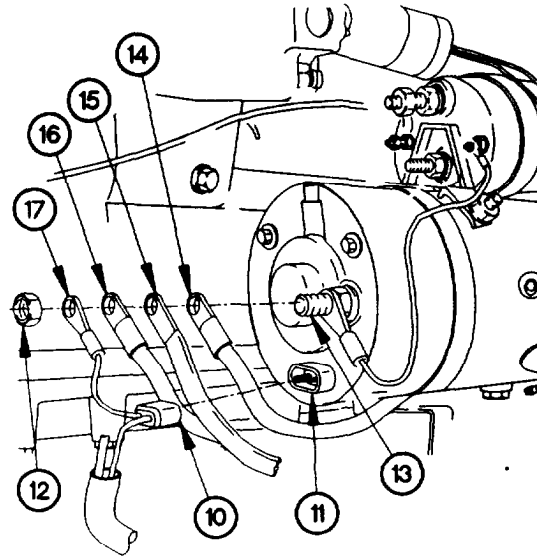
7-7. STARTING MOTOR REPLACEMENT (CONT)

- (10) Connect connector P81 (10) to starting motor connector (11).
- (11) Remove nut (12) from starting motor terminal (13).
- (12) Position terminal lug TL53 (14), ground strap (15), terminal lugs TL46 (16), and TL25 (17) on starting motor terminal (13) with nut (12).
- (13) Tighten nut (12) to 15-20 lb-ft (20-27 N•m).

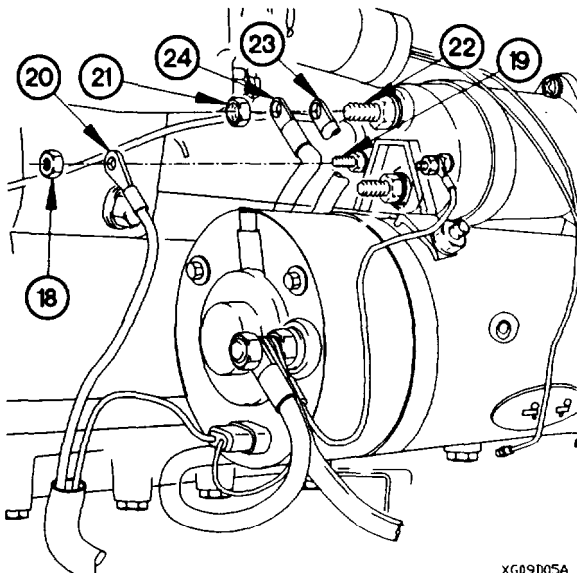
WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.

- (14) Apply adhesive on terminal lug TL53 (14), strap (15), terminal lugs TL46 (16), TL25 (17), nut (12), and starting motor terminal (13).



XG09D04A



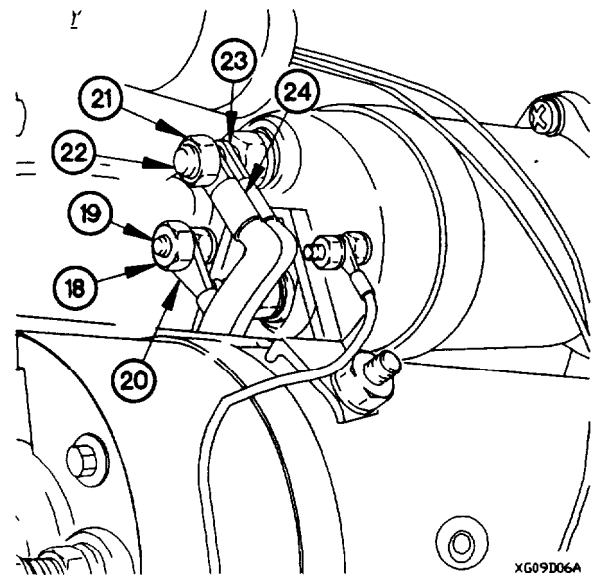
XG09D05A

- (15) Remove nut (18) from solenoid terminal (19).
- (16) Position terminal lug TL26 (20) on solenoid terminal (19) with nut (18).
- (17) Tighten nut (18) to 16-38 lb-in. (2-4 N•m).
- (18) Remove nut (21) from solenoid terminal (22).
- (19) Position terminal lugs TL12 (23) and TL55 (24) on solenoid terminal (22) with nut (21).
- (20) Tighten nut (21) to 15-20 lb-ft (20-27 N•m).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.

- (21) Apply adhesive on terminal lug TL26 (20), solenoid terminal (19), and nut (18).
- (22) Apply adhesive on terminal lugs TL12 (23), TL55 (24), solenoid terminal (22), and nut (21).

**d. Follow-On Maintenance.**

- (1) Lower cab (TM 9-2320-365-10).
- (2) Connect batteries (para 7-48).
- (3) Start engine (TM 9-2320-365-10).
- (4) Shut down engine (TM 9-2320-365-10).

End of Task.

7-8. AUXILIARY PANEL REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Batteries disconnected (para 7-48).

Tools and Special Tools

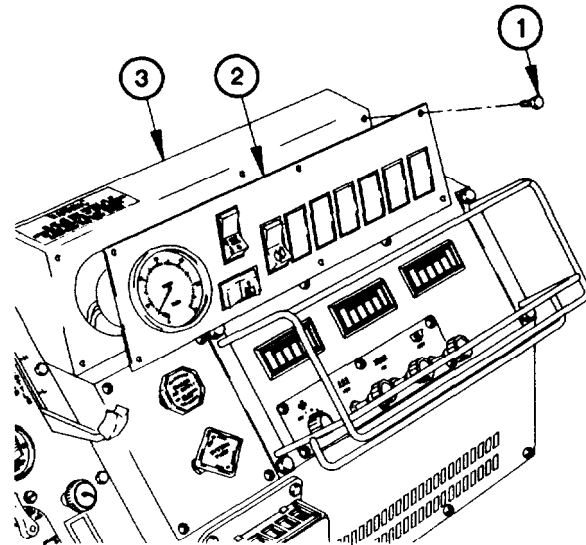
Tool Kit, Genl Mech (Item 44, Appendix C)
 Wrench, Torque, 0-75 lb-in. (Item 86, Appendix B)
 Wrench, Torque, 0-200 lb-in. (Item 58, Appendix C)
 Socket Set, Socket Wrench (Item 34, Appendix C)

Materials/Parts

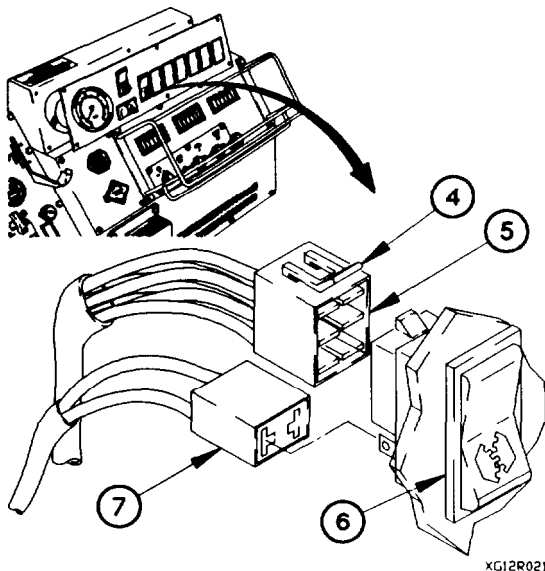
Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)
 Decal (Item 9, Appendix G)
 Nut, Self-Locking (2) (Item 145, Appendix G)

a. Removal.

- (1) Remove six screws (1) from auxiliary panel (2).
- (2) Lift auxiliary panel (2) outward from auxiliary panel housing (3) to gain access.



XG12R011



XG12R021

NOTE

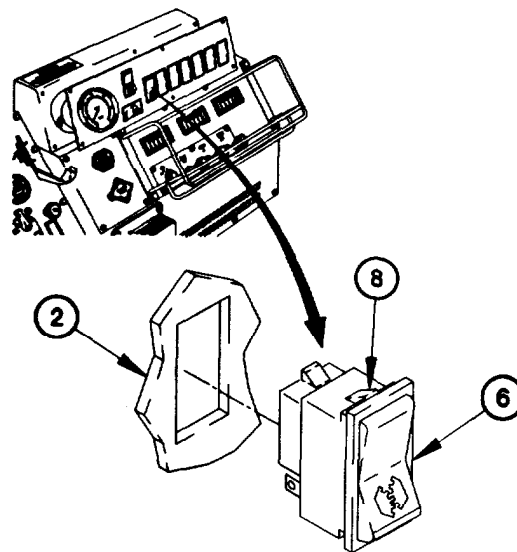
- Tag electrical connectors and connection points prior to removal.
 - All rocker switches are removed the same way. PTO switch shown.
- (3) Lift tab (4) on connector P904 (5).
 - (4) Disconnect connector P904 (5) from PTO switch (6).
 - (5) Disconnect connector P904A (7) from PTO switch (6).

- (6) Push in two tabs (8) on PTO switch (6).
- (7) Remove PTO switch (6) from auxiliary panel (2).

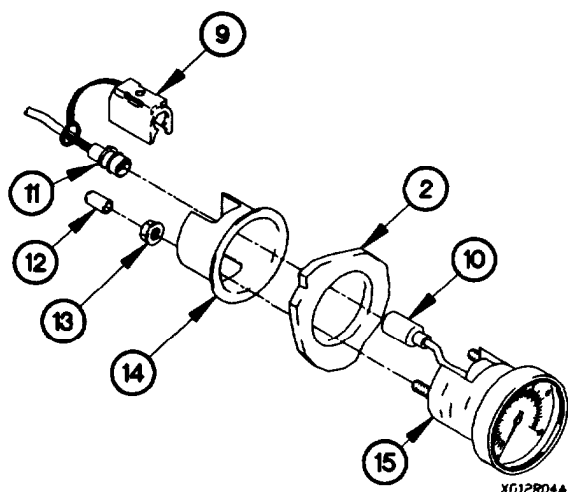
NOTE

Auxiliary panel rocker switches will vary according to vehicle model.

- (8) Perform steps (3) through (7) on remaining rocker switches.



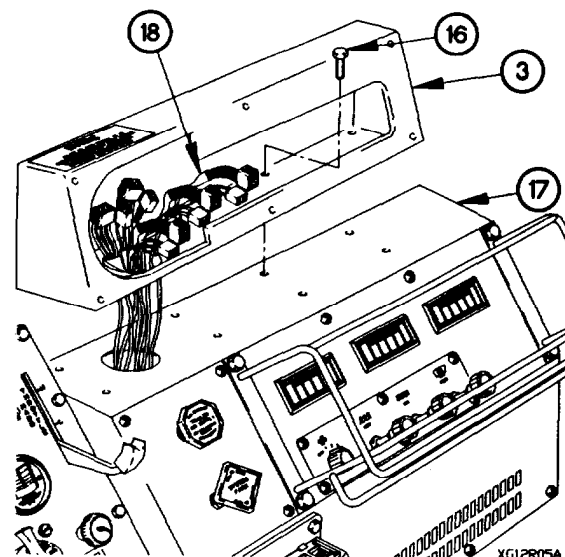
XG12R03A



XG12R04A

- (9) Disconnect connector clamp (9) from tachometer connector (10).
- (10) Disconnect connector P901 (11) from tachometer connector (10).
- (11) Remove two protective caps (12), self-locking nuts (13), retaining ring (14), and tachometer (15) from auxiliary panel (2). Discard Self-locking nuts.
- (12) Remove auxiliary panel (2) from vehicle.

- (13) Remove eight screws (16) from auxiliary panel housing (3).
- (14) Remove auxiliary panel housing (3) from heater assembly (17).
- (15) Remove auxiliary panel cable assembly (18) from auxiliary panel housing (3).

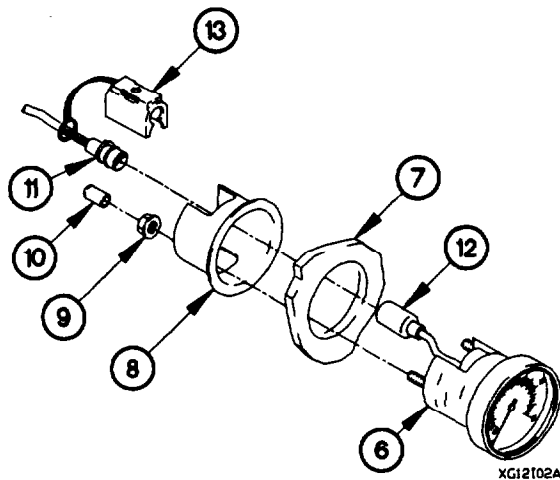
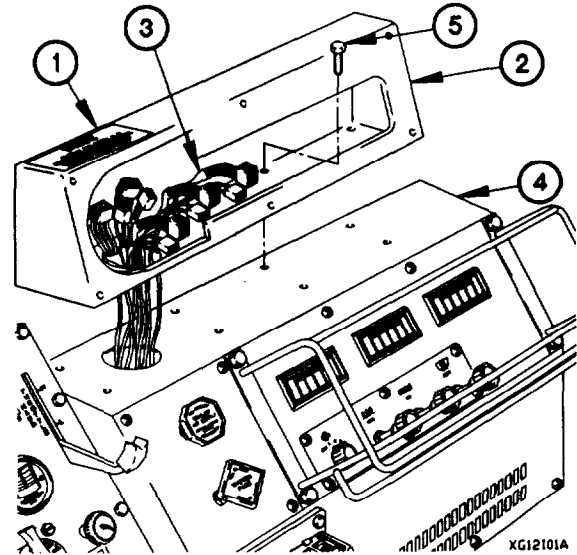


XG12R05A

7-8. AUXILIARY PANEL REPLACEMENT (CONT)

b. Installation.

- (1) Install decal (1) on auxiliary panel housing (2).
- (2) Route auxiliary panel cable assembly (3) in auxiliary panel housing (2).
- (3) Position auxiliary panel housing (2) on heater assembly (4) with eight screws (5).
- (4) Tighten eight screws (5) to 35-44 lb-in. (4-5 N•m).



- (5) Position tachometer (6) in auxiliary panel (7) with retaining ring (8) and two self-locking nuts (9).
- (6) Tighten two self-locking nuts (9) to 9 lb-in. (1 N•m).
- (7) Install two protective caps (10) on tachometer (6).
- (8) Connect connector P901 (11) to tachometer connector (12).
- (9) Connect connector clamp (13) on tachometer connector (12).

NOTE

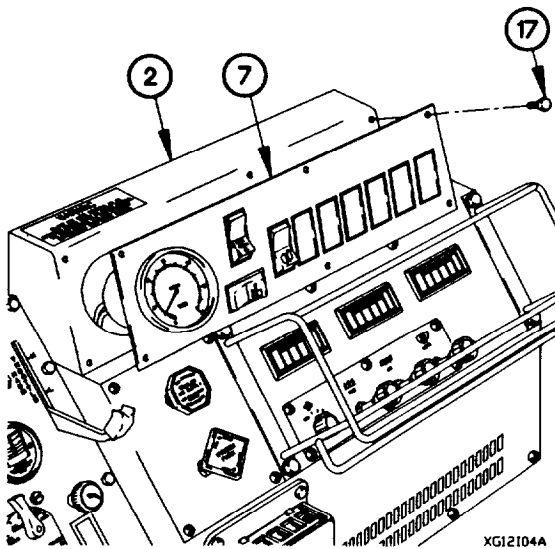
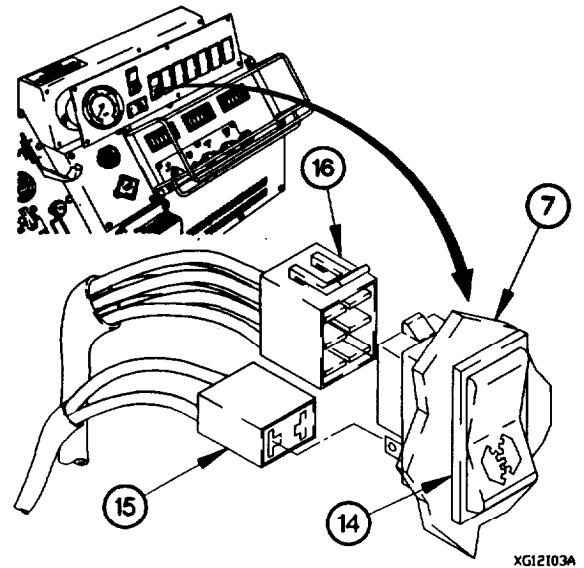
All rocker switches are installed the same way. PTO switch shown.

- (10) Install PTO switch (14) in auxiliary panel (7).
- (11) Connect connector P904A (15) to PTO switch (14).
- (12) Connect connector P904 (16) to PTO switch (14).

NOTE

Auxiliary panel rocker switches will vary according to vehicle model.

- (13) Perform steps (10) through (12) on remaining rocker switches.



- (14) Position auxiliary panel (7) on auxiliary panel housing (2) with six screws (17).

- (15) Tighten six screws (17) to 18 lb-in. (2 N•m).

c. Follow-On Maintenance.

- (1) Connect batteries (para 7-48).
- (2) Check rocker switches and tachometer operation (TM 9-2320-365-10).

End of Task.

7-9. CIRCUIT BREAKER, DIODE, AND RELAY REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

- Batteries disconnected (para 7-48).
- PDP cover removal (para 16-2).

NOTE

All circuit breakers, diodes, and relays are replaced the same way. Circuit breaker replacement shown.

a. Removal.

- (1) Locate diode, relay, or circuit breaker to be replaced.
- (2) Remove circuit breaker (1) from PDP (2).

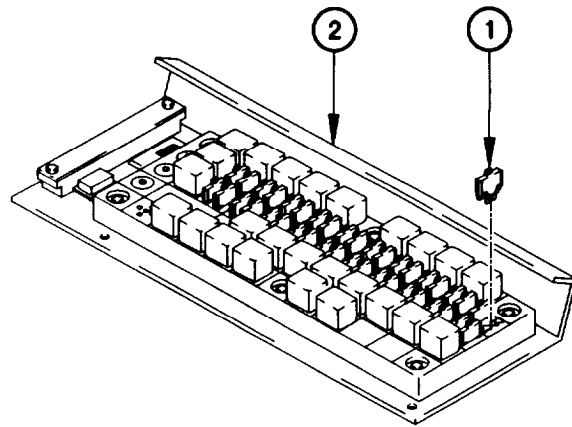
b. Installation.

Install circuit breaker (1) on PDP (2).

c. Follow-On Maintenance.

- (1) Install PDP cover (para 16-2).
- (2) Connect batteries (para 7-48).

End of Task.



XG13X01A

7-10. WTEC II DASHBOARD CABLE ASSEMBLY REPLACEMENT/REPAIR

This task covers:

- | | |
|---|---|
| <ul style="list-style-type: none"> a. Removal b. Disassembly c. Assembly | <ul style="list-style-type: none"> d. Installation e. Follow-On Maintenance |
|---|---|

INITIAL SETUP

Equipment Conditions

- Windshield wiper motor removed (para 18-4).
- Personnel heater removed (para 18-9).
- Instrument panel assembly removed (para 7-15).

Tools and Special Tools

- Tool Kit, Auto Fuel (Item 42, Appendix C)
- Tool Kit, Genl Mech (Item 44, Appendix C)
- Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)
- Wrench, Torque, 0-200 lb-in. (Item 58, Appendix C)
- Socket Set, Socket Wrench (Item 34, Appendix C)

Materials/Parts

- Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)
- Ties, Cable, Plastic (Item 76, Appendix D)
- Lockwasher (4) (Item 64, Appendix G)
- Lockwasher (4) (Item 90, Appendix G)
- Lockwasher (2) (Item 74, Appendix G)
- Lockwasher (10) (Item 73, Appendix G)
- Lockwasher (4) (Item 81, Appendix G)

Personnel Required

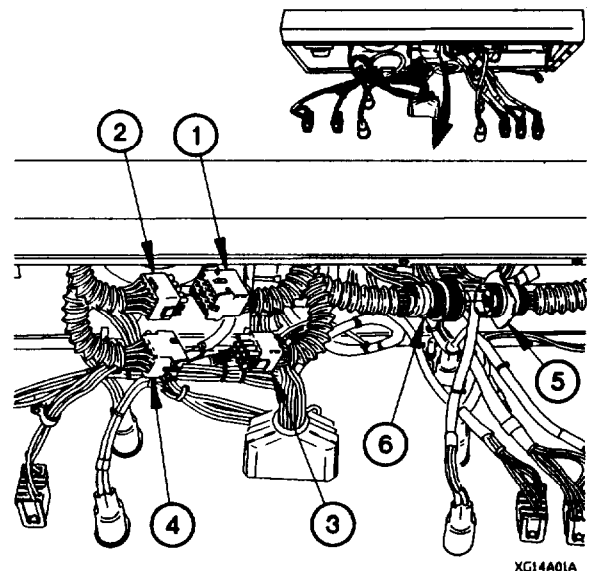
(2)

a. Removal.

NOTE

- Remove plastic cable ties as required.
- Tag wires and connection points prior to disconnecting.

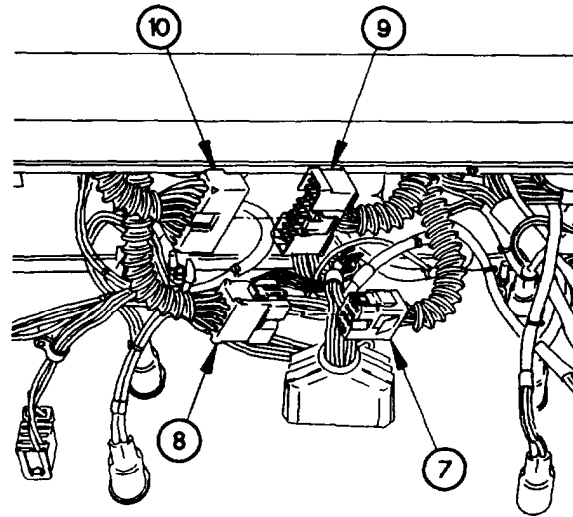
- (1) Disconnect steering column switch connector J19 (1) from connector P19 (2).
- (2) Disconnect steering column switch connector P18 (3) from connector J18 (4).
- (3) Disconnect connector J118 (5) from connector P118 (6).



XGJ4A01A

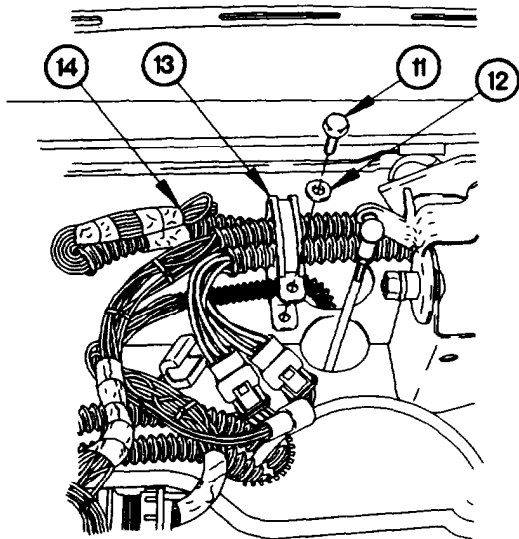
7-10. WTEC II DASHBOARD CABLE ASSEMBLY REPLACEMENT/REPAIR (CONT)

- (4) Disconnect connector J43 (7) from connector P43 (8).
- (5) Disconnect connector J31 (9) from connector P31 (10).



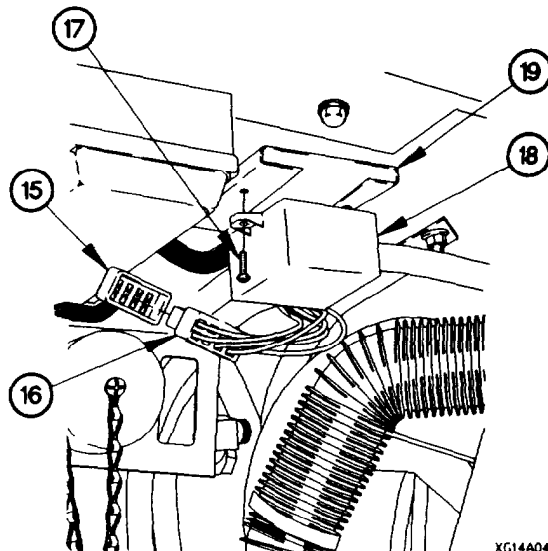
XG14A02A

- (6) Remove screw (11), washer (12), and clamp (13) from WTEC II dashboard cable assembly (14).



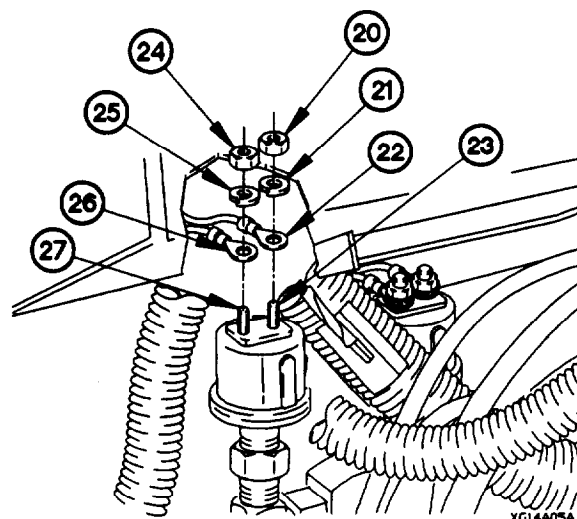
XG14A03A

- (7) Disconnect connector PX26 (15) from frequency ECU connector (16).
- (8) Remove two screws (17) and frequency ECU (18) from left side dashboard (19).

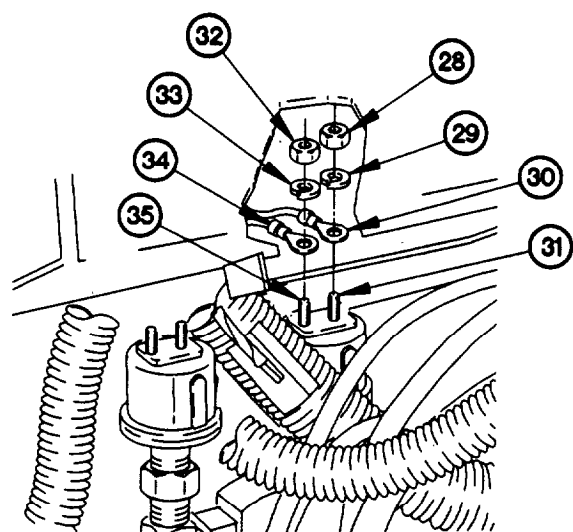


XG14A04A

- (9) Remove nut (20), lockwasher (21), and terminal lug TL151 (22) from front brake air pressure transmitter terminal WK (23). Discard lockwasher.
- (10) Remove nut (24), lockwasher (25), and terminal lug TL157 (26) from front brake air pressure transmitter terminal G (27). Discard lockwasher.



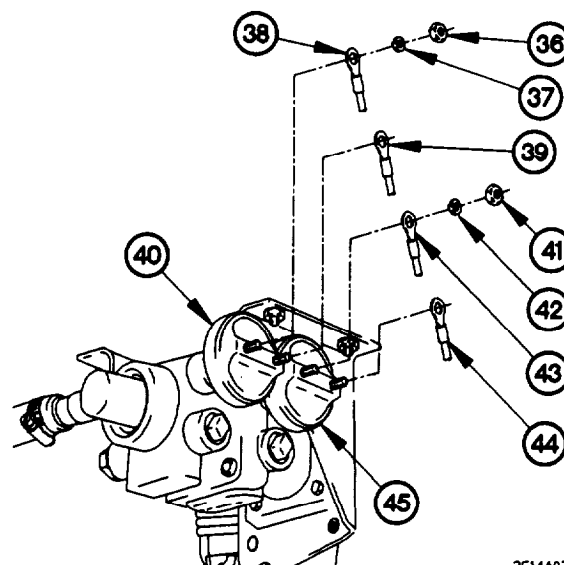
XG14A05A



XG14A06A

- (11) Remove nut (28), lockwasher (29), and terminal lug TL150 (30) from rear brake air pressure transmitter terminal WK (31). Discard lockwasher.
- (12) Remove nut (32), lockwasher (33), and terminal lug TL156 (34) from rear brake air pressure transmitter terminal G (35). Discard lockwasher.

- (13) Remove two nuts (36), lockwashers (37), and terminal lugs TL153 (38) and TL152 (39) from rear stoplight switch (40). Discard lockwashers.
- (14) Remove two nuts (41), lockwashers (42), and terminal lugs TL154 (43) and TL155 (44) from front stoplight switch (45). Discard lockwashers.



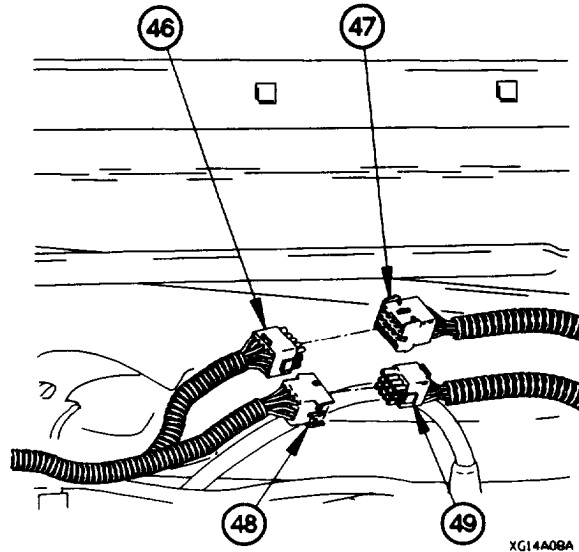
3G14A071

7-10. WTEC II DASHBOARD CABLE ASSEMBLY REPLACEMENT/REPAIR (CONT)

NOTE

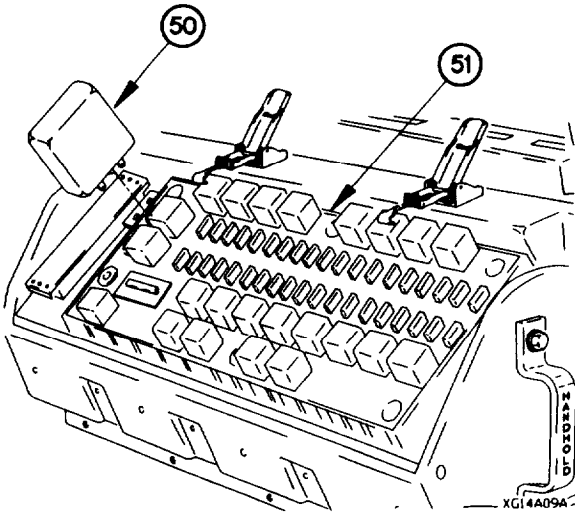
Perform steps (15) and (16) on vehicles equipped with auxiliary panel.

- (15) Disconnect connector J912 (46) from connector P912 (47)
- (16) Disconnect connector P913 (48) from connector J913 (49).



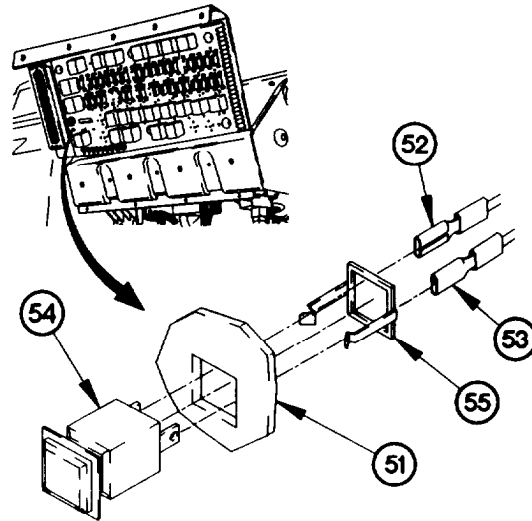
XG14A08A

- (17) Remove windshield wiper ECU (50) from PDP (51).



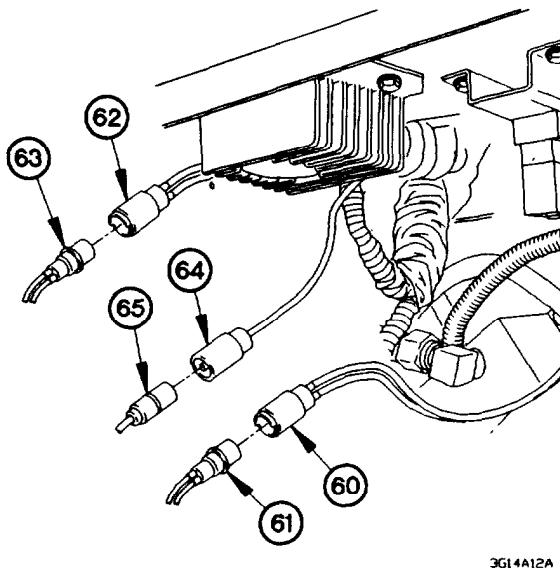
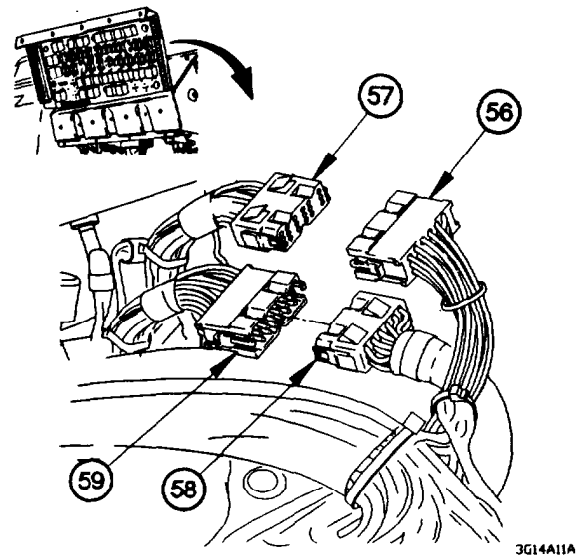
XG14A09A

- (18) Disconnect terminal lugs TL158 (52) and TL159 (53) from start inhibit pushbutton switch (54).
- (19) Remove spring clip (55) from start inhibit pushbutton switch (54).
- (20) Remove start inhibit pushbutton switch (54) from PDP (51).



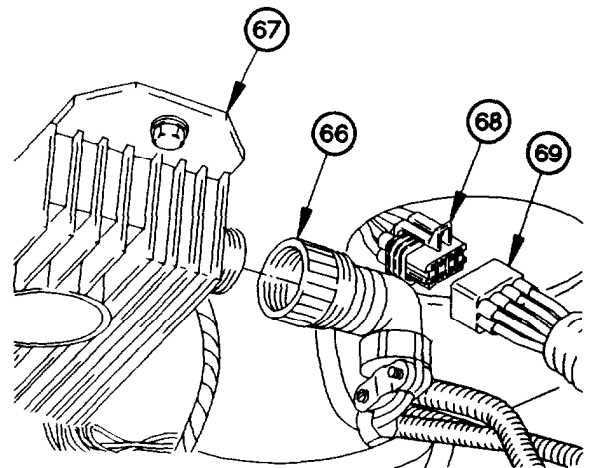
3G14A10A

- (21) Disconnect connector J27 (56) from connector P27 (57).
- (22) Disconnect connector J51 (58) from connector P51 (59).



- (23) Disconnect connector PX34 (60) from fan solenoid connector (61).
- (24) Disconnect connector J65 (62) from warning light cable connector P65 (63).
- (25) Disconnect connector P99 (64) from chemical alarm kit cable connector J99 (65).

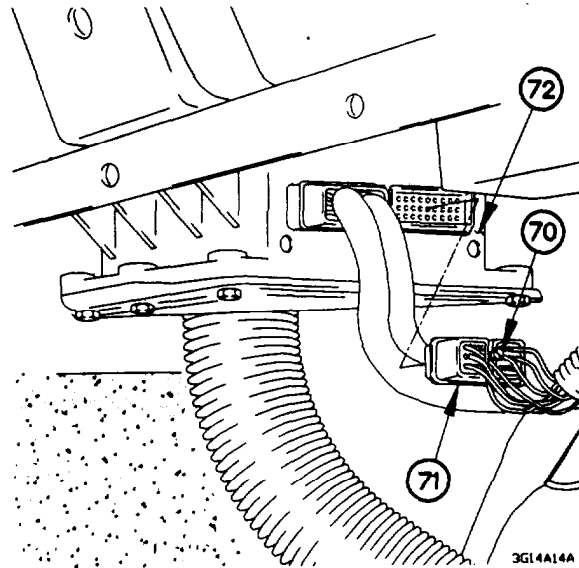
- (26) Disconnect connector PX20 (66) from flasher module (67).
- (27) Disconnect connector P111 (68) from connector J111 (69).



3G14A13A

7-10. WTEC II DASHBOARD CABLE ASSEMBLY REPLACEMENT/REPAIR (CONT)

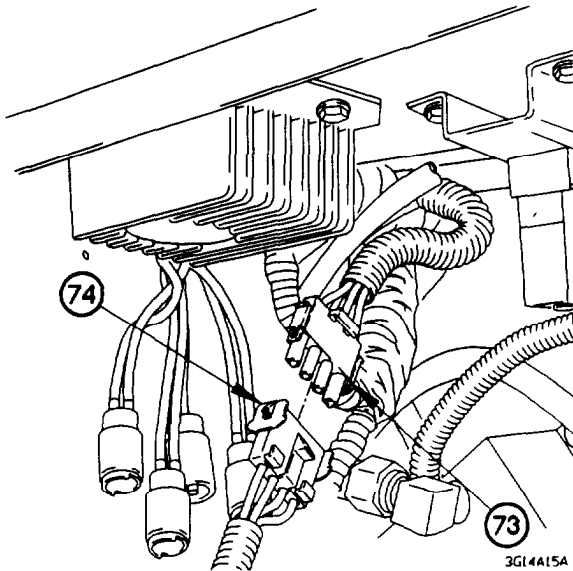
- (28) Loosen captive screw (70) and disconnect connector PX33 (71) from WTEC II VIM (72).



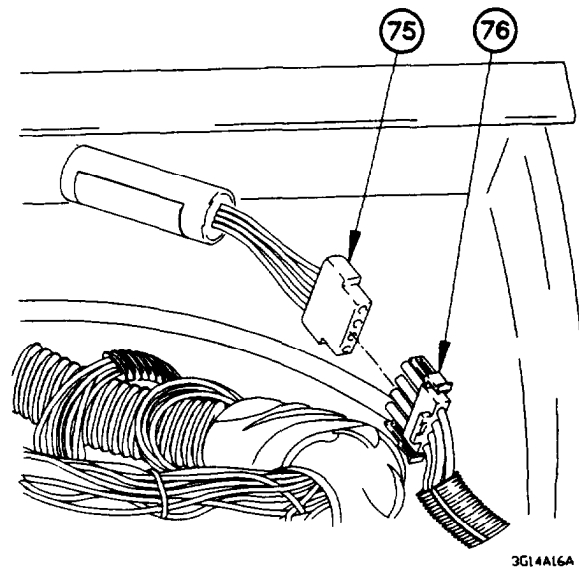
NOTE

Perform step (29) on vehicles equipped with cab radio.

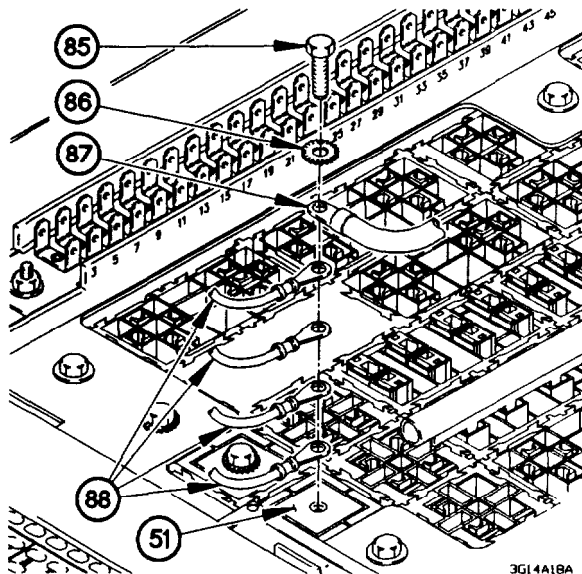
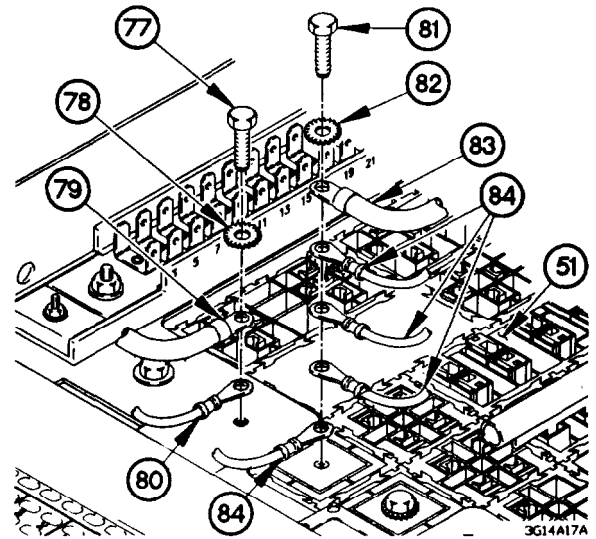
- (29) Disconnect connector J78 (73) from connector P78 (74).



- (30) Disconnect WTEC II TEPSS dimmer module (75) from connector J7 (76).

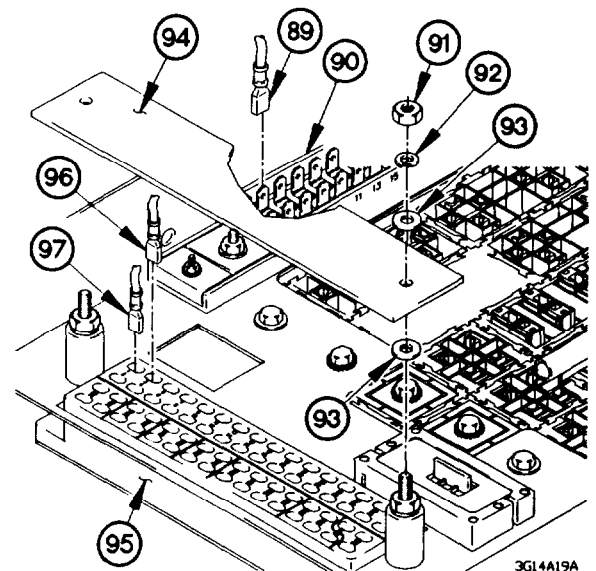


- (31) Remove screw (77), lockwasher (78), terminal lug TL56 (79), and terminal lug (80) from PDP (51).
- (32) Position terminal lug (80) on PDP (51) with lockwasher (78) and screw (77).
- (33) Remove screw (81), lockwasher (82), terminal lug TL41 (83), and four terminal lugs (84) from PDP (51).
- (34) Position four terminal lugs (84) on PDP (51) with lockwasher (82) and screw (81).



- (35) Remove screw (85), lockwasher (86), terminal lug TL42 (87), and four terminal lugs (88) from PDP (51).
- (36) Position four terminal lugs (88) on PDP (51) with lockwasher (86), and screw (85).

- (37) Remove terminal lug TL86 (89) from terminal board TB2 (90) position 4.
- (38) Remove two nuts (91), lockwashers (92), washers (93), cover (94), and two washers (93) from terminal board TB1 (95).
- (39) Remove terminal lug TL74 (96) from terminal board TB1 (95) position 3.
- (40) Remove terminal lug TL73 (97) from terminal board TB1 (95) position 1.



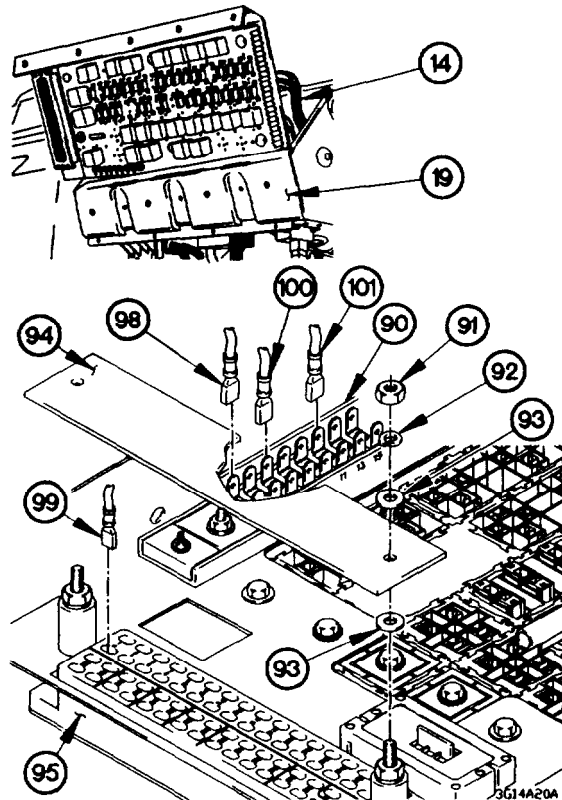
7-10. WTEC II DASHBOARD CABLE ASSEMBLY REPLACEMENT/REPAIR (CONT)

- (41) Remove terminal lug TL71 (98) from terminal board TB2 (90) position 2.
- (42) Remove terminal lug TL75 (99) from terminal board TB1 (95) position 2.
- (43) Position two washers (93) and cover (94) on terminal board TB1 (95) with two washers (93), lockwashers (92), and nuts (91).
- (44) Remove terminal lug TL87 (100) from terminal board TB2 (90) position 6.
- (45) Remove terminal lug TL14 (101) from terminal board TB2 (90) position 12.

NOTE

Step (46) requires the aid of an assistant.

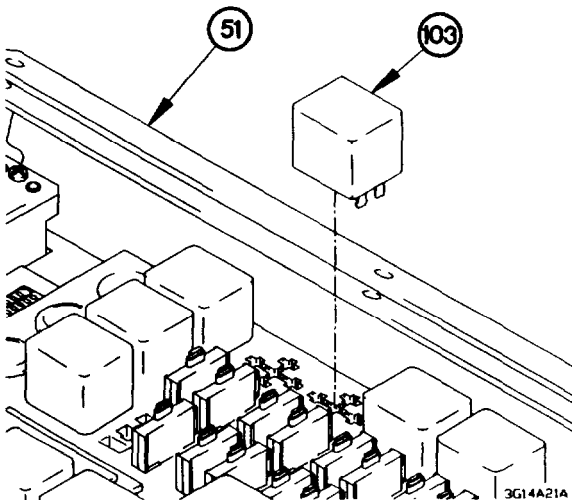
- (46) Remove WTEC II dashboard cable assembly (14) from dashboard (19).



NOTE

Tag relays and circuit breakers prior to removal.

- (47) Remove relay K15 (103) from PDP (51).



(48) Remove circuit breaker CB68 (104) from PDP (51).

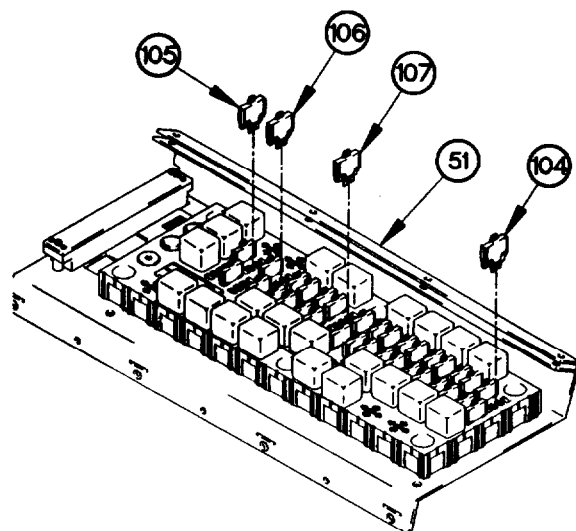
NOTE

Perform steps (49) through (51) on vehicles equipped with arctic kit.

(49) Remove circuit breaker CB45 (105) from PDP (51).

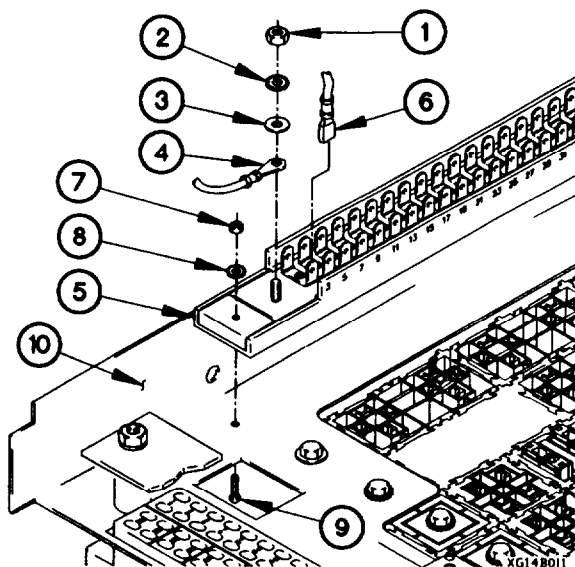
(50) Remove circuit breaker CB48 (106) from PDP (51).

(51) Remove circuit breaker CB50 (107) from PDP (51).



3G14A22A

b. Disassembly.



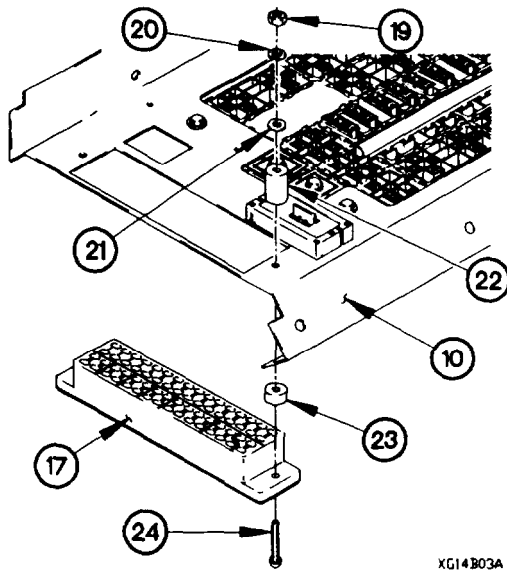
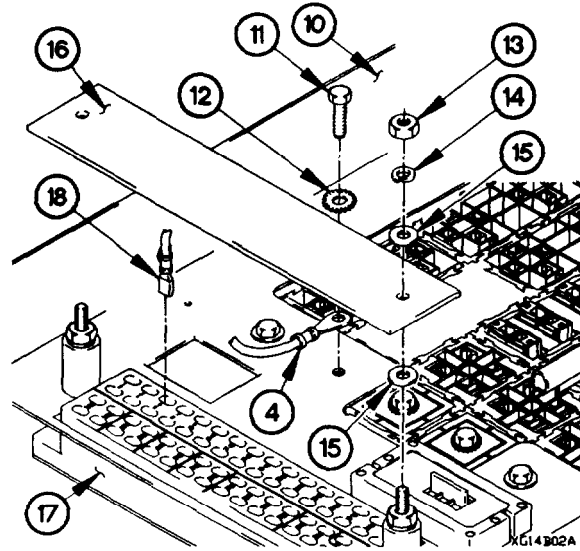
NOTE

Tag wires and connection points prior to removal.

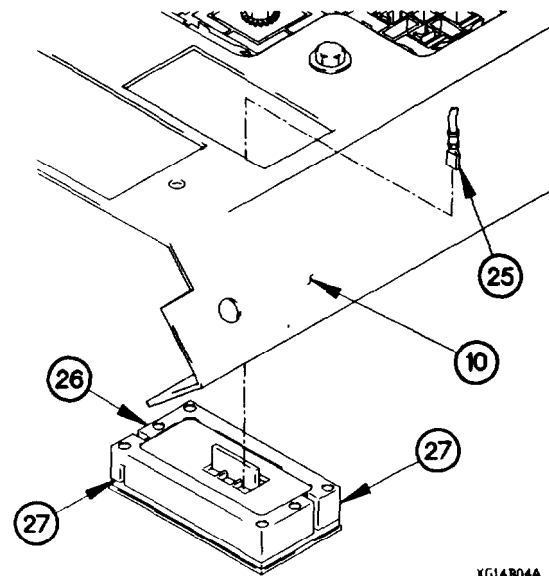
- (1) Remove nut (1), lockwasher (2), washer (3), and wire 1603 (4) from terminal board TB2 (5). Discard lockwasher.
- (2) Remove 42 quick disconnect terminals (6) from terminal board TB2 (5) positions 3, 8, 9, 10, 11, 14, 16, 17, 18, 20, 21, 22, 23, 24, 25, 26, 28, 30, 31, 32, 33, 34, 35, 36, 37, 39, 43, 44, 45, 46, 47, 50, 53, 55, 56, 58, 60, 62, 70, 74, 77, and 79.
- (3) Remove two nuts (7), lockwashers (8), screws (9), and terminal board TB2 (5) from PDP frame (10). Discard lockwashers.

7-10. WTEC II DASHBOARD CABLE ASSEMBLY REPLACEMENT/REPAIR (CONT)

- (4) Remove screw (11), lockwasher (12), and wire 1603 (4) from PDP frame (10). Discard lockwasher.
- (5) Remove two nuts (13), lockwashers (14), washers (15), cover (16), and two washers (15) from terminal board TB1 (17). Discard lockwashers.
- (6) Remove 40 quick disconnect terminals (18) from terminal board TB1 (17) positions 5, 9, 11, 19, 20, 22, 23, 24, 26, 27, 28, 29, 30, 31, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 46, 47, 50, 51, 52, 53, 54, 56, 57, 59, 60, 61, 62, 63, and 64.



- (7) Remove two nuts (19), lockwashers (20), washers (21), spacers (22), terminal board TB1 (17), two spacers (23), and screws (24) from PDP frame (10). Discard lockwashers.

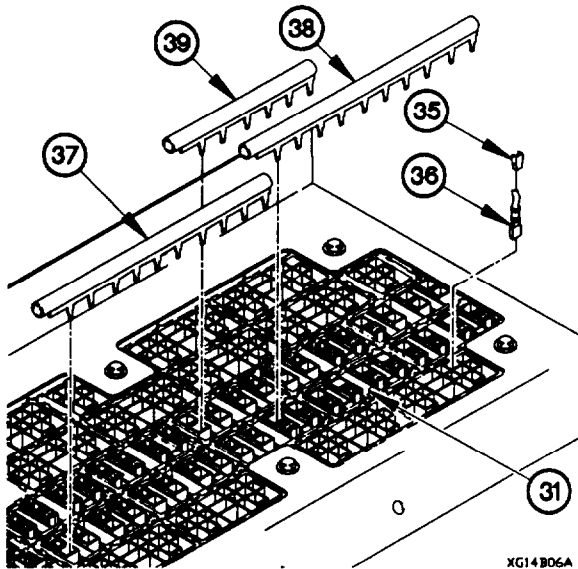
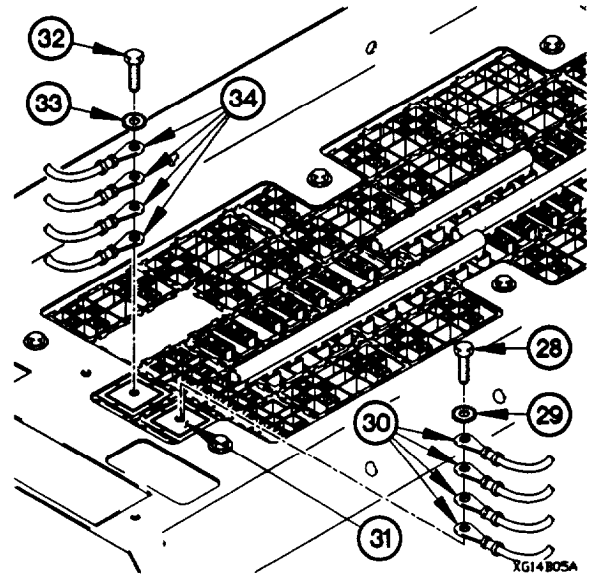


- (8) Remove six quick disconnect terminals (25) from connector PX21 (26).
- (9) Push in two locking tabs (27) and remove connector PX21 (26) from front of PDP frame (10).

NOTE

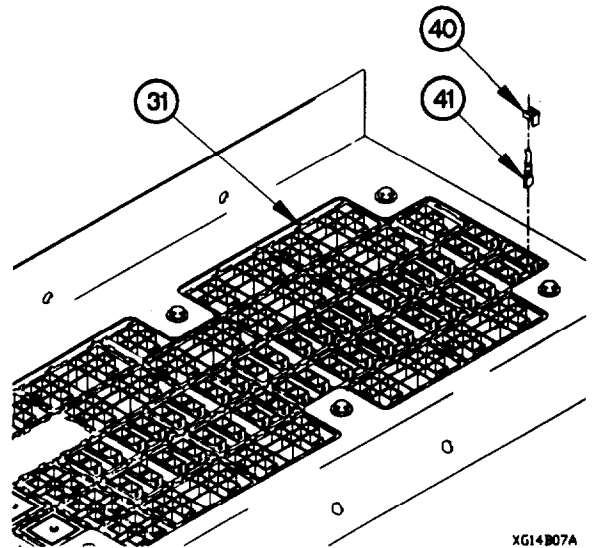
Tag terminal lugs and connection points prior to removal.

- (10) Remove screw (28), lockwasher (29), and four terminal lugs (30) from PDP (31). Discard lockwasher.
- (11) Remove screw (32), lockwasher (33), and four terminal lugs (34) from PDP (31). Discard lockwasher.



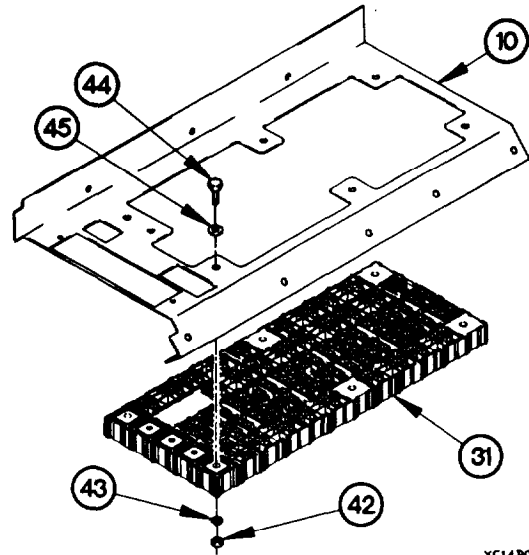
- (12) Remove 94 retaining locks (35) from PDP (31).
- (13) Remove 94 terminals (36) from PDP (31).
- (14) Remove bus bar X1 (37) from PDP (31).
- (15) Remove bus bar X6 (38) from PDP (31).
- (16) Remove bus bar X2 (39) from PDP (31).

- (17) Remove 41 retaining locks (40) from PDP (31).
- (18) Remove 41 terminals (41) from PDP (31).



7-10. WTEC II DASHBOARD CABLE ASSEMBLY REPLACEMENT/REPAIR (CONT)

- (19) Remove six nuts (42), lockwashers (43), screws (44), washers (45), and PDP (31) from PDP frame (10). Discard lockwashers.

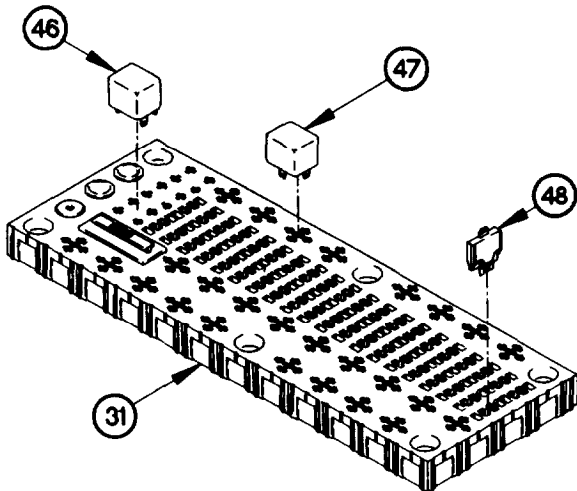


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NOTE

Tag diodes, relays, and circuit breakers prior to removal.

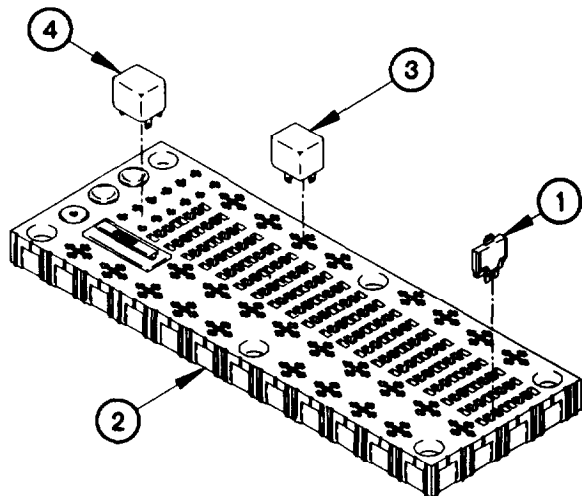
- (20) Remove three diodes (46) from PDP (31).
 (21) Remove 20 relays (47) from PDP (31).
 (22) Remove 30 circuit breakers (48) from PDP (31).



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c. Assembly.

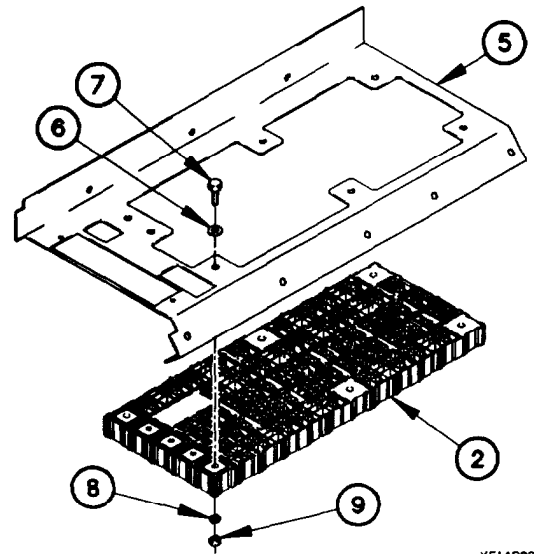
- (1) Install 30 circuit breakers (1) on PDP (2).
 (2) Install 20 relays (3) on PDP (2).
 (3) Install three diodes (4) on PDP (2).



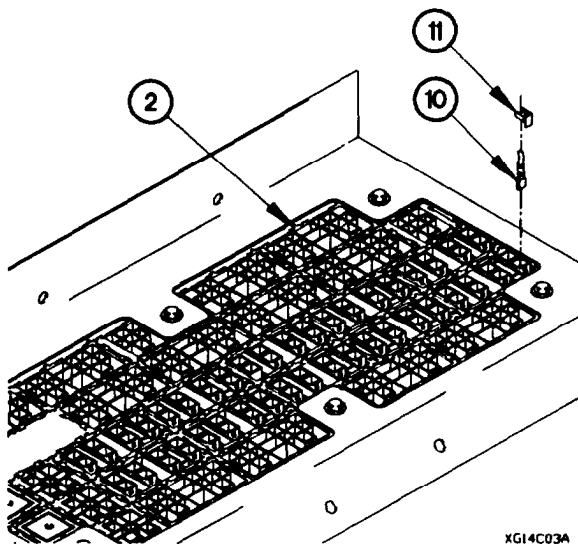
XG14C01A

(4) Position PDP (2) on PDP frame (5) with six washers (6), screws (7), lockwashers (8), and nuts (9).

(5) Tighten six nuts (9) to 46-57 lb-ft (63-77 N•m).



XG14C02A



XG14C03A

(6) Install 41 terminals (10) on PDP (2).

(7) Install 41 retaining locks (11) on PDP (2).

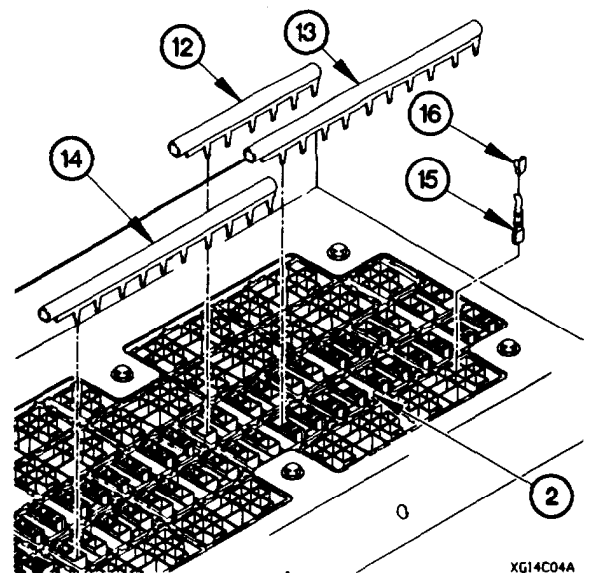
(8) Install bus bar X2 (12) on PDP (2).

(9) Install bus bar X6 (13) on PDP (2).

(10) Install bus bar X1 (14) on PDP (2).

(11) Install 94 terminals (15) on PDP (2).

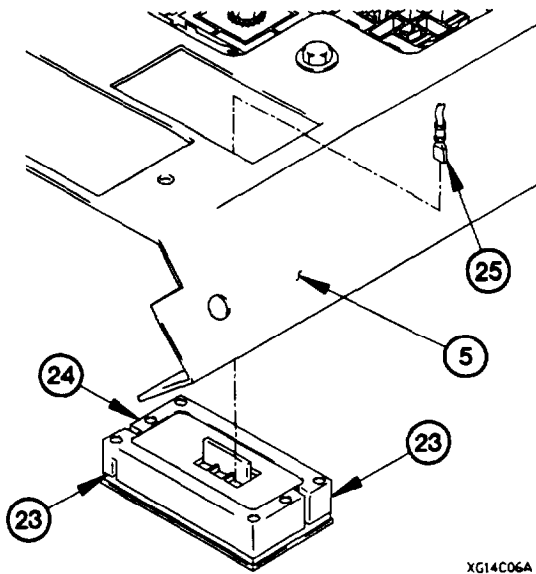
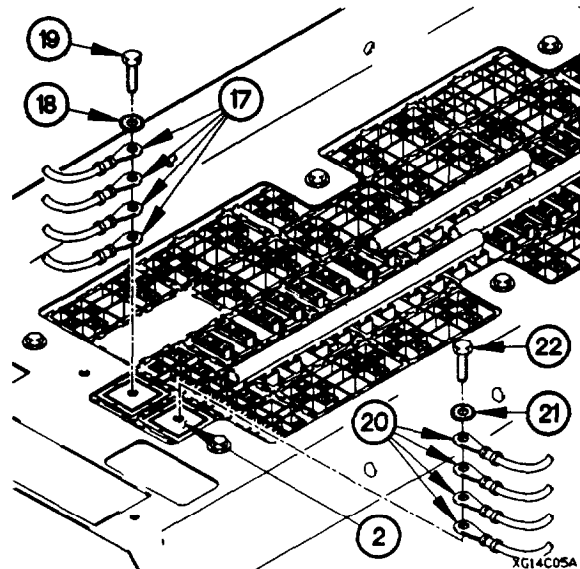
(12) Install 94 retaining locks (16) on PDP (2).



XG14C04A

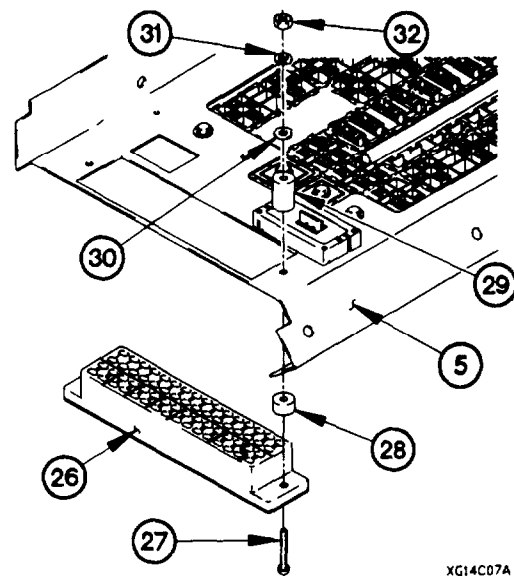
7-10. WTEC II DASHBOARD CABLE ASSEMBLY REPLACEMENT/REPAIR (CONT)

- (13) Position four terminal lugs (17) on PDP (2) with lockwasher (18), and screw (19).
- (14) Position four terminal lugs (20) on PDP (2) with lockwasher (21), and screw (22).

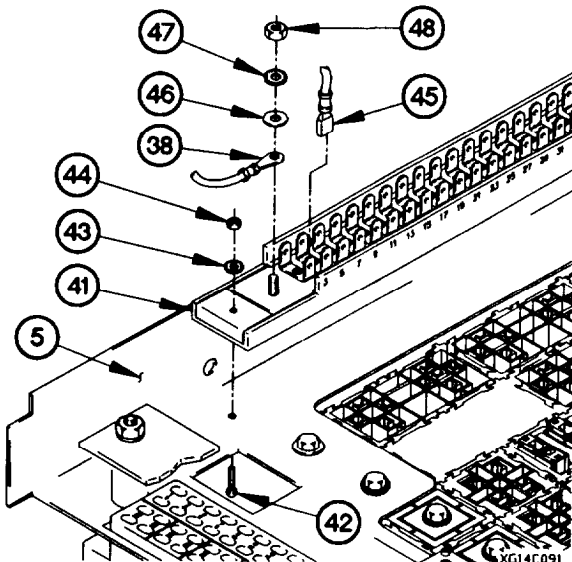
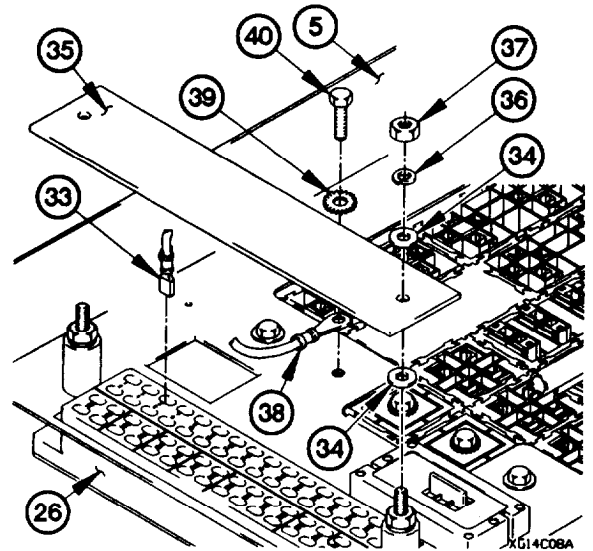


- (15) Push in two locking tabs (23) and install connector PX21 (24) through front of PDP frame (5).
- (16) Install six quick disconnect terminals (25) in connector PX21 (24).

- (17) Install terminal board TB1 (28) on PDP frame (5) with two screws (27), spacers (28), spacers (29), washers (30), lockwashers (31), and nuts (32).



- (18) Install 40 quick disconnect terminals (33) on terminal board TB1 (26) positions 5, 9, 11, 19, 20, 22, 23, 24, 26, 27, 28, 29, 30, 31, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 46, 47, 50, 51, 52, 53, 54, 56, 57, 59, 60, 61, 62, 63, and 64.
- (19) Position two washers (34) and cover (35) on terminal board TB1 (26) with two washers (34), lockwashers (36), and nuts (37).
- (20) Position wire 1603 (38) on PDP frame (5) with lockwasher (39), and screw (40).



Install terminal board TB2 (41) on PDP frame (5) with two screws (42), lockwashers (43), and nuts (44).

Install 42 quick disconnect terminals (45) on terminal board TB2 (41) positions 3, 8, 9, 10, 11, 14, 16, 17, 18, 20, 21, 22, 23, 24, 25, 26, 28, 30, 31, 32, 33, 34, 35, 36, 37, 39, 43, 44, 45, 46, 47, 50, 53, 55, 56, 58, 60, 62, 70, 74, 77, and 79.

- (23) Position wire 1603 (38) on terminal board TB2 (41) with washer (46), lockwasher (47), and nut (48).

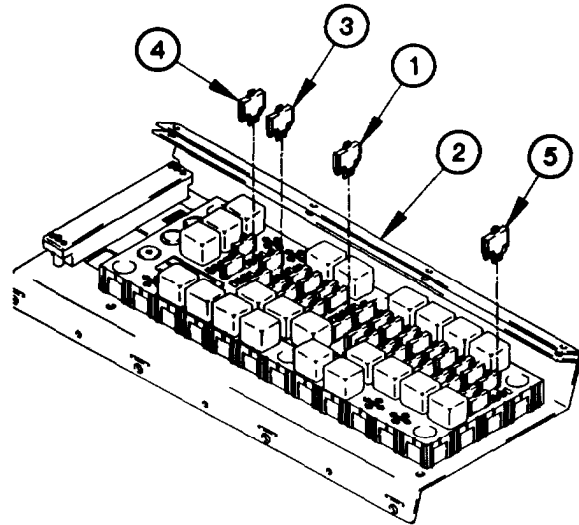
7-10. WTEC II DASHBOARD CABLE ASSEMBLY REPLACEMENT/REPAIR (CONT)

d. Installation.

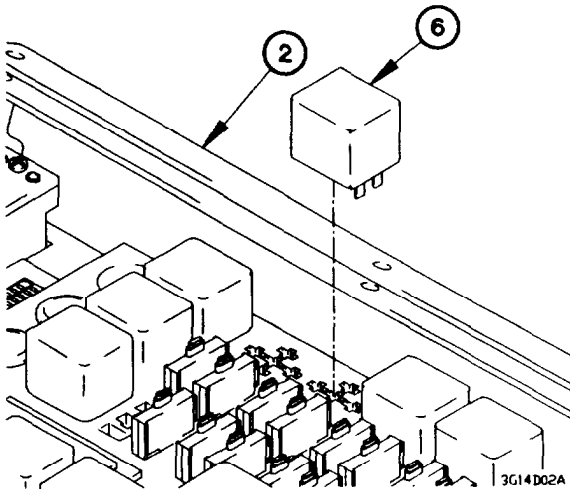
NOTE

Perform steps (1) through (3) on vehicles equipped with arctic kits.

- (1) Install circuit breaker CB50 (1) on PDP (2).
- (2) Install circuit breaker CB48 (3) on PDP (2).
- (3) Install circuit breaker CB45 (4) on PDP (2).
- (4) Install circuit breaker CB68 (5) on PDP (2).



XG14D01A



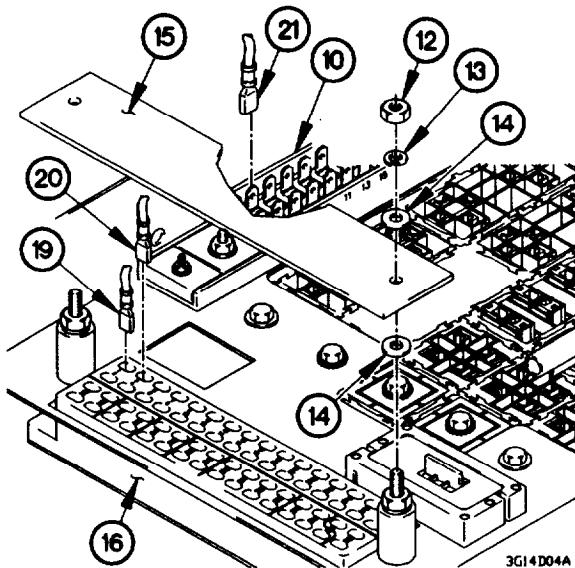
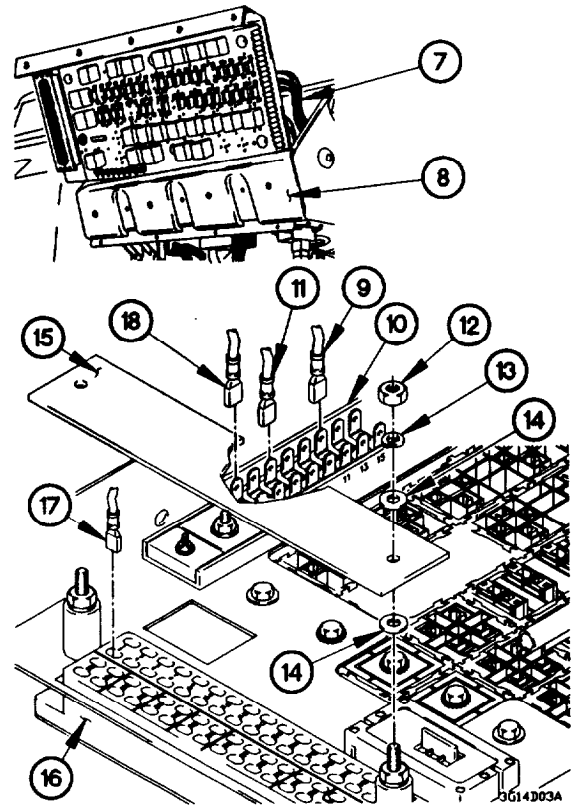
- (5) Install relay K15 (6) on PDP (2).

3G14D02A

NOTE

- Step (6) requires the aid of an assistant.
- Install plastic cable ties as required.

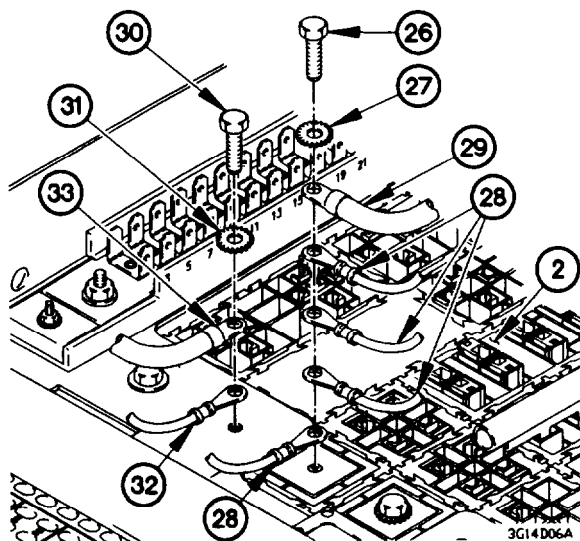
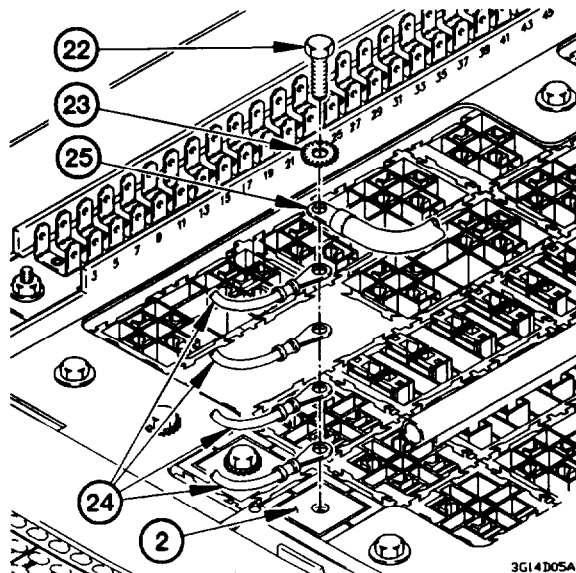
- (6) Position WTEC II dashboard cable assembly (7) in dashboard (8).
- (7) Install terminal lug TL14 (9) on terminal board TB2 (10) position 12.
- (8) Install terminal lug TL87 (11) on terminal board TB2 (10) position 6.
- (9) Remove two nuts (12), lockwashers (13), washers (14), cover (15), and two washers (14) from terminal board TB1 (16).
- (10) Install terminal lug TL75 (17) on terminal board TB1 (16) position 2.
- (11) Install terminal lug TL71 (18) on terminal board TB2 (10) position 2.



- (12) Install terminal lug TL73 (19) on terminal board TB1 (16) position 1.
- (13) Install terminal lug TL74 (20) on terminal board TB1 (16) position 3.
- (14) Install two washers (14) and cover (15) on terminal board TB1 (16) with two washers (14), lockwashers (13), and nuts (12).
- (15) Install terminal lug TL86 (21) on terminal board TB2 (10) position 4.

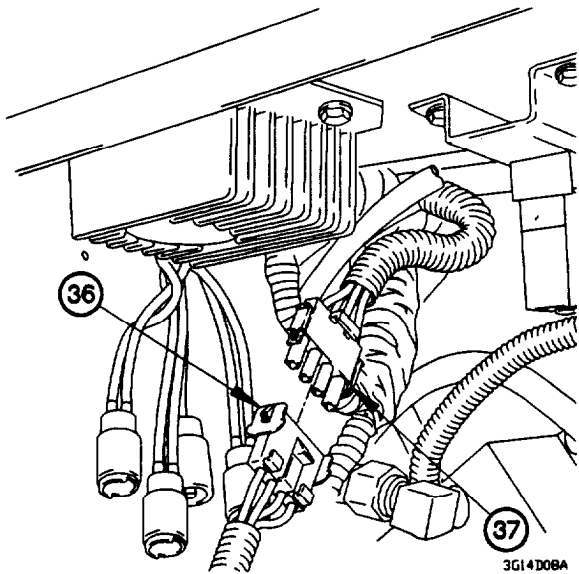
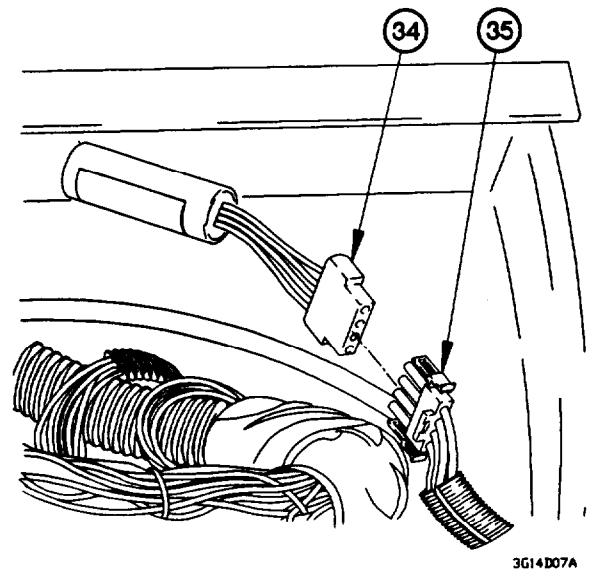
7-10. WTEC II DASHBOARD CABLE ASSEMBLY REPLACEMENT/REPAIR (CONT)

- (16) Remove screw (22), lockwasher (23), and four terminal lugs (24) from PDP (2).
- (17) Position four terminal lugs (24) and terminal lug TL42 (25) on PDP (2) with lockwasher (23), and screw (22).
- (18) Tighten screw (22) to 35-45 lb-in. (4-5 N•m).



- (19) Remove screw (26), lockwasher (27), and four terminal lugs (28) from PDP (2).
- (20) Position four terminal lugs (28) and terminal lug TL41 (29) on PDP (2) with lockwasher (27) and screw (26).
- (21) Tighten screw (26) to 35-45 lb-in. (4-5 N•m).
- (22) Remove screw (30), lockwasher (31), and terminal lug (32) from PDP (2).
- (23) Position terminal lug (32) and terminal lug TL56 (33) on PDP (2) with lockwasher (31) and screw (30).
- (24) Tighten screw (30) to 35-45 lb-in. (4-5 N•m).

(25) Connect WTEC II TEPSS dimmer module (34) to connector J7 (35).



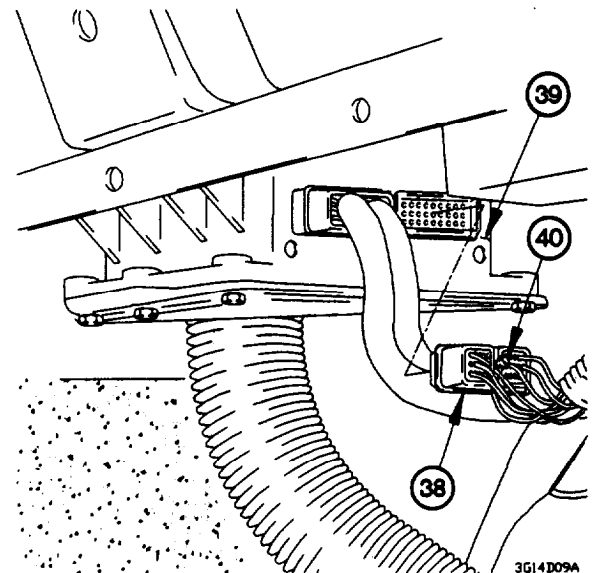
NOTE

Perform step (26) on vehicles equipped with cab radio.

(26) Connect connector P78 (36) to connector J78 (37).

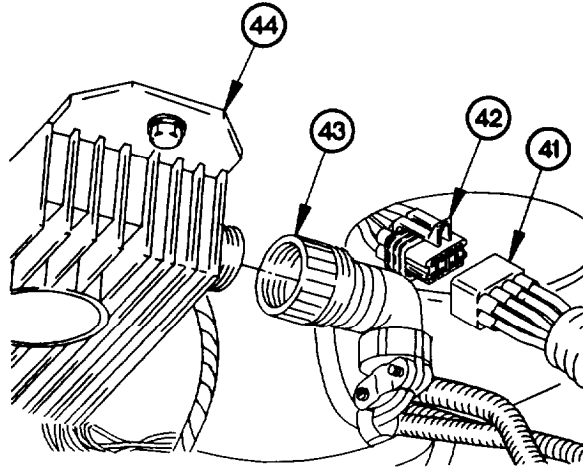
(27) Connect connector PX33 (38) to WTEC II VIM (39).

(28) Tighten captive screw (40) in connector PX33 (38).

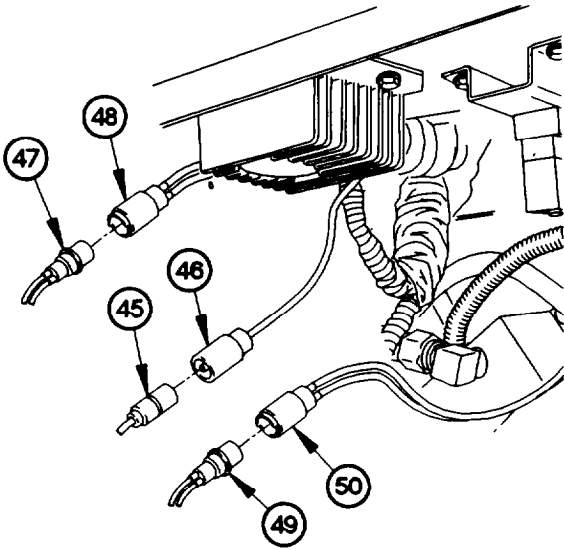


7-10. WTEC II DASHBOARD CABLE ASSEMBLY REPLACEMENT/REPAIR (CONT)

- (29) Connect connector P111 (41) to connector J111 (42).
- (30) Connect connector PX20 (43) to flasher module (44).



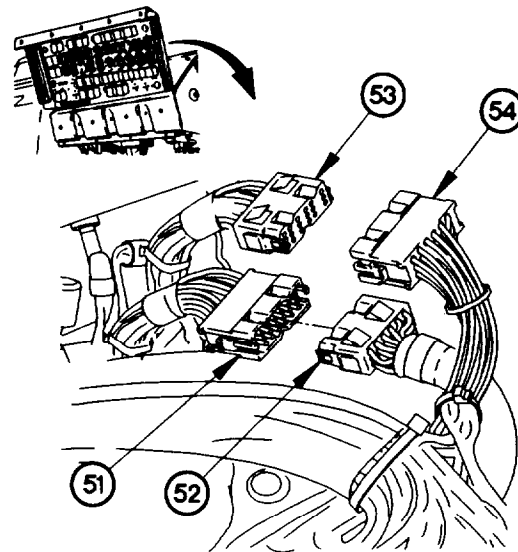
3G14D10A



3G14D11A

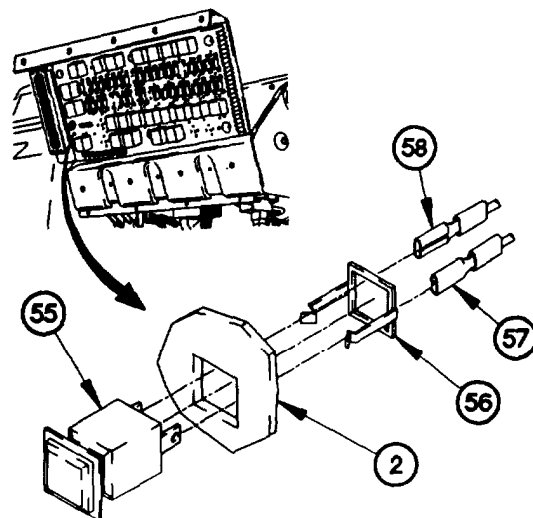
- (31) Connect connector J99 (45) to chemical alarm kit cable connector P99 (46).
- (32) Connect connector P65 (47) to warning light cable connector J65 (48).
- (33) Connect fan solenoid connector (49) to connector PX34 (50).

- (34) Connect connector P51 (51) to connector J51 (52).
- (35) Connect connector P27 (53) to connector J27 (54).

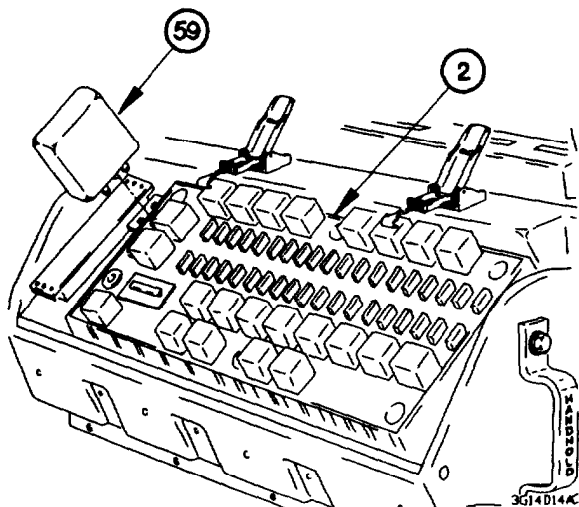


3G14D12A

- (36) Position start inhibit pushbutton switch (55) in PDP (2).
- (37) Install spring clip (56) on start inhibit pushbutton switch (55).
- (38) Connect terminal lugs TL159 (57) and TL158 (58) to start inhibit pushbutton switch (55).



3G14D13A

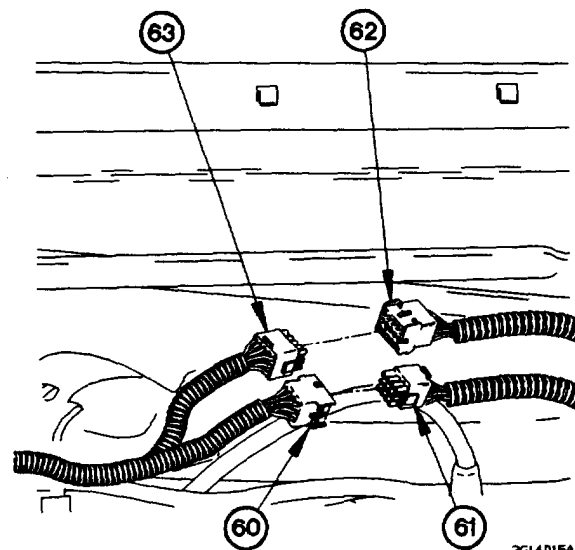


- (39) Install windshield wiper ECU (59) on PDP (2).

NOTE

Perform steps (40) and (41) on vehicles equipped with auxiliary panel.

- (40) Connect connector P913 (60) to connector J913 (61).
- (41) Connect connector P912 (62) to connector J912 (63).

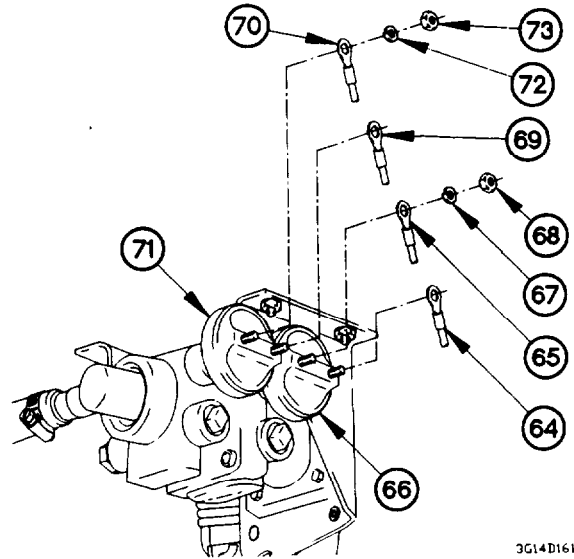


3G14D15A

7-10. WTEC II DASHBOARD CABLE ASSEMBLY REPLACEMENT/REPAIR (CONT)

(42) Install terminal lugs TL155 (64) and TL154 (65) on front stoplight switch (66) with two lockwashers (67) and nuts (68).

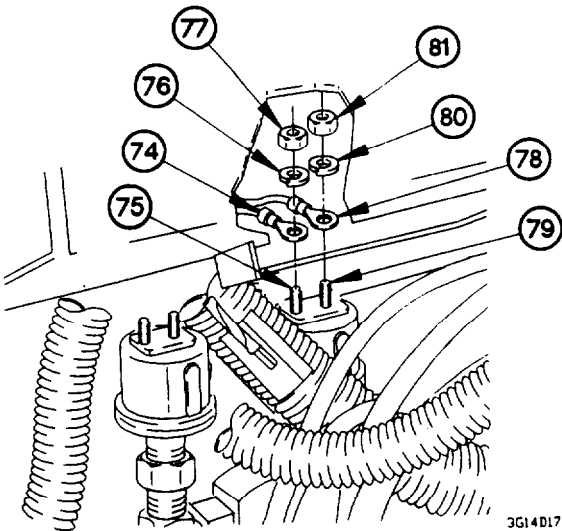
(43) Install terminal lugs TL152 (69) and TL153 (70) on rear stoplight switch (71) with two lockwashers (72) and nuts (73).



3G14D161

(44) Install terminal lug TL156 (74) on rear brake air pressure transmitter terminal G (75) with lockwasher (76) and nut (77).

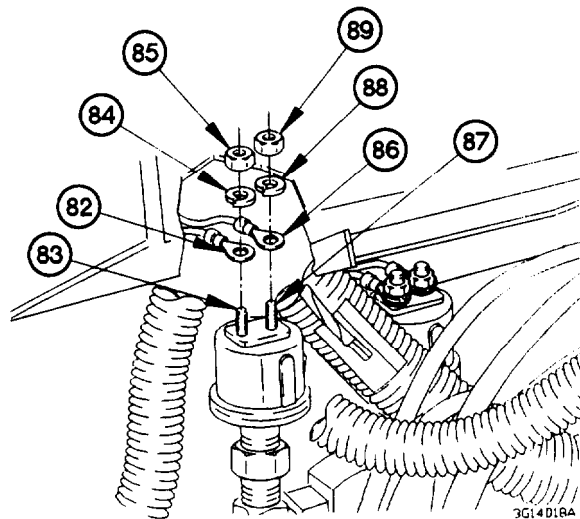
(45) Install terminal lug TL150 (78) on rear brake air pressure transmitter terminal WK (79) with lockwasher (80) and nut (81).



3G14D17A

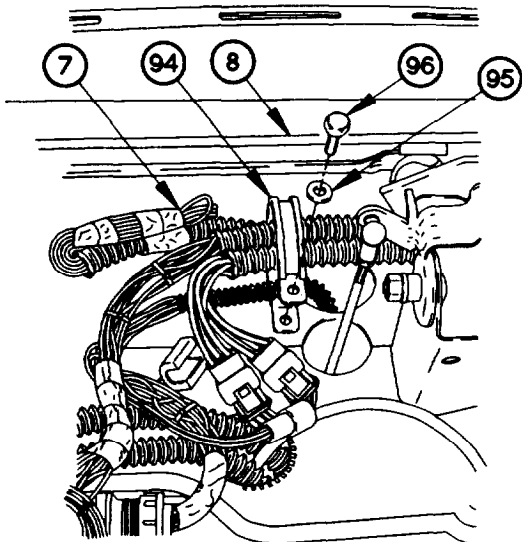
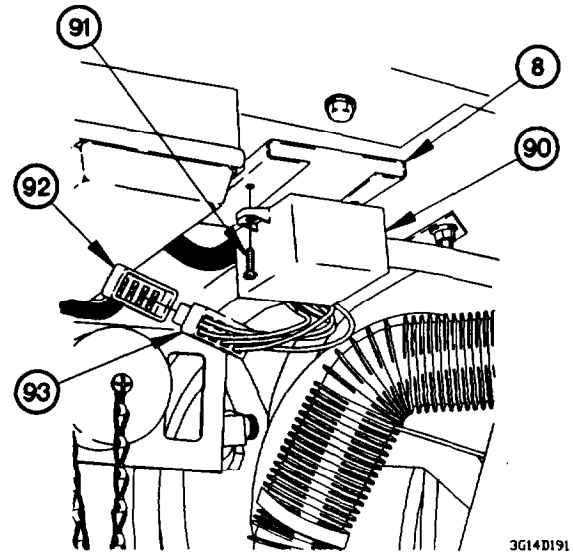
(46) Install terminal lug TL157 (82) on front brake air pressure transmitter terminal G (83) with lockwasher (84) and nut (85).

(47) Install terminal lug TL151 (86) on front brake air pressure transmitter terminal WK (87) with lockwasher (88) and nut (89).



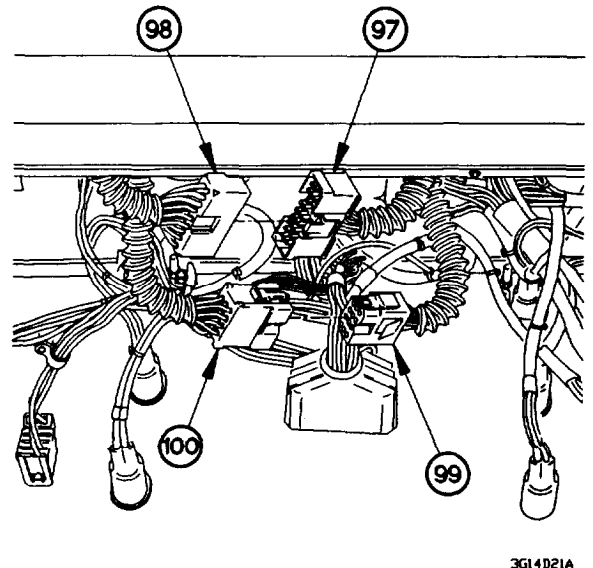
3G14D18A

- (48) Install frequency ECU (90) on left side dashboard (8) with two screws (91).
- (49) Connect connector PX26 (92) to frequency ECU connector (93).



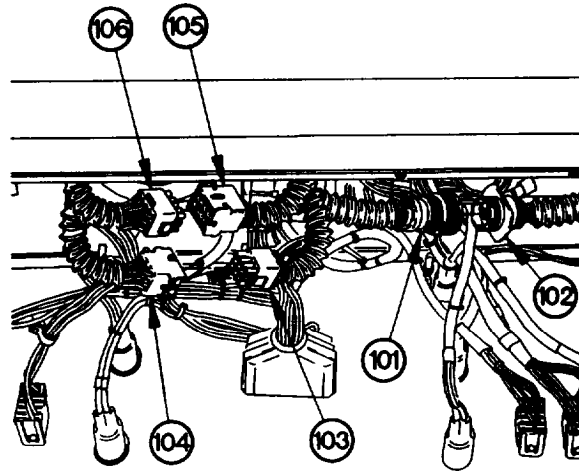
- (50) Position clamp (94) on WTEC II dashboard cable assembly (7).
- (51) Position clamp (94) on dashboard (8) with washer (95) and screw (96).
- (52) Tighten screw (96) to 35-45 lb-in. (4-5 N•m).

- (53) Connect connector J31 (97) to connector P31 (98).
- (54) Connect connector J43 (99) to connector P43 (100).



7-10. WTEC II DASHBOARD CABLE ASSEMBLY REPLACEMENT/REPAIR (CONT)

- (55) Connect connector P118 (101) to connector J118 (102).
- (56) Connect steering column switch connector P18 (103) to connector J18 (104).
- (57) Connect steering column switch connector J19 (105) to connector P19 (106).



3G14D22A

e. Follow-On Maintenance.

- (1) Install windshield wiper motor (para 18-4).
- (2) Install personnel heater (para 18-9).
- (3) Install instrument panel assembly (para 7-15).
- (4) Start engine (TM 9-2320-365-10).
- (5) Check instruments operation (TM 9-2320-365-10).
- (6) Shut down engine (TM 9-2320-365-10).

End of Task.

7-11. WTEC III DASHBOARD CABLE ASSEMBLY REPLACEMENT/REPAIR

This task covers:

- | | |
|---|---|
| <ul style="list-style-type: none"> a. Removal b. Disassembly c. Assembly | <ul style="list-style-type: none"> d. Installation e. Follow-On Maintenance |
|---|---|

INITIAL SETUP

Equipment Conditions

- Windshield wiper motor removed (para 18-4).
- Personnel heater removed (para 18-9).
- Instrument panel assembly removed (para 7-15).

Tools and Special Tools

- Tool Kit, Auto Fuel (Item 42, Appendix C)
- Tool Kit, Genl Mech (Item 44, Appendix C)
- Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)
- Wrench, Torque, 0-200 lb-in. (Item 58, Appendix C)
- Socket Set, Socket Wrench (Item 34, Appendix C)

Materials/Parts

- Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)
- Ties, Cable, Plastic (Item 76, Appendix D)
- Lockwasher (4) (Item 64, Appendix G)
- Lockwasher (4) (Item 90, Appendix G)
- Lockwasher (2) (Item 74, Appendix G)
- Lockwasher (11) (Item 73, Appendix G)
- Lockwasher (4) (Item 81, Appendix G)

Personnel Required

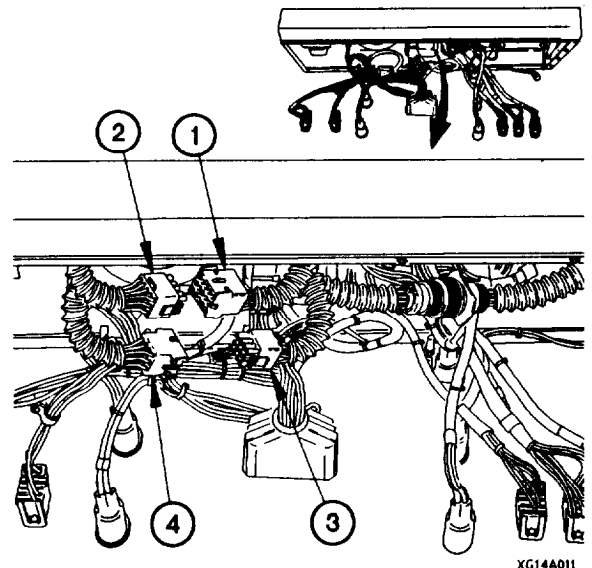
(2)

a. Removal.

NOTE

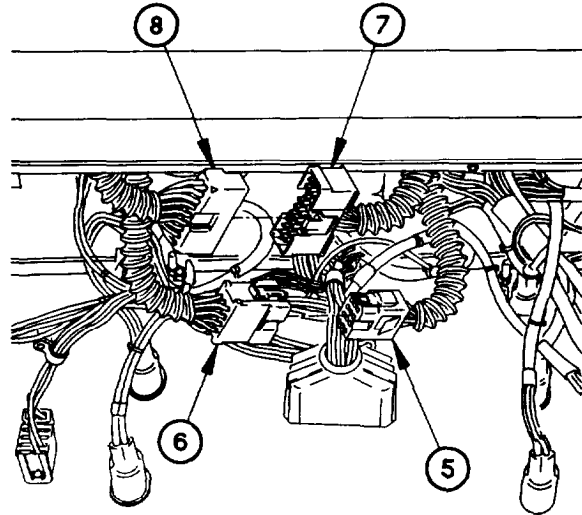
- Remove plastic cable ties as required.
- Tag wires and connection points prior to disconnecting.

- (1) Disconnect steering column switch connector J19 (1) from connector P19 (2).
- (2) Disconnect steering column switch connector P18 (3) from connector J18 (4).



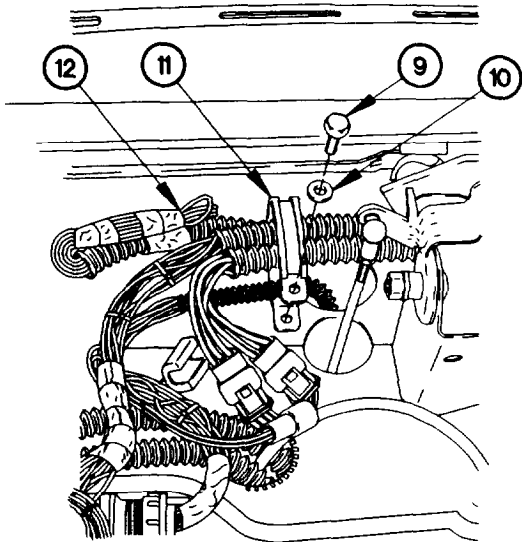
7-11. WTEC III DASHBOARD CABLE ASSEMBLY REPLACEMENT/REPAIR (CONT)

- (3) Disconnect connector J43 (5) from connector P43 (6).
- (4) Disconnect connector J31 (7) from connector P31 (8).



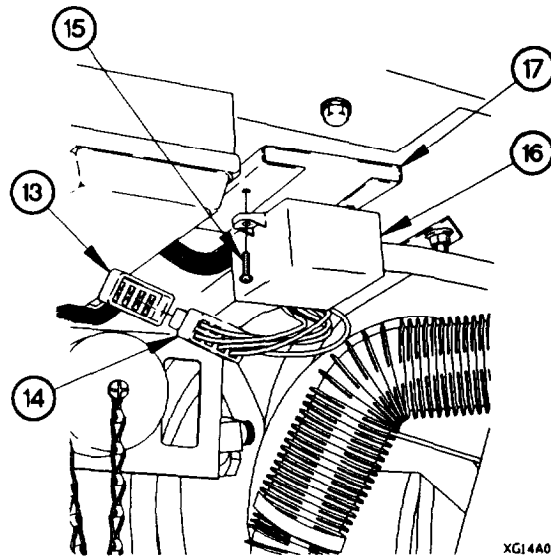
XG14A021

- (5) Remove screw (9), washer (10), and clamp (11) from WTEC III dashboard cable assembly (12).



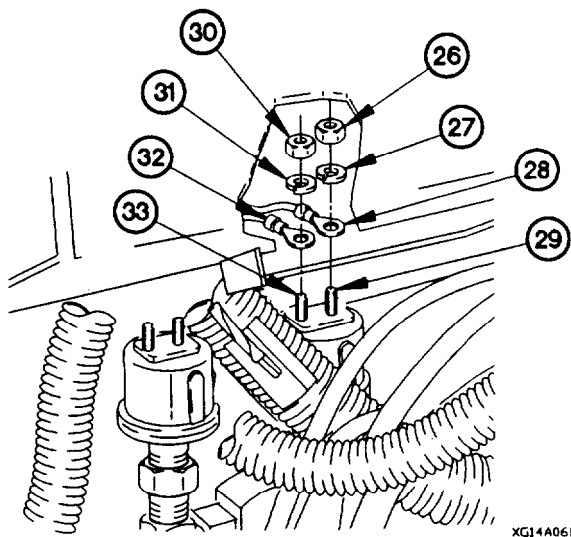
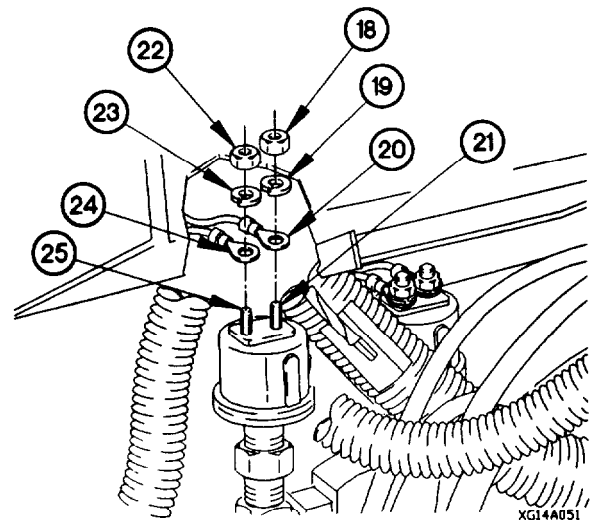
XG14A031

- (6) Disconnect connector PX26 (13) from frequency ECU connector (14).
- (7) Remove two screws (15) and frequency ECU (16) from left side dashboard (17).



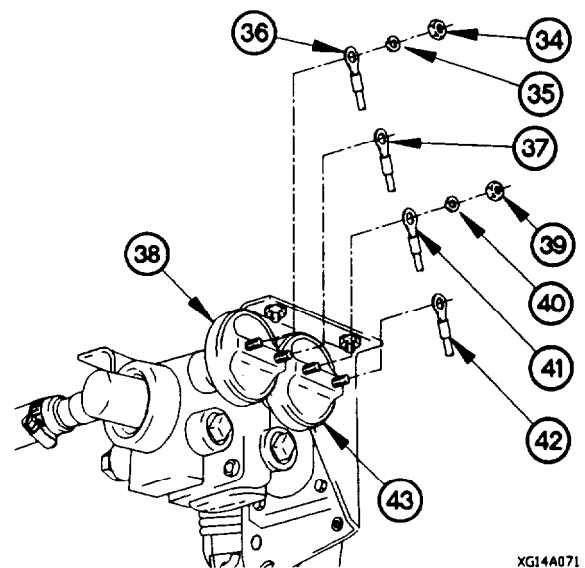
XG14A041

- (8) Remove nut (18), lockwasher (19), and terminal lug TL151 (20) from front brake air pressure transmitter terminal WK (21). Discard lockwasher.
- (9) Remove nut (22), lockwasher (23), and terminal lug TL157 (24) from front brake air pressure transmitter terminal G (25). Discard lockwasher.



- (10) Remove nut (26), lockwasher (27), and terminal lug TL150 (28) from rear brake air pressure transmitter terminal WK (29). Discard lockwasher.
- (11) Remove nut (30), lockwasher (31), and terminal lug TL156 (32) from rear brake air pressure transmitter terminal G (33). Discard lockwasher.

- (12) Remove two nuts (34), lockwashers (35), and terminal lugs TL153 (36) and TL152 (37) from rear stoplight switch (38). Discard lockwashers.
- (13) Remove two nuts (39), lockwashers (40), and terminal lugs TL154 (41) and TL155 (42) from front stoplight switch (43). Discard lockwashers.

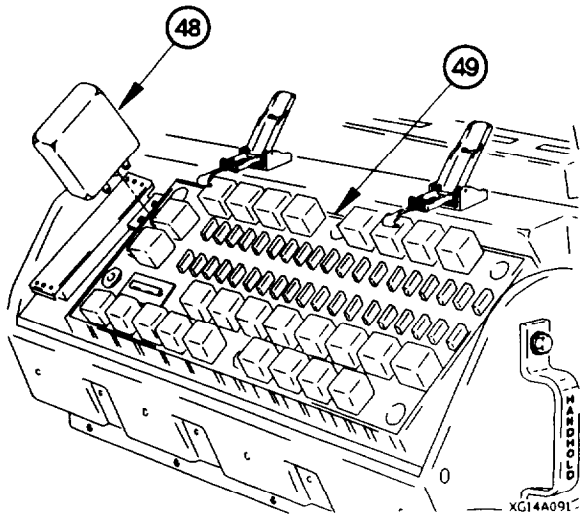
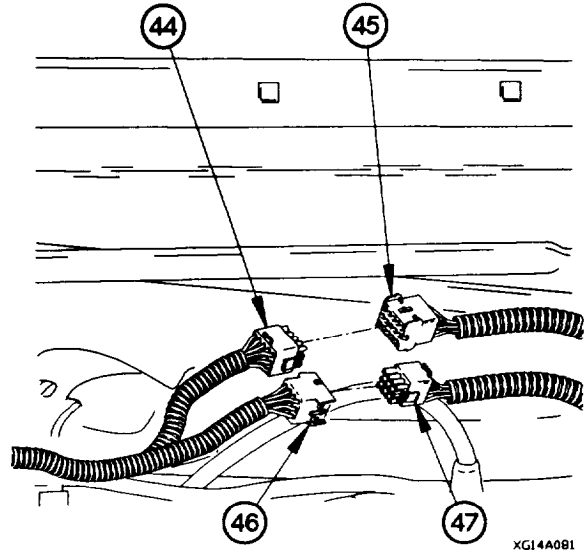


7-11. WTEC III DASHBOARD CABLE ASSEMBLY REPLACEMENT/REPAIR (CONT)

NOTE

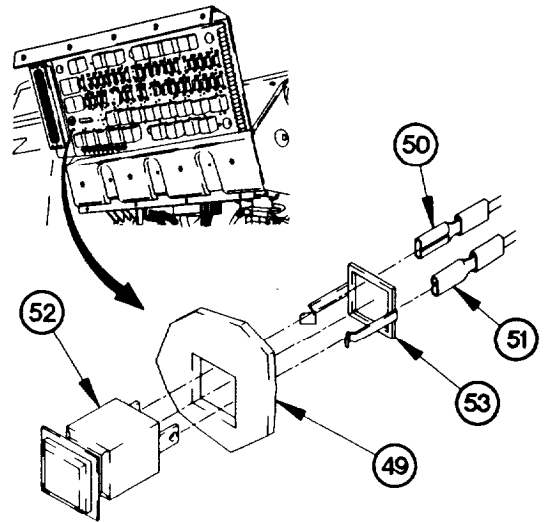
Perform steps (14) and (15) on vehicles equipped with auxiliary panel.

- (14) Disconnect connector J912 (44) from connector P912 (45)
- (15) Disconnect connector P913 (46) from connector J913 (47).

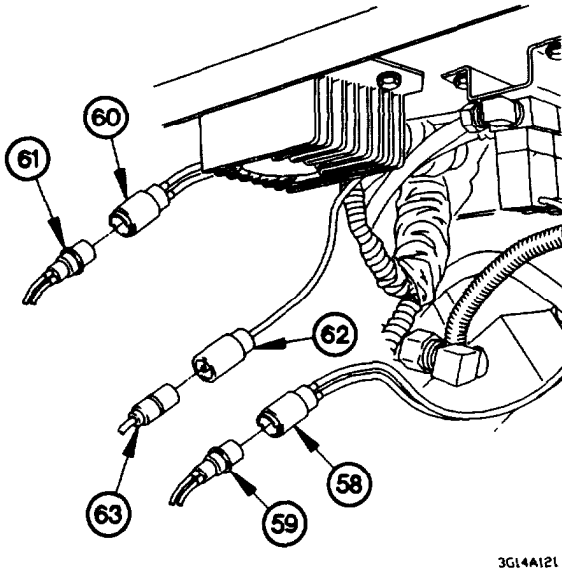
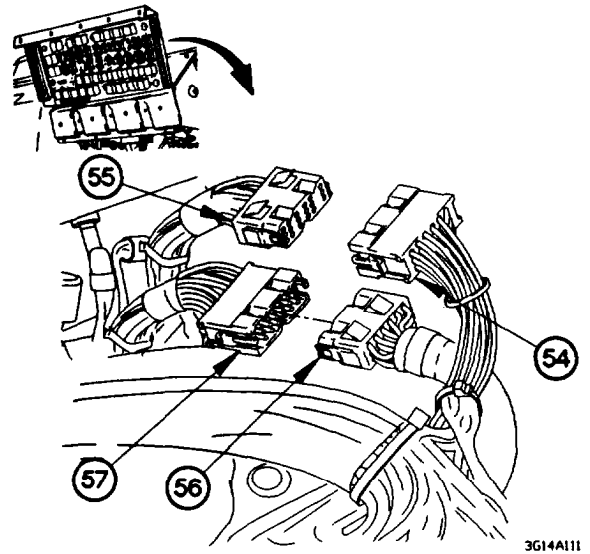


- (16) Remove windshield wiper ECU (48) from PDP (49).

- (17) Disconnect terminal lugs TL158 (50) and TL159 (51) from start inhibit pushbutton switch (52).
- (18) Remove spring clip (53) from start inhibit pushbutton switch (52).
- (19) Remove start inhibit pushbutton switch (52) from PDP (49).

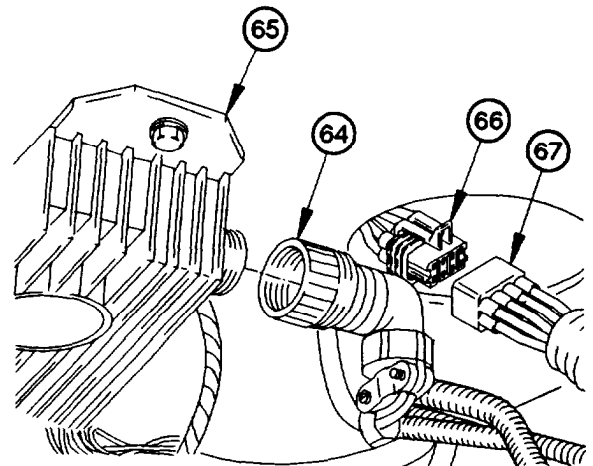


- (20) Disconnect connector J27 (54) from connector P27 (55).
- (21) Disconnect connector J51 (56) from connector P51 (57).



- (22) Disconnect connector PX34 (58) from fan solenoid connector (59).
- (23) Disconnect connector J65 (60) from warning light cable connector P65 (61).
- (24) Disconnect connector P99 (62) from chemical alarm kit cable connector J99 (63).

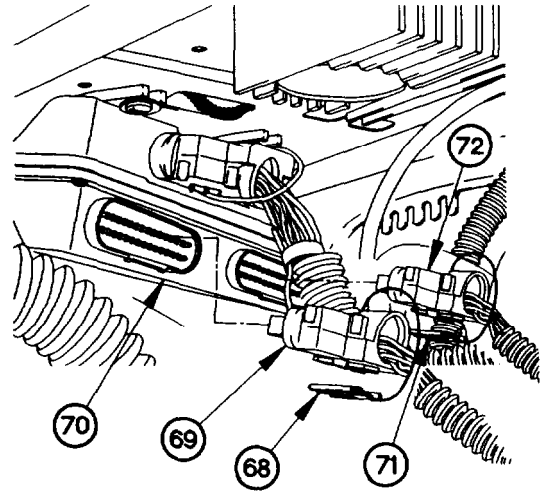
- (25) Disconnect connector PX20 (64) from flasher module (65).
- (26) Disconnect connector P111 (66) from connector J111 (67).



3G14A131

7-11. WTEC III DASHBOARD CABLE ASSEMBLY REPLACEMENT/REPAIR (CONT)

- (27) Disconnect connector clamp (68) from connector P115 (69).
- (28) Disconnect connector P115 (69) from WTEC III transmission ECU (70).
- (29) Disconnect connector clamp (71) from connector P116 (72).
- (30) Disconnect connector P116 (72) from WTEC III transmission ECU (70).

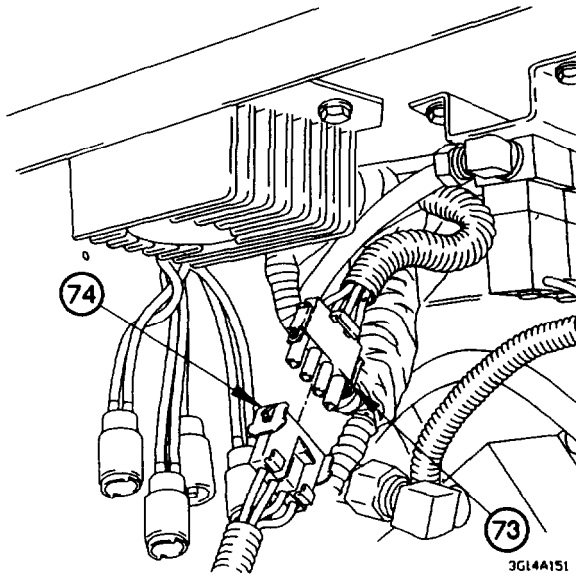


3G14A141

NOTE

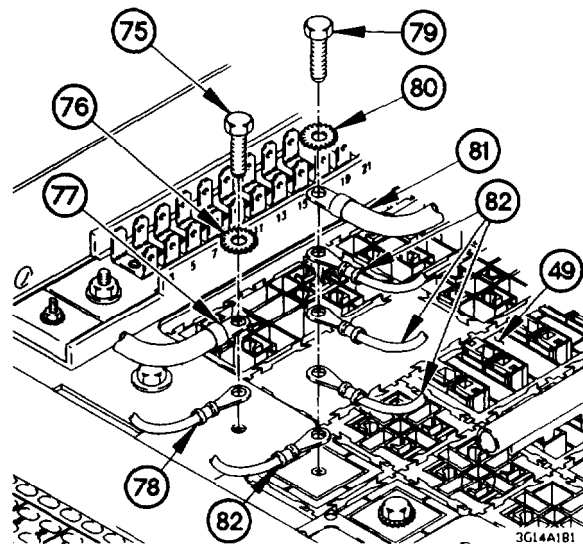
Perform step (31) on vehicles equipped with cab radio.

- (31) Disconnect connector J78 (73) from connector P78 (74).



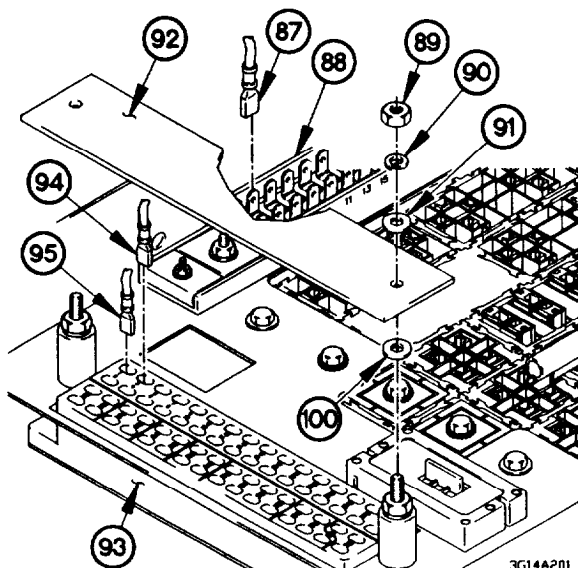
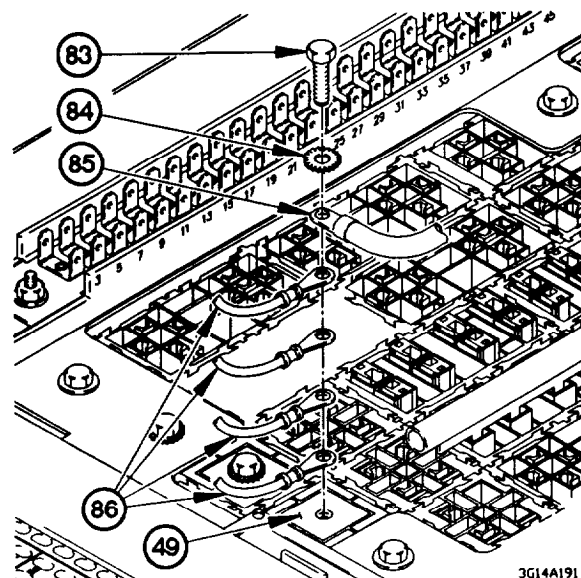
3G14A151

- (32) Remove screw (75), lockwasher (76), terminal lug TL56 (77), and terminal lug (78) from PDP (49).
- (33) Position terminal lug (78) on PDP (49) with lockwasher (76) and screw (75).
- (34) Remove screw (79), lockwasher (80), terminal lug TL41 (81), and four terminal lugs (82) from PDP (49).
- (35) Position four terminal lugs (82) on PDP (49) with lockwasher (80) and screw (79).



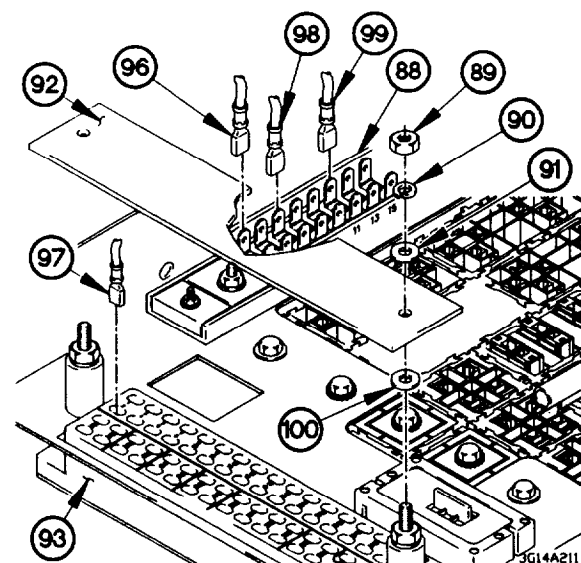
3G14A181

- (36) Remove screw (83), lockwasher (84), terminal lug TL42 (85), and four terminal lugs (86) from PDP (49).
- (37) Position four terminal lugs (86) on PDP (49) with lockwasher (84), and screw (83).



- (38) Remove terminal lug TL86 (87) from terminal board TB2 (88) position 4.
- (39) Remove two nuts (89), lockwashers (90), washers (91), cover (92), and two washers (91) from terminal board TB1 (93).
- (40) Remove terminal lug TL74 (94) from terminal board TB1 (93) position 3.
- (41) Remove terminal lug TL73 (95) from terminal board TB1 (93) position 1.

- (42) Remove terminal lug TL71 (96) from terminal board TB2 (88) position 2.
- (43) Remove terminal lug TL75 (97) from terminal board TB1 (93) position 2.
- (44) Position two washers (91) and cover (92) on terminal board TB1 (93) with two washers (91), lockwashers (90), and nuts (89).
- (45) Remove terminal lug TL87 (98) from terminal board TB2 (88) position 6.
- (48) Remove terminal lug TL14 (99) from terminal board TB2 (88) position 12.



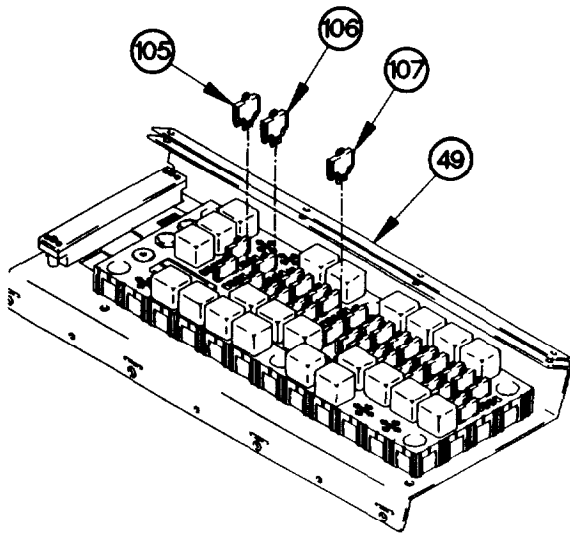
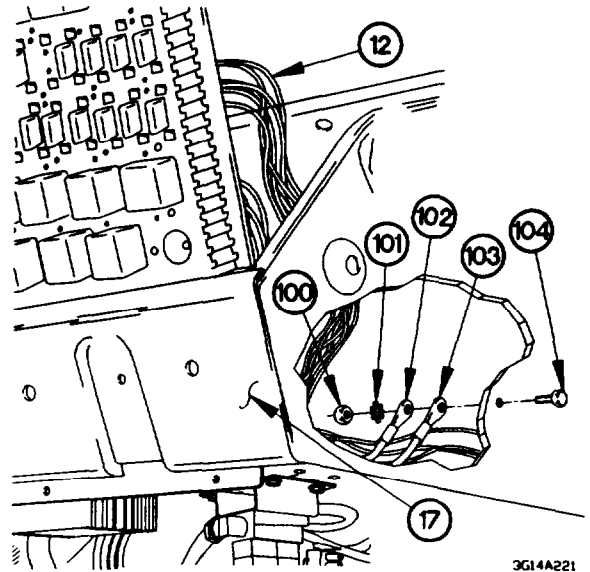
7-11. WTEC III DASHBOARD CABLE ASSEMBLY REPLACEMENT/REPAIR (CONT)

(47) Remove nut (100), lockwasher (101), terminal lug TL190 (102), terminal lug TL56 (103) and screw (104) from dashboard (17). Discard lockwasher.

NOTE

Step (48) requires the aid of an assistant.

(48) Remove WTEC III dashboard cable assembly (12) from dashboard (17).



NOTE

Perform steps (49) through (51) on vehicles equipped with arctic kit.

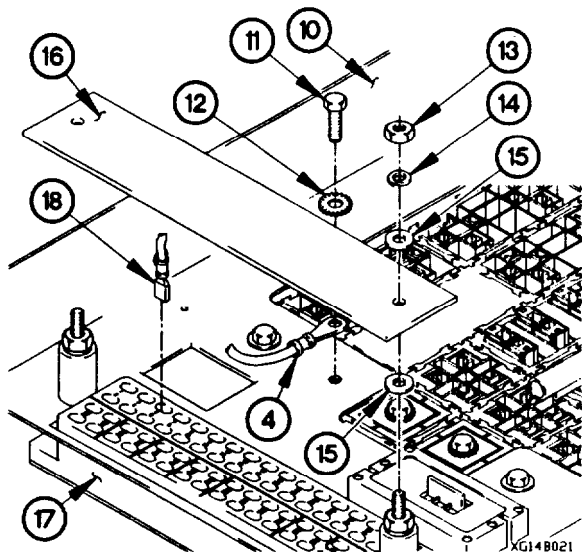
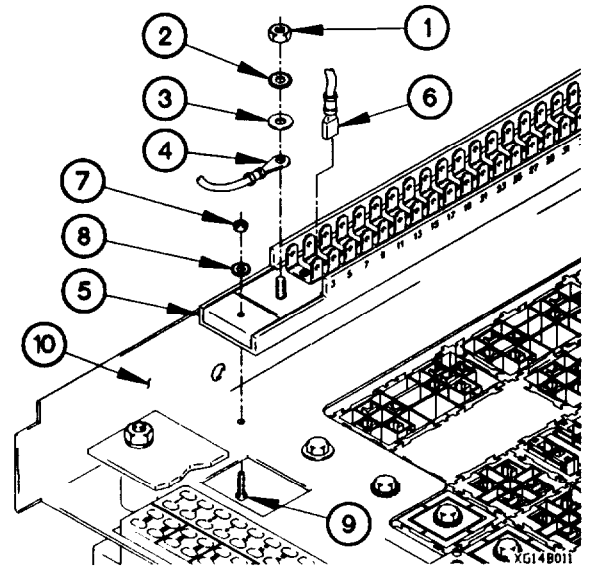
- (49) Remove circuit breaker CB45 (105) from PDP (49).
- (50) Remove circuit breaker CB48 (106) from PDP (49).
- (51) Remove circuit breaker CB50 (107) from PDP (49).

b. Disassembly.

NOTE

Tag wires and connection points prior to removal.

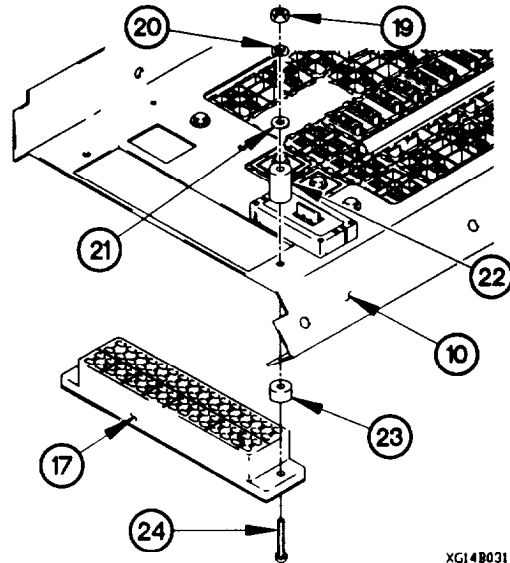
- (1) Remove nut (1), lockwasher (2), washer (3), and wire 1603 (4) from terminal board TB2 (5). Discard lockwasher.
- (2) Remove 46 quick disconnect terminals (6) from terminal board TB2 (5) positions 3, 8, 9, 10, 11, 13, 14, 15, 16, 17, 18, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 39, 40, 43, 44, 45, 46, 47, 50, 53, 55, 56, 60, 62, 70, 74, 77, and 79.
- (3) Remove two nuts (7), lockwashers (8), screws (9), and terminal board TB2 (5) from PDP frame (10). Discard lockwashers.



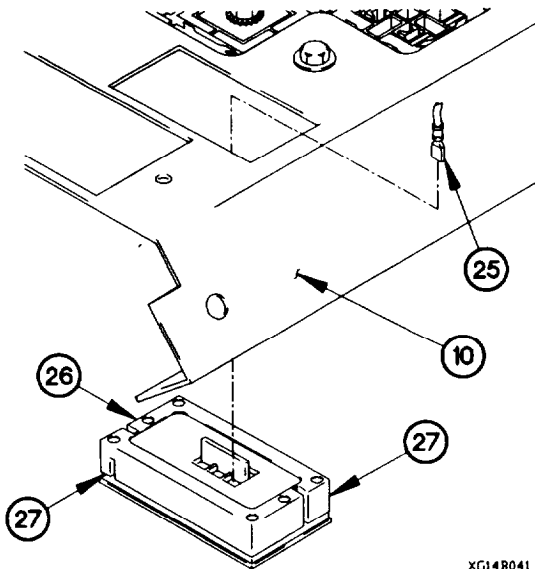
- (4) Remove screw (11), lockwasher (12), and wire 1603 (4) from PDP frame (10). Discard lockwasher.
- (5) Remove two nuts (13), lockwashers (14), washers (15), cover (16), and two washers (15) from terminal board TB1 (17). Discard lockwashers.
- (6) Remove 38 quick disconnect terminals (18) from terminal board TB1 (17) positions 5, 11, 20, 23, 24, 26, 27, 28, 29, 30, 31, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 46, 47, 50, 51, 52, 53, 54, 56, 57, 58, 59, 60, 61, 62, 63, and 64.

7-11. WTEC III DASHBOARD CABLE ASSEMBLY REPLACEMENT/REPAIR (CONT)

- (7) Remove two nuts (19), lockwashers (20), washers (21), spacers (22), terminal board TB1 (17), two spacers (23), and screws (24) from PDP frame (10). Discard lockwashers.



XG14B031



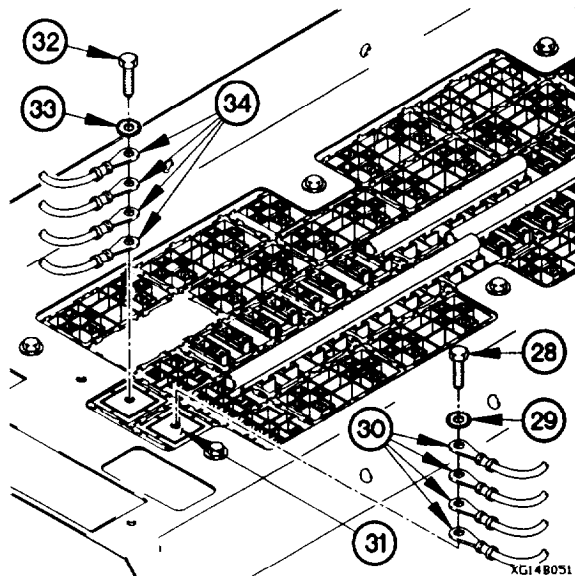
XG14B041

- (8) Remove six quick disconnect terminals (25) from connector PX21 (26).
- (9) Push in two locking tabs (27) and remove connector PX21 (26) from front of PDP frame (10).

NOTE

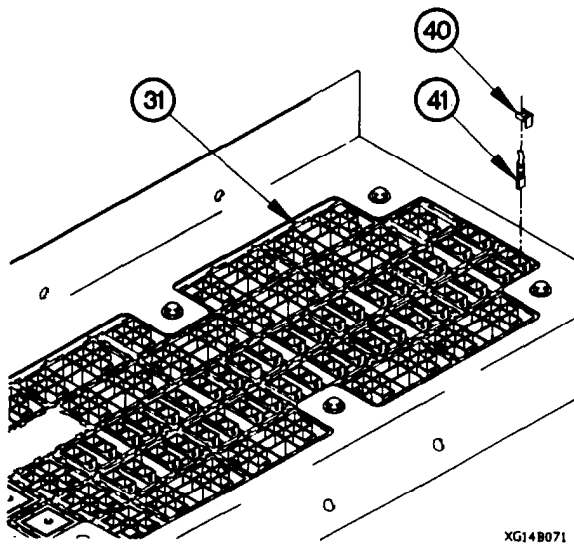
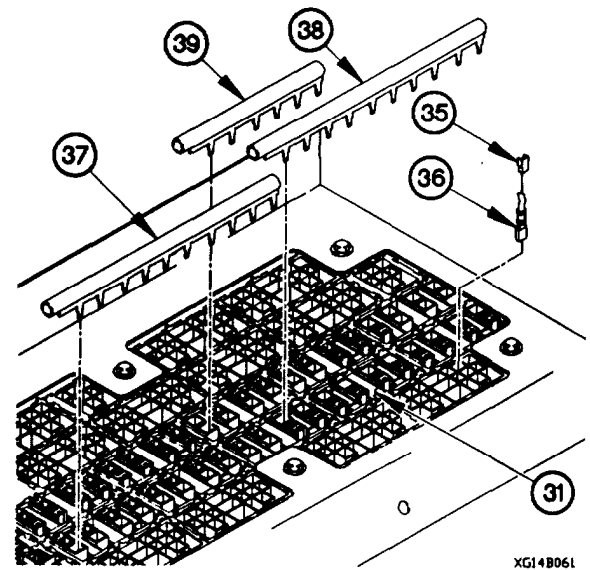
Tag terminal lugs and connection points prior to removal.

- (10) Remove screw (28), lockwasher (29), and four terminal lugs (30) from PDP (31). Discard lockwasher.
- (11) Remove screw (32), lockwasher (33), and four terminal lugs (34) from PDP (31). Discard lockwasher.



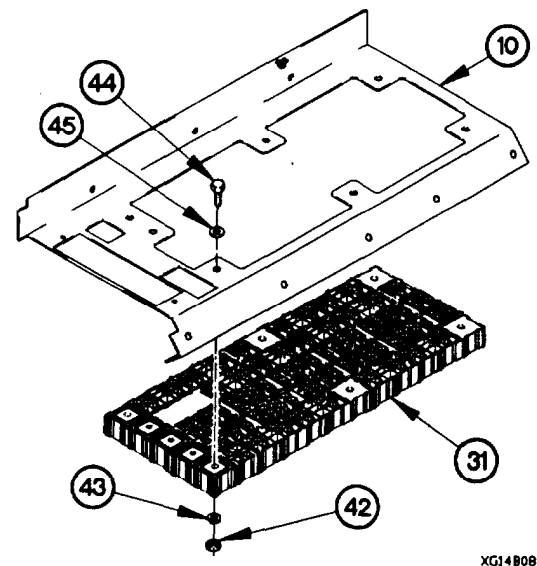
XG14B051

- (12) Remove 94 retaining locks (35) from PDP (31).
- (13) Remove 94 terminals (36) from PDP (31).
- (14) Remove bus bar X1 (37) from PDP (31).
- (15) Remove bus bar X6 (38) from PDP (31).
- (16) Remove bus bar X2 (39) from PDP (31).



- (17) Remove 41 retaining locks (40) from PDP (31).
- (18) Remove 41 terminals (41) from PDP (31).

- (19) Remove six nuts (42), lockwashers (43), screws (44), washers (45), and PDP (31) from PDP frame (10). Discard lockwashers.



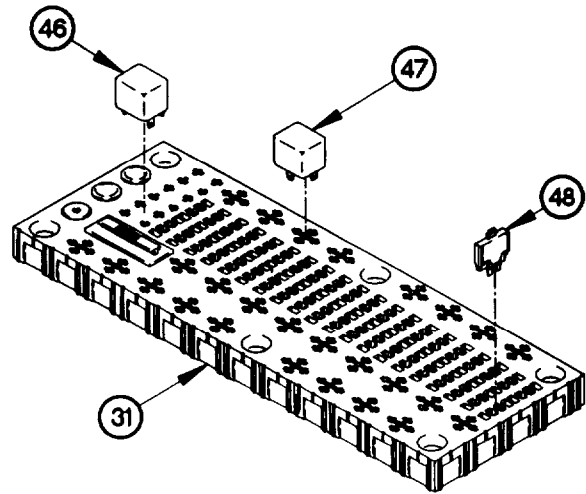
7-11. WTEC III DASHBOARD CABLE ASSEMBLY REPLACEMENT/REPAIR (CONT)

NOTE

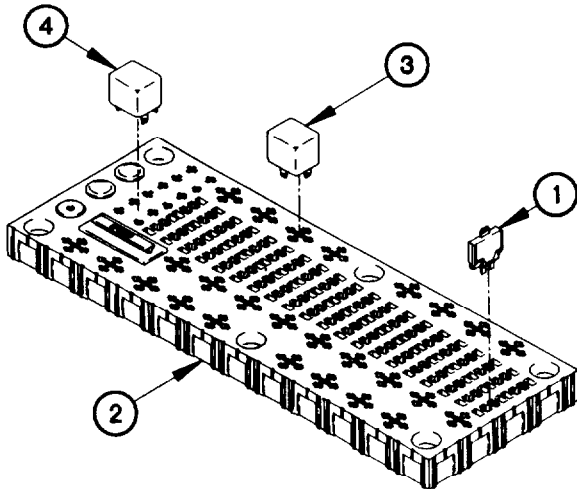
Tag diodes, relays, and circuit breakers prior to removal.

- (20) Remove three diodes (46) from PDP (31).
- (21) Remove 24 relays (47) from PDP (31).
- (22) Remove 29 circuit breakers (48) from PDP (31).

c. Assembly.

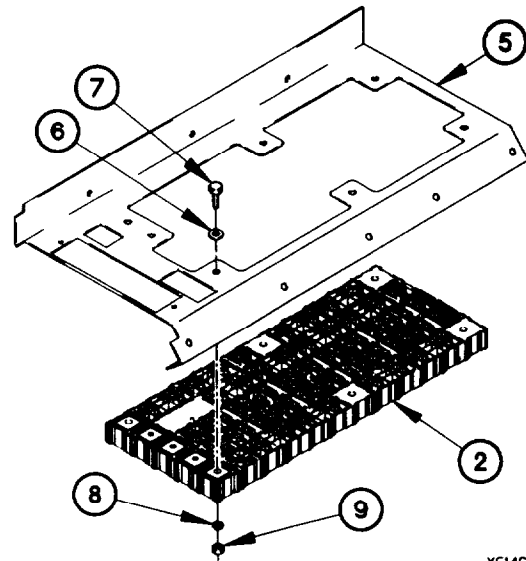


XG14B091



XG14C011

- (1) Install 29 circuit breakers (1) on PDP (2).
- (2) Install 24 relays (3) on PDP (2).
- (3) Install three diodes (4) on PDP (2).

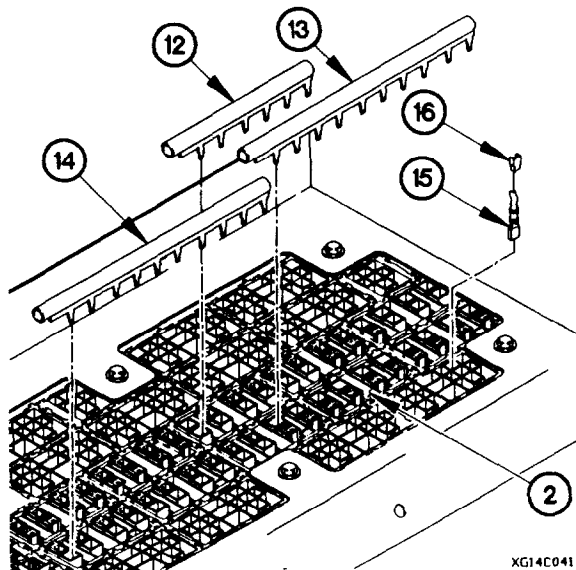
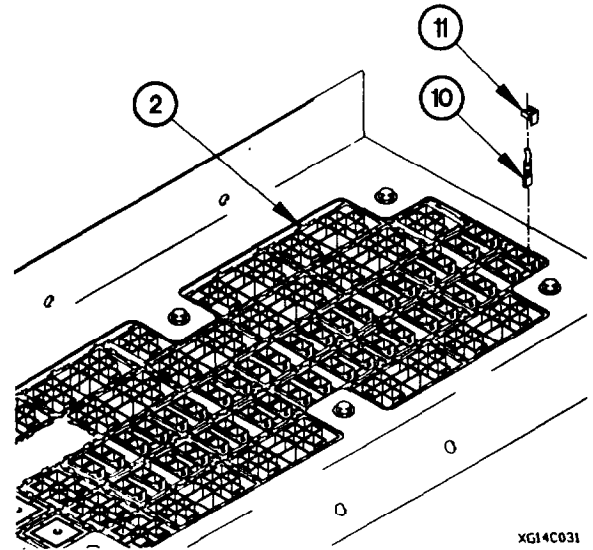


XG14C021

- (4) Position PDP (2) on PDP frame (5) with six washers (6), screws (7), lockwashers (8), and nuts (9).
- (5) Tighten six nuts (9) to 46-57 lb-ft (63-77 N•m).

(6) Install 41 terminals (10) on PDP (2).

(7) Install 41 retaining locks (11) on PDP (2).



(8) Install bus bar X2 (12) on PDP (2).

(9) Install bus bar X6 (13) on PDP (2).

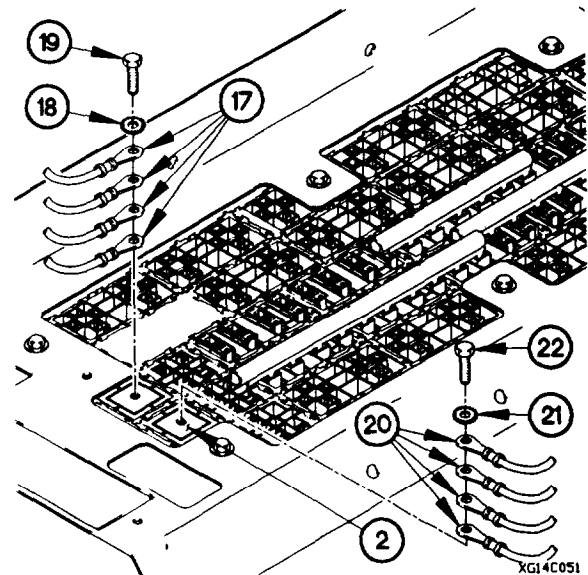
(10) Install bus bar X1 (14) on PDP (2).

(11) Install 94 terminals (15) on PDP (2).

(12) Install 94 retaining locks (16) on PDP (2).

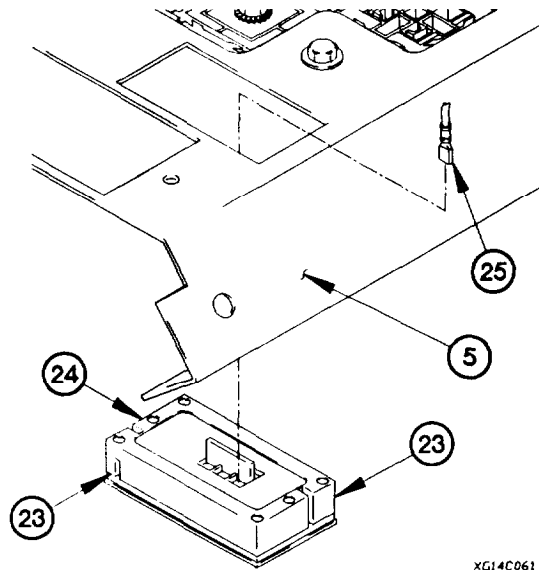
(13) Position four terminal lugs (17) on PDP (2) with lockwasher (18), and screw (19).

(14) Position four terminal lugs (20) on PDP (2) with lockwasher (21), and screw (22).

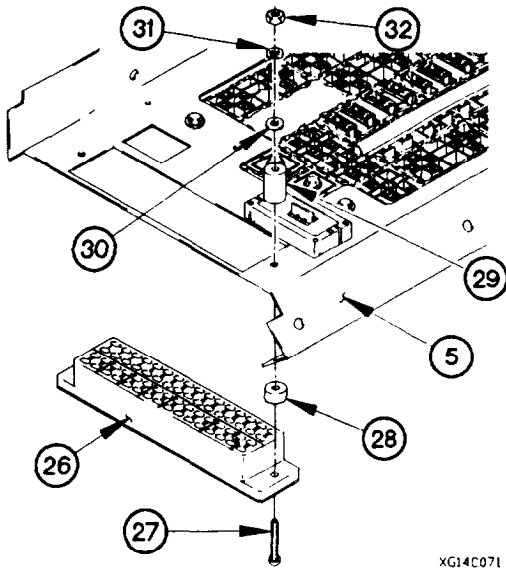


7-11. WTEC III DASHBOARD CABLE ASSEMBLY REPLACEMENT/REPAIR (CONT)

- (15) Push in two locking tabs (23) and install connector PX21 (24) through front of PDP frame (5).
- (16) Install six quick disconnect terminals (25) in connector PX21 (24).



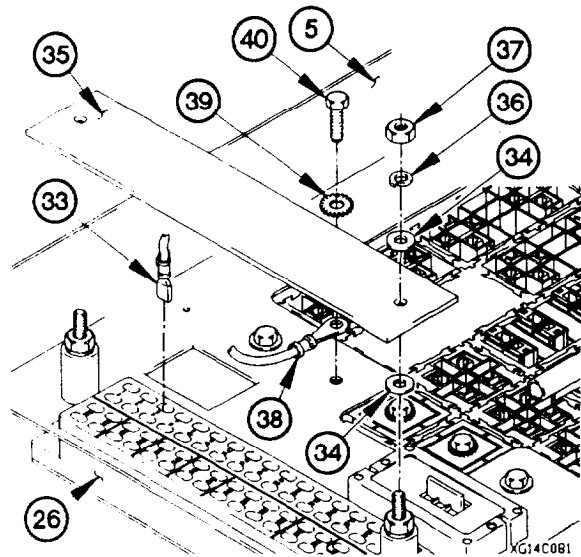
XG14C061



XG14C071

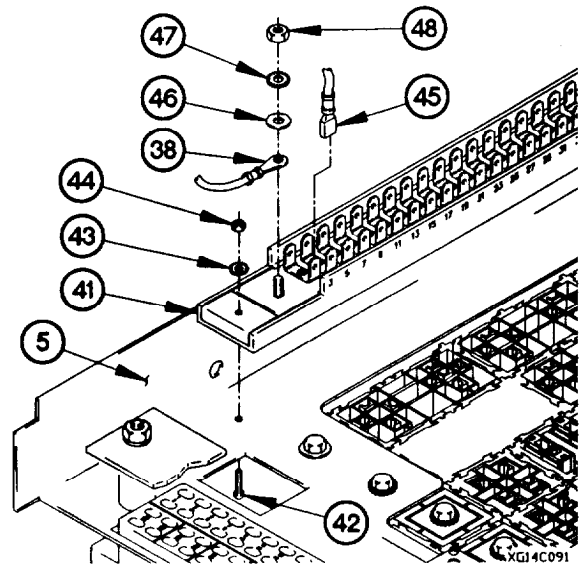
- (17) Install terminal board TB1 (26) on PDP frame (5) with two screws (27), spacers (28), spacers (29), washers (30), lockwashers (31), and nuts (32).

- (18) Install 38 quick disconnect terminals (33) on terminal board TB1 (26) positions 5, 11, 20, 23, 24, 26, 27, 28, 29, 30, 31, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 46, 47, 50, 51, 52, 53, 54, 56, 57, 58, 59, 60, 61, 62, 63, and 64.
- (19) Position two washers (34) and cover (35) on terminal board TB1 (26) with two washers (34), lockwashers (36), and nuts (37).
- (20) Position wire 1603 (38) on PDP frame (5) with lockwasher (39), and screw (40).

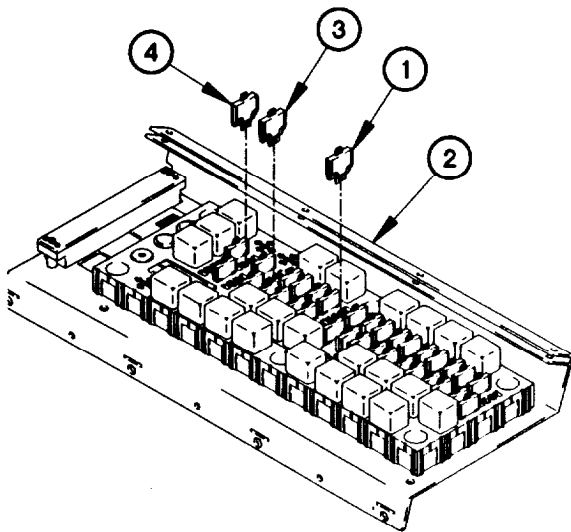


XG14C081

- (21) Install terminal board TB2 (41) on PDP frame (5) with two screws (42), lockwashers (43), and nuts (44).
- (22) Install 46 quick disconnect terminals (45) on terminal board TB2 (41) positions 3, 8, 9, 10, 11, 13, 14, 15, 16, 17, 18, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 39, 40, 43, 44, 45, 46, 47, 50, 53, 55, 56, 60, 62, 70, 74, 77, and 79.
- (23) Position wire 1603 (38) on terminal board TB2 (41) with washer (46), lockwasher (47), and nut (48).



d. Installation.



3G141011

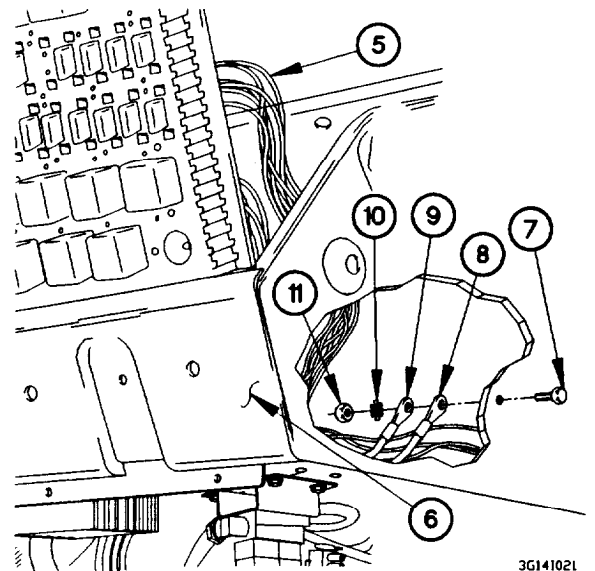
NOTE

- Step (4) requires the aid of an assistant.
 - Install plastic cable ties as required.
- (4) Position WTEC III dashboard cable assembly (5) in dashboard (6).
 - (5) Install screw (7), terminal lug TL56 (8), terminal lug TL190 (9), washer (10), and nut (11) on dashboard (6).

NOTE

Perform steps (1) through (3) on vehicles equipped with arctic kits.

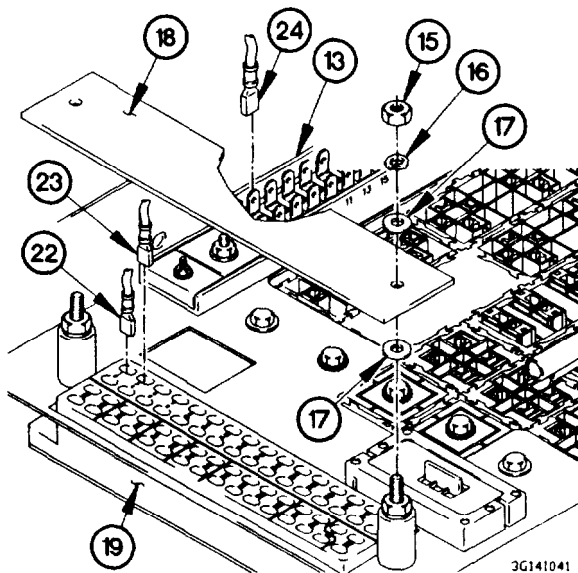
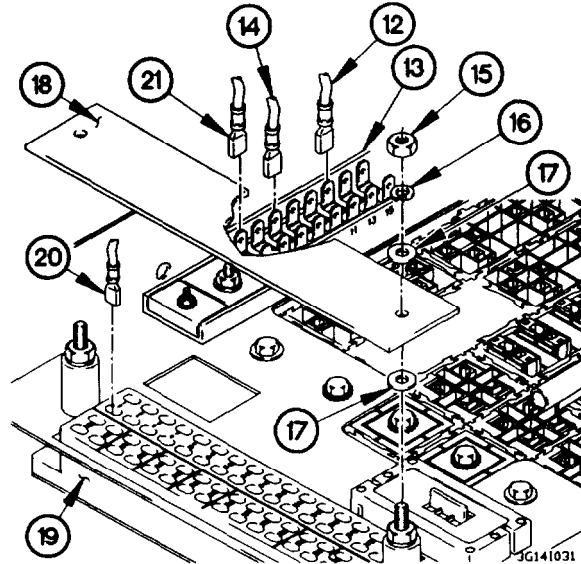
- (1) Install circuit breaker CB50 (1) on PDP (2).
- (2) Install circuit breaker CB48 (3) on PDP (2).
- (3) Install circuit breaker CB45 (4) on PDP (2).



3G141021

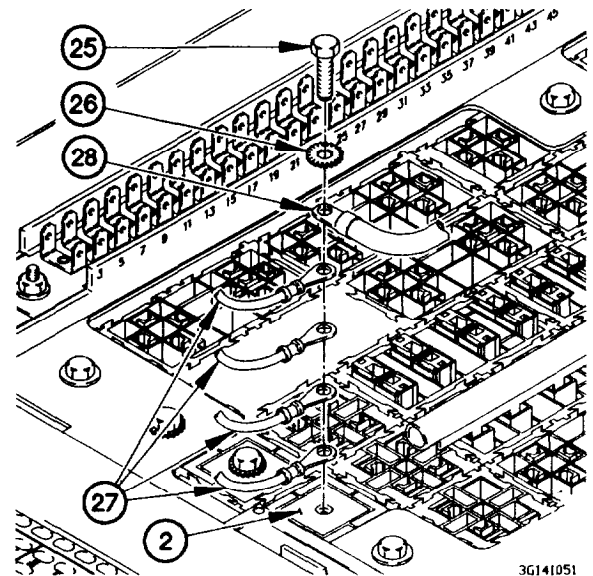
7-11. WTEC III DASHBOARD CABLE ASSEMBLY REPLACEMENT/REPAIR (CONT)

- (6) Install terminal lug TL14 (12) on terminal board TB2 (13) position 12.
- (7) Install terminal lug TL87 (14) on terminal board TB2 (13) position 6.
- (8) Remove two nuts (15), lockwashers (16), washers (17), cover (18), and two washers (17) from terminal board TB1 (19).
- (9) Install terminal lug TL75 (20) on terminal board TB1 (19) position 2.
- (10) Install terminal lug TL71 (21) on terminal board TB2 (13) position 2.

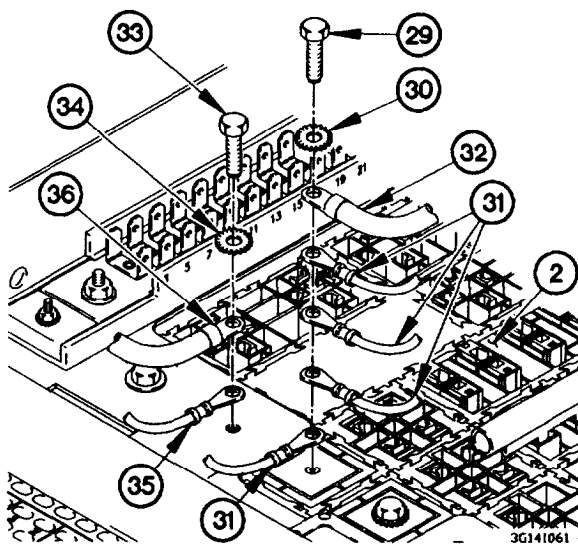


- (11) Install terminal lug TL73 (22) on terminal board TB1 (19) position 1.
- (12) Install terminal lug TL74 (23) on terminal board TB1 (19) position 3.
- (13) Install two washers (17) and cover (18) on terminal board TB1 (19) with two washers (17), lockwashers (16), and nuts (15).
- (14) Install terminal lug TL86 (24) on terminal board TB2 (13) position 4.

- (15) Remove screw (25), lockwasher (26), and four terminal lugs (27) from PDP (2).
- (16) Position four terminal lugs (27) and terminal lug TL42 (28) on PDP (2) with lockwasher (26), and screw (25).
- (17) Tighten screw (25) to 35-45 lb-in, (4-5 N•m).



3G141051



3G141061

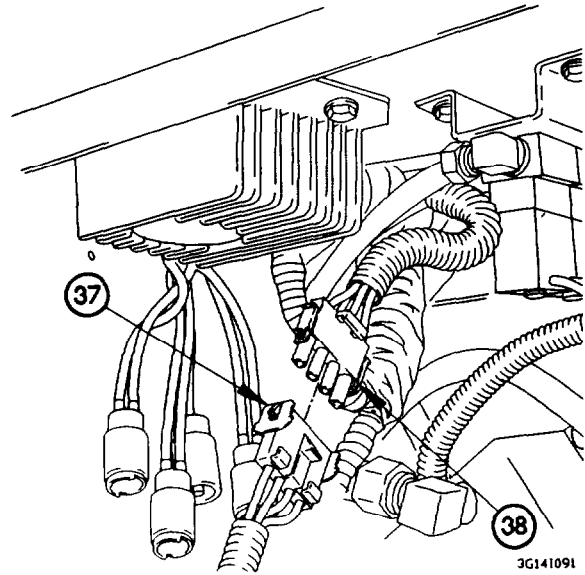
- (18) Remove screw (29), lockwasher (30), and four terminal lugs (31) from PDP (2).
- (19) Position four terminal lugs (31) and terminal lug TL41 (32) on PDP (2) with lockwasher (30) and screw (29).
- (20) Tighten screw (29) to 35-45 lb-in. (4-5 N•m).
- (21) Remove screw (33), lockwasher (34), and terminal lug (35) from PDP (2).
- (22) Position terminal lug (35) and terminal lug TL56 (36) on PDP (2) with lockwasher (34) and screw (33).
- (23) Tighten screw (33) to 35-45 lb-in. (4-5 N•m).

7-11. WTEC III DASHBOARD CABLE ASSEMBLY REPLACEMENT/REPAIR (CONT)

NOTE

Perform step (24) on vehicles equipped with cab radio.

(24) Connect connector P78 (37) to connector J78 (38).

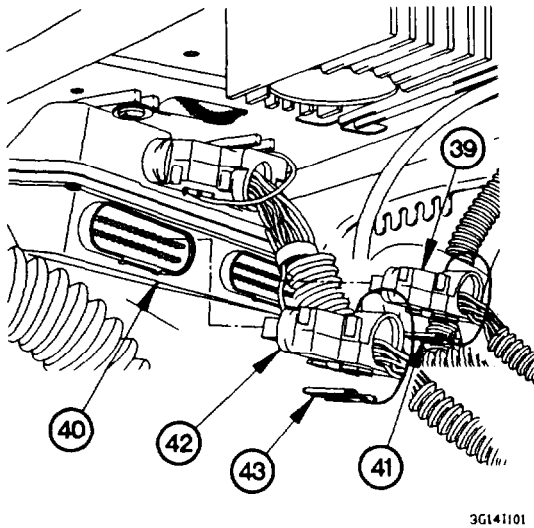


(25) Connect connector P116 (39) to WTEC III transmission ECU (40).

(26) Connect connector clamp (41) on connector P116 (39).

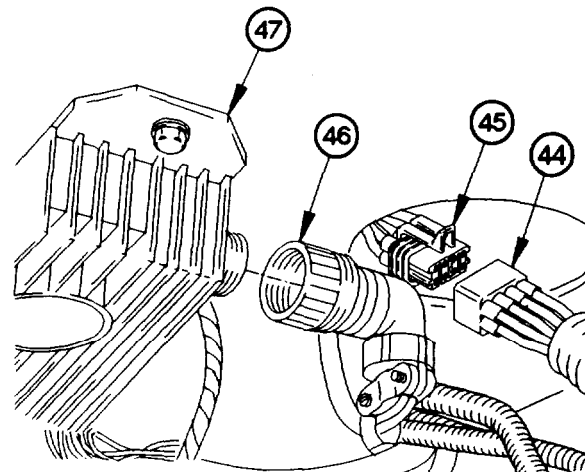
(27) Connect connector P115 (42) to WTEC III transmission ECU (41).

(28) Connect connector clamp (43) on connector P115

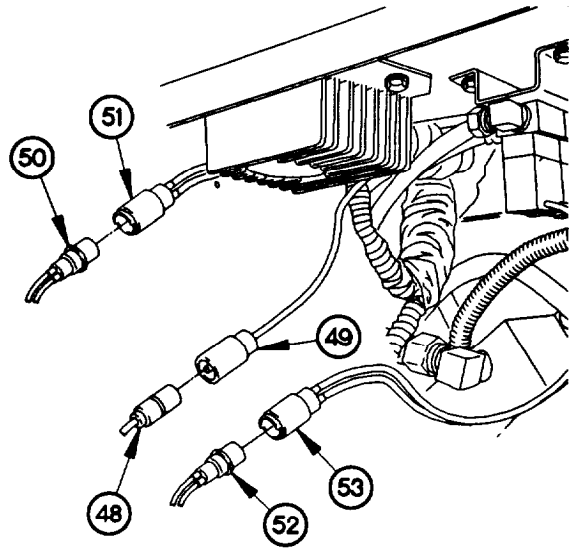


(29) Connect connector P111 (44) to connector J111 (45).

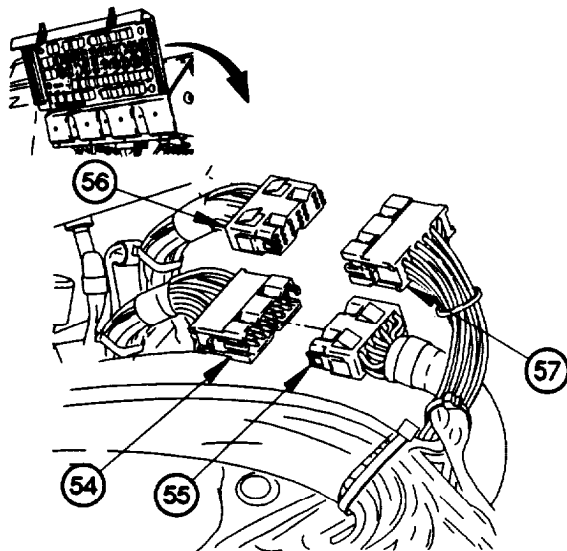
(30) Connect connector PX20 (46) to flasher module (47).



- (31) Connect connector J99 (48) to chemical alarm kit cable connector P99 (49).
- (32) Connect connector P65 (50) to warning light cable connector J65 (51).
- (33) Connect fan solenoid connector (52) to connector PX34 (53).



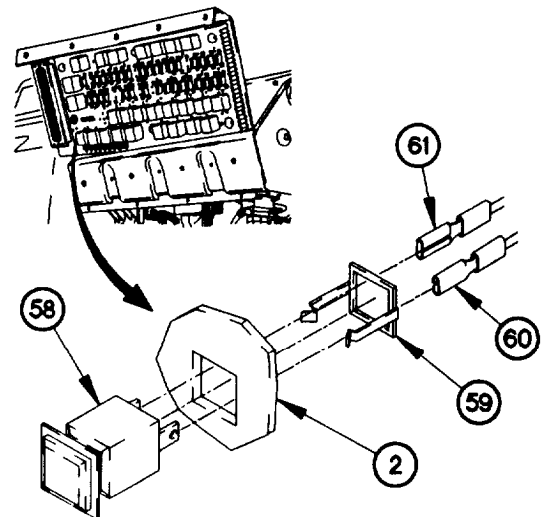
3G141121



3G141131

- (34) Connect connector P51 (54) to connector J51 (55).
- (35) Connect connector P27 (56) to connector J27 (57).

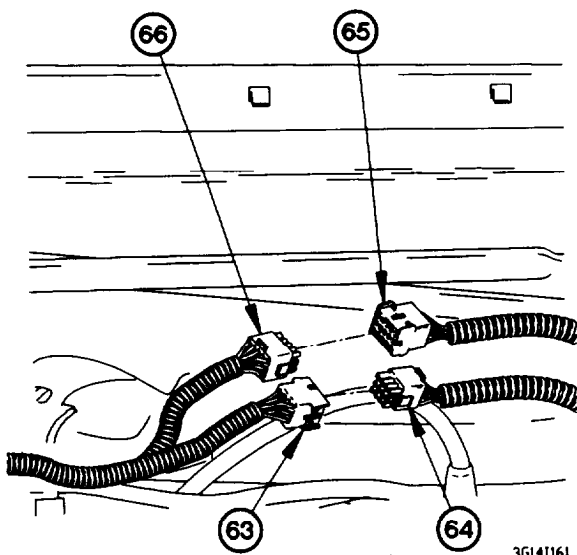
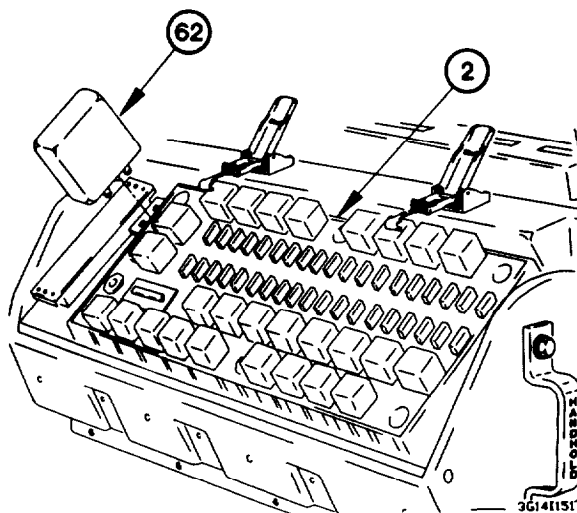
- (36) Position start inhibit pushbutton switch (58) in PDP (2).
- (37) Install spring clip (59) on start inhibit pushbutton switch (58).
- (38) Connect terminal lugs TL159 (60) and TL158 (61) to start inhibit pushbutton switch (58).



3G141141

7-11. WTEC III DASHBOARD CABLE ASSEMBLY REPLACEMENT/REPAIR (CONT)

(39) Install windshield wiper ECU (62) on PDP (2).



NOTE

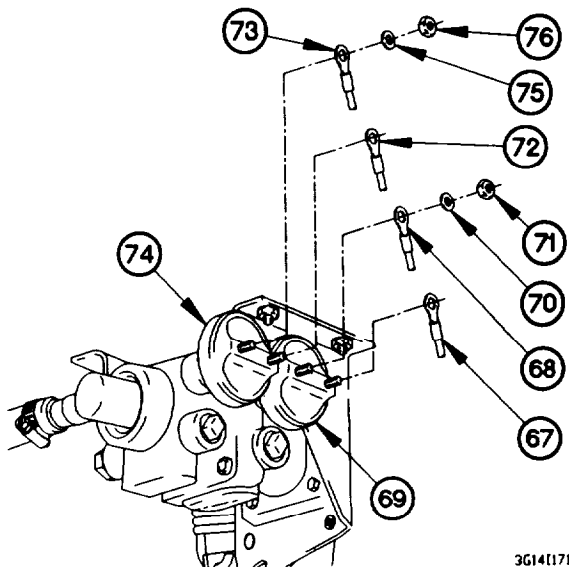
Perform steps (40) and (41) on vehicles equipped with auxiliary panel.

(40) Connect connector P913 (63) to connector J913 (64).

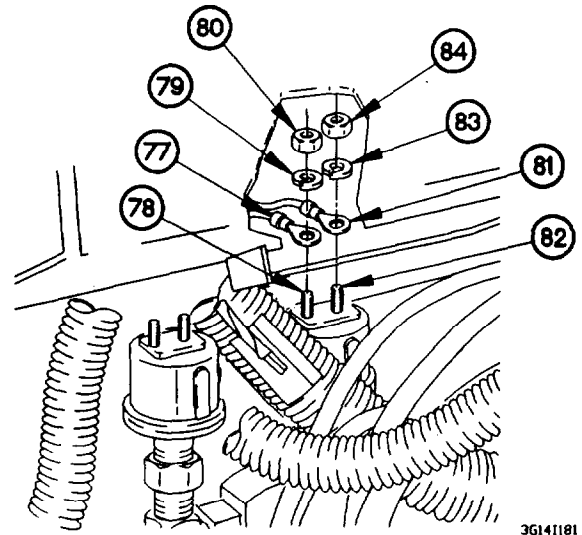
(41) Connect connector P912 (65) to connector J912 (66).

(42) Install terminal lugs TL155 (67) and TL154 (68) on front stoplight switch (69) with two lockwashers (70) and nuts (71).

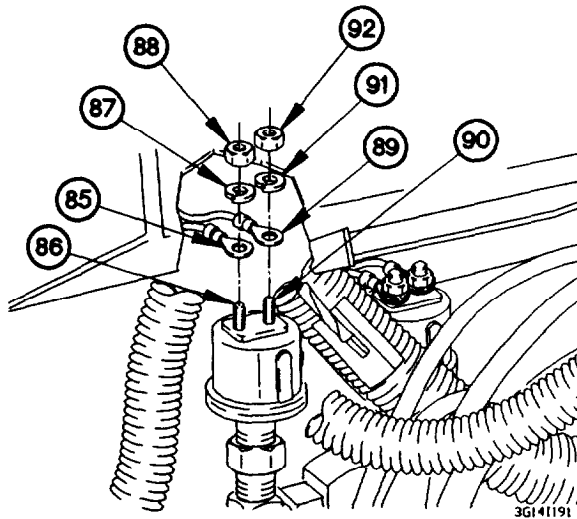
(43) Install terminal lugs TL152 (72) and TL153 (73) on rear stoplight switch (74) with two lockwashers (75) and nuts (76).



- (44) Install terminal lug TL156 (77) on rear brake air pressure transmitter terminal G (78) with lockwasher (79) and nut (80).
- (45) Install terminal lug TL150 (81) on rear brake air pressure transmitter terminal WK (82) with lockwasher (83) and nut (84).



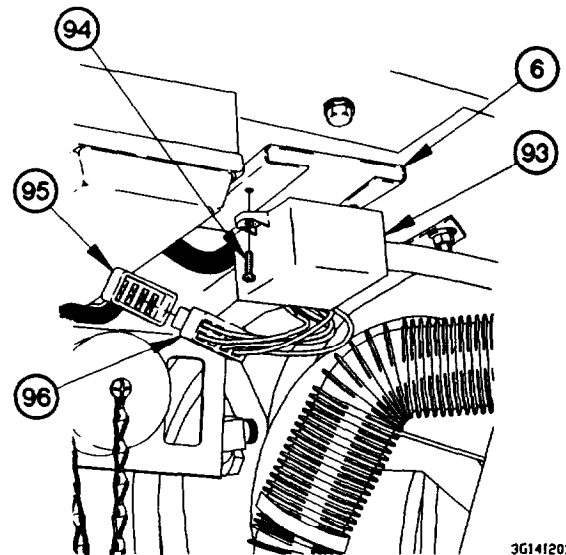
3G141181



3G141191

- (46) Install terminal lug TL157 (85) on front brake air pressure transmitter terminal G (86) with lockwasher (87) and nut (88).
- (47) Install terminal lug TL151 (89) on front brake air pressure transmitter terminal WK (90) with lockwasher (91) and nut (92).

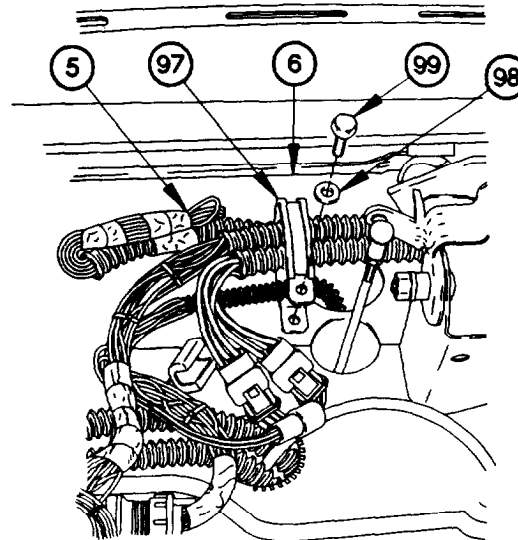
- (48) Install frequency ECU (93) on left side dashboard (6) with two screws (94).
- (49) Connect connector PX26 (95) to frequency ECU connector (96).



3G141201

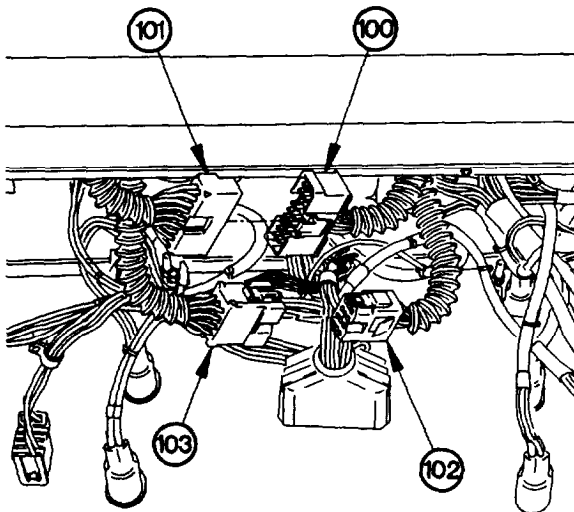
7-11. WTEC III DASHBOARD CABLE ASSEMBLY REPLACEMENT/REPAIR (CONT)

- (50) Position clamp (97) on WTEC III dashboard cable assembly (5).
- (51) Position clamp (97) on dashboard (6) with washer (98) and screw (99).
- (52) Tighten screw (99) to 35-45 lb-in. (4-5 N•m).



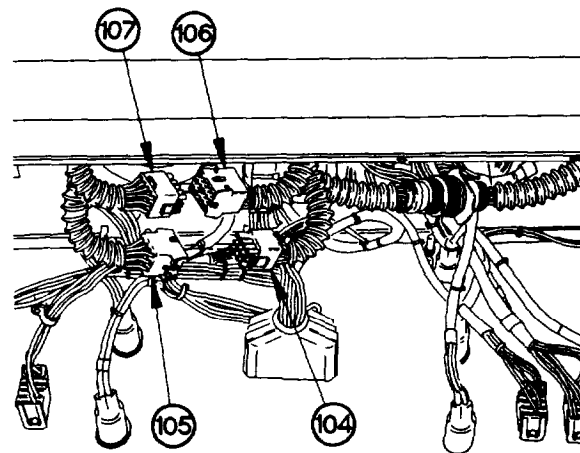
3G141211

- (53) Connect connector J31 (100) to connector P31 (101).
- (54) Connect connector J43 (102) to connector P43 (103).



3G141221

- (55) Connect steering column switch connector P18 (104) to connector J18 (105).
- (56) Connect steering column switch connector J19 (106) to connector P19 (107).



3G141231

e. Follow-On Maintenance.

- (1) Install windshield wiper motor (para 18-4).
- (2) Install personnel heater (para 18-9).
- (3) Install instrument panel assembly (para 7-15).
- (4) Start engine (TM 9-2320-365-10).
- (5) Check instruments operation (TM 9-2320-365-10).
- (6) Shut down engine (TM 9-2320-365-10).

End of Task.

7-12. DIMMER SWITCH REPLACEMENT

This task covers:

- a. Removal
- b. Installation

c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

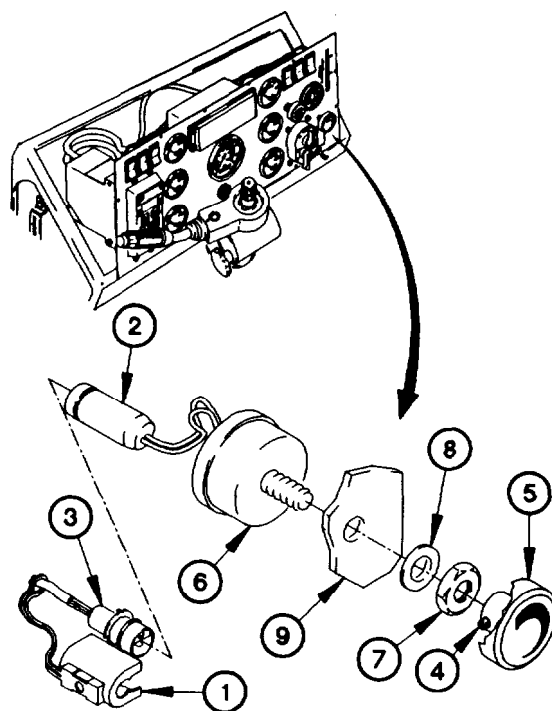
Instrument panel assembly removed for access
(para 7-15).

Tools and Special Tools

Tool Kit, Genl Mech (Item 44, Appendix C)

a. Removal.

- (1) Disconnect connector clamp (1) from dimmer switch connector (2).
- (2) Disconnect connector PX24 (3) from dimmer switch connector (2).
- (3) Loosen screw (4) on dimmer switch knob (5).
- (4) Remove dimmer switch knob (5) from dimmer switch (6).
- (5) Remove nut (7), washer (8), and dimmer switch (6) from instrument panel assembly (9).



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b. Installation.

- (1) Install dimmer switch (6) in instrument panel assembly (9) with washer (8) and nut (7).
- (2) Install dimmer switch knob (5) on dimmer switch (6).
- (3) Tighten screw (4) on dimmer switch knob (5).
- (4) Connect connector PX24 (3) to dimmer switch connector (2).
- (5) Connect connector clamp (1) on dimmer switch connector (2).

c. Follow-On Maintenance.

- (1) Install instrument panel assembly (para 7-15).
- (2) Check dimmer switch operation (TM 9-2320-365-10).

End of Task.

7-13. WTEC II TRANSMISSION ECU PUSHBUTTON SHIFT SELECTOR (TEPSS) DIMMER MODULE REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

- Batteries disconnected (para 7-48).
- PDP cover removed (para 16-2).

Materials/Parts

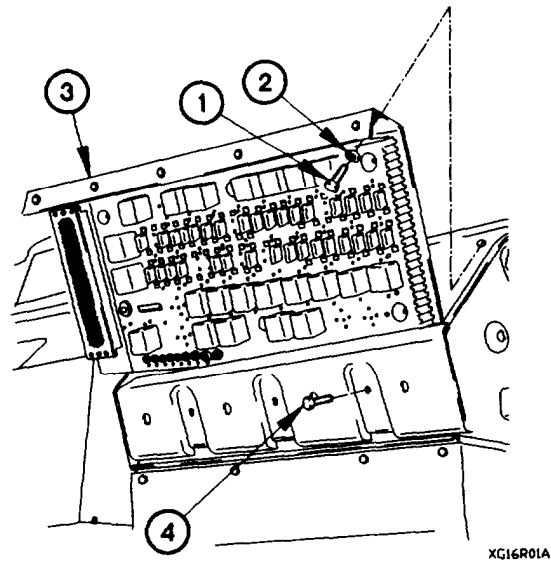
- Ties, Cable, Plastic (Item 76, Appendix D)

Tools and Special Tools

- Tool Kit, Genl Mech (Item 44, Appendix C)

a. Removal.

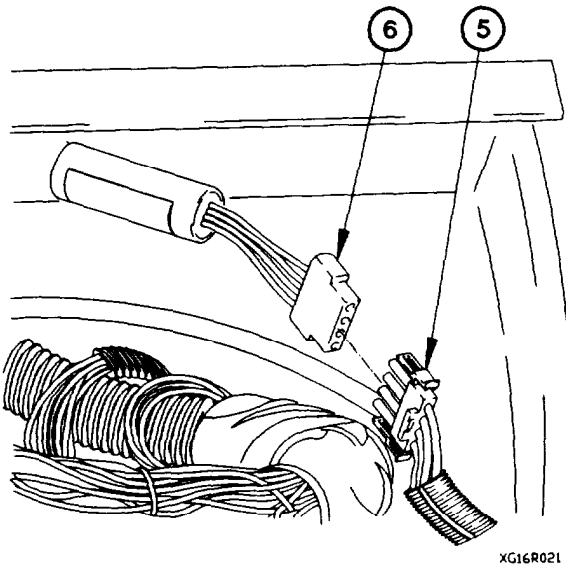
- (1) Remove three screws (1) and washers (2) from PDP (3).
- (2) Remove three screws (4) from PDP (3).
- (3) Lift PDP (3) out to gain access.



NOTE

Remove plastic cable ties as required.

- (4) Disconnect connector J7 (5) from WTEC II TEPSS dimmer module connector (6).

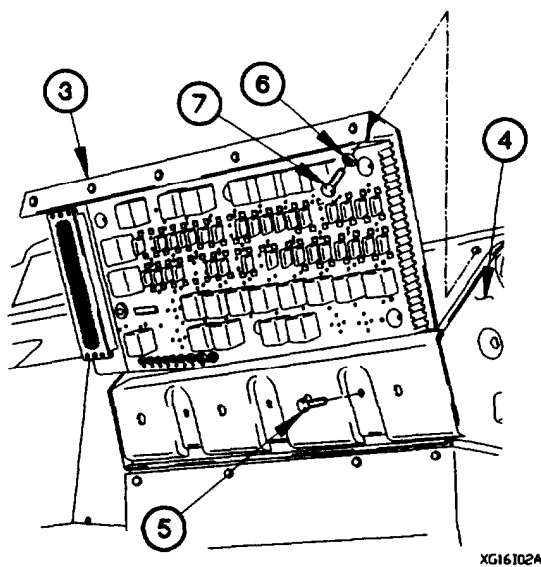
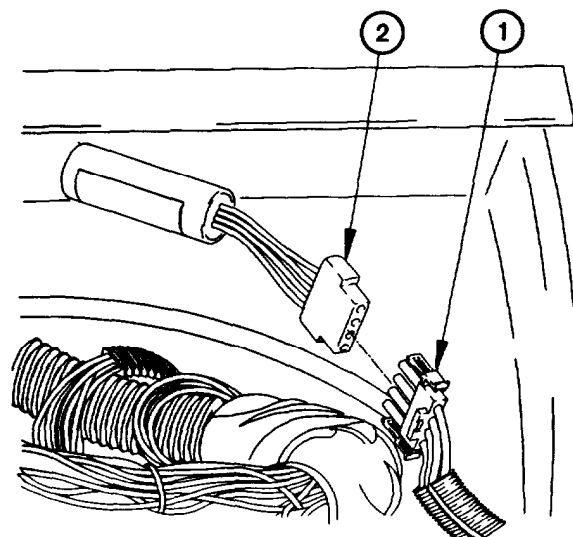


b. Installation.

NOTE

Install plastic cable ties as required.

- (1) Connect connector J7 (1) to WTEC II TEPSS dimmer module connector (2).



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- (2) Install PDP (3) on dashboard (4) with three screws (5).

- (3) Install three washers (6) and screws (7) in PDP (3).

c. Follow-On Maintenance.

- (1) Install PDP cover (para 16-2).
- (2) Connect batteries (para 7-48).

End of Task.

7-14. ELECTRICAL GAGES REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Instrument panel assembly removed for access (para 7-15).

Materials/Parts

Nut, Self-Locking (2) (Item 125, Appendix G)
Ties, Cable, Plastic (Item 76, Appendix D)

Tools and Special Tools

Tool Kit, Genl Mech (Item 44, Appendix C)
Wrench, Torque, 0-75 lb-in. (Item 86, Appendix B)

a. Removal.

NOTE

All electrical gages are removed the same way. Speedometer shown.

- (1) Disconnect connector clamp (1) from speedometer connector (2).

NOTE

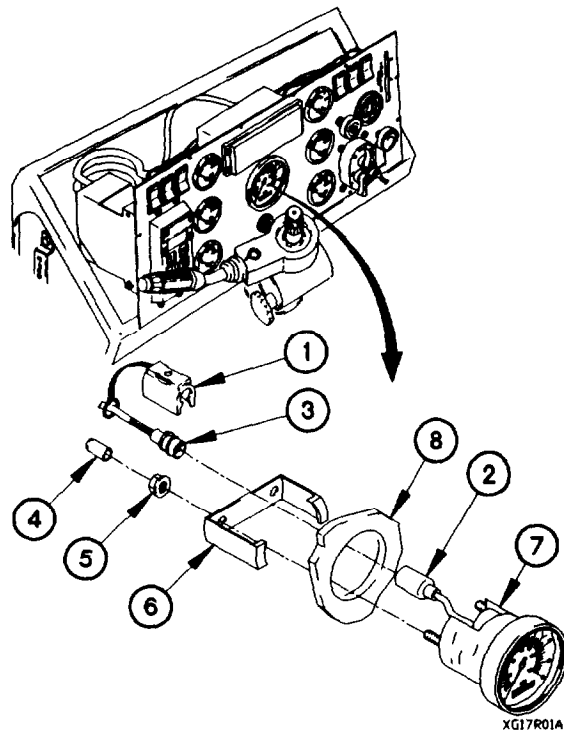
Remove plastic cable ties as required.

- (2) Disconnect connector PX8 (3) from speedometer connector (2).

NOTE

Note position of speedometer prior to removal.

- (3) Remove two protective caps (4), self-locking nuts (5), retaining ring (6), and speedometer (7) from instrument panel assembly (8). Discard self-locking nuts.



b. Installation.**NOTE**

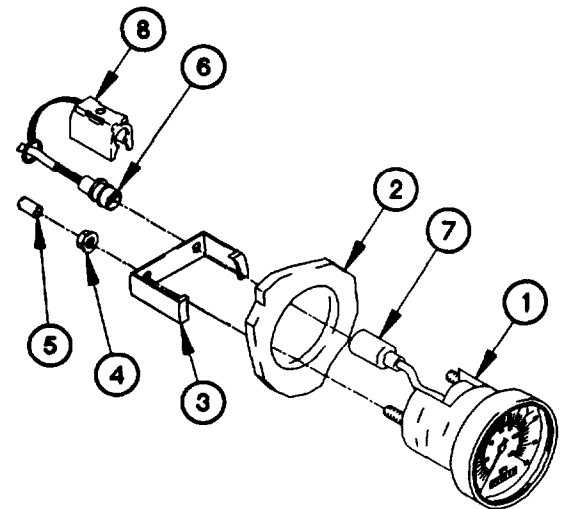
Note position of speedometer prior to installation.

- (1) Position speedometer (1) in instrument panel assembly (2) with retaining ring (3) and two self-locking nuts (4).
- (2) Tighten two self-locking nuts (4) to 9 lb-in. (1 N•m).
- (3) Install two protective caps (5) on speedometer (1).

NOTE

Install plastic cable ties as required.

- (4) Connect connector PX8 (6) on speedometer connector (7).
- (5) Connect connector clamp (8) on speedometer connector (7).



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c. Follow-On Maintenance.

- (1) Install instrument panel assembly (para 7-15).
- (2) Check gage(s) operation (TM 9-2320-365-10).

End of Task.

7-15. INSTRUMENT PANEL ASSEMBLY REPLACEMENT/REPAIR

This task covers:

- | | |
|----------------|--------------------------|
| a. Removal | d. Installation |
| b. Disassembly | e. Follow-On Maintenance |
| c. Assembly | |

INITIAL SETUP

Equipment Conditions

- Batteries disconnected (para 7-48).
- Steering wheel removed (para 13-2).

Materials/Parts

- Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)

Tools and Special Tools

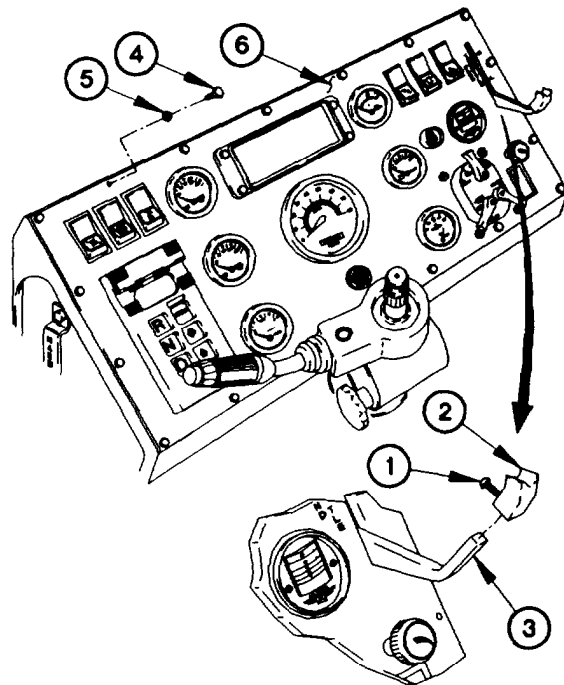
- Tool Kit, Genl Mech (Item 44, Appendix C)
- Wrench, Torque, 0-75 lb-in. (Item 86, Appendix B)
- Wrench, Torque, 0-200 lb-in. (Item 58, Appendix C)
- Socket Set, Socket Wrench (Item 34, Appendix C)

a. Removal.

NOTE

Perform steps (1) through (4) if removing instrument panel assembly for access.

- (1) Loosen screw (1) in HAND THROTTLE knob (2).
- (2) Remove HAND THROTTLE knob (2) from HAND THROTTLE lever (3).
- (3) Remove 16 screws (4) and washers (5) from instrument panel assembly (6).
- (4) Lift instrument panel assembly (6) outward to gain access.



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NOTE

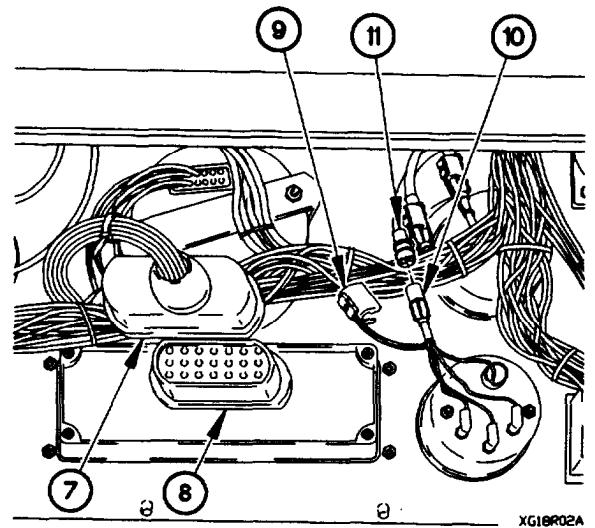
Remove plastic cable ties as required.

- (5) Disconnect connector PX7 (7) from lighted indicator display (8).

All electrical gages are disconnected the same way. OIL PRESS gage shown. Refer to **Table 7-1. Electrical Gages Connectors** for correct combinations of gages and connectors.

Table 7-1. Electrical Gages Connectors

Electrical Gage	Connector Number
FRONT BRAKE AIR	PX4
REAR BRAKE AIR	PX5
FUEL	PX9
Speedometer	PX8
OIL PRESS	PX6
VOLTS	PX10
WATER TEMP	PX11



- (6) Disconnect connector clamp (9) from OIL PRESS gage connector (10).
- (7) Disconnect connector (11) from OIL PRESS gage connector (10).
- (8) Perform steps (6) and (7) on remaining electrical gages.

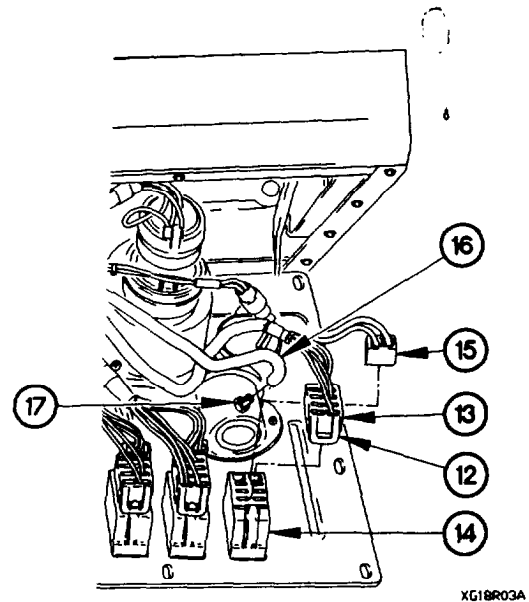
7-15. INSTRUMENT PANEL ASSEMBLY REPLACEMENT/REPAIR (CONT)

NOTE

- Vehicle serial numbers 0002 through 0017, 0019 through 0025, 0027 through 0031, 0033 through 0038, 0040 and 0041, 0043 through 0053, 0055 through 0089, 0091 through 0254, 0256 through 0258, 0260, 0261, 0263 through 2400, and 2402 through 3091 are not equipped with LAMP TEST switch.
- Vehicle serial numbers 0001 through 1477 were originally equipped with dashboard cable assemblies containing two unused cable connectors for LAMP TEST switch. Vehicle serial numbers 1478 through 3091 were originally equipped with dashboard cable assemblies without connectors for LAMP TEST switch.
- All rocker switches are disconnected the same way. Hazard lights switch shown. Refer to **Table 7-2. Rocker Switch Connectors** for correct combinations of rocker switches and connectors.

Table 7-2. Rocker Switch Connectors

Switch Name	Connector Number
Radiator Fan Off	PX1 and PX1A
LAMP TEST	PX2 and PX2A
Ether Start	PX13 and PX13A
Master Power	PX17 and PX17A
Warning Light	PX12 and PX12A
Hazard Lights	PX14 and PX14A

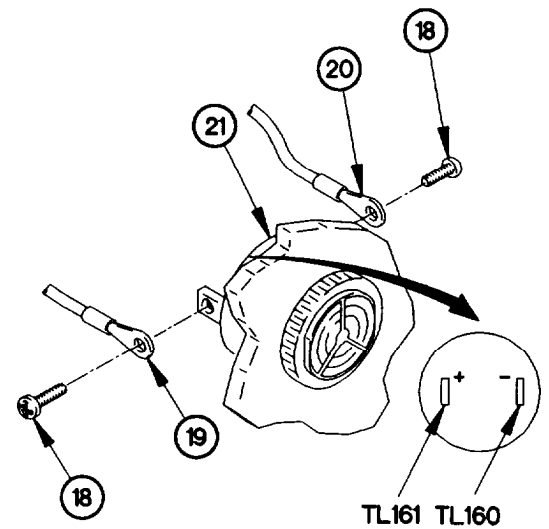


- (9) Lift tab (12) on connector (13).
- (10) Disconnect connector (13) from hazard lights switch (14).
- (11) Disconnect connector (15) from hazard lights switch (14).
- (12) Perform steps (9) through (11) on remaining rocker switches.
- (13) Disconnect vacuum hose (16) from AIR FILTER RESTRICTION GAUGE (17).

NOTE

Perform step (14) on M1079.

- (14) Remove two screws (18) and terminal lugs TL160 (19) and TL161 (20) from audible alarm (21).

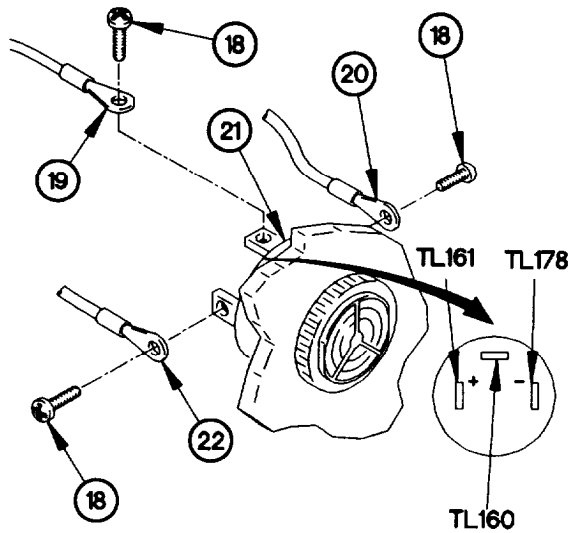


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NOTE

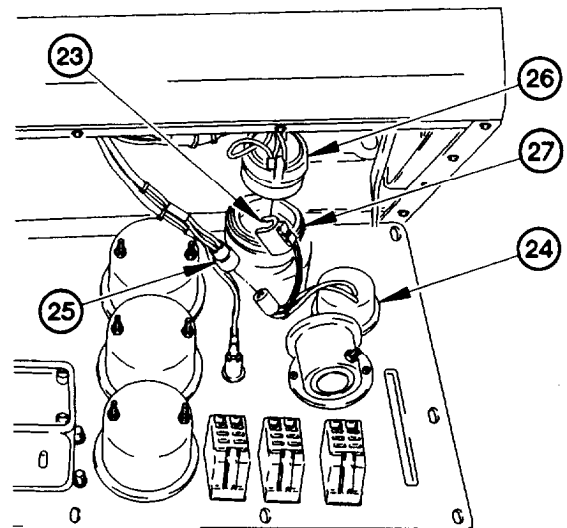
Perform step (15) on M1078 and M1081.

- (15) Remove three screws (18) and terminal lugs TL160 (19), TL161 (20) and TL178 (22) from audible alarm (21).



3G18R051

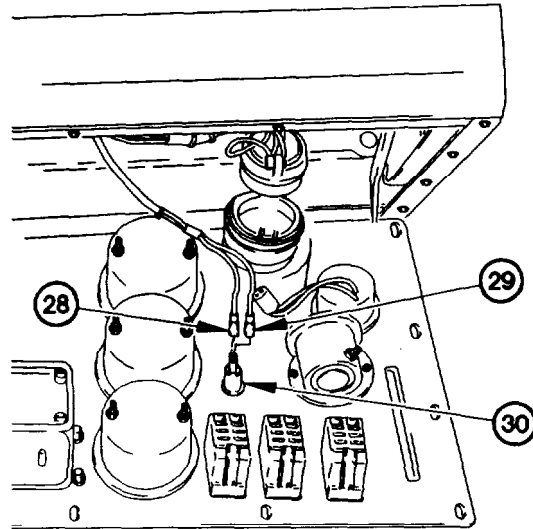
- (16) Remove connector clamp (23) from dimmer switch (24).
- (17) Disconnect connector PX24 (25) from dimmer switch (24).
- (18) Disconnect connector PX15 (26) from main light switch (27).



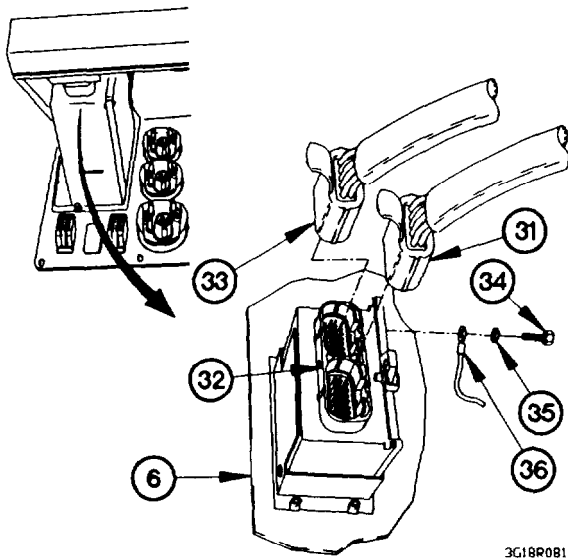
3G18R061

7-15. INSTRUMENT PANEL ASSEMBLY REPLACEMENT/REPAIR (CONT)

(19) Disconnect terminal lugs TL162 (28) and TL163 (29) from starter pushbutton switch (30).



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3G18R081

NOTE

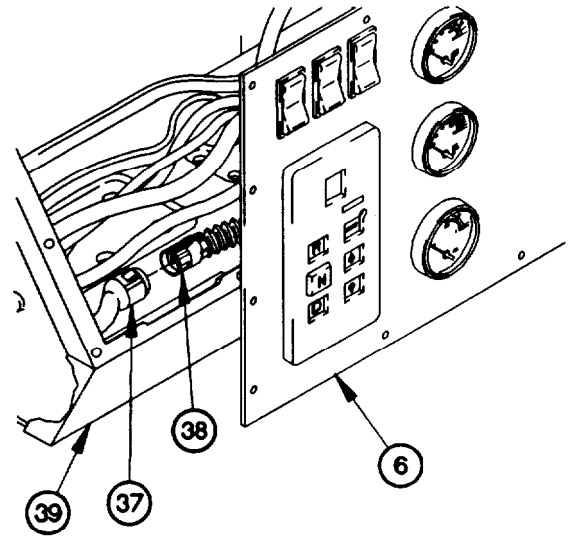
Perform steps (20) through (22) on vehicles equipped with WTEC II transmission controls.

- (20) Disconnect connector J115 (31) from WTEC II TEPS (32).
- (21) Disconnect connector J114 (33) from WTEC II TEPS (32).
- (22) Remove screw (34), washer (35) and terminal lug (36) from instrument panel assembly (6).

NOTE

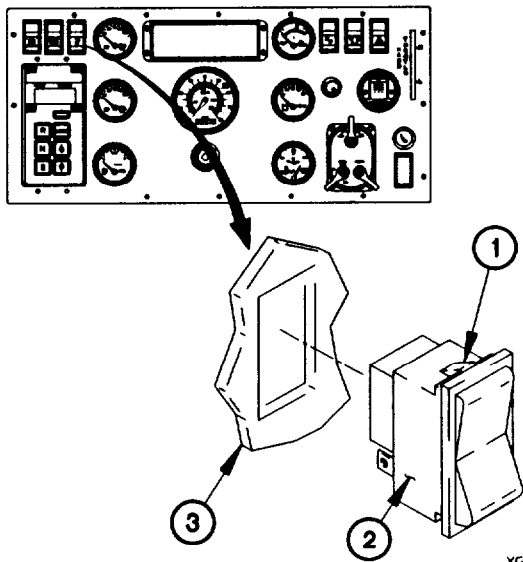
Perform step (23) on vehicles equipped with WTEC III transmission controls.

- (23) Disconnect connector PX33 (37) from WTEC III TPSS (38).
- (24) Remove instrument panel assembly (6) from dashboard (39).



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b. Disassembly.



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NOTE

- All rocker switches are removed the same way. Radiator fan off switch shown.
 - Note position of rocker switches prior to removal.
- (1) Push in two tabs (1) on radiator fan off switch (2).
 - (2) Remove radiator fan off switch (2) from instrument panel (3).
 - (3) Perform steps (1) and (2) on remaining rocker switches.

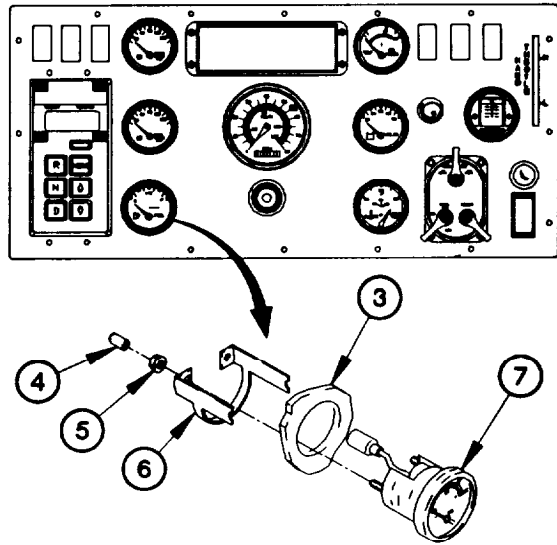
7-15. INSTRUMENT PANEL ASSEMBLY REPLACEMENT/REPAIR (CONT)

NOTE

- All electrical gages are removed the same way. FUEL gage shown.
- Note position of electrical gages prior to removal.

(4) Remove two protective caps (4), self-locking nuts (5), retaining ring (6), and FUEL gage (7) from instrument panel (3). Discard self-locking nuts.

(5) Perform step (4) on remaining electrical gages.



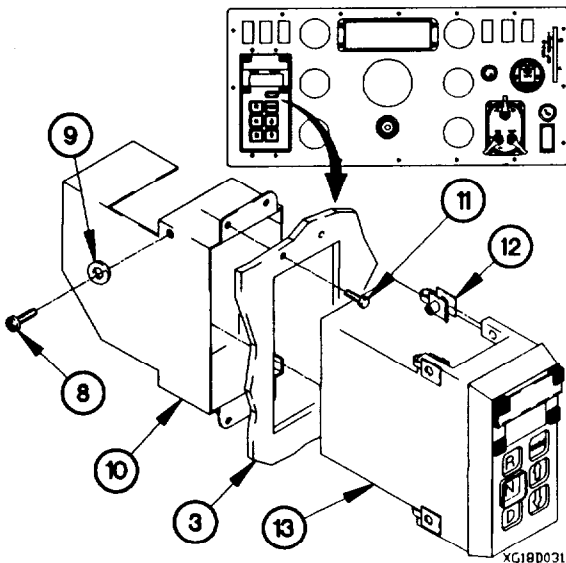
XG18D02A

NOTE

Perform steps (6) and (7) on vehicles equipped with WTEC II transmission controls.

(6) Remove two screws (8) and washers (9) from mounting bracket (10).

(7) Remove four screws (11), mounting bracket (10), three clip nuts (12), and WTEC II TEPSS (13) from instrument panel (3).



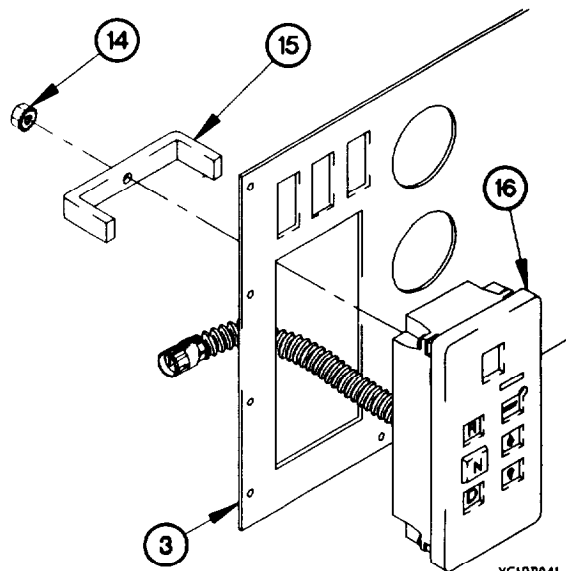
XG18D031

NOTE

Perform steps (8) and (9) on vehicles equipped with WTEC III transmission controls.

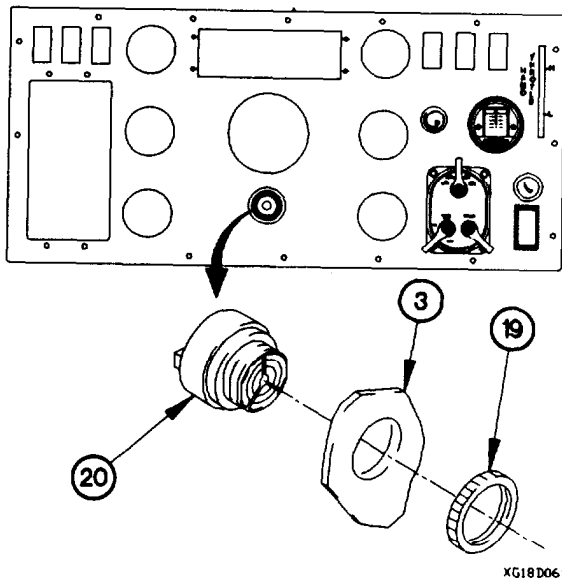
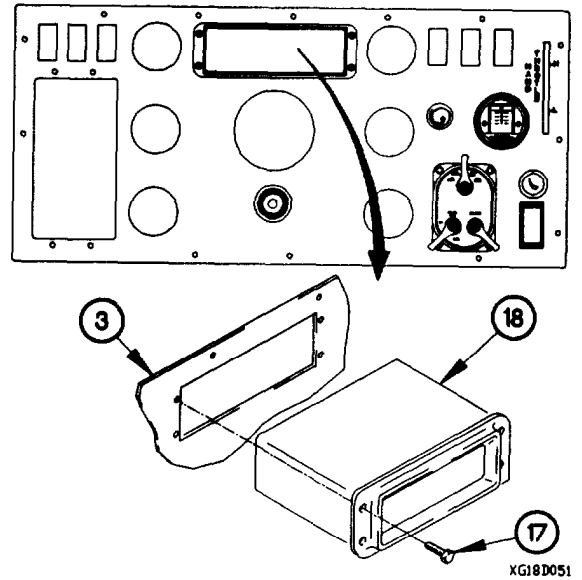
(8) Remove two nuts (14) and brackets (15) from WTEC III TPSS (16).

(9) Remove WTEC III TPSS (16) from instrument panel (3).

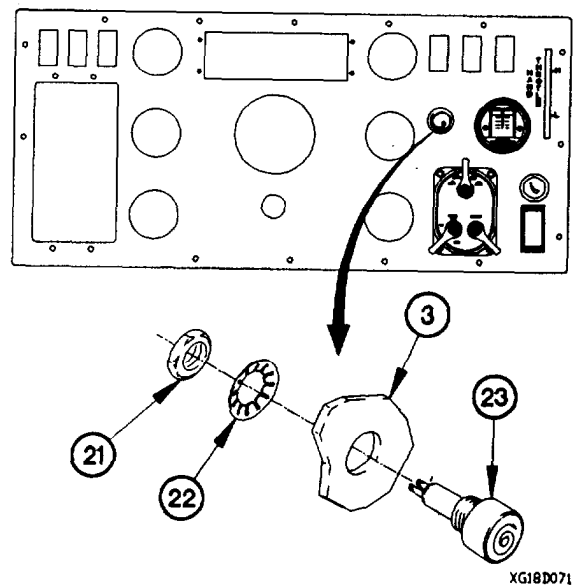


XG18D041

(10) Remove four screws (17) and lighted indicator display (18) from instrument panel (3).



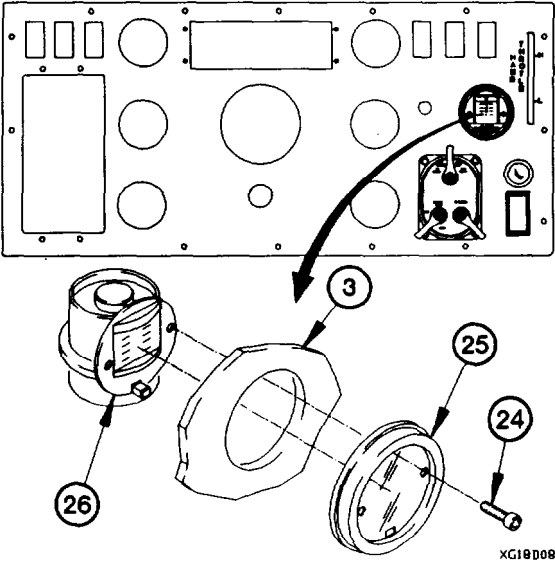
(11) Remove lock ring (19) and audible alarm (20) from instrument panel (3).



(12) Remove nut (21), washer (22), and starter pushbutton switch (23) from instrument panel (3).

7-15. INSTRUMENT PANEL ASSEMBLY REPLACEMENT/REPAIR (CONT)

(13) Remove two screws (24), faceplate (25) and AIR FILTER RESTRICTION GAUGE (26) from instrument panel (3).

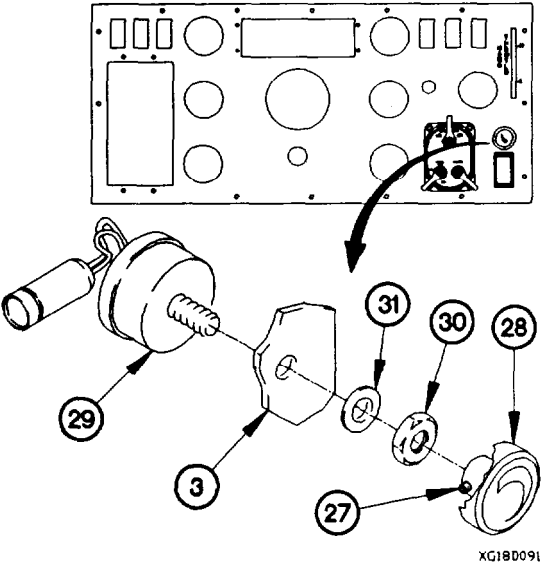


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(14) Loosen screw (27) on dimmer switch knob (28).

(15) Remove dimmer switch knob (28) from dimmer switch (29).

(16) Remove nut (30), washer (31), and dimmer switch (29) from instrument panel (3).



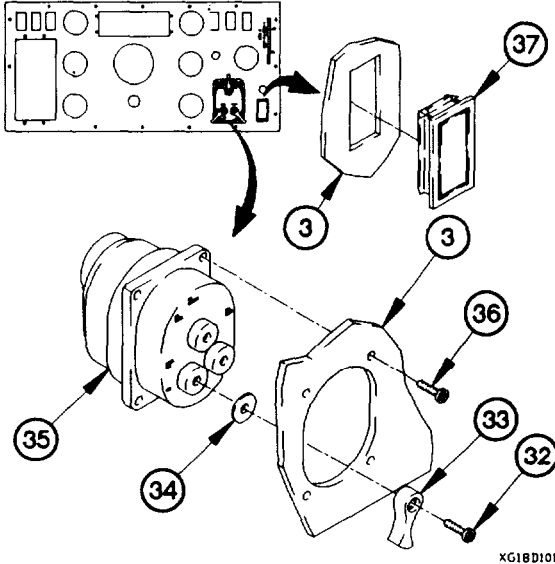
XG18D091

(17) Remove three screws (32) from knobs (33).

(18) Remove three knobs (33) and spacers (34) from main light switch (35).

(19) Remove four screws (36) and main light switch (35) from instrument panel (3).

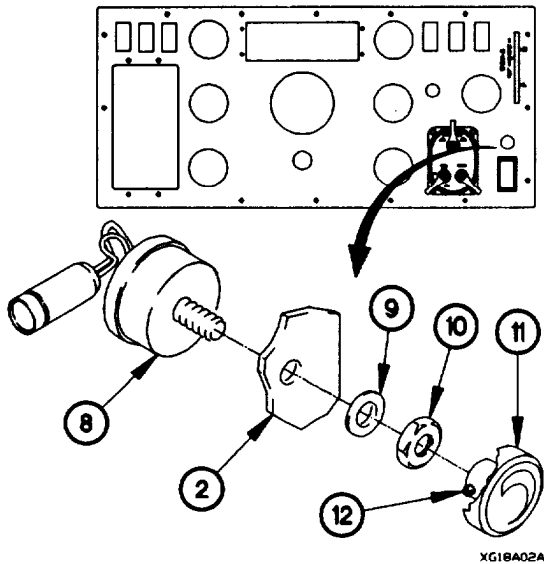
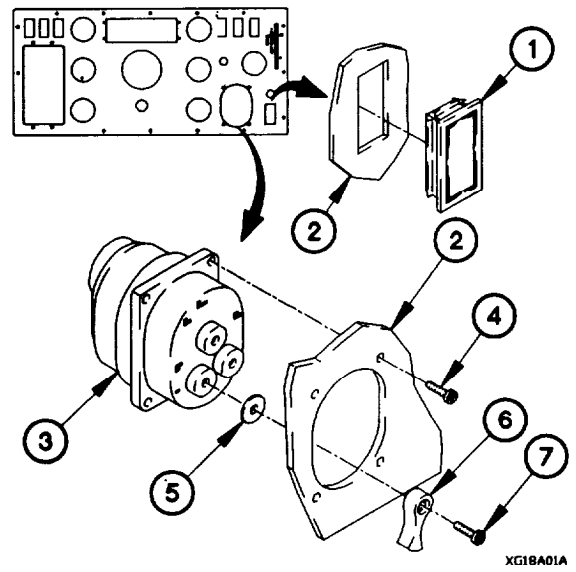
(20) Remove electrical switch cover (37) from instrument panel (3).



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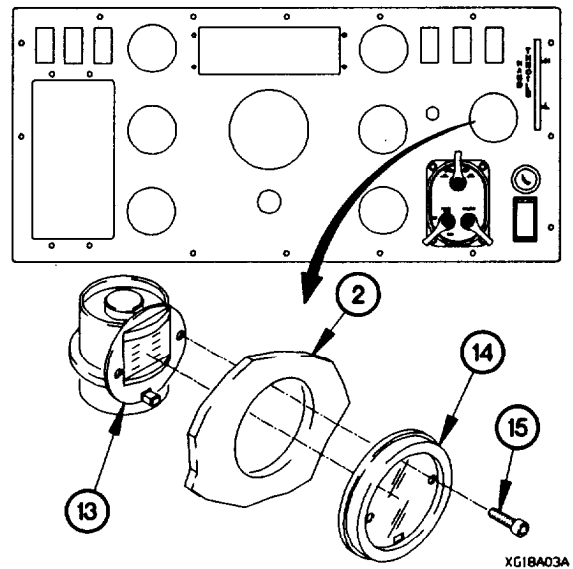
c. Assembly.

- (1) Install electrical switch cover (1) in instrument panel
- (2) Position main light switch (3) in instrument panel (2) with four screws (4).
- (3) Tighten four screws (4) to 9 lb-in. (1 N•m).
- (4) Install three spacers (5) and knobs (6) on main light switch (3).
- (5) Install three screws (7) in knobs (6).



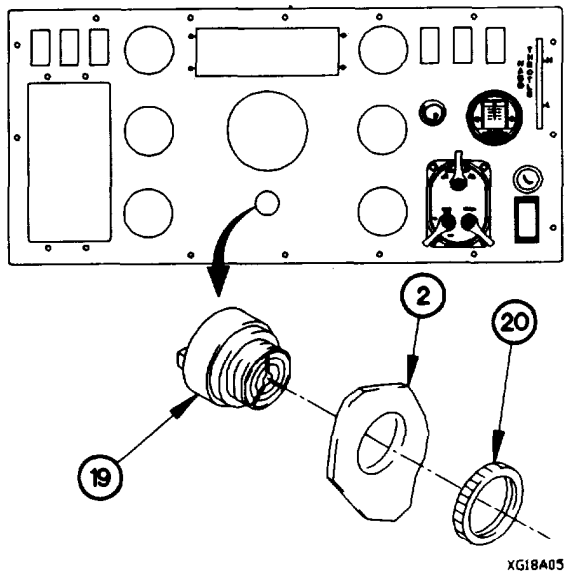
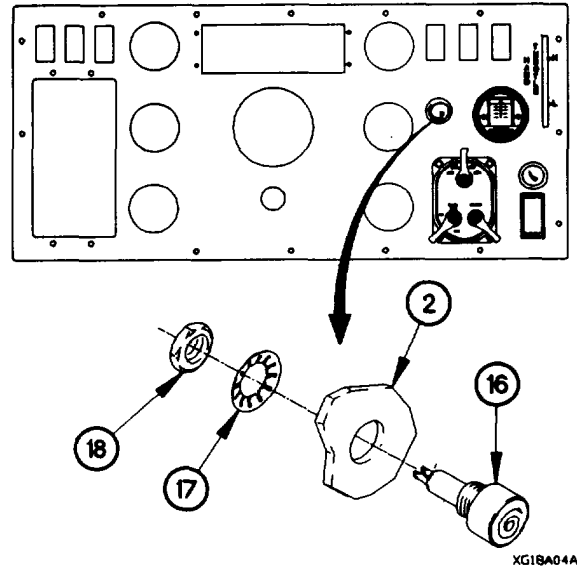
- (6) Position dimmer switch (8) in instrument panel (2) with washer (9) and nut (10).
- (7) Tighten nut (10) to 159-195 lb-in. (18-22 N•m).
- (8) Install dimmer switch knob (11) on dimmer switch (8).
- (9) Tighten screw (12) in dimmer switch knob (11).

- (10) Install AIR FILTER RESTRICTION GAUGE (13) and faceplate (14) on instrument panel (2) with two screws (15).

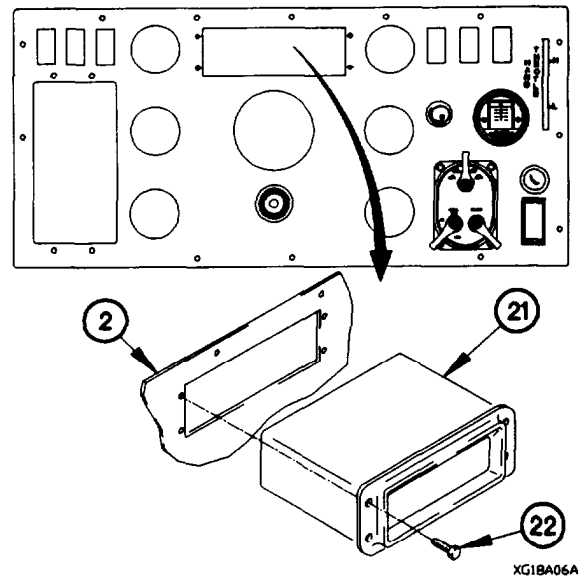


7-15. INSTRUMENT PANEL ASSEMBLY REPLACEMENT/REPAIR (CONT)

- (11) Position starter pushbutton switch (16) in instrument panel (2) with washer (17) and nut (18).
- (12) Tighten nut (18) to 57-70 lb-in. (6-8 N•m).



- (13) Install audible alarm (19) in instrument panel (2) with lock ring (20).

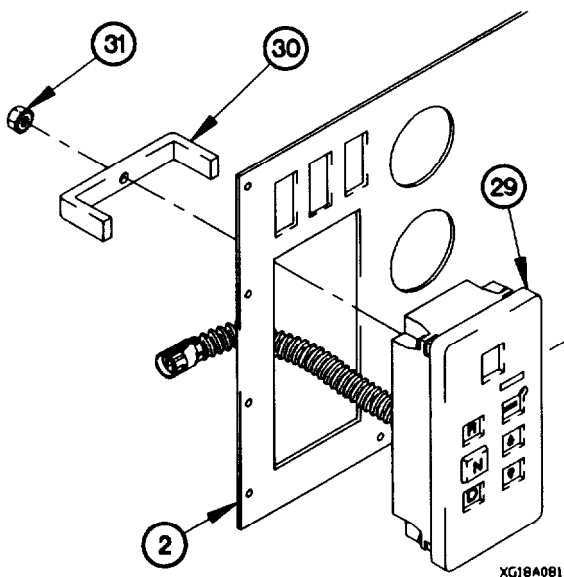
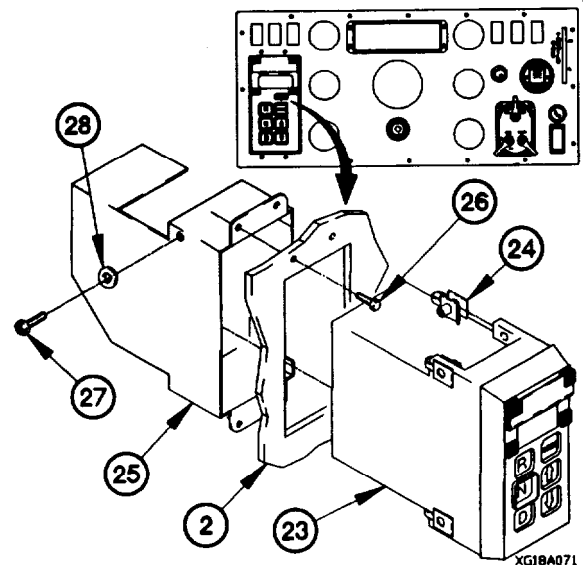


- 14) Position lighted indicator display (21) in instrument panel (2) with four screws (22).
- 15) Tighten four screws (22) to 9 lb-in. (1 N•m).

NOTE

Perform steps (16) through (19) on vehicles equipped with WTEC II transmission controls.

- (18) Position WTEC II TEPSS (23) in instrument panel (2) with three clip nuts (24), mounting bracket (25) and four screws (28).
- (17) Position two screws (27) and washers (28) in mounting bracket (25).
- (8) Tighten four screws (26) to 9 lb-in. (1 N•m).
- (19) Tighten two screws (27) to 27-35 lb-in. (3-4 N•m).



NOTE

Perform steps (20) through (22) on vehicles equipped with WTEC III transmission controls.

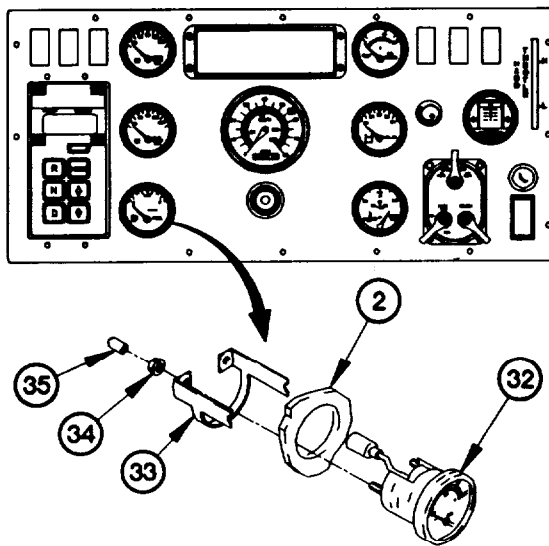
- (20) Install WTEC III TPSS (29) in instrument panel (2).
- (21) Position two brackets (30) on rear of WTEC III TPSS (29) with two nuts (31).
- (22) Tighten two nuts (31) to 11-13 lb-in. (1 N•m).

7-15. INSTRUMENT PANEL ASSEMBLY REPLACEMENT/REPAIR (CONT)

NOTE

All electrical gages are installed the same way. FUEL gage shown.

- (23) Position FUEL gage (32) in instrument panel (2) with mounting ring (33) and two self-locking nuts (34).
- (24) Tighten two self-locking nuts (34) to 9 lb-in. (1 N•m).
- (25) Install two protective caps (35) on FUEL gage (32).
- (28) Perform steps (23) through (25) on remaining gages.

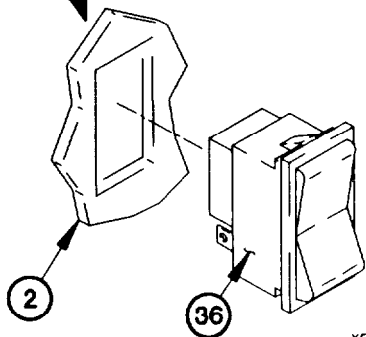
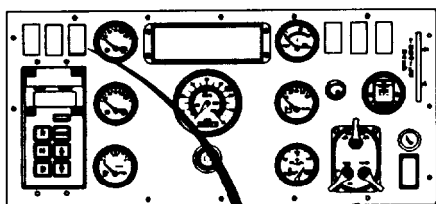


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NOTE

All rocker switches are installed the same way. Radiator fan off switch shown.

- (27) Install radiator fan off switch (36) in instrument panel (2).
- (28) Perform step (27) on remaining rocker switches.



XG18A101

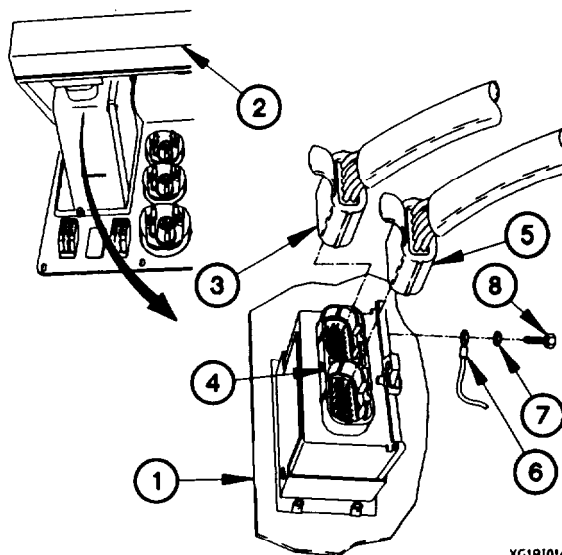
d. Installation.

- (1) Position instrument panel assembly (1) on dashboard (2).

NOTE

Perform steps (2) through (4) on vehicles equipped with WTEC II transmission controls.

- (2) Connect connector J114 (3) to WTEC II TEPSS (4).
- (3) Connect connector J115 (5) to WTEC II TEPSS (4).
- (4) Install terminal lug (6) on instrument panel assembly (1) with washer (7) and screw (8).

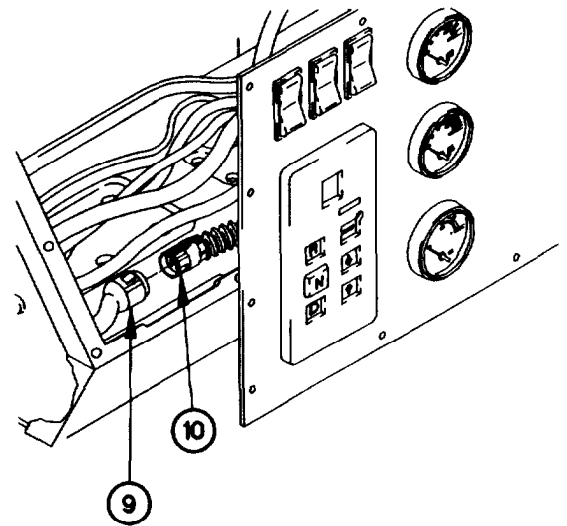


XG18101A

NOTE

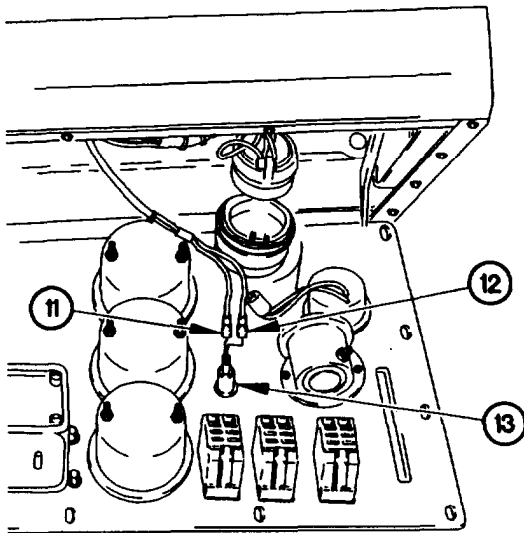
Perform step (5) on vehicles equipped with WTEC III transmission controls.

(5) Connect connector PX33 (9) to WTEC III TPSS (10).



XG181021

(6) Connect terminal lugs TL163 (11) and TL162 (12) to starter pushbutton switch (13).

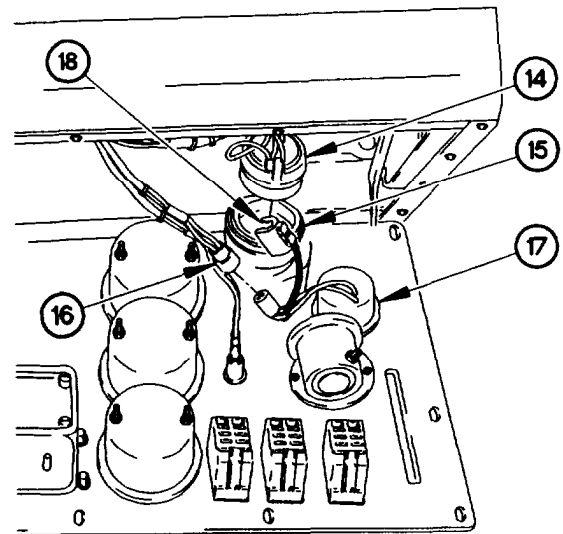


XG181031

(7) Connect connector PX15 (14) to main light switch (15).

(8) Connect connector PX24 (16) to dimmer switch (17).

(9) Install connector clamp (18) on dimmer switch (17).

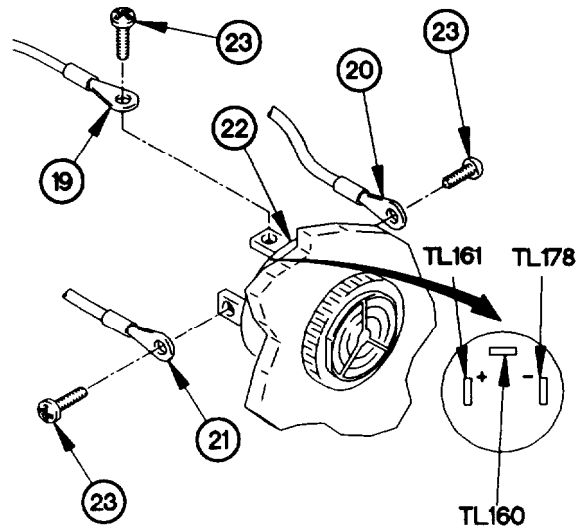


XG18104A

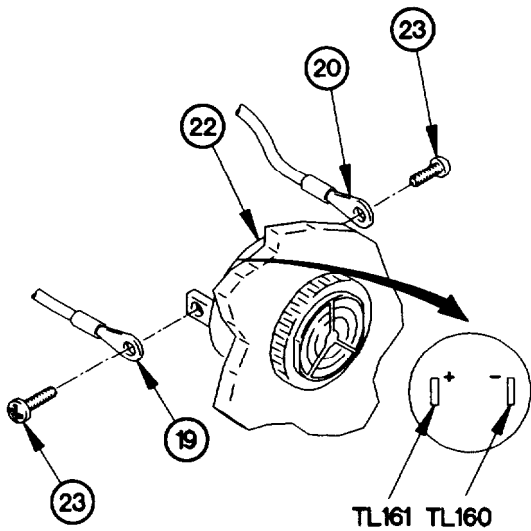
NOTE

Perform step (10) on M1078 and M1081.

- (10) Install terminal lugs TL160 (19), TL161 (20) and TL178 (21) on audible alarm (22) with three screws (23).



3G181041



3G181051

NOTE

Perform step (11) on M1079.

- (11) Install terminal lugs TL160 (19) and TL161 (20) on audible alarm (22) with two screws (23).

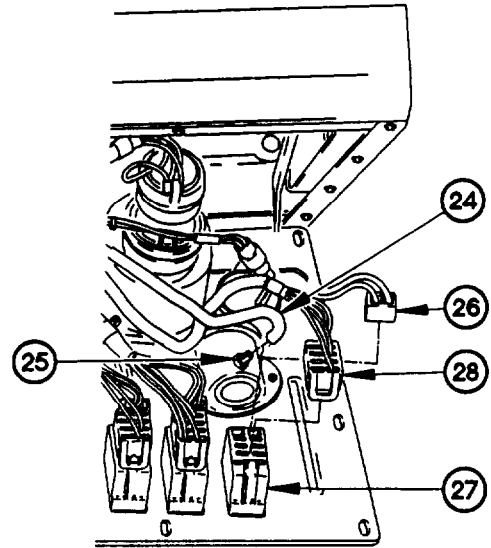
- (12) Connect vacuum hose (24) to AIR FILTER RESTRICTION GAUGE (25).

NOTE

Vehicle serial numbers 0002 through 0017, 0019 through 0025, 0027 through 0031, 0033 through 0038, 0040 and 0041, 0043 through 0053, 0055 through 0089, 0091 through 0254, 0258 through 0260, 0261, 0283 through 2400, and 2402 through 3091 are not equipped with LAMP TEST switch.

Vehicle serial numbers 0001 through 1477 were originally equipped with dashboard cable assemblies containing two unused connectors for LAMP TEST switch. Vehicle serial numbers 1478 through 3091 were originally equipped with dashboard cable assemblies without connectors for LAMP TEST switch.

All rocker switches are connected the same way. Hazard lights switch shown. Refer to **Table 7-2. Rocker Switch Connectors** for correct combinations of rocker switches and connectors.

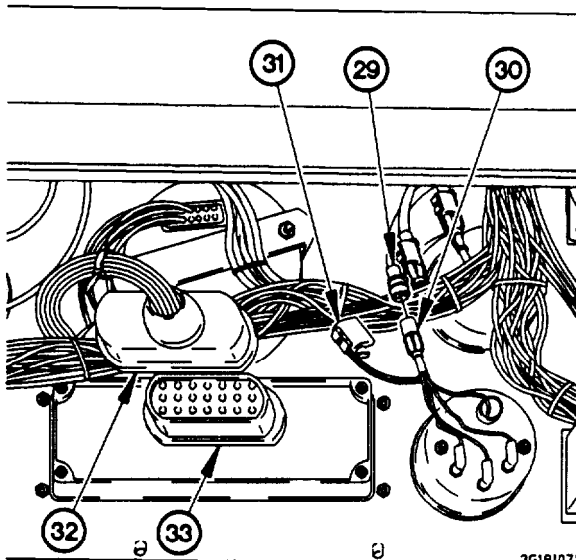


3G181061

- (13) Connect connector (26) to hazard lights switch (27).
 (14) Connect connector (28) to hazard lights switch (27).
 (15) Perform steps (13) and (14) on remaining rocker switches.

NOTE

All electrical gages are connected the same way. OIL PRESS gage shown. Refer to **Table 7-1. Electrical Gages Connectors** for correct combinations of gages and connectors.

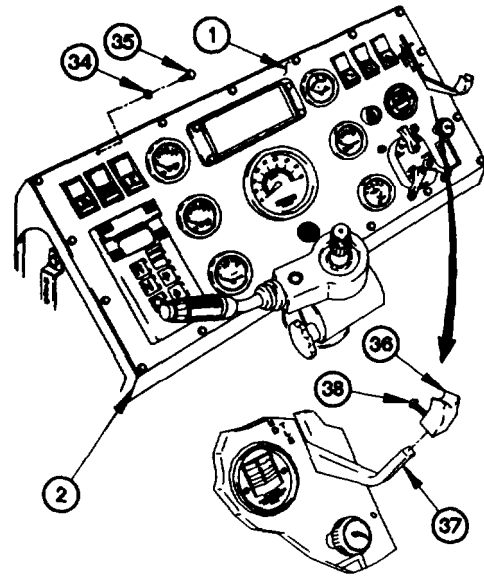


3G181071

- (16) Connect connector (29) to OIL PRESS gage connector (30).
 (17) Install connector clamp (31) on OIL PRESS gage connector (30).
 (18) Perform steps (16) and (17) on remaining electrical gages.
 (19) Connect connector PX7 (32) to lighted indicator display (33).

7-15. INSTRUMENT PANEL ASSEMBLY REPLACEMENT/REPAIR (CONT)

- (20) Position instrument panel assembly (1) on dashboard (2) with 16 washers (34) and screws (35).
- (21) Tighten 16 screws (35) to 24 lb-in. (3 N•m).
- (22) Install HAND THROTTLE knob (36) on HAND THROTTLE lever (37) with screw (38).



3G101081

e. Follow-On Maintenance.

- (1) Install steering wheel (para 13-2).
- (2) Connect batteries (para 7-48).
- (3) Start engine (TM 9-2320-365-10).
- (4) Check operation of instrument panel assembly switches and gages (TM 9-2320-365-10).
- (5) Shut down engine (TM 9-2320-365-10).

End of Task.

7-16. LIGHTED INDICATOR DISPLAY REPLACEMENT/REPAIR

This task covers:

- a. Removal
- b. Disassembly
- c. Assembly
- d. Installation
- e. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Batteries disconnected (para 7-48).

Tools and Special Tools

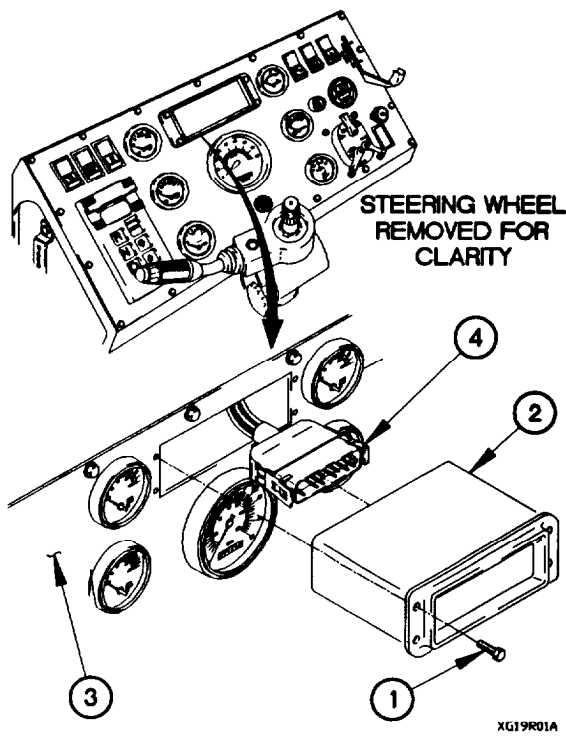
Tool Kit, Genl Mech (Item 44, Appendix C)
 Wrench, Torque, 0-75 lb-in. (Item 86, Appendix B)

Materials/Parts

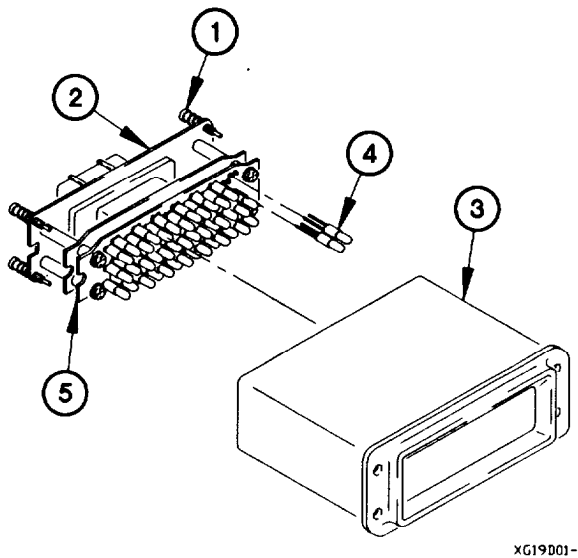
Lamp, Incandescent (Item 57, Appendix G)
 Lamp, Incandescent (Item 58, Appendix G)

a. Removal.

- (1) Remove four screws (1) and lighted indicator display (2) from instrument panel assembly (3).
- (2) Disconnect connector PX7 (4) from lighted indicator display (2).



b. Disassembly.



- (1) Loosen four captive screws (1) in lamp mounting panel
- (2) Remove lamp mounting panel (2) from lighted indicator display housing (3).
- (3) Remove faulty lamp(s) (4) from printed circuit board (5). Discard faulty lamp(s).

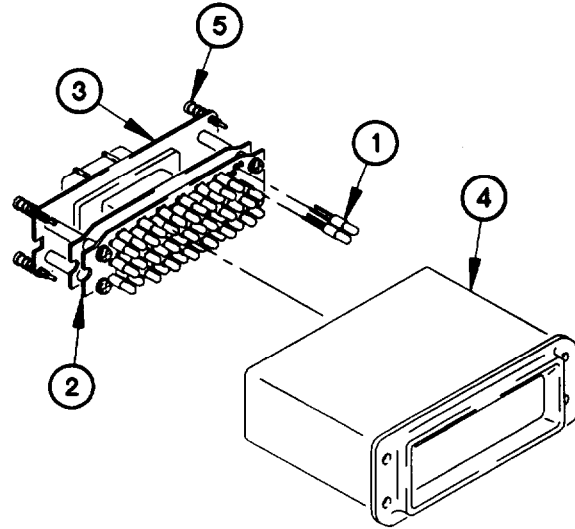
7-16. LIGHTED INDICATOR DISPLAY REPLACEMENT/REPAIR (CONT)

c. Assembly.

NOTE

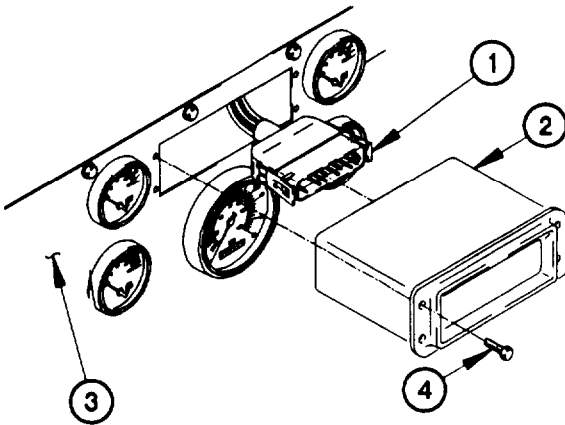
Left turn indicator, right turn indicator, and high beam indicator are 12 vdc lamps. All other lamps are 24 vdc.

- (1) Install replacement lamp(s) (1) in printed circuit board (2).
- (2) Install lamp mounting panel (3) in lighted indicator display housing (4).
- (3) Tighten four captive screws (5) in lamp mounting panel (3).



XG19A01-

d. Installation.



XG19101A

- (1) Connect connector PX7 (1) to lighted indicator display (2).
- (2) Position lighted indicator display (2) in instrument panel assembly (3) with four screws (4).
- (3) Tighten four screws (4) to 9 lb-in. (1 N•m).

e. Follow-On Maintenance.

- (1) Connect batteries (para 7-48).
- (2) Check operation of lighted indicator display (TM 9-2320-365-10).

End of Task.

7-17. MAIN LIGHT SWITCH REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Instrument panel assembly removed for access (para 7-15).

Materials/Parts

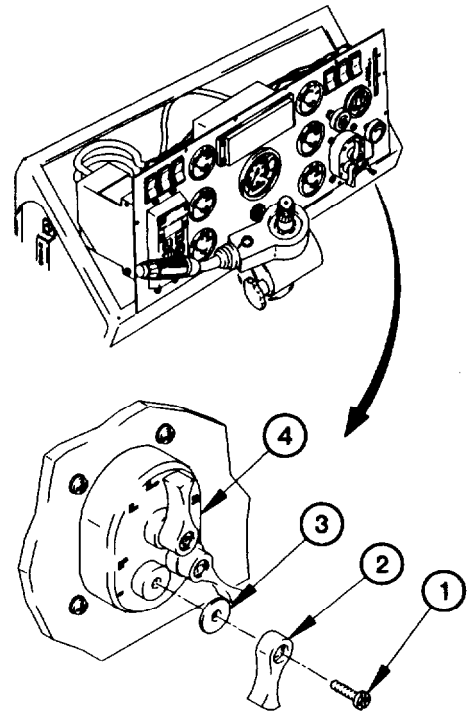
Ties, Cable, Plastic (Item 76, Appendix D)

Tools and Special Tools

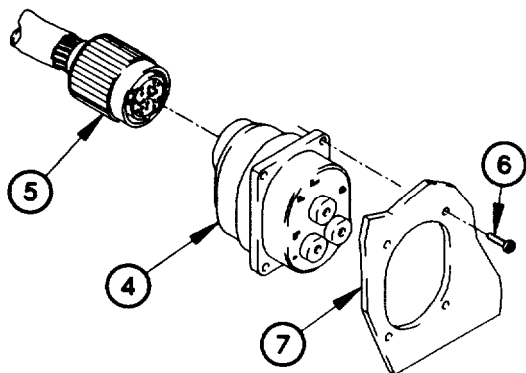
Tool Kit, Genl Mech (Item 44, Appendix C)
Wrench, Torque, 0-75 lb-in. (Item 86, Appendix B)

a. Removal.

- (1) Remove three screws (1) from knobs (2).
- (2) Remove three knobs (2) and spacers (3) from main light switch (4).



XG20R01A



XG20R02A

NOTE

Remove plastic cable ties as required.

- (3) Disconnect connector PX15 (5) from main light switch (4).
- (4) Remove four screws (6) and main light switch (4) from instrument panel assembly (7).

7-17. MAIN LIGHT SWITCH REPLACEMENT (CONT)

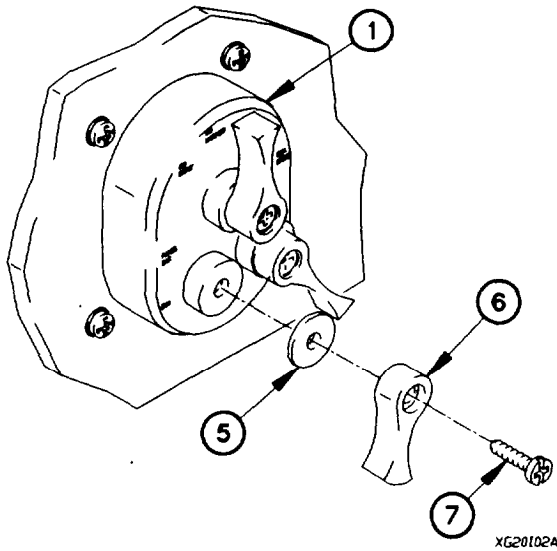
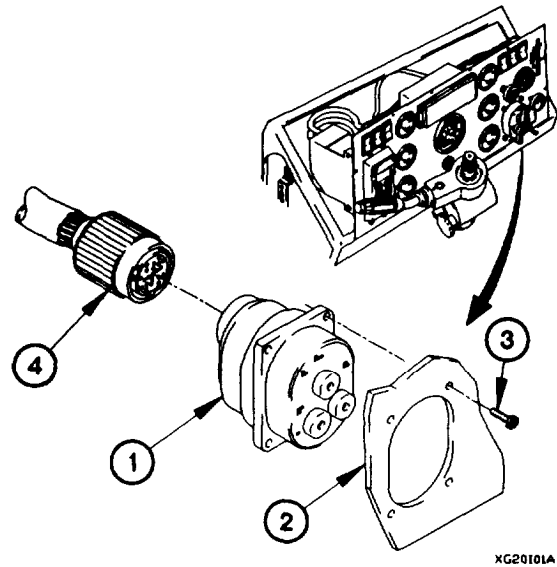
b. Installation.

- (1) Position main light switch (1) in instrument panel assembly (2) with four screws (3).
- (2) Tighten four screws (3) to 9 lb-in. (1 N•m).

NOTE

Install plastic cable ties as required.

- (3) Connect connector PX15 (4) to main light switch (1).



- (4) Install three spacers (5) and knobs (6) on main light switch (1).
- (5) Install three screws (7) in knobs (6).

c. Follow-On Maintenance.

- (1) Install instrument panel assembly (para 7-15).
- (2) Check lighting system operation (TM 9-2320-365-10).

End of Task.

7-18. ROCKER SWITCHES REPLACEMENT

This task covers:

- | | |
|--|---|
| a. Instrument Panel Rocker Switch Removal | d. Auxiliary Panel Rocker Switch Installation |
| b. Instrument Panel Rocker Switch Installation | e. Follow-On Maintenance |
| c. Auxiliary Panel Rocker Switch Removal | |

INITIAL SETUP

Equipment Conditions

Instrument panel assembly removed for access (for instrument panel rocker switches) (para 7-15).

Materials/Parts

Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)

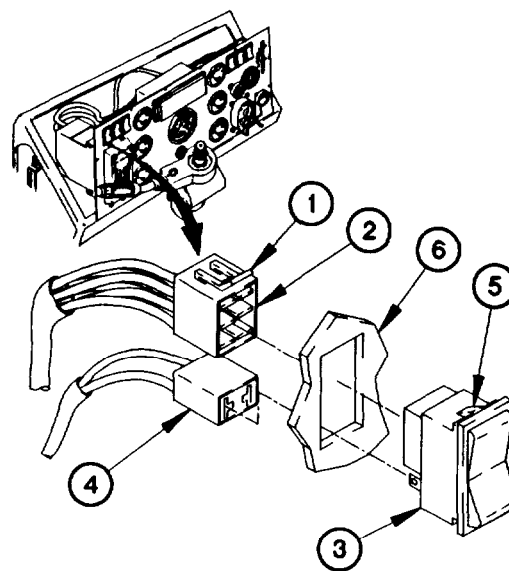
Tools and Special Tools

Tool Kit, Genl Mech (Item 44, Appendix C)
Wrench, Torque, 0-75 lb-in. (Item 86, Appendix B)

a. Instrument Panel Rocker Switch Removal.

NOTE

- Vehicle serial numbers 0002 through 0017, 0019 through 0025, 0027 through 0031, 0033 through 0038, 0040, 0041, 0043 through 0053, 0055 through 0089, 0091 through 0254, 0256 through 0258, 0260, 0261, 0263 through 2400, and 2402 through 3091 are not equipped with LAMP TEST switch.
- All instrument panel rocker switches are removed the same way. Radiator fan off switch shown.
- Tag electrical connectors and connection points prior to disconnecting.

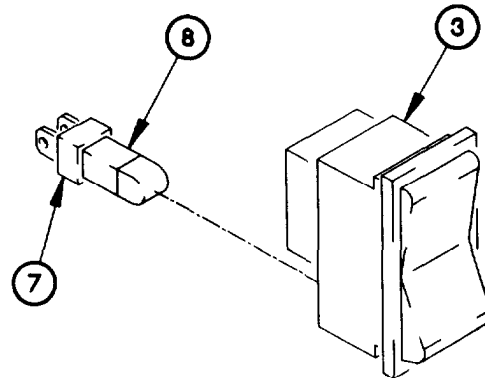


- (1) Lift tab (1) on connector PX1 (2).
- (2) Disconnect connector PX1 (2) from radiator fan off switch (3).
- (3) Disconnect connector PX1A (4) from radiator fan off switch (3).
- (4) Push in two tabs (5) on radiator fan off switch (3).
- (5) Remove radiator fan off switch (3) from instrument panel assembly (6).

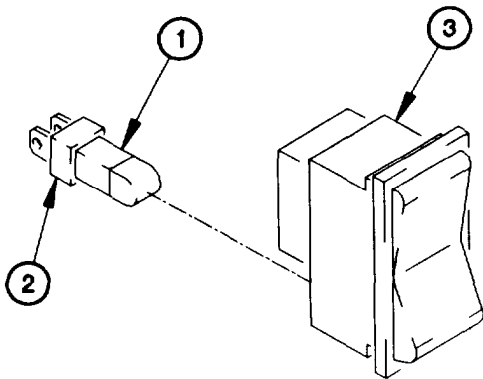
7-18. ROCKER SWITCHES REPLACEMENT (CONT)

(6) Remove lamp base (7) from radiator fan off switch (3).

(7) Remove lamp (8) from lamp base (7).



b. Instrument Panel Rocker Switch Installation.



XG21A02A

NOTE

All instrument panel rocker switches are installed the same way. Radiator fan off switch shown.

(1) Install lamp (1) in lamp base (2).

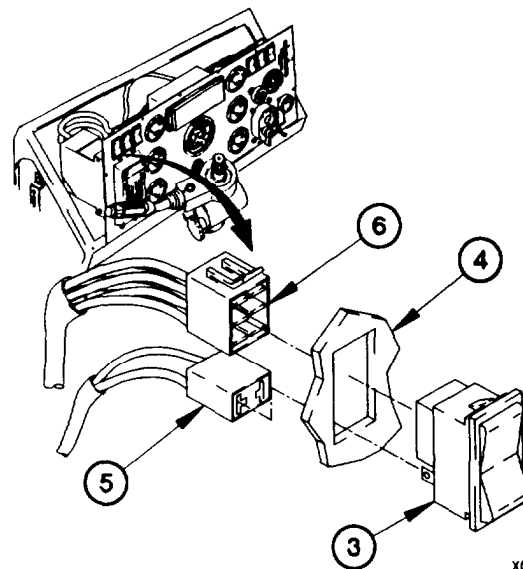
(2) Install lamp base (2) in radiator fan off switch (3).

XG21B01-

(3) Install radiator fan off switch (3) in instrument panel assembly (4).

(4) Connect connector PX1A (5) to radiator fan off switch (3).

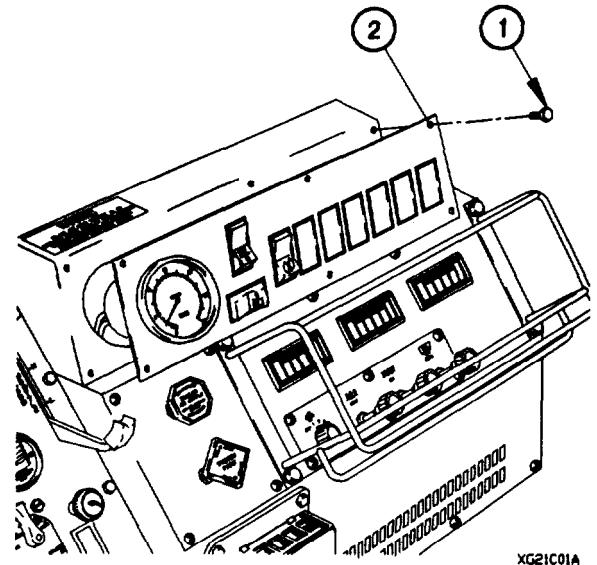
(5) Connect connector PX1 (6) to radiator fan off switch (3).



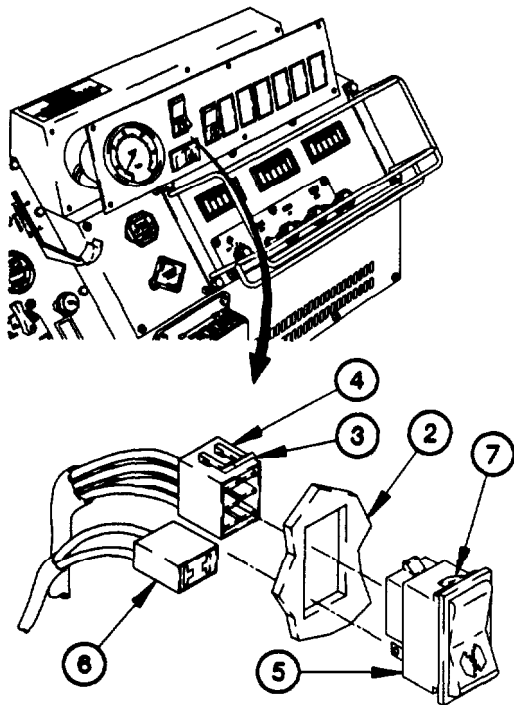
XG21B02A

c. Auxiliary Panel Rocker Switch Removal.

- (1) Remove six screws (1) from auxiliary panel (2).
- (2) Lift auxiliary panel (2) outward to gain access.



XG21C01A



XG21C02A

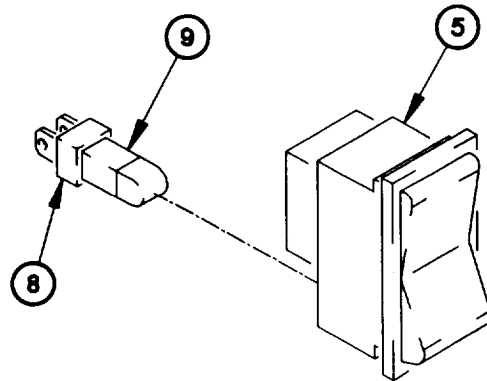
NOTE

- All auxiliary panel rocker switches are removed the same way. PTO switch shown.
- Tag electrical connectors and connection points prior to disconnecting.

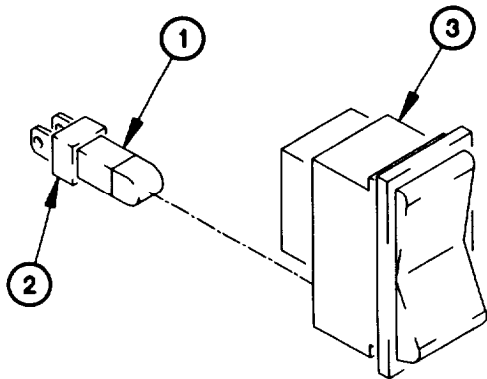
- (3) Lift tab (3) on connector P903 (4).
- (4) Disconnect connector P903 (4) from PTO switch (5).
- (5) Disconnect connector P903A (6) from PTO switch (5).
- (6) Push in two tabs (7) on PTO switch (5).
- (7) Remove PTO switch (5) from auxiliary panel (2).

7-18. ROCKER SWITCHES REPLACEMENT (CONT)

- (8) Remove lamp base (8) from PTO switch (5).
- (9) Remove lamp (9) from lamp base (8).



d. Auxiliary Panel Rocker Switch Installation.



XG21C03-

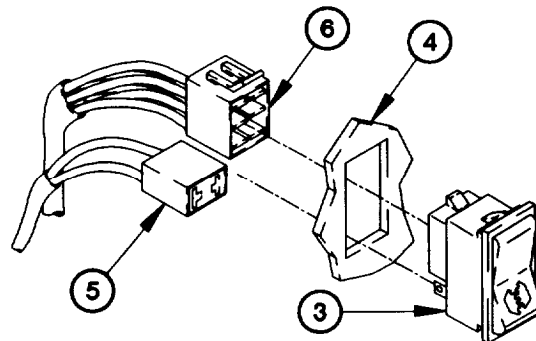
NOTE

All auxiliary panel rocker switches are installed the same way. PTO switch shown.

- (1) Install lamp (1) in lamp base (2).
- (2) Install lamp base (2) in PTO switch (3).

XG21D01-

- (3) Install PTO switch (3) in auxiliary panel (4).
- (4) Connect connector P903A (5) to PTO switch (3).
- (5) Connect connector P903 (6) to PTO switch (3).



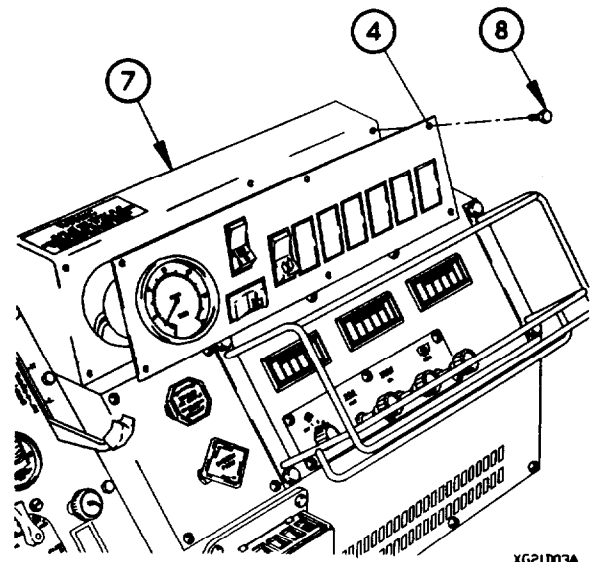
XG21D02A

- (6) Position auxiliary panel (4) on auxiliary panel housing (7) with six screws (8).
- (7) Tighten six screws (8) to 18 lb-in. (2 N•m).

c. Follow-On Maintenance.

- (1) Install instrument panel assembly (instrument panel rocker switches) (para 7-15).
- (2) Check rocker switch operation (TM 9-2320-365-10).

End of Task.



XG21D03A

7-19. START INHIBIT PUSHBUTTON SWITCH REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Batteries disconnected (para 7-48).
PDP cover removed (para 16-2).

Materials/Parts

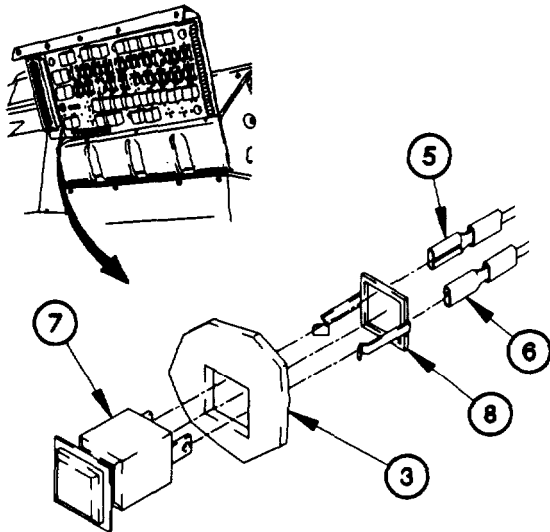
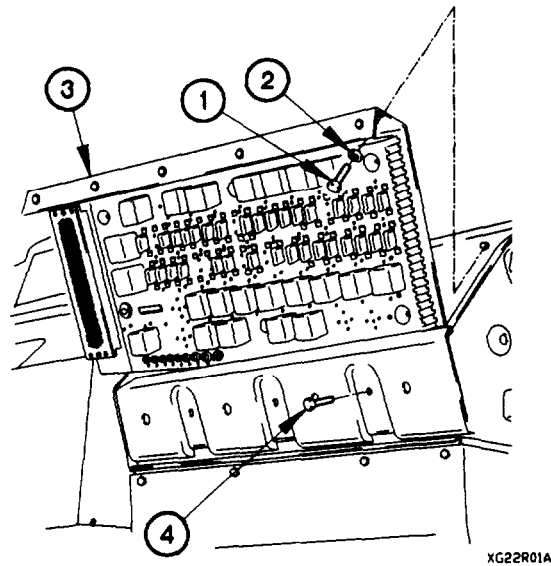
Dispenser, Pressure Sensitive Adhesive Tape
(Item 21, Appendix D)

Tools and Special Tools

Tool Kit, Genl Mech (Item 44, Appendix C)

a. Removal.

- (1) Remove three screws (1) and washers (2) from PDP (3).
- (2) Remove three screws (4) from PDP (3).
- (3) Lift PDP (3) outward to gain access.



NOTE

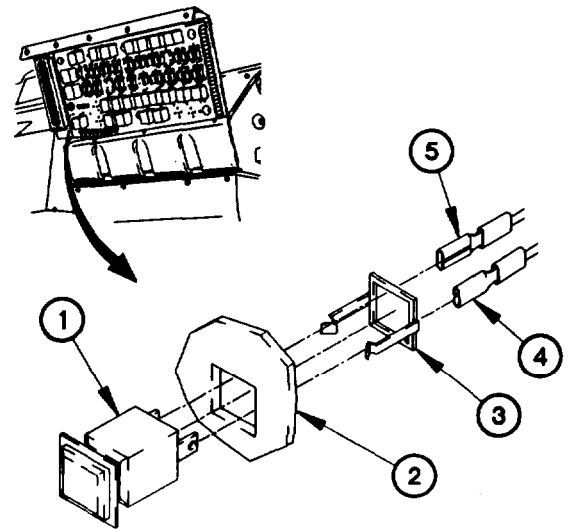
Tag electrical connectors and connection points prior to disconnecting.

- (4) Disconnect terminal lugs TL158 (5) and TL159 (6) from start inhibit pushbutton switch (7).
- (5) Remove spring clip (8) and start inhibit pushbutton switch (7) from PDP (3).

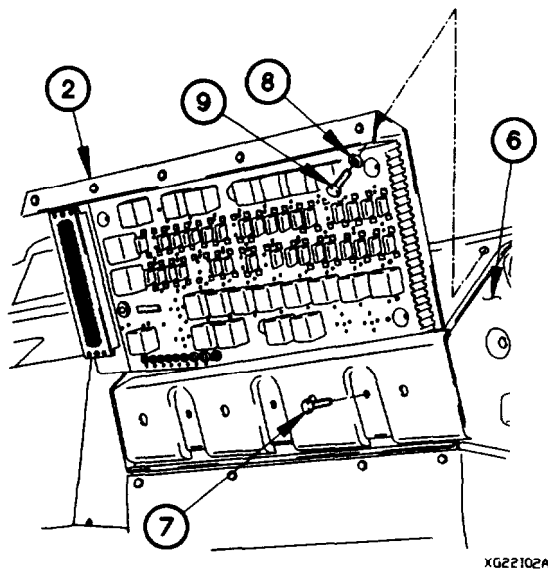
XG22R02A

b. Installation.

- (1) Install start inhibit pushbutton switch (1) in PDP (2) with spring clip (3).
- (2) Connect terminal lugs TL159 (4) and TL158 (5) to start inhibit pushbutton switch (1).



XG2101A



XG2102A

- (3) Position PDP (2) on dashboard (6).
- (4) Install three screws (7) in PDP (2).
- (5) Install three washers (8) and screws (9) in PDP (2).

c. Follow-On Maintenance.

- (1) Install PDP cover (para 16-2).
- (2) Connect batteries (para 7-48).

End of Task.

7-20. STARTER PUSHBUTTON SWITCH REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Instrument panel assembly removed for access (para 7-15).

Tools and Special Tools

Tool Kit, Genl Mach (Item 44, Appendix C)
 Wrench, Torque, 0-200 lb-in. (Item 58, Appendix C)
 Socket Set, Socket Wrench (Item 34, Appendix C)

Materials/Parts

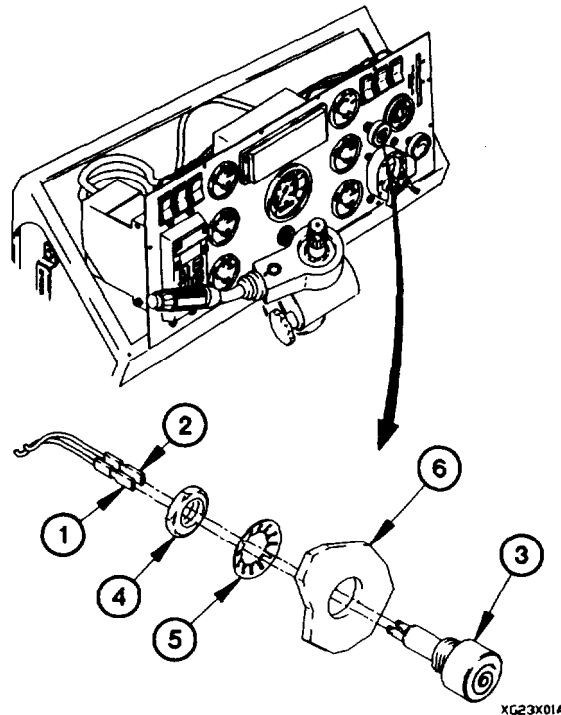
Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)

a. Removal.

NOTE

Tag wires and connection points prior to disconnecting.

- (1) Disconnect terminal lugs TL162 (1) and TL163 (2) from starter pushbutton switch (3).
- (2) Remove nut (4), washer (5), and starter pushbutton switch (3) from instrument panel assembly (6).



b. Installation.

- (1) Position starter pushbutton switch (3) in instrument panel assembly (6) with washer (5) and nut (4).
- (2) Tighten nut (4) to 57-70 lb-in. (6-8 N•m).
- (3) Connect terminal lugs TL163 (2) and TL162 (1) to starter pushbutton switch (3).

c. Follow-On Maintenance.

- (1) Install instrument panel assembly (para 7-15).
- (2) Start engine (TM 9-2320-365-10).
- (3) Shut down engine (TM 9-2320-365-10).

End of Task.

7-21. TACHOMETER REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Batteries disconnected (para 7-48).

Materials/Parts

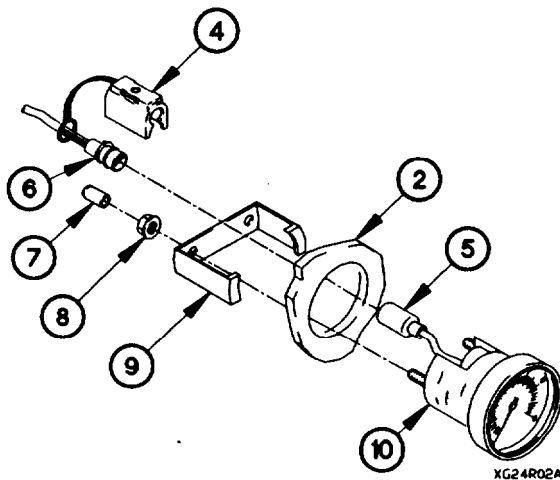
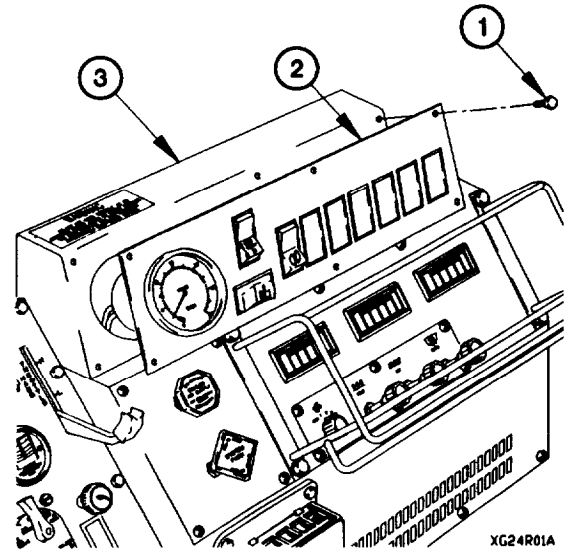
Nut, Self-Locking (2) (Item 125, Appendix G)

Tools and Special Tools

Tool Kit, Genl Mech (Item 44, Appendix C)
Wrench, Torque, 0-75 lb-in. (Item 86, Appendix B)

a. Removal.

- (1) Remove six screws (1) and auxiliary panel (2) from auxiliary panel housing (3).
- (2) Lift auxiliary panel (2) outward to gain access.

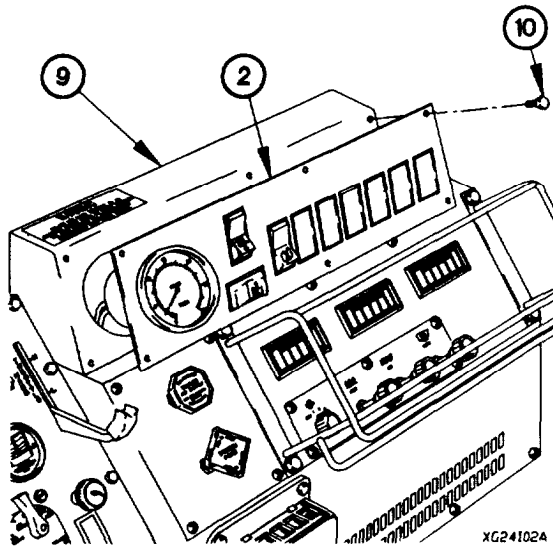
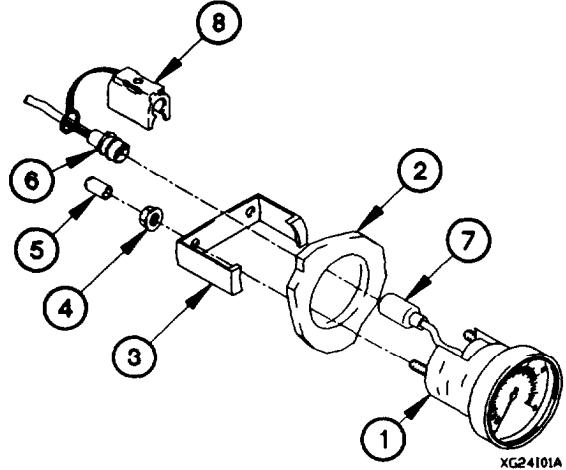


- (3) Disconnect connector clamp (4) from tachometer connector (5).
- (4) Disconnect connector P901 (6) from tachometer connector (5).
- (5) Remove two protective caps (7), self-locking nuts (8), and retaining ring (9) from tachometer (10). Discard self-locking nuts.
- (6) Remove tachometer (10) from auxiliary panel (2).

7-21. TACHOMETER REPLACEMENT (CONT)

b. Installation.

- (1) Position tachometer (1) in auxiliary panel (2) with retaining ring (3) and two self-locking nuts (4).
- (2) Tighten two self-locking nuts (4) to 9 lb-in. (1 N•m).
- (3) Install two protective caps (5) on tachometer (1).
- (4) Connect connector P901 (6) to tachometer connector (7).
- (5) Connect connector clamp (8) on tachometer connector (7).



- (6) Position auxiliary panel (2) on auxiliary panel housing (9) with six screws (10).

- (7) Tighten six screws (10) to 18 lb-in. (2 N•m).

c. Follow-On Maintenance.

- (1) Connect batteries (para 7-48).
- (2) Start engine (TM 9-2320-365-10).
- (3) Check tachometer operation (TM 9-2320-365-10).
- (4) Shut down engine (TM 9-2320-365-10).

End of Task.

7-22. COOLANT TEMPERATURE LIGHT SWITCH REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Cab raised (TM 9-2320-365-10).
 Batteries disconnected (para 7-48).

Tools and Special Tools

Tool Kit, Genl Mech (Item 44, Appendix C)
 Pan, Drain (Item 24, Appendix C)
 Goggles, Industrial (Item 15, Appendix C)
 Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)
 Crowfoot Attachment, Socket Wrench (Item 6, Appendix B)

Materials/Parts

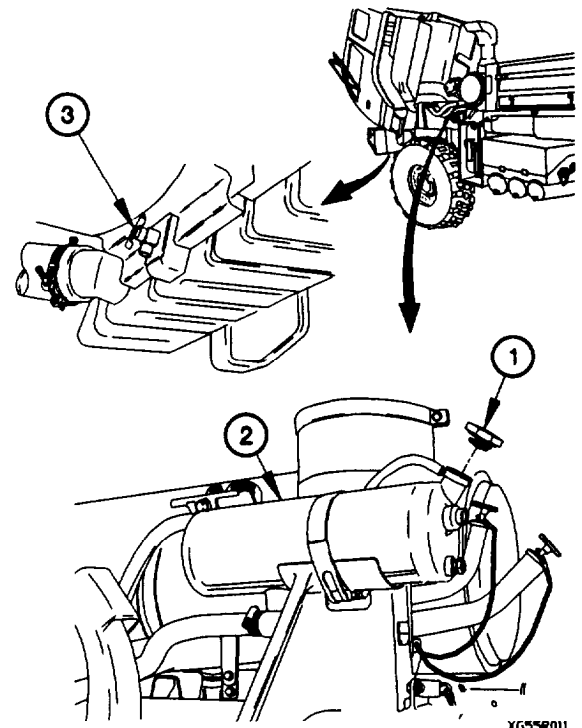
Antiseize Compound (Item 14, Appendix D)
 Ties, Cable, Plastic (Item 76, Appendix D)
 Antifreeze, Ethylene Glycol, Permanent (Item 13, Appendix D)

WARNING

- Coolant may be very hot and under pressure from engine operation. Ensure engine is cool before performing maintenance. Failure to comply may result in injury to personnel.
- Wear appropriate eye protection when working under vehicle due to the possibility of falling debris. Failure to comply may result in injury to personnel.

a. Removal.

- (1) Remove radiator cap (1) from radiator overflow tank (2).
- (2) Position container under radiator draincock (3).
- (3) Open radiator draincock (3) and drain approximately one gallon (one L) of coolant.
- (4) Close radiator draincock (3).



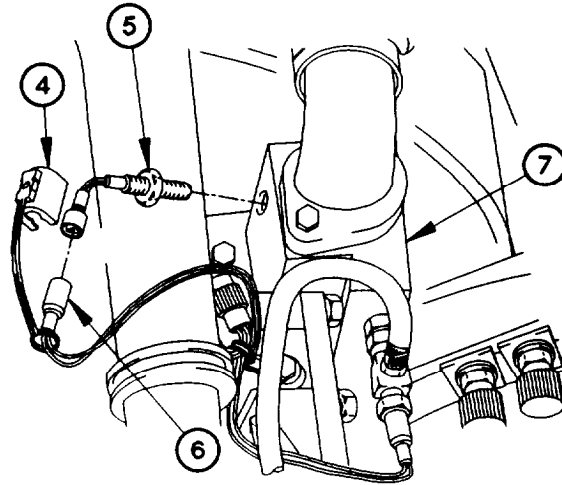
XG55R011

7-22. COOLANT TEMPERATURE LIGHT SWITCH REPLACEMENT (CONT)

NOTE

Remove plastic cable ties as required.

- (5) Disconnect connector clamp (4) from coolant temperature light switch (5).
- (6) Disconnect connector P37 (6) from coolant temperature light switch (5).
- (7) Remove coolant temperature light switch (5) from thermostat housing (7).

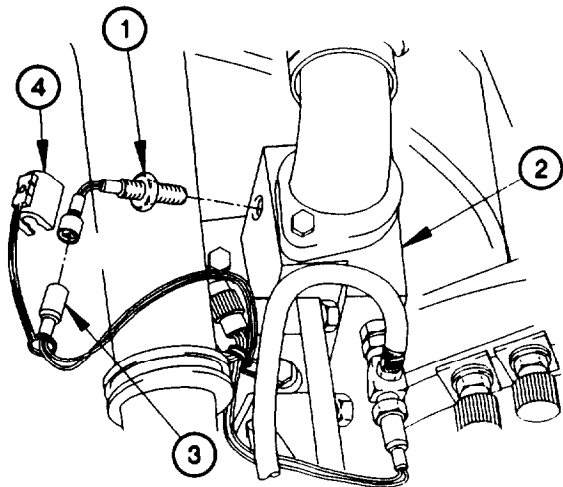


XG55R021

b. Installation.

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.



XG55101A

- (1) Apply antiseize compound to threads of coolant temperature light switch (1).
- (2) Position coolant temperature light switch (1) in thermostat housing (2).
- (3) Tighten coolant temperature light switch (1) to 20-23 lb-ft (27-31 N•m).
- (4) Connect connector P37 (3) to coolant temperature light switch (1).

NOTE

Install plastic cable ties as required.

- (5) Connect connector clamp (4) on coolant temperature light switch (1).

c. Follow-On Maintenance.

- (1) Add coolant to radiator overflow tank (TM 9-2320-365-10).
- (2) Connect batteries (para 7-48).
- (3) Lower cab (TM 9-2320-365-10).
- (4) Start engine (TM 9-2320-365-10).
- (5) Check for coolant leaks under vehicle.
- (6) Check coolant level after normal temperature is reached. Add coolant as required (TM 9-2320-365-10).
- (7) Raise cab (TM 9-2320-365-10).
- (8) Check for leaks around coolant temperature light switch.
- (9) Lower cab (TM 9-2320-365-10).
- (10) Shut down engine (TM 9-2320-365-10).

End of Task.

7-23. FAN SOLENOID REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

- Air tanks drained (TM 9-2320-365-10).
- Batteries disconnected (para 7-48).
- Kick panel removed (para 16-3).

Tools and Special Tools

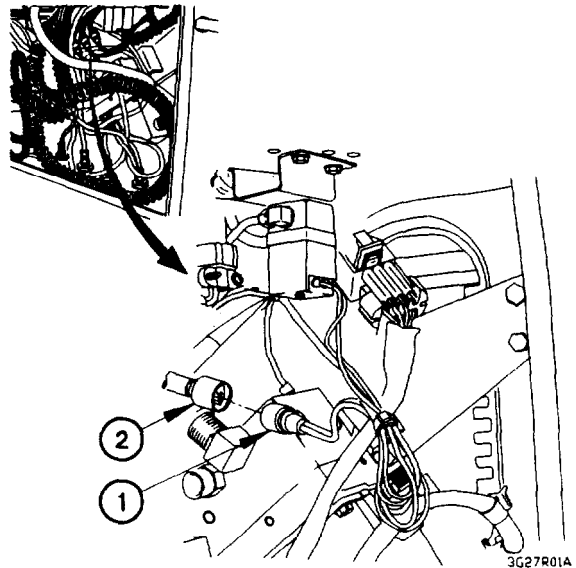
- Tool Kit, Genl Mech (Item 44, Appendix C)

Materials/Parts

- Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)

a. Removal.

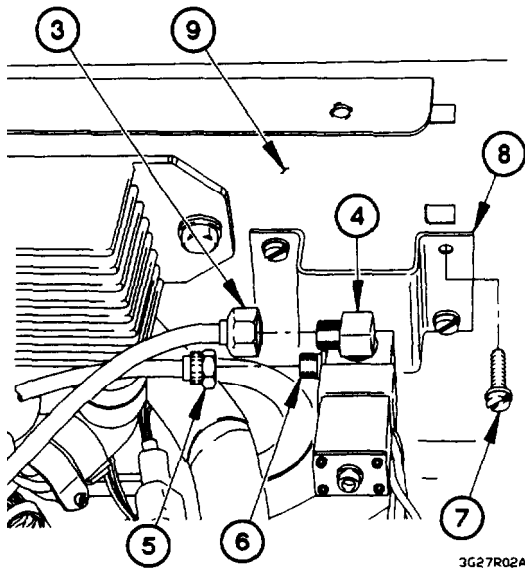
- (1) Disconnect fan solenoid connector (1) from connector PX34 (2).



