TECHNICAL MANUAL
MAINTENANCE INSTRUCTIONS
UNIT MAINTENANCE
M1083 SERIES, 5-TON, 6 X 6,
MEDIUM TACTICAL VEHICLES (MTV)
VOLUME NO. 5 OF 5

MODEL	NSN	EIC
TRK, CAR., MTV, M1083		
W/WN	2320-01-360-1895	BT3
W/O WN	2320-01-354-3386	BR2
TRK, CAR., MTV, W/MATL HDLG EQPT (MHE), M1084	2320-01-354-3387	BR3
TRK, CAR., MTV, LWB, M1085		
W/WN	2320-01-360-1897	BT5
W/O WN	2320-01-354-4530	BR7
TRK, CAR., MTV, LWB, W/MATL HDLG EQPT (MHE), M1086	2320-01-354-4531	BR8
TRK, TRACTOR, MTV, M1088		
W/WN	2320-01-360-1892	BTY
W/O WN	2320-01-355-4332	BTJ
TRK, WKR, MTV, M1089	2320-01-354-4528	BR4
TRK, DUMP, MTV, M1090		
W/WN	2320-01-360-1893	BTZ
W/O WN	2320-01-354-4529	BR5
TRK, CHAS, MTV, M1092	2320-01-354-3382	BRZ
TRK, CAR., MTV, AIR DROP, M1093		
W/WN	2320-01-360-1896	BT4
W/O WN	2320-01-355-3063	BR9
TRK, DUMP, MTV, AIR DROP, M1094		
W/WN	2320-01-360-1984	BT2
W/O WN	2320-01-355-3062	BTK
TRK, CHAS, MTV, LWB, M1096	2320-01-354-4527	BR6

HEADQUARTERS, DEPARTMENTS OF THE ARMY AND THE AIR FORCE

SEPTEMBER 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. Failure to comply may result in injury 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

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. Failure to comply may result in injury to personnel.

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.

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 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

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

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

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

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

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

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

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

WARNING SUMMARY (CONT)

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 lbs (41 kgs). 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 lbs (41 kgs). 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

Cage 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

Never let moving wire rope slide through hands, even when wearing gloves. A broken wire could cut through gloves and cut hands. Failure to comply may result in injury to personnel.

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.

WARNING SUMMARY (CONT)

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

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

Light Material 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

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

WARNING

Light Material Handling Crane (LMHC) boom 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.

WARNING

Machine gun ring assembly weighs approximately 350 pounds (159 kgs). Attach a suitable lifting device prior to removal. Failure to comply may result in injury to personnel or damage to equipment.

WARNING

Ensure vehicle is on level ground prior to installation/removal of collapsible drums. Failure to comply may result in serious injury or death to personnel or damage to equipment.

WARNING

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

WARNING

Both collapsible drums weigh approximately 235 lbs (107 kgs) empty and 3800 lbs (1725 kgs) full. Attach a suitable lifting device prior to installation. 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.

WARNING

Ensure vehicle is on level ground prior to installation or removal of tank and pump unit. Failure to comply may result in serious injury or death to personnel or damage to equipment.

WARNING

Tank weighs approximately 500 lbs (227 kgs) empty or 4000 lbs (1816 kgs) full. Attach a suitable lifting device prior to installation. Failure to comply may result in serious injury or death to personnel or damage to equipment.

WARNING SUMMARY (CONT)

WARNING

Pump unit weighs approximately 870 lbs (395 kgs). Attach a suitable lifting device prior to installation. Failure to comply may result in serious injury or death to personnel or damage to equipment.

WARNING

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

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.

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.

WARNING

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

WARNING

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

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.

WARNING

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.

WARNING

Alternator weighs approximately 50 lbs (23 kgs). The aid of an assistant is required to remove alternator. Failure to comply may result in injury to personnel.

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.

WARNING

Negative battery terminals must be connected last. Failure to comply may result in serious injury or death to personnel.

WARNING

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.

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.

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.

WARNING

Ensure WTEC III cab transmission harness does not interfere with throttle linkage. Failure to comply may result in injury to personnel.

WARNING

Self-adjusting brakes will not self-adjust without applying brake pedal. Failure to comply may result in injury to personnel.

WARNING SUMMARY (CONT)

WARNING

Ensure air hoses are connected to correct fittings. Failure to comply may result in serious injury or death to personnel.

WARNING

Proper adjustment of load sensing valve may only be accomplished with vehicle unloaded. Failure to comply may result in injury to personnel or damage to equipment.

WARNING

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 in an inflation safety cage or serious injury or death may result.

WARNING

Tire weighs approximately 350 lbs (159 kgs). Use extreme care when handling tire. Failure to comply may result in injury to personnel.

WARNING

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.

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.

WARNING

Leave shackles installed in front bumper to support front bumper until ready to remove. Failure to comply may result in injury to personnel.

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.

WARNING

Tractor platform weighs approximately 550 lbs (250 kgs). Attach a suitable lifting device prior to removal. Failure to comply may result in injury to personnel or damage to equipment.

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.

WARNING

Rear stabilizer bar weighs approximately 50 lbs (22 kgs). Attach a suitable lifting device prior to removal. Failure to comply may result in injury to personnel or damage to equipment.

WARNING

Cab roof weighs approximately 110 lbs (50 kgs). Attach a suitable lifting device prior to removal. Failure to comply may result in injury to personnel.

WARNING

Use care when removing/installing window. Do not force window, or window may shatter. Failure to comply may result in injury to personnel or damage to equipment.

WARNING

Tailgate assembly weighs approximately 130 lbs (59 kgs). Attach a suitable lifting device prior to removal. Failure to comply may result in injury to personnel or damage to equipment.

WARNING

Tow bar weighs approximately 150 lbs (68 kgs). Attach a suitable lifting device prior to removal. Failure to comply may result in injury to personnel or damage to equipment.

WARNING SUMMARY (CONT)

WARNING

Rear tool box weighs approximately 75 lbs (34 Kgs) empty. Attach a suitable lifting device prior to removal. Failure to comply may result in injury to personnel or damage to equipment.

WARNING

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

WARNING

Remote control must be used to operate 30K winch while breaking in cables. Failure to comply may result in injury to personnel.

WARNING

Cab weighs approximately 3000 lbs (1362 kgs) attach a suitable lifting device prior to raising cab. Failure to comply may result in injury to personnel.

WARNING

Hydraulic tank weighs approximately 190 lbs (86 kgs). Attach a suitable lifting device prior to removal. Failure to comply may result in injury to personnel or damage to equipment.

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

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.

WARNING

Do not open coolant fill cap if temperature reads above 110 degrees F (43 degrees C). Steam or hot coolant is under pressure. Failure to comply may result in injury to personnel.

WARNING

Pressure in reservoir tank must be released before removing cap. Failure to comply may result in injury to personnel.

WARNING

200 amp alternator weighs approximately 72 lbs (33 kgs). The aid of an assistant is required to install 200 amp alternator. Failure to comply may result in injury to personnel.

WARNING

100 amp alternator weighs approximately 70 lbs (32 kgs). Attach a suitable lifting device prior to removal. Failure to comply may result in injury to personnel.

WARNING

Both collapsible drums weigh approximately 235 lbs (107 kgs) empty and 3800 lbs (1725 kgs) full each. Attach a suitable lifting device prior to removal. Failure to comply may result in serious injury or death to personnel or damage to equipment.

WARNING

Air dryer may contain air pressure. Loosen input air hose connector slowly to vent off air pressure. Failure to comply may result in injury to personnel.

WARNING

Radiator and 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.

WARNING

Tractor platform weighs approximately 550 lbs (250 kgs). Attach a suitable lifting device prior to installation. Failure to comply may result in injury to personnel or damage to equipment.

WARNING SUMMARY (CONT)

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.

WARNING

Rear stabilizer bar weighs approximately 50 lbs (22 kgs). Attach a suitable lifting device prior to installation. Failure to comply may result in injury to personnel or damage to equipment.

WARNING

Cab roof weighs approximately 110 lbs (50 kgs). Attach a suitable lifting device prior to installation. Failure to comply may result in injury to personnel.

WARNING

Do not remove radiator cap when the engine is hot; steam and hot coolant can escape and burn skin. Failure to comply may result in injury to personnel.

WARNING

Wear appropriate eye protection when removing spring rings. Spring rings are under tension and can act as projectiles when being removed. Failure to comply may result in injury to personnel.

WARNING

Wear appropriate eye protection when installing spring rings. Spring rings are under tension and can act as projectiles when being installed. Failure to comply may result in injury to personnel.

CHANGE
NO. 3

HEADQUARTERS
DEPARTMENTS OF THE ARMY
AND THE AIR FORCE
Washington, D.C., 10 March 2006

TECHINCAL MANUAL
MAINTENANCE INSTRUCTIONS
UNIT MAINTENANCE
M1083 SERIES, 5 TON, 6X6,
MEDIUM TACTICAL VEHICLE
(MTV)

VOLUME NO. 5 0F 5

TM 9-2320-366-20-5 15 September 1998, is changed as follows:
1. Remove old pages and insert new pages as indicated below.
2. New or changed material is indicated by a vertical bar in the out margin of the page.
3. Added or revised illustrations are indicated by a vertical bar adjacent to the illustration.

Remove Pages	Insert Pages
None	Change 3 Transmittal/ Change 3 Authentication
A thru C/(D Blank)	A thru C/(D Blank)
i thru ii	i thru ii
B1 thru B-29/(B-30 Blank)	B1 thru B-29/(B-30 Blank)
Metric Conversion Chart/PIN	Metric Conversion Chart/PIN

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

Place this change sheet in the front of the publication for reference purposes.

By Order of the Secretary of the Army:

PETER J. SCHOOMAKER
General, United States Army
Chief of Staff

Official:

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Secretary of the Army
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By Order of the Secretary of the Air Force:

JOHN P. JUMPER
General, United States Air Force
Chief of Staff

GREGORY S. MARTIN
General, United States Air Force
Commander, Air Force Materiel Command

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CHANGE NO. 2

**HEADQUARTERS
DEPARTMENTS OF THE ARMY
AND THE AIR FORCE**
Washington, D.C., 20 August 2005

TECHINCAL MANUAL
MAINTENANCE INSTRUCTIONS
UNIT MAINTENANCE
M1083 SERIES, 5 TON, 6X6,
MEDIUM TACTICAL VEHICLE
(MTV)

VOLUME NO. 5 0F 5

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Remove Pages	Insert Pages
e and f	e and f
A thru C/(D Blank)	A thru C/(D Blank)
none	Change 2 Authentication Sheet
17-1 and 17-2	17-1 and 17-2
17-7 thru 17-12	17-7 thru 17-12
17-19 thru 17-30	17-19 thru 17-30
17-33 thru 17-36	17-33 thru 17-36
17-45 and 17-46	17-45 and 17-46
17-49 and 17-50	17-49 and 17-50
none	17-50.1/(17-50.2 Blank)
17-51 and 17-52	17-51 and 17-52
17-77 and 17-78	17-77 and 17-78
none	17-78.1 thru 17-78.4
17-79 and 17-82	17-79 and 17-82
17-109 and 17-110	17-109 and 17-110
none	17-110.1 thru 17-110.4
17-111 thru 17-114	17-111 thru 17-114
17-137 and 17-138	17-137 and 17-138
17-143 and 17-144	17-143 and 17-144
17-147 and 17-148	17-147 and 17-148
none	17-151 thru 17-163/ (17-164 Blank)
18-1 and 18-2	18-1 and 18-2
18-23 and 18-24	18-23 and 18-24
none	18-24.1 thru 18-24.6
18-25 and 18-26	18-25 and 18-26
18-57 and 18-58	18-57 and 18-58
18-67 thru 18-69/(18-70 Blank)	18-67 thru 18-70
none	18-71/(18-72 Blank)
19-59 and 19-60	19-59 AND 19-60
19-91 thru 19-94	19-91 thru 19-94
none	19-94.1 thru 19-94.3/ (19-94.4 Blank)
19-95 and 19-96	19-95 and 19-96
19-119 thru 19-121/ (19-122 Blank)	19-119 thru 19-121/ (19-122 Blank)
20-1 and 20-2	20-1 and 20-2
20-427 thru 20-432	20-427 thru 20-432
none	20-432.1 thru 20-432.5/ (20-432.6 Blank)
20-433 thru 20-440	20-433 thru 20-440
none	20-440.1 thru 20-440.3/ (20-440.4 Blank)
20-441 and 20-442	20-441 and 20-442
20-489 and 20-490	20-489 and 20-490
none	20-491 thru 20-558
21-7 and 21-8	21-7 and 21-8
none	21-8.1 and 21-8.2
21-9 and 21-10	21-9 and 21-10
23-25 and 23-26	23-25 and 23-26
23-33 and 23-34	23-33 and 23-34
23-49 and 23-50	23-49 and 23-50
B-5 thru B-8	B-5 and B-8
B-27 thru B-29/ (B-30 Blank)	B-27 thru B-29/ (B-30 Blank)
C-1 thru C-4	C-1 thru C-4
D-1 and D-6	D-1 and D-6
G-1 thru G-12	G-1 thru G-12
H-1 thru H-32	H-1 thru H-32
K-1 thru K-4	K-1 thru K-4
INDEX-3 thru INDEX-10	INDEX-3 thru INDEX-10
FP-69/ FP-70 Blank	FP-69/ FP-70 Blank
Metric Conversion Chart /PIN	Metric Conversion Chart /PIN

Place this change sheet in the front of the publication for reference purposes.

By Order of the Secretary of the Army:

PETER J. SCHOOMAKER
General, United States Army
Chief of Staff

Official:
SANDRA R. RILEY
Administrative Assistant to the
Secretary of the Army
0401517

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CHANGE NO. 1

**HEADQUARTERS
DEPARTMENTS OF THE ARMY
AND THE AIR FORCE**

Washington, D.C., 1 July 2003

TECHNICAL MANUAL
MAINTENANCE INSTRUCTIONS
UNIT MAINTENANCE
M1083 SERIES, 5-TON, 6x6,
MEDIUM TACTICAL VEHICLE
(MTV)

VOLUME NO. 5 OF 5

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i thru v/(vi Blank)	i thru vi
17-1 and 17-2	17-1 and 17-2
17-11 thru 17-18	17-11 thru 17-18
17-41 and 17-42	17-41 and 17-42
17-85 and 17-86	17-85 and 17-86
17-91 and 17-92	17-91 and 17-92
17-97 thru 17-100	17-97 thru 17-100
17-103 thru 17-106	17-103 thru 17-106
none	17-137 thru 17-150
18-1 and 18-2	18-1 and 18-2
18-5 thru 18-8	18-5 thru 18-8
18-29 thru 18-32	18-29 thru 18-32
18-51 and 18-52	18-51 and 18-52
18-55 thru 18-58	18-55 thru 18-58
18-67 and 18-68	18-67 and 18-68
19-1 and 19-2	19-1 and 19-2
19-5 thru 19-8	19-5 thru 19-8
none	19-8.1 thru 19-8.10
19-9 thru 19-20	19-9 thru 19-20
none	19-20.1 thru 19-20.14
19-21 and 19-22	19-21 and 19-22
19-25 and 19-26	19-25 and 19-26
19-31 thru 19-34	19-31 thru 19-34
19-55 and 19-56	19-55 and 19-56
19-59 thru 19-66	19-59 thru 19-66
19-107 and 19-108	19-107 and 19-108
none	19-119 thru 19-121/(19-122 Blank)
20-1 thru 20-4	20-1 thru 20-3/(20-4 Blank)
20-5 thru 20-226	none
20-227 thru 20-232	20-227 thru 20-232
20-239 thru 20-244	20-239 thru 20-244
20-247 and 20-248	20-247 and 20-248
20-257 and 20-258	20-257 and 20-258
20-261 and 20-262	20-261 and 20-262
20-265 thru 20-268	20-265 thru 20-268
20-381 and 20-382	20-381 and 20-382
20-437 and 20-438	20-437 and 20-438
20-441 and 20-442	20-441 and 20-442
20-467 thru 20-480	20-467 thru 20-480
20-485 thru 20-490	20-485 thru 20-490
20-491 thru 20-494	none
21-1 thru 21-12	21-1 thru 21-12
22-1 and 22-2	22-1 and 22-2
23-1 thru 23-4	23-1 thru 23-4
23-9 thru 23-12	23-9 thru 23-12
23-15 thru 23-22	23-15 thru 23-22
23-33 thru 23-42	23-33 thru 23-42
23-45 thru 23-53/(23-54 Blank)	23-45 thru 23-54
none	23-55 thru 23-57/(23-58 Blank)
24-1 and 24-2	24-1 and 24-2
A-1 thru A-4	A-1 thru A-4
B-3 and B-4	B-3 and B-4
B-23 thru B-30	B-23 thru B-29/(B-30 Blank)
C-1 thru C-4	C-1 thru C-4
D-1 thru D-5/(D-6 Blank)	D-1 thru D-6
None	D-7/(D-8 Blank)
E-1 thru E-6	E-1 thru E-6
E-15 and E-16	E-15 and E-16
none	E-27 thru E-31/(E-32 Blank)
G-1 thru G-11/(G-12 Blank)	G-1 thru G-12
H-1 thru H-12	H-1 thru H-12
H-21 and H-22	H-21 and H-22
H-25 thru H-28	H-25 thru H-28
H-31 and H-32	H-31 and H-32

Place this change sheet in the front of the publication for reference purposes.

Remove Pages	Insert Pages	Remove Pages	Insert Pages
none	K-1 thru K-4		
INDEX-1 thru INDEX-10	INDEX-1 thru INDEX-10		
INDEX-11 and INDEX-12	none		
DA Form 2028-2 Sample	DA Form 2028 Sample		
DA Form 2028-2	DA Form 2028		
DA Form 2028-2	DA Form 2028		
DA Form 2028-2	DA Form 2028		
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thru FP-21/(FP-22 Blank)	thru FP-21/(FP-22 Blank)		
FO-1 FP-25/(FP-26 Blank)	FO-1 FP-25/(FP-26 Blank)		
FO-1 FP-29/(FP-30 Blank)	FO-1 FP-29/(FP-30 Blank)		
thru FP-67/(FP-68 Blank)	thru FP-67/(FP-68 Blank)		
FO-1 FP-75/(FP-76 Blank)	FO-1 FP-75/(FP-76 Blank)		
thru FP-79/(FP-80 Blank)	thru FP-79/(FP-80 Blank)		
Metric Conversion Chart	Metric Conversion Chart		
Cover	Cover		

Place this change sheet in the front of the publication for reference purposes.

By Order of the Secretary of the Army:

JOHN M. KEANE
General, United States Army
Chief of Staff

Official:

JOEL B. HUDSON
Administrative Assistant to the
Secretary of the Army
0110113

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Change ..... 3 ..... 10 March 2006

THE TOTAL NUMBER OF PAGES IN THIS PUBLICATION IS 1134, CONSISTING OF THE FOLLOWING:

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a thru e	1
f	2
g thru l	0
m and n	1
A thru C	3
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ii	0
iii thru vi	1
17-1	2
17-2 thru 17-6	0
17-7	2
17-8 and 17-9	0
17-10 and 17-11	2
17-12 thru 17-18	1
17-19	0
17-20 thru 17-29	2
17-30 thru 17-32	0
17-33 thru 17-35	2
17-36 thru 17-41	0
17-42	1
17-43 and 17-44	0
17-45	2
17-46 thru 17-49	0
17-50	2
17-50.1 Added	2
17-50.2 Blank Added	2
17-51	2
17-52 thru 17-78	0
17-78.1 thru 17-78.4 Added	2
17-79	0
17-80 and 17-81	2
17-82 thru 17-85	0
17-86	1
17-87 thru 17-90	0
17-91	1
17-92 thru 17-96	0
17-97 thru 19-99	1
17-100 thru 17-103	0
17-104 and 17-105	1
17-106 thru 17-109	0
17-110	2
17-110.1 thru 17-110.4 Added	2
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17-112	0
17-113	2
17-114 thru 17-136	0
17-137	2
17-138 thru 17-143	1
17-144	2
17-145 and 17-146	1
17-147	2
17-148 thru 17-150	1
17-151 thru 17-163 Added	2
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18-2 thru 18-5	0
18-6 thru 18-8	1
18-9 thru 18-22	0
18-23 and 18-24	2
18-24.1 thru 18-24.6 Added	2
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18-27 thru 18-29	0
18-30	1
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18-32	1
18-33 thru 18-50	0
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18-52 thru 18-55	0
18-56 and 18-57	1
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18-68 thru 18-70	2
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19-1	1
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19-9 thru 19-20	1
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19-22 thru 19-24	0
19-25	1
19-26 thru 19-31	0
19-32 and 19-33	1
19-34 thru 19-54	0
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19-108	1
19-109 thru 19-118	0
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19-122 Blank	2
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20-4 Blank	1
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20-227 thru 20-231	1
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20-247	1
20-248 thru 20-256	0

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LIST OF EFFECTIVE PAGES

Insert latest changed pages. Destroy superseded pages.

Page No.	*Change No.
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20-261 and 20-262	1
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20-265 thru 20-267	1
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20-433 thru 20-440	2
20-440.1 thru 20-440.3 Added	2
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20-467	1
20-468	0
20-469 thru 20-480	1
20-481 thru 20-485	0
20-486 thru 20-489	1
20-490	2
20-491 thru 20-558 Added	2
21-1 thru 21-6	1
21-7	0
21-8	2
21-8.1 and 21-8.2 Added	2
21-9	2
21-10 and 21-11	1
21-12 and 21-13	0
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22-1	1
22-2 thru 22-24	0
23-1	1
23-2	0
23-3 and 23-4	1
23-5 thru 23-9	0
23-10 and 23-11	1
23-12 thru 23-14	0
23-15 thru 23-19	1
23-20	0
23-21	1
23-22 thru 23-24	0
23-25	2
23-26 thru 23-33	0
23-34	2
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23-38	0
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23-40 and 23-41	0
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B-2	0
B-3 thru B-29/(B-30 Blank)	3
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C-2 thru C-4	2
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INDEX-4	1
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INDEX-8	2
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INDEX-10	2
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LIST OF EFFECTIVE PAGES (CONT)

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* Zero in this column indicates an original page.

TECHNICAL MANUAL
NO. 9-2320-366-20-5

TECHNICAL ORDER
NO. 36A12-1C-1102-5

HEADQUARTERS
DEPARTMENTS OF THE ARMY
AND THE AIR FORCE
Washington, D.C., 15 Sep 1998

Unit Maintenance Manual
M1083 SERIES, 5-TON, 6 x 6, MEDIUM TACTICAL VEHICLES (MTV)
VOLUME NO. 5 OF 5

MODEL	NSN	EIC
TRK, CAR., MTV, M1083		
W/WN	2320-01-360-1895	BT3
W/O WN	2320-01-354-3386	BR2
TRK, CAR., MTV, W/MATL HDLG EQPT (MHE), M1084	2320-01-354-3387	BR3
TRK, CAR., MTV, LWB, M1085		
W/WN	2320-01-360-1897	BT5
W/O WN	2320-01-354-4530	BR7
TRK, CAR., MTV, LWB, W/MATL HDLG EQPT (MHE), M1086	2320-01-354-4531	BR8
TRK, TRACTOR, MTV, M1088		
W/WN	2320-01-360-1892	BTY
W/O WN	2320-01-355-4332	BTJ
TRK, WKR, MTV, M1089	2320-01-354-4528	BR4
TRK, DUMP, MTV, M1090		
W/WN	2320-01-360-1893	BTZ
W/O WN	2320-01-354-4529	BR5
TRK, CHAS, MTV, M1092	2320-01-354-3382	BRZ
TRK, CAR., MTV, AIR DROP, M1093		
W/WN	2320-01-360-1896	BT4
W/O WN	2320-01-355-3063	BR9
TRK, DUMP, MTV, AIR DROP, M1094		
W/WN	2320-01-360-1984	BT2
W/O WN	2320-01-355-3062	BTK
TRK, CHAS, MTV, LWB, M1096	2320-01-354-4527	BR6

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TABLE OF CONTENTS

LIST OF ILLUSTRATIONS

LIST OF ILLUSTRATIONS (CONT)

LIST OF TABLES

HOW TO USE THIS MANUAL

OVERVIEW

This Technical Manual (TM) is provided to help you maintain the MTV at the Unit Maintenance level. Because of its size, it is divided into five volumes. Volume 5 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 17, MATERIAL HANDLING CRANES (MHC), 30K WINCHES, AND 15K SELF-RECOVERY WINCH MAINTENANCE**
- **CHAPTER 18, BODY, CHASSIS, AND ACCESSORY ITEMS MAINTENANCE**
- **CHAPTER 19, HYDRAULIC SYSTEM MAINTENANCE**
- **CHAPTER 20, SPECIAL PURPOSE KITS MAINTENANCE**
- **CHAPTER 21, ARMAMENT/SIGHTING AND FIRE CONTROL MATERIEL MAINTENANCE**
- **CHAPTER 22, ELECTRICAL ILLUMINATING EQUIPMENT MAINTENANCE**
- **CHAPTER 23, AIR SYSTEM MAINTENANCE**
- **CHAPTER 24, GAGES (NON-ELECTRICAL) MAINTENANCE**
- **APPENDIX A, REFERENCES.** Lists publications used with the MTV.
- **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 MTV.
- **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).**
- **APPENDIX K, TRANSMISSION/TRANSMISSION CONTROLS ADAPTABILITY CHART.** Lists actions required to mate different transmission configurations with WTEC II or WTEC III controls.

OVERVIEW (CONT)

- **SUBJECT INDEX.** Lists important subjects contained in volume 5 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 through 24. 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 17
MATERIAL HANDLING CRANES (MHC), 30K WINCHES, AND 15K SELF-RECOVERY WINCH (SRW) MAINTENANCE

RESTRICTED MAINTENANCE NOTICE

Units not authorized SC 4910-95-CL-A72 (SHOP EQUIPMENT, COMMON NO. 2) in their T.O.E. may be unable to perform some of the maintenance tasks described in this chapter. If the required tools are not authorized, the equipment must be submitted to DS Maintenance for repair.

Section I. INTRODUCTION

17-1. INTRODUCTION

This chapter contains maintenance instructions for replacing and repairing Material Handling Crane (MHC), 15K Self-Recovery Winch (SRW), and M1089 components authorized by the Maintenance Allocation Chart (MAC) at the Unit Maintenance level.

Section II. MAINTENANCE PROCEDURES

17-2. M1084/M1086 HOIST CABLE REPLACEMENT

This task covers:

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

INITIAL SETUP

Equipment Conditions
Hook block assembly removed (para 17-4).
Hoist cable fully extended (TM 9-2320-366-10-1).
Engine shut down (TM 9-2320-366-10-1).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Gloves, Welder's (Item 14, Appendix C)

WARNING

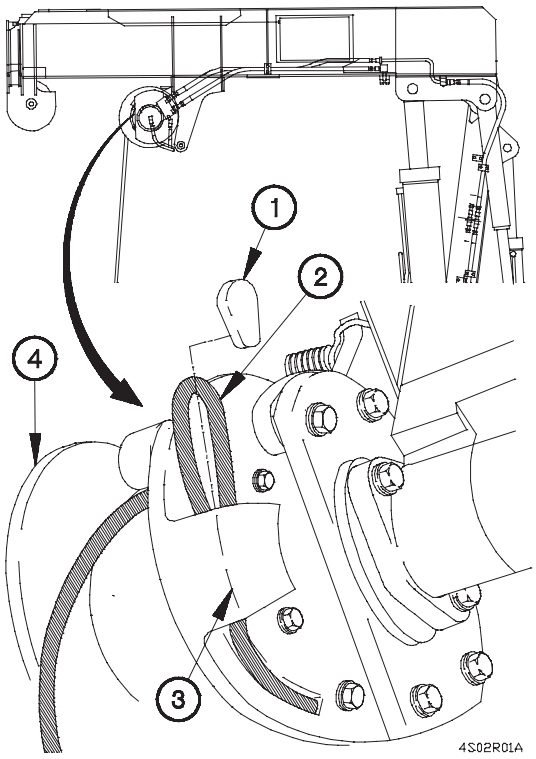
Cable can become frayed or contain broken wires. Wear heavy leather-palmed gloves when handling cable. Frayed or broken wires can injure hands. Failure to comply may result in injury to personnel.

a. Removal.

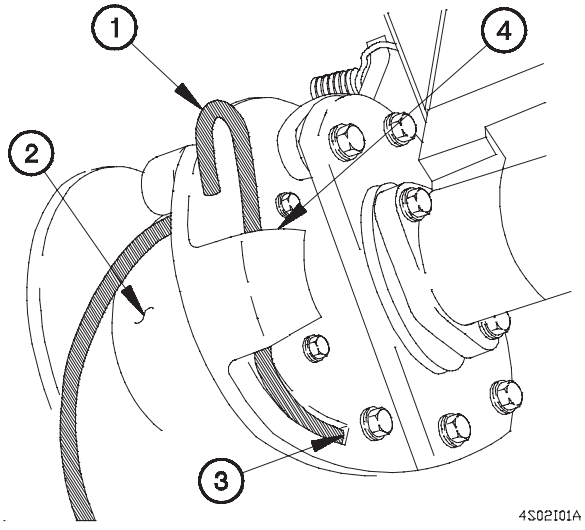
(1) Drive cable wedge (1) and cable (2) out of sleeve (3).

(2) Pull cable (2) from sleeve (3).

(3) Remove cable (2) from drum (4).



b. Installation.



(1) Route cable (1) over and around drum (2).

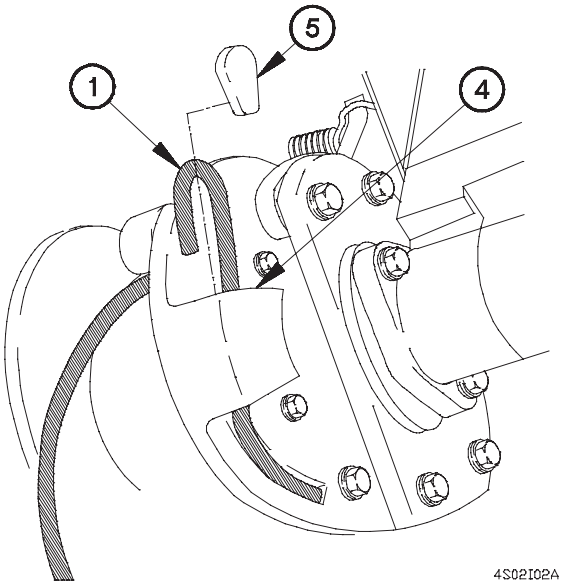
(2) Insert cable (1) through slot (3) in side of drum (2).

(3) Route cable (1) up through sleeve (4) and back down into sleeve, making a loop.

(4) Insert wedge (5) in cable (1), loop and pull cable and wedge into sleeve.

(5) Drive wedge (5) and cable (1) into sleeve (4) until seated.

(6) Start engine (TM 9-2320-366-10-1).



WARNING

Never let moving cable slide through hands, even when wearing gloves. A broken wire could cut through gloves. Failure to comply may result in injury to personnel.

NOTE

After one complete layer of cable is on drum, provide tension on cable by physically pulling on cable so that cable spools on tightly. Leave enough cable unspooled to allow installation of hook block.

(7) Reel in cable onto drum (TM 9-2320-366-10-1).

c. Follow-On Maintenance.

(1) Install hook block assembly (para 17-4).

(2) Stow MHC (TM 9-2320-366-10-1).

End of Task.

17-3. M1084/M1086 BOOM SHEAVE REPLACEMENT

This task covers:

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

INITIAL SETUP

Equipment Conditions
Hoist cable payed out approximately 10 feet (TM 9-2320-366-10-1).
Engine shut down (TM 9-2320-366-10-1).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Gloves, Welders (Item 14, Appendix C)

Materials/Parts
Grease, Automotive and Artillery (GAA) (Item 22, Appendix D)
Sealing Compound (Item 60, Appendix D)
Washer, Key (Item 282, Appendix G)

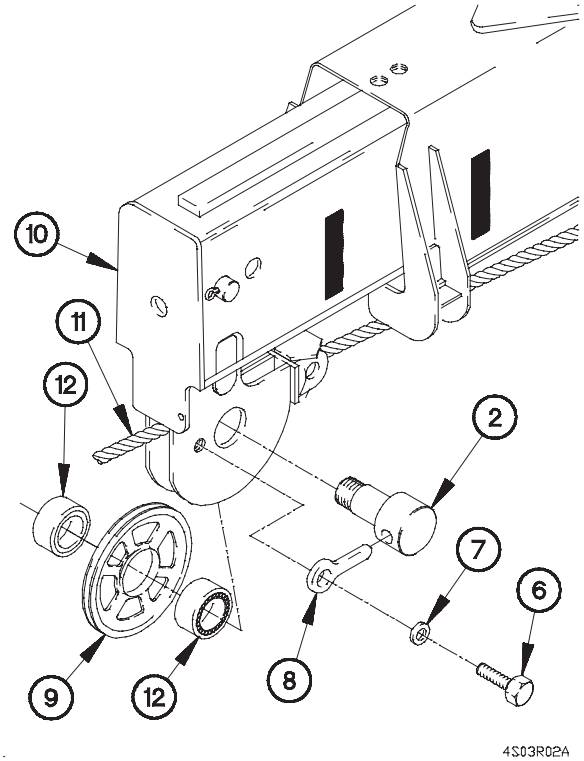
Personnel Required
(2)

a. Removal.

(1) Remove grease fitting (1) from sheave pin (2).

(2) Straighten tab on key washer (3) from detent in nut (4).

(3) Remove nut (4), key washer (3), and sleeve bushing (5) from sheave pin (2). Discard key washer.



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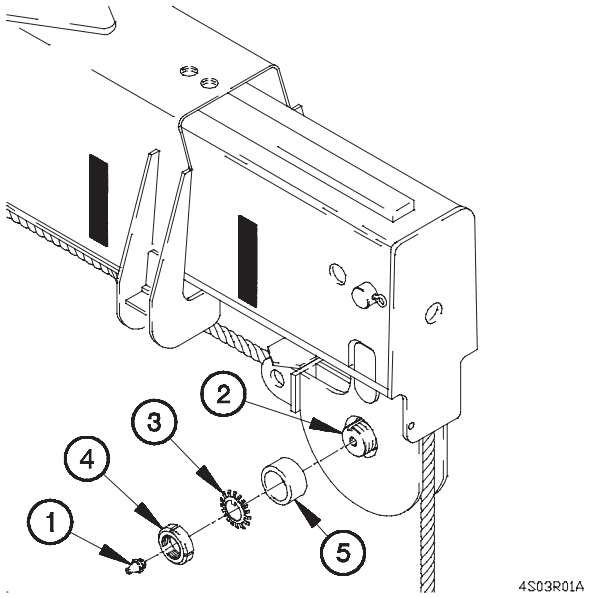


4S03R01A

(4) Remove screw (6) and washer (7) from lock pin (8).

(5) Remove lock pin (8) from sheave pin (2).

NOTE

Boom sheave contains two roller bearing assemblies which may fall out. The aid of an assistant is required to support boom sheave during removal of sheave pin.

(6) Remove sheave pin (2) and boom sheave (9) from boom (10) and cable (11).

(7) Remove two roller bearing assemblies (12) from sheave pin (2).

b. Installation.

(1) Pack two roller bearing assemblies (1) with grease.

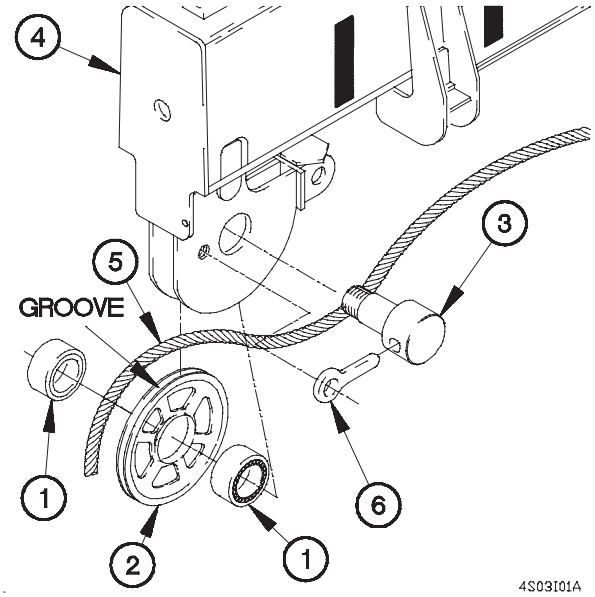
(2) Install two roller bearing assemblies (1) in boom sheave (2).

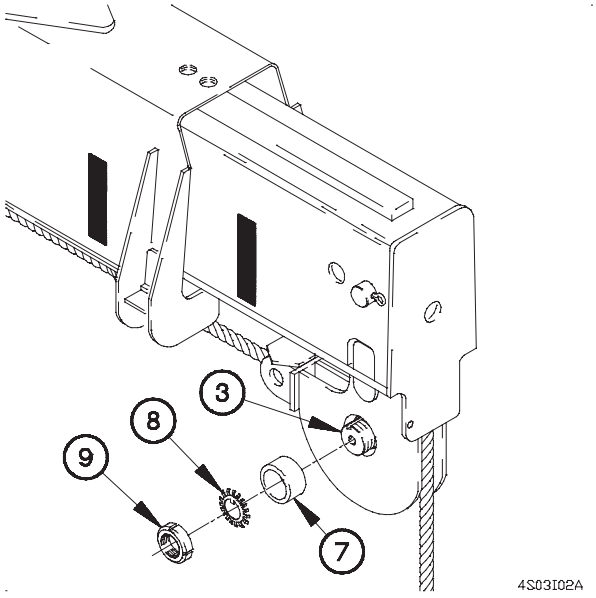
WARNING

- **Cable can become frayed or contain broken wires. Wear heavy leather-palmed gloves when handling cable. Frayed or broken wires can injure hands. Failure to comply may result in injury to personnel.**
- **Never let moving cable slide through hands, even when wearing gloves. A broken wire could cut through gloves and cut hands.**

(3) Install boom sheave (2) and sheave pin (3) in boom (4) with cable (5) routed over top of boom sheave and through groove.

(4) Install locking pin (6) in sheave pin (3).





(5) Install sleeve bushing (7), key washer (8), and nut (9) on sheave pin (3).

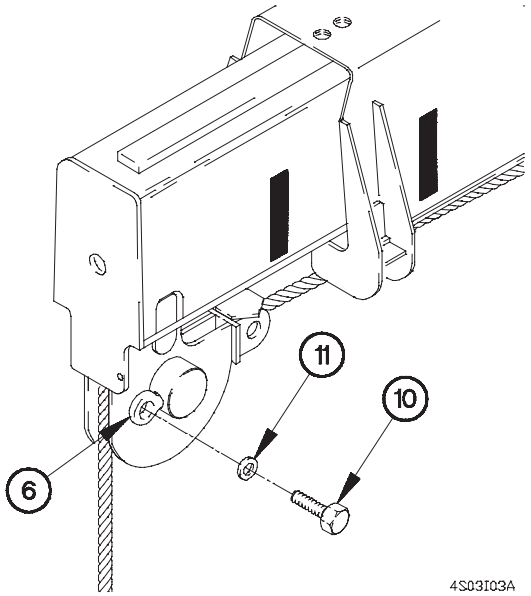
17-3. M1084/M1086 BOOM SHEAVE REPLACEMENT (CONT)

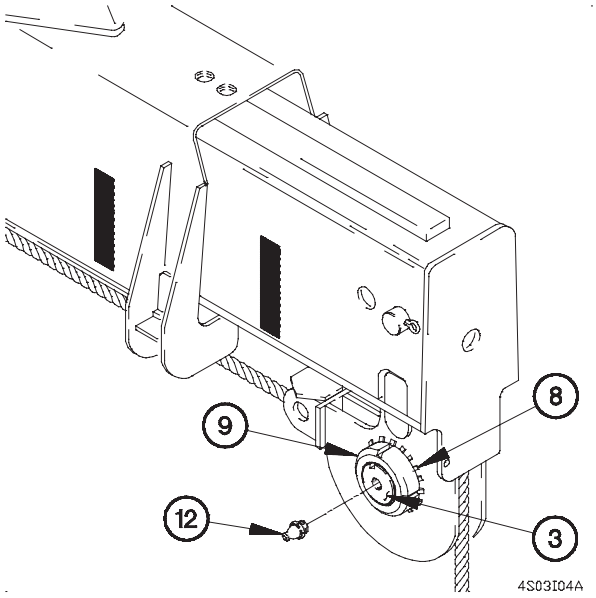
WARNING

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.

(6) Apply sealing compound to threads of screw (10).

(7) Install washer (11) and screw (10) in locking pin (6).





(8) Tighten nut (9).

(9) Bend tab of key washer (8) so that the tab lines up with one of four slots on nut (9).

(10) Install grease fitting (12) in sheave pin (3).

c. Follow-On Maintenance.

(1) Lubricate sheave with grease (Appendix H).

(2) Test operate MHC (TM 9-2320-366-10-1).

End of Task.

17-4. M1084/M1086 HOOK BLOCK AND CABLE ASSEMBLY REPLACEMENT/REPAIR

This task covers:

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

INITIAL SETUP

Equipment Conditions
MHC erected over cargo bed (TM 9-2320-366-10-1).
Engine shut down (TM 9-2320-366-10-1).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Socket, Socket Wrench (Item 70, Appendix B)
Cutter, Bolt (Item 16, Appendix B)
Gloves, Welders (Item 14, Appendix C)
Goggles, Industrial (Item 15, Appendix C)
Gloves, Rubber (Item 13, Appendix C)
Apron, Rubber (Item 3, Appendix C)
Weight, 200-250 lbs (91-113 kgs)

Materials/Parts
Solvent, Dry Cleaning (Item 65, Appendix D)
Wire, Nonelectrical (Item 72, Appendix D)
Pin, Cotter (Item 232, Appendix G)
Pin, Cotter (Item 227, Appendix G)
Nut, Self-Locking (Item 140, Appendix G)
Nut, Self-Locking (Item 174, Appendix G)
Clamp, Wire Rope, Saddled (Item 9.1, Appendix G)

References
FM 5-125
TB 43-0142

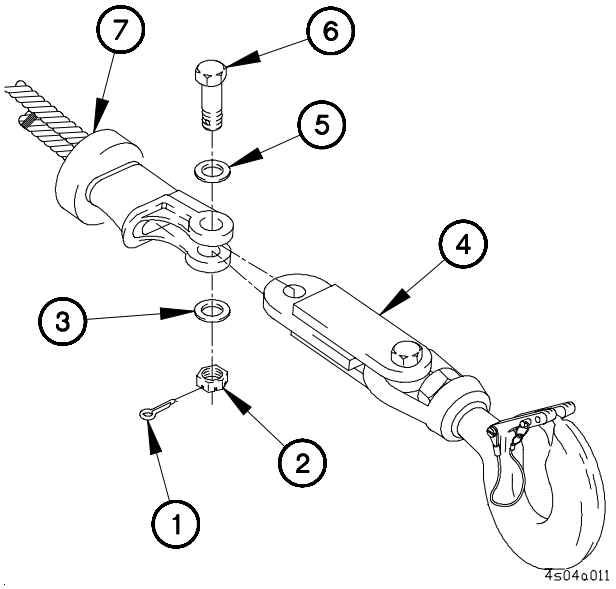
a. Removal.

WARNING

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

(1) Remove cotter pin (1) from nut (2). Discard cotter pin.

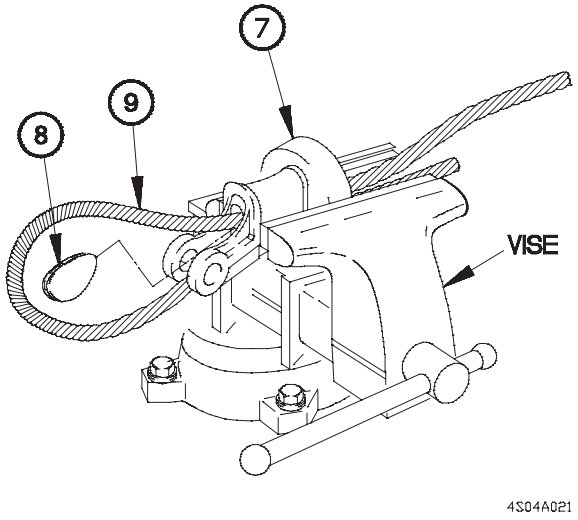
(2) Remove nut (2), washer (3), hook block (4), washer (5), and screw (6) from wedge socket (7).



17-4. M1084/M1086 HOOK BLOCK AND CABLE ASSEMBLY REPLACEMENT/REPAIR (CONT)

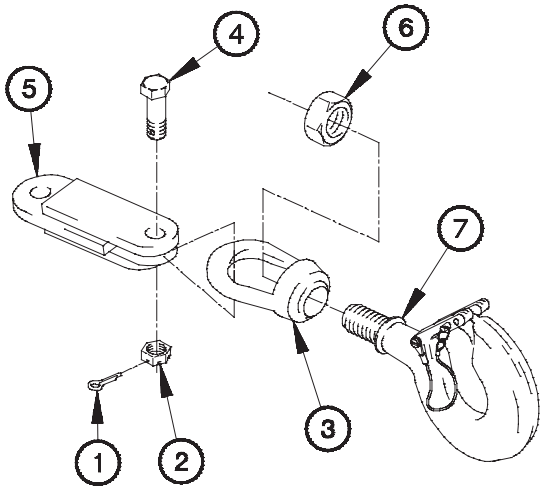
(3) Place wedge socket (7) in vise.

(4) Remove wedge (8) and cable (9) from wedge socket (7).



4S04A021

b. Disassembly.

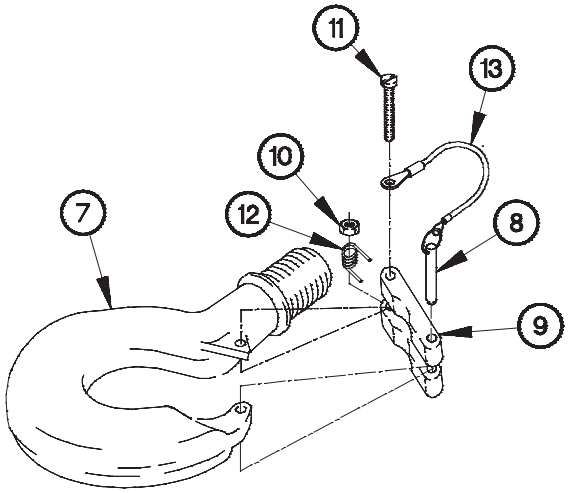


4S04B011

(1) Remove cotter pin (1) from nut (2). Discard cotter pin.

(2) Remove nut (2), hook eye (3), and screw (4) from hook block (5).

(3) Remove self-locking nut (6) and hook eye (3) from swivel hook (7). Discard self-locking nut.



4S04B021

(4) Remove safety pin (8) from latch (9).

(5) Remove self-locking nut (10), screw (11), spring (12), lanyard (13), and latch (9) from swivel hook (7). Discard self-locking nut.

c. 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 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.**

(1) Clean all metal parts with dry cleaning solvent.

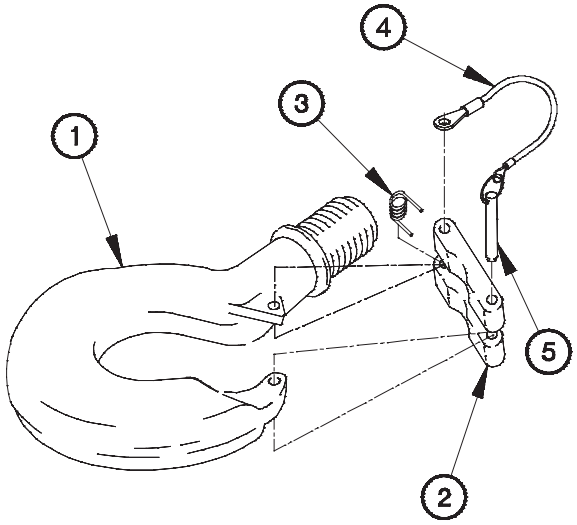
NOTE

Replace any part that fails visual inspection.

(2) Inspect swivel hook (1), latch (2), and spring (3) for cracks, pitting, and corrosion.

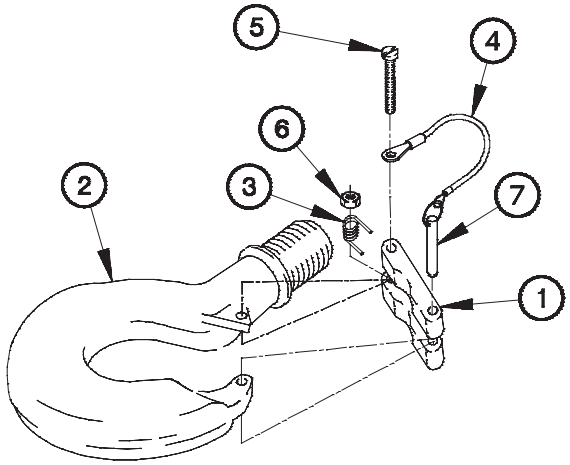
(3) Inspect lanyard (4) for frayed wires and corrosion.

(4) Check safety pin (5) for tight fit in latch (2).



4S04C011

d. Assembly.



4S04D011

(1) Install latch (1) on swivel hook (2) with spring (3), lanyard (4), screw (5), and self-locking nut (6).

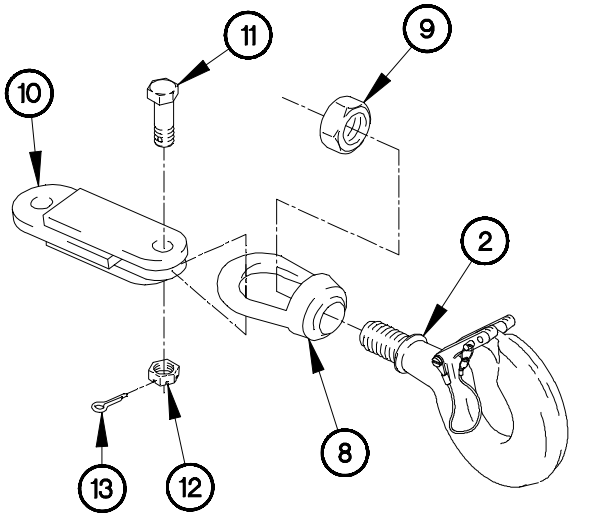
(2) Install safety pin (7) in latch (1).

17-4. M1084/M1086 HOOK BLOCK AND CABLE ASSEMBLY REPLACEMENT/REPAIR (CONT)

(3) Install hook eye (8) on swivel hook (2) with self-locking nut (9).

(4) Install hook eye (8) in hook block (10) with screw (11) and nut (12).

(5) Install cotter pin (13) in nut (12).



4s04d021

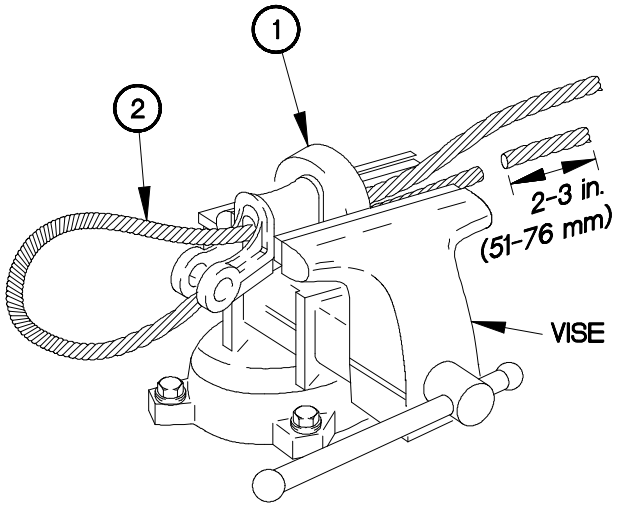
e. Installation.

WARNING

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

NOTE

- If the end of the cable is welded, the welded end should be cut off. This will allow the distortion of the cable strands, caused by the sharp bend around the wedge, to adjust themselves at the end of the line.
- Make sure there are no rough edges on the wedge socket.



4s04e032

(1) Cut off a short length of cable 2-3 in. (51-76 mm) and set aside.

(2) Place wedge socket (1) in vise.

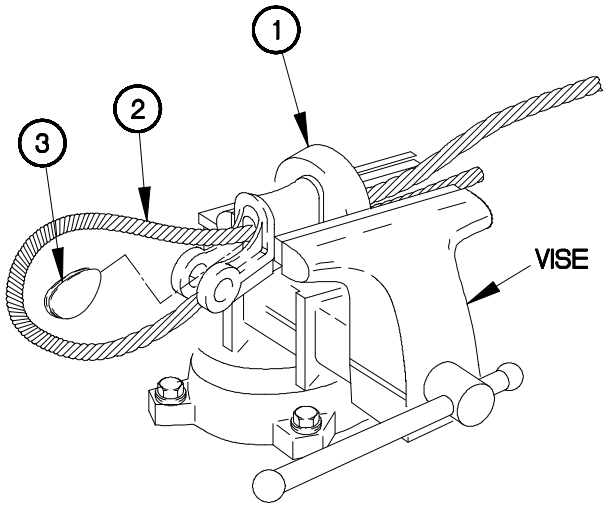
(3) Make a loop in the cable (2) and put free (dead) end of cable back through hole in wedge socket.

NOTE

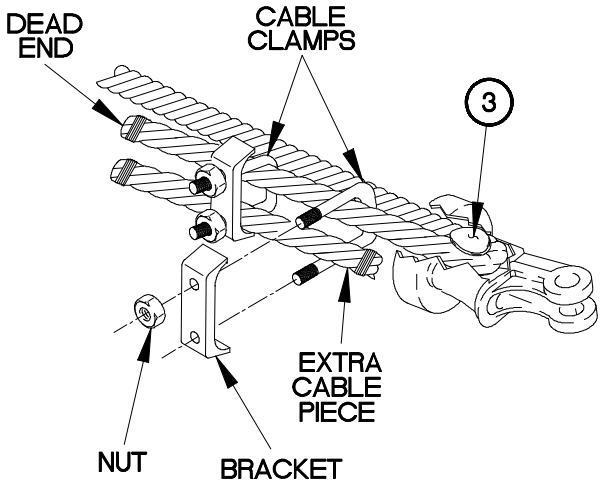
The dead end of the cable should extend from the socket for a distance of 6 to 9 times the cable diameter.

(4) Position cable (2) and wedge (3) in wedge socket (1).

(5) Drive wedge (3) and cable loop up into wedge socket (1).



4s04e011

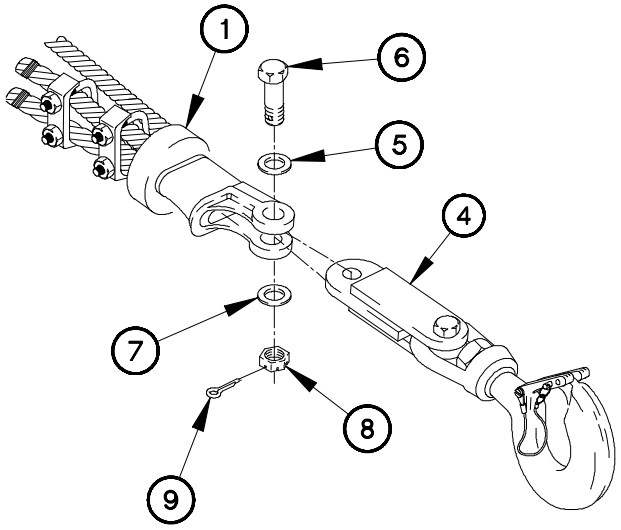


4s04e033

NOTE

- The U-bolt part of the clamp should bear against the dead end of the cable and the saddle of the clamp should be against the short extra piece.
- The dead end of the cable should never be clamped to the live end.

(6) Install extra cable piece to dead end of cable as close to the wedge (3) as possible with two clamps, brackets, and nuts.



4s04e021

(7) Install hook block (4) on the wedge socket (1) with washer (5), screw (6), washer (7), and nut (8).

(8) Install cotter pin (9) in nut (8).

17-5. M1084/M1086 REMOTE CONTROL STOWAGE BOX REPLACEMENT

This task covers:

a. Removal

b. Installation

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-366-10-1).

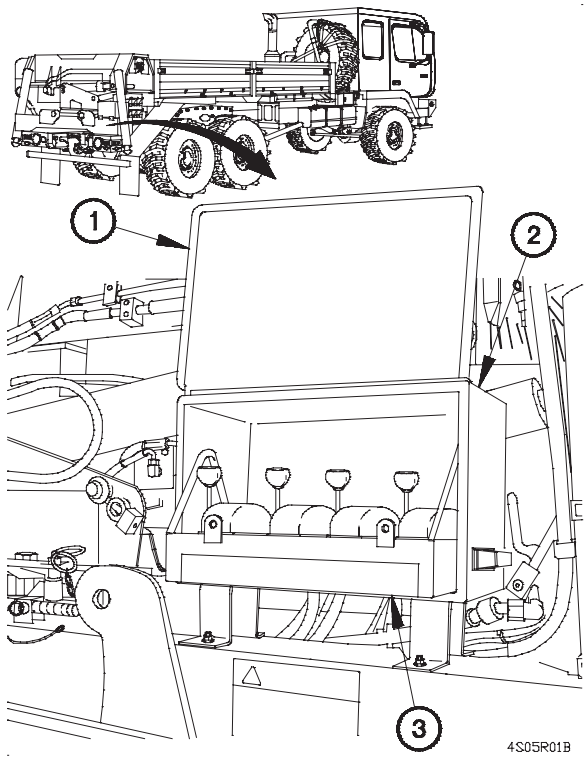
Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Goggles, Industrial (Item 15, Appendix C)
Drill, Portable, Electric (Item 7, Appendix C)
Drill Set, Twist (Item 6, Appendix C)

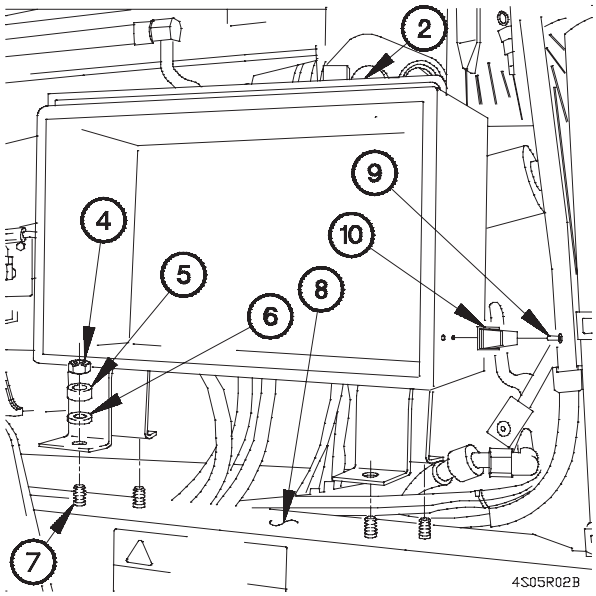
Materials/Parts
Rivet, Blind (Item 243.1, Appendix G)
Sealing Compound (Item 54.1, Appendix D)

a. Removal.

(1) Open door (1) on stowage box (2).

(2) Remove remote control unit (3) from stowage box (2).





(3) Remove four nuts (4), spacers (5) and washers (6) from studs (7).

(4) Remove stowage box (2) from MHC (8).

WARNING

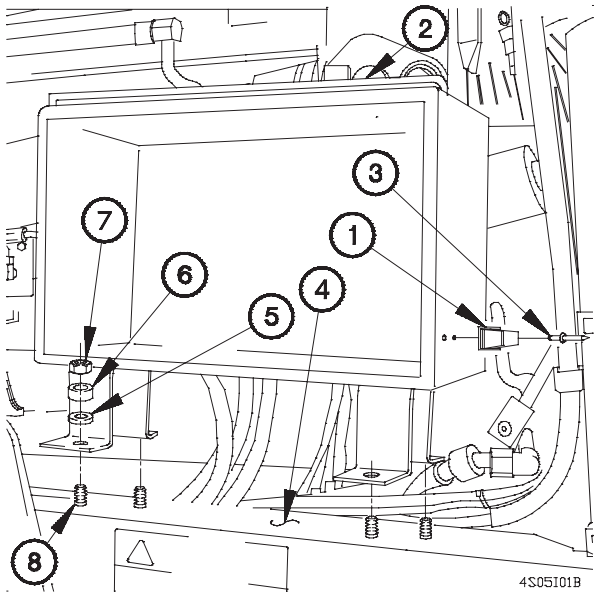
Wear appropriate eye protection when removing rivets. Failure to comply may result in injury to personnel.

(5) Remove four rivets (9) and two latches (10) from stowage box (2).

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.



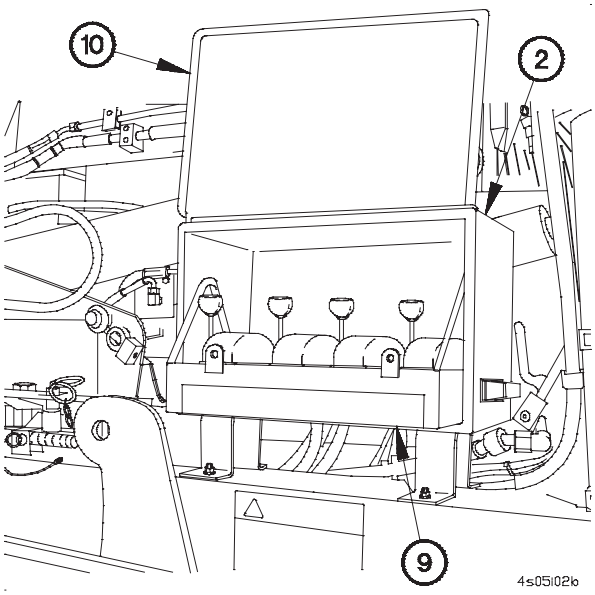
(1) Apply adhesive to two latches (1).

(2) Install two latches (1) on stowage box (2) with four rivets (3).

(3) Position stowage box (2) on MHC (4).

(4) Position four washers (5), spacers (6) and nuts (7) on studs (8).

(5) Tighten four nuts (7) 8-10 lb-ft (11-14 N·m).



(6) Position remote control unit (9) in stowage box (2).

(7) Close door (10) on stowage box (2).

End of Task.

17-6. M1084/M1086 REMOTE CONTROL CABLE STOWAGE BOX REPLACEMENT

This task covers:

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

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-366-10).
M1084/M1086 hydraulic accumulator removed (para 17-11).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Goggles, Industrial (Item 15, Appendix C)
Drill, Portable, Electric (Item 7, Appendix C)

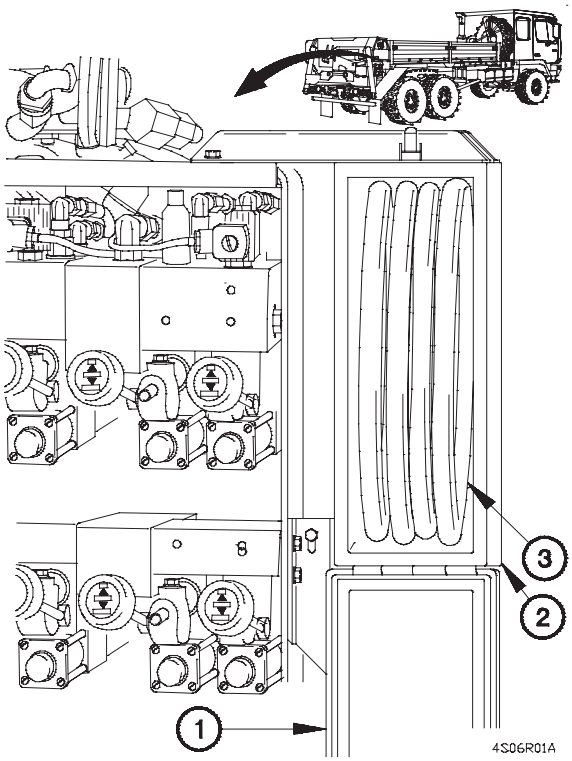
Tools and Special Tools (Cont)
Drill Set, Twist (Item 6, Appendix C)
Tool Kit, Blind Rivet (Item 44, Appendix C)
Wrench, Torque, 0-175 lb-ft (Item 58, Appendix C)

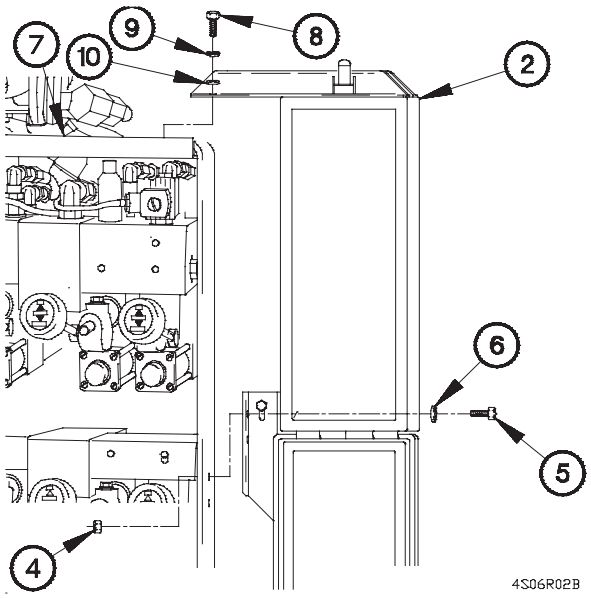
Materials/Parts
Nut, Self-Locking (3) (Item 167, Appendix G)
Rivet, Blind (2) (Item 244, Appendix G)
Lockwasher (2) (Item 94, Appendix G)

a. Removal.

(1) Open door (1) on stowage box (2).

(2) Remove remote control cable (3) from stowage box (2).





(3) Remove two self-locking nuts (4), bolts (5) and washers (6) from control panel (7). Discard self-locking nuts.

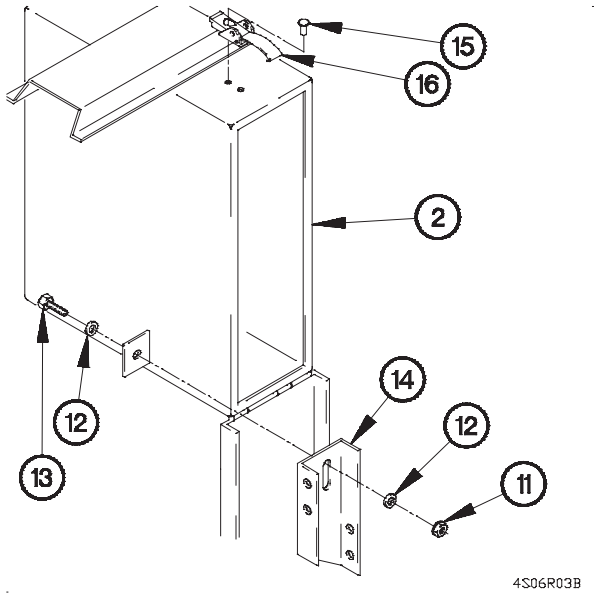
(4) Remove two screws (8), lockwashers (9), washers (10), and stowage box (2) from control panel (7). Discard lockwashers.

(5) Remove self-locking nut (11), two washers (12), bolt (13), and bracket (14) from stowage box (2). Discard self-locking nut.

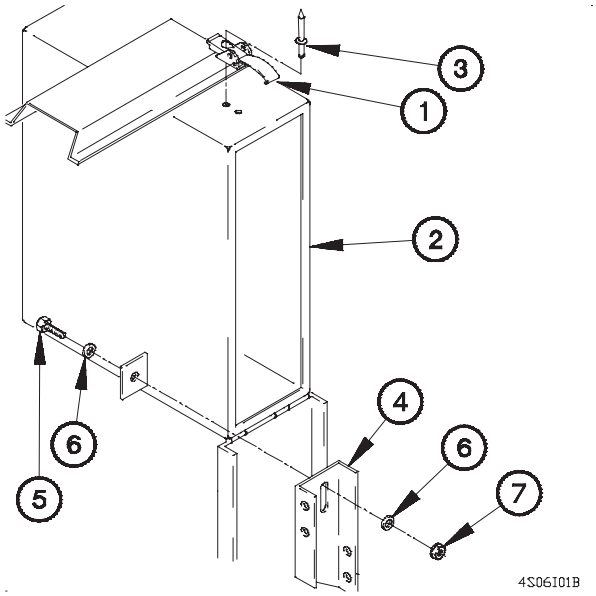
WARNING

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

(6) Remove two rivets (15) and latch (16) from stowage box (2).



b. Installation.



(1) Install latch (1) on stowage box (2) with two rivets (3).

(2) Position bracket (4) on stowage box (2) with bolt (5), two washers (6), and self-locking nut (7).

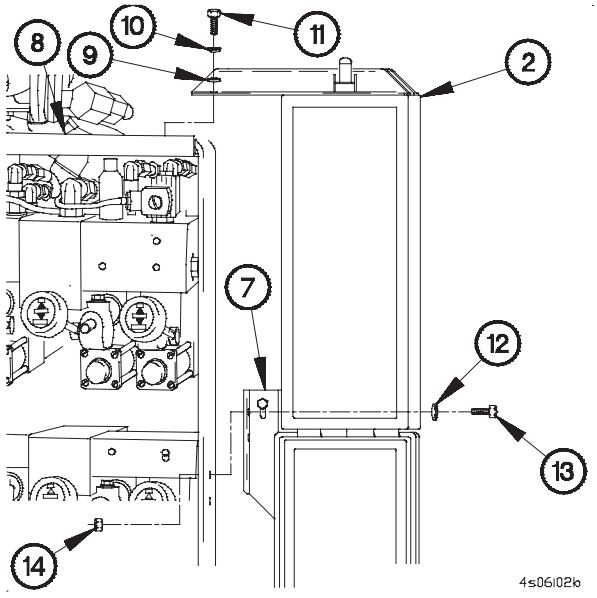
(3) Position stowage box (2) on control panel (8) with two washers (9), lockwashers (10) and screws (11).

(4) Position two washers (12) and bolts (13) in control panel (8) with two self-locking nuts (14).

(5) Tighten self-locking nut (7) to 22-28 lb-ft (29-39 N·m).

(6) Tighten two screws (11) to 8-10 lb-ft (9-11 N·m).

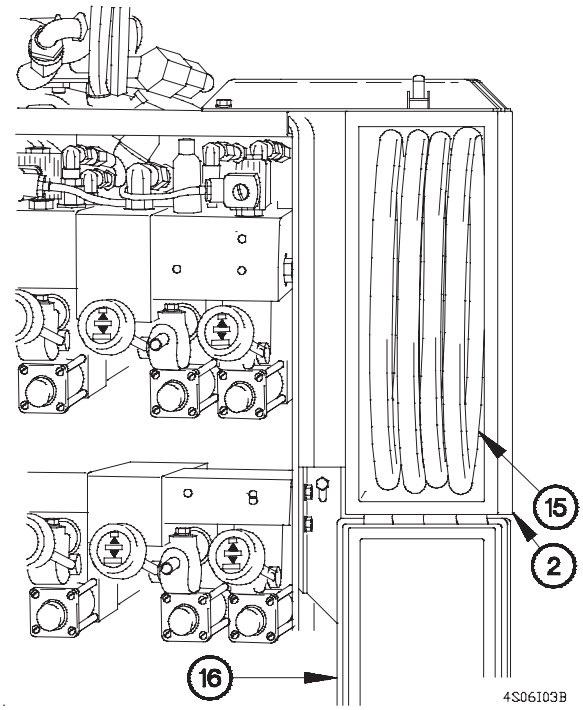
(7) Tighten two self-locking nuts (14) to 22-28 lb-ft (29-39 N·m).



17-6. M1084/M1086 REMOTE CONTROL CABLE STOWAGE BOX REPLACEMENT (CONT)

(8) Install remote control cable (15) in stowage box (2).

(9) Close door (16) on stowage box (2).



c. Follow-On Maintenance.

Install M1084/M1086 hydraulic accumulator (para 17-11).

End of Task.

17-7. M1084/M1086 JACK CYLINDER PADS AND STOWAGE BRACKET REPLACEMENT

This task covers:

a. Removal

b. Installation

INITIAL SETUP

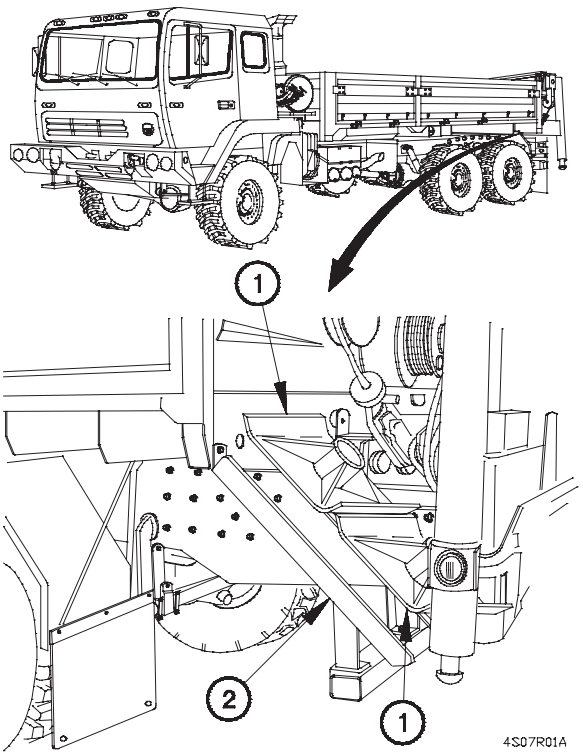
Equipment Conditions
Engine shut down (TM 9-2320-366-10-1).

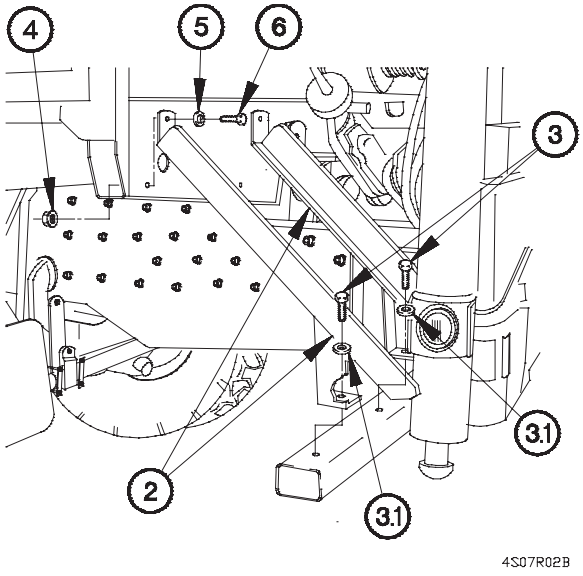
Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Wrench, Torque 0-175 lb-ft (Item 58, Appendix C)

Materials/Parts
Nut, Self-Locking (2) (Item 157, Appendix G)

a. Removal.

(1) Remove two jack pads (1) from stowage brackets (2).





(2) Remove two screws (3) and washers (3.1) from stowage brackets (2).

(3) Remove two self-locking nuts (4), washers (5), screws (6), and stowage brackets (2) from vehicle. Discard self-locking nuts.

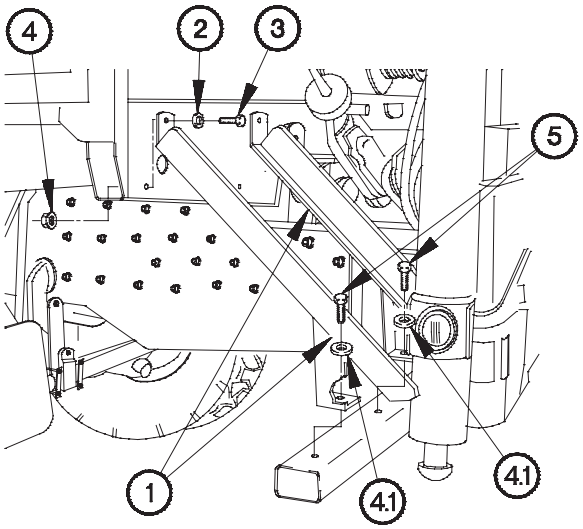
17-7. M1084/M1086 JACK CYLINDER PADS AND STOWAGE BRACKET REPLACEMENT (CONT)

b. Installation.

(1) Position two stowage brackets (1) on vehicle with two washers (2), screws (3), and self-locking nuts (4).

(2) Position two washers (4.1) and screws (5) in stowage brackets (1).

(3) Tighten two self-locking nuts (4) and screws (5) to 26-32 lb-ft (35-43 N·m).



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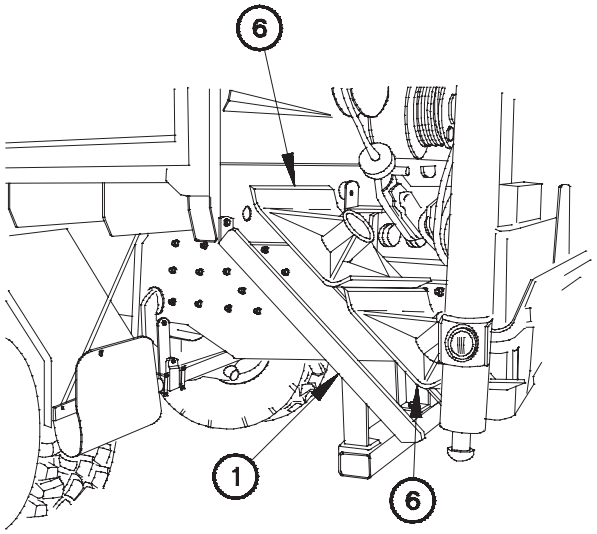

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(4) Install two jack pads (6) on stowage brackets (1).

End of Task.

17-8. M1084/M1086 MATERIAL HANDLING CRANE (MHC) HOSES REPLACEMENT

This task covers:

a. Hydraulic Hose Locations

b. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions
MHC positioned over cargo bed (TM 9-2320-366-10-1).
Engine shut down (TM 9-2320-366-10-1).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Goggles, Industrial (Item 15, Appendix C)
Pan, Drain (Item 24, Appendix C)

Materials/Parts
Dispenser, Pressure Sensitive Adhesive Tape (Item 20, Appendix D)
Cap and Plug Set (Item 14, Appendix D)
Ties, Cable, Plastic (Item 69, Appendix D)

a. Hydraulic 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.**
- **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 hoses and connection points to prevent contamination of M1084/M1086 MHC hydraulic system. Failure to comply may result in damage to equipment.

NOTE

- Refer to **Table 17-1. M1084/M1086 Material Handling Crane (MHC) Hydraulic Hose Locations** for hose locations on the M1084/M1086 MHC. It may not be necessary to remove all hydraulic hoses at one time.
- Tag hoses and connection points prior to removal.
- Remove plastic cable ties as required.
- Remove clamps and support brackets as required.
- Position drain pan to collect oil.

17-8. M1084/M1086 MATERIAL HANDLING CRANE (MHC) HOSES REPLACEMENT (CONT)

Figure 17-1. M1084/M1086 Material Handling Crane (MHC) Hydraulic Hose Locations

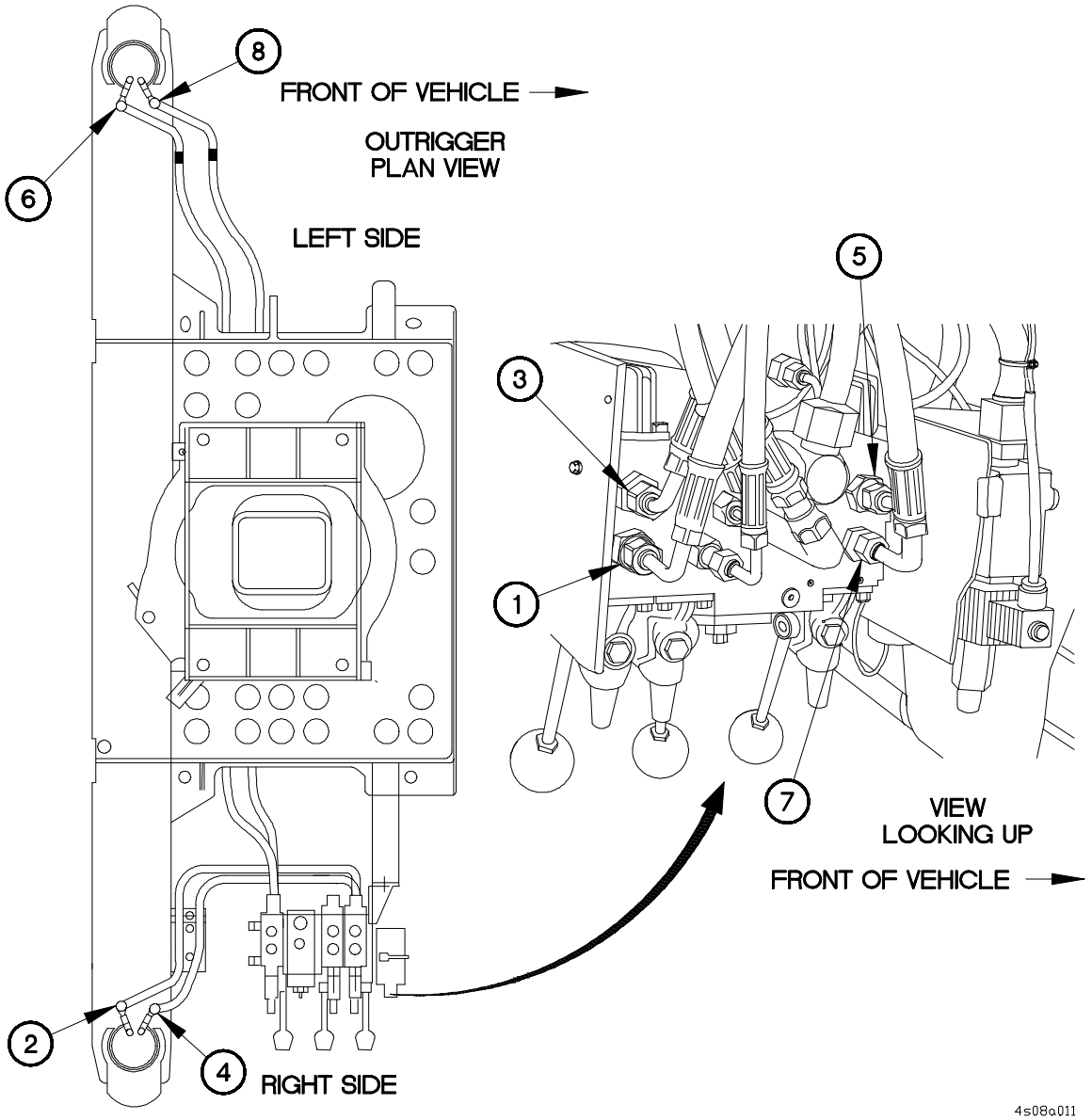


Table 17-1. M1084/M1086 Material Handling Crane (MHC) Hydraulic Hose Locations

Hydraulic Hose Name	From	To	Torque Values
Right Outrigger Jack, Down	Right outrigger jack manual control valve front fitting (1)	Right outrigger jack cylinder top fitting (2)	32-35 lb-ft (43-47 N•m)
Right Outrigger Jack, Up	Right outrigger jack manual control valve rear fitting (3)	Right outrigger jack cylinder bottom fitting (4)	32-35 lb-ft (43-47 N•m)
Left Outrigger Jack, Down	Left outrigger jack manual control valve front fitting (5)	Left outrigger jack cylinder top fitting (6)	32-35 lb-ft (43-47 N•m)
Left Outrigger Jack, Up	Left outrigger jack manual control valve rear fitting (7)	Left outrigger jack cylinder bottom fitting (8)	32-35 lb-ft (43-47 N•m)

Figure 17-1. M1084/M1086 Material Handling Crane (MHC) Hydraulic Hose Locations (Cont)

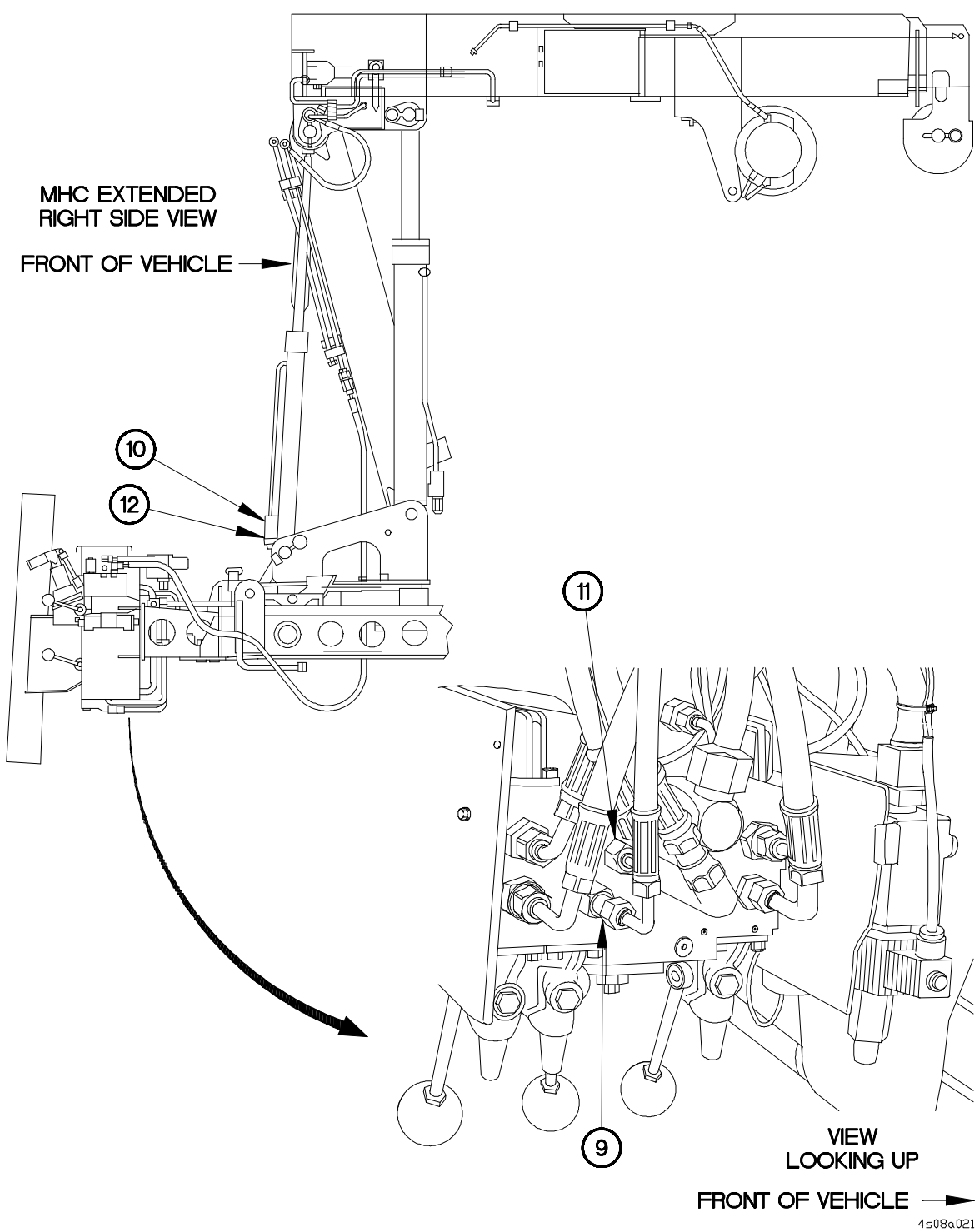


Table 17-1. M1084/M1086 Material Handling Crane (MHC) Hydraulic Hose Locations (Cont)

Hydraulic Hose Name	From	To	Torque Values
Mast Erection Up	Mast erection manual control valve front fitting (9)	Mast erection cylinder holding valve top fitting (10)	32-35 lb-ft (43-47 N•m)
Mast Erection Down	Mast erection manual control valve rear fitting (11)	Mast erection cylinder holding valve bottom fitting (12)	32-35 lb-ft (43-47 N•m)

17-8. M1084/M1086 MATERIAL HANDLING CRANE (MHC) HOSES REPLACEMENT (CONT)

Figure 17-1. M1084/M1086 Material Handling Crane (MHC) Hydraulic Hose Locations (Cont)

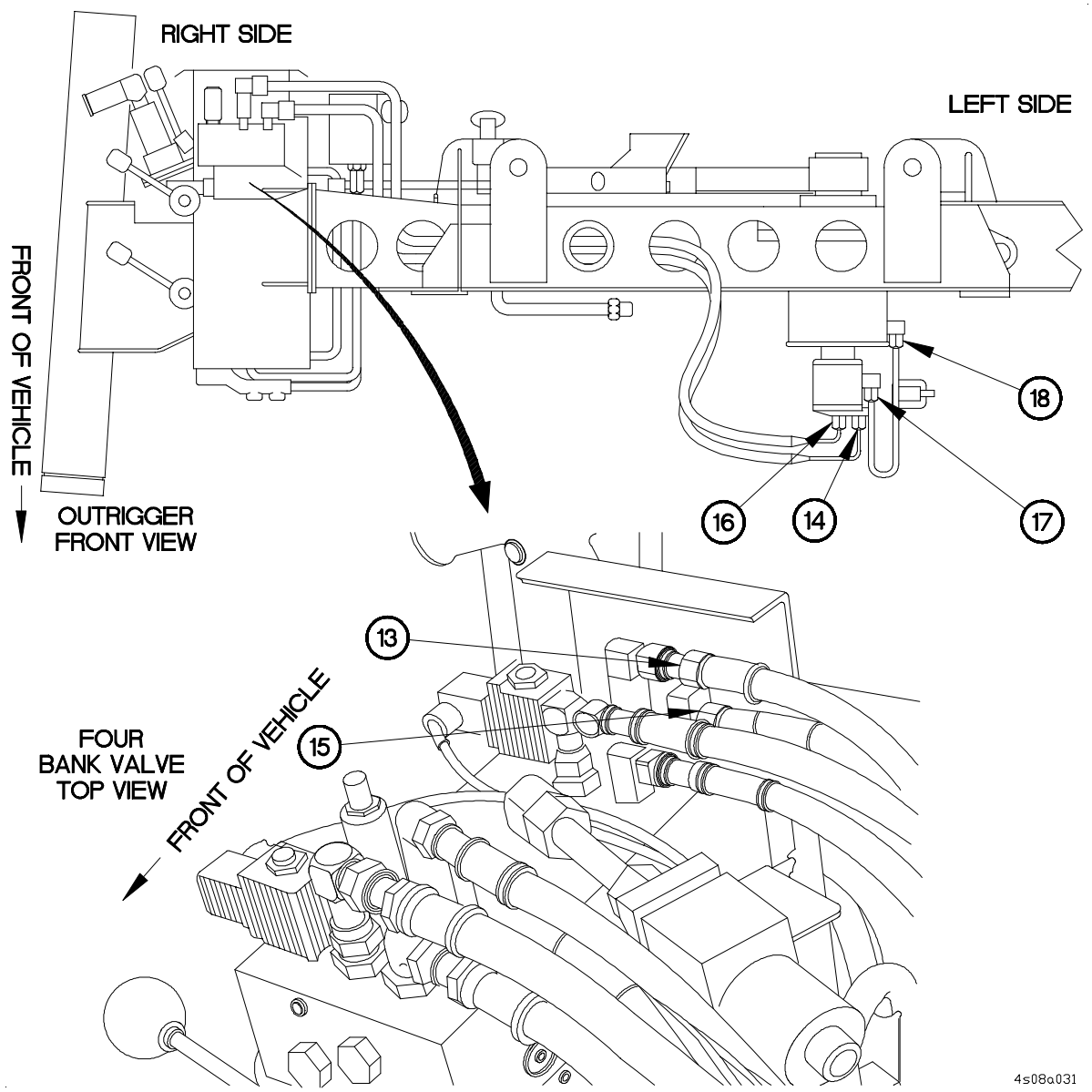


Table 17-1. M1084/M1086 Material Handling Crane (MHC) Hydraulic Hose Locations (Cont)

Hydraulic Hose Name	From	To	Torque Values
Swing, Clockwise	Swing manual control valve front fitting (13)	Swing motor cross-over with shuttle valve left fitting (14)	32-35 lb-ft (43-47 N•m)
Swing, Counter-clockwise	Swing manual control valve rear fitting (15)	Swing motor cross-over with shuttle valve right fitting (16)	32-35 lb-ft (43-47 N•m)
Swing Motor Brake Release	Swing motor cross-over with shuttle valve front fitting (17)	Swing motor fitting (18)	18-20 lb-ft (24-27 N•m)

Figure 17-1. M1084/M1086 Material Handling Crane (MHC) Hydraulic Hose Locations (Cont)

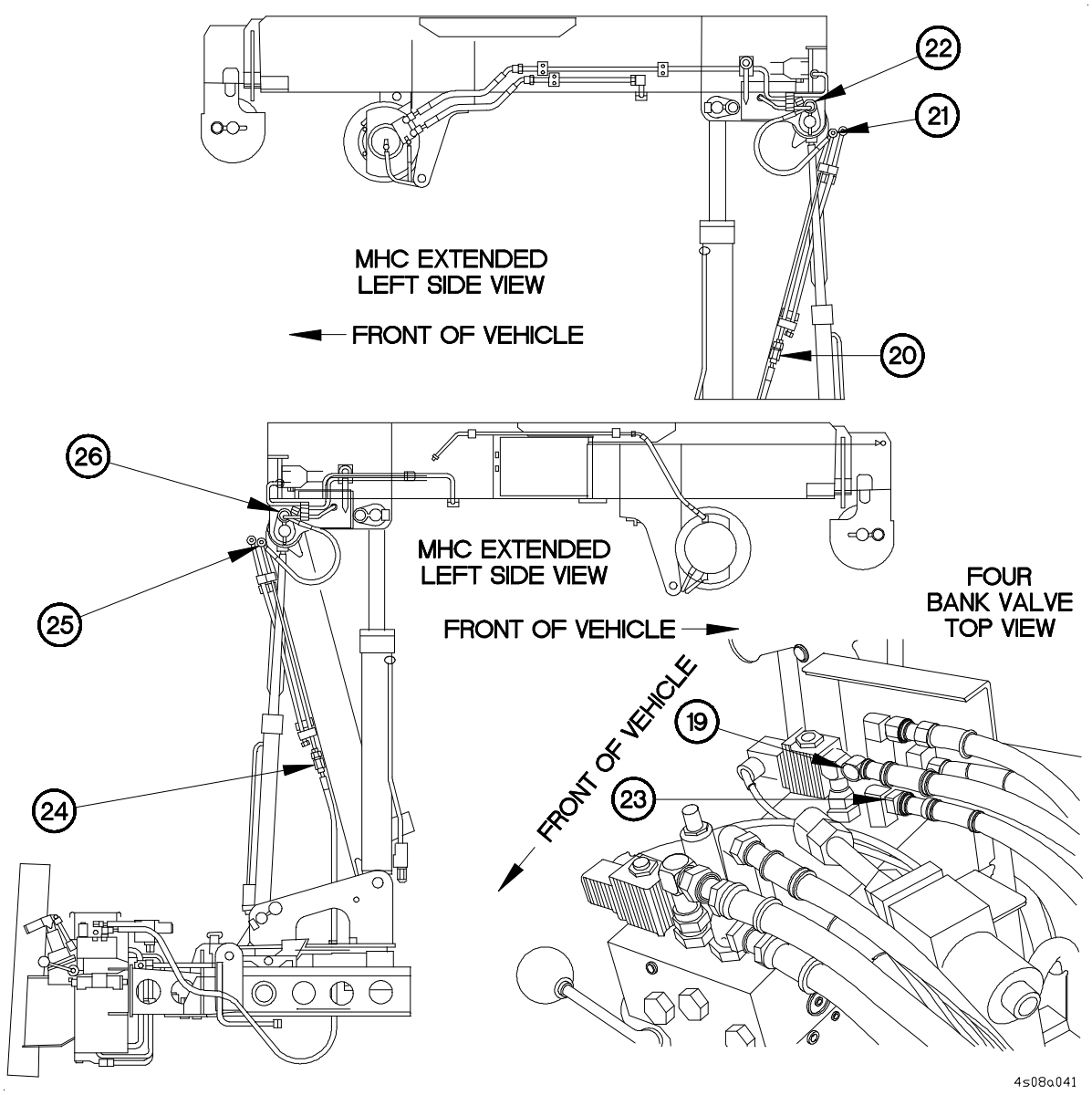


Table 17-1. M1084/M1086 Material Handling Crane (MHC) Hydraulic Hose Locations (Cont)

Hydraulic Hose Name	From	To	Torque Values
Telescope Out Lower	Telescope manual control valve front fitting (19)	Telescope mast tube left lower fitting (20)	32-35 lb-ft (43-47 N•m)
Telescope Out Upper	Telescope mast tube left upper fitting (21)	Telescope head tube left fitting (22)	32-35 lb-ft (43-47 N•m)
Telescope In Lower	Telescope manual control valve rear fitting (23)	Telescope mast tube right lower fitting (24)	32-35 lb-ft (43-47 N•m)
Telescope In Upper	Telescope mast tube right upper fitting (25)	Telescope head tube right fitting (26)	32-35 lb-ft (43-47 N•m)

17-8. M1084/M1086 MATERIAL HANDLING CRANE (MHC) HOSES REPLACEMENT (CONT)

Figure 17-1. M1084/M1086 Material Handling Crane (MHC) Hydraulic Hose Locations (Cont)

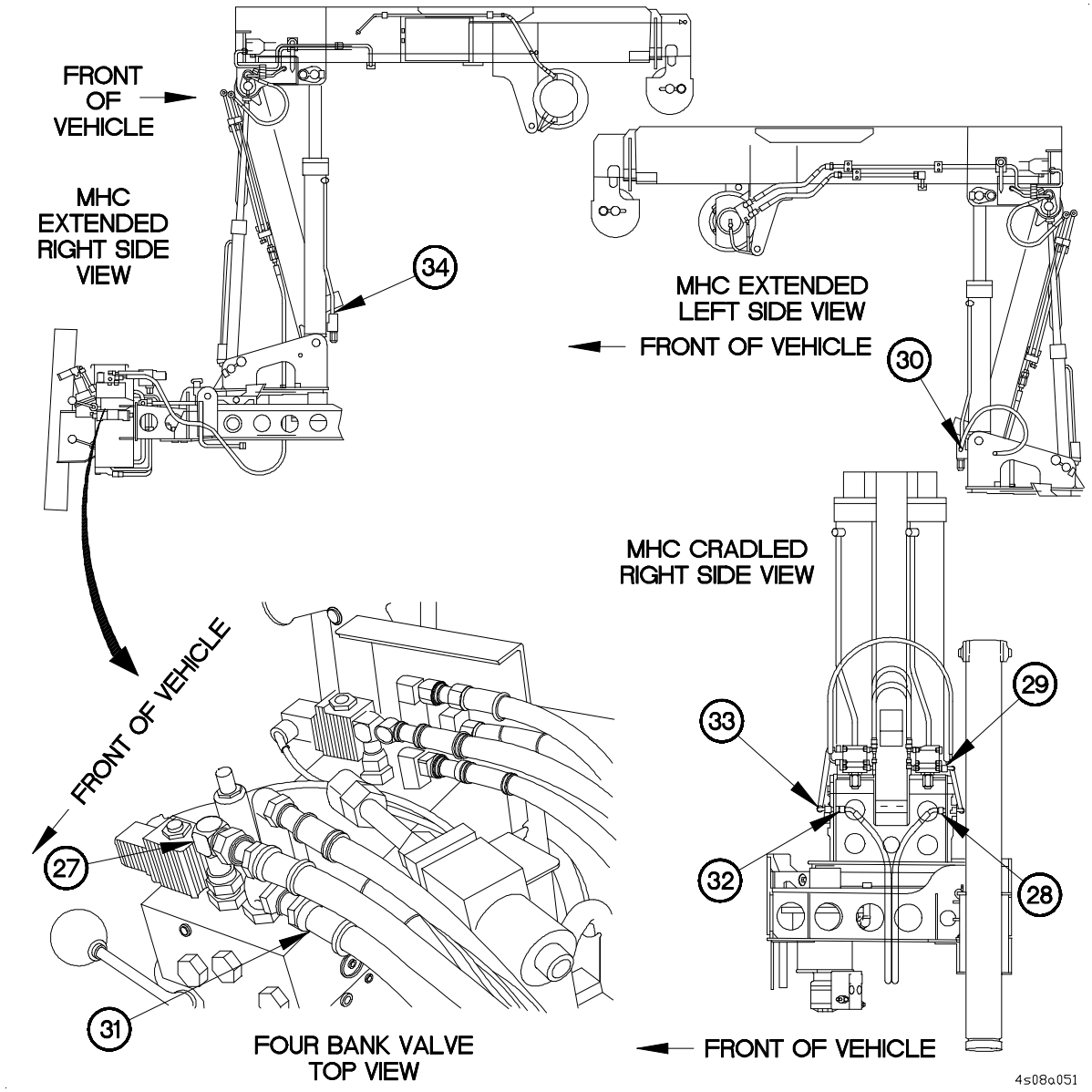


Table 17-1. M1084/M1086 Material Handling Crane (MHC) Hydraulic Hose Locations (Cont)

Hydraulic Hose Name	From	To	Torque Values
Boom Up Lower	Boom manual control valve front fitting (27)	Bulkhead fitting left inside (28)	32-35 lb-ft (43-47 N•m)
Boom Up Upper	Bulkhead fitting left outside (29)	Boom holding valve left lower fitting (30)	32-35 lb-ft (43-47 N•m)
Boom Down Lower	Boom manual control valve rear tee fitting (31)	Bulkhead fitting right (32)	32-35 lb-ft (43-47 N•m)
Boom Down Upper	Bulkhead fitting right outside (33)	Boom holding valve right upper fitting (34)	32-35 lb-ft (43-47 N•m)

Figure 17-1. M1084/M1086 Material Handling Crane (MHC) Hydraulic Hose Locations (Cont)

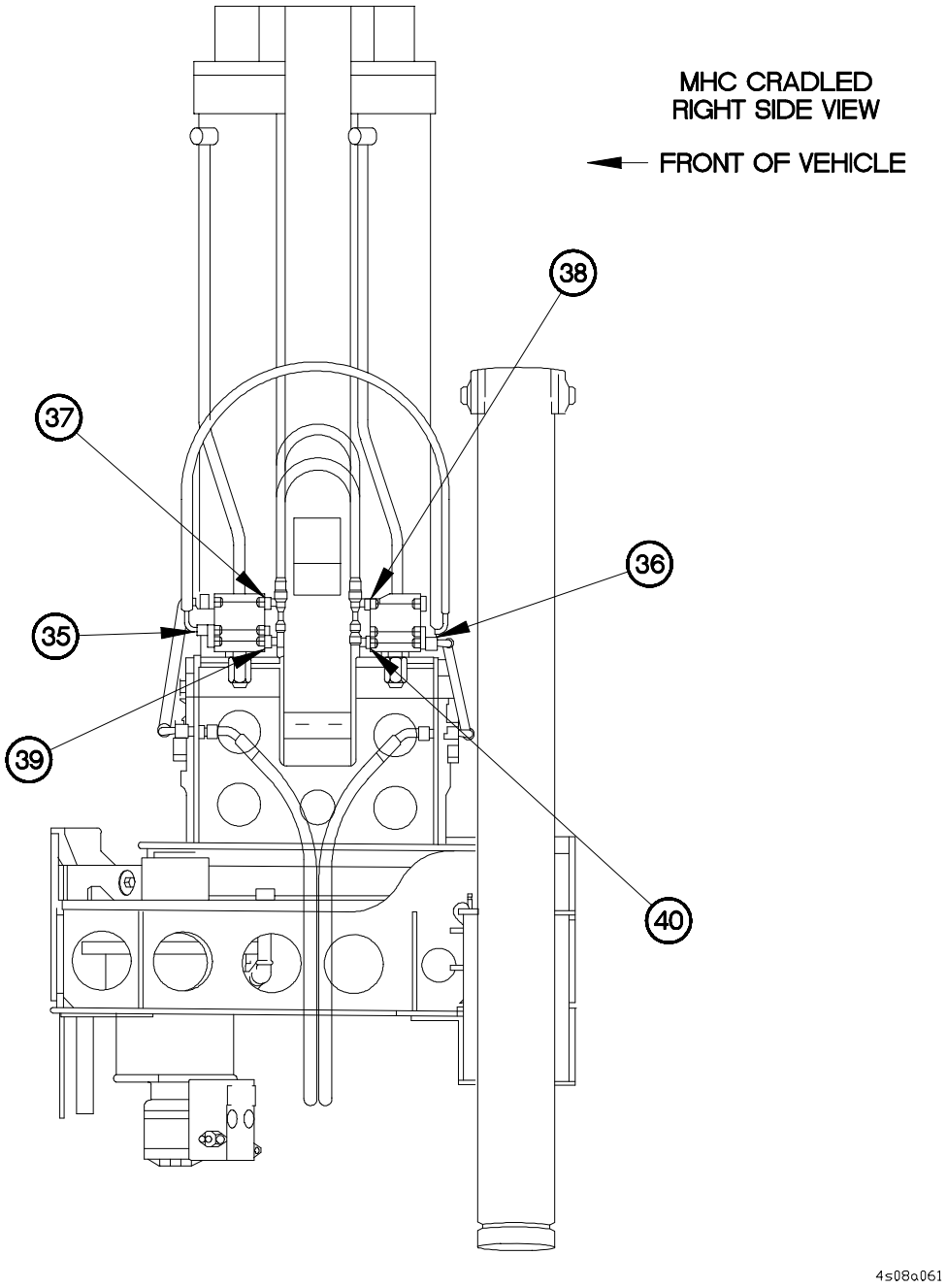


Table 17-1. M1084/M1086 Material Handling Crane (MHC) Hydraulic Hose Locations (Cont)

Hydraulic Hose Name	From	To	Torque Values
Boom Holding Valve Outside	Boom holding valve outside left top fitting (35)	Boom holding valve outside right bottom fitting (36)	32-35 lb-ft (43-47 N•m)
Boom Holding Valve Inside Top	Boom holding valve inside left top fitting (37)	Boom holding valve inside right top fitting (38)	32-35 lb-ft (43-47 N•m)
Boom Holding Valve Inside Bottom	Boom holding valve inside left bottom fitting (39)	Boom holding valve inside right bottom fitting (40)	32-35 lb-ft (43-47 N•m)

17-8. M1084/M1086 MATERIAL HANDLING CRANE (MHC) HOSES REPLACEMENT (CONT)

Figure 17-1. M1084/M1086 Material Handling Crane (MHC) Hydraulic Hose Locations (Cont)