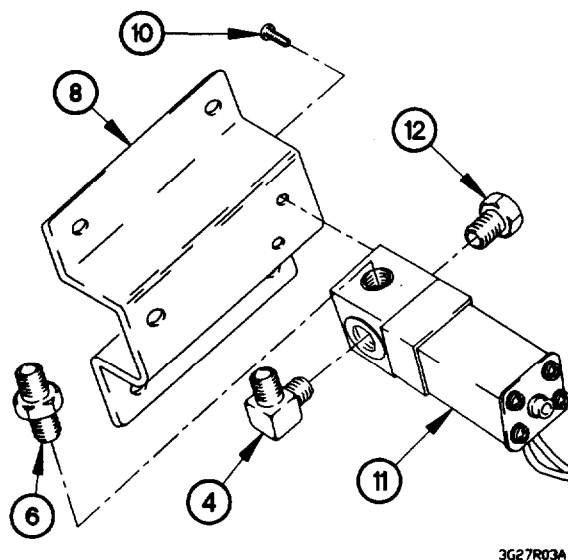
NOTE

Tag air hoses and connection points prior to disconnecting.

- (2) Disconnect air hose (3) from 90-degree fitting (4).
- (3) Disconnect air hose (5) from fitting (6).
- (4) Remove four screws (7) and bracket (8) from dashboard (9).



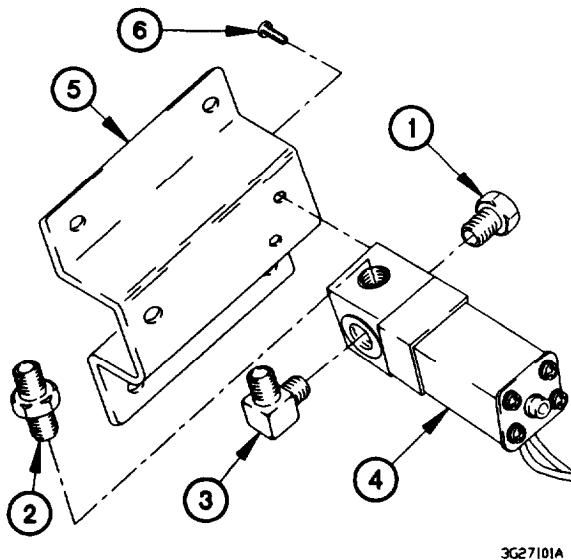
- (5) Remove two screws (10) and bracket (8) from solenoid (11).
- (6) Remove 90-degree fitting (4) from solenoids (11).
- (7) Remove fitting (6) from solenoid (11).
- (8) Remove plug (12) from solenoid (11).



b. Installation.

WARNING

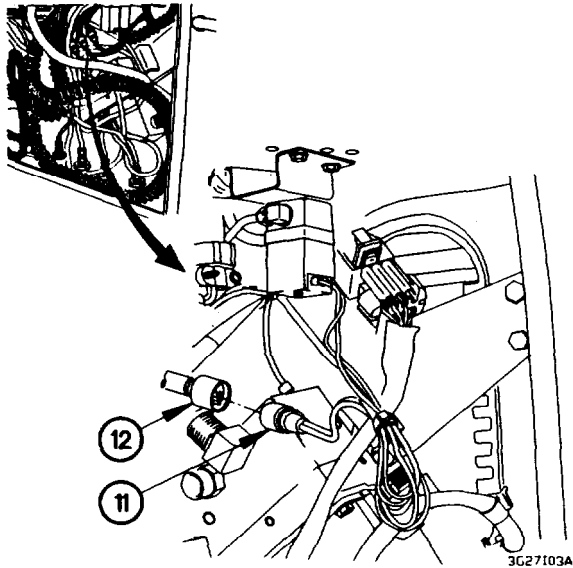
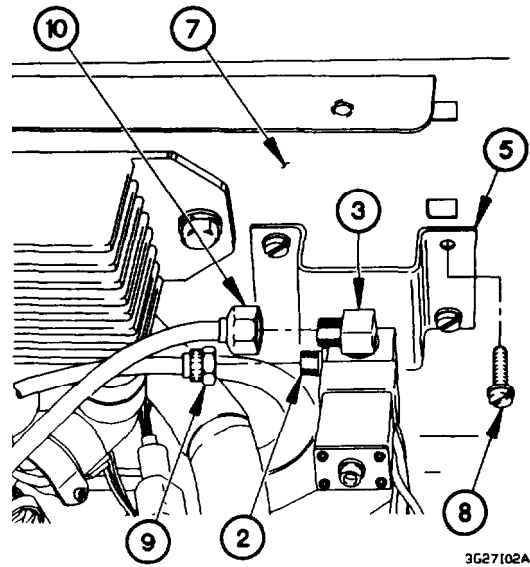
Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.



- (1) Apply antiseize compound to threads of plug (1), fitting (2), and 90-degree fitting (3).
- (2) Install plug (1) in solenoid (4).
- (3) Install fitting (2) in solenoid (4).
- (4) Install 90-degree fitting (3) in solenoid (4).
- (5) Install bracket (5) on solenoid (4) with two screws (6).

7-23. FAN SOLENOID REPLACEMENT (CONT)

- (6) Install bracket (5) on dashboard (7) with four screws (8).
- (7) Connect air hose (9) to fitting (2).
- (8) Connect air hose (10) to 90-degree fitting (3).



- (9) Connect fan solenoid connector (11) to connector PX34 (12).

c. Follow-On Maintenance.

- (1) Install kick panel (para 16-3).
- (2) Connect batteries (para 7-48).
- (3) Start engine and allow engine temperature to rise to normal operating levels (TM 9-2320-365-10).
- (4) Check operation of fan (TM 9-2320-365-10).
- (5) Shut down engine (TM 9-2320-365-10).

End of Task.

7-24. FLASHER UNIT REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

- Batteries disconnected (para 7-48).
- Kick panel removed (para 16-3).

Tools and Special Tools

- Tool Kit, Genl Mech (Item 44, Appendix C)

a. Removal.

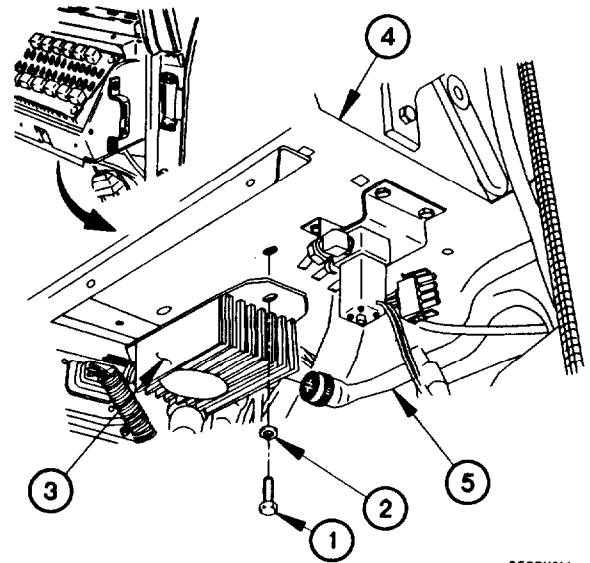
- (1) Remove two screws (1), washers (2), and flasher unit (3) from dashboard (4).
- (2) Disconnect connector PX20 (5) from flasher unit (3).

b. Installation.

- (1) Connect connector PX20 (5) to flasher unit (3).
- (2) Install flasher unit (3) on dashboard (4) with two washers (2) and screws (1).

c. Follow-On Maintenance.

- (1) Install kick panel (para 16-3).
- (2) Connect batteries (para 7-48).
- (3) Check turn signal and hazard lights operation (TM 9-2320-365-10).



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End of Task.

7-25. TURN SIGNAL SWITCH REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Instrument panel assembly removed for access (para 7-15).

Materials/Parts

Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)

Tools and Special Tools

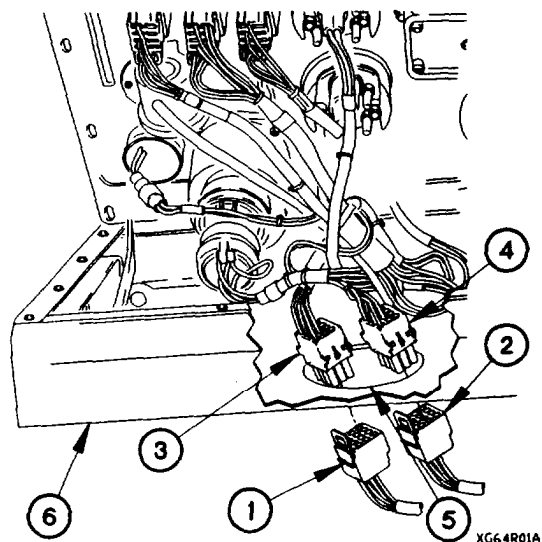
Tool Kit, Genl Mech (Item 44, Appendix C)

a. Removal.

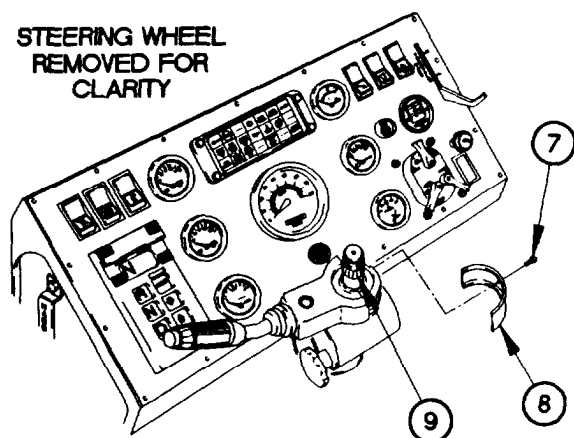
NOTE

Tag connectors and connection points prior to disconnecting.

- (1) Disconnect turn signal switch connectors (1 and 2) from connectors P18 and J19 (3 and 4).
- (2) Remove turn signal switch connectors (1 and 2) through opening (5) in dashboard (6).

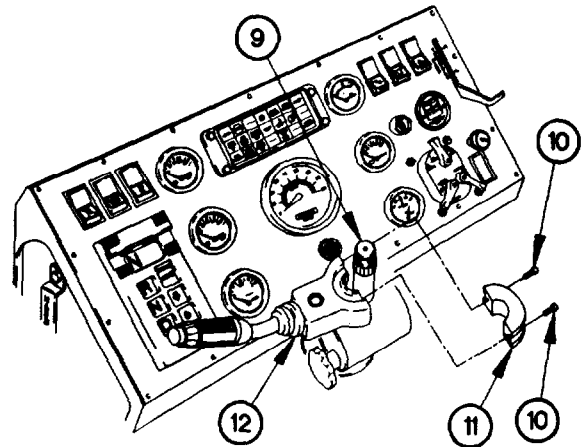


STEERING WHEEL
REMOVED FOR
CLARITY



- (3) Remove screw (7) and sleeve (8) from steering column (9).

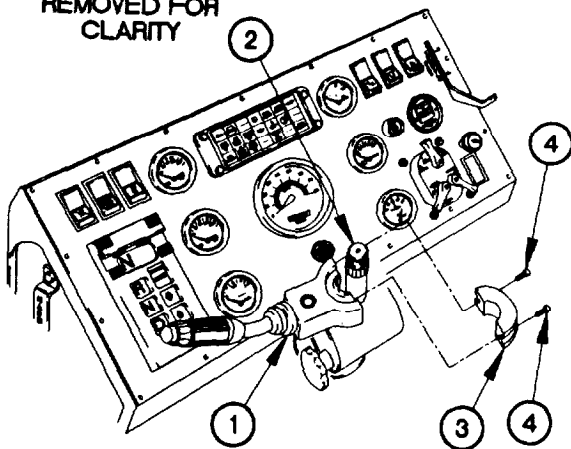
- (4) Remove two screws (10), collar half (11), and turn signal switch (12) from steering column (9).



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b. Installation.

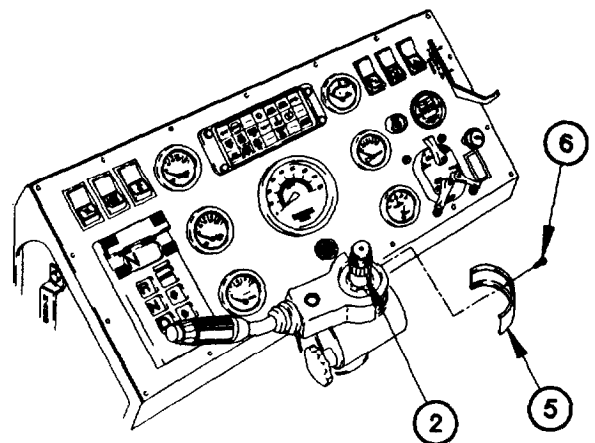
STEERING WHEEL
REMOVED FOR
CLARITY



XG64I01A

- (1) Install turn signal switch (1) on steering column (2) with collar half (3) and two screws (4).

- (2) Install sleeve (5) on steering column (2) with screw (6).



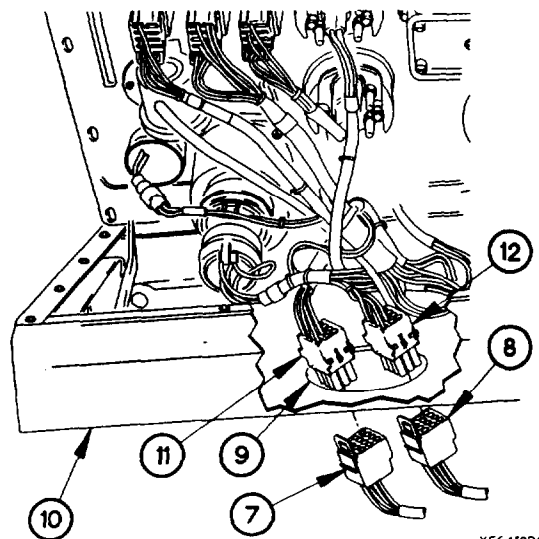
XG64I02A

7-25. TURN SIGNAL SWITCH REPLACEMENT (CONT)

- (3) Route turn signal switch connectors (7 and 8) through opening (9) in dashboard (10).
- (4) Connect turn signal switch connectors (7 and 8) to connectors P18 (11) and J19 (12).

c. Follow-On Maintenance.

- (1) Install instrument panel assembly (para 7-15).
- (2) Check operation of turn signal switch (TM 9-2320 365-10).



End of Task.

7-26. SHUNT REPLACEMENT

This task covers:

- a. Removal
- b. Installation

c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Spare tire lowered (TM 9-2320-365-10).
Batteries disconnected (para 7-48).

Tools and Special Tools

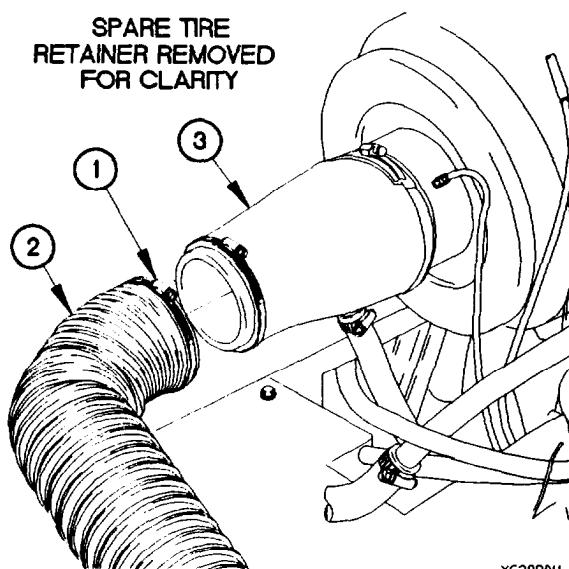
Tool Kit, Genl Mech (Item 44, Appendix C)
Wrench, Torque, 0-75 lb-in. (Item 86, Appendix B)

Materials/Parts

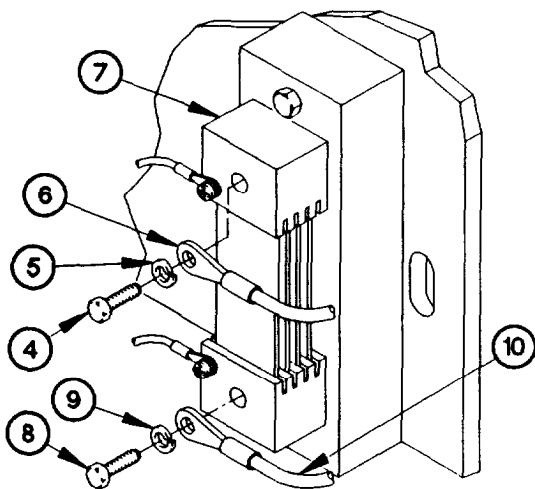
Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)
Lockwasher (2) (Item 76, Appendix G)
Lockwasher (2) (Item 77, Appendix G)
Nut, Self-Locking (2) (Item 134, Appendix G)

a. Removal.

- (1) Loosen clamp (1) on air hose (2).
- (2) Remove air hose (2) from intake air cleaner boot (3).



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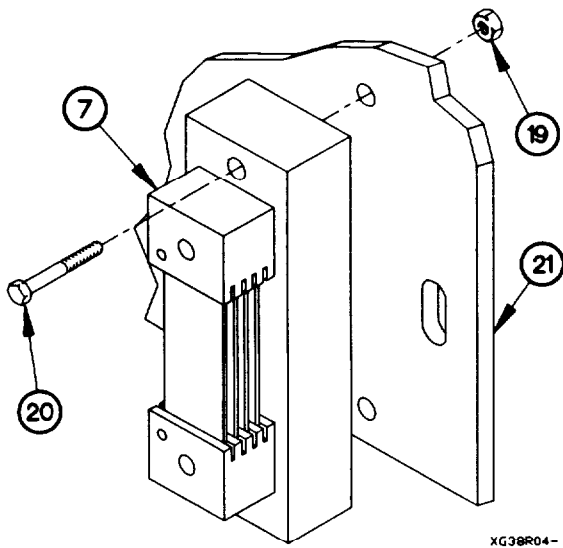
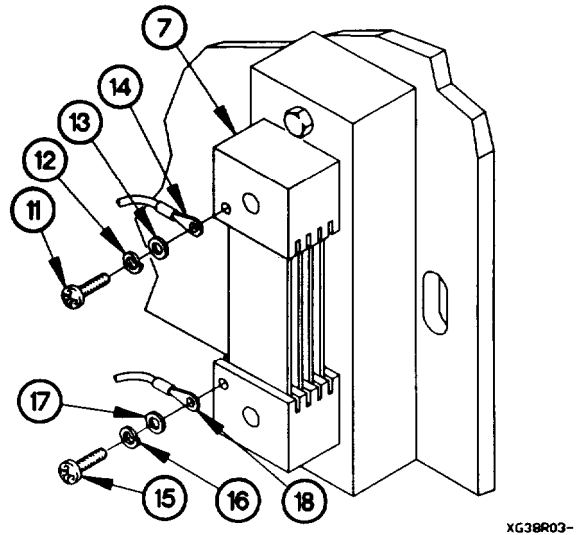
NOTE

Tag wires and connection points prior to disconnecting.

- (3) Remove screw (4), lockwasher (5), and terminal lug TL52 (6) from shunt (7). Discard lockwasher.
- (4) Remove screw (8), lockwasher (9), and terminal lug TL45 (10) from shunt (7). Discard lockwasher.

7-26. SHUNT REPLACEMENT (CONT)

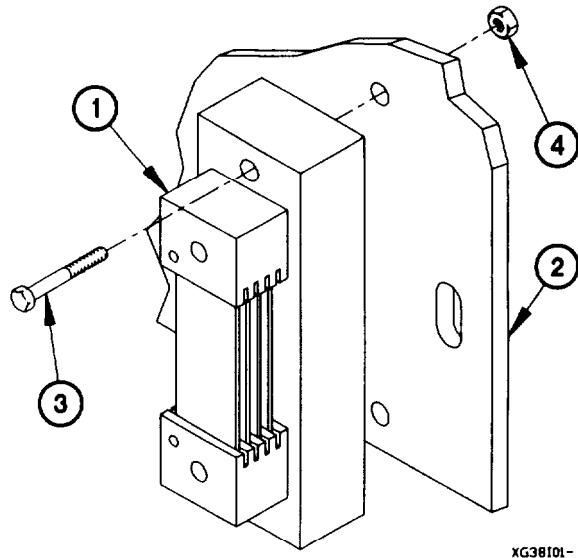
- (5) Remove screw (11), lockwasher (12), washer (13), and terminal lug TL51 (14) from shunt (7). Discard lockwasher.
- (6) Remove screw (15), lockwasher (16), washer (17), and terminal lug TL38 (18) from shunt (7). Discard lockwasher.



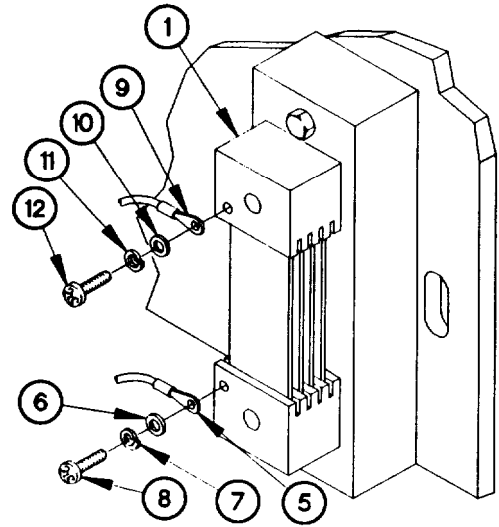
- (7) Remove two self-locking nuts (19), screws (20), and shunt (7) from spare tire retainer (21). Discard self-locking nuts.

b. Installation.

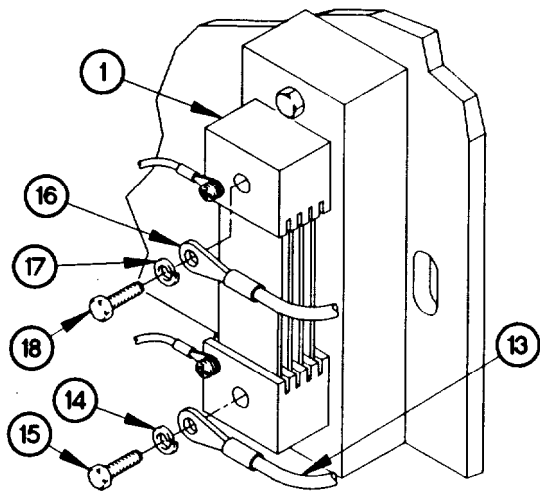
- (1) Install shunt (1) on spare tire retainer (2) with two screws (3) and self-locking nuts (4).



- (2) Install terminal lug TL38 (5) on shunt (1) with washer (6), lockwasher (7), and screw (8).
- (3) Install terminal lug TL51 (9) on shunt (1) with washer (10), lockwasher (11), and screw (12).



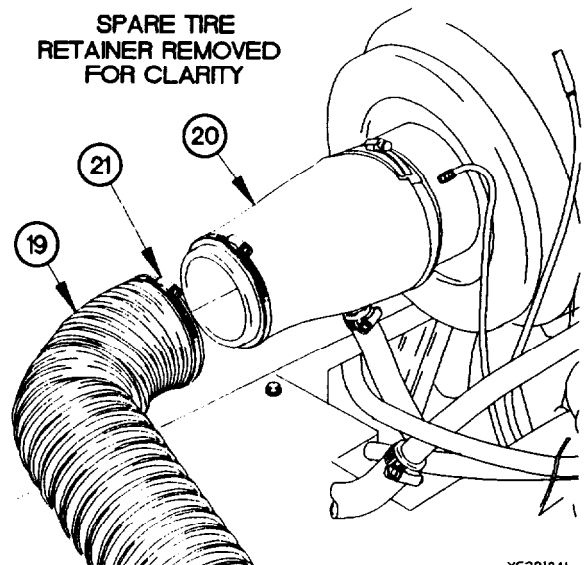
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XG38103-

- (4) Install terminal lug TL45 (13) on shunt (1) with lockwasher (14) and screw (15).
- (5) Install terminal lug TL52 (16) on shunt (1) with lockwasher (17) and screw (18).

- (6) Position air hose (19) on intake air cleaner boot (20) with clamp (21).
- (7) Tighten clamp (21) to 36-48 lb-in. (4-5 N•m).



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7-26. SHUNT REPLACEMENT (CONT)

c. Follow-on Maintenance.

- (1) Connect batteries (para 7-48).
- (2) Raise spare tire (TM 9-2320-365-10).
- (3) Start engine (TM 9-2320-365-10).
- (4) Check VOLTS gage for charge indication (TM 9-2320-365-10).
- (5) Shut down engine (TM 9-2320-365-10).

End of Task.

7-27. 100 AMP REVERSE POLARITY RELAY REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Spare tire lowered (TM 9-2320-365-10).
 Batteries disconnected (para 7-48).

Tools and Special Tools

Tool Kit, Genl Mech (Item 44, Appendix C)
 Wrench, Torque 0-206 lb-in. (Item 58, Appendix C)
 Socket Set, Socket Wrench (Item 34, Appendix C)

Materials/Parts

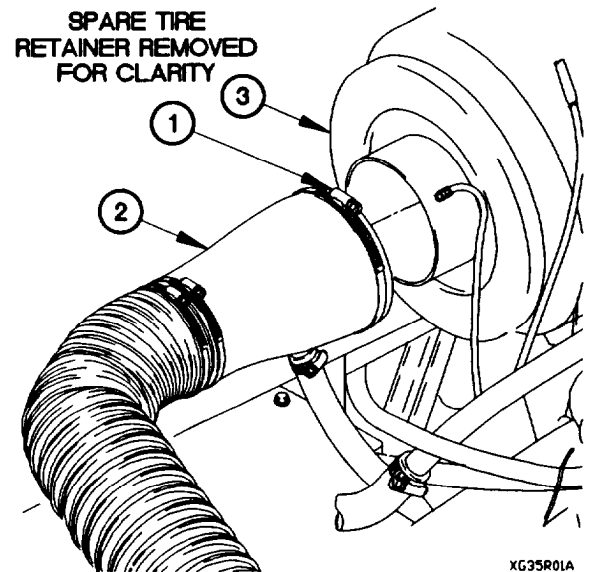
Lockwasher (4) (Item 88, Appendix G)
 Washer, Spring (6) (Item 274, Appendix G)
 Nut, Self-Locking (6) (Item 143, Appendix G)
 Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)

a. Removal.

NOTE

Tag wires and connection points prior to disconnecting.

- (1) Loosen clamp (1) on intake air cleaner boot (2).
- (2) Remove intake air cleaner boot (2) from intake air cleaner housing (3).



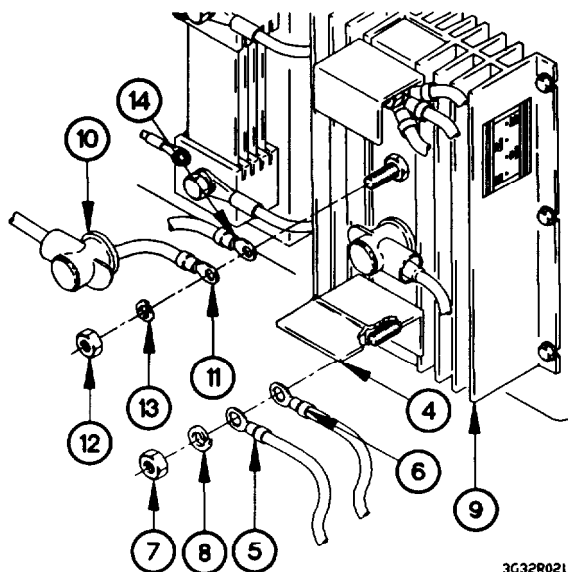
7-27. 100 AMP REVERSE POLARITY RELAY REPLACEMENT (CONT)

- (3) Lift terminal cover (4) on terminal lugs TL61 (5) and TL47 (6).
- (4) Remove nut (7), lockwasher (8), and terminal lugs TL61 (5) and TL47 (6) from 100 amp reverse polarity relay (9). Discard lockwasher.
- (5) Lift dust boot (10) on terminal lug TL44 (11).
- (6) Remove nut (12), lockwasher (13), and terminal lug TL44 (11) from 100 amp reverse polarity relay (9). Discard lockwasher.

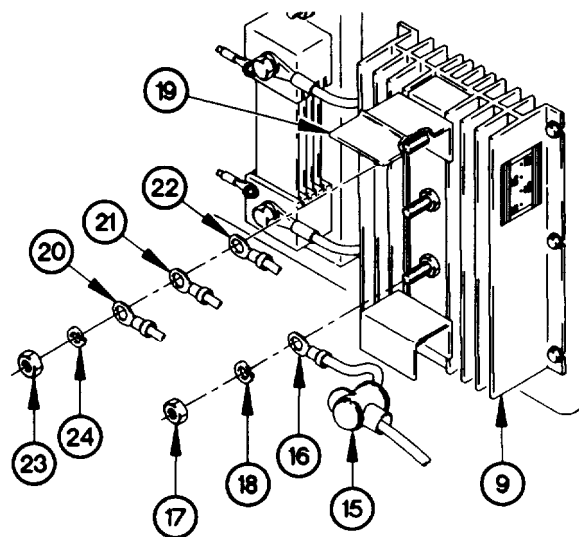
NOTE

Perform step (7) on M1079.

- (7) Remove terminal lug TL100 (14) from 100 amp reverse polarity relay (9).



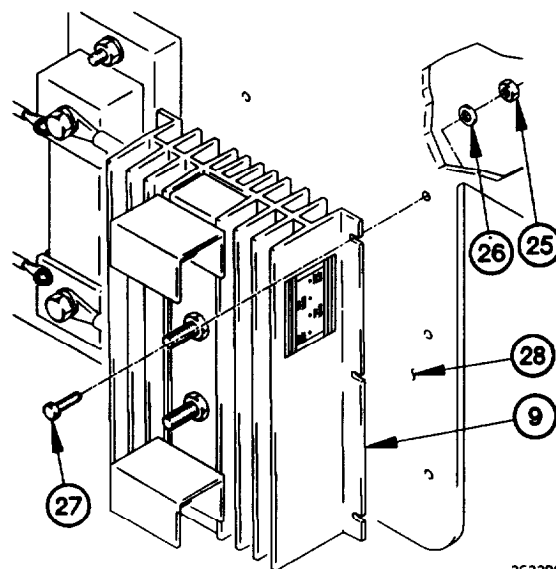
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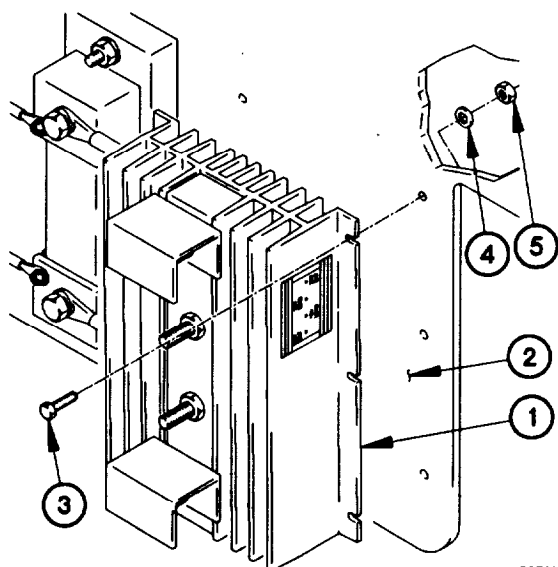
- (8) Lift dust boot (15) on terminal lug TL80 (16).
- (9) Remove nut (17), lockwasher (18), and terminal lug TL80 (16) from 100 amp reverse polarity relay (9). Discard lockwasher.
- (10) Lift terminal cover (19) on terminal lugs TL1 (20), TL37 (21), and TL36 (22).
- (11) Remove nut (23), lockwasher (24), and terminal lugs TL1 (20), TL37 (21), and TL36 (22) from 100 amp reverse polarity relay (9). Discard lockwasher.

- (12) Remove six self-locking nuts (25), spring washers (26), screws (27), and 100 amp reverse polarity relay (9) from bracket (28). Discard spring washers and self-locking nuts.



3G32R041

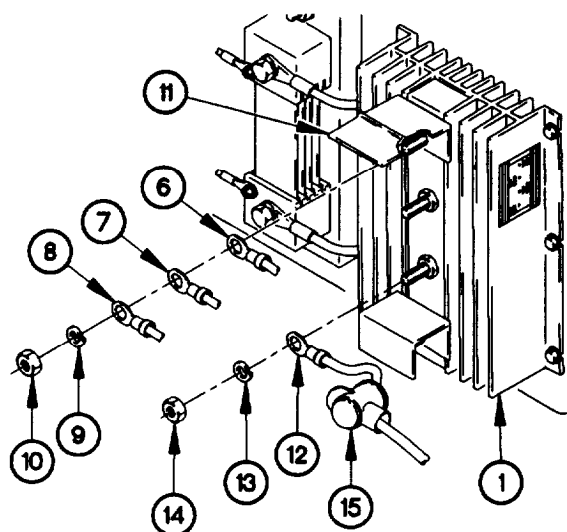
b. Installation.



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- (1) Position 100 amp reverse polarity relay (1) on bracket (2) with six screws (3), spring washers (4), and self-locking nuts (5).
- (2) Tighten six screws (3) to 60-72 lb-in. (7-8 N•m).

- (3) Position terminal lugs TL36 (6), TL37 (7), and TL1 (8) on 100 amp reverse polarity relay (1) with lockwasher (9) and nut (10).
- (4) Tighten nut (10) to 120-144 lb-in. (14-16 N•m).
- (5) Position terminal cover (11) on terminal lugs TL36 (6), TL37 (7), and TL1 (8).
- (6) Install terminal lug TL80 (12) on 100 amp reverse polarity relay (1) with lockwasher (13) and nut (14).
- (7) Tighten nut (14) to 120-144 lb-in. (14-16 N•m).
- (8) Position dust boot (15) on terminal lug TL80 (12).



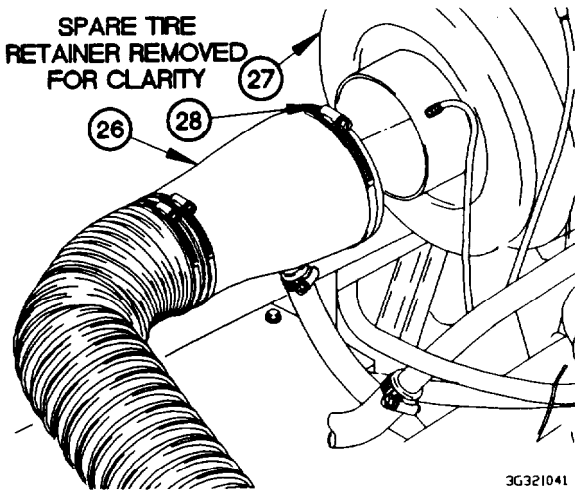
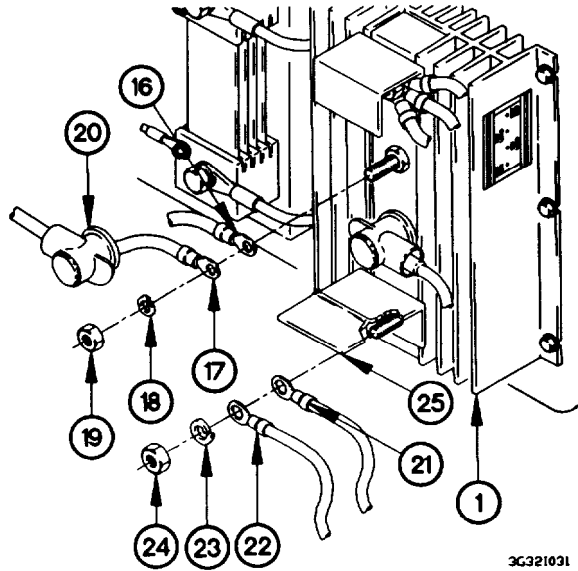
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7-27. 100 AMP REVERSE POLARITY RELAY REPLACEMENT (CONT)

NOTE

Perform step (9) on M1079.

- (9) Position terminal lug TL100 (16) on 100 amp reverse polarity relay (1).
- (10) Position terminal lug TL44 (17) on 100 amp reverse polarity relay (1) with lockwasher (18) and nut (19).
- (11) Tighten nut (19) to 120-144 lb-in. (14-16 N•m).
- (12) Position dust boot (20) on terminal lug TL44 (17).
- (13) Position terminal lug TL47 (21) and TL61 (22) on 100 amp reverse polarity relay (1) with lockwasher (23) and nut (24).
- (14) Tighten nut (24) to 120-144 lb-in. (14-16 N•m).
- (15) Position terminal cover (25) on terminal lugs TL47 (21) and TL61 (22).



- (16) Position intake air cleaner boot (26) on intake air cleaner housing (27) with clamp (28).
- (17) Tighten clamp (28) to 36-48 lb-in. (4-5 N•m).

c. Follow-On Maintenance.

- (1) Connect batteries (para 7-48).
- (2) Raise spare tire (TM 9-2320-365-10).
- (3) Start engine (TM 9-2320-365-10).
- (4) Check VOLTS gage for charge indication (TM 9-2320-365-10).
- (5) Shut down engine (TM 9-2320-365-10).

End of Task.

7-28. FREQUENCY ECU REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

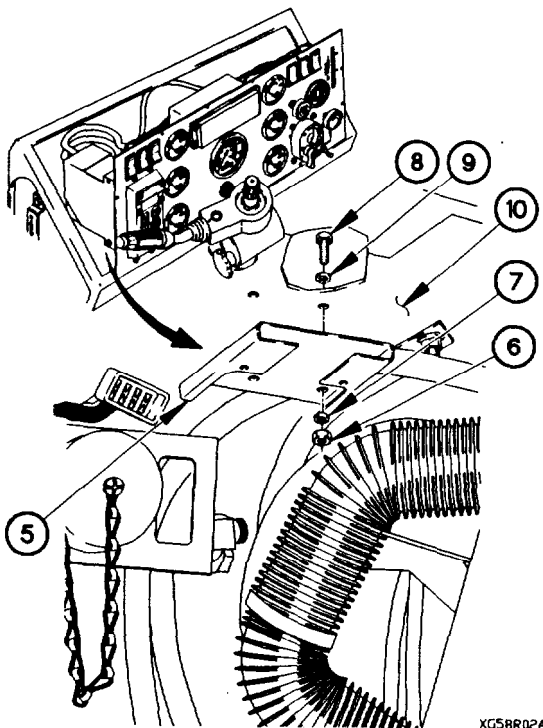
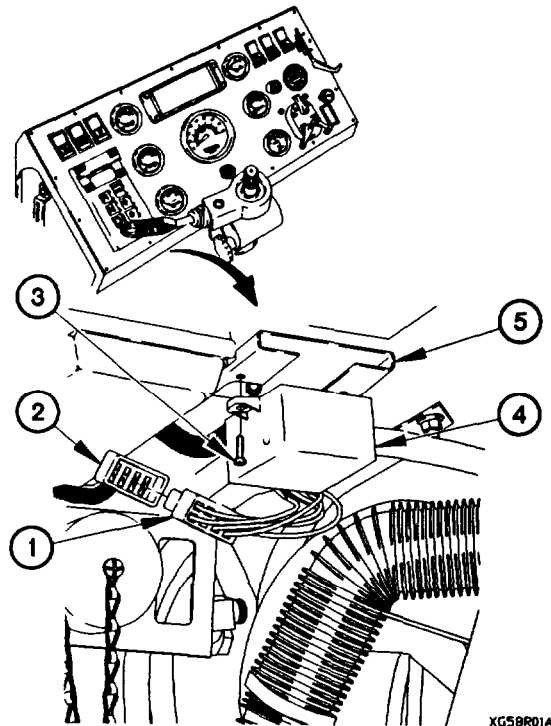
Instrument panel assembly removed for access (para 7-15).

Tools and Special Tools

Tool Kit, Genl Mech (Item 44, Appendix C)

a. Removal.

- (1) Disconnect frequency ECU connector (1) from connector PX26 (2).
- (2) Remove two screws (3) and frequency ECU (4) from bracket (5).

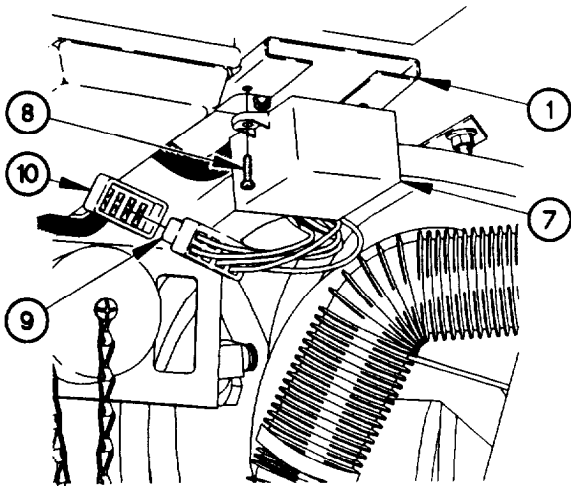
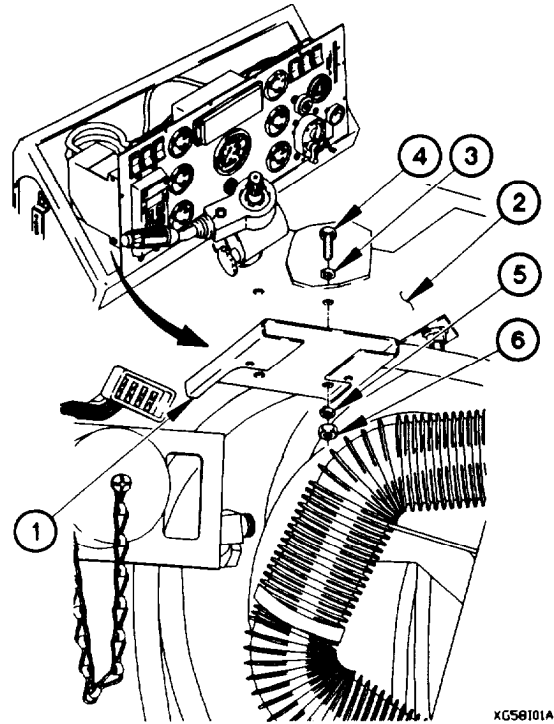


- (3) Remove two nuts (6), washers (7), screws (8), washers (9), and bracket (5) from dashboard (10).

7-28. FREQUENCY ECU REPLACEMENT (CONT)

b. Installation.

- (1) Install bracket (1) on dashboard (2) with two washers (3), screws (4), washers (5), and nuts (6).



- (2) Install frequency ECU (7) on bracket (1) with two screws (8).
- (3) Connect frequency ECU connector (9) to connector PX26 (10).

c. Follow-On Maintenance.

Install instrument panel assembly (para 7-15).

End of Task.

7-29. BACKUP LIGHT ASSEMBLY REPLACEMENT/REPAIR

This task covers:

- a. Removal
- b. Disassembly
- c. Assembly
- d. Installation
- e. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Batteries disconnected (para 7-48).

Materials/Parts

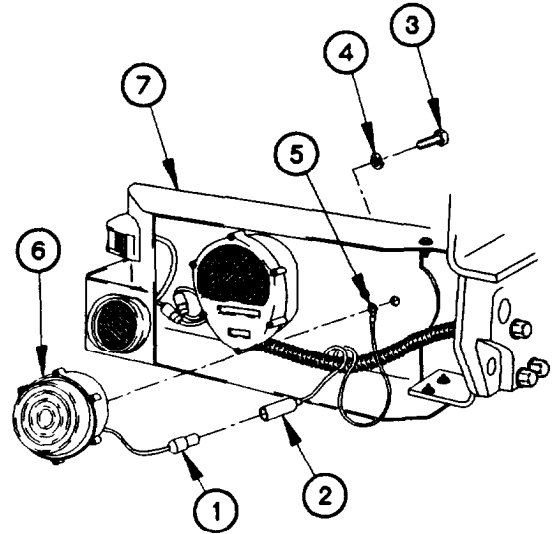
Lockwasher (2) (Item 92, Appendix G)
 Packing, Preformed (Item 192, Appendix G)

Tools and Special Tools

Tool Kit, Genl Mech (Item 44, Appendix C)
 Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)

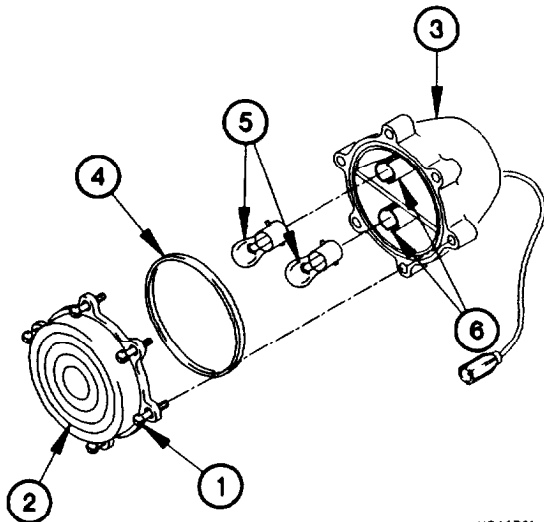
a. Removal.

- (1) Disconnect backup light connector (1) from connector P87 (2).
- (2) Remove two screws (3), lockwashers (4), terminal lug TL17 (5), and backup light assembly (6) from taillight carrier (7). Discard lockwashers.



4G46G01-

b. Disassembly.



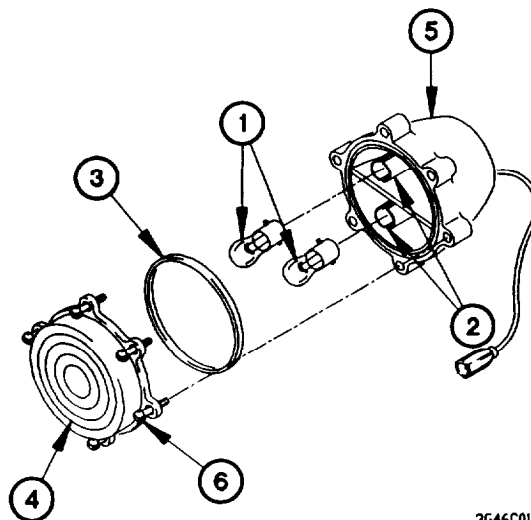
XG46D01-

- (1) Loosen six screws (1) on lens (2).
- (2) Remove lens (2) from housing (3).
- (3) Remove preformed packing (4) from housing (3). Discard preformed packing.
- (4) Remove two lamps (5) from sockets (6).

7-29. BACKUP LIGHT ASSEMBLY REPLACEMENT/REPAIR (CONT)

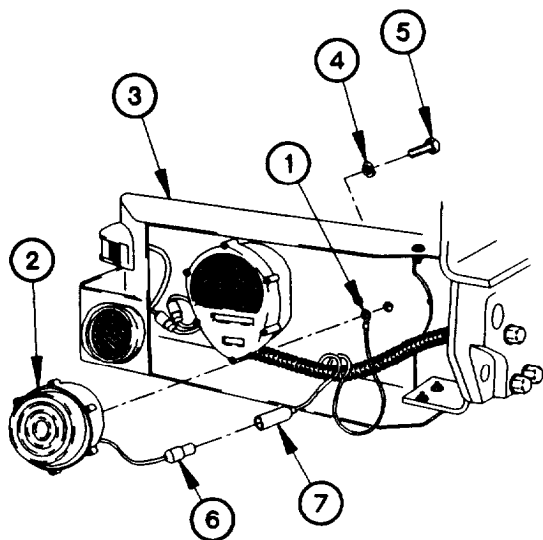
c. Assembly.

- (1) Install two lamps (1) in sockets (2).
- (2) Install preformed packing (3) and lens (4) on housing (5) with six screws (6).



3G46C01A

d. Backup Light Assembly Installation.



3G46D01A

- (1) Position terminal lug TL17 (1) and backup light assembly (2) on taillight carrier (3) with two lockwashers (4) and screws (5).
- (2) Tighten two screws (5) to 35-42 lb-ft (48-57 N•m).
- (3) Connect backup light connector (6) to connector P87 (7).

e. Follow-On Maintenance.

- (1) Connect batteries (para 7-48).
- (2) Check backup light operation (TM 9-2320-365-10).

End of Task.

7-30. BLACKOUT DRIVE LIGHT REPLACEMENT/REPAIR

This task covers:

- | | |
|----------------|--------------------------|
| a. Removal | d. Installation |
| b. Disassembly | e. Follow-On Maintenance |
| c. Assembly | |

INITIAL SETUP

Equipment Conditions

Batteries disconnected (para 7-48).

Tools and Special Tools

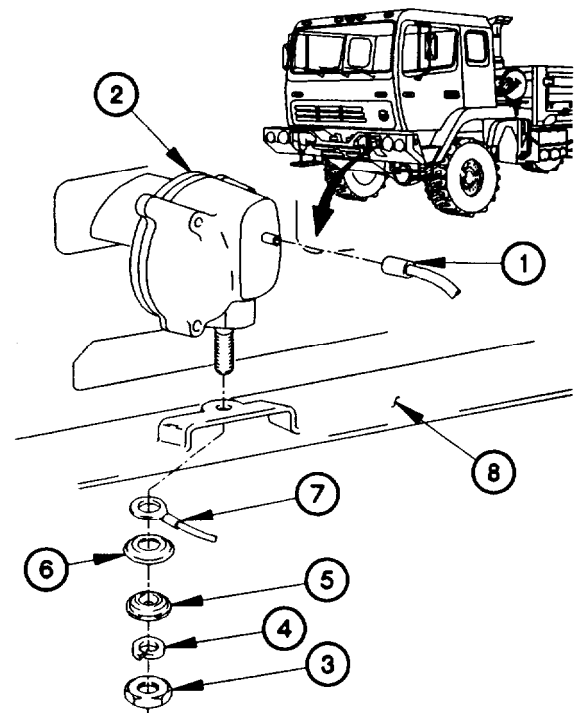
Tool Kit, Genl Mech (Item 44, Appendix C)
 Wrench, Torque, 0-200 lb-in. (Item 58, Appendix C)
 Socket Set, Socket Wrench (Item 34, Appendix C)

Materials/Parts

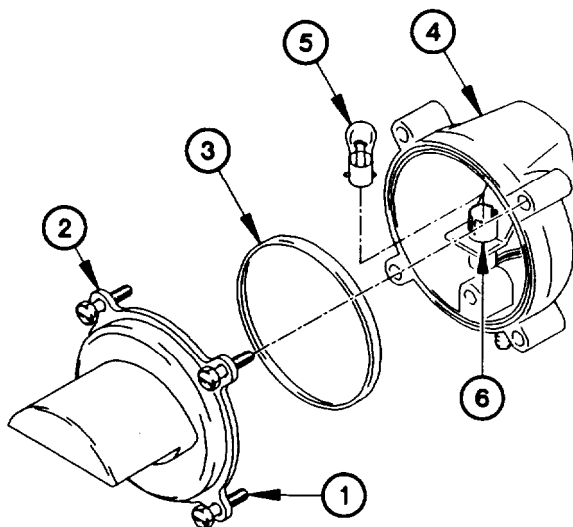
Lockwasher (Item 92, Appendix G)
 Packing, Preformed (Item 168, Appendix G)

a. Removal.

- (1) Disconnect connector P17 (1) from blackout drive light (2).
- (2) Remove nut (3), lockwasher (4), washer (5), washer (6), and terminal lug TL79 (7) from blackout drive light (2). Discard lockwasher.
- (3) Remove blackout drive light (2) from bumper (8).



b. Disassembly.



XG47D01A

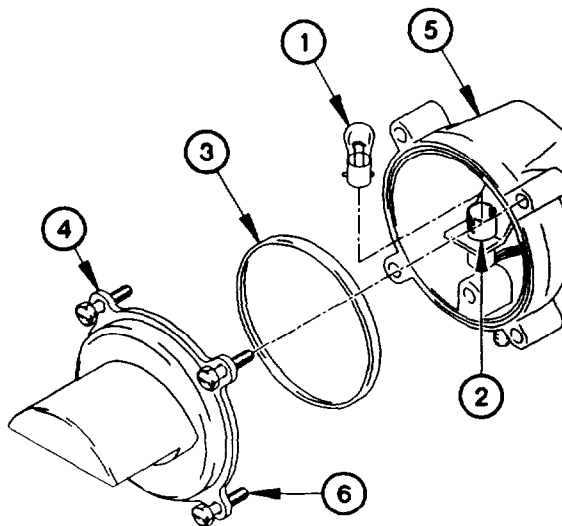
- (1) Loosen three screws (1) on cover (2).
- (2) Remove cover (2) and preformed packing (3) from housing (4). Discard preformed packing.
- (3) Remove lamp (5) from socket (6).

XG47R01A

7-30. BLACKOUT DRIVE LIGHT REPLACEMENT/REPAIR (CONT)

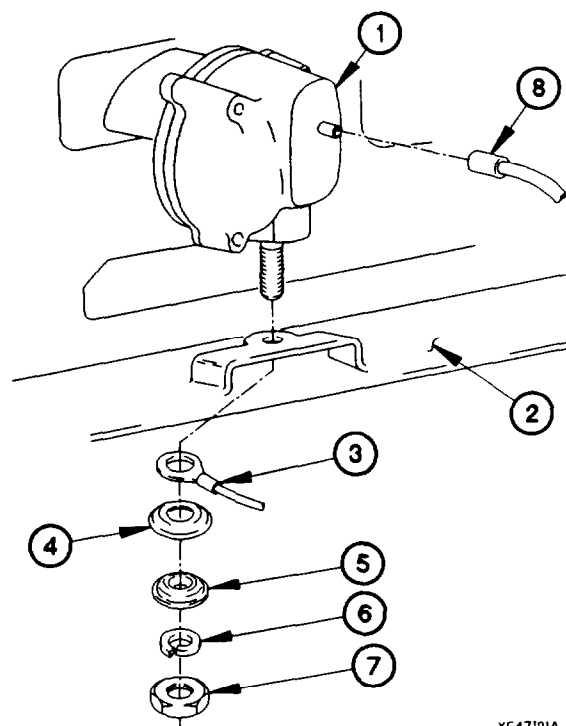
c. Assembly.

- (1) Install lamp (1) in socket (2).
- (2) Install preformed packing (3) and cover (4) on housing (5) with three screws (6).



XG47A01A

d. Installation.



XG47I01A

- (1) Position blackout drive light (1) on bumper (2).
- (2) Position terminal lug TL79 (3), washer (4), washer (5), lockwasher (6), and nut (7) on blackout drive light (1).
- (3) Tighten nut (7) to 156-192 lb-in. (18-22 N•m).
- (4) Connect connector P17 (8) to back of blackout drive light (1).

e. Follow-On Maintenance.

- (1) Connect batteries (para 7-48).
- (2) Check blackout drive light operation (TM 9-2320-365-10).

End of Task.

7-31. CLEARANCE AND MARKER LIGHT ASSEMBLIES REPLACEMENT

This task covers:

- a. Cab Clearance and Marker Light Removal
- b. Cab Clearance and Marker Light Installation
- c. Chassis Clearance and Marker Light Removal
- d. Chassis Clearance and Marker Light Installation
- e. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Batteries disconnected (para 7-48).

Tools and Special Tools

Tool Kit, Genl Mech (Item 44, Appendix C)

Materials/Parts

Lockwasher (Item 67, Appendix G)

Lockwasher (Item 72, Appendix G)

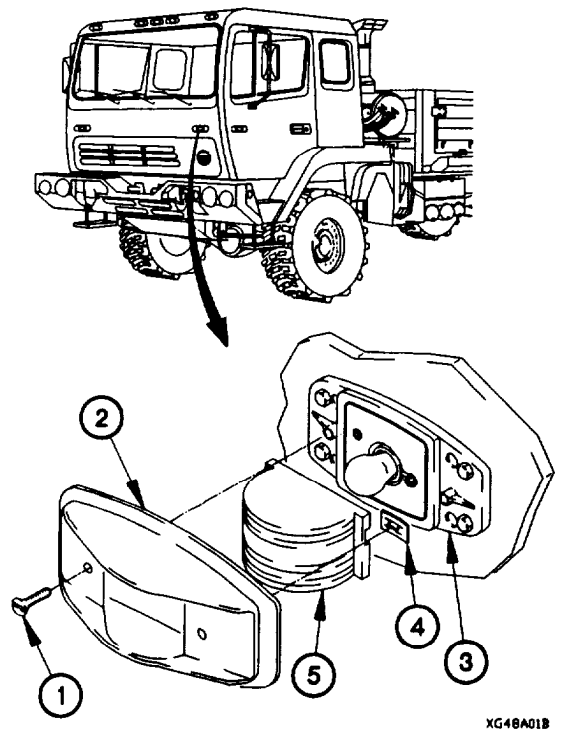
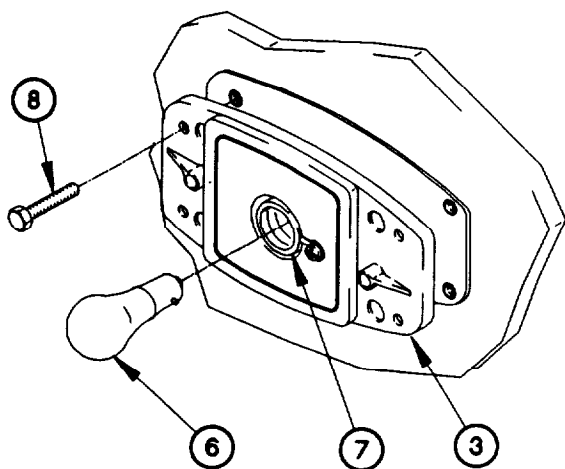
Adhesive (Item 6, Appendix D)

a. Cab Clearance and Marker Light Removal.

NOTE

All cab clearance and marker lights are removed the same way. Front left marker light shown.

- (1) Remove two screws (1) and lens cover (2) from base (3).
- (2) Remove two clips (4) and lens (5) from lens cover (2).



XG46A01B

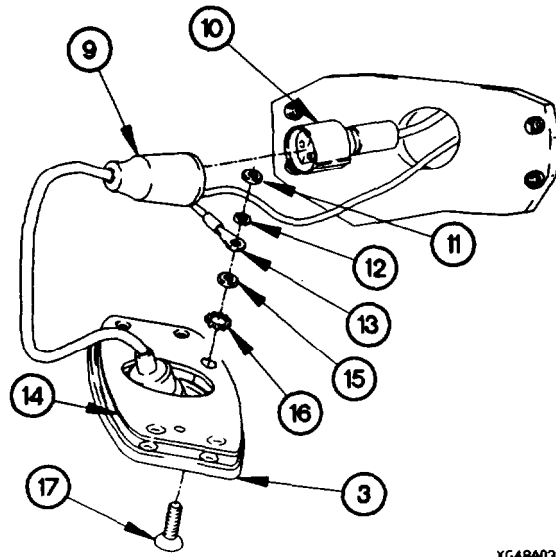
- (3) Remove lamp (6) from socket (7).
- (4) Remove four screws (8) from base (3).

7-31. CLEARANCE AND MARKER LIGHT ASSEMBLIES REPLACEMENT (CONT)

CAUTION

Do not let wires slip through hole and into cab structure. If wires slip into cab structure, vehicle will need further disassembly to retrieve wires.

- (5) Disconnect plug (9) from connector P50 (10).
- (6) Remove nut (11), lockwasher (12), wire (13), base (3), and gasket (14) from vehicle. Discard lockwasher.
- (7) Remove nut (15), lockwasher (16), and screw (17) from base (3). Discard lockwasher.

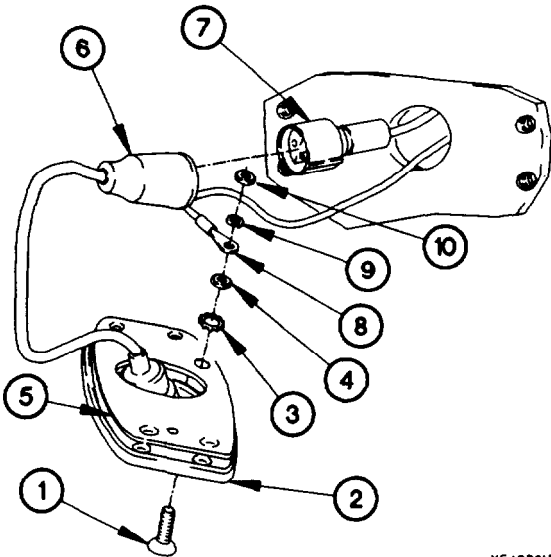


XG48A03B

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.

b. Cab Clearance and Marker Light Installation.



XG48B01B

- (1) Apply adhesive to threads of screw (1).
- (2) Install screw (1) in base (2) with lockwasher (3) and nut (4).

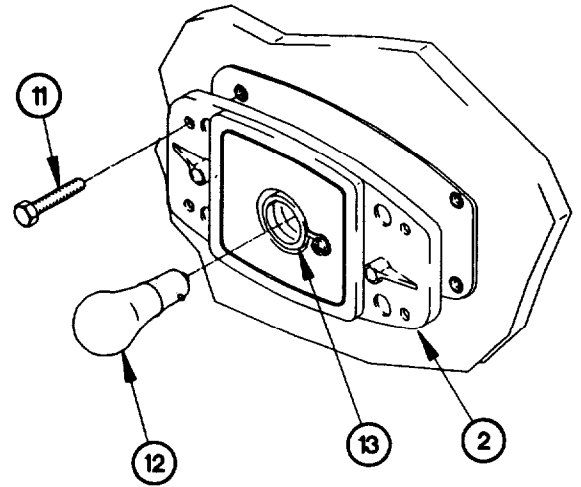
NOTE

Clearance and marker lights originally come with cork gaskets. Discard cork gaskets and replace with rubber gaskets PN 12421469.

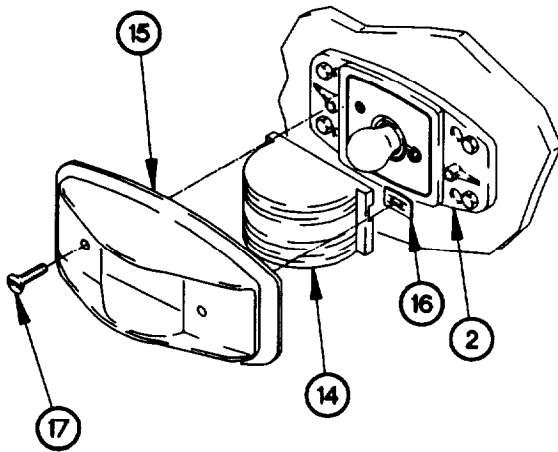
- (3) Install gasket (5) on base (2).
- (4) Connect plug (6) to connector P50 (7).
- (5) Install wire (8), lockwasher (9), and nut (10) on back of base (2).

(6) Install base (2) on vehicle with four screws (11).

(7) Install lamp (12) in socket (13).



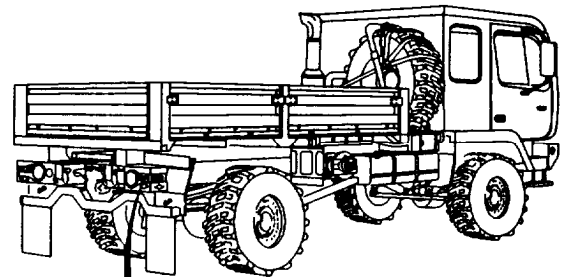
XG48B021



XG48B03B

(8) Install lens (14) in lens cover (15) with two clips (16).

(9) Install lens cover (15) on base (2) with two screws (17).



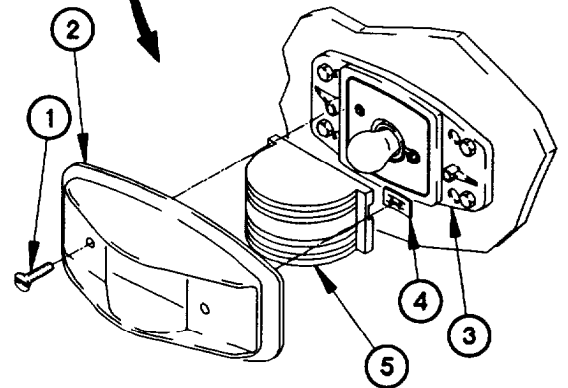
c. Chassis Clearance and Marker Light Removal.

NOTE

All chassis clearance and marker lights are removed the same way. Right rear marker light shown.

(1) Remove two screws (1) and lens cover (2) from base (3).

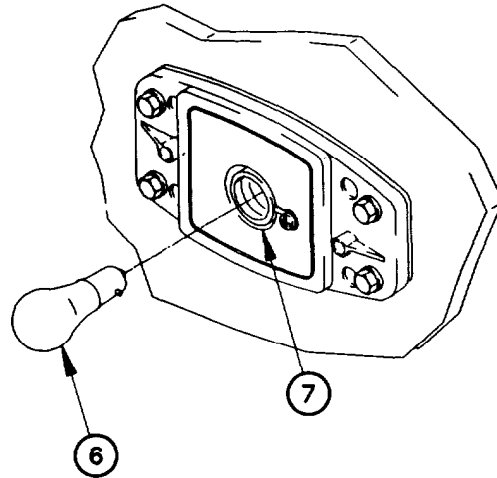
(2) Remove two clips (4) and lens (5) from lens cover (2).



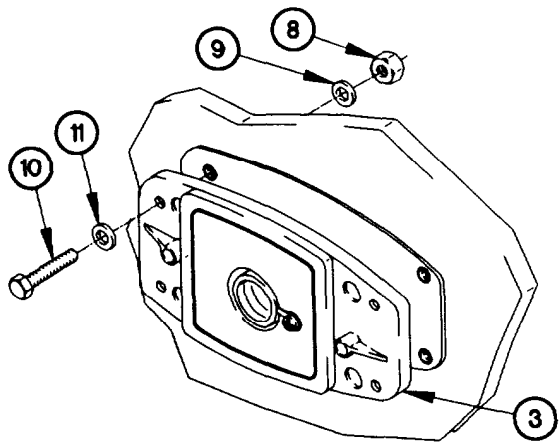
3G48C01B

7-31. CLEARANCE AND MARKER LIGHT ASSEMBLIES REPLACEMENT (CONT)

(3) Remove lamp (6) from socket (7).



XG48C021



XG48C03B

(4) Remove four nuts (8), washers (9), screws (10), washers (11), and base (3) from vehicle.

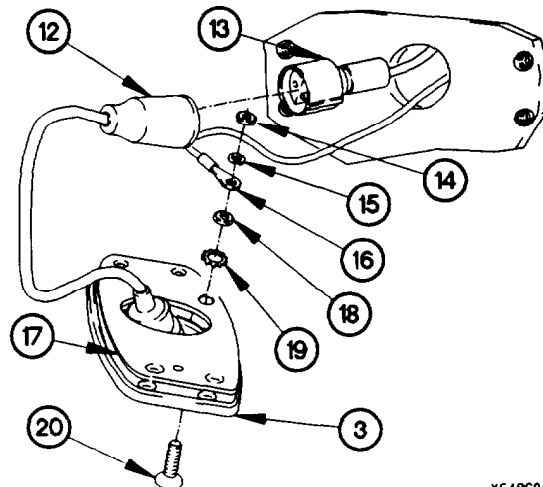
CAUTION

Do not let wires slip through hole and into cab structure. If wires slip into cab structure, vehicle will need further disassembly to retrieve wires.

(5) Disconnect plug (12) from connector P54 (13).

(6) Remove nut (14), lockwasher (15), wire (16), base (3), and gasket (17) from vehicle. Discard lockwasher.

(7) Remove nut (18), lockwasher (19), and screw (20) from base (3). Discard lockwasher.



XG48C04B

d. Chassis Clearance and Marker Light Installation.

WARNING

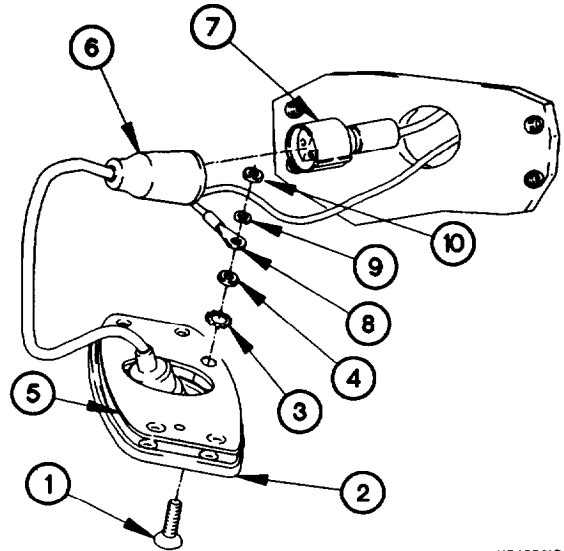
Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.

- (1) Apply adhesive to threads of screw (1).
- (2) Install screw (1) in base (2) with lockwasher (3) and nut (4).

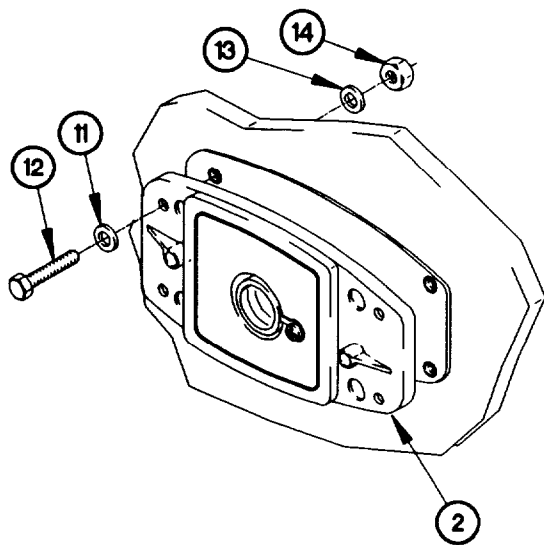
NOTE

Clearance and marker lights originally come with cork gaskets. Discard cork gaskets and replace with rubber gaskets PN 12421469.

- (3) Install gasket (5) on base (2).
- (4) Connect plug (8) to connector P54 (7).
- (5) Install wire (8), lockwasher (9), and nut (10) on back of base (2).



XG48D01B

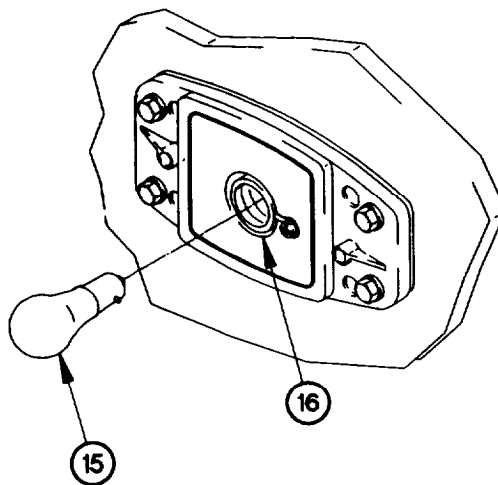


3G48D02B

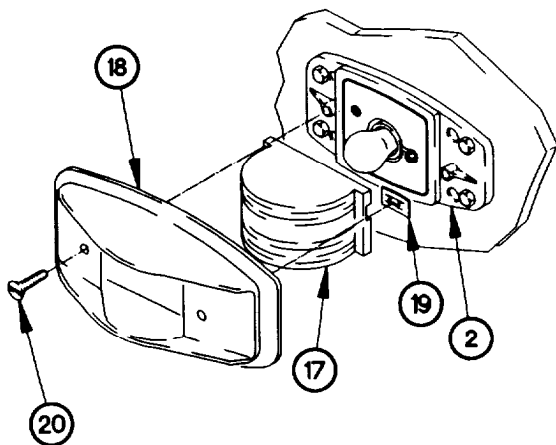
- (6) Install base (2) on vehicle with four washers (11), screws (12), washers (13), and nuts (14).

7-31. CLEARANCE AND MARKER LIGHT ASSEMBLIES REPLACEMENT (CONT)

(7) Install lamp (15) in socket (16).



XG48D031



XG48D04B

(8) Install lens (17) on lens cover (18) with two clips (19).

(9) Install lens cover (18) on base (2) with two screws (20).

e. Follow-On Maintenance.

(1) Connect batteries (para 7-48).

(2) Check clearance and marker light operation (TM 9-2320-365-10).

End of Task.

7-32. COMPOSITE TAILLIGHT ASSEMBLY REPLACEMENT/REPAIR

This task covers:

- | | |
|----------------|--------------------------|
| a. Removal | d. Installation |
| b. Disassembly | e. Follow-On Maintenance |
| c. Assembly | |

INITIAL SETUP**Equipment Conditions**

Batteries disconnected (para 7-48).

Tools and Special Tools

Tool Kit, Genl Mech (Item 44, Appendix C)
 Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)
 Wrench, Torque, 0-200 lb-in. (Item 58, Appendix C)
 Wrench Set, Socket (Item 49, Appendix C)

Materials/Parts

Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)
 Lockwasher (2) (Item 92, Appendix G)
 Packing, Preformed (Item 170, Appendix G)
 Nut, Self-Locking (Item 116, Appendix G)

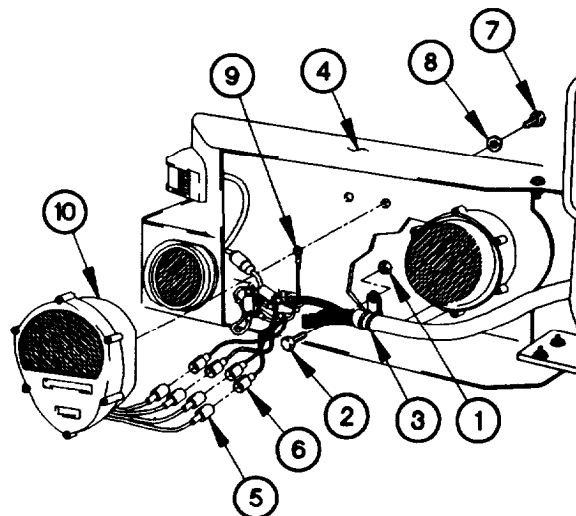
NOTE

- Tag wires and connection points prior to disconnecting.
- Remove plastic cable ties as required.
- Right side connectors are P61, P62, P63, and P64.

a. Removal.**NOTE**

Left and right composite taillights are removed the same way. Left side shown.

- (1) Remove self-locking nut (1), screw (2), and clamp (3) from taillight carrier (4). Discard self-locking nut.
- (2) Disconnect connectors P74, P76, P97, P78 (5) from taillight harness connectors 460-461-22, 24, 23, 21 (6).
- (3) Remove two screws (7), lockwashers (8), terminal lugs TL18 and TL16 (9), and composite taillight assembly (10) from taillight carrier (4). Discard lockwashers.

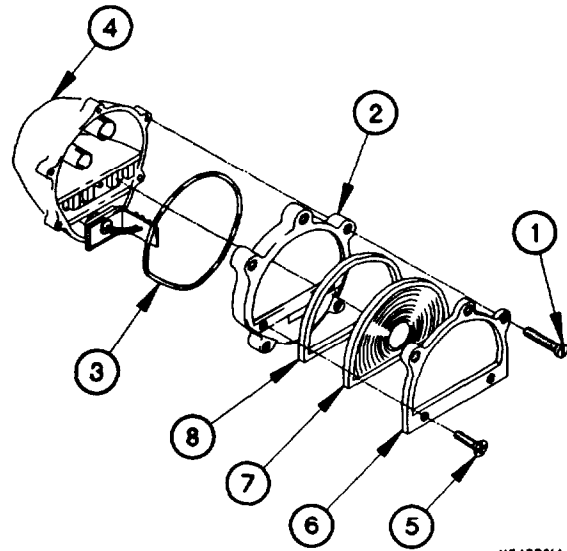


4G49101-

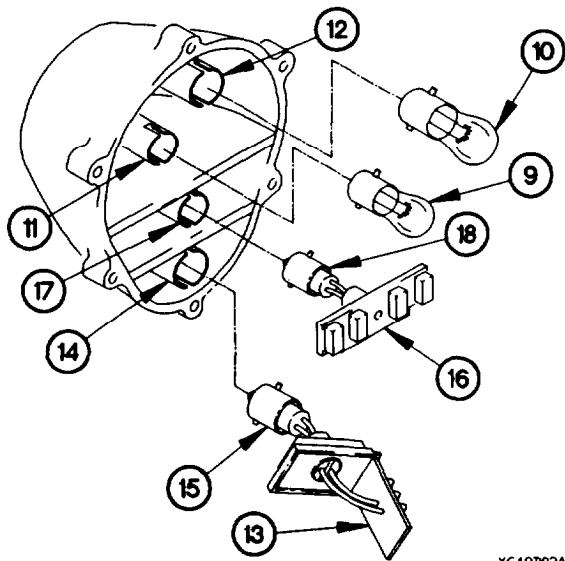
7-32. COMPOSITE TAILLIGHT ASSEMBLY REPLACEMENT/REPAIR (CONT)

b. Disassembly.

- (1) Remove six screws (1), cover (2), and preformed packing (3) from housing (4). Discard preformed packing.
- (2) Remove two screws (5), bezel (6), lens (7), and retainer (8) from cover (2).



XG49D01A

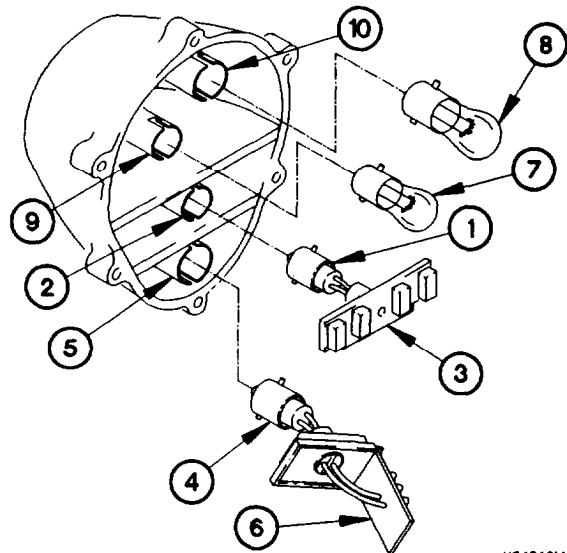


XG49D02A

- (3) Remove lamps (9 and 10) from sockets (11 and 12).
- (4) Position blackout stoplight lamp (13) for access to socket (14).
- (5) Remove connector (15) from socket (14).
- (6) Position blackout marker lamp (16) for access to socket (17).
- (7) Remove connector (18) from socket (17).

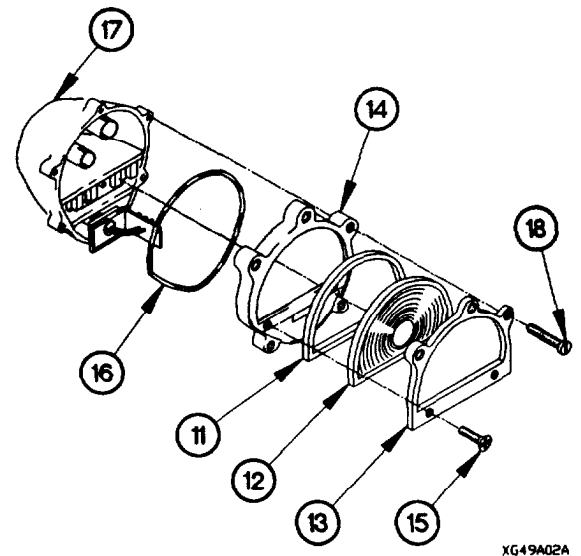
c. Assembly.

- (1) Install connector (1) in socket (2).
- (2) Install blackout marker lamp (3) in connector (1).
- (3) Install connector (4) in socket (5).
- (4) Install blackout stoplight lamp (6) in connector (4).
- (5) Install two lamps (7 and 8) in sockets (9 and 10).

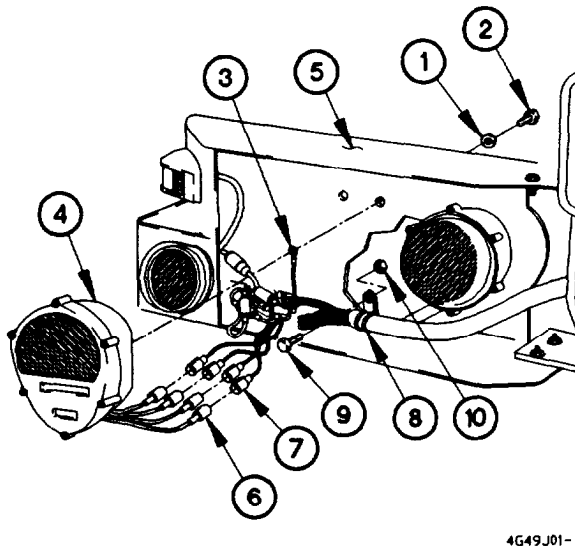


XG49A01A

- (6) Position retainer (11), lens (12), and bezel (13) on cover (14) with two screws (15).
- (7) Position preformed packing (16) and cover (14) on housing (17) with six screws (18).
- (8) Tighten two screws (15) and six screws (18) to 20-25 lb-in. (1 N•m).



d. Composite Taillight Assembly Installation.



NOTE

- Left and right composite taillights are installed the same way. Left side shown.
 - Install plastic cable ties as required.
- (1) Position two lockwashers (1), screws (2), terminal lugs TL18 and TL16 (3), and composite taillight assembly (4) on taillight carrier (5).
 - (2) Tighten two screws (2) to 35-42 lb-ft (48-57 N•m).
 - (3) Connect connectors P74, P76, P77, P78 (6) to taillight harness connectors 460-461-22, 24, 23, 21 (7).
 - (4) Install clamp (8) on taillight carrier (5) with screw (9) and self-locking nut (10).

7-32. COMPOSITE TAILLIGHT ASSEMBLY REPLACEMENT/REPAIR (CONT)

e. Follow-On Maintenance.

- (1) Connect batteries (para 7-48).
- (2) Check operation of taillights (TM 9-2320-365-10).
- (3) Check operation of blackout lights (TM 9-2320-365-10).
- (4) Check operation of brake lights (TM 9-2320-365-10).

End of Task.

7-33. COMPOSITE FRONT LIGHT ASSEMBLY REPLACEMENT/REPAIR

This task covers:

- | | |
|----------------|--------------------------|
| a. Removal | d. Installation |
| b. Disassembly | e. Follow-On Maintenance |
| c. Assembly | |

INITIAL SETUP**Equipment Conditions**

Batteries disconnected (para 7-48).
Cab raised (TM 9-2320-365-10).

Tools and Special Tools

Tool Kit, Genl Mech (Item 44, Appendix C)
Wrench, Torque, 0-200 lb-in. (Item 58, Appendix C)
Socket Set, Socket Wrench (Item 34, Appendix C)

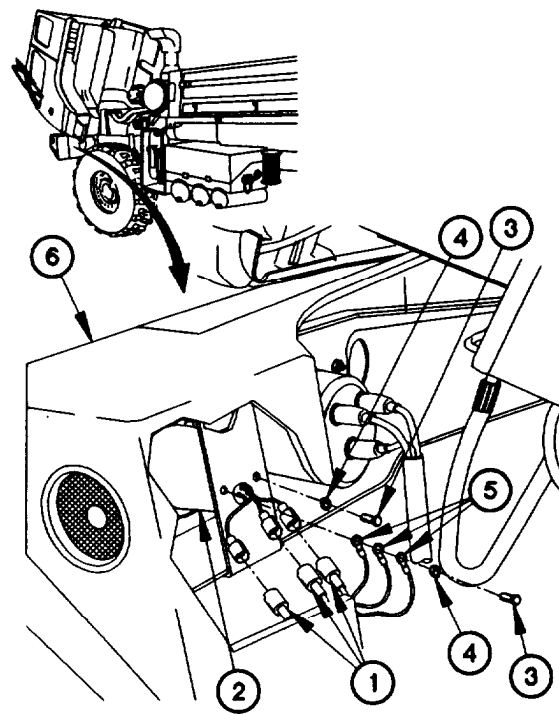
Materials/Parts

Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)
Lockwasher (2) (Item 92, Appendix G)
Packing, Preformed (Item 170, Appendix G)

a. Removal.**NOTE**

- Both composite front light assemblies are removed the same way. Left side shown.
- Tag wires and connection points prior to disconnecting.
- Connectors for right side are P8, P9 and P10.

- (1) Disconnect connectors P22, P23, and P24 (1) from composite front light assembly (2).
- (2) Remove two screws (3), lockwashers (4), three terminal lugs (5), and composite front light assembly (2) from front bumper (6). Discard lockwashers.

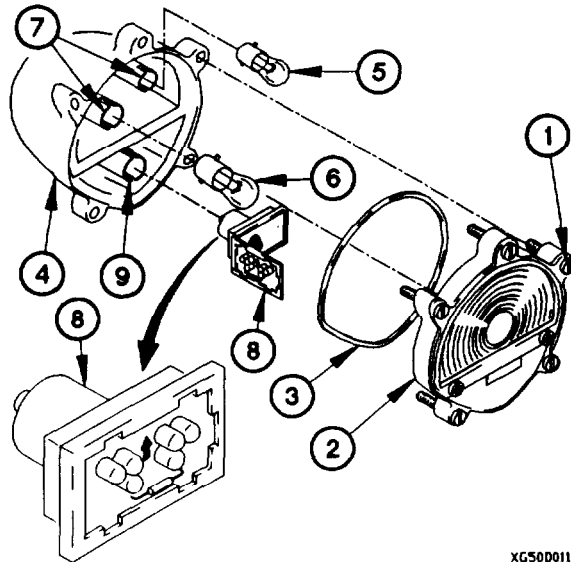


XG50R01A

7-33. COMPOSITE FRONT LIGHT ASSEMBLY REPLACEMENT/REPAIR (CONT)

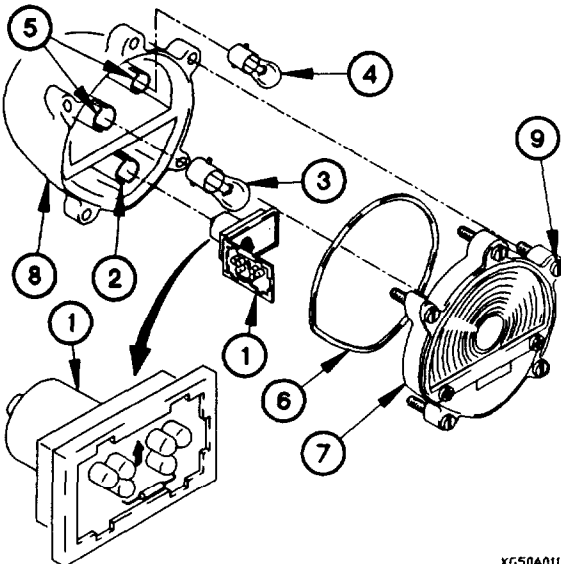
b. Disassembly.

- (1) Loosen five screws (1) on cover (2).
- (2) Remove cover (2) and preformed packing (3) from housing (4). Discard preformed packing.
- (3) Remove lamps (5 and 6) from sockets (7).
- (4) Open blackout marker lamp (8).
- (5) Remove blackout marker lamp (8) from socket (9).



XG50D011

c. Assembly.



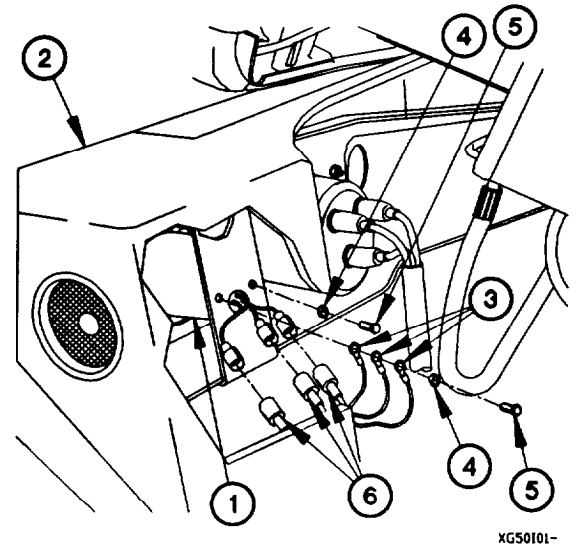
XG50A011

- (1) Open blackout marker lamp (1).
- (2) Install blackout marker lamp (1) in socket (2).
- (3) Install lamps (3 and 4) in sockets (5).
- (4) Install preformed packing (6) and cover (7) on housing (8) with five screws (9).

d. Installation.**NOTE**

Both composite front light assemblies are installed the same way. Left side shown.

- (1) Position composite front light assembly (1) in front bumper (2).
- (2) Position three terminal lugs (3), two lockwashers (4), and screws (5) on composite front light assembly (1).
- (3) Tighten two screws (5) to 156-192 lb-in. (18-22 N•m).
- (4) Connect connectors P22, P23, and P24 (6) to composite front light assembly (1).

**e. Follow-On Maintenance.**

- (1) Connect batteries (para 7-48).
- (2) Check operation of hazard lights, turn signals, park lights, and blackout marker lights (TM 9-2320-365-10).

End of Task.

7-34. HEADLIGHT AND HOUSING REPLACEMENT/REPAIR/ADJUSTMENT

This task covers:

- | | |
|----------------|-----------------|
| a. Removal | d. Installation |
| b. Disassembly | e. Adjustment |
| c. Assembly | |

INITIAL SETUP

Equipment Conditions

Batteries disconnected (para 7-48).
Cab raised (TM 9-2320-365-10).

Tools and Special Tools

Tool Kit, Genl Mech (Item 44, Appendix C)
Wrench, Torque, 0-200 lb-in. (Item 58, Appendix C)
Socket Set, Socket Wrench (Item 34, Appendix C)
Headlight Adjustment Screen (Item E-5, Appendix E)

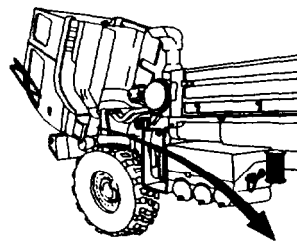
Materials/Parts

Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)
Grommet, Nonmetallic (3) (Item 51, Appendix G)
Lockwasher (3) (Item 75, Appendix G)

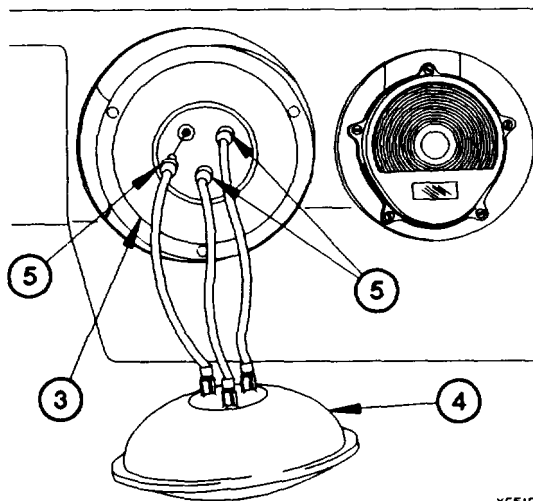
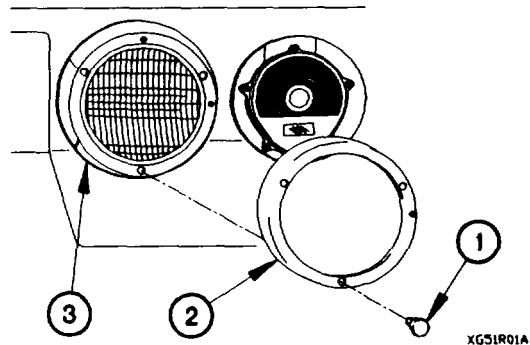
a. Removal.

NOTE

- Both headlights are removed the same way. Left headlight shown.
- Perform steps (1) through (3) to remove lamp.



- (1) Remove three screws (1) and retaining ring (2) from housing (3).



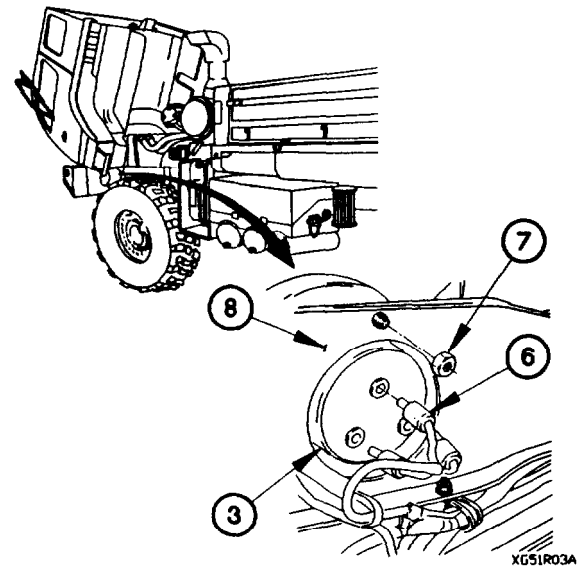
- (2) Remove lamp (4) from housing (3).

NOTE

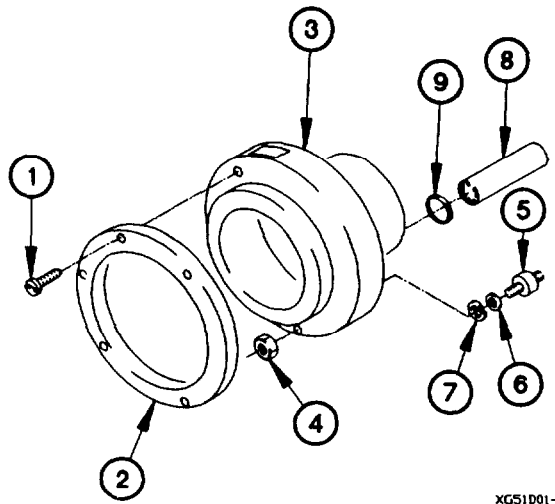
- Tag connectors and connection points prior to disconnecting.
 - Connector numbers are the same on left and right headlights.
- (3) Disconnect connectors 18, 91, and 17 (5) from housing (3).

NOTE

- Tag connectors and connection points prior to disconnecting.
 - Connectors for right side are P13, P14, and P12.
- (4) Disconnect connectors P4, P19, and P20 (6) from housing (3).
 - (5) Remove three nuts (7) and housing (3) from bumper (8).



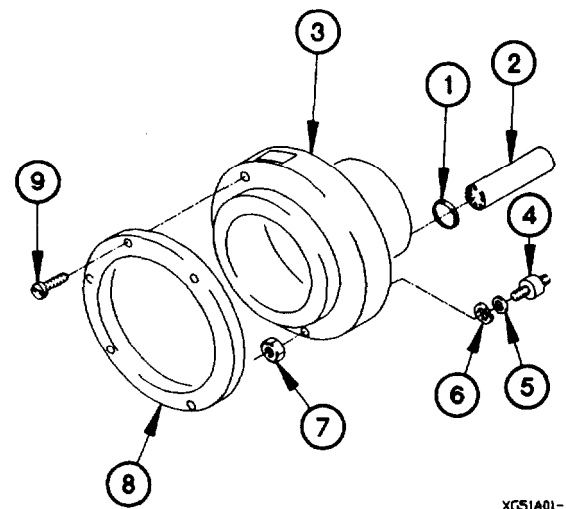
b. Disassembly.



- (1) Remove two screws (1) and lens retainer (2) from housing (3).
- (2) Remove three nuts (4), resilient mounts (5), washers (6), and lockwashers (7) from housing (3). Discard lockwashers.
- (3) Remove three adapters (8) and grommets (9) from housing (3). Discard grommets.

c. Assembly.

- (1) Install three grommets (1) and adapters (2) on housing (3).
- (2) Install three resilient mounts (4) on housing (3) with three washers (5), lockwashers (6), and nuts (7).
- (3) Install lens retainer (8) on housing (3) with three screws (9).



XG51A01-

7-34. HEADLIGHT AND HOUSING REPLACEMENT/REPAIR/ADJUSTMENT (CONT)

d. Installation.

NOTE

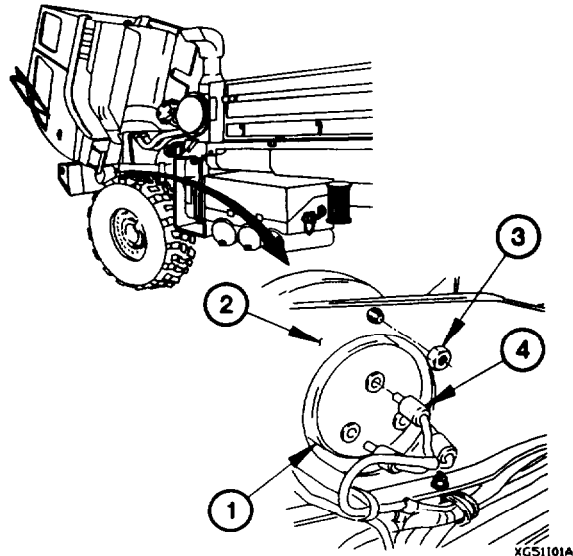
Both headlights are installed the same way.
Left headlight shown.

- (1) Position housing (1) on bumper (2) with three nuts (3).
- (2) Tighten three nuts (3) to 60-72 lb-in. (7-8 N•m).

NOTE

Connectors for right side are P13, P14, and P12.

- (3) Install connectors P20, P19, and P4 (4) to back of housing (1).

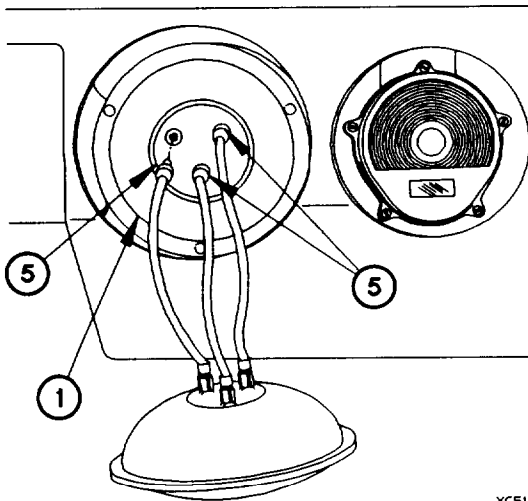


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NOTE

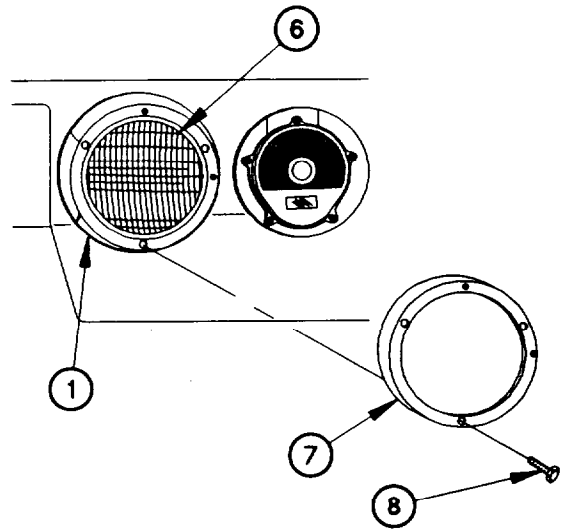
- Perform steps (4) through (6) to install lamp.
- Connector numbers are the same on left and right headlights.

- (4) Connect connectors 18, 91, and 17 (5) on housing (1).



XG51102A

- (5) Install lamp (6) in housing (1).
- (6) Install retaining ring (7) on housing (1) with three screws (8).
- (7) Lower cab (TM 9-2320-365-10).



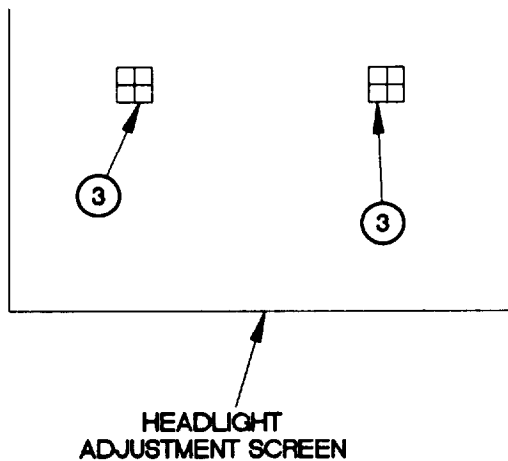
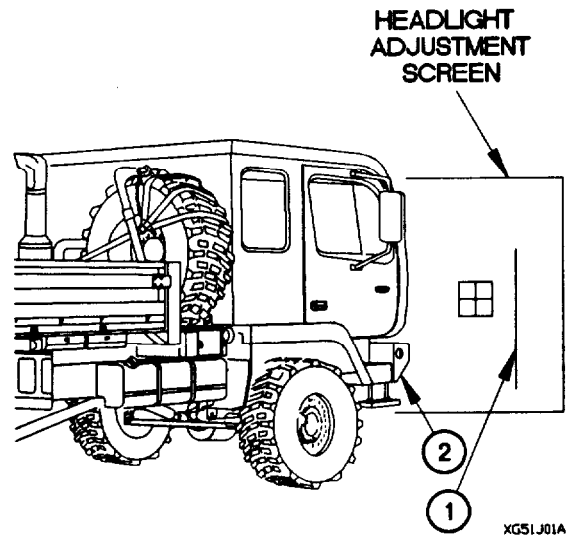
XG51103A

e. Adjustment.

NOTE

Vehicle must be empty when making headlight adjustments.

- (1) Connect batteries (para 7-48).
- (2) Position vehicle on level surface with both headlights approximately 36 in. (91 cm) from headlight adjustment screen with vertical lines (1) directly in front of bumper ends (2).
- (3) Turn headlights on LOW beam (TM 9-2320-365-10).



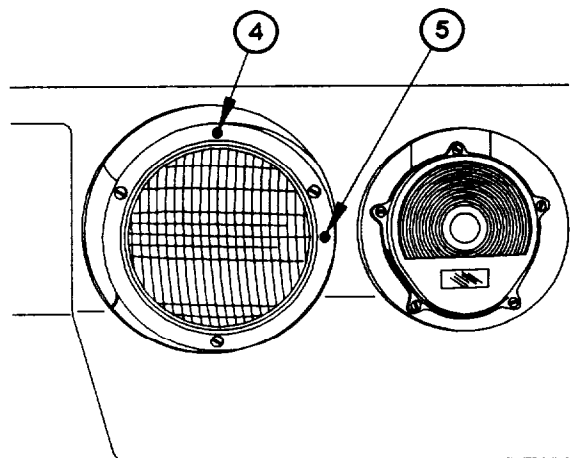
- (4) Observe headlight spots on headlight adjustment screen. If headlight spots are within squares (3), alignment is correct.

XG51J02-

NOTE

Perform steps (5) and (6) if headlights need adjusting.

- (5) Adjust screw (4) to move headlight spot up or down.
- (6) Adjust screw (5) to move headlight spot left or right.
- (7) Turn off headlights (TM 9-2320-365-10).



End of Task.

XG51J03-

7-35. AUDIBLE ALARM REPLACEMENT

This task covers:

- | | |
|---|--|
| <ul style="list-style-type: none"> a. Removal b. Installation | <ul style="list-style-type: none"> c. Follow-On Maintenance |
|---|--|

INITIAL SETUP

Equipment Conditions

Instrument panel assembly removed for access (para 7-15).

Materials/Parts

Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)

Tools and Special Tools

Tool Kit, Genl Mech (Item 44, Appendix C)

a. Removal.

- (1) Remove lock ring (1) and audible alarm (2) from instrument panel assembly (3).

NOTE

- Tag wires and connection points prior to disconnecting.
- Perform step (2) on M1079.

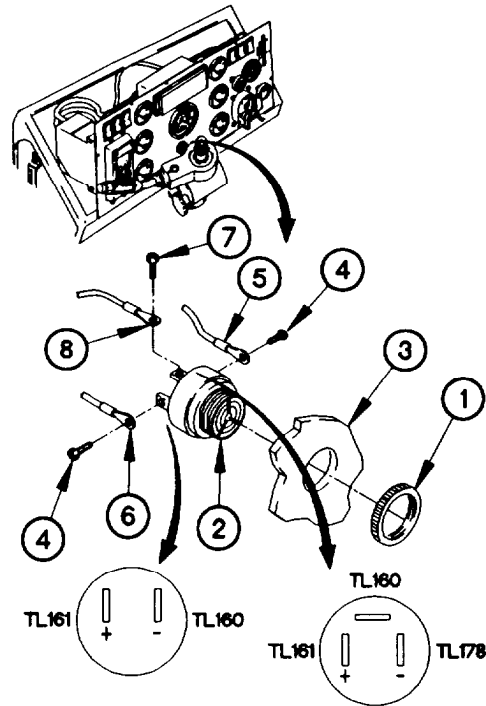
- (2) Remove two screws (4) and terminal lugs TL161 (5) and TL160 (6) from audible alarm (2).

NOTE

Perform steps (3) and (4) on M1078 and M1081.

- (3) Remove two screws (4) and terminal lugs TL161 (5) and TL178 (6) from audible alarm (2).

- (4) Remove screw (7) and terminal lug TL160 (8) from audible alarm (2).



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b. Installation.

NOTE

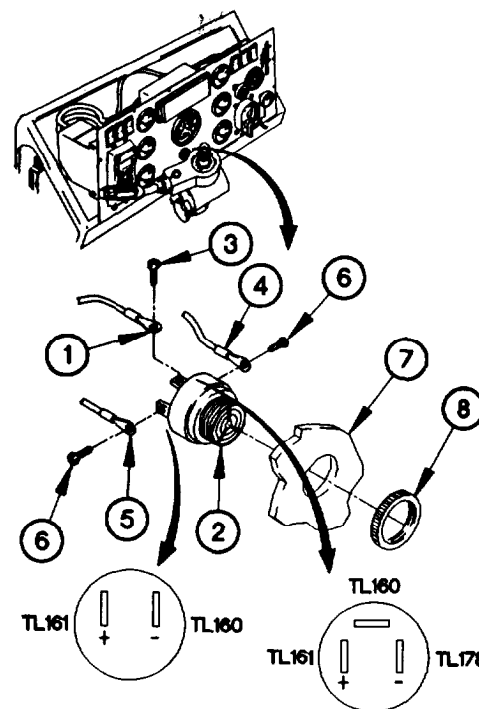
Perform steps (1) and (2) on M1078 and M1081.

- (1) Install terminal lug TL160 (1) on audible alarm (2) with screw (3).
- (2) Install terminal lug TL161 (4) and TL178 (5) on audible alarm (2) with two screws (6).

NOTE

Perform step (3) on M1079.

- (3) Install terminal lugs TL160 (5) and TL161 (4) on audible alarm (2) with two screws (6).
- (4) Install audible alarm (2) in instrument panel assembly (7) with lock ring (8).



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c. Follow-On Maintenance.

- (1) Install instrument panel assembly (para 7-15).
- (2) Check operation of audible alarm (TM 9-2320-365-10).

End of Task.

7-36. AIR PRESSURE TRANSMITTER REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

- Batteries disconnected (para 7-48).
- Air tanks drained (TM 9-2320-365-10).

Tools and Special Tools

- Tool Kit, Genl Mech (Item 44, Appendix C)

Materials/Parts

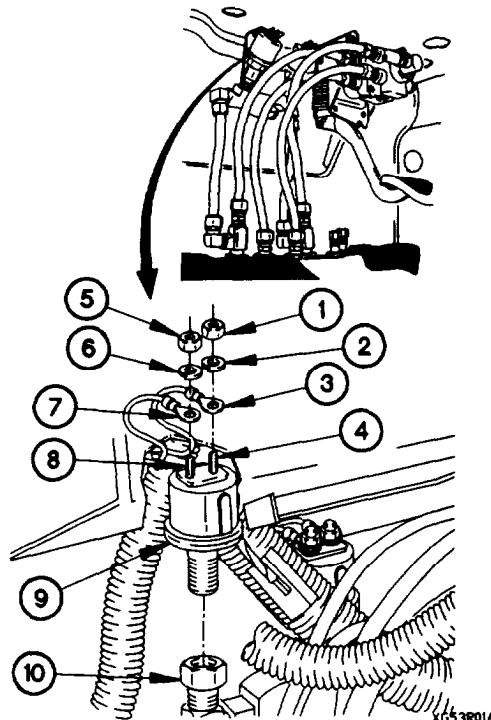
- Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)
- Antiseize Compound (Item 14, Appendix D)
- Lockwasher (2) (Item 64, Appendix G)

a. Removal.

NOTE

- Tag wires and connection points prior to disconnecting.
- Front brake air pressure transmitter and rear brake air pressure transmitter are removed the same way. Front brake air pressure transmitter shown.
- Terminal lugs on rear brake air pressure transmitter are TL150 for terminal WK and TL156 for terminal G.

- (1) Remove nut (1), lockwasher (2), and terminal lug TL151 (3) from air pressure transmitter terminal WK (4). Discard lockwasher.
- (2) Remove nut (5), lockwasher (6), and terminal lug TL157 (7) from air pressure transmitter terminal G (8). Discard lockwasher.
- (3) Remove air pressure transmitter (9) from reducer (10).



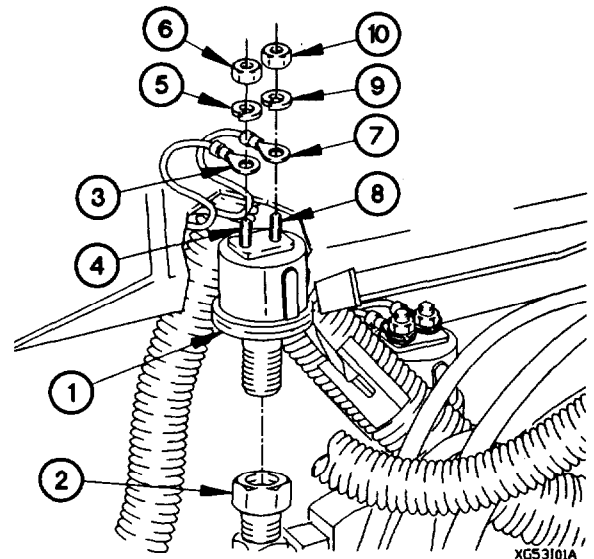
b. Installation.**WARNING**

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.

- (1) Apply antiseize compound to threads of air pressure transmitter (1).
- (2) Install air pressure transmitter (1) in reducer (2).

NOTE

- Front brake air pressure transmitter and rear brake air pressure transmitter are installed the same way. Front brake air pressure transmitter shown.
 - Terminal lugs on rear brake air pressure transmitter are TL150 for terminal WK and TL156 for terminal G.
- (3) Install terminal lug TL157 (3) on air pressure transmitter terminal G (4) with lockwasher (5) and nut (6).
 - (4) Install terminal lug TL151 (7) on air pressure transmitter terminal WK (8) with lockwasher (9) and nut (10).

**c. Follow-On Maintenance.**

- (1) Connect batteries (para 7-48).
- (2) Start engine (TM 9-2320-365-10).
- (3) Check FRONT BRAKE AIR and REAR BRAKE AIR pressure gage operation (TM 9-2320-365-10).
- (4) Shut down engine (TM 9-2320-365-10).

End of Task.

7-37. COOLANT TEMPERATURE GAGE SENSOR REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Cab raised (TM 9-2320-365-10).
Batteries disconnected (para 7-48).

Materials/Parts

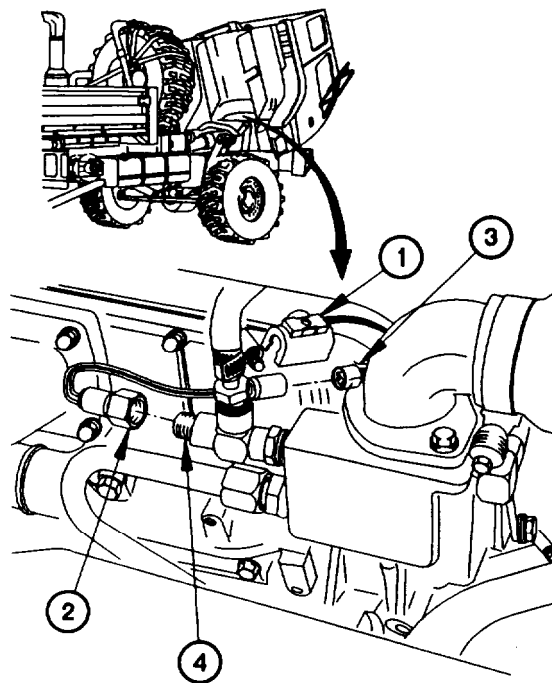
Antiseize Compound (Item 14, Appendix D)

Tools and Special Tools

Tool Kit, Genl Mech (Item 44, Appendix C)

a. Removal.

- (1) Disconnect connector clamp (1) from coolant temperature gage sensor (2).
- (2) Disconnect connector P41 (3) from coolant temperature gage sensor (2).
- (3) Remove coolant temperature gage sensor (2) from adapter (4).

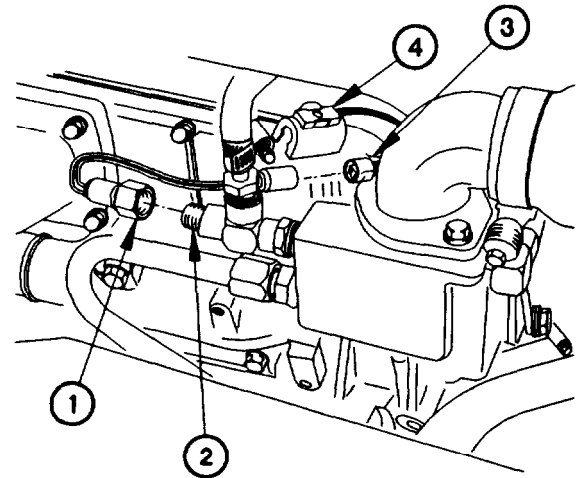


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b. Installation.**WARNING**

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.

- (1) Apply antiseize compound to threads of coolant temperature gage sensor (1).
- (2) Install coolant temperature gage sensor (1) in adapter (2).
- (3) Connect connector P41 (3) to coolant temperature gage sensor (1).
- (4) Connect connector clamp (4) on coolant temperature gage sensor (1).



XG54101-

c. Follow-On Maintenance.

- (1) Connect batteries (para 7-48).
- (2) Lower cab (TM 9-2320-365-10).
- (3) Start engine (TM 9-2320-365-10).
- (4) Check coolant temperature gage operation (TM 9-2320-365-10).
- (5) Shut down engine (TM 9-2320-365-10).

End of Task.

7-38. ENGINE SPEED SENSOR REPLACEMENT/ADJUSTMENT

This task covers:

- a. Removal
- b. Installation
- c. Adjustment

INITIAL SETUP

Equipment Conditions

- Cab raised (TM 9-2320-365-10).
- Batteries disconnected (para 7-48).

Tools and Special Tools

- Tool Kit, Genl Mech (Item 44, Appendix C)
- STE/ICE-R (Item 39, Appendix C)

Materials/Parts

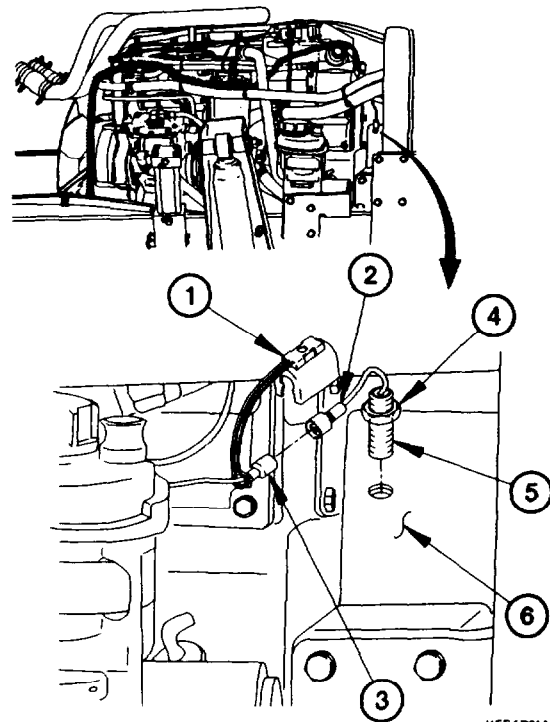
- Ties, Cable, Plastic (Item 76, Appendix D)

References

- TM 9-4910-571-12&P

a. Removal.

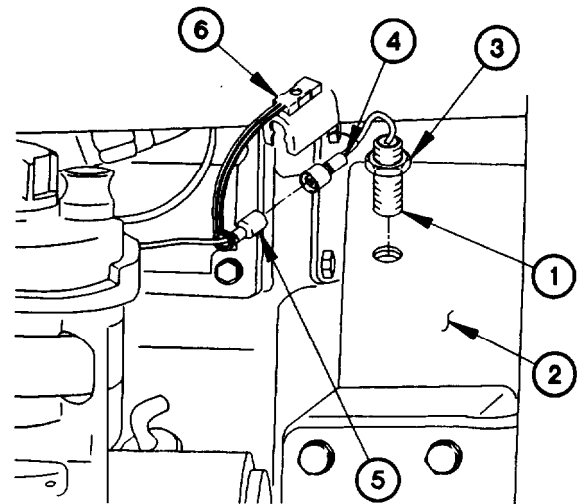
- (1) Disconnect connector clamp (1) from engine speed sensor connector (2).
- (2) Disconnect engine speed sensor connector (2) from connector P38 (3).
- (3) Loosen jam nut (4) on engine speed sensor (5).
- (4) Remove engine speed sensor (5) from flywheel housing (6).



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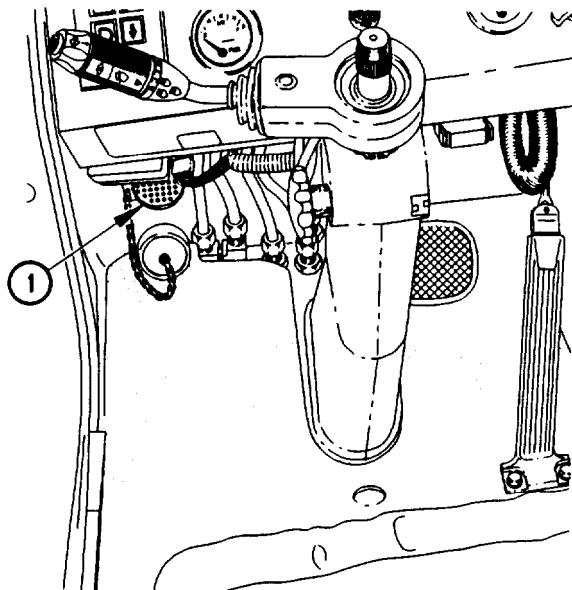
b. Installation.

- (1) Turn engine speed sensor (1) to the right in flywheel housing (2) until engine speed sensor contacts flywheel.
- (2) Turn engine speed sensor (1) to the left two full turns.
- (3) Tighten jam nut (3) on engine speed sensor (1).
- (4) Connect engine speed sensor connector (4) to connector P38 (5).
- (5) Connect connector clamp (6) on engine speed sensor connector (4).



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c. Adjustment.



**STEERING WHEEL
REMOVED FOR CLARITY**

XG56J01A

- (1) Lower cab (TM 9-2320-365-10).
- (2) Connect batteries (para 7-48).

NOTE

Perform step (3) on vehicles not equipped with tachometer.

- (3) Connect STE/ICE-R to DCA connector (1).
- (4) Start engine (TM 9-2320-365-10).

NOTE

- Perform step (5) on vehicles equipped with tachometer.
- If engine speed is not obtained in steps (5) or (6), perform steps (7) through (13).

- (5) Depress accelerator pedal and check tachometer operation (TM 9-2320-365-10).

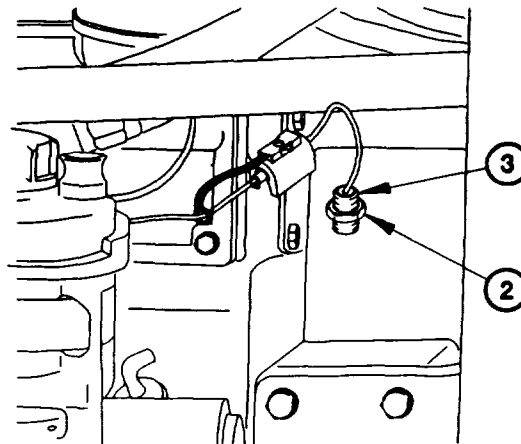
NOTE

Perform Step (6) on vehicles not equipped with tachometer.

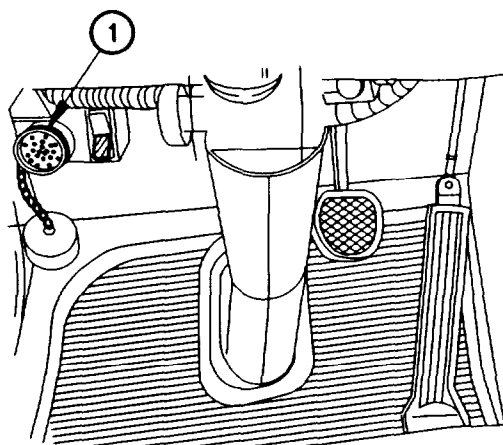
- (6) Perform STE/ICE-R test 10 and verify engine speed (TM 9-4910-571-12&P).

7-38. ENGINE SPEED SENSOR REPLACEMENT/ADJUSTMENT (CONT)

- (7) Shut down engine (TM 9-2320-365-10).
- (8) Raise cab (TM 9-2320-365-10).
- (9) Loosen jam nut (2) on engine speed sensor (3).
- (10) Turn engine speed sensor (3) to the right one-quarter turn.
- (11) Tighten jam nut (2) on engine speed sensor (3).
- (12) Lower cab (TM 9-2320-365-10).
- (13) Repeat steps (4) through (12) to verify engine speed.
- (14) If engine speed is not obtained, perform engine troubleshooting.
- (15) Shut down engine (TM 9-2320-365-10).



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XG56_J03A

NOTE

Perform step (16) on vehicles not equipped with tachometer.

- (16) Disconnect STE/ICE-R from DCA connector (1).

End of Task.

7-39. ETHER SENSOR REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Cab raised (TM 9-2320-365-10).
Batteries disconnected (para 7-48).

Materials/Parts

Antiseize Compound (Item 14, Appendix D)

Tools and Special Tools

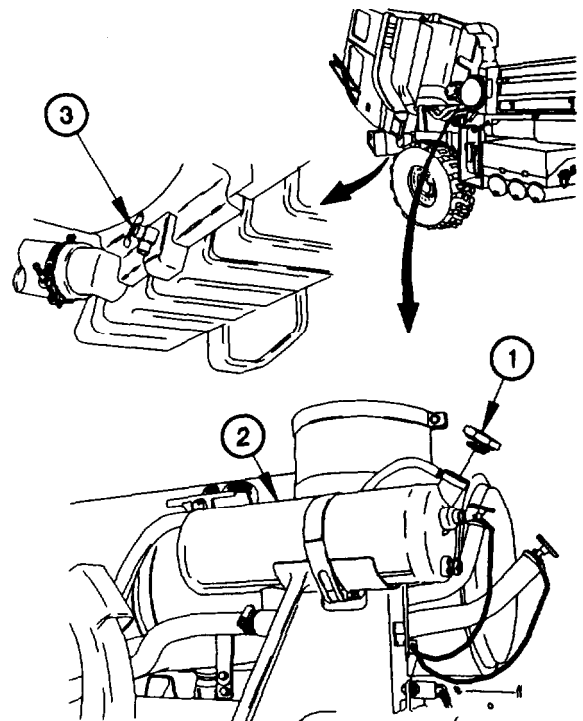
Tool Kit, Genl Mech (Item 44, Appendix C)
Goggles, Industrial (Item 15, Appendix C)

WARNING

- Coolant may be very hot and under pressure from engine operation. Ensure engine is cool before performing maintenance. Failure to comply may result in injury to personnel.
- Wear appropriate eye protection when working under vehicle due to the possibility of falling debris. Failure to comply may result in injury to personnel.

a. Removal.

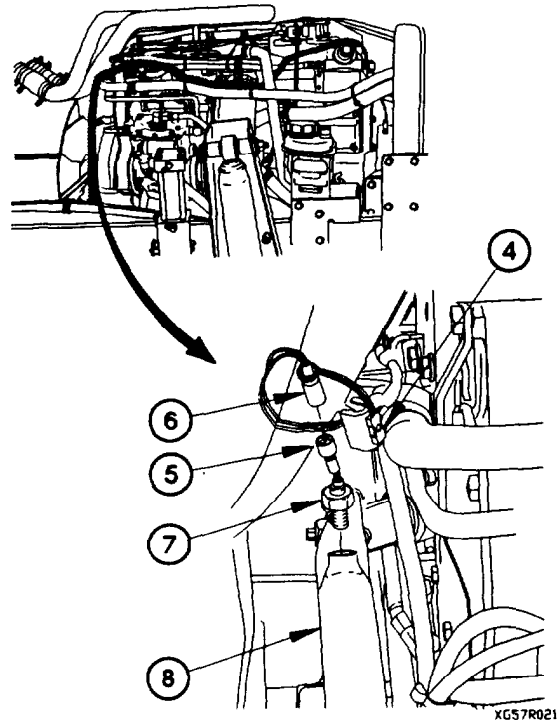
- (1) Remove radiator cap (1) from radiator overflow tank (2).
- (2) Position container under radiator draincock (3).
- (3) Open radiator draincock (3) and drain approximately one gallon (one L) of coolant.
- (4) Close radiator draincock (3).



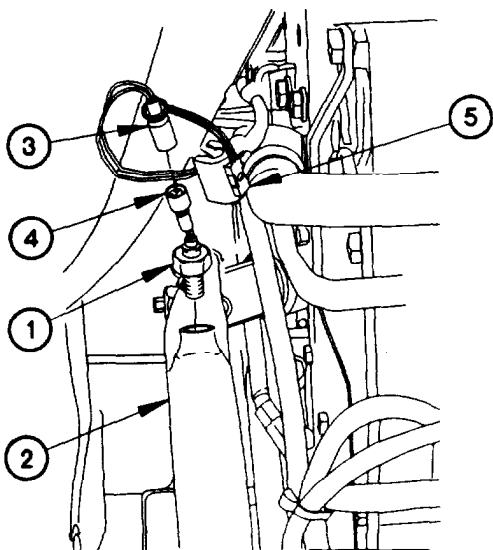
XG57R011

7-39. ETHER SENSOR REPLACEMENT (CONT)

- (5) Disconnect connector clamp (4) from ether sensor connector (5).
- (6) Disconnect connector P42 (6) from ether sensor connector (5).
- (7) Remove ether sensor (7) from coolant bypass tube (8).



b. Installation.



WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.

- (1) Apply anti-seize compound to threads of ether sensor (1).
- (2) Install ether sensor (1) in coolant bypass tube (2).
- (3) Connect connector P42 (3) to ether sensor connector (4).
- (4) Connect connector clamp (5) on ether sensor connector (4).

c. Follow-On Maintenance.

- (1) Add coolant to radiator overflow tank (TM 9-2320-365-10).
- (2) Connect batteries (para 7-48).
- (3) Lower cab (TM 9-2320-365-10).
- (4) Start engine (TM 9-2320-365-10).
- (5) Check for coolant leaks under vehicle.
- (8) Check coolant level after normal temperature is reached. Add coolant as required (TM 9-2320-365-10).
- (7) Raise cab (TM 9-2320-365-10).
- (8) Check for coolant leaks around ether sensor.
- (9) Lower cab (TM 9-2320-365-10).
- (10) Shut down engine (TM 9-2320-365-10).

End of Task.

7-40. OIL PRESSURE SWITCH REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Cab raised (TM 9-2320-365-10).
Batteries disconnected (para 7-48).

Materials/Parts

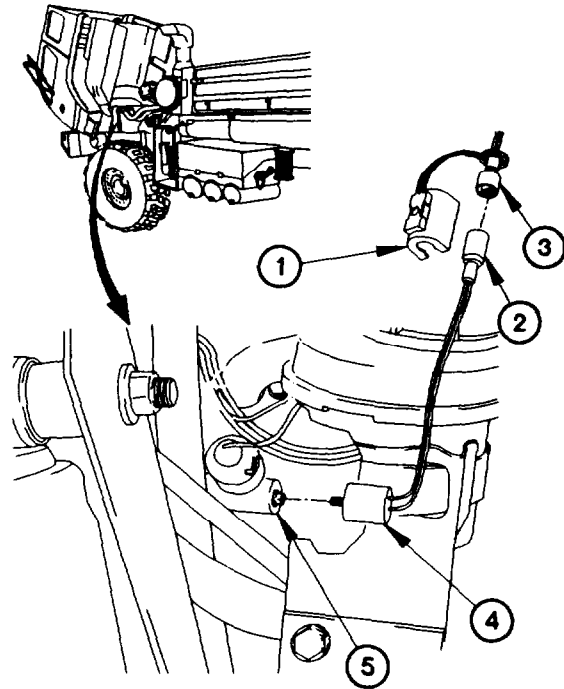
Antiseize Compound (Item 14, Appendix D)

Tools and Special Tools

Tool Kit, Genl Mech (Item 44, Appendix C)

a. Removal.

- (1) Disconnect connector clamp (1) from connector J32 (2).
- (2) Disconnect connector P32 (3) from connector J32 (2).
- (3) Remove oil pressure switch (4) from fitting (5).



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b. Installation.



Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.

- (1) Apply antiseize compound to threads of oil pressure switch (4).
- (2) Install oil pressure switch (4) in fitting (5).
- (3) Connect connector P32 (3) to connector J32 (2).
- (4) Connect connector clamp (1) on connector J32 (2).

c. Follow-On Maintenance.

- (1) Connect batteries (para 7-48).
- (2) Lower cab (TM 9-2320-365-10).
- (3) Start engine (TM 9-2320-365-10).
- (4) Check that low oil pressure is not indicated (TM 9-2320-365-10).
- (5) Shut down engine (TM 9-2320-365-10).

End of Task.

7-41. OIL PRESSURE TRANSDUCER REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Cab raised (TM 9-2320-365-10).
Batteries disconnected (para 7-48).

Materials/Parts

Antiseize Compound (Item 14, Appendix D)

Tools and Special Tools

Tool Kit, Genl Mech (Item 44, Appendix C)

a. Removal.

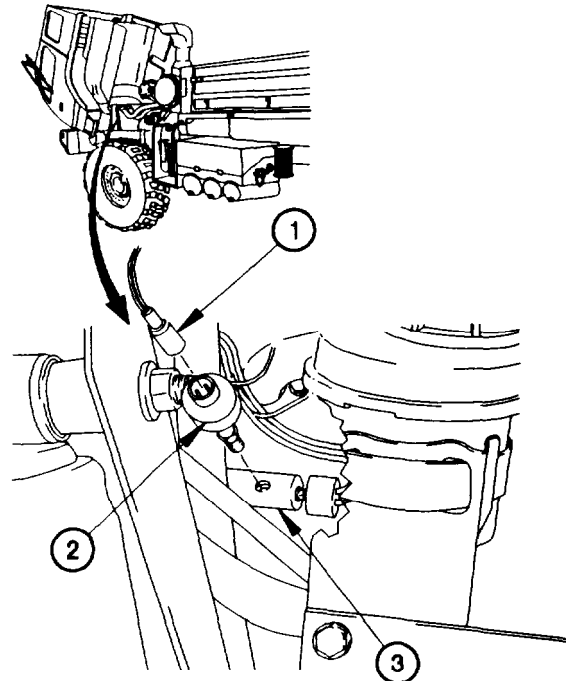
- (1) Disconnect connector P32 (1) from oil pressure transducer (2).
- (2) Remove oil pressure transducer (2) from fitting (3).

b. Installation.

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.

- (1) Apply antiseize compound to threads of oil pressure transducer (2).
- (2) Install oil pressure transducer (2) in fitting (3).
- (3) Connect connector P32 (1) to oil pressure transducer (2).



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c. Follow-On Maintenance.

- (1) Connect batteries (para 7-48).
- (2) Lower cab (TM 9-2320-365-10).
- (3) Start engine (TM 9-2320-365-10).
- (4) Check oil pressure gage operation (TM 9-2320-365-10).
- (5) Shut down engine (TM 9-2320-365-10).

End of Task.

7-42. WATER TEMPERATURE SWITCH REPLACEMENT

This task covers:

- | | |
|---|--|
| <ul style="list-style-type: none"> a. Removal b. Installation | <ul style="list-style-type: none"> c. Follow-On Maintenance |
|---|--|

INITIAL SETUP

Equipment Conditions

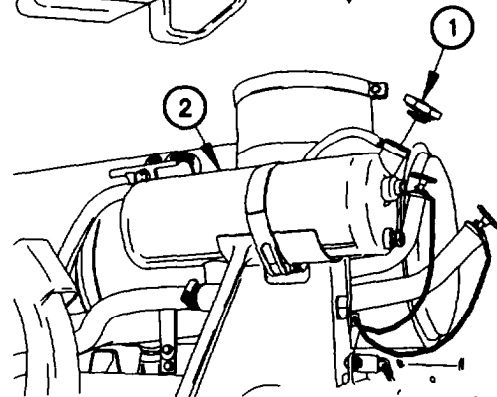
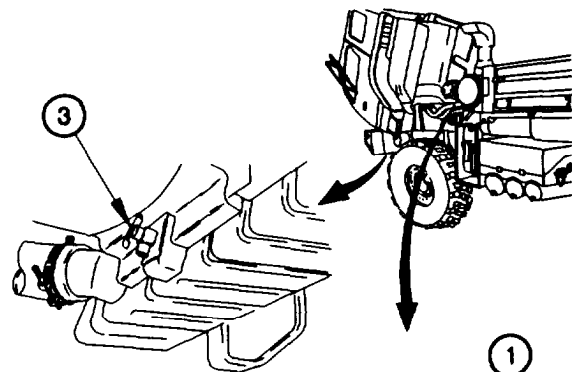
- Cab raised (TM 9-2320-365-10).
- Batteries disconnected (para 7-48).

Tools and Special Tools

- Tool Kit, Genl Mech (Item 44, Appendix C)
- Goggles, Industrial (Item 15, Appendix C)

WARNING

- Coolant may be very hot and under pressure from engine operation. Ensure engine is cool before performing maintenance. Failure to comply may result in injury to personnel.
- Wear appropriate eye protection when working under vehicle due to the possibility of falling debris. Failure to comply may result in injury to personnel.

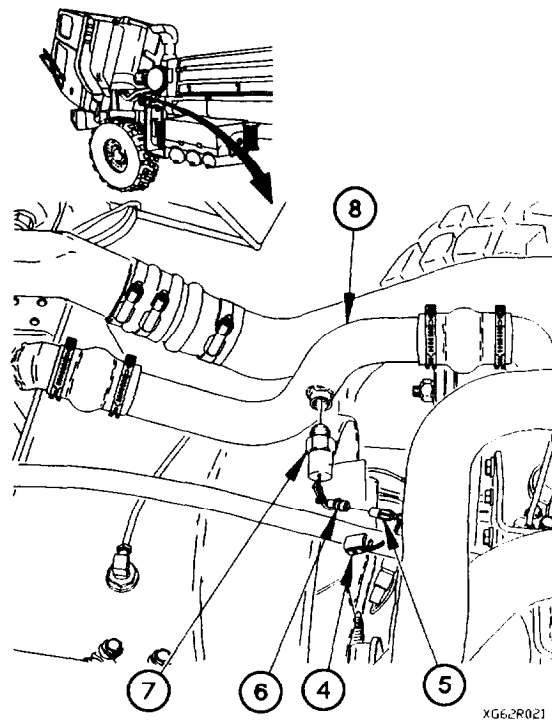


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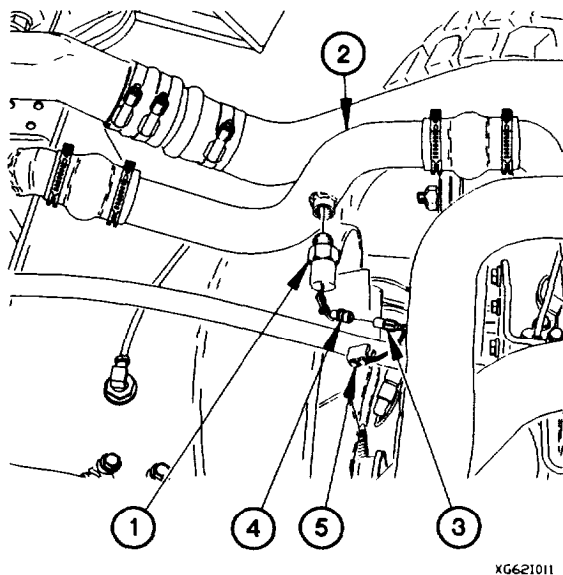
a. Removal.

- (1) Remove radiator cap (1) from radiator overflow tank (2).
- (2) Position container under radiator draincock (3).
- (3) Open radiator draincock (3) and drain approximately one gallon (one L) of coolant.
- (4) Close radiator draincock (3).

- (5) Disconnect connector clamp (4) from connector P36 (5).
- (6) Disconnect water temperature switch connector (6) from connector P36 (5).
- (7) Remove water temperature switch (7) from upper coolant tube (8).



b. Installation.



- (1) Install water temperature switch (1) in upper coolant tube (2).
- (2) Connect connector P36 (3) to water temperature switch connector (4).
- (3) Connect connector clamp (5) on connector P36 (3).

7-42. WATER TEMPERATURE SWITCH REPLACEMENT (CONT)

c. Follow-On Maintenance.

- (1) Add coolant to radiator overflow tank (TM 9-2320-365-10).
- (2) Connect batteries (para 7-48).
- (3) Lower cab (TM 9-2320-365-10).
- (4) Start engine (TM 9-2320-385-10).
- (5) Check for coolant leaks under vehicle.
- (6) Check coolant level after normal temperature is reached. Add coolant as required (TM 9-2320-365-10).
- (7) Raise cab (TM 9-2320-385-10).
- (8) Check for leaks around water temperature switch.
- (9) Lower cab (TM 9-2320-365-10).
- (10) Shut down engine (TM 9-2320-365-10).

End of Task.

7-43. TRANSMISSION ENGINE SPEED SENSOR REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP**Equipment Conditions**

Batteries disconnected (para 7-48).

Materials/Parts

Packing, Preformed (Item 176, Appendix G)

Tools and Special Tools

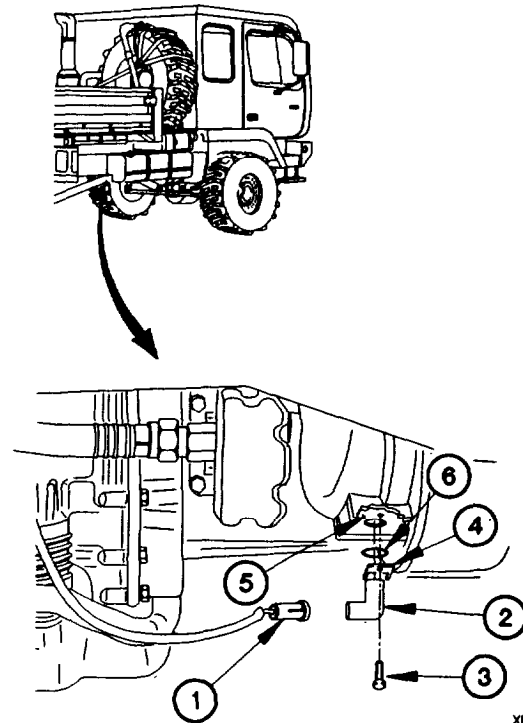
Goggles, Industrial (Item 15, Appendix C)
 Tool Kit, Genl Mech (Item 44, Appendix C)
 Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)

WARNING

Wear eye protection when working under vehicle due to the possibility of falling debris. Failure to comply may result in injury to personnel.

a. Removal.

- (1) Disconnect engine speed sensor connector (1) from transmission engine speed sensor (2).
- (2) Remove screw (3), transmission engine speed sensor bracket (4), and transmission engine speed sensor (2) from converter housing module (5).
- (3) Remove preformed packing (6) from transmission engine speed sensor (2). Discard preformed packing.

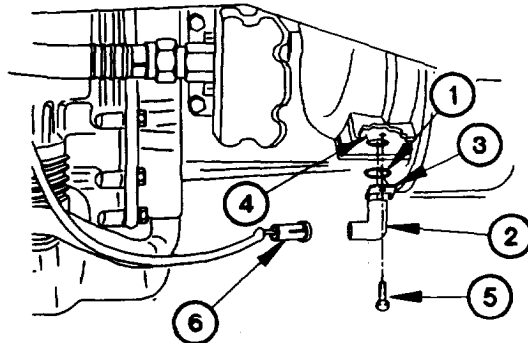


XH18R01A

7-43. TRANSMISSION ENGINE SPEED SENSOR REPLACEMENT (CONT)

b. Installation.

- (1) Install preformed packing (1) on transmission engine speed sensor (2).
- (2) Position transmission engine speed sensor bracket (3) and transmission engine speed sensor (2) on converter housing module (4) with screw (5).
- (3) Tighten screw (5) to 22-28 lb-ft (30-35 N•m).
- (4) Connect engine speed sensor connector (8) to transmission engine speed sensor (2).



XH18101A

c. Follow-On Maintenance.

- (1) Connect batteries (para 7-48).
- (2) Start engine (TM 9-2320-365-10).
- (3) Check for diagnostic codes logged (para 8-4 or 8-5).
- (4) Shut down engine (TM 9-2320-365-10).

End of Task.

7-44. HORN AND BRACKET REPLACEMENT

This task covers:

- a. Removal
- b. Installation

- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Batteries disconnected (para 7-48).

Tools and Special Tools

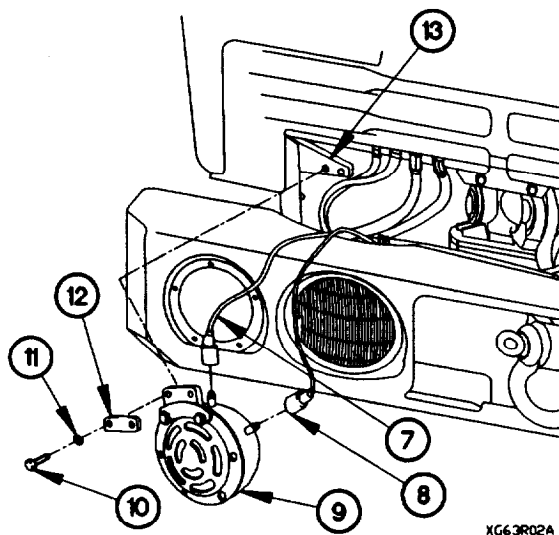
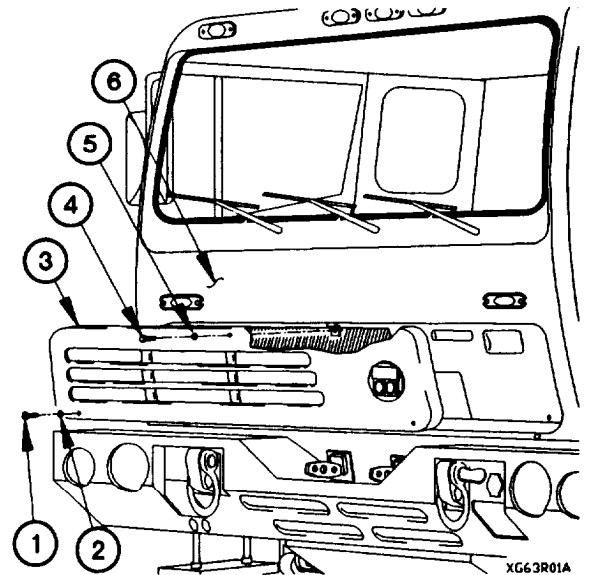
Tool Kit, Genl Mech (Item 44, Appendix C)
 Wrench, Torque, 0-200 lb-in. (Item 58, Appendix C)
 Socket Set, Socket Wrench (Item 34, Appendix C)

Materials/Parts

Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)
 Lockwasher (2) (Item 63, Appendix G)

a. Removal.

- (1) Remove two screws (1) and washers (2) from front grille (3).
- (2) Remove screw (4), washer (5), and front grille (3) from cab (6).



NOTE

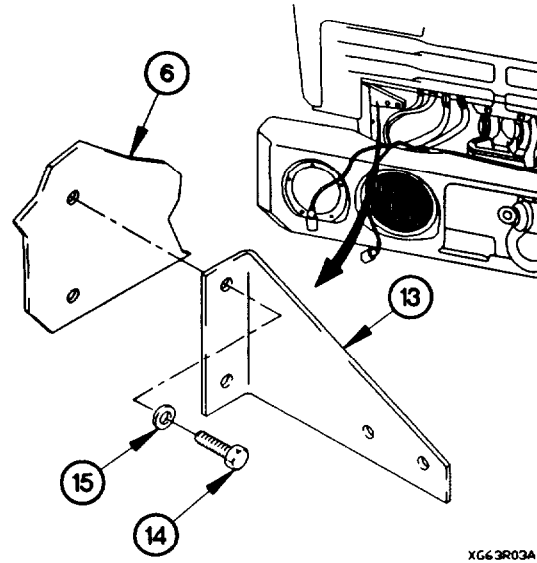
Tag connectors and connection points prior to disconnecting.

- (3) Disconnect connectors P5 (7) and P6 (8) from horn (9).
- (4) Remove two screws (10), lockwashers (11), strap (12), and horn (9) from horn bracket (13). Discard lockwashers.

7-44. HORN AND BRACKET REPLACEMENT (CONT)

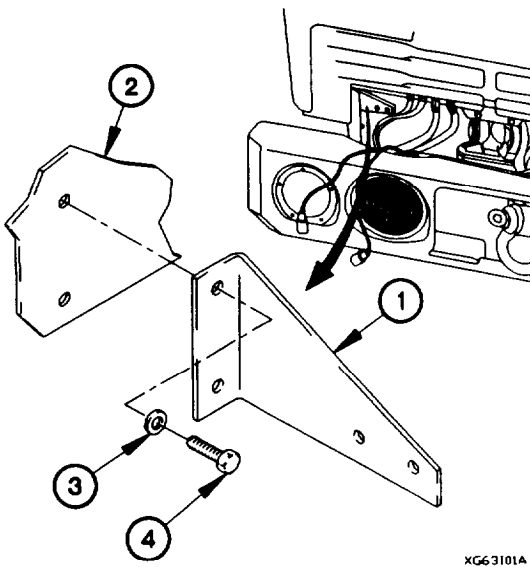
(5) Remove two screws (14), washers (15), and horn bracket (13) from cab (6).

b. Installation.



XG63R03A

(1) Install horn bracket (1) on cab (2) with two washers (3) and screws (4).

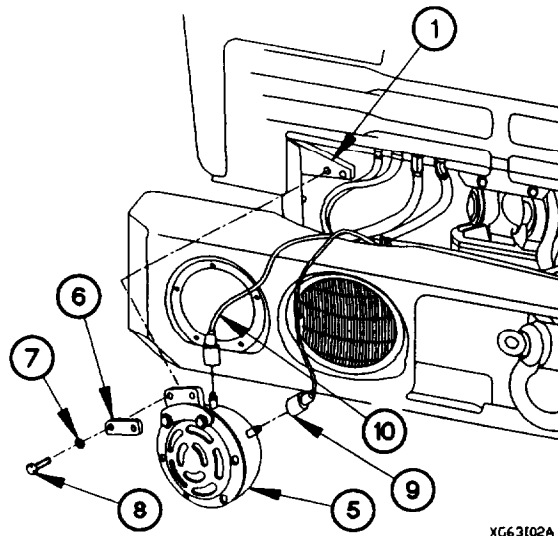


XG63I01A

(2) Position horn (5) on horn bracket (1) with strap (6), two lockwashers (7), and screws (8).

(3) Tighten two screws (8) to 96-120 lb-in. (11-14 N•m).

(4) Connect connectors P6 (9) and P5 (10) to horn (5).



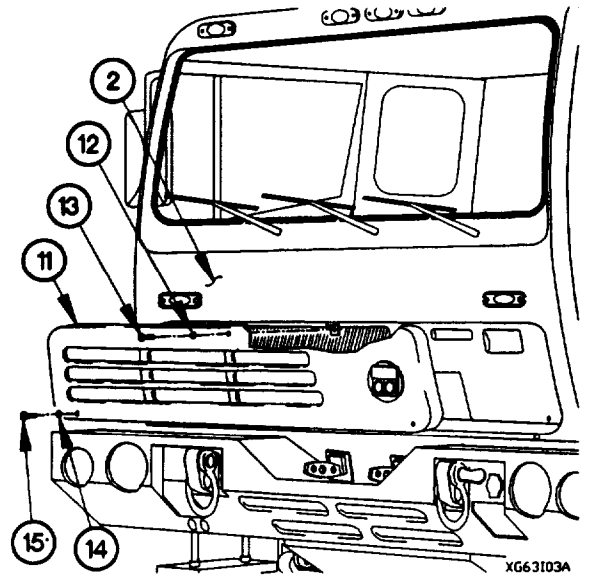
XG63I02A

- (5) Position front grille (11) on cab (2) with washer (12) and screw (13).
- (6) Position two washers (14) and screws (15) in front grille (11).
- (7) Tighten screw (13) to 48-60 lb-in. (5-7 N•m).
- (8) Tighten two screws (15) to 24 lb-in. (3 N•m).

c. Follow-On Maintenance.

Connect batteries (para 7-48).

End of Task.



7-45. BATTERY TESTER REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

- Engine shut down (TM 9-2320-365-10).
- Battery box cover removed (TM 9-2320-365-10).

Tools and Special Tools

- Goggles, Industrial (Item 15, Appendix C)
- Apron, Rubber (Item 3, Appendix C)
- Gloves, Rubber (Item 13, Appendix C)
- Puller, Battery Terminal (Item 28, Appendix C)
- Tool Kit, Genl Mech (Item 44, Appendix C)

Materials/Parts

- Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)
- Grease, Automotive and Artillery (GAA) (Item 23, Appendix D)
- Lockwasher (Item 78, Appendix G)

WARNING

- Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock. Batteries can explode from a spark. Battery acid is harmful to skin and eyes. Always wear eye protection when working with batteries.
- Negative battery terminals must be disconnected first. Failure to comply may result in serious injury or death to personnel.

a. Removal.

NOTE

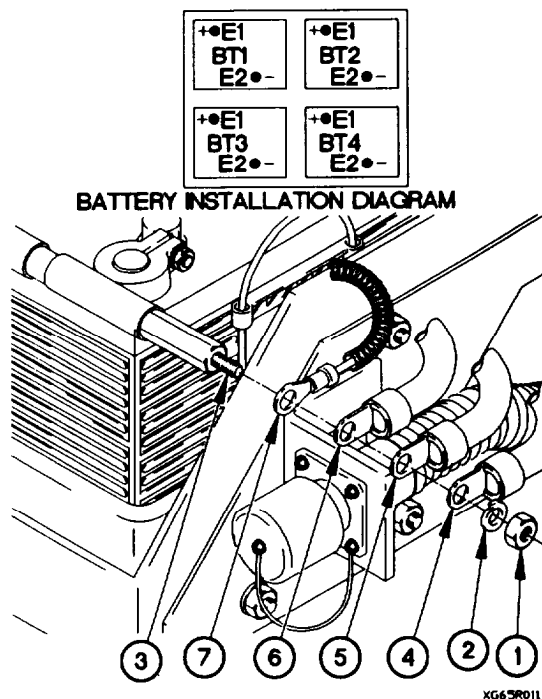
Tag cables and connection points prior to disconnecting.

- (1) Remove nut (1) and lockwasher (2) from battery ground cable (3). Discard lockwasher.

NOTE

Perform step (2) on vehicles equipped with cargo arctic heater.

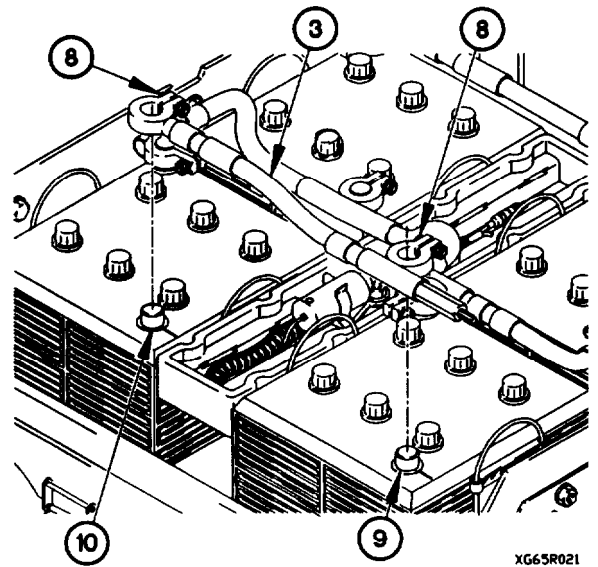
- (2) Remove terminal lug TL2 (4) from battery ground cable (3).
- (3) Remove terminal lugs TL50A (5), TL48 (6), and battery tester terminal lug (7) from battery ground cable (3).



NOTE

Remove battery terminal covers as required.

- (4) Loosen two terminal screws (6) on battery ground cable (3).
- (5) Remove battery ground cable (3) from battery terminals BT4 E2 (9) and BT3 E2 (10).



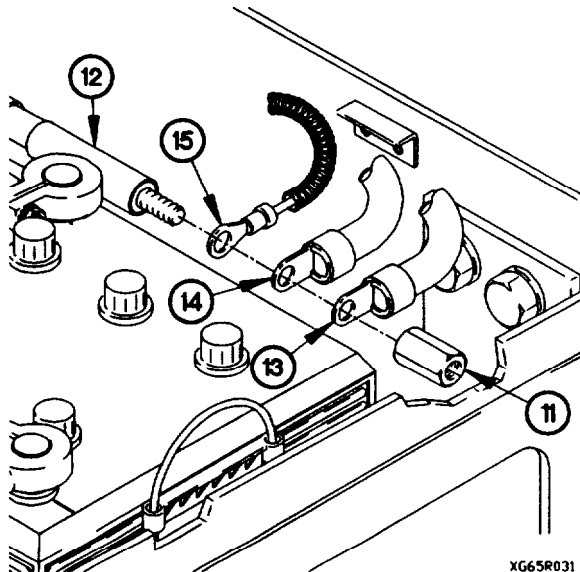
XG65R021

- (6) Remove nut (11) from battery 24 VDC cable (12).

NOTE

Perform step (7) on vehicles equipped with cargo arctic heater.

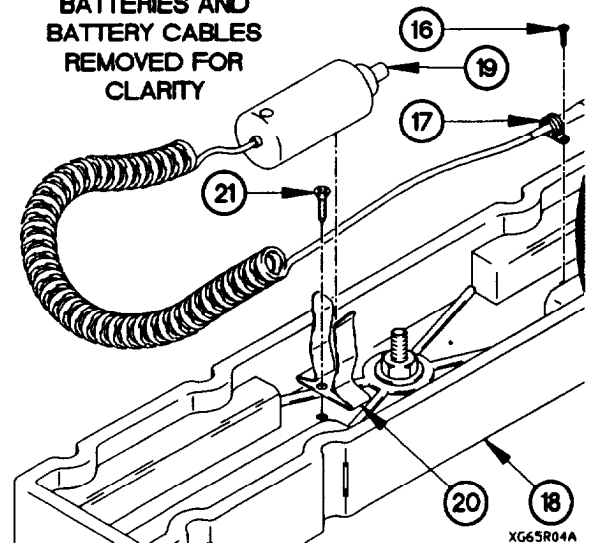
- (7) Remove terminal lug TL1 (13) from battery 24 VDC cable (12).
- (8) Remove terminal lug TL49A (14) and battery tester terminal lug (15) from battery 24 VDC cable (12).



XG65R031

- (9) Remove screw (16) and clamp (17) from battery hold-down bracket (18).
- (10) Remove battery tester (19) from spring clip (20).
- (11) Remove two screws (21) and spring clip (20) from battery hold-down bracket (18).

BATTERIES AND BATTERY CABLES REMOVED FOR CLARITY

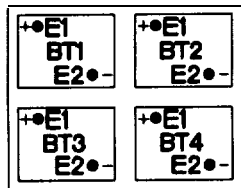
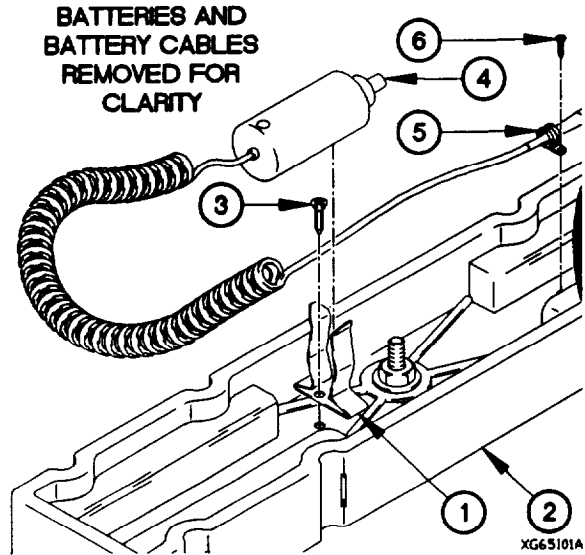


XG65R04A

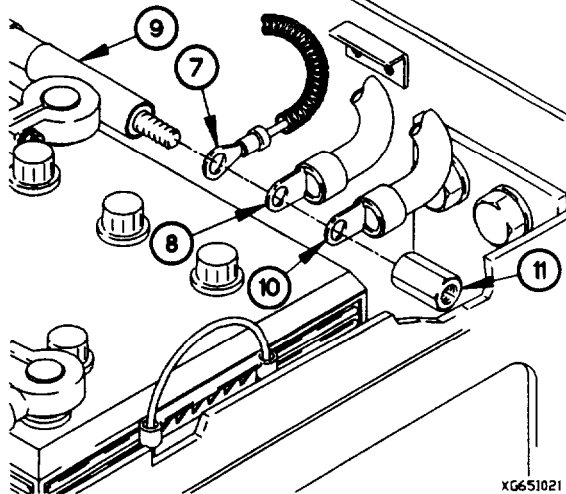
7-45. BATTERY TESTER REPLACEMENT (CONT)

b. Installation.

- (1) Install spring clip (1) on battery hold-down bracket (2) with two screws (3).
- (2) Install battery tester (4) in spring clip (1).
- (3) Install clamp (5) on battery hold-down bracket (2) with screw (6).



BATTERY INSTALLATION DIAGRAM



WARNING

Negative battery terminals must be connected last. Failure to comply may result in serious injury or death to personnel.

- (4) Install battery tester terminal lug (7) and terminal lug TL49A (8) on battery 24 VDC cable (9).

NOTE

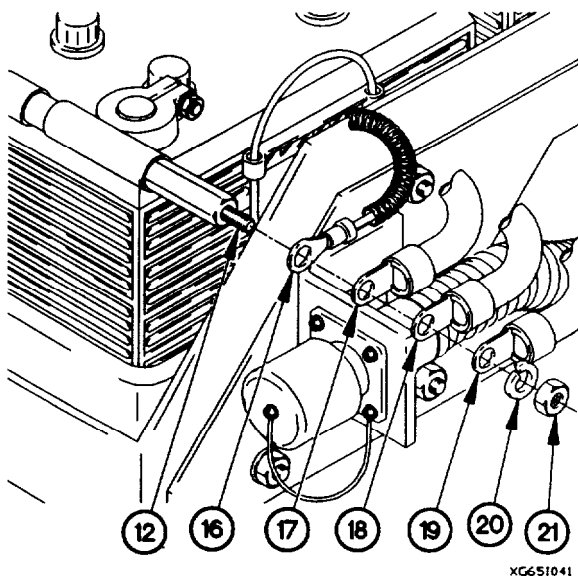
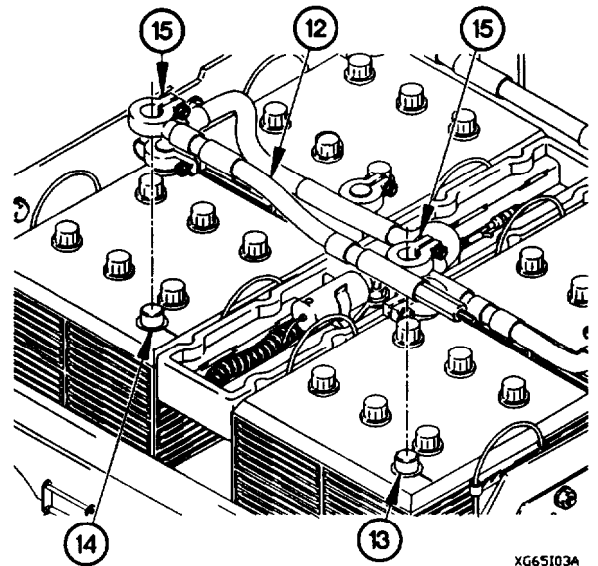
Perform step (5) on vehicles equipped with cargo arctic heater.

- (5) Install terminal lug TL1 (10) on battery 24 VDC cable (9).
- (6) Install nut (11) on battery 24 VDC cable (9).

NOTE

Install battery terminal covers as required.

- (7) Install battery ground cable (12) on battery terminals BT4 E2 (13) and BT3 E2 (14).
- (8) Tighten two terminal screws (15) on battery ground cable (12).



- (9) Install battery tester terminal lug (16), and terminal lugs TL5OA (17) and TL48 (18) on battery ground cable (12).

NOTE

Perform step (10) on vehicles equipped with cargo arctic heater.

- (10) Install terminal lug TL2 (19) on battery ground cable (12).
- (11) Install lockwasher (20) and nut (21) on battery ground cable (12).
- (12) Apply grease to all battery terminals.

c. Follow-On Maintenance.

Install battery box cover (TM 9-2320-365-10).

End of Task.

7-46. BATTERY/BATTERY CABLES REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

- Engine shut down (TM 9-2320-365-10).
- Battery box cover removed (TM 9-2320-365-10).

Tools and Special Tools

- Tool Kit, Genl Mech (Item 44, Appendix C)
- Apron, Rubber (Item 3, Appendix C)
- Goggles, Industrial (Item 15, Appendix C)
- Gloves, Rubber (Item 13, Appendix C)
- Puller, Battery Terminal (Item 28, Appendix C)

Materials/Parts

- Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)
- Lockwasher (Item 78, Appendix G)
- Grease, Automotive and Artillery (GAA) (Item 23, Appendix D)

References

- TM 9-6140-200-14

a. Removal.

WARNING

- Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock. Batteries can explode from a spark.
- Battery acid (electrolyte) is extremely harmful. Always wear safety goggles and rubber gloves, and do not smoke when performing maintenance on batteries. Injury will result if acid contacts skin or eyes. Wear rubber apron to prevent clothing being damaged.
- Negative battery terminals and battery tester negative terminal lug must be disconnected first. Failure to comply may result in serious injury or death to personnel.

NOTE

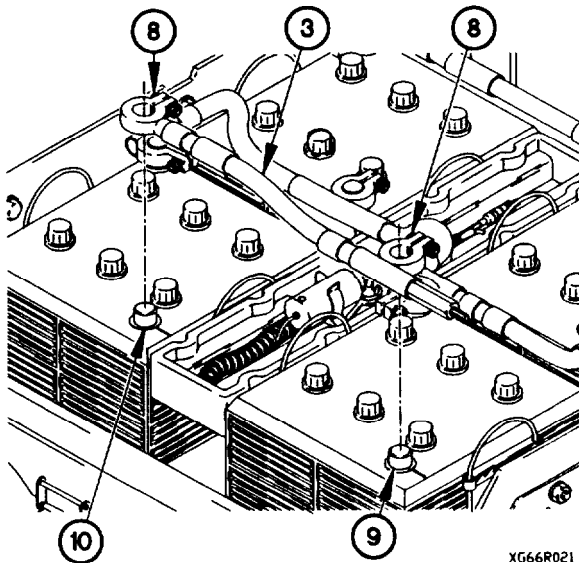
Tag cables and connection points prior to disconnecting.

- (1) Remove nut (1) and lockwasher (2) from battery ground cable (3). Discard lockwasher.

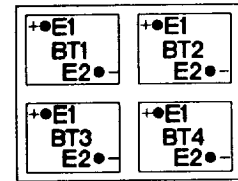
NOTE

Perform step (2) on vehicles equipped with cargo arctic heater.

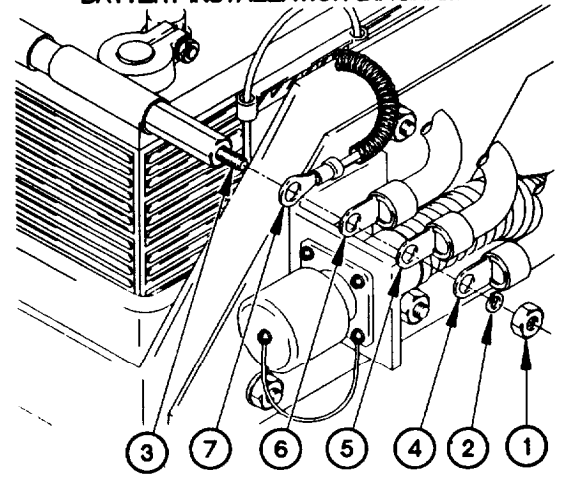
- (2) Remove terminal lug TL2 (4) from battery ground cable (3).
- (3) Remove terminal lugs TL5OA (5), TL48 (6), and battery tester terminal lug (7) from battery ground cable (3).



- (6) Remove nut (11) and terminal lug TL99 (12) from battery BT2 to BT4 12 vdc cable (13).



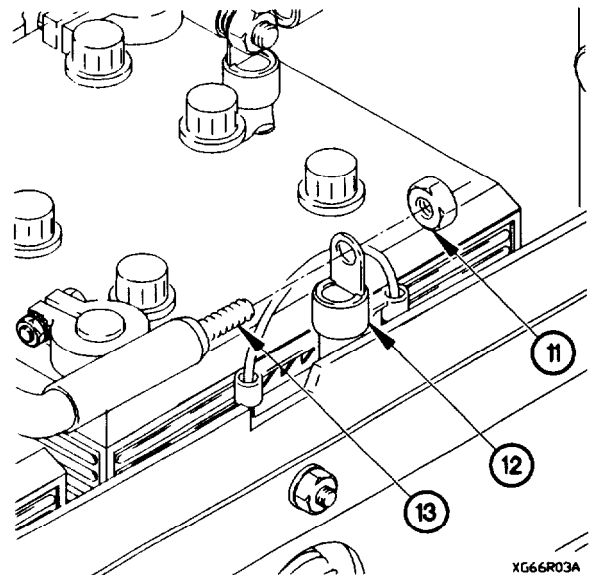
BATTERY INSTALLATION DIAGRAM



NOTE

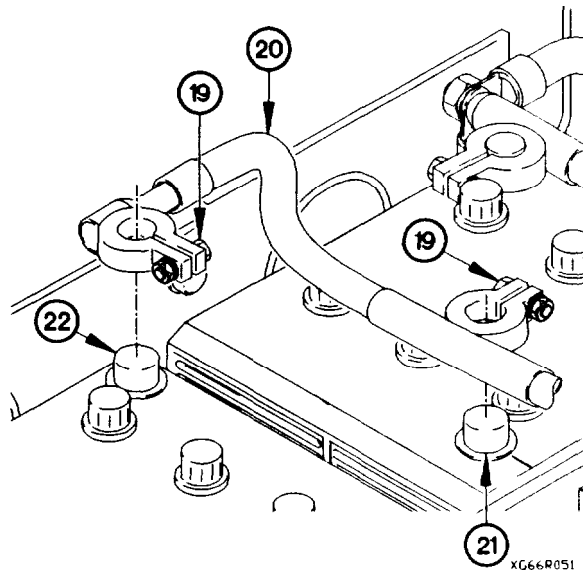
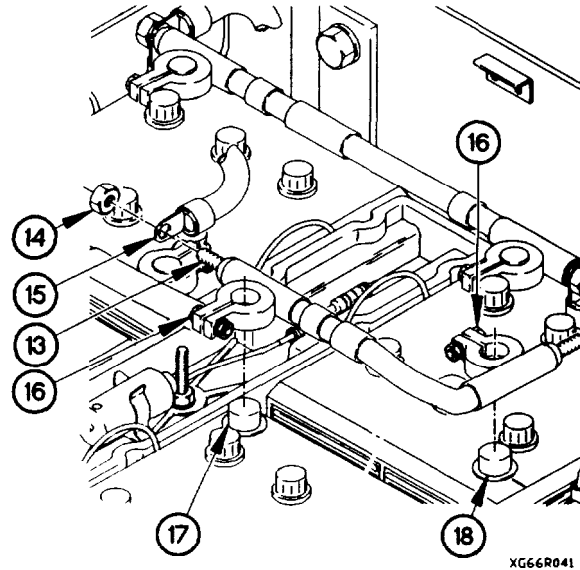
Remove battery terminal covers as required.

- (4) Loosen two terminal screws (8) on battery ground cable (3).
- (5) Remove battery ground cable (3) from battery terminals BT4 E2 (9) and BT3 E2 (10).



7-46. BATTERY/BATTERY CABLES REPLACEMENT (CONT)

- (7) Remove nut (14) and terminal lug TL136 (15) from battery BT2 to BT4 12 vdc cable (13).
- (8) Loosen two terminal screws (16) on battery BT4 to BT2 12 vdc cable (13).
- (9) Remove battery BT2 to BT4 12 vdc cable (13) from battery terminals BT4 E1 (17) and BT2 E2 (18).



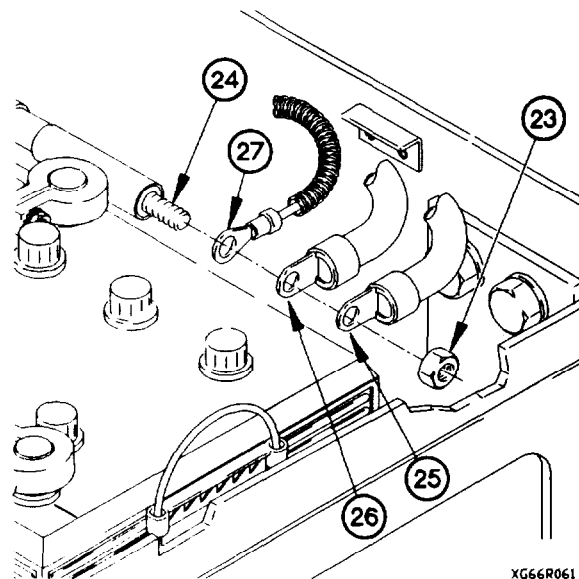
- (10) Loosen two terminal screws (19) on battery BT1 to BT3 12 vdc cable (20).
- (11) Remove battery BT1 to BT3 12 vdc cable (20) from battery terminals BT1 E2 (21) and BT3 E1 (22).

- (12) Remove nut (23) from battery 24 vdc cable (24).

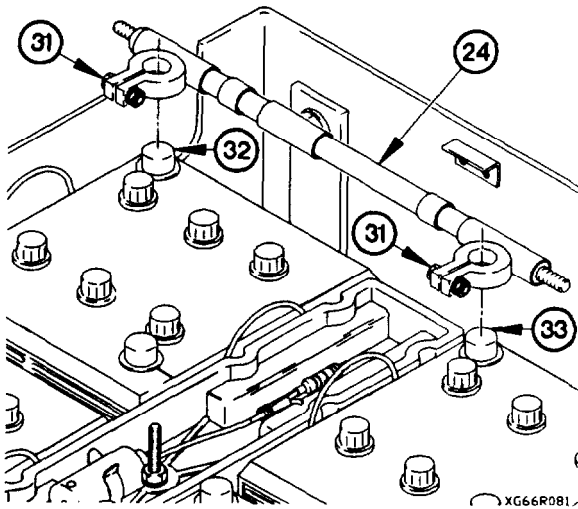
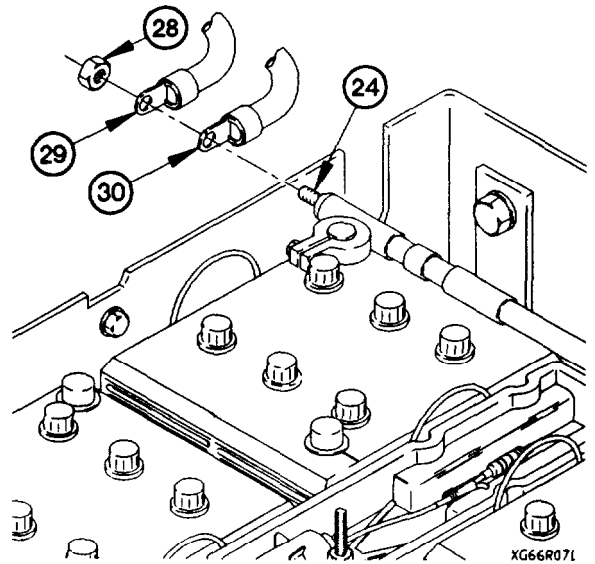
NOTE

Perform step (13) on vehicles equipped with cargo arctic heater.

- (13) Remove terminal lug TL1 (25) from battery 24 vdc cable (24).
- (14) Remove terminal lug TL49A (26) and battery tester terminal lug (27) from battery 24 vdc cable (24).



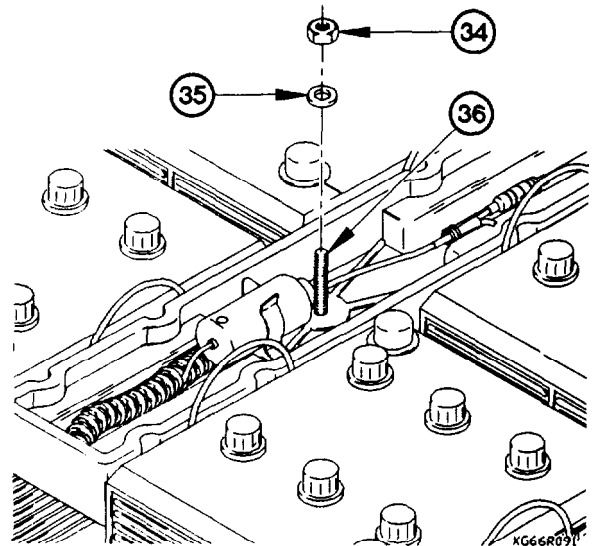
(15) Remove nut (28), and terminal lugs TL39 (29) and TL10 (30) from battery 24 vdc cable (24).



(16) Loosen two terminal screws (31) on battery 24 vdc cable (24).

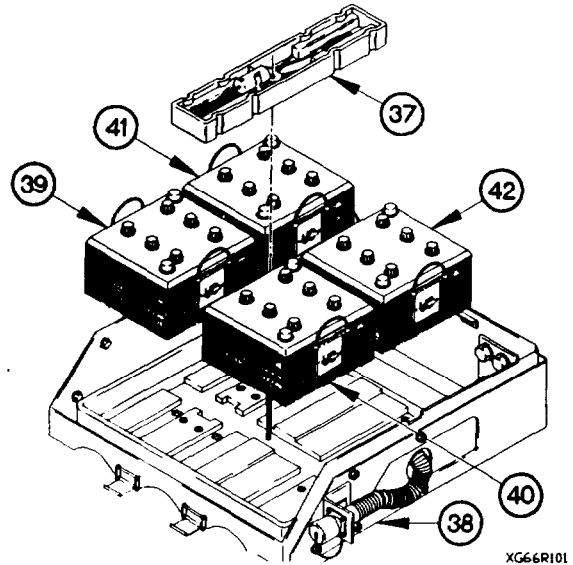
(17) Remove battery 24 vdc cable (24) from battery terminals BT1 E1 (32) and BT2 E1 (33).

(17) Remove nut (34) and washer (35) from battery bracket hold down screw (36).



7-46. BATTERY/BATTERY CABLES REPLACEMENT (CONT)

- (18) Remove battery hold down bracket (37) from battery box (38).
- (19) Remove batteries BT3 (39), BT4 (40), BT1 (41), and BT2 (42) from battery box (38).



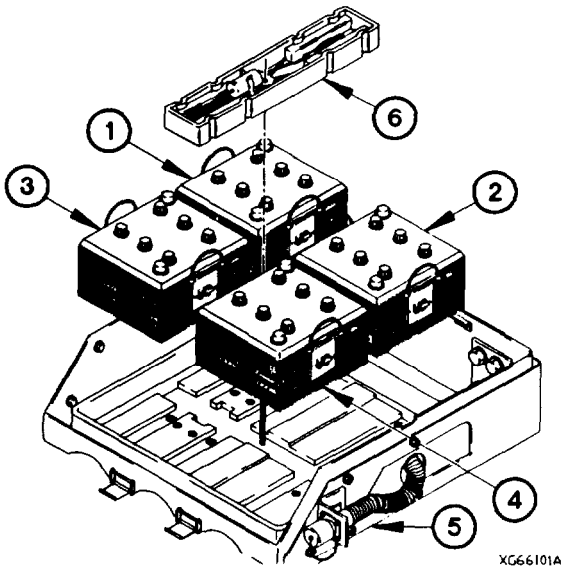
XG66R101

NOTE

Install battery terminal covers as required.

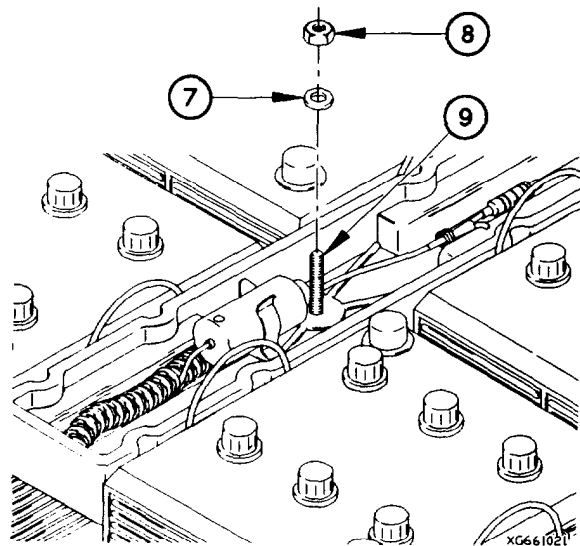
- (1) Position batteries BT1 (1), BT2 (2), BT3 (3), and BT4 (4) in battery box (5).
- (2) Position battery hold down bracket (6) in battery box

b. Installation



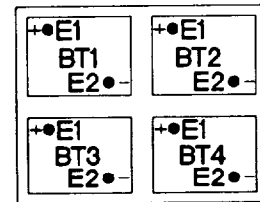
XG66101A

- (3) Install washer (7) and nut (8) on battery bracket hold down screw (9).

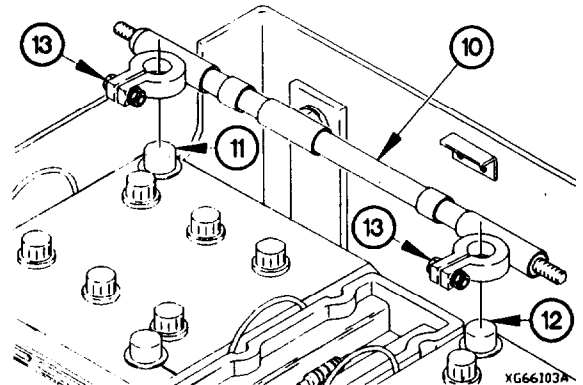
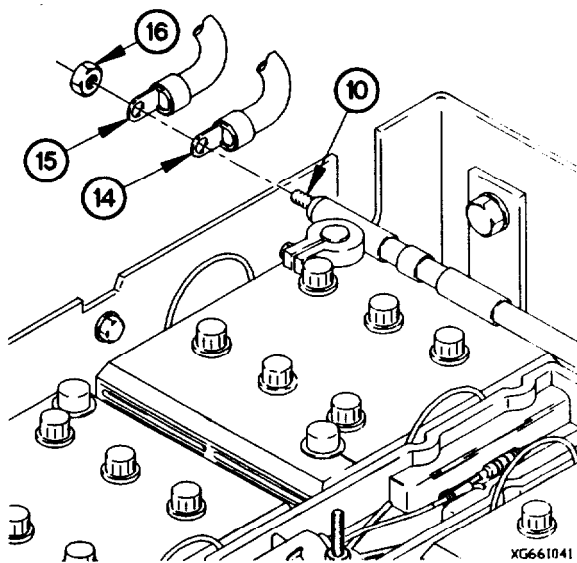


XG661021

- (4) Install battery 24 vdc cable (10) on battery terminals BT1 E1 (11) and BT2 E1 (12).
- (5) Tighten two terminal screws (13) on battery 24 vdc cable (10).



BATTERY INSTALLATION DIAGRAM



- (6) Install terminal lugs TL10 (14), TL39 (15) on battery 24 vdc cable (10) with nut (16).

WARNING

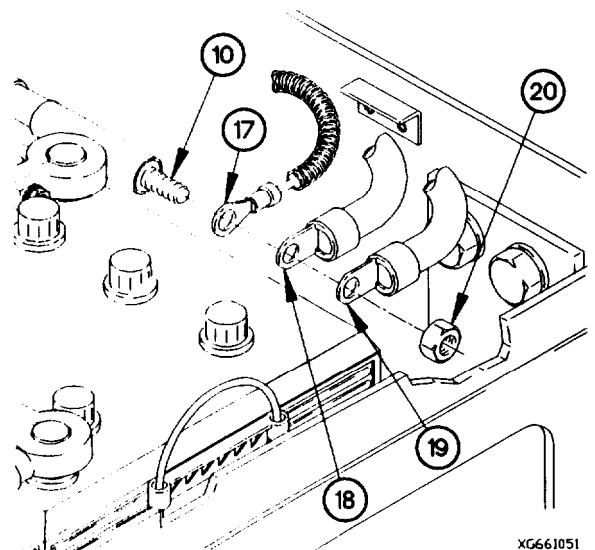
Negative battery terminals must be connected last. Failure to comply may result in serious injury or death to personnel.

- (7) Install battery tester terminal lug (17) and terminal lug TL49A (18) on battery 24 vdc cable (10).

NOTE

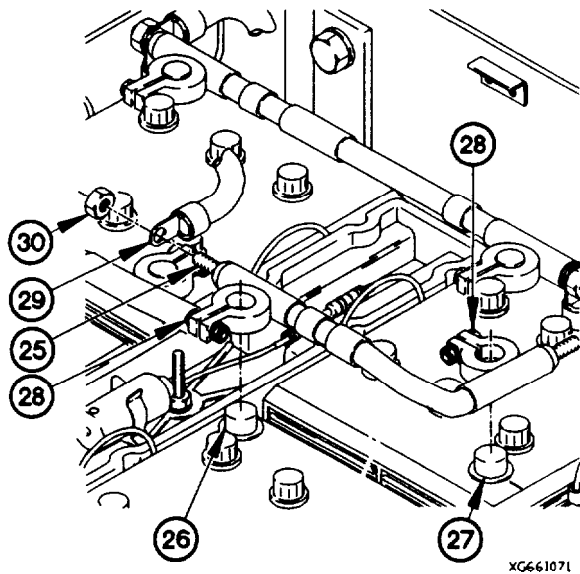
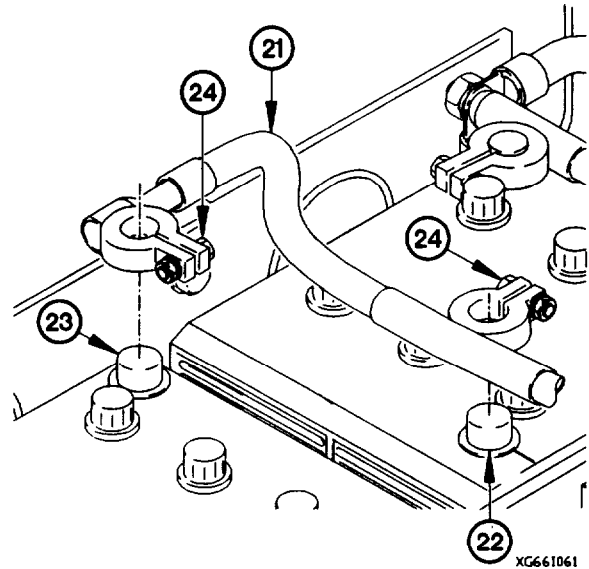
Perform step (8) on vehicles equipped with cargo arctic heater.

- (8) Install terminal lug TL1 (19) on battery 24 vdc cable (10).
- (9) Install nut (20) on battery 24 vdc cable (10).



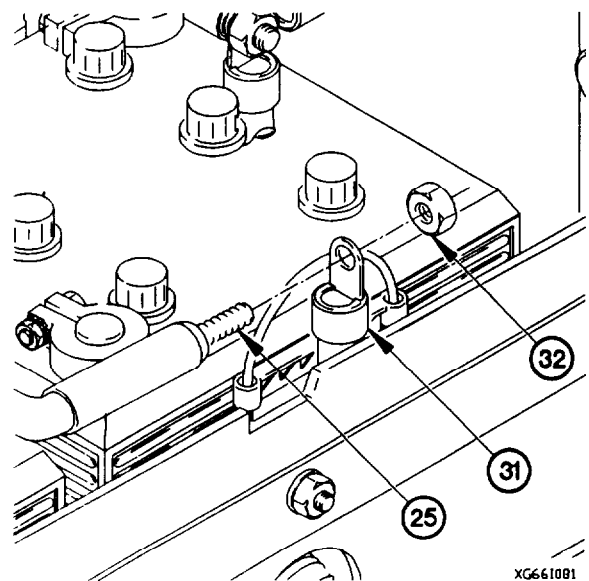
7-46. BATTERY/BATTERY CABLES REPLACEMENT (CONT)

- (10) Install battery BT1 to BT3 12 vdc cable (21) on battery terminals BT1 E2 (22) and BT3 E1 (23).
- (11) Tighten two terminal screws (24) on battery BT1 to BT3 12 vdc cable (21).

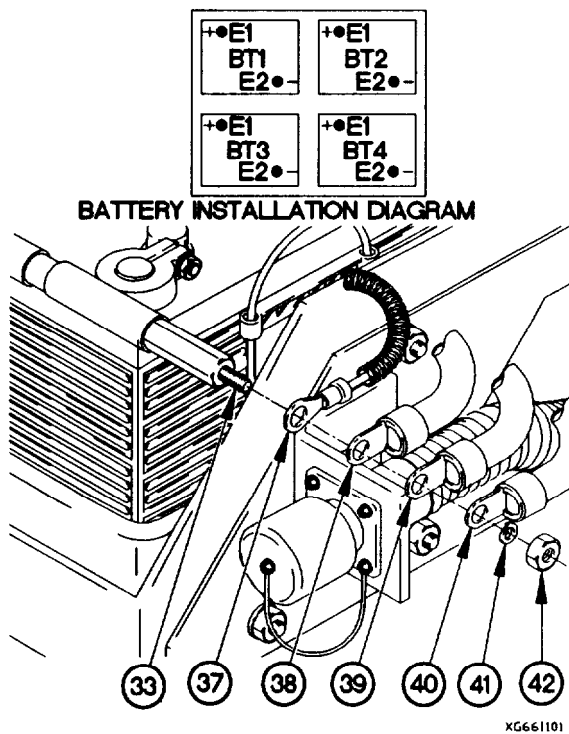
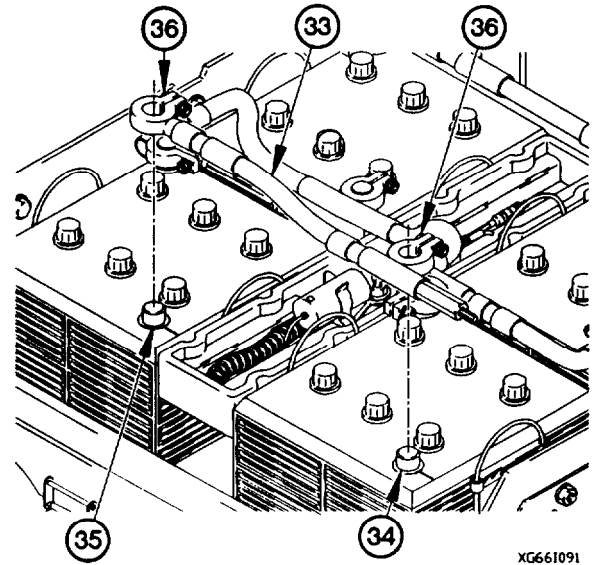


- (12) Install battery BT2 to BT4 12 vdc cable (25) on battery terminals BT4 E1 (28) and BT2 E2 (27).
- (13) Tighten two terminal screws (28) on battery BT2 to BT4 12 vdc cable (25).
- (14) Install terminal lug TL136 (29) on battery BT2 to BT4 12 vdc cable (25) with nut (30).

- (15) Install terminal lug TL99 (31) on battery BT2 to BT4 12 vdc cable (25) with nut (32).



- (16) Install battery ground cable (33) on battery terminals BT4 E2 (34) and BT3 E2 (35).
- (17) Tighten two terminal screws (36) on battery ground cable (33).



- (18) Install battery tester terminal lug (37), and terminal lugs TL48 (38) and TL50A (39) on battery ground cable (33).

NOTE

Perform step (19) on vehicles equipped with cargo arctic heater.

- (19) Install terminal lug TL2 (40) on battery ground cable (33).
- (20) Install lockwasher (41) and nut (42) on battery ground cable (33).
- (21) Apply grease to all battery terminals.

c. Follow-On Maintenance.

- (1) Service batteries (TM 9-6140-200-14).
- (2) Install battery box cover (TM 9-2320-365-10).
- (3) Start engine (TM 9-2320-365-10).
- (4) Check VOLTS gage for charge indication (TM 9-2320-365-10).
- (5) Shut down engine (TM 9-2320-365-10).

End of Task.

7-47. BATTERY BOX REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

- Batteries removed (para 7-46).
- NATO power cable removed (para 7-63).
- Wet tank removed (para 23-7).
- Secondary and primary air tanks removed (para 11-20).
- Swingfire pump/motor removed, if equipped (para 20-37).
- Swingfire tube jacket removed, if equipped (para 20-38).

Tools and Special Tools

- Tool Kit, Genl Mech (Item 44, Appendix C)
- Wrench, Torque, 0175 lb-ft (Item 57, Appendix C)
- Wrench, Torque, 0-200 lb-in. (Item 58, Appendix C)

Tools and Special Tools

- Socket Set, Socket Wrench (Item 34, Appendix C)
- Wrench Set, Socket (Item 48, Appendix C)
- Wrench, Torque, 0-600 lb-ft (Item 59, Appendix C)
- Adapter, Socket Wrench (Item 1, Appendix C)

Materials/Parts

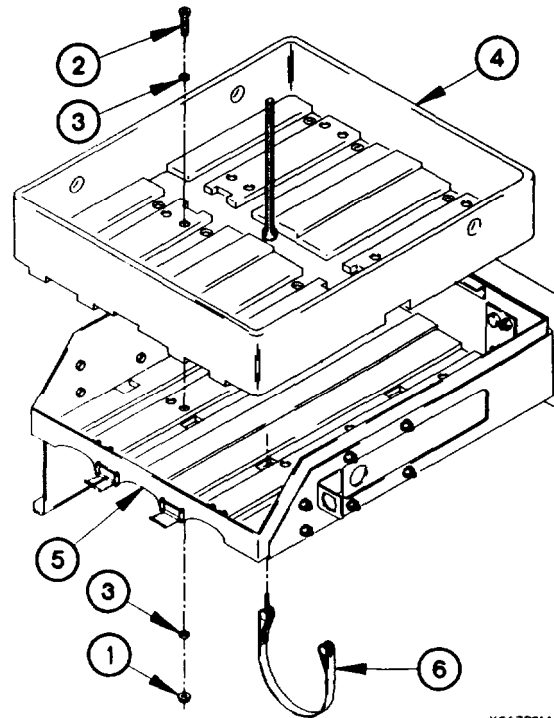
- Lockwasher (2) (Item 85, Appendix G)
- Nut, Self-Locking (16) (Item 116, Appendix G)
- Nut, Self-Locking (4) (Item 144, Appendix G)

Personnel Required

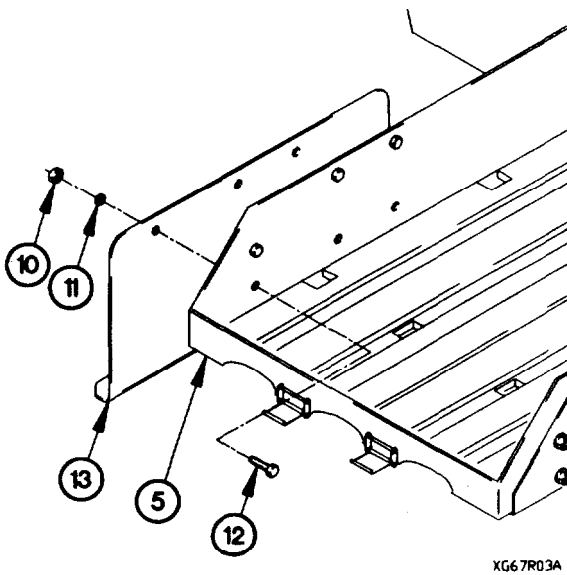
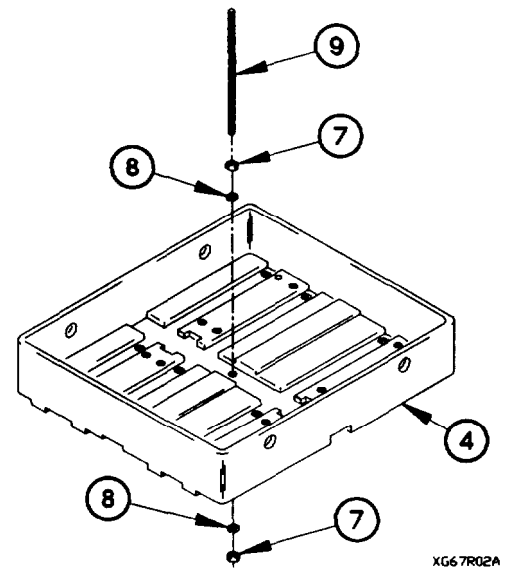
(3)

a. Removal.

- (1) Remove 16 self-locking nuts (1), screws (2), and 32 washers (3) from battery tray (4). Discard self-locking nuts.
- (2) Remove battery tray (4) from battery box (5).
- (3) Remove six band clamps (6) from battery box (5).



(4) Remove two nuts (7), lockwashers (8), and stud (9) from battery tray (4). Discard lockwashers.

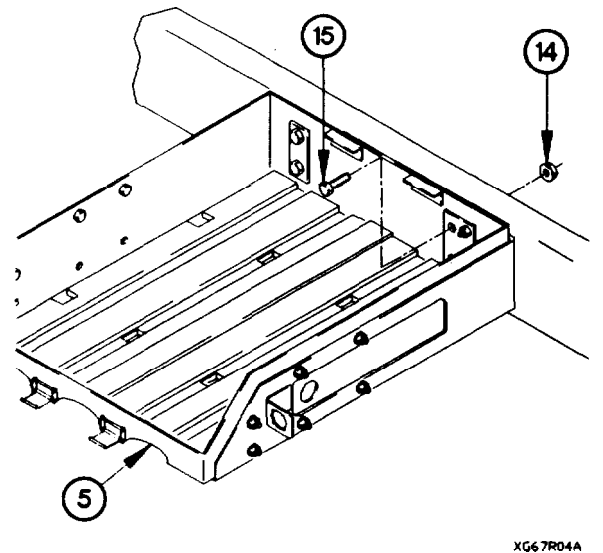


(5) Remove three nuts (10), washers (11), screws (12), and stone guard (13) from battery box (5).

NOTE

Step (6) requires the aid of an assistant.

(6) Remove two self-locking nuts (14) and screws (15) from battery box (5). Discard self-locking nuts.



XG67R04A

7-47. BATTERY BOX REPLACEMENT (CONT)

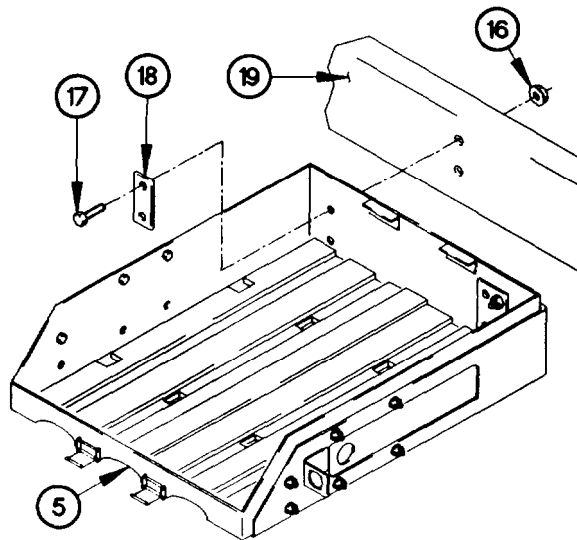
WARNING

Battery box weighs approximately 70 lbs (32 kgs). The aid of two assistants is required to remove battery box from vehicle frame. Failure to comply may result in injury to personnel.

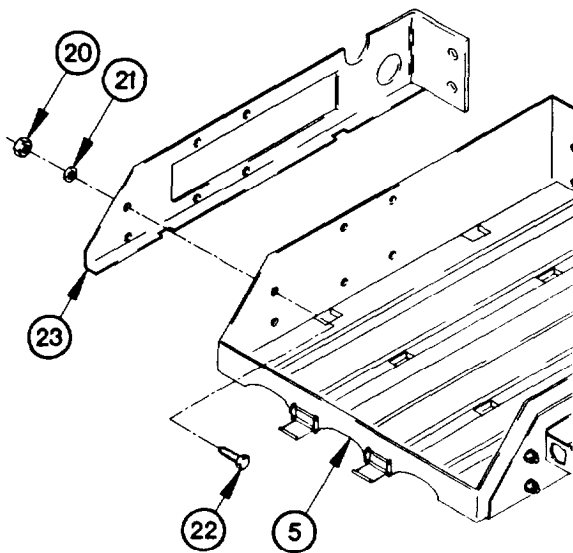
NOTE

Step (7) requires the aid of two assistants.

- (7) Remove two self-locking nuts (16), screws (17), reinforcing plate (18), and battery box (5) from left frame rail (19). Discard self-locking nuts.

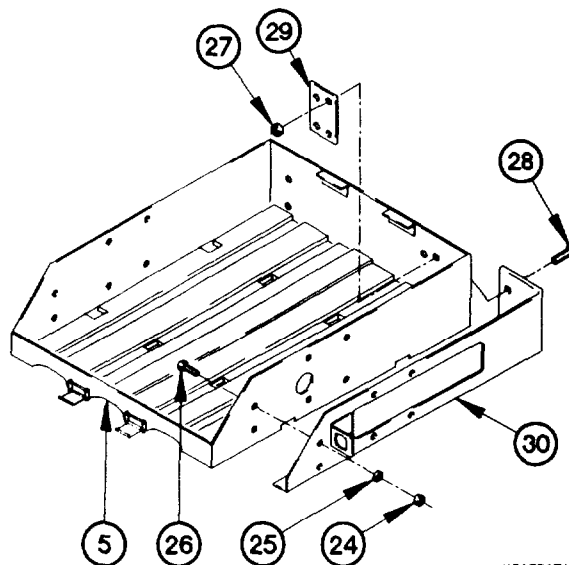


XG6 7R05A



XG6 7R06A

- (8) Remove three nuts (20), washers (21), screws (22), and LH bracket (23) from battery box (5).



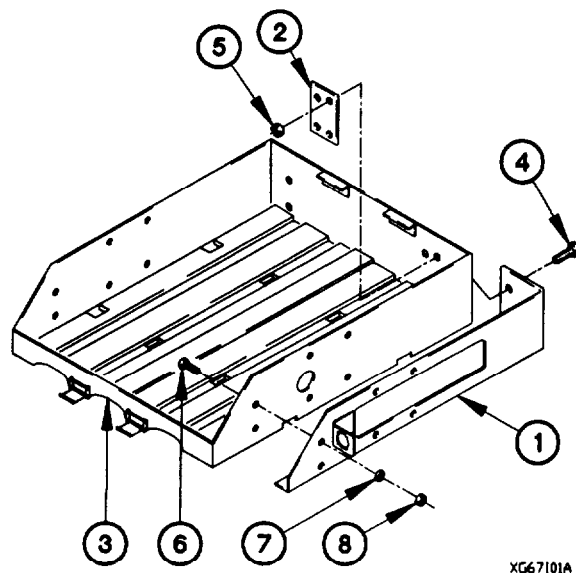
XG6 7R07A

- (9) Remove six nuts (24), washers (25), and screws (26) from battery box (5).

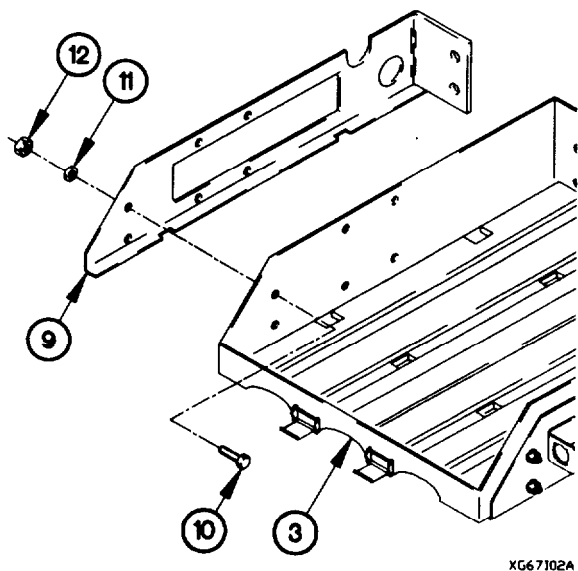
- (10) Remove two nuts (27), screws (28), reinforcing plate (29), and RH bracket (30) from battery box (5).

b. Installation.

- (1) Position RH bracket (1) and reinforcing plate (2) on battery box (3) with two screws (4) and nuts (5).
- (2) Position six screws (6), washers (7), and nuts (8) in battery box (3).
- (3) Tighten six nuts (8) to 31-38 lb-ft (42-52 N•m).
- (4) Tighten two nuts (5) to 66-74 lb-ft (89-101 N•m).



XG67101A



XG67102A

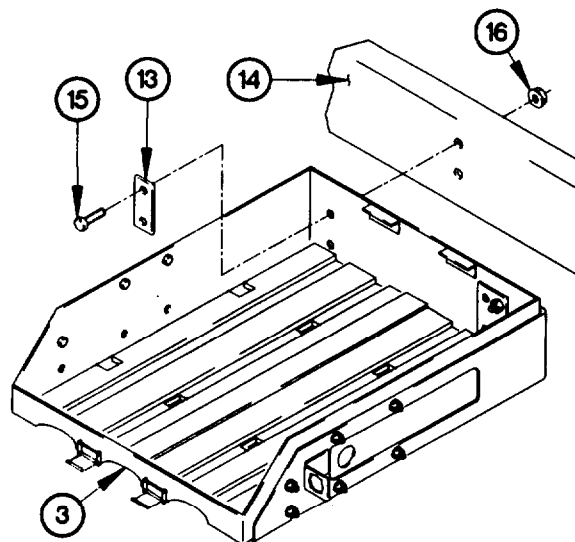
WARNING

Battery box weighs approximately 70 lbs (32 kgs). The aid of two assistants is required to position battery box on vehicle frame. Failure to comply may result in injury to personnel.

NOTE

Step (6) requires the aid of two assistants.

- (6) Position battery box (3), and reinforcing plate (13) on left frame rail (14) with two screws (15) and self-locking nuts (16).



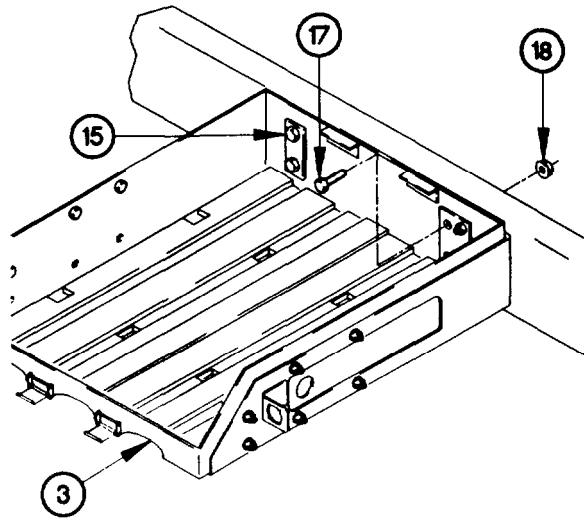
XG67103A

7-47. BATTERY BOX REPLACEMENT (CONT)

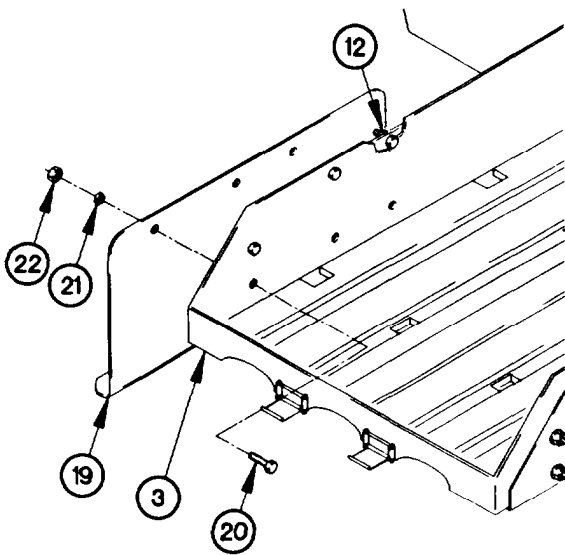
NOTE

Steps (7) and (8) require the aid of an assistant.

- (7) Position two screws (17) and self-locking nuts (18) in battery box (3).
- (8) Tighten screws (15 and 17) to 171-208 lb-ft (232-282 N•m).



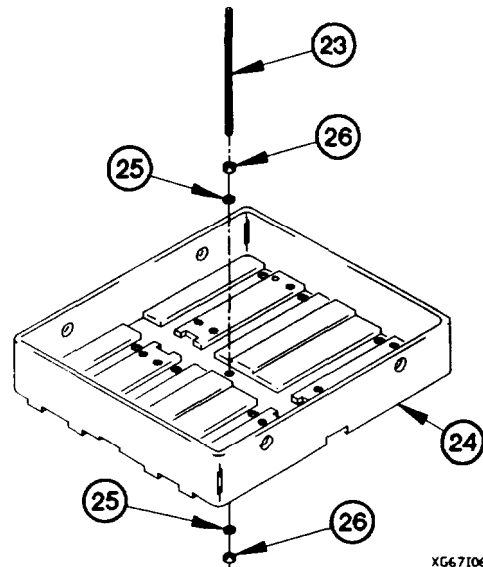
XG67104A



XG67105A

- (9) Position stone guard (19) on battery box (3) with three screws (20), washers (21), and nuts (22).
- (10) Tighten nuts (12 and 22) to 31-38 lb-ft (42-52 N•m).

- (11) Position stud (23) in battery tray (24) with two lockwashers (25) and nuts (26).
- (12) Tighten two nuts (26) to 80-97 lb-in. (9-11 N•m).



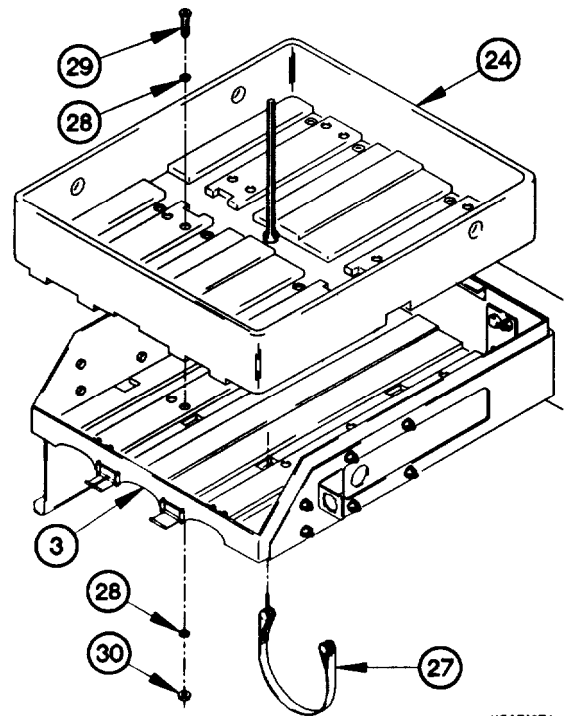
XG67106A

- (13) Install six band clamps (27) in battery box (3).
- (14) Position battery tray (24) in battery box (3).
- (15) Position 32 washers (28), 16 screws (29), and self-locking nuts (30) in battery tray (24).
- (16) Tighten 16 self-locking nuts (30) to 106 lb-in. (12 N•m).

c. Follow-On Maintenance.

- (1) Install swingfire tube jacket, if equipped (para 20-38).
- (2) Install swingfire pump/motor, if equipped (para 20-37).
- (3) Install secondary and primary air tanks (para 11-20).
- (4) Install wet tank (para 23-7).
- (5) Install NATO power cable (para 7-63).
- (6) Install batteries (para 7-46).
- (7) Start engine (TM 9-2320-385-10).
- (8) Check VOLTS gage for charge indication (TM 9-2320-365-10).
- (9) Shut down engine (TM 9-2320-365-10).

End of Task.



X667107A

7-48. DISCONNECTING/CONNECTING BATTERIES

This task covers:

- a. Disconnecting
- b. Connecting
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

- Engine shut down (TM 9-2320-365-10).
- Battery box cover removed (TM 9-2320-365-10).

Tools and Special Tools

- Goggles, Industrial (Item 15, Appendix C)
- Apron, Rubber (Item 3, Appendix C)
- Gloves, Rubber (Item 13, Appendix C)
- Puller, Battery Terminal (Item 28, Appendix C)

Tools and Special Tools (Cont)

- Tool Kit, Genl Mech (Item 44, Appendix C)

Materials/Parts

- Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)
- Grease, Automotive and Artillery (GAA) (Item 23, Appendix D)
- Lockwasher (Item 78, Appendix G)

a. Disconnecting.

WARNING

- Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock. Batteries can explode from a spark. Battery acid is harmful to skin and eyes. Always wear eye protection when working with batteries.
- Negative battery terminals and battery tester negative terminal lug must be disconnected first. Failure to comply may result in serious injury or death to personnel.

NOTE

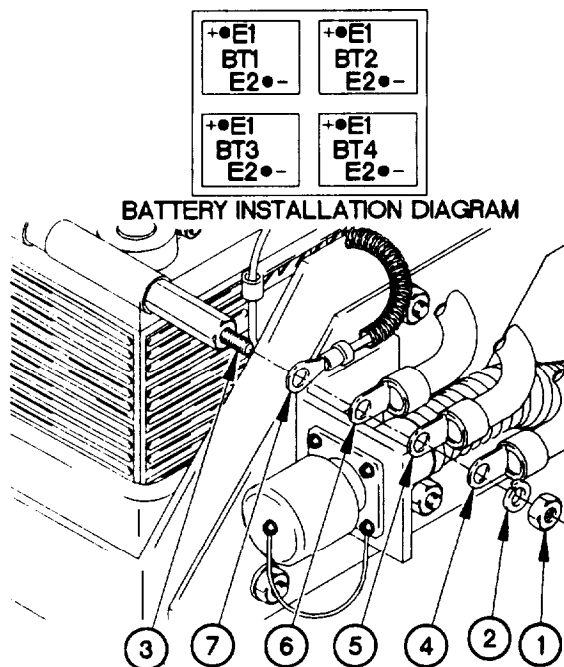
Tag battery terminals, terminal lugs, and connection points prior to disconnecting.

- (1) Remove nut (1) and lockwasher (2) from battery ground cable (3). Discard lockwasher.

NOTE

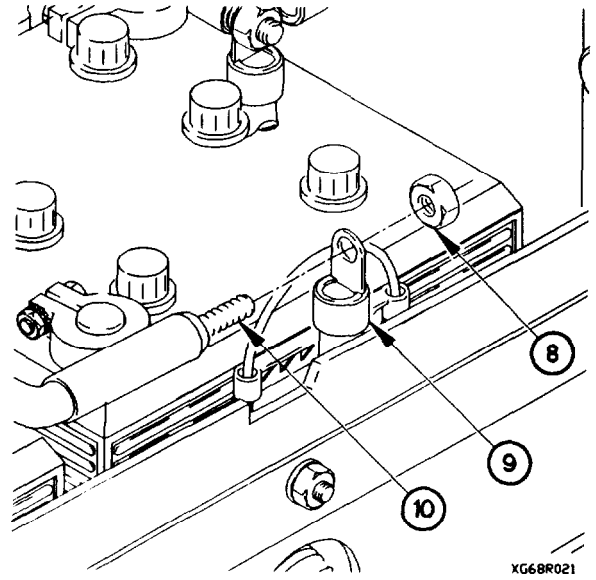
Perform step (2) on vehicles equipped with cargo arctic heater.

- (2) Remove terminal lug TL2 (4) from battery ground cable (3).
- (3) Remove terminal lugs TL50A (5), TL48 (6), and battery tester terminal lug (7) from battery ground cable (3).



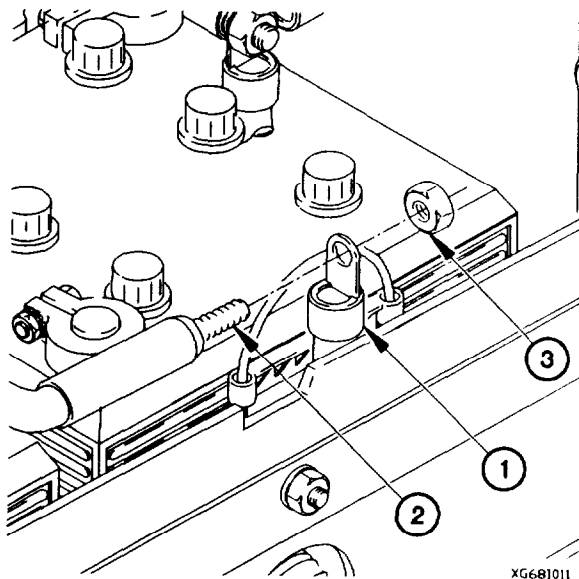
XG68R011

- (4) Remove nut (8) and terminal lug TL99 (9) from battery 24 vdc cable (10).



XG68R021

b. Connecting.



XG681011

WARNING

Negative battery terminals must be connected last. Failure to comply may result on serious injury or death to personnel.

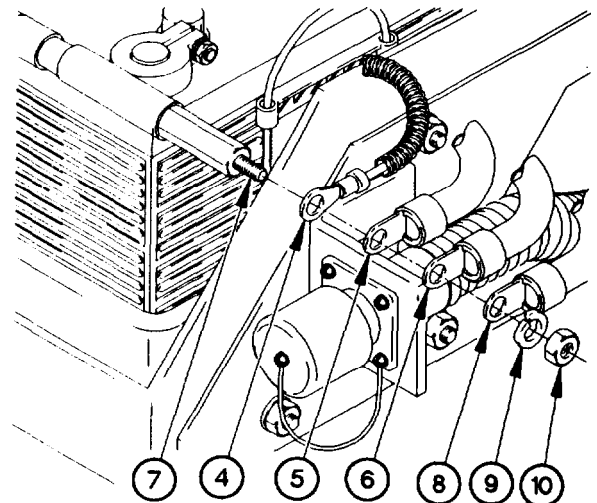
- (1) Install terminal lug TL99 (1) on battery 24 vdc cable (2) with nut (3).

- (2) Install battery tester terminal lug (4), and terminal lugs TL48 (5) and TL50A (6) on battery ground cable (7).

NOTE

Perform step (3) on vehicles equipped with cargo arctic heater.

- (3) Install terminal lug TL2 (8) on battery ground cable (7).
 (4) Install lockwasher (9) and nut (10) on battery ground cable (7).
 (5) Apply grease to all battery terminals.



XG681021

7-48. DISCONNECTING/CONNECTING BATTERIES (CONT)

c. Follow-On Maintenance.

- (1) Install battery box cover (TM 9-2320-365-10).
- (2) Start engine (TM 9-2320-365-10).
- (3) Check VOLTS gage for charge indication (TM 9-2320-365-10).
- (4) Shut down engine (TM 9-2320-365-10).

End of Task.

7-49. AUXILIARY PANEL CABLE ASSEMBLY REPLACEMENT (ALL MODELS EXCEPT M1079 W/O WINCH)

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Personnel heater removed (para 18-9).

Tools and Special Tools

Tool Kit, Genl Mech (Item 44, Appendix C)

Materials/Parts

Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)

Ties, Cable, Plastic (Item 78, Appendix D)

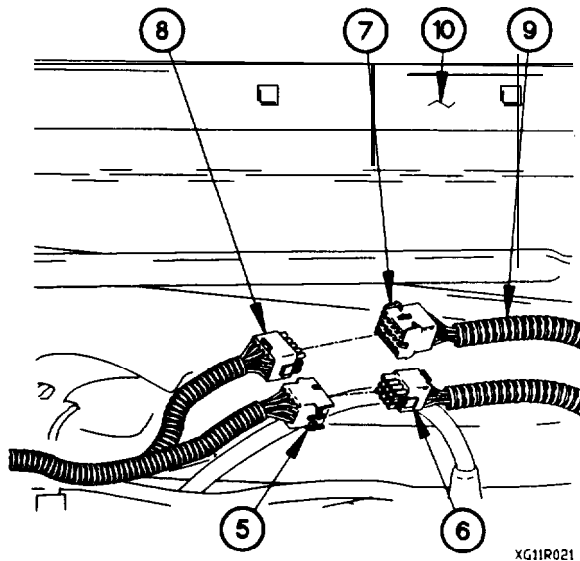
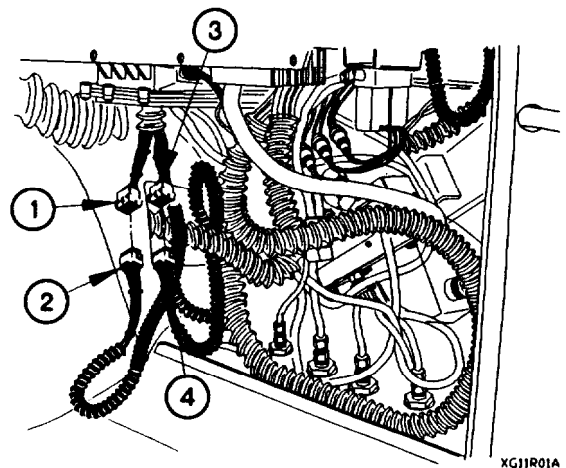
a. Removal.

NOTE

Remove plastic cable ties as required.

Tag wires and connection points prior to disconnecting.

- (1) Disconnect connector J108 (1) from connector P108
- (2) Disconnect connector J210 (3) from connector P210 (4).

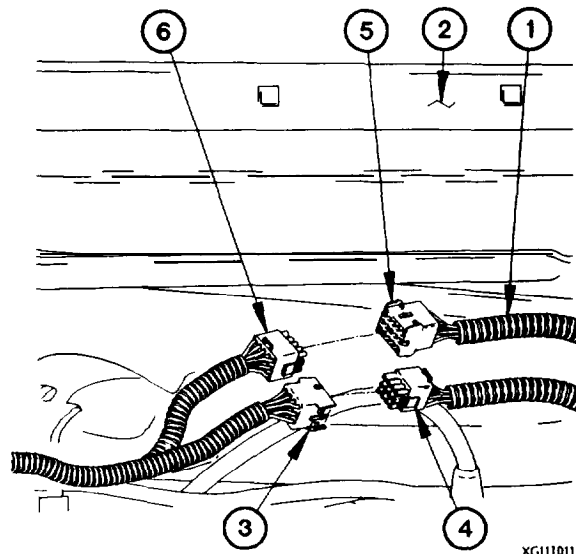


- (3) Disconnect connector P913 (5) from connector J913
- (4) Disconnect connector P912 (7) from connector J912
- (5) Remove auxiliary panel cable assembly (9) from dashboard (10).

7-49. AUXILIARY PANEL CABLE ASSEMBLY REPLACEMENT (ALL MODELS EXCEPT M1079 W/O WINCH) (CONT)

b. Installation.

- (1) Position auxiliary panel cable assembly (1) in dashboard (2).
- (2) Connect connector P913 (3) to connector J913 (4).
- (3) Connect connector P912 (5) to connector J912 (6).

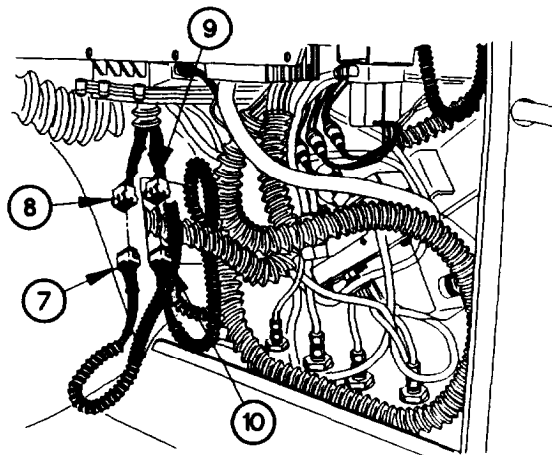


XG111011

NOTE

Install plastic cable ties as required.

- (4) Connect connector P108 (7) to connector J108 (8).
- (5) Connect connector P210 (9) to connector J210 (10).



XG11102-

c. Follow-On Maintenance:

- (1) Install personnel heater (para 18-9).
- (2) Check rocker switches and tachometer operation (TM 9-2320-365-10).

End of Task.

7-50. M1079 W/O WINCH AUXILIARY PANEL CABLE ASSEMBLY REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Personnel heater removed (para 18-9).

Tools and Special Tools

Tool Kit, Genl Mech (Item 44, Appendix C)

Materials Parts

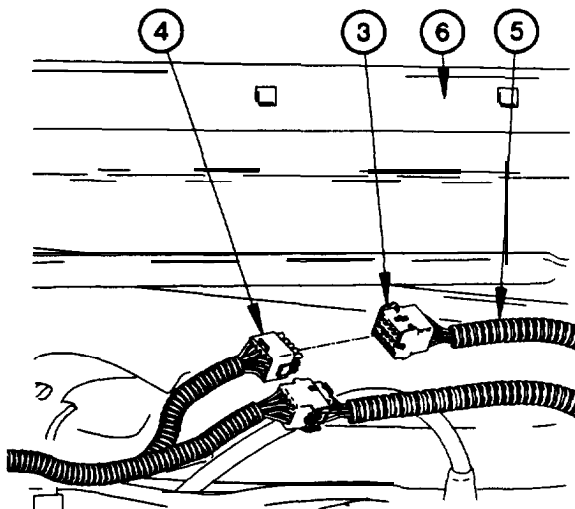
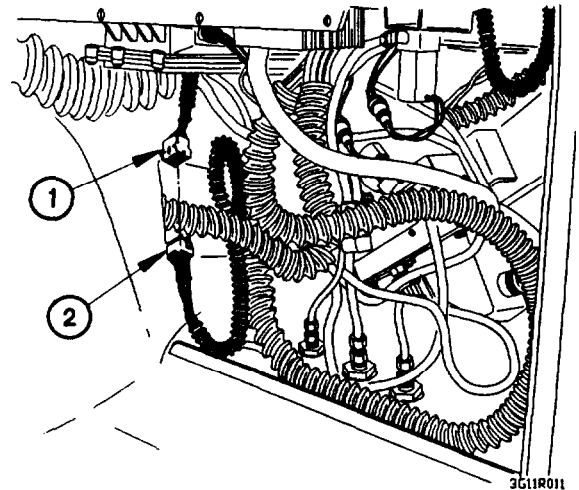
Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)
 Ties, Cable, Plastic (Item 76, Appendix D)

a. Removal.

NOTE

- Remove plastic cable ties as required.
- Tag wires and connection points prior to disconnecting.

- (1) Disconnect connector J108 (1) from connector P108 (2)



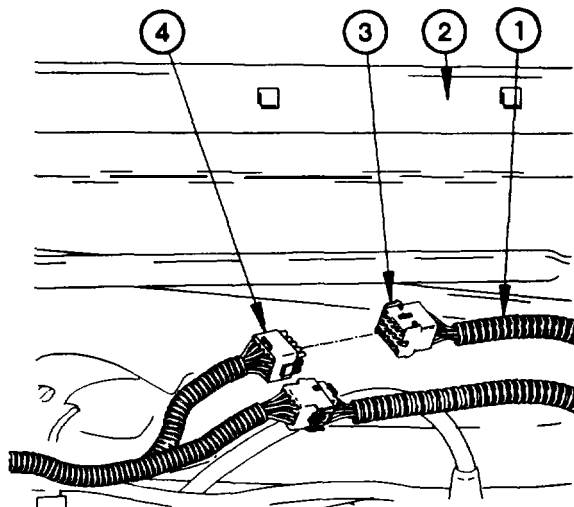
- (2) Disconnect connector P912 (3) from connector J912

- (3) Remove auxiliary panel cable assembly (5) from dashboard (6).

**7-50. M1079 W/O WINCH AUXILIARY PANEL CABLE ASSEMBLY REPLACEMENT
(CONT)**

b. Installation.

- (1) Position auxiliary panel cable assembly (1) in dashboard (2).
- (2) Connect connector P912 (3) to connector J912 (4).



3G11011

NOTE

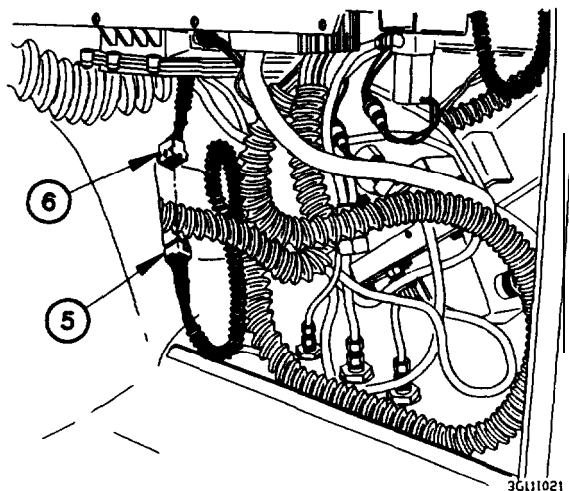
Install plastic cable ties as required.

- (3) Connect connector P108 (5) to connector J108 (6).

c. Follow-On Maintenance.

- (1) Install personnel heater (para 18-9).
- (2) Check rocker switches and tachometer for proper operation (TM 9-2320-365-10).

End of Task.



3G11021

7-51. M1079 12/24 VDC POWER CABLE REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

- Spare tire lowered (TM 9-2320-365-10).
- Batteries disconnected (para 7-48).
- Kick panel removed (para 16-3).
- Bottom radiator fan shroud removed (para 6-4).
- Cab lowered (TM 9-2320-365-10).

Tools and Special Tools

- Tool Kit, Genl Mech (Item 44, Appendix C)
- Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)
- Wrench, Torque, 0-200 lb-in. (Item 58, Appendix C)
- Socket Set, Socket Wrench (Item 34, Appendix C)

Materials/Parts

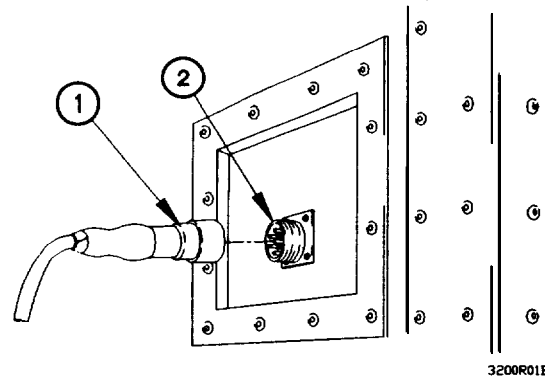
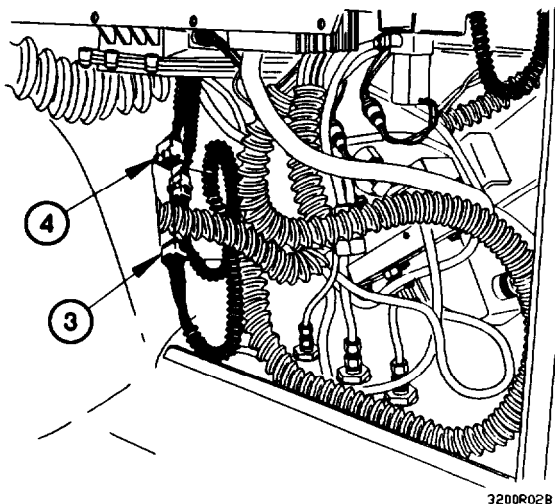
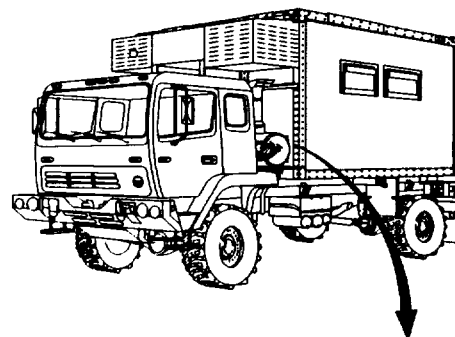
- Ties, Cable, Plastic (Item 76, Appendix D)
- Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)
- Lockwasher (Item 88, Appendix G)
- Lockwasher (Item 89, Appendix G)
- Nut, Self-Locking (2) (Item 133, Appendix G)
- Nut, Self-Locking (Item 143, Appendix G)

a. Removal.

NOTE

- Tag wires and connection points prior to disconnecting.
- Remove plastic cable ties as required.

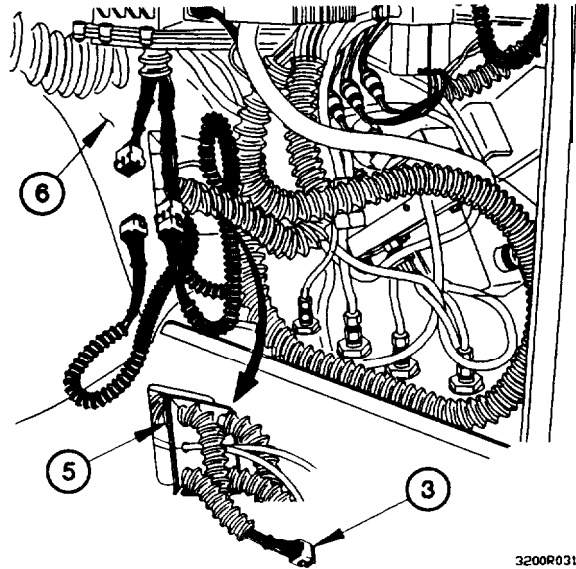
- (1) Disconnect connector P173 (1) from connector J173 (2).



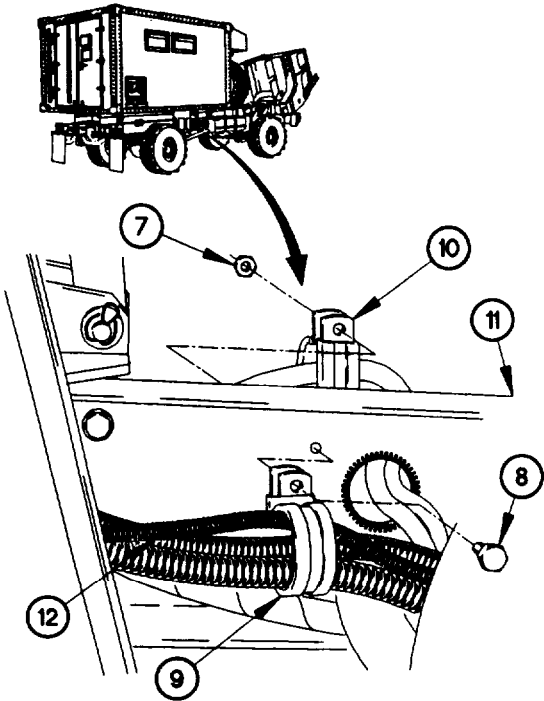
- (2) Disconnect connector P108 (3) from connector J108 (4).

7-51. M1079 12/24 VDC POWER CABLE REPLACEMENT (CONT)

- (3) Remove lower left corner of grommet (5) from cab floor (6).
- (4) Push connector P108 (3) through grommet (5).



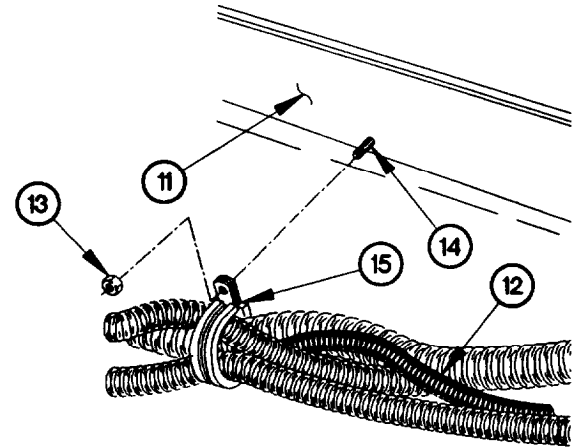
3200R031



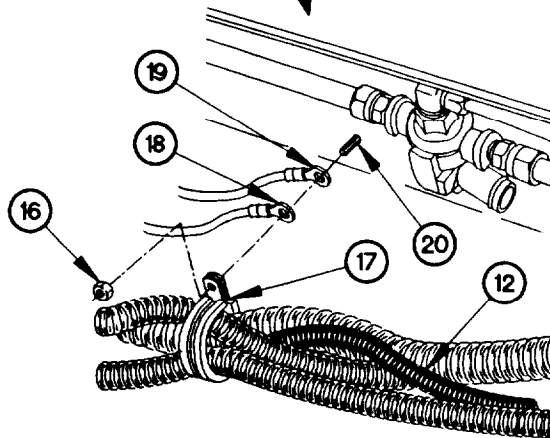
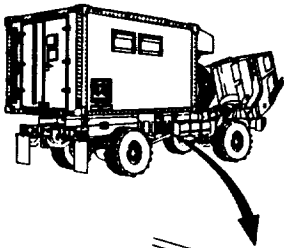
3200R041

- (5) Raise cab (TM 9-2320-365-10).
- (6) Remove self-locking nut (7), screw (8), clamp (9), and clamp (10) from right frame rail (11). Discard self-locking nut.
- (7) Remove M1079 12/24 VDC power cable (12) from clamp (9).

- (8) Remove self-locking nut (13), screw (14), and end clamp (15) from right frame rail (11). Discard self-locking nut.
- (9) Remove M1079 12/24 vdc power cable (12) from clamp (15).



3200R051



3200R061

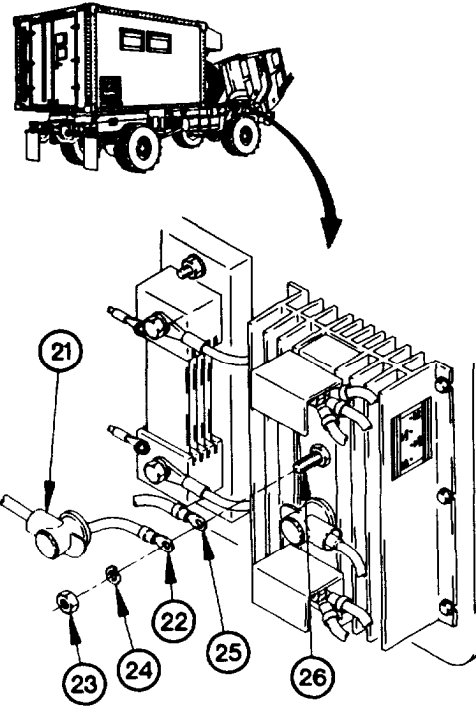
- (10) Remove self-locking nut (16), clamp (17), terminal lug TL96 (18), and terminal lug TL83 (19) from screw (20). Discard self-locking nut.
- (11) Remove M1079 12/24 vdc power cable (12) from clamp (17).

7-51. M1079 12/24 VDC POWER CABLE REPLACEMENT (CONT)

NOTE

Perform steps (12) and (13) on vehicles equipped with 100 amp alternator.

- (12) Lift dust boot (21) on terminal lug TL44 (22).
- (13) Remove nut (23), lockwasher (24), and terminal lugs TL44 (22) and TL100 (25) from 100 amp reverse polarity relay (26). Discard lockwasher.

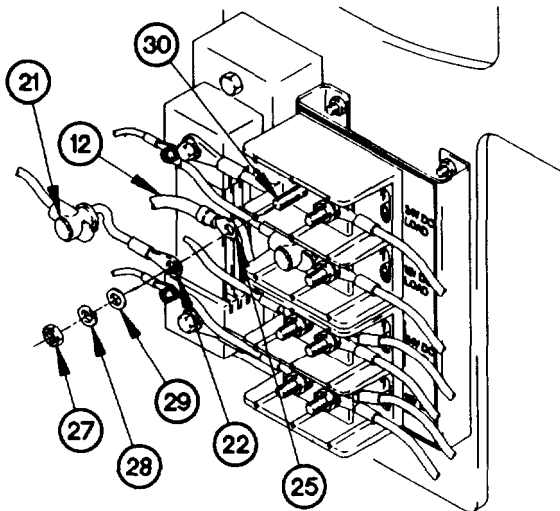


3200R071

NOTE

Perform steps (14) and (15) on vehicles equipped with 200 amp alternator.

- (14) Lift dust boot (21) on terminal lug TL44 (22).
- (15) Remove nut (27), lockwasher (28), washer (29), and terminal lugs TL44 (22) and TL100 (25) from terminal block terminal (30). Discard lockwasher.
- (16) Remove M1079 12/24 vdc power cable (12) from vehicle.



3200R081

b. Installation.

NOTE

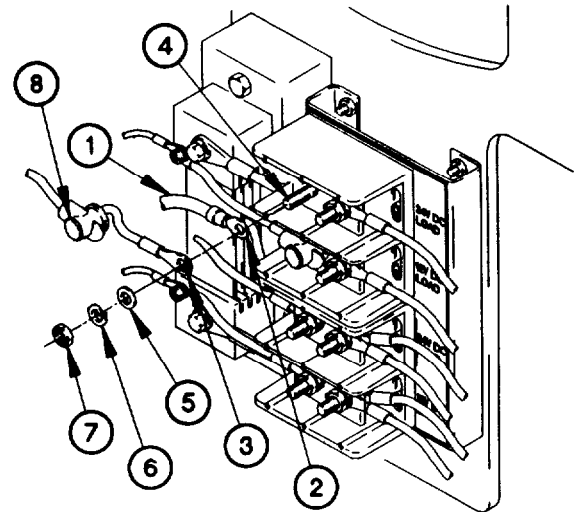
Install plastic cable ties as required.

- (1) Position M1079 12/24 vdc power cable (1) on vehicle.

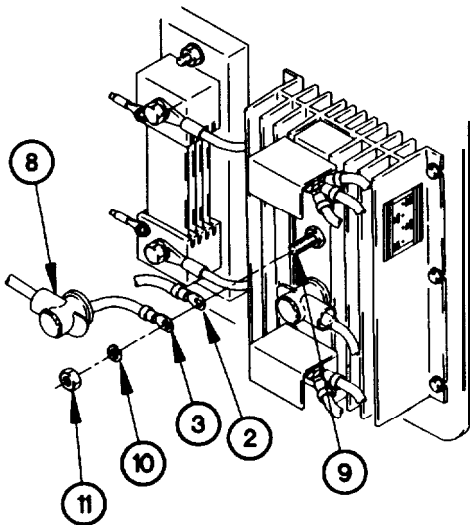
NOTE

Perform steps (2) through (4) on vehicles equipped with 200 amp alternator.

- (2) Position terminal lugs TL100 (2) and TL44 (3) on terminal block terminal (4) with washer (5), lockwasher (6), and nut (7).
- (3) Tighten nut (7) to 15-19 lb-ft (21-25 N•m).
- (4) Position dust boot (8) on terminal lug TL44 (3).



32001011



32001021

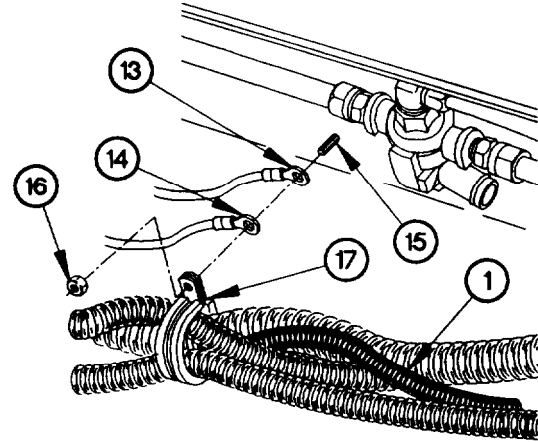
NOTE

Perform steps (5) and (6) on vehicles equipped with 100 amp alternator.

- (5) Install terminal lugs TL100 (2) and TL44 (3) on 100 amp reverse polarity relay (9) with lockwasher (10) and nut (11).
- (6) Position dust boot (8) on terminal lug TL44 (3).

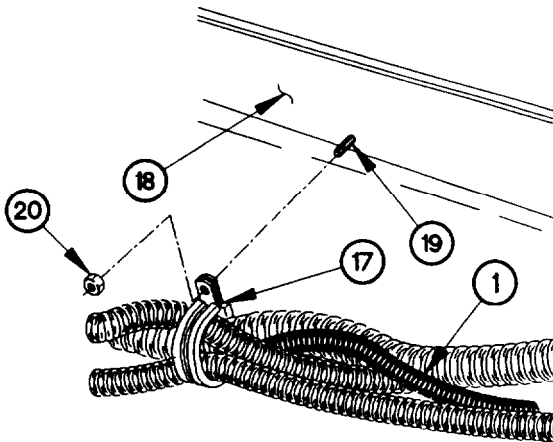
7-51. M1079 12/24 VDC POWER CABLE REPLACEMENT (CONT)

- (7) Install M1079 12/24 VDC power cable (1) in clamp (12).
- (8) Position terminal lug TL96 (13), terminal lug TL83 (14), and clamp (12) on screw (15) with self-locking nut (16).
- (9) Tighten self-locking nut (16) to 97-120 lb-in. (11-14 N•m).



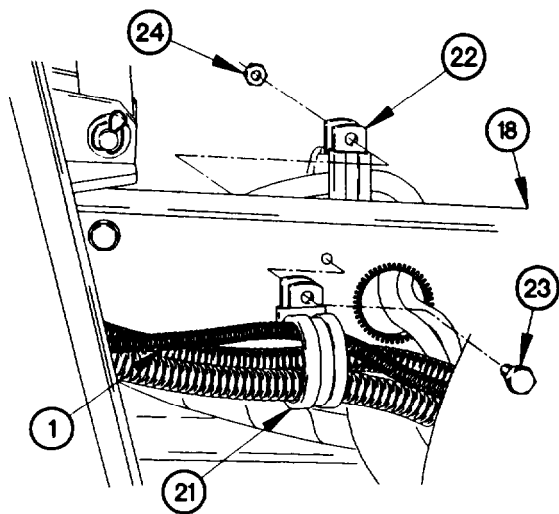
32001031

- (10) Install M1079 12/24 VDC power cable (1) in clamp (17).
- (11) Position clamp (17) on right frame rail (18) with screw (19) and self-locking nut (20).
- (12) Tighten self-locking nut (20) to 97-120 lb-in. (11-14 N•m).



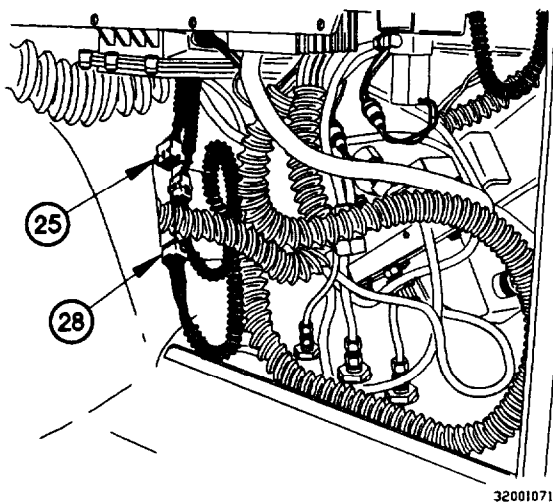
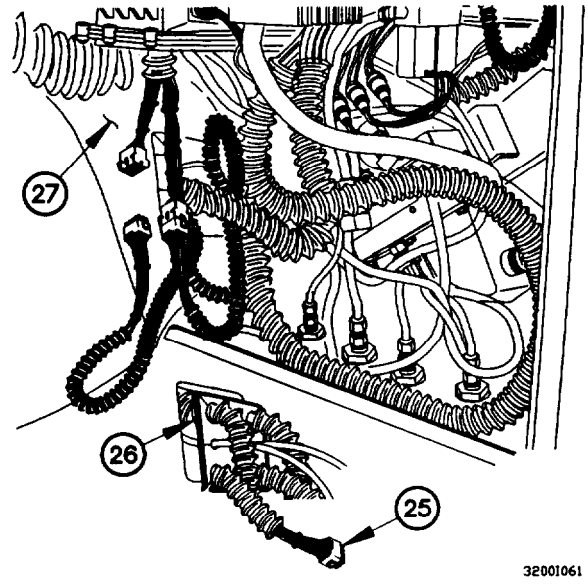
32001041

- (13) Install M1079 12/24 VDC power cable (1) in clamp (21).
- (14) Position clamp (21) and clamp (22) on right frame rail (18) with screw (23) and self-locking nut (24).
- (15) Tighten self-locking nut (24) to 97-120 lb-in. (11-14 N•m).



32001051

- (16) Lower cab (TM 9-2320-365-10).
- (17) Install connector P108 (25) in grommet (26).
- (18) Install grommet (26) in cab floor (27).

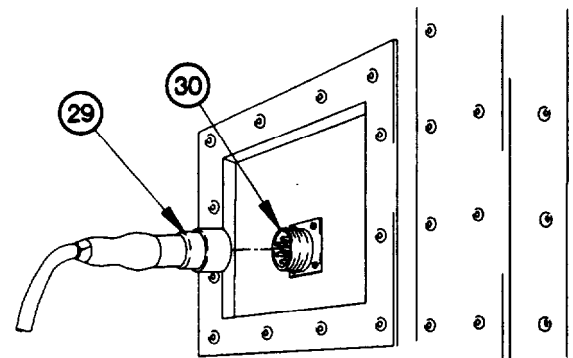


- (19) Connect connector P108 (25) to connector J108 (28).

- (20) Connect connector P173 (29) to connector J173 (30).

c. Follow-On Maintenance.

- (1) Raise cab (TM 9-2320-365-10).
- (2) Install bottom radiator fan shroud (para 6-4).
- (3) Install kick panel (para 16-3).
- (4) Connect batteries (para 7-48).
- (5) Raise spare tire (TM 9-2320-365-10).



End of Task.

7-52. CHEMICAL ALARM KIT CABLE ASSEMBLY REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

- Batteries disconnected (para 7-48).
- Kick panel removed (para 16-3).

Materials/Parts

- Ties, Cable, Plastic (Item 76, Appendix D)

Tools and Special Tools

- Tool Kit, Genl Mech (Item 44, Appendix C)

a. Removal.

NOTE

- Note routing of chemical alarm kit cable prior to removal.
- Remove plastic cable ties as required.

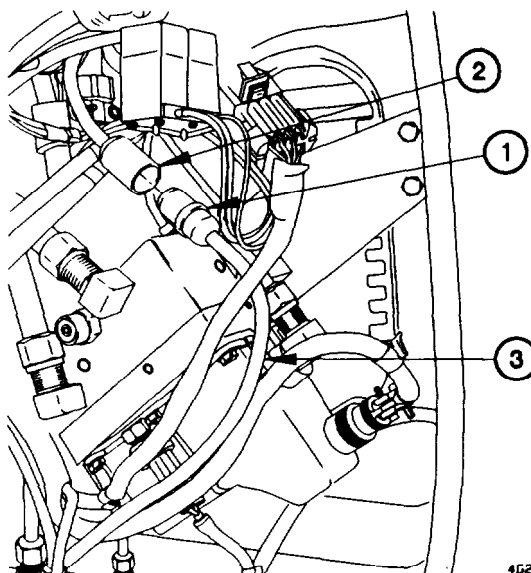
- (1) Disconnect connector J99 (1) from connector P99 (2).
- (2) Remove chemical alarm kit cable assembly (3) from vehicle.

b. Installation.

NOTE

Install plastic cable ties as required.

Connect connector P99 (2) to connector J99 (1) and route chemical alarm kit cable assembly (3).



c. Follow-On Maintenance.

- (1) Install kick panel (para 16-3).
- (2) Connect batteries (para 7-48).

End of Task.

7-53. CENTRAL TIRE INFLATION SYSTEM (CTIS) CABLE ASSEMBLY REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP**Equipment Conditions**

- Batteries disconnected (para 7-48).
- Kick panel removed (para 16-3).
- Personnel heater removed (para 18-9).

Material/Parts

Ties, Cable, Plastic (Item 76, Appendix D)

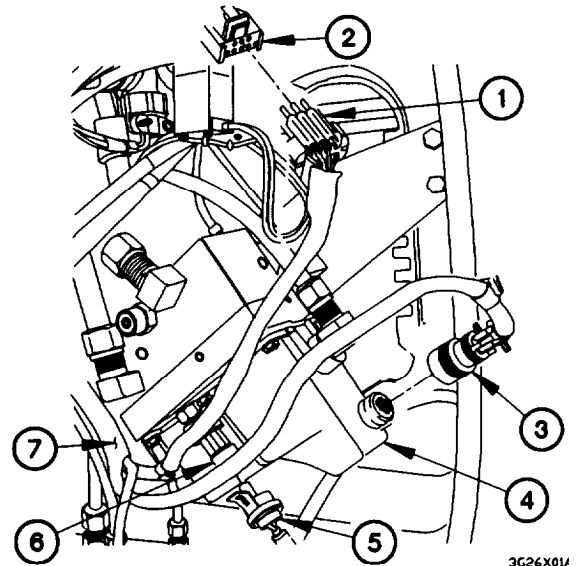
Tools and Special Tools

- Tool Kit, Genl Mech (Item 44, Appendix C)
- Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)

a. Removal.**NOTE**

- Note routing of CTIS cable assembly prior to removal.
- Remove plastic cable ties as required.

- (1) Disconnect connector P111 (1) from connector J111 (2).
- (2) Disconnect connector P112 (3) from manifold valve assembly (4).
- (3) Disconnect connector P113 (5) from pressure transducer (6).
- (4) Remove CTIS cable assembly (7) from vehicle.



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b. Installation.**NOTE**

Install plastic cable ties as required.

- (1) Position CTIS cable assembly (7) in vehicle.
- (2) Connect connector P113 (5) to pressure transducer (6).
- (3) Connect connector P112 (3) to manifold valve assembly (4).
- (4) Connect connector P111 (1) to connector J111 (2).

**7-53. CENTRAL TIRE INFLATION SYSTEM (CTIS) CABLE ASSEMBLY REPLACEMENT
(CONT)**

c. Follow-On Maintenance.

- (1) Install personnel heater (para 18-9).
- (2) Install kick panel (para 16-3).
- (3) Connect batteries (para 7-48).
- (4) Start engine (TM 9-2320-365-10).
- (5) Operate vehicle and check CTIS system for proper operation (TM 9-2320-365-10).
- (6) Shut down engine (TM 9-2320-365-10).

End of Task.

7-54. LEFT-HAND DOOR AND CAB MARKER LIGHTS CABLE ASSEMBLY REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Batteries disconnected (para 7-48).
PDP cover removed (para 16-2).

Tools and Special Tools

Tool Kit, Genl Mech (Item 44, Appendix C)

Material/Parts

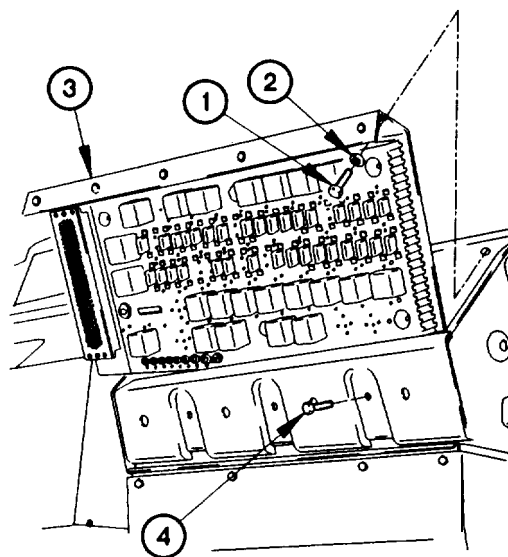
Ties, Cable, Plastic (Item 76, Appendix D)
Lockwasher (2) (Item 72, Appendix G)
Lockwasher (2) (Item 81, Appendix G)
Gasket (2) (Item 23, Appendix G)

a. Removal.

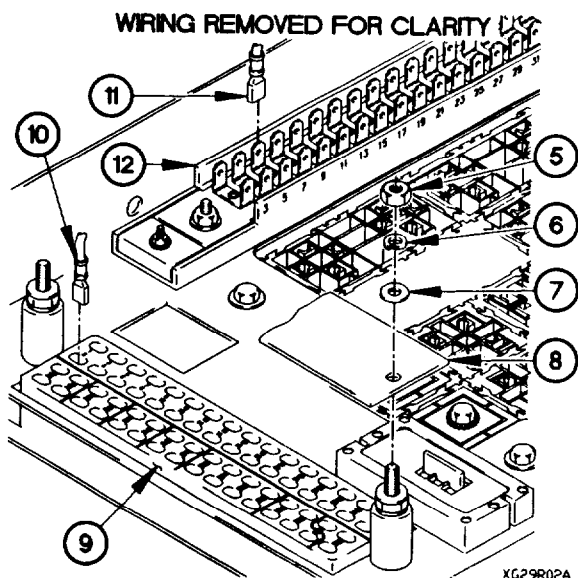
NOTE

- Note routing of left-hand door and cab marker lights cable assembly prior to removal.
- Remove plastic cable ties as required.

- (1) Remove three screws (1) and washers (2) from PDP (3).
- (2) Remove three screws (4) from PDP (3).
- (3) Lift PDP (3) outward to gain access.



XG29R01A

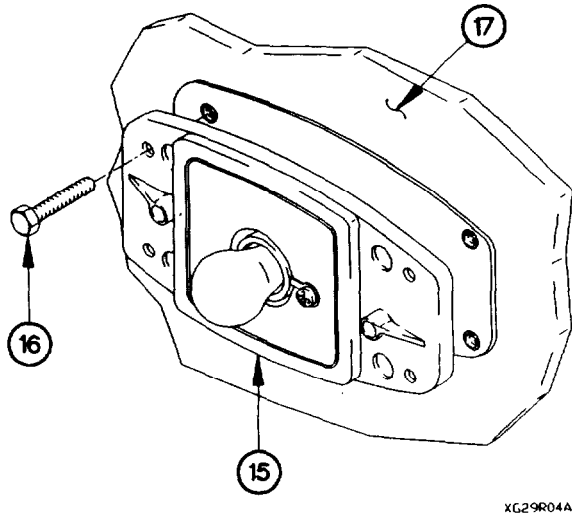
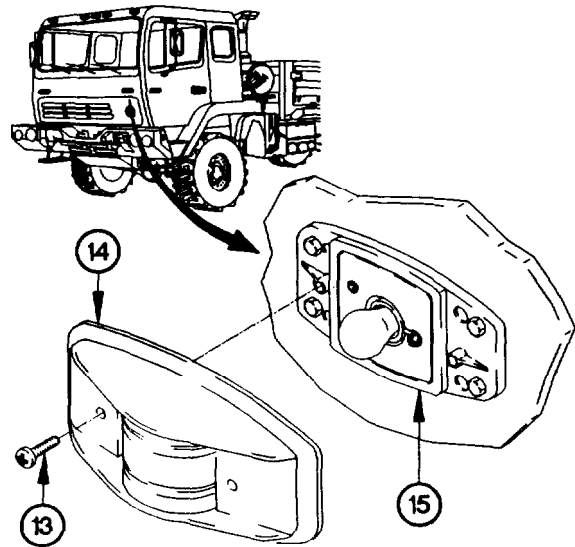


XG29R02A

- (4) Remove two nuts (5), lockwashers (6), washers (7), and cover (8) from terminal board TB1 (9). Discard lockwashers.
- (5) Disconnect terminal lug TL75 (10) from terminal board TB1 (9) position 2.
- (6) Disconnect terminal lug TL87 (11) from terminal board TB2 (12) position 6.

**7-54. LEFT-HAND DOOR AND CAB MARKER LIGHTS CABLE ASSEMBLY REPLACEMENT
(CONT)**

(7) Remove two screws (13) and marker lens cover (14) from marker light (15).

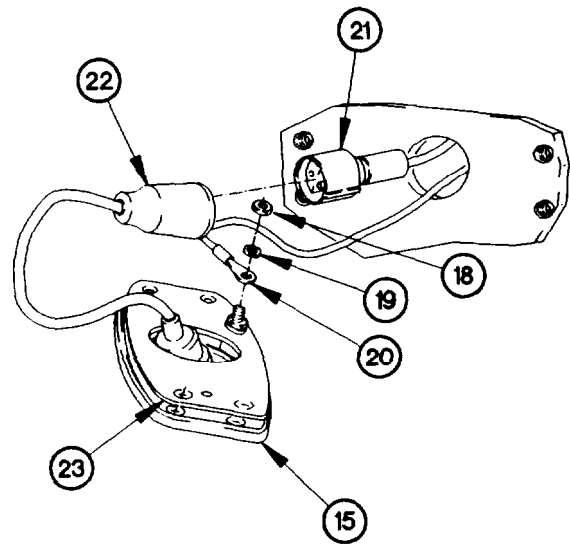


(8) Remove four screws (16) and marker light (15) from cab (17).

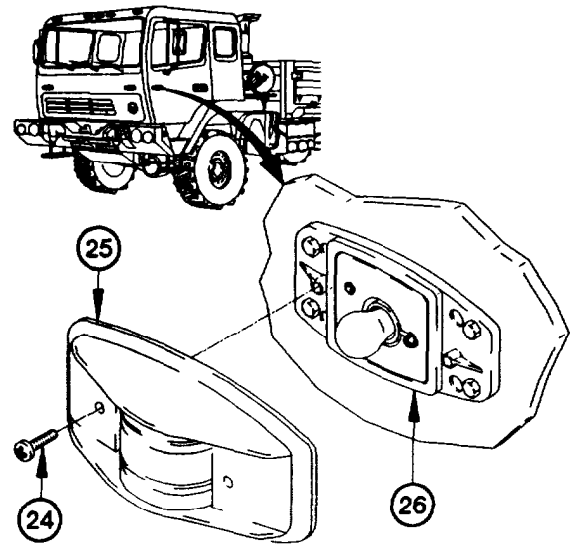
(9) Remove nut (18), lockwasher (19), and terminal lug TL133 (20) from marker light (15). Discard lockwasher.

(10) Disconnect connector P129 (21) from marker light connector 489 (22).

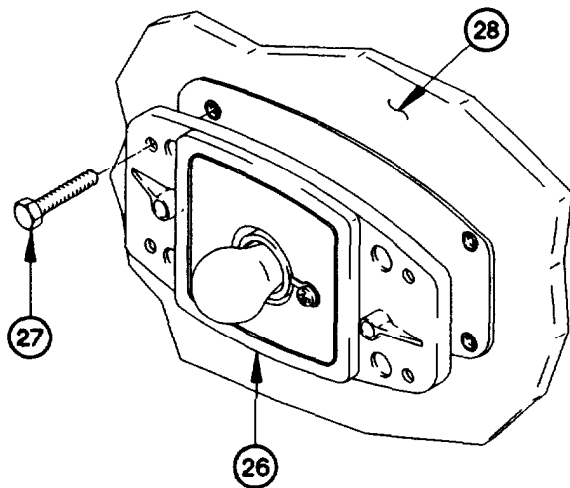
(11) Remove gasket (23) from marker light (15). Discard gasket.



(12) Remove two screws (24) and marker lens cover (25) from marker light (26).



XG29R06A



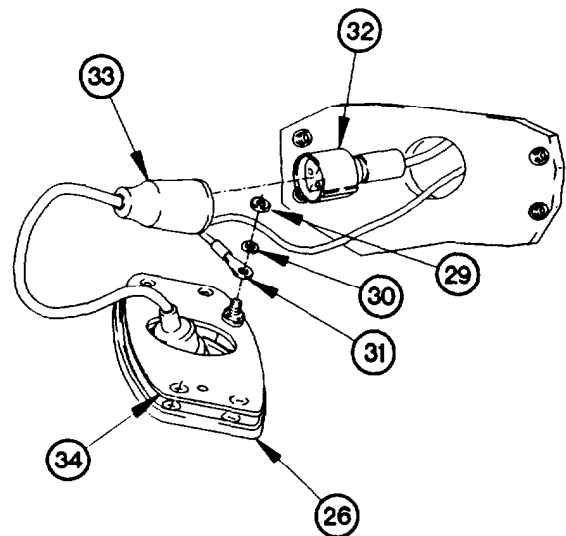
XG29R07A

(13) Remove four screws (27) and marker light (26) from door (28).

(14) Remove nut (29), lockwasher (30), and terminal lug TL130 (31) from marker light (26). Discard lockwasher.

(15) Disconnect connector P130 (32) from marker light connector 489 (33).

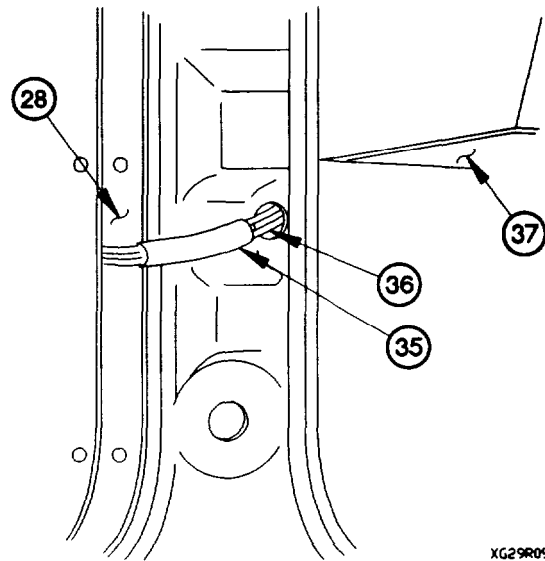
(16) Remove gasket (34) from marker light (26). Discard gasket.



XG29R08A

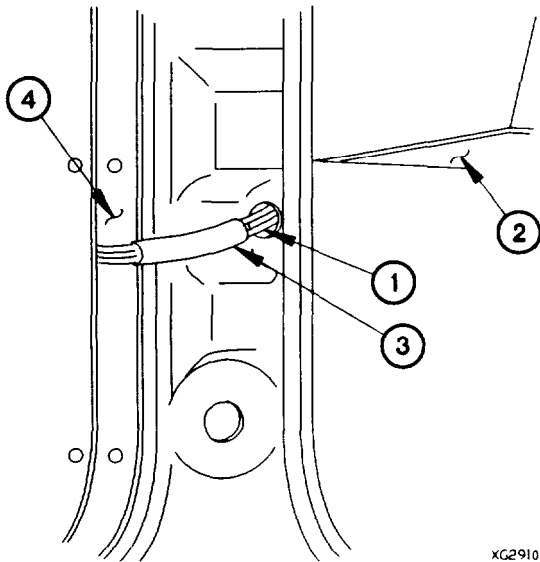
7-54. LEFT-HAND DOOR AND CAB MARKER LIGHTS CABLE ASSEMBLY REPLACEMENT (CONT)

- (17) Remove tube protector (35) and left-hand door and cab marker lights cable assembly (36) from door (28).
- (18) Remove left-hand door and cab marker lights cable assembly (36) from dashboard (37).



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b. Installation.



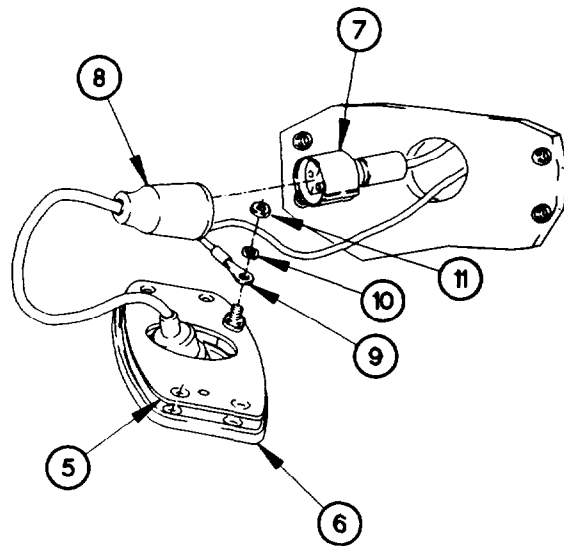
XG29I01A

NOTE

Install plastic cable ties as required.

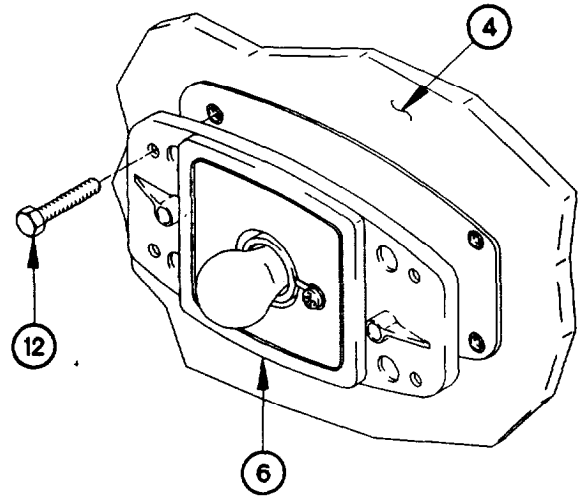
- (1) Position left-hand door and cab marker lights cable assembly (1) in dashboard (2).
- (2) Install left-hand door and cab marker lights cable assembly (1) and tube protector (3) in door (4).

- (3) Install gasket (5) on marker light (6).
- (4) Connect connector P130 (7) to marker light connector 489 (8).
- (5) Install terminal lug TL130 (9) on marker light (6) with lockwasher (10) and nut (11).

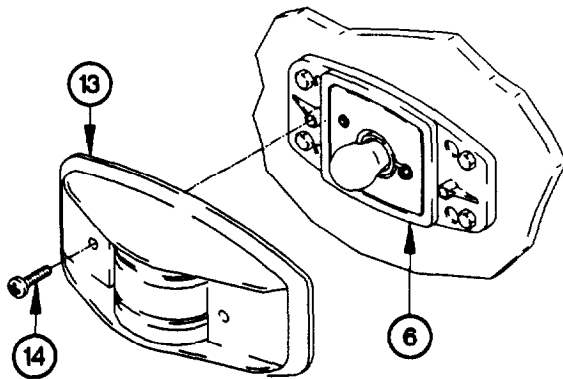


XG29I02A

(6) Install marker light (6) on door (4) with four screws (12).



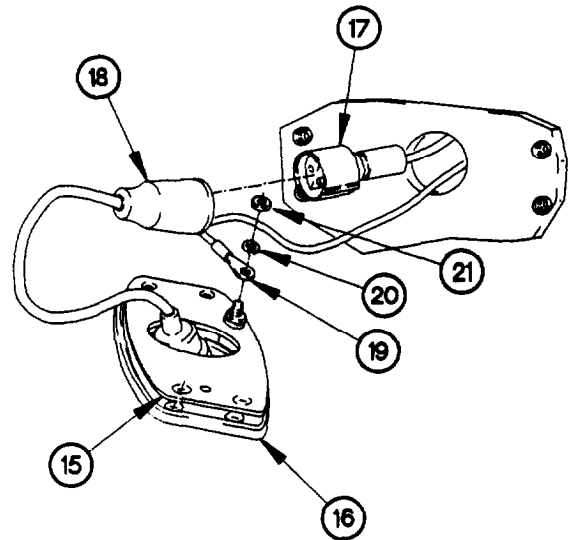
XG29103A



XG29104A

(7) Install marker lens cover (13) on marker light (6) with two screws (14).

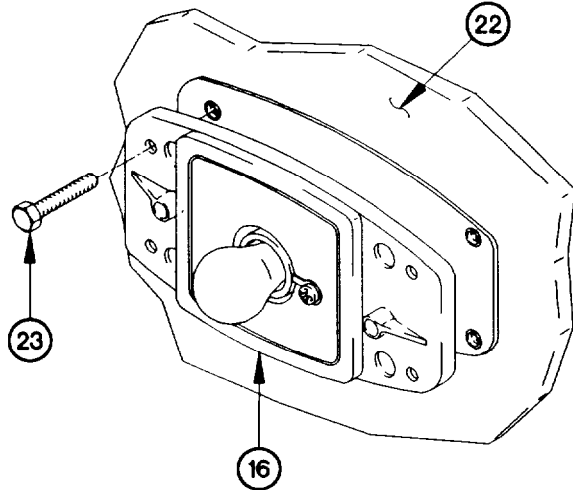
- (8) Install gasket (15) on marker light (16).
- (9) Connect connector P129 (17) to marker light connector 489 (18).
- (10) Install terminal lug TL133 (19) on marker light (16) with lockwasher (20), and nut (21).



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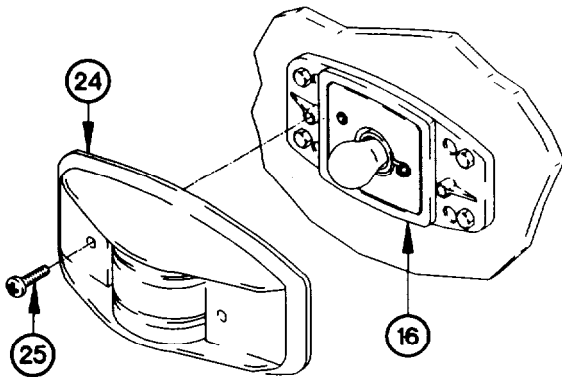
**7-54. LEFT-HAND DOOR AND CAB MARKER LIGHTS CABLE ASSEMBLY REPLACEMENT
(CONT)**

(11) Install marker light (16) on cab (22) with four screws (23).



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(12) Install marker lens cover (24) on marker light (16) with two screws (25).

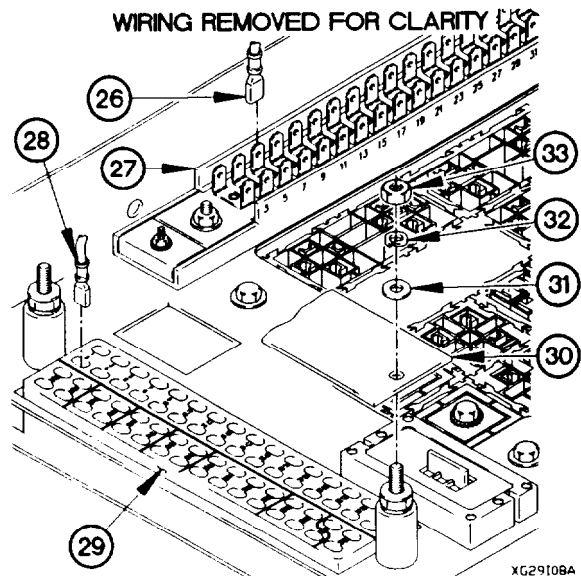


XG29107A

(13) Connect terminal lug TL87 (26) to terminal board TB2 (27) position 6.

(14) Connect terminal lug TL75 (28) to terminal board TB1 (29) position 2.

(15) Install cover (30) on terminal board TB1 (29) with two washers (31), lockwashers (32), and nuts (33).



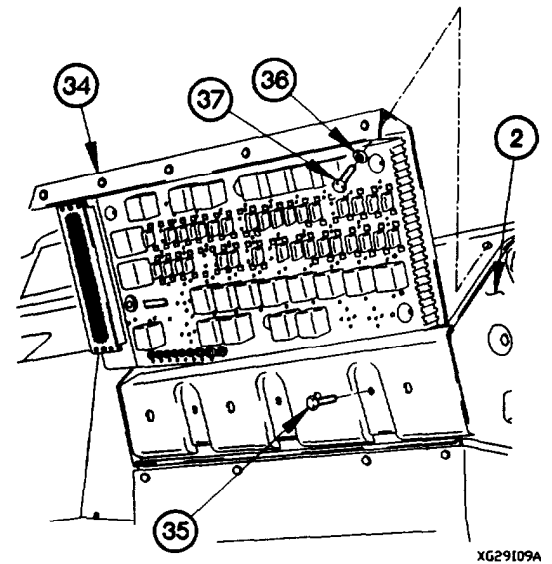
XG29108A

- (16) Install PDP (34) on dashboard (2) with three screws (35).
- (17) Install three washers (36) and screws (37) in PDP (34).

c. Follow-On Maintenance.

- (1) Install PDP cover (para 16-2).
- (2) Connect batteries (para 7-48).
- (3) Check operation of left-hand door and cab marker lights (TM 9-2320-365-10).

End of Task.



7-55. M1081 CAB CLEARANCE AND MARKER LIGHTS LOWER CABLE ASSEMBLY REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Batteries disconnected (para 7-48).
PDP cover removed (para 16-2).

Tools and Special Tools

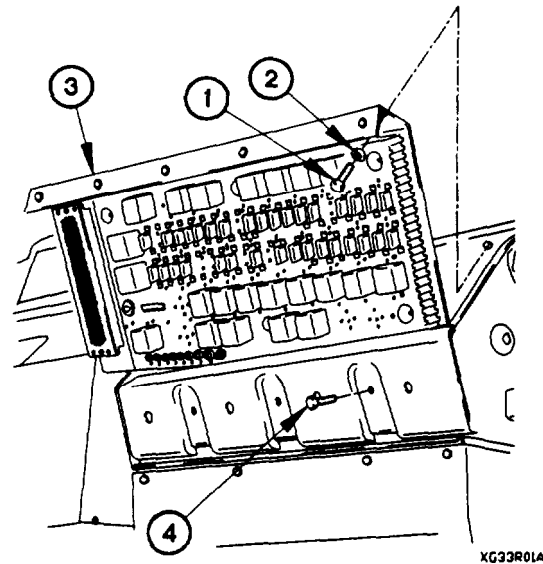
Tool Kit, Genl Mech (Item 44, Appendix C)
Wrench, Torque, 0-75 lb-in. (Item 86, Appendix B)

Material/Parts

Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)
Lockwasher (2) (Item 81, Appendix G)

a. Removal.

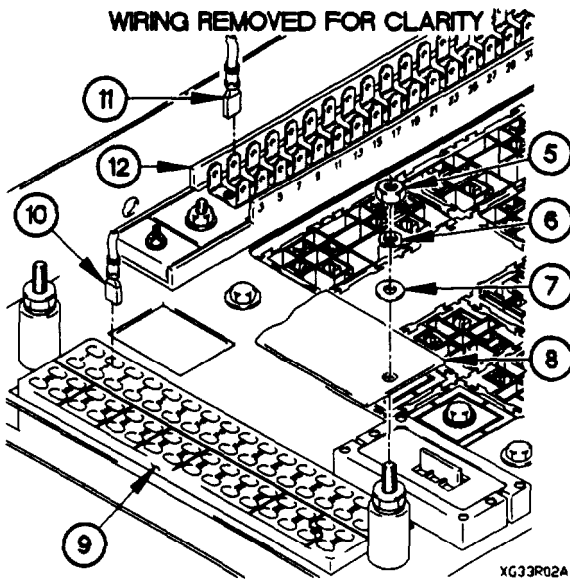
- (1) Remove three screws (1) and washers (2) from PDP (3).
- (2) Remove three screws (4) from PDP (3).
- (3) Lift PDP (3) outward to gain access.



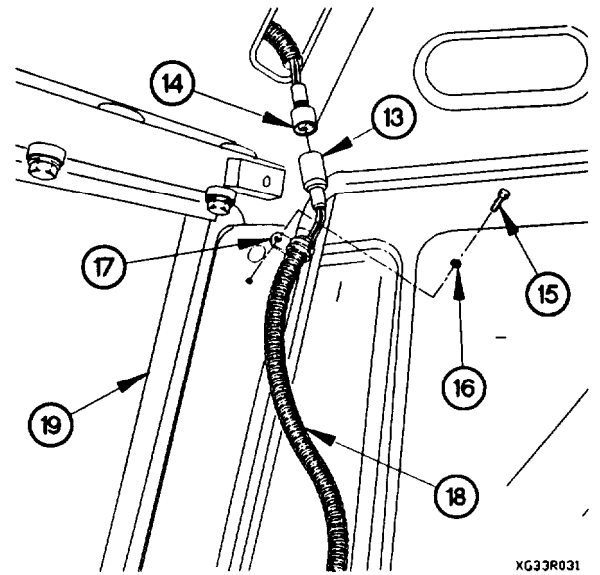
NOTE

Tag wires and connection points prior to disconnecting

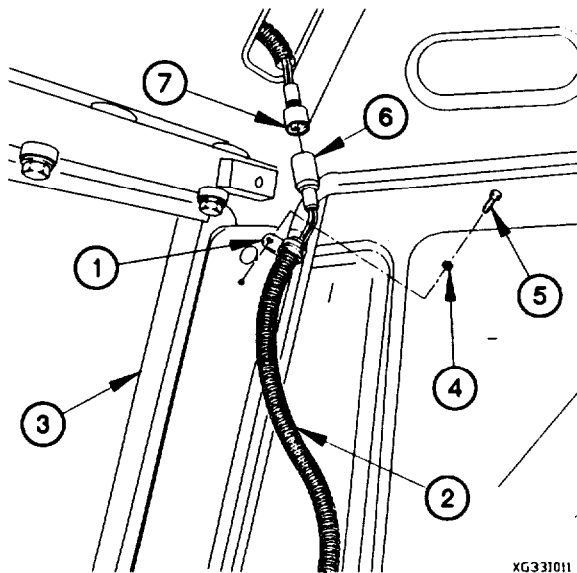
- (4) Remove two nuts (5), lockwashers (6), washers (7), and cover (8) from terminal board TB1 (9). Discard lockwashers.
- (5) Disconnect terminal lug TL74 (10) from terminal board TB1 (9) position 3.
- (6) Disconnect terminal lug TL86 (11) from terminal board TB2 (12) position 4.



- (7) Disconnect connector P3 (13) from connector J3 (14).
- (8) Remove two screws (15), washers (16), clamps (17), and M1081 cab clearance and marker lights lower cable assembly (18) from cab (19).
- (9) Remove two clamps (17) from M1081 cab clearance and marker lights cable assembly (18).

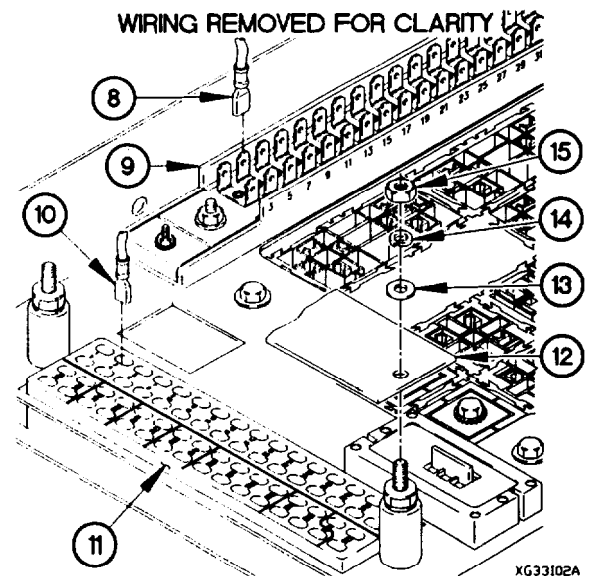


b. Installation.



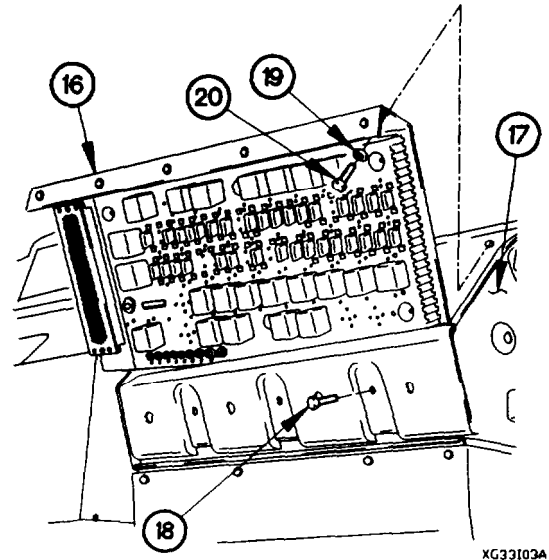
- (1) Install two clamps (1) on M1081 cab clearance and marker lights cable assembly (2).
- (2) Position M1081 cab clearance and marker lights lower cable assembly (2) in cab (3) with two clamps (1), washers (4), and screws (5).
- (3) Tighten two screws (5) to 29-35 lb-in. (3-4 N•m).
- (4) Connect connector P3 (6) to connector J3 (7).

- (5) Connect terminal lug TL86 (8) to terminal board TB2 (9) position 4.
- (6) Connect terminal lug TL74 (10) to terminal board TB1 (11) position 3.
- (7) Install cover (12) on terminal board TB1 (11) with two washers (13), lockwashers (14), and nuts (15).



**7-55. M1081 CAB CLEARANCE AND MARKER LIGHTS LOWER CABLE ASSEMBLY
REPLACEMENT (CONT)**

- (8) Position PDP (16) on dashboard (17).
- (9) Install three screws (18) in PDP (16).
- (10) Install three washers (19) and screws (20) in PDP (16).



c. Follow-On Maintenance.

- (1) Install PDP cover (para 16-2).
- (2) Connect batteries (para 7-48).
- (3) Check operation of cab clearance and marker lights (TM 9-2320-365-10).

End of Task.

7-56. M1081 CAB CLEARANCE AND MARKER LIGHTS UPPER CABLE ASSEMBLY REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Batteries disconnected (para 7-48).

Tools and Special Tools

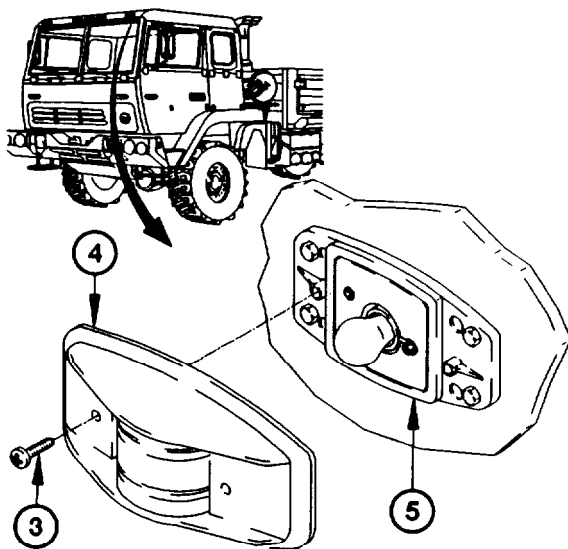
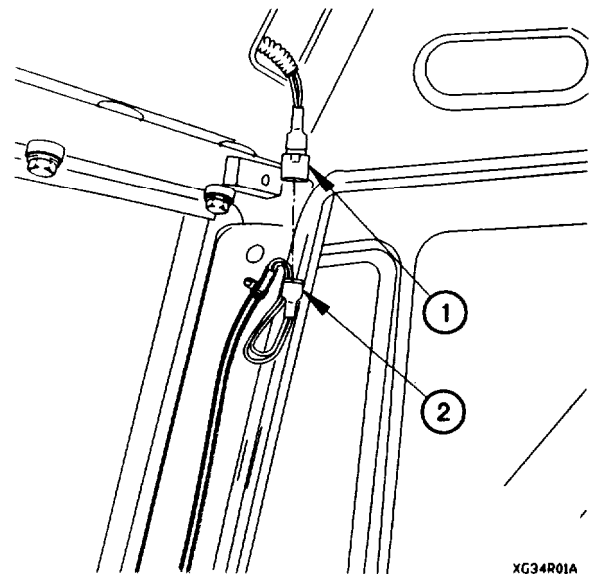
Tool Kit, Genl Mech (Item 44, Appendix C)
Wrench, Torque, 0-75 lb-in. (Item 86, Appendix B)

Materials/Parts

Lockwire (Item 32, Appendix D)
Gasket (5) (Item 23, Appendix G)
Lockwasher (5) (Item 72, Appendix G)

a. Removal.

- (1) Disconnect connector J3 (1) from connector P3 (2).



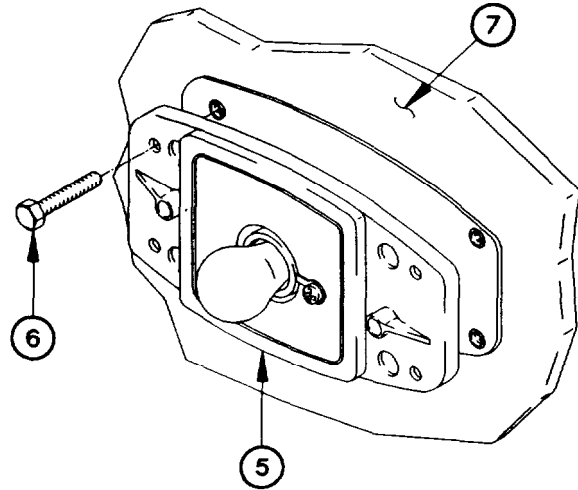
NOTE

All M1081 cab clearance and marker lights are removed the same way. Upper left cab marker light shown.

- (2) Remove two screws (3) and lens cover (4) from marker light (5).

7-56. M1081 CAB CLEARANCE AND MARKER LIGHTS UPPER CABLE ASSEMBLY REPLACEMENT (CONT)

(3) Remove four screws (6) and marker light (5) from cab roof (7).



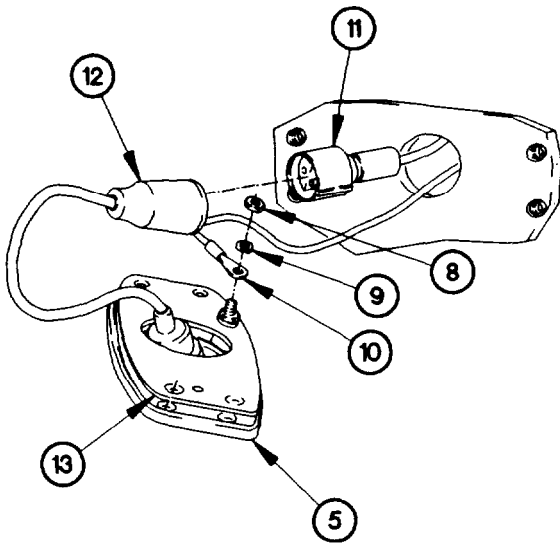
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NOTE

Wrap mechanics wire on each connector and terminal lug for ease of installation.

Refer to **Table 7-3. M1081 Cab Clearance Marker Lights Connectors** for combinations of terminal lugs and connectors on each light.

- (4) Remove nut (8), lockwasher (9), and terminal lug (10) from marker light (5). Discard lockwasher.
- (5) Disconnect connector (11) from marker light connector 489 (12).
- (6) Remove gasket (13) from marker light (5). Discard gasket.

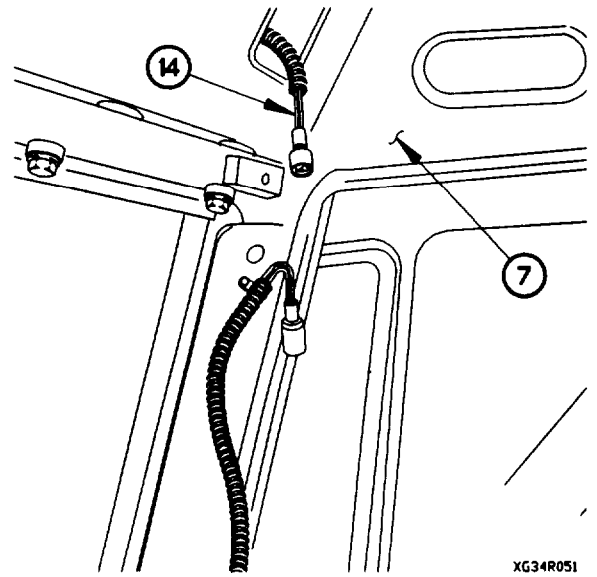


XG34R04A

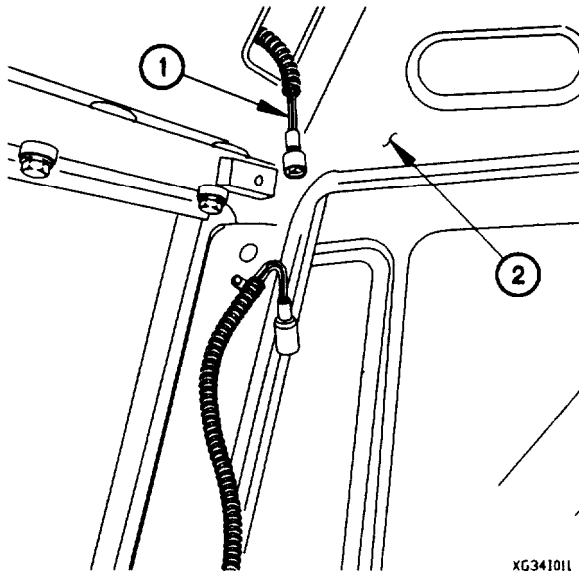
Table 7-3. M1081 Cab Clearance and Marker Lights Connectors

Light Location	Connector	Terminal lug
Left Side Marker	P50	TL27
Left Center Clearance	P57	TL22
Center Clearance	P60	TL8
Right Center Clearance	P59	TL4
Right Side Marker	P55	TL3

(!2) Remove M1081 cab clearance and marker lights upper cable assembly (14) from cab roof (7).



b. Installation.



NOTE

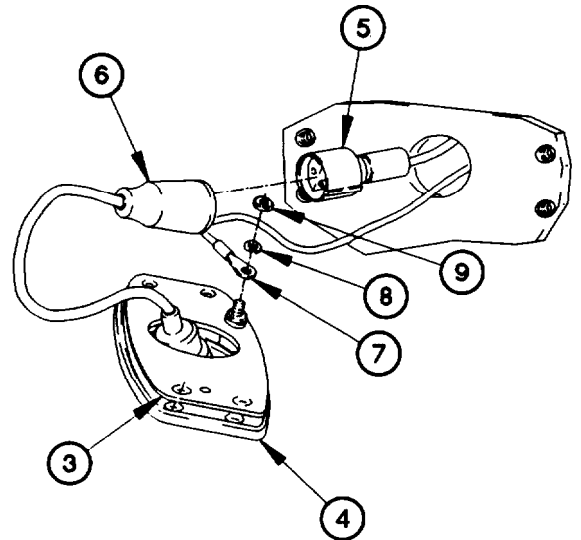
Transfer mechanics wire to new M1081 cab clearance and marker lights upper cable assembly.

(1) Position M1081 cab clearance and marker lights upper cable assembly (1) in cab roof (2).

NOTE

- All M1081 cab clearance and marker lights are installed the same way. Upper left cab marker light shown.
- Refer to Table 7-3. M1081 Cab Clearance and Marker Lights Connectors for combinations of terminal lugs and connectors on each light.

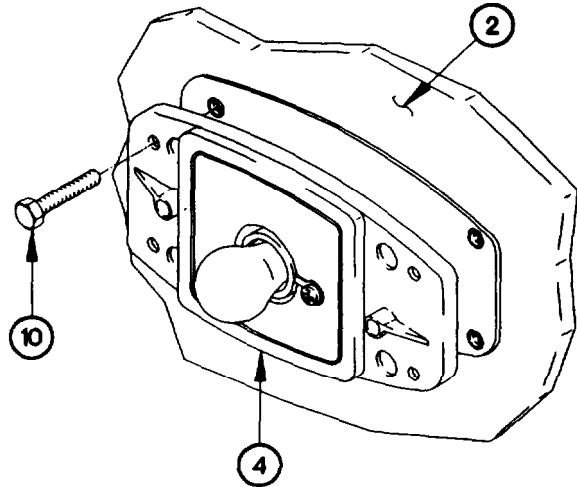
- (2) Install gasket (3) on marker light (4).
- (3) Connect connector (5) to marker light connector 489 (6).
- (4) Install terminal lug (7) on marker light (4) with lockwasher (8) and nut (9).



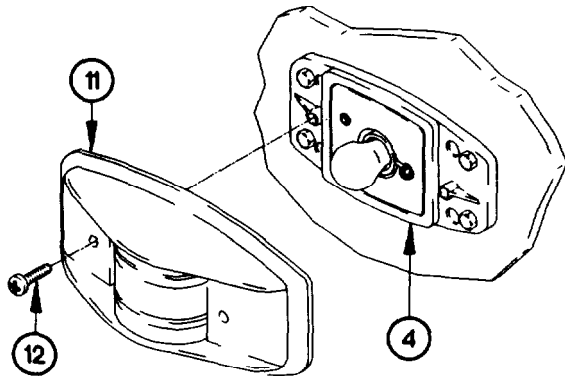
XG34102A

7-56. M1081 CAB CLEARANCE AND MARKER LIGHTS UPPER CABLE ASSEMBLY REPLACEMENT (CONT)

(5) Install marker light (4) on cab roof (2) with four screws (10).



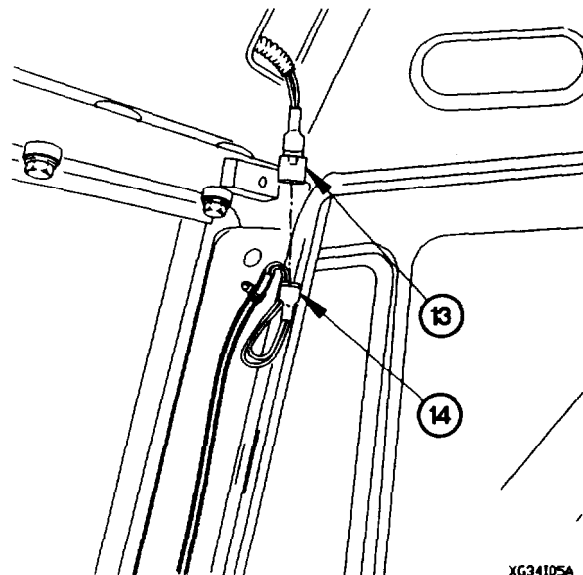
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XG34104A

(6) Install lens cover (11) on marker light (4) with two screws (12).

(7) Connect connector J3 (13) to connector P3 (14).



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c. Follow-On Maintenance:

- (1) Connect batteries (para 7-48).
- (2) Check operation of cab clearance and marker lights (TM 9-2320-365-10).

End of Task.

7-57. RIGHT-HAND DOOR AND CAB MARKER LIGHTS CABLE ASSEMBLY REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Batteries disconnected (para 7-48).
PDP cover removed (para 16-2).

Tools and Special Tools

Tool Kit, Genl Mech (Item 44, Appendix C)

Materials/Parts

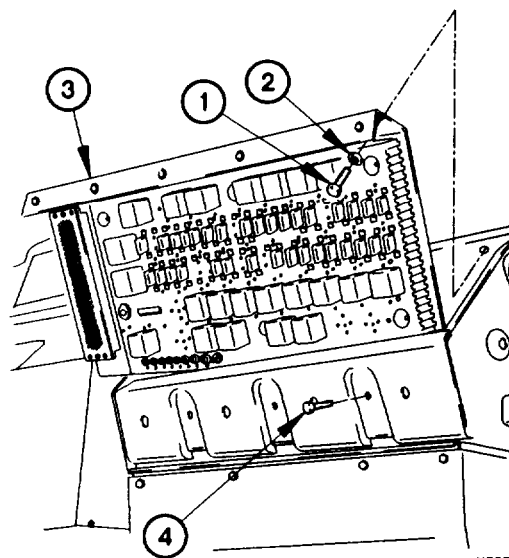
Ties, Cable, Plastic (Item 76, Appendix D)
Lockwasher (Item 73, Appendix G)
Lockwasher (2) (Item 81, Appendix G)
Gasket (2) (Item 23, Appendix G)

a. Removal.

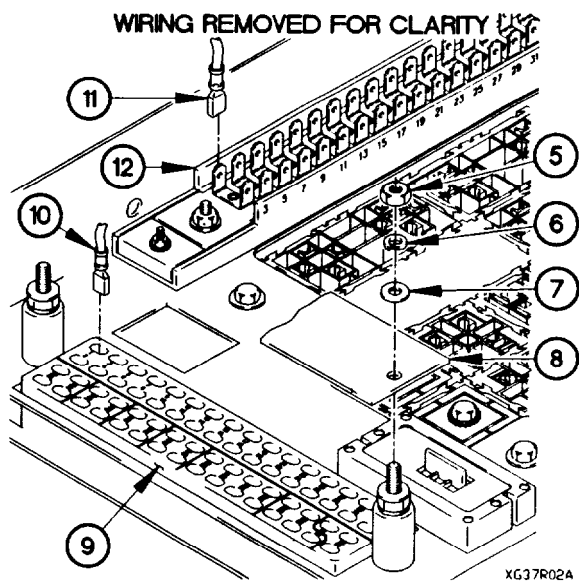
NOTE

- Note routing of right-hand door and cab marker lights cable assembly prior to removal.
- Remove plastic cable ties as required.

- (1) Remove three screws (1) and washers (2) from PDP (3).
- (2) Remove three screws (4) from PDP (3).
- (3) Lift PDP (3) outward to gain access.



XG37R01A

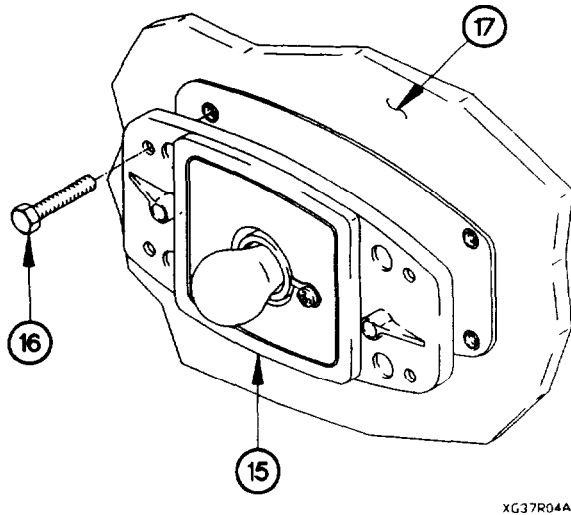
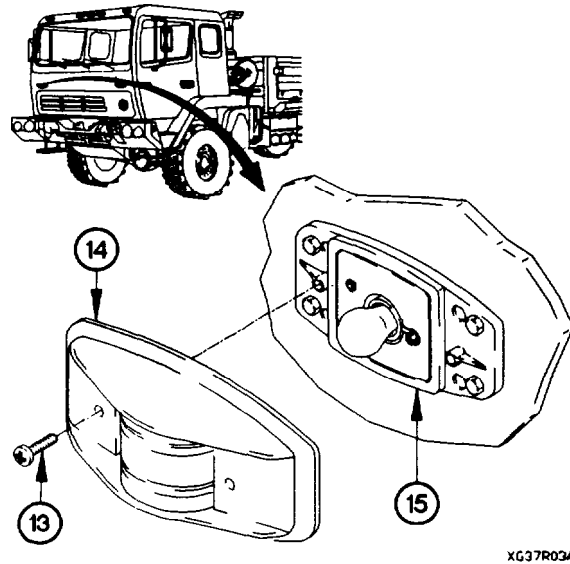


XG37R02A

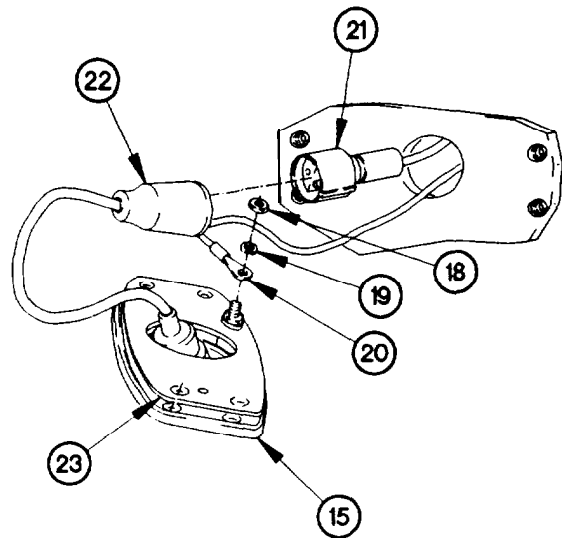
- (4) Remove two nuts (5), lockwashers (6), washers (7), and cover (8) from terminal board TB1 (9). Discard lockwashers.
- (5) Disconnect terminal lug TL73 (10) from terminal board TB1 (9) position 1.
- (6) Disconnect terminal lug TL71 (11) from terminal board TB2 (12) position 2.

**7-57. RIGHT-HAND DOOR AND CAB MARKER LIGHTS CABLE ASSEMBLY
REPLACEMENT (CONT)**

(7) Remove two screws (13) and marker lens cover (14) from marker light (15).



(8) Remove four screws (16) and marker light (15) from cab (17).

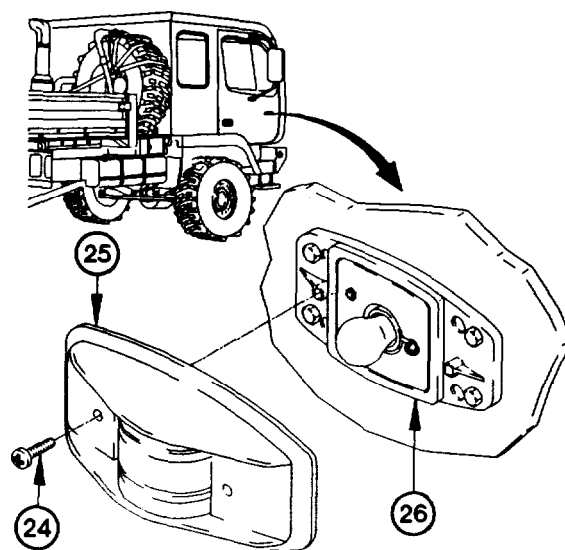


(9) Remove nut (18), lockwasher (19), and terminal lug TL134 (20) from marker light (15). Discard lockwasher.

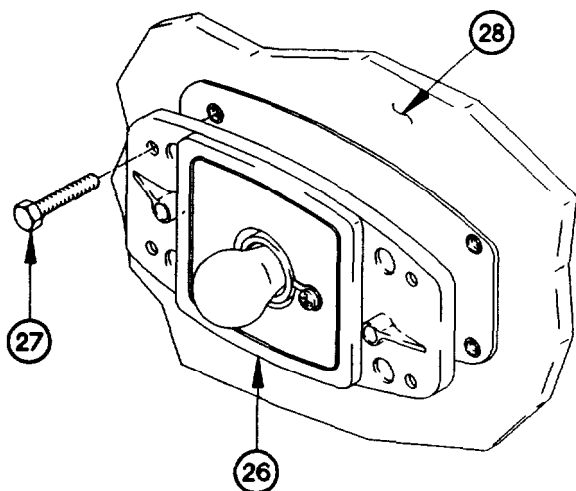
(10) Disconnect connector P132 (21) from marker light connector 489 (22).

(11) Remove gasket (23) from marker light (15). Discard gasket.

(12) Remove two screws (24) and marker lens cover (25) from marker light (26).



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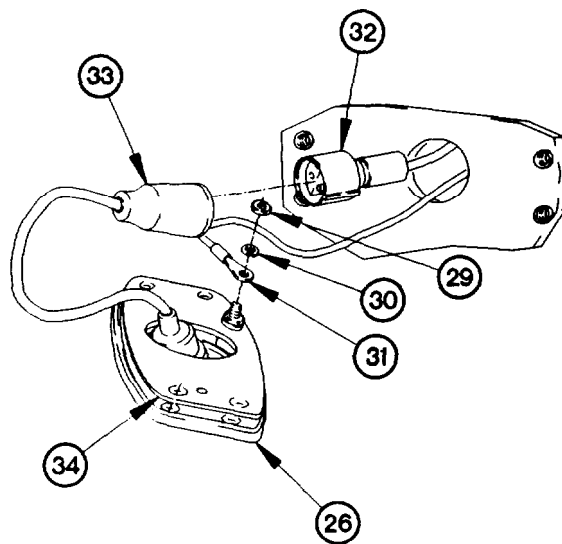
XG37R07A

(13) Remove four screws (27) and marker light (26) from door (28).

(14) Remove nut (29), lockwasher (30), and terminal lug TL131 (31) from marker light (26). Discard lockwasher.

(15) Disconnect connector P131 (32) from marker light connector 489 (33).

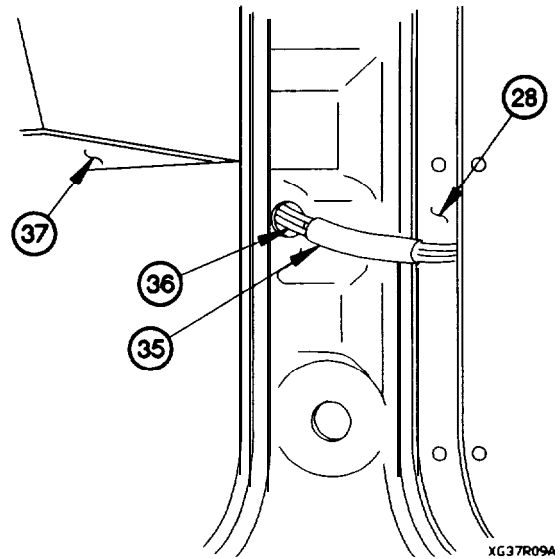
(16) Remove gasket (34) from marker light (26). Discard gasket.



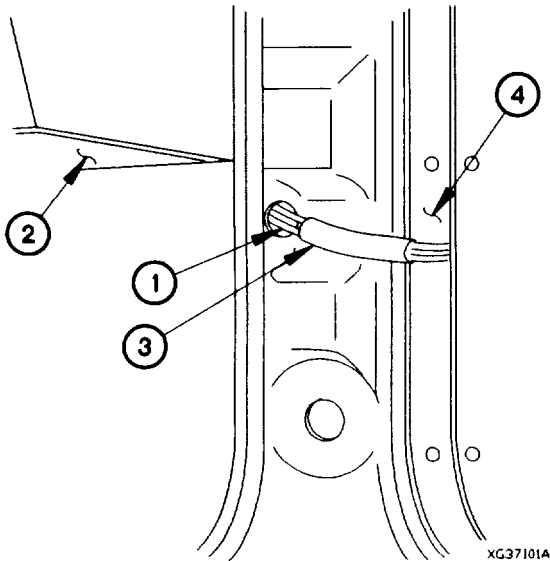
XG37R08A

7-57. RIGHT-HAND DOOR AND CAB MARKER LIGHTS CABLE ASSEMBLY REPLACEMENT (CONT)

- (17) Remove tube protector (35) and right-hand door and cab marker lights cable assembly (36) from door (28).
- (18) Remove right-hand door and cab marker lights cable assembly (36) dashboard (37).



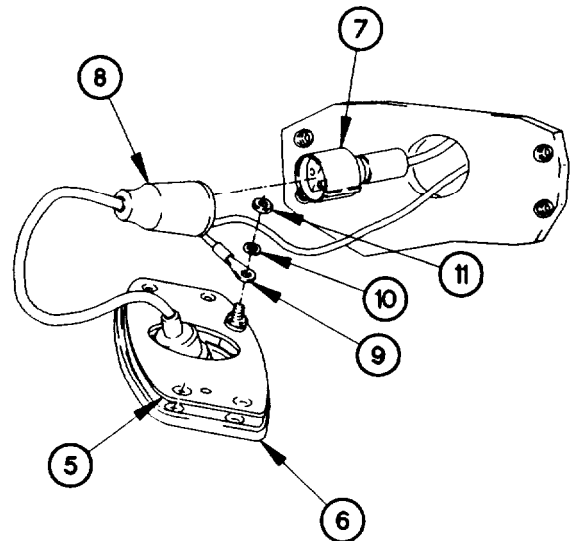
b. Installation.



NOTE

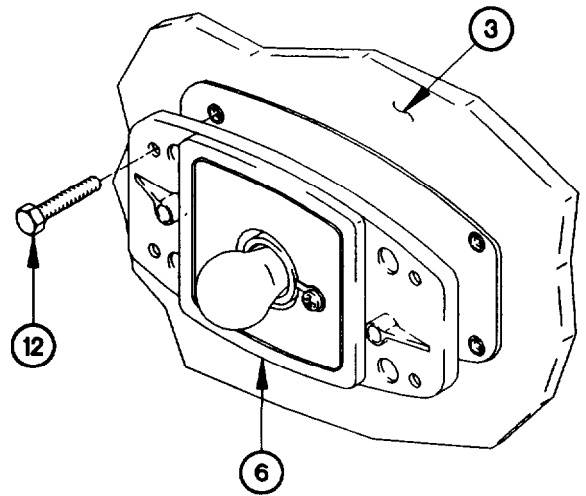
Install plastic cable ties as required.

- (1) Position right-hand door and cab marker lights cable assembly (1) in dashboard (2).
- (2) Install right-hand door and cab marker lights cable assembly (1) and tube protector (3) in door (4).



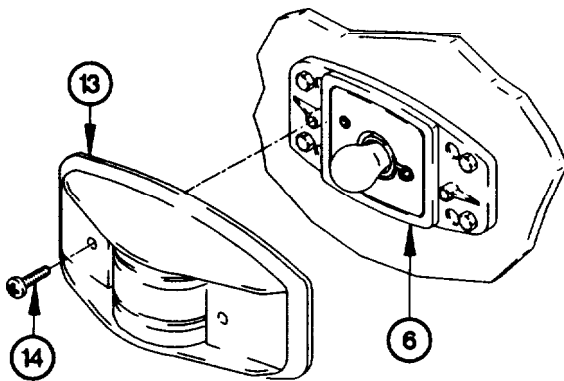
- (3) Install gasket (5) on marker light (6).
- (4) Connect connector P131 (7) to marker light connector 489 (8).
- (5) Install terminal lug TL131 (9) on marker light (6) with lockwasher (10) and nut (11).

(6) Install marker light (6) on door (3) with four screws (12).



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(7) Install marker lens cover (13) on marker light (6) with two screws (14).

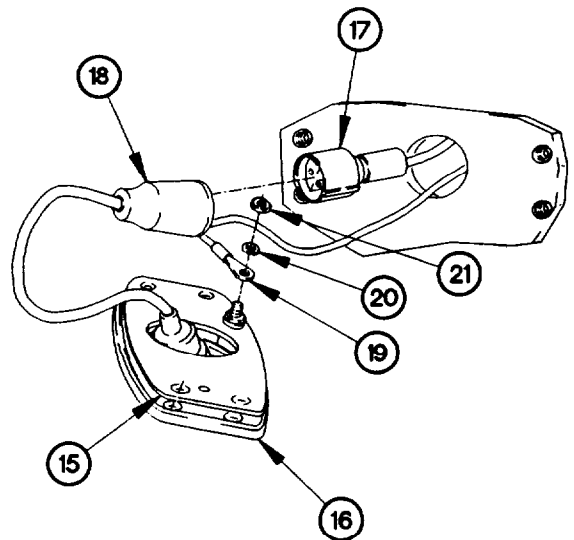


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(8) Install gasket (15) on marker light (16).

(9) Connect connector P132 (17) to marker light connector 489 (18).

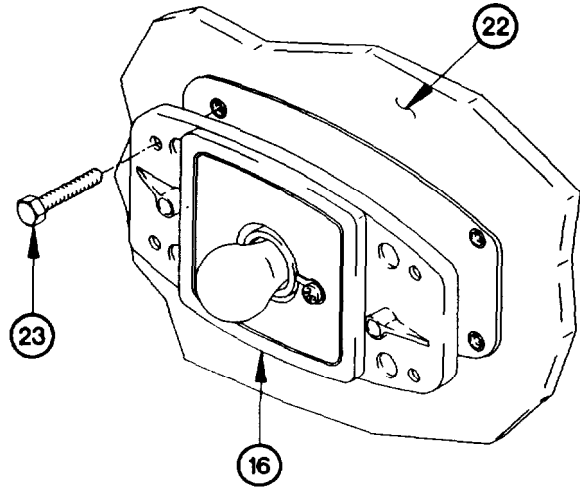
(10) Install terminal lug TL134 (19) on marker light (16) with lockwasher (20) and nut (21).



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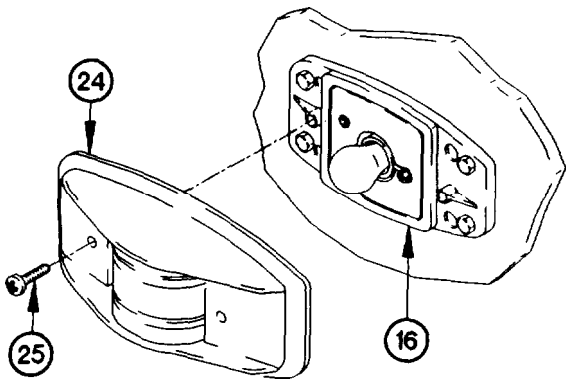
7-57. RIGHT-HAND DOOR AND CAB MARKER LIGHTS CABLE ASSEMBLY REPLACEMENT (CONT)

(11) Install marker light (16) on cab (22) with four screws (23).



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(12) Install marker lens cover (24) on marker light (16) with two screws (25).

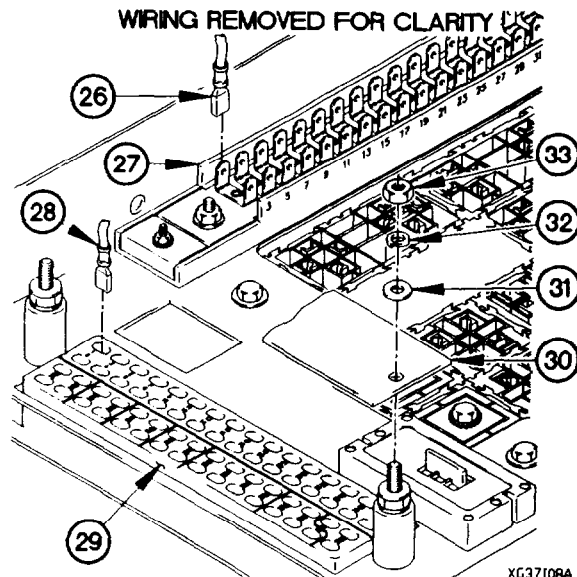


XG37107A

(13) Connect terminal lug TL71 (26) to terminal board TB2 (27) position 2.

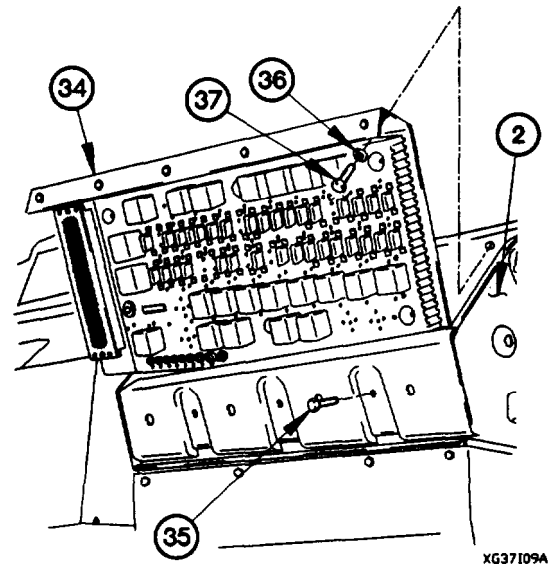
(14) Connect terminal lug TL73 (28) to terminal board TB1 (29) position 1.

(15) Install cover (30) on terminal board TB1 (29) with two washers (31), lockwashers (32), and nuts (33).



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- (16) Position PDP (34) on dashboard (2).
- (17) Install three screws (35) in PDP (34).
- (18) Install three washers (36) and screws (37) in PDP (34).



c. Follow-On Maintenance.

- (1) Install PDP cover (para 16-2).
- (2) Connect batteries (para 7-48).
- (3) Check operation of right-hand door and cab marker lights (TM 9-2320-365-10).

End of Task.

7-58. STE/ICE-R CABLE ASSEMBLY REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Instrument panel assembly removed for access (para 7-15).

Materials/Parts

Ties, Cable, Plastic (Item 76, Appendix D)
Lockwasher (4) (Item 67, Appendix G)

Tools and Special Tools

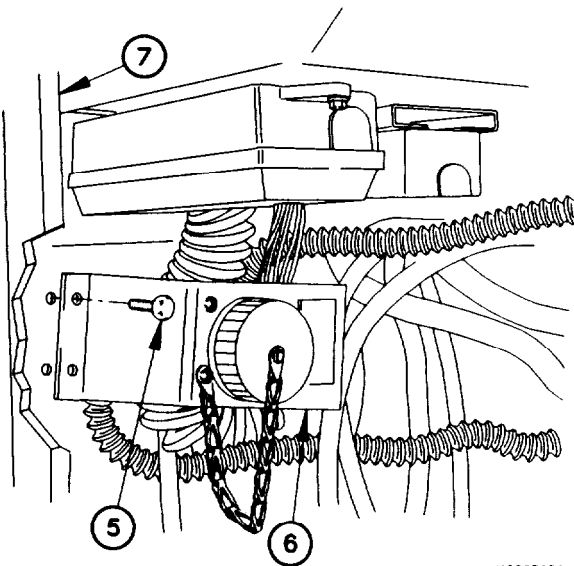
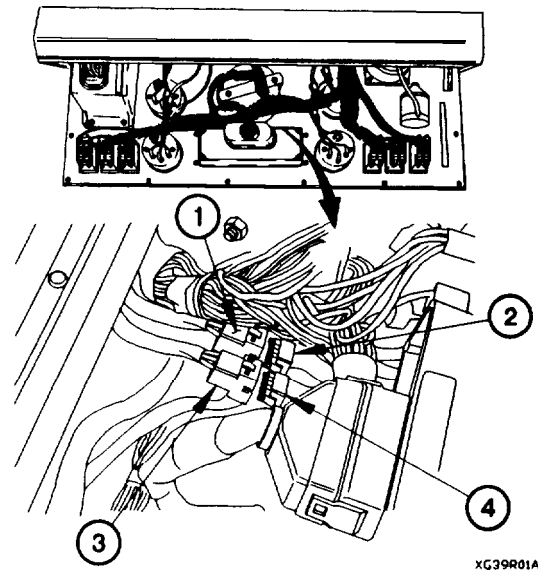
Tool Kit, Genl Mech (Item. 44, Appendix C)

a. Removal.

NOTE

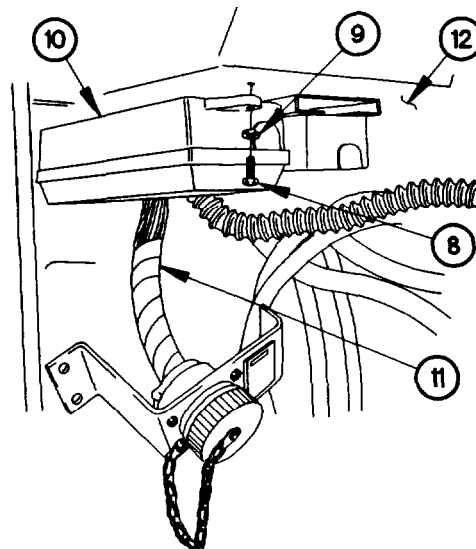
Remove plastic cable ties as required.

- (1) Disconnect connector J31X (1) from connector P31X
- (2) Disconnect connector J43X(3) from connector P43X

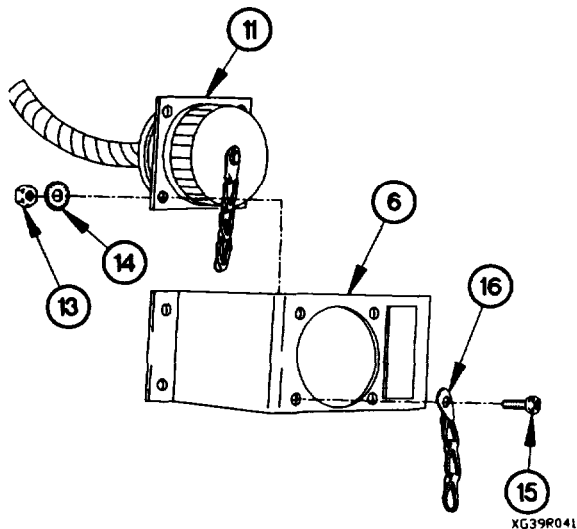


- (3) Remove two screws (5) and bracket (6) from cab (7).

- (4) Remove two screws (8), washers (9), junction box (10), and STE/ICE-R cable assembly (11) from dashboard (12).



XG39R031



XG39R041

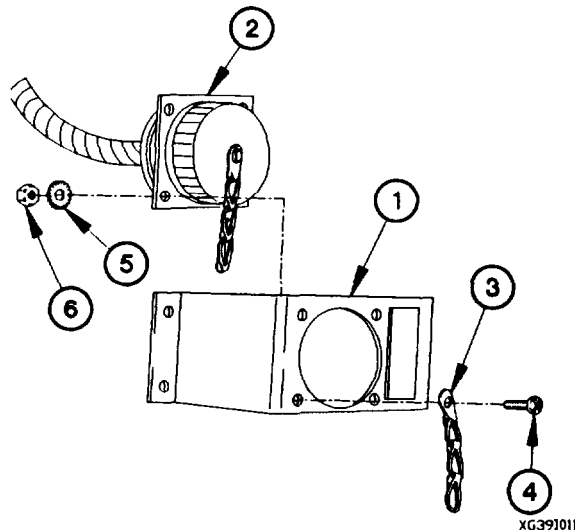
- (5) Remove four nuts (13), lockwashers (14), screws (15), chain (16), and bracket (6) from STE/ICE-R cable assembly (11). Discard lockwashers.

b. Installation.

NOTE

Install plastic cable ties as required.

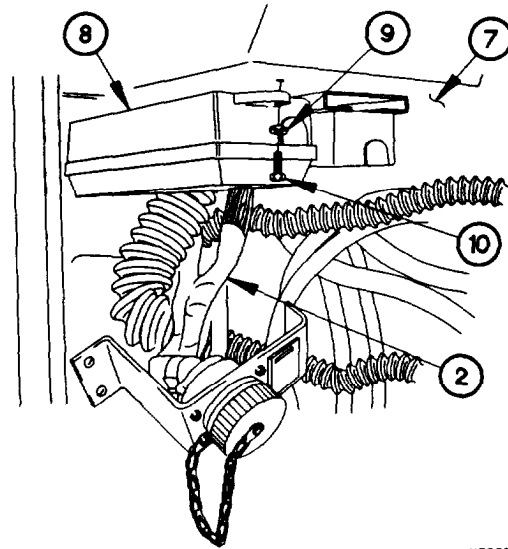
- (1) Install bracket (1) on STE/ICE-R cable assembly (2) with chain (3), four screws (4), lockwashers (5), and nuts (6).



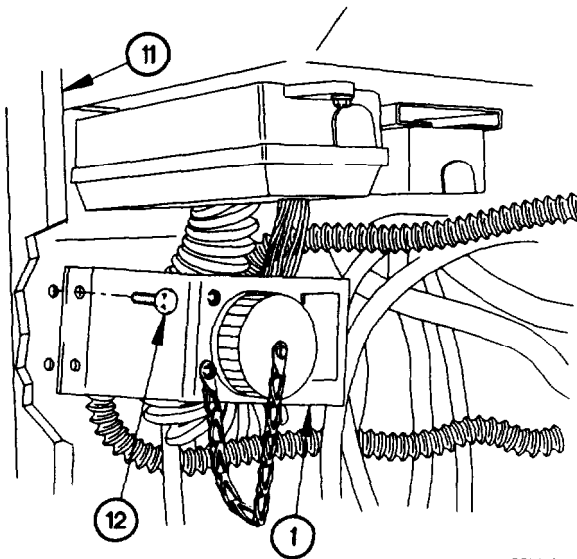
XG39I011

7-58. STE/ICE-R CABLE ASSEMBLY REPLACEMENT (CONT)

- (2) Position STE/ICE-R cable assembly (2) in dashboard (7).
- (3) Install junction box (8) on dashboard (7) with two washers (9) and screws (10).



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XG39103A

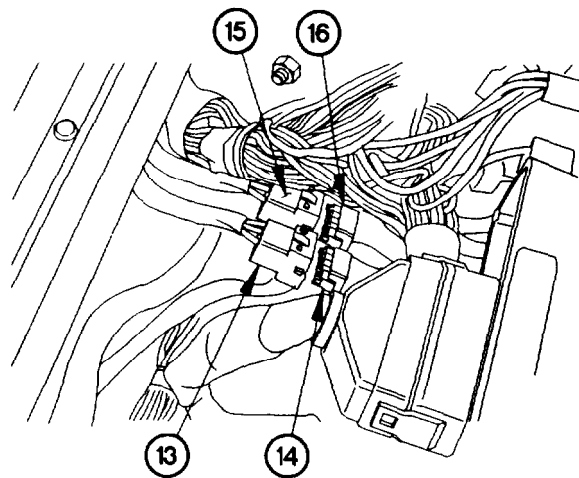
- (4) Install bracket (1) on cab (11) with two screws (12).

- (5) Connect connector J43X (13) to connector P43X (14).
- (6) Connect connector J31X (15) to connector P31X (16).

c. Follow-On Maintenance.

Install instrument panel assembly (para 7-15).

End of Task.



XG39104-

7-59. CAB CLEARANCE MARKER LIGHTS CABLE ASSEMBLY REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

- Batteries disconnected (para 7-48).
- PDP cover removed (para 18-2).

Tools and Special Tools

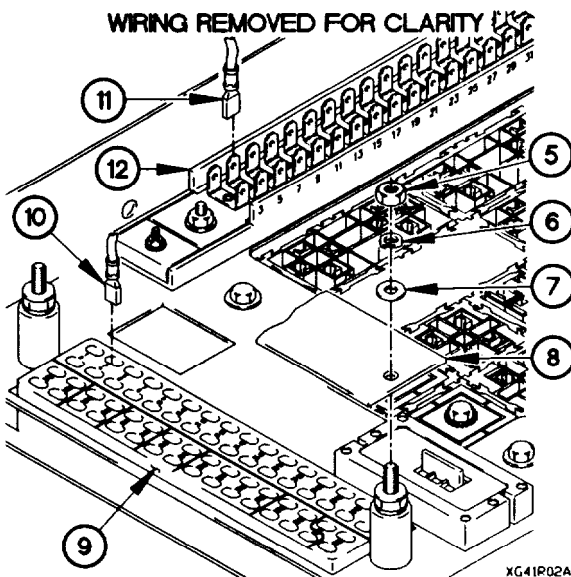
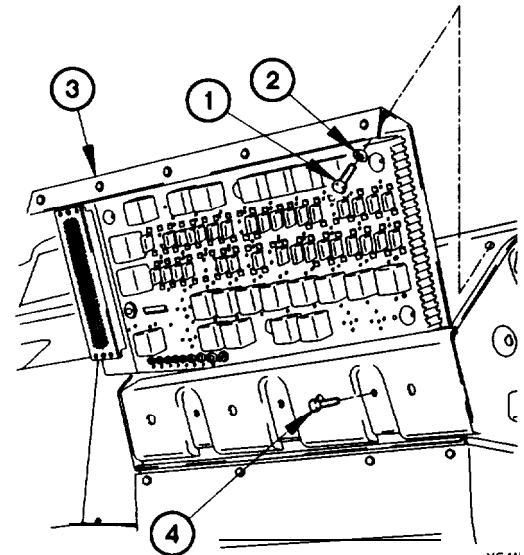
- Tool Kit, Genl Mech (Item 44, Appendix C)
- Wrench, Torque, 0-200 lb-in. (Item 58, Appendix C)
- Socket Set, Socket Wrench (Item 34, Appendix C)

Materials/Parts

- Lockwasher (5) (Item 67, Appendix G)
- Lockwasher (2) (Item 76, Appendix G)
- Gasket (51 (Item 23, Appendix G)
- Lockwire (Item 32, Appendix D)

a. Removal.

- (1) Remove three screws (1) and washers (2) from PDP
- (2) Remove three screws (4) from PDP (3).
- (3) Lift PDP (3) outward to gain access.



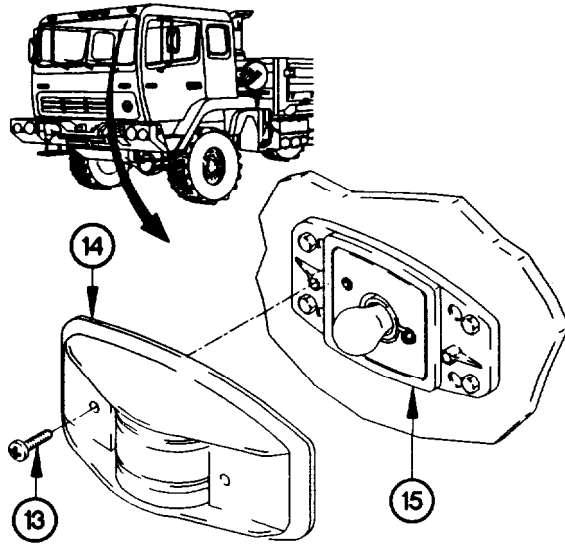
- (4) Remove two nuts (5), lockwashers (6), washers (7), and cover (8) from terminal board TB1 (9). Discard lockwashers.
- (5) Disconnect terminal lug TL74 (10) from terminal board TB1 (9) position 3.
- (6) Disconnect terminal lug TL86 (11) from terminal board TB2 (12) position 4.

7-59. CAB CLEARANCE MARKER LIGHTS CABLE ASSEMBLY REPLACEMENT (CONT)

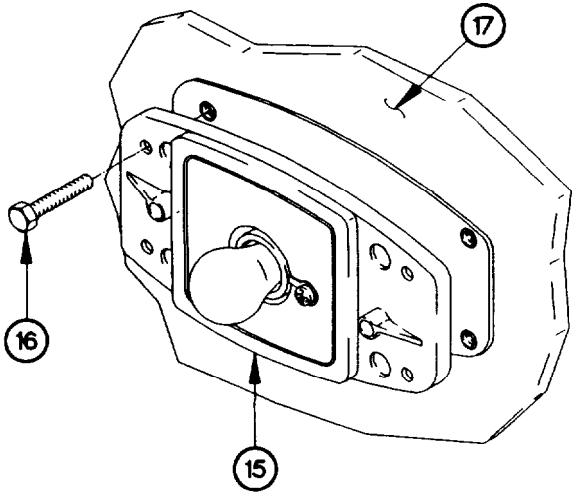
NOTE

All cab clearance marker lights are removed the same way. Upper left cab clearance marker light shown.

- (7) Remove two screws (13) and marker lens cover (14) from marker light (15).



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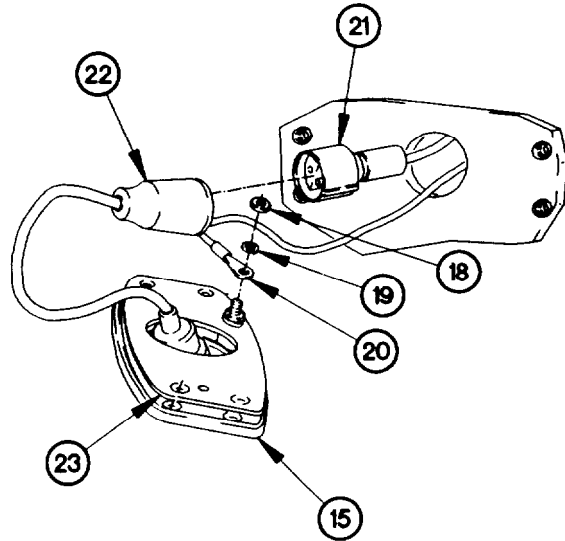
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- (8) Remove four screws (16) and marker light (15) from cab (17).

NOTE

- Wrap mechanics wire on each connector and terminal lug for ease of installation.
- Refer to Table 7-4. Cab Clearance Marker Light Connectors for combinations of terminal lugs and connectors on each marker light.

- (9) Remove nut (18), lockwasher (19), and terminal lug (20) from marker light (15). Discard lockwasher.
- (10) Disconnect connector (21) from marker light connector 489 (22).
- (11) Remove gasket (23) from marker light (15). Discard gasket.

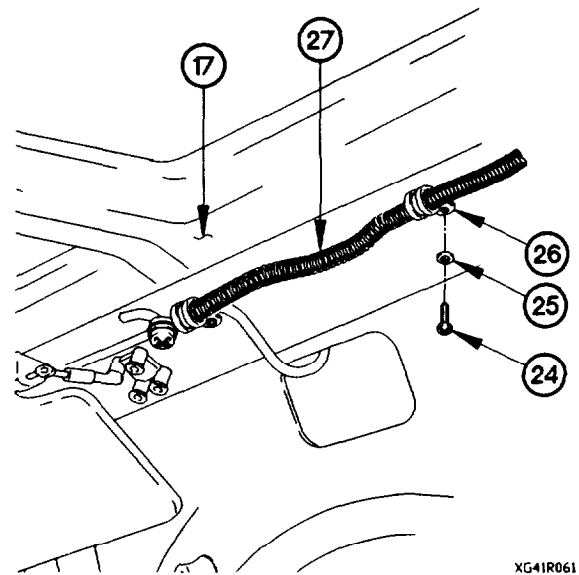


XG41R05A

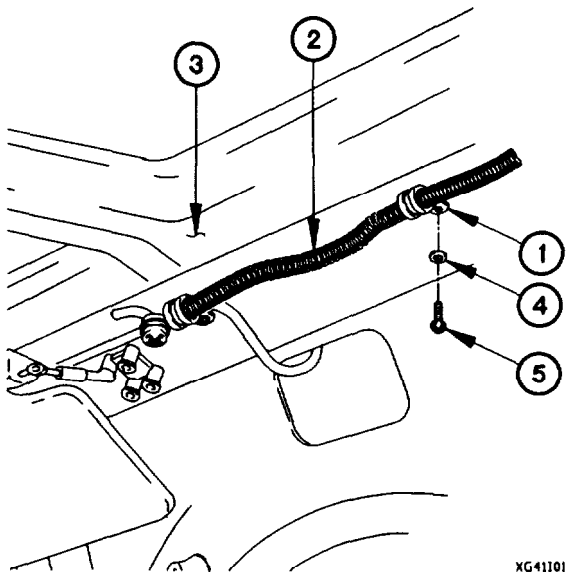
Table 7-4. Cab Clearance Marker Light Connectors

Marker Light Location	Connector	Terminal lug
Left Side	P50	TL27
Left Center	P59	TL4
Center	P60	TL8
Right Center	P57	TL22
Right Side	P55	TL3

- (12) Remove eight screws (24), washers (25), clamps (26), and cab clearance marker lights cable assembly (27) from cab (17).
- (13) Remove eight clamps (26) from cab clearance and marker lights cable assembly (27).



b. Installation.



NOTE

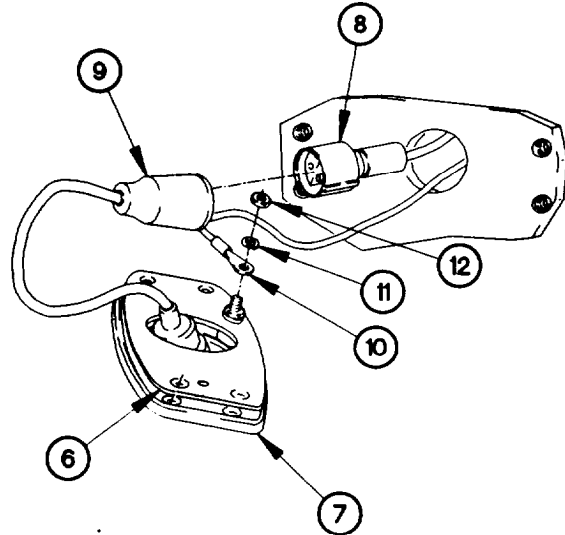
Transfer mechanics wire to new cab clearance marker lights cable assembly.

- (1) Install eight clamps (1) on cab clearance and marker lights cable assembly (2).
- (2) Install cab clearance marker lights cable assembly (2) on cab (3) with eight clamps (1), washers (4), and screws (5).

7-59. CAB CLEARANCE MARKER LIGHTS CABLE ASSEMBLY REPLACEMENT (CONT)

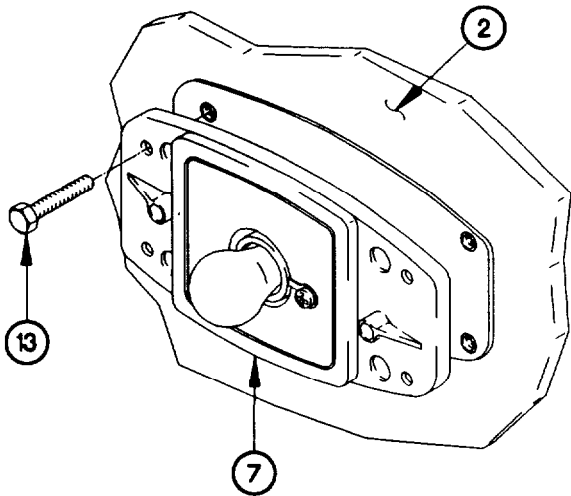
NOTE

- All cab clearance marker lights are installed the same way. Upper left cab clearance marker light shown.
- Refer to Table 7-4. Cab Clearance Marker Light Connectors for combinations of terminal lugs and connectors on each marker light.



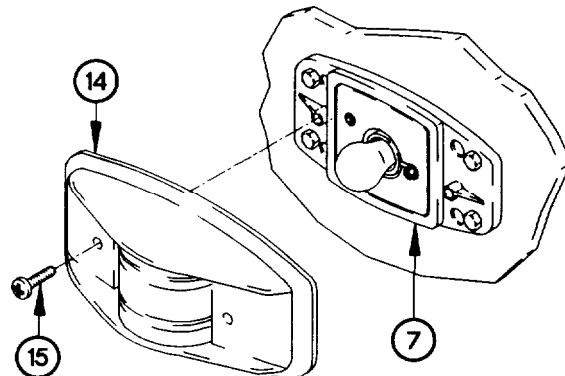
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- (3) Install gasket (6) on marker light (7).
- (4) Connect connector (8) to marker light connector 489 (9).
- (5) Install terminal lug (10) on marker light (7) with lockwasher (11) and nut (12).



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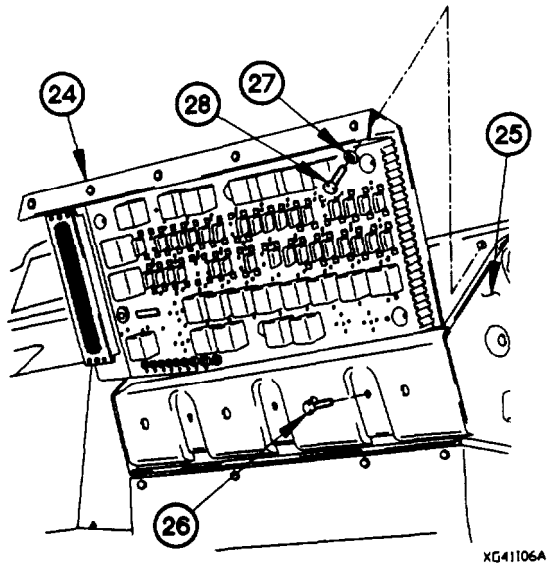
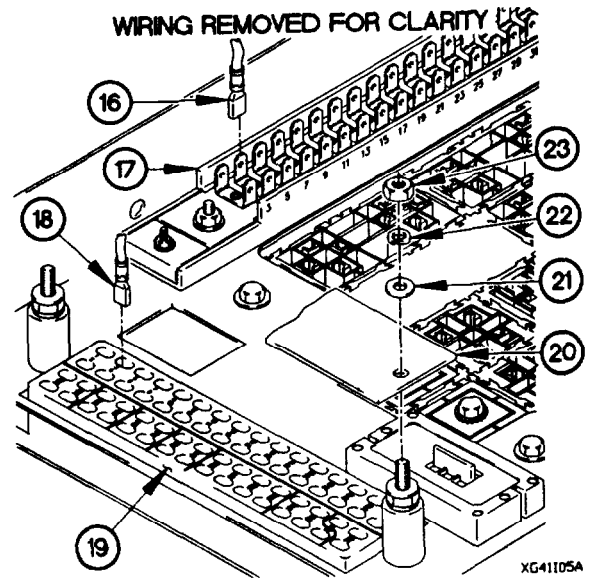
- (6) Install marker light (7) on cab (2) with four screws (13).



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- (7) Install marker lens cover (14) on marker light (7) with two screws (15).

- (8) Connect terminal lug TL86 (16) to terminal board TB2 (17) position 4.
- (9) Connect terminal lug TL74 (18) to terminal board TB1 (19) position 3.
- (10) Install cover (20) on terminal board TB1 (19) with two washers (21), lockwashers (22), and nuts (23).



- (11) Position PDP (24) on dashboard (25).
- (12) Install three screws (26) in PDP (24).
- (13) Install three washers (27) and screws (28) in PDP (24).

c. Follow-On Maintenance.

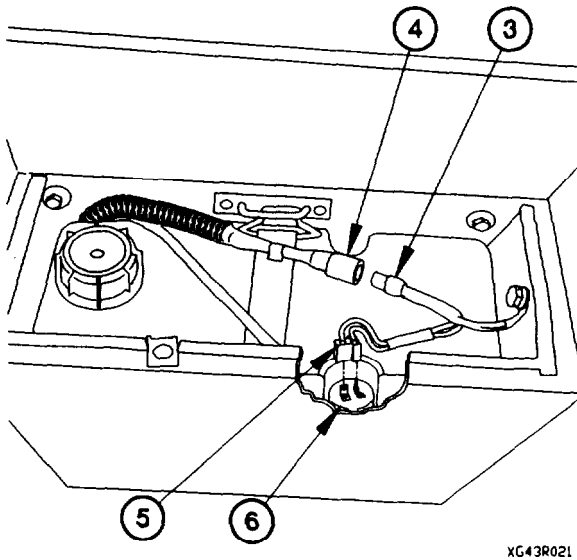
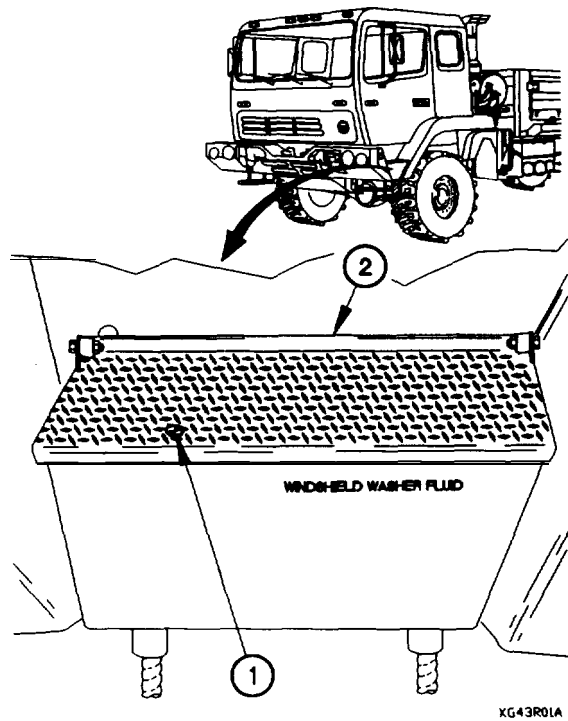
- (1) Install PDP cover (para 16-2).
- (2) Connect batteries (para 7-48).
- (3) Check operation of cab clearance marker lights (TM 9-2320-365-10).

End of Task.

7-60. WINDSHIELD WASHER PUMP ELECTROMAGNETIC INTERFERENCE (EMI) CABLE REPLACEMENT	
This task covers:	
a. Removal b. Installation	c. Follow-On Maintenance
INITIAL SETUP	
Equipment Conditions Batteries disconnected (para 7-48).	Materials/Parts Nut, Self-Locking (Item 148, Appendix G)
Tools and Special Tools Tool Kit, Genl Mech (Item 44, Appendix C)	

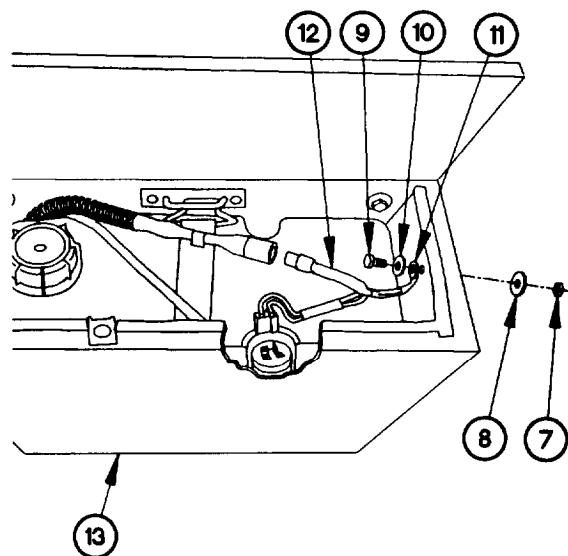
a. Removal.

(1) Loosen screw (1) and open cover (2).

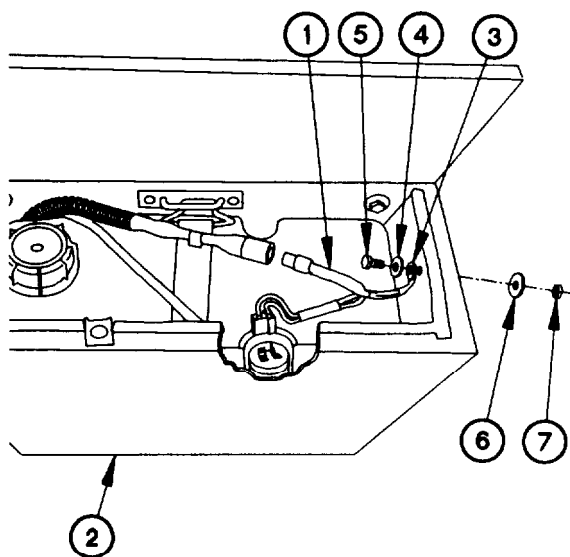


- (2) Disconnect connector J25 (3) from connector P25 (4).
- (3) Disconnect connector P125 (5) from windshield washer pump (8).

- (4) Remove self-locking nut (7), washer (8), screw (9), washer (10), terminal lug TL94 (11), and windshield washer pump EMI cable (12) from box (13). Discard self-locking nut.

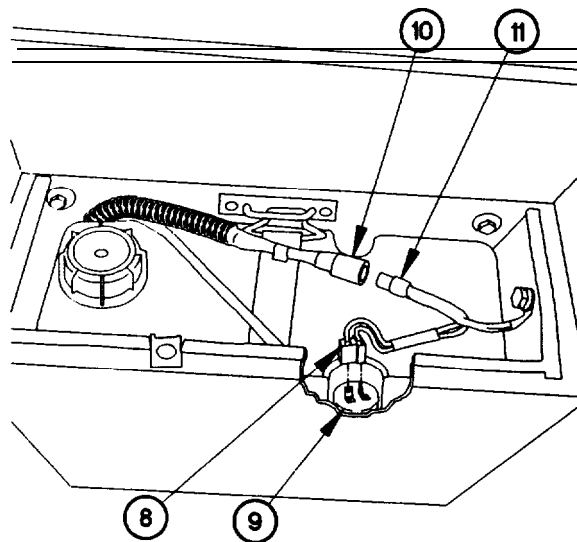


b. Installation



- (1) Position windshield washer pump EMI cable (1) in box (2).
 (2) Install terminal lug TL94 (3) on box (2) with washer (4), screw (5), washer (6), and self-locking nut (7).

- (3) Connect connector P125 (8) to windshield washer
 (4) Connect connector P25 (10) to connector J25 (11).



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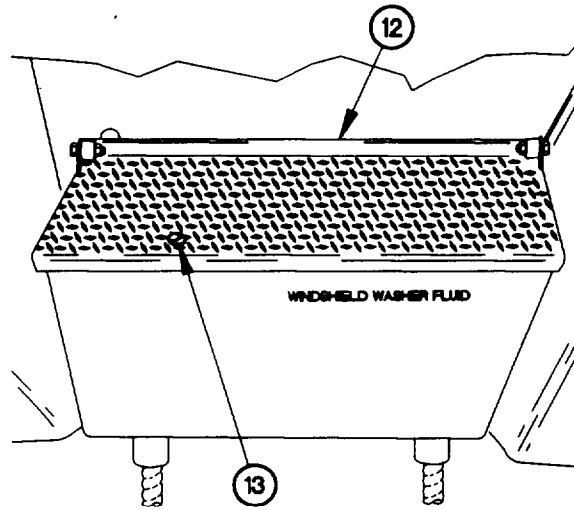
**7-60. WINDSHIELD WASHER PUMP ELECTROMAGNETIC INTERFERENCE (EMI) CABLE
REPLACEMENT (CONT)**

(5) Close cover (12) and tighten screw (13).

c. Follow-On Maintenance.

- (1) Connect batteries (para 7-48).
- (2) Check operation windshield washers (TM 9-2320-365-10).

End of Task.



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7-61. WINDSHIELD WIPER ELECTROMAGNETIC INTERFERENCE (EMI) CABLE REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Batteries disconnected (para 7-48).
PDP cover removed (para 16-2).

Materials/Parts

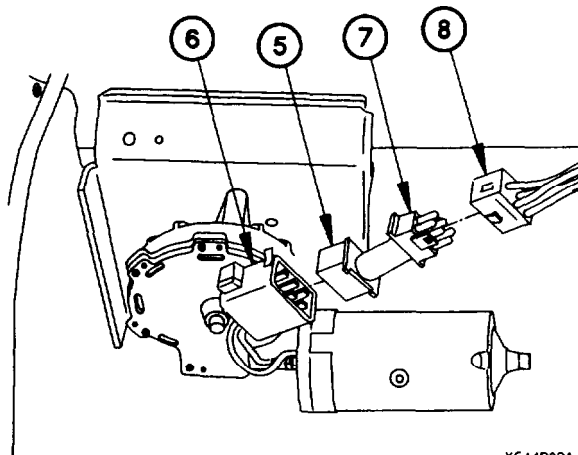
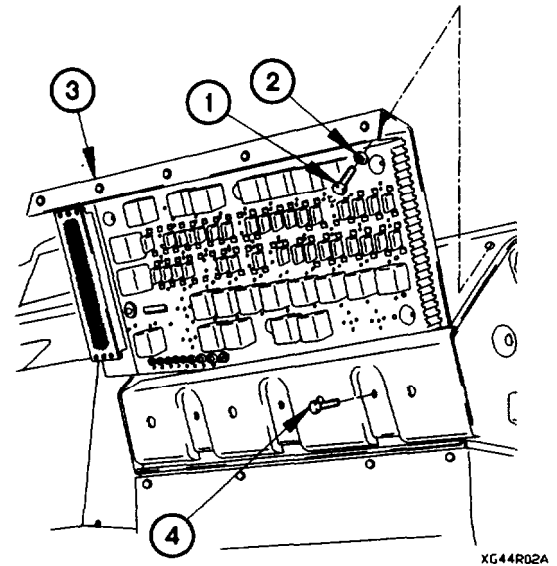
Ties, Cable, Plastic (Item 76, Appendix D)

Tools and Special Tools

Tool Kit, Genl Mech (Item 44, Appendix C)

a. Removal.

- (1) Remove three screws (1) and washers (2) from PDP (3).
- (2) Remove three screws (4) from PDP (3).
- (3) Lift PDP (3) outward to gain access.



NOTE

Remove plastic cable ties as required.

- (4) Disconnect windshield wiper EMI cable connector PX22 (5) from windshield wiper motor (6).
- (5) Disconnect windshield wiper EMI cable connector P2 (7) from connector J2 (8).

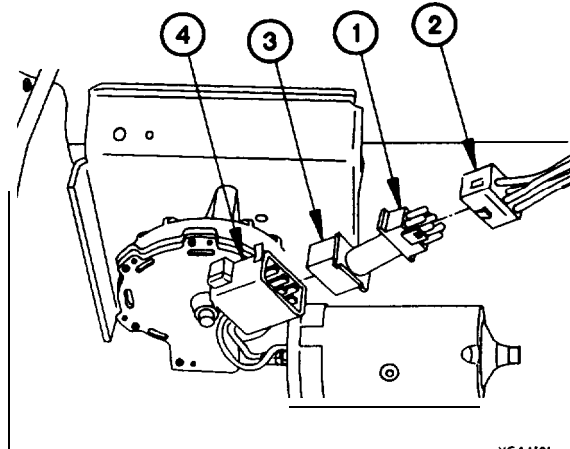
7-61. WINDSHIELD WIPER ELECTROMAGNETIC INTERFERENCE (EMI) CABLE REPLACEMENT (CONT)

b. Installation.

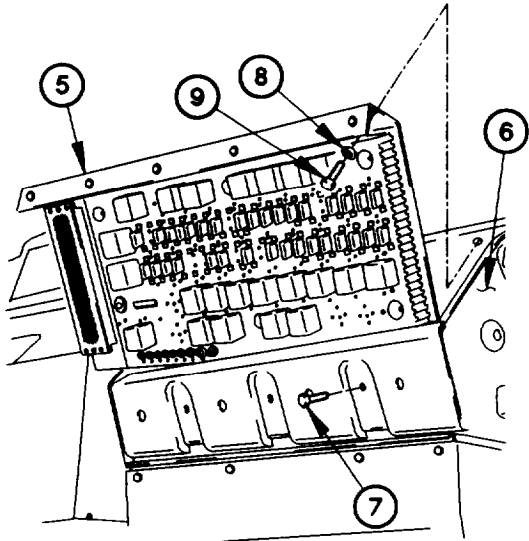
NOTE

Install plastic cable ties as required.

- (1) Connect windshield wiper EMI cable connector P2 (1) to connector J2 (2).
- (2) Connect windshield wiper EMI cable connector PX22 (3) to windshield wiper motor (4).



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- (3) Position PDP (5) on dashboard (6).
- (4) Install three screws (7) in PDP (5).
- (5) Install three washers (8) and screws (9) in PDP (5).

c. Follow-On Maintenance.

- (1) Install PDP cover (para 16-2).
- (2) Connect batteries (para 7-48).
- (3) Check operation of windshield wipers (TM 9-2320-365-10).

End of Task.

7-62. WINDSHIELD WIPER ECU REPLACEMENT

This task covers:

- a. Removal
- b. Installation

c. Follow-On Maintenance

INITIAL SETUP**Equipment Conditions**

- Batteries disconnected (para 7-48).
- PDP cover removed (para 16-2).

a. Removal.

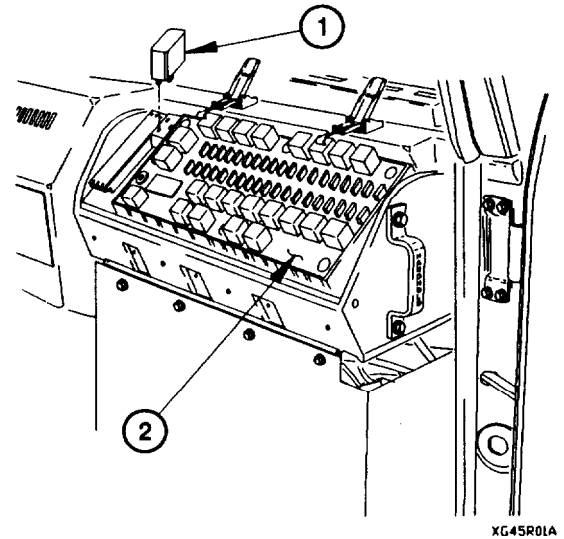
Remove windshield wiper ECU (1) from PDP (2).

b. Installation.

Install windshield wiper ECU (1) in PDP (2).

c. Follow-On Maintenance.

- (1) Install PDP cover (para 16-2).
- (2) Connect batteries (para 7-48).
- (3) Operate windshield wipers and check for proper operation (TM 9-2320-365-10).

**End of Task.**

7-63. NATO POWER CABLE REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

- Engine shut down (TM 9-2320-365-10).
- Battery box cover removed (TM 9-2320-365-10).

Tools and Special Tools

- Goggles, Industrial (Item 15, Appendix C)
- Gloves, Rubber (Item 13, Appendix C)
- Apron, Rubber (Item 3, Appendix C)
- Tool Kit, Genl Mech (Item 44, Appendix C)

Materials/Parts

- Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)
- Nut, Self-Locking (4) (Item 142, Appendix G)
- Lockwasher (Item 78, Appendix G)
- Grease, Automotive and Artillery (GAA) (Item 23, Appendix D)

a. Removal.

WARNING

- Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock. Batteries can explode from a spark. Battery acid is harmful to skin and eyes. Always wear eye protection when working with batteries.
- Negative battery terminals and battery tester negative terminal lug must be disconnected first. Failure to comply may result in serious injury or death to personnel.

NOTE

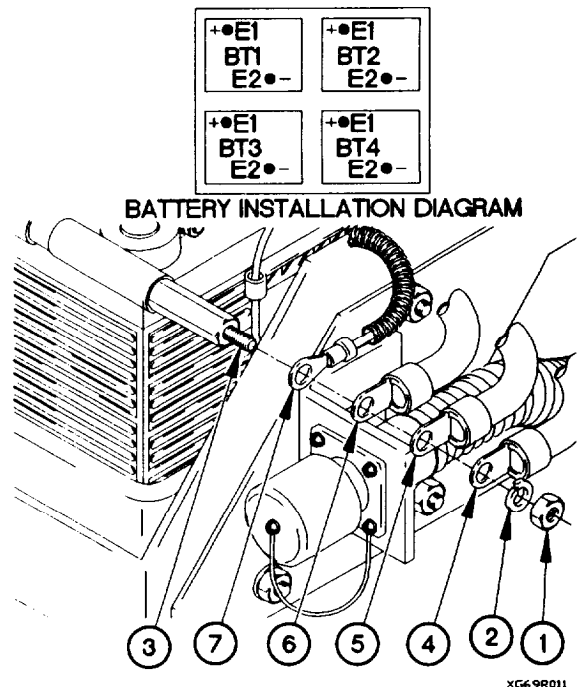
Tag battery terminals, terminal lugs, and connection points prior to disconnecting.

- (1) Remove nut (1) and lockwasher (2) from battery ground cable (3). Discard lockwasher.

NOTE

Perform step (2) on vehicles equipped with cargo arctic heater.

- (2) Remove terminal lug TL2 (4) from battery ground cable (3).
- (3) Remove terminal lugs TL50A (5), TL48 (6), and battery tester terminal lug (7) from battery ground cable (3).

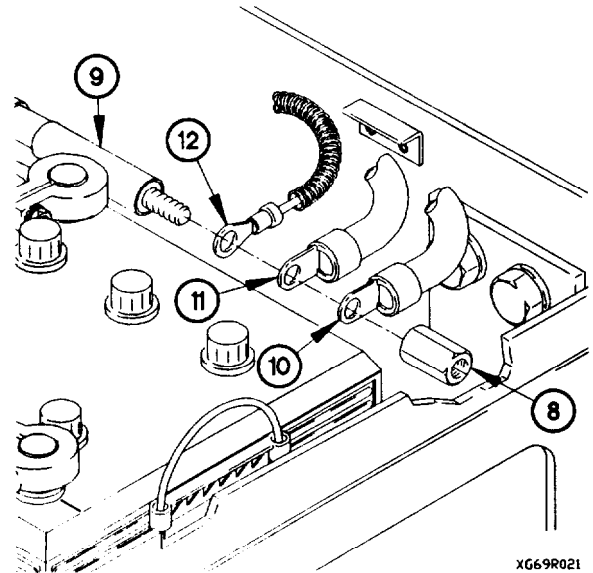


- (4) Remove nut (8) from battery 24 vdc cable (9).

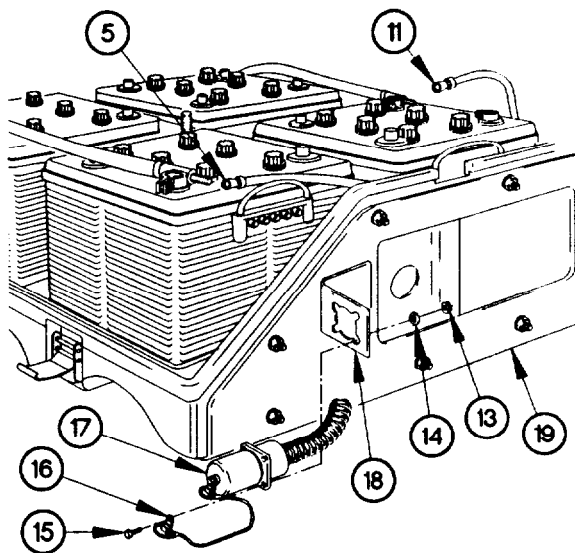
NOTE

Perform step (5) on vehicles equipped with cargo arctic heater.

- (5) Remove terminal lug TL1 (10) from battery 24 vdc cable (9).
- (6) Remove terminal lug TL49A (11) and battery tester terminal lug (12) from battery 24 vdc cable (9).



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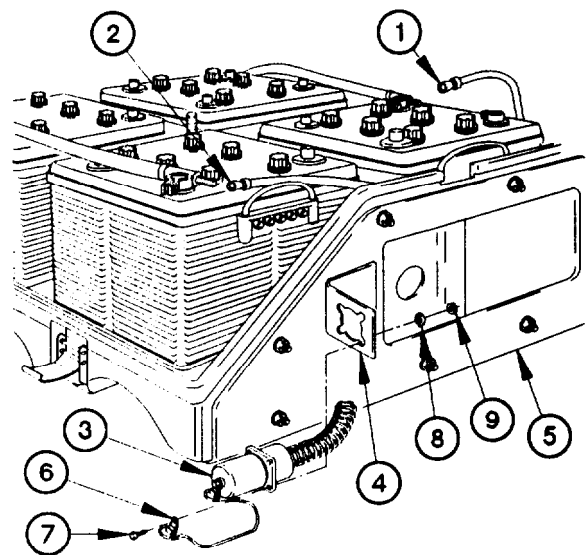


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- (7) Remove four self-locking nuts (13), washers (14), screws (15), and eyelet (16) from NATO power cable (17). Discard self-locking nuts.
- (8) Remove NATO power cable (17) and terminal lugs TL49A (11) and TL50A (5) from bracket (18) and battery box (19).

b. Installation.

- (1) Position terminal lugs TL49A (1) and TL50A (2), and NATO power cable (3) in bracket (4) and battery box (5).
- (2) Install NATO power cable (3) and eyelet (6) on bracket (4) with four screws (7), washers (8), and self-locking nuts (9).



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7-63. NATO POWER CABLE REPLACEMENT (CONT)

WARNING

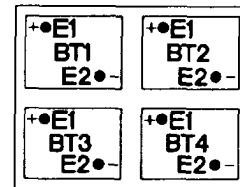
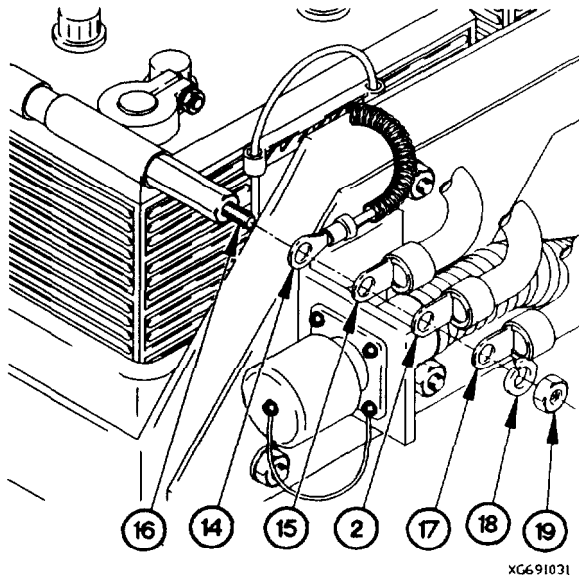
Negative battery terminals must be connected last. Failure to comply may result in serious injury or death to personnel.

- (3) Install battery tester terminal lug (10) and terminal lug TL49A (1) on battery 24 vdc cable (11).

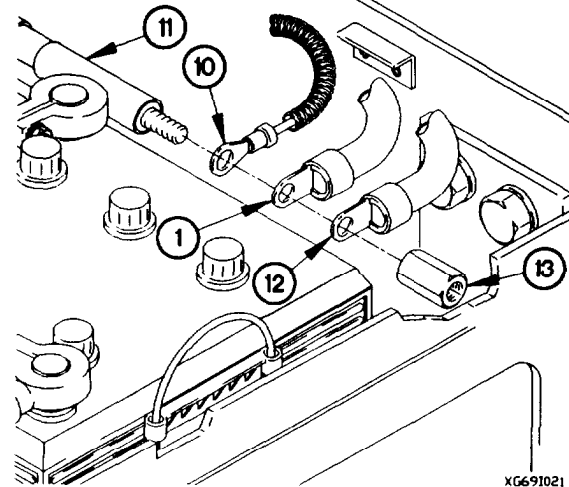
NOTE

Perform step (4) on vehicles equipped with cargo arctic heater.

- (4) Install terminal lug TL1 (12) on battery 24 vdc cable (11).
- (5) Install nut (13) on battery 24 vdc cable (11).



BATTERY INSTALLATION DIAGRAM



- (6) Install battery tester terminal lug (14), and terminal lugs TL48 (15) and TL50A (2) on battery ground cable (16).

NOTE

Perform step (7) on vehicles equipped with cargo arctic heater.

- (7) Install terminal lug TL2 (17) on battery ground cable (16).
- (8) Install lockwasher (18) and nut (19) on battery ground cable (16).
- (9) Apply grease to all battery terminals.

c. Follow-On Maintenance

Install battery box cover (TM 9-2320-365-10).

End of Task.

7-64. ALTERNATOR GROUND STRAP REPLACEMENT

This task covers:

- a. Removal
- b. Installation

c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

- Cab raised (TM 9-2320-385-10).
- Batteries disconnected (para 7-48).

Tools and Special Tools

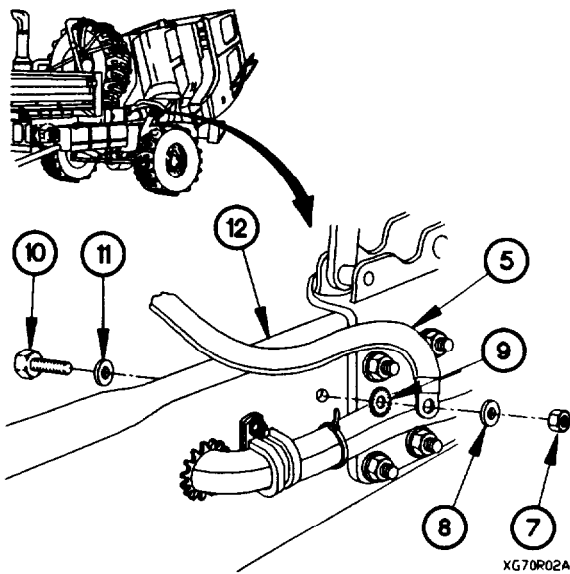
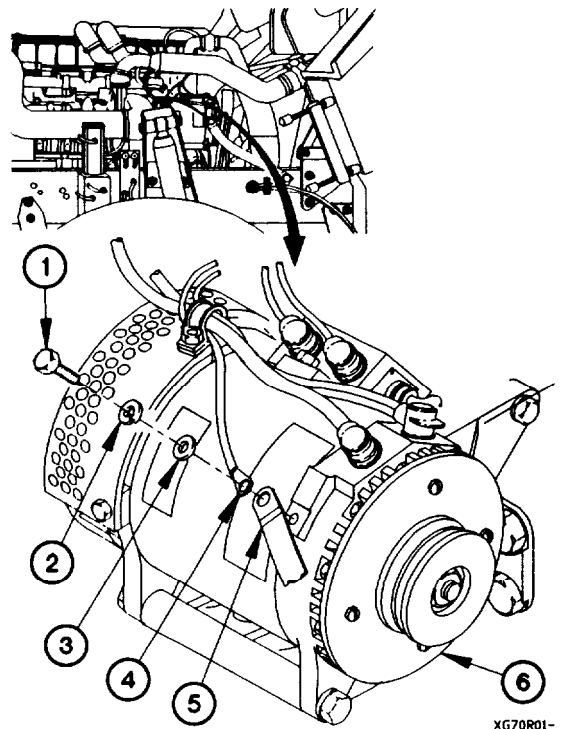
- Tool Kit, Genl Mech (Item 44, Appendix C)

Materials/Parts

- Lockwasher (Item 98, Appendix G)
- Lockwasher (Item 71, Appendix G)
- Nut, Self-Locking (Item 142, Appendix G)

a. Removal.

- (1) Remove screw (1), lockwasher (2), washer (3), terminal lug TL5 (4), and ground cable (5) from alternator (6). Discard lockwasher.

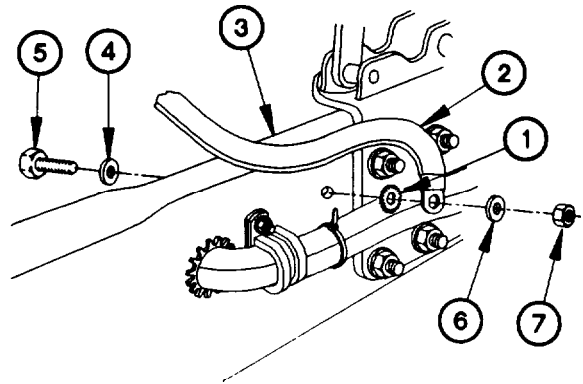


- (2) Remove self-locking nut (7), washer (8), ground cable (5), lockwasher (9), screw (10), and washer (11) from right frame rail (12). Discard self-locking nut and lockwasher.

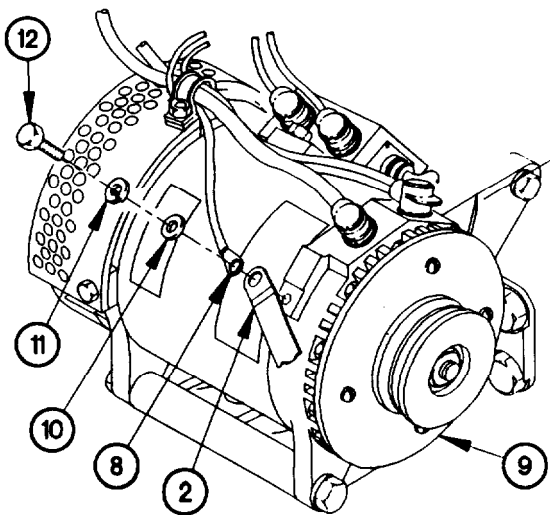
7-64. ALTERNATOR GROUND STRAP REPLACEMENT (CONT)

b. Installation.

- (1) Install lockwasher (1) and ground cable (2) on right frame rail (3) with washer (4), screw (5), washer (6), and self-locking nut (7).



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- (2) Install ground cable (2) and terminal lug TL5 (8) on alternator (9) with washer (10), lockwasher (11), and screw (12).

c. Follow-On Maintenance

- (1) Connect batteries (para 7-48).
- (2) Lower cab (TM 9-2320-365-10).
- (3) Start engine (TM 9-2320-365-10).
- (4) Check VOLTS gage for charge indication (TM 9-2320-365-10).
- (5) Shut down engine (TM 9-2320-365-10).

End of Task.

7-65. 100 AMP ALTERNATOR TO REVERSE POLARITY RELAY 12 VDC CABLE REPLACEMENT

This task covers:

- a. Removal
- b. Installation

c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

- Spare tire lowered (TM 9-2320-365-10).
- Cab raised (TM 9-2320-365-10).
- Batteries disconnected (para 7-48).

Tools and Special Tools

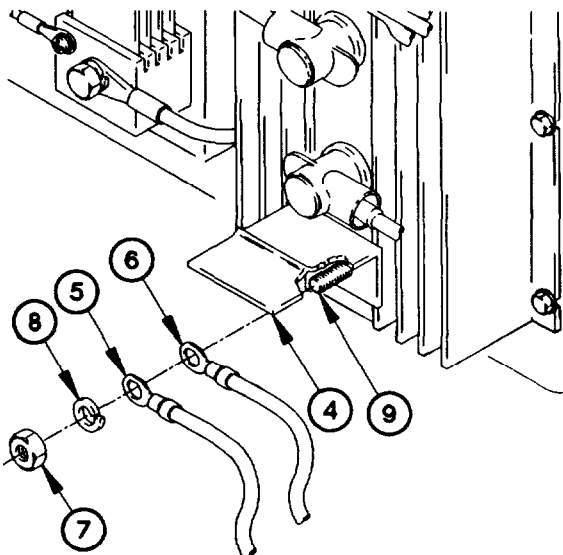
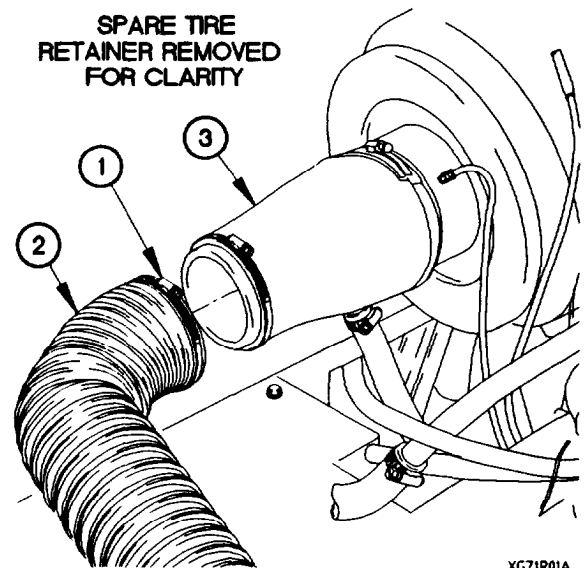
- Tool Kit, Genl Mech (Item 44, Appendix C)
- Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)
- Wrench, Torque, 0-200 lb-in. (Item 58, Appendix C)
- Socket Set, Socket Wrench (Item 34, Appendix C)

Materials/Parts

- Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)
- Ties, Cable, Plastic (Item 76, Appendix D)
- Lockwasher (Item 89, Appendix G)
- Nut, Self-Locking (Item 126, Appendix G)

a. Removal.

- (1) Loosen clamp (1) on turbocharger intake hose (2).
- (2) Remove turbocharger intake hose (2) from intake air cleaner boot (3).



- (3) Lift terminal cover (4) on terminal lugs TL47 (5) and TL61 (6).

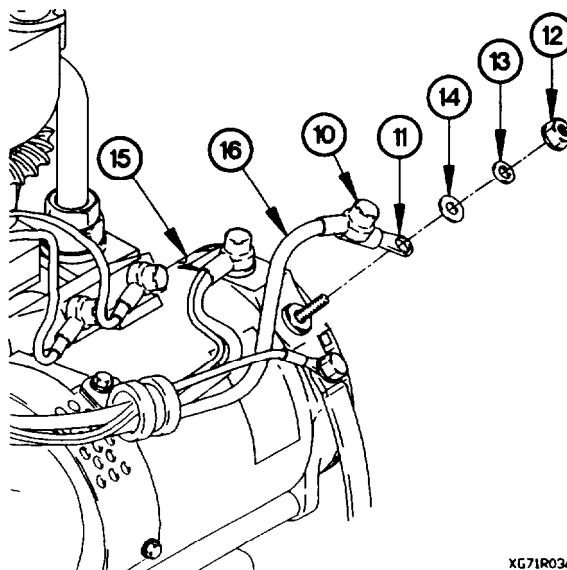
NOTE

Remove plastic cable ties as required.

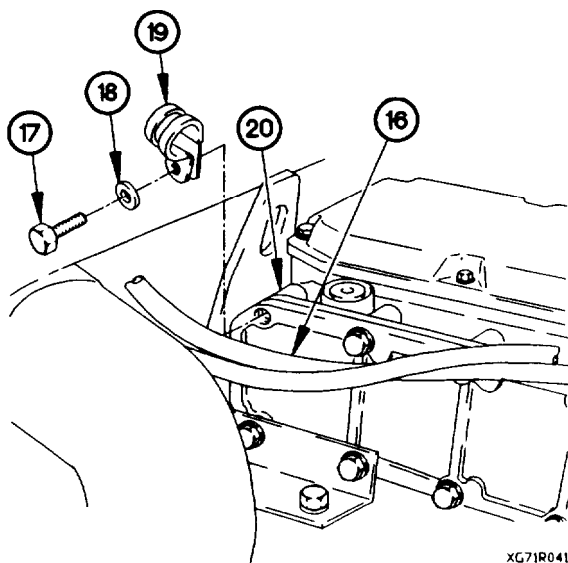
- (4) Remove nut (7), lockwasher (8), and terminal lugs TL47 (5) and TL61 (6) from reverse polarity relay 12 VDC LOAD terminal (9). Discard lockwasher.

7-65. 100 AMP ALTERNATOR TO REVERSE POLARITY RELAY 12 VDC CABLE REPLACEMENT (CONT)

- (5) Lift dust boot (10) on terminal lug TL60 (11).
- (6) Remove self-locking nut (12), washer (13), insulation washer (14), and terminal lug TL60 (11) from alternator (15). Discard self-locking nut.
- (7) Remove dust boot (10) from 100 amp alternator to reverse polarity relay 12 vdc cable (16).



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- (8) Remove three screws (17), washers (18), clamps (19), and 100 amp alternator to reverse polarity relay 12 vdc cable (16) from engine (20).
- (9) Remove three clamps (19) from 100 amp alternator to reverse polarity relay 12 vdc cable (16).

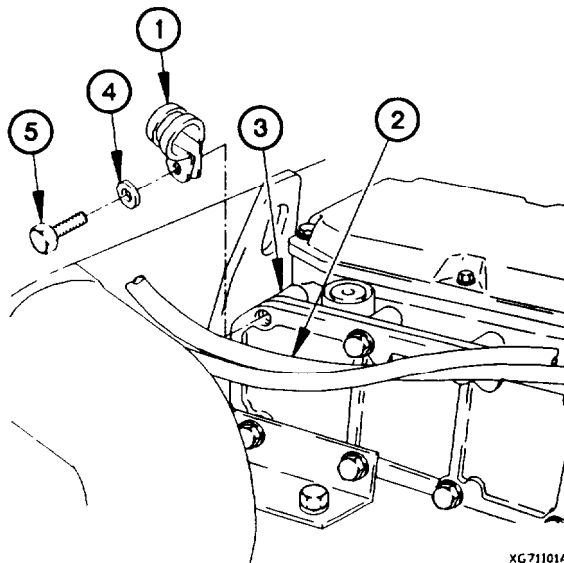
b. Installation.

- (1) Install three clamps (1) on 100 amp alternator to reverse polarity relay 12 vdc cable (2).

NOTE

Install plastic cable ties as required.

- (2) Position 100 amp alternator to reverse polarity relay 12 vdc cable (2) on engine (3) with three clamps (1), washers (4), and screws (5).
- (3) Tighten three screws (5) to 22-27 lb-ft (31-37 N•m).



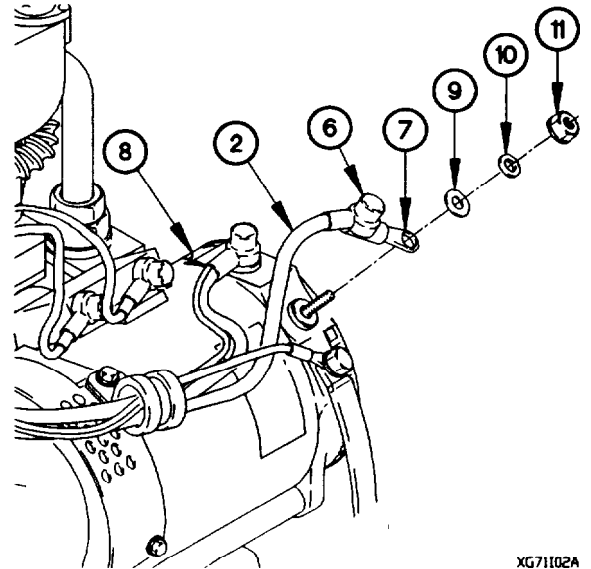
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- (4) Install dust boot (6) on 100 amp alternator to reverse polarity relay 12 vdc cable (2).

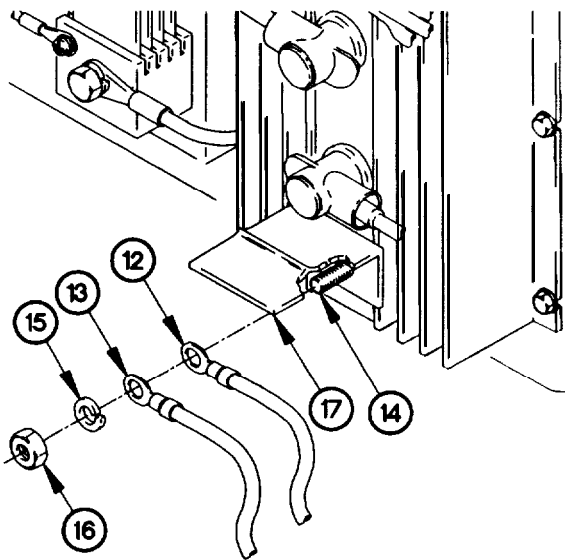
CAUTION

Insulation washer must be installed with flat side up. Failure to comply may result in damage to equipment.

- (5) Position terminal lug TL60 (7) on alternator (8) with insulator washer (9), washer (10) and self-locking nut (11).
- (6) Tighten self-locking nut (11) to 40 lb-in. (5 N•m).
- (7) Position dust boot (6) on terminal lug TL60 (7).



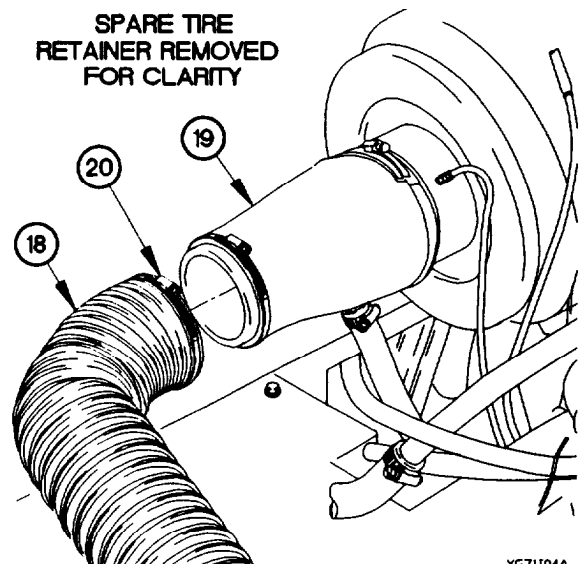
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- (8) Position terminal lugs TL61 (12) and TL47 (13) on reverse polarity relay 12 VDC LOAD terminal (14) with lockwasher (15) and nut (16).
- (9) Tighten nut (16) to 120-144 lb-in. (14-16 N•m).
- (10) Position terminal cover (17) on terminal lugs TL47 (13) and TL61 (12).

- (11) Position turbocharger intake hose (18) on intake air cleaner boot (19) with clamp (20).
- (12) Tighten clamp (20) to 36-48 lb-in. (4-5 N•m).



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**7-65. 100 AMP ALTERNATOR TO REVERSE POLARITY RELAY 12 VDC CABLE
REPLACEMENT (CONT)**

c. Follow-On Maintenance

- (1) Connect batteries (para 7-48).
- (2) Raise spare tire (TM 9-2320-365-10).
- (3) Start engine (TM 9-2320-365-10).
- (4) Check VOLTS gage for charge indication (TM 9-2320-365-10).
- (5) Shut down engine (TM 9-2320-365-10).

End of Task.

7-66. 100 AMP ALTERNATOR TO REVERSE POLARITY RELAY 24 VDC CABLE REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

- Spare tire lowered (TM 9-2320-365-10).
- Cab raised (TM 9-2320-365-10).
- Batteries disconnected (para 7-48).

Tools and Special Tools

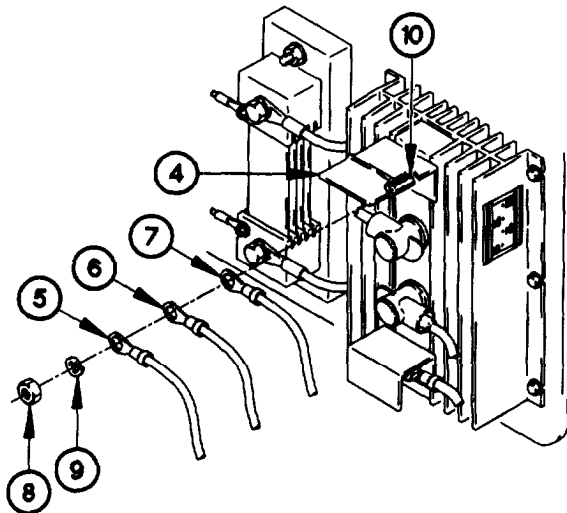
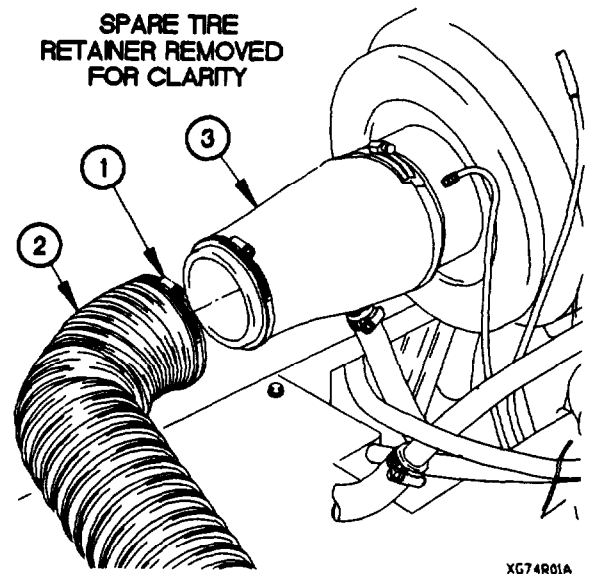
- Tool Kit, Genl Mech (Item 44, Appendix C)
- Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)
- Wrench, Torque, 0-200 lb-in. (Item 58, Appendix C)
- Socket Set, Socket Wrench (Item 34, Appendix C)

Materials/Parts

- Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)
- Ties, Cable, Plastic (Item 76, Appendix D)
- Lockwasher (Item 89, Appendix G)
- Nut, Self-Locking (Item 127, Appendix G)

a. Removal.

- (1) Loosen clamp (1) on turbocharger intake hose (2).
- (2) Remove turbocharger intake hose (2) from intake air cleaner boot (3).



- (3) Lift terminal cover (4) on terminal lugs TL1 (5), TL36 (6), and TL37 (7).

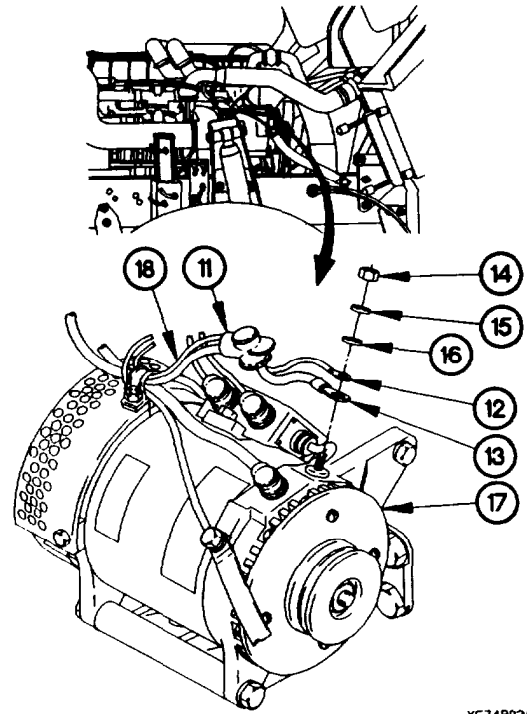
NOTE

Remove plastic cable ties as required.

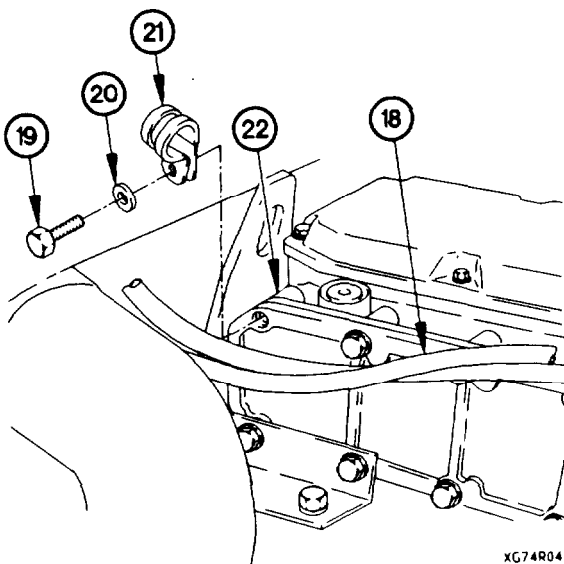
- (4) Remove nut (8), lockwasher (9), and terminal lugs TL1 (5), TL36 (6), and TL37 (7) from reverse polarity relay 24 VDC LOAD terminal (10). Discard lockwasher.

7-66. 100 AMP ALTERNATOR TO REVERSE POLARITY RELAY 24 VDC CABLE REPLACEMENT (CONT)

- (5) Lift dust boot (11) on terminal lugs TL2 (12) and TL6 (13).
- (6) Remove self-locking nut (14), washer (15), insulation washer (16), and terminal lugs TL2 (12) and TL6 (13) from alternator (17). Discard self-locking nut.
- (7) Remove 100 amp alternator to reverse polarity relay 24 vdc cable (18) from dust boot (11).



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- (8) Remove three screws (19), washers (20), clamps (21), and 100 amp alternator to reverse polarity relay 24 vdc cable (18) from engine (22).
- (9) Remove three clamps (21) from 100 amp alternator to reverse polarity relay 24 vdc cable (18).

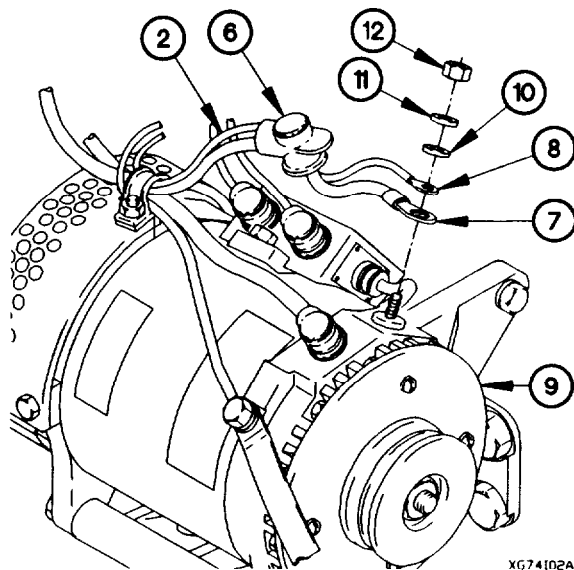
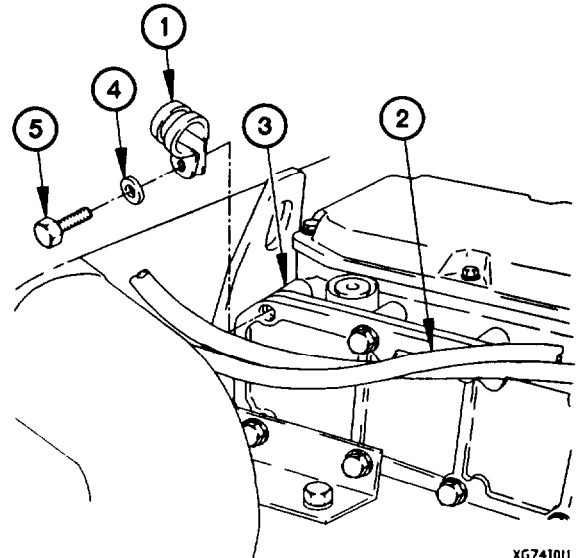
b. Installation.

- (1) Install three clamps (1) on 100 amp alternator to reverse polarity relay 24 vdc cable (2).

NOTE

Install plastic cable ties as required.

- (2) Position 100 amp alternator to reverse polarity relay 24 vdc cable (2) on engine (3) with three clamps (1), washers (4), and screws (5).
- (3) Tighten three screws (5) to 22-27 lb-ft (31-37 N•m).



- (4) Install 100 amp alternator to reverse polarity relay 24 vdc cable (2) in dust boot (8).

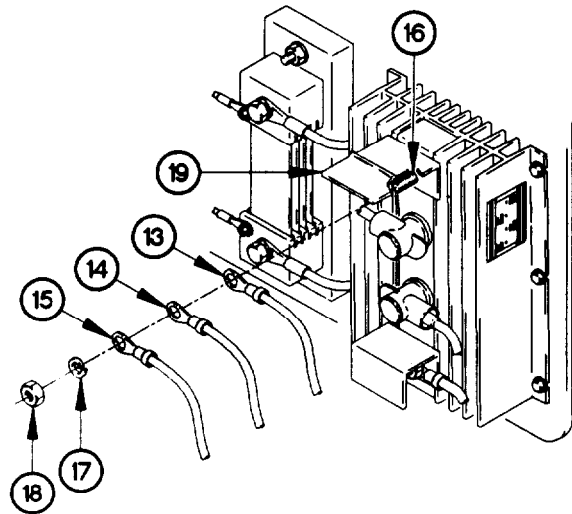
CAUTION

Insulation washer must be installed with flat side up. Failure to comply may result in damage to equipment.

- (5) Position terminal lugs TL8 (7) and TL2 (8) on alternator (9) with insulation washer (10), washer (11) and self-locking nut (12).
- (6) Tighten self-locking nut (12) to 40 lb-in. (5 N•m).
- (7) Position dust boot (6) on terminal lugs TL2 (8) and TL6 (7).

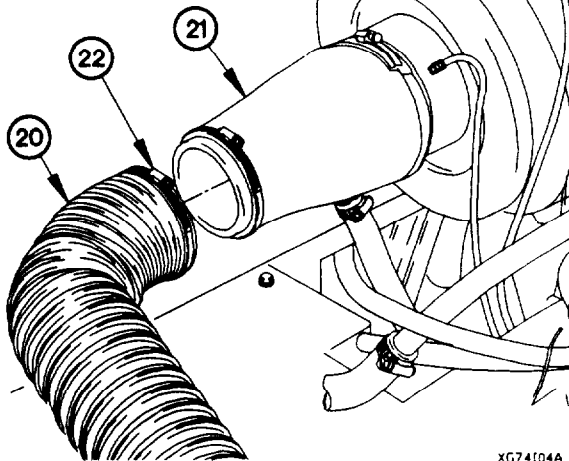
7-66. 100 AMP ALTERNATOR TO REVERSE POLARITY RELAY 24 VDC CABLE REPLACEMENT (CONT)

- (8) Position terminal lugs TL37 (13), TL38 (14), and TL1 (15) on reverse polarity relay 24 VDC LOAD terminal (16) with lockwasher (17) and nut (18).
- (9) Tighten nut (18) to 120-144 lb-in. (14-16 N•m).
- (10) Position dust boot (19) on terminal lugs TL1 (15), TL38 (14), and TL37 (13).



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**SPARE TIRE
RETAINER REMOVED
FOR CLARITY**



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- (11) Position turbocharger intake hose (20) on intake air cleaner boot (21) with clamp (22).
- (12) Tighten clamp (22) to 36-48 lb-in. (4-5 N•m).

c. Follow-On Maintenance

- (1) Connect batteries (para 7-48).
- (2) Raise spare tire (TM 9-2320-365-10).
- (3) Start engine (TM 9-2320-365-10).
- (4) Check VOLTS gage for charge indication (TM 9-2320-365-10).
- (5) Shut down engine (TM 9-2320-365-10).

End of Task.

7-67. BATTERY TO 100 AMP REVERSE POLARITY RELAY 12 VDC CABLE REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Spare tire lowered (TM 9-2320-385-10).
 Cab raised (TM 9-2320-385-10).
 Batteries disconnected (para 7-48).

Materials/Parts

Ties, Cable, Plastic (Item 78, Appendix D)
 Lockwasher (Item 89, Appendix G)

Tools and Special Tools

Tool Kit, Genl Mech (Item 44, Appendix C)
 Wrench, Torque, 0-200 lb-in. (Item 58, Appendix C)
 Socket Set, Socket Wrench (Item 34, Appendix C)

a. Removal.

- (1) Lift terminal cover (1) on terminal lugs TL61 (2) and TL47 (3).

NOTE

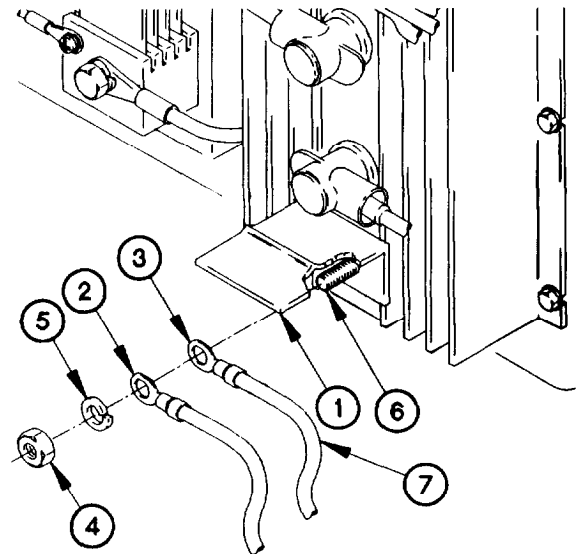
Remove plastic cable ties as required.

- (2) Remove nut (4), lockwasher (5) and terminal lugs TL81 (2) and TL47 (3) from 100 amp reverse polarity relay 12 VDC BAT terminal (6). Discard lockwasher.

NOTE

Note routing of 100 amp reverse polarity relay 12 vdc cable prior to removal.

- (3) Remove battery to 100 amp reverse polarity relay 12 vdc cable (7) from vehicle.



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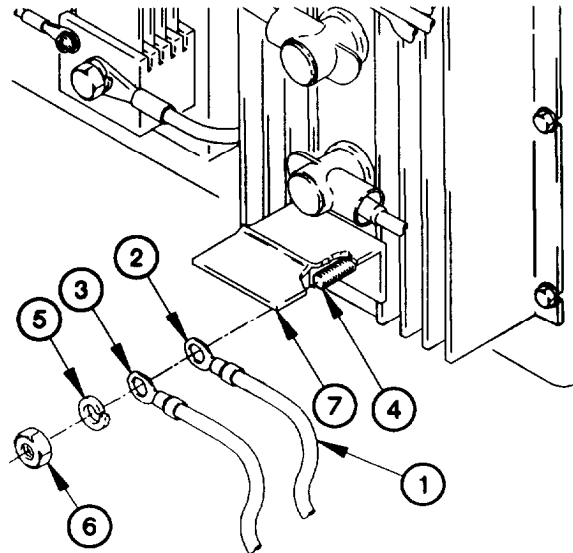
7-67. BATTERY TO 100 AMP REVERSE POLARITY RELAY 12 VDC CABLE REPLACEMENT (CONT)

b. Installation.

NOTE

Install plastic cable ties as required.

- (1) Position battery to 100 amp reverse polarity relay 12 vdc cable (1) on vehicle.
- (2) Position terminal lugs TL47 (2) and TL81 (3) on 100 amp reverse polarity relay 12 VDC BAT terminal (4) with lockwasher (5) and nut (6).
- (3) Tighten nut (6) to 120-144 lb-in. (14-16 N•m).
- (4) Position terminal cover (7) on terminal lugs TL47 (2) and TL61 (3).



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c. Follow-On Maintenance.

- (1) Raise spare tire (TM 9-2320-365-10).
- (2) Connect batteries (para 7-48).
- (3) Start engine (TM 9-2320-365-10).
- (4) Check VOLTS gage for charge indication (TM 9-2320-365-10).
- (5) Shut down engine (TM 9-2320-385-10).

End of Task.

7-68. BATTERY TO 100 AMP REVERSE POLARITY RELAY 24 VDC CABLE REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Spare tire lowered (TM 9-2320-365-10).
 Cab raised (TM 9-2320-365-10).
 Batteries disconnected (para 7-48).

Materials/Parts

Lockwasher (Item 89, Appendix G)

Tools and Special Tools

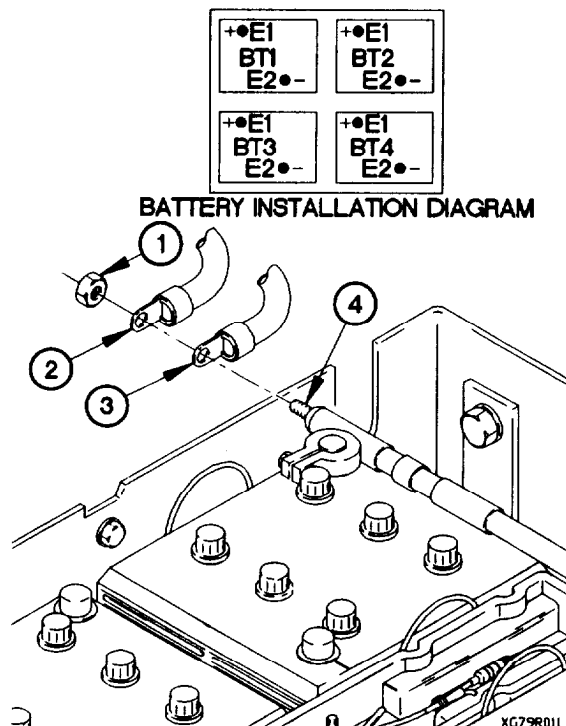
Tool Kit, Genl Mech (Item 44, Appendix C)
 Wrench, Torque, 0-200 lb-in. (Item 58, Appendix C)
 Socket Set, Socket Wrench (Item 35, Appendix C)

a. Removal.



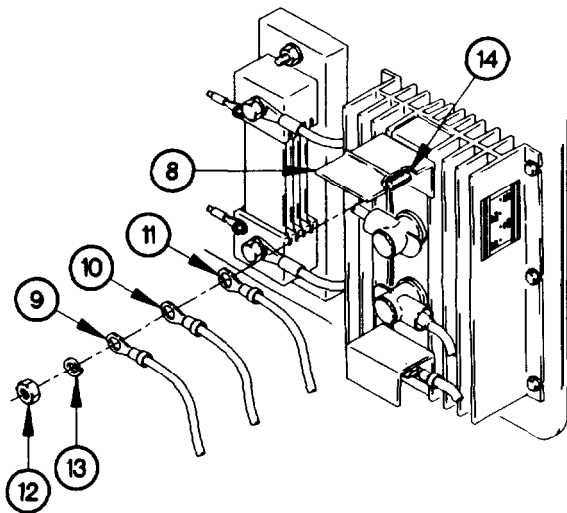
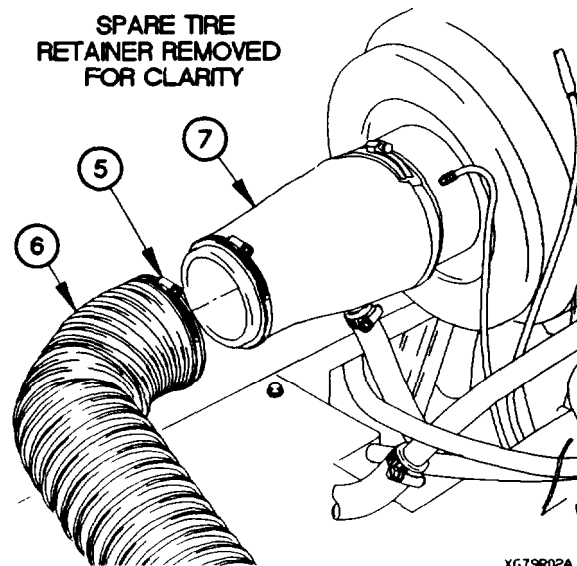
Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock. Batteries can explode from a spark. Battery acid is harmful to skin and eyes. Always wear eye protection when working with batteries. Failure to comply may result in injury to personnel.

- (1) Remove nut (1), and terminal lugs TL39 (2) and TL10 (3) from battery 24 vdc cable (4).



7-68. BATTERY TO 100 AMP REVERSE POLARITY RELAY 24 VDC CABLE REPLACEMENT (CONT)

- (2) Loosen clamp (5) on turbocharger intake hose (6).
- (3) Remove turbocharger intake hose (6) from intake air cleaner boot (7).

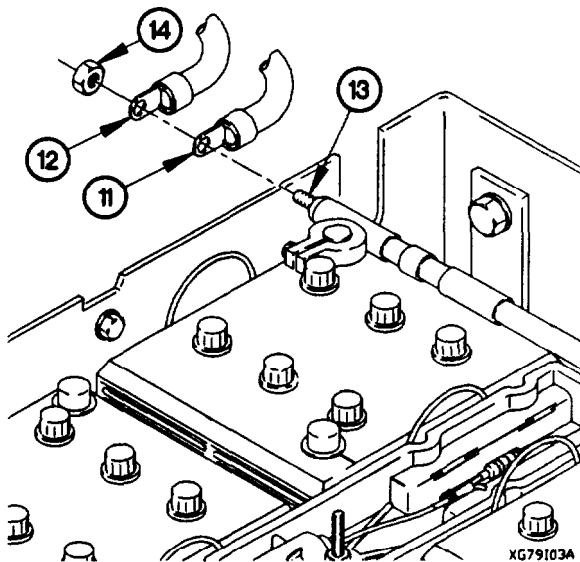
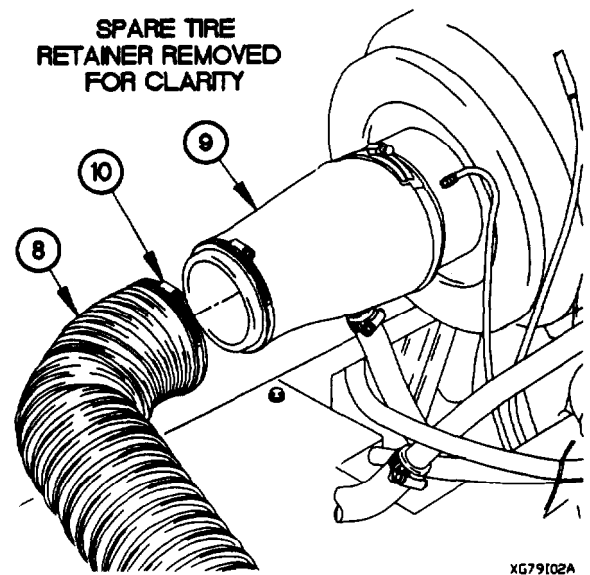


- (4) Lift terminal cover (8) on terminal lugs TL1 (9), TL36 (10), and battery to 100 amp reverse polarity relay 24 vdc cable terminal lug TL37 (11).
- (5) Remove nut (12), lockwasher (13), terminal lugs TL1 (9), TL36 (10), and battery to 100 amp reverse polarity relay 24 vdc cable terminal lug TL37 (11) from 100 amp reverse polarity relay 24 VDC BAT terminal (14). Discard lockwasher.

b. Installation.

- (1) Position battery to 100 amp reverse polarity relay 24 vdc cable terminal lug TL37 (1), and terminal lugs TL36 (2) and TL1 (3) on 100 amp reverse polarity relay 24 VDC BAT terminal (4) with lockwasher (5) and nut (6).
- (2) Tighten nut (6) to 120-144 lb-in. (14-16 N•m).
- (3) Position terminal cover (7) on terminal lugs TL1 (3), TL36 (2), and battery to 100 amp reverse polarity relay 24 vdc cable terminal lug TL37 (1).

- (4) Position turbocharger intake hose (8) on intake air cleaner boot (9) with clamp (10).
- (5) Tighten clamp (10) to 36-48 lb-in. (4-5 N•m).



- (8) Install terminal lugs TL10 (11) and TL39 (12) on battery 24 vdc cable (13) with nut (14).

c. Follow-On Maintenance.

- (1) Connect batteries (para 7-48).
- (2) Raise spare tire (TM 9-2320-365-10).
- (3) Start engine (TM 9-2320-365-10).
- (4) Check VOLTS gage for 24 vdc (TM 9-2320-365-10).
- (5) Shut down engine (TM 9-2320-365-10).

End of Task.

7-69. BATTERY TO SHUNT CABLE ASSEMBLY REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

- Spare tire lowered (TM 9-2320-365-10).
- Cab raised (TM 9-2320-365-10).
- Batteries disconnected (para 7-48).

Materials/Parts

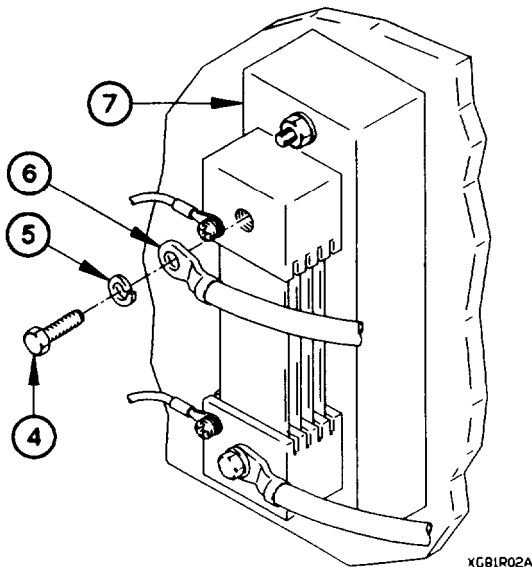
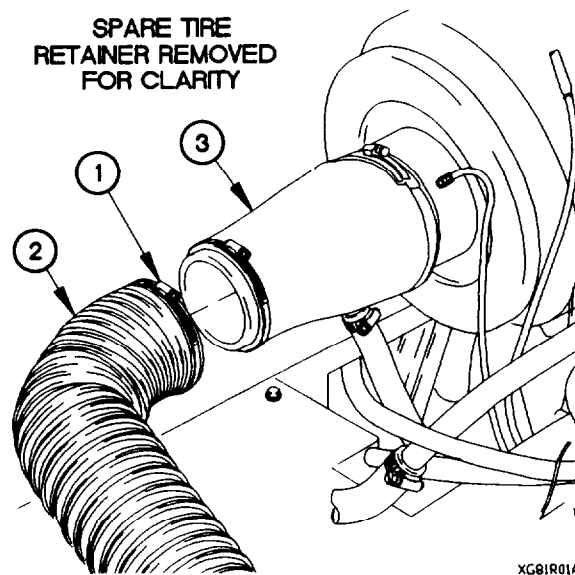
- Lockwasher (Item 75, Appendix G)

Tools and Special Tools

- Tool Kit, Genl Mech (Item 44, Appendix C)
- Wrench, Torque, 0-200 lb-in. (Item 58, Appendix C)
- Socket Set, Socket Wrench (Item 34, Appendix C)

a. Removal.

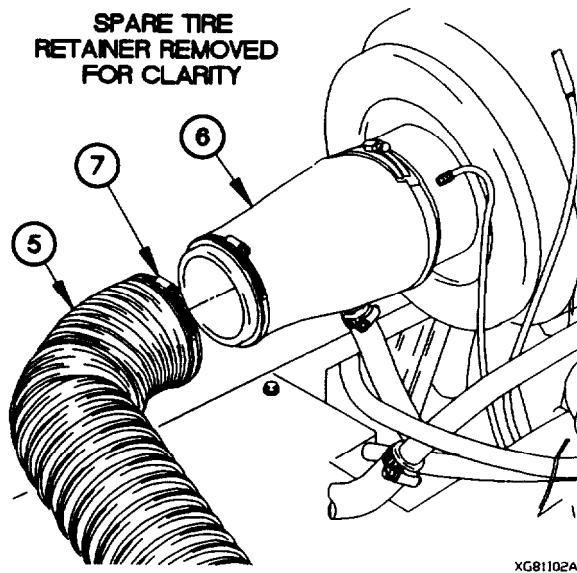
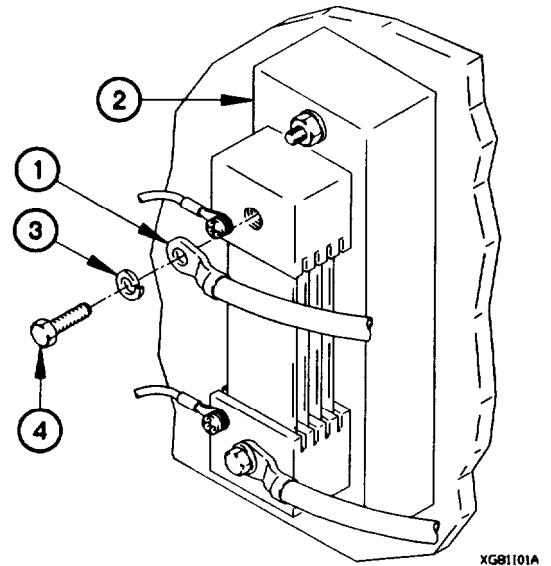
- (1) Loosen clamp (1) on turbocharger intake hose (2).
- (2) Remove turbocharger intake hose (2) from intake air cleaner boot (3).



- (3) Remove screw (4), lockwasher (5), and terminal lug TL52 (6) from shunt (7). Discard lockwasher.

b. Installation.

- (1) Install terminal lug TL52 (1) on shunt (2) with lockwasher (3) and screw (4).



- (2) Position turbocharger intake hose (5) on intake air cleaner boot (6) with clamp (7).
- (3) Tighten clamp (7) to 36-48 lb-in. (4-5 N•m).

c. Follow-On Maintenance

- (1) Connect batteries (para 7-48).
- (2) Raise spare tire (TM 9-2320-365-10).
- (3) Start engine (TM 9-2320-365-10).
- (4) Shut down engine (TM 9-2320-365-10).

End of Task.

7-70. BATTERY TO STARTER CABLE ASSEMBLY REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Batteries disconnected (para 7-48).
Cab raised (TM 9-2320-365-10).

Tools and Special Tools

Tool Kit, Genl Mech (Item 44, Appendix C)
Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)

Materials/Parts

Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)
Adhesive (Item 10, Appendix D)
Ties, Cable, Plastic (Item 76, Appendix D)
Nut, Self-Locking (2) (Item 134, Appendix G)

Personnel Required

(2)

a. Removal.

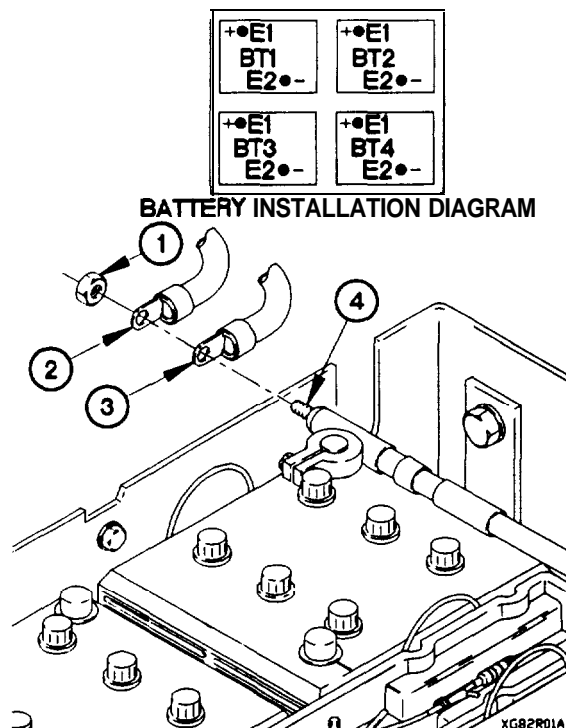
WARNING

Remove rings, bracelets, watches, necklaces, and any other jewelry before working around vehicle. Jewelry can catch on equipment and cause injury or short across electrical circuit and cause severe burns or electrical shock. Batteries can explode from a spark. Battery acid is harmful to skin and eyes. Always wear eye protection when working with batteries. Failure to comply may result in injury to personnel.

NOTE

- Note routing of battery to starter cable assembly prior to removal.
- Tag wires and connection points prior to disconnecting.

- (1) Remove nut (1), and terminal lugs TL39 (2) and TL10 (3) from battery 24 vdc cable (4).



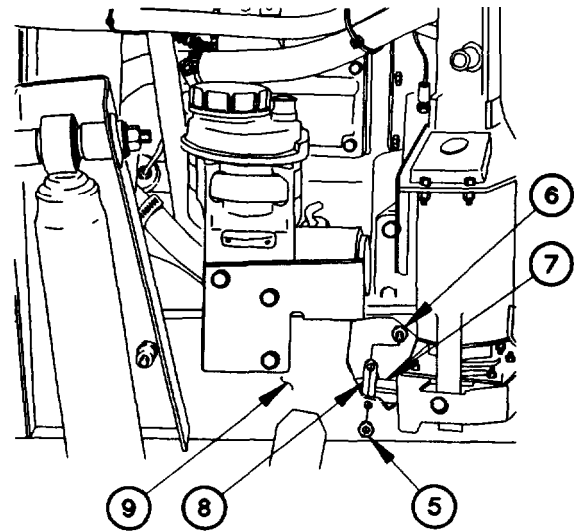
NOTE

- Both clamps are removed the same way. Only one shown.
 - Remove plastic cable ties as required.
- (2) Remove self-locking nut (5), screw (6), battery to starter cable assembly (7), and clamp (8) from frame rail (9). Discard self-locking nut.

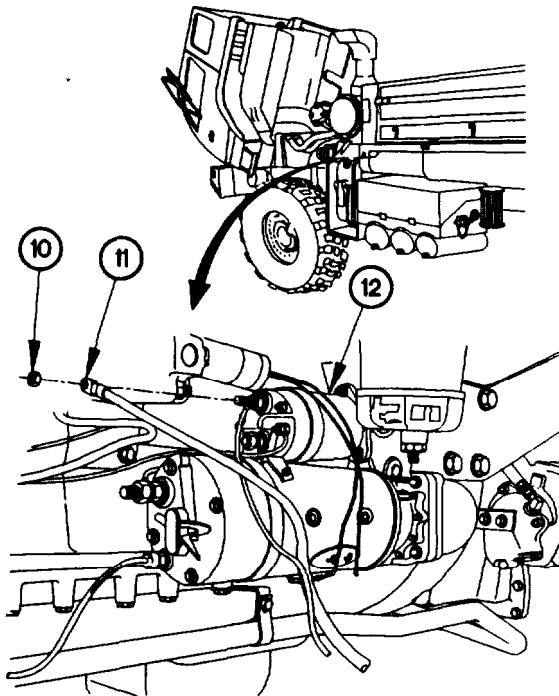
NOTE

Step (3) requires the aid of an assistant.

- (3) Perform step (2) on remaining clamp.
- (4) Remove two clamps (8) from battery to starter cable assembly (7).



XG82R02A



XG82R03A

- (5) Remove adhesive, nut (10), and terminal lug TL12 (11) from starter solenoid (12).

7-70. BATTERY TO STARTER CABLE ASSEMBLY REPLACEMENT (CONT)

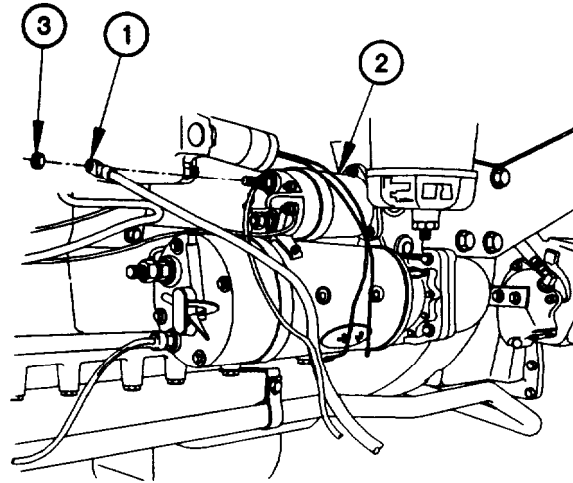
b. Installation.

- (1) Position terminal lug TL12 (1) on starter solenoid (2) with nut (3).
- (2) Tighten nut (3) to 15-20 lb-ft (20-27 N•m).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.

- (3) Apply adhesive to terminal lug TL12 (1) on starter solenoid (2).



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NOTE

Both clamps are installed the same way. Only one shown.

- (4) Install two clamps (4) on battery to starter cable assembly (5).

NOTE

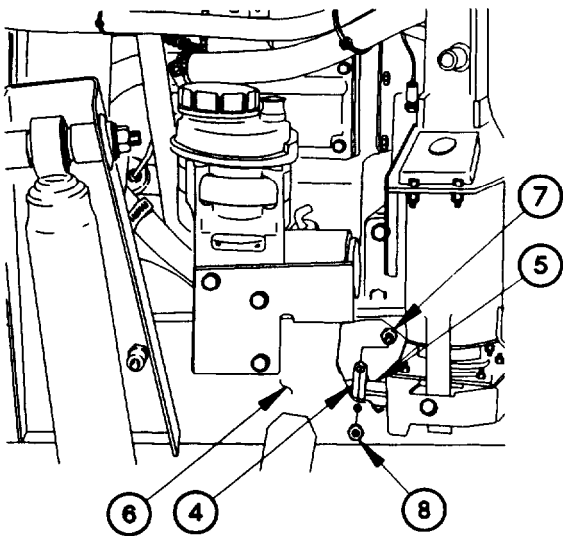
Install plastic cable ties as required.

- (5) Position battery to starter cable assembly (5) and clamp (4) on frame rail (6) with screw (7) and self-locking nut (8).

NOTE

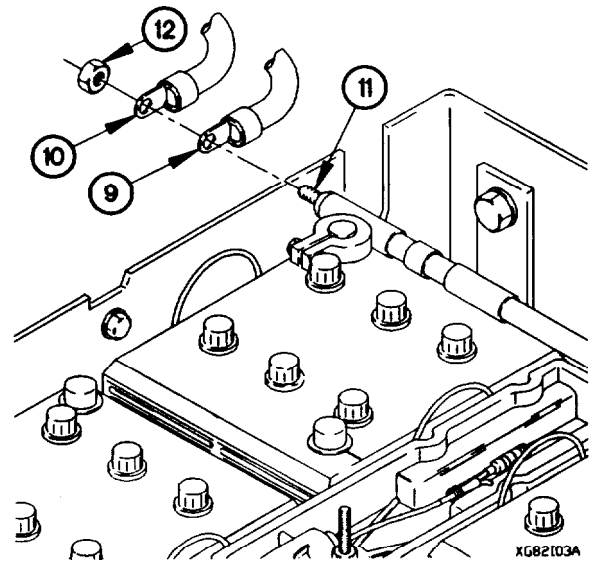
Steps (6) and (7) require the aid of an assistant.

- (6) Perform step (5) on remaining clamp.
- (7) Tighten two self-locking nuts (8) to 97-124 lb-in. (11-14 N•m).



XG92102A

- (6) Install terminal lugs TL10 (9) and TL39 (10) on battery 24 vdc cable (11) with nut (12).



c. Follow-On Maintenance

- (1) Lower cab (TM 9-2320-365-10).
- (2) Connect batteries (para 7-48).
- (3) Start engine (TM 9-2320-365-10).
- (4) Shut down engine (TM 9-2320-365-10).

End of Task.

7-71. CAB TO CHASSIS GROUND STRAP REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Batteries disconnected (para 7-48).

Tools and Special Tools

Tool Kit, Genl Mech (Item 44, Appendix C)

Materials/Parts

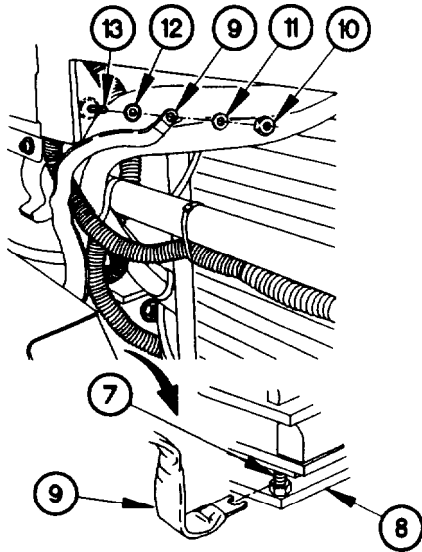
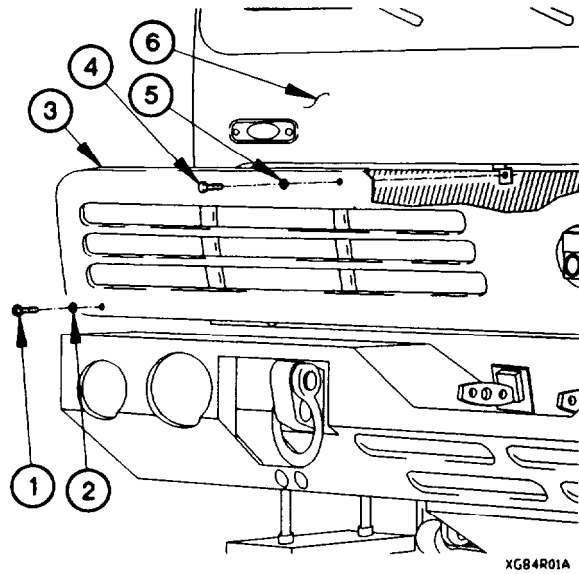
Ties, Cable, Plastic (Item 76, Appendix D)
 Nut, Self-Locking (Item 148, Appendix G)
 Lockwasher (Item 70, Appendix G)

a. Removal.

NOTE

Remove plastic cable ties as required.

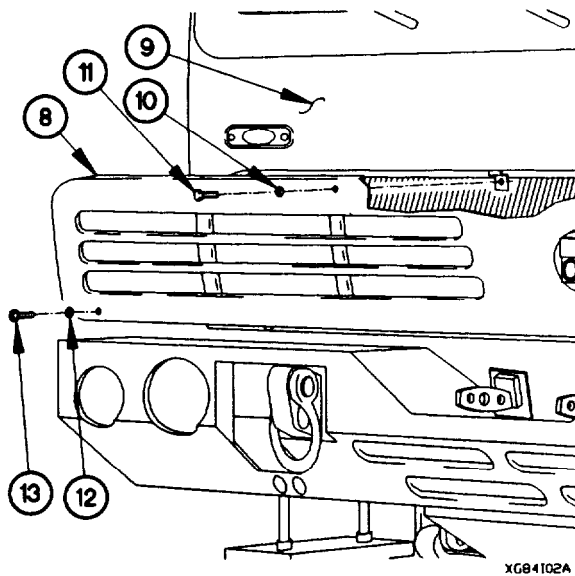
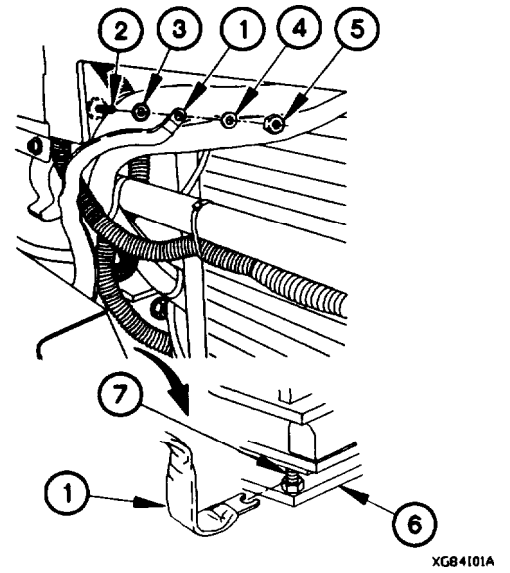
- (1) Remove two screws (1) and washers (2) from front grille (3).
- (2) Remove screw (4), washer (5), and front grille (3) from cab (6).



- (3) Loosen screw (7) in chassis (8) and remove cab to chassis ground cable (9).
- (4) Remove self-locking nut (10), washer (11), cab to chassis ground cable (9), and lockwasher (12) from stud (13). Discard self-locking nut and lockwasher.

b. Installation.

- (1) Install cab to chassis ground cable (1) on stud (2) with lockwasher (3), washer (4), and self-locking nut (5).
- (2) Install cab to chassis ground cable (1) on chassis (6) with screw (7).



- (3) Position front grille (8) on cab (9) with washer (10) and screw (11).
- (4) Position two washers (12) and screws (13) in front grille (8).
- (5) Tighten screw (11) to 48-60 lb-in. (5-7 N•m).
- (6) Tighten two screws (13) to 24 lb-in. (3 N•m).

c. Follow-On Maintenance

- (1) Connect batteries (para 7-48).
- (2) Start engine (TM 9-2320-365-10).
- (3) Check VOLTS gage for charge indication (TM 9-2320 365-10).
- (4) Shut down engine (TM 9-2320-365-10).

End of Task.

7-72. ENGINE CONTROL CABLE ASSEMBLY REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Batteries disconnected (para 7-48).
Instrument panel assembly removed for access (para 7-15).

Tools and Special Tools

Tool Kit, Genl Mech (Item 44, Appendix C)
Wrench, Torque, 0-200 lb-in. (Item 58, Appendix C)
Socket Set, Socket Wrench (Item 34, Appendix C)

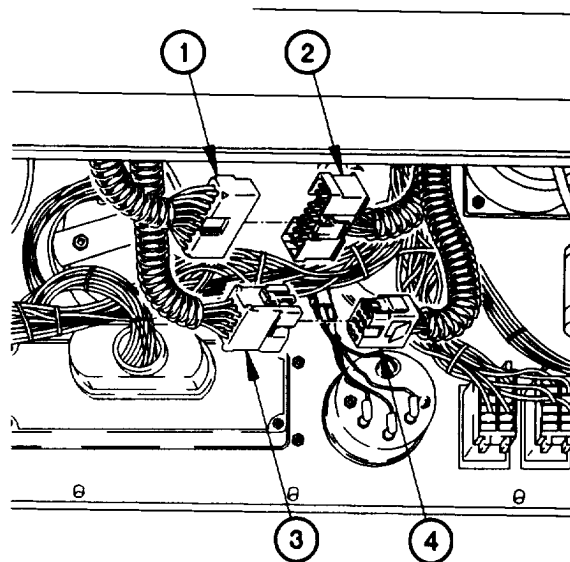
Materials/Parts

Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)
Ties, Cable, Plastic (Item 76, Appendix D)
Lockwasher (2) (Item 90, Appendix G)
Lockwasher (Item 98, Appendix G)
Nut, Self-Locking (2) (Item 130, Appendix G)
Nut, Self-Locking (Item 131, Appendix G)
Nut, Self-Locking (5) (Item 116, Appendix G)

NOTE

- Remove plastic cable ties as required.
- Note routing of engine control cable assembly prior to removal.
- Tag connectors and connection points prior to disconnecting.

- (1) Disconnect connector P31 (1) from connector J31 (2).
- (2) Disconnect connector P31X (3) from connector J31X (4).

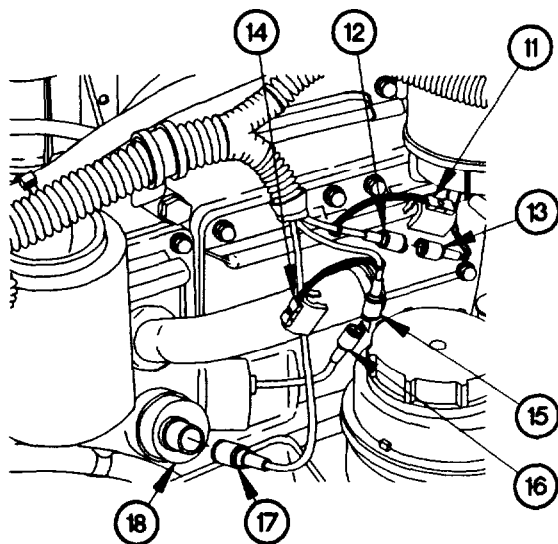
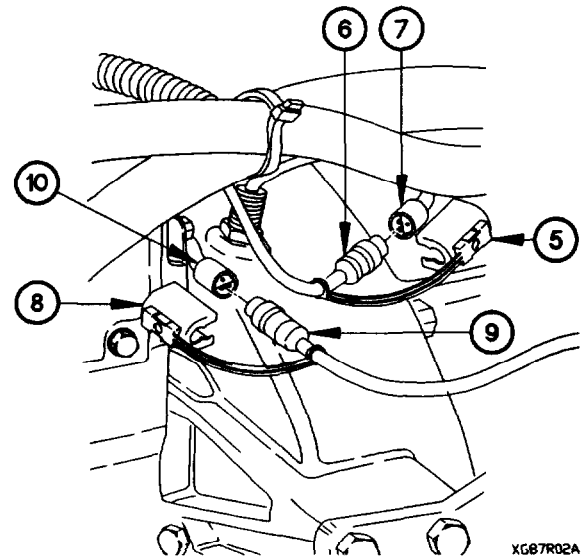


- (3) Raise cab (TM 9-2320-365-10).
- (4) Disconnect connector clamp (5) from connector P38 (6).
- (5) Disconnect connector P38 (6) from engine speed sensor connector J38 (7).

NOTE

Perform steps (6) and (7) on vehicles equipped with troopseats.

- (8) Disconnect connector clamp (8) from connector P39 (9).
- (7) Disconnect connector P39 (9) from connector J39 (10).

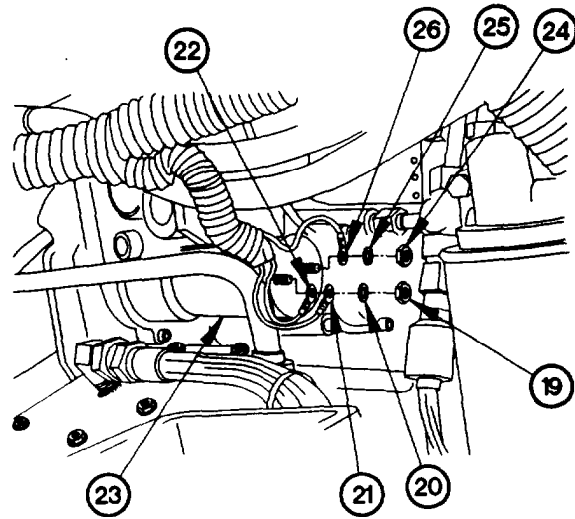


- (8) Disconnect connector clamp (11) from connector P33 (12).
- (9) Disconnect connector P33 (12) from fuel/water separator connector (13).
- (10) Disconnect connector clamp (14) from connector P34 (15).
- (11) Disconnect connector P34 (15) from oil pressure switch connector (16).
- (12) Disconnect connector P32 (17) from oil pressure transducer (18).

7-72. ENGINE CONTROL CABLE ASSEMBLY REPLACEMENT (CONT)

(13) Remove nut (19), lockwasher (20), and terminal lugs TL29 (21) and TL86 (22) from fuel shutoff solenoid (23). Discard lockwasher.

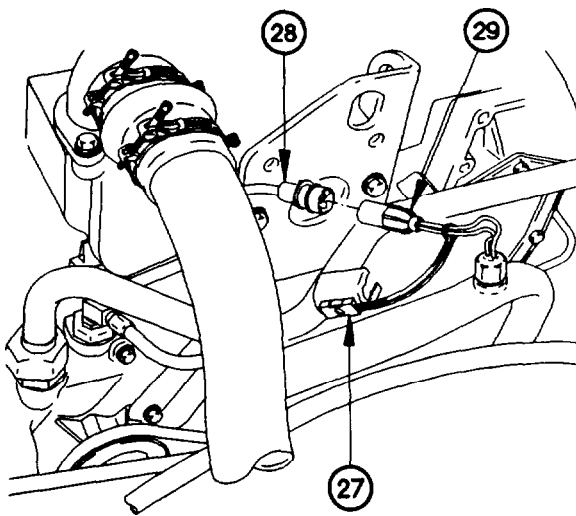
(14) Remove nut (24), lockwasher (25), and terminal lug TL28 (26) from fuel shutoff solenoid (23). Discard lockwasher.



XG87R04A

(15) Disconnect connector clamp (27) from connector P42 (28).

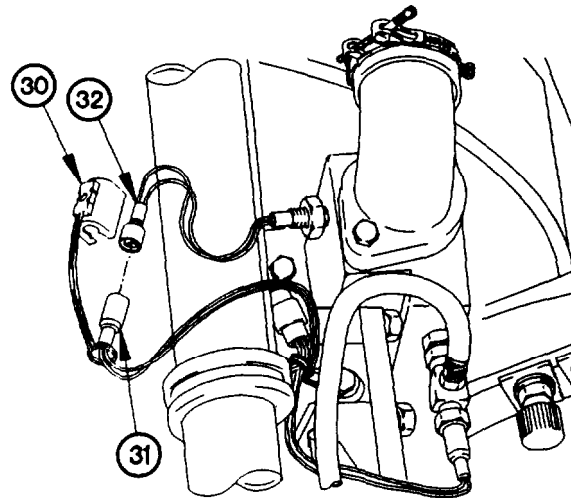
(16) Disconnect connector P42 (28) from ether sensor connector (29).



XG87R05A

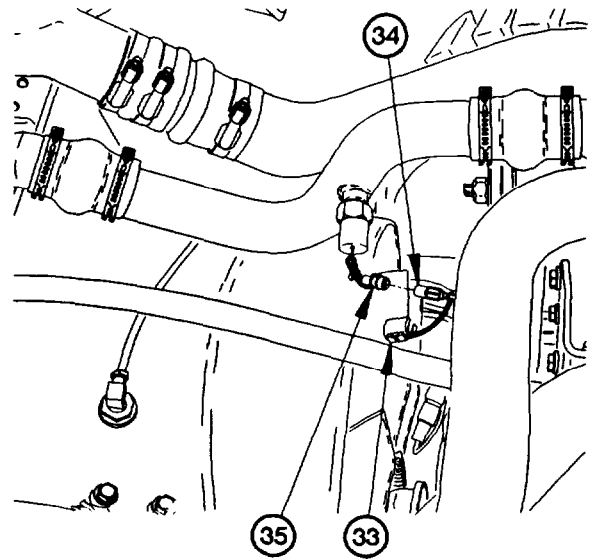
(17) Disconnect connector clamp (30) from connector P37 (31).

(18) Disconnect connector P37 (31) from coolant temperature light switch connector (32).

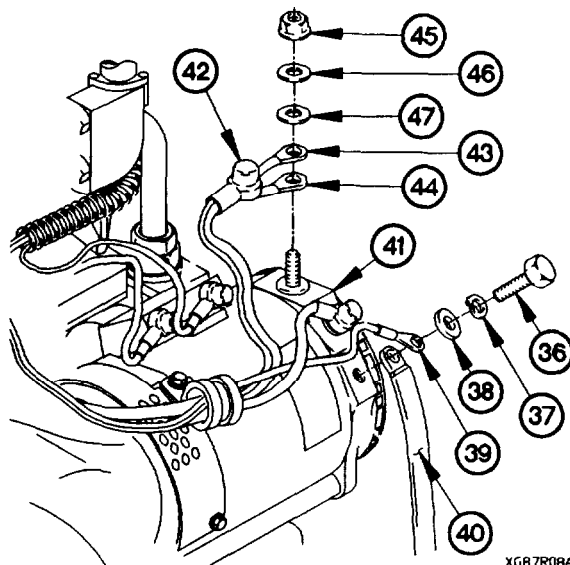


XG87R06A

- (19) Disconnect connector clamp (33) from connector P36 (34).
- (20) Disconnect connector P36 (34) from water temperature switch connector (35).



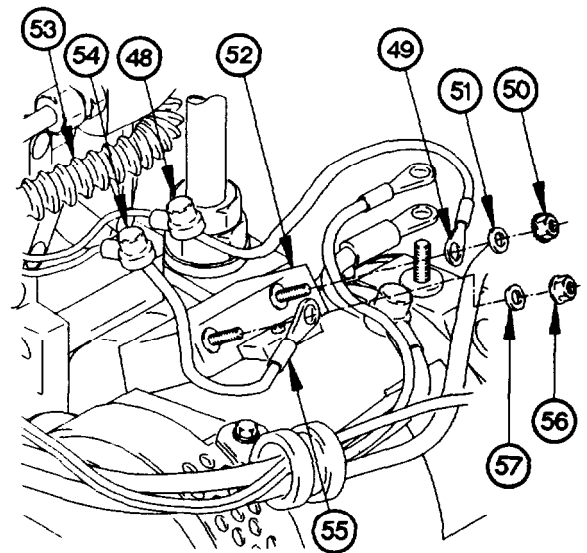
XG87R07A



XG87R08A

- (21) Remove screw (36), lockwasher (37), washer (38), terminal lugs TL5 (39) and TL8 (40) from alternator (41). Discard lockwasher.
- (22) Lift dust boot (42) on terminal lugs TL6 (43) and TL2 (44).
- (23) Remove self-locking nut (45), washer (46), insulation washer (47), and terminal lugs TL6 (43) and TL2 (44) from alternator (41). Discard self-locking nut.
- (24) Remove terminal lug TL6 (43) from dust boot (42).

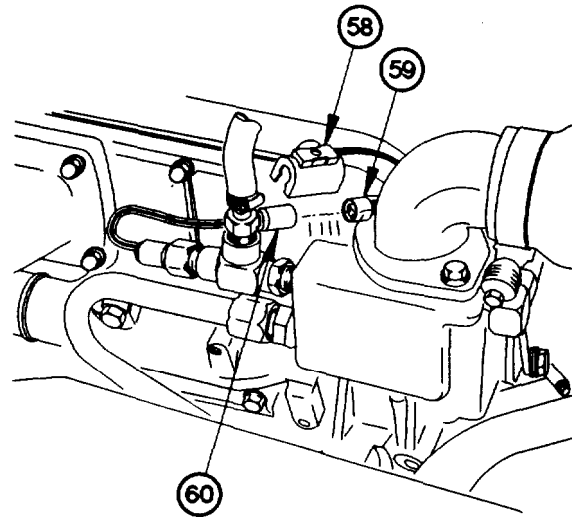
- (25) Lift dust boot (48) on terminal lug TL35 (49).
- (26) Remove self-locking nut (50), washer (51), and terminal lug TL35 (49) from voltage regulator (52). Discard self-locking nut.
- (27) Remove dust boot (48) from engine control cable assembly (53).
- (28) Lift dust boot (54) on terminal lug TL110 (55).
- (29) Remove self-locking nut (56), washer (57), and terminal lug TL110 (55) from voltage regulator (52). Discard self-locking nut.
- (30) Remove dust boot (54) from engine control cable assembly (53).



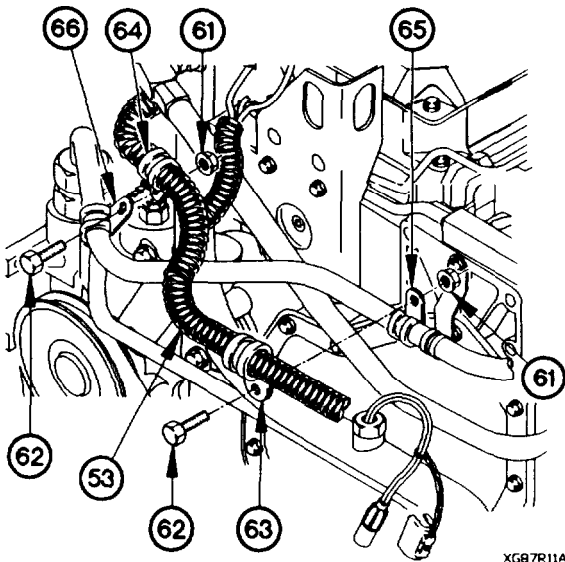
XG87R09A

7-72. ENGINE CONTROL CABLE ASSEMBLY REPLACEMENT (CONT)

- (31) Disconnect connector clamp (58) from connector P41 (59).
- (32) Disconnect connector P41 (59) from coolant temperature gage sensor connector (60).



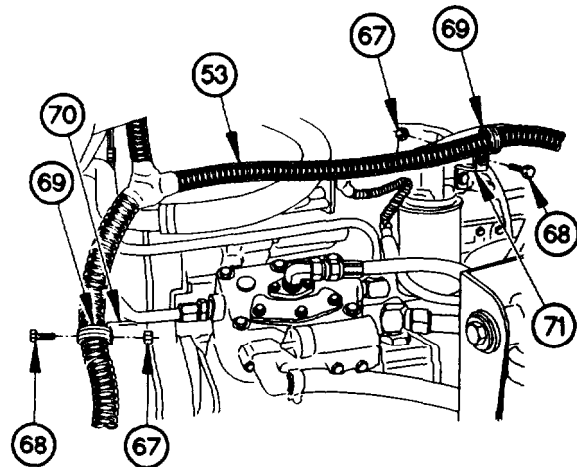
XG87R10A



XG87R11A

- (33) Remove two self-locking nuts (61), screws (62), and clamps (63 and 64) from clamps (65 and 66). Discard self-locking nuts.
- (34) Remove clamps (63 and 64) from engine control cable assembly (53).

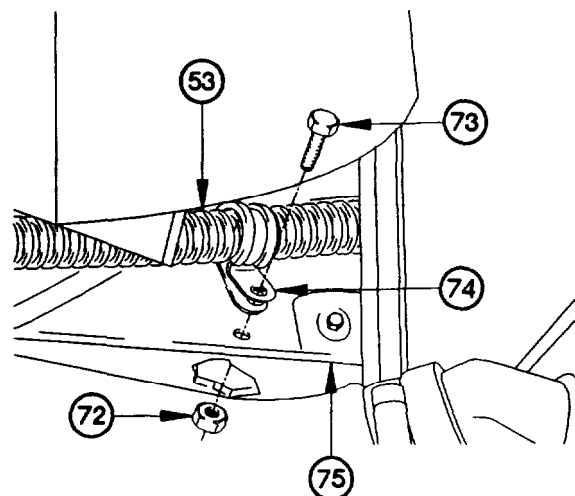
- (35) Remove two self-locking nuts (67), screws (68), and clamps (69) from brackets (70 and 71). Discard self-locking nuts.
- (36) Remove two clamps (69) from engine control cable assembly (53).



XG87R121

- (37) Remove self-locking nut (72), screw (73), and clamp (74) from left frame rail (75).
- (38) Remove clamp (74) from engine control cable assembly (53).
- (39) Remove engine control cable assembly (53) from vehicle.

b. Installation.

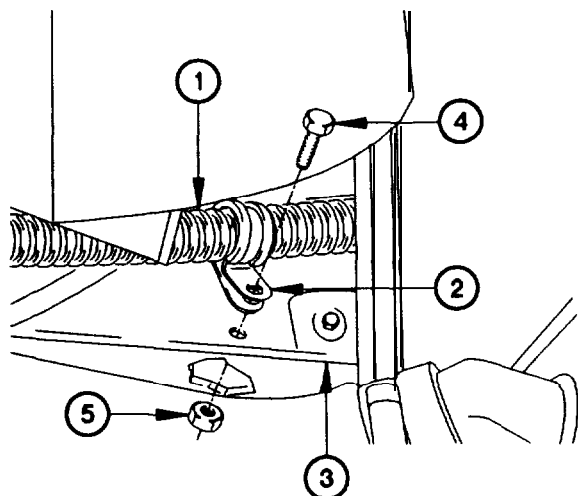


XG87R131

NOTE

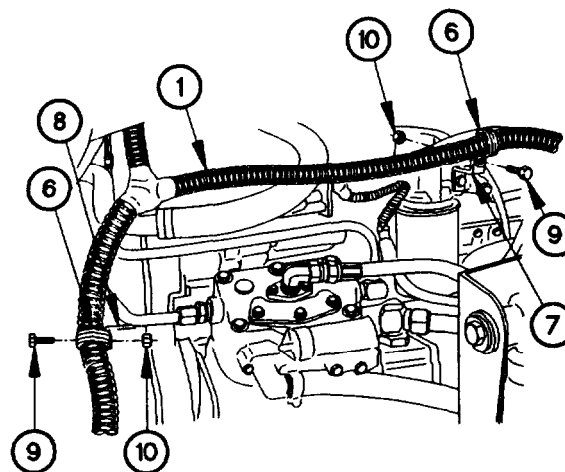
Install plastic cable ties as required.

- (1) Position engine control cable assembly (1) in vehicle.
- (2) Install clamp (2) on engine control cable assembly (1).
- (3) Install clamp (2) on left frame rail (3) with screw (4) and self-locking nut (5).



XG87101A

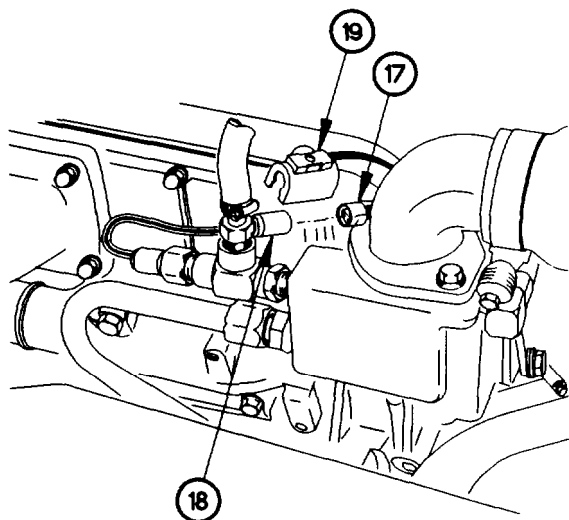
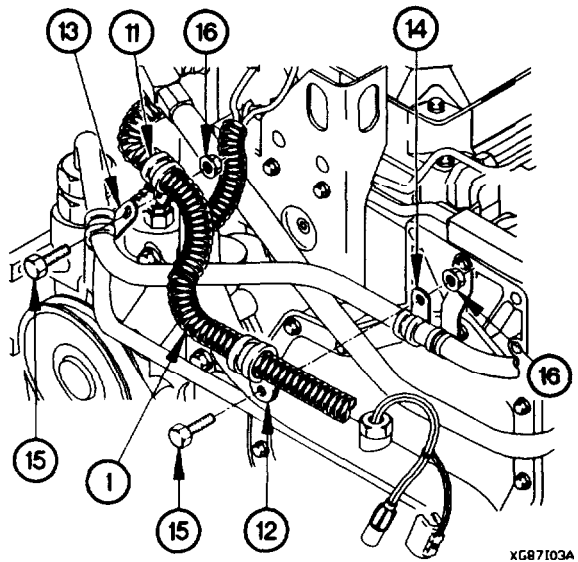
- (4) Install two clamps (6) on engine control cable assembly (1).
- (5) Install two clamps (6) on brackets (7 and 8) with two screws (9) and self-locking nuts (10).



XG87102A

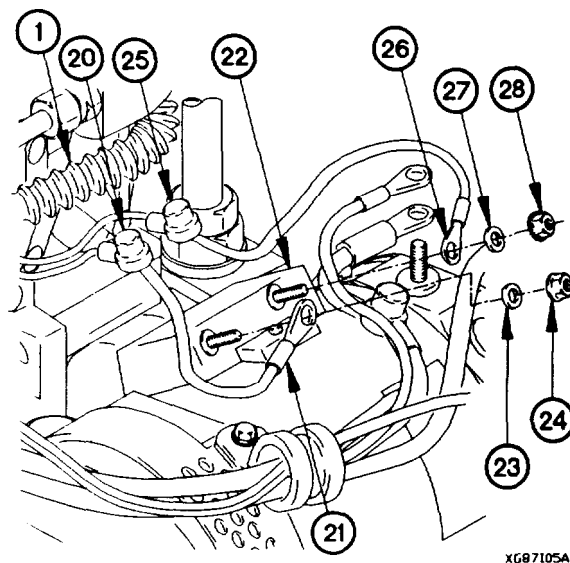
7-72. ENGINE CONTROL CABLE ASSEMBLY REPLACEMENT (CONT)

- (6) Install clamps (11 and 12) on engine control cable assembly (1).
- (7) Install clamps (11 and 12) on clamps (13 and 14) with two screws (15) and self-locking nuts (16).



- (8) Connect connector P41 (17) to coolant temperature gage sensor connector (18).
- (9) Connect connector clamp (19) on connector P41 (17).

- (10) Install dust boot (20) on engine control cable assembly (1).
- (11) Position terminal lug TL110 (21) on voltage regulator (22) with washer (23) and self-locking nut (24).
- (12) Tighten self-locking nut (24) to 25 lb-in. (3 N•m).
- (13) Position dust boot (20) on terminal lug TL110 (21).
- (14) Install dust boot (25) on engine control cable assembly (1).
- (15) Position terminal lug TL35 (26) on voltage regulator (22) with washer (27) and self-locking nut (28).
- (18) Tighten self-locking nut (28) to 25 lb-in. (3 N•m).
- (17) Position dust boot (25) on terminal lug TL35 (26).



(18) Install terminal lug TL6 (29) in dust boot (30).

CAUTION

Insulation washer must be installed with flat side up. Failure to comply may result in damage to equipment.

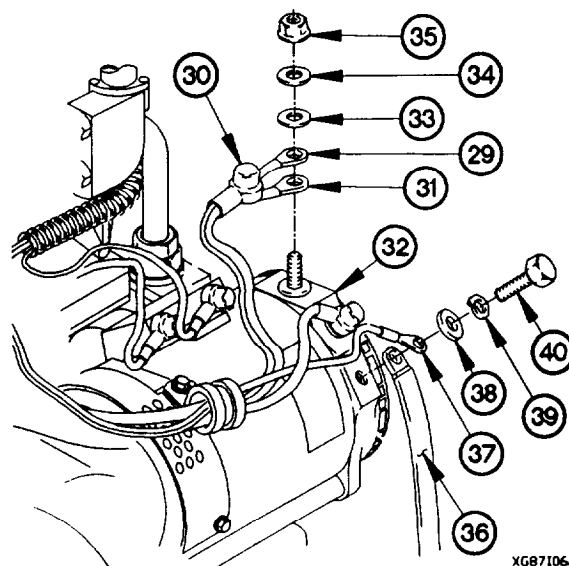
(19) Position terminal lugs TL2 (31) and TL6 (29) on alternator (32) with insulation washer (33), washer (34), and self-locking nut (35).

(20) Tighten self-locking nut (35) to 40 lb-in. (5 N•m).

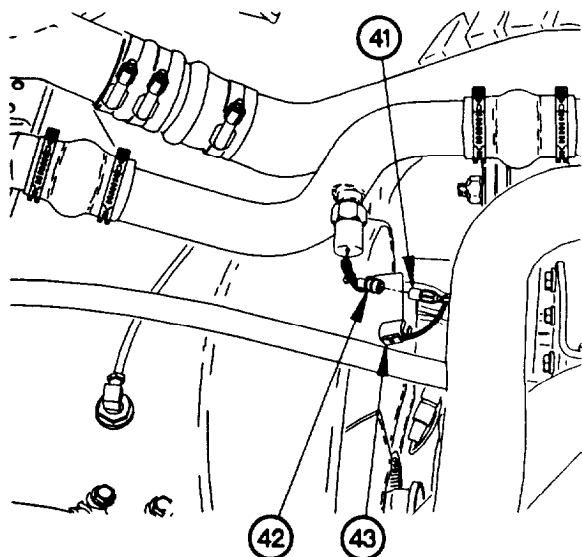
(21) Position dust boot (30) on terminal lugs TL6 (29) and TL2 (31).

(22) Position terminal lugs TL8 (36) and TL5 (37) on alternator (32) with washer (38), lockwasher (39), and screw (40).

(23) Tighten screw (40) to 40 lb-in. (5 N•m).



XG87106A



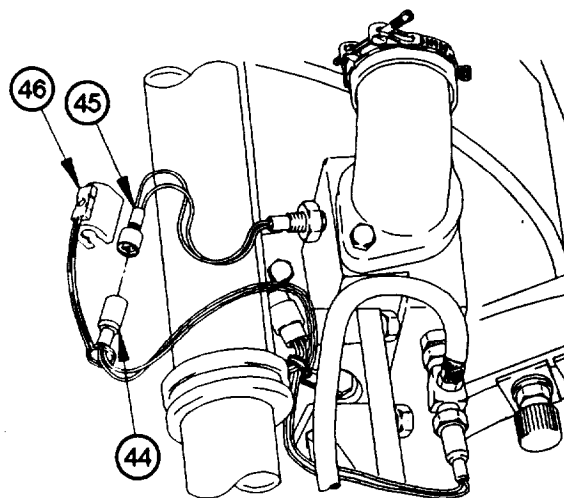
XG87107A

(24) Connect connector P36 (41) to water temperature switch connector (42).

(25) Connect connector clamp (43) on connector P36 (41).

(26) Connect connector P37 (44) to coolant temperature light switch connector (45).

(27) Connect connector clamp (46) on connector P37 (44).

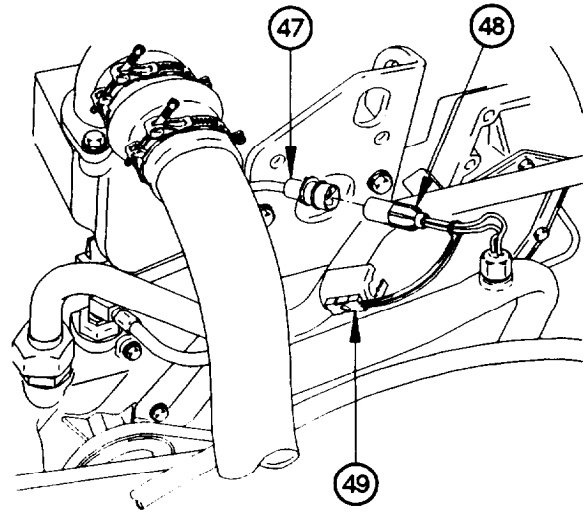


XG87108A

7-72. ENGINE CONTROL CABLE ASSEMBLY REPLACEMENT (CONT)

(28) Connect connector P42 (47) to ether sensor connector (48).

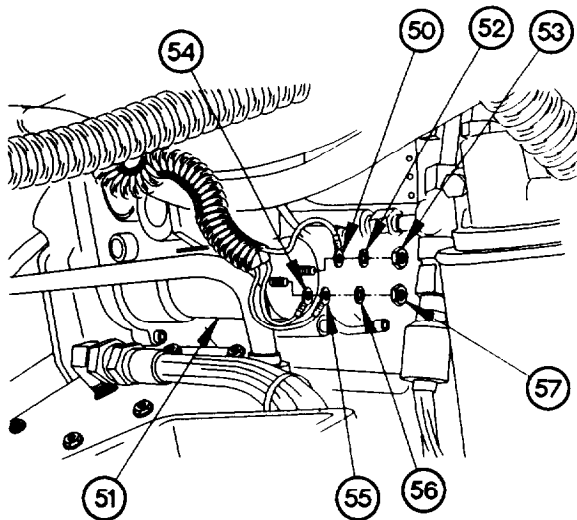
(29) Connect connector clamp (49) on connector P42 (47).



XG87109A

(30) Install terminal lug TL28 (50) on fuel shutoff solenoid (51) with lockwasher (52) and nut (53).

(31) Install terminal lugs TL66 (54) and TL29 (55) on fuel shutoff solenoid (51) with lockwasher (56) and nut (57).



XG871101

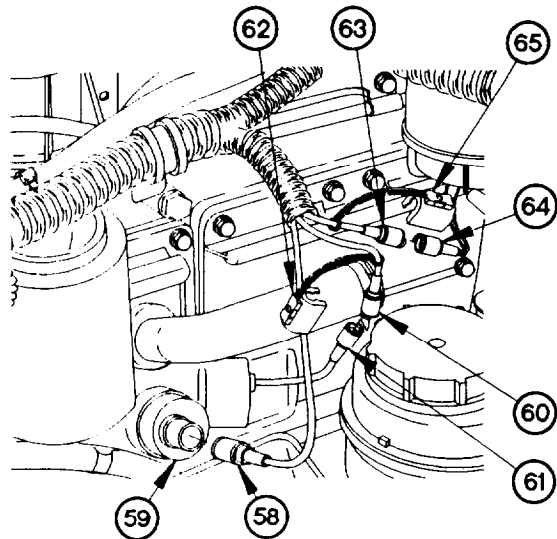
(32) Connect connector P32 (58) to oil pressure transducer (59).

(33) Connect connector P34 (60) to oil pressure light switch connector (61).

(34) Connect connector clamp (62) on connector P34 (60).

(35) Connect connector P33 (63) to fuel/water separator connector (64).

(36) Connect connector clamp (65) on connector P33 (63).



XG871111

(37) Connect connector P38 (66) to engine speed sensor connector J38 (67).

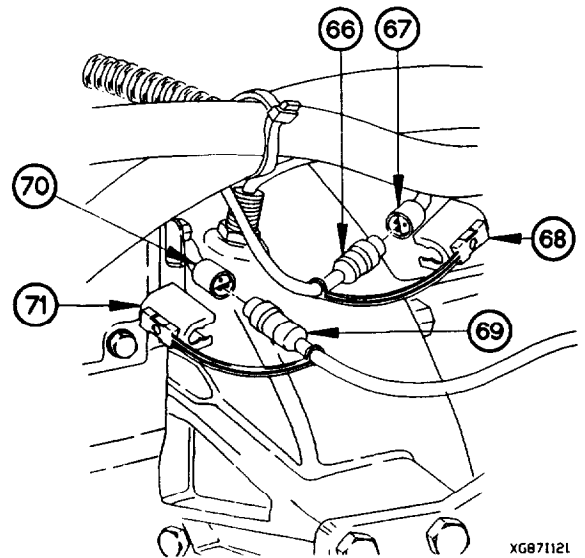
(38) Connect connector clamp (68) on connector P38 (66).

NOTE

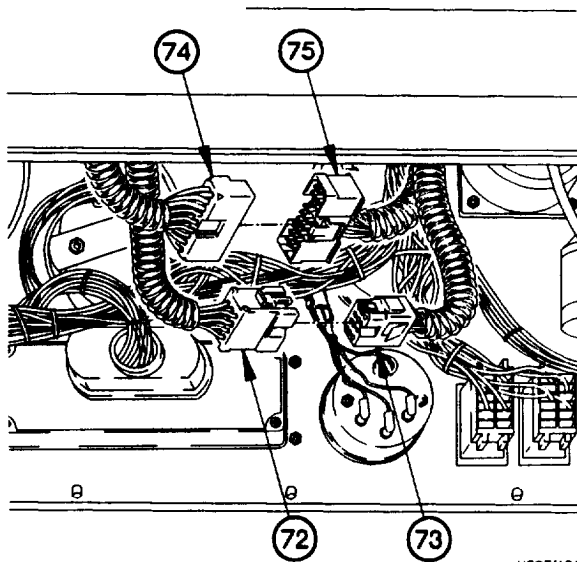
Perform steps (39) and (40) on vehicles equipped with troopseats.

(39) Connect connector P39 (69) to connector J39 (70).

(40) Connect connector clamp (71) on connector P39 (69).



XG871121



XG87113A

(41) Lower cab (TM 9-2320-365-10).

(42) Connect connector P31X (72) to connector J31X (73).

(43) Connect connector P31 (74) to connector J31 (75).

c. Follow-On Maintenance.

- (1) Install instrument panel assembly (para 7-15).
- (2) Connect batteries (para 7-48).
- (3) Start engine (TM 9-2320-365-10).
- (4) Check VOLTS gage for charge indication (TM 9-2320-365-10).
- (5) Shut down engine (TM 9-2320-365-10).

End of Task.

7-73. FRONT INTERVEHICULAR 12 VDC (7 Pin) CABLE REPLACEMENT

This task covers:

- a. Removal b. Installation

INITIAL SETUP

Equipment Conditions

Batteries disconnected (para 7-48).

Tools and Special Tools

Goggles, Industrial (Item 15, Appendix C)
 Tool Kit, Genl Mech (Item 44, Appendix C)

Materials/Parts

Ties, Cable, Plastic (Item 76, Appendix D)
 Nut, Self-Locking (2) (Item 116, Appendix G)

WARNING

Wear appropriate eye protection when working under vehicle due to the possibility of falling debris. Failure to comply may result in injury to personnel.

a. Removal.

NOTE

Remove plastic cable ties as required.

- (1) Disconnect connector J32 (1) from connector P52F (2).
- (2) Remove two self-locking nuts (3), washers (4), screws (5), and front intervehicular 12vdc cable (6) from vehicle. Discard self-locking nuts.

b. Installation.

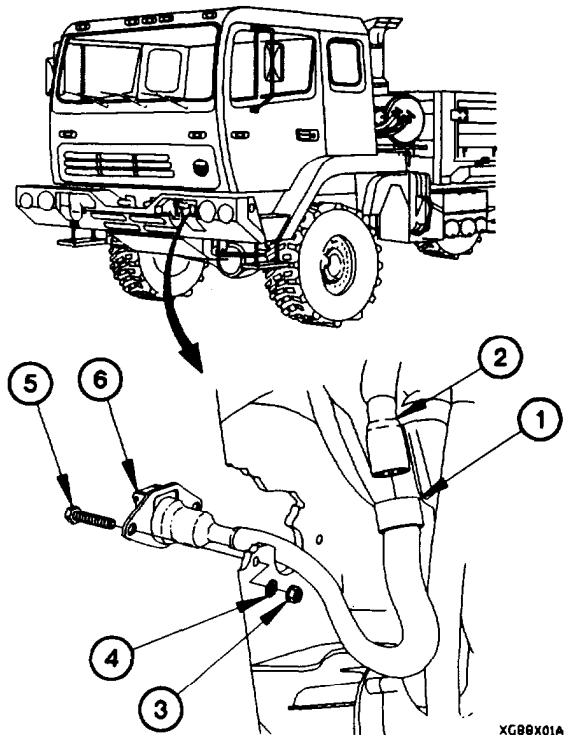
- (1) Install front intervehicular 12vdc cable (6) on vehicle with two screws (5), washers (4), and self-locking nuts (3).

NOTE

Install plastic cable ties as required.

- (2) Connect connector J32 (1) to connector P52F (2).

End of Task.



XG98X01A

7-74. FRONT LIGHTS CABLE ASSEMBLY REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

- Batteries disconnected (para 7-48).
- PDP cover removed (para 16-2).

Tools and Special Tools

- Tool Kit, Genl Mech (Item 44, Appendix C)
- Wrench, Torque, 0-200 lb-in. (Item 58, Appendix C)
- Socket Set, Socket Wrench (Item 34, Appendix C)
- Wrench, Torque, 0-75 lb-in. (Item 86, Appendix B)

Materials/Parts

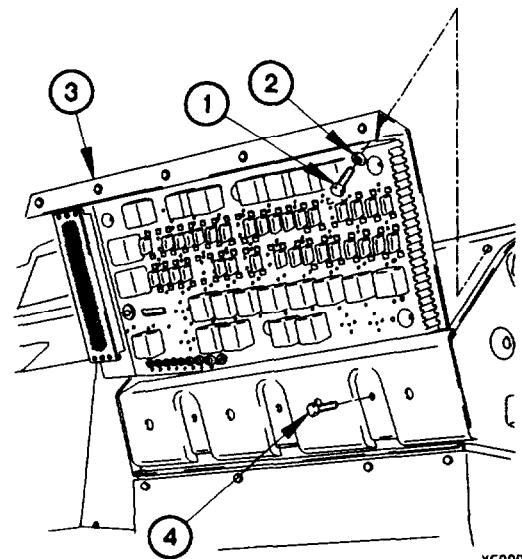
- Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)
- Ties, Cable, Plastic (Item 76, Appendix D)
- Adhesive (Item 10, Appendix D)
- Lockwasher (3) (Item 92, Appendix G)
- Lockwasher (2) (Item 90, Appendix G)

a. Removal.

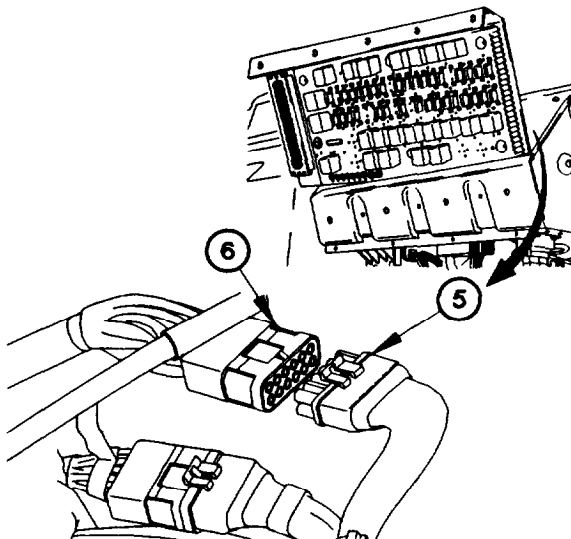
NOTE

- Remove plastic cable ties as required.
- Tag wires and connection points prior to disconnecting.

- (1) Remove three screws (1) and washers (2) from PDP (3).
- (2) Remove three screws (4) from PDP (3).
- (3) Lift PDP (3) outward to gain access.



XG99R01A

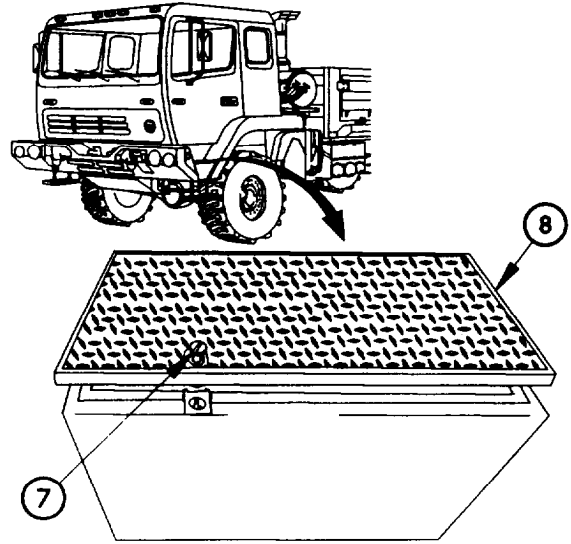


XG99R02A

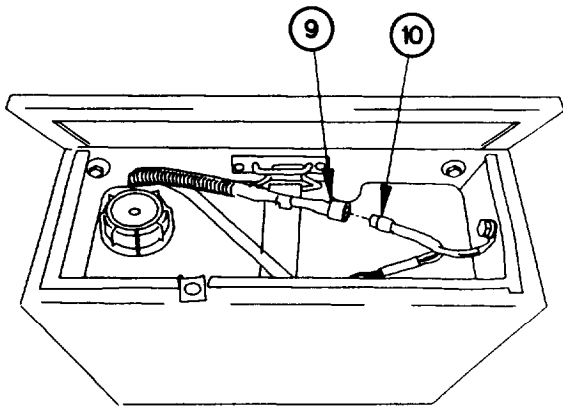
- (4) Disconnect connector P27 (5) from connector J27 (6).

7-74. FRONT LIGHTS CABLE ASSEMBLY REPLACEMENT (CONT)

(5) Loosen screw (7) and open cab step tread (8).



XG89R03A



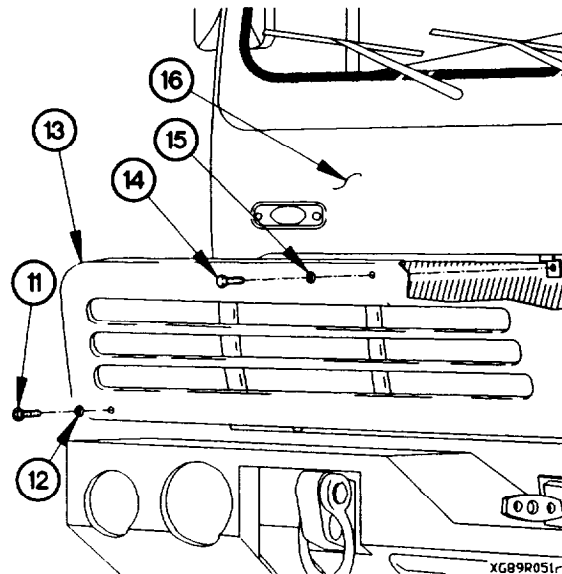
XG89R04A

(6) Disconnect connector P25 (9) from connector J25 (10).

(7) Remove two screws (11) and washers (12) from front grille (13).

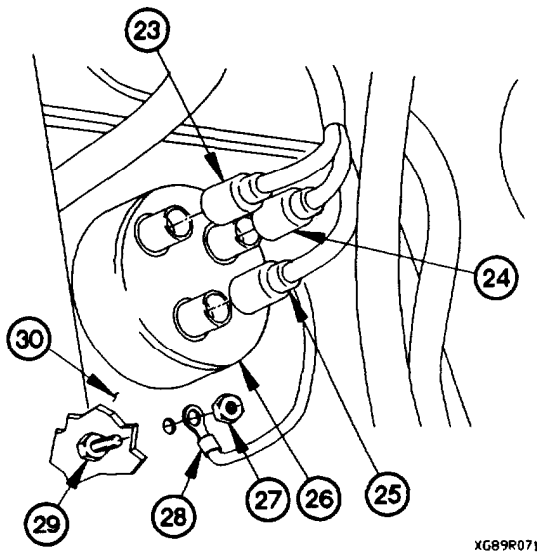
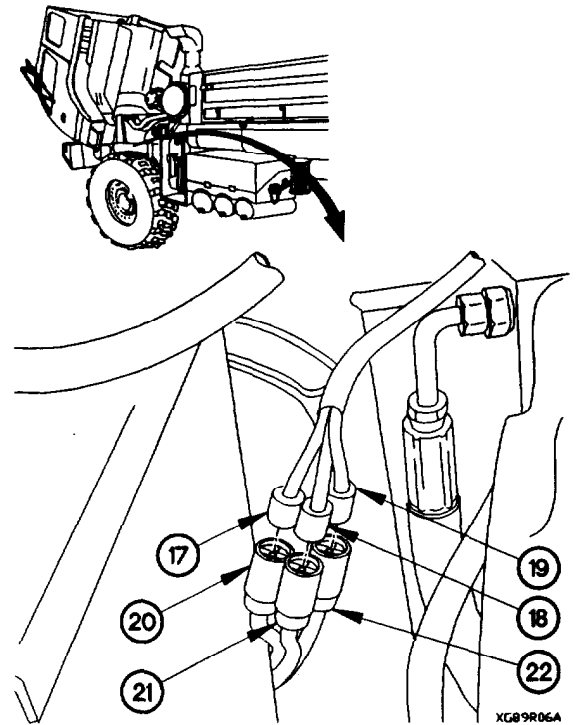
(8) Remove screw (14), washer (15), and front grille (13) from cab (16).

(9) Raise cab (TM 9-2320-365-10).



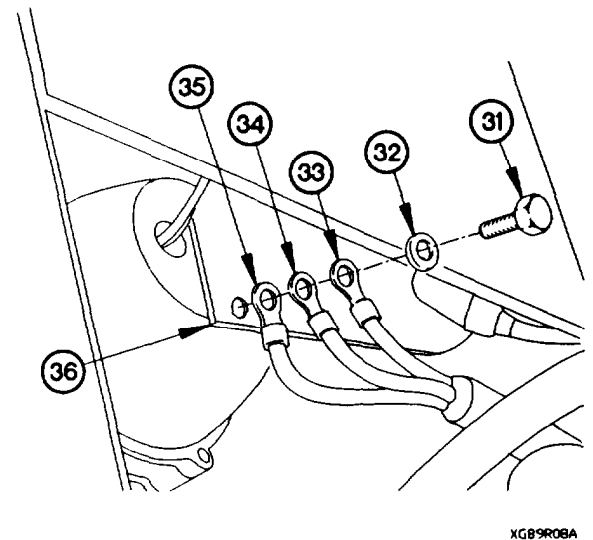
XG89R051r

- (10) Disconnect connectors P22 (17), P23 (18), and P24 (19) from left composite light connectors 481 (20), 461 (21), and 20 (22).



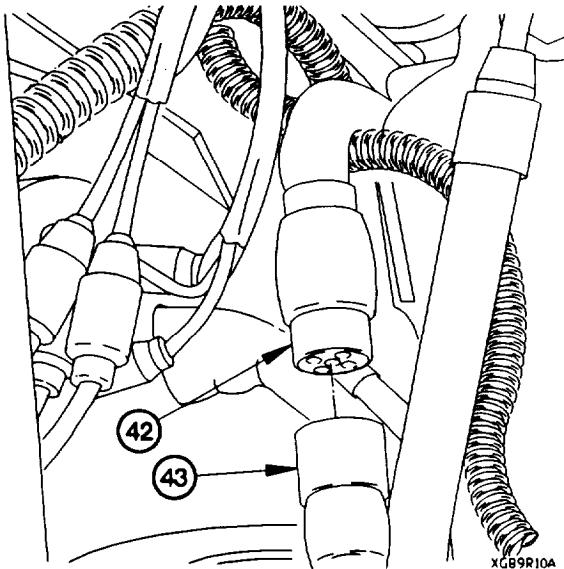
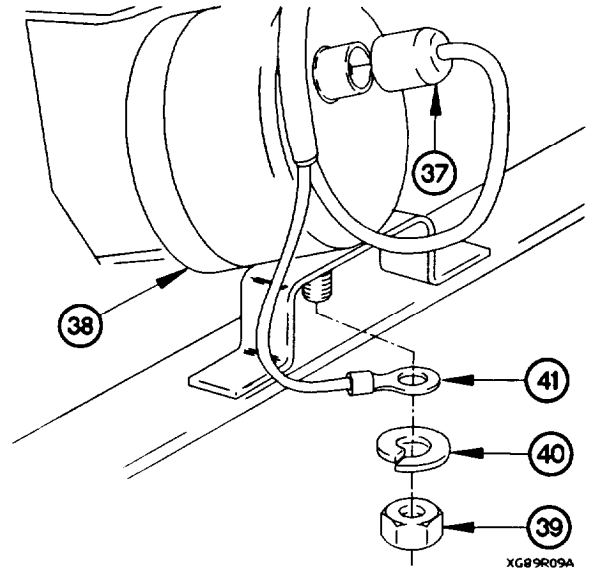
- (11) Disconnect connectors P4 (23), P20 (24), and P19 (25) from headlight (26).
 (12) Remove nut (27), terminal lug TL82 (28), and screw (29) from bracket (30).

- (13) Remove screw (31), lockwasher (32), and terminal lugs TL79 (33), TL123 (34), and TL126 (35) from left composite light bracket (36). Discard lockwasher.



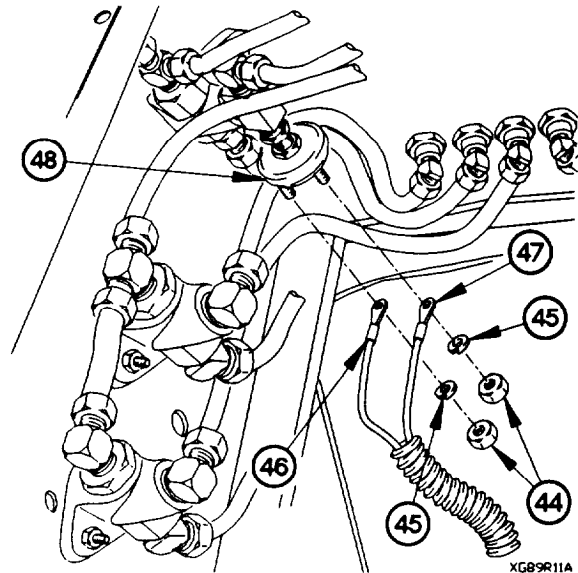
7-74. FRONT LIGHTS CABLE ASSEMBLY REPLACEMENT (CONT)

- (14) Disconnect connector P17 (37) from blackout drive light (38).
- (15) Remove nut (39), lockwasher (40), and terminal lug TL72 (41) from blackout drive light (38). Discard lockwasher.

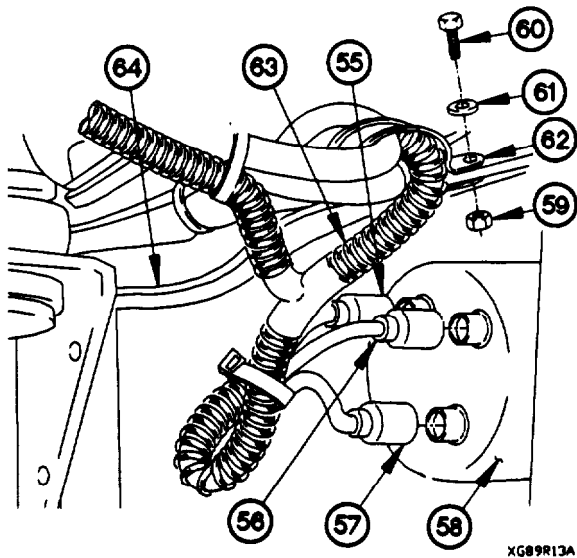
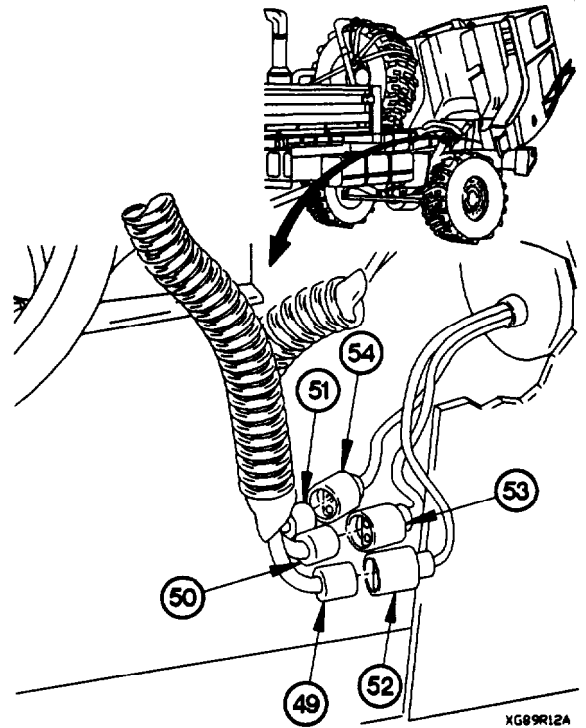


- (16) Disconnect connector P52F (42) from connector J52 (43).

- (17) Remove adhesive, two nuts (44), lockwashers (45), and terminal lugs TL201 (46) and TL202 (47) from air pressure transmitter (48). Discard lockwashers.



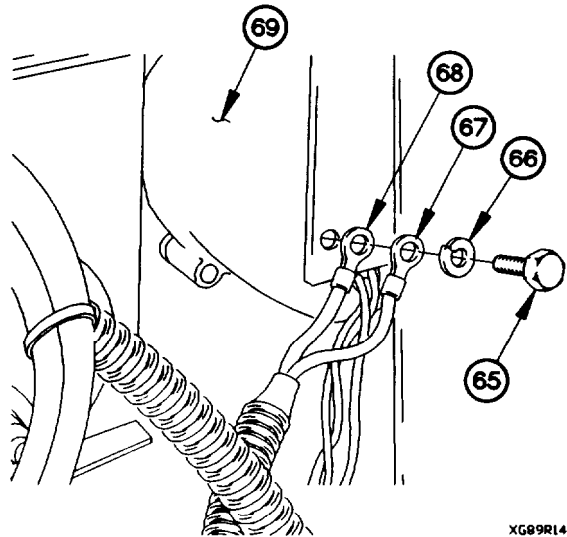
- (18) Disconnect connectors P8 (49), P9 (50), and P10 (51) from right composite light connectors 20 (52), 461 (53), and 481 (54).



- (19) Disconnect connectors P12 (55), P13 (56), and P14 (57) from headlight (58).
- (20) Remove nut (59), screw (60), washer (61), clamp (62), and front lights cable assembly (63) from bracket (64).
- (21) Remove clamp (62) from front lights cable assembly (63).

7-74. FRONT LIGHTS CABLE ASSEMBLY REPLACEMENT (CONT)

(22) Remove screw (65), lockwasher (66), and terminal lugs TL70 (67) and TL81 (68) from right composite light (69). Discard lockwasher.

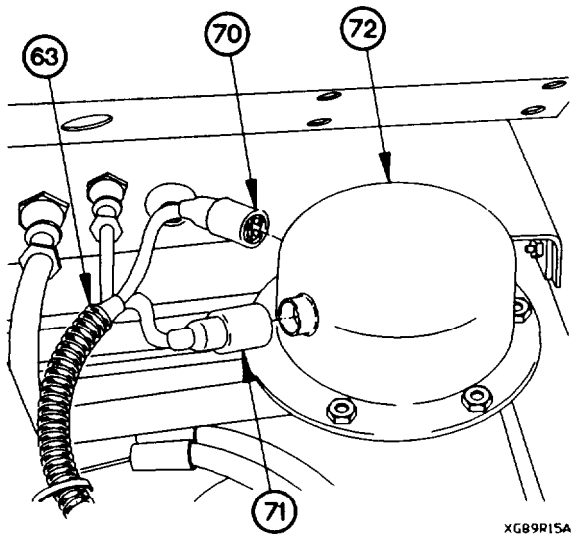


(23) Disconnect connectors P5 (70) and P6 (71) from horn (72).

NOTE

Note routing of front lights cable prior to removal.

(24) Remove front lights cable assembly (63) from vehicle.

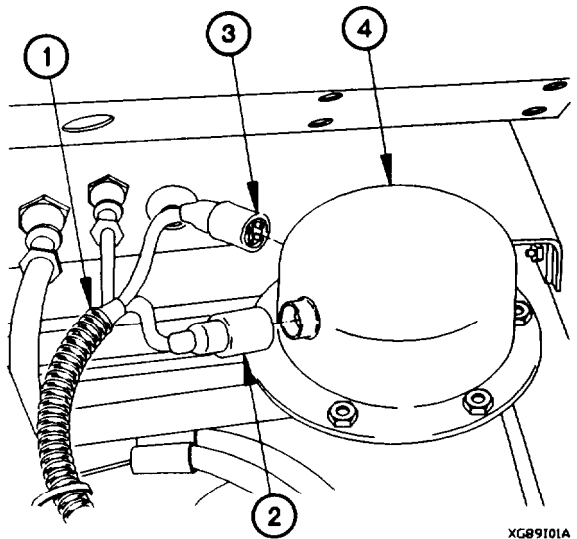


b. Installation.

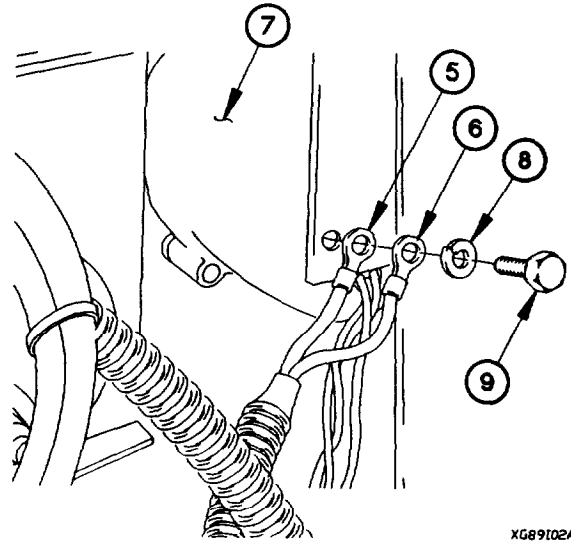
NOTE

Install plastic cable ties as required.

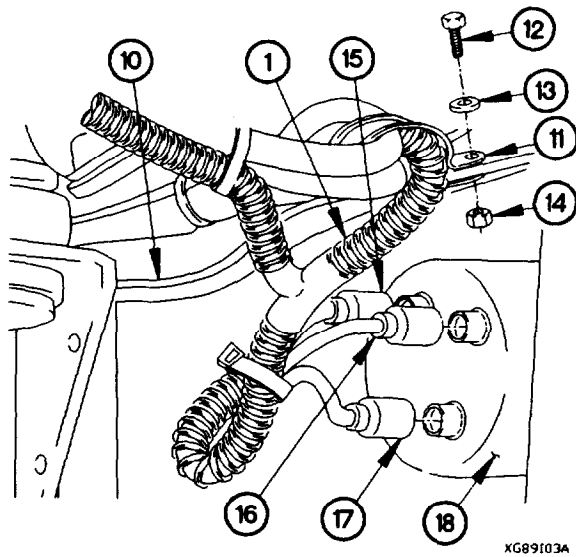
- (1) Position front lights cable assembly (1) on vehicle.
- (2) Connect connectors P6 (2) and P5 (3) to horn (4).



(3) Install terminal lugs TL70 (5) and TL81 (6) on right composite light (7) with lockwasher (8) and screw (9).



XG89102A

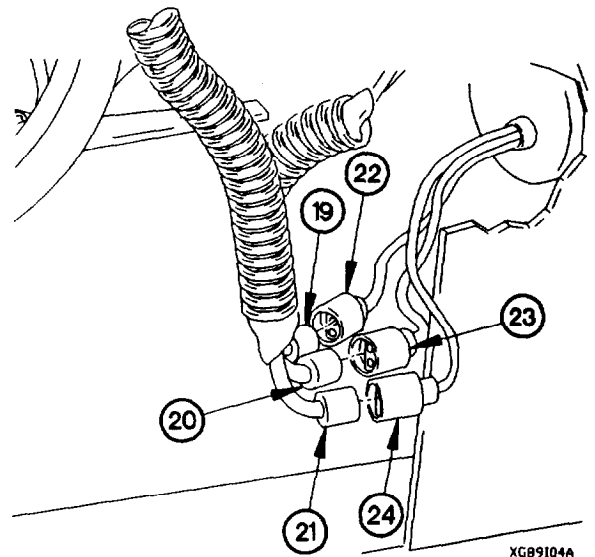


XG89103A

(4) Install front lights cable assembly (1) on bracket (10) with clamp (11), screw (12), washer (13), and nut (14).

(5) Connect connectors P12 (15), P13 (16), and P14 (17) on headlight (18).

(6) Connect connectors P10 (19), P9 (20), and P8 (21) on right composite light connectors 481 (22), 461 (23), and 20 (24).



XG89104A

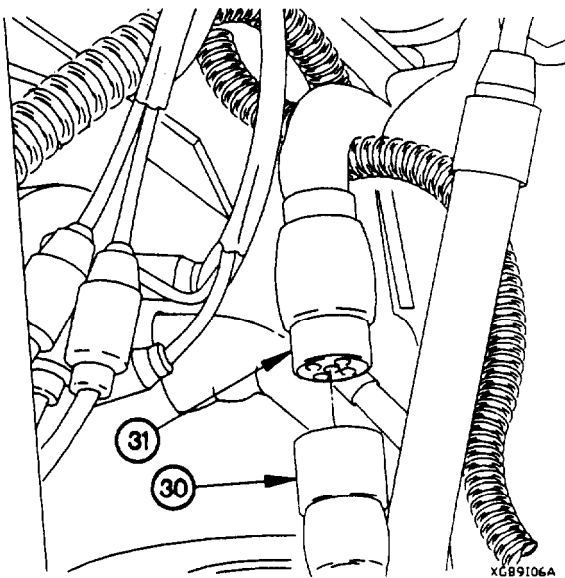
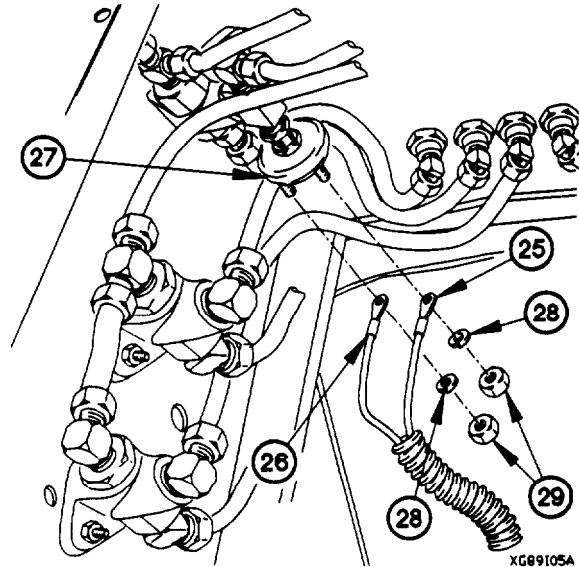
7-74. FRONT LIGHTS CABLE ASSEMBLY REPLACEMENT (CONT)

- (7) Install terminal lugs TL202 (25) and TL201 (26) on air pressure transmitter (27) with two lockwashers (28) and nuts (29).

WARNING

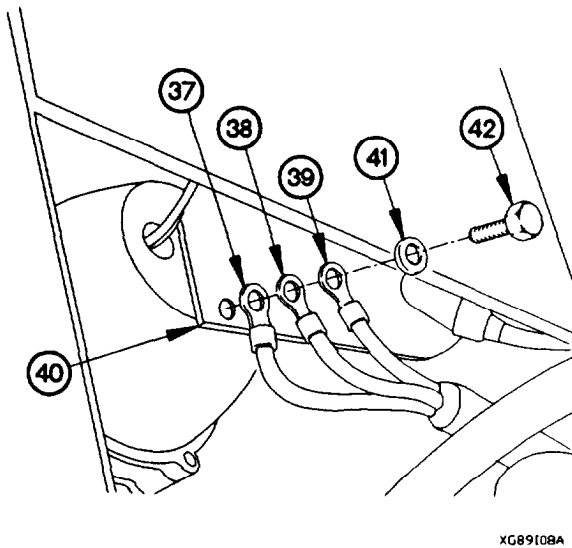
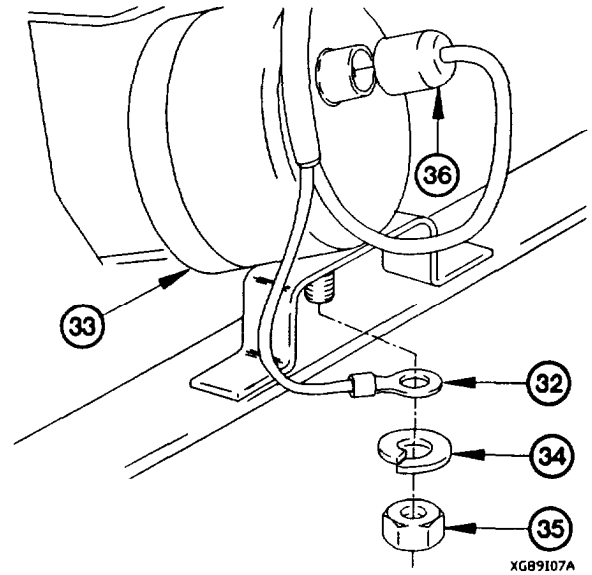
Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.

- (8) Apply adhesive to terminal lugs TL202 (25) and TL201 (26) on air pressure transmitter (27).



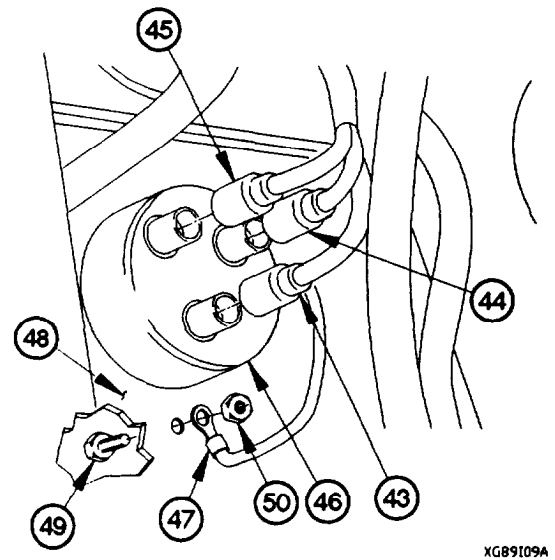
- (9) Connect connector J52 (30) to P52F (31).

- (10) Install terminal lug TL72 (32) on blackout drive light (33) with lockwasher (34) and screw (35).
- (11) Connect connector P17 (36) to blackout drive light (33).

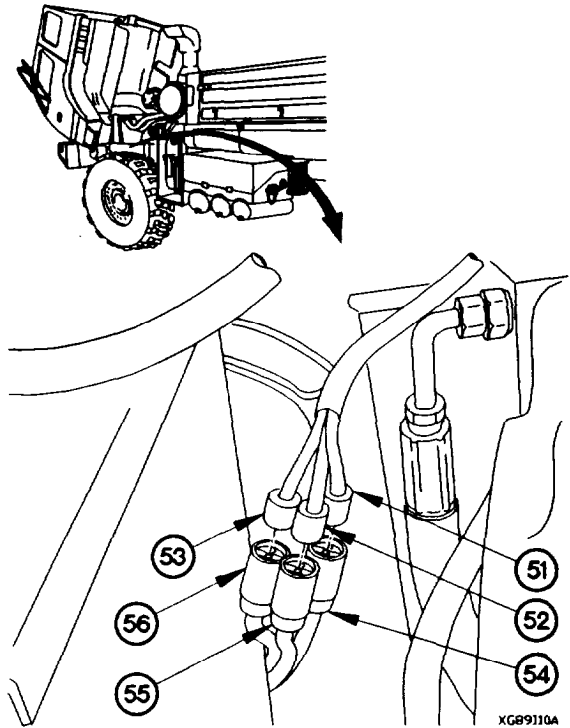


- (12) Install terminal lugs TL126 (37), TL123 (38), and TL79 (39) on left composite light bracket (40) with washer (41) and screw (42).

- (13) Connect connectors P19 (43), P20 (44), and P4 (45) on headlight (46).
- (14) Install terminal lug TL82 (47) on bracket (48) with screw (49) and nut (50).

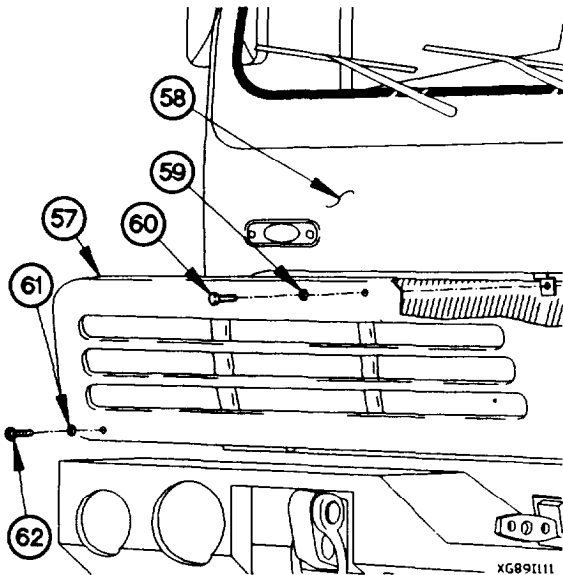


7-74. FRONT LIGHTS CABLE ASSEMBLY REPLACEMENT (CONT)



(15) Connect connectors P24 (51), P23 (52), and P22 (53) on left composite light connectors 20 (54), 461 (55), and 481 (56).

(16) Lower cab (TM 9-2320-365-10).



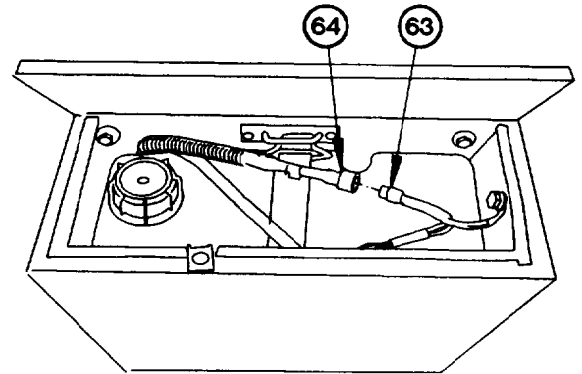
(17) Position front grille (57) on cab (58) with washer (59) and screw (60).

(18) Position two washers (61) and screws (62) in front grille (57).

(19) Tighten screw (60) to 48-60 lb-in. (5-7 N•m).

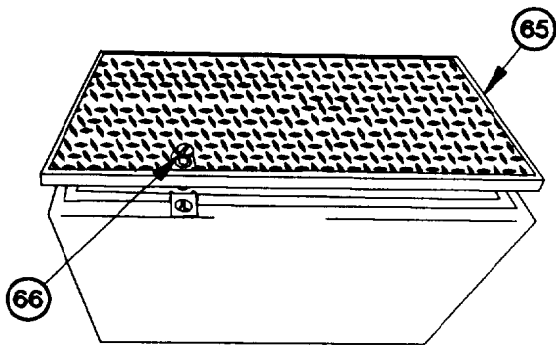
(20) Tighten two screws (62) to 24 lb-in. (3 N•m).

(21) Connect connector J25 (63) to connector P25 (64).



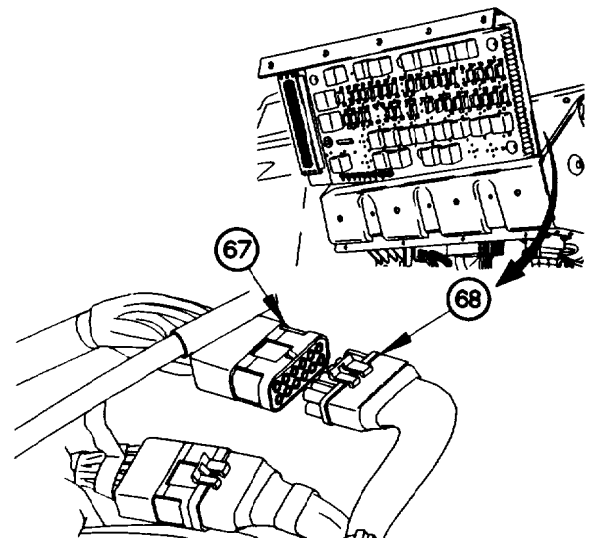
XG89112A

(22) Close cap step tread (65) and tighten screw (66).



XG89113A

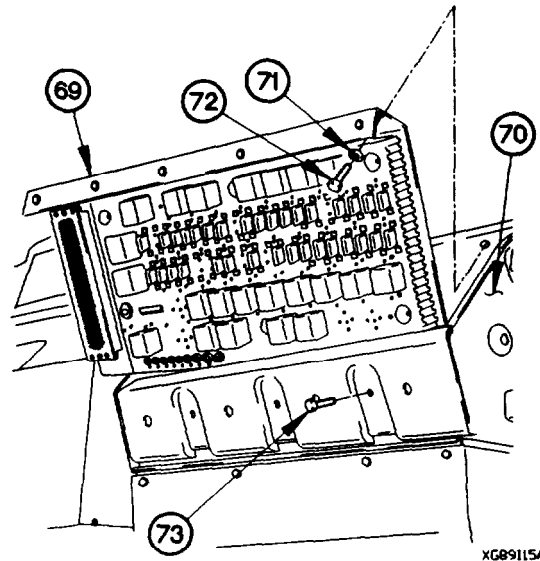
(23) Connect connector J27 (67) to connector P27 (68).



XG89114A

7-74. FRONT LIGHTS CABLE ASSEMBLY REPLACEMENT (CONT)

- (24) Install PDP (69) on dashboard (70) with three washers (71) and screws (72).
- (25) Install three screws (73) in PDP (69).



c. Follow-On Maintenance

- (1) Connect batteries (para 7-48).
- (2) Start engine (TM 9-2320-365-10).
- (3) Check operation of front lights, blackout drive light, horn, and windshield washer (TM 9-2320-365-10).
- (4) Shut down engine (TM 9-2320-365-10).

End of Task.

7-75. REAR LIGHTS CABLE ASSEMBLY REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

- Engine shut down (TM 9-2320-365-10).
- Batteries disconnected (para 7-48).
- PDP cover removed (para 16-2).

Tools and Special Tools

- Tool Kit, Genl Mech (Item 44, Appendix C)
- Goggles, Industrial (Item 15, Appendix C)
- Wrench, Torque, 0-200 lb-in. (Item 58, Appendix C)
- Socket Set, Socket Wrench (Item 34, Appendix C)

Materials/Parts

- Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)
- Ties, Cable, Plastic (Item 76, Appendix D)
- Lockwasher (7) (Item 67, Appendix G)
- Lockwasher (3) (Item 92, Appendix G)
- Nut, Self-Locking (15) (Item 116, Appendix G)

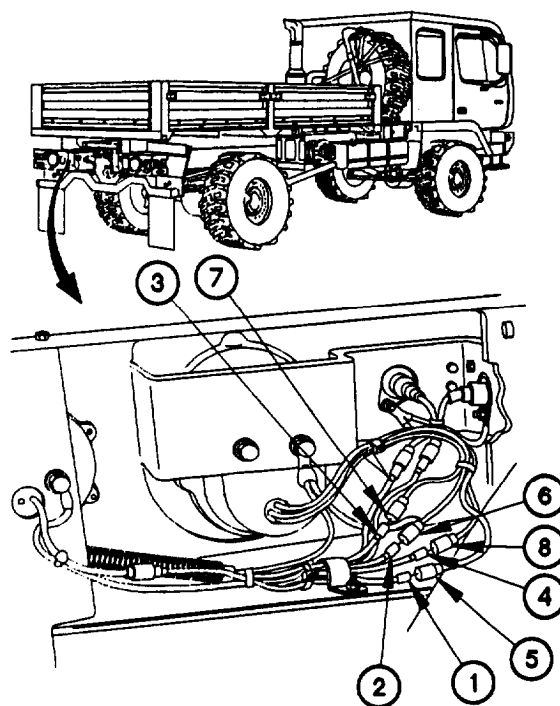
a. Removal.

WARNING

Wear appropriate eye protection when working under vehicle due to the possibility of falling debris. Failure to comply may result in injury to personnel.

NOTE

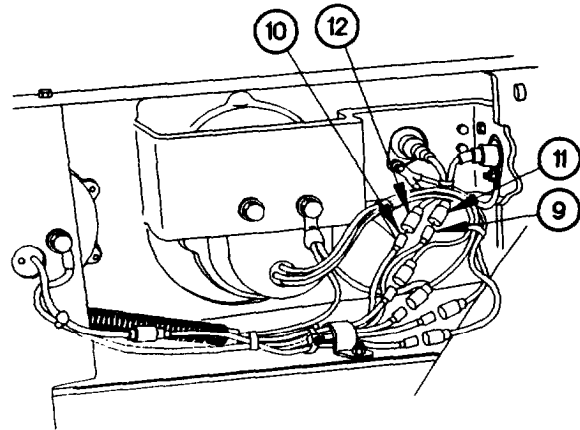
- Remove plastic cable ties as required.
 - Tag connectors and connection points prior to disconnecting.
- (1) Disconnect connectors P74 (1), P76 (2), P77 (3), and P78 (4) from left rear taillight connectors 22 (5), 24 (6), 23 (7), and 21 (8).



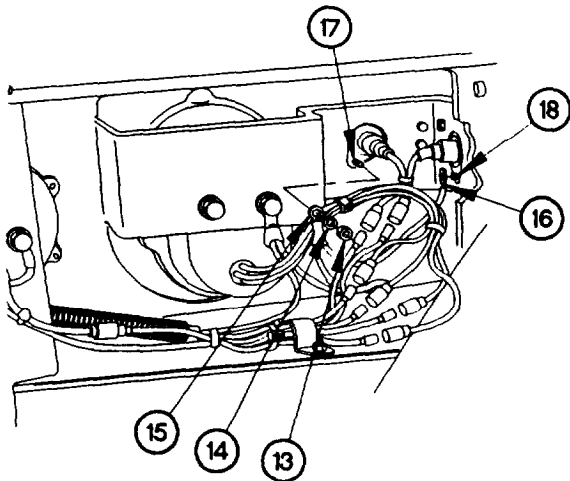
3G63R011

7-75. REAR LIGHTS CABLE ASSEMBLY REPLACEMENT (CONT)

- (2) Disconnect connectors P85 (9) and P86 (10) from side marker light connector (11) and left rear marker light connector (12).



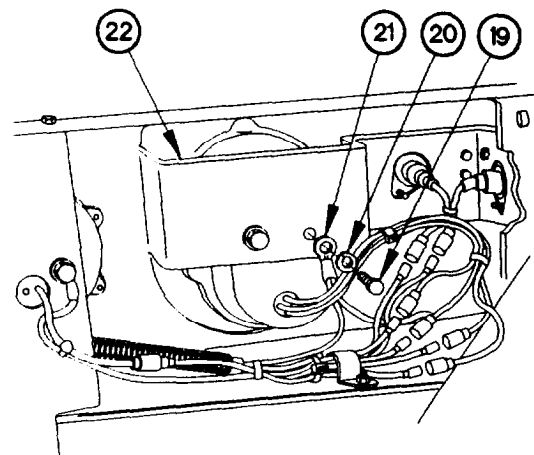
3G75R021



XG93R031

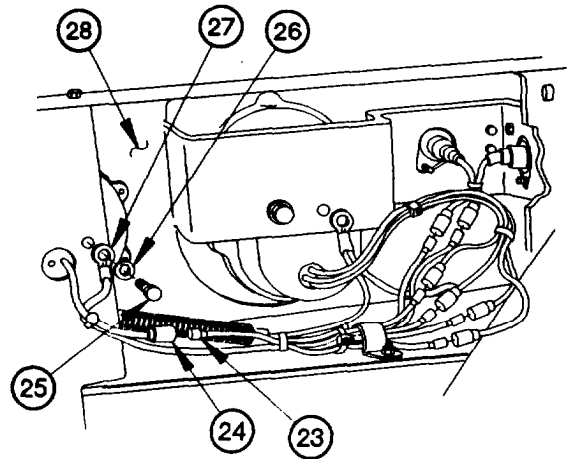
- (3) Remove two nuts (13), lockwashers (14), and terminal lugs TL15 (15) and TL16 (16) from left rear marker light stud (17) and side marker light stud (18). Discard lockwashers.

- (4) Remove screw (19), lockwasher (20), and terminal lug TL18 (21) from left rear taillight bracket (22). Discard lockwasher.

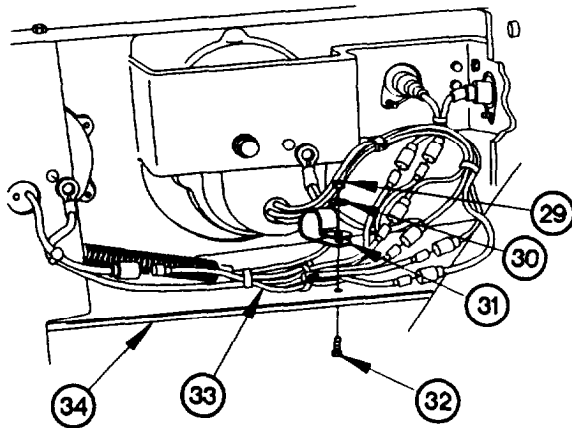


XG93R041

- (5) Disconnect connector P87 (23) from backup light connector (24).
- (6) Remove screw (25), lockwasher (26), and terminal lug TL17 (27) from backup light bracket (28). Discard lockwasher.



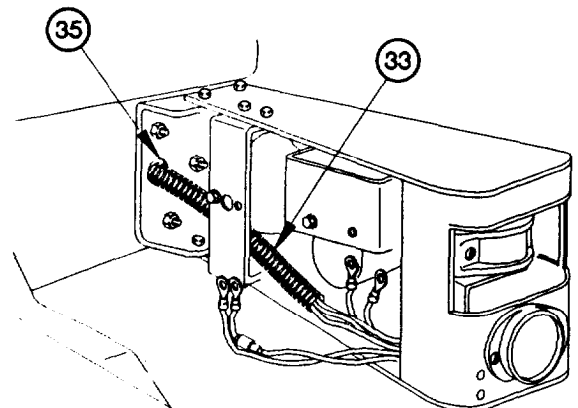
3G75R051



XG93R061

- (7) Remove self-locking nut (29), washer (30), clamp (31), screw (32), and rear lights cable assembly (33) from bracket (34). Discard self-locking nut.
- (8) Remove clamp (31) from rear lights cable assembly (33).

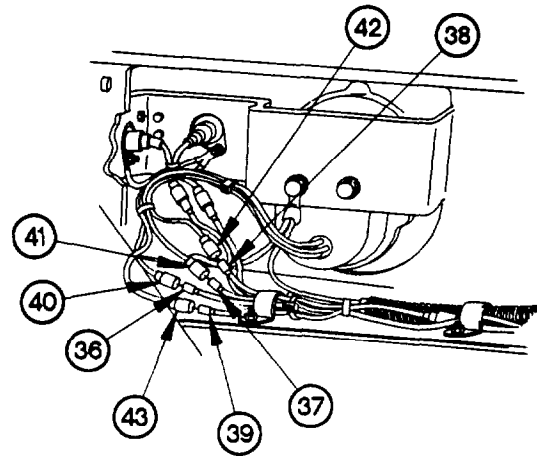
- (9) Pull rear lights cable assembly (33) through left frame rail (35).



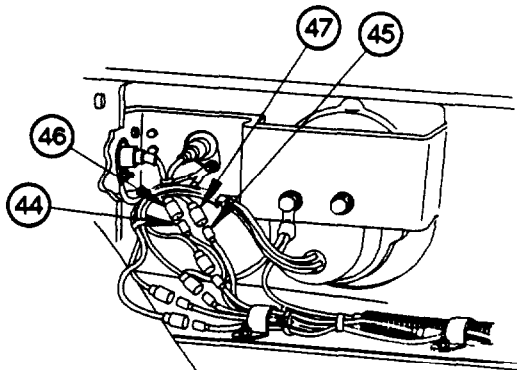
XG93R071

7-75. REAR LIGHTS CABLE ASSEMBLY REPLACEMENT (CONT)

(10) Disconnect connectors P61 (36), P62 (37), P63 (38), and P64 (39) from right rear taillight connectors 22 (40), 24 (41), 23 (42), and 21 (43).



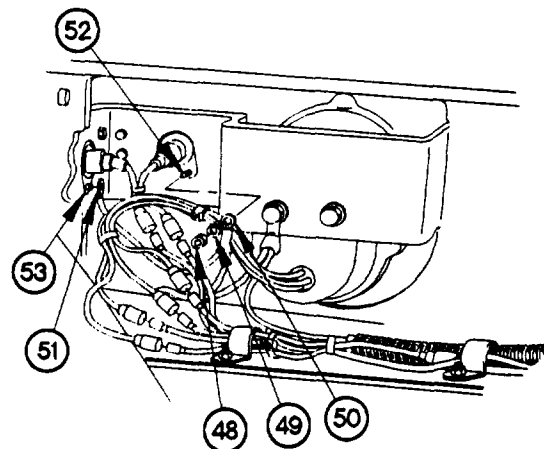
XG93R081



(11) Disconnect connectors P88 (44) and P89 (45) from side marker light connector 489 (46) and right rear marker light connector 489 (47).

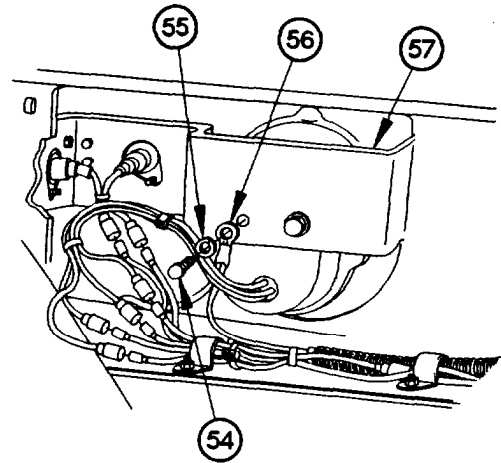
3G75R091

(12) Remove two nuts (48), lockwashers (49), and terminal lugs TL20 (50) and TL21 (51) from right rear marker light stud (52) and side marker light stud (53). Discard lockwashers.

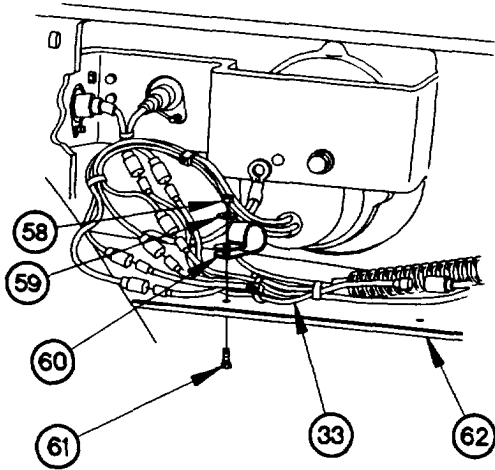


XG93R101

- (13) Remove screw (54), lockwasher (55), and terminal lug TL19 (56) from right rear taillight bracket (57). Discard lockwasher.



3G75R141

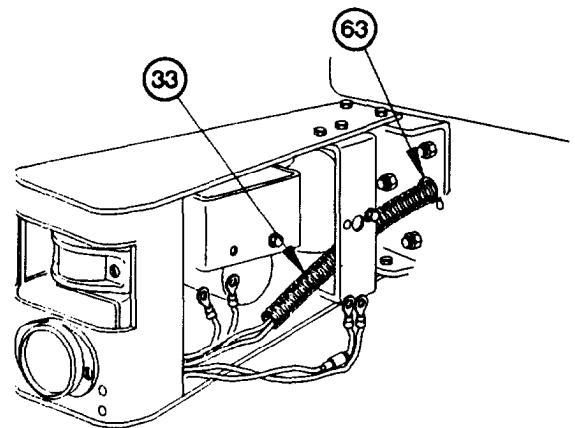


XG93R121

- (14) Remove two self-locking nuts (58), washers (59), clamps (60), screw (61), and rear lights cable assembly (33) from bracket (62).

- (15) Remove clamp (60) from rear lights cable assembly (33).

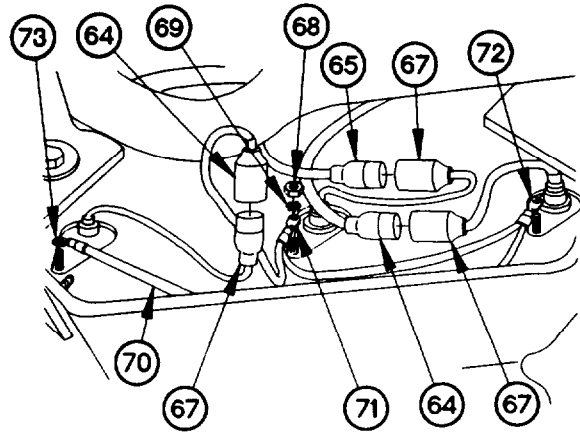
- (16) Pull rear lights cable assembly (33) through right frame rail (63).



XG93R131

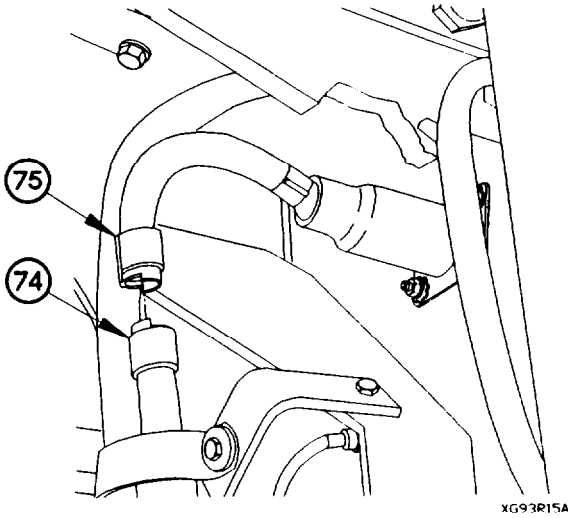
7-75. REAR LIGHTS CABLE ASSEMBLY REPLACEMENT (CONT)

- (17) Disconnect connectors P54 (64), P56 (65), and P58 (66) from three rear marker light connectors (67).
- (18) Remove three nuts (68), lockwashers (69), terminal lugs TL30 (70), TL31 (71), and TL32 (72) from three rear marker lights post (73). Discard lockwashers.



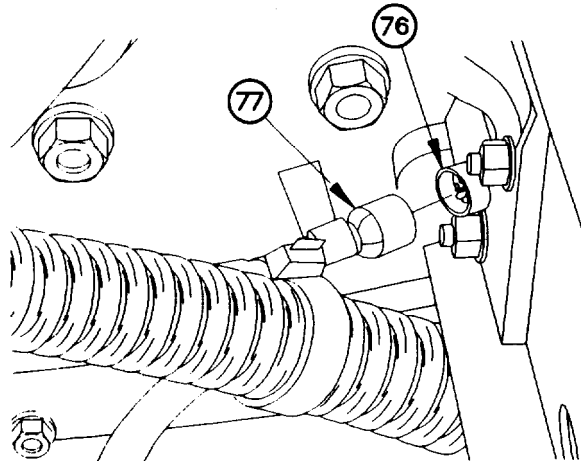
XG93R14A

- (19) Disconnect connector P53R (74) from connector J53R (75).



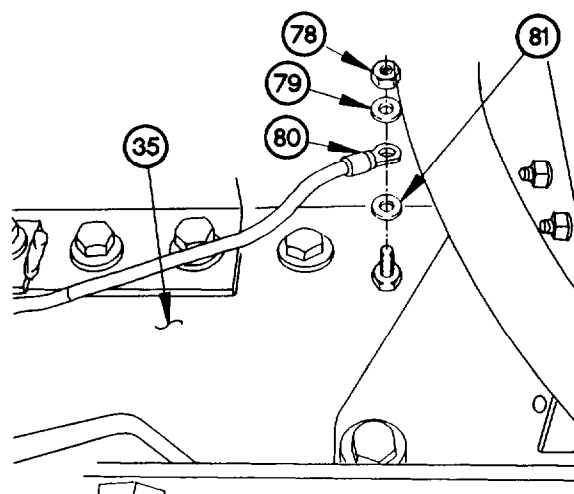
XG93R15A

- (20) Disconnect connector P52R (76) from connector J52R (77).

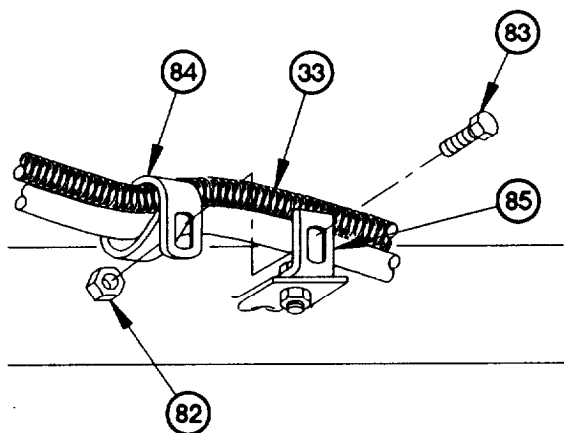


XG93R16I

- (21) Remove self-locking nut (78), washer (79), terminal lug TL93 (80), and washer (81) from left frame rail (35). Discard lockwasher.



XG93R17A



XG93R18I

- (22) Remove two self-locking nuts (82), screws (83), clamps (84), and rear lights cable assembly (33) from brackets (85).

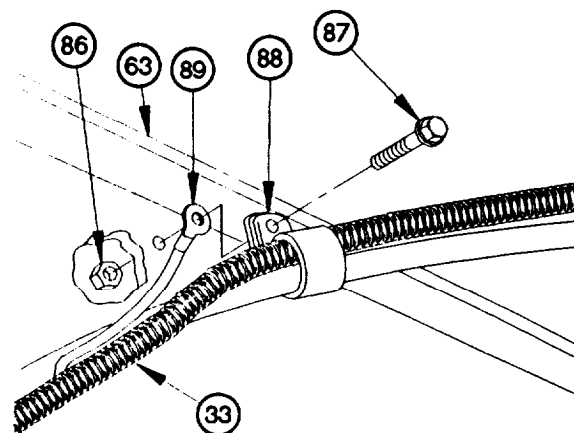
- (23) Remove two clamps (84) from rear lights cable assembly (33).

NOTE

Steps (24) through (26) require the aid of an assistant.

- (24) Remove self-locking nut (86), screw (87), clamp (88), rear lights cable assembly (33), and terminal lug TL92 (89) from right frame rail (63).

- (25) Remove clamp (88) from rear lights cable assembly (33).



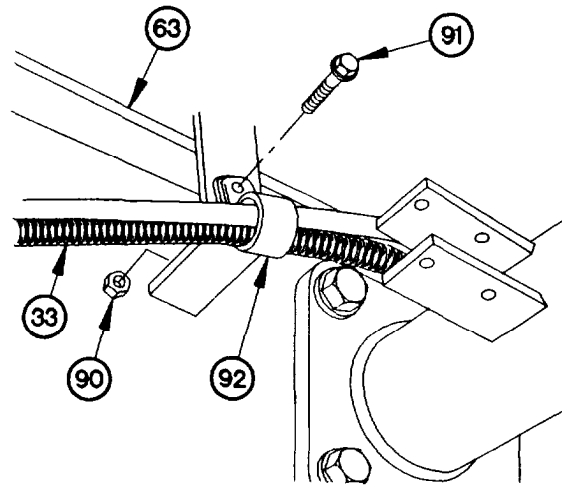
XG93R19I

7-75. REAR LIGHTS CABLE ASSEMBLY REPLACEMENT (CONT)

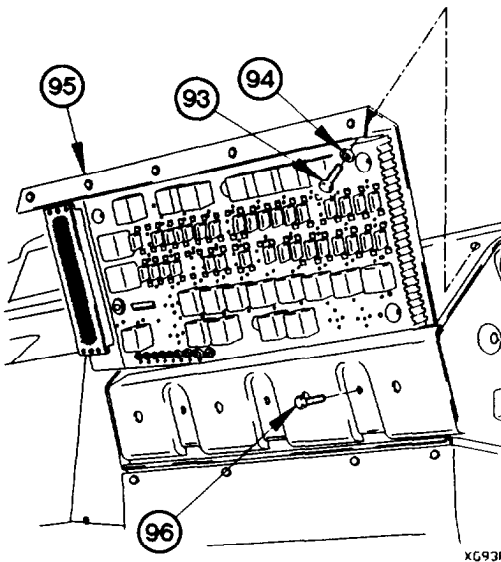
NOTE

Other hoses, cable assemblies, and terminal lugs are removed with clamps.

- (26) Remove eight self-locking nuts (90), screws (91), clamps (92), and rear lights cable assembly (33) from right frame rail (63).
- (27) Remove eight clamps (92) from rear lights cable assembly (33).



XG93R201



XG93R22A

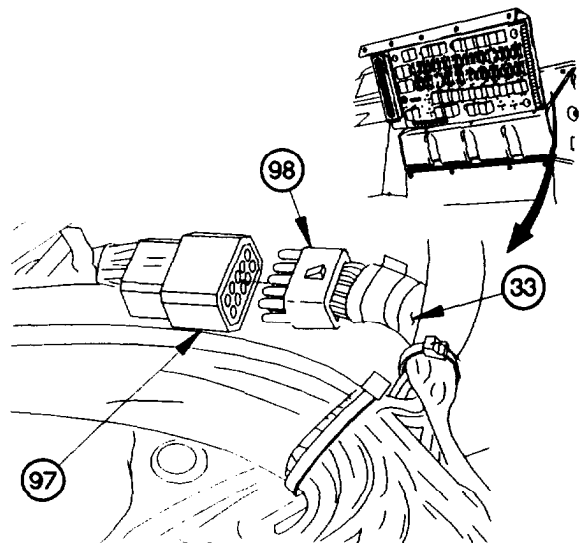
- (28) Remove three screws (93) and washers (94) from PDP (95).
- (29) Remove three screws (96) from PDP (95).
- (30) Lift PDP (95) outward to gain access.

- (31) Disconnect connector P51 (97) from connector J51 (98).

NOTE

Note routing of rear lights cable assembly prior to removal.

- (32) Raise cab (TM 9-2320-365-10).
- (33) Remove rear lights cable assembly (33) from vehicle.



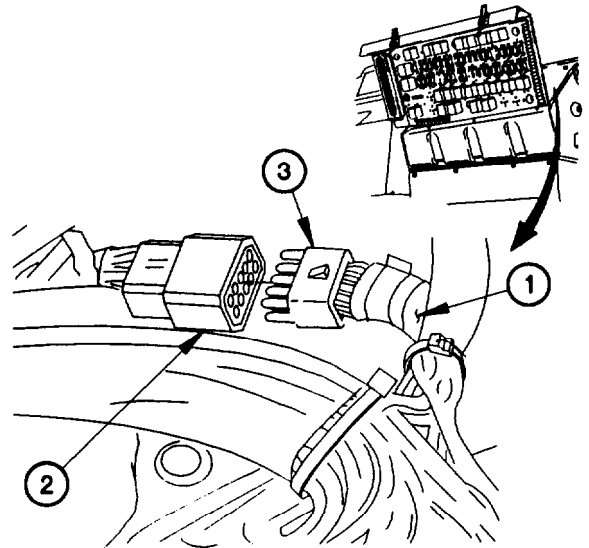
XG93R23A

b. Installation.

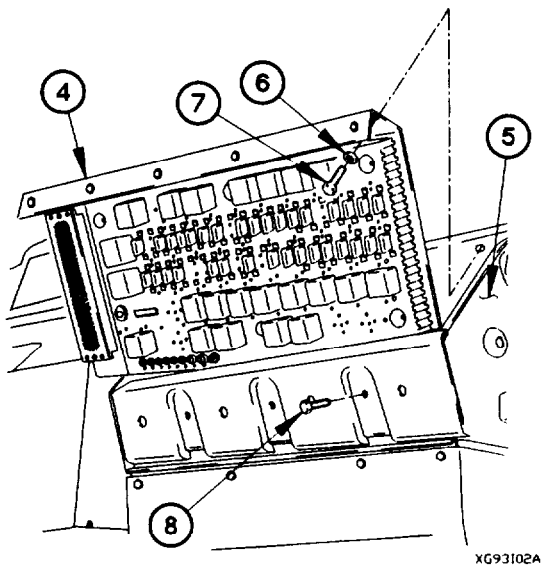
NOTE

Install plastic cable ties as required.

- (1) Position rear lights cable assembly (1) on vehicle.
- (2) Lower cab (TM 9-2320-365-10).
- (3) Connect connector P51 (2) to connector J51 (3).



3G751011



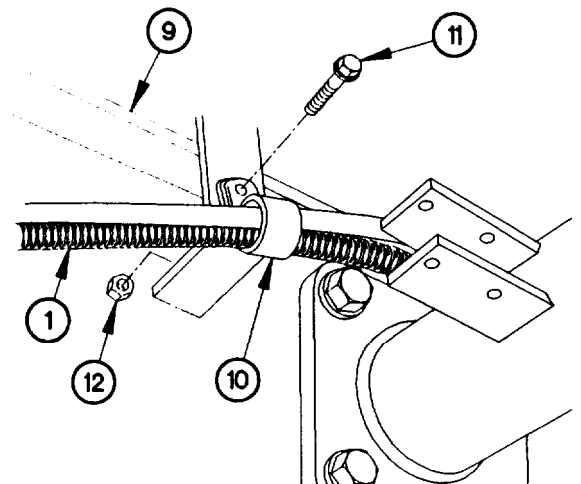
XG93102A

- (4) Install PDP (4) on dashboard (5) with three washers (6) and screws (7).
- (5) Install three screws (8) in PDP (4).

NOTE

- Other hoses, cable assemblies, and terminal lugs are installed with clamps.
- Steps (7) and (8) require the aid of an assistant.

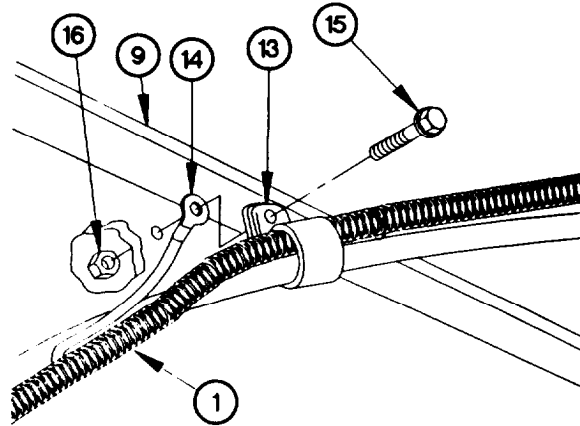
- (6) Install rear lights cable assembly (1) on right frame rail (9) with eight clamps (10), screws (11), and self-locking nuts (12).



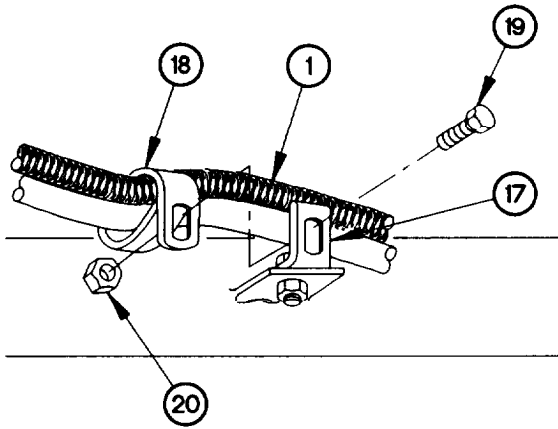
XG931041

7-75. REAR LIGHTS CABLE ASSEMBLY REPLACEMENT (CONT)

(7) Install rear lights cable assembly (1), clamp (13), and terminal lug TL92 (14) on right frame rail (9) with screw (15) and self-locking nut (16).



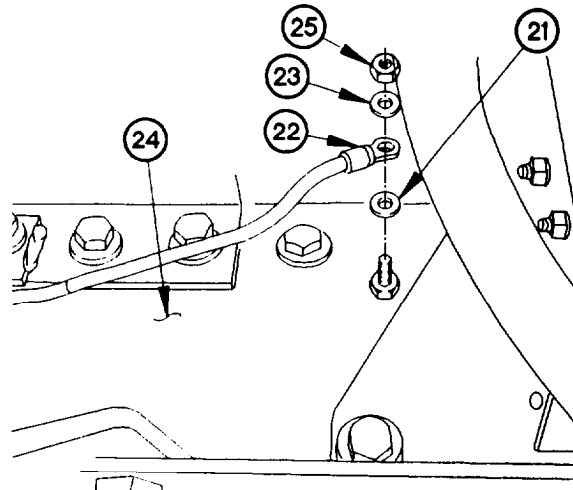
XG931051



XG931061

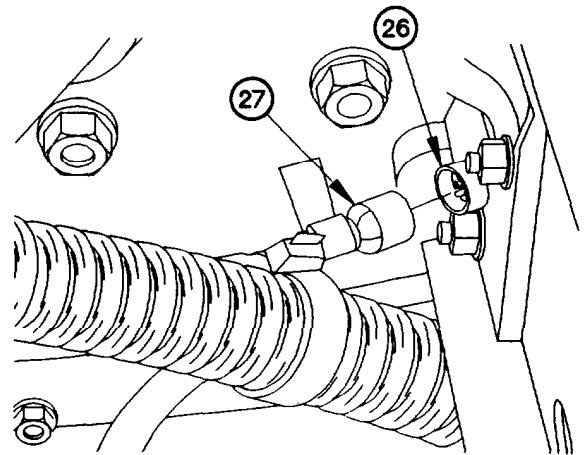
(8) Install rear lights cable assembly (1) on two brackets (17) with two clamps (18), screws (19), and self-locking nuts (20).

(9) Install washer (21), terminal lug TL93 (22) and washer (23) on left frame rail (24) with self-locking nut (25).

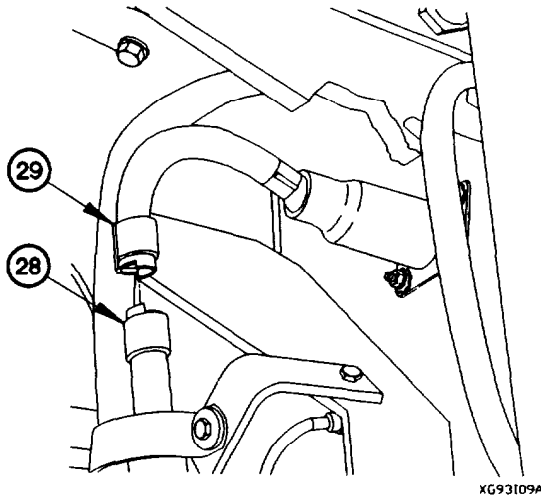


XG93107A

(10) Connect connector P52R (26) to connector J52R (27).



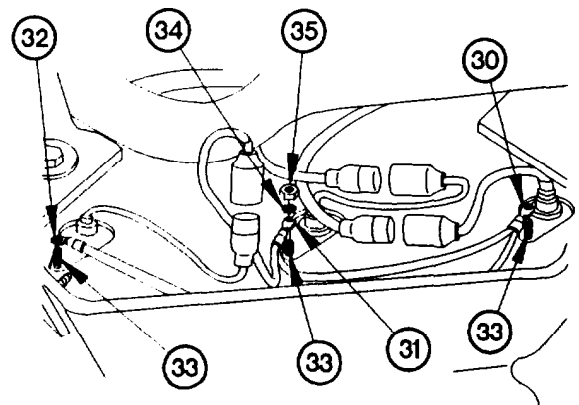
XG931081



XG93109A

(11) Connect connector P53R (28) to connector J53 (29).

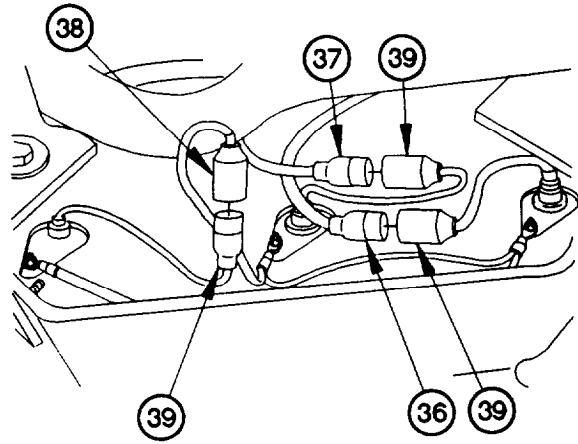
(12) Install terminal lugs TL32 (30), TL31 (31), and TL30 (32) on marker lights posts (33) with lockwashers (34) and nuts (35).



XG93110A

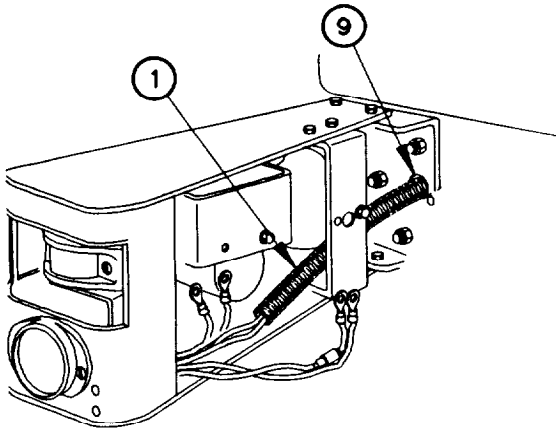
7-75. REAR LIGHTS CABLE ASSEMBLY REPLACEMENT (CONT)

(13) Connect connectors P58 (36), P56 (37), and P54 (38) to rear marker light connectors 489 (39).



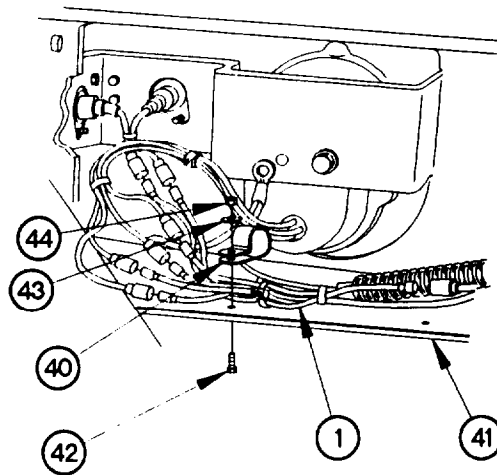
XG93111A

(14) Position rear lights cable assembly (1) through right frame rail (9).



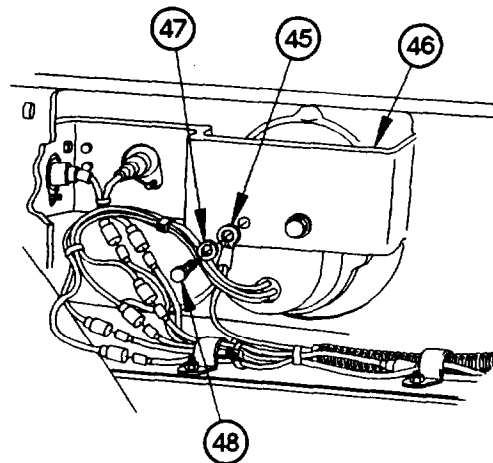
XG931121

(15) Install two clamps (40) and rear lights cable assembly (1) on bracket (41) with two screws (42), washers (43), and self-locking nuts (44).

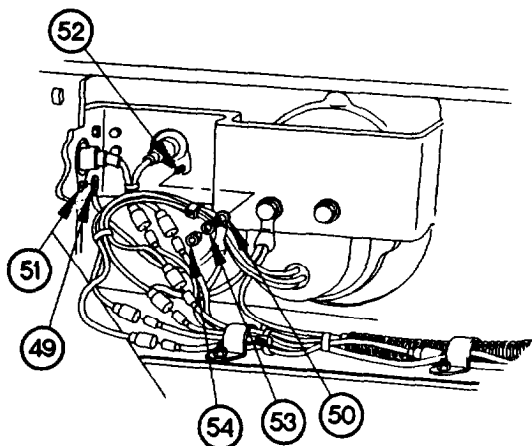


XG931131

- (16) Install terminal lug TL19 (45) on right rear taillight (46) with lockwasher (47) and screw (48).



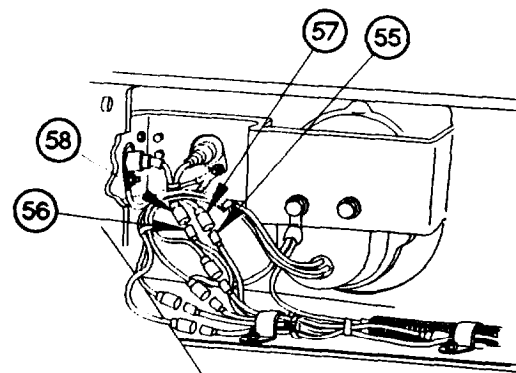
XG931141



- (17) Install terminal lugs TL21 (49) and TL20 (50) on marker light studs (51 and 52) with two lockwashers (53) and nuts (54).

XG931151

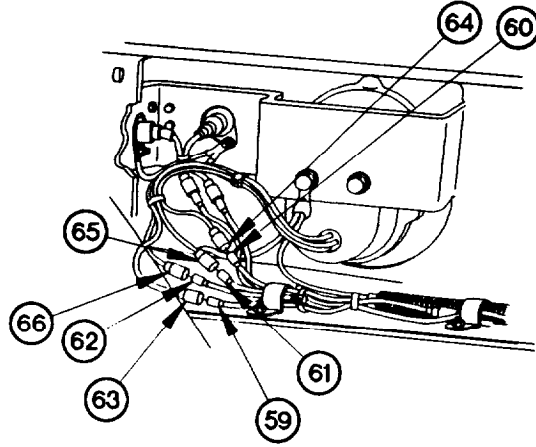
- (18) Connect connectors P89 (55) and P88 (56) to right rear marker light connector 489 (57) and side marker light connector 489 (58).



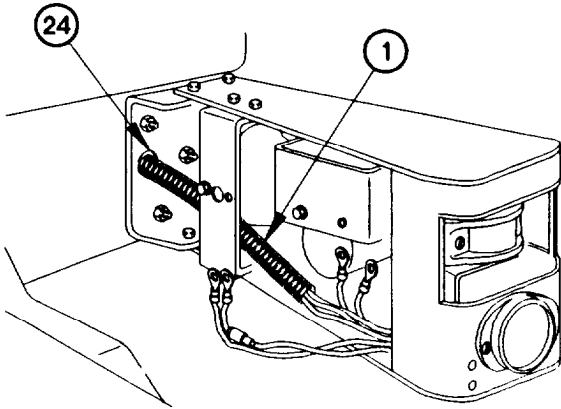
3G751161

7-75. REAR LIGHTS CABLE ASSEMBLY REPLACEMENT (CONT)

(19) Connect connectors P64 (59), P63 (60), P62 (61), and P61 (62) to right rear taillight connectors 21 (63), 23 (64), 24 (65), and 22 (66).



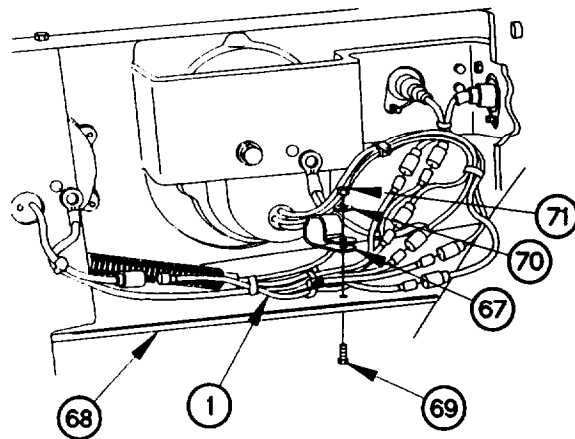
3G751171



XG931181

(20) Position rear lights cable assembly (1) through left frame rail (24).

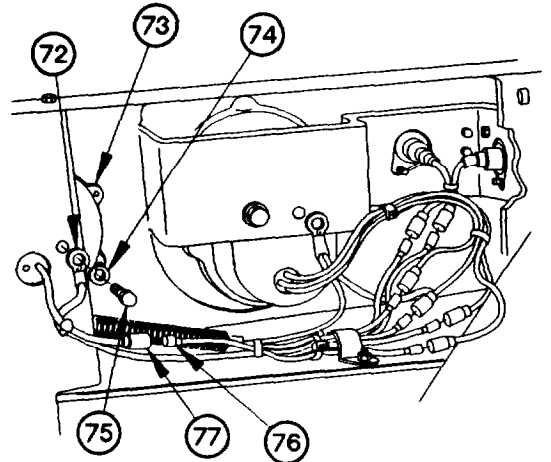
(21) Install rear lights cable assembly (1) and clamp (67) on bracket (68) with screw (69), washer (70), and self-locking nut (71).



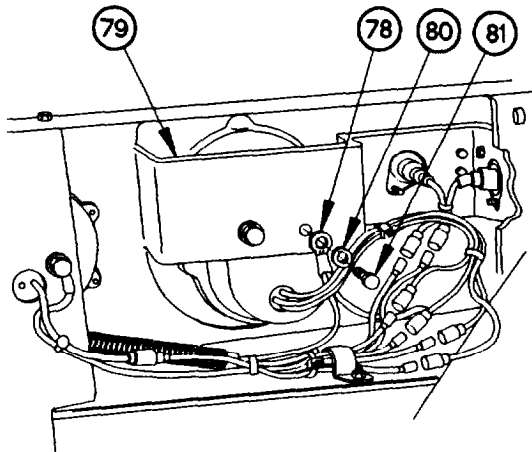
XG931191

(22) Install terminal lug TL17 (72) on backup light (73) with lockwasher (74), and screw (75).

(23) Connect connector P87 (76) to backup light connector (77).



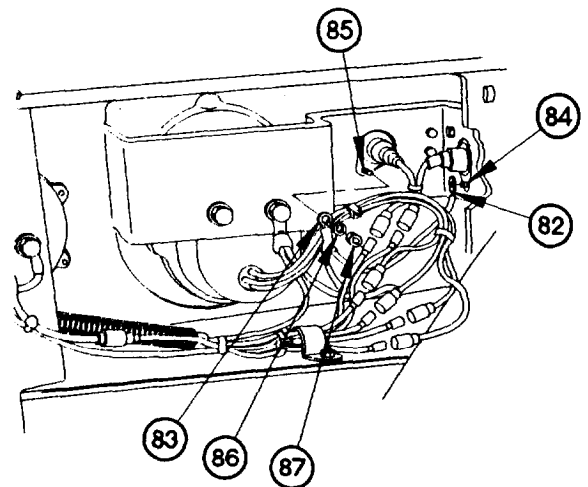
XG931201



XG931211

(24) Install terminal lug TL18 (78) on left rear taillight bracket (79) with lockwasher (80) and screw (81).

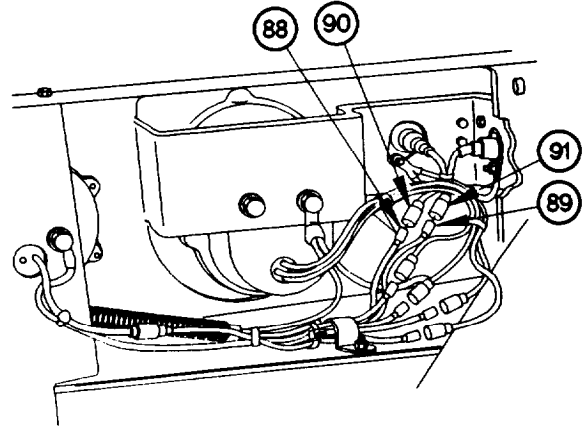
(25) Install terminal lugs TL16 (82) and TL15 (83) on marker light studs (84 and 85) with two lockwashers (86) and nuts (87).



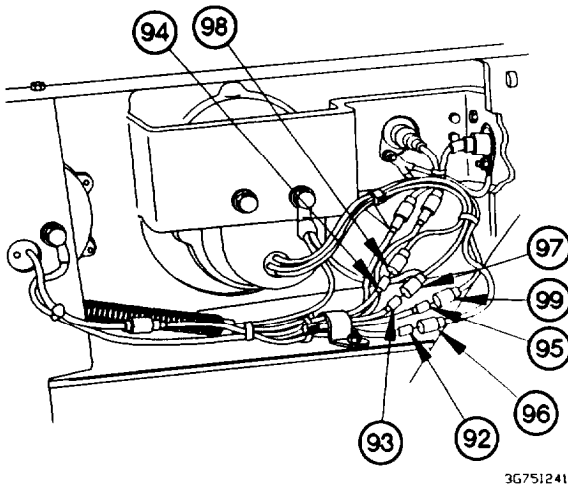
XG931221

7-75. REAR LIGHTS CABLE ASSEMBLY REPLACEMENT (CONT)

- (27) Connect connectors P86 (88) and P85 (89) to left rear marker light connector (90) and side marker light connector (91).



XG931231



3G751241

- (28) Connect connectors P74 (92), P76 (93), P77 (94), and P78 (95) to left rear taillight connectors 22 (96), 24 (97), 23 (98), and 21 (99).

c. Follow-On Maintenance:

- (1) Connect batteries (para 7-48).
- (2) Install PDP cover (para 16-2).
- (3) Start engine (TM 9-2320-365-10).
- (4) Check operation of rear lights (TM 9-2320-365-10).
- (5) Shut down engine (TM 9-2320-365-10).

End of Task.

7-76. POWER DISTRIBUTION PANEL (PDP) TO CAB GROUND CABLE REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Batteries disconnected (para 7-48).
 PDP cover removed (para 16-2).

Materials/Parts

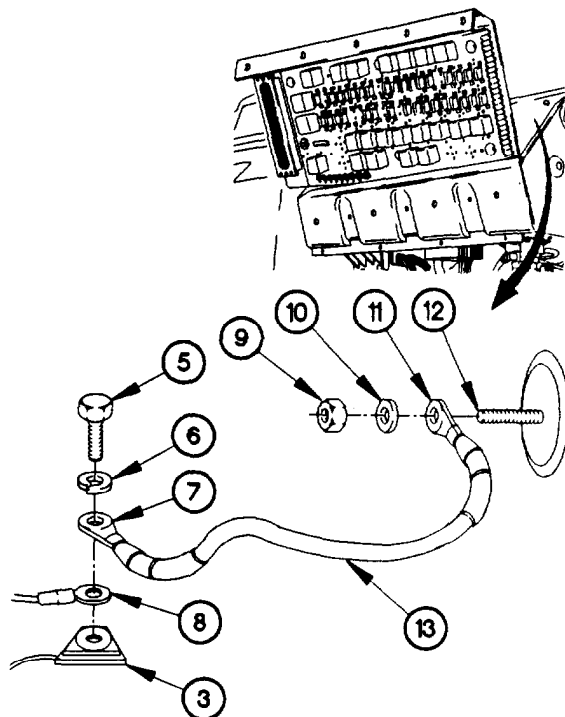
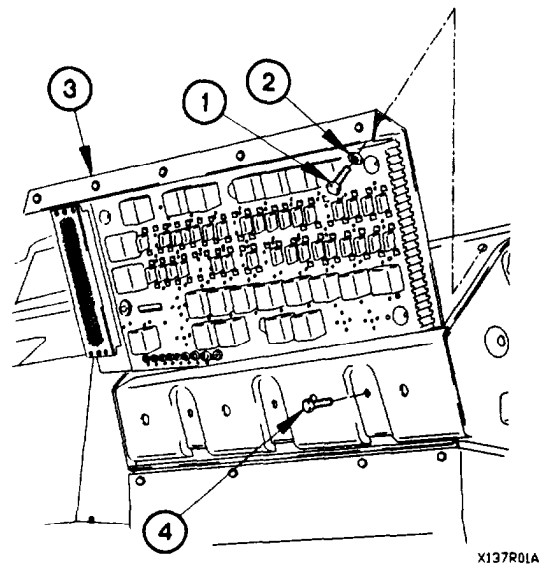
Ties, Cable, Plastic (Item 76, Appendix D)
 Lockwasher (Item 73, Appendix G)
 Lockwasher (Item 74, Appendix G)

Tools and Special Tools

Tool Kit, Genl Mech (Item 44, Appendix C)

a. Removal

- (1) Remove three screws (1) and washers (2) from PDP (3).
- (2) Remove three screws (4) from PDP (3).
- (3) Lift PDP (3) outward to gain access.



NOTE

Remove plastic cable ties as required.

- (4) Remove screw (5), lockwasher (6), terminal lug TL56 (7), and wire 1623 (8) from PDP (3). Discard lockwasher.
- (5) Remove nut (9), lockwasher (10), and terminal lug TL57 (11) from grounding stud (12). Discard lockwasher.
- (6) Remove PDP to cab ground cable (13) from vehicle.

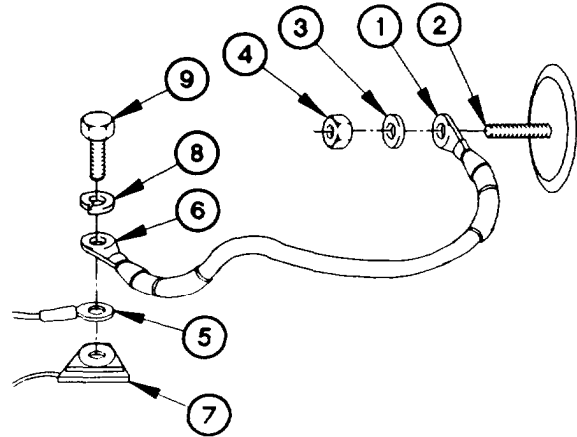
7-76. POWER DISTRIBUTION PANEL (PDP) TO CAB GROUND CABLE REPLACEMENT (CONT)

b. Installation.

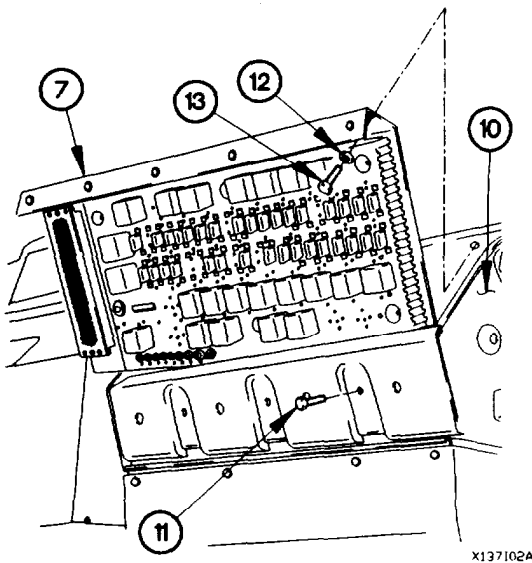
NOTE

Install plastic cable ties as required.

- (1) Install terminal lug TL57 (1) on grounding stud (2) with lockwasher (3) and nut (4).
- (2) Install wire 1623 (5) and terminal lug TL56 (6) on PDP (7) with lockwasher (8) and screw (9).



X137101A



X137102A

- (3) Install PDP (7) on dashboard (10) with three screws (11).
- (4) Install three washers (12) and screws (13) in PDP (7).

c. Follow-On Maintenance.

- (1) Install PDP cover (para 16-2).
- (2) Connect batteries (para 7-48).
- (3) Start engine (TM 9-2320-365-10).
- (4) Check VOLTS gage for charge indication (TM 9-2320-365-10).
- (5) Shut down engine (TM 9-2320-365-10).

End of Task.

7-77. POWER TAKE-OFF (PTO) CABLE ASSEMBLY REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP**Equipment Conditions**

- Batteries disconnected (para 7-63).
- Kick panel removed (para 16-3).

Tools and Special Tools

- Goggles, Industrial (Item 15, Appendix C)
- Tool Kit, Genl Mech (Item 44, Appendix C)
- Wrench, Torque, 0-200 lb-in. (Item 58, Appendix C)
- Socket Set, Socket Wrench (Item 35, Appendix C)

Materials/Parts

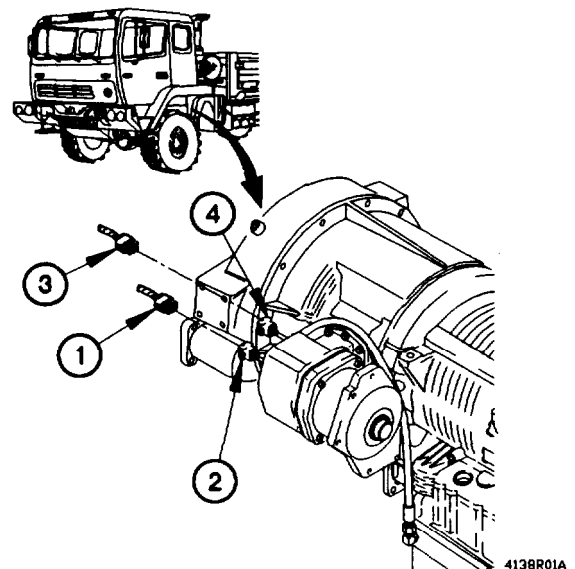
- Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)
- Ties, Cable, Plastic (Item 76, Appendix D)
- Nut, Self-Locking (5) (Item 134, Appendix G)

WARNING

Wear appropriate eye protection when working under vehicle due to the possibility of falling debris. Failure to comply may result in injury to personnel.

a. Removal.**NOTE**

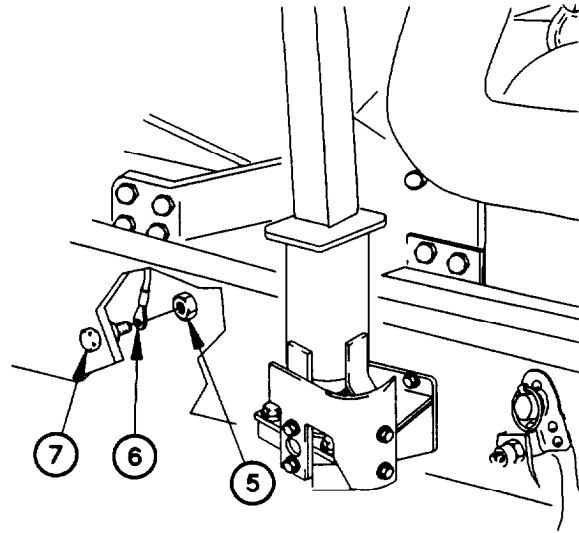
- Tag connectors and connection points prior to disconnecting.
 - Remove plastic cable ties as required.
- (1) Disconnect connector P217 (1) from PTO solenoid connector (2).
 - (2) Disconnect connector P216 (3) from PTO pressure switch connector (4).



4138R01A

7-77. POWER TAKE-OFF (PTO) CABLE ASSEMBLY REPLACEMENT (CONT)

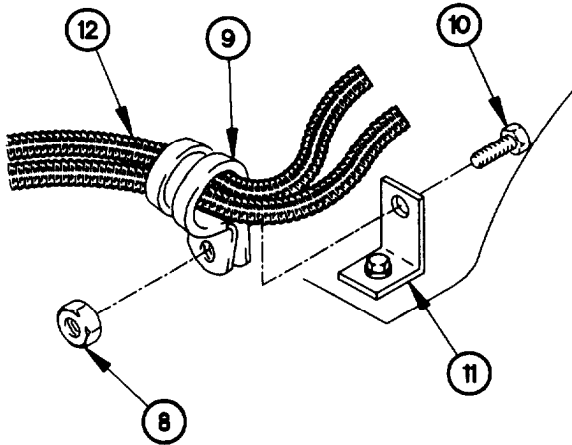
(3) Remove self-locking nut (5) and terminal lug TL78 (6) from screw (7). Discard self-locking nut.



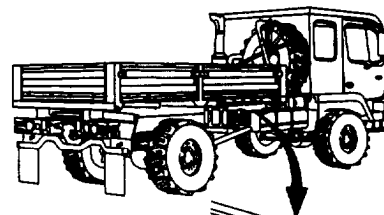
4138R02A

(4) Remove self-locking nut (8), clamp (9), and screw (10) from bracket (11). Discard self-locking nut.

(5) Remove PTO cable assembly (12) from clamp (9).



4138R03A

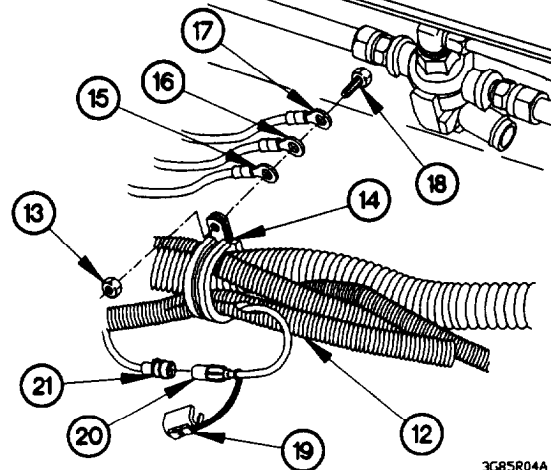


(6) Remove self-locking nut (13), clamp (14), and terminal lugs TL83 (15), TL111 (16), and TL320 (17) from screw (18). Discard self-locking nut.

(7) Remove PTO cable assembly (12) from clamp (14).

(8) Disconnect connector clamp (19) from connector P215 (20).

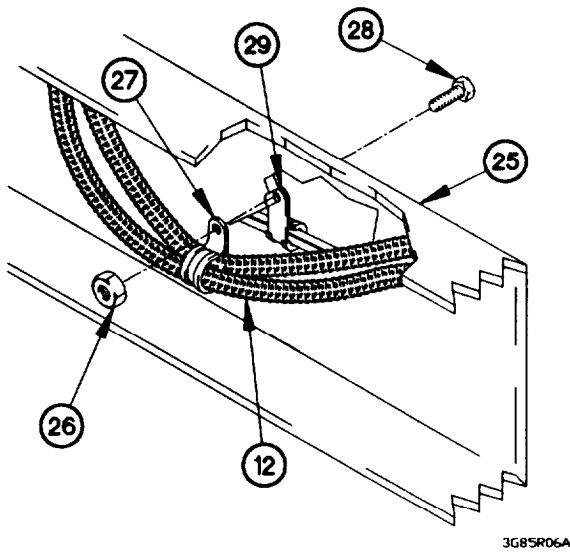
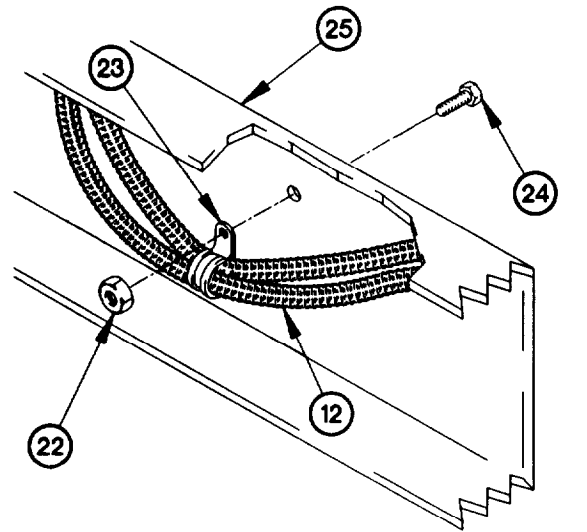
(9) Disconnect connector P215 (20) from connector J215 (21).



3G85R04A

(10) Remove self-locking nut (22), clamp (23), and screw (24) from frame rail (25). Discard self-locking nut.

(11) Remove PTO cable assembly (12) from clamp (23).

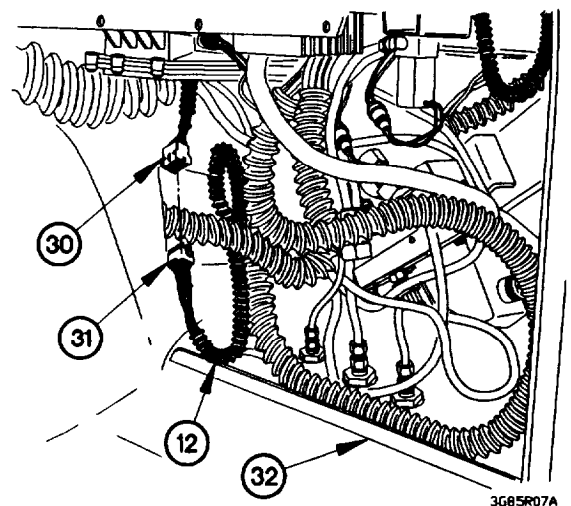


(12) Remove self-locking nut (26), clamp (27), screw (28), and clamp (29) from frame rail (25). Discard self-locking nut.

(13) Remove PTO cable assembly (12) from clamp (27).

(14) Disconnect connector P210 (30) from connector J210 (31).

(15) Remove PTO cable assembly (12) from cab (32).



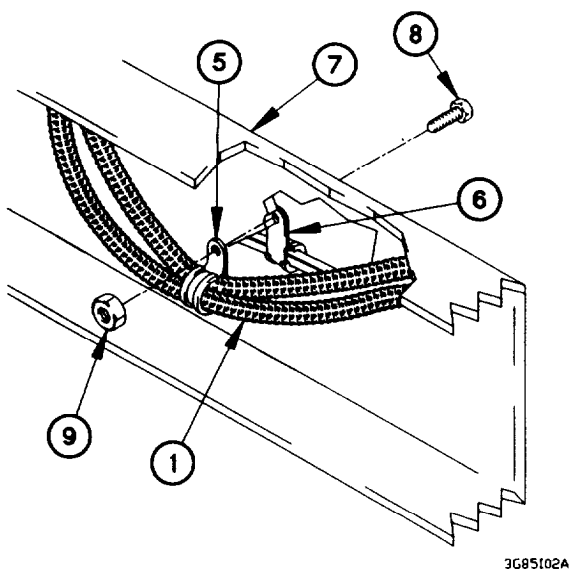
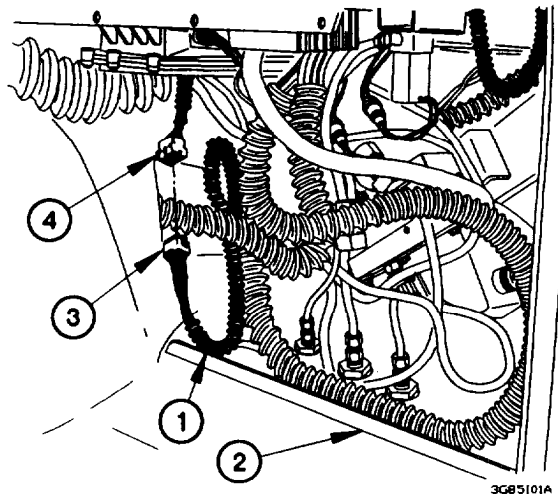
7-77. POWER TAKE-OFF (PTO) CABLE ASSEMBLY REPLACEMENT (CONT)

b. Installation.

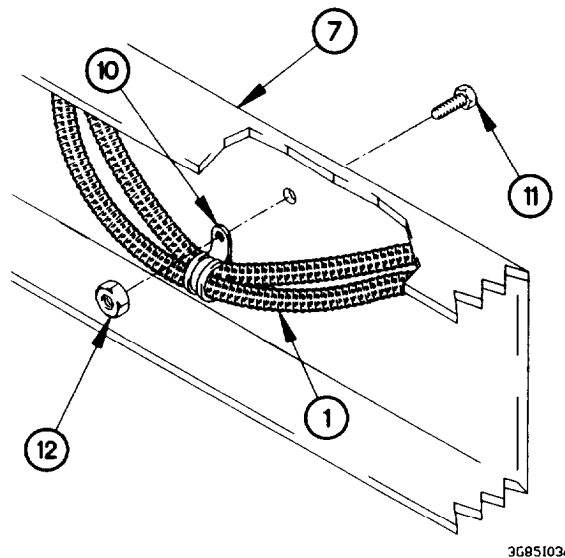
NOTE

Install plastic cable ties as required.

- (1) Position PTO cable assembly (1) in cab (2).
- (2) Connect connector J210 (3) to connector P210 (4).

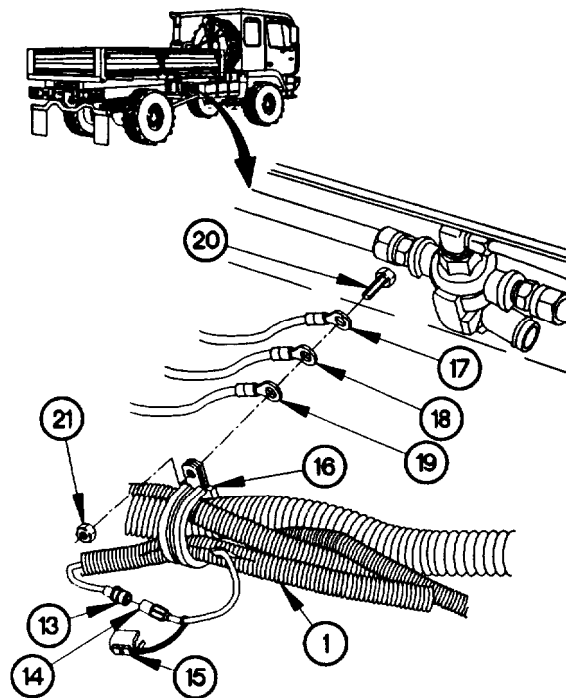


- (3) Position PTO cable assembly (1) in clamp (5).
- (4) Position clamp (5) and clamp (6) on frame rail (7) with screw (8) and self-locking nut (9).
- (5) Tighten self-locking nut (9) to 84-108 lb-in. (10-12 N•m).

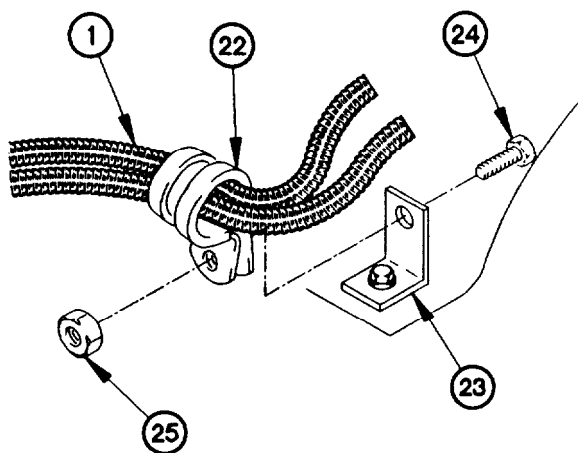


- (6) Position PTO cable assembly (1) in clamp (10).
- (7) Position clamp (10) on frame rail (7) with screw (11) and self-locking nut (12).
- (8) Tighten self-locking nut (12) to 84-108 lb-in. (10-12 N•m).

- (9) Connect connector J215 (13) to connector P215 (14).
- (10) Connect connector clamp (15) on connector P215 (14).
- (11) Position PTO cable assembly (1) in clamp (16).
- (12) Position terminal lugs TL320 (17), TL111 (18), TL83 (19), and clamp (16) on screw (20) with self-locking nut (21).
- (13) Tighten self-locking nut (21) to 97-120 lb-in. (11-14 N•m).



3G851041

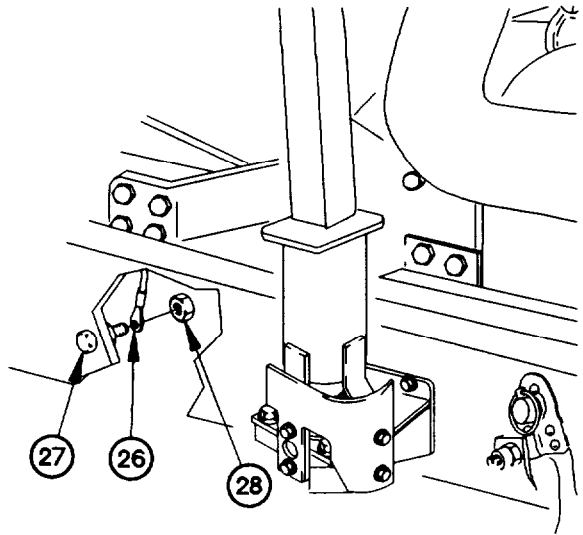


3G85105A

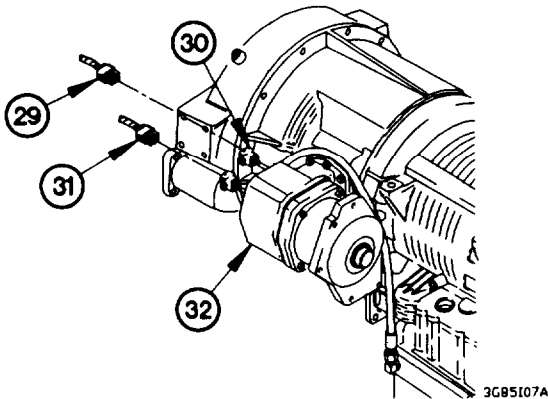
- (14) Position PTO cable assembly (1) in clamp (22).
- (15) Position clamp (22) on bracket (23) with screw (24) and self-locking nut (25).
- (16) Tighten self-locking nut (25) to 84-108 lb-in. (10-12 N•m).

7-77. POWER TAKE-OFF (PTO) CABLE ASSEMBLY REPLACEMENT (CONT)

- (17) Position terminal lug TL76 (26) on screw (27) with self-locking nut (28).
- (18) Tighten self-locking nut (28) to 84-108 lb-in. (10-12 N•m).



3G85106A



3G85107A

- (19) Connector P216 (29) to PTO pressure switch (30).
- (20) Connect connector P217 (31) to PTO solenoid (32).

c. Follow-On Maintenance.

- (1) Install kick panel (para 16-3).
- (2) Connect batteries (para 7-48).
- (3) Operate PTO and check for proper operation (TM 9-2320-365-10).
- (4) Operate 11K SRW and check for proper operation (TM 9-2320-365-10).

End of Task.

7-78. REAR INTERVEHICULAR 12 VDC (7 Pin) CABLE REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Batteries disconnected (para 7-48).