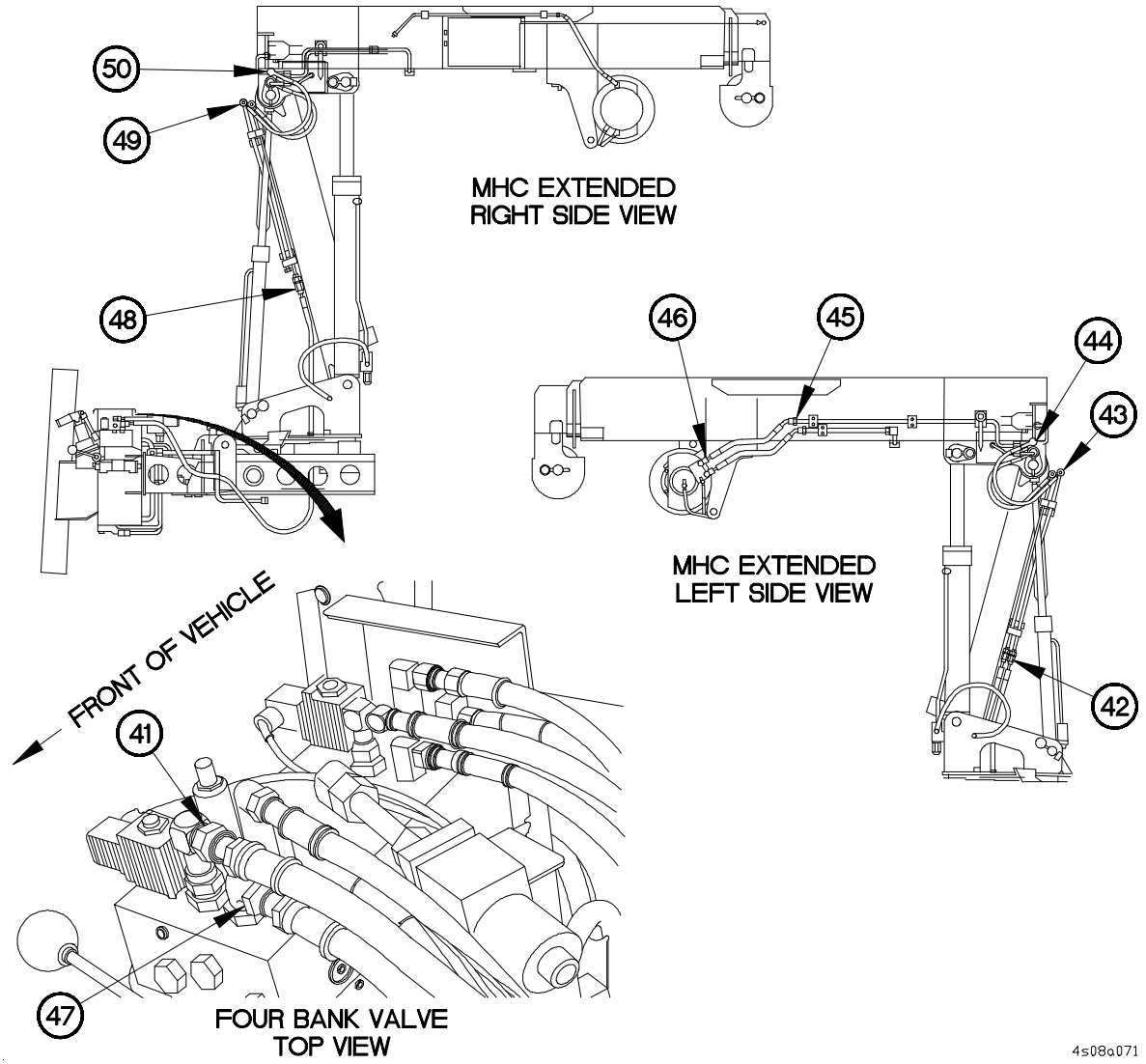


Table 17-1. M1084/M1086 Material Handling Crane (MHC) Hydraulic Hose Locations (Cont)

Hydraulic Hose Name	From	To	Torque Values
Hoist Up Lower	Hoist manual control valve front fitting (41)	Hoist mast tube left lower fitting (42)	32-35 lb-ft (43-47 N•m)
Hoist Up Upper	Hoist mast tube left upper fitting (43)	Hoist boom left upper tube rear fitting (44)	32-35 lb-ft (43-47 N•m)
Hoist Up Boom	Hoist boom left upper tube forward fitting (45)	Hoist motor control valve rear upper fitting (46)	32-35 lb-ft (43-47 N•m)
Hoist Down Lower	Hoist manual control valve rear fitting (47)	Hoist mast tube right lower fitting (48)	32-35 lb-ft (43-47 N•m)
Hoist Down Upper	Hoist mast tube right upper fitting (49)	Hoist boom tube right rear fitting (50)	32-35 lb-ft (43-47 N•m)

Figure 17-1. M1084/M1086 Material Handling Crane (MHC) Hydraulic Hose Locations (Cont)

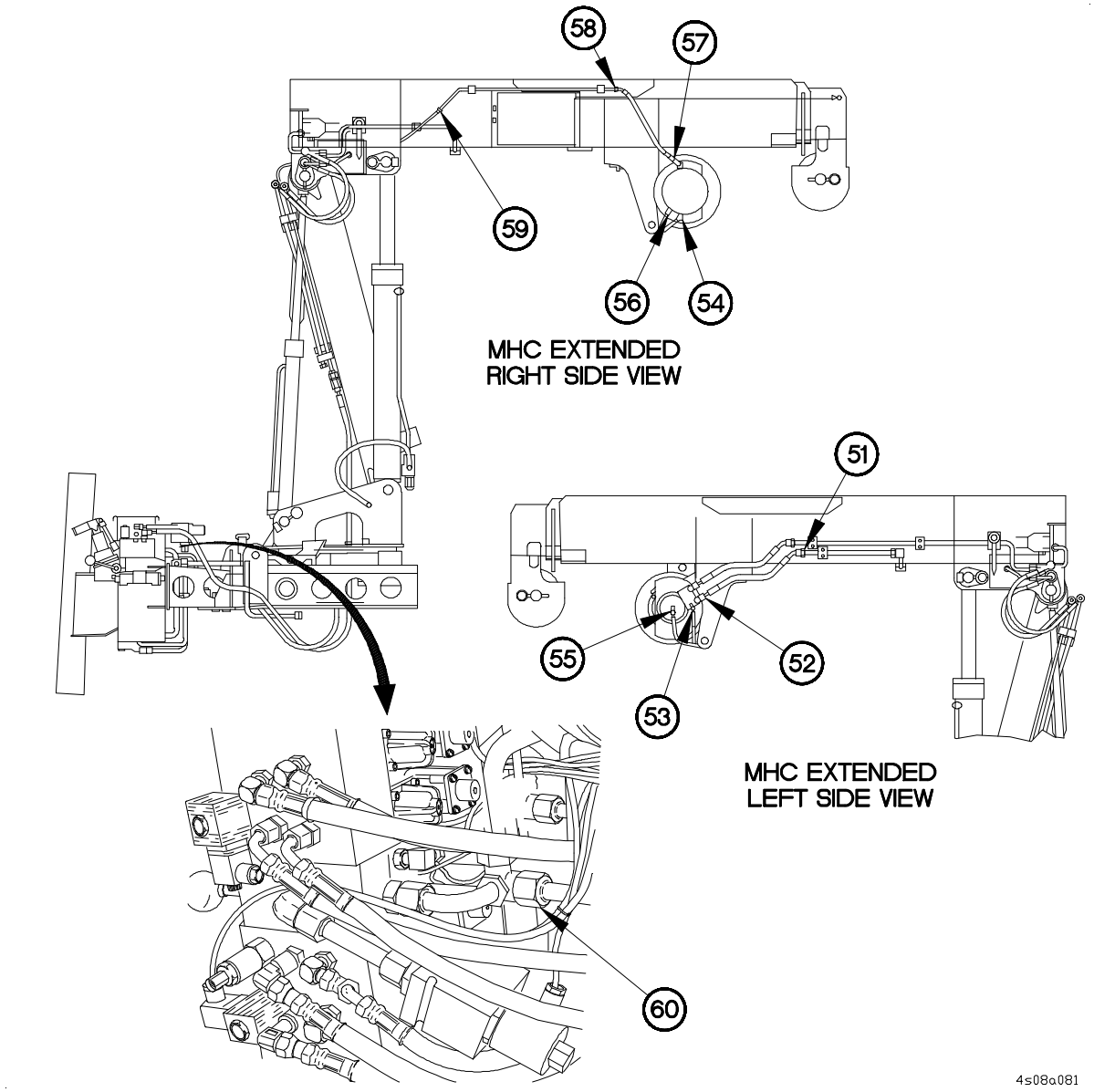


Table 17-1. M1084/M1086 Material Handling Crane (MHC) Hydraulic Hose Locations (Cont)

Hydraulic Hose Name	From	To	Torque Values
Hoist Down Boom	Hoist boom left lower tube forward fitting (51)	Hoist motor control valve rear lower fitting (52)	18-20 lb-ft (24-27 N•m)
Hoist Motor Brake Release	Hoist motor control valve bottom fitting (53)	Hoist motor right bottom forward fitting (54)	18-20 lb-ft (24-27 N•m)
Hoist Motor Brake Engage	Hoist motor left side fitting (55)	Hoist motor right bottom rear fitting (56)	18-20 lb-ft (24-27 N•m)
Hoist Motor Return Boom Outer	Hoist motor right top fitting (57)	Hoist boom right top tube forward fitting (58)	18-20 lb-ft (24-27 N•m)
Hoist motor return lower	Hoist boom right top tube rear fitting (59)	Main return tube tee fitting (60)	18-20 lb-ft (24-27 N•m)

17-8. M1084/M1086 MATERIAL HANDLING CRANE (MHC) HOSES REPLACEMENT (CONT)

Figure 17-1. M1084/M1086 Material Handling Crane (MHC) Hydraulic Hose Locations (Cont)

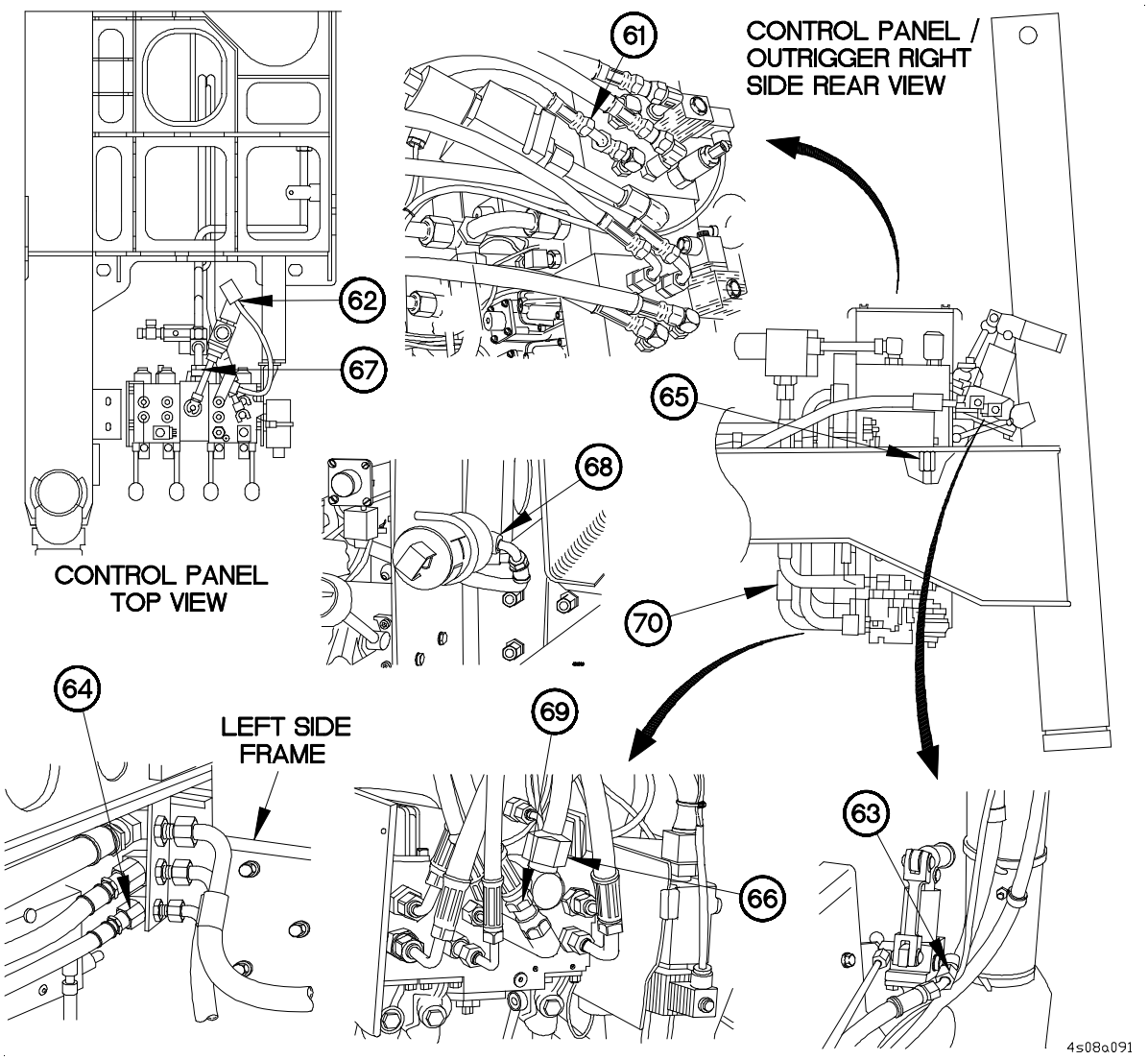


Table 17-1. M1084/M1086 Material Handling Crane (MHC) Hydraulic Hose Locations (Cont)

Hydraulic Hose Name	From	To	Torque Values
Unloader	Boom manual control valve rear tee fitting (61)	Unloader valve front fitting (62)	32-35 lb-ft (43-47 N•m)
Hand Pump	Hand Pump Rear Fitting (63)	Bulkhead bottom fitting (64)	35-39 lb-ft (47-53 N•m)
Valve Interconnect	Four function electric control valve bottom front fitting (65)	Three function electric control valve rear fitting (66)	32-35 lb-ft (43-47 N•m)
Accumulator	Four function electric control valve bottom rear fitting (67)	Accumulator rear fitting (68)	32-35 lb-ft (43-47 N•m)
Three Function Valve Supply	Three function electric control valve bottom forward fitting (69)	Supply tube bottom tee fitting (70)	32-35 lb-ft (43-47 N•m)

Figure 17-1. M1084/M1086 Material Handling Crane (MHC) Hydraulic Hose Locations (Cont)

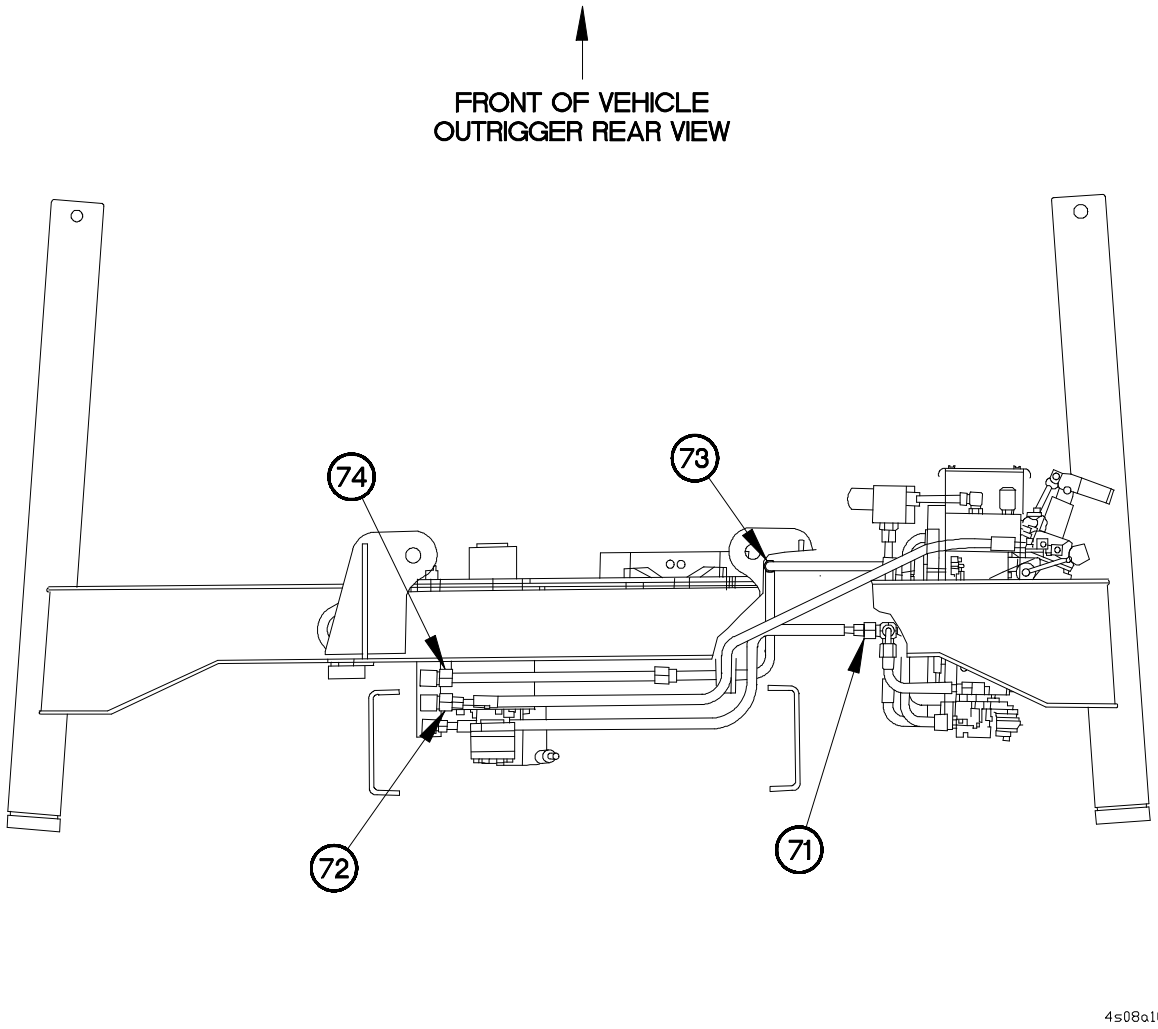


Table 17-1.M1084/M1086 Material Handling Crane (MHC) Hydraulic Hose Locations (Cont)

Hydraulic Hose Name	From	To	Torque Values
Main Supply	Main supply tube tee fitting (71)	Bulkhead supply middle fitting (72)	47-53 lb-ft (64-72 N•m)
Main Return	Main return left tube left fitting (73)	Bulkhead return top fitting (74)	65-70 lb-ft (88-95 N•m)

17-8. M1084/M1086 MATERIAL HANDLING CRANE (MHC) HOSES REPLACEMENT (CONT)

Figure 17-1. M1084/M1086 Material Handling Crane (MHC) Hydraulic Hose Locations (Cont)

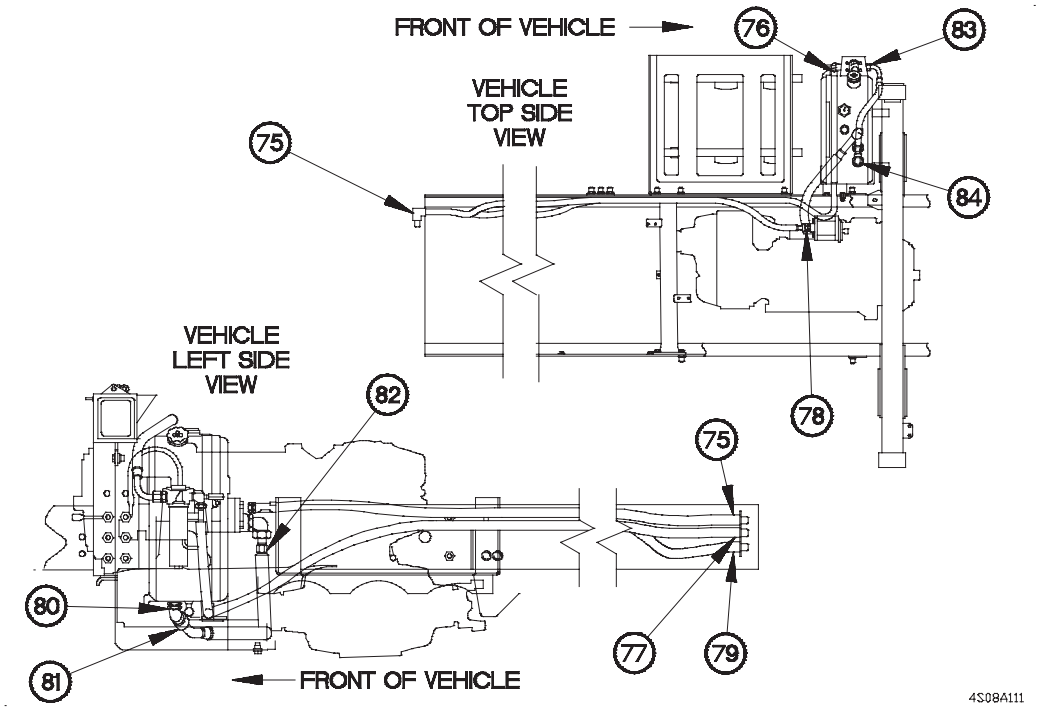


Table 17-1. M1084/M1086 Material Handling Crane (MHC) Hydraulic Hose Locations (Cont)

Hydraulic Hose Name	From	To
Return, Main	Bulkhead top fitting (75)	Hydraulic oil filter rear fitting (76)
Supply, Main	Bulkhead middle fitting (77)	Hydraulic pump rear fitting (78)
Suction	Bulkhead bottom fitting (79)	Hydraulic oil tank inboard bottom fitting (80)
Pump Supply	Hydraulic oil tank outboard bottom fitting (81)	Hydraulic pump bottom fitting (82)
Tank Return	Hydraulic oil filter front fitting (83)	Hydraulic oil tank top fitting (84)

b. Follow-On Maintenance.

(1) Fill hydraulic reservoir (Appendix H).

(2) Operate MHC and check for oil leaks (TM 9-2320-366-10-1).

End of Task.

17-9. M1084/M1086 MATERIAL HANDLING CRANE (MHC) TUBING REPLACEMENT

This task covers:

a. Hydraulic Tubing Locations

b. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions
MHC positioned over cargo bed (TM 9-2320-366-10-1).
Engine shut down (TM 9-2320-366-10-1).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Goggles, Industrial (Item 15, Appendix C)
Pan, Drain (Item 24, Appendix C)

Materials/Parts
Dispenser, Pressure Sensitive Adhesive Tape (Item 20, Appendix D)
Cap and Plug Set (Item 14, Appendix D)
Ties, Cable, Plastic (Item 69, Appendix D)

a. Hydraulic Tubing 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.**
- **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 tubes and connection points to prevent contamination of M1084/M1086 MHC hydraulic system. Failure to comply may result in damage to equipment.

NOTE

- Refer to **Table 17-2. M1084/M1086 Material Handling Crane (MHC) Hydraulic Tubing Locations** for tubing locations on the M1084/M1086 MHC. It may not be necessary to remove all hydraulic tubes at one time.
- Tag tubes and connection points prior to removal.
- Remove plastic cable ties as required.
- Remove clamps and support brackets as required.
- Position drain pan to collect oil.

17-9. M1084/M1086 MATERIAL HANDLING CRANE (MHC) TUBING REPLACEMENT (CONT)

Figure 17-2. M1084/M1086 Material Handling Crane (MHC) Hydraulic Tubing Locations

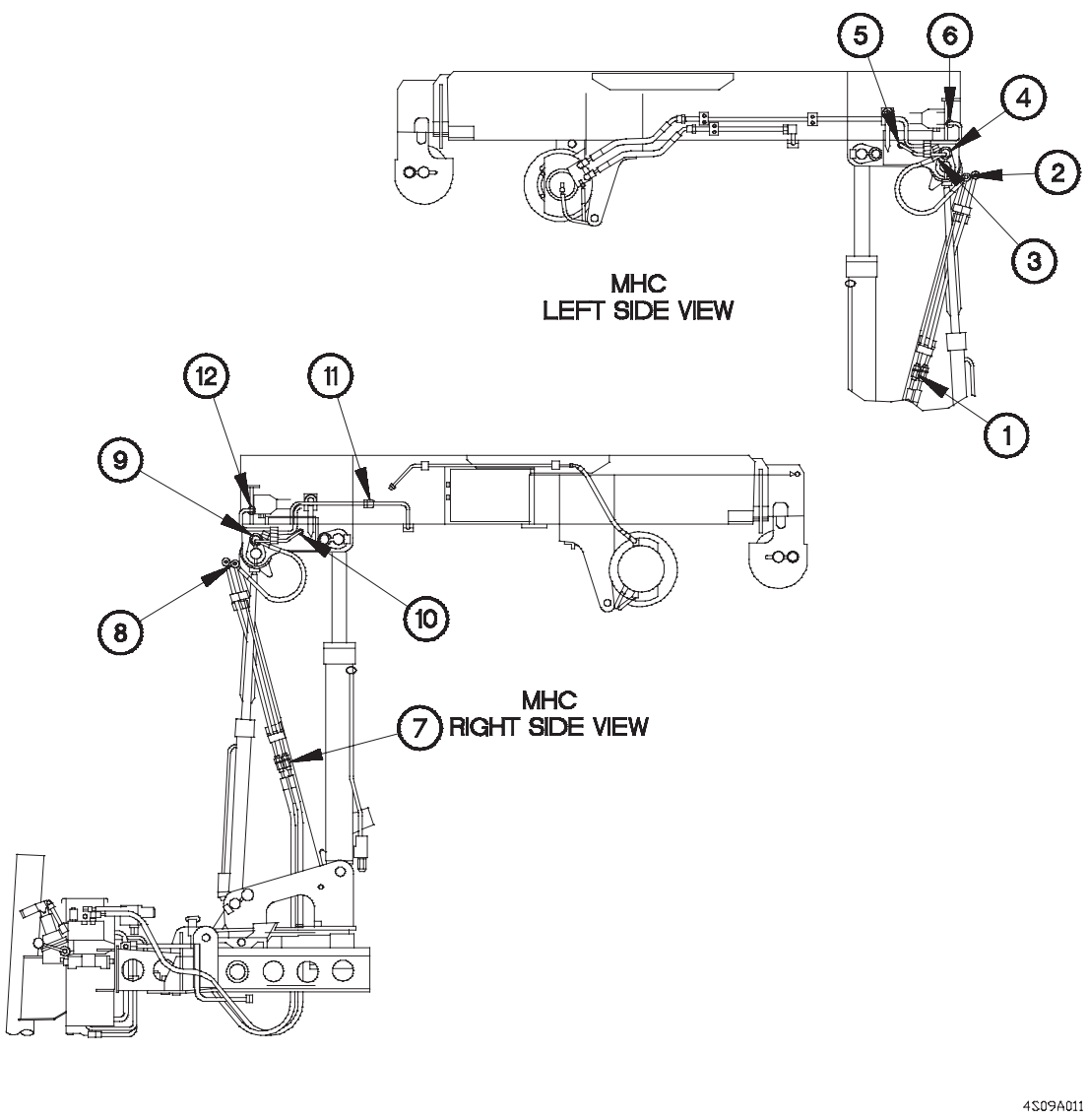


Table 17-2. M1084/M1086 Material Handling Crane (MHC) Hydraulic Tubing Locations

Hydraulic Tube Name	From	To
Telescope Out Mast	Telescope out mast fitting (1)	Telescope out mast fitting (2)
Telescope Out Head Outboard	Telescope out head fitting (3)	Telescope out bulkhead fitting (4)
Telescope Out Head Inboard	Telescope out bulkhead fitting (5)	Telescope holding valve fitting (6)
Telescope In Mast	Telescope in mast fitting (7)	Telescope in mast fitting (8)
Telescope In Head Outboard	Telescope in head fitting (9)	Telescope in bulkhead fitting (10)
Telescope in Head Inboard	Telescope in bulkhead fitting (11)	Telescope holding valve fitting (12)

Figure 17-2. M1084/M1086 Material Handling Crane (MHC) Hydraulic Tubing Locations (Cont)

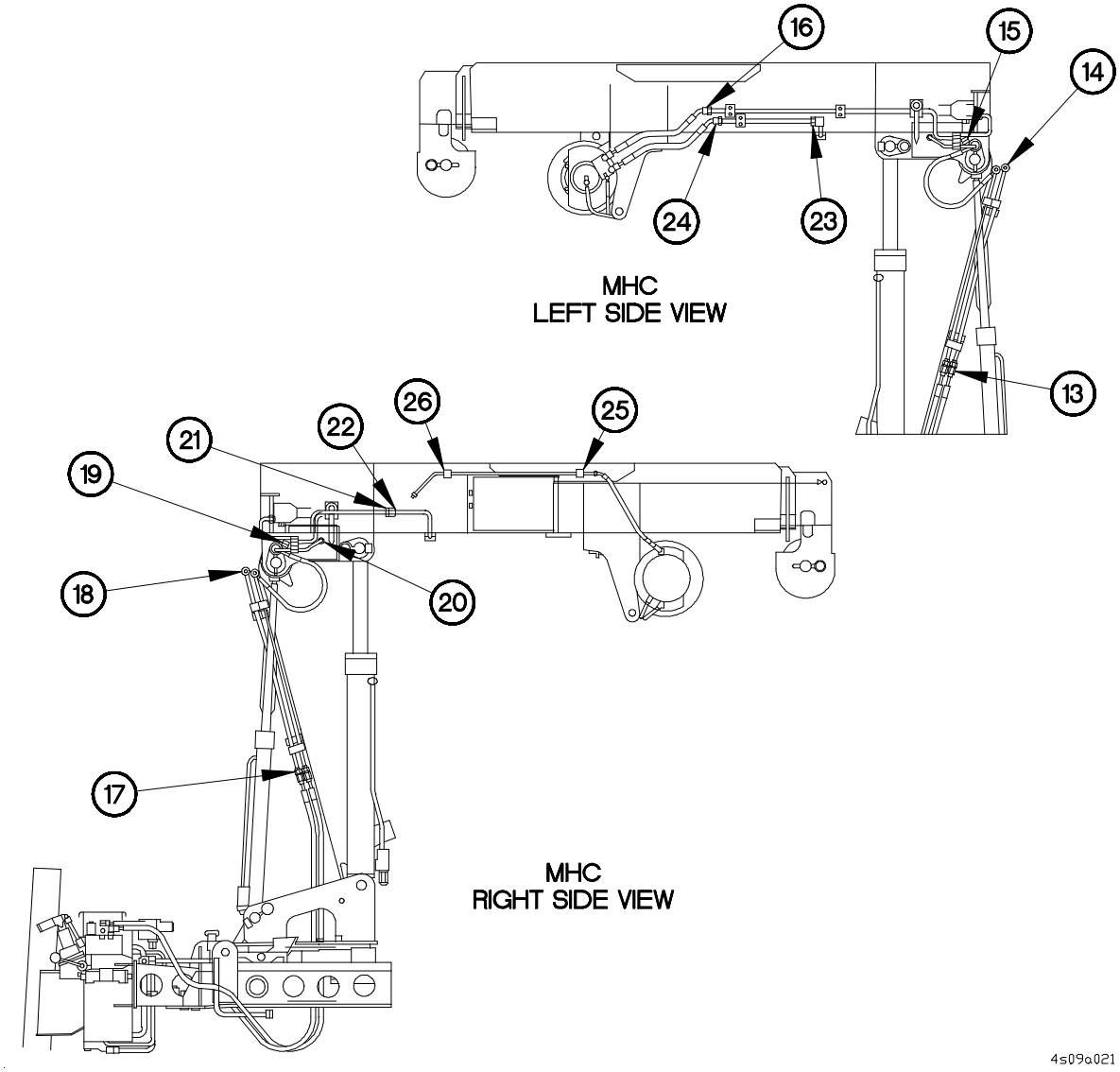


Table 17-2. M1084/M1086 Material Handling Crane (MHC) Hydraulic Tubing Locations (Cont)

Hydraulic Tube Name	From	To	Torque Values
Hoist Up Mast	Hoist up mast fitting (13)	Hoist up mast fitting (14)	43-47 lb-ft (58-64 N•m)
Hoist Up Boom	Hoist up boom fitting (15)	Hoist up boom fitting (16)	43-47 lb-ft (58-64 N•m)
Hoist Down Mast Rear	Hoist down mast fitting (17)	Hoist down mast fitting (18)	43-47 lb-ft (58-64 N•m)
Hoist Down Boom Rear	Hoist down boom fitting (19)	Hoist down boom cross-over fitting (20)	43-47 lb-ft (58-64 N•m)
Hoist Down Boom Cross-over	Hoist down boom forward fitting (21)	Hoist down boom rear fitting (22)	43-47 lb-ft (58-64 N•m)
Hoist Down Boom	Hoist down boom cross-over fitting (23)	Hoist down boom fitting (24)	43-47 lb-ft (58-64 N•m)
Hoist Motor Return Boom Right	Hoist motor return boom fitting (25)	Hoist motor return fitting (26)	43-47 lb-ft (58-64 N•m)

17-9. M1084/M1086 MATERIAL HANDLING CRANE (MHC) TUBING REPLACEMENT (CONT)

Figure 17-2. M1084/M1086 Material Handling Crane (MHC) Hydraulic Tubing Locations (Cont)

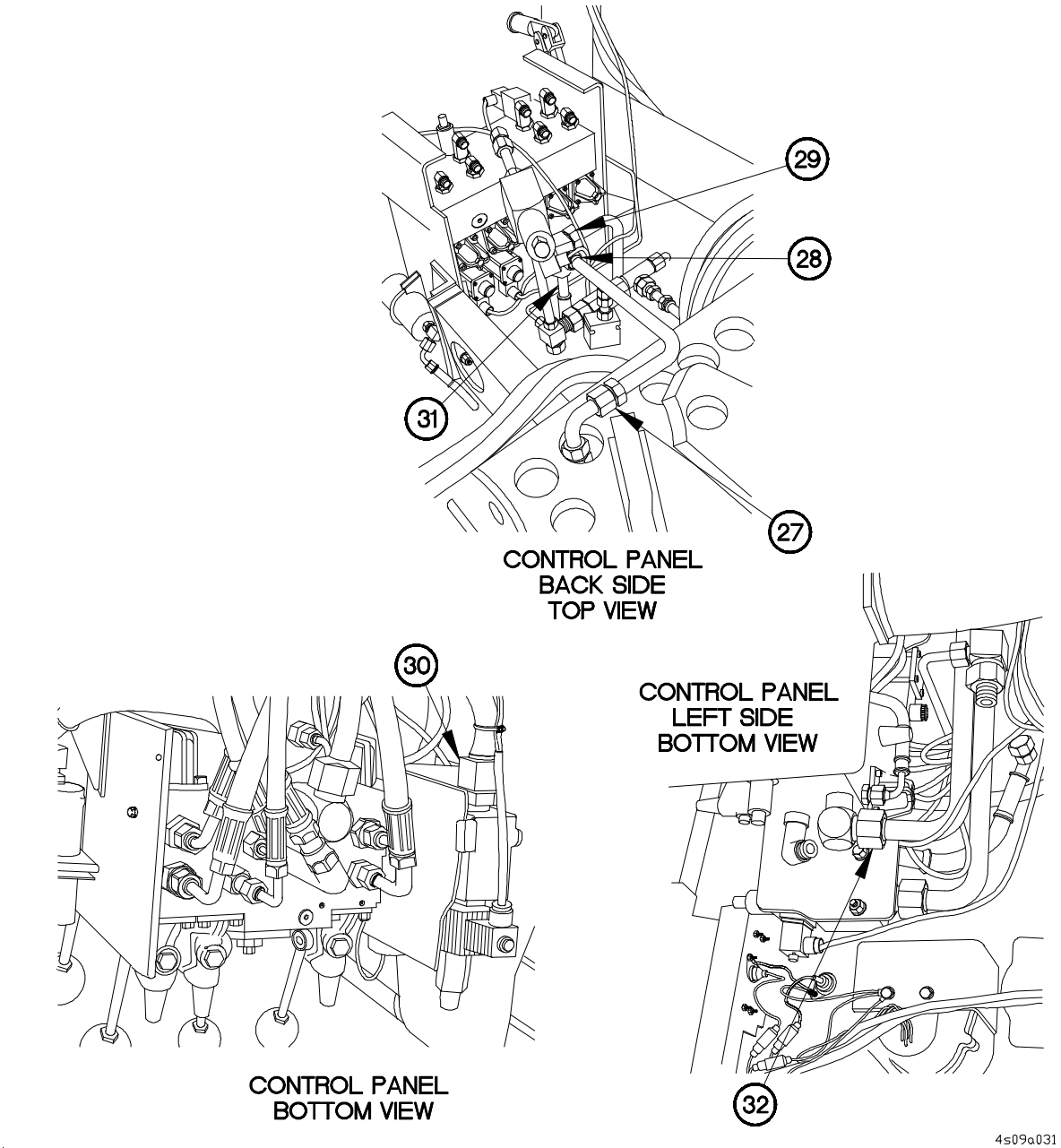


Table 17-2. M1084/M1086 Material Handling Crane (MHC) Hydraulic Tubing Locations (Cont)

Hydraulic Tube Name	From	To	Torque Values
Main Return	Main return hose fitting (27)	Main return fitting (28)	88-95 lb-ft (119-129 N•m)
Return Four-Way Tee	Main return fitting (29)	Four function manual control valve fitting (30)	
Override	Return four-way tee fitting (31)	Override valve, fitting (32)	88-95 lb-ft (119-129 N•m)

Figure 17-2. M1084/M1086 Material Handling Crane (MHC) Hydraulic Tubing Locations (Cont)

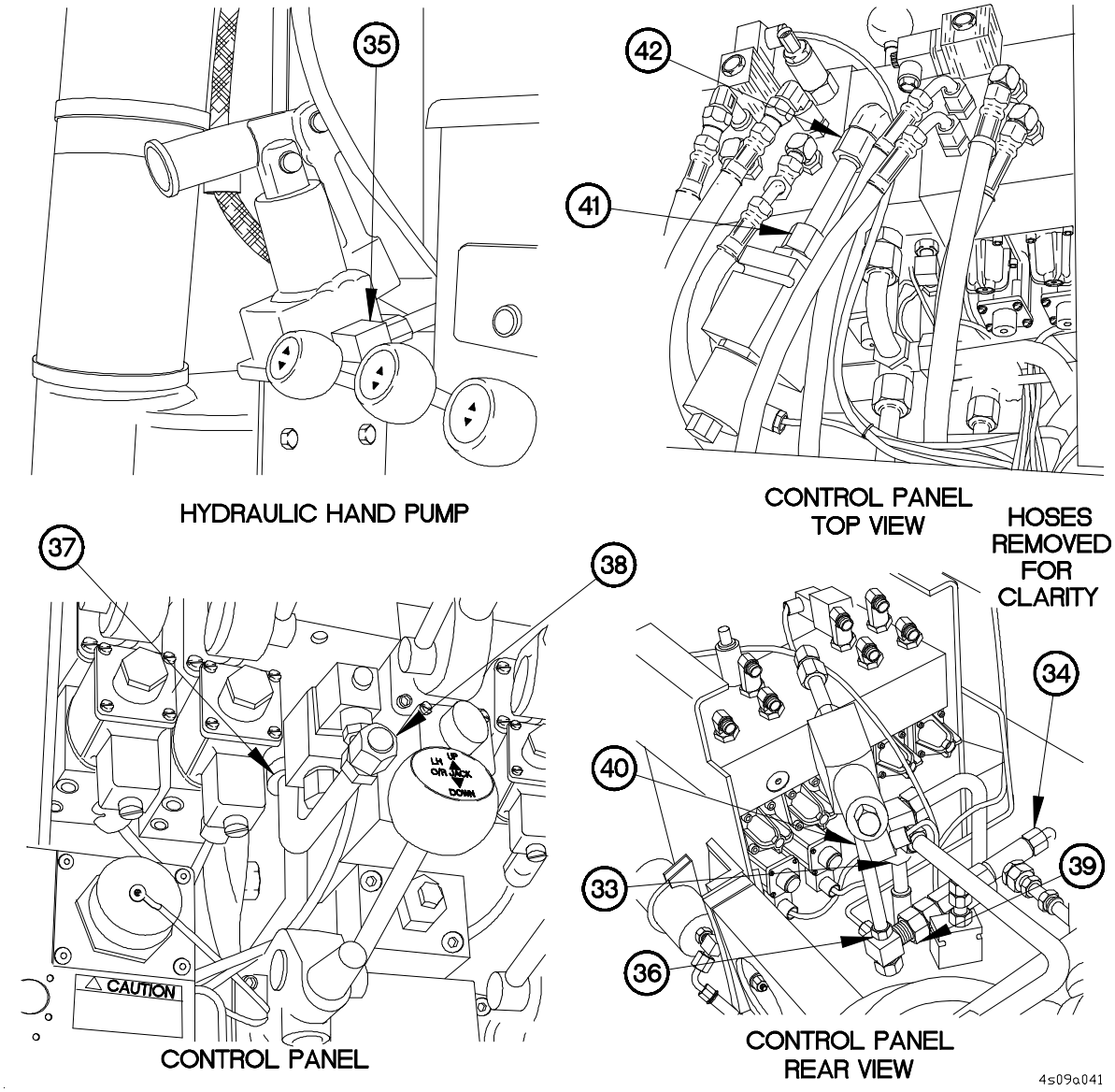


Table 17-2. M1084/M1086 Material Handling Crane (MHC) Hydraulic Tubing Locations (Cont)

Hydraulic Tube Name	From	To	Torque Values
Three Function Manual Control Valve Return	Return four-way tee fitting (33)	Three Function Manual control valve fitting (34)	88-95 lb-ft (119-129 N•m)
Hand Pump	Hand pump front fitting (35)	Supply four-way fitting (36)	43-47 lb-ft (58-64 N•m)
Four Function Manual Control Valve	Four function manual control valve bottom fitting (37)	Capped tube (38)	43-47 lb-ft (58-64 N•m)
Supply Four-Way Tee	Inline check valve fitting (39)	Solenoid valve bottom fitting (40)	43-47 lb-ft (58-64 N•m)
Four Function Manual Control Valve Supply	Solenoid valve front fitting (41)	Four function manual control valve top fitting (42)	43-47 lb-ft (58-64 N•m)

17-9. M1084/M1086 MATERIAL HANDLING CRANE (MHC) TUBING REPLACEMENT (CONT)

b. Follow-On Maintenance.

(1) Fill hydraulic reservoir (Appendix H).

(2) Operate MHC and check for oil leaks (TM 9-2320-366-10-1).

End of Task.

17-10. M1084/M1086 HAND PUMP REPLACEMENT/REPAIR

This task covers:

a. Removal
b. Disassembly
c. Cleaning/Inspection
d. Assembly
e. Installation
f. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-366-10-1).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Pan, Drain (Item 24, Appendix C)
Goggles, Industrial (Item 15, Appendix C)
Gloves, Rubber (Item 13, Appendix C)

Materials/Parts
Dispenser, Pressure Sensitive Adhesive Tape (Item 20, Appendix D)
Cap and Plug Set (Item 14, Appendix D)
Solvent, Dry Cleaning (Item 65, Appendix D)
Rag, Wiping (Item 50, Appendix D)
Parts Kit, Hydraulic Pump (Item 219, Appendix G)
Lockwasher (4) (Item 96, Appendix G)
Packing, Preformed (4) (Item 187, Appendix G)
Gasket and Preformed Packing Kit (Item 43, Appendix G)

a. Removal.

(1) Position drain pan under hand pump (1).

CAUTION

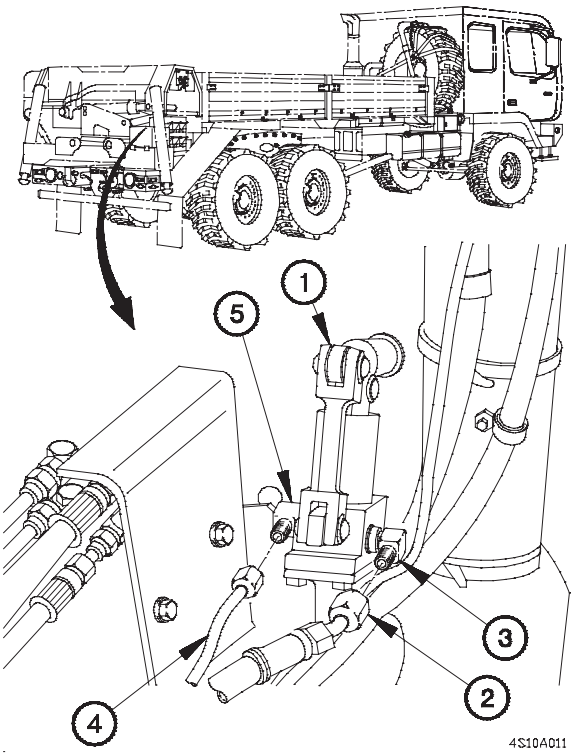
Cap or plug hydraulic tube and hose to prevent contamination of hydraulic system. Failure to comply may result in damage to equipment.

NOTE

Tag tube and hose connection points prior to disconnecting.

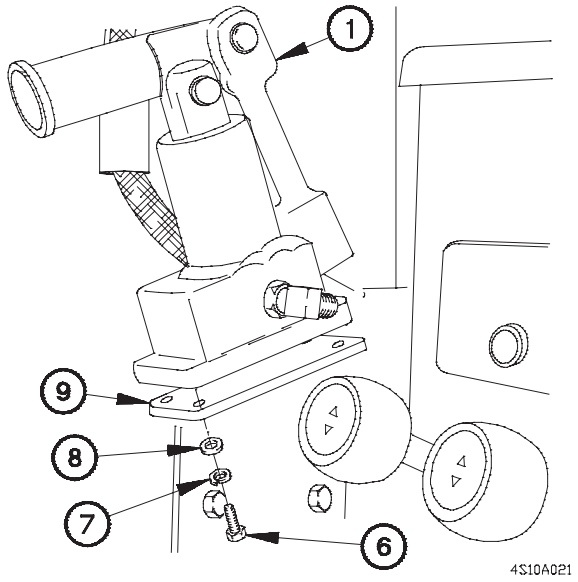
(2) Disconnect hydraulic hose (2) from 90-degree fitting (3).

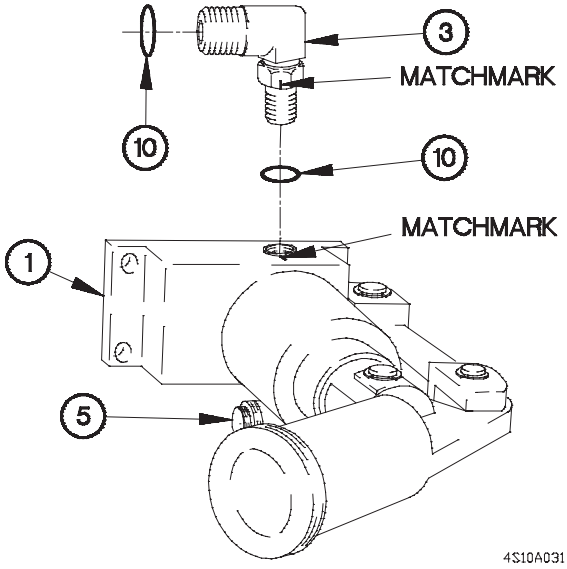
(3) Disconnect hydraulic tube (4) from 90-degree fitting (5).



17-10. M1084/M1086 HAND PUMP REPAIR (CONT)

(4) Remove four screws (6), lockwashers (7), washers (8) and hand pump (1) from bracket (9). Discard lockwashers.





(5) Match mark 90-degree fittings (3 and 5) to hand pump (1).

(6) Remove 90-degree fittings (3 and 5) from hand pump (1).

(7) Remove four preformed packings (10) from 90-degree fittings (3 and 5). Discard preformed packings.

b. Disassembly.

WARNING

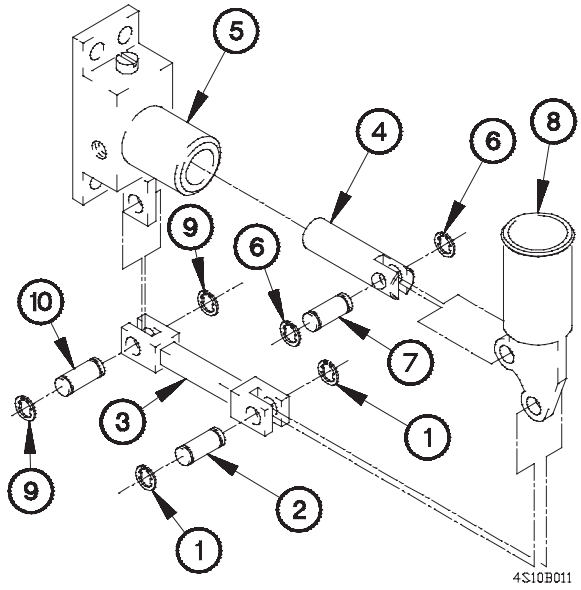
Retaining clips are under tension and can act as projectiles when released causing severe eye injury. Use care when removing retaining clips. Failure to comply may result in injury to personnel.

(1) Remove two retaining clips (1) and pin (2) from pump linkage (3).

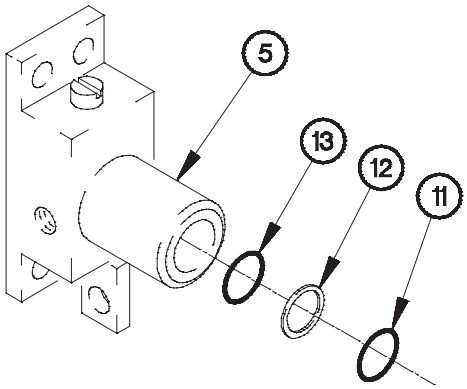
(2) Remove pump piston (4) from pump base (5).

(3) Remove two retaining clips (6), pin (7), and pump socket (8) from pump piston (4).

(4) Remove two retaining clips (9), pin (10), and pump linkage (3) from pump base (5).



(5) Remove preformed packing (11), wiper ring (12), and preformed packing (13) from pump base (5). Discard preformed packings and wiper ring.



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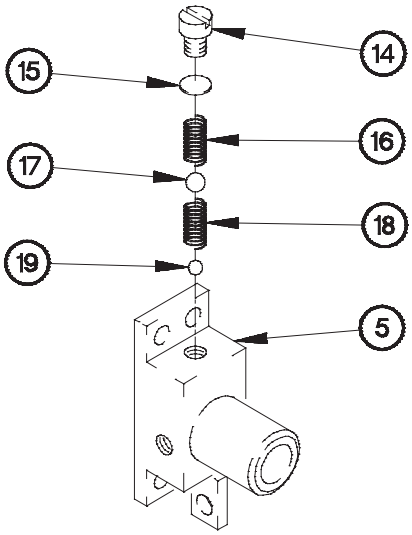


4S10B031

(6) Remove plug (14), disk (15), spring (16), ball (17), spring (18), and ball (19) from pump base (5). Discard balls and springs.

c. 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.**

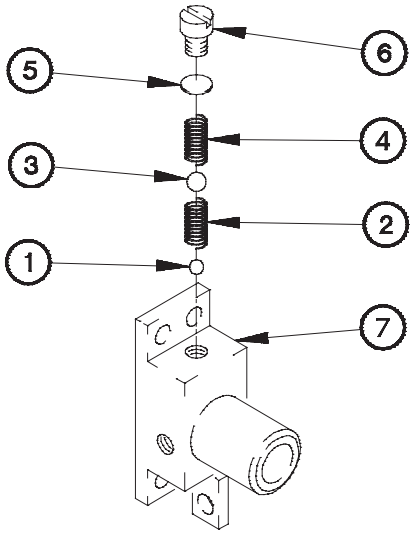
- **If personnel become dizzy while using Dry Cleaning Solvent, immediately get fresh air and medical help. If Dry Cleaning Solvent contacts skin or clothes, flush with cold water. If Dry Cleaning Solvent contacts eyes, immediately flush eyes with water and get immediate medical attention. Failure to comply may result in injury to personnel.**

Clean all metal parts in dry cleaning solvent and dry with wiping rags.

17-10. M1084/M1086 HAND PUMP REPAIR (CONT)

d. Assembly.

(1) Install ball (1), spring (2), ball (3), spring (4), disk (5), and plug (6) in pump base (7).



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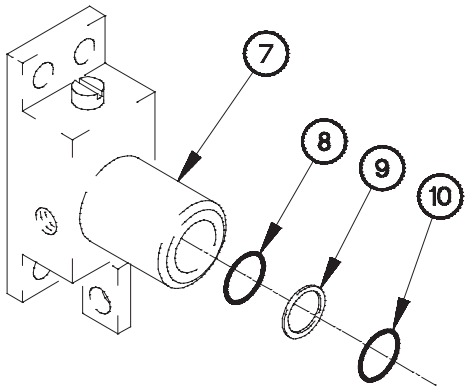


4S10D021

(2) Install preformed packing (8), wiper ring (9), and preformed packing (10) in pump base (7).

(3) Install pump piston (11) in pump base (7).

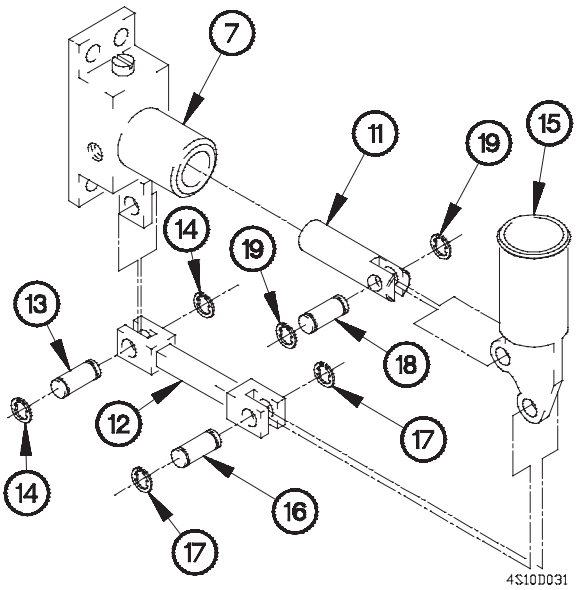
WARNING

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

(4) Install pump linkage (12) on pump base (7) with pin (13) and two retaining clips (14).

(5) Install pump socket (15) on pump linkage (12) with pin (16) and two retaining clips (17).

(6) Install pump socket (15) on pump piston (11) with pin (18) and two retaining clips (19).

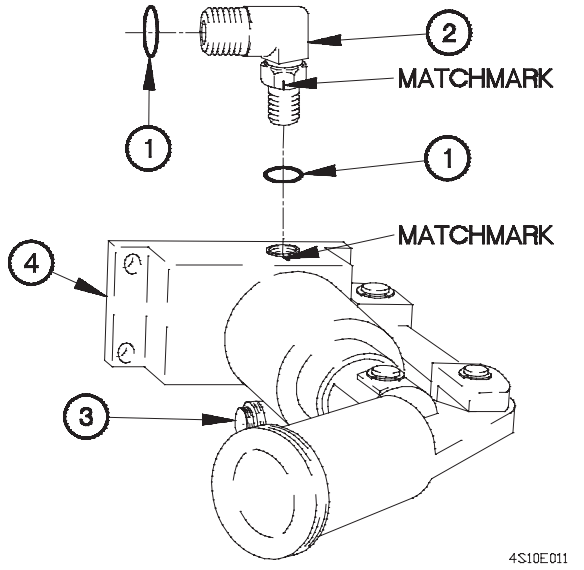


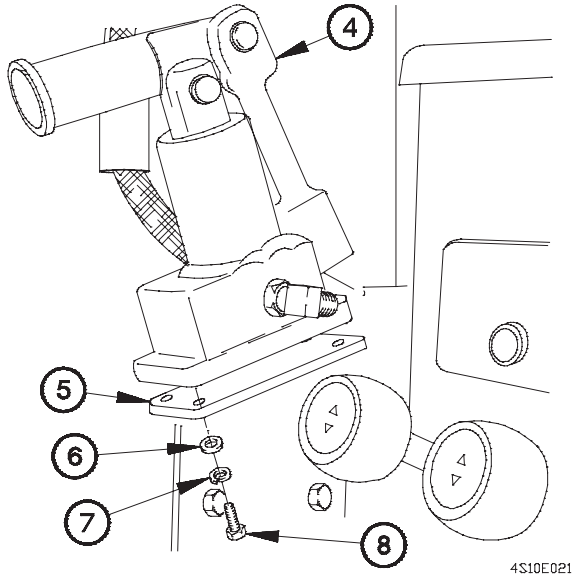
4S10D031

e. Installation.

(1) Install four preformed packings (1) on 90-degree fittings (2 and 3).

(2) Install 90-degree fittings (2 and 3) in hand pump (4) with matchmarks aligned.

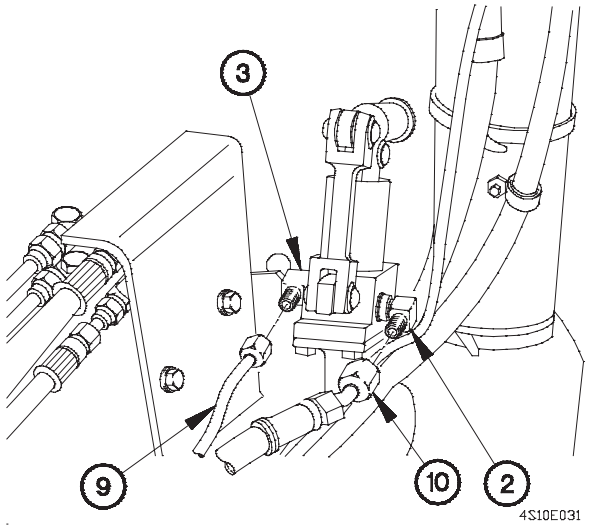




(3) Install hand pump (4) on bracket (5) with four washers (6), lockwashers (7) and screws (8).

(4) Connect hydraulic tube (9) to 90-degree fitting (3).

(5) Connect hydraulic hose (10) to 90-degree fitting (2).



f. Follow-On Maintenance.

(1) Test operate hand pump (TM 9-2320-366-10-1).

(2) Check hand pump for oil leaks.

End of Task.

17-11. M1084/M1086 HYDRAULIC ACCUMULATOR REPLACEMENT

This task covers:
a. Removal.
b. Installation
c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-366-10-1).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Pan, Drain (Item 24, Appendix C)

Materials/Parts
Packing, Preformed (Item 187, Appendix G)
Packing, Preformed (Item 194, Appendix G)

a. Removal.

(1) Position drain pan under accumulator (1).

(2) Disconnect hose (2) from 90-degree fitting (3).

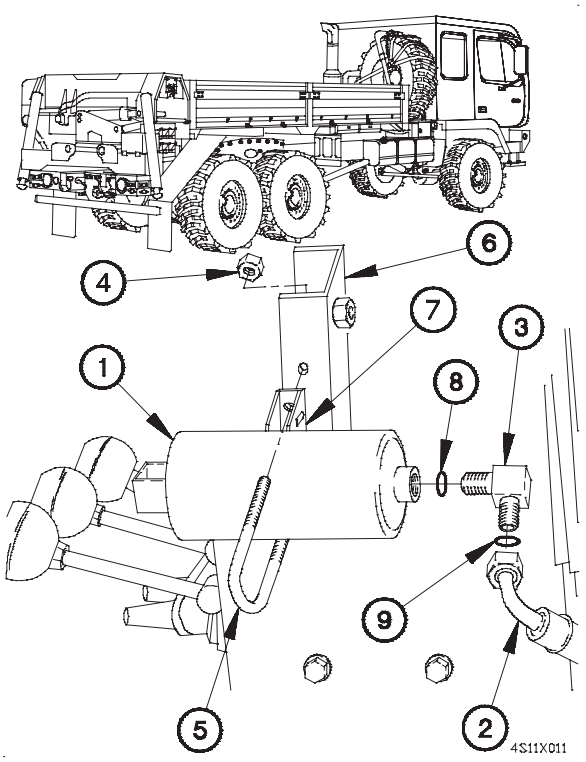
(3) Remove two nuts (4) from U-bolt (5).

(4) Remove U-bolt (5) and accumulator (1) from channel bracket (6).

(5) Remove protective bracket (7) from accumulator (1).

(6) Remove 90-degree fitting (3) from accumulator (1).

(7) Remove preformed packings (8 and 9) from 90-degree fitting (3). Discard preformed packings.



b. Installation.

(1) Install preformed packings (9 and 8) on 90-degree fitting (3).

(2) Install 90-degree fitting (3) in accumulator (1).

(3) Position accumulator (1) in protective bracket (7).

(4) Install accumulator (1) on channel bracket (6) with U-bolt (5) and two nuts (4).

(5) Connect hose (2) to 90-degree fitting (3).

c. Follow-On Maintenance.

(1) Test operate MHC (TM 9-2320-366-10-1).

(2) Check for oil leaks around accumulator.

(3) Stow MHC (TM 9-2320-366-10-1).

End of Task.

17-12. M1089 HOIST CABLE REPLACEMENT

This task covers:

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

INITIAL SETUP

Equipment Conditions
MHC erected over tool box (TM 9-2320-366-10-2).
Hook block assembly removed (para 17-4).
Hoist cable fully payed out (TM 9-2320-366-10-2).
Engine shut down (TM 9-2320-366-10-1).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Gloves, Welder's (Item 14, Appendix C)

Personnel Required
(2)

WARNING

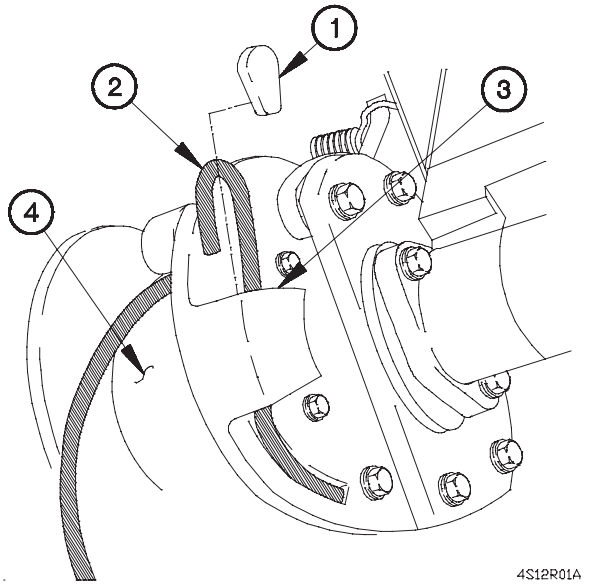
Cable can become frayed or contain broken wires. Wear heavy leather-palmed gloves when handling cable. Frayed or broken wires can injure hands. Failure to comply may result in injury to personnel.

a. Removal.

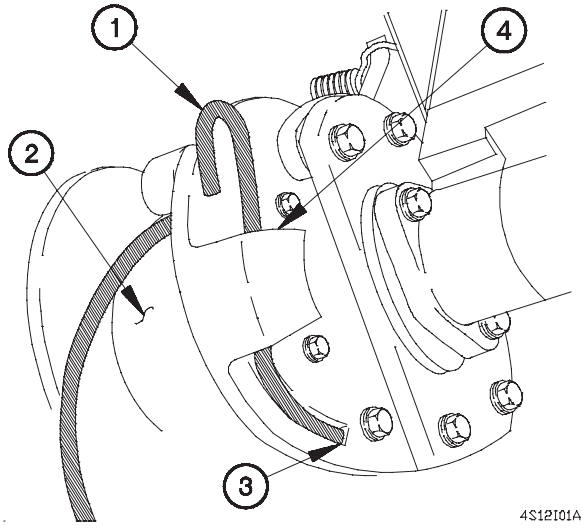
(1) Drive cable wedge (1) and cable (2) out of sleeve (3).

(2) Pull cable (2) from sleeve (3).

(3) Remove cable (2) from drum (4).



b. Installation.

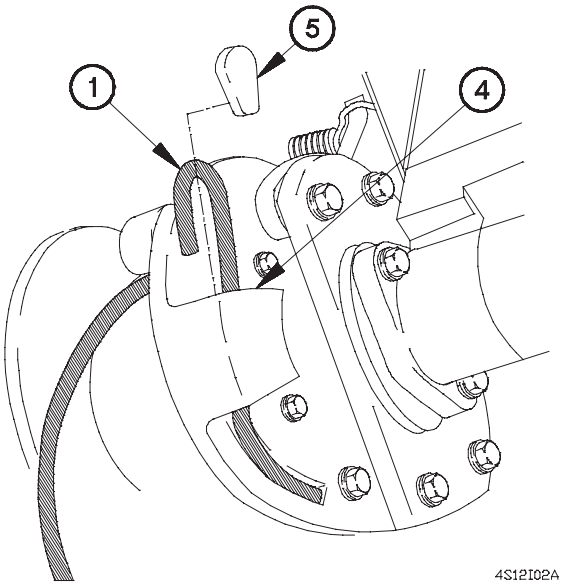


(1) Route cable (1) over and around drum (2).

(2) Insert cable (1) through slot (3) in side of drum (2).

(3) Route cable (1) up through sleeve (4) and back down into sleeve, making a loop.

17-12. M1089 HOIST CABLE REPLACEMENT (CONT)



(4) Insert wedge (5) in cable (1) loop and pull cable and wedge into sleeve (4).

(5) Drive wedge (5) and cable (1) into sleeve (4) until seated.

(6) Start engine (TM 9-2320-366-10-1).

WARNING

Never let moving cable slide through hands, even when wearing gloves. A broken wire could cut through gloves. Failure to comply may result in injury to personnel.

NOTE

After one complete layer of cable is on drum, provide tension on cable by physically pulling on cable so that cable spools on tightly. Leave enough cable unspooled to allow installation of hook block.

(7) Reel in cable onto drum (TM 9-2320-366-10-2).

c. Follow-On Maintenance.

(1) Install hook block assembly (para 17-4).

(2) Stow MHC (TM 9-2320-366-10-2).

End of Task.

17-13. M1089 HOOK BLOCK AND CABLE ASSEMBLY REPLACEMENT/REPAIR

This task covers:

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

INITIAL SETUP

Equipment Conditions
MHC erected (TM 9-2320-366-10-2).
Hoist cable extended until hook block rests on ground (TM 9-2320-366-10-2).
Engine shut down (TM 9-2320-366-10-1).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Gloves, Welders (Item 14, Appendix C)
Gloves, Rubber (Item 13, Appendix C)
Apron, Rubber (Item 3, Appendix C)
Weight, 200-250 lbs (91-113 kgs)

Material/Parts
Solvent, Dry Cleaning (Item 65, Appendix D)
Grease, Automotive and Artillery (GAA) (Item 22, Appendix D)
Pin, Cotter (Item 233, Appendix G)
Lockwasher (Item 98, Appendix G)
Washer, Key (Item 282, Appendix G)
Pin, Cotter (8) (Item 229, Appendix G)
Pin, Cotter (Item 235, Appendix G)
Nut, Self-Locking (Item 174, Appendix G)
Clamp, Wire Rope, Saddled (Item 9.1, Appendix G)

Personnel Required
(2)

References
FM 5-125
TB 43-0142

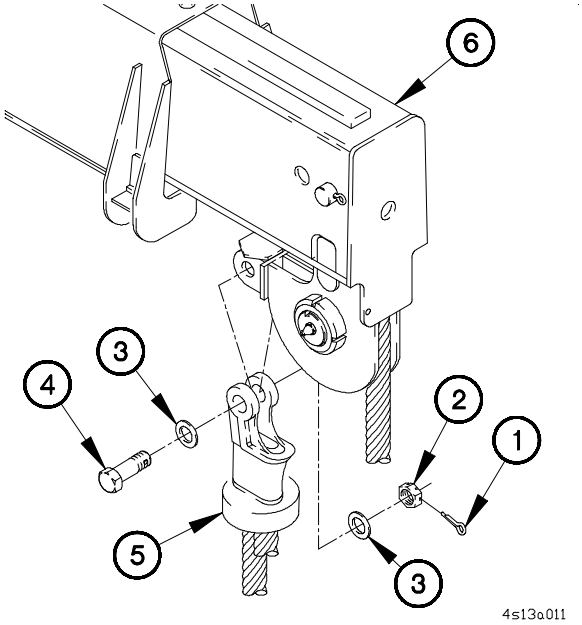
a. Removal.

WARNING

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

(1) Remove cotter pin (1) from nut (2). Discard cotter pin.

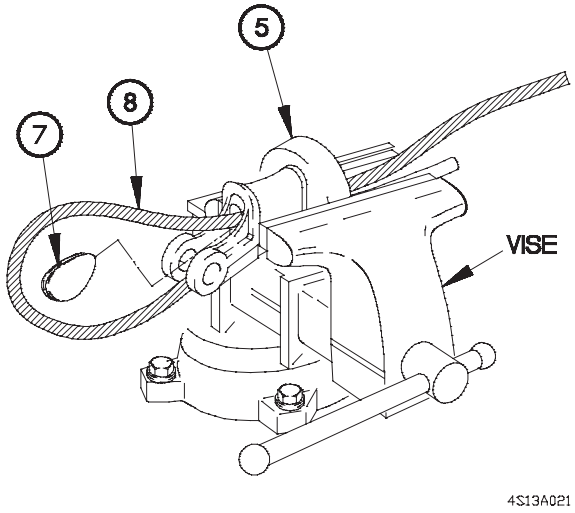
(2) Remove nut (2), two washers (3), screw (4) and wedge socket (5) from boom (6).

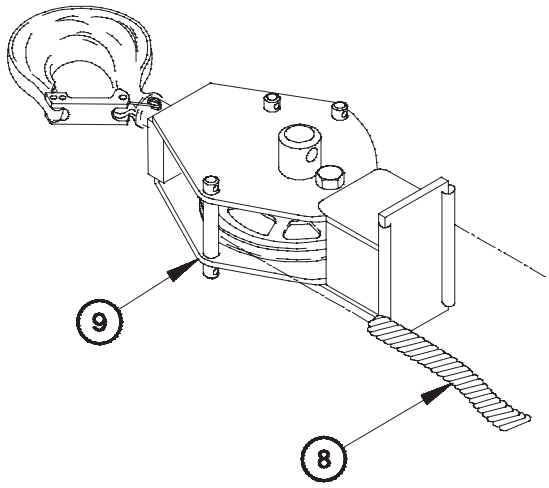


17-13. M1089 HOOK BLOCK AND CABLE ASSEMBLY REPLACEMENT/REPAIR (CONT)

(3) Place wedge socket (5) in vise.

(4) Remove wedge (7) and cable (8) from wedge socket (5).





(5) Remove hook block (9) from cable (8).

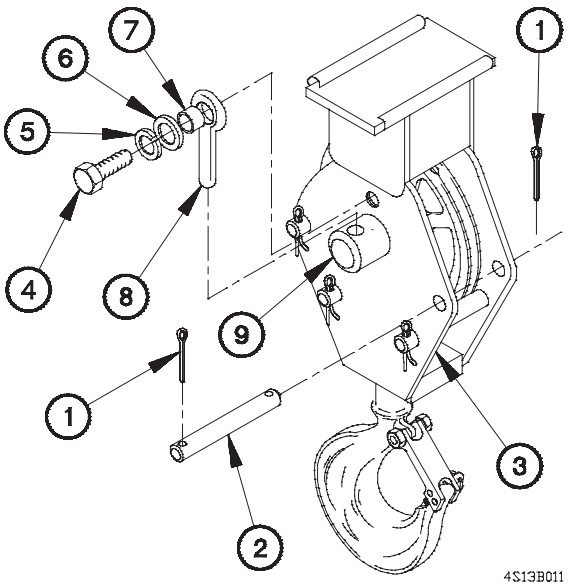
b. Disassembly.

(1) Remove eight cotter pins (1) from four straight pins (2). Discard cotter pins.

(2) Remove four straight pins (2) from hook block (3).

(3) Remove screw (4), lockwasher (5), washer (6), and bushing (7) from hook block (3).

(4) Remove eye bolt (8) from shouldered shaft (9).



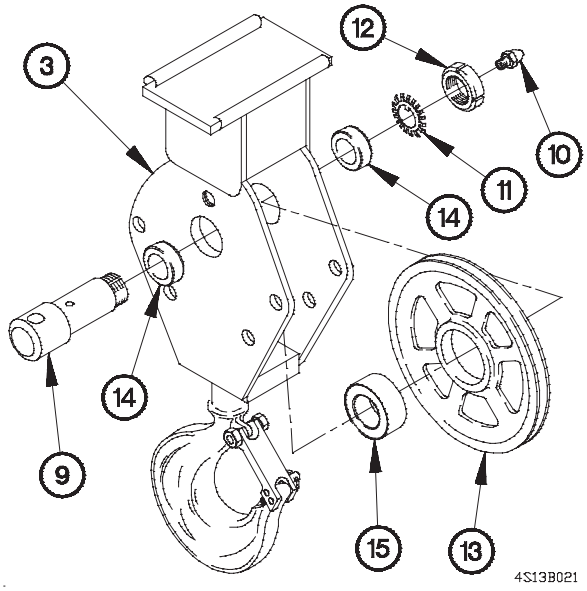
(5) Remove lubrication fitting (10) from shouldered shaft (9).

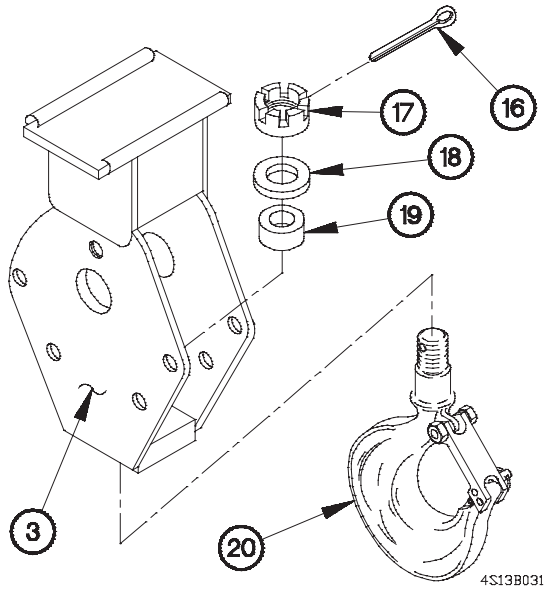
(6) Bend down tabs of key washer (11).

(7) Remove nut (12), key washer (11) and shouldered shaft (9) from hook block (3). Discard key washer.

(8) Remove cable pulley (13) and two sleeve spacers (14) from hook block (3).

(9) Remove roller bearing (15) from cable pulley (13).





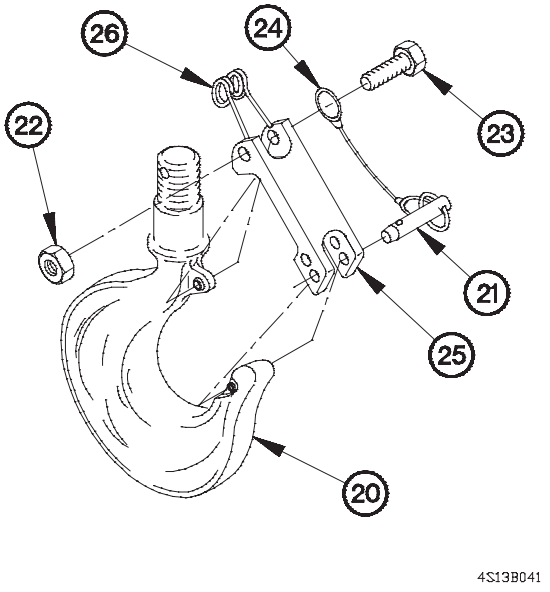
(10) Remove cotter pin (16) from slotted nut (17). Discard cotter pin.

(11) Remove slotted nut (17), washer (18), thrust bearing (19), and swivel hook (20) from hook block (3).

(12) Remove safety pin (21) from swivel hook (20).

(13) Remove self-locking nut (22), screw (23), and lanyard (24) from latch (25). Discard self-locking nut.

(14) Remove latch (25) and spring (26) from swivel hook (20).



17-13. M1089 HOOK BLOCK AND CABLE ASSEMBLY REPLACEMENT/REPAIR (CONT)

c. 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 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.**

(1) Clean all metal parts with dry cleaning solvent.

NOTE

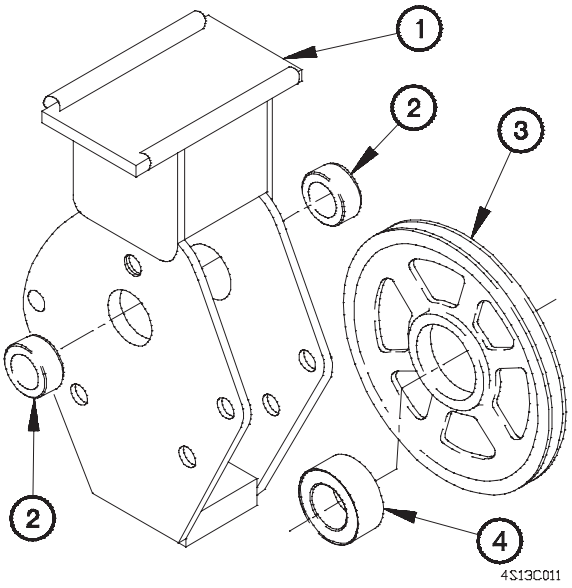
Replace any part that fails visual inspection.

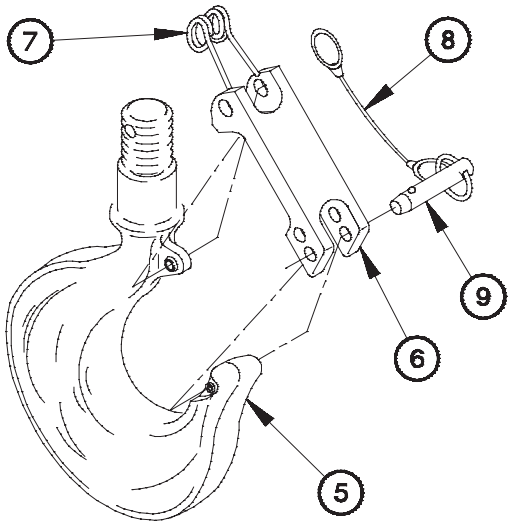
(2) Inspect hook block (1) for cracks, pitting, corrosion, and broken welds.

(3) Inspect two sleeve bushings (2) for cracks, galling, and corrosion.

(4) Inspect cable pulley (3) for cracks, pitting, and corrosion.

(5) Inspect roller bearing (4) cracks, pitting, corrosion, and looseness.





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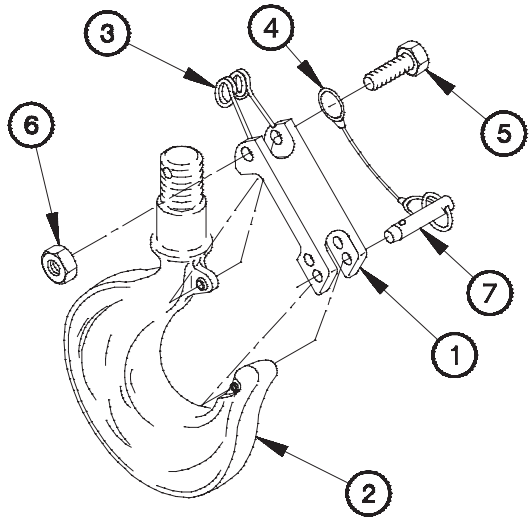
(6) Inspect swivel hook (5), latch (6), and spring (7) for cracks, pitting, and corrosion.

(7) Inspect lanyard (8) for frayed wires and corrosion.

(8) Check safety pin (9) for tight fit in latch (6).

d. Assembly.



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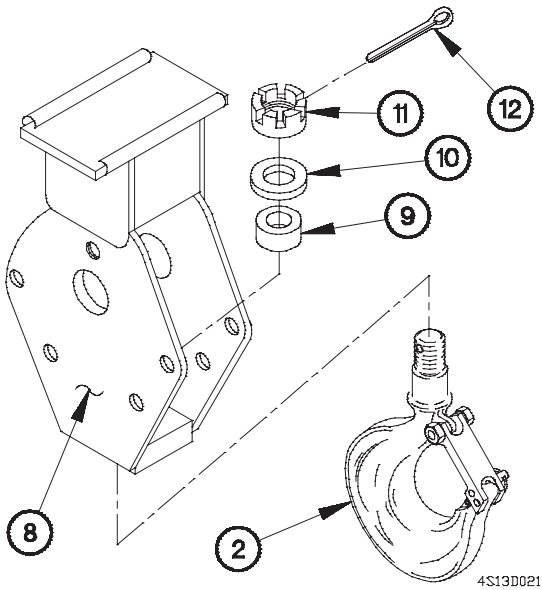
(1) Install latch (1) on swivel hook (2) with spring (3), lanyard (4), screw (5), and nut (6).

(2) Install safety pin (7) in latch (1).



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(3) Install swivel hook (2) on hook block (8) with thrust bearing (9), washer (10) and slotted nut (11).

(4) Install cotter pin (12) in slotted nut (11).

17-13. M1089 HOOK BLOCK AND CABLE ASSEMBLY REPLACEMENT/REPAIR (CONT)

(5) Pack roller bearing (13) with grease.

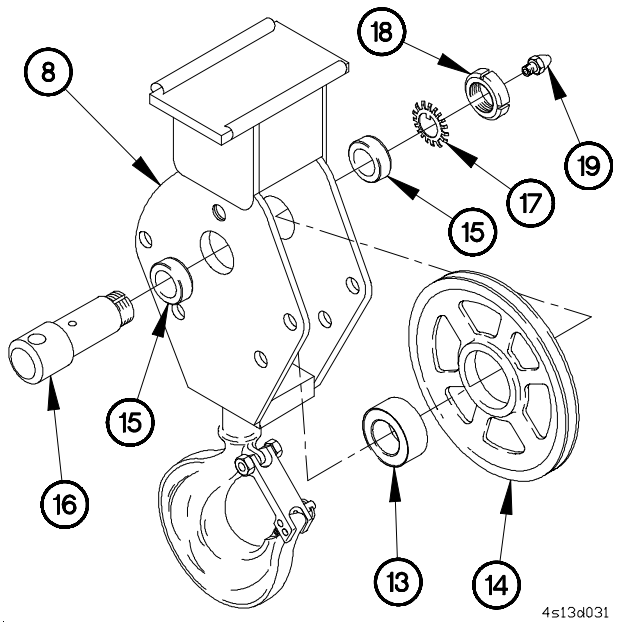
(6) Install roller bearing (13) in cable pulley (14).

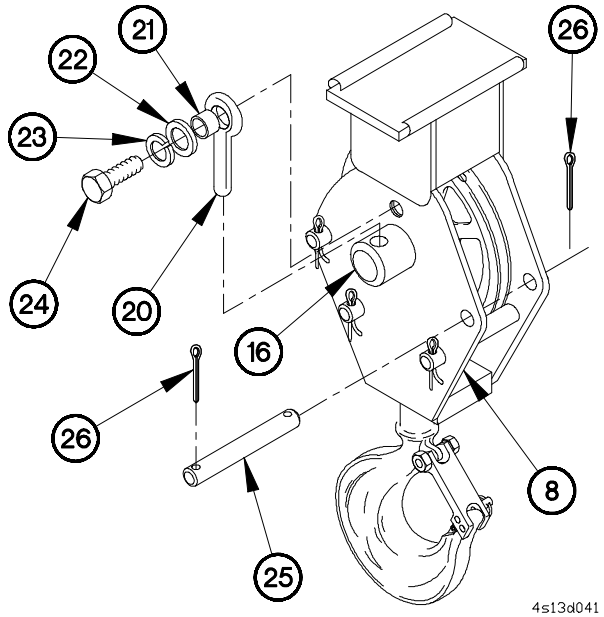
(7) Install cable pulley (14) and two sleeve bushings (15) in hook block (8) with shouldered shaft (16), key washer (17), and nut (18).

(8) Bend up tabs of key washer (17) in slots of nut (18).

(9) Install lubrication fitting (19) in shouldered shaft (16).

(10) Apply grease to lubrication fitting (19).





(11) Install eye bolt (20) in shouldered shaft (16).

(12) Install bushing (21), washer (22), lockwasher (23), and screw (24) in hook block (8).

(13) Install four straight shafts (25) in hook block (8).

(14) Install eight cotter pins (26) in four straight shafts (25).

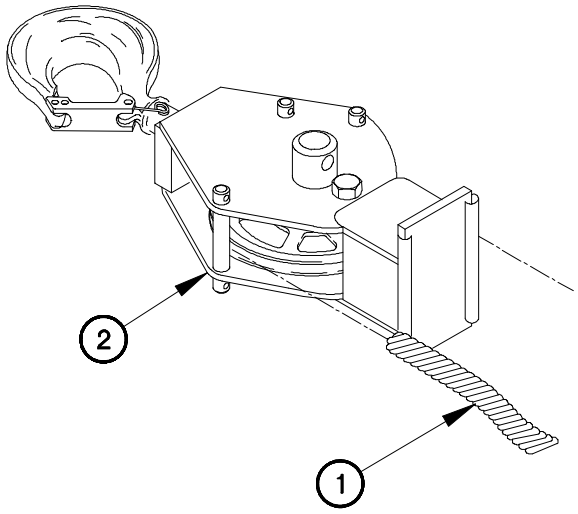
e. Installation.

WARNING

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

NOTE

- If the end of the cable is welded, the welded end should be cut off. This will allow the distortion of the cable strands, caused by the sharp bend around the wedge, to adjust themselves at the end of the line.
- Make sure there are no rough edges on the wedge socket.



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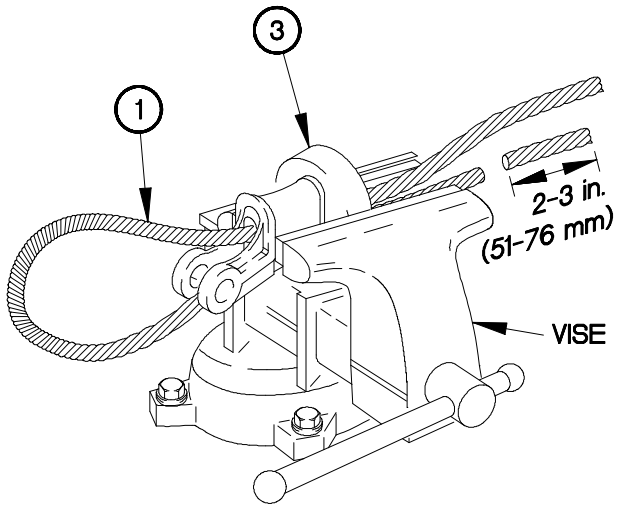
(1) Cut off a short length of cable 2-3 in. (51-76 mm) and set aside.

(2) Route cable (1) through hook block sheave (2).



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(3) Place wedge socket (3) in vise.

(4) Make a loop in the cable (1) and put free (dead) end of cable back through hole in wedge socket (3).

NOTE

The dead end of the cable should extend from the socket for a distance of 6 to 9 times the cable diameter.

(5) Position cable (1) and wedge (4) in wedge socket (3).

(6) Drive wedge (4) and cable loop into wedge socket (3).

17-13. M1089 HOOK BLOCK AND CABLE ASSEMBLY REPLACEMENT/REPAIR (CONT)

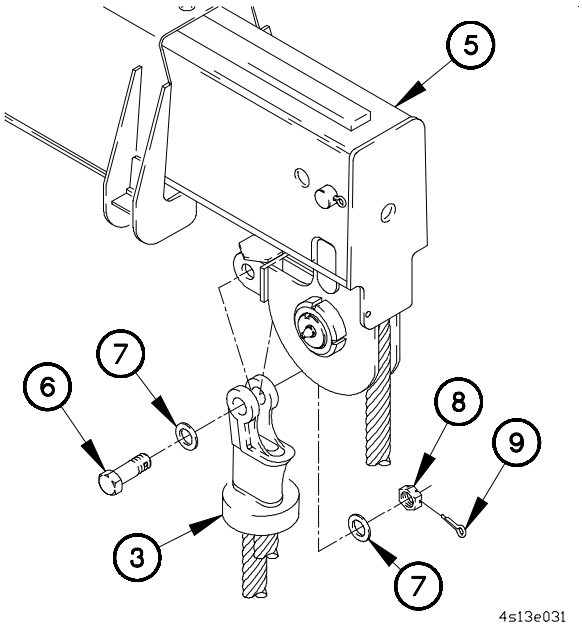
NOTE

The dead end of the cable should never be clamped to the live end.

(7) Install short extra cable piece to the dead end of the cable as close to the wedge (4) possible with two clamps, brackets, and nuts..

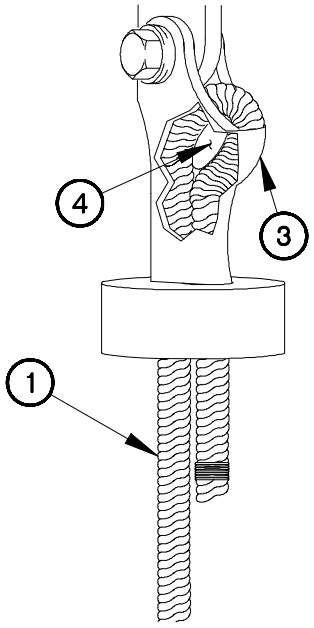
NOTE

The U-bolt part of the clamp should bear against the dead end of the cable and the saddle of the clamp should be against the short extra piece.



(8) Install wedge socket (3) on the boom (5) with screw (6), two washers (7), and nut (8).

(9) Install cotter pin (9) in nut (8).



NOTE

Attach weight (250-500 lbs) to hook block to seat cable and wedge in wedge socket.

(10) Seat cable (1) and wedge (4) in wedge socket (3).

f. Follow-On Maintenance.

Notify DS maintenance to perform MHC load test.

End of Task.

17-14. M1089 MATERIAL HANDLING CRANE (MHC) HOSES REPLACEMENT

This task covers:

a. Hydraulic Hose Locations

b. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions
MHC positioned on boom rest (TM 9-2320-366-10-2).
Engine shut down (TM 9-2320-366-10-1).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Pan, Drain (Item 24, Appendix C)
Wrench, Torque, 0-175 lb-ft (Item 58, Appendix C)
Crowfoot Attachment, Socket Wrench (Item 12, Appendix B)
Crowfoot Attachment, Socket Wrench (Item 11, Appendix B)
Crowfoot Attachment, Socket Wrench (Item 5, Appendix B)

Tools and Special Tools (Cont)
Crowfoot Attachment, Socket Wrench (Item 9, Appendix B)
Crowfoot Attachment, Socket Wrench (Item 6, Appendix B)
Crowfoot Attachment, Socket Wrench (Item 14, Appendix B)
Crowfoot Attachment, Socket Wrench (Item 13, Appendix B)
Goggles, Industrial (Item 15, Appendix C)

Materials/Parts
Dispenser, Pressure Sensitive Adhesive Tape (Item 20, Appendix D)
Cap and Plug Set (Item 14, Appendix D)
Ties, Cable, Plastic (Item 69, Appendix D)

a. Hydraulic 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.**
- **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 hoses and connection points to prevent contamination of M1089 MHC hydraulic system. Failure to comply may result in damage to equipment.

NOTE

- Refer to **Table 17-3. M1089 Material Handling Crane (MHC) Hydraulic Hose Locations** for locations of hydraulic hoses on the M1089 MHC. It may not be necessary to remove all hydraulic hoses at one time.
- Tag hoses and connection points prior to removal.
- Remove plastic cable ties as required.
- Remove clamps and support brackets as required.

NOTE

- Position drain pan to collect oil.

Figure 17-3. M1089 Material Handling Crane (MHC) Hydraulic Hose Locations

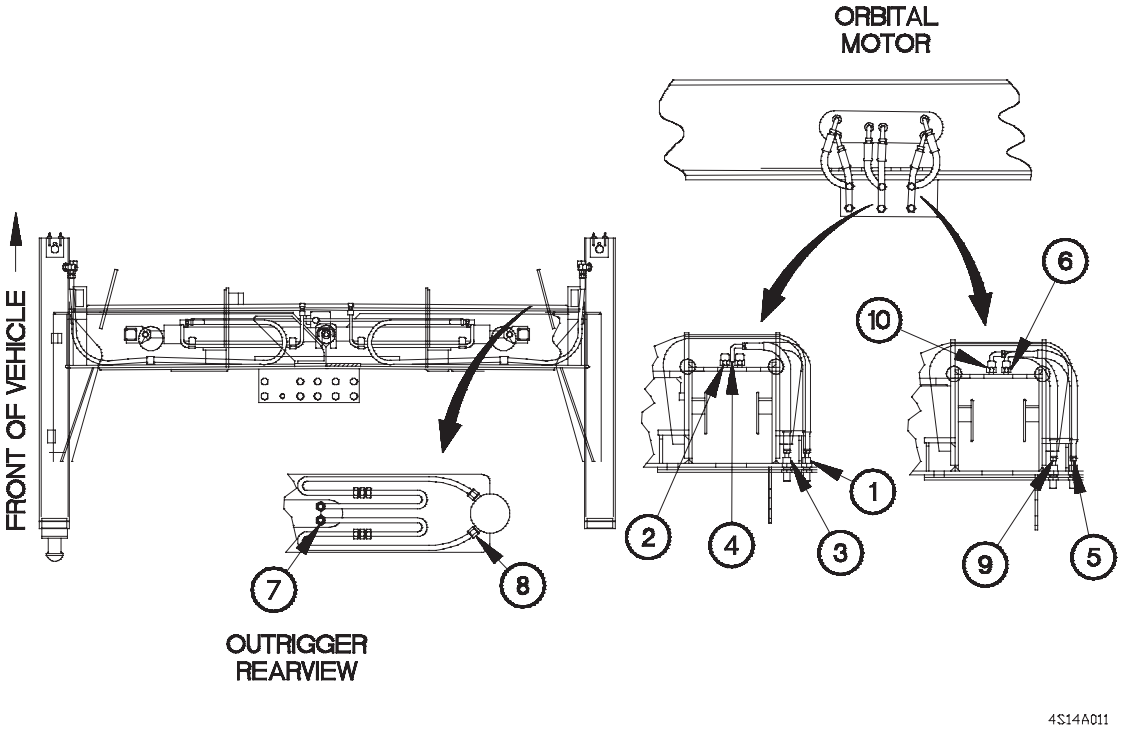


Table 17-3. M1089 Material Handling Crane (MHC) Hydraulic Hose Locations

Hydraulic Hose Name	From	To	Torque
Outrigger Telescope Extent	Bulkhead fitting (1)	Outrigger telescope cylinder control valve fitting (2)	32-35 lb-ft (43-47 N·m)
Outrigger Telescope Retract	Bulkhead fitting (3)	Outrigger telescope cylinder control valve fitting (4)	32-35 lb-ft (43-47 N·m)
Outrigger Jack Left Extend	Bulkhead fitting (5)	Outrigger box bulkhead fitting (6)	32-35 lb-ft (43-47 N·m)
Outrigger Box Left Extend	Outrigger box fitting (7)	Outrigger jack left cylinder fitting (8)	32-35 lb-ft (43-47 N·m)
Outrigger Jack Left Retract	Bulkhead fitting (9)	Outrigger box bulkhead fitting (10)	32-35 lb-ft (43-47 N·m)

17-14. M1089 MATERIAL HANDLING CRANE (MHC) HOSES REPLACEMENT (CONT)

Figure 17-3. M1089 Material Handling Crane (MHC) Hydraulic Hose Locations (Cont)

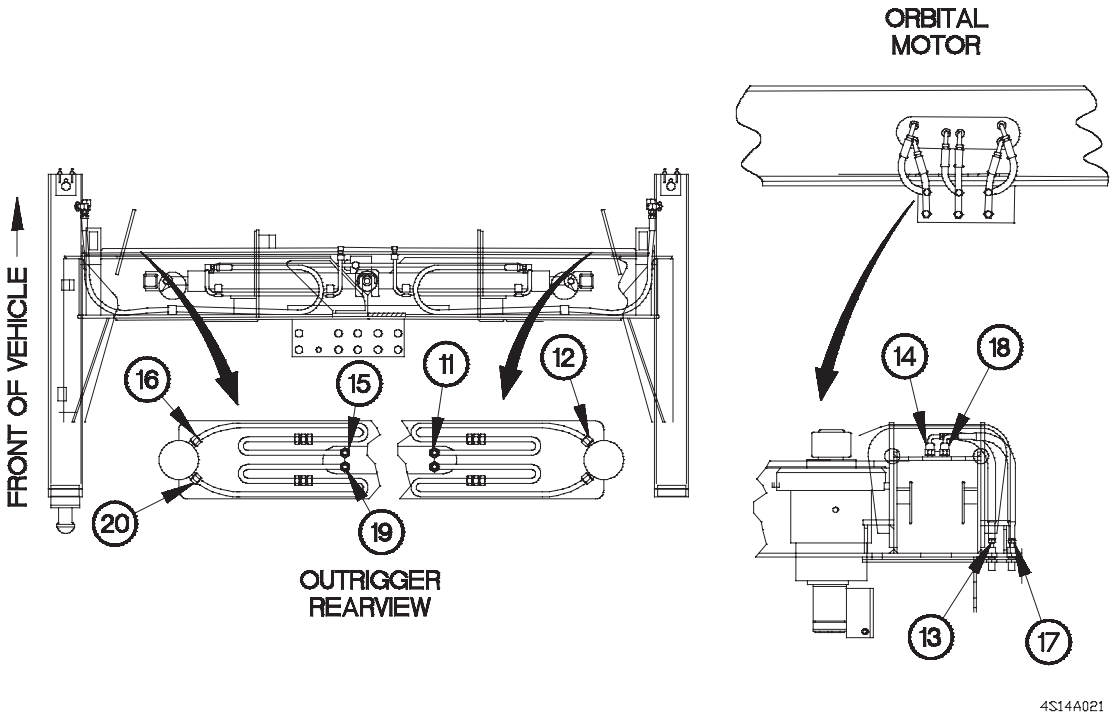


Table 17-3. M1089 Material Handling Crane (MHC) Hydraulic Hose Locations (Cont)

Hydraulic Hose Name	From	To	Torque
Outrigger Jack Left Retract	Outrigger box fitting (11)	Outrigger jack left cylinder fitting (12)	32-35 lb-ft (43-47 N·m)
Outrigger Jack Right Extend	Bulkhead fitting (13)	Outrigger box bulkhead fitting (14)	32-35 lb-ft (43-47 N·m)
Outrigger Box Right Extend	Outrigger box fitting (15)	Outrigger jack right cylinder fitting (16)	32-35 lb-ft (43-47 N·m)
Outrigger Jack Right Retract	Bulkhead fitting (17)	Outrigger box bulkhead fitting (18)	32-35 lb-ft (43-47 N·m)
Outrigger Box Right Retract	Outrigger box fitting (19)	Outrigger jack right cylinder fitting (20)	32-35 lb-ft (43-47 N·m)

Figure 17-3. M1089 Material Handling Crane (MHC) Hydraulic Hose Locations (Cont)

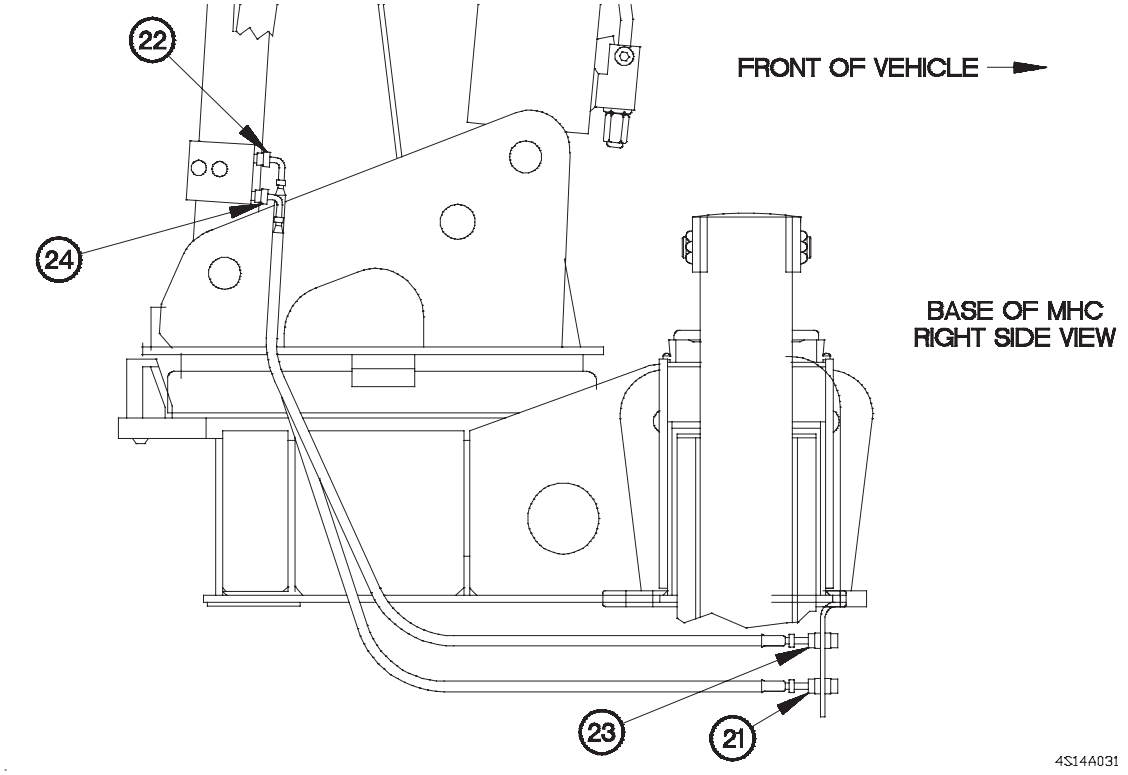


Table 17-3. M1089 Material Handling Crane (MHC) Hydraulic Hose Locations (Cont)

Hydraulic Hose Name	From	To	Torque
Mast Erection Up	Bulkhead fitting (21)	Mast erection cylinder holding valve fitting (22)	32-35 lb-ft (43-47 N·m)
Mast Erection Down	Bulkhead fitting (23)	Mast erection cylinder holding valve fitting (24)	32-35 lb-ft (43-47 N·m)

17-14. M1089 MATERIAL HANDLING CRANE (MHC) HOSES REPLACEMENT (CONT)

Figure 17-3. M1089 Material Handling Crane (MHC) Hydraulic Hose Locations (Cont)

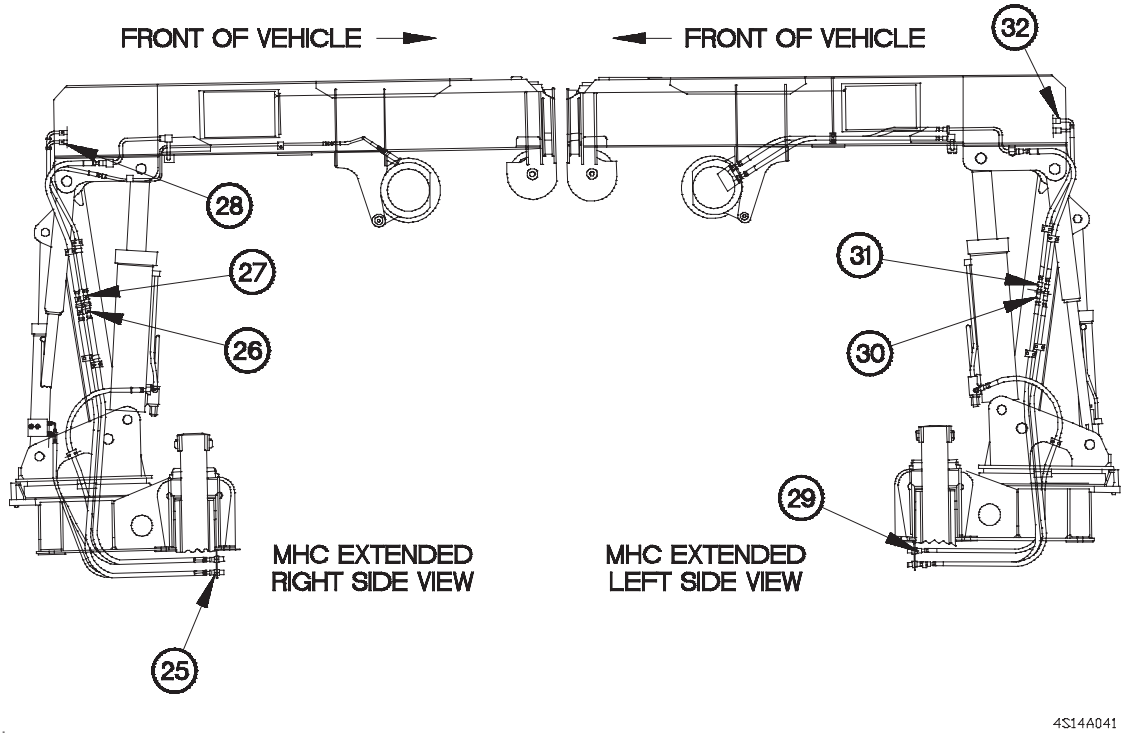


Table 17-3. M1089 Material Handling Crane (MHC) Hydraulic Hose Locations (Cont)

Hydraulic Hose Name	From	To	Torque
Boom Telescope Out Lower	Bulkhead fitting (25)	Mast bulkhead connector fitting (26)	32-35 lb-ft (43-47 N·m)
Boom Telescope Out Upper	Mast bulkhead fitting connector (27)	Boom telescope cylinder holding valve fitting (28)	32-35 lb-ft (43-47 N·m)
Boom Telescope In Lower	Bulkhead fitting (29)	Mast bulkhead connector fitting (30)	32-35 lb-ft (43-47 N·m)
Boom Telescope In Upper	Mast bulkhead connector fitting (31)	Boom telescope cylinder holding valve fitting (32)	32-35 lb-ft (43-47 N·m)

Figure 17-3. M1089 Material Handling Crane (MHC) Hydraulic Hose Locations (Cont)

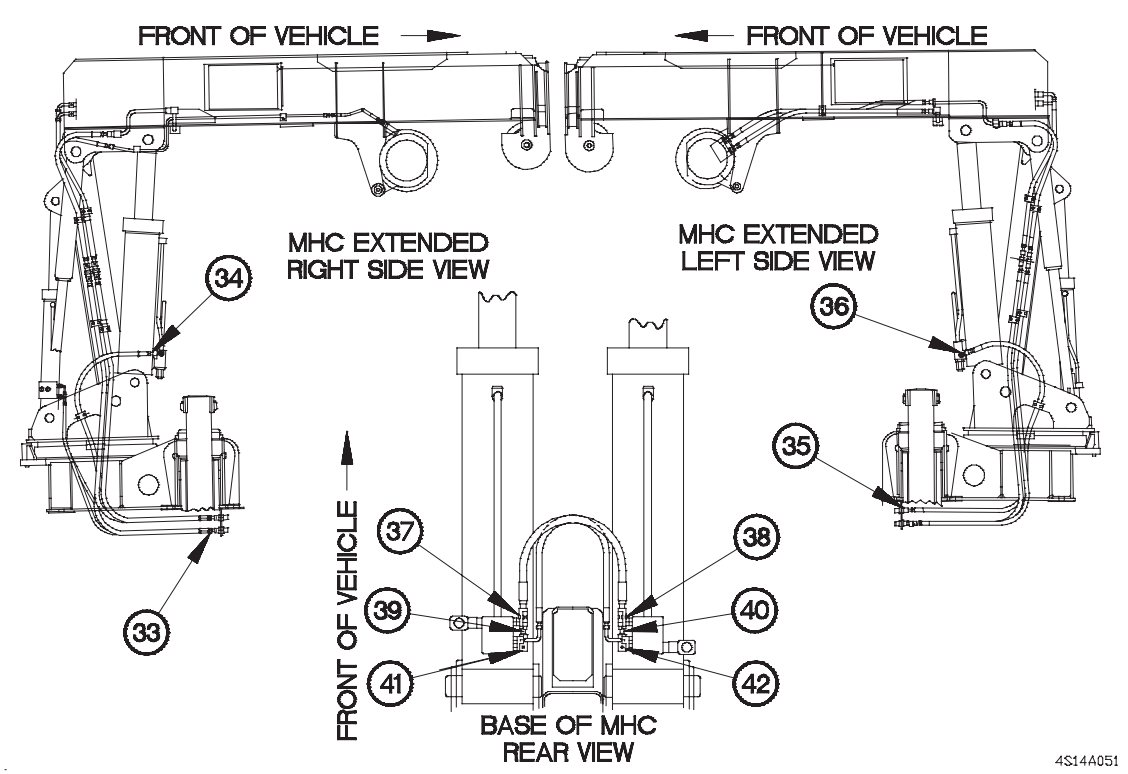


Table 17-3. M1089 Material Handling Crane (MHC) Hydraulic Hose Locations (Cont)

Hydraulic Hose Name	From	To	Torque
Boom Lift Up	Bulkhead fitting (33)	Right boom lift cylinder holding valve fitting (34)	32-35 lb-ft (43-47 N·m)
Boom Lift Down	Solenoid valve tube fitting (35)	Left boom lift cylinder holding valve fitting (36)	32-35 lb-ft (43-47 N·m)
Rod Tie	Right boom lift cylinder holding valve fitting (37)	Left boom lift cylinder holding valve fitting (38)	32-35 lb-ft (43-47 N·m)
Equalization	Right boom lift cylinder holding valve fitting (39)	Left boom lift cylinder holding valve fitting (40	32-35 lb-ft (43-47 N·m)
Piston Tie	Right boom lift cylinder holding valve fitting (41)	Left boom lift cylinder holding valve fitting (42)	32-35 lb-ft (43-47 N·m)

17-14. M1089 MATERIAL HANDLING CRANE (MHC) HOSES REPLACEMENT (CONT)

Figure 17-3. M1089 Material Handling Crane (MHC) Hydraulic Hose Locations (Cont)

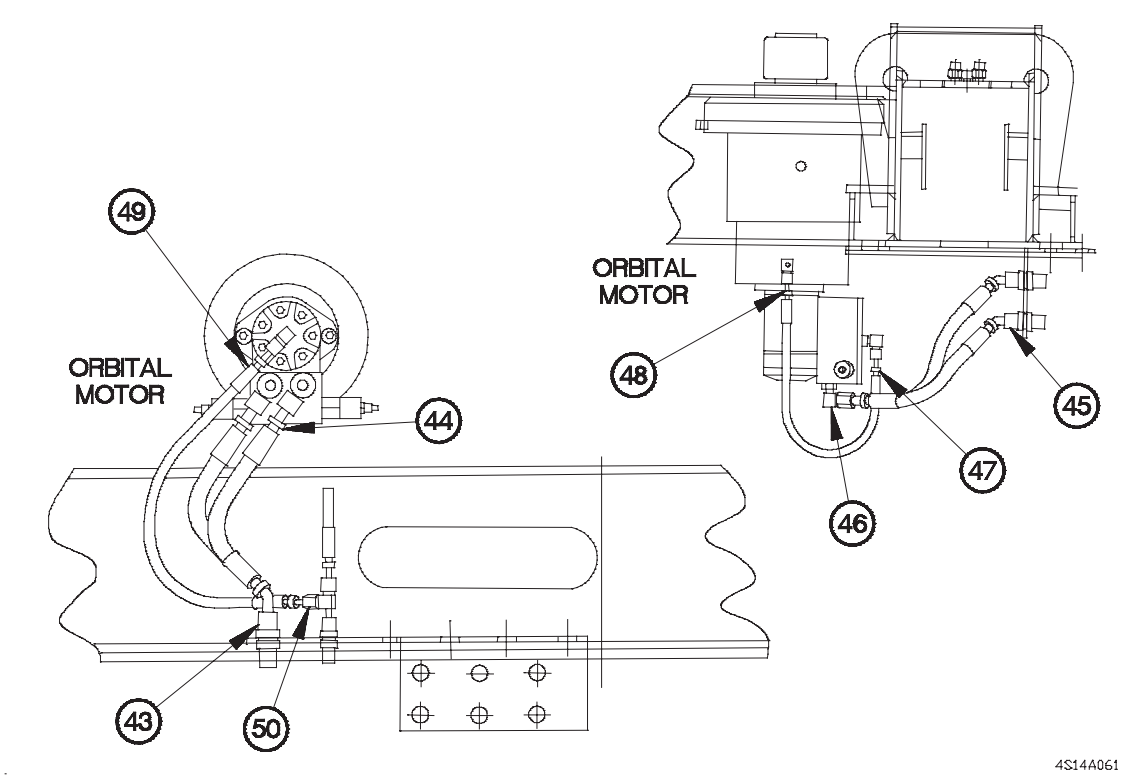


Table 17-3. M1089 Material Handling Crane (MHC) Hydraulic Hose Locations (Cont)

Hydraulic Hose Name	From	To	Torque
Swing Left	Bulkhead fitting (43)	Swing motor control valve fitting (44)	32-35 lb-ft (43-47 N·m)
Swing Right	Bulkhead fitting (45)	Swing motor control valve fitting (46)	32-35 lb-ft (43-47 N·m)
Brake Release	Swing motor control valve fitting (47)	Swing motor fitting (48)	18-20 lb-ft (24-27 N·m)
Motor Drain	Swing motor fitting (49)	Three way tee fitting (50)	18-20 lb-ft (24-27 N·m)

Figure 17-3. M1089 Material Handling Crane (MHC) Hydraulic Hose Locations (Cont)

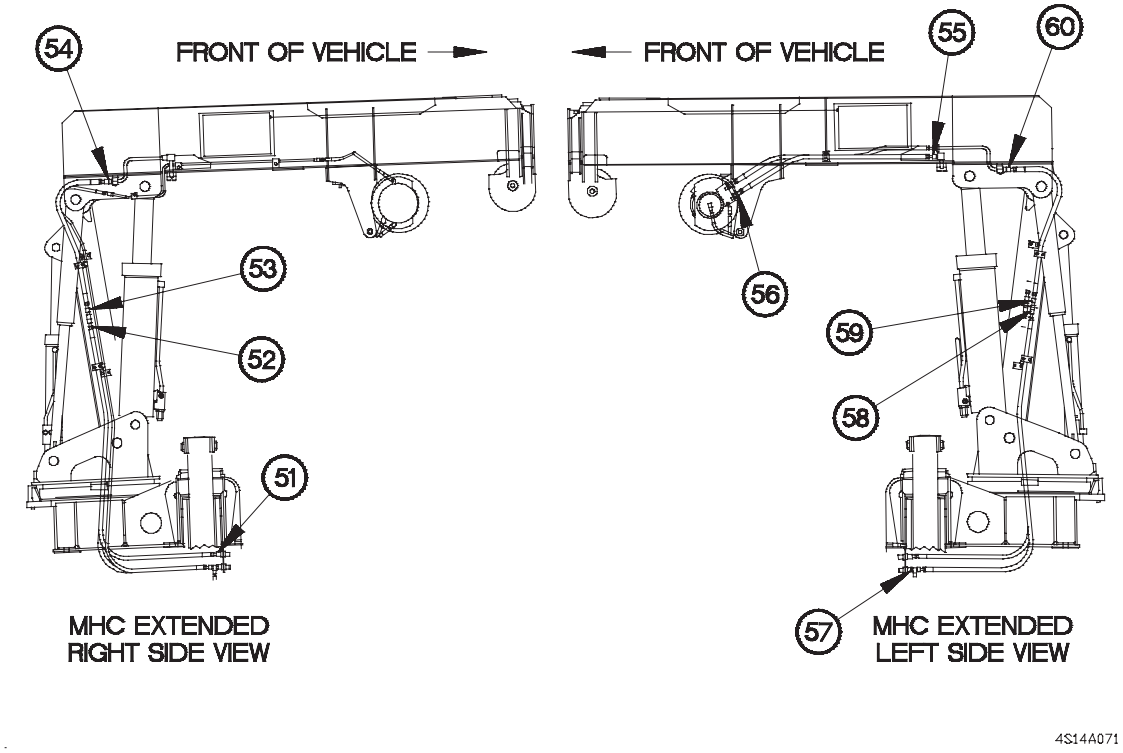


Table 17-3. M1089 Material Handling Crane (MHC) Hydraulic Hose Locations (Cont)

Hydraulic Hose Name	From	To	Torque
Hoist Down Lower	Bulkhead fitting (51)	Mast Bulkhead connector fitting (52)	32-35 lb-ft (43-47 N·m)
Hoist Down Upper	Mast bulkhead connector fitting (53)	Boom head fitting (54)	32-35 lb-ft (43-47 N·m)
Hoist Down Boom Lower	Right boom head cross-over tube fitting (55)	Hoist motor control valve fitting (56)	32-35 lb-ft (43-47 N·m)
Hoist Up Lower	Bulkhead fitting (57)	Mast bulkhead connector fitting (58)	32-35 lb-ft (43-47 N·m)
Hoist Up Upper	Mast bulkhead connector fitting (59)	Boom head fitting (60)	32-35 lb-ft (43-47 N·m)

17-14. M1089 MATERIAL HANDLING CRANE (MHC) HOSES REPLACEMENT (CONT)

Figure 17-3. M1089 Material Handling Crane (MHC) Hydraulic Hose Locations (Cont)

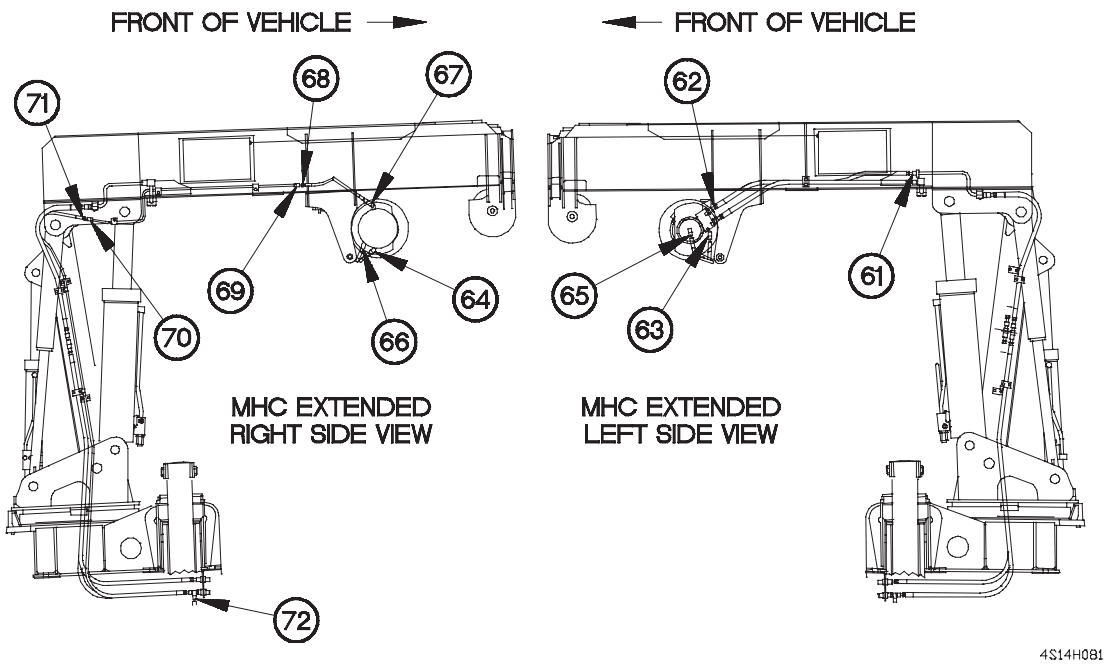


Table 17-3. M1089 Material Handling Crane (MHC) Hydraulic Hose Locations (Cont)

Hydraulic Hose Name	From	To	Torque
Hoist Up Boom Upper	Boom head fitting (61)	Hoist motor control valve fitting (62)	32-35 lb-ft (43-47 N·m)
Hoist Motor Brake Release	Hoist motor control valve fitting (63)	Hoist motor fitting (64)	18-20 lb-ft (24-27 N·m)
Motor Drain	Hoist motor fitting (65)	Hoist motor fitting (66)	18-20 lb-ft (24-27 N·m)
Hoist Drain Boom Forward	Hoist motor fitting (67)	Hoist drain boom fitting (68)	18-20 lb-ft (24-27 N·m)
Hoist Drain Boom Center	Hoist drain boom fitting (69)	Hoist drain mast hose fitting (70)	18-20 lb-ft (24-27 N·m)
Hoist Drain Mast	Hoist drain boom fitting (71)	Three way tee fitting (72)	18-20 lb-ft (24-27 N·m)

b. Follow-On Maintenance.