Materials/Parts

Ties, Cable, Plastic (Item 76, Appendix D)
Nut, Self-Locking (2) (Item 116, Appendix G)

Tools and Special Tools

Tool Kit, Genl Mech (Item 44, Appendix C)
Goggles, Industrial (Item 15, Appendix C)



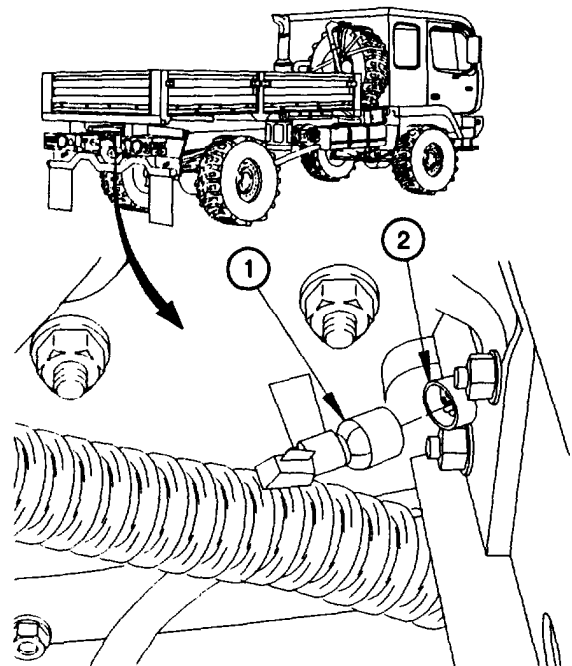
Wear appropriate eye protection when working under vehicle due to the possibility of falling debris. Failure to comply may result in injury to personnel.

a. Removal.

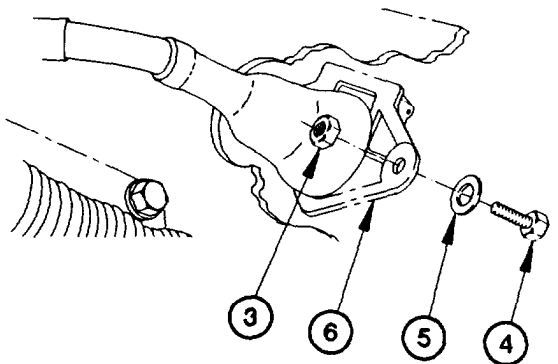
NOTE

Remove plastic cable ties as required.

- (1) Disconnect connector J52 (1) from connector P52R (2).



3139R011



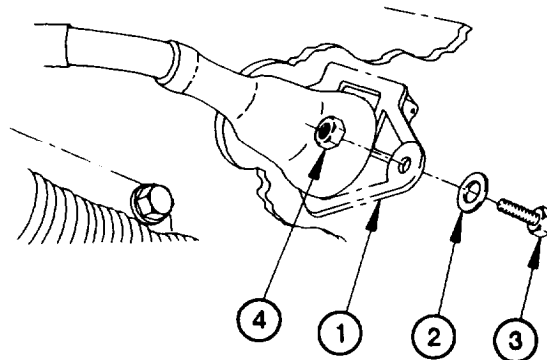
X139R02-

- (2) Remove two self-locking nuts (3), screws (4), washers (5), and rear intervehicular 12 vdc cable (6) from vehicle. Discard self-locking nuts.

7-78. REAR INTERVEHICULAR 12 VDC (7 Pin) CABLE REPLACEMENT (CONT)

b. Installation.

- (1) Install rear intervehicular 12 vdc cable (1) in vehicle with two washers (2), screws (3), and self-locking nuts (4).

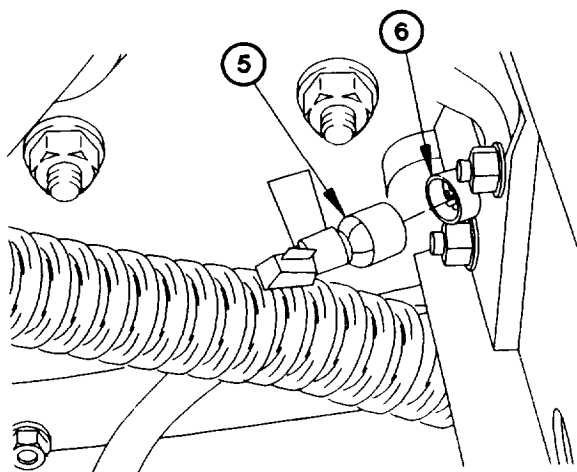


x139101-

NOTE

Install plastic cable ties as required.

- (2) Connect connector J52 (5) to connector P52R (6).



x1391021

c. Follow-On Maintenance.

Connect batteries (para 7-48).

End of Task.

7-79. REAR INTERVEHICULAR 24 VDC (12 Pin) CABLE REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP**Equipment Conditions**

Batteries disconnected (para 7-48).

Tools and Special Tools

Tool Kit, Genl Mech (Item 44, Appendix C)
Goggles, Industrial (Item 15, Appendix C)

Materials/Parts

Ties, Cable, Plastic (Item 76, Appendix D)
Nut, Self-Locking (4) (Item 116, Appendix G).

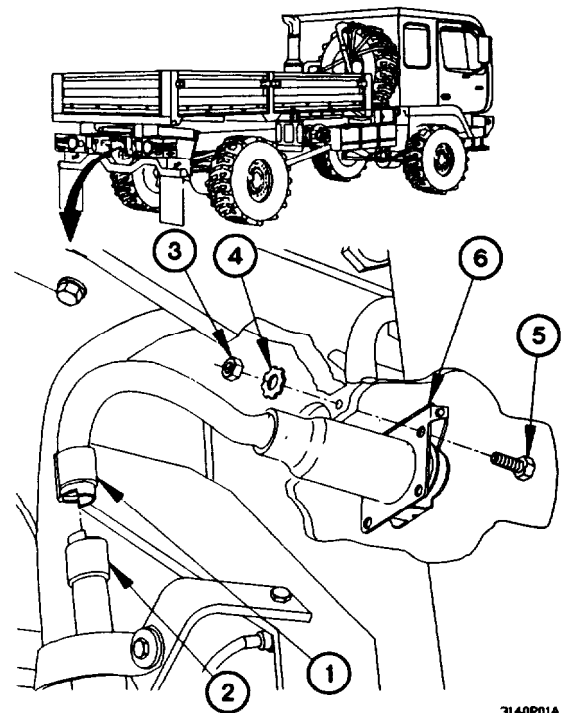
WARNING

Wear appropriate eye protection when working under vehicle due to the possibility of falling debris. Failure to comply may result in injury to personnel.

a. Removal.**NOTE**

Remove plastic cable ties as required.

- (1) Disconnect connector J53 (1) from connector P53 (2).
- (2) Remove four self-locking nuts (3), washers (4), screws (5), and rear intervehicular 24 vdc cable (6) from vehicle. Discard self-locking nuts.



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b. Installation.

- (1) Install rear intervehicular 24 vdc cable (6) on vehicle with four screws (5), washers (4), and self-locking nuts (3).

NOTE

Install plastic cable ties as required.

- (2) Connect connector J53 (1) to connector P53 (2).

c. Follow-On Maintenance.

Connect batteries (para 7-48).

End of Task.

**7-80. 100 AMP REVERSE POLARITY RELAY TO POWER DISTRIBUTION PANEL (PDP)
12 VDC CABLE REPLACEMENT**

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

- Batteries disconnected (para 7-48).
- PDP cover removed (para 16-2).
- Spare tire lowered (TM 9-2320-365-10).
- Lower radiator fan shroud removed (para 6-4).

Tools and Special Tools

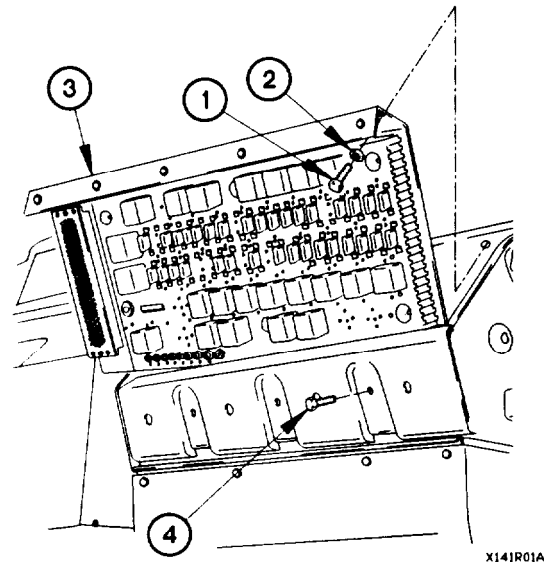
- Tool Kit, Genl Mech (Item 44, Appendix C)
- Wrench, Torque, 0-200 lb-in. (Item 58, Appendix C)
- Socket Set, Socket Wrench (Item 34, Appendix C)

Materials/Parts

- Ties, Cable, Plastic (Item 76, Appendix D)
- Nut, Self-Locking (2) (Item 137, Appendix G)
- Lockwasher (Item 92, Appendix G)
- Lockwasher (Item 74, Appendix G)

a. Removal.

- (1) Remove three screws (1) and washers (2) from PDP (3).
- (2) Remove three screws (4) from PDP (3).
- (3) Lift PDP (3) outward to gain access.

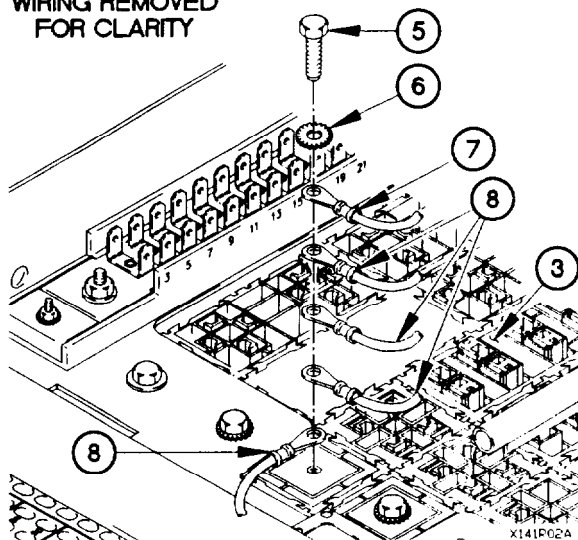


NOTE

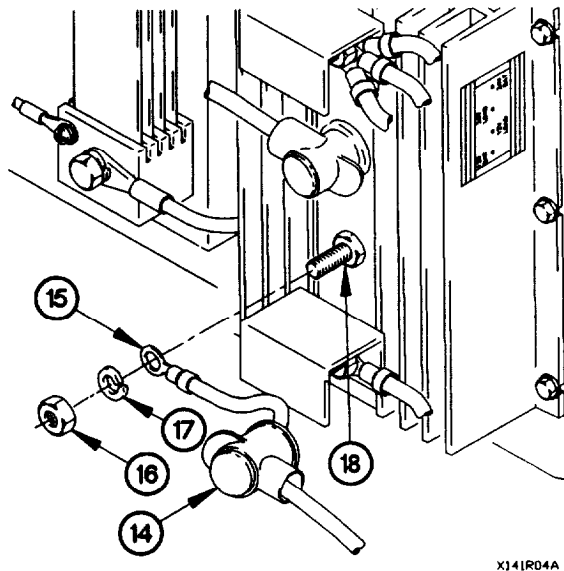
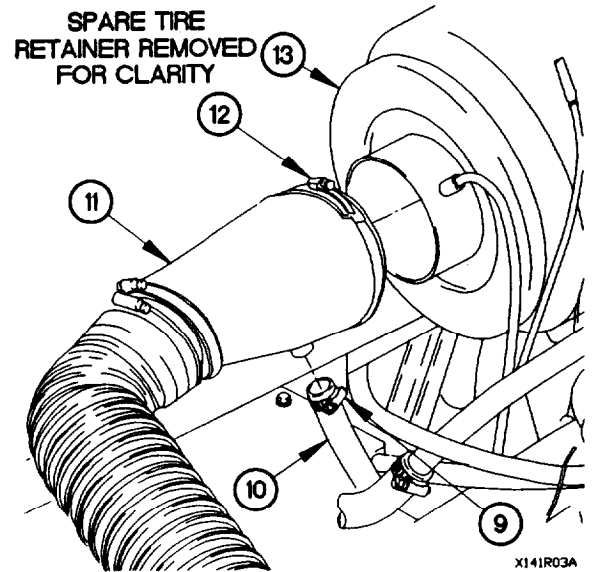
Remove plastic cable ties as required.

- (4) Remove screw (5), lockwasher (6), terminal lug TL41 (7), and four terminal lugs (8) from PDP (3). Discard lockwasher.
- (5) Position four terminal lugs (8) on PDP (3) with screw (5).

WIRING REMOVED FOR CLARITY

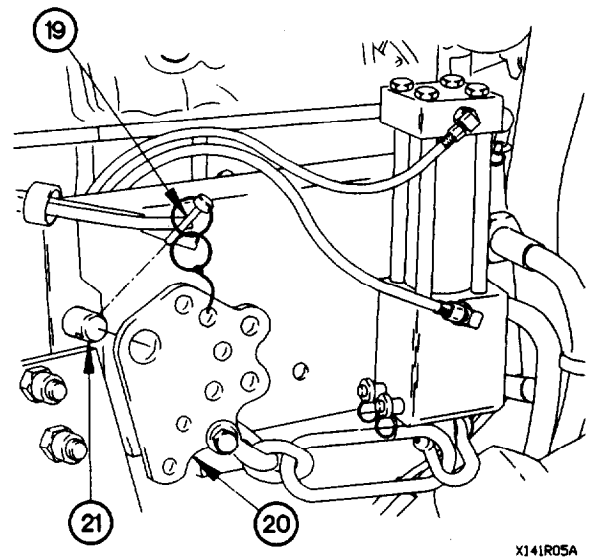


- (6) Loosen clamp (9) on air compressor intake hose (10).
- (7) Remove air compressor intake hose (10) from intake air cleaner boot (11).
- (8) Loosen clamp (12) on intake air cleaner boot (11).
- (9) Remove intake air cleaner boot (11) from intake air cleaner housing (13).



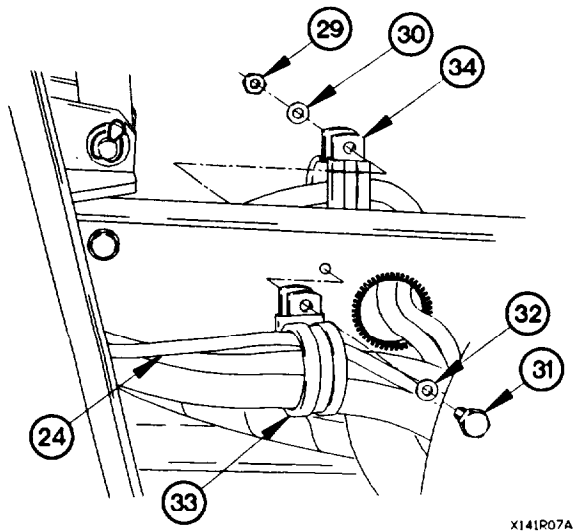
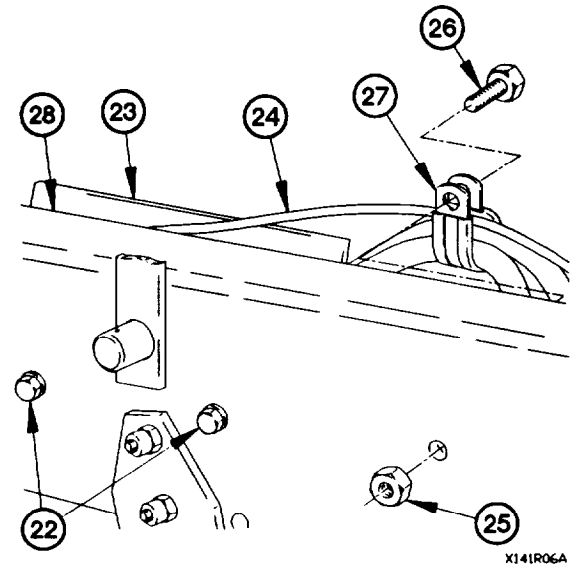
- (10) Lift dust boot (14) on terminal lug TL80 (15).
- (11) Remove nut (16), lockwasher (17), and terminal lug TL80 (15) from 100 amp reverse polarity relay 12 vdc terminal (18). Discard lockwasher.

- (12) Remove spring pin (19) and suspension compression plate (20) from suspension compression plate stud (21).

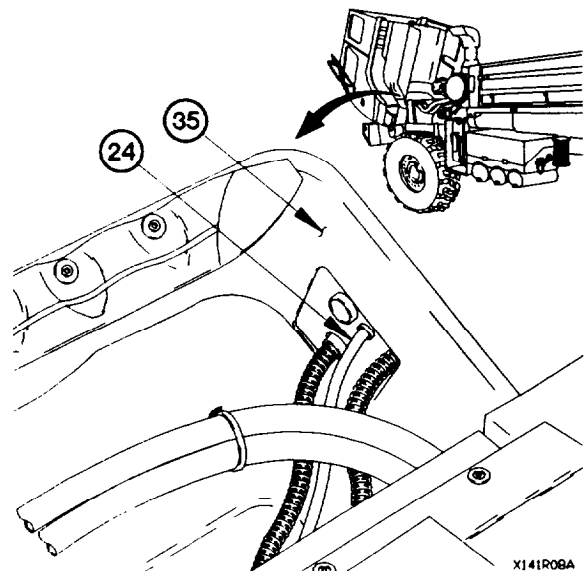


**7-80. 100 AMP REVERSE POLARITY RELAY TO POWER DISTRIBUTION PANEL (PDP)
12 VDC CABLE REPLACEMENT (CONT)**

- (13) Loosen two screws (22) in heat shield assembly (23).
- (14) Remove 100 amp reverse polarity relay to PDP 12 vdc cable (24) from heat shield assembly (23).
- (15) Remove self-locking nut (25), screw (26), clamp (27), and 100 amp reverse polarity relay to PDP 12 vdc cable (24) from frame rail (28). Discard self-locking nut.
- (16) Remove 100 amp reverse polarity relay to PDP 12 vdc cable (24) from clamp (27).



- (17) Raise cab (TM 9-2320-365-10).
- (18) Remove self-locking nut (29), washer (30), screw (31), and washer (32) from clamps (33 and 34).
- (19) Remove 100 amp reverse polarity relay to PDP 12 vdc cable (24) from clamp (33).



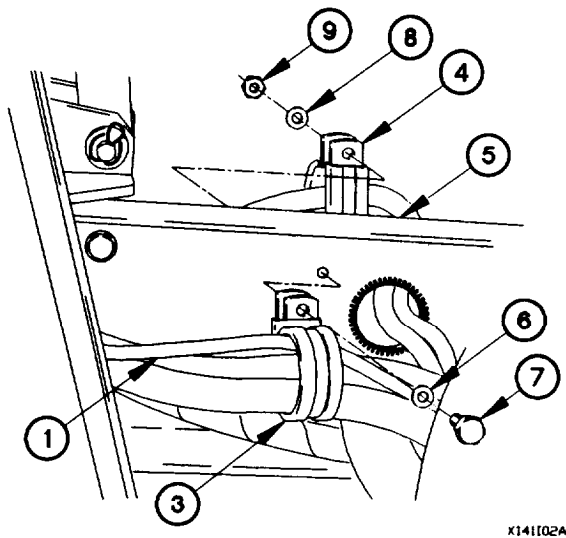
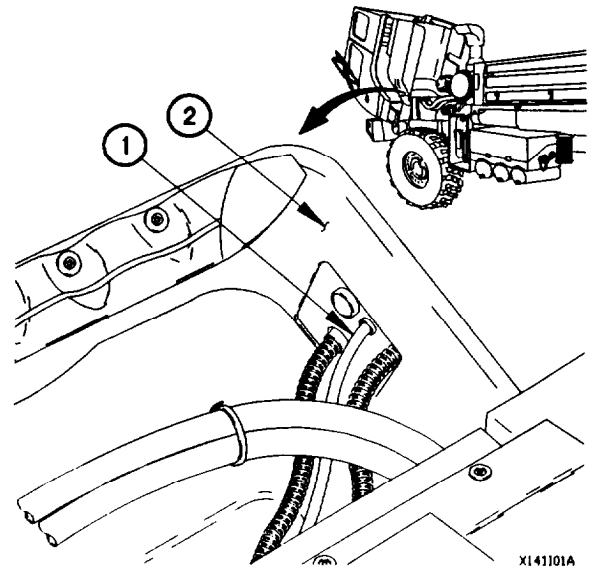
- (20) Remove 100 amp reverse polarity relay to PDP 12 vdc cable (24) from cab (35).

b. Installation.

NOTE

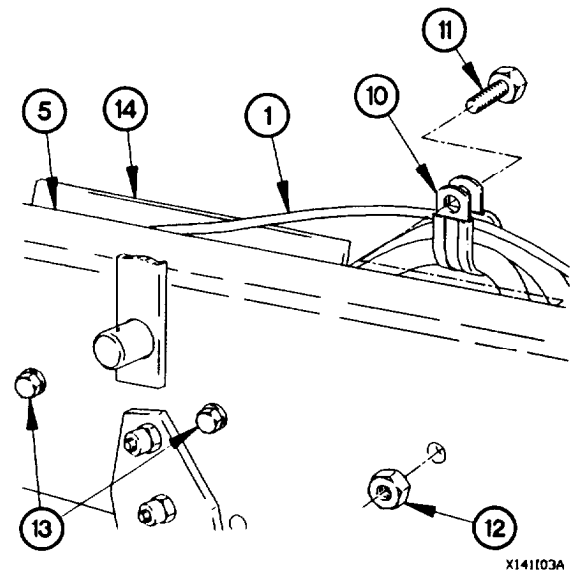
Install plastic cable ties as required.

- (1) Route 100 amp reverse polarity relay to PDP 12 vdc cable (1) through bottom of cab (2).



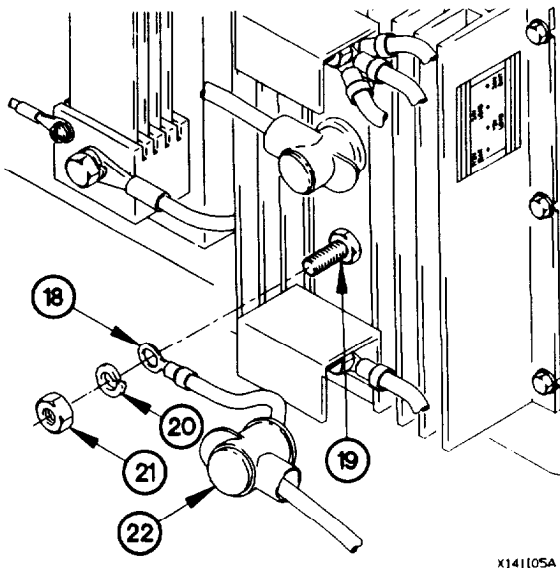
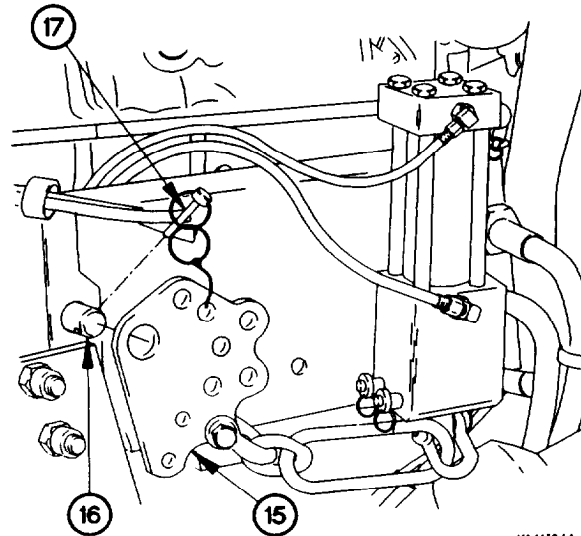
- (2) Position 100 amp reverse polarity relay to PDP 12 vdc cable (1) in clamp (3).
- (3) Position clamps (3 and 4) on frame rail (5) with washer (6), screw (7), washer (8), and self-locking nut (9).
- (4) Tighten self-locking nut (9) to 97-120 lb-in. (11-14 N•m).

- (5) Position 100 amp reverse polarity relay to PDP 12 vdc cable (1) in clamp (10).
- (6) Position clamp (10) on frame rail (5) with screw (11), and self-locking nut (12).
- (7) Tighten self-locking nut (12) to 97-120 lb-in. (11-14 N•m).
- (8) Tighten two screws (13) in heat shield assembly (14).



**7-80. 100 AMP REVERSE POLARITY RELAY TO POWER DISTRIBUTION PANEL (PDP)
12 VDC CABLE REPLACEMENT (CONT)**

- (9) Install suspension compression plate (15) on suspension compression plate stud (16) with spring pin (17).



- (10) Install terminal lug TL80 (18) on 100 amp reverse polarity relay 12 vdc terminal (19) with lockwasher (20) and nut (21).

- (11) Position dust boot (22) on terminal lug TL80 (18).

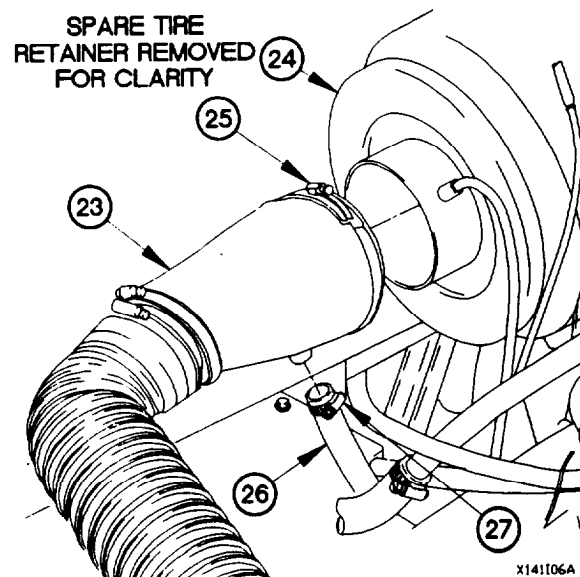
- (12) Position intake air cleaner boot (23) on intake air cleaner housing (24) with clamp (25).

- (13) Tighten clamp (25) to 36-48 lb-in. (4-5 N•m).

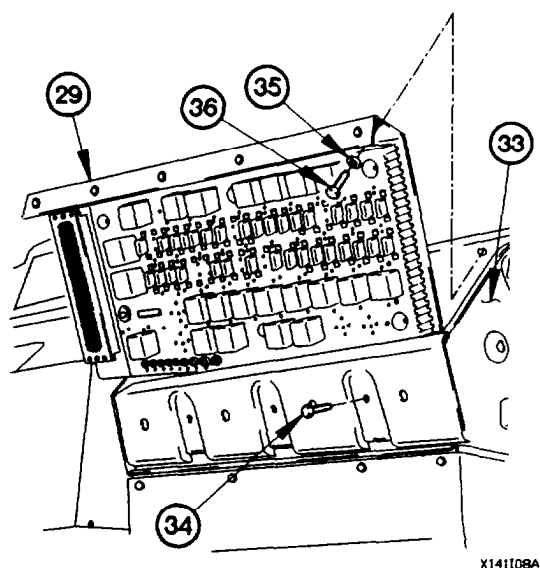
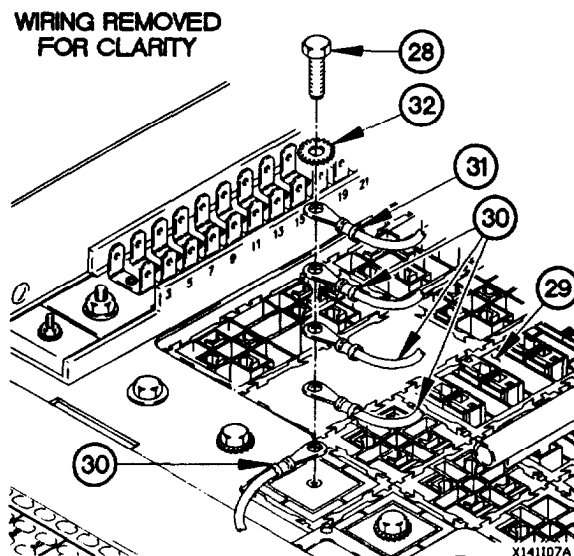
- (14) Position air compressor intake hose (26) on intake air cleaner boot (23) with clamp (27).

- (15) Tighten clamp (25) to 36-48 lb-in. (4-5 N•m).

- (16) Lower cab (TM 9-2320-365-10).



- (17) Remove screw (28) from PDP (29).
- (18) Position four terminal lugs (30) and terminal lug TL41 (31) on PDP (29) with lockwasher (32) and screw (28).
- (19) Tighten screw (28) to 35-45 lb-in. (4-5 N•m).



- (20) Install PDP (29) on dashboard (33) with three screws (34).
- (21) Install three washers (35) and screws (36) in PDP (29).

c. Follow-On Maintenance.

- (1) Install PDP cover (para 16-2).
- (2) Install lower radiator fan shroud (para 6-4).
- (3) Connect batteries (para 7-48).
- (4) Raise spare tire (TM 9-2320-365-10).
- (5) Start engine (TM 9-2320-365-10).
- (6) Check VOLTS gage for charge indication (TM 9-2320-365-10).
- (7) Shut down engine (TM 9-2320-365-10).

End of Task.

**7-81. 100 AMP REVERSE POLARITY RELAY TO POWER DISTRIBUTION PANEL (PDP)
24 VDC CABLE REPLACEMENT**

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

- Batteries disconnected (para 7-48).
- PDP cover removed (para 16-2).
- Spare tire lowered (TM 9-2320-365-10).
- Bottom radiator fan shroud removed (para 6-4).
- Cab lowered (TM 9-2320-365-10).

Tools and Special Tools

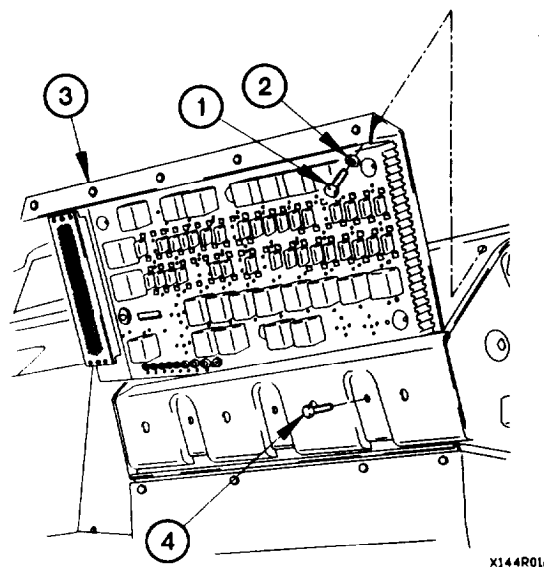
- Tool Kit, Genl Mech (Item 44, Appendix C)
- Wrench, Torque, 0-200 lb-in. (Item 58, Appendix C)
- Socket Set, Socket Wrench (Item 34, Appendix C)

Materials/Parts

- Ties, Cable, Plastic (Item 76, Appendix D)
- Nut, Self-Locking (2) (Item 133, Appendix G)
- Lockwasher (Item 89, Appendix G)
- Lockwasher (Item 70, Appendix G)

a. Removal.

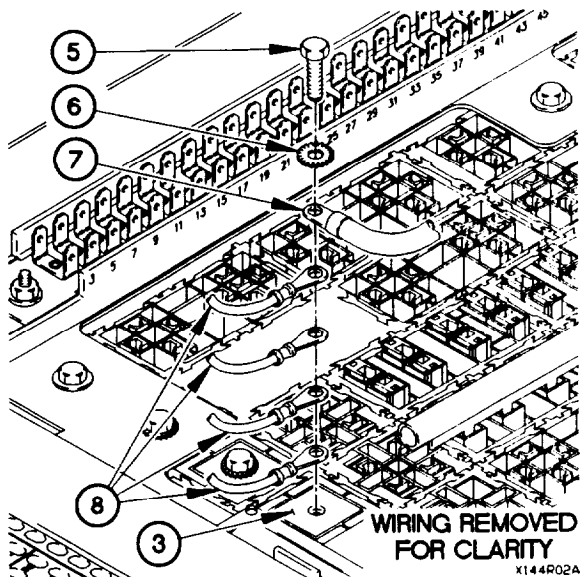
- (1) Remove three screws (1) and washers (2) from PDP (3).
- (2) Remove three screws (4) from PDP (3).
- (3) Lift PDP (3) outward to gain access.



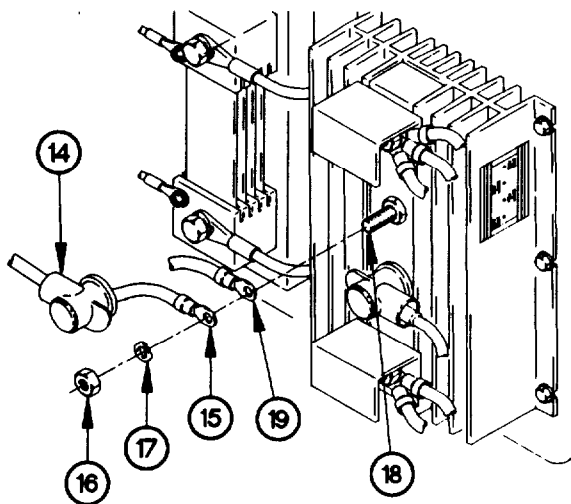
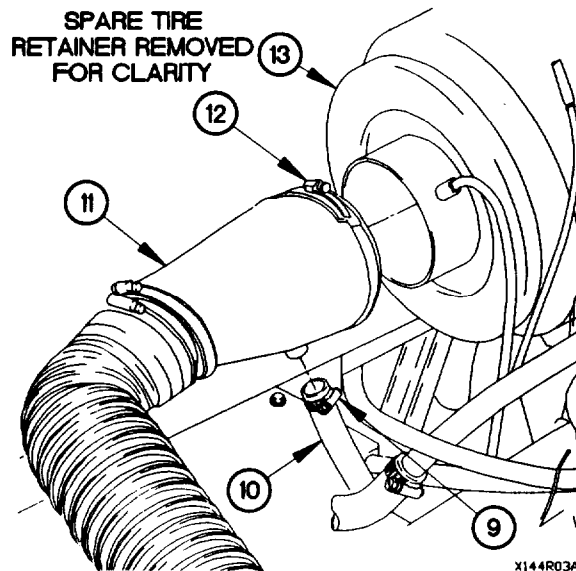
NOTE

Remove plastic cable ties as required.

- (4) Remove screw (5), lockwasher (6), terminal lug TL42 (7), and four terminal lugs (8) from PDP (3). Discard lockwasher.
- (5) Position four terminal lugs (8) on PDP (3) with screw (5).



- (6) Loosen clamp (9) on air compressor intake hose (10).
- (7) Remove air compressor intake hose (10) from intake air cleaner boot (11).
- (8) Loosen clamp (12) on intake air cleaner boot (11).
- (9) Remove intake air cleaner boot (11) from intake air cleaner housing (13).



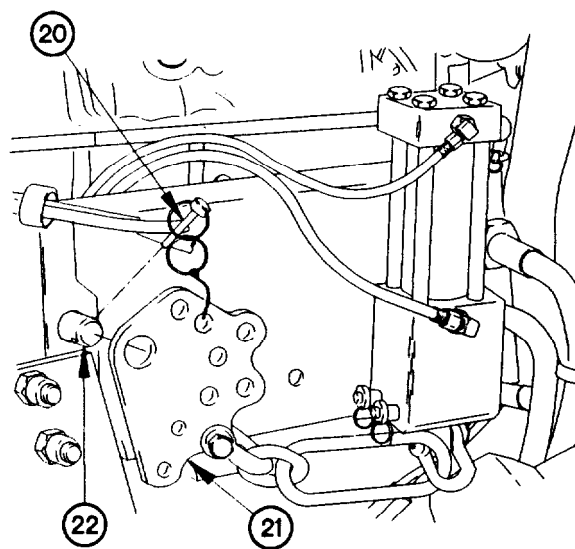
- (10) Lift dust boot (14) on terminal lug TL44 (15).
- (11) Remove nut (16), lockwasher (17), and terminal lug TL44 (15) from 100 amp reverse polarity relay 24 vdc terminal (18). Discard lockwasher.

NOTE

Perform step (12) on M1079.

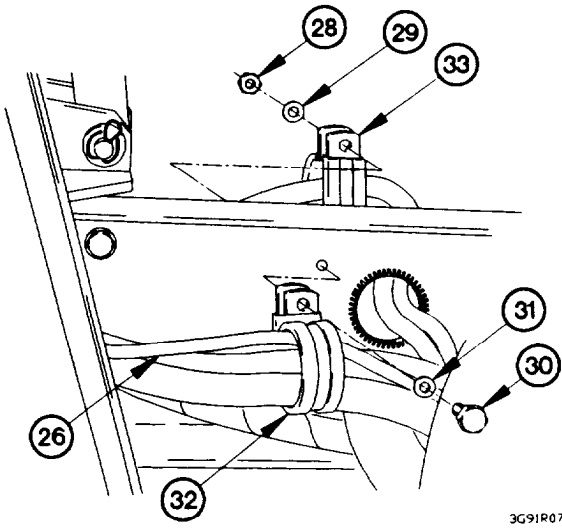
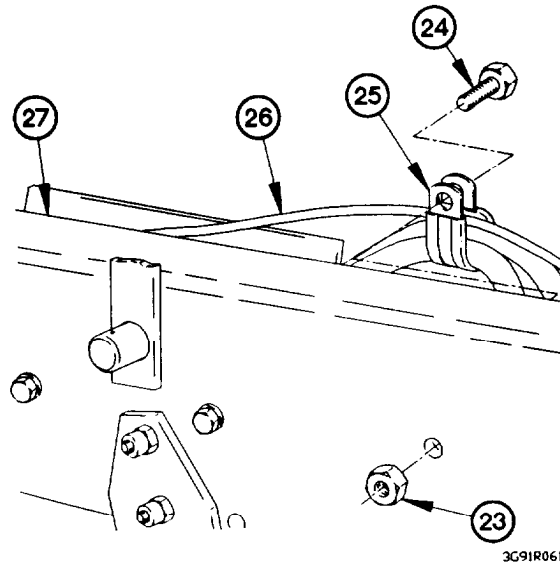
- (12) Remove terminal lug TL100 (19) from 100 amp reverse polarity relay 24 vdc terminal (18).

- (13) Raise cab (TM 9-2320-365-10).
- (14) Remove spring pin (20) and suspension compression plate (21) from suspension compression plate stud (22).



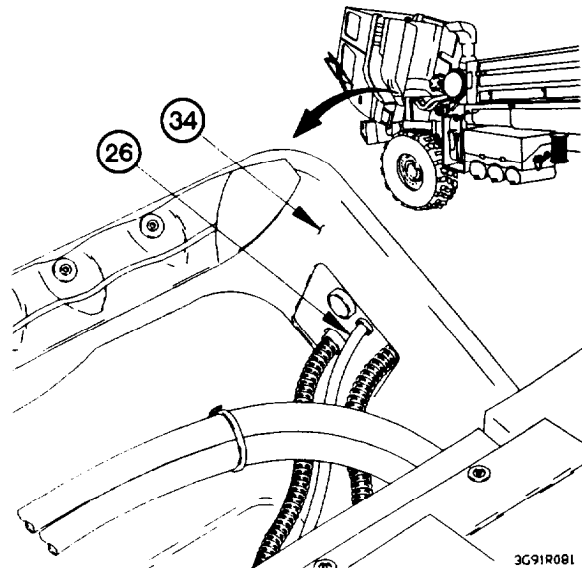
**7-81. 100 AMP REVERSE POLARITY RELAY TO POWER DISTRIBUTION PANEL (PDP)
24 VDC CABLE REPLACEMENT (CONT)**

- (15) Remove self-locking nut (23), screw (24), clamp (25), and 100 amp reverse polarity relay to PDP 24 vdc cable (26) from frame rail (27). Discard self-locking nut.
- (16) Remove 100 amp reverse polarity relay to PDP 24 vdc cable (26) from clamp (25).



- (17) Remove self-locking nut (28), washer (29), screw (30), and washer (31) from clamps (32 and 33). Discard self-locking nut.
- (18) Remove 100 amp reverse polarity relay to PDP 24 vdc cable (26) from clamp (32).

- (19) Remove 100 amp reverse polarity relay to PDP 24 vdc cable (26) from cab (34).

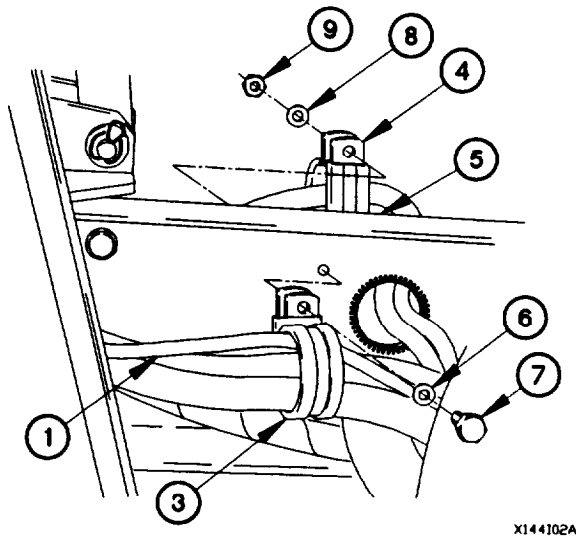
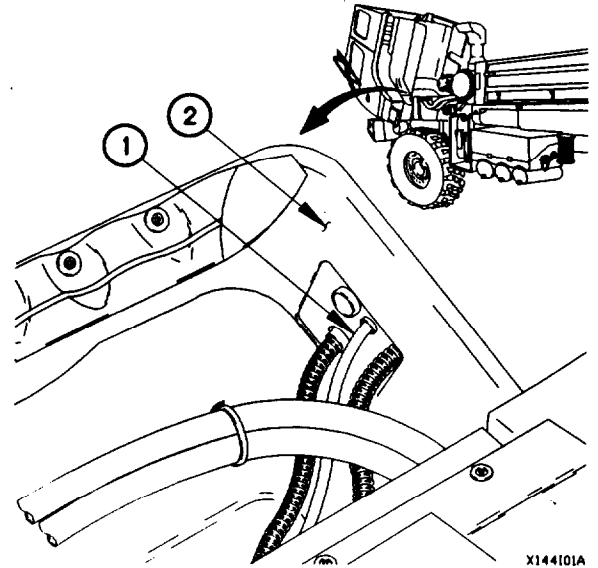


b. Installation.

NOTE

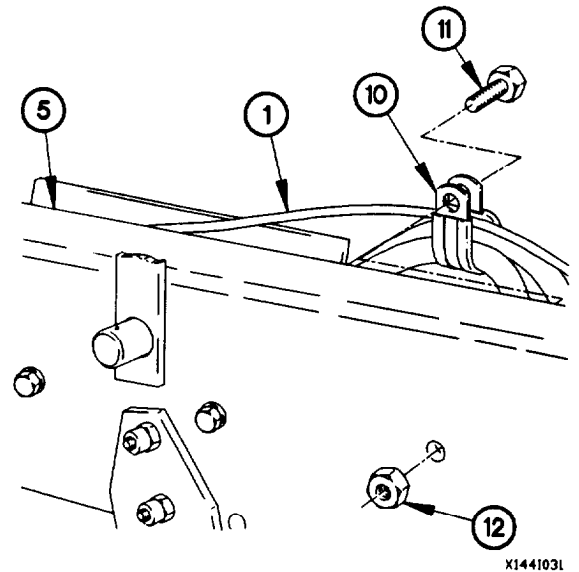
Install plastic cable ties as required.

- (1) Position 100 amp reverse polarity relay to PDP 24 vdc cable (1) through bottom of cab (2).



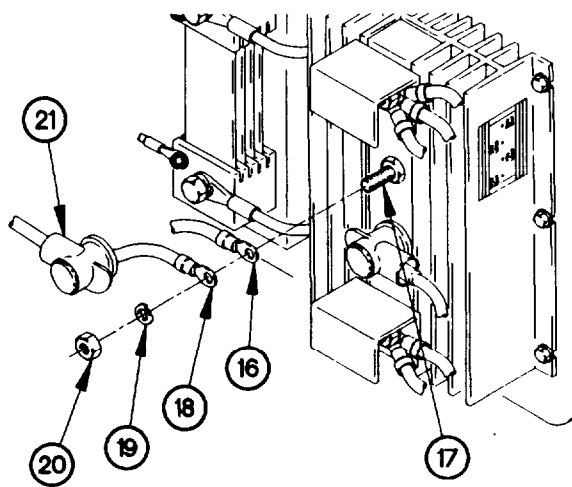
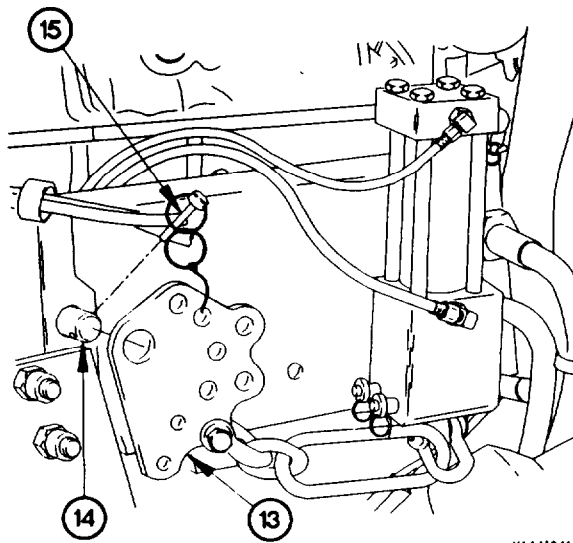
- (2) Position 100 amp reverse polarity relay to PDP 24 vdc cable (1) in clamp (3).
- (3) Position clamps (3 and 4) on frame rail (5) with washer (6), screw (7), washer (8), and self-locking nut (9).
- (4) Tighten self-locking nut (9) to 97-120 lb-in. (11-14 N•m).

- (5) Position 100 amp reverse polarity relay to PDP 24 vdc cable (1) in clamp (10).
- (6) Position clamp (10) on frame rail (5) with screw (11) and self-locking nut (12).
- (6) Tighten self-locking nut (12) to 97-120 lb-in. (11-14 N•m).



**7-81. 100 AMP REVERSE POLARITY RELAY TO POWER DISTRIBUTION PANEL (PDP)
24 VDC CABLE REPLACEMENT (CONT)**

- (8) Install suspension compression plate (13) on suspension compression plate stud (14) with spring pin (15).



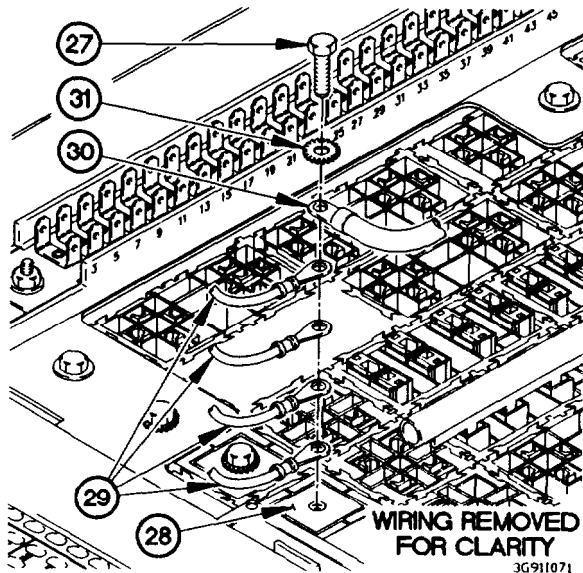
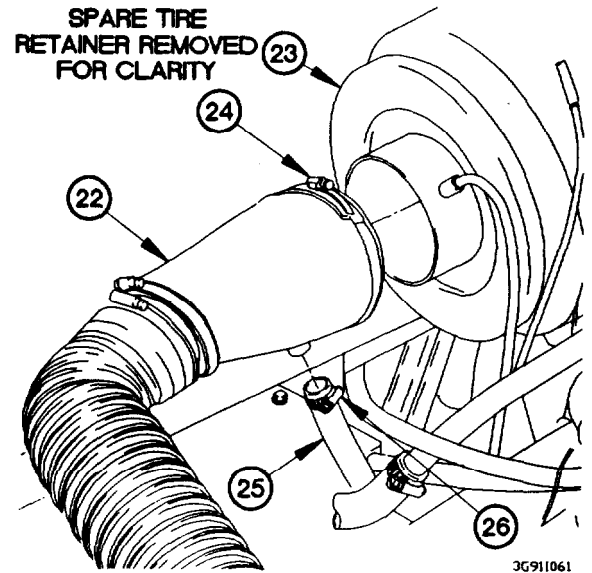
NOTE

Perform step (9) on M1079.

- (9) Install terminal lug TL100 (16) on 100 amp reverse polarity relay 24 vdc terminal (17).
- (10) Install terminal lug TL44 (18) on 100 amp reverse polarity relay 24 vdc terminal (17) with lockwasher (19) and nut (20).
- (11) Position dust boot (21) on terminal lug TL44 (18).

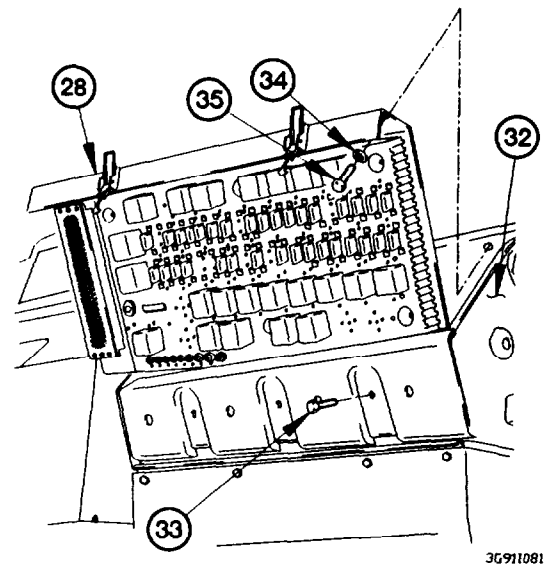
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- (12) Position intake air cleaner boot (22) on intake air cleaner housing (23) with clamp (24).
- (13) Position air compressor intake hose (25) on intake air cleaner boot (22) with clamp (26).
- (14) Tighten clamps (24 and 26) to 36-48 lb-in. (4-5 N•m).
- (15) Lower cab (TM 9-2320-365-10).



- (16) Remove screw (27) from PDP (28).
- (17) Position four terminal lugs (29) and terminal lug TL42 (30) on PDP (28) with lockwasher (31) and screw (27).
- (18) Tighten screw (27) to 35-45 lb-in. (4-5 N•m).

- (19) Install PDP (28) on dashboard (32) with three screws (33).
- (20) Install three washers (34) and screws (35) in PDP (28).



**7-81. 100 AMP REVERSE POLARITY RELAY TO POWER DISTRIBUTION PANEL (PDP)
24 VDC CABLE REPLACEMENT (CONT)**

c. Follow-On Maintenance.

- (1) Install bottom radiator fan shroud (para 6-4).
- (2) Raise spare tire (TM 9-2320-365-10).
- (3) Install PDP cover (para 16-2).
- (4) Connect batteries (para 7-48).
- (5) Start engine (TM 9-2320-365-10).
- (6) Check VOLTS gage for charge indication (TM 9-2320-365-10).
- (7) Shut down engine (TM 9-2320-365-10).

End of Task.

7-82. START AND CHARGING CABLE ASSEMBLY REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP**Equipment Conditions**

Spare tire lowered (TM 9-2320-365-10).
 Batteries disconnected (para 7-48).
 Instrument panel assembly removed for access (para 7-15).

Tools and Special Tools

Tool Kit, Genl Mech (Item 44, Appendix C)
 Wrench, Torque, 0-200 lb-in. (Item 56, Appendix C)
 Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)
 Socket Set, Socket Wrench (Item 34, Appendix C)

Materials/Parts

Ties, Cable, Plastic (Item 76, Appendix D)
 Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)
 Nut, Self-Locking (7) (Item 116, Appendix G)
 Nut, Self-Locking (Item 134, Appendix G)
 Nut, Self-Locking (Item 137, Appendix G)
 Lockwasher (Item 92, Appendix G)
 Lockwasher (3) (Item 79, Appendix G)
 Lockwasher (2) (Item 82, Appendix G)
 Adhesive (Item 8, Appendix D)

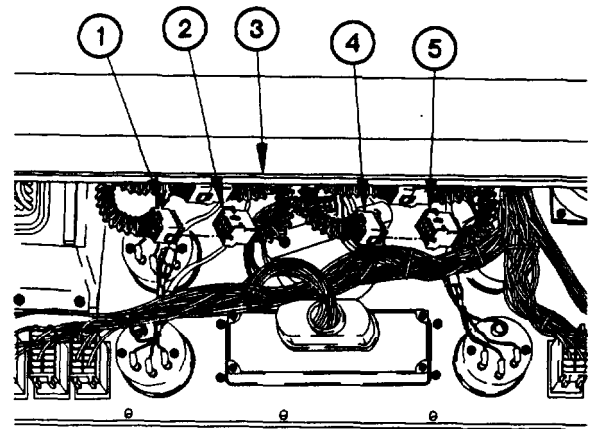
Personnel Required

(2)

a. Removal.**NOTE**

- Remove plastic cable ties as required.
- Tag connectors and connection points prior to disconnecting.

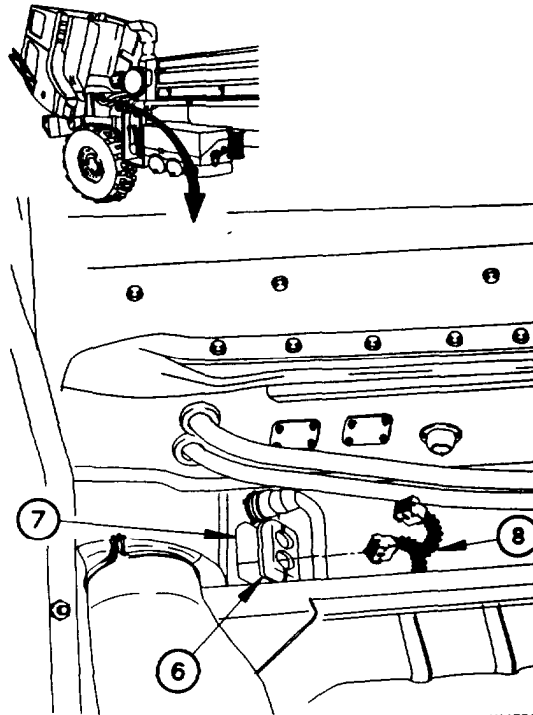
- (1) Disconnect connector P43 (1) from connector J43 (2).
- (2) Position connector P43 (1) through bottom of dashboard (3).
- (3) Disconnect connector P43X (4) from connector J43X (5).
- (4) Position connector P43X (4) through side of dashboard (3).



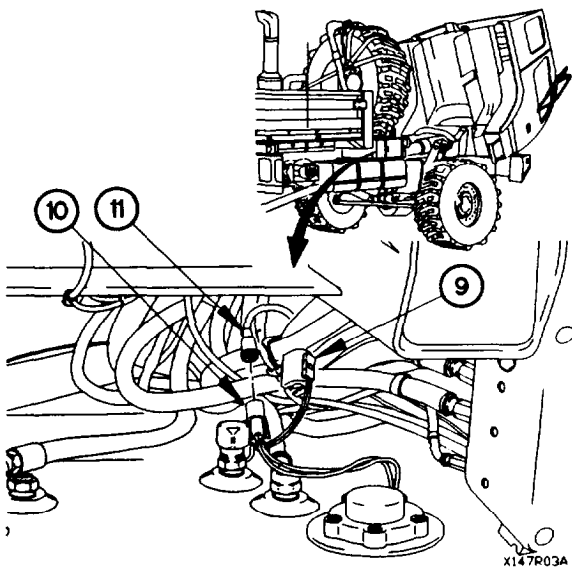
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7-82. START AND CHARGING CABLE ASSEMBLY REPLACEMENT (CONT)

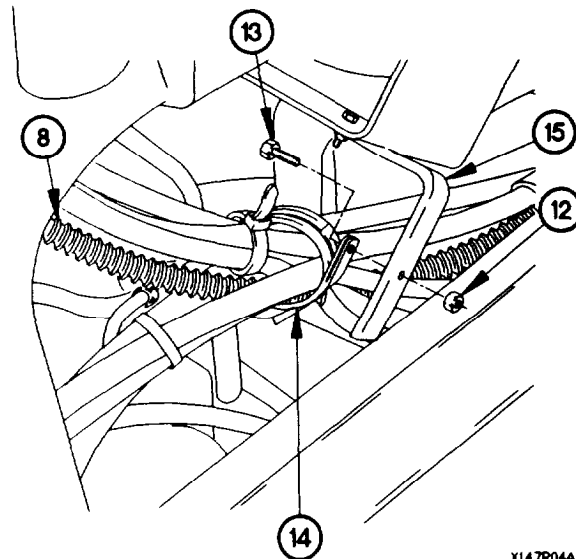
- (5) Raise cab (TM 9-2320-365-10).
- (6) Remove grommet (6) from cab (7).
- (7) Remove start and charging cable assembly (8) from grommet (6).



- (8) Disconnect connector clamp (9) from fuel sending unit connector J82 (10).
- (9) Disconnect connector P82 (11) from fuel sender unit connector J82 (10).



- (10) Remove self-locking nut (12), screw (13), and clamp (14) from bracket (15). Discard self-locking nut.
- (11) Remove start and charging cable assembly (8) from clamp (14).



- (12) Remove self-locking nut (16), clamp (17), and terminal lug TL83 (18) from screw (19). Discard self-locking nut.

NOTE

Perform step (13) on vehicles equipped with PTO.

- (13) Remove terminal lug TL111 (20) from screw (19).

NOTE

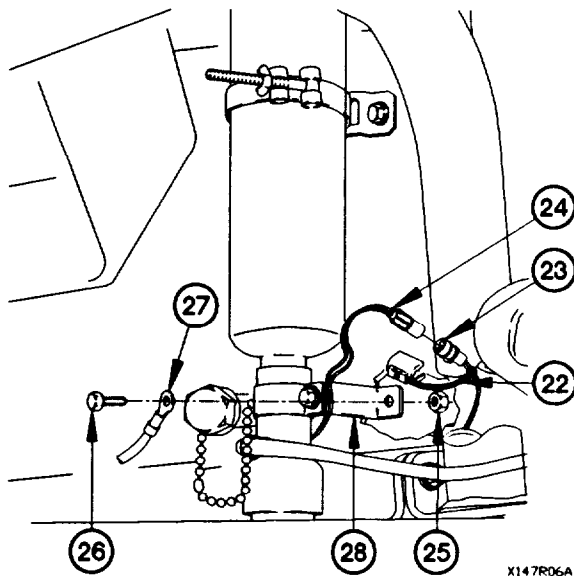
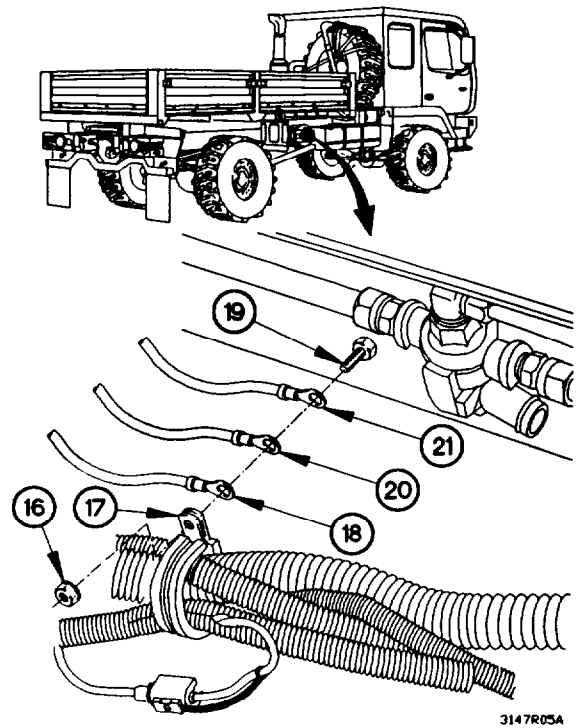
Perform step (14) on vehicles equipped with arctic kit(s).

- (14) Remove terminal lug TL101 (20) from screw (19).

NOTE

Perform step (15) on vehicles equipped with 11K SRW.

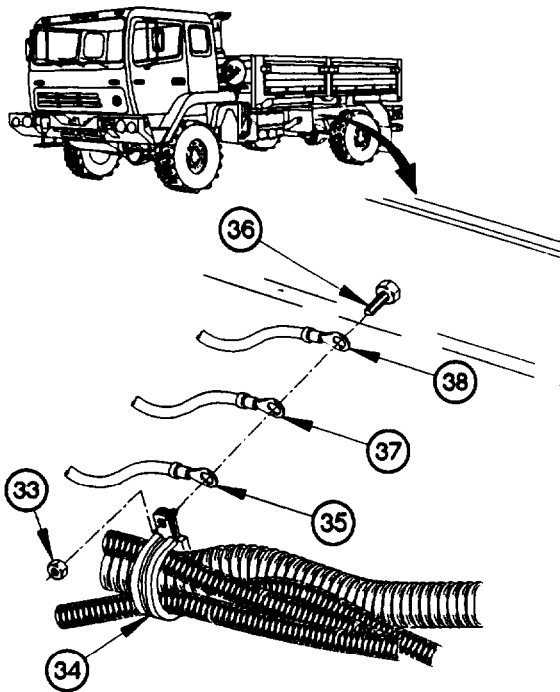
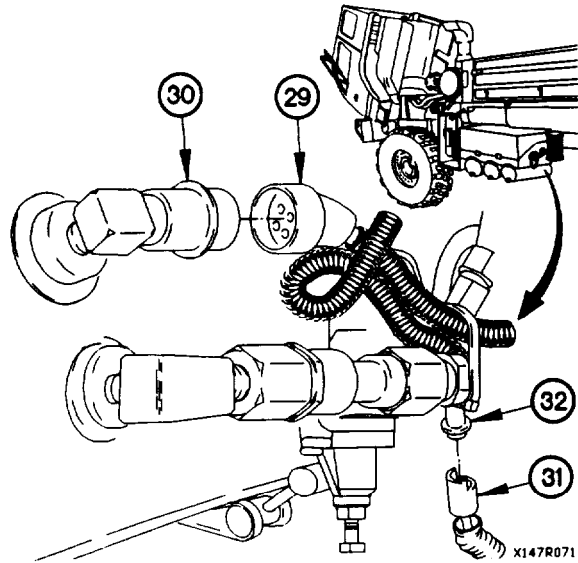
- (15) Remove terminal lug TL320 (21) from screw (19).



- (16) Disconnect connector clamp (22) from connector P93 (23).
- (17) Disconnect connector J93 (24) from connector P93 (23).
- (18) Remove self-locking nut (25), screw (26), and terminal lug TL84 (27) from bracket (28). Discard self-locking nut.

7-82. START AND CHARGING CABLE ASSEMBLY REPLACEMENT (CONT)

- (19) Disconnect connector P84 (29) from wet tank air pressure switch J84 (30).
- (20) Disconnect connector P80 (31) from air dryer connector J80 (32).



- (21) Remove self-locking nut (33), clamp (34), and terminal lug TL85 (35) from screw (36). Discard self-locking nut.

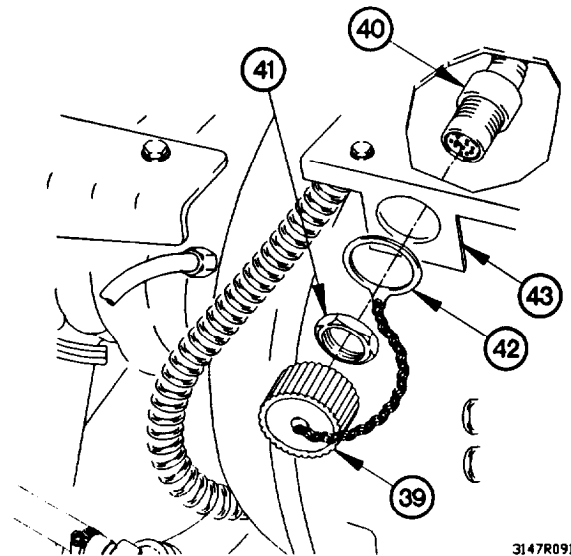
NOTE

Perform step (22) on vehicles equipped with arctic kit(s).

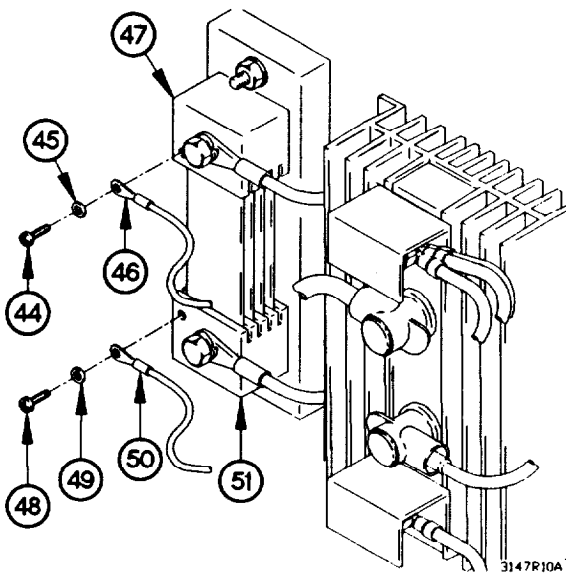
- (22) Remove terminal lugs TL102 (37) and TL103 (38) from screw (36).

(23) Remove dust cap (39) from connector J106 (40).

(24) Remove nut (41), dust cap lanyard (42), and connector J106 (40) from chemical detector mounting bracket (43).



3147R091



3147R10A

(25) Remove screw (44), washer (45), and terminal lug TL51 (46) from upper shunt terminal (47).

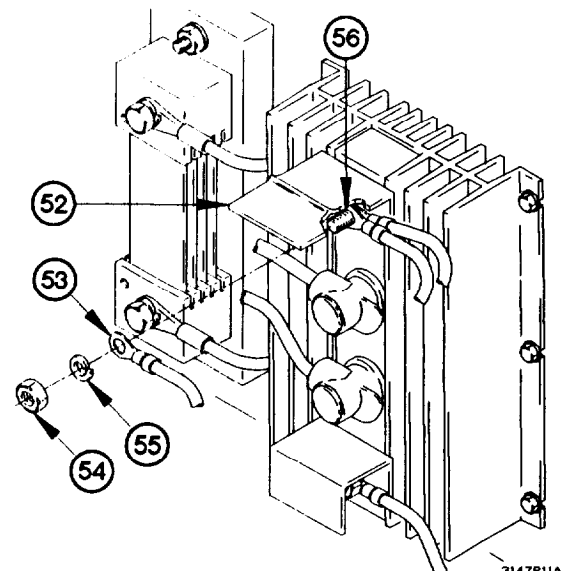
(26) Remove screw (48), washer (49), and terminal lug TL38 (50) from lower shunt terminal (51).

NOTE

Perform steps (27) and (28) on vehicles equipped with 100 amp alternator.

(27) Lift terminal cover (52) on terminal lug TL36 (53).

(28) Remove nut (54), lockwasher (55), and terminal lug TL38 (53) from reverse polarity relay 24 VDC BAT terminal (56). Discard lockwasher.



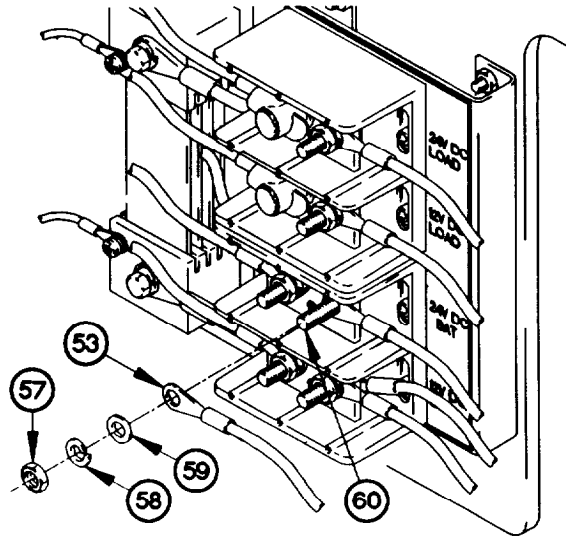
3147R11A

7-82. START AND CHARGING CABLE ASSEMBLY REPLACEMENT (CONT)

NOTE

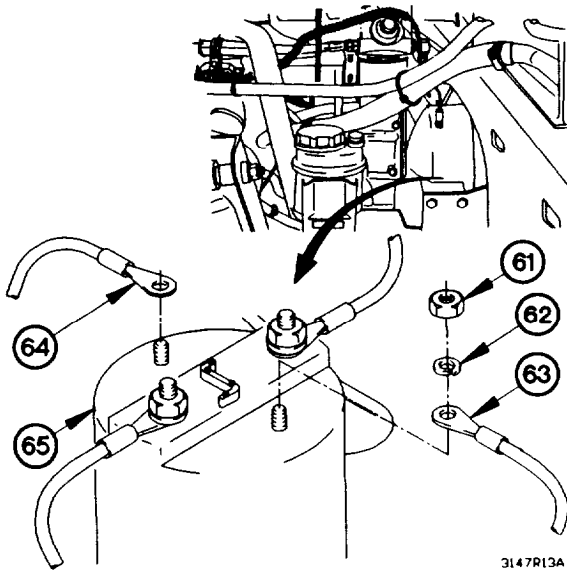
Perform step (29) on vehicles equipped with 200 amp alternator.

- (29) Remove nut (57), lockwasher (58), washer (59), and terminal lug TL36 (53) from 200 amp terminal block terminal (60). Discard lockwasher.



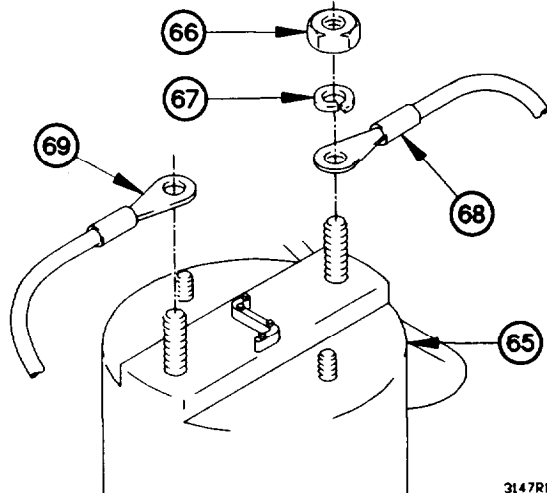
3147R12A

- (30) Remove adhesive, two nuts (61), lockwashers (62), and terminal lugs TL23 (63) and TL33 (64) from auxiliary starter solenoid (65). Discard lockwashers.



3147R13A

- (31) Remove adhesive, two nuts (66), lockwashers (67), and terminal lugs TL24 (68) and TL9 (69) from auxiliary starter solenoid (65). Discard lockwashers.

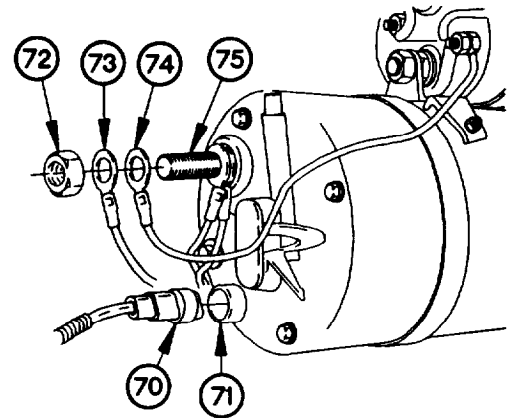


3147R14A

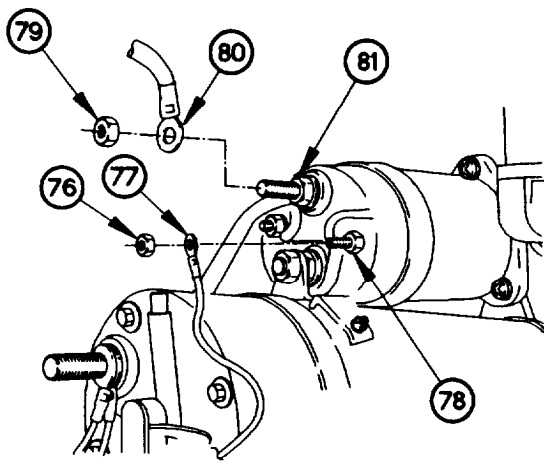
NOTE

Other terminal lugs may also need to be removed.

- (32) Disconnect connector P81 (70) from starting motor connector (71).
- (33) Remove adhesive, nut (72), and terminal lugs TL53 (73) and TL25 (74) from starting motor terminal (75).



3147R15A



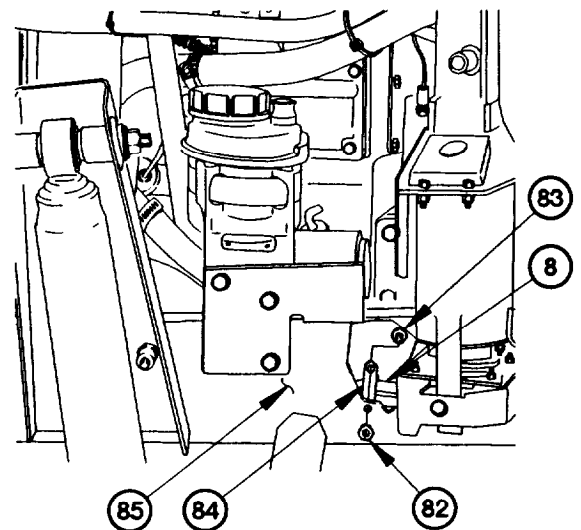
3147R16A

- (34) Remove adhesive, nut (76), and terminal lug TL28 (77) from starter solenoid terminal (78).
- (35) Remove adhesive, nut (79), and terminal lug TL55 (80) from starter solenoid terminal (81).

NOTE

- All five clamps are removed the same way. One shown.
- Step (36) requires the aid of an assistant.

- (36) Remove self-locking nut (82), screw (83), and clamp (84) from frame rail (85). Discard self-locking nut.
- (37) Remove start and charging cable assembly (8) from clamp (84).
- (38) Perform steps (36) and (37) on remaining four clamps.
- (39) Remove start and charging cable assembly (8) from vehicle.



3147R17A

7-82. START AND CHARGING CABLE ASSEMBLY REPLACEMENT (CONT)

b. Installation.

NOTE

Install plastic cable ties as required.

- (1) Position start and charging cable assembly (1) on vehicle.

NOTE

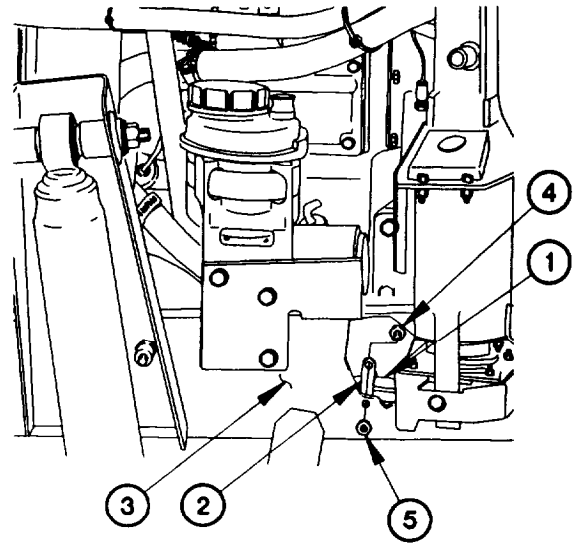
All five clamps are installed the same way. One shown.

- (2) Position start and charging cable assembly (1) in clamp (2).

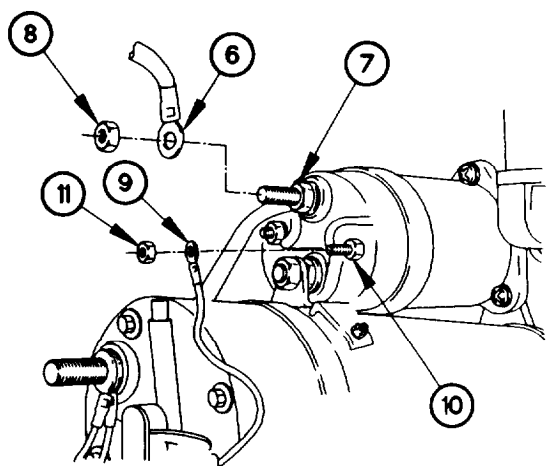
NOTE

Steps (3) and (4) require the aid of an assistant.

- (3) Position clamp (2) on frame rail (3) with screw (4) and self-locking nut (5).
- (4) Tighten self-locking nut (5) to 120-144 lb-in. (14-16 N•m).
- (5) Perform steps (2) through (4) on remaining four clamps.



X147101A



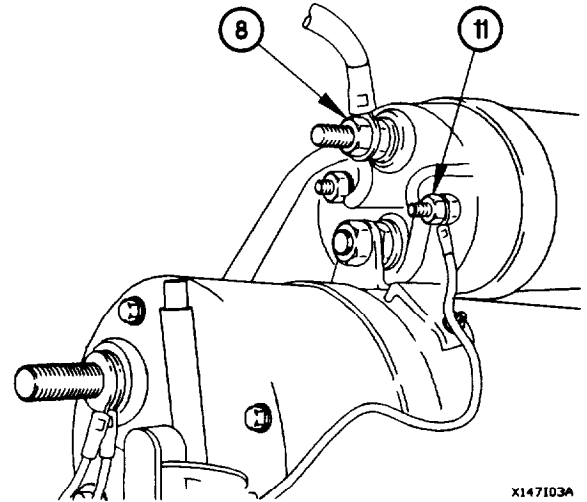
- (6) Position terminal lug TL55 (6) on starter solenoid terminal (7) with nut (8).
- (7) Tighten nut (8) to 20-25 lb-ft (27-34 N•m).
- (8) Position terminal lug TL26 (9) on starter solenoid terminal (10) with nut (11).
- (9) Tighten nut (11) to 18-27 lb-in. (2-3 N•m).

X147102A

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.

(10) Apply adhesive to nuts (8 and 11).



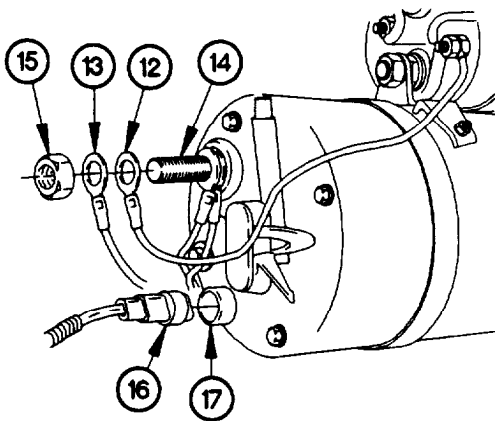
X147103A

(11) Position terminal lugs TL25 (12) and TL53 (13) on starting motor terminal (14) with nut (15).

(12) Tighten nut (15) to 20-25 lb-ft (27-34 N•m).

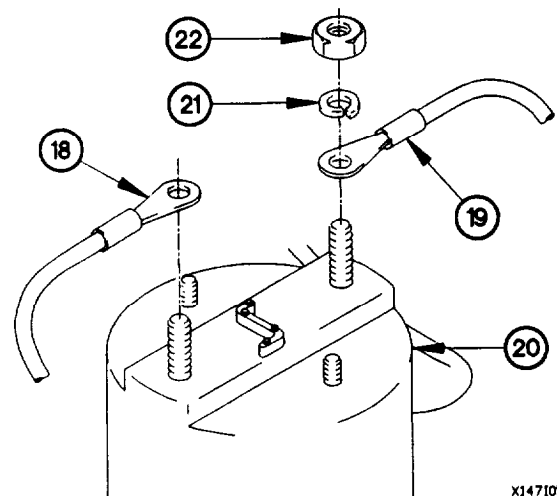
(13) Connect connector P81 (16) to starting motor connector (17).

(14) Apply adhesive to terminal lugs TL25 (12) and TL53 (13) and starting motor terminal (14).



X147104A

(15) Install terminal lugs TL9 (18) and TL24 (19) on auxiliary starter solenoid (20) with lockwashers (21) and nuts (22).



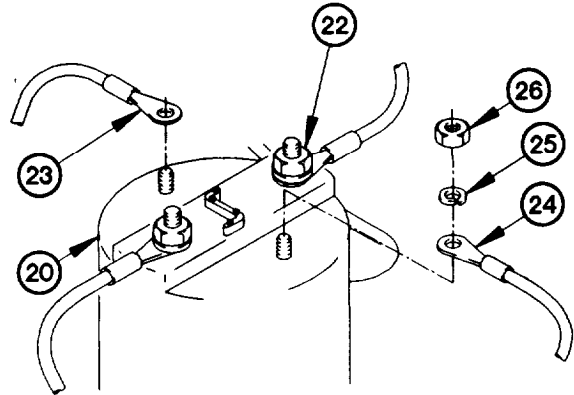
X147105A

7-82. START AND CHARGING CABLE ASSEMBLY REPLACEMENT (CONT)

- (16) Install terminal lugs TL33 (23) and TL23 (24) on auxiliary starter solenoid (20) with two lockwashers (25) and nuts (26).

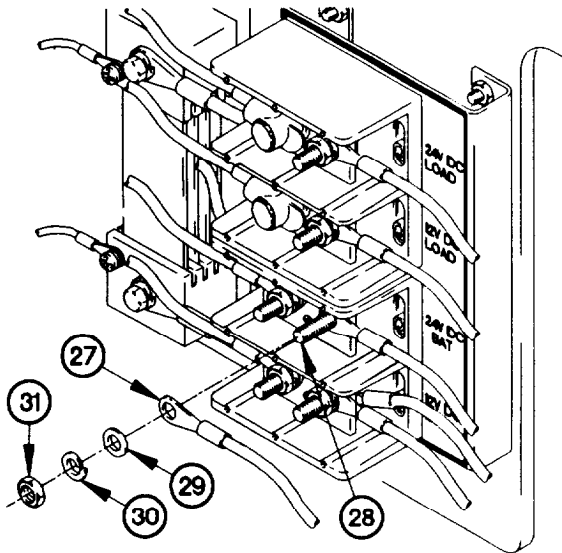
WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.



X147106A

- (17) Apply adhesive to nuts (22 and 26).



X147107A

NOTE

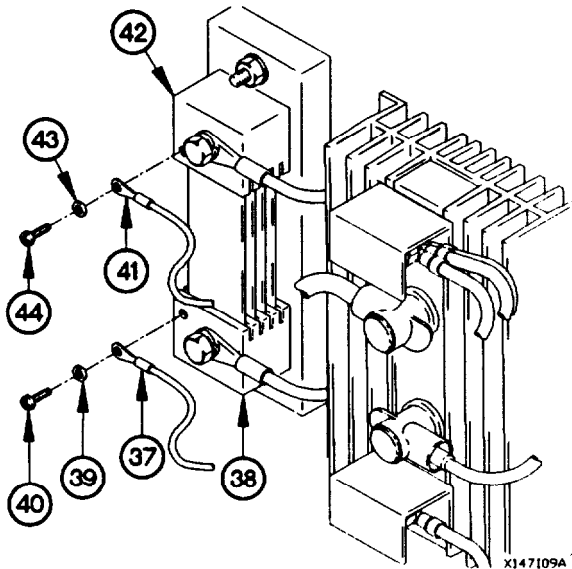
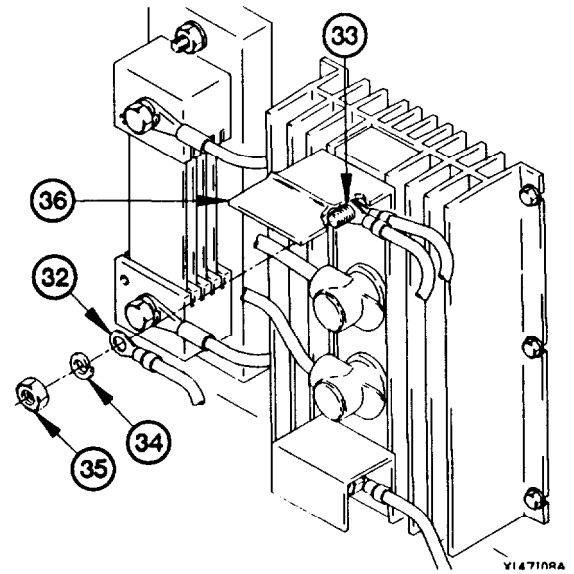
Perform steps (18) and (19) on vehicles equipped with 200 amp alternator.

- (18) Install terminal lug TL36 (27) on 200 amp terminal block terminal (28) with washer (29), lockwasher (30), and nut (31).
- (19) Tighten nut (31) to 16-18 lb-ft (21-25 N•m).

NOTE

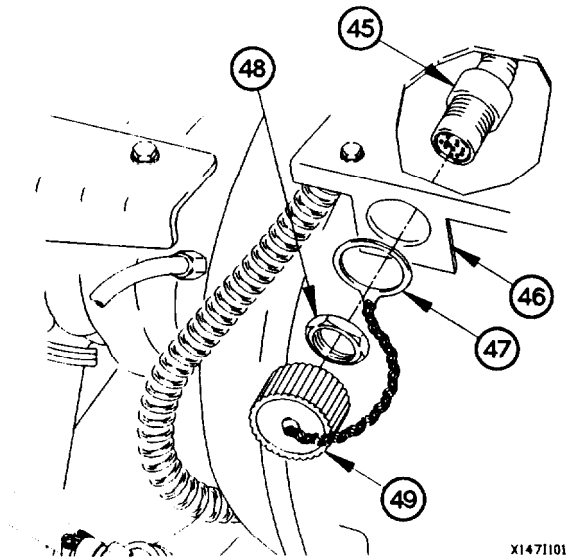
Perform steps (20) and (21) on vehicles equipped with 100 amp alternator.

- (20) Install terminal lug TL36 (32) on reverse polarity relay 24 VDC BAT terminal (33) with lockwasher (34) and nut (35).
- (21) Position terminal cover (36) on terminal lug TL36 (32).



- (22) Install terminal lug TL38 (37) on lower shunt terminal (38) with washer (39) and screw (40).
- (23) Install terminal lug TL51 (41) on upper shunt terminal (42) with washer (43) and screw (44).

- (24) Install connector J106 (45) on chemical detector mounting bracket (46) with dust cap lanyard (47) and nut (48).
- (25) Install dust cap (49) on connector J106 (45).



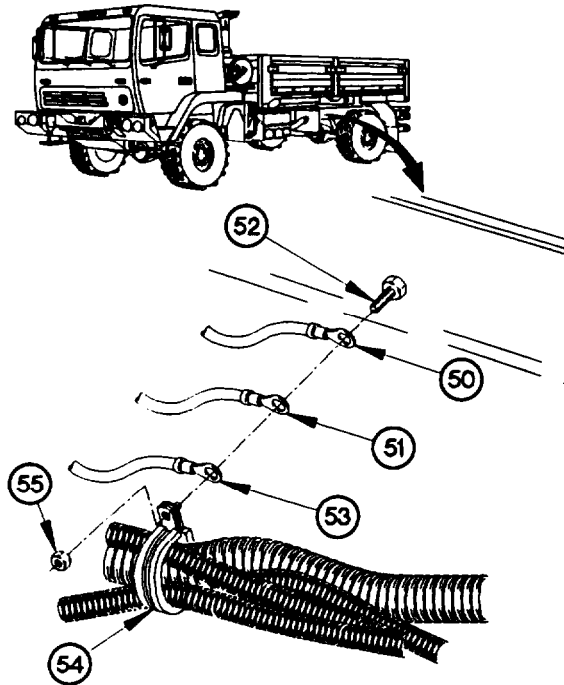
X1471101

7-82. START AND CHARGING CABLE ASSEMBLY REPLACEMENT (CONT)

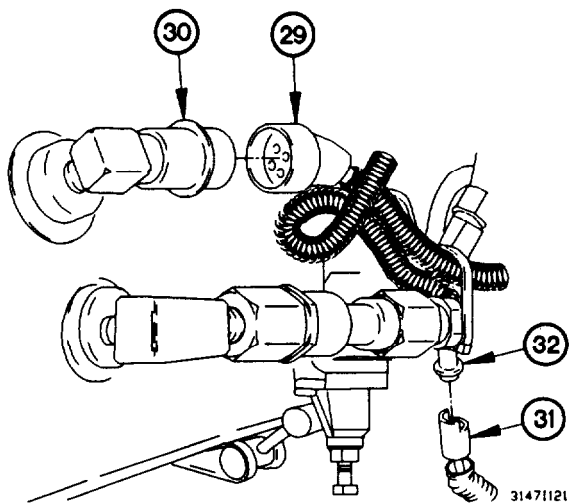
NOTE

Perform step (26) on vehicles equipped with arctic kit(s).

- (26) Position terminals lugs TL102 (50) and TL103 (51) on screw (52).
- (27) Position terminal lug TL85 (53) and clamp (54) on screw (52) with self-locking nut (55).
- (28) Tighten self-locking nut (55) to 120-144 lb-in. (14-16 N•m).



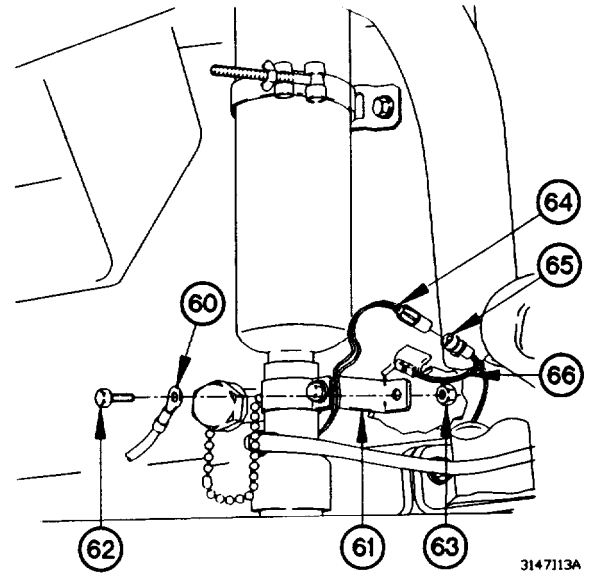
3147111



- (29) Connect connector P80 (56) to air dryer connector J80 (57).
- (30) Connect connector P84 (58) to wet tank air pressure switch J84 (59).

31471121

- (31) Position terminal lug TL84 (60) on bracket (61) with screw (62) and self-locking nut (63).
- (32) Tighten self-locking nut (63) to 20-25 lb-ft (29-35 N•m).
- (33) Connect connector J93 (64) to connector P93 (85).
- (34) Connect connector clamp (66) on connector P93 (85).



3147113A

NOTE

Perform step (35) on vehicles equipped with 11K SRW.

- (35) Position terminal lug TL320 (67) on screw (68).

NOTE

Perform step (36) on vehicles equipped with arctic kit(s).

- (36) Position terminal lug TL101 (69) on screw (68).

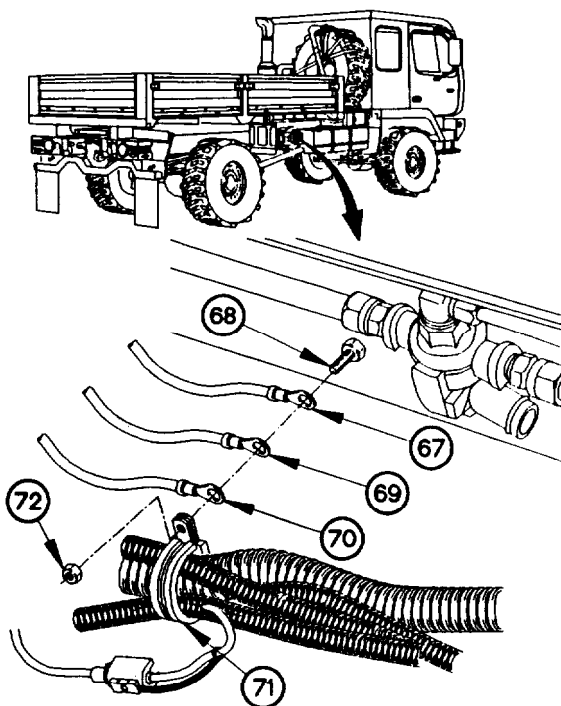
NOTE

Perform step (37) on vehicles equipped with PTO.

- (37) Position terminal lug TL111 (69) on screw (68).

- (38) Position terminal lug TL83 (70) and clamp (71) on screw (68) with self-locking nut (72).

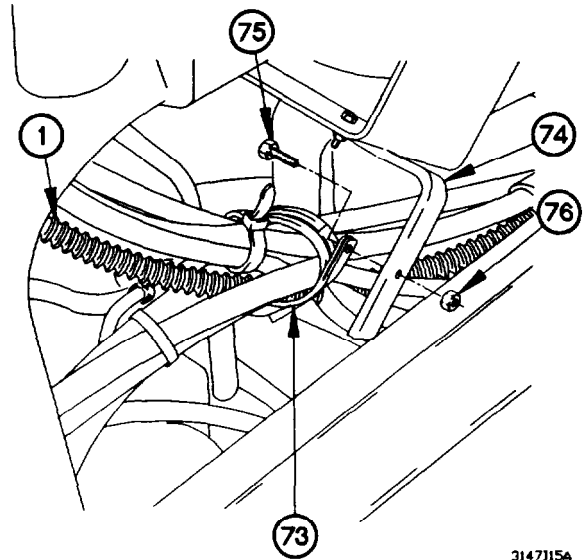
- (39) Tighten self-locking nut (72) to 97-120 lb-in. (11-14 N•m).



31471141

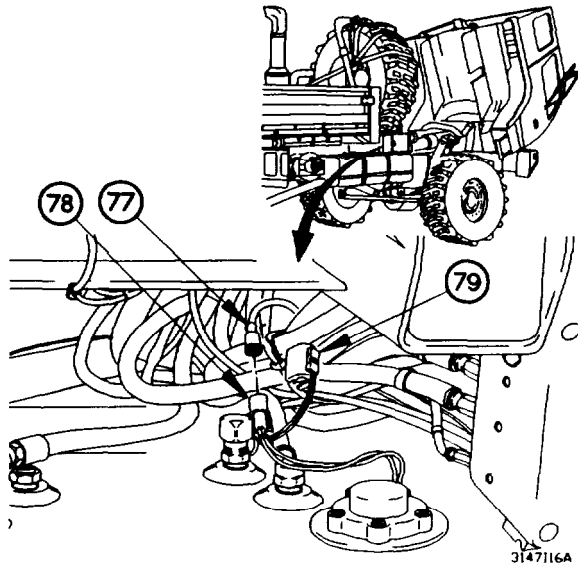
7-82. START AND CHARGING CABLE ASSEMBLY REPLACEMENT (CONT)

- (40) Position start and charging cable assembly (1) in clamp (73).
- (41) Position clamp (73) on bracket (74) with screw (75) and self-locking nut (76).
- (42) Tighten self-locking nut (76) to 120-144 lb-in. (14-18 N•m).



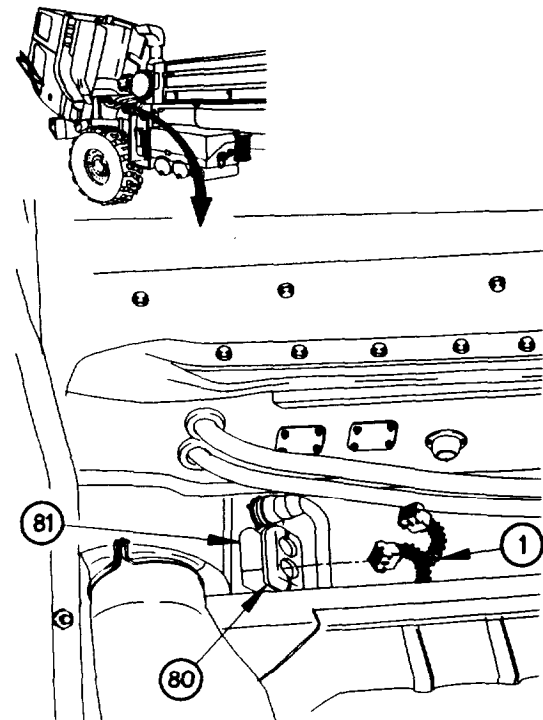
3147315A

- (43) Connect connector P82 (77) to connector J82 (78).
- (44) Connect connector clamp (79) on connector J82 (78).



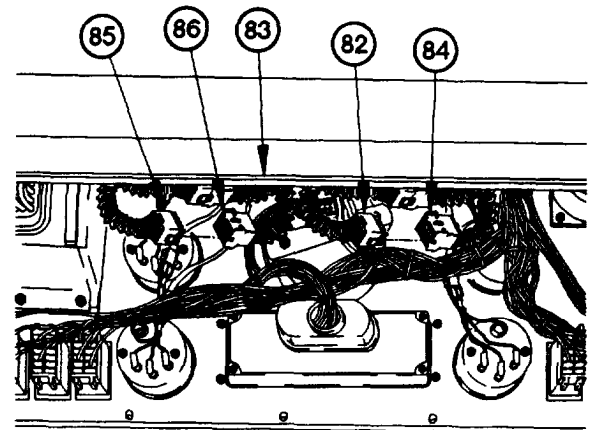
3147116A

- (45) Install start and charging cable assembly (1) in grommet (80).
- (46) Install grommet (80) in cab (81).
- (47) Lower cab (TM 9-2320-365-10).



3147117A

- (48) Route connector P43X (82) through side of dashboard (83).
- (49) Connect connector P43X (82) to connector J43X (84).
- (50) Route connector P43 (85) through bottom of dashboard (83).
- (51) Connect connector P43 (85) to connector J43 (86).



c. Follow-On Maintenance.

3147118A

- (1) Install instrument panel assembly (para 7-15).
- (2) Connect batteries (para 7-48).
- (3) Raise spare tire (TM 9-2320-365-10).
- (4) Start engine (TM 9-2320-365-10).
- (5) Check VOLTS gage for charge indication (TM 9-2320-365-10).
- (6) Shut down engine (TM 9-2320-365-10).

End of Task.

7-83. STARTER TO CHASSIS GROUND CABLE REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Cab raised (TM 9-2320-365-10).
Batteries disconnected (para 7-48).

Tools and Special Tools

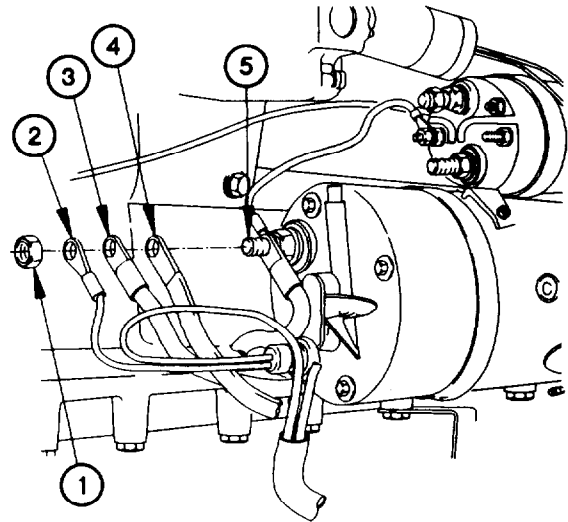
Tool Kit, Genl Mech (Item 44, Appendix C)
Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)

Materials/Parts

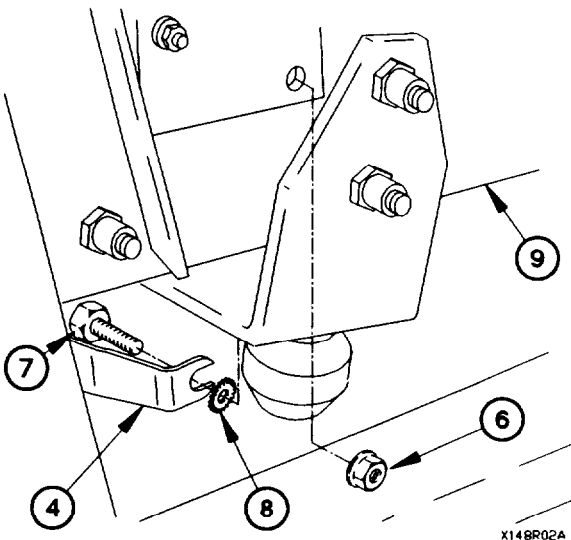
Nut, Self-Locking (Item 142, Appendix G)
Lockwasher (Item 71, Appendix G)
Adhesive (Item 8, Appendix D)

a. Removal.

- (1) Remove adhesive, nut (1), terminal lugs TL25 (2) and TL46 (3), and starter to chassis ground cable (4) from starting motor terminal (5).



X148R01A

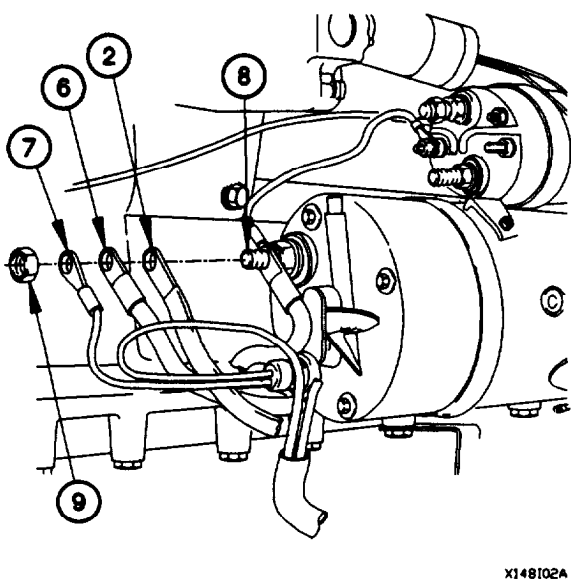
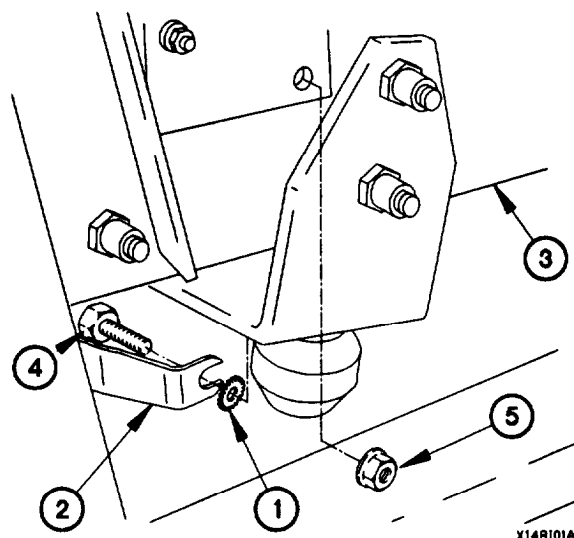


X148R02A

- (2) Remove self-locking nut (6), screw (7), starter to chassis ground cable (4), and lockwasher (8) from chassis (9). Discard self-locking nut.

b. Installation.

- (1) Install lockwasher (1) and starter to chassis ground cable (2) on chassis (3) with screw (4) and self-locking nut (5).



- (2) Position starter to chassis ground cable (2) and terminal lugs TL46 (6) and TL25 (7) on starting motor terminal (8) with nut (9).
- (3) Tighten nut (9) to 15-20 lb-ft (20-27 N•m).

WARNING

Adhesive, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.

- (4) Apply adhesive to starting motor terminal (8).

7-83. STARTER TO CHASSIS GROUND CABLE REPLACEMENT (CONT)

c. Follow-On Maintenance.

- (1) Connect batteries (para 7-48).
- (2) Lower cab (TM 9-2320-365-10).
- (3) Start engine (TM 9-2320-365-10).
- (4) Check VOLTS gage for charge indication (TM 9-2320-365-10).
- (5) Shut down engine (TM 9-2320-365-10).

End of Task.

7-84. STARTER TO SHUNT 24 VDC CABLE REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

- Spare tire lowered (TM 9-2320-365-10).
- Cab raised (TM 9-2320-365-10).
- Batteries disconnected (para 7-48).

Tools and Special Tools

- Tool Kit, Genl Mech (Item 44, Appendix C)
- Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)
- Wrench, Torque, 0-200 lb-in. (Item 58, Appendix C)
- Socket Set, Socket Wrench (Item 34, Appendix C)

Materials/Parts

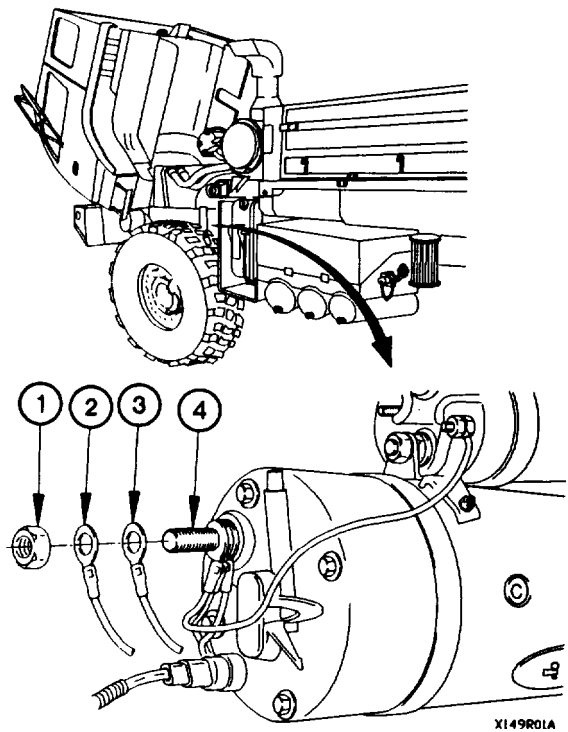
- Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)
- Ties, Cable, Plastic (Item 76, Appendix D)
- Lockwasher (Item 78, Appendix G)
- Nut, Self-Locking (2) (Item 116, Appendix G)
- Adhesive (Item 8, Appendix D)

a. Removal.

NOTE

Tag wires and connection points prior to disconnecting.

- (1) Remove adhesive, nut (1), and terminal lugs TL25 (2) and TL46 (3) from starting motor terminal (4).

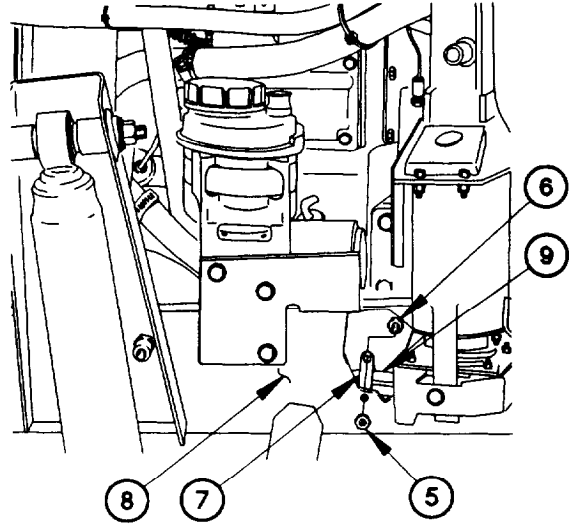


7-84. STARTER TO SHUNT 24 VDC CABLE REPLACEMENT (CONT)

NOTE

- Both clamps are removed the same way. One shown.
- Remove plastic cable ties as required.
- Step (2) requires the aid of an assistant.

- (2) Remove self-locking nut (5), screw (6), and clamp (7) from frame rail (8). Discard self-locking nut.
- (3) Remove starter to shunt 24 vdc cable (9) from clamp (7).
- (4) Perform steps (2) and (3) on remaining clamp.



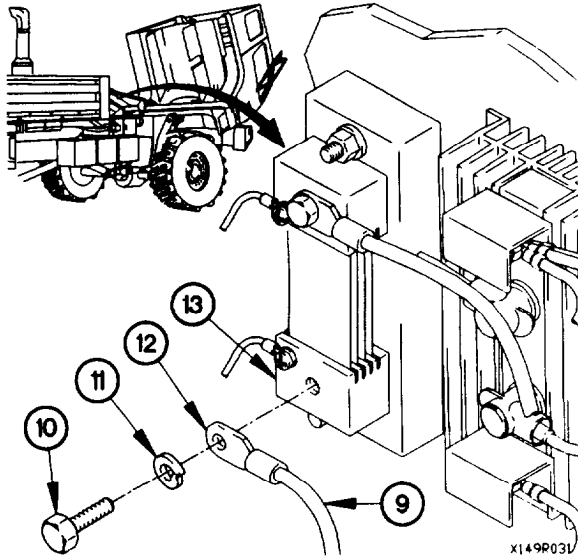
X149R02A

- (5) Remove screw (10), lockwasher (11), and terminal lug TL45 (12) from lower shunt terminal (13). Discard lockwasher.

NOTE

Note routing of starter to shunt 24 vdc cable prior to removal.

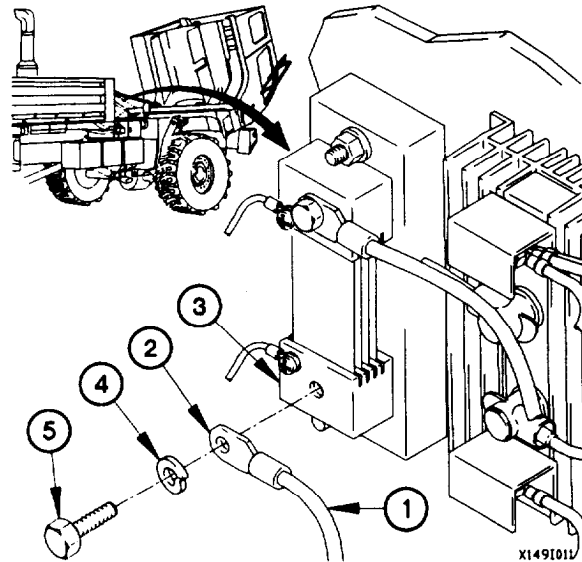
- (6) Remove starter to shunt 24 vdc cable (9) from vehicle.



X149P03I

b. Installation.

- (1) Position starter to shunt 24 vdc cable (1) on vehicle.
- (2) Install terminal lug TL45 (2) on lower shunt terminal (3) with lockwasher (4) and screw (5).



X149I01I

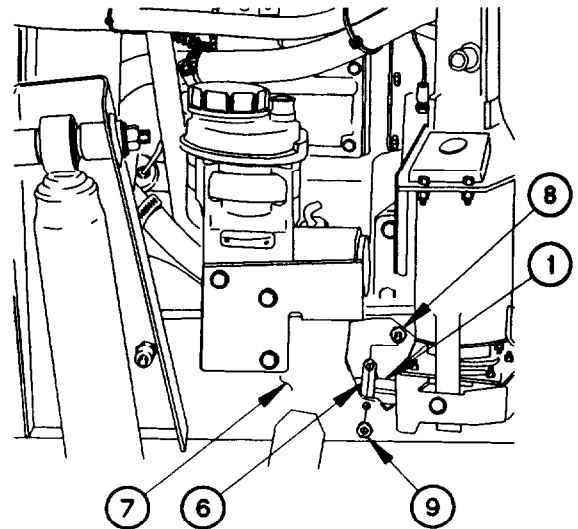
NOTE

- Both clamps are installed the same way. One shown.
 - Install plastic cable ties as required.
- (3) Position starter to shunt 24 vdc cable (1) in clamp (6).
 - (4) Position clamp (6) on frame rail (7) with screw (8) and self-locking nut (9).
 - (5) Perform steps (2) and (3) on remaining clamp.

NOTE

Step (6) requires the aid of an assistant.

- (6) Tighten two self-locking nuts (9) to 96-120 lb-in. (11-14 N•m).

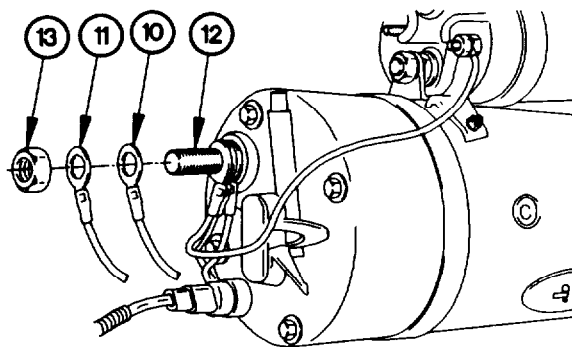


X149I02A

- (7) Position terminal lugs TL46 (10) and TL25 (11) on starting motor terminal (12) with nut (13).
- (8) Tighten nut (13) to 15-20 lb-ft (20-27 N•m).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.



X149I03A

- (9) Apply adhesive to terminal lugs TL46 (10) and TL25 (11) and nut (13).

7-84. STARTER TO SHUNT 24 VDC CABLE REPLACEMENT (CONT)

c. Follow-On Maintenance.

- (1) Connect batteries (para 7-48).
- (2) Raise spare tire (TM 9-2320-365-10).
- (3) Start engine (TM 9-2320-365-10).
- (4) Shut down engine (TM 9-2320-365-10).

End of Task.

7-85. WINCH CONTROL VALVE CABLE ASSEMBLY REPLACEMENT.

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Engine shut down (TM 9-2320-365-10).
Batteries disconnected (para 7-48).

Tools and Special Tools

Tool Kit, Genl Mech (Item 44, Appendix C)
Goggles, Industrial (Item 15, Appendix C)
Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)

Materials/Parts

Ties, Cable, Plastic (Item 76, Appendix D)
Nut, Self-Locking (3) (Item 116, Appendix G)
Nut, Self-Locking (Item 134, Appendix G)

Personnel Required

(2)

WARNING

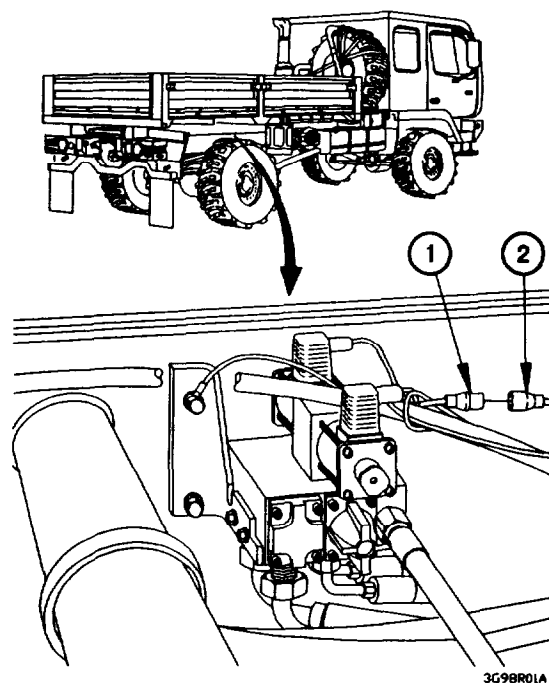
Wear appropriate eye protection when working under vehicle due to the possibility of falling debris. Failure to comply may result in injury to personnel.

a. Removal.

NOTE

Remove plastic cable ties as required.

- (1) Disconnect connector J215 (1) from connector P215 (2).



7-85. WINCH CONTROL VALVE CABLE ASSEMBLY REPLACEMENT (CONT)

(2) Remove self-locking nut (3), clamp (4), and terminal lug TL83 (5) from screw (6). Discard self-locking nut.

NOTE

Perform step (3) on vehicles not equipped with arctic kit(s).

(3) Remove terminal lug TL111 (7) from screw (6).

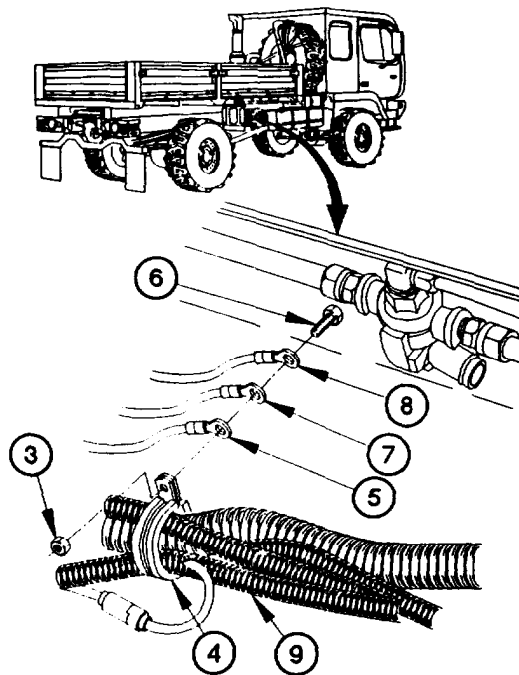
NOTE

Perform step (4) on vehicles equipped with arctic kit(s).

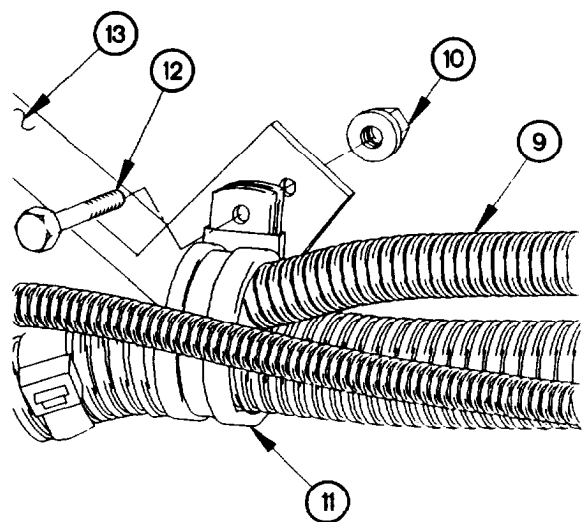
(4) Remove terminal lug TL101 (7) from screw (6).

(5) Remove terminal lug TL320 (8) from screw (6).

(6) Remove clamp (4) from winch control valve cable assembly (9).



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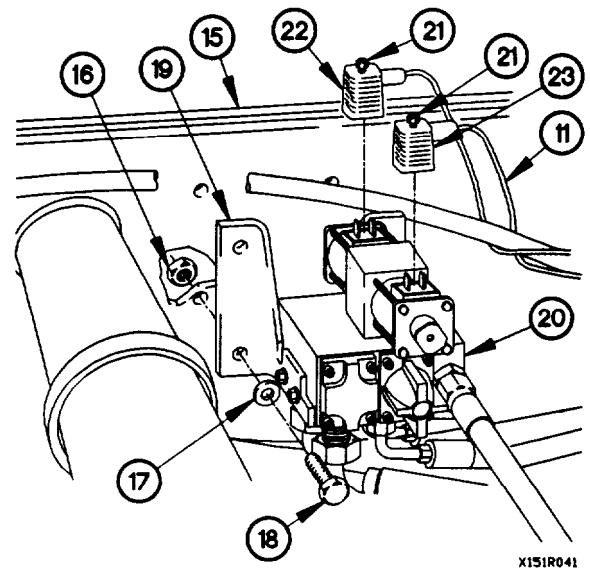
NOTE

- Other hoses, cable assemblies, and terminal lugs are removed with clamps and winch control valve cable assembly.
- Steps (4) and (5) require the aid of an assistant.

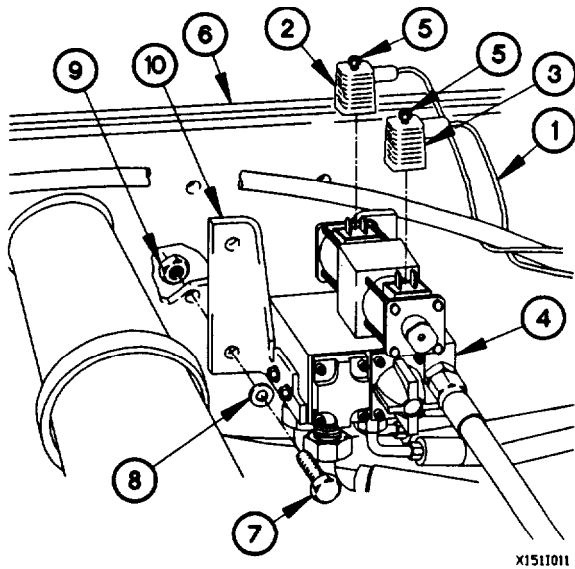
(4) Remove three self-locking nuts (10), clamps (11), winch control valve cable assembly (9), and three screws (12) from right frame rail (13). Discard self-locking nuts.

(5) Remove three clamps (11) from winch control valve cable assembly (9).

- (6) Remove four nuts (14), washers (15), and screws (16) from 11K SRW control valve bracket (17).
- (7) Move 11K SRW control valve (18) away from right frame rail (13).
- (8) Loosen two captive screws (19) and remove connectors L4 (20) and L5 (21) from 11K SRW control valve (18).
- (9) Remove winch control valve cable assembly (9) from vehicle.



b. Installation



NOTE

Install plastic cable ties as required.

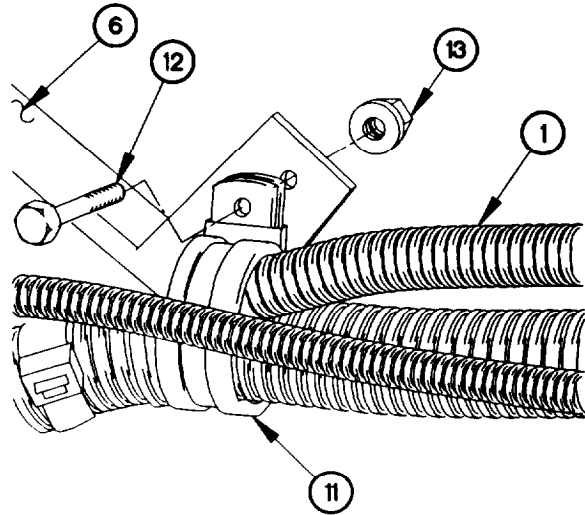
- (1) Position winch control valve cable assembly (1) on vehicle.
- (2) Install connectors L4 (2) and L5 (3) on 11K SRW control valve (4).
- (3) Tighten two captive screws (5) in connectors L4 (2) and L5 (3).
- (4) Position 11K SRW control valve (4) on right frame rail (6).
- (5) Position four screws (7), washers (8), and nuts (9) in 11K SRW control valve bracket (10).
- (6) Tighten four nuts (9) to 18-22 lb-ft (24-29 N•m).

7-85. WINCH CONTROL VALVE CABLE ASSEMBLY REPLACEMENT (CONT)

NOTE

- Other hoses, cable assemblies, and terminal lugs are installed with clamps and winch control valve cable assembly.
- Steps (7) and (8) require the aid of an assistant.

- (7) Position three clamps (11) on winch control valve cable assembly (1).
- (8) Install winch control valve cable assembly (1) on right frame rail (6) with three clamps (11), screws (12), and self-locking nuts (13).



X1511021

- (9) Position clamp (14) on winch control valve cable assembly (1).
- (10) Install terminal lug TL320 (15) on screw (16).

NOTE

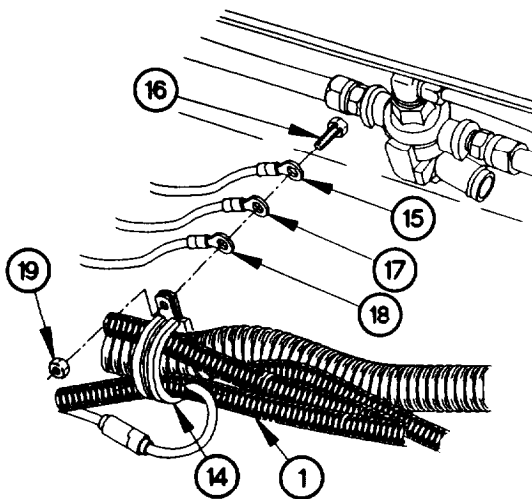
Perform step (11) on vehicles equipped with arctic kit(s).

- (11) Install terminal lug TL101 (17) on screw (16).

NOTE

Perform step (12) on vehicles not equipped with arctic kit(s).

- (12) Install terminal lug TL111 (17) on screw (16).
- (13) Position terminal lug TL83 (18) and clamp (14) on screw (16) with self-locking nut (19).
- (14) Tighten self-locking nut (19) to 97-120 lb-in. (11-14 N•m).

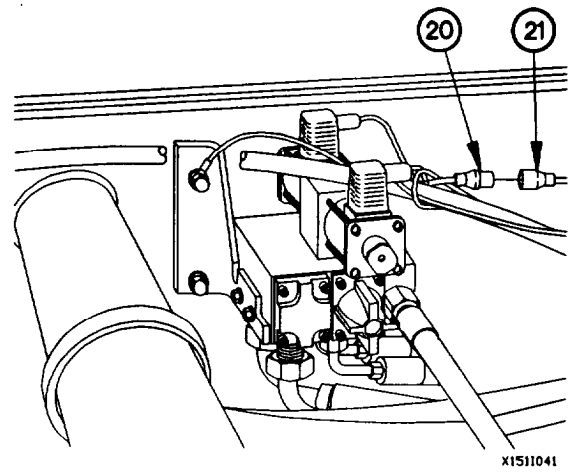


X1511031

(15) Connect connector J215 (20) to connector P215 (21).

c. Follow-On Maintenance.

- (1) Connect batteries (para 7-48).
- (2) Start engine (TM 9-2320-365-10).
- (3) Check 11K SRW operation (TM 9-2320-365-10).
- (4) Shut down engine (TM 9-2320-365-10).



End of Task.

7-86. WTEC II CAB TRANSMISSION HARNESS REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Instrument panel assembly removed for access (para 7-15).
 Kick panel removed (para 16-3).
 Personnel heater removed (para 18-9).

Tools and Special Tools

Tool Kit, Genl Mech (Item 44, Appendix C)

Materials/Parts

Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)
 Lockwasher (4) (Item 67, Appendix G)
 Gasket (Item 24, Appendix G)

Personnel Required

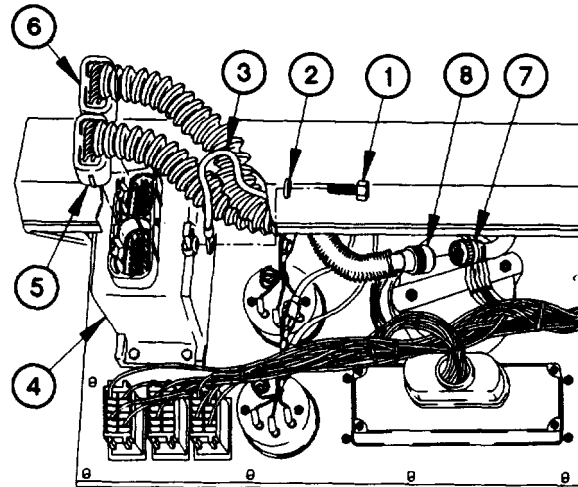
(2)

a. Removal.

NOTE

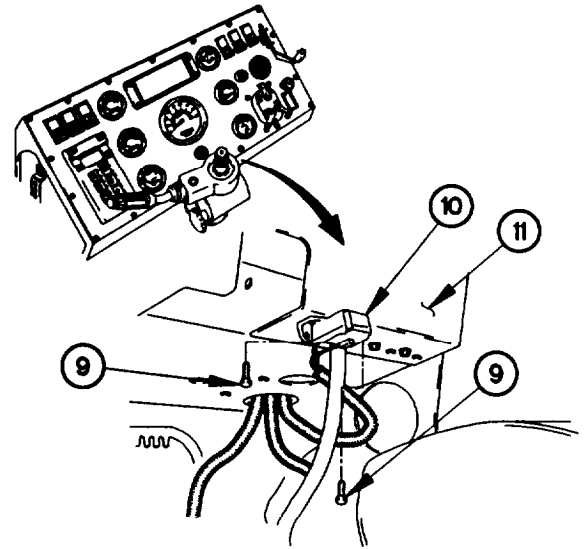
Tag wires and connection points prior to disconnecting.

- (1) Remove screw (1), washer (2), and ground terminal lug (3) from WTEC II TEPSS (4).
- (2) Disconnect connector J115 (5) from WTEC II TEPSS (4).
- (3) Disconnect connector J114 (6) from WTEC II TEPSS (4).
- (4) Disconnect connector J118 (7) from connector P118 (8).

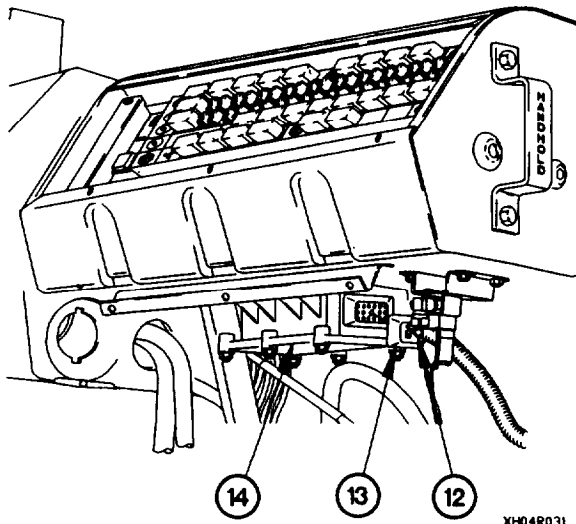


XI-04R01A

(5) Remove two screws (9) and connector J117 (10) from dashboard (11).



XH04R02A

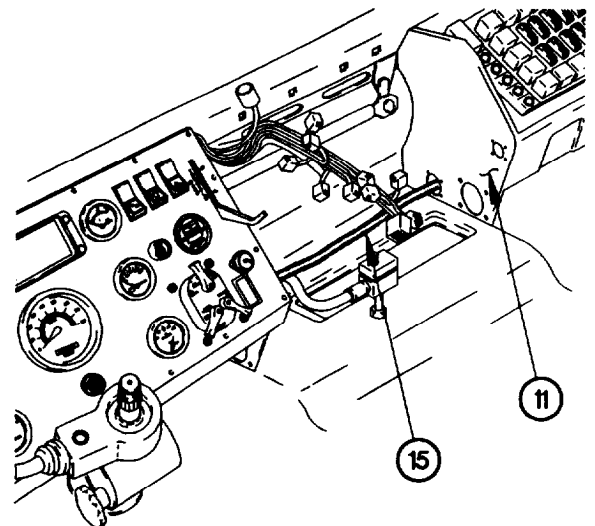


XH04R031

(6) Loosen screw (12) in connector J116 (13).

(7) Disconnect connector J116 (13) from WTEC II VIM

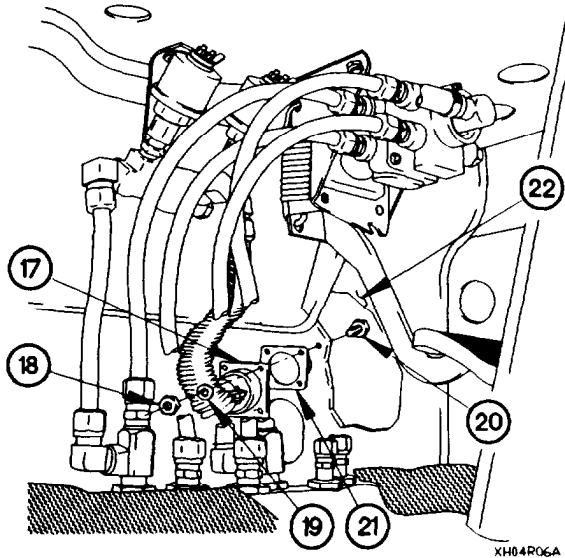
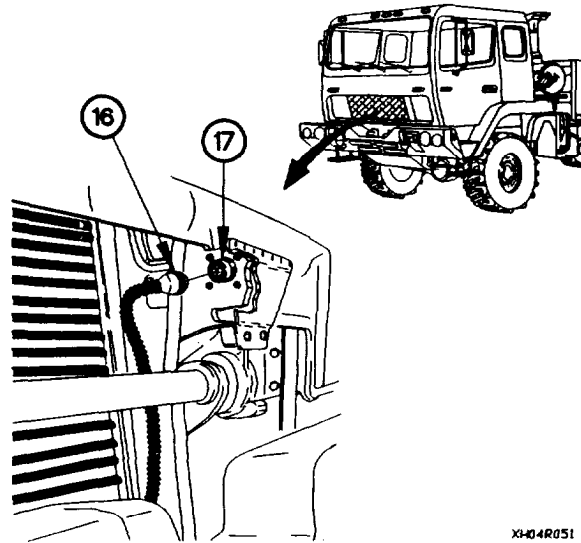
(8) Remove WTEC II cab transmission harness (15) from clipboard (11).



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7-86. WTEC II CAB TRANSMISSION HARNESS REPLACEMENT (CONT)

(9) Disconnect connector P119 (16) from connector J119 (17).



NOTE

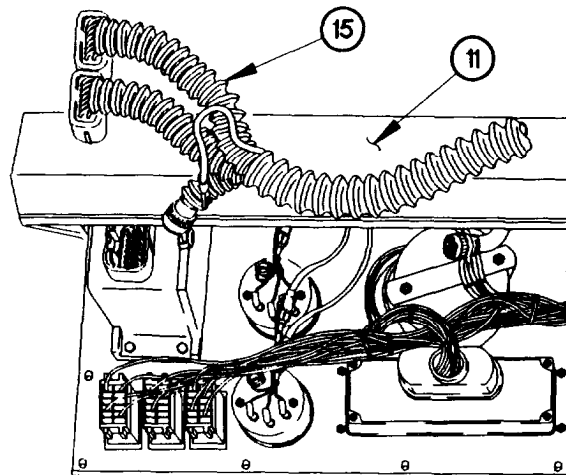
Step (10) requires the aid of an assistant.

(10) Remove four nuts (18), lockwashers (19), screws (20), gasket (21), and connector J119 (17) from cab (22). Discard lockwashers and gasket.

CAUTION

Cab transmission harness connectors are easily damaged. Use care when routing harness through dashboard. Failure to comply may result in damage to equipment.

(11) Remove WTEC II cab transmission harness (15) from dashboard (11).



b. Installation.

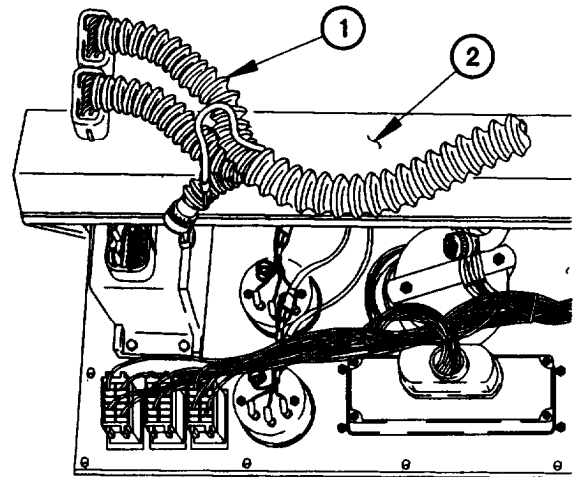
CAUTION

Cab transmission harness connectors are easily damaged. Use care when routing harness through dashboard. Failure to comply may result in damage to equipment.

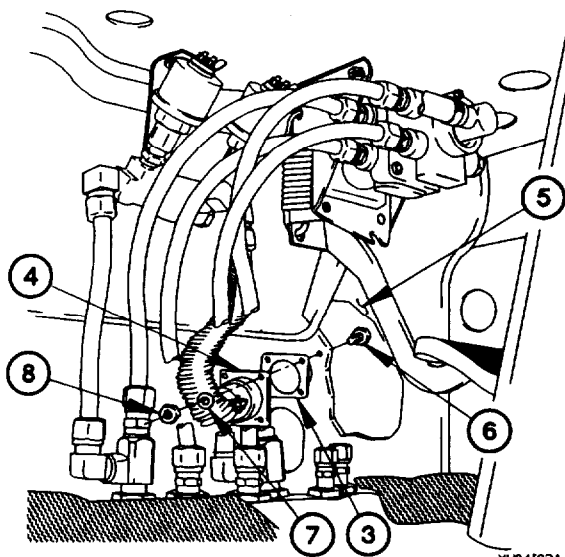
NOTE

If replacing WTEC II cab transmission harness with WTEC III cab transmission harness, perform para 8-8.

- (1) Route cab transmission harness (1) inside dashboard (2).



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WARNING

Ensure WTEC II cab transmission harness does not interfere with throttle linkage. Failure to comply may result in injury to personnel.

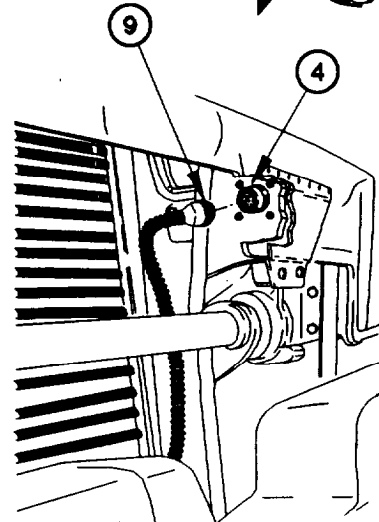
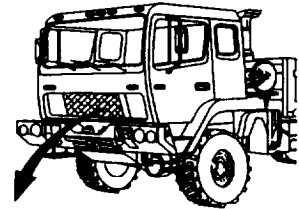
NOTE

Step (2) requires the aid of an assistant.

- (2) Install gasket (3) and connector J119 (4) on cab (5) with four screws (6), lockwashers (7), and nuts (8).

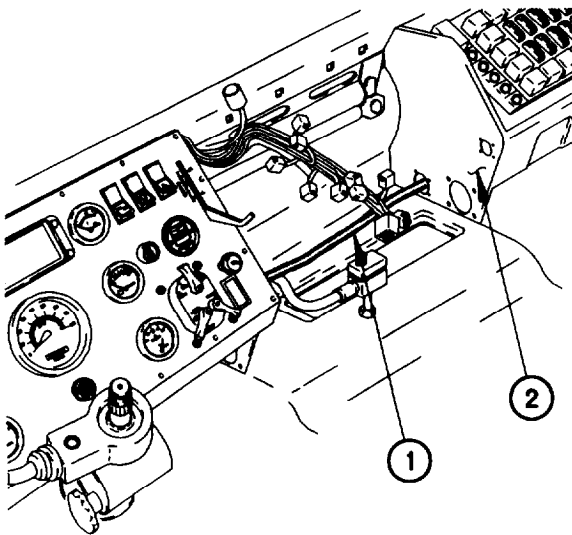
7-86. WTEC II CAB TRANSMISSION HARNESS REPLACEMENT (CONT)

(3) Connect connector P119 (9) to connector J119 (4).



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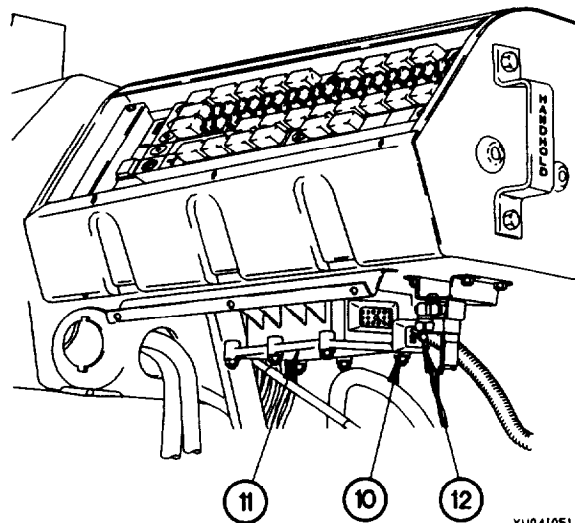
(4) Route WTEC II cab transmission harness (1) through right side of dashboard (2).



XH04104A

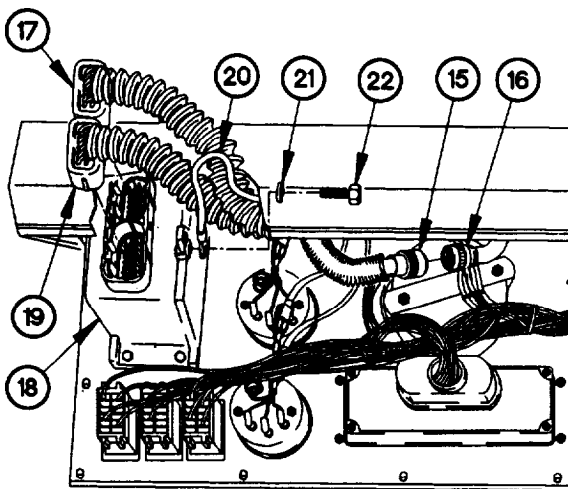
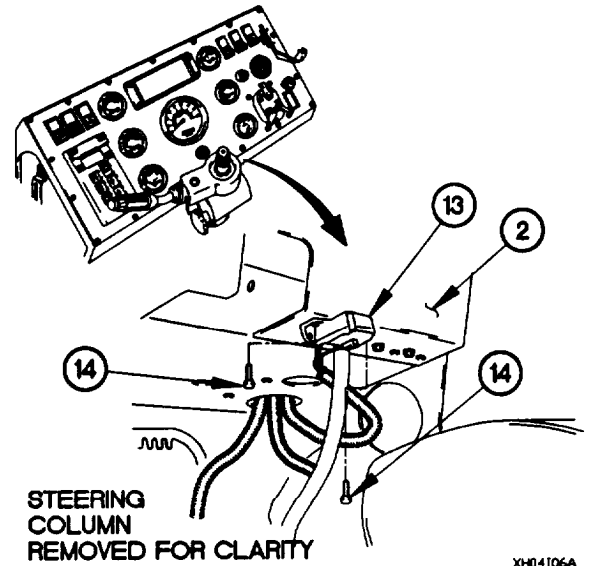
(5) Connect connector J116 (10) to WTEC II VIM (11).

(6) Tighten screw (12) in connector J116 (10).



XH041051

- (7) Install connector J117 (13) on dashboard (2) with two screws (14).



- (8) Connect connector P118 (15) to connector J118 (16).
- (9) Connect connector J114 (17) to WTEC II TEPSS (18).
- (10) Connect connector J115 (19) to WTEC II TEPSS (18).
- (11) Install ground terminal lug (20) on WTEC II TEPSS (18) with washer (21) and screw (22).

c. Follow-On Maintenance.

- (1) Install personnel heater (para 18-9).
- (2) Install kick panel (para 16-3).
- (3) Install instrument panel assembly (para 7-15).
- (4) Operate vehicle and check for proper operation (TM 9-2320-365-10).

End of Task.

7-87. WTEC III CAB TRANSMISSION HARNESS REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Instrument panel assembly removed for access (para 7-15).
 Kick panel removed (para 16-3)
 Personnel heater removed (para 18-9).

Tools and Special Tools

Tool Kit, Genl Mech (Item 44, Appendix C)

Materials/Parts

Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)
 Ties, Cable, Plastic (Item 76, Appendix D)
 Lockwasher (4) (Item 67, Appendix G)
 Gasket (Item 24, Appendix G)

Personnel Required

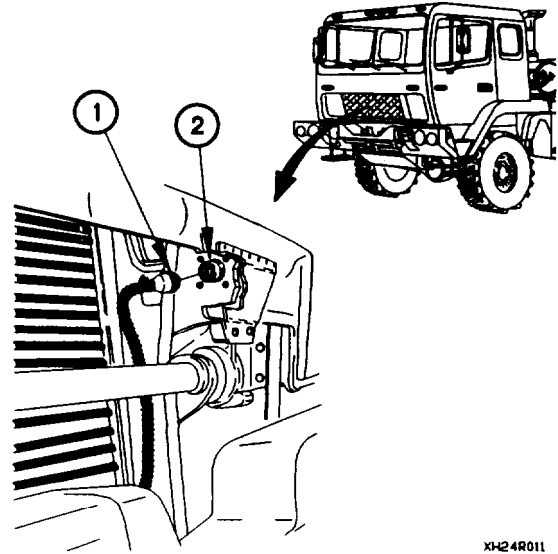
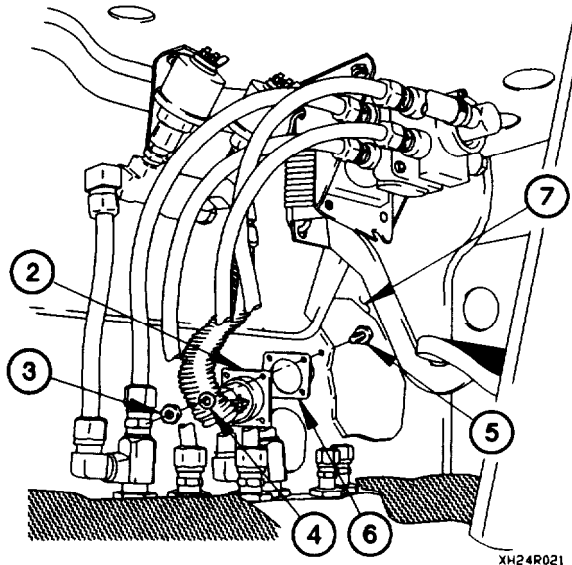
(2)

a. Removal.

NOTE

- Remove plastic cable ties as required.
- Note routing of WTEC III cab transmission harness prior to removal.
- Tag connectors and connection points prior to disconnecting.

- (1) Disconnect connector P119 (1) from connector J119 (2).

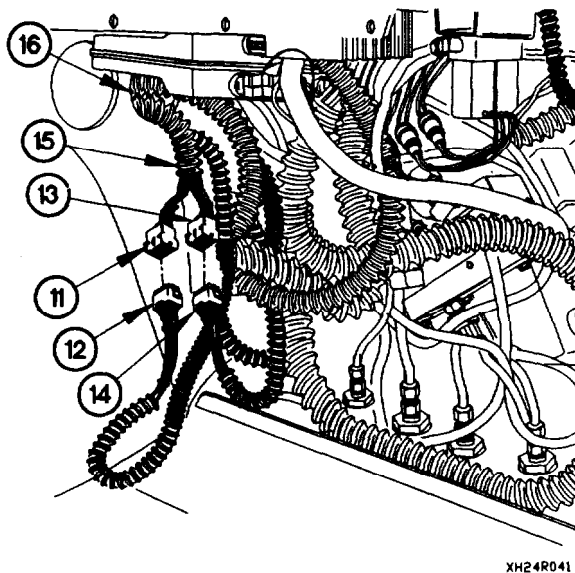
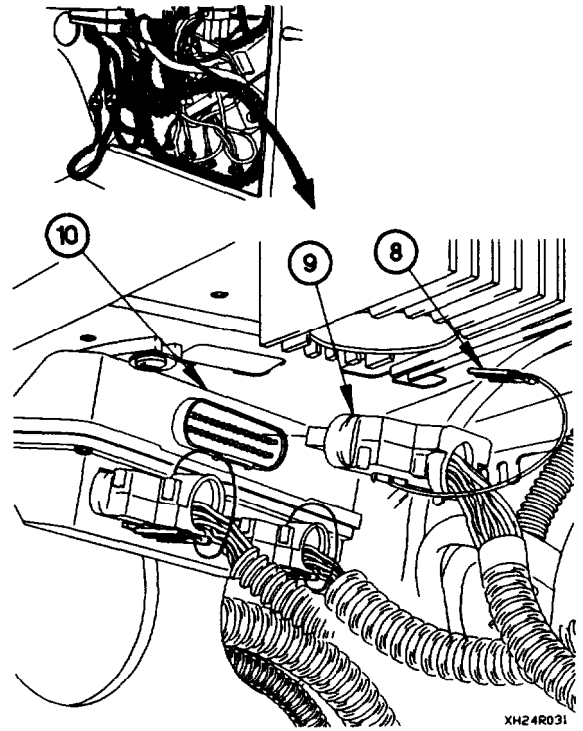


NOTE

Step (2) requires the aid of an assistant.

- (2) Remove four nuts (3), lockwashers (4), screws (5), gasket (6), and connector J119 (2) from cab (7). Discard lockwashers and gasket.

- (3) Disconnect connector clamp (8) from connector P114 (9).
- (4) Disconnect connector P114 (9) from WTEC III transmission ECU (10).



NOTE

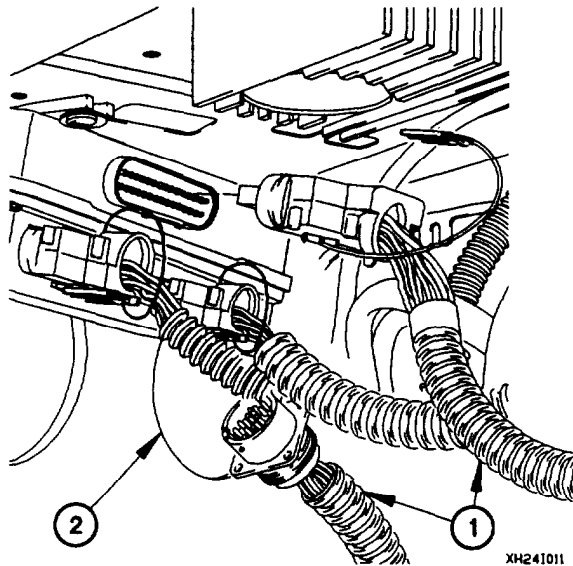
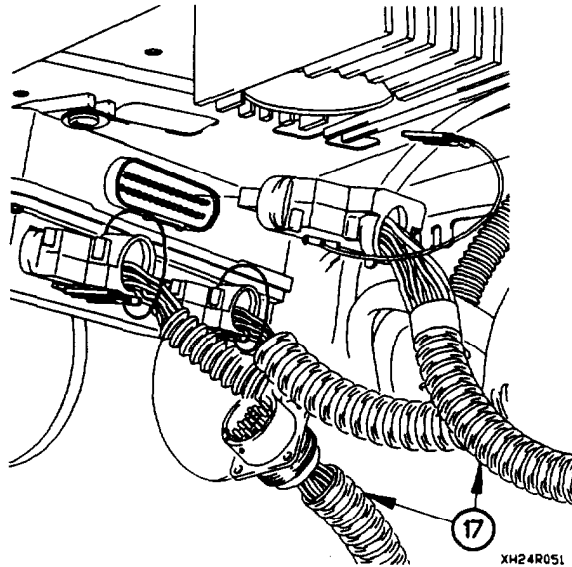
Perform steps (5) through (7) on vehicles equipped with auxiliary panel.

- (5) Disconnect connector J108 (11) from connector P108 (12).
- (6) Disconnect connector J210 (13) from connector P210 (14).
- (7) Pull auxiliary panel cable assembly (15) through forward hole in dashboard (16).

7-87. WTEC III CAB TRANSMISSION HARNESS REPLACEMENT (CONT)

(8) Remove WTEC III cab transmission harness (17) from vehicle.

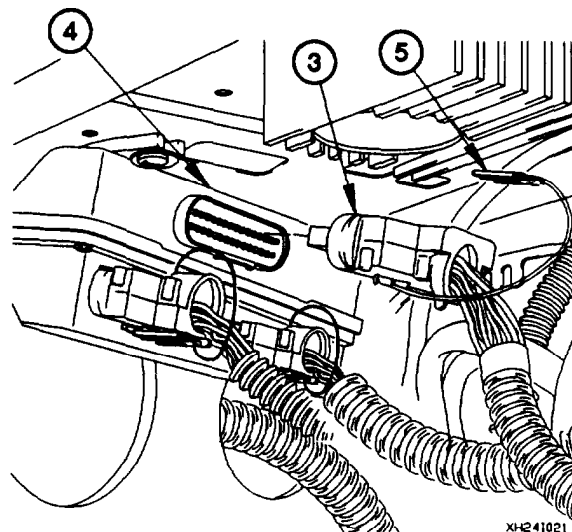
b. Installation.



NOTE

- Install plastic cable ties as required.
- Route connector J119 through forward hole in dashboard under kick panel. Route behind personnel heater to left side of dashboard.

(1) Position WTEC III cab transmission harness (1) in dashboard (2).



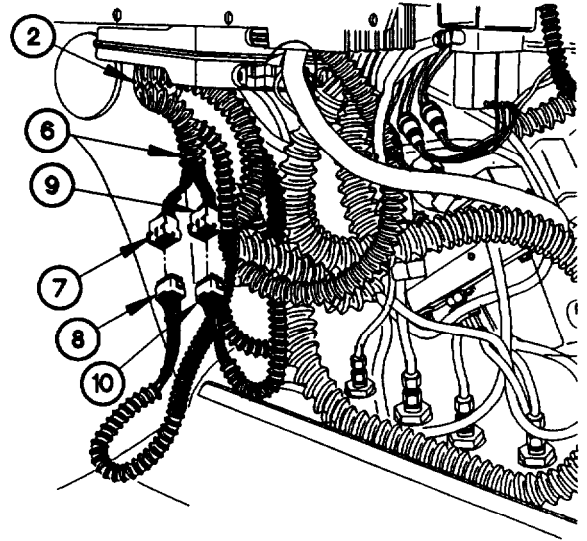
(2) Connect connector P114 (3) to WTEC III transmission ECU (4).

(3) Connect connector clamp (5) on connector P114 (3).

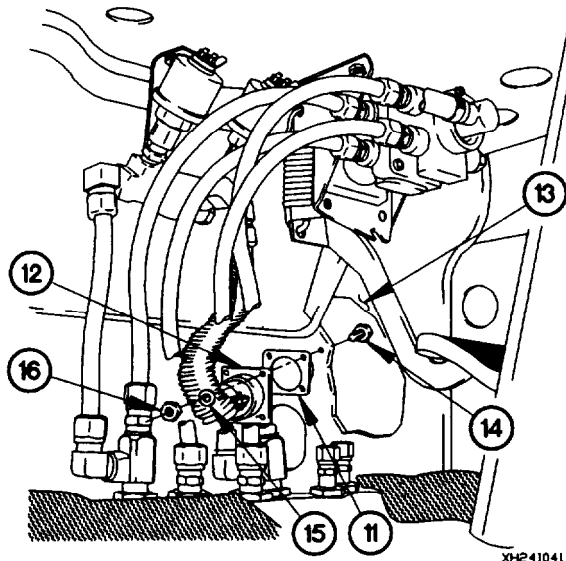
NOTE

Perform steps (4) through (6) on vehicles equipped with auxiliary panel.

- (4) Push auxiliary panel cable assembly (6) back through forward hole in dashboard (2).
- (5) Connect connector P108 (7) to connector J108 (8).
- (6) Connect connector P210 (9) to connector J210 (10).



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WARNING

Ensure WTEC III cab transmission harness does not interfere with throttle linkage. Failure to comply may result in injury to personnel.

NOTE

Step (7) requires the aid of an assistant.

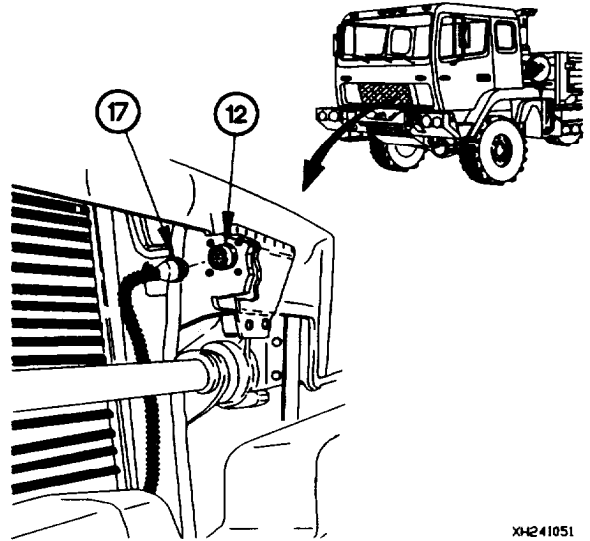
- (7) Install gasket (11) and connector J119 (12) on cab (13) with four screws (14), lockwashers (15), and nuts (16).

7-87. WTEC III CAB TRANSMISSION HARNESS REPLACEMENT (CONT)

(8) Connect connector P119 (17) to connector J119 (12).

c. Follow-On Maintenance.

- (1) Install personnel heater (para 18-9).
- (2) Install kick panel (para 16-3).
- (3) Install instrument panel assembly (para 7-15).
- (4) Start engine (TM 9-2320-365-10).
- (5) Check VOLTS gage for charge indication (TM 9-2320-365-10).
- (6) Shut down engine (TM 9-2320-365-10).



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End of Task.

CHAPTER 8 TRANSMISSION MAINTENANCE

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Section I. INTRODUCTION

8-1. INTRODUCTION

This chapter contains maintenance instructions for replacing transmission components authorized by the Maintenance Allocation Chart (MAC) at the Unit Maintenance level.

Section II. MAINTENANCE PROCEDURES

8-2. WTEC II TRANSMISSION ECU PUSHBUTTON SHIFT SELECTOR (TEPSS) AND BRACKET REPLACEMENT AND CALIBRATION

This task covers:

- a. Removal
- b. Installation
- c. Calibration

INITIAL SETUP

Equipment Conditions

Instrument panel assembly removed for access (para 7-15).

Tools and Special Tools

Tool Kit, Genl Mech (Item 44, Appendix C)
Wrench, Torque, 0-75 lb-in. (Item 86, Appendix B)

Materials/Parts

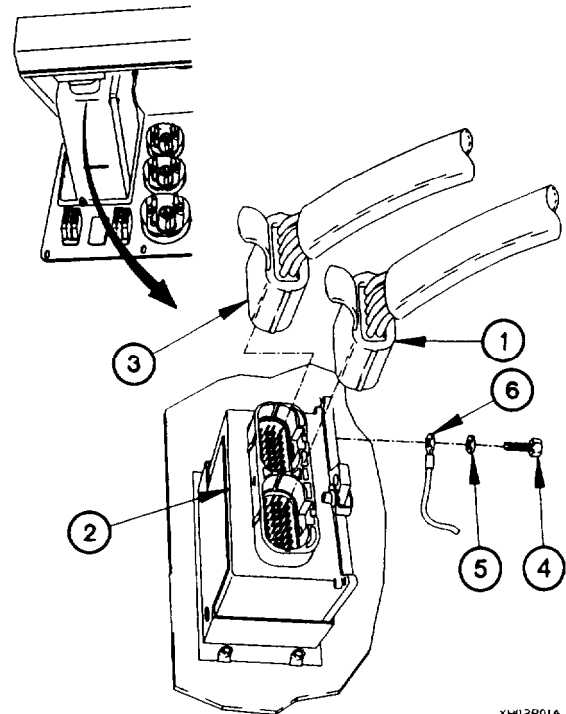
Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)
Solvent, Dry Cleaning SD (P-D-680) (Item 71, Appendix D)
Paper, Abrasive (Item 48, Appendix D)
Fastener Tape (Item 10, Appendix G)
Fastener Tape (Item 11, Appendix G)

a. Removal.

NOTE

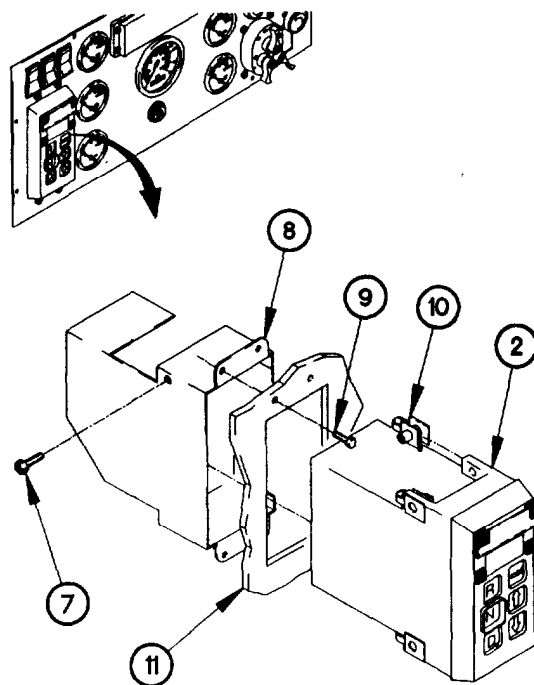
Tag connectors and connection points prior to disconnecting.

- (1) Disconnect connector J115 (1) from WTEC II TEPSS (2).
- (2) Disconnect connector J114 (3) from WTEC II TEPSS (2).
- (3) Remove screw (4), washer (5), and ground terminal lug (6) from WTEC II TEPSS (2).



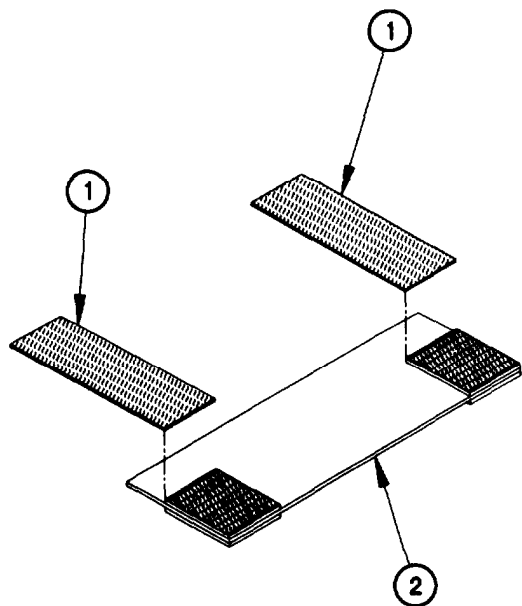
XH02R01A

- (4) Remove two screws (7) from mounting bracket (8).
- (5) Remove four screws (9), mounting bracket (8), two captive nuts (10), and WTEC II TEPSS (2) from instrument panel assembly (11).



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b. Installation.



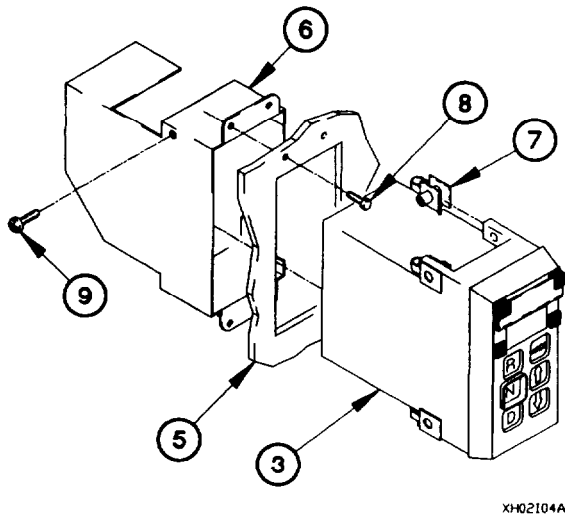
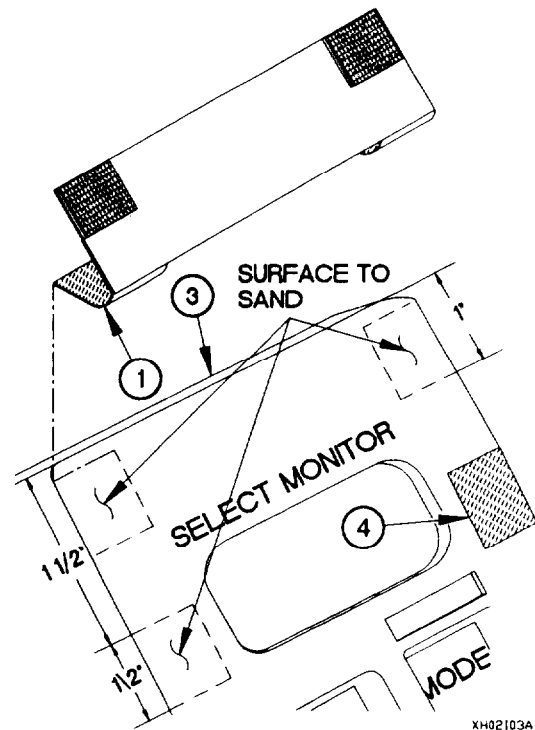
- (1) Cut two pieces of fastener tape (hook side) (1) to 1.5 X 0.5 in. (3.8 X 1.3 cm).
- (2) Install two fastener tapes (1) on light filter assembly (2) at locations shown.

8-2. WTEC II TRANSMISSION ECU PUSHBUTTON SHIFT SELECTOR (TEPSS) AND BRACKET REPLACEMENT AND CALIBRATION (CONT)

WARNING

- Dry Cleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles and gloves; use only in well ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using dry cleaning solvent; the flashpoint for Type I Dry Cleaning Solvent is 100°F (38°C) and for Type II is 130°F (50°C). Failure to comply may result in serious injury or death to personnel.
- If personnel become dizzy while using dry cleaning solvent, immediately get fresh air and medical help. If dry cleaning solvent contacts skin or clothes, flush with cold water. If dry cleaning solvent contacts eyes, immediately flush eyes with water and get immediate medical attention. Failure to comply may result in injury to personnel.

- (3) Clean WTEC II TEPSS (3) with dry cleaning solvent.
- (4) Sand WTEC II TEPSS (3) lightly at locations shown.
- (5) Clean WTEC II TEPSS (3) with dry cleaning solvent.
- (6) Cut two pieces of fastener tape (hook side) (4) to 0.625 X 0.5 in. (15.9 X 12.7 mm).
- (7) Install two fastener tapes (4) on WTEC II TEPSS (3) at locations shown.
- (8) Install two fastener tapes (1) on WTEC II TEPSS (3) at locations shown.



- (9) Position WTEC II TEPSS (3) in instrument panel assembly (5) with mounting bracket (6), two captive nuts (7), and four screws (8).
- (10) Position two screws (9) in mounting bracket (6).
- (11) Tighten four screws (8) to 9 lb-in. (1 N•m).
- (12) Tighten two screws (9) to 27-35 lb-in. (3-4 N•m).

- (13) Install ground terminal lug (10) on WTEC II TEPSS (3) with washer (11) and screw (12).
- (14) Connect connector J114 (13) to WTEC II TEPSS (3).
- (15) Connect connector J115 (14) to WTEC II TEPSS (3).

c. Calibration.

- (1) Install instrument panel assembly (para 7-15).

CAUTION

WTEC II TEPSS must be calibrated after replacement. Failure to comply may result in damage to equipment.

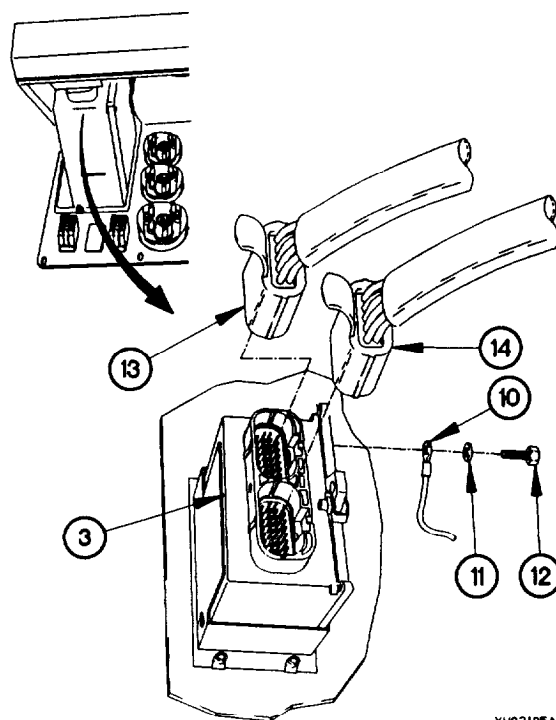
- (2) Position master power switch to on and wait for Neutral (N) indication from WTEC II TEPSS (TM 9-2320-365-10).
- (3) Position master power switch to off (TM 9-2320-365-10).
- (4) Perform steps (2) and (3) four more times.
- (5) Position master power switch to on and depress accelerator pedal all the way to cab floor (TM 9-2320-365-10).
- (6) Start engine (TM 9-2320-365-10).

NOTE

Transmission shifting may be rough until WTEC II TEPSS determines proper shift points. Operating vehicle through each gear range several times will allow WTEC II TEPSS to determine proper shift points.

- (7) Operate vehicle through all gear ranges several times (TM 9-2320-365-10).
- (8) Shut down engine (TM 9-2320-365-10).

End of Task.



8-3. WTEC III TRANSMISSION PUSHBUTTON SHIFT SELECTOR (TPSS) AND BRACKET REPLACEMENT AND CALIBRATION

This task covers:

- a. Removal
- b. Installation.
- c. Calibration

INITIAL SETUP

Equipment Conditions

Instrument panel assembly removed for access (para 7-15).

Materials/Parts

Nut, Self-Locking (2) (Item 155, Appendix G)

Tools and Special Tools

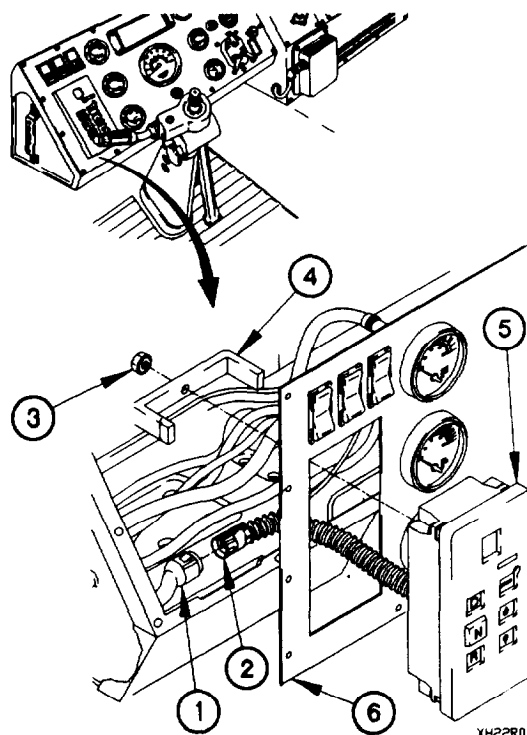
Tool Kit, Genl Mech (Item 44, Appendix C)
Wrench, Torque, 0-75 lb-in. (Item 86, Appendix B)

a. Removal.

NOTE

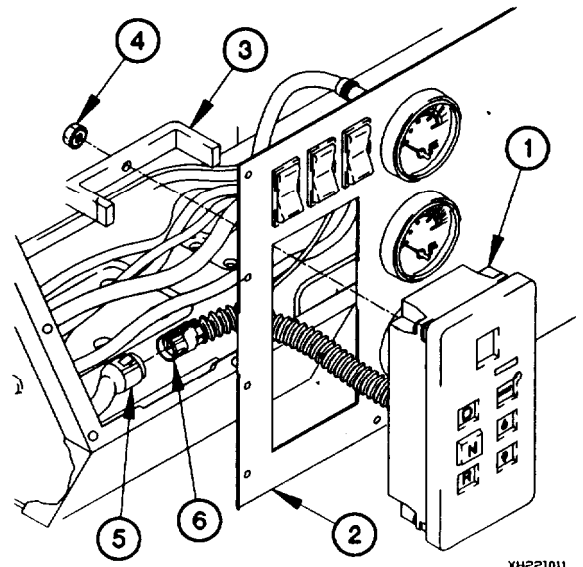
Tag connectors and connection points prior to disconnecting.

- (1) Disconnect connector PX33 (1) from WTEC III TPSS connector (2).
- (2) Remove two self-locking nuts (3) and brackets (4) from WTEC III TPSS (5). Discard self-locking nuts.
- (3) Remove WTEC III TPSS (5) from front of instrument panel assembly (6).



b. Installation.

- (1) Install WTEC III TPSS (1) in instrument panel assembly (2).
- (2) Position two brackets (3) and self-locking nuts (4) on WTEC III TPSS (1).
- (3) Tighten two self-locking nuts (4) to 11-13 lb-in. (1-2 N•m).
- (4) Connect connector PX33 (5) to WTEC III TPSS connector (6).



c. Calibration.

CAUTION

WTEC III TPSS must be calibrated after replacement. Failure to comply may result in damage to equipment.

- (1) Position master power switch to on and wait for Neutral (N) indication from WTEC III TPSS (TM 9-2320-365-10).
- (2) Position master power switch to off (TM 9-2320-365-10).
- (3) Perform steps (1) and (2) four more times.
- (4) Position master power switch to on (TM 9-2320-365-10).
- (5) Start engine (TM 9-2320-365-10).
- (6) Check VOLTS gage for charge indication (TM 9-2320-365-10).

NOTE

Transmission shifting may be rough until WTEC III TPSS determines proper shift points. Operating vehicle through each gear range several times will allow WTEC III TPSS to determine proper shift points.

- (7) Test drive vehicle and check operation through all gear ranges several times (TM 9-2320-365-10).
- (8) Shut down engine (TM 9-2320-365-10).

End of Task.

8-4. WTEC II CODE READING AND CODE CLEARING PROCEDURES

This task covers:

- | | |
|---|--|
| <ul style="list-style-type: none"> a. Reading Diagnostic Codes b. Clearing Active Diagnostic Codes c. Clearing Historic Diagnostic Codes | <ul style="list-style-type: none"> d. Exiting the Diagnostic Display Mode e. Follow-On Maintenance |
|---|--|

INITIAL SETUP

Equipment Conditions

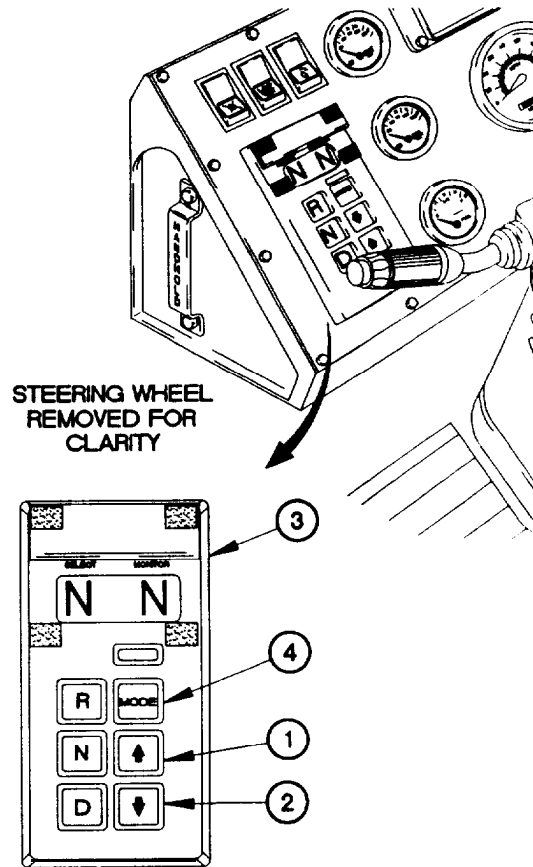
Master power switch positioned to on (TM 9-2320-365-10).

a. Reading Diagnostic Codes.

NOTE

- Diagnostic codes may be viewed even while vehicle is moving.
- There are two types of diagnostic codes, active and historic, which may be displayed on WTEC II TEPSS. An active diagnostic code indicates a fault which is currently being detected by WTEC II TEPSS. An historic diagnostic code represents a fault which was detected prior to engine shutdown. All active diagnostic codes, except main code 69 sub code 34, will become historic codes when electrical power is removed from WTEC II TEPSS.
- When an active diagnostic code is displayed on WTEC II TEPSS, the MODE ON light will be illuminated.

- (1) Enter diagnostic display mode by pressing ↑ (1) and ↓ (2) (up arrow and down arrow) buttons on WTEC II TEPSS (3) at the same time.



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NOTE

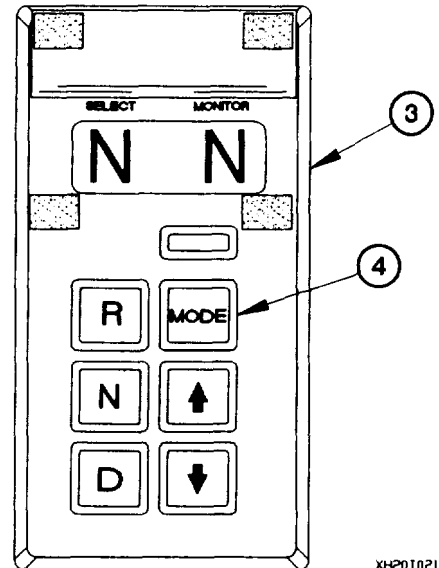
- WTEC II TEPSS is capable of storing (logging) up to five diagnostic codes in memory. The diagnostic code positions are identified as d1, d2, d3, d4, and d5. Diagnostic code position d1 represents the most recently logged diagnostic code.
- WTEC II TEPSS will display the four position diagnostic codes two characters at a time, beginning with the most recently logged diagnostic code (d1). The following example shows main code 24 sub code 12 logged in diagnostic code position d1:
 1. Code list position - d1
 2. Main code - 24
 3. Sub code - 12
 4. Code position repeats - d1,24,12
- Display of first diagnostic code (d1) will be repeated until MODE button is pressed to view remaining diagnostic codes (d2, d3, d4, and d5) or until diagnostic mode is exited.
- Any diagnostic code position which does not have a diagnostic code logged will display "--".

- (2) Record first diagnostic code (d1) displayed on WTEC II TEPSS (3).

NOTE

Pressing MODE button momentarily after fifth diagnostic code (d5) is displayed will cause code positions displayed to begin again with first diagnostic code (d1).

- (1) Press MODE button (4) momentarily to view next diagnostic code (d2).
- (4) Record diagnostic code, if any, displayed on WTEC II TEPSS (3).
- (5) Perform steps (3) and (4) for remaining diagnostic code positions (d3, d4, and d5).
- (6) Refer to **Table 8-1. WTEC II Diagnostic Code List and Description** for identification of diagnostic codes and to determine which troubleshooting task(s) to perform.



8-4. WTEC II CODE READING AND CODE CLEARING PROCEDURES (CONT)

Table 8-1. WTEC II Diagnostic Code List and Description

MAIN CODE	SUB CODE	DESCRIPTION	PERFORM TROUBLESHOOTING TASK
13	ANY	ECU input voltage, low/high	f19
21	ANY	Throttle position sensor, failed low/high	f12
22	14	Engine speed sensor reasonableness test	f2
	15	Turbine speed sensor reasonableness test	f3
	16	Output speed sensor reasonableness or rapid decel test	f4
24	ANY	Sump oil temperature, cold/hot	f5
25	ANY	Output speed reasonableness test, detected at 0 speed	f14
32	ANY	C3 pressure switch open	f6
33	ANY	Sump oil temperature sensor failed low/high	f5
34	ANY	Calibration compatibility or check sum fault	Replace WTEC II TEPSS (para 8-2).
35	ANY	Power interruption	f7 and f19. If fault persists, replace WTEC II TEPSS (para 8-2).
36	ANY	Hardware/software not compatible	Replace WTEC II TEPSS (para 8-2).
41	ANY	Open or short to ground, solenoid circuit	f7
42	ANY	Short to battery, solenoid circuit	f7
43	ANY	Low side driver, solenoid circuit	f8
44	ANY	Short to ground, solenoid circuit	f7
45	ANY	Open circuit, solenoid circuit	f7
51	10	Offgoing ratio test (during shift), 1 to L	f13
	12	Offgoing ratio test (during shift), 1 to 2	f13
	21	Offgoing ratio test (during shift), 2 to 1	f13
	23	Offgoing ratio test (during shift), 2 to 3	f13
	43	Offgoing ratio test (during shift), 4 to 3	f13
	45	Offgoing ratio test (during shift), 4 to 5	f13
	65	Offgoing ratio test (during shift), 6 to 5	f13
52	ANY	Offgoing C3PS test (during shift]	f9

Table 8-1. Diagnostic Code List and Description (Cont)

MAIN CODE	SUB CODE	DESCRIPTION	PERFORM TROUBLESHOOTING TASK
53	ANY	Offgoing speed test (during shift)	f15
54	01	Oncoming ratio test (after shift), L to 1	f16
	07	Oncoming ratio test (after shift), L to R	f16
	10	Oncoming ratio test (after shift), 1 to L	f16
	12	Oncoming ratio test (after shift), 1 to 2	f16
	17	Oncoming ratio test (after shift), 1 to R	f16
	21	Oncoming ratio test (after shift), 2 to 1	f16
	23	Oncoming ratio test (after shift), 2 to 3	f16
	27	Oncoming ratio test (after shift), 2 to R	f16
	32	Oncoming ratio test (after shift), 3 to 2	f16
	34	Oncoming ratio test (after shift), 3 to 4	f16
	43	Oncoming ratio test (after shift), 4 to 3	f16
	45	Oncoming ratio test (after shift), 4 to 5	f16
	54	Oncoming ratio test (after shift), 5 to 4	f16
	56	Oncoming ratio test (after shift), 5 to 6	f16
	65	Oncoming ratio test (after shift), 6 to 5	f16
	70	Oncoming ratio test (after shift), R to L	f16
	71	Oncoming ratio test (after shift), R to 1	f16
	72	Oncoming ratio test (after shift), R to 2	f16
	80	Oncoming ratio test (after shift), N1 to L	f16
	81	Oncoming ratio test (after shift), N1 to 1	f16
	82	Oncoming ratio test (after shift), N1 to 2	f16
	83	Oncoming ratio test (after shift), N1 to 3	f16
	85	Oncoming ratio test (after shift), N1 to 5	f16
	86	Oncoming ratio test (after shift), N1 to 6	f16
	92	Oncoming ratio test (after shift), N2 to 2	f16
	93	Oncoming ratio test (after shift), N3 to 3	f16
	95	Oncoming ratio test (after shift), N3 to 5	f16
	96	Oncoming ratio test (after shift), N4 to 6	f16
	97	Oncoming ratio test (after shift), 2 to R (2 to NNC to R)	f16

8-4. WTEC II CODE READING AND CODE CLEARING PROCEDURES (CONT)

Table 8-1. Diagnostic Code List and Description (Cont)

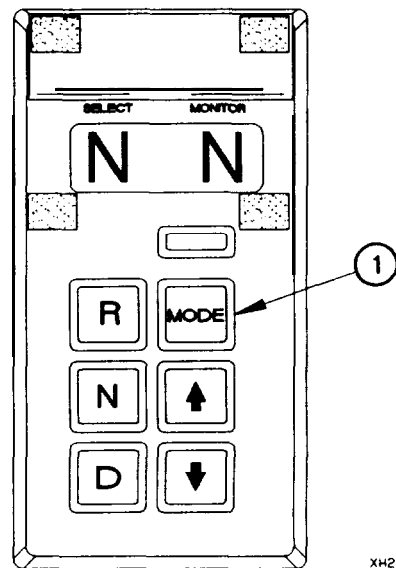
MAIN CODE	SUB CODE	DESCRIPTION	PERFORM TROUBLESHOOTING TASK
55	ANY	Oncoming C3PS test (after shift)	f17
56	ANY	Range verification test	f18
57	ANY	Range verification C3PS test	f10
69	ANY	ECU malfunction	f7. If fault persists, replace WTEC II TEPSS (para 8-2).

b. Clearing Active Diagnostic Codes.

NOTE

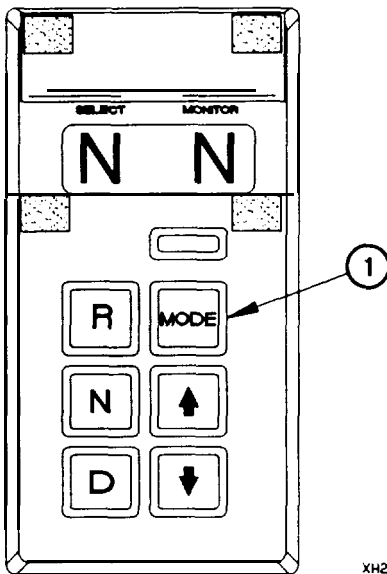
Active diagnostic codes can only be cleared when transmission output speed equals zero and no output speed sensor fault is active.

- (1) Press and hold MODE button (1), approximately three seconds, until WTEC II TEPSS tone sounds for 1/2 second.
- (2) Release MODE button (1).



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c. Clearing Historic Diagnostic Codes.

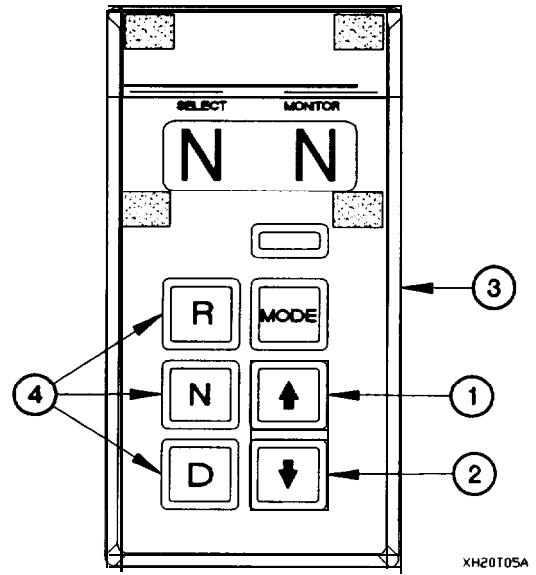


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- (1) Press and hold MODE button (1), approximately 10 seconds, until tone sounds.
- (2) Release MODE button (1).

c. Exiting the Diagnostic Display Mode.

- (1) Exit the diagnostic display mode by any of the following methods.
 - (a) Press ↑ (1) and ↓ (2) (up arrow and down arrow) buttons on WTEC II TEPSS (3) at the same time.
 - (b) Press any range button (4), D, N, or R on WTEC II TEPSS (3) (the shift will be commanded if not inhibited by an active code).
 - (c) Wait until the calibrated time (approximately 10 minutes) has passed and system automatically returns to the normal operating mode.
 - (d) Position master power switch to off (TM 9-2320-365-10).



e. Follow-On Maintenance.

Perform Transmission System Troubleshooting (para 2-17).

End of Task.

8-5. WTEC III CODE READING AND CODE CLEARING PROCEDURES

This task covers:

- | | |
|---------------------------------------|--|
| a. Reading Diagnostic Codes | d. Exiting the Diagnostic Display Mode |
| b. Clearing Active Diagnostic Codes | e. Follow-On Maintenance |
| c. Clearing Historic Diagnostic Codes | |

INITIAL SETUP

Equipment Conditions

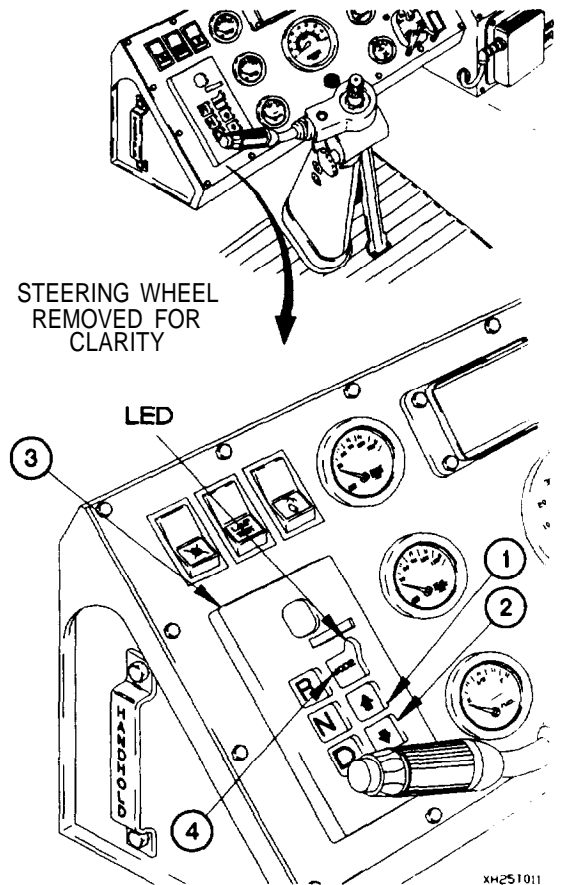
Master power switch positioned to on (TM 9-2320-365-10).

a. Reading Diagnostic Codes.

NOTE

- Diagnostic codes may be viewed even while vehicle is moving.
- There are two types of diagnostic codes, active and historic, which may be displayed on WTEC III TPSS. An active diagnostic code indicates a fault which is currently being detected by WTEC III TPSS. An historic diagnostic code represents a fault which was detected prior to engine shutdown. All active diagnostic codes, except main code 69 sub code 34, will become historic codes when electrical power is removed from WTEC III transmission ECU.
- When an active diagnostic code is displayed on WTEC III TPSS, the Light Emitting Diode (LED) at upper right corner of MODE button will be illuminated.

- (1) Enter diagnostic display mode by pressing ↑ (1) and ↓ (2) (up arrow and down arrow) buttons on WTEC III TPSS selector (3) at the same time.



NOTE

- WTEC III transmission ECU is capable of storing (logging) up to five diagnostic codes in memory. The diagnostic code positions are identified as d1, d2, d3, d4, and d5. Diagnostic code position d1 represents the most recently logged diagnostic code.

- WTEC III TPSS will display the four position diagnostic codes one character at a time, beginning with the most recently logged diagnostic code (d1). The following example shows main code 24 sub code 12 logged in diagnostic code position d1:

1. Code list position - d,1
2. Main code - 2,4
3. Sub code - 1,2
4. Code position repeats - d1,24,12

- Display of first diagnostic code (d1) will be repeated until MODE button is pressed to view remaining diagnostic codes (d2, d3, d4, and d5) or until diagnostic mode is exited.

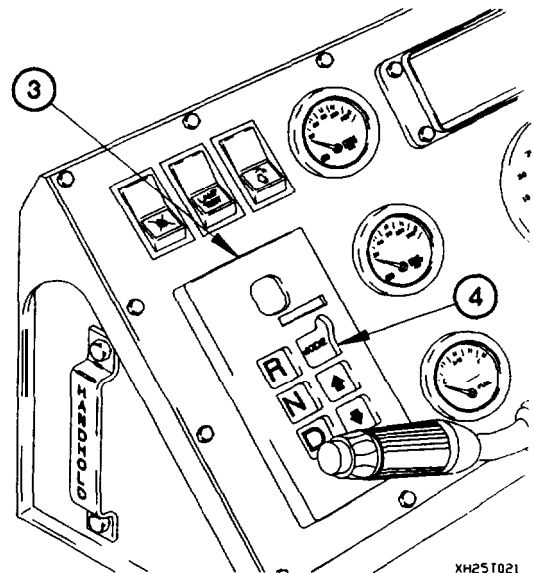
- Any diagnostic code position which does not have a diagnostic code logged will display "--".

- (2) Record first diagnostic code (d1) displayed on WTEC III TPSS (3).

NOTE

Pressing MODE button momentarily after fifth diagnostic code (d5) is displayed will cause code positions displayed to begin again with first diagnostic code (d1).

- (3) Press MODE button (4) momentarily to view next diagnostic code (d2).
- (4) Record diagnostic code, if any, displayed on WTEC III TPSS (3).
- (5) Perform steps (3) and (4) for remaining diagnostic code positions (d3, d4, and d5).
- (6) Refer to **Table 8-2. WTEC III Diagnostic Code List and Description** for identification of diagnostic codes and to determine which troubleshooting task(s) to perform.



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Table 8-2. WTEC III Diagnostic Code List and Description

MAIN CODE	SUB CODE	DESCRIPTION	PERFORM TROUBLESHOOTING TASK
13	ANY	ECU input voltage, low/high	f37
21	ANY	Throttle position sensor, failed low/high	f30

8-5. WTEC III CODE READING AND CODE CLEARING PROCEDURES (CONT)

Table 8-2. WTEC III Diagnostic Code List and Description (Cont)

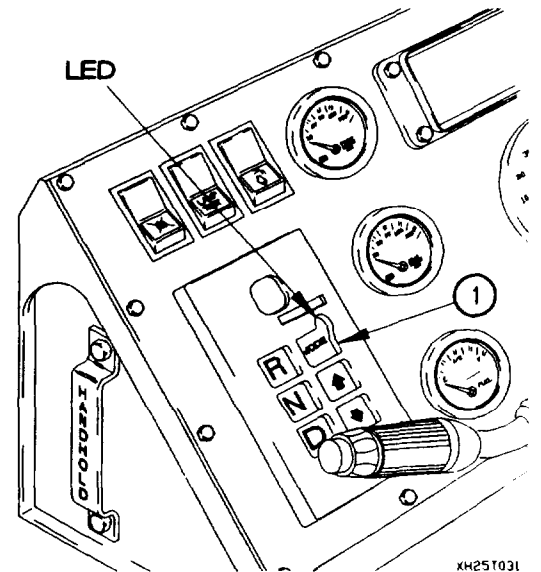
MAIN CODE	SUB CODE	DESCRIPTION	PERFORM TROUBLESHOOTING TASK
22	14	Engine speed sensor reasonableness test	f22
	15	Turbine speed sensor reasonableness test	f23
	16	Output speed sensor reasonableness test	f24
24	ANY	Sump oil temperature, cold/hot	f25
25	ANY	Output speed reasonableness test, detected at 0 speed	f32
32	ANY	C3 pressure switch open	f26
33	ANY	Sump oil temperature sensor failed low/high	f25
34	ANY	Calibration compatibility or check sum fault	Replace WTEC III transmission ECU (para 8-7).
35	ANY	Power interruption	f27 and f37. If fault persists, replace WTEC III transmission ECU (para 8-7).
36	ANY	Hardware/software not compatible	Replace WTEC III transmission ECU (para 8-7).
42	ANY	Short to battery, solenoid circuit	f27
44	ANY	Short to ground, solenoid circuit	f27
45	ANY	Open circuit, solenoid circuit	f27
51	ANY	Offgoing ratio test (during shift)	f31
52	ANY	Offgoing C3PS test (during shift)	f28
53	ANY	Offgoing speed test (during shift)	f33
54	ANY	Oncoming ratio test (after shift)	f34
55	ANY	Oncoming C3PS test (after shift)	f35
56	ANY	Range verification test	f36
57	ANY	Range verification C3PS test	f29
69	ANY	ECU malfunction	f27. If fault persists, replace WTEC III transmission ECU (para 8-7).

b. Clearing Active Diagnostic Codes.

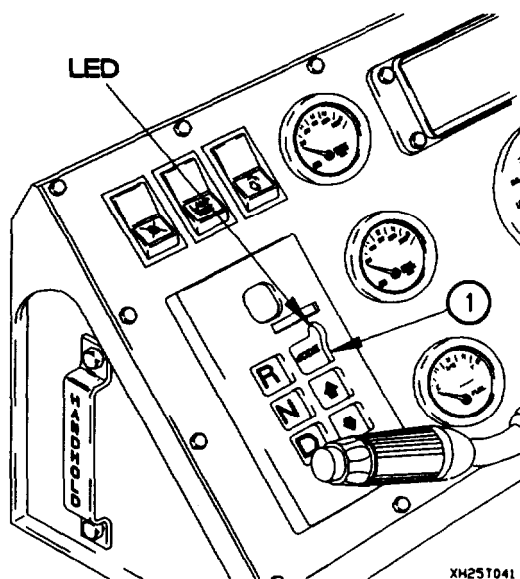
NOTE

Active diagnostic codes can only be cleared when transmission output speed equals zero and no output speed sensor fault is active.

- (1) Press and hold MODE button (1), approximately three seconds, until LED at upper right corner of MODE button flashes three times.
- (2) Release MODE button (1).



c. Clearing Historic Diagnostic Codes.



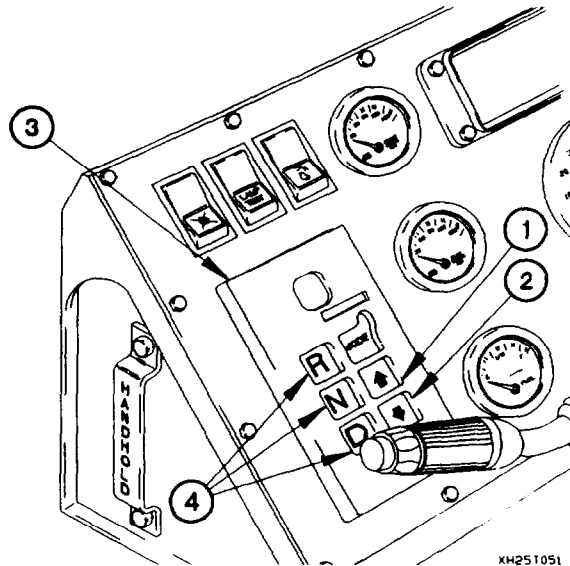
- (1) Press and hold MODE button (1), approximately 10 seconds, until LED at upper right corner of MODE button flashes three times.
- (2) Release MODE button (1).

8-5. WTEC III CODE READING AND CODE CLEARING PROCEDURES (CONT)

d. Exiting the Diagnostic Display Mode.

(1) Exit the diagnostic display mode by any of the following methods:

- (a) Press ↑ (1) and ↓ (2) (up arrow and down arrow) buttons on WTEC III TPSS (3) at the same time.
- (b) Press any range button (4), D, N, or R on WTEC III TPSS (3) (shift will be commanded if not inhibited by an active diagnostic code).
- (c) Wait until the calibrated time (approximately 10 minutes) has passed and system automatically returns to normal operating mode.
- (d) Position master power switch to off (TM 9-2320-365-10).



e. Follow-On Maintenance.

Perform Transmission System Troubleshooting (para 2-17).

End of Task.

8-6. WTEC II VEHICLE INTERFACE MODULE (VIM) REPLACEMENT/REPAIR

This task covers:

- | | |
|----------------|--------------------------|
| a. Removal | d. Installation |
| b. Disassembly | e. Follow-On Maintenance |
| c. Assembly | |

INITIAL SETUP

Equipment Conditions

Batteries disconnected (para 7-48).
Kick panel removed (para 16-3).

Tools and Special Tools

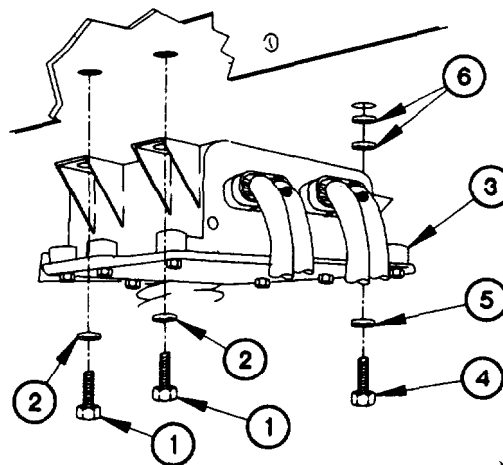
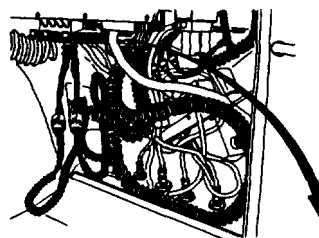
Tool Kit, Genl Mech (Item 44, Appendix C)

Materials/Parts

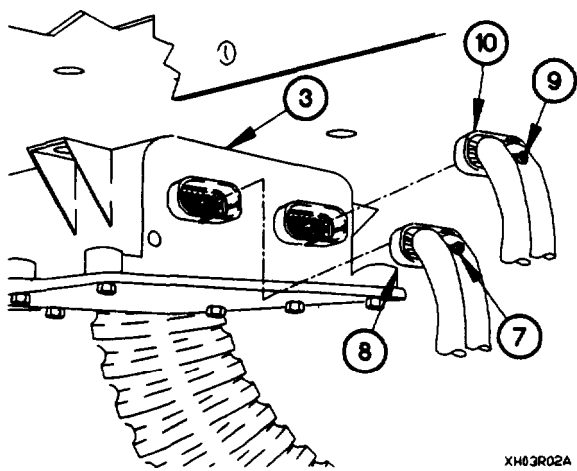
Seal Ring, Metal (Item 251, Appendix G)

a. Removal.

- (1) Remove two screws (1) and washers (2) from WTEC II VIM (3).
- (2) Remove screw (4), washer (5), and two washers (6) from WTEC II VIM (3).



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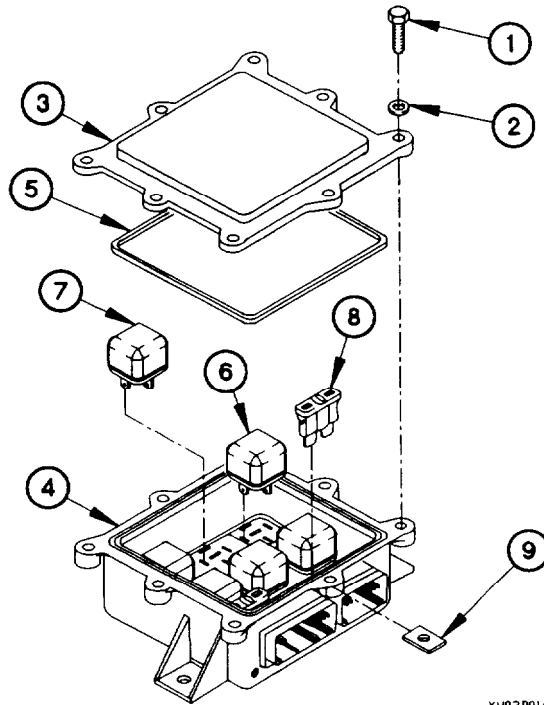
XH03R02A

- (3) Loosen screw (7) in connector J116 (8).
- (4) Disconnect connector J118 (8) from WTEC II VIM (3).
- (5) Loosen screw (9) in connector PX33 (10).
- (6) Disconnect connector PX33 (10) from WTEC II VIM
- (7) Remove WTEC II VIM (3) from vehicle.

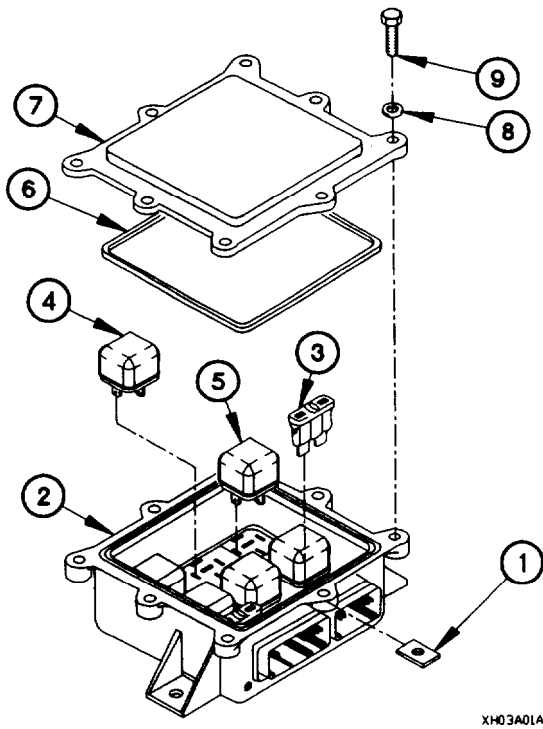
8-6. WTEC II VEHICLE INTERFACE MODULE (VIM) REPLACEMENT/REPAIR (CONT)

b. Disassembly.

- (1) Remove eight screws (1), washers (2), and VIM cover (3) from WTEC II VIM (4).
- (2) Remove metal seal ring (5) from WTEC II VIM (4). Discard metal seal ring.
- (3) Remove two 12V relays (6) from WTEC II VIM (4).
- (4) Remove four 24V relays (7) from WTEC II VIM (4).
- (5) Remove two 10 amp fuses (8) from WTEC II VIM (4).
- (6) Remove nutplate (9) from WTEC II VIM (4).



c. Assembly



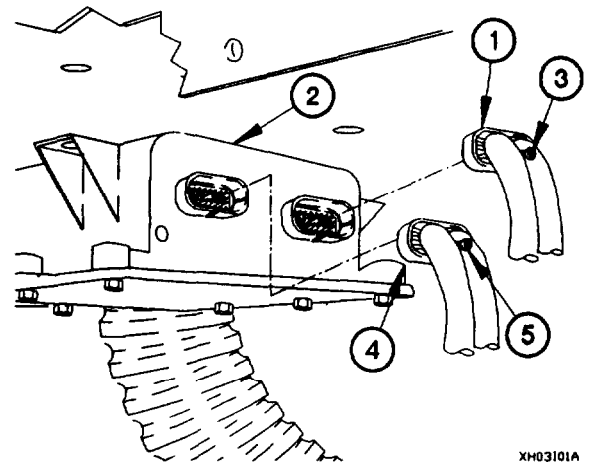
- (1) Install nutplate (1) in WTEC II VIM (2).
- (2) Install two 10 amp fuses (3) in WTEC II VIM (2).
- (3) Install four 24V relays (4) in WTEC II VIM (2).
- (4) Install two 12V relays (5) in WTEC II VIM (2).
- (5) Install metal seal ring (6) on WTEC II VIM (2).
- (6) Install VIM cover (7) on WTEC II VIM (2) with eight washers (8) and screws (9).

d. Installation.

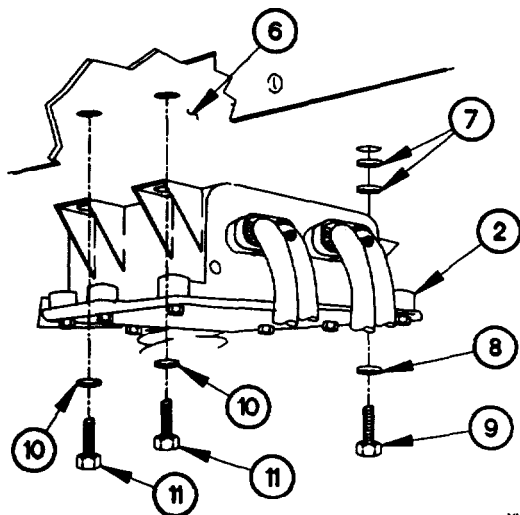
NOTE

If replacing WTEC II VIM and a WTEC II VIM is not available, perform para 8-8.

- (1) Connect connector PX33 (1) to WTEC II VIM (2).
- (2) Tighten screw (3) in connector PX33 (1).
- (3) Connect connector J116 (4) to WTEC II VIM (2).
- (4) Tighten screw (5) in connector J116 (4).



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- (5) Install WTEC II VIM (2) on bottom of dashboard (6) with two washers (7), washer (8), and screw (9).
- (6) Install two washers (10) and screws (11) in WTEC II

e. Follow-On Maintenance.

- (1) Install kick panel (para 16-3).
- (2) Connect batteries (para 7-48).
- (3) Start engine (TM 9-2320-365-10).
- (4) Road test vehicle (TM 9-2320-365-10).
- (5) Shut down engine (TM 9-2320-365-10).

End of Task.

8-7. WTEC III TRANSMISSION ECU REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

- Batteries disconnected (para 7-48).
- Kick panel removed (para 16-3).

Tools and Special Tools

- Tool Kit, Genl Mech (Item 44, Appendix C)

Materials/Parts

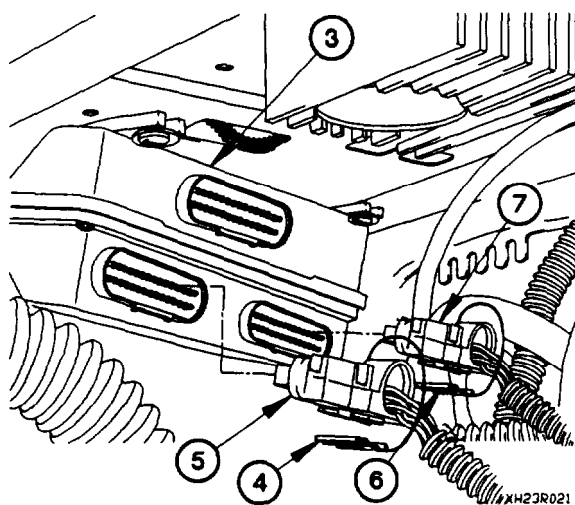
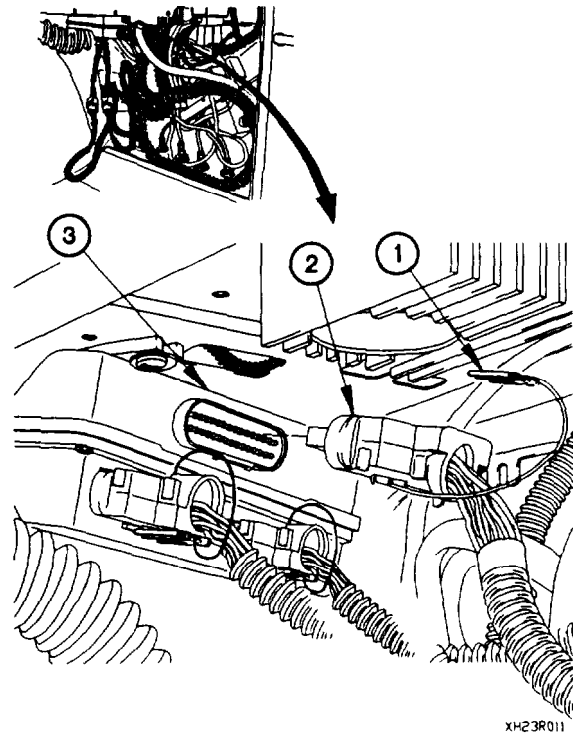
- Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)
- Ties, Cable, Plastic (Item 76, Appendix D)

a. Removal.

NOTE

- Remove plastic cable ties as required.
- Tag connectors and connection points prior to disconnecting.

- (1) Disconnect connector clamp (1) from connector P114 (2).
- (2) Disconnect connector P114 (2) from WTEC III transmission ECU (3).

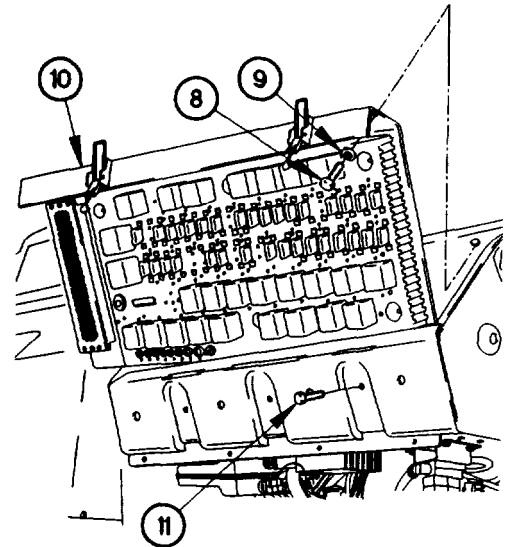


- (3) Disconnect connector clamp (4) from connector P115 (5).
- (4) Disconnect connector P115 (5) from WTEC III transmission ECU (3).
- (5) Disconnect connector clamp (6) from connector P116 (7).
- (6) Disconnect connector P116 (7) from WTEC III transmission ECU (3).

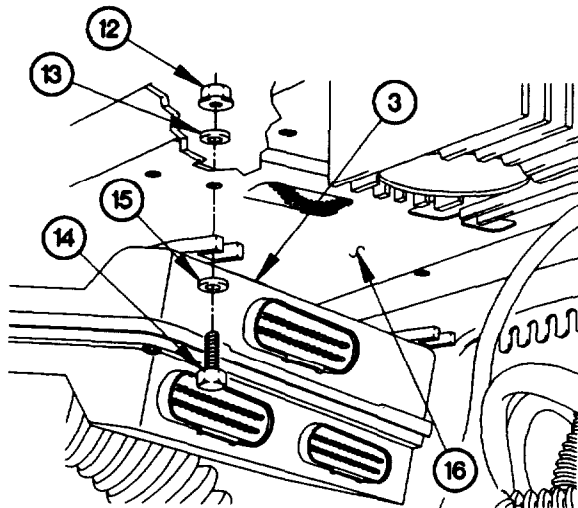
(7) Remove three screws (8) and washers (9) from PDP

(8) Remove three screws (11) from PDP (10).

(9) Lift PDP (10) outward to gain access.



XH23R031



XH23R041

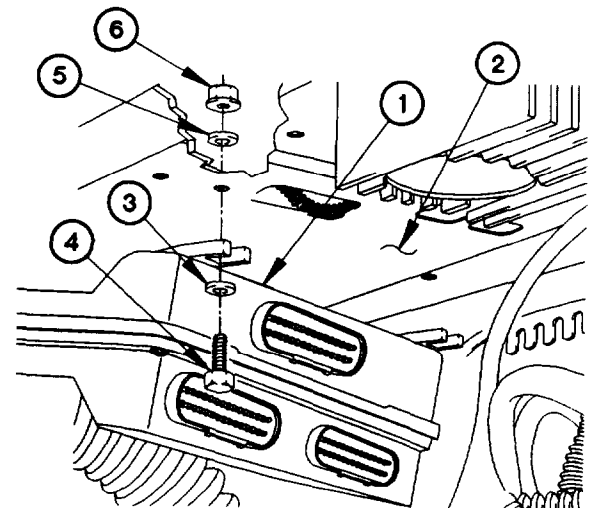
(10) Remove three nuts (12), washers (13), screws (14), washers (15), and WTEC III transmission ECU (3) from dashboard (16).

b. Installation.

NOTE

Install plastic cable ties as required.

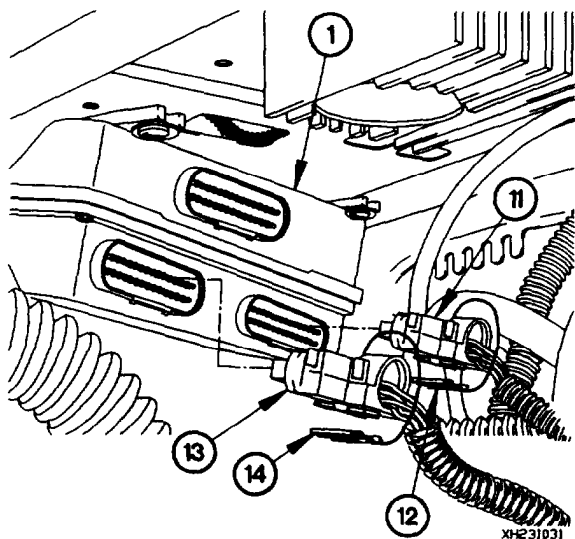
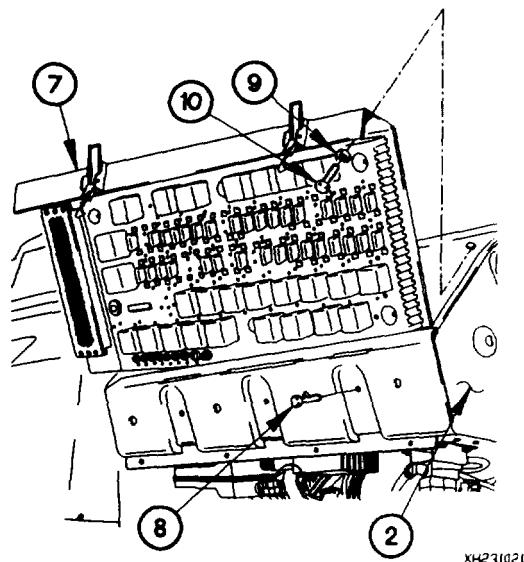
(1) Install WTEC III transmission ECU (1) on dashboard (2) with three washers (3), screws (4), washers (5), and nuts (6).



XH231011

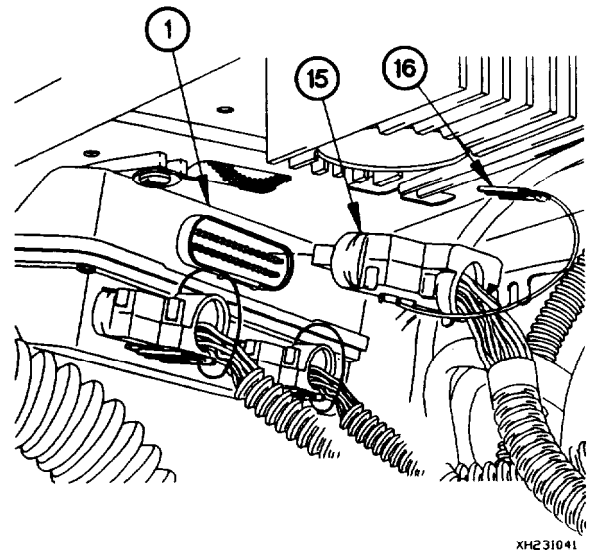
8-7. WTEC III TRANSMISSION ECU REPLACEMENT (CONT)

- (2) Install PDP (7) on dashboard (2) with three screws (8).
- (3) Install three washers (9) and screws (10) in PDP (7).



- (4) Connect connector P116 (11) to WTEC III transmission ECU (1).
- (5) Connect connector clamp (12) to connector P116 (11).
- (6) Connect connector P115 (13) to WTEC III transmission ECU (1).
- (7) Connect connector clamp (14) to connector P115 (13).

- (8) Connect connector P114 (15) to WTEC III transmission ECU (1).
- (9) Connect connector clamp (16) to connector P114 (15).



XH231041

c. Follow-On Maintenance.

- (1) Install kick panel (para 16-3).
- (2) Connect batteries (para 7-48).
- (3) Start engine (TM 9-2320-365-10).
- (4) Check VOLTS gage for charge indication (TM 9-2320-365-10).
- (5) Shut down engine (TM 9-2320-365-10).

End of Task.

8-8. WTEC III TRANSMISSION CONTROLS INITIAL INSTALLATION

This task covers:

- a. Initial Installation
- b. WTEC III TPSS Calibration

INITIAL SETUP

Equipment Conditions

WTEC II dashboard cable assembly removed (para 7-10).
 WTEC II TPSS removed (para 8-2).
 WTEC II VIM removed (para 8-6).
 WTEC II cab transmission harness removed (para 7-86).

Tools and Special Tools

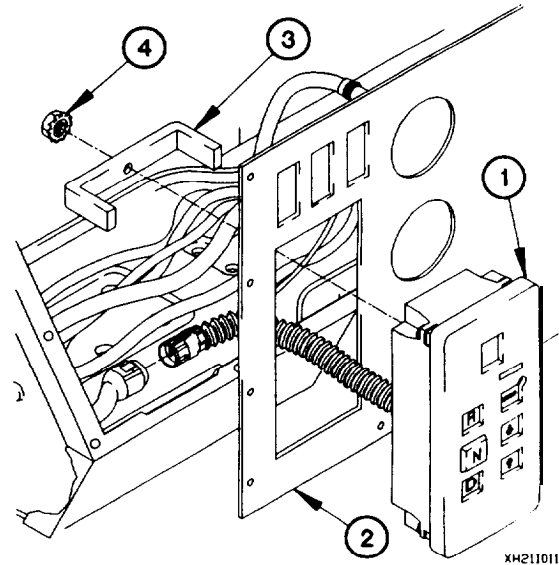
Tool Kit, Genl Mech (Item 44, Appendix C)
 Wrench, Torque, O-75 lb-in. (Item 86, Appendix B)
 Drill, Portable, Electric (Item 7, Appendix C)
 Drill Set, Twist (Item 6, Appendix C)
 Goggles, Industrial (Item 15, Appendix C)

Personnel Required

(2)

a. Initial Installation.

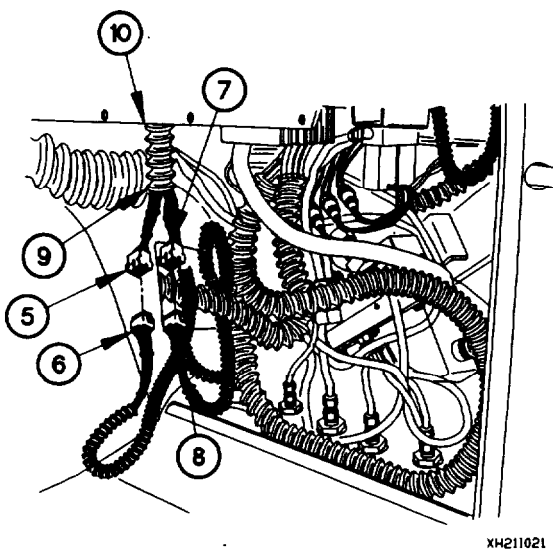
- (1) Install WTEC III TPSS (1) in instrument panel assembly (2).
- (2) Position two brackets (3) and self-locking nuts (4) on rear of WTEC III TPSS (1).
- (3) Tighten two self-locking nuts (4) to 11-13 lb-in. (1-2 N•m).



NOTE

Perform steps (4) through (6) on vehicles equipped with auxiliary panel.

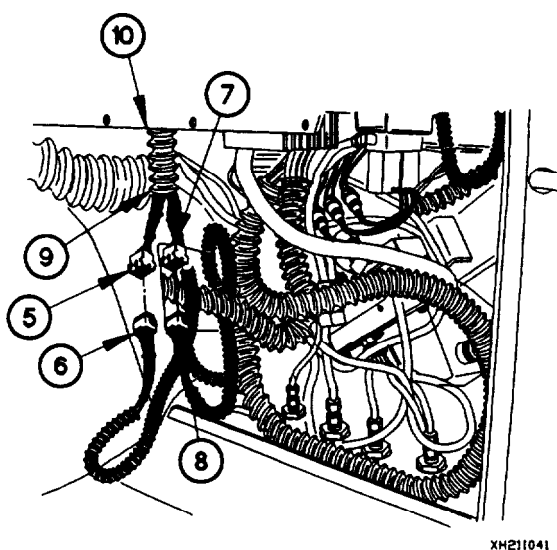
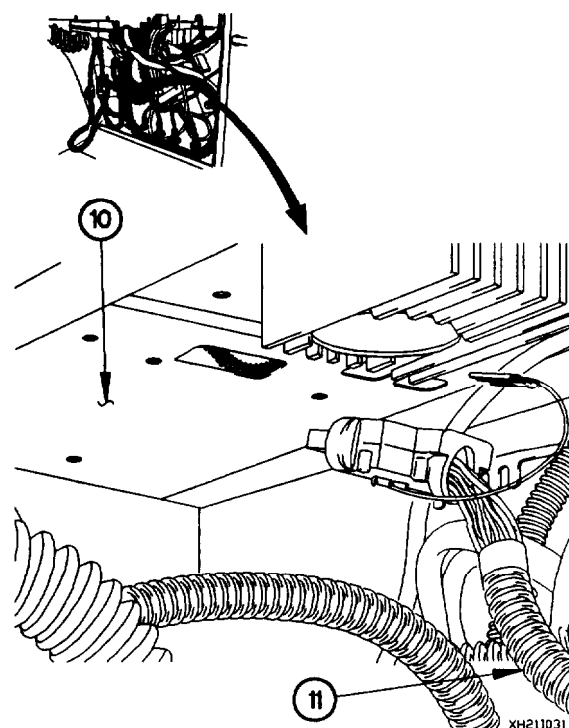
- (4) Disconnect connector J108 (5) from connector P108 (6).
- (5) Disconnect connector J210 (7) from connector P210 (8).
- (6) Pull auxiliary panel cable assembly (9) through forward hole in dashboard (10).



NOTE

- Install plastic cable ties as required.
- Route WTEC III cab transmission harness with connector J119 going through forward hole in dashboard under kick panel, until in position under left side dashboard.

(7) Position WTEC III cab transmission harness (11) in dashboard (10).



NOTE

Perform steps (8) through (10) on vehicles equipped with auxiliary panel.

- (8) Route auxiliary panel cable assembly (9) through forward hole in dashboard (10).
- (9) Connect connector P108 (6) to connector J108 (5).
- (10) Connect connector P210 (8) to connector J210 (7).

8-8. WTEC III TRANSMISSION CONTROLS INITIAL INSTALLATION (CONT)

NOTE

Reference points are from inside passenger side dashboard.

- (11) Measure and mark a line 2.0 in. (5 cm) from point A to point B in dashboard (10).

NOTE

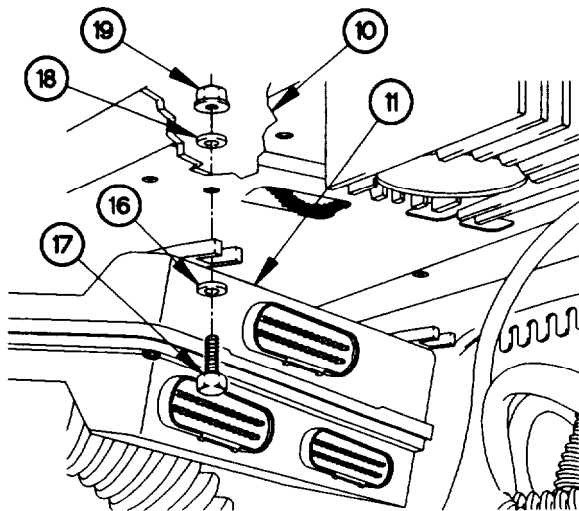
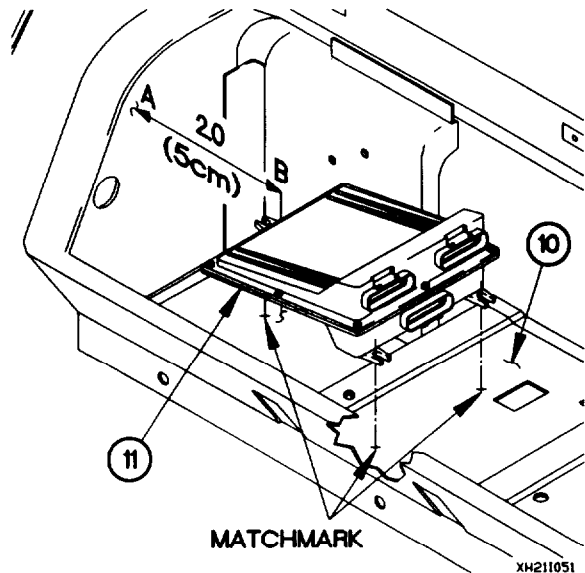
Position WTEC III transmission ECU in dashboard with mounting tabs down.

- (12) Position WTEC III transmission ECU (11) in dashboard (10) with single mounting tab over matchmark.

CAUTION

Do not position WTEC III transmission ECU on weldnuts in dashboard. Failure to comply may result in damage to equipment.

- (13) Match mark mounting tabs on WTEC III transmission ECU (11) with centerpunch.
- (14) Remove WTEC III transmission ECU (11) from dashboard (10).

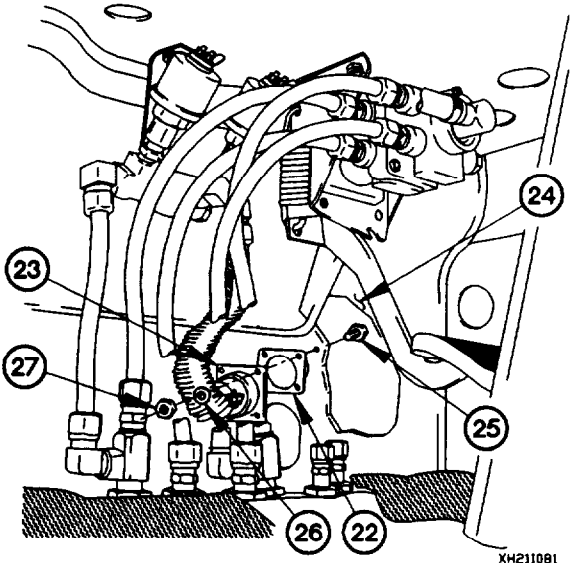
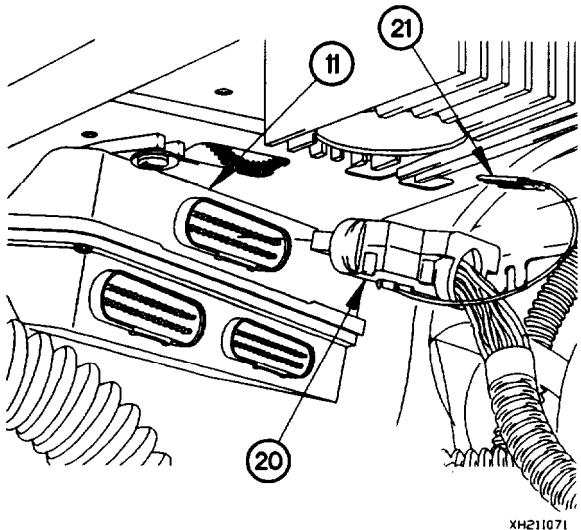


WARNING

Wear goggles when drilling metal. Failure to comply may result in injury to personnel.

- (15) Drill a pilot hole at centerpunch points marked in step (13).
- (16) Enlarge three pilot holes in step (15) to 0.315 in. (0.8 cm).
- (17) Install WTEC III transmission ECU (11) under dashboard (10) with three washers (16), screws (17), washers (18), and nuts (19).

- (18) Connect connector P114 (20) to WTEC III transmission ECU (11).
- (19) Connect connector clamp (21) on connector P114 (20).



WARNING

Ensure WTEC III cab transmission harness does not interfere with throttle linkage. Failure to comply may result in injury to personnel.

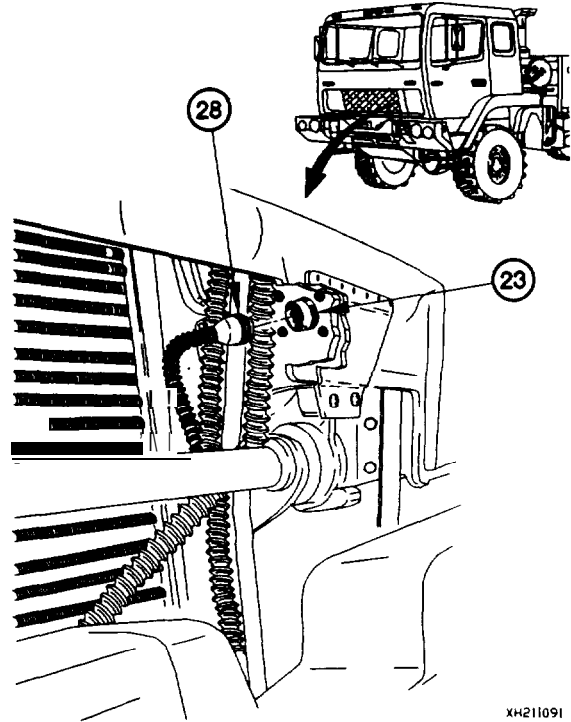
NOTE

Step (20) requires the aid of an assistant.

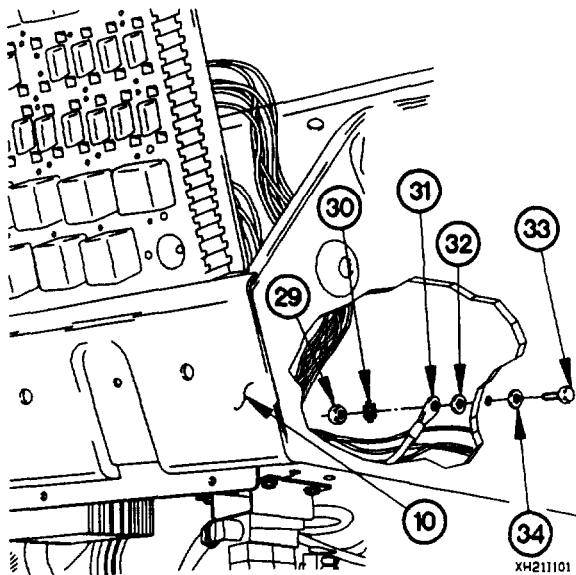
- (20) Install gasket (22) and connector J119 (23) on cab (24) with four screws (25), lockwashers (26), and nuts (27).

8-8. WTEC III TRANSMISSION CONTROLS INITIAL INSTALLATION (CONT)

(21) Connect connector P119 (28) to connector J119 (23).



XH211091



XH211101

(22) Remove nut (29), lockwasher (30), terminal lug TL57 (31), washer (32), screw (33), and washer (34) from dashboard (10). Discard lockwasher.

(23) Install WTEC III dashboard cable assembly (para 7-11).

b. WTEC III TPSS Calibration.**NOTE**

WTEC III TPSS requires calibration after installation. Calibration is accomplished in steps (1) through (4).

- (1) Position master power switch to on and wait for neutral (N) indication from WTEC III TPSS (TM 9-2320-365-10).
- (2) Position master power switch to off (TM 9-2320-365-10).
- (3) Perform steps (1) and (2) four more times.
- (4) Position master power switch to on (TM 9-2320-365-10).
- (5) Start engine (TM 9-2320-365-10).
- (6) Check VOLTS gage for charge indication (TM 9-2320-365-10).

NOTE

Transmission shifting may be rough until WTEC III TPSS determines proper shift points. Operating vehicle through each gear range several times will allow WTEC III TPSS to determine proper shift points.

- (7) Test drive vehicle and check operation of vehicle through all gear ranges several times (TM 9-2320-365-10).
- (8) Shut down engine (TM 9-2320-365-10).

End of Task.

8-9. TRANSMISSION OIL FILTER REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Engine shut down (TM 9-2320-365-10).

Tools and Special Tools

Goggles, Industrial (Item 15, Appendix C)
 Container (60 qt (57 L) capacity)
 Tool Kit, Genl Mech (Item 44, Appendix C)
 Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)

Materials/Parts

Oil, Lubricating, OEMDO 30 (Item 46, Appendix D)
 Kit, Filter (Item 54, Appendix G) (Transmissions SN lower than 6510069120)
 Kit, Filter (Item 55, Appendix G) (Transmissions SN 6510069120 and higher)

WARNING

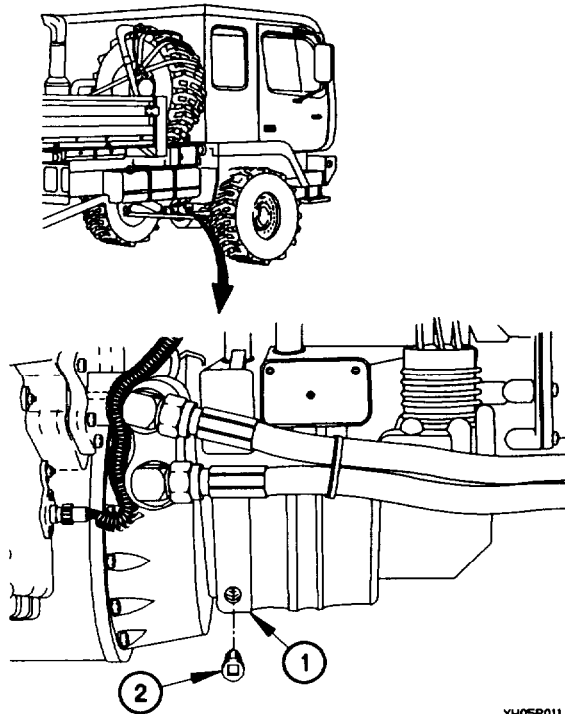
- Wear appropriate eye protection when working under vehicle due to the possibility of falling debris. Failure to comply may result in injury to personnel.
- Ensure exhaust system is cool before performing maintenance. Failure to comply may result in injury to personnel.

CAUTION

There are two transmission oil filters. Do not replace one transmission oil filter without replacing the other. Failure to comply may result in damage to equipment.

a. Removal.

- (1) Position container under transmission control module (1).
- (2) Remove drain plug (2) from transmission control module (1) and drain oil.

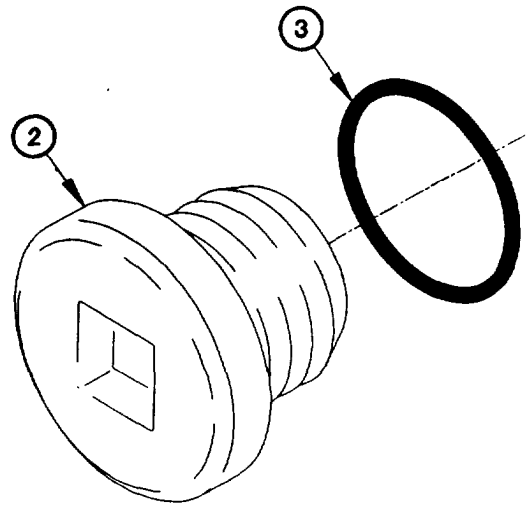


X405R011

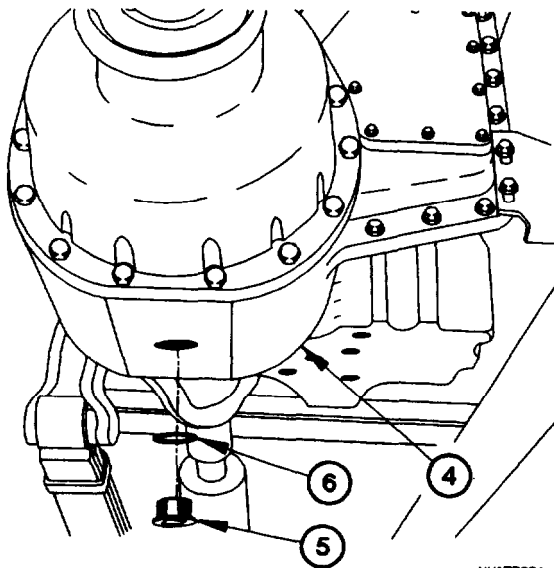
CAUTION

Perform Transmission Troubleshooting, f20. Metal Particles Found During Transmission Oil Change, if inspection of drain plug reveals metal particles. Failure to comply may result in damage to equipment.

- (3) Inspect drain plug (2) for presence of metal particles.
- (4) Remove preformed packing (3) from drain plug (2). Discard preformed packing.



XH05R02A



XH05R03A

- (5) Position container under transfer case (4).
- (6) Remove drain plug (5) from transfer case (4) and drain oil.

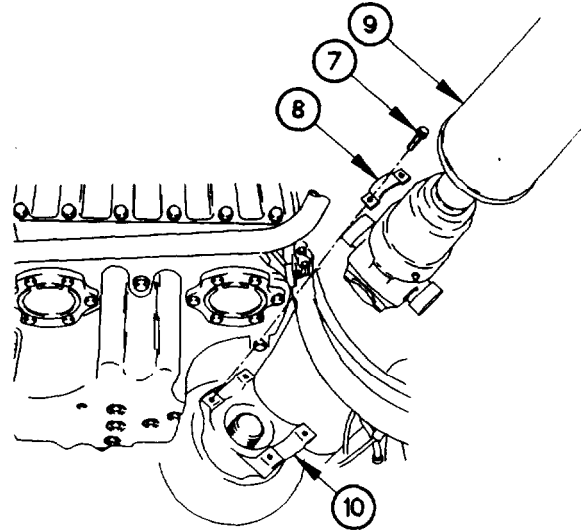
CAUTION

Perform Transmission Troubleshooting, f20. Metal Particles Found During Transmission Oil Change, if inspection of drain plug reveals metal particles. Failure to comply may result in damage to equipment.

- (7) Inspect drain plug (5) for presence of metal particles.
- (8) Remove preformed packing (6) from drain plug (5). Discard preformed packing.

8-9. TRANSMISSION OIL FILTER REPLACEMENT (CONT)

- (9) Remove four screws (7) and two retaining straps (8) from propeller shaft (9).
- (10). Separate propeller shaft (9) from yoke (10).



XH05R04A

NOTE

Both transmission oil filters are removed the same way. Right side transmission oil filter shown.

- (11) Remove six screws (11) from transmission oil filter cover (12).

NOTE

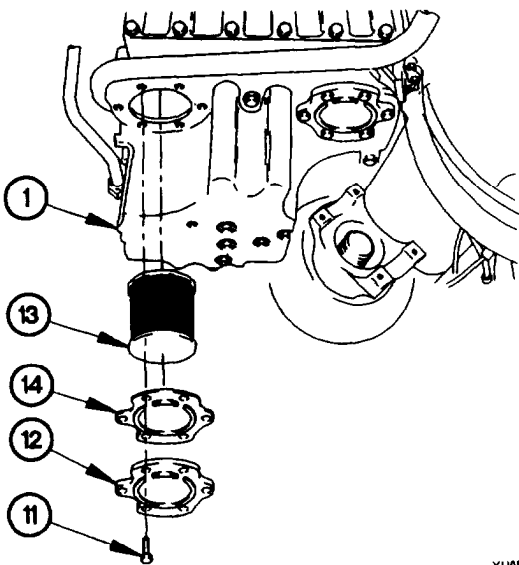
Perform step (12) on transmissions SN lower than 6510029120.

- (12) Remove transmission oil filter cover (12) and transmission oil filter (13) from transmission control module (1).

NOTE

Perform step (13) on transmissions SN 6510069120 and higher.

- (13) Remove transmission oil filter cover (12), gasket (14), and transmission oil filter (13) from transmission control module (1). Discard gasket.
- (14) Remove transmission oil filter (13) from transmission oil filter cover (12).

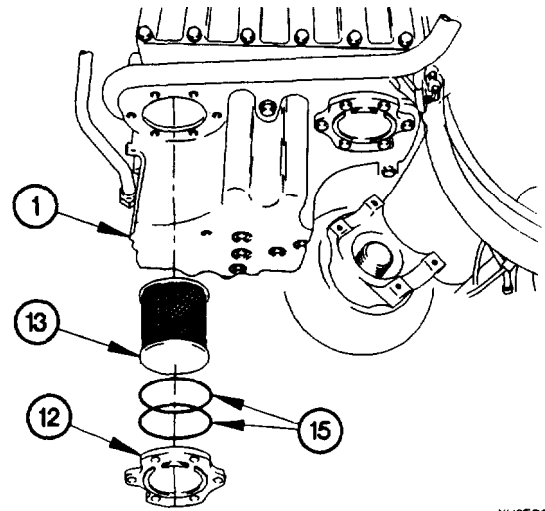


XH05R05B

CAUTION

Perform Transmission Troubleshooting, f20. Metal Particles Found During Transmission Oil Change, if inspection of transmission oil filter reveals metal particles. Failure to comply may result in damage to equipment.

- (15) Inspect transmission oil filter (1) for presence of metal particles. Discard transmission oil filter.
- (16) Remove two preformed packings (15) from transmission oil filter cover (12). Discard preformed packings.



XH05R06B

b. Installation.

NOTE

Both transmission oil filters are installed the same way. Right side transmission oil filter shown.

- (1) Install two preformed packings (1) on transmission oil filter cover (2).
- (2) Install transmission oil filter (3) in transmission filter oil cover (2).

NOTE

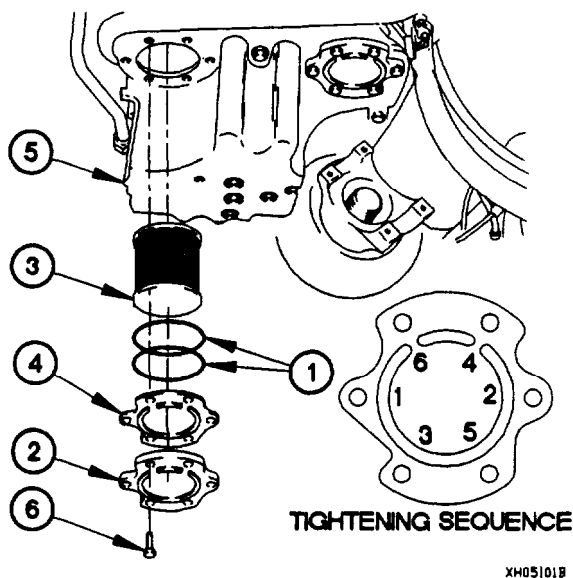
Perform step (3) on transmissions SN 6510069120 and higher.

- (3) Position gasket (4) and transmission oil filter cover (2) on transmission control module (5) with six screws (6).

NOTE

Perform step (4) on transmissions SN lower than 6510069120

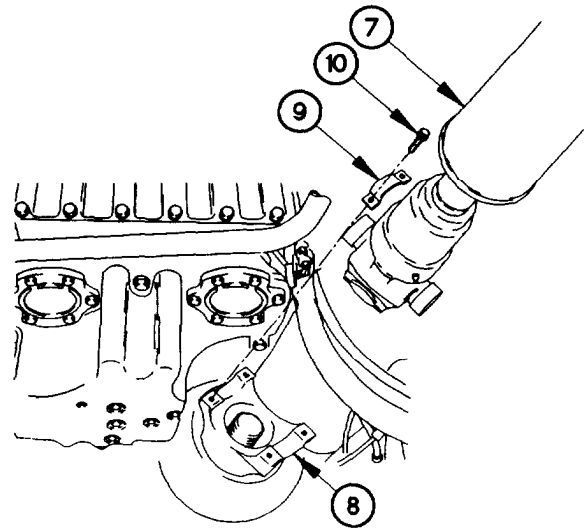
- (4) Position transmission oil filter cover (2) on transmission control module (5) with six screws (6).
- (5) Tighten six screws (6) to 38-45 lb-ft (52-61 N•m) in sequence shown.



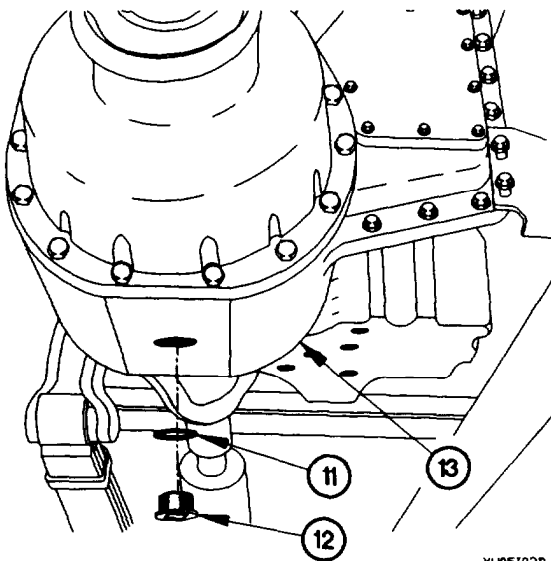
XH05101B

8-9. TRANSMISSION OIL FILTER REPLACEMENT (CONT)

- (6) Position propeller shaft (7) on yoke (8) with two retaining straps (9) and four screws (10).
- (7) Tighten four screws (10) to 44-52 lb-ft (60-71 N•M).



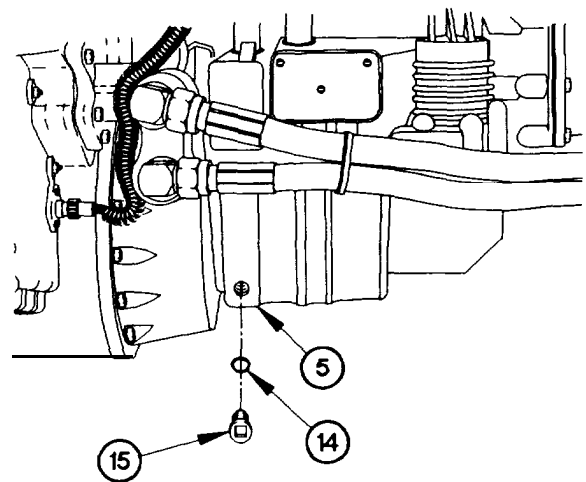
XI-05102B



XI-05103B

- (8) Install preformed packing (11) on drain plug (12).
- (9) Position drain plug (12) in transfer case (13).
- (10) Tighten drain plug (12) to 18-24 lb-ft (25-32 N•M).

- (11) Install preformed packing (14) on drain plug (15).
- (12) Position drain plug (15) in transmission control module (5).
- (13) Tighten drain plug (15) to 18-24 lb-ft (25-32 N•M).



XI-051041

c. Follow-On Maintenance.

- (1) Add lubricating oil to transmission (Appendix H).
- (2) Start engine (TM 9-2320-365-10).
- (3) Check transmission oil level (TM 9-2320-365-10).
- (4) Check for oil leaks around transmission oil filters.
- (5) Shut down engine (TM 9-2320-365-10).

End of Task.

8-10. TRANSMISSION OIL COOLER REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Engine shut down (TM 9-2320-365-10).

Tools and Special Tools

Goggles, Industrial (Item 15, Appendix C)
 Container (60 qt (57 L) capacity)
 Pan, Drain (Item 24, Appendix C)
 Tool Kit, Genl Mech (Item 44, Appendix C)
 Wrench, Torque, O-75 lb-in. (Item 86, Appendix B)

Materials/Parts

Oil, Lubricating, OE/HDO 30 (Item 46, Appendix D)
 Antifreeze, Ethylene Glycol, Permanent (Item 13, Appendix D)
 Packing, Preformed (2) (Item 165, Appendix G)

Personnel Required

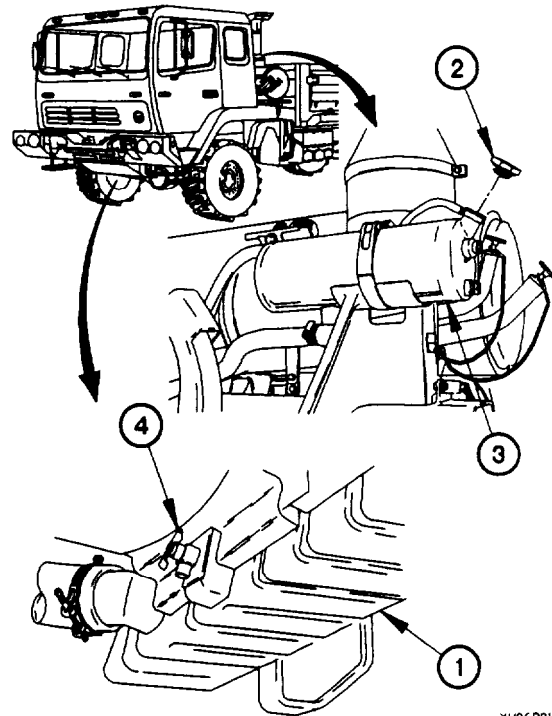
(2)

WARNING

Wear appropriate eye protection when working under vehicle due to the possibility of falling debris. Failure to comply may result in injury to personnel.

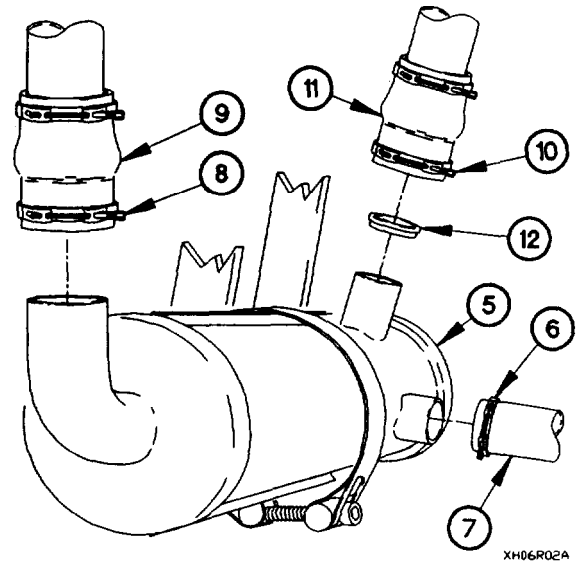
a. Removal.

- (1) Position container under radiator (1).
- (2) Remove radiator cap (2) from radiator overflow tank (3).
- (3) Open radiator draincock (4) and drain coolant.
- (4) Close radiator draincock (4).

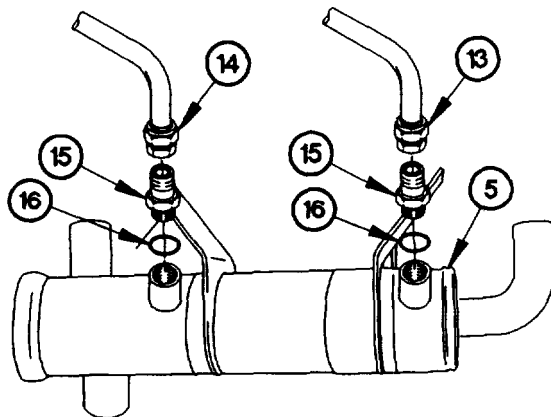


XH06R01A

- (5) Position drain pan under transmission oil cooler (5).
- (6) Loosen clamp (6) on radiator hose (7).
- (7) Remove radiator hose (7) from transmission oil cooler (5).
- (8) Remove clamp (6) from radiator hose (7).
- (9) Loosen clamp (8) on coolant hose (9).
- (10) Remove coolant hose (9) from transmission oil cooler (5).
- (11) Remove clamp (8) from coolant hose (9).
- (12) Loosen clamp (10) on coolant hose (11).
- (13) Remove coolant hose (11) and flow restrictor (12) from transmission oil cooler (5).
- (14) Remove clamp (10) from coolant hose (11).



XH06R02A



XH06R03I

- (15) Disconnect oil cooler flow tube (13) and oil cooler return tube (14) from transmission oil cooler (5).
- (16) Remove two fittings (15) from transmission oil cooler (5).
- (17) Remove two preformed packings (16) from fittings (15). Discard preformed packings.

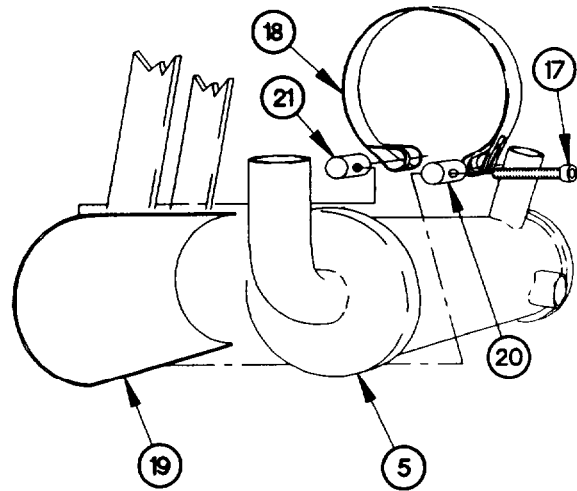
8-10. TRANSMISSION OIL COOLER REPLACEMENT (CONT)

NOTE

Step (18) requires the aid of an assistant.

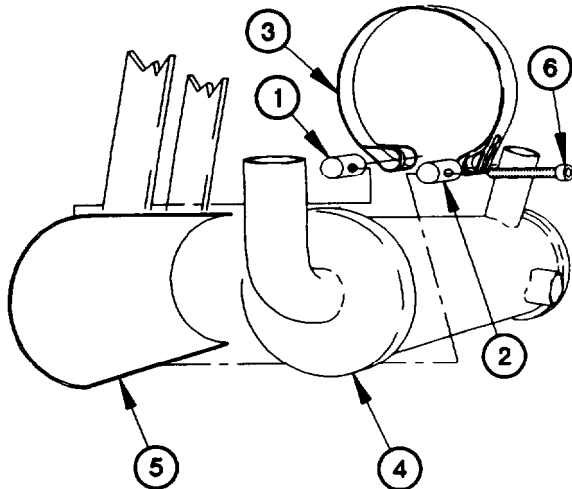
(18) Remove screw (17), clamp (18) and transmission oil cooler (5) from bracket (19).

(19) Remove headless pins (20 and 21) from clamp (18).



XH06P04A

b. Installation.



XH06101A

(1) Install headless pins (1 and 2) in clamp (3).

NOTE

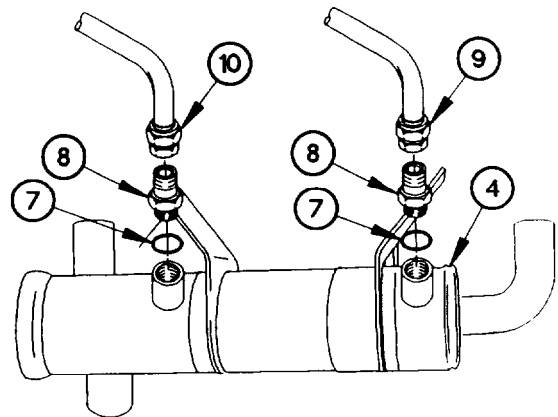
Step (2) requires the aid of an assistant.

(2) Install transmission oil cooler (4) on bracket (5) with clamp (3) and screw (6).

(3) Install two preformed packings (7) on fittings (8).

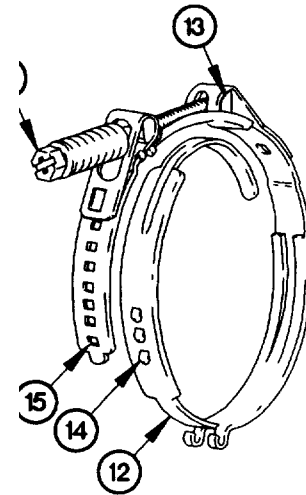
(4) Install two fittings (8) in transmission oil cooler (4).

(5) Install oil cooler flow tube (9) and oil cooler return tube (10) on transmission oil cooler (4).

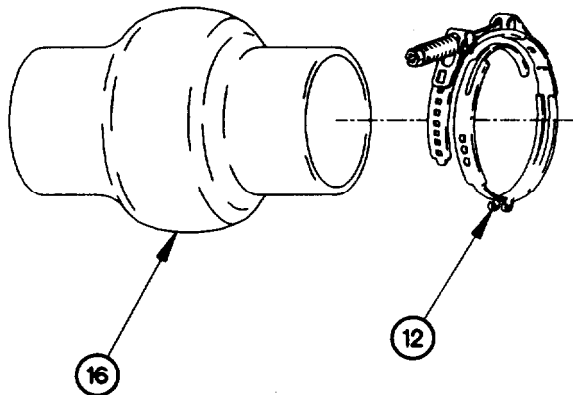


XH061021

- (6) Loosen screw (11) in three clamps (12) as far as possible without disengaging screws from D-nuts (13).
- (7) Unhook clamp tabs (14) from tab windows (15).



XH06103A



- (8) Position clamp (12) on coolant hose (16).

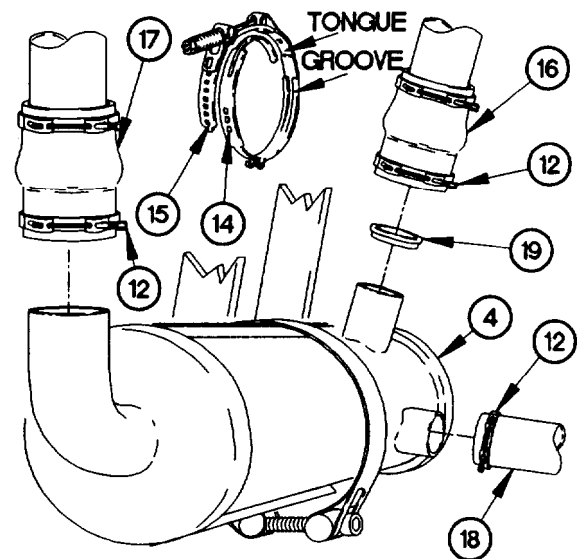
XH06104A

- (9) Perform step (8) on coolant hose (17) and radiator hose (18).
- (10) Position flow restrictor (19) and coolant hose (16) on transmission oil cooler (4).
- (11) Position coolant hose (17) on transmission oil cooler (4).
- (12) Position radiator hose (18) on transmission oil cooler (4).

CAUTION

Ensure clamp tongue is started in clamp groove. Failure to comply may result in damage to equipment.

- (13) Engage as many clamp tabs (14) as possible in tab windows (15) allowing little or no play between clamp and coolant hose (16).
- (14) Tighten three clamps (12) to 12-18 lb-in. (1-2 N•m).



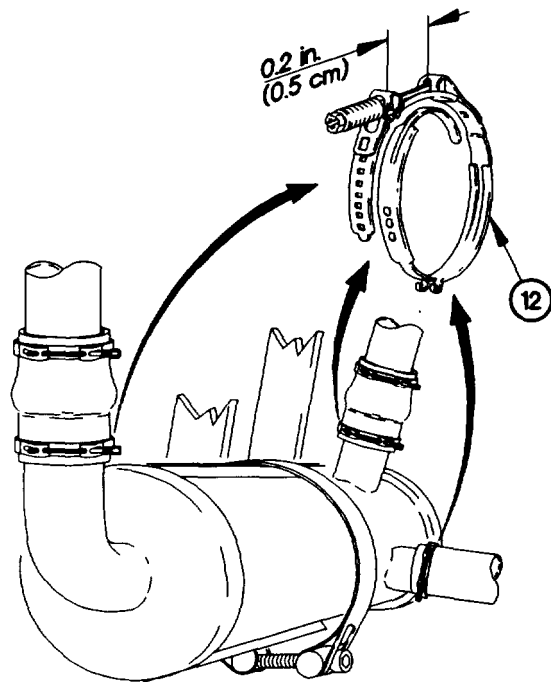
XH06106A

8-10. TRANSMISSION OIL COOLER REPLACEMENT (CONT)

NOTE

Minimum allowable gap between ends of clamp is 0.2 in. (0.5 cm). If gap is less than minimum allowable, remove and re-install clamp.

(15) Measure gap between ends of three clamps (12).



X4061071

c. Follow-On Maintenance.

- (1) Add coolant to radiator overflow tank (Appendix H).
- (2) Install radiator cap on radiator overflow tank.
- (3) Start engine and check around hoses and transmission oil cooler for coolant and oil leaks (TM 9-2320-365-10).
- (4) Check transmission oil level and add lubricating oil as required (Appendix H).
- (5) Shut down engine (TM 9-2320-365-10).

End of Task.

8-11. TRANSMISSION OIL COOLER TUBES AND FITTINGS REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Engine shut down (TM 9-2320-365-10).
Cab raised (TM 9-2320-365-10).

Tools and Special Tools (Cont)

Tool Kit, Genl Mech (Item 44, Appendix C)

Tools and Special Tools

Goggles, Industrial (Item 15, Appendix C)
Pan, Drain (Item 24, Appendix C)

Materials/Parts

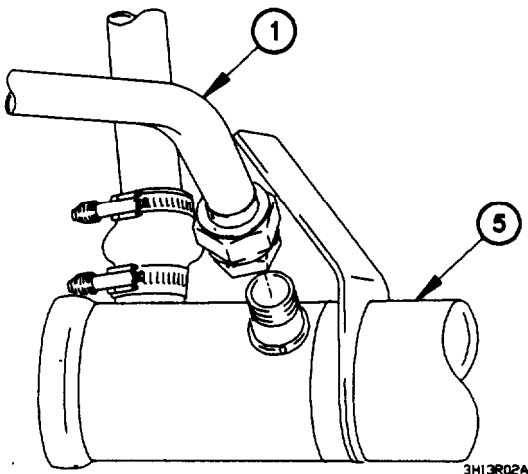
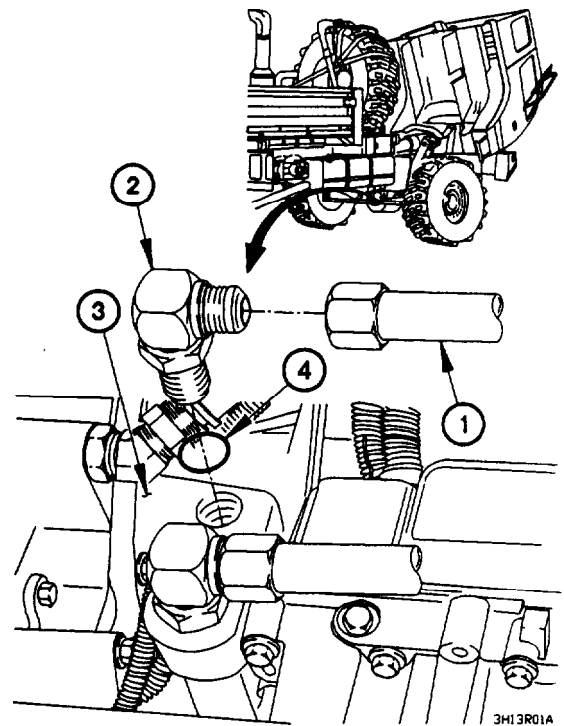
Oil, Lubricating, OE/HDO 30 (Item 46, Appendix D)
Packing, Preformed (2) (Item 165, Appendix G)
Packing, Preformed (Item 166, Appendix G)

WARNING

Wear appropriate eye protection when working under vehicle due to the possibility of falling debris. Failure to comply may result in injury to personnel.

a. Removal.

- (1) Position drain pan under oil cooler return tube (1).
- (2) Disconnect oil cooler return tube (1) from 90-degree fitting (2).
- (3) Remove 90-degree fitting (2) from transmission (3).
- (4) Remove preformed packing (4) from 90-degree fitting (2). Discard preformed packing.



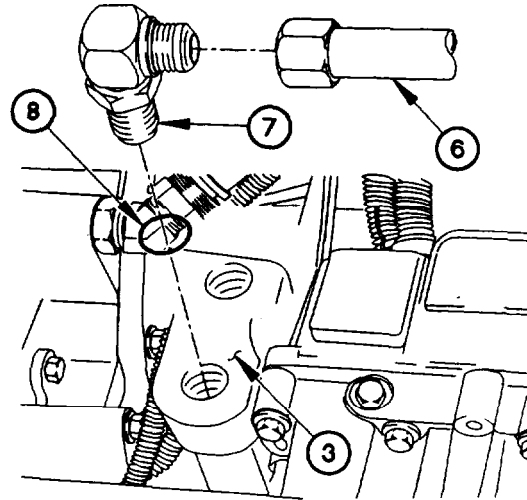
NOTE

Oil cooler return tube will only exit from rear of vehicle.

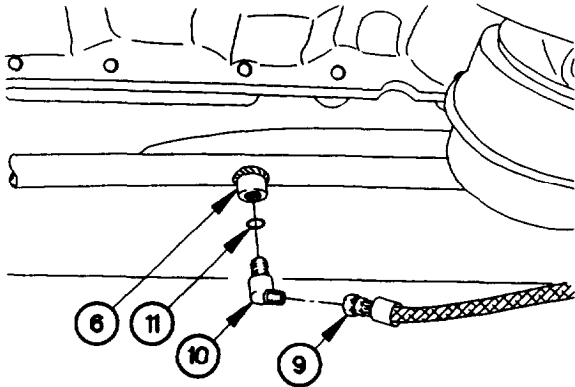
- (5) Remove oil cooler return tube (1) from transmission oil cooler (5).

8-11. TRANSMISSION OIL COOLER TUBES AND FITTINGS REPLACEMENT (CONT)

- (6) Disconnect oil cooler flow tube (6) from 90-degree fitting (7).
- (7) Remove 90-degree fitting (7) from transmission (3).
- (8) Remove preformed packing (8) from 90-degree fitting (7). Discard preformed packing.



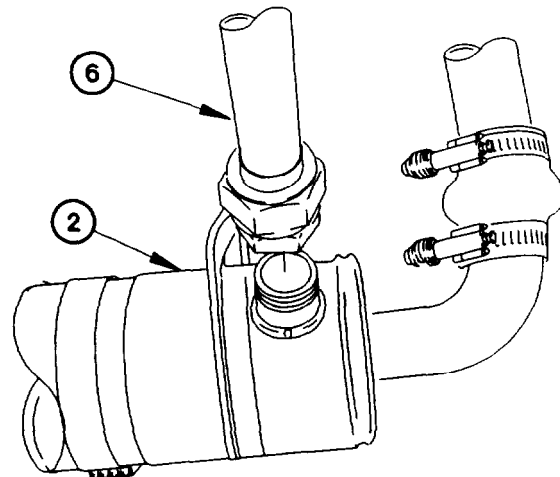
3H13R03A



3H13R04A

- (9) Disconnect transmission oil sampling hose (9) from 45-degree fitting (10).
- (10) Remove 45-degree fitting (10) from oil cooler flow tube (6).
- (11) Remove preformed packing (11) from 45-degree fitting (10). Discard preformed packing.

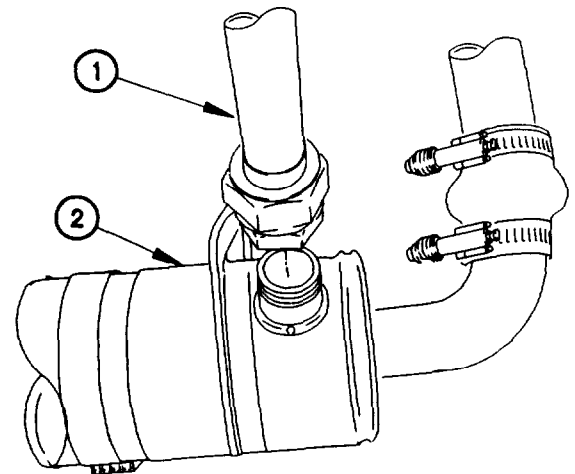
- (12) Remove oil cooler flow tube (6) from transmission oil cooler (5).



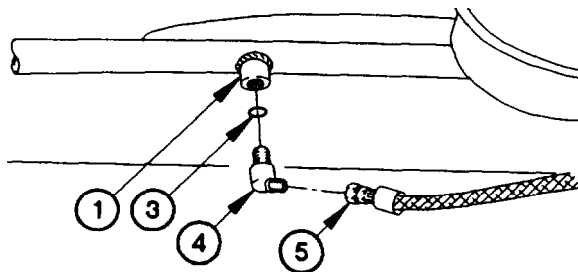
3H13R05A

b. Installation.

- (1) Install oil cooler flow tube (1) on transmission oil cooler (2).



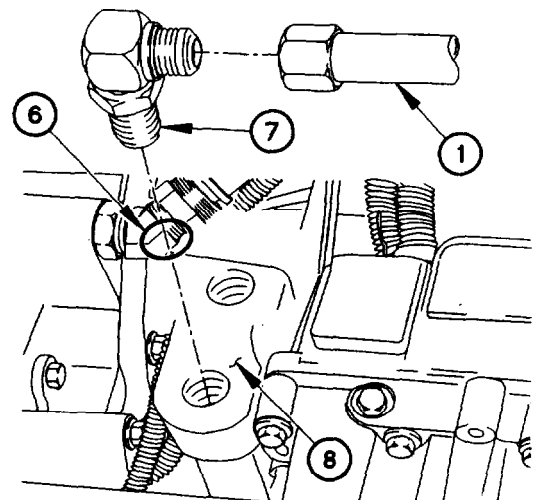
3H13101A



3H13102A

- (2) Install preformed packing (3) on 45-degree fitting (4).
- (3) Install 45-degree fitting (4) in oil cooler flow tube (1).
- (4) Connect transmission oil sampling hose (5) to 45-degree fitting (4).

- (5) Install preformed packing (6) on 90-degree fitting (7).
- (6) Install 90-degree fitting (7) in transmission (8).
- (7) Install oil cooler flow tube (1) on 90-degree fitting (7).



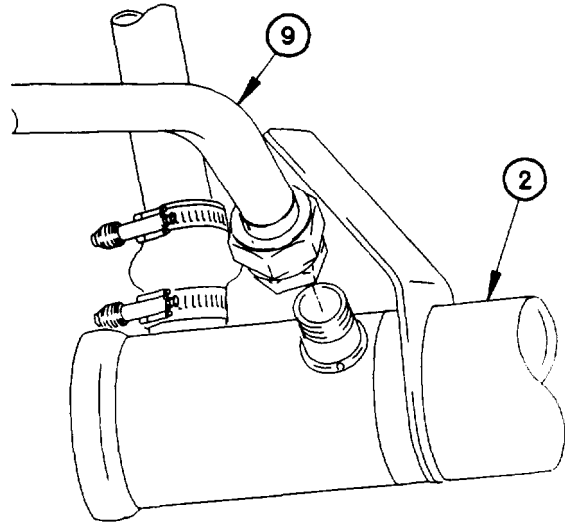
3H13103A

8-11. TRANSMISSION OIL COOLER TUBES AND FITTINGS REPLACEMENT (CONT)

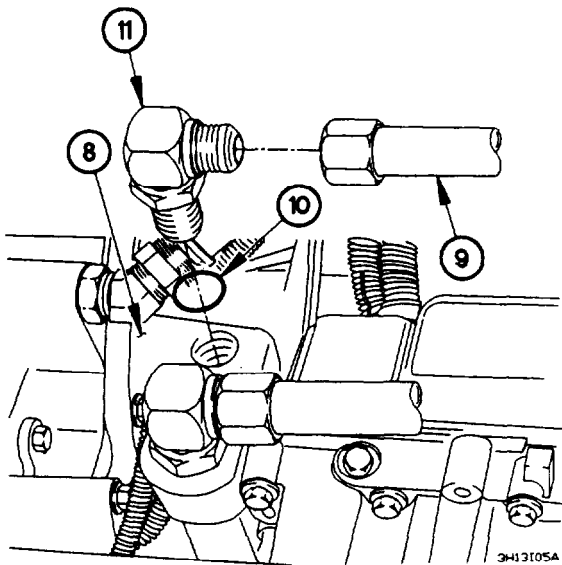
NOTE

Oil cooler return tube will only install from rear of vehicle.

- (8) Install oil cooler return tube (9) on transmission oil cooler (2).



3-H13104A



3-H13105A

- (9) Install preformed packing (10) on 90-degree fitting (11).

- (10) Install 90-degree fitting (11) in transmission (8).

- (11) Install oil cooler return tube (9) on 90-degree fitting (11).

c. Follow-On Maintenance.

- (1) Fill transmission with lubricating oil (Appendix H).
- (2) Start engine (TM 9-2320-365-10).
- (3) Check oil level (TM 9-2320-365-10).
- (4) Check for oil leaks around lines and fittings.
- (5) Shut down engine (TM 9-2320-365-10).

End of Task.

8-12. TRANSMISSION SCAVENGE PUMP HOSE REPLACEMENT

This task covers:

- a. Removal
- b. Installation

c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

- Exhaust pipe removed (para 5-3).
- Transmission oil cooler tube removed (para 8-11).

Tools and Special Tools

- Tool Kit, Genl Mech (Item 44, Appendix C)
- Goggles, Industrial (Item 15, Appendix C)
- Pan, Drain (Item 24, Appendix CI)

Materials/Parts

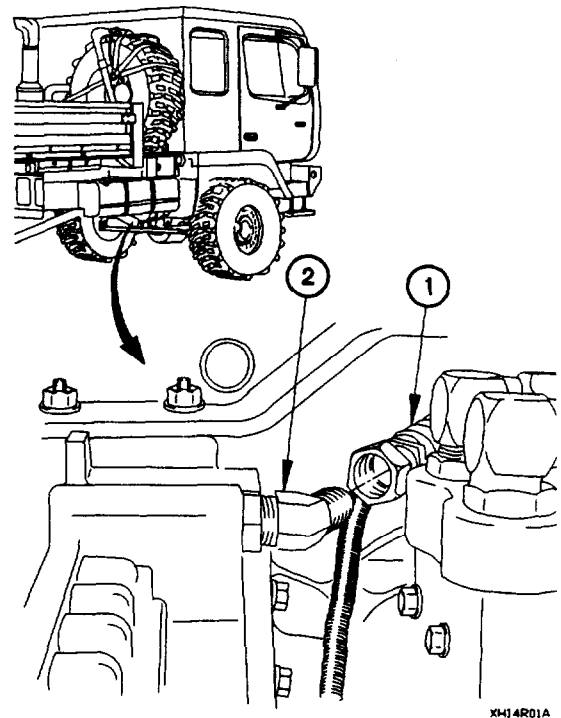
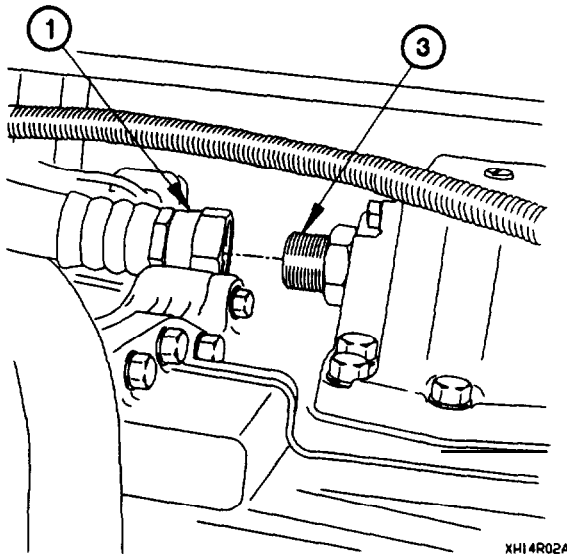
- Oil, Lubricating, OE/HDO 30 (Item 46, Appendix D)
- Filter Element, Fluid (Item 15, Appendix G)
- Packing, Preformed (2) (Item 175, Appendix G)

WARNING

Wear appropriate eye protection when working under vehicle due to the possibility of falling debris. Failure to comply may result in injury to personnel.

a. Removal.

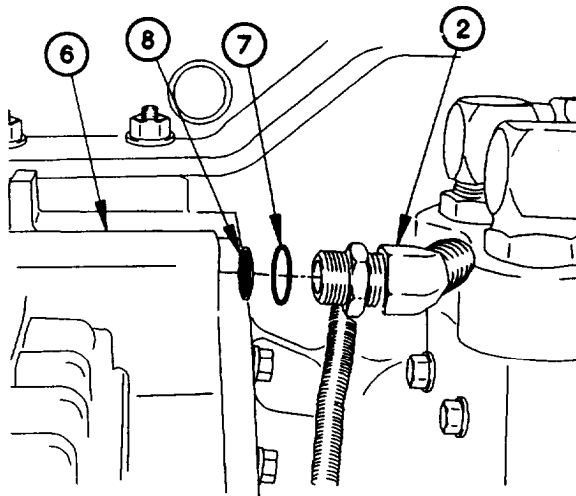
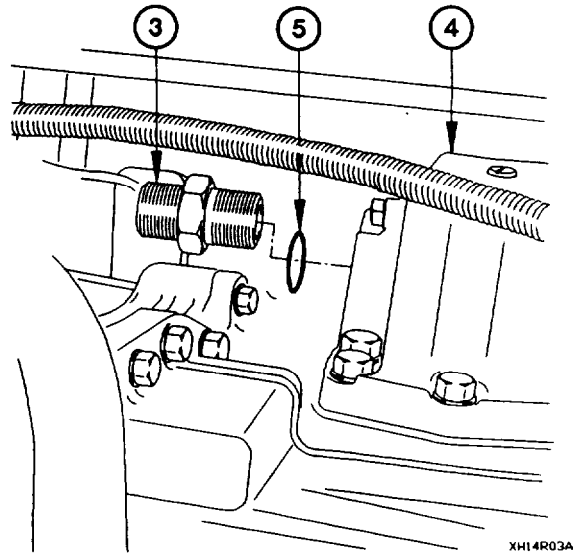
- (1) Position drain pan under back end of scavenge pump hose (1).
- (2) Disconnect scavenge pump hose (1) from 45-degree fitting (2).



- (3) Remove scavenge pump hose (1) from fitting (3).

8-12. TRANSMISSION SCAVENGE PUMP HOSE REPLACEMENT (CONT)

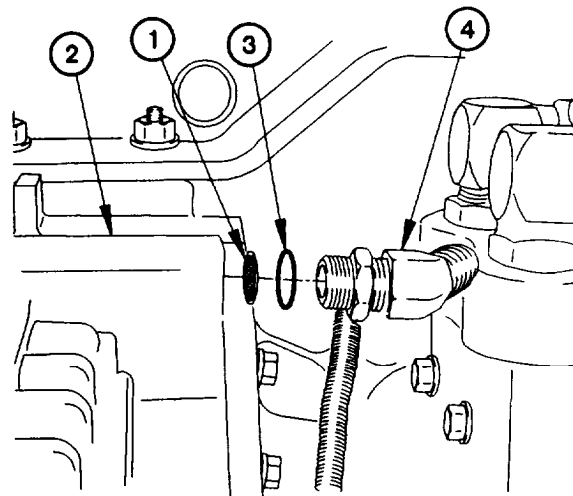
- (4) Remove fitting (3) from scavenge pump (4).
- (5) Remove preformed packing (5) from fitting (3). Discard preformed packing.



- (6) Remove 45-degree fitting (2) from transfer case (6).
- (7) Remove preformed packing (7) from 45-degree fitting (2). Discard preformed packing.
- (8) Remove filter (8) from transfer case (6). Discard filter.

b. Installation.

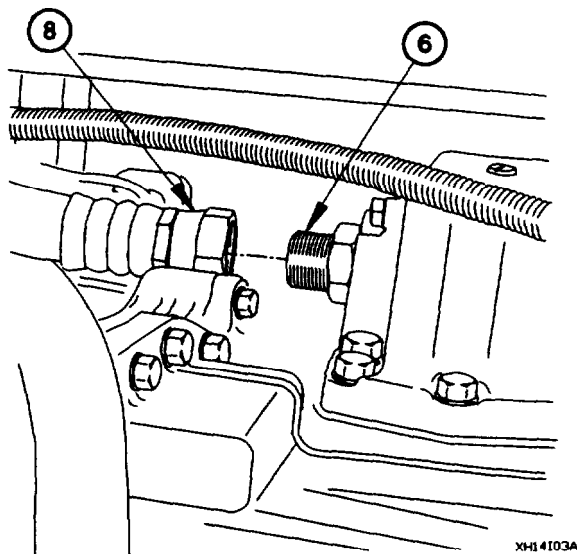
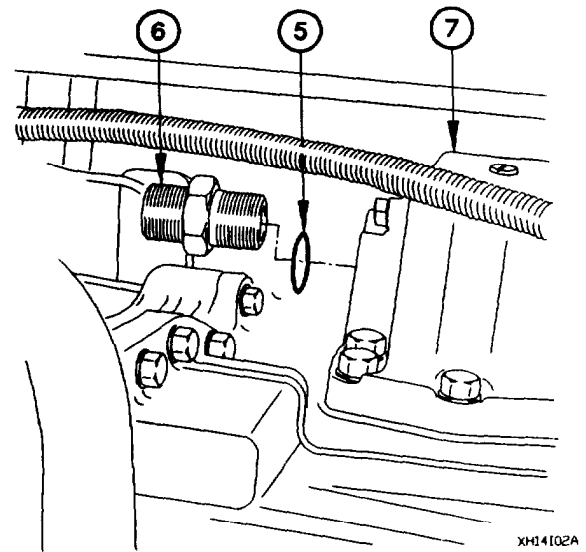
- (1) Install filter (1) in transfer case (2).
- (2) Install preformed packing (3) on 45-degree fitting (4).
- (3) Install 45-degree fitting (4) in transfer case (2).



XH14101A

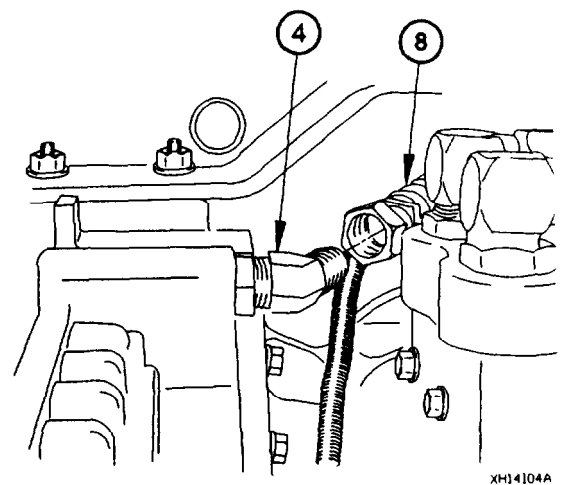
(4) Install preformed packing (5) on fitting (6).

(5) Install fitting (6) in scavenge pump (7).



(6) Install scavenge pump hose (8) on fitting (6).

(7) Install scavenge pump hose (8) on 45-degree fitting (4).



8-12. TRANSMISSION SCAVENGE PUMP HOSE REPLACEMENT (CONT)

c. Follow-On Maintenance.

- (1) Install transmission oil cooler tube (para 8-11).
- (2) Install exhaust pipe (para 5-3).
- (3) Remove transmission oil dipstick (TM 9-2320-365-10).
- (4) Add lubricating oil to transmission (Appendix H).
- (5) Start engine (TM 9-2320-365-10).
- (6) Check for exhaust leaks around exhaust pipe.
- (7) Check for oil leaks around transmission scavenge pump hose.
- (8) Check transmission oil level on dipstick (TM 9-2320-365-10).
- (9) Install transmission oil dipstick (TM 9-2320-365-10).
- (10) Shut down engine (TM 9-2320-365-10).

End of Task.

8-13. TRANSMISSION OIL FILL TUBE REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Engine shut down (TM 9-2320-365-10).
Cab raised (TM 9-2320-365-10).

Tools and Special Tools

Tool Kit, Genl Mech (Item 44, Appendix C)
Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)
Screwdriver Attachment, Socket Wrench (Item 46, Appendix B)

Tools and Special Tools (Cont)

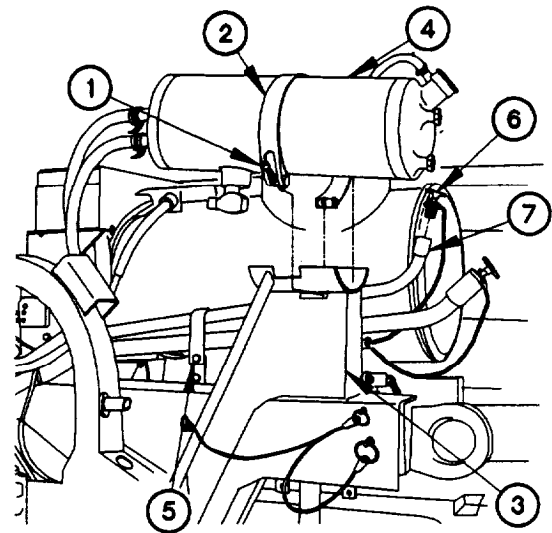
Wrench, Torque, 0-200 lb-in. (Item 58, Appendix C)
Socket Set, Socket Wrench (Item 35, Appendix C)

Materials/Parts

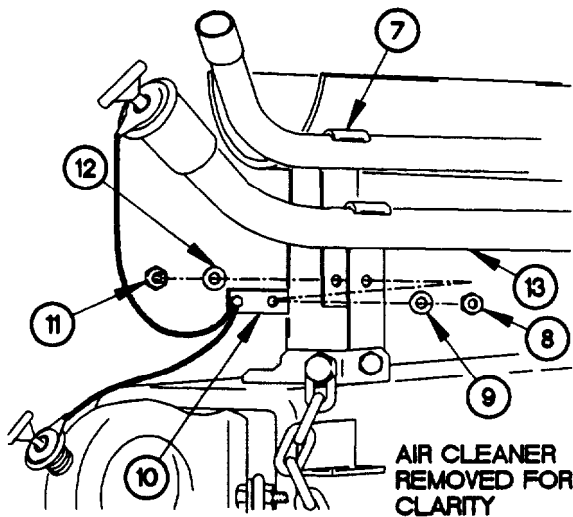
Nut, Self-Locking (3) (Item 148, Appendix G)

a. Removal.

- (1) Remove screw (1) and clamp (2) from radiator overflow tank bracket (3).
- (2) Position radiator overflow tank (4) for access to screw
- (3) Remove cap (6) from transmission oil fill tube (7).



XH19R01A



XH19R02A

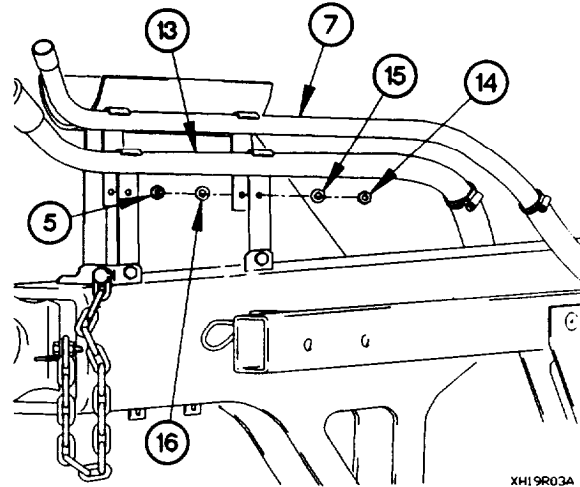
- (4) Remove self-locking nut (8), washer (9), lanyard mounting plate (10), transmission oil fill tube (7), screw (11), and washer (12) from engine oil fill tube (13). Discard self-locking nut.

8-13. TRANSMISSION OIL FILL TUBE REPLACEMENT (CONT)

NOTE

Perform step (5) on all models except M1081.

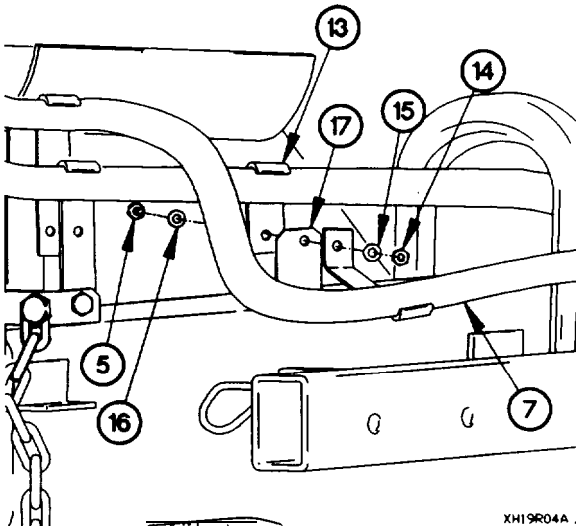
- (5) Remove self-locking nut (14), washer (15), transmission oil fill tube (7), screw (5), and washer (18) from engine oil fill tube (13). Discard self-locking nut.