(1) Fill hydraulic tank (Appendix H).

(2) Test operate MHC (TM 9-2320-366-10-2).

(3) Check for oil leaks.

(4) Stow MHC (TM 9-2320-366-10-2).

End of Task.

17-15. M1089 MATERIAL HANDLING CRANE (MHC) TUBING REPLACEMENT

This task covers:

a. Hydraulic Tubing Locations

b. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions
MHC positioned on boom rest (TM 9-2320-366-10-2).
Engine shut down (TM 9-2320-366-10-1).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Goggles, Industrial (Item 15, Appendix C)
Pan, Drain (Item 24, Appendix C)

Materials/Parts
Dispenser, Pressure Sensitive Adhesive Tape (Item 20, Appendix D)
Cap and Plug Set (Item 14, Appendix D)
Ties, Cable, Plastic (Item 69, Appendix D)

a. Hydraulic Tubing 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.**
- **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 tubes and connection points to prevent contamination of M1089 MHC hydraulic system. Failure to comply may result in damage to equipment.

NOTE

- Refer to **Table 17-4. M1089 Material Handling Crane (MHC) Hydraulic Tubing Locations** for locations of hydraulic tubing on the M1089 MHC. It may not be necessary to remove all hydraulic tubes at one time.
- Tag tubes and connection points prior to removal.
- Remove plastic cable ties as required.
- Remove clamps and support brackets as required.
- Position drain pan to collect oil.

17-15. M1089 MATERIAL HANDLING CRANE (MHC) TUBING REPLACEMENT (CONT)

Figure 17-4. M1089 Material Handling Crane (MHC) Hydraulic Tubing Locations

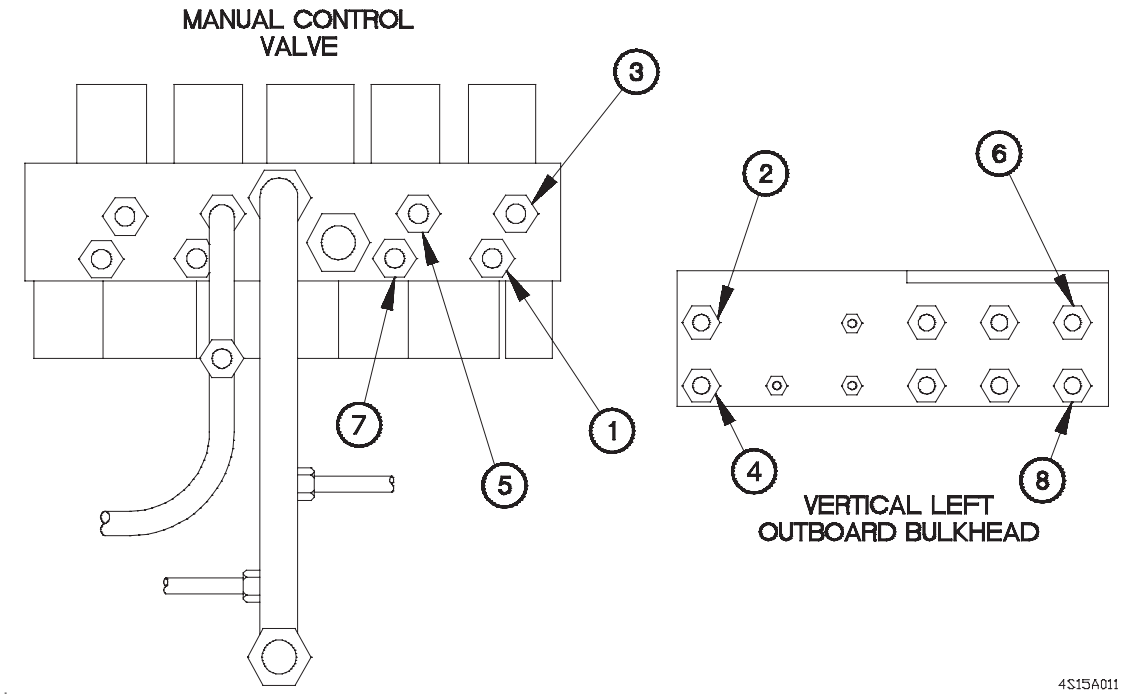


Table 17-4. M1089 Material Handling Crane (MHC) Hydraulic Tubing Locations

Hydraulic Tube Name	From	To	Torque
Swing Clockwise	Swing manual control valve fitting (1)	Vertical left outboard bulkhead fitting (2)	43-47 lb-ft (58-64 N·m)
Swing Counterclockwise	Swing manual control valve fitting (3)	Vertical left outboard bulkhead fitting (4)	43-47 lb-ft (58-64 N·m)
Boom Telescope In	Boom telescope manual control valve fitting (5)	Vertical right outboard bulkhead fitting (6)	43-47 lb-ft (58-64 N·m)
Boom Telescope Out	Boom telescope manual control valve fitting (7)	Vertical right outboard bulkhead fitting (8)	43-47 lb-ft (58-64 N·m)

Figure 17-4. M1089 Material Handling Crane (MHC) Hydraulic Tubing Locations (Cont)

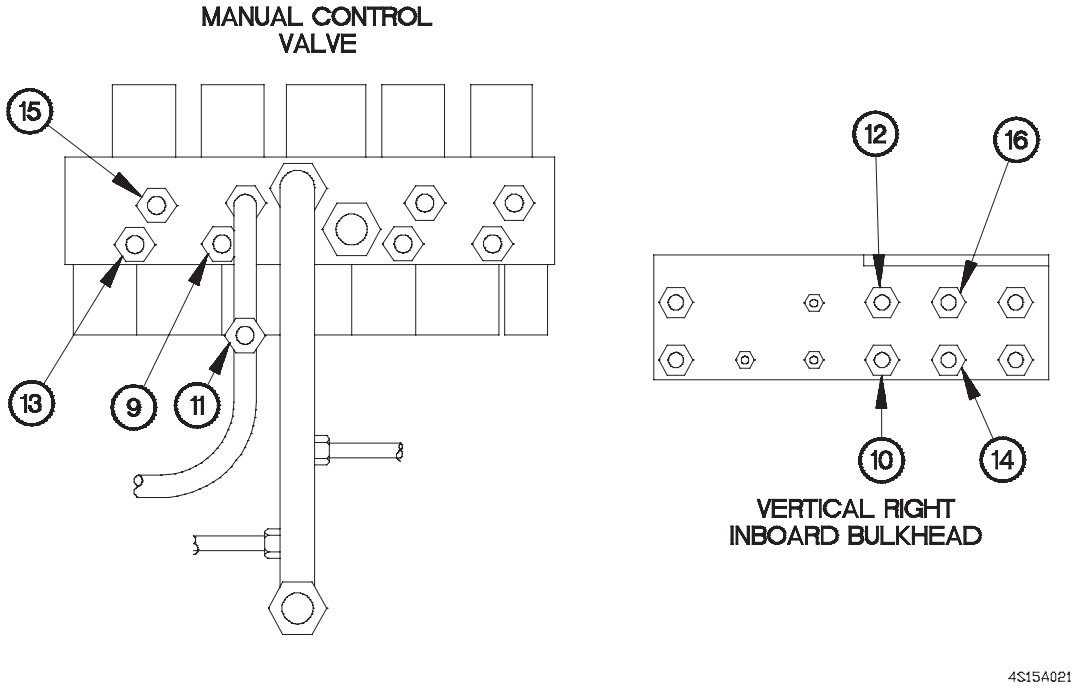


Table 17-4. M1089 Material Handling Crane (MHC) Hydraulic Tubing Locations (Cont)

Hydraulic Tube Name	From	To	Torque
Boom Lift Up	Boom lift manual control valve fitting (9)	Vertical right inboard fitting (10)	43-47 lb-ft (58-64 N·m)
Boom Lift Down	Boom lift manual control valve fitting (11)	Vertical right inboard fitting (12)	43-47 lb-ft (58-64 N·m)
Hoist Up	Hoist manual control valve fitting (13)	Vertical right center fitting (14)	43-47 lb-ft (58-64 N·m)
Hoist Down	Hoist manual control valve fitting (15)	Vertical right center fitting (16)	43-47 lb-ft (58-64 N·m)

17-15. M1089 MATERIAL HANDLING CRANE (MHC) TUBING REPLACEMENT (CONT)

Figure 17-4. M1089 Material Handling Crane (MHC) Hydraulic Tubing Locations (Cont)

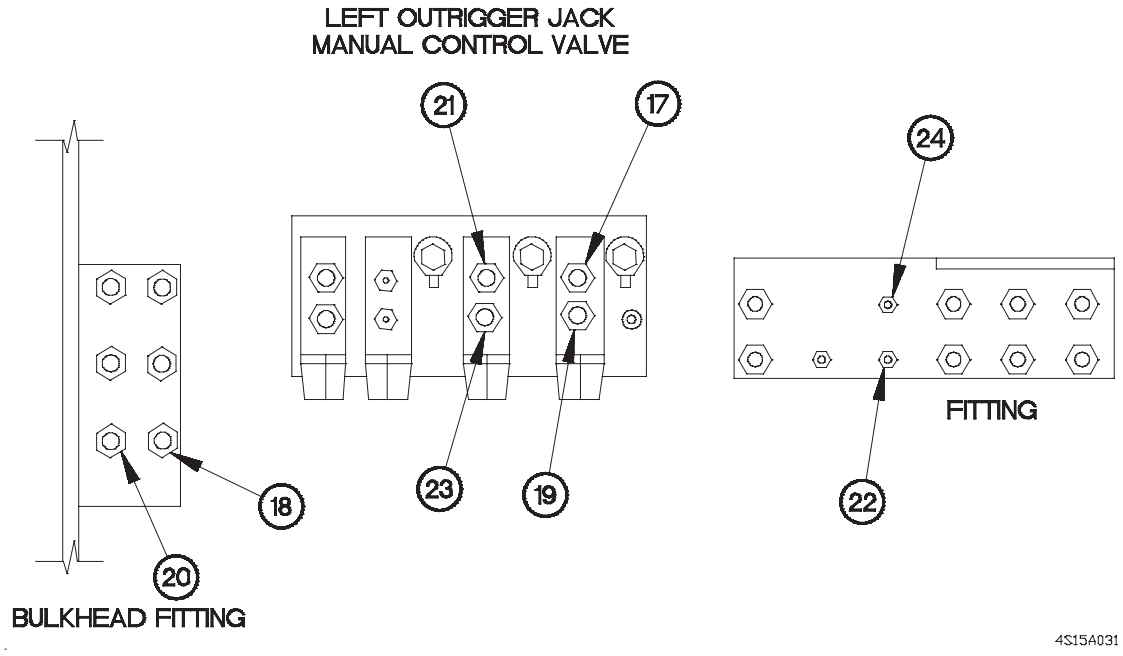


Table 17-4. M1089 Material Handling Crane (MHC) Hydraulic Tubing Locations (Cont)

Hydraulic Tube Name	From	To	Torque
Left Outrigger Jack Up	Left outrigger jack manual control valve fitting (17)	Bulkhead fitting (18)	24-27 lb-ft (33-37 N·m)
Left Outrigger Jack Down	Left outrigger jack manual control valve fitting (19)	Bulkhead fitting (20)	24-27 lb-ft (33-37 N·m)
Mast Erection Up	Mast erection manual control valve fitting (21)	Fitting (22)	24-27 lb-ft (33-37 N·m)
Mast Erection Down	Mast erection manual control valve fitting (23)	Fitting (24)	24-27 lb-ft (33-37 N·m)

Figure 17-4. M1089 Material Handling Crane (MHC) Hydraulic Tubing Locations (Cont)

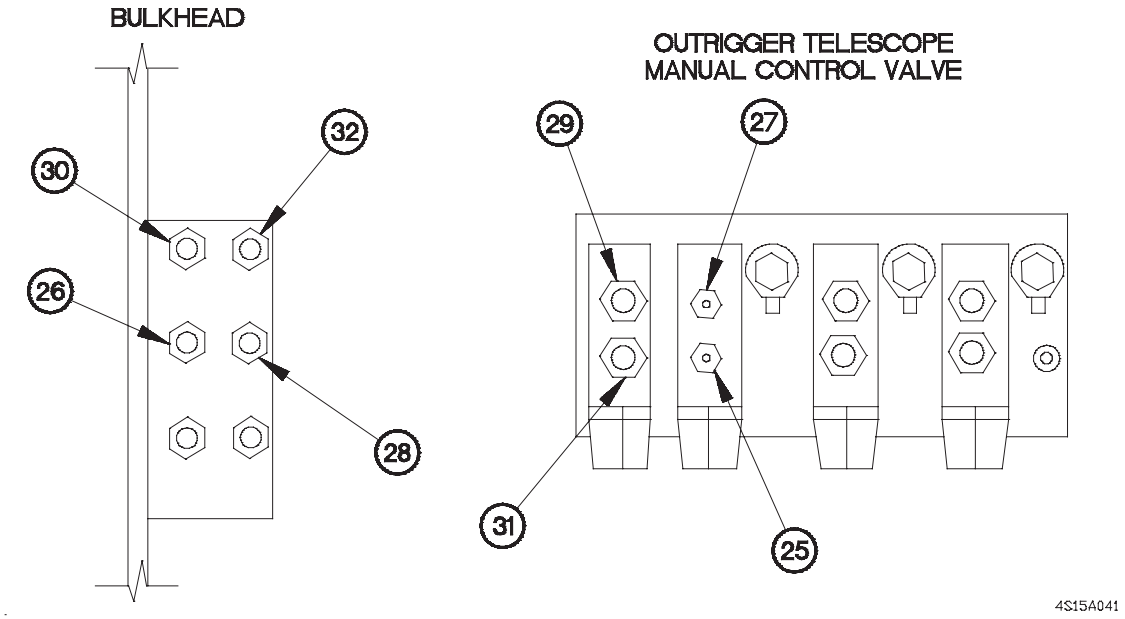


Table 17-4. M1089 Material Handling Crane (MHC) Hydraulic Tubing Locations (Cont)

Hydraulic Tube Name	From	To	Torque
Outrigger Telescope In	Outrigger telescope manual control valve fitting (25)	Bulkhead fitting (26)	19-23 lb-ft (26-31 N·m)
Outrigger Telescope Out	Outrigger telescope manual control valve fitting (27)	Bulkhead fitting (28)	19-23 lb-ft (26-31 N·m)
Right Outrigger Jack Up	Right outrigger jack manual control valve fitting (29)	Bulkhead fitting (30)	19-23 lb-ft (26-31 N·m)
Right Outrigger Jack Down	Right outrigger jack manual control valve fitting (31)	Bulkhead fitting (32)	19-23 lb-ft (26-31 N·m)

17-15. M1089 MATERIAL HANDLING CRANE (MHC) TUBING REPLACEMENT (CONT)

Figure 17-4. M1089 Material Handling Crane (MHC) Hydraulic Tubing Locations (Cont)

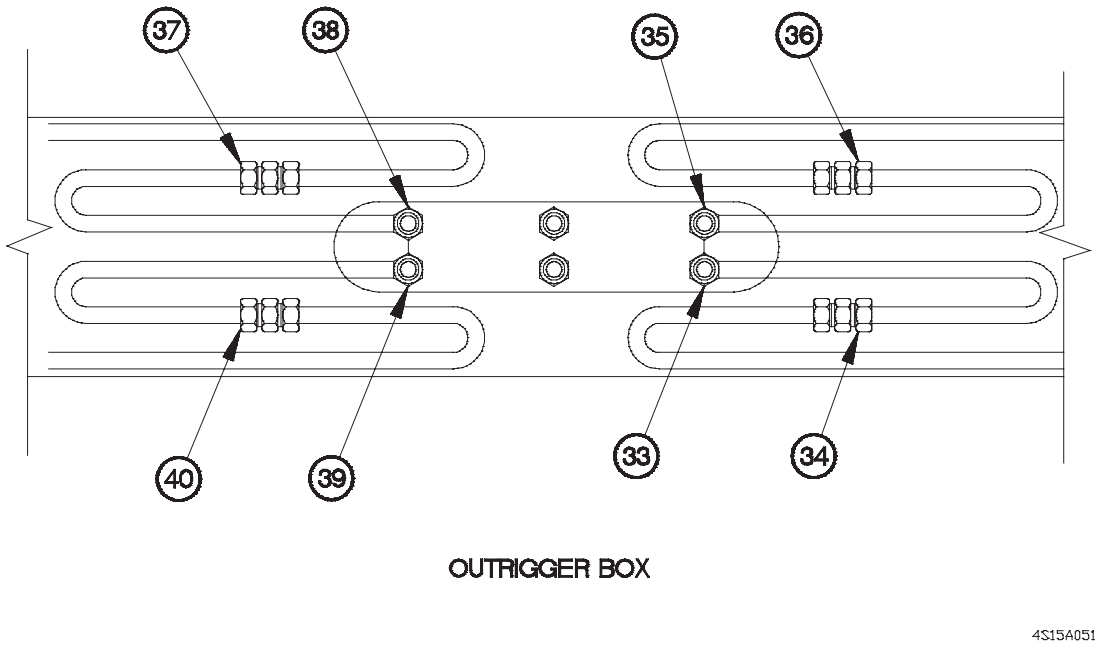


Table 17-4. M1089 Material Handling Crane (MHC) Hydraulic Tubing Locations (Cont)

Hydraulic Tube Name	From	To	Torque
Outrigger Box Left Jack Down	Left outrigger jack extend hose bulkhead fitting (33)	Outrigger box left extend hose fitting (34)	19-23 lb-ft (26-31 N·m)
Outrigger Box Left Jack Up	Left outrigger jack retract hose bulkhead fitting (35)	Outrigger box left retract hose fitting (36)	19-23 lb-ft (26-31 N·m)
Outrigger Box Right Jack Down	Right outrigger jack extend hose bulkhead fitting (37)	Outrigger box right extend hose fitting (38)	19-23 lb-ft (26-31 N·m)
Outrigger Box Right Jack Up	Right outrigger jack retract hose bulkhead fitting (39)	Outrigger box right retract hose fitting (40)	19-23 lb-ft (26-31 N·m)

Figure 17-4. M1089 Material Handling Crane (MHC) Hydraulic Tubing Locations (Cont)

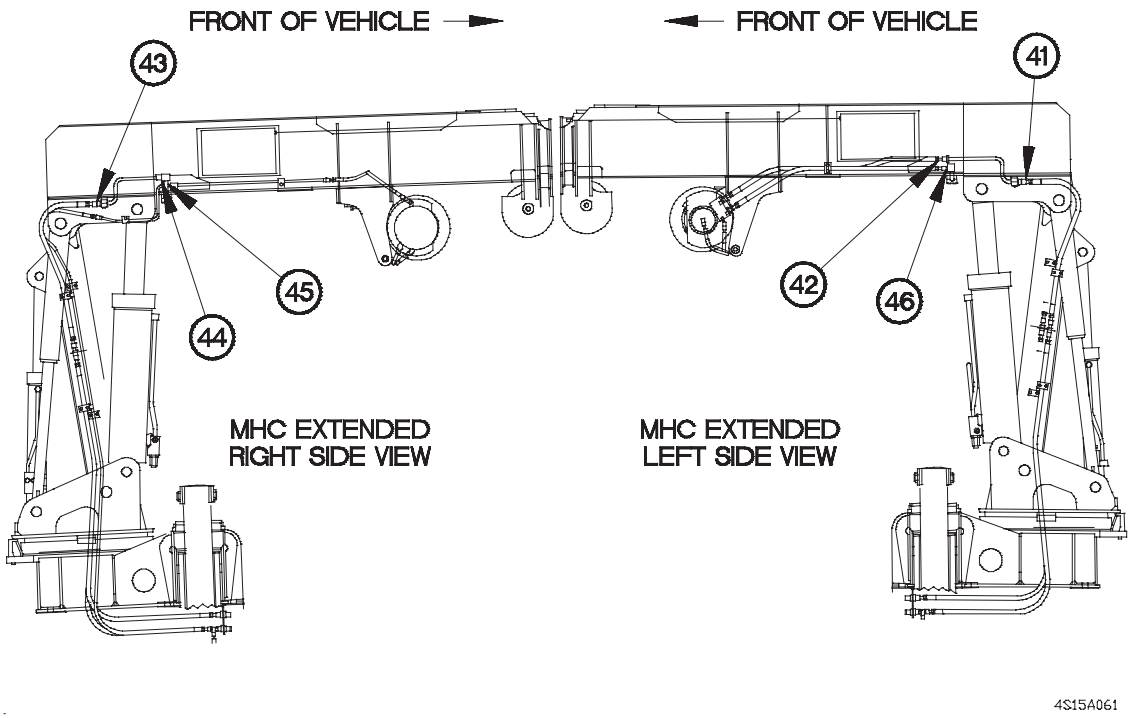


Table 17-4. M1089 Material Handling Crane (MHC) Hydraulic Tubing Locations (Cont)

Hydraulic Tube Name	From	To	Torque
Hoist Boom Head Left Up	Hoist up, upper hose fitting (41)	Hoist up boom upper hose fitting (42)	43-47 lb-ft (58-64 N·m)
Hoist Boom Head Right Rear Down	Hoist down upper hose fitting (43)	Hoist down right crossover tube fitting (44)	43-47 lb-ft (58-64 N·m)
Hoist Boom Head Right Cross-over Down	Hoist boom head right rear down tube fitting (45)	Hoist down boom lower hose fitting (46)	43-47 lb-ft (58-64 N·m)

17-15. M1089 MATERIAL HANDLING CRANE (MHC) TUBING REPLACEMENT (CONT)

Figure 17-4. M1089 Material Handling Crane (MHC) Hydraulic Tubing Locations (Cont)

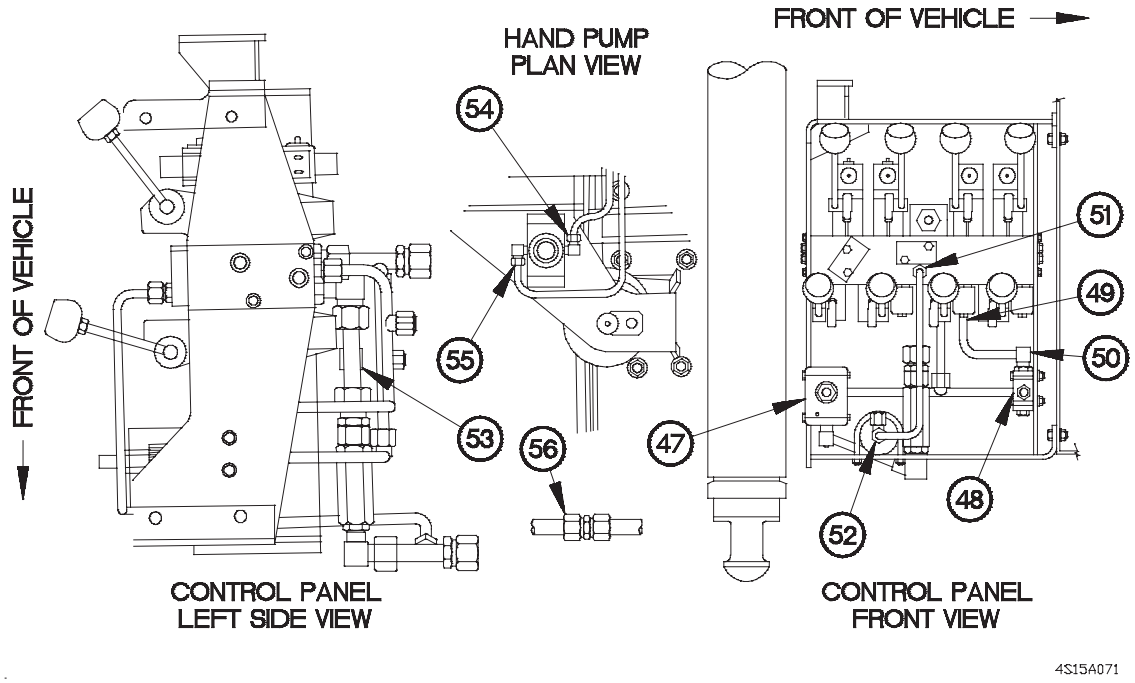


Table 17-4. M1089 Material Handling Crane (MHC) Hydraulic Tubing Locations (Cont)

Hydraulic Tube Name	From	To	Torque
Solenoid/Manual Override Valve Interconnect	Manual override valve fitting (47)	Solenoid valve fitting (48)	43-47 lb-ft (58-64 N·m)
Solenoid Valve	Boom lift control valve fitting (49)	Solenoid valve fitting (50)	43-47 lb-ft (58-64 N·m)
Accumulator	Eight function manual control valve fitting (51)	Accumulator fitting (52)	43-47 lb-ft (58-64 N·m)
Hand Pump Supply	Main supply tube top three way fitting (53)	Hand pump fitting (54)	43-47 lb-ft (58-64 N·m)
Hand Pump Suction	Hand pump fitting (55)	Hydraulic system fitting (56)	43-47 lb-ft (58-64 N·m)

Figure 17-4. M1089 Material Handling Crane (MHC) Hydraulic Tubing Locations (Cont)

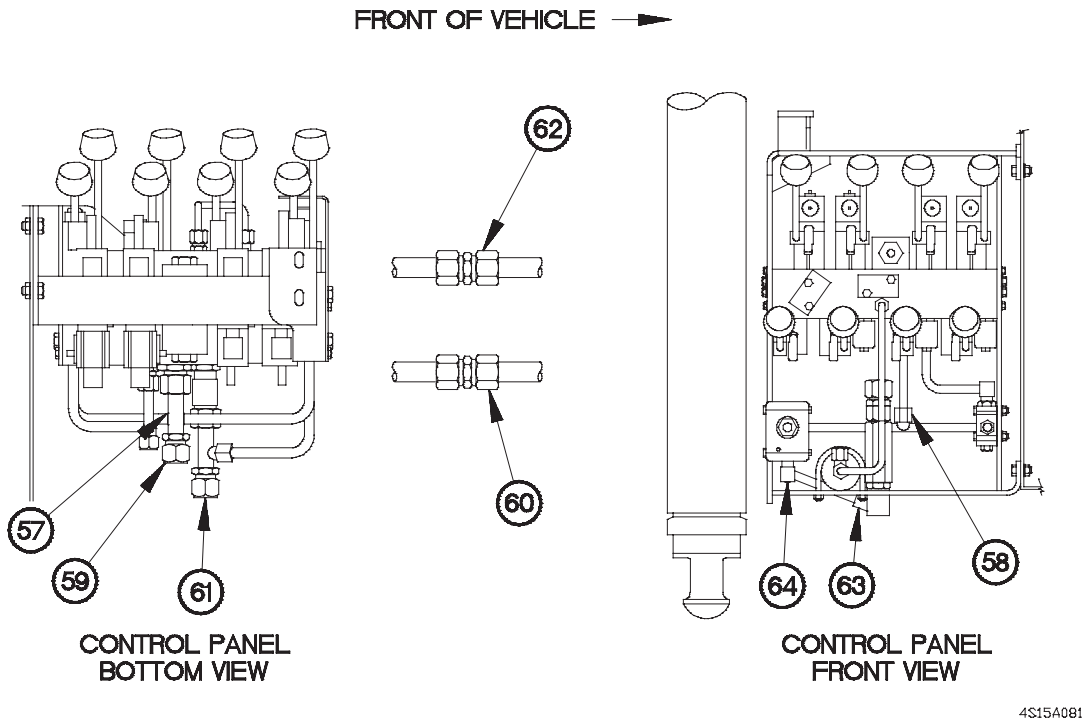


Table 17-4. M1089 Material Handling Crane (MHC) Hydraulic Tubing Locations (Cont)

Hydraulic Tube Name	From	To	Torque
Interconnect Return	Return three way tee fitting (57)	Solenoid/manual override valve interconnect tube tee fitting (58)	88-95 lb-ft (119-129 N·m)
Main Return	Eight function manual control valve fitting (59)	Hydraulic system fitting (60)	88-95 lb-ft (119-129 N·m)
Main Supply	Supply three way tee fitting (61)	Hydraulic system fitting (62)	88-95 lb-ft (119-129 N·m)
Manual Override Supply	Supply three way tee fitting (63)	Manual override valve fitting (64)	88-95 lb-ft (119-129 N·m)

b. Follow-On Maintenance.

(1) Fill hydraulic tank (Appendix H).

(2) Test operate MHC (TM 9-2320-366-10-2).

(3) Check for oil leaks.

(4) Stow MHC (TM 9-2320-366-10-2).

End of Task.

17-16. M1089 HAND PUMP REPLACEMENT/REPAIR

This task covers:

a. Removal
b. Disassembly
c. Cleaning/Inspection
d. Assembly
e. Installation
f. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-366-10-1).
Hydraulic tank supply and return valves closed (TM 9-2320-366-10-2).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Gloves, Rubber (Item 13, Appendix C)
Goggles, Industrial (Item 15, Appendix C)

Materials/Parts
Dispenser, Pressure Sensitive Adhesive Tape (Item 20, Appendix D)
Cap and Plug Set (Item 14, Appendix D)
Solvent, Dry Cleaning (Item 65, Appendix D)
Rag, Wiping (Item 50, Appendix D)
Parts Kit, Hydraulic Pump (Item 219, Appendix G)
Lockwasher (4) (Item 96, Appendix G)
Packing, Preformed (4) (Item 187, Appendix G)
Gasket and Preformed Packing Kit (Item 43, Appendix G)

a. Removal.

(1) Position drain pan under hand pump (1).

CAUTION

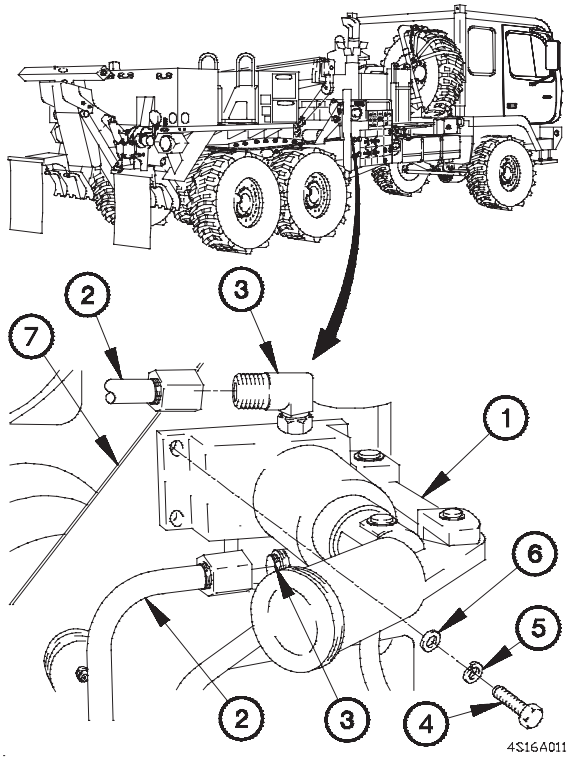
Cap or plug hydraulic tubes to prevent contamination of hydraulic system. Failure to comply may result in damage to equipment.

NOTE

Tag tubes and connection points prior to disconnecting.

(2) Disconnect two hydraulic tubes (2) from 90-degree fittings (3).

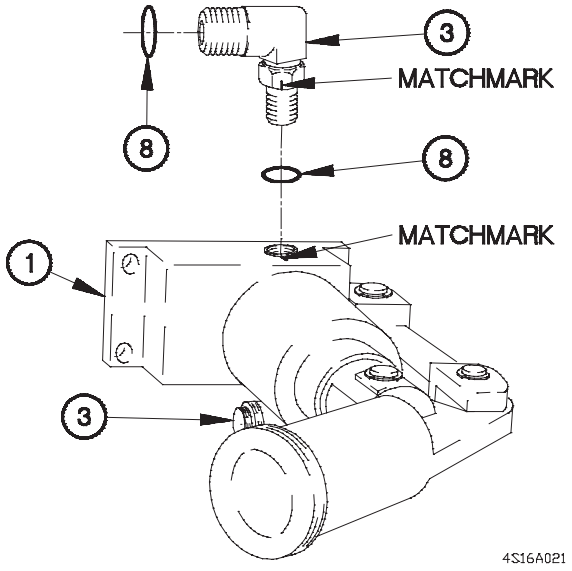
(3) Remove four screws (4), lockwashers (5), washer (6) and hand pump (1) from bracket (7). Discard lockwashers.



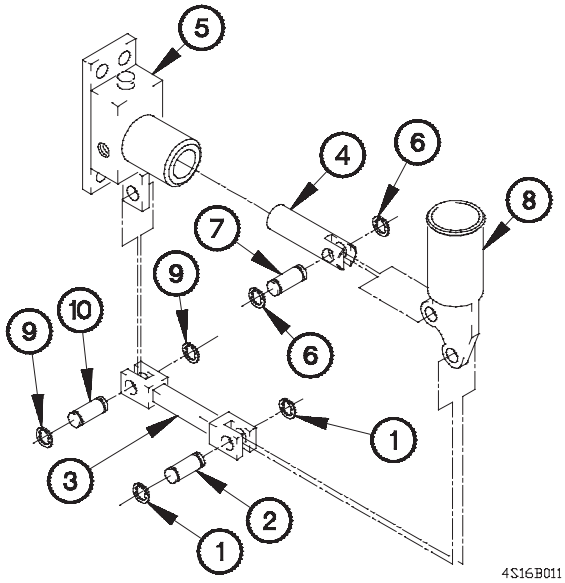
(4) Match mark two 90-degree fittings (3) to hand pump (1).

(5) Remove two 90-degree fittings (3) from hand pump (1).

(6) Remove four preformed packings (8) from two 90-degree fittings (3). Discard preformed packings.



b. Disassembly.



WARNING

Retaining clips 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.

(1) Remove two retaining clips (1) and pin (2) from pump linkage (3).

(2) Remove pump piston (4) from pump base (5).

(3) Remove two retaining clips (6), pin (7), and pump socket (8) from pump piston (4).

(4) Remove two retaining clips (9), pin (10), and pump linkage (3) from pump base (5).

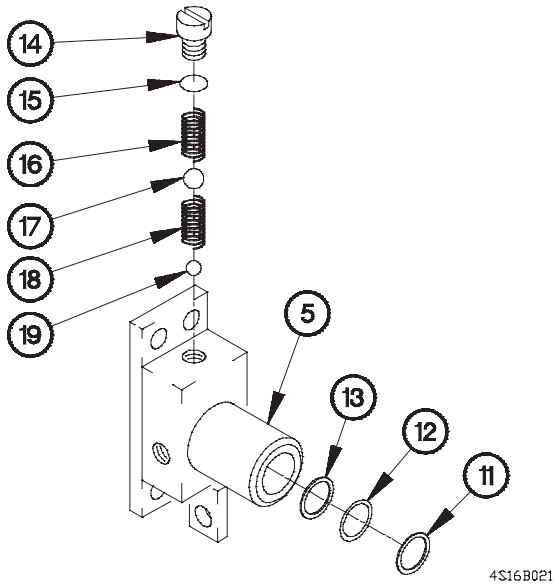
17-16. M1089 HAND PUMP REPLACEMENT/REPAIR (CONT)

(5) Remove preformed packing (11) from pump base (5). Discard preformed packing.

(6) Remove wiper ring (12) from pump base (5). Discard wiper ring.

(7) Remove preformed packing (13) from pump base (5). Discard preformed packing.

(8) Remove plug (14), disk (15), spring (16), ball (17), spring (18), and ball (19) from pump base (5).



c. Cleaning/Inspection.

WARNING

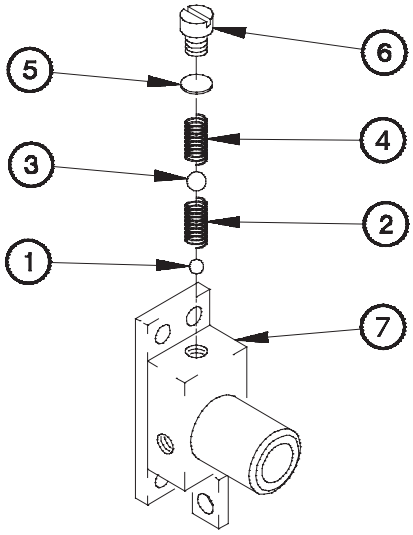
- **Dry Cleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles and gloves; use only in well ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe vapors. Keep away from heat or flame. Never smoke when using solvent; the flashpoint for Type I Dry Cleaning 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 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.**

Clean all metal parts with dry cleaning solvent and dry with wiping rags.

d. Assembly.

(1) Install ball (1), spring (2), ball (3), spring (4), disk (5), and plug (6) in pump base (7).



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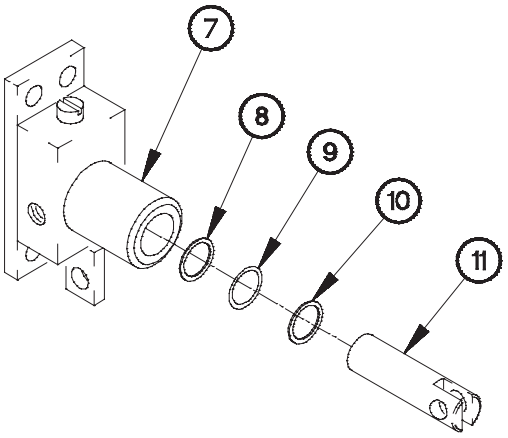


4S16D021

(2) Install preformed packing (8) in pump base (7).

(3) Install wiper ring (9) in pump base (7).

(4) Install preformed packing (10) in pump base (7).

(5) Install pump piston (11) in pump base (7).

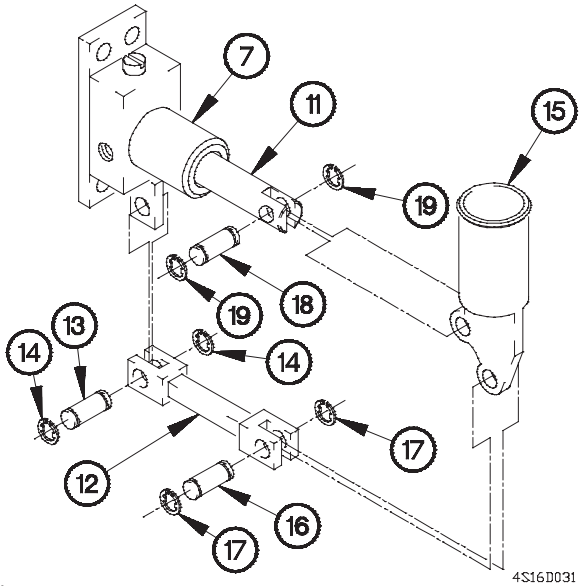
WARNING

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

(6) Install pump linkage (12) on pump base (7) with pin (13) and two retaining clips (14).

(7) Install pump socket (15) on pump linkage (12) with pin (16) and two retaining clips (17).

(8) Install pump socket (15) on pump piston (11) with pin (18) and two retaining clips (19).



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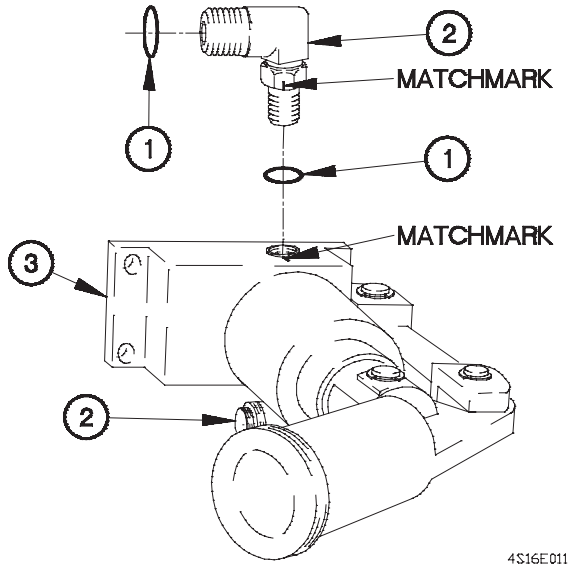
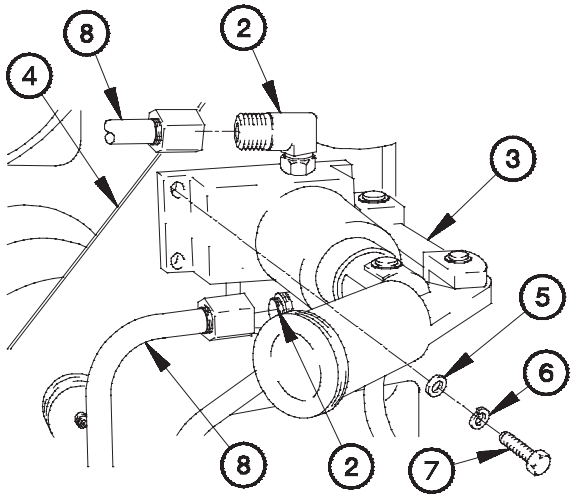
17-16. M1089 HAND PUMP REPLACEMENT/REPAIR (CONT)

e. Installation.

(1) Install four preformed packings (1) on two 90-degree fittings (2).

(2) Install two 90-degree fittings (2) in hand pump (3) with matchmarks aligned.





(3) Install hand pump (3) on bracket (4) with four washers (5), lockwashers (6) and screws (7).

(4) Connect two hydraulic tubes (8) to 90-degree fittings (2).

f. Follow-On Maintenance.

(1) Open hydraulic tank supply and return valves (TM 9-2320-366-10-2).

(2) Test operate MHC functions with hand pump (TM 9-2320-366-10-2).

End of Task.

17-17. M1089 HYDRAULIC ACCUMULATOR REPLACEMENT

This task covers:

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

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-366-10-1).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)

Materials/Parts
Packing, Preformed (Item 193, Appendix G)
Packing, Preformed (Item 183, Appendix G)

a. Removal.

(1) Disconnect hydraulic tube (1) from tee fitting (2).

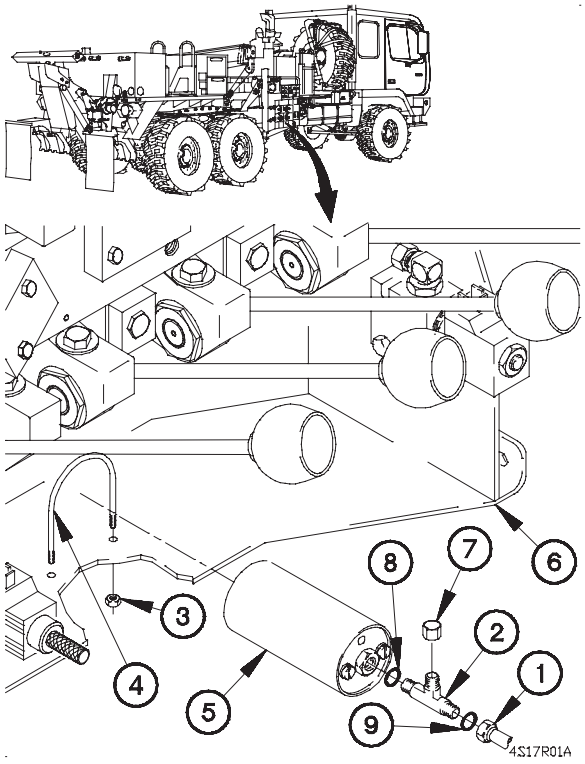
(2) Remove two nuts (3) from clamp (4).

(3) Remove clamp (4) and accumulator (5) from control panel (6).

(4) Remove tee fitting (2) from accumulator (5).

(5) Remove cap (7) from tee fitting (2).

(6) Remove preformed packings (8 and 9) from tee fitting (2). Discard preformed packings.



17-17. M1089 HYDRAULIC ACCUMULATOR REPLACEMENT (CONT)

b. Installation.

(1) Install preformed packings (1 and 2) on tee fitting (3).

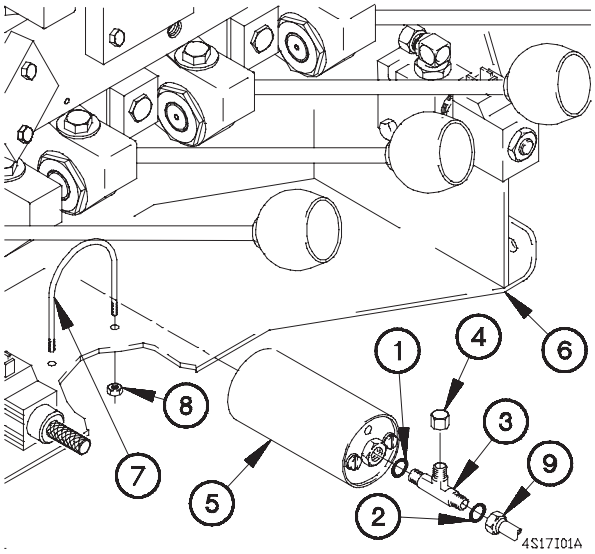
(2) Install cap (4) on tee fitting (3).

(3) Install tee fitting (3) in accumulator (5).

(4) Position accumulator (5) on control panel (6).

(5) Install clamp (7) on accumulator (5) with two nuts (8).

(6) Connect hydraulic tube (9) to tee fitting (3).



c. Follow-On Maintenance.

(1) Test operate MHC (TM 9-2320-366-10-2).

(2) Check for oil leaks around hydraulic accumulator.

(3) Stow MHC (TM 9-2320-366-10-2).

End of Task.

17-18. M1089 30K WINCH CABLE REPLACEMENT/REPAIR

This task covers:

a. Removal
b. Spelter Socket Removal
c. Spelter Socket Installation
d. Installation
e. Adjustment
f. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions
30K winch cable fully extended (TM 9-2320-366-10-2).
Engine shut down (TM 9-2320-366-10-1).
30K winch frame catwalk opened (TM 9-2320-366-10-2).

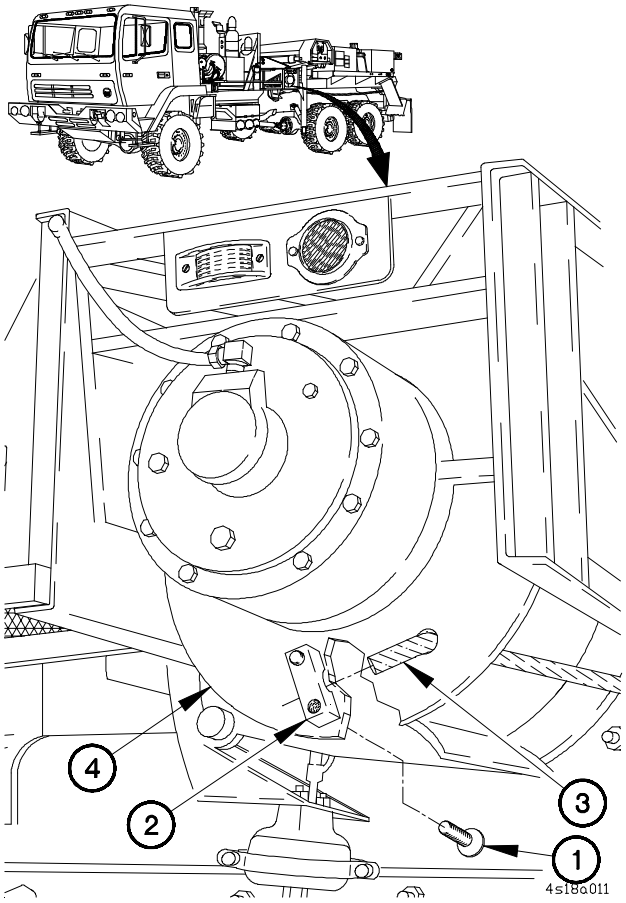
Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Gloves, Welder's (Item 14, Appendix C)
Grease, Wire Rope-Exposed Gear (Item 23.1, Appendix-D)
Wire, Non-Electrical (Item 72, Appendix D)

Tools and Special Tools (Cont)
Tape, Duct (Item 67, Appendix-D)
Adhesive (Item 10.1, Appendix-D)
Spelter Socket Resin (Item 65.3, Appendix-D)
Vice, Machinist (Item 48, Appendix-C)
Frame, Hand Hacksaw (Item 9.1, Appendix-C)
Blade, Hand Hacksaw (Item 3.1, Appendix-C)
Solvent, Dry Cleaning (Item 65, Appendix-D)

Personnel Required
(3)

WARNING

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



a. Removal.

NOTE

Left and right side 30K winch cables are removed the same way. Left side shown.

(1) Loosen two screws (1) on cable restraining plate (2).

(2) Remove 30K winch cable (3) from cable restraining plate (2).

(3) Remove 30K winch cable (3) from drum (4).

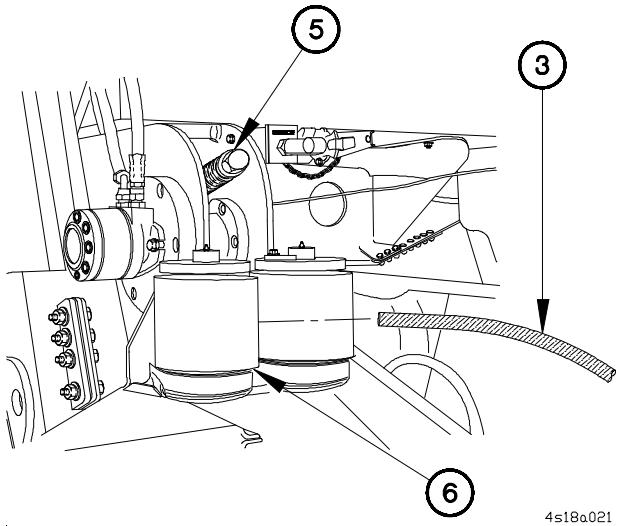
17-18. M1089 30K WINCH CABLE REPLACEMENT/REPAIR (CONT)

NOTE

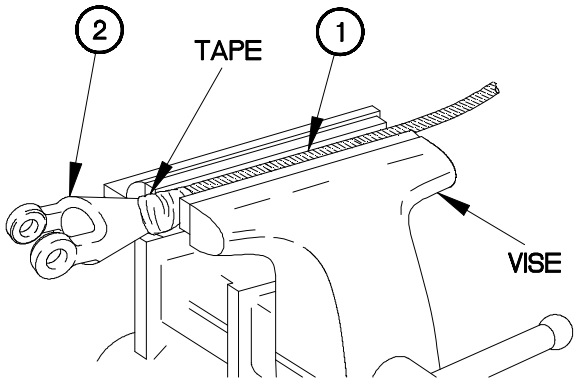
Release tension on pay-out/spooler sheaves by turning adjusting screw left eight to ten turns.

(4) Loosen adjusting screw (5) on pay-out/spooler (6).

(5) Remove 30K winch cable (3) from vehicle.



b. Spelter Socket Removal.



(1) Wrap tape around cable (1) as close to spelter socket (2) as possible to prevent fraying of cable end while cutting.

(2) Position cable (1) and spelter socket (2) in vise, so half of taped cable end is showing.

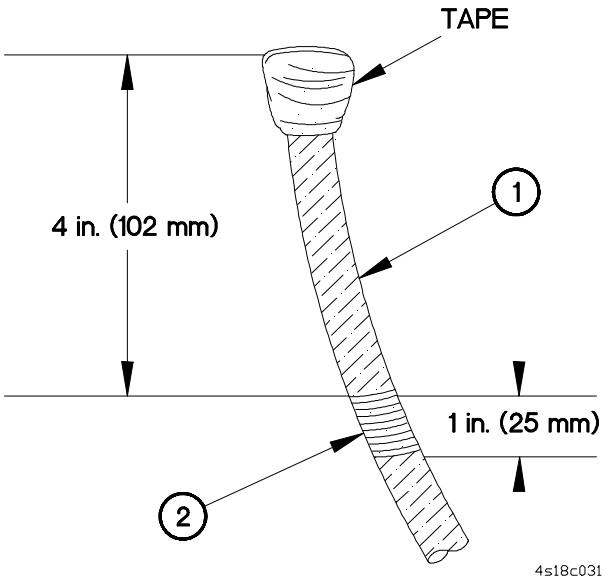
(3) Cut through taped part of cable (1) removing damaged spelter socket (2). Discard spelter socket.

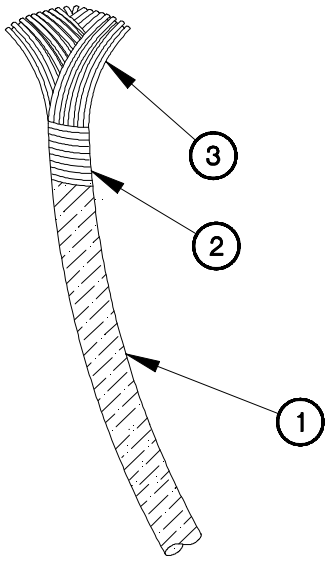
c. Spelter Socket installation

(1) Match mark 4 in. (102 mm) down from end of cable (1).

(2) Wrap wire (2) around cable (1) at match mark until 1 in. (25mm) wide coil of wire is placed on cable.

(3) Remove tape from end of cable (1).





CAUTION

Ensure any fibers or plastic materials in separated strands of wire are removed. Failure to comply may result in inability of resin to bond to cable end.

(4) Separate strands of wire (3) at end of cable (1) until wire reaches top edge of wrapped wire (2).

(5) Fan separated wires (3) evenly on end of cable (1).

17-18. M1089 30K WINCH CABLE REPLACEMENT/REPAIR (CONT)

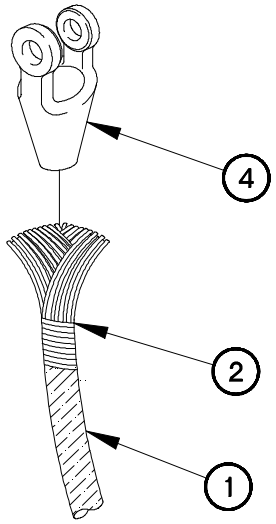
WARNING

Dry Cleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles and glove; use only in well ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe the vapors. Keep away from heat or flame. Never smoke when using solvent; the flash point for Type I dry cleaning solvent is 100° (38° C) and for Type II is 130° (50° C). Failure to comply may result in serious injury or death to personnel.

If personnel becomes dizzy while using dry 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.

(6) Clean cable end thoroughly.

(7) Position spelter socket (4) on fanned area of cable (1) until contact is made with top edge of wrapped wire (2).



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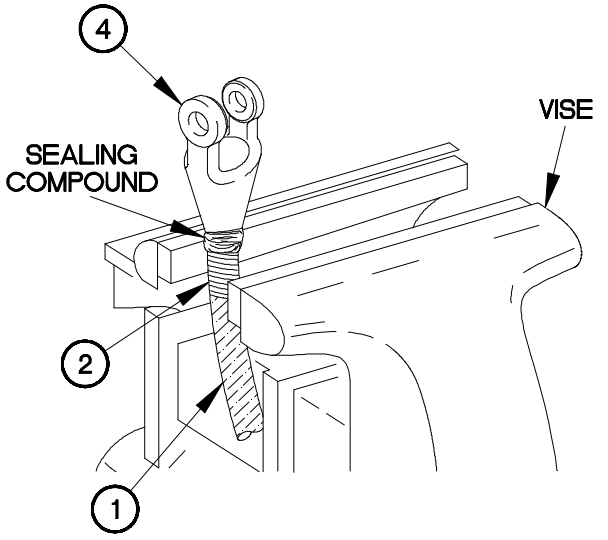


4s18c061

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.

CAUTION

Allow sealing compound to cure before adding resin. Failure to comply may result in damage to equipment.

(8) Apply 1 in (25mm) wide bead of sealant between bottom of spelter socket (4) and wrapped wire (2)

(9) Position cable (1) and spelter socket (4) vertically in vise.

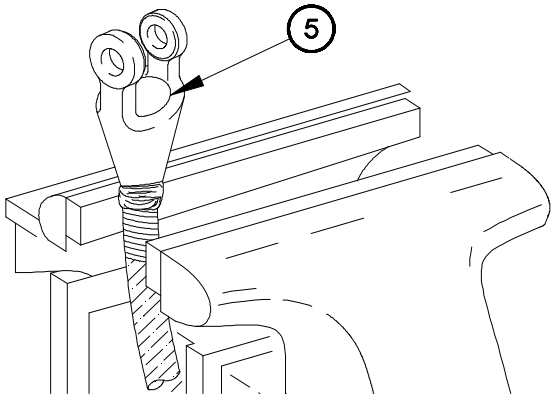
WARNING

- **Incorrect use of spelter socket resin can result in unsafe termination of cable. This may result in death or serious injury to personnel and damage to equipment.**
- **Never use a repaired spelter socket until resin has thoroughly cured. Resin will gel in approximately 15 minutes and be fully cured in 2 hours from mixing.**
- **Never heat socket to accelerate gelling or curing.**
- **Adhesive, 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**

CAUTION

- Spelter socket kit consists of two containers. Ensure that all contents of both containers in kit are used and mixed thoroughly.
- Spelter socket and cable must remain in the vertical position during curing. Curing time on spelter socket resin varies with temperature. Two hours is an average amount of time the resin takes to cure at temperatures of 65 - 75 °F.

(10) Slowly pour the mixture down one side of the socket basket (5) until the socket basket (5) is full.



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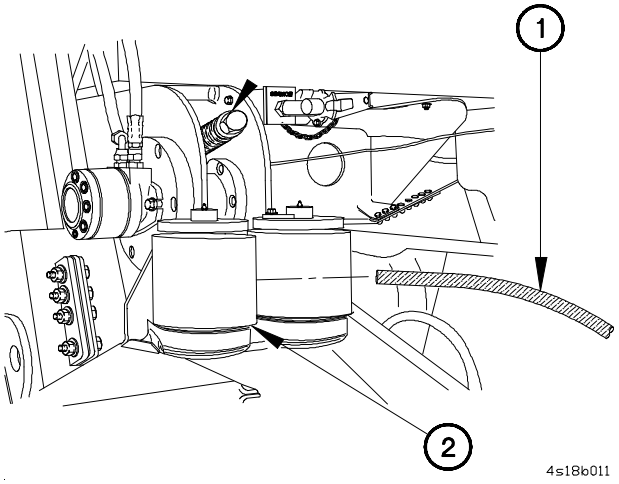
17-18. M1089 30K WINCH CABLE REPLACEMENT/REPAIR (CONT)

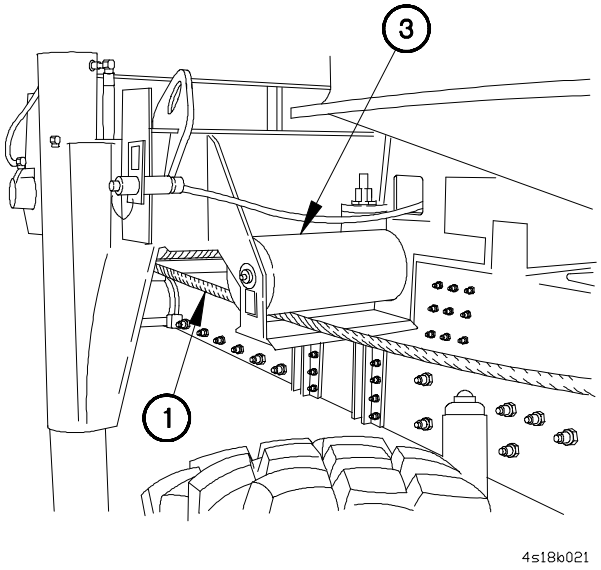
d. Installation.

NOTE

- Clean and lubricate cable per lubrication instructions in Appendix H during installation of cable.
- Left and right side main 30K winch cables are installed the same way. Left side shown.

(1) Route 30K winch cable (1) on vehicle through pay-out/spooler (2).

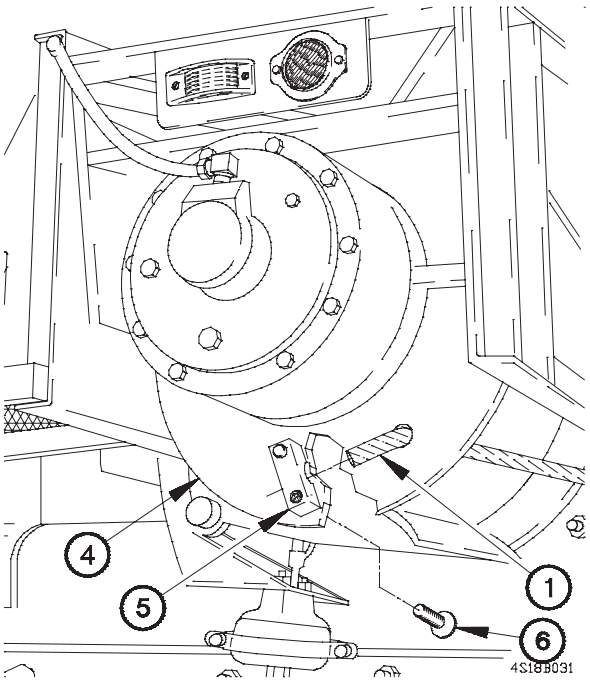


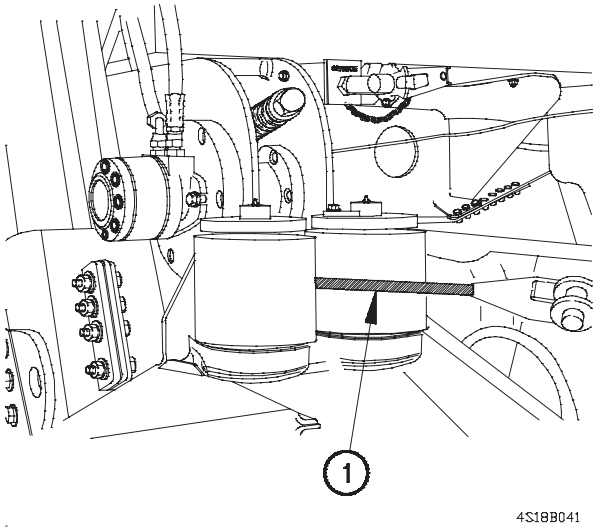


(2) Route 30K winch cable (1) through cable guide (3).

(3) Route 30K winch cable (1) through hole in drum (4) and in cable restraining plate (5).

(4) Tighten two screws (6).





NOTE

- Step (5) requires the aid of two assistants
- Observe cable is winding properly on the drum, making sure each turn is winding tightly against the adjacent turn.

(5) Operate 30K winch and retract 30K winch cable (1) (TM 9-2320-366-10-2).

17-18. M1089 30K WINCH CABLE REPLACEMENT/REPAIR (CONT)

e. Adjustment

NOTE

Step (1) requires the aid of two

(1) Operate 30K winch and fully extend 30K winch cable (TM 9-2320-366-10-2).

WARNING

Remote control must be used to operate 30K winch while breaking in cables. Failure to comply may result in injury to personnel.

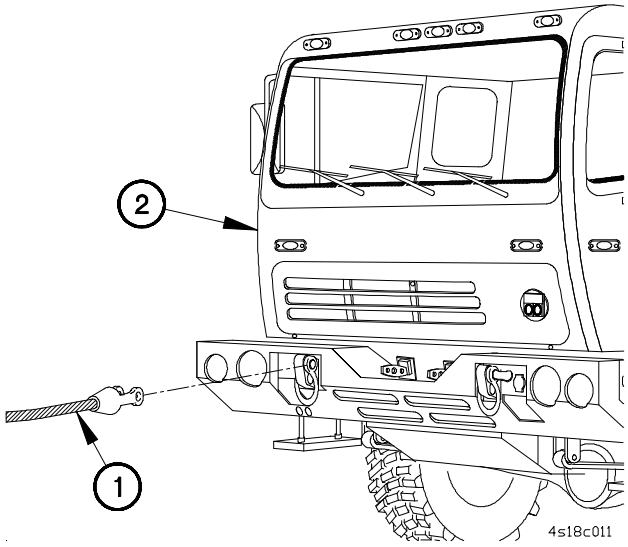
CAUTION

Step (2) requires a vehicle M1085 or equivalent to provide proper weight and resistance. Failure to comply may result in damage to equipment.

(2) Connect 30K winch cable (1) to vehicle (2).

CAUTION

- New 30K winch cables require 30K winch to be operated at low speed and be attached to another vehicle. Failure to comply may result in damage to equipment.
- Do not attempt pulls with less than five wraps of cable on first layer. Failure to comply may result in damage to equipment.



(3) Operate 30K winch and pull vehicle (2) (TM 9-2320-366-10-2). The vehicle being winched applies and maintains brakes to create drag resistance so that cable is a minimum of 3 ft (0.915 m) from the ground under tension.

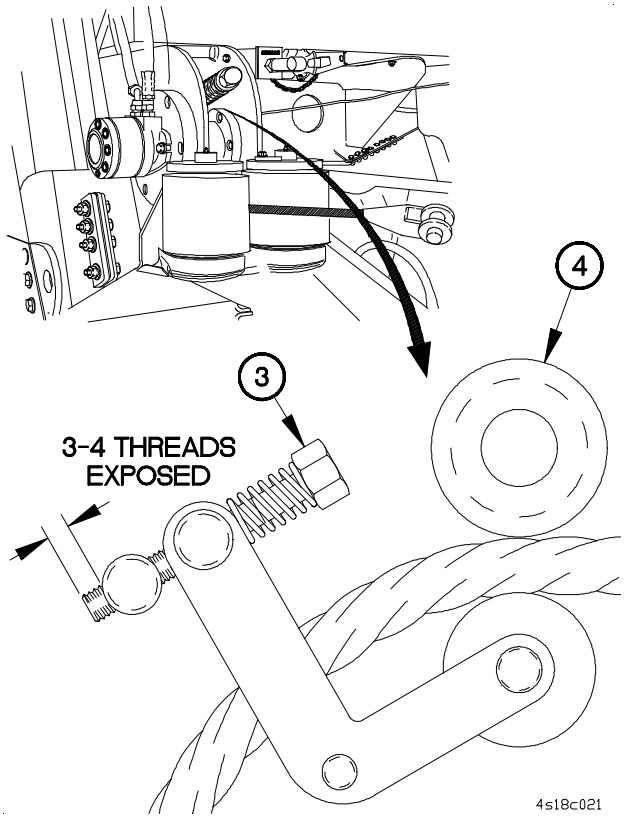
(4) Perform steps (1) through (3) four times.

(5) Disconnect 30K winch cable (1) from vehicle (2).

CAUTION

Adjusting screw on payout/spooler must be tightened until only three to four threads are visible. Failure to comply may result in damage to equipment.

(6) Tighten adjusting screw (3) on payout/spooler (4) until three to four threads are visible.



f. Follow-On Maintenance.

Operate 30K winch, adjust, and secure 30K winch (TM 9-2320-366-10-2).

End of Task.

17-19. M1089 30K WINCH CABLE TENSIONER AIR CHAMBER REPLACEMENT

This task covers:

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

INITIAL SETUP

Equipment Conditions
Air tanks drained (TM 9-2320-366-10-1).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Wrench, Torque, 0-175 lb-ft (Item 58, Appendix C)
STE/ICE-R (Item 41, Appendix C)

Tools and Special Tools (Cont)
Wrench, Torque, 0-75 lb-in. (Item 90, Appendix B)

Materials/Parts
Lockwasher (2) (Item 97, Appendix G)
Nut, Self-Locking (Item 136, Appendix G)

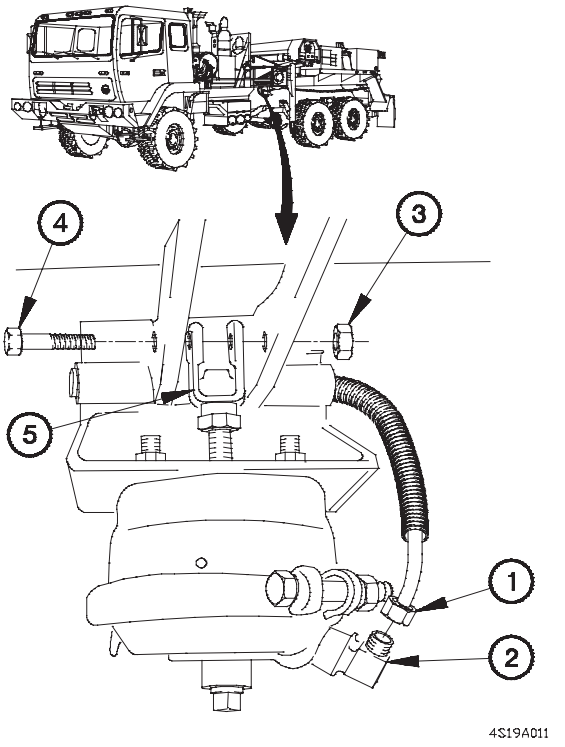
a. Removal.

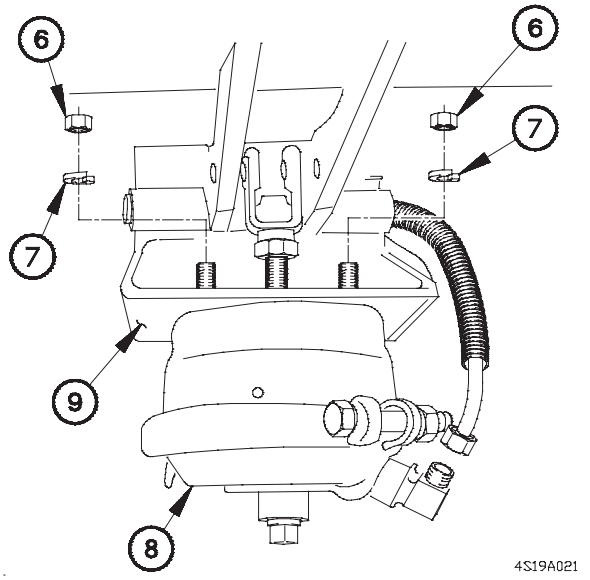
NOTE

Left and right 30K winch cable tensioners air chambers are removed the same way. Left side shown.

(1) Disconnect air hose (1) from 90 degree fitting (2).

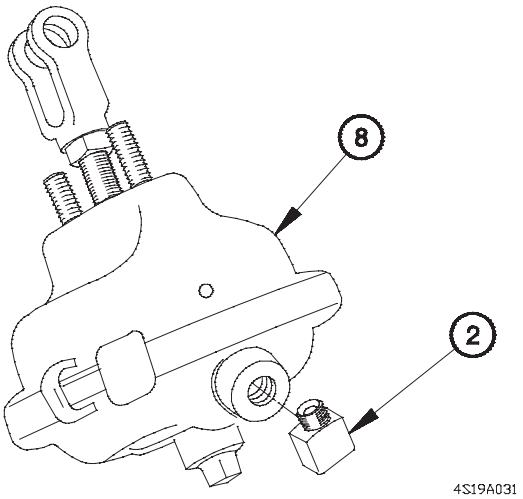
(2) Remove self-locking nut (3) and screw (4) from tensioner arm (5). Discard self-locking nut.



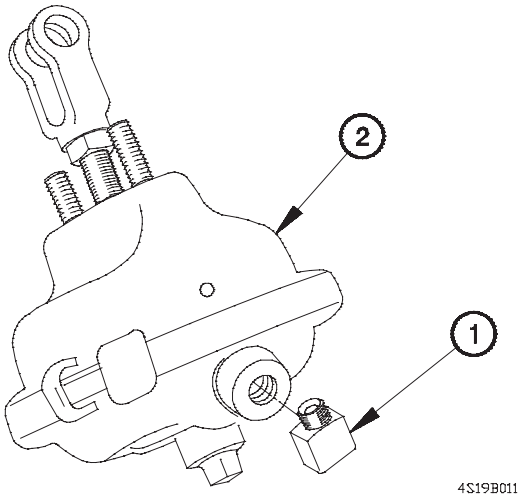


(3) Remove two nuts (6), lockwashers (7), and air chamber (8) from winch tensioner support (9). Discard lockwashers.

(4) Remove 90 degree fitting (2) from air chamber (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 antiseize compound to threads of 90-degree fitting (1).

(2) Position 90-degree fitting (1) in air chamber (2).

(3) Tighten 90-degree fitting (1) approximately 2 1/2 turns past hand tight.

17-19. M1089 30K WINCH CABLE TENSIONER AIR CHAMBER REPLACEMENT (CONT)

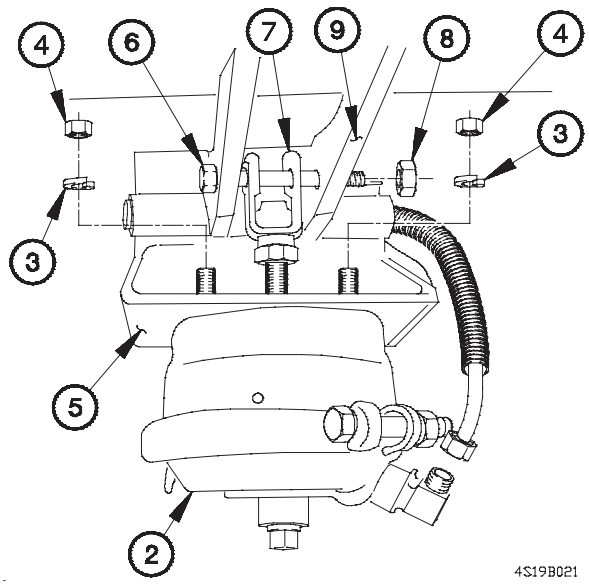
(4) Install air chamber (2), two lockwashers (3) and nuts (4) on winch tensioner support (5).

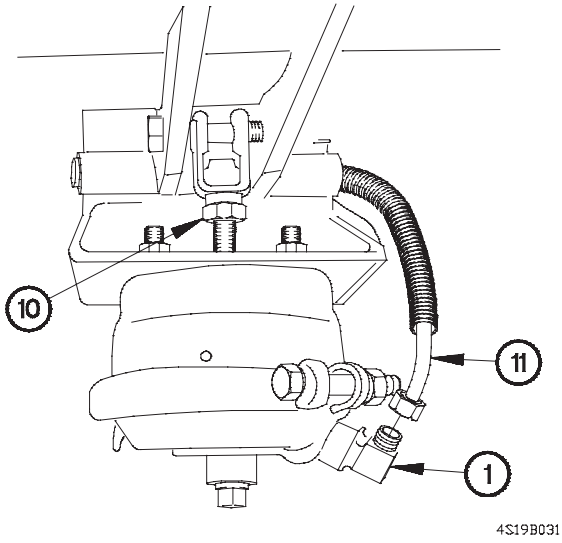
CAUTION

Tension arm must rest against 30K winch cable on drum when yoke is connected. Failure to comply may result in damage to equipment.

(5) Position screw (6), yoke (7), and self-locking nut (8) on tensioner arm (9).

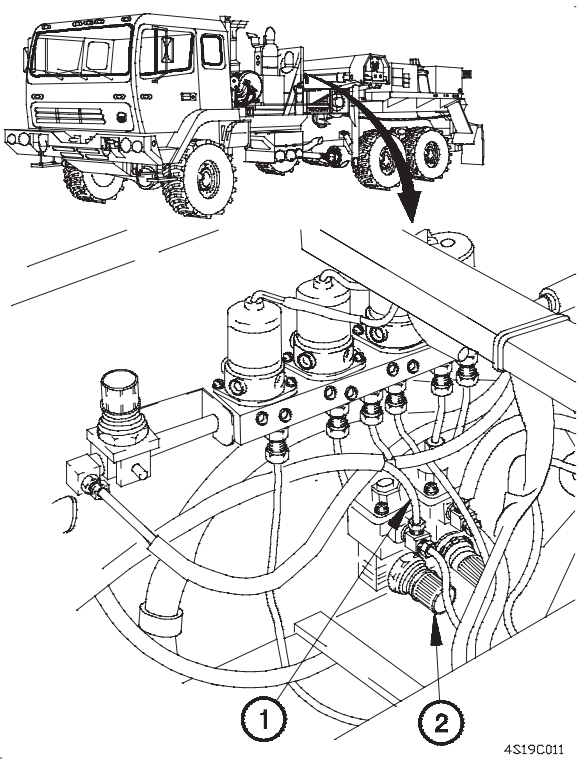
(6) Tighten self-locking nut (8) to 76-84 lb-ft (103-114 N·m).





(7) Tighten jamnut (10) to 12-24 lb-in. (1-3 N•m).

(8) Connect air hose (11) to 90 degree fitting (1).



c. Adjustment.

(1) Connect STE/ICE-R adapter and snubber to pressure regulator air hose (1).

(2) Start engine and pressurize air tanks (TM 9-2320-366-10-1).

(3) Shut down engine (TM 9-2320-366-10-1).

(4) Perform STE/ICE-R test number 50 (TM 9-4910-571-12&P).

(5) Turn pressure regulator adjustment knob (2) until a reading of 65 psi is noted on STE/ICE-R.

d. Follow-On Maintenance.

(1) Start engine (TM 9-2320-366-10-1).

(2) Operate 30K winch and check for air leaks (TM 9-2320-366-10-2).

(3) Shut down engine (TM 9-2320-366-10-1).

End of Task.

17-20. M1089 CONTROL PANEL ASSEMBLY COVERS REPLACEMENT

This task covers:

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

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-366-10-1).
Hydraulic reservoir supply and return valves closed (TM 9-2320-366-10-2).
Right catwalk removed (para 14-4).
Warning and caution placards removed as required (para 2-39).
Wrecker control panel toggle switches removed (para 7-91).

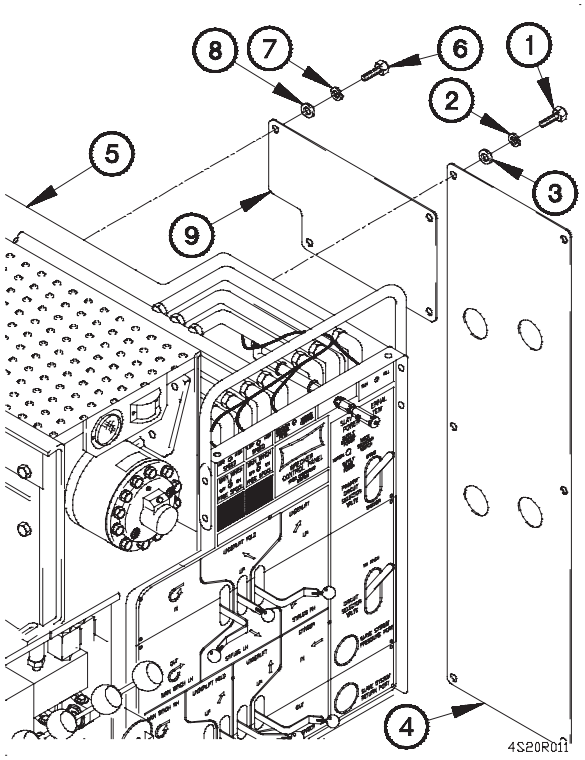
Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Pan, Drain (Item 24, Appendix C)

Materials/Parts
Dispenser, Pressure Sensitive Adhesive Tape (Item 20, Appendix D)
Lockwasher (10) (Item 76, Appendix G)
Lockwasher (18) (Item 78, Appendix G)
Nut, Clip (7) (Item 122, Appendix G)

a. Removal.

(1) Remove six screws (1), lockwashers (2), washers (3), and cover (4) from control panel (5). Discard lockwashers.

(2) Remove four screws (6), lockwashers (7), washers (8), and cover (9) from control panel (5). Discard lockwashers.



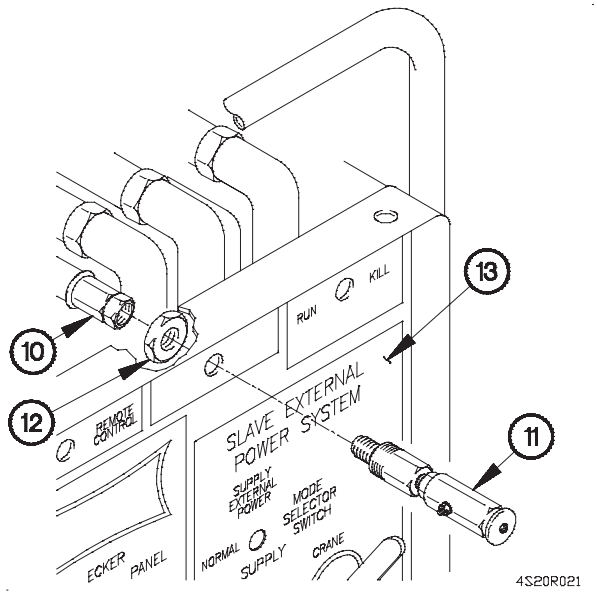
(3) Position drain pan under hydraulic hose (10).

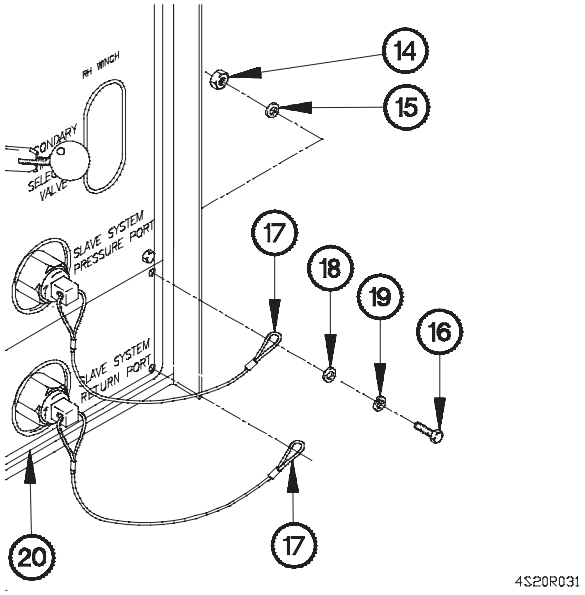
NOTE

Plug hydraulic hose after disconnecting.

(4) Disconnect hydraulic hose (10) from back of HYDRAULIC SYSTEM OIL SAMPLING VALVE (11).

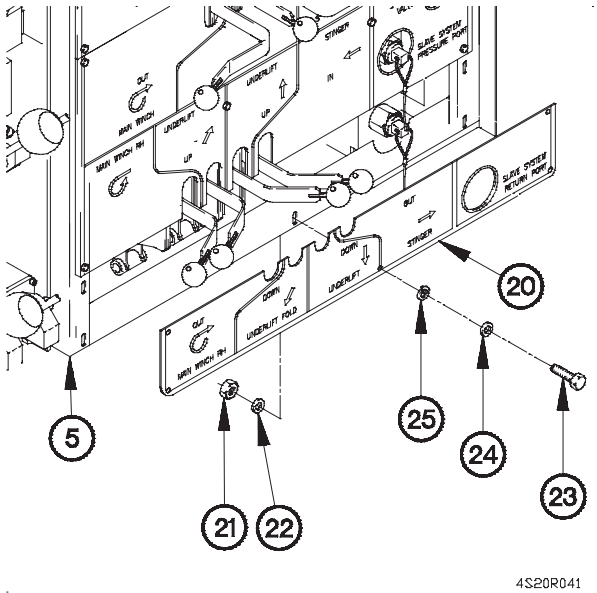
(5) Remove nut (12) and HYDRAULIC SYSTEM OIL SAMPLING VALVE (11) from upper control panel cover (13).





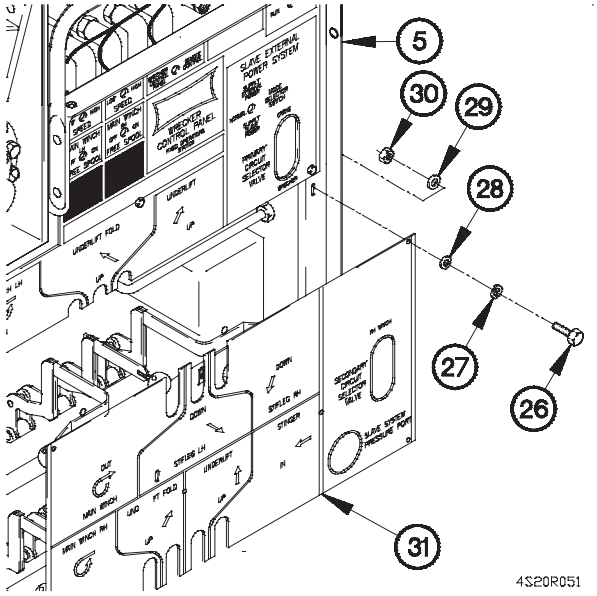
(6) Remove two nuts (14), washers (15), screws (16), lanyards (17), washers (18), and lockwashers (19) from bottom control panel cover (20). Discard lockwashers.

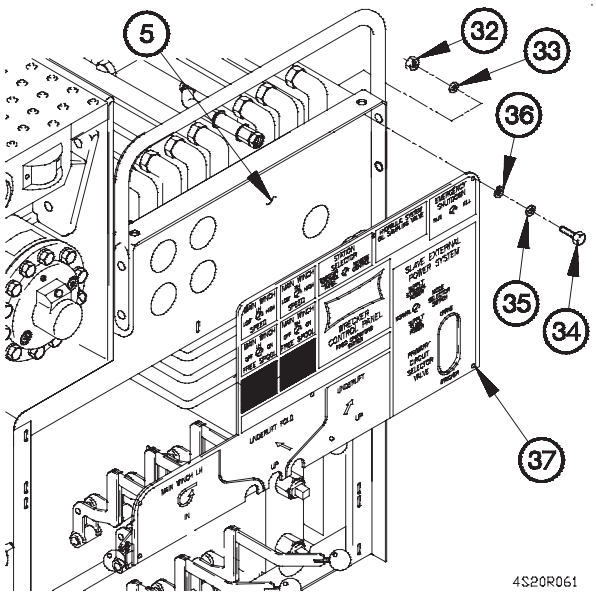
(7) Remove three nuts (21), washers (22), screws (23), washers (24), lockwashers (25), and bottom control panel cover (20) from control panel (5). Discard one nut, washer, and three lockwashers.



17-20. M1089 CONTROL PANEL ASSEMBLY COVERS REPLACEMENT (CONT)

(8) Remove six screws (26), lockwashers (27), washers (28), washers (29), nuts (30) and middle control panel cover (31) from control panel (5). Discard four nuts, washers, and six lockwashers.





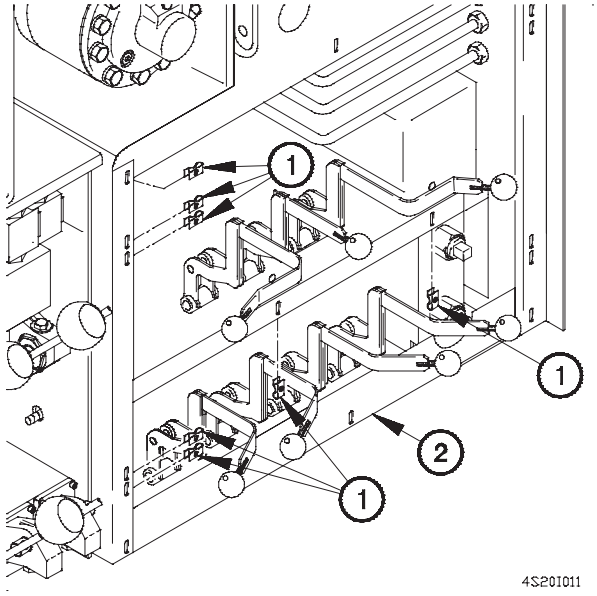
(9) Remove seven nuts (32), washers (33), screws (34), washers (35), lockwashers (36), and upper control panel cover (37) from control panel (5). Discard two nuts, washers, and seven lockwashers.

b. Installation.

NOTE

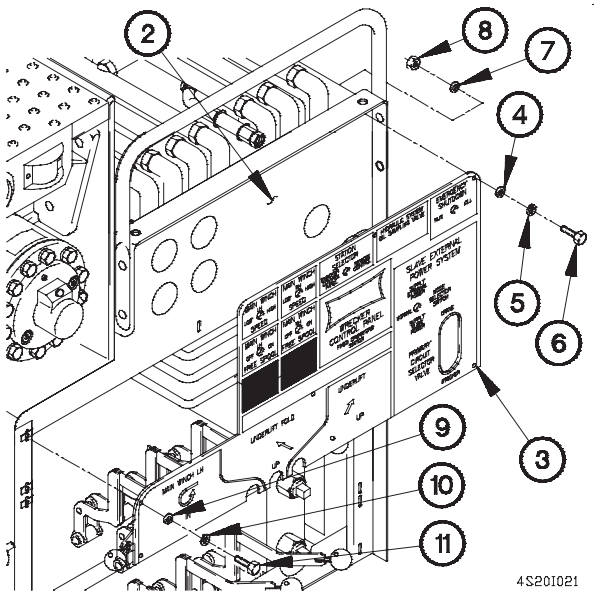
Perform step (1) on vehicles not equipped with clip nuts.

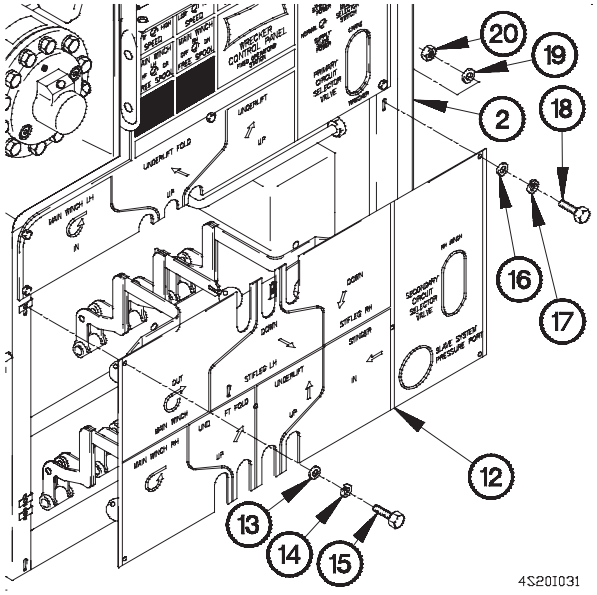
(1) Install seven clip nuts (1) in control panel (2).



(2) Install upper control panel cover (3) on control panel (2) with five washers (4), lockwashers (5), screws (6), washers (7), and nuts (8).

(3) Install two washers (9), lockwashers (10), and screws (11) in upper control panel cover (3).



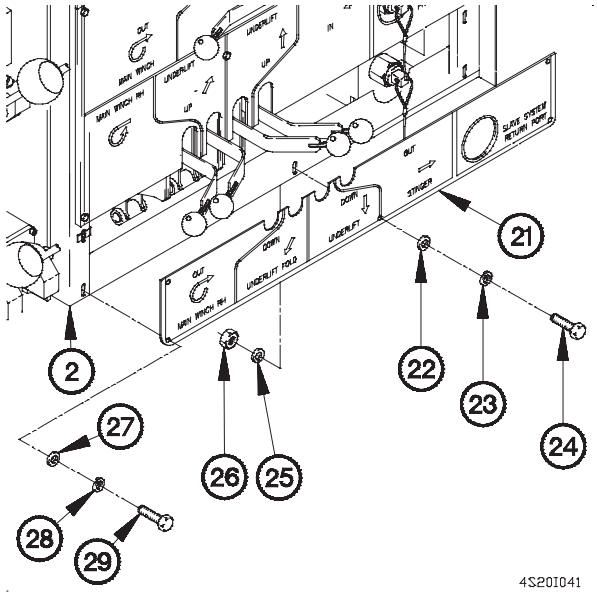


(4) Install middle control panel cover (12) on control panel (2) with four washers (13), lockwashers (14), and screws (15).

(5) Install two washers (16), lockwashers (17), screws (18), washers (19), and nuts (20) in middle control panel cover (12).

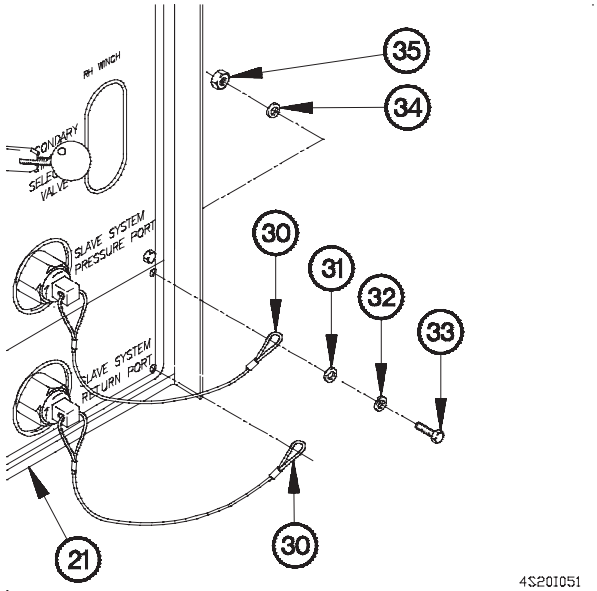
(6) Install bottom control panel cover (21) on control panel (2) with two washers (22), lockwashers (23), screws (24), washers (25), and nuts (26).

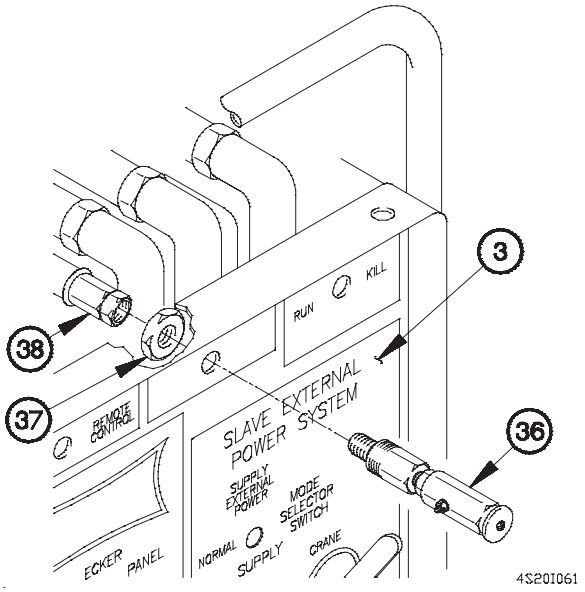
(7) Install washer (27), lockwasher (28), and screw (29) in bottom control panel cover (21).



17-20. M1089 CONTROL PANEL ASSEMBLY COVERS REPLACEMENT (CONT)

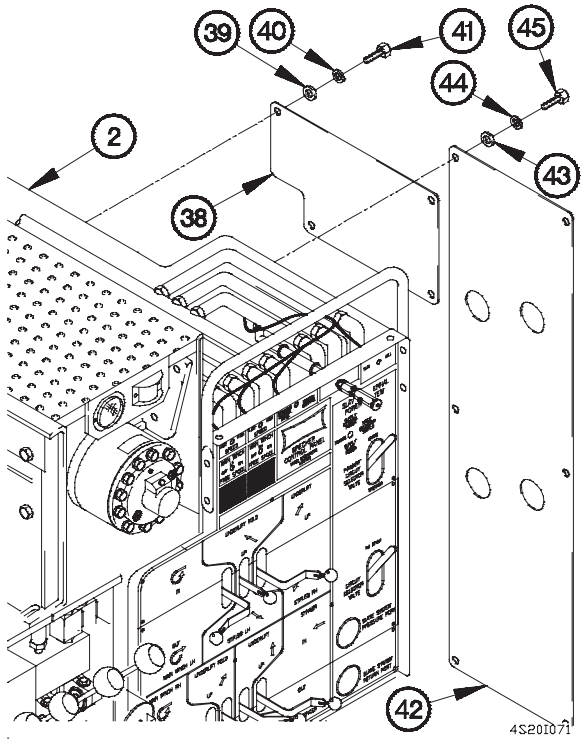
(8) Install two lanyards (30) on bottom control panel cover (21) with two washers (31), lockwashers (32), screws (33), washers (34), and nuts (35).





(9) Install HYDRAULIC SYSTEM OIL SAMPLING VALVE (36) and nut (37) on upper control panel cover (3).

(10) Connect hydraulic hose (38) to back of HYDRAULIC SYSTEM OIL SAMPLING VALVE (36).



(11) Install cover (38) on control panel (2) with four washers (39), lockwashers (40) and screws (41).

(12) Install cover (42) on control panel (2) with six washers (43), lockwashers (44), and screws (45).

c. Follow-On Maintenance.

(1) Install wrecker control panel toggle switches (para 7-91).

(2) Install warning and caution placards as required (para 2-39).

(3) Install right catwalk (para 14-4).

(4) Open hydraulic reservoir supply and return valves (TM 9-2320-366-10-2).

(5) Start engine (TM 9-2320-366-10-1).

(6) Check for oil leaks.

(7) Shut down engine (TM 9-2320-366-10-1).

End of Task.

17-21. 15K SELF-RECOVERY WINCH (SRW) FRONT ROLLER FAIRLEAD REPLACEMENT

This task covers:

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

INITIAL SETUP

Equipment Conditions
Front bumper and gravel deflector removed (para 14-2).
Cab raised (TM 9-2320-366-10-1).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Gun, Lubricating (Item 16, Appendix C)
Goggles, Industrial (Item 15, Appendix C)

Materials/Parts
Grease, Automotive and Artillery (GAA) (Item 22, Appendix D)
Pin, Spring (2) (Item 238, Appendix G)
Pin, Spring (Item 239, 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.

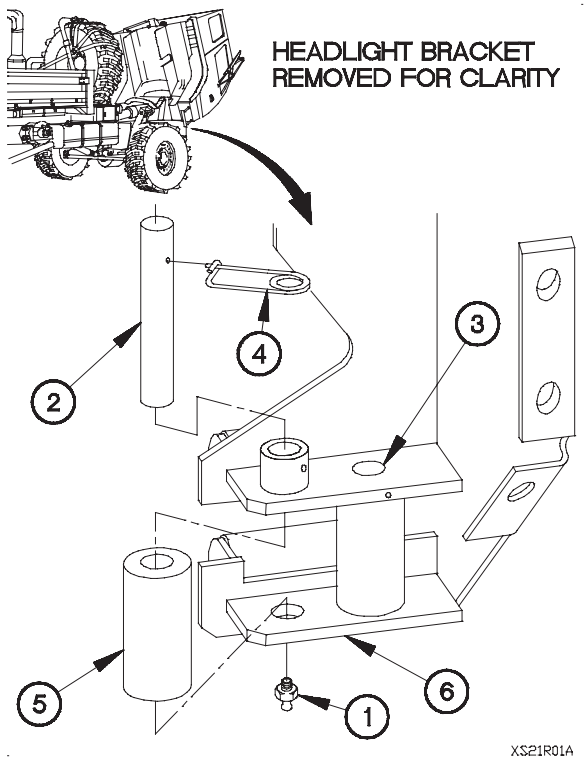
(1) Remove two lubrication fittings (1) from straight shafts (2 and 3).

(2) Remove retaining pin (4) from straight shaft (2).

CAUTION

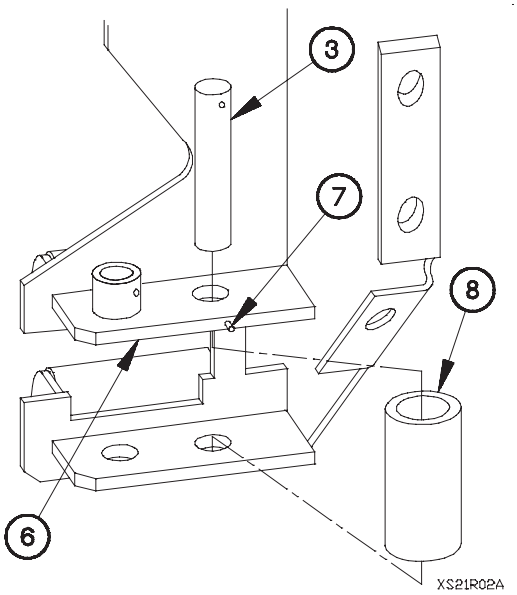
Use a brass punch to remove straight shafts. Failure to comply may damage threads for lubrication fittings.

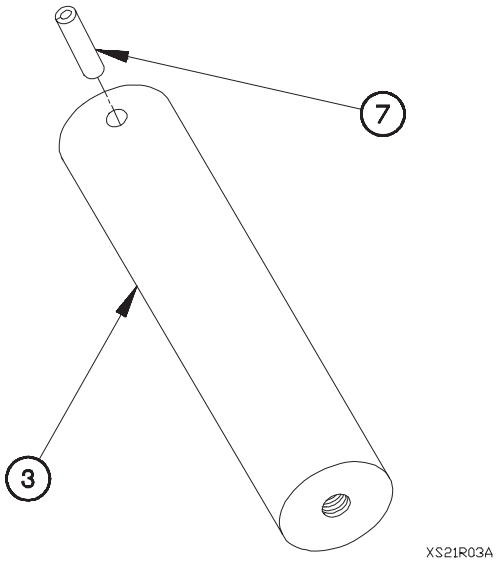
(3) Remove straight shaft (2) and roller fairlead (5) from bracket (6).



(4) Drive spring pin (7) through bracket (6) and into straight shaft (3) as far as possible.

(5) Remove straight shaft (3) and roller fairlead (8) from bracket (6).



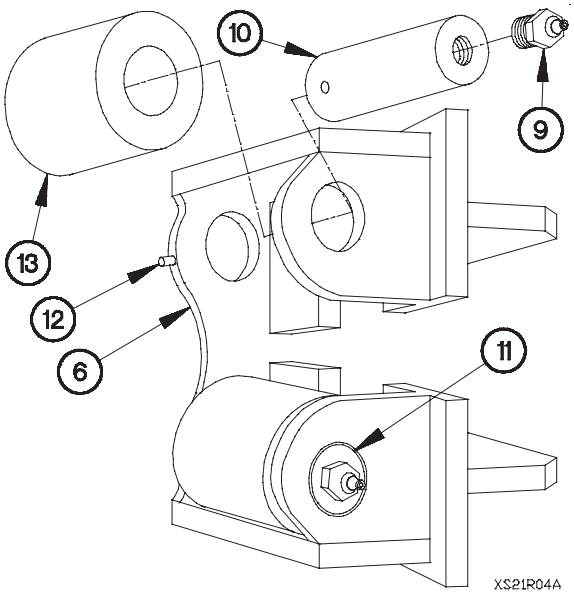


(6) Remove spring pin (7) from straight shaft (3). Discard spring pin.

(7) Remove two lubrication fittings (9) from straight shafts (10 and 11).

(8) Drive spring pin (12) through bracket (6) and into straight shaft (10) as far as possible.

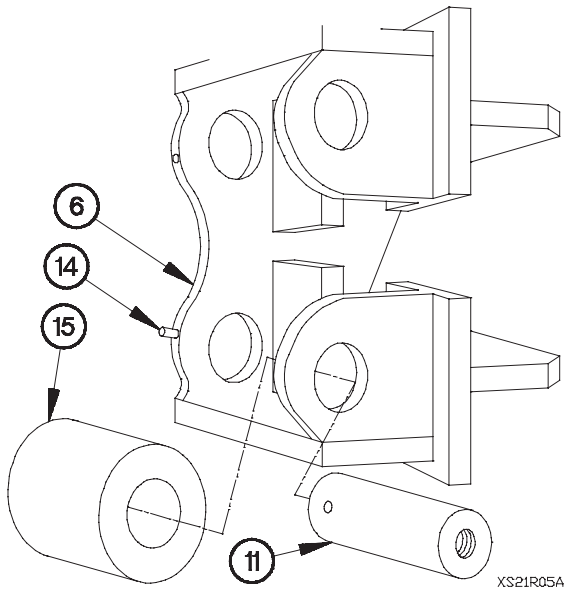
(9) Remove straight shaft (10) and roller fairlead (13) from bracket (6).

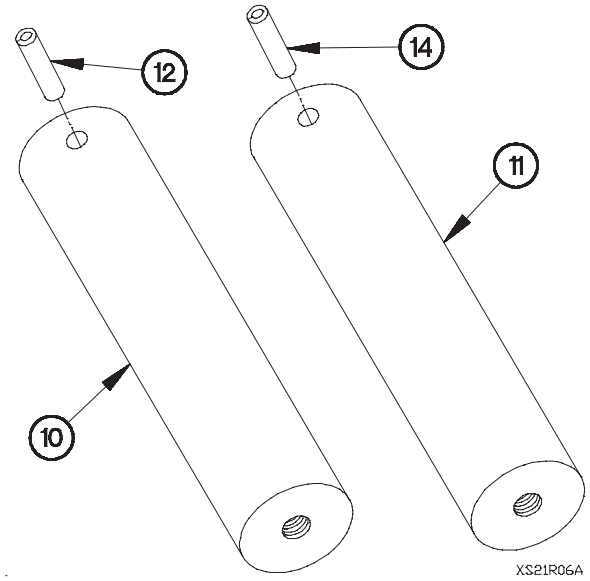


17-21. 15K SELF-RECOVERY WINCH (SRW) FRONT ROLLER FAIRLEAD REPLACEMENT (CONT)

(10) Drive spring pin (14) through bracket (6) and into straight shaft (11) as far as possible.

(11) Remove straight shaft (11) and roller fairlead (15) from bracket (6).

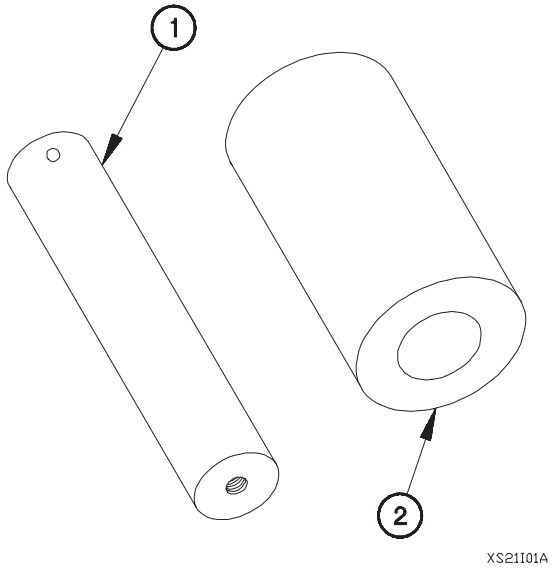




(12) Remove spring pins (12 and 14) from straight shafts (10 and 11). Discard spring pins.

b. Installation.

(1) Apply grease to straight shaft (1) and inside of roller fairlead (2).



CAUTION

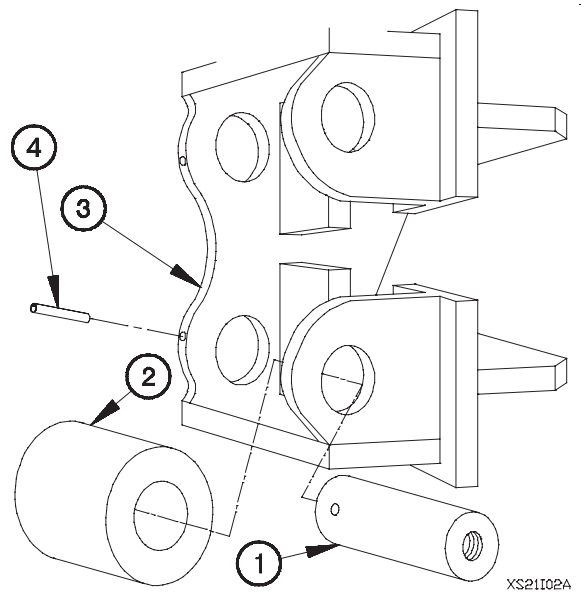
Use a brass punch to install straight shafts. Failure to comply may damage threads for lubrication fittings.

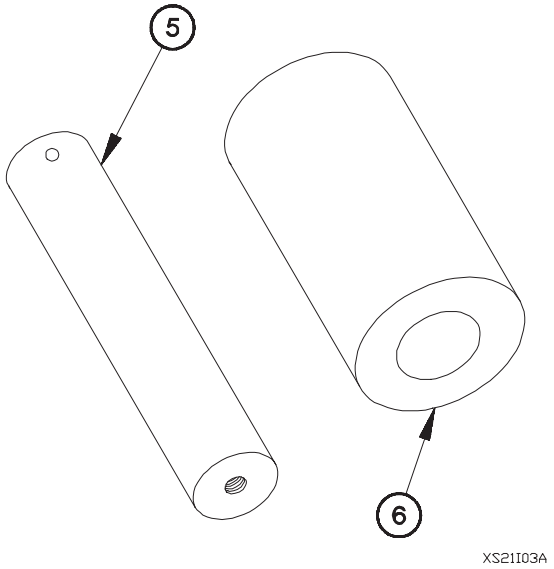
NOTE

Align hole in straight shaft with hole in bracket.

(2) Install roller fairlead (2) and straight shaft (1) in bracket (3).

(3) Install spring pin (4) through bracket (3) and straight shaft (1).





(4) Apply grease to straight shaft (5) and inside of roller fairlead (6).

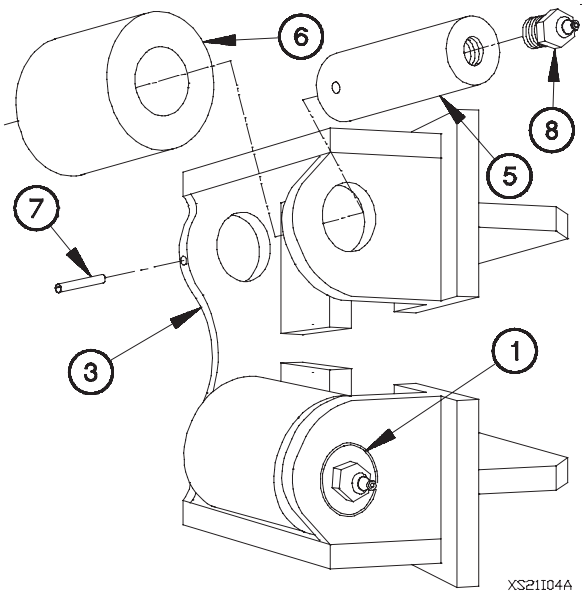
NOTE

Align hole in straight shaft with hole in bracket.

(5) Install roller fairlead (6) and straight shaft (5) in bracket (3).

(6) Install spring pin (7) through bracket (3) and straight shaft (5).

(7) Install two lubrication fittings (8) in straight shafts (1 and 5).



17-21. 15K SELF-RECOVERY WINCH (SRW) FRONT ROLLER FAIRLEAD REPLACEMENT (CONT)

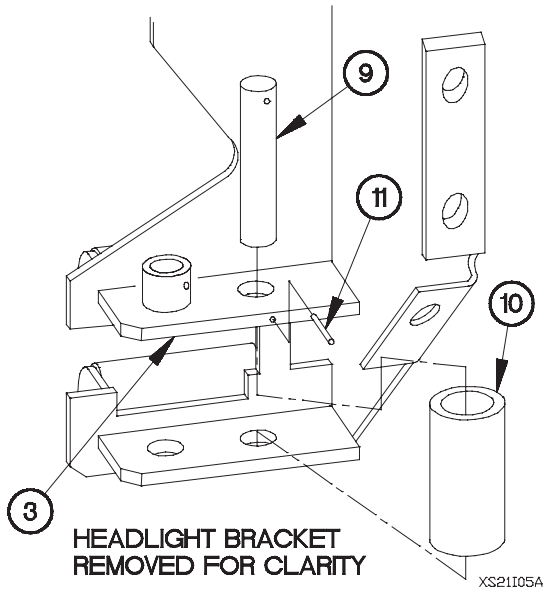
(8) Apply grease to straight shaft (9) and inside of roller fairlead (10).

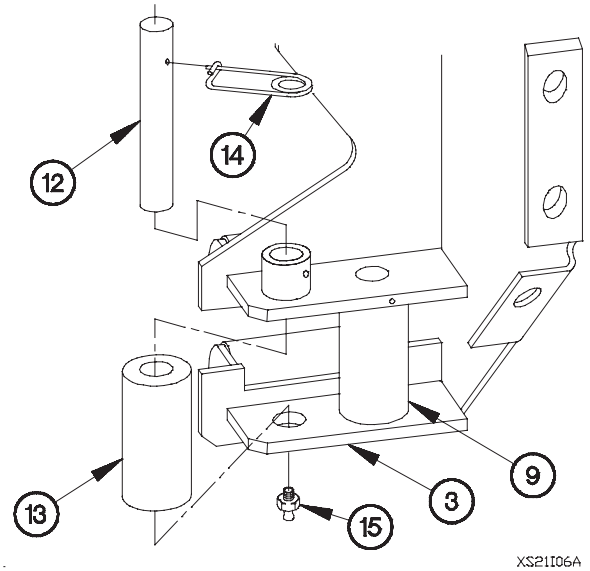
NOTE

- Install straight shaft so that lubrication fitting is toward bottom.
- Align hole in straight shaft with hole in bracket.

(9) Install roller fairlead (10) and straight shaft (9) in bracket (3).

(10) Install spring pin (11) through bracket (3) and straight shaft (9).





(11) Apply grease to straight shaft (12) and inside of roller fairlead (13).

NOTE

Install straight shaft so that lubrication fitting is toward bottom.

(12) Install roller fairlead (13) and straight shaft (12) in bracket (3).

NOTE

Align hole in straight shaft with hole in bracket.

(13) Install retaining pin (14) through bracket (3) and straight shaft (12).

(14) Install two lubrication fittings (15) in straight shafts (9 and 12).

c. Follow-On Maintenance.

(1) Lower cab (TM 9-2320-366-10-1).

(2) Install front bumper and gravel deflector (para 14-2).

(3) Lubricate front rollers (Appendix H).

End of Task.

17-22. 15K SELF-RECOVERY WINCH (SRW) REAR ROLLER FAIRLEAD REPLACEMENT

This task covers:

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

INITIAL SETUP

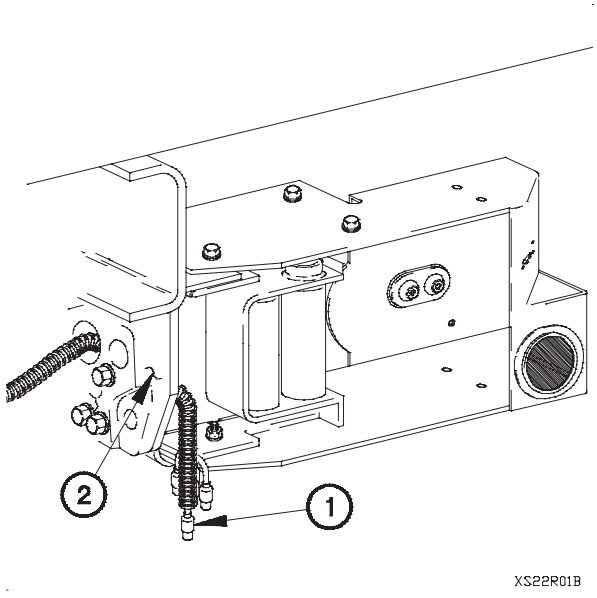
Equipment Conditions
Engine shut down (TM 9-2320-366-10-1).
15K SRW cable removed from rear roller fairlead, if required (TM 9-2320-366-10-2).
Right composite taillight assembly removed (para 7-39).
Right marker light assemblies removed (para 7-38).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Wrench, Torque, 0-175 lb-ft (Item 58, Appendix C)
Wrench, Torque, 0-600 lb-ft (Item 60, Appendix C)
Gun, Lubricating (Item 16, Appendix C)
Wrench Set, Socket (Item 110, Appendix C)

Materials/Parts
Dispenser, Pressure Sensitive Adhesive Tape (Item 20, Appendix D)
Grease, Automotive and Artillery (GAA) (Item 22, Appendix D)
Nut, Self-Locking (4) (Item 161, Appendix G)
Nut, Self-Locking (2) (Item 156, Appendix G)
Pin, Spring (3) (Item 238, Appendix G)
Pin, Spring (Item 239, Appendix G)

a. Removal.

(1) Pull rear lights cable assembly (1) through right frame rail (2).



17-22. 15K SELF-RECOVERY WINCH (SRW) REAR ROLLER FAIRLEAD REPLACEMENT (CONT)

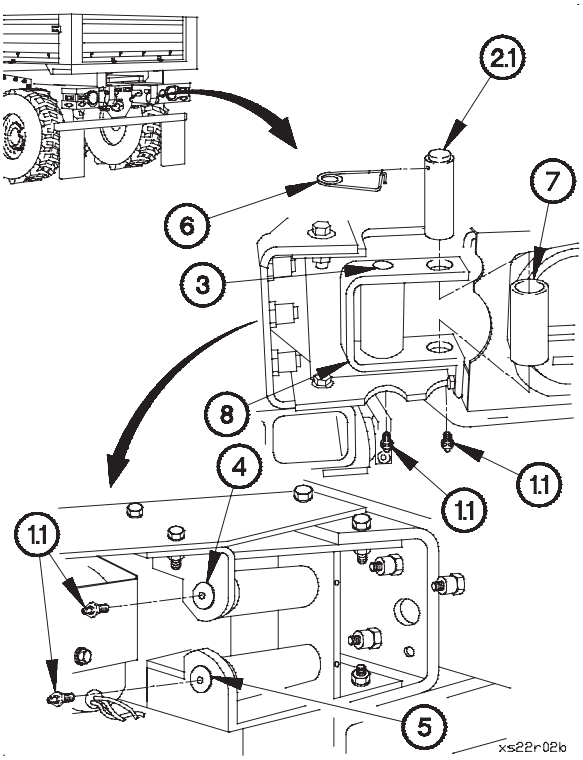
(1.1) Remove four lubrication fittings (1.1) from straight shafts (2.1, 3, 4, and 5).

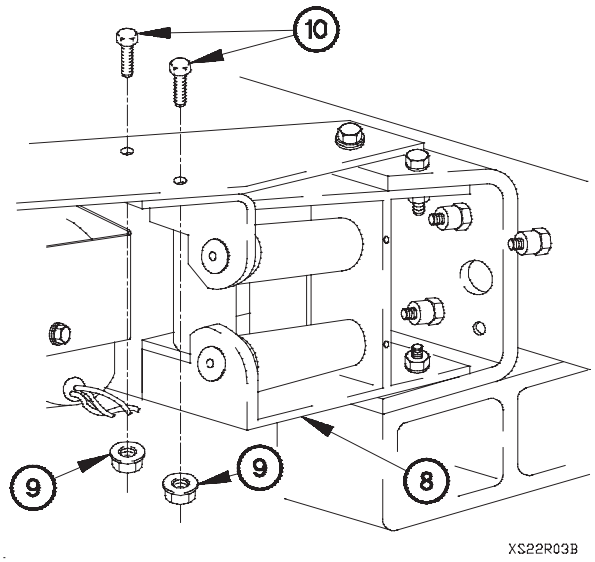
(2) Remove retaining pin (6) from straight shaft (2.1).

CAUTION

Use a brass punch to remove straight shafts. Failure to comply may damage threads for lubrication fittings.

(3) Remove straight shaft (2.1) and fairlead roller (7) from roller bracket (8).





(4) Remove two self-locking nuts (9) and screws (10) from roller bracket (8). Discard self-locking nuts.

(5) Deleted

(6) Deleted

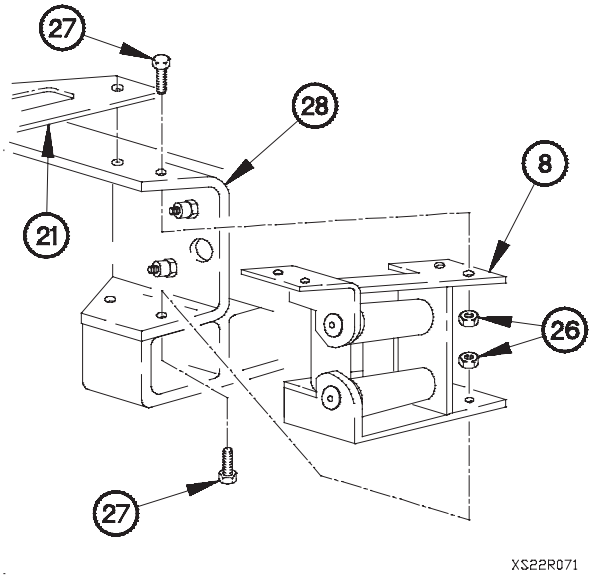
(7) Deleted

(8) Deleted

(9) Deleted

17-22. 15K SELF-RECOVERY WINCH (SRW) REAR ROLLER FAIRLEAD REPLACEMENT (CONT)

(10) Remove four self-locking nuts (26), screws (27), taillight bracket (21), and roller bracket (8) from mounting bracket (28). Discard self-locking nuts.



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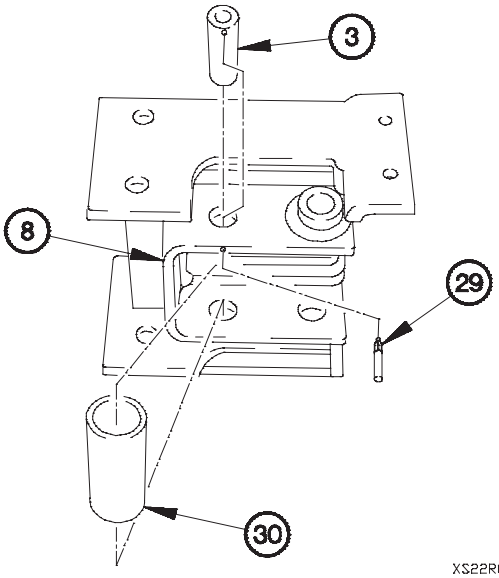

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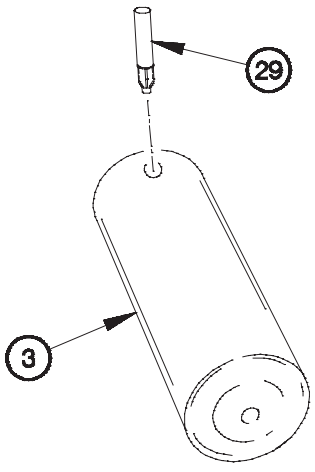
(11) Drive spring pin (29) in straight shaft (3) as far as possible.

(12) Remove straight shaft (3) and fairlead roller (30) from roller bracket (8).

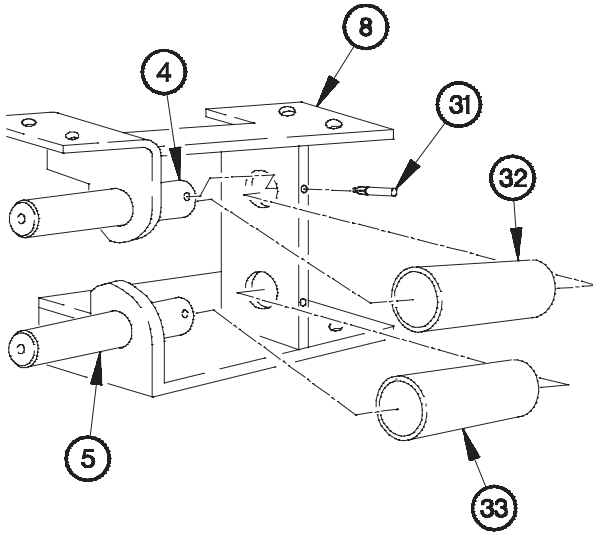


XS22R091

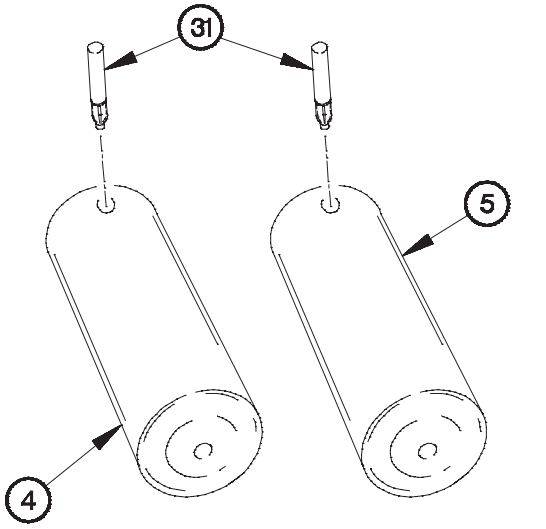
(13) Remove spring pin (29) from straight shaft (3). Discard spring pin.

(14) Drive two spring pins (31) in straight shafts (4 and 5).

(15) Remove straight shafts (4 and 5) and fairlead rollers (32 and 33) from roller bracket (8).



XS22R101



XS22R111

(16) Remove two spring pins (31) from straight shafts (4 and 5). Discard spring pins.

17-22. 15K SELF-RECOVERY WINCH (SRW) REAR ROLLER FAIRLEAD REPLACEMENT (CONT)

b. Installation.

(1) Apply grease to straight shafts (1 and 2) and inside of fairlead rollers (3 and 4).

CAUTION

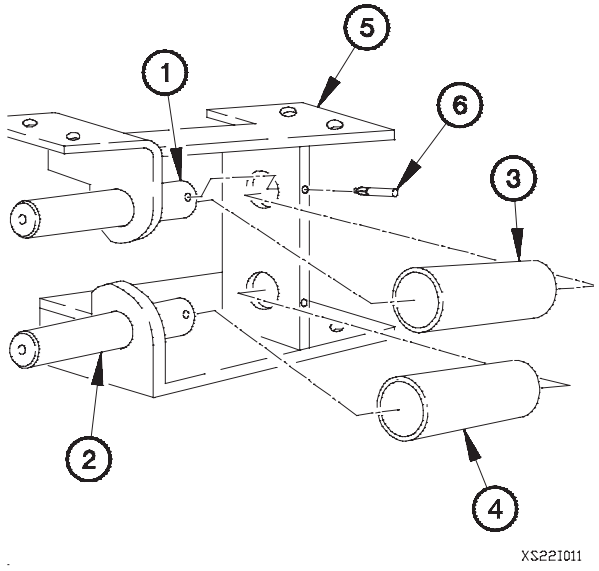
Use a brass punch to install straight shafts. Failure to comply may result in damage to threads for lubrication fittings.

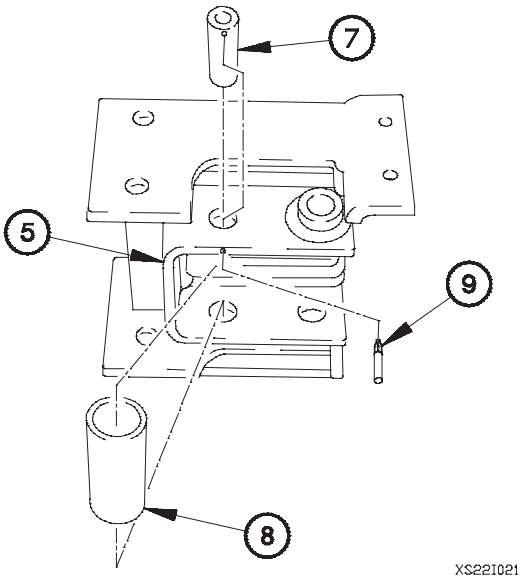
NOTE

- Install straight shafts so that lubrication fittings are toward curbside of vehicle.
- Align hole in straight shafts with holes in bracket.

(2) Install fairlead rollers (3 and 4) and straight shafts (1 and 2) in roller bracket (5).

(3) Install two spring pins (6) through roller bracket (5) and straight shafts (1 and 2).





(4) Apply grease to straight shaft (7) and inside of fairlead roller (8).

NOTE

- Install straight shaft so that lubrication fitting faces toward bottom.
- Align hole in straight shaft with hole in bracket.

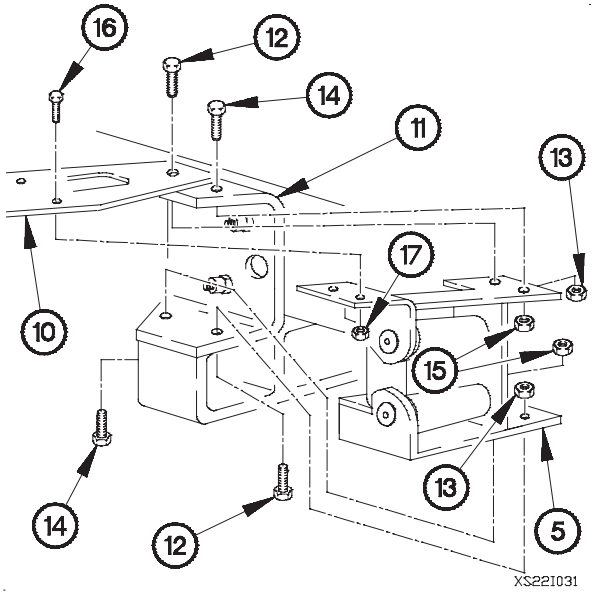
(5) Install fairlead roller (8) and straight shaft (7) in roller bracket (5).

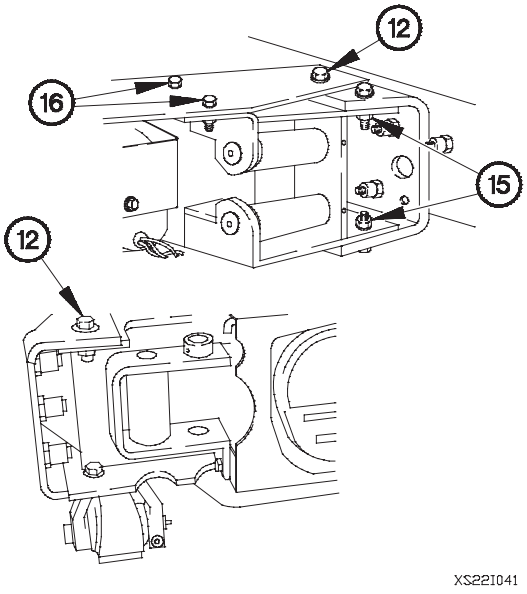
(6) Install spring pin (9) through roller bracket (5) and straight shaft (7).

(7) Position roller bracket (5) and taillight bracket (10) on mounting bracket (11) with two screws (12) and self-locking nuts (13).

(8) Position two screws (14) in mounting bracket (11) with two self-locking nuts (15).

(9) Position two screws (16) in taillight bracket (10) with two self-locking nuts (17).





(10) Tighten two screws (12) to 149-182 lb-ft (202-247 N·m).

(11) Tighten two self-locking nuts (15) to 149-182 lb-ft (202-247 N·m).

(12) Tighten two screws (16) to 26-32 lb-ft (35-43 N·m).

NOTE

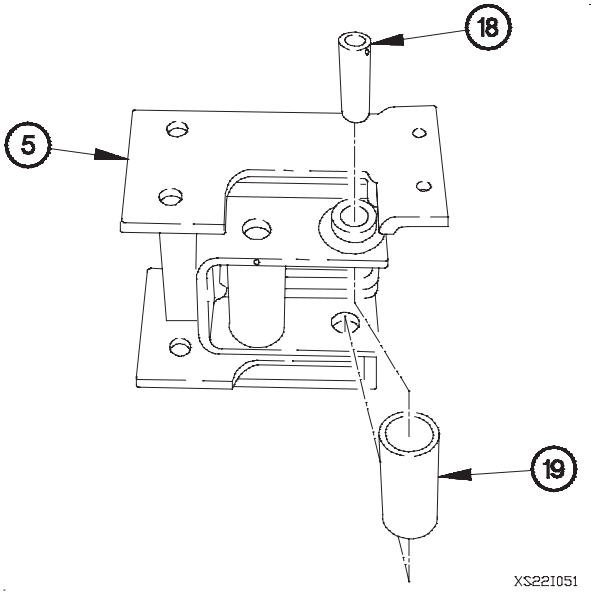
If straight shaft is being replaced, a replacement spring pin must be installed.

(13) Apply grease to straight shaft (18) and inside of fairlead roller (19).

NOTE

Install straight shaft so that lubrication fitting faces toward bottom.

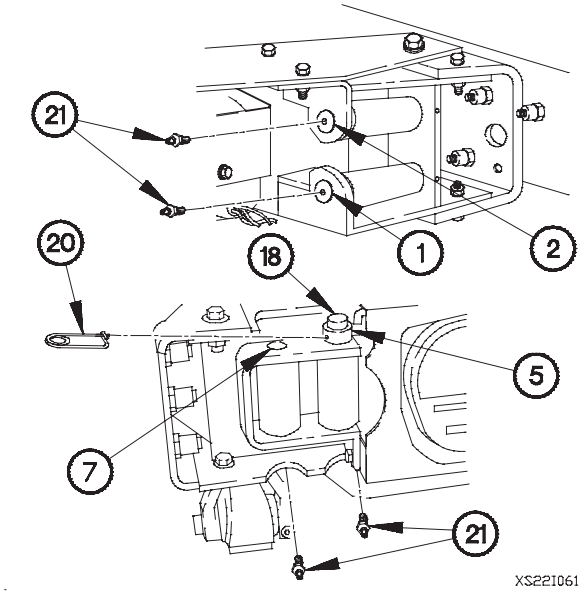
(14) Install fairlead roller (19) and straight shaft (18) in roller bracket (5).



17-22. 15K SELF-RECOVERY WINCH (SRW) REAR ROLLER FAIRLEAD REPLACEMENT (CONT)

(15) Install retaining pin (20) through roller bracket (5) and straight shaft (18).

(16) Install four lubrication fittings (21) in straight shafts (1, 2, 7, and 18).



(17) Deleted

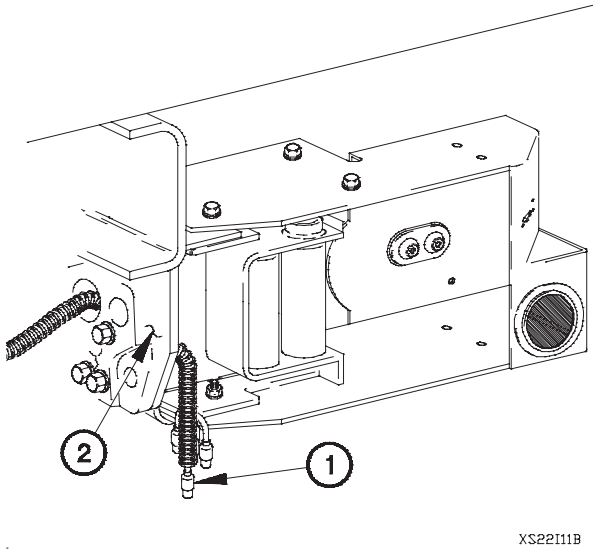
(18) Deleted

(19) Deleted

(20) Deleted

(21) Deleted

(22) Position rear lights cable assembly (1) through right frame rail (2).



c. Follow-On Maintenance.

(1) Install right composite taillight assembly (para 7-39).

(2) Install right marker light assemblies (para 7-38).

(3) Lubricate rear rollers (Appendix H).

(4) Install 15K SRW cable in rear roller fairlead, if required (TM 9-2320-366-10-2).

End of Task.

17-23. 15K SELF-RECOVERY WINCH (SRW) CABLE PULLEYS REPLACEMENT

This task covers:

a. Front Pulley Removal
b. Front Pulley Installation
c. Rear Pulley Removal
d. Rear Pulley Installation
e. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions
15K SRW cable extended approximately three feet (TM 9-2320-366-10-2).
Cab raised (TM 9-2320-366-10-1).
Engine shut down (TM 9-2320-366-10-1).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Wrench, Torque, 0-175 lb-ft (Item 58, Appendix C)

Tools and Special Tools (Cont)
Hammer, Hand (Item 17, Appendix C)
Gloves, Welder's (Item 14, Appendix C)
Goggles, Industrial (Item 15, Appendix C)

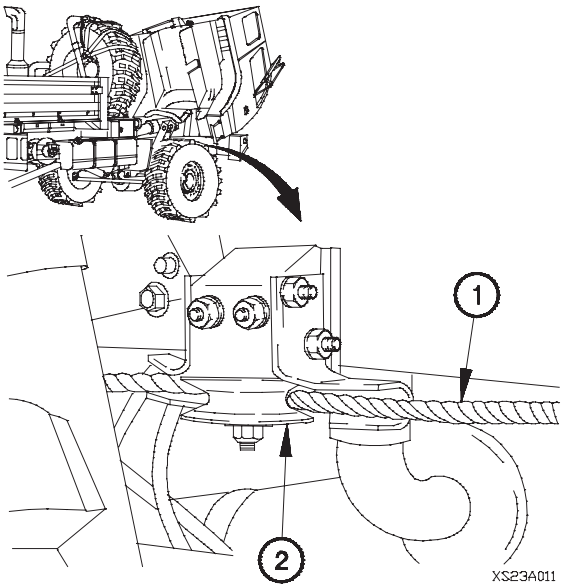
Materials/Parts
Nut, Self-Locking (2) (Item 158, Appendix G)
Nut, Self-Locking (2) (Item 168, Appendix G)

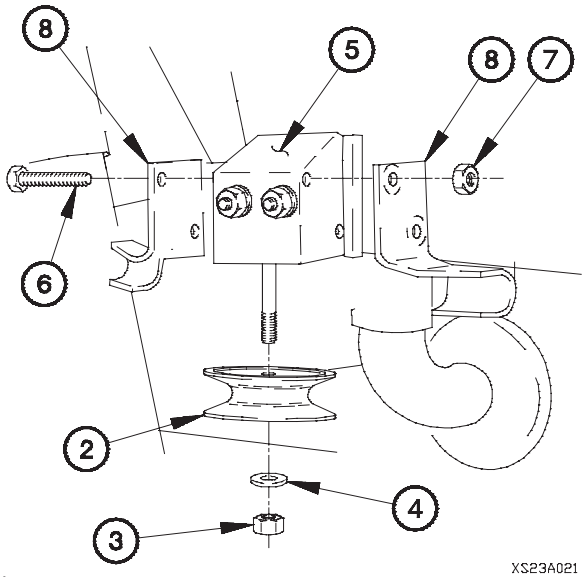
WARNING

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

a. Front Pulley Removal.

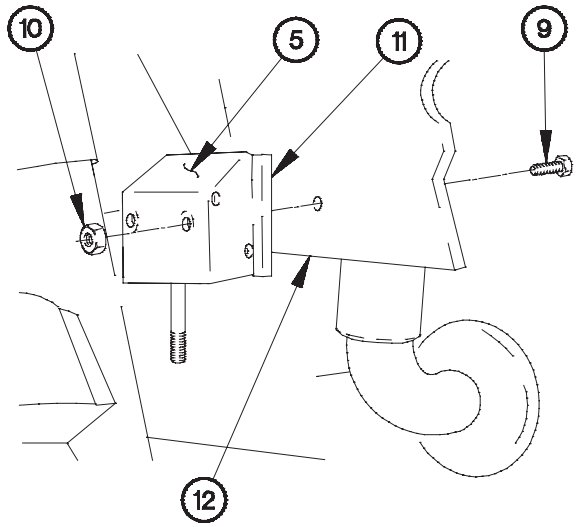
(1) Remove 15K SRW cable (1) from front cable pulley (2).





(2) Remove nut (3), washer (4), and cable pulley (2) from mounting bracket (5).

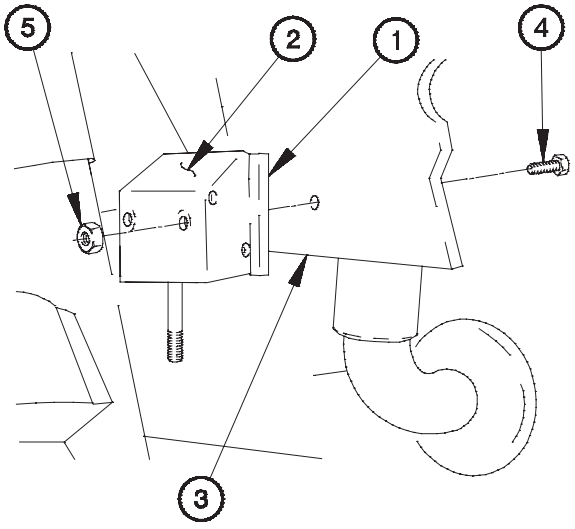
(3) Remove two screws (6), self-locking nuts (7), and brackets (8) from mounting bracket (5). Discard self-locking nuts.



XS23A031

(4) Remove two screws (9), self-locking nuts (10), mounting bracket (5), and mounting plate (11) from frame (12). Discard self-locking nuts.

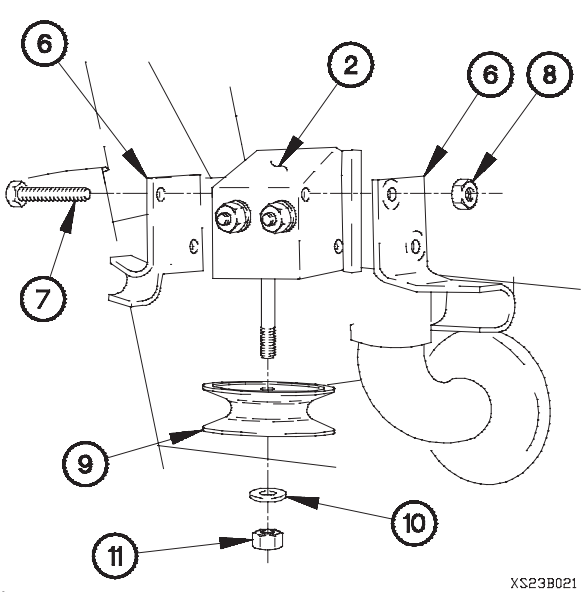
b. Front Pulley Installation.



XS23B011

(1) Position mounting plate (1) and mounting bracket (2) to frame (3) with two screws (4) and self-locking nuts (5).

(2) Tighten two self-locking nuts (5) to 114-140 lb-ft (155-190 N·m).



XS23B021

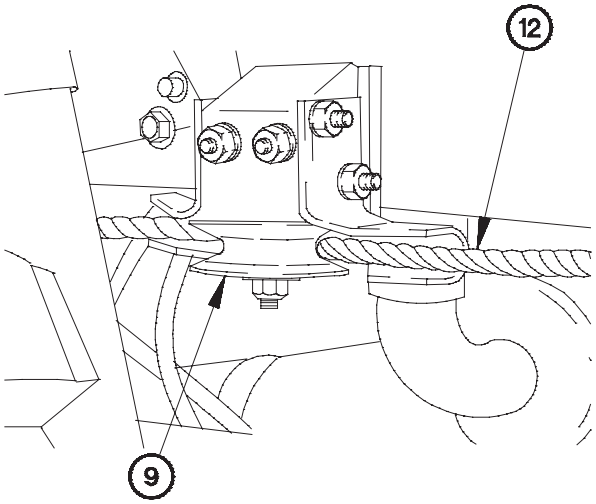
(3) Position two brackets (6) on mounting bracket (2) with two screws (7) and self-locking nuts (8).

(4) Tighten two self-locking nuts (8) to 58-79 lb-ft (79-107 N·m).

(5) Install cable pulley (9) on mounting bracket (2) with washer (10) and nut (11).

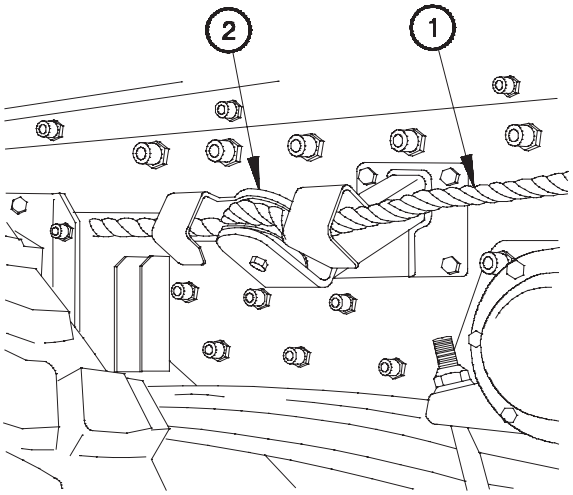
17-23. 15K SELF-RECOVERY WINCH (SRW) CABLE PULLEYS REPLACEMENT (CONT)

(6) Route 15K SRW cable (12) through front cable pulley (9).



XS23B031

c. Rear Pulley Removal.



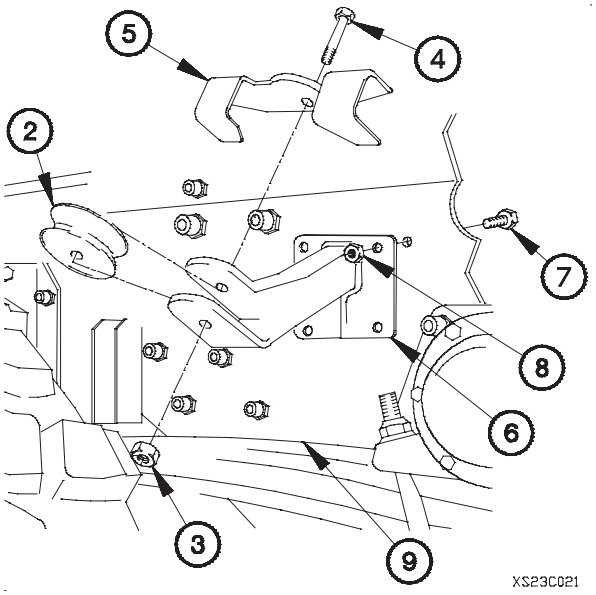
XS23C011

(1) Remove 15K SRW cable (1) from rear cable pulley (2).

(2) Remove self-locking nut (3) from screw (4). Discard self-locking nut.

(3) Remove screw (4), cable pulley (2), and mounting bracket (5) from bracket assembly (6).

(4) Remove four screws (7), self-locking nuts (8), and bracket (6) from frame (9). Discard self-locking nuts.



XS23C021

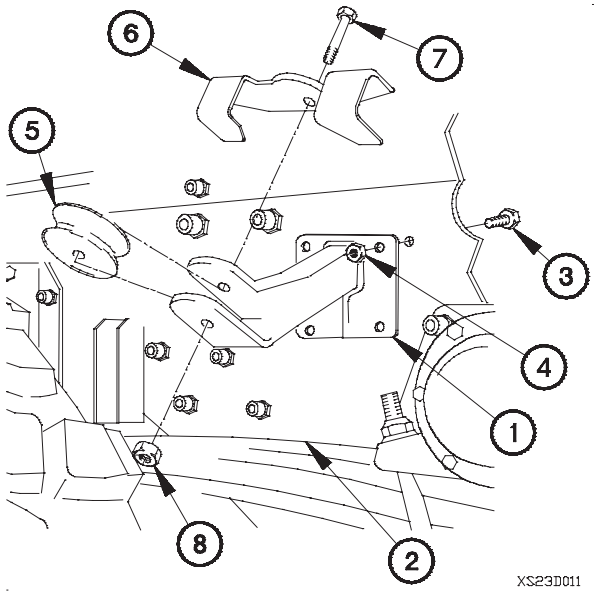
d. Rear Pulley Installation.

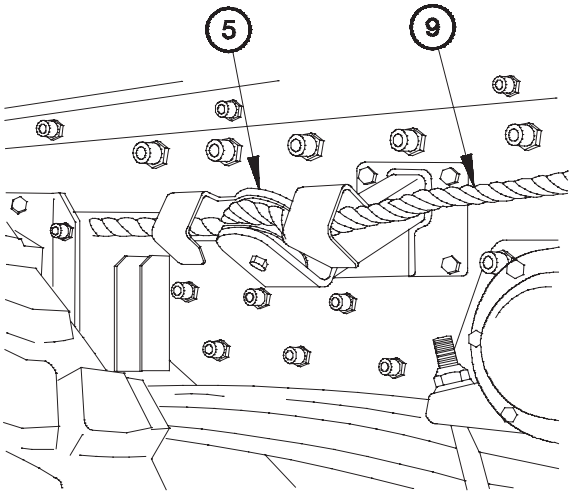
(1) Position bracket (1) on frame (2) with four screws (3) and self-locking nuts (4).

(2) Tighten four self-locking nuts (4) to 114-140 lb-ft (155-190 N·m).

(3) Position cable pulley (5) and mounting bracket (6) on bracket (1) with screw (7) and self-locking nut (8).

(4) Tighten self-locking nut (8) to 114-140 lb-ft (155-190 N·m).





(5) Route 15K SRW cable (9) through rear cable pulley (5).

e. Follow-On Maintenance.

(1) Lower cab (TM 9-2320-366-10-1).

(2) Operate 15K SRW and check for proper operation (TM 9-2320-366-10-2).

(3) Reel in 15K SRW cable (TM 9-2320-366-10-2).

End of Task.

17-24. 15K SELF-RECOVERY WINCH (SRW) CABLE REPLACEMENT/REPAIR

This task covers:

a. Removal
b. Spelter Socket Removal
c. Spelter Socket Installation
d. Installation
e. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions
15K SRW cable payed-out completely from front of vehicle (TM 9-2320-366-10-2).
Engine shut down (TM 9-2320-366-10-1).

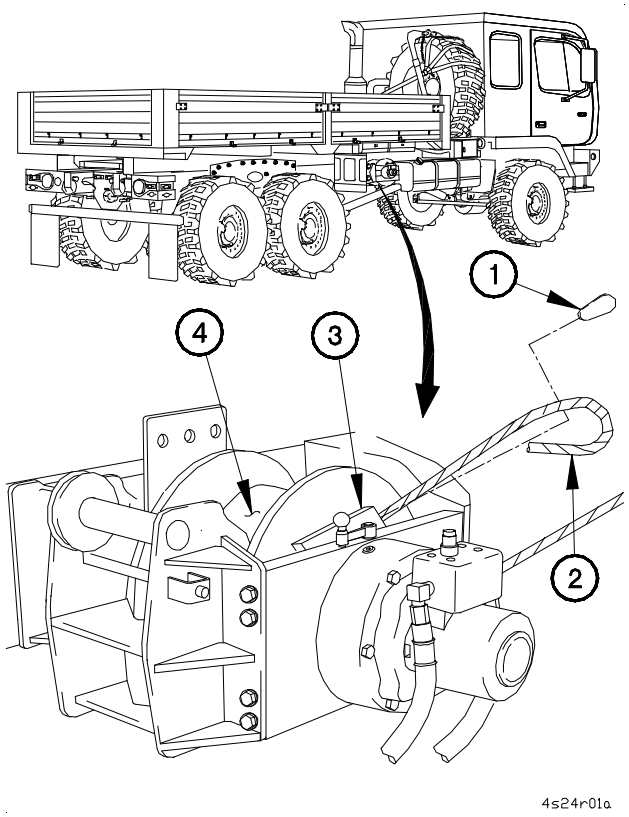
Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Gloves, Welder's (Item 14, Appendix C)
Goggles, Industrial (Item 15, Appendix C)
Grease, Wire Rope-Exposed Gear (Item 23.1, Appendix D)

Tools and Special Tools (Cont)
Wire, Nonelectrical (Item 72, Appendix D)
Tape, Duct (Item 67, Appendix D)
Adhesive (Item 10.1 Appendix D)
Spelter Socket Resin (Item 65.3, Appendix D)
Vise, Machinist (Item 48,Appendix C)
Frame, Hand Hacksaw (Item 9.1, Appendix C)
Blade, Hand Hacksaw (Item 3.1, Appendix C)

Personnel Required
(3)

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. 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.**



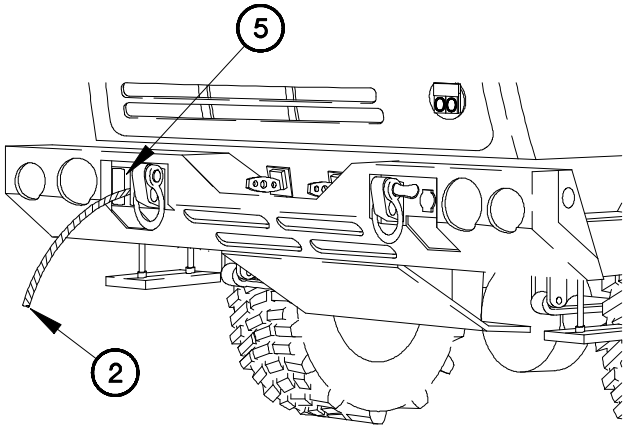
a. Removal.

(1) Remove cable wedge (1) and 15K SRW cable (2) from flange (3).

(2) Pull 15K SRW cable (2) from flange (3).

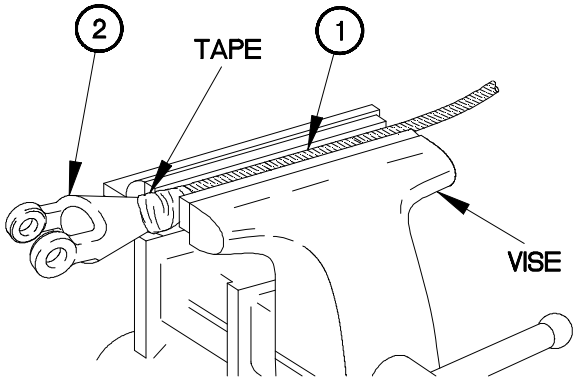
(3) Remove 15K SRW cable (2) from drum (4).

(4) Pull 15K SRW cable (2) out through roller fairleads (5) at front of vehicle.



XS24R02A

b. Spelter Socket Removal.



4s18a031

(1) Wrap tape around cable (1) as close to spelter socket (2) as possible to prevent fraying of cable end while cutting.

(2) Position cable (1) and spelter socket (2) in vise, so half of taped cable end is showing.

(3) Cut through taped part of cable (1) removing damaged spelter socket (2). Discard spelter socket.

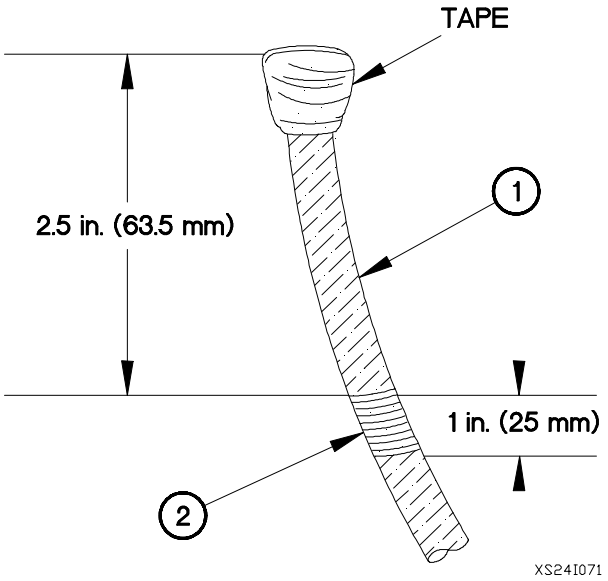
17-24. M1089 30K WINCH CABLE REPLACEMENT/REPAIR (CONT)

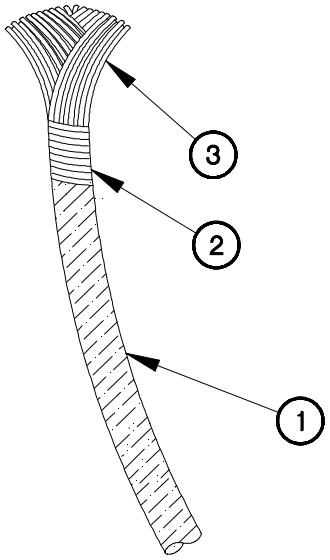
c. Spelter Socket installation

(1) Match mark 2.5 in (63.5 mm) down from end of cable (1).

(2) Wrap wire (2) around cable (1) at match mark until 1 in. (25mm) wide coil of wire is placed on cable.

(3) Remove tape from end of cable (1).





CAUTION

Ensure any fibers or plastic materials in separated strands of wire are removed. Failure to comply may result in inability of resin to bond to cable end.

(4) Separate strands of wire (3) at end of cable (1) until wire reaches top edge of wrapped wire (2).

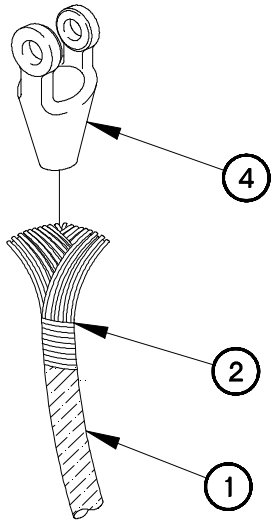
(5) Fan separated wires (3) evenly on end of cable (1).

WARNING

- **Dry Cleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles and glove; use only in well ventilated area; avoid contact with skin, eyes, and clothes, and do not breathe the vapors. Keep away from heat or flame. Never smoke when using solvent; the flash point for Type I dry cleaning solvent is 100° (38° C) and for Type II is 130° (50° C). Failure to comply may result in serious injury or death to personnel.**
- **If personnel becomes dizzy while using dry 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.**

(6) Clean cable end thoroughly.

(7) Position spelter socket (4) on fanned area of cable (1) until contact is made with top edge of wrapped wire (2).



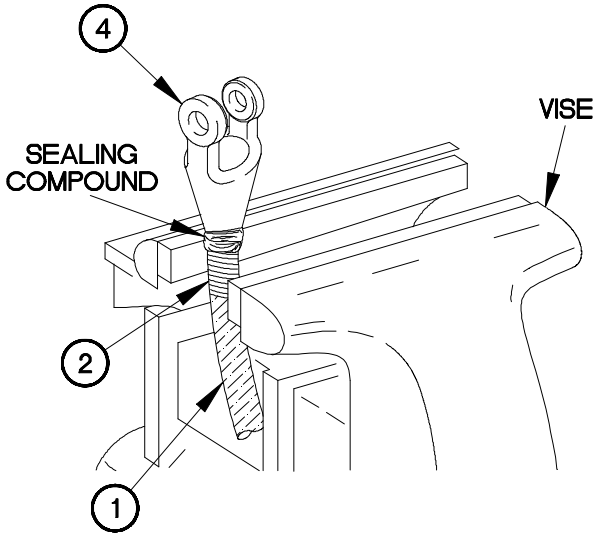
xs24i091

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.

CAUTION

Allow sealing compound to cure before adding resin. Failure to comply may result in damage to equipment.



xs24i101

(8) Apply 1 in. (25 mm) wide bead of sealant between bottom of spelter socket (4) and wrapped wire (4)

(9) Position cable (1) and spelter socket (4) vertically in vise.

17-24. M1089 30K WINCH CABLE REPLACEMENT/REPAIR (CONT)

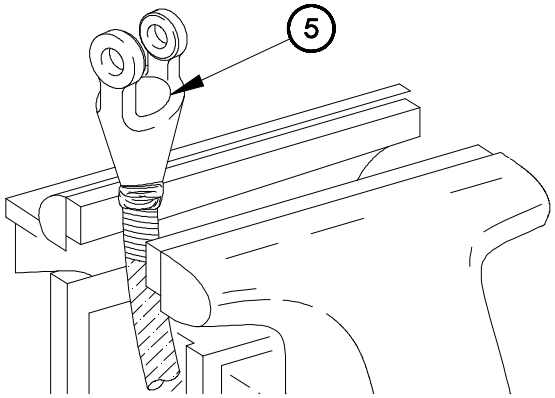
WARNING

- **Incorrect use of spelter socket resin can result in unsafe termination of cable. This may result in death or serious injury to personnel and damage to equipment.**
- **Never use a repaired spelter socket until resin has thoroughly cured. Resin will gel in approximately 15 minutes and be fully cured in 2 hours from mixing.**
- **Never heat socket to accelerate gelling or curing.**
- **Adhesive, 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.**

CAUTION

- Spelter socket kit consists of two containers. Ensure that all contents of both containers in kit are used and mixed thoroughly.
- Spelter socket and cable must remain in the vertical position during curing. Curing time on spelter socket resin varies with temperature. Two hours is an average amount of time the resin takes to cure at temperatures of 65 degrees to 75 degrees Fahrenheit.

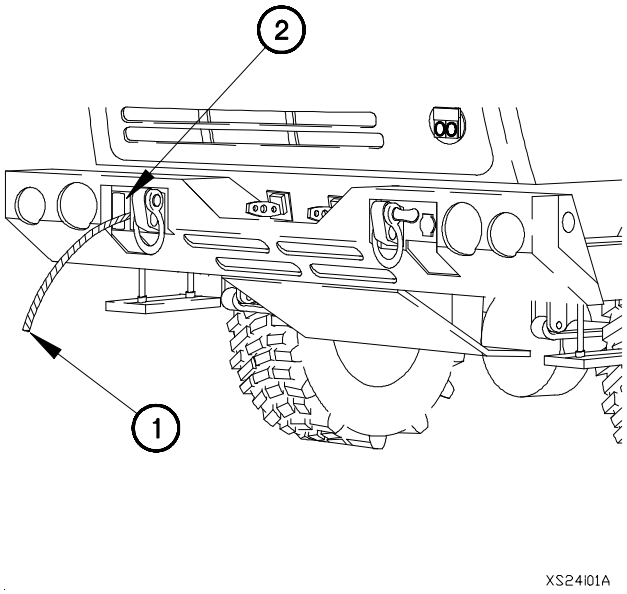
(10) Slowly pour the mixture down one side of the socket basket (5) until the socket basket (5) is full.

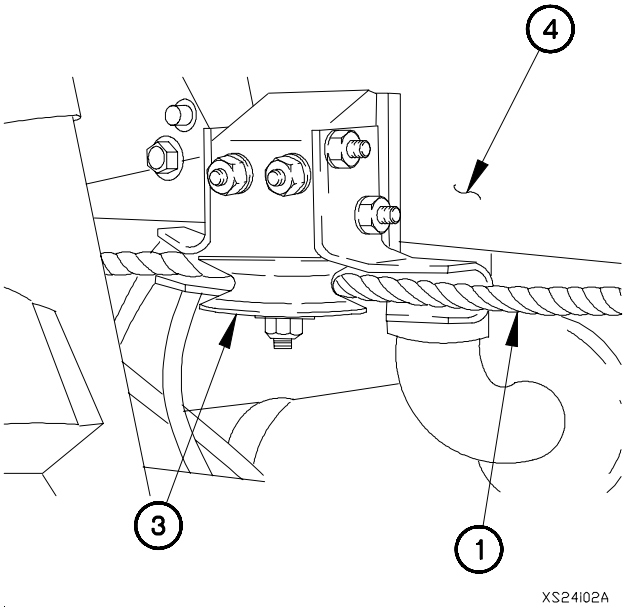


XS24I111

d. Installation.

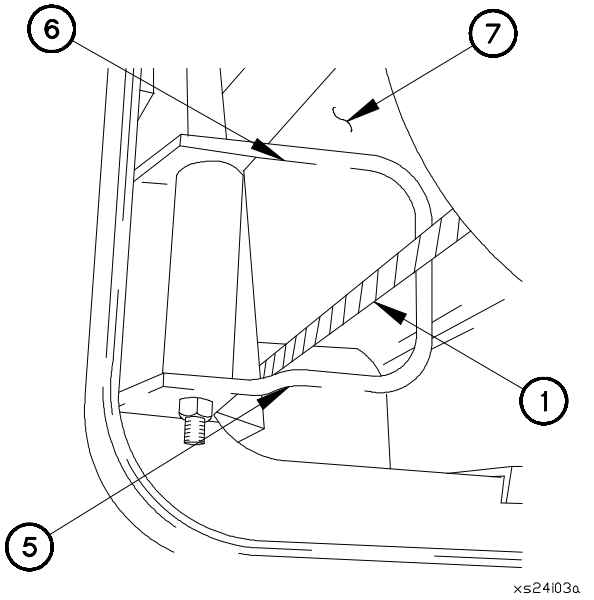
(1) Route 15K SRW cable (1) through roller fairleads (2) at front of vehicle.





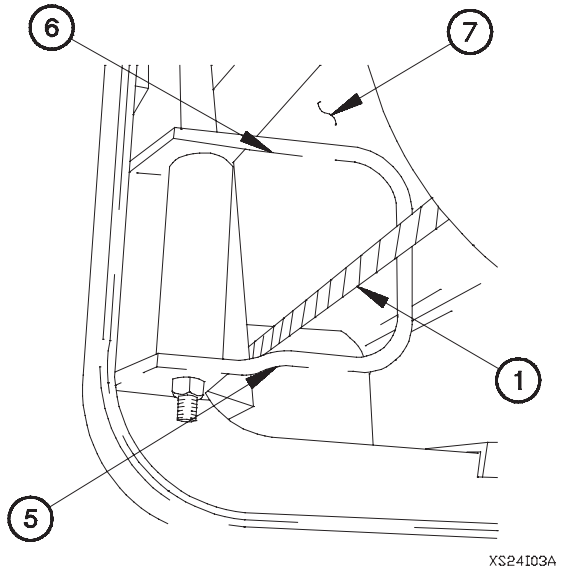
(2) Route 15K SRW cable (1) through front cable pulley (3) on frame (4).

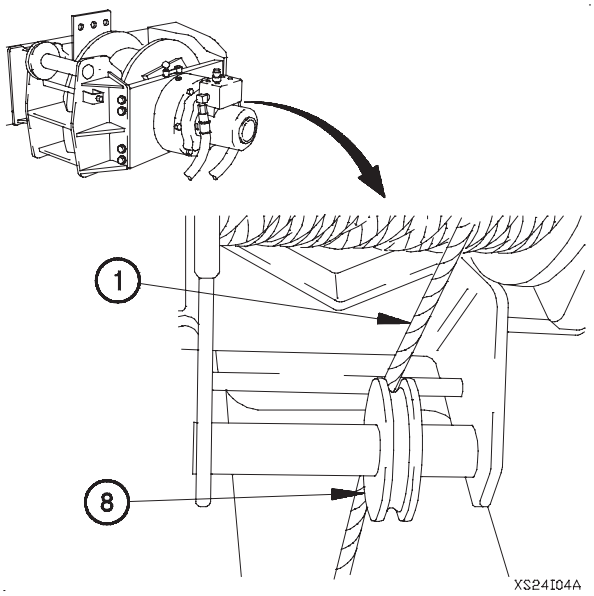
(3) Route 15K SRW cable (1) through cable guides (5 and 6) behind fuel tank (7).



17-24. 15K SELF-RECOVERY WINCH (SRW) CABLE REPLACEMENT (CONT)

(3) Route 15K SRW cable (1) through cable guides (5 and 6) behind fuel tank (7).





(4) Route 15K SRW cable (1) over cable guide roller (8).

NOTE

Position 15K SRW cable on drum so that it will spool properly.

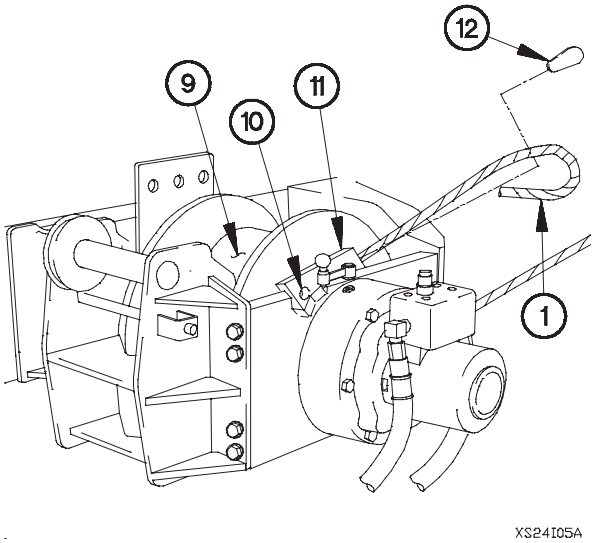
(5) Route 15K SRW cable (1) over and around drum (9).

(6) Insert 15K SRW cable (1) through slot (10) in side of drum (9).

(7) Route 15K SRW cable (1) up through flange (11) and back down into flange, making a loop.

(8) Insert wedge (12) in loop and pull 15K SRW cable (1) and wedge into flange (11).

(9) Drive wedge (12) and 15K SRW cable (1) down into flange (11) until fully seated.



(10) Start engine (TM 9-2320-366-10-1).

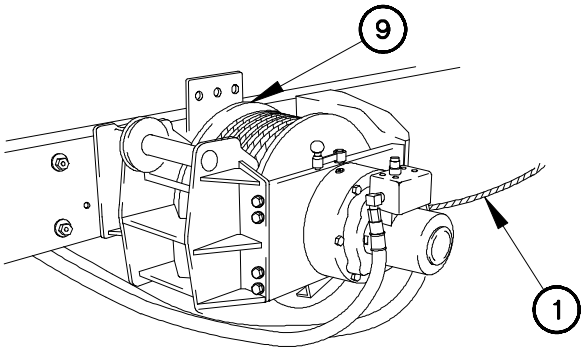
(11) Engage PTO (TM 9-2320-366-10-2).

(12) Push and hold winch switch (TM 9-2320-366-10-2).

NOTE

- After one complete layer of 15K SRW cable is on drum, provide tension on 15K SRW cable by physically pulling on 15K SRW cable so that 15K SRW cable spools on tightly. Leave enough 15K SRW cable unspooled to allow installation of hook block.
- Step (13) requires the aid of two assistants.

(13) Reel 15K SRW cable (1) onto drum (9) (TM 9-2320-366-10-2).



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e. Follow-On Maintenance.

(1) Disengage PTO (TM 9-2320-366-10-2).

(2) Shut down engine (TM 9-2320-366-10-1).

(3) Lubricate 15K SRW cable (Appendix H).

End of Task.

17-25. WINCH CONTROL VALVE ASSEMBLY AND BRACKET REPLACEMENT

This task covers:

a. Removal (All Models Except M1090/M1094)
b. Installation (All Models Except M1090/M1094)
c. Removal (M1090/M1094)
d. Installation (M1090/M1094)
e. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions
Dump body raised to maintenance position (M1090/M1094) (TM 9-2320-366-10-1).
Engine shut down (TM 9-2320-366-10-1).

Tools and Special Tools
Goggles, Industrial (Item 15, Appendix C)
Pan, Drain (Item 24, Appendix C)
Tool Kit, Genl Mech (Item 46, Appendix C)
Wrench, Torque, 0-175 lb-ft (Item 58, Appendix C)
Socket Set, Socket Wrench (Item 34, Appendix C)

Materials/Parts
Dispenser, Pressure Sensitive Adhesive Tape (Item 20, Appendix D)
Cap and Plug Set (Item 14, Appendix D)
Ties, Cable, Plastic (Item 69, Appendix D)
Oil, Lubricating, OE/HDO 10 (Item 42, Appendix D)
Rag, Wiping (Item 50, Appendix D)
Packing, Preformed (5) (Item 179, 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.

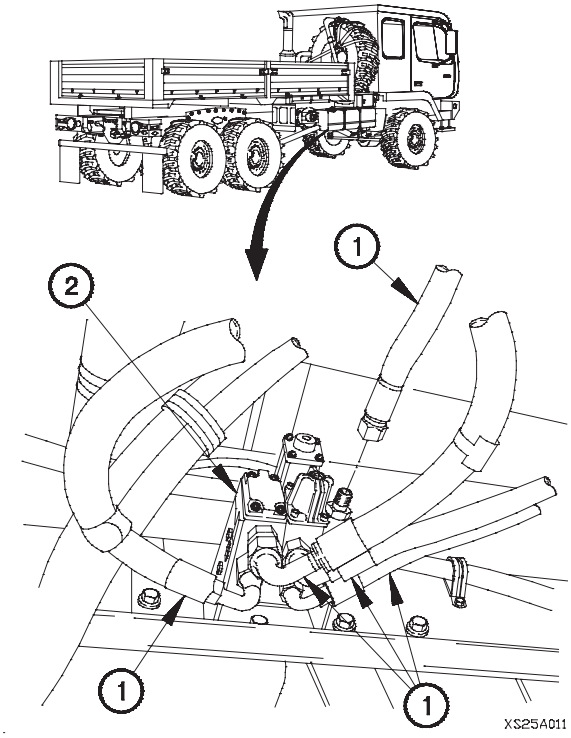
a. Removal (All Models Except M1090/M1094).

CAUTION

Cap or plug hoses and connection points to prevent contamination of hydraulic system. Failure to comply may result in damage to equipment.

NOTE

- Remove plastic cable ties as required.
- Tag hoses and connection points prior to disconnecting.

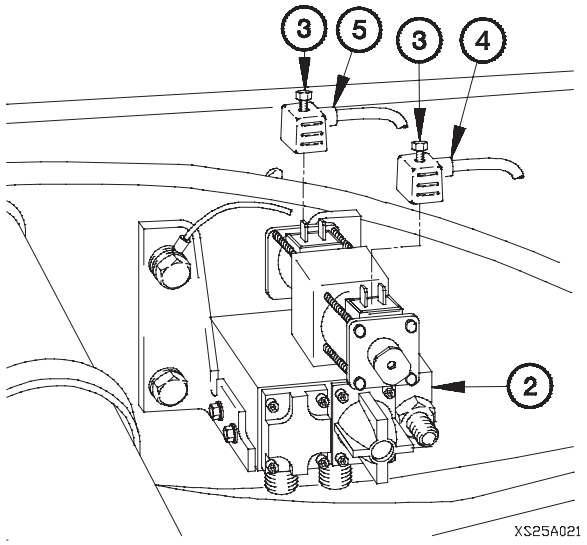


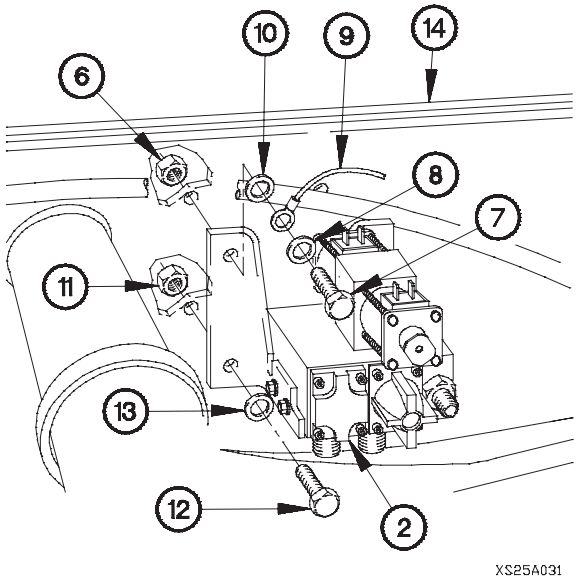
(1) Disconnect five hoses (1) from winch control valve (2).

NOTE

Tag connectors and connection points prior to disconnecting.

(2) Loosen two captive screws (3) and disconnect connectors L4 (4) and L5 (5) from winch control valve (2).

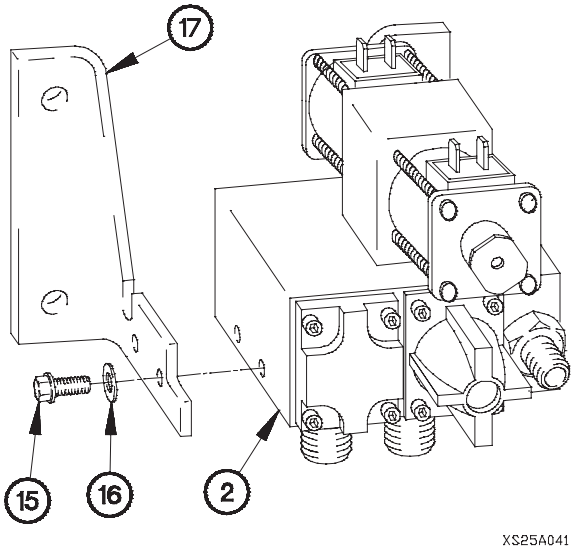




(3) Remove nut (6), screw (7), washer (8), terminal lug TL320 (9), and washer (10) from winch control valve (2).

(4) Remove three nuts (11), screws (12), washers (13), and winch control valve (2) from right frame rail (14).

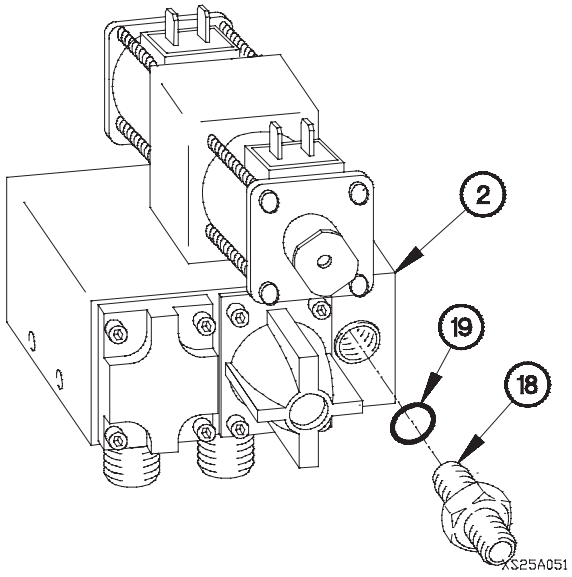
(5) Remove four screws (15), washers (16) and two brackets (17) from winch control valve (2).



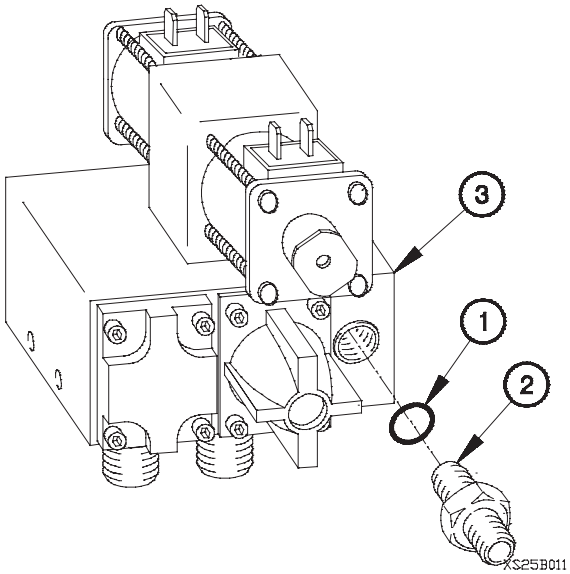
17-25. WINCH CONTROL VALVE ASSEMBLY AND BRACKET REPLACEMENT (CONT)

(6) Remove five fittings (18) from winch control valve (2).

(7) Remove five preformed packings (19) from fittings (18). Discard preformed packings.



b. Installation (All Models Except M1090/M1094).

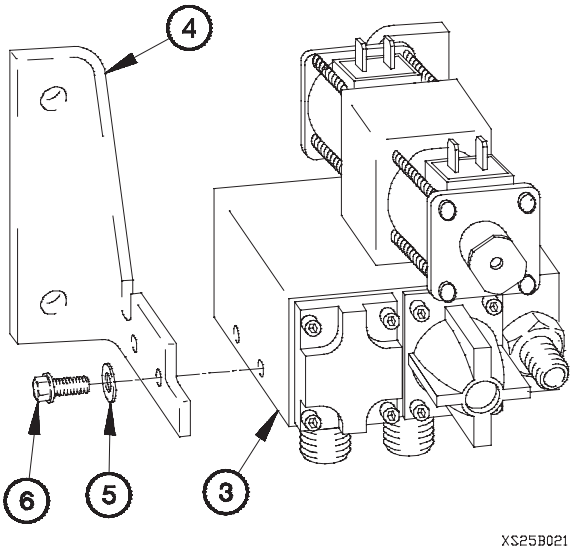


(1) Install five preformed packings (1) on fittings (2).

(2) Install five fittings (2) in winch control valve (3).

(3) Position two brackets (4) on winch control valve (3) with four washers (5) and screws (6).

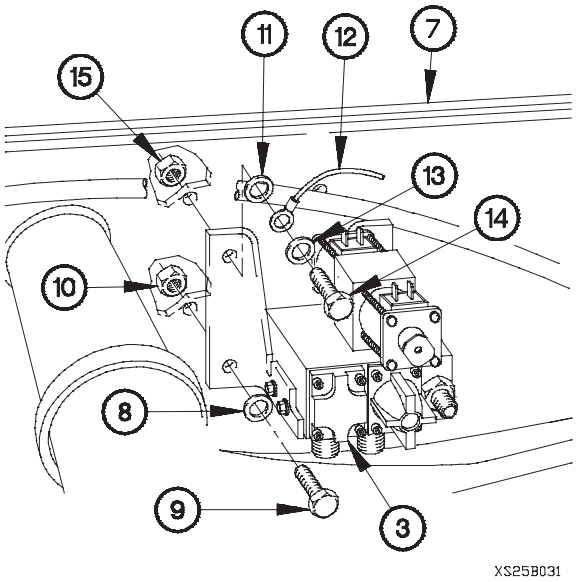
(4) Tighten four screws (6) to 11-13 lb-ft (15-17 N·m).

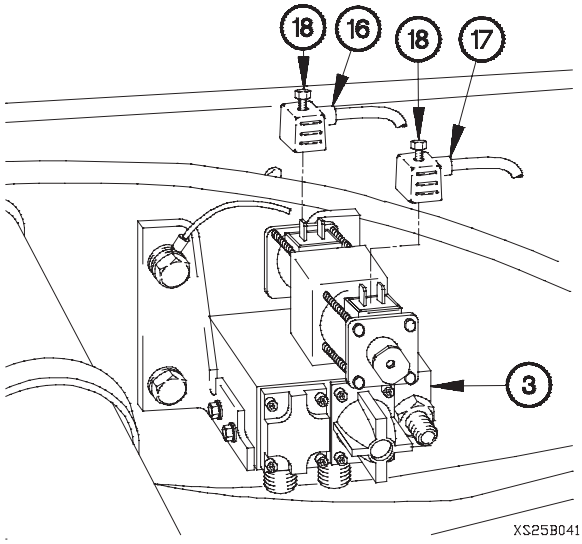


(5) Position winch control valve (3) on right frame rail (7) with three washers (8), screws (9), and nuts (10).

(6) Position washer (11) and terminal lug TL320 (12) on winch control valve (3) with washer (13) screw (14), and nut (15).

(7) Tighten three nuts (10) and nut (15) to 20-24 lb-ft (27-33 N·m).





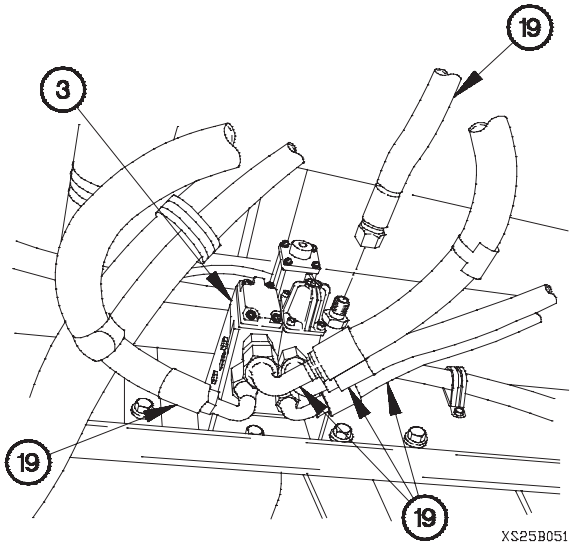
NOTE

Install plastic cable ties as required.

(8) Connect connectors L5 (16) and L4 (17) to winch control valve (3).

(9) Tighten two captive screws (18) in connectors L5 (16) and L4 (17).

(10) Install five hoses (19) on winch control valve (3).



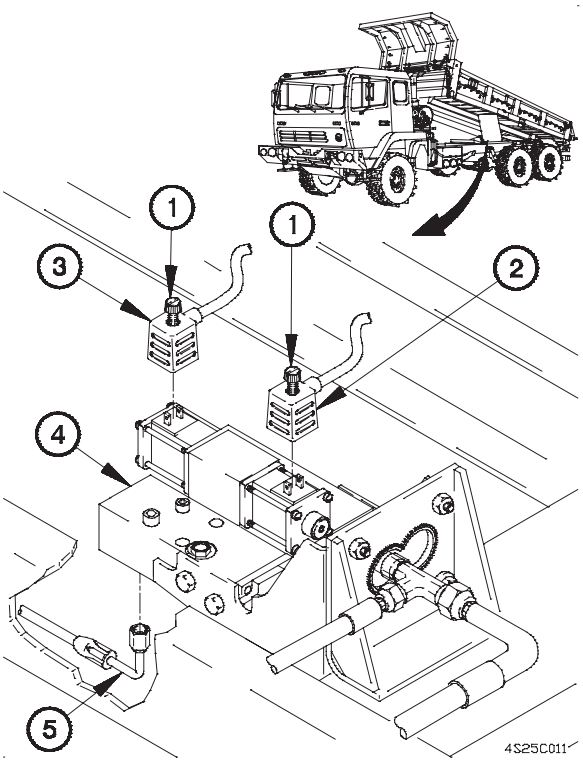
17-25. WINCH CONTROL VALVE ASSEMBLY AND BRACKET REPLACEMENT (CONT)

c. Removal (M1090/M1094).

NOTE

- Remove plastic cable ties as required.
- Tag connectors and connection points prior to disconnecting.

(1) Loosen two captive screws (1) and disconnect connectors L4 (2) and L5 (3) from winch control valve (4).



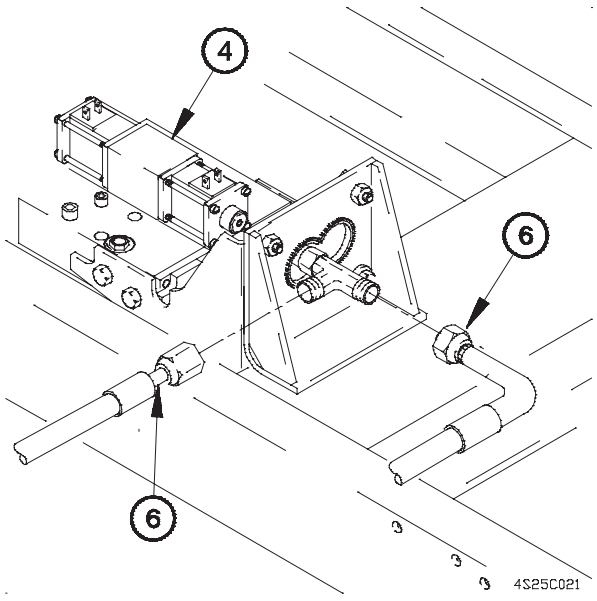
CAUTION

Cap or plug hoses and connection points to prevent contamination of hydraulic system. Failure to comply may result in damage to equipment.

NOTE

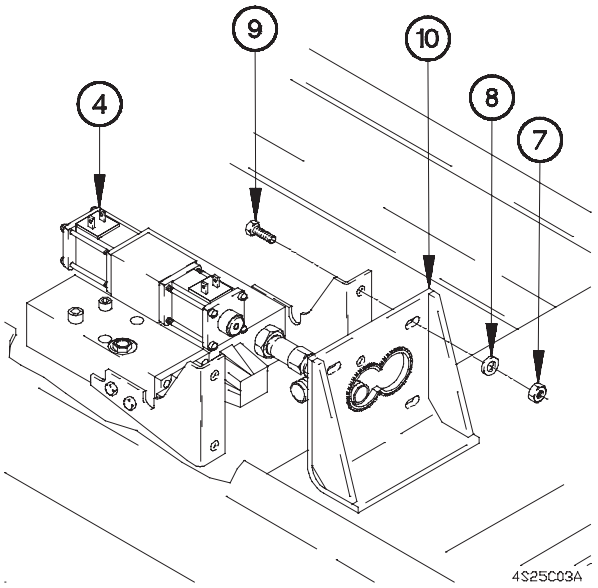
Tag hoses and connection points prior to disconnecting.

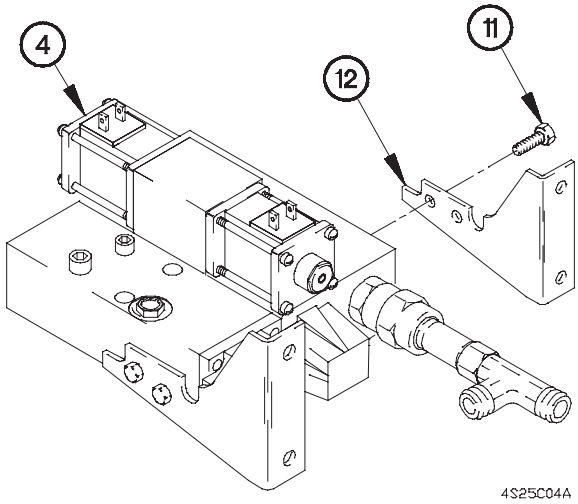
(2) Disconnect four hoses (5) from winch control valve (4).



(3) Disconnect two hoses (6) from winch control valve (4).

(4) Remove four nuts (7), washers (8), screws (9), and winch control valve (4) from bracket (10).





(5) Remove four screws (11) and two brackets (12) from winch control valve (4).

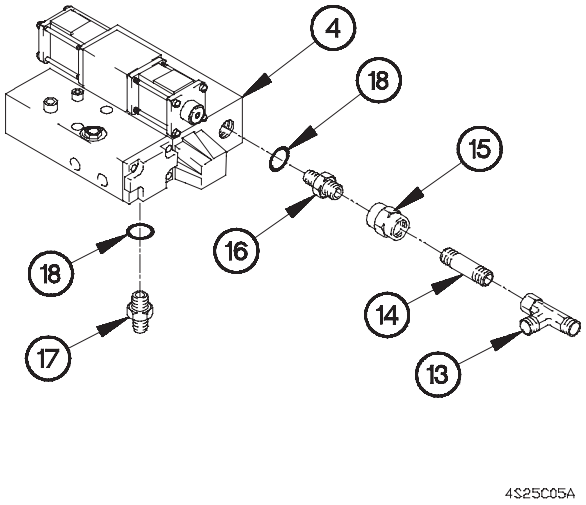
NOTE

Note position and orientation of fittings prior to removal.

(6) Remove tee fitting (13), pipe nipple (14), and pipe coupling (15) from fitting (16).

(7) Remove fitting (16) and four fittings (17) from winch control valve (4).

(8) Remove five preformed packings (18) from fitting (16) and four fittings (17). Discard preformed packings.



17-25. WINCH CONTROL VALVE ASSEMBLY AND BRACKET REPLACEMENT (CONT)

d. Installation (M1090/M1094).

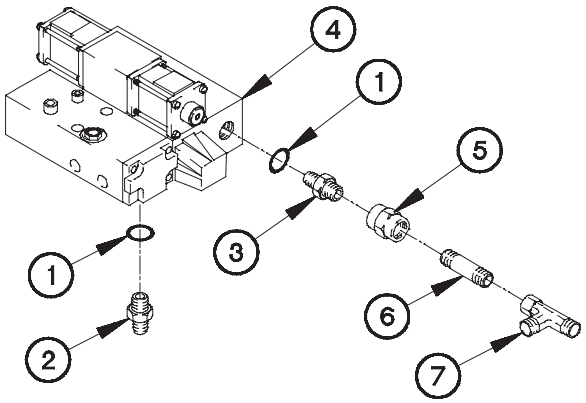
(1) Install five preformed packings (1) on four fittings (2) and fitting (3).

(2) Install four fittings (2) and fitting (3) in winch control valve (4).

(3) Install pipe coupling (5) on fitting (3).

(4) Install pipe nipple (6) in pipe coupling (5).

(5) Install tee fitting (7) on pipe nipple (6).



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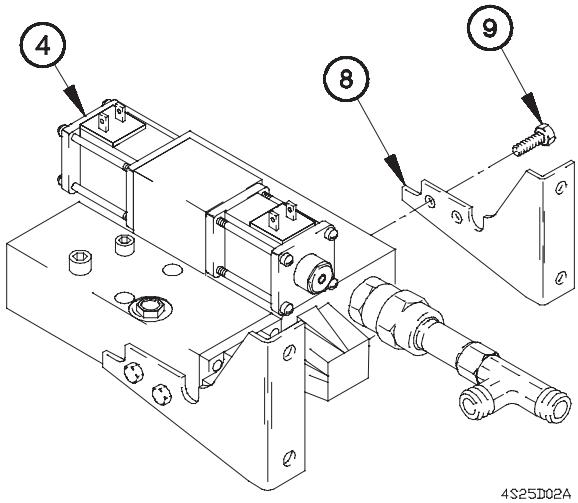
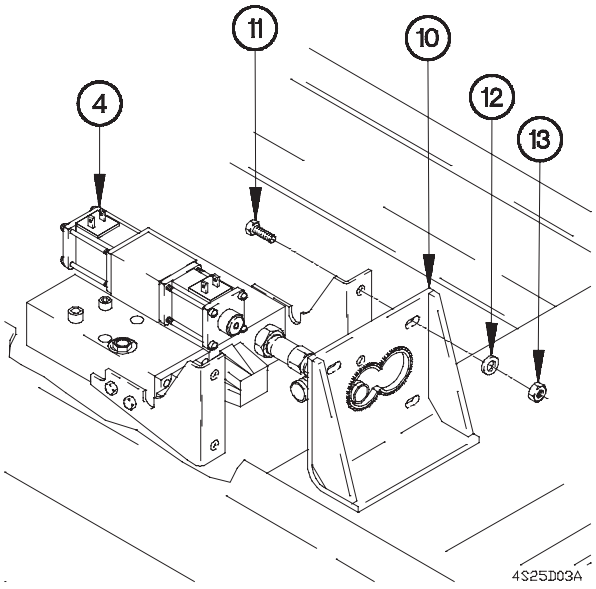


4S25D02A

(6) Position two brackets (8) on winch control valve (4) with four screws (9).

(7) Tighten four screws (9) to 11-13 lb-ft (15-17 N·m).

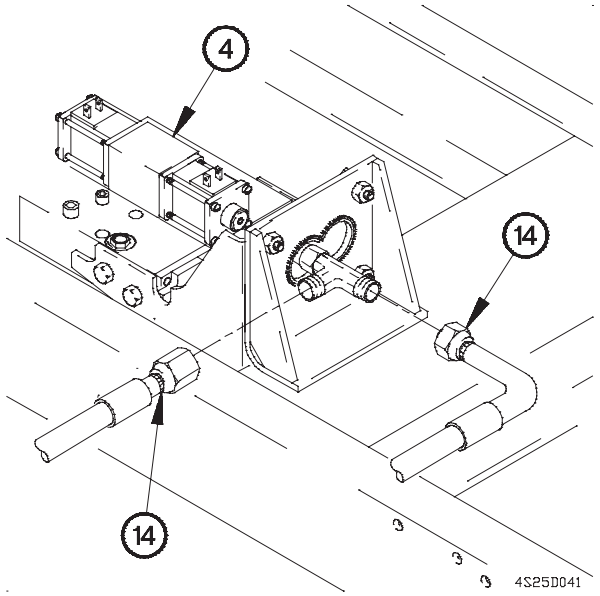


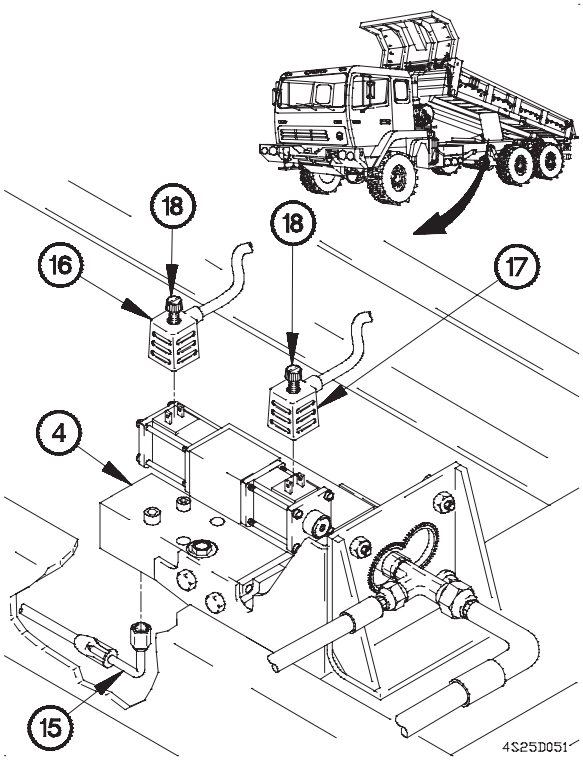
4S25D03A

(8) Position winch control valve (4) on bracket (10) with four screws (11), washers (12) and nuts (13).

(9) Tighten four nuts (13) to 20-24 lb-ft (27-33 N·m).

(10) Install two hoses (14) on winch control valve (4).





(11) Install four hoses (15) on winch control valve (4).

NOTE

Install plastic cable ties as required.

(12) Connect connectors L5 (16) and L4 (17) to winch control valve (4)

(13) Tighten two captive screws (18) in connectors L5 (16) and L4 (17).

e. Follow-On Maintenance.

(1) Lower dump body from maintenance position (M1090/M1094) (TM 9-2320-366-10-1).

(2) Start engine (TM 9-2320-366-10-1).

(3) Operate 15K SRW and/or MHC and check for proper operation and for hydraulic leaks around winch control valve and hoses (TM 9-2320-366-10-1 or TM 9-2320-366-10-2).

End of Task.

17-26. 15K SELF-RECOVERY WINCH (SRW) HOSE REPLACEMENT

This task covers:

a. Hydraulic Hose Locations

b. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-366-10-1).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Goggles, Industrial (Item 15, Appendix C)
Wrench, Torque, 0-175 lb-ft (Item 58, Appendix C)
Wrench, Torque, 0-600 lb-ft (Item 60, Appendix C)
Adapter Socket Wrench (Item 2, Appendix B)
Adapter Socket Wrench (Item 1, Appendix C)
Crowfoot Attachment, Socket Wrench (Item 9, Appendix B)
Crowfoot Attachment, Socket Wrench (Item 10, Appendix B)

Tools and Special Tools (Cont)
Crowfoot Attachment, Socket Wrench (Item 11, Appendix B)
Crowfoot Attachment, Socket Wrench (Item 12, Appendix B)
Pan, Drain (Item 24, Appendix C)

Materials/Parts
Dispenser, Pressure Sensitive Adhesive Tape (Item 20, Appendix D)
Cap and Plug Set (Item 14, Appendix D)
Ties, Cable, Plastic (Item 69, Appendix D)
Oil, Lubricating, OE/HDO 10 (Item 42, Appendix D)
Rag, Wiping (Item 50, Appendix D)

a. Hydraulic 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.**
- **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 hoses and connection points to prevent contamination of 15K SRW hydraulic system. Failure to comply may result in damage to equipment.

NOTE

- Refer to **Table 17-5. 15K Self-Recovery Winch (SRW) Hydraulic Hose Locations (All Models Except M1090/M1094)** or **Table 17-6. M1090/M1094 15K Self-Recovery Winch (SRW) Hydraulic Hose Locations** for hose locations on the 15K SRW. It may not be necessary to remove all hydraulic hoses at one time.
- Tag hoses and connection points prior to removal.
- Remove plastic cable ties as required.
- Remove clamps and support brackets as required.

NOTE
Position drain pan to collect oil.