NOTE

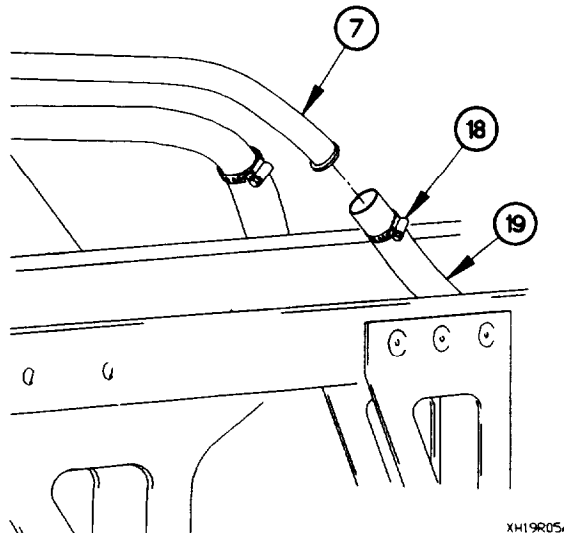
Perform step (6) on M1081.

- (6) Remove self-locking nut (14), washer (15), transmission oil fill tube (7), engine oil fill tube (13), screw (5), and washer (16) from front lifting beam (17). Discard self-locking nut.



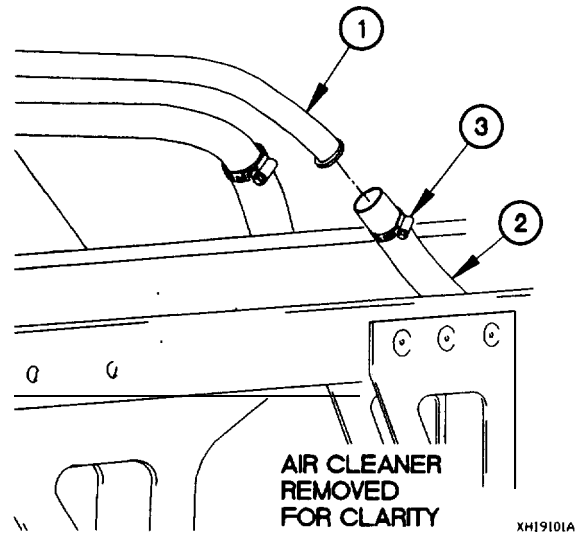
- (7) Loosen clamp (18) on transmission oil fill hose (19).

- (8) Remove transmission oil fill tube (7) from transmission oil fill hose (19).



b. Installation.

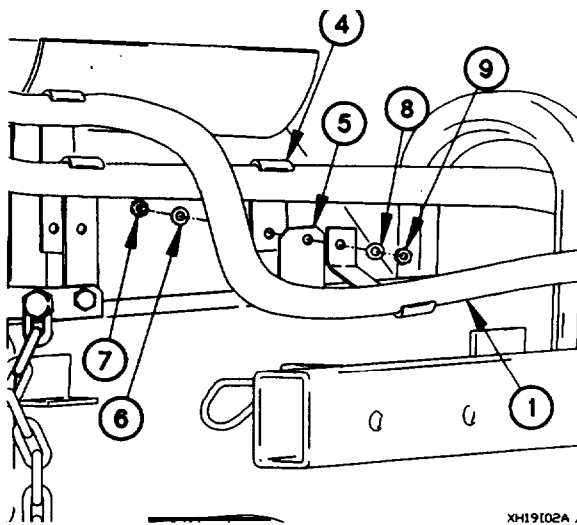
- (1) Position transmission oil fill tube (1) in transmission oil fill hose (2) with clamp (3).
- (2) Tighten clamp (3) to 27-44 lb-in. (3-5 N•m).



NOTE

Perform step (3) on M1081.

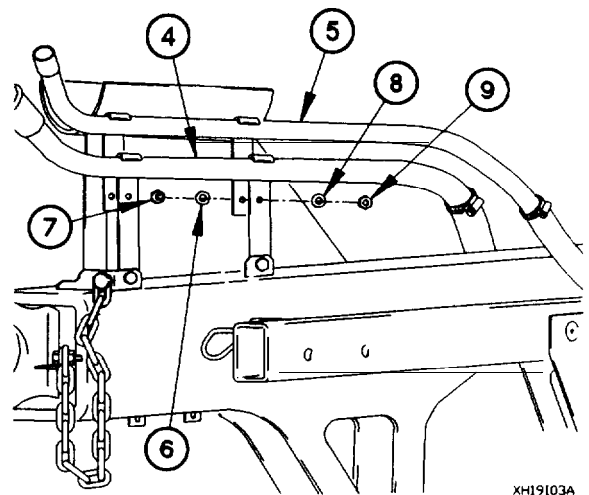
- (3) Position engine oil fill tube (4) and transmission oil fill tube (1) on front lifting beam (5) with washer (6), screw (7), washer (8), and self-locking nut (9).



NOTE

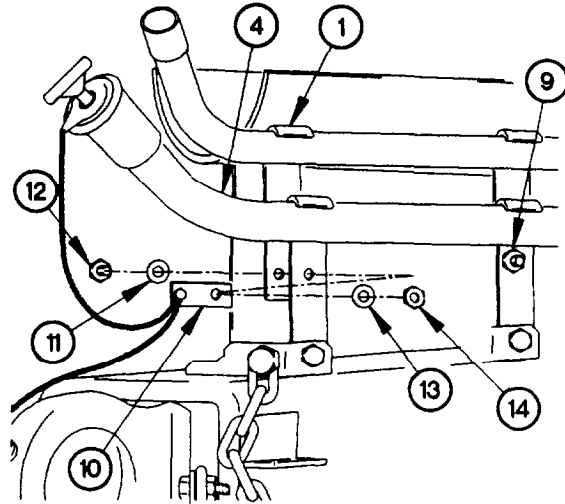
Perform step (4) on all models except M1081.

- (4) Position transmission oil fill tube (5) on engine oil fill tube (4) with washer (6), screw (7), washer (8), and self-locking nut (9).

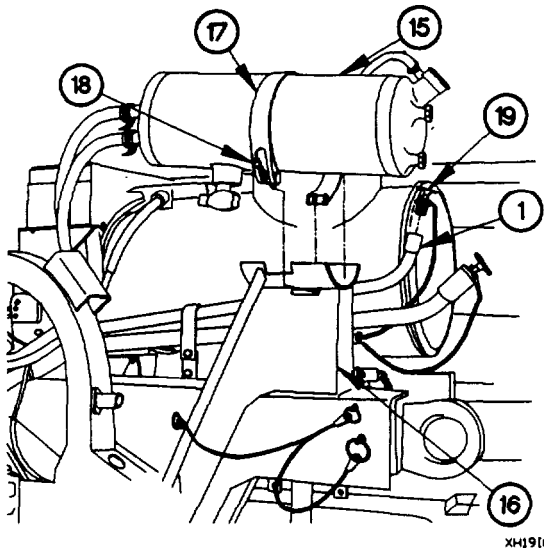


8-13. TRANSMISSION OIL FILL TUBE REPLACEMENT (CONT)

- (5) Position lanyard mounting plate (10) and transmission oil fill tube (1) on engine oil fill tube (4) with washer (11), screw (12), washer (13), and self-locking nut (14).
- (6) Tighten self-locking nuts (9 and 14) to 21-26 lb-ft (19-35 N•m).



XH19104A



XH19105A

- (7) Position radiator overflow tank (15) on radiator overflow tank bracket (16) with clamp (17) and screw (18).
- (8) Tighten screw (18) to 23-29 lb-ft (31-39 N•m).
- (9) Install cap (19) on transmission oil fill tube (1).

c. Follow-On Maintenance.

Lower cab (TM 9-2320-365-10).

End of Task.

CHAPTER 9 PROPELLER SHAFT MAINTENANCE

Section I. INTRODUCTION	9-1
9-1. INTRODUCTION	9-1
Section II. MAINTENANCE PROCEDURES	9-2
9-2. DRIVE SHAFT AND UNIVERSAL JOINT REPLACEMENT	9-2

Section I. INTRODUCTION

9-1. INTRODUCTION

This chapter contains maintenance instructions for replacing drive shafts and universal joints authorized by the Maintenance Allocation Chart (MAC) at the Unit Maintenance level.



Section II. MAINTENANCE PROCEDURES

9-2. DRIVE SHAFT AND UNIVERSAL JOINT REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Engine shut down (TM 9-2320-365-10).

Tools and Special Tools

Tool Kit, Genl Mech (Item 44, Appendix C)
 Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)
 Goggles, Industrial (Item 15, Appendix C)

Materials/Parts

Grease, Automotive and Artillery (GAA) (Item 23, Appendix D)
 Kit, Propeller Shaft (Item 56, Appendix G)

Personnel Required

(2)

WARNING

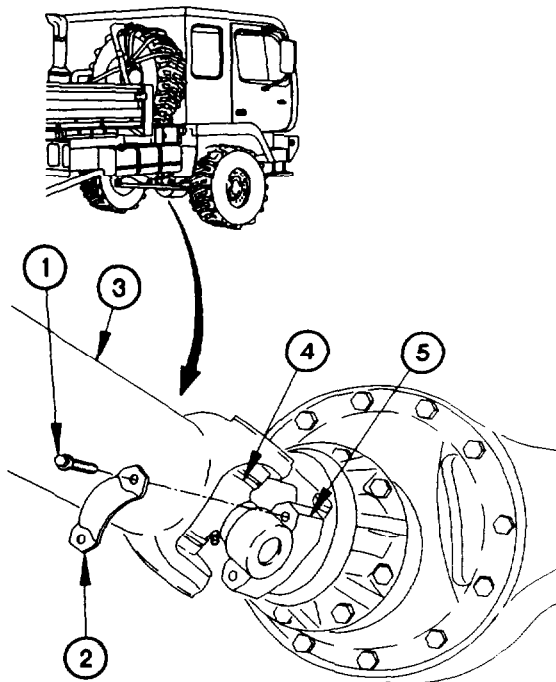
Wear appropriate eye protection when working under vehicle due to the possibility of falling debris. Failure to comply may result in injury to personnel.

a. Removal.

NOTE

All drive shafts are removed the same way. Front drive shaft shown.

- (1) Remove four screws (1) and two retaining straps (2) from drive shaft (3).
- (2) Push in drive shaft (3) to separate universal joint (4) from yoke (5).

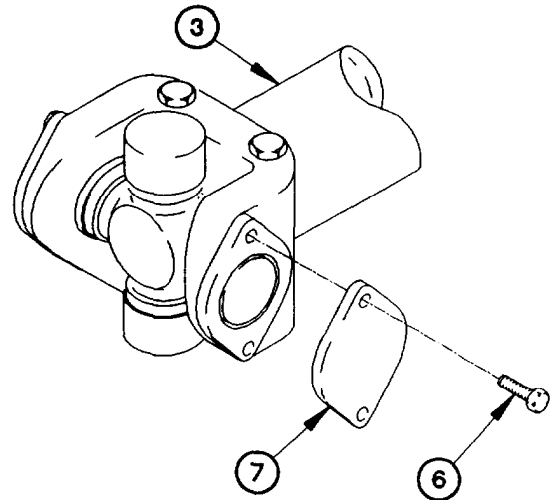


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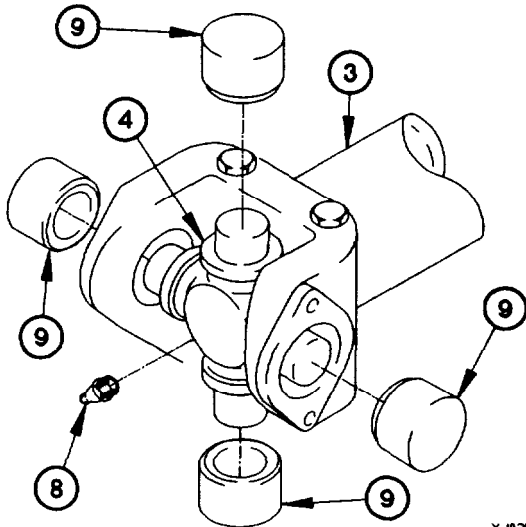
NOTE

- All universal joints are removed the same way. One shown.
- Retaining plates are spot welded to bearing end cap. Retaining plates will be frozen in place and will break during removal.

(3) Remove four screws (6) and two retaining plates (7) from drive shaft (3).



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XJ02R03-

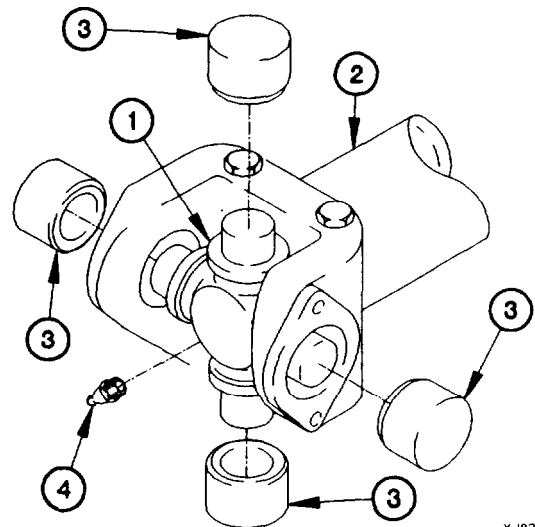
- (4) Remove two grease fittings (8) from universal joint (4).
- (5) Remove four universal joint end caps (9) from drive
- (6) Remove universal joint (4) from drive shaft (3).

b. Installation.

NOTE

All universal joints are installed the same way. One shown.

- (1) Install universal joint (1) on drive shaft (2).
- (2) Install four universal joint end caps (3) on drive shaft
- (3) Install two grease fittings (4) on universal joint (1).

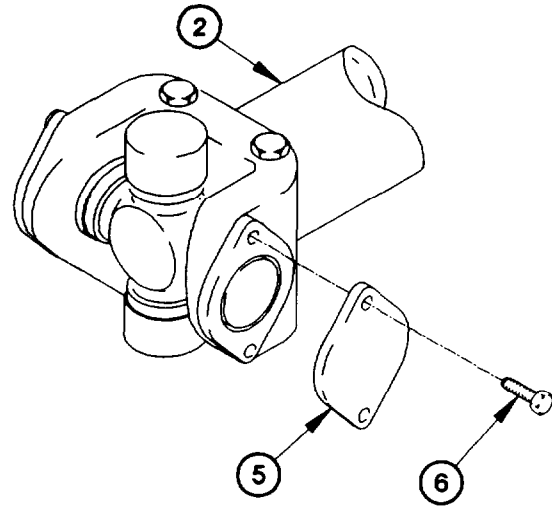


XJ02101-

9-2. DRIVE SHAFT AND UNIVERSAL JOINT REPLACEMENT (CONT)

(4) Position two retaining plates (5) on drive shaft (2) with four screws (6).

(5) Tighten four screws (6) to 43-53 lb-ft (58-72 N•m).



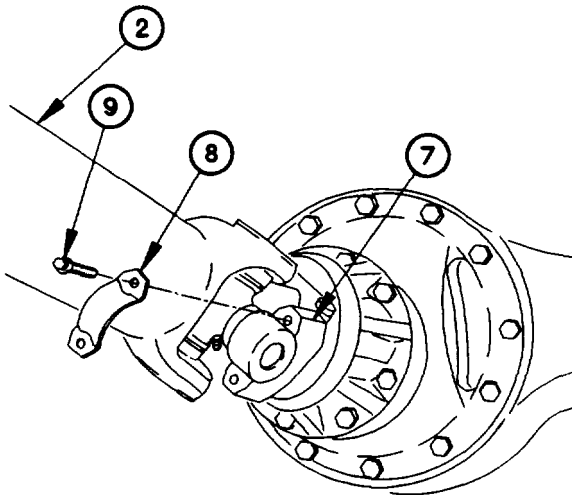
X_J02102-

NOTE

- All drive shafts are installed the same way. Front drive shaft shown.
- Step (6) requires the aid of an assistant.

(6) Position drive shaft (2) on yoke (7) with two straps (8) and four screws (9).

(7) Tighten four screws (9) to 43-53 lb-ft (58-72 N•m).



X_J02103-

c. Follow-On Maintenance.

- (1) Lubricate drive shaft and universal joints (Appendix H).
- (2) Test drive vehicle and check for unusual vibrations.

End of Task.

CHAPTER 10 FRONT AND REAR AXLE MAINTENANCE

Section I. INTRODUCTION 10-1
10-1 INTRODUCTION 10-1

Section II. MAINTENANCE PROCEDURES 10-2
10-2. WHEEL BEARING/CENTRAL TIRE INFLATION SYSTEM (CTIS) SEAL REPLACEMENT 10-2
10-3. DIFFERENTIAL SPIDER ASSEMBLY REPLACEMENT 10-12
10-4. REAR AXLE SHAFT REPLACEMENT 10-18

Section I. INTRODUCTION

10-1. INTRODUCTION

This chapter contains maintenance instructions for replacing axle components authorized by the Maintenance Allocation Chart (MAC) at the Unit Maintenance level.



Section II. MAINTENANCE PROCEDURES

10-2. WHEEL BEARING/CENTRAL TIRE INFLATION SYSTEM (CTIS) SEAL REPLACEMENT

This task covers:

- | | |
|--|---|
| <ul style="list-style-type: none"> a. Removal b. Cleaning/Inspection | <ul style="list-style-type: none"> c. Installation d. Follow-On Maintenance |
|--|---|

INITIAL SETUP

Equipment Conditions

Wheel removed (TM 9-2320-365-10).
 Differential spider assembly removed (para 10-3).

Tools and Special Tools

Tool Kit, Genl Mech (Item 44, Appendix C)
 Gloves, Rubber (Item 13, Appendix C)
 Goggles, Industrial (Item 15, Appendix C)
 Trestle, Motor Vehicle Maintenance (Item 45, Appendix C)
 Jack, Hydraulic, Hand (Item 21, Appendix C)
 Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)
 Socket, Socket Wrench (Item 70, Appendix B)
 CTIS Seal Driver (Item E-18, Appendix E)
 Wheel Hub Grease Seal Driver (Item E-19, Appendix E)

Tools and Special Tools (Cont)

Wheel Bearing Shim Tool Rest (Item E-10, Appendix E)
 Gage, Depth, Micrometer (Item 10, Appendix C)

Materials/Parts

Rag, Wiping (Item 51, Appendix D)
 Adhesive (Item 6, Appendix D)
 Tape, Duct (Item 74, Appendix D)
 Solvent, Dry Cleaning (Item 71, Appendix D)
 Grease, Automotive and Artillery (GAA) (Item 23, Appendix D)
 Seal Assembly, CTIS (2) (Item 248, Appendix G)
 Seal Assembly, Hub (Item 249, Appendix G)

Personnel Required

(2)

a. Removal.

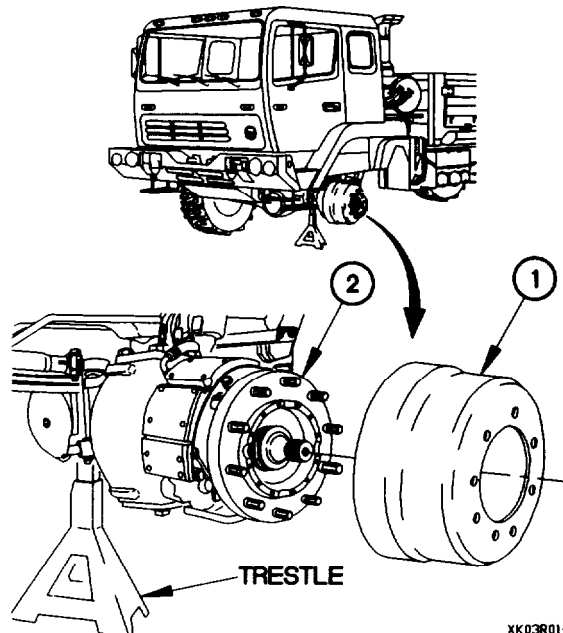


Wheel drum weighs approximately 90 lbs (41 Kgs). Use the aid of an assistant to remove wheel drum. Failure to comply may result in injury to personnel or damage to equipment.

NOTE

Front axle and rear axle wheel bearings and CTIS seals are removed the same way. Left front axle shown.

- (1) Remove wheel drum (1) from wheel end hub (2).

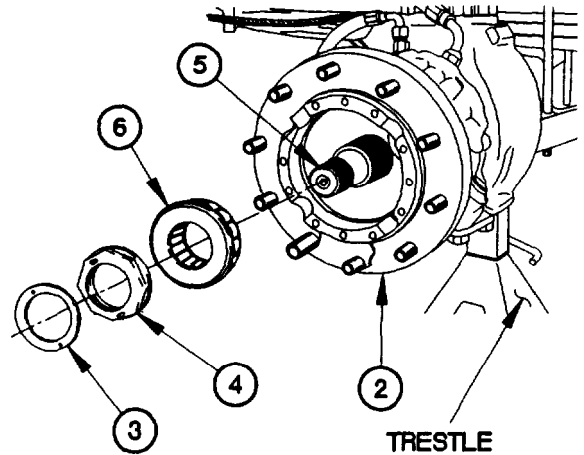


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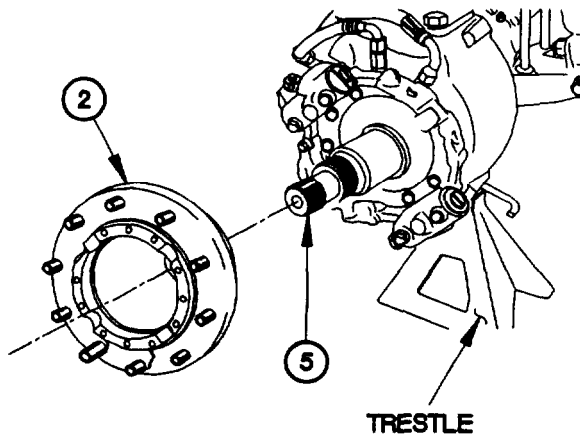
NOTE

Number of shims may vary on each wheel end.

- (2) Remove shim(s) (3) and wheel bearing nut (4) from spindle (5).
- (3) Remove outer wheel bearing cone (6) from wheel end hub (2).



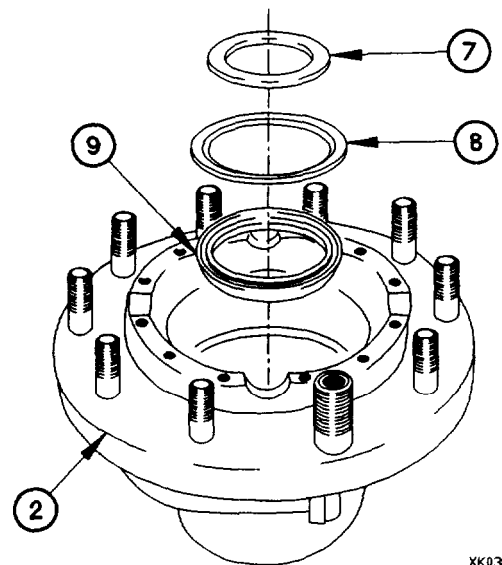
XK03R02-



XK03R03-

- (4) Remove wheel end hub (2) from spindle (5).

- (5) Remove CTIS seal retaining ring (7) from wheel end hub (2).
- (6) Remove CTIS seal guide (8) and CTIS seal (9) from wheel end hub (2). Discard CTIS seal.

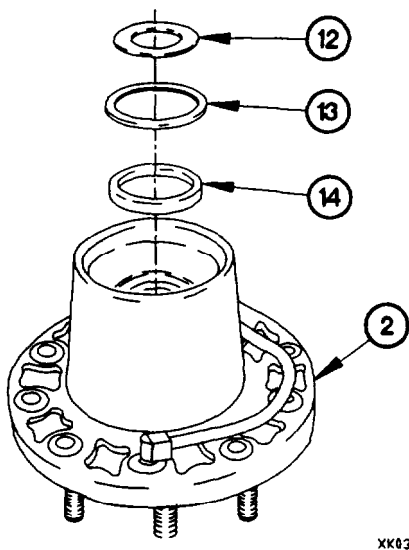
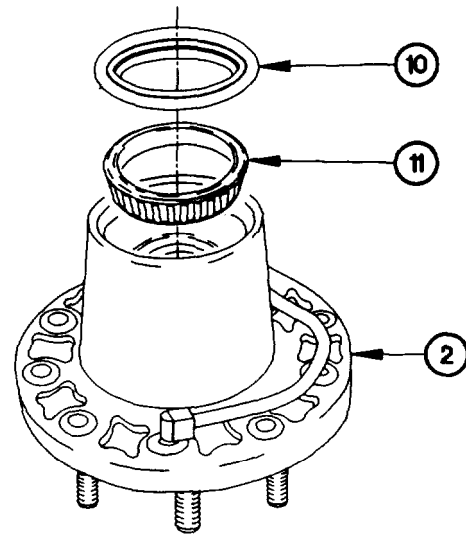


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10-2. WHEEL BEARING/CENTRAL TIRE INFLATION SYSTEM (CTIS) SEAL REPLACEMENT (CONT)

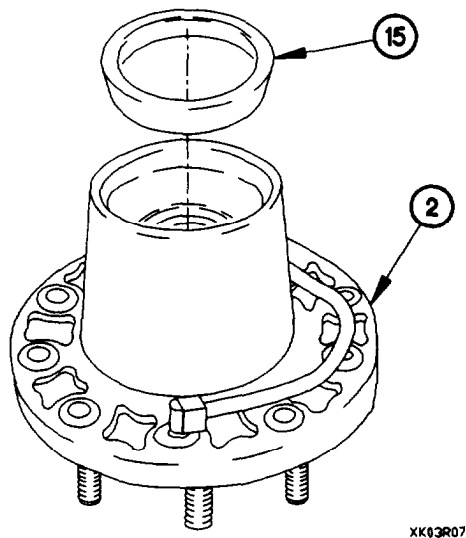
(7) Remove hub seal (10) from wheel end hub (2). Discard hub seal.

(8) Remove inner wheel bearing cone (11) from wheel end hub (2).



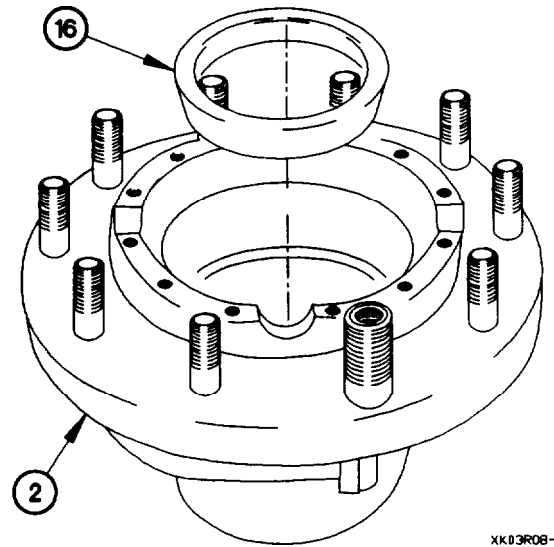
(9) Remove CTIS seal retaining ring (12) from wheel end hub (2).

(10) Remove CTIS seal guide (13) and CTIS seal (14) from wheel end hub (2). Discard CTIS seal.



(11) Remove cup (15) from wheel end hub (2).

(12) Remove cup (16) from wheel end hub (2).

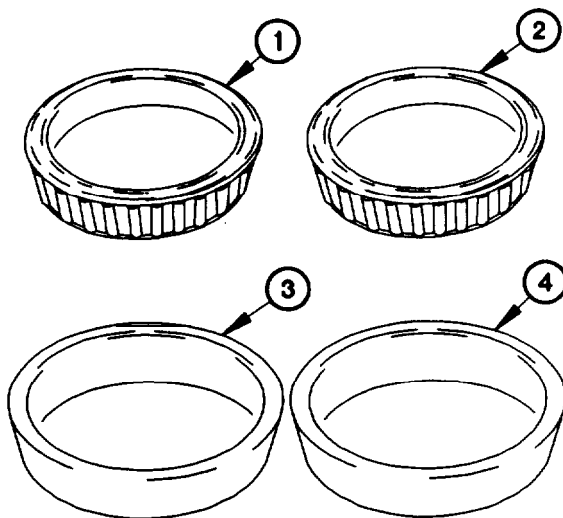


XX03R08-

b. Cleaning/Inspection.

WARNING

- Dry cleaning solvent (P-D-680) is TOXIC and flammable. Wear protective goggles and gloves; use only in well ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent; the flashpoint for Type I dry cleaning solvent is 100°F (38°C) and for Type II is 130°F (50°C). Failure to comply may result in serious injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention. Failure to comply may result in injury to personnel.



XX03N01A

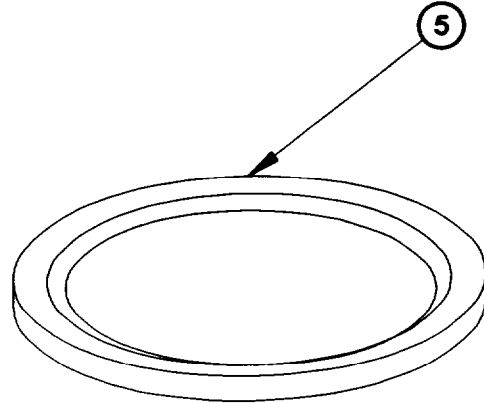
NOTE

Thoroughly clean all metal parts with dry cleaning solvent and dry with wiping rag prior to inspection.

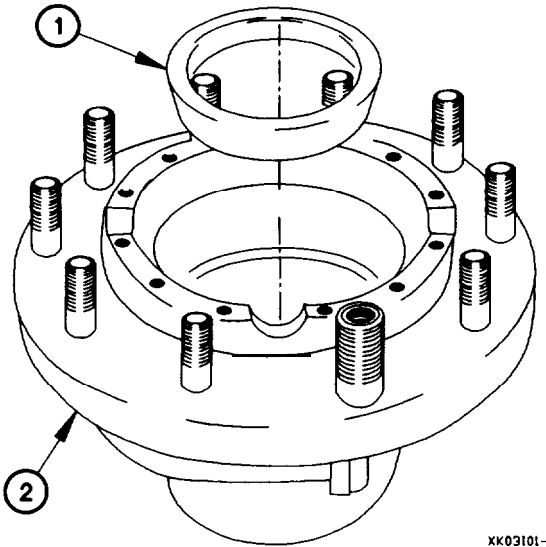
- (1) Inspect inner wheel bearing cone (1), outer wheel bearing cone (2), cup (3), and cup (4) for scoring, pitting, corrosion, and excessive wear. Replace both wheel bearing cones and cups if either fails visual inspection.

10-2. WHEEL BEARING/CENTRAL TIRE INFLATION SYSTEM (CTIS) SEAL REPLACEMENT (CONT)

(2) Inspect two CTIS seal guides (5) for nicks or cracks.



c. Installation.

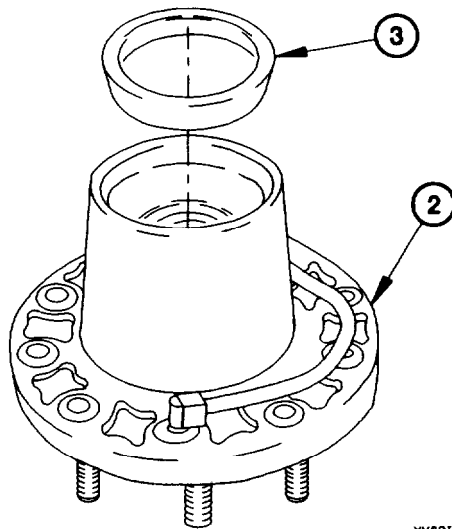


XK03N02A

NOTE

Front axle and rear axle wheel bearings and CTIS seals are installed the same way. Left front axle shown.

(1) Install cup (1) in wheel end hub (2).



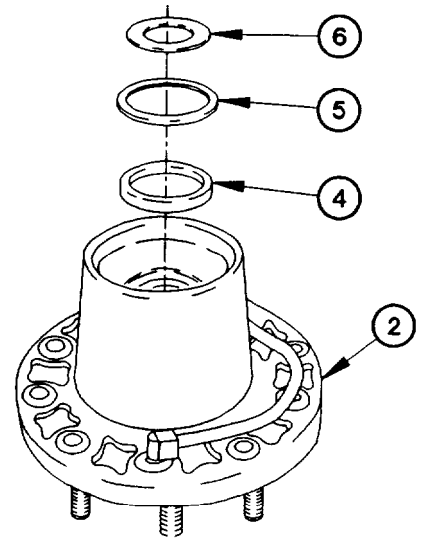
XK03102-

(2) Install cup (3) in wheel end hub (2).

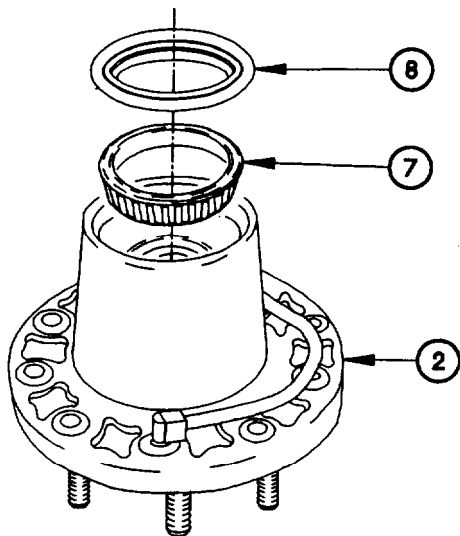
NOTE

Install CTIS seal guide bevel side up.

- (3) Install CTIS seal (4) and CTIS seal guide (5) in wheel end hub (2).
- (4) Install CTIS seal retaining ring (6) in wheel end hub (2).



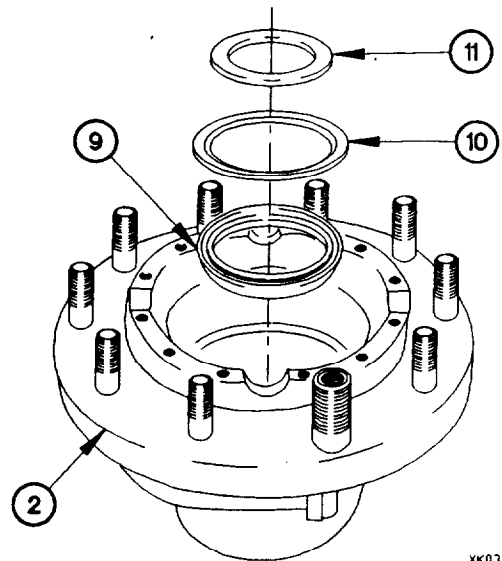
XK03103-



XK03104-

- (5) Pack inner wheel bearing cone (7) with grease.
- (6) Install inner wheel bearing cone (7) in wheel end hub (2).
- (7) Install hub seal (8) in wheel end hub (2).

- (8) Install CTIS seal (9) and CTIS seal guide (10) in wheel end hub (2).
- (9) Install CTIS seal retaining ring (11) in wheel end hub (2).



XK03105A

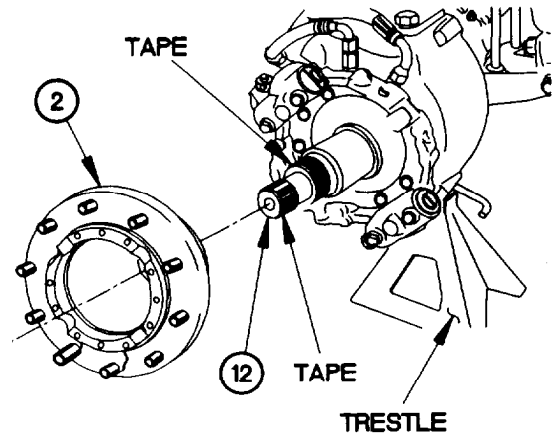
10-2. WHEEL BEARING/CENTRAL TIRE INFLATION SYSTEM (CTIS) SEAL REPLACEMENT (CONT)

- (10) Apply two wraps of duct tape on splined and threaded portions of spindle (12).

CAUTION

Use care when installing wheel end hub assembly on spindle. Failure to comply may damage CTIS seal and cause early failure of CTIS seals.

- (11) Install wheel end hub (2) on spindle (12).



xx03106-

- (12) Remove duct tape from spindle (12).
- (13) Install outer wheel bearing cone (13) in wheel end hub (2).
- (14) Position wheel bearing nut (14) on spindle (12).

CAUTION

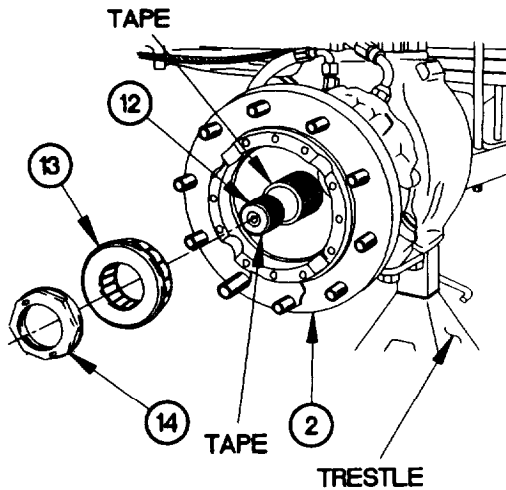
Rotate wheel end hub to the left and to the right while tightening wheel bearing nut. Failure to comply may result in damage to equipment.

- (15) Tighten wheel bearing nut (14) to 50 lb-ft (68 N•m).
- (16) Loosen wheel bearing nut (14) one quarter turn (90-degrees).

CAUTION

Do not tighten wheel bearing nut more than 10-20 lb-ft (14-27 N•m). Failure to comply may result in damage to equipment.

- (17) Tighten wheel bearing nut (14) to 10-20 lb-ft (14-27 N•m).



xx03107-

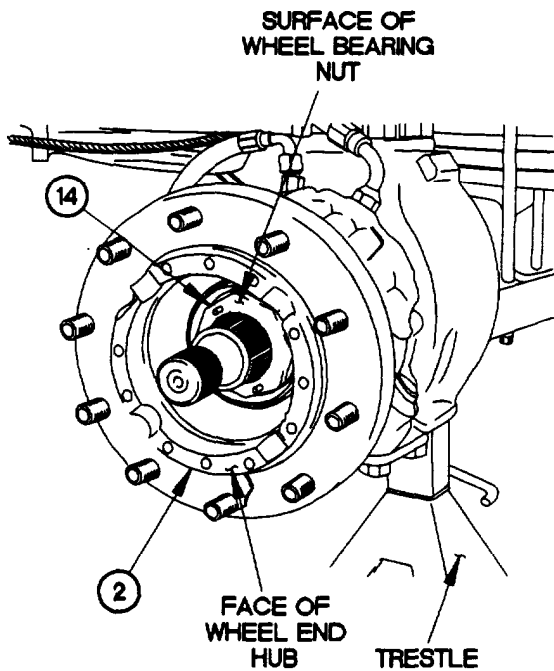
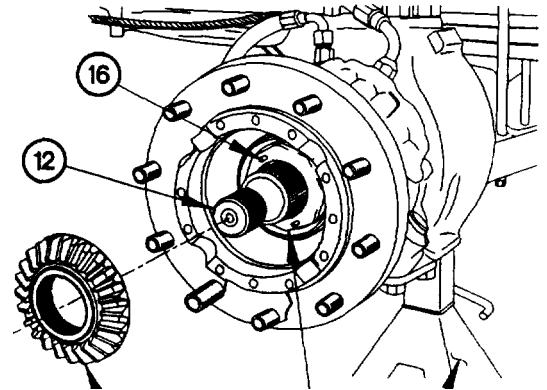
(18) Install inner bevel side gear (15) on spindle (12).

CAUTION

If alignment pins on wheel bearing nut do not line up with alignment holes on inner bevel side gear, loosen wheel bearing nut until pins and holes are aligned. Do not loosen wheel bearing nut more than one spline tooth. Failure to comply will result in damage to equipment.

(19) Align pins (16) on wheel bearing nut (14) with alignment holes in inner bevel side gear (15).

(20) Remove inner bevel side gear (15) from spindle (12).



XK03109A

NOTE

Record measurement taken in step (21).

(21) Measure depth from surface of wheel bearing nut (14) to face of wheel end hub (2).

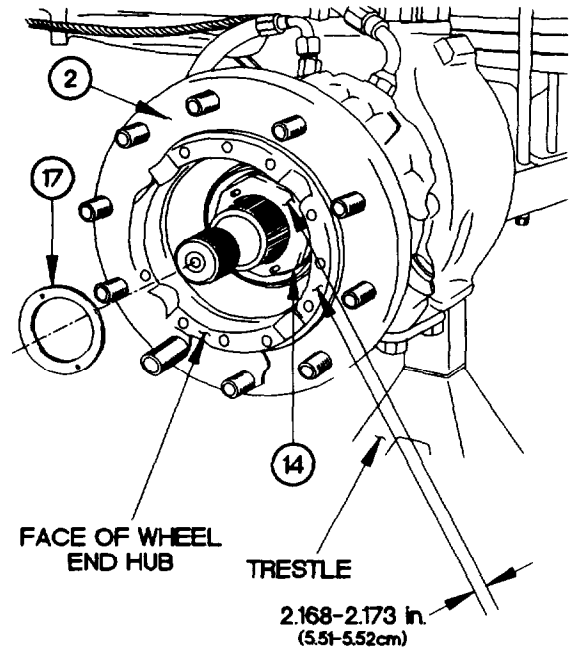
10-2. WHEEL BEARING/CENTRAL TIRE INFLATION SYSTEM (CTIS) SEAL REPLACEMENT (CONT)

- (22) Install wheel end shim(s) (17) on wheel bearing nut (14).

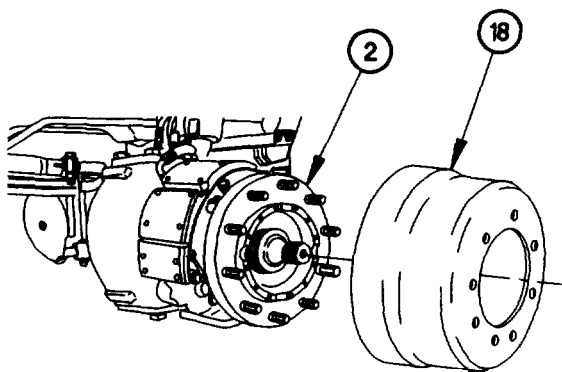
CAUTION

Measurement from surface of shims to face of wheel end hub must be 2.168-2.173 in. (5.51-5.52 cm). Failure to comply may result in damage to equipment.

- (23) Measure distance from surface of shim(s) (17) to face of wheel end hub (2).
- (24) Add or remove shim(s) (17) as required to obtain measurement of 2.1678-2.173 in. (5.51-5.52 cm).



xk031101



xk03111-

WARNING

Wheel drum weighs approximately 90 lbs (41 kgs). Use the aid of an assistant to install wheel drum. Failure to comply may result in injury to personnel.

- (25) Install wheel drum (18) on wheel end hub (2).

d. Follow-On Maintenance.

- (1) Install differential spider assembly (para 10-3)
- (2) Install wheel (TM 9-2320-365-10).
- (3) Start engine (TM 9-2320-365-10).
- (4) Road test vehicle and check for proper steering operation and excessive wheel end vibration.
- (5) Shut down engine (TM 9-2320-365-10).
- (6) Check for oil leaks around wheel end assembly.

End of Task.

10-3. DIFFERENTIAL SPIDER ASSEMBLY REPLACEMENT

This task covers:

- | | |
|------------------------|--------------------------|
| a. Removal | c. Installation |
| b. Cleaning/Inspection | d. Follow-On Maintenance |

INITIAL SETUP

Equipment Conditions

- Engine shut down (TM 9-2320-365-10).
- Hub assembly drained (Appendix H).

Tools and Special Tools

- Tool Kit, Genl Mech (Item 44, Appendix C)
- Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)
- Goggles, Industrial (Item 15, Appendix C)
- Gloves, Rubber (Item 13, Appendix C)

Materials/Parts

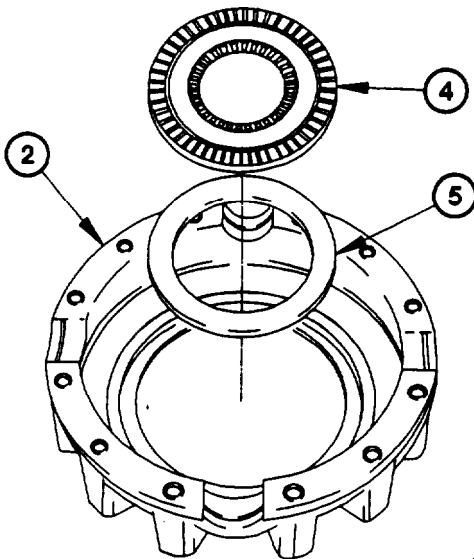
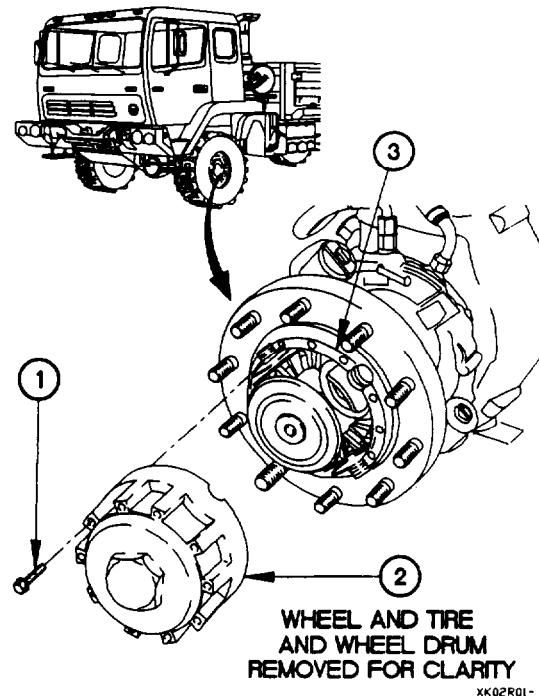
- Rag, Wiping (Item 51, Appendix D)
- Sealing Compound (Item 62, Appendix D)
- Solvent, Dry Cleaning (Item 71, Appendix D)
- Grease, Automotive and Artillery (GAA) (Item 23, Appendix D)
- Packing, Preformed (4) (Item 185, Appendix G)

a. Removal.

NOTE

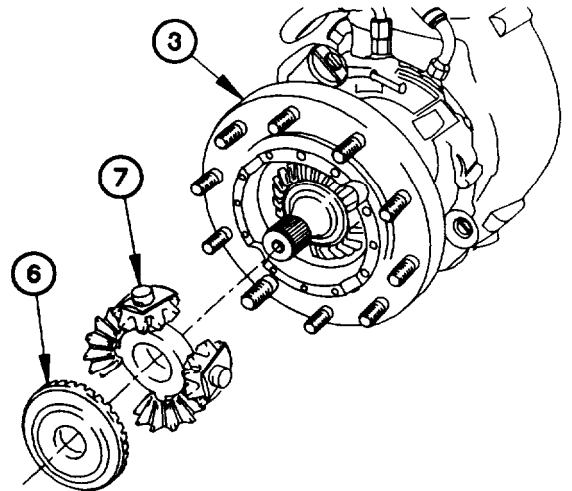
Front and rear axle differential spider assemblies are removed the same way. Left front axle differential spider assembly shown.

- (1) Remove 12 screws (1) from bevel gear hub cover (2).
- (2) Remove bevel gear hub cover (2) from wheel end hub assembly (3).

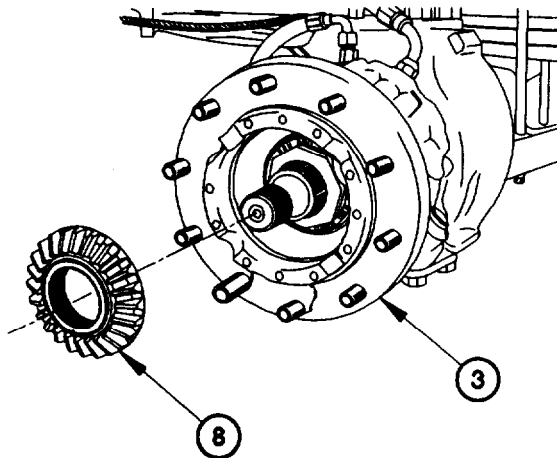


- (3) Remove thrust bearing (4) and thrust washer (5) from bevel gear hub cover (2).

- (4) Remove outer bevel side gear (6) from wheel end hub assembly (3).
- (5) Remove differential spider assembly (7) from wheel end hub assembly (3).



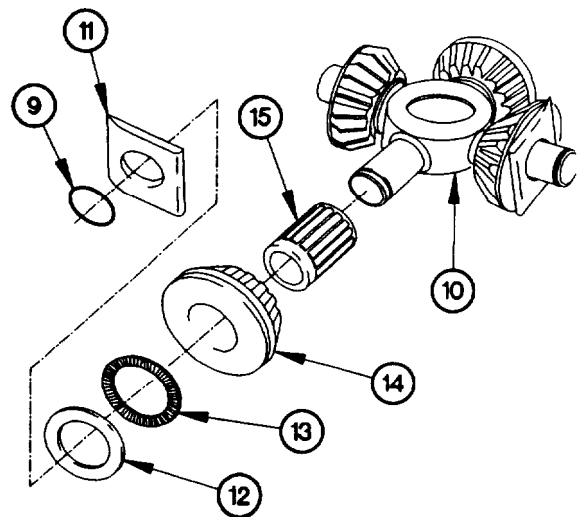
XK02R03-



- (6) Remove inner bevel side gear (8) from wheel end hub assembly (3).

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- (7) Remove four preformed packings (9) from differential spider (10). Discard preformed packings.
- (8) Remove four outer thrust washers (11), inner thrust washers (12), thrust bearings (13), differential pinion gears (14), and pinion gear bearings (15) from differential spider (10).



XK02R05-

10-3. DIFFERENTIAL SPIDER ASSEMBLY REPLACEMENT (CONT)

b. Cleaning/Inspection.

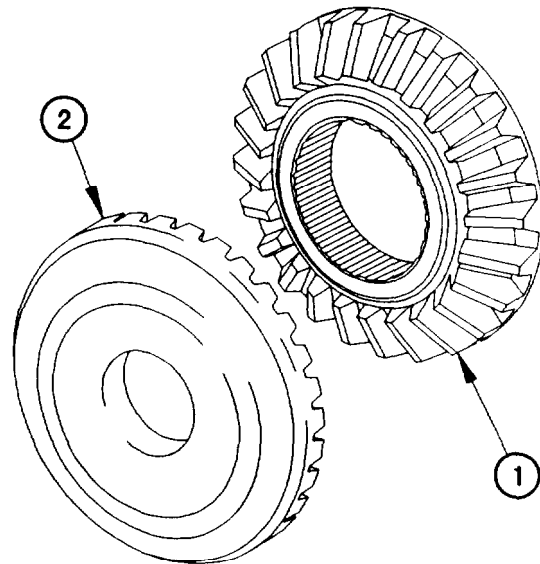
WARNING

- Dry cleaning solvent (P-D-680) is TOXIC and flammable. Wear protective goggles and gloves; use only in well ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent; the flashpoint for Type I dry cleaning solvent is 100 degrees F (38 degrees C) and for Type II is 130 degrees F (50 degrees C). Failure to comply may result in serious injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention. Failure to comply may result in injury to personnel.
- Compressed air used for cleaning purposes will not exceed 30 psi (207 Kph). Use only with effective chip guarding and personal protective equipment (goggles/shield, gloves, etc). Failure to comply may result in injury to personnel.

NOTE

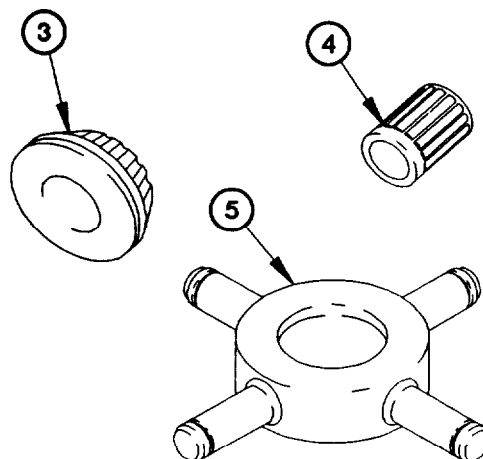
Thoroughly clean all metal parts with dry cleaning solvent and dry using compressed air prior to inspection.

- (1) Inspect inner bevel side gear (1) and outer bevel side gear (2) for cracked or broken gear teeth, scoring, pitting, and corrosion. Replace inner and/or outer bevel side gear that fail inspection.



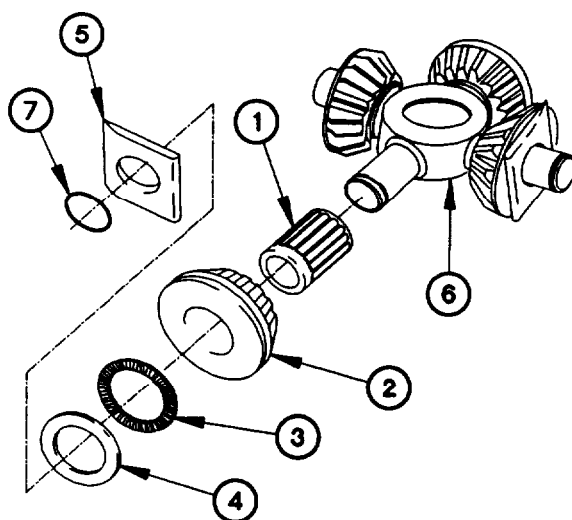
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- (2) Inspect differential pinion gears (3) for cracked or broken gear teeth, scoring, pitting, and corrosion. Replace differential pinion gear(s) that fail inspection.
- (3) Inspect pinion gear bearings (4) for scoring, pitting, and corrosion. Replace radial pinion gear bearing(s) that fail inspection.
- (4) Inspect differential spider (5) for cracks, scoring, pitting, and corrosion. Replace differential spider that fail inspection.



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c. Installation.



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NOTE

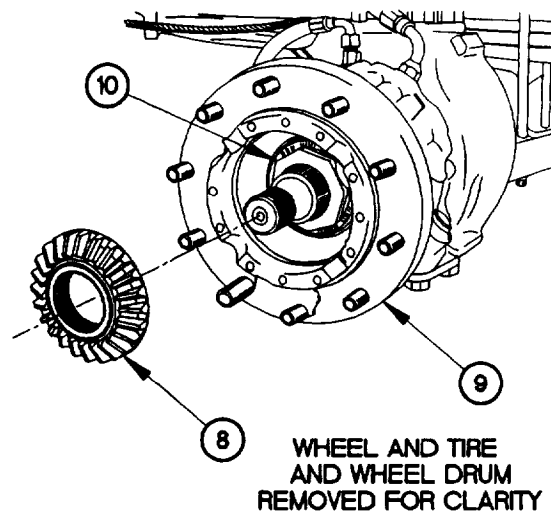
Front and rear axle differential spider assemblies are removed the same way. Left front axle differential spider assembly shown.

- (1) Install four pinion gear bearings (1), differential pinion gears (2), thrust bearings (3), inner thrust washers (4), and outer thrust washers (5) on differential spider (6).
- (2) Install four preformed packings (7) on differential spider (6).

NOTE

If pins in self-locking nut do not line up with holes in inner bevel side gear, adjust self-locking nut accordingly.

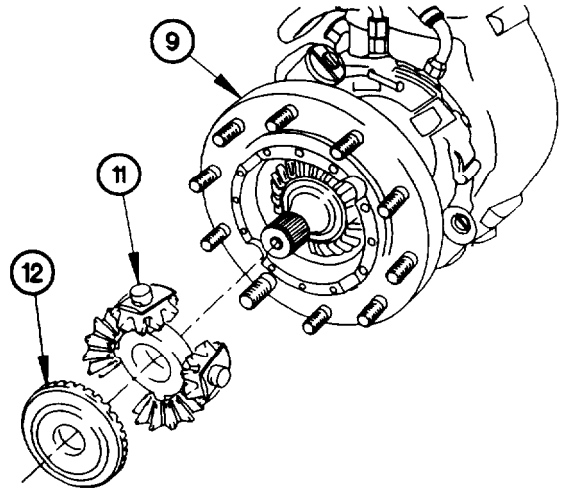
- (3) Install inner bevel side gear (8) in wheel end hub assembly (9) with holes in inner bevel side gear aligned with pins in self-locking nut (10).



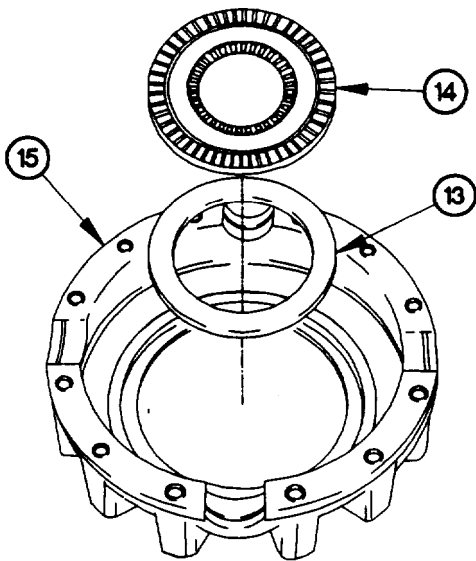
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10-3. DIFFERENTIAL SPIDER ASSEMBLY REPLACEMENT (CONT)

- (4) Install differential spider assembly (11) in wheel end hub assembly (9).
- (5) Install outer bevel side gear (12) in wheel end hub assembly (9).



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- (6) Apply a small amount of grease to side gear thrust washer (13) and side gear thrust bearing (14) to hold them in bevel gear hub cover (15) during installation.

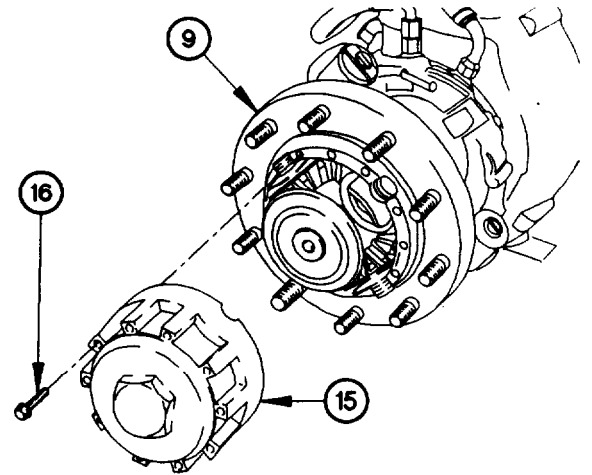
- (7) Install side gear thrust washer (13) and side gear thrust bearing (14) in bevel gear hub cover (15).

xx02104-

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.

- (8) Apply a small bead of sealing compound to mating surface of bevel gear hub cover (15).
- (9) Install bevel gear hub cover (15) on wheel end hub assembly (9).
- (10) Position 12 screws (16) in bevel gear hub cover (15).
- (11) Tighten 12 screws (16) to 35-50 lb-ft (47-68 N•m).



xx02105-

c. Follow-On Maintenance.

- (1) Fill hub assembly (Appendix H).
- (2) Start engine (TM 9-2320-365-10).
- (3) Test operate vehicle and check for unusual noise or vibration from planetary drive assembly.
- (4) Shut down engine (TM 9-2320-365-10).
- (5) Check for oil leaks around bevel gear hub cover.

End of Task.

10-4. REAR AXLE SHAFT REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Engine shut down (TM 9-2320-365-10).

Materials/Parts

Screw (MS35307-64 or equivalent)

Tools and Special Tools

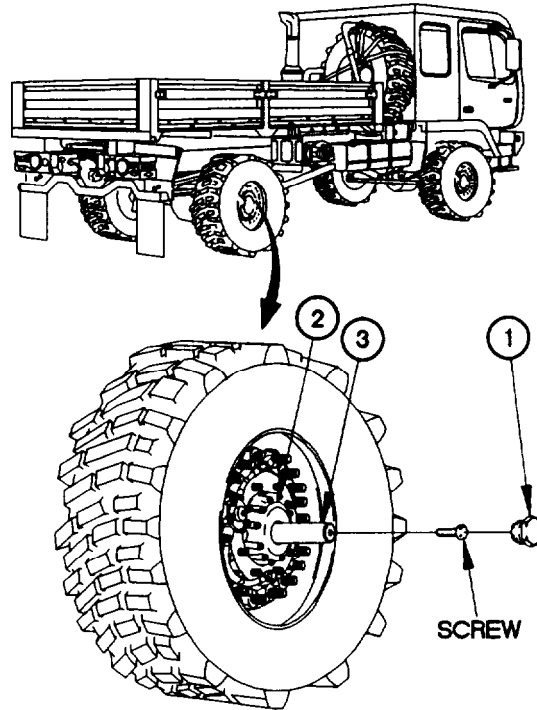
Tool Kit, Genl Mech (Item 44, Appendix C)
Wrench, Adjustable (Item 50, Appendix C)

a. Removal.

NOTE

Left and right rear axle shafts are removed the same way. Right rear axle shaft shown.

- (1) Remove grease cap (1) from wheel hub assembly (2).
- (2) Install screw in axle shaft (3).
- (3) Remove axle shaft (3) from wheel hub assembly (2).



b. Installation.

NOTE

Perform step (1) only if axle shaft is not being replaced.

- (1) Remove screw from axle shaft (3).
- (2) Align splines of axle shaft (3) with gears in differential carrier.
- (3) Install axle shaft (3) in wheel hub assembly (2).
- (4) Install grease cap (1) on wheel hub assembly (2).

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c. Follow-On Maintenance.

- (1) Add oil to differential carrier (Appendix H).
- (2) Add oil to wheel hub assembly (Appendix H).
- (3) Start engine (TM 9-2320-365-10).
- (4) Road test vehicle and check for unusual noise or vibration from axles.
- (5) Shut down engine (TM 9-2320-365-10).
- (6) Check around grease cap for oil leaks.

End of Task.

CHAPTER 11 BRAKE SYSTEM MAINTENANCE

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Section I. INTRODUCTION

11-1. INTRODUCTION

This chapter contains maintenance instructions for replacing, repairing, and adjusting brake system components authorized by the Maintenance Allocation Chart (MAC) at the Unit Maintenance level.

Section II. MAINTENANCE PROCEDURES

11-2. FRONT BRAKE SHOES REPLACEMENT/ADJUSTMENT

This task covers:

- | | |
|--|---|
| <ul style="list-style-type: none"> a. Removal b. Inspection c. Installation | <ul style="list-style-type: none"> d. Adjustment e. Follow-On Maintenance |
|--|---|

INITIAL SETUP

Equipment Conditions

Engine shut down (TM 9-2320-365-10).
 Wheel and tire removed (TM 9-2320-365-10).

Tools and Special Tools

Trestle, Motor Vehicle Maintenance (Item 45, Appendix C)
 Tool Kit, Genl Mech (Item 44, Appendix C)
 Tool, Spring Removal (Item 83, Appendix B)
 Respirator, Air Filter (Item 29, Appendix C)
 Adjusting Tool, Brake Shoe (Item 2, Appendix C)

Tools and Special Tools (Cont)

Brake Adjusting Tool Support (Item E-2, Appendix E)

Materials/Parts

Rag, Wiping (Item 51, Appendix D)
 Grease, Automotive and Artillery (GAA) (Item 23, Appendix D)
 Lockwasher (2) (Item 102, Appendix G)

Personnel Required

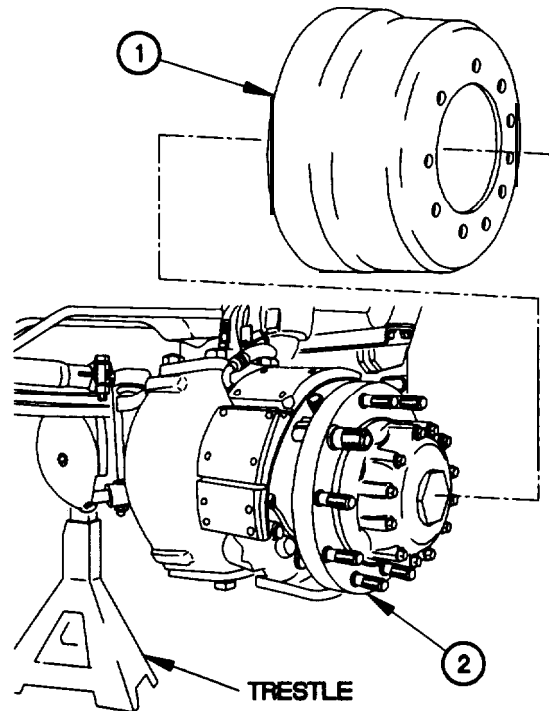
(2)

a. Removal.



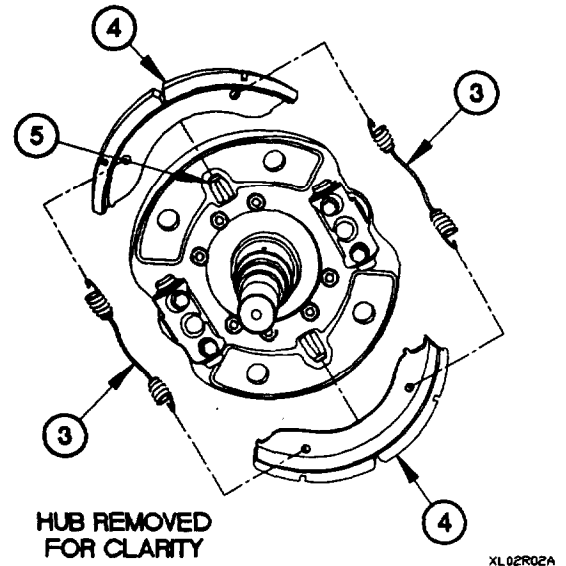
- Wheel drum weighs approximately 90 lbs (41 kg). Use the aid of an assistant to help remove wheel drum. Failure to comply may result in injury to personnel.
- Brake shoes may be covered with dust. Breathing this dust may be harmful to your health. Do not use compressed air to clean brake shoes. Wear a filter mask approved for use against brake dust. Failure to comply may result in injury to personnel.

(1) Remove wheel drum (1) from wheel hub (2).

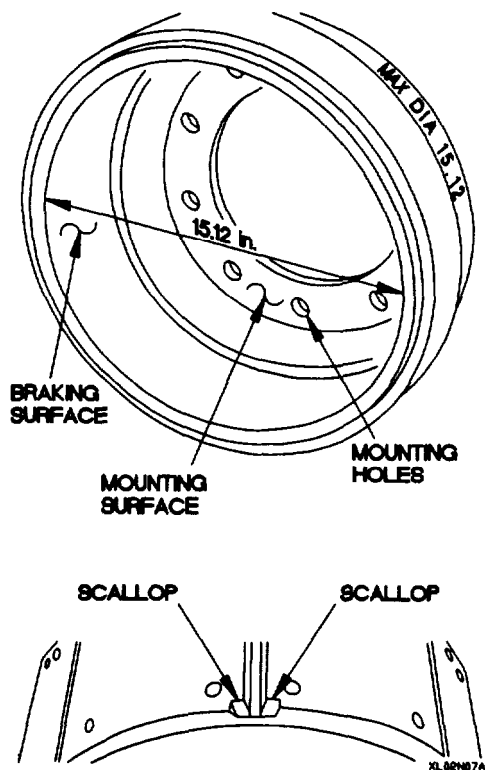


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- (2) Remove two return springs (3) from brake shoes (4).
- (3) Remove two brake shoes (4) from holddown clips (5).
- (4) Perform front brake plunger assembly replacement /repair (para 11-4).



b. Inspection.



CAUTION

Replace wheel drums that fail visual inspection. Failure to comply may result in damage to equipment.

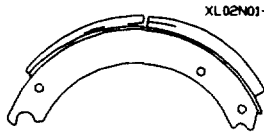
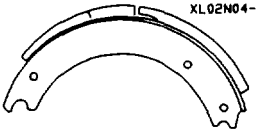
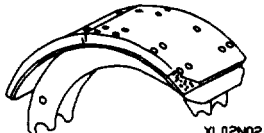
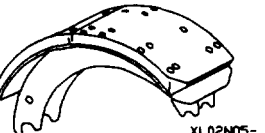
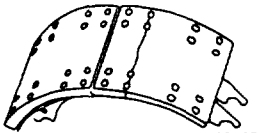
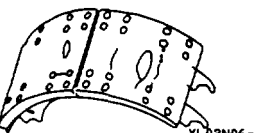
- (1) Clean wheel drums of all mud, sand, and debris.
- (2) Inspect wheel drums for the following:
 - a. Braking surface of wheel drums must be free of scoring and cracks.
 - b. Maximum inside diameter, which is stamped on wheel drum, does not exceed 15.12 in. (38.4 cm).
 - c. Wheel drum mounting holes must not be egg-shaped or have cracks around edges.
 - d. Wheel drum mounting surface must be flat.
- (3) Inspect brake shoes for presence of scallops at brake shoe lining four inner corners.

11-2. FRONT BRAKE SHOES REPLACEMENT/ADJUSTMENT (CONT)

NOTE

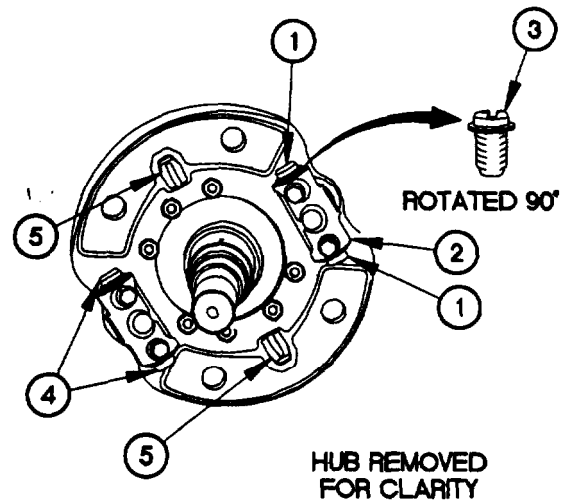
- Over time a ridge will form on the outer edge of the brake shoes. This is normal and does not affect brake shoe serviceability.
 - It is normal for the leading edge of the front brake shoes to wear faster than the remaining area of the lining.
- (3) Inspect brake shoes for OUT-OF-SERVICE and IN-SERVICE criteria as shown in Figure 11-1 Front Brake Shoe Service Criteria.

Figure 11-1. Front Brake Shoe Service Criteria

OUT-OF-SERVICE	IN-SERVICE
 <p>Cracks or voids that exceed 1/16 in. in width. Cracks that exceed 1-1/2 in. in length.</p>	 <p>Vertical or horizontal cracks in lining edge not exceeding 1/16 in. in width or not exceeding 1-1/2 in. in length.</p>
 <p>Portion of lining missing that exposes a fastening device, or worn to the point that a fastening device is exposed.</p>	 <p>Corner segment missing with no fastening device (rivet or bolt) exposed.</p>
 <p>Cracks across the lining face that extend through the lining edges.</p>	 <p>Surface cracks in lining face that can extend from hole to hole. Pitting and material erosion on the lining face.</p>

c. Installation.

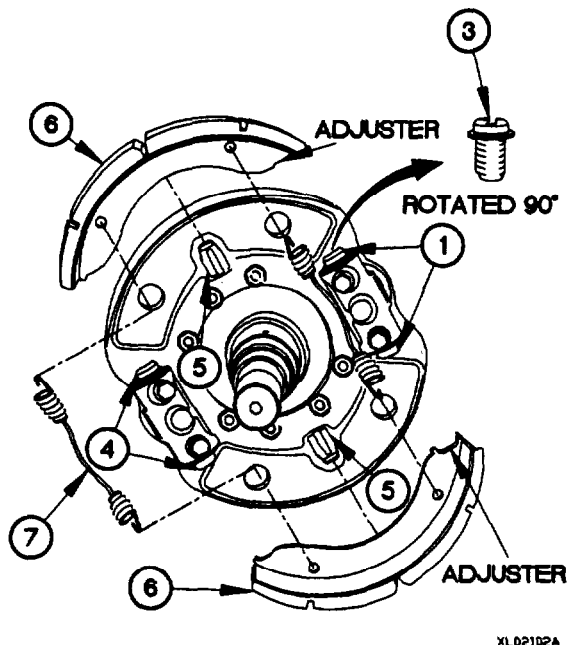
- (1) Turn two adjusting screws (1) in plunger housing (2) until they bottom.
- (2) Apply a film of grease to slots (3) in two adjusting screws (1), anchor plungers (4) and to inside of two holddown clips (5).



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CAUTION

- Do not rely on automatic adjusters to take up excessive initial clearance. Tightening adjusting screws against plunger housings may result in failure of automatic adjusters to function properly. Failure to comply may result in damage to equipment.
- Brake shoe ends stamped ADJUSTER are positioned on adjusting screws. Failure to comply may result in damage to equipment.



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- (3) Loosen two adjusting screws (1) 1/2 turn or until slots (3) are aligned with brake shoes (6).
- (4) Install two brake shoes (6) in holddown clips (5) with ends seated in slots in adjusting screws (1) and anchor plungers (4).
- (5) install two return springs (7) on brake shoes (6).

11-2. FRONT BRAKE SHOES REPLACEMENT/ADJUSTMENT (CONT)

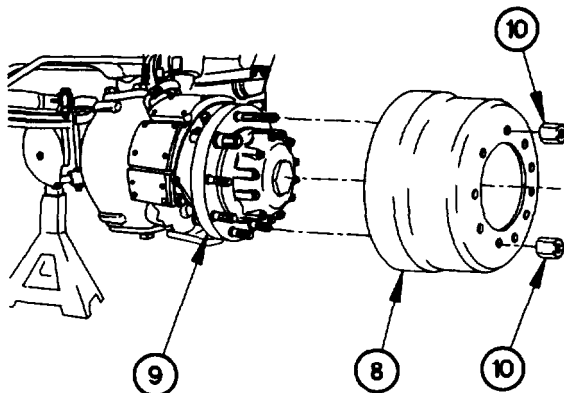
WARNING

Wheel drum weighs approximately 90 lbs (41 kg). Use the aid of an assistant to help install wheel drum. Failure to comply may result in injury to personnel.

NOTE

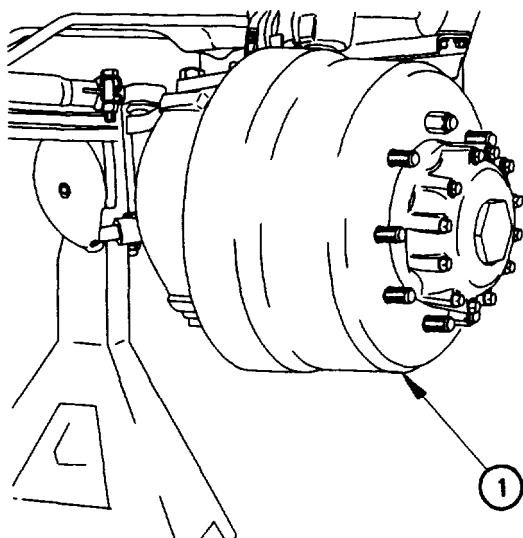
Position lug nuts 180 degrees apart and tighten until wheel drum is seated.

- (6) Position wheel drum (8) on hub (9) with two lugnuts (10).



XL02103A

d. Adjustment.



XL02J01A

WARNING

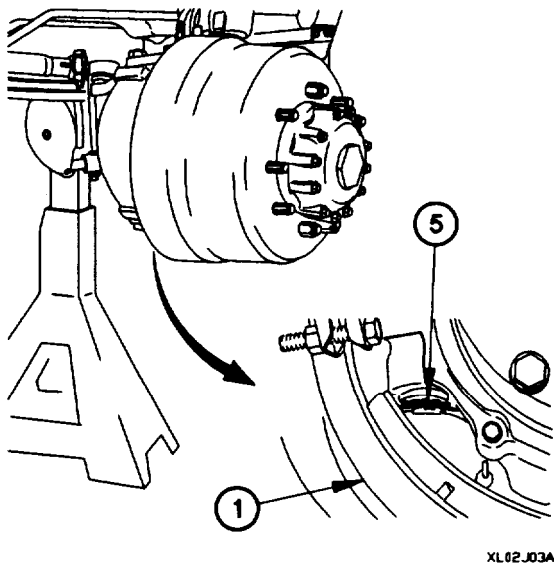
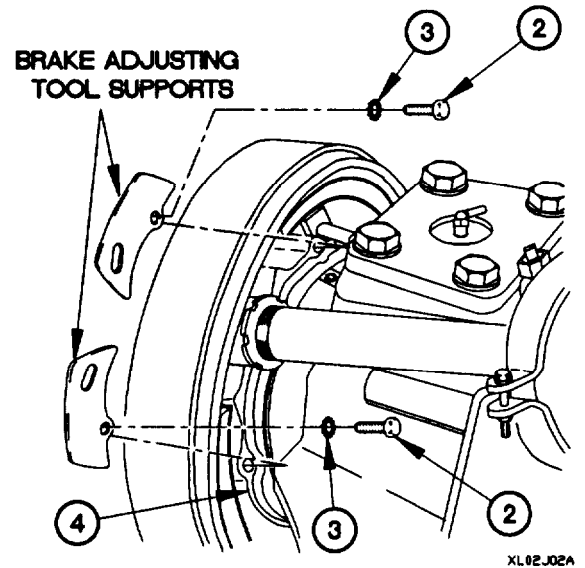
Self-adjusting brakes will not self-adjust without applying brake pedal. Failure to comply may result in injury to personnel.

NOTE

Steps (1) and (2) require the aid of an assistant.

- (1) Apply and release brake pedal.
- (2) Turn wheel drum (1) through one or more revolutions to ensure there is no binding.

- (3) Remove two screws (2) and lockwashers (3) from back of spider (4).
- (4) Install two brake adjusting tool supports on spider (4) with lockwashers (3) and screws (2).



WARNING

Self-adjusting brakes will not self-adjust without applying brake pedal. Failure to comply may result in injury to personnel.

- (5) Adjust brake adjusting screw (5) until wheel drum (1) does not turn freely or until heavy drag is noticed.
- (6) Apply and release brake pedal several times to position brake shoes.

NOTE

Step (7) requires the aid of an assistant.

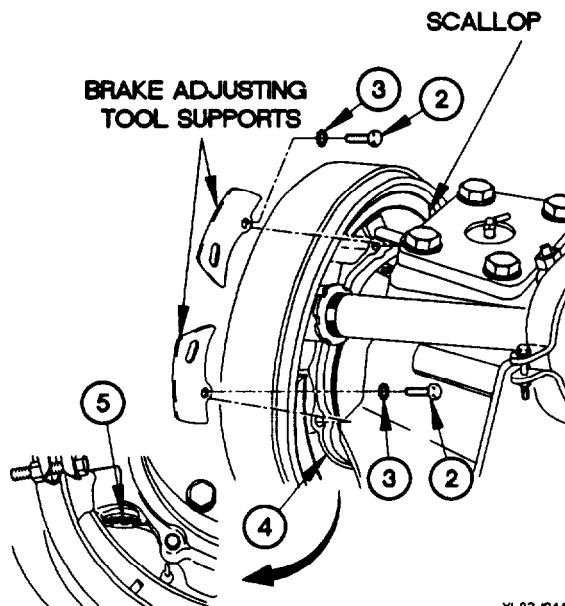
- (7) Readjust brake adjusting screw (5) while turning wheel drum (1) until heavy drag is noticed.

11-2. FRONT BRAKE SHOES REPLACEMENT/ADJUSTMENT (CONT)

CAUTION

- Wheel drum clearance must be checked along centerline of brake shoe at scallop. Failure to comply may result in damage to equipment.
- Record the number of clicks as adjusting screw is loosened. All adjustments on any wheel should be within six clicks of one another. If not, repeat procedure or examine for damage. Failure to comply may result in damage to equipment.

- (8) Back off brake adjusting screw (5) to obtain 0.020-0.040 in. (0.051-0.102 cm) clearance.
- (9) Repeat steps (6 through 8) for second brake adjusting screw.
- (10) Remove two screws (2), lockwashers (3), and brake adjusting tool supports from spider (4). Discard lockwashers.
- (11) Install two lockwashers (3) and screws (2) in spider (4).



XL02.J04A

d. Follow-On Maintenance.

- (1) Install wheel and tire (TM 9-2320-365-10).
- (2) Start engine (TM 9-2320-365-10).
- (3) Road test vehicle and check for proper brake operation.
- (4) Shut down engine (TM 9-2320-365-10).

End of Task.

11-3. REAR BRAKE SHOES REPLACEMENT/ADJUSTMENT

This task covers:

- a. Removal
- b. Inspection
- c. Installation
- d. Adjustment
- e. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Engine shut down (TM 9-2320-365-10).
 Wheel and tire removed (TM 9-2320-365-10).
 Brakes caged (para 11-6).

Tools and Special Tools

Tool Kit, Genl Mech (Item 44, Appendix C)
 Tool, Spring Removal (Item 83, Appendix B)
 Respirator, Air Filter (Item 29, Appendix C)
 Trestle, Motor Vehicle Maintenance (Item 45, Appendix C)

Tools and Special Tools (Cont)

Adjusting Tool, Brake Shoe (Item 2, Appendix C)
 Brake Adjusting Tool Support (Item E-2, Appendix E)

Material/Parts

Rag, Wiping (Item 51, Appendix D)
 Grease, Automotive and Artillery (GAA) (Item 23, Appendix D)
 Lockwasher (4) (Item 102, Appendix G)

Personnel Required

(2)

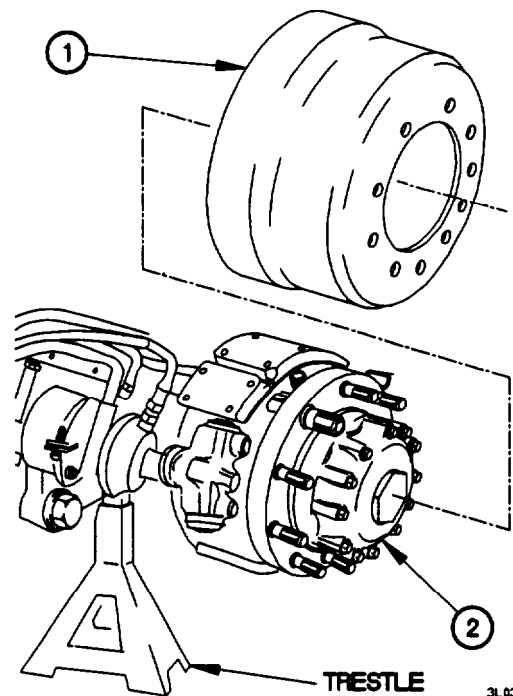
a. Removal.

WARNING

Wheel drum weighs approximately 90 lbs (41 kg). Use the aid of an assistant to help remove wheel drum. Failure to comply may result in injury to personnel.

Brake shoes may be covered with dust. Breathing this dust may be harmful to your health. Do not use compressed air to clean brake shoes. Wear a filter mask approved for use against brake dust. Failure to comply may result in injury to personnel.

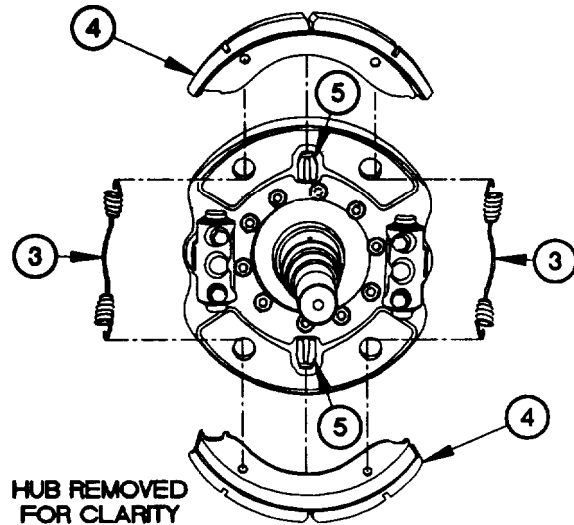
- (1) Remove wheel drum (1) from wheel hub (2).



3L03R01A

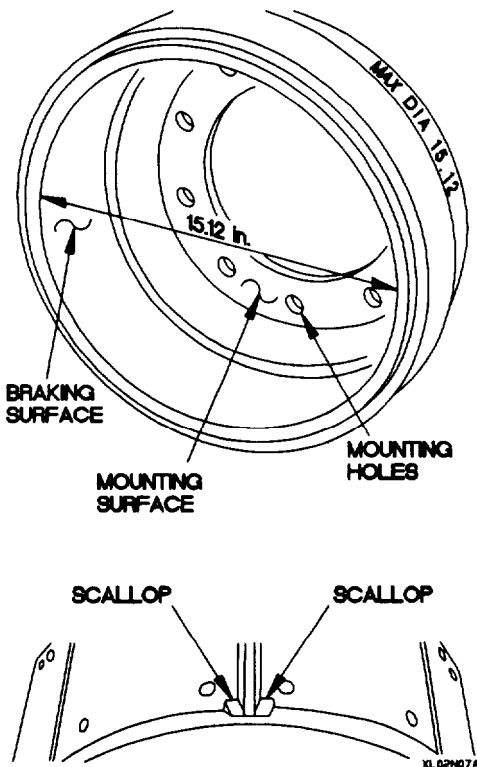
11-3. REAR BRAKE SHOES REPLACEMENT/ADJUSTMENT (CONT)

- (2) Remove two return springs (3) from brake shoes (4).
- (3) Remove brake shoes (4) from holddown clips (5).
- (4) Perform rear brake plunger assembly replacement/repair (para 11-5).



XL03R02A

b. Inspection.



XL02N07A

CAUTION

Replace wheel drums that fail visual inspection. Failure to comply may result in damage to equipment.


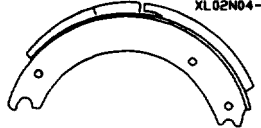


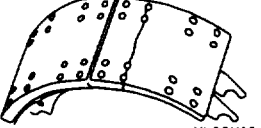
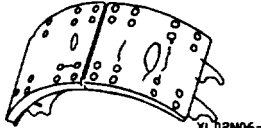
- (1) Clean wheel drums of all mud, sand, and debris.
- (2) Inspect wheel drums for the following:
 - a. Braking surface of wheel drums must be free of scoring and cracks.
 - b. Maximum inside diameter, which is stamped on wheel drum, does not exceed 15.12 in. (38.4 cm).
 - c. Wheel drum mounting holes must not be egg-shaped or have cracks around edges.
 - d. Wheel drum mounting surface must be flat.
- (3) Inspect brake shoes for presence of scallops at brake shoe lining four inner corners.

NOTE

Over time a ridge will form on the outer edge of the brake shoes. This is normal and does not affect brake shoe serviceability.

- (3) Inspect rear brake shoes for OUT-OF-SERVICE and IN-SERVICE criteria as shown in Figure 11-2. Rear Brake Shoe Service Criteria.

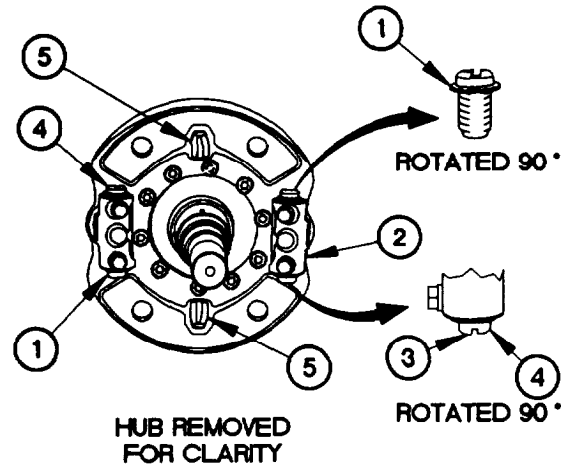
Figure 11-2. Rear Brake Shoe Service Criteria

OUT-OF-SERVICE	IN-SERVICE
 <p>Cracks or voids that exceed 1/16 in. in width. Cracks that exceed 1-1/2 in. in length.</p>	 <p>Vertical or horizontal cracks in lining edge not exceeding 1/16 in. in width or not exceeding 1-1/2 in. in length.</p>
 <p>Portion of lining missing that exposes a fastening device.</p>	 <p>Corner segment missing with no fastening device (rivet or bolt) exposed.</p>
 <p>Cracks across the lining face that extend through the lining edges.</p>	 <p>Surface cracks in lining face that can extend from hole to hole. Pitting and material erosion on the lining face.</p>

11-3. REAR BRAKE SHOES REPLACEMENT/ADJUSTMENT (CONT)

c. Installation.

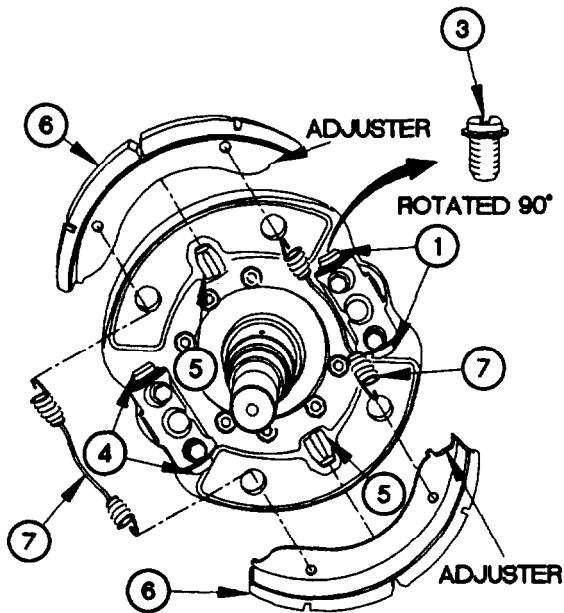
- (1) Turn two adjusting screws (1) in plunger housings (2) until they bottom.
- (2) Apply a thin film of grease to slots (3) in two anchor plungers (4), adjusting screws (1), and inside of two holddown clips (5).



XL03101A

CAUTION

- Do not rely on automatic adjusters to take up excessive initial clearance. Tightening adjusting screws against plunger housings may result in failure of automatic adjusters to function properly. Failure to comply may result in damage to equipment.
- Brake shoe ends stamped ADJUSTER are positioned on adjusting screws. Failure to comply may result in damage to equipment.



XL03102A

- (3) Loosen two adjusting screws (1) 1/2 turn or until slots (3) are aligned with brake shoes (6).
- (4) Install two brake shoes (6) in holddown clips (5) with ends seated in slots in adjusting screws (1) and anchor plungers (4).
- (5) Install two return springs (7) on brake shoes (6).

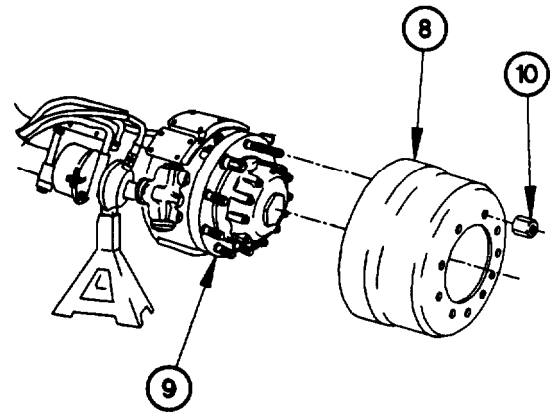
WARNING

Wheel drum weighs approximately 90 lbs (41 kg). Use the aid of an assistant to help install wheel drum. Failure to comply may result in injury to personnel.

NOTE

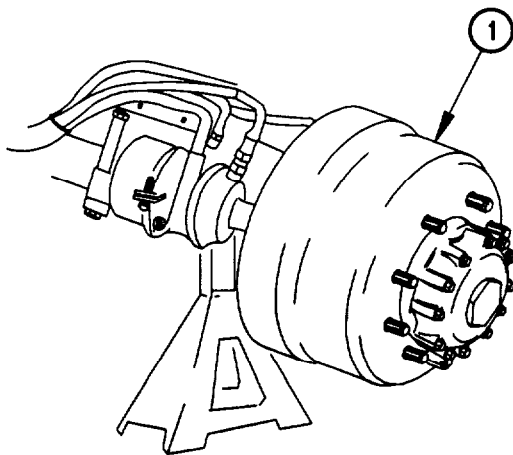
Position lugnuts 180 degrees apart and tighten until wheel drum is seated.

- (6) Position wheel drum (8) on hub (9) with two lugnuts (10).



d. Adjustment.

3L03103-



3L03J01-

WARNING

Self-adjusting brakes will not self-adjust without applying brake pedal. Failure to comply may result in injury to personnel.

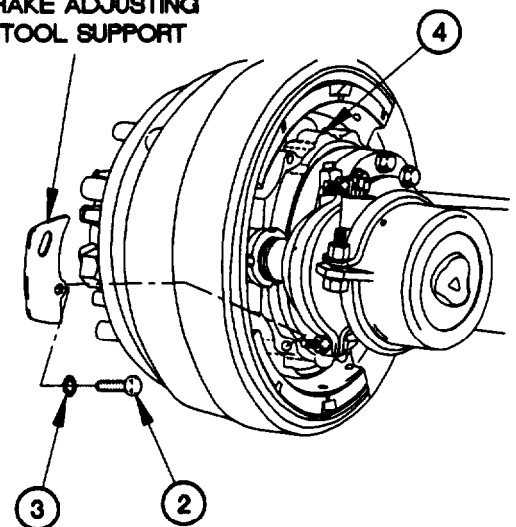
NOTE

Steps (1) and (2) require the aid of an assistant.

- (1) Apply and release brake pedal.
- (2) Turn wheel drum (1) through one or more revolutions to ensure there is no binding.

- (3) Remove screw (2) and lockwasher (3) from back side of spider (4) toward rear of vehicle.
- (4) Install brake adjusting tool support on spider (4) with lockwasher (3) and screw (2).

BRAKE ADJUSTING TOOL SUPPORT



XL03J02A

11-3. REAR BRAKE SHOES REPLACEMENT/ADJUSTMENT (CONT)

WARNING

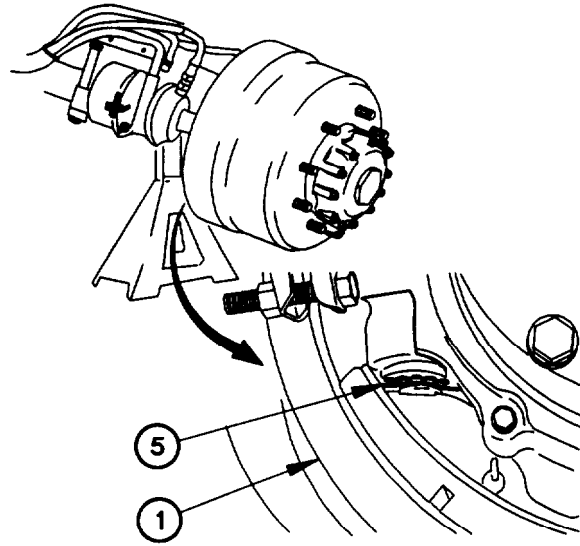
Self-adjusting brakes will not self-adjust without applying brake pedal. Failure to comply may result in injury to personnel.

- (5) Adjust brake adjusting screw (5) until wheel drum (1) does not turn freely or until heavy drag is noticed.
- (6) Uncage spring brakes (para 11-6).
- (7) Apply and release brake pedal several times to position brake shoes.

NOTE

Step (8) requires the aid of an assistant.

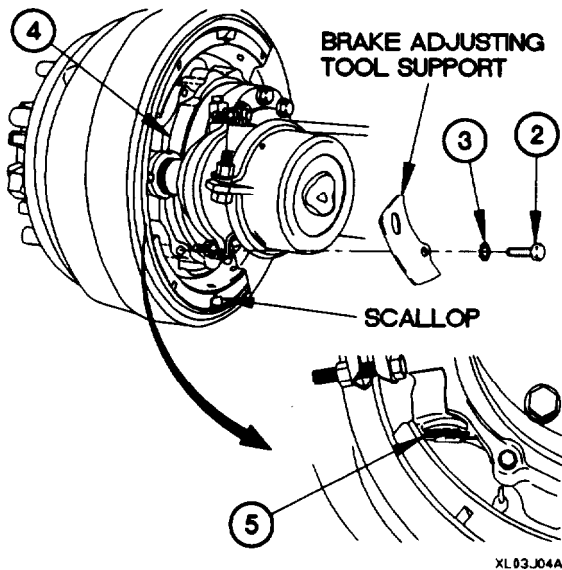
- (8) Readjust brake adjusting screw (5) while turning wheel drum (1) until heavy drag is noticed.



3L03.J03-

CAUTION

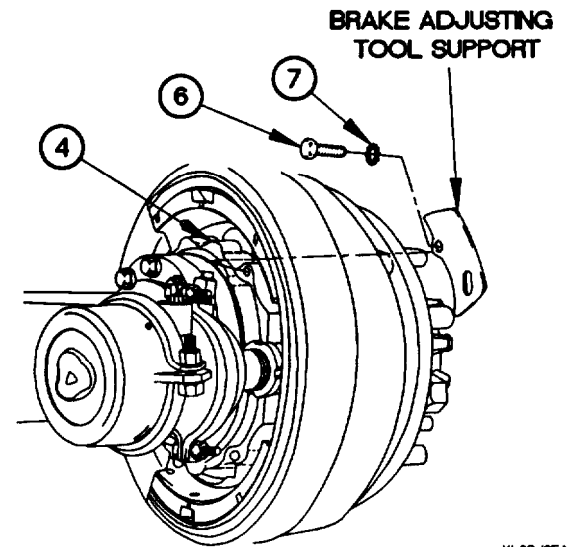
- Wheel drum clearance must be checked along centerline of brake shoe at scallop. Failure to comply may result in damage to equipment.
- Record the number of clicks as adjusting screw is loosened. All adjustments on any wheel should be within six clicks of one another. If not, repeat procedure or examine for damage. Failure to comply may result in damage to equipment.



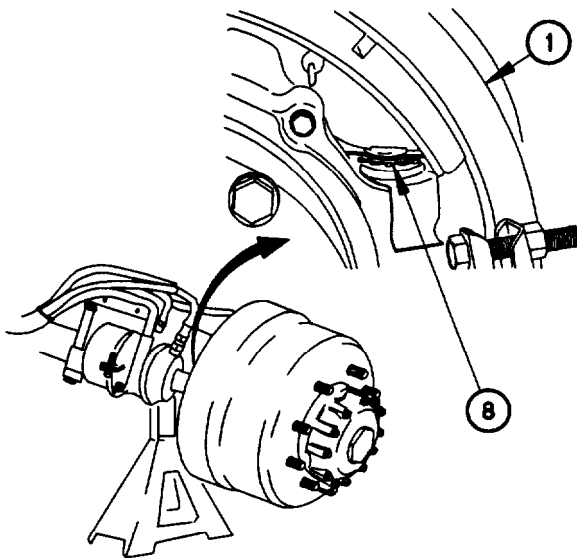
XL03.J04A

- (9) Back-off adjusting screw (5) to obtain 0.020-0.040 in. (0.051-0.102 cm) clearance between brake shoe and wheel drum.
- (10) Remove screw (2), lockwasher (3) and brake adjusting tool support from spider (4). Discard lockwasher.
- (11) Install lockwasher (3) and screw (2) in spider (4).

- (12) Remove screw (6) and lockwasher (7) from back side of spider (4) toward front of vehicle.
- (13) Install brake adjusting tool support on spider (4) with lockwasher (7) and screw (6).



XL03J05A



3L03J06-

WARNING

Self-adjusting brakes will not self-adjust without applying brake pedal. Failure to comply may result in injury to personnel.

- (14) Adjust brake adjusting screw (8) until wheel drum (1) does not turn freely or until heavy drag is noticed.
- (15) Apply and release brake pedal several times to position brake shoes.

NOTE

Step (16) requires the aid of an assistant.

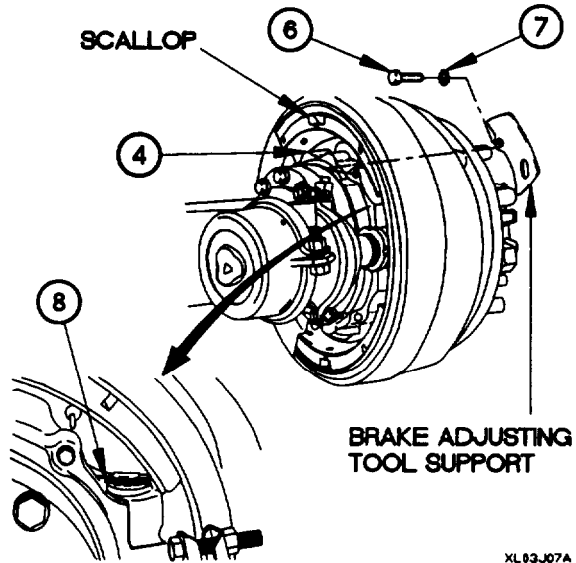
- (16) Readjust brake adjusting screw (8) while turning wheel drum (1) until heavy drag is noticed.

11-3. REAR BRAKE SHOES REPLACEMENT/ADJUSTMENT (CONT)

CAUTION

- Wheel drum clearance must be checked along centerline of brake shoe at scallop. Failure to comply may result in damage to equipment.
- All adjustments on any wheel should be within six clicks of one another. Record the number of clicks as adjusting screw is loosened. If not, repeat procedure or examine for damage. Failure to comply may result in damage to equipment.

- (17) Back-off adjusting screw (8) to obtain 0.020-0.040 in. (0.051-0.102 cm) clearance between brake shoe and wheel drum.
- (18) Remove screw (6), lockwasher (7), and brake adjusting tool support from spider (4). Discard lockwasher.
- (19) Install lockwasher (7) and screw (6) in spider (4).



XL 03 J07A

e. Follow-On Maintenance.

- (1) Install wheel and tire (TM 9-2320-365-10).
- (2) Start engine (TM 9-2320-365-10).
- (3) Road test truck and check for proper brake operation.
- (4) Shut down engine (TM 9-2320-365-10).

End of Task.

11-4. FRONT BRAKE PLUNGER ASSEMBLY REPLACEMENT/REPAIR

This task covers:

- | | |
|------------------------|--------------------------|
| a. Removal | d. Assembly |
| b. Disassembly | e. Installation |
| c. Cleaning/Inspection | f. Follow-On Maintenance |

INITIAL SETUP

Equipment Conditions

- Front brake shoes removed (para 11-2).
- Front brake air chamber removed (para 11-7).

Tools and Special Tools

- Goggles, Industrial (Item 15, Appendix C)
- Tool Kit, Genl Mech (Item 44, Appendix C)
- Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)
- Trestle, Motor Vehicle Maintenance (Item 45, Appendix C)
- Gloves, Rubber (Item 13, Appendix C)
- Brake Plunger Seal Driver (Item E-3, Appendix E)

Materials/Parts

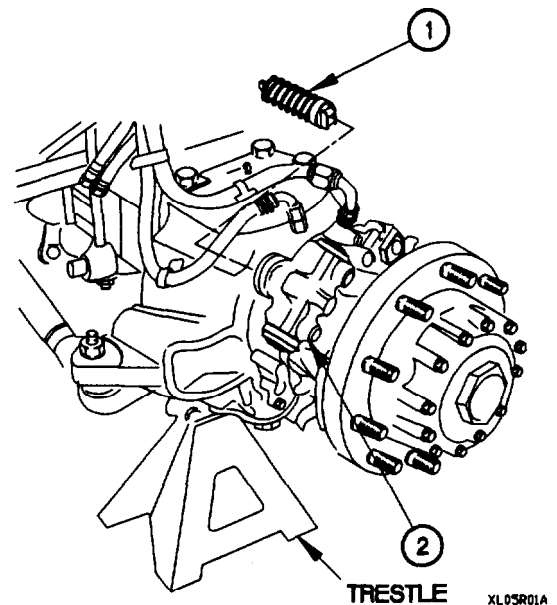
- Solvent, Dry Cleaning (Item 71, Appendix D)
- Grease, Automotive and Artillery (GAA) (Item 23, Appendix D)
- Rag, Wiping (Item 51, Appendix D)
- Lockwasher (4) (Item 108, Appendix G)

WARNING

Wear appropriate eye protection when working under vehicle due to the possibility of falling debris. Failure to comply may result in injury to personnel.

a. Removal.

- (1) Remove wedge assembly (1) from plunger housing (2).



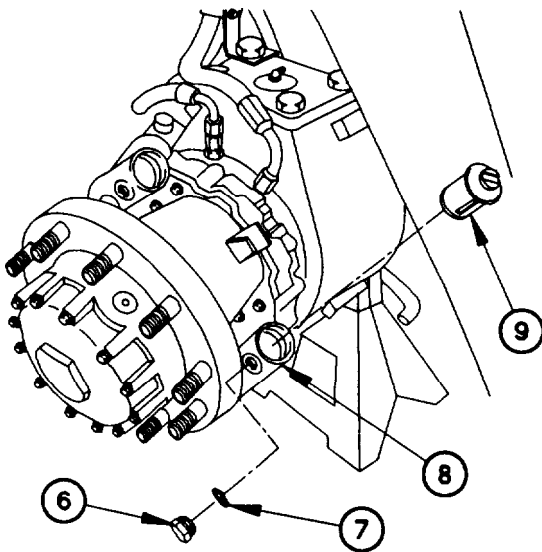
11-4. FRONT BRAKE PLUNGER ASSEMBLY REPLACEMENT/REPAIR (CONT)

- (2) Remove two adjusting pawl assemblies (3) and lockwashers (4) from plunger housing (2). Discard lockwashers.

NOTE

Note location of adjusting plunger assemblies prior to removal.

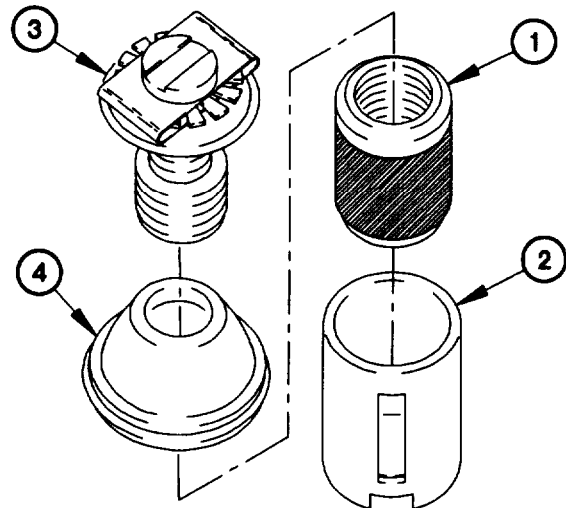
- (3) Remove two adjusting plunger assemblies (5) from plunger housing (2).



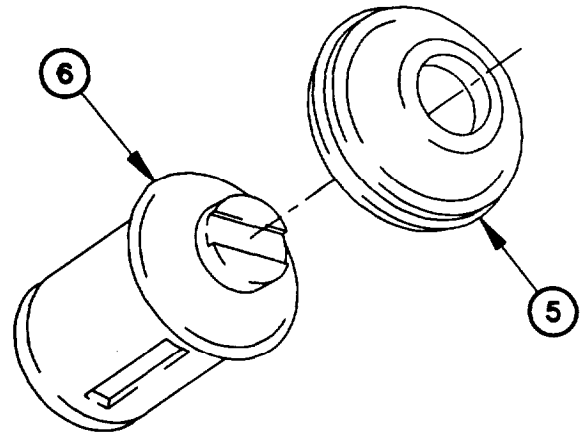
- (4) Remove two guide screws (6) and lockwashers (7) from plunger housing (8). Discard lockwashers.
- (5) Remove two anchor plungers (9) from plunger housing (8).

b. Disassembly.

- (1) Remove adjusting sleeve (1) from adjusting plunger (2).
- (2) Remove adjusting screw (3) from adjusting sleeve (1).
- (3) Remove seal (4) from adjusting screw (3).
- (4) Perform steps (1) through (3) on second adjusting plunger assembly.



- (5) Remove seal (5) from anchor plunger (6).
- (6) Perform step (5) on second anchor plunger.



XL05D02-

c. Cleaning/Inspection.

WARNING

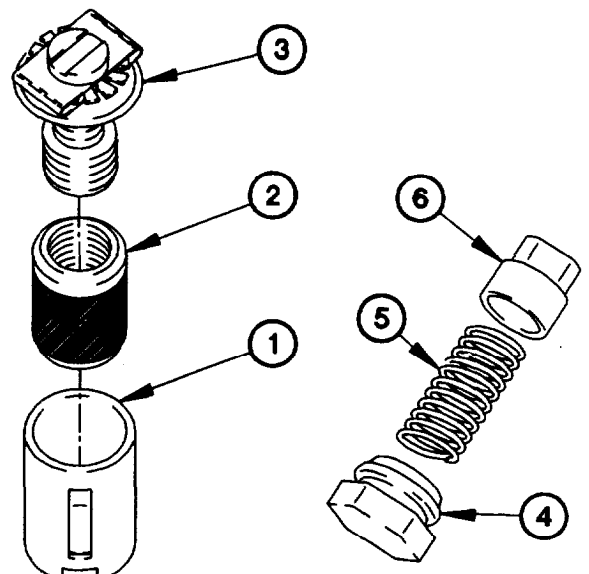
Dry Cleaning Solvent is toxic and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area. Avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent. The flashpoint for Type I Dry Cleaning Solvent is 100°F (38°C) and for Type II Dry Cleaning Solvent is 140°F (60°C) Failure to comply may result in serious injury or death to personnel.

- (1) Clean all metal parts thoroughly with dry cleaning solvent.

NOTE

Replace plungers, sleeves, screws, springs, and pawls as a unit.

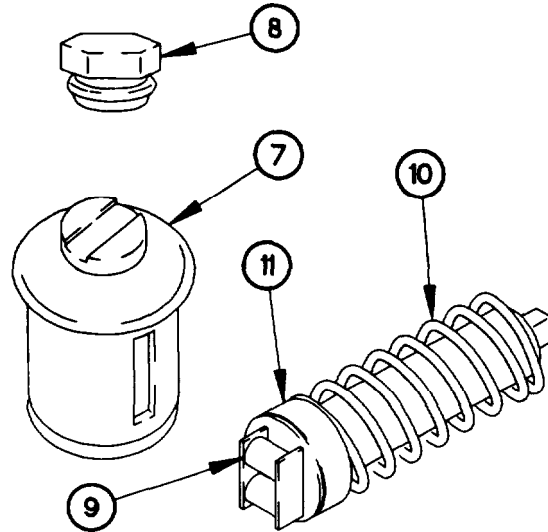
- (2) Inspect two adjusting plungers (1), adjusting sleeves (2), and adjusting screws (3) for damage.
- (3) Inspect two screws (4), springs (5), and adjusting pawls (6) for damage.



XLOSNOI-

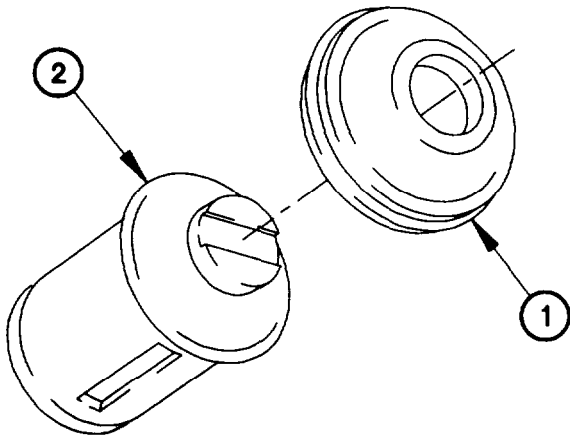
11-4. FRONT BRAKE PLUNGER ASSEMBLY REPLACEMENT/REPAIR (CONT)

- (4) Inspect two anchor plungers (7) and guide screws (8) for damage.
- (5) Inspect rollers (9) for freedom of movement and pitting or cracks.
- (6) Inspect spring (10) for cracks, distortion, or corrosion.
- (7) Inspect rubber (11) for cracks, breaks or damage.



XL05N02-

d. Assembly.



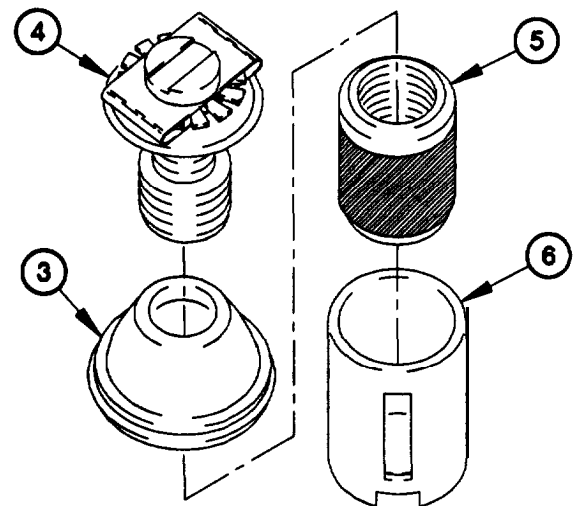
- (1) Apply grease to inside surfaces of seal (1).
- (2) Seat seal (1) on anchor plunger (2).
- (3) Perform steps (1) and (2) for second anchor plunger.

XL05A01-

- (4) Apply grease to inside surface of seal (3).
- (5) Seat seal (3) on adjusting screw (4).
- (6) Install adjusting screw (4) in adjusting sleeve (5).
Back off 1/4 turn.
- (7) Apply film of grease on adjusting sleeve (5).

CAUTION

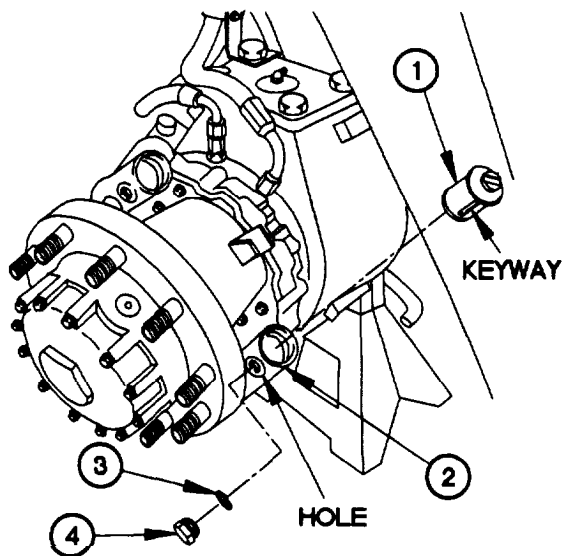
- Ensure adjusting sleeve is installed in adjusting plunger with large shouldered end up. Failure to comply will cause self-adjusting feature not to function.
- Adjusting sleeve must bottom on shoulder in adjusting plunger. If adjusting screw is threaded too far into adjusting sleeve, adjusting screw will bottom in adjusting plunger and automatic adjustment will not function.



XL05A02-

- (8) Install adjusting sleeve (5) in adjusting plunger (6).
- (9) Apply film of grease on adjusting plunger (6).
- (10) Perform steps (4) through (9) for other adjusting plunger assembly.

e. Installation.



XL05101-

NOTE

Align keyway in anchor plunger with hole in plunger housing.

- (1) Install anchor plunger (1) in plunger housing (2).
- (2) Position lockwasher (3) and guide screw (4) in plunger housing (2).
- (3) Tighten guide screw (4) to 15-25 lb-ft (20-34 N•m).
- (4) Perform steps (1) through (3) on second anchor plunger.

11-4. FRONT BRAKE PLUNGER ASSEMBLY REPLACEMENT/REPAIR (CONT)

NOTE

Align keyway in adjusting plunger with hole in plunger housing.

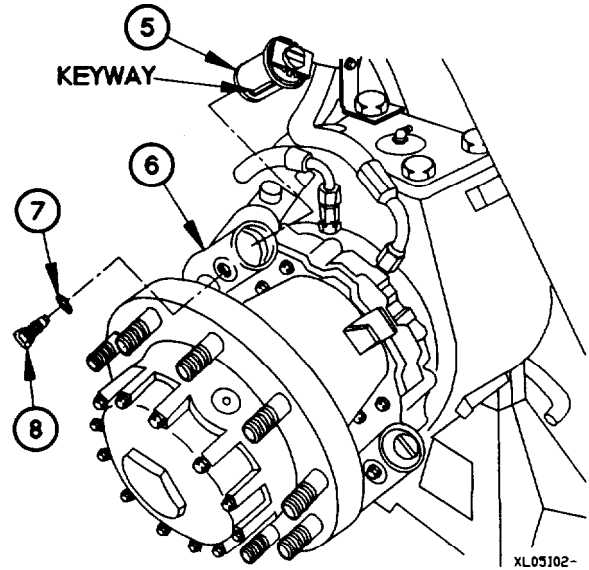
- (5) Install adjusting plunger (5) in plunger housing (6).

CAUTION

Ensure pawl enters adjusting plunger so that adjusting plunger slides freely in plunger housing. Failure to comply may result in damage to equipment.

Ensure grooves on pawl engages grooves on adjusting sleeve. Failure to comply may result in damage to equipment.

- (6) Position lockwasher (7) and adjusting pawl assembly (8) in plunger housing (6).
- (7) Tighten adjusting pawl assembly (8) to 15-25 lb-ft (20-34 N•m).

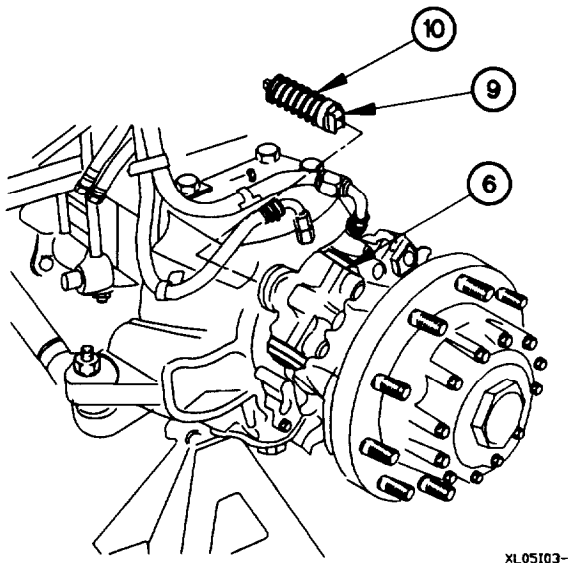


- (8) Perform steps (5) through (7) on second adjusting plunger assembly.
- (9) Apply grease on wedge rollers (9).

CAUTION

Ensure wedge rollers are aligned with slots in adjusting plungers. Firm pressure is required to fully seat wedge in adjusting plungers. Failure to fully seat wedge in adjusting plungers may result in damage to equipment.

- (10) Install wedge (10) in plunger housing (6).



f. Follow-On Maintenance.

- (1) Install front brake air chamber (para 11-7).
- (2) Install front brake shoes (para 11-2).

End of Task.

11-5. REAR BRAKE PLUNGER ASSEMBLY REPLACEMENT/REPAIR

This task covers:

- | | |
|------------------------|--------------------------|
| a. Removal | d. Assembly |
| b. Disassembly | e. Installation |
| c. Cleaning/Inspection | f. Follow-On Maintenance |

INITIAL SETUP**Equipment Conditions**

- Rear brake shoes removed (para 11-3).
- Rear brake air chamber removed (para 11-8).

Tools and Special Tools

- Trestle, Motor Vehicle Maintenance (Item 45, Appendix C)
- Goggles, Industrial (Item 15, Appendix C)
- Respirator, Air Filter (Item 29, Appendix C)
- Gloves, Rubber (Item 13, Appendix C)
- Tool Kit, Genl Mech (Item 44, Appendix C)

Tools and Special Tools (Cont)

- Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)
- Brake Plunger Seal Driver (Item E-3, Appendix E)

Materials/Parts

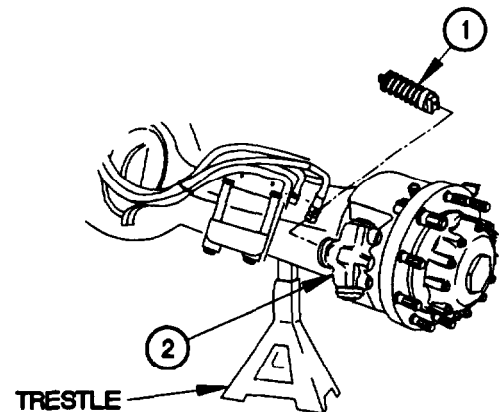
- Solvent, Dry Cleaning (Item 71, Appendix D)
- Grease, Automotive and Artillery (GAA) (Item 23, Appendix D)
- Lockwasher (4) (Item 108, Appendix G)

WARNING

Wear appropriate eye protection when working under vehicle due to the possibility of falling debris. Failure to comply may result in injury to personnel.

a. Removal.

- (1) Remove wedge assembly (1) from plunger housing
- (2).



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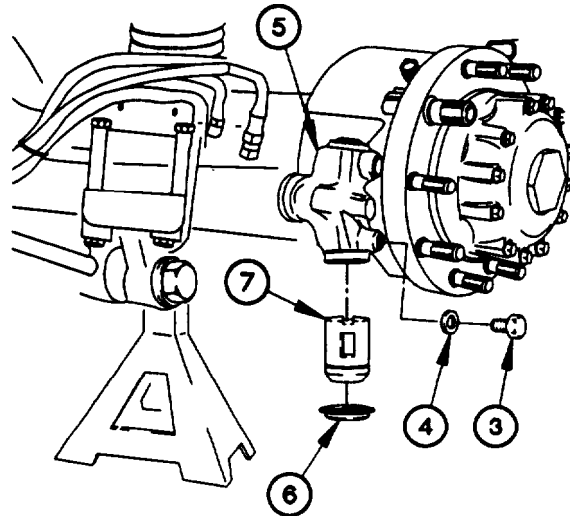
11-5. REAR BRAKE PLUNGER ASSEMBLY REPLACEMENT/REPAIR (CONT)

WARNING

Brake shoes may be covered with dust. Breathing this dust may be harmful to your health. Do not use compressed air to clean brake shoes. Wear a filter mask approved for use against brake dust. Failure to comply may result in injury to personnel.

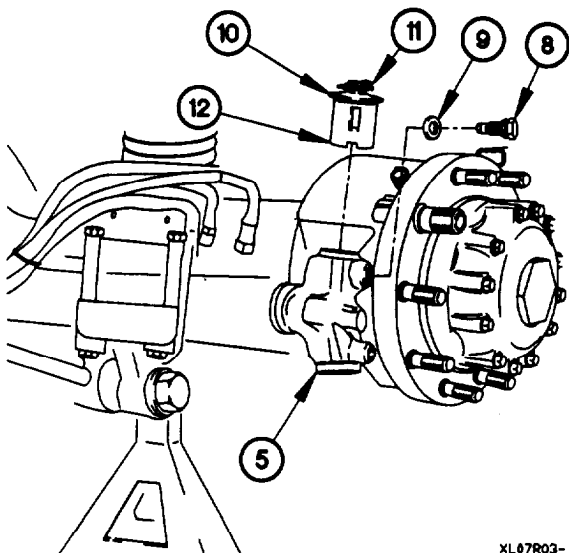
NOTE

- Identify anchor and adjusting plunger locations prior to disassembly.
- Anchor plungers and adjusting plungers are opposite each other in each plunger housing. The positions are reversed for opposite sides of the wheel. Perform the following procedure to disassemble both plunger assemblies.



XL07R02-

- (2) Remove guide screw (3) and lockwasher (4) from plunger housing (5). Discard lockwasher.
- (3) Remove seal (6) and anchor plunger (7) from plunger housing (5).

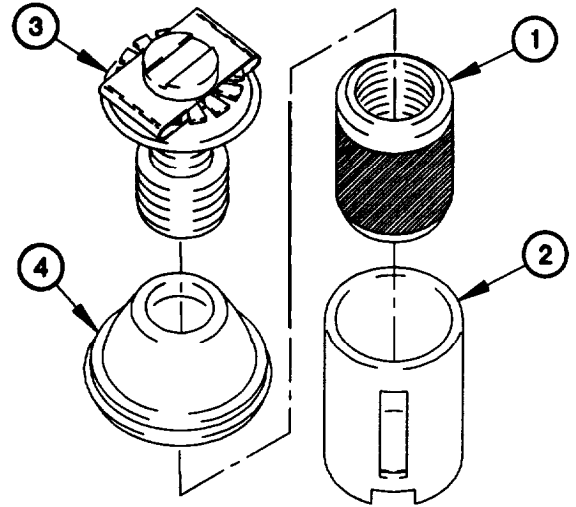


XL07R03-

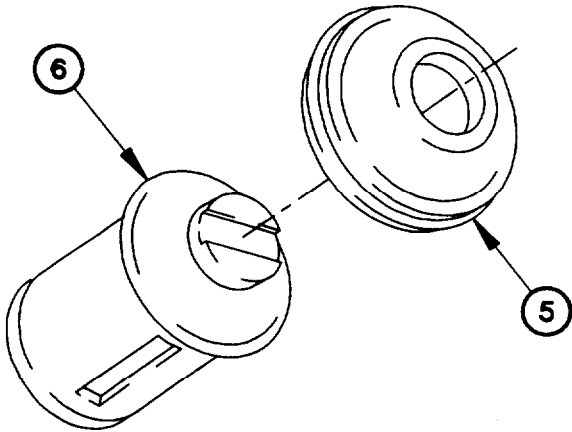
- (4) Remove adjusting pawl assembly (8) and lockwasher (9) from plunger housing (5). Discard lockwasher.
- (5) Remove seal (10), adjusting screw (11), and adjusting plunger (12) from plunger housing (5).

b. Disassembly.

- (1) Remove adjusting sleeve (1) from adjusting plunger (2).
- (2) Remove adjusting screw (3) from adjusting sleeve (1).
- (3) Remove seal (4) from adjusting screw (3).



XL05D01-



- (4) Remove seal (5) from anchor plunger (6).

XL05D02-

11-5. REAR BRAKE PLUNGER ASSEMBLY REPLACEMENT/REPAIR (CONT)

c. Cleaning/Inspection.

WARNING

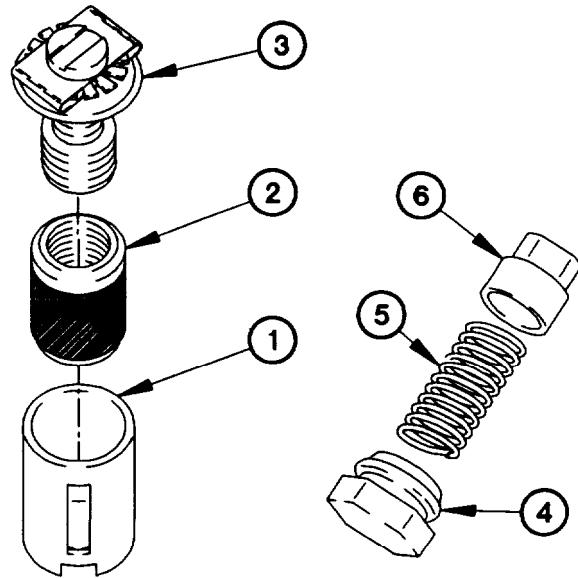
Dry Cleaning Solvent is toxic and flammable. Wear protective goggles, face shield, and gloves; use only in a well-ventilated area. Avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent. The flashpoint for Type I Dry Cleaning Solvent is 100°F (38°C) and for Type II Dry Cleaning Solvent is 140°F (60°C). Failure to comply may result in serious injury or death to personnel.

- (1) Clean all metal parts thoroughly with dry cleaning solvent.

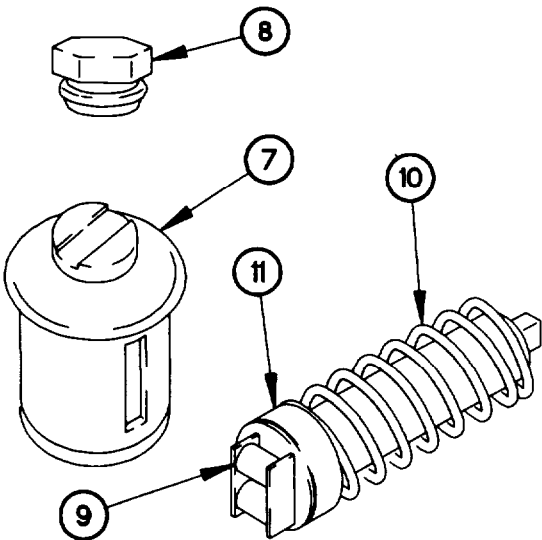
NOTE

Replace plungers, sleeves, screws, springs, and pawls as a unit.

- (2) Inspect adjusting plunger (1), adjusting sleeve (2), and adjusting screw (3) for damage.
- (3) Inspect screw (4), spring (5), and adjusting pawl (6) for damage.



XL05N01-

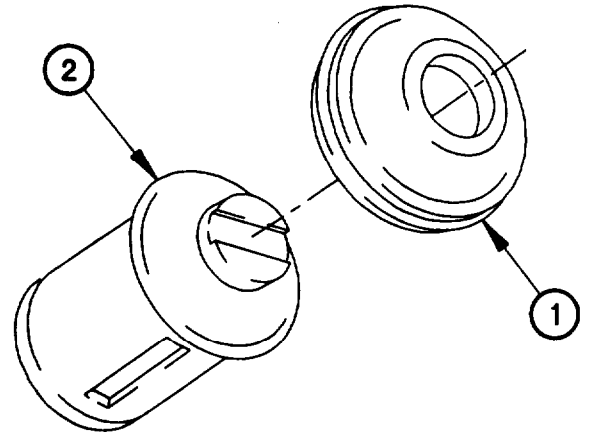


XL05N02-

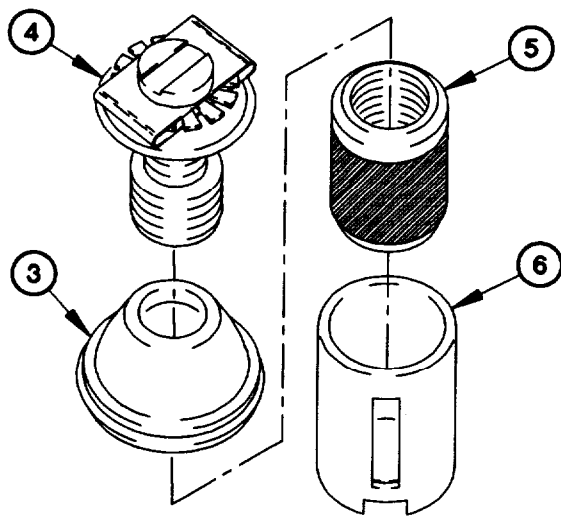
- (4) Inspect anchor plunger (7) and guide screw (8) for damage.
- (5) Inspect rollers (9) for freedom of movement, and pitting or cracks.
- (6) Inspect spring (10) for cracks, distortion, or corrosion.
- (7) Inspect rubber (11) for deterioration or damage.

d. Assembly.

- (1) Apply grease to inside surfaces of seal (1).
- (2) Position and seat seal (1) on anchor plunger (2).



XL05A01-



XL05A02-

- (3) Apply grease to inside surface of seal (3).
- (4) Position and seat seal (3) on adjusting screw (4).
- (5) Install adjusting screw (4) in adjusting sleeve (5) until snug. Back off 1/4 turn.
- (6) Apply film of grease on adjusting sleeve (5).

CAUTION

Ensure adjusting sleeve is installed in adjusting plunger with large shouldered end up. Failure to comply will cause self-adjusting feature not to function.

- (7) Position adjusting sleeve (5) in adjusting plunger (6).
- (8) Apply film of grease on adjusting plunger (6).

11-5. REAR BRAKE PLUNGER ASSEMBLY REPLACEMENT/REPAIR (CONT)

e. Installation.

CAUTION

Adjusting sleeve must bottom on the shoulder inside the plunger. Threading adjusting screw too far into adjusting sleeve will cause automatic adjuster not to function.

NOTE

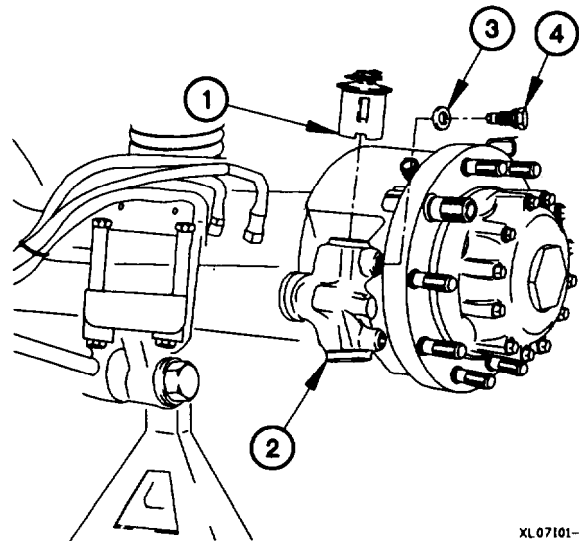
Install plungers in same location as removed and align keyways in anchor/adjusting plungers with hole in plunger housings.

- (1) Install adjusting plunger assembly (1) in plunger housing (2).

NOTE

Make certain grooves in pawl assembly end engage in adjusting sleeve grooves.

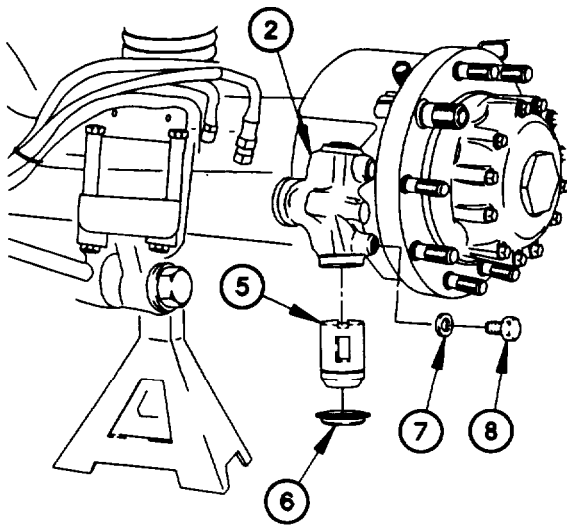
- (2) Position lockwasher (3) and pawl assembly (4) in plunger housing (2).
- (3) Tighten pawl assembly (4) to 15-25 lb-ft (20-34 N•m).



XL07101-

NOTE

- One anchor (solid) and one adjusting plunger must be installed in each plunger housing.
- Install anchor plunger marked "L" in left plunger housing. Install anchor plunger marked "R" in right plunger housing.



XL07102-

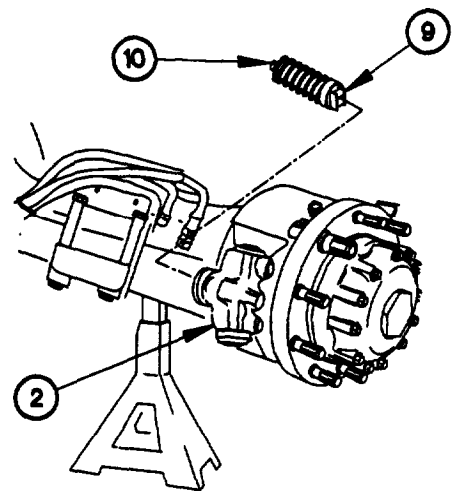
- (4) Apply film of grease on anchor plunger (5).
- (5) Install and seat seal (6) and anchor plunger (5) in plunger housing (2).
- (6) Position lockwasher (7) and guide screw (8) in plunger housing (2).
- (7) Tighten guide screw (8) to 15-25 lb-ft (20-34 N•m).

- (8) Apply grease to rollers (9) on wedge assembly (10).

CAUTION

Ensure wedge rollers are aligned with slots in adjusting plunger and anchor plunger. Firm pressure is required to fully seat wedge in plungers. Failure to fully seat wedge in plungers may result in damage to equipment.

- (9) Install wedge assembly (10) in back of plunger housing (2).



3L_07103-

f. Follow-On Maintenance.

- (1) Install rear brake air chamber (para 11-8).
- (2) Install rear brake shoes (para 11-3).

End of Task.

11-6. REAR SPRING BRAKE CAGING

This task covers:

- a. Caging
- b. Uncaging

INITIAL SETUP

Equipment Conditions

Engine shut down (TM 9-2320-365-10).

Tools and Special Tools

Goggles, Industrial (Item 15, Appendix C)
Tool Kit, Genl Mech (Item 44, Appendix C)
Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)
Socket, Socket Wrench (Item 38, Appendix C)



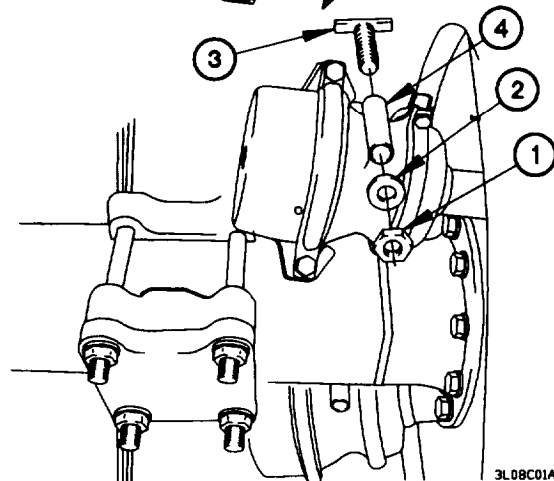
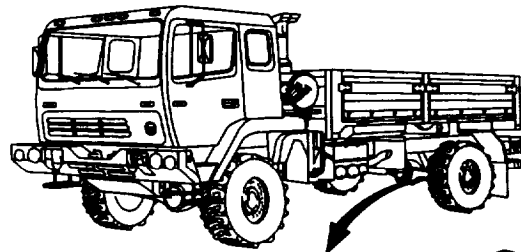
Wear appropriate eye protection when working under vehicle due to the possibility of falling debris. Failure to comply may result in injury to personnel.

a. Caging.

NOTE

To cage brakes, apply caging procedure to both top and bottom spring brake chambers.

- (1) Remove nut (1) and washer (2) from caging bolt (3).
- (2) Remove caging bolt (3) from caging bolt holder (4).

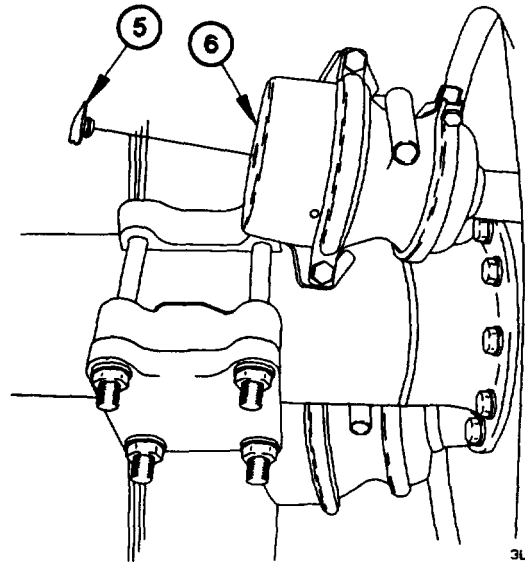


3L08C01A

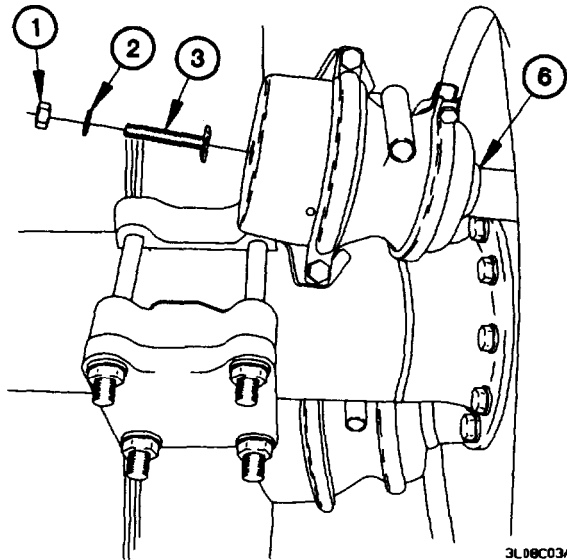
NOTE

Save rubber cap for use after uncaging operation to seal spring brake chamber.

- (3) Remove rubber cap (5) from spring brake chamber (6).



3L08C02A

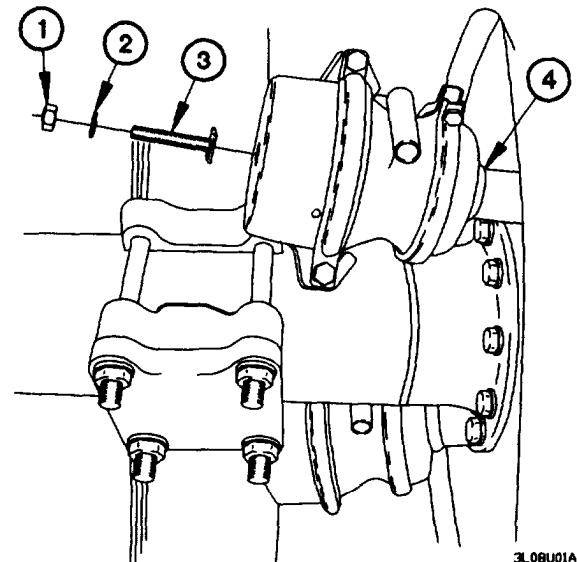


3L08C03A

- (4) Insert T-end of caging bolt (3) in back of spring brake chamber (6).
- (5) Lock caging bolt (3) in place by turning caging bolt to the right 1/4 turn.
- (6) Install washer (2) and nut (1) on caging bolt (3).

b. Uncaging.

- (1) Remove nut (1) and washer (2) from caging bolt (3).
- (2) Remove caging bolt (3) by turning to the left 1/4 turn.
- (3) Remove caging bolt (3) from spring brake chamber (4).

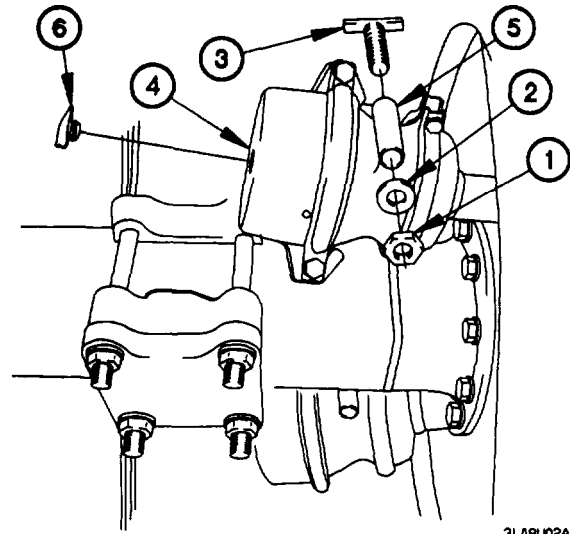


3L08U01A

11-6. REAR SPRING BRAKE CAGING (CONT)

- (4) Install caging bolt (3) in caging bolt holder (5).
- (5) Position washer (2) and nut (1) on caging bolt (3).
- (6) Tighten nut (1) to 50 lb-ft (68 N•m).
- (7) Install rubber cap (6) on spring brake chamber (4).

End of Task.



11-7. FRONT BRAKE AIR CHAMBER REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Engine shut down (TM 9-2320-365-10).

Tools and Special Tools

Tool Kit, Genl Mech (Item 44, Appendix C)
Wrench, Pipe (Item 55, Appendix C)
Trestle, Motor Vehicle Maintenance (Item 45, Appendix C)
Goggles, Industrial (Item 15, Appendix C)
Respirator, Air Filter (Item 29, Appendix C)

Materials/Parts

Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)
Antiseize Compound (Item 14, Appendix D)
Ties, Cable, Plastic (Item 76, Appendix D)

Personnel Required

(2)

a. Removal.

WARNING

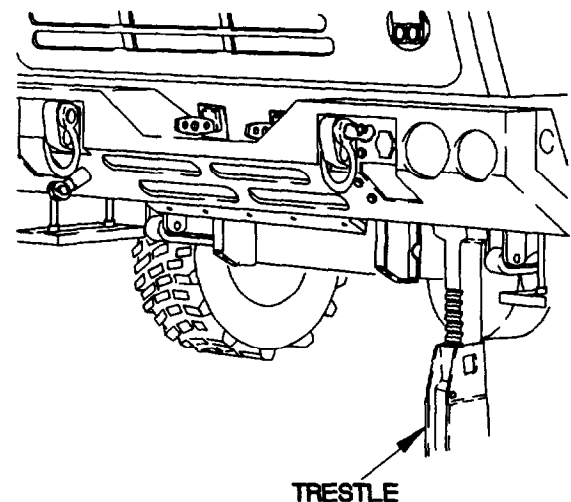
Wear appropriate eye protection when working under vehicle due to the possibility of falling debris. Failure to comply may result in injury to personnel.

CAUTION

Use caution not to pinch left side air hoses when positioning trestles. Failure to comply may result in damage to equipment.

NOTE

Left and right front brake air chambers are removed the same way. Left side shown.



XL04R01A

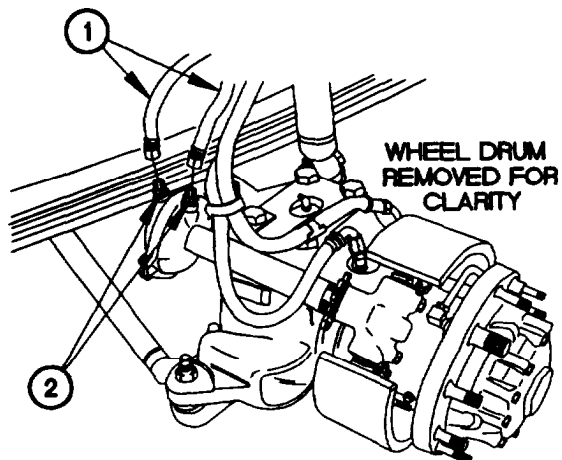
- (1) Position front of vehicle on trestle so wheel is off ground.
- (2) Remove left front wheel from vehicle (TM 9-2320-365-10).

11-7. FRONT BRAKE AIR CHAMBER REPLACEMENT (CONT)

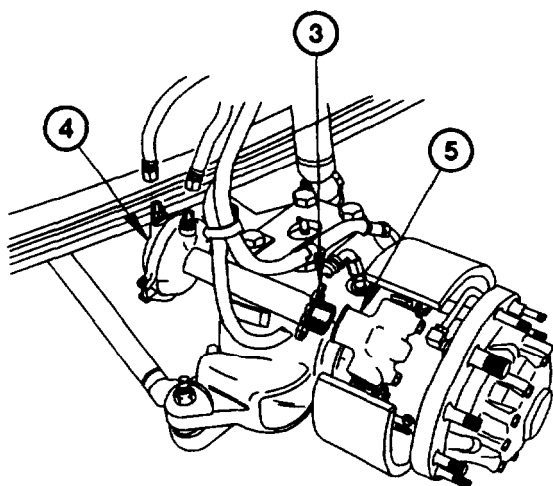
NOTE

- Tag air hoses and connection points prior to disconnecting.
- Remove plastic cable ties as required.

(3) Disconnect two air hoses (1) from fittings (2).



XL04R02A

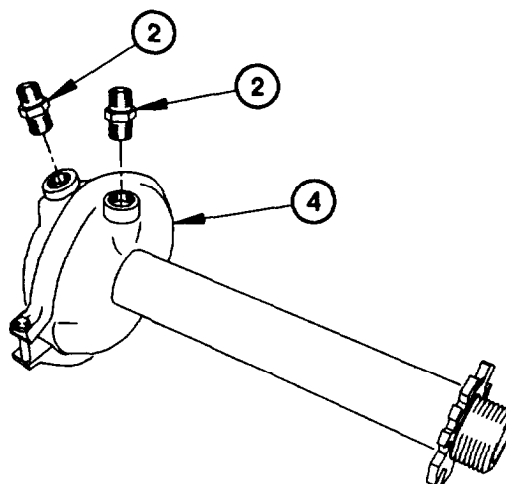


XL04R03A

(4) Loosen collet nut (3) on air chamber (4).

(5) Remove air chamber (4) from plunger housing (5).

(6) Remove two fittings (2) from air chamber (4).



XL04R04A

b. Installation.

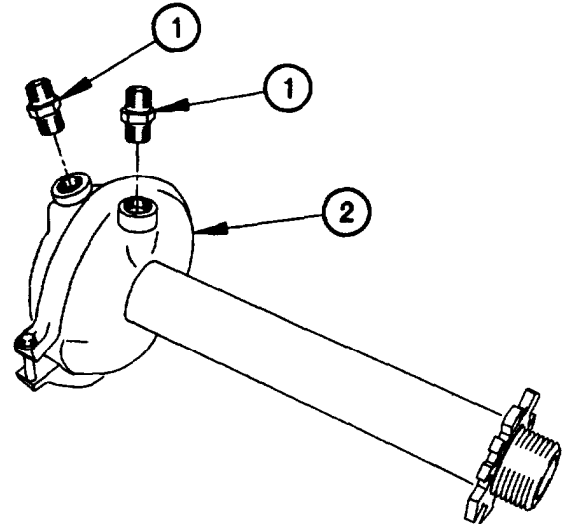
WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.

NOTE

Left and right front brake air chambers are installed the same way. Left side shown.

- (1) Apply antiseize compound to threads of two fittings (1).
- (2) Install two fittings (1) in air chamber (2).
- (3) Apply antiseize compound to threads of air chamber (2).



XL04101-

CAUTION

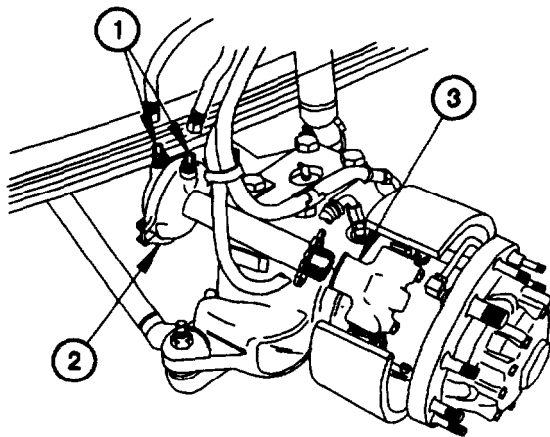
Ensure air chamber is installed with fittings positioned up. Failure to comply may result in damage to equipment.

- (4) Install air chamber (2) in plunger housing (3) until it bottoms.

CAUTION

Air chamber must not be loosened no more than one full turn. Failure to comply may result in damage to equipment.

- (5) Loosen air chamber (2) until fittings (1) are up.



XL04102-

11-7. FRONT BRAKE AIR CHAMBER REPLACEMENT (CONT)

NOTE

Install plastic cable ties as required.

- (6) Connect two air hoses (4) to fittings (1).

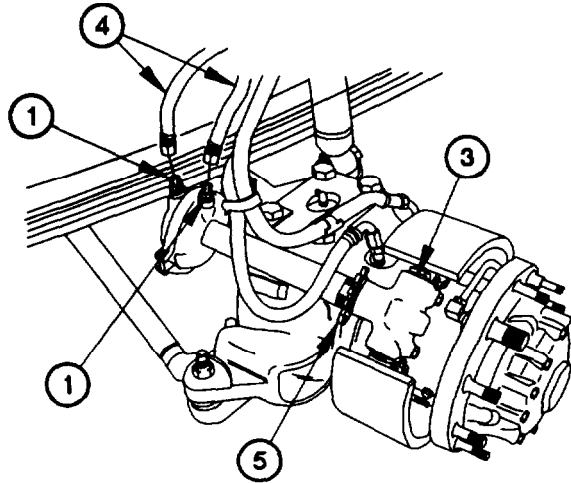
CAUTION

Brake pedal must be fully applied before and during tightening of collet nut. Failure to comply may result in damage to equipment.

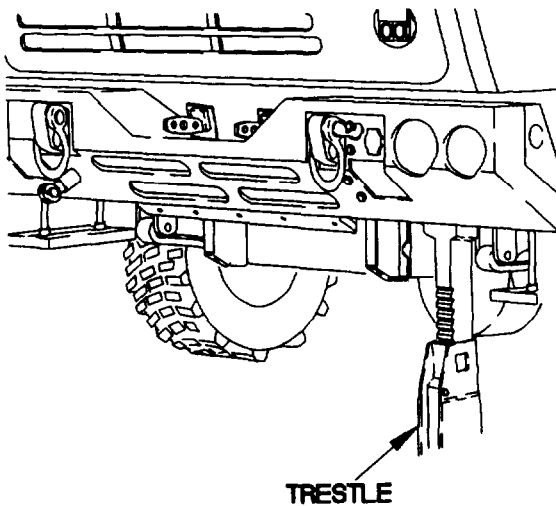
NOTE

Steps (7) through (9) require the aid of an assistant.

- (7) Apply brake pedal and continue holding until steps (8) and (9) are accomplished.
- (8) Hand tighten collet nut (5) against plunger housing (3).
- (9) Tighten collet nut (4) 3/16 turn (1/2 teeth).



XL04103-



XL04104A

- (10) Install left front wheel on vehicle (TM 9-2320-365-10).
- (11) Remove trestle from front of vehicle.

c. Follow-On Maintenance.

- (1) Start engine (TM 9-2320-365-10).
- (2) Check for air leaks around air chamber and fittings.
- (3) Road test truck and check for proper brake operation.
- (4) Shut down engine (TM 9-2320-365-10).

End of Task.

11-8. REAR BRAKE AIR CHAMBER REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

- Engine shut down (TM 9-2320-365-10).
- Rear wheel and tire removed (TM 9-2320-365-10).
- Rear spring brakes caged (para 11-8).

Materials/Parts

- Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)
- Sealing Compound (Item 63, Appendix D)

Tools and Special Tools

- Goggles, Industrial (Item 15, Appendix C)
- Tool Kit, Genl Mech (Item 44, Appendix C)
- Wrench, Pipe (Item 54, Appendix C)

WARNING

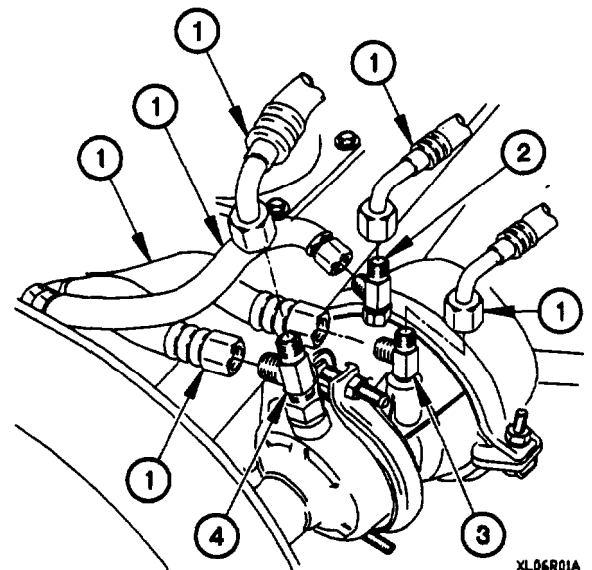
- Wear appropriate eye protection when working under vehicle due to the possibility of falling debris. Failure to comply may result in injury to personnel.
- Ensure air chamber is caged prior to installation. Failure to comply may result in injury to personnel.

a. Removal.

NOTE

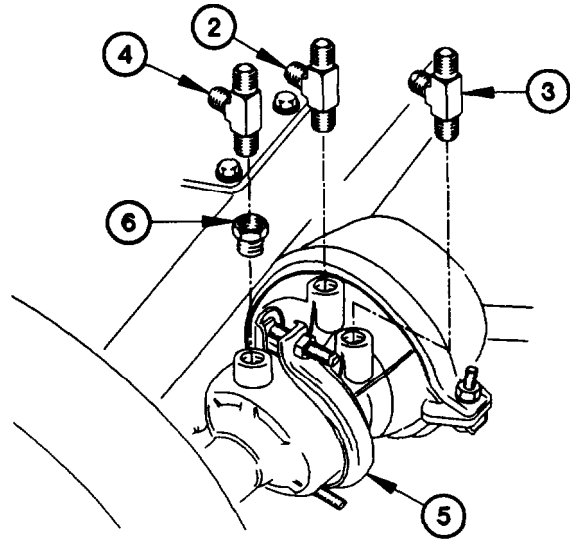
Tag air hoses and connection points prior to removal.

- (1) Disconnect six air hoses (1) from tee fittings (2, 3, and 4).

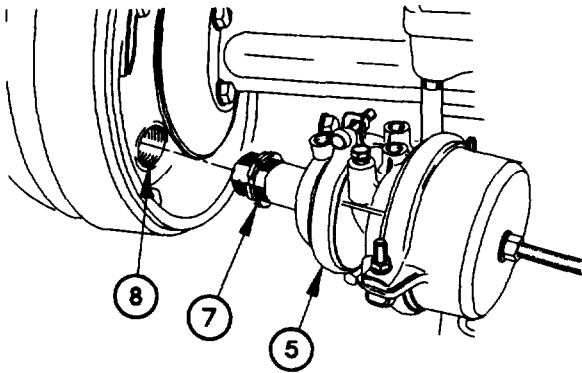


11-8. REAR BRAKE AIR CHAMBER REPLACEMENT (CONT)

- (2) Remove tee fittings (2 and 3) from rear air chamber (5).
- (3) Remove tee fitting (4) from adapter (6).
- (4) Remove adapter (6) from rear air chamber (5).



XL06R02A



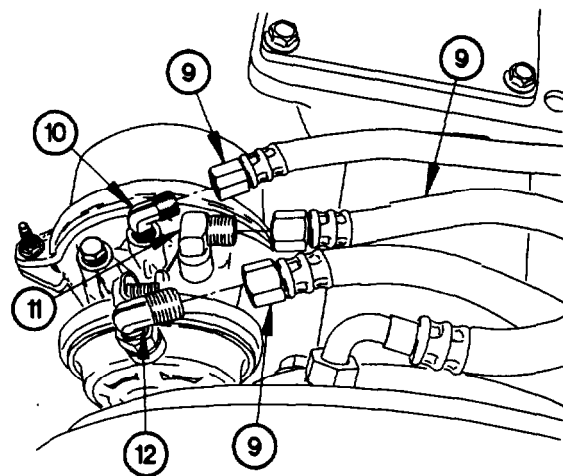
3L06R04A

- (5) Loosen collet nut (7) on rear air chamber (5).
- (6) Remove rear air chamber (5) from plunger housing (8).

NOTE

Tag air hoses and connection points prior to disconnecting.

- (7) Remove three air hoses (9) from 90-degree fittings (10, 11, and 12).

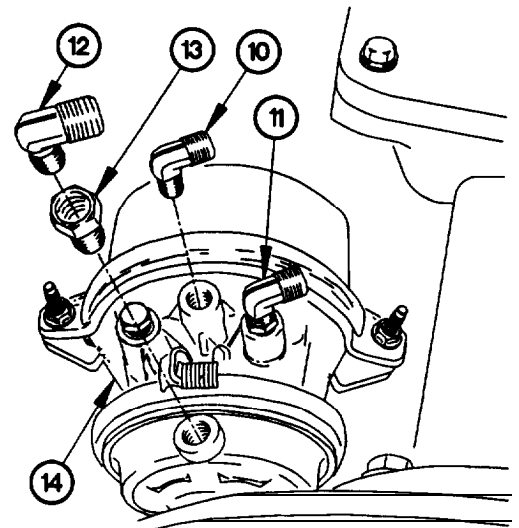


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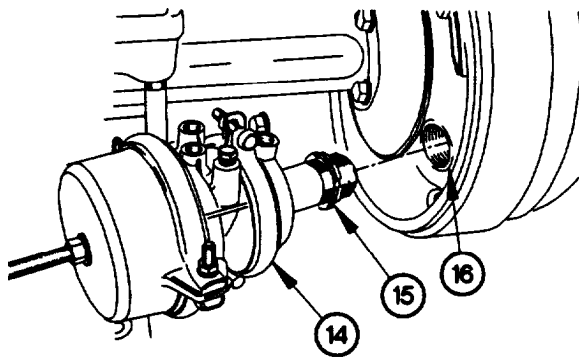
NOTE

Note orientation of fittings prior to removal.

- (8) Remove 90-degree fitting (12) from adapter (13).
- (9) Remove adapter (13) from front sir chamber (14).
- (10) Remove 90-degree fittings (10 and 11) from front air chamber (14).



3L06R06A



3L06R08A

- (11) Loosen collet nut (15) on front air chamber (14).
- (12) Remove front air chamber (14) from plunger housing (16).

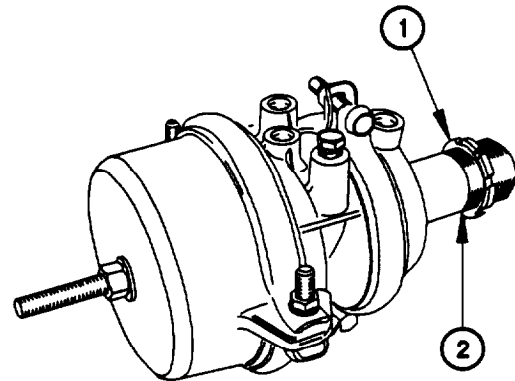
11-8. REAR BRAKE AIR CHAMBER REPLACEMENT (CONT)

b. Installation.

- (1) Install collet nut (1) on front air chamber (2) to bottom of threads.

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.



- (2) Apply antiseize compound to threads of front air chamber (2).

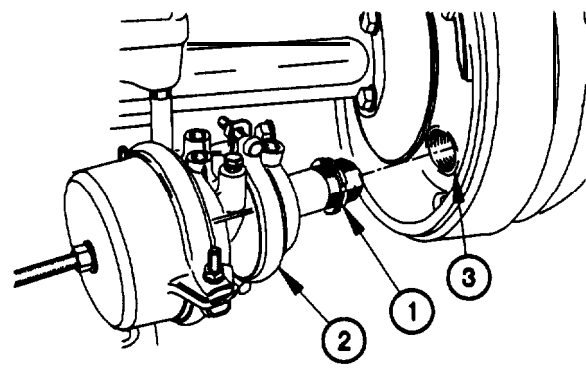
XL06101-

WARNING

Ensure front air chamber is caged prior to installation. Failure to comply may result in injury to personnel.

CAUTION

Ensure front air chamber is installed with fitting ports positioned up. Failure to comply may result in damage to equipment.



XL06102A

- (3) Install front air chamber (2) in plunger housing (3) until it bottoms.

CAUTION

Loosen front air chamber no more than one full turn. Failure to comply may result in damage to equipment.

- (4) Loosen front air chamber (2) until fitting ports are up.
- (5) Tighten collet nut (1) against plunger housing (3).

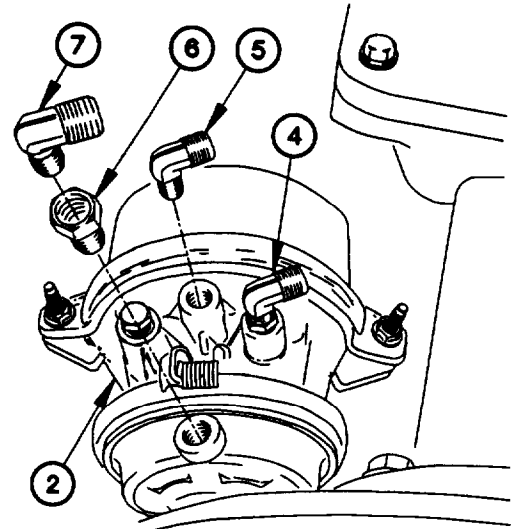
WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.

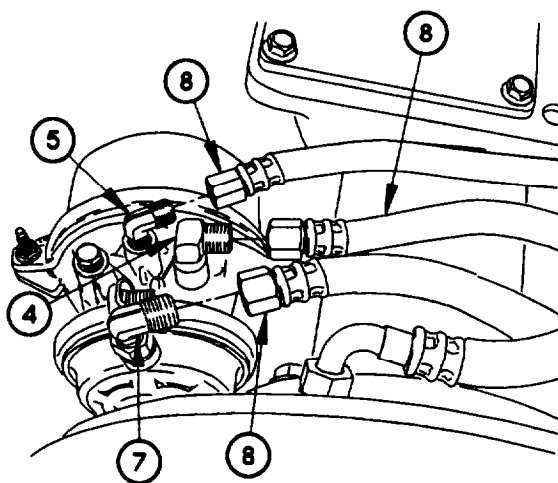
NOTE

Clean fittings and front air chamber of all sealing compound residue prior to installation.

- (6) Apply sealing compound to threads of 90-degree fittings (4 and 5).
- (7) Install 90-degree fittings (4 and 5) in front air chamber (2).
- (8) Apply sealing compound to threads of adapter (6).
- (9) Install adapter (6) in front air chamber (2).
- (10) Apply sealing compound to threads of 90-degree fitting (7).
- (11) Install 90-degree fitting (7) in adapter (6).



3L06104A



3L06105A

- (12) Connect three air hoses (8) to 90-degree fittings (4, 5, and 7).

11-8. REAR BRAKE AIR CHAMBER REPLACEMENT (CONT)

- (13) Install collet nut (9) on rear air chamber (10) to bottom of threads.

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.

- (14) Apply sealing compound to threads of rear air chamber (10).

WARNING

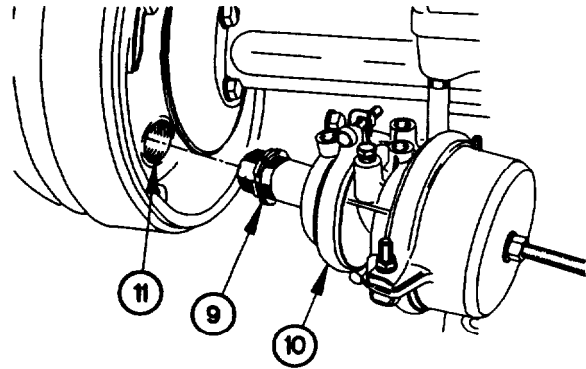
Ensure rear air chamber is caged prior to installation. Failure to comply may result in injury to personnel.

- (15) Install rear air chamber (10) in plunger housing (11) until it bottoms.

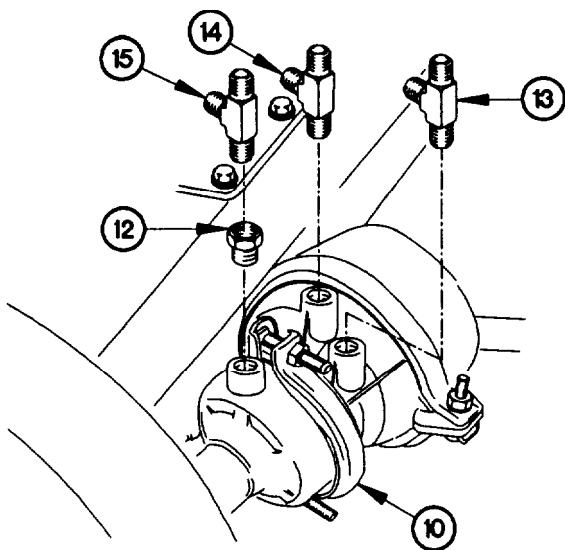
CAUTION

Loosen rear air chamber no more than one full turn. Failure to comply may result in damage to equipment.

- (16) Tighten collet nut (9) against plunger housing (11).



3L06106A



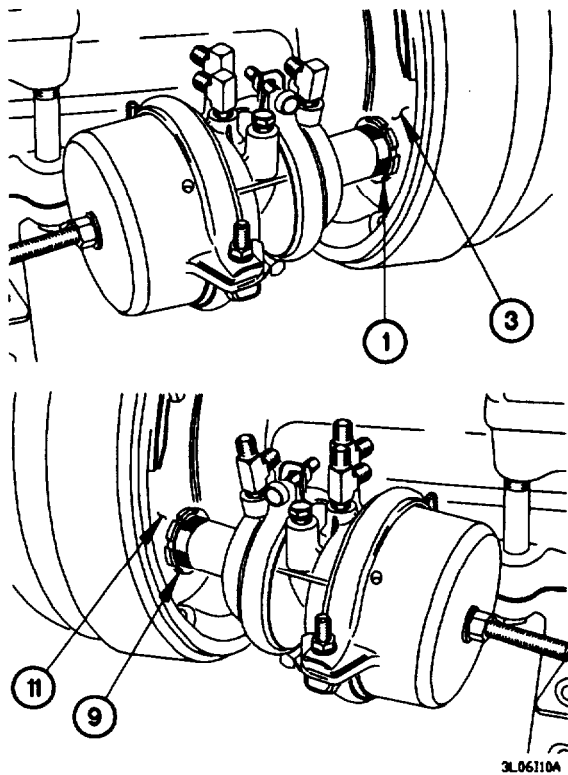
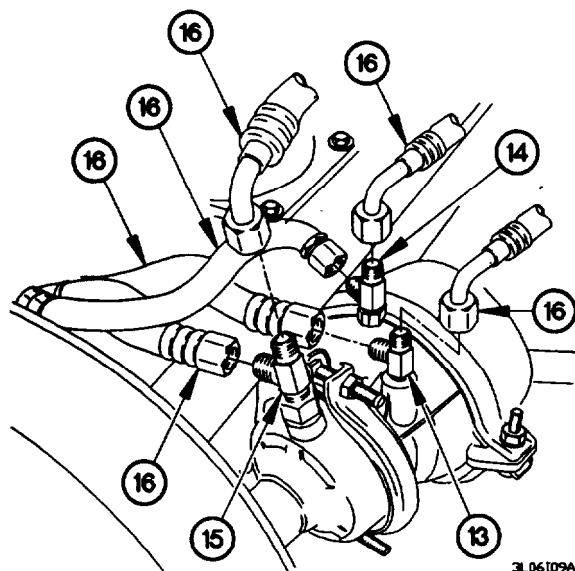
3L06106A

NOTE

Clean fittings and rear air chamber of all sealing compound residue prior to installation.

- (17) Apply sealing compound to threads of adapter (12).
(18) Install adapter (12) in rear air chamber (10).
(19) Apply sealing compound to tee fittings (13, 14, and 15).
(20) Install tee fittings (13 and 14) in rear air chamber (10).
(21) Install tee fitting (15) in adapter (12).

(22) Connect six air hoses (16) to tee fittings (13, 14 and 15).



CAUTION

Apply full brake pedal before and during tightening of collet nut. Failure to comply may result in damage to equipment.

NOTE

Steps (23) through (25) require the aid of an assistant.

- (23) Apply brake pedal and continue holding until steps (24) and (25) are accomplished.
- (24) Hand tighten collet nuts (1 and 9) against plunger housings (3 and 11).
- (25) Tighten collet nuts (1 and 9) 3/16 turn (1 1/2 teeth).

11-8. REAR BRAKE AIR CHAMBER REPLACEMENT (CONT)
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c. Follow-On Maintenance.

- (1) Install rear wheel and tire (TM 9-2320-365-10).
- (2) Uncage spring brakes (para 11-6).
- (3) Start engine (TM 9-2320-365-10).
- (4) Check for air leaks around air chamber and fittings.
- (5) Road test vehicle and check for proper brake operation.
- (6) Shut down engine (TM 9-2320-365-10).

End of Task.

11-9. FOOT CONTROL VALVE AND BRAKE FOOT PEDAL REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP**Equipment Conditions**

Air tanks drained (TM 9-2320-365-10).
Instrument panel assembly removed for access (para 7-15).

Tools and Special Tools

Tool Kit, Genl Mech (Item 44, Appendix C)
Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)

Material/Parts

Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)
Antiseize Compound (Item 14, Appendix D)
Lockwasher (4) (Item 90, Appendix G)
Nut, Self-Locking (8) (Item 147, Appendix G)
Pin, Cotter (Item 203, Appendix G)
Ties, Cable, Plastic (Item 76, Appendix D)

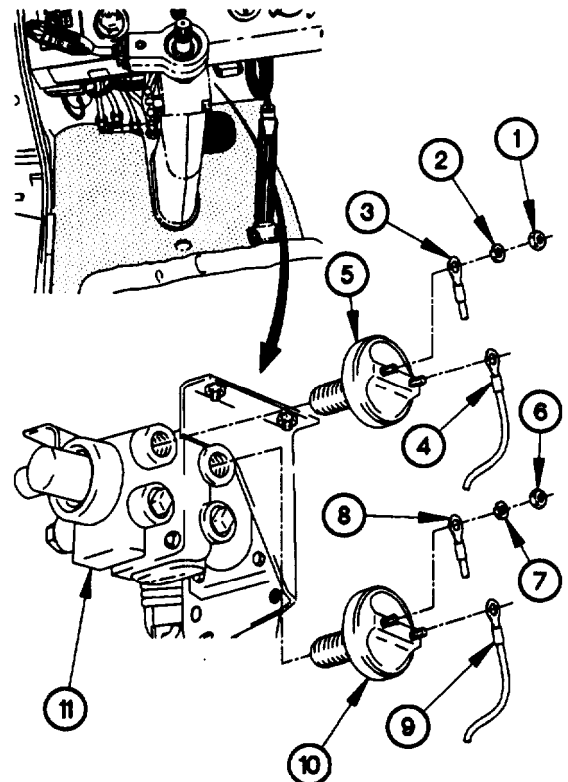
Personnel Required

(2)

a. Removal.**NOTE**

Tag terminal lugs and connection points prior to removal.

- (1) Remove two nuts (1), lockwashers (2), and terminal lugs TL152 (3), and TL153 (4) from rear stoplight switch (5). Discard lockwashers.
- (2) Remove two nuts (6), lockwashers (7), and terminal lugs TL154 (8), and TL155 (9) from front stoplight switch (10). Discard lockwashers.
- (3) Remove stoplight switches (5 and 10) from foot control valve (11).



XL09R01A

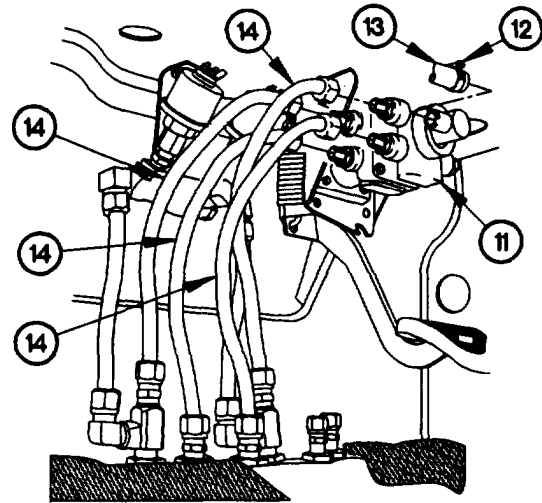
11-9. FOOT CONTROL VALVE AND BRAKE FOOT PEDAL REPLACEMENT (CONT)

- (4) Loosen clamp (12) on exhaust hose (13).
- (5) Disconnect exhaust hose (13) from foot control valve (11).

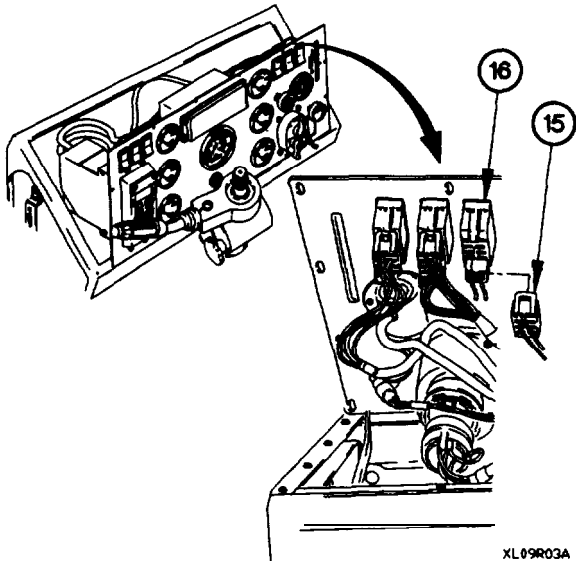
NOTE

- Tag air hoses and connection points prior to disconnecting.
- Remove plastic cable ties as required.

- (6) Disconnect four air hoses (14) from foot control valve (11).



XL09R02A



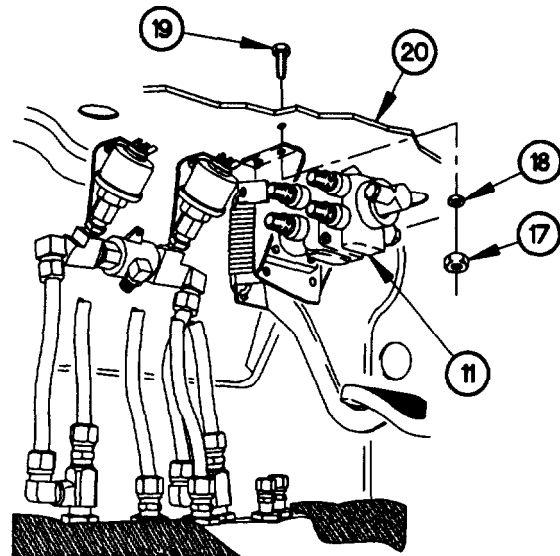
XL09R03A

- (7) Disconnect connector PX17 (15) from master power switch (16).

NOTE

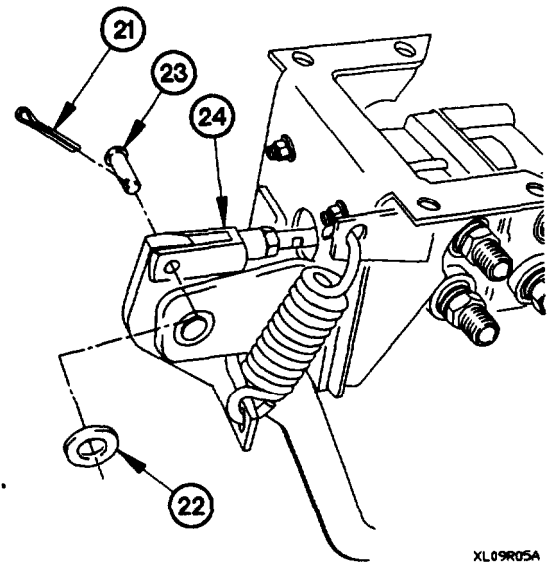
Step (8) requires the aid of an assistant.

- (8) Remove four self-locking nuts (17), washers (18), and screws (19) from foot control valve (11). Discard self-locking nuts.
- (9) Remove foot control valve (11) from dashboard (20).

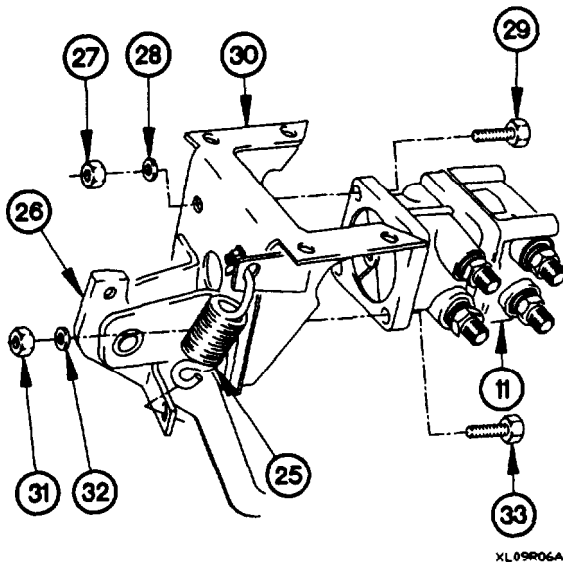


XL09R04A

- (10) Remove cotter pin (21), washer (22), and pin (23) from foot control linkage (24). Discard cotter pin.



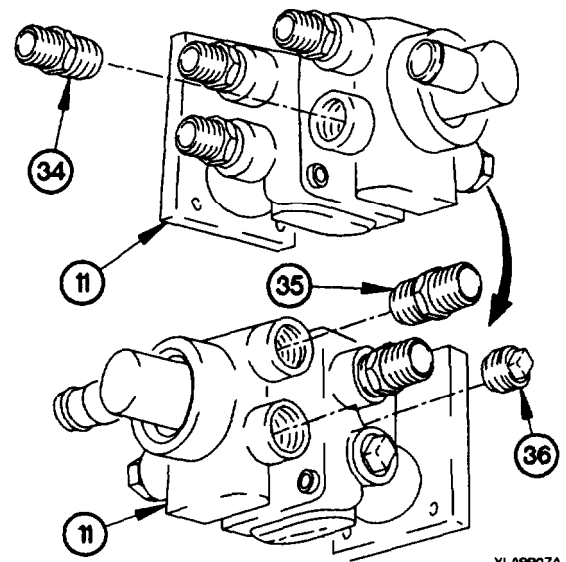
XL09R05A



XL09R06A

- (11) Remove spring (25) from brake foot pedal (26).
- (12) Remove two self-locking nuts (27), washers (28), and screws (29) from bracket (30). Discard self-locking nuts.
- (13) Remove two self-locking nuts (31), washers (32), screws (33), foot control valve (11), and brake foot pedal (26) from bracket (30). Discard self-locking nuts.

- (14) Remove four adapters (34) from foot control valve (11).
- (15) Remove two adapters (35) from foot control valve (11).
- (16) Remove two plugs (36) from foot control valve (11).



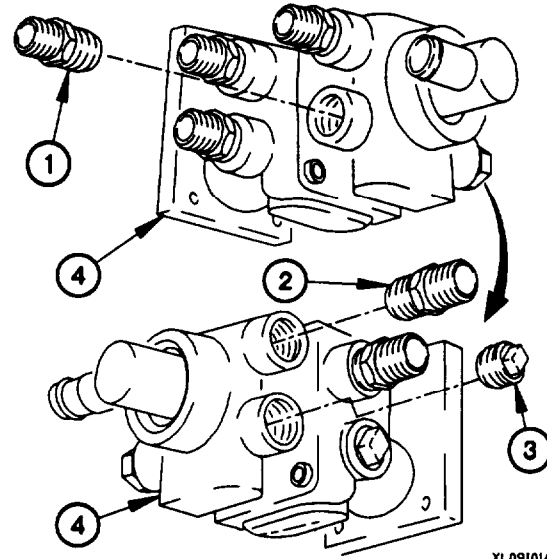
XL09R07A

11-9. FOOT CONTROL VALVE AND BRAKE FOOT PEDAL REPLACEMENT (CONT)

b. Installation.

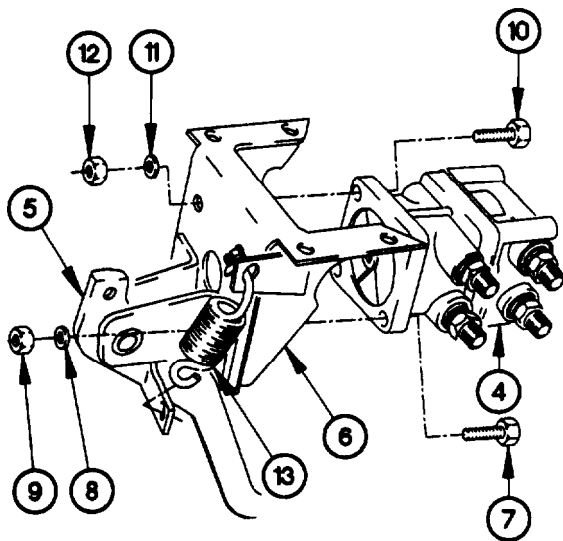
WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.



XL09101A

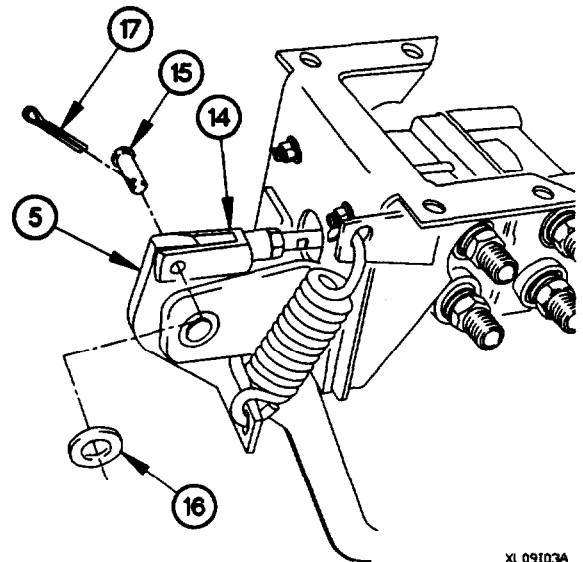
- (1) Apply antiseize compound to threads of four adapters (1), two adapters (2), and plugs (3).
- (2) Install four adapters (1) in foot control valve (4).
- (3) Install two adapters (2) in foot control valve (4).
- (4) Install two plugs (3) in foot control valve (4).



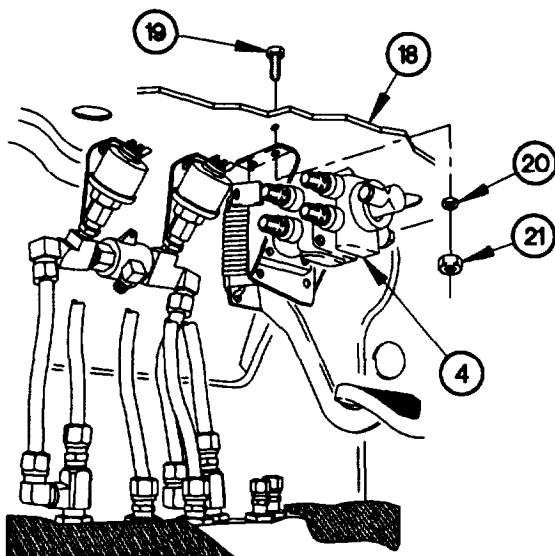
XL09102A

- (5) Position brake foot pedal (5) and foot control valve (4) on bracket (6) with two screws (7), washers (8), and self-locking nuts (9).
- (6) Position two screws (10), washers (11), and self-locking nuts (12) in foot control valve (4).
- (7) Install spring (13) on bracket (6) and brake foot pedal (5).
- (8) Tighten two self-locking nuts (9 and 12) to 18 lb-ft (24 N•m).

- (9) Install foot control linkage (14) on brake foot pedal (5) with pin (15), washer (16), and cotter pin (17).



XL09103A



XL09104A

NOTE

Steps (10) through (12) require the aid of an assistant.

- (10) Position foot control valve (4) beneath dashboard (18).
- (11) Position four screws (19), washers (20), and self-locking nuts (21) in foot control valve (4).
- (12) Tighten four self-locking nuts (21) to 18 lb-ft (24 N•m).

11-9. FOOT CONTROL VALVE AND BRAKE FOOT PEDAL REPLACEMENT (CONT)

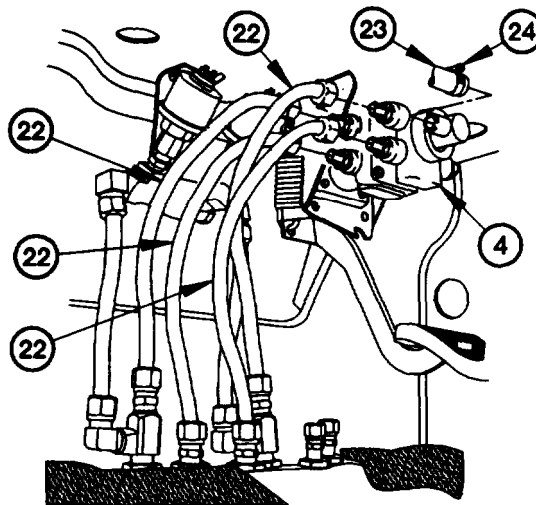
WARNING

Ensure air hoses are connected to correct fittings. Failure to comply may result in injury or death to personnel.

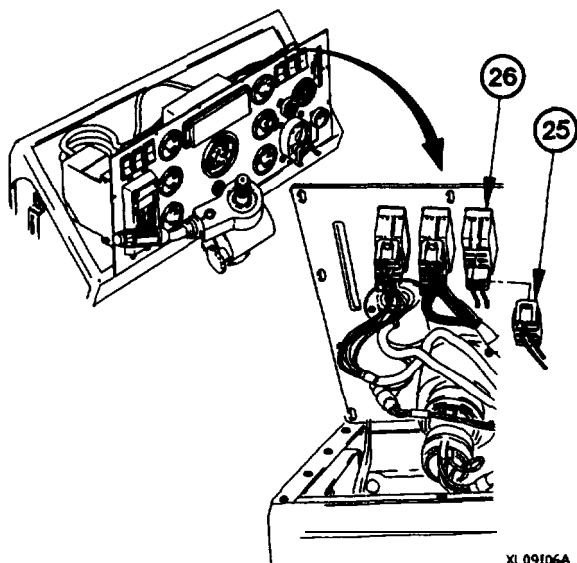
NOTE

Install plastic cable ties as required.

- (13) Connect four air hoses (22) to foot control valve (4).
- (14) Install exhaust hose (23) on foot control valve (4) with clamp (24).



XL09105A



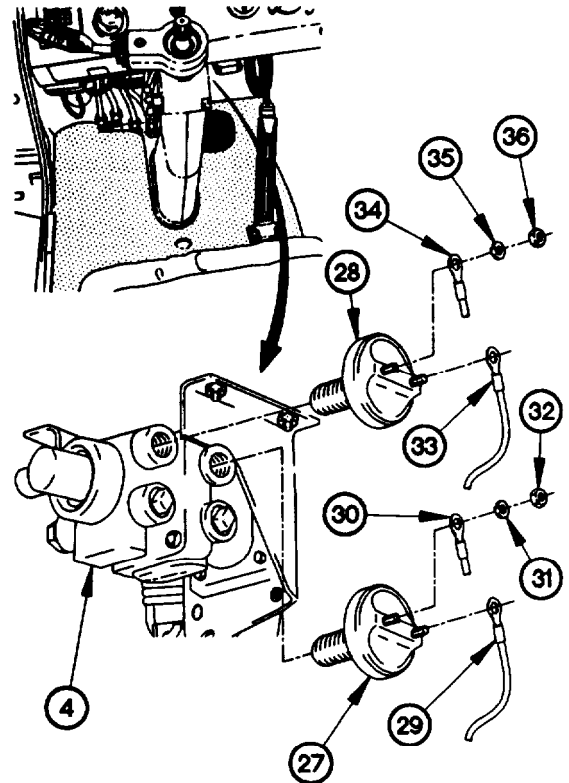
XL09106A

- (15) Connect connector PX17 (25) to master power switch (26).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.

- (16) Apply antiseize compound to threads of stoplight switches (27 and 28).
- (17) Install stoplight switches (27 and 28) in foot control valve (4).
- (18) Install terminal lugs TL155 (29) and TL154 (30) on front stoplight switch (27) with two lockwashers (31) and nuts (32).
- (19) Install terminal lugs TL153 (33) and TL152 (34) on rear stoplight switch (28) with two lockwashers (35) and nuts (36).



XL09107A

c. Follow-On Maintenance.

- (1) Install instrument panel assembly (para 7-15).
- (2) Start engine (TM 9-2320-365-10).
- (3) Check around foot control valve and hoses for air leaks.
- (4) Shut down engine (TM 9-2320-365-10).
- (5) Open secondary air tank drain valve (TM 9-2320-365-10).
- (6) Push in SYSTEM PARK control (TM 9-2320-365-10).

11-9. FOOT CONTROL VALVE AND BRAKE FOOT PEDAL REPLACEMENT (CONT)

NOTE

- Audible alarm will sound during performance of steps (7) through (9). FRONT BRAKE light in lighted indicator display will illuminate and FRONT BRAKE AIR pressure gage will read "0" psi.
- Complete steps (7) through (9) before air pressure builds up in secondary air tank.

- (7) Start engine (TM 9-2320-365-10).
- (8) Position main light switch to SERVICE DRIVE (TM 9-2320-365-10).

NOTE

Rear brakes should lock up and brake lights should illuminate during step (9).

- (9) Set transmission to first gear, accelerate to approximately 5 mph, and apply maximum foot brake pedal.
- (10) Pull out SYSTEM PARK control (TM 9-2320-365-10).
- (11) Close secondary air tank drain valve (TM 9-2320-365-10).
- (12) Run engine until audible alarm no longer sounds.
- (13) Shut down engine (TM 9-2320-365-10).

End of Task.

11-10. LOAD SENSING VALVE AND CONTROL CABLE REPLACEMENT/ADJUSTMENT

This task covers:

- | | |
|--|------------------------------------|
| a. Load Sensing Valve Control Cable Removal | d. Load Sensing Valve Installation |
| b. Load Sensing Valve Control Cable Installation | e. Load Sensing Valve Adjustment |
| c. Load Sensing Valve Removal | f. Follow-On Maintenance |

INITIAL SETUP**Equipment Conditions**

Engine shut down (TM 9-2320-365-10).
Air tanks drained (TM 9-2320-365-10).

Tools and Special Tools

Goggles, Industrial (Item 15, Appendix C)
Tool Kit, Genl Mech (Item 44, Appendix C)
Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)
Gage, Pressure, 0-150 psi (Item 17, Appendix B)
Hose Assembly, Nonmetallic (Item 19, Appendix C)

Materials/Parts

Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)
Antiseize Compound (Item 14, Appendix D)
Nipple, Pipe (Item 34, Appendix D)
Nut, Self-Locking (2) (Item 148, Appendix G)
Nut, Self-Locking (2) (Item 150, Appendix G)

Personnel Required

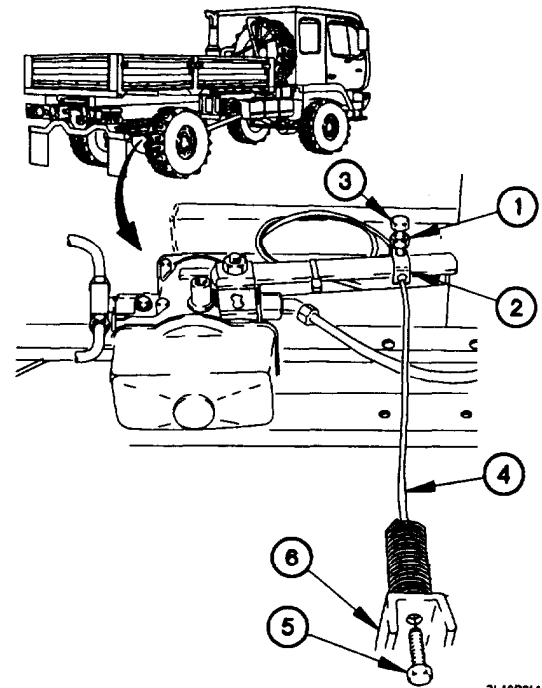
(2)

WARNING

Wear appropriate eye protection when working under vehicle due to the possibility of falling debris. Failure to comply may result in injury to personnel.

a. Load Sensing Valve Control Cable Removal.

- (1) Loosen jam nut (1) on cable clamp (2).
- (2) Loosen screw (3) on cable clamp (2).
- (3) Remove load sensing valve control cable (4) from cable clamp (2).
- (4) Remove screw (5) and load sensing valve control cable (4) from bracket (6).



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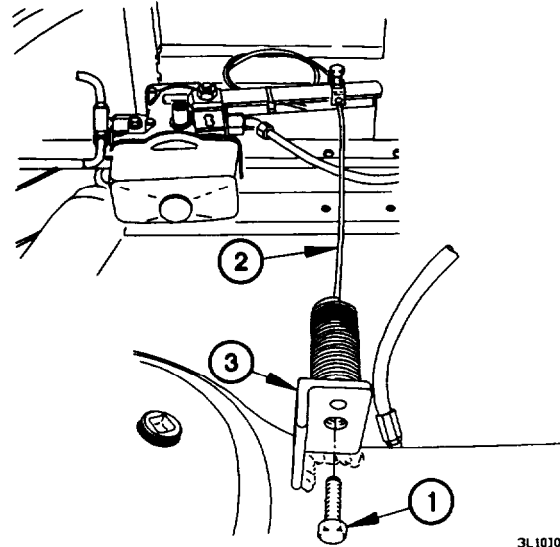
**11-10. LOAD SENSING VALVE AND CONTROL CABLE REPLACEMENT/ADJUSTMENT
(CONT)**

b. Load Sensing Valve Control Cable Installation.

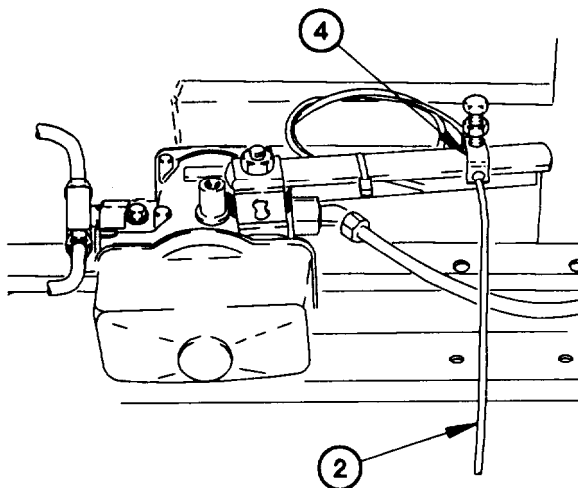
WARNING

Adhesive Sealant MIL-S-46163 can damage your eyes. Wear safety goggles when using; avoid contact with eyes. If sealant contacts eyes, flush eyes with water and get immediate medical attention. Failure to comply may result in injury to personnel.

- (1) Apply adhesive to threads of screw (1).
- (2) Position load sensing valve control cable (2) on bracket (3) with screw (1).
- (3) Tighten screw (1) to 35-43 lb-ft (48-58 N•m).



3L10101-



3L10102-

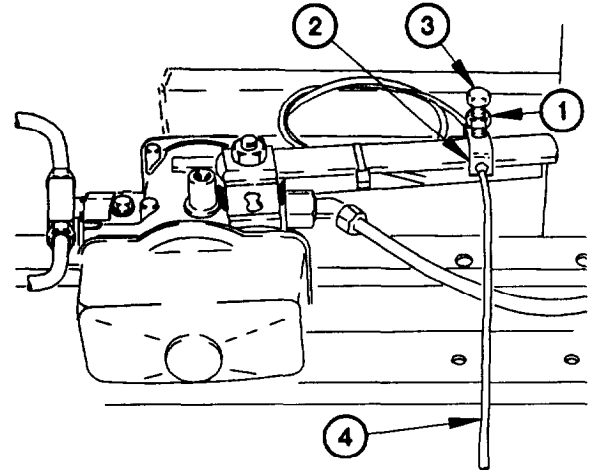
CAUTION

Load sensing valve control cable must be installed in cable clamp on back side of control lever, opposite cable clamp screw. Failure to comply may result in damage to load sensing valve control cable.

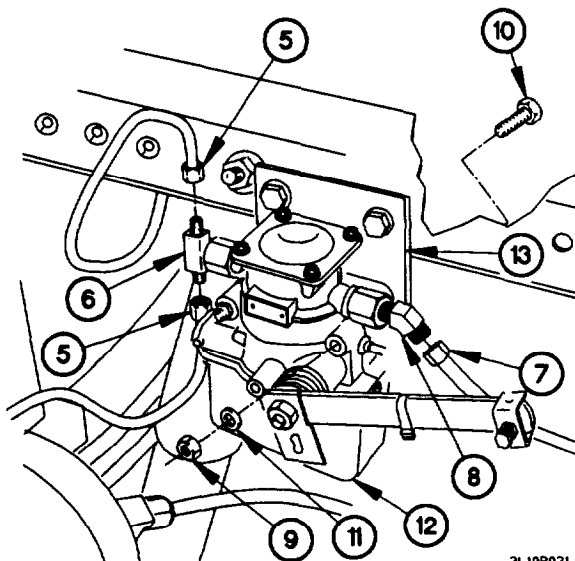
- (4) Install load sensing valve control cable (2) in cable clamp (4).
- (5) Perform load sensing valve adjustment.

c. Load Sensing Valve Removal.

- (1) Loosen jam nut (1) on cable clamp (2).
- (2) Loosen screw (3) on cable clamp (2).
- (3) Remove load sensing valve control cable (4) from cable clamp (2).



3L10R02-



3L10R031

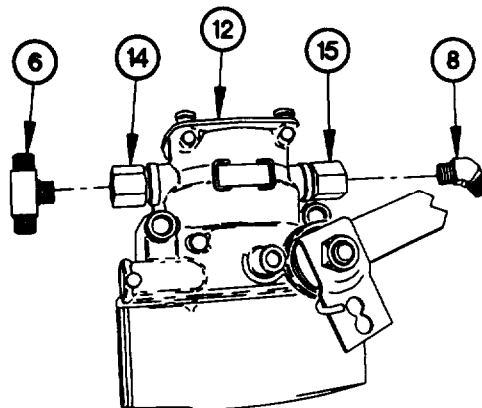
NOTE

Tag air hoses and connection points prior to disconnecting.

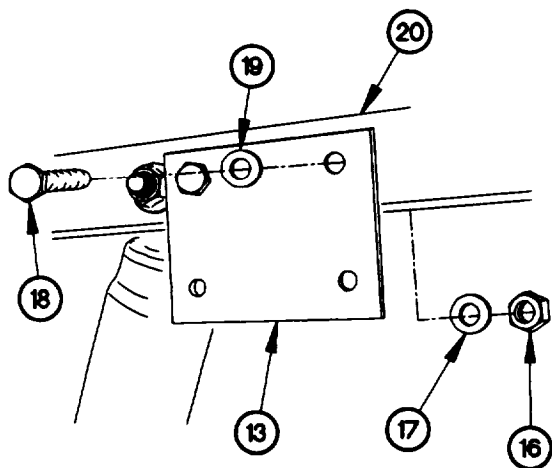
- (4) Disconnect two air hoses (5) from tee fitting (6).
- (5) Disconnect air hose (7) from 45-degree fitting (8).
- (6) Remove two self-locking nuts (9), screws (10), washers (11), and load sensing valve (12) from bracket (13). Discard self-locking nuts.

11-10. LOAD SENSING VALVE AND CONTROL CABLE REPLACEMENT/ADJUSTMENT (CONT)

- (7) Remove tee fitting (6) from adapter (14).
- (8) Remove 45-degree fitting (8) from adapter (15).



3L10R041

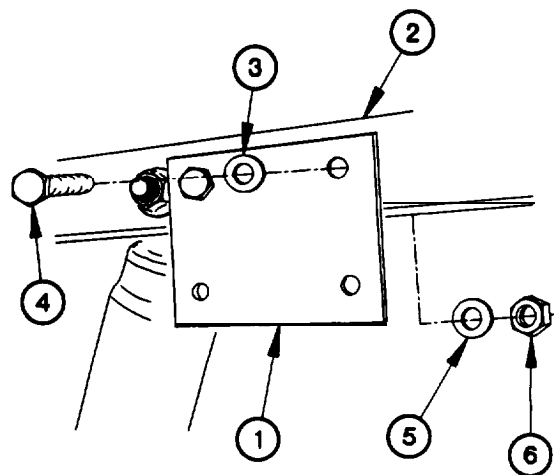


3L10R05A

- (9) Remove two self-locking nuts (16), washers (17), screws (18), washers (19), and bracket (13) from crossmember (20). Discard self-locking nuts.

d. Load Sensing Valve Installation.

- (1) Position bracket (1) on crossmember (2) with two washers (3), screws (4), washers (5), and self-locking nuts (6).
- (2) Tighten self-locking nuts (6) to 71-87 lb-ft (96-118 N•m).

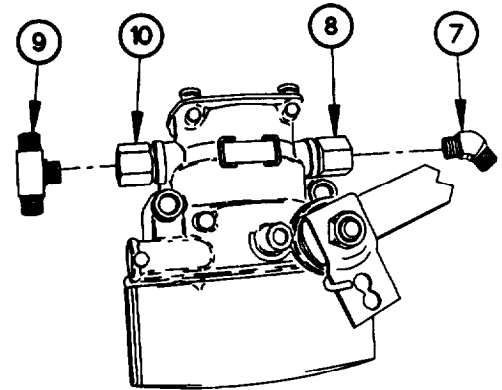


3L10I03A

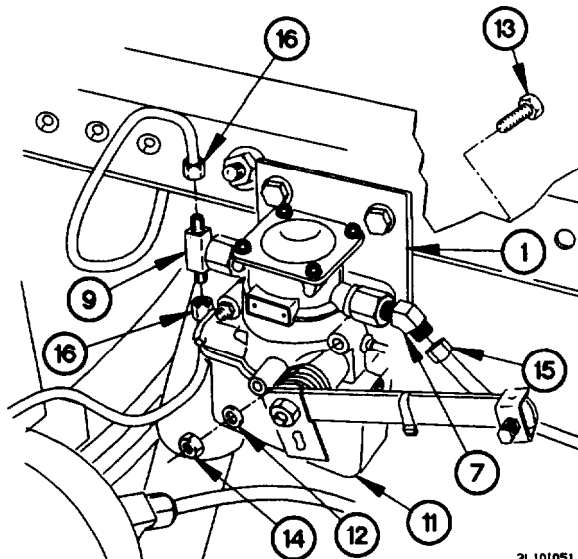
WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.

- (3) Apply antiseize compound to threads of 45-degree fitting (7).
- (4) Install 45-degree fitting (7) in adapter (8).
- (5) Apply antiseize compound to threads of tee fitting (9).
- (6) Install tee fitting (9) in adapter (10).



3L101041



3L101051

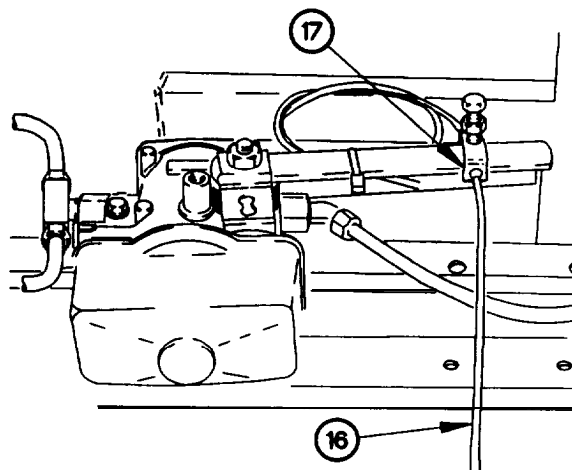
- (7) Position load sensing valve (11) on bracket (1) with two washers (12), screws (13), and self-locking nuts (14).
- (8) Tighten two self-locking nuts (14) to 14-18 lb-ft (20-24 N•m).
- (9) Connect air hose (15) to 45-degree fitting (7).
- (10) Connect two air hoses (16) to tee fitting (9).

**1-10. LOAD SENSING VALVE AND CONTROL CABLE REPLACEMENT/ADJUSTMENT
(CONT)**

CAUTION

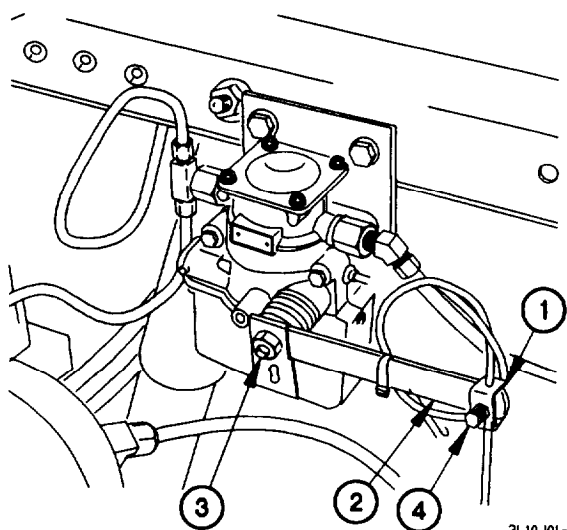
Load sensing valve control cable must be installed in cable clamp on back side of control lever, opposite cable clamp screw. Failure to comply may result in damage to load sensing valve control cable.

- (11) Install load sensing valve control cable (16) in cable clamp (17).
- (12) Perform load sensing valve adjustment.



3L10106A

e. Load Sensing Valve Adjustment.



3L10J01-

WARNING

Proper adjustment may only be accomplished with vehicle unloaded. Failure to comply may result in injury to personnel or damage to equipment.

- (1) Position cable clamp (1) on control lever (2) so that center of cable clamp measures 5 3/8 - 5 5/8 in. (13.65-14.29 cm) from center of pivot shaft (3).
- (2) Position control lever (2) so that it is level.
- (3) Tighten screw (4) in cable clamp (1).

- (4) Disconnect center air hose (5) from 90-degree fitting (6).
- (5) Remove 90-degree fitting (6) from left rear service brake air chamber (7).
- (6) Install pipe nipple (8) in left rear service brake air chamber (7).
- (7) Connect hose assembly to pipe nipple (8).
- (8) Connect pressure gage to hose assembly.

CAUTION

Full system air pressure is required before calibrating load sensing valve. Failure to comply may result in incorrect calibration of load sensing valve.

NOTE

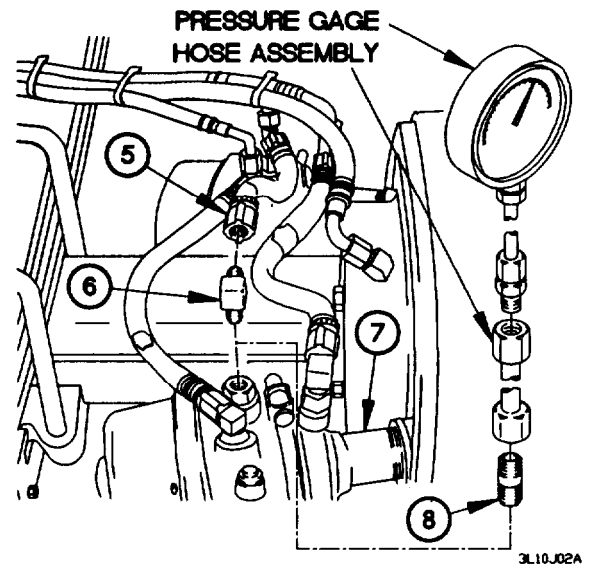
Hold engine speed at high idle for at least one minute after pressure stabilizes.

- (9) Start engine (TM 9-2320-365-10) and increase engine speed to high idle.

NOTE

REAR BRAKE AIR pressure gage should read approximately 120 psi. If REAR BRAKE AIR pressure gage reads less than 115 psi shut down engine and perform step (9) again.

- (10) Decrease engine speed to low idle.
- (11) Depress brake pedal (TM 9-2320-365-10).



**11-10. LOAD SENSING VALVE AND CONTROL CABLE REPLACEMENT/ADJUSTMENT
(CONT)**

NOTE

Pressure gage attached to rear service brake air chamber should indicate air pressure within limits shown in **Table 11-1. Air Chamber Pressure Limits.**

(12) Note reading on pressure gage while brake pedal is depressed.

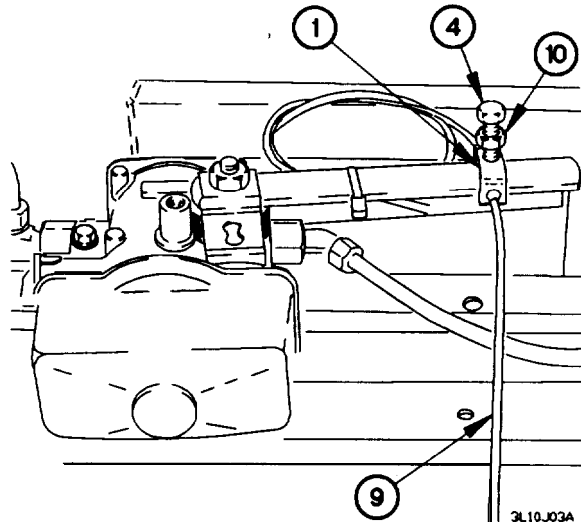
Table 11-1. Air Chamber Pressure Limits

Model Number	Air Pressure Limits
M1078, M1081	47-53 psi (324-366 kPa)
M1080	36-42 psi (248-290 KPa)
M1079	45-55 psi (310-379 kPa)

NOTE

- If air chamber pressure is not within limits shown in Table 11-1. Air Chamber Pressure Limits, perform steps (13) through (15), depress brake pedal several times, shut down engine, and perform steps (9) through (12) again.
- Lengthening load sensing valve control cable will increase pressure reading, shortening cable will decrease pressure reading.

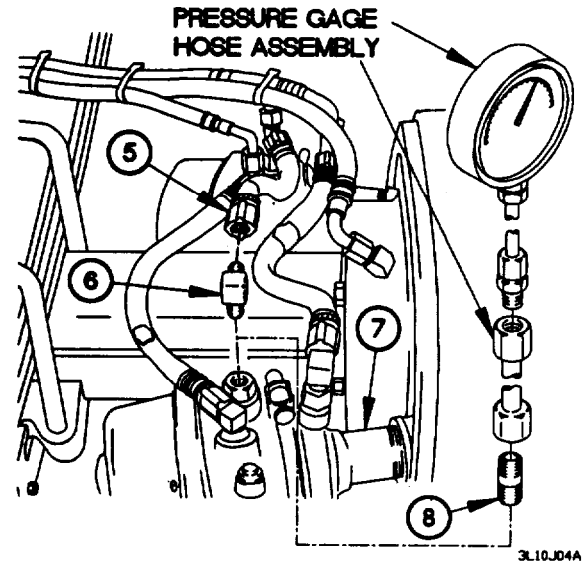
- (13) Loosen screw (4) in cable clamp (1).
- (14) Adjust length of load sensing valve control cable (9).
- (15) Tighten screw (4) in cable clamp (1).
- (16) Tighten jam nut (10) on screw (4).



- (17) Shut down engine (TM 9-2320-365-10).
- (18) Drain primary air tank (TM 9-2320-365-10).
- (19) Remove pressure gage, hose assembly, and pipe nipple (8) from left rear service brake air chamber (7).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.



- (20) Apply antiseize compound to threads of 90-degree fitting (6).
- (21) Install 90-degree fitting (6) in left rear service brake air chamber (7).
- (22) Connect center air hose (5) to 90-degree fitting (6).

f. Follow-On Maintenance.

- (1) Start engine (TM 9-2320-365-10) and allow enough time for air pressure to build to normal operating pressure.
- (2) Shut down engine (TM 9-2320-365-10).
- (3) Check around load sensing valve air hoses and fittings for air leaks.
- (4) Start engine (TM 9-2320-365-10).
- (5) Road test vehicle and check for proper brake operation.
- (6) Shut down engine (TM 9-2320-365-10).

End of Task.

11-11. ANTI-COMPOUNDING RELAY VALVE REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

- Engine shut down (TM 9-2320-365-10).
- Air tanks drained (TM 9-2320-365-10).

Tools and Special Tools

- Goggles, Industrial (Item 15, Appendix C)
- Tool Kit, Genl Mech (Item 44, Appendix C)
- Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)

Materials/Parts

- Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)
- Antiseize Compound (Item 14, Appendix D)
- Nut, Self-Locking (2) (Item 148, Appendix G)

WARNING

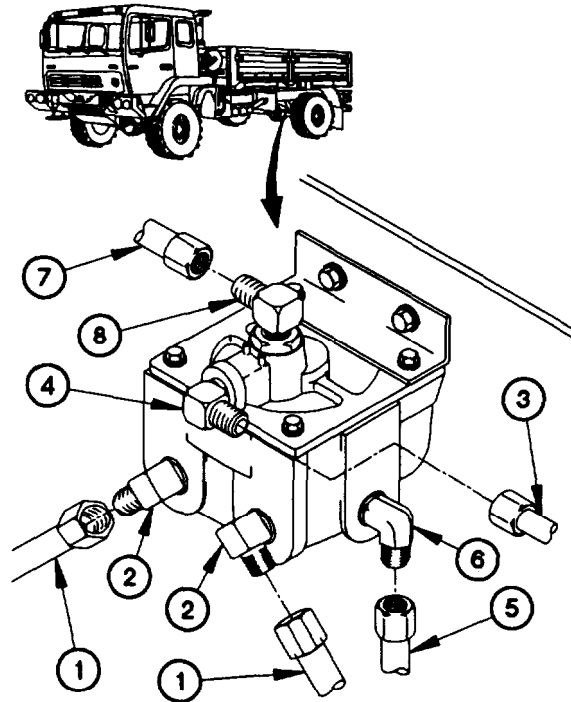
Wear appropriate eye protection when working under vehicle due to the possibility of falling debris. Failure to comply may result in injury to personnel.

a. Removal.

NOTE

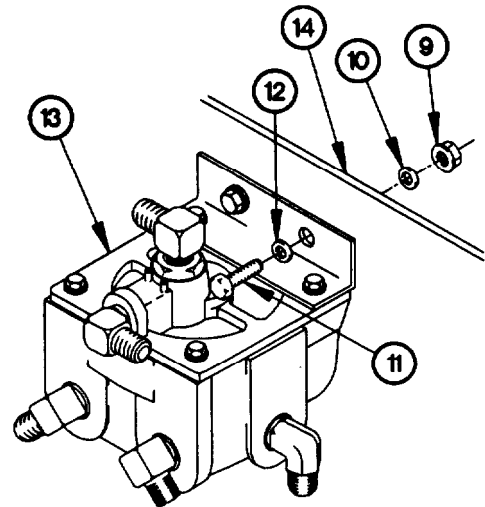
Tag air hoses and connection points prior to disconnecting.

- (1) Disconnect two air hoses (1) from 90-degree fittings (2).
- (2) Disconnect air hose (3) from 90-degree fitting (4).
- (3) Disconnect air hose (5) from 90-degree fitting (6).
- (4) Disconnect air hose (7) from 90-degree fitting (8).

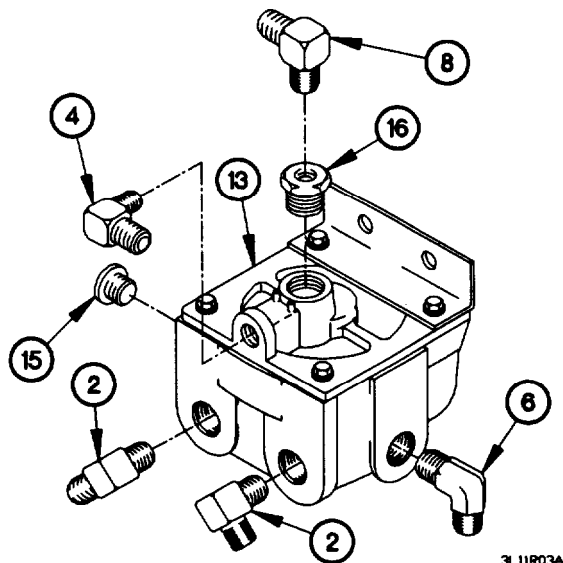


3L11R01A

- (5) Remove two self-locking nuts (9), washers (10), screws (11), washers (12) and anti-compounding relay valve (13) from panel (14). Discard self-locking nuts.



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3L11R03A

- (6) Remove plug (15) from anti-compounding relay valve (13).
- (7) Remove 90-degree fitting (8) from bushing (16).
- (8) Remove bushing (16) from anti-compounding relay valve (13).
- (9) Remove 90-degree fitting (6) from anti-compounding relay valve (13).
- (10) Remove 90-degree fitting (4) from anti-compounding relay valve (13).
- (11) Remove two 90-degree fittings (2) from anti-compounding relay valve (13).

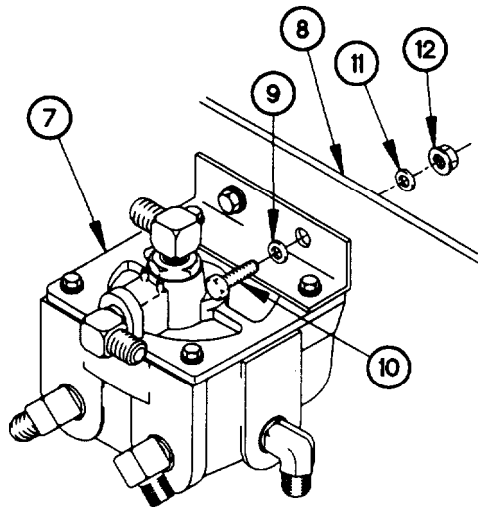
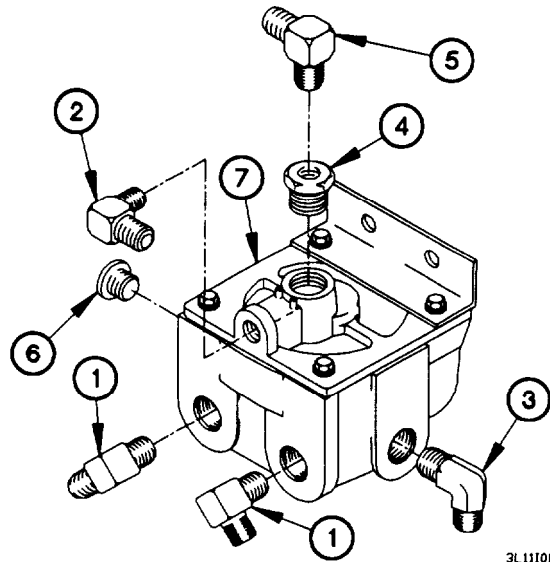
11-11. ANTI-COMPOUNDING RELAY VALVE REPLACEMENT (CONT)

b. Installation.

WARNING

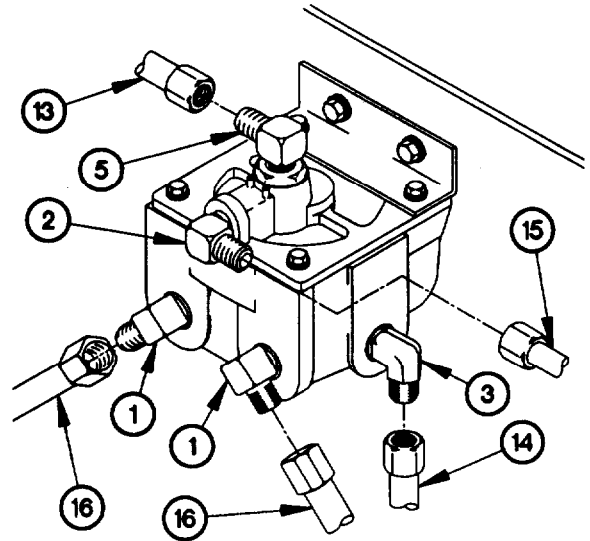
Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.

- (1) Apply antiseize compound to two 90-degree fittings (1), 90-degree fitting (2), 90-degree fitting (3), bushing (4), 90-degree fitting (5), and plug (6).
- (2) Install two 90-degree fittings (1) in anti-compounding relay valve (7).
- (3) Install 90-degree fitting (2) in anti-compounding relay valve (7).
- (4) Install 90-degree fitting (3) in anti-compounding relay valve (7).
- (5) Install bushing (4) in anti-compounding relay valve (7).
- (6) Install 90-degree fitting (5) in bushing (4).
- (7) Install plug (6) in anti-compounding relay valve (7).



- (8) Position anti-compounding relay valve (7) on panel (8) with two washers (9), screws (10), washers (11), and self-locking nuts (12).
- (9) Tighten two self-locking nuts (12) to 14-18 lb-ft (20-24 N•m).

- (10) Connect sir hose (13) to 90-degree fitting (5).
- (11) Connect air hose (14) to 90-degree fitting (3).
- (12) Connect air hose (15) to 90-degree fitting (2).
- (13) Connect two air hoses (16) to 90-degree fittings (1).



3L11103A

d. Follow-On Maintenance.

- (1) Start engine (TM 9-2320-365-10).
- (2) Check anti-compounding relay valve for air leaks
- (3) Shut down engine (TM 9-2320-365-10).

End of Task.

11-12. INVERSION VALVE REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

- Engine shut down (TM 9-2320-365-10).
- Air tanks drained (TM 9-2320-365-10).

Tools and Special Tools

- Goggles, Industrial (Item 15, Appendix C)
- Tool Kit, Genl Mech (Item 44, Appendix C)
- Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)

Materials/Parts

- Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)
- Antiseize Compound (Item 14, Appendix D)
- Nut, Self-Locking (2) (Item 148, Appendix G)

WARNING

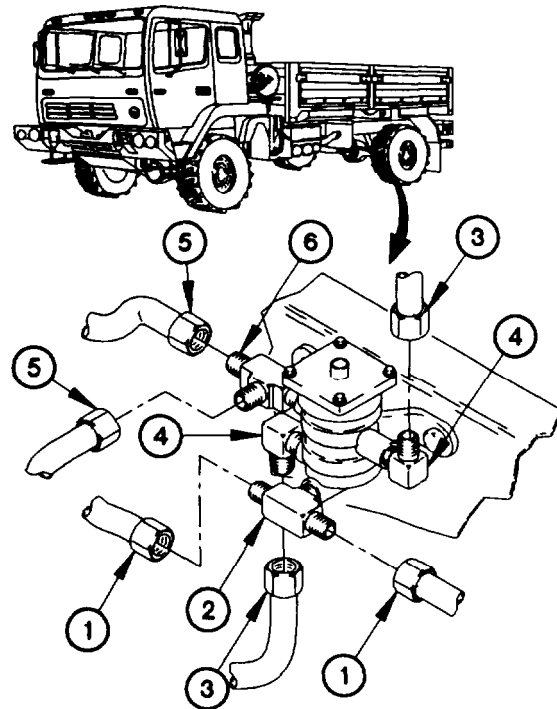
Wear appropriate eye protection when working under vehicle due to the possibility of falling debris. Failure to comply may result in injury to personnel.

a. Removal.

NOTE

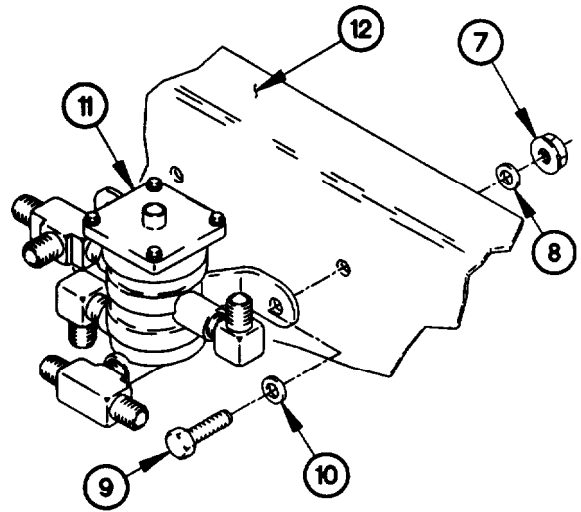
Tag air hoses and connection points prior to disconnecting.

- (1) Disconnect two air hoses (1) from branch tee fitting (2).
- (2) Disconnect two air hoses (3) from 90-degree fittings (4).
- (3) Disconnect two air hoses (5) from run tee fitting (6).

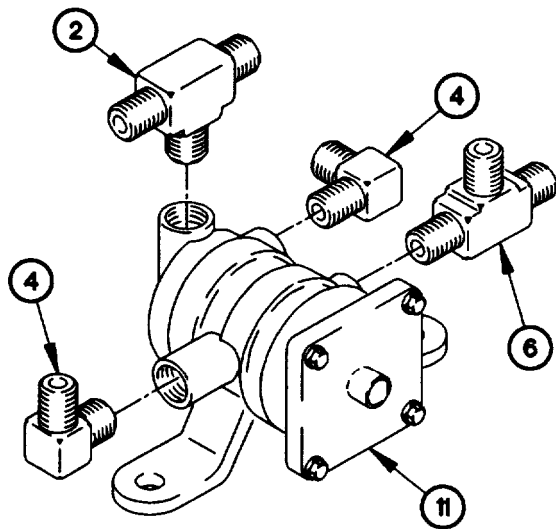


3L12R01A

- (4) Remove two self-locking nuts (7), washers (8), screws (9), washers (10), and inversion valve (11) from panel (12). Discard self-locking nuts.



XL13R02A



XL13R03A

NOTE

Note orientation of fittings prior to removal.

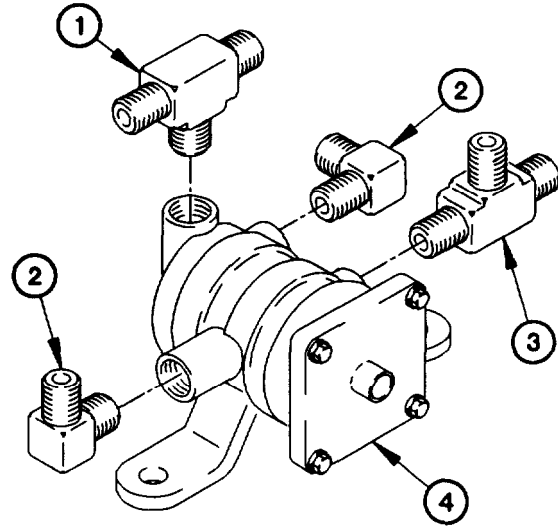
- (5) Remove run tee fitting (6) from inversion valve (11).
- (6) Remove two 90-degree fittings (4) from inversion valve (11).
- (7) Remove branch tee fitting (2) from inversion valve (11).

11-12. INVERSION VALVE REPLACEMENT (CONT)

b. Installation.

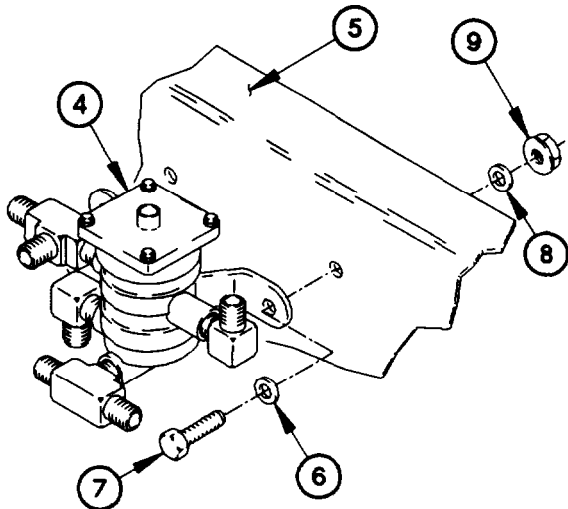
WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.



XL13101A

- (1) Apply antiseize compound to threads of branch tee fitting (1), two 90-degree fittings (2), and run tee fitting (3).
- (2) Install branch tee fitting (1) in inversion valve (4).
- (3) Install two 90-degree fittings (2) in inversion valve (4).
- (4) Install run tee fitting (3) in inversion valve (4).



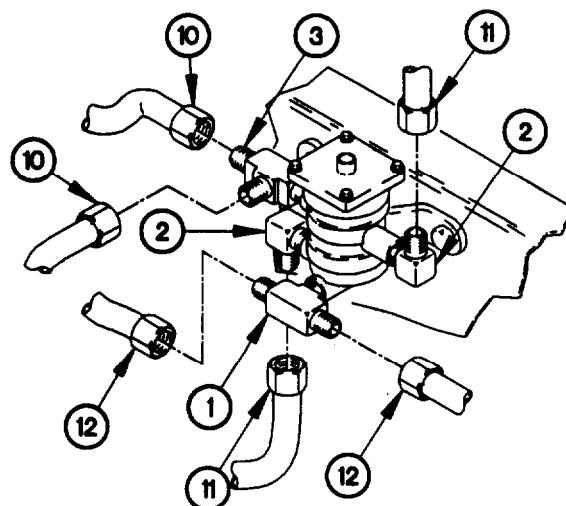
XL13102A

- (5) Position inversion valve (4) on panel (5) with two washers (6), screws (7), washers (8), and self-locking nuts (9).
- (6) Tighten two self-locking nuts (9) to 24-30 lb-ft (33-41 N•m).

- (7) Connect two air hoses (10) to run tee fitting (3).
- (8) Connect two air hoses (11) to 90-degree fittings (2).
- (9) Connect two air hoses (12) to branch tee fitting (1).

c. Follow-On Maintenance.

- (1) Start engine (TM 9-2320-365-10) and allow time for air pressure to reach normal operating air pressure.
- (2) Shut down engine (TM 9-2320-365-10).
- (3) Check around inversion valve and air hoses for air leaks.
- (4) Start engine (TM 9-2320-365-10).
- (5) Road test vehicle and check for proper brake operation.
- (6) Shut down engine (TM 9-2320-365-10).



XL13103A

End of Task.

11-13. RELAY VALVE REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

- Engine shut down (TM 9-2320-365-10).
- Air tanks drained (TM 9-2320-365-10).

Tools and Special Tools

- Goggles, Industrial (Item 15, Appendix C)
- Tool Kit, Genl Mech (Item 44, Appendix C)
- Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)

Materials/Parts

- Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)
- Antiseize Compound (Item 14, Appendix D)
- Nut, Self-Locking (2) (Item 148, Appendix G)

WARNING

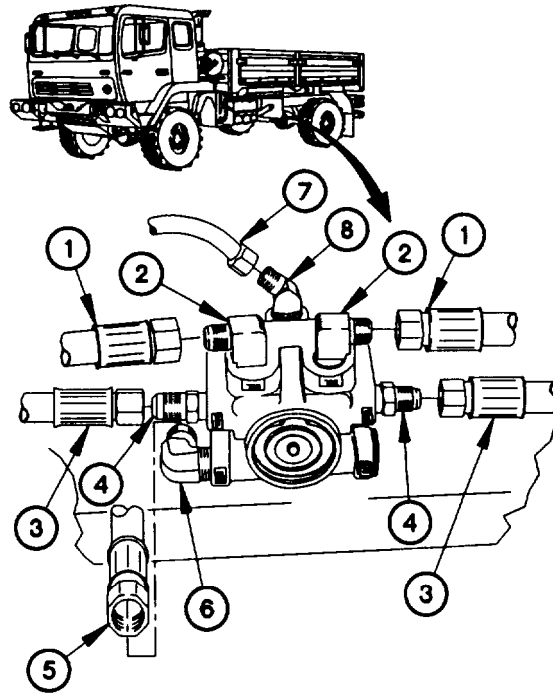
Wear appropriate eye protection when working under vehicle due to the possibility of falling debris. Failure to comply may result in injury to personnel.

a. Removal.

NOTE

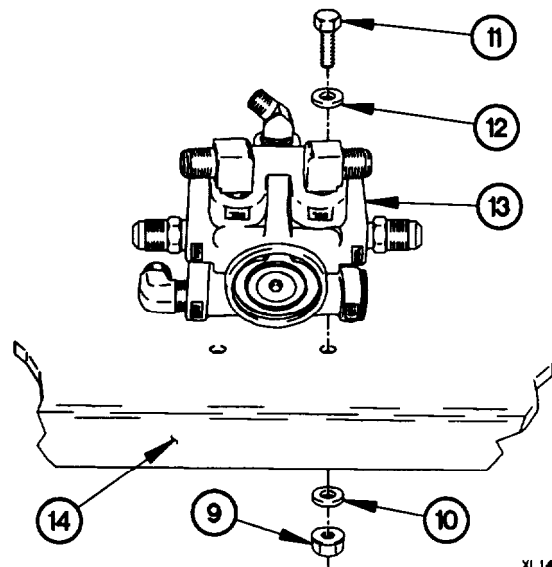
Tag air hoses and connection points prior to disconnecting.

- (1) Disconnect two air hoses (1) from 90-degree fittings (2).
- (2) Disconnect two air hoses (3) from fittings (4).
- (3) Disconnect air hose (5) from 90-degree fitting (6).
- (4) Disconnect air hose (7) from 45-degree fitting (8).

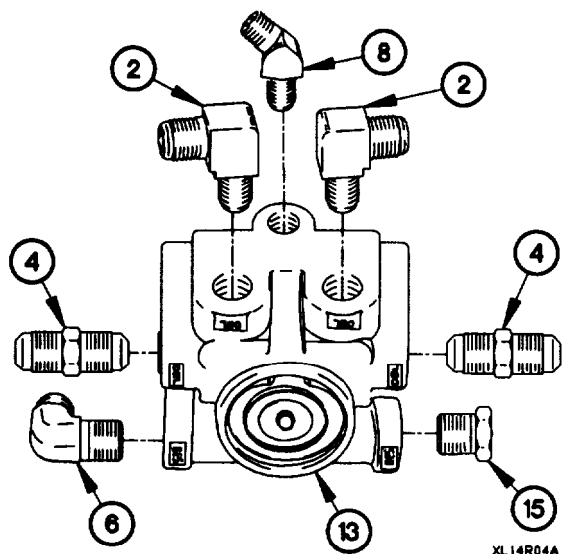


3L13R01A

- (5) Remove two self-locking nuts (9), washers (10), screws (11), washers (12), and relay valve (13) from panel (14). Discard self-locking nuts.



XL14R03A



XL14R04A

NOTE

Note orientation of fittings prior to removal.

- (6) Remove 45-degree fitting (8) from relay valve (13).
 (7) Remove two fittings (4) from relay valve (13).
 (8) Remove 90-degree fitting (6) from relay valve (13).
 (9) Remove two 90-degree fittings (2) from relay valve (13).
 (10) Remove plug (15) from relay valve (13).

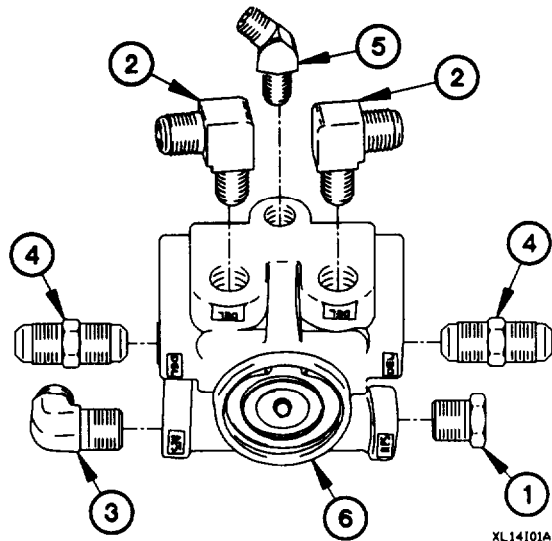
11-13. RELAY VALVE REPLACEMENT (CONT)

b. Installation.

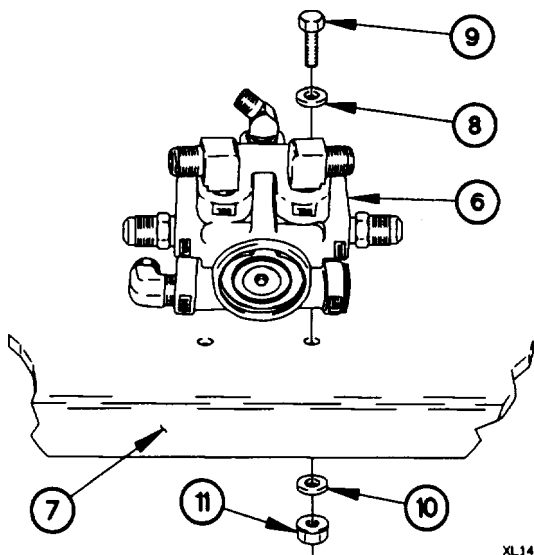
WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.

- (1) Apply antiseize compound to threads of plug (1), two 90-degree fittings (2), 90-degree fitting (3), two fittings (4), and 45-degree fitting (5).
- (2) Install plug (1) in relay valve (6).
- (3) Install two 90-degree fittings (2) in relay valve (6).
- (4) Install 90-degree fitting (3) in relay valve (6).
- (5) Install two straight fittings (4) in relay valve (6).
- (6) Install 45-degree fitting (5) in relay valve (6).



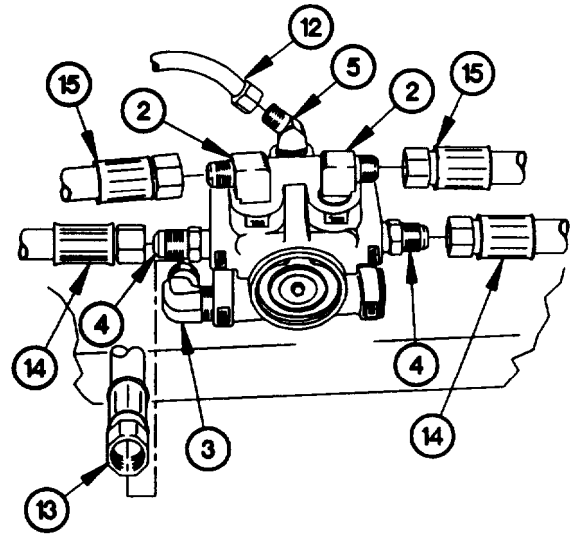
XL14101A



XL14102A

- (7) Position relay valve (6) on panel (7) with two washers (8) screws (9), washers (10), and self-locking nuts
- (8) Tighten two self-locking nuts (11) to 24-30 lb-ft (33-41 N•m).

- (9) Connect air hose (12) to 45-degree fitting (5).
- (10) Connect sir hose (13) to 90-degree fitting (3).
- (11) Connect two sir hoses (14) to fittings (4).
- (12) Connect two sir hoses (15) to 90-degree fittings (2).



3L131041

c. Follow-On Maintenance.

- (1) Stan engine (TM 9-2320-365-10) and allow time for air pressure to reach normal operating air pressure.
- (2) Shut down engine (TM 9-2320-365-10).
- (3) Check around relay valve and hoses for air leaks.
- (4) Start engine (TM 9-2320-365-10).
- (5) Road test vehicle and check for proper brake operation.
- (6) Shut down engine (TM 9-2320-365-10).

End of Task.

11-14. TWO-WAY CHECK VALVE REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Engine shut down (TM 9-2320-365-10).
Air tanks drained (TM 9-2320-365-10).

Tools and Special Tools

Goggles, Industrial (Item 15, Appendix C)
Tool Kit, Genl Mech (Item 44, Appendix C)
Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)

Materials/Parts

Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)
Antiseize Compound (Item 14, Appendix D)
Nut, Self-Locking (Item 148, Appendix G)

a. Removal.

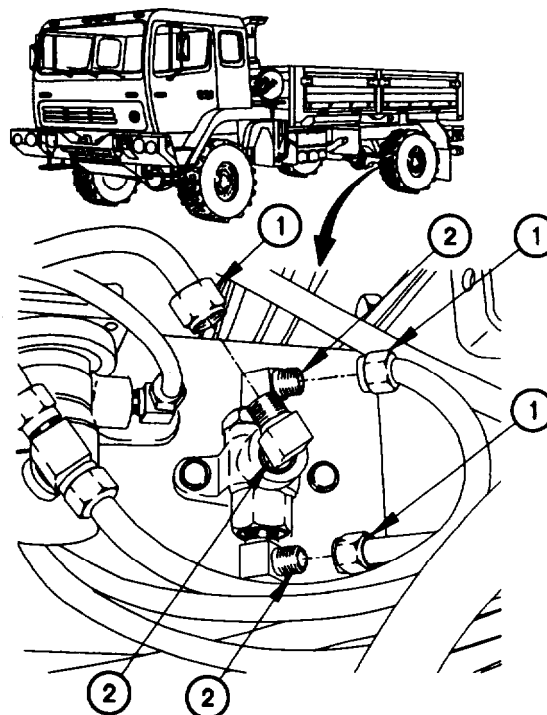
WARNING

Wear appropriate eye protection when working under vehicle due to the possibility of falling debris. Failure to comply may result in injury to personnel.

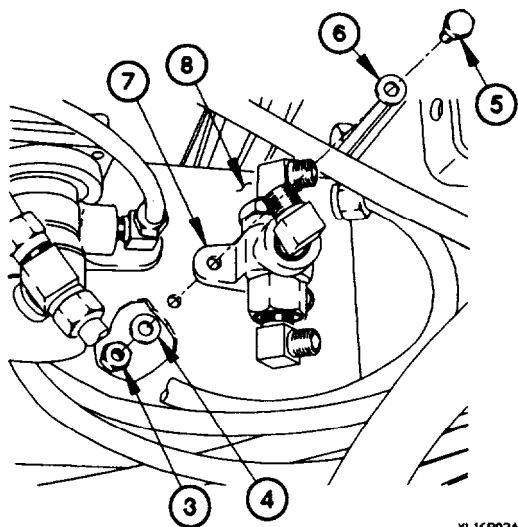
NOTE

Tap air hoses and connection points prior to disconnecting.

- (1) Disconnect three air hoses (1) from 90-degree fittings (2).



3L14R01A



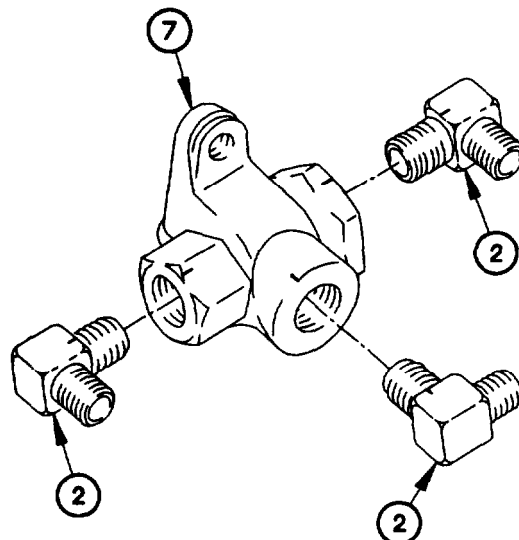
XL16R02A

- (2) Remove self-locking nut (3), washer (4), screw (5), washer (6), and two-way check valve (7) from panel (8). Discard self-locking nut.

NOTE

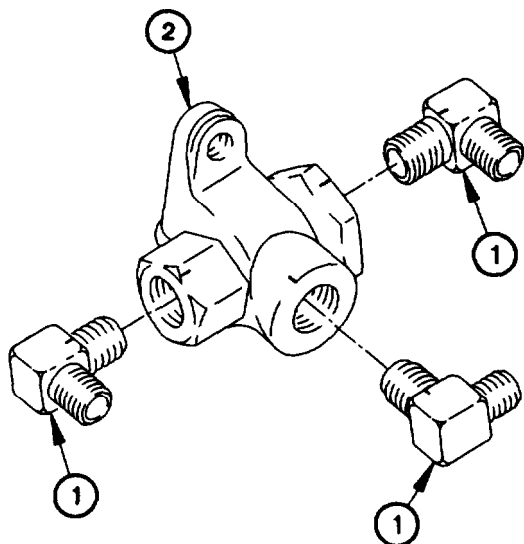
Note orientation of fittings prior to removal.

- (3) Remove three 90-degree fittings (2) from two-way check valve (7).



XL16R03A

b. Installation.



XL16T01A

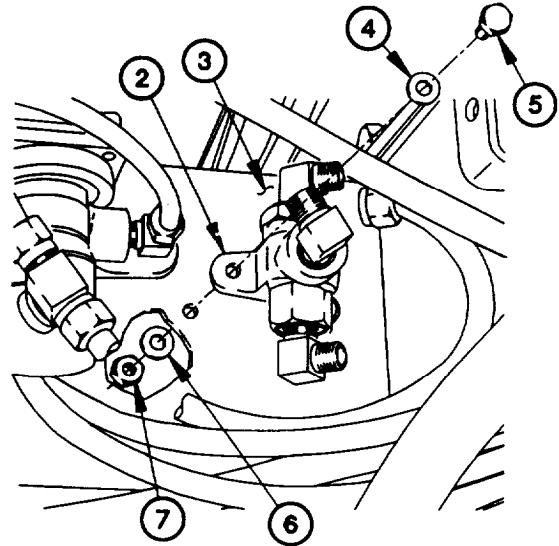
WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealant compound gets on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.

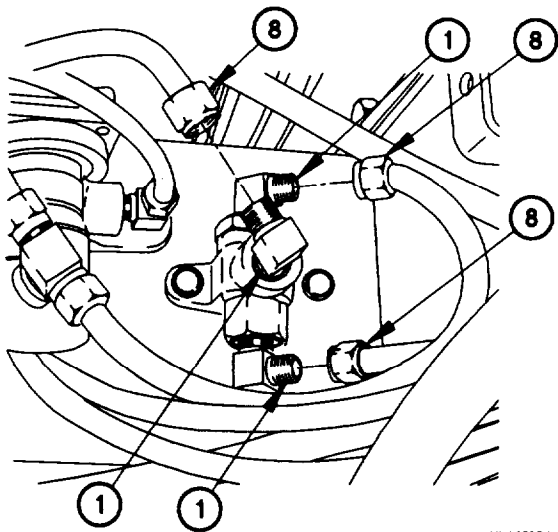
- (1) Apply antiseize compound to threads of three 90-degree fittings (1).
- (2) Install three 90-degree fittings (1) in two-way check valve (2).

11-14. TWO-WAY CHECK VALVE REPLACEMENT (CONT)

- (3) Position two-way check valve (2) on panel (3) with washer (4), screw (5), washer (6), and self-locking nut (7).
- (4) Tighten self-locking nut (7) to 14-18 lb-ft (20-24 N•m).



XL16102A



XL16103A

- (5) Connect three air hoses (8) to 90-degree fittings (1).

c. Follow-On Maintenance.

- (1) Start engine (TM 9-2320-365-10).
- (2) Check for air leaks around two-way check valve fittings and air hoses.
- (3) Shut down engine (TM 9-2320-365-10).

End of Task.

11-15. FRONT AXLE QUICK RELEASE VALVE REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

- Engine shut down (TM 9-2320-365-10).
- Air tanks drained (TM 9-2320-365-10).

Tools and Special Tools

- Goggles, Industrial (Item 15, Appendix C)
- Tool Kit, Genl Mech (Item 44, Appendix C)
- Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)

Materials/Parts

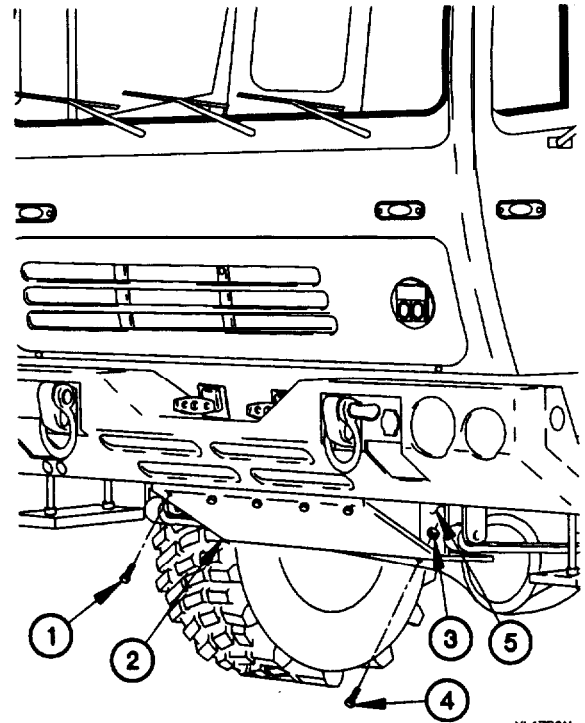
- Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)
- Antiseize Compound (Item 14, Appendix D)
- Ties, Cable, Plastic (Item 76, Appendix D)
- Nut, Self-Locking (2) (Item 148, Appendix G)
- Nut, Self-Locking (5) (Item 142, Appendix G)

WARNING

Wear appropriate eye protection when working under vehicle due to the possibility of falling debris. Failure to comply may result in injury to personnel.

a. Removal.

- (1) Remove five screws (1) from top edge of gravel deflector (2).
- (2) Remove five self-locking nuts (3), screws (4) and gravel deflector (2) from two brackets (5). Discard self-locking nuts.



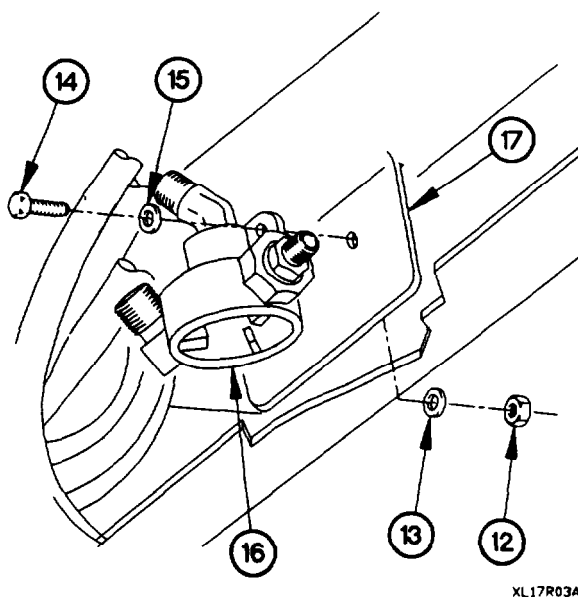
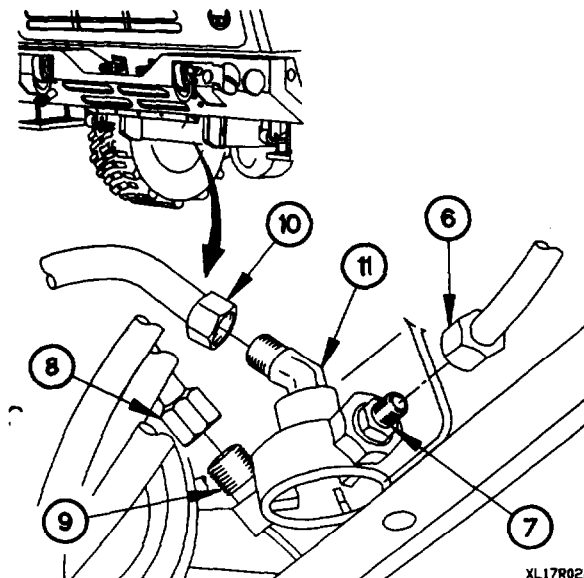
XL17R011

11-15. FRONT AXLE QUICK RELEASE VALVE REPLACEMENT (CONT)

NOTE

- Remove plastic cable ties as required.
- Tag air hoses and connection points prior to disconnecting.

- (3) Disconnect air hose (6) from fitting (7).
- (4) Disconnect air hose (8) from 90-degree fitting (9).
- (5) Disconnect air hose (10) from 45-degree fitting (11).

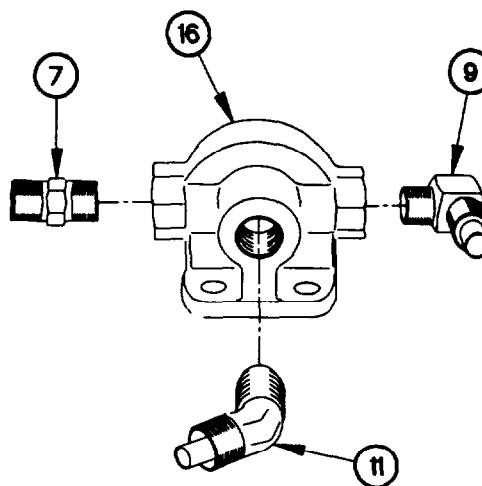


- (6) Remove two self-locking nuts (12), washers (13), screws (14), washers (15) and quick release valve (16) from bracket (17). Discard self-locking nuts.

NOTE

Note orientation of fittings prior to removal.

- (7) Remove fitting (7) from quick release valve (16).
- (8) Remove 90-degree fitting (9) from quick release valve (16).
- (9) Remove 45-degree fitting (11) from quick release valve (16).

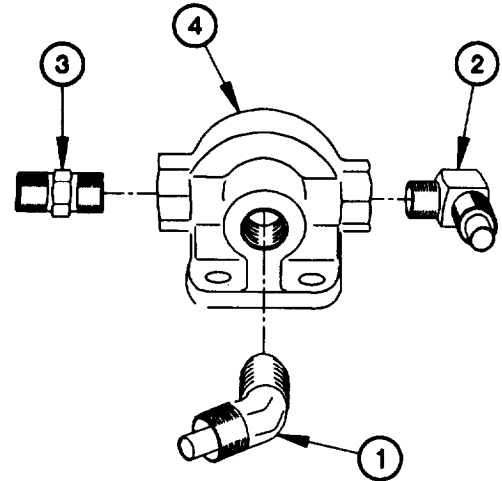


b. Installation.

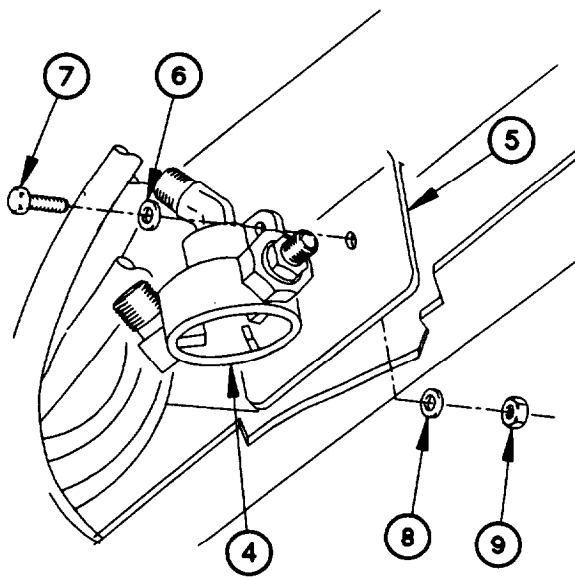
WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.

- (1) Apply sealing compound to threads of 45-degree fitting (1), 90-degree fitting (2), and fitting (3).
- (2) Install 45-degree fitting (1) in quick release valve (4).
- (3) Install 90-degree fitting (2) in quick release valve (4).
- (4) Install fitting (3) in quick release valve (4).



XL17101A

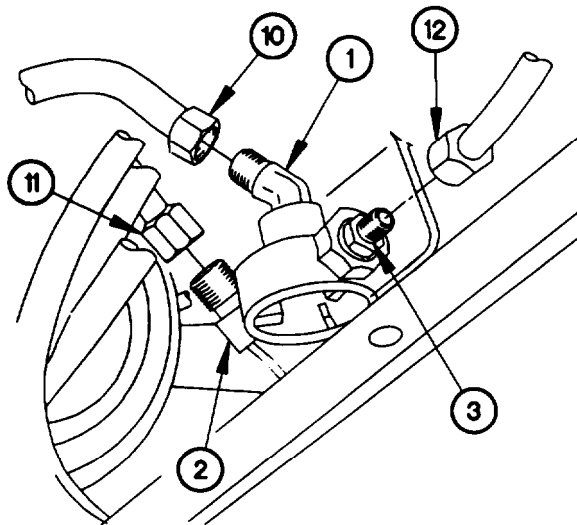


XL17102A

- (5) Position quick release valve (4) on bracket (5) with two washers (6), screws (7), washers (8), and self-locking nuts (9).
- (6) Tighten two self-locking nuts (9) to 14-18 lb-ft (20-24 N•m).

11-15. FRONT AXLE QUICK RELEASE VALVE REPLACEMENT (CONT)

- (7) Connect air hose (10) to 45-degree fitting (1).
- (8) Connect air hose (11) to 90-degree fitting (2).
- (9) Connect air hose (12) to fitting (3).

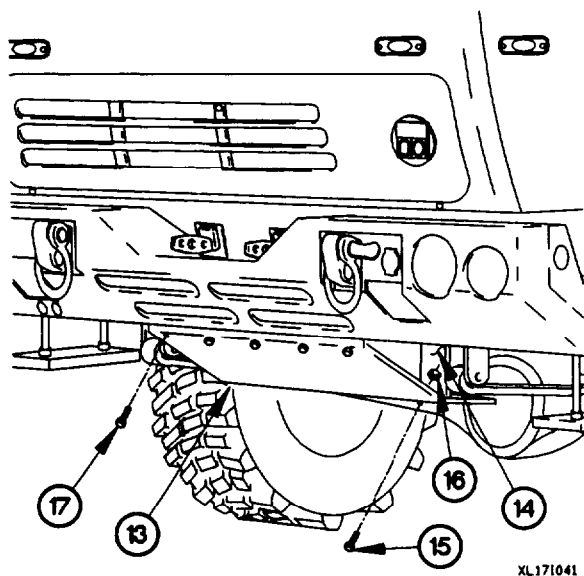


XL17103A

NOTE

Install plastic cable ties as required.

- (10) Position gravel deflector (13) on two brackets (14) with five screws (15) and self-locking nuts (16).
- (11) Tighten five self-locking nuts (16) to 76-94 lb-ft (103-127 N•m).
- (12) Position five screws (17) in top edge of gravel deflector (13).
- (13) Tighten five screws (17) to 43-52 lb-ft (58-70 N•m).



XL171041

c. Follow-On Maintenance.

- (1) Start engine (TM 9-2320-365-10).
- (2) Check quick release valve and air hoses for air leaks.
- (3) Shut down engine (TM 9-2320-365-10).

End of Task.

11-16. AIR BRAKE PROTECTING VALVE REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Air tanks drained (TM 9-2320-365-10).

Tools and Special Tools

Goggles, Industrial (Item 15, Appendix C)
 Tool Kit, Genl Mech (Item 44, Appendix C)
 Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)

Materials/Parts

Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)
 Antiseize Compound (Item 14, Appendix D)
 Nut, Self-Locking (2) (Item 148, Appendix G)

WARNING

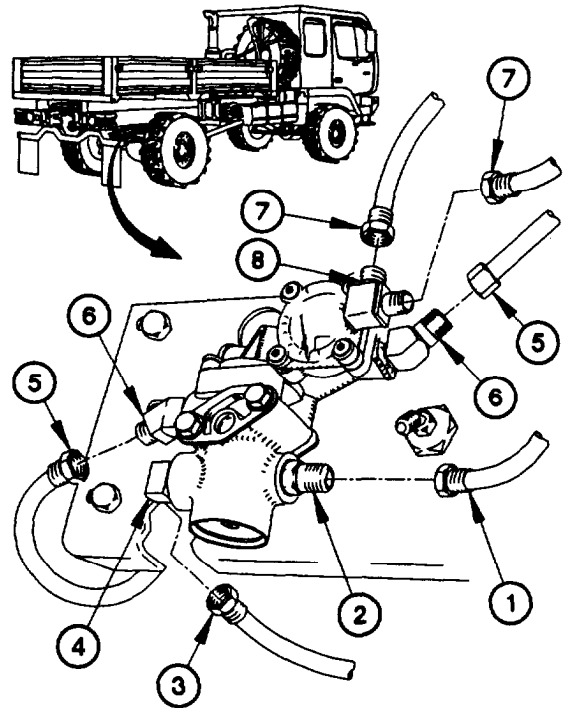
Wear appropriate eye protection when working under vehicle due to the possibility of falling debris. Failure to comply may result in injury to personnel.

a. Removal.

NOTE

Tag air hoses and connection points prior to disconnecting.

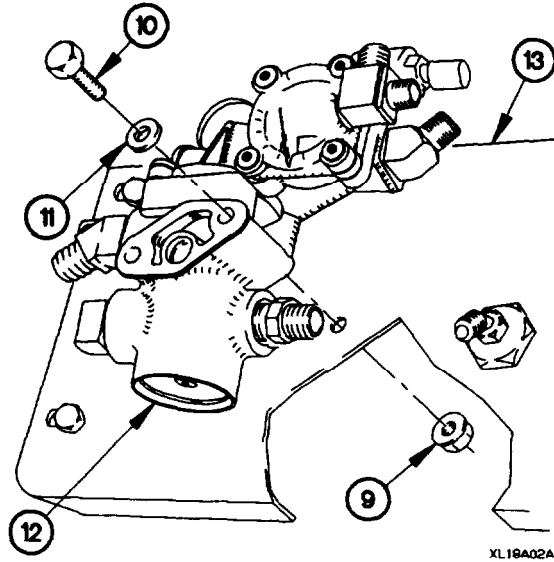
- (1) Disconnect air hose (1) from fitting (2).
- (2) Disconnect air hose (3) from 90-degree fitting (4).
- (3) Disconnect two air hoses (5) from 45-degree fittings (6).
- (4) Disconnect two air hoses (7) from run tee fitting (8).



3L16A01A

11-16. AIR BRAKE PROTECTING VALVE REPLACEMENT (CONT)

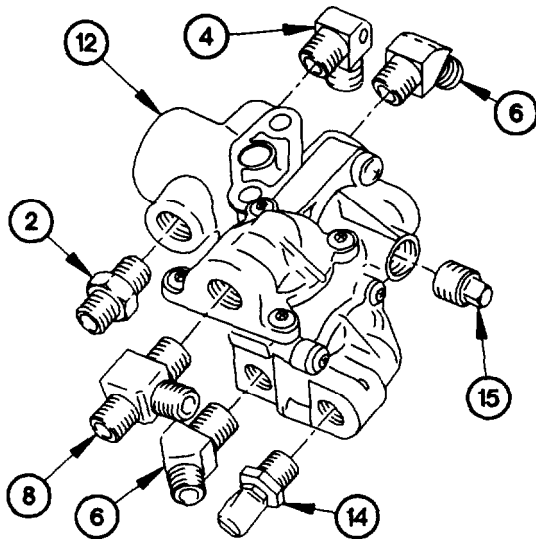
(5) Remove two self-locking nuts (9), screws (10), washers (11), and air brake protecting valve (12) from panel (13). Discard self-locking nuts.



XL18A02A

NOTE

Note orientation of fittings prior to removal.



XL18A03A

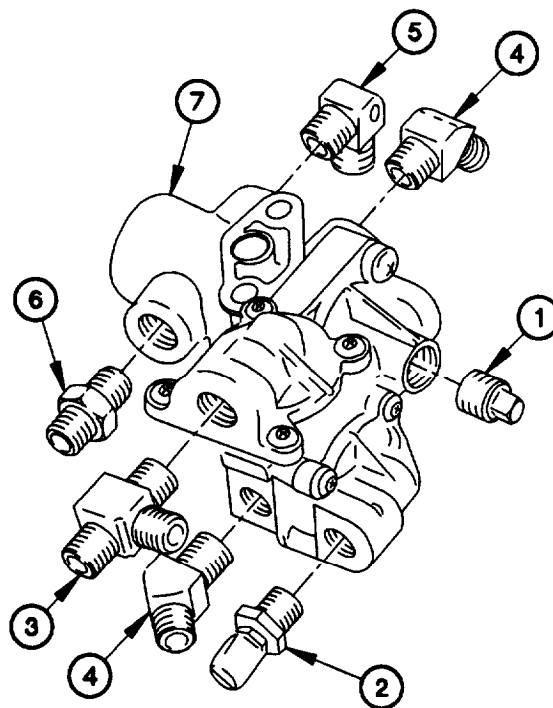
- (6) Remove fitting (2) from air brake protecting valve (12).
- (7) Remove 90-degree fitting (4) from air brake protecting valve (12).
- (8) Remove two 45-degree fittings (6) from air brake protecting valve (12).
- (9) Remove run tee fitting (8) from air brake protecting valve (12).
- (10) Remove relief valve (14) from air brake protecting valve (12).
- (11) Remove plug (15) from air brake protecting valve (12).

b. Air Brake Protecting Valve Installation.

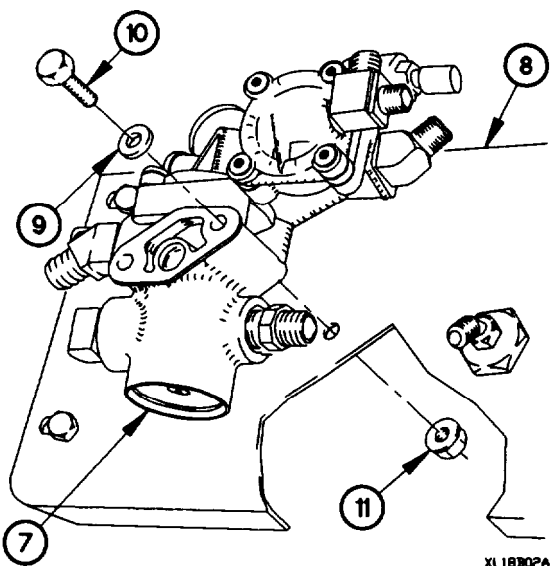
WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.

- (1) Apply antiseize compound to threads of plug (1), relief valve (2), run tee fitting (3), two 45-degree fittings (4), 90-degree fitting (5) and fitting (6).
- (2) Install plug (1) in air brake protecting valve (7).
- (3) Install relief valve (2) in air brake protecting valve (7).
- (4) Install run tee fitting (3) in air brake protecting valve (7).
- (5) Install two 45-degree fittings (4) in air brake protecting valve (7).
- (6) Install 90-degree fitting (5) in air brake protecting valve (7).
- (7) Install fitting (6) in air brake protecting valve (7).



XL18B01A

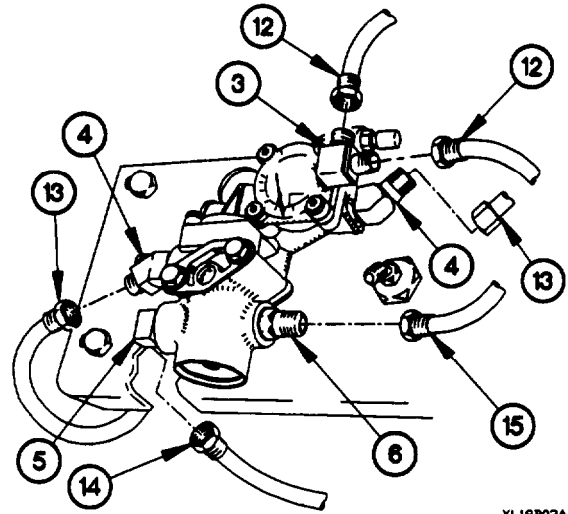


XL18B02A

- (8) Position air brake protecting valve (7) on panel (8) with two washers (9), screws (10) and self-locking nuts (11).
- (9) Tighten two self-locking nuts (11) to 14-18 lb-ft (20-24 N•m).

11-16. AIR BRAKE PROTECTING VALVE REPLACEMENT (CONT)

- (10) Connect two air hoses (12) to run tee fitting (3).
- (11) Connect two air hoses (13) to 45-degree fittings (4).
- (12) Connect air hose (14) to 90-degree fitting (5).
- (13) Connect air hose (15) to fitting (6).



XL12B03A

c. Follow-On Maintenance.

- (1) Start engine (TM 9-2320-365-10) and allow time for air pressure to reach operating pressure.
- (2) Shut down engine (TM 9-2320-365-10).
- (3) Check around air brake protecting valve and hoses for air leaks.
- (4) Start engine (TM 9-2320-365-10).
- (5) Road test vehicle and check for proper brake operation.
- (6) Shut down engine (TM 9-2320-365-10).

End of Task.

11-17. PARK CONTROL TWO-WAY CHECK VALVE REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

- Engine shut down (TM 9-2320-365-10).
- Air tanks drained (TM 9-2320-365-10).

Tools and Special Tools

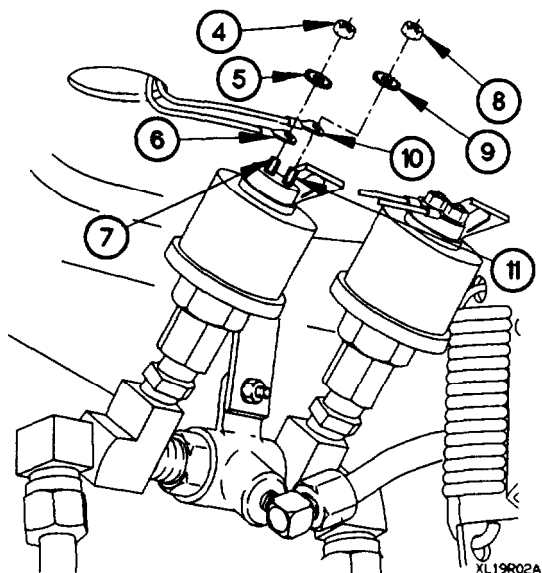
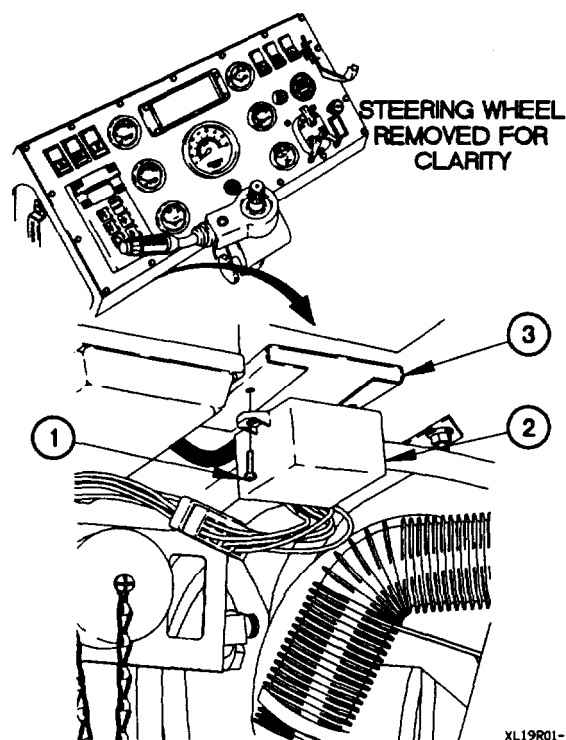
- Tool Kit, Genl Mech (Item 44, Appendix C)
- Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)

Materials/Parts

- Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)
- Antiseize Compound (Item 14, Appendix D)
- Nut, Self-Locking (Item 148, Appendix G)
- Lockwasher (4) (Item 90, Appendix G)

a. Removal.

- (1) Remove two screws (1) and frequency ECU (2) from bracket (3).



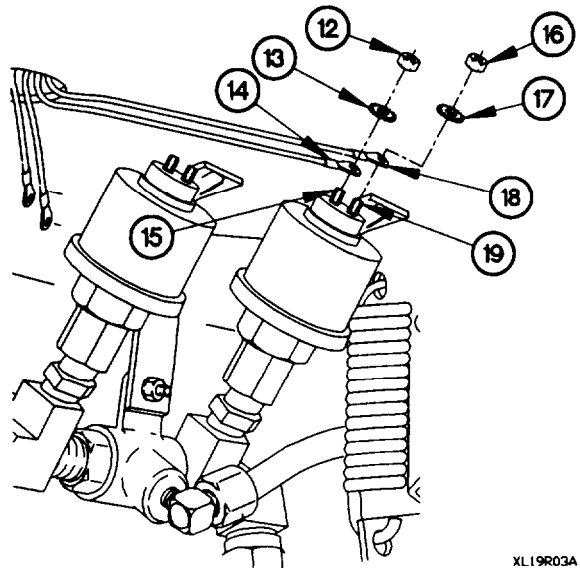
NOTE

Tag terminal lugs and connection points prior to disconnecting.

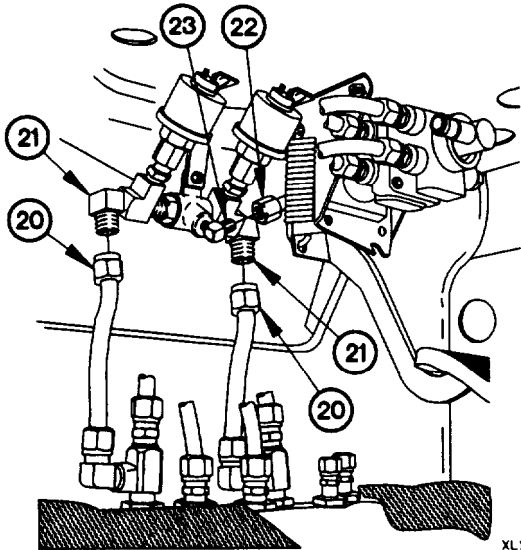
- (2) Remove nut (4), lockwasher (5), and terminal lug TL150 (6) from front brake air pressure transmitter terminal WK (7). Discard lockwasher.
- (3) Remove nut (8), lockwasher (9), and terminal lug TL156 (10) from front brake air pressure transmitter terminal G (11). Discard lockwasher.

11-17. PARK CONTROL TWO-WAY CHECK VALVE REPLACEMENT (CONT)

- (4) Remove nut (12), lockwasher (13), and terminal lug TL151 (14) from rear brake air pressure transmitter terminal WK (15). Discard lockwasher.
- (5) Remove nut (16), lockwasher (17), and terminal lug TL157 (18) from rear brake air pressure transmitter terminal G (19). Discard lockwasher.



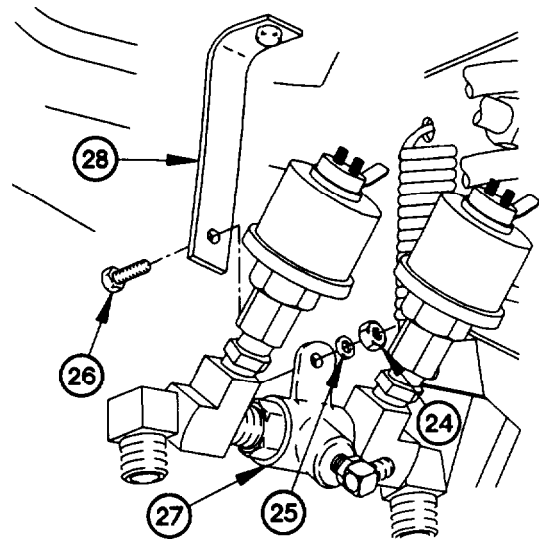
XL19R03A



XL19R04A

- (6) Disconnect two air hoses (20) from 90-degree fittings (21).
- (7) Disconnect air hose (22) from 90-degree fitting (23).

- (8) Remove self-locking nut (24), washer (25), screw (26), and park control two-way check valve (27) from bracket (28). Discard self-locking nut.



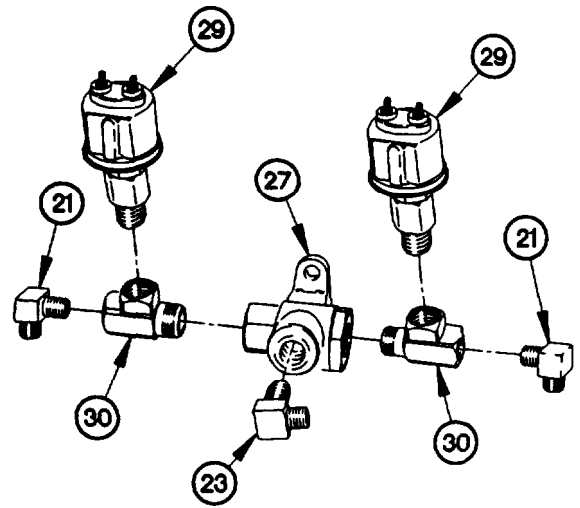
XL19R05A

- (9) Remove two air pressure transmitters (29) from tee fittings (30).

NOTE

Note orientation of fittings prior to removal.

- (10) Remove two 90-degree fittings (21) from tee fittings
- (11) Remove two tee fittings (30) from park control two-way check valve (27).
- (12) Remove 90-degree fitting (23) from park control two-way check valve (27).

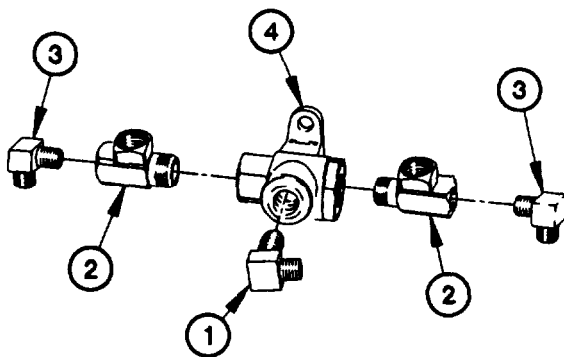


XL19R06A

b. Installation.

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.



XL19I01A

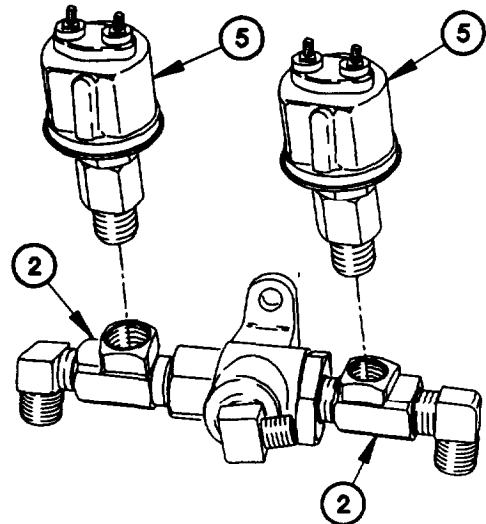
- (1) Apply antiseize compound to threads of 90-degree fitting (1), two tee fittings (2), and 90-degree fittings (3).
- (2) Install 90-degree fitting (1) in park control two-way check valve (4).
- (3) Install two tee fittings (2) in park control two-way check valve (4).
- (4) Install two 90-degree fittings (3) in tee fittings (2).

11-17. PARK CONTROL TWO-WAY CHECK VALVE REPLACEMENT (CONT)

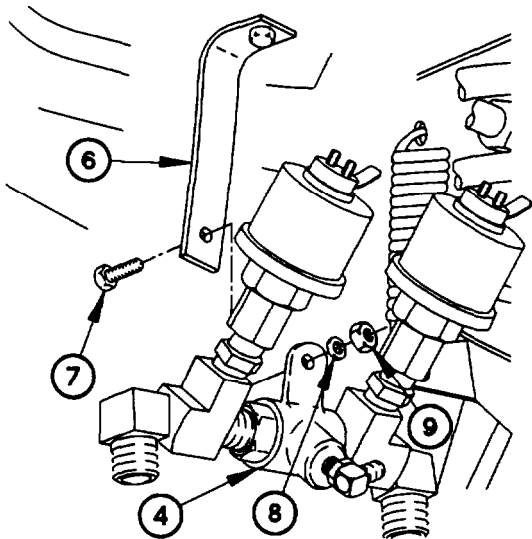
WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.

- (5) Apply antiseize compound to threads of two air pressure transmitters (5).
- (6) Install two air pressure transmitters (5) in tee fittings (2).



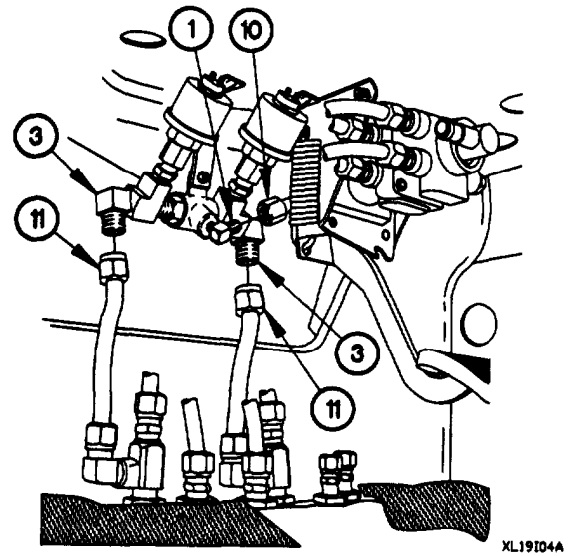
XL19102A



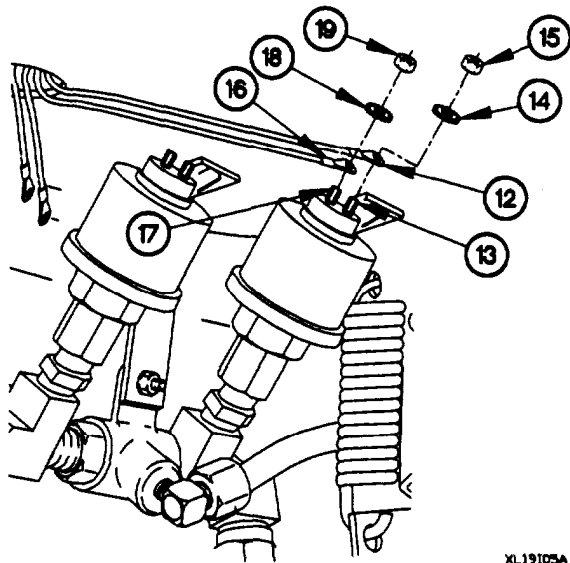
XL19103A

- (7) Position park control two-way check valve (4) on bracket (6) with screw (7), washer (8), and self-locking nut (9).
- (8) Tighten self-locking nut (9) to 13-16 lb-ft (18-22 N•m).

- (9) Connect air hose (10) to 90-degree fitting (1).
- (10) Connect two air hoses (11) to 90-degree fittings (3).



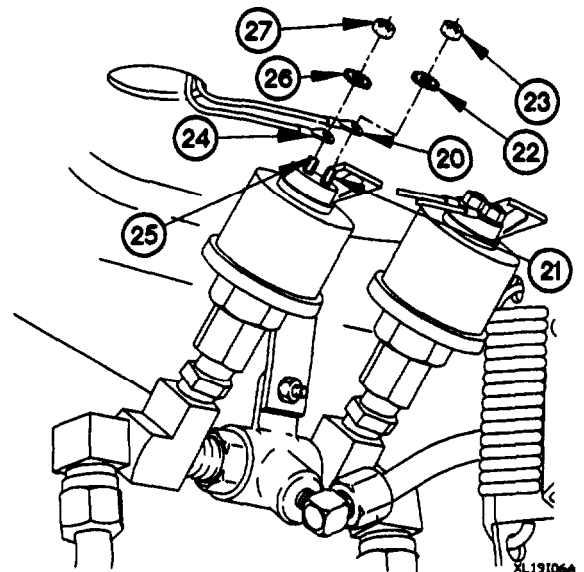
XL19104A



XL19105A

- (11) Install terminal lug TL157 (12) on rear brake air pressure transmitter terminal G (13) with lockwasher (14) and nut (15).
- (12) Install terminal lug TL151 (16) on rear brake air pressure transmitter terminal WK (17) with lockwasher (18) and nut (19).

- (13) Install terminal lug TL156 (20) on front brake air pressure transmitter terminal G (21) with lockwasher (22) and nut (23).
- (14) Install terminal lug TL150 (24) on front brake air pressure transmitter terminal WK (25) with lockwasher (26) and nut (27).



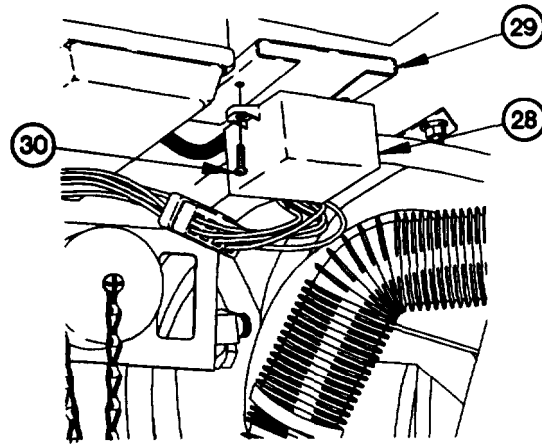
XL19106A

11-17. PARK CONTROL TWO-WAY CHECK VALVE REPLACEMENT (CONT)

- (15) Install frequency ECU (28) on bracket (29) with two screws (30).

c. Follow-On Maintenance.

- (1) Start engine (TM 9-2320-365-10).
- (2) Check park control two-way check valve and air hoses for air leaks and proper operation.
- (3) Check operation of FRONT BRAKE AIR and REAR BRAKE AIR pressure gages.
- (4) Shut down engine (TM 9-2320-365-10).



XL19107A

End of Task.

11-18. SYSTEM PARK AND TRAILER AIR SUPPLY VALVES REPLACEMENT

This task covers:

- a. Removal
- b. Installation

c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

- Engine shut down (TM 9-2320-365-10).
- Air tanks drained (TM 9-2320-365-10).