Figure 17-5. 15K Self-Recovery Winch (SRW) Hydraulic Hose Locations (All Models Except M1090/M1094)

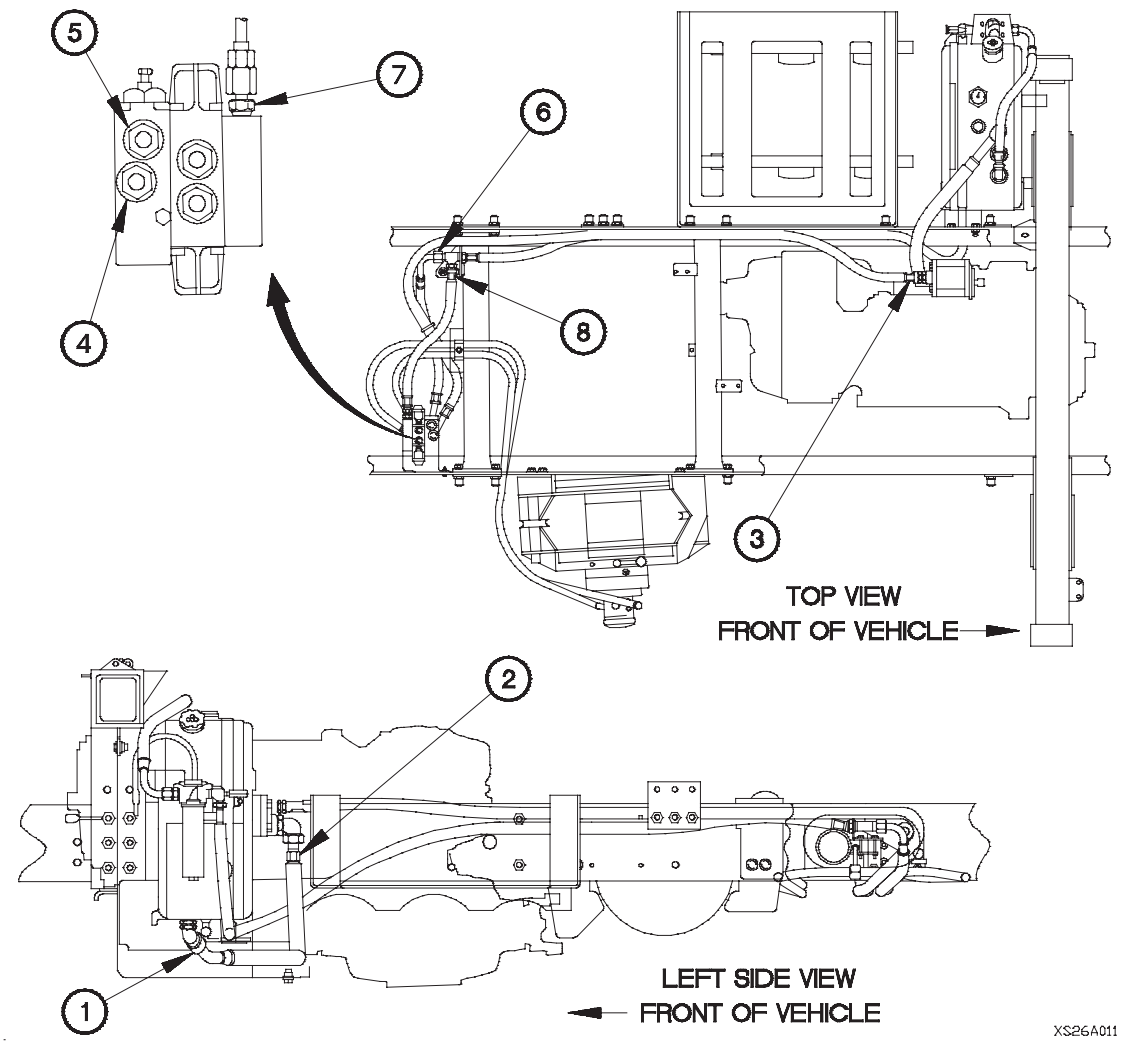


Table 17-5. 15K Self-Recovery Winch (SRW) Hydraulic Hose Locations (All Models Except M1090/M1094)

Hydraulic Hose Name	From	To	Torque
Pump Suction Hose	Hydraulic tank fitting (1)	Hydraulic pump fitting (2)	207-229 lb-ft (281-311 N·m)
Pump Pressure Hose	Hydraulic pump fitting (3)	Control valve fitting (4)	107-120 lb-ft (145-163 N·m)
Rear Return Hose	Control valve fitting (5)	Bulkhead tee fitting (6)	107-120 lb-ft (145-163 N·m)
Control Valve Bypass Hose	Control valve fitting (7)	Bulkhead tee fitting (8)	107-120 lb-ft (145-163 N·m)

17-26. 15K SELF-RECOVERY WINCH (SRW) HOSE REPLACEMENT (CONT)

Figure 17-5. 15K Self-Recovery Winch (SRW) Hydraulic Hose Locations (All Models Except M1090/M1094) (Cont)

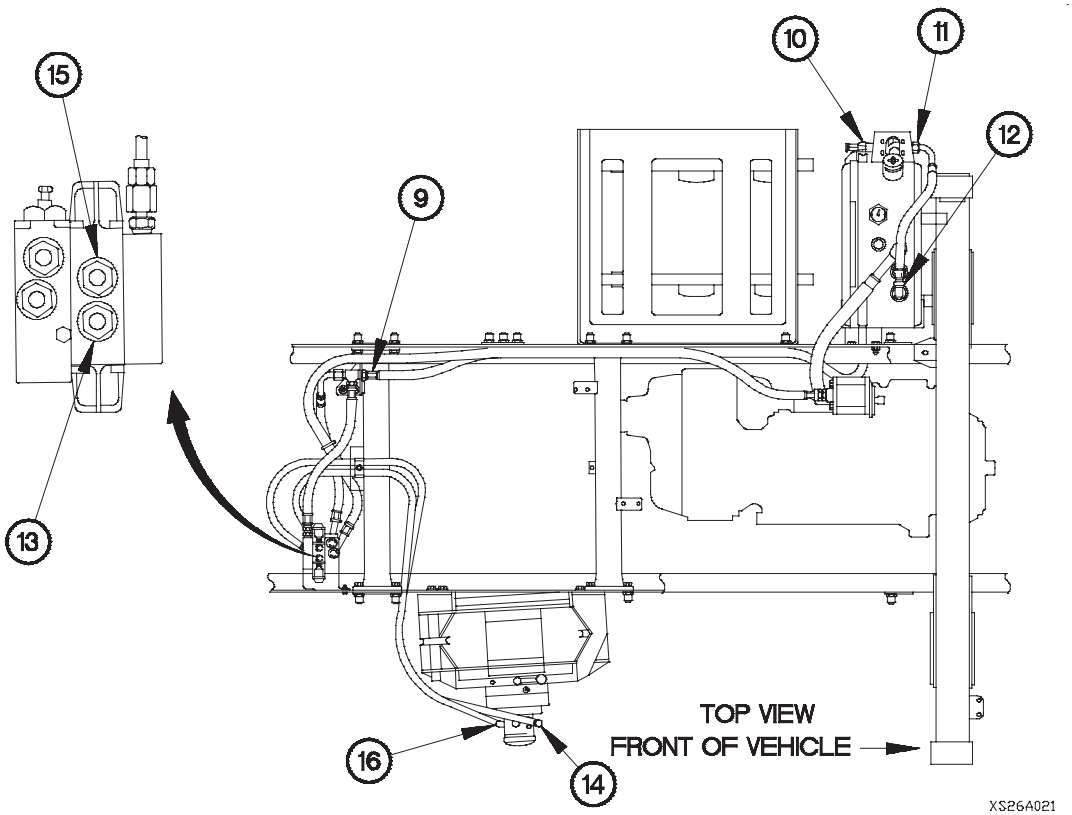


Table 17-5. 15K Self-Recovery Winch (SRW) Hydraulic Hose Locations (All Models Except M1090/M1094) (Cont)

Hydraulic Hose Name	From	To	Torque
Intermediate Return Hose	Bulkhead tee fitting (9)	Hydraulic oil filter fitting (10)	107-120 lb-ft (145-163 N·m)
Front Return Hose	Hydraulic oil filter fitting (11)	Hydraulic tank fitting (12)	107-120 lb-ft (143-163 N·m)
Front Winch Motor Hose	Control valve fitting (13)	15K SRW holding valve fitting (14)	107-120 lb-ft (143-163 N·m)
Rear Winch Motor Hose	Control valve fitting (15)	15K SRW holding valve fitting (16)	107-120 lb-ft (143-163 N·m)

Figure 17-6. M1090/M1094 15K Self-Recovery Winch (SRW) Hydraulic Hose Locations

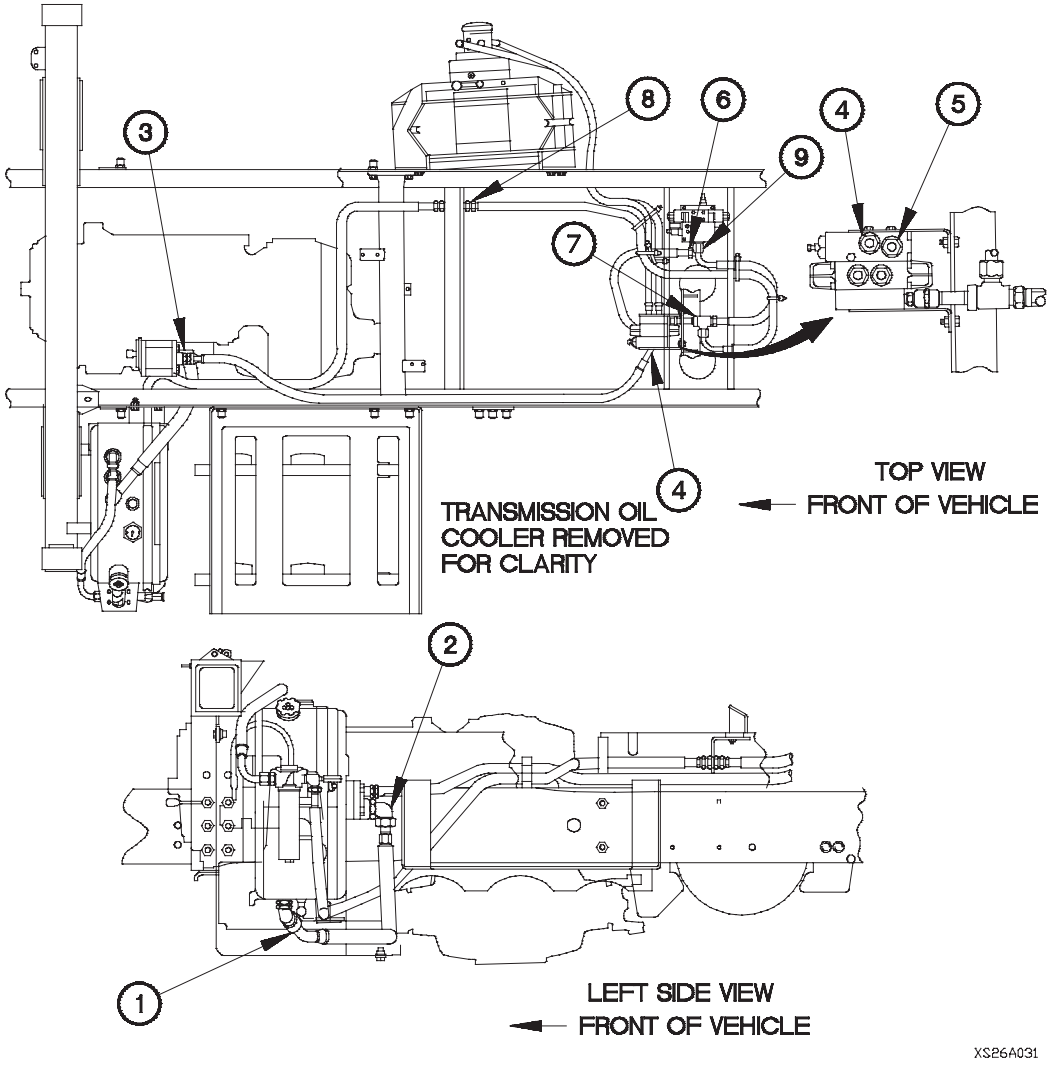


Table 17-6. M1090/M1094 15K Self-Recovery Winch (SRW) Hydraulic Hose Locations

Hydraulic Hose Name	From	To	Torque
Pump Suction Hose	Hydraulic tank fitting (1)	Hydraulic pump fitting (2)	207-229 lb-ft (281-311 N·m)
Pump Pressure Hose	Hydraulic pump fitting (3)	Control valve fitting (4)	107-120 lb-ft (145-163 N·m)
Rear Return Hose	Control valve fitting (5)	Bulkhead tee fitting (6)	107-120 lb-ft (145-163 N·m)
15K SRW Control Valve to Bulkhead Fitting Intermediate Return Hose	Bulkhead tee fitting (7)	Bulkhead fitting (8)	107-120 lb-ft (145-163 N·m)
Control Valve Bypass Hose	Bulkhead tee fitting (7)	Bulkhead fitting (9)	107-120 lb-ft (145-163 N·m)

17-26. 15K SELF-RECOVERY WINCH (SRW) HOSE REPLACEMENT (CONT)

Figure 17-6. M1090/M1094 15K Self-Recovery Winch (SRW) Hydraulic Hose Locations (Cont)

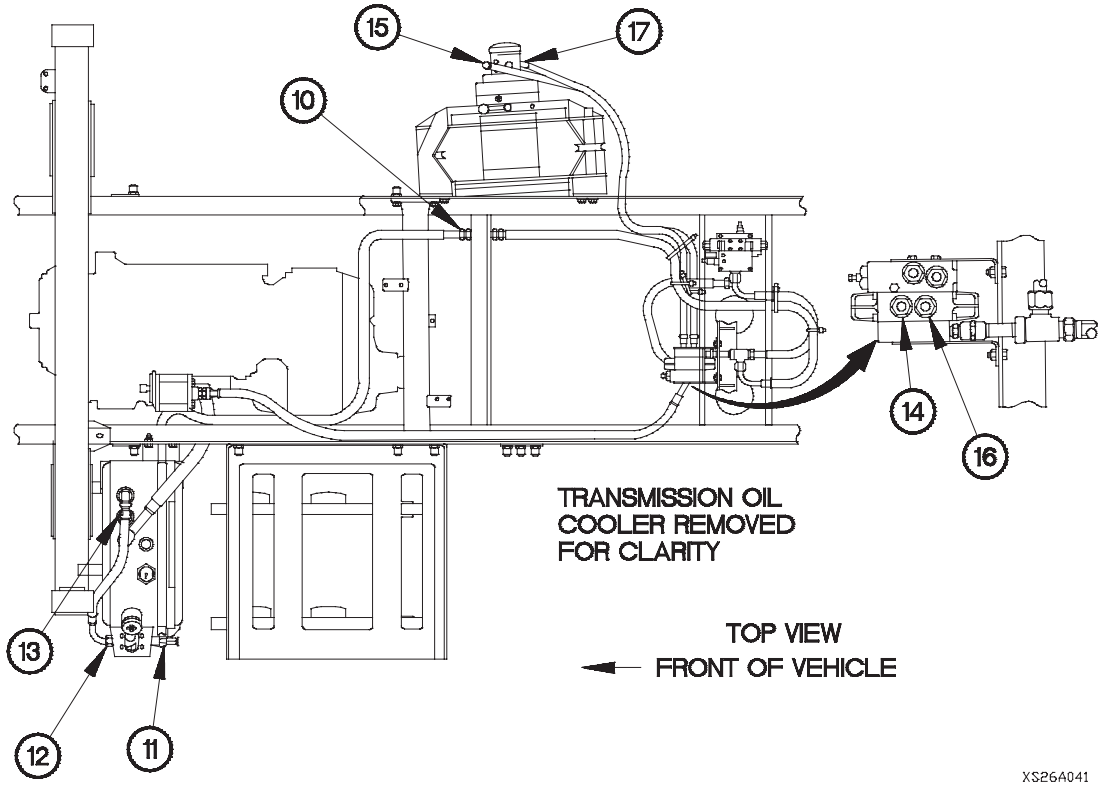


Table 17-6. M1090/M1094 15K Self-Recovery Winch (SRW) Hydraulic Hose Locations (Cont)

Hydraulic Hose Name	From	To	Torque
Bulkhead Fitting to Hydraulic Reservoir Intermediate Return Hose.	Bulkhead tee fitting (10)	Hydraulic oil filter fitting (11)	107-120 lb-ft (145-163 N·m)
Front Return Hose	Hydraulic oil filter fitting (12)	Hydraulic tank fitting (13)	107-120 lb-ft (143-163 N·m)
Front Winch Motor Hose	Control valve fitting (14)	15K SRW holding valve fitting (15)	107-120 lb-ft (143-163 N·m)
Rear Winch Motor Hose	Control valve fitting (16)	15K SRW holding valve fitting (17)	107-120 lb-ft (143-163 N·m)

b. Follow-On Maintenance.

(1) Fill hydraulic reservoir with oil (Appendix H).

(2) Check around hoses for oil leaks.

(3) Operate 15K SRW and check for oil leaks (TM 9-2320-366-10-2).

End of Task.

17-27. M1089 15K SELF-RECOVERY WINCH (SRW) HOSE REPLACEMENT

This task covers:

a. Hydraulic Hose Locations

b. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-366-10-1).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Pan, Drain (Item 24, Appendix C)
Goggles, Industrial (Item 15, Appendix C)
Wrench, Torque, 0-175 lb-ft (Item 58, Appendix C)
Crowfoot Attachment, Socket Wrench (Item 5, Appendix B)

Materials/Parts
Dispenser, Pressure Sensitive Adhesive Tape (Item 20, Appendix D)
Cap and Plug Set (Item 14, Appendix D)
Ties, Cable, Plastic (Item 69, Appendix D)
Antiseize Compound (Item 13, Appendix D)
Oil, Lubricating, OE/HDO 10 (Item 42, Appendix D)
Rag, Wiping (Item 50, Appendix D)

a. Hydraulic 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.**
- **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 hoses and connection points to prevent contamination of M1089 15K SRW hydraulic system. Failure to comply may result in damage to equipment.

NOTE

- Refer to **Table 17-7. M1089 15K Self-Recovery Winch (SRW) Hydraulic Hose Locations** for hose locations on the M1089 15K SRW. It may not be necessary to remove all hydraulic hoses at one time.
- Tag hoses and connection points prior to removal.
- Remove plastic cable ties as required.
- Remove clamps and support brackets as required.
- Position drain pan to collect oil.

Figure 17-7. M1089 15K Self-Recovery Winch (SRW) Hydraulic Hose Locations

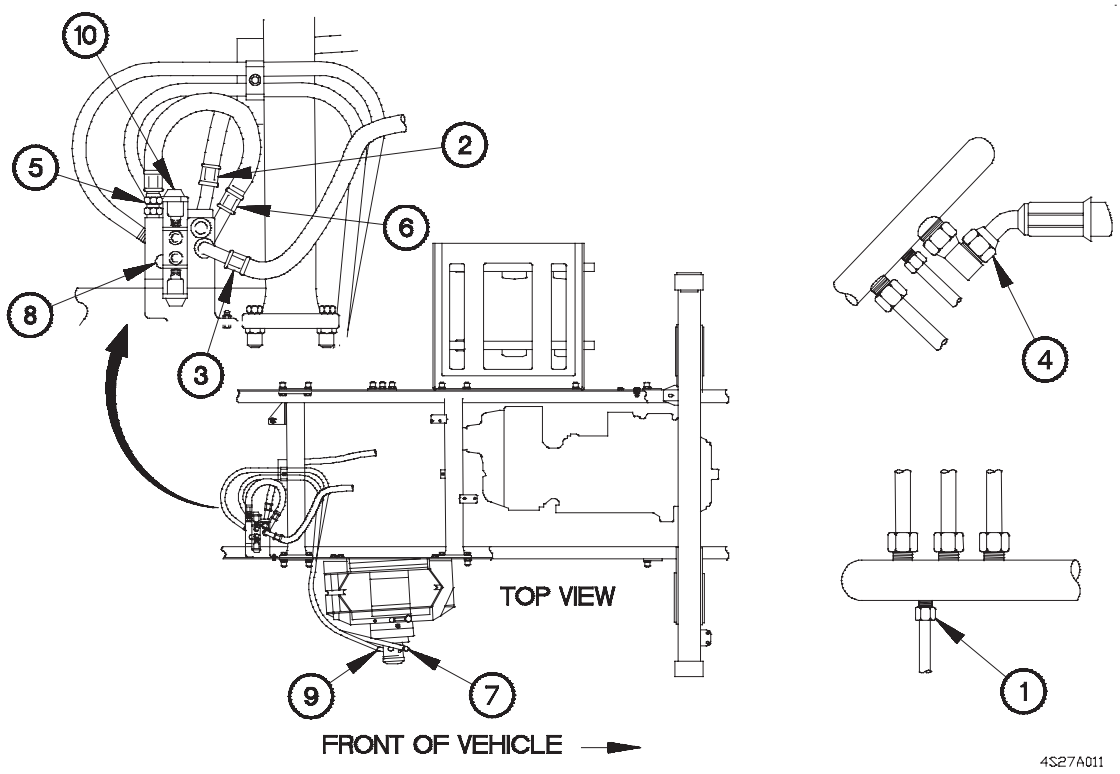


Table 17-7. M1089 15K Self-Recovery Winch (SRW) Hydraulic Hose Locations

Hydraulic Hose Name	From	To	Torque
Hydraulic Supply	Three function manual control valve fitting (1)	Shuttle control valve fitting (2)	103-120 lb-ft (140-163 N·m)
Hydraulic Return	Shuttle control valve fitting (3)	Hydraulic system return manifold tube fitting (4)	103-120 lb-ft (140-163 N·m)
Shuttle Valve Bypass	Shuttle control valve fitting (5)	Shuttle control valve fitting (6)	103-120 lb-ft (140-163 N·m)
15K SRW A	15K SRW holding valve fitting (7)	Shuttle control valve fitting (8)	103-120 lb-ft (140-163 N·m)
15K SRW B	15K SRW holding valve fitting (9)	Shuttle control valve fitting (10)	103-120 lb-ft (140-163 N·m)

b. Follow-On Maintenance.

(1) Fill hydraulic tank with oil (Appendix H).

(2) Check around hoses for oil leaks.

(3) Operate 15K SRW and check for hydraulic leaks (TM 9-2320-366-10-2).

End of Task.

17-28. M1089 30K WINCH LEFT/RIGHT HOSE AND TUBING REPLACEMENT

This task covers:

a. Hydraulic Hose and Tubing Locations

b. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-366-10-1).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Pan, Drain (Item 24, Appendix C)
Goggles, Industrial (Item 15, Appendix C)
Wrench, Torque, 0-175 lb-ft (Item 58, Appendix C)

Material/Parts
Dispenser, Pressure Sensitive Adhesive Tape (Item 20, Appendix D)
Cap and Plug Set (Item 14, Appendix D)
Ties, Cable, Plastic (Item 69, Appendix D)

a. Hydraulic Hose and Tubing 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.**
- **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 hoses, tubes, and connection points to prevent contamination of M1089 30K winch hydraulic system. Failure to comply may result in damage to equipment.

NOTE

- Refer to **Table 17-8. M1089 30K Winch Left/Right Hydraulic Hose and Tubing Locations** for hydraulic hose and tubing locations on the M1089 30K winches. It may not be necessary to remove all hydraulic hoses and tubes at one time.
- Tag hoses, tubes, and connection points prior to removal.
- Remove plastic cable ties as required.
- Remove clamps and support brackets as required.
- Position drain pan to collect oil.

Figure 17-8. M1089 30K Winch Left/Right Hydraulic Hose and Tubing Locations

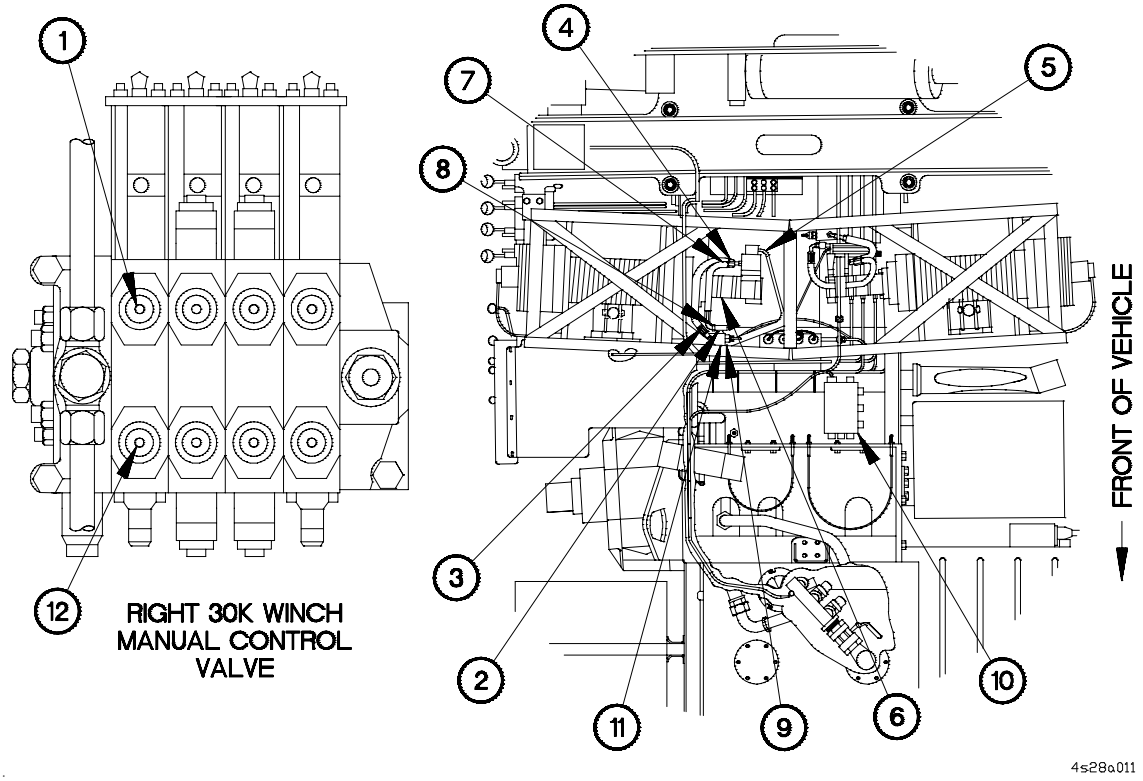


Table 17-8. M1089 30K Winch Left/Right Hydraulic Hose and Tubing Locations

Hydraulic Hose Name	From	To	Torque
Right Winch Supply	Right Winch Manual Control Valve Fitting (1)	Front Regulator Valve Fitting (2)	36-39 lb-ft (49-53 N·m)
Intermediate Supply	Front Regulator Valve Fitting (3)	Right Hydraulic Motor Holding Valve Fitting (4)	36-39 lb-ft (49-53 N·m)
Right Motor Drain	Right Hydraulic Motor Holding Valve Fitting (5)	Right Hydraulic Motor Fitting (6)	18-20 lb-ft (24-27 N·m)
Intermediate Return	Right Hydraulic Motor Holding Valve Fitting (7)	Front Regulator Valve Fitting (8)	36-39 lb-ft (49-53 N·m)
Right Pilot Pressure	Front Regulator Valve Fitting (9)	Monoblock Valve Fitting (10)	36-39 lb-ft (49-53 N·m)
Right Winch Return	Front Regulator Valve Fitting (11)	Right Winch Manual Control Valve Fitting (12)	36-39 lb-ft (49-53 N·m)

17-28. M1089 30K WINCH LEFT/RIGHT HOSE AND TUBING REPLACEMENT (CONT)

Figure 17-8. M1089 30K Winch Left/Right Hydraulic Hose and Tubing Locations (Cont)

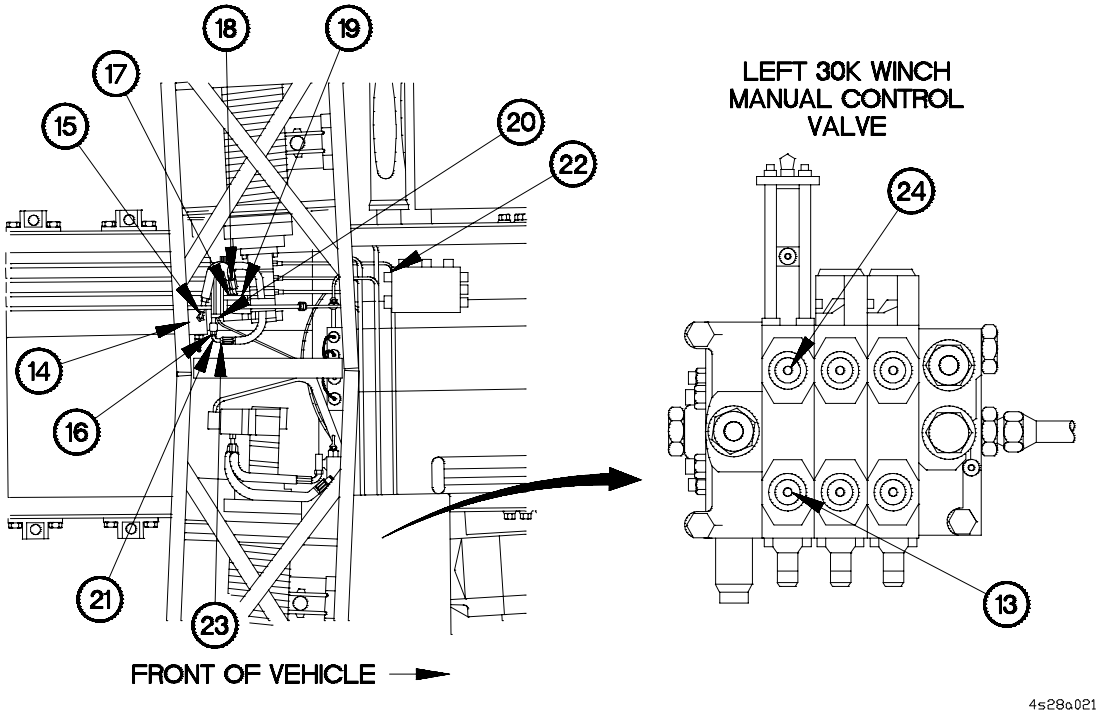


Table 17-8. M1089 30K Winch Left/Right Hydraulic Hose and Tubing Locations (Cont)

Hydraulic Hose Name	From	To	Torque
Left Winch Supply	Left Winch Manual Control Valve Fitting (13)	Rear Regulator Valve Fitting (14)	36-39 lb-ft (49-53 N·m)
Intermediate Supply	Regulator Valve Fitting (15)	Left Hydraulic Motor Holding Valve Fitting (16)	36-39 lb-ft (49-53 N·m)
Left Motor Drain	Left Hydraulic Motor Holding Valve Fitting (17)	Left Hydraulic Motor Fitting (18)	18-20 lb-ft (24-27 N·m)
Intermediate Return	Left Hydraulic Motor Holding Valve Fitting (19)	Rear Regulator Valve Fitting (20)	36-39 lb-ft (49-53 N·m)
Left Pilot Pressure	Rear Regulator Valve Fitting (21)	Monoblock Valve Fitting (22)	36-39 lb-ft (49-53 N·m)
Left Winch Return	Rear Regulator Valve Fitting (23)	Left Winch Manual Control Valve Fitting (24)	36-39 lb-ft (49-53 N·m)

Figure 17-8. M1089 30K Winch Left/Right Hydraulic Hose and Tubing Locations (Cont)

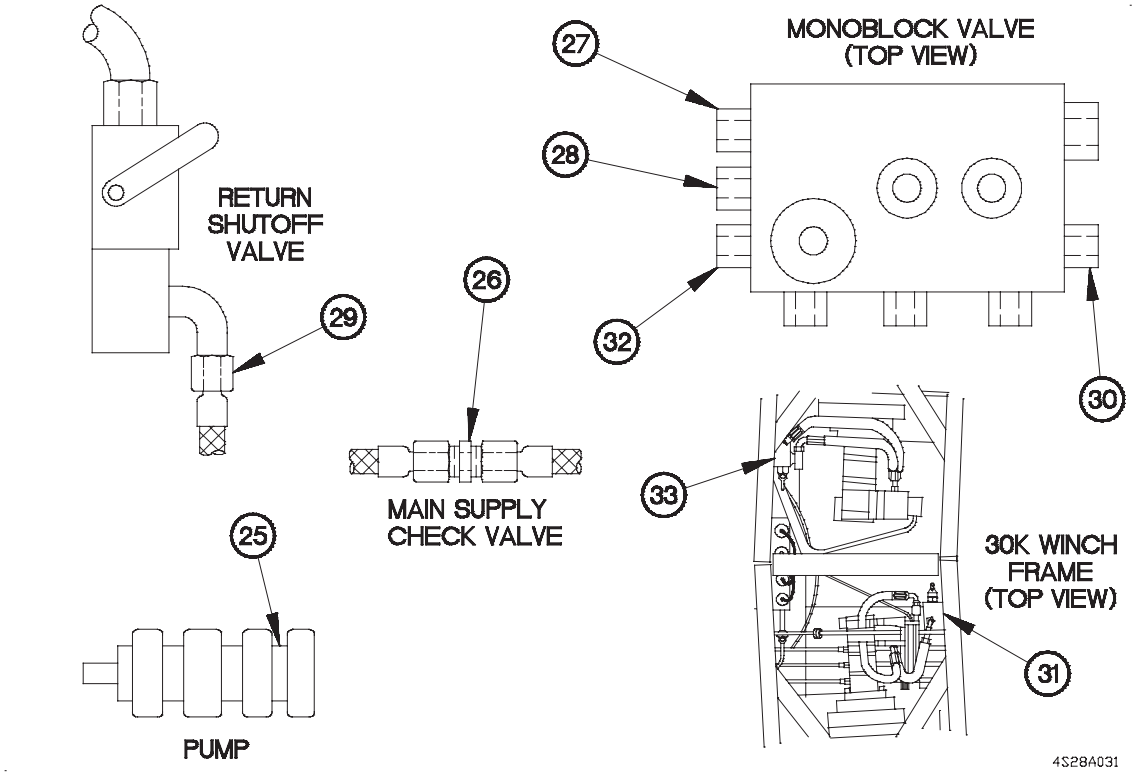


Table 17-8. M1089 30K Winch Left/Right Hydraulic Hose and Tubing Locations (Cont)

Hydraulic Hose Name	From	To	Torque
Circuit "C" Pressure Forward	Hydraulic Pump Fitting (25)	Union (26)	79-88 lb-ft (107-119 N·m)
Circuit "C" Pressure Rear	Union (26)	Monoblock Valve Fitting (27)	79-88 lb-ft (107-119 N·m)
Return	Monoblock Valve Fitting (28)	Tee Fitting (29)	79-88 lb-ft (107-119 N·m)
Left Pilot Pressure	Monoblock Valve Fitting (30)	Left Counter Balance Valve Fitting (31)	36-39 lb-ft (49-53 N·m)
Right Pilot Pressure	Monoblock Valve Fitting (32)	Right Counter Balance Valve Fitting (33)	36-39 lb-ft (49-53 N·m)

17-28. M1089 30K WINCH LEFT/RIGHT HOSE AND TUBING REPLACEMENT (CONT)

Figure 17-8. M1089 30K Winch Left/Right Hydraulic Hose and Tubing Locations (Cont)

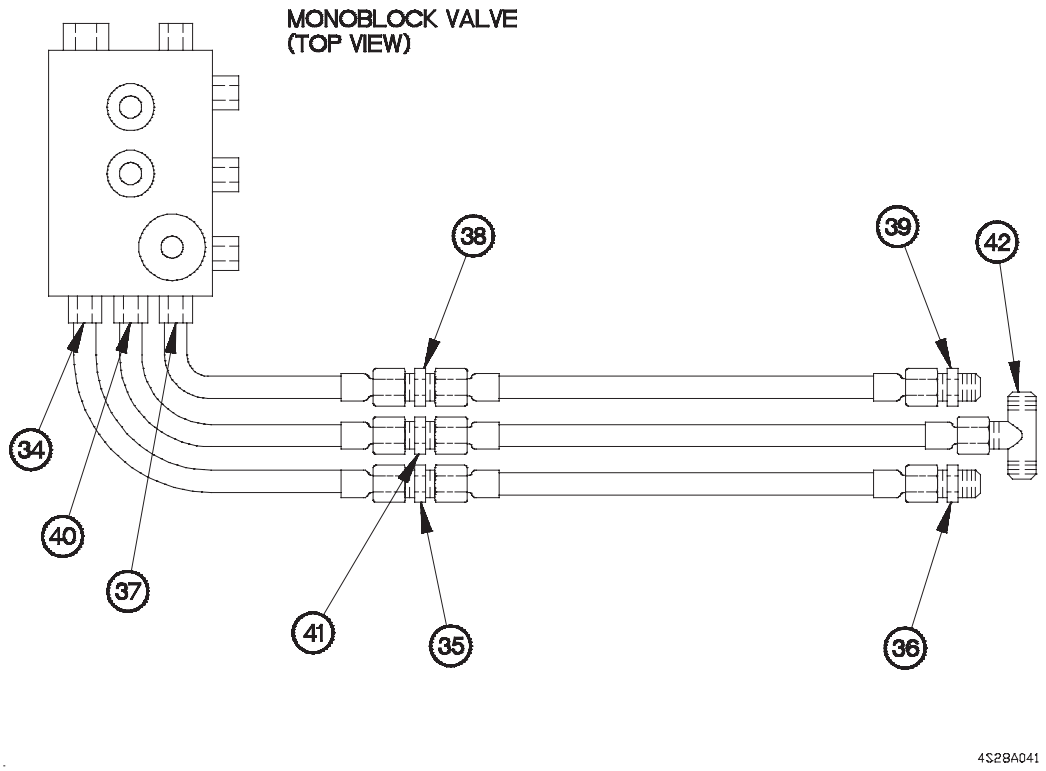


Table 17-8. M1089 30K Winch Left/Right Hydraulic Hose and Tubing Locations (Cont)

Hydraulic Tube Name	From	To	Torque
Left Front	Monoblock Valve Fitting (34)	Union (35)	36-39 lb-ft (49-53 N·m)
Left Rear	Union (35)	Union (36)	36-39 lb-ft (49-53 N·m)
Right Front	Monoblock Valve Fitting (37)	Union (38)	36-39 lb-ft (24-27 N·m)
Right Rear	Union (38)	Union (39)	36-39 lb-ft (49-53 N·m)
Return Front	Monoblock Valve Fitting (40)	Union (41)	36-39 lb-ft (49-53 N·m)
Return Rear	Union (41)	Union Three Way Tee Fitting (42)	36-39 lb-ft (49-53 N·m)

Figure 17-8. M1089 30K Winch Left/Right Hydraulic Hose and Tubing Locations (Cont)

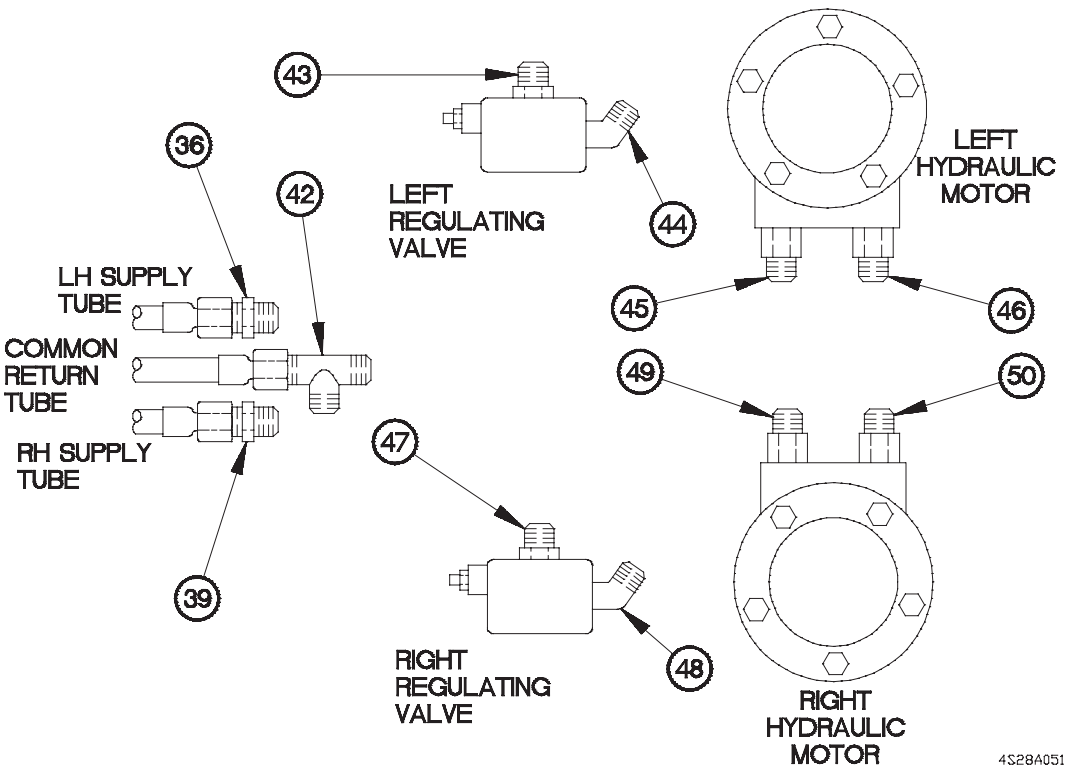


Table 17-8. M1089 30K Winch Left/Right Hydraulic Hose and Tubing Locations (Cont)

Hydraulic Hose Name	From	To	Torque
Left Pressure Front	Union (36)	Regulating Valve Fitting (43)	36-39 lb-ft (49-53 N·m)
Left Pressure Rear	Regulating Valve Fitting (44)	Left Hydraulic Motor Fitting (45)	36-39 lb-ft (49-53 N·m)
Left Return	Left Hydraulic Motor Fitting (46)	Union Three Way Tee Fitting (42)	36-39 lb-ft (49-53 N·m)
Right Pressure Front	Union (39)	Regulating Valve Fitting (47)	36-39 lb-ft (49-53 N·m)
Right Pressure Rear	Regulating Valve Fitting (48)	Right Hydraulic Motor Fitting (49)	36-39 lb-ft (49-53 N·m)
Right Return	Right Hydraulic Motor Fitting (50)	Union Three Way Tee Fitting (42)	36-39 lb-ft (49-53 N·m)

17-28. M1089 30K WINCH LEFT/RIGHT HOSE AND TUBING REPLACEMENT (CONT)

b. Follow-On Maintenance.

(1) Fill hydraulic tank with oil (Appendix H).

(2) Check around hose or tube for oil leaks.

(3) Operate left or right 30K winch and check for hydraulic leaks (TM 9-2320-366-10-2).

End of Task.

17-29. M1089 30K WINCH PNEUMATIC MANIFOLD REPLACEMENT/REPAIR

This task covers:

a. Removal
b. Disassembly
c. Cleaning/Inspection
d. Assembly
e. Installation
f. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions
Batteries disconnected (para 7-57).
Air tanks drained (TM 9-2320-366-10-1).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Goggles, Industrial (Item 15, Appendix C)
Gloves, Rubber (Item 13, Appendix C)
Soldering and Brazing Outfit, Resistance Heating (Item 73, Appendix B)
Heater, Gun Type, Electric (Item 24, Appendix B)
Wrench, Torque, 0-75 lb-in. (Item 90, Appendix B)
Screwdriver Attachment, Socket Wrench (Item 51, Appendix B)

Materials/Parts
Ties, Plastic Cable (Item 69, Appendix D)
Dispenser, Pressure Sensitive Adhesive Tape (Item 20, Appendix D)
Rag, Wiping (Item 50, Appendix D)
Dry Cleaning Solvent (Item 65, Appendix D)
Solder, Tin Alloy (Item 64, Appendix D)
Insulation Sleeving, Electrical (Item 29.1 Appendix D)
Tape, Antiseizing (Item 66, Appendix D)
Tape, Insulation, Electrical (Item 68, Appendix D)
Nut, Self-Locking (4) (Item 137, Appendix G)
Semiconductor Device, Diode (8) (Item 274.1, Appendix G)

Personnel Required
(2)

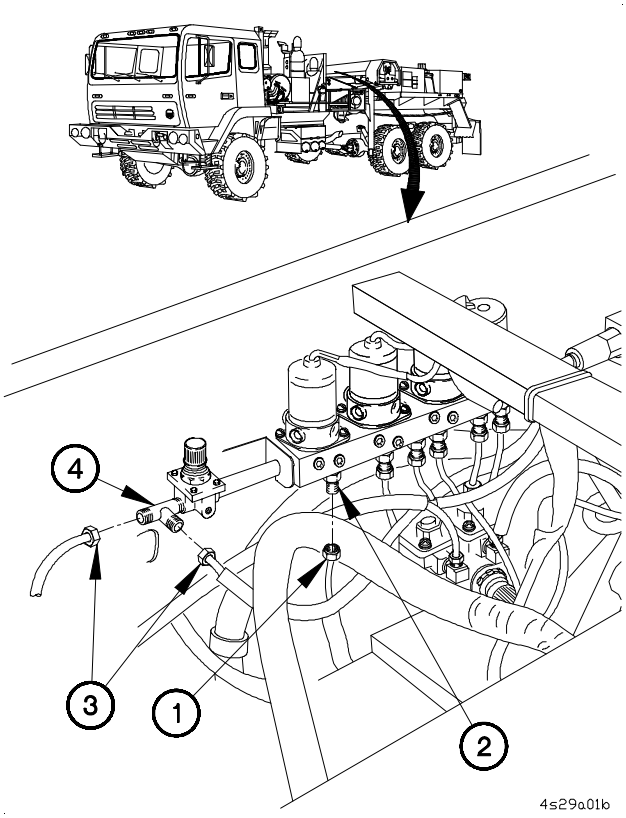
a. Removal.

NOTE

Tag hoses and connection points prior to disconnecting.

(1) Disconnect six hoses (1) from fittings (2).

(2) Disconnect two hoses (3) from tee fitting (4).



17-29. M1089 30K WINCH PNEUMATIC MANIFOLD REPLACEMENT/REPAIR (CONT)

NOTE

- Remove plastic cable ties as required.
- Tag wires and connection points prior to disconnecting.

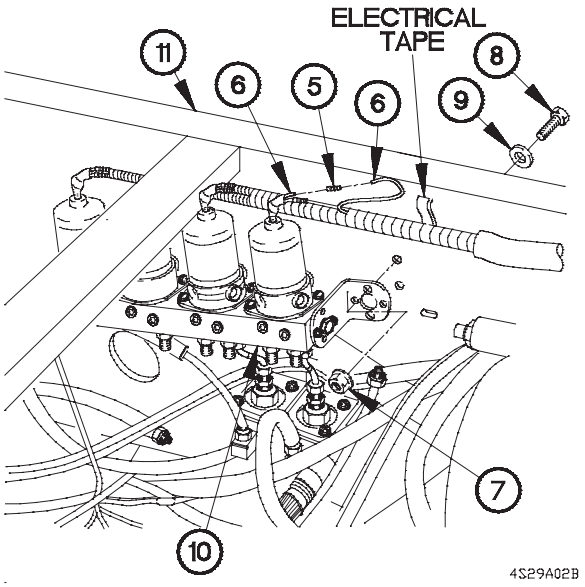
(3) Remove electrical tape from four connector splices (5). Discard electrical tape.

(4) Cut eight wires (6) at each side of connector splices (5). Discard connector splices.

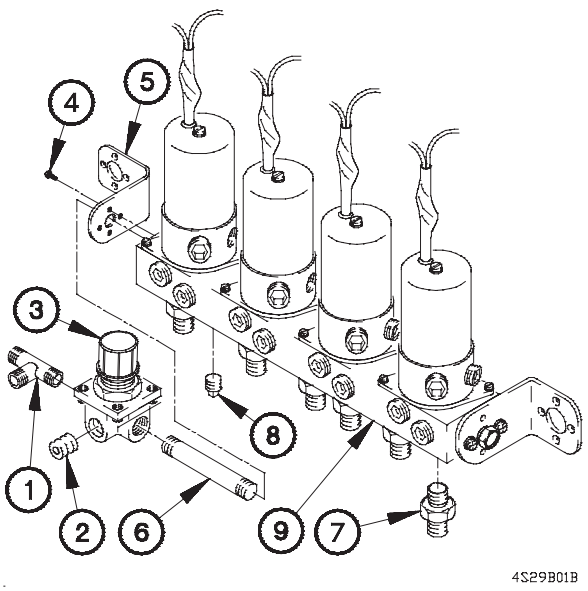
NOTE

Step (5) requires the aid of an assistant.

(5) Remove four self-locking nuts (7), screws (8), washers (9), and M1089 30K winch pneumatic manifold assembly (10) from 30K winch frame (11). Discard self-locking nuts.



b. Disassembly.



NOTE

Tag fittings and plugs prior to removal.

(1) Remove tee fitting (1) and two plugs (2) from regulating valve (3).

(2) Remove two screws (4) from mounting brackets (5).

(3) Remove regulating valve (3) and mounting brackets (5) from pipe nipple (6).

(4) Remove pipe nipple (6), six fittings (7), and two plugs (8) from M1089 30K winch pneumatic manifold (9).

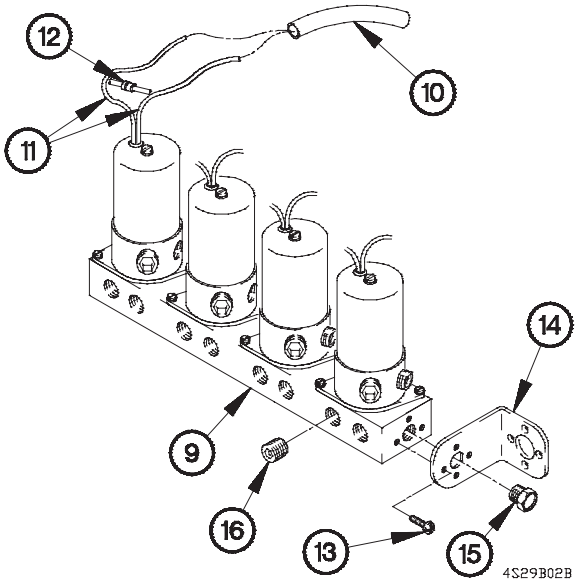
(5) Remove insulation sleeving (10) from four pairs of wires (11).

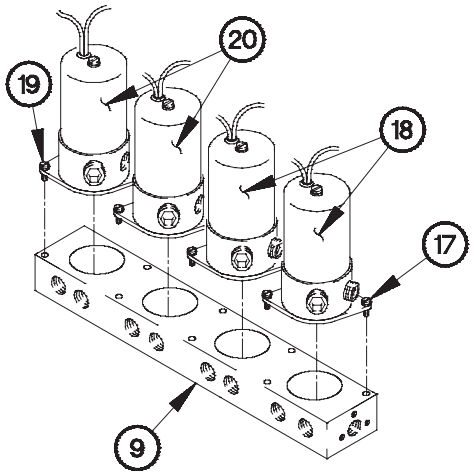
(6) Remove four rectifiers (12) from pairs of wires (11).

(7) Remove two screws (13) from mounting bracket (14).

(8) Remove plug (15) and mounting bracket (14) from M1089 30K winch pneumatic manifold (9).

(9) Remove eight plugs (16) from M1089 30K winch pneumatic manifold (9).





NOTE

Tag solenoid valves and solenoid valves mounting location prior to removal.

(10) Loosen four captive screws (17) in two solenoid valves (18).

(11) Remove two solenoid valves (18) from M1089 30K winch pneumatic manifold (9).

(12) Loosen four captive screws (19) in two solenoid valves (20).

(13) Remove two solenoid valves (20) from M1089 30K winch pneumatic manifold (9).

17-29. M1089 30K WINCH PNEUMATIC MANIFOLD REPLACEMENT/REPAIR (CONT)

c. 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 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.**

(1) Clean all metal parts with dry cleaning solvent.

NOTE

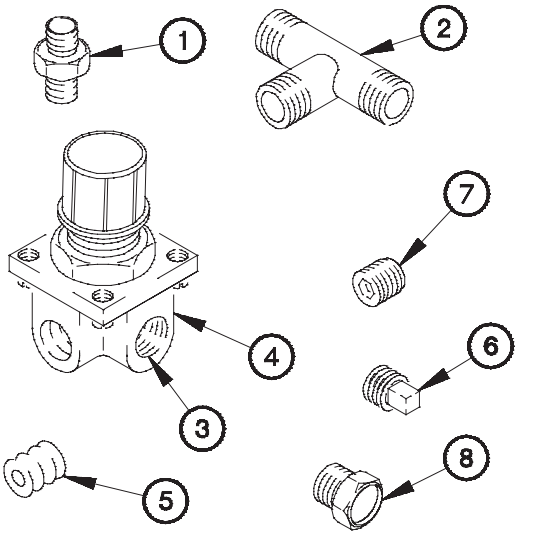
Replace any part that fails visual inspection.

(2) Check six fittings (1) for corrosion, pitting, cracks, damaged or worn threads, and obstruction to ports.

(3) Check tee fitting (2) for corrosion, pitting, cracks, damaged or worn threads, and obstruction to ports.

(4) Check two ports (3) in regulating valve (4) for obstruction of passages.

(5) Check two plugs (5 and 6), eight plugs (7), and plug (8) for corrosion, pitting, cracks, or damaged or worn threads.



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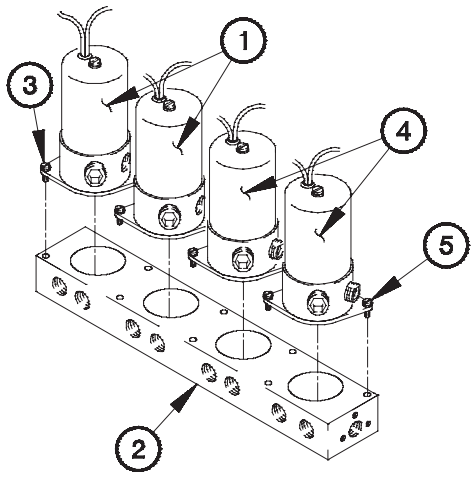
d. Assembly.

(1) Install two solenoid valves (1) on M1089 30K winch pneumatic manifold (2) with four captive screws (3).

(2) Install two solenoid valves (4) on M1089 30K winch pneumatic manifold (2) with four captive screws (5).



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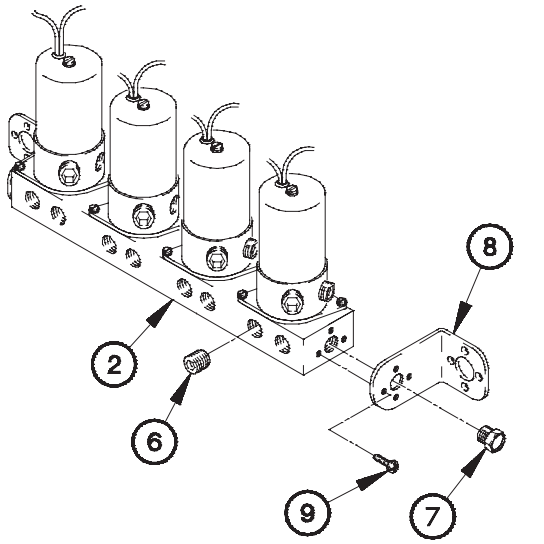


4S29D02B

(3) Apply antiseizing tape to threads of eight plugs (6) and plug (7).

(4) Install eight plugs (6) in M1089 30K winch pneumatic manifold (2).

(5) Install plug (7) in M1089 30K winch pneumatic manifold (2) with mounting bracket (8).

(6) Install two screws (9) in mounting bracket (8).

CAUTION

Cathode side (side with band) of rectifier must be attached to positive electrical lead (yellow). Failure to comply may result in damage to equipment.

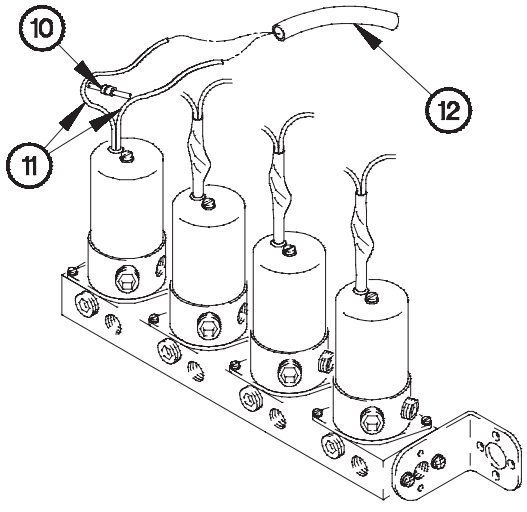
NOTE

Rectifier should be attached as close to solenoid as possible.

(7) Solder four rectifiers (10) to pairs of wires (11).

(8) Position insulation sleeving (12) over four rectifiers (10).

(9) Shrink sleeving (12) on four rectifiers (10).



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17-29. M1089 30K WINCH PNEUMATIC MANIFOLD REPLACEMENT/REPAIR (CONT)

(10) Apply anti-seizing tape to threads of six fittings (13), tee fitting (14), two plugs (15 and 16) and pipe nipple (17).

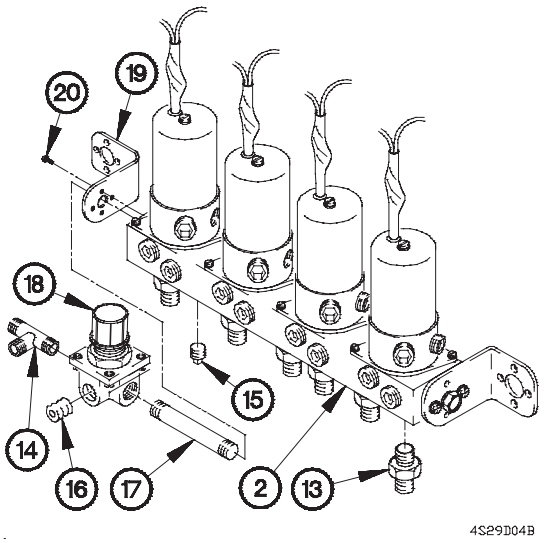
(11) Install two plugs (15), six fittings (13) and pipe nipple (17) in M1089 30K winch pneumatic manifold (2).

(12) Install two plugs (16) and tee fitting (14) in regulating valve (18).

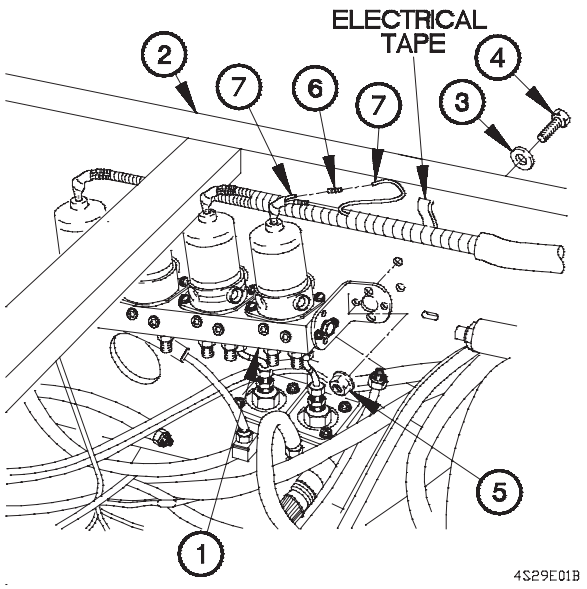
(13) Position mounting bracket (19) on pipe nipple (17).

(14) Install regulating valve (18) on pipe nipple (17).

(15) Install mounting bracket (19) on M1089 30K winch pneumatic manifold (2) with two screws (20).



e. Installation.



NOTE

Steps (1) and (2) requires the aid of an assistant.

(1) Position M1089 30K winch pneumatic manifold assembly (1) on 30K winch frame (2) with four washers (3), screws (4), and self-locking nuts (5).

(2) Tighten four self-locking nuts (5) to 12-24 lb-in. (1-2 N·m).

NOTE

Install plastic cable ties as required.

(3) Install eight connector splices (6) between 16 wires (7).

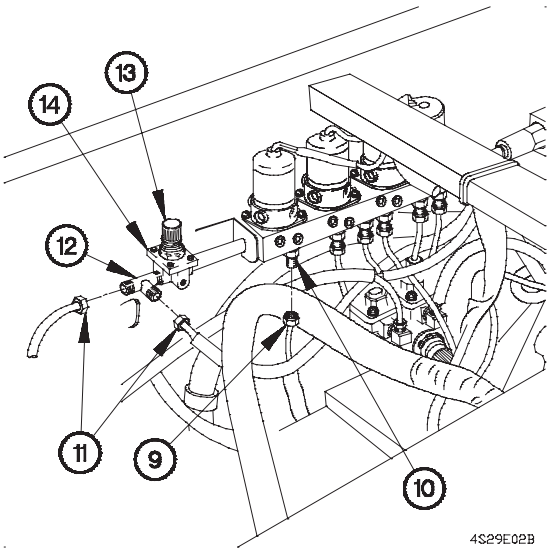
(4) Cover eight connector splices (6) with electrical tape.

(5) Connect six hoses (9) to fittings (10).

(6) Connect two hoses (11) to tee fitting (12).

(7) Pull up knob (13) on regulating valve (14) and turn fully clockwise.

(8) Push in knob (13) on regulating valve (14).



f. Follow-On Maintenance.

(1) Connect batteries (para 7-57).

(2) Operate 30K winch and check for air leaks at pneumatic manifold. (TM 9-2320-366-10-2).

End of Task.

17-30. M1089 30K WINCH TENSIONER PNEUMATIC VALVE ASSEMBLY REPLACEMENT/REPAIR/ADJUSTMENT

This task covers:

a. Removal
b. Disassembly
c. Cleaning/Inspection
d. Assembly
e. Installation
f. Adjustment

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-366-10-1).
Air tanks drained (TM 9-2320-366-10-1).

Materials/Parts
Dispenser, Pressure Sensitive Adhesive Tape (Item 20, Appendix D)
Nut, Self-Locking (2) (Item 134, Appendix G)
Sealing Compound (Item 58.1, Appendix D)
Rag, Wiping (Item 50, Appendix D)
Solvent, Dry Cleaning (Item 65, Appendix D)

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Wrench, Torque, 0-200 lb-in. (Item 59, Appendix C)
STE/ICE-R (Item 41, Appendix C)
M1089 30K Winch Test Adapter (Item 7, Appendix E)
Apron, Rubber (Item 3, Appendix C)
Gloves, Rubber (Item 13, Appendix C)
Goggles, Industrial (Item 15, Appendix C)

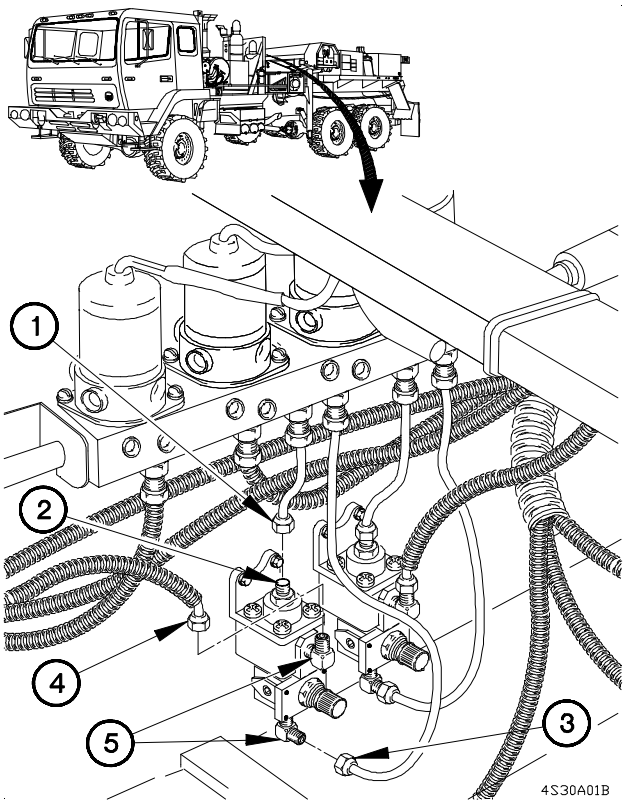
a. Removal.

NOTE

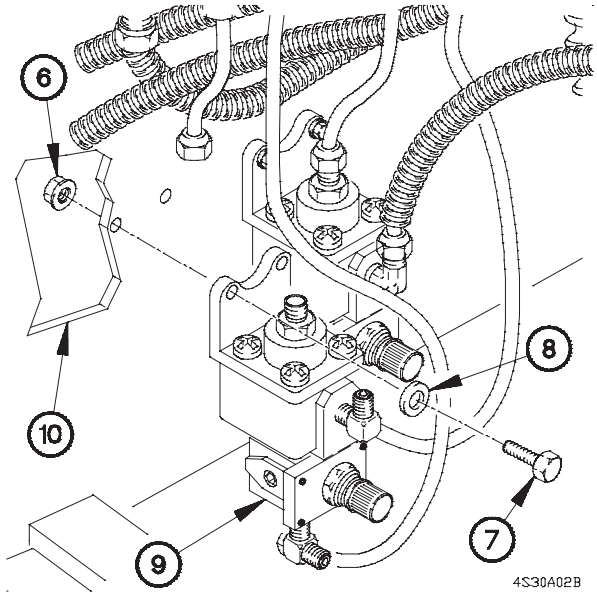
- LH and RH 30K winch tensioner pneumatic valve assemblies are removed the same way. LH M1089 30K winch tensioner pneumatic valve assembly shown.
- Tag hoses and connection points prior to disconnecting.

(1) Disconnect hose (1) from fitting (2).

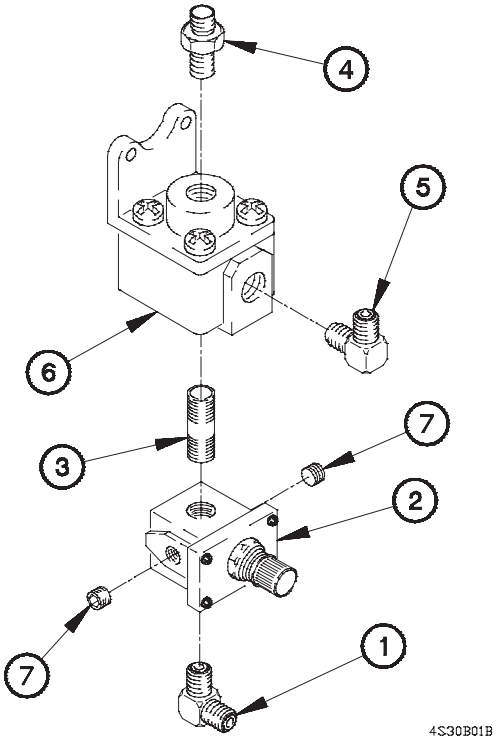
(2) Disconnect hoses (3 and 4) from two 90-degree fittings (5).



(3) Remove two self-locking nuts (6), screws (7), washers (8), and M1089 30K winch tensioner pneumatic valve assembly (9) from 30K winch frame (10). Discard self-locking nuts.



b. Disassembly.



NOTE

Note orientation of fittings prior to removal.

(1) Remove 90-degree fitting (1) from regulating valve (2).

(2) Remove regulating valve (2) from pipe nipple (3).

(3) Remove pipe nipple (3), fitting (4), and 90-degree fitting (5) from shuttle valve (6).

(4) Remove two plugs (7) from regulating valve (2).

17-30. M1089 30K WINCH TENSIONER PNEUMATIC VALVE ASSEMBLY REPLACEMENT/REPAIR/ADJUSTMENT (CONT)

c. 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 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.**

(1) Clean all metal parts with dry cleaning solvent.

NOTE

Replace any part that fails visual inspection.

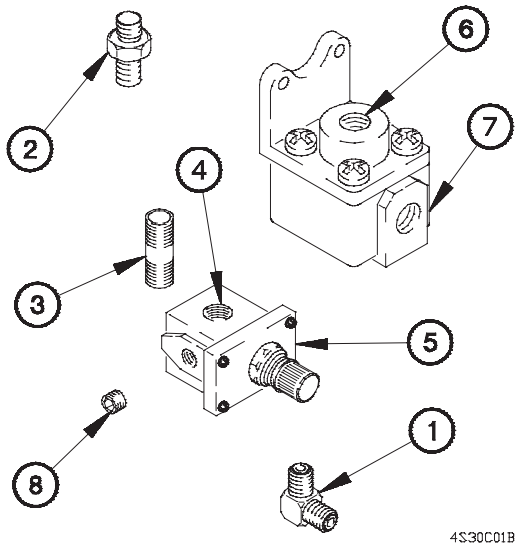
(2) Check two 90-degree fittings (1) and fitting (2) for corrosion, pitting, cracks, damaged or worn threads, and obstructions.

(3) Check pipe nipple (3) for corrosion, pitting, cracks, damaged or worn threads, and obstruction to ports.

(4) Check two ports (4) in regulating valve (5) for obstruction of passages.

(5) Check two ports (6) in shuttle valve (7) for obstruction of passages.

(6) Check two plugs (8) for corrosion, pitting, cracks, or damaged or worn threads.

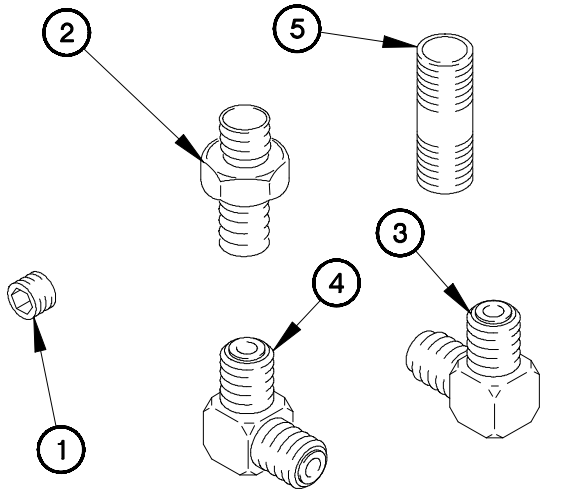


d. Assembly.

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.

(1) Apply sealing compound to threads of two plugs (1), fitting (2), 90-degree fittings (3 and 4), and pipe nipple (5).



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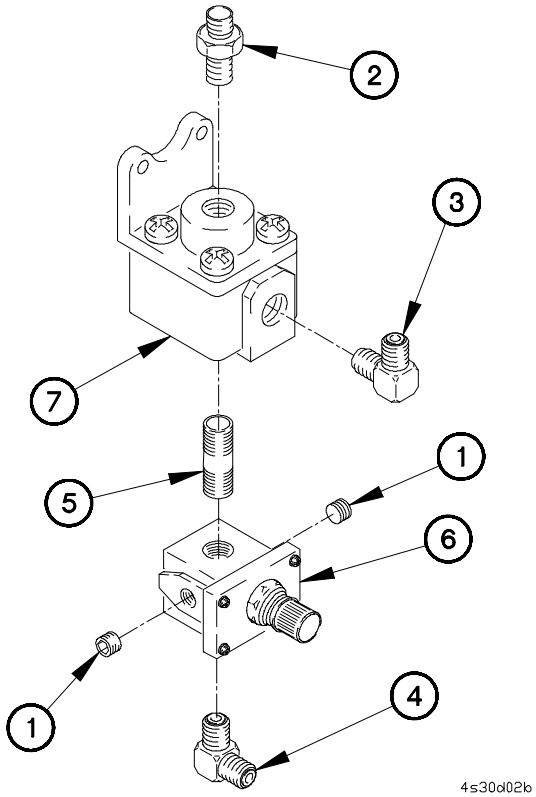


4s30d02b

NOTE

- Install fittings in the same orientation as noted during removal.
- Install fittings, plugs, and pipe nipple in steps (2) through (5) finger tight, then wrench tighten an additional 2-3 turns.

(2) Install two plugs (1) in regulating valve (6).

(3) Install pipe nipple (5), fitting (2), and 90-degree fitting (3) in shuttle valve (7).

(4) Install regulating valve (6) on pipe nipple (5).

(5) Install 90-degree fitting (4) in regulating valve (6).

17-30. M1089 30K WINCH TENSIONER PNEUMATIC VALVE ASSEMBLY REPLACEMENT/REPAIR/ADJUSTMENT (CONT)

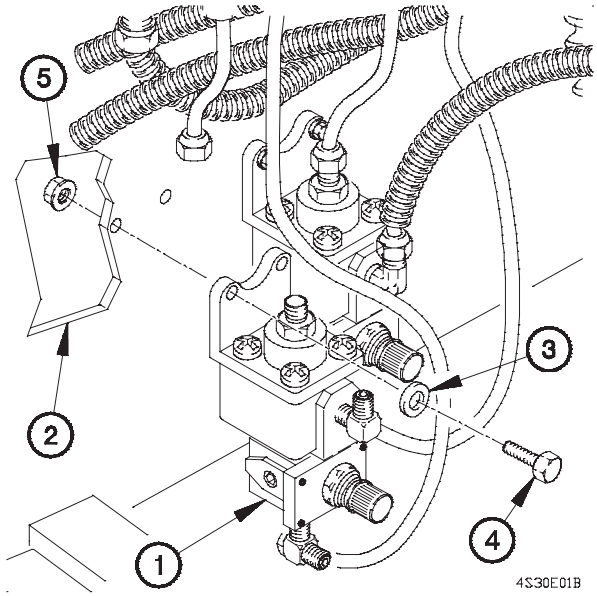
e. Installation.

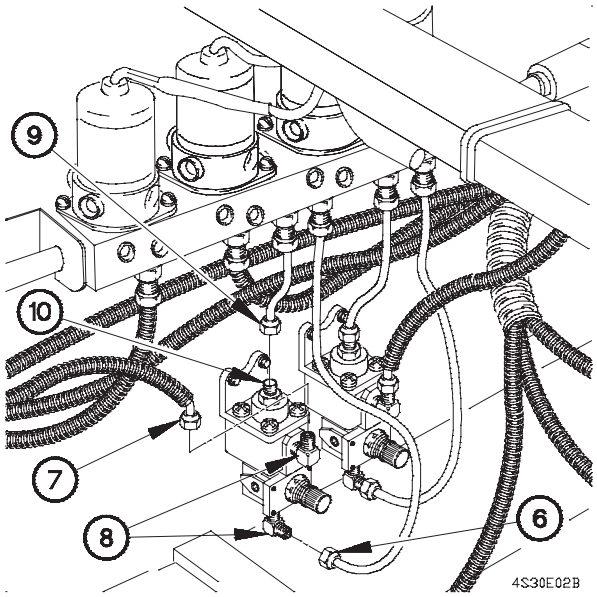
NOTE

LH and RH M1089 30K winch tensioner pneumatic valve assemblies are installed the same way. LH M1089 30K winch tensioner pneumatic valve assembly shown.

(1) Position M1089 30K winch tensioner pneumatic valve assembly (1) on 30K winch frame (2) with two washers (3), screws (4), and self-locking nuts (5).

(2) Tighten two self-locking nuts (5) to 96-120 lb-in. (11-14 N·m).





(3) Position hoses (6 and 7) on two 90-degree fittings (8).

(4) Position hose (9) on fitting (10).

(5) Tighten hoses (6, 7, and 9) to 132-144 lb-in. (15-16 N·m).

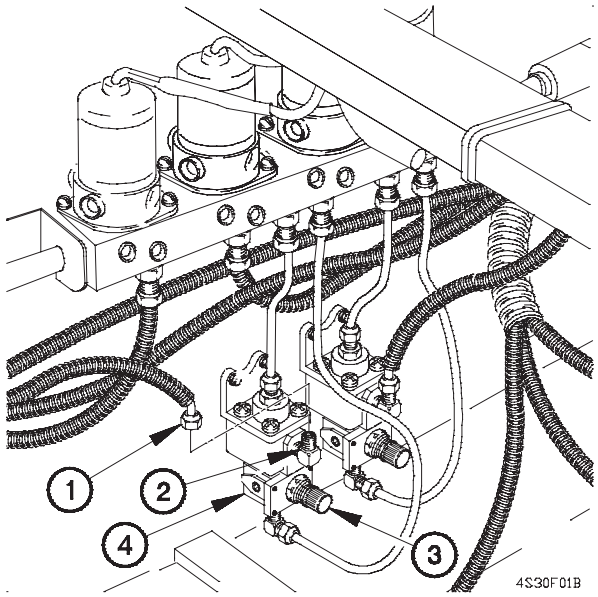
f. Adjustment.

NOTE

LH and RH M1089 30K winch tensioner pneumatic valve assemblies are adjusted the same way. LH M1089 30K winch tensioner pneumatic valve assembly shown.

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

(2) Pull out and turn knob (3) on regulating valve (4) fully counterclockwise.



(3) Connect M1089 30K winch test adapter on 90-degree fitting (2).

(4) Install STE/ICE-R 0-1000 PSI pressure transducer in M1089 30K winch test adapter.

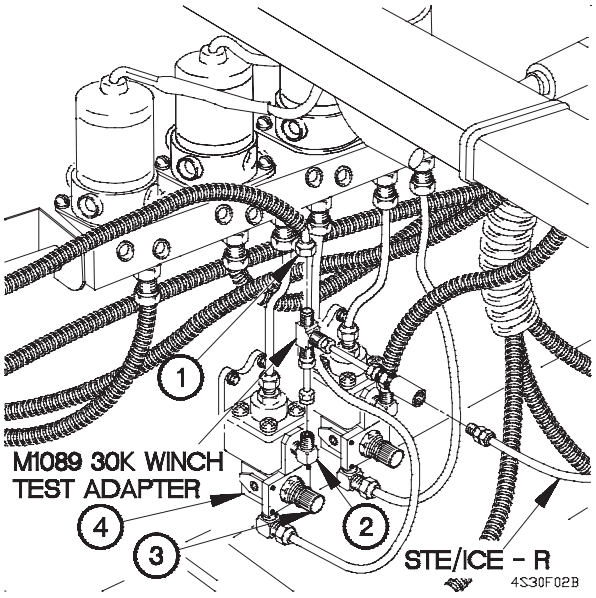
(5) Connect hose (1) to M1089 30K winch test adapter.

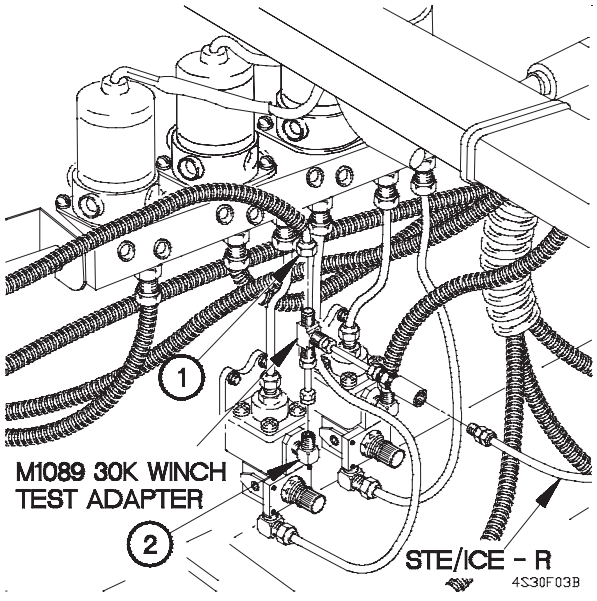
(6) Start engine (TM 9-2320-366-10-1).

(7) Perform STE/ICE-R test #50.

(8) Turn knob (3) on regulating valve (4) clockwise until pressure reads 65 psi on STE/ICE-R.

(9) Push in knob (3) on regulating valve (4).





(10) Shut down engine (TM 9-2320-366-10-1).

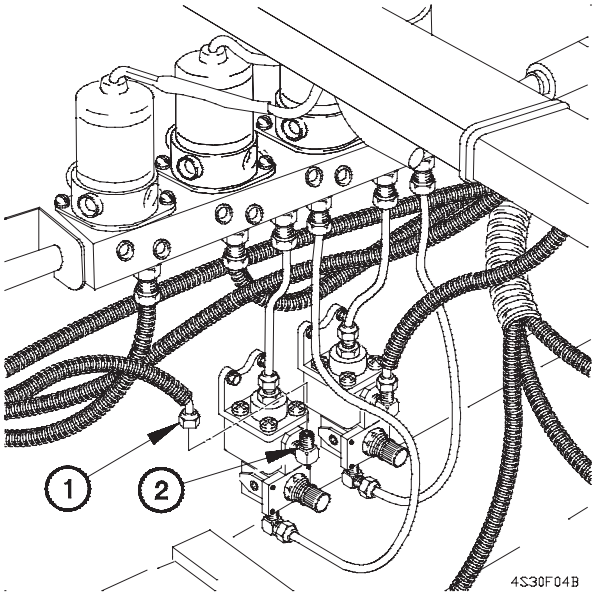
(11) Remove STE/ICE-R 0-1000 PSI transducer from M1089 30K winch test adapter.

(12) Disconnect hose (1) from M1089 30K winch test adapter.

(13) Disconnect M1089 30K winch test adapter from 90-degree fitting (2).

17-30. M1089 30K WINCH TENSIONER PNEUMATIC VALVE ASSEMBLY REPLACEMENT/REPAIR/ADJUSTMENT (CONT)

(14) Connect hose (1) to 90-degree fitting (2).



End of Task.

17-31. M1089 STINGER CYLINDER REPLACEMENT

This task covers:

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

INITIAL SETUP

Equipment Conditions
Crossbar assembly removed (para 16-69).
Stinger extended with outer end slightly higher than inner end (TM 9-2320-366-10-2).
Engine shut down (TM 9-2320-366-10-1).
Hydraulic reservoir supply and return valve closed (TM 9-2320-366-10-2).

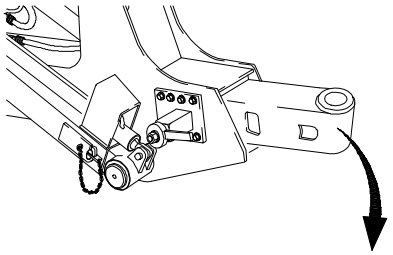
Tools and Special Tools
Tool Kit, Genl Mech (Item 78, Appendix B)
Goggles, Industrial (Item 28, Appendix B)
Pan, Drain (Item 43, Appendix B)
Wrench, Torque, 0-175 lb-ft (Item 92, Appendix B)

Tools and Special Tools (Cont)
Wrench Set, Crowfoot, Ratcheting (TM 9-2320-366-20)

Materials/Parts
Dispenser, Pressure Sensitive Adhesive Tape (Item 30, Appendix C)
Solvent, Dry Cleaning (Item 83, Appendix C)
Preformed Packing (2) (Item 234, Appendix F)

Personnel Required
(2)

a. Removal.

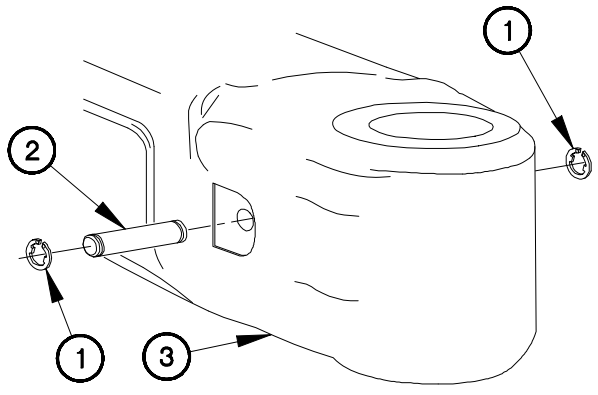


WARNING

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.

(1) Remove two retaining rings (1) from retaining pin (2).

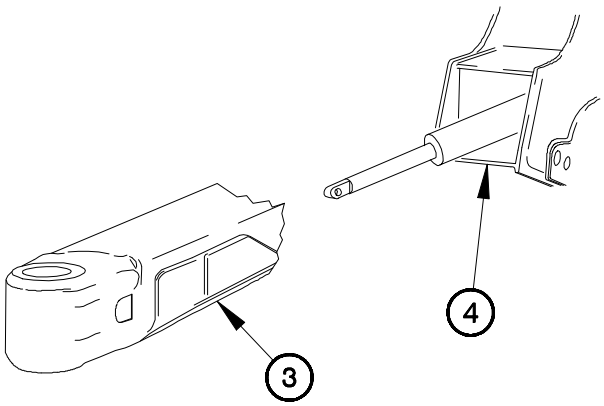
(2) Remove retaining pin (2) from inner tube (3).



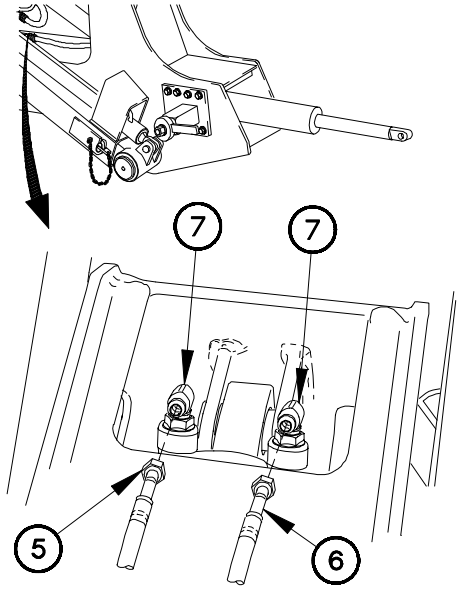
4s31r011

17-31. M1089 STINGER CYLINDER REPLACEMENT (CONT)

(3) Remove inner tube (3) from folding boom frame (4).



4s31r021



4s31r031

CAUTION

Cap or plug hydraulic hoses and fittings to prevent contamination of hydraulic system. Failure to comply may result in damage to equipment.

NOTE

Tag hydraulic hoses and connection points prior to disconnecting.

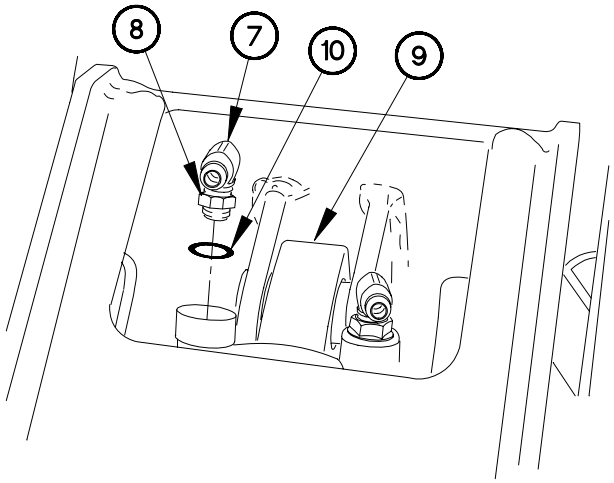
(4) Place drain pan under hoses (5 and 6).

(5) Disconnect hydraulic hoses (5 and 6) from 90-degree fittings (7).

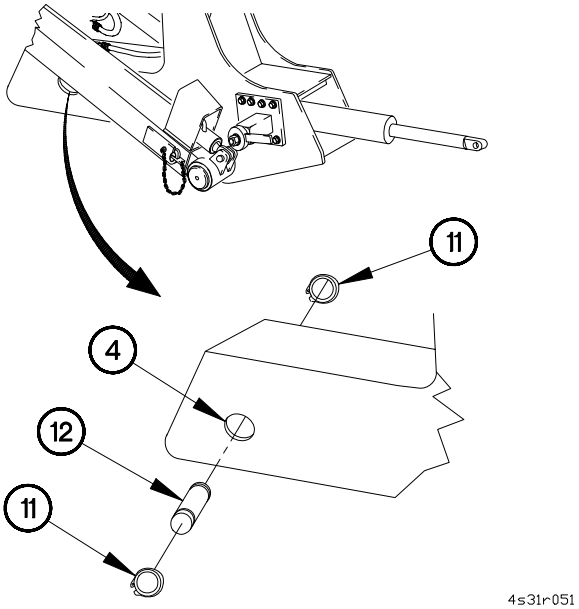
(6) Loosen two jam nuts (8) on 90-degree fittings (7).

(7) Remove two 90-degree fittings (7) from stinger cylinder (9).

(8) Remove two preformed packings (10) from 90-degree fittings (7). Discard preformed packings.



4s31r041



4s31r051

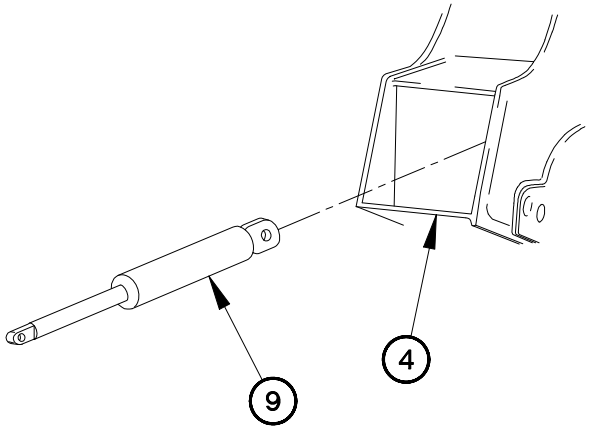
WARNING

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.

(9) Remove two retaining rings (11) from retaining pin (12).

(10) Remove retaining pin (12) from folding boom frame (4).

(11) Remove stinger cylinder (9) from folding boom frame (4).

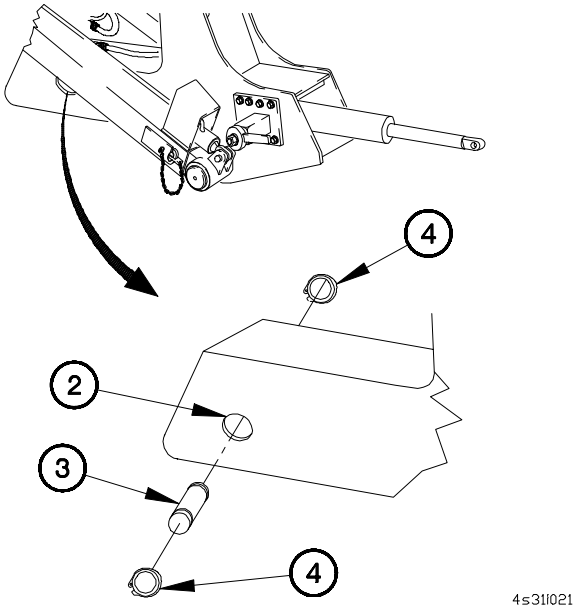


4s31r061

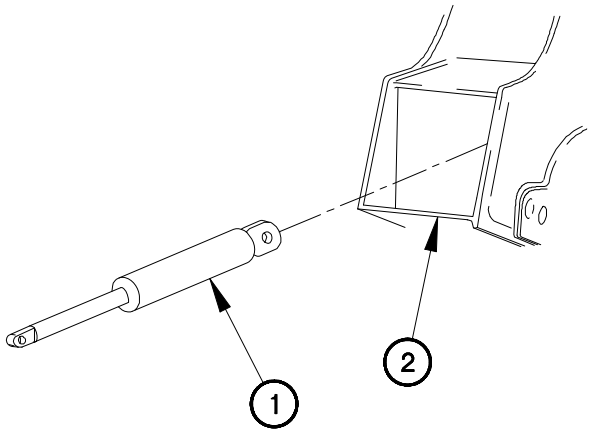
17-31. M1089 STINGER CYLINDER REPLACEMENT (CONT)

b. Installation.

(1) Install stinger cylinder (1) in folding boom frame (2).



4s3l1021



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(2) Install retaining pin (3) in folding boom frame (2).

WARNING

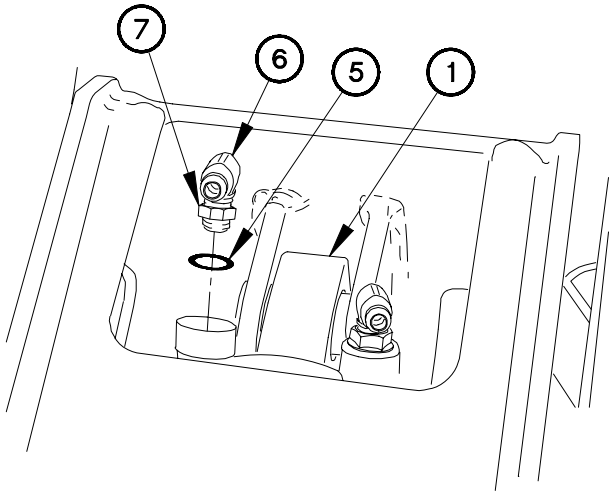
Use care when installing retaining rings. Retaining rings are under tension and can act as projectiles when released. Failure to comply may result in injury to personnel.

(3) Install two retaining rings (4) on retaining pin (3).

(4) Install two preformed packings (5) on 90-degree fittings (6).

(5) Install two 90-degree fittings (6) in stinger cylinder (1).

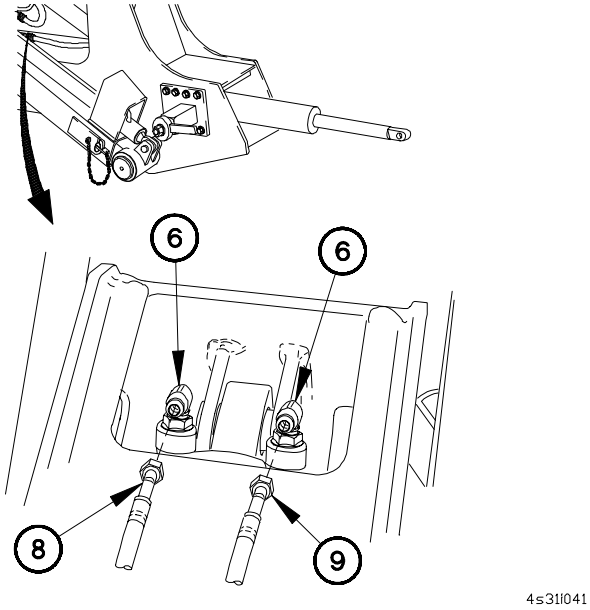
(6) Tighten jam nuts (7) to 18-20 lb-ft (24-27 N m).

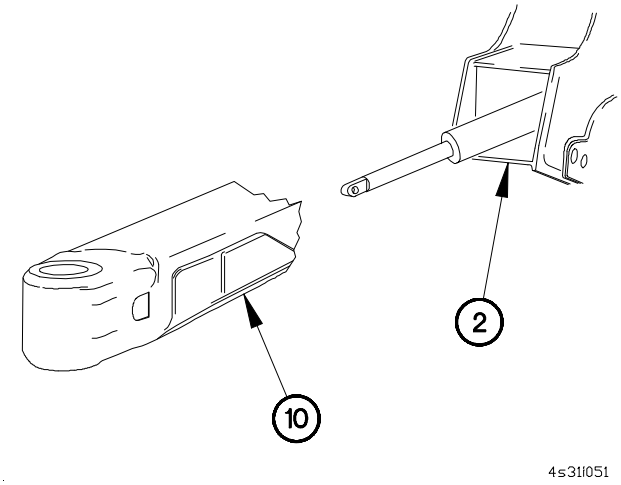


4s3l1031

(7) Position hydraulic hoses (8 and 9) on 90-degree fittings (6).

(8) Tighten hoses (8 and 9) to 18-20 lb-ft (24-27 N m).



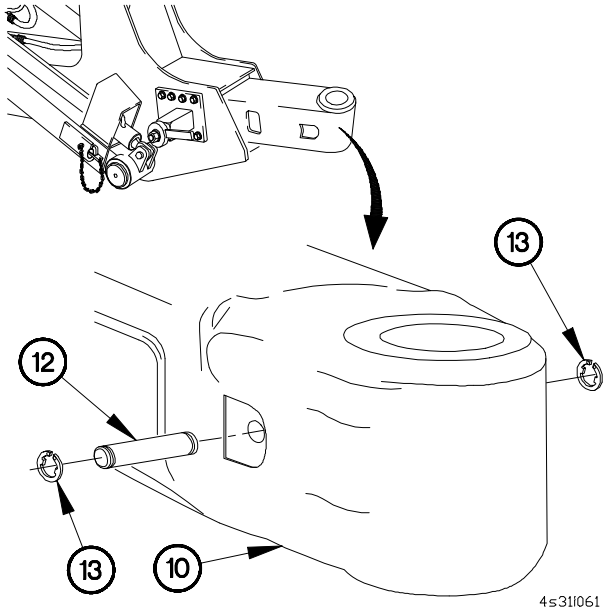


(9) Install inner tube (10) in folding boom frame (2).

(10) Install retaining pin (12) on inner tube (10).

WARNING

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



(11) Install two retaining rings (13) on retaining pin (12).

17-31. M1089 STINGER CYLINDER REPLACEMENT (CONT)

c. Follow-On Maintenance.

(1) Hydraulic reservoir supply and return valve open (TM 9-2320-366-10-2).

(2) Install crossbar assembly (para 16-69).

(3) Stowed underlift (TM 9-2320-366-10-2).

End of Task.

17-32. M1089 30K WINCH VALVE MANIFOLD ASSEMBLY REPLACEMENT/REPAIR

This task covers:

a. Removal
b. Disassembly
c. Cleaning/Inspection
d. Assembly
e. Installation

INITIAL SETUP

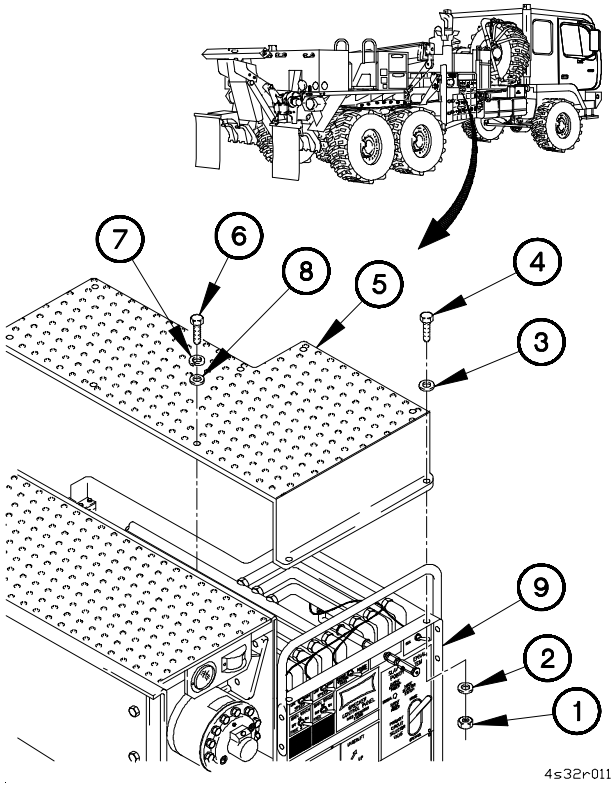
Equipment Conditions
Disconnect batteries (TM 9-2320-366-20-3).
Air tanks drained (TM 9-2320-366-10-1).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Heater, Gun Type, Electric (Item 24, Appendix B)

Materials/Parts
Rag, Wiping (Item 50, Appendix D)
Dispenser, Pressure Sensitive Adhesive Tape (Item 20, Appendix D)
Solder (Item 64, Appendix D)
Insulation, Sleeving, Electrical (Item 29.2 Appendix D)
Nut, Self-Locking (tem 137, Appendix G)
Nut, Self-Locking (Item 133, Appendix G)
Lockwasher (8) (Item 78, Appendix G)
Sealant (Item 55.3, Appendix D)

Personnel Required
(2)

a. Removal.



(1) Remove two self-locking nuts (1), washers (2), washers (3), and screws (4) from top cover (5). Discard self-locking nuts.

(2) Remove eight screws (6), lockwashers (7), washers (8), and top cover (5) from control panel (9). Discard lockwashers.

17-32. 30K WINCH VALVE MANIFOLD ASSEMBLY REPLACEMENT/REPAIR (CONT)

NOTE

- Tag electrical leads and connection points prior to disconnecting.
- Positive electrical leads are yellow. Ground electrical leads are black.

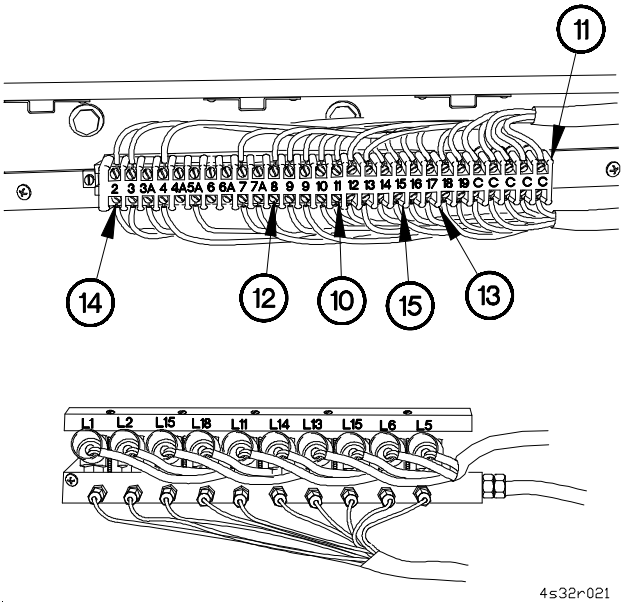
(3) Disconnect electrical lead (10) from terminal block (11) ground terminal lug 11.

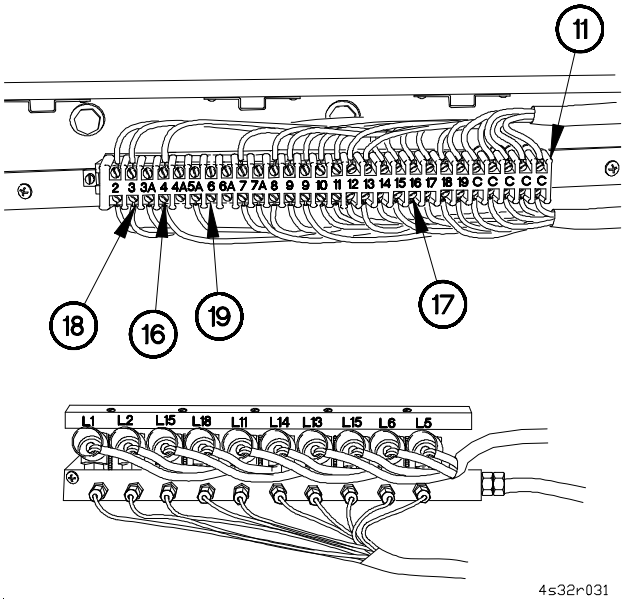
(4) Disconnect electrical lead (12) from terminal block (11) terminal lug 8.

(5) Disconnect electrical lead (13) from terminal block (11) terminal lug 17.

(6) Disconnect electrical lead (14) from terminal block (11) terminal lug 2.

(7) Disconnect electrical lead (15) from terminal block (11) terminal lug 15.





(8) Disconnect electrical lead (16) from terminal block (11) terminal lug 4.

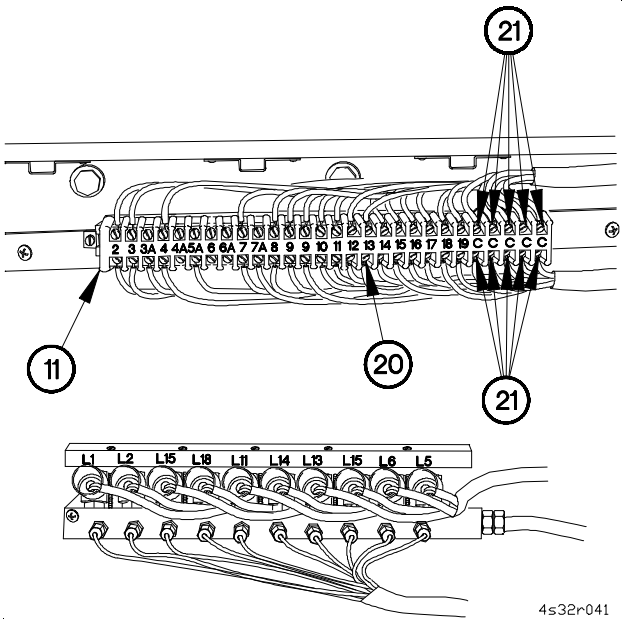
(9) Disconnect electrical lead (17) from terminal block (11) terminal lug 16.

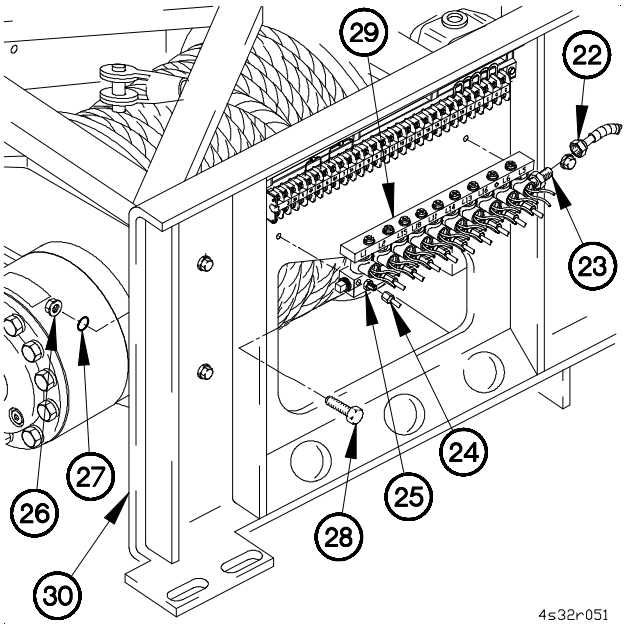
(10) Disconnect electrical lead (18) from terminal block (11) terminal lug 3.

(11) Disconnect electrical lead (19) from terminal block (11) terminal lug 6.

(12) Disconnect electrical lead (20) from terminal block (11) terminal lug 13.

(13) Disconnect thirteen ground wires (21) from terminal block (11) terminal lugs C.





NOTE

Tag connections and connection points prior to disconnecting.

(14) Disconnect hose (22) from fitting (23).

(15) Disconnect ten hoses (24) from fittings (25).

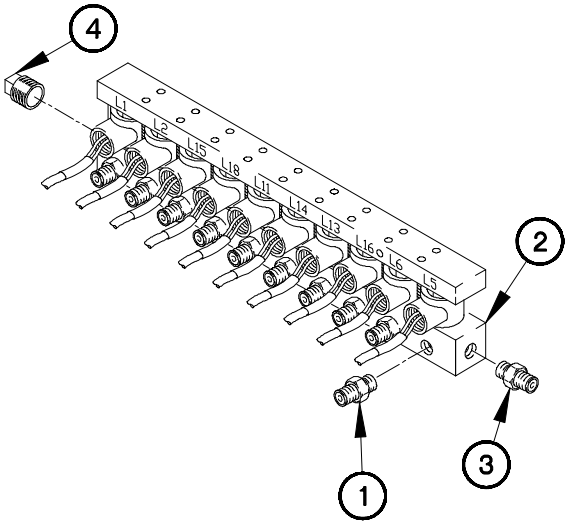
(16) Remove two self-locking nuts (26), washers (27), screws (28), and valve manifold assembly (29) from 30K winch assembly (30). Discard self-locking nuts.

b. Disassembly.

(1) Remove ten fittings (1) from valve manifold assembly (2).

(2) Remove fitting (3) from valve manifold assembly (2).

(3) Remove plug (4) from valve manifold assembly (2).



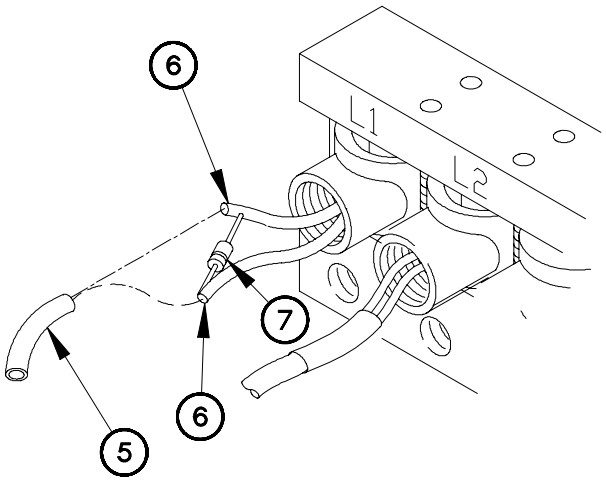
17-32. 30K WINCH VALVE MANIFOLD ASSEMBLY REPLACEMENT/REPAIR (CONT)

(4) Remove insulation sleeving (5) from electrical leads (6).

CAUTION

Care must be taken when removing rectifiers. Failure to comply may cause damage to electrical leads.

(5) Remove rectifier (7) from electrical leads (6).



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c. 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 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.**

(1) Clean all metal parts with dry cleaning solvent.

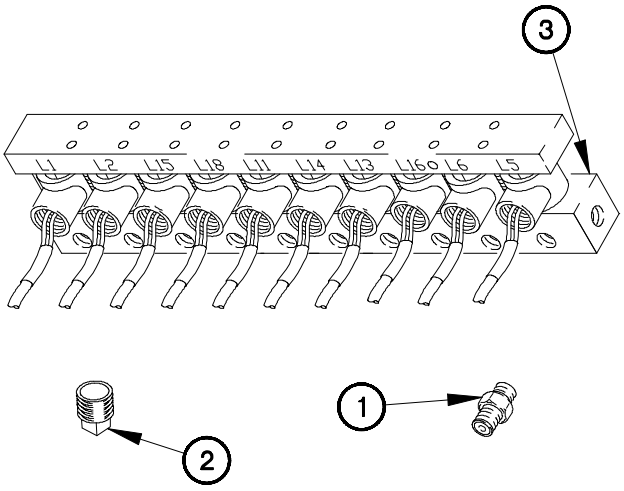
NOTE

Replace any part that fails visual inspection.

(2) Check fittings (1) for cracks, corrosion,pitting, damaged or worn threads, and obstruction to parts.

(3) Check plug (2) for cracks, corrosion, pitting, damaged or worn threads.

(4) Check valve manifold (3) for cracks, corrosion, pitting, damaged or worn threads, and obstruction to parts.



4s32c011

d. Assembly.

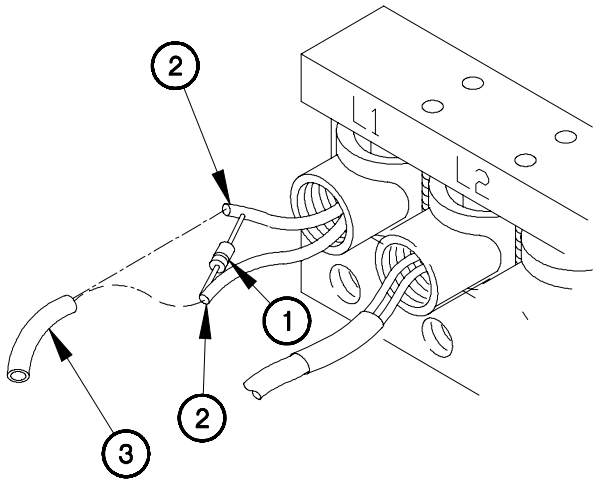
NOTE

Cathode side of rectifier (side with band) is positioned toward positive lead (yellow) and the opposite end positioned toward negative ground lead (black).

(1) Position rectifier (1) on electrical leads (2).

(2) Solder rectifier (1) to electrical leads (2).

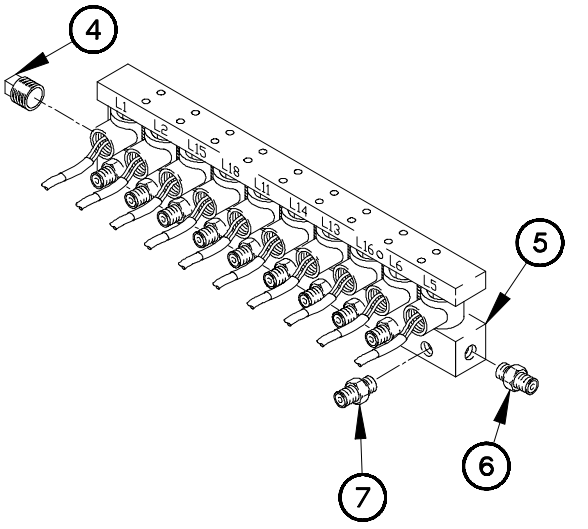
(3) Install insulation sleeving (3) over electrical leads (2) and shrink insulation sleeving.



6R67D011

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 sue well-ventilated area. If adhesive, solvent, or anti-seize 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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NOTE

Apply sealant to first two to five threads of fittings and plugs prior to installation.

(3.1) Apply sealant to threads of plug (4) fittings (6) And fittings (7)

(4) Install plug (4) in valve manifold assembly (5).

(5) Install fitting (6) in valve manifold assembly (5).

(6) Install ten fittings (7) in valve manifold assembly (5).

(6.1) Tighten plug (4) fitting (6) and fittings (7) 2-3 turns with wrench.

17-32. 30K WINCH VALVE MANIFOLD ASSEMBLY REPLACEMENT/REPAIR (CONT)

e. Installation.

(1) Position valve manifold assembly (1) on 30K winch assembly (2) with two screws (3), washers (4), and self-locking nuts (5).

(2) Tighten two self-locking nuts (5) to 12-24 lb-in. (1-3 N•m).

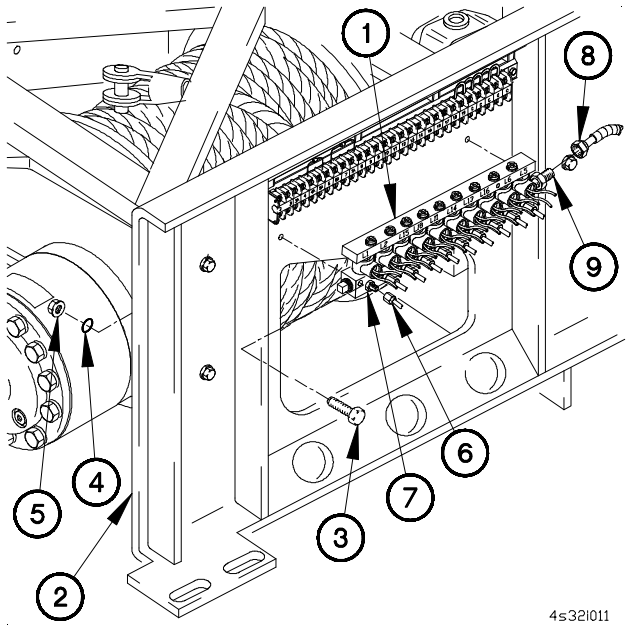
NOTE

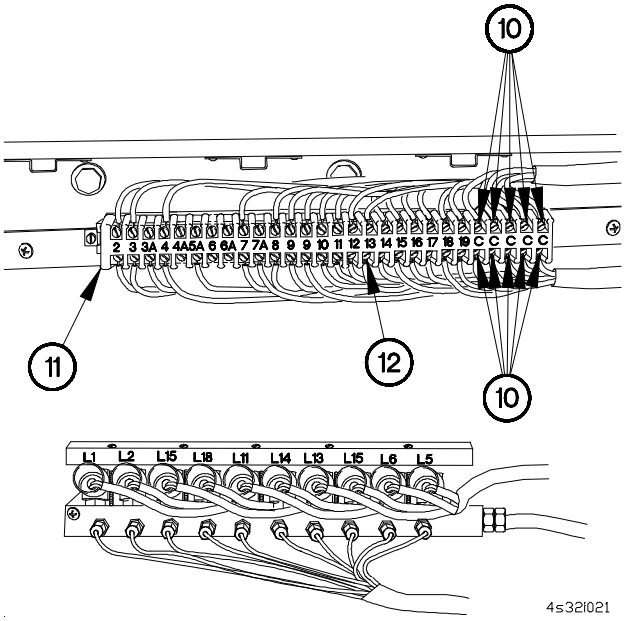
Apply antiseizing tape to first two to five threads of fittings prior to installation of hoses.

(3) Install ten hoses (6) on fittings (7).

(4) Position hose (8) on fitting (9).

(5) Tighten hose (8) approximately 2 1/2 turns past hand tight.



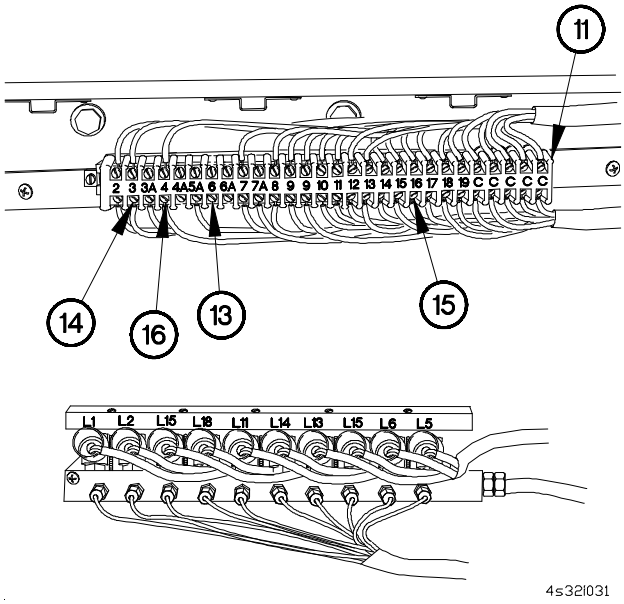


NOTE

Positive electrical leads are yellow. Ground electrical leads are black.

(6) Connect thirteen ground leads (10) to terminal block (11) terminal lugs C.

(7) Connect electrical lead (12) to terminal block (11) terminal lug 13.



(8) Connect electrical lead (13) to terminal block (11) terminal lug 6.

(9) Connect electrical lead (14) to terminal block (11) terminal lug 3.

(10) Connect electrical lead (15) to terminal block (11) terminal lug 16.

(11) Connect electrical lead (16) to terminal block (11) terminal lug 4.

(12) Connect electrical lead (17) to terminal block (11) terminal lug 15.

(13) Connect electrical lead (18) to terminal block (11) terminal lug 2.

(14) Connect electrical lead (19) to terminal block (11) terminal lug 17.

(15) Connect electrical lead (20) to terminal block (11) terminal lug 8.

(16) Connect electrical lead (21) to terminal block (11) terminal lug 11.

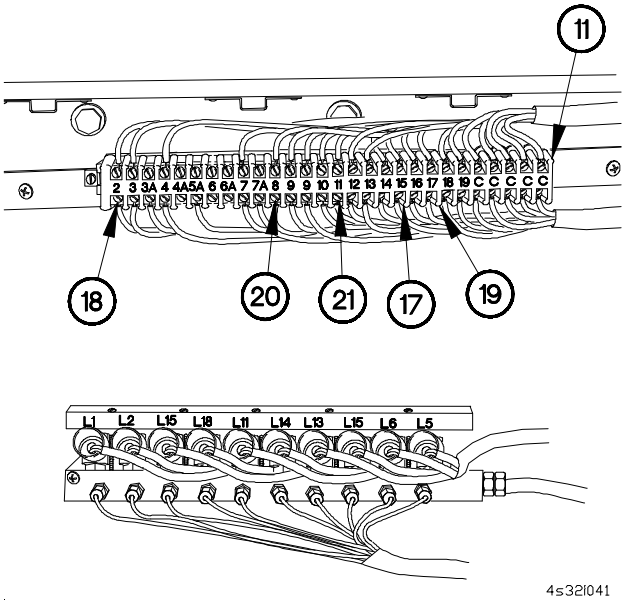
(17) Connect batteries (TM 9-2320-366-20-3).

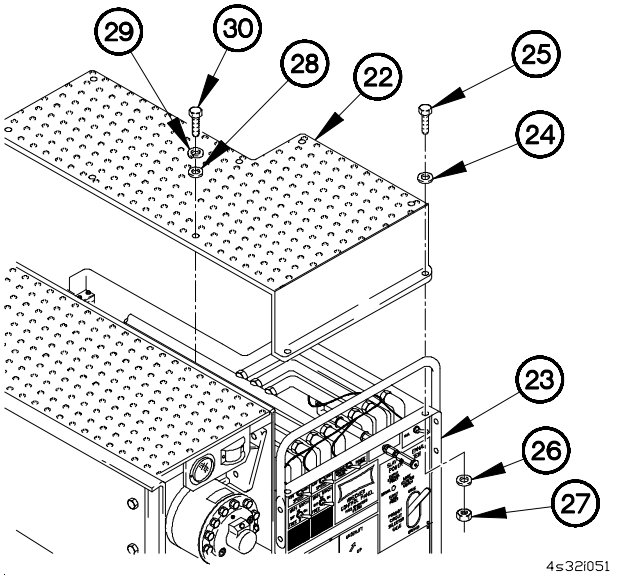
(18) Start engine (TM 9-2320-366-10-1).

(19) Test operate 30K winch and verify proper operation (TM 9-2320-366-10).

(20) Check valve manifold assembly (1) for air leaks.

(21) Shutdown engine (TM 9-2320-366-10-1).





(22) Install top cover (22) on control panel frame (23) with two washers (24), screws (25), washers (26), and self-locking nuts (27).

(23) Install eight washers (28), lockwashers (29), and screws (30) in top cover (22).

End of Task.

CHAPTER 18
BODY, CHASSIS, AND ACCESSORY ITEMS MAINTENANCE

RESTRICTED MAINTENANCE NOTICE

Units not authorized SC 4910-95-CL-A72 (SHOP EQUIPMENT, COMMON NO. 2) in their T.O.E. may be unable to perform some of the maintenance tasks described in this chapter. If the required tools are not authorized, the equipment must be submitted to DS Maintenance for repair.

Section I. INTRODUCTION

18-1. INTRODUCTION

This chapter contains maintenance instructions for replacing and repairing body, chassis, and accessory items authorized by the Maintenance Allocation Chart (MAC) at the Unit Maintenance level.

Section II. MAINTENANCE PROCEDURES

18-2. WINDSHIELD WASHER RESERVOIR AND PUMP REPLACEMENT

This task covers:

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

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-366-10-1).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)

Materials/Parts
Cleaning Compound, Windshield (Item 15, Appendix D)
Grommet, Nonmetallic (Item 51, Appendix G)

a. Removal.

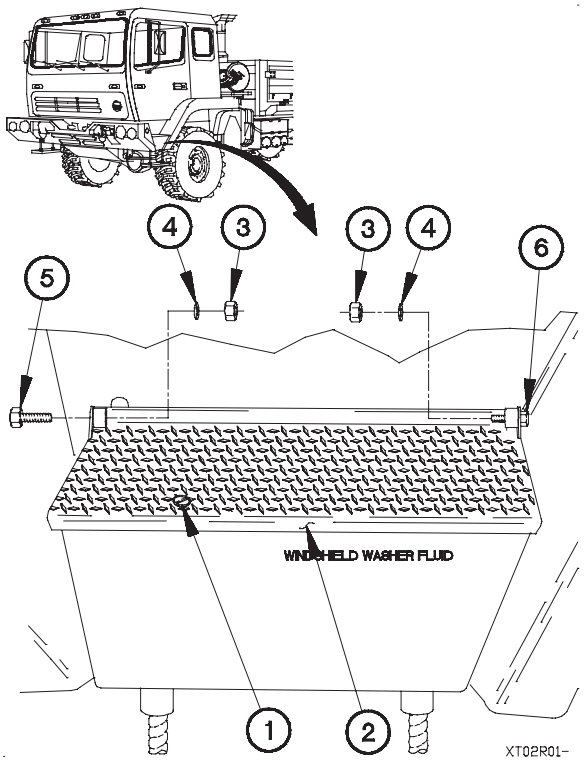
(1) Turn screw (1) to the left to unlock cab step tread (2).

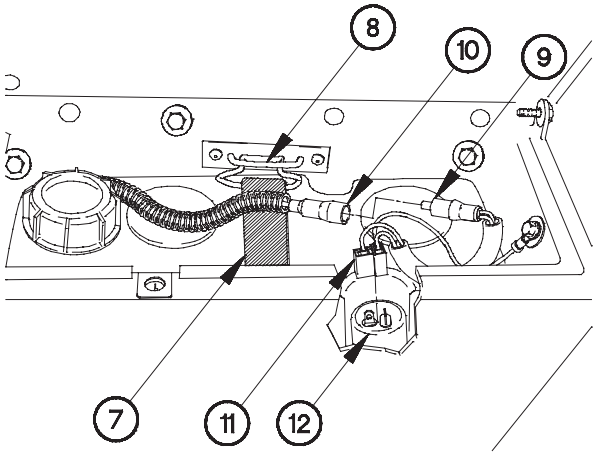
(2) Remove two nuts (3), washers (4), and screw (5) from cab step tread (2).

NOTE

Screw will remain attached to cab step.

(3) Remove cab step tread (2) from screw (6).





(4) Remove strap (7) from two brackets (8).

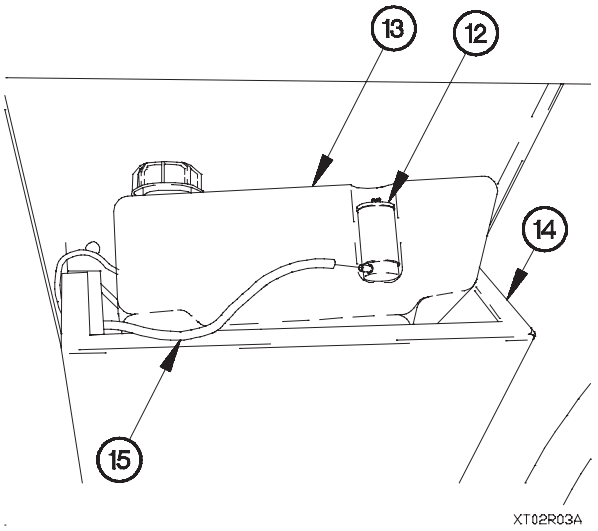
(5) Disconnect connector J25 (9) from connector P25 (10).

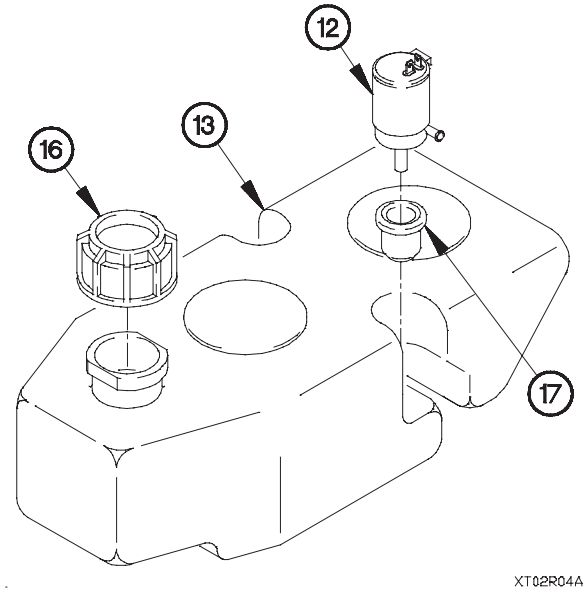
(6) Disconnect connector P125 (11) from windshield washer pump (12).

(7) Lift windshield washer reservoir (13) partially out of left cab step (14).

(8) Disconnect windshield washer supply tube (15) from windshield washer pump (12).

(9) Remove windshield washer reservoir (13) from left cab step (14).





(10) Remove cap (16) from windshield washer reservoir (13).

(11) Remove windshield washer pump (12) from windshield washer reservoir (13).

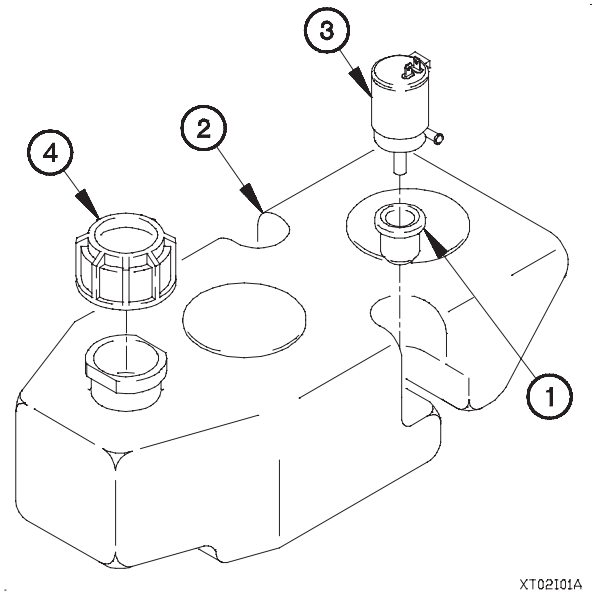
(12) Remove grommet (17) from windshield washer reservoir (13). Discard grommet.

b. Installation.

(1) Install grommet (1) in windshield washer reservoir (2).

(2) Install windshield washer pump (3) in windshield washer reservoir (2).

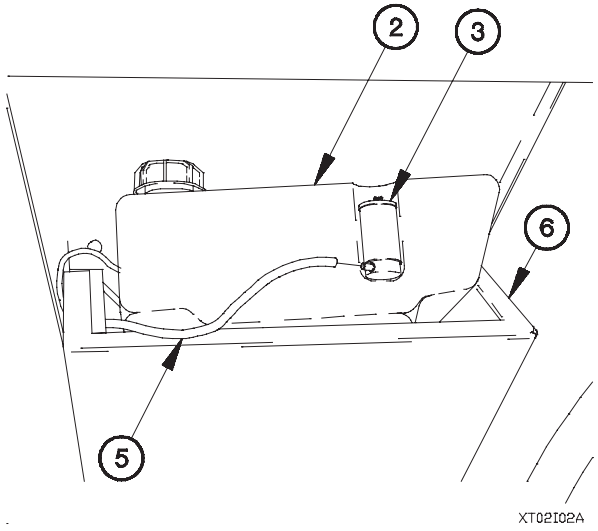
(3) Install cap (4) on windshield washer reservoir (2).



18-2. WINDSHIELD WASHER RESERVOIR AND PUMP REPLACEMENT (CONT)

(4) Connect windshield washer supply tube (5) to windshield washer pump (3).

(5) Install windshield washer reservoir (2) in left cab step (6).



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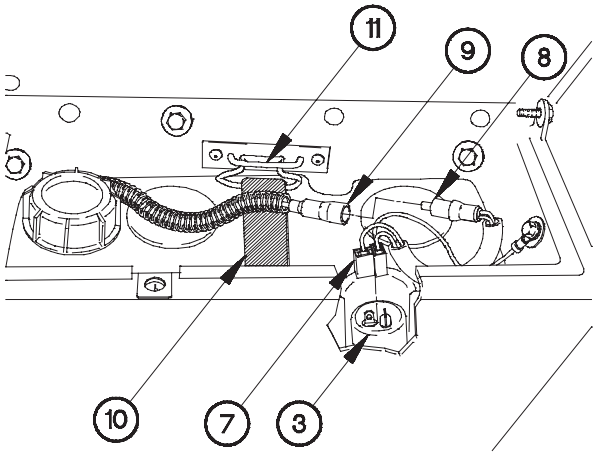

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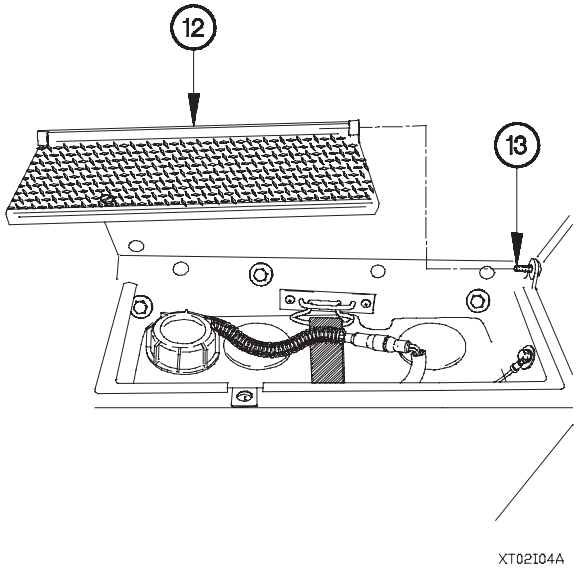
(6) Connect connector P125 (7) to windshield washer pump (3).

(7) Connect connector J25 (8) to connector P25 (9).

(8) Connect strap (10) to two brackets (11).

(9) Position cab step tread (12) on screw (13).



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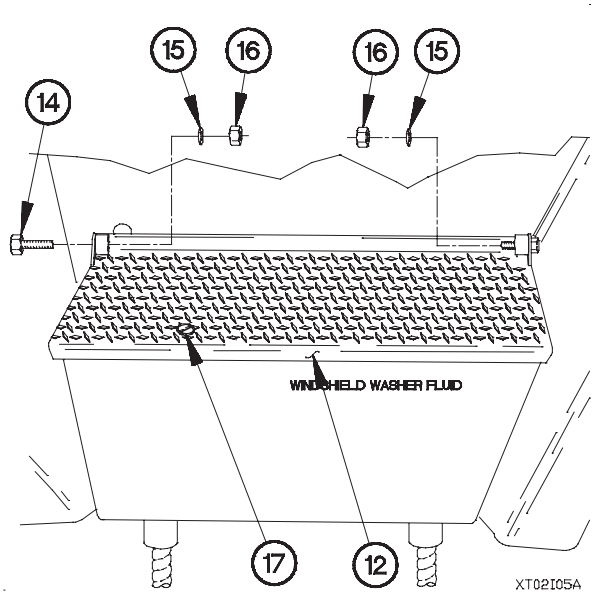


(10) Install screw (14), two washers (15), and nuts (16) in cab step tread (12).

(11) Lock cab step tread (12) by turning screw (17) one half turn to the right.

c. Follow-On Maintenance.

(1) Fill windshield washer reservoir (TM 9-2320-366-10-2).

(2) Operate windshield washer and check for proper operation (TM 9-2320-366-10-1).

End of Task.

18-3. WINDSHIELD WIPER AND NOZZLE REPLACEMENT

This task covers:

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

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-366-10-1).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Wrench, Torque 0-200 lb-in. (Item 59, Appendix C
Socket Set, Socket Wrench (Item 51, Appendix C)

Materials/Parts
Washer, Spring (Item 292, Appendix G)
Wiper, Refill (Item 297, Appendix G)

a. Removal.

NOTE

All windshield wipers are removed the same way. Left side shown.

(1) Disconnect windshield washer hose (1) from fitting (2).

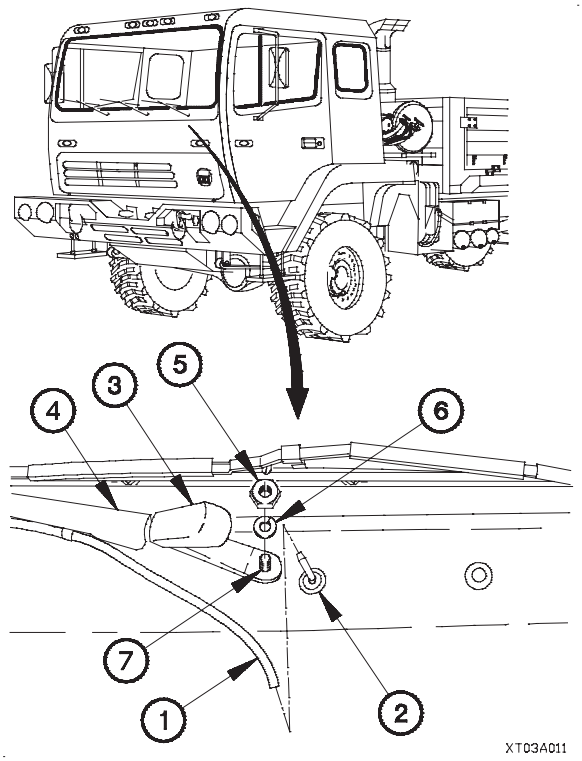
(2) Lift cover (3) at base of wiper arm (4).

(3) Remove nut (5) and spring washer (6) from wiper arm shaft (7). Discard spring washer.

NOTE

Mark position of wiper arm prior to removal.

(4) Remove wiper arm (4) from wiper arm shaft (7).

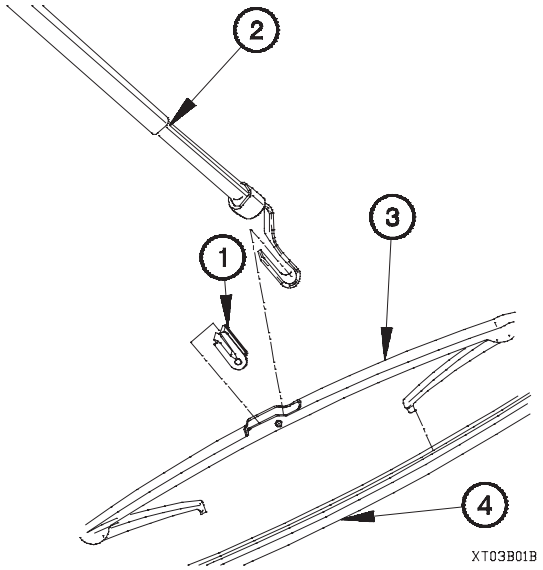


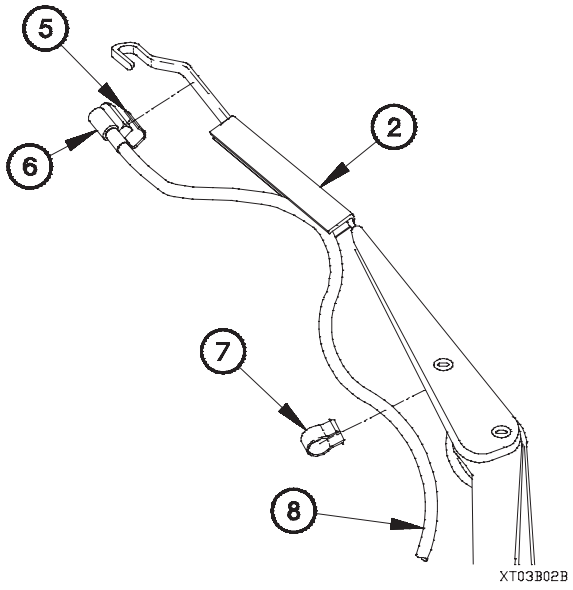
b. Disassembly.

(1) Depress clip (1) and separate wiper arm (2) and wiper blade (3).

(2) Remove clip (1) from wiper blade (3).

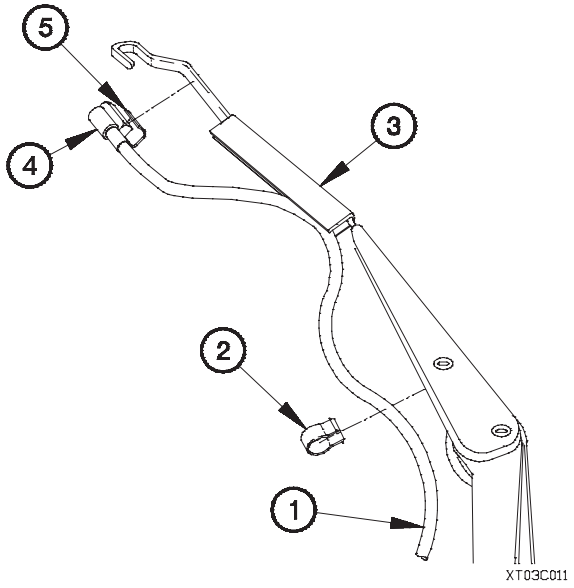
(3) Remove wiper (4) from wiper blade (3). Discard wiper.





(4) Lift up clip (5) and remove windshield washer nozzle (6) from wiper arm (2).

(5) Squeeze clip (7) and remove clip and windshield washer hose (8) from wiper arm (2).



c. Assembly.

(1) Install windshield wiper hose (1) and clip (2) on wiper arm (3).

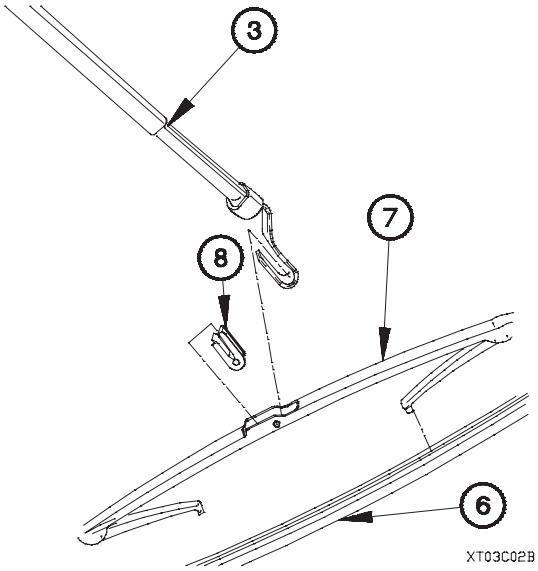
(2) Install windshield washer nozzle (4) and clip (5) on wiper arm (3).

18-3. WINDSHIELD WIPER AND NOZZLE REPLACEMENT (CONT)

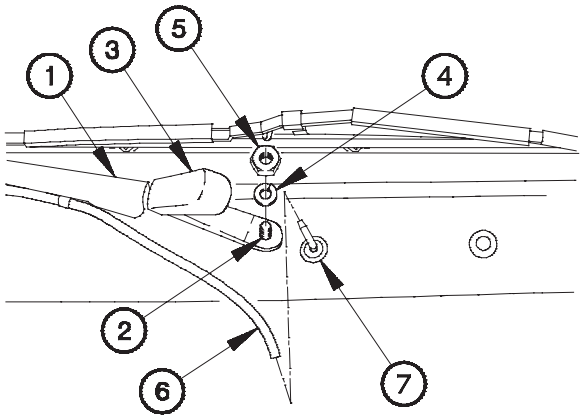
(3) Install wiper (6) on wiper blade (7).

(4) Install clip (8) on wiper blade (7).

(5) Install wiper blade (7) on wiper arm (3).



d. Installation.



NOTE

All windshield wipers are installed the same way. Left side shown.

(1) Position wiper arm (1) on wiper arm shaft (2).

(2) Lift cover (3) on wiper arm shaft (2).

(3) Position spring washer (4) and nut (5) on wiper arm shaft (2).

(4) Tighten nut (5) to 120-168 lb-in. (14-19 N·m).

(5) Snap cover (3) in place on wiper arm (1).

(6) Connect windshield washer hose (6) to fitting (7).

e. Follow-On Maintenance.

Operate windshield wipers and check for proper operation (TM 9-2320-366-10-1).

End of Task.

18-4. WINDSHIELD WIPER MOTOR REPLACEMENT

This task covers:

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

INITIAL SETUP

Equipment Conditions
Batteries disconnected (para 7-57).
PDP cover removed (para 16-2).

Materials/Parts
Ties, Cable, Plastic (Item 69, Appendix D)
Nut, Self-Locking (Item 172, Appendix G)

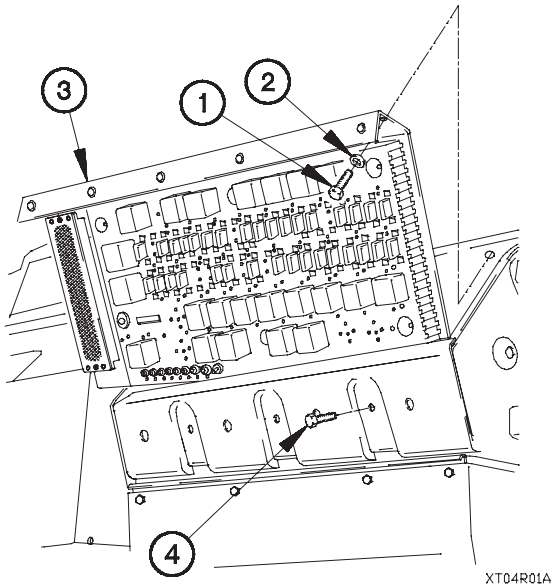
Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Wrench, Torque, 0-200 lb-in. (Item 59, Appendix C)
Wrench, Torque, 0-175 lb-ft (Item 58, Appendix C)
Wrench Set, Socket (Item 51, Appendix C)

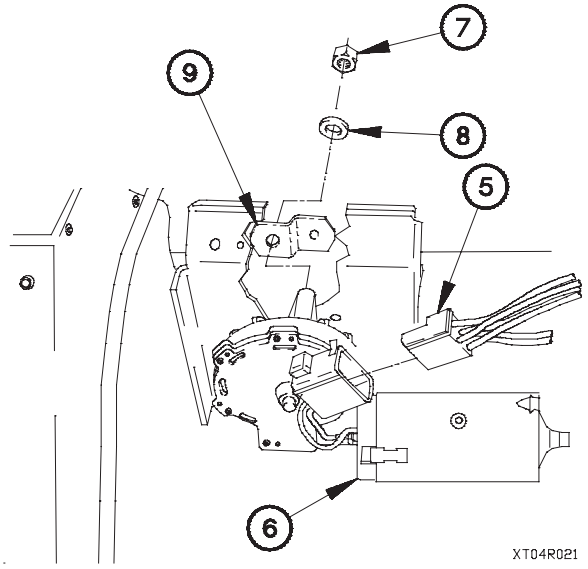
a. Removal.

(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 connector PX22 (5) from wiper motor (6).

(5) Remove self-locking nut (7) and washer (8) from wiper motor (6). Discard self-locking nut.

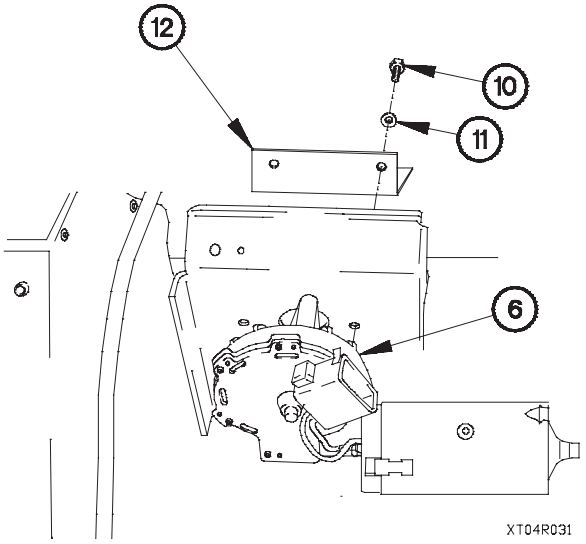
NOTE

Note orientation of wiper arm prior to removal.

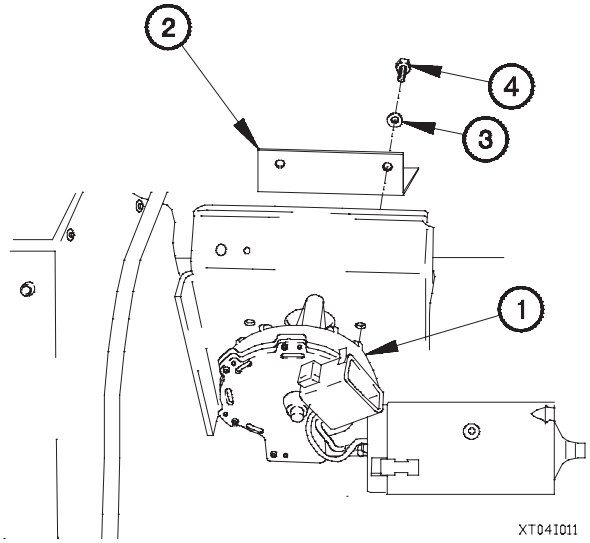
(6) Remove wiper arm (9) from wiper motor (6).

18-4. WINDSHIELD WIPER MOTOR REPLACEMENT (CONT)

(7) Remove three screws (10), washers (11), wiper motor (6), and wiper motor bracket (12) from vehicle.



b. Installation.



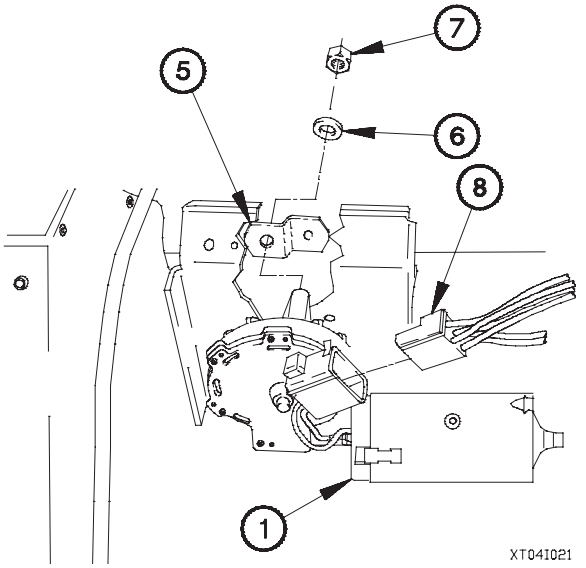
(1) Position wiper motor (1) and wiper motor bracket (2) on vehicle with three washers (3) and screws (4).

(2) Tighten three screws (4) to 96-120 lb-in. (11-14 N·m).

NOTE

Use orientation noted from removal of wiper arm.

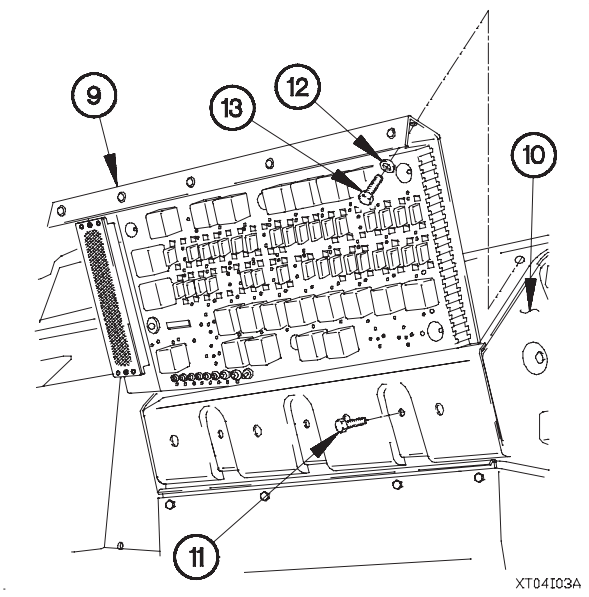
(3) Install wiper arm (5) on wiper motor (1) with washer (6) and self-locking nut (7).



NOTE

Install plastic cable ties as required.

(4) Connect connector PX22 (8) to wiper motor (1).



(5) Install PDP (9) on dashboard (10) with three screws (11).

(6) Install three washers (12) and screws (13) in PDP (9).

c. Follow-On Maintenance.

(1) Install PDP cover (para 16-2).

(2) Connect batteries (para 7-57).

(3) Operate windshield wipers and check for proper operation (TM 9-2320-366-10-1).

End of Task.

18-5. WINDSHIELD WIPER LINKAGE REPLACEMENT

This task covers:

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

INITIAL SETUP

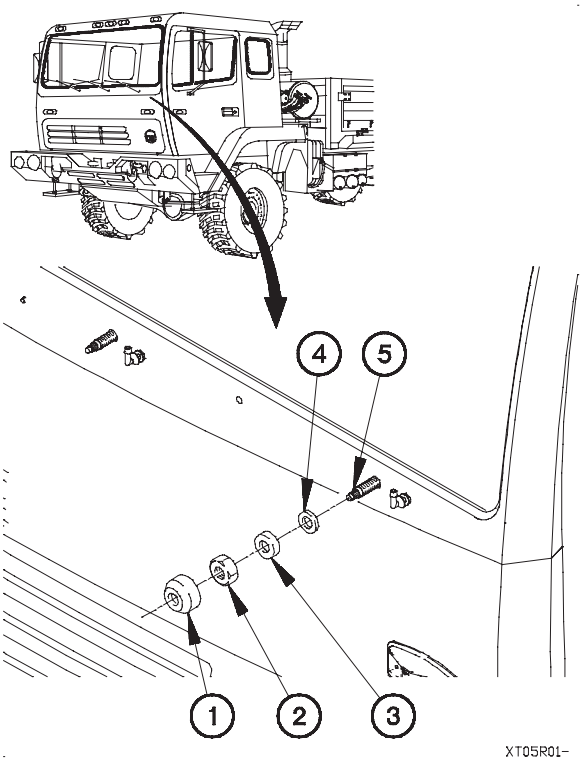
Equipment Conditions
Batteries disconnected (para 7-57).
Windshield wipers and nozzles removed (para 18-3).
PDP cover removed (para 16-2).
Personnel heater removed (para 18-9).
Instrument panel assembly removed for access (para 7-15).

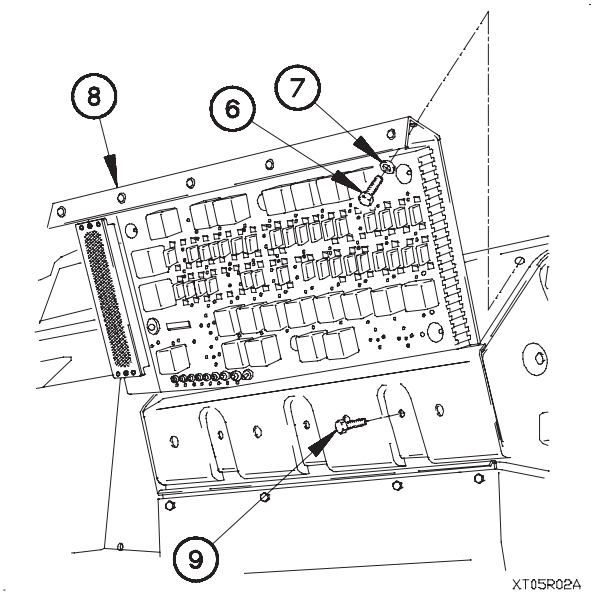
Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Wrench, Torque, 0-175 lb-ft (Item 58, Appendix C)
Wrench, Torque, 0-200 lb-in. (Item 59, Appendix C)
Socket Set, Socket Wrench (Item 34, Appendix C)

Material/Parts
Washer, Flat Rubber (3) (Item 281, Appendix G)
Nut, Self-Locking (6) (Item 128, Appendix G)
Nut, Self-Locking (Item 172, Appendix G)

a. Removal.

(1) Remove three collars (1), nuts (2), washers (3), and rubber washers (4) from wiper shafts (5).





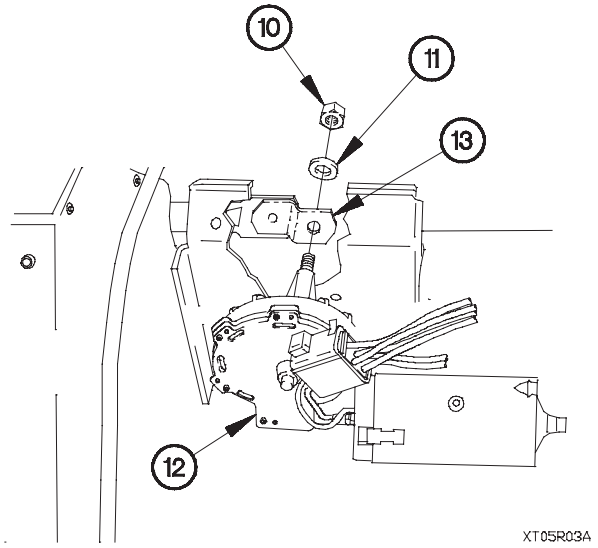
(2) Remove three screws (6) and washers (7) from PDP (8).

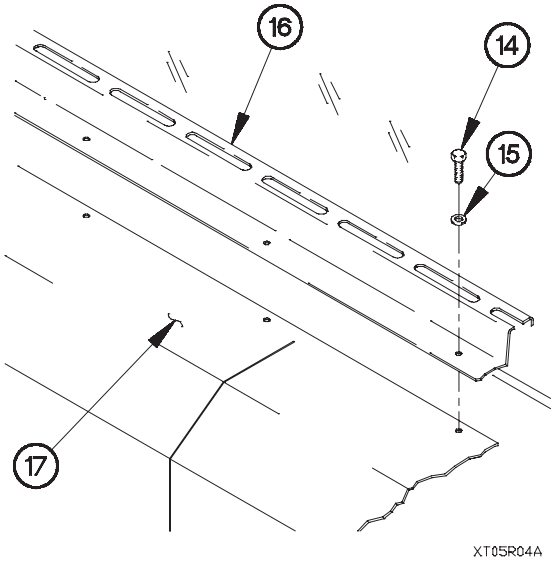
(3) Remove three screws (9) from PDP (8).

(4) Lift PDP (8) outward to gain access.

(5) Remove self-locking nut (10) and washer (11) from wiper motor (12). Discard self-locking nut.

(6) Remove windshield wiper linkage (13) from wiper motor (12).



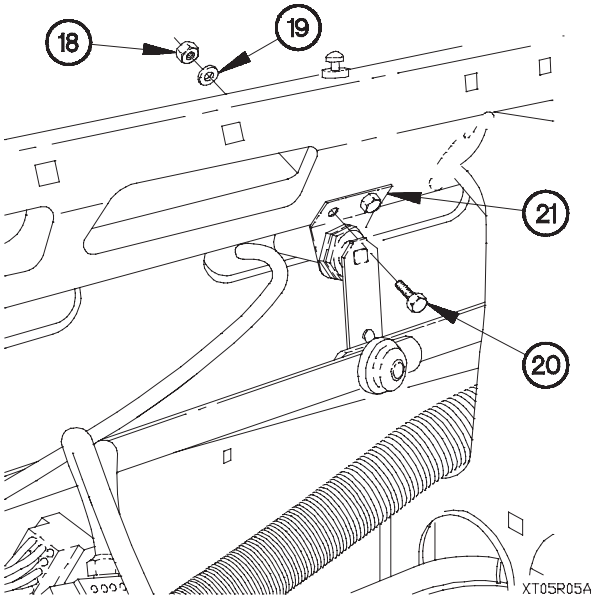


NOTE

Perform steps (7) and (8) on all models except M1093 and M1094.

(7) Remove six screws (14), washers (15), and defroster plenum (16) from dashboard (17).

(8) Remove six self-locking nuts (18), washers (19), and screws (20) from three linkage mounting brackets (21). Discard self-locking nuts.



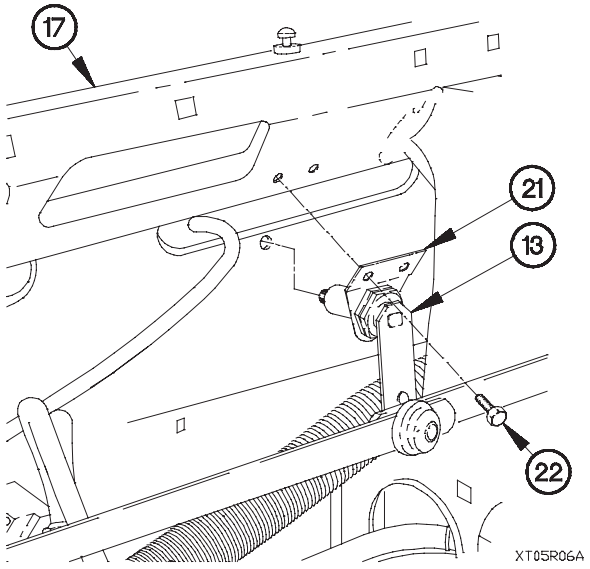
18-5. WINDSHIELD WIPER LINKAGE REPLACEMENT (CONT)

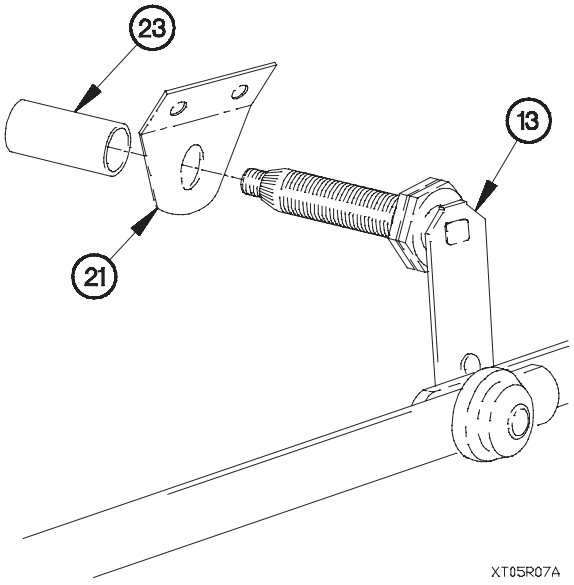
NOTE

Perform step (9) on M1093 and M1094.

(9) Remove six screws (22) from three linkage mounting brackets (21).

(10) Remove windshield wiper linkage (13) from dashboard (17).

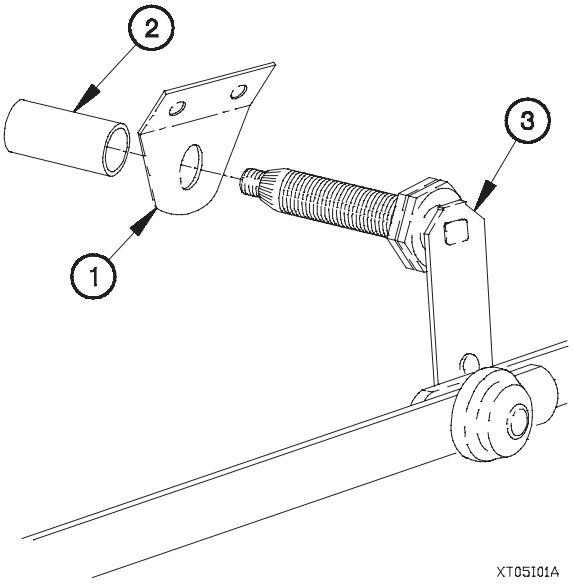




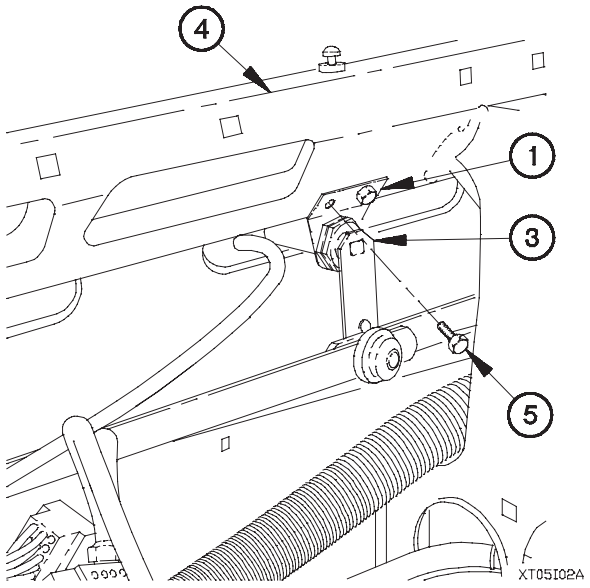
(11) Remove three sleeve spacers (23) and linkage mounting brackets (21) from windshield wiper linkage (13).

b. Installation.

(1) Install three linkage mounting brackets (1) and sleeve spacers (2) on windshield wiper linkage (3).



(2) Position windshield wiper linkage (3) in dashboard (4).

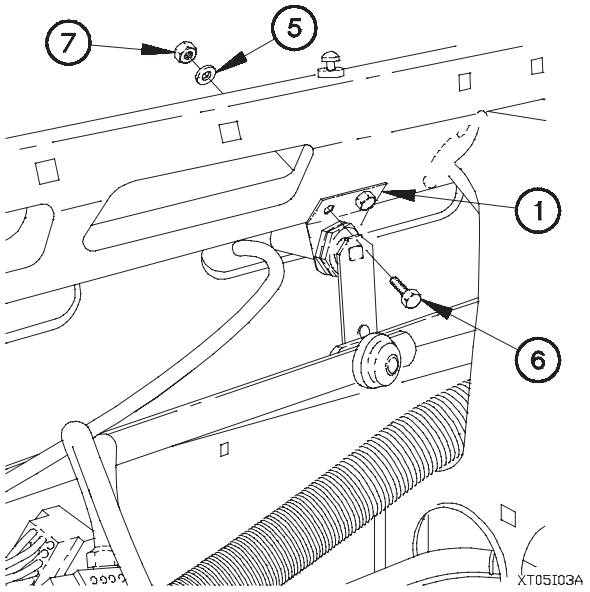


NOTE

Perform steps (3) and (4) on M1093 and M1094.

(3) Position six screws (5) in three linkage mounting brackets (1).

(4) Tighten six screws (5) to 96-120 lb-in. (11-14 N·m).



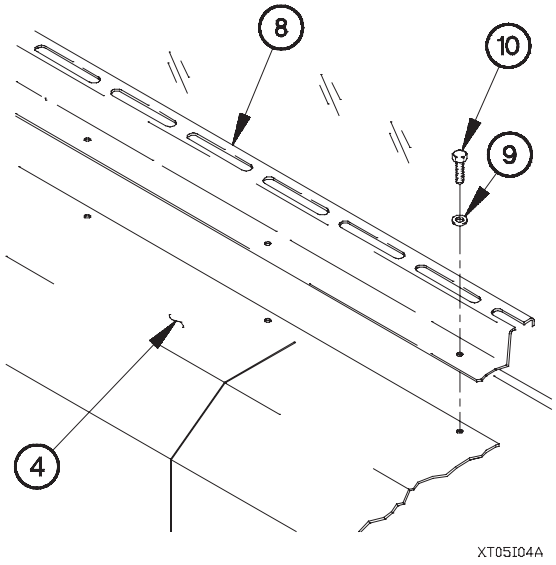
NOTE

Perform steps (5) through (7) on all models except M1093 and M1094.

(5) Position six screws (6), washers (5), and self-locking nuts (7) in three linkage mounting brackets (1).

(6) Tighten six self-locking nuts (7) to 96-120 lb-in. (11-14 N·m).

(7) Install defroster plenum (8) on dashboard (4) with six washers (9) and screws (10).



18-5. WINDSHIELD WIPER LINKAGE REPLACEMENT (CONT)

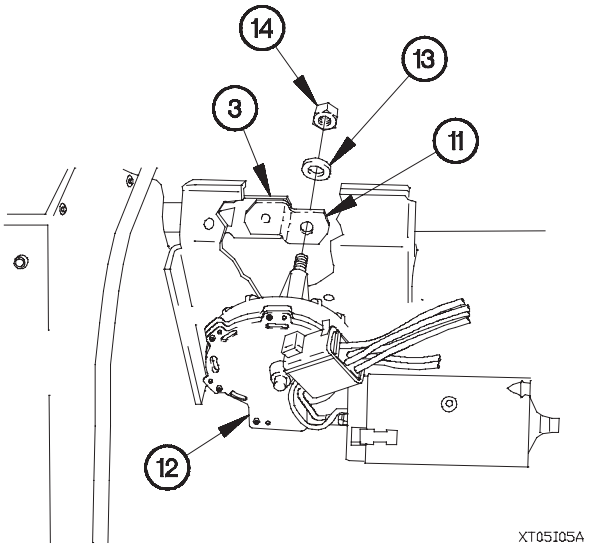
(8) Position windshield wiper linkage (3) to full left position.

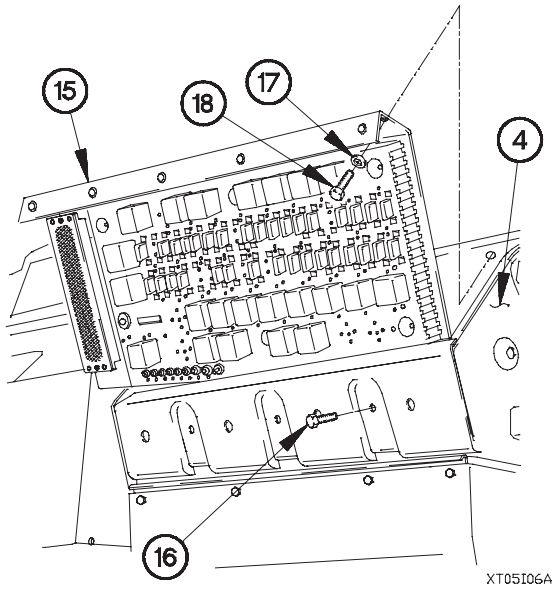
NOTE

Wiper arm should be in a straight line with windshield wiper linkage prior to installing on wiper motor.

(9) Position wiper arm (11) on wiper motor (12) with washer (13) and self-locking nut (14).

(10) Tighten self-locking nut (14) to 20-26 lb-ft (27-35 N·m).

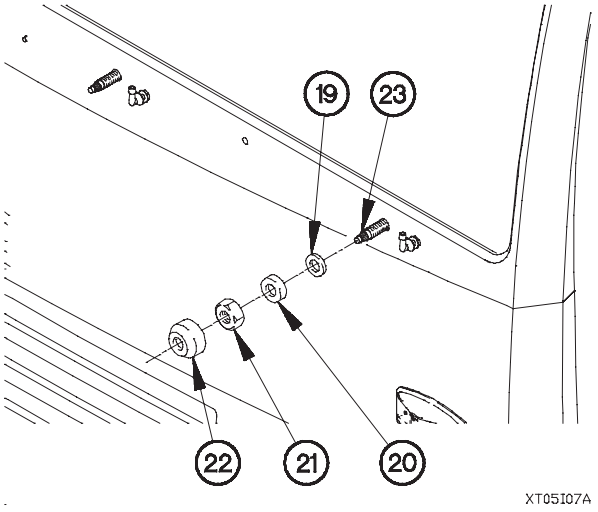




(11) Install PDP (15) on dashboard (4) with three screws (16).

(12) Install three washers (17) and screws (18) in PDP (15).

(13) Install three rubber washers (19), washers (20), nuts (21), and collars (22) on wiper shafts (23).



c. Follow-On Maintenance.

(1) Install instrument panel assembly (para 7-15).

(2) Install personnel heater (para 18-9).

(3) Install PDP cover (para 16-2).

(4) Install windshield wipers and nozzles (para 18-3).

(5) Connect batteries (para 7-57).

(6) Operate windshield wipers and check for proper operation (TM 9-2320-366-10-1).

End of Task.

18-6. WINDSHIELD WASHER HOSES AND CONNECTOR REPLACEMENT

This task covers:

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

INITIAL SETUP

Equipment Conditions
Batteries disconnected (para 7-57).
Personnel heater removed (para 18-9).
Instrument panel assembly removed for access (para 7-15).

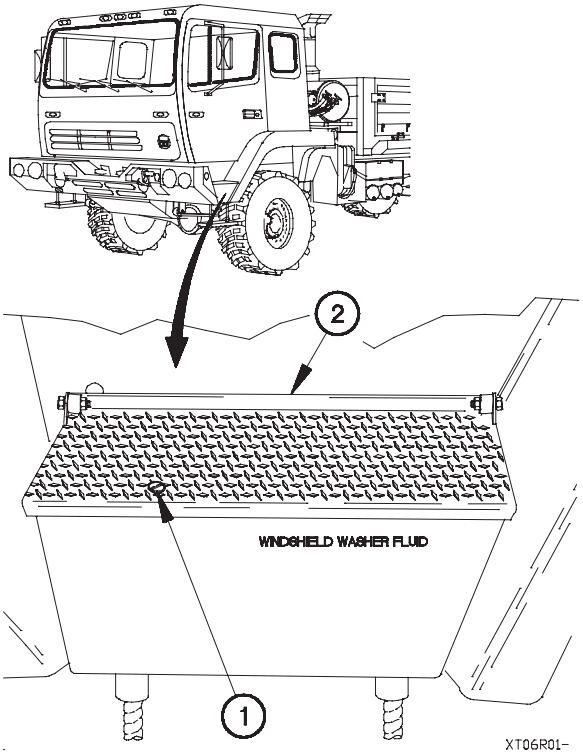
Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)

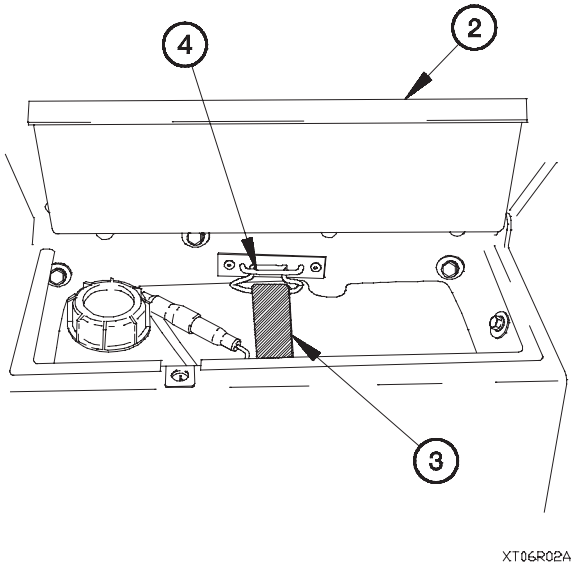
Material/Parts
Lockwire (Item 30, Appendix D)
Grommet, Nonmetallic (Item 49, Appendix G)

Personnel Required
(2)

a. Removal.

(1) Turn screw (1) to the left to unlock cab step tread (2).





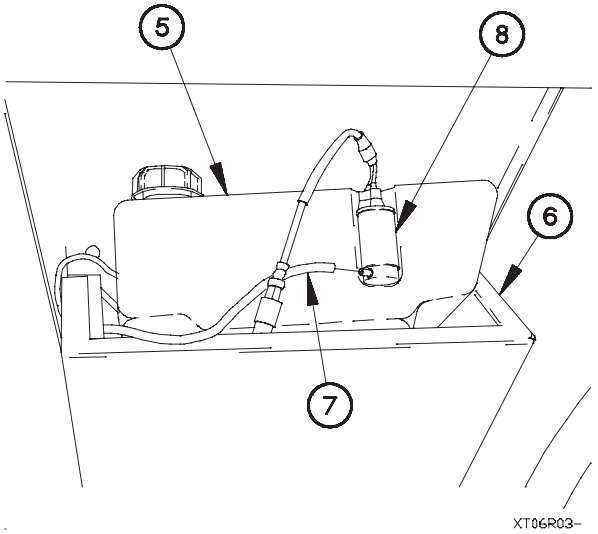
(2) Open cab step tread (2).

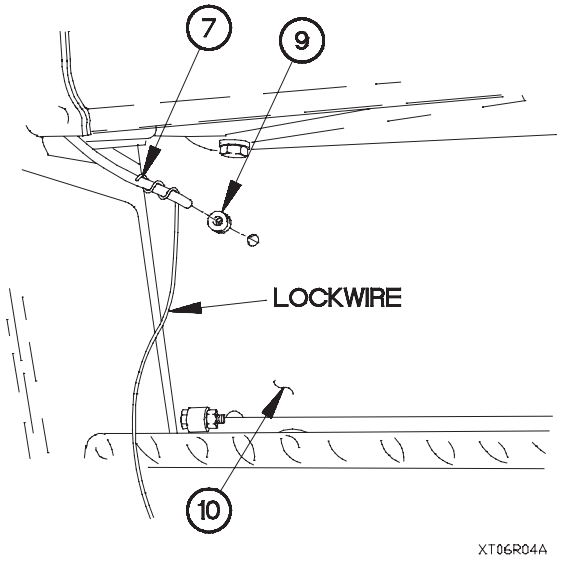
(3) Remove strap (3) from two brackets (4).

(4) Lift windshield washer reservoir (5) partially out of left cab step (6).

(5) Disconnect hose (7) from windshield washer pump (8).

(6) Pull hose (7) out through hole at back of left cab step (6).





(7) Remove grommet (9) and hose (7) from cab step mount (10).

(8) Remove grommet (9) from hose (7). Discard grommet.

(9) Attach a length of lockwire to bottom end of hose (7).

NOTE

All three hoses and connectors are removed the same way. Center hose and connector shown.

(10) Disconnect three hoses (7) from three connectors (11).

NOTE

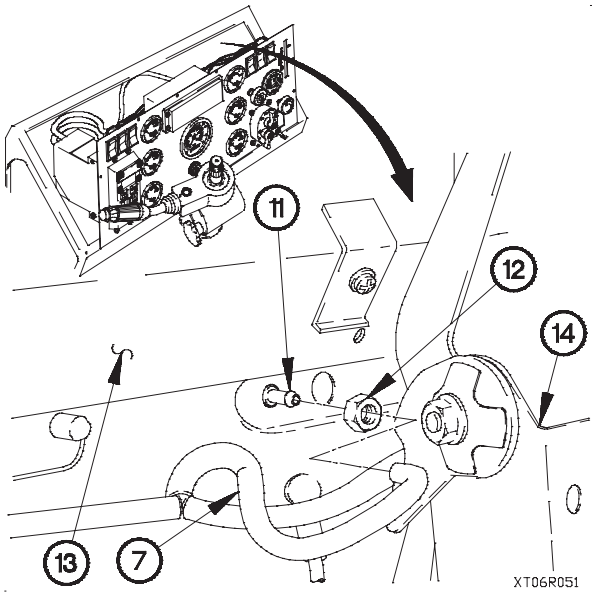
Step (11) requires the aid of an assistant.

(11) Remove three nuts (12) and connectors (11) from cab (13).

NOTE

Note routing of hoses prior to removal.

(12) Remove three hoses (7) from dashboard (14).

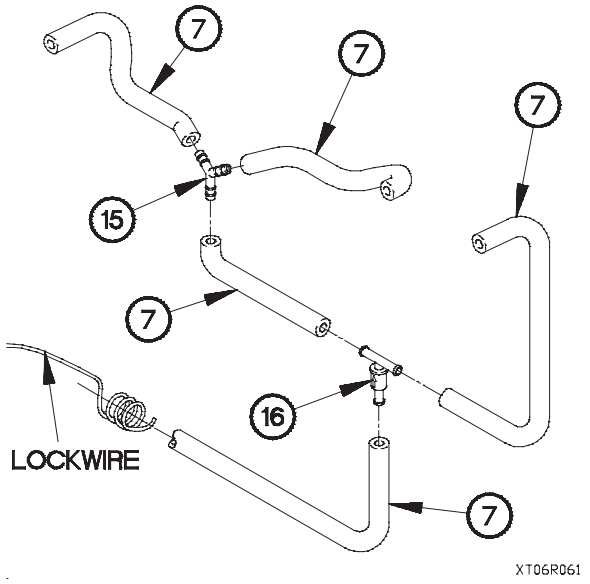


18-6. WINDSHIELD WASHER HOSES AND CONNECTOR REPLACEMENT (CONT)

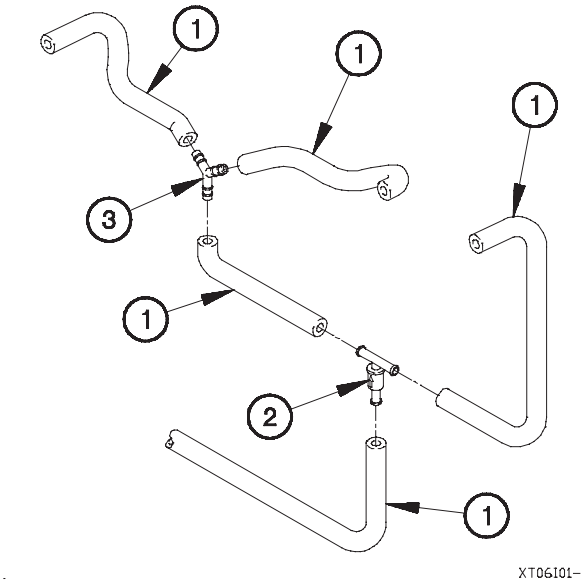
(13) Remove bottom end of hose (7) from lockwire.

(14) Disconnect three hoses (7) from wye splitter (15).

(15) Disconnect three hoses (7) from check valve (16).



b. Installation.



(1) Connect three hoses (1) to check valve (2).

(2) Connect three hoses (1) to wye splitter (3).

NOTE

Steps (3) and (4) require the aid of an assistant.

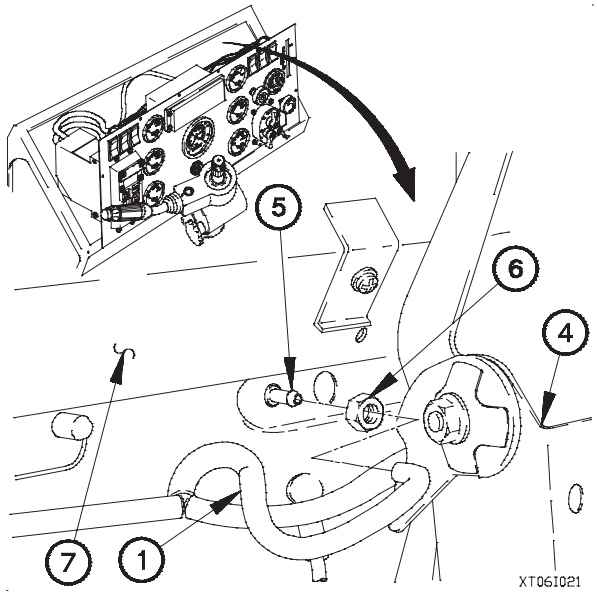
(3) Route three hoses (1) through dashboard (4).

NOTE

All three connectors and hoses are installed the same way. Center connector and hose shown.

(4) Install three connectors (5) and nuts (6) in cab (7).

(5) Connect three hoses (1) to three connectors (5).



(6) Attach lockwire to bottom end of hose (1).

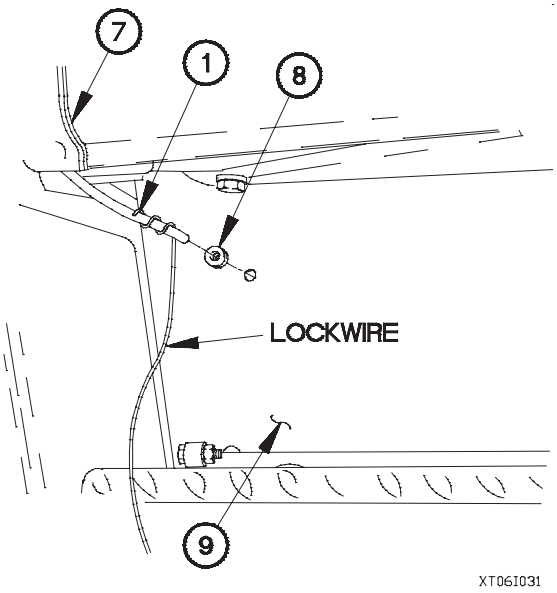
(7) Pull lockwire and hose (1) through hole at bottom corner of cab (7).

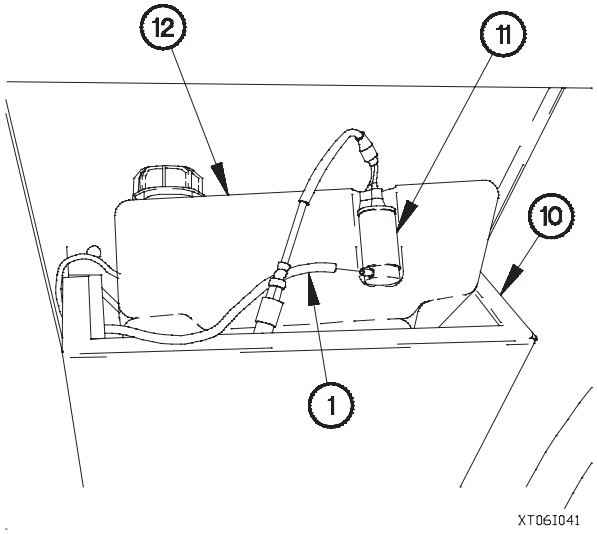
(8) Remove lockwire from hose (1).

(9) Install grommet (8) on hose (1).

(10) Route hose (1) through cab step mount (9).

(11) Install grommet (8) in cab step mount (9).

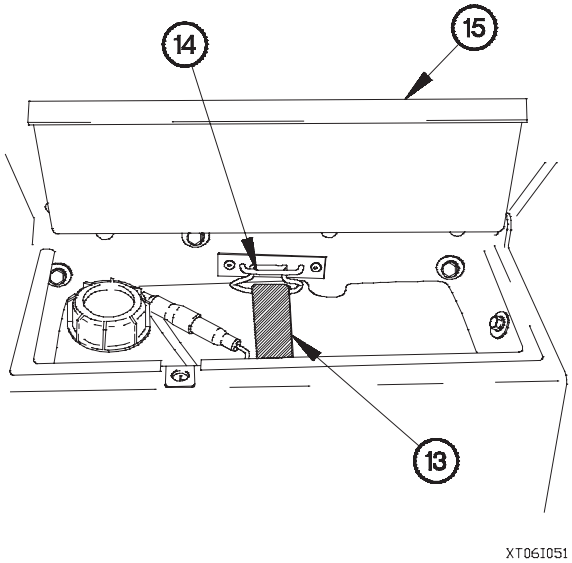




(12) Route hose (1) through hole at back of left cab step (10).

(13) Connect hose (1) to windshield washer pump (11).

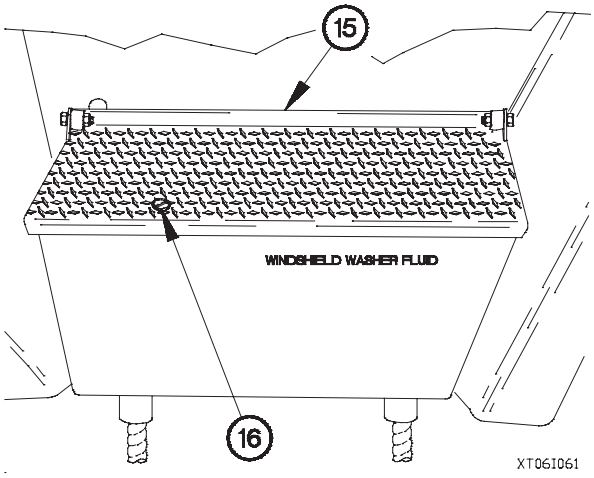
(14) Install windshield washer reservoir (12) in left cab step (10).



(15) Connect strap (13) to two brackets (14).

(16) Close cab step tread (15).

18-6. WINDSHIELD WASHER HOSES AND CONNECTOR REPLACEMENT (CONT)



(17) Turn screw (16) to the right to lock cab step tread (15).

c. Follow-On Maintenance.

(1) Install instrument panel assembly (para 7-15).

(2) Install personnel heater (para 18-9).

(3) Connect batteries (para 7-57).

(4) Check fluid level in windshield washer reservoir (TM 9-2320-366-10-2).

(5) Operate windshield washer and check for proper operation (TM 9-2320-366-10-1).

End of Task.

18-7. CAB MIRROR REPLACEMENT

This task covers:

a. Removal

b. Installation

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-366-10-1).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Wrench, Torque, 0-175 lb-ft (Item 58, Appendix C)
Wrench, Torque, 0-200 lb-in. (Item 59, Appendix C)
Socket Set, Socket Wrench (Item 34, Appendix C)

Tools and Special Tools (Cont)
Screwdriver Attachment, Socket Wrench (Item 58, Appendix B)

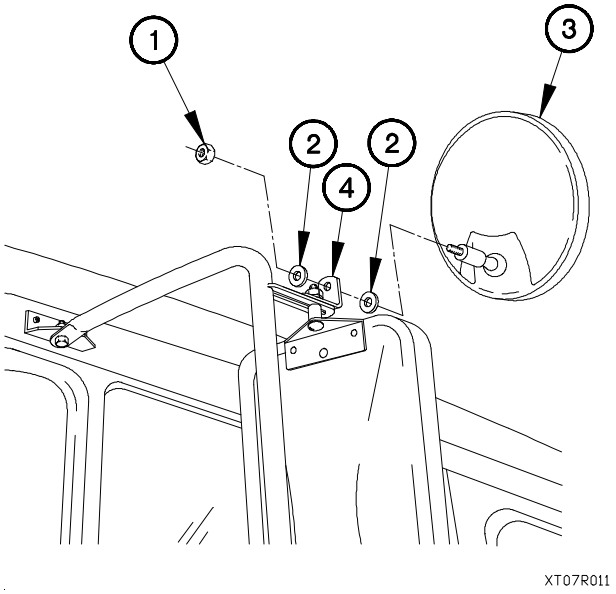
Materials/Parts
Nut, Self-Locking (2) (Item 167, Appendix G)
Nut, Self-Locking (2) (Item 138, Appendix G)
Lockwasher (Item 105.3, Appendix G)

a. Removal.

NOTE

- Left and right cab mirrors are removed the same way. Left side shown.
- Perform steps (1) and (7) convex mirror mounted with bracket.

(1) Remove nut (1), washer (2), convex mirror (3), and washer (2) from bracket (4).



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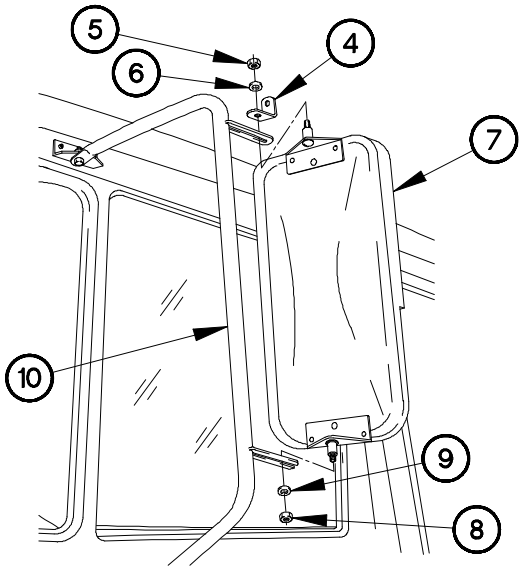

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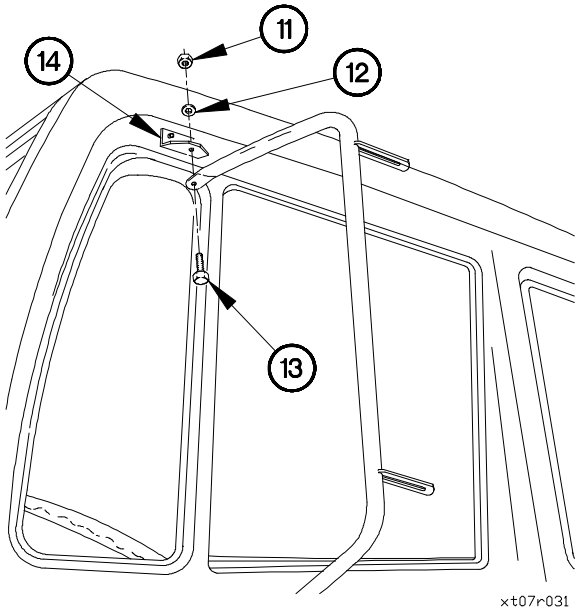
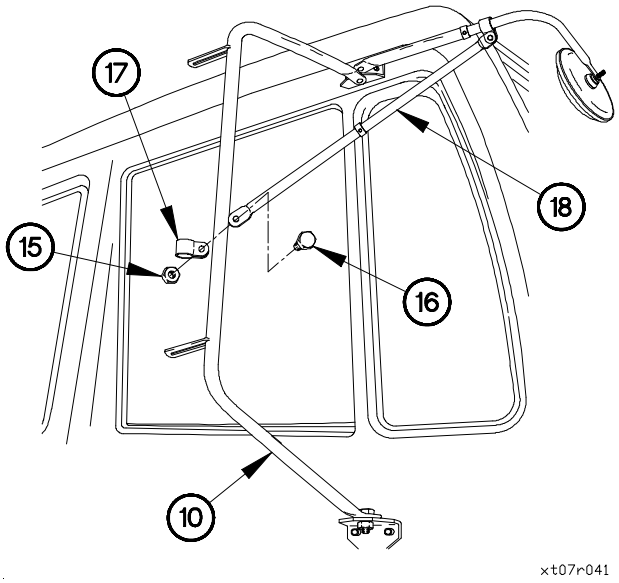
(2) Remove self-locking nut (5), washer (6), and bracket (4) from cab mirror (7). Discard self-locking nut.

(3) Remove self-locking nut (8), washer (9), and cab mirror (7) from mirror arm (10). Discard self-locking nut.

18-7. CAB MIRROR REPLACEMENT (CONT)

(4) Remove self-locking nut (11), washer (12), and screw (13) from upper bracket (14). Discard self-locking nuts.

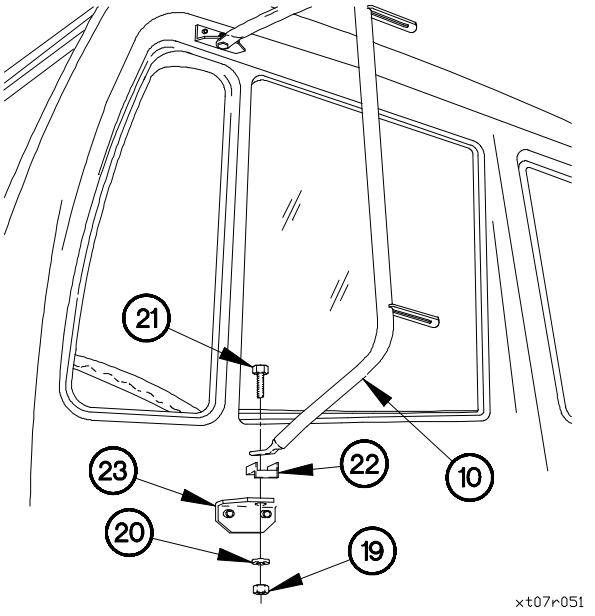




NOTE

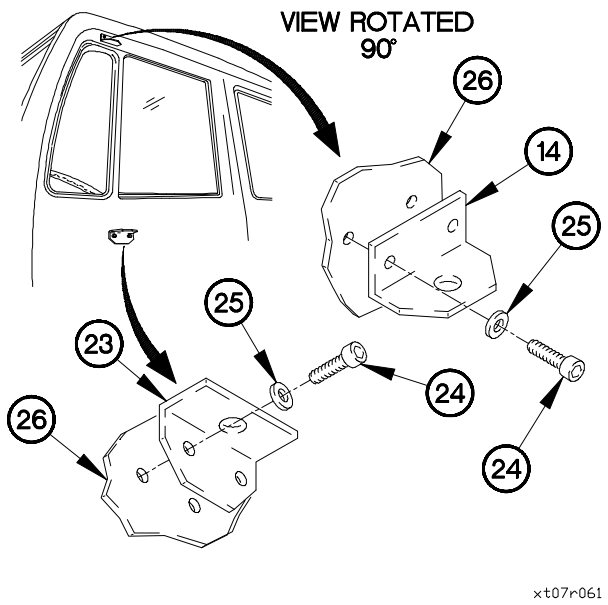
Perform the following step on RH side cab mirror with RH convex mirror installed.

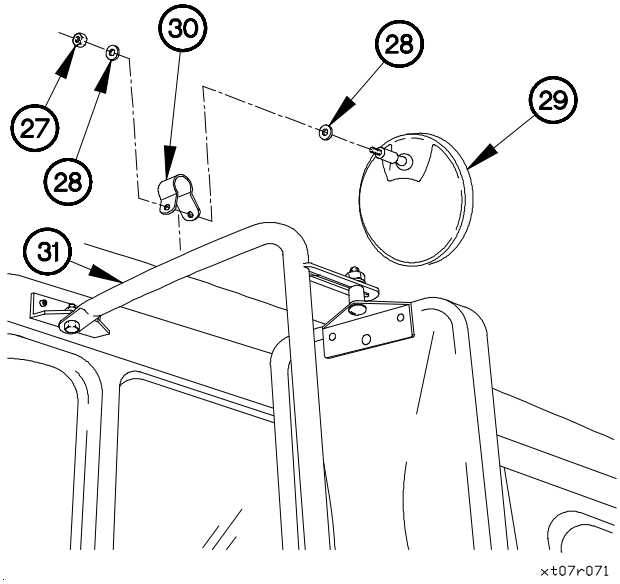
(5) Remove nut (15), screw (16), clamp (17), and RH convex mirror (18) from mirror arm (10).



(6) Remove self-locking nut (19), washer (20), screw (21), mirror arm (10), and clip (22) from lower bracket (23). Discard self-locking nut.

(7) Remove four screws (24), washer (25), upper bracket (14), and lower bracket (23) from cab (26).





NOTE

Left and right cab mirrors are removed the same way. Left side shown.

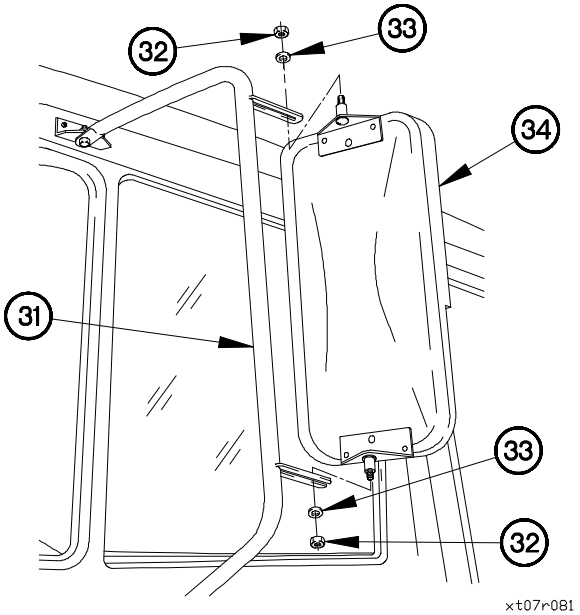
(10) Remove two self-locking nuts (32), washers (33), and cab mirror (34) from mirror arm (31). Discard self-locking nuts.

NOTE

Perform steps (8) through (14) on convex mirror mounted on clamp.

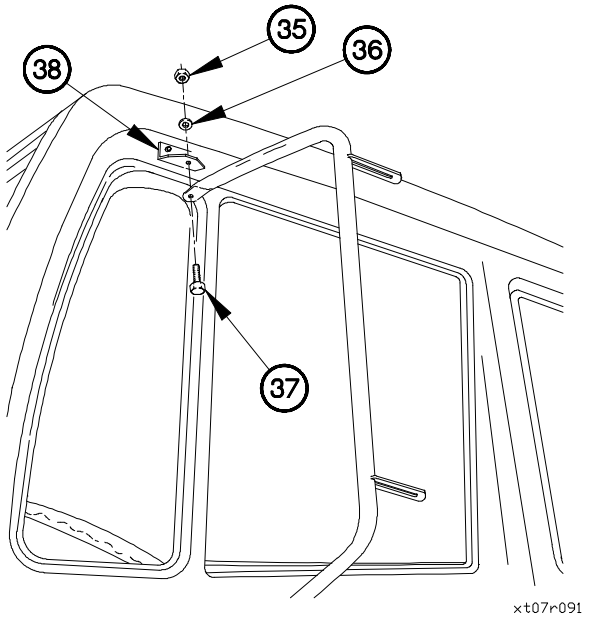
(8) Remove nut (27), washer (28), convex mirror (29), and washer (28) from clamp (30).

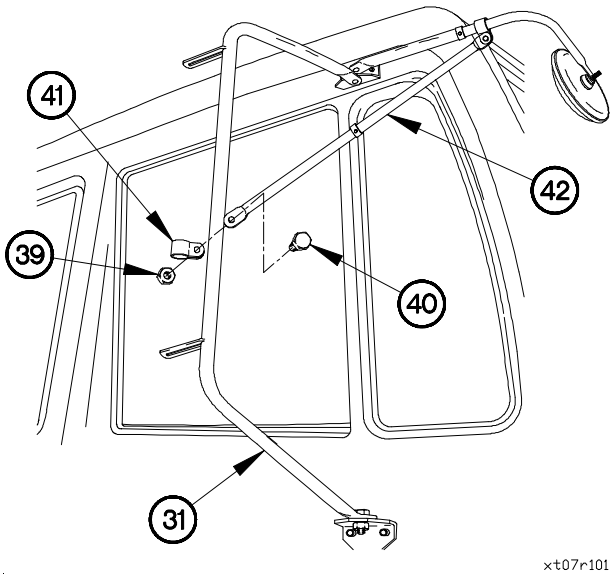
(9) Remove clamp (30) from mirror arm (31).



18-7. CAB MIRROR REPLACEMENT (CONT)

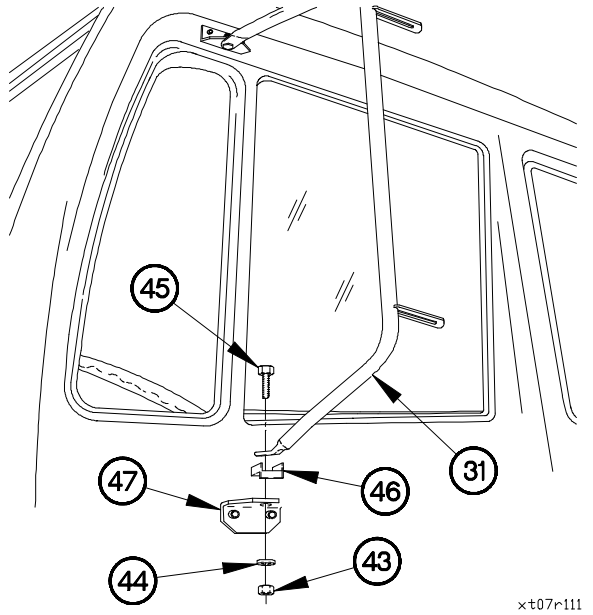
(11) Remove self-locking nut (35), washer (36), and screw (37) from upper bracket (38). Discard self-locking nut.



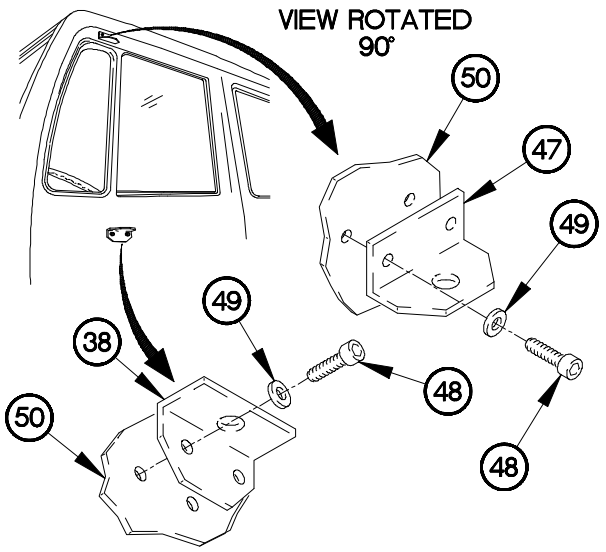


(12) Remove nut (39), screw (40), clamp (41), and RH convex mirror (42) from mirror arm (31).

(13) Remove self-locking nut (43), washer (44), screw (45), mirror arm (31), and clip (46) from lower bracket (47). Discard self-locking nut.



(14) Remove four screws (48), washers (49), and brackets (38 and 47) from cab (50).



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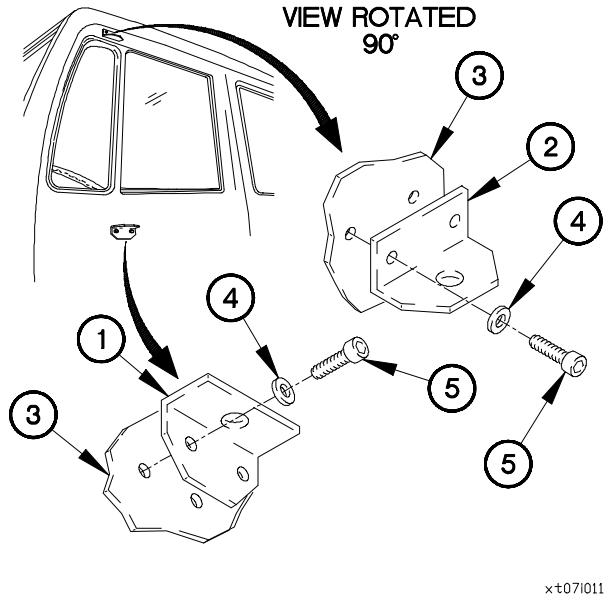
b. Installation.

NOTE

- Left and right cab mirrors are installed the same way. Left side shown.
- Perform steps (1) through (11) on vehicles equipped with convex mirrors mounted with clamps.

(1) Position brackets (1 and 2) on cab (3) with four washers (4) and screws (5).

(2) Tighten four screws (5) to 80-98 lb-in. (9-11 N•m).



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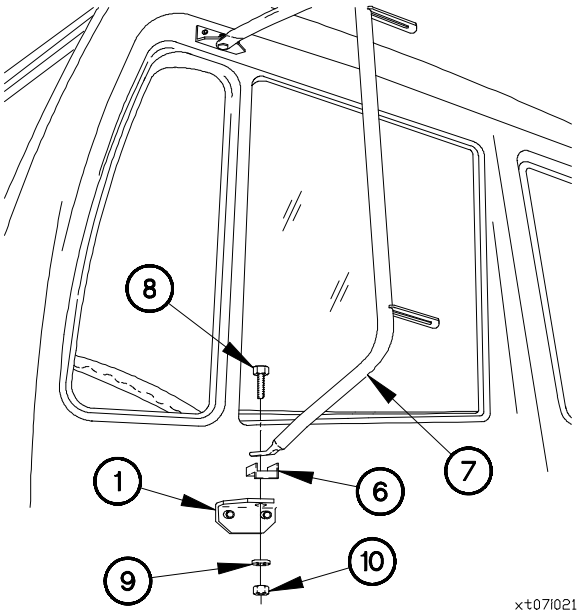
(3) Position clip (6) and mirror arm (7) on lower bracket (1) with screw (8), washer (9), and self-locking nut (10).



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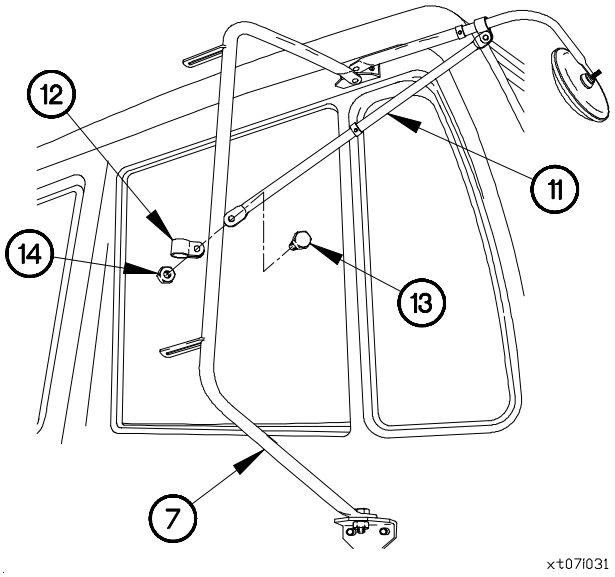
18-7. CAB MIRROR REPLACEMENT (CONT)

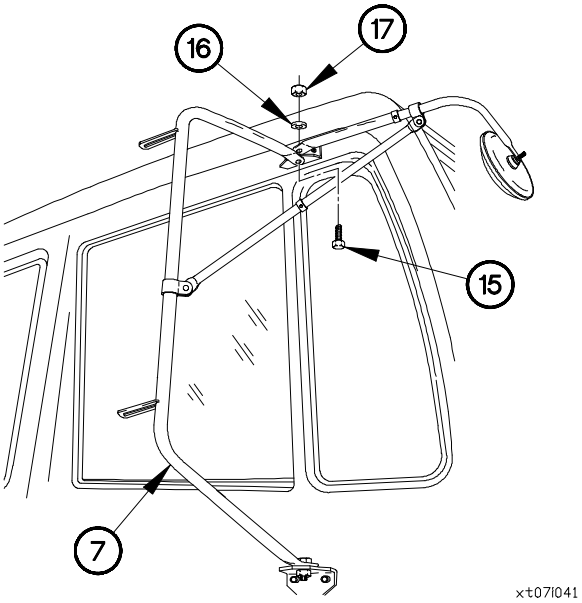
NOTE

Perform steps (4) through (7) on RH side cab mirror with RH convex mirror.

(4) Position RH convex mirror (11) on mirror arm (7) with clamp (12), screw (13), and self-locking nut (14).

(5) Tighten self-locking nut (14) to 84-108 lb-in. (10-12 N•m).



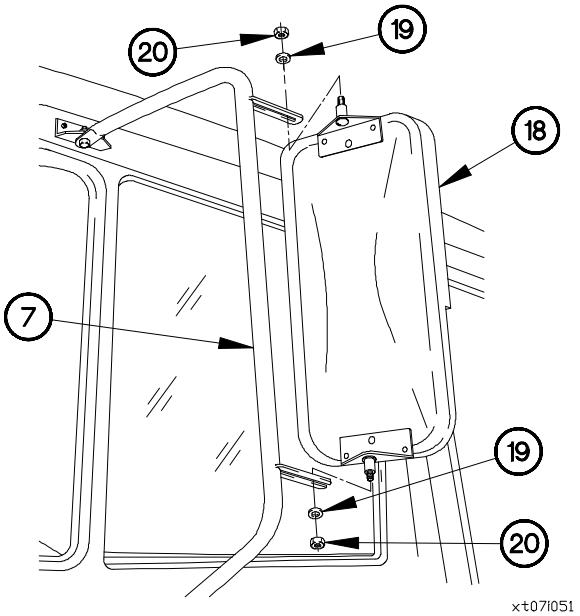


(6) Position screw (15), washer (16), and self-locking nut (17), in mirror arm (7).

(7) Tighten self-locking nut (17) to 156-204 lb-in. (18-23 N•m).

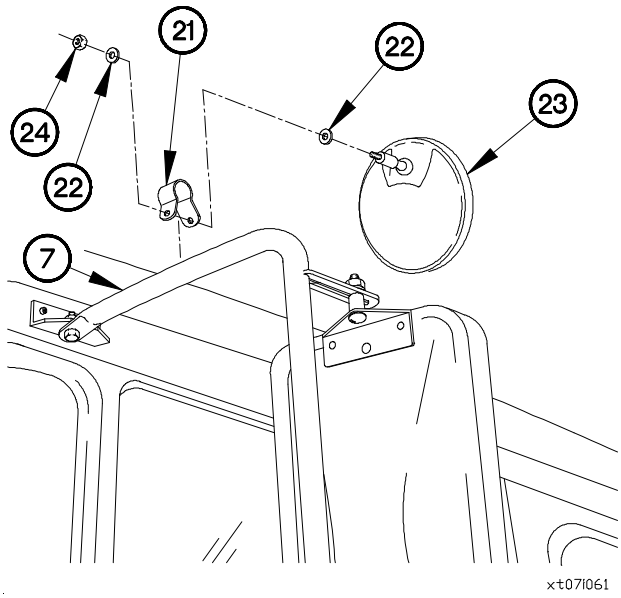
(8) Position cab mirror (18) on mirror arm (7) with two washers (19) and self-locking nuts (20).

(9) Tighten two self-locking nuts (20) to 53-61 lb-in. (6-8 N•m).

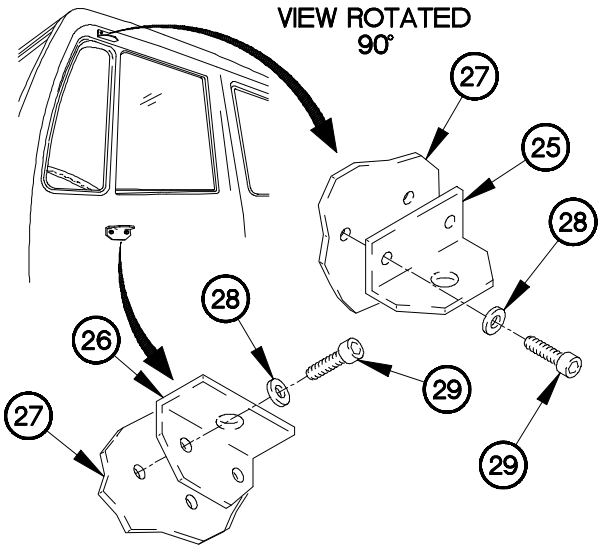


(10) Position clamp (21) on mirror arm (7).

(11) Install washer (22) and convex mirror (23) with washer (22) and nut (24).



xt07l061



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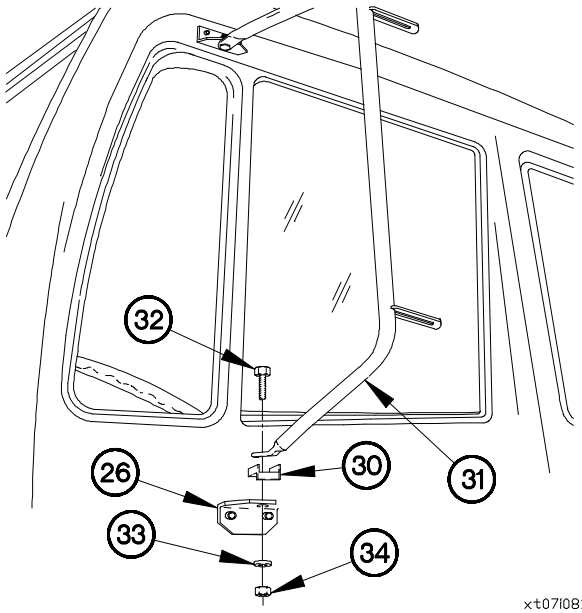
NOTE

- Perform steps (12) through (24) on vehicles equipped with convex mirrors mounted with brackets.
- Left and right cab mirrors are installed the same wav. Left side shown.

(12) Position upper bracket (25) and lower bracket (26) on cab (27) with four washers (28) and screws (29).

(13) Tighten four screws (29) to 80-98 lb-in. (9-11 N•m).



xt07l081

(14) Position clip (30) and mirror (31) on lower bracket (26) with screw (32), washer (33), and self-locking nut (34).

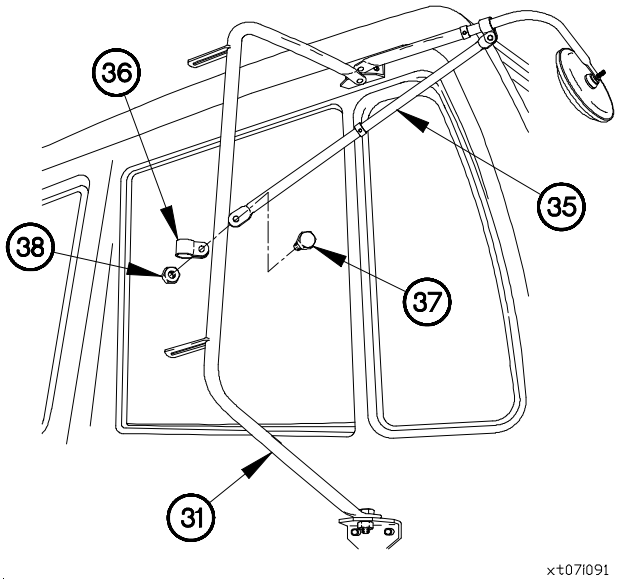
(15) Tighten self-locking nut (34) to 21-27 lb-ft (28-37 Nm).