Materials/Parts

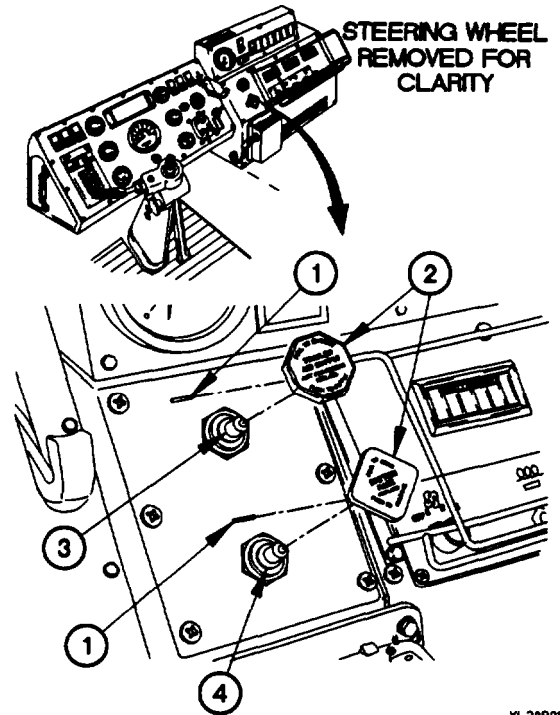
- Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)
- Sealing Compound (Item 63, Appendix D)

Tools and Special Tools

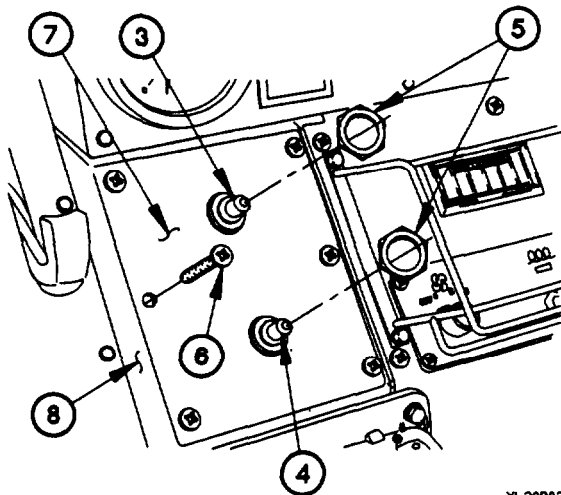
- Tool Kit, Genl Mech (Item 44, Appendix C)

a. Removal.

- (1) Remove two roll pins (1) and knobs (2) from TRAILER AIR SUPPLY valve (3) and SYSTEM PARK valve (4).



XL20R011



XL20R021

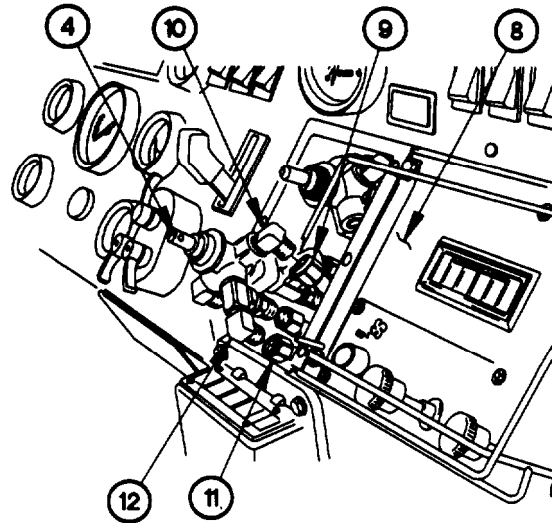
- (2) Remove two nuts (5) from TRAILER AIR SUPPLY valve (3) and SYSTEM PARK valve (4).
- (3) Remove six screws (6) and panel (7) from personnel heater assembly (8).

11-18. SYSTEM PARK AND TRAILER AIR SUPPLY VALVES REPLACEMENT (CONT)

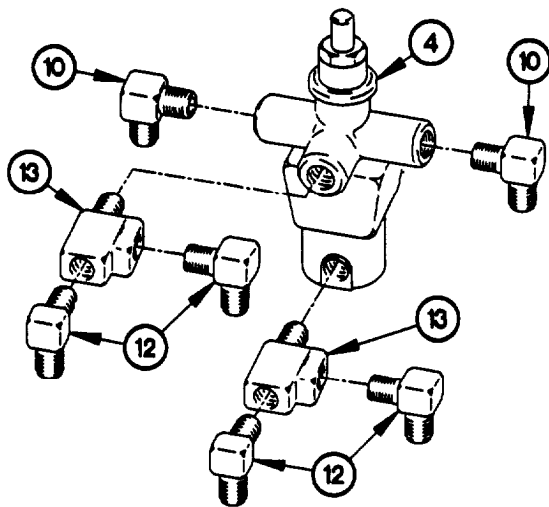
NOTE

Tag air hoses and connection points prior to disconnecting.

- (4) Disconnect two air hoses (9) from 90-degree fittings (10).
- (5) Disconnect four air hoses (11) from 90-degree fittings (12).
- (6) Remove SYSTEM PARK valve (4) from personnel heater assembly (8).



XL20R031



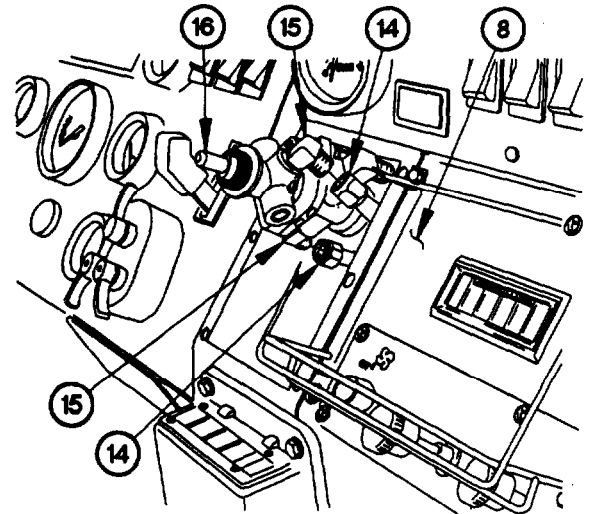
XL20R04A

NOTE

Note orientation of fittings prior to removal.

- (7) Remove two 90-degree fittings (10) from SYSTEM PARK valve (4).
- (8) Remove two run tee fittings (13) from SYSTEM PARK valve (4).
- (9) Remove four 90-degree fittings (12) from two run tee fittings (13).

- (10) Disconnect four air hoses (14) from 90-degree fittings (15).
- (11) Remove TRAILER AIR SUPPLY valve (16) from personnel heater assembly (8).

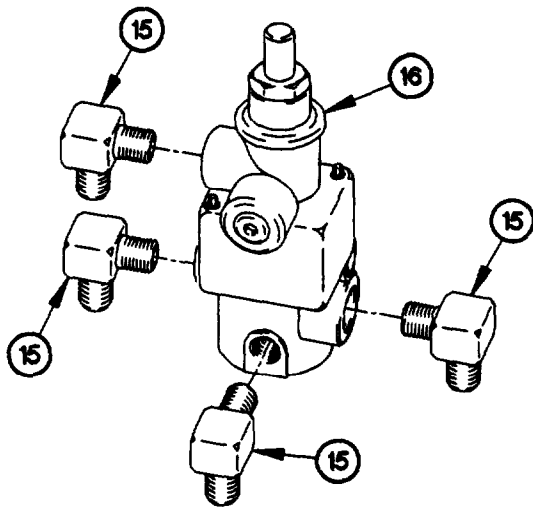


XL20R051

NOTE

Note orientation of fittings prior to removal.

- (12) Remove four 90-degree fittings (15) from TRAILER AIR SUPPLY valve (16).



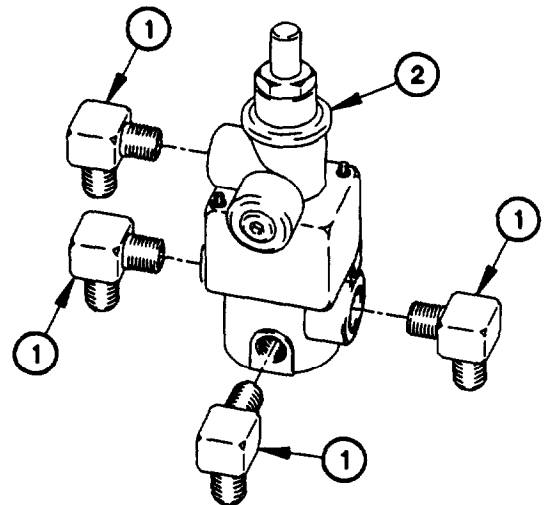
XL20R06A

b. Installation.

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.

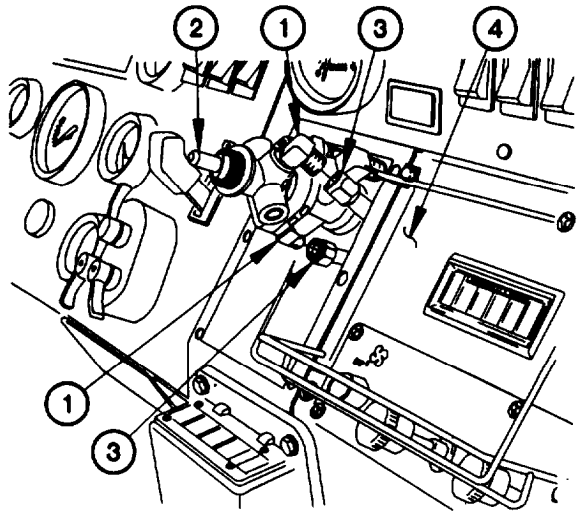
- (1) Apply sealing compound to threads of four 90-degree fittings (1).
- (2) Install four 90-degree fittings (1) in TRAILER AIR SUPPLY valve (2).



XL20101A

11-18. SYSTEM PARK AND TRAILER AIR SUPPLY VALVES REPLACEMENT (CONT)

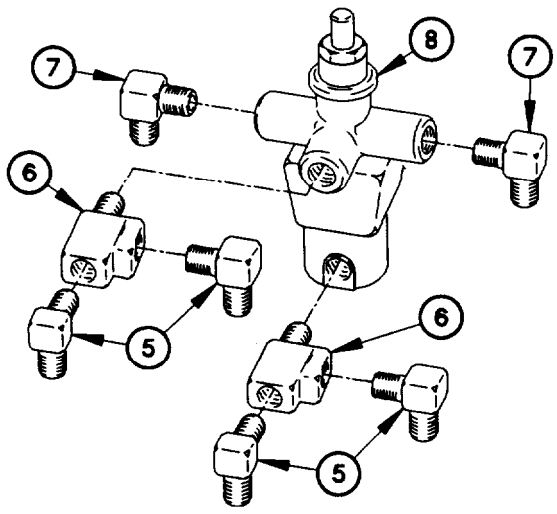
- (3) Connect four air hoses (3) to 90-degree fittings (1).
- (4) Position TRAILER AIR SUPPLY valve (2) in personnel heater assembly (4).



XL201021

WARNING

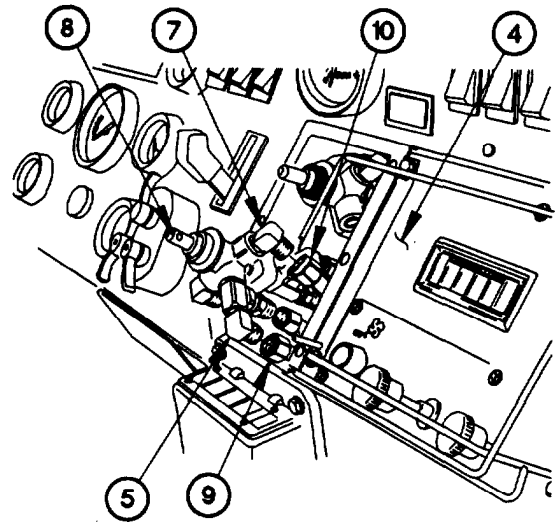
Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.



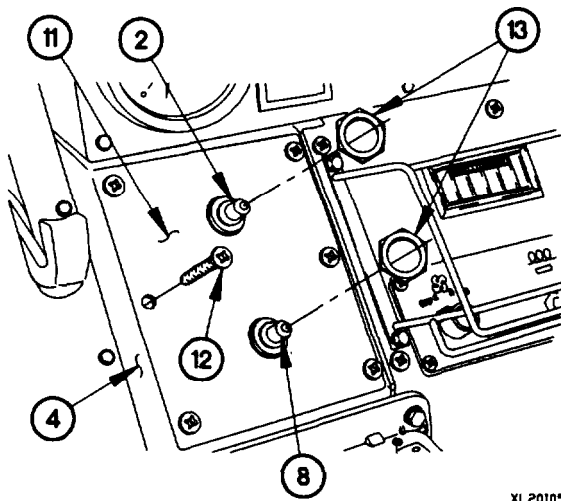
XL201031

- (5) Apply sealing compound to threads of four 90-degree fittings (5), two run tee fittings (6), and 90-degree fittings (7).
- (8) Install four 90-degree fittings (5) in two run tee fittings (6).
- (7) Install two run tee fittings (6) in SYSTEM PARK valve (8).
- (8) Install two 90-degree fittings (7) in SYSTEM PARK valve (8).

- (9) Connect four air hoses (9) to 90-degree fittings (5).
- (10) Connect two air hoses (10) to 90-degree fittings (7).
- (11) Install SYSTEM PARK valve (8) in personnel heater assembly (4).



XL201041



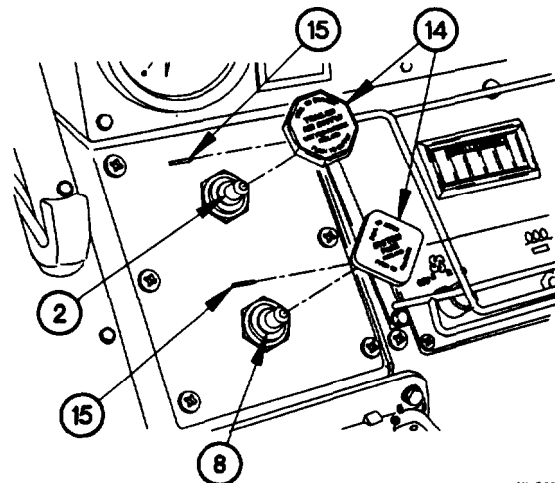
XL201051

- (12) Install panel (11) on personnel heater assembly (4) with six screws (12).
- (13) Install two nuts (13) on TRAILER AIR SUPPLY valve (2) and SYSTEM PARK valve (8).

- (15) Install two knobs (14) on TRAILER AIR SUPPLY valve (2) and SYSTEM PARK valve (8) with two roil pins (15).

c. Follow-On Maintenance.

- (1) Start engine (TM 9-2320-365-10).
- (2) Check SYSTEM PARK valve for air leaks.
- (3) Check TRAILER AIR SUPPLY valve for air leaks.
- (4) Shut down engine (TM 9-2320-365-10).



XL201061

End of Task.

11-19. BRAKE AIR HOSES REPLACEMENT

This task covers:

a. Brake Air Hose Locations

b. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Engine shut down (TM 9-2320-365-10).

Air tanks drained (TM 9-2320-365-10).

Tools and Special Tools

Tool Kit, Genl Mech (Item 44, Appendix C)

Goggles, Industrial (Item 15, Appendix C)

Materials/Parts

Cap and Plug Set (Item 15, Appendix D)

Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)

Ties, Cable, Plastic (Item 76, Appendix D)

a. Brake Air Hose Locations

WARNING

Wear appropriate eye protection when working under vehicle due to the possibility of falling debris. Failure to comply may result in injury to personnel.

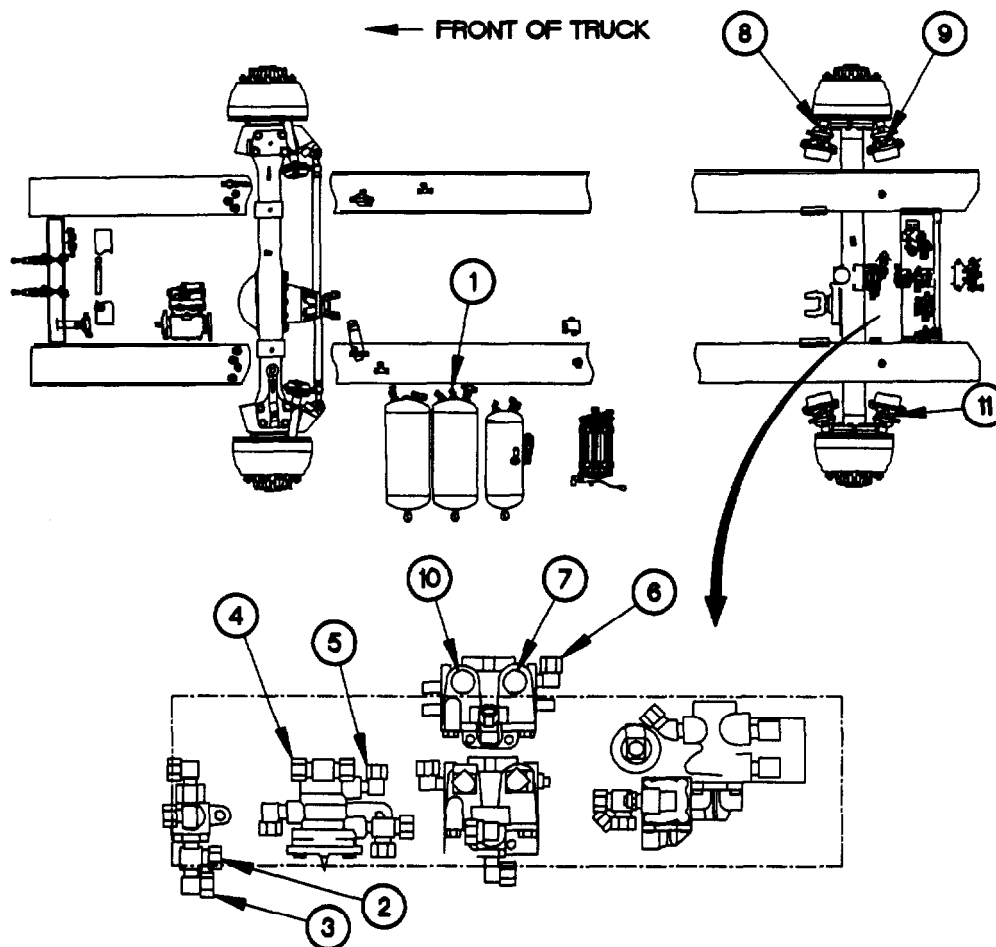
CAUTION

Cap or plug hose connections to prevent contamination. Failure to comply may result in damage to equipment.

NOTE

- This task shows locations of hoses on the vehicle. It may not be necessary to remove all hoses at one time.
- Tag hoses and connection points prior to removal.
- Note location of plastic cable ties prior to removal.
- Remove plastic cable ties as required.
- Inspect hoses and fittings for cracks, kinks, nicks, stripped threads, and cuts. Replace damaged parts.

Figure 11-3. Rear Brake Air Hose Locations



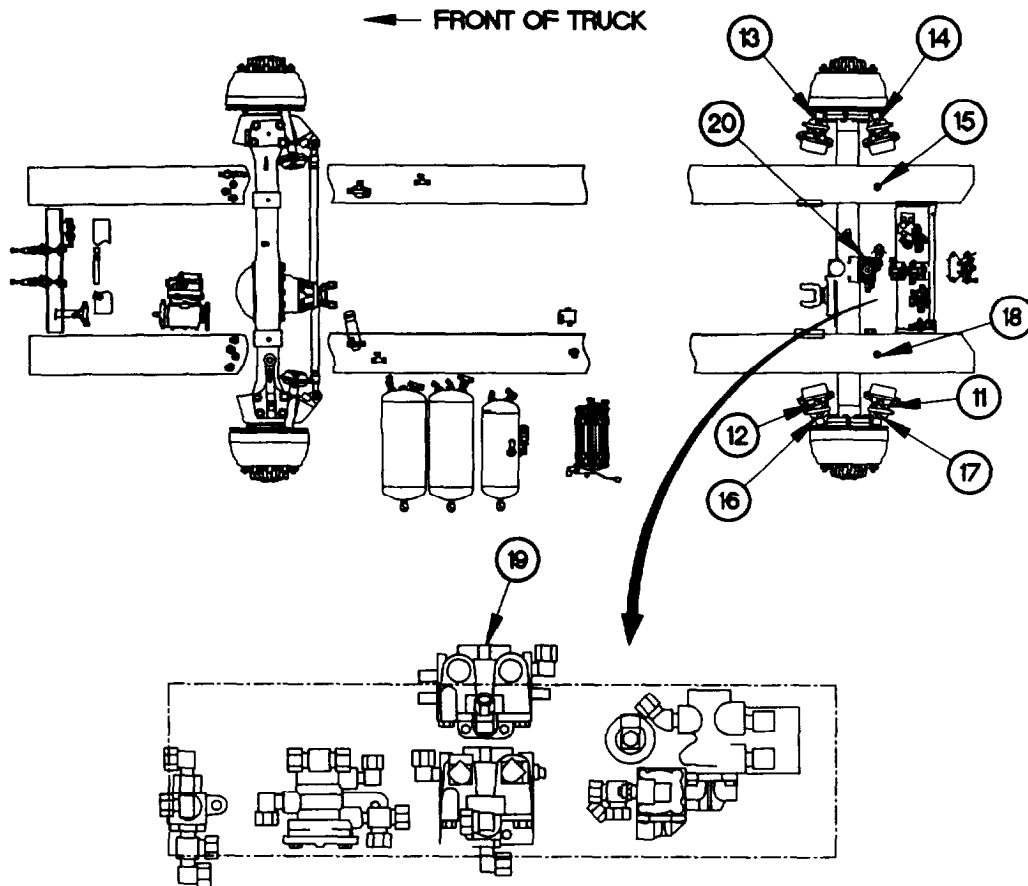
3L19H01-

Table 11-2. Rear Brake Air Hose Locations

HOSE NAME	FROM	TO
Rear brake air supply	Primary tank fitting (1)	Two way valve fitting (2)
Rear brake air tie #1	Two way valve fitting (3)	Inversion valve input fitting (4)
Rear brake air tie #2	Inversion valve input fitting (5)	Relay valve input fitting (6)
Right rear brake supply	Relay valve output B (7)	Right rear brake cylinder #1 (8)
Right rear brake tie	Right rear brake cylinder #1 (8)	Right rear brake cylinder #2 (9)
Left rear brake supply	Relay valve output C (10)	Left rear brake cylinder #1 (11)

11-19. BRAKE AIR HOSES REPLACEMENT (CONT)

Figure 11-3. Rear Brake Air Hose Locations (Cont)

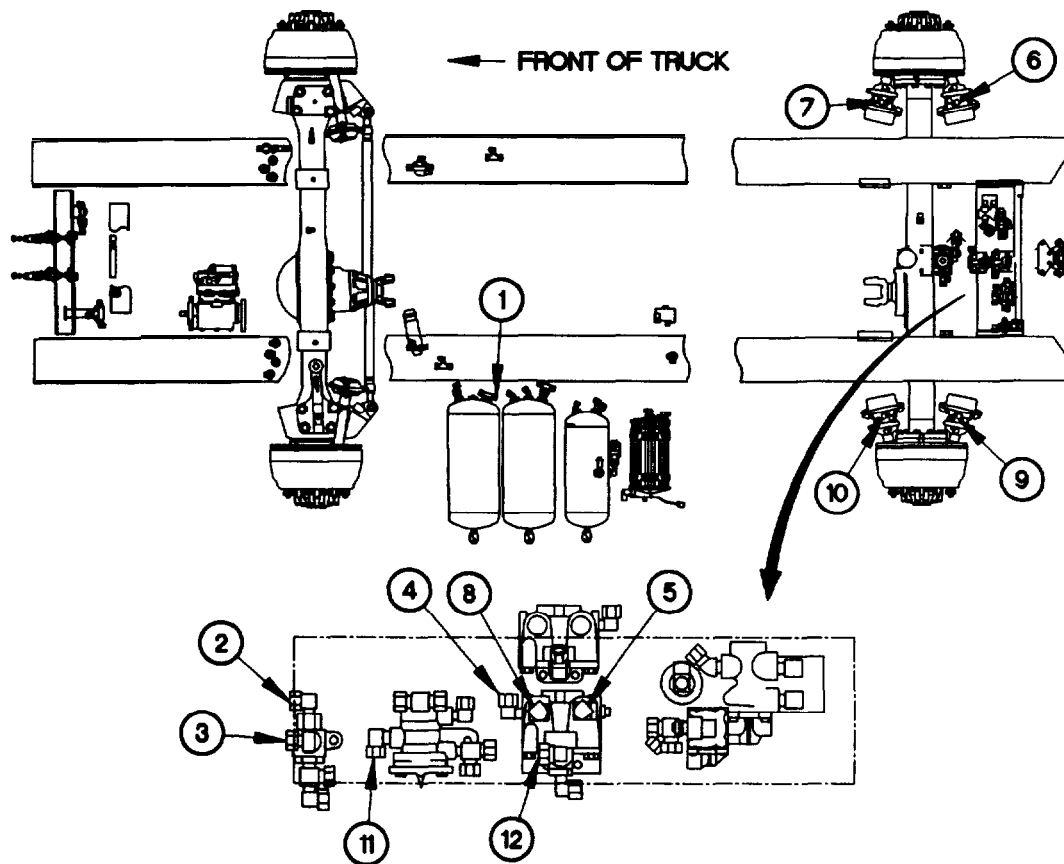


3L19402-

Table 11-2. Rear Brake Air Hose Locations (Cont)

HOSE NAME	FROM	TO
Left rear brake tie	Left rear brake cylinder #1 (11)	Left rear brake cylinder #2 (12)
Right rear break tie	Right rear brake cylinder #2 vent fitting (13)	Right rear brake cylinder #1 vent fitting (14)
Right rear brake vent	Right rear brake cylinder #1 vent fitting (14)	Vent fitting (15)
Left rear brake vent tie	Left rear brake cylinder #2 vent fitting (16)	Left rear brake cylinder #1 vent fitting (17)
Left rear brake vent	Left rear brake cylinder #1 vent fitting (17)	Vent Fitting (18)
Load sensing pilot	Relay valve fitting (19)	Load sensing valve output (20)

Figure 11-4. Rear Brake Control Air Hose Locations



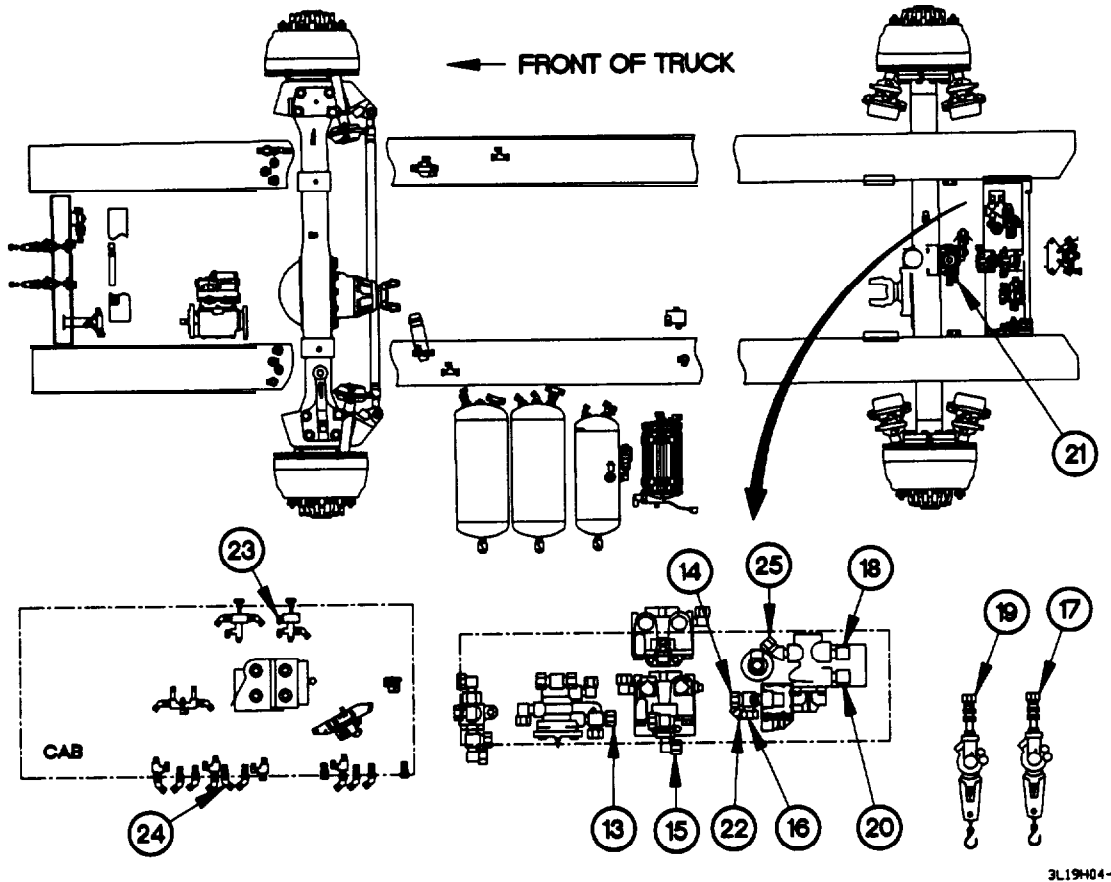
3L19403-

Table 11-3. Rear Brake Control Air Hose Locations

AIR HOSE NAME	FROM	TO
Rear wheel valve supply	Secondary tank fitting (1)	Two way valve input fitting (2)
Anti-compound valve supply	Two way valve output fitting (3)	Anti-compound valve input fitting (4)
Right rear supply	Anti-compound valve output fitting (5)	Right rear cylinder #1 fitting (6)
Right rear supply tie	Right rear cylinder #1 fitting (6)	Right rear cylinder #2 fitting (7)
Left rear supply	Anti-compound valve output fitting (8)	Left rear cylinder #1 fitting (9)
Left rear supply tie	Left rear cylinder #1 fitting (9)	Left rear cylinder #2 fitting (10)
Anti-compound valve pilot	Inversion valve output fitting (11)	Anti-compound valve output pilot (12)

11-19. BRAKE AIR HOSES REPLACEMENT (CONT)

Figure 11-4. Rear Brake Control Air Hose Locations (Cont)

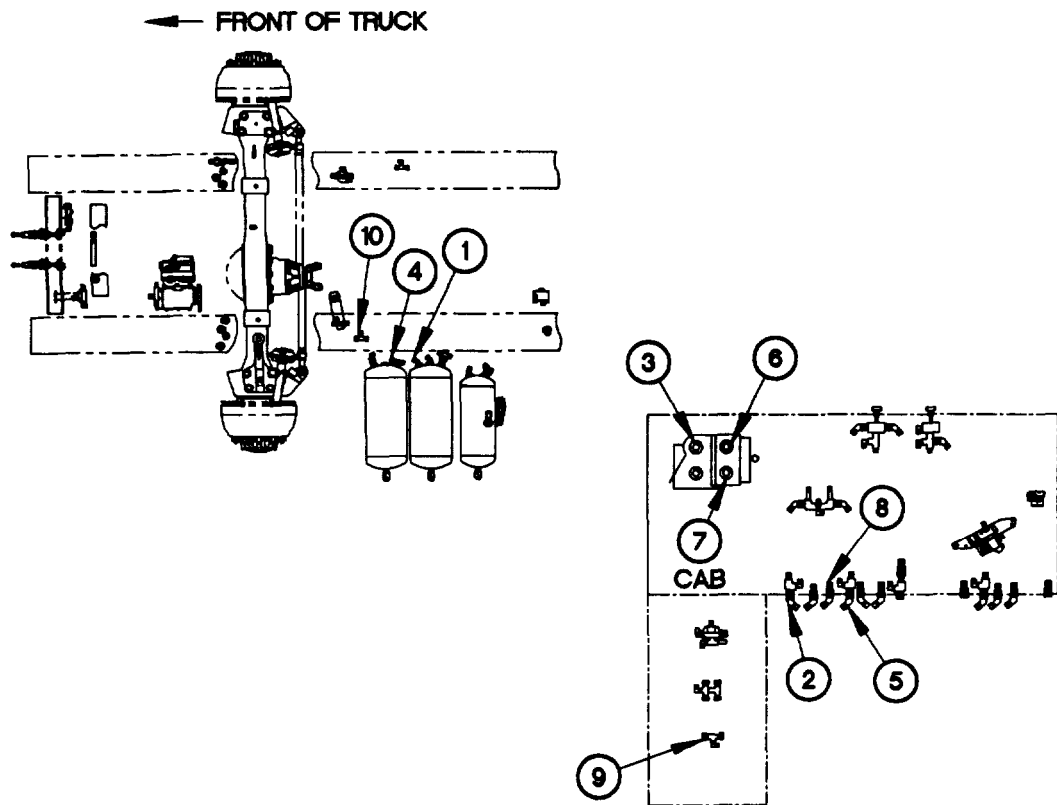


3L19404-

Table 11-3. Rear Brake Control Air Hose Locations (Cont)

AIR HOSE NAME	FROM	TO
Anti-compound pilot	Anti-compound pilot input fitting (13)	Air brake protecting valve input fitting (14)
Inversion valve pilot	Inversion valve pilot input (15)	Air brake protecting valve input fitting (16)
Rear gladhand emergency	Rear gladhand emergency input fitting (17)	Air brake protecting valve pilot input fitting (18)
Rear gladhand service	Rear gladhand service output fitting (19)	Air brake protecting valve output fitting (20)
Load sensing supply tie	Load sensing supply tee (21)	Air brake protecting valve fitting (22)
Trailer supply	Trailer supply output fitting (23)	Bulkhead fitting (24)
Trailer supply tie	Bulkhead fitting (24)	Air brake protecting input fitting (25)

Figure 11-5. Front Brake Air Hose Locations



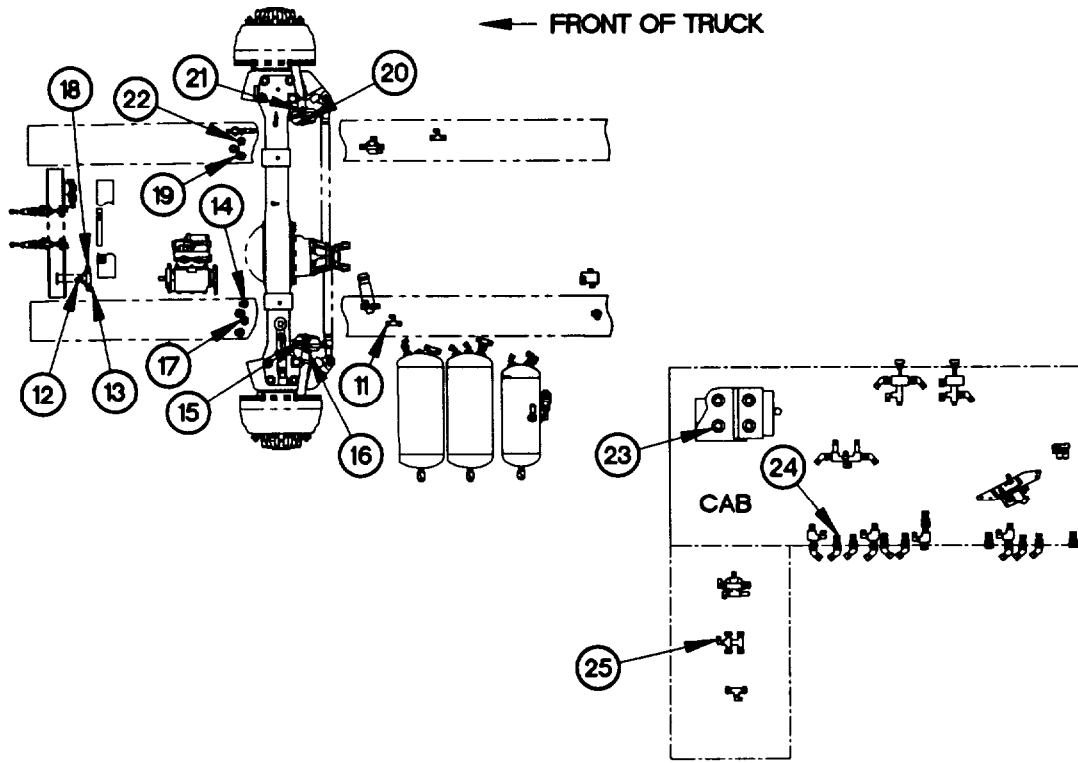
3L19-05-

Table 11-4. Front Brake Air Hose Locations

AIR HOSE NAME	FROM	TO
Primary tank foot valve supply	Primary tank output fitting (1)	Cab bulkhead fitting (2)
Primary tank foot valve supply tie	Cab bulkhead fitting (2)	Foot valve input fitting (3)
Secondary tank foot valve supply	Secondary tank output fitting (4)	Cab bulkhead fitting (5)
Secondary tank foot valve tie	Cab bulkhead fitting (5)	Foot valve input fitting (6)
Foot valve front brake supply	Foot valve front brake output (7)	Bulkhead fitting (8)
Foot valve front brake supply tie #1	Cab bulkhead fitting (8)	Two way valve fitting (9)
Foot valve front brake supply tie #2	Two way valve fitting (9)	Tee fitting (10)

11-19. BRAKE AIR HOSES REPLACEMENT (CONT)

Figure 11-5. Front Brake Air Hose Locations (Cont)

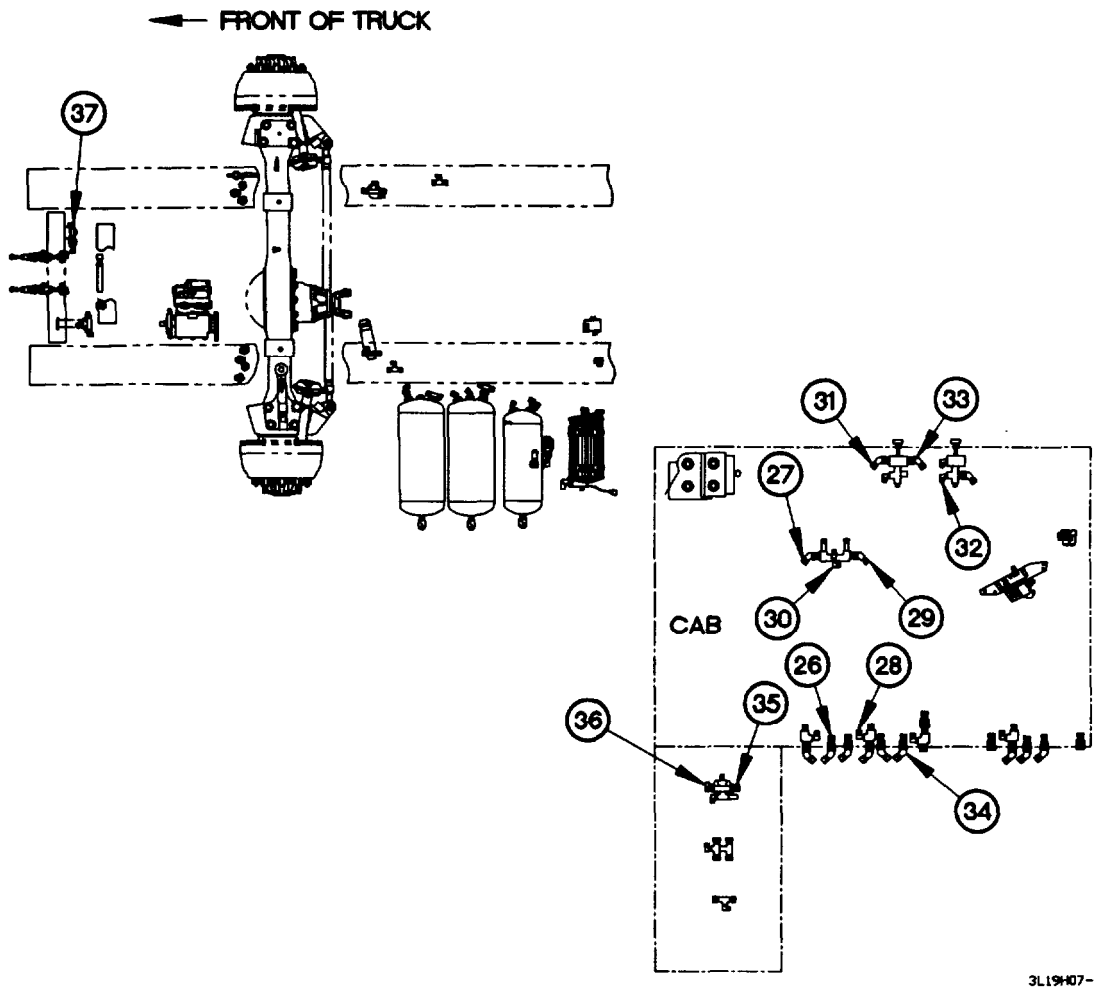


3L19H06-

Table 11-4. Front Brake Air Hose Locations (Cont)

AIR HOSE NAME	FROM	TO
Foot valve front brake supply tie #3	Tee fitting (11)	Quick release valve input fitting (12)
Left front brake supply	Quick release valve output fitting (13)	Bulkhead fitting (14)
Left front brake supply tie	Bulkhead fitting (14)	Left front brake cylinder fitting (15)
Left front brake vent	Left front cylinder vent fitting (16)	Bulkhead vent fitting (17)
Right front brake supply	Quick release valve output fitting (18)	Bulkhead fitting (19)
Right front brake supply tie	Bulkhead fitting (19)	Right front brake cylinder fitting (20)
Right front brake vent	Right front cylinder vent fitting (21)	Bulkhead vent fitting (22)
Foot valve output	Foot valve load sensing output fitting (23)	Bulkhead fitting (24)
Foot valve output tie	Bulkhead fitting (24)	Two way valve input fitting (25)

Figure 11-6. Front Brake Air Hose Locations (Cont)



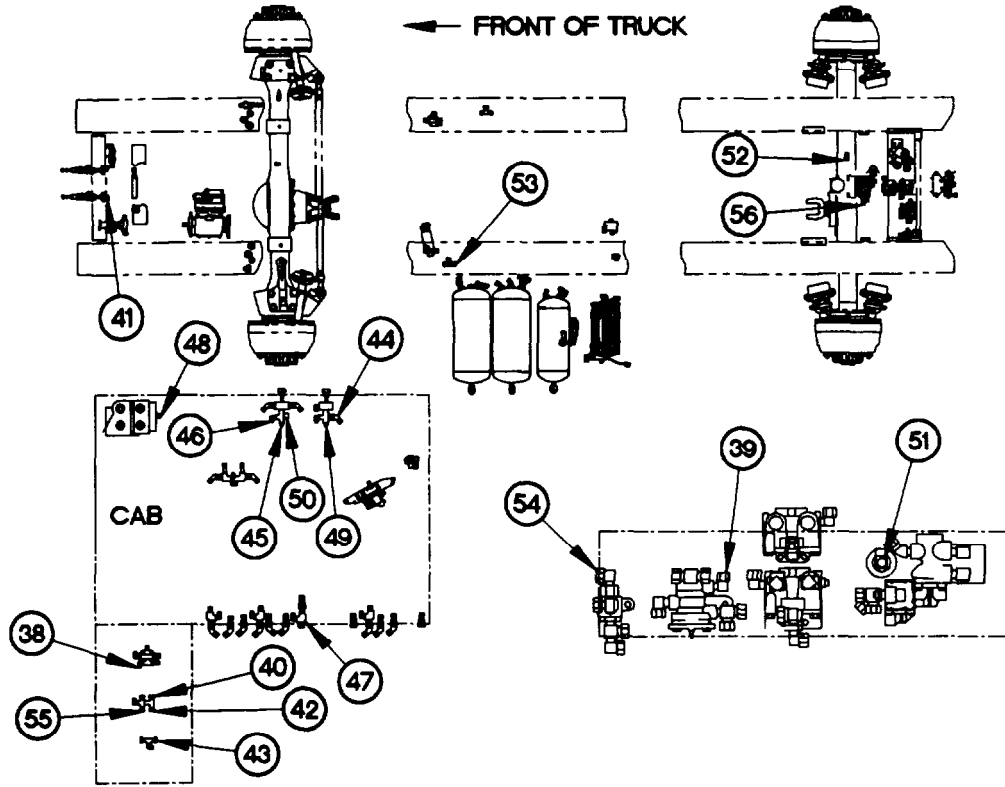
3L19407-

Table 11-4. Front Brake Air Hose Locations (Cont)

AIR HOSE NAME	FROM	TO
Primary supply	Primary supply tee fitting (26)	Check valve fitting (27)
Secondary supply	Secondary tee fitting (28)	Check valve fitting (29)
Park control input	Check valve output (30)	Park control input fitting (31)
Trailer pilot input	Park control input fitting (31)	Trailer supply pilot fitting (32)
Park control output	Park control valve output fitting (33)	Bulkhead fitting (34)
Two way valve input #1	Bulkhead fitting (34)	Two way valve input #1 fitting (35)
Two way valve input #2	Two way valve input #2 fitting (36)	Gladhand emergency supply fitting (37)

11-19. BRAKE AIR HOSES REPLACEMENT (CONT)

Figure 11-5. Front Brake Air Hose Locations (Cont)



3L19H08-

Table 11-4. Front Brake Air Hose Locations (Cont)

AIR HOSE NAME	FROM	TO
Inversion valve supply	Two way valve output fitting (38)	Inversion valve input supply fitting (39)
Gladhand service	Gladhand valve service fitting (40)	Two way valve input tee (41)
Gladhand service tie	Two way valve input tee (42)	Two way valve input fitting (43)
Trailer supply vent	Trailer supply vent (44)	Park control vent tee (45)
Park control vent	Park control vent tee (46)	Vent tee (47)
Foot control vent	Park control vent fitting (48)	Vent tee (47)
Interconnect	Trailer fitting (49)	Park control fitting (50)
Rear axle vent	Trailer protection vent fitting (51)	Rear axle vent fitting (52)
Foot valve rear break supply	Tee fitting (53)	Two way valve (54)
Load sensing	Two way valve fitting (55)	Load sensing input fitting (56)

b. Follow-On Maintenance

- (1) Start engine (TM 9-2320-365-10).
- (2) Check around air hoses and fittings for air leaks.
- (3) Shut down engine (TM 9-2320-365-10).

End of Task

11-20. SECONDARY AND PRIMARY AIR TANKS REPLACEMENT

This task covers:

- | | |
|------------------------------------|----------------------------------|
| a. Secondary Air Tank Removal | d. Primary Air Tank Installation |
| b. Secondary Air Tank Installation | e. Follow-On Maintenance |
| c. Primary Air Tank Removal | |

INITIAL SETUP

Equipment Conditions

- Engine shut down (TM 9-2320-365-10).
- Air tanks drained (TM 9-2320-365-10).

Tools and Special Tools

- Tool Kit, Genl Mech (Item 44, Appendix C)
- Goggles, Industrial (Item 15, Appendix C)
- Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)

Materials/Parts

- Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)
- Antiseize Compound (Item 14, Appendix D)

WARNING

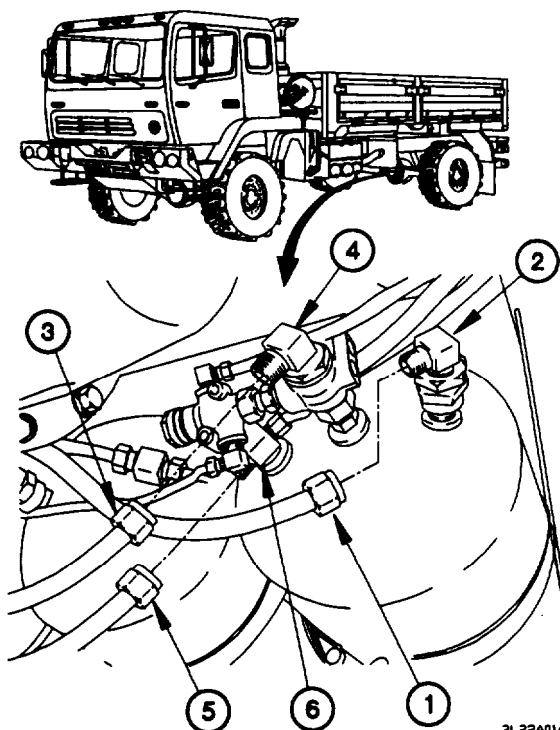
Wear appropriate eye protection when working under Vehicle due to the possibility of falling debris. Failure to comply may result in injury to personnel.

a. Secondary Air Tank Removal.

NOTE

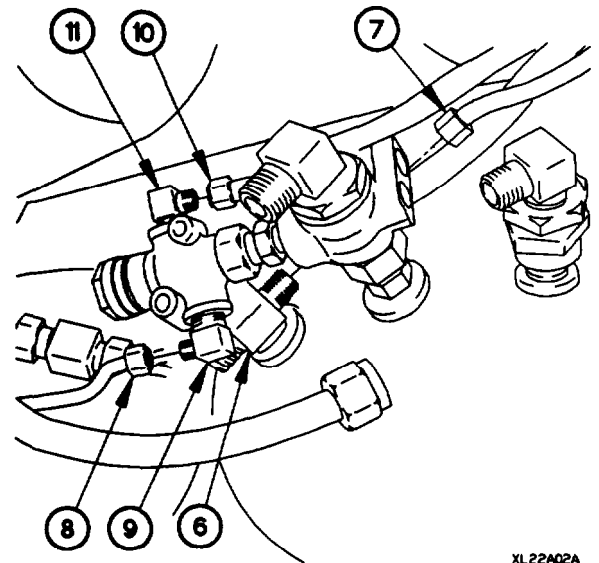
Tag air hoses and connection points prior to disconnecting.

- (1) Disconnect air hose (1) from 90-degree fitting (2).
- (2) Disconnect air hose (3) from 90-degree fitting (4).
- (3) Disconnect air hose (5) from branch tee fitting (6).

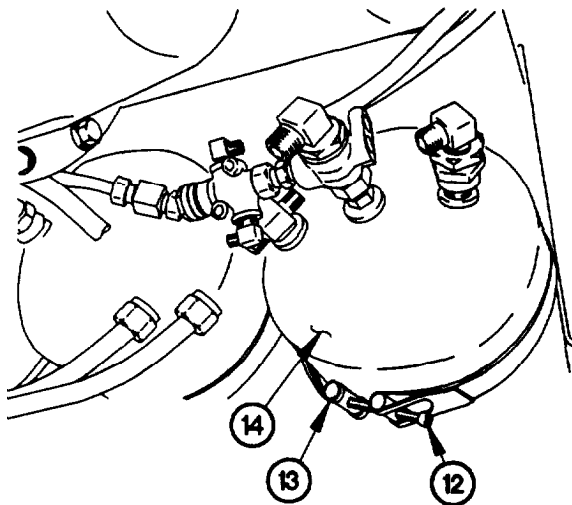


3L22A01A

- (4) Disconnect air hose (7) from branch tee fitting (6).
- (5) Disconnect air hose (8) from 90-degree fitting (9).
- (6) Disconnect air hose (10) from 90-degree fitting (11).



XL22A02A



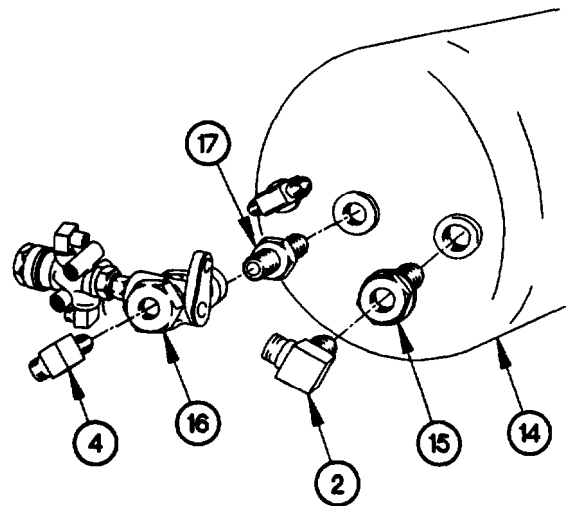
XL22A03A

- (7) Loosen two screws (12) in clamps (13).
- (8) Remove secondary air tank (14) from clamps (13).

NOTE

Note orientation of fittings prior to removal.

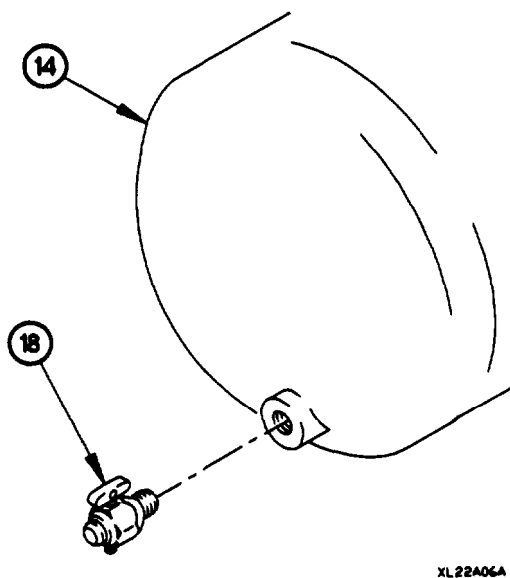
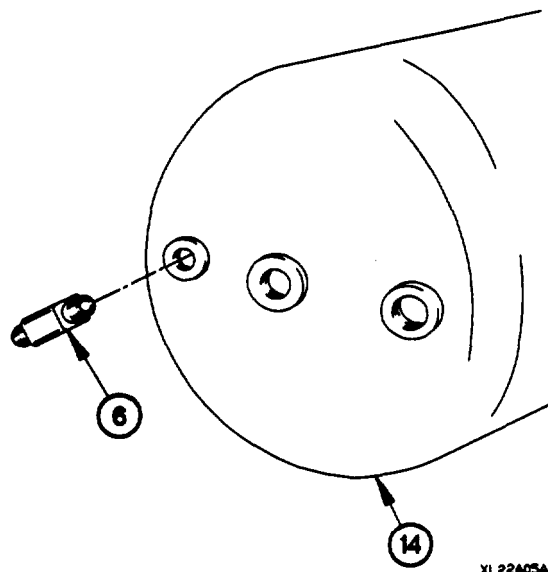
- (9) Remove 90-degree fitting (2) from one-way check valve (15).
- (10) Remove one-way check valve (15) from secondary air tank (14).
- (11) Remove 90-degree fitting (4) from two-way check valve (16).
- (12) Remove two-way check valve (16) from reducer fitting (17).
- (13) Remove reducer fitting (17) from secondary air tank (14).



XL22A04A

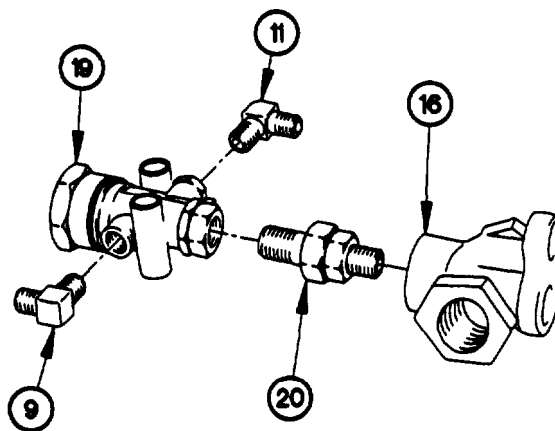
11-20. SECONDARY AND PRIMARY AIR TANKS REPLACEMENT (CONT)

- (14) Remove branch tee fitting (6) from secondary air tank (14).



- (15) Remove drain valve (18) from secondary air tank (14).

- (16) Remove inversion valve (19) from reducer fitting (20).
 (17) Remove reducer fitting (20) from two-way check valve (16).
 (18) Remove 90-degree fittings (9 and 11) from inversion valve (19).

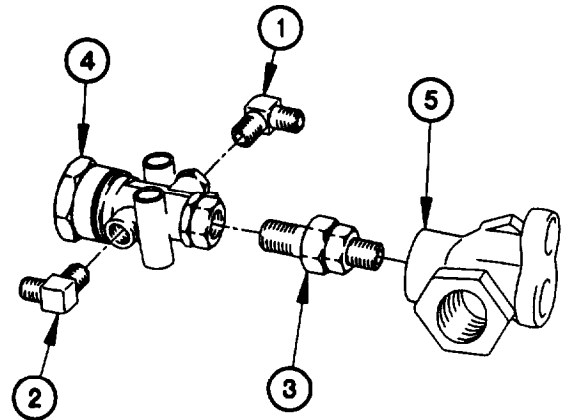


b. Secondary Air Tank Installation.

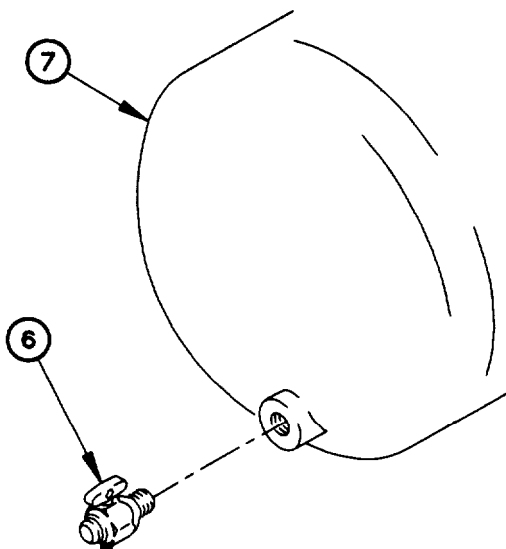
WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.

- (1) Apply antiseize compound to threads of 90-degree fittings (1 and 2), and threads on both sides of reducer fitting (3).
- (2) Install 90-degree fittings (1 and 2) in inversion valve (4).
- (3) Install reducer fitting (3) in two-way check valve (5).
- (4) Install inversion valve (4) on reducer fitting (3).



XL22801A



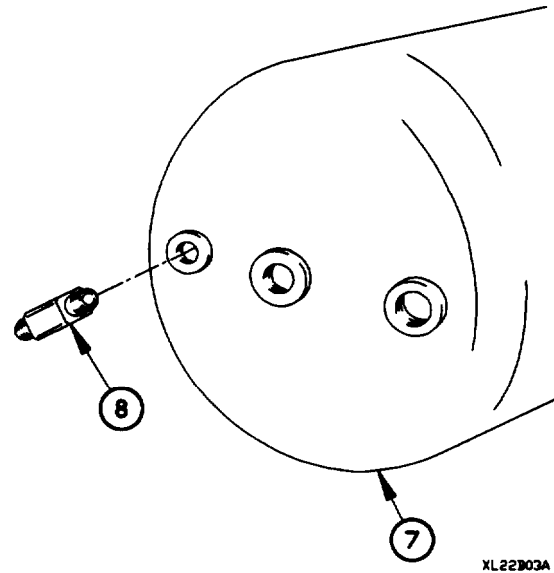
XL22802A

- (5) Apply antiseize compound to threads of drain valve (6).
- (6) Install drain valve (6) in secondary air tank (7).

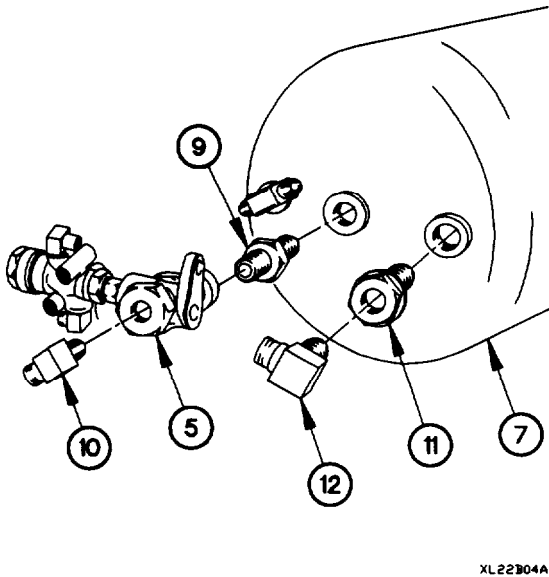
11-20. SECONDARY AND PRIMARY AIR TANKS REPLACEMENT (CONT)

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.

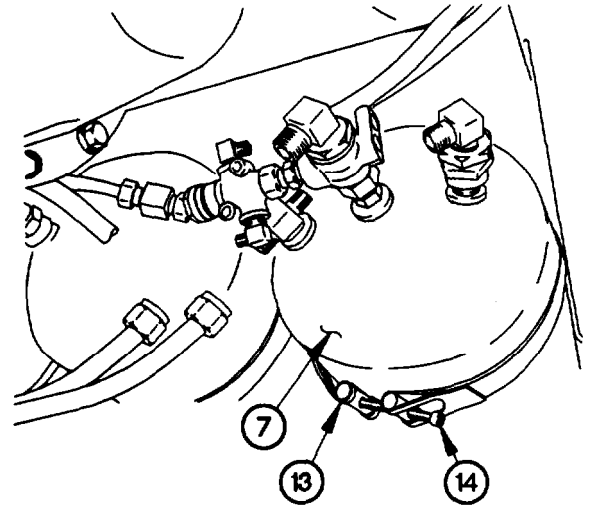


- (7) Apply antiseize compound to threads of branch tee fitting (8).
- (8) Install branch tee fitting (8) in secondary air tank (7).

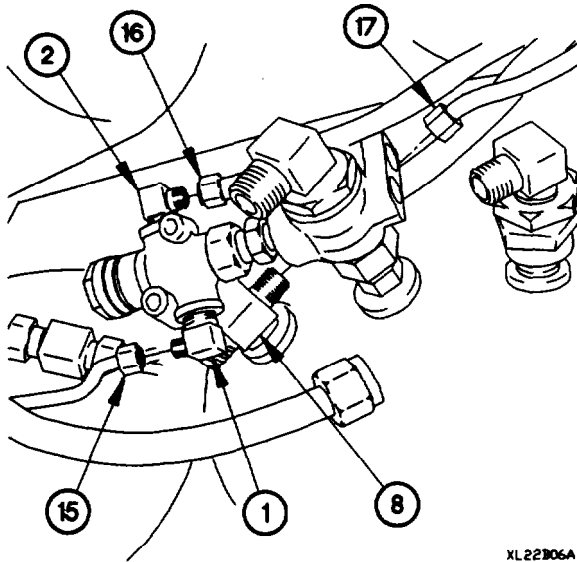


- (9) Apply antiseize compound to threads on both sides of reducer fitting (9), and threads of 90-degree fitting (10), one-way check valve (11), and 90-degree fitting (12).
- (10) Install reducer fitting (9) in secondary air tank (7).
- (11) Install two-way check valve (5) on reducer fitting (9).
- (12) Install 90-degree fitting (10) in two-way check valve (5).
- (13) Install one-way check valve (11) in secondary air tank (7).
- (14) Install 90-degree fitting (12) in one-way check valve (11).

- (15) Position secondary air tank (7) in two clamps (13).
- (16) Tighten two screws (14) in clamps (13) to 23 lb-ft (31 N•m).



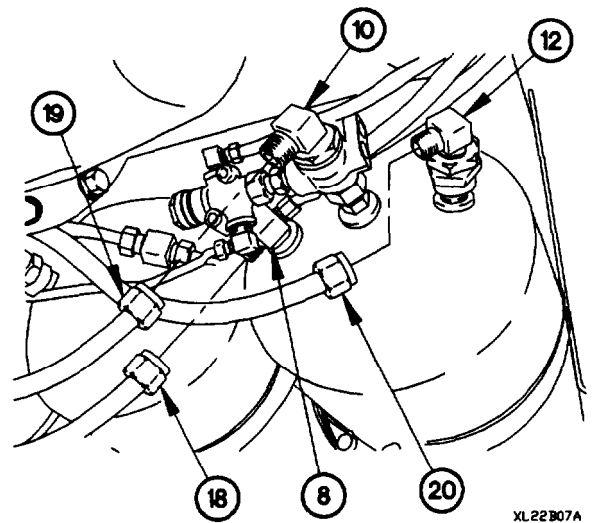
XL22B051



XL22B06A

- (17) Connect air hose (15) to 90-degree fitting (1).
- (18) Connect air hose (16) to 90-degree fitting (2).
- (19) Connect air hose (17) to branch tee fitting (8).

- (20) Connect air hose (18) to branch tee fitting (8).
- (21) Connect air hose (19) to 90-degree fitting (10).
- (22) Connect air hose (20) to 90-degree fitting (12).



XL22B07A

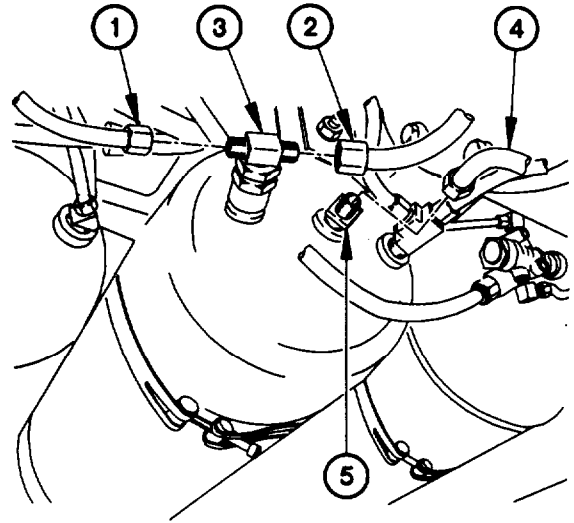
11-20. SECONDARY AND PRIMARY AIR TANKS REPLACEMENT (CONT)

c. Primary Air Tank Removal.

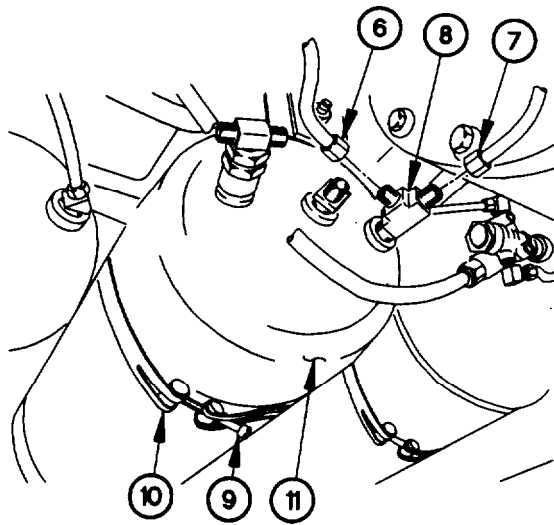
NOTE

Tag air hoses and connection points prior to disconnecting.

- (1) Disconnect air hoses (1 and 2) from branch tee fitting (3).
- (2) Disconnect air hose (4) from 45-degree fitting (5).



3L22C01A



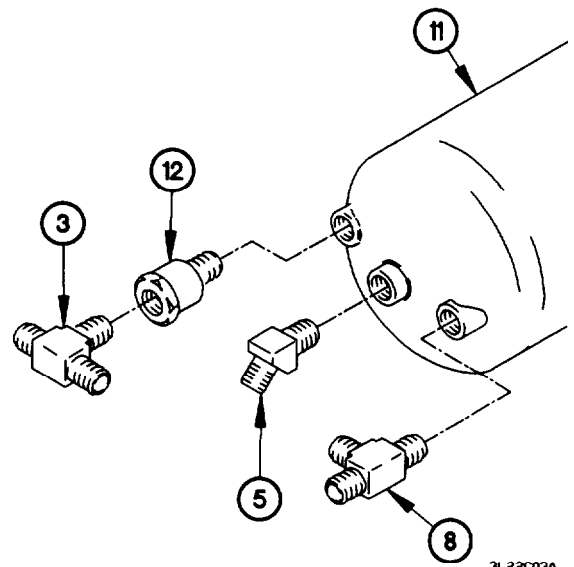
3L22C02A

- (3) Disconnect air hoses (6 and 7) from run tee fitting (8).
- (4) Loosen two screws (9) in clamps (10).
- (5) Remove primary air tank (11) from two clamps (10).

NOTE

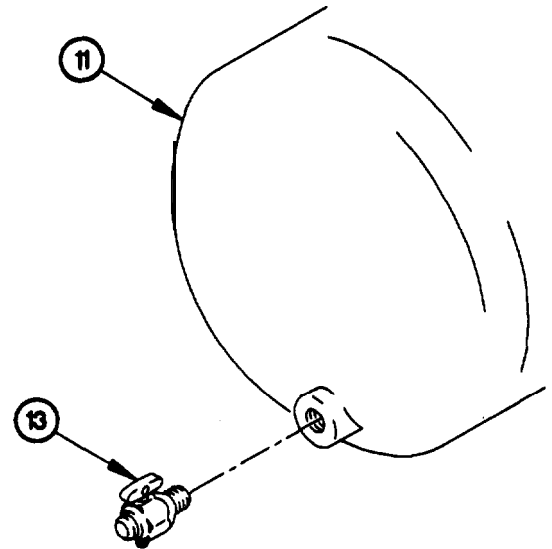
Note orientation of fittings prior to removal.

- (6) Remove run tee fitting (8) from primary air tank (11).
- (7) Remove 45-degree fitting (5) from primary air tank (11).
- (8) Remove branch tee fitting (3) from one-way check valve (12).
- (9) Remove one-way check valve (12) from primary air tank (11).



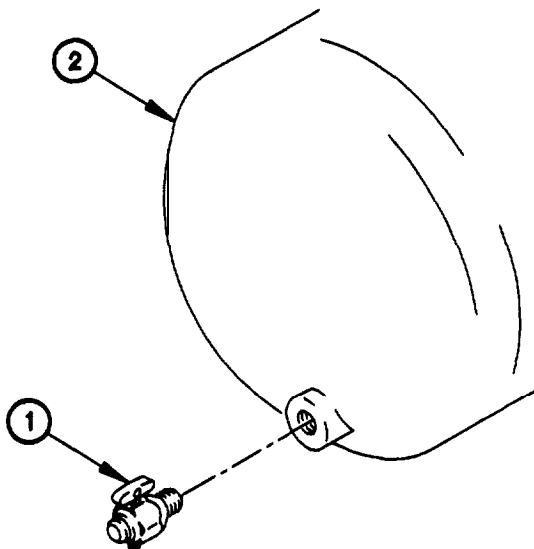
3L22C03A

(10) Remove drain valve (13) from primary air tank (11).



3L22C04A

d. Primary Air Tank Installation.



3L22D01A

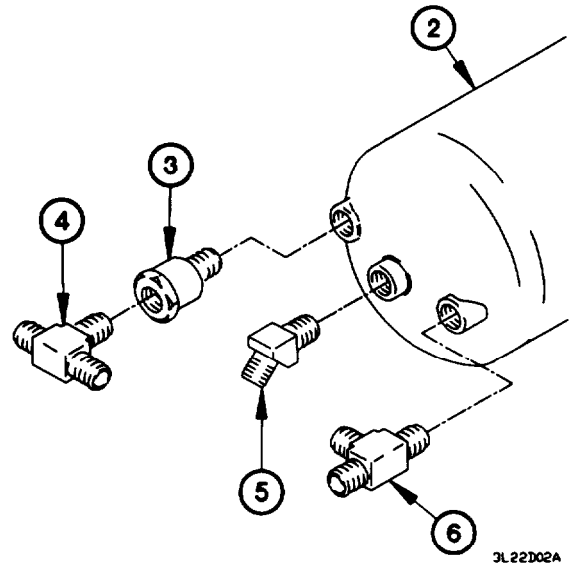
WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.

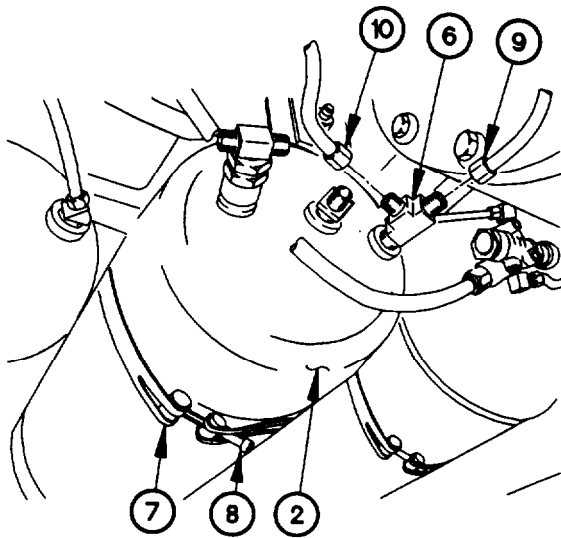
- (1) Apply antiseize compound to threads of drain valve (1).
- (2) Install drain valve (1) in primary air tank (2).

11-20. SECONDARY AND PRIMARY AIR TANKS REPLACEMENT (CONT)

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.



- (3) Apply antiseize compound to threads of one-way check valve (3), branch tee fitting (4), 45-degree fitting (5), and run tee fitting (6).
- (4) Install one-way check valve (3) in primary air tank (2).
- (5) Install branch tee fitting (4) in one-way check valve (3).
- (7) Install 45-degree fitting (5) in primary air tank (2).
- (8) Install run tee fitting (6) in primary air tank (2).



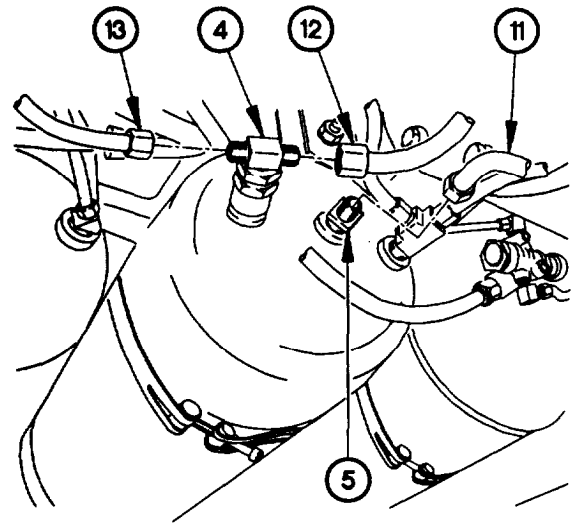
- (9) Position primary air tank (2) in two clamps (7).
- (10) Tighten two screws (8) in clamps (7) to 23 lb-ft (31 N•m).
- (11) Connect air hoses (9 and 10) to run tee fitting (6).

- (12) Connect air hose (11) to 45-degree fitting (5).
- (13) Connect air hoses (12 and 13) to branch tee fitting (4).

e. Follow-On Maintenance.

- (1) Start engine (TM 9-2320-365-10) and allow time for air pressure to reach normal operating pressure.
- (2) Shut down engine (TM 9-2320-365-10).
- (3) Check around air hoses, fittings, and valves for air leaks.
- (4) Start engine (TM 9-2320-365-10).
- (5) Road test vehicle and check for proper brake operation.
- (6) Shut down engine (TM 9-2320-365-10).

End of Task.



3L22D04A

11-21. FRONT GLADHAND REPLACEMENT

This task covers:

- | | |
|---|--|
| <ul style="list-style-type: none"> a. Removal b. Installation | <ul style="list-style-type: none"> c. Follow-On Maintenance |
|---|--|

INITIAL SETUP

Equipment Conditions

- Engine shut down (TM 9-2320-365-10).
- Air tanks drained (TM 9-2320-365-10).

Tools and Special Tools

- Goggles, Industrial (Item 15, Appendix C)
- Tool Kit, Genl Mech (Item 44, Appendix C)

Materials/Parts

- Filter Element (Item 13, Appendix G)
- Damping fluid (Item 20, Appendix D)
- Packing, Preformed (Item 171, Appendix G)
- Antiseize Compound (Item 14, Appendix D)
- Ties, Cable, Plastic (Item 76, Appendix D)
- Lockwasher (Item 62, Appendix G)

WARNING

Wear appropriate eye protection when working under vehicle due to the possibility of falling debris. Failure to comply may result in injury to personnel.

a. Removal.

NOTE

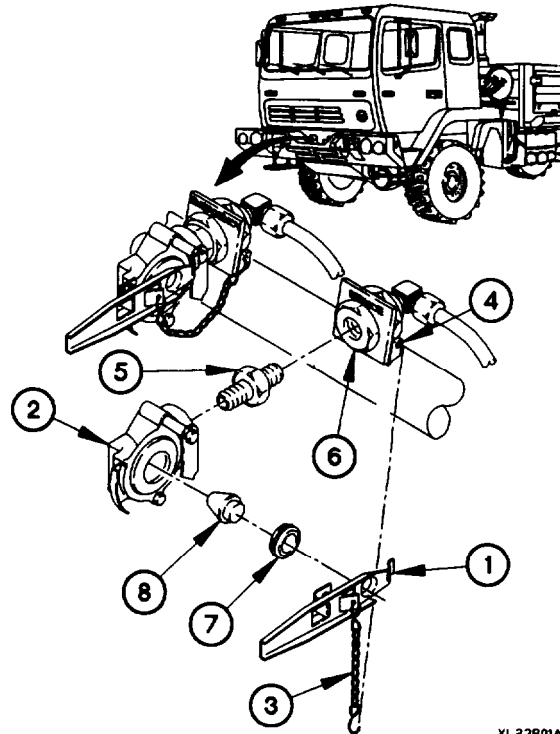
- Both front gladhands are removed the same way. Service gladhand shown.
- Remove plastic cable ties as required.

- (1) Remove dummy coupling (1) from gladhand (2).
- (2) Remove dummy coupling chain (3) from mounting bracket (4).
- (3) Remove gladhand (2) and reducer (5) from adapter (6).

NOTE

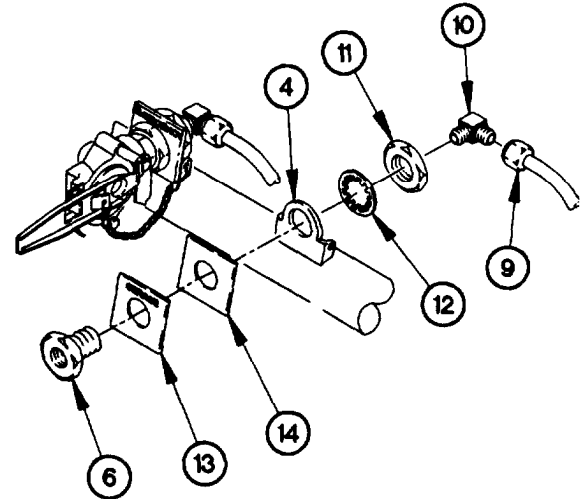
Note orientation of preformed packing and filter prior to removal.

- (4) Remove reducer (5), preformed packing (7), and filter (8) from gladhand (2). Discard filter and preformed packing.



XL23R01A

- (5) Disconnect air hose (9) from 90-degree fitting (10).
- (6) Remove 90-degree fitting (10) from adapter (6).
- (7) Remove nut (11), lockwasher (12), adapter (6), identification plate (13), and plate (14) from mounting bracket (4). Discard lockwasher.

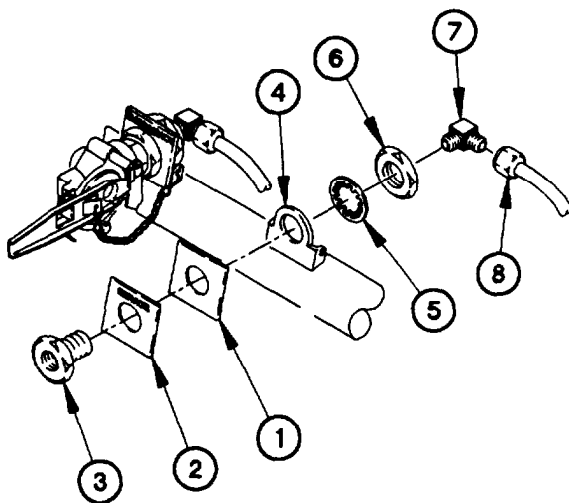


XL23R02-

b. Installation.

NOTE

- Both front gladhands are installed the same way. Service gladhand shown.
 - Install plastic cable ties as required.
- (1) Install plate (1), identification plate (2), and adapter (3) on mounting bracket (4) with lockwasher (5) and nut (6).



XL231011

WARNING

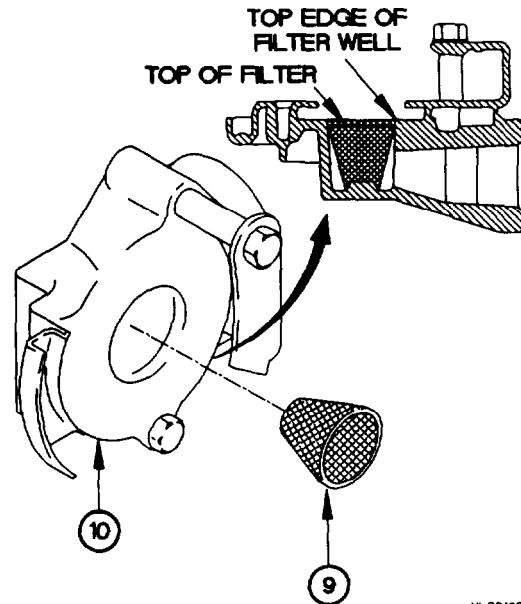
Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a Well-Ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.

- (2) Apply antiseize compound to threads of 90-degree fitting (7).
- (3) install 90-degree fitting (7) in adapter (3).
- (4) Connect air hose (8) to 90-degree fitting (7).

11-21. FRONT GLADHAND REPLACEMENT (CONT)

Ensure that filter is firmly seated in gladhand and that top edge of filter does not extend above top edge of filter well. Failure to comply may result in gladhands that leak when pressurized.

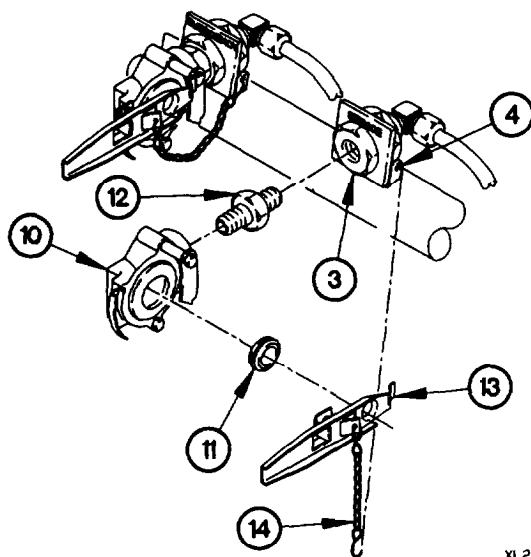
- (5) Install filter (9) in gladhand (10).



XL23102A

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.



XL231031

- (6) Apply damping fluid to preformed packing (11).
- (7) Install preformed packing (11) in gladhand (10).
- (6) Install reducer (12) in gladhand (10).
- (7) Install reducer (12) with gladhand (10) in adapter (3).
- (8) Install dummy coupling (13) on gladhand (10).
- (9) Install dummy coupling chain (14) on mounting bracket (4).

c. Follow-On Maintenance.

- (1) Start engine (TM 9-2320-365-10).
- (2) Check gladhand for air leaks.
- (3) Shut down engine (TM 9-2320-365-10).

End of Task.

11-22. REAR GLADHAND REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Engine shut down (TM 9-2320-365-10).
Air tanks drained (TM 9-2320-365-10).

Tools and Special Tools

Goggles, Industrial (Item 15, Appendix C)
Tool Kit, Genl Mech (Item 44, Appendix C)
Vise, Machinist (Item 46, Appendix C)
Socket Set, Impact (Item 33, Appendix C)

Materials/Parts

Filter Element (Item 13, Appendix G)
Damping Fluid (Item 20, Appendix D)
Packing, Preformed (Item 171, Appendix G)
Antiseize Compound (Item 14, Appendix D)
Lockwasher (Item 61, Appendix G)

Personnel Required

(2)

WARNING

Wear appropriate eye protection when working under vehicle due to the possibility of falling debris. Failure to comply may result in injury to personnel.

a. Removal.

NOTE

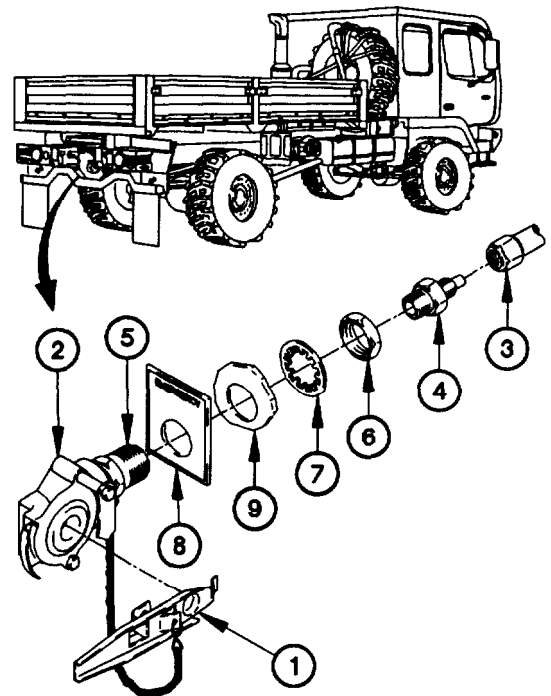
Both rear gladhands are removed the same way. EMERGENCY gladhand shown.

- (1) Remove dummy coupling (1) from gladhand (2).
- (2) Disconnect air hose (3) from reducer fitting (4).

NOTE

Steps (3) and (4) require the aid of an assistant.

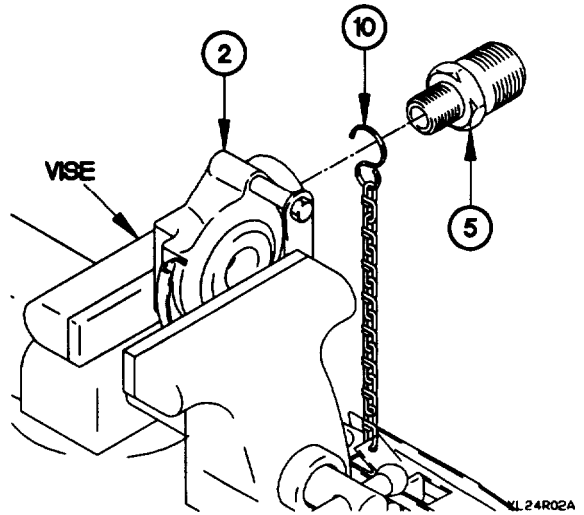
- (3) Remove reducer fitting (4) from adapter fitting (5).
- (4) Remove nut (6), lockwasher (7), gladhand (2), and identification plate (8), from rear crossmember (9). Discard lockwasher.



3L24R01A

11-22. REAR GLADHAND REPLACEMENT (CONT)

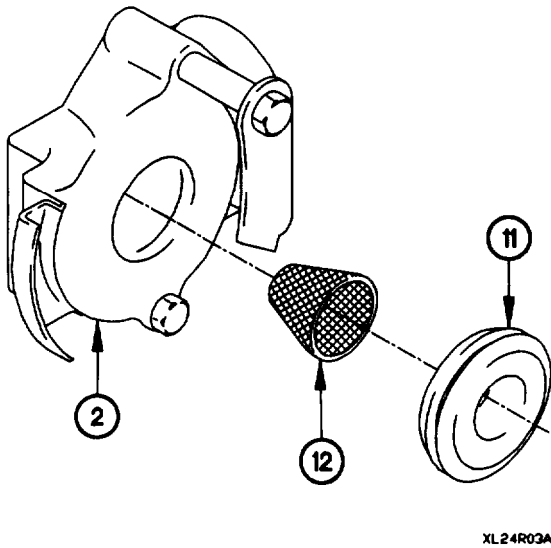
- (5) Position gladhand (2) in vise.
- (6) Remove dummy coupling chain (10) from adapter fitting (5).
- (7) Remove adapter fitting (5) from gladhand (2).



NOTE

Note orientation of preformed packing and filter prior to removal.

- (8) Remove preformed packing (11) and filter (12) from gladhand (2). Discard preformed packing and filter.

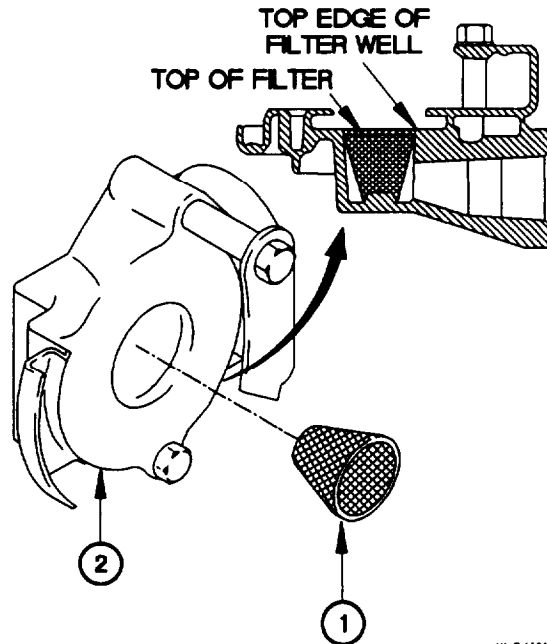


b. Installation.

CAUTION

Ensure that filter is firmly seated in gladhand and that top edge of filter does not extend above top edge of filter well. Failure to comply may result in gladhands that leak when pressurized.

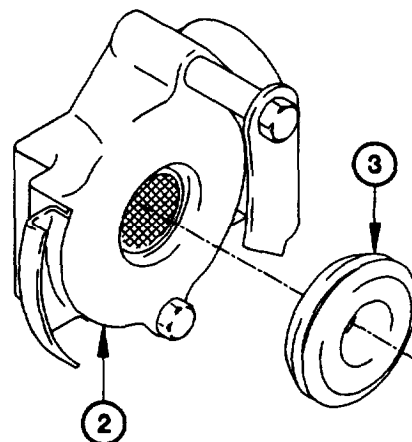
- (1) Install filter (1) in gladhand (2).



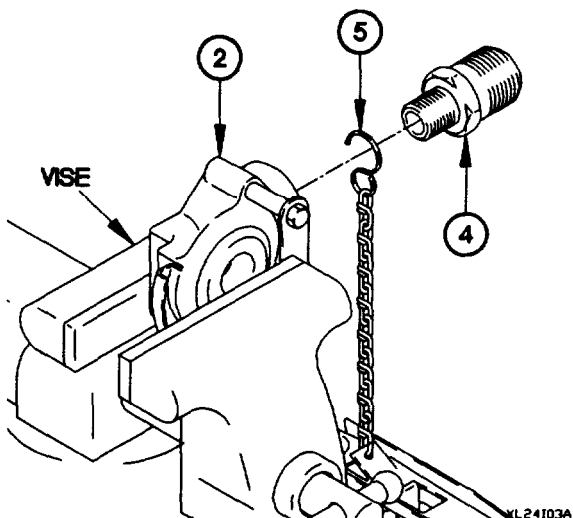
WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.

- (1) Apply damping fluid to preformed packing (3).
- (2) Install preformed packing (3) in gladhand (2).



XL24102A



- (3) Position gladhand (2) in vise.
- (4) Apply antiseize compound to threads of adapter fitting (4).
- (5) Install adapter fitting (4) in gladhand (2).
- (6) Install dummy coupling chain (5) on adapter fitting (4).
- (7) Remove gladhand (2) from vise.

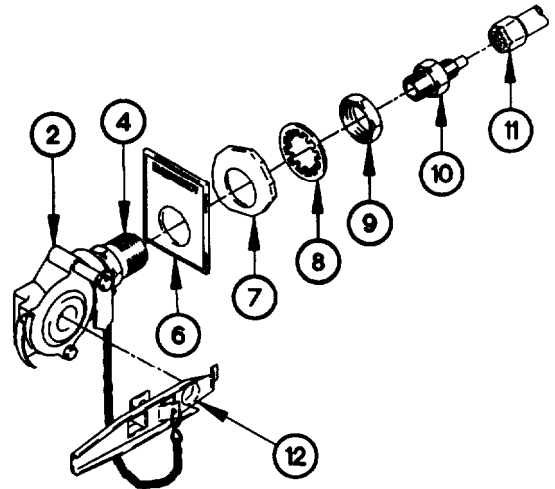
11-22. REAR GLADHAND REPLACEMENT (CONT)

NOTE

Steps (8) through (10) require the aid of an assistant.

- (8) Install identification plate (6) and gladhand (2) in rear crossmember (7) with lockwasher (8) and nut (9).

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.



XL24104A

- (9) Apply antiseize compound to threads of reducer fitting (10).
- (10) Install reducer fitting (10) in adapter fitting (4).
- (11) Connect air hose (11) to reducer fitting (10).
- (12) Install dummy coupling (12) on gladhand (2).

c. Follow-On Maintenance.

- (1) Start engine (TM 9-2320-365-10).
- (2) Release TRAILER AIR SUPPLY and SYSTEM PARK valves (TM 9-2320-365-10).
- (3) Check gladhand for air leaks.
- (4) Shut down engine (TM 9-2320-365-10).

End of Task.

11-23. SERVICE GLADHAND TWO-WAY CHECK VALVE REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Air tanks drained (TM 9-2320-365-10).
 Windshield washer reservoir and pump removed (para 18-2).
 Cab raised (TM 9-2320-365-10).

Materials/Parts

Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)
 Antiseize Compound (Item 14, Appendix D)
 Nut, Self-Locking (Item 148, Appendix G)

Tools and Special Tools

Goggles, Industrial (Item 15, Appendix C)
 Tool Kit, Genl Mech (Item 44, Appendix C)
 Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)

WARNING

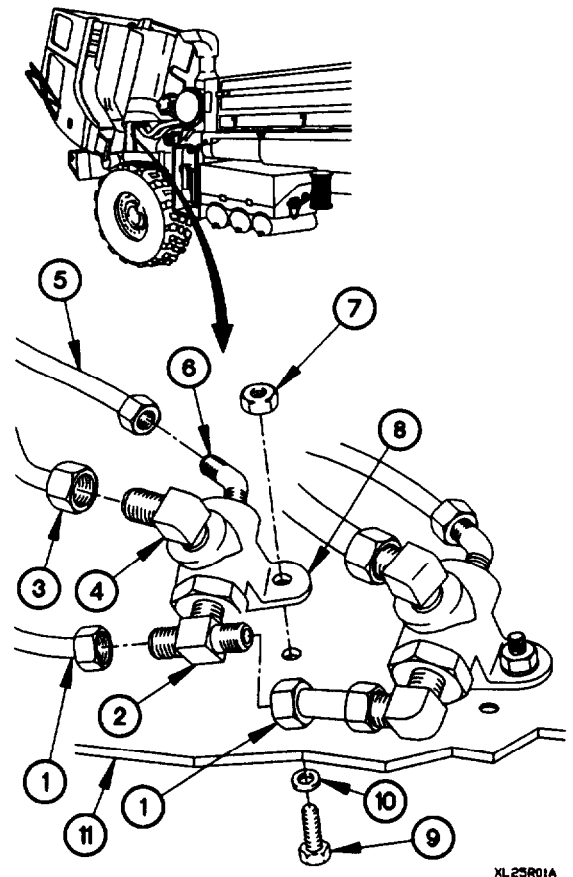
Wear appropriate eye protection when working under vehicle due to the possibility of falling debris. Failure to comply may result in injury to personnel.

a. Removal.

NOTE

Tag air hoses and connection points prior to disconnecting.

- (1) Disconnect two air hoses (1) from branch tee fitting (2).
- (2) Disconnect air hose (3) from 90-degree fitting (4).
- (3) Disconnect air hose (5) from 45-degree fitting (6).
- (4) Remove self-locking nut (7), service gladhand two-way check valve (8), screw (9), and washer (10) from front fender (11). Discard self-locking nut,



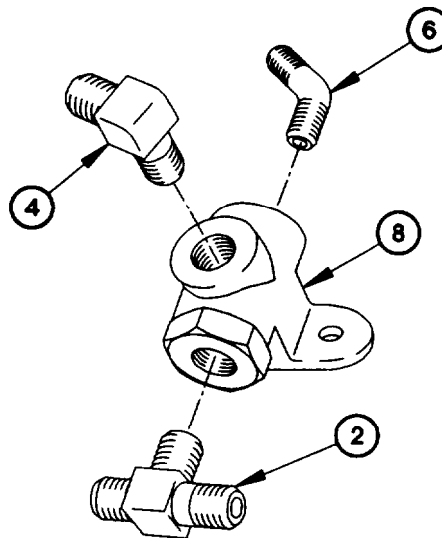
XL23R01A

11-23. SERVICE GLADHAND TWO-WAY CHECK VALVE REPLACEMENT (CONT)

NOTE

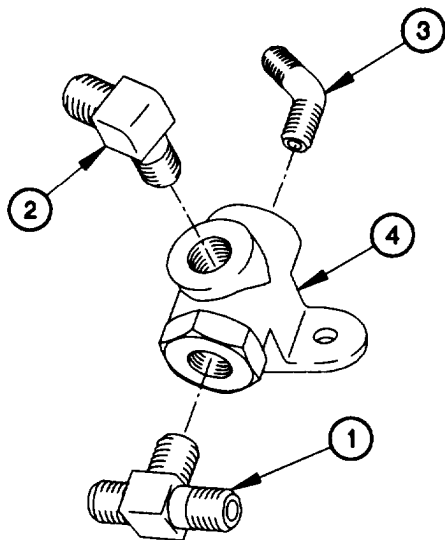
Note orientation of fittings prior to removal.

- (5) Remove 45-degree fitting (6) from service gladhand two-way check valve (8).
- (6) Remove 90-degree fitting (4) from service gladhand two-way check valve (8).
- (7) Remove branch tee fitting (2) from service gladhand two-way check valve (8).



XL25R02A

b. Installation.



XL25101A

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.

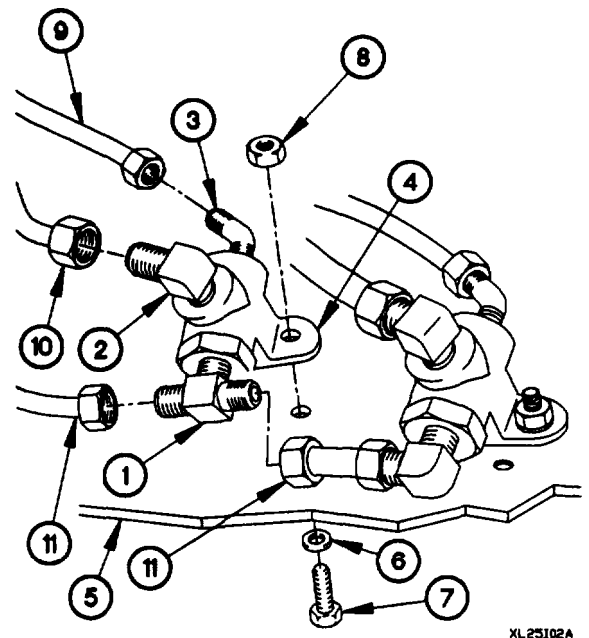
- (1) Apply antiseize compound to threads of branch tee fitting (1), 90-degree fitting (2), and 45-degree fitting (3).
- (2) Install branch tee fitting (1) in service gladhand two-way check valve (4).
- (3) Install 90-degree fitting (2) in service gladhand two-way check valve (4).
- (4) Install 45-degree fitting (3) in service gladhand two-way check valve (4).

- (5) Position service gladhand two-way check valve (4) on front fender (5) with washer (6) screw (7), and self-locking nut (8).
- (6) Tighten self-locking nut (8) to 13-16 lb-ft (18-22 N•m).
- (7) Connect air hose (9) to 45-degree fitting (3).
- (8) Connect air hose (10) to 90-degree fitting (2).
- (9) Connect two air hoses (11) to branch tee fitting (1).

c. Follow-On Maintenance.

- (1) Lower cab (TM 9-2320-365-10).
- (2) Install windshield washer reservoir and pump (para 18-2)
- (3) Start engine (TM 9-2320-365-10) and allow sir pressure to build to normal operating pressure.
- (4) Check around service gladhand two-way check valve for air leaks.
- (5) Shut down engine (TM 9-2320-365-10).

End of Task.



XL25102A

11-24. EMERGENCY GLADHAND TWO-WAY CHECK VALVE REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

- Air tanks drained (TM 9-2320-365-10).
- Windshield washer reservoir and pump removed (para 18-2).
- Cab raised (TM 9-2320-365-10).

Materials/Parts

- Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)
- Antiseize Compound (Item 14, Appendix D)
- Nut, Self-Locking (Item 148, Appendix G)

Tools and Special Tools

- Goggles, Industrial (Item 15, Appendix C)
- Tool Kit, Genl Mech (Item 44, Appendix C)
- Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)



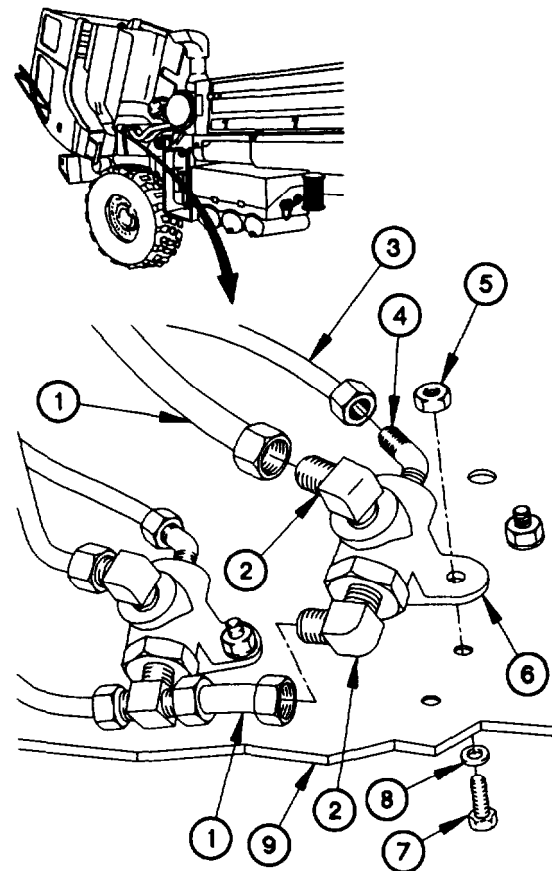
Wear appropriate eye protection when working under vehicle due to the possibility of falling debris. Failure to comply may result in injury to personnel.

a. Removal.

NOTE

Tag air hoses and connection points prior to disconnecting.

- (1) Disconnect two air hoses (1) from 90-degree fittings (2).
- (2) Disconnect air hose (3) from 45-degree fitting (4).
- (3) Remove self-locking nut (5), emergency gladhand two-way check valve (6), screw (7), and washer (8) from front fender (9). Discard self-locking nut.

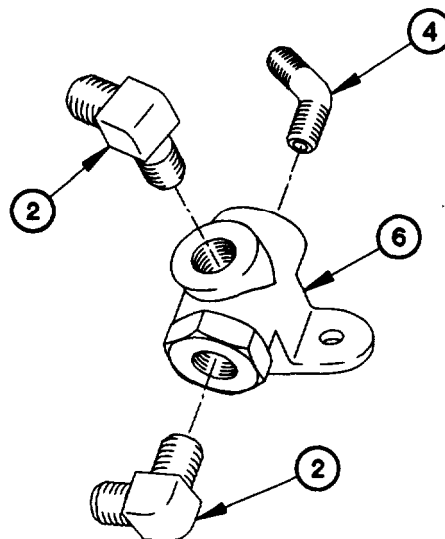


XL26R01A

NOTE

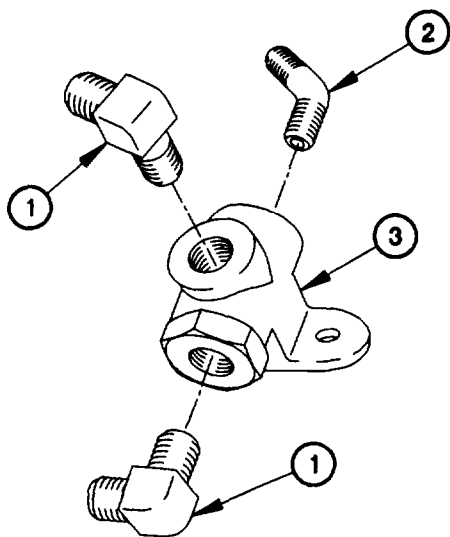
Note orientation of fittings prior to removal.

- (4) Remove 45-degree fitting (4) from emergency glad-hand two-way check valve (6).
- (5) Remove two 90-degree fittings (2) from emergency glad-hand two-way check valve (6).



XL26R02A

b. Installation.



XL26I01A

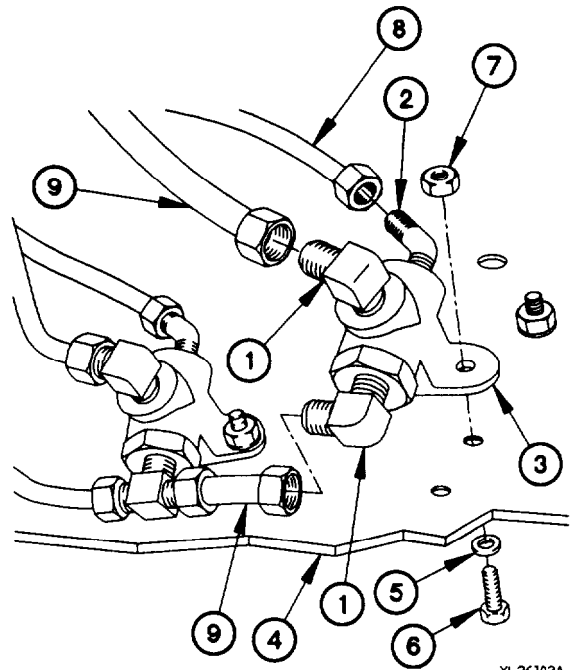
WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.

- (1) Apply antiseize compound to threads of two 90-degree fittings (1) and 45-degree fitting (2).
- (2) Install two 90-degree fittings (1) in emergency gladhand two-way check valve (3).
- (3) Install 45-degree fitting (2) in emergency gladhand two-way check valve (3).

11-24. EMERGENCY GLADHAND TWO-WAY CHECK VALVE REPLACEMENT (CONT)

- (4) Position emergency gladhand two-way check valve (3) on front fender (4) with washer (5), screw (6), and self-locking nut (7).
- (5) Tighten self-locking nut (7) to 13-16 lb-ft (11-22 N•m).
- (6) Connect air hose (8) to 45-degree fitting (2).
- (7) Connect two air hoses (9) to 90-degree fittings (1).



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c. Follow-On Maintenance.

- (1) Lower cab (TM 9-2320-365-10).
- (2) Install windshield washer reservoir and pump (para 18-2).
- (3) Start engine (TM 9-2320-365-10) and allow air pressure to build to normal operating pressure.
- (4) Check around emergency gladhand two-way check valve for sir leaks.
- (5) Shut down engine (TM 9-2320-365-10).

End of Task.

11-25. STOPLIGHT SWITCH REPLACEMENT

This task covers:

- | | |
|-----------------|--------------------------|
| a. Removal | c. Follow-On Maintenance |
| b. Installation | |

INITIAL SETUP

Equipment Conditions

- Air tanks drained (TM 9-2320-365-10).
- Batteries disconnected (para 7-48).

Tools and Special Tools

- Tool Kit, Genl Mech (Item 44, Appendix C)

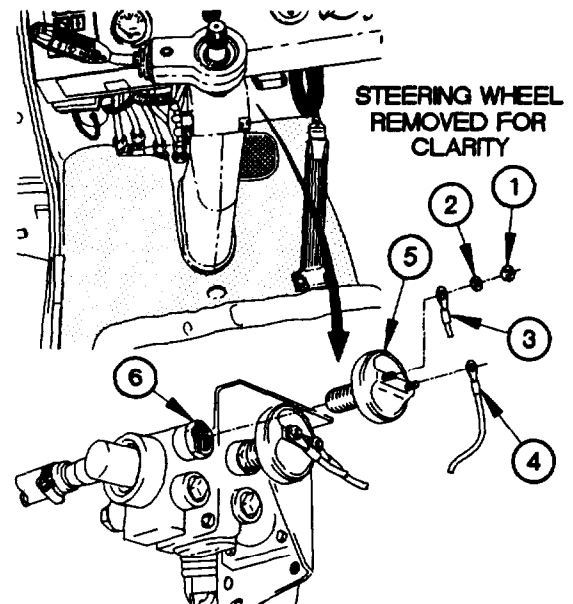
Materials/Parts

- Antiseize Compound (Item 14, Appendix D)
- Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)
- Lockwasher (2) (Item 90, Appendix G)

a. Removal.

NOTE

- Both stoplight switches are removed the same way. Rear stoplight switch shown.
 - Tag wires and connection points prior to removal.
 - Terminal lugs on front stoplight switch are TL154 and TL155.
- Remove two nuts (1), lockwashers (2), and terminal lugs TL152 (3) and TL153 (4) from stoplight switch (5). Discard lockwashers.
 - Remove stoplight switch (5) from fitting (6).



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11-25. STOPLIGHT SWITCH REPLACEMENT (CONT)

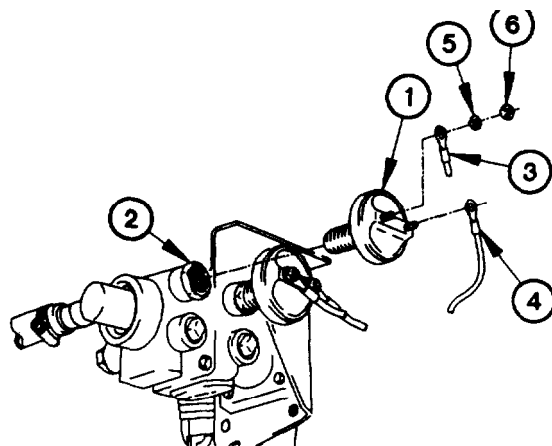
b. Installation.

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.

NOTE

- Both stoplight switches are installed the same way. Rear Stoplight switch shown.
- Terminal lugs on front stoplight switch are TL154 and TL155.



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- (1) Apply antiseize compound to threads of stoplight switch (1) and fitting (2).
- (2) Install stoplight switch (1) in fitting (2).
- (3) Install terminal lugs TL153 (3) and TL152 (4) on stoplight switch (1) with two lockwashers (5) and nuts (6).

c. Follow-On Maintenance.

- (1) Connect batteries (para 7-48).
- (2) Check operation of stoplights (TM 9-2320-365-10).

End of Task.

11-26. FRONT GLADHAND ONE-WAY CHECK VALVE REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Air tanks drained (TM 9-2320-365-10).

Tools and Special Tools

Goggles, Industrial (Item 15, Appendix C)
 Tool Kit, Genl Mech (Item 44, Appendix C)
 Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)
 Wrench, Box and Open End (Item 53, Appendix C)

Materials/Parts

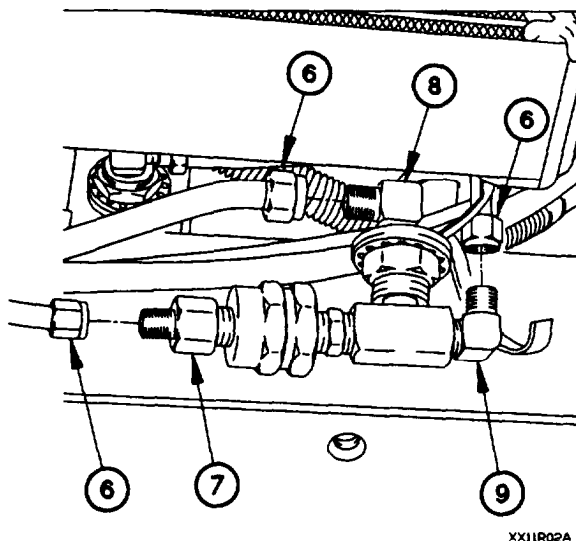
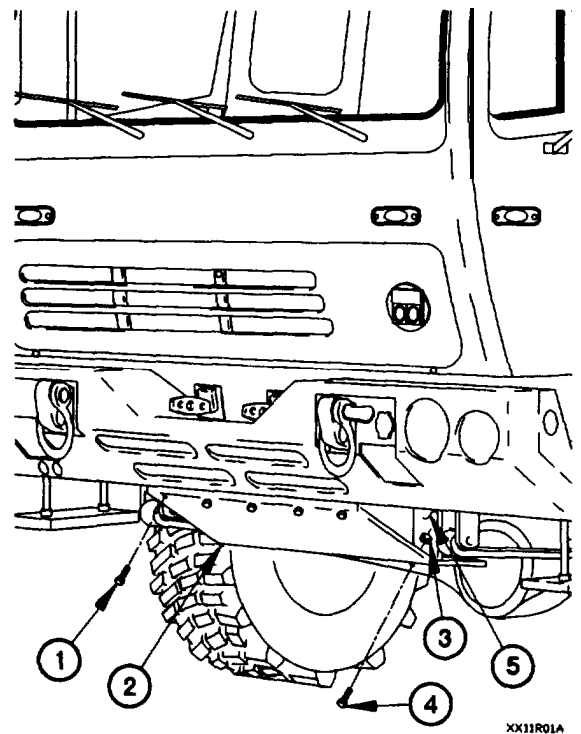
Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)
 Antiseize Compound (Item 14, Appendix D)
 Ties, Cable, Plastic (Item 76, Appendix D)
 Nut, Self-Locking (5) (Item 142, Appendix G)

a. Removal.



Wear appropriate eye protection when working under vehicle due to the possibility of falling debris. Failure to comply may result in injury to personnel.

- (1) Remove five screws (1) from top edge of gravel deflector (2).
- (2) Remove five self-locking nuts (3), screws (4), and gravel deflector (2) from two brackets (5). Discard self-locking nuts.

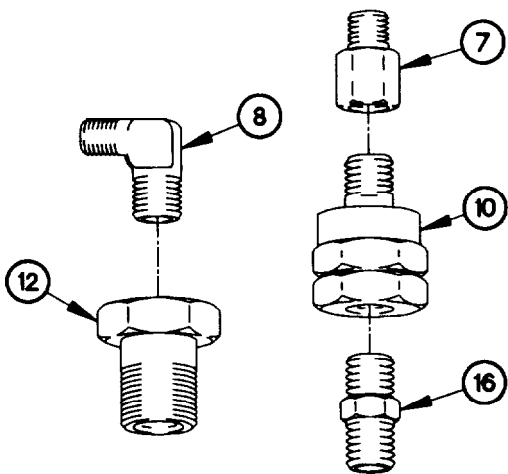
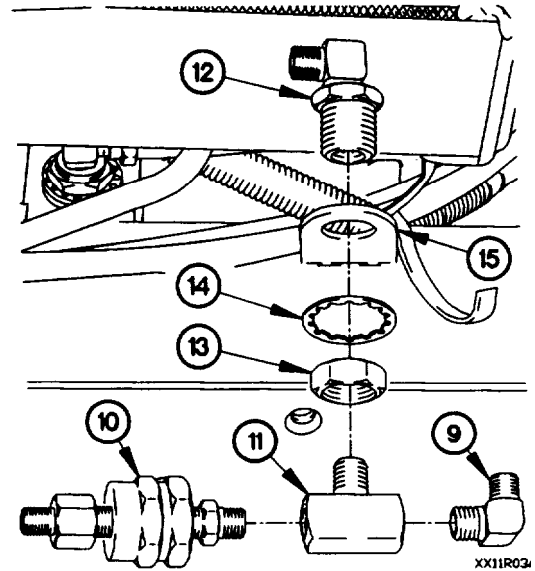


NOTE

- Tag air hoses and connection points prior to removal.
 - Remove plastic cable ties as required.
- (3) Disconnect three air hoses (6) from adapter (7), 90-degree fitting (8), and 90-degree fitting (9).

11-26. FRONT GLADHAND ONE-WAY CHECK VALVE REPLACEMENT (CONT)

- (4) Remove one-way check valve (10) and 90-degree fitting (9) from tee fitting (11).
- (5) Remove tee fitting (11) from fitting (12).
- (6) Remove nut (13), lockwasher (14), and fitting (12) from bracket (15). Discard lockwasher.



- (7) Remove adapter (7) and fitting (16) from one-way check valve (10).
- (8) Remove 90-degree fitting (8) from fitting (12).

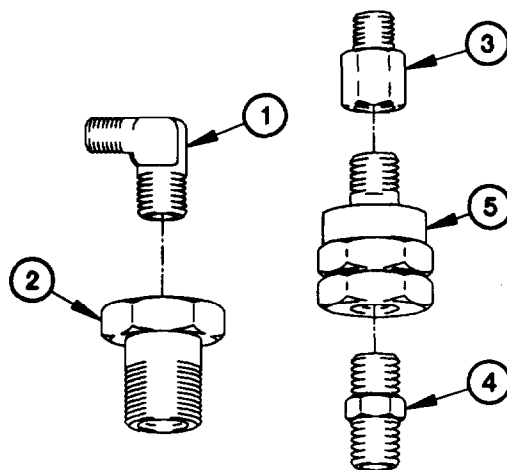
XX11R04L

b. Installation.

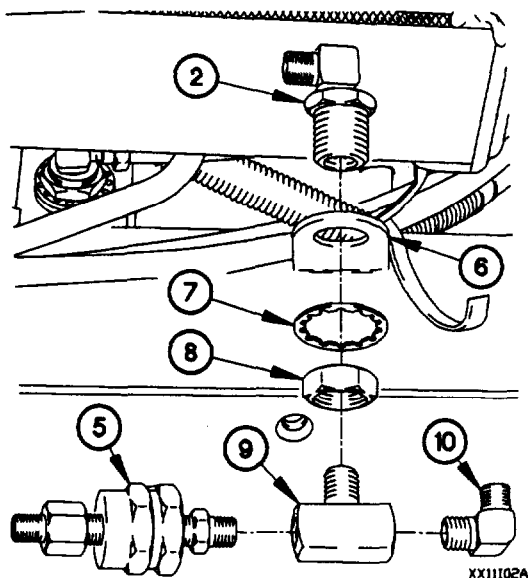
WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.

- (1) Apply antiseize compound to threads of 90-degree fitting (1).
- (2) Install 90-degree fitting (1) in fitting (2).
- (3) Apply antiseize compound to threads of adapter (3) and fitting (4).
- (4) Install adapter (3) and fitting (4) in one-way check valve (5).



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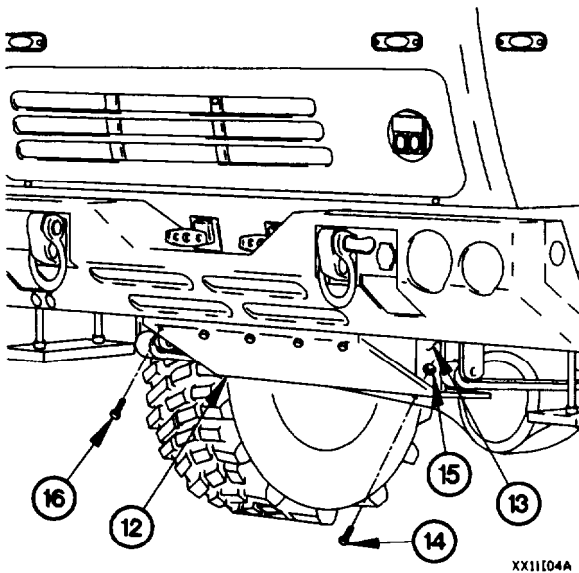
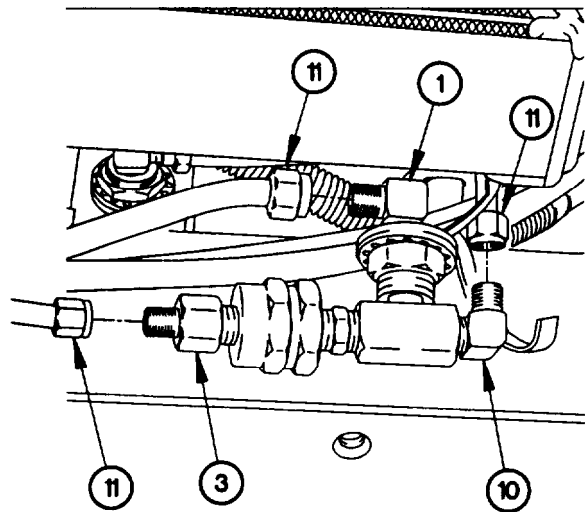
NOTE

Install plastic cable ties as required.

- (5) Install fitting (2) on bracket (6) with lockwasher (7) and nut (8).
- (6) Install tee fitting (9) in fitting (2).
- (7) Apply antiseize compound to threads of 90-degree fitting (10) and one-way check valve (5).
- (8) Install 90-degree fitting (10) and one-way check valve (5) in tee fitting (9).

11-26. FRONT GLADHAND ONE-WAY CHECK VALVE REPLACEMENT (CONT)

- (9) Connect three air hoses (11) to 90-degree fitting (10), 90-degree fitting (1), and adapter (3).



- (10) Position gravel deflector (12) on two brackets (13) with five screws (14) and self-locking nuts (15).
- (11) Position five screws (16) in gravel deflector (12).
- (12) Tighten five screws (16) to 42-52 lb-ft (59-71 N•m).
- (13) Tighten five self-locking nuts (15) to 75-93 lb-ft (103-127 N•m).

c. Follow-On Maintenance.

- (1) Start engine (TM 9-2320-365-10).
- (2) Check for air leaks around check valve.
- (3) Shut down engine (TM 9-2320-365-10).

End of Task.

11-27. PRESSURE PROTECTION VALVE REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Engine shut down (TM 9-2320-365-10).
Air tanks drained (TM 9-2320-365-10).

Materials/Parts

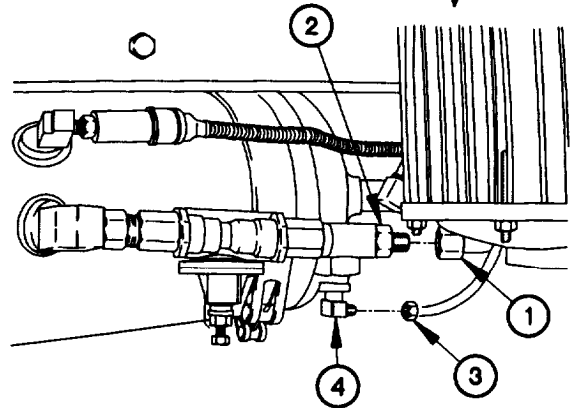
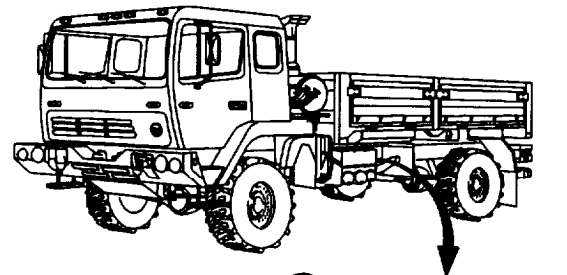
Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)
Antiseize Compound (Item 14, Appendix D)

Tools and Special Tools

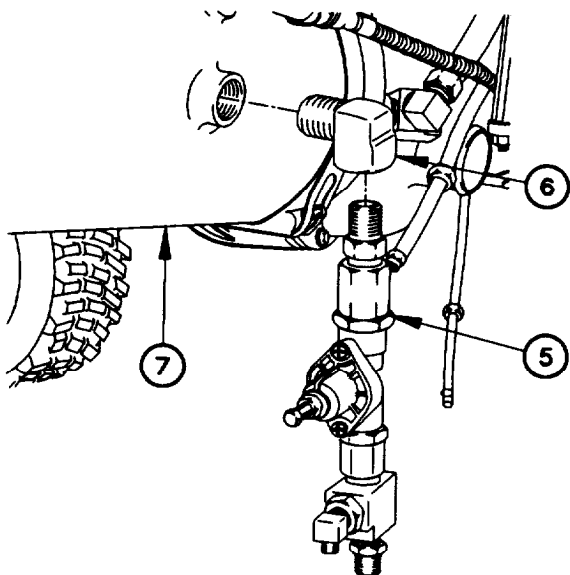
Tool Kit, Genl Mech (Item 44, Appendix C)

a. Removal.

- (1) Disconnect air hose (1) from fitting (2).
- (2) Disconnect air hose (3) from 90-degree fitting (4).



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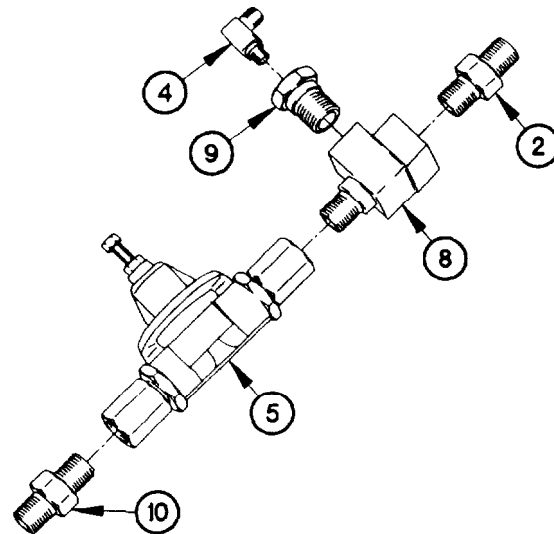
- (3) Rotate pressure protection valve (5) to vertical position.
- (4) Remove pressure protection valve (5) from 90-degree fitting (6).
- (5) Remove 90-degree fitting (6) from air tank (7).

11-27. PRESSURE PROTECTION VALVE REPLACEMENT (CONT)

NOTE

Note position and orientation of fittings prior to removal.

- (6) Remove fitting (2) from tee fitting (8).
- (7) Remove 90-degree fitting (4) from bushing (9).
- (8) Remove bushing (9) from tee fitting (8).
- (9) Remove tee fitting (8) from pressure protection valve (5).
- (10) Remove pipe nipple (10) from pressure protection valve (5).

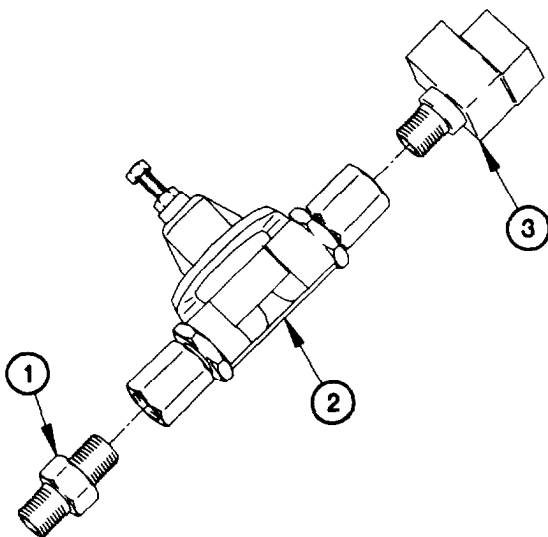


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b. Installation.

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.



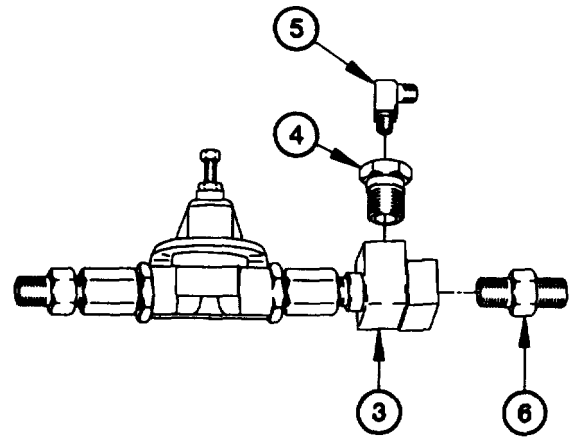
XX08B01A

- (1) Apply antiseize compound to threads of pipe nipple (1).
- (2) Install pipe nipple (1) in pressure protection valve (2).
- (3) Apply antiseize compound to threads of tee fitting (3).
- (4) Install tee fitting (3) in pressure protection valve (2).

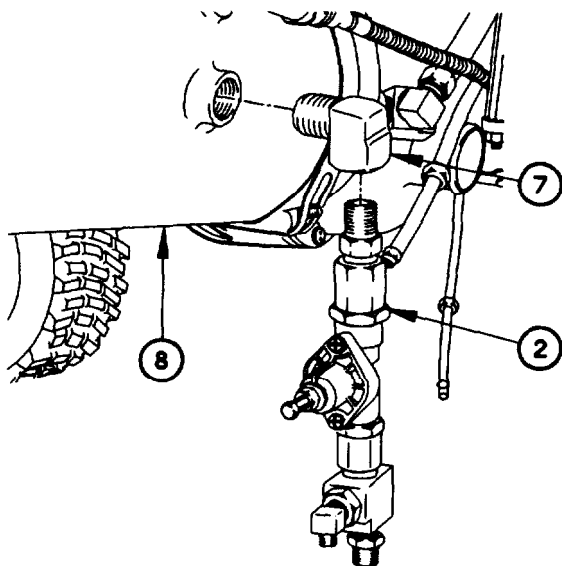
WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a wall-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.

- (5) Apply antiseize compound to threads of bushing (4).
- (6) Install bushing (4) in tee fitting (3).
- (7) Apply antiseize compound to threads of 90-degree fitting (5).
- (8) Install 90-degree fitting (5) in bushing (4).
- (9) Apply antiseize compound to threads of fitting (6).
- (10) Install fitting (6) in tee fitting (3).



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XX08B03A

- (11) Apply antiseize compound to threads of 90-degree fitting (7).
- (12) Install 90-degree fitting (7) in air tank (8).
- (13) Install pressure protection valve (2) in 90-degree fitting (7).
- (14) Rotate pressure protection valve (2) to horizontal position.

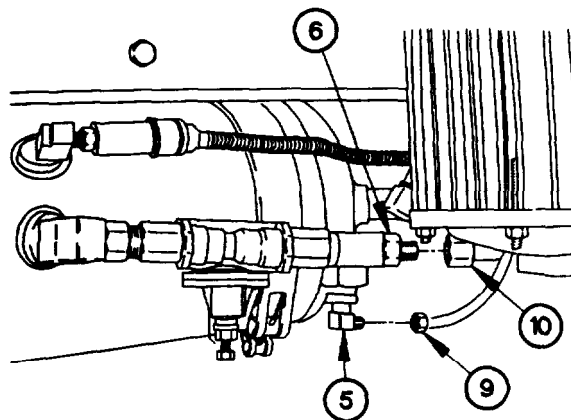
11 -27. PRESSURE PROTECTION VALVE REPLACEMENT (CONT)

(15) Connect air hose (9) to 90-degree fitting (5).

(16) Connect air hose (10) to fitting (6).

c. Follow-On Maintenance.

- (1) Start engine (TM 9-2320-365-10).
- (2) Check pressure protection valve for air leaks.
- (3) Shut down engine (TM 9-2320-365-10).



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End of Task.

11-28. LOW PRESSURE TRANSMITTER TWO-WAY CHECK VALVE REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

- Engine shut down (TM 9-2320-365-10).
- Cab raised (TM 9-2320-365-10).
- Air tanks drained (TM 9-2320-365-10).

Tools and Special Tools

- Tool Kit, Genl Mech (Item 44, Appendix C)

Materials/Parts

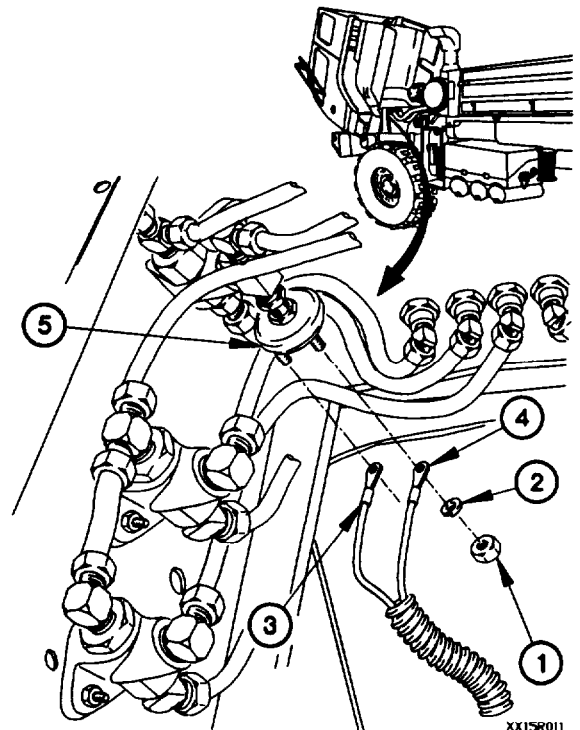
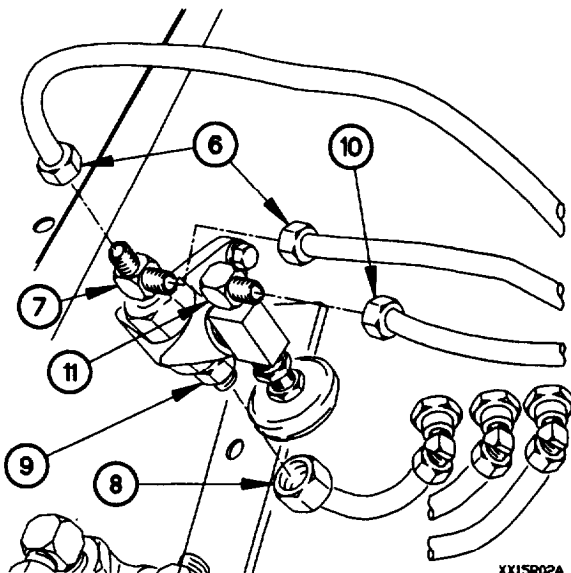
- Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)
- Antiseize Compound (Item 14, Appendix D)
- Adhesive (Item 8, Appendix D)
- Lockwasher (2) (Item 90, Appendix G)

a. Removal.

NOTE

Tag wires, air hoses, and connection points prior to removal.

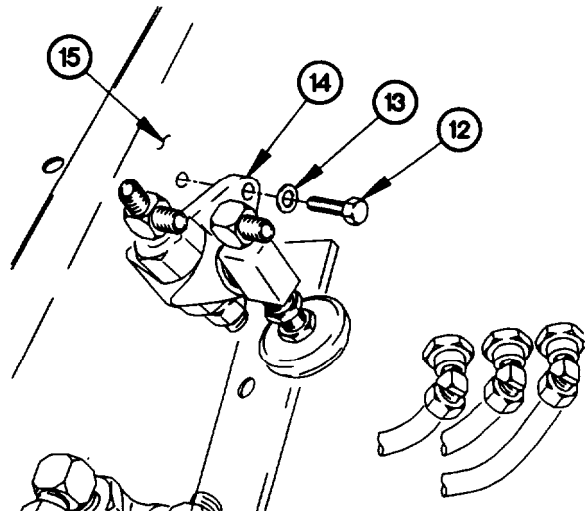
- (1) Remove adhesive, two nuts (1), lockwashers (2), and terminal lugs TL201 (3) and TL202 (4) from air pressure transmitter (5). Discard lockwashers.



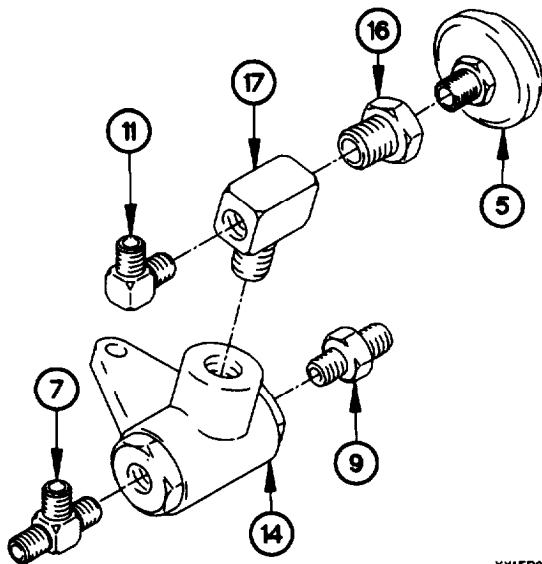
- (2) Disconnect two air hoses (6) from run tee fitting (7).
- (3) Disconnect air hose (8) from fitting (9).
- (4) Disconnect air hose (10) from 90-degree fitting (11).

**11-28. LOW PRESSURE TRANSMITTER TWO-WAY CHECK VALVE REPLACEMENT
(CONT)**

- (5) Remove screw (12), washer (13) and two-way check valve (14) from cab (15).



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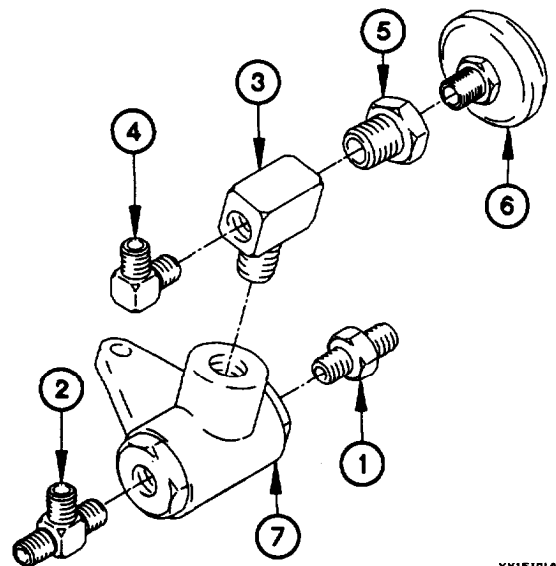
- (6) Remove air pressure transmitter (5) from reducer bushing (16).
- (7) Remove reducer bushing (16) from branch tee fitting (17).
- (8) Remove 90-degree fitting (11) from branch tee fitting (17).
- (9) Remove tee fitting (17) from two-way check valve (14).
- (10) Remove run tee fitting (7) from two-way check valve (14).
- (11) Remove fitting (9) from two-way check valve (14).

b. Installation

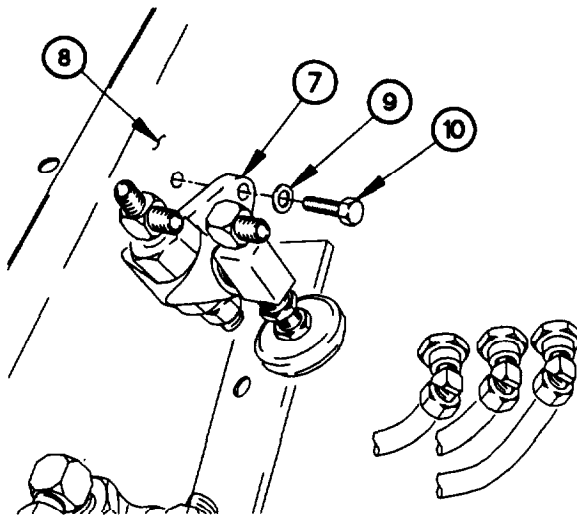
WARNING

Adhesives, advents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Faiiure to comply may result in injury to personnel.

- (1) Apply antiseize compound to threads of fitting (1), run tee fitting (2), branch tee fitting (3), 90-degree fitting (4). reducer bushing (5), and air pressure transmitter (6).
- (2) Install fitting (1) in two-way check valve (7).
- (3) Install run tee fitting (2) in two-way check valve (7).
- (4) Install branch tee fitting (3) in two-way check valve (7).
- (5) Install 90-degree fitting (4) in branch tee fitting (3).
- (6) Install reducer bushing (5) in tee fitting (3).
- (7) Install air pressure transmitter (6) in reducer bushing (5).



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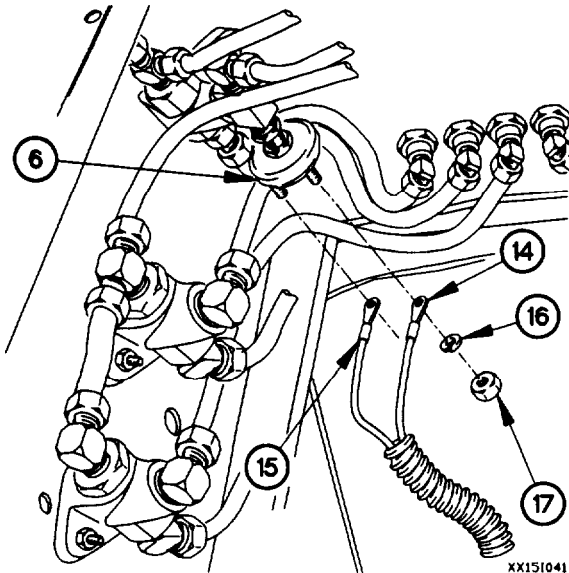
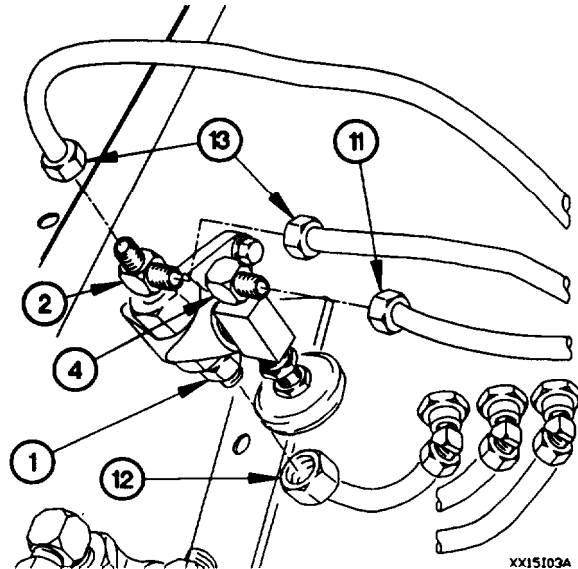


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- (8) Install two-way check valve (7) on cab (8) with washer (9) and screw (10).

**11-28. LOW PRESSURE TRANSMITTER TWO-WAY CHECK VALVE REPLACEMENT
(CONT)**

- (9) Connect air hose (11) to 90-degree fitting (4).
- (10) Connect air hose (12) to fitting (1).
- (11) Connect two air hoses (13) to run tee fitting (2).



- (12) Install terminal lugs TL202 (14) and TL201 (15) on air pressure transmitter (6) with two lockwashers (16) and nuts (17).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.

- (13) Apply adhesive to terminal lugs TL202 (14) and TL201 (15).

c. Follow-On Maintenance.

- (1) Lower cab (TM 9-2320-365-10).
- (2) Start engine (TM 9-2320-365-10).
- (3) Check low pressure transmitter two-way check valve for leaks.
- (4) Shut down engine (TM 9-2320-365-10).

End of Task.

11-29. AIR COMPRESSOR GOVERNOR ADJUSTMENT

This task covers:

a. Adjustment

b. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Air tanks drained (TM 9-2320-365-10).

Materials/Parts

Antiseize Compound (Item 14, Appendix D)

Tools and Special Tools

Tool Kit, Genl Mech (Item 44, Appendix C)
STE/ICE-R (Item 39, Appendix C)

References

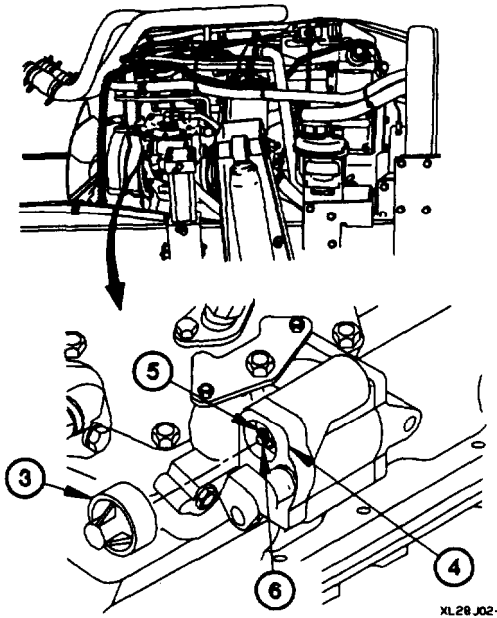
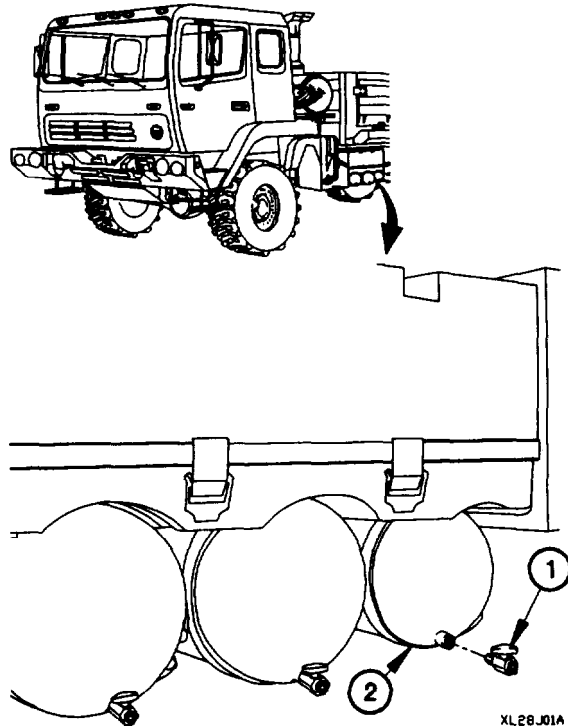
TM 9-4910-571-12&P

Personnel Required

(2)

a. Adjustment.

- (1) Remove drain valve (1) from wet tank (2).
- (2) Prepare STE/ICE-R Test #50 (TM 9-4910-571-12&P).
- (3) Start engine (TM 9-2320-365-10).
- (4) Raise cab (TM 9-2320-365-10).



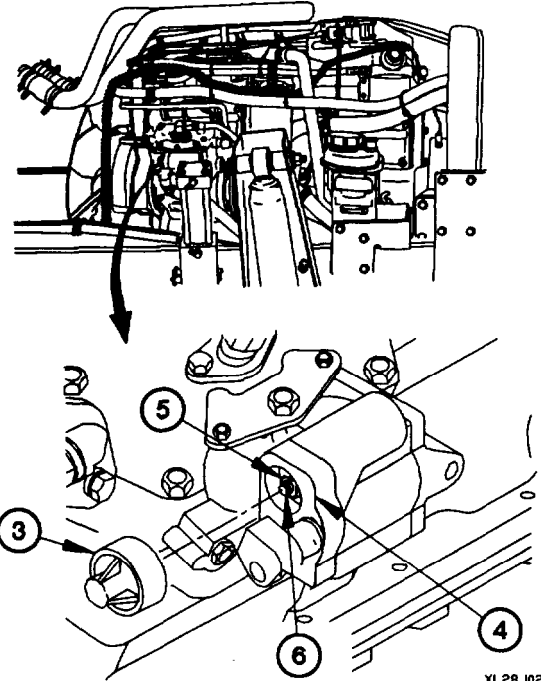
- (5) Remove cover (3) from governor (4).
- (6) Loosen nut (5) on adjustment screw (6).

- (7) Perform STE/ICE-R Test #50 (TM 9-4910-571-12&P).

NOTE

Turning adjustment screw to the left will increase wet tank pressure. Turning adjustment screw to the right will decrease wet tank pressure.

- (8) Turn adjustment screw (6) until 120-130 psi is observed on STE/ICE-R.
 (9) Tighten nut (5) on adjustment screw (6).
 (10) Install cover (3) on governor (4).
 (11) Lower cab (TM 9-2320-365-10).
 (12) Shut down engine (TM 9-2320-365-10).
 (13) Drain air tanks (TM 9-2320-365-10).

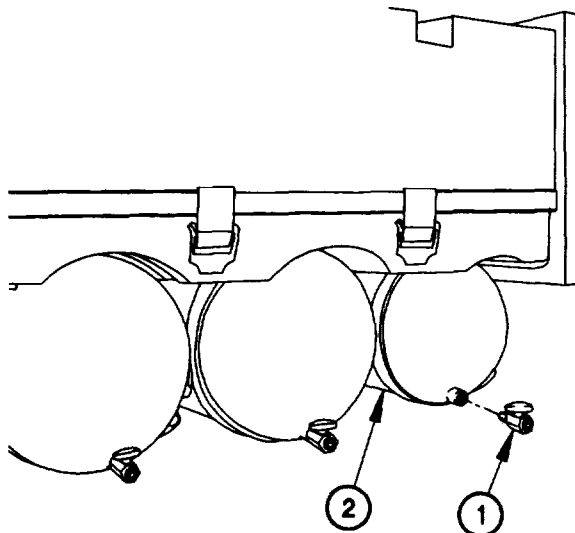


XL28J02-

- (14) Remove STE/ICE-R from wet tank (2).

WARNING

Adhesives, solvents, end sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.



XL28J03-

- (15) Apply antiseize compound to threads of drain valve (1).
 (16) Install drain valve (1) in wet tank (2).

11-29. AIR COMPRESSOR GOVERNOR ADJUSTMENT (CONT)

b. Follow-On Maintenance.

- (1) Start engine (TM 9-2320-365-10).
- (2) Check around wet tank drain valve for air leaks.
- (3) Shut down engine (TM 9-2320-365-10).

End of Task.

CHAPTER 12 WHEELS, TIRES, AND HUBS MAINTENANCE

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Section I. INTRODUCTION

12-1. INTRODUCTION

This chapter contains maintenance instructions for replacing wheels, tires, and hubs authorized by the Maintenance Allocation Chart (MAC) at the Unit Maintenance level.



Section II. MAINTENANCE PROCEDURES

12-2. WHEEL REPAIR

This task covers:

- | | |
|---|--|
| <ul style="list-style-type: none"> a. Disassembly b. Assembly | <ul style="list-style-type: none"> c. Follow-On Maintenance |
|---|--|

INITIAL SETUP

Equipment Conditions

Wheel removed (TM 9-2320-365-10).
 CTIS hose assemblies, manifold valve, kneeling valve and bracket removed (para 12-5).

Materials/Parts

Packing, Preformed (Item 169, Appendix G)
 Nut, Self-Locking (20) (Item 132, Appendix G)
 Nut, Self-Locking (4) (Item 152, Appendix G)

Tools and Special Tools

Tool Kit, Genl Mech (Item 44, Appendix C)
 Iron, Tire (Item 20, Appendix C)
 Wrench, Torque, 0-600 lb-ft (Item 59, Appendix C)
 Wrench Set, Socket (Item 48, Appendix C)

Personnel Required

(2)

References

TM 9-2610-200-14

WARNING

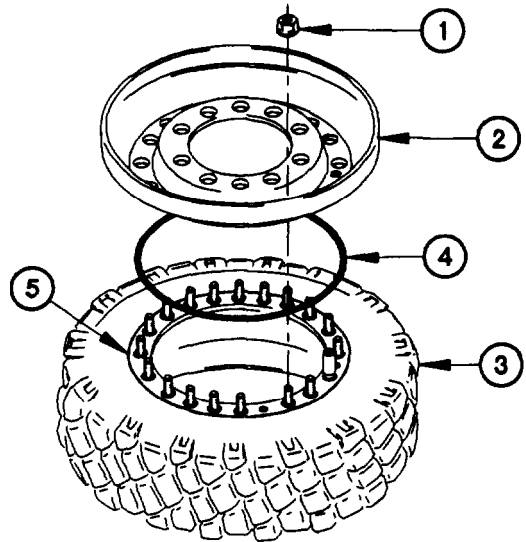
- Ensure that tire is totally deflated before removing self-locking nuts. Failure to comply may result in serious injury or death to personnel.
- Always use an inflation safety cage to inflate tires mounted on multipiece rims, and tire/rim assemblies not mounted on a tire changing machine that has a positive lock down device designed to hold the assembly during inflation (TM 9-2610-200-14). When using a tire changing machine, always follow manufacturer's mounting and safety instructions. Failure to comply may result in serious injury or death to personnel. Always inflate tires that are mounted on rims with demountable side ring flanges or lockrings an inflation safety cage or serious injury or death may result.

e. Disassembly.

CAUTION

Loosen self-locking nuts no more than 1/2 inch (1.27 cm) at a time. Failure to comply may result in damage to equipment.

- (1) Loosen 20 self-locking nuts (1) approximately 1/2 in. (1.27 cm) at a time.
- (2) Remove 20 self-locking nuts (1) from outside wheel section (2). Discard self-locking nuts.
- (3) Remove outside wheel section (2) from tire (3).
- (4) Remove preformed packing (4) from inside wheel section (5). Discard preformed packing.



XM02001-

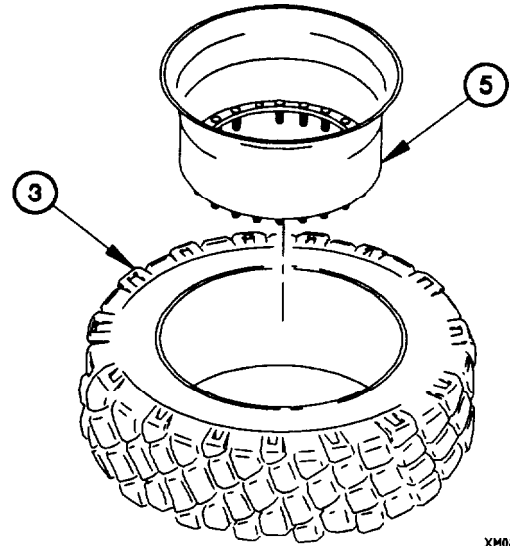
WARNING

Tire weighs approximately 350 lbs (159 Kgs). Use extreme care when handling tire. Failure to comply may result in injury to personnel.

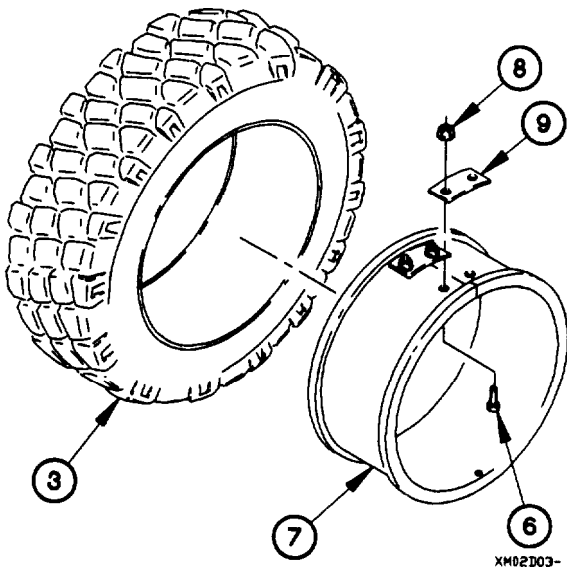
NOTE

Steps (5) through (10) require the aid of an assistant.

- (5) Turn tire (3) over to gain access to inside wheel section (5).
- (6) Remove inside wheel section (5) from tire (3).



XM02D02-



XM02D03-

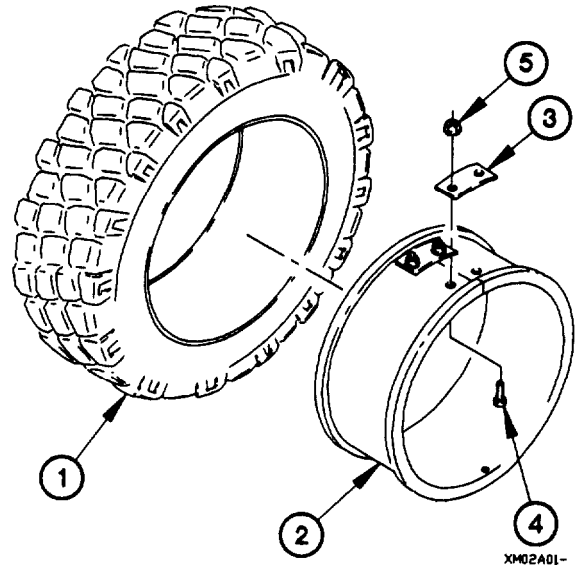
- (7) Stand tire (3) on end with beadlock bolts (6) facing up.
- (8) Push down on beadlock (7) to gain access to four self-locking nuts (8).
- (9) Remove four self-locking nuts (8), bolts (6) and two clips (9) from beadlock (7). Discard self-locking nuts.
- (10) Remove beadlock (7) from tire (3).

b. Assembly.

NOTE

Steps (1) through (6) require the aid of an assistant.

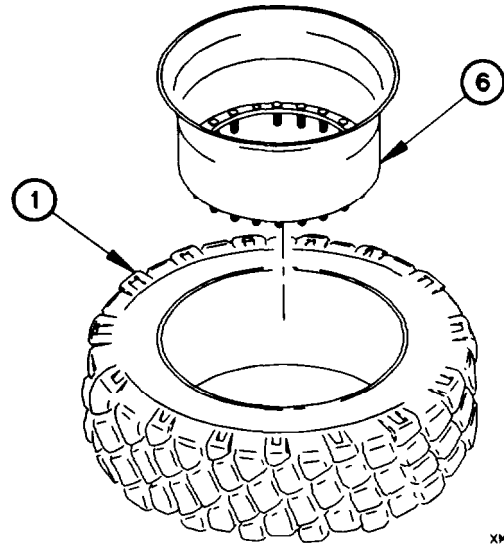
- (1) Open tire (1) and install beadlock (2) inside tire,
- (2) Install two clips (3) in beadlock (2) with four screws (4) and self-locking nuts (5).
- (3) Center beadlock (2) in tire (1).



XM02A01-

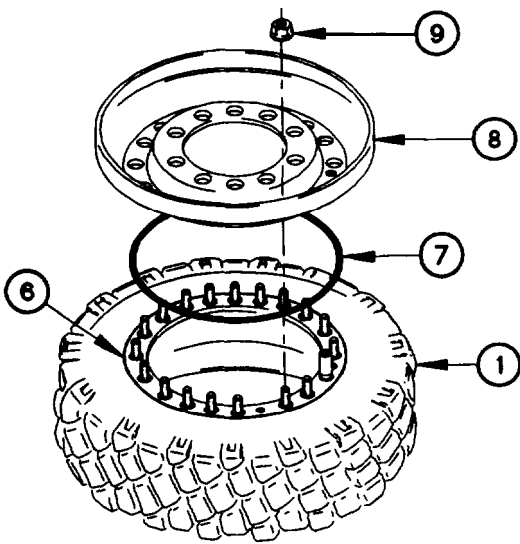
12-2. WHEEL REPAIR (CONT)

- (4) Lay tire (1) on its side.
- (5) Install inside wheel section (6) in tire (1).



XM02A02-

- (6) Turn tire (1) over.
- (7) Install preformed packing (7) on inside wheel section (6).
- (8) Install outside wheel section (8) on inside wheel section (6).
- (9) Position 20 nuts (9) on wheel section (8).

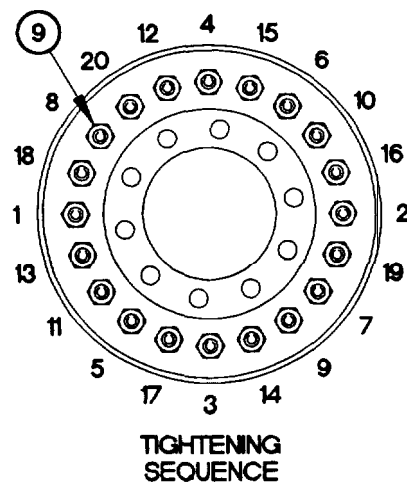


XM02A03-

- (10) Tighten 20 nuts (9) to 210-240 lb-ft (285-325 N•m) in sequence shown.

c. Follow-On Maintenance.

- (1) Inflate tire to 55 psi (379 kPa) (TM 9-2610-200-14).
- (2) Install wheel (TM 9-2320-365-10).
- (3) Tighten wheel studs (para 12-4).
- (4) Install CTIS hose assemblies, manifold valve, kneeling valve and bracket (para 12-5).



TIGHTENING SEQUENCE

End of Task.

12-3. WHEEL STUD REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Wheel removed (TM 9-2320-365-10).
Rear spring brakes caged (para 11-6).

Tools and Special Tools

Tool Kit, Genl Mech (Item 44, Appendix C)

Tools and Special Tools (Cont)

Respirator, Air Filter (Item 29, Appendix C)

Personnel Required

(2)

a. Removal.

WARNING

- Spring brakes must be caged before attempting replacement of a rear axle wheel stud. Failure to comply may result in serious injury or death to personnel.
- Wheel drum weighs approximately 92 lbs (42 kgs). Use the aid of an assistant to help remove wheel drum from axle. Failure to comply may result in injury to personnel.
- Brake shoes may be covered with dust. Breathing this dust may be harmful to your health. Do not use compressed air to clean brake shoes. Wear a filter mask approved for use against brake dust. Failure to comply may result in injury to personnel.

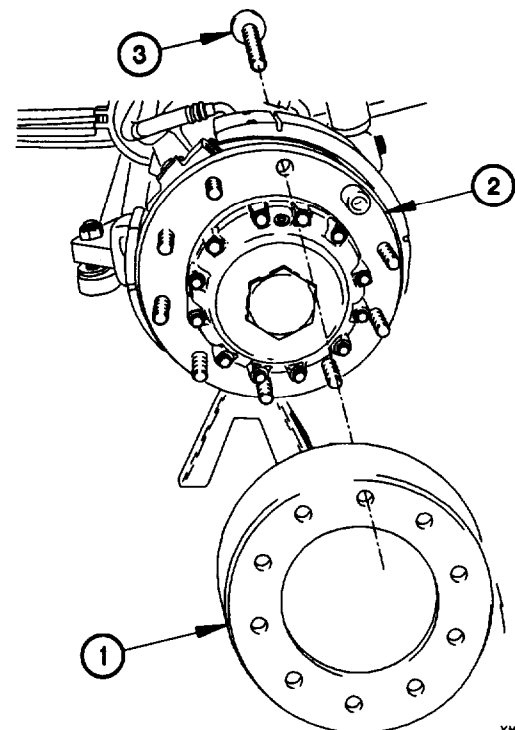
CAUTION

Wheel studs and nuts on left side of vehicle have left hand threads. Nuts must be turned to the right to loosen. Wheel studs and nuts on right side of vehicles have right hand threads. Nuts must be turned to the left to loosen. Failure to comply may result in damage to equipment.

NOTE

Step (1) requires the aid of an assistant.

- (1) Remove wheel drum (1) from wheel hub (2).
- (2) Turn hub to position stud (3), to be replaced, at top or bottom position.
- (3) Knock stud (3) out through back side of wheel hub (2).



XMO3R01A

12-3. WHEEL STUD REPLACEMENT (CONT)

b. Installation.

- (1) Install wheel stud (1) in wheel hub (2).

NOTE

Use a nut that was removed during wheel removal to perform step (2).

- (2) Install nut (3) on wheel stud (1) with flat side of nut (3) toward wheel hub (2).
- (3) Tighten nut (3) until wheel stud (1) is seated in wheel hub (2) as far as threads will allow.
- (4) Remove nut (3) from wheel hub (2).
- (5) Install nut (3) on wheel stud (1) with beveled side of nut (3) toward wheel hub (2).
- (6) Tighten nut (3) until wheel stud (1) is seated in wheel hub (2).
- (7) Remove nut (3) from wheel hub (2).

WARNING

Wheel drum weighs approximately 92 lbs (42 kgs). Use the aid of an assistant to help install wheel drum on axle. Failure to comply may result in injury to personnel.

NOTE

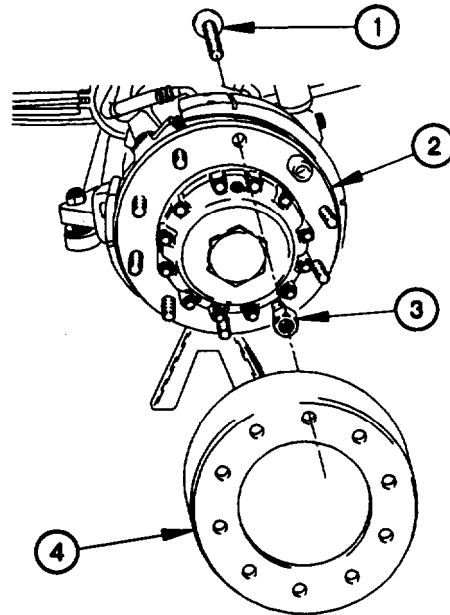
Step (8) requires the aid of an assistant.

- (8) Install wheel drum (4) on wheel hub (2).

c. Follow-On Maintenance.

- (1) Uncage rear spring brakes (para 11-6).
- (2) Install wheel (TM 9-2320-365-10).

End of Task.



XM03101A

12-4. WHEEL STUD TIGHTENING SEQUENCE

This task covers:

Tightening Sequence

INITIAL SETUP

Equipment Conditions

Wheel installed (TM 9-2320-365-10).

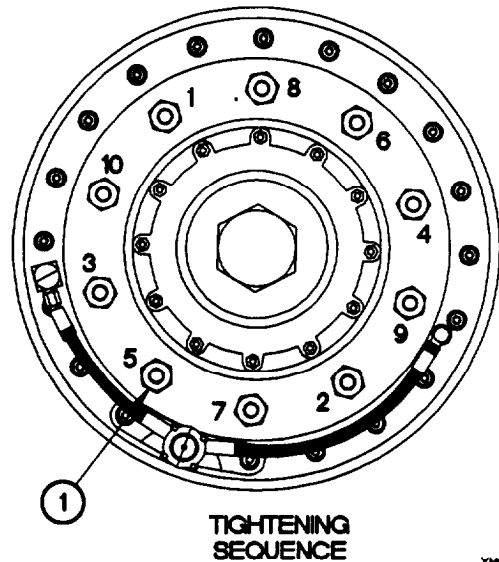
Tools and Special Tools

Wrench, Torque, 0-600 lb-ft (Item 69, Appendix C)
 Tool Kit, Genl Mech (Item 44, Appendix C)
 Multiplier, Torque Wrench (Item 23, Appendix C)
 Wrench Set, Socket (Item 48, Appendix C)

Tightening Sequence.

Tighten ten nuts (1) to 415-475 lb-ft (563-644 N•m) in sequence shown.

End of Task.



12-5. CENTRAL TIRE INFLATION SYSTEM (CTIS) HOSE ASSEMBLIES, MANIFOLD VALVE, KNEELING VALVE AND BRACKET REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Engine shut down (TM 9-2320-365-10).
Air tanks drained (TM 9-2320-365-10).

Tools and Special Tools (Cont)

Adapter, Socket Wrench (Item 2, Appendix B)

Tools and Special Tools

Goggles, Industrial (Item 15, Appendix C)
Tool Kit, Genl Mech (Item 44, Appendix C)
Fishing Tool, Pneumatic Tire Valve (Item 9, Appendix C)
Socket, Socket Wrench (Item 68, Appendix B)
Socket, Socket Wrench (Item 36, Appendix C)
Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)
Wrench Set, Socket (Item 48, Appendix C)

Materials/Parts

Packing, Preformed (Item 160, Appendix G)
Packing, Preformed (Item 188, Appendix G)
Packing, Preformed (2) (Item 189, Appendix G)
Packing, Preformed (Item 190, Appendix G)
Seal, Nonmetallic (2) (Item 255, Appendix G)
Filter Element, Fluid (Item 16, Appendix G)
Sealing Compound (Item 62, Appendix D)

a. Removal.

WARNING

The sudden release of high pressure air can cause damage to eyes. Wear appropriate eye protection when working near pressurized air. Failure to comply may result in injury to personnel.

- (1) Remove valve cap (1) from CTIS manifold valve (2).
- (2) Remove valve core (3) from CTIS manifold valve (2) and allow time for tire to deflate.

NOTE

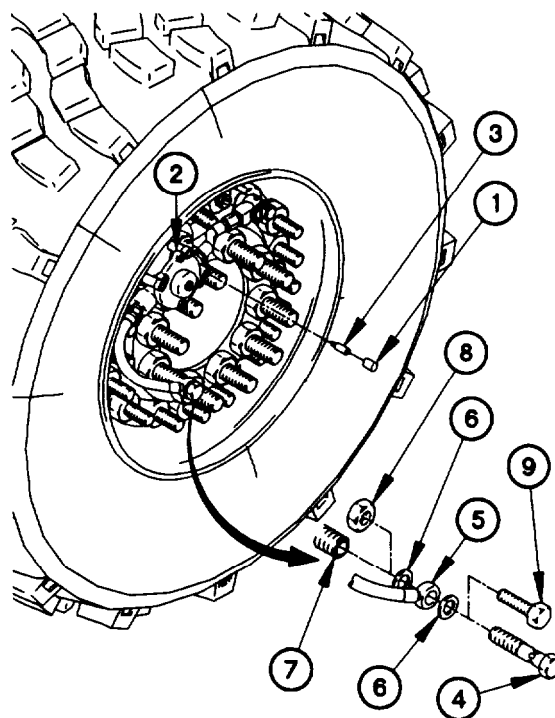
Perform step (3) if wheel is mounted on vehicle.

- (3) Remove banjo bolt (4), CTIS hose (5), and two seals (6) from hollow wheel stud (7). Discard seals.

NOTE

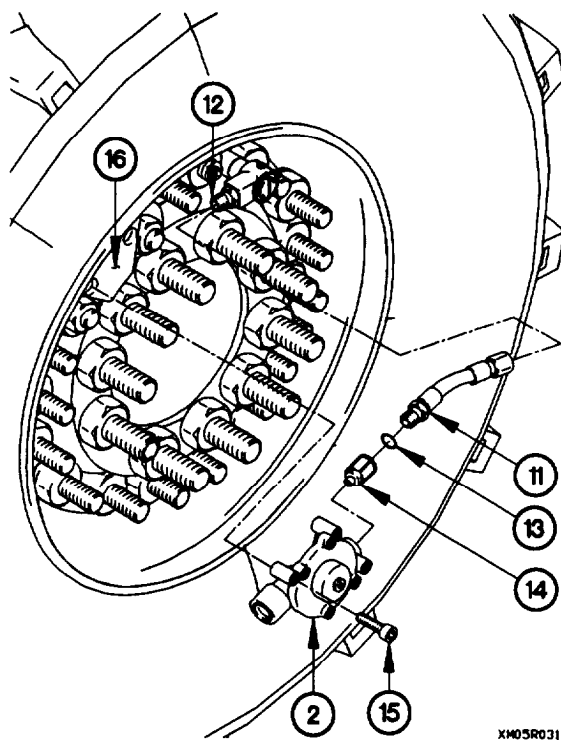
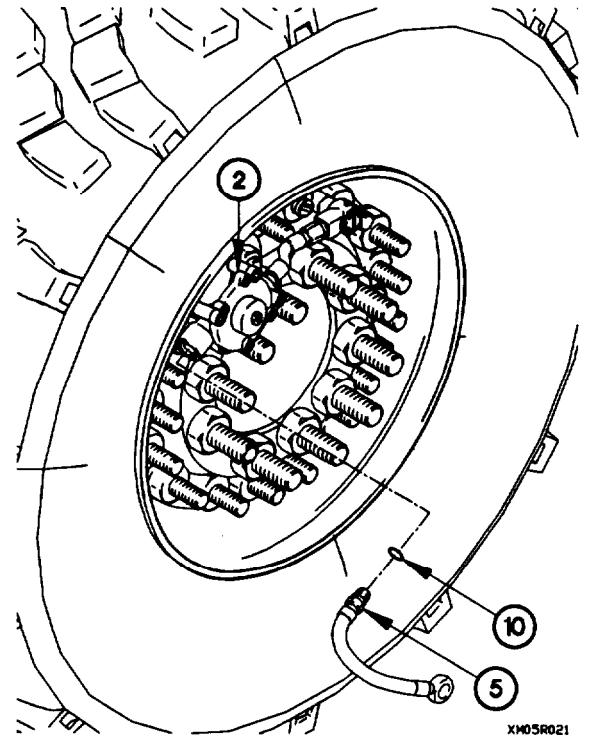
Perform step (4) if wheel was removed from spare tire retainer.

- (4) Remove nut (8), screw (9), and two seals (6) from CTIS hose (5). Discard seals.



XM05R011

- (5) Remove CTIS hose (5) from CTIS manifold valve (2).
- (6) Remove preformed packing (10) from CTIS hose assembly (5). Discard preformed packing.



- (7) Disconnect CTIS hose (11) from adapter (12).
- (8) Remove CTIS hose (11) from CTIS manifold valve (2).
- (9) Remove preformed packing (13) from CTIS hose (11). Discard preformed packing.
- (10) Remove filter (14) from CTIS manifold valve (2). Discard filter.
- (11) Remove two screws (15) and CTIS manifold valve (2) from mounting bracket (16).

12-5. CENTRAL TIRE INFLATION SYSTEM (CTIS) HOSE ASSEMBLIES, MANIFOLD VALVE, KNEELING VALVE AND BRACKET REPLACEMENT (CONT)

NOTE

Perform step (12) on front wheels.

- (12) Remove adapter (12) from kneeling valve (17).

NOTE

Perform step (13) on rear wheels.

- (13) Remove adapter (12) from hose adapter (18).
(14) Remove preformed packing (19) from adapter (12). Discard preformed packing.

NOTE

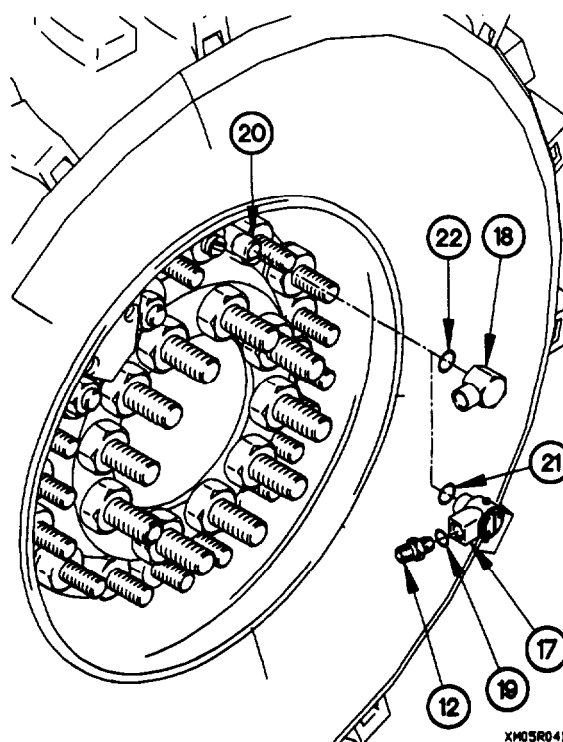
Perform steps (15) and (16) on front wheels.

- (15) Remove kneeling valve (17) from auxiliary valve (20).
(16) Remove preformed packing (21) from kneeling valve (17). Discard preformed packing.

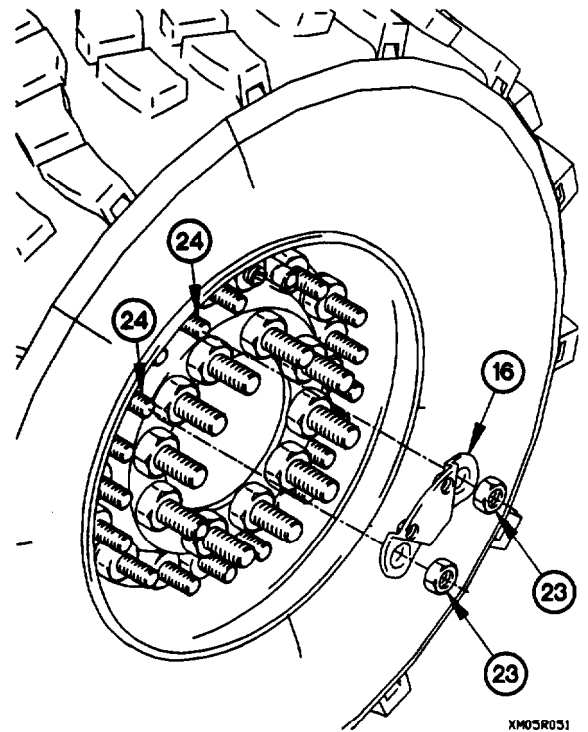
NOTE

Perform steps (17) and (18) on rear wheels.

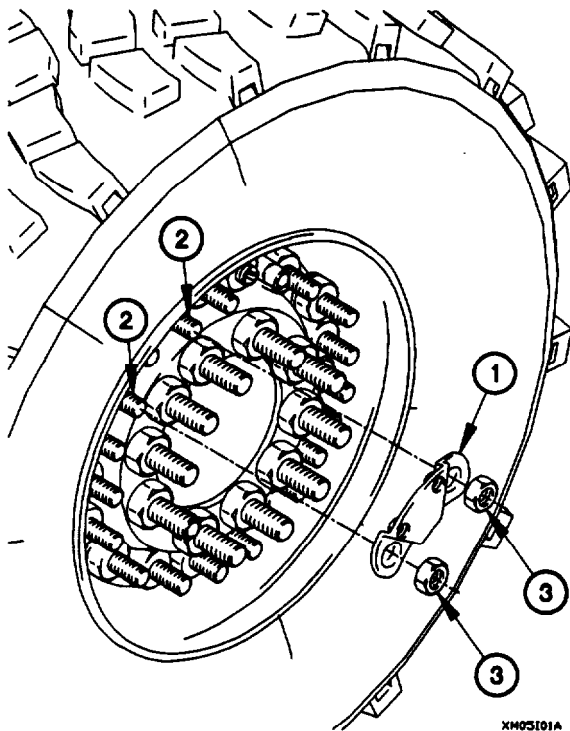
- (17) Remove hose adapter (18) from auxiliary valve (20).
(18) Remove preformed packing (22) from hose adapter (18). Discard preformed packing.



- (19) Remove two nuts (23) from wheel studs (24).
- (20) Remove mounting bracket (16) from wheel studs (24).



b. Installation.



- (1) Position mounting bracket (1) on two wheel studs (2) with nuts (3).
- (2) Tighten two nuts (3) to 45-55 lb-ft (61-75 N•m).

12-5. CENTRAL TIRE INFLATION SYSTEM (CTIS) HOSE ASSEMBLIES, MANIFOLD VALVE, KNEELING VALVE AND BRACKET REPLACEMENT (CONT)

NOTE

Perform steps (3) and (4) on front wheels.

(3) Install preformed packing (4) on kneeling valve (5).

(4) Install kneeling valve (5) on auxiliary valve (6).

NOTE

Perform steps (5) and (6) on rear wheels.

(5) Install preformed packing (7) on hose adapter (8).

(6) Install hose adapter (8) on auxiliary valve (6).

(7) Install preformed packing (9) on adapter (10).

NOTE

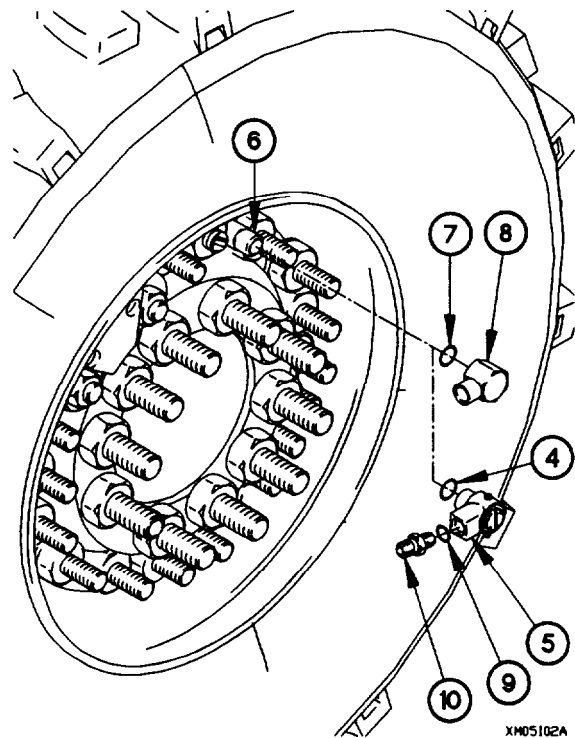
Perform step (8) on front wheels.

(8) Install adapter (10) on kneeling valve (5).

NOTE

Perform step (9) on rear wheels.

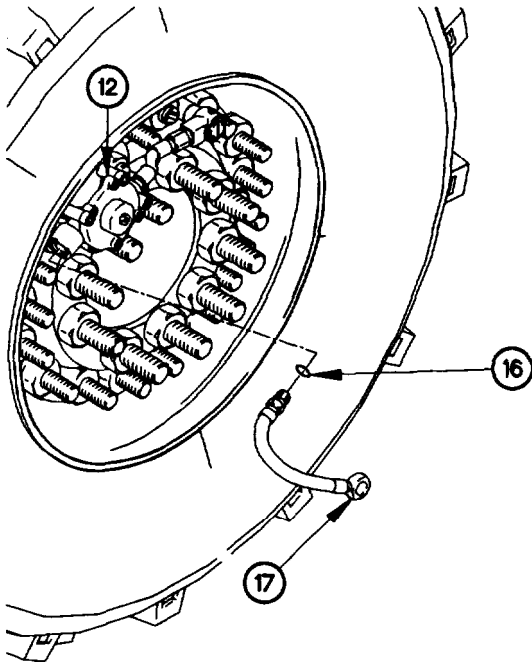
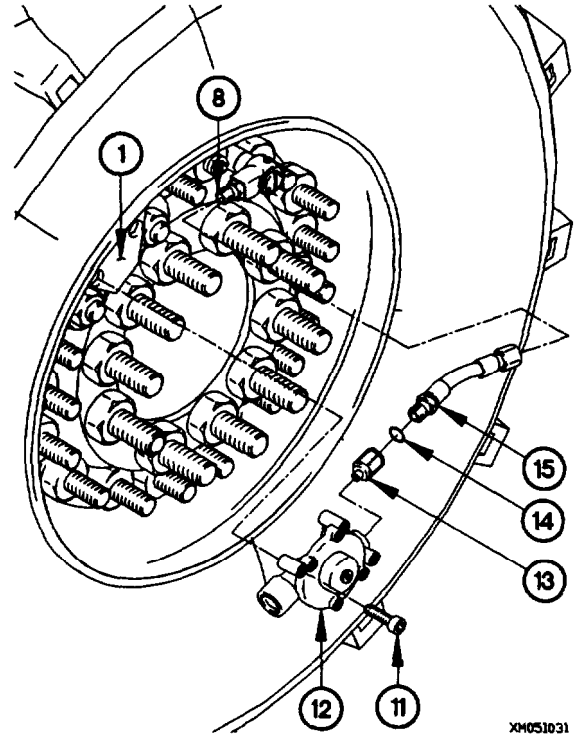
(9) Install adapter (10) on hose adapter (8).



WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvents, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.

- (10) Apply sealing compound to threads of two screws (11).
- (11) Position CTIS manifold valve (12) on mounting bracket (1) with two screws (11).
- (12) Tighten two screws (11) to 15-17 lb-ft (20-23 N•m).
- (13) Install filter (13) in CTIS manifold valve (12).
- (14) Install preformed packing (14) on CTIS hose (15).
- (15) Install CTIS hose assembly (15) on CTIS manifold valve (12).
- (16) Install CTIS hose (15) on adapter (8).



- (17) Install preformed packing (16) on CTIS hose (17).
- (18) Install CTIS hose (17) on CTIS manifold valve (12).

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12-5. CENTRAL TIRE INFLATION SYSTEM (CTIS) HOSE ASSEMBLIES, MANIFOLD VALVE, KNEELING VALVE AND BRACKET REPLACEMENT (CONT)

NOTE

Perform steps (19) and (20) if wheel is mounted on vehicle.

- (19) Position CTIS hose (17) on hollow wheel stud (18) with two seals (19) and banjo bolt (20).

NOTE

Place a screwdriver behind CTIS hose assembly while tightening banjo bolt to keep CTIS hose assembly from contacting wheel studs.

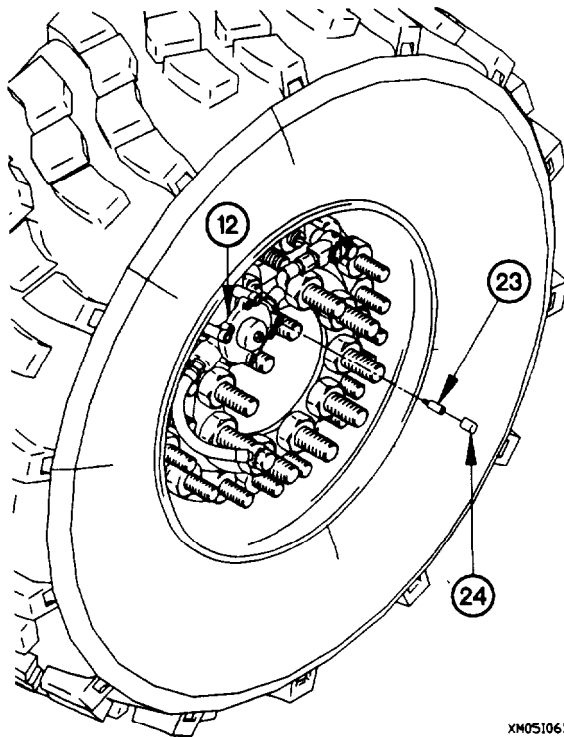
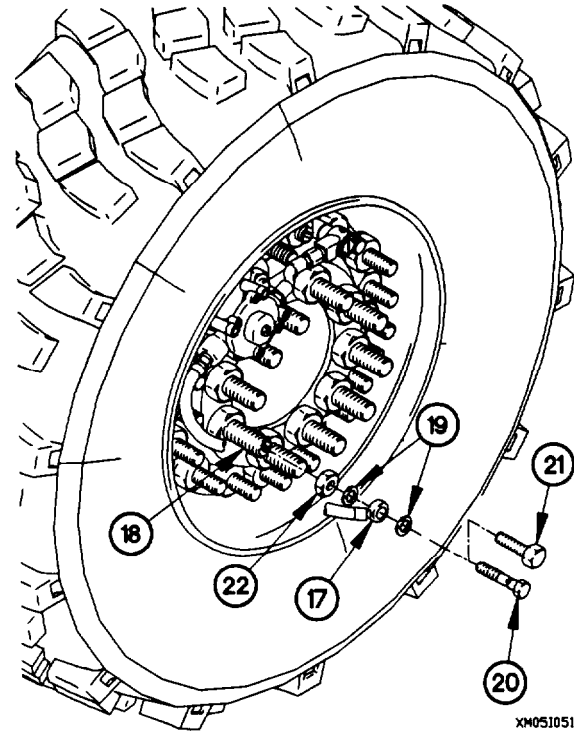
- (20) Tighten banjo bolt (20) to 22-28 lb-ft (30-38 N•m).

NOTE

Perform steps (21) and (22) if wheel will be installed in spare tire retainer.

- (21) Position two seals (19), screw (21), and nut (22) on CTIS hose (17).

- (22) Tighten nut (22) to 22-28 lb-ft (30-38 N•m).



- (23) Install valve core (23) in CTIS manifold valve (12).

- (24) Install valve cap (24) on CTIS manifold valve (12).

c. Follow-On Maintenance.

- (1) Start engine (TM 9-2320-365-10) and allow time for CTIS to inflate tire.
- (2) Shut down engine (TM 9-2320-365-10).
- (3) Check for air leaks around CTIS hoses, CTIS manifold valve assembly, and kneeling valve or hose adapter.

End of Task.

12-6. CENTRAL TIRE INFLATION SYSTEM (CTIS) ECU REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions
 Engine shut down (TM 9-2320-365-10).

Tools and Special Tools
 Tool Kit, Genl Mech (Item 44, Appendix C)

a. Removal.

- (1) Disconnect connector P110 (1) from CTIS ECU (2).
- (2) Remove screw (3), washer (4), and terminal lug TL50 (5) from CTIS ECU (2).
- (3) Remove two screws (6), washers (7), and CTIS ECU (2) from personnel heater (8).

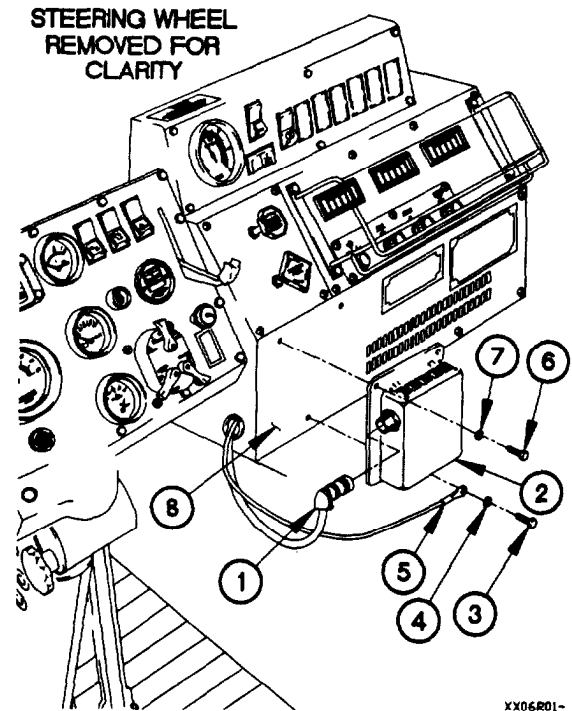
b. Installation.

- (1) Install CTIS ECU (2) on personnel heater (8) with terminal lug TL50 (5), washer (4), and screw (3).
- (2) Install two washers (7) and screws (6) in CTIS ECU (2).
- (3) Connect connector P110 (1) to CTIS ECU (2).

c. Follow-On Maintenance.

- (1) Start engine (TM 9-2320-365-10).
- (2) Operate CTIS and check for proper operation (TM 9-2320-365-10).
- (3) Shut down engine (TM 9-2320-365-10).

End of Task.



XX06201-

12-7. MANIFOLD VALVE ASSEMBLY REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

- Engine shut down (TM 9-2320-365-10).
- Air tanks drained (TM 9-2320-365-10).
- Kick panel removed (para 16-3).

Tools and Special Tools

- Tool Kit, Genl Mech (Item 44, Appendix C)
- Wrench, Torque, 0-200 lb-in. (Item 58, Appendix C)
- Socket Set, Socket Wrench (Item 34, Appendix C)

Materials/Parts

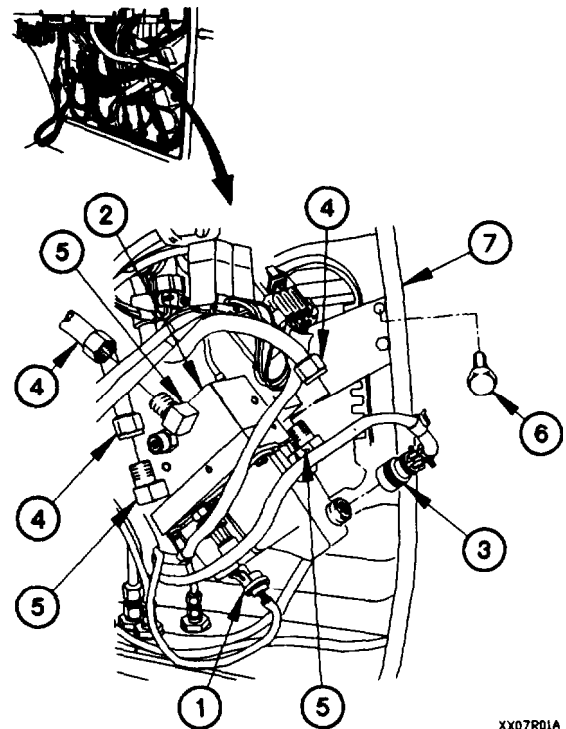
- Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)
- Antiseize Compound (Item 14, Appendix D)
- Ties, Cable, Plastic (Item 76, Appendix D)

a. Removal.

NOTE

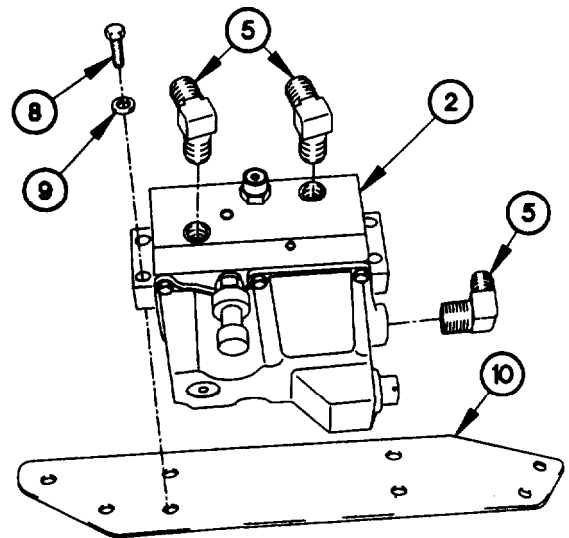
Tag air hoses and connection points prior to disconnecting.

- (1) Disconnect connector P113 (1) from manifold valve assembly (2).
- (2) Disconnect connector P112 (3) from manifold valve assembly (2).
- (3) Disconnect three air hoses (4) from 90-degree fittings (5).
- (4) Remove four screws (6) and manifold valve assembly (2) from cab (7).



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- (5) Remove three 90-degree fittings (5) from manifold valve assembly (2).
- (6) Remove four screws (8), washers (9), and bracket (10) from manifold valve assembly (2).



XX07R02A

b. Installation.

WARNING

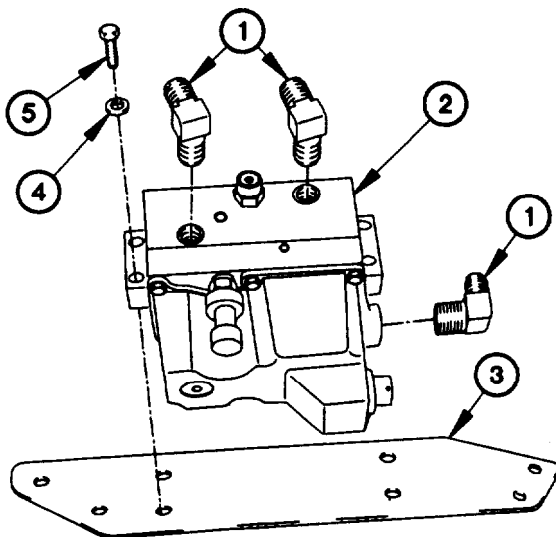
Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.

- (1) Apply antiseize compound to threads of three 90-degree fittings (1).

CAUTION

Do not overtighten fittings. Failure to comply may result in damage to equipment.

- (2) Install three 90-degree fittings (1) in manifold valve assembly (2).
- (3) Install bracket (3) on manifold valve assembly (2) with four washers (4) and screws (5).



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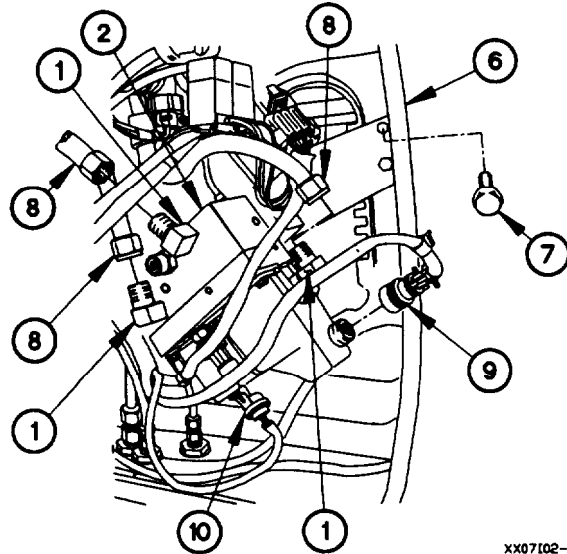
12-7. MANIFOLD VALVE ASSEMBLY REPLACEMENT (CONT)

- (4) Position manifold valve assembly (2) on cab (6) with four screws (7).
- (5) Tighten four screws (7) to 120 lb-in. (14 N•m).

NOTE

Install plastic cable ties as required.

- (6) Install three air hoses (8) on 90-degree fittings (1).
- (7) Connect connector P112 (9) to manifold valve assembly (2).
- (8) Connect connector P113 (10) to manifold valve assembly (2).



c. Follow-On Maintenance.

- (1) Start engine (TM 9-2320-365-10).
- (2) Check operation of CTIS (TM 9-2320-365-10).
- (3) Check air hoses and fittings for air leaks.
- (4) Shut down engine (TM 9-2320-365-10).
- (5) Install kick panel (para 16-3).

End of Task.

12-8. FRONT AXLE CENTRAL TIRE INFLATION SYSTEM (CTIS) QUICK RELEASE VALVE REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

- Engine shut down (TM 9-2320-365-10).
- Air tanks drained (TM 9-2320-365-10).

Tools and Special Tools

- Tool Kit, Genl Mech (Item 44, Appendix C)
- Goggles, Industrial (Item 15, Appendix C)

Materials/Parts

- Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)
- Antiseize Compound (Item 14, Appendix D)
- Nut, Self-Locking (2) (Item 148, Appendix G)

WARNING

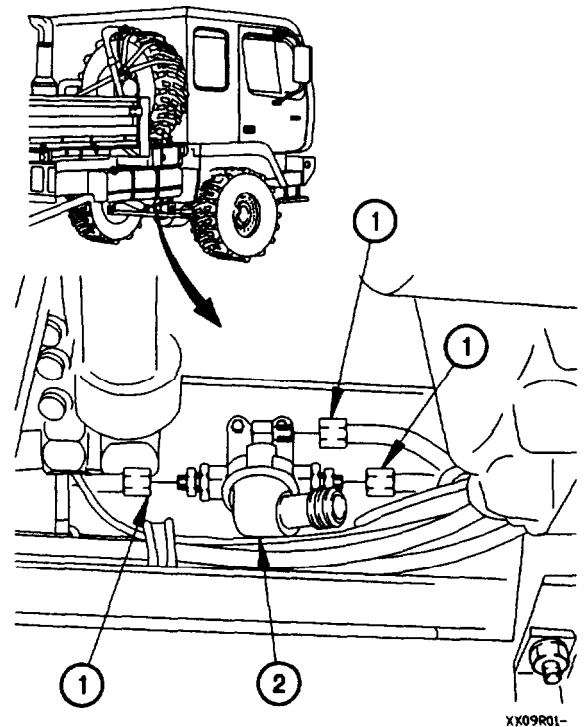
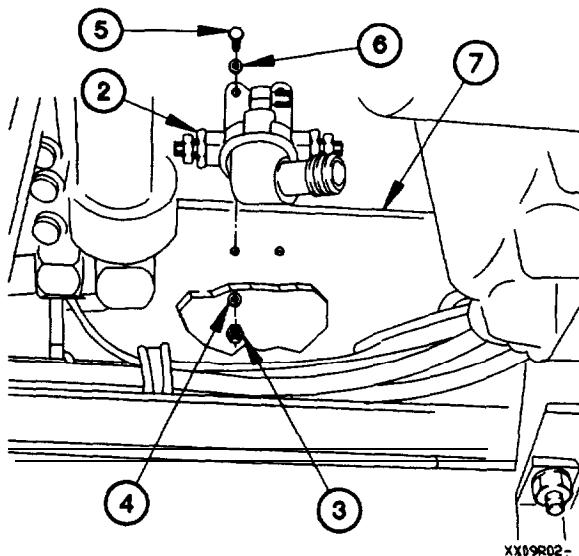
Wear appropriate eye protection when working under vehicle due to the possibility of falling debris. Failure to comply may result in injury to personnel.

a. Removal.

NOTE

Tag air hoses and connection points before disconnecting.

- (1) Disconnect three air hoses (1) from quick release valve (2).

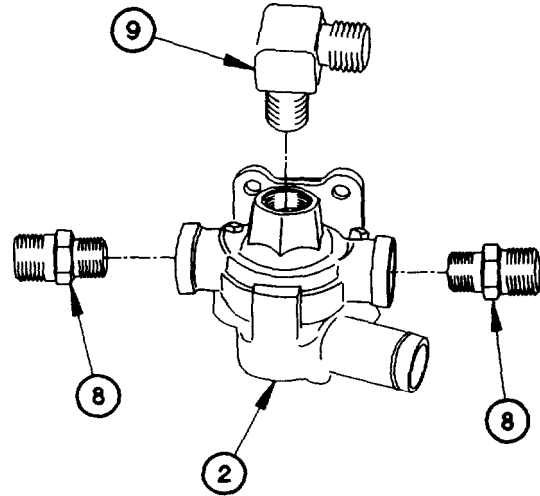


- (2) Remove two self-locking nuts (3) and washers (4) from screws (5). Discard self-locking nuts.
- (3) Remove two screws (5), washers (6), and quick release valve (2) from frame (7).

12-8. FRONT AXLE CENTRAL TIRE INFLATION SYSTEM (CTIS) QUICK RELEASE VALVE REPLACEMENT (CONT)

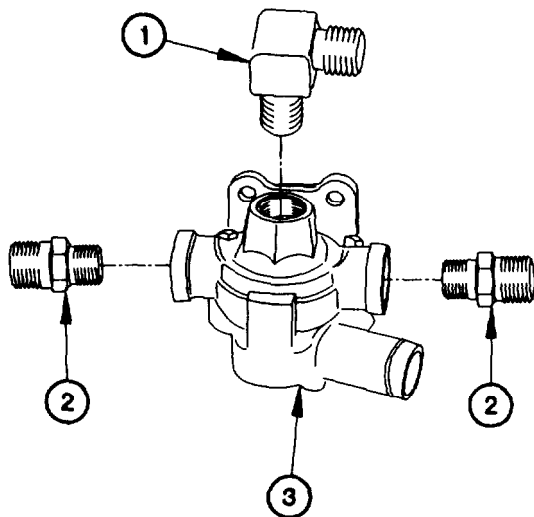
(4) Remove two fittings (8) from quick release valve (2).

(5) Remove 90-degree fitting (9) from quick release valve (2).



XX09R03-

b. Installation.



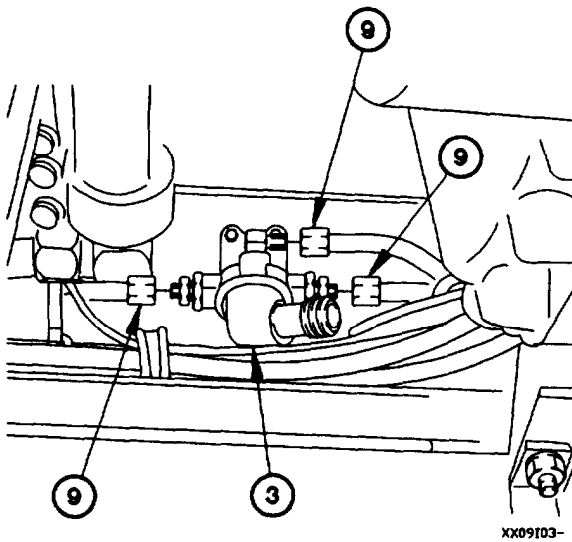
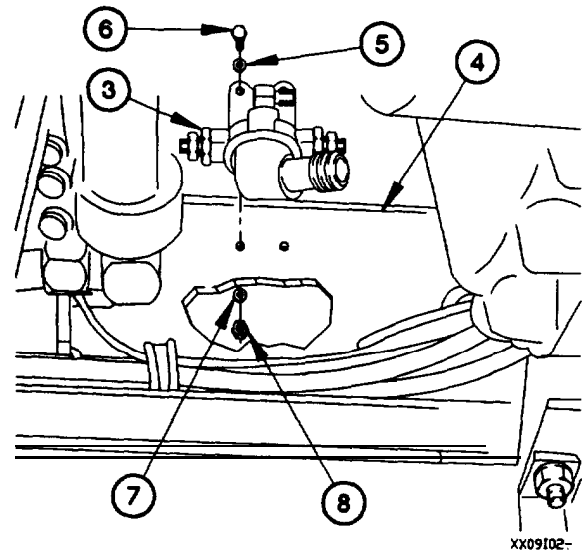
XX09101-

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.

- (1) Apply antiseize compound on threads of 90-degree fitting (1) and two fittings (2).
- (2) Install 90-degree fitting (1) in quick release valve (3).
- (3) Install two fittings (2) in quick release valve (3).

- (4) Position quick release valve (3) on frame (4) with two washers (5) and screws (6).
- (5) Install two washers (7) and self-locking nuts (8) on screws (6).



- (6) Connect three air hoses (9) to quick release valve (3).

c. Follow-On Maintenance.

- (1) Start engine (TM 9-2320-365-10) and allow enough time for air pressure to reach normal operating pressure.
- (2) Check quick release valve for air leaks.
- (3) Shut down engine (TM 9-2320-365-10).

End of Task.

12-9. REAR AXLE CENTRAL TIRE INFLATION SYSTEM (CTIS) QUICK RELEASE VALVE REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

- Engine shut down (TM 9-2320-365-10).
- Air tanks drained (TM 9-2320-365-10).

Tools and Special Tools

- Tool Kit, Genl Mech (Item 44, Appendix C)
- Goggles, Industrial (Item 15, Appendix C)

Materials/Parts

- Dispenser Pressure Sensitive Adhesive Tape (Item 21, Appendix D)
- Antiseize Compound (Item 14, Appendix D)

WARNING

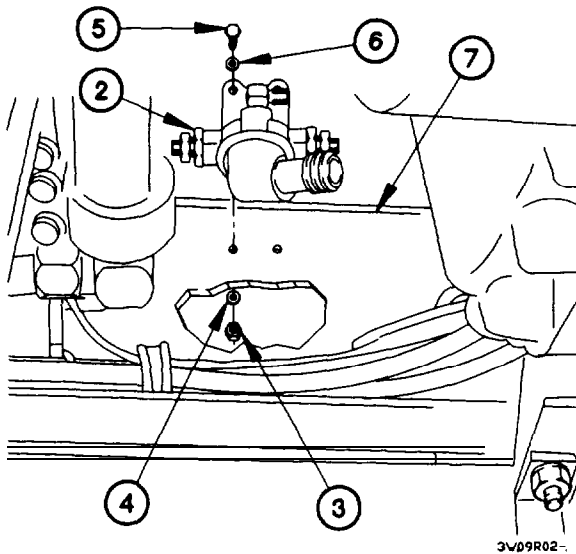
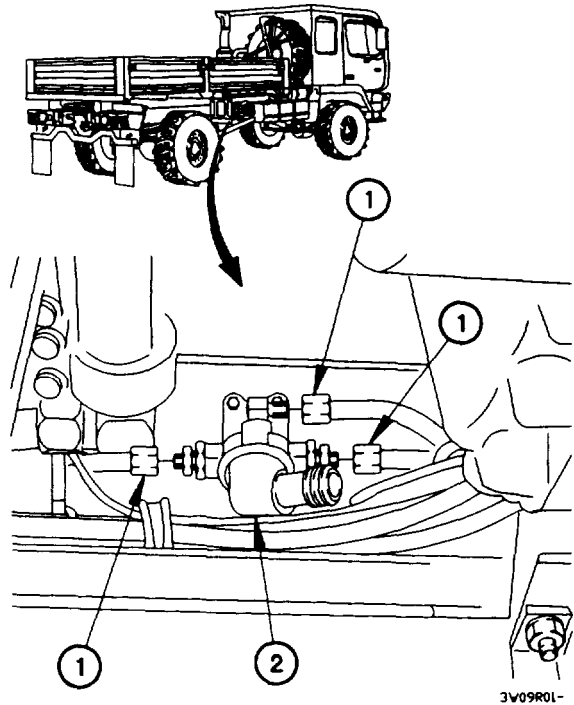
Wear appropriate eye protection when working under vehicle due to the possibility of failing debris. Failure to comply may result in injury to personnel.

a. Removal.

NOTE

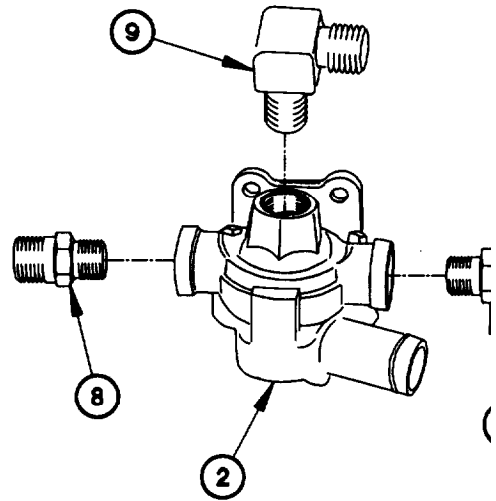
Tag air hoses and connection points prior to disconnecting.

- (1) Disconnect three air hoses (1) from quick release valve (2).



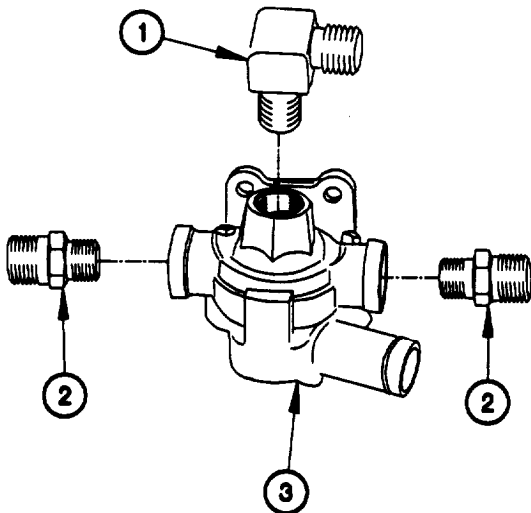
- (2) Remove two nuts (3) and washers (4) from screws (5).
- (3) Remove two screws (5), washers (6), and quick release valve (2) from frame (7).

- (4) Remove two fittings (8) from quick release valve (2).
- (5) Remove two 90-degree fittings (9) from quick release valve (2).



3

b. Installation.



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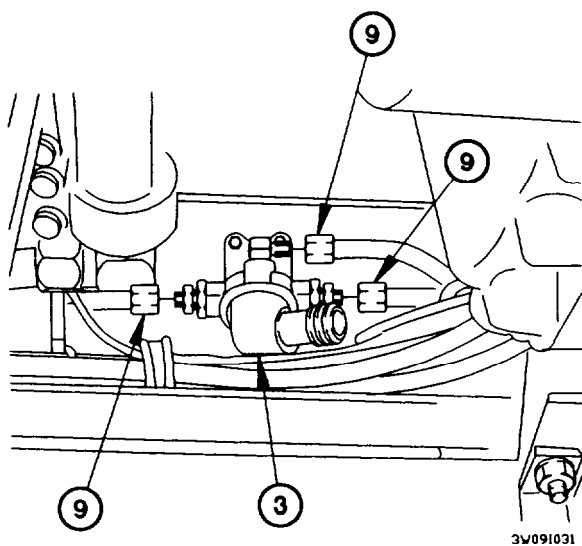
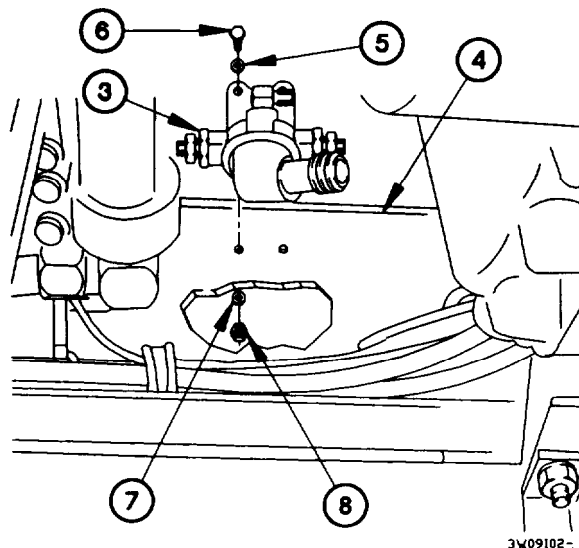
WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.

- (1) Apply antiseize compound on threads of go-degree fitting (1) and two fittings (2).
- (2) Install go-degree fitting (1) in quick release valve (3),
- (3) Install two fittings (2) on quick release valve (3).

12-9. REAR AXLE CENTRAL TIRE INFLATION SYSTEM (CTIS) QUICK RELEASE VALVE REPLACEMENT (CONT)

- (4) Position quick release valve (3) on frame (4) with two washers (5) and screws (6).
- (5) Install two washers (7) and self-locking nuts (8) on screws (6).



- (6) Connect three air hoses (9) on quick release valve (3).

c. Follow-On Maintenance.

- (1) Start engine (TM 9-2320-365-10) and allow enough time for air pressure to reach normal operating pressure.
- (2) Check quick release valve for air leaks.
- (3) Shut down engine (TM 9-2320-365-10).

End of Task.

CHAPTER 13 STEERING SYSTEM MAINTENANCE

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Section I. INTRODUCTION

13-1. INTRODUCTION

This chapter contains maintenance instructions for replacing and adjusting steering system components authorized by the Maintenance Allocation Chart (MAC) at the Unit Maintenance level.

Section II. MAINTENANCE PROCEDURES

13-2. STEERING WHEEL REPLACEMENT

This task covers:

a. Removal

b. Installation

INITIAL SETUP

Equipment Conditions

Engine shut down (TM 9-2320-365-10).

Materials/Parts

Screw, Cap, Socket Head (2) (Item 57, Appendix D)

Tools and Special Tools

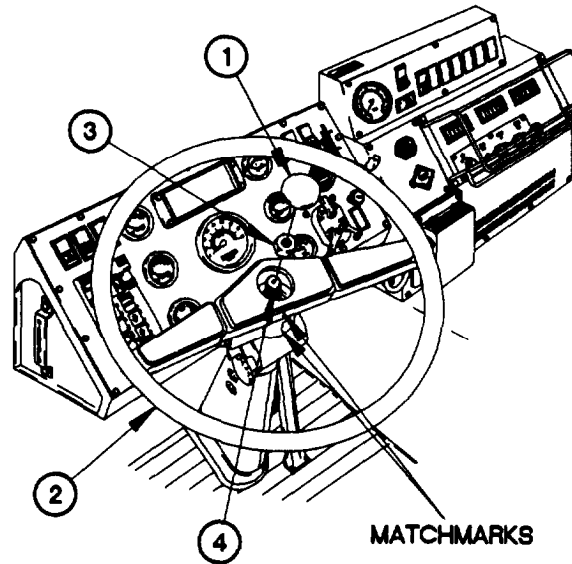
Tool Kit, Genl Mech (Item 44, Appendix C)

Wrench, Torque, 0-175 lb-h (Item 57, Appendix C)

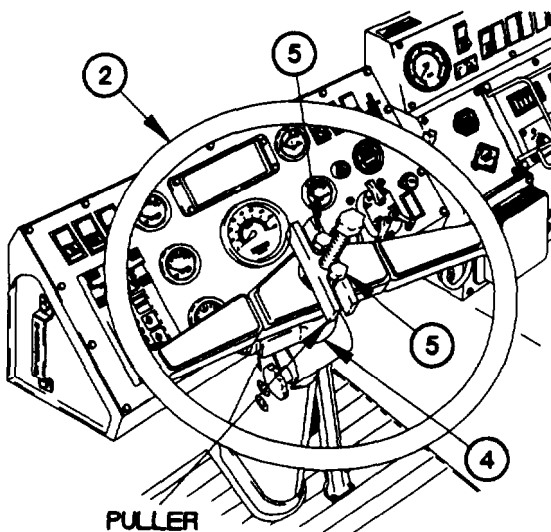
Puller Kit, Mechanical (Item 27, Appendix C)

a. Removal.

- (1) Remove steering wheel nut cover (1) from steering wheel (2).
- (2) Remove nut (3) from steering column (4).
- (3) Match mark steering wheel (2) to steering column (4).



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- (4) Install two screws (5) and puller on steering wheel (2).
- (5) Remove steering wheel (2) from steering column (4).
- (6) Remove two screws (5) and puller from steering wheel (2).

b. Installation.**CAUTION**

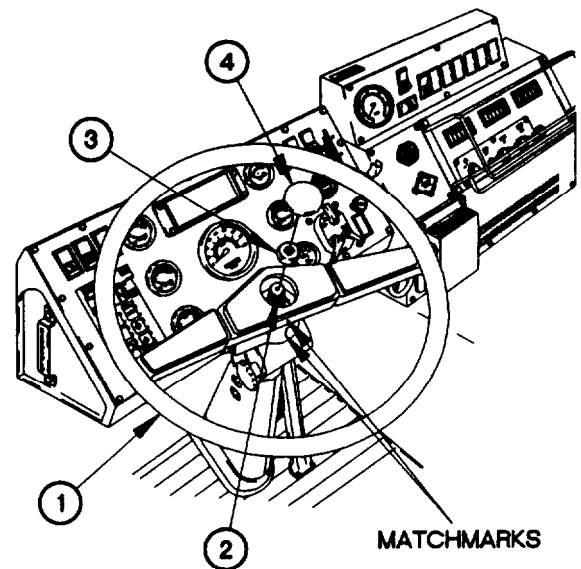
Ensure turn signal lever is in the center position prior to installing steering wheel. Failure to comply may result in damage to equipment.

NOTE

If new steering wheel is to be installed, transfer matchmark to new steering wheel.

- (1) Install steering wheel (1) on steering column (2) with matchmarks aligned.
- (2) Position nut (3) on steering column (2).
- (3) Tighten nut (3) to 30-37 lb-ft (41-50 N•m).
- (4) Install steering wheel nut cover (4).

End of Task.



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13-3. DRAG LINK REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Engine shut down (TM 9-2320-365-10).
 Cab raised (TM 9-2320-365-10).
 Steering wheel turned fully left (TM 9-2320-365-10).

Tools and Special Tools

Tool Kit, Genl Mech (Item 44, Appendix C)
 Wrench, Torque, 0-600 lb-ft (Item 59, Appendix C)

Tools and Special Tools (Cont)

Separator, Ball Joint (Item 54, Appendix B)
 Wrench Set, Socket (Item 48, Appendix C)
 Goggles, Industrial (Item 15, Appendix C)

Materials/Parts

Pin, Cotter (2) (Item 205, Appendix G)

Personnel Required

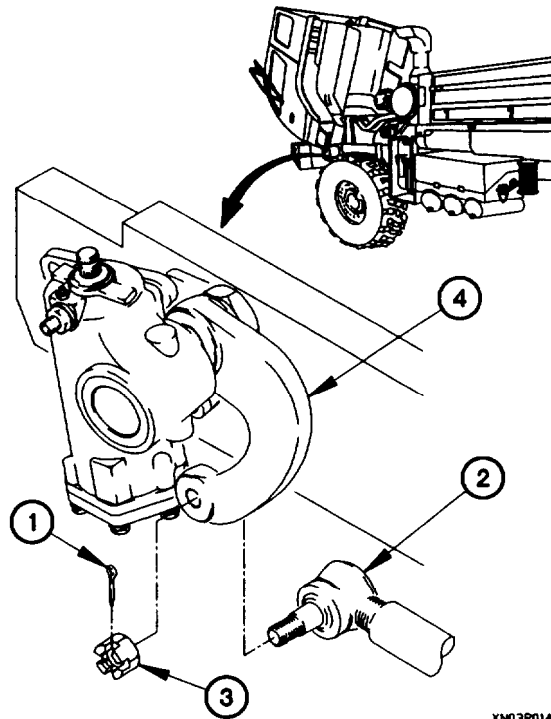
(2)

WARNING

Wear appropriate eye protection when working under vehicle due to the possibility of falling debris. Failure to comply may result in injury to personnel.

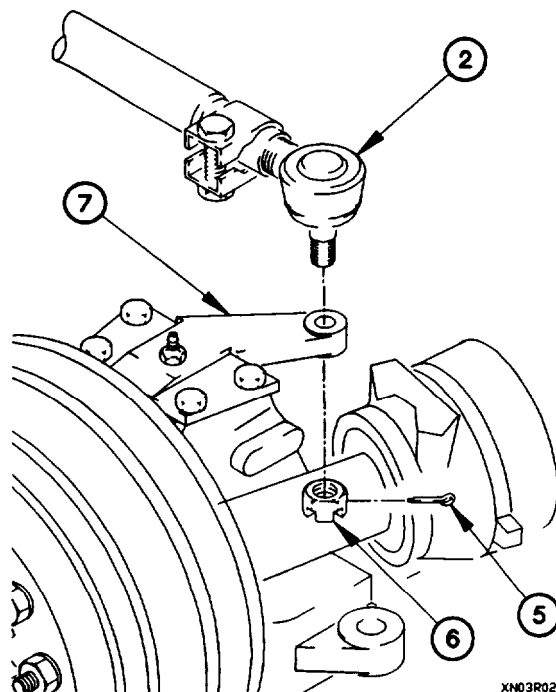
a. Removal.

- (1) Remove cotter pin (1) from drag link (2). Discard cotter pin.
- (2) Remove slotted nut (3) from drag link (2).
- (3) Remove drag link (2) from pitman arm (4).

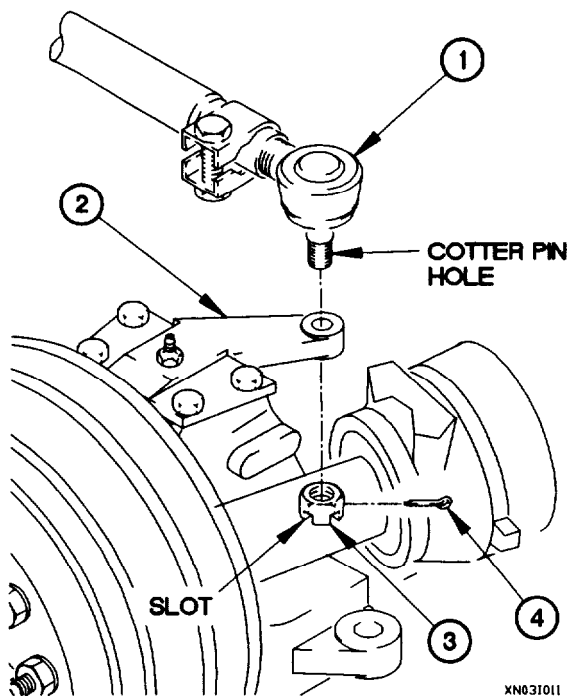


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- (4) Remove cotter pin (5) from drag link (2). Discard cotter pin.
- (5) Remove slotted nut (6) from drag link (2).
- (6) Remove drag link (2) from steering knuckle arm (7).



b. Installation.



CAUTION

Drag link must be installed with adjustable threaded rod end toward rear of vehicle. Failure to comply may result in damage to equipment.

- (1) Install drag link (1) in steering knuckle arm (2)
- (2) Position slotted nut (3) on drag link (1).
- (3) Tighten slotted nut (3) to 138-178 lb-ft (187-241 N•m).

NOTE

If slots in slotted nut do not line up with cotter pin hole in drag link, tighten slotted nut until slots and cotter pin hole are aligned.

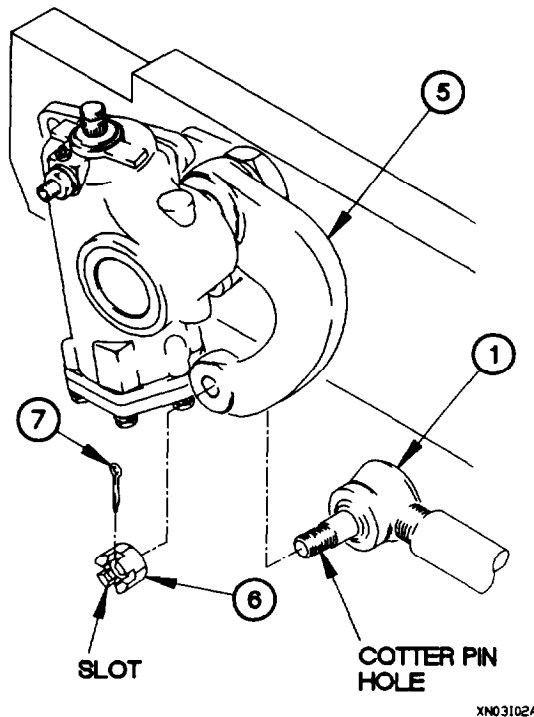
- (4) Install cotter pin (4) in drag link (1).

13-3. DRAG LINK REPLACEMENT (CONT)

- (5) Install drag link (1) in pitman arm (5).
- (6) Position slotted nut (6) on drag link (1).
- (7) Lower cab (TM 9-2320-365-10).
- (8) Start engine (TM 9-2320-365-10).
- (9) Turn steering wheel until wheels are straight (TM 9-2320-365-10).
- (10) Shut down engine (TM 9-2320-365-10).
- (11) Raise cab (TM 9-2320-365-10).
- (12) Tighten slotted nut (6) to 138-178 lb-ft (187-241 N•m).

NOTE

If slots in slotted nut do not line up with cotter pin hole in drag link, tighten slotted nut until slots and cotter pin hole are aligned.



- (13) Install cotter pin (7) in drag link (1).

c. Follow-On Maintenance.

- (1) Lower cab (TM 9-2320-365-10).
- (2) Start engine (TM 9-2320-365-10).
- (3) Check steering system for smooth operation.
- (4) Shut down engine (TM 9-2320-365-10).

End of Task.

13-4. TIE-ROD REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Engine shut down (TM 9-2320-365-10).
Cab raised (TM 9-2320-365-10).

Tools and Special Tools (Cont)

Socket, Socket Wrench (Item 37, Appendix C)
Wrench Set, Socket (Item 48, Appendix C)
Goggles, Industrial (Item 15, Appendix C)

Tools and Special Tools

Tool Kit, Genl Mech (Item 44, Appendix C)
Wrench, Torque, 0-600 lb-ft (Item 59, Appendix C)

Materials/Parts

Pin, Cotter (2) (Item 200, Appendix G)

WARNING

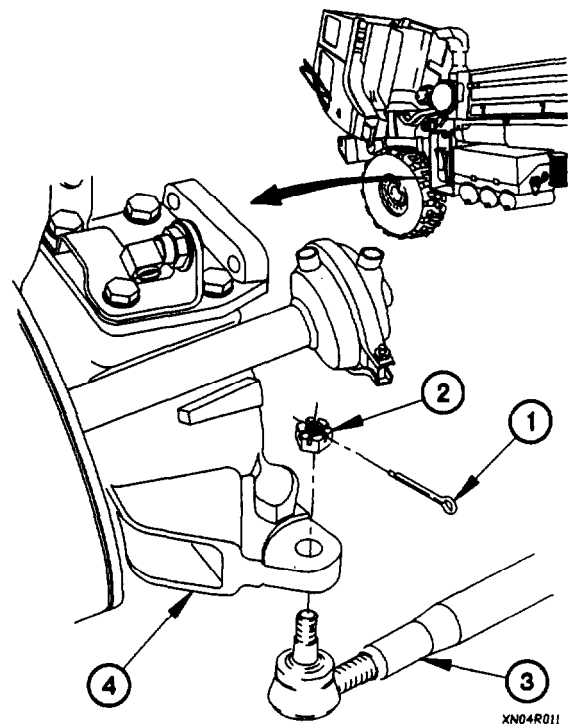
Wear appropriate eye protection when working under vehicle due to the possibility of falling debris. Failure to comply may result in injury to personnel.

a. Removal.

NOTE

Left and right tie rod ends are removed the same way. Left side shown.

- (1) Remove cotter pin (1) and slotted nut (2) from each end of tie rod (3). Discard cotter pins.
- (2) Remove tie rod (3) from two steering knuckle arms (4).



13-4. TIE-ROD REPLACEMENT (CONT)

b. Installation.

NOTE

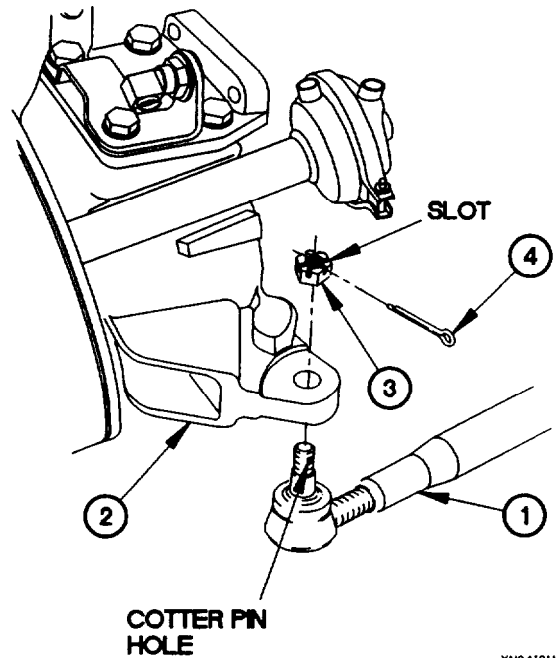
Left and right tie rod ends are installed the same way. Left side shown.

- (1) Install tie rod (1) in two steering knuckle arms (2).
- (2) Install slotted nut (3) on each end of tie rod (1).
- (3) Tighten two slotted nuts (3) to 140-180 lb-ft (190-244 N•m).

NOTE

If slots in slotted nuts do not line up with cotter pin holes in tie rod ends, tighten slotted nut until slots and cotter pin holes are aligned.

- (4) Install cotter pin (4) in each end of tie rod (1).



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c. Follow-On Maintenance.

- (1) Lower cab (TM 9-2320-365-10).
- (2) Perform front wheel toe-in alignment (para 13-5).

End of Task.

13-5. FRONT WHEEL TOE-IN ALIGNMENT/ADJUSTMENT

This task covers:

- a. Toe-In Alignment Check b. Toe-In Adjustment

INITIAL SETUP

Equipment Conditions

Vehicle parked on flat surface (TM 9-2320-365-10).
Engine shut down (TM 9-2320-365-10).

Tools and Special Tools

Tool Kit, Genl Mech (Item 44, Appendix C)
Goggles, Industrial (Item 15, Appendix C)
Gage, Wheel Alignment (Item 12, Appendix C)

Personnel Required

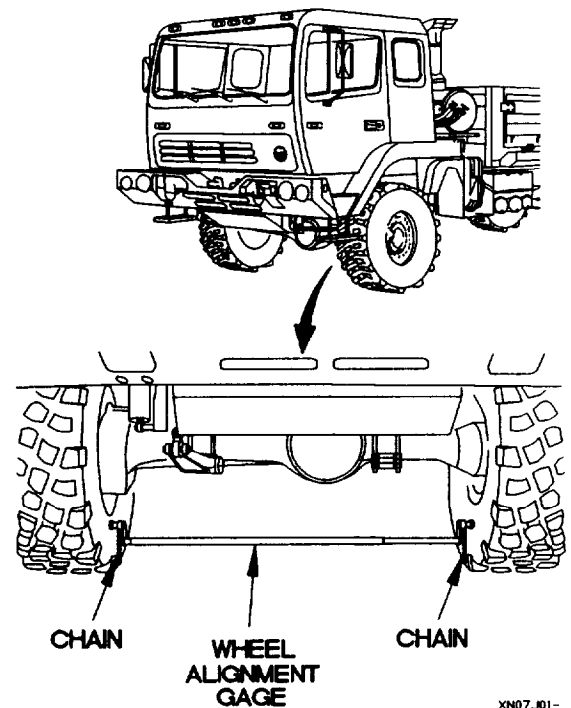
(2)

WARNING

Wear appropriate eye protection when working under vehicle due to the possibility of falling debris. Failure to comply may result in injury to personnel.

a. Toe-In Alignment Check.

- (1) Place wheel alignment gage between front of front tires with both chains touching flat surface.
- (2) Adjust movable scale on wheel alignment gage until pointer is at zero.
- (3) Move vehicle forward until wheel alignment gage is at rear of wheels and at least one chain is touching flat surface.



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13-5. FRONT WHEEL TOE-IN ALIGNMENT/ADJUSTMENT (CONT)

NOTE

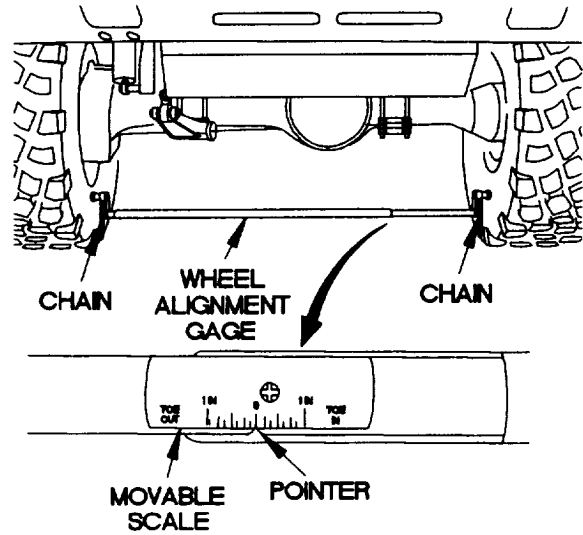
Chains may not be equal distance from flat surface. High end of gage may require adjustment to level out chains.

- (4) Adjust wheel alignment gage until both chains are touching flat surface.

NOTE

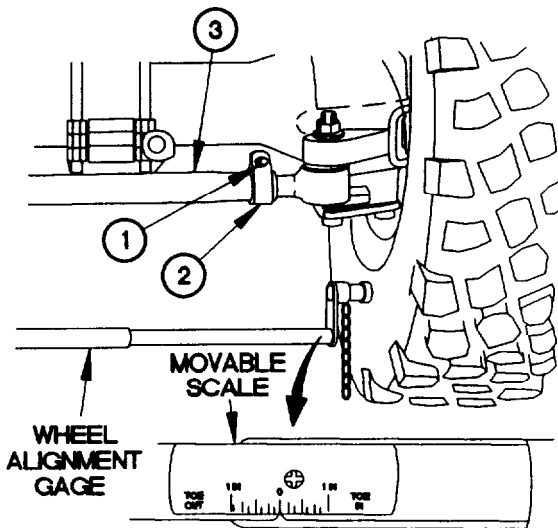
If toe-in is out of alignment perform Toe-In Adjustment.

- (5) Wheel alignment gage pointer should read 0 to 1/8 in.



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b. Toe-In Adjustment.



XN07 J03-

- (1) Loosen nuts (1) on tie rod clamps (2).

NOTE

Proper toe-in is 0 to 1/8 in.

- (2) Observe movable scale and rotate tie rod (3) to obtain proper toe-in measurement.
- (3) Tighten nuts (1) on tie rod clamps (2).
- (4) Remove wheel alignment gage from front tires.

End of Task.

13-6. STEERING COLUMN REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Engine shut down (TM 9-2320-365-10).
Turn signal switch removed (para 7-25).
Cab raised (TM 9-2320-365-10).

Tools and Special Tools

Tool Kit, Genl Mech (Item 44, Appendix C)
Goggles, Industrial (Item 15, Appendix C)
Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)

Tools and Special Tools (Cont)

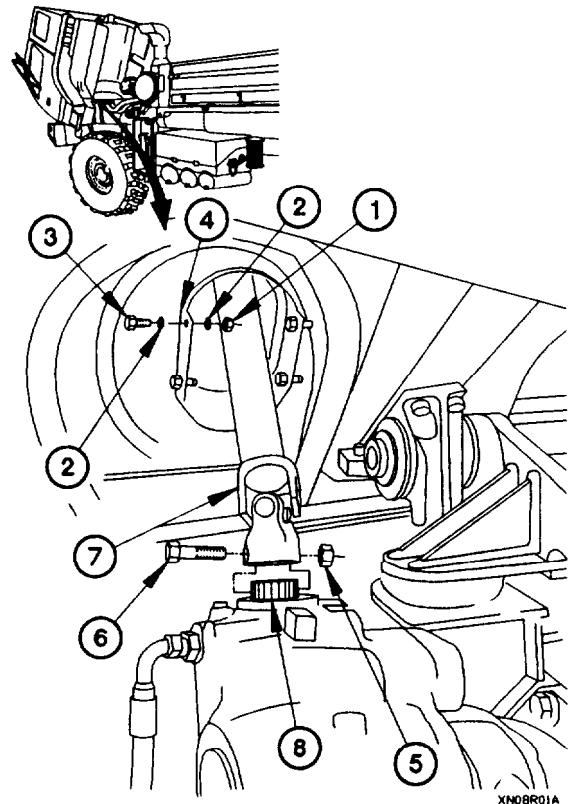
Wrench, Torque, 0-200 lb-in. (Item 58, Appendix C)
Wrench Set, Socket (Item 49, Appendix C)
Gloves, Rubber (Item 13, Appendix C)

Materials/Parts

Adhesive (Item 11, Appendix D)
Washer, Spring (21 (Item 279, Appendix G)
Locknut (Item 60, Appendix G)
Nut, Self-Locking (4) (Item 116, Appendix G)

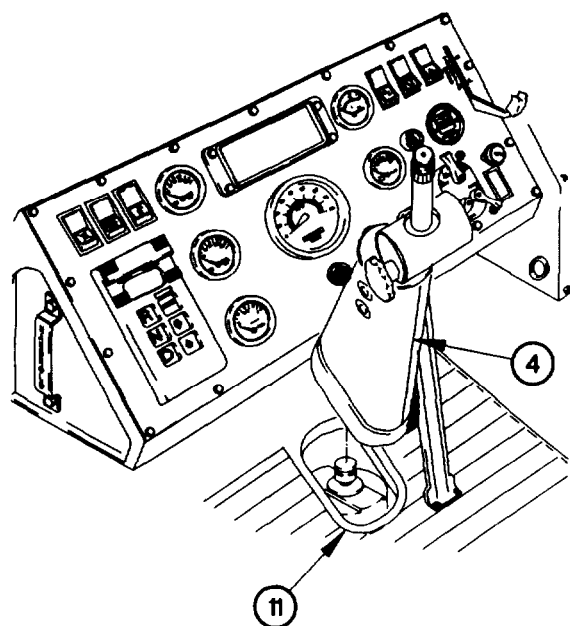
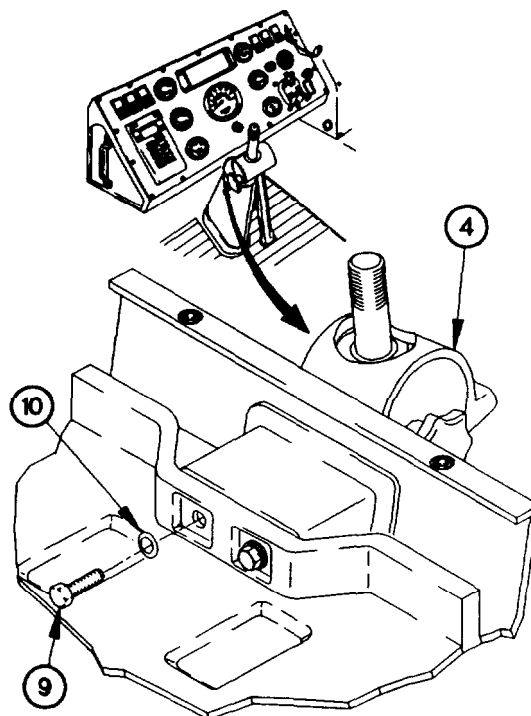
a. Removal.

- (1) Remove four self-locking nuts (1), eight washers (2), and four screws (3) from steering column assembly (4). Discard self-locking nuts.
- (2) Remove locknut (5) and bolt (6) from steering gear arm universal joint (7). Discard locknut.
- (3) Disconnect steering gear arm universal joint (7) from steering gear input shaft (8).
- (4) Lower cab (TM 9-2320-365-10).



13-6. STEERING COLUMN REPLACEMENT (CONT)

- (5) Remove two screws (9) and spring washers (10) from steering column assembly (4). Discard spring washers.



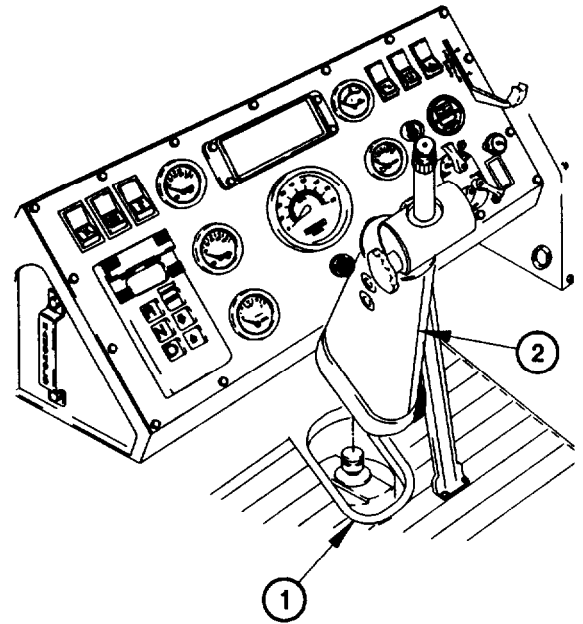
- (6) Remove steering column assembly (4) from cab.
(7) Remove adhesive around opening in cab floor (11).

b. Installation.

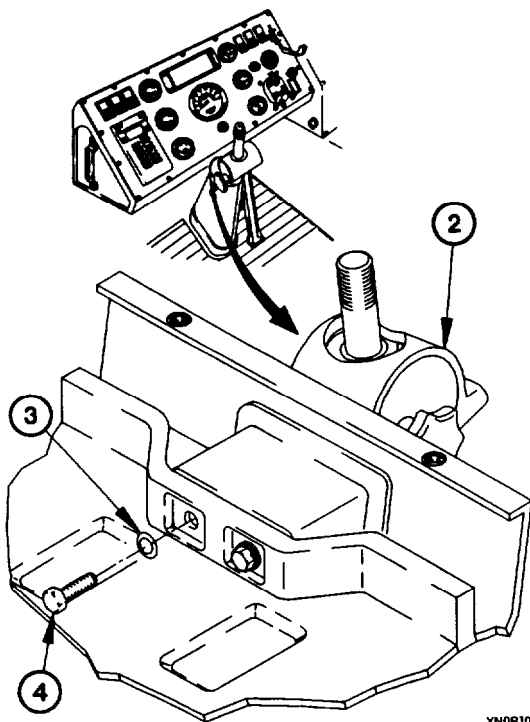
WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.

- (1) Apply a thick bead of adhesive around opening in cab floor (1).
- (2) Install steering column assembly (2) in cab.



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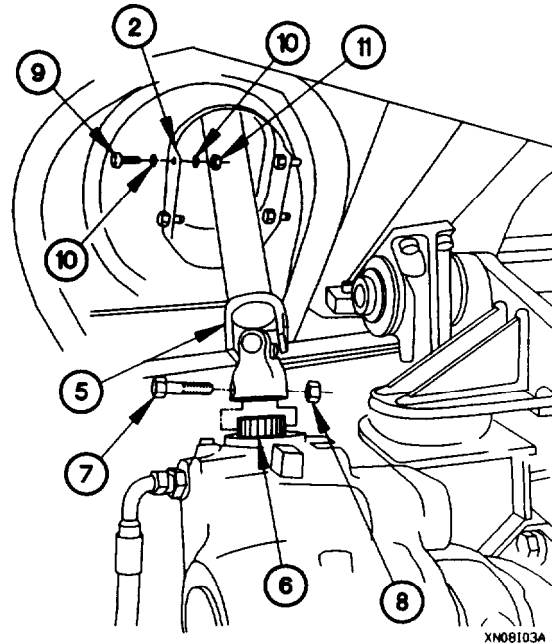


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- (3) Position two spring washers (3) and screws (4) in steering column assembly (2).
- (4) Tighten two screws (4) to 18-20 lb-ft (24-27 N•m).
- (5) Raise cab (TM 9-2320-365-10).

13-6. STEERING COLUMN REPLACEMENT (CONT)

- (6) Connect steering gear universal joint (5) to steering gear input shaft (6).
- (7) Position bolt (7) and locknut (8) in steering gear arm universal joint (5).
- (8) Tighten locknut (8) to 32-39 lb-ft (43-53 N•m).
- (9) Position four screws (9), eight washers (10), and four self-locking nuts (11) in steering column assembly (2).
- (10) Tighten four self-locking nuts (11) to 71-88 lb-in. (8-10 N•m).
- (11) Lower cab (TM 9-2320-365-10).



c. Follow-On Maintenance.

- (1) Install turn signal arm assembly (para 7-25).
- (2) Start engine (TM 9-2320-365-10).
- (3) Operate vehicle and check for proper operation of steering and turn signal assemblies (TM 9-2320-365-10).
- (4) Shut down engine (TM 9-2320-365-10).

End of Task.

13-7. POWER STEERING HOSES AND TUBE REPLACEMENT

This task covers:

- | | |
|-------------------------------|---------------------------------------|
| a. Return Hose Removal | e. Suction Hose and Tube Removal |
| b. Return Hose Installation | f. Suction Hose and Tube Installation |
| c. Pressure Hose Removal | g. Follow-On Maintenance |
| d. Pressure Hose Installation | |

INITIAL SETUP

Equipment Conditions

Engine shut down (TM 9-2320-365-10).
Cab raised (TM 9-2320-365-10).

Tools and Special Tools

Tool Kit, Genl Mech (Item 44, Appendix C)
Goggles, Industrial (Item 15, Appendix C)
Pan, Drain (Item 24, Appendix C)
Dispensing Pump, Hand Driven (Item 5, Appendix C)

Tools and Special Tools (Cont)

Wrench, Torque, 0-75 lb-in. (Item 86, Appendix B)

Materials/Parts

Cap and Plug Set (Item 15, Appendix D)
Ties, Cable, Plastic (Item 76, Appendix D)
Oil, Lubricating, OE/HDO 10 (Item 43, Appendix D)
Nut, Self-Locking (2) (Item 134, Appendix G)
Clamp (Item 7, Appendix G)
Clamp (Item 8, Appendix G)

WARNING

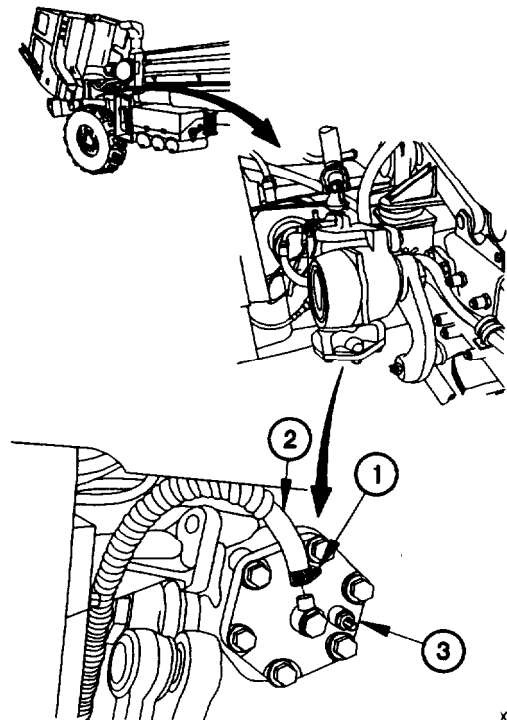
Wear appropriate eye protection when working under vehicle due to the possibility of falling debris. Failure to comply may result in injury to personnel.

a. Return Hose Removal.

CAUTION

Cap or plug hydraulic connections to prevent contamination of power steering system. Failure to comply may result in damage to equipment.

- (1) Loosen hose clamp (1) on return hose (2).
- (2) Remove return hose (2) from steering gear box (3).



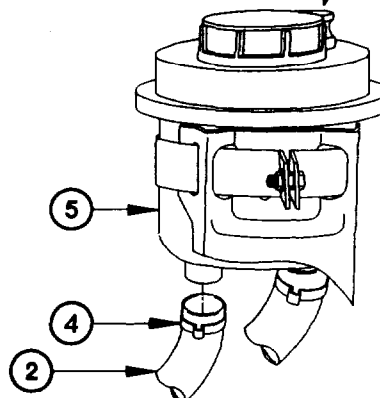
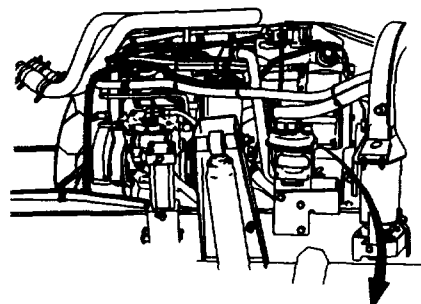
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13-7. POWER STEERING HOSES AND TUBE REPLACEMENT (CONT)

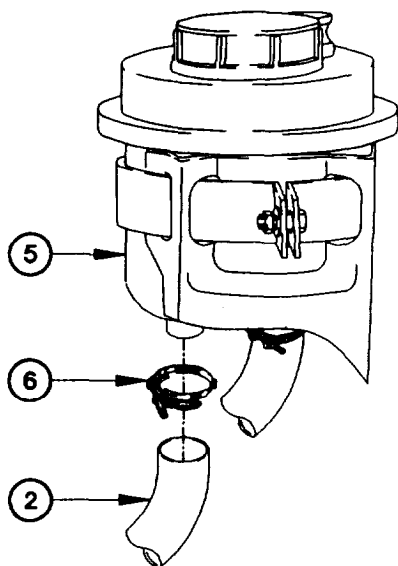
NOTE

Perform steps (3) through (5) on vehicles that have not previously had a power steering return hose or power steering reservoir replaced.

- (3) Pry hose clamp end (4) open.
- (4) Remove hose clamp (4) from return hose (2). Discard clamp.
- (5) Remove return hose (2) from power steering reservoir (5).



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NOTE

Perform steps (6) through (8) on vehicles which have previously had a power steering return hose or power steering reservoir replaced.

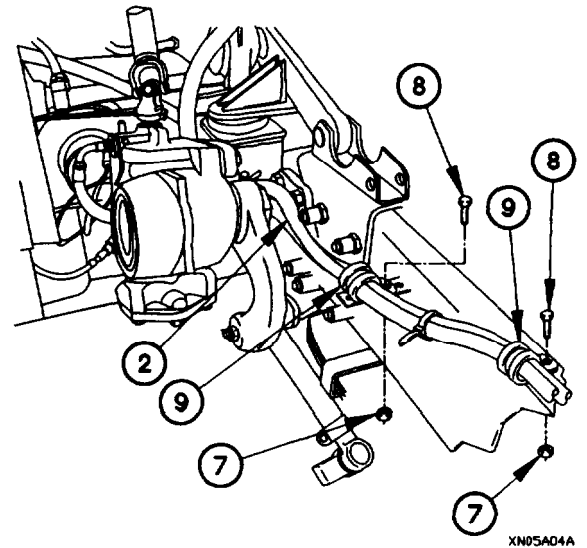
- (6) Loosen clamp (6) on return hose (2).
- (7) Remove return hose (2) from power steering reservoir (5).
- (8) Remove clamp (6) from return hose (2).

NOTE

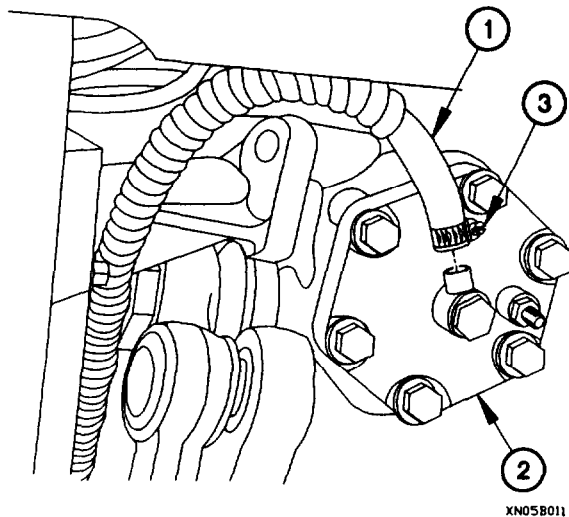
Remove plastic cable ties as required.

(9) Remove two self-locking nuts (7), screws (8), and clamps (9) from return hose (2). Discard self-locking nuts.

(10) Remove return hose (2) from vehicle.



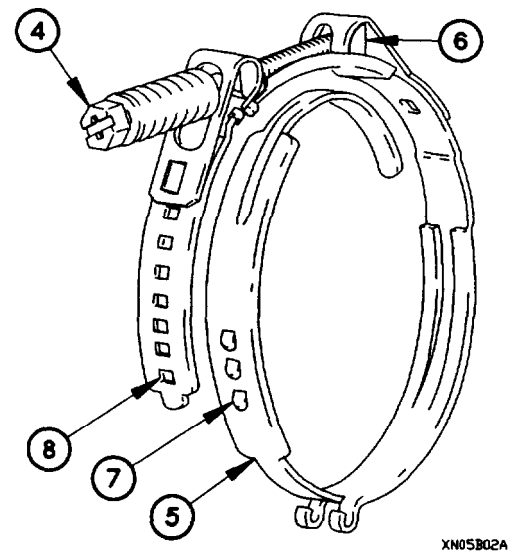
b. Return Hose Installation.



(1) Install return hose (1) on steering gear box (2) with hose clamp (3).

(2) Loosen screw (4) in clamp (5) as far as possible without disengaging screw from D-nut (6).

(3) Unhook clamp tabs (7) from tab windows (8).

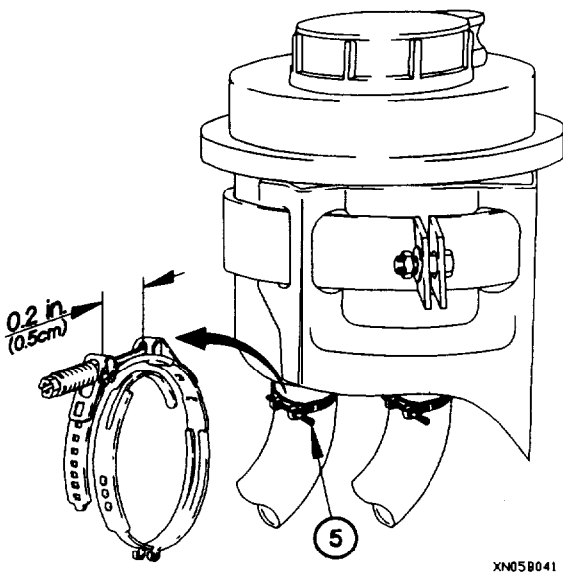
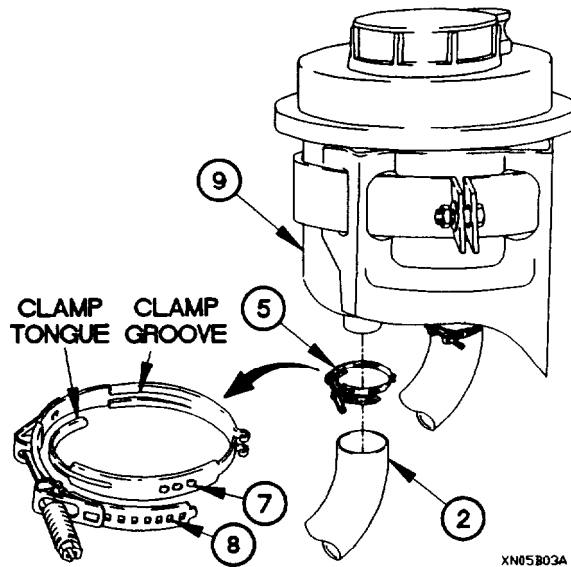


13-7. POWER STEERING HOSES AND TUBE REPLACEMENT (CONT)

CAUTION

Clamp tongue must be started in clamp groove. Failure to comply may result in damage to equipment.

- (4) Position clamp (5) on return hose (2).
- (5) Install return hose (2) on power steering reservoir (9).
- (6) Engage as many clamp tabs (7) as possible in tab windows (8) allowing little or no play between clamp (5) and return hose (2).
- (7) Tighten clamp (5) to 12-18 lb-in. (1-2 N•m).



NOTE

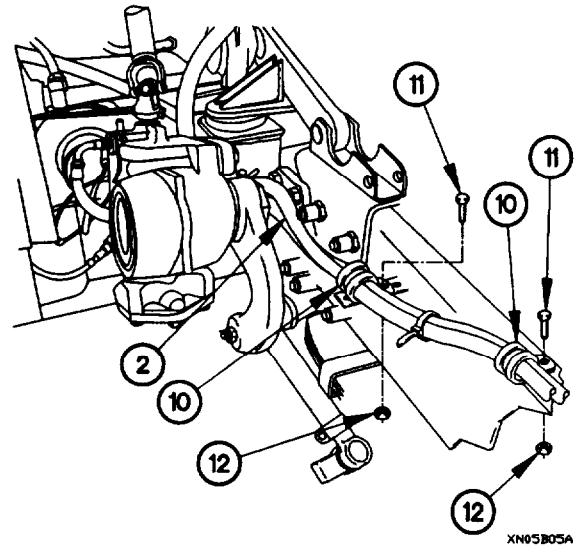
Minimum allowable gap on clamp is 0.2 in. (0.5 cm). If gap is less than 0.2 in. (0.5 cm), remove and re-install clamp.

- (8) Measure gap on clamp (5).

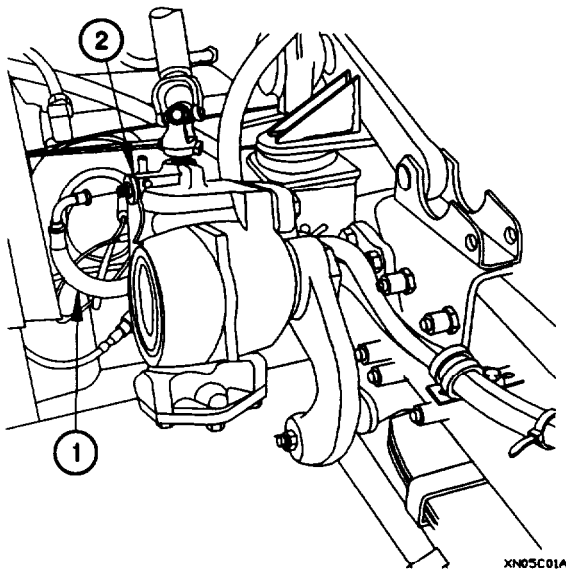
NOTE

Install plastic cable ties as required.

- (9) Install two clamps (10), screws (11), and self-locking nuts (12) on return hose (2).



c. Pressure Hose Removal.



WARNING

Prolonged contact with lubricating oil (MIL-L-2104) may cause a skin rash. Skin and clothing that come in contact with lubricating oil should be thoroughly washed immediately. Saturated clothing should be removed immediately. Areas in which lubricating oil is used should be well ventilated to keep fumes to a minimum. Failure to comply may result in injury to personnel.

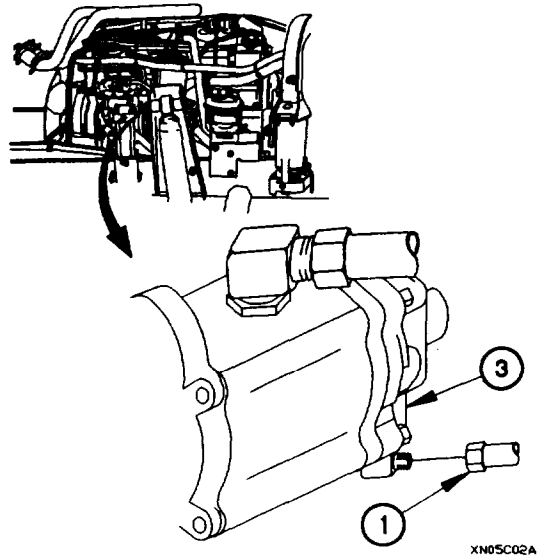
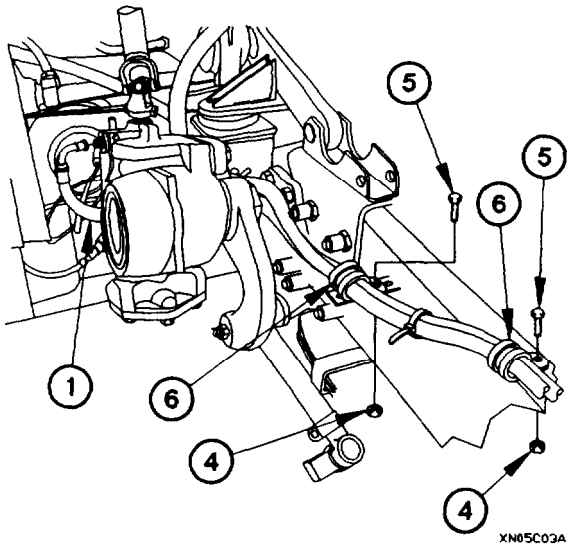
CAUTION

Cap or plug hydraulic connections to prevent contamination of power steering system. Failure to comply may result in damage to equipment.

- (1) Remove pressure hose (1) from steering gear box (2).

13-7. POWER STEERING HOSES AND TUBE REPLACEMENT (CONT)

- (2) Remove pressure hose (1) from power steering pump (3).



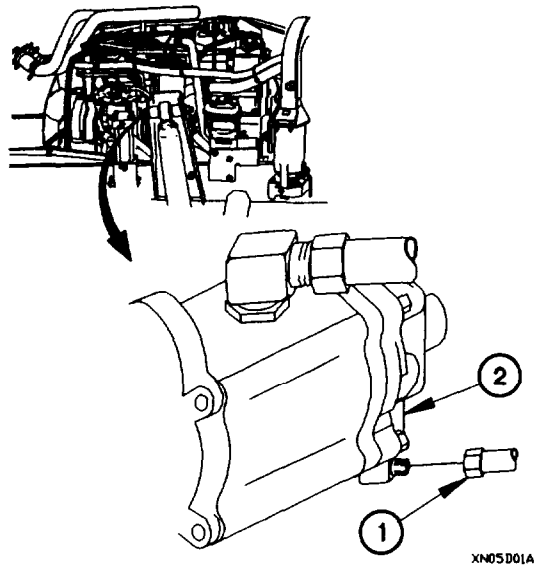
NOTE

Remove plastic cable ties as required.

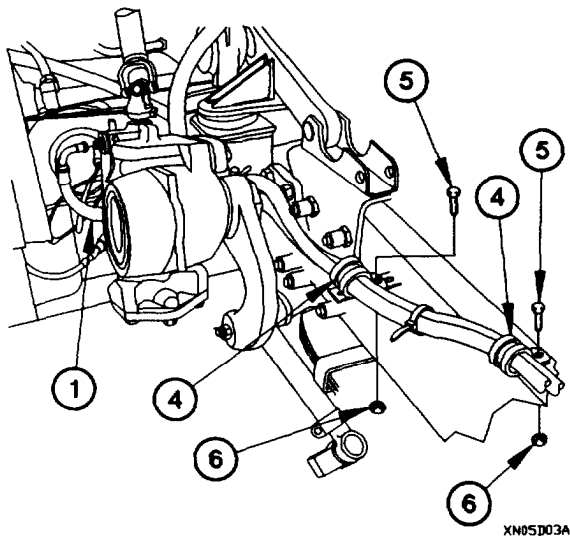
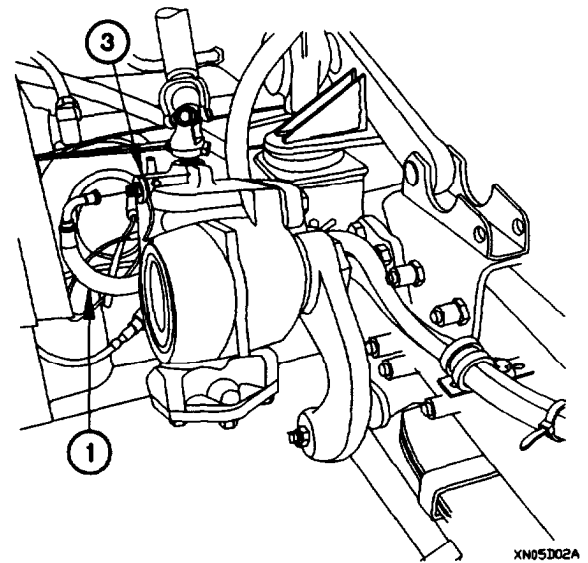
- (3) Remove two self-locking nuts (4), screws (5), and clamps (6) from pressure hose (1).
- (4) Remove pressure hose (1) from vehicle.

d. Pressure Hose Installation.

- (1) Install pressure hose (1) on power steering pump (2).



(2) Install pressure hose (1) on steering gear box (3).



NOTE

Install plastic cable ties as required.

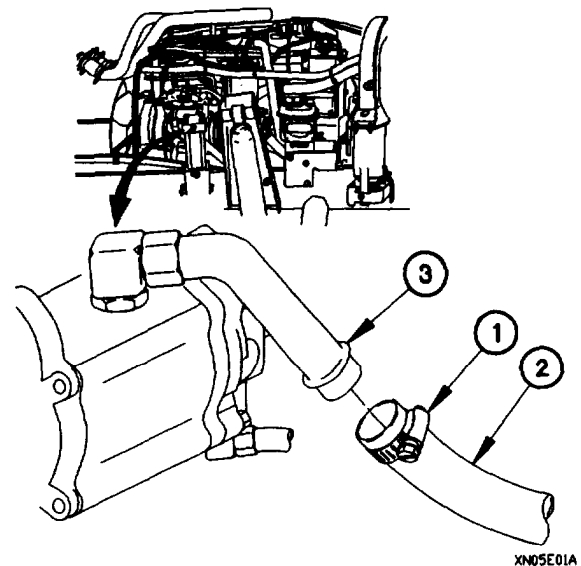
(3) Install two clamps (4), screws (5), and self-locking nuts (6) on pressure hose (1).

e. Suction Hose and Tube Removal.

CAUTION

Cap or plug hydraulic connections to prevent contamination of power steering system. Failure to comply may result in damage to equipment.

- (1) Loosen hose clamp (1) on suction hose (2).
- (2) Remove suction hose (2) from suction tube (3).

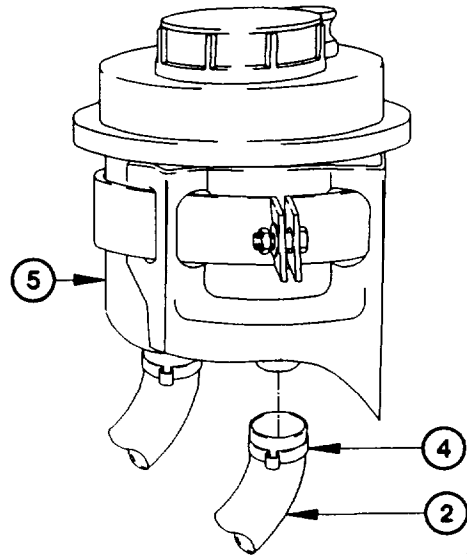


13-7. POWER STEERING HOSES AND TUBE REPLACEMENT (CONT)

NOTE

Perform steps (3) through (5) on vehicles that have not previously had a power steering suction hose of power steering reservoir replaced.

- (3) Pry hose clamp end (4) open.
- (4) Remove hose clamp (4) from suction hose (2). Discard clamp.
- (5) Remove suction hose (2) from power steering reservoir (5).

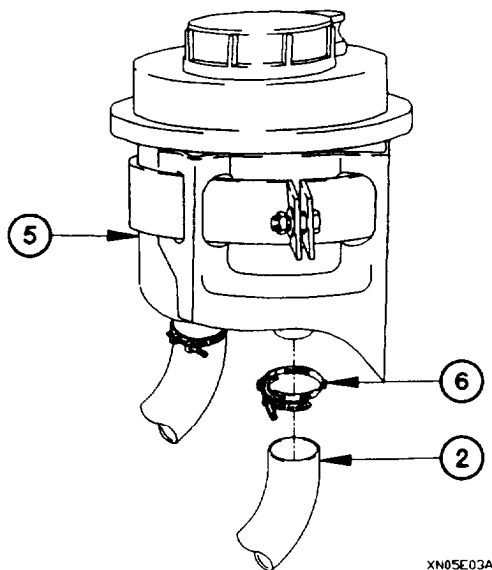


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NOTE

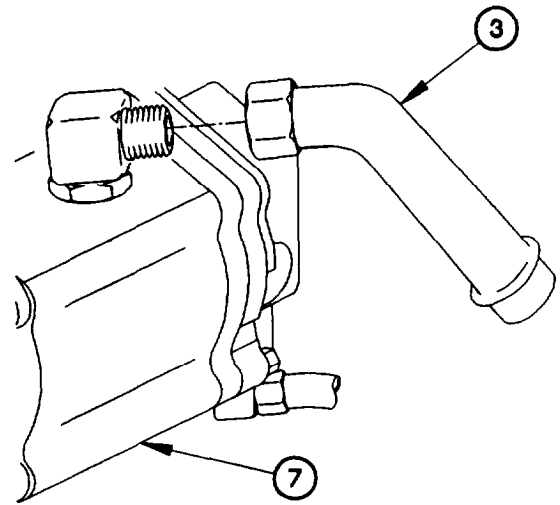
Perform steps (6) through (8) on vehicles that have previously had a power steering suction hose or power steering reservoir replaced.

- (6) Loosen clamp (6) on suction hose (2).
- (7) Remove suction hose (2) from power steering reservoir (5).
- (8) Remove clamp (6) from suction hose (2).



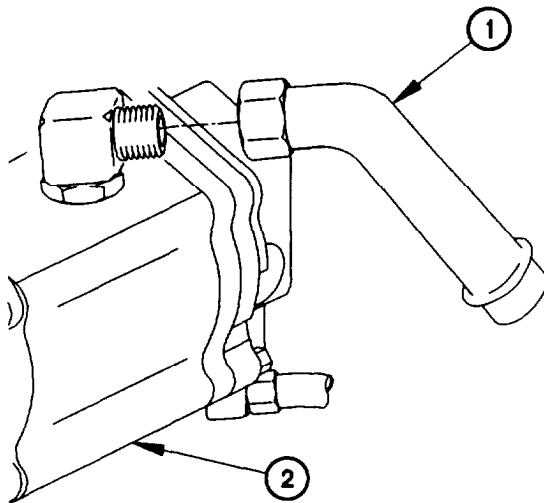
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(9) Remove suction tube (3) from power steering pump (7).



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f. Suction Hose and Tube Installation.

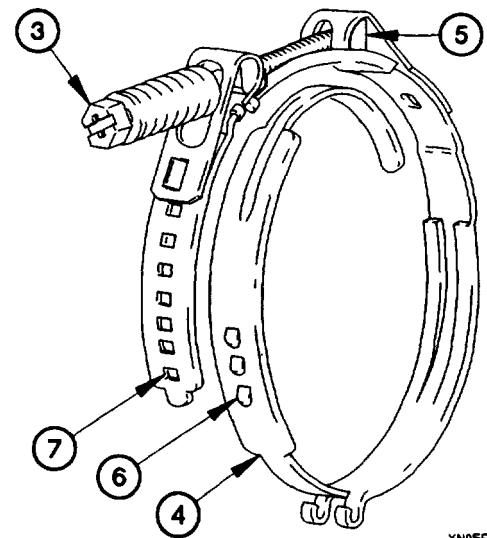


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(1) Install suction tube (1) on power steering pump (2).

(2) Loosen screw (3) in clamp (4) as far as possible without disengaging screw from D-nut (5).

(3) Unhook clamp tabs (6) from tab windows (7).



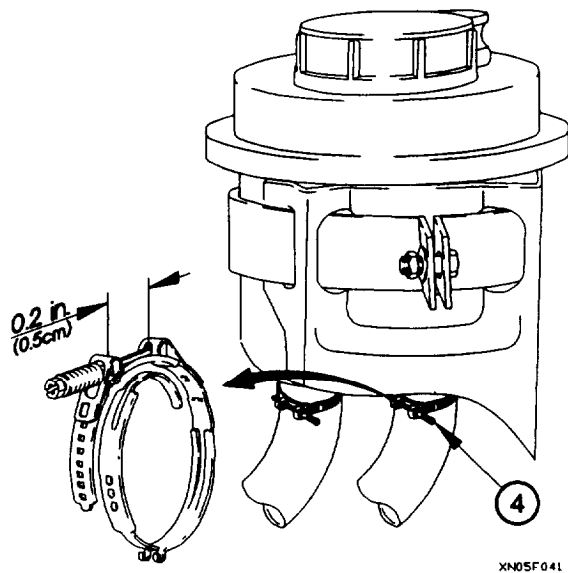
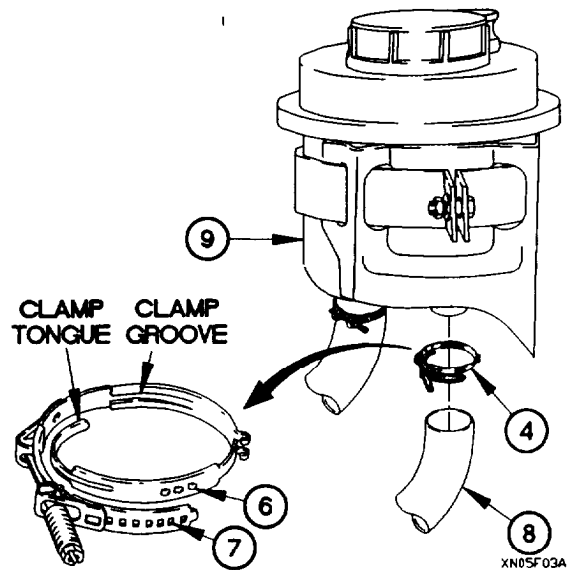
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13-7. POWER STEERING HOSES AND TUBE REPLACEMENT (CONT)

CAUTION

Clamp tongue must be started in clamp groove. Failure to comply may result in damage to equipment.

- (4) Position clamp (4) on suction hose (8).
- (5) Install suction hose (8) on power steering reservoir (9).
- (6) Engage as many clamp tabs (6) as possible in tab windows (7) allowing little or no play between clamp (4) and suction hose (8).
- (7) Tighten clamp (4) to 12-18 lb-in. (1-2 N•m).



NOTE

Minimum allowable gap on clamp is 0.2 in. (0.5 cm). If gap is less than 0.2 in. (0.5 cm), remove and re-install clamp.

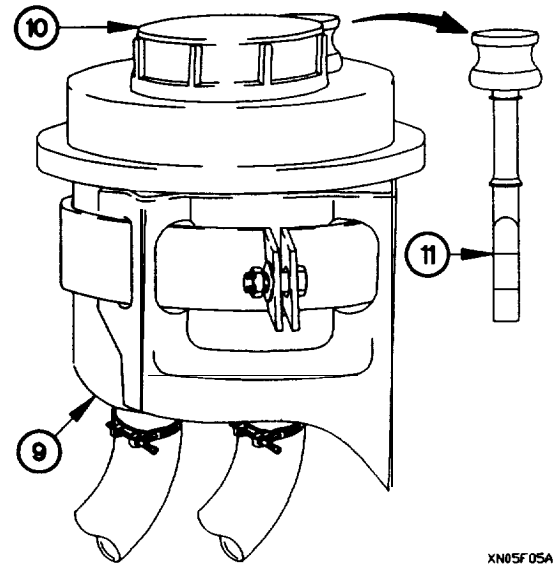
- (8) Measure gap on clamp (4).

- (9) Remove power steering reservoir cap (10) from power steering reservoir (9).
- (10) Fill power steering reservoir (9) to TOP mark on dip stick (11).
- (11) Install power steering reservoir cap (10) on power steering reservoir (9).

g. Follow-On Maintenance.

- (1) Lower cab (TM 9-2320-365-10).
- (2) Start engine (TM 9-2320-365-10).
- (3) Raise cab (TM 9-2320-365-10).
- (4) Check power steering reservoir, hoses, and tube for oil leaks.
- (5) Lower cab (TM 9-2320-365-10).
- (6) Shut down engine (TM 9-2320-365-10).
- (7) Raise cab (TM 9-2320-365-10).
- (8) Check fluid level in power steering reservoir.
- (9) Lower cab (TM 9-2320-365-10).

End of Task.



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13-8. POWER STEERING PUMP RESERVOIR AND BRACKET REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

- Auxiliary starter solenoid removed (para 7-6).
- Power steering pump reservoir drained (Appendix H).

Tools and Special Tools

- Tool Kit, Genl Mech (Item 44, Appendix C)
- Dispensing Pump, Hand Driven (Item 5, Appendix C)
- Wrench, Torque, 0-75 lb-in. (Item 86, Appendix B)

Materials/Parts

- Cap and Plug Set (Item 15, Appendix D)
- Oil, Lubricating, OEMDO 10 (Item 43, Appendix D)
- Nut, Self-Locking (2) (Item 140, Appendix G)
- Clamp (Item 7, Appendix G)
- Clamp (Item 8, Appendix G)

a. Removal.

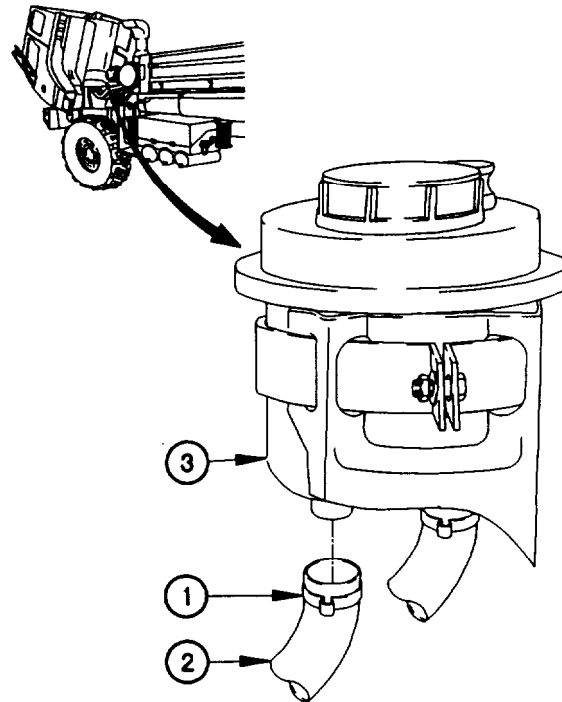
CAUTION

Cap or plug hydraulic connections to prevent contamination of power steering system. Failure to comply may result in damage to equipment.

NOTE

Perform steps (1) through (3) on vehicles that have not previously had a power steering pump reservoir or power steering return hose replaced.

- (1) Pry hose clamp end (1) open.
- (2) Remove return hose (2) from power steering pump reservoir (3).
- (3) Remove hose clamp (1) from return hose (2). Discard hose clamp.

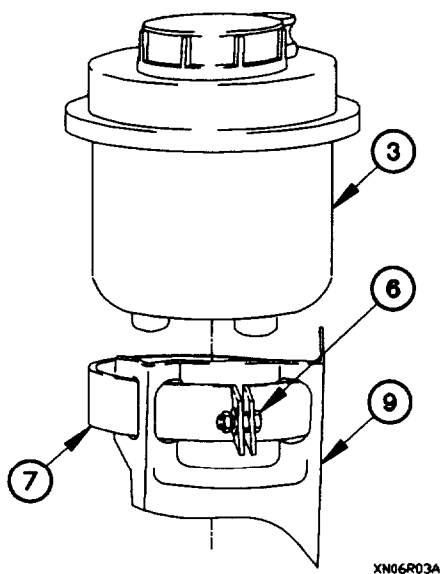
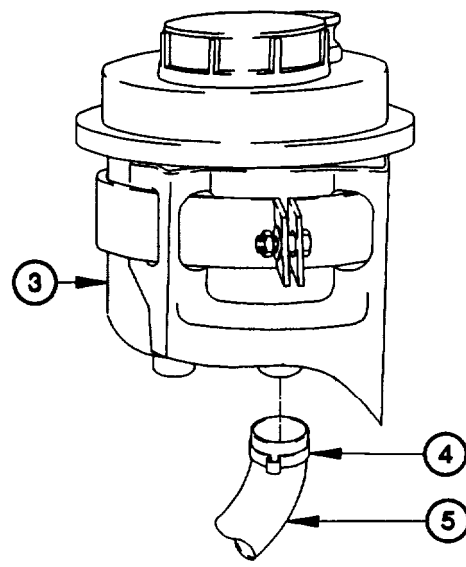


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NOTE

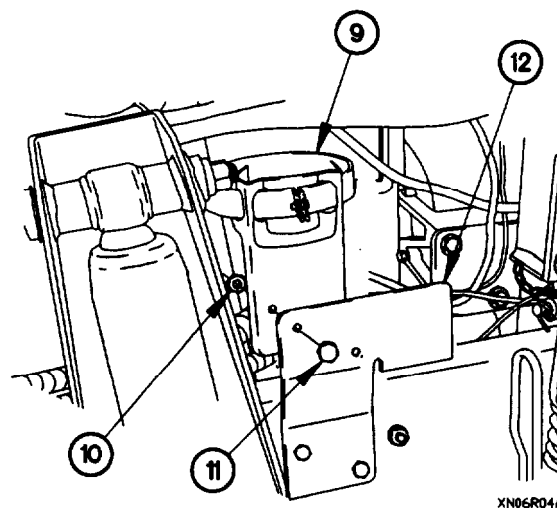
Perform steps (4) through (6) on vehicles that have not previously had a power steering pump reservoir or power steering suction hose replaced.

- (4) Pry hose clamp end (4) open.
- (5) Remove suction hose (5) from power steering pump reservoir (3).
- (6) Remove hose clamp (4) from suction hose (5). Discard hose clamp.



- (7) Loosen screw (6) on clamp (7).
- (8) Remove power steering pump reservoir (3) from bracket (9).

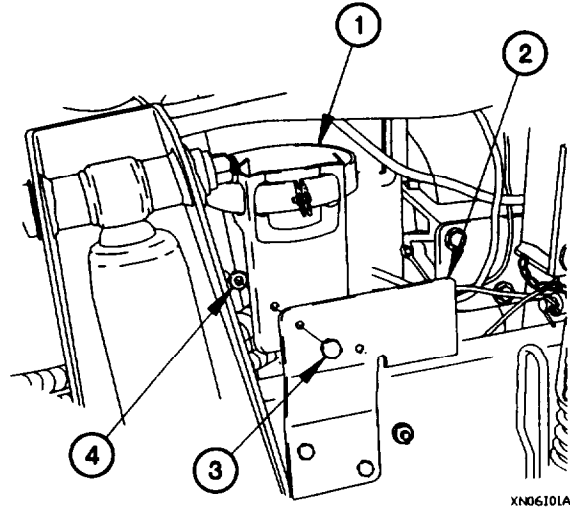
- (9) Remove two self-locking nuts (10), screws (11), and bracket (9) from frame bracket (12). Discard self-locking nuts.



13-8. POWER STEERING PUMP RESERVOIR AND BRACKET REPLACEMENT (CONT)

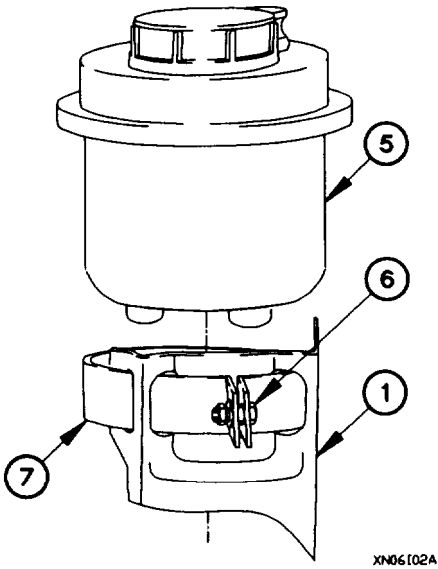
b. Installation.

(1) Install bracket (1) on frame bracket (2) with two screws (3) and nuts (4).



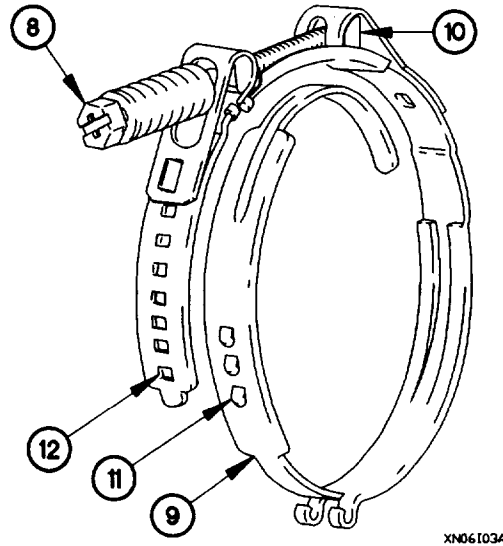
(2) Position power steering pump reservoir (5) in bracket (1).

(3) Tighten screw (6) on clamp (7).



(4) Loosen screw (8) in clamp (9) as far as possible without disengaging screw from D-nut (10).

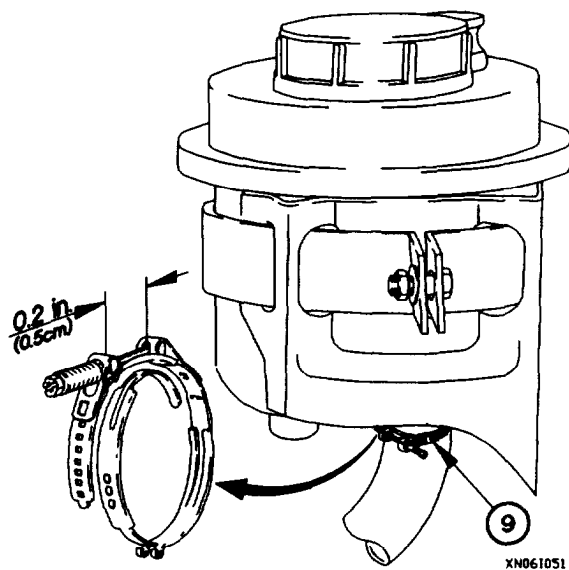
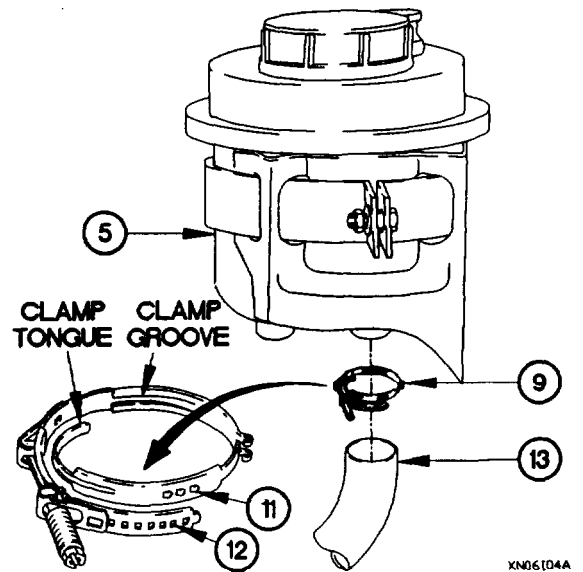
(5) Unhook clamp tabs (11) from tab windows (12).



CAUTION

Clamp tongue must be started in clamp groove. Failure to comply may result in damage to equipment.

- (6) Position clamp (9) on suction hose (13).
- (7) Install suction hose (13) on power steering pump reservoir (5).
- (8) Engage as many clamp tabs (11) as possible in tab windows (12) allowing little or no play between clamp (9) and suction hose (13).
- (9) Tighten clamp (9) to 12-18 lb-in. (1-2 N•m).



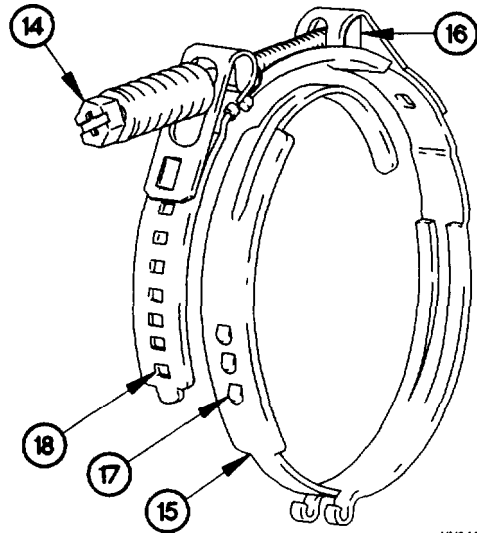
NOTE

Minimum allowable gap on clamp is 0.2 in. (0.5 cm). If gap is less than 0.2 in. (0.5 cm), remove and re-install clamp.

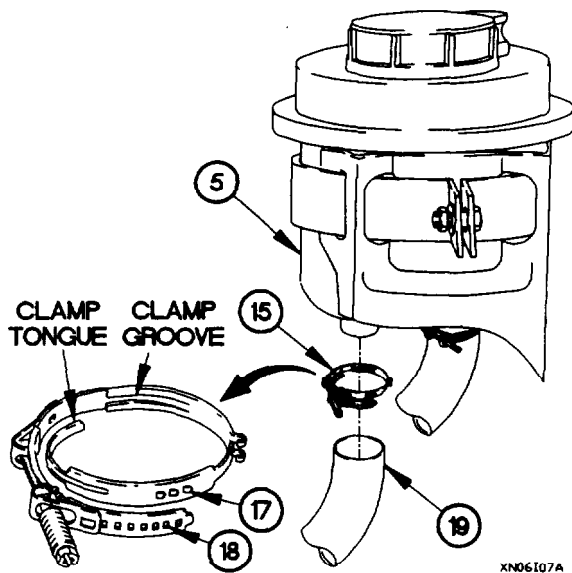
- (10) Measure gap on clamp (9).

13-8. POWER STEERING PUMP RESERVOIR AND BRACKET REPLACEMENT (CONT)

- (11) Loosen screw (14) in clamp (15) as far as possible without disengaging screw from D-nut (16).
- (12) Unhook clamp tabs (17) from tab windows (18).