18-7. CAB MIRROR REPLACEMENT (CONT)

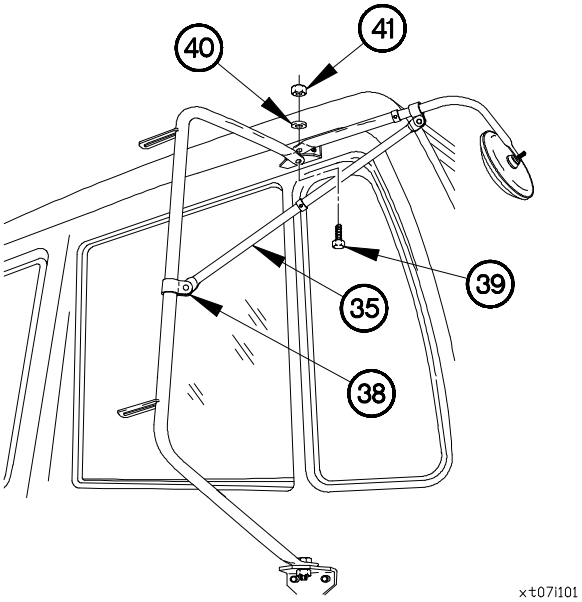
NOTE

Perform steps (16) through (19) on RH side cab mirror with RH convex mirror.

(16) Position bracket arm (35) on mirror arm (31) with clamp (36), screw (37), and nut (38).



xt07l091



xt07l101

(17) Position screw (39), washer (40), and self-locking nut (41) in mirror arm (35).

(18) Tighten self-locking nut (41) to 156-204 lb-in. (18-23 N•m).

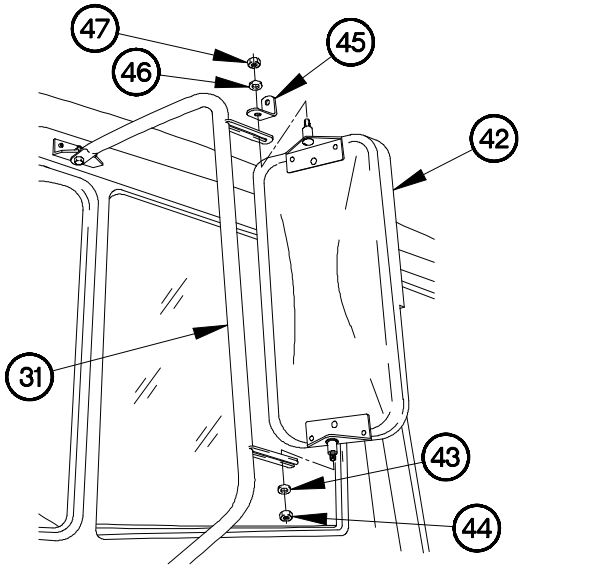
(19) Tighten self-locking nut (38) to 84-108 lb-in. (10-12 N•m).

(20) Position cab mirror (42) on mirror arm (31) with washer (43) and self-locking nut (44).

(21) Tighten self-locking nut (44) to 53-61 lb-in. (6-8 N•m).

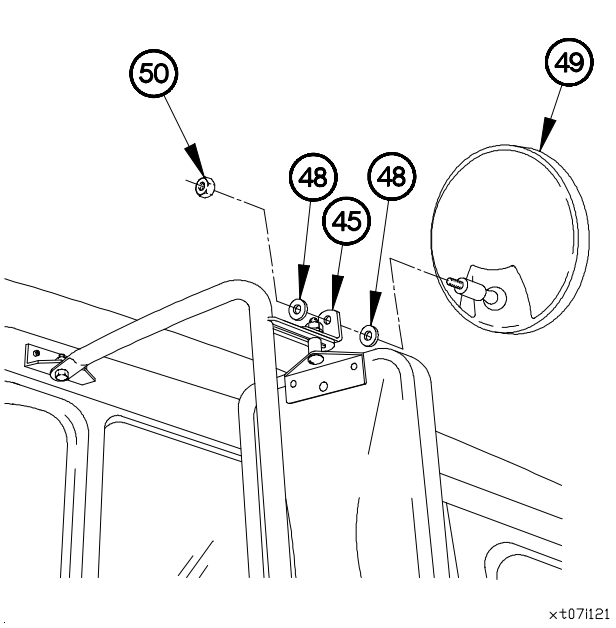
(22) Position cab mirror (42) on mirror arm (31) with bracket (45), washer (46), and self-locking nut (47).

(23) Tighten self-locking nut (47) to 53-61 lb-in. (6-8 N•m).



xt07l111

(24) Install washer (48) and convex mirror (49) on bracket (45) with washer (48) and nut (50).



End of Task.

18-8. DEFROST COVER REPLACEMENT

This task covers:

a. Removal (All Models Except M1093/M1094)
b. Installation (All Models Except M1093/M1094)
c. M1093/M1094 Removal
d. M1093/M1094 Installation
e. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-366-10-1).
M1093/M1094 cab roof removed (para 16-4).
Dump switch bracket removed (para 7-146).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Wrench, Torque, 0-200 lb-in. (Item 59, Appendix C)
Socket Set, Socket Wrench (Item 34, Appendix C)

Materials/Parts
Seal, Urethane Foam (86.75 in. (220.3 cm)) (Item 272, Appendix G) (all models except M1093/ M1094)

Materials/Parts (Cont)
Seal, Urethane Foam (102.25 in. (259.7 cm)) (Item 274, Appendix G) (all models except M1093/M1094)
Seal, Urethane Foam (36.25 in. (92.1 cm)) (Item 273, Appendix G) (M1093/M1094)
Seal, Urethane Foam (37.5 in. (95.2 cm)) (Item 272, Appendix G) (M1093/M1094)

Personnel Required
(2)

a. Removal (All Models Except M1093/M1094).

(1) Remove six screws (1), washers (2), and defrost cover (3) from dashboard (4).

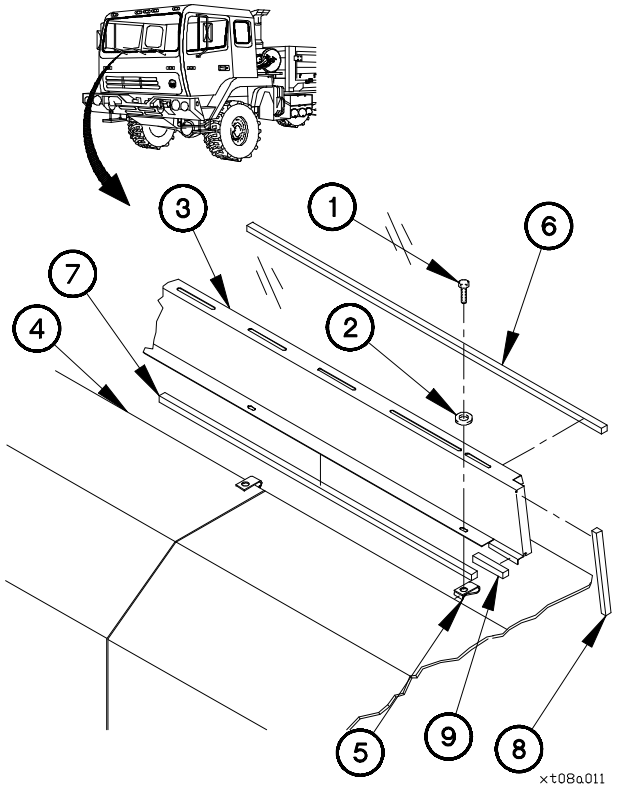
(2) Remove six clip nuts (5) from dashboard (4).

NOTE

Note position of seals prior to removal.

(3) Remove seals (6 and 7) and two seals (8) from defrost cover (3). Discard seals.

(4) Remove two seals (9) from defrost cover (3). Discard seals.



b. Installation (All Models Except M1093/M1094).

(1) Cut two seals (1) to 2-1/2 in. (6.3 cm).

(2) Cut seal (2) to 86-3/4 in. (220.3 cm).

(3) Cut seal (3) to 86-3/4 in. (220.3 cm).

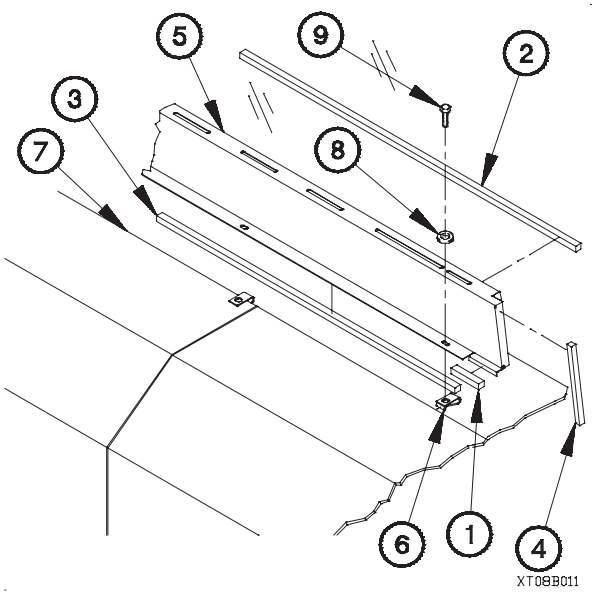
(4) Cut two seals (4) to 5-1/4 in. (13.3 cm).

(5) Install seals (2 and 3) and two seals (4) on defrost cover (5).

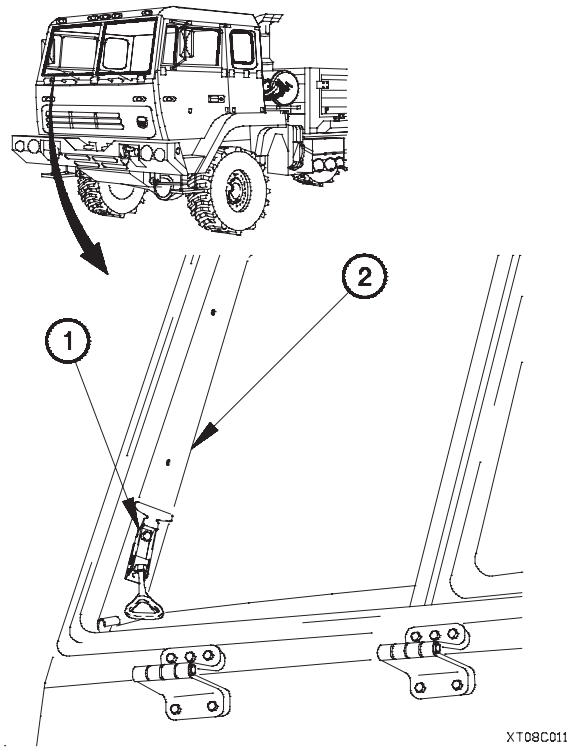
(6) Install six clip nuts (6) in dashboard (7).

(7) Position defrost cover (5) on vehicle with six washers (8) and screws (9).

(8) Tighten four screws (9) to 22-27 lb-in. (2-3 N·m).



c. M1093/M1094 Removal.



(1) Release two latches (1) and fold down windshield frame (2).

18-8. DEFROST COVER REPLACEMENT (CONT)

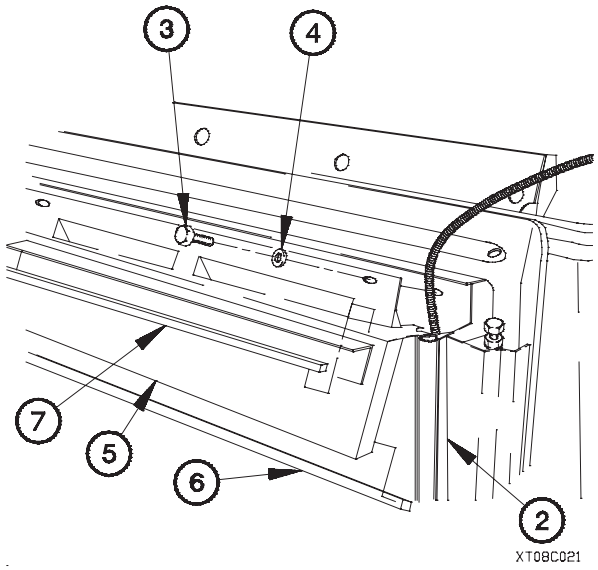
NOTE

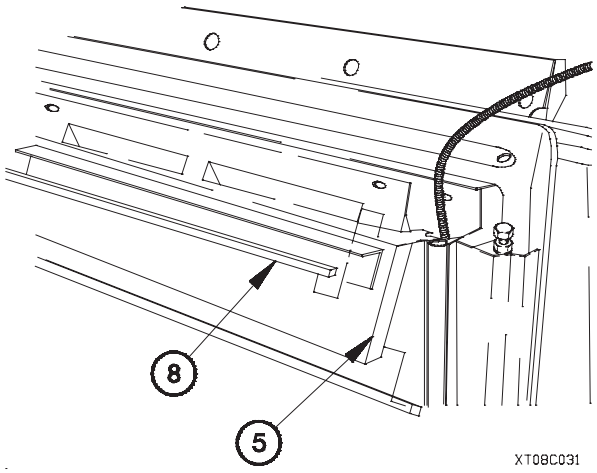
Left and right defrost covers are removed the same way. Left defrost cover shown.

(2) Remove four screws (3), washers (4), and defrost cover (5) from windshield frame (2).

(3) Remove seal (6) from defrost cover (5). Discard seal.

(4) Remove seal (7) from defrost cover (5). Discard seal.





(5) Remove seal (8) from defrost cover (5). Discard seal.

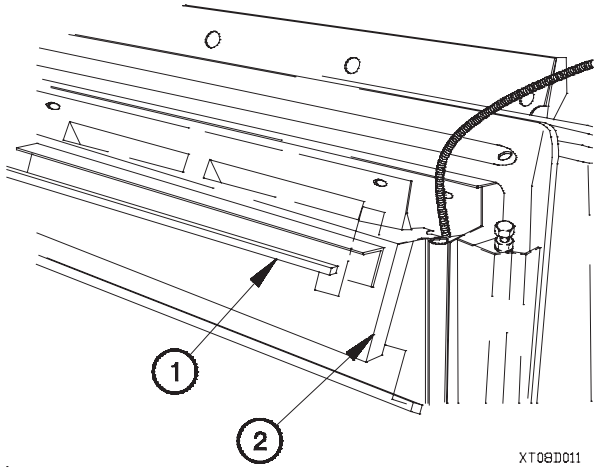
d. M1093/M1094 Installation.

NOTE

Left and right defrost covers are installed the same way. Left defrost cover shown.

(1) Cut seal (1) to 1 3/4 in. (4.5 cm).

(2) Install seal (1) on defrost cover (2).

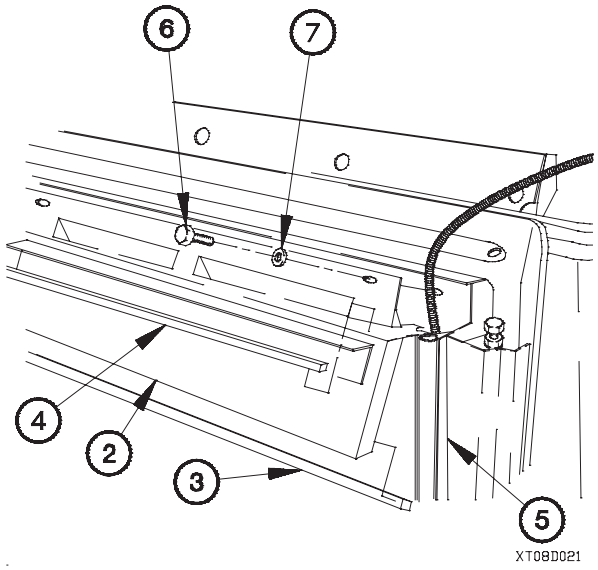


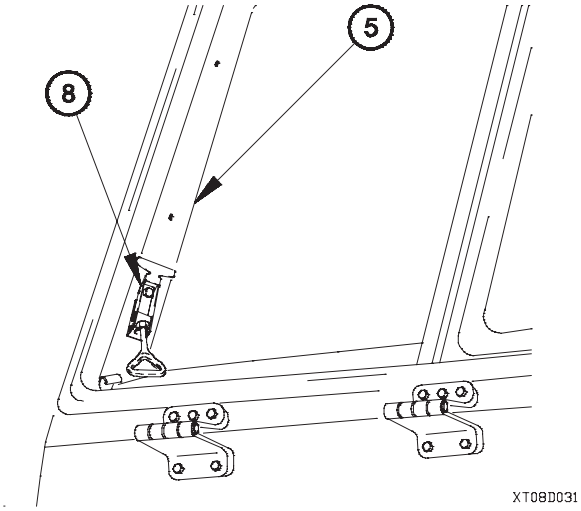
(3) Cut seal (3) to 71 in. (180.1 cm).

(4) Cut seal (4) to 75 in. (190.1 cm).

(5) Install seals (3 and 4) on defrost cover (2).

(6) Install defrost cover (2) on windshield frame (5) with four washers (6) and screws (7).





(7) Fold up windshield frame (5) and fasten two latches (8).

e. Follow-On Maintenance.

Install M1093/M1094 cab roof (para 16-4).

End of Task.

18-9. PERSONNEL HEATER REPLACEMENT/REPAIR

This task covers:

a. Removal
b. Disassembly
c. Cleaning/Inspection
d. Assembly
e. Installation
f. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions
CTIS ECU removed (para 12-6).
Auxiliary panel removed, if equipped (para 7-8).
Kick panel removed (para 16-3).

Tools and Special Tools
Pan, Drain (Item 24, Appendix C)
Goggles, Industrial (Item 15, Appendix C)
Gloves, Rubber (Item 13, Appendix C)
Tool Kit, Genl Mech (Item 46, Appendix C)
Wrench, Torque, 0-175 lb-ft (Item 58, Appendix C)
Wrench, Torque, 0-200 lb-in. (Item 59, Appendix C)
Socket Set, Socket Wrench (Item 36, Appendix C)
Tool Kit, Blind Rivet (Item 44, Appendix C)
Drill, Portable, Electric (Item 7, Appendix C)
Drill Set, Twist (Item 6, Appendix C)

Materials/Parts
Dispenser, Pressure Sensitive Adhesive Tape (Item 20, Appendix D)
Cap and Plug Set (Item 14, Appendix D)
Ties, Cable, Plastic (Item 69, Appendix D)
Strap, Push Mount (2) (Item 65.1, Appendix D)

Materials/Parts (Cont)
Antifreeze, Ethylene Glycol, Permanent (Item 12, Appendix D)
Rivet, Blind (12) (Item 258, Appendix G)
Gasket (Item 30, Appendix G)
Gasket (Item 37, Appendix G)
Seal (Item 265, Appendix G)
Gasket (Item 32, Appendix G)
Gasket (Item 38, Appendix G)
Gasket (2) (Item 33, Appendix G)
Gasket (Item 34, Appendix G)
Gasket (Item 35, Appendix G)
Rag, Wiping (Item 50, Appendix D)
Solvent, Dry Cleaning (Item 65, Appendix D)
Soap, Laundry (Item 63, Appendix D)
Gasket (3) (Item 40, Appendix G)
Gasket (Item 36, Appendix G)
Plastic Strip (Item 240, Appendix G)
Nut, Self-Locking (3) (Item 177, Appendix G)
Nut, Self-Locking (3) (Vehicle serial numbers 0001 through 3696 equipped with original personnel heaters) (Item 177, Appendix G)
Decal (Item 11, Appendix G)

NOTE

Perform steps (1) through (25) to remove personnel heater assembly for access.

a. Removal.

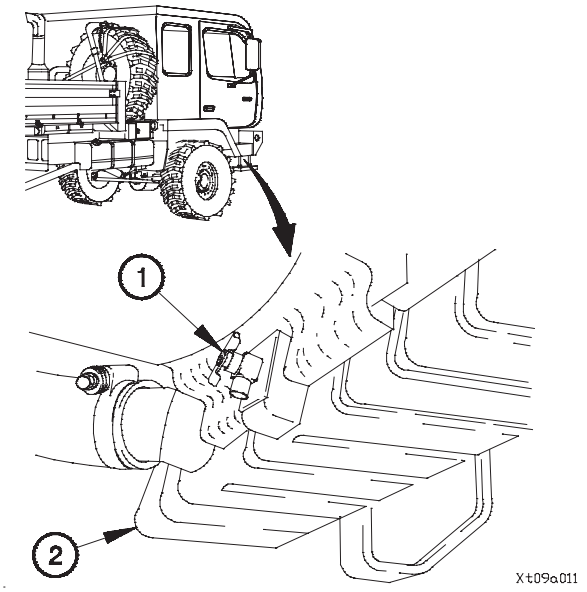
WARNING

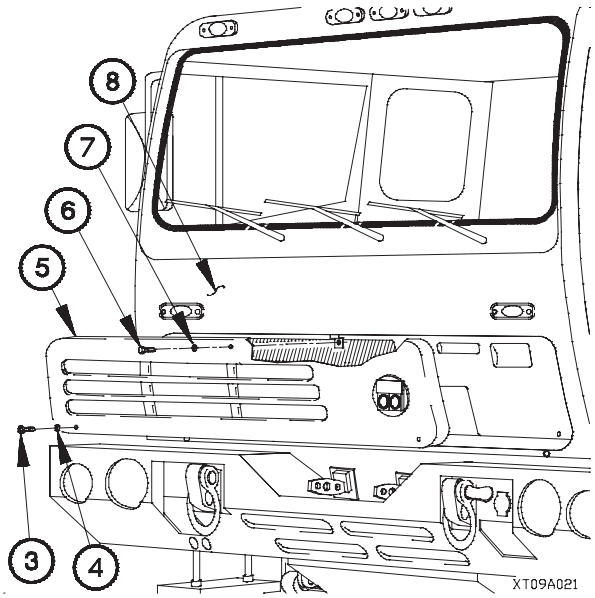
Wear appropriate eye protection when working under vehicle due to the possibility of falling debris. Failure to comply may result in injury to personnel.

(1) Position drain pan under radiator drain cock (1).

(2) Open radiator drain cock (1) and drain approximately 15-20 qt (14-19 L) of coolant from radiator (2).

(3) Close radiator drain cock (1).

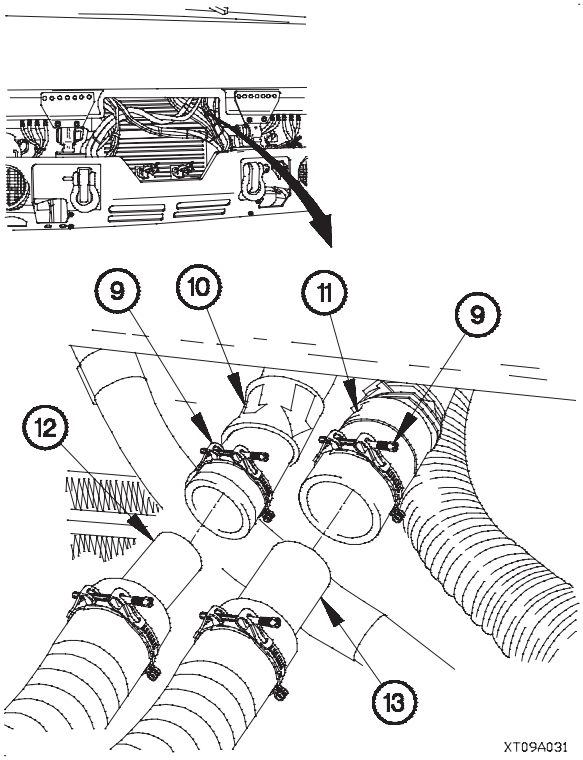




(4) Remove two screws (3) and washers (4) from front grille (5).

(5) Remove screw (6) and washer (7) from front grille (5).

(6) Remove front grille (5) from cab (8).



(7) Loosen two clamps (9) on heater outlet hose (10) and heater inlet hose (11).

NOTE

Tag heater hoses prior to disconnecting.

(8) Disconnect heater outlet hose (10) and heater inlet hose (11) from return fitting (12) and supply fitting (13).

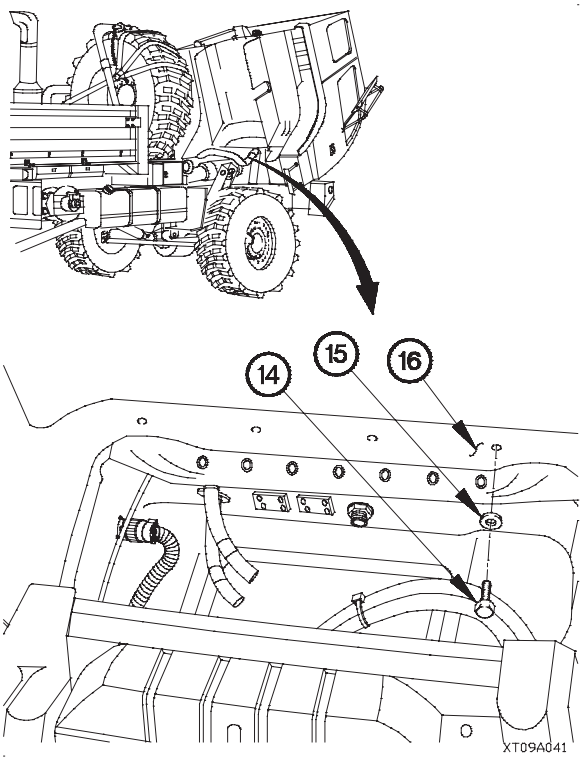
(9) Remove two clamps (9) from heater outlet hose (10) and heater inlet hose (11).

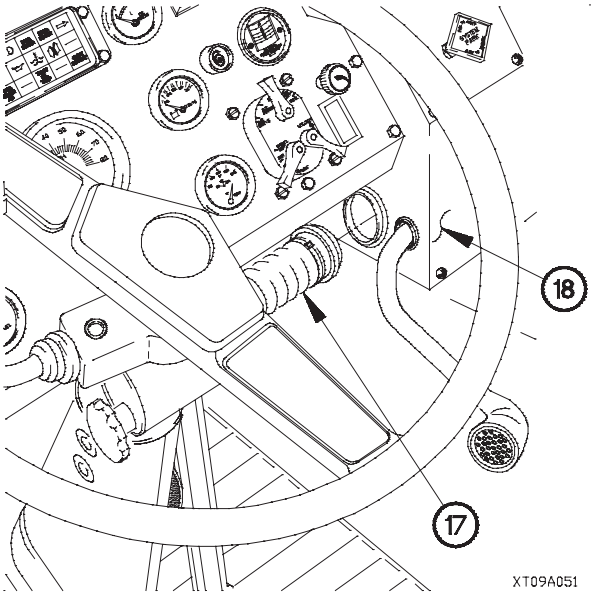
18-9. PERSONNEL HEATER REPLACEMENT/REPAIR (CONT)

(10) Raise cab (TM 9-2320-366-10-1).

(11) Remove eight screws (14) and washers (15) from cab floor (16).

(12) Lower cab (TM 9-2320-366-10-1).



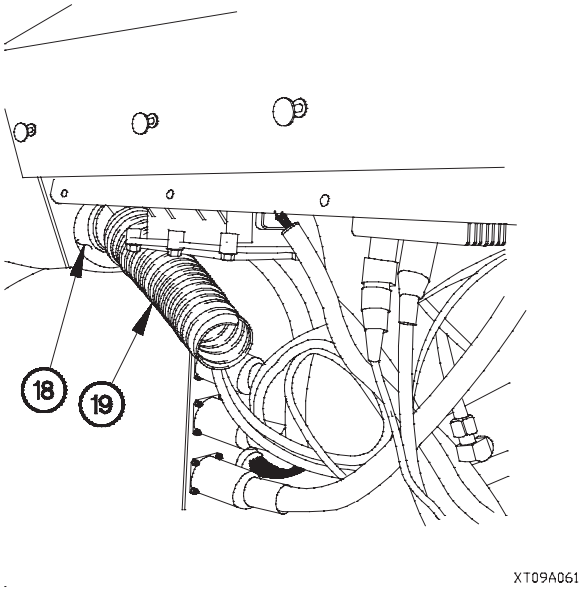


NOTE

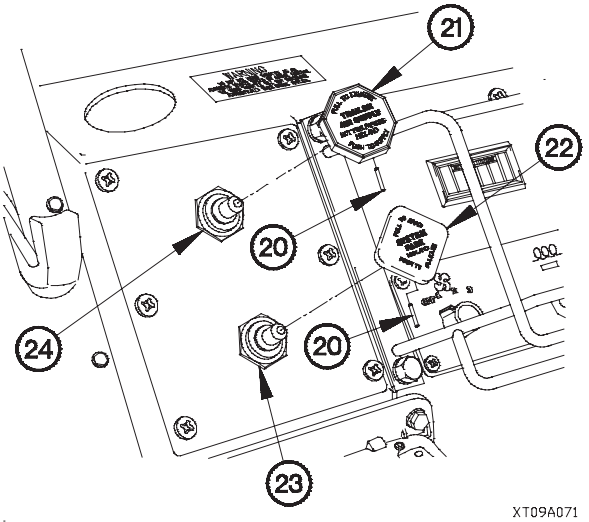
Remove plastic cable ties as required.

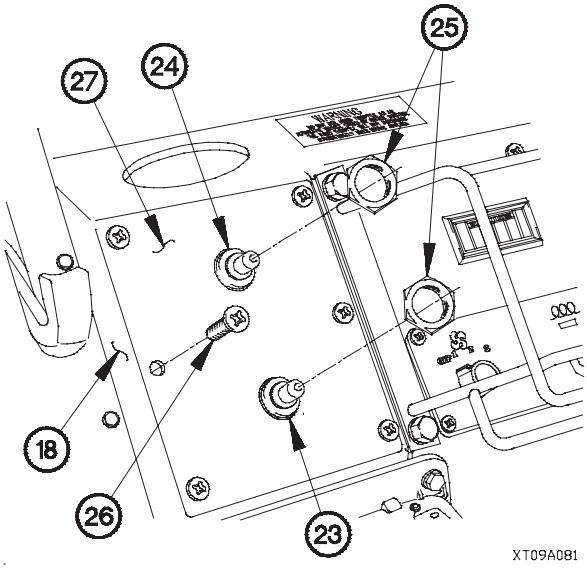
(13) Remove personnel heater air duct (17) from personnel heater (18).

(14) Remove personnel heater air duct (19) from personnel heater (18).



(15) Remove two roll pins (20) and knobs (21 and 22) from SYSTEM PARK valve (23) and TRAILER AIR SUPPLY valve (24).





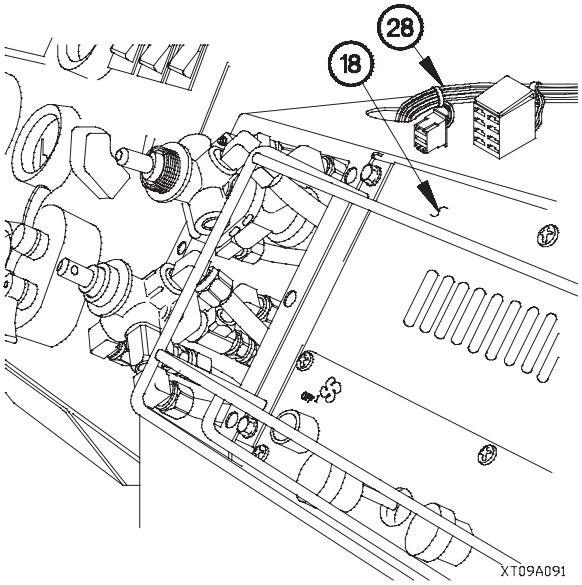
(16) Remove two nuts (25) from SYSTEM PARK valve (23) and TRAILER AIR SUPPLY valve (24).

(17) Remove six screws (26) and valve panel (27) from personnel heater (18).

NOTE

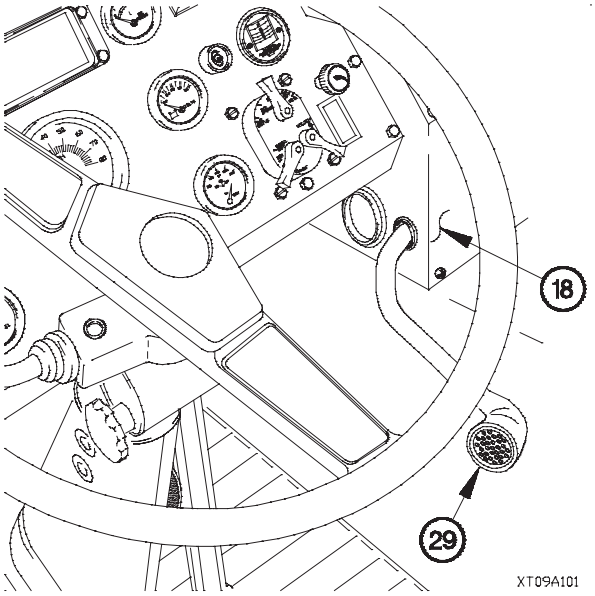
Perform step (18) on vehicles equipped with auxiliary panel.

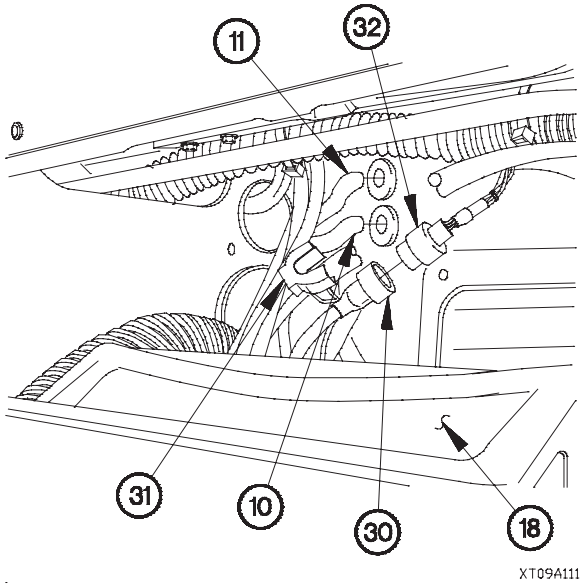
(18) Remove auxiliary panel cable assembly (28) from personnel heater (18).



18-9. PERSONNEL HEATER REPLACEMENT/REPAIR (CONT)

(19) Route CTIS ECU cable P110 (29) in through hole in side of personnel heater (18).





(20) Pull personnel heater (18) out enough to access personnel heater connector (30).

(21) Disconnect connector clamp (31) from personnel heater connector (30).

(22) Disconnect personnel heater connector (30) from connector PX25 (32).

NOTE

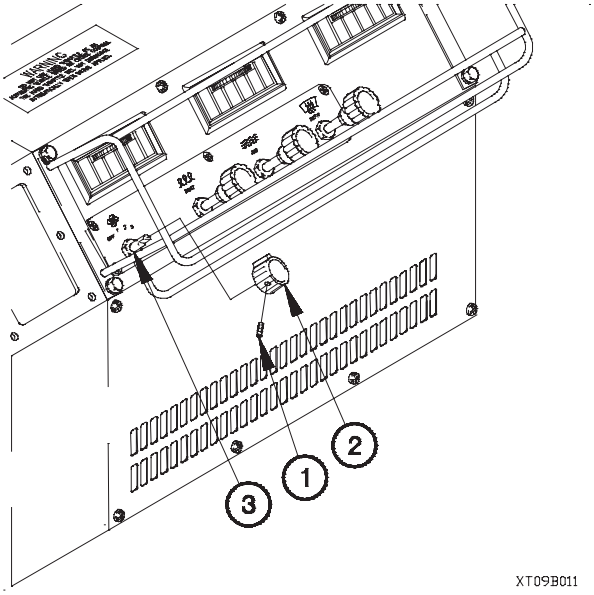
Tag personnel heater hoses and grommet opening in cab floor.

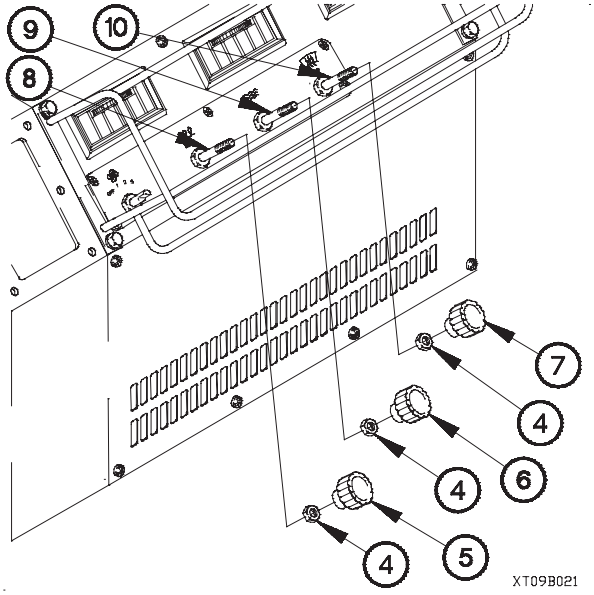
(23) Remove personnel heater (18) and hoses (10 and 11) from vehicle.

b. Disassembly.

(1) Loosen two set screws (1) in fan switch knob (2).

(2) Remove fan switch knob (2) from fan switch (3).





NOTE

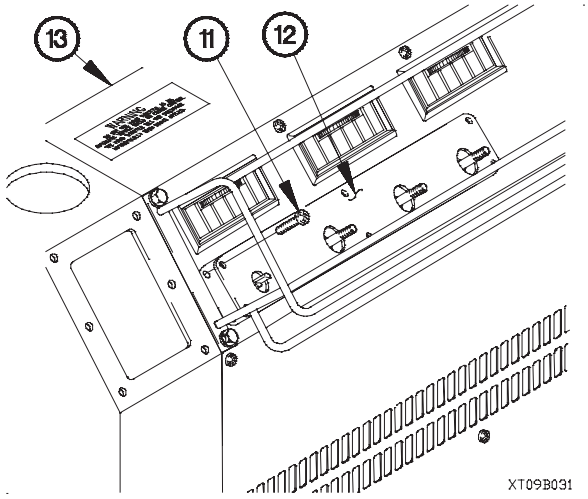
Perform steps (3) and (5) on vehicle serial numbers 0001 through 3696 equipped with original personnel heaters.

(3) Loosen self-locking nuts (4) on knobs (5, 6, and 7).

(4) Remove knobs (5, 6, and 7) from HEAT control cable (8), VENT control cable (9), and DEFR control cable (10).

(5) Remove self-locking nuts (4) from HEAT control cable (8), VENT control cable (9), and DEFR control cable (10). Discard self-locking nuts.

(6) Remove six screws (11) and control panel (12) from personnel heater (13).



18-9. PERSONNEL HEATER REPLACEMENT/REPAIR (CONT)

NOTE

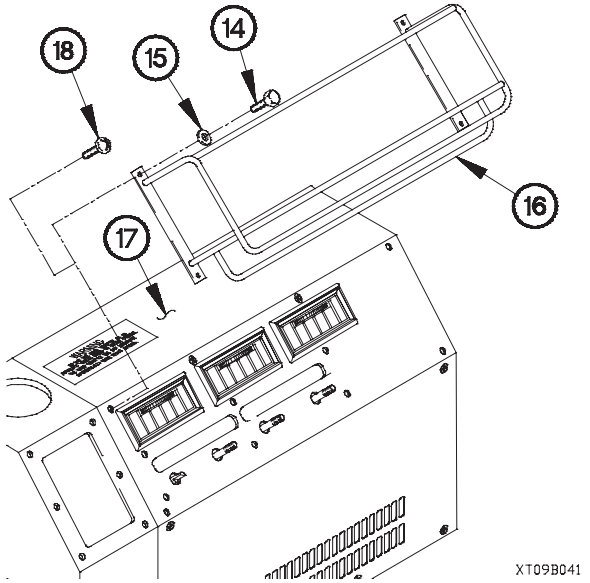
Perform steps (7) on vehicles equipped with personnel heater control guard.

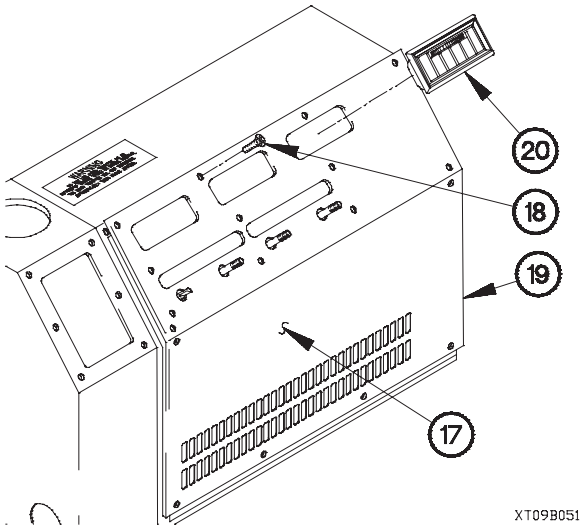
(7) Remove four screws (14), washers (15) and heater control guard (16) from personnel heater (17).

NOTE

Perform step (8) on vehicles not equipped with personnel heater control guard.

(8) Remove four screws (18) from personnel heater (17). Discard screws.





(9) Remove seven screws (18) and cover (19) from personnel heater (17).

CAUTION

Use care when releasing four retaining clips on each louver and removing louvers from cover. Failure to comply may result in damage to equipment.

NOTE

Note position of louvers prior to removal.

(10) Remove three louvers (20) from cover (19).

CAUTION

Cap or plug hoses and personnel heater coil to prevent contamination of cooling system. Failure to comply may result in damage to equipment.

NOTE

- Tag hoses prior to disconnecting.
- Remove plastic cable ties as required.

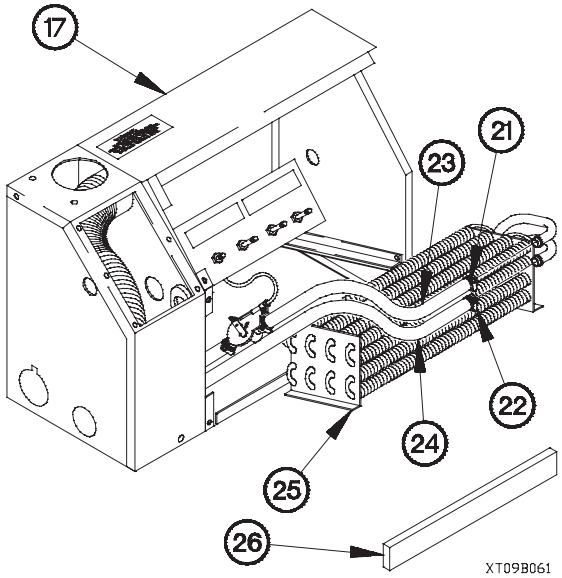
(11) Loosen clamps (21 and 22) on hoses (23 and 24).

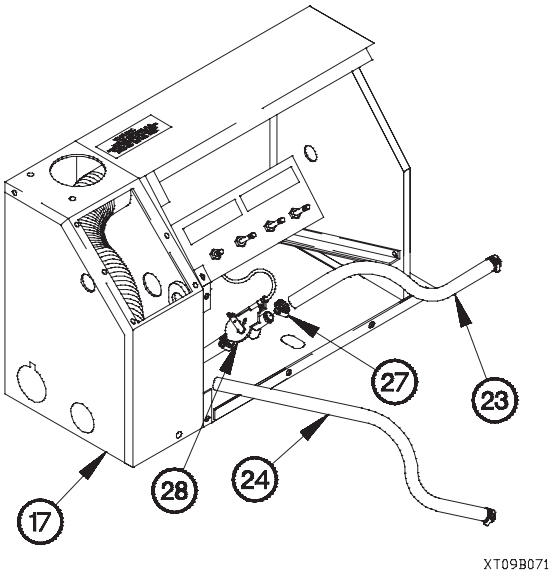
(12) Disconnect hoses (23 and 24) from personnel heater coil (25).

(13) Remove clamps (21 and 22) from hoses (23 and 24).

(14) Remove personnel heater coil (25) from personnel heater (17).

(15) Remove seal (26) from personnel heater coil (25).





(16) Remove hose (24) from personnel heater (17).

(17) Loosen clamp (27) on hose (23).

(18) Disconnect hose (23) from valve (28).

(19) Remove clamp (27) from hose (23).

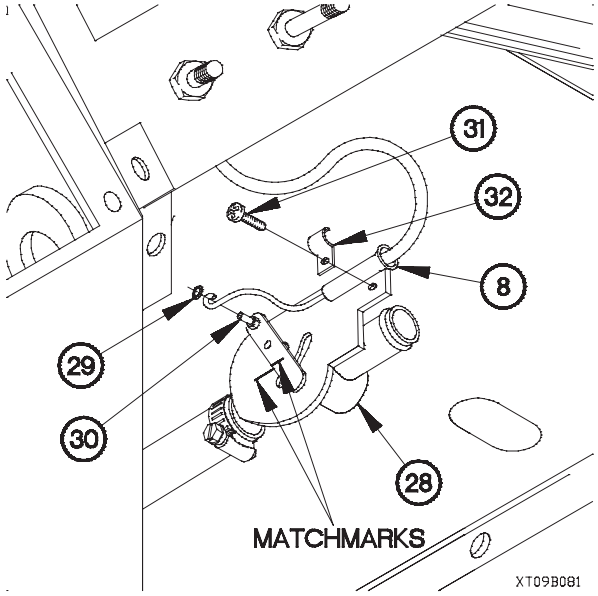
18-9. PERSONNEL HEATER REPLACEMENT/REPAIR (CONT)

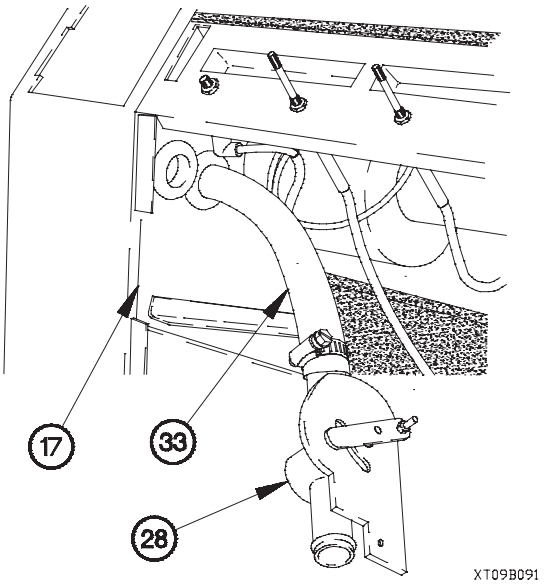
(20) Remove push nut (29) from valve shaft (30).

(21) Match mark valve shaft (30) to valve (28).

(22) Remove screw (31) and cable clamp (32) from valve (28).

(23) Remove HEAT control cable (8) from valve shaft (30).



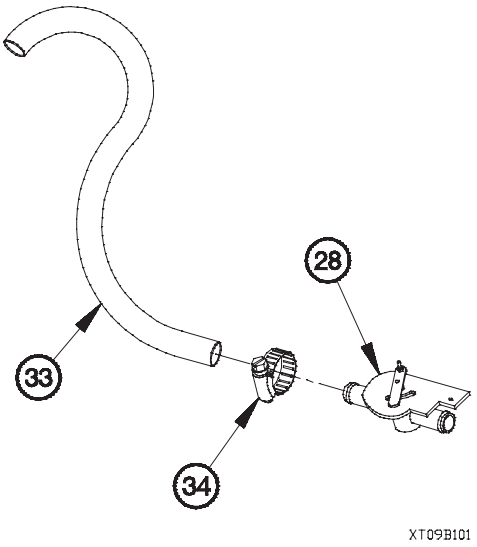


(24) Remove valve (28) and hose (33) from personnel heater (17).

(25) Loosen clamp (34) on hose (33).

(26) Disconnect hose (33) from valve (28).

(27) Remove clamp (34) from hose (33).



(28) Remove locking nut (35) from HEAT control cable (8).

NOTE

Tag cables prior to removal.

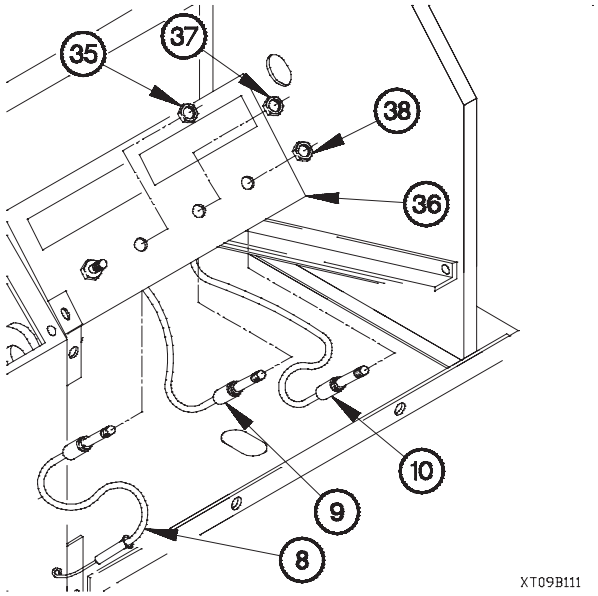
(29) Remove HEAT control cable (8) from control plate (36).

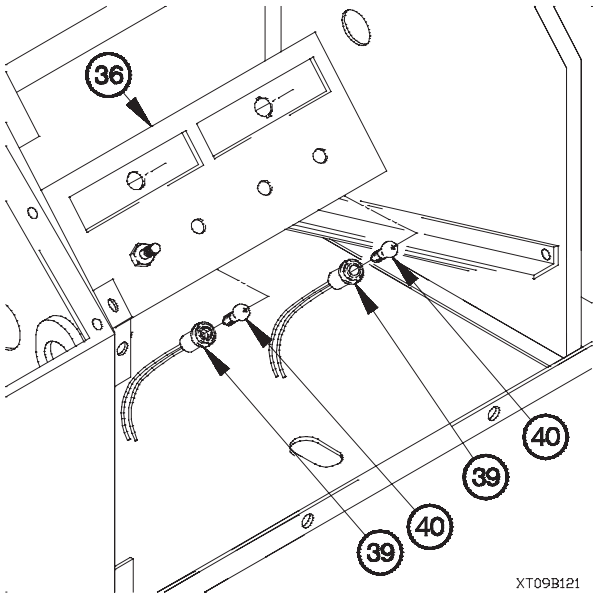
(30) Remove locking nut (37) from VENT control cable (9).

(31) Remove VENT control cable (9) from control plate (36).

(32) Remove locking nut (38) from DEFR control cable (10).

(33) Remove DEFR control cable (10) from control plate (36).





(34) Remove two lamp sockets (39) from control plate (36).

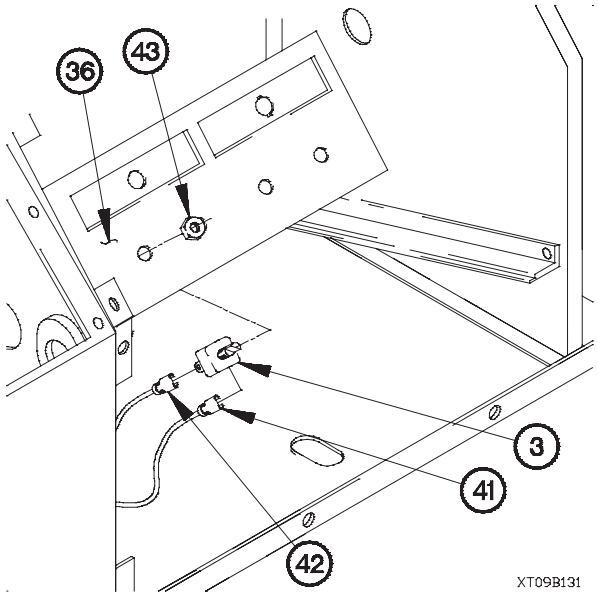
(35) Remove two lamps (40) from lamp sockets (39).

NOTE

Tag connectors and connection points prior to disconnecting.

(36) Disconnect connectors (41 and 42) from fan switch (3).

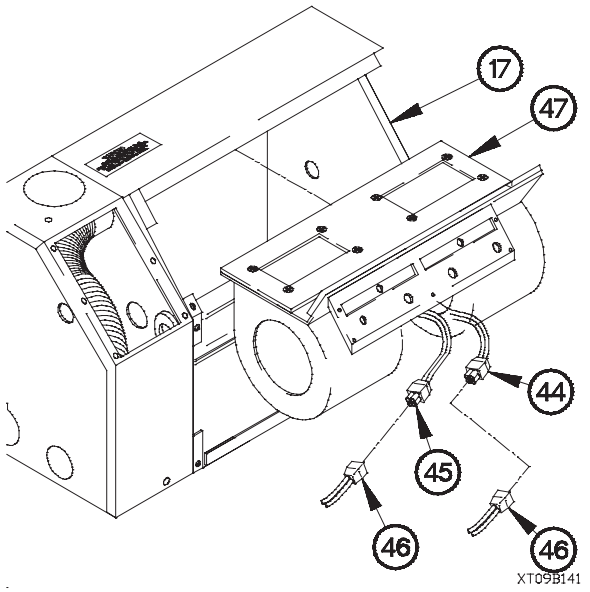
(37) Remove locking nut (43) and fan switch (3) from control plate (36).

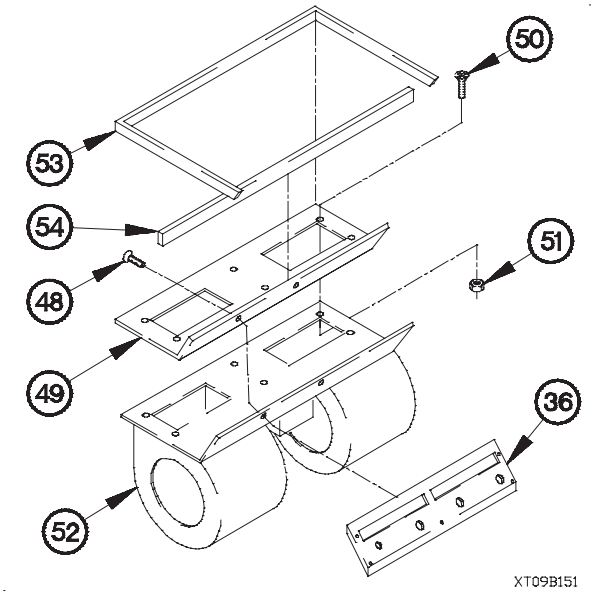


18-9. PERSONNEL HEATER REPLACEMENT/REPAIR (CONT)

(38) Disconnect connectors (44 and 45) from electrical harness (46).

(39) Remove blower (47) from personnel heater (17).





(40) Remove two screws (48) and control plate (36) from blower plate (49).

(41) Remove six screws (50), self-locking nuts (51), and blower plate (49) from blower motor (52). Discard self-locking nuts.

(42) Remove seal (53) from blower plate (49). Discard seals.

(43) Remove seal (54) from blower plate (49). Discard seal.

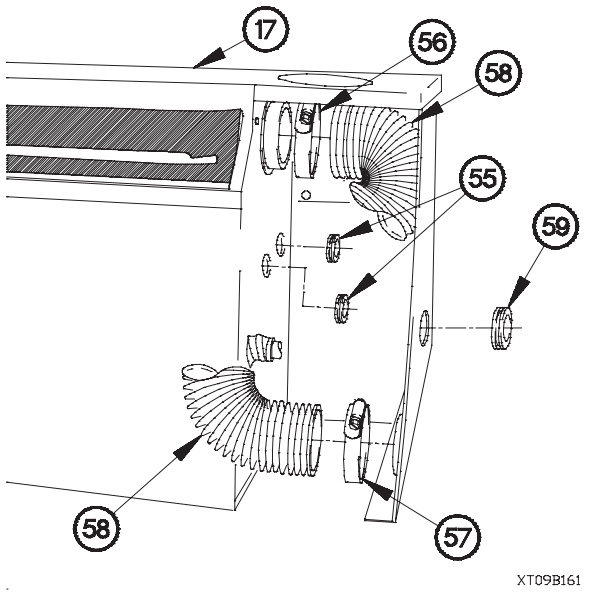
(44) Remove two grommets (55) from personnel heater (17).

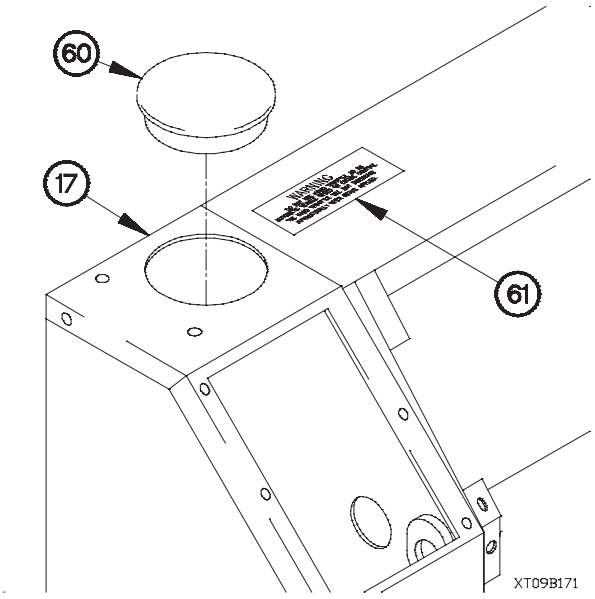
(45) Loosen clamps (56 and 57) on duct (58).

(46) Disconnect duct (58) from personnel heater (17).

(47) Remove clamps (56 and 57) from duct (58).

(48) Remove grommet (59) from personnel heater (17).





NOTE

Perform steps (49) and (50) on vehicles not equipped with auxiliary panel.

(49) Remove plug (60) from personnel heater (17).

(50) Remove decal (61) from personnel heater (17). Discard decal.

(51) Remove seven rivets (62) and cover (63) from personnel heater (17).

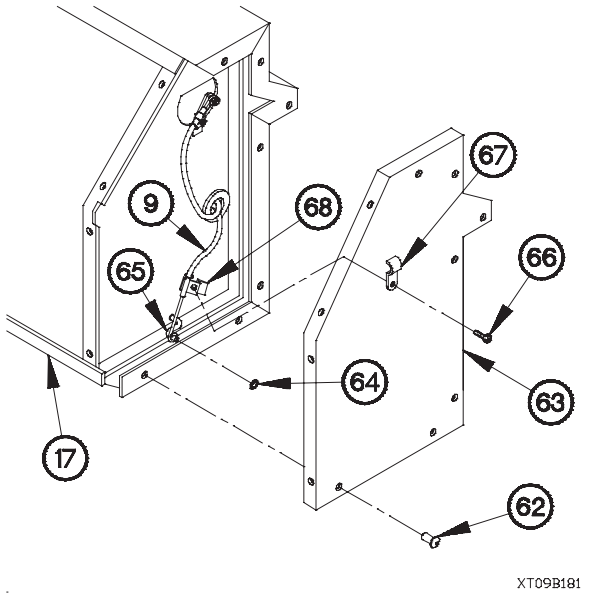
(52) Remove push nut (64) from vent door shaft (65).

(53) Remove screw (66) and cable clamp (67) from bracket (68).

(54) Remove VENT control cable (9) from vent door shaft (65).

(55) Remove VENT control cable (9) from personnel heater (17).

(56) Remove cable clamp (67) from VENT control cable (9).



18-9. PERSONNEL HEATER REPLACEMENT/REPAIR (CONT)

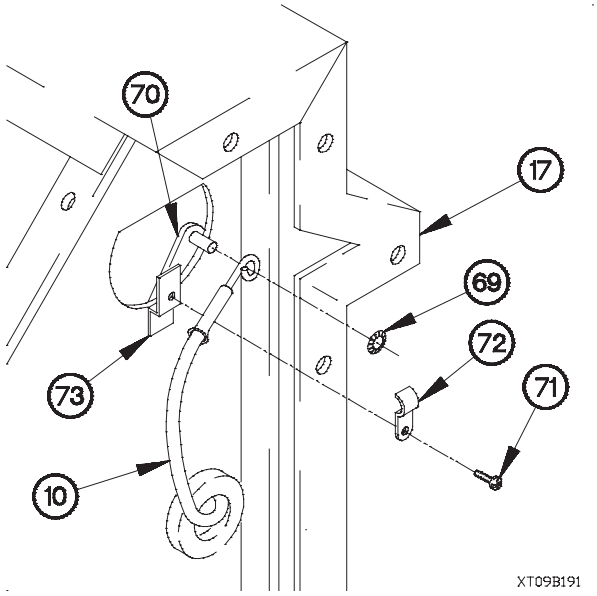
(57) Remove push nut (69) from defrost door shaft (70).

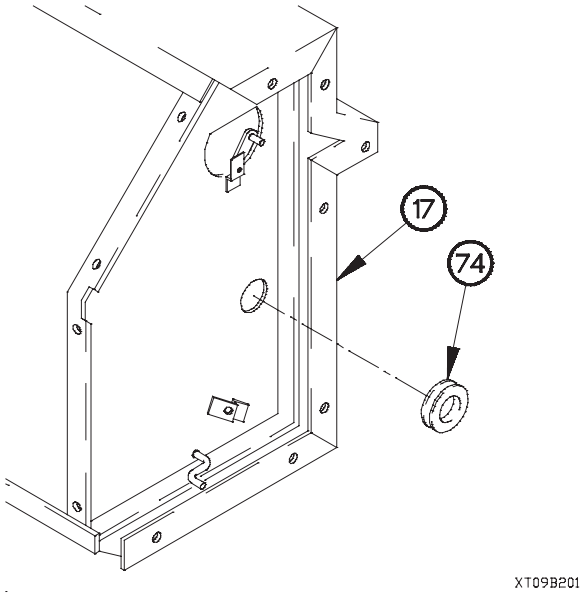
(58) Remove screw (71) and cable clamp (72) from bracket (73).

(59) Remove DEFR control cable (10) from defrost door shaft (70).

(60) Remove DEFR control cable (10) from personnel heater (17).

(61) Remove cable clamp (72) from DEFR control cable (10).

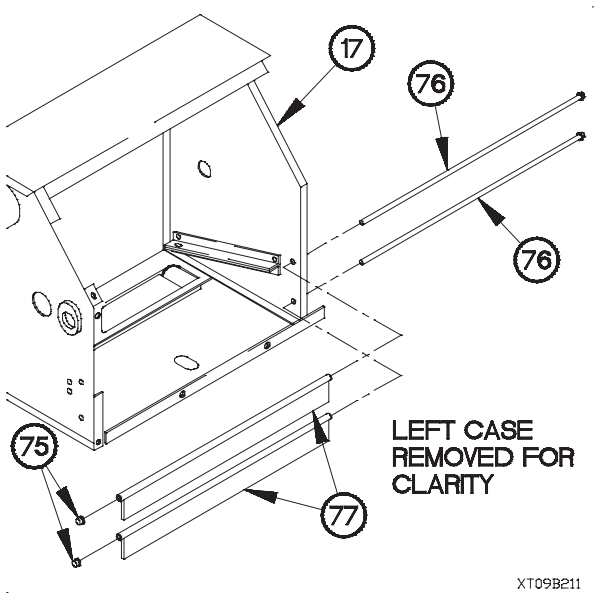




(62) Remove grommet (74) from personnel heater (17).

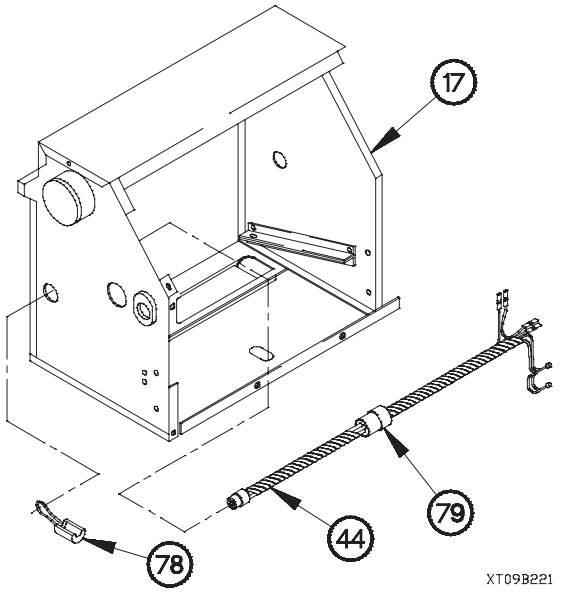
(63) Remove two push nuts (75) from shafts (76).

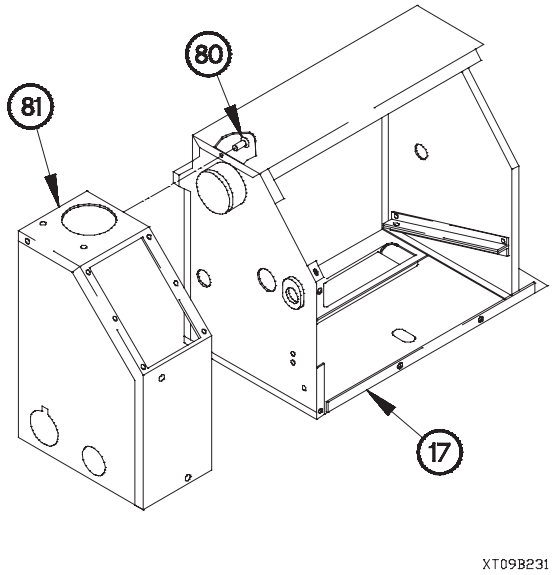
(64) Remove two shafts (76) and air seals (77) from personnel heater (17).



(65) Remove cable stay (78) from electrical harness (44).

(66) Remove grommet (79) and electrical harness (44) from personnel heater (17).



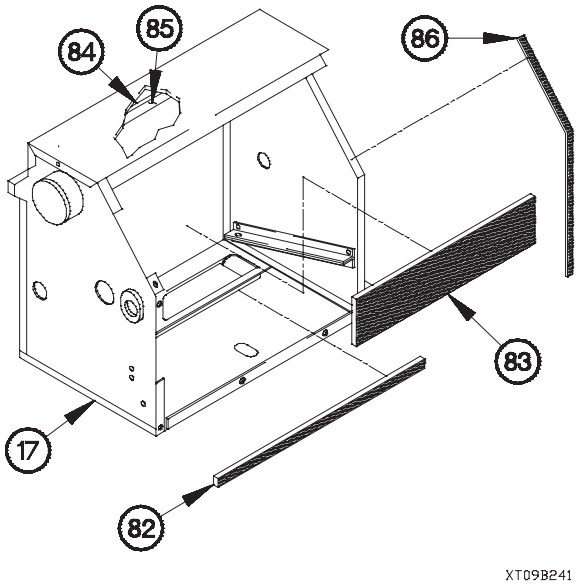


(67) Remove five rivets (80) and left case (81) from personnel heater (17).

(68) Remove gaskets (82 and 83) from personnel heater (17). Discard gaskets.

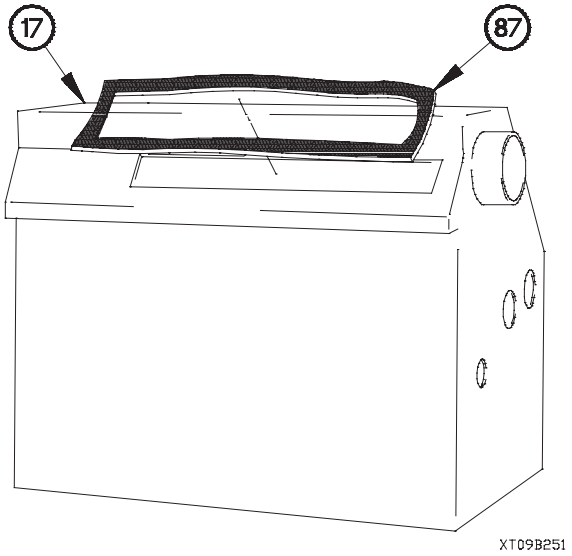
(69) Remove gaskets (84) from defrost door (85). Discard gaskets.

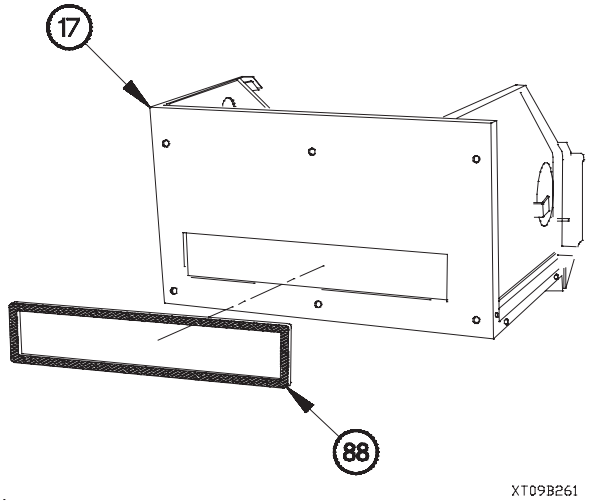
(70) Remove gaskets (86) from personnel heater (17). Discard gaskets.



18-9. PERSONNEL HEATER REPLACEMENT/REPAIR (CONT)

(71) Remove seal (87) from personnel heater (17).





(72) Remove seal (88) from personnel heater (17).

c. 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 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 or death to personnel.**

(1) Clean metal parts with dry cleaning solvent.

NOTE

Replace any part that fails visual inspection.

(2) Inspect all parts for visible cracks or damage.

NOTE

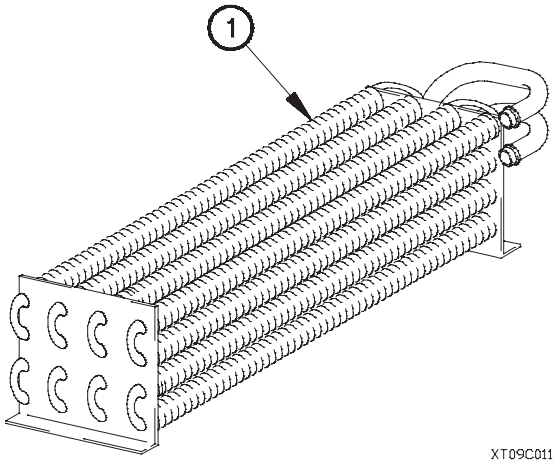
Perform step (3) if personnel heater coil is to be reused.

(3) Clean personnel heater coil (1) with soap and water.

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.

(4) Dry personnel heater coil (1) with compressed air.



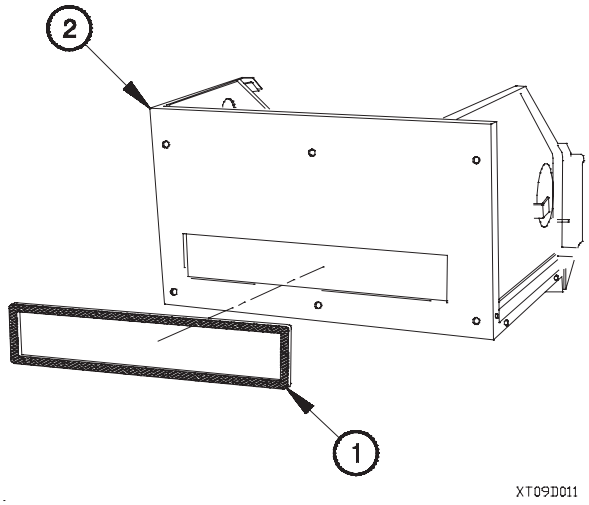
18-9. PERSONNEL HEATER REPLACEMENT/REPAIR (CONT)

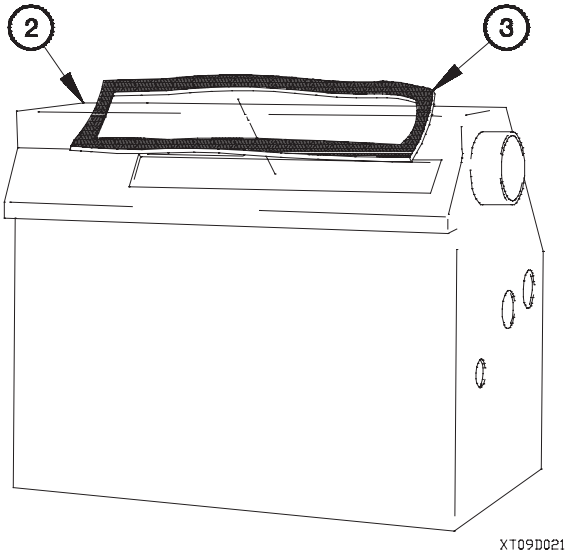
d. Assembly.

CAUTION

Seals used on the personnel heater have double-sided tape attached. Use care when installing these seals. Failure to comply may result in damage to equipment.

(1) Install seal (1) on personnel heater (2).



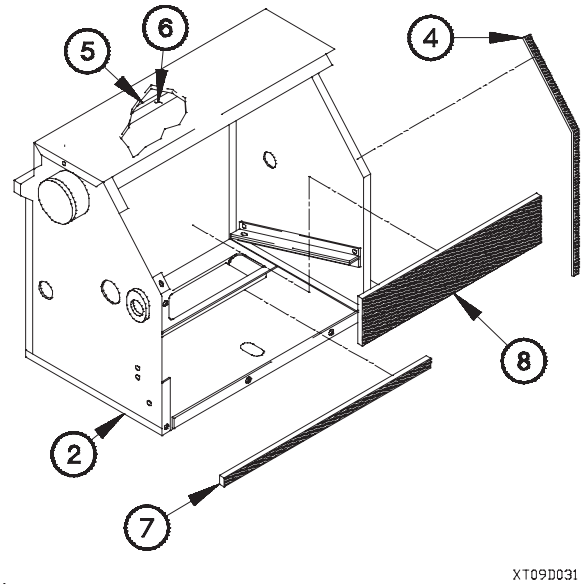


(2) Install seal (3) on personnel heater (2).

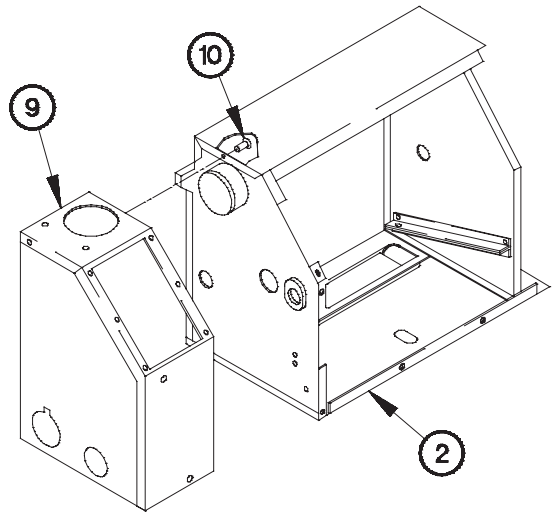
(3) Install gasket (4) on personnel heater (2).

(4) Install gasket (5) on defrost door (6).

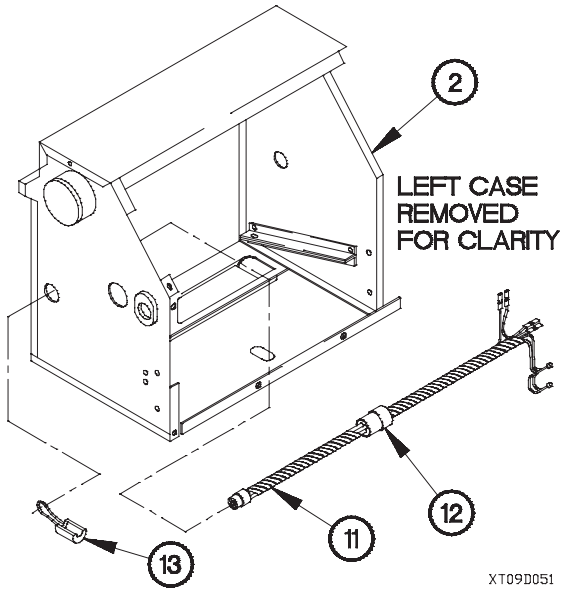
(5) Install gaskets (7 and 8) on personnel heater (2).



(6) Install left case (9) on personnel heater (2) with five rivets (10).



XT09D041



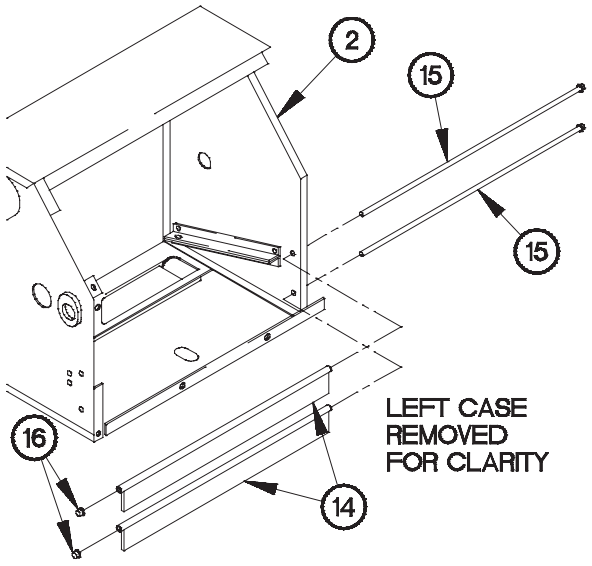
XT09D051

(7) Install electrical harness (11) and grommet (12) in personnel heater (2).

(8) Install cable stay (13) on electrical harness (11).

(9) Position two air seals (14) on shafts (15) in personnel heater (2).

(10) Install two push nuts (16) on shafts (15).



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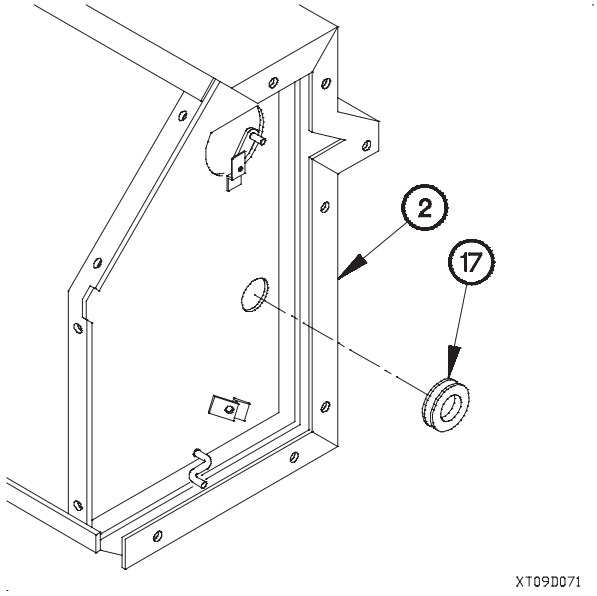
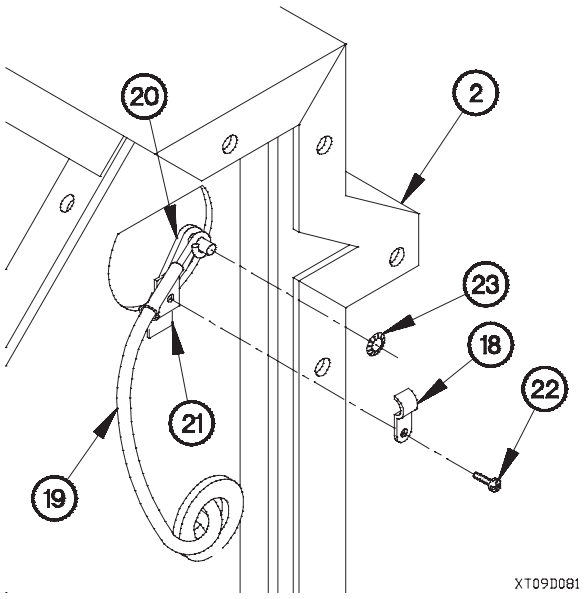
18-9. PERSONNEL HEATER REPLACEMENT/REPAIR (CONT)

(11) Install grommet (17) in personnel heater (2).





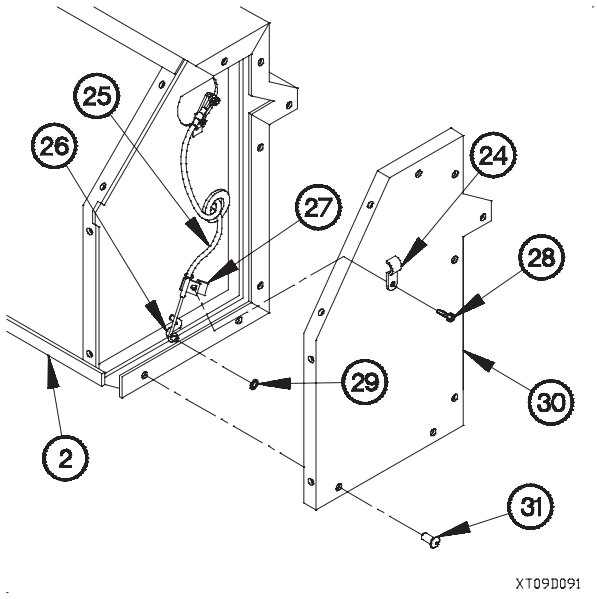
(12) Position cable clamp (18) on DEFR control cable (19).

(13) Position DEFR control cable (19) in personnel heater (2).

(14) Position DEFR control cable (19) on defrost door shaft (20).

(15) Install cable clamp (18) on bracket (21) with screw (22).

(16) Install push nut (23) on defrost shaft (20).



(17) Position cable clamp (24) on VENT control cable (25).

(18) Position VENT control cable (25) in personnel heater (2).

(19) Position VENT control cable (25) on vent door shaft (26).

(20) Install cable clamp (24) on bracket (27) with screw (28).

(21) Install push nut (29) on vent door shaft (26).

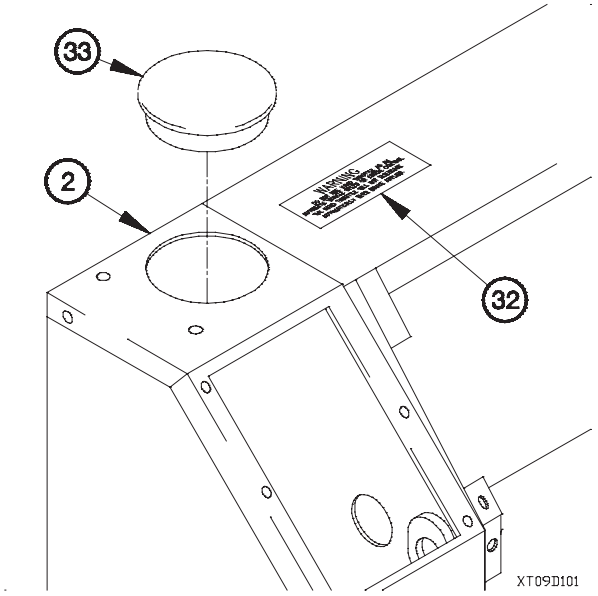
(22) Install cover (30) on personnel heater (2) with seven rivets (31).

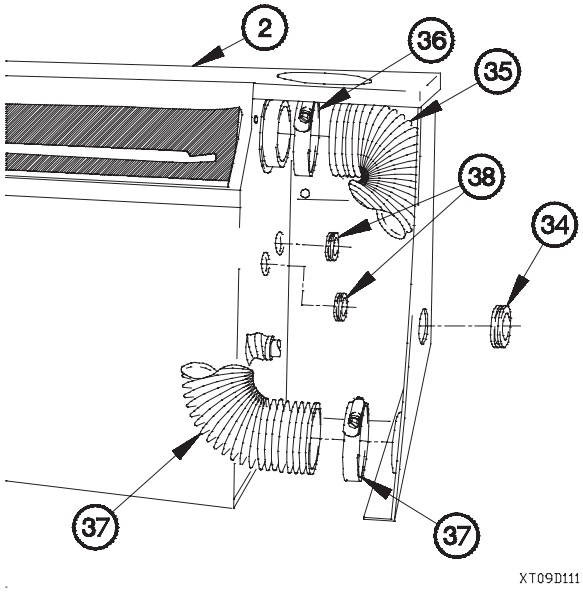
NOTE

Perform steps (23) and (24) on vehicles not equipped with auxiliary panel.

(23) Install decal (32) on personnel heater (2).

(24) Install plug (33) in personnel heater (2).





(25) Install grommet (34) in personnel heater (2).

(26) Install duct (35) on personnel heater (2) with clamps (36 and 37).

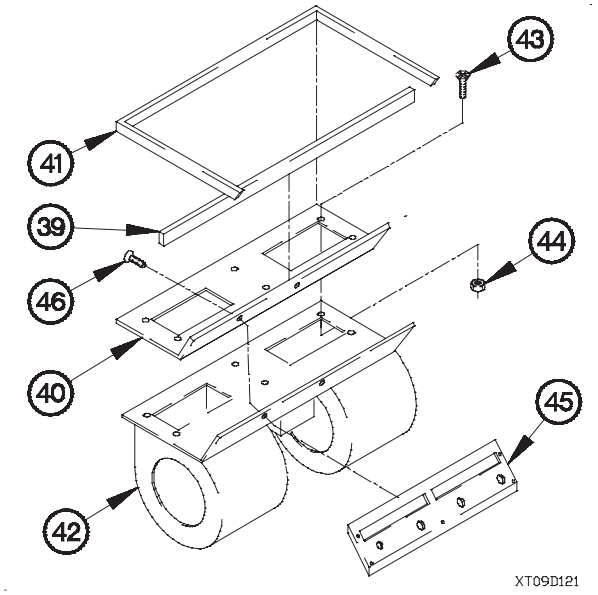
(27) Install two grommets (38) in personnel heater (2).

(28) Install seal (39) on blower plate (40).

(29) Install seal (41) on blower plate (40).

(30) Install blower plate (40) on blower (42) with six screws (43) and self-locking nuts (44).

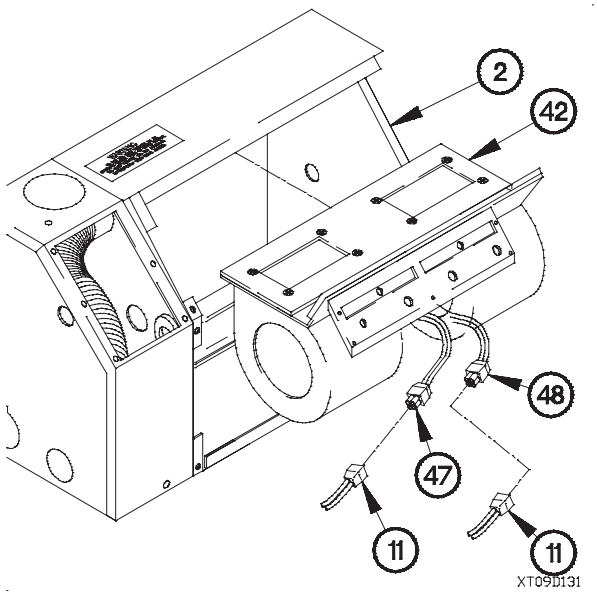
(31) Install control plate (45) on blower plate (40) with two screws (46).

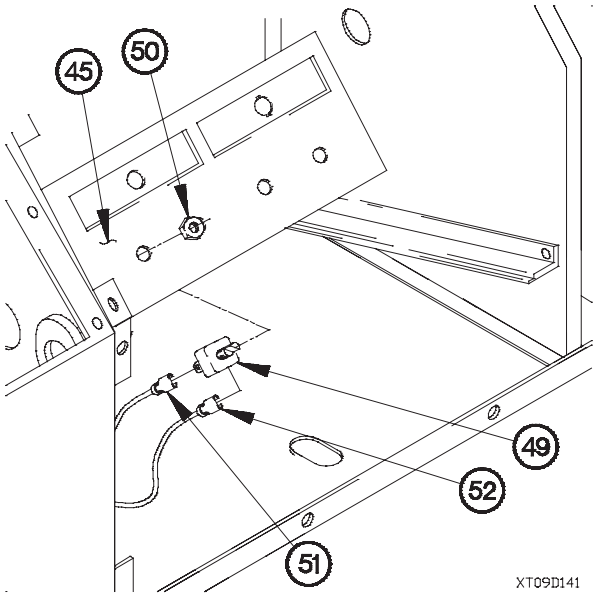


18-9. PERSONNEL HEATER REPLACEMENT/REPAIR (CONT)

(32) Position blower (42) in personnel heater (2).

(33) Connect connectors (47 and 48) to electrical harness (11).



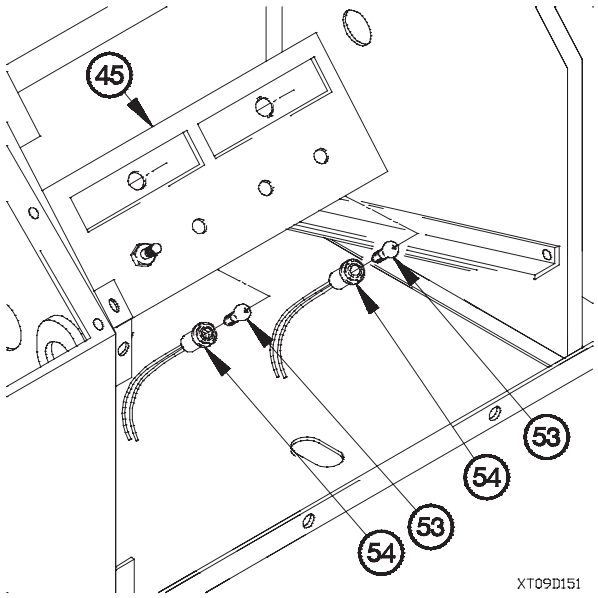


(34) Install fan switch (49) on control plate (45) with locking nut (50).

(35) Connect connectors (51 and 52) to fan switch (49).

(36) Install two lamps (53) in lamp sockets (54).

(37) Install two lamp sockets (54) on control plate (45).



CAUTION

Secure all wiring with tie wraps to prevent contact with fan switch coils. Failure to comply may result in damage to equipment.

(38) Position DEFR control cable (19) on control plate (45).

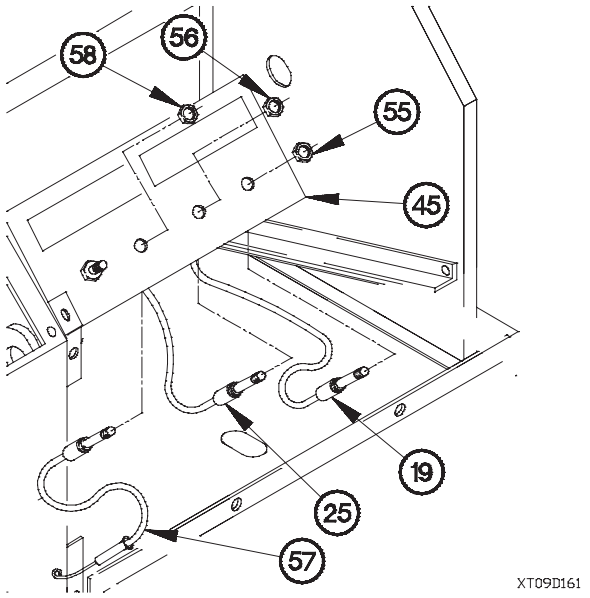
(39) Install locking nut (55) on DEFR control cable (19).

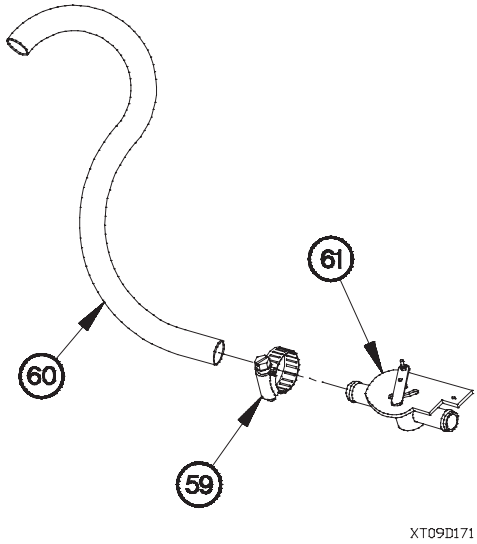
(40) Position VENT control cable (25) on control plate (45).

(41) Install locking nut (56) on VENT control cable (25).

(42) Position HEAT control cable (57) on control plate (45).

(43) Install locking nut (58) on HEAT control cable (57).



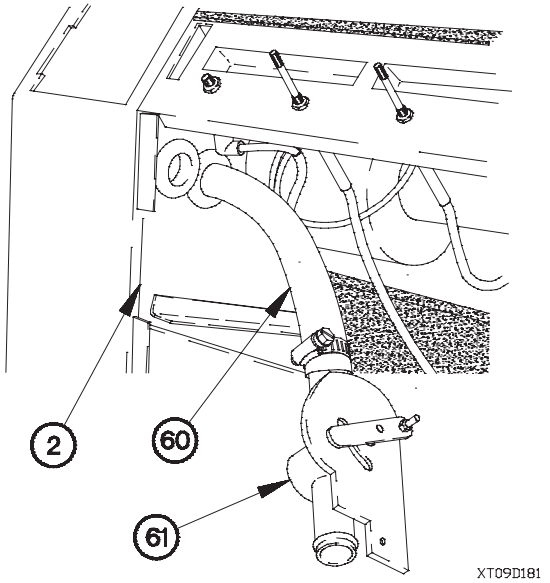


(44) Position clamp (59) on hose (60).

(45) Connect hose (60) to valve (61).

(46) Tighten clamp (59) to 35-45 lb-in. (4-5 N·m).

(47) Position hose (60) and valve (61) in personnel heater (2).

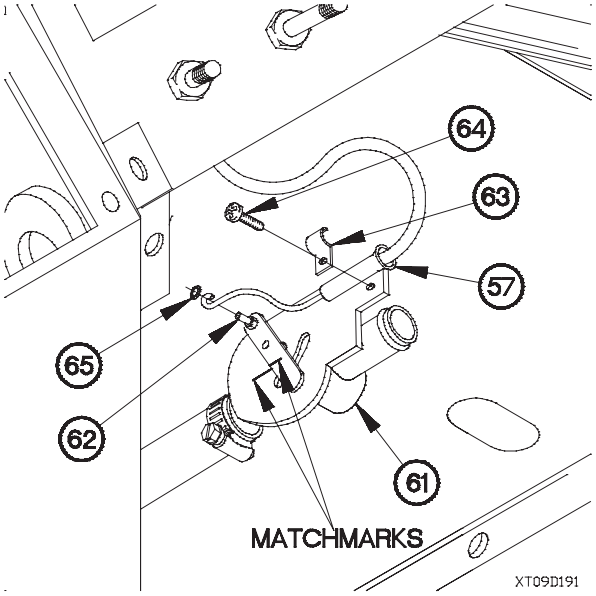


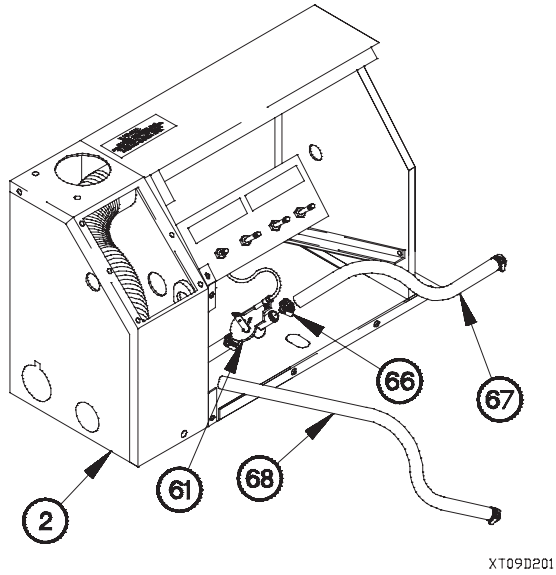
18-9. PERSONNEL HEATER REPLACEMENT/REPAIR (CONT)

(48) Position HEAT control cable (57) on valve shaft (62) with matchmarks aligned.

(49) Install cable clamp (63) on valve (61) with screw (64).

(50) Install push nut (65) on valve shaft (62).





(51) Position clamp (66) on hose (67).

(52) Connect hose (67) to valve (61).

(53) Tighten clamp (66) to 35-45 lb-in. (4-5 N·m).

(54) Position hose (68) in personnel heater (2).

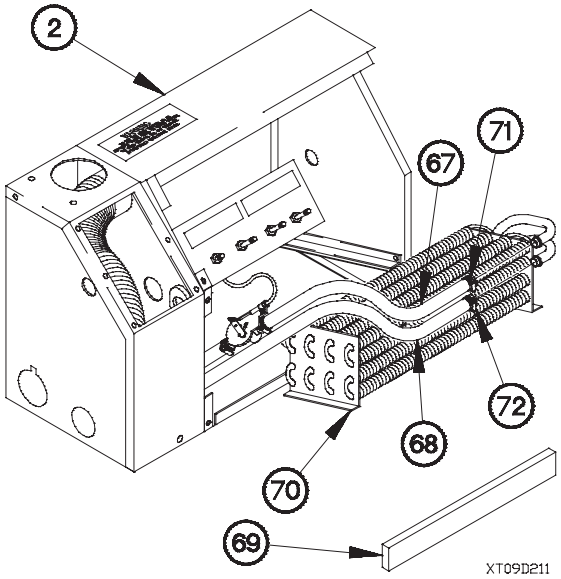
(55) Install seal (69) on personnel heater coil (70).

(56) Position personnel heater coil (70) in personnel heater (2).

(57) Position clamps (71 and 72) on hoses (67 and 68).

(58) Connect hoses (67 and 68) to personnel heater coil (70).

(59) Tighten clamps (71 and 72) to 35-45 lb-in. (4-5 N·m).

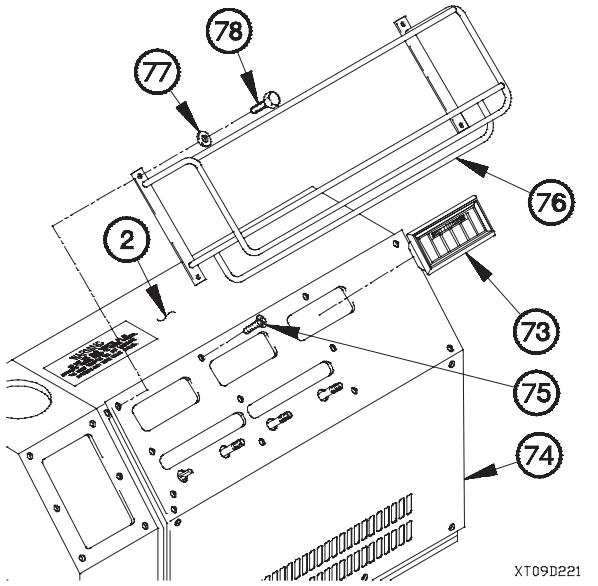


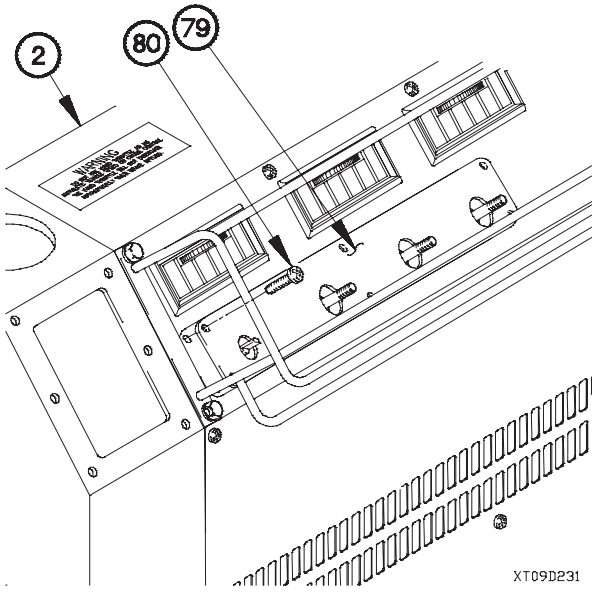
(60) Install three louvers (73) on cover (74).

(61) Install cover (74) on personnel heater (2) with seven screws (75).

(62) Position personnel heater control guard (76) on cover (74) with four washers (77) and screws (78).

(63) Tighten four screws (78) to 39-59 lb-in. (4-7 N·m).





(64) Install control panel (79) on personnel heater (2) with six screws (80).

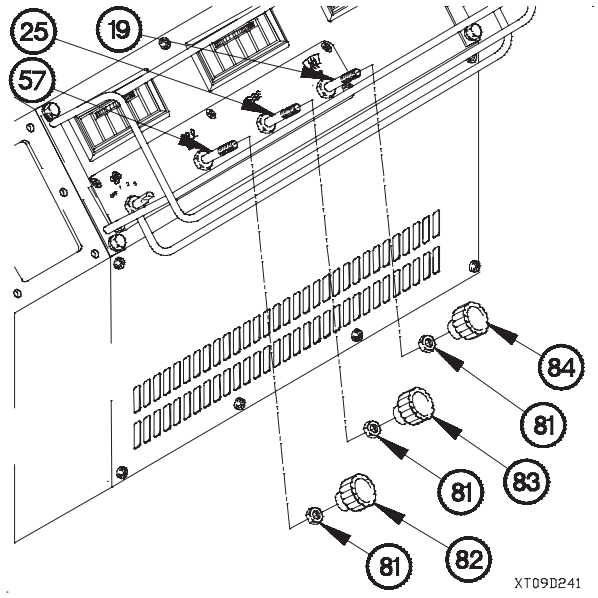
NOTE

Perform steps (65) and (67) on vehicle serial numbers 0001 through 3696 equipped with original personnel heaters.

(65) Position self-locking nuts (81) on DEFR control cable (19), VENT control cable (25), and HEAT control cable (57).

(66) Position knobs (82, 83, and 84) on DEFR control cable (19), VENT control cable (25), and HEAT control cable (57).

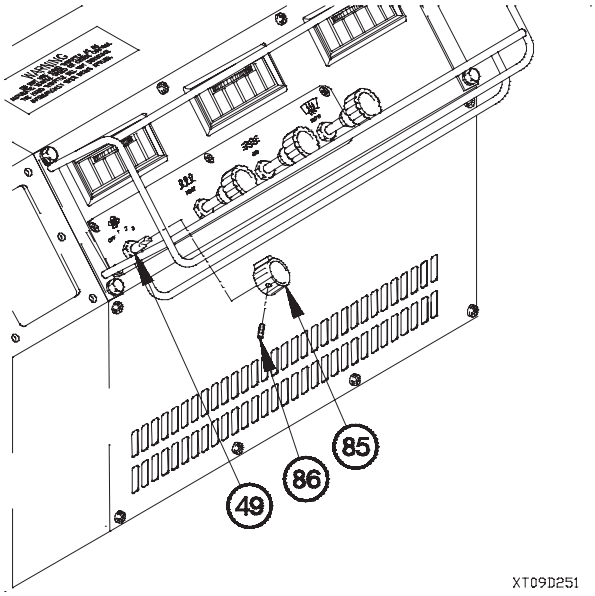
(67) Tighten self-locking nuts (81) on knobs (82, 83, and 84).



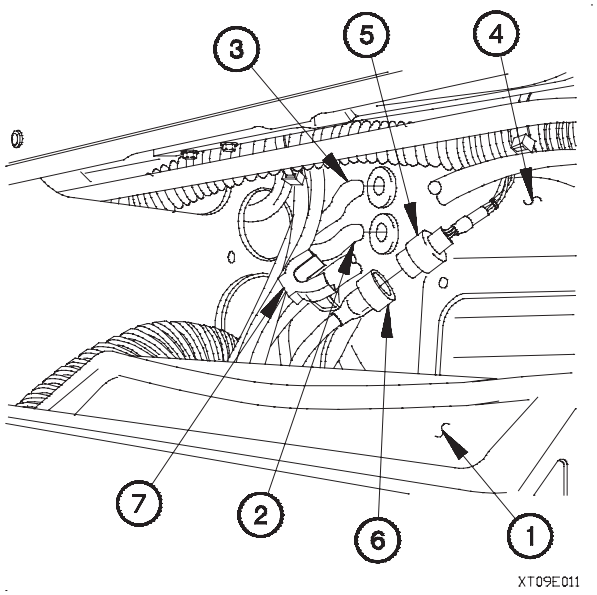
18-9. PERSONNEL HEATER REPLACEMENT/REPAIR (CONT)

(68) Position fan switch knob (85) on fan switch (49).

(69) Tighten two set screws (86) on fan switch knob (85).



e. Installation.



NOTE

Install plastic cable ties as required.

(1) Position personnel heater (1) in vehicle.

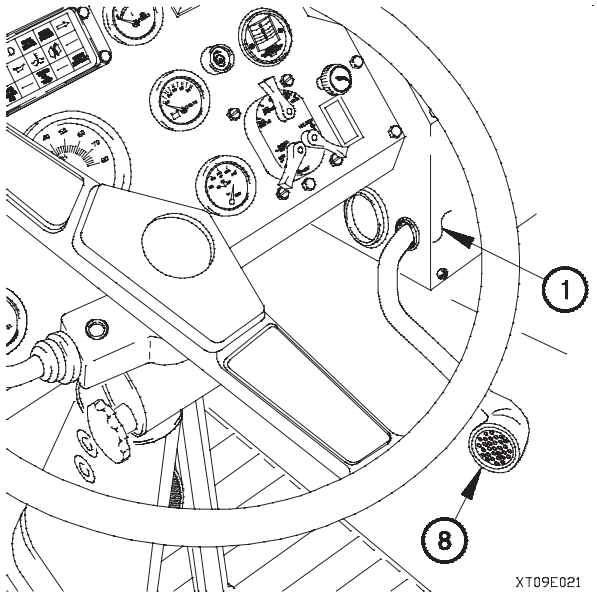
(2) Position heater outlet hose (2) and heater inlet hose (3) through cab floor (4).

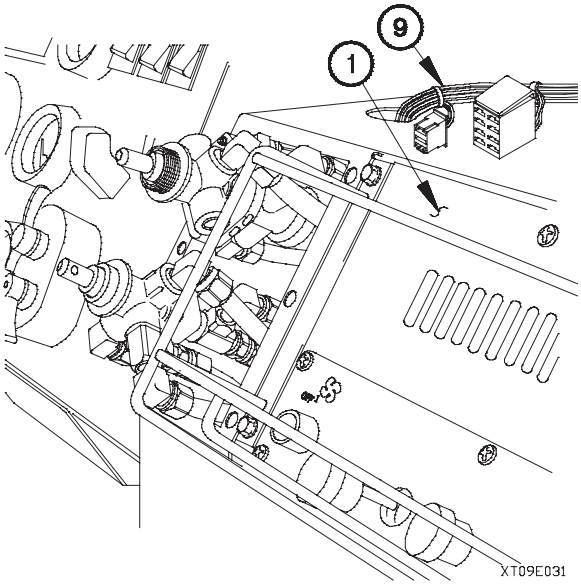
(3) Connect connector PX25 (5) to personnel heater connector (6).

(4) Connect connector clamp (7) on personnel heater connector (6).

(5) Position personnel heater (1) in mounting position.