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CAUTION

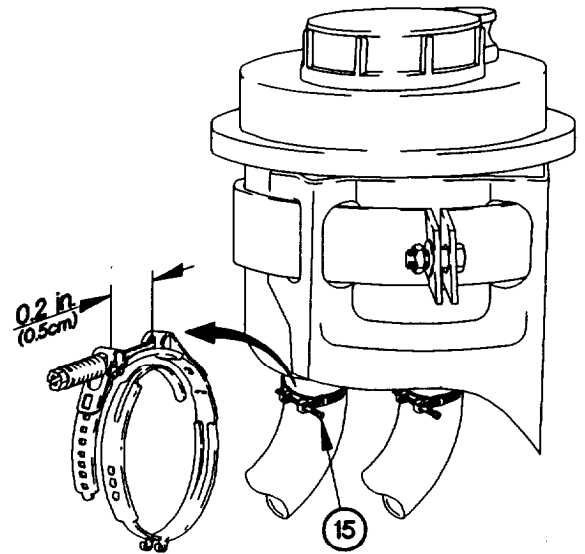
Clamp tongue must be started in clamp groove. Failure to comply may result in damage to equipment.

- (13) Position clamp (15) on return hose (19).
- (14) Install return hose (19) on power steering pump reservoir (5).
- (15) Engage as many clamp tabs (17) as possible in tab windows (18) allowing little or no play between clamp (15) and return hose (19).
- (16) Tighten clamp (15) to 12-18 lb-in. (1-2 N•m).

NOTE

Minimum allowable gap on clamp is 0.2 in. (0.5 cm). If gap is less than 0.2 in. (0.5 cm), remove and re-install clamp.

- (17) Measure gap on clamp (15).



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c. Follow-On Maintenance.

- (1) Install auxiliary starter solenoid (para 7-6).
- (2) Fill power steering pump reservoir (Appendix H).
- (3) Lower cab (TM 9-2320-365-10).
- (4) Start engine (TM 9-2320-365-10).
- (5) Check power steering system for smooth operation of steering wheel and wheels.
- (6) Shut down engine (TM 9-2320-365-10).
- (7) Raise cab (TM 9-2320-365-10).
- (8) Check fluid level in power steering pump reservoir (TM 9-2320-365-10).
- (9) Lower cab (TM 9-2320-365-10).

End of Task.

CHAPTER 14 FRAME, TOWING ATTACHMENTS, AND DRAWBARS MAINTENANCE

Section I. INTRODUCTION	14-1
14-1. INTRODUCTION	14-1
Section II. MAINTENANCE PROCEDURES	14-2
14-2. FRONT BUMPER AND GRAVEL DEFLECTOR REPLACEMENT	14-2
14-3. M1081 AIR DROP EXTRACTION ASSEMBLY, PARACHUTE SUSPENSION SLIDES, AND TIEDOWN RINGS REPLACEMENT	14-6
14-4. TAILLIGHT CARRIER REPLACEMENT	14-12
14-5. SPARE TIRE RETAINER REPLACEMENT/REPAIR	14-22

Section I. INTRODUCTION

14-1. INTRODUCTION

This chapter contains maintenance instructions for replacing and repairing frame mounted accessories authorized by the Maintenance Allocation Chart (MAC) at the Unit Maintenance level.

Section II. MAINTENANCE PROCEDURES

14-2. FRONT BUMPER AND GRAVEL DEFLECTOR REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

- Blackout drive light removed (para 7-30).
- Composite front light assemblies removed (para 7-33).

Tools and Special Tools

- Tool Kit, Genl Mech (Item 44, Appendix C)
- Goggles, Industrial (Item 15, Appendix C)
- Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)
- Wrench, Torque, 0-200 lb-in. (Item 58, Appendix C)
- Socket Set, Socket Wrench (Item 35, Appendix C)

Materials/Parts

- Nut, Self-Locking (4) (Item 146, Appendix G)
- Nut, Self-Locking (2) (Item 116, Appendix G)
- Lockwasher (2) (Item 103, Appendix G)
- Nut, Self-Locking (5) (Item 142, Appendix G)

Personnel Required

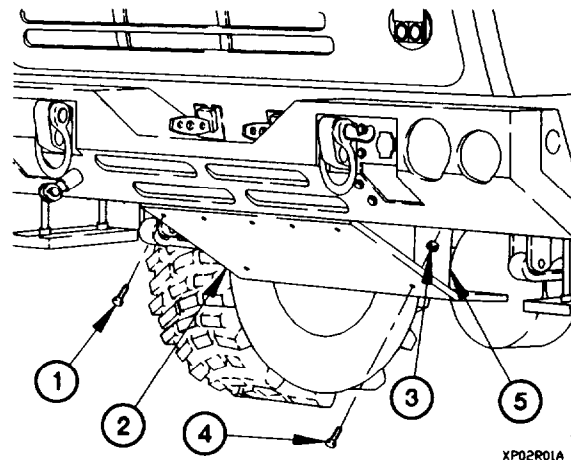
(2)

a. Removal.



- Leave shackles installed in front bumper to support front bumper until ready to remove. Failure to comply may result in injury to personnel.
- Wear appropriate eye protection when working under vehicle due to the possibility of falling debris. Failure to comply may result in injury to personnel.

- (1) Remove five screws (1) from gravel deflector (2).
- (2) Remove five self-locking nuts (3), screws (4), and gravel deflector (2) from two brackets (5). Discard self-locking nuts.



- (3) Disconnect connector P52F (6) from connector J52 (7).
- (4) Remove eight screws (8) from front bumper (9).

NOTE

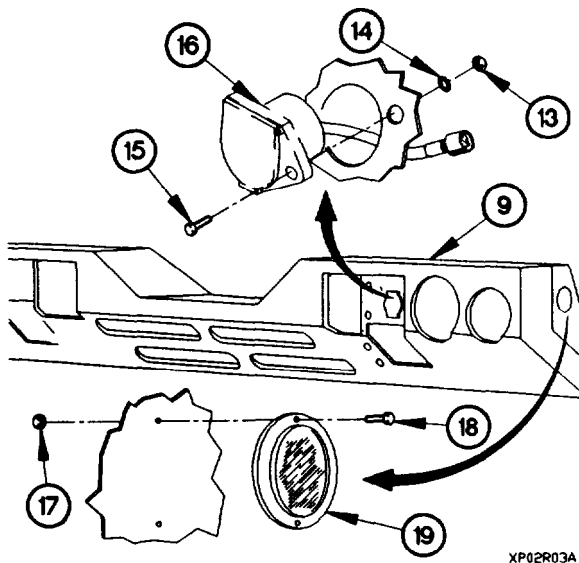
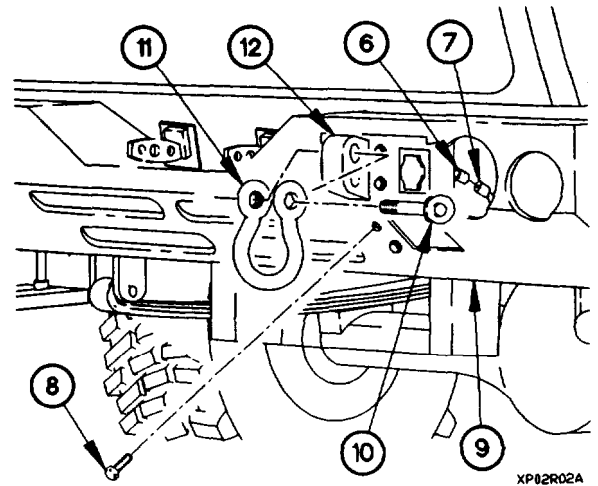
Steps (5) and (6) require the aid of an assistant.

- (5) Remove two pins (10) and shackles (11) from supports (12).

WARNING

Front bumper weighs approximately 100 lbs (45 kgs). Use the aid of an assistant to remove front bumper. Failure to comply may result in injury to personnel.

- (6) Remove front bumper (9) from vehicle.

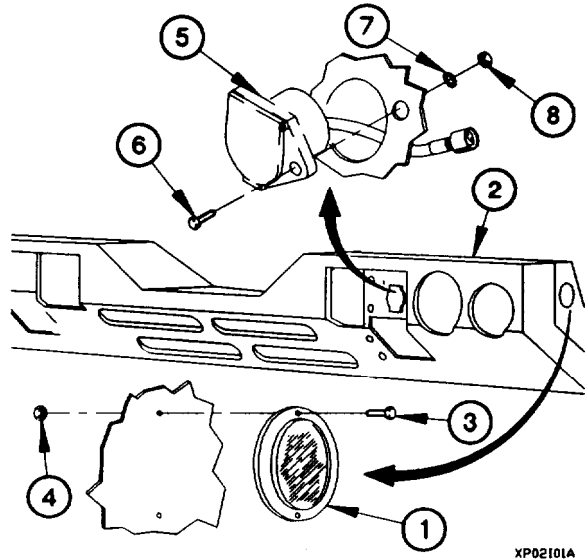


- (7) Remove two self-locking nuts (13), lockwashers (14), screws (15), and trailer receptacle (16) from front bumper (9). Discard self-locking nuts and lockwashers.
- (8) Remove four self-locking nuts (17), screws (18), and two side markers (19) from front bumper (9). Discard self-locking nuts.

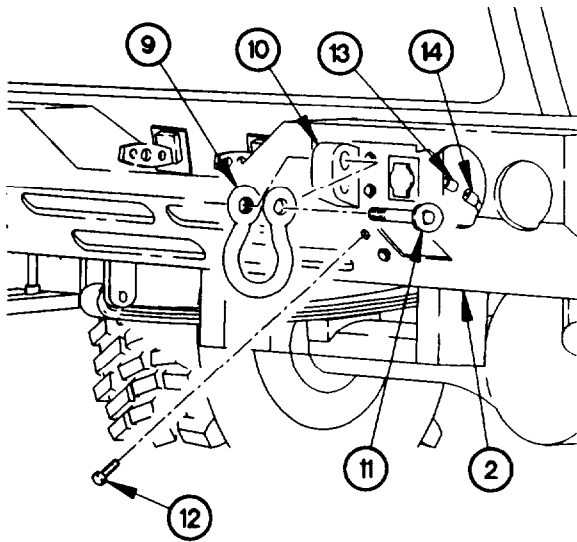
14-2. FRONT BUMPER AND GRAVEL DEFLECTOR REPLACEMENT (CONT)

b. Installation.

- (1) Position two side markers (1) on front bumper (2) with four screws (3) and self-locking nuts (4).
- (2) Tighten four self-locking nuts (4) to 18-22 lb-in. (2 N•m).
- (3) Position trailer receptacle (5) on front bumper (2) with two screws (6), lockwashers (7), and self-locking nuts (8).
- (4) Tighten two self-locking nuts (8) to 31-36 lb-in. (4 N•m).



XP02101A



XP02102A

WARNING

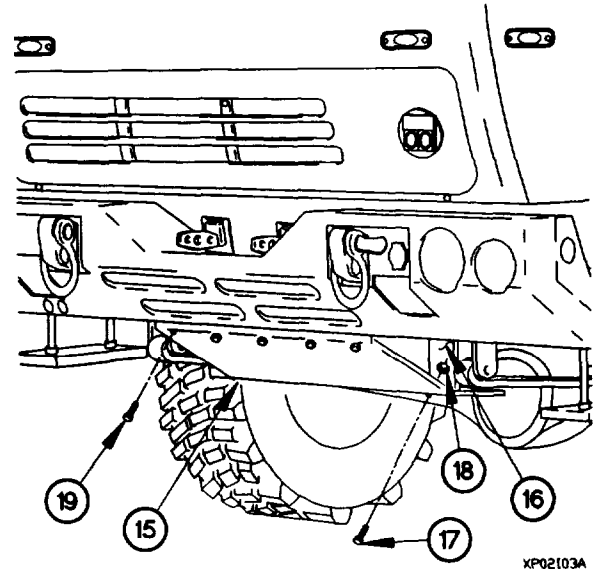
Front bumper weighs approximately 100 lbs (45 kgs). Use the aid of an assistant to install front bumper. Failure to comply may result in injury to personnel.

NOTE

Steps (5) and (6) require the aid of an assistant.

- (5) Install front bumper (2) on vehicle.
- (6) Install two shackles (9) on supports (10) with pins (11).
- (7) Install eight screws (12) on front bumper (2).
- (8) Connect connector P52F (13) to connector J52 (14).

- (9) Position gravel deflector (15) on two brackets (16) with five screws (17) and self-locking nuts (18).
- (10) Tighten five self-locking nuts (18) to 78-94 lb-ft (103-127 N•m).
- (11) Position five screws (19) in top edge of gravel deflector (15).
- (12) Tighten five screws (19) to 43-52 lb-ft (58-70 N•m).



c. Follow-On Maintenance.

- (1) Install composite front light assemblies (para 7-33).
- (2) Install blackout drive light (para 7-30).

End of Task.

14-3. M1081 AIR DROP EXTRACTION ASSEMBLY, PARACHUTE SUSPENSION SLIDES, AND TIEDOWN RINGS REPLACEMENT

This task covers:

- | | |
|---|--|
| a. Air Drop Extraction Stabilizer Bar Removal | e. Parachute Suspension Slide Removal |
| b. Air Drop Extraction Stabilizer Installation | f. Parachute Suspension Slide Installation |
| c. Air Drop Extraction Tension Bar Removal | g. Air Drop Tiedown Ring Removal |
| d. Air Drop Extraction Tension Bar Installation | h. Air Drop Tiedown Ring Installation |

INITIAL SETUP

Equipment Conditions

Engine shut down (TM 9-2320-365-10).

Materials/Parts

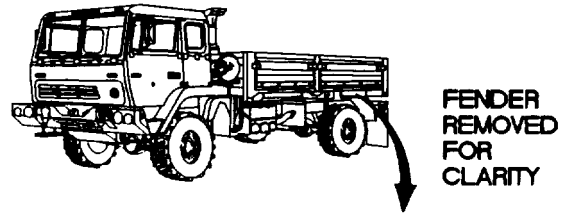
Nut, Self-Locking (8) (Item 123, Appendix G)

Tools and Special Tools

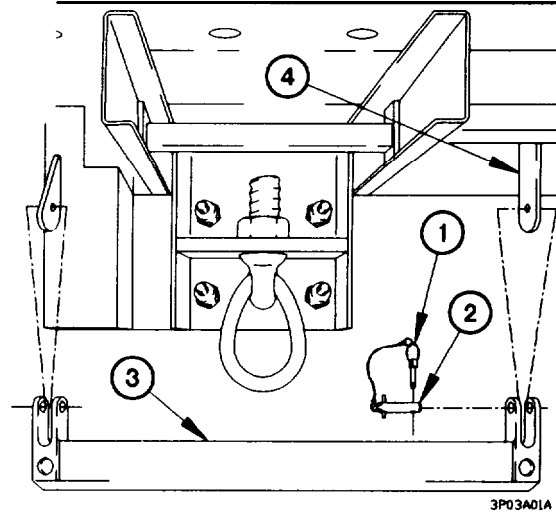
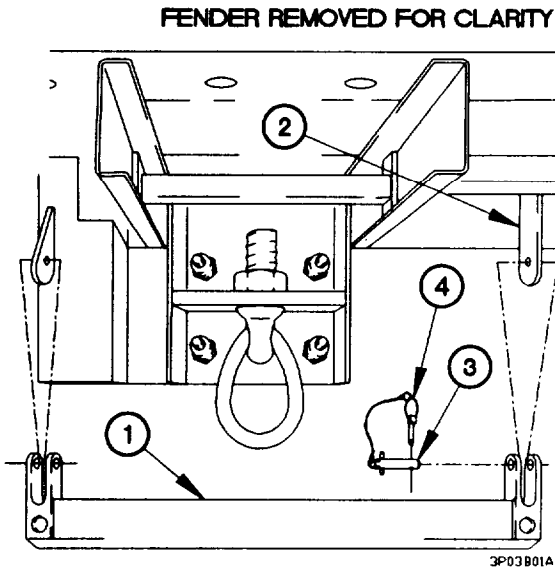
Tool Kit, Genl Mech (Item 44, Appendix C)

a. Air Drop Extraction Stabilizer Bar Removal.

- (1) Remove two lynch pins (1) from pins (2).
- (2) Remove two pins (2) and air drop extraction stabilizer bar (3) from mounting brackets (4).



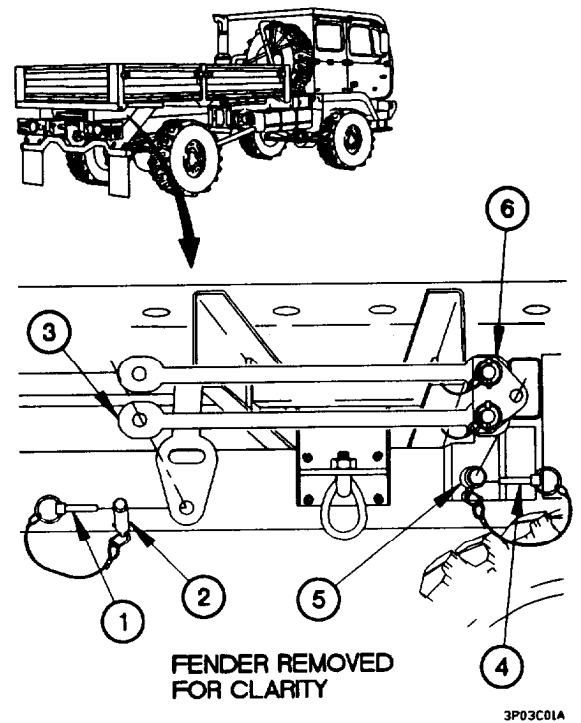
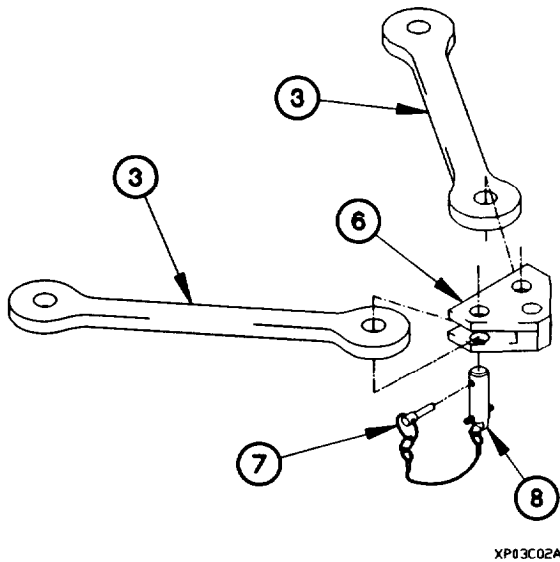
b. Air Drop Extraction Stabilizer Bar Installation.



- (1) Install air drop extraction stabilizer bar (1) on two mounting brackets (2) with pins (3).
- (2) Install two lynch pins (4) in pins (3).

c. Air Drop Extraction Tension Bar Removal.

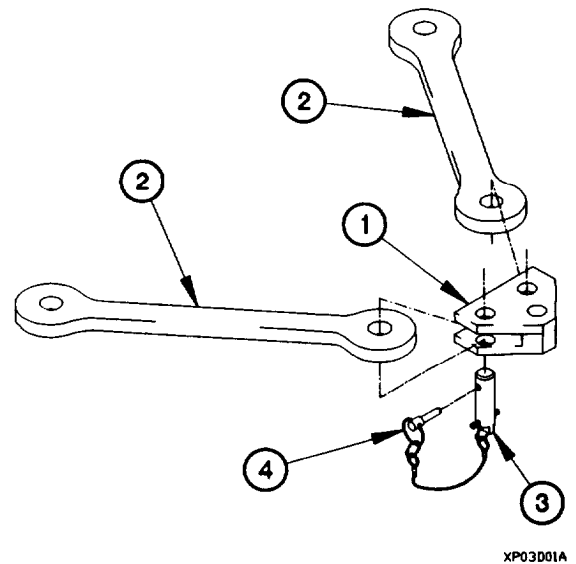
- (1) Remove two lynch pins (1) from pins (2).
- (2) Remove two pins (2) from tension bars (3).
- (3) Remove lynch pin (4) from mounting stud (5).
- (4) Remove tension bar bracket (6) from mounting stud (5).



- (5) Remove two lynch pins (7) from pins (8).
- (6) Remove two pins (8) and tension bar bracket (6) from two tension bars (3).

d. Air Drop Extraction Tension Bar Installation.

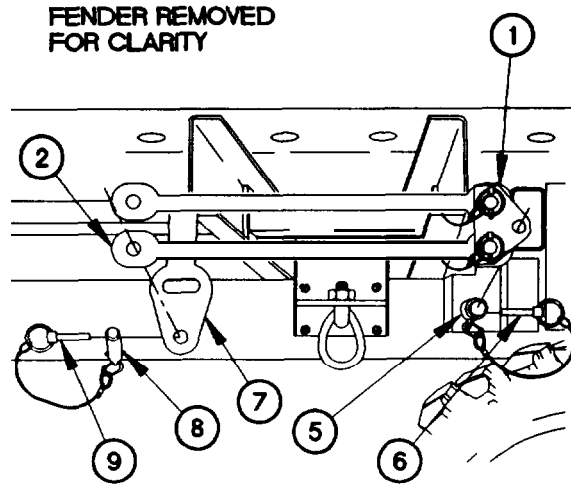
- (1) Install tension bar bracket (1) on two tension bars (2) with two pins (3).
- (2) Install two lynch pins (4) in pins (3).



14-3. M1081 AIR DROP EXTRACTION ASSEMBLY, PARACHUTE SUSPENSION SLIDES, AND TIEDOWN RINGS REPLACEMENT (CONT)

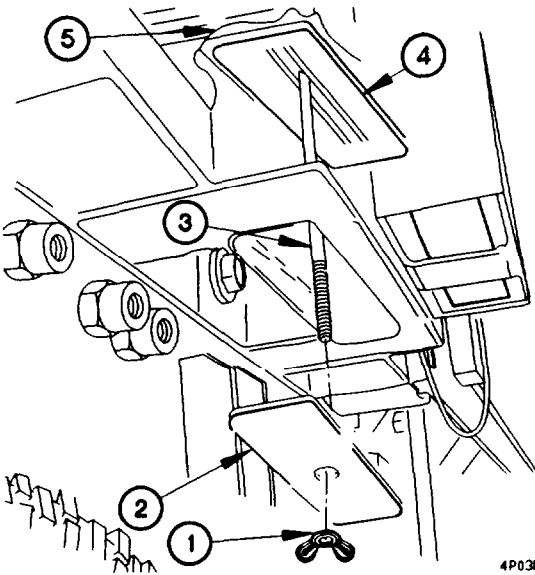
- (3) Install tension bar bracket (1) on mounting stud (5).
- (4) Install lynch pin (6) in mounting stud (5).
- (5) Install two tension bars (2) on mounting bracket (7) with two pins (8).
- (6) Install two lynch pins (9) in pins (8).

e. Parachute Suspension Slide Removal.



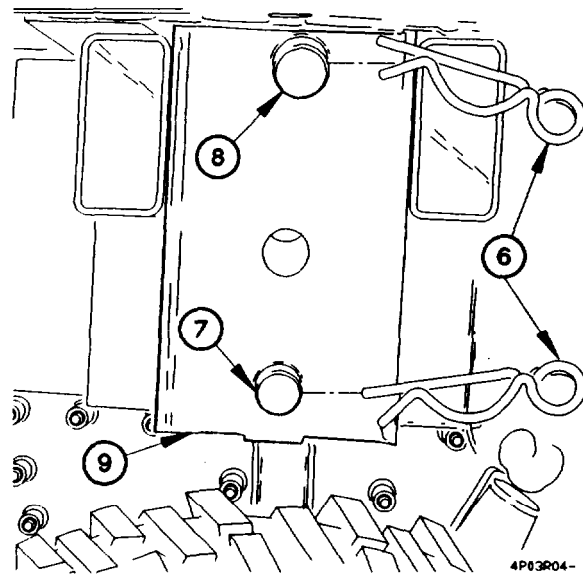
3P03D021

- (1) Remove wingnut (1) and retainer (2) from rod (3).
- (2) Remove plate (4) from cargo bed (5).



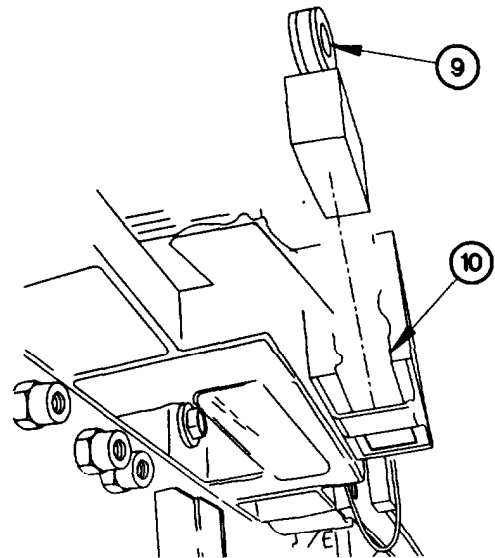
4P03R03-

- (3) Remove two spring pins (6) from small pin (7) and large pin (8).
- (4) Remove small pin (7) and large pin (8) from parachute suspension slide (9).



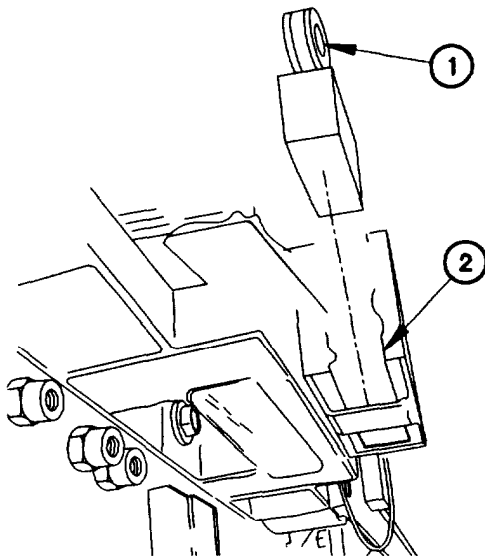
4P03R04-

(5) Remove parachute suspension slide (9) from receptacle (10).



4P03R05-

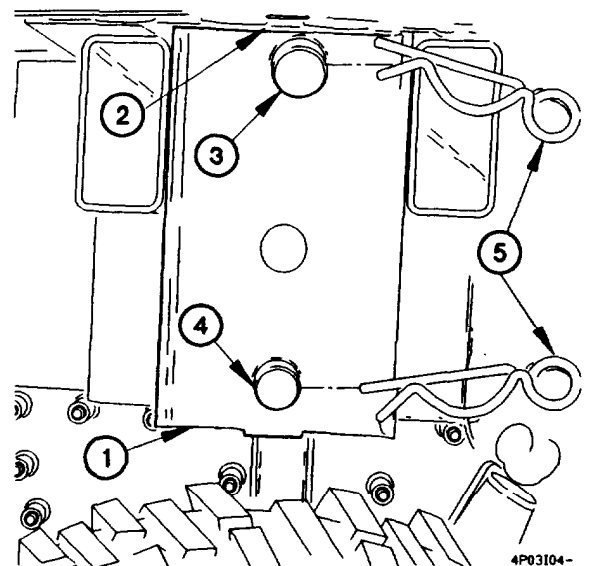
f. Parachute Suspension Slide Installation.



4P03I03-

(1) Install parachute suspension slide (1) in receptacle (2).

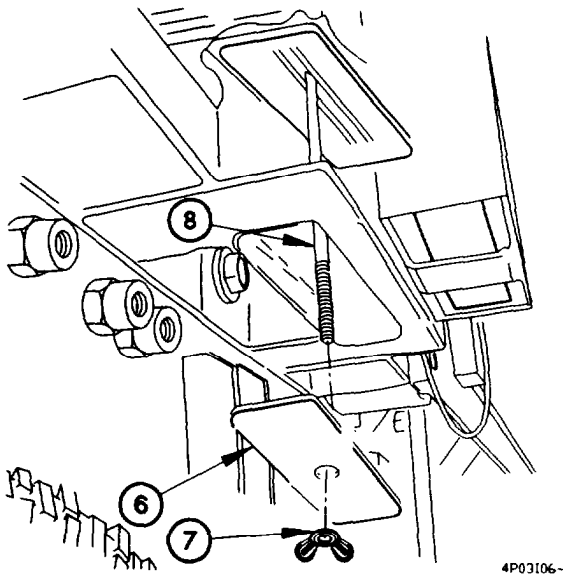
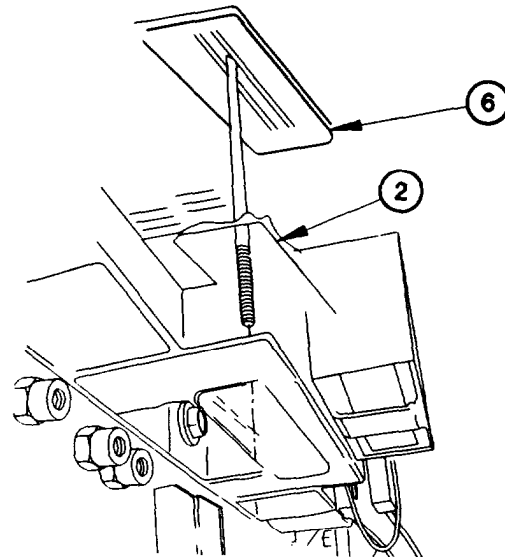
- (2) Install large pin (3) in upper hole of receptacle (2) and parachute suspension slide (1).
- (3) Install small pin (4) in lower hole of receptacle (2) and parachute suspension slide (1).
- (4) Install two spring pins (5) in large pin (3) and small pin (4).



4P03I04-

14-3. M1081 AIR DROP EXTRACTION ASSEMBLY, PARACHUTE SUSPENSION SLIDES, AND TIEDOWN RINGS REPLACEMENT (CONT)

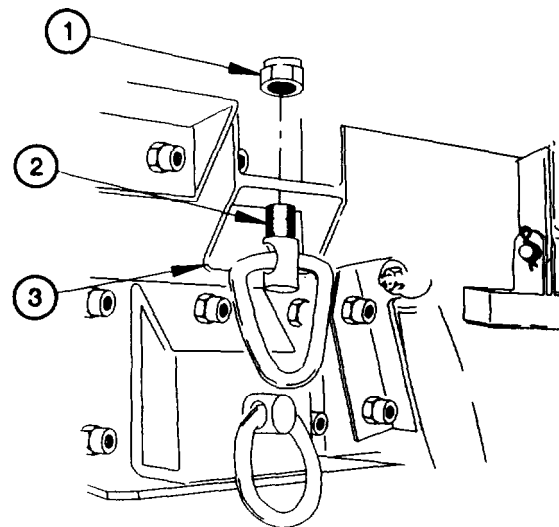
(5) Install plate (6) in receptacle (2).



(6) Install retainer (6) and wingnut (7) on rod (8).

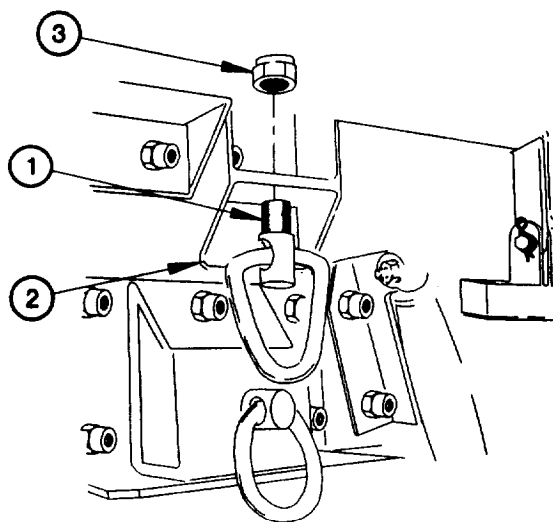
g. Air Drop Tiedown Ring Removal.

- (1) Remove self-locking nut (1) from air drop tiedown ring (2). Discard self-locking nut.
- (2) Remove air drop tiedown ring (2) from bracket (3).



h. Air Drop Tiedown Ring Installation.

- (1) Position air drop tiedown ring (1) in bracket (2).
- (2) Install self-locking nut (3) on air drop tiedown ring (1).

End of Task.

4P03102-

14-4. TAILLIGHT CARRIER REPLACEMENT

This task covers:

- | | |
|---|---|
| <ul style="list-style-type: none"> a. Left Taillight Carrier Removal b. Left Taillight Carrier Installation c. Right Taillight Carrier Removal | <ul style="list-style-type: none"> d. Right Taillight Carrier Installation e. Follow-On Maintenance |
|---|---|

INITIAL SETUP

Equipment Conditions

Composite taillight assembly removed (para 7-32).
 Backup light assembly removed (para 7-29).
 Marker light assemblies removed (para 7-31).
 Splash guards removed (para 16-10).

Tools and Special Tools

Tool Kit, Genl Mech (Item 44, Appendix C)
 Wrench Set, Socket (Item 49, Appendix C)
 Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)
 Wrench Set, Socket (Item 47, Appendix C)
 Wrench, Torque, 0-600 lb-ft (Item 59, Appendix C)

Tools and Special Tools (Cont)

Wrench Set, Socket (Item 48, Appendix C)
 Wrench, Torque, 0-200 lb-in. (Item 58, Appendix C)

Materials/Parts

Nut, Self-locking (6) (Item 140, Appendix G)
 Nut, Self-Locking (2) (Item 134, Appendix G)
 Nut, Self-Locking (2) (Item 144, Appendix G)

Personnel Required

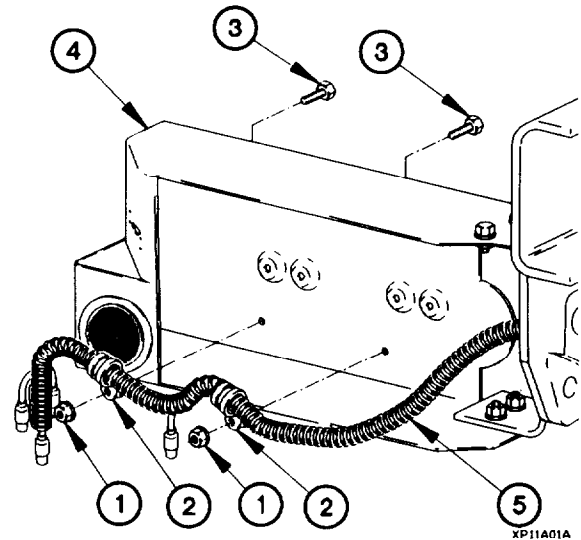
(2)

a. Left Taillight Carrier Removal.

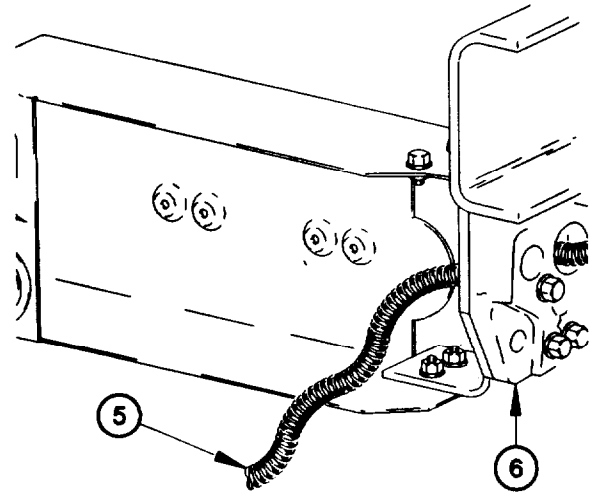
NOTE

Perform steps (1) and (2) on M1078 with vehicle serial numbers 3465 and higher.

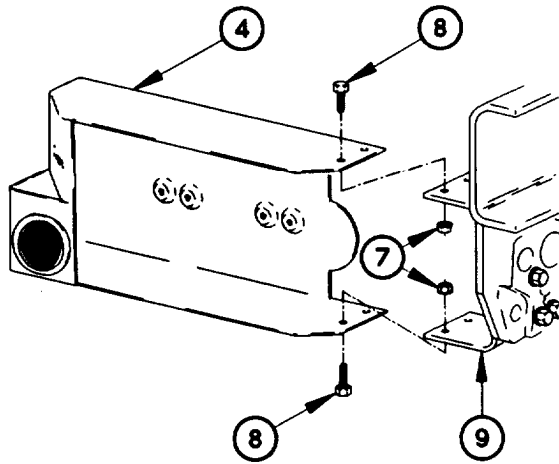
- (1) Remove two self-locking nuts (1), clamps (2), and screws (3) from left taillight carrier (4). Discard self-locking nuts.
- (2) Remove two clamps (2) from rear lights cable assembly (5).



- (3) Pull rear lights cable assembly (5) through left frame rail (6).



3P11A02A



3P11A03A

NOTE

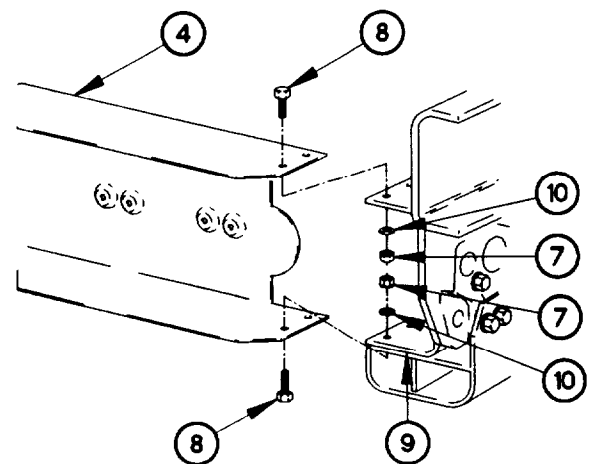
Perform step (4) on all models except M1081.

- (4) Remove four self-locking nuts (7), bolts (8), and left taillight carrier (4) from bracket (9). Discard self-locking nuts.

NOTE

Perform step (5) on M1081.

- (5) Remove four self-locking nuts (7), washers (10), bolts (8), and left taillight carrier (4) from bracket (9). Discard self-locking nuts.



3P11A04A

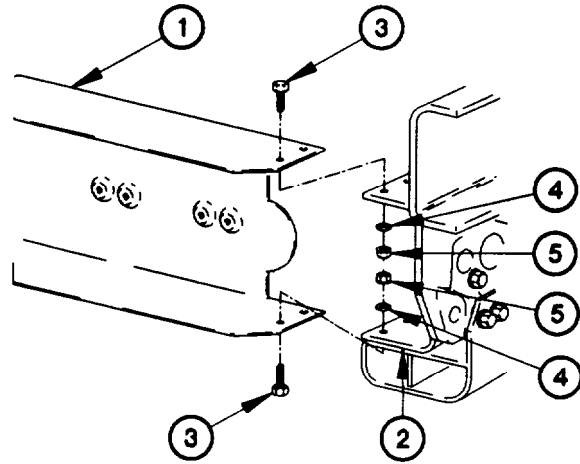
14-4. TAILLIGHT CARRIER REPLACEMENT (CONT)

b. Left Taillight Carrier Installation.

NOTE

Perform steps (1) and (2) on M1081.

- (1) Position left taillight carrier (1) on bracket (2) with four screws (3), washers (4) and self-locking nuts (5).
- (2) Tighten four self-locking nuts (5) to 39-55 lb-ft (59-69 N•m).

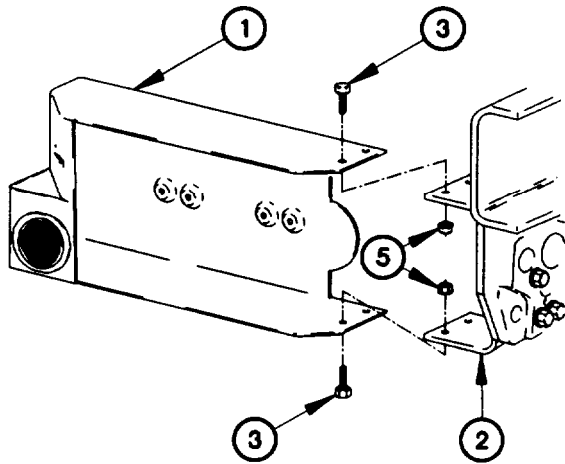


XP11B01A

NOTE

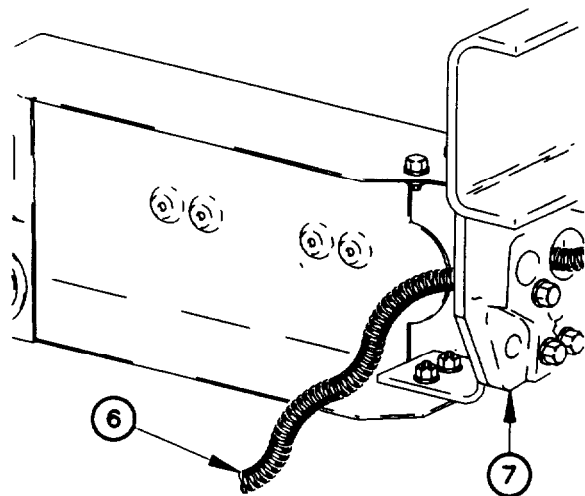
Perform steps (3) and (4) on all models except M1081.

- (3) Position left taillight carrier (1) on bracket (2) with four screws (3) and self-locking nuts (5).
- (4) Tighten four self-locking nuts (5) to 39-55 lb-ft (59-69 N•m).



XP11B02A

- (5) Route rear lights cable (6) through left frame rail (7).

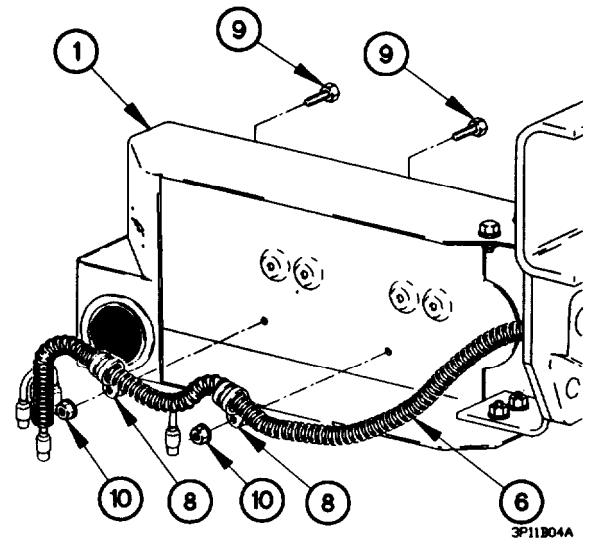


XP11B03A

NOTE

Perform steps (6) through (8) on M1078 with vehicle serial numbers 3465 and higher.

- (6) Position two clamps (8) on rear lights cable assembly (6).
- (7) Position two clamps (8) on left taillight carrier (1) with screws (9) and self-locking nuts (10).
- (8) Tighten two self-locking nuts (10) to 84-108 lb-in (10-12 N•m).



c. Right Taillight Carrier Removal.

NOTE

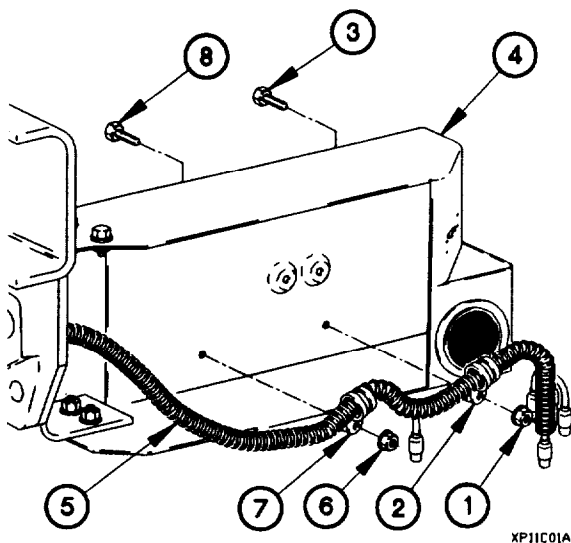
Perform steps (1) and (2) on M1078 with vehicle serial numbers 3465 and higher.

- (1) Remove self-locking nut (1), clamp (2), and screw (3) from right taillight carrier (4). Discard self-locking nut.
- (2) Remove clamp (2) from rear lights cable assembly (5).

NOTE

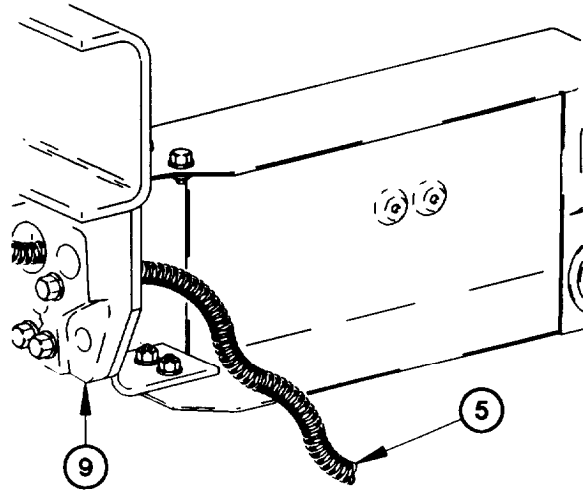
Perform steps (3) and (4) on M1078 not equipped with 11K Self-Recovery Winch (SRW).

- (3) Remove self-locking nut (6), clamp (7) and screw (8) from right taillight carrier (4). Discard self-locking nut.
- (4) Remove clamp (7) from rear lights cable assembly (5).



14-4. TAILLIGHT CARRIER REPLACEMENT (CONT)

(5) Pull rear lights cable assembly (5) through right frame rail (9).

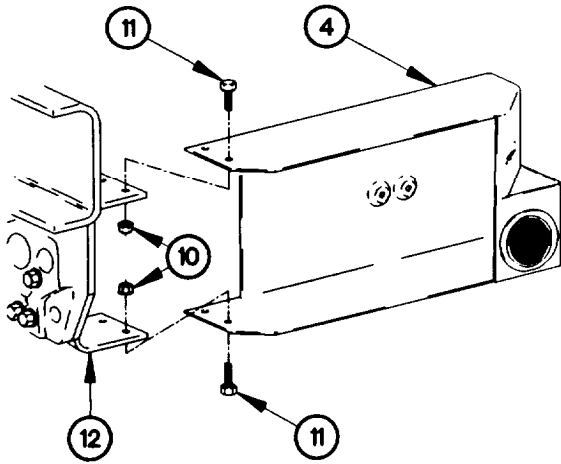


3P11C02A

NOTE

Perform step (6) on M1078 not equipped with 11K SRW.

(6) Remove four self-locking nuts (10), screws (11), and right taillight carrier (4) from bracket (12). Discard self-locking nuts.

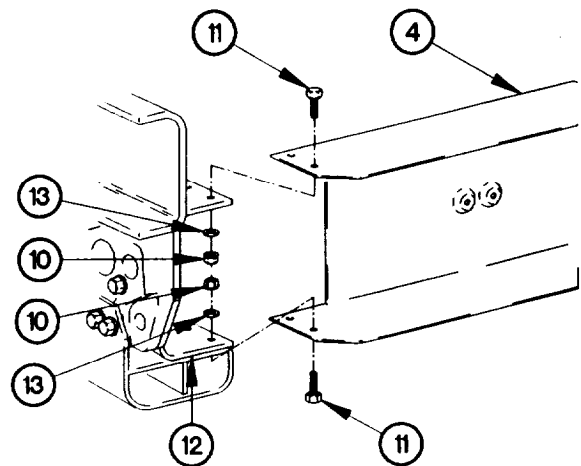


3P11C03A

NOTE

Perform step (7) on models M1081 not equipped with 11K SRW.

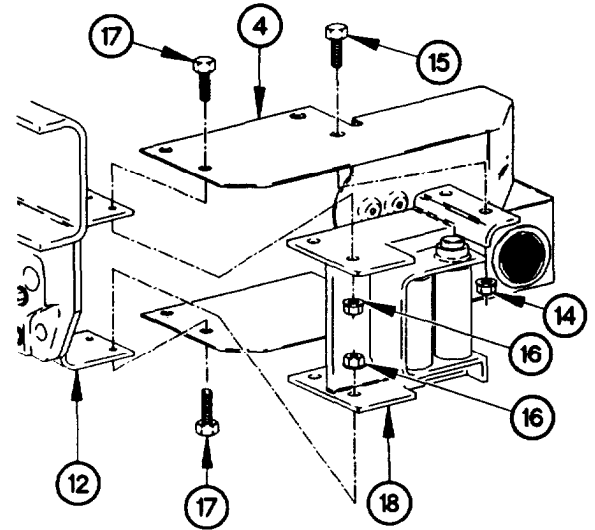
(7) Remove four self-locking nuts (10), washers (13), screws (11) and right taillight carrier (4) from bracket (12). Discard self-locking nuts.



3P11C04A

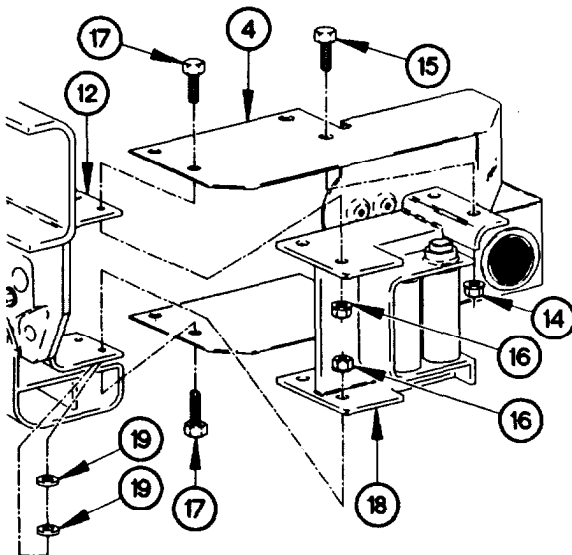
NOTE

- Perform steps (8) and (9) on M1078 equipped with 11K SRW.
 - Steps (8) and (9) require the aid of an assistant.
- (8) Remove two self-locking nuts (14) and screws (15) from right taillight carrier (4). Discard self-locking nuts.
- (9) Remove four self-locking nuts (16), screws (17), rear roller fairlead bracket (18) and right taillight carrier (4) from bracket (12). Discard self-locking nuts.



3P11C05A

NOTE



3P11C06A

- Perform steps (10) and (11) on M1081 equipped with 11K SRW.
 - Steps (10) and (11) require the aid of an assistant.
- (10) Remove two self-locking nuts (14) and screws (15) from right taillight carrier (4). Discard self-locking nuts.
- (11) Remove four self-locking nuts (16), washers (19), screws (17), rear roller fairlead bracket (18) and right taillight carrier (4) from bracket (12). Discard self-locking nuts.

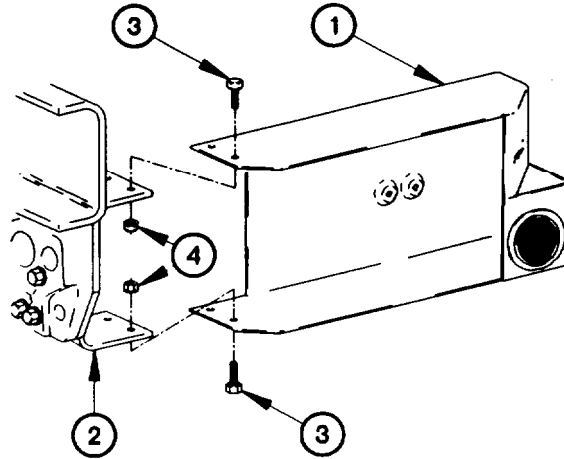
14-4. TAILLIGHT CARRIER REPLACEMENT (CONT)

d. Right Taillight Carrier Installation.

NOTE

- Perform steps (1) and (2) on M1078 not equipped with 11K SRW.
- Steps (1) through (12) require the aid of an assistant.

- (1) Position right taillight carrier (1) on bracket (2) with four screws (3) and self-locking nuts (4).
- (2) Tighten four self-locking nuts (4) to 39-55 lb-ft (59-69 N•m).

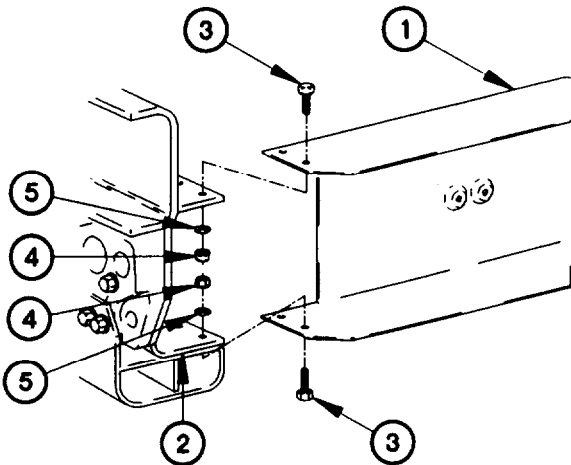


XP11D01A

NOTE

Perform steps (3) and (4) on M1081 not equipped with 11K SRW.

- (3) Position right taillight carrier (1) on bracket (2) with four screws (3), washers (5) and self-locking nuts (4).
- (4) Tighten four self-locking nuts (4) to 149-182 lb-ft (202-247 N•m).

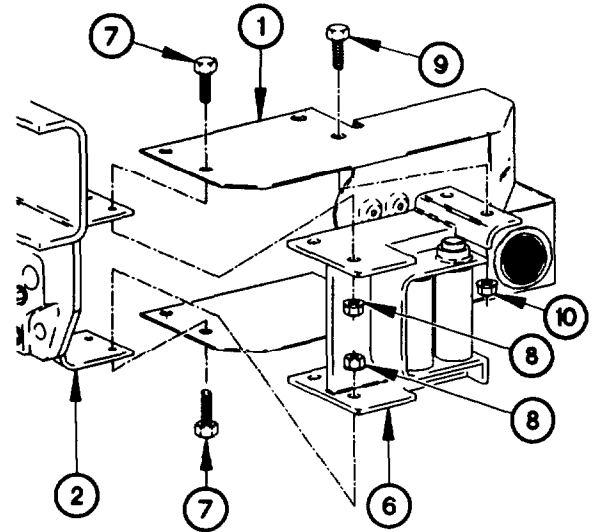


XP11D02A

NOTE

Perform steps (5) through (8) on M1078 equipped with 11K SRW.

- (5) Position rear roller fairlead bracket (6) and right taillight carrier (1) on bracket (2) with four screws (7) and self-locking nuts (8).
- (6) Position two screws (9) and self-locking nuts (10) in right taillight carrier (1).
- (7) Tighten four self-locking nuts (8) to 149-182 lb-ft (202-247 N•m).
- (8) Tighten two self-locking nuts (10) to 28-32 lb-ft (35-43 N•m).

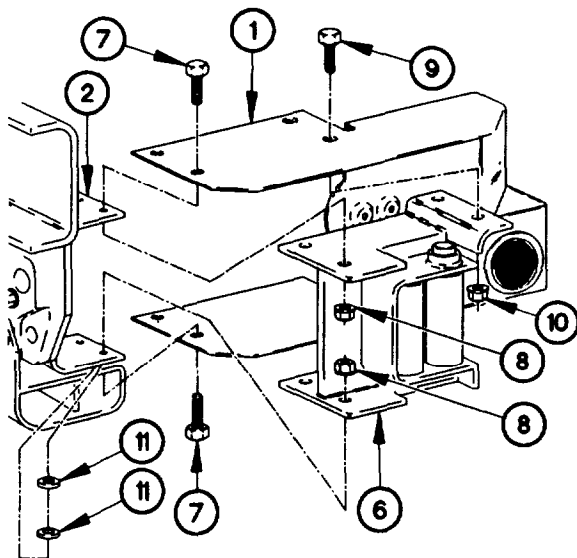


XP11D03A

NOTE

Perform steps (9) through (12) on M1081 equipped with 11K SRW.

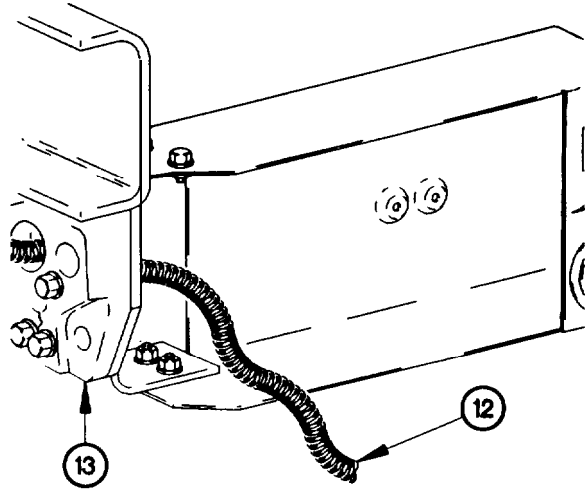
- (9) Position rear roller fairlead bracket (6) and right taillight carrier (1) on bracket (2) with four screws (7), washers (11) and self-locking nuts (8).
- (10) Position two screws (9) and self-locking nuts (10) in right taillight carrier (1).
- (11) Tighten four self-locking nuts (8) to 149-182 lb-ft (202-247 N•m).
- (12) Tighten two self-locking nuts (10) to 26-32 lb-ft (35-43 N•m).



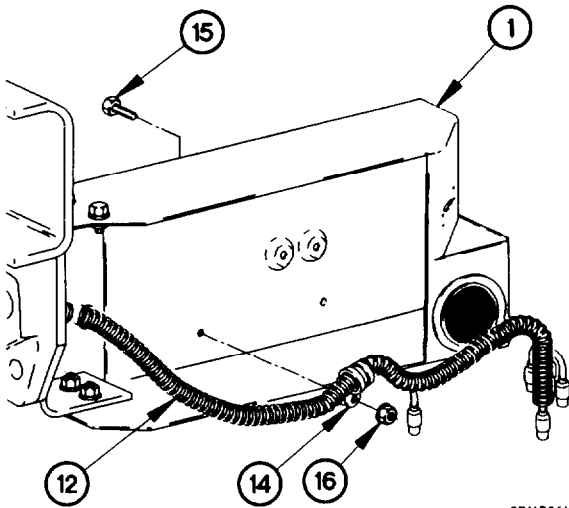
4P11D04A

14-4. TAILLIGHT CARRIER REPLACEMENT (CONT)

(13) Route rear lights cable assembly (12) through right frame rail (13).



XP11D05A



3P11D061

NOTE

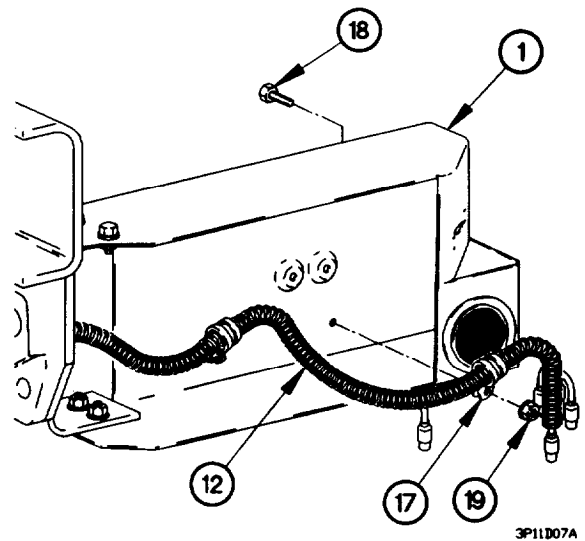
Perform steps (14) through (16) on M1078 not equipped with 11K SRW.

- (14) Position clamp (14) on rear lights cable assembly (12).
- (15) Position clamp (14) on right taillight carrier (1) with screw (15) and self-locking nut (16).
- (16) Tighten self-locking nut (16) to 84-108 lb-in. (10-12 N•m).

NOTE

Perform steps (17) through (19) on M1078 with vehicle serial numbers 3465 and higher.

- (17) Position clamp (17) on rear lights cable assembly (12).
- (18) Position clamp (17) on right taillight carrier (1) with screw (18) and self-locking nut (19).
- (19) Tighten self-locking nut (19) to 84-108 lb-in. (10-12 N•m).

**e. Follow-On Maintenance.**

- (1) Install splash guards (para 16-10).
- (2) Install marker light assemblies (para 7-31).
- (3) Install backup light assembly (para 7-29).
- (4) Install composite taillight assembly (para 7-32).

End of Task.

14-5. SPARE TIRE RETAINER REPLACEMENT/REPAIR

This task covers:

- | | |
|----------------|--------------------------|
| a. Removal | d. Installation |
| b. Disassembly | e. Follow-on Maintenance |
| c. Assembly | |

INITIAL SETUP

Equipment Conditions

- Spare tire removed (TM 9-2320-365-10).
- Cab raised (TM 9-2320-365-10).
- Hydraulic manifold removed (para 19-4).
- Tool box removed (para 16-16).
- Cab leveling valve removed (para 16-8).
- Air/hydraulic power unit and bracket removed (para 19-3).
- Ether starting aid removed (para 4-15).
- Shunt removed (para 7-26).
- 100 amp reverse polarity relay removed, if equipped (para 7-27).
- 200 amp reverse polarity relay removed, if equipped (M1081 only) (para 20-58).

Tools and Special Tools

- Tool Kit, Genl Mech (Item 44, Appendix C)
- Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)
- Pan, Drain (Item 24, Appendix C)
- Gloves, Rubber (Item 13, Appendix C)

Tools and Special Tools (Cont)

- Goggles, Industrial (Item 15, Appendix C)
- Socket Set, Socket Wrench (Item 35, Appendix C)
- Wrench, Torque, 0-200 lb-in. (Item 58, Appendix C)

Materials/Parts

- Cap and Plug Set (Item 15, Appendix D)
- Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)
- Ties, Cable, Plastic (Item 76, Appendix D)
- Nut, Self-Locking (12) (Item 140, Appendix G)
- Nut, Self-Locking (Item 142, Appendix G)
- Pin, Cotter (2) (Item 207, Appendix G)

Personnel Required

(3)

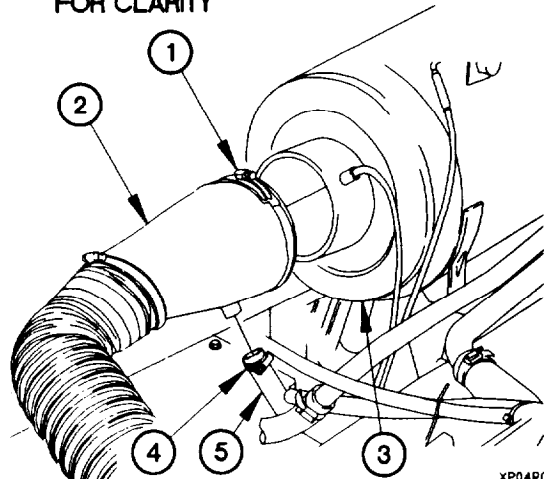
a. Removal.

CAUTION

Cap or plug intake air cleaner hoses to prevent contamination of turbocharger. Failure to comply may result in damage to turbocharger and engine.

- (1) Loosen clamp (1) on intake air cleaner boot (2).
- (2) Disconnect intake air cleaner boot (2) from intake air cleaner housing (3).
- (3) Loosen clamp (4) on air compressor intake hose (5).
- (4) Disconnect air compressor intake hose (5) from intake air cleaner boot (2).

SPARE TIRE
RETAINER REMOVED
FOR CLARITY



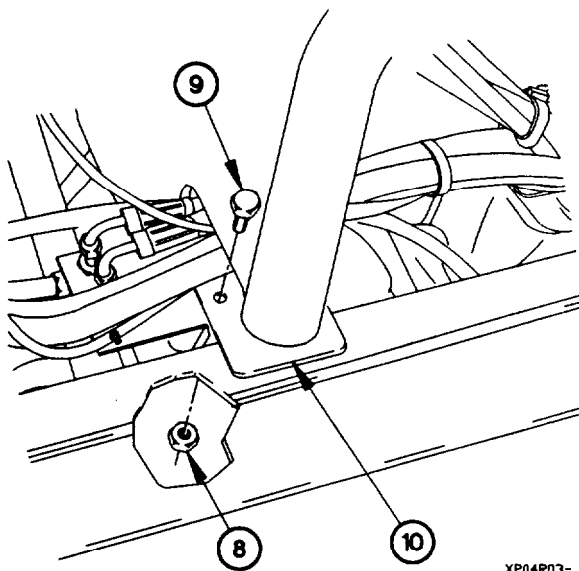
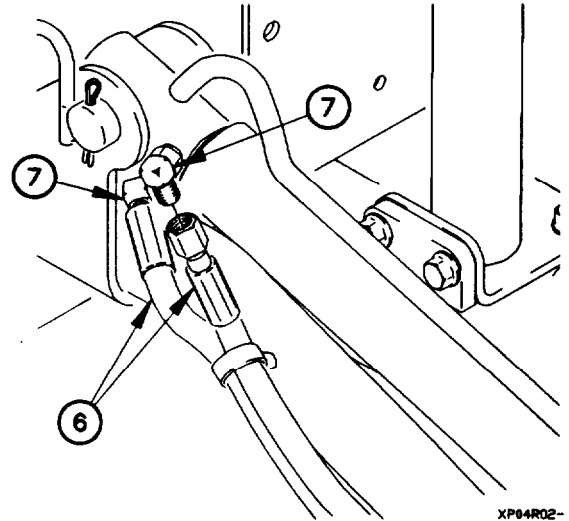
XP04R01-

WARNING

Hydraulic fluid (MIL-H-5606A) is TOXIC. Wear protective goggles and gloves; use only in well ventilated area; avoid contact with skin, eyes, and clothes. Skin and clothing that come in contact with hydraulic oil should be washed immediately. Saturated clothing should be removed immediately. Failure to comply may result in injury to personnel.

NOTE

- Remove plastic cable ties as required.
 - Tag hoses and connection points prior to disconnecting.
- (5) Disconnect two hydraulic hoses (6) from 90-degree fittings (7).



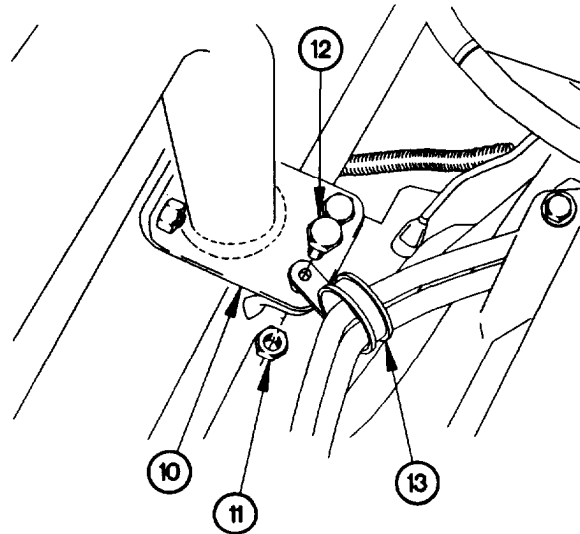
- (6) Remove two self-locking nuts (8) and screws (9) from spare tire retainer (10). Discard self-locking nuts.

14-5. SPARE TIRE RETAINER REPLACEMENT/REPAIR (CONT)

NOTE

Perform step (7) on vehicle serial number 3092 and higher, and vehicle serial numbers 0001 through 3091 that have previously had a spare tire retainer or fuel hose replaced.

- (7) Remove self-locking nut (11), screw (12), and clamp (13) from spare tire retainer (10). Discard self-locking nut.

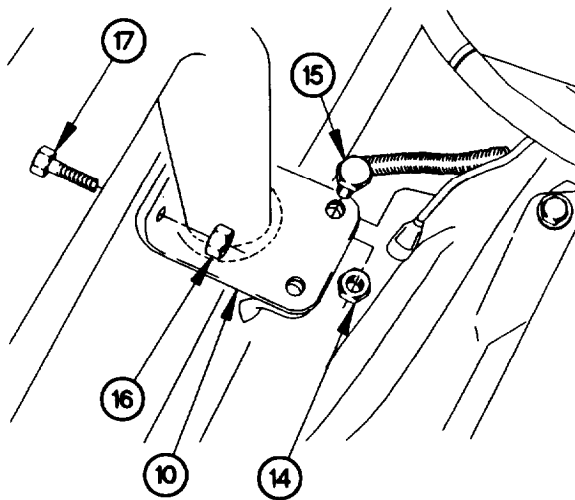


XP04R041

NOTE

Perform step (8) on vehicle serial numbers 0001 through 3091 that have not previously had a spare tire retainer or fuel hose replaced.

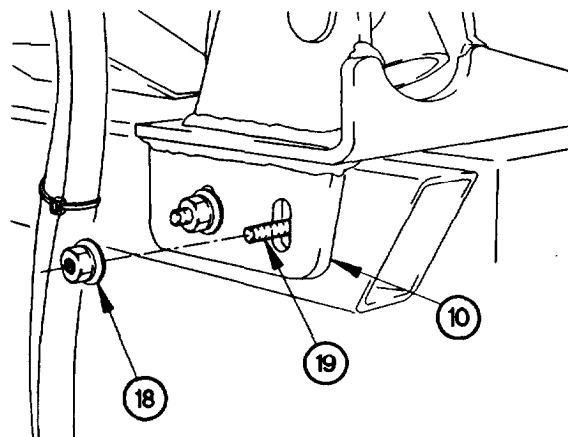
- (8) Remove self-locking nut (11) and screw (12) from spare tire retainer (10). Discard self-locking nut.



XP04R051

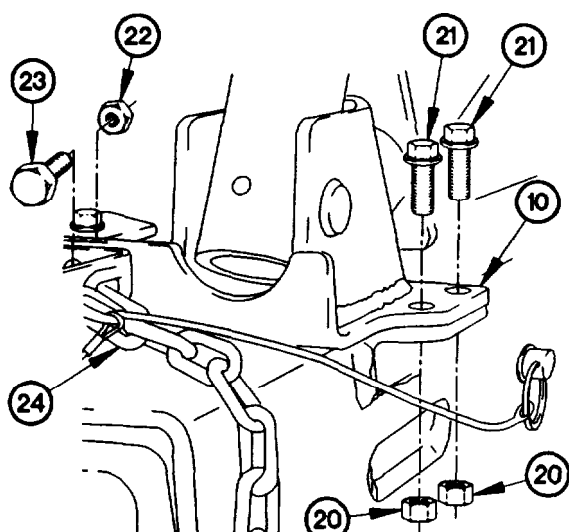
- (9) Remove self-locking nut (14) and screw (15) from spare tire retainer (10). Discard self-locking nut.
- (10) Remove two self-locking nuts (16) and screws (17) from spare tire retainer (10). Discard self-locking nut.

- (11) Remove two self-locking nuts (18) and screws (19) from spare tire retainer (10). Discard self-locking nuts.



XP04R061

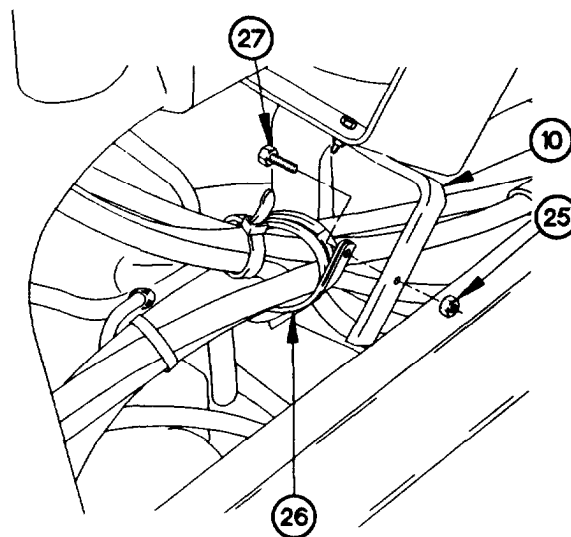
- (12) Remove two self-locking nuts (20) and screws (21) from spare tire retainer (10). Discard self-locking nuts.



XP04R071

- (13) Remove self-locking nut (22), screw (23), and chain (24) from spare tire retainer (10). Discard self-locking nut.

- (14) Remove self-locking nut (25), clamp (26), and screw (27) from spare tire retainer (10). Discard self-locking nut.



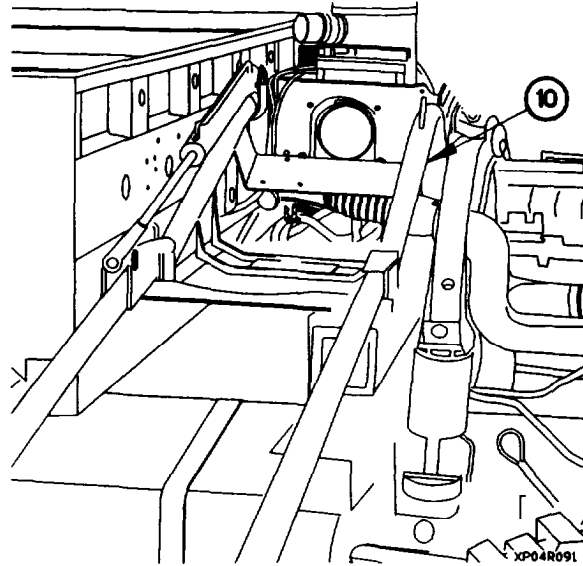
XP04R081

14-5. SPARE TIRE RETAINER REPLACEMENT/REPAIR (CONT)

WARNING

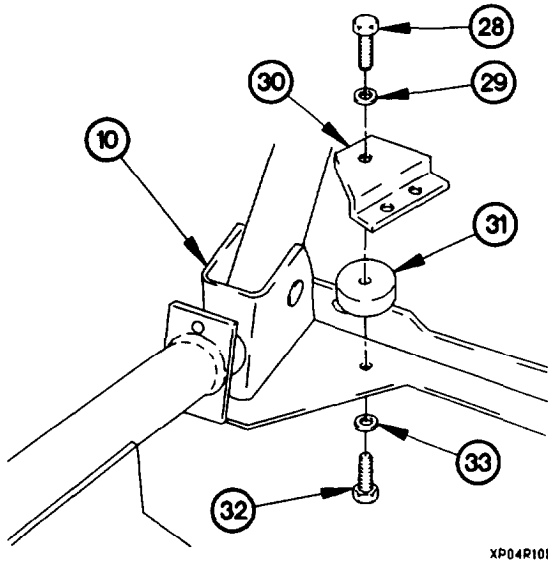
Spare tire retainer weighs approximately 150 lbs (68 kgs). The aid of two assistants is required to remove spare tire retainer from vehicle. Failure to comply may result in injury to personnel

(15) Remove spare tire retainer (10) from vehicle.



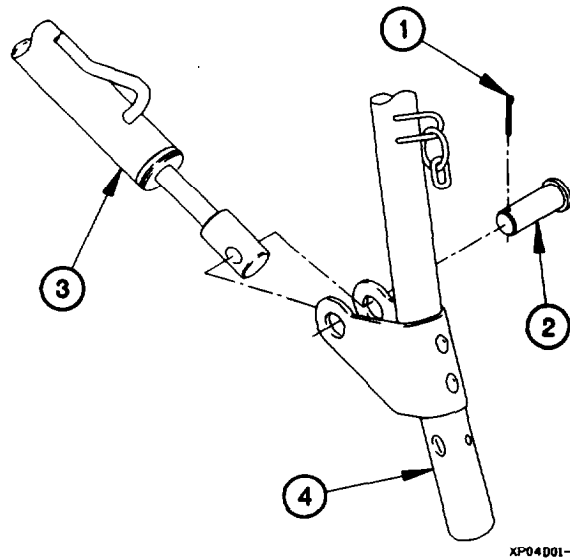
(16) Remove screw (28), washer (29), and bracket (30) from resilient mount (31).

(17) Remove screw (32), washer (33), and resilient mount (31) from spare tire retainer (10).

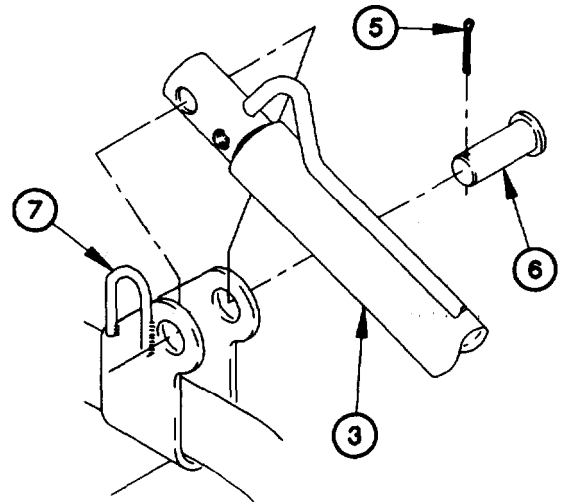


b. Disassembly.

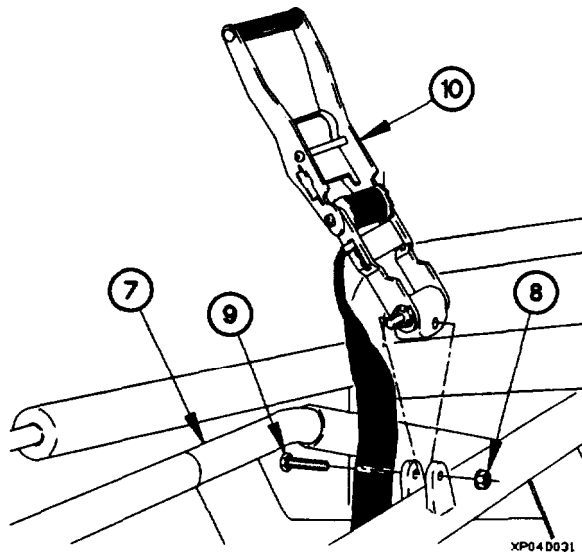
(1) Remove cotter pin (1), pin (2), and hydraulic cylinder (3) from lift arm assembly (4). Discard cotter pin.



- (2) Remove cotter pin (5), pin (6) and hydraulic cylinder (3) from spare tire retainer (7). Discard cotter pin.

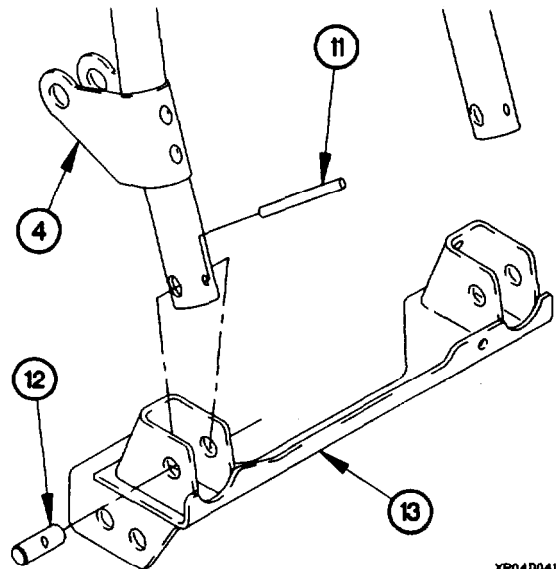


XP04D021



XP04D031

- (3) Remove self-locking nut (8) screw (9) and ratchet (10) from spare tire retainer (7). Discard self-locking nut.

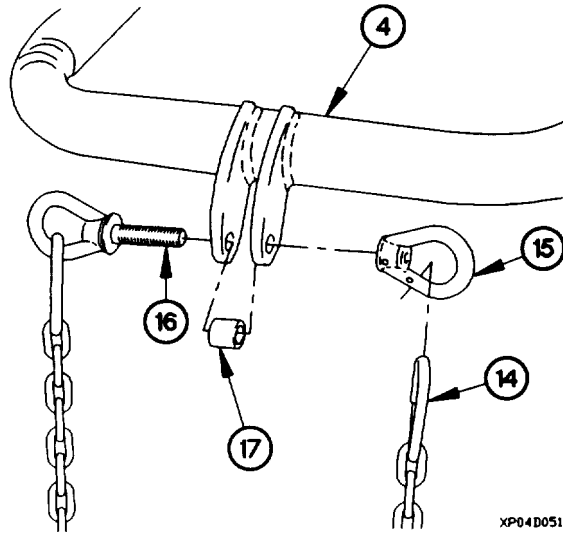


XP04D041

- (4) Remove two straight pins (11) spring pins (12) and lift arm assembly (4) from support assembly (13).

14-5. SPARE TIRE RETAINER REPLACEMENT/REPAIR (CONT)

- (5) Remove chain (14) from ring (15).
- (6) Remove ring (15), stud (16), and sleeve (17) from lift arm assembly (4).

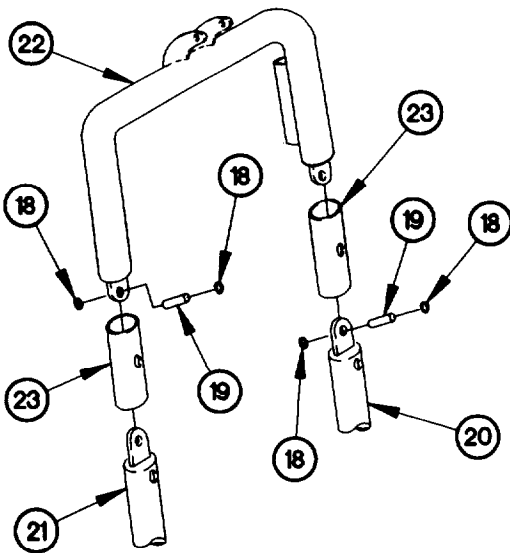


XP04D051

NOTE

Perform steps (7) through (9) on M1081.

- (7) Remove four retaining clips (18) and two grooved pins (19) from front arm (20) and rear arm (21).
- (8) Remove upper arm (22) from two couplers (23).
- (9) Remove two couplers (23) from front arm (20) and rear arm (21).



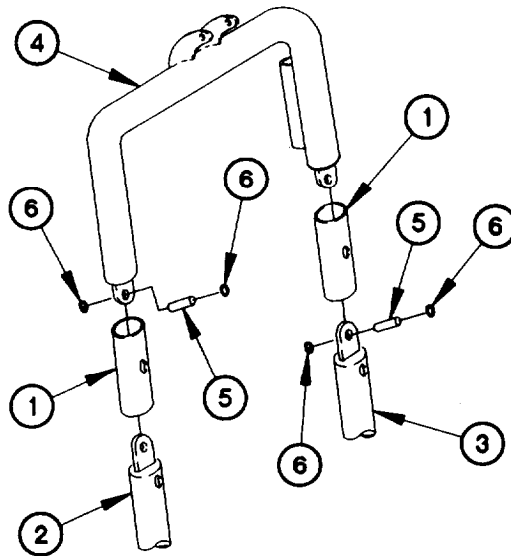
XP04D061

c. Assembly.

NOTE

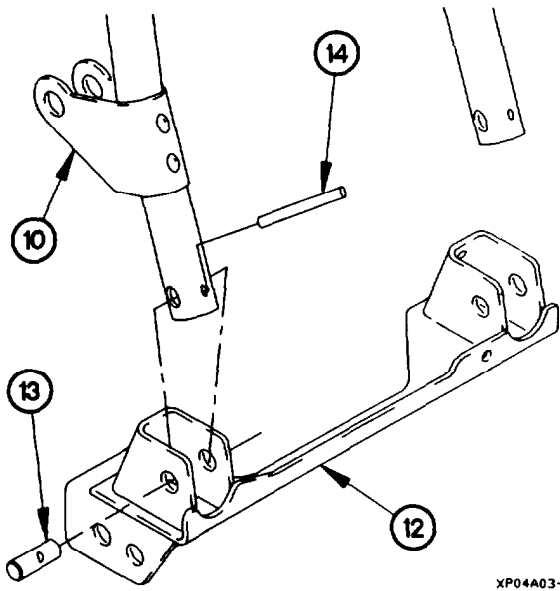
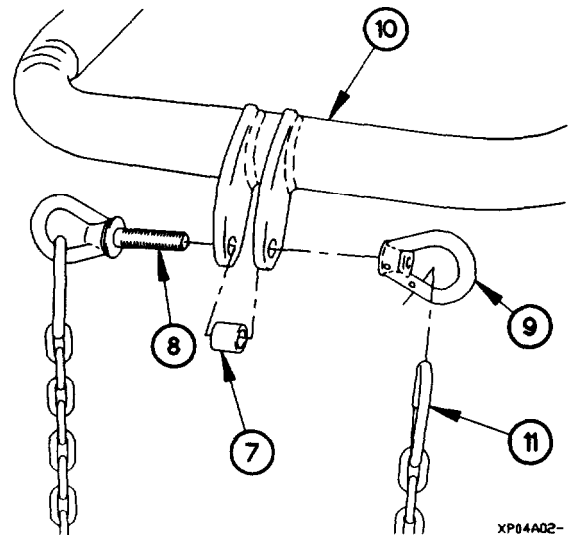
Perform steps (1) through (3) on M1081.

- (1) Position two couplers (1) on rear arm (2) and front arm (3).
- (2) Position upper arm (4) in two couplers (1).
- (3) Install two grooved pins (5) and four retaining clips (6) in rear arm (2) and front arm (3).



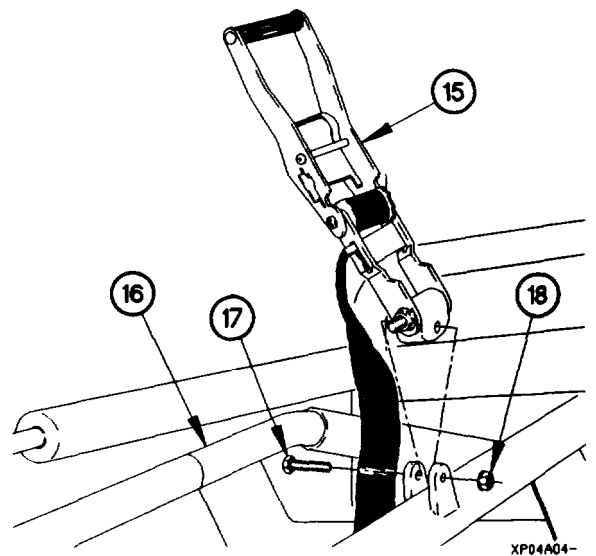
XP04A01-

- (4) Install sleeve (7), stud (8), ring (9) in lift arm assembly (10).
- (5) Install chain (11) on ring (9).



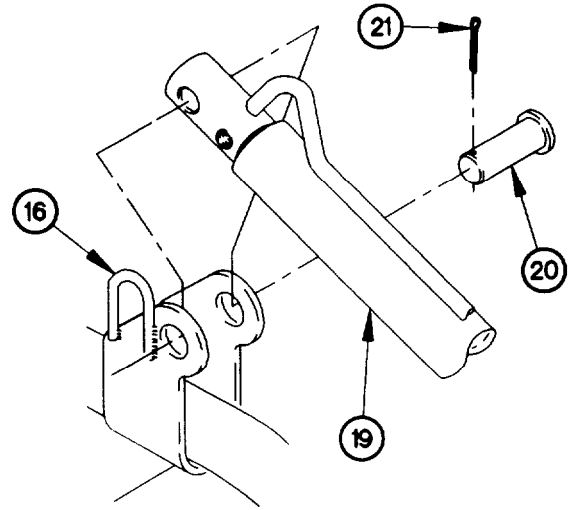
- (6) Install lift arm assembly (10) on support assembly (12) with two spring pins (13) and straight pins (14).

- (7) Install ratchet (15) on spare tire retainer (16) with screw (17) and self-locking nut (18).



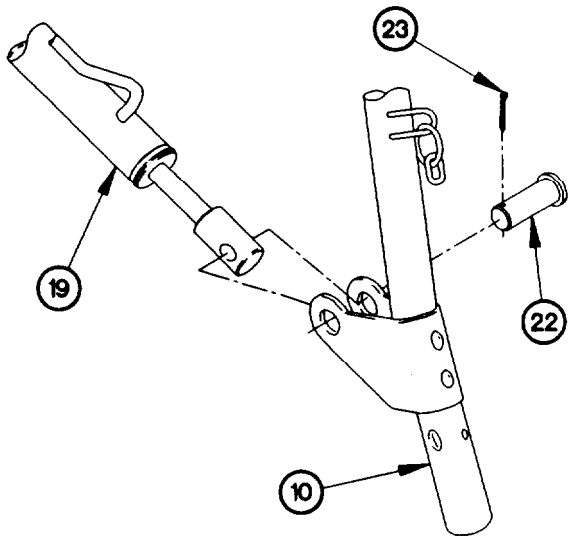
14-5. SPARE TIRE RETAINER REPLACEMENT/REPAIR (CONT)

(8) Install hydraulic cylinder (19) on spare tire retainer (16) with pin (20) and cotter pin (21).



XP04A05-

(9) Install hydraulic cylinder (19) on lift arm assembly (10) with pin (22) and cotter pin (23).

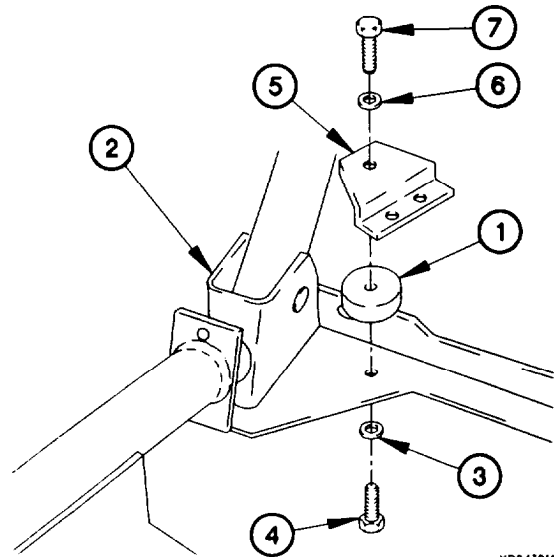


XP04A06-

d. Installation.

(1) Install resilient mount (1) on spare tire retainer (2) with washer (3) and screw (4).

(2) Install bracket (5) on resilient mount (1) with washer (6) and screw (7).

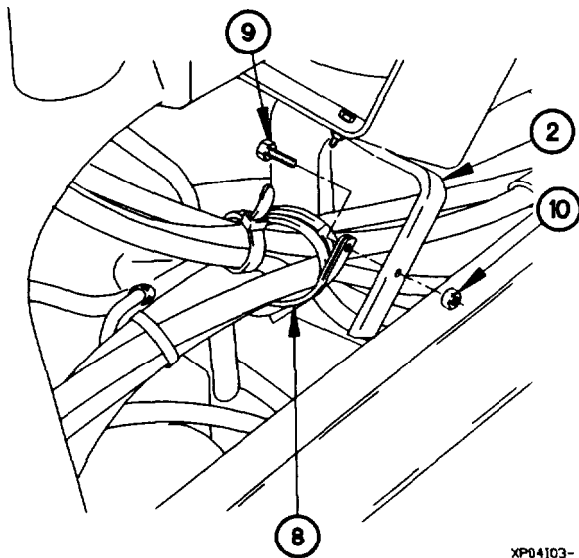
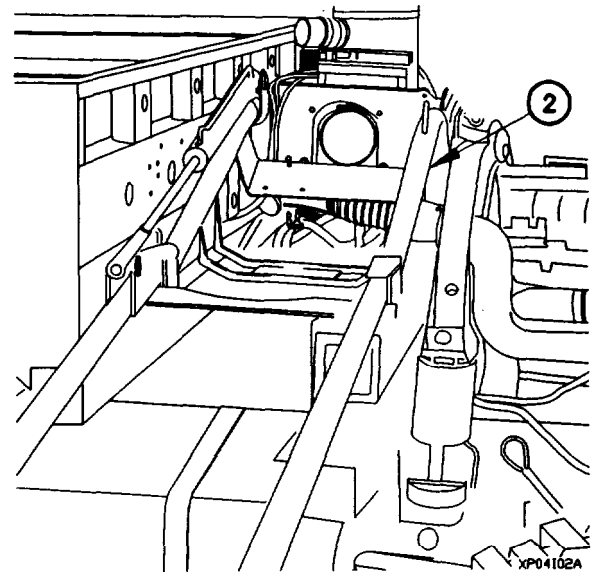


XP041011

WARNING

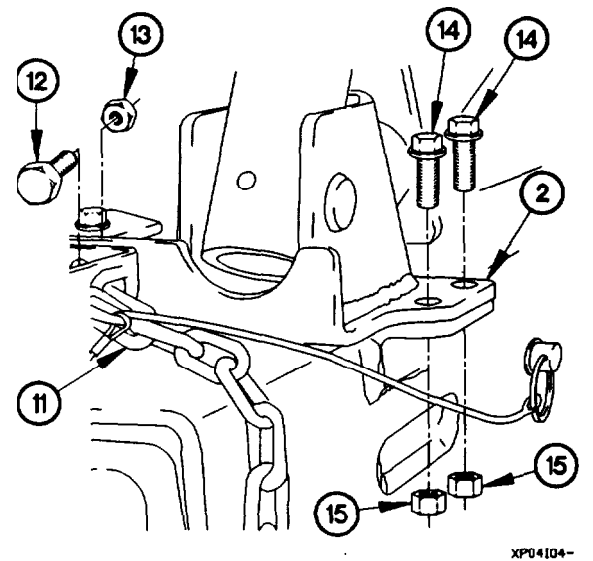
Spare tire retainer weighs approximately 150 lbs (68 kgs). The aid of two assistants is required to install spare tire retainer on vehicle. Failure to comply may result in injury to personnel.

- (3) Position spare tire retainer (2) on vehicle.



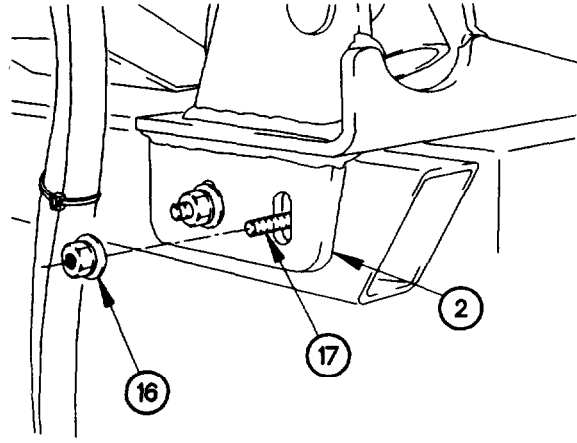
- (4) Position clamp (8) on spare tire retainer (2) with screw (9) and self-locking nut (10).
- (5) Tighten self-locking nut (10) to 87-107 lb-in. (10-12 N•m).

- (6) Position chain (11) on spare tire retainer (2) with screw (12) and self-locking nut (13).
- (7) Tighten self-locking nut (13) to 43-52 lb-ft (58-71 N•m).
- (8) Position two screws (14) and self-locking nuts (15) in spare tire retainer (2).
- (9) Tighten two self-locking nuts (15) to 43-52 lb-ft (58-71 N•m).



14-5. TIRE RETAINER REPLACEMENT/REPAIR (CONT)

- (10) Position two self-locking nuts (16) and screws (17) in spare tire retainer (2).
- (11) Tighten two self-locking nuts (16) to 43-52 lb-ft (58-71 N•m).



XP04105-

- (12) Position two screws (18) and self-locking nuts (19) in spare tire retainer (2).
- (13) Tighten two self-locking nuts (19) to 43-52 lb-ft (58-71 N•m).
- (14) Position screw (20) and self-locking nut (21) in spare tire retainer (2).

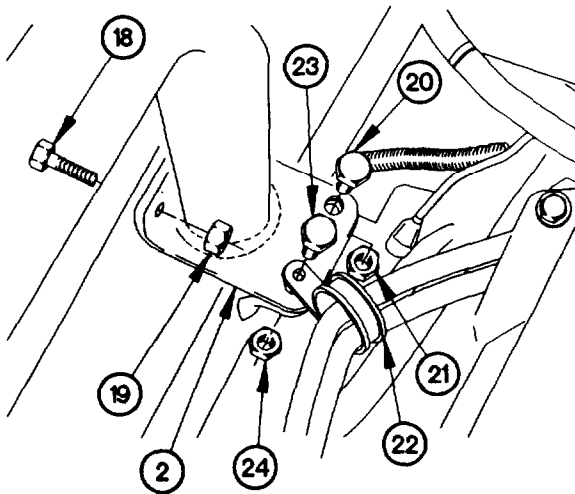
NOTE

Perform step (15) on vehicle serial number 3092 and higher, and vehicle serial numbers 0001 through 3091 that have previously had a spare tire retainer or fuel hose replaced.

- (15) Position clamp (22) on spare tire retainer (2) with screw (23) and self-locking nut (24).

NOTE

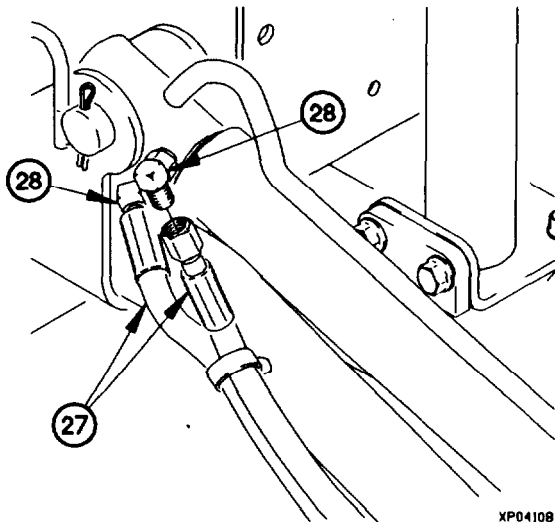
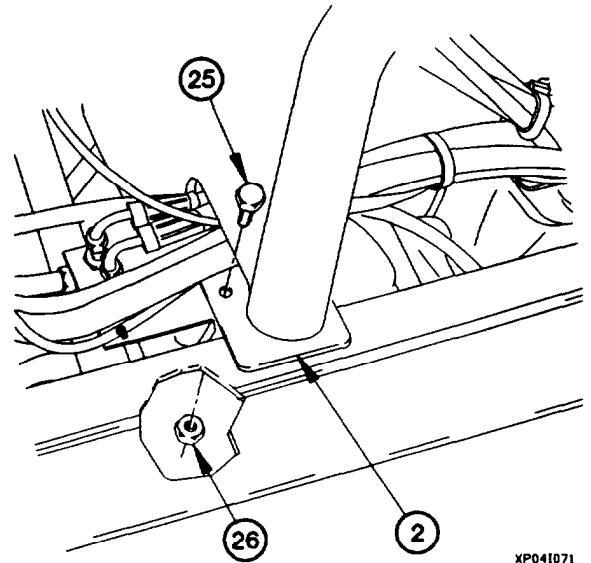
Perform step (16) on vehicle serial numbers 0001 through 3091 that have not previously had a spare tire retainer or fuel hose replaced.



XP041061

- (16) Position screw (23) and self-locking nut (24) in spare tire retainer (2).
- (17) Tighten self-locking nuts (21 and 24) to 43-52 lb-ft (58-71 N•m).

- (18) Position two screws (25) and self-locking nuts (26) in spare tire retainer (2).
- (19) Tighten two self-locking nuts (26) to 43-52 lb-ft (58-71 N•m).



WARNING

Hydraulic fluid (MIL-H-5606A) is TOXIC. Wear protective goggles and gloves; use only in well ventilated area; avoid contact with skin, eyes, and clothes. Skin and clothing that come in contact with hydraulic oil should be washed immediately. Saturated clothing should be removed immediately. Failure to comply may result in injury to personnel.

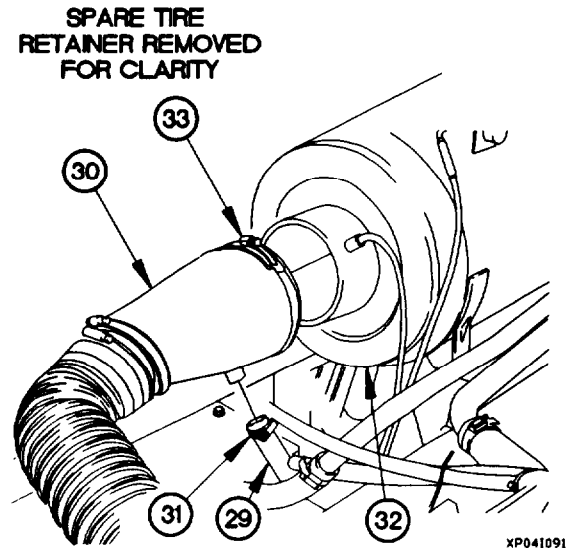
NOTE

Install plastic cable ties as required.

- (20) Connect two hydraulic hoses (27) to 90-degree fittings (28).

14-5. SPARE TIRE RETAINER REPLACEMENT/REPAIR (CONT)

- (21) Position air compressor intake hose (29) on intake air cleaner boot (30) with clamp (31).
- (22) Position intake air cleaner boot (30) on intake air cleaner housing (32) with clamp (33).
- (23) Tighten clamps (31 and 33) to 36-48 lb-in. (4-5 N•m).



e. Follow-On Maintenance.

- (1) Install 200 amp reverse polarity relay, if equipped (M1081 only) (para 20-58).
- (2) Install 100 amp reverse polarity relay, if equipped (para 7-27).
- (3) Install shunt (para 7-26).
- (4) Install ether starting aid (para 4-15).
- (5) Install air hydraulic power unit and bracket (para 19-3).
- (6) Install cab leveling valve (para 16-8).
- (7) Install tool box (para 16-16).
- (8) Install hydraulic manifold (para 19-4).
- (9) Lower cab (TM 9-2320-365-10).
- (10) Install spare tire (TM 9-2320-365-10).

End of Task.

CHAPTER 15 SUSPENSION SYSTEM MAINTENANCE

Section I. INTRODUCTION	15-1
15-1. INTRODUCTION	15-1
Section II. MAINTENANCE PROCEDURES	15-2
15-2. RESILIENT MOUNT AND MECHANICAL STOP REPLACEMENT	15-2
15-3. FRONT AXLE SHOCK ABSORBER REPLACEMENT	15-4
15-4. REAR AXLE SHOCK ABSORBER REPLACEMENT	15-6
15-5. REAR STABILIZER BAR REPLACEMENT/REPAIR	15-7

Section I INTRODUCTION

15-1. INTRODUCTION

This chapter contains maintenance instructions for replacing and repairing suspension system components authorized by the Maintenance Allocation Chart (MAC) at the Unit Maintenance level.

Section II. MAINTENANCE PROCEDURES

15-2. RESILIENT MOUNT AND MECHANICAL STOP REPLACEMENT

This task covers:

- | | |
|---------------------------------|---|
| a. Mechanical Stop Removal | e. Front Angle Bracket Resilient Mount Removal |
| b. Mechanical Stop Installation | f. Front Angle Bracket Resilient Mount Installation |
| c. Resilient Mount Removal | g. Follow-On Maintenance |
| d. Resilient Mount Installation | |

INITIAL SETUP

Equipment Conditions

Engine shut down (TM 9-2320-365-10).
Cab raised (for front angle bracket resilient mount) (TM 9-2320-365-10).

Tools and Special Tools

Goggles, Industrial (Item 15, Appendix C)
Tool Kit, Genl Mech (Item 44, Appendix C)
Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)

Tools and Special Tools (Cont)

Crowfoot Attachment, Socket Wrench (Item 5, Appendix B)
Vise, Machinist (Item 46, Appendix C)

Materials/Parts

Nut, Self-Locking (2) (Item 144, Appendix G)
Washer, Spring (Item 276, Appendix G)
Washer, Spring (Item 280, Appendix G)

WARNING

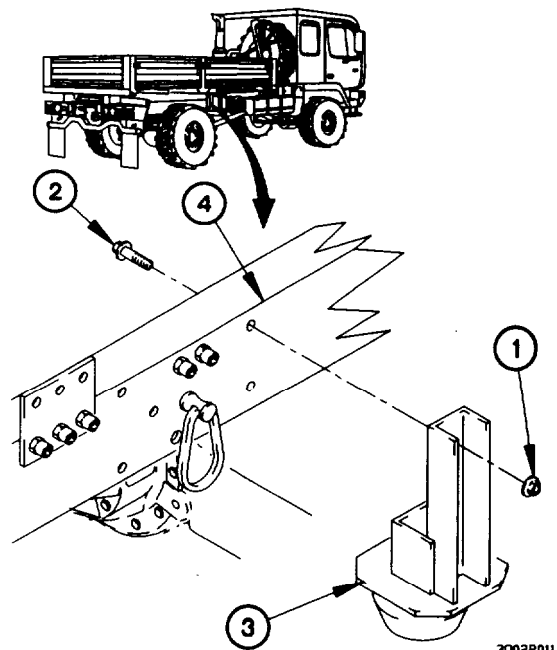
Wear appropriate eye protection when working under vehicle due to the possibility of falling debris. Failure to comply may result in injury to personnel.

a. Mechanical Stop Removal.

NOTE

Both mechanical stops are removed the same way. Right rear side shown.

Remove two self-locking nuts (1), bolts (2), and mechanical stop (3) from frame (4). Discard self-locking nuts.



b. Mechanical Stop Installation.

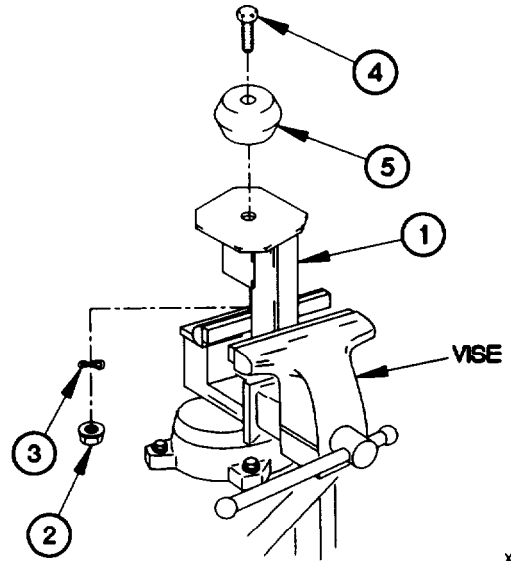
NOTE

Both mechanical stops are installed the same way. Right rear side shown.

- (1) Position mechanical stop (3) on frame (4) with two bolts (2) and self-locking nuts (1).
- (2) Tighten two self-locking nuts (1) to 118-148 lb-ft (160-201 N•m).

c. Resilient Mount Removal.

- (1) Position mechanical stop (1) in vise.
- (2) Remove nut (2), spring washer (3), bolt (4), and resilient mount (5) from mechanical stop (1). Discard spring washer.



d. Resilient Mount Installation.

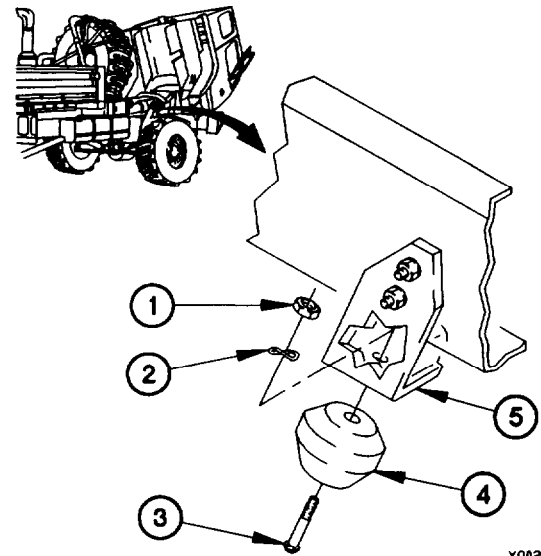
- (1) Position resilient mount (5) on mechanical stop (1) with bolt (4), spring washer (3), and nut (2).
- (2) Tighten nut (2) to 35-46 lb-ft (47-63 N•m).
- (3) Remove mechanical stop (1) from vise.

e. Front Angle Bracket Resilient Mount Removal.

NOTE

Left and right side front angle bracket resilient mounts are removed the same way. Right side shown.

Remove nut (1), spring washer (2), bolt (3), and resilient mount (4) from front angle bracket (5). Discard spring washer.



f. Front Angle Bracket Resilient Mount Installation.

NOTE

Left and right side front angle bracket resilient mounts are installed the same way. Right side shown.

- (1) Position resilient mount (4) on front angle bracket (5) with bolt (3), spring washer (2), and nut (1).
- (2) Tighten nut (5) to 35-46 lb-ft (47-63 N•m).

g. Follow-On Maintenance.

Lower cab (for front angle bracket resilient mount only)
(TM 9-2320-365-10).

End of Task.

15-3. FRONT AXLE SHOCK ABSORBER REPLACEMENT

This task covers:

- a. Removal
- b. Installation
- c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Engine shut down (TM 9-2320-365-10).
Cab raised (TM 9-2320-365-10).

Tools and Special Tools (Cont)

Goggles, Industrial (Item 15, Appendix C)
Wrench Set, Socket (Item 48, Appendix C)

Tools and Special Tools

Tool Kit, Genl Mech (Item 44, Appendix C)
Wrench, Torque, 0-600 lb-ft (Item 59, Appendix C)

Materials/Parts

Nut, Self-Locking (Item 144, Appendix G)
Nut, Self-Locking (Item 145, Appendix G)

WARNING

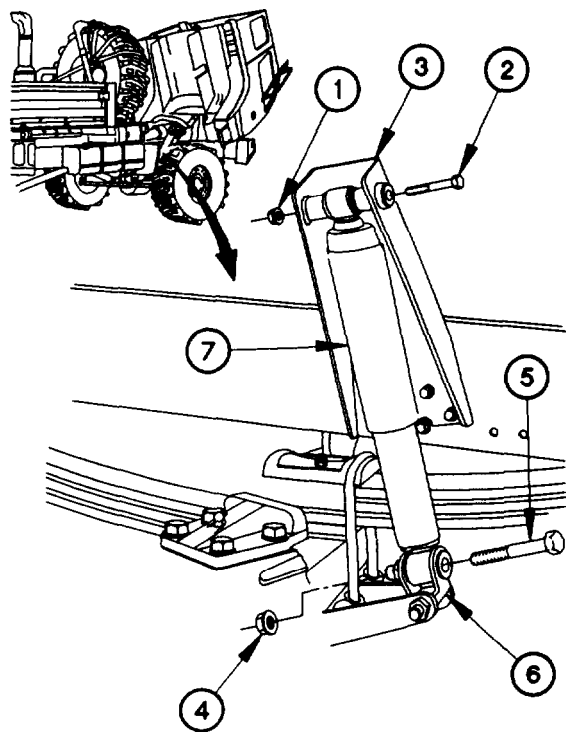
Wear appropriate eye protection when working under vehicle due to the possibility of falling debris. Failure to comply may result in injury to personnel.

a. Removal.

- (1) Remove self-locking nut (1) and screw (2) from upper bracket (3). Discard self-locking nut.
- (2) Remove self-locking nut (4) and screw (5) from lower bracket (6). Discard self-locking nut.
- (3) Remove shock absorber (7) from upper bracket (3) and lower bracket (6).

b. Installation.

- (1) Position shock absorber (7) in upper bracket (3) with screw (2) and self-locking nut (1).
- (2) Extend or compress shock absorber (7) length to align with holes in lower bracket (6).
- (3) Position shock absorber (7) in upper bracket (2) with screw (5) and self-locking nut (4).
- (4) Tighten self-locking nut (1) to 200-236 lb-ft (271-320 N•m).
- (5) Tighten screw (5) to 296-370 lb-ft (401-502 N•m).



X003R01A

c. Follow-On Maintenance.

Lower cab (TM 9-2320-365-10).

End of Task.

15-4. REAR AXLE SHOCK ABSORBER REPLACEMENT

This task covers:

a. Removal

b. Installation

INITIAL SETUP

Equipment Conditions

Engine shut down (TM 9-2320-365-10).

Tools and Special Tools

Goggles, Industrial (Item 15, Appendix C)
 Tool Kit, Genl Mech (Item 44, Appendix C)
 Wrench, Torque, 0-600 lb-ft (Item 59, Appendix C)

Tools and Special Tools (Cont)

Socket Set, Impact (Item 33, Appendix C)
 Wrench Set, Socket (Item 48, Appendix C)

Materials/Parts

Nut, Self-Locking (2) (Item 144, Appendix G)

WARNING

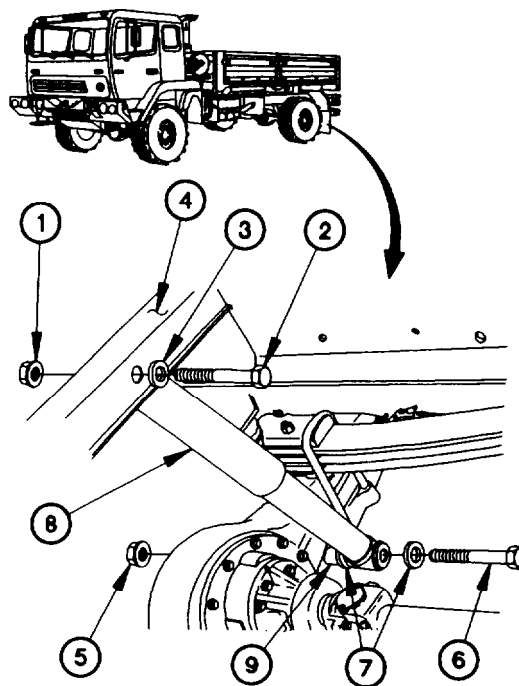
Wear appropriate eye protection when working under vehicle due to the possibility of falling debris. Failure to comply may result in injury to personnel.

a. Removal.

- (1) Remove self-locking nut (1), bolt (2), and washer (3) from upper bracket (4). Discard self-locking nut.
- (2) Remove self-locking nut (5), bolt (6), two washers (7), and shock absorber (8) from lower bracket (9). Discard self-locking nut.

b. Installation.

- (1) Position shock absorber (8) in upper bracket (4) with washer (3), bolt (2), and self-locking nut (1).
- (2) Extend or compress shock absorber (8) length to align with holes in lower bracket (9).
- (3) Position shock absorber (8) in lower bracket (9) with two washers (7), bolt (6), and self-locking nut (5).
- (4) Tighten self-locking nut (1) to 196-240 lb-ft (265-325 N•m).
- (5) Tighten bolt (6) to 373-454 lb-ft (505-615 N•m).



3004R91A

End of Task.

15-5. REAR STABILIZER BAR REPLACEMENT/REPAIR

This task covers:

- a. Removal
- b. Disassembly
- c. Inspection
- d. Assembly
- e. Installation
- f. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

Engine shut down (TM 9-2320-365-10).

Tools and Special Tools

- Goggles, Industrial (Item 15, Appendix C)
- Tool Kit, Genl Mech (Item 44, Appendix C)
- Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)
- Trestle, Motor Vehicle Maintenance (2) (Item 45, Appendix C)
- Wrench, Torque, 0-600 lb-ft (Item 59, Appendix C)

Tools and Special Tools (Cont)

- Socket, Socket Wrench (Item 68, Appendix B)
- Wrench Set, Socket (Item 48, Appendix C)

Materials/Parts

- Nut, Self-Locking (4) (Item 145, Appendix G)
- Nut, Self-Locking (4) (Item 144, Appendix G)

Personnel Required

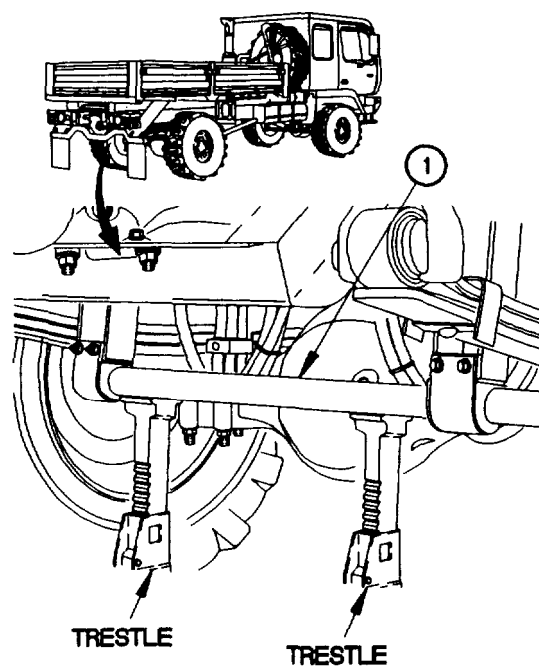
(2)

WARNING

Wear appropriate eye protection when working under vehicle due to the possibility of falling debris. Failure to comply may result in injury to personnel.

a. Removal.

- (1) Position trestles under rear stabilizer bar (1).



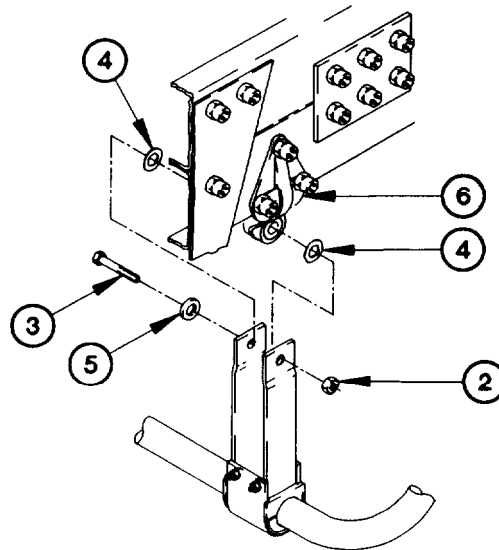
3005R01A

15-5. REAR STABILIZER BAR REPLACEMENT/REPAIR (CONT)

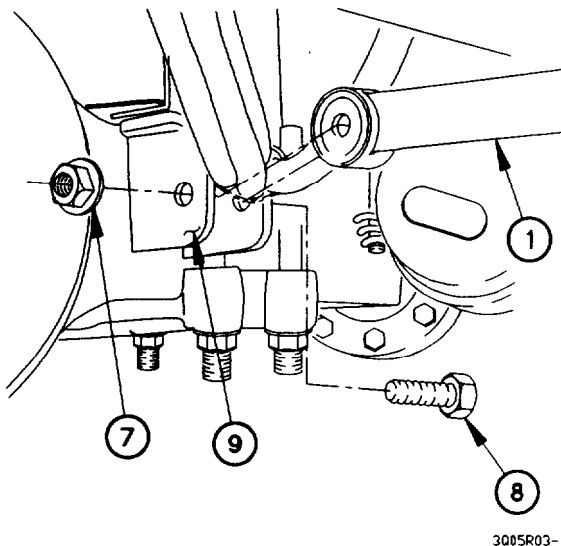
NOTE

Both rear stabilizer bar attachments are removed the same way. Right side shown.

- (2) Remove self-locking nut (2), bolt (3), two washers (4), and washer (5) from frame bracket (6). Discard self-locking nut.



3005R02-



3005R03-

- (3) Remove self-locking nut (7) and bolt (8) from axle bracket (9). Discard self-locking nut.
- (4) Perform steps (2) and (3) on left side rear stabilizer bar attachments.

WARNING

Rear stabilizer bar weighs approximately 50 lbs (22 Kg). Rear stabilizer bar must be supported during removal. Failure to comply may result in serious injury to personnel or damage to equipment.

NOTE

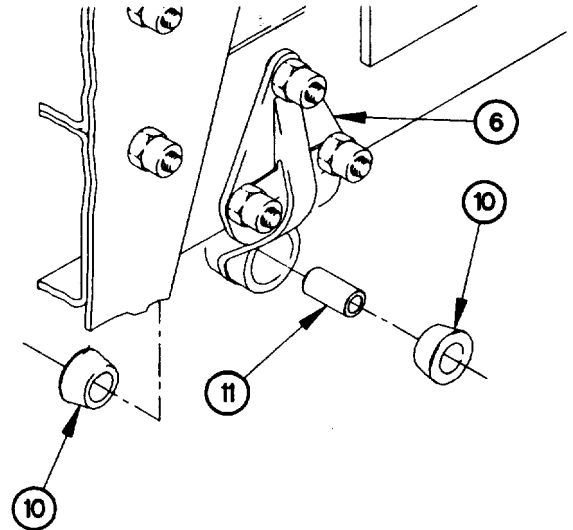
Step (5) requires the aid of an assistant.

- (5) Remove rear stabilizer bar (1) from vehicle.

NOTE

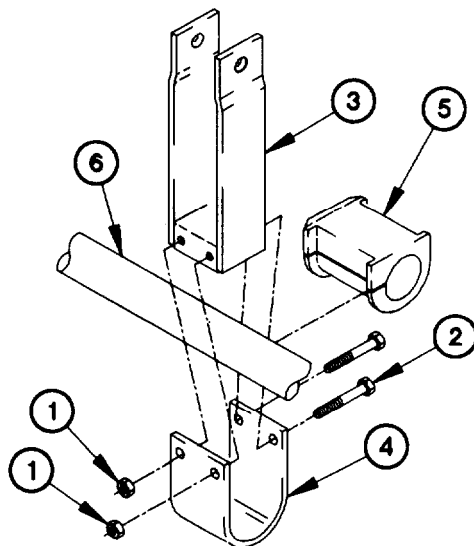
Left and right grommets and sleeves are removed the same way. Right side shown.

- (6) Remove two grommets (10) and sleeve (11) from frame bracket (6).



3Q05R04-

b. Disassembly.



3Q05D01A

NOTE

Left and right bracket assemblies are removed the same way. Right side shown.

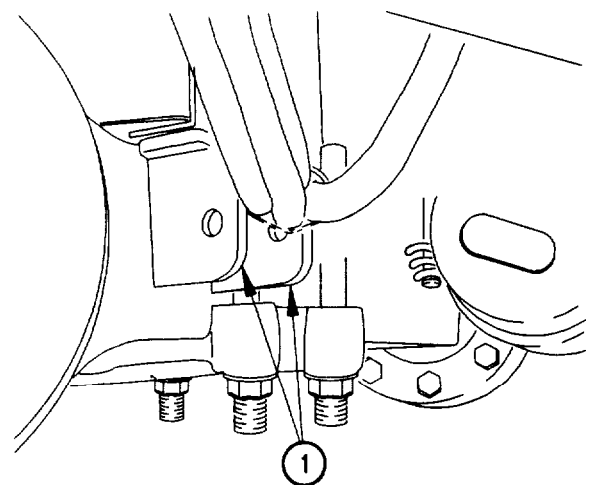
- (1) Remove four self-locking nuts (1), screws (2), and two bracket assemblies (3) from brackets (4). Discard self-locking nut.
- (2) Remove bracket (4) from resilient mount (5).
- (3) Remove resilient mount (5) from rear stabilizer bar (6).
- (4) Perform steps (1) through (3) on left side bracket assembly.

c. Inspection.

NOTE

- If axle brackets fail visual inspection, notify DS Maintenance.
- Replace any part that fails visual inspection.
- Perform step (1) on both sides of vehicle.

- (1) Inspect axle brackets (1) and welds around axle brackets for cracks and corrosion.

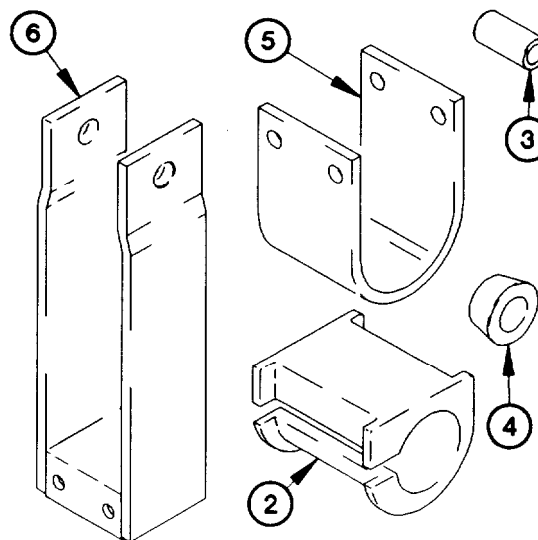


XQ05N01-

15-5. REAR STABILIZER BAR REPLACEMENT/REPAIR (CONT)

- (2) Inspect two resilient mounts (2) for cracks, breaks, or deterioration.
- (3) Inspect sleeves (3) for cracks, breaks, or deterioration.
- (4) Inspect grommets (4) for cracks, breaks, or deterioration.
- (5) Inspect brackets (5) for cracks, breaks, or corrosion.
- (6) Inspect brackets (6) for cracks, breaks, or corrosion.

d. Assembly.



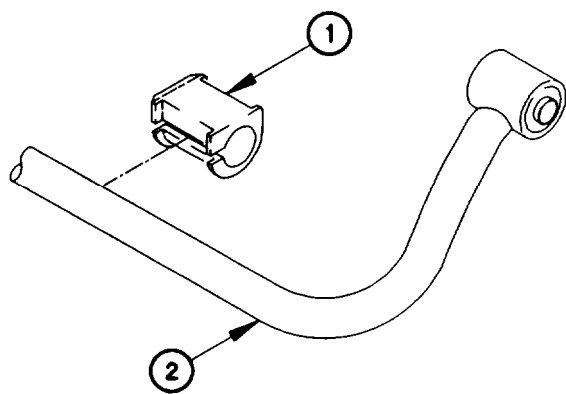
3005N02A

NOTE

Assembly of the stabilizer bar is the same for both sides. Left side shown.

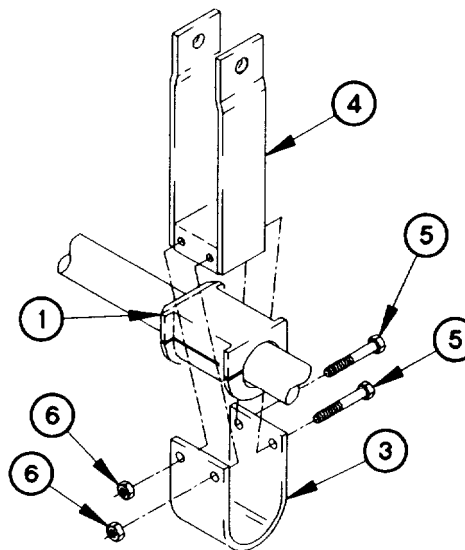
Left and right sides of stabilizer bar is assembled the same way. Right side shown.

- (1) Install resilient mount (1) on rear stabilizer bar (2).



3005A01-

- (2) Install two bracket (3) on resilient mounts (1).
- (3) Position bracket assembly (4) on bracket (3) with two screws (5) and self-locking nuts (6).
- (4) Perform steps (1) through (3) on left side of stabilizer bar.



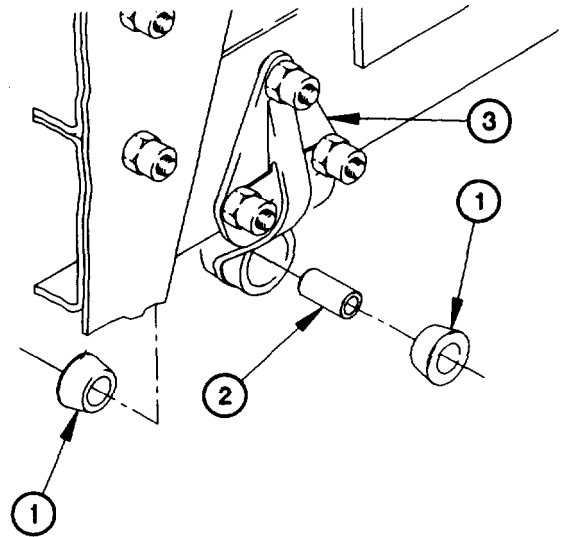
3005A02-

e. Installation.

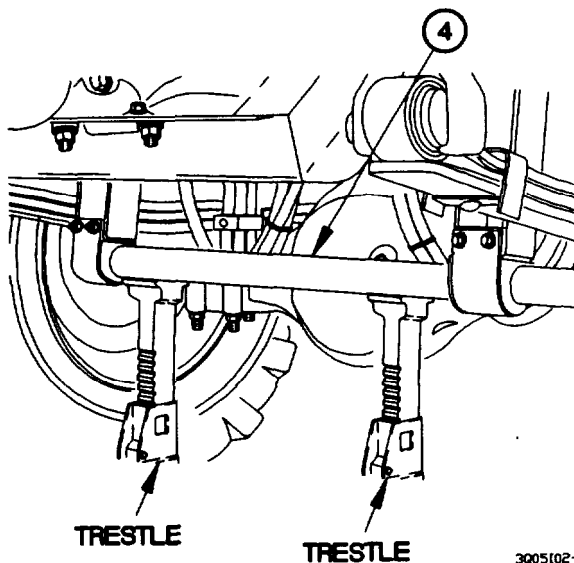
NOTE

Left and right grommets and sleeves are installed the same way. Right side shown.

- (1) Install two grommets (1) and sleeve (2) in frame bracket (3).



3005101-



3005102-

WARNING

Rear stabilizer bar weighs approximately 50 lbs (22 Kg). Rear stabilizer bar must be supported during installation. Failure to comply may result in serious injury to personnel or damage to equipment.

NOTE

Step (2) requires the aid of an assistant.

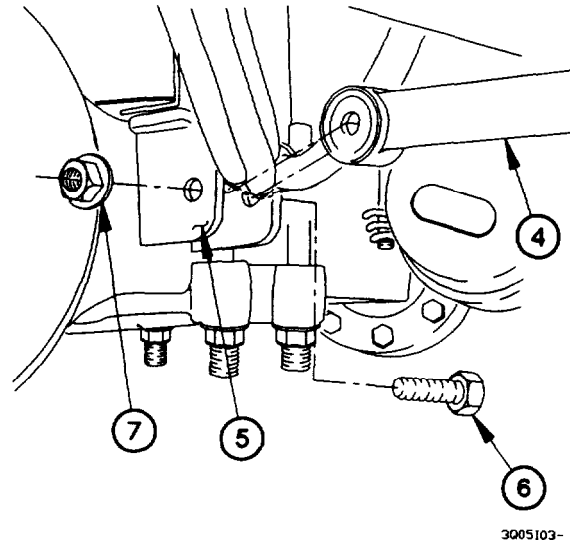
- (2) Position rear stabilizer bar (4) under vehicle and support with trestles.

15-5. STABILIZER BAR REPLACEMENT/REPAIR (CONT)

NOTE

Both rear stabilizer bar attachments are installed the same way. Right side shown.

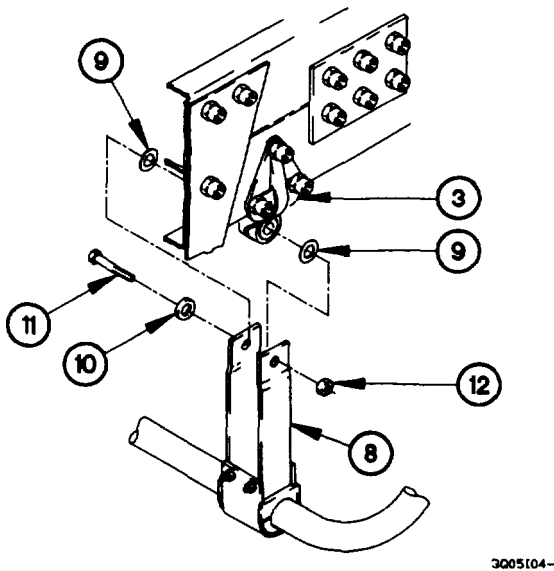
- (3) Position rear stabilizer bar (4) in axle bracket (5) with bolt (6) and self-locking nut (7).



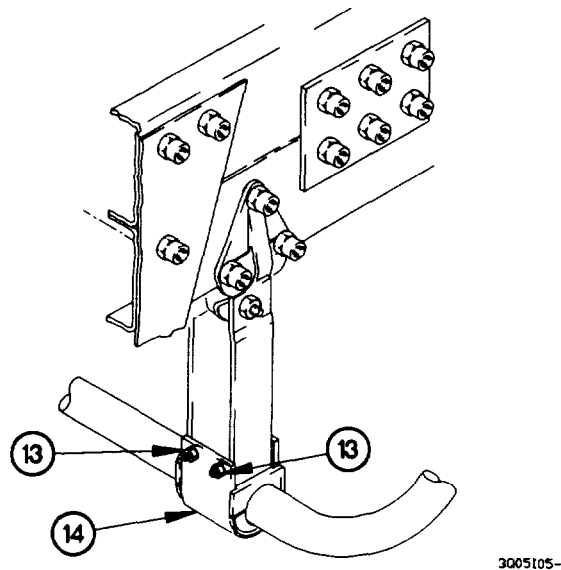
NOTE

Bracket assembly may require adjustment to align with frame bracket.

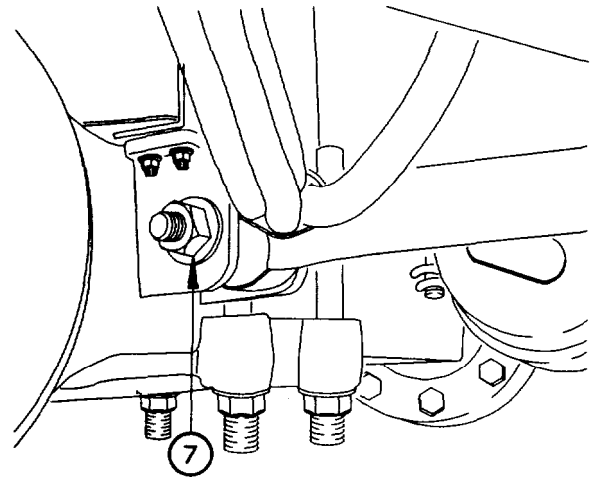
- (4) Position bracket assembly (8) on frame bracket (3) with two washers (9), washer (10), bolt (11) and self-locking nut (12).



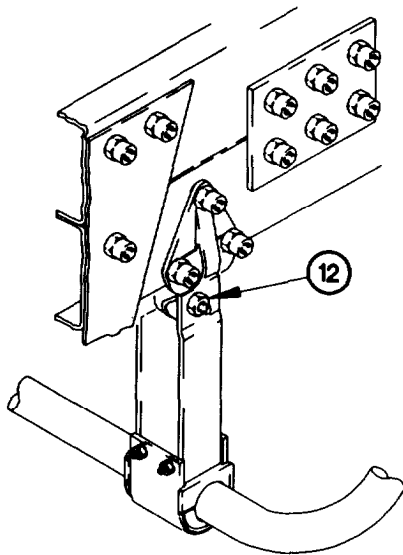
- (5) Tighten two self-locking nuts (13) on brackets (14) to 74-89 lb-ft (100-121 N•m).



- (6) lighten self-locking nut (7) to 70-100 lb-ft (95-136 N•m).



3005106-



3005107-

- (7) Tighten self-locking nut (12) to 359-446 lb-ft (487-605 N•m).
- (8) Perform steps (3) through (7) on right side rear stabilizer bar attachments.
- (9) Remove trestles from under vehicle.

f. Follow-On Maintenance.

Operate vehicle, checking for normal operation (TM 9-2320-365-10).

End of Task.

APPENDIX A REFERENCES

A-1. SCOPE

This appendix lists all forms, field manuals, technical manuals, and other publications referenced in this manual. Those publications that should be consulted for additional information about vehicle operations are also listed.

A-2. PUBLICATIONS INDEX

The following index should be consulted frequently for latest changes or revisions and for new publications relating to material covered in this technical manual.

Consolidated Index of Army Publications and Blank Forms DA Pam 25-30

A-3. FORMS

The following forms pertain to this manual. See DA Pam 25-30 for index of blank forms. See DA Pam 738-750, The Army Maintenance Management System (TAMMS), for instructions on the use of maintenance forms pertaining to this material.

Equipment Control Record DA Form 2408-9
 Equipment Inspection and Maintenance Worksheet DA Form 2404
 Maintenance Request DA Form 2407
 Packaging Improvement Report DD Form 6
 Processing and Deprocessing Record of Shipping, Storage, and Issue of Vehicles and
 Spare Engines DD Form 1397
 Product Quality Deficiency Report SF 368
 Recommended Changes to DA Publications and Blank Forms DA Form 2028-2
 Report of Item Discrepancy (ROID) SF 364

A-4. OTHER PUBLICATIONS

The following publications contain information pertinent to the LMTV and associated equipment.

a. Safety.

First Aid for Soldiers.. FM 21-11
 Security of Tactical Wheeled Vehicles TB 9-2300-422-20
 Safety Inspection and Testing of Lifting Devices TB 43-0142

A-4. OTHER PUBLICATIONS (CONT)

b. LMTV.

Direct Support and General Support Maintenance Manual for M1078 Series, 2 1/2-Ton, 4x4, Light Medium Tactical Vehicle (LMTV) TM 9-2320-365-34

Hand Receipt Covering Contents of Components of End Item (COEI), Basic Issue Items (BI), and Additional Authorization List (AAL), for M1078 Series, 2 1/2-Ton, 4x4, Light Medium Tactical Vehicles (LMTV) TM 9-2320-365-10-HR

Operator's Manual for M1078 Series, 2 1/2-Ton, 4x4, Light Medium Tactical Vehicle (LMTV) TM 9-2320-365-10

Unit, Direct Support, and General Support Repair Parts and Special Tools List for M1078 Series, 2 1/2-Ton, 4x4, Light Medium Tactical Vehicle (LMTV) TM 9-2320-365-34P

Warranty Program for M1078 Series, 2 1/2-Ton, 4x4, Light Medium Tactical Vehicle (LMTV) TB 9-2300-365-15

c. General Vehicle Operation.

Army Motor Transport Units and Operations FM 55-30

Deepwater Fording of Ordnance Material TM 9-238

Manual for the Wheeled Vehicle Driver FM 21-305

Safety Prevention of Motor Vehicle Accidents AR 385-55

Vehicle Recovery Operations FM 20-22

d. General Maintenance and Repair.

Army Gil Analysis Program TB 43-0211

Camouflage Pattern Painting FM 5-20

Charging System Troubleshooting DA Pam 750-33

Color, Marking, and Camouflage Painting of Military Vehicles TB 43-0209

Cooling Systems: Tactical Vehicles TM 750-254

Corrosion Prevention and Control Including Rustproofing Procedures for Tactical Vehicles and Trailers TB 43-0213

Description, Use, Bonding Techniques, and Properties of Adhesives TB ORD 1032

Equipment Improvement Report and Maintenance Digest: TACOM Equipment TB 43-0001-39-1

Equipment Improvement Report and Maintenance Summary TM 43-0143

Installation Instructions for Installation Kit, Electronic Equipment, MK-2700/VRC (NSN 5895-01-421-0814) (EIC: N/A) to Permit Installation of Radio Set AN/VRC-87/88/90 Series into M1078, M1080, M1081, M1083-M1086, M1088-M1094 and M1096 Family of Medium Tactical Vehicles TB 11-5820-890-20-101

Installation Instructions for Installation Kit, Electronic Equipment, MK-2715/VRC (NSN 5895-01-421-0812) (EIC: N/A) to Permit Installation of Radio Set AN/VRC-89/91/92 Series into M1078, M1080, M1081, M1083-M1086, M1088-M1094 and M1096 Family of Medium Tactical Vehicles TB 11-5820-890-20-92

Metal Body Repair and Related Operations FM 43-2

Materials Used for Cleaning, Preserving, Abrading, and Cementing Ordnance Materiel and Related Materials Including Chemicals TM 9-247

Operator's and Organizational Maintenance Manual for Radio Sets TM 11-5820-498-12

Operator's and Organizational Maintenance Manual Including Repair Parts and Special Tools List Simplified Test Equipment for Internal Combustion Engines Reprogrammable (STE/ICE-R) (NSN 4910-01-222-6589) TM 9-4910-571-12&P

Operator's Manual, Radio Set, AN/VRC-46 TM 11-5820-401-10-1

Operator's Manual, Radio Set, AN/VRC-90A TM 11-5820-890-10-1
 Operator's, Unit, Direct Support, and General Support Maintenance Manual
 for Lead-Acid Storage Batteries TM 9-6140-200-14
 Ordnance Tracked and Wheeled Vehicle Hull and Chassis Wiring, Repair of TB ORD 650
 Organizational Care, Maintenance, and Repair of Pneumatic Tires and Inner Tubes TM 9-2610-200-14
 Painting Instructions for Field Use TM 43-0139
 Purging, Cleaning, and Coating Interior Ferrous and Terne Sheet Vehicle Fuel Tanks TB 43-0212
 Repair of Tents, Canvas, and Webbing FM 10-16
 Rigging.. FM 5-125
 Use and Care of Hand Tools and Measuring Tools TM 9-243
 Use of Antifreeze Solutions and Cleaning Compounds in Engine Cooling Systems TB 750-651
 Welding Theory and Application TM 9-237

e. Cold Weather Operation.

Basic Cold Weather Manual FM 31-70
 Northern Operations FM 31-71
 Operation and Maintenance of Ordnance Materiel in Cold Weather (0° to -65°F) FM 9-207

f. Decontamination.

Decontamination Operations Facilities & Equipment TB 700-4
 NBC Protection FM 3-4
 NBC Decontamination FM 3-5

g. Maintenance of Special Purpose Kits.

Operator and Organizational Maintenance Manual for Chemical Alarm TM 3-6665-225-12
 Operator's and Unit Maintenance Manual Including Repair Parts and Special Tools
 List for Decontaminating Apparatus: M13 TM 3-4230-214-12&P
 Operator's, Organizational, Direct Support, and General Support Maintenance Manual
 Including Repair Parts and Special Tools List for Various Machine Gun Mounts TM 9-1005-245-14
 Operator's, Organizational, Direct Support, and General Support Maintenance
 Manual, Air Conditioner, Horizontal Compact, 18,000 BTU/HR, 208 Volt, 3 Phase,
 50/60 Hertz, Model F18H-3S TM 5-4120-384-14
 Unit and Direct Support Maintenance, Repair Parts and Special Tools List for
 Heater, Space, Multifuel with Blower, 60,000 BTU/HR, 120V, Model UH-68G,
 NSN 4520-01-203-4410, and Model UH-68GI, NSN 4520-01-297-6803 TM 5-4520-253-23P

h. General.

Operator's Manual (M998 Series) TM 9-2320-280-10
 Operator's Manual (M1008 Series) TM 9-2320-289-10
 Operator's Manual (M35 Series) TM 9-2320-361-10
 Operator's Manual (M939 Series) TM 9-2320-272-10
 Principles of Automotive Vehicles TM 9-8000
 Procedures for Destruction of Tank-Automotive Equipment to Prevent Enemy Use
 (US Army Tank-automotive and Armaments Command) TM 750-244-6
 Route Reconnaissance and Classification FM 5-36
 Soldier's Manual MOS 88M Motor Transport Operator, Skill Levels 1/2 STP 55-88-M12-SM

A-4. OTHER PUBLICATIONS (CONT)

i. Land, Sea, and Air Shipment.

Airdrop of Supplies and Equipment: Rigging 2 1/2-Ton Trucks FM 10-520
Containerization of Military Vehicles MTMCTEA Ref 95-55-23
Lifting and Tiedown of U.S. Military Helicopters MTMCTEA Ref 95-55-21
Marine Lifting and Lashing Handbook MTMCTEA Ref 95-55-22
Marine Terminal Lifting Guidance MTMCTEA Pam 56-1
Multiservice Helicopter External Air Transport: Basic Operations and Equipment FM 55-450-3
Multiservice Helicopter External Air Transport: Dual-Point Load Rigging Procedures FM 55-450-5
Multiservice Helicopter External Air Transport: Single-Point Load Rigging Procedures FM 55-450-4
Standard Characteristics (Dimensions, Weight, and Cube) for Transportability of Military
Vehicles and Other Outsize/Overweight Equipment (in TOE Line Sequence) TB 55-46-1
Tiedown Handbook for Rail Movements MTMCTEA Pam 55-19
Tiedown Handbook for Truck Movements MTMCTEA Ref 92-55-20

APPENDIX B MAINTENANCE ALLOCATION CHART (MAC)

SECTION I

INTRODUCTION

B-1. The Army Maintenance System MAC.

a. This introduction (Section I) provides a general explanation of all maintenance and repair functions authorized at various maintenance levels under the standard Army Maintenance System concept.

b. The Maintenance Allocation Chart (MAC) in Section II designates overall authority and responsibility for the performance of maintenance functions on the identified end item or component. The application of the maintenance functions to the end item or component will be consistent with the capacities and capabilities of the designated maintenance levels, which are shown on the MAC in column (4) as:

Unit - includes two subcolumns, C (Operator/Crew) and 0 (Unit) maintenance.

Direct Support - includes an F subcolumn.

General Support - includes an H subcolumn.

Depot - includes a D subcolumn.

c. Section III lists the tools and test equipment (both special tools and common tool sets) required for each maintenance function as referenced from Section II.

d. Section IV contains supplemental instructions and explanatory notes for a particular maintenance function.

B-2. Maintenance Functions. Maintenance functions are limited to and defined as follows:

a. **Inspect.** To determine the serviceability of an item by comparing its physical, mechanical, and/or electrical characteristics with established standards through examination (e.g. by sight, sound, or feel).

b. **Test.** To verify serviceability by measuring the mechanical, pneumatic, hydraulic, or electrical characteristics of an item and comparing those characteristics with prescribed standards.

c. **Service.** Operations required periodically to keep an item in proper operating condition; e.g. to clean (includes decontaminate, when required), to preserve, to drain, to paint, or to replenish fuel, lubricants, chemicals fluids, or gases.

d. **Adjust.** To maintain or regulate, within prescribed limits, by bringing into proper position, or by setting the operating characteristics to specified parameters.

e. **Align.** To adjust specified variable elements of an item to bring about optimum or desired performance.

f. **Calibrate.** To determine and cause corrections to be made or to be adjusted on instruments or Test, Measurement, and Diagnostic Equipment (TMDE) used in precision measurement. Consists of comparison of two instruments, one of which is a certified standard of known accuracy, to detect and adjust any discrepancy in the accuracy of the instrument being compared.

g. **Remove/Install.** To remove and install the same item when required to perform service or other maintenance functions. Install may be the act of emplacing, seating, or fixing into position a spare, repair part, or module (component or assembly) in a manner to allow the proper functioning of an equipment or system.

h. **Replace.** To remove an unserviceable item and install a serviceable counterpart in its place. "Replace" is authorized by the MAC and assigned maintenance level is shown as the 3d position code of the SMR code.

i. **Repair.** The application of maintenance services¹ including fault location/troubleshooting², removal/installation, and disassembly/assembly³ procedures, and maintenance actions⁴ to identify troubles and restore serviceability to an item by correcting specific damage, fault, malfunction, or failure in a part, subassembly, module (component or assembly), end item, or system.

j. **Overhaul.** That maintenance effort (service/action) prescribed to restore an item to a completely serviceable/operational condition as required by maintenance standards in appropriate technical publications (i.e., DMWR). Overhaul is normally the highest degree of maintenance performed by the Army. Overhaul does not normally return an item to like new condition.

k. **Rebuild.** Consists of those services/actions necessary for the restoration of unserviceable equipment to a like new condition in accordance with original manufacturing standards. Rebuild is the highest degree of material maintenance applied to Army equipment. The rebuild operation includes the act of returning to zero those age measurements (e.g., hours/miles) considered in classifying Army equipment/components.

B-3. Explanation of Columns in the MAC, Section II.

a. **Column 1, Group Number.** Column 1 lists functional group code numbers, the purpose of which is to identify maintenance significant components, assemblies, subassemblies, and modules with the next higher assembly.

b. **Column 2, Component/Assembly.** Column 2 contains the item names of components, assemblies, subassemblies, and modules for which maintenance is authorized.

c. **Column 3, Maintenance Function.** Column 3 lists the functions to be performed on the items listed in Column 2. (For detailed explanation of these functions, see Paragraph B-2.)

d. **Column 4, Maintenance Level.** Column 4 specifies each level of maintenance authorized to perform each function listed in Column 3, by indicating work time required (expressed in man-hours in whole hours or decimals) in the appropriate subcolumn. This work-time figure represents the active time required to perform that maintenance function at the indicated level of maintenance. If the number or complexity of the tasks within the listed maintenance function vary at different maintenance levels, appropriate work-time figures are to be shown for each level. The work-time figure represents the average time required to restore an item (assembly, subassembly, component, module, end item, or system) to a serviceable condition under typical field operating conditions.

¹ Services - Inspect, test, service, adjust, align calibrate, and/or replace.

²Fault location/troubleshooting - The process of investigating and detecting the cause of equipment malfunction; the act of isolating a fault within a system or Unit Under Test (UUT).

³Disassembly/assembly - The step-by-step breakdown (taking apart) of a spare/functional group coded item, to the level of its least component, that is assigned an SMR code for the level of maintenance under consideration (i.e., identified as maintenance significant).

⁴Actions - Welding, grinding, riveting, straightening, facing, machining, and/or resurfacing.

This time includes preparation time (including any necessary disassembly/assembly time), troubleshooting/fault location time, and quality assurance time in addition to the time required to perform the specific tasks identified for the maintenance functions authorized in the maintenance allocation chart. The symbol designations for the various maintenance levels are as follows:

- C Operator or crew maintenance
- O Unit maintenance
- F Direct Support maintenance
- L Specialized Repair Activity (SRA) ⁵
- H General Support maintenance
- D Depot maintenance

e. **Column 5, Tools and Test Equipment Reference Code.** Column 5 specifies, by code, those common tools sets (not individual tools), common TMDE, and special tools, special TMDE, and special support equipment required to perform the designated functions. Codes are keyed to tools and test equipment in Section III.

f. **Column 6, Remarks.** When applicable, this column contains a letter code, in alphabetical order, which is keyed to the remarks contained in Section IV.

B-4. Explanation of Columns in Tool and Test Equipment Requirements, Section III.

- a. **Column 1, Reference Code.** The tool and test equipment reference code correlates with a code used in the MAC, Section II column 5.
- b. **Column 2, Maintenance Level.** The lowest level of maintenance authorized to use the tool or test equipment.
- c. **Column 3, Nomenclature.** Name or identification of the tool or test equipment.
- d. **Column 4, National Stock Number.** The National Stock Number of tool or test equipment.
- e. **Column 5, Tool Number.** The manufacturer's part number, model number, or type number.

B-5. Explanation of Columns in Remarks, Section IV.

- a. **Column 1, Remarks Code.** The code recorded in column 6, Section II.
- b. **Column 2, Remarks.** This column lists information pertinent to the maintenance function being performed as indicated in the MAC, Section II.

⁵ This maintenance level is not included in Section II, Column (4) of the Maintenance Allocation Chart. Functions to this level of maintenance are identified by a work-time figure in the "H" column of Section II, Column (4), and an associated reference code is used in the Remarks column (6). This code is keyed to Section IV, Remarks, and the SRA complete repair application is explained there.

Section II. MAINTENANCE ALLOCATION CHART FOR THE LMTV VEHICLE (CONT)

(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Level					(5) Tools and Equipment Ref Code	(6) Remarks Code
			Unit		Direct Support	General Support	Depot		
			C	O	F	H	D		
0100	ENGINE ASSEMBLY	Inspect		0.1				78	
		Test		1.5	0.3			78,79	
		Adjust			3.0			56,60,78, 80	
		Service Replace		0.8	7.0			57,59,78, 16,56,59, 61,78,79	
		Repair		0.4	1.6	3.3		16,31,32, 44,56,59, 60,61,78, 79	
0101	CYLINDER HEAD ASSEMBLY	Inspect			0.1			78	
		Replace			2.0			44,56,59, 60,78	
		Repair				2.5		56,59,60, 61,62,78, 81	
0102	CRANKSHAFT	Replace				16.0		56,57,60, 71,78	
		Repair			3.8	16.0		16,31,32, 56,59,60, 61,78	
0103	FLEXPLATE, ENGINE	Replace			6.5			56,59,78	
		Repair			1.0			56,49,78	
0104	PISTON ASSEMBLY	Replace				9.0		56,57,59, 60,62,78, 79	
0105	CAMSHAFT ASSEMBLY	Repair				0.6		78	
		Replace				3.1		14,56,57, 49,60,78	
0105	ROCKER ARM AND PUSH RODS	Repair				1.2		56,78	
		Replace			2.0			44,59,60, 61,78	
0106	COOLER, ENGINE OIL	Repair			0.3			44,78	
		Replace			1.3			56,78	
		Repair			0.3			56,78	
0108	MANIFOLDS, INLET AND EXHAUST	Replace			1.5			56,60,61, 78,79	
0301	INJECTOR ASSEMBLY, FUEL	Replace			2.1			44,57,78, 80	
		Adjust			1.6			56,78,79, 80	
0304	AIR INTAKE SYSTEM	Service		0.3					
		Repair		0.3				46,57	

Section II. MAINTENANCE ALLOCATION CHART FOR THE LMTV VEHICLE (CONT)

(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Level					(5) Tools and Equipment Ref Code	(6) Remarks Code
			Unit		Direct Support	General Support	Depot		
			C	O	F	H	D		
0304	INTAKE AIR CLEANER	Service		0.2					
		Replace		0.8				6,46,57, 78	
		Repair		0.4				57,78	
0305	TURBOCHARGER	Replace			0.8			56,61,78, 79	
0306	FUEL TANK	Inspect	0.1						
		Replace		1.5				57,59,78,	
0308	GOVERNOR, ENGINE SPEED	Replace			1.0			57,60,76, 78,79	
		Repair		0.5	0.7			57,78	
		Inspect	0.2						
		Service	0.2	0.3				78	
		Replace		0.5				57,78	
0311	ETHER STARTING AID	Replace		0.6				57,59,78	
0312	ACCELERATOR/HAND THROTTLE	Replace		0.5				57,78	
		Adjust		0.2				57,78	
0401	EXHAUST MUFFLER/PIPES	Inspect	0.1	0.2					
		Replace		0.9				57,59,78	
0501	RADIATOR/CHARGE AIR COOLER	Inspect	0.1						
		Replace		2.5				2,27,53, 59,78	
		Service		1.5				59,79	
		Repair		0.6	2.0			2,27,53, 59,78	
0501	RADIATOR OVERFLOW TANK	Replace		0.5				46,57,78	
		Repair		0.3				78	
0502	SHROUD, FAN	Replace		1.0				57,59,78, 86	
0503	HOSES, WATER	Replace		0.5				57,59,78, 86	
0504	PUMP, WATER	Replace		0.8				15,57,59, 78,86	
0505	CLUTCH, ENGINE FAN	Inspect		1.0				57	
		Service		0.2				59	
		Replace		1.5				2,53,57, 78	
		Repair			1.2			56,59,60, 61,78,79	

Section II. MAINTENANCE ALLOCATION CHART FOR THE LMTV VEHICLE (CONT)

(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Level					(5) Tools and Equipment Ref Code	(6) Remarks Code
			Unit		Direct Support	General Support	Depot		
			C	O	F	H	D		
0601	ALTERNATOR, 100 AMP	Inspect		0.2					
		Test		0.5	1.5			59,63,78	
		Replace		1.0				59,78	
		Repair		0.2	0.5			38,56,57, 59,63,78, 79	
0603	STARTING MOTOR, ENGINE	Inspect		0.1					
		Test		0.5	0.5			57,63	
		Replace		1.5				2,9,57, 59,78	
		Repair			2.1			52,56,59, 60,76,78	
0606	SOLENOID, FUEL SHUTOFF	Replace			1.0			60,78,80	
0607	CABLE ASSEMBLY, DASHBOARD	Test		0.5				56	
		Replace		2.9				57,59,76, 78	
		Repair		1.0	0.6			56,57,61, 78	
0607	DISPLAY, LIGHTED INDICATOR	Test		0.3					
		Replace		0.5				78,86	
0609	LIGHT ASSEMBLY, BACKUP	Repair		0.3				78	
		Inspect	0.1						
0609	LIGHT, BLACKOUT DRIVE	Replace		0.8				57,78	
		Repair		0.3				78	
0609	TAILLIGHT ASSEMBLY, COMPOSITE	Inspect	0.1						
		Replace		0.8				57,59,78	
		Repair		0.5				78	
0609	LIGHT ASSEMBLY, FRONT TURN SIGNAL AND PARK	Inspect	0.1						
		Replace		0.8				57,59,78	
0609	HEADLIGHT	Repair		0.5				78	
		Inspect	0.1						
0610	AUDIBLE ALARM	Adjust		0.4				78	
		Replace		1.0				57,59,78	
0610	AUDIBLE ALARM	Inspect	0.1						
0611	HORN, CAB	Replace		0.6				78	
		Inspect	0.1						

Section II. MAINTENANCE ALLOCATION CHART FOR THE LMTV VEHICLE (CONT)

(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Level					(5) Tools and Equipment Ref Code	(6) Remarks Code
			Unit		Direct Support	General Support	Depot		
			C	O	F	H	D		
0612	BOX ASSEMBLY, BATTERY	Replace		0.4				57,78	
		Inspect	0.1						
		Test		0.5				57,78	
		Service		0.3				57	
		Replace		1.0				57,59,78	
0613	CABLE ASSEMBLY,LH/RH CAB AND DOOR MARKER LIGHTS	Repair		0.2				63	
		Inspect	0.1						
0613	CABLE ASSEMBLY,LOWER CAB MARKER LIGHTS, M1081	Replace		0.8				78	
		Repair		0.7				63	
		Inspect	0.1						
0613	CABLE ASSEMBLY,UPPER, CAB CLEARANCE AND MARKER LIGHTS, M1081	Replace		0.6				78,86	
		Repair		0.5				63	
		Inspect	0.1						
0613	CABLE ASSEMBLY, STE/ICE-R	Replace		0.8				78,86	
		Repair		0.5				63	
		Replace		1.0				78	
0613	CABLE ASSEMBLY, CAB CLEARANCE AND MARKER LIGHTS	Repair		0.5	0.8			63	
		Inspect	0.1						
0613	CABLE ASSEMBLY, WARNING LIGHT	Replace		1.2				57,78	
		Repair		0.5	0.8			63	
		Replace		0.5				48,78,86	
0613	CABLE ASSEMBLY, WINDSHIELD WASHER PUMP/EMI	Repair		0.3	0.5			63	
		Replace		0.5				78	
0613	CABLE ASSEMBLY, ENGINE CONTROL	Repair		0.3				63	
		Inspect	0.1						
0613	CABLE ASSEMBLY, FRONT INTERVEHICULAR, 12 VDC	Replace		2.3				57,78	
		Repair		0.5	0.5			63	
		Replace		0.8				59,78	
		Repair		0.2	1.3			63	

Section II. MAINTENANCE ALLOCATION CHART FOR THE LMTV VEHICLE (CONT)

(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Level				(5) Tools and Equipment Ref Code	(6) Remarks Code	
			Unit		Direct Support	General Support			Depot
			C	O	F	H			D
0613	CABLE ASSEMBLY,FRONT LIGHTS	Replace		2.0				57,59,78,86	
		Repair		0.5	0.5			63	
0613	CABLE ASSEMBLY, REAR LIGHTS	Replace		2.8				57,59,78	
		Repair		0.5	0.5			63	
0613	CABLE ASSEMBLY, PTO	Replace		1.6				57,59,78	
		Repair		0.5	0.8			63	
0613	CABLE ASSEMBLY,REAR INTERVEHICULAR,24 VDC	Replace		0.6				59,78	
		Repair		0.5	0.8			63	
0613	CABLE ASSEMBLY,START AND CHARGING	Replace		2.0				57,78	
		Repair		0.5	0.8			63	
0613	CABLE ASSEMBLY,WINCH CONTROL VALVE	Replace		1.8				57,59,78	
		Repair		0.5	0.8			63	
0705	WTEC II VEHICLE INTERFACE MODULE (VIM)	Replace		0.6				78	
		Repair		0.8				78	
0708	TORQUE CONVERTER	Adjust			0.9			18,59,60,78	
		Remove/Install			0.8			56,59,60,61,78	
		Repair			1.3			30,56,59,60,62,78	
0710	TRANSMISSION	Inspect		0.4				78	
		Service		1.5				57,59,78	
		Replace			7.0			56,59,60,61,78,79,84	
		Repair		0.4	2.7	1.9		3,18,19,24,25,27,41,56,57,59,60,61,78,79,84	
0710	MODULE,FRONT SUPPORT	Remove/Install				2.0		56,57,59,60,61,78	
		Repair				0.7		30,56,57,59,60,61,78	
0710	MODULE,PLANETARY GEAR (P1)	Remove/Install				2.0		59,60,71,78	

Section II. MAINTENANCE ALLOCATION CHART FOR THE LMTV VEHICLE (CONT)

(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Level					(5) Tools and Equipment Ref Code	(6) Remarks Code
			Unit		Direct Support	General Support	Depot		
			C	O	F	H	D		
0710	MODULE,PLANETARY (P2)	Repair					1.5	59,60,71, 78	
		Remove/ Install					2.0	3,56,59, 60,61,78	
		Repair					1.9	3,19,56, 59,60,61, 71,78	
0710	PLANETARY CARRIER (P3)	Remove/ Install					2.0	3,56,60 78	
		Repair					1.9	3,27,56, 60,78	
0710	MODULE,MAIN SHAFT	Remove/ Install					2.0	59,60,78	
		Repair					0.4	59,60,78	
0710	MODULE,CONVERTER HOUSING	Remove/ Install					4.3	3,56,57, 59,60,78	
		Repair					2.0	3,19,25, 56,57,59, 60,78	
0713	CLUTCH ASSEMBLY, C3/C4/C5,TRANSMISSION	Remove/ Install					2.0	56,57,59, 60,78	
		Repair					1.0	41,56,57, 59,60,78	
0713	MODULE,ROTATING CLUTCH	Remove/ Install					2.0	3,56,59, 60,78	
		Repair					2.4	3,19,24, 56,59,60, 78	
0714	VALVE ASSEMBLY, CONTROL MODULE	Remove/ Install					2.0	56,59,60, 61,78,79	
		Repair		1.0			2.5	59,61,78, 79	
0714	BODY ASSEMBLY,MAIN VALVE	Service		1.5				57,59,78	
		Remove/ Install					2.0	56,59,60, 61,78,79	
		Repair		1.5			2.5	56,59,60, 61,78,79	
0801	MODULE,TRANSFER CASE	Adjust					1.0		
		Remove/ Install					2.0	21,56,57, 59,60,61, 71,74,78, 79	
		Repair					1.1	23,27,33 50,56,57, 60,78	

Section II. MAINTENANCE ALLOCATION CHART FOR THE LMTV VEHICLE (CONT)

(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Level				(5) Tools and Equipment Ref Code	(6) Remarks Code	
			Unit		Direct Support	General Support			Depot
			C	O	F	H			D
0802	HOUSING ASSEMBLY,C6 AND C7 CLUTCH	Remove/ Install Repair				2.0 0.8	56,59,60, 61,78 19,23,26, 27,28,29,		
0802	CONTROL VALVE ASSEMBLY	Remove/ Install Repair				2.0	56,59,60, 61,62,71, 78		
0804	PUMP ASSEMBLY,OIL	Replace Repair				1.0	56,59,61, 78,79		
0900	PROPELLER SHAFT	Inspect Service Repair Replace		0.1 0.5 0.6 0.5		1.0 0.8	78,79 79 79		
1000	AXLE ASSEMBLY,FRONT	Inspect Adjust Service Replace	0.1	0.3 0.5	0.7 1.0 4.5		59 57,59,78 57,59,78 78 57,79 59,78 56,57,59, 60,61,70, 78		
		Repair		2.3	2.2	6.0	56,57,59, 60,61,78		
1002	CARRIER ASSEMBLY, DIFFERENTIAL	Inspect Service Replace Repair		0.1	0.1 0.3	0.1 4.6 2.7	78,79 78 21,56,57, 59,60,78, 79 56,57,59, 60,78,79		
1004	STEERING KNUCKLE,AXLE	Inspect Adjust Service Replace			0.2 2.5 0.3 5.1		79 79 56,57,59, 60,71,78		
1100	AXLE ASSEMBLY,REAR	Inspect Service Replace	0.1	0.4 0.8	0.7 4.5		57,59,78 34,56,57, 59,60,78, 84		

Section II. MAINTENANCE ALLOCATION CHART FOR THE LMTV VEHICLE (CONT)

(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Level					(5) Tools and Equipment Ref Code	(6) Remarks Code
			Unit		Direct Support	General Support	Depot		
			C	O	F	H	D		
1102	CARRIER ASSEMBLY, DIFFERENTIAL	Repair			0.9	6.0		21,56,57, 59,60,78 84,85, 78,79	
		Inspect		0.1	0.1	1.0		78	
		Service Replace			0.3	4.6		21,56,57 59,60,78, 79,85	
1202	BRAKE ASSEMBLY, FRONT AXLE	Repair				2.7		21,37,56, 57,59,60, 71,73,78 59,78,79	
		Inspect		0.1	1.0			57,59,78	
		Adjust Repair		0.4 1.5	0.5			57,59,78, 83	
1202	BRAKE ASSEMBLY, REAR AXLE	Inspect		0.1	1.0			59,78,79	
		Adjust Repair		0.4 1.5	0.5			57,59,78 57,59,78, 83	
		Inspect		0.1	1.0			59,78,79	
1208	BRAKE AIR CHAMBER	Inspect		0.1					
1209	AIR COMPRESSOR	Replace		0.5				57,59,78	
1311	WHEEL ASSEMBLY, PNEUMATIC TIRE	Adjust		0.6				59,78	
		Replace			1.2			56,60,61, 78,79	
		Inspect	0.1					57	
1313	TIRE, PNEUMATIC	Replace	1.0	1.2				57,59	
		Repair		2.0				57,59	
		Replace		2.0				57,59	
1401	STEERING SYSTEM	Inspect		0.2					
		Adjust			1.0			56,60,78	
		Repair		1.0	1.5			54,56,57, 59,60,61, 78,79	
1407	STEERING GEAR ASSEMBLY	Replace			4.0			56,60,78	
1410	PUMP, POWER STEERING	Replace			1.5			47,56,59, 60,78	
1411	HOSES, POWER STEERING	Replace		0.3				57,59,78, 88	
1413	HYDRAULIC RESERVIOR, POWER STEERING	Service	0.1	0.5				78	
		Replace		0.8				59,78,86	

Section II. MAINTENANCE ALLOCATION CHART FOR THE LMTV VEHICLE (CONT)

(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Level					(5) Tools and Equipment Ref Code	(6) Remarks Code
			Unit		Direct Support	General Support	Depot		
			C	O	F	H	D		
1501	FRAME ASSEMBLY	Inspect Repair	0.1	0.3 0.8	14.0			56,57,59, 60,61,78, 79	
1504	RETAINER, SPARE TIRE	Inspect Replace	0.1	0.1 3.0				57,59,78	
1601	LEAF SPRING ASSEMBLIES	Repair Inspect Service Replace	0.1	0.2 0.3	2.7			57 56,57,59, 60,78,79	
1604	SHOCK ABSORBERS	Inspect Replace	0.1	0.3 0.5				57,59,78	
1605	STABILIZER BAR, REAR	Inspect Replace		0.2 2.0				57,59,68, 78	
1801	CAR BODY, STANDARD	Repair Inspect Replace	0.1	1.5	60.0			57,78 56,57,60, 61,78,79	
1801	CAR BODY, AIR DROP	Repair Inspect Replace	0.1	0.6	60.0			57,59,78 56,57,60, 61,78,79	
1801	CAR DOORS, STANDARD	Repair Inspect Replace	0.1	0.6	1.0			57,59,78 49,57,78	
1801	CAR DOORS, AIR DROP	Repair Inspect Replace	0.1	2.7	1.0			55,59,78 49,57,78	
1801	SUPPORT ASSEMBLY, CAB REAR	Repair Inspect Replace	0.1	2.7 1.1	3.0			57,59,78 8,13,57, 59,60,78, 79	
1801	SUPPORT ASSEMBLY, CAB FRONT	Inspect Replace	0.1	1.0				57,59,78	
1802	WINDSHIELD	Repair Replace		0.8	0.6			57,78 55,59,78	

Section II. MAINTENANCE ALLOCATION CHART FOR THE LMTV VEHICLE (CONT)

(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Level					(5) Tools and Equipment Ref Code	(6) Remarks Code
			Unit		Direct Support	General Support	Depot		
			C	O	F	H	D		
1802	FENDER, VEHICULAR, FRONT	Inspect	0.1						
		Replace		2.0				57,59,78	
		Repair		0.5				57,78	
1803	ROOF, CAB, M1081	Replace		1.0				45,50,57, 59,78	
1805	FLOOR COVERING, CAB	Replace		1.0				57,78	
1806	SEATS	Replace							
1808	TOOL BOX ASSEMBLY	Inspect	0.1						
		Replace		0.5				47,57,59, 78	
		Repair		0.5				57,59,78	
1808	STOWAGE BOX, CAB	Replace		0.8				57,78	
		Repair		0.5				57,78	
1810	BODY, CARGO	Inspect	0.1						
		Replace			4.0			56,57,59, 60,78	
		Repair		0.5				57,59,78	
1812	BODY ASSEMBLY, VAN	Inspect	0.1	0.1					
		Repair		0.5				20,35,36, 42,43,47, 57,59,64, 72,76,78	
		Replace		1.9				36,64,78	
1812	DOOR, ACCESS, LEFT	Inspect	0.1						
		Replace		2.3				78	
		Repair		0.1				57,59,78	
1812	DOOR, ACCESS, RIGHT	Inspect	0.1						
		Replace		1.4				78	
		Repair		0.4				57,59,78	
1812	WINDOW SASH ASSEMBLY	Inspect	0.1						
		Replace		0.2				78	
		Repair		0.4				57,59,78	
1812	BOX ASSEMBLY, RELAY	Inspect	0.1	0.1					
		Replace		0.6				78	
		Repair		0.1				78	
		Test	0.1	0.5				59,78	
1812	FAN ASSEMBLY	Inspect	0.1						
		Replace		1.8				20,76,78	
		Repair		0.5				78	
2001	WINCH, 11K SELF- RECOVERY (SRW)	Inspect	0.1	4.0					

Section II. MAINTENANCE ALLOCATION CHART FOR THE LMTV VEHICLE (CONT)

(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Level					(5) Tools and Equipment Ref Code	(6) Remarks Code
			Unit		Direct Support	General Support	Depot		
			C	O	F	H	D		
2004	POWER TAKEOFF ASSEMBLY (PTO)	Service		0.2				59	
		Replace			1.0			59,60,78	
		Repair			0.9			59,60,78	
		Inspect	0.1						
		Replace			1.0			56,57,59, 60,78	
2202	MOTOR, WIPER, WINDSHIELD	Repair			0.8			56,57,59, 60,78	
		Test		0.5					
2207	HEATER ASSEMBLY, PERSONNEL	Replace		1.0				78	
2210	DECALS	Replace		2.0				57,59,78	
		Repair		1.0				57,59,78	
2401	POWER UNIT, AIR/HYDRAULIC	Inspect	0.1						
		Replace		1.0				78	
2402	MANIFOLD, HYDRAULIC	Inspect	0.1						
		Test		0.2					
		Service		1.0					
		Replace		3.0				57,59,78	
		Repair			2.0			57,59,60, 69,78,79	
2402	LATCH, HYDRAULIC, CAB	Inspect	0.1						
		Test		0.2					
		Replace		1.5				51,57,59, 78	
2402	LATCH, HYDRAULIC, CAB	Repair		1.0				51,57,59, 78	
		Inspect	0.1						
2404	SUSPENSION CYLINDER	Adjust		0.5				57,59,78	
		Replace		0.5				57,59,78	
2406	FILTER, HYDRAULIC	Inspect							
		Replace							
2408	RESERVIOR, HYDRAULIC	Service		0.3				59,78	
		Replace		0.2				59,78	
3303	CAB ARCTIC KIT	Replace		1.0				57,59,78	
		Repair		0.5				57,59,78	
		Inspect	0.2						
		Test		1.0					

Section II. MAINTENANCE ALLOCATION CHART FOR THE LMTV VEHICLE (CONT)

(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Level				(5) Tools and Equipment Ref Code	(6) Remarks Code	
			Unit		Direct Support	General Support			Depot
			C	O	F	H			D
3303	CABLE ASSEMBLY, ARCTIC KIT WITH PTO	Remove/ Install			6.0			56,57,59, 60,78,79, 86	
		Replace		1.0				57,59,78, 86	
		Repair		1.7				57,59,78, 86	
3303	CARGO ARCTIC KIT	Replace		1.8				57,59,78	
		Repair		0.5	0.5			63	
		Inspect	0.2						
3303	FURNACE ASSEMBLY, CARGO	Test		1.0					
		Remove/ Install			12.0			56,57,59, 60,78,79, 86	
		Replace		1.0				57,59,78, 86	
3303	CABLE ASSEMBLY, FURNACE, CARGO	Repair		1.7				57,59,78, 86	
		Replace		3.0				57,59,78, 86	
		Repair		0.5				57,59,78, 86	
3303	CONTROL UNIT ASSEMBLY, FURNACE	Inspect	0.1						
		Replace		0.5				57,59,78	
		Repair		0.7				57,59,78	
3303	HEATER ASSEMBLY, VEHICULAR	Replace		1.5				57,59,78	
		Repair		0.5				4,20,22, 39,57,78	
		Inspect	0.1						
3303	SWINGFIRE ADAPTER KIT	Test		0.5					
		Service		0.5				59,78	
		Replace		1.5				57,78,86	
3303	SWINGFIRE ADAPTER KIT	Repair		1.5				57,78,86	
		Inspect	0.2						
		Test		1.0					
3303	SWINGFIRE ADAPTER KIT	Remove/ Install		3.0	7.0			57,59,78, 86	
		Replace		1.0				57,59,78, 86	
		Repair		1.7				57,59,78, 86	

Section II. MAINTENANCE ALLOCATION CHART FOR THE LMTV VEHICLE (CONT)

(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Level					(5) Tools and Equipment Ref Code	(6) Remarks Code
			Unit		Direct Support	General Support	Depot		
			C	O	F	H	D		
3303	HEATER KIT, M1079	Inspect	0.1						
		Remove/ Install		2.5				78	
3305	FORDING KIT, DEEP WATER	Inspect	0.1						
		Remove/ Install		4.0				57,59,78	
3307	ALTERNATOR KIT, 200 AMP	Inspect	0.1	0.2					
		Test		0.5				59	
		Remove/ Install		2.0				57,59,78	
		Replace		1.0				57,59,78	
		Repair			0.5			56,57,60,	
3307	ALTERNATOR, 200 AMP	Inspect		0.2				62,78	
		Test		0.5	1.5			59,63,78	
		Replace		1.0				57,59,78	
		Repair		0.2	0.5			56,57,60,	
								61,63,78	
3307	CRANE (LMHC), MATERIAL HANDLING, LIGHT	Inspect	0.1	0.1					
		Repair		0.5				59,76,78	
		Replace		0.5					
		Test		0.5					
3307	WEIGHT BLOCK AND WIRE ROPE, LMHC	Inspect	0.1						
		Replace		0.1				59,78	
		Repair		0.5				59,78	
		Test			0.5				
3307	WINCH, LMHC	Inspect	0.1						
		Replace			0.5			59,78	
		Repair			1.0			59,78	
		Test		0.5					
3307	MAST/SWING ASSEMBLY, LMHC	Inspect	0.1						
		Repair		1.0				59,78	
		Test		0.5					
3307	CONTROL BOX, LMHC	Inspect	0.1						
		Replace		0.1					
		Repair		0.5					
		Test	1.0	0.5				76,78	
3307	TROOPSEAT KIT	Remove/ Install	1.0						

Section II. MAINTENANCE ALLOCATION CHART FOR THE LMTV VEHICLE (CONT)

(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Level				(5) Tools and Equipment Ref Code	(6) Remarks Code	
			Unit		Direct Support	General Support			Depot
			C	O	F	H			D
3307	COVER KIT,CARGO SOFT TOP	Inspect	0.1						
		Replace		1.0					
		Repair		0.5				78	
		Remove/ Install	1.5						
3307	AIR CONDITIONER KIT, M1079	Inspect	0.1						
		Replace		2.0					
		Repair		0.5					
		Inspect	0.1						
3307	WARNING LIGHT ASSEMBLY,AMBER	Remove/ Install		1.5				59,78	
		Inspect	0.1						
3401	MACHINE GUN RING KIT	Repair		0.4				78	
		Test		0.2					
		Inspect	0.1			4.0			
		Remove/ Install						56,57,60, 78,79,84	
3402	MOUNT,SMALL ARMS	Repair		1.1				10,57,78	
		Inspect	0.1						
3909	CABLE ASSEMBLY, WARNING LIGHT	Replace		0.3				78	
		Inspect	0.1						
4316	AIR HOSE,CTIS	Replace		0.5				78	
		Inspect	0.1						
4317	VALVE,INVERSION	Replace		0.4				59,78	
4321	AIR DRYER	Replace		0.5				59,78	
		Inspect	0.14	0.1					
4702	GAUGE,AIR FILTER RESTRICTION	Replace		1.0				57,59,78	
		Repair		0.6				57,59,78	
		Replace		0.5				78	

Section III. TOOLS AND TEST EQUIPMENT FOR LMTV VEHICLES

Tool or Test Equipment REF Code	Maintenance Level	Nomenclature	National Stock Number	Tool Number
1	O,F	ADAPTER, RADIATOR	4910-01-170-4928	J29003-A
2	O	ADAPTER, SOCKET WRENCH	5120-00-240-8702	11655788-2
3	H	BUSHING DRIVER SET	5120-01-391-3541	J35922
4	O	CRIMPING TOOL, TERMINAL, HAND	5120-00-165-3912	M22520/1-01
5	O	CROWFOOT ATTACHMENT, SOCKET WRENCH	5120-00-078-3809	10935497
6	O	CROWFOOT ATTACHMENT, SOCKET WRENCH	5120-00-293-1010	5120-293-1282
7	F	CROWFOOT ATTACHMENT, SOCKET WRENCH	5120-00-181-6754	GGG-C-1507
8	F	CROWFOOT ATTACHMENT, SOCKET WRENCH	5120-01-074-7557	FCOM19
9	O	CROWFOOT ATTACHMENT, SOCKET WRENCH	5120-01-236-9996	FCOM15
10	O	CROWFOOT ATTACHMENT, SOCKET WRENCH	5120-01-335-1091	FC032
11	O	CROWFOOT ATTACHMENT, SOCKET WRENCH	5120-01-335-1119	SCO34
12	O	CROWFOOT ATTACHMENT, SOCKET WRENCH	5120-01-335-1122	SCO40
13	F	CROWFOOT ATTACHMENT, SOCKET WRENCH	5120-01-348-9473	AN8508-19A
14	H	DRIVER KIT, BEARING	4910-01-032-3128	8S0602
15	O	GAGE, BELT TENSION	6635-01-092-7462	0755-0101
16	O,F	GAGE, BELT TENSION	6635-01-143-2237	GA-424
17	O,F	GAGE, PRESSURE, 0-150 psi	6685-00-474-5721	111T1D05A01
18	F,H	GAGE, PROFILE	5220-01-388-1460	J-38548-1
19	H	HANDLE, DRIVE	5120-00-377-2259	J8092
20	O	HEATER, GUN TYPE, ELECTRIC	4940-00-561-1002	500A
21	F,H	HOLDING BAR, PINION	5120-01-166-0573	J3453
22	O	INSERTER AND REMOVER, ELECTRICAL CONTACT	5120-00-915-4588	MS3447-16
23	H	INSERTER AND REMOVER, SPRING	5120-01-388-3660	J38573
24	H	INSERTER AND REMOVER SPRING	5120-01-388-4436	J35923
25	H	INSERTER, BEARING AND BUSHING	5120-01-388-7841	J-38565
26	H	INSERTER, BEARING AND BUSHING	5120-01-389-0658	J35921-1
27	H	INSERTER, BEARING AND BUSHING	5120-01-390-1104	J 38569
28	H	INSERTER, BEARING AND BUSHING	5120-01-390-1105	J 38568-3
29	H	INSERTER, BEARING AND BUSHING	5120-01-391-5133	J38579
30	F,H	INSERTER, BEARING AND BUSHING	5120-01-414-7398	J38566
31	F	INSERTER, SEAL	5120-01-362-2026	1U7430
32	F	INSERTER, SEAL	5120-01-362-2027	1U7598
33	F	INSTALLER, SEAL	N/A	J38574

Section III. TOOLS AND TEST EQUIPMENT FOR LMTV VEHICLES

Tool or Test Equipment REF Code	Maintenance Level	Nomenclature	National Stock Number	Tool Number
34	F	JACK, LEVELING SUPPORT VEHICLE	2590-00-231-7418	10876244
35	O	KEY, SOCKET HEAD SCREW	5120-00-984-0247	58010
36	O	LINK, CHAIN, END	4010-00-932-5013	NAS1049-16
37	H	PULLER KIT, UNIVERSAL	5180-00-089-3660	A57QB
38	F	PULLER KIT, UNIVERSAL	5180-01-124-1903	1P3075
39	O	REMOVER, ELECTRICAL CONTACT	5120-00-148-9844	MS3448-001B
40	F	RIVETER, BLIND, HAND	5120-01-289-4310	HP-2
41	H	RIVETER, YOKE, HAND	5120-01-415-3558	J-39354
42	O	SCREWDRIVER ATTACHMENT, SOCKET WRENCH	5120-00-180-0881	5120-00-180-0881
43	O	SCREWDRIVER ATTACHMENT, SOCKET WRENCH	5120-01-053-4158	FAM5A
44	O,F,H	SCREWDRIVER ATTACHMENT, SOCKET WRENCH	5120-01-055-1308	ANSIB18.3.2M
45	O	SCREWDRIVER ATTACHMENT, SOCKET WRENCH	5120-01-079-8032	SAM8A
46	O	SCREWDRIVER ATTACHMENT, SOCKET WRENCH	5120-01-160-8862	S 6 HBS
47	O,F	SCREWDRIVER ATTACHMENT, SOCKET WRENCH	5120-01-367-3462	SA10A
48	O,F	SCREWDRIVER ATTACHMENT, SOCKET WRENCH	5120-01-367-3497	TMP12A
49	O	SCREWDRIVER ATTACHMENT, SOCKET WRENCH	5120-01-367-3519	F23D
50	O	SCREWDRIVER ATTACHMENT, SOCKET WRENCH	5120-01-367-3526	FP24
51	O	SCREWDRIVER ATTACHMENT, SOCKET WRENCH	5120-01-367-3527	FP32A
52	F,H	SCREWDRIVER ATTACHMENT, SOCKET WRENCH	5120-01-367-3536	FTX40A
53	O	SCREWDRIVER ATTACHMENT, SOCKET WRENCH	5120-01-367-3574	GFA8A
54	O	SEPARATOR, BALL JOINT	5120-01-255-8238	2287
55	F	SETTING TOOL, WINDSHIELD	5120-01-316-4995	CRL216
56	O,F	SHOP EQUIPMENT, AUTOMOTIVE VEHICLE	4910-00-348-7696	SC4910-95CLA02
57	O,F,H	SHOP EQUIPMENT, AUTOMOTIVE VEHICLE	4910-00-754-0650	SC4910-95CLA72
58	O	SHOP EQUIPMENT, AUTOMOTIVE VEHICLE	4910-00-754-0653	SC4910-95CLA73
59	O,F,H	SHOP EQUIPMENT, AUTOMOTIVE VEHICLE	4910-00-754-0654	SC4910-95CLA74
60	F,H	SHOP EQUIPMENT, AUTOMOTIVE VEHICLE	4910-00-754-0705	SC4910-95CLA31
61	F,H	SHOP EQUIPMENT, AUTOMOTIVE VEHICLE	4910-00-754-0706	SC4910-95CLA62

Section III. TOOLS AND TEST EQUIPMENT FOR LMTV VEHICLES

Tool or Test Equipment REF Code	Maintenance Level	Nomenclature	National Stock Number	Tool Number
62	O,F,H	SHOP EQUIPMENT, AUTOMOTIVE VEHICLE	4910-00-754-0707	SC4910-95CLA63
63	O,F	SHOP EQUIPMENT, FUEL AND ELECTRICAL	4910-00-754-0714	SC4910-95CLA01
64	O	SLING, EYE	3940-01-334-0749	EE1-202
65	F	SLING, MULTIPLE LEG	3940-00-777-5744	A170
66	H	SOCKET SET, SOCKET WRENCH	5120-01-195-0640	208FA
67	F,H	SOCKET, SOCKET WRENCH	5120-01-068-5643	5555M
68	O	SOCKET, SOCKET WRENCH	5120-01-161-5907	GLDH382
69	F	SOCKET, SOCKET WRENCH	5120-01-335-0784	TW321
70	O	SOCKET, SOCKET WRENCH	5120-01-359-9521	TV940009
71	F	SOLDERING AND BRAZING OUTFIT, RESISTANCE HEATING	3439-00-460-7198	SC4940-95-CLB20
72	O	SOLDERING IRON, ELECTRIC	3439-01-036-3308	3112-S3-40W
73	H	STAND, DIFFERENTIAL CARRIER REPAIR	4910-01-085-7729	J3409-D
74	H	STAND, MAINTENANCE AUTOMOTIVE ENGINE	4910-00-808-3372	J29109
75	O	TESTING APPARATUS	4910-01-426-3974	440.28
76	O,F	TOOL KIT, AUTO FUEL AND ELECTRICAL SYSTEM REPAIR	5180-00-754-0655	SC4910-95CLA50
77	F	TOOL KIT, BODY AND FENDER	5180-00-754-0643	SC5180-90-N34
78	O,F,H	TOOL KIT, GENERAL MECHANIC'S	5180-00-177-7033	SC5180-90-CL-N26
79	F,H	TOOL KIT, GENERAL MECHANIC'S	5180-00-699-5273	SC5180-90-CL-N05
80	F	TOOL KIT, INTERNAL COMBUSTION ENGINE	5180-01-356-8155	1U6680
81	H	TOOL KIT, SLEEVE REPAIR	5180-01-415-5896	4C4462
82	F	TOOL OUTFIT, HYDRAULIC	4940-01-036-5784	SC4940-95-CL-B07
83	O	TOOL, SPRING REMOVAL	5120-01-360-1918	TV940010
84	F	WRENCH SET, CROWFOOT, RATCHETING	5120-00-293-0013	GGG-W-646
85	F	WRENCH SET, SOCKET	5120-00-148-3706	ANSI-B107.5
86	O	WRENCH, TORQUE, 0-75 LB-IN.	5120-01-112-9532	TQSC6A

Section IV. REMARKS FOR THE LMTV VEHICLE

Remarks Code	Remarks
A	Battery service will be in accordance with TM 9-6140-200-14.
B	Repair of tires will be in accordance with TM 9-2610-200-14.

APPENDIX C TOOLS IDENTIFICATION LIST

Section I. INTRODUCTION

C-1. INTRODUCTION

This appendix lists common tools, supplements, and special tools/fixtures that are suggested for maintenance tasks performed at the Unit Maintenance level.

C-2. EXPLANATION OF COLUMNS

- a. Column (1) - Item Number.** This number is assigned to the entry in the listing and is referenced in the narrative instructions to identify the item, e.g., "Bar, Pry (Item 1, Appendix C)."
- b. Column (2) - Item Name.** This column contains the nomenclature for the item.
- c. Column (3) - National Stock Number.** This is the national stock number assigned to the item which you can use to requisition it.
- d. Column (4) - Part Number.** This provides the Government, manufacturer, or vendor part number for the item.
- e. Column (5) - Reference.** This column contains the shop catalog (SC), technical manual, or other publication which provides an illustration and description of the item, or lists whether the item is fabricated.

APPENDIX C Section II. TOOLS IDENTIFICATION LIST

(1) ITEM NUMBER	(2) ITEM NAME	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) REFERENCE
1	ADAPTER, SOCKET WRENCH	5120-00-227-8088	A-A-2172	SC 4910-95-CL-A74
2	ADJUSTING TOOL, BRAKE SHOE	5120-00-154-3029	J34061	SC 4910-95-CL-A74
3	APRON, RUBBER	8145-00-082-6108	MIL-A-41829	SC 4910-95-CL-A74
4	CAPS, VISE JAW	5120-00-221-1506	GGG-C-137	SC 4910-95-CL-A74
5	DISPENSING PUMP, HAND DRIVEN	4930-00-263-9886	43D15069	SC 4910-95-CL-A74
6	DRILL SET, TWIST	5130-00-293-0983	58	SC 4910-95-CL-A74
7	DRILL, PORTABLE, ELECTRIC	5130-00-293-1849	W-D-661	SC 4910-95-CL-A74
8	DRILL, TWIST	5133-01-120-3519		SC 4910-95-CL-A74

Section II. TOOLS IDENTIFICATION LIST (CONT)

(1) Item Number	(2) Item Name	(3) National Stock Number	(4) Part Number	(5) Reference
9	FISHING TOOL,PNEUMATIC TIRE VALVE	5120-00-516-4220	991	SC 4910-95-CL-A74
10	GAGE,DEPTH, MICROMETER	5210-00-619-4045	445BZ-6RL	CTA 50-909
11	GAGE, TIRE PRESSURE	4910-01-117-2994	955	SC 4910-95-CL-A72
12	GAGE,WHEEL ALIGNMENT	5210-00-529-1205	WA361	SC 4910-95-CL-A72
13	GLOVES,RUBBER	8415-00-641-4601	ZZ-G-381	SC 4910-95-CL-A74
14	GLOVES,WELDER'S	8415-00-268-7859	A-A-50022	SC 4910-95-CL-A72
15	GOGGLES,INDUSTRIAL	4240-00-052-3776	A-A-1110	SC 4910-95-CL-A74
16	GUN,LUBRICATING	4930-00-253-2478	1142	SC 4910-95-CL-A74
17	HAMMER,HAND	5120-00-224-4130	A-A-1292	SC 4910-95-CL-A74
18	HAMMER,HAND	5120-01-065-9037	57-533	SC 4910-95-CL-A72
19	HOSE ASSEMBLY, NONMETALLIC	4720-00-356-8557	ZZ-H-461	
20	IRON,TIRE			
21	JACK,HYDRAULIC,HAND	5120-00-765-8536	T48A	SC 4910-95-CL-A74
22	MULTIMETER,DIGITAL	5120-00-224-7330	D120	SC 4910-95-CL-A74
23	MULTIPLIER,TORQUE WRENCH	6625-01-139-2512 5120-00-574-9318	T00377 292	SC 4910-95-CL-A74 SC 4910-95-CL-A72
24	PAN,DRAIN			
25	PAN,WASH	4910-00-387-9592	450	SC 4910-95-CL-A72
26	PRESSURE TESTER, RADIATOR	4940-00-617-9859 4910-01-170-4929	5582281 J24460-01	SC 4910-95-CL-A72 SC 4910-95-CL-A74
27	PULLER KIT,MECHANICAL			
28	PULLER,BATTERY TERMINAL	5120-00-313-9496 5120-00-944-4268	1178 21	SC 4910-95-CL-A74 SC 4910-95-CL-A74
29	RESPIRATOR,AIR FILTER			
30	SCALE,WEIGHING	4240-00-255-2524	GGG-M-125/6	SC 4910-95-CL-A72
31	SLING,CARGO	6670-00-254-4634	AAA-5-133	SC 4910-95-CL-A72
32	SLING,ENDLESS	1670-00-823-5043	63J4261-13	CTA 50-970
33	SOCKET SET, IMPACT	3940-00-675-5003	PD101-96	CTA 50-970
34	SOCKET SET,SOCKET WRENCH	5120-01-117-0466 5120-01-073-2821	4151MMY 217FMY	SC 4910-95-CL-A74 SC 4910-95-CL-A72

Section II. TOOLS IDENTIFICATION LIST (CONT)

(1) Item Number	(2) Item Name	(3) National Stock Number	(4) Part Number	(5) Reference
35	SOCKET SET, SOCKET WRENCH	5120-01-117-3876	221FSMY	SC 4910-95-CL-A02
36	SOCKET, SOCKET WRENCH	5120-00-181-6813	5530	SC4910-95-CL-A74
37	SOCKET, SOCKET WRENCH	5120-00-232-5681	1242	SC4910-95-CL-A74
38	SOCKET, SOCKET WRENCH	5120-01-112-0581	SIMM190	SC 4910-95-CL-A74
39	STE/ICE-R	4910-01-222-6589	12259266	SC 4910-95-CL-A74
40	TAPE,MEASURING	5210-00-081-4719	GA508A	CTA 50-970
41	TESTER,ANTIFREEZE AND BATTERY	6630-00-105-1418	10425	SC 4910-95-CL-A74
42	TOOL KIT,AUTO FUEL	5780-00-754-0655		SC 5180-95-CL-A50
43	TOOL KIT,BLIND RIVET	5180-01-201-4978	D-100-MIL-1	SC 4910-95-CL-A72
44	TOOL KIT,GENERAL MECHANIC'S	5180-00-177-7033		SC 5180-90-N26
45	TRESTLE,MOTOR VEHICLE MAINTENANCE	4910-00-251-8013	306	SC 4910-95-CL-A72
46	WISE,MACHINIST	5120-00-293-1439	504M2	SC 4910-95-CL-A74
47	WRENCH SET,SOCKET	5120-00-081-2305	GGG-W-641	SC 4910-95-CL-A74
48	WRENCH SET,SOCKET	5120-00-204-1999	GGG-W-641	SC 4910-95-CL-A74
49	WRENCH SET,SOCKET	5120-00-322-6231	51200017510	SC 4910-95-CL-A74
50	WRENCH,ADJUSTABLE	5120-00-264-3793	2117080	SC 4910-95-CL-A72
51	WRENCH,ADJUSTABLE, AUTOMOTIVE	5120-00-449-8083	1B7536	SC4910-95-CL-A74
52	WRENCH,BOX AND OPEN END	5120-00-277-8833	1244	SC 4910-95-CL-A74
53	WRENCH,BOX AND OPEN END	5120-00-277-8834	GGG-W-636	SC 4910-95-CL-A74
54	WRENCH,PIPE	5120-00-277-1461		SC 4910-95-CL-A74
55	WRENCH,PIPE	5120-00-277-1485		SC 4910-95-CL-A74
56	WRENCH,STRAP, ADJUSTABLE	5120-00-020-2947	A91C	SC 4910-95-CL-A74
57	WRENCH,TORQUE,0-175 lb-ft	5120-00-640-6364	1753LDF	SC 4910-95-CL-A72
58	WRENCH,TORQUE,0-200 lb-in.	5120-00-853-4538	F2001	SC 4910-95-CL-A72

Section II. TOOLS IDENTIFICATION LIST (CONT)

(1) ITEM NUMBER	(2) ITEM NAME	(3) NATIONAL STOCK NUMBER	(4) PART NUMBER	(5) REFERENCE
59	WRENCH, TORQUE, 0-600 lb-ft	5120-00-221-7983	SW130-301	SC 4910-95-CL-A72

APPENDIX D EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST

Section I. INTRODUCTION

D-1. SCOPE

This appendix lists expendable and durable items that you will need to operate and maintain the LMTV vehicle. This listing is for information only and is not authority to requisition the listed items. These items are authorized to you by CTA 50-970, Expendable/Durable Items (except medical, class V repair parts, and heraldic items), or CTA 8-100, Army Medical Department Expendable/Durable items.

D-2. EXPLANATION OF COLUMNS

- a. Column (1) - Item Number.** This number is assigned to the entry in the listing and is referenced in the narrative instructions to identify the item, e.g., "Oil, Lubricating (Item 25, Appendix D).
- b. Column (2) - Level.** This column identifies the lowest level of maintenance that requires the item.
- c. Column (3) - National Stock Number.** This is the national stock number assigned to the item which you can use to requisition it.
- d. Column (4) - Item Name, Description, Commercial and Government Entity Code (CAGEC), and Part Number.** This provides the other information you need to identify the item.
- e. Column (5) - Unit of Measure.** This code shows the physical measurement or count of an item, such as gallon, dozen, gross, etc.

Section II. EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST

(1) Item Number	(2) Level	(3) National Stock Number	(4) Description	(5) U/M
1	0	4730-00-248-9340	Adapter, Pipe to Tube (81343) 4-4 010103B	ea
2	0	8040-00-273-8717	Adhesive (81348) MMM-A-121	pt
3	0	8040-00-152-0063	Adhesive (81348) MMM-A-1617 TY 3	bt
4	0	8040-01-250-3969	Adhesive (05972) 242	ea
5	0	8040-01-117-7872	Adhesive (04963) 08031	tu
6	0	8040-00-117-8510	Adhesive (71984) 3145 RTV Clear	tu
7	0	8040-00-776-9602	Adhesive (73168) 8005531	kt
8	0	8040-00-118-2695	Adhesive (72799) RTV162	kt
9	0	8040-01-239-6828	Adhesive (01139) RTV123	tu
10	0	8040-01-331-7473	Adhesive (81349) (MIL-A-46106 GP3TY1)	tu
11	0	8040-01-331-7470	Adhesive (81349) (MIL-A-46106 GP1TY1)	tu

Section II. EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST (CONT)

(1) Item Number	(2) Level	(3) National Stock Number	(4) Description	(5) U/M
12	C	6850-00-174-1806	Antifreeze,Arctic Type (81349) (MIL-A-11755) 55 gl drum	dr
13	C	6850-00-181-7940	Antifreeze,Ethylene Glycol,Permanent (81349) (MIL-A-46153) 55 gl drum	dr
14	O	8030-00-597-5367	Antiseize Compound (81349) (MIL-A-907)	lb
15	O	5340-00-450-5718	Cap and Plug Set 10935405	ea
16	O	6850-00-926-2275	Cleaning Compound, Windshield (81349) O-C 1901 16 Oz bottle	bt
17	O	7920-00-044-9281	Cloth,Cleaning (81349) (MIL-C-85043)	tx
18	O		Corrosion Preventive Compound (81349) (MIL-C-16173)	
		8030-00-062-6950	Grade 1-1 qt can	qt
		9030-01-149-1731	Grade 2-1 qt can	qt
		8030-00-837-6557	Grade 3-1 qt can	pt
		9030-00-903-0931	Grade 4-1 qt can	pt
19	O	9030-00-033-4291	Corrosion Preventive Compound (MIL-C-82594) 8 oz can	bt
20	C	9150-00-664-0047	Damping Fluid (81348) VV-D-1078 1 lb can	lb
21	O	7520-01-209-1152	Dispenser,Pressure Sensitive Adhesive Tape (75037) STD-0-9	ea
22	O	5330-01-325-6993	Gasket Forming Compound (05972) 515	ea
23	C		Grease, Automotive and Artillery (GAA) (81349) (MIL-G-10924)	
		9150-01-197-7688	2-1/4 oz tube	tu
		9150-01-197-7690	1.75 lb can	cn
		9150-01-197-7689	6.5 lb can	cn
		9150-01-197-7692	35 lb can	cn
24		9150-00-530-6814	Grease,Wire Rope-Exposed Gear 981349) (MIL-G-18458) 35 lb can	cn
25		9150-00-935-4018	Grease,Molybenum Disulfide (81349) (MIL-G-21164) 14 oz cartridge	ca
26	C		Hydraulic Fluid A (MIL-H-5606)	
		9150-00-252-6383	1 qt can	cn
		9150-00-223-4134	1 gl can	cn
27	O	7510-00-145-0559	Ink,Marking Stencil (MIL-I-43553)	oz
28	O	7510-01-386-0787	Inking Pad,Rubber Stamp	ea

EXPENDABLE/DURABLE SUPPLIES AND MATERIALS (CONT)

(1) Item Number	(2) Level	(3) National Stock Number	(4) Description	(5) U/M
29	O	9150-01-360-1905	Insulating Compound,Electrical	tu
30	O	5970-00-838-5951	Insulation Sleeving,Electrical (06090) CRN3-16BLACK	ft
31	O	5970-01-422-3579	Insulation Sleeving,Electrical (06090) ATUM 1/2 4 ft length	lg
32	O	1650-00-166-4834	Lockwire (90166) 68A32	ea
33	O	9150-01-360-1905	Lubricant,Solid Film (MIL-L-46147) 16 oz can	cn
34	O	4730-00-019-0608	Nipple, Pipe	ea
35	O	4730-00-825-7304	Nipple, Tube Ms51501B4	ea
36	O	5310-00-059-4265	Nut,Plain,Hex	ea
37	C		Oil,Fuel Diesel, DF-A, Arctic (VV-F-800) (81348)	
		9140-00-286-5283	Bulk	gl
		9140-00-286-5284	55 gl drum, 16 gauge	dr
		9140-00-286-5285	55 gl drum, 18 gauge	dr
38	C		Oil,Fuel Diesel, DF-1, Winter (VV-F-800) (81348)	
		9140-00-286-5286	Bulk	gl
		9140-00-286-5288	55 gl drum, 16 gauge	dr
		9140-00-286-5289	55 gl drum, 18 gauge	dr
39	C		Oil,Fuel Diesel,DF-2,Regular (VV-F-800) (81348)	
		9140-00-2868294	Bulk	gl
		9140-00-286-5296	55 gl drum, 16 gauge	dr
		9140-00-286-5297	55 gl drum, 18 gauge	dr
40	C		Oil,Lubricating,Arctic (MIL-L-46167)	
		9150-00-402-2372	5 gl can	cn
		9150-00-491-7197	55 gl can	dr
41	C		Oil,Lubricating,Gear, GO 75W (MIL-L-2105C)	
		9150-00-035-5390	1 qt can	cn
		9150-00-035-5391	5 gl can	cn
42	C		Oil,Lubricating,Gewar, 80W-90 (MIL-L2105C)	
		9150-00-035-5392	1 qt can	qt
		9150-00-035-5393	5 gl can	cn
		9150-00-035-5394	55 gl drum, 16 gauge	dr
43	C		Oil,Lubricating,OE/HDO 10 (MIL-L-2104)	
		9150-00-183-7807	Bulk	gl
		9150-00-186-6668	5 gl can	cn
		9150-00-191-2772	55 gl drum	dr
44	C		Oil,Lubricating,OE/HDO 10W (MIL-L2104)	
		9150-00-189-6727	1 qt can	cn

EXPENDABLE/DURABLE SUPPLIES AND MATERIALS (CONT)

(1) Item Number	(2) Level	(3) National Stock Number	(4) Description	(5) U/M
45	C	9150-01-152-4117 9150-01-152-4118 9150-01-152-4119	Oil,Lubricating,OE/HDO 15W-40 (MIL-L-2104) 1 qt can 5 gl can 55 gl drum	cn cn dr
46	C	9150-00-183-7808 9150-00-186-6681 9150-00-188-9858 9150-00-189-6729	Oil,Lubricating,OE/HDO 30 (SAE 30) (MIL-L-2104) Bulk 1 qt can 5 gl can 55 gl drum, 18 gauge	gl cn cn dr
47	C	9150-00-405-2987 9150-00-189-6730 9150-00-188-9862	Oil,Lubricating,OE/HDO 40 (MIL-L-2104) Bulk 1 qt can 5 gl can	gl cn cn
48	O	5350-00-067-7639	Paper, Abrasive (28124) 02347 pg contains 100 sheets	pg
49	O	8010-01-146-2650	Polyurethane Coating (MIL-C-46168)	kt
50	O	8030-00-181-8372	Primer, Sealing Compound (05972) 747-56	cn
51	C	7920-00-205-1711	Rag, Wiping A-A-531	be
52	O	4730-00-021-1788	Reducer,Boss 4-6F50G5	ea
53	O	4020-00-855-2767	Rope,Fibrous (MIL-R-17343) 75 ft	cl
54	O	7520-00-634-2442	Rubber Stamp Set,Fixed Type	ea
55	O	5330-01-337-1108	Rubber Strip (12624) V4062	ft
56	O	5330-01-181-6482	Rubber Strip (19207) 12328583-3	ft
57	O	5305-01-286-0019	Screw,Cap,Socket Head (06888) SHCM75275 50 ct box	bx
58	O	1015-01-255-4144	Sealant,Pipe,Teflon (19207) 12297953 50 ml tube	tu
59	O	8030-00-081-2327	Sealing Compound (05972) 079-21	bx
60	O	8030-00-0111-2762	Sealing Compound (05972) 290-31	bt
61	O	8030-00-133-3164	Sealing Compound (05972) 571-31	bt
62	O	8030-00-148-9833	Sealing Compound (05972) 271-21	bx
63	O	8030-00-204-9149	Sealing Compound (05972) 592-41	tu
64	O	8030-00-656-1426	Sealing Compound (81349) (MIL-S-45180)	pt
65	O	8030-01-025-1692	Sealing Compound (05972) 242-41	bt
66	O	8030-01-088-8140	Sealing Compound (52571) 9001512-0011	bt

EXPENDABLE/DURABLE SUPPLIES AND MATERIALS (CONT)

(1) Item Number	(2) Level	(3) National Stock Number	(4) Description	(5) U/M
67	O	8030-00-753-5006	Sealing Compound (81349) (MIL-S-8802TY2CLB-2) 2 oz cartridge	ca
		8030-00-753-4599	6 oz can	kt
		8030-00-723-2746	12 oz can	kt
		8030-00-685-0915	24 oz can	kt
68	O	8030-01-155-3238	Sealing Compound (11083) 6V6640	ml
69	C	7930-00-634-3935	Soap,Laundry (81348) P-S-1792	lb
70	O	3439-00-006-7764	Solder, Tin Alloy (81348) SN63WRAP3	sl
71	C		Solvent,Dry Cleaning SD (P-D-680)	
		6850-00-281-1985	1 gl can	cn
		6850-00-664-5685	1 qt can	cn
72	O		Tape,Adhesive (0SHR6) 70P00002	ea
73	O	8030-00-889-3534	Tape, Antiseizing (81349) 1791K70	ea
74	O	5640-00-103-2254	Tape,Duct (39428) 1791K70	ea
75	O	5970-00-644-3167	Tape, Insulation,Electrical (80063) TL83	ro
76	O	5975-01-379-4997	Ties,Cable,Plastic (06383) PLT 35-C-O	hd
77	O	6145-01-148-2263	Wire,Electrical (80009) 175-0825-00 50 ft	ft

APPENDIX E ILLUSTRATED LIST OF MANUFACTURED ITEMS

Section I. INTRODUCTION

E-1. INTRODUCTION

This appendix includes complete instructions for manufacturing or fabricating authorized items locally. All bulk materials needed to manufacture an item are listed by part number or specification number. Figures are provided as needed. See standards and specifications DoD-Std-00100D(AR) and ANSI Y14.5M1982 for required details.

Section II. MANUFACTURED ITEMS INDEX

ITEM NAME/PART NUMBER	ITEM DESCRIPTION	PARA NO.
Brake Adjusting Tool Support		E-2
Brake Plunger Seal Driver		E-3
Cab Support Tool		E-4
Headlight Adjustment Screen		E-5
M1079 Blackout Shield Seals		E-6
M1079 Door Gaskets		E-7
M1079 Window Sash Glazing Seals		E-8
Relay Test Wire		E-9
Wheel Bearing Shim Tool Rest		E-10
12414690-001	Pneumatic Tube	E-11
12414690-002	Pneumatic Tube	E-11
12414690-004	Pneumatic Tube	E-11
12414690-005	Pneumatic Tube	E-11
12414690-010	Pneumatic Tube	E-11
12414690-101	Pneumatic Tube	E-11
12414690-102	Pneumatic Tube	E-11
12414690-103	Pneumatic Tube	E-11
12414690-104	Pneumatic Tube	E-11
12414690-105	Pneumatic Tube	E-11
12414690-106	Pneumatic Tube	E-11
12414690-107	Pneumatic Tube	E-11
12414690-108	Pneumatic Tube	E-11
12414690-109	Pneumatic Tube	E-11
12414690-112	Pneumatic Tube	E-11
12414690-113	Pneumatic Tube	E-11
12414690-115	Pneumatic Tube	E-11
12414690-117	Pneumatic Tube	E-11
12414690-118	Pneumatic Tube	E-11
12414690-119	Pneumatic Tube	E-11
12414690-120	Pneumatic Tube	E-11
12414690-121	Pneumatic Tube	E-11
12414690-122	Pneumatic Tube	E-11
12414690-123	Pneumatic Tube	E-11
12414690-124	Pneumatic Tube	E-11
12414690-125	Pneumatic Tube	E-11
12414690-126	Pneumatic Tube	E-11
12414690-127	Pneumatic Tube	E-11
12414690-201	Pneumatic Tube	E-11
12414690-202	Pneumatic Tube	E-11

Section II. MANUFACTURED ITEMS INDEX (CONT)

ITEM NAME/PART NUMBER	ITEM DESCRIPTION	PARA NO.
12414690-203	Pneumatic Tube	E-11
12414690-205	Pneumatic Tube	E-11
12414690-206	Pneumatic Tube	E-11
12414690-207	Pneumatic Tube	E-11
12414690-208	Pneumatic Tube	E-11
12414690-209	Pneumatic Tube	E-11
12414690-210	Pneumatic Tube	E-11
12414690-211	Pneumatic Tube	E-11
12414690-212	Pneumatic Tube	E-11
12414690-213	Pneumatic Tube	E-11
12414690-214	Pneumatic Tube	E-11
12414690-215	Pneumatic Tube	E-11
12414690-216	Pneumatic Tube	E-11
12414690-217	Pneumatic Tube	E-11
12414690-218	Pneumatic Tube	E-11
12414690-219	Pneumatic Tube	E-11
12414690-220	Pneumatic Tube	E-11
12414690-221	Pneumatic Tube	E-11
12414690-222	Pneumatic Tube	E-11
12414690-223	Pneumatic Tube	E-11
12414690-224	Pneumatic Tube	E-11
12414690-225	Pneumatic Tube	E-11
12414690-226	Pneumatic Tube	E-11
12414690-227	Pneumatic Tube	E-11
12414690-228	Pneumatic Tube	E-11
12414690-229	Pneumatic Tube	E-11
12414690-230	Pneumatic Tube	E-11
12414690-231	Pneumatic Tube	E-11
12414690-301	Pneumatic Tube	E-11
12414690-302	Pneumatic Tube	E-11
12414690-303	Pneumatic Tube	E-11
12416381P1	Non-Metallic Electrical Cable Conduit	E-12
12416381P10	Non-Metallic Electrical Cable Conduit	E-12
12416381P11	Non-Metallic Electrical Cable Conduit	E-12
12416381P12	Non-Metallic Electrical Cable Conduit	E-12
12416381P13	Non-Metallic Electrical Cable Conduit	E-12
12416381P14	Non-Metallic Electrical Cable Conduit	E-12
12416381P15	Non-Metallic Electrical Cable Conduit	E-12
12416381P16	Non-Metallic Electrical Cable Conduit	E-12
12416381P17	Non-Metallic Electrical Cable Conduit	E-12
12416381P2	Non-Metallic Electrical Cable Conduit	E-12
12416381P20	Non-Metallic Electrical Cable Conduit	E-12
12416381P21	Non-Metallic Electrical Cable Conduit	E-12
12416381P22	Non-Metallic Electrical Cable Conduit	E-12
12416381P23	Non-Metallic Electrical Cable Conduit	E-12
12416381P26	Non-Metallic Electrical Cable Conduit	E-12
12416381P3	Non-Metallic Electrical Cable Conduit	E-12
12416381P30	Non-Metallic Electrical Cable Conduit	E-12
12416381P32	Non-Metallic Electrical Cable Conduit	E-12
12416381P34	Non-Metallic Electrical Cable Conduit	E-12
12416381P35	Non-Metallic Electrical Cable Conduit	E-12

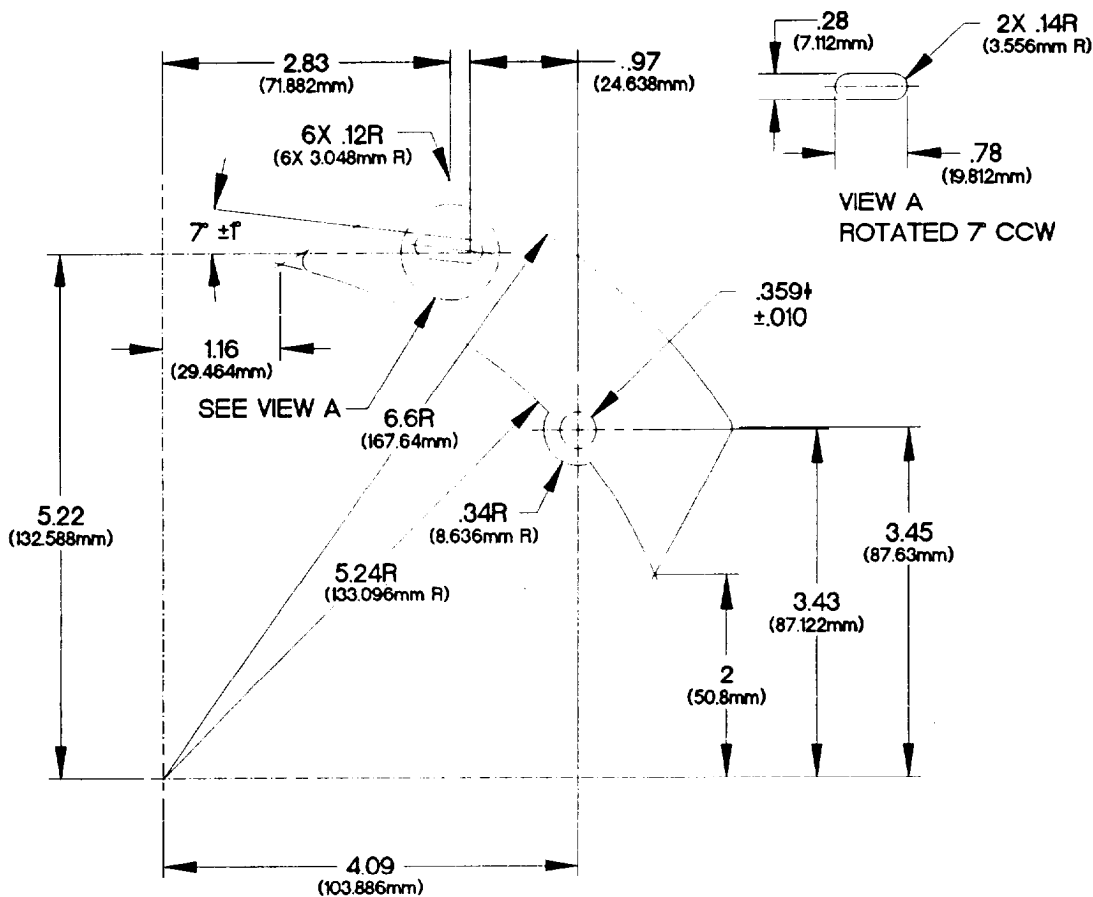
ITEM NAME/PART NUMBER	ITEM DESCRIPTION	PARA NO.
12416381P36	Non-Metallic Electrical Cable Conduit	E-12
12416381P37	Non-Metallic Electrical Cable Conduit	E-12
12416381P38	Non-Metallic Electrical Cable Conduit	E-12
12416381P4	Non-Metallic Electrical Cable Conduit	E-12
12416381P5	Non-Metallic Electrical Cable Conduit	E-12
12416381P6	Non-Metallic Electrical Cable Conduit	E-12
12416381P7	Non-Metallic Electrical Cable Conduit	E-12
12416381P8	Non-Metallic Electrical Cable Conduit	E-12
12416381P9	Non-Metallic Electrical Cable Conduit	E-12
12418037	Steering Gear Return Hose	E-13
12418460-001	Transmission Oil Cooler Hose	E-13
12418460-002	Transmission Oil Cooler Hose	E-13
12418763	Lanyard Assembly	E-14
12420196	Lanyard Assembly	E-14
12420197-001	Non-Metallic Vent Air Hose	E-15
12420197-002	Non-Metallic Vent Air Hose	E-15
12420197-003	Non-Metallic Vent Air Hose	E-15
12420197-004	Non-Metallic Vent Air Hose	E-15
12420197-005	Non-Metallic Vent Air Hose	E-15
12420197-006	Non-Metallic Vent Air Hose	E-15
12420198-001	Non-Metallic Vent Air Hose	E-15
12420198-002	Non-Metallic Vent Air Hose	E-15
12420308-457	Personnel Heater Air Duct Hose	E-16
12420308-760	Personnel Heater Air Duct Hose	E-16
12420489	Block Seal	E-17
3256-H-1048	CTIS Seal Driver	E-18
3256-K-1051	Wheel Hub Grease Seal Driver	E-19

Section III. MANUFACTURED ITEMS

E-2. BRAKE ADJUSTING TOOL SUPPORT

Make the brake adjusting tool support from 0.134 in. (3.4 mm) flat steel stock according to the following instructions. Refer to the parts list and **Figure E-1. Brake Adjusting Tool Support** for details.

Item	Part Number	Material Description	Size	Qty
1	N/A	Steel, ASTM A569 Sheet, Hot Rolled	6.0 in. (152.4 mm) x 6.0 in. (152.4 mm) x 0.134 in. (3.4 cm)	2



XAPPE13A

Figure E-1. Brake Adjusting Tool Support

- All dimensions are in inches (millimeters).
- Cut steel sheet as shown by dimensions on **Figure E-1. Brake Adjusting Tool Support**.
- De-burr and remove sharp edges.

E-3. BRAKE PLUNGER SEAL DRIVER

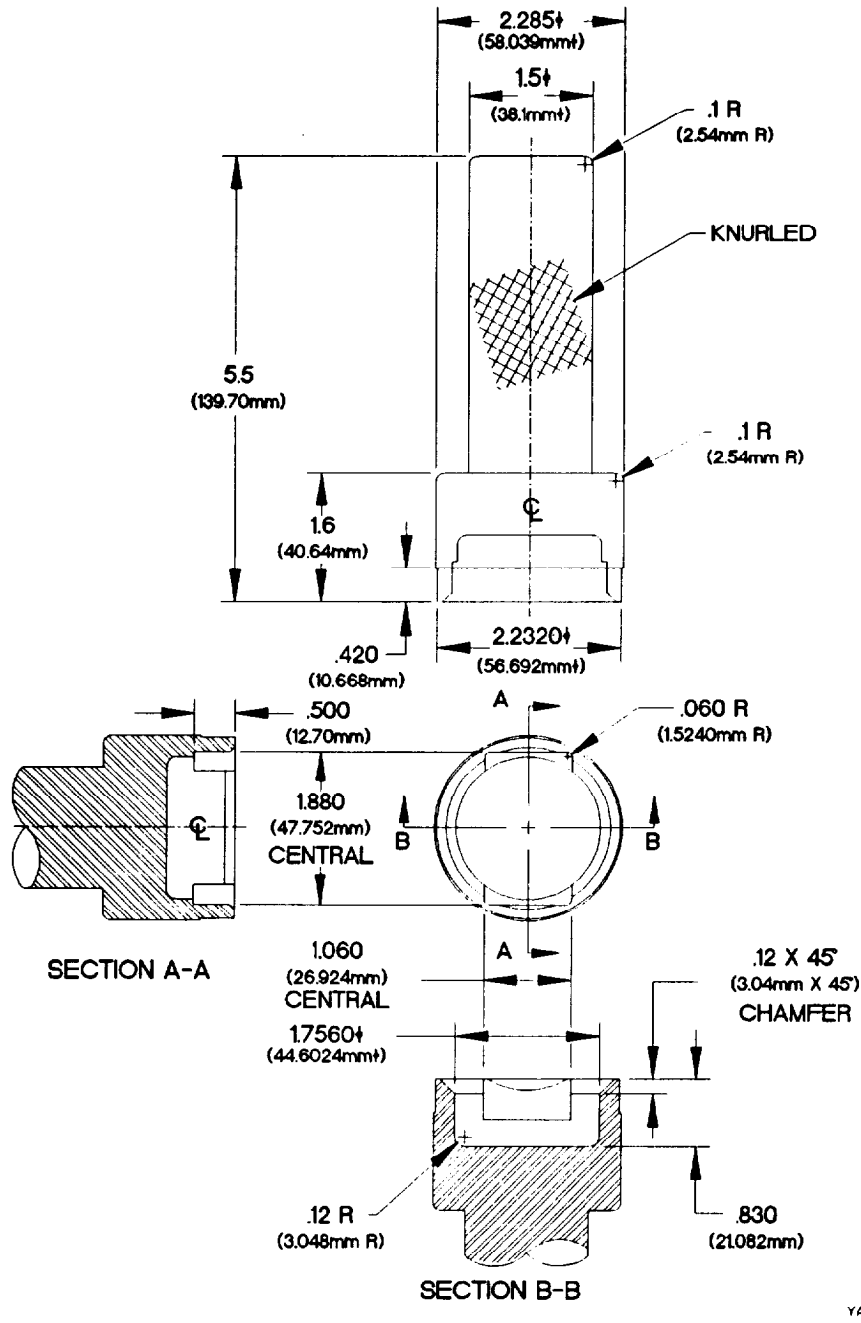


Figure E-2. Brake Plunger Seal Driver

- a. All dimensions are in inches (millimeters).
- b. Manufacture from round steel stock.
- c. De-burr and remove sharp edges.

E-4. CAB SUPPORT TOOL

Make the cab support tool from .38 inch (.96 cm) flat steel stock and angle iron stock according to the following instructions. Refer to the parts list and **Figure E-3. Cab Support Tool Strut and Cab Rest** for details.

Item	Part Number	Material Description	Size	Qty
1	N/A	Steel, Flat Bar	4.0 in. (10.2 cm) X 33.38 in. X (84.8 cm) X 0.38 in. (0.96 cm)	1
2	N/A	Steel, Flat Bar	4.0 in. (10.2 cm) X 12.0 in. (30.5 cm) X 0.38 in. (0.96 cm)	1
3	N/A	Angle Iron	2.0 in. (5.1 cm) X 2.0 in. (5.1 cm) X 3.5 in. (8.9 cm)	2
4	H.S.105VW-1	Insulgrip, CSA 105 C		

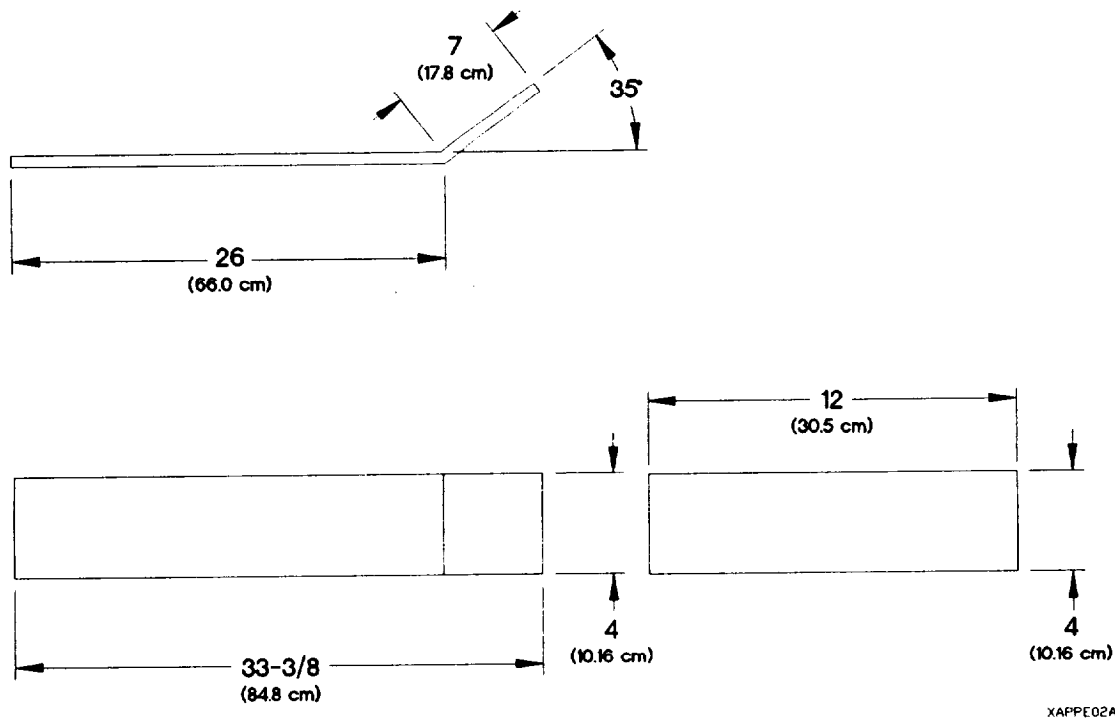
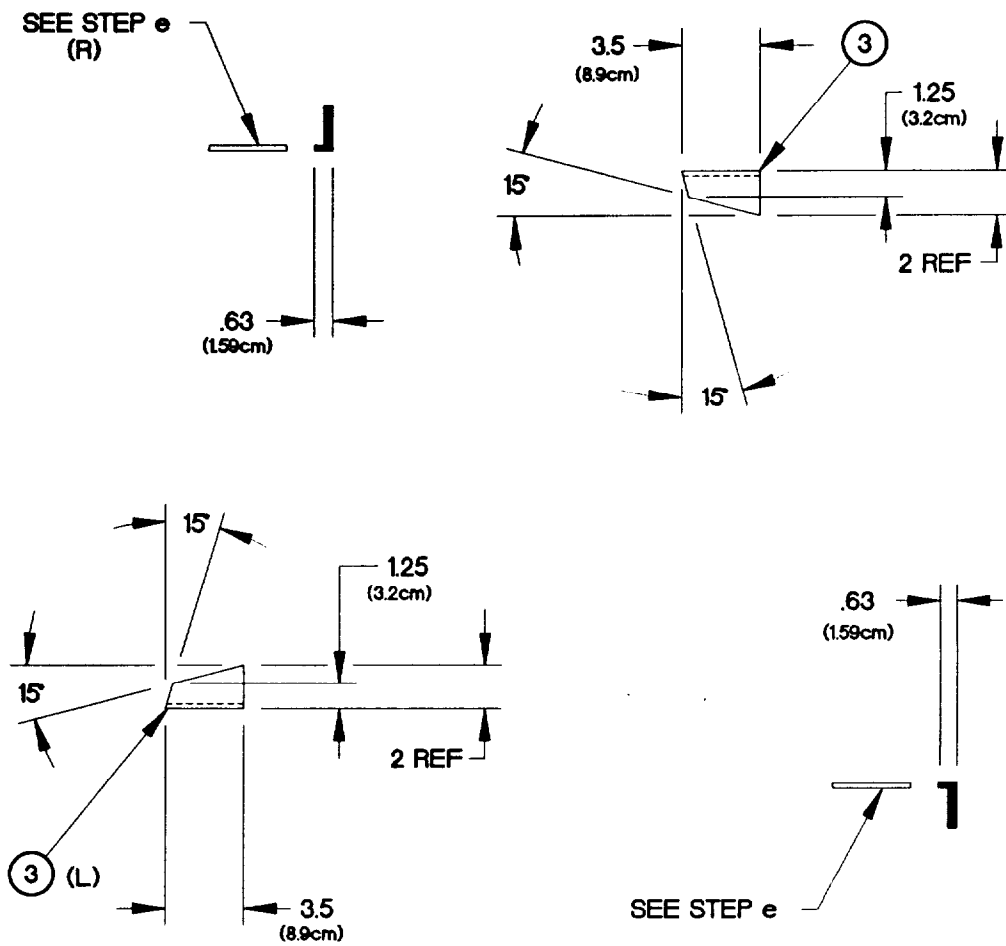


Figure E-3. Cab Support Tool Strut and Cab Rest

- All dimensions are in inches (centimeters).
- Cut cab support tool strut (1) from steel flat bar and bend to shape as shown in **Figure E-3. Cab Support Tool Strut and Cab Rest**.
- Cut cab support tool cab rest (2) from steel flat bar.
- De-burr and remove sharp edges.

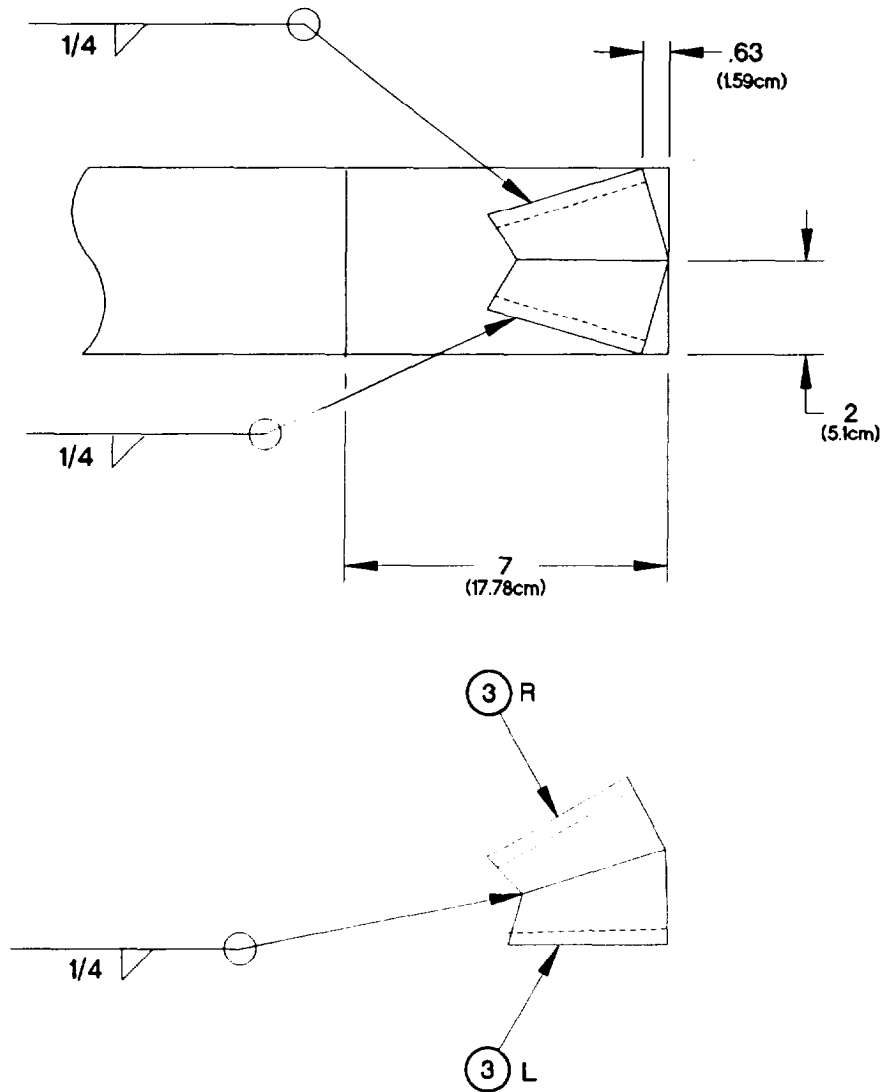


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Figure E-4. Cab Support Tool Seat

- e. Remove flange side of cab support tool seats (3) as shown in **Figure E-4. Cab Support Tool Seat**.
- f. Cut cab support tool seats (3) L and (3) R according to dimensions and left/right orientation shown on **Figure E-4. Cab Support Tool Seat**.
- g. De-burr and remove sharp edges.

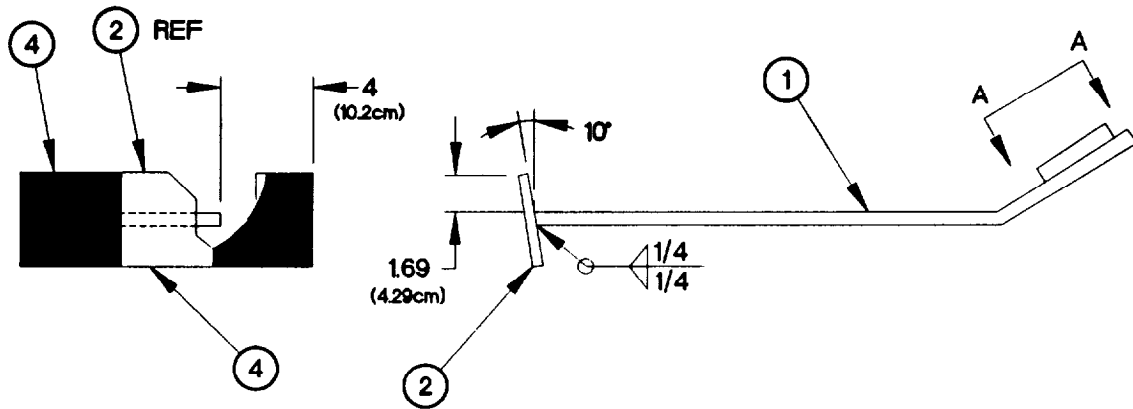
E-4. CAB SUPPORT TOOL (CONT)



XAPPE04A

Figure E-5. Cab Support Tool Seat Layout

- h. Position and clamp cab support tool seats (3) L and (3) R together as shown by dimensions on **Figure E-5. Cab Support Tool Seat Layout.**
- i. Weld cab support tool seat (3) L to cab support tool seat (3) R as identified on assembly table and **Figure E-5. Cab Support Tool Seat Layout.**
- j. Position and clamp cab support tool seats (3) L and (3) R to cab support tool strut (1) as shown by dimensions on **Figure E-5. Cab Support Tool Seat Layout.**
- k. Weld items clamped in step (f) as shown in **Figure E-5. Cab Support Tool Seat Layout.**
- l. De-burr and remove sharp edges.



XAPPE05A

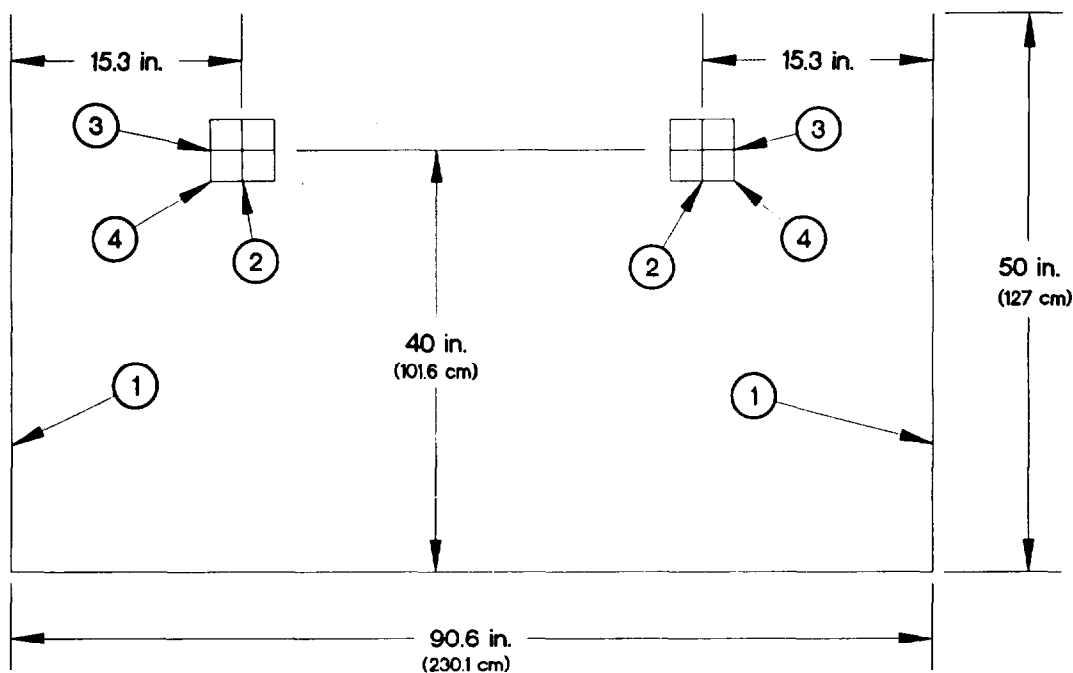
Figure E-6. Cab Support Tool Assembly

- m. Position and clamp cab support tool strut (1) to cab support tool cab rest (2) as shown by dimensions on **Figure E-6. Cab Support Tool Assembly**, before insulgrip (4) is applied.
- n. Weld cab support tool strut (1) to cab support tool cab rest (2).
- o. Apply Insulgrip (4) to cab support tool cab rest (2) as described on material container.

E-5. HEADLIGHT ADJUSTMENT SCREEN

The headlight adjustment screen may be drawn on any vertical surface at least 50 in. (127 cm) high and 100 in. (254 cm) wide.

- a. Draw two vertical lines (1) 50 in. (127 cm) high and 90.6 in. (230 cm) apart (centered on headlight adjustment screen).
- b. Locate two points 40 in. (101.6 cm) from floor and 13 in. (33 cm) toward the center from each vertical line (1).
- c. Draw vertical line (2) about 3-5 in. (8-13 cm) centered on each of the two points.
- d. Draw horizontal line (3) about 3-5 in. (8-13 cm) centered on each of the two points.
- e. Measure out 4 in. (10 cm) along each vertical line (2) and horizontal line (3) from each of the two points to make 8 in. (20 cm) squares (4).



XAPPE01A

Figure E-7. Headlight Adjustment Screen

E-6. M1079 BLACKOUT SHIELD SEALS

Fabricate the M1079 blackout shield seals according to the following steps. Refer to the following parts list for materials.

Description	Material Part Number	CAGE Code	Cut Length
Blackout Shield Header Seal	942P00001	0SHR6	28-3/4 in. (730 mm)
Blackout Shield Jamb Seal (van body serial numbers 001 through 190)	942P00001	0SHR6	63-3/8 in. (1610 mm)
Blackout Shield Jamb Seal (van body serial number 191 and higher)	942P00001	0SHR6	33 in. (838 mm)

- a. Dimensions are in inches (millimeters).
- b. Cut seal material to the specified length using a fine-toothed hacksaw or other suitable cutting tool.

E-7. M1079 DOOR GASKETS

Fabricate the M1079 door gaskets according to the following steps. Refer to the following parts list for materials.

Description	Material Part Number	CAGE Code	Cut Length
LH Door Gasket	12416417	19207	214 in. (5435 mm)
RH Door Gasket	12416417	19207	197 in. (5004 mm)

- a. Dimensions are in inches (millimeters).
- b. Cut seal material to the specified length using a fine-toothed hacksaw or other suitable cutting tool.
- c. Glue ends of gasket to each other using adhesive MIL-A-46106 GP1TY1 (Item 11, Appendix D).

E-8. M1079 WINDOW SASH GLAZING SEALS

Fabricate the M1079 window sash glazing seals according to the following steps. Refer to the following parts list for materials.

Description	Material Part Number	CAGE Code	Cut Length
Window Sash Top/Bottom Seal	941P00001	0SHR6	26-13/16 in. (681 mm)
Window Sash Side Seal (van body serial numbers 001 through 190)	941P00001	0SHR6	28-1/2 in. (724 mm)
Window Sash Side Seal (van body serial number 191 and higher)	941P00001	0SHR6	12-11/16 in. (322 mm)

- a. Dimensions are in inches (millimeters).
- b. Cut seal material to the specified length using a fine-toothed hacksaw or other suitable cutting tool.

NOTE

Cut miters so that short side of seal faces toward glass.

- c. Cut 45-degree miters on ends of window sash seals.

E-9. RELAY TEST WIRE

Fabricate the relay test wire according to the following steps. Refer to the following parts list for materials.

Material Description	National Stock Number	Cut Length
Wire, Electrical (MIL-W-16878)	6145-00-330-3318	6 in. (152 mm)

- a. Dimensions are in inches (millimeters).
- b. Cut a length of wire six inches (152 mm) long.
- c. Remove approximately 3/4 in. (19 mm) of electrical insulation from each end of wire.

E-10. WHEEL BEARING SHIM TOOL REST

Fabricate the wheel bearing shim tool rest according to the following steps. Refer to the following parts list for materials.

Part Number	National Stock Number	Description
QQ-T-570	9510-00-866-1037	Bar, Metal

- a. Dimensions are in inches (millimeters).
- b. Cut metal bar to 9.0 inches (228.6 mm) long.
- c. De-burr and remove sharp edges from ends of metal bar.

E-11. PNEUMATIC TUBES FABRICATION
--

Cut pneumatic tubes from bulk tubing stock listed **Table E-1. Pneumatic Tube Lengths**. Use a fine-toothed hacksaw or suitable cutting device and cut tubing to required length.

Table E-1. Pneumatic Tube Lengths

Tube Part Number	Bulk Tubing Part Number	Cut Length	
		inches	cm
12414690-001	NT-100-4 (79470)	18.1	46.0
12414690-002	NT-100-4 (79470)	16.0	40.6
12414690-004	NT-100-4 (79470)	74.8	190.0
12414690-005	NT-100-4 (79470)	69.7	177.0
12414690-010	NT-100-4 (79470)	180.0	457.2
12414690-101	J844TYBSIZE 3/8 (81343)	18.0	45.7
12414690-102	J844TYBSIZE 3/8 (81343)	35.4	90.0
12414690-103	J844TYBSIZE 3/8 (81343)	20.9	53.0
12414690-104	J844TYBSIZE 3/8 (81343)	13.8	35.0
12414690-105	J844TYBSIZE 3/8 (81343)	11.8	30.0
12414690-106	J844TYBSIZE 3/8 (81343)	20.5	52.0
12414690-107	J844TYBSIZE 3/8 (81343)	39.0	99.0
12414690-108	J844TYBSIZE 3/8 (81343)	15.4	39.0
12414690-109	J844TYBSIZE 3/8 (81343)	23.0	58.4
12414690-112	J844TYBSIZE 3/8 (81343)	80.0	198.0
12414690-113	J844TYBSIZE 3/8 (81343)	11.4	29.0
12414690-115	J844TYBSIZE 3/8 (81343)	82.8	210.2
12414690-117	J844TYBSIZE 3/8 (81343)	156.5	397.5
12414690-118	J844TYBSIZE 3/8 (81343)	11.8	30.0
12414690-119	J844TYBSIZE 3/8 (81343)	269.5	684.5
12414690-120	J844TYBSIZE 3/8 (81343)	11.9	30.2
12414690-121	J844TYBSIZE 3/8 (81343)	43.0	109.2
12414690-122	J844TYBSIZE 3/8 (81343)	44.1	112.0
12414690-123	J844TYBSIZE 3/8 (81343)	259.4	659.0
12414690-124	J844TYBSIZE 3/8 (81343)	288.2	732.0
12414690-125	J844TYBSIZE 3/8 (81343)	10.8	27.3
12414690-126	J844TYBSIZE 3/8 (81343)	17.0	43.2
12414690-127	J844TYBSIZE 3/8 (81343)	17.0	43.2

E-11. PNEUMATIC TUBES FABRICATION (CONT)

Table E-1. Pneumatic Tube Lengths (Cont)

Tube Part Number	Bulk Tubing Part Number	Cut Length	
		inches	cm
12414690-201	C608-100BLK (13174)	14.8	37.5
12414690-202	C608-100BLK (13174)	14.0	35.7
12414690-203	C608-100BLK (13174)	6.5	16.5
12414690-205	C608-100BLK (13174)	14.5	36.8
12414690-206	C608-100BLK (13174)	14.9	37.7
12414690-207	C608-100BLK (13174)	15.5	39.5
12414690-208	C608-100BLK (13174)	6.7	17.0
12414690-209	C608-100BLK (13174)	19.5	49.5
12414690-210	C608-100BLK (13174)	15.5	39.3
12414690-211	C608-100BLK (13174)	8.0	20.3
12414690-212	C608-100BLK (13174)	16.9	43.0
12414690-213	C608-100BLK (13174)	118.5	301.0
12414690-214	C608-100BLK (13174)	124.0	315.0
12414690-215	C608-100BLK (13174)	163.0	414.0
12414690-216	C608-100BLK (13174)	160.0	406.4
12414690-217	C608-100BLK (13174)	62.6	159.0
12414690-218	C608-100BLK (13174)	119.8	304.2
12414690-219	C608-100BLK (13174)	69.0	175.3
12414690-220	C608-100BLK (13174)	45.5	115.6
12414690-221	C608-100BLK (13174)	12.6	32.0
12414690-222	C608-100BLK (13174)	5.5	14.0
12414690-223	C608-100BLK (13174)	14.6	37.1
12414690-224	C608-100BLK (13174)	170.0	431.8
12414690-225	C608-100BLK (13174)	174.0	442.0
12414690-226	C608-100BLK (13174)	103.5	263.0
12414690-227	C608-100BLK (13174)	32.8	83.2
12414690-228	C608-100BLK (13174)	3.5	8.9
12414690-229	C608-100BLK (13174)	62.2	158.1
12414690-230	C608-100BLK (13174)	14.6	37.0
12414690-231	C608-100BLK (13174)	60.5	153.7
12414690-301	PFT-10B-BLK-100 (61424)	19.0	48.3
12414690-302	PFT-10B-BLK-100 (61424)	56.0	142.2
12414690-303	PFT-10B-BLK-100 (61424)	118.1	300.0

E-12. NON-METALLIC ELECTRICAL CABLE CONDUIT FABRICATION

Make conduit to cover electrical cables described on 1241638 from bulk tube stock listed in **Table E-2. Non-Metallic Electrical Cable Conduit Lengths**. Use a fine-toothed hacksaw or suitable cutting device and cut hose/tube to required length.

Table E-2. Non-Metallic Electrical Cable Conduit Lengths

Tube Part Number	Bulk Tube Part Number	Cut Length	
		inch	cm
12416381P1	49008	8.9	22.6
12416381P10	49008	17.8	45.2
12416381P11	49008	29.9	75.9
12416381P12	49008	33.0	83.8
12416381P13	49008	13.9	35.3
12416381P14	49008	4.0	10.2
12416381P15	49008	17.4	44.2
12416381P16	49008	3.2	8.1
12416381P17	49008	4.5	11.4
12416381P2	49008	16.2	41.1
12416381P20	27413	32.8	83.3
12416381P21	27413	9.2	23.4
12416381P22	27413	8.0	20.3
12416381P23	27413	23.3	59.2
12416381P26	49008	2.5	6.4
12416381P3	27413	7.3	18.5
12416381P30	49007	17.0	43.2
12416381P32	49005	1.7	4.3
12416381P34	49005	20.7	52.6
12416381P35	49005	21.8	55.4
12416381P36	49005	5.5	14.0
12416381P37	49005	8.0	20.3
12416381P38	49008	3.7	9.4
12416381P4	49008	12.0	30.5
12416381P5	49008	26.0	66.0
12416381P6	49008	7.7	19.6
12416381P7	49008	26.7	67.8
12416381P8	49008	5.2	13.2
12416381P9	49008	16.8	42.7

E-13. STEERING GEAR RETURN HOSE AND TRANSMISSION OIL COOLER HOSES FABRICATION

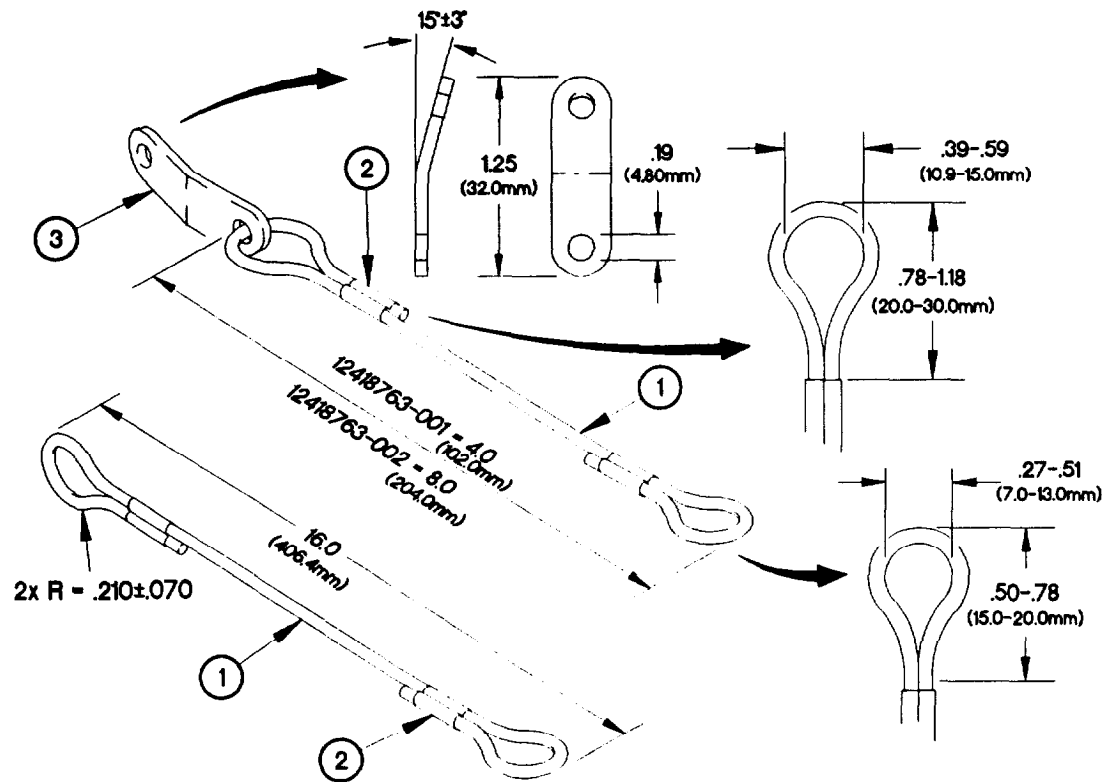
Cut the following hoses from bulk hose using a fine-toothed hacksaw or suitable cutting device.

Hose Part Number	Bulk Hose Part Number	Cut Length	
		inches	cm
12418037	A110 (30327)	75.5	191.7
12418460-001	MS521 302B110360 (96906)	17.5	44.4
12418460-002	MS521 301A206R (96906)	16.0	40.6

E-14. LANYARD ASSEMBLIES P/N 12418763 AND 12420196 FABRICATION

Make the following lanyard assemblies from bulk cable material, sleeves, and tab material and assemble according to **Figure E-8. Lanyard Assembly**. The following parts list identifies part numbers and lengths of cut pieces.

Item	Part Number	Material Description	Size	Qty
1	MIL-W-83420 Type 1, Comp B	1/16 in. stranded wire cable	4 in. (102 mm)	1
2	MS51844-22	Sleeve		2
3	N/A	Tab, Stainless Steel ASTM A617	.06 in. (16 mm) X .37 in. (9.5 mm) X 1.25 in. (32 mm)	1



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Figure E-8. Lanyard Assembly

- All dimensions are in inches (millimeters).
- Make from bulk cable and flat steel material as identified in parts list.
- Drill two 0.19 in. (4.8 mm) diameter holes through tab material as shown on **Figure E-14. Lanyard Assembly**.
- De-burr and remove sharp edges.
- Bend tab as shown on **Figure E-14. Lanyard Assembly**.
- Form loops on cable ends and insert sleeve material over cable on one end of cable and over cable and through sleeve at other end of cable as shown in **Figure E-14. Lanyard Assembly**.
- Crimp two sleeves over cable ends.

E-15. NON-METALLIC VENT AIR HOSES FABRICATION

Cut the following vent air hoses from bulk hose using a fine-toothed hacksaw or suitable cutting device.

Hose Part Number	Bulk Hose Part Number	Cut Length	
		inches	cm
12420197-001	483666 (02280)	180.0	457.2
12420197-002	483666 (02280)	120.0	304.8
12420197-003	483666 (02280)	96.0	243.8
12420197-004	483666 (02280)	36.0	91.4
12420197-005	483666 (02280)	156.0	396.2
12420197-006	483666 (02280)	72.0	182.9
12420198-001	881-16 (98441)	120.0	304.8
12420198-002	11657469	36.0	91.4

E-16. PERSONNEL HEATER AIR DUCT HOSE FABRICATION

Cut the following hoses from bulk hose using a fine-toothed hacksaw or suitable cutting device.

Hose Part Number	Bulk Hose Part Number	Cut Length	
		inches	cm
12420308-457	8711054 (19207)	18.3	46.4
12420308-760	8711054 (19207)	30.4	77.2

E-17. BLOCK SEAL 12420489 FABRICATION

Make block seal from P/N (0VXY8) STN2.38X.5. Use a suitable cutting tool to cut seal to 0.52 inch (1.3 cm) long.

E-18. CTIS SEAL DRIVER 3256-H-1048

Used on Front and Rear Axle CTIS Seals.

NOTES ON USE OF DRIVER

- 1) SEAL END OF DRIVER TO BE CLEAN OF DEBRIS, DIRT, NICKS AND BURRS
- 2) DO NOT USE A METAL HAMMER ON DRIVER
A RUBBER, PLASTIC, WOOD OR SOME OTHER DEAD BLOW TYPE Mallet IS TO BE USED
- 3) SLIGHTLY GREASE SEAL END OF DRIVER PRIOR TO INSTALLING SEAL

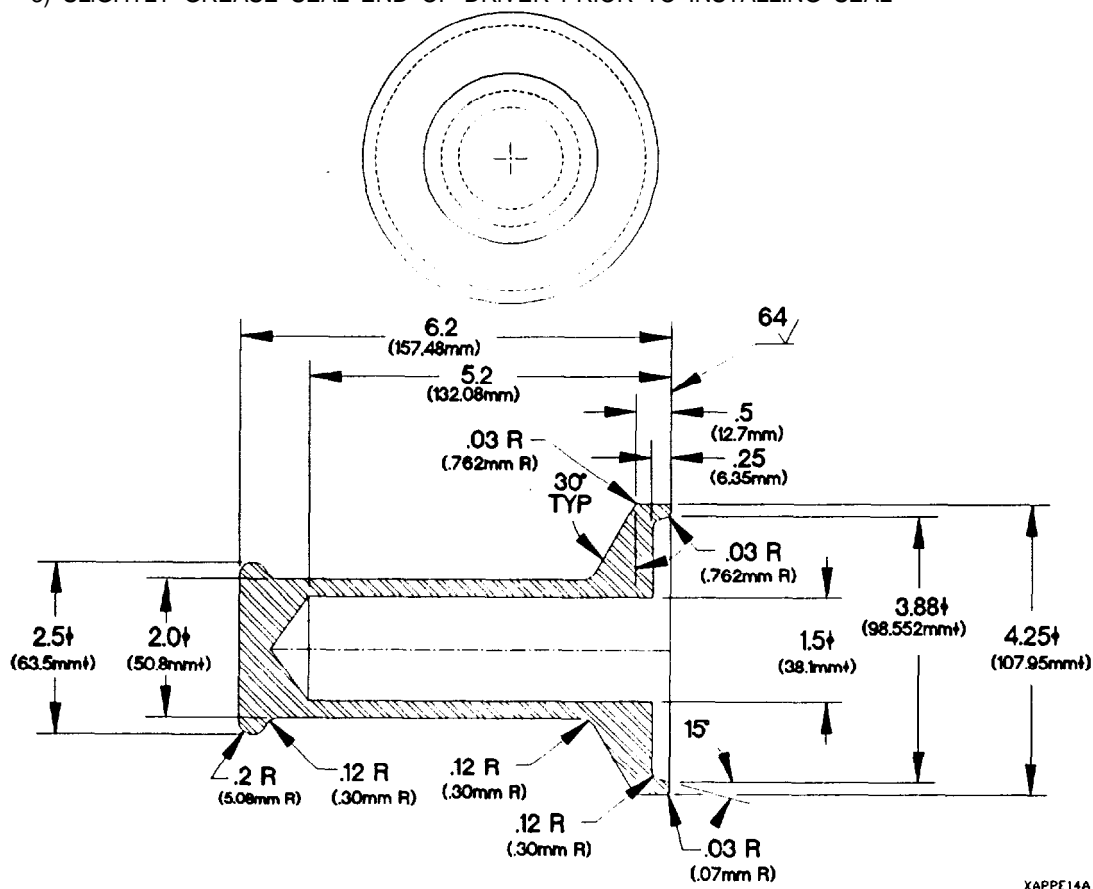


Figure E-9. CTIS Seal Driver

- a. All dimensions are in inches (millimeters).
- b. Manufacture from round steel stock.
- c. De-burr and remove sharp edges.

E-19. WHEEL HUB GREASE SEAL DRIVER 3256-K-1051

NOTES ON USE OF DRIVER

SEAL END OF DRIVER TO BE CLEAN OF DEBRIS, DIRT, NICKS AND BURRS
 DO NOT USE A METAL HAMMER ON DRIVER
 A RUBBER, PLASTIC, WOOD OR SOME OTHER DEAD BLOW TYPE Mallet
 IS TO BE USED.
 SLIGHTLY GREASE SEAL END OF DRIVER PRIOR TO INSTALLING SEAL

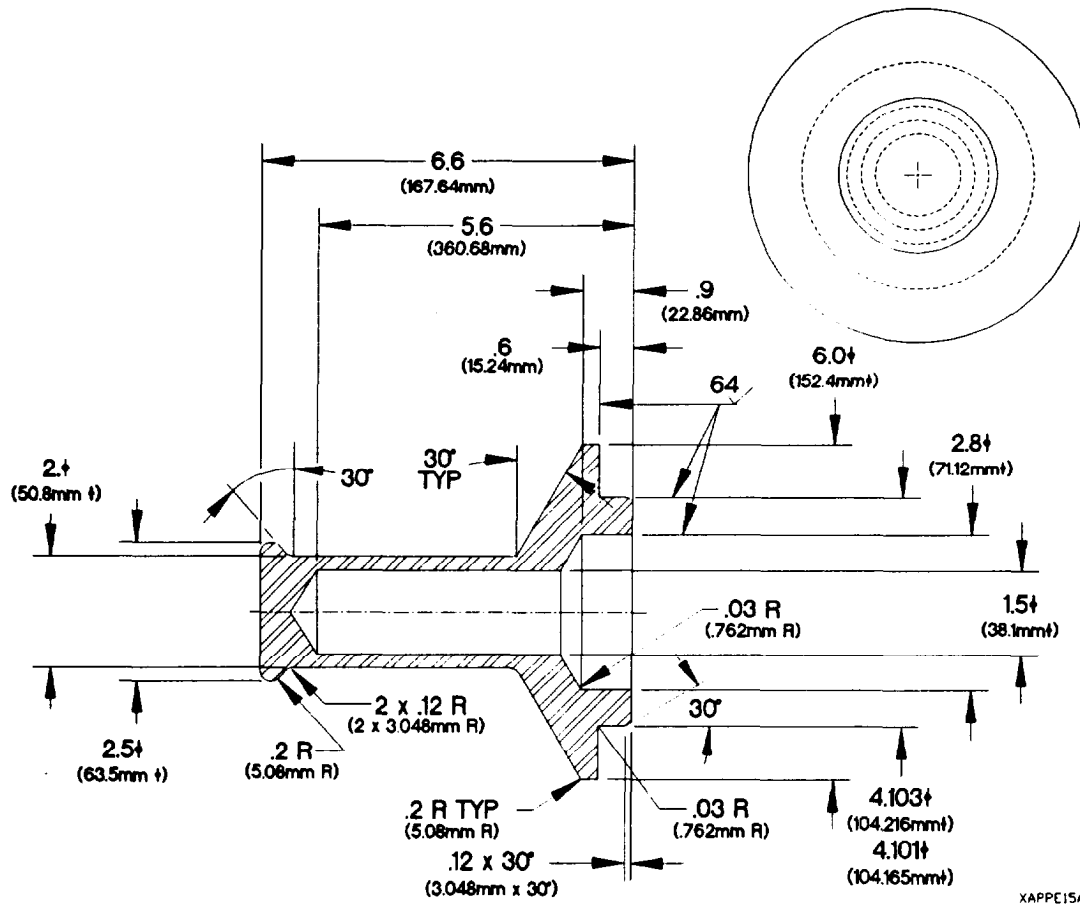


Figure E-10. Wheel Hub Grease Seal Driver

- a. All dimensions are in inches (millimeters).
- b. Manufacture from round steel stock.
- c. De-burr and remove sharp edges.

APPENDIX F TORQUE LIMITS

F-1. GENERAL

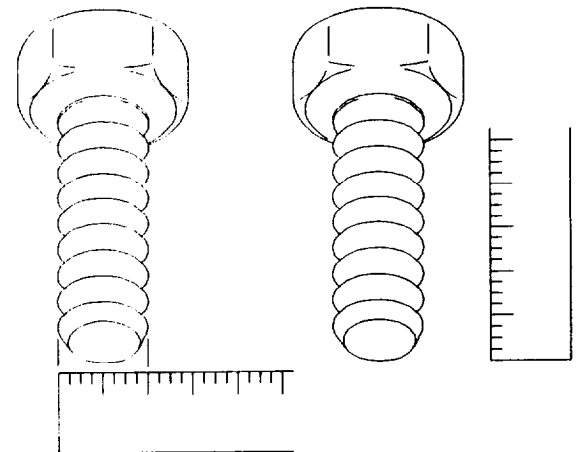
This appendix provides general torque limits for screws and nuts used on the vehicle. Special torque limits are shown in the maintenance procedures for applicable components. Use the general torque limit given in this appendix when specific torque limits are not given in the maintenance procedure. These general torque limits can not be applied to screws that retain rubber components. The rubber components will be damaged before the torque limit is reached. If a special torque limit is not given in the maintenance instructions for a fastener which retains a rubber component, tighten the screw or nut until it touches metal, then tighten one more turn. Whenever possible, the tightening force (torque) should be applied to the nut side of the fastener group.

F-2. TORQUE LIMITS

Refer to **Table F-1. Torque Limits for SAE and ANSI Fasteners** for torque limits on standard (SAE and ANSI) screws and free spinning nuts. Refer to **Table F-2. Torque Limits for SAE and ANSI Prevailing Torque Nuts** for torque limits on standard (SAE and ANSI) self-locking nuts. Refer to **Table F-3. Torque Limits for Metric Screws and Free Spinning Nuts** for torque limits on metric screws and free spinning nuts. Refer to **Table F-4. Torque Limits for Metric Prevailing Torque Nuts** for torque limits on metric self-locking nuts.

F-3. USE OF TORQUE TABLES

- (1) Measure the diameter of the screw to be installed.
- (2) Count the number of threads per inch.
- (3) Under the heading DIAMETER look down the column until the diameter of the screw is found. (There are usually two lines beginning with the same diameter.)
- (4) Under the heading THREADS PER INCH (SAE and ANSI) or THREAD PITCH (metric), find the number of threads per inch that matches the number counted in step (2).
- (5) To find the grade of the screw, match the markings on the head to the correct picture under CAPSCREW HEAD MARKINGS on the torque table.
- (6) Look down the column under the picture found in step (5) until the torque limit (lb-ft or N•m) for the diameter and threads per inch (or thread pitch, in the case of metric fasteners) of the screw are located.



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APPENDIX F TORQUE LIMITS

Table F-1. Dry Torque Limits for SAE and ANSI Screws and Free Spinning Nuts

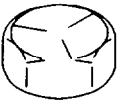
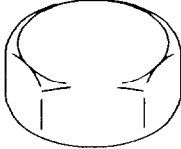
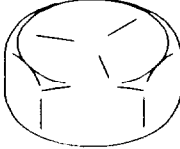
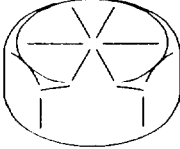
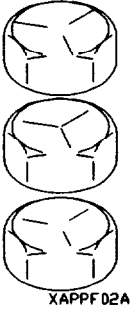
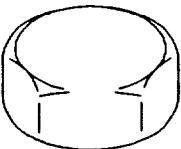
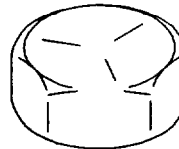
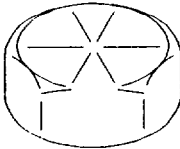
		Material Grade Markings						
		 XAPPF02A	 XAPPF03A SAE Grade 2	 XAPPF04A SAE Grade 5	 XAPPF06A SAE Grade 8			
Diameter		Threads per inch	Torque					
			lb-ft	N•m	lb-ft	N•m	lb-ft	N•m
Inch								
1/4	20	3-5	5-7	5-7	8-10	8-10	10-14	
1/4	28	4-6	5-7	6-8	9-11	8-12	12-16	
1/4	32	4-6	5-7	7-9	9-11	9-13	12-16	
5/16	18	7-9	9-13	11-15	15-21	15-21	21-29	
5/16	24	8-10	11-15	12-16	17-23	17-23	24-32	
5/16	32	9-11	12-16	14-18	18-24	19-25	27-34	
3/8	16	13-17	17-23	20-26	27-35	28-38	38-50	
3/8	24	15-19	20-26	22-30	31-41	32-42	43-57	
3/8	32	15-21	21-27	24-32	33-43	33-45	55-61	
7/16	14	20-28	28-38	32-42	43-57	44-60	61-81	
7/16	20	23-31	31-41	35-47	48-64	49-67	68-90	
7/16	28	25-33	33-45	37-51	51-69	54-72	73-97	
1/2	13	32-42	43-57	49-65	66-88	68-92	93-123	
1/2	20	35-47	48-64	55-73	74-98	77-103	105-139	
1/2	28	38-50	51-67	58-78	79-105	82-110	111-149	
9/16	12	55-61	62-82	70-94	95-127	98-132	134-178	
9/16	18	50-68	69-91	78-104	105-141	109-147	149-199	
9/16	24	53-71	72-96	82-110	111-149	115-155	158-210	
5/8	11	62-84	85-113	95-129	131-175	136-182	184-246	
5/8	18	70-94	96-128	108-146	148-198	154-206	209-279	
5/8	24	73-99	100-134	114-154	155-207	161-217	219-293	

Table F-1. Dry Torque Limits for SAE and ANSI Screws and Free Spinning Nuts (Cont)

 Manufacturer's marks may vary. These are all SAE Grade 5		Material Grade Markings					
		 SAE Grade 2	 SAE Grade 5	 SAE Grade 8	Torque		
Diameter	Threads per inch	lb-ft	N•m	lb-ft	N•m	lb-ft	N•m
inch							
11/16	24	99-133	135-181	153-207	209-279	217-291	296-394
3/4	10	110-148	150-200	171-229	232-310	240-324	328-438
3/4	16	123-165	168-224	190-256	259-345	269-361	366-488
3/4	20	127-171	174-232	197-265	268-358	278-374	379-505
13/16	20			252-340	345-459	357-481	487-649
7/8	9			275-369	374-498	387-521	528-704
7/8	14			303-407	413-551	427-575	583-777
7/8	20			319-429	435-579	450-606	614-818
15/16	20			395-531	538-718	558-750	760-1014
1	8			411-553	560-748	581-781	792-1056
1	12			450-608	614-818	636-856	867-1155
1	20			483-649	658-878	681-917	929-1239
1-1/16	18			576-776	782-1044	813-1095	1109-1479
1-1/8	7			507-683	693-923	824-1108	1123-1497
1-1/8	12			570-766	776-1034	923-1241	1258-1678
1-1/8	18			600-806	817-1089	971-1307	1324-1766
1-3/16	18			709-953	966-1288	1149-1545	1566-2088
1-1/4	7			716-964	976-1302	1161-1563	1584-2112
1-1/4	12			793-1067	1081-1441	1286-1730	1754-2338
1-1/4	18			831-1117	1132-1510	1346-1812	1835-2447
1-5/16	18			965-1299	1316-1754	1565-2105	2134-2846
1-3/8	6			939-1263	1281-1707	1523-2049	2076-2768

APPENDIX F TORQUE LIMITS

Table F-2. Dry Torque Limits for SAE and ANSI Prevailing Torque Nuts

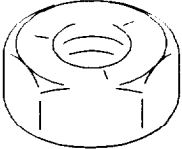
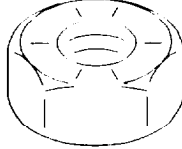
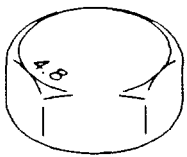
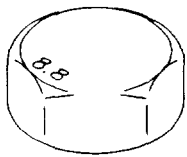
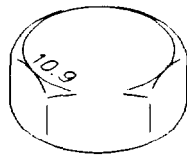
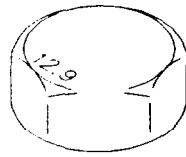
		Material Grade Markings				
		 XAPPF 07A SAE Grade 5				 XAPPF 08A SAE Grade 8
Hole Diameter	Threads per inch	Torque				
		lb-ft	N•m	lb-ft	N•m	
inch						
1/4	20	10-12	14-16	15-17	20-24	
1/4	28	12-14	16-18	14-18	21-25	
5/16	18	20-24	27-33	26-32	36-44	
5/16	24	22-26	30-36	29-35	40-48	
3/8	16	35-41	47-55	48-58	65-77	
3/8	24	38-46	53-63	53-63	72-86	
7/16	14	55-65	74-88	75-91	103-123	
7/16	20	60-70	81-97	80-98	110-132	
1/2	13	86-102	116-138	113-137	154-184	
1/2	20	92-110	125-149	127-153	177-207	
9/16	12	120-144	162-194	168-202	229-273	
9/16	18	135-161	183-219	179-217	244-294	
5/8	11	165-199	226-270	226-272	306-368	
5/8	18	181-219	246-296	244-296	331-401	
3/4	10	296-354	402-480	395-479	538-648	
3/4	16	310-376	422-508	424-516	576-698	
7/8	9	460-554	625-749	612-746	833-1009	
7/8	14	503-607	684-822	652-800	888-1082	
1	8	686-828	933-1121	941-1141	1280-1544	

Table F-3. Dry Torque Limits for Metric Screws and Free Spinning Nuts

		 XAPPF09A Metric Grade 4.8		 XAPPF10A Metric Grade 8.8		 XAPPF11A Metric Grade 10.9		 XAPPF12A Metric Grade 12.9	
Diameter	Thread Pitch	Torque							
		lb-ft	N•m	lb-ft	N•m	lb-ft	N•m	lb-ft	N•m
mm									
6	1	3	4-5	5-7	7-9	7-9	10-13	8-11	11-15
8	1.25	7-9	9-11	13-17	17-23	17-23	23-31	21-27	27-37
8	1	7-9	9-13	14-18	18-24	19-25	25-33	21-29	29-39
10	1.5	13-17	17-23	25-33	33-45	34-46	46-62	40-54	54-72
10	1.25	14-18	18-24	26-34	35-47	36-48	49-65	42-56	57-77
10	0.75	15-19	21-27	29-39	39-53	40-54	54-72	47-63	63-85
12	1.75	22-30	30-40	43-57	58-78	60-80	81-107	69-93	94-126
12	1.5	23-31	32-42	46-60	61-81	63-83	85-113	73-97	99-131
12	1.25	24-32	33-45	47-63	65-85	65-87	88-118	76-102	104-138
12	1	26-34	34-46	49-65	67-89	68-90	93-123	80-106	108-144
14	2	36-48	48-74	69-91	93-125	95-127	129-173	112-148	161-201
14	1.5	39-51	52-70	75-99	99-135	103-137	140-186	120-160	163-217
15	1	51-69	69-93	100-132	135-179	137-183	187-249	160-214	218-290
16	2	55-73	75-99	107-143	145-193	148-198	201-267	173-231	235-313
16	1.5	59-79	80-106	114-152	155-207	158-210	214-286	184-246	250-334
18	1.5			166-222	225-301	230-306	311-415	268-358	364-486
20	2.5			209-279	283-377	289-385	392-522	338-450	458-610
20	1.5			232-308	315-419	321-427	435-579	375-499	508-678
20	1			244-324	330-440	337-449	457-609	394-524	534-712
22	2.5			285-379	387-515	394-524	534-712	461-613	624-832
22	1.5			313-417	424-566	432-576	586-782	664-884	900-1200
24	3			361-481	489-653	499-665	677-903	584-778	791-1055
24	2			394-524	534-712	545-725	738-984	725-965	982-1310
25	1.5			467-621	633-843	645-859	875-1167	754-1004	1023-1363

APPENDIX F TORQUE LIMITS

Table F-4. Dry Torque Limits for Metric Prevailing Torque Nuts

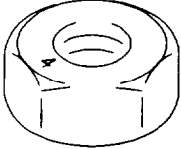
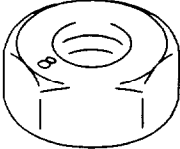
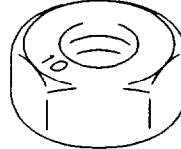
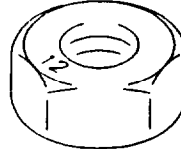
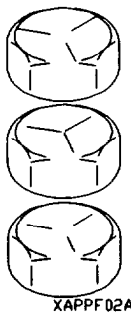
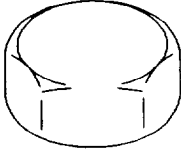
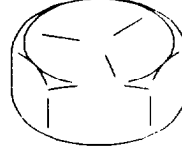
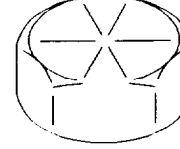
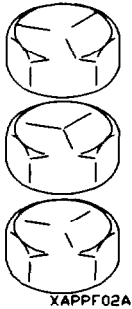
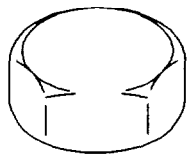
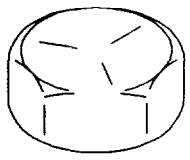
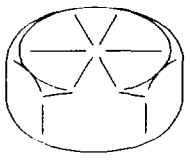
		Material Grade Markings							
									
		Metric Grade 4.8	Metric Grade 8.8	Metric Grade 10.9	Metric Grade 12.9				
Diameter	Thread Pitch	Torque							
		lb-ft	N•m	lb-ft	N•m	lb-ft	N•m	lb-ft	N•m
mm									
6	1	5-6	7-8	7-9	10-12	10-12	14-17	11-14	15-19
8	1.25	12-14	16-18	18-22	24-30	24-30	32-40	27-33	36-46
8	1	12-14	16-20	19-23	25-31	25-31	34-42	28-36	38-48
10	1.5	21-25	28-34	33-41	44-56	44-56	60-76	50-64	68-86
10	1.25	21-25	29-35	34-42	46-58	46-58	63-79	53-67	71-91
10	0.75	23-27	31-37	37-47	49-63	50-64	68-86	57-73	77-99
12	1.75	33-41	46-56	55-69	74-94	75-95	102-128	85-109	115-147
12	1.5	35-43	47-57	56-72	77-97	78-98	106-134	89-113	120-152
12	1.25	36-44	48-60	58-74	79-101	81-103	109-139	91-117	125-159
12	1	37-45	50-62	61-77	82-104	84-106	114-144	95-121	129-165
14	2	53-65	72-88	87-109	117-149	118-150	160-204	134-172	182-232
14	1.5	57-69	76-94	92-116	125-159	126-160	171-217	143-183	194-248
16	2	79-97	107-131	130-166	177-225	178-228	243-309	204-262	277-355
16	1.5	82-102	112-138	138-176	187-239	189-241	256-328	215-277	292-376
18	1.5			197-253	267-343	271-347	367-471	309-399	420-542
20	2.5			248-318	337-431	342-438	464-594	391-503	530-682
20	1.5			271-349	369-473	374-480	507-651	428-552	580-750
20	1			283-365	384-494	390-502	529-681	447-577	606-784
22	2.5			335-429	455-583	460-592	624-802	526-680	714-922
22	1.5			363-467	492-634	499-643	676-872	730-950	990-1290
24	3			420-540	569-733	577-743	783-1009	662-856	897-1161
24	2			453-583	614-792	622-804	844-1090	803-1043	1088-1416

Table F-5. Wet Torque Limits for SAE end ANSI Screws and Free Spinning Nuts

 XAPPF02A NOTE Manufacturer's marks may vary. These are all SAE Grade 5.		Material Grade Markings					
		 XAPPF03A SAE Grade 2	 XAPPF04A SAE Grade 5	 XAPPF06A SAE Grade 8	Torque		
Diameter	Threads per inch	lb-ft	N•m	lb-ft	N•m	lb-ft	N•m
inch							
1/4	20	4	6	6	8	9	12
1/4	28	5	7	7	9	10	14
5/16	18	8	11	13	18	18	24
5/16	24	9	12	14	19	20	27
3/8	16	15	20	23	31	35	47
3/8	24	17	23	25	34	35	47
7/16	14	24	33	35	47	55	75
7/16	20	25	34	40	54	60	81
1/2	13	35	47	55	75	80	108
1/2	20	40	54	65	88	90	122
9/16	12	50	68	80	108	110	149
9/16	18	55	75	90	122	130	176
5/8	11	70	95	110	149	170	231
5/8	18	80	108	130	176	180	244
3/4	10	120	163	200	271	280	380
3/4	16	140	190	220	298	320	434
7/8	9	110	149	300	407	460	624
7/8	14	120	163	320	434	500	678
1	8	160	217	440	597	680	922
1	12	170	231	480	651	740	1003
1-1/8	7	220	298	600	814	960	1302
1-1/8	12	260	353	660	895	1080	1464

APPENDIX F TORQUE LIMITS

Table F-5. Wet Torque Limits for SAE and ANSI Screws and Free Spinning Nuts (Cont)

 <p style="font-size: small; margin-top: 5px;">XAPPF02A</p> <p>Manufacturer's marks may vary. These are all SAE Grade 5</p>		Material Grade Markings					
		 <p style="font-size: x-small; margin-top: 5px;">XAPPF03A</p> <p>SAE Grade 2</p>		 <p style="font-size: x-small; margin-top: 5px;">XAPPF04A</p> <p>SAE Grade 5</p>		 <p style="font-size: x-small; margin-top: 5px;">XAPPF06A</p> <p>SAE Grade 8</p>	
		Torque					
Diameter	Threads per inch						
inch		lb-ft	N•m	lb-ft	N•m	lb-ft	N•m
1-1/4	7	320	434	840	1139	1360	1844
1-1/4	12	360	488	920	1248	1500	2034
1-3/8	6	420	570	1100	1492	1780	2414
1-3/8	12	460	624	1260	1709	2040	2766

APPENDIX G MANDATORY REPLACEMENT PARTS

Section I. INTRODUCTION

G-1. SCOPE

This appendix lists mandatory replacement parts you will need to maintain the LMTV vehicle.

G-2. EXPLANATION OF COLUMNS

- | | |
|--|--|
| <p>a. Column (1) - Item Number.</p> <p>b. Column (2) - Nomenclature.</p> <p>c. Column (3) - Part Number.</p> <p>d. Column (4) - National Stock Number.</p> | <p>This number is assigned to each entry in the listing and is referenced in the Initial Setup of the applicable task under Materials/Parts.</p> <p>Name or identification of the part.</p> <p>The manufacturer's part number.</p> <p>The National stock number of the part.</p> |
|--|--|

Section II. MANDATORY REPLACEMENT PARTS LIST

(1) ITEM NO.	(2) NOMENCLATURE	(3) PART NUMBER	(4) NATIONAL STOCK NUMBER
1	BLADE, WINDSHIELD WIPER	105.384	2540-01-364-1621
2	BOLT, MACHINE	12414307-065	5306-01-382-5054
3	BOOT KIT, EXHAUST	DQ6025	4730-01-417-3197
4	BUMPER, RUBBER	12419182	5340-01-410-8397
5	BUSHING, SLEEVE	7-199-002668	3120-01-367-6894
6	CHANNEL, RUBBER	ZZR765/2-001A7	9390-01-420-4560
7	CLAMP	024S9	
8	CLAMP	032S9	
9	DECAL	12340917	7690-01-256-4909
10	FASTENER TAPE	MIL-F-21840	8315-00-006-9855
11	FASTENER TAPE	50-534718-19	8315-00-935-6762
12	FILTER ASSEMBLY	75223-11	2940-01-417-9333
13	FILTER ELEMENT	1048011	2940-01-385-8931
14	FILTER ELEMENT, FLUID	R22146	2910-01-360-6366
15	FILTER ELEMENT, FLUID	29507750	2940-01-361-2406
16	FILTER ELEMENT, FLUID	599791	4460-01-284-2344
17	FILTER ELEMENT, FLUID	931558	2940-01-363-4377

Section II. MANDATORY REPLACEMENT PARTS LIST (CONT)

(1) ITEM NO.	(2) NOMENCLATURE	(3) PART NUMBER	(4) NATIONAL STOCK NUMBER
18	FILTER ELEMENT, INTAKE AIR CLEANER	P52-7750	2940-01-361-2407
19	FILTER, AIR	12416539	
20	FILTER, AIR	12416563	
21	FILTER, FUEL	7E9763	2940-01-363-3089
22	FILTER, OIL	1R0739	2940-00-029-0388
23	GASKET	F337576M6	
24	GASKET	M28840/24HA	5935-01-421-9754
25	GASKET	QS-1181	5330-01-058-3788
26	GASKET	10-36675-18	5330-00-298-0190
27	GASKET	119-2940	5330-01-424-7905
28	GASKET	12421469	
29	GASKET	12422254	
30	GASKET	13848	5330-01-211-0717
31	GASKET	350700	5330-01-295-3053
32	GASKET	350903	5330-00-576-4626
33	GASKET	352200	5330-01-421-6105
34	GASKET	352302	5330-01-421-6107
35	GASKET	353400	5330-01-421-6102
36	GASKET	353806	5330-010-421-6103
37	GASKET	353810	
38	GASKET	355148	5330-01-423-0596
39	GASKET	355175	5330-01-423-0623
40	GASKET	3K3257	5330-01-305-6550
41	GASKET	4P1624	5330-01-360-5934
42	GASKET	9Y8103	5330-01-360-5931
43	GASKET, FUEL FILTER	7C1159	5330-01-360-5941
44	GASKET, RING	331.406	5330-01-395-4645
45	GASKET, THERMOSTAT	2W7212	5330-010-347-3206
46	GROMMET, NONMETALLIC	MS35489-6	5325-00-263-6632
47	GROMMET, NONMETALLIC	12417598	5325-01-375-1299
48	GROMMET, NONMETALLIC	12421402	5325-01-440-2178

Section II. MANDATORY REPLACEMENT PARTS LIST (CONT)

(1) ITEM NO.	(2) NOMENCLATURE	(3) PART NUMBER	(4) NATIONAL STOCK NUMBER
49	GROMMET, NONMETALLIC	4082-37634-01	5325-01-194-3076
50	GROMMET, NONMETALLIC	50S12-1-1AA	5325-01-145-0105
51	GROMMET, NONMETALLIC	8741442	5325-01-145-0105
52	INSULATOR, TANK	A1394J	5970-01-385-7317
53	INSULATOR, TANK	A1394K	5970-01-385-7262
54	KIT, FILTER	29503829	
55	KIT, FILTER	29526899	
56	KIT, PROPELLER SHAFT	KT-16SB	2520-01-370-1360
57	LAMP, INCANDESCENT	CM7-7373	6240-00-270-6824
58	LAMP, INCANDESCENT	CM7376	6240-00-499-6278
59	LATCH, BAIL HEAD	68-20-101-10	2540-01-232-2470
60	LOCKNUT	0770-023-003	5310-01-423-3725
61	LOCKWASHER	ABCH207-LW-1/2	
62	LOCKWASHER	ABCH207-LW-3/8	
63	LOCKWASHER	B7949000161	
64	LOCKWASHER	D70336/1-20	5310-01-110-7933
65	LOCKWASHER	D70336/3-50	5310-01-439-2542
66	LOCKWASHER	D70336/3-52	5310-01-439-2543
67	LOCKWASHER	MS35335-30	5310-00-209-0788
68	LOCKWASHER	MS35335-31	5310-00-596-7693
69	LOCKWASHER	MS35335-33	5310-00-209-0786
70	LOCKWASHER	MS35335-36	5310-00-550-3503
71	LOCKWASHER	MS35335-38	5310-00-616-6354
72	LOCKWASHER	MS35335-58	5310-0-209-1366
73	LOCKWASHER	MS35335-61	5310-00-527-3634
74	LOCKWASHER	MS35335-62	5310-00-184-9562
75	LOCKWASHER	MS35337-25	5310-00-013-8502
76	LOCKWASHER	MS35338-100	5310-00-261-8278
77	LOCKWASHER	MS35338-102	5310-00-167-0671
78	LOCKWASHER	MS35338-103	5310-00-184-8971
79	LOCKWASHER	MS35338-135	5310-00-933-8118

Section II. MANDATORY REPLACEMENT PARTS LIST (CONT)

(1) ITEM NO.	(2) NOMENCLATURE	(3) PART NUMBER	(4) NATIONAL STOCK NUMBER
80	LOCKWASHER	MS35338-136	5310-00-929-6395
81	LOCKWASHER	MS35338-137	5310-00-933-8119
82	LOCKWASHER	MS35338-138	5310-00-933-8120
83	LOCKWASHER	MS35338-139	5310-00-933-8121
84	LOCKWASHER	MS34338-140	5310-00-974-6623
85	LOCKWASHER	MS35338-141	5310-00-984-7042
86	LOCKWASHER	MS35338-143	5310-00-933-8778
87	LOCKWASHER	MS35338-158	5310-00-883-9417
88	LOCKWASHER	MS35338-171	5310-01-130-9066
89	LOCKWASHER	MS35338-42	5310-00-045-3299
90	LOCKWASHER	MS35338-43	5310-00-045-3296
91	LOCKWASHER	MS35338-45	5310-00-407-9566
92	LOCKWASHER	MS35338-46	5310-01-334-4710
93	LOCKWASHER	MS35338-51	5310-00-584-7888
94	LOCKWASHER	MS35340-44	5310-00-682-5930
95	LOCKWASHER	MS51414-1	5310-01-235-2057
96	LOCKWASHER	MS51414-2	5310-01-310-1098
97	LOCKWASHER	MS51848-50	5310-01-033-8615
98	LOCKWASHER	N9015	5310-01-369-6073
99	LOCKWASHER	N9018	5310-01-032-4827
100	LOCKWASHER	N9459	5310-01-348-8393
101	LOCKWASHER	N9461	5310-01-348-8392
102	LOCKWASHER	1229-S-513C	5310-01-062-3384
103	LOCKWASHER	12414570-015	5310-01-388-2043
104	LOCKWASHER	12414570-021	5310-01-374-4516
105	LOCKWASHER	152.269	5310-01-407-4764
106	LOCKWASHER	152.522	
107	LOCKWASHER	152.544	5310-01-395-0823
108	LOCKWASHER	1729B262	5310-00-964-7811
109	LOCKWASHER	488.671	
110	NUT, BLIND RIVET	MS27130-S136	5310-01-409-4435

Section II. MANDATORY REPLACEMENT PARTS LIST (CONT)

(1) ITEM NO.	(2) NOMENCLATURE	(3) PART NUMBER	(4) NATIONAL STOCK NUMBER
111	NUT, BLIND RIVET	MS27130-S148	5310-01-370-5548
112	NUT, BLIND RIVET	12421403-060	
113	NUT, BLIND RIVET	12421403-065	
114	NUT, BLIND RIVET	12421634-017	
115	NUT, BLIND RIVET	12442158-5	
116	NUT, SELF-LOCKING	DIN-934STM6	5310-01-342-2739
117	NUT, SELF-LOCKING	MS16228-10C	5310-00-245-8826
118	NUT, SELF-LOCKING	MS16228-5C	5310-00-584-7992
119	NUT, SELF-LOCKING	MS20500-524	5310-00-208-4023
120	NUT, SELF-LOCKING	MS21042-04	5310-00-811-6419
121	NUT, SELF-LOCKING	MS21042-5	5310-00-807-1469
122	NUT, SELF-LOCKING	MS21044C08	5310-00-982-6814
123	NUT, SELF-LOCKING	MS21083N08	5310-00-941-6019
124	NUT, SELF-LOCKING	MS21083N6	5310-00-926-1852
125	NUT, SELF-LOCKING	MS51922-1	5310-00-088-1251
126	NUT, SELF-LOCKING	MS51922-2	5310-00-929-1807
127	NUT, SELF-LOCKING	MS51922-33	5310-00-225-6993
128	NUT, SELF-LOCKING	MS51922-5	5310-00-959-760
129	NUT, SELF-LOCKING	N9406	5310-01-362-6171
130	NUT, SELF-LOCKING	N9410	5310-01-348-8398
131	NUT, SELF-LOCKING	N9467	5310-01-350-4257
132	NUT, SELF-LOCKING	12301125	5310-01-210-0199
133	NUT, SELF-LOCKING	12412476-04	
134	NUT, SELF-LOCKING	12414308-002	5310-01-381-2819
135	NUT, SELF-LOCKING	12414308-003	5310-01-377-1549
136	NUT, SELF-LOCKING	12414308-004	5310-01-369-5703
137	NUT, SELF-LOCKING	12414308-007	5310-01-046-0186
138	NUT, SELF-LOCKING	12414308-017	5310-01-381-9830
139	NUT, SELF-LOCKING	12414308-018	5310-01-369-3337
140	NUT, SELF-LOCKING	12414308-019	5310-01-369-9522
141	NUT, SELF-LOCKING	12414308-020	5310-01-381-9849

Section II. MANDATORY REPLACEMENT PARTS LIST (CONT)

(1) ITEM NO.	(2) NOMENCLATURE	(3) PART NUMBER	(4) NATIONAL STOCK NUMBER
142	NUT, SELF-LOCKING	12414308-021	5310-01-369-3338
143	NUT, SELF-LOCKING	12414308-022	5310-01-417-1262
144	NUT, SELF-LOCKING	12414308-025	5310-01-367-6706
145	NUT, SELF-LOCKING	12414308-027	5310-01-369-3339
146	NUT, SELF-LOCKING	12414315-003	5310-01-374-1382
147	NUT, SELF-LOCKING	12414315-005	5310-01-372-3023
148	NUT, SELF-LOCKING	12414315-006	5310-01-369-3332
149	NUT, SELF-LOCKING	12414315-009	5310-01-365-7236
150	NUT, SELF-LOCKING	12414315-012	5310-01-369-3331
151	NUT, SELF-LOCKING	12414315-017	5310-01-368-8065
152	NUT, SELF-LOCKING	12414420-004	5310-01-370-0010
153	NUT, SELF-LOCKING	12419003	5310-01-376-0773
154	NUT, SELF-LOCKING	270W10000	
155	NUT, SELF-LOCKING	9514660	
156	NUT, SELF-LOCKING	7951286	5310-00-789-0398
157	PACKING, PREFORMED	A82777	5330-00-579-6495
158	PACKING, PREFORMED	F4001-16	
159	PACKING, PREFORMED	J515-8-1	5330-00-292-8171
160	PACKING, PREFORMED	MK0012510	
161	PACKING, PREFORMED	MS28775-011	5330-00-582-2133
162	PACKING, PREFORMED	MS28775-227	5330-00-576-9731
163	PACKING, PREFORMED	MS28778-10	5330-00-285-9842
164	PACKING, PREFORMED	MS28778-12	5330-00-251-8839
165	PACKING, PREFORMED	MS28778-16	5330-00-816-3456
166	PACKING, PREFORMED	MS28778-4	5330-00-805-2966
167	PACKING, PREFORMED	MS9955-113	5330-01-374-2325
168	PACKING, PREFORMED	M25988/1-246	5330-01-189-6351
169	PACKING, PREFORMED	OR420A	5330-01-389-6028
170	PACKING, PREFORMED	1163519-1	5330-00-463-0200
171	PACKING, PREFORMED	1509	5330-00-172-1919
172	PACKING, PREFORMED	2M4453	5330-00-074-3768

Section II. MANDATORY REPLACEMENT PARTS LIST (CONT)

(1) ITEM NO.	(2) NOMENCLATURE	(3) PART NUMBER	(4) NATIONAL STOCK NUMBER
173	PACKING, PREFORMED	22617-16	5330-01-168-0885
174	PACKING, PREFORMED	23043446	5330-01-424-6629
175	PACKING, PREFORMED	29500969	5330-01-360-7852
176	PACKING, PREFORMED	29503383	5330-01-360-6017
177	PACKING, PREFORMED	3-906N522-90	5330-01-104-1093
178	PACKING, PREFORMED	3-908N522-90	5330-00-929-8171
179	PACKING, PREFORMED	3D2824	5330-00-944-8281
180	PACKING, PREFORMED	3J1907	5330-01-333-6444
181	PACKING, PREFORMED	3J7354	5330-00-954-8008
182	PACKING, PREFORMED	3K0360	5330-00-948-6482
183	PACKING, PREFORMED	4J5477	5330-00-855-8059
184	PACKING, PREFORMED	4L9564	5330-00-828-8639
185	PACKING, PREFORMED	5-X-1155	5330-01-392-1637
186	PACKING, PREFORMED	5F7054	5330-00-339-6224
187	PACKING, PREFORMED	5P7813	5330-01-335-0042
188	PACKING, PREFORMED	6V8397	5330-00-579-6495
189	PACKING, PREFORMED	673268	
190	PACKING, PREFORMED	673269	5330-01-395-1252
191	PACKING, PREFORMED	7F8267	5330-01-291-7353
192	PACKING, PREFORMED	7320658	5330-00-297-7106
193	PACKING, PREFORMED	9604792-001	5330-01-429-3089
194	PAD, CUSHIONING	12416479-001	2590-01-397-7844
195	PAD, CUSHIONING	12416479-002	2590-01-412-2663
196	PARTS KIT, DEHYDRATOR	RN-60-A	4440-01-337-7324
197	PARTS KIT, SEAL REPLACEMENT	SK10-2	5330-01-350-4474
198	PARTS KIT, SEAL REPLACEMENT	SK10-3	5330-01-350-4472
199	PARTS KIT, SEAL REPLACEMENT	SK10-4	5330-01-343-2745
200	PIN, COTTER	K-2412-Z	5312-01-179-9882
201	PIN, COTTER	MS171659	5315-00-846-8337
202	PIN, COTTER	MS24665-151	5315-00-815-1405
203	PIN, COTTER	MS24665-298	5312-00-234-1861

Section II. MANDATORY REPLACEMENT PARTS LIST (CONT)

(1) ITEM NO.	(2) NOMENCLATURE	(3) PART NUMBER	(4) NATIONAL STOCK NUMBER
204	PIN, COTTER	MS24665-385	5315-00-187-9382
205	PIN, COTTER	MS24665-423	5315-00-013-7228
206	PIN, COTTER	MS24665-457	5315-00-187-9393
207	PIN, COTTER	MS24665-459	5315-00-187-9394
208	PIN, COTTER	MS24665-69	535-00-828-8190
209	PIN, COTTER	352.497	5315-01-394-3546
210	PIN, SPRING	MS16562-142	5315-00-058-6115
211	PIN, SPRING	MS16552-146	5315-00-853-3814
212	PLASTIC STRIP	352700	5330-01-296-2109
213	RECEPTACLE	50R4-1-1AA	5325-01-049-2049
214	RING, BUSHING	152.157	
215	RIVET, BLIND	AK42H	5320-00-874-4477
216	RIVET, BLIND	AK43H	5320-00-143-6149
217	RIVET, BLIND	MS20600AD5W12	5320-01-047-0467
218	RIVET, BLIND	MS20604B3W2	5320-00-721-9075
219	RIVET, BLIND	M24243/1-A806	5320-00-850-3256
220	RIVET, BLIND	M24243/1-B302	5320-00-999-0397
221	RIVET, BLIND	M24243/1-D502	5320-00-580-3248
222	RIVET, BLIND	M24243/1-D608	5320-00-580-3246
223	RIVET, BLIND	M24243/1-F402	5320-00-129-9706
224	RIVET, BLIND	M24243/6-A403H	5320-00-882-8388
225	RIVET, BLIND	M24243/6-A405H	5320-01-291-9121
226	RIVET, BLIND	M24243/6-A406H	5320-01-421-0484
227	RIVET, BLIND	M24243/6-A602H	5320-00-956-7362
228	RIVET, BLIND	M24243/6-A604H	5320-00-956-7355
229	RIVET, BLIND	M24243/6-A606H	5320-00-882-8385
230	RIVET, BLIND	M24243/6-A608H	5320-01-032-6534
231	RIVET, BLIND	M24243/7-A402H	5320-00-874-4477
232	RIVET, BLIND	M24243/7-A403H	5320-00-143-6149
233	RIVET, BLIND	M24243/7-A604H	5320-00-420-2165
234	RIVET, BLIND	M24243/7-A606H	5320-00-490-5523

Section II. MANDATORY REPLACEMENT PARTS LIST (CONT)

(1) ITEM NO.	(2) NOMENCLATURE	(3) PART NUMBER	(4) NATIONAL STOCK NUMBER
235	RIVET, BLIND	SD64BSLF	5320-01-397-3347
236	RIVET, BLIND	206057	5320-01-411-0081
237	RIVET, COMPRESSION	12418469	5320-01-376-0699
238	SCREW, CAP	12414475-131	5305-01-363-0703
239	SCREW, CAP	6V-2315	5306-01-433-4753
240	SCREW, MACHINE	MS24693-144	
241	SCREW, MACHINE	MS51958-83	5305-00-071-2095
242	SCREW, SELF-LOCKING	MS16998-61L	5305-01-211-3097
243	SEAL	VC08G1R0B	5330-01-389-6109
244	SEAL	12421431	
245	SEAL	125128-5	
246	SEAL	125128-6	
247	SEAL	355150	5330-01-423-0689
248	SEAL ASSEMBLY, CTIS	A1205-Q-2435	5330-01-360-7753
249	SEAL ASSEMBLY, HUB	A1205-R-2254	5330-01-360-5252
250	SEAL, DOOR	12416467	5330-01-385-3769
251	SEAL RING, METAL	29505809	5330-01-360-5329
252	SEAL, NONMETALLIC	CC3550	
253	SEAL, NONMETALLIC	12417725	5330-01-375-2908
254	SEAL, NONMETALLIC	2418974-1	5330-01-257-1709
255	SEAL, NONMETALLIC	673267	5330-01-395-1251
256	SEAL, URETHANE FOAM	12420420-001	
257	SEAL, URETHANE FOAM	12420420-002	
258	SEAL, URETHANE FOAM	12420420-003	
259	SEAL, WEATHER	147P00039	
260	SPACER, RING	4P2987	5365-01-433-8407
261	SPLICE, CONDUCTOR	12420927-001	
262	SPLICE, CONDUCTOR	12420927-002	5940-01-421-6955
263	STRAIN RELIEF	10280870-3	5975-00-376-1585
264	TERMINAL, LUG	MS20659-163	5940-00-113-3145
265	TERMINAL, LUG	MS20659-164	5940-00-113-3148

Section II. MANDATORY REPLACEMENT PARTS LIST (CONT)

(1) ITEM NO.	(2) NOMENCLATURE	(3) PART NUMBER	(4) NATIONAL STOCK NUMBER
266	TERMINAL, LUG	MS25036-108	5940-00-143-4780
267	TERMINAL, LUG	MS25036-122	5940-0-113-8190
268	TERMINAL, LUG	12414275-001	
269	TERMINAL, LUG	12416409-006	
270	WASHER, FLAT	MS27183-10	5310-00-809-4058
271	WASHER, FLAT	12417948-004	5365-01-436-8308
272	WASHER, FLAT RUBBER	900.032	5330-01-378-7541
273	WASHER, NYLON	MS51859-16	5310-00-964-7811
274	WASHER, SPRING	D63474/1-30	5310-01-413-8475
275	WASHER, SPRING	WW579S18	
276	WASHER, SPRING	110 7289	5310-01-246-1387
277	WASHER, SPRING	12414559-021	5310-01-374-4517
278	WASHER, SPRING	12414560-017	5310-01-395-0820
279	WASHER, SPRING	12414560-018	5310-01-381-3281
280	WASHER, SPRING	12414560-019	5310-01-369-6074
281	WASHER, SPRING	12417503	5310-01-406-6326
282	WASHER, SPRING	12418220	5310-01-372-3495

APPENDIX H LUBRICATION ORDER

SECTION I. INTRODUCTION

H-1. GENERAL

The information contained in this appendix provides the lubrication requirements for the LMTV Vehicle.

- a. Adherence.** Intervals (on-condition or hardtime) and the related man-hour times are based on normal operation. The man-hour time specified is the time needed to do all the services prescribed for a particular interval. On-condition (OC) oil sample intervals will be applied unless changed by the Army Oil Analysis Program (AOAP) laboratory. Change the hardtime interval if the lubricants are contaminated or if operating the equipment under adverse operating conditions, including longer-than-usual operating hours. The calendar interval may be extended during periods of low activity. If extended, adequate preservation precautions must be taken. Hardtime intervals will be applied in the event AOAP laboratory support is not available. Hardtime intervals must be applied during the warranty period.

Intervals shown in this lubrication order are based on mileage/calendar, and in some cases mileage alone. An example of a mileage/calendar interval is: **Q**, which means every 3,000 miles (4,827 km) or quarterly (every three months). The lubrication is to be performed at whichever interval occurs first for the vehicle. An example of a mileage alone interval is: **6K**, which stands for every 8,000 miles (9,654 km). The lubrication is to be performed at the mileage indicated regardless of the calendar interval.

WARNING

- **Dry Cleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles and gloves; use only in well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breath vapors. Keep away from heat or flame. Never smoke when using solvent; the flashpoint for Type I Dry Cleaning Solvent is 100oF (38°C) and for Type II is 138°F (50°C). Failure to comply may result in serious injury or death to personnel.**
 - **If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get medical attention. Failure to comply may result in injury to personnel.**
- b. Cleaning fittings before lubricating.** Clean parts with dry cleaning solvent (SD P-D-680) (Item 71, Appendix D) or equivalent. Dry before lubricating. Dashed arrows indicate lubrication on both sides of the equipment.
- c. Lubricating after fording.** If fording occurs, lubricate all fittings below fording depth and check submerged gearboxes for presence of water.
- d. Lubricating after high-pressure washing.** After a thorough washing, lubricate all grease fittings and oil can points outside and underneath vehicle.
- e. Level of Maintenance.** The lowest level of maintenance authorized to lubricate a point is Operator/Unit Maintenance (O). Operator/crew (C) may lubricate points authorized for Unit Maintenance (O) when authorized by Unit Maintenance (O).
- f. Localized views.** A reference to the appropriate localized view is given after most lubrication entries. Localized views begin on page H-9.

H-1. GENERAL (CONT)

g. Interval Symbols. The lubrications interval symbols will be used as applicable:

- Q-quarterly/3,000 mi (4,827 km) (whichever occurs first)
- S-semiannually/6,000 mi (9,654 km) (whichever occurs first)
- A-annually/12,000 mi (19,308 km) (whichever occurs first)
- B-biannually/24,000 mi (38,616 km) (whichever occurs first)
- 3K-every 3,000 mi (4,827 km) (no calendar interval)
- 6K-every 6,000 mi (9,654 km) (no calendar interval)
- 12K-every 12,000 mi (19,308 km) (no calendar interval)
- 24K-every 24,000 mi (38,616 km) (no calendar interval)

H-2. OIL FILTERS

Oil filters shall be serviced/changed as applicable, when:

- a. They are known to be contaminated, or clogged;
- b. Service is recommended by AOAP laboratory analysis; or
- c. At prescribed hardtime intervals while vehicle is under warranty, or if AOAP is not available/used as required.

H-3. AOAP SAMPLING- INTERVAL

WARNING

- **Engine oil is hot and under pressure. The oil sampling valve releases oil proportionally to the amount of pressure applied to valve. Activate oil sampling valve by pressing in slowly to prevent injury to personnel. Failure to comply may result in injury to personnel.**
- **Wear safety goggles when taking oil sample. Oil is under pressure and could cause injury to personnel. Failure to comply may result in injury to personnel.**

Engine/transmission oil must be sampled every 90 days as prescribed by DA Pam 738-750. Hydraulic fluids must be sampled annually as prescribed by DA Pam 738-750.

H-4. WARRANTY HARDTIME STATEMENT

“For equipment under manufacturer’s warranty, hardtime oil service intervals shall be followed. Intervals shall be shortened if lubricants are known to be contaminated or if operation is under adverse conditions (such as longer than usual operating hours, extended idling periods, extreme dust).”

SECTION II. LUBRICATION CHART

H-5. LUBRICATION KEY

LUBRICANTS	
Specification	Type
MIL-L-2104 (OE/HDO)	Lubricating Oil, Internal Combustion Engine, Combat/Tactical Service
MIL-L-46167 (OEA)	Lubricating Oil, Internal Combustion Engine, Arctic
MIL-L-2105 (GO)	Lubricating Oil, Gear, Multipurpose
MIL-G-10924 (GAA)	Grease, Automotive and Artillery
MIL-G-18458 (GW)	Grease, Wire-Rope and Exposed Gear
MIL-H-5606 (OHA)	Hydraulic Fluid, Petroleum Base, Aircraft, Missile, and Ordnance

DESCRIPTION	CAPACITY	EXPECTED TEMPERATURES		
		Above +40°F (Above +4°C)	+40°F to -15°F (+4°C to -26°C)	-15°F to -50°F (-26°C to -46°C)
Engine crankcase	25 qt (24 L)	OE/HDO-15/40	SAE 10W30 OR OE/HDO-10	OEA
Transmission (total system)	43.3 qt (41 L)	OE/HDO-15/40	OE/HDO-10	OEA
Transmission (at oil change)	31.8 qt (30.0 L)	OE/HDO-15/40	OE/HDO-10	OEA
Transmission (after overhaul)	39.0 qt (37.0 L)	OE/HDO-15/40	OE/HDO-10	OEA
Steering system	5 qt (4.8 L)	OE/HDO-10	OE/HDO-10	OEA
Hydraulic reservoir	27 gal (102.2 L)	OE/HDO-10	OE/HDO-10	OEA
Front axle differential (maximum capacity)	9.5 qt (9.0 L)	GO-80/90	GO-80/90	SAE 75W90 OR GO-75
Rear axle differential (maximum capacity)	18.05 qt (17.1 L)	GO-80/90	GO-80/90	SAE 75W90 OR GO-75
Front axle planetary hubs	11-13 oz (0.33-0.38 L)	GO-80/90	GO-80/90	SAE 75W90 OR GO-75
11K Self-Recovery Winch (SRW)	As Required	GO-85/140	GO-80/90	GO-75
Propeller shaft universal and slip joints	As Required	GAA	GAA	GAA
Tie rod ends	As Required	GAA	GAA	GAA
Towing pintle assembly	As Required	GAA	GAA	GAA
Spring bolts and spring shackles	As Required	GAA	GAA	GAA
Front axle shaft U-joints and steering knuckles	As Required	GAA	GAA	GAA

H-5. LUBRICATION KEY (CONT)

DESCRIPTION	CAPACITY	EXPECTED TEMPERATURES		
		Above +40°F (Above +4°C)	+40°F to -15°F (+4°C to -26°C)	-15°F to -50°F (-26°C to -46°C)
Front axle inner wheel bearing	As Required	GAA	GAA	GAA
Rear axle inner wheel bearing	As Required	GAA	GAA	GAA
Front lifting beam	As Required	GAA	GAA	GAA
11K Self-Recovery Winch (SRW) cable	As Required	GW	GW	GW
Air/hydraulic power unit	3 pt (1.4 L)	OHA	OHA	OHA
Backup hydraulic pump	19 oz (562 ml)	OHA	OHA	OHA

COOLANT	
Specification	Type
MIL-A-46153	Antifreeze, Ethylene Glycol, Inhibited, Heavy Duty, Single Package
MIL-A-11755	Antifreeze, Arctic-Type

DESCRIPTION	CAPACITY	EXPECTED TEMPERATURES		
		Above +40°F (Above +4°C)	+40°F to -15°F (+4°C to -26°C)	-15°F to -50°F (-26°C to -46°C)
Cooling system (engine only)	14 qt (13 L)	MIL-A-46153	MIL-A-46153	N/A
Cooling system (total system)	43.8 qt (41.5 L)	MIL-A-46153	MIL-A-46153	N/A
Cooling system, Arctic (total system)	58.3 qt (55.2 L)	N/A	N/A	MIL-A-11755

CLEANING AGENT	
Specification	Type
P-D-680	Dry Cleaning Solvent, SD-II
O-C-1901	Cleaning Compound, Windshield

DESCRIPTION	CAPACITY	EXPECTED TEMPERATURES		
		Above +15°F (Above -9°C)	+15°F to -15°F (-9°C to -26°C)	-15°F to -50°F (-26°C to -46°C)
All metal parts as required	N/A	SD-II (all temperatures)		
Windshield washer reservoir	7.5 qt (7.1 L)	2/3 water to 1/3 O-C-1901	1/2 water to 1/2 O-C-1901	1/3 water to 2/3 O-C-1901

For arctic operation refer to FM 9-207.

H-6. LUBRICATION INTERVALS

Intervals		Total Man-Hours
Quarterly (Q)	Lubrication performed once every three months or 3,000 mi (4,827 km).*	2.0
Semi-annually (S)	Lubrication performed once every six months or 6,000 mi (9,654 km).*	2.5
Annually (A)	Lubrication performed once every year or every 12,000 mi (19,308 km).*	1.5
Bi-annually (B)	Lubrication performed once every two years or every 24,000 mi (38,616 km).*	3.5
3K	Lubrication performed once every 3,000 mi (4,827 km).**	1.0
6K	Lubrication performed once every 6,000 mi (9,654 km).**	1.0
12K	Lubrication performed once every 12,000 mi (19,308 km).**	4.0
24K	Lubrication performed once every 24,000 mi (38,616 km).**	0.5
* Whichever occurs first.		
** No calendar interval.		

H-7. LUBRICATION LOCATOR VIEWS

LUBRICANT INTERVAL

INTERVAL LUBRICANT

Engine Crankcase Breather (O)
(See note 17 and view A)

Fuel Filter (O)
(See note 6 and view A)

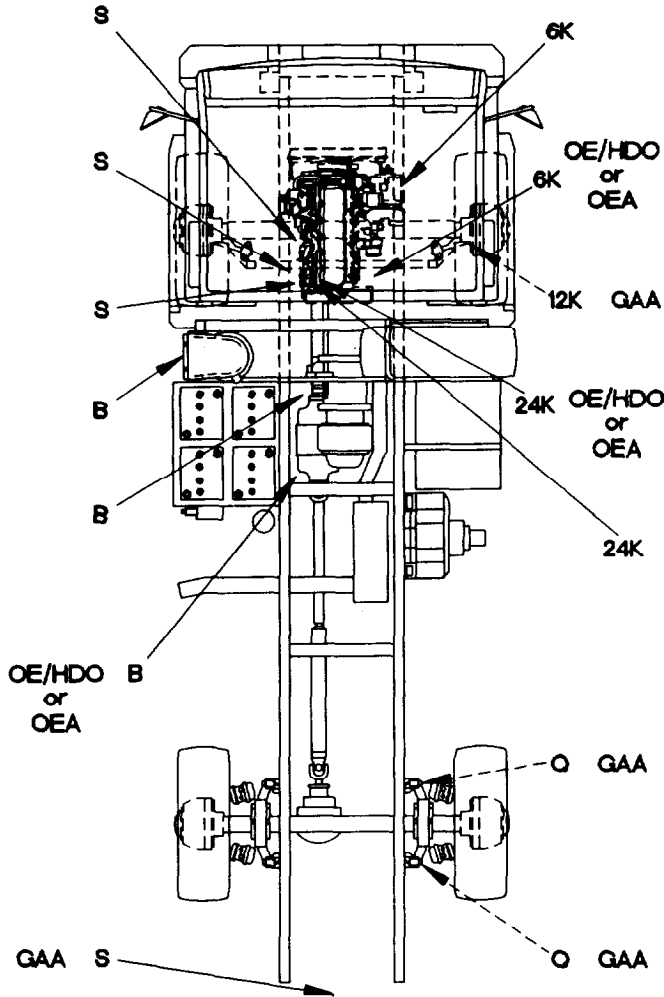
Fuel/Water Separator (O)
(See note 5 and view B)

Cooling System (O)
(See note 7)

Transmission Filter (O)
(See note 3 and view F)

Transmission Drain and Fill (O)
(See note 3 and views D, E, and F)

Towing Pintle Fill (O)
(See note 16 and views J and K)



Engine Oil Filter (O)
(See note 2 and view C)

Crankcase Drain and Fill (O)
(See note 1 and views C and D)

Front Axle Inner Wheel Bearing Repack (O)
(See note 22)

Power Steering Reservoir Drain and Fill (O)
(See note 4 and view G)

Power Steering Filter (O)
(See note 4 and view G)

Spring Bolt Fill (O)
(See note 18 and view H)

Spring Shackle Fill (O)
(See note 18 and view AE)

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NOTE: Dashed arrows indicate lubrication on both sides of vehicle.

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LUBRICANT INTERVAL

INTERVAL LUBRICANT

Spring Bolt
FM (O)
 (See note 18 and view H)

Spring Shackles
FM (O)
 (See note 18 and view I)

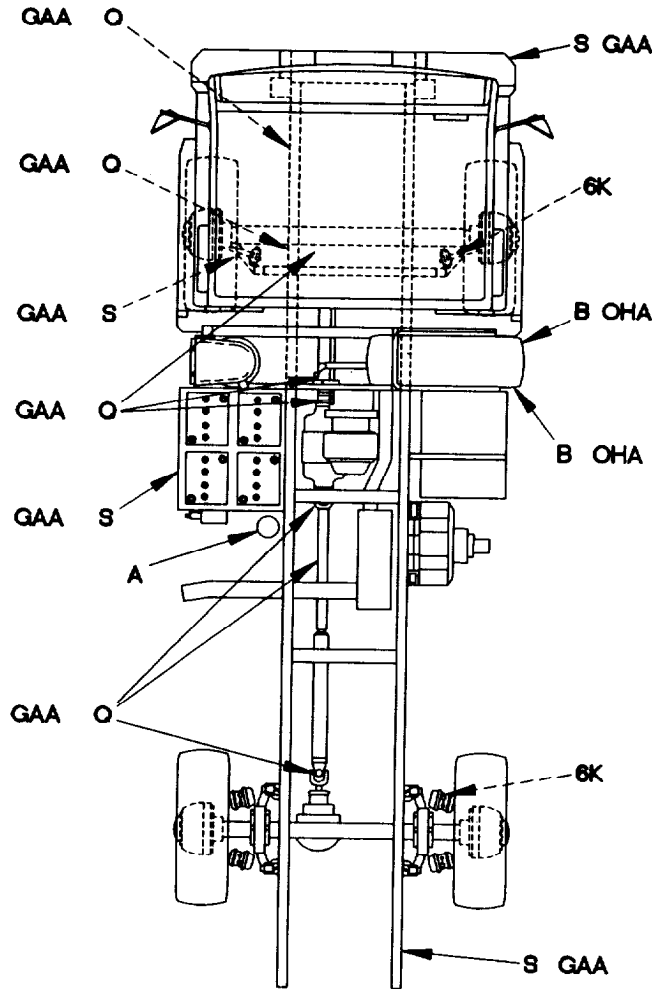
Tie Rod Ends
FM (O)
 (See note 13 and view N)

Universal and Slip Joints
FM (O)
 (See note 9 and view P)

Battery Posts (O)
 (See note 19 and view Q)

Air Dryer (O)
 (See note 25 and view AF)

Universal and Slip Joints
FM (O)
 (See note 9 and view P)



11K Self-Recovery Winch (SRW) Cable Front Roller Fairlead
FM (O)
 (See note 23 and views Z and AA)

Brake Wedge and Air Chamber (O)
 (See note 21 and view L)

Backup Hydraulic Pump Drain and Fill (O)
 (See note 10 and view R)

Air/Hydraulic Power Unit Drain and Fill (O)
 (See note 10 and view S)

Brake Wedge and Air Chamber (O)
 (See note 21 and view M)

11K Self-Recovery Winch (SRW) Cable Rear Roller Fairlead
FM (O)
 (See note 23 and views AB and AC)

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NOTE: Dashed arrows indicate lubrication on both sides of vehicle.

H-7. LUBRICATION LOCATOR VIEWS (CONT)

LUBRICANT INTERVAL

INTERVAL LUBRICANT

Front Axle
Check and Fill (O)
 (See note 11 and view T)

Axle Shaft U-Joints
Fill (O)
 (See note 20 and view U)

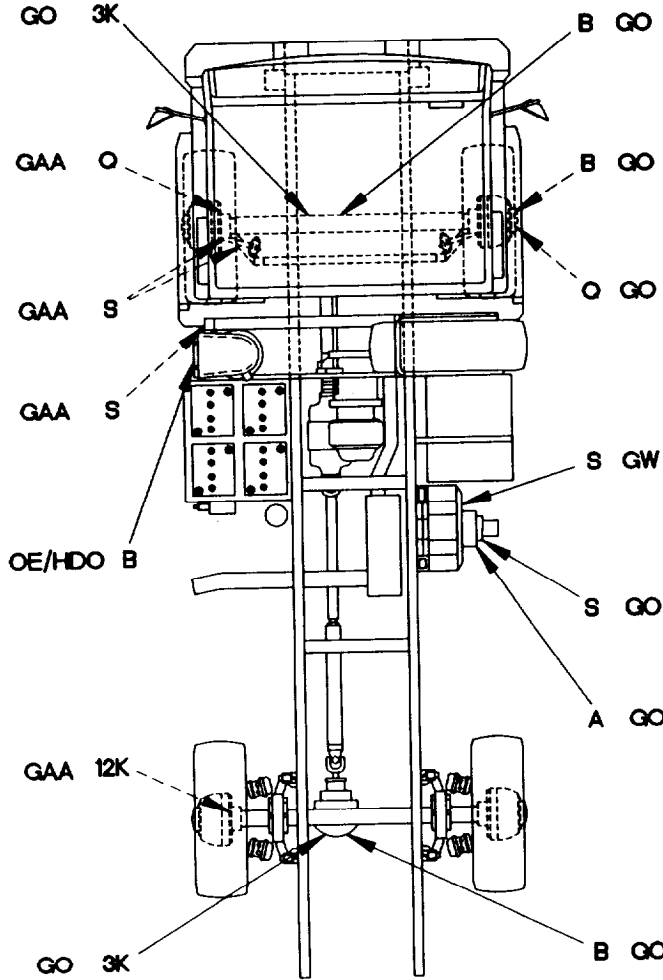
Steering Knuckles
Fill (O)
 (See note 20 and view U)

Front Lifting Beam
Clean and Fill (O)
 (See note 24 and view AD)

Hydraulic Reservoir and Filter
Drain and Fill (O)
 (See note 8 and view X)

Rear Axle Inner Wheel Bearing Repack (O)
 (See note 22)

Rear Axle
Check and Fill (O)
 (See note 11 and view T)



Front Axle
Drain and Fill (O)
 (See note 11 and view T)

Wheel End Planetary Hubs
Drain and Fill (O)
 (See note 12 and view V)

Wheel End Planetary Hubs
Check and Fill (O)
 (See note 12 and view V)

11K Self-Recovery Winch (SRW) Cable
Fill (O)
 (See note 14 and view W)

11K Self-Recovery Winch (SRW)
Check and Fill (O)
 (See note 15 and view Y)

11K Self-Recovery Winch (SRW)
Drain and Fill (O)
 (See note 15 and view Y)

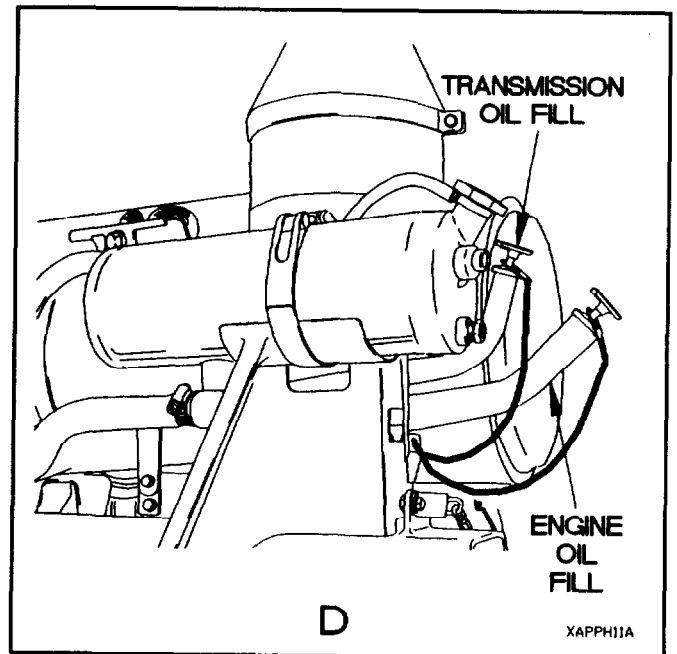
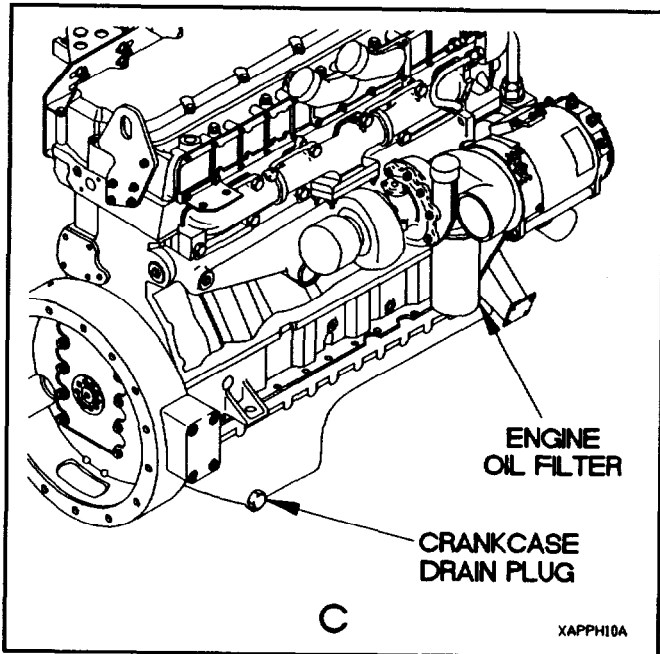
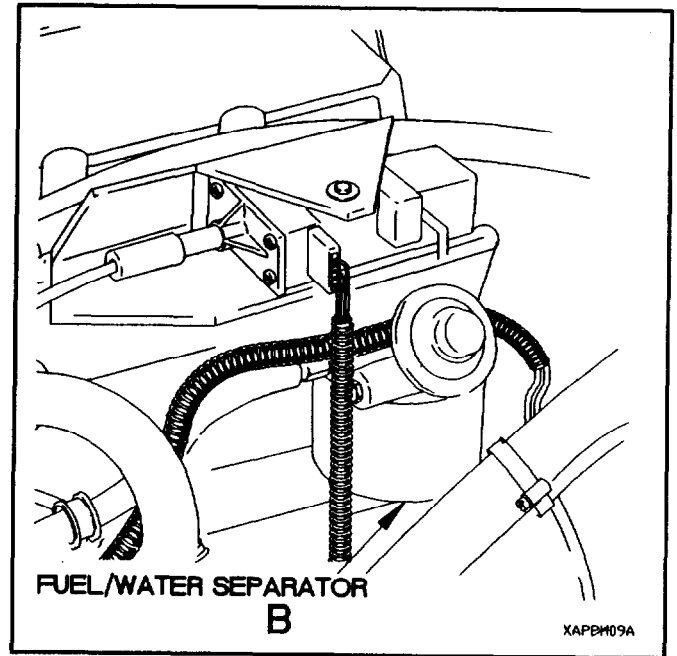
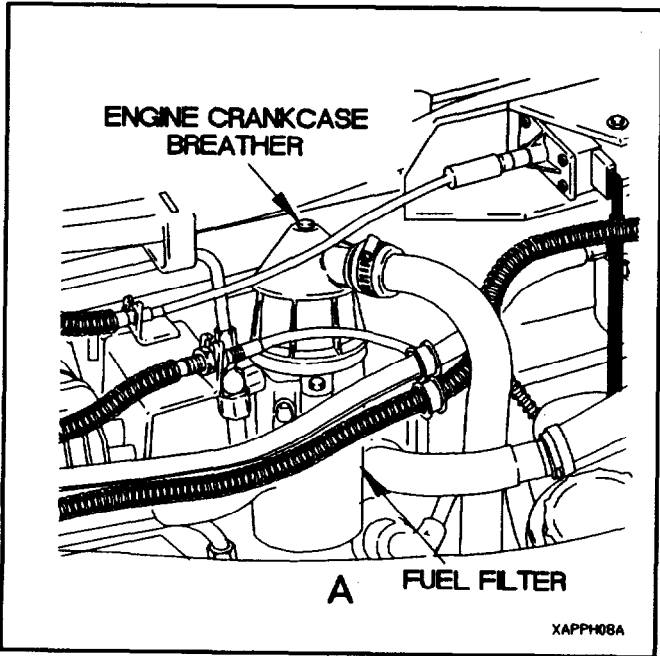
Rear Axle
Drain and Fill (O)
 (See note 11 and view T)

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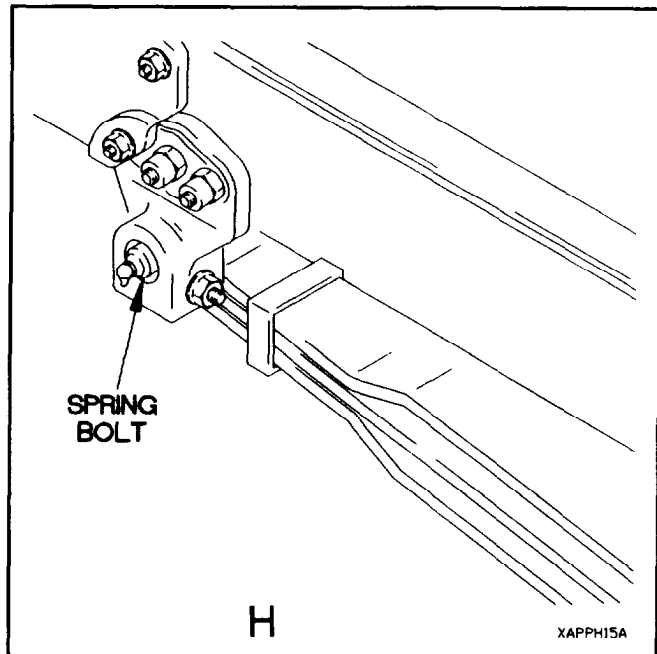
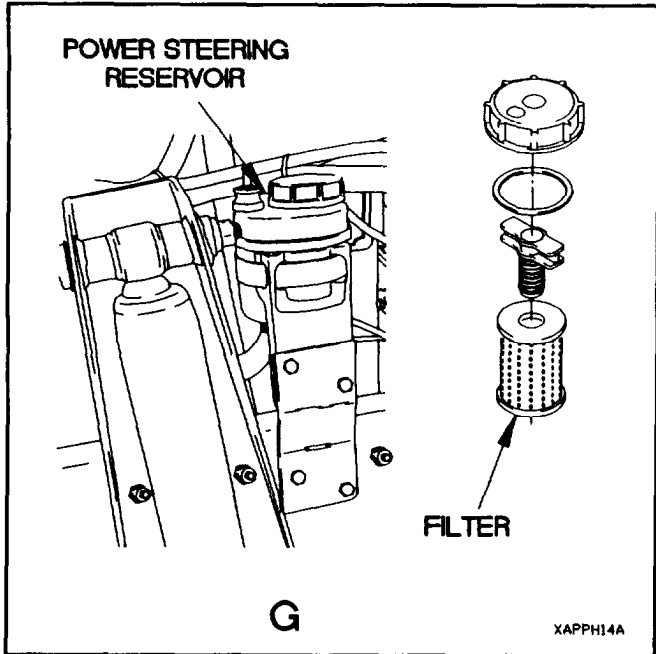
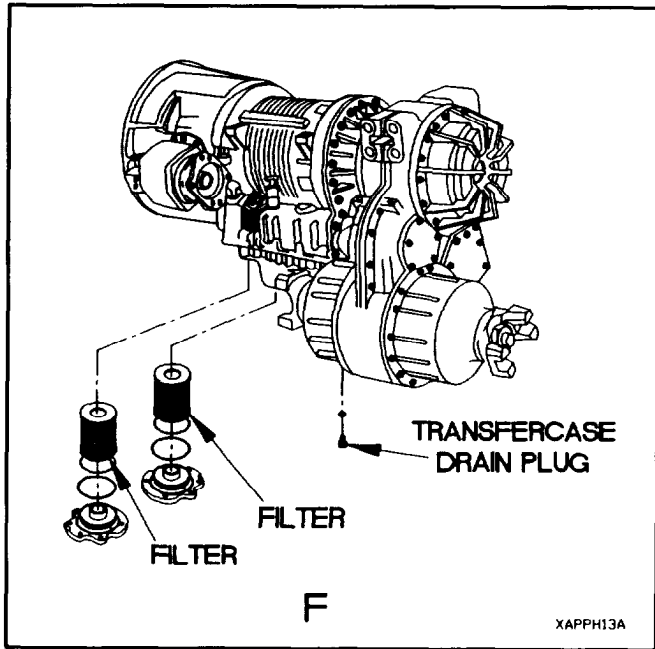
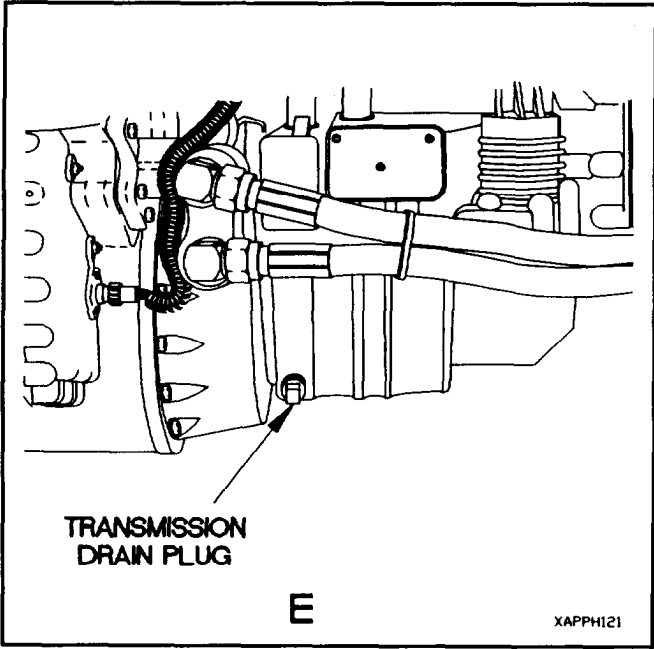
NOTE: Dashed arrows indicate lubrication on both sides of vehicle.

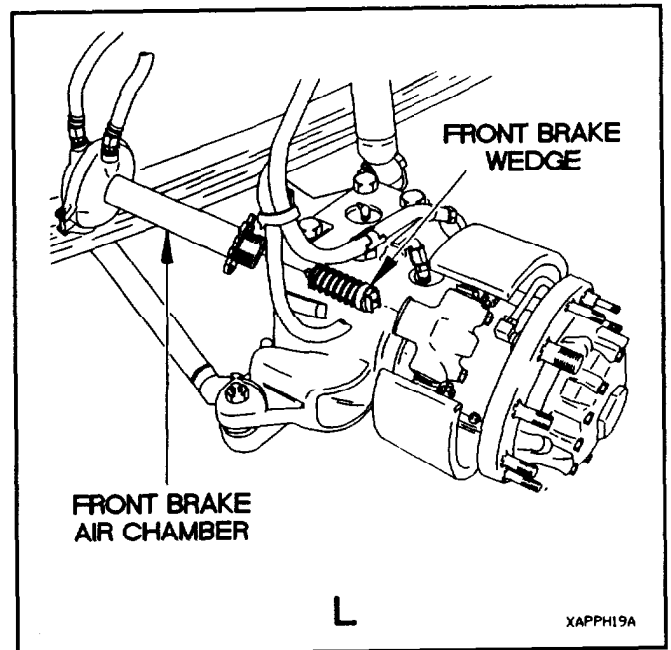
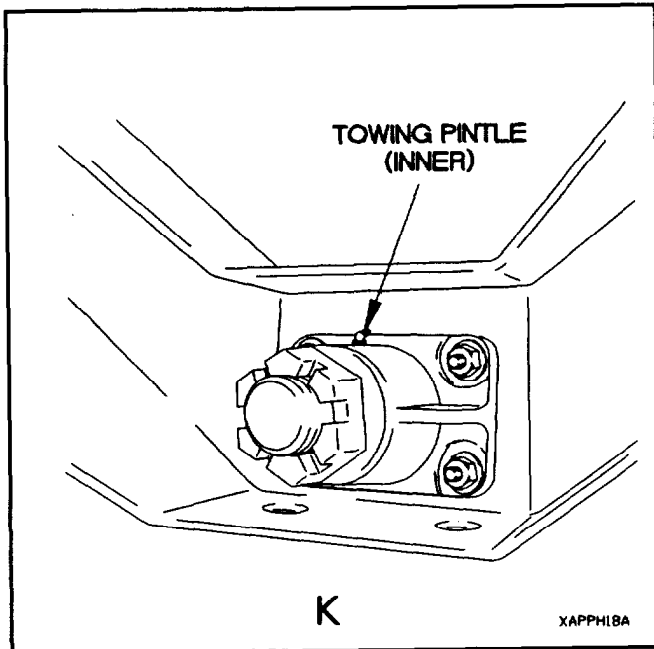
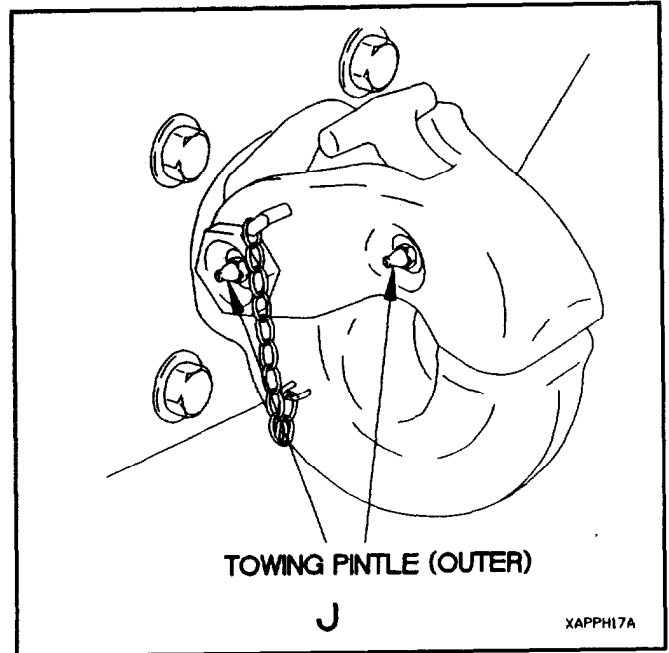
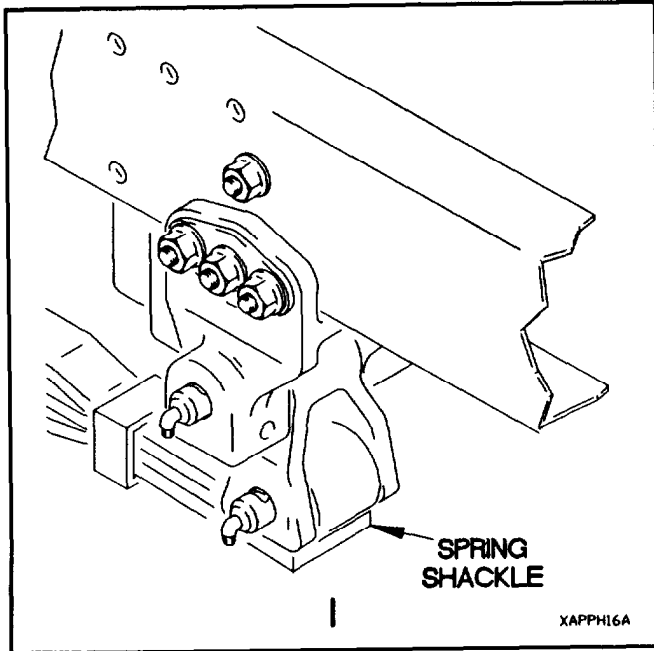
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H-8. LUBRICATION LOCAL VIEWS

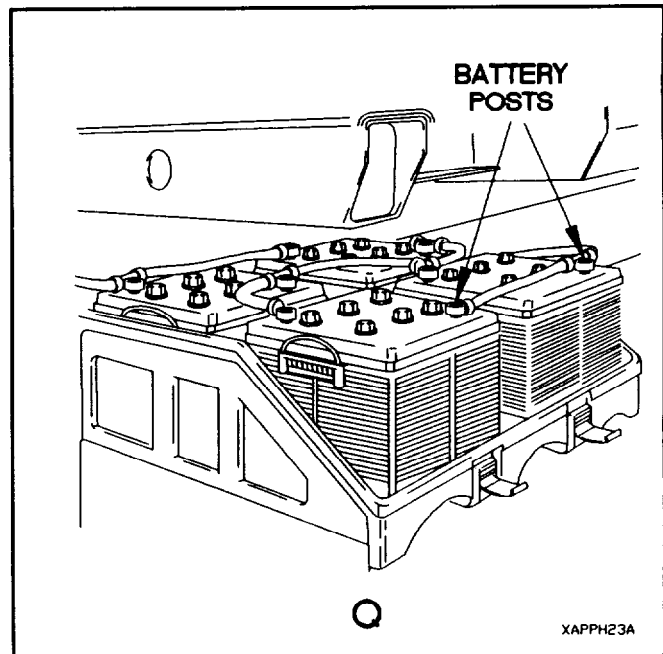
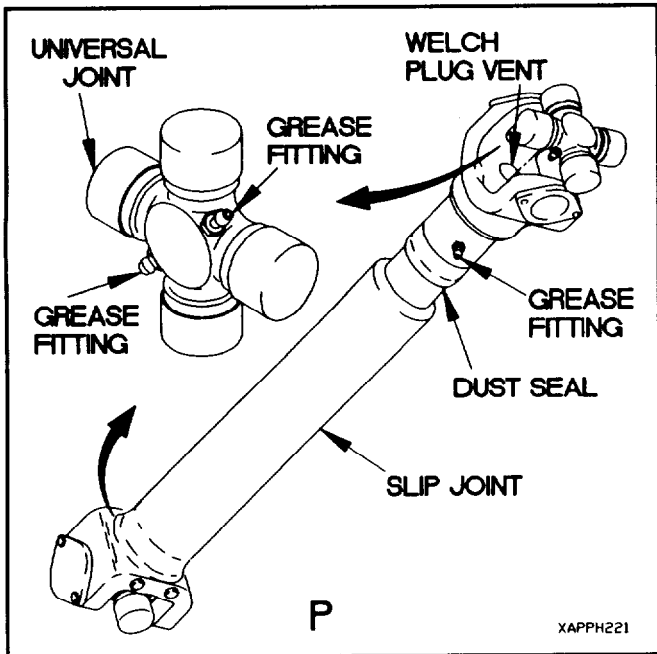
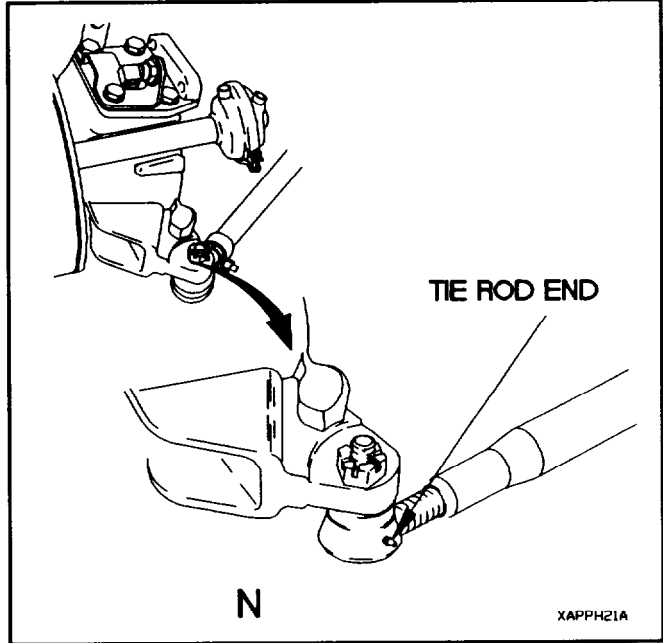
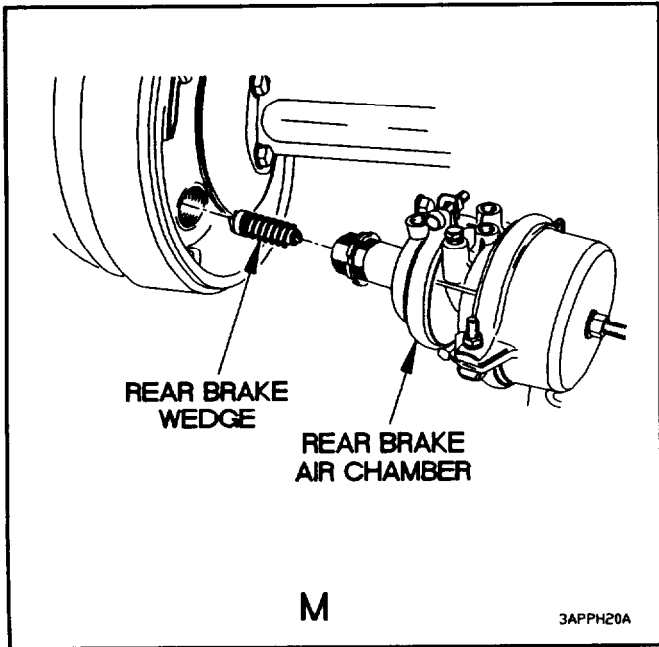


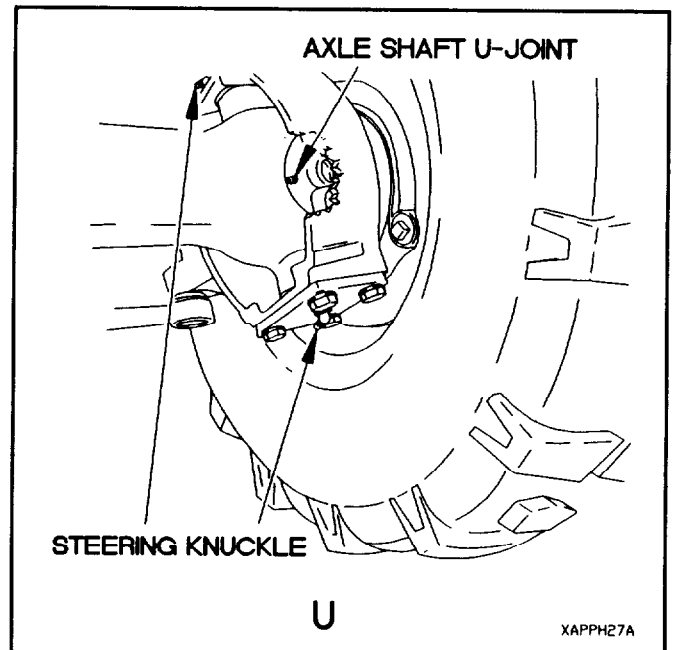
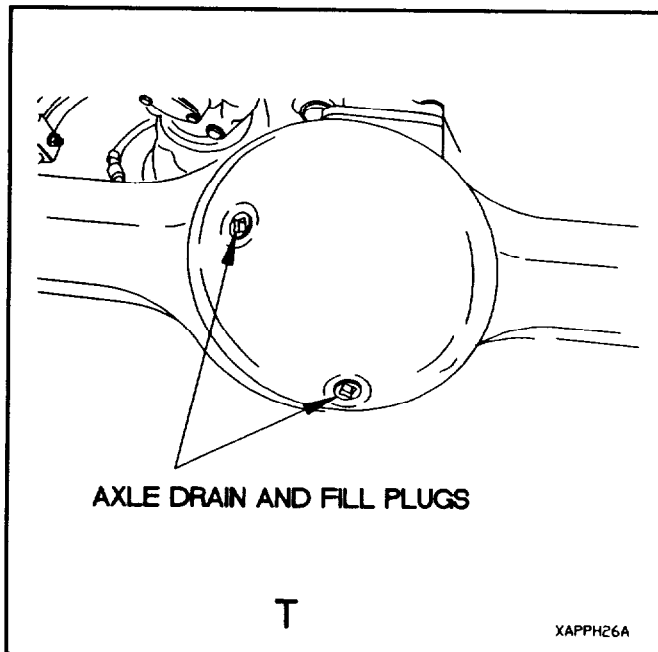
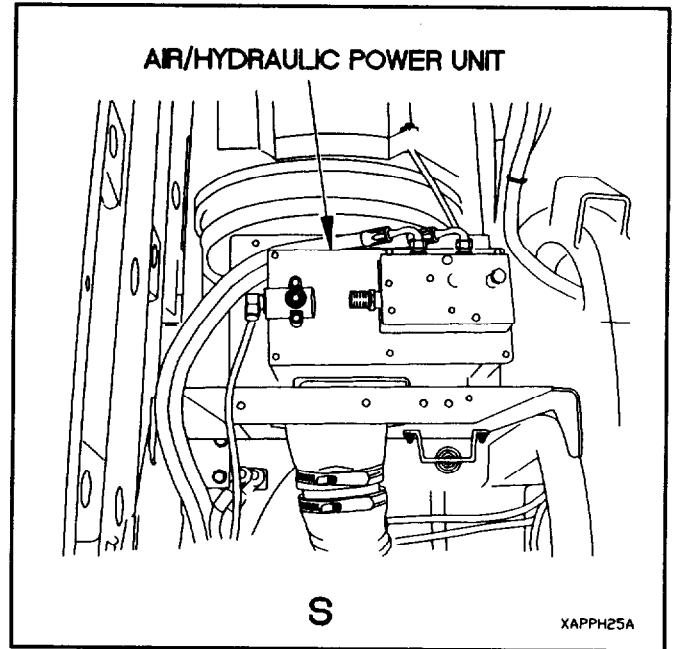
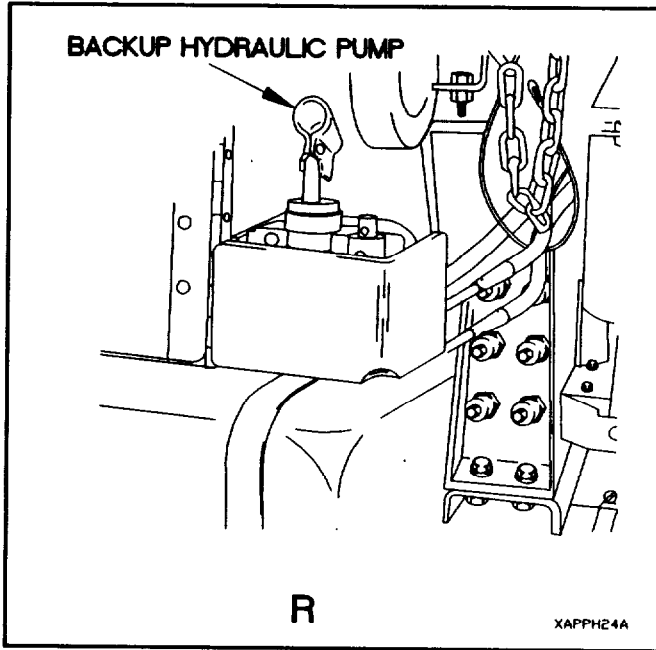
H-8. LUBRICATION LOCAL VIEWS (CONT)



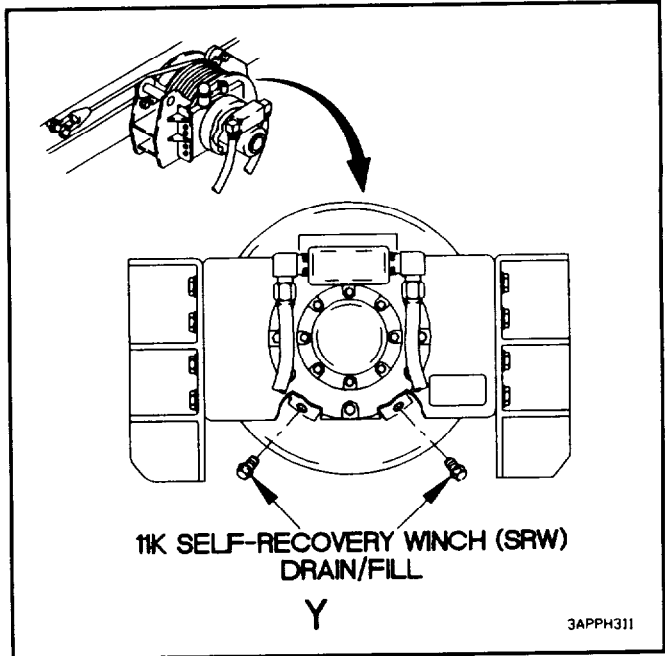
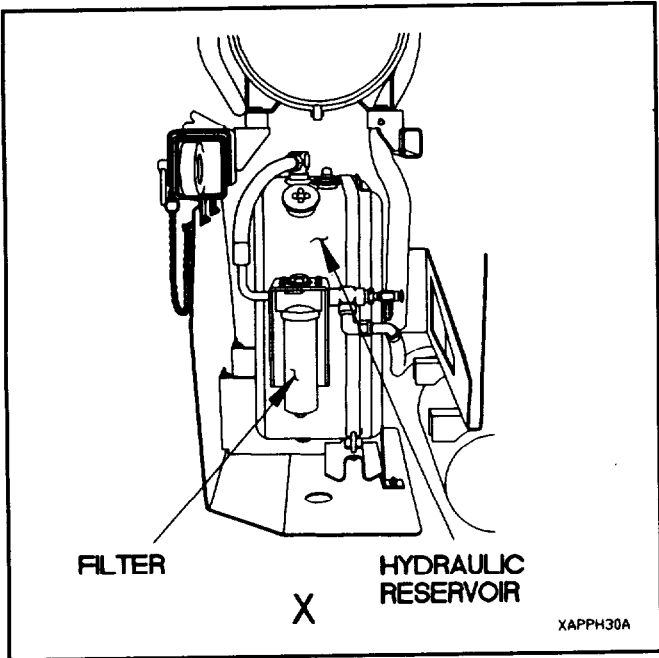
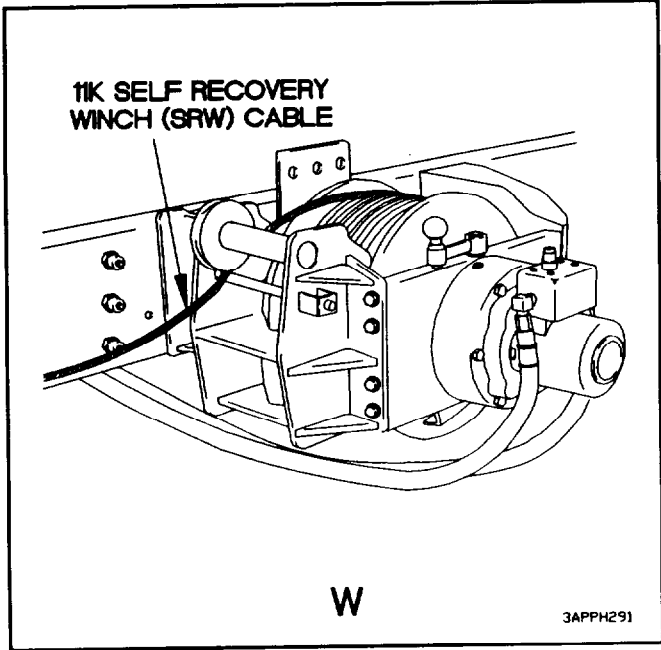
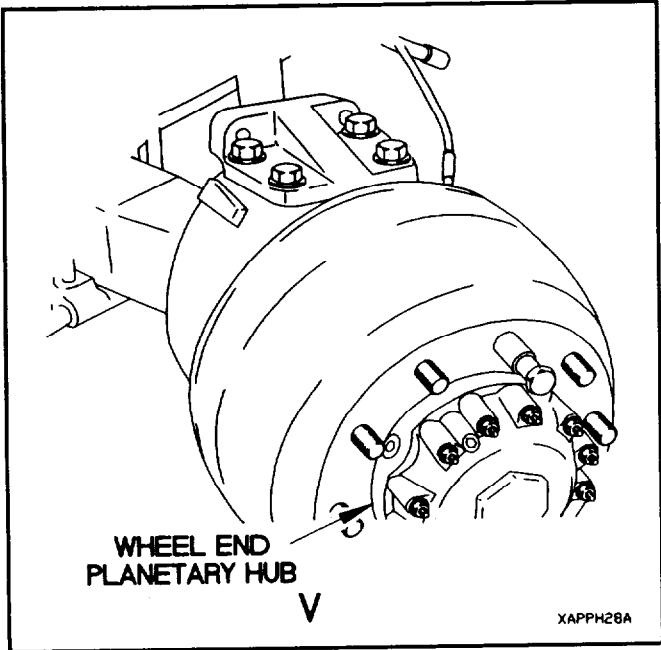


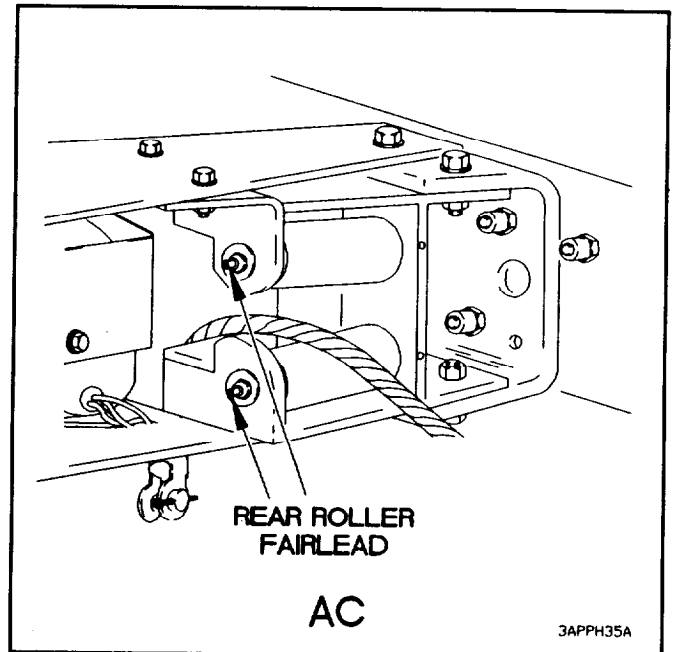
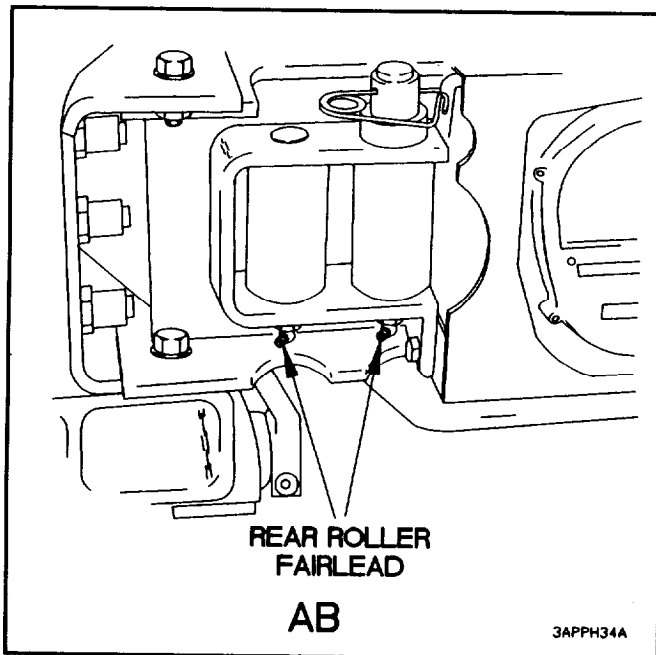
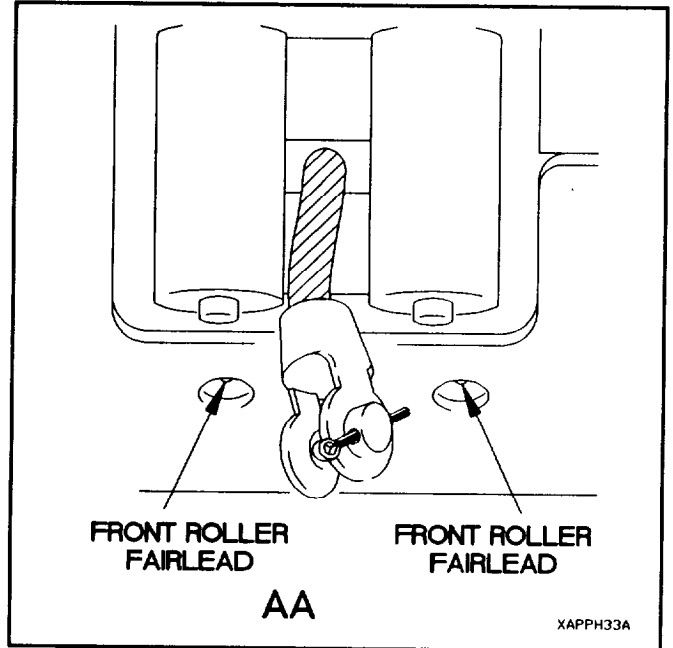
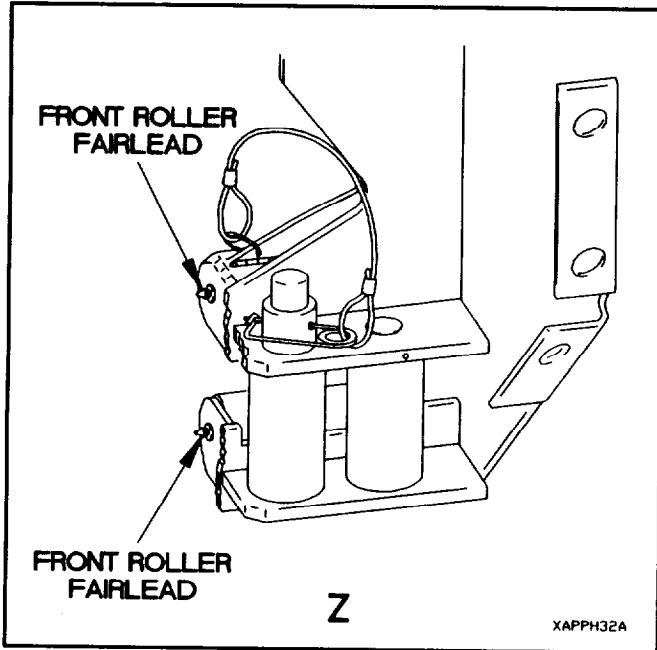
H-8. LUBRICATION LOCAL VIEWS (CONT)



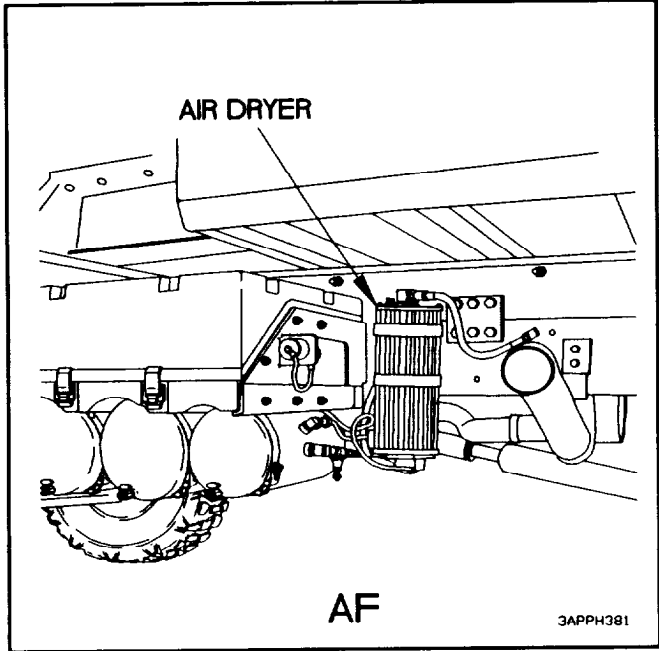
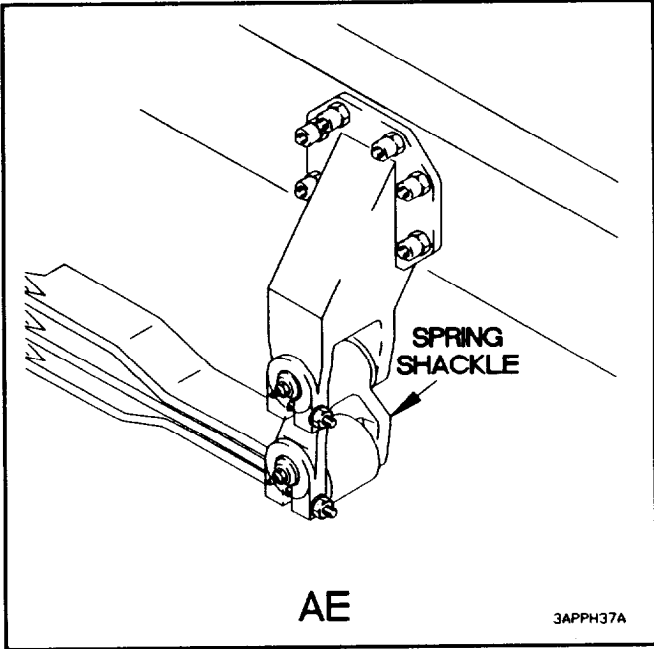
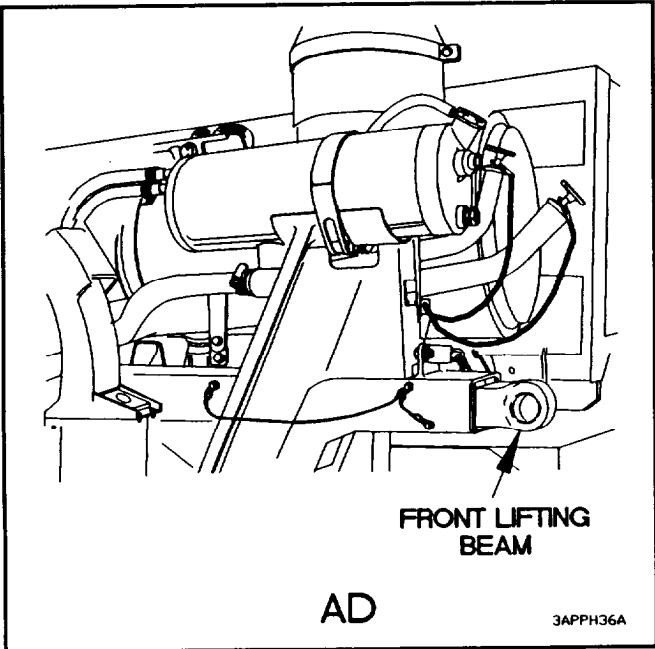


H-8. LUBRICATION LOCAL VIEWS (CONT)





H-8. LUBRICATION LOCAL VIEWS (CONT)



H-9. LUBRICATION NOTES

- 1. ENGINE CRANKCASE.** Check engine oil level daily. Change engine oil at initial 5,000 miles (8,045 km). During the remainder of the 12,000 mile (19,308 km)/18 month warranty period, Units participating in AOAP will change engine oil every 6,000 miles (9,654 km). Units not participating in AOAP, will change engine oil every 6,000 miles (9,654 km) or every six months, whichever occurs first. After expiration of engine warranty period, Units participating in AOAP will perform engine oil change as directed by AOAP. Units not participating in AOAP will change engine oil every 6,000 miles (9,654 km) or every six months, whichever occurs first, or when operating in dusty areas or under severe operating conditions, change the oil every 3,000 miles (4,827 km) or every three months, whichever occurs first. Drain engine oil when engine is warm. Refill engine crankcase with OE/HDO specified for the ambient temperature. Engine oil is full when level is within crosshatch marks on the dipstick. Do not overfill.
- 2. ENGINE OIL FILTER.** Filter is replaced each time the crankcase is drained. If water or metal particles are detected during oil filter replacement, notify Direct Support Maintenance personnel before refilling crankcase.
- 3. TRANSMISSION.** Check transmission oil level daily. Change transmission oil at initial 5,000 miles (8,045 km). During the remainder of the 24 month/unlimited mileage warranty, Units participating in AOAP will perform transmission oil change as directed by AOAP. Units not participating in AOAP will perform transmission oil change every 24,000 miles (38,616 km) or once every two years, whichever occurs first. Drain transmission oil when engine is warm. Refill with OE/HDO specified for ambient temperature. Add oil until the proper level is reached (TM 9-2320-365-10). Do not overfill. Replace oil filters each time transmission oil is changed.
- 4. POWER STEERING.** Check power steering oil level weekly. Change the oil every 24,000 miles (38,616 km). Disconnect upper and lower hoses from steering gear and drain oil. Refill power steering pump reservoir with OE/HDO specified for the ambient temperature. Reservoir is full when oil is between the two marks on the dipstick. Do not overfill. Remove dipstick, wipe clean and install dipstick fully into reservoir. Remove dipstick and read oil level. Replace oil filter each time power steering oil is changed.
- 5. FUEL/WATER SEPARATOR.** Replace filter element every 6,000 miles (9,654 km) or once every six months, whichever occurs first.
- 6. FUEL FILTER.** The fuel particle filter is replaced when a new fuel/water separator filter element is installed. The normal replacement interval is every 6,000 miles (9,654 km) or once every six months, whichever occurs first.
- 7. ENGINE COOLANT.** Check engine coolant level daily. Change the coolant and flush the cooling system every 24,000 miles (38,616 km) or once every two years, whichever occurs first. Fill radiator overflow tank with an Ethylene Glycol/water mixture as specified in 0-A-548D. Service the cooling system before the specified interval if:

 - Coolant is heavily contaminated.
 - Engine overheats.
 - Oil cooler has failed allowing oil and coolant to mix.
- 8. HYDRAULIC RESERVOIR and FILTER.** Check oil level weekly and make sure oil level gage reads **F (full)**. Units participating in AOAP will sample oil annually and change oil and filter as directed by AOAP. Units not participating in AOAP will change oil and filter every two years. Drain oil and refill hydraulic reservoir with OE/HDO specified for ambient operating temperature. Fill hydraulic reservoir until oil level gage reads **F (full)**. Do not overfill. Replace oil filter each time oil is changed.

H-9. LUBRICATION NOTES (CONT)

9. PROPELLER SHAFT UNIVERSAL and SLIP JOINTS.

Lubricate propeller shafts with GAA every 3,000 miles (4,827 km) or once every three months, whichever occurs first, using a low pressure lubrication gun. If operating conditions are severe or abnormal, service at 1,000 miles (1,609 km) or once every month, whichever occurs first.

- UNIVERSAL JOINT:

- A. Apply grease to both grease fittings until new grease purges from all four bearing caps.
- B. If grease does not purge from all four bearing caps, replace the complete U-joint.

- SLIP JOINT:

- A. Apply grease until grease appears at the vent in the welch plug.
- B. Place your finger over the welch plug vent and add grease until grease purges from the dust seal.
- C. If grease does not purge from the dust seal, replace propeller shaft.

10. AIR/HYDRAULIC POWER UNIT and BACKUP HYDRAULIC PUMP. Change OHA oil every 24,000 miles (38,616 km) or once every two years, whichever occurs first. To service air/hydraulic power unit and backup hydraulic pump refer to vehicle paragraph number 19-7. Air Transportability Hydraulic System Service.

11. ALL AXLE DIFFERENTIALS. Check oil level in differentials every 3,000 miles (4,827 km). Check oil level with vehicle parked on level surface and axle differential at ambient temperature, allowing at least one hour to cool down after vehicle operation. If oil is checked when axle differential is hot, it is normal for oil to spill out of the port due to expansion from the heat. Oil level is considered full if it is within one inch of the bottom of the fill port. If oil spills from the fill port when the axle differential is cool, it is overfull. Allow oil to drain until no more drains out. If the oil level is more than one inch below the bottom of the fill port, refill axle differential with GO specified for the ambient temperature until level with bottom of fill port. Change the oil every 24,000 miles (38,616 km) or once every two years, whichever occurs first. Drain oil when hot after operation.

12. FRONT AXLE WHEEL END PLANETARY HUBS. There are two lube intervals for the front axle wheel end planetary hubs.

a. Check and fill front axle wheel end planetary hubs every 3,000 miles (4,827 km) or once every three months, whichever occurs first, as follows:

- (1) Position vehicle on a level surface. Allow 15 minutes for vehicle to cool before checking oil levels.
- (2) Position fill port at 4 o'clock position. If oil flows from fill port when plug is loosened, let oil drain to correct level. If oil level is below fill port, fill hub with GO specified for the ambient temperature until oil is level with fill port.

b. Drain and fill front axle wheel end planetary hubs every 24,000 miles (38,616 km) or once every two years, whichever occurs first, following the repacking of the inner wheel bearings or whenever wheel end assemblies are taken apart for other maintenance as follows:

- (1) Position vehicle on a level surface.
- (2) Position fill port at the 6 o'clock (down) position.
- (3) Drain hub oil (allow a minimum of 15 minutes for oil to drain down from vent tubes).
- (4) Refill hubs with 11-13 ounces of GO specified for the ambient temperature.

13. TIE ROD ENDS. Lubricate tie rod ends with GAA every 6,000 miles (9,654 km) or once every six months, whichever occurs first, using a low pressure lubrication gun, until new grease is seen purging from the boot area. If operating conditions are severe or abnormal, service at 1,000 miles (1,609 km) or once every month, whichever occurs first.

14. 11K SELF-RECOVERY WINCH (SRW) CABLE:**CAUTION**

Do not use dry cleaning solvent to clean 11K Self-Recovery Winch (SRW) cables. Use of dry cleaning solvent will remove lubricant from inner strands of 11K SRW cables. Failure to comply may result in damage to equipment.

a. After each operation:

Clean and lubricate length of 11K SRW cable reeled out with new OE/HDO 30.

b. Infrequent use or in very damp conditions:

Lubricate 11K SRW cable with GW.

c. Dry or dusty conditions:

Do not lubricate 11K SRW cable.

d. Every six months:

- (1) Unwind entire length of 11K SRW cable (TM 9-2320-365-10).
- (2) Soak and clean 11K SRW cable with new OE/HDO 30.
- (3) Wipe off excess OE/HDO 30.
- (4) Coat 11K SRW cable with GW.
- (5) Rewind 11K SRW cable (TM 9-2320-365-10).

15. 11K SRW. Check 11K SRW gear oil level every 6,000 miles (9,654 km) or once every six months, whichever occurs first. Refill 11K SRW with GO specified for ambient temperature. Change oil every 12,000 miles (19,308 km) or once every year, whichever occurs first. Use procedure (a) to check and fill oil level; use procedure (b) to change oil.

a. Check and fill oil level as follows:

- (1) Shift the freespool mechanism to the disengage position so the drum can be freely rotated.
- (2) Rotate the drum to where either plug is near the top of the 11K SRW. Remove the plug.
- (3) Rotate the drum 90 degrees in the direction that allows the other plug to be near the top of the 11K SRW. Remove the plug.

NOTE

Oil level is full if a small amount of oil runs out of lower plug.

- (4) Add oil until a small amount of oil runs out of lower plug hole.
- (5) Apply adhesive (Item 2, Appendix D) to plug and position plug in top hole.
- (6) Rotate drum until open hole is at top.
- (7) Apply adhesive (Item 2, Appendix D) to plug and position plug in top hole.
- (8) Tighten plugs to 13-15 lb-ft (18-20 N•m).

H-9. LUBRICATION NOTES (CONT)

b. Change oil as follows:

- (1) Shift the freespool mechanism to the disengage position so the drum can be freely rotated.
- (2) Rotate the drum to where either plug is near the top of the 11K SRW. Remove the plug.
- (3) Rotate the drum 90 degrees in the direction that allows the other plug to be near the top of the 11K SRW. Remove the plug.
- (4) Position drain pan (Item 17, Appendix C) under 11K SRW.
- (5) Rotate the drum until either hole is straight down to the bottom of the 11K SRW. Allow the oil to drain completely.
- (6) Rotate the drum until either hole is at top.

NOTE

Oil level is full if a small amount of oil runs out of lower plug.

- (7) Add oil until a small amount of oil runs out of lower plug hole.
- (8) Apply adhesive (Item 2, Appendix D) to plug and position plug in top hole.
- (9) Rotate drum until open hole is at top.
- (10) Apply adhesive (Item 2, Appendix D) to plug and position plug in top hole.
- (11) Tighten plugs to 13-15 lb-ft (18-20 N•m).

16. TOWING PINTLE. Lubricate towing pintle with GAA every 6,000 miles (9,654 km) or once every six months, whichever occurs first, using a low pressure lubrication gun until new grease is seen purging.

WARNING

- **Dry Cleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles and gloves; use only in well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breath vapors. Keep away from heat or flame. Never smoke when using solvent; the flashpoint for Type I Dry Cleaning Solvent is 100°F (38°C) and for Type II is 138°F (50°C). Failure to comply may result in serious injury or death to personnel.**
- **If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get medical attention. Failure to comply may result in injury to personnel.**

17. ENGINE CRANKCASE BREATHER. Remove crankcase breather and clean with Dry Cleaning Solvent (SD P-D-680) (Item 71, Appendix D) or equivalent, and replace o-ring seal every 6,000 miles (9,654 km) or once every six months, whichever occurs first.

18. FRONT and REAR AXLE SPRING BOLT and SPRING SHACKLE. Lubricate front and rear axle spring bolts and spring shackles with GAA every 3,000 miles (4,827 km) or once every three months, whichever occurs first, using a low pressure lubrication gun until grease appears between pins and bushings at both ends of spring bolt and spring shackle. If pins do not accept grease, remove pins. Clean and inspect pins and bushings, replace if necessary. If operating conditions are severe or abnormal, service at 1,000 miles (1,609 km) or once every month, whichever occurs first.

19. BATTERY POSTS. Service batteries in accordance with TM 9-6140-200-14, every 6,000 miles (9,654 km) or once every six months, whichever occurs first.

20. FRONT AXLE SHAFT UNIVERSAL JOINTS and STEERING KNUCKLES. Lubricate universal joints every 3,000 miles (4,627 km) or once every three months, whichever occurs first. Lubricate steering knuckles with GAA every 6,000 miles (9,654 km) or once every six months, whichever occurs first, using a low pressure lubrication gun. If operating conditions are severe or abnormal, service at 1,000 miles (1,609 km) or once every month, whichever occurs first.

21. BRAKE WEDGE and AIR CHAMBER: BRAKE SPIDER, SELF-ADJUSTER MECHANISM, AND WEDGE ASSEMBLY. Clean and lubricate (with GAA) areas of spider and hardware that contact the brake shoes. Disassemble, clean and lubricate the self-adjuster mechanism. Clean and lubricate the wedge head, rollers and ramps in the plungers. Clean and lubricate every 6,000 miles (9,654 km). If operating conditions are severe or abnormal, service at 3,000 miles (4,827 km) or once every three months, whichever occurs first, or when any of the following occur:

- Seals are replaced
- Plungers are removed
- Brakes are relined
- Grease becomes contaminated or hardened

22. FRONT and REAR AXLE INNER WHEEL BEARINGS. Repack inner wheel bearings with GAA every 12,000 miles (19,308 km), when semiannual PMCS inspection of service brakes reveals oil leak from inner hub, or whenever wheel end assemblies are taken apart for other maintenance.

23. 11K SRW CABLE ROLLER FAIRLEADS. Lubricate with GAA every 6,000 miles (9,654 km) or once every six months, whichever occurs first, using a low pressure lubrication gun. If operating conditions are severe or abnormal, service at 1,000 miles (1,609 km) or once every month, whichever occurs first.

WARNING

- **Dry Cleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles and gloves; use only in well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breath vapors. Keep away from heat or flame. Never smoke when using solvent; the flashpoint for Type I Dry Cleaning Solvent is 100°F (38°C) and for Type II is 138°F (50°C). Failure to comply may result in serious injury or death to personnel.**
- **If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get medical attention. Failure to comply may result in injury to personnel.**

24. FRONT LIFTING BEAM. Remove left and right lifting beams and clean with Dry Cleaning Solvent (SD P-D-680) (Item 71, Appendix D) or equivalent, every 6,000 miles (9,654 km) or once every six months, whichever occurs first. Apply a light coat of GAA to lifting beams. If operating conditions are severe or abnormal, service at 1,000 miles (1,609 km) or once every month, whichever occurs first.

25. AIR DRYER. Service air dryer (para 23-6) every 12,000 miles (19,308 km) or annually, whichever occurs first.

**APPENDIX J
ADDITIONAL AUTHORIZATION LIST (AAL)**

Section I. INTRODUCTION

J-1. SCOPE

This appendix lists additional items you are authorized for the support of the LMTV.

J-2. GENERAL

This list identifies items that do not have to accompany the LMTV and that do not have to be turned in with it. These items are all authorized to you by Common Tables of Allowance (CTA), Modification Table of Organization and Equipment (MTOE), Tables of Distribution and Allowances (TDA), or Joint Table of Allowance (JTA).

J-3. EXPLANATION OF LISTING

National Stock Numbers, description, and quantities are provided to help you identify and request the additional items you require to support this equipment.

Section II. ADDITIONAL AUTHORIZATION LIST

(1) National Stock Number	(2) Description (CAGE) Part Number	(3) U/M	(4) Qty Auth
6685-01-193-1733	10,000 PSI Transducer: (19207) 12258956	EA	1

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GLOSSARY ABBREVIATIONS

A/C	Air Conditioner
ANSI	American National Standards Institute
CCW	.....	Counterclockwise
CTIS	.....	Central Tire Inflation System
CW	.....	Clockwise
ECU	.....	Electronic Control Unit
EMI	.....	Electromagnetic Interference
LED	.....	Light Emitting Diode
LH	.....	LeftHand
LMHC	.....	Light Material Handling Crane
MAC	.....	Maintenance Allocation Chart
NATO	.....	North Atlantic Treaty Organization
NBC	.....	Nuclear, Biological, or Chemical
NO/NC	.....	Normally Open/Normally Closed
PDP	.....	Power Distribution Panel
PMCS	.....	Preventive Maintenance Checks and Services
PTO	.....	Power Takeoff
RH	.....	RightHand
SAE	.....	Society of Automotive Engineers
SRW	.....	Self-Recovery Winch
STE/ICE-R	.....	Simplified Test Equipment/Internal Combustion Engine-Reprogrammable
TEPSS	.....	Transmission ECU Pushbutton Shift Selector
TPS	.....	Throttle Position Sensor
TPSS	.....	Transmission Pushbutton Shift Selector
VDC	.....	Volts Direct Current
VIM	.....	Vehicle Interface Module

WTEC II	World Transmission Electronic Controls (version 2)
WTEC III	World Transmission Electronic Controls (version 3)

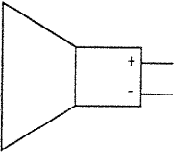

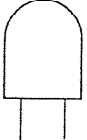
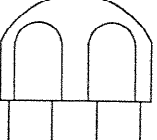

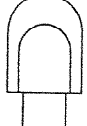
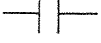
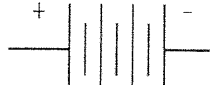

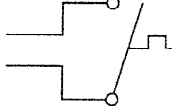
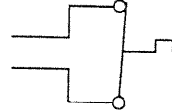
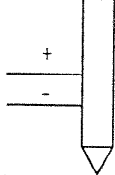
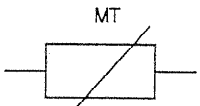
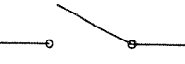
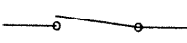
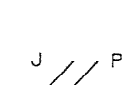
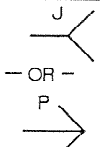
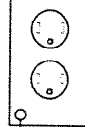


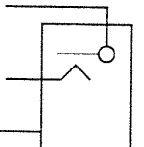


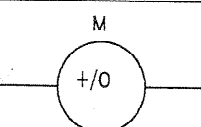
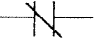
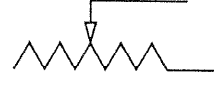
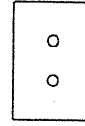
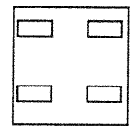
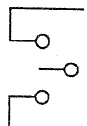
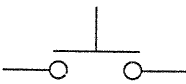
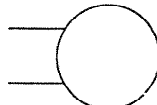
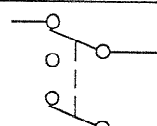
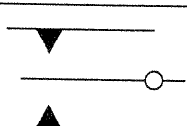


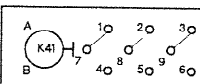
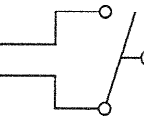
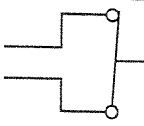
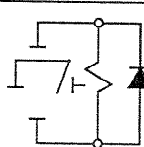
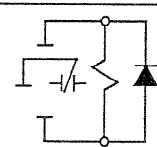

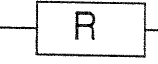
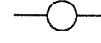
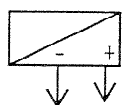

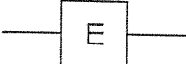
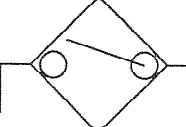

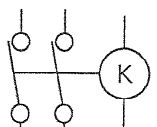
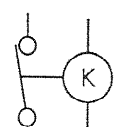

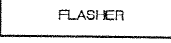
 HORN	 BLACKOUT MARKER	 LAMP	 DUALBEAM LAMP	 GROUND	 POWER LAMP	 OPEN CONTACT	 BATTERY	 FLOURESCENT LIGHT
 TEMPERATURE SWITCH OPEN	 TEMPERATURE SWITCH CLOSED	 MAGNETIC PICKUP	 SENSOR	 NORMALLY OPEN	 NORMALLY CLOSED	 CONNECTOR	 RECEPTACLE	 ELECTRICAL OUTLET
 MOTOR	 SOLENOID	 LEVEL SENSOR	 FILTER	 LED	 METER OR GAUGE	 CLOSED CONTACT	 DIMMER MODULE	 TELEPHONE RECEPTACLE
 CIRCUIT BREAKER	 TWO WAY SWITCH	 PUSHBUTTON	 CIRCULATING PUMP	 DPDT SWITCH	 DPST SWITCH	 PHOTOCELL	 FUSE	 RELAY
 PRESSURE SWITCH OPEN	 PRESSURE SWITCH CLOSED	 NORMALLY OPEN	 NORMALLY CLOSED	 ALTERNATOR	 RESISTOR	 TERMINAL LUG	 ELECTRONIC IGNITION UNIT	
 DIODE	 SPLICE	 SENSING SWITCH	 MOTOR	 GROUND RELAY	 RELAY	 CIRCUIT BREAKER	 FLASHER	

FIGURE FO-1 ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 1 OF 34

10				11				12				13				14				15				16				17				18			
CONNECTORS				CONNECTORS (CONTINUED)				CONNECTORS (CONTINUED)				CONNECTORS (CONTINUED)				CONNECTORS (CONTINUED)				CONNECTORS (CONTINUED)				CONNECTORS (CONTINUED)											
NUMBER	ZONE	SH	DESCRIPTION	NUMBER	ZONE	SH	DESCRIPTION	NUMBER	ZONE	SH	DESCRIPTION	NUMBER	ZONE	SH	DESCRIPTION	NUMBER	ZONE	SH	DESCRIPTION	NUMBER	ZONE	SH	DESCRIPTION	NUMBER	ZONE	SH	DESCRIPTION	NUMBER	ZONE	SH	DESCRIPTION				
A	C258	29	ELECTRONIC CONTROL UNIT	J152	B271	31	VAN FRONT MARKER LIGHT	P19	E38	5	LEFT HEADLIGHT	P116	D161	18	CAB - DASH - LEFT - WTEC I TRANSMISSION HARNESS																				
A	D265	30	ELECTRONIC CONTROL UNIT	J153	A271	31	VAN FRONT MARKER LIGHT	P20	D38	5	LEFT HEADLIGHT	P116	E291	33	WTEC III CAB DASH RIGHT KICK PANEL																				
A13	A66	8	WTEC II TRANSMISSION CONNECTOR A	J154	A271	31	VAN FRONT MARKER LIGHT	P22	G38	5	PARKING LIGHT FRONT LEFT	P119	A64	8	WTEC II TRANSMISSION (A)																				
A13	A70	8	WTEC II TRANSMISSION CONNECTOR B	J155	B287	32	VAN CURBSIDE MARKER LIGHT	P23	F38	5	FRONT LEFT TURN SIGNAL	P119	A69	8	WTEC II TRANSMISSION (SERIAL # 29517497)																				
A13	A74	9	WTEC II TRANSMISSION CONNECTOR C	J156	B287	32	VAN CURBSIDE MARKER LIGHT	P24	H38	5	BLACKOUT MARKER LEFT FRONT	P119	A73	9	WTEC II TRANSMISSION (SERIAL # 29513233)																				
B	E258	29	ELECTRONIC CONTROL UNIT	J157	C287	32	VAN ROADSIDE MARKER LIGHT	P25	G85	10	WINDSHIELD WASHER ROTARY PUMP (B3)	P119	B169	19	CAB - DASH - LEFT - WTEC I TRANSMISSION HARNESS																				
B	F265	30	ELECTRONIC CONTROL UNIT	J158	C287	32	VAN ROADSIDE MARKER LIGHT	P27	A43	5	CHASSIS - FRONT	P125	G84	10	WINDSHIELD WASHER ROTARY PUMP (B3)																				
C	E260	29	ELECTRONIC CONTROL UNIT	J159	D287	32	VAN REAR CENTER MARKER LIGHT	P31	E56	7	ENGINE	P129	F85	10	CAB MARKER LIGHT FRONT LOWER LEFT																				
C	F266	29	ELECTRONIC CONTROL UNIT	J160	E287	32	VAN REAR CENTER MARKER LIGHT	P31X	D56	7	ENGINE	P129	F85	10	CAB MARKER LIGHT LEFT DOOR																				
J1	D285	32	VAN 110 VAC POWER ENTRY	J161	E287	32	VAN REAR CENTER MARKER LIGHT	P32	F59	7	ENGINE OIL PRESSURE SENSOR	P131	A85	10	CAB MARKER LIGHT RIGHT DOOR																				
J2	A185	21	EMI FILTER	J162	B273	31	VAN CURBSIDE BLACKOUT LIGHT	P33	H59	7	FUEL/WATER SEPARATOR	P132	B85	10	CAB MARKER LIGHT FRONT LOWER RIGHT																				
J2	E285	32	VAN 110 VAC POWER ENTRY	J163	B274	31	VAN CURBSIDE EMERGENCY LIGHT	P34	E59	7	OIL PRESSURE WARNING LIGHT SWITCH	P150	B272	31	VAN FRONT MARKER LIGHT																				
J3	D205	23	AIRDROP ONLY	J164	H274	31	VAN ROADSIDE BLACKOUT LIGHT	P36	A57	7	WATER COOLER TEMPERATURE	P151	B272	31	VAN FRONT MARKER LIGHT																				
J5	A38	5	VEHICLE HORN	J165	H275	31	VAN ROADSIDE EMERGENCY LIGHT	P37	C57	7	WATER TEMPERATURE SWITCH	P152	B272	31	VAN FRONT MARKER LIGHT																				
J6	A38	5	VEHICLE HORN	J166	C271	31	VAN FRONT EMERGENCY LIGHT	P38	F61	7	ENGINE SPEED MAGNETIC PICKUP	P153	A272	31	VAN FRONT MARKER LIGHT																				
J7	A188	21	WTEC II TRANSMISSION DIMMER MODULE	J167	D287	32	VAN REAR EMERGENCY LIGHT	P39	G61	7	ENGINE	P154	A272	31	VAN FRONT MARKER LIGHT																				
J8	B38	5	BLACKOUT MARKER RIGHT FRONT	J173	G272	31	VAN 12/24 VDC POWER RECEPTACLE	P41	B57	7	WATER TEMPERATURE SENSOR	P155	B287	32	VAN CURBSIDE MARKER LIGHT																				
J9	C38	5	FRONT RIGHT TURN SIGNAL	J204	D254	29	HEATER SWITCH	P40	E240	27	ARCTIC KIT W/PTO EQUIPPED	P156	B287	32	VAN CURBSIDE MARKER LIGHT																				
J10	E38	5	PARKING LIGHT FRONT RIGHT	J204	B254	29	TROOP HEATER	P42	F57	7	ETHER SENSOR SWITCH	P157	C287	32	VAN ROADSIDE MARKER LIGHT																				
J12	D38	5	RIGHT HEADLIGHT	J205	D254	29	HEATER SWITCH	P43	G42	5	CHASSIS FRONT	P158	C287	32	VAN ROADSIDE MARKER LIGHT																				
J13	C38	5	RIGHT HEADLIGHT	J205	B254	29	TROOP HEATER	P43X	F42	5	CHASSIS FRONT	P159	D287	32	VAN REAR CENTER MARKER LIGHT																				
J14	C38	5	RIGHT HEADLIGHT	J206	D253	29	HEATER SWITCH	P50	E85	10	CAB MARKER LIGHT FRONT UPPER LEFT	P160	E287	32	VAN REAR CENTER MARKER LIGHT																				
J17	H38	5	BLACKOUT DRIVE LIGHT	J206	B253	29	TROOP HEATER	P50	F206	23	LH FRONT TOP CAB MARKER LIGHT	P161	D287	32	VAN REAR CENTER MARKER LIGHT																				
J18	D38	5	LEFT HEADLIGHT	J207	F255	29	FURNACE ASSEMBLY	P51	D190	22	CAB DASH RIGHT POWER DISTRIBUTION PANEL	P162	B273	31	VAN CURBSIDE BLACKOUT LIGHT																				
J19	E38	5	LEFT HEADLIGHT	J209	C256	29	WEBASTO CONTROL UNIT	P52F	E38	5	CHASSIS FRONT	P163	B274	31	VAN CURBSIDE EMERGENCY LIGHT																				
J19	C177	20	CAB - DASH - LEFT - UNDERDASH	J209A	C230	26	PTO EQUIPPED	P52R	E196	22	ALL MODELS EXCEPT WRECKER, TRACTOR, AND LONG WHEEL BASE	P164	G274	31	VAN ROADSIDE BLACKOUT LIGHT																				
J20	D38	5	LEFT HEADLIGHT	J209A	A239	27	ARCTIC KIT W/PTO EQUIPPED	P53R	D196	22	ALL MODELS EXCEPT WRECKER, TRACTOR, AND LONG WHEEL BASE	P165	G275	31	VAN ROADSIDE EMERGENCY LIGHT																				
J22	G38	5	PARKING LIGHT FRONT LEFT	J209B	D230	26	PTO EQUIPPED	P54	D198	22	LEFT REAR MARKER	P166	C272	32	VAN FRONT EMERGENCY LIGHT																				
J23	F38	5	FRONT LEFT TURN SIGNAL	J209B	B239	27	ARCTIC KIT W/PTO EQUIPPED	P55	C85	10	CAB MARKER LIGHT FRONT UPPER RIGHT	P167	D287	31	VAN REAR EMERGENCY LIGHT																				
J24	H38	5	BLACKOUT MARKER LEFT FRONT	J210	F222	25	CAB DASH CENTER OPTIONS PANEL	P55	D206	23	RH FRONT TOP CAB MARKER LIGHT	P172	E264	30	DUMP BODY CONNECTOR																				
J25	G85	10	WINDSHIELD WASHER ROTARY PUMP (B3)	J210	C255	29	FURNACE ASSEMBLY	P56	E198	22	MIDDLE REAR MARKER	P173	G271	31	VAN 12/24 VDC POWER																				
J27	A43	5	CHASSIS - FRONT	J211	B255	29	FURNACE ASSEMBLY	P57	D85	10	CAB MARKER LIGHT FRONT UPPER MIDDLE LEFT	P200	B255	29	TROOP HEATER																				
J31	E55	7	ENGINE	J211	F246	28	SWINGFIRE HEATER	P57	F206	23	LH FRONT TOP CAB CLEARANCE LIGHT	P200	C255	29	TROOP HEATER																				
J31X	F175	20	CAB - DASH - LEFT - UNDERDASH	J215	E230	26	PTO EQUIPPED	P58	E198	22	RIGHT REAR MARKER	P201	G61	7	ENGINE																				
J39	G61	7	ENGINE	J215	C239	27	ARCTIC KIT W/PTO EQUIPPED	P59	C85	10	CAB MARKER LIGHT FRONT UPPER MIDDLE RIGHT	P202	A240	27	ARCTIC KIT W/PTO EQUIPPED																				
J43	G42	5	CHASSIS - FRONT	J225	B258	29	FURNACE ASSEMBLY	P59	D206	23	RH FRONT TOP CAB CLEARANCE LIGHT	P208	F255	29	TROOP HEATER																				
J43X	F42	5	CHASSIS - FRONT	J226	E258	29	WEBASTO CONTROL UNIT	P60	D85	10	CAB MARKER LIGHT FRONT UPPER MIDDLE MIDDLE	P209	C256	29	FURNACE ASSEMBLY																				
J43X	G175	20	CAB - DASH - LEFT - UNDERDASH	J230	A282	32	VAN CURBSIDE 110 VAC OUTLET	P60	E206	23	MIDDLE FRONT TOP CLEARANCE LIGHT	P210	F222	25	CAB DASH CENTER OPTIONS PANEL																				
J50	E85	10	CAB MARKER LIGHT FRONT UPPER LEFT	J231	A283	32	VAN CURBSIDE 110 VAC OUTLET	P61	F198	22	RH COMPOSITE LIGHT	P210	C227	26	PTO EQUIPPED																				
J51	D42	5	CHASSIS - FRONT	J232	A284	32	VAN CURBSIDE 110 VAC OUTLET	P62	F198	22	RH COMPOSITE LIGHT	P210	A235	27	ARCTIC KIT W/PTO EQUIPPED																				
J52	E38	5	CHASSIS - FRONT BUMPER	J233	H282	32	VAN ROADSIDE 110 VAC OUTLET	P63	G198	22	RH COMPOSITE LIGHT	P211	D238	27	ARCTIC KIT W/PTO EQUIPPED																				
J52	B203	23	CHASSIS - FRONT	J234	H283	32	VAN ROADSIDE 110 VAC OUTLET	P64	F198	22	RH COMPOSITE LIGHT	P211A	D239	27	ARCTIC KIT W/PTO EQUIPPED																				
J53	F200	23	AIRDROP ONLY	J235	H284	32	VAN ROADSIDE 110 VAC OUTLET	P65	E186	21	ROTARY WARNING LIGHT CONNECTOR	P212	E238	27	ARCTIC KIT W/PTO EQUIPPED																				
J55	C85	10	CAB MARKER LIGHT FRONT UPPER RIGHT	J236	H275	31	VAN ROADSIDE 24 VDC OUTLET	P67	D301	34	WTEC II TRANSMISSION	P214	G241	27	ARCTIC KIT W/PTO EQUIPPED																				
J57	D85	10	CAB MARKER LIGHT FRONT UPPER MIDDLE LEFT	J237	275	31	VAN CURBSIDE 24 VDC OUTLET	P69	D59	7	ENGINE	P215	E230	26	PTO EQUIPPED																				
J59	C85	10	CAB MARKER LIGHT FRONT UPPER MIDDLE RIGHT	J242	D271	31	VAN A/C	P71	H301	34	WTEC III TRANSFER CASE	P215	C239	27	ARCTIC KIT W/PTO EQUIPPED																				
J60	D85	10	CAB MARKER LIGHT FRONT UPPER MIDDLE MIDDLE	J244	F271	31	VAN THERMOSTAT	P72	G301	34	WTEC III ENGINE SPEED SENSOR	P216	E229	26	PTO EQUIPPED																				
J62	E88	10	ROTARY WARNING LIGHT CONNECTOR	J245																															

19				20				21				22				23				24				25				26				27			
CONNECTORS (CONTINUED)				LIGHTS (CONTINUED)				LIGHTS (CONTINUED)				LIGHTS (CONTINUED)				TERMINAL LUGS (CONTINUED)				TERMINAL LUGS (CONTINUED)				TERMINAL LUGS (CONTINUED)											
NUMBER	ZONE	SH	DESCRIPTION	NUMBER	ZONE	SH	DESCRIPTION	NUMBER	ZONE	SH	DESCRIPTION	NUMBER	ZONE	SH	DESCRIPTION	NUMBER	ZONE	SH	DESCRIPTION	NUMBER	ZONE	SH	DESCRIPTION	NUMBER	ZONE	SH	DESCRIPTION	NUMBER	ZONE	SH	DESCRIPTION				
P911A	D220	25	CAB DASH CENTER OPTIONS PANEL	DS22	D101	12	PARKING BRAKE	DS94	E288	32	VAN REAR CENTER MARKER LIGHT	TL3	C85	10	CAB MARKER LIGHT FRONT UPPER HIGH	TL46	D49	6	SHUNT	TL46	D49	6	SHUNT	TL46	D49	6	SHUNT	TL46	D49	6	SHUNT				
P912	B124	14	CAB DASH CENTER HEATER / CTIS ECU	DS23	C101	12	PTO ON	DS95	E288	32	VAN REAR CENTER MARKER LIGHT	TL3	D206	23	RH FRONT TOP CAB MARKER LIGHT	TL47	D62	7	STARTER/STARTER SOLENOID	TL47	D62	7	STARTER/STARTER SOLENOID	TL47	D62	7	STARTER/STARTER SOLENOID	TL47	D62	7	STARTER/STARTER SOLENOID	TL47	D62	7	STARTER/STARTER SOLENOID
P913	B122	14	CAB DASH CENTER HEATER / CTIS ECU	DS24	D101	12	OIL PRESSURE	DS96	B215	24	CAB DASH CENTER OPTIONS PANEL	TL3	F256	29	FURNACE ASSEMBLY	TL48	E52	6	CHASSIS - REAR (REF E2)	TL48	E52	6	CHASSIS - REAR (REF E1)	TL48	E52	6	CHASSIS - REAR (REF E2)	TL48	E52	6	CHASSIS - REAR (REF E1)	TL48	E52	6	CHASSIS - REAR (REF E2)
P913	F209	24	CAB DASH CENTER OPTIONS PANEL	DS25	C101	12	WATER TEMPERATURE	DS96	C271	31	VAN FRONT EMERGENCY LIGHT	TL3	D258	29	WEBASTO CONTROL UNIT	TL49A	F52	6	NATO SLAVE RECEPTACLE	TL49A	F52	6	NATO SLAVE RECEPTACLE	TL49A	F52	6	NATO SLAVE RECEPTACLE	TL49A	F52	6	NATO SLAVE RECEPTACLE	TL49A	F52	6	NATO SLAVE RECEPTACLE
P914	A214	24	CAB DASH CENTER OPTIONS PANEL	DS27	C101	12	HEAR BRAKE AIR	DS97	B219	25	CAB DASH CENTER OPTIONS PANEL	TL4	C85	10	CAB MARKER LIGHT FRONT UPPER MIDDLE RIGHT	TL50	G121	14	CHASSIS GROUND	TL50	G121	14	CHASSIS GROUND	TL50	G121	14	CHASSIS GROUND	TL50	G121	14	CHASSIS GROUND	TL50	G121	14	CHASSIS GROUND
P914A	B214	24	CAB DASH CENTER OPTIONS PANEL	DS28	E101	12	FRONT AIR BRAKE	DS97	C271	32	VAN REAR EMERGENCY LIGHT	TL4	D206	23	RH FRONT TOP CAB CLEARANCE LIGHT	TL50A	F52	6	NATO SLAVE RECEPTACLE	TL50A	F52	6	NATO SLAVE RECEPTACLE	TL50A	F52	6	NATO SLAVE RECEPTACLE	TL50A	F52	6	NATO SLAVE RECEPTACLE	TL50A	F52	6	NATO SLAVE RECEPTACLE
P921	G62	7	TROOP TRANSPORT ALARM	DS29	D101	12	ENGINE OIL LEVEL	DS100	B213	24	CAB DASH CENTER OPTIONS PANEL	TL4	F256	29	FURNACE ASSEMBLY	TL51	E50	6	SHUNT	TL51	E50	6	SHUNT	TL51	E50	6	SHUNT	TL51	E50	6	SHUNT	TL51	E50	6	SHUNT
PBSS	C93	11	WTEC I PUSHBUTTON SHIFT SELECTOR	DS30	F101	12	MASTER STOP	DS101	D119	14	HEATER CONTROL PANEL ILLUMINATION	TL4	D258	29	WEBASTO CONTROL UNIT	TL52	E50	6	SHUNT	TL52	E50	6	SHUNT	TL52	E50	6	SHUNT	TL52	E50	6	SHUNT	TL52	E50	6	SHUNT
PX1	A92	11	ENGINE FAN OFF SWITCH	DS31	D213	24	CAB DASH CENTER OPTIONS PANEL	DS108	E91	11	CAB DASH LEFT INSTRUMENT PANEL	TL5	D60	7	ALTERNATOR	TL53	B47	6	CHASSIS - FRONT	TL53	B47	6	CHASSIS - FRONT	TL53	B47	6	CHASSIS - FRONT	TL53	B47	6	CHASSIS - FRONT	TL53	B47	6	CHASSIS - FRONT
PX10	D107	12	CAB DASH LEFT INSTRUMENT PANEL	DS32	D101	12	CHEMICAL DETECT					TL5	D258	29	WEBASTO CONTROL UNIT	TL53	B62	7	STARTER/STARTER SOLENOID	TL53	B62	7	STARTER/STARTER SOLENOID	TL53	B62	7	STARTER/STARTER SOLENOID	TL53	B62	7	STARTER/STARTER SOLENOID	TL53	B62	7	STARTER/STARTER SOLENOID
PX11	G107	12	CAB DASH LEFT INSTRUMENT PANEL	DS34	C101	12	CTIS OVERSPEED					TL6	D58	29	WEBASTO CONTROL UNIT	TL55	B47	6	CHASSIS - FRONT	TL55	B47	6	CHASSIS - FRONT	TL55	B47	6	CHASSIS - FRONT	TL55	B47	6	CHASSIS - FRONT	TL55	B47	6	CHASSIS - FRONT
PX12	C112	13	ROTATING WARNING LIGHT SWITCH	DS35	C198	22	REAR LH COMPOSITE LIGHT					TL6	D258	29	WEBASTO CONTROL UNIT	TL55	C62	7	STARTER/STARTER SOLENOID	TL55	C62	7	STARTER/STARTER SOLENOID	TL55	C62	7	STARTER/STARTER SOLENOID	TL55	C62	7	STARTER/STARTER SOLENOID	TL55	C62	7	STARTER/STARTER SOLENOID
PX12A	E112	13	CAB DASH LEFT INSTRUMENT PANEL	DS36	G198	22	REAR RH COMPOSITE LIGHT					TL7	D258	29	WEBASTO CONTROL UNIT	TL56	F136	16	X3 GROUND	TL56	F136	16	X3 GROUND	TL56	F136	16	X3 GROUND	TL56	F136	16	X3 GROUND	TL56	F136	16	X3 GROUND
PX13	F92	11	ETHER STARTER SWITCH	DS37	B198	22	REAR LH COMPOSITE LIGHT					TL8	D85	10	CAB MARKER LIGHT FRONT UPPER MIDDLE MIDDLE	TL57	F136	16	CAB GROUND	TL57	F136	16	CAB GROUND	TL57	F136	16	CAB GROUND	TL57	F136	16	CAB GROUND	TL57	F136	16	CAB GROUND
PX13A	G92	11	CAB - DASH - LEFT - INSTRUMENT PANEL	DS38	F198	22	REAR RH COMPOSITE LIGHT					TL8	E206	23	MIDDLE FRONT TOP CLEARANCE LIGHT	TL58	D60	7	ALTERNATOR	TL58	D60	7	ALTERNATOR	TL58	D60	7	ALTERNATOR	TL58	D60	7	ALTERNATOR	TL58	D60	7	ALTERNATOR
PX14	F112	13	FULL HAZARD WARNING SWITCH	DS39	F37	5	FRONT LEFT TURN SIGNAL					TL8	E258	29	WEBASTO CONTROL UNIT	TL59	C61	7	ALTERNATOR	TL59	C61	7	ALTERNATOR	TL59	C61	7	ALTERNATOR	TL59	C61	7	ALTERNATOR	TL59	C61	7	ALTERNATOR
PX14A	H112	13	CAB DASH LEFT INSTRUMENT PANEL	DS41	D101	12	TRANSMISSION OIL TEMPERATURE					TL9	E258	29	WEBASTO CONTROL UNIT	TL60	D60	7	ALTERNATOR	TL60	D60	7	ALTERNATOR	TL60	D60	7	ALTERNATOR	TL60	D60	7	ALTERNATOR	TL60	D60	7	ALTERNATOR
PX15	C115	13	MAIN LIGHT SWITCH	DS42	C38	5	FRONT RIGHT TURN SIGNAL					TL9	C52	6	CHASSIS - REAR (REF E1)	TL61	C54	6	POLARITY PROTECTION	TL61	C54	6	POLARITY PROTECTION	TL61	C54	6	POLARITY PROTECTION	TL61	C54	6	POLARITY PROTECTION	TL61	C54	6	POLARITY PROTECTION
PX17	A112	13	IGNITION SWITCH	DS43	D212	24	CAB DASH CENTER OPTIONS PANEL					TL9	E258	29	WEBASTO CONTROL UNIT	TL61	E60	7	ALTERNATOR	TL61	E60	7	ALTERNATOR	TL61	E60	7	ALTERNATOR	TL61	E60	7	ALTERNATOR	TL61	E60	7	ALTERNATOR
PX17A	C112	13	CAB DASH LEFT INSTRUMENT PANEL	DS44	D37	5	RIGHT HEADLIGHT					TL10	E258	29	WEBASTO CONTROL UNIT	TL62	C47	6	CHASSIS - FRONT	TL62	C47	6	CHASSIS - FRONT	TL62	C47	6	CHASSIS - FRONT	TL62	C47	6	CHASSIS - FRONT	TL62	C47	6	CHASSIS - FRONT
PX1A	B92	11	CAB - DASH - LEFT - INSTRUMENT PANEL	DS45	C198	22	BACKUP LIGHT					TL10	E258	29	WEBASTO CONTROL UNIT	TL63	C47	6	CHASSIS - FRONT	TL63	C47	6	CHASSIS - FRONT	TL63	C47	6	CHASSIS - FRONT	TL63	C47	6	CHASSIS - FRONT	TL63	C47	6	CHASSIS - FRONT
PX2	D92	11	LAMP TEST SWITCH	DS46	D210	24	CAB DASH CENTER OPTIONS PANEL					TL11	C258	29	WEBASTO CONTROL UNIT	TL63	B62	7	STARTER/STARTER SOLENOID	TL63	B62	7	STARTER/STARTER SOLENOID	TL63	B62	7	STARTER/STARTER SOLENOID	TL63	B62	7	STARTER/STARTER SOLENOID	TL63	B62	7	STARTER/STARTER SOLENOID
PX20	C188	21	TURN SIGNAL FLASHER	DS47	G37	5	PARKING LIGHT FRONT LEFT					TL12	C258	29	WEBASTO CONTROL UNIT	TL66	H61	7	ENGINE (REF P201)	TL66	H61	7	ENGINE (REF P201)	TL66	H61	7	ENGINE (REF P201)	TL66	H61	7	ENGINE (REF P201)	TL66	H61	7	ENGINE (REF P201)
PX21	A134	15	WPER DELAY MODULE	DS48	B38	5	PARKING LIGHT FRONT RIGHT					TL12	C49	6	BATTERIES	TL68	D224	25	CAB DASH CENTER OPTIONS PANEL	TL68	D224	25	CAB DASH CENTER OPTIONS PANEL	TL68	D224	25	CAB DASH CENTER OPTIONS PANEL	TL68	D224	25	CAB DASH CENTER OPTIONS PANEL	TL68	D224	25	CAB DASH CENTER OPTIONS PANEL
PX22	A184	21	EMI FILTER	DS49	G37	5	BLACKOUT MARKER LEFT FRONT					TL12	C62	7	STARTER/STARTER SOLENOID	TL69	E224	25	CAB DASH CENTER OPTIONS PANEL	TL69	E224	25	CAB DASH CENTER OPTIONS PANEL	TL69	E224	25	CAB DASH CENTER OPTIONS PANEL	TL69	E224	25	CAB DASH CENTER OPTIONS PANEL	TL69	E224	25	CAB DASH CENTER OPTIONS PANEL
PX24	G115	13	INSTRUMENT PANEL LIGHTS DIMMER MODULE	DS50	B38	5	BLACKOUT MARKER RIGHT FRONT					TL12	C258	29	WEBASTO CONTROL UNIT	TL70	B38	5	BLACKOUT MARKER RIGHT FRONT	TL70	B38	5	BLACKOUT MARKER RIGHT FRONT	TL70	B38	5	BLACKOUT MARKER RIGHT FRONT	TL70	B38	5	BLACKOUT MARKER RIGHT FRONT	TL70	B38	5	BLACKOUT MARKER RIGHT FRONT
PX25	C119	14	CAB DASH CENTER HEATER / CTIS ECU	DS51	C198	22	REAR LH COMPOSITE LIGHT					TL13	C258	29	WEBASTO CONTROL UNIT	TL70	B38	5	BLACKOUT MARKER RIGHT FRONT	TL70	B38	5	BLACKOUT MARKER RIGHT FRONT	TL70	B38	5	BLACKOUT MARKER RIGHT FRONT	TL70	B38	5	BLACKOUT MARKER RIGHT FRONT	TL70	B38	5	BLACKOUT MARKER RIGHT FRONT
PX26	B179	20	CAB - DASH - LEFT - UNDERDASH	DS52	F198	22	REAR RH COMPOSITE LIGHT					TL14	E88	10	ROTARY WARNING LIGHT CONNECTOR	TL70	B38	5	BLACKOUT MARKER RIGHT FRONT	TL70	B38	5	BLACKOUT MARKER RIGHT FRONT	TL70	B38	5	BLACKOUT MARKER RIGHT FRONT	TL70	B38	5	BLACKOUT MARKER RIGHT FRONT	TL70	B38	5	BLACKOUT MARKER RIGHT FRONT
PX2A	E92	11	CAB - DASH - LEFT - INSTRUMENT PANEL	DS53	H37	5	BLACKOUT DRIVE LIGHT					TL14	C258	29	WEBASTO CONTROL UNIT	TL70	B38	5	BLACKOUT MARKER RIGHT FRONT	TL70	B38	5	BLACKOUT MARKER RIGHT FRONT	TL70	B38	5	BLACKOUT MARKER RIGHT FRONT	TL70	B38	5	BLACKOUT MARKER RIGHT FRONT	TL70	B38	5	BLACKOUT MARKER RIGHT FRONT
PX33	B182	21	CAB - DASH - RIGHT - UNDERDASH	DS54	D84	10	CAB MARKER LIGHT FRONT UPPER MIDDLE LEFT					TL15	A198	22	LH SIDE MARKER LIGHT	TL70	B38	5	BLACKOUT MARKER RIGHT FRONT	TL70	B38	5	BLACKOUT MARKER RIGHT FRONT	TL70	B38	5	BLACKOUT MARKER RIGHT FRONT	TL70	B38	5	BLACKOUT MARKER RIGHT FRONT	TL70	B38	5	BLACKOUT MARKER RIGHT FRONT
PX33	G292	33	WTEC III TRANSMISSION PUSHBUTTON SHIFT SELECTOR	DS54	F206	23	LH FRONT TOP CAB CLEARANCE LIGHT					TL15	C258	29	WEBASTO CONTROL UNIT	TL70	B38	5	BLACKOUT MARKER RIGHT FRONT	TL70	B38	5	BLACKOUT MARKER RIGHT FRONT	TL70	B38	5	BLACKOUT MARKER RIGHT FRONT	TL70	B38	5	BLACKOUT MARKER RIGHT FRONT	TL70	B38	5	BLACKOUT MARKER RIGHT FRONT
PX34	E188	21	FRONT AIR PRESSURE METER	DS55	D84	10	CAB MARKER LIGHT FRONT UPPER MIDDLE MIDDLE					TL16	A198	22	LH REAR MARKER LIGHT	TL71	A85	10	CAB MARKER LIGHT RIGHT DOOR	TL71	A85	10	CAB MARKER LIGHT RIGHT DOOR	TL71	A85	10	CAB MARKER LIGHT RIGHT DOOR	TL71	A85	10	CAB MARKER LIGHT RIGHT DOOR	TL71	A85	10	CAB MARKER LIGHT RIGHT DOOR
PX4	F97	11	FAN SOLENOID	DS55	E206	23	MIDDLE FRONT TOP CLEARANCE LIGHT					TL16	C258	29	WEBASTO CONTROL UNIT	TL72	H38	5	BLACKOUT DRIVE LIGHT	TL72	H38	5	BLACKOUT DRIVE LIGHT	TL72	H38	5	BLACKOUT DRIVE LIGHT	TL72	H38	5	BLACKOUT DRIVE LIGHT	TL72	H38	5	BLACKOUT DRIVE LIGHT
PX5	B97	11	REAR AIR PRESSURE MEIER	DS56	C84	10	CAB MARKER LIGHT FRONT UPPER MIDDLE RIGHT					TL17	C198	22	BACKUP LIGHT	TL73	B86	10	CAB MARKER LIGHTS	TL73	B86	10	CAB MARKER LIGHTS	TL73	B86	10	CAB MARKER LIGHTS	TL73	B86	10	CAB MARKER LIGHTS	TL73	B86	10	CAB MARKER LIGHTS
PX6	B107	12	CAB DASH LEFT INSTRUMENT PANEL	DS56	D206	23	RH FRONT TOP CAB CLEARANCE LIGHT					TL17	C258	29	WEBASTO CONTROL UNIT	TL74	E204	23	AIRDROP ONLY	TL74	E204	23	AIRDROP ONLY	TL74	E204	23	AIRDROP ONLY	TL74	E204	23	AIRDROP ONLY	TL74	E204	23	AIRDROP ONLY
PX7	A104	12	CAB DASH LEFT INSTRUMENT PANEL	DS57	C84	10	CAB MARKER LIGHT FRONT UPPER RIGHT					TL18	C198	22	LONG WHEEL BASE	TL75	F87	10	CAB MARKER LIGHTS	TL75	F87	10	CAB MARKER LIGHTS	TL75	F87	10	CAB MARKER LIGHTS	TL75	F87	10	CAB MARKER LIGHTS	TL75	F87	10	CAB MARKER LIGHTS
PX8	G102	12	CAB DASH LEFT INSTRUMENT PANEL	DS57	D206	23	RH FRONT TOP CAB MARKER LIGHT					TL18	H198	22	RH SIDE MARKER LIGHT	TL76	D229	26	PTO EQUIPPED	TL76	D229	26	PT												

28			29			30			31			32			33			34			35			36					
TERMINAL LUGS (CONTINUED)						SWITCHES (CONTINUED)						SOLENOIDS						MISCELLANEOUS (CONTINUED)						MISCELLANEOUS (CONTINUED)					
NUMBER	ZONE	SH	DESCRIPTION	NUMBER	ZONE	SH	DESCRIPTION	NUMBER	ZONE	SH	DESCRIPTION	NUMBER	ZONE	SH	DESCRIPTION	NUMBER	ZONE	SH	DESCRIPTION	NUMBER	ZONE	SH	DESCRIPTION	NUMBER	ZONE	SH	DESCRIPTION		
TL126	C86	10	WINDSHIELD WASHER ROTARY PUMP (B3)	S27	E59	7	OIL PRESSURE WARNING LIGHT SWITCH	KS	D47	6	24V AUXILIARY STARTER SOLENOID	D28	D138	16	CAB - DASH - RIGHT - POWER DISTRIBUTION PNL	F310A	E262	30	ARTIC CAB HEATER										
TL126	E126	14	PARKING BRAKE SWITCH	S29	G177	20	SWITCH/REAR AIR PRESSURE TRANSMITTER	L1	E189	21	FAN SOLENOID	D3A	E138	16	CAB - DASH - RIGHT - POWER DISTRIBUTION PNL	F210A	E263	30	ARTIC CAB HEATER										
TL130	F85	10	CAB MARKER LIGHTS	S31	A218	24	ARCTIC TROOP HEATER SWITCH	L2	H57	7	FUEL SOLENOID	D3B	E138	16	CAB - DASH - RIGHT - POWER DISTRIBUTION PNL	F10A	E263	30	ARTIC CAB HEATER										
TL131	A85	10	CAB MARKER LIGHTS	S32	F238	32	VAN LIGHTS ON/OFF SWITCH	L3	D269	30	PTO SOLENOID	E1	C52	6	BATTERY	G1	D60	7	ALTERNATOR										
TL133	F85	10	CAB MARKER LIGHTS	S33	E277	31	VAN BLACKOUT SWITCH	L4	E233	26	WINCH IN SOLENOID	E1	D52	6	BATTERY	MPU1	F61	7	ENGINE SPEED MAGNETIC PICKUP										
TL134	B85	10	CAB MARKER LIGHTS	S34	D278	31	VAN BLACKOUT SWITCH	L4	F232	26	SOLENOID	E1	D52	6	BATTERY	MT3	F60	7	ENGINE OIL PRESSURE SENSOR										
TL150	F177	20	SENSOR/FRONT AIR PRESSURE TRANSMITTER	S35	H273	31	VAN BLACKOUT OVERRIDE SWITCH	L4	C242	27	WINCH IN SOLENOID	E1	E52	6	BATTERY	MT4	E177	20	SENSOR/FRONT AIR PRESSURE TRANSMITTER										
TL151	G177	20	SENSOR/REAR AIR PRESSURE TRANSMITTER	S40	F58	7	ETHER SENSOR SWITCH	L4	D241	27	WINCH IN SOLENOID	E2	C43	5	CHASSIS FRONT BUMPER (REF J27)	MT5	G177	20	SENSOR/REAR AIR PRESSURE TRANSMITTER										
TL152	C179	20	STOPLIGHT SWITCH	S45	E62	7	TROOP ALARM SWITCH	L5	D233	26	SOLENOID	E2	C52	6	BATTERY	MT6	B57	7	WATER COOLER TEMPERATURE										
TL153	C179	20	STOPLIGHT SWITCH	S45	G62	31	VAN FAN ON/OFF SWITCH	L5	Z32	26	SOLENOID	E2	D52	6	BATTERY	MT7	B52	6	FUEL TANK LEVEL SENSOR										
TL154	D179	20	STOPLIGHT SWITCH	S56	A57	7	WATER TEMPERATURE SWITCH	L5	B242	27	WINCH OUT SOLENOID	E2	E52	6	BATTERY	MT11	A63	7	THROTTLE POSITION SENSOR										
TL154	D179	20	STOPLIGHT SWITCH	S57	Q77	9	LMHC IN/OUT SWITCH	L5	B241	27	WINCH OUT SOLENOID	E2	E52	6	BATTERY	NS	E183	21	WTEC II VEHICLE INTERFACE MODULE										
TL154	D179	20	STOPLIGHT SWITCH	GAGES						L5	B51	6	CHASSIS - SPARE TIRE	E3	H148	17	CAB - DASH - RIGHT - POWER DISTRIBUTION PNL	NS	F183	21	WTEC II VEHICLE INTERFACE MODULE								
TL156	F77	20	SWITCH/FRONT AIR PRESSURE TRANSMITTER	NUMBER	ZONE	SH	DESCRIPTION	L16	E239	27	WATER SOLENOID	E4	H150	17	CAB - DASH - RIGHT - POWER DISTRIBUTION PNL	P/P	B54	6	POLARITY PROTECTION	P/P	B54	6	POLARITY PROTECTION						
TL157	G177	20	SWITCH/REAR AIR PRESSURE TRANSMITTER	M2	D106	12	VOLTMETER	L17	D240	27	WATER PUMP	E5	B151	17	CAB - DASH - RIGHT - POWER DISTRIBUTION PNL	P/P	D54	6	POLARITY PROTECTION	R11	D50	6	SHUNT						
TL158	E37	16	START INHIBIT PUSHBUTTON	M3	B106	12	ENGINE OIL PRESSURE METER	E80	9	LMHC IN SOLENOID	E14	E194	22	ALL MODELS EXCEPT WRECKER, TRACTOR, AND LONG WHEEL BASE	R1	D79	9	AIR DRYER											
TL159	E36	16	START INHIBIT PUSHBUTTON	M4	F96	11	FRONT AIR PRESSURE METER	F80	9	LMHC OUT SOLENOID	E15	E197	22	ALL MODELS EXCEPT WRECKER, TRACTOR, AND LONG WHEEL BASE	TB1	B257	29	WEBASTO CONTROL UNIT											
TL160	H02	12	AUDIBLE ALARM	M5	B96	11	REAR AIR PRESSURE METER	A304	34	WTEC III A SOLENOID	E16	A197	22	ALL MODELS EXCEPT WRECKER, TRACTOR, AND LONG WHEEL BASE	TB1	C128	15	CAB DASH RIGHT POWER											
TL161	H02	12	AUDIBLE ALARM	M6	G107	12	WATER TEMPERATURE METER	B304	34	WTEC III H SOLENOID	E17	G195	22	ALL MODELS EXCEPT WRECKER, TRACTOR, AND LONG WHEEL BASE	TB2	F130	15	CAB - DASH - RIGHT - POWER DISTRIBUTION PNL											
TL162	B114	13	STARTER PUSHBUTTON	M7	D93	11	FUEL LEVEL METER	C304	34	WTEC III N SOLENOID	E18	G194	22	ALL MODELS EXCEPT WRECKER, TRACTOR, AND LONG WHEEL BASE	TB2	D257	29	WEBASTO CONTROL UNIT											
TL163	B114	13	STARTER PUSHBUTTON	M8	G102	12	SPEEDOMETER	D304	34	WTEC III J SOLENOID	E19	F194	22	ALL MODELS EXCEPT WRECKER, TRACTOR, AND LONG WHEEL BASE	X1	C137	16	24 VDC											
TL164	G62	7	ENGINE (REF J921)	M9	A210	24	TACHOMETER	E304	34	WTEC III G SOLENOID	E20	E194	22	ALL MODELS EXCEPT WRECKER, TRACTOR, AND LONG WHEEL BASE	X11	F52	6	NATO SLAVE RECEPTACLE											
TL165	G62	7	ENGINE (REF J921)	RELAYS						F304	34	WTEC III E SOLENOID	E21	D195	22	ALL MODELS EXCEPT WRECKER, TRACTOR, AND LONG WHEEL BASE	X2	D137	16	24 VDC									
TL166	F54	6	TERMINAL BLOCK	NUMBER	ZONE	SH	DESCRIPTION	F304	34	WTEC III D SOLENOID	E22	B86	10	CAB MARKER LIGHTS	X3	F157	16	GROUND											
TL167	E54	6	TERMINAL BLOCK	K1	F256	30	GROUND RELAY	G304	34	WTEC III C SOLENOID	E23	D86	10	CAB MARKER LIGHTS	X5	D137	16	24 VDC											
TL169	D53	6	POLARITY PROTECTION (P/P)	K1	F149	7	STARTER RELAY	G304	34	WTEC III B SOLENOID	E23	D205	23	AIRDROP ONLY	X7	D137	16	24 VDC											
TL170	F248	28	SWINGFIRE HEATER	K1	E259	29	GROUND RELAY	H304	34	WTEC III A SOLENOID	E24	C85	10	CAB MARKER LIGHTS	PHONE 1	A285	32	VAN PHONE 1											
TL171	F54	6	TERMINAL BLOCK	K1	B291	33	WTEC III STARTER RELAY	HORNS AND ALARMS						E24	D205	23	AIRDROP ONLY	PHONE 2	H237	32	VAN PHONE 2								
TL172	F54	6	TERMINAL BLOCK	K2	D259	29	HEATER MOTOR RELAY	NUMBER	ZONE	SH	DESCRIPTION	E25	F86	10	CAB MARKER LIGHTS	E77	9	LIGHT MATERIAL HANDLING CRANE (LMHC)											
TL173	E54	6	POLARITY PROTECTION (P/P)	K2	E266	30	HEATER MOTOR RELAY	LS1	A37	5	VEHICLE HORN	E77	9	LMHC REMOTE CONTROL BOX															
TL174	D54	6	POLARITY PROTECTION (P/P)	K2	B143	16	CONTROL PANEL RELAY	LS2	H101	12	AUDIBLE ALARM	E77	9	LMHC POWER CABLE															
TL190	D290	33	WTEC II PRESSURE SWITCH GROUND	K3	D260	29	CONTROL THERMOSTAT RELAY	MOTORS						E78	9	LMHC REMOTE CONTROL IN/OUT													
TL201	E125	14	PARKING BRAKE SWITCH	K3	E266	30	CONTROL THERMOSTAT RELAY	NUMBER	ZONE	SH	DESCRIPTION	E78	9	LMHC REMOTE CONTROL IN/OUT															
TL202	E125	14	PARKING BRAKE SWITCH	K4	D260	29	IGNITION RELAY	B2	A183	21	WINDSHIELD WIPER MOTOR	E88	B106	12	CAB DASH - LEFT INSTRUMENT PANEL														
TL220	E232	26	PTO EQUIPPED	K4	E266	30	IGNITION RELAY	B4	C118	14	FAN MOTOR	E90	F298	34	WTEC III TRANSMISSION HARNESS														
TL320	C241	27	ARCTIC KIT W/PTO EQUIPPED	K5	D261	29	FLAME CONTROL RELAY	F81	9	LMHC HOIST MOTOR	E91	D298	34	WTEC III TRANSMISSION HARNESS															
SWITCHES						K5	E267	30	FLAME CONTROL RELAY	E95	B41	5	CHASSIS - FRONT	E95	B41	5	CHASSIS - FRONT												
NUMBER	ZONE	SH	DESCRIPTION	K6	F144	16	STOPLIGHT RELAY	BATTERIES						E96	E298	34	WTEC III TRANSMISSION HARNESS												
S3	A77	20	COLUMN SWITCH	K7	G153	17	HEADLIGHT RELAY	NUMBER	ZONE	SH	DESCRIPTION	E96	E298	34	WTEC III TRANSMISSION HARNESS														
S3	C177	20	COLUMN SWITCH	K8	G151	17	HEADLIGHT LO/HI-BEAM RELAY	BT1	C52	6	BATTERY	E97	D38	5	CHASSIS - FRONT														
S4	D114	13	MAIN LIGHT SWITCH	K9	A142	16	HAZARD FLASHER BO OVERRIDE	BT2	D52	6	BATTERY	E98	D40	5	CHASSIS - FRONT														
SS/1	B111	13	IGNITION SWITCH	K10	F150	17	STOP HAZARD FLASHER RELAY	BT3	D52	6	BATTERY	E70	C229	26	PTO EQUIPPED														
SS/11	A91	11	ENGINE FAN OFF SWITCH	K11	F146	17	ALTERNATOR EXCITATION RELAY	BT4	E52	6	BATTERY	E71	F173	20	CAB - DASH - LEFT - UNDERDASH														
SS/14	C213	24	WINCH ON OFF	K12	B109	16	WORKLIGHT RELAY	MISCELLANEOUS						E73	G238	27	ARCTIC KIT W/PTO EQUIPPED												
SS/15	B212	24	WINCH IN-OUT	K13	B149	17	ROTATING BEACON BO OVRD RELAY	NUMBER	ZONE	SH	DESCRIPTION	E74	B238	27	ARCTIC KIT W/PTO EQUIPPED														
SS/16	F91	11	ETHER STARTER SWITCH	K15	B140	16	AUXILIARY COOLER RELAY	10A	C183	21	WTEC II VEHICLE INTERFACE MODULE	E76	E239	27	ARCTIC KIT W/PTO EQUIPPED														
SS/2	D91	11	LAMP TEST SWITCH	K19	B150	17	START INHIBIT RELAY	10A	E183	21	WTEC II VEHICLE INTERFACE MODULE	E88	B106	12	CAB DASH - LEFT INSTRUMENT PANEL														
SS/2	D111	13	ROTATING WARNING LIGHT SWITCH	K20	H138	16	MARKER LIGHTS RELAY	A2	F118	14	CTIS ELECTRONIC CONTROL UNIT	E89	C106	12	CAB DASH LEFT INSTRUMENT PANEL														
SS/22	G111	13	FULL HAZARD WARNING SWITCH	K24	B151	17	CRANKING LOCKOUT RELAY	A3	G114	13	INSTRUMENT PANEL LIGHTS DIMMER MODULE	E90	F298	34	WTEC III TRANSMISSION HARNESS														
SS/25	A219	25	SWINGFIRE PUMP SWITCH	K25	B292	33	WTEC III REVERSE WARNING RELAY	A5	A135	15	WIPER DELAY MODULE	E91	D298	34	WTEC III TRANSMISSION HARNESS														
SS/6	B210	24	PTO ON/OFF SWITCH	K26	B290	33	WTEC III NEUTRAL START RELAY	A7	B79	20	FREQUENCY DIVIDER	E501	B275	31	VAN EMERGENCY/BLACKOUT LIGHT/24 VDC OUTLET														
SS/8	A213	24	BLACKOUT OVERRIDE SWITCH	K27	H143	16	BO STOP RELAY	A18	A103	12	LIGHTED INDICATOR DISPLAY	E502	G274	31	VAN EMERGENCY/BLACKOUT LIGHT														
SS/9	A214	24	FUEL PRE-HEAT SWITCH	K28	H142	16	TRAILER REAR LIGHTS RELAY	A20	H59	7	FUEL/WATER SEPARATOR	E503	B273	31	VAN MARKER LIGHT														
S6	A114	13	STARTER PUSHBUTTON	K29	F142	16	BO MARKER RELAY	B1	C63	7	STARTER/STARTER SOLENOID	E504	B272	31	VAN MARKER LIGHT														
S7	F137	16	START INHIBIT PUSHBUTTON	K29	B295	33	WTEC III BLACKOUT DRIVE RELAY	B3	G83	10	WINDSHIELD WASHER ROTARY PUMP	E505	B287	32	VAN REAR MARKER LIGHTS														
S10A	C179	20	STOPLIGHT SWITCH	K30	H147	17	REAR LEFT COMPOSITE LAMP RELAY	B10	E67	8	WTEC II TRANSFER CASE (SERIAL # 29513233)	E506	C287	32	VAN REAR MARKER LIGHTS														
S10B	D179	20	STOPLIGHT SWITCH	K31	H149	17	REAR RIGHT COMPOSITE LAMP RELAY	B10	E70	8	WTEC II TRANSFER CASE (SERIAL # 29513233)	E514	C274	31	VAN EMERGENCY LIGHT														
S11	A287	32	VAN CURBSIDE WINDOW BLACKOUT SWITCH	K32	B147	17	HORN RELAY	B10	E66	8	WTEC II TRANSMISSION (SERIAL # 29513233)	E516	H272	31	VAN 24 VDC														
S12	A287	32	VAN CURBSIDE WINDOW BLACKOUT SWITCH	K35	E277	31	VAN 110 VAC OUTLETS	B10	E71	8	WTEC II TRANSFER CASE (SERIAL # 29517497)	F1	F256	29	FURNACE CONTROL UNIT														
S13	G288	32	VAN ROADSIDE WINDOW BLACKOUT SWITCH	K36	F277	31	VAN FLOURESCENT LIGHTS	B10	E70	8	WTEC II TRANSMISSION (SERIAL # 29517497)	F2	H271	31	VAN 24 VDC POWER														
S14	G288	32	VAN ROADSIDE WINDOW BLACKOUT SWITCH	K37	B294	33	WTEC III PTC ENABLE OUTPUT RELAY	B10	E76	9	WTEC II TRANSFER CASE (SERIAL # 29513233)	FL	E83	21	WTEC II VEHICLE INTERFACE MODULE														
S15	G288	32	VAN ROADSIDE WINDOW BLACKOUT SWITCH	K52	H139	16	CTIS OVERSPEED INDICATION RELAY	B10	E74	9	WTEC II TRANSMISSION (SERIAL # 29513233)	FL1	G85	10	EMI FILTER														
S17	G288	32	VAN DOOR WINDOW BLACKOUT SWITCH (S/N 191 AND HIGHER)	K53	H140	16	RADO POWER RELAY	BJ1	A175	20	JUNCTION BOX	FL2	A184	21	EMI FILTER														
S17	G288	32	VAN CURBSIDE WINDOW BLACKOUT SWITCH (S/N 001 THROUGH 190)	RESISTORS						B10	E74	9	WTEC II TRANSMISSION (SERIAL # 29513233)	FL3	C118	14	FAN MOTOR												
S18	D269	30	PTO PRESSURE SWITCH	NUMBER	ZONE	SH	DESCRIPTION	B11	F257	29	FURNACE CONTROL UNIT	TRANSMISSION																	
S20	E177	20	SWITCH/FRONT AIR PRESSURE TRANSMITTER	R2	E172	20	CAB - DASH - LEFT - UNDERDASH	B12	F256	29	FURNACE CONTROL UNIT	NUMBER	ZONE	SH	DESCRIPTION														
S23	F52	6	AIR PRESSURE SWITCH FOR CTIS	R4	D175	20	CAB - DASH - LEFT - UNDERDASH	B13	F256	29	FURNACE CONTROL UNIT	A10	B183	21	WTEC II VEHICLE INTERFACE MODULE														
S24	E125	14	PARKING BRAKE SWITCH	R5	C175	20	CAB - DASH - LEFT - UNDERDASH	D1A	C138	16	CAB - DASH - RIGHT - POWER DISTRIBUTION PNL	A13	B67	8	WTEC II TRANSMISSION A13 (SERIAL # 29513233)														
S26	C57	7	WATER TEMPERATURE SENSOR	R6	F172	20	CAB - DASH - LEFT - UNDERDASH	D1B	C138	16	CAB - DASH - RIGHT - POWER DISTRIBUTION PNL	A13	A72	8	WTEC II TRANSMISSION A13 (SERIAL # 29517497)														

FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC FOLDOUT 4 OF 34

SIZE B ILL. NO. 5WD01L4 FP-7/FP-8 BLANK

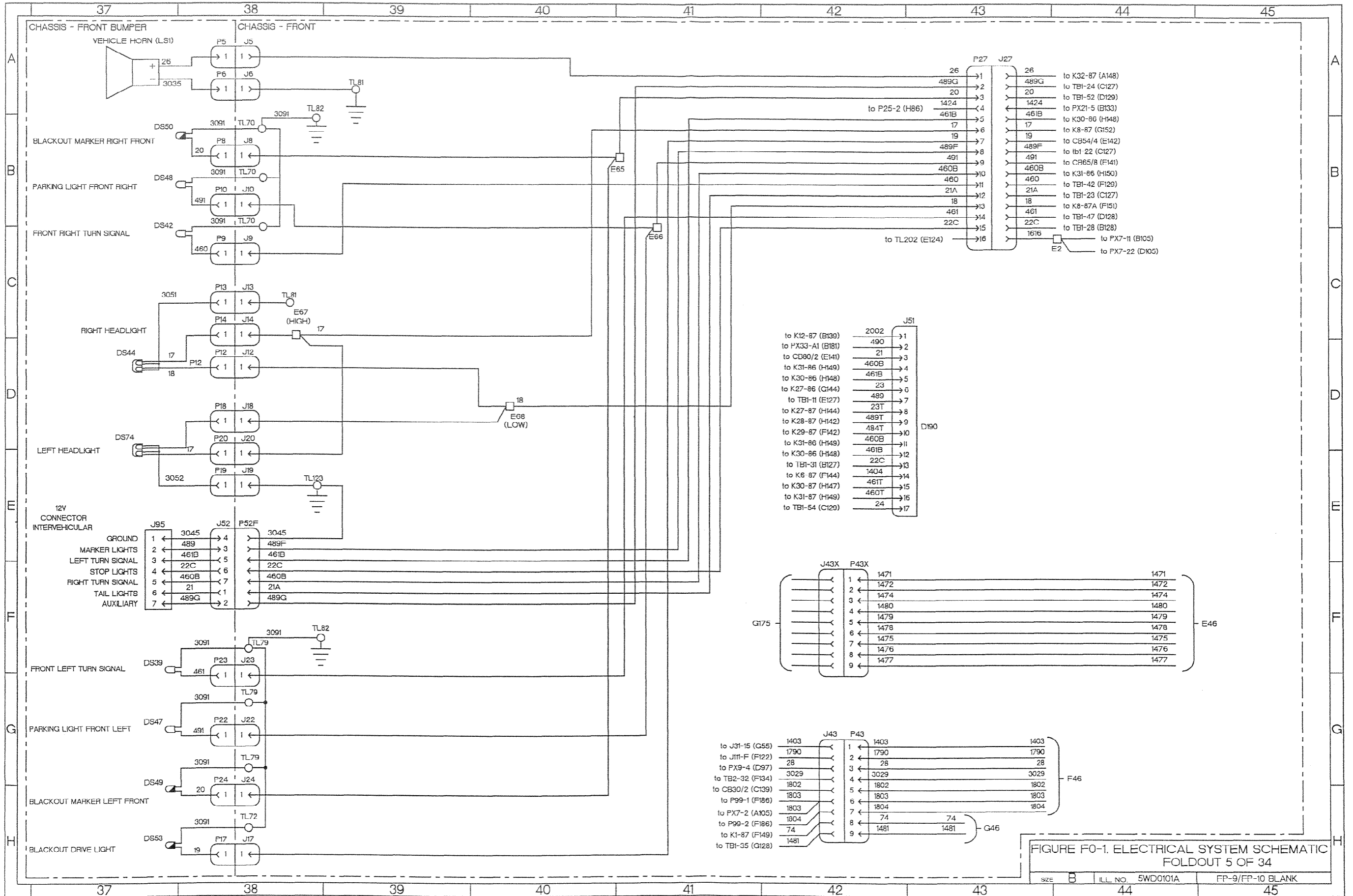


FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC FOLDOUT 5 OF 34

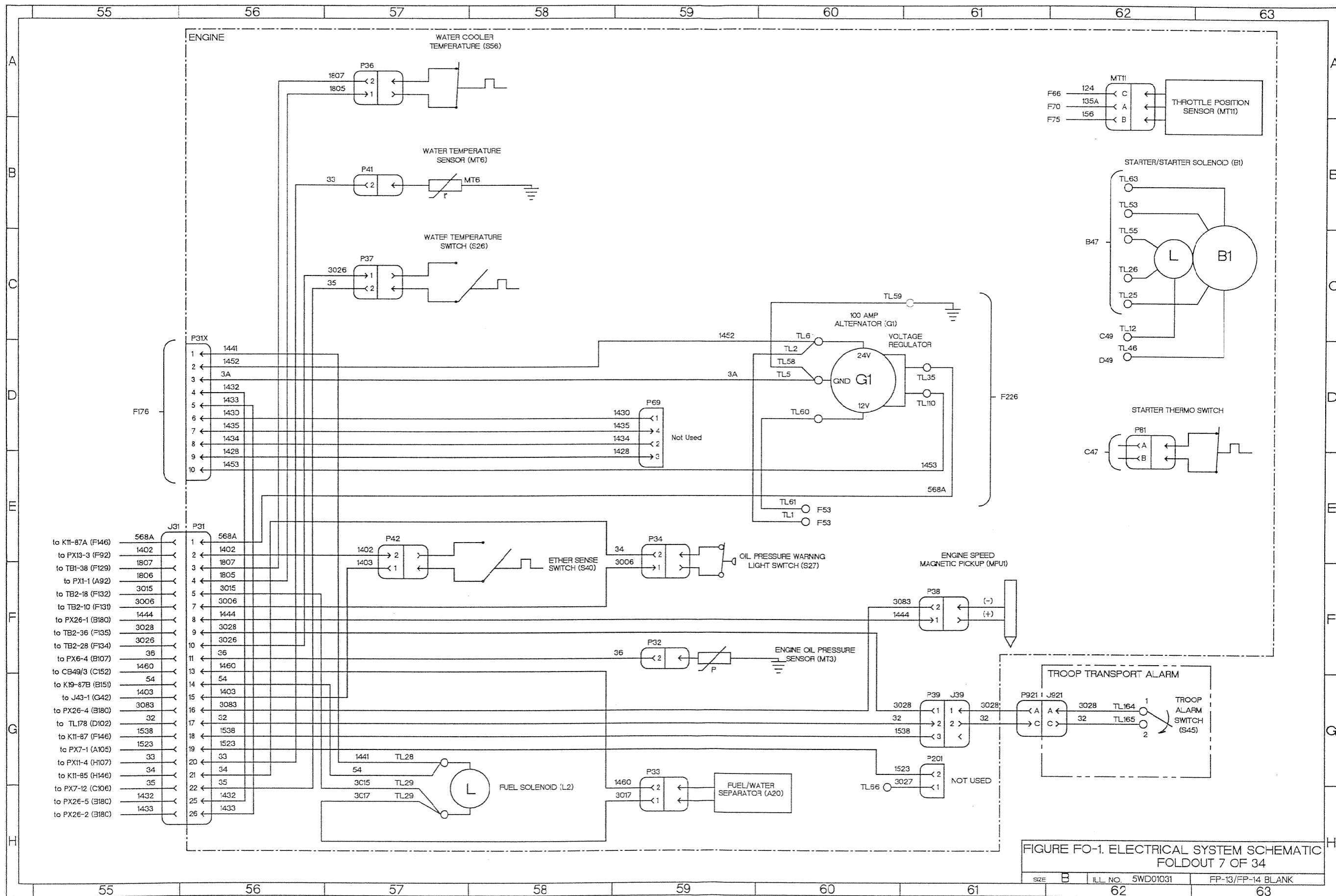


FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC FOLDOUT 7 OF 34

SIZE B ILL. NO. 5WD01031 FP-13/FP-14 BLANK

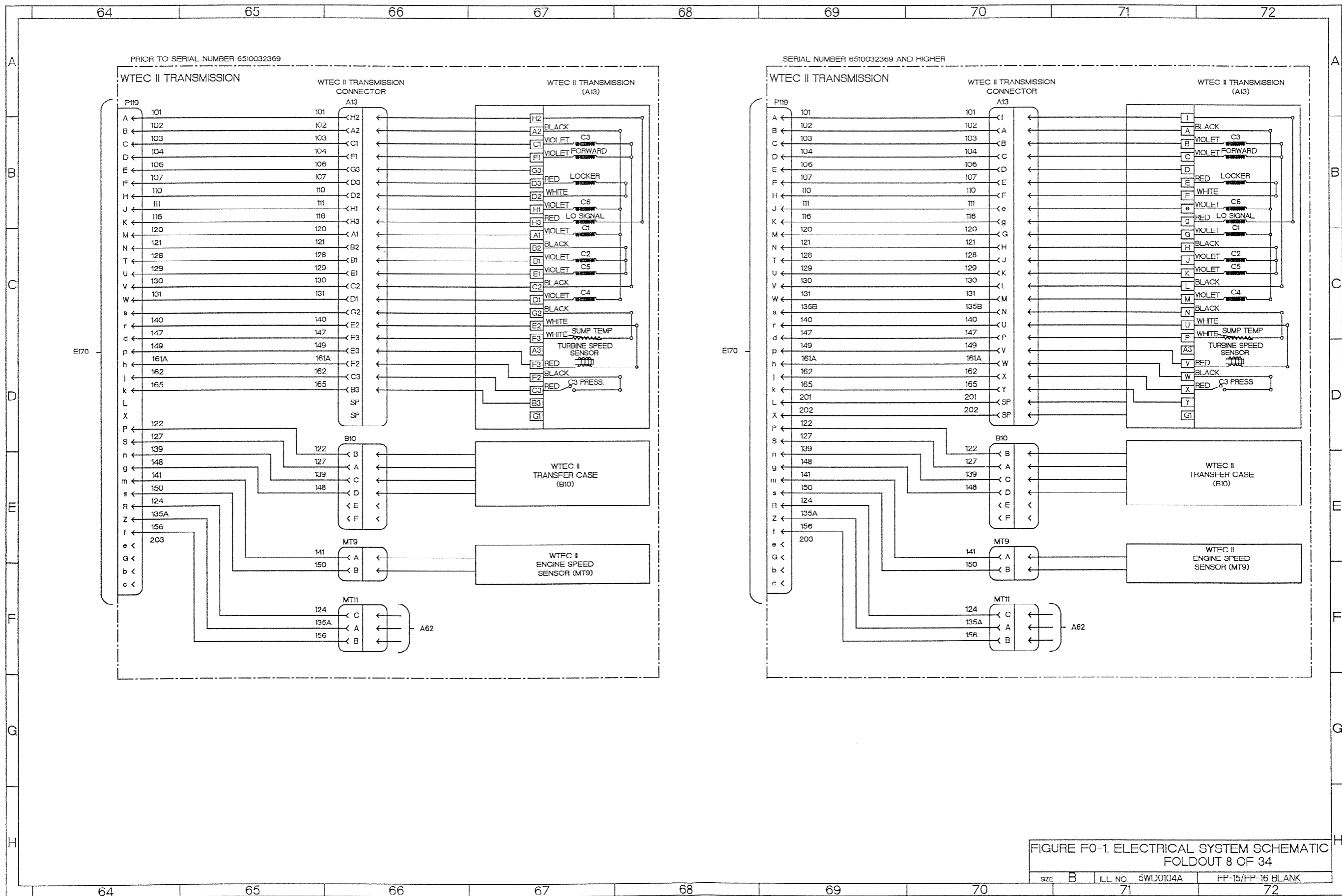


FIGURE F0-1. ELECTRICAL SYSTEM SCHEMATIC FOLDOUT 8 OF 34

SIZE	B	ILL. NO.	5WD0104A	FP-15/FP-16	BLANK
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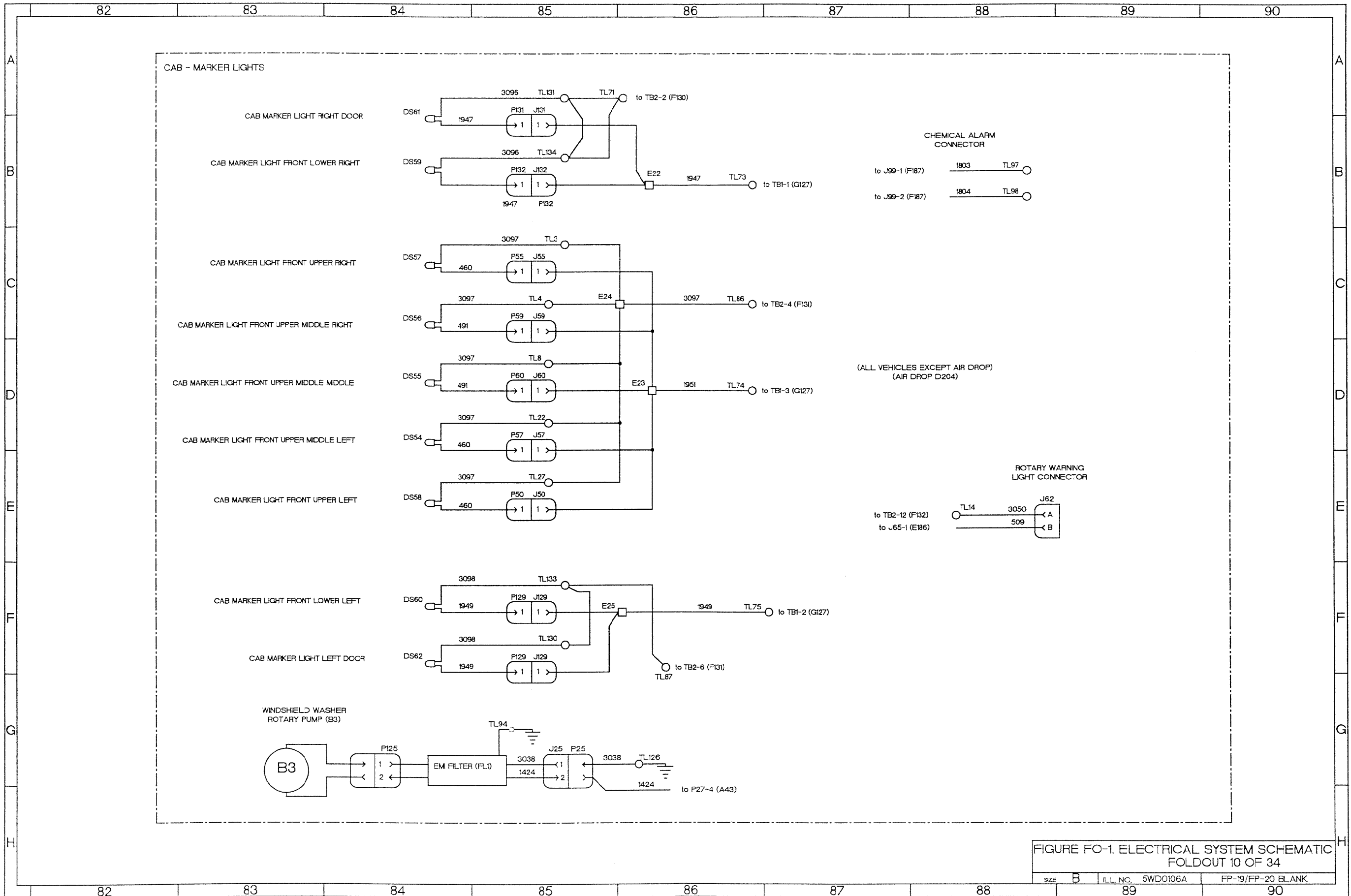


FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC FOLDOUT 10 OF 34

SIZE	B	ILL. NO.	5WD0106A	FP-19/FP-20	BLANK
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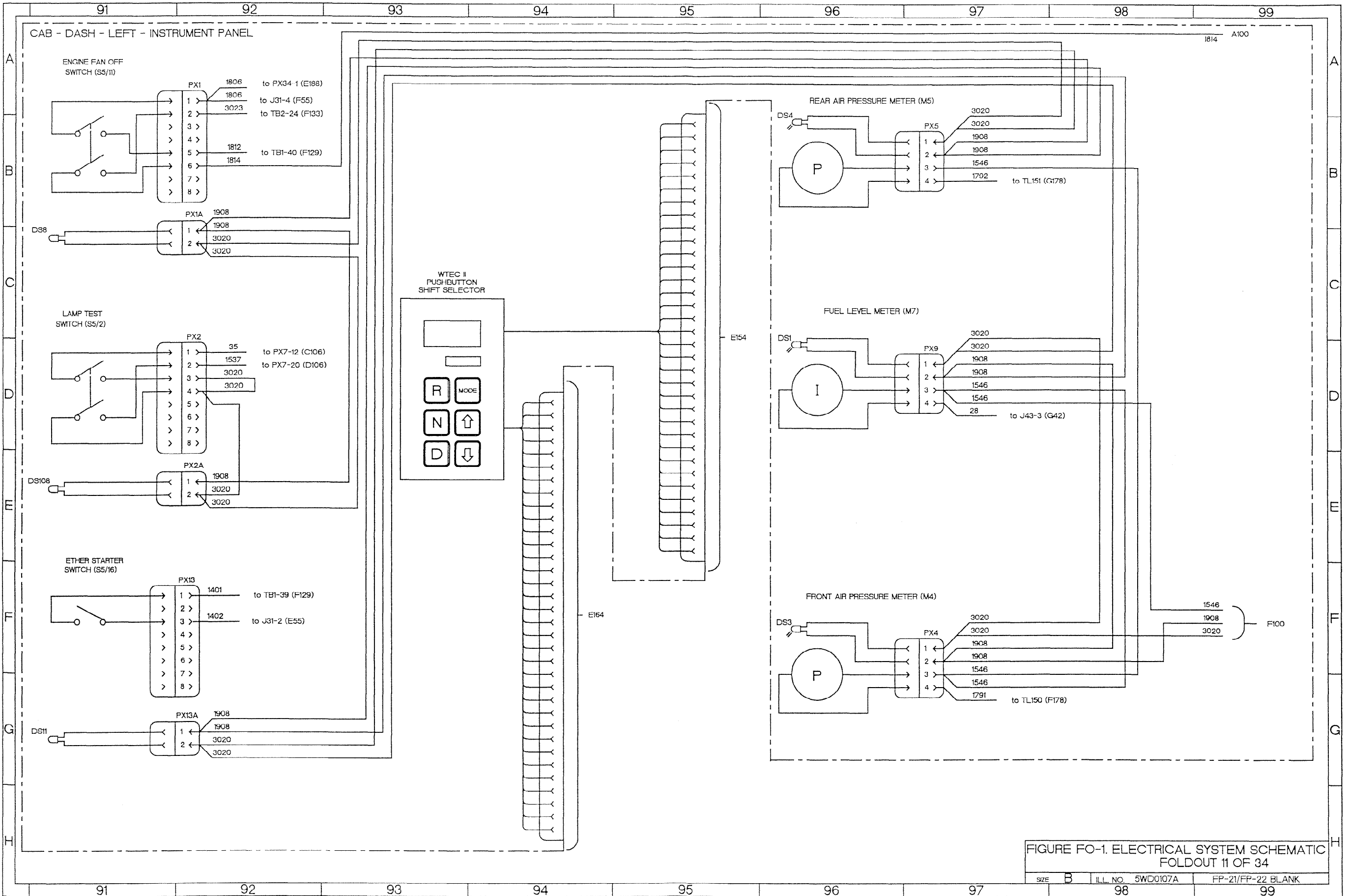


FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC FOLDOUT 11 OF 34

SIZE	B	ILL. NO.	5WD0107A	FP-21/FP-22	BLANK
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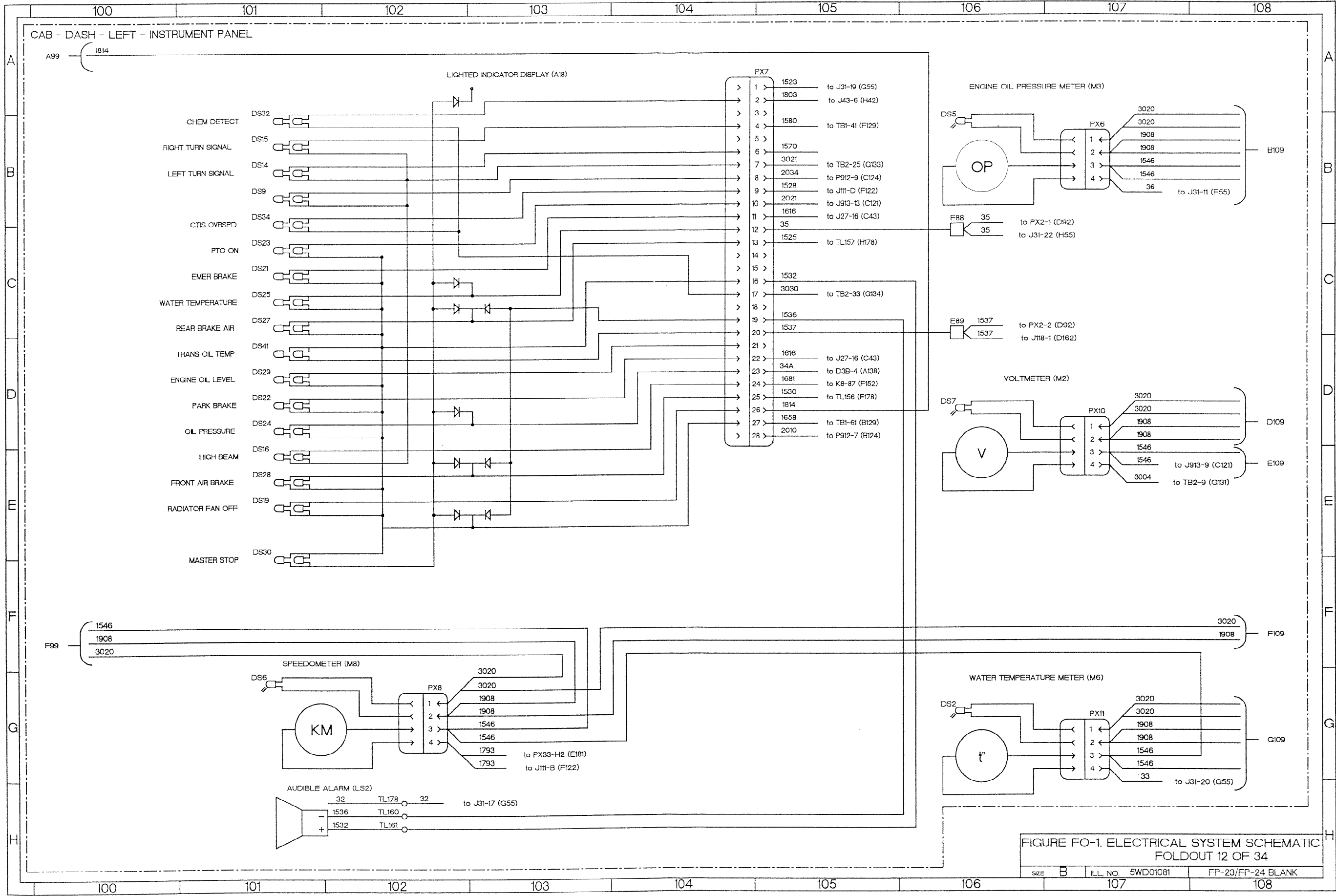


FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC FOLDOUT 12 OF 34

SIZE	B	ILL. NO.	5WD01081	FP-23/FP-24 BLANK
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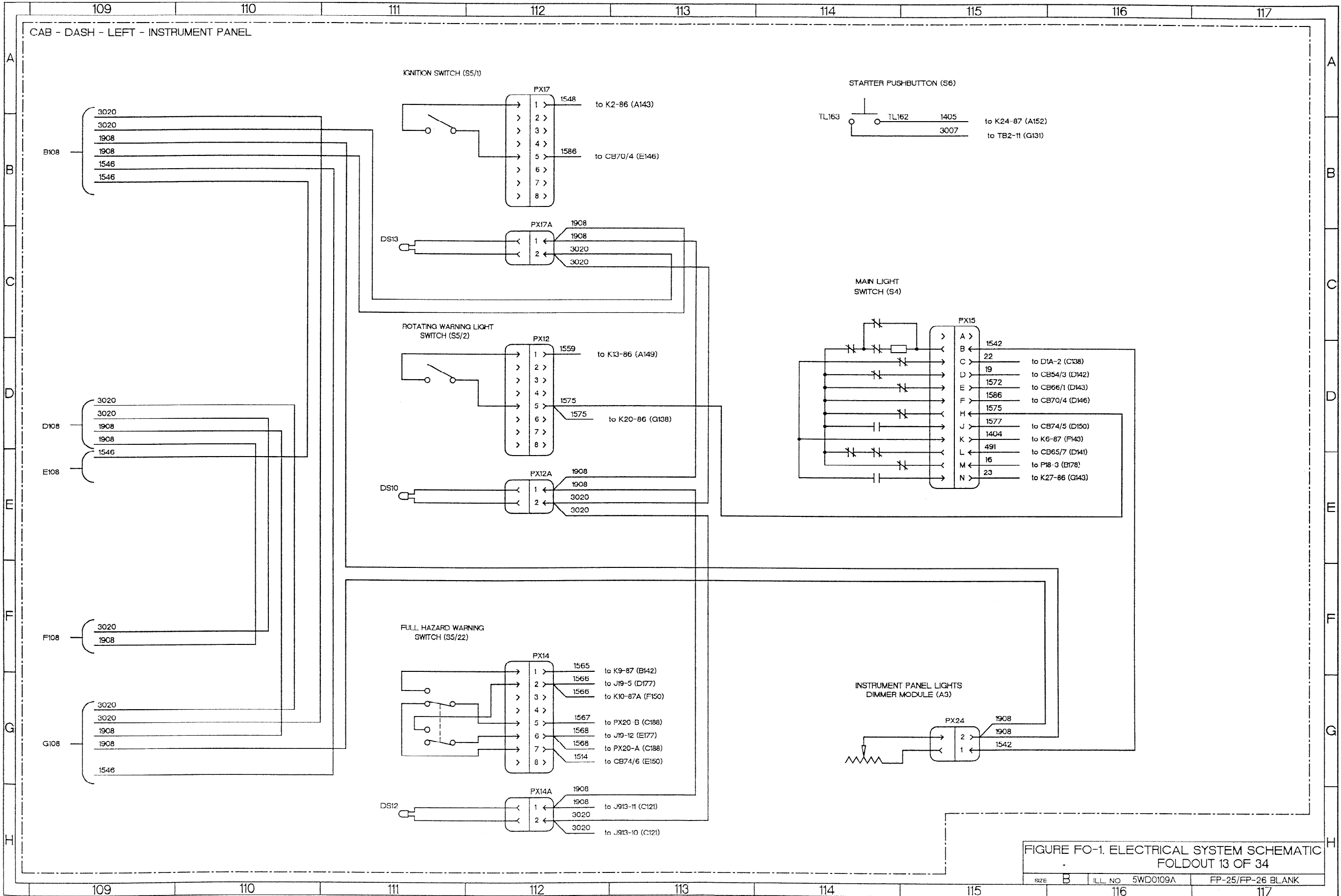


FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC FOLDOUT 13 OF 34

SIZE	B	ILL. NO.	5WD0109A	FP-25/FP-26 BLANK
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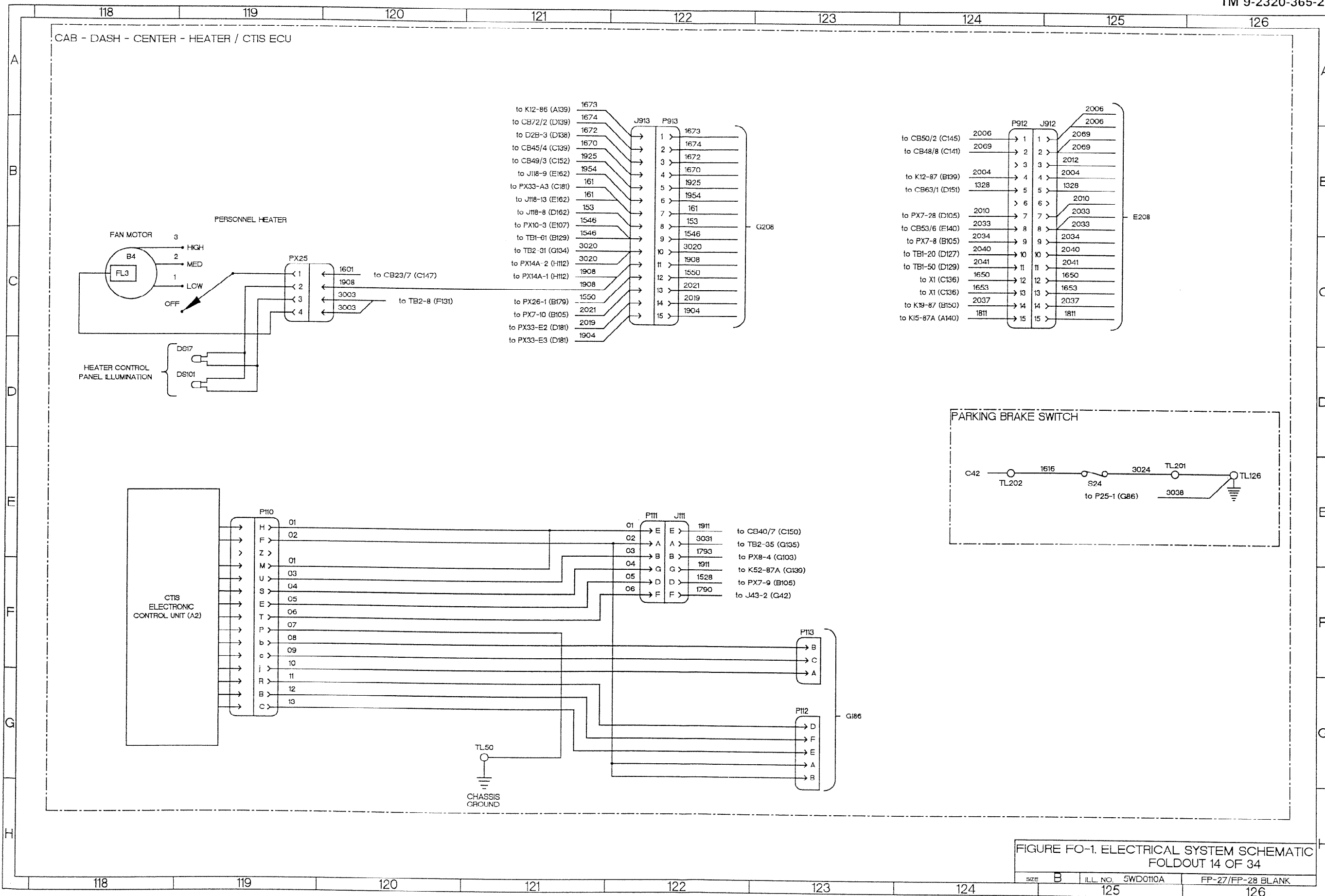
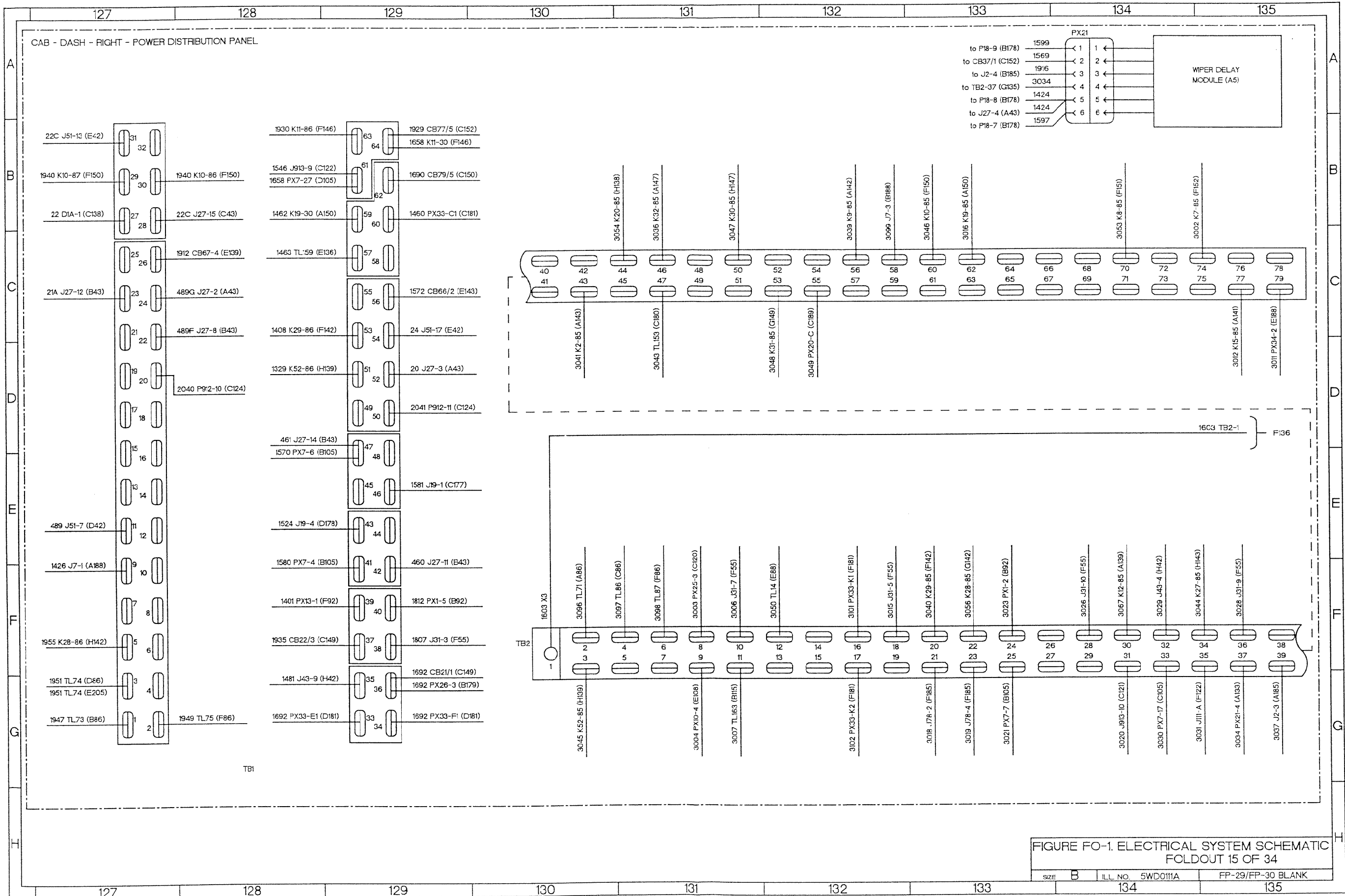


FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC FOLDOUT 14 OF 34

SIZE	B	ILL. NO.	5WD0110A	FP-27/FP-28 BLANK
			125	126



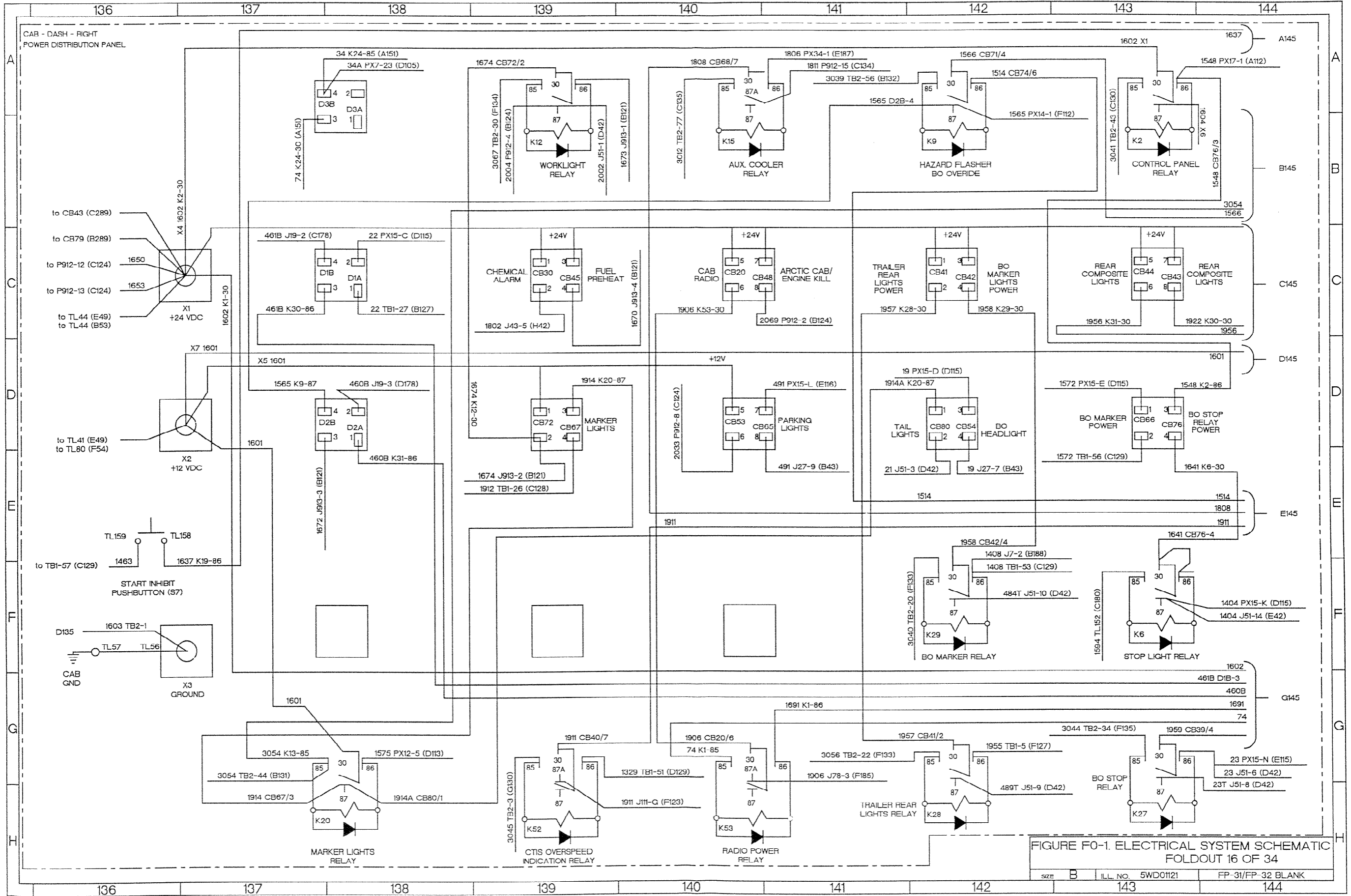


FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC FOLDOUT 16 OF 34

SIZE	B	ILL. NO.	5WD01121	FP-31/FP-32	BLANK
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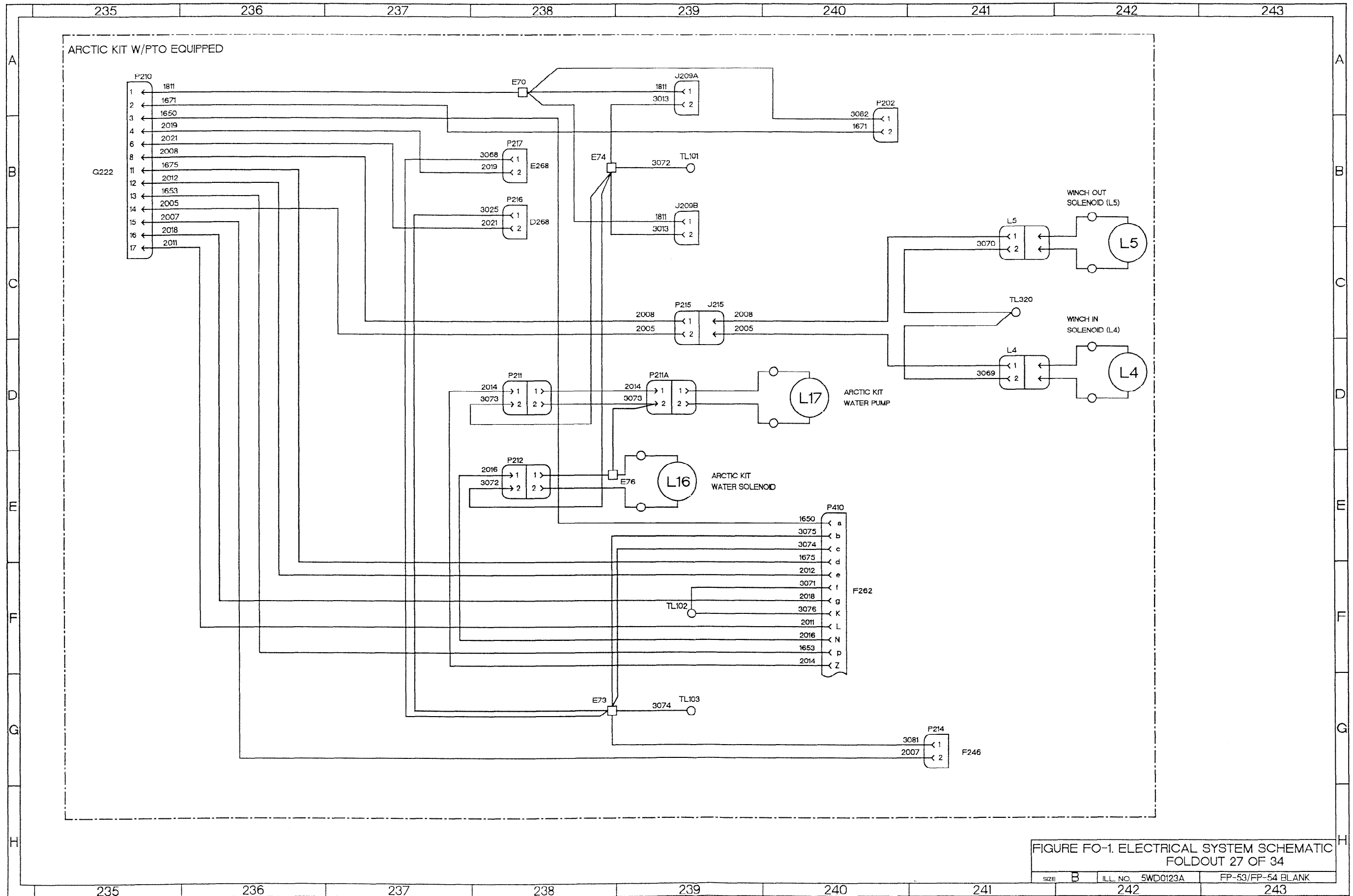
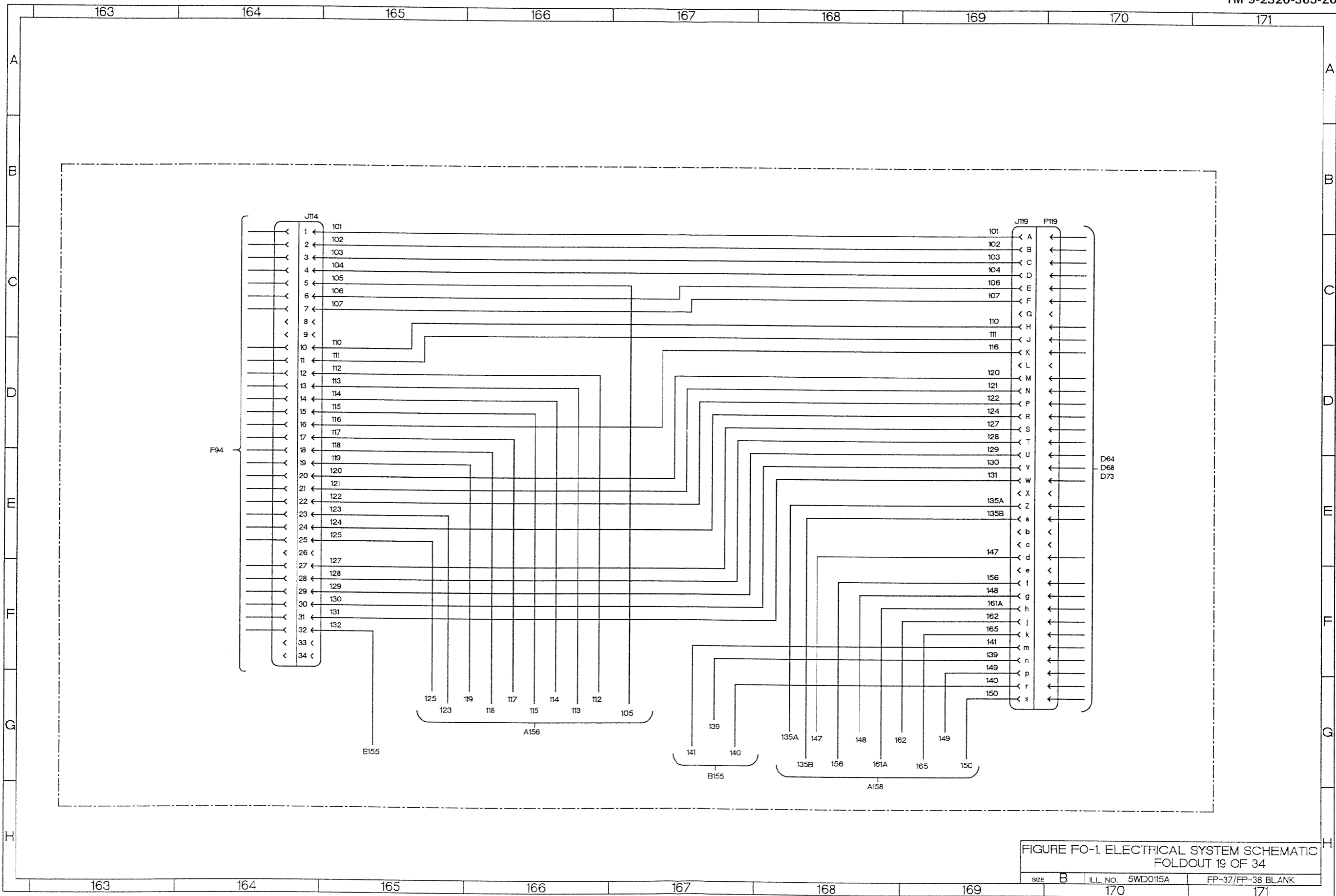


FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
 FOLDOUT 27 OF 34

SIZE	B	ILL. NO.	5WD0123A	FP-53/FP-54	BLANK
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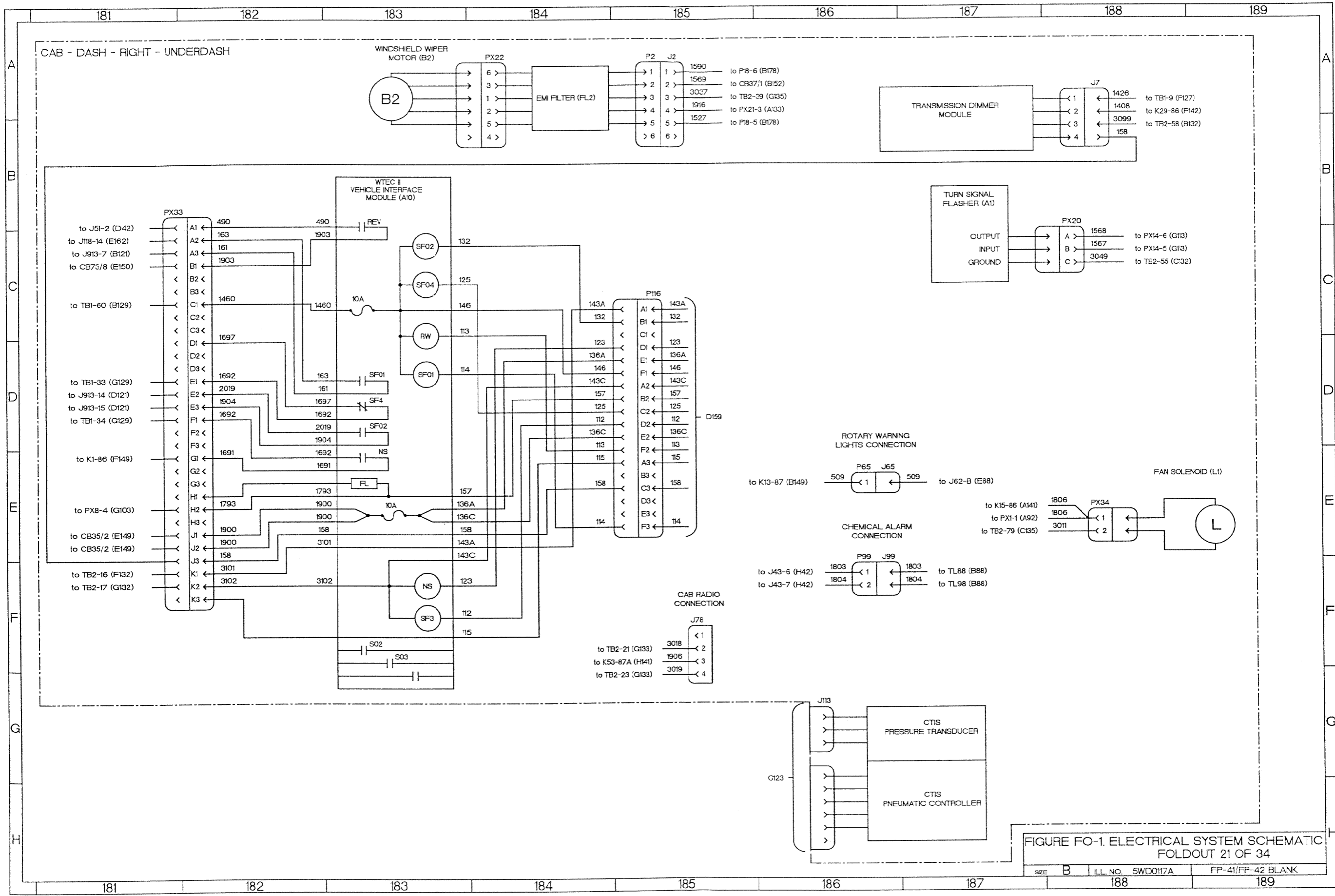


FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC FOLDOUT 21 OF 34

SIZE B ILL. NO. 5WD0117A FP-41/FP-42 BLANK

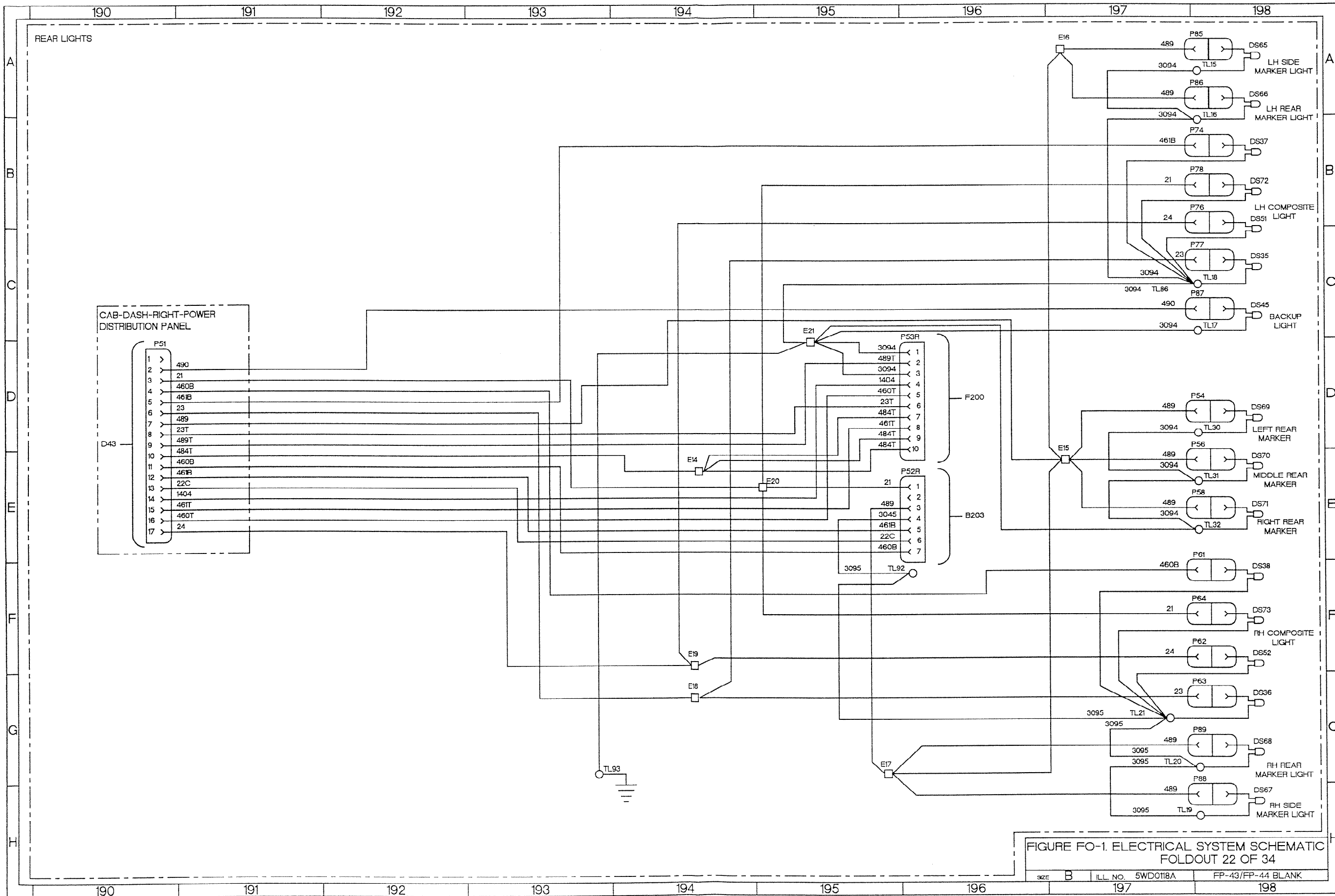


FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC FOLDOUT 22 OF 34

SIZE	B	ILL. NO.	5WD0118A	FP-43/FP-44	BLANK
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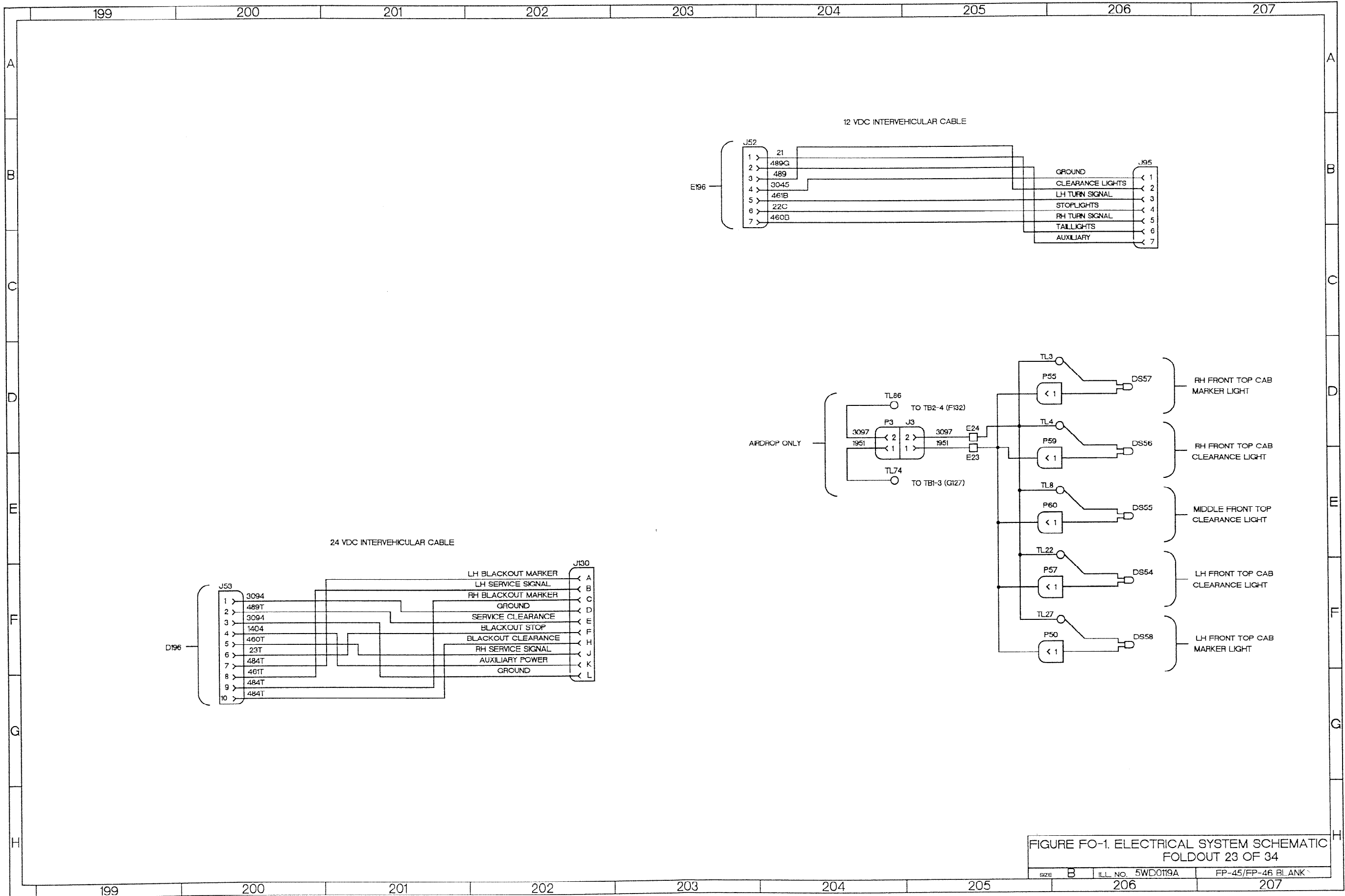


FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC FOLDOUT 23 OF 34

SIZE	B	ILL. NO.	5WD019A	FP-45/FP-46 BLANK
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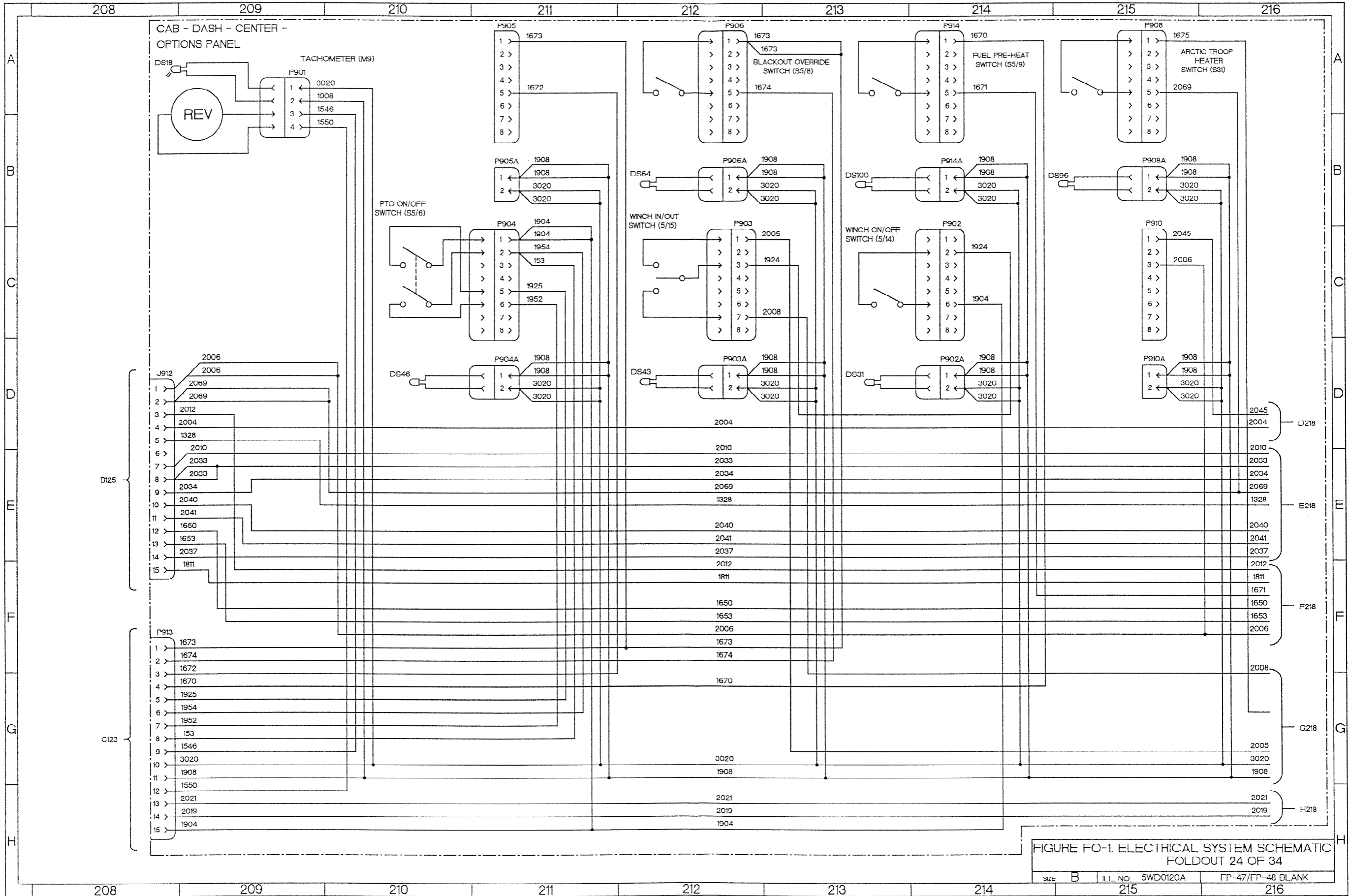


FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC FOLDOUT 24 OF 34

SIZE	B	ILL. NO.	5WD0120A	FP-47/FP-48	BLANK
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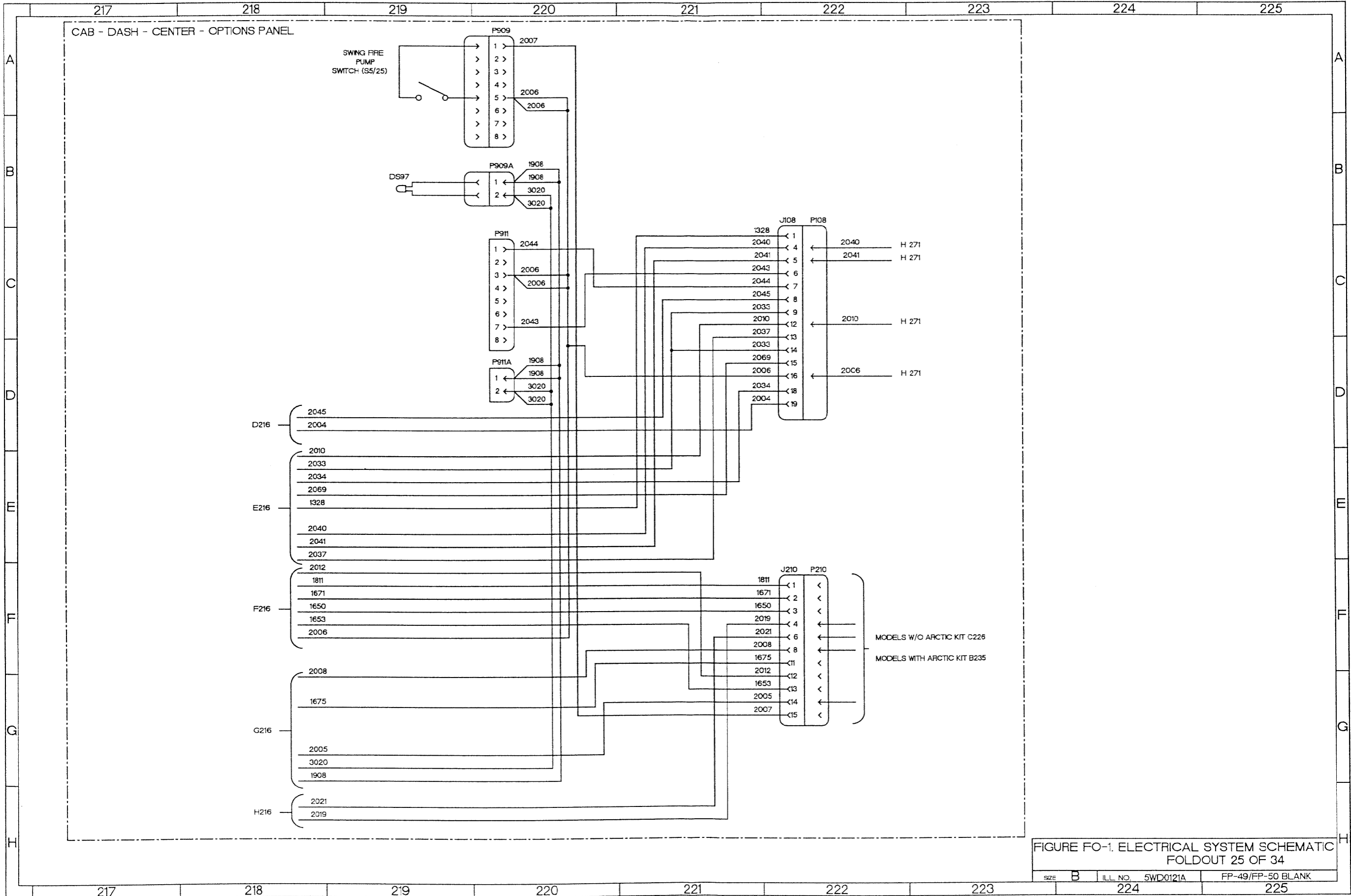


FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
 FOLDOUT 25 OF 34

SIZE	B	ILL. NO.	5WD0121A	FP-49/FP-50 BLANK
			224	225

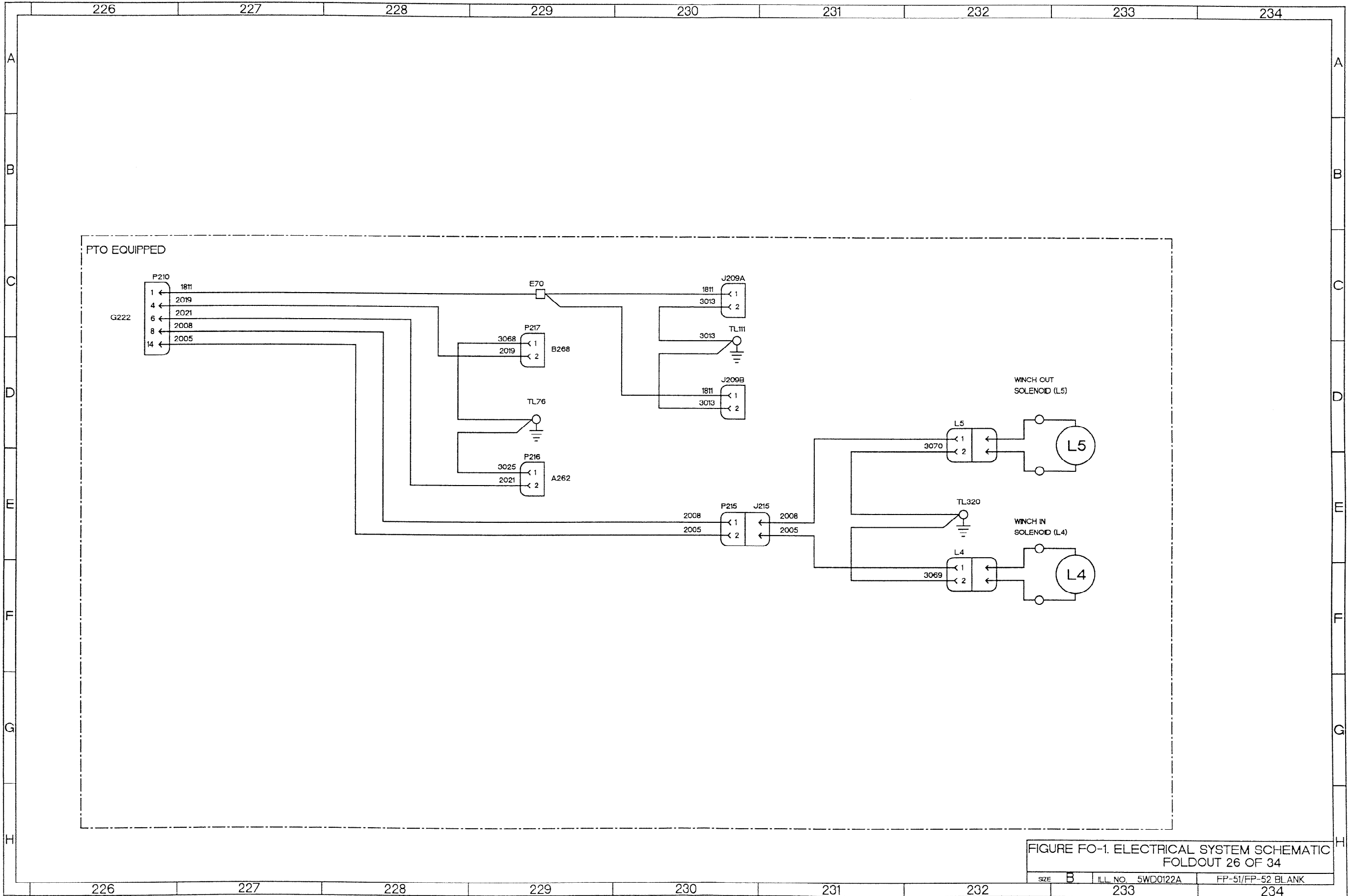


FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 26 OF 34

SIZE	B	ILL. NO.	5WD0122A	FP-51/FP-52	BLANK
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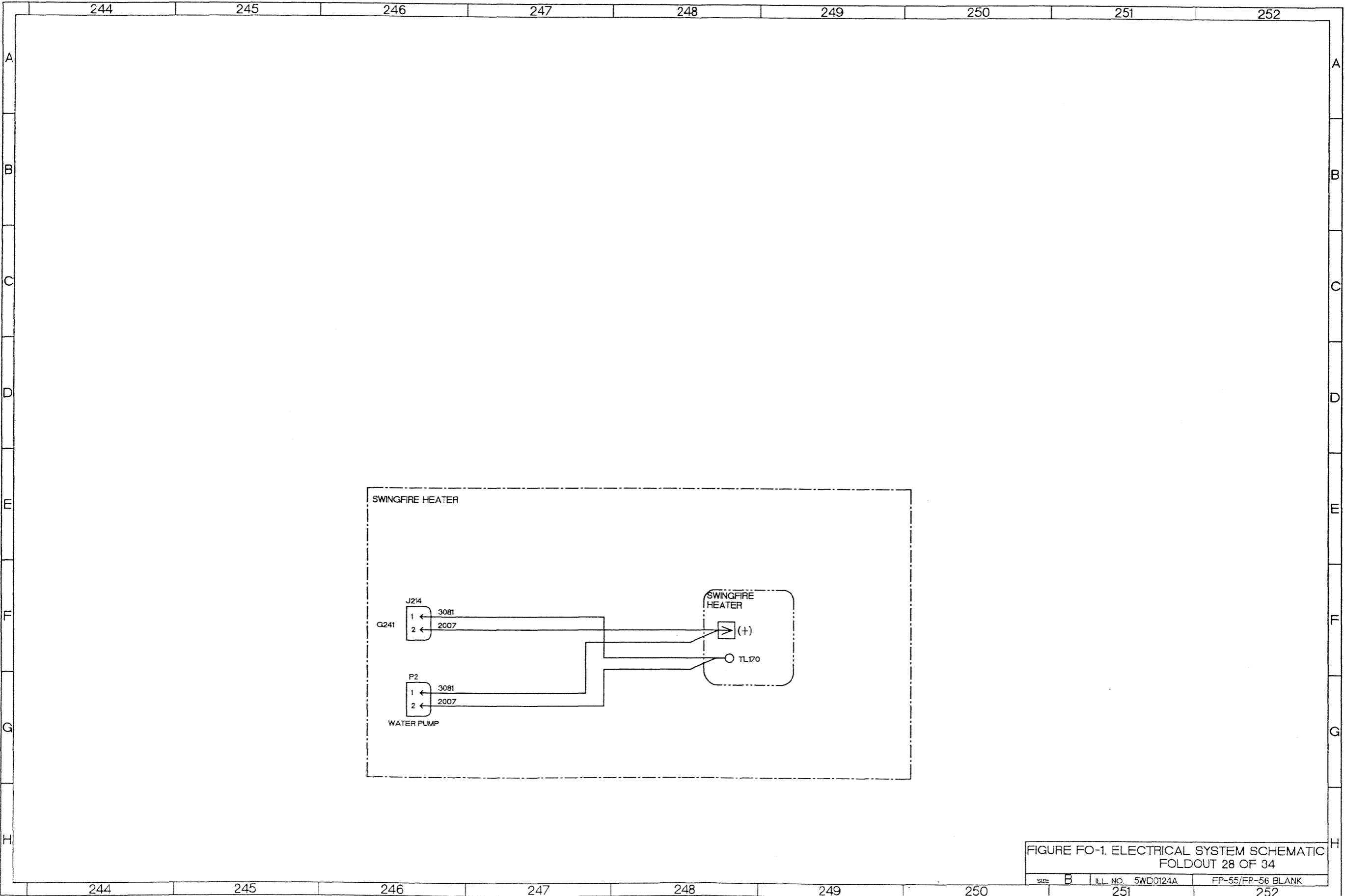


FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 28 OF 34

SIZE	B	ILL. NO.	5WD0124A	FP-55/FP-56 BLANK
			251	252

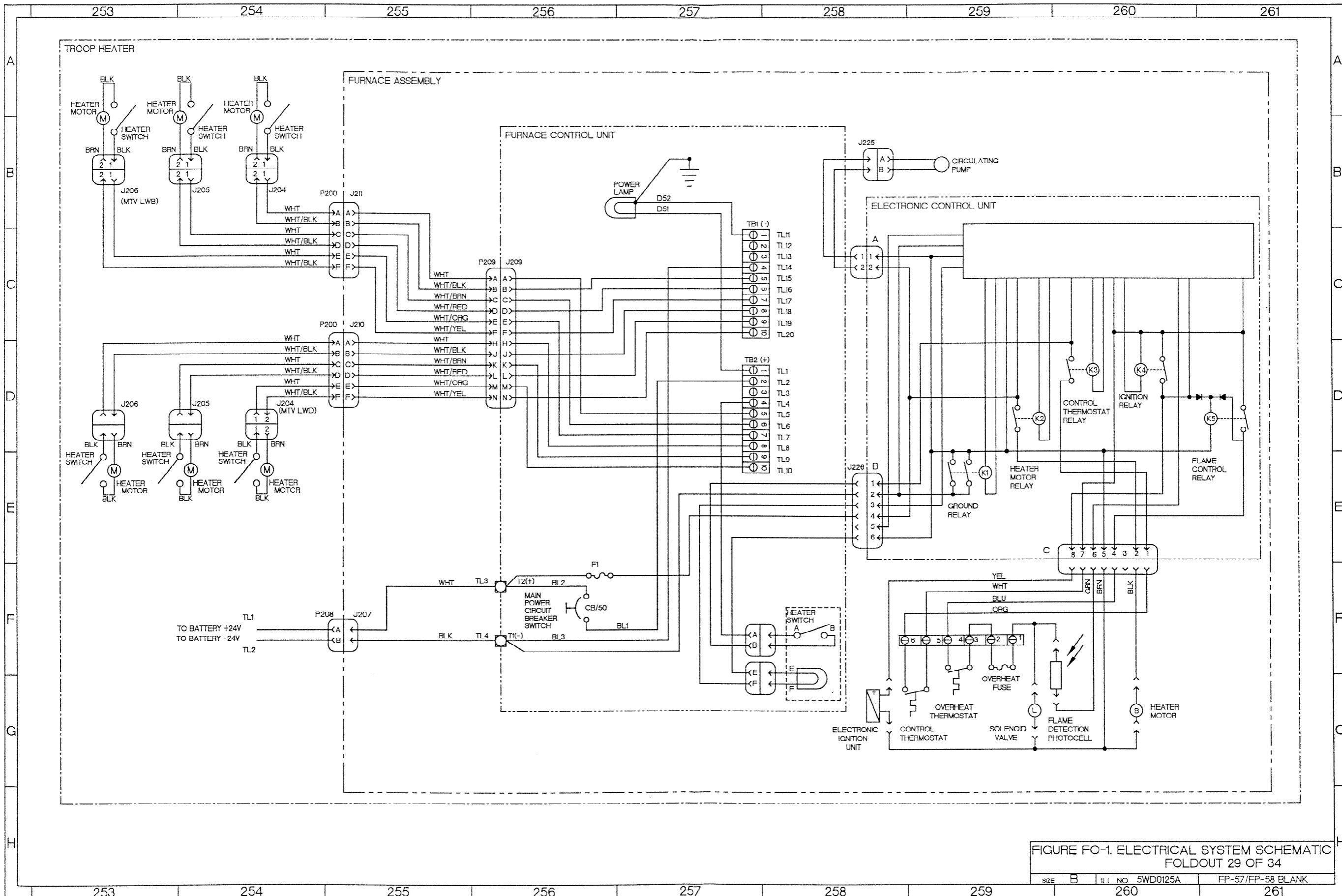


FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC FOLDOUT 29 OF 34

SIZE	B	ILL. NO.	5WD0125A	FP-57/FP-58	BLANK
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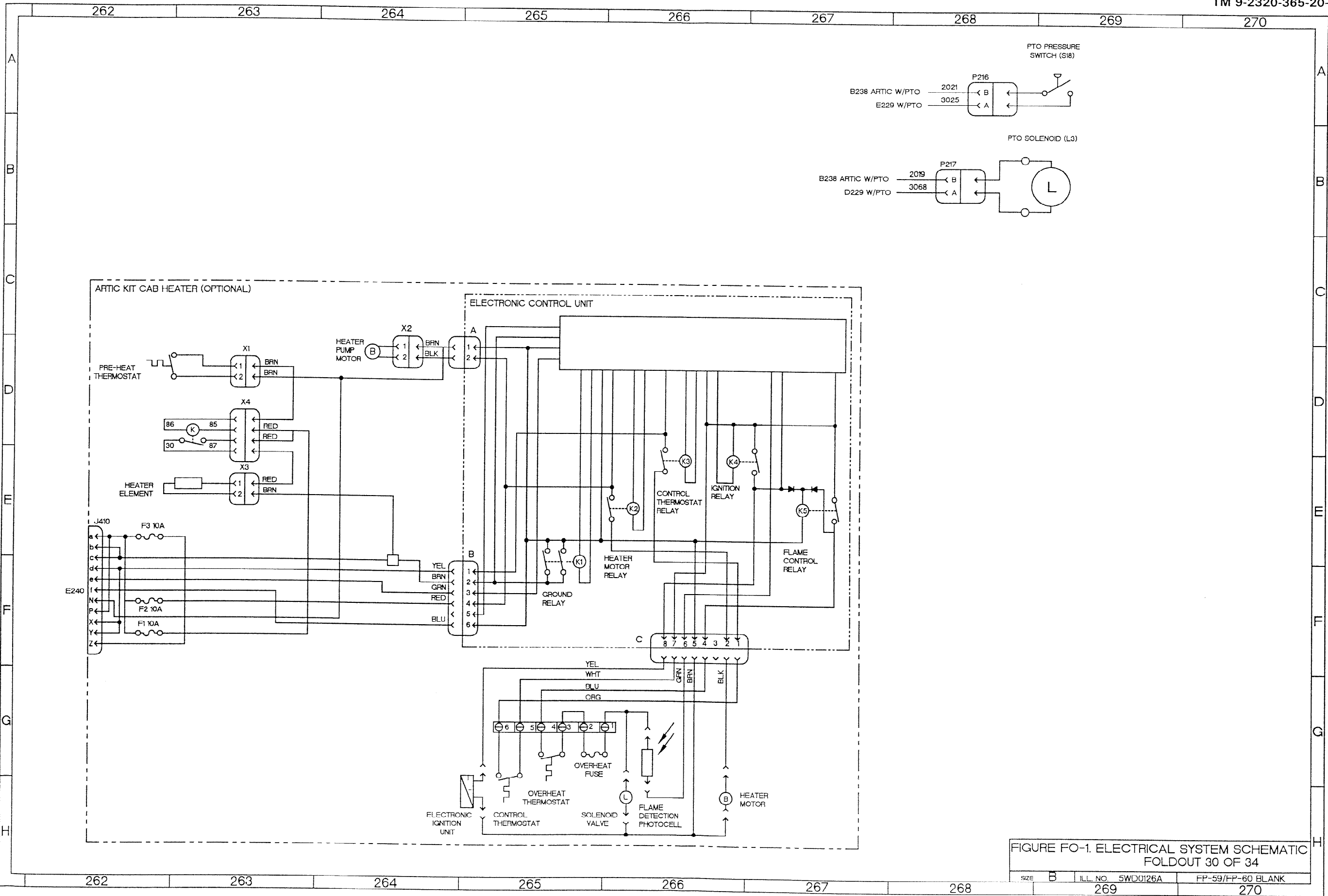


FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC FOLDOUT 30 OF 34

SIZE	B	ILL. NO.	5WD0126A	FP-59/FP-60	BLANK
		268	269	270	

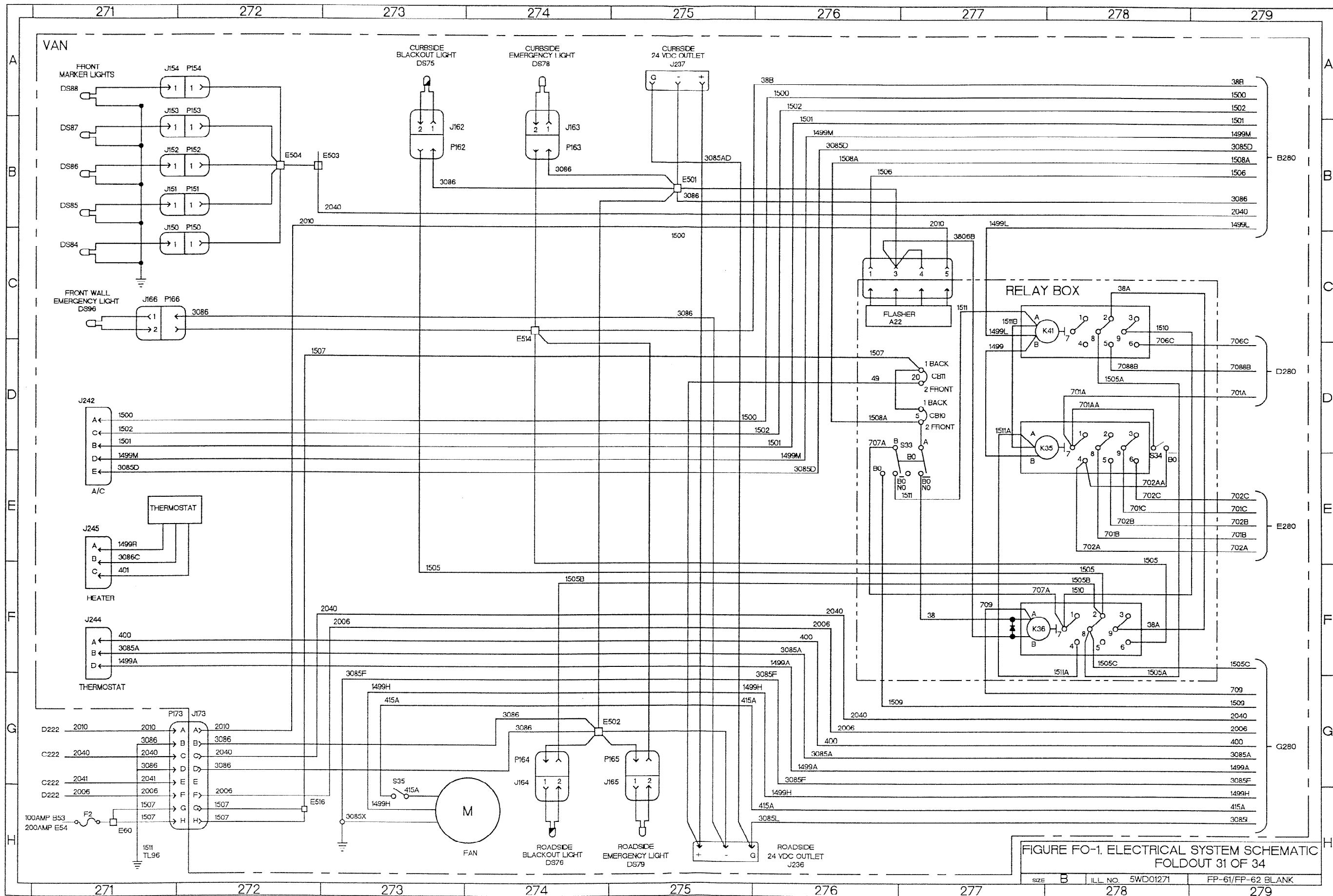


FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC FOLDOUT 31 OF 34

SIZE	B	ILL. NO.	5WD01271	FP-61/FP-62 BLANK
			278	279

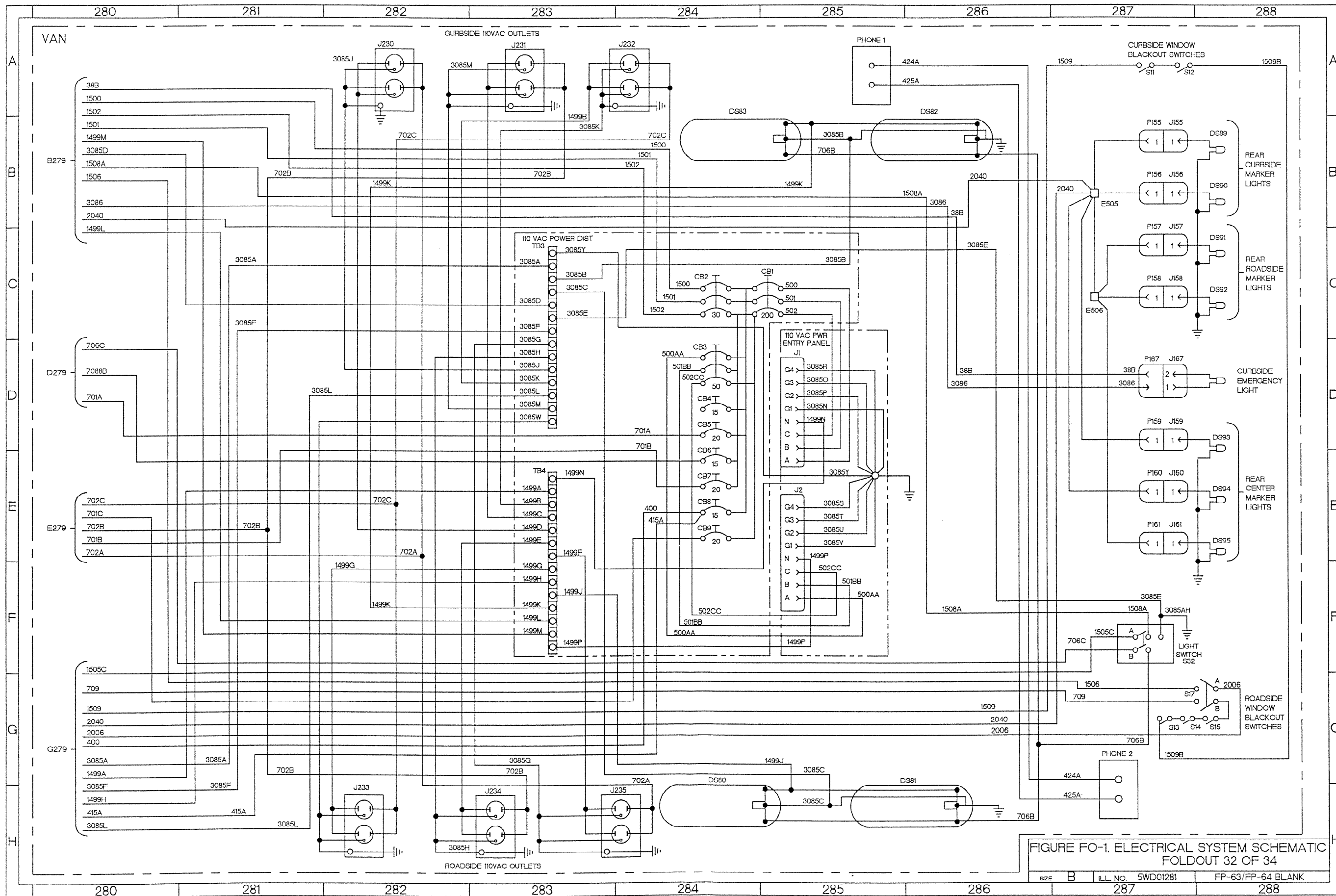


FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC FOLDOUT 32 OF 34
 SIZE B ILL. NO. 5WD01281 FP-63/FP-64 BLANK

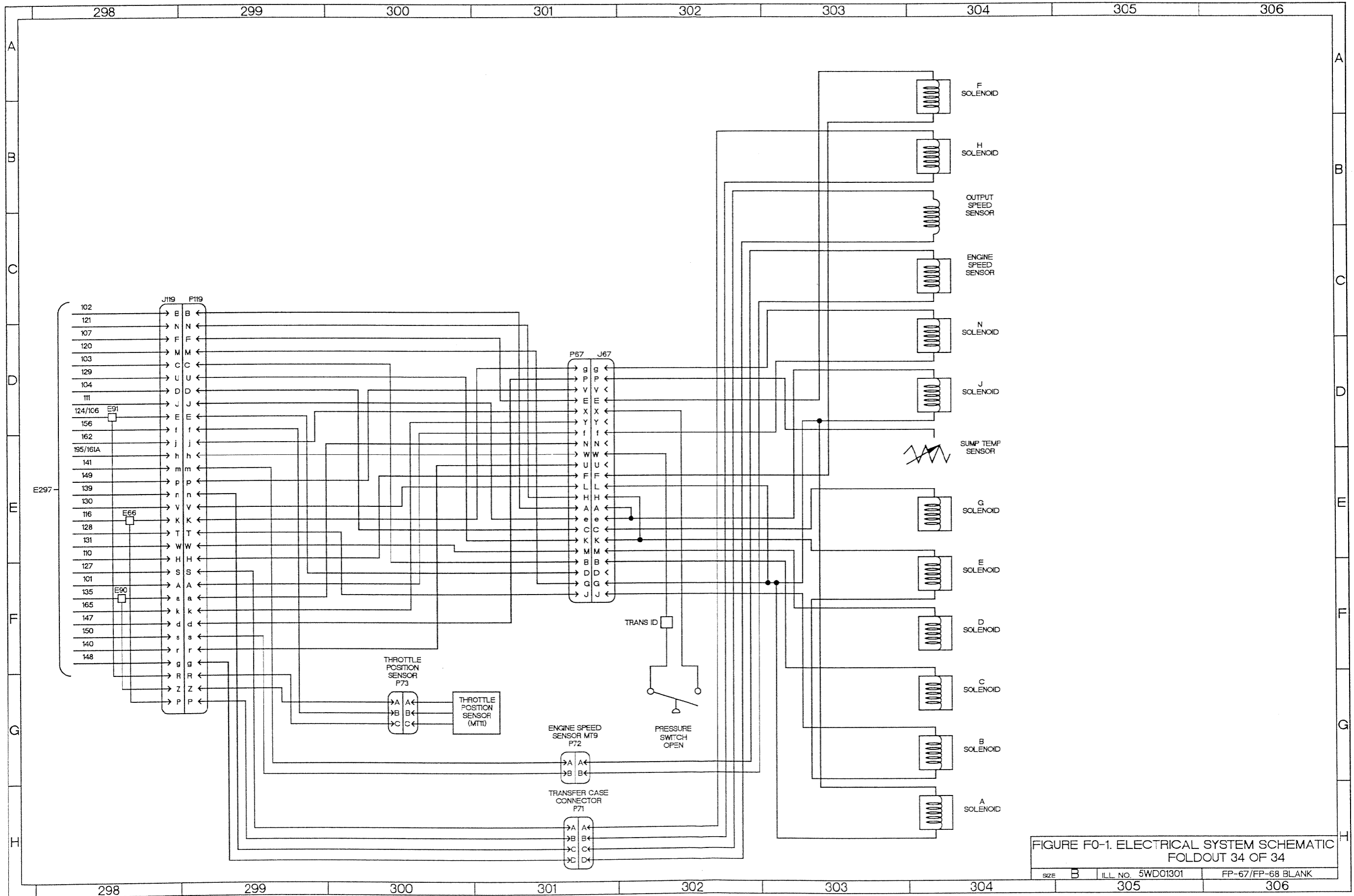


FIGURE F0-1. ELECTRICAL SYSTEM SCHEMATIC
 FOLDOUT 34 OF 34

SIZE	B	ILL. NO.	5WD01301	FP-67/FP-68	BLANK
			305		306

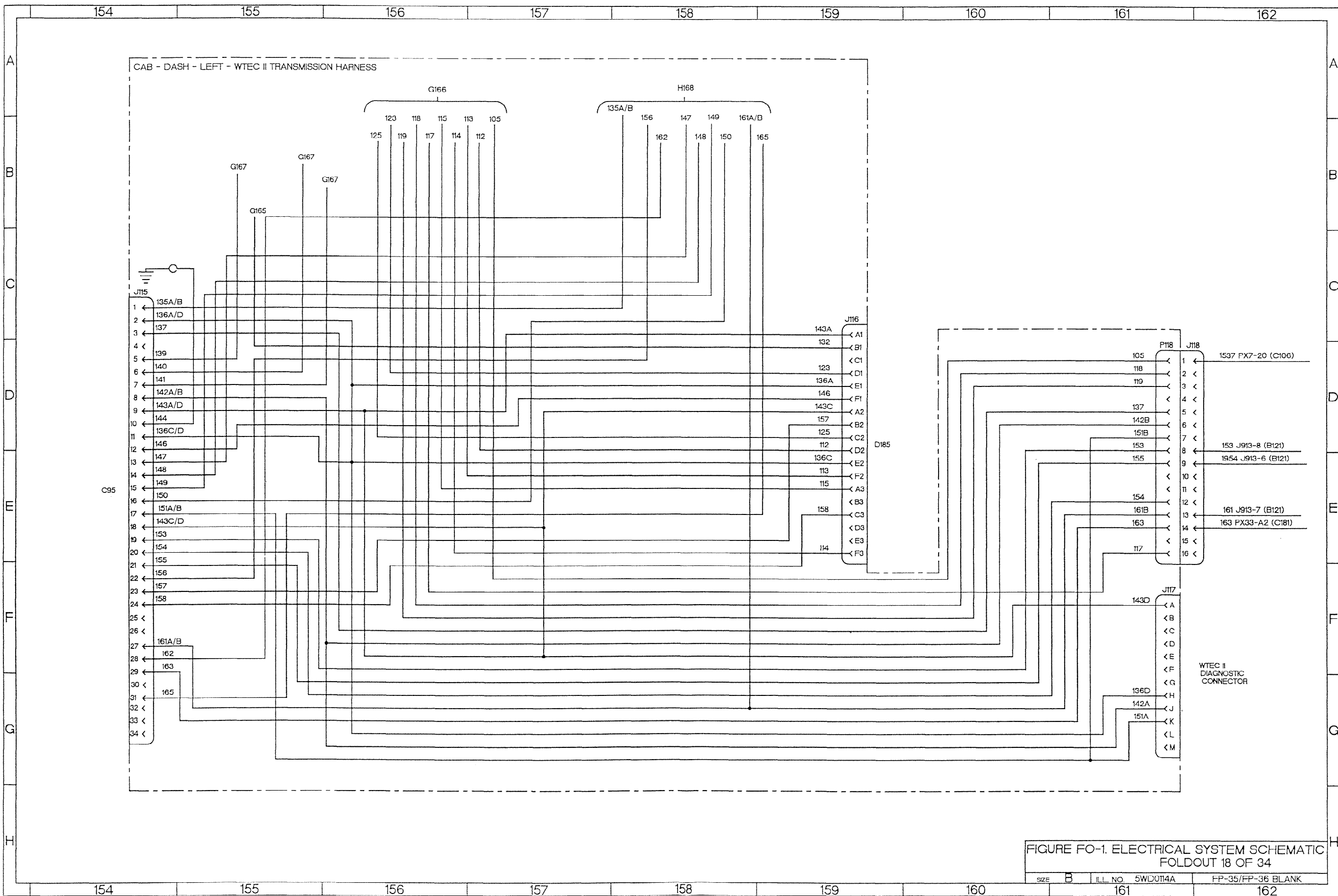


FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC FOLDOUT 18 OF 34

SIZE	B	ILL. NO.	5WD014A	FP-35/FP-36	BLANK
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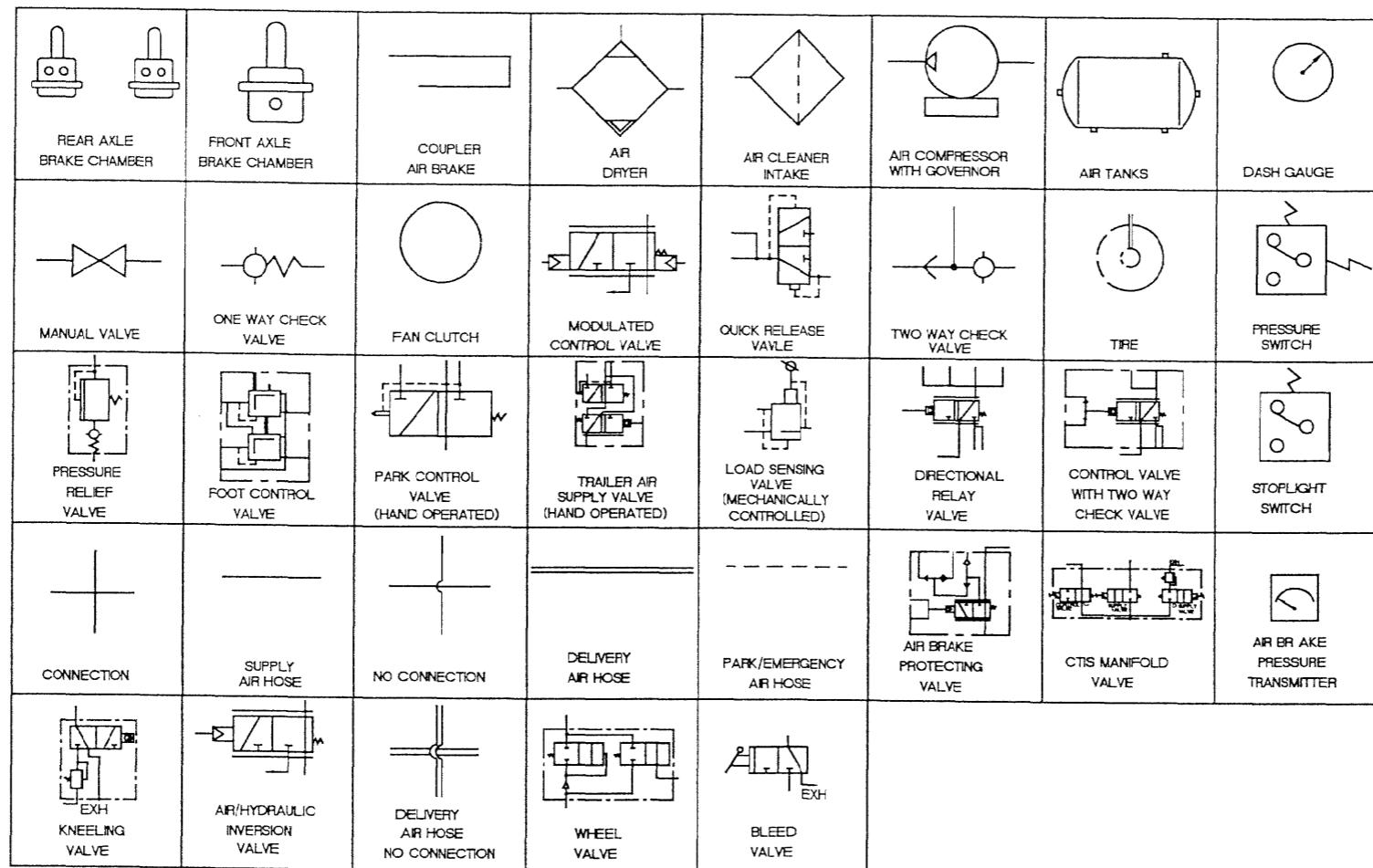


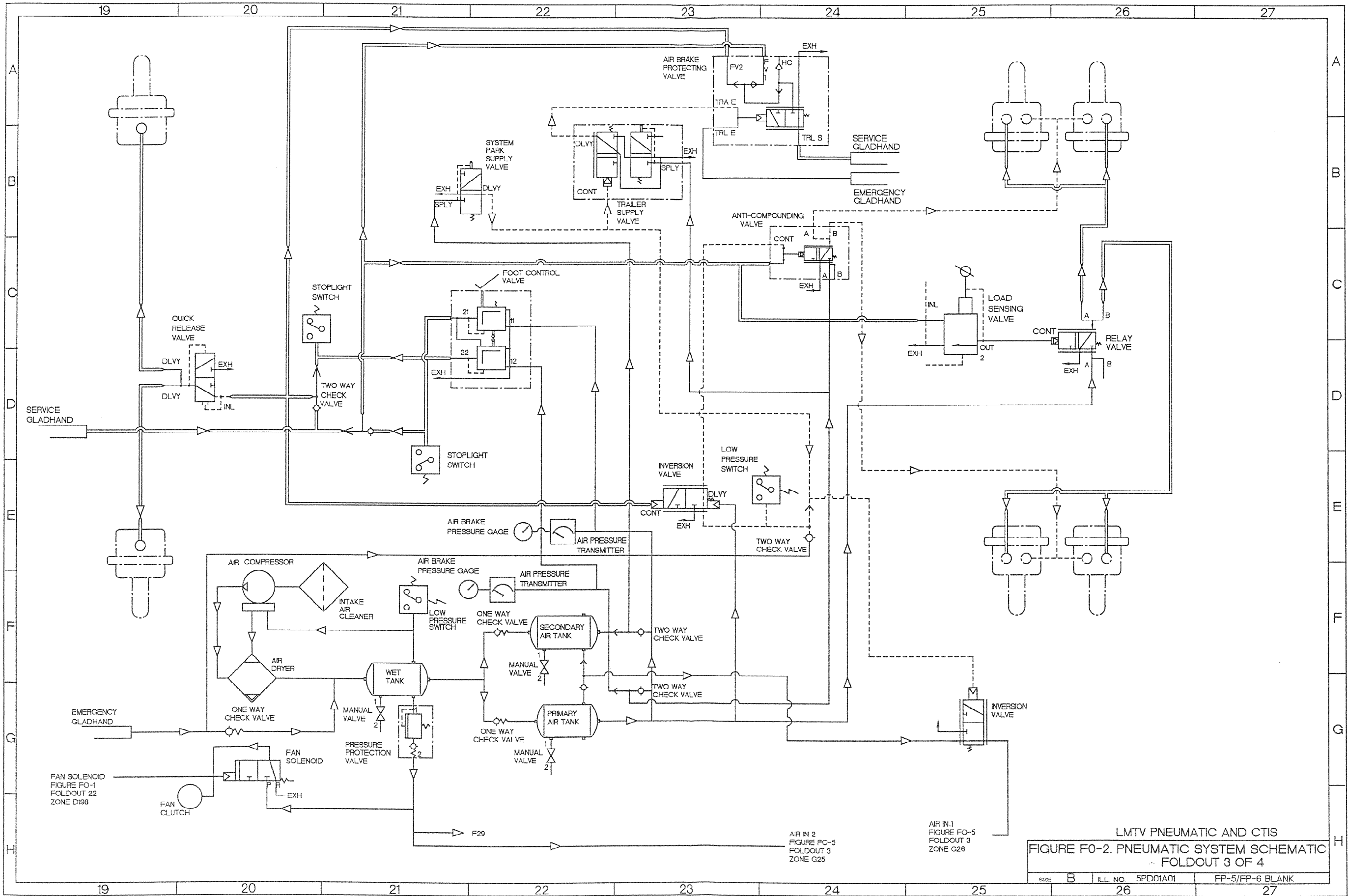
FIGURE FO-2 PNEUMATIC SYSTEM SCHEMATIC
FOLDOUT 1 OF 4

SIZE B ILL. NO. 5PD01A11 FP-1/FP-2 BLANK

SH	ZONE	DESCRIPTION
3	E22	AIR BRAKE PRESSURE GAGE
3	F22	AIR BRAKE PRESSURE GAGE
3	A23	AIR BRAKE PROTECTING VALVE
3	F20	AIR COMPRESSOR
3	F20	AIR DRYER
3	E22	AIR PRESSURE TRANSMITTER
3	E22	AIR PRESSURE TRANSMITTER
3	C24	ANTI-COMPOUNDING VALVE
4	E31	CONTROL VALVE
4	E31	CTIS MANIFOLD VALVE
4	E32	DEFLATE VALVE
3	G19	EMERGENCY GLADHAND
3	B24	EMERGENCY GLADHAND
3	H20	FAN CLUTCH
3	G20	FAN SOLENOID
3	C22	FOOT CONTROL VALVE
3	F20	INTAKE AIR CLEANER
3	G25	INVERSION VALVE
3	E23	INVERSION VALVE
4	C28	KNEELING VALVE
4	E28	KNEELING VALVE
3	C25	LOAD SENSING VALVE
3	E23	LOW PRESSURE SWITCH
3	F21	LOW PRESSURE SWITCH
3	F22	MANUAL VALVE
3	G22	MANUAL VALVE
3	G21	MANUAL VALVE
3	F22	ONE WAY CHECK VALVE
3	G22	ONE WAY CHECK VALVE
3	G20	ONE WAY CHECK VALVE
3	G21	PRESSURE PROTECTION VALVE
3	G22	PRIMARY AIR TANK
3	C20	QUICK RELEASE VALVE
4	C34	QUICK RELEASE VALVE
4	D30	QUICK RELEASE VALVE
3	D26	RELAY VALVE
3	F22	SECONDARY AIR TANK

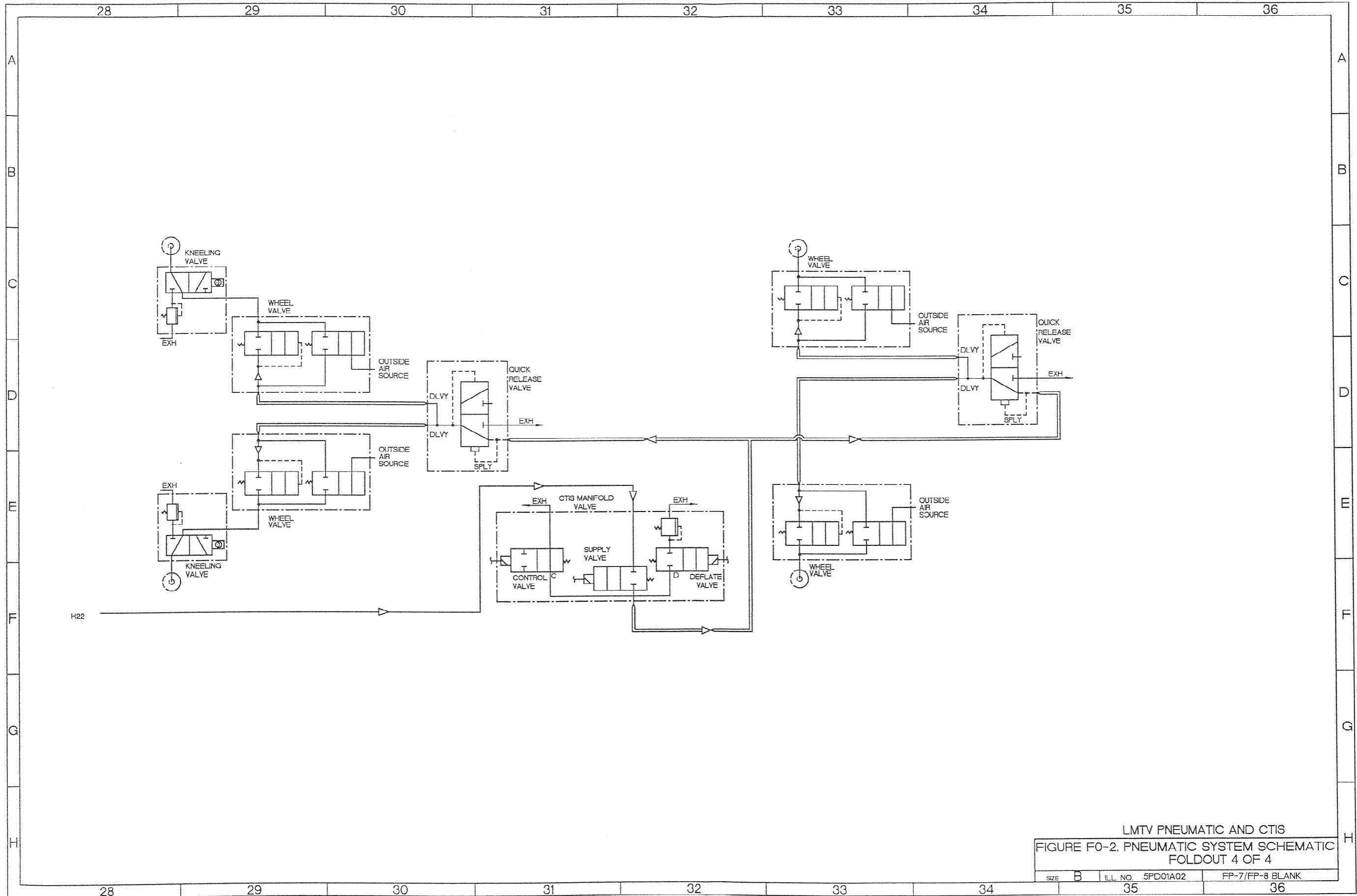
SH	ZONE	DESCRIPTION
3	D19	SERVICE GLADHAND
3	B24	SERVICE GLADHAND
3	C20	STOPLIGHT SWITCH
3	E21	STOPLIGHT SWITCH
4	F32	SUPPLY VALVE
3	B21	SYSTEM PARK SUPPLY VALVE
3	B22	TRAILER SUPPLY VALVE
3	D21	TWO WAY CHECK VALVE
3	E24	TWO WAY CHECK VALVE
3	F23	TWO WAY CHECK VALVE
3	G23	TWO WAY CHECK VALVE
3	F21	WET TANK
4	C29	WHEEL VALVE
4	C33	WHEEL VALVE
4	E29	WHEEL VALVE
4	E33	WHEEL VALVE

LMTV PNEUMATIC AND CTIS
 FIGURE F0-2. PNEUMATIC SYSTEM SCHEMATIC
 FOLDOUT 2 OF 4



LMTV PNEUMATIC AND CTIS
 FIGURE FO-2. PNEUMATIC SYSTEM SCHEMATIC
 FOLDOUT 3 OF 4

SIZE	B	ILL. NO.	5PD01A01	FP-5/FP-6	BLANK
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LMTV PNEUMATIC AND CTIS
 FIGURE FO-2. PNEUMATIC SYSTEM SCHEMATIC
 FOLDOUT 4 OF 4

SIZE	B	ILL. NO.	5PD01A02	FP-7/FP-8 BLANK
			35	36

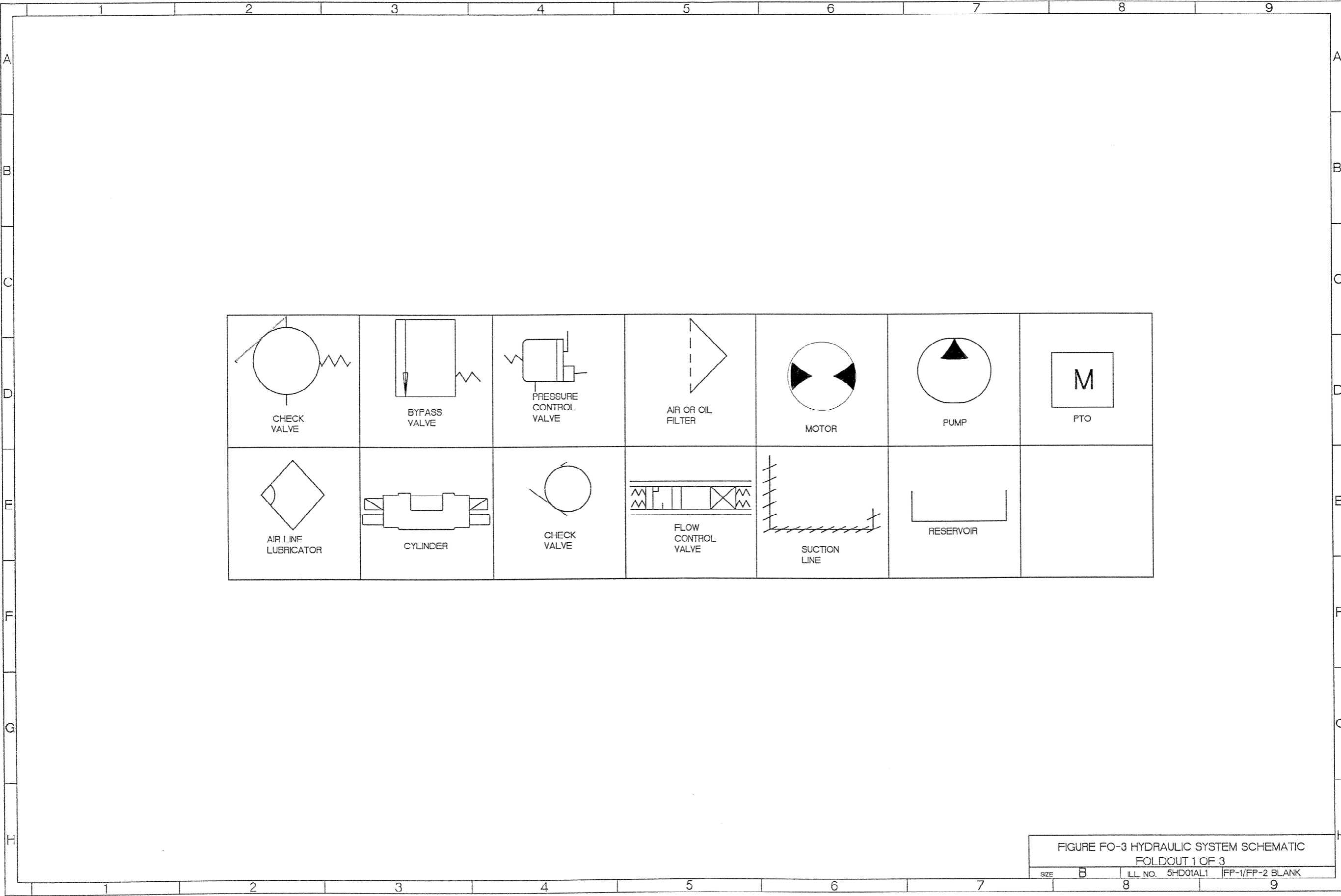
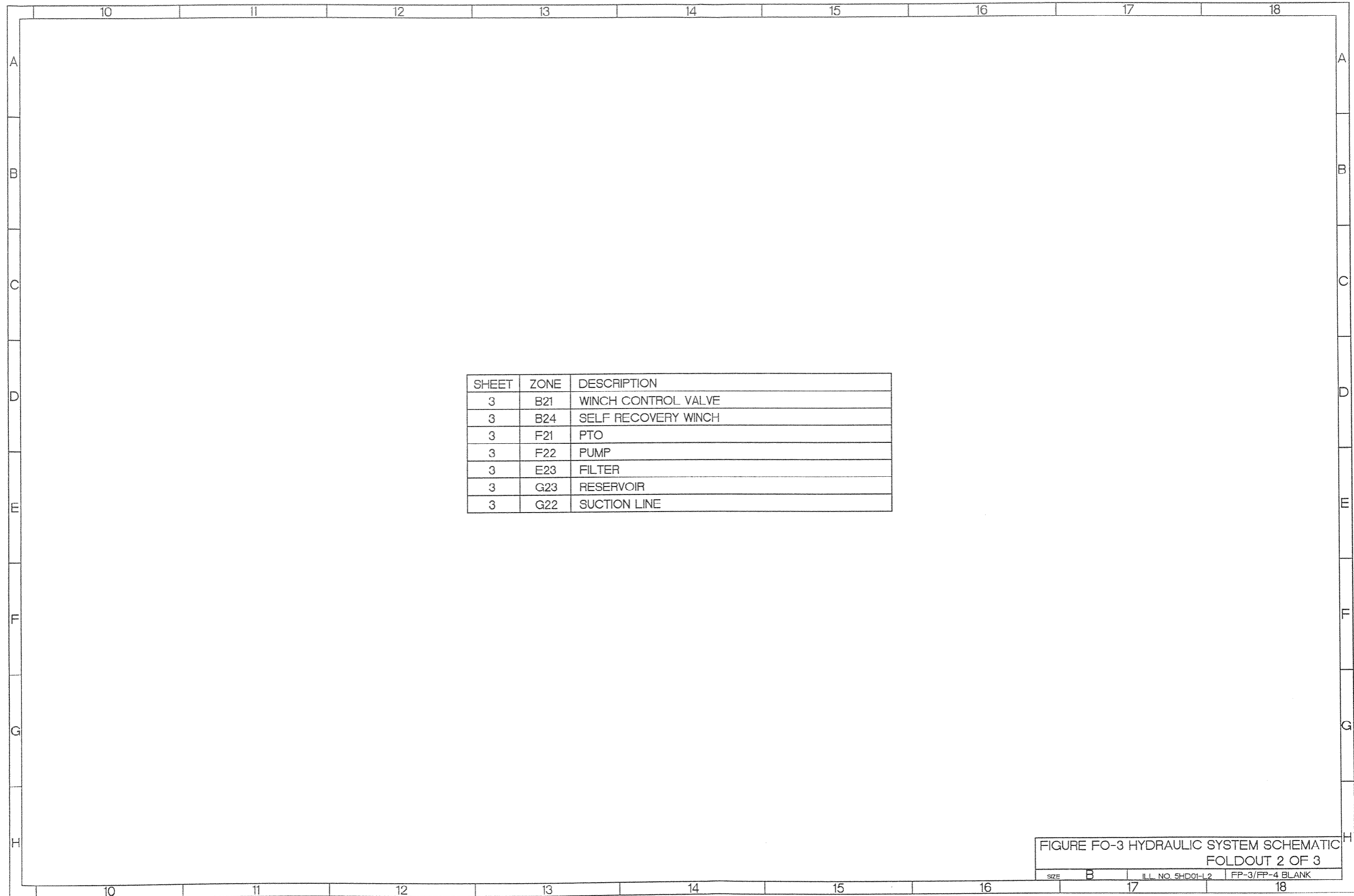


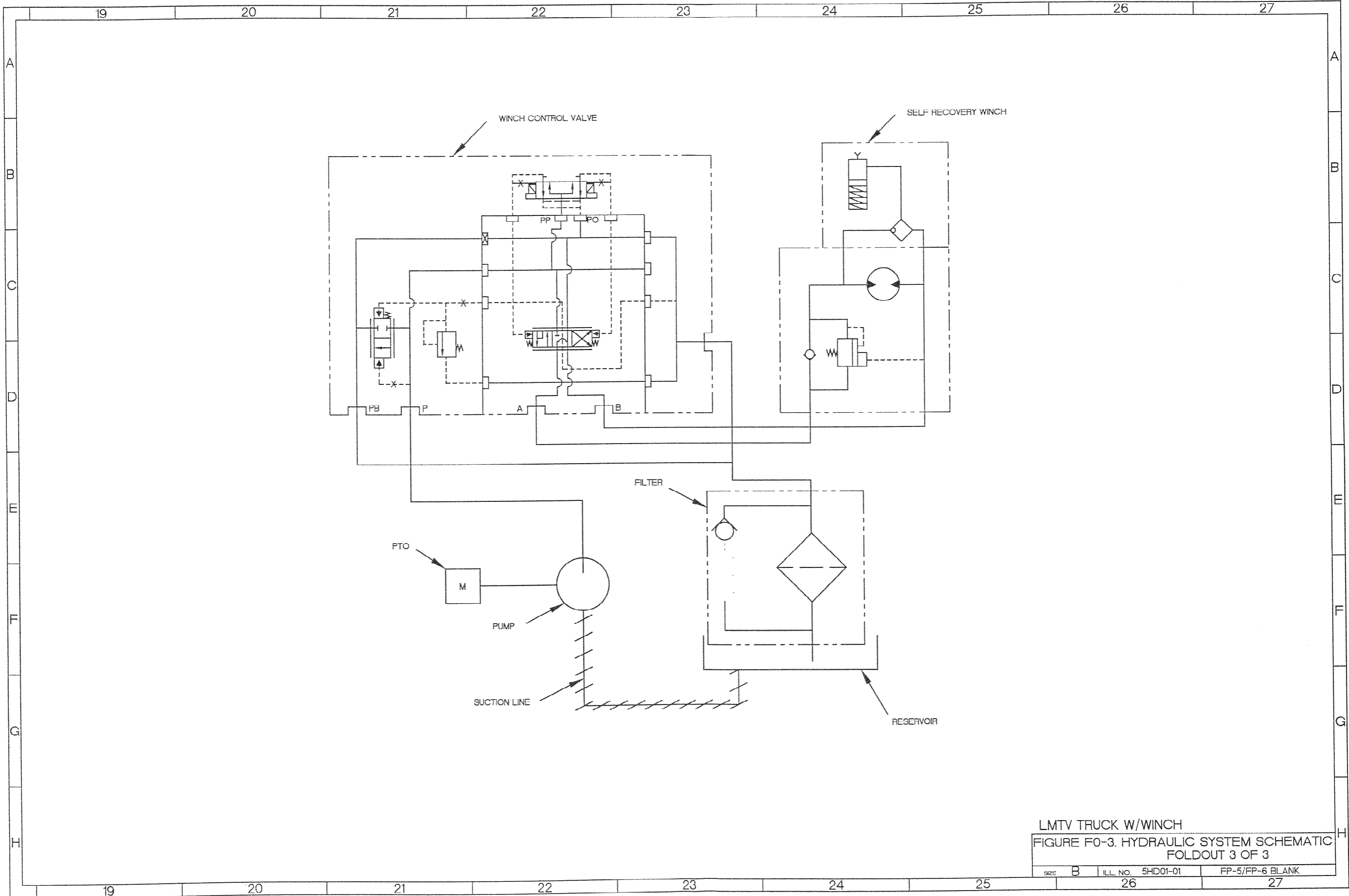
FIGURE FO-3 HYDRAULIC SYSTEM SCHEMATIC
FOLDOUT 1 OF 3
SIZE B ILL. NO. 5HD01A1 FP-1/FP-2 BLANK



SHEET	ZONE	DESCRIPTION
3	B21	WINCH CONTROL VALVE
3	B24	SELF RECOVERY WINCH
3	F21	PTO
3	F22	PUMP
3	E23	FILTER
3	G23	RESERVOIR
3	G22	SUCTION LINE

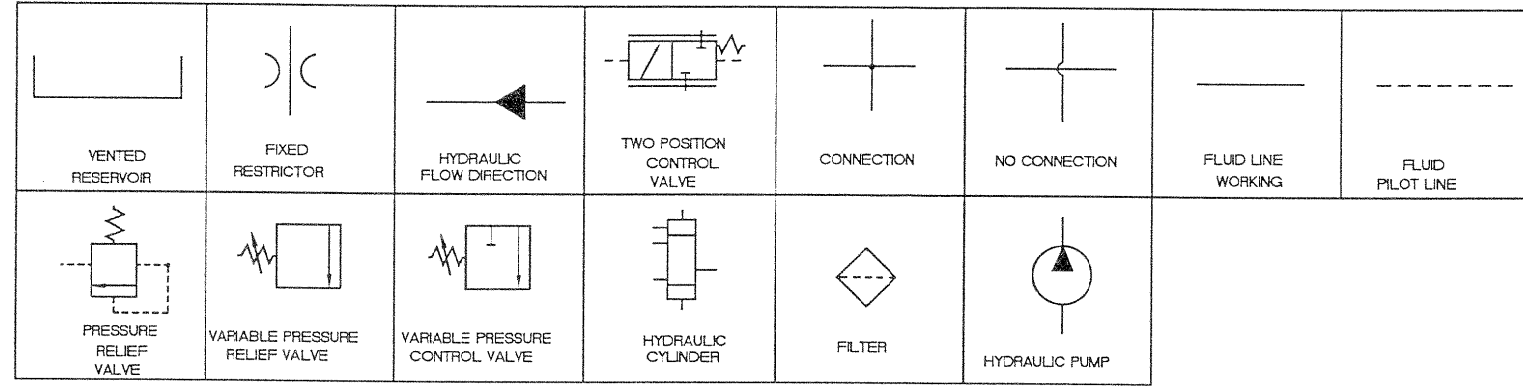
FIGURE FO-3 HYDRAULIC SYSTEM SCHEMATIC
FOLDOUT 2 OF 3

SIZE B ILL. NO. 5HD01-L2 FP-3/FP-4 BLANK



LMTV TRUCK W/WINCH
 FIGURE F0-3. HYDRAULIC SYSTEM SCHEMATIC
 FOLDOUT 3 OF 3

SIZE	B	ILL. NO.	5HD01-01	FP-5/FP-6	BLANK
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SH	ZONE	DESCRIPTION
2	D11	FILTER
2	D14	FIXED RESTRICTOR
2	E17	HYDRAULIC CYLINDER
2	E13	HYDRAULIC PUMP
2	C13	PRESSURE RELIEF VALVE
2	D13	TWO POSITION CONTROL VALVE
2	E16	VARIABLE PRESSURE CONTROL VALVE
2	E16	VARIABLE PRESSURE RELIEF VALVE
2	C11	VENTED RESERVOIR

FIGURE FO-4 HYDRAULIC STEERING SYSTEM
 FOLDOUT 1 OF 2

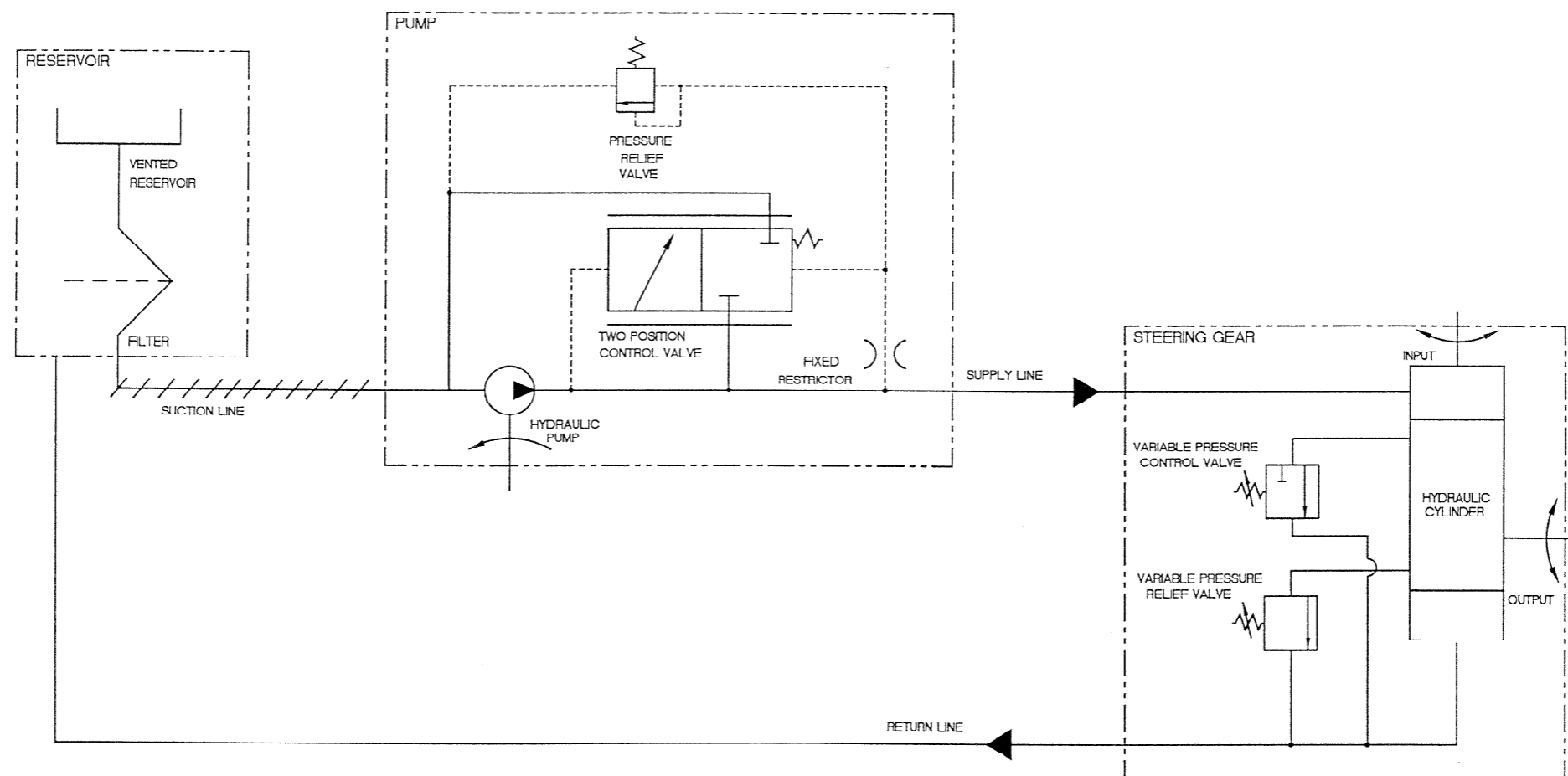


FIGURE FO-4 HYDRAULIC STEERING SYSTEM
FOLDOUT 2 OF 2

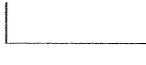


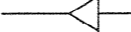


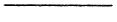
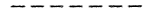

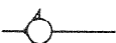

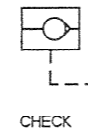
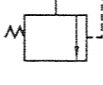




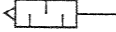


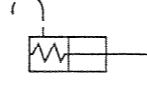
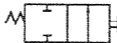
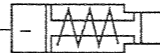





 VENTED RESERVOIR	 ABOVE FLUID LEVEL RESERVOIR	 HYDRAULIC FLOW DIRECTION	 PNEUMATIC FLOW DIRECTION	 CONNECTION	 NO CONNECTION	 FLUID LINE WORKING	 FLUID PILOT LINE
 FIXED RESTRICTOR	 CHECK VALVE	 VARIABLE CONTROL CHECK VALVE	 CHECK PILOT	 PRESSURE RELIEF VALVE	 FILTER	 HAND PUMP	 DETENT
 TWO POSITION CAB SUSPENSION VALVE	 MUFFLER	 HYDRAULIC CYLINDER	 CAB AIR SUSPENSION W/DAMPER	 REAR CAB LATCH	 TWO POSITION AIR PUMP VALVE	 PRESSURE INTENSIFIER	 HEIGHT CONTROL VALVE
 TWO POSITION CAB TILT VALVE	 TWO POSITION SUSPENSION VALVE	 TWO POSITION SPARE TIRE VALVE	 THREE POSITION SELECTION VALVE				

FIGURE F0-5 AIR TRANSPORTABILITY
HYDRAULIC/PNEUMATIC SYSTEM SCHEMATIC
FOLDOUT 1 OF 3

SIZE B ILL. NO. YAD01A1 FP-1/FP-2 BLANK

SH	ZONE	DESCRIPTION
3	A25	CAB AIR SUSPENSION W/DAMPER
3	F21	CHECK PILOT
3	A22	CHECK VALVE
3	A23	CHECK VALVE
3	B22	CHECK VALVE
3	B23	CHECK VALVE
3	B25	CHECK VALVE
3	C20	CHECK VALVE
3	C21	CHECK VALVE
3	E19	CHECK VALVE
3	E24	CHECK VALVE
3	E25	CHECK VALVE
3	F19	CHECK VALVE
3	F21	CHECK VALVE
3	G21	CHECK VALVE
3	A22	FILTER
3	B22	FILTER
3	A24	FILTER
3	B24	FILTER
3	D19	FILTER
3	D20	FILTER
3	D21	FILTER
3	E19	FILTER
3	G19	FILTER
3	G21	FILTER
3	A22	FIXED RESTRICTOR
3	B22	FIXED RESTRICTOR
3	A23	FIXED RESTRICTOR
3	B23	FIXED RESTRICTOR
3	F19	HAND PUMP
3	B25	HEIGHT CONTROL VALVE
3	B22	HYDRAULIC CYLINDER
3	B23	HYDRAULIC CYLINDER
3	C21	HYDRAULIC CYLINDER
3	F20	MUFFLER
3	F21	PRESSURE INTENSIFIER
3	F19	PRESSURE RELIEF VALVE
3	A24	REAR CAB LATCH
3	E21	THREE POSITION SELECTION VALVE
3	D26	TWO POSITION AIR PUMP VALVE
3	D25	TWO POSITION CAB SUSPENSION VALVE
3	C24	TWO POSITION CAB TILT VALVE
3	C23	TWO POSITION SPARE TIRE VALVE
3	D21	TWO POSITION SUSPENSION VALVE
3	G22	VARIABLE CONTROL CHECK VALVE
3	G22	VENTED RESERVOIR

FIGURE F0-5 AIR TRANSPORTABILITY
HYDRAULIC/PNEUMATIC SYSTEM SCHEMATIC
FOLDOUT 2 OF 3

SIZE B ILL. NO. YAD01AL2 FP-3/FP-4 BLANK

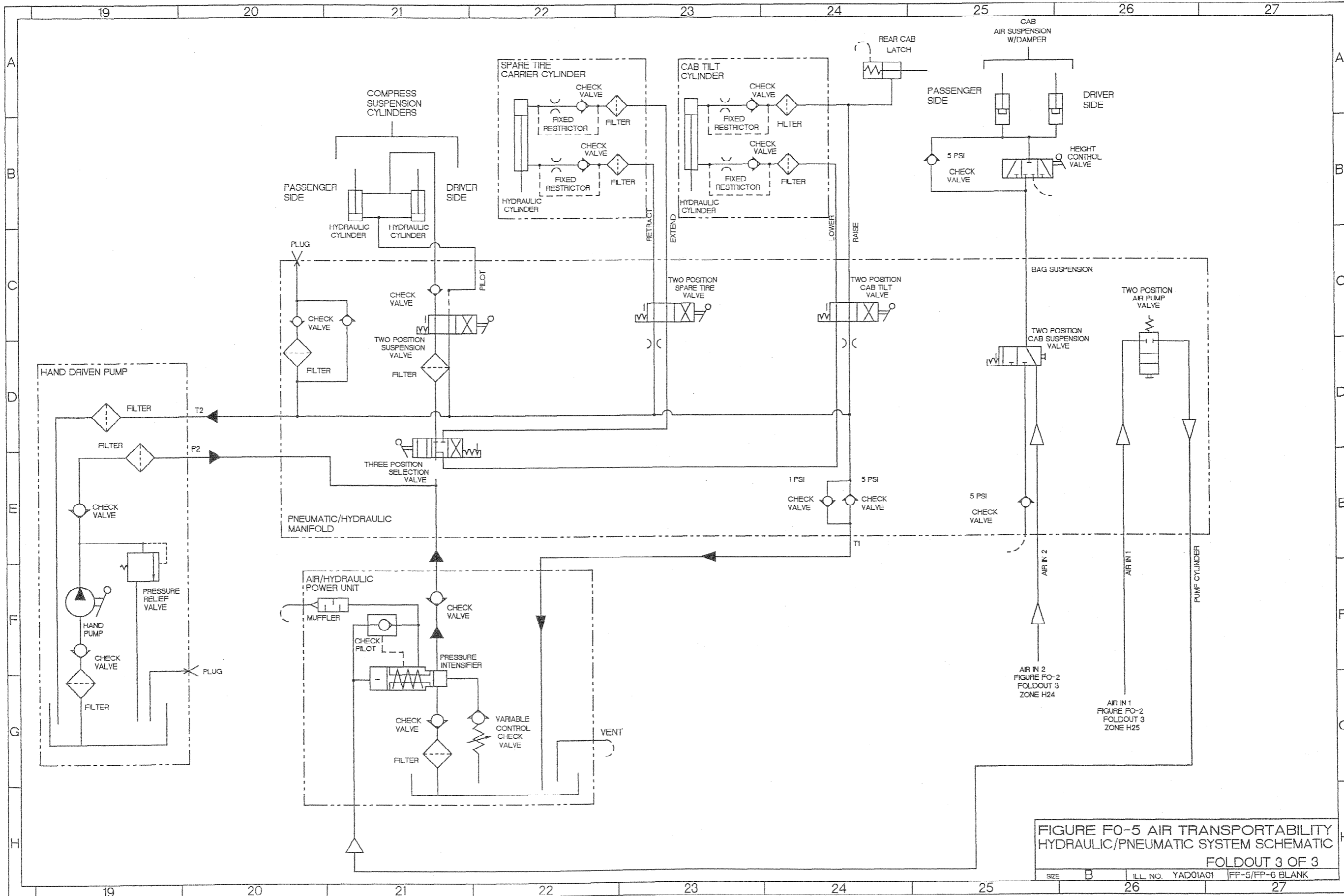


FIGURE FO-5 AIR TRANSPORTABILITY
HYDRAULIC/PNEUMATIC SYSTEM SCHEMATIC
FOLDOUT 3 OF 3
SIZE B ILL. NO. YAD01A01 FP-5/FP-6 BLANK

By Order of the Secretary of the Army:

DENNIS J. REIMER
General, United States Army
Chief of Staff

Official



JOEL B. HUDSON

Administrative Assistant to the
Secretary of the Army
05138

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TECHNICAL MANUAL
MAINTENANCE INSTRUCTIONS
UNIT MAINTENANCE

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PAGE NO.	PARA-GRAPH	PICTURE NO.	TABLE NO.
15-33	15-7	4	
19-6	19-2		

IN THIS SPACE TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT:

Item 10. Change illustration. Reason: Text calls out 90-degree fitting, art shows straight fitting. Text is correct.

Step (4) of removal says to disconnect four hydraulic hoses from manifold. The correct number of hydraulic hoses is five. Correct the text to reflect the actual quantity of hydraulic hoses. The supporting illustration is correct.

SAMPLE

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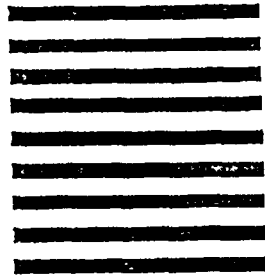
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TEAR ALONG PERFORATED LINE



THE METRIC SYSTEM AND EQUIVALENTS

LINEAR MEASURE

1 Centimeter = 10 Millimeters = 0.01 Meters = 0.3937 Inches
 1 Meter = 100 Centimeters = 1000 Millimeters = 39.37 Inches
 1 Kilometer = 1000 Meters = 0.621 Miles

SQUARE MEASURE

1 Sq Centimeter = 100 Sq Millimeters = 0.155 Sq Inches
 1 Sq Meter = 10,000 Sq Centimeters = 10.76 Sq Feet
 1 Sq Kilometer = 1,000,000 Sq Meters = 0.386 Sq Miles

WEIGHTS

1 Gram = 0.001 Kilograms = 1000 Milligrams = 0.035 Ounces
 1 Kilogram = 1000 Grams = 2.2 Lb
 1 Metric Ton = 1000 Kilograms = 1 Megagram = 1.1 Short Tons

CUBIC MEASURE

1 Cu Centimeter = 1000 Cu Millimeters = 0.06 Cu Inches
 1 Cu Meter = 1,000,000 Cu Centimeters = 35.31 Cu Feet

LIQUID MEASURE

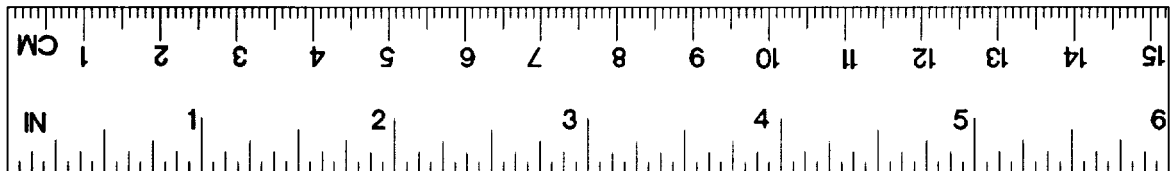
1 Milliliter = 0.001 Liters = 0.0338 Fluid Ounces
 1 Liter = 1000 Milliliters = 33.82 Fluid Ounces

TEMPERATURE

$5/9 (^{\circ}\text{F} - 32) = ^{\circ}\text{C}$
 212° Fahrenheit is equivalent to 100° Celsius
 90° Fahrenheit is equivalent to 32.2° Celsius
 32° Fahrenheit is equivalent to 0° Celsius
 $9/5 \text{ C}^{\circ} + 32 = \text{F}^{\circ}$

APPROXIMATE CONVERSION FACTORS

<u>TO CHANGE</u>	<u>TO</u>	<u>MULTIPLY BY</u>	<u>TO CHANGE</u>	<u>TO</u>	<u>MULTIPLY BY</u>
Inches	Centimeters	2.540	Centimeters	Inches	0.394
Inches	Millimeters	0.254	Millimeters	Inches	3.937
Feet	Meters	0.305	Meters	Feet	3.280
Yards	Meters	0.914	Meters	Yards	1.094
Miles	Kilometers	1.609	Kilometers	Miles	0.621
Square Inches	Square Centimeters	6.451	Sq Centimeters	Square Inches	0.155
Square Feet	Square Meters	0.093	Square Meters	Square Feet	10.764
Square Yards	Square Meters	0.836	Square Meters	Square Yards	1.196
Square Miles	Square Kilometers	2.590	Square Kilometers	Square Miles	0.386
Acres	Square Hectometers	0.405	Sq Hectometers	Acres	2.471
Cubic Feet	Cubic Meters	0.028	Cubic Meters	Cubic Feet	35.315
Cubic Yards	Cubic Meters	0.765	Cubic Meters	Cubic Yards	1.308
Fluid Ounces	Milliliters	29.573	Milliliters	Fluid Ounces	0.034
Pints	Liters	0.473	Liters	Pints	2.113
Quarts	Liters	0.946	Liters	Quarts	1.057
Gallons	Liters	3.785	Liters	Gallons	0.264
Ounces	Grams	28.349	Grams	Ounces	0.035
Pounds	Kilograms	0.454	Kilograms	Pounds	2.205
Pounds (force)	Newtons	4.448	Newtons	Pounds (force)	0.2248
Short Tons	Metric Tons	0.907	Metric Tons	Short Tons	1.102
Pound-Feet	Newton-Meters	1.356	Newton-Meters	Pound-Feet	0.738
Pounds/Sq Inch	Kilopascals	6.895	Kilopascals	Pounds per Sq Inch	0.145
Miles per Gallon	Kilometers per Hour	0.425	Km per Liter	Miles per Gallon	2.354
Miles per Hour	Kilometers per Hour	1.609	Km per Hour	Miles per Hour	0.621



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