(6) Position CTIS ECU cable P110 (8) in personnel heater (1).





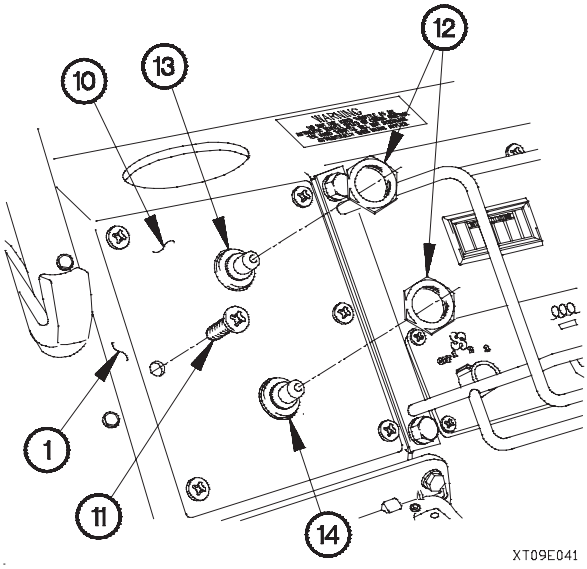
NOTE

Perform step (7) on vehicles equipped with auxiliary panel.

(7) Position auxiliary panel cable assembly (9) through personnel heater (1).

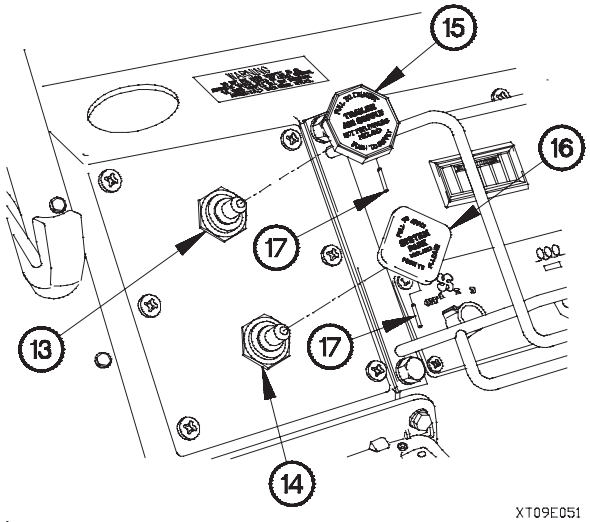
(8) Install valve panel (10) on personnel heater (1) with six screws (11).

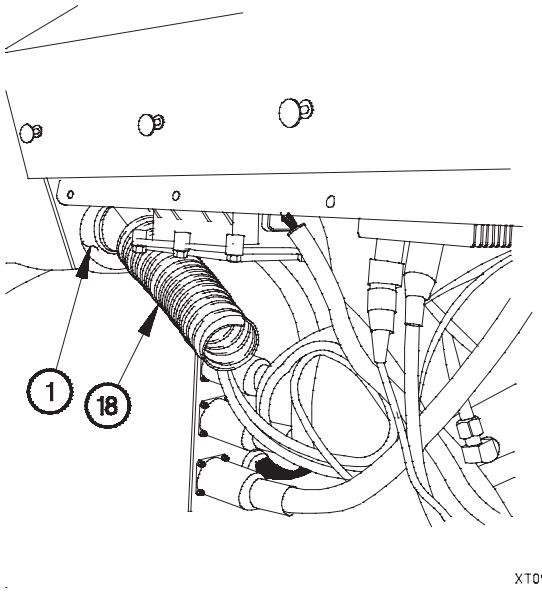
(9) Install self-locking nuts (12) on TRAILER AIR SUPPLY valve (13) and SYSTEM PARK valve (14).



18-9. PERSONNEL HEATER REPLACEMENT/REPAIR (CONT)

(10) Install knobs (15 and 16) on TRAILER AIR SUPPLY valve (13) and SYSTEM PARK valve (14) with roll pins (17).



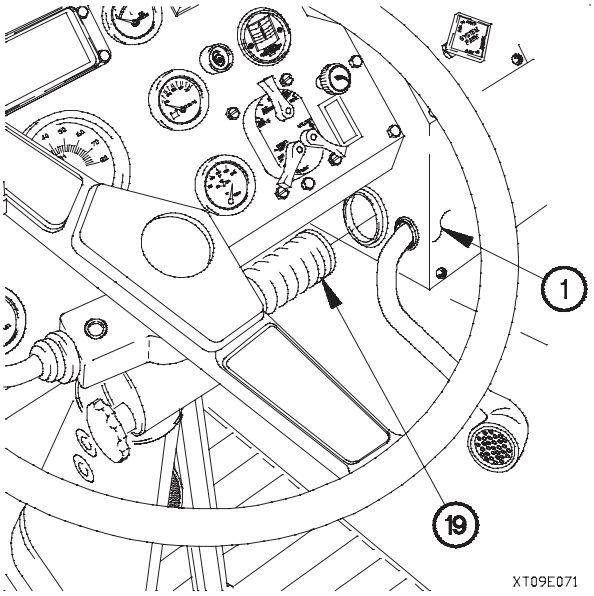


(11) Install personnel heater air duct (18) on personnel heater (1).

WARNING

Ensure heater air duct does not interfere with the operation of the accelerator or brake pedal. Failure to comply may result in serious injury or death to personnel.

(12) Install personnel heater air duct (19) on personnel heater (1).

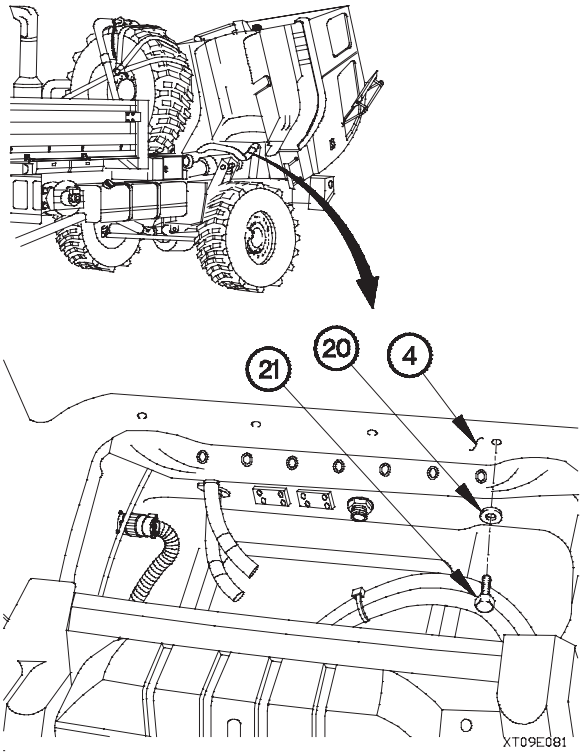


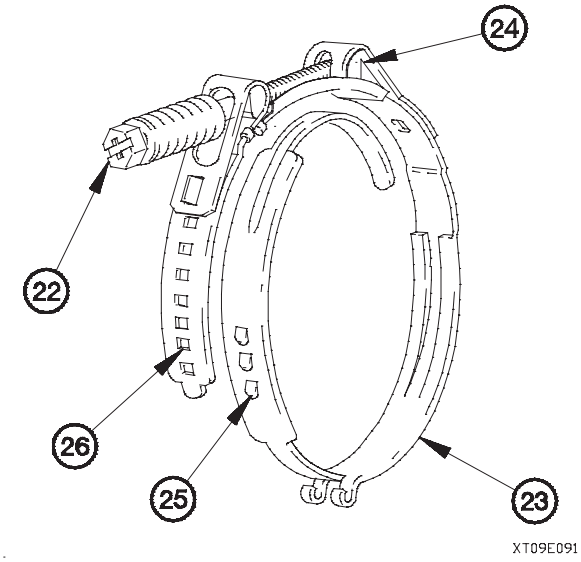
(13) Raise cab (TM 9-2320-366-10-1).

(14) Position eight washers (20) and screws (21) in cab floor (4).

(15) Tighten eight screws (21) to 14-18 lb-ft (19-24 N·m).

(16) Lower cab (TM 9-2320-366-10-1).





(17) Loosen two screws (22) in clamps (23) as far as possible without disengaging screws from D-nuts (24).

(18) Unhook clamp tabs (25) from tab windows (26).

18-9. PERSONNEL HEATER REPLACEMENT/REPAIR (CONT)

CAUTION

Ensure clamp tongue is started in clamp groove. Failure to comply may result in damage to equipment.

(19) Position clamp (23) on heater outlet hose (2).

(20) Position clamp (23) on heater inlet hose (3).

NOTE

Heater outlet hose is marked with an arrow pointing down.

(21) Position heater outlet hose (2) on return fitting (27).

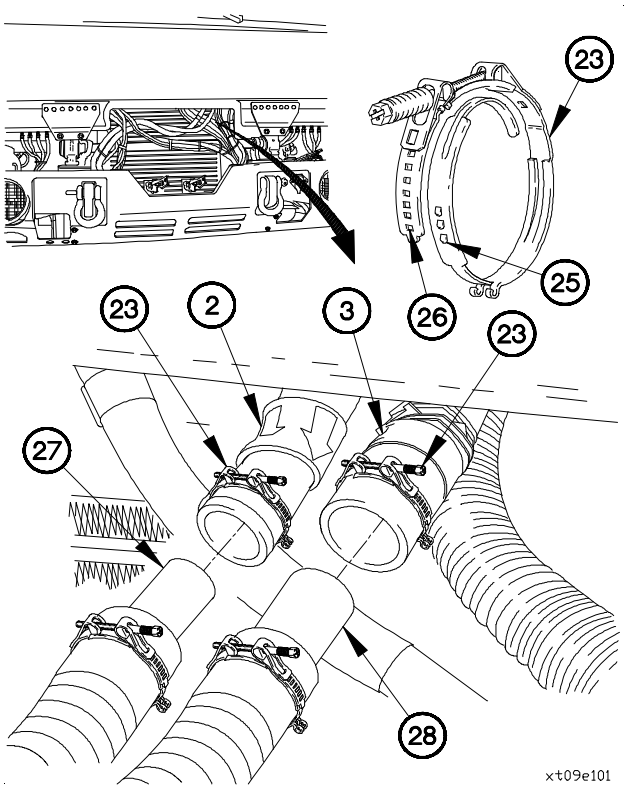
NOTE

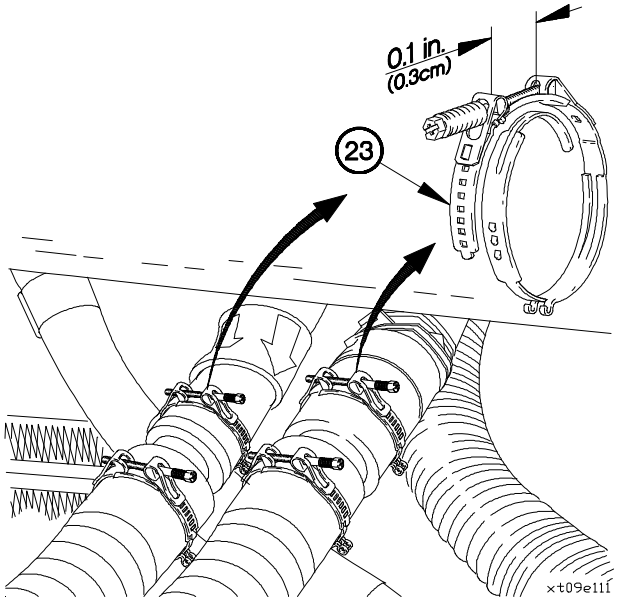
Heater inlet hose is marked with an arrow pointing up.

(22) Position heater inlet hose (3) on supply fitting (28).

(23) Engage as many clamp tabs (25) as possible in tab windows (26) allowing little or no play between clamps (23) and heater outlet hose (2) and heater inlet hose (3).

(24) Tighten two clamps (23) to 8-9 lb-in. (0.9-1 N•m).

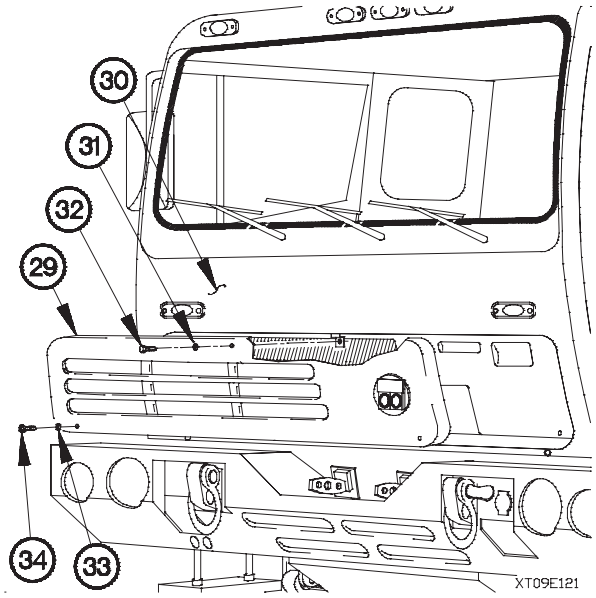




NOTE

Minimum allowable gap between ends of clamp is 0.1 in. (0.3 cm). If gap is less than 0.1 in. (0.3 cm), remove and re-install clamp.

(25) Measure gap between ends of two clamps (23).



(26) Position front grille (29) on cab (30) with washer (31), and screw (32).

(27) Position two washers (33) and screws (34) in front grille (29).

(28) Tighten screw (32) to 48-60 lb-in. (5-7 N·m).

(29) Tighten two screws (34) to 24 lb-in. (3 N·m).

f. Follow-On Maintenance.

(1) Install kick panel (para 16-3).

(2) Install auxiliary panel (para 7-8), if equipped.

(3) Install CTIS ECU (para 12-6).

(4) Start engine and check for leaks (TM 9-2320-366-10-1).

(5) Add coolant as required (TM 9-2320-366-10-2).

(6) Operate personnel heater, checking for proper operation and for coolant leaks (TM 9-2320-366-10-1).

(7) Shut down engine (TM 9-2320-366-10-1).

End of Task.

18-10. HEATER FAN CONTROL SWITCH REPLACEMENT

This task covers:

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

INITIAL SETUP

Equipment Conditions
Batteries disconnected (para 7-57).
CTIS ECU removed (para 12-6).

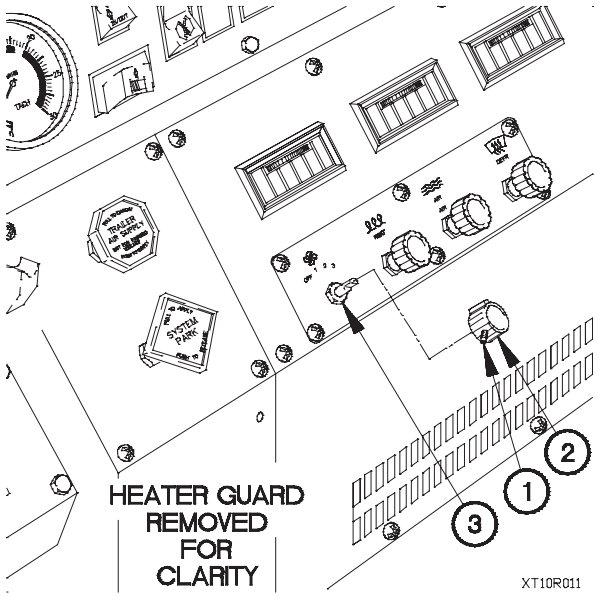
Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)

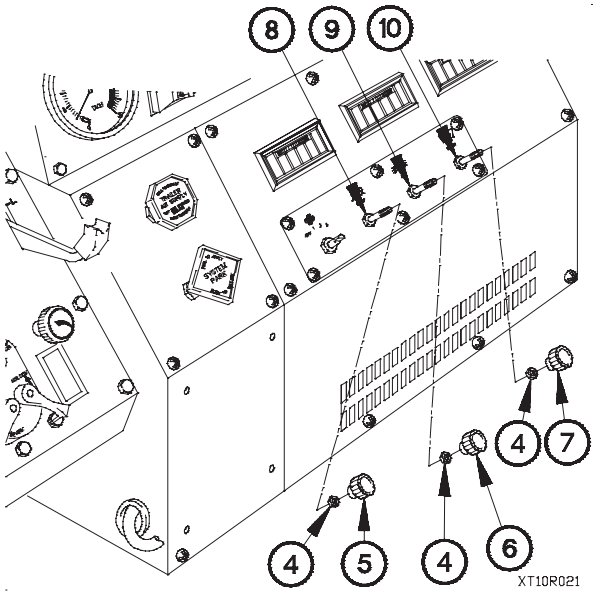
Materials/Parts
Dispenser, Pressure Sensitive Adhesive Tape (Item 20, Appendix D)
Nut, Self-Locking (3) (vehicle serial numbers 0001 through 3696 equipped with original personnel heaters) (Item 177, Appendix G)

a. Removal.

(1) Loosen two setscrews (1) in heater fan control switch knob (2).

(2) Remove heater fan control switch knob (2) from heater fan control switch (3).





NOTE

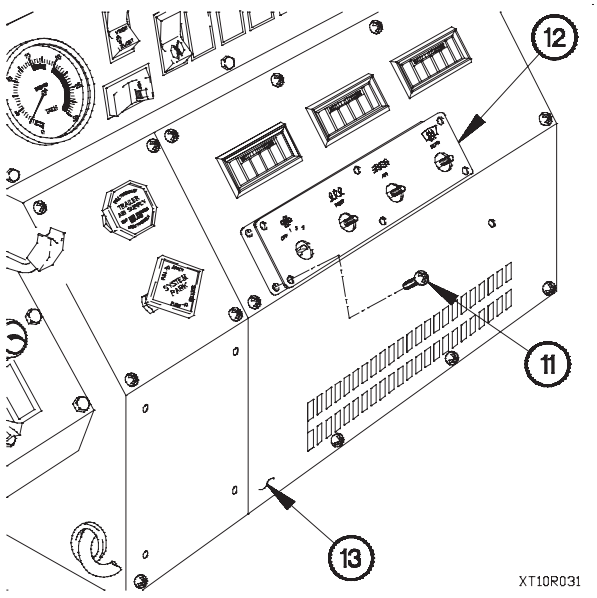
Perform steps (3) and (5) on vehicle serial numbers 0001 through 3696 equipped with original personnel heaters.

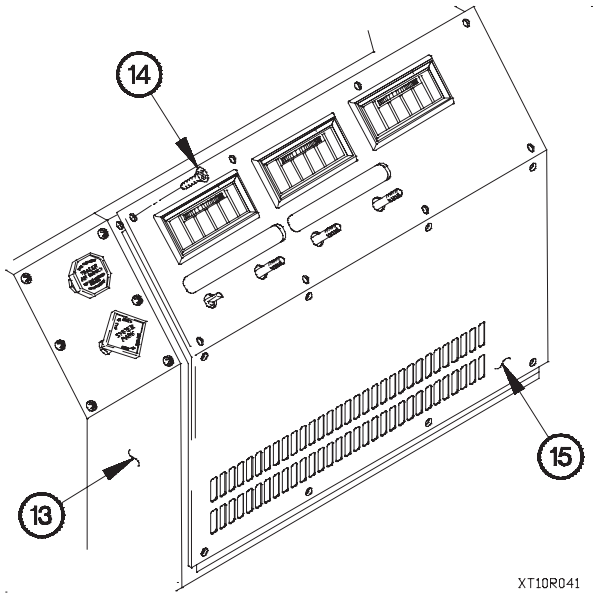
(3) Loosen three self-locking nuts (4) on knobs (5, 6, and 7).

(4) Remove knobs (5, 6, and 7) from HEAT control cable (8), VENT control cable (9), and DEFR control cable (10).

(5) Remove three self-locking nuts (4) from HEAT control cable (8), VENT control cable (9), and DEFR control cable (10). Discard self-locking nuts.

(6) Remove six screws (11) and control panel (12) from personnel heater (13).





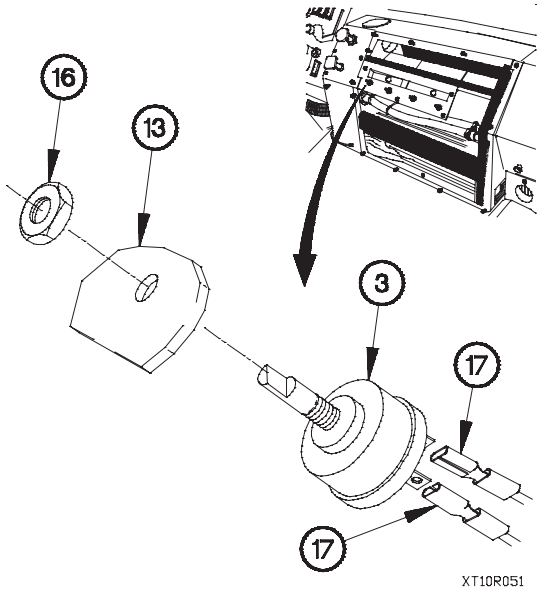
(7) Remove 12 screws (14) and cover (15) from personnel heater (13).

(8) Remove nut (16) and heater fan control switch (3) from personnel heater (13).

NOTE

Tag connectors and connection points prior to disconnecting.

(9) Disconnect two connectors 1601 (17) from heater fan control switch (3).

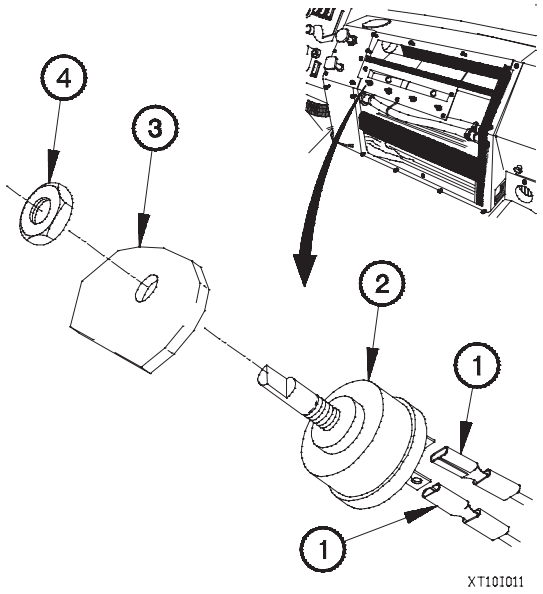


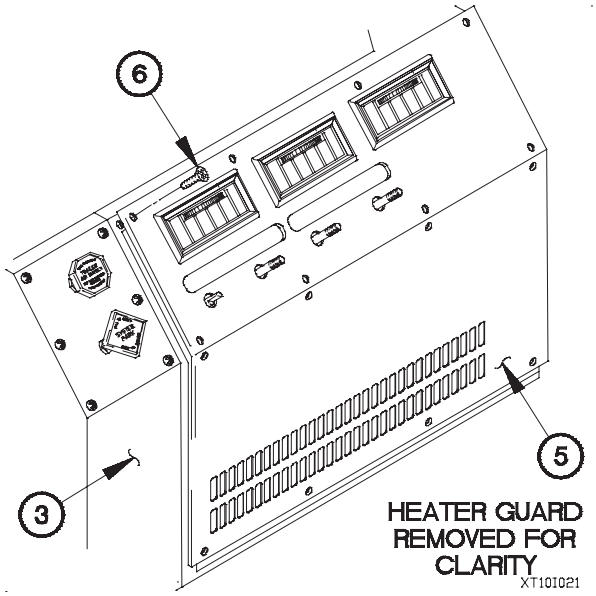
18-10. HEATER FAN CONTROL SWITCH REPLACEMENT (CONT)

b. Installation.

(1) Connect two connectors 1601 (1) to heater fan control switch (2).

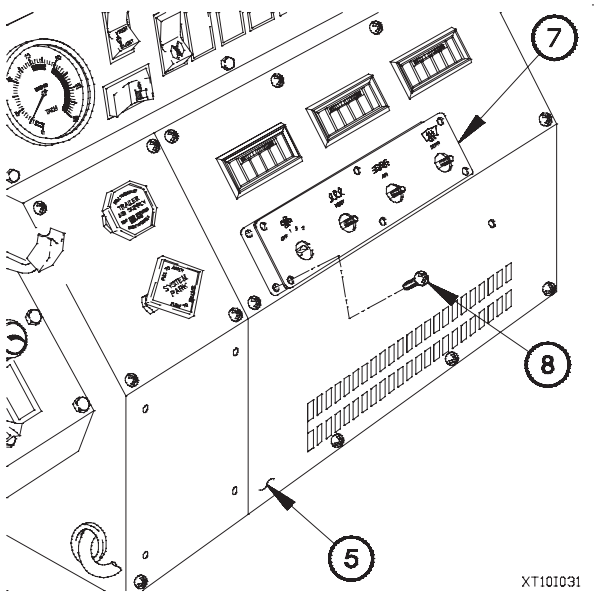
(2) Install heater fan control switch (2) in personnel heater (3) with nut (4).





(3) Install cover (5) on personnel heater (3) with 12 screws (6).

(4) Install control panel (7) on cover (5) with 12 screws (8).



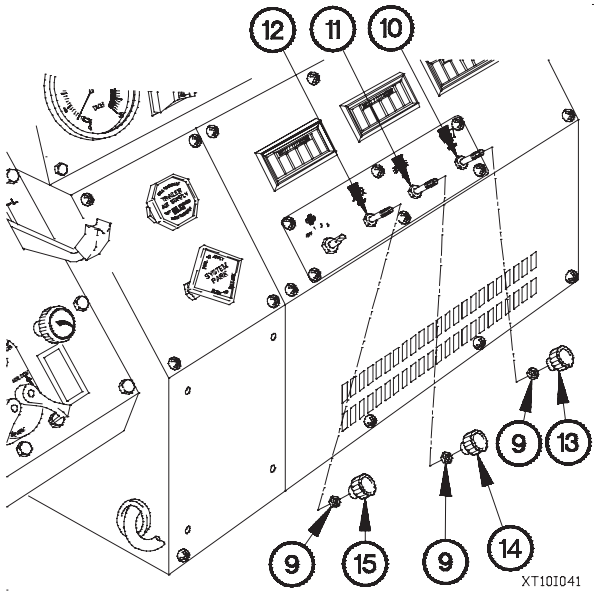
NOTE

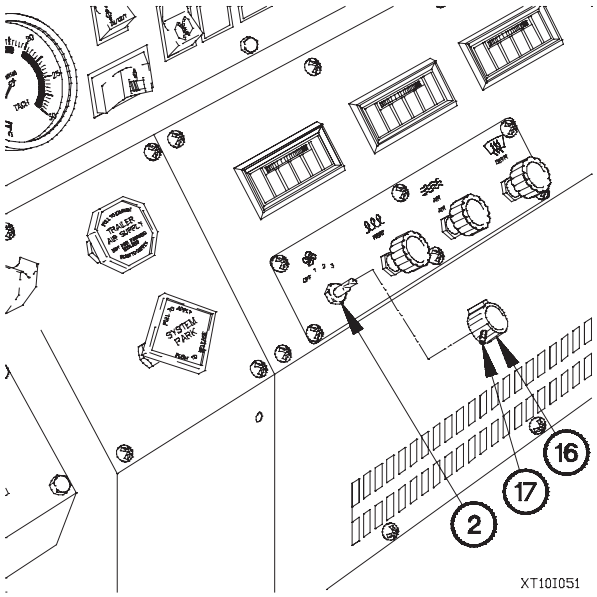
Perform steps (5) and (7) on vehicle serial numbers 0001 through 3696 equipped with original personnel heaters.

(5) Position three self-locking nuts (9) on DEFR control cable (10), VENT control cable (11), and HEAT control cable (12).

(6) Install knobs (13, 14, and 15) on DEFR control cable (10), VENT control cable (11), and HEAT control cable (12).

(7) Tighten three self-locking nuts (9) on knobs (13, 14, and 15).





(8) Position heater fan control switch knob (16) on heater fan control switch (2).

(9) Tighten two setscrews (17) in heater fan control switch knob (16).

c. Follow-On Maintenance.

(1) Install CTIS ECU (para 12-6).

(2) Connect batteries (para 7-57).

(3) Check heater fan operation (TM 9-2320-366-10-1).

End of Task.

18-11. PERSONNEL HEATER CONTROL GUARD REPLACEMENT

This task covers:

a. Removal

b. Installation

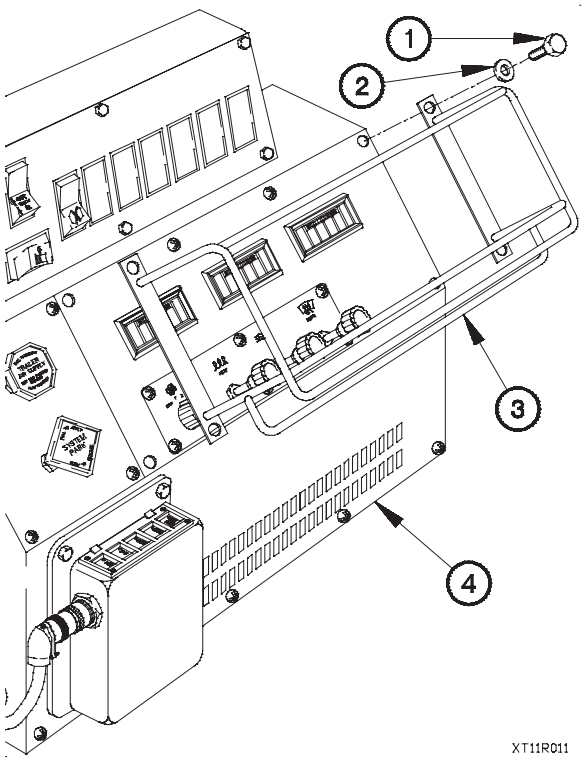
INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-366-10-1).

Tools and Special Tools
Tool Kit, Genl Mech (Item 79, Appendix C)
Wrench, Torque 0-200 lb-in. (Item 59, Appendix C)
Socket Set, Socket Wrench (Item 34, Appendix C)

a. Removal.

Remove four screws (1), washers (2), and personnel heater control guard (3) from personnel heater (4).



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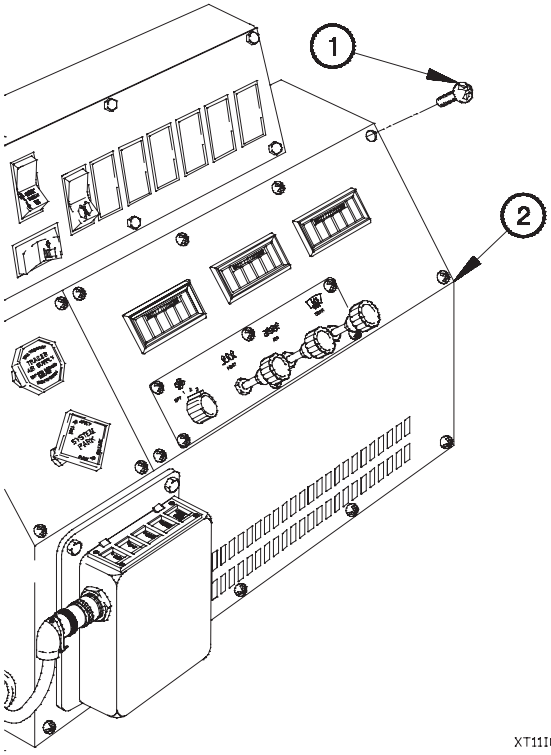
b. Installation



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NOTE

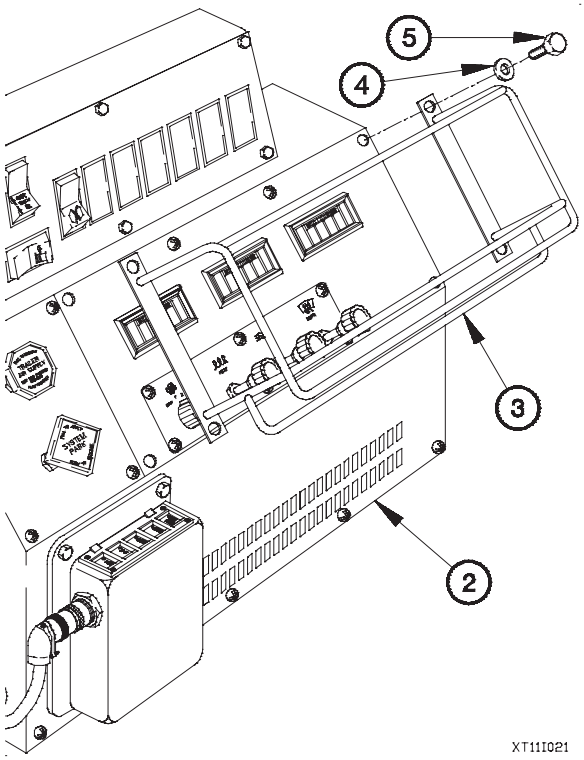
Perform step (1) on vehicles not equipped with personnel heater guard.

(1) Remove four screws (1) from personnel heater (2). Discard screws.

(2) Position personnel heater control guard (3) on personnel heater (2) with four washers (4) and screws (5).

(3) Tighten screws (5) to 39-59 lb-in. (5-7 N·m).

End of Task.



18-12. COLD WEATHER RADIATOR COVER INSTALLATION/REMOVAL

This task covers:

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

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-366-10-1).
Cab raised (TM 9-2320-366-10-1).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Wrench, Torque, 0-175 lb-ft (Item 58, Appendix C)

a. Installation.

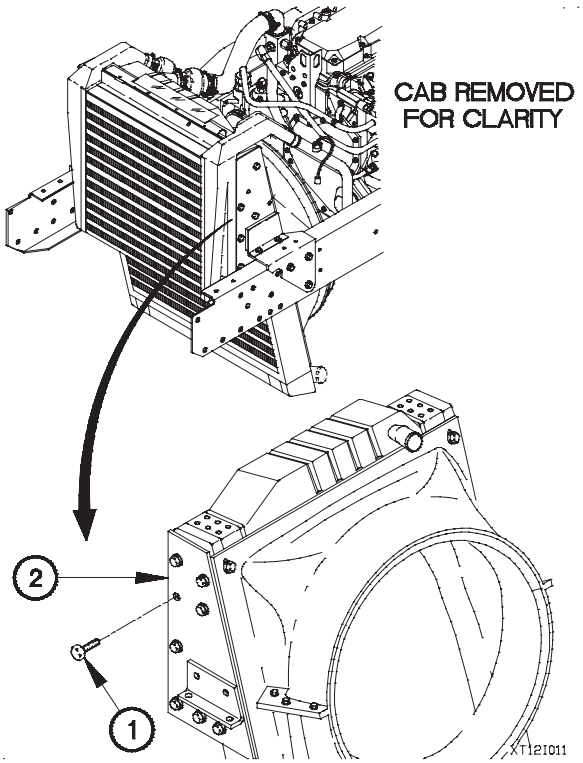
CAUTION

Install cold weather radiator cover when outside temperature is below 40°F (4°C). Cold weather radiator cover must remain on vehicle in outside temperatures of -26°F to -50°F (-32°C to -46°C). Failure to comply may result in damage to equipment.

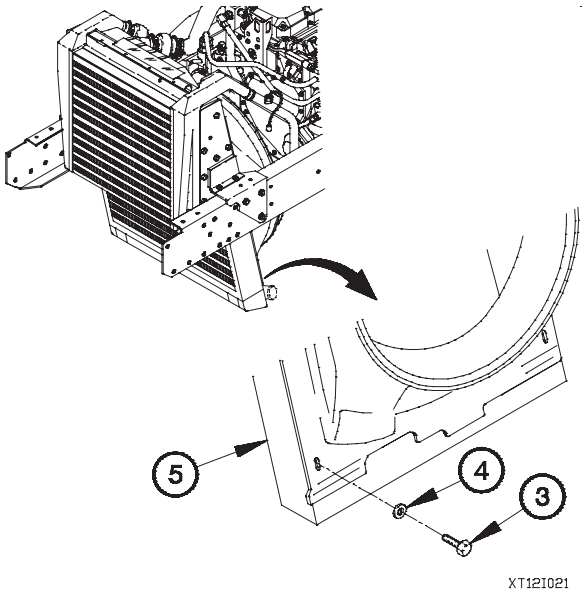
NOTE

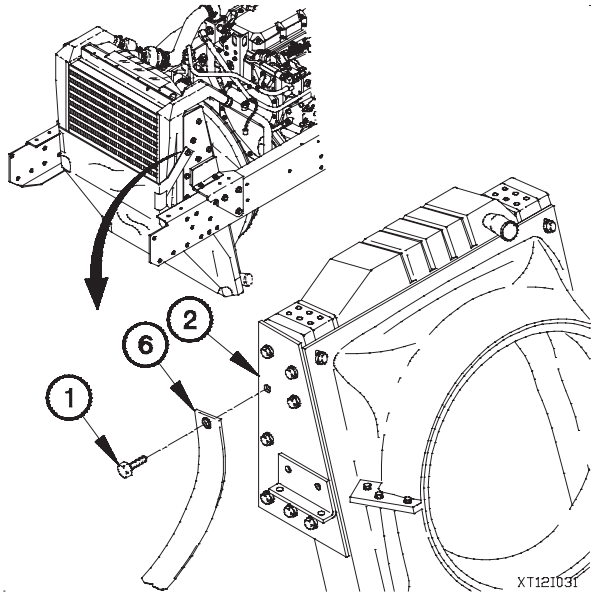
Left and right sides of cold weather radiator cover are installed the same way. Left side shown.

(1) Remove two screws (1) from charge air cooler (2).



(2) Remove two screws (3) and washers (4) from bottom corners of radiator (5).





(3) Position cold weather radiator cover (6) over charge air cooler (2) with two screws (1).

(4) Tighten two screws (1) to 21-26 lb-ft (28-35 N·m).

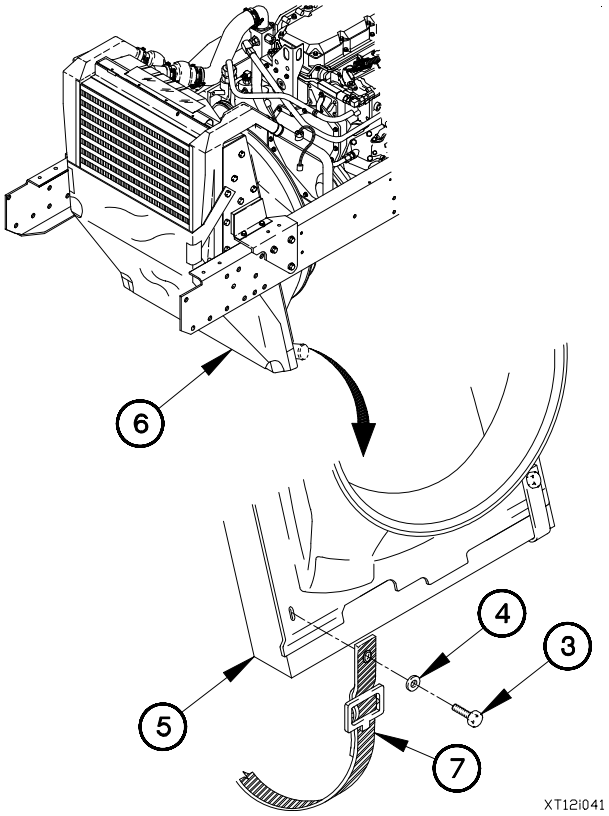
18-12. COLD WEATHER RADIATOR COVER INSTALLATION/REMOVAL (CONT)

(5) Position cold weather radiator cover (6) over radiator (5) with two straps (7), washers (4), and screws (3).

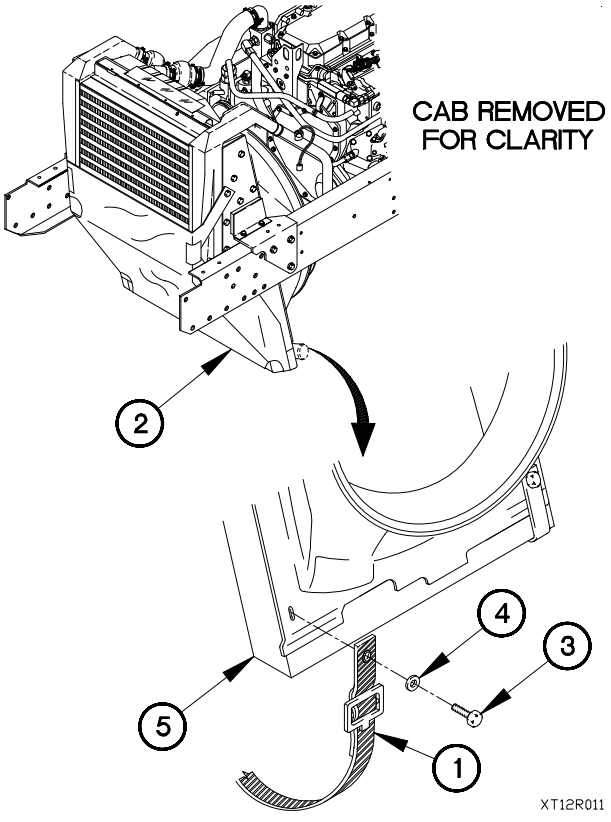
(6) Tighten two screws (3) to 21-26 lb-ft (28-35 N m).

(7) Tighten two straps (7) until all slack is removed from cold weather radiator cover (6).

(8) Perform steps (1) through (7) on right side of cold weather radiator cover.



b. Removal.



CAUTION

Cold weather radiator cover should be removed when outside temperature is above 40 F (4 C). Cold weather radiator cover may be removed any time outside temperature is above 32 F (0 C), and must be removed before outside temperature reaches 70 F (21 C). Failure to comply may result in damage to equipment.

NOTE

Left and right sides of cold weather radiator cover are removed the same way. Left side shown.

(1) Loosen two straps (1) on cold weather radiator cover (2).

(2) Remove two screws (3), washers (4), and cold weather radiator cover (2) from bottom corners of radiator (5).

(3) Position two washers (4) and screws (3) in radiator (5).

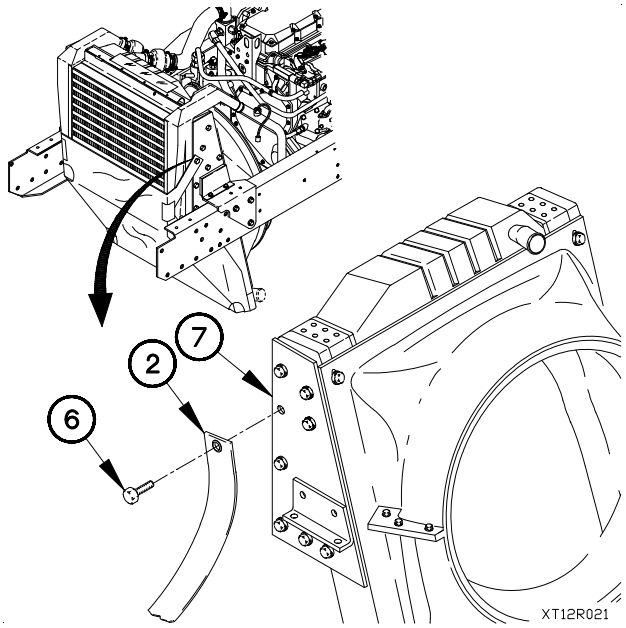
(4) Tighten two screws (3) to 21-26 lb-ft (28-35 N m).

(5) Remove two screws (6) and cold weather radiator cover (2) from charge air cooler (7).

(6) Position two screws (6) in charge air cooler (7).

(7) Tighten two screws (6) to 21-26 lb-ft (28-35 N m).

(8) Perform steps (1) through (7) on right side of cold weather radiator cover.



c. Follow-On Maintenance.

Lower cab (TM 9-2320-366-10-1).

End of Task.

18-13. RH CONVEX MIRROR REPLACEMENT

This task covers:

a. Removal

b. Installation

INITIAL SETUP

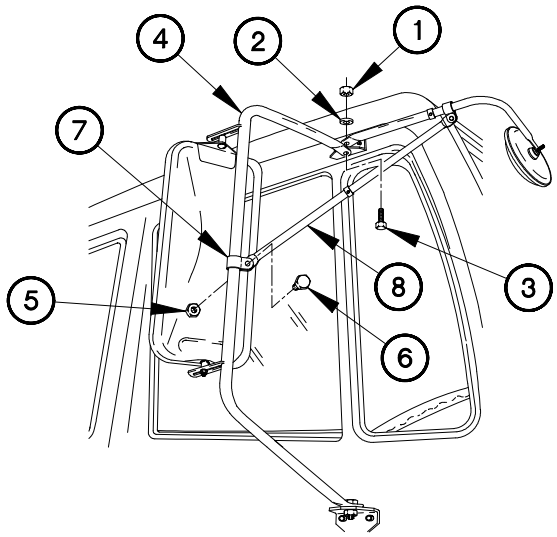
Equipment Conditions
Engine shut down (TM 9-2320-366-10-1)

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) Remove nut (1), washer (2), and screw (3) from mirror arm (4).

(2) Remove nut (5), screw (6), and clip (7) from bracket arm (8).



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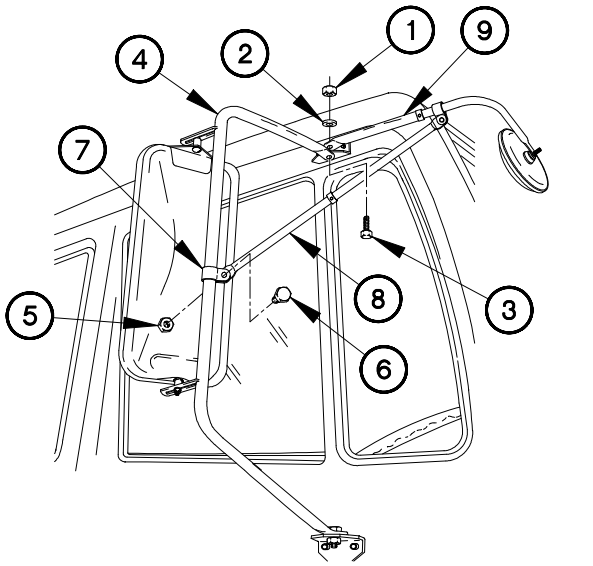
18-13. RH CONVEX MIRROR REPLACEMENT (CONT)

b. Installation

(1) Position bracket arm (9) on mirror arm (4) with screws (3), washers (2), and nut (1).

(2) Position bracket arm (8) on mirror arm (4) with clip (7), screws (6), and nut (5).



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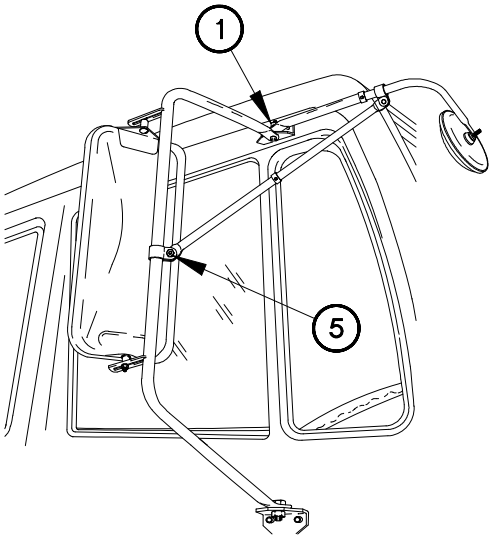

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(3) Tighten nut (1) to 156-204 lb-in (17-23 N•m).

(4) Tighten nut (5) to 84-108 lb-in (9-12 N•m).

End of Task.

CHAPTER 19
HYDRAULIC SYSTEM MAINTENANCE

RESTRICTED MAINTENANCE NOTICE

Units not authorized SC 4910-95-CL-A72 (SHOP EQUIPMENT, COMMON NO. 2) in their T.O.E. may be unable to perform some of the maintenance tasks described in this chapter. If the required tools are not authorized, the equipment must be submitted to DS Maintenance for repair.

Section I. INTRODUCTION

19-1. INTRODUCTION

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

Section II. MAINTENANCE PROCEDURES

19-2. BACK-UP HYDRAULIC PUMP REPLACEMENT

This task covers:

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

INITIAL SETUP

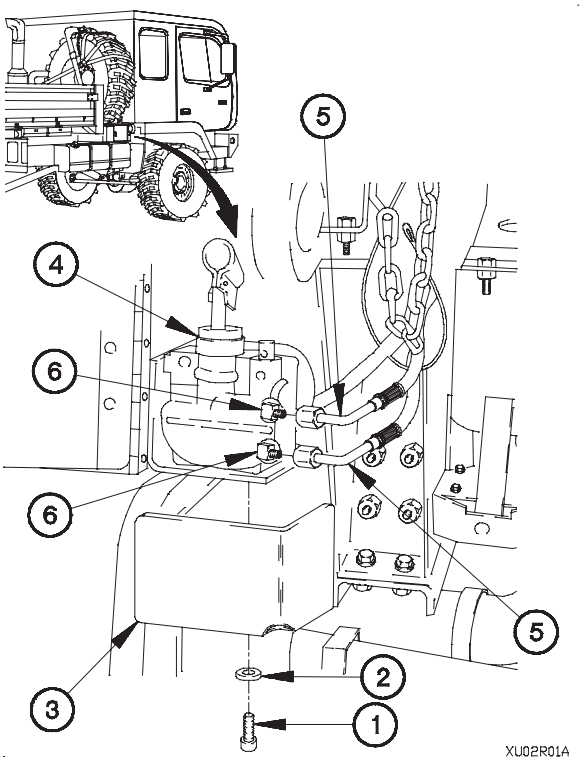
Equipment Conditions
Engine shut down (TM 9-2320-366-10-1).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Wrench, Torque, 0-175 lb-ft (Item 58, Appendix C)
Gloves, Rubber (Item 13, Appendix C)
Goggles, Industrial (Item 15, Appendix C)

Materials/Parts
Dispenser, Pressure Sensitive Adhesive Tape (Item 20, Appendix D)
Cap and Plug Set (Item 14, Appendix D)
Hydraulic Fluid A (Item 25, Appendix D)
Packing, Preformed (2) (Item 186, Appendix G)

a. Removal.

(1) Remove two screws (1), washers (2), and cover (3) from back-up hydraulic pump (4).



WARNING

Hydraulic fluid (MIL-L-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.

CAUTION

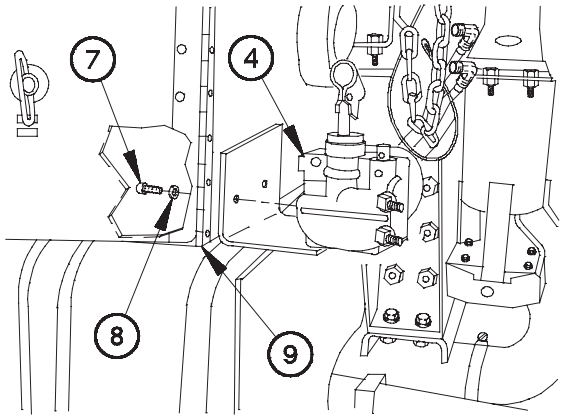
Cap or plug hydraulic hoses and connection points to prevent contamination of hydraulic system. Failure to comply may result in damage to equipment.

NOTE

Tag hoses and connection points prior to disconnecting.

(2) Disconnect two hydraulic hoses (5) from 90-degree fittings (6).

(3) Remove two screws (7), washers (8), and back-up hydraulic pump (4) from tool box (9).



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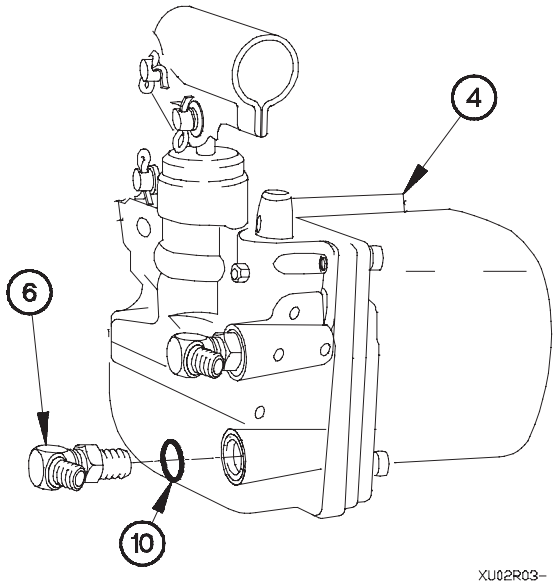

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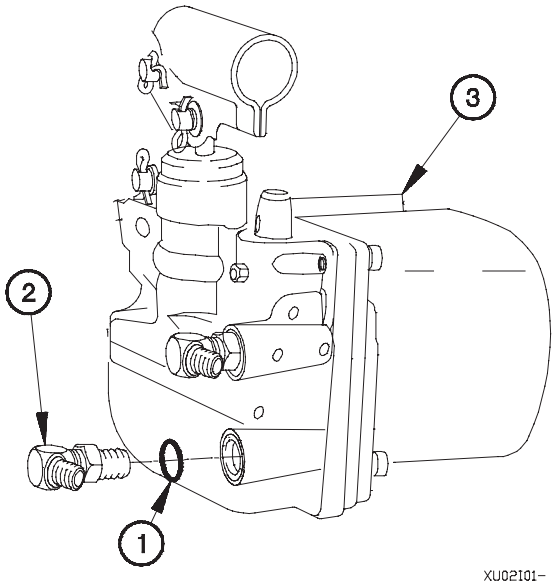
(4) Remove two 90-degree fittings (6) from back-up hydraulic pump (4).

(5) Remove two preformed packings (10) from 90-degree fittings (6). Discard preformed packings.

b. Installation.

(1) Install two preformed packings (1) on 90-degree fittings (2).

(2) Install two 90-degree fittings (2) in back-up hydraulic pump (3).



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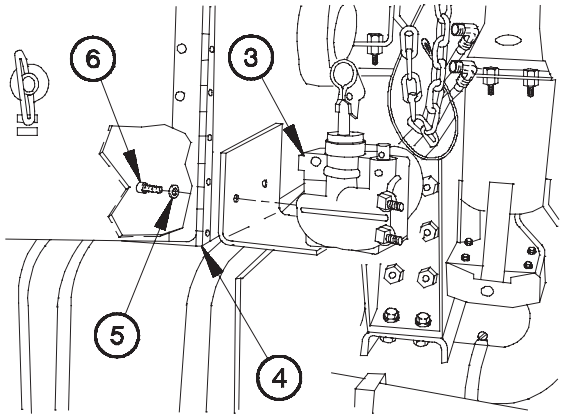
19-2. BACK-UP HYDRAULIC PUMP REPLACEMENT (CONT)

(3) Position back-up hydraulic pump (3) on tool box (4) with two washers (5) and screws (6).



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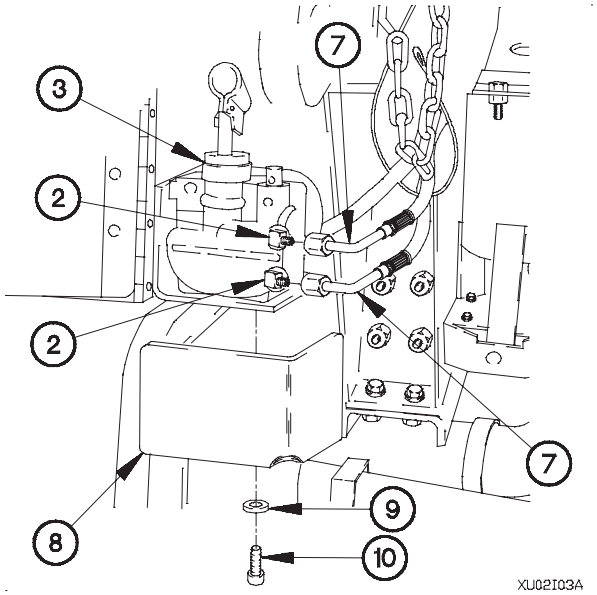

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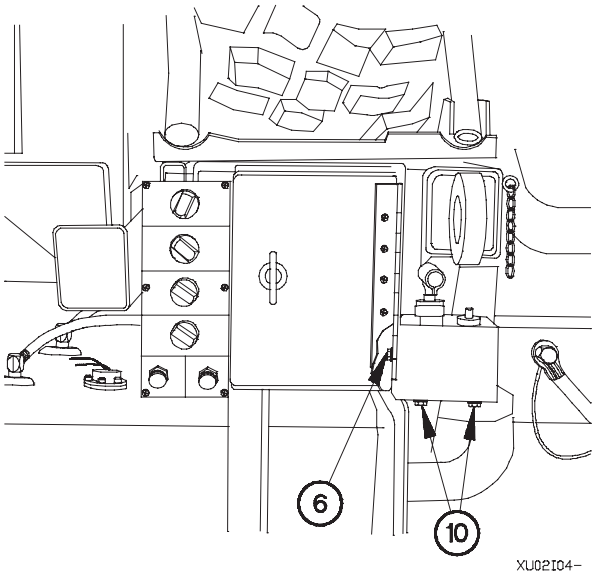
(4) Install two hydraulic hoses (7) on 90-degree fittings (2).

(5) Position cover (8) on back-up hydraulic pump (3) with two washers (9) and screws (10).



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(6) Tighten two screws (6 and 10) to 18-28 lb-ft (24-38 N·m).

c. Follow-On Maintenance.

Fill air transportability hydraulic system (Appendix H).

End of Task.

19-3. AIR/HYDRAULIC POWER UNIT AND BRACKET REPLACEMENT/REPAIR

This task covers:

a. Air/Hydraulic Power Unit Removal
b. Air/Hydraulic Power Unit Disassembly
c. Air/Hydraulic Power Unit Cleaning/Inspection
d. Air/Hydraulic Power Unit Assembly
e. Air/Hydraulic Power Unit Installation
f. Bracket Removal
g. Bracket Installation
h. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-366-10-1).
Spare tire lowered (TM 9-2320-366-10-2).
M13 decontamination unit removed, if equipped (TM 3-4230-214-12&P).
Air springs deflated (TM 9-2320-366-10-1).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Wrench, Torque, 0-175 lb-ft (Item 58, Appendix C)
Wrench, Torque, 0-200 lb-in. (Item 59, Appendix C)
Wrench Set, Socket (Item 51, Appendix C)
Pan, Drain (Item 24, Appendix C)
Goggles, Industrial (Item 15, Appendix C)
Gloves, Rubber (Item 13, Appendix C)

Materials/Parts
Packing, Preformed (2) (Item 186, Appendix G)
Gasket (Item 31, Appendix G)
Packing, Preformed (2) (Item 189.1, Appendix G)

Materials/Parts (Cont)
Packing, Preformed (Item 207.1, Appendix G)
Packing, Preformed (Item 197.2, Appendix G)
Gasket (Item 27.1, Appendix G)
Washer, Flat (Item 280.1, Appendix G)
Lockwasher (3) (Item 105.2, Appendix G)
Packing, Preformed (Item 197.1, Appendix G)
Packing, Preformed (2) (Item 192.2, Appendix G)
Retainer, Packing (2) (Item 241.2, Appendix G)
Retainer, Packing (2) (Item 241.3, Appendix G)
Rags, Wiping (Item 50, Appendix D)
Dispenser, Pressure Sensitive Adhesive Tape (Item 20, Appendix D)
Cap and Plug Set (Item 14, Appendix D)
Antiseize Compound (Item 58, Appendix D)
Hydraulic Fluid A (Item 25, Appendix D)
Washer, Spring (4) (Item 291, Appendix G)
Nut, Self-Locking (4) (Item 168, Appendix G)

References
TM 3-4230-214-12 & P

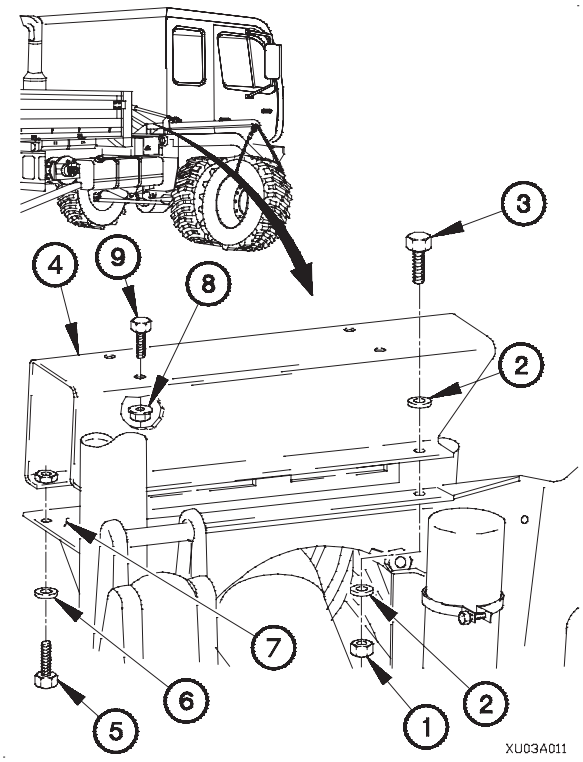
19-3. AIR/HYDRAULIC POWER UNIT AND BRACKET REPLACEMENT/REPAIR (CONT)

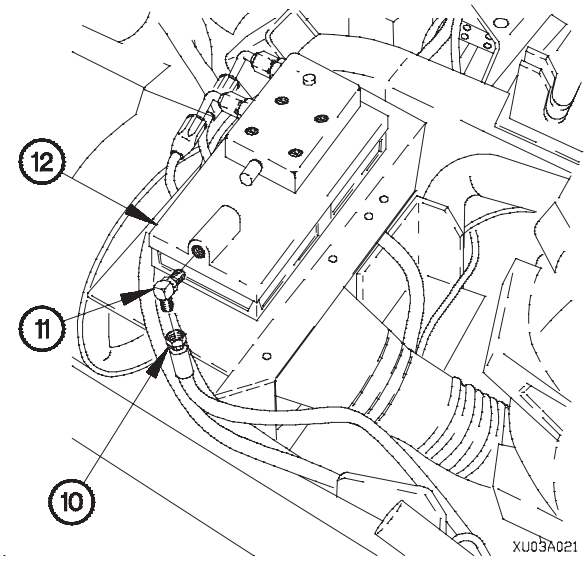
a. Air/Hydraulic Power Unit Removal.

(1) Remove two nuts (1), four washers (2), and two screws (3) from decontamination unit mounting bracket (4).

(2) Remove two screws (5), washers (6), and decontamination unit mounting bracket (4) from air/hydraulic unit mounting bracket (7).

(3) Remove four self-locking nuts (8) and screws (9) from decontamination unit mounting bracket (4). Discard self-locking nuts.





(4) Disconnect air hose (10) from fitting (11).

(5) Remove fitting (11) from air/hydraulic power unit (12).

WARNING

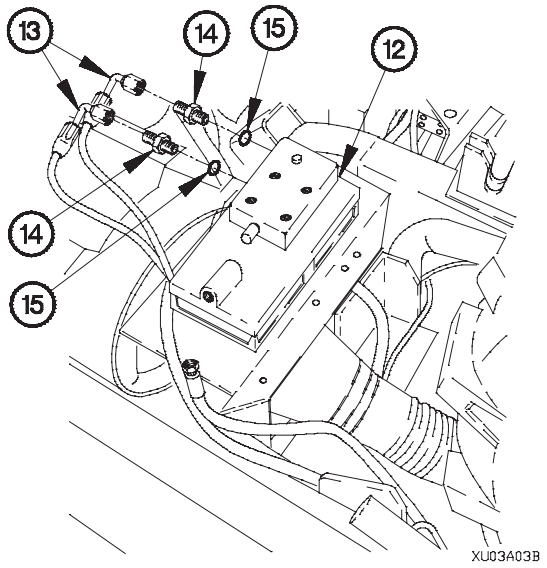
Hydraulic fluid (MIL-H-5606) is TOXIC. Wear protective goggles and gloves; use only in well ventilated area; avoid contact with skin, eyes, and clothes. Skin and clothing that come in contact with hydraulic oil should be washed immediately. Saturated clothing should be removed immediately. Failure to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

CAUTION

Cap or plug hydraulic hoses and connection points to prevent contamination to hydraulic system. Failure to comply may result in damage to equipment.

NOTE

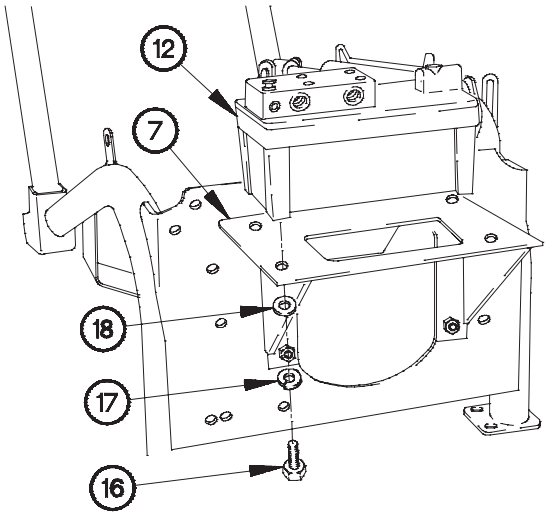
Tag hoses and connection points prior to disconnecting.



(6) Disconnect two hydraulic hoses (13) from fittings (14).

(7) Remove two fittings (14) from air/hydraulic power unit (12).

(8) Remove two preformed packings (15) from fittings (14). Discard preformed packings.



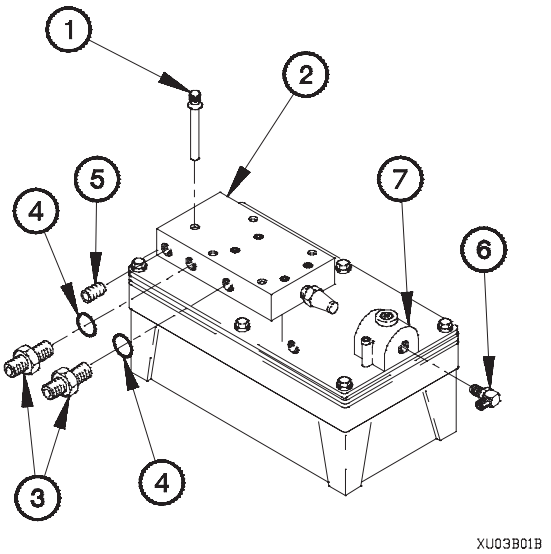
(9) Remove four screws (16), spring washers (17), washers (18) and air/hydraulic power unit (12) from air/hydraulic power unit mounting bracket (7). Discard spring washers.

19-3. AIR/HYDRAULIC POWER UNIT AND BRACKET REPLACEMENT/REPAIR (CONT)

b. Air/Hydraulic Power Unit Disassembly.

WARNING

Hydraulic fluid (MIL-L-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. Failure to comply may result in injury to personnel.



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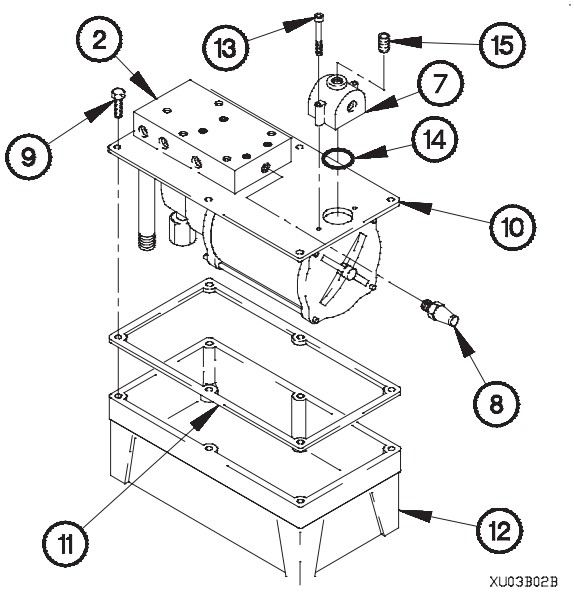
(1) Remove dipstick (1) from manifold body (2).

(2) Remove two fittings (3) from manifold body (2).

(3) Remove two preformed packings (4) from fittings (3). Discard preformed packings.

(4) Remove pressure plug (5) from manifold body (2).

(5) Remove 90-degree fitting (6) from air intake body (7).



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(6) Remove muffler (8) from manifold body (2).

(7) Remove six screws (9), cover (10), and gasket (11) from reservoir (12). Discard gasket.

(8) Drain oil from reservoir (12).

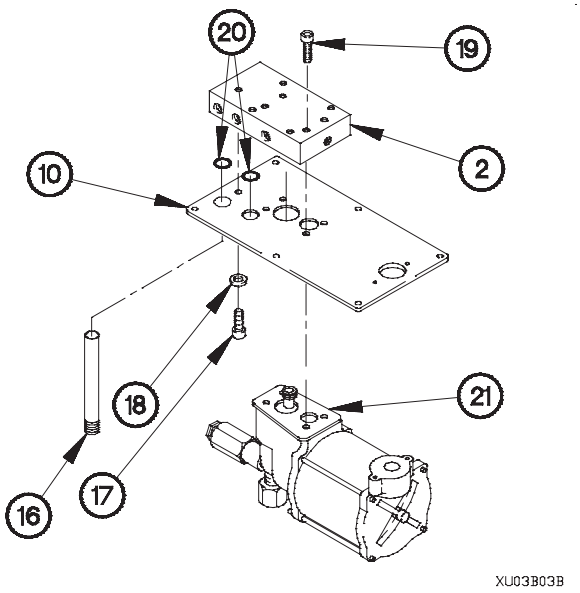
(9) Remove two screws (13), air intake body (7), and preformed packing (14) from cover (10). Discard preformed packing.

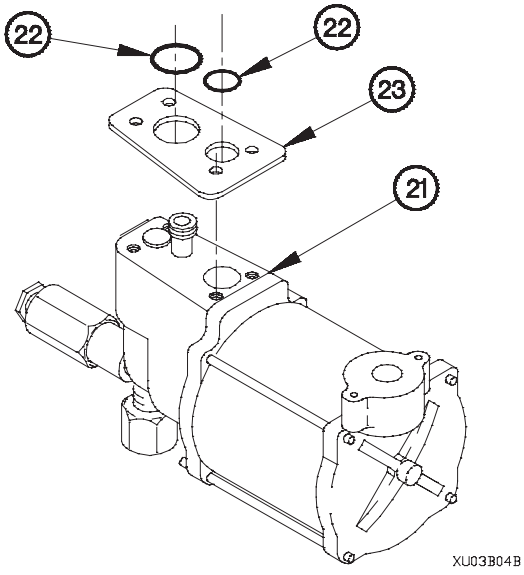
(10) Remove plug (15) from air intake body (7).

(11) Remove pipe (16) from cover (10).

(12) Remove screw (17) and washer (18) from cover (10).

(13) Remove four screws (19), manifold body (2), two preformed packings (20), and cover (10) from pump (21). Discard preformed packings.





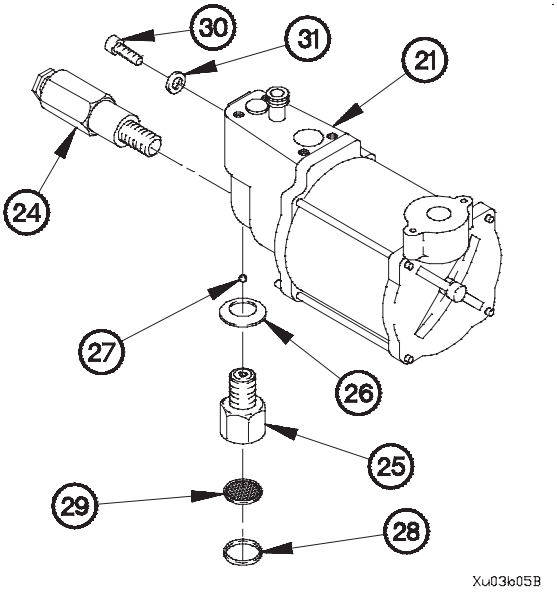
(14) Remove two preformed packings (22) and gasket (23) from pump (21). Discard preformed packings and gasket.

(15) Remove relief valve (24) from pump (21).

(16) Remove filter adapter (25), washer (26), and bearing (27) from pump (21).

(17) Remove retaining ring (28) and filter (29) from filter adapter (25).

(18) Remove screw (30) and washer (31) from pump (21).



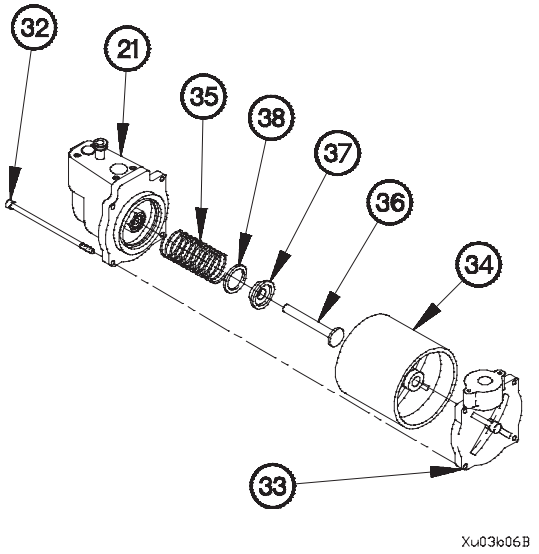
19-3. AIR/HYDRAULIC POWER UNIT AND BRACKET REPLACEMENT/REPAIR (CONT)

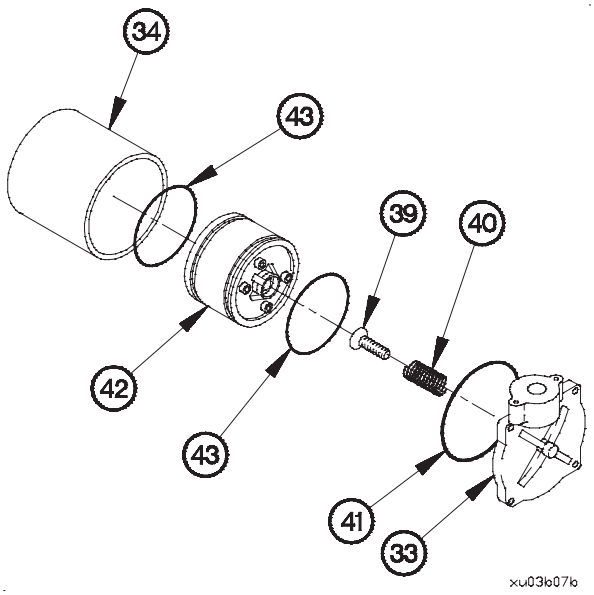
WARNING

Use care when removing screws. Pump is under spring tension. Failure to comply may result in injury to personnel.

(19) Remove four screws (32), cover (33), air cylinder (34), and spring (35) from pump (21).

(20) Remove guide (36), bumper (37), and washer (38) from spring (35).





(21) Remove screw (39), spring (40), and preformed packing (41) from cover (33). Discard preformed packing.

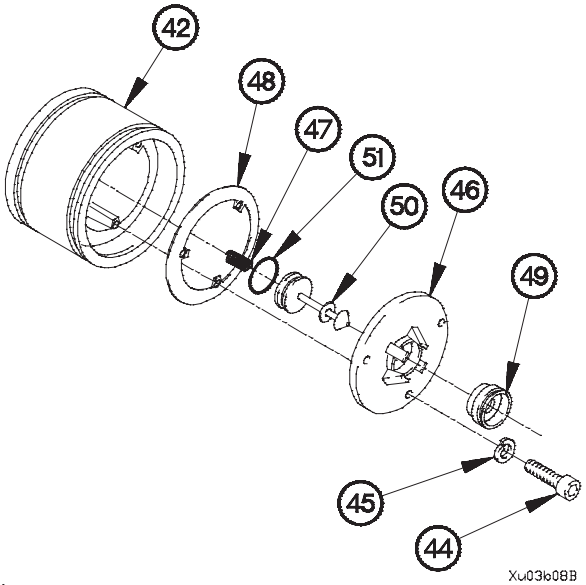
(22) Remove piston (42) from air cylinder (34).

(23) Remove two preformed packings (43) from piston (42). Discard preformed packings.

(24) Remove three screws (44), lockwasher (45), piston end plate (46), spring (47), and gasket (48) from piston (42). Discard lockwashers and gasket.

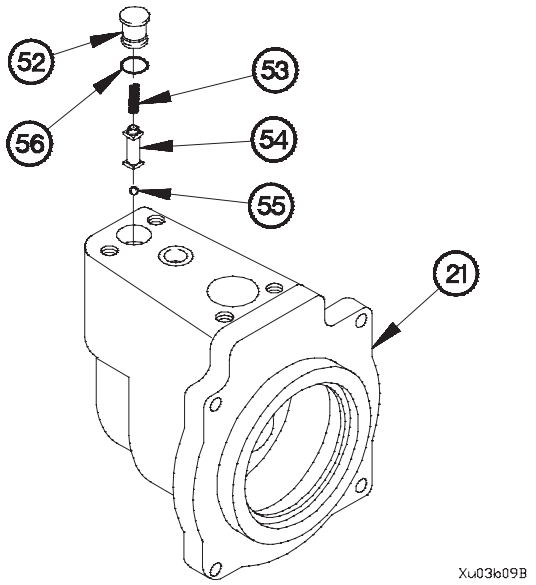
(25) Remove retainer (49) and piston poppet (50) from piston end plate (46).

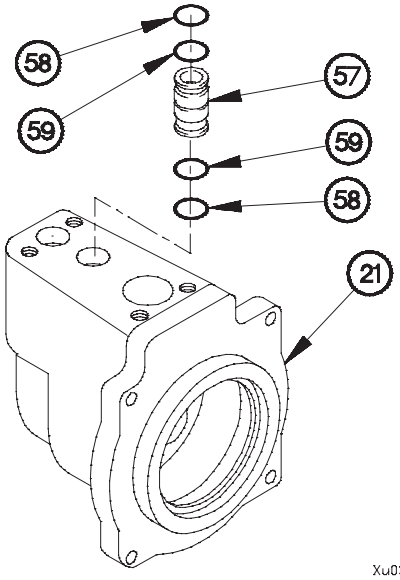
(26) Remove preformed packing (51) from piston poppet (50). Discard preformed packing.



(27) Remove check valve retainer (52), spring (53), guide (54), and bearing (55) from pump (21).

(28) Remove preformed packing (56) from check valve retainer (52). Discard preformed packing.





(29) Remove bushing (57) from pump (21).

(30) Remove two preformed packings (58) and backup rings (59) from bushing (57). Discard preformed packings and backup rings.

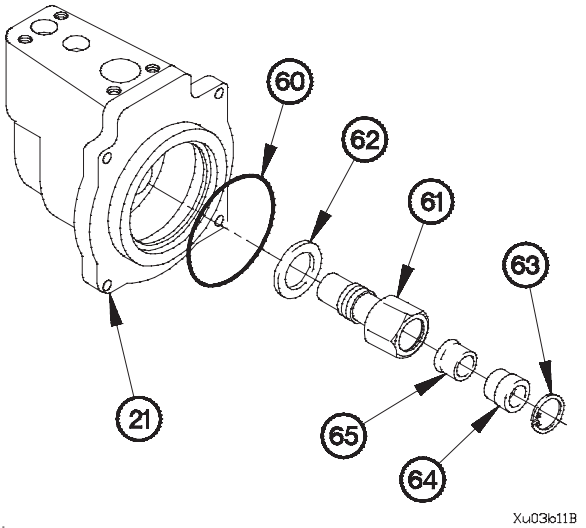
(31) Remove preformed packing (60) from pump (21). Discard preformed packing.

(32) Remove cylinder (61) and washer (62) from pump (21).

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.

(33) Remove retaining ring (63), retainer (64), and preformed packing (65) from cylinder (61). Discard preformed packing.



19-3. AIR/HYDRAULIC POWER UNIT AND BRACKET REPLACEMENT/REPAIR (CONT)

c. Air/Hydraulic Power Unit 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 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 serious injury or death to personnel.**

(1) Clean all metal parts and filter thoroughly with dry cleaning solvent.

NOTE

Replace any part that fails visual inspection.

(2) Inspect all parts for visible cracks or damage.

(3) Inspect filter for clogged or punctured screen.

d. Air/Hydraulic Power Unit Assembly.

WARNING

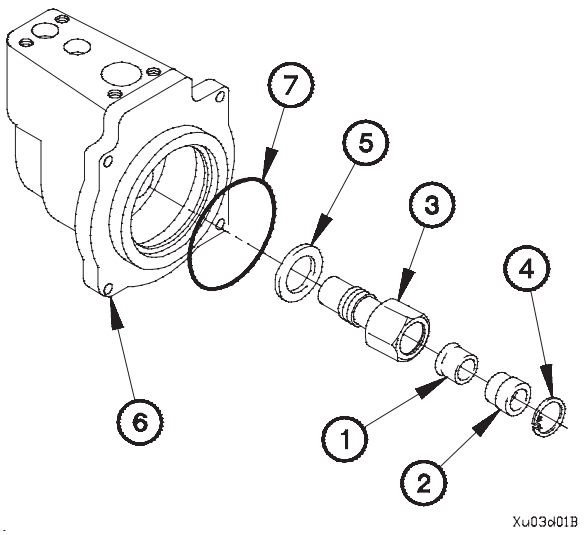
Use care when installing retaining rings. Retaining rings are under tension and can act as projectiles when released. Failure to comply may result in injury to personnel.

(1) Install performed packing (1) and retainer (2) in cylinder (3) with retaining ring (4).

(2) Position cylinder (3) and washer (5) in pump (6).

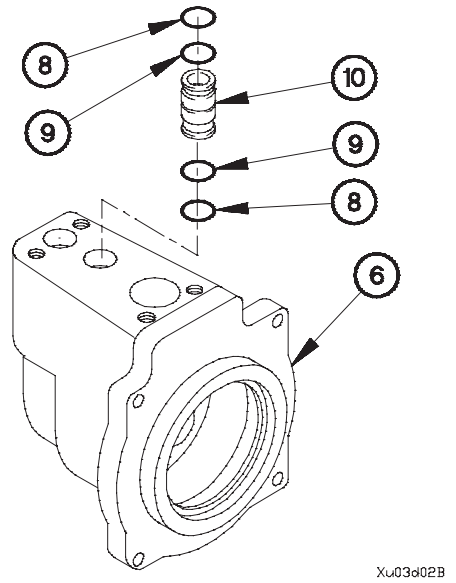
(3) Tighten cylinder (3) to 90-100 lb-ft (122-136 N·m).

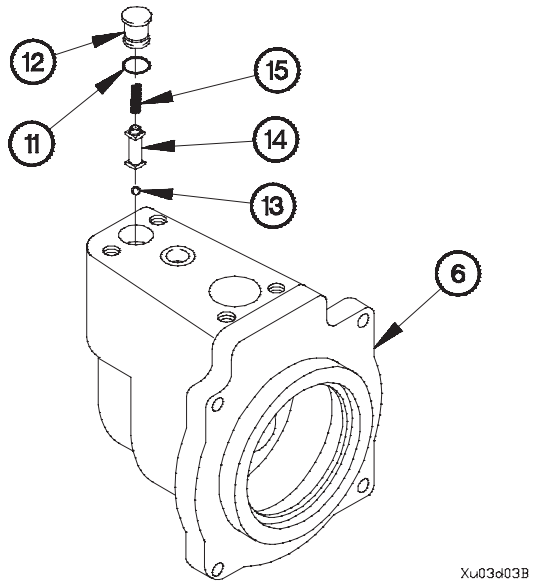
(4) Position preformed packing (7) on pump (6).



(5) Install two backup rings (8) and preformed packings (9) on bushing (10).

(6) Install bushing (10) in pump (6).





(7) Install preformed packing (11) on check valve retainer (12).

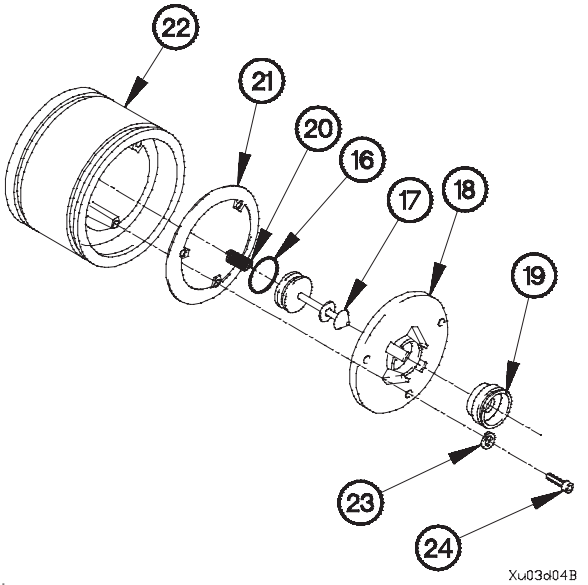
(8) Install ball (13), guide (14), and spring (15) in pump (6) with check valve retainer (12).

(9) Install preformed packing (16) on piston poppet (17).

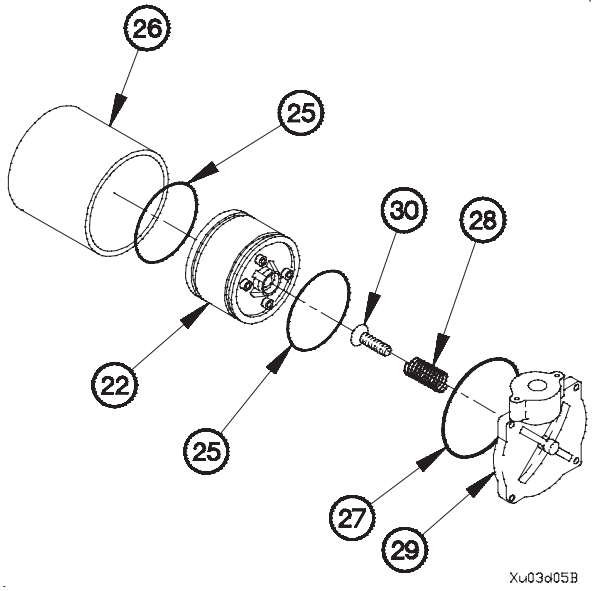
(10) Install piston poppet (17) in piston end plate (18) with retainer (19).

(11) Position spring (20), gasket (21), and piston end plate (18) in piston (22) with three lockwashers (23) and screws (24).

(12) Tighten three screws (24) to 50-55 lb-in. (6-7 N·m).



19-3. AIR/HYDRAULIC POWER UNIT AND BRACKET REPLACEMENT/REPAIR (CONT)

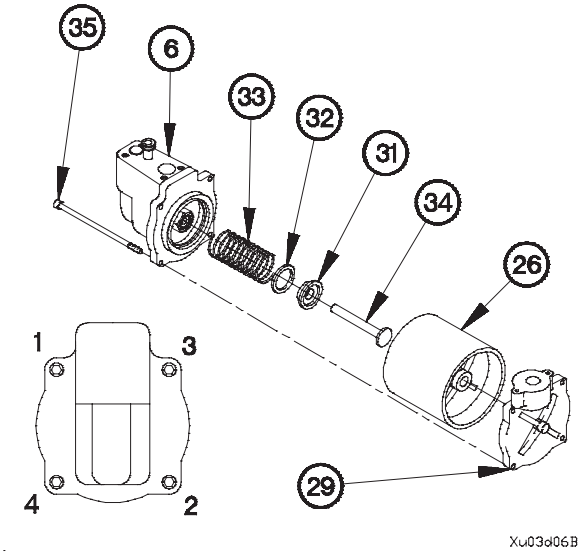


(13) Install two preformed packings (25) on piston (22).

(14) Position piston (22) in air cylinder (26).

(15) Position preformed packing (27) and spring (28) in cover (29) with screw (30).

(16) Tighten screw (30) to 12-18 lb-in. (1-2 N·m).



WARNING

Use care when installing screws, pump is under tension. Failure to comply may result in injury to personnel.

NOTE

Locate groove in air cylinder assembly on upper half of pump assembly with chambered end toward rear head.

(17) Install bumper (31), washer (32), and spring (33) on guide (34).

(18) Position spring (33), air cylinder (26), and cover (29) on pump (6) with four screws (35).

(19) Tighten four screws (35) to 85-95 lb-in. (10-11 N·m) in sequence shown.

(20) Position washer (36) and screw (37) in pump (6).

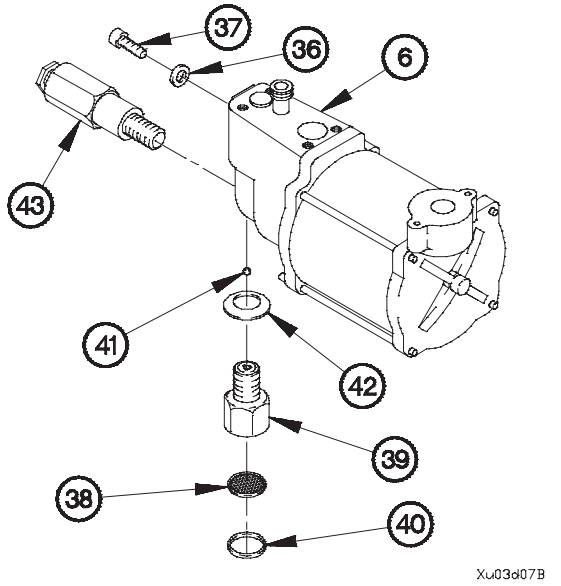
(21) Tighten screw (37) to 90-110 lb-in. (10-12 N·m).

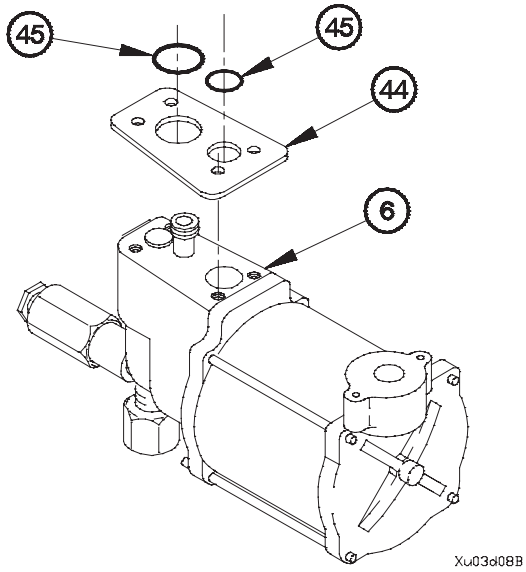
(22) Install filter (38) in filter adapter (39) with retaining ring (40).

(23) Position bearing (41), washer (42), and filter adapter (39) in pump (6).

(24) Tighten filter adapter (39) to 40-50 lb-ft (54-68 N·m).

(25) Install relief valve (43) in pump (6).





(26) Position gasket (44) and two preformed packings (45) on pump (6).

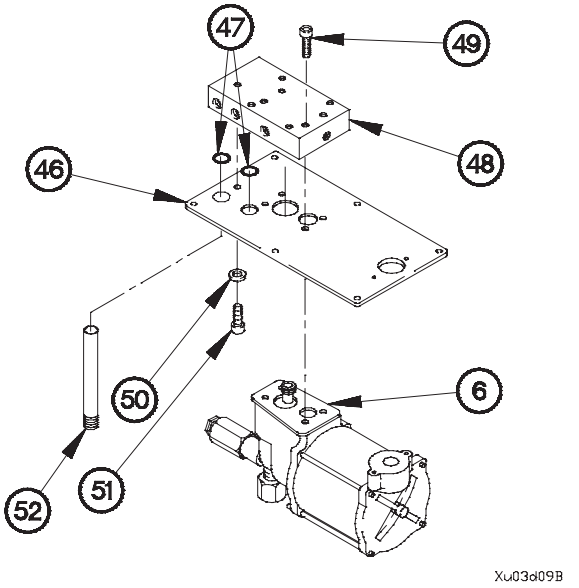
(27) Position cover (46), two preformed packings (47), and manifold body (48) on pump (6) with four screws (49).

(28) Tighten four screws (49) to 50-60 lb-in. (6-7 N·m).

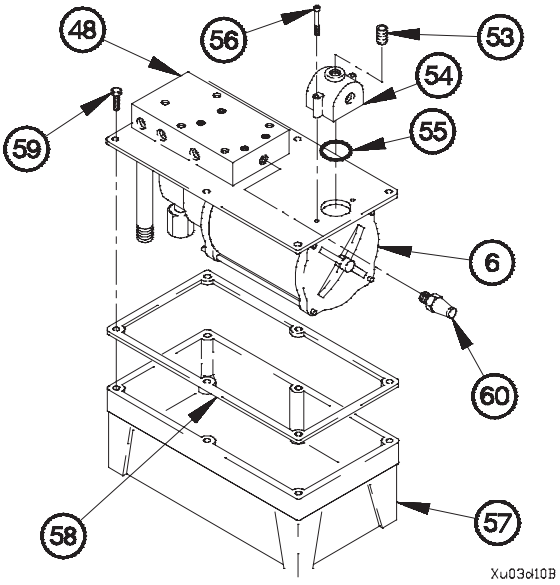
(29) Position washer (50) and screw (51) in cover (46).

(30) Tighten screw (51) to 90-110 lb-in. (10-12 N·m).

(31) Install pipe (52) in cover (46).



19-3. AIR/HYDRAULIC POWER UNIT AND BRACKET REPLACEMENT/REPAIR (CONT)



(32) Install plug (53) in air intake body (54).

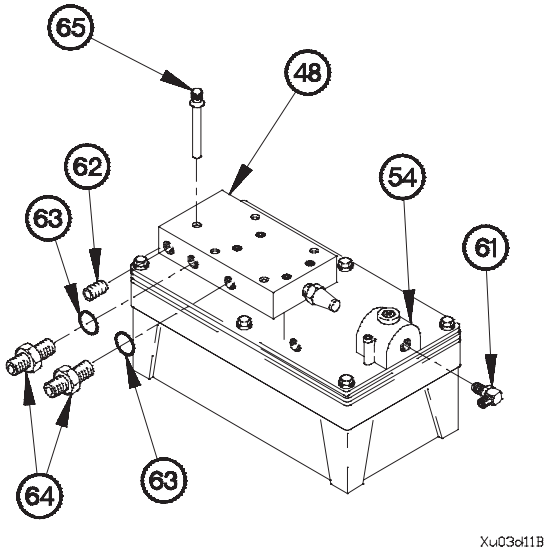
(33) Position preformed packing (55), and air intake body (54) on pump (6) with two screws (56).

(34) Tighten two screws (56) to 50-60 lb-in. (6-7 N·m).

(35) Fill reservoir (57) with oil.

(36) Install gasket (58) and pump (6) on reservoir (57) with six screws (59).

(37) Install muffler (60) on manifold body (48).



(38) Install 90-degree fitting (61) in air intake body (54).

(39) Install pressure plug (62) in manifold body (48).

(40) Install two preformed packings (63) on fittings (64).

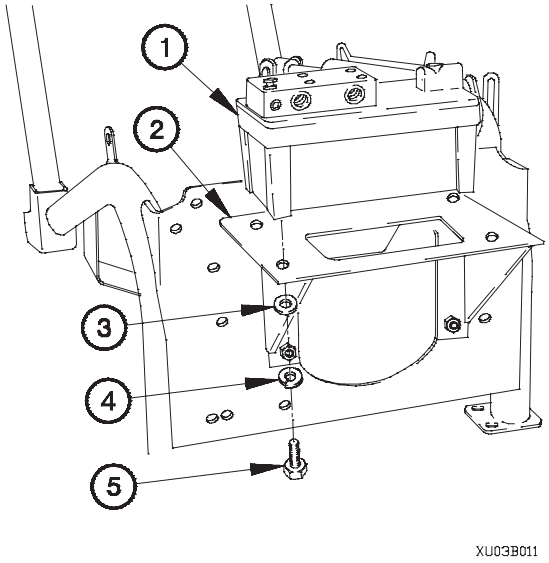
(41) Install two fittings (64) in manifold body (48).

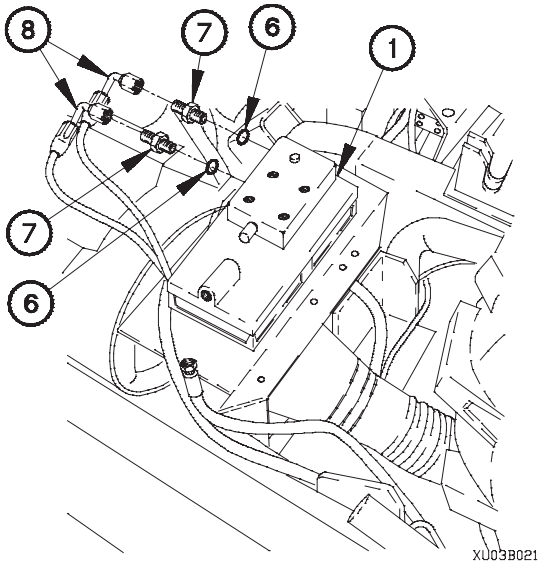
(42) Install dipstick (65) in manifold body (48).

e. Air/Hydraulic Power Unit Installation.

(1) Position air/hydraulic power unit (1) on air/hydraulic unit mounting bracket (2) with four washers (3), spring washers (4), and screws (5).

(2) Tighten four screws (5) to 18-22 lb-ft (24-30 N·m).





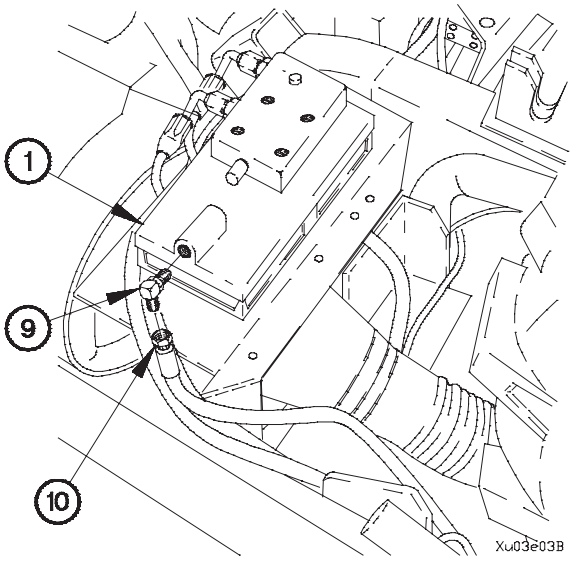
(3) Install two preformed packings (6) on fittings (7).

(4) Install two fittings (7) in air/hydraulic power unit (1).

(5) Connect two hydraulic hoses (8) to fittings (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.



(6) Apply antiseize compound to threads of fitting (9).

(7) Install fitting (9) in air/hydraulic power unit (1).

(8) Connect air hose (10) to fitting (9).

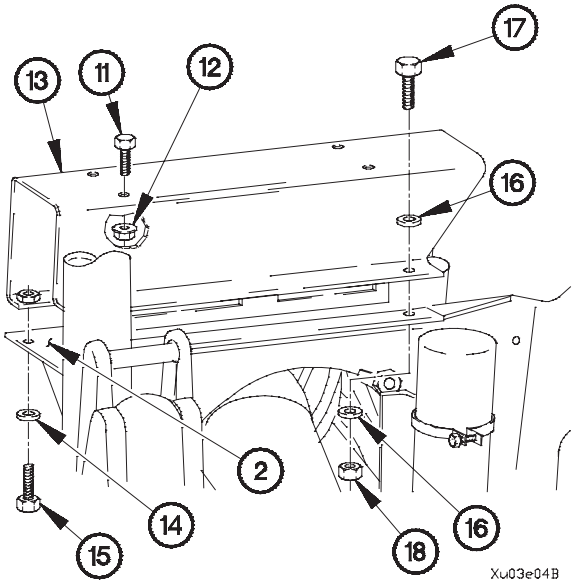
19-3. AIR/HYDRAULIC POWER UNIT AND BRACKET REPLACEMENT/REPAIR (CONT)

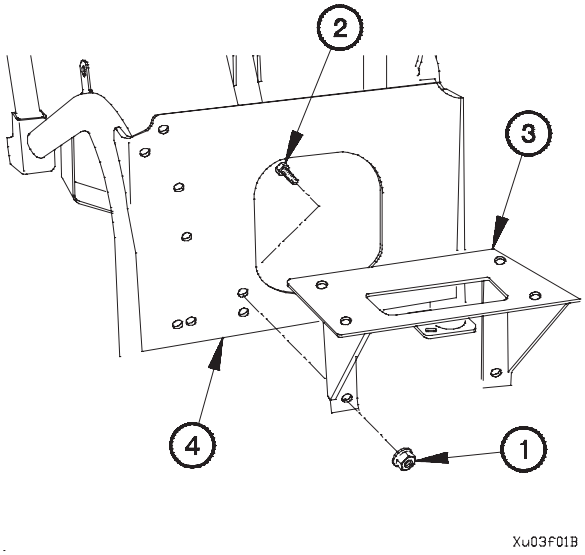
(9) Install four screws (11) and self-locking nuts (12) in decontamination unit mounting bracket (13).

(10) Position decontamination unit mounting bracket (13) on air/hydraulic power unit mounting bracket (2) with two washers (14) and screws (15).

(11) Position four washers (16), two screws (17), and nuts (18) in decontamination unit mounting bracket (13).

(12) Tighten two screws (15) and nuts (18) to 18-22 lb-ft (24-30 N·m).





f. Bracket Removal.

Remove four self-locking nuts (1), screws (2), and air/hydraulic power unit mounting bracket (3) from spare tire retainer (4). Discard self-locking nuts.

g. Bracket Installation.

(1) Position air/hydraulic power unit mounting bracket (3) on spare tire retainer (4) with four screws (2) and self-locking nuts (1).

(2) Tighten four self-locking nuts (1) to 48-58 lb-ft (65-79 N·m).

h. Follow-On Maintenance.

(1) Fill air/hydraulic power unit (Appendix H).

(2) Start engine (TM 9-2320-366-10-1).

(3) Inflate air springs (TM 9-2320-366-10-1).

(4) Operate air/hydraulic power unit, check for leaks and proper operation (TM 9-2320-366-10-1).

(5) Install M13 unit, if equipped (TM 3-4230-214-12&P).

(6) Raise spare tire (TM 9-2320-366-10-2).

(7) Shut down engine (TM 9-2320-366-10-1).

End of Task.

19-4. HYDRAULIC MANIFOLD REPLACEMENT/REPAIR

This task covers:

a. Removal
b. Disassembly (PN HFC32598)
c. Assembly (PN HFC32598)
d. Disassembly (PN 65234)
e. Assembly (PN 65234)
f. Installation
g. Follow-On Maintenance

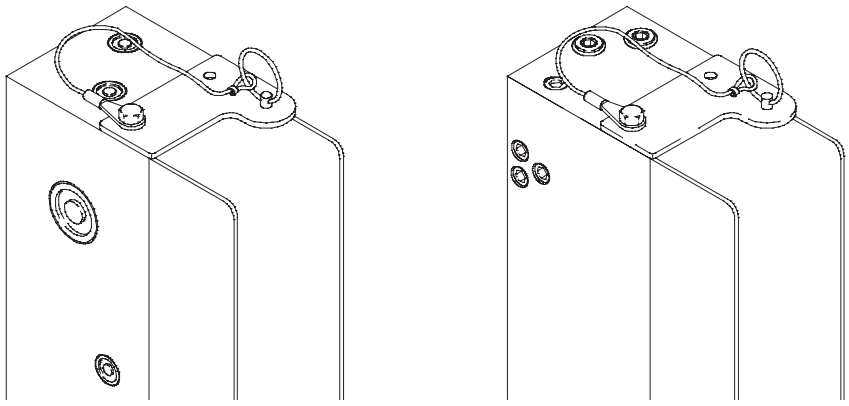
INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-366-10-1).
Air tanks drained (TM 9-2320-366-10-1).
Spare tire lowered (TM 9-2320-366-10-2).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Goggles, Industrial (Item 15, Appendix C)
Gloves, Rubber (Item 13, Appendix C)
Pan, Drain (Item 24, Appendix C)
Wrench, Torque, 0-175 lb-ft (Item 58, Appendix C)
Wrench, Torque, 0-200 lb-in. (Item 59, Appendix C)
Socket Set, Socket Wrench (Item 34, Appendix C)
Puller Kit, Mechanical (Item 27, Appendix C)
Screwdriver Attachment, Socket Wrench (Item 53, Appendix B)

Materials/Parts
Dispenser, Pressure Sensitive Tape (Item 20, Appendix D)
Cap and Plug Set (Item 14, Appendix D)
Ties, Cable, Plastic (Item 69, Appendix D)
Antiseize Compound (Item 13, Appendix D)
Sealing Compound (Item 58, Appendix D)

Materials/Parts (Cont)
Oil, Lubricating, OE/HDO 10W (Item 43, Appendix D)
Hydraulic Fluid A (Item 25, Appendix D)
Filter Assembly (2) (Item 14, Appendix G)
Parts Kit, Seal Replacement (Item 220, Appendix G)
Parts Kit, Seal Replacement (Item 221, Appendix G)
Parts Kit, Seal Replacement (Item 222, Appendix G)
Nut, Self-Locking (Item 150, Appendix G)
Packing, Preformed (11) (Item 186, Appendix G)
Nut, Self-Locking (2) (Item 155, Appendix G)
Filter Element, Fluid (2) (Item 17.1, Appendix G)
Packing, Preformed (2) (Item 181.1, Appendix G)
Packing, Preformed (2) (Item 192.1, Appendix G)
Packing, Preformed (2) (Item 192.3, Appendix G)



Hydraulic Manifold Identification

Xu04new

NOTE

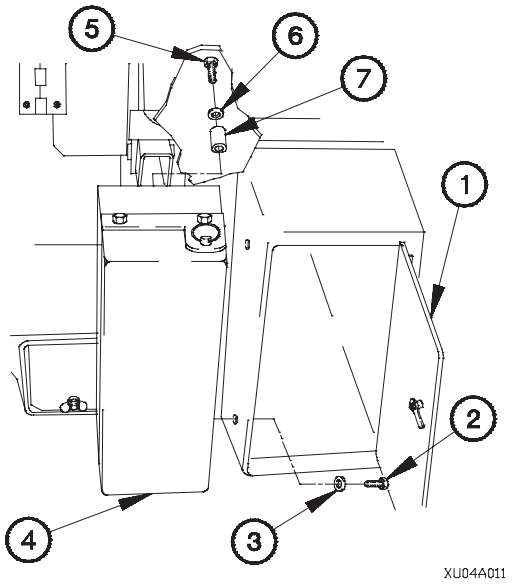
Refer to **Figure 19-1. Hydraulic Manifold PN HFC32598 Rear View** and **Figure 19-1.1. Hydraulic Manifold PN 65234 Rear View** for hoses location.

a. Removal.

(1) Open tool box (1).

(2) Remove two screws (2) and spacers (3) from hydraulic manifold (4).

(3) Remove two screws (5), spacers (6), and spacers (7) from hydraulic manifold (4).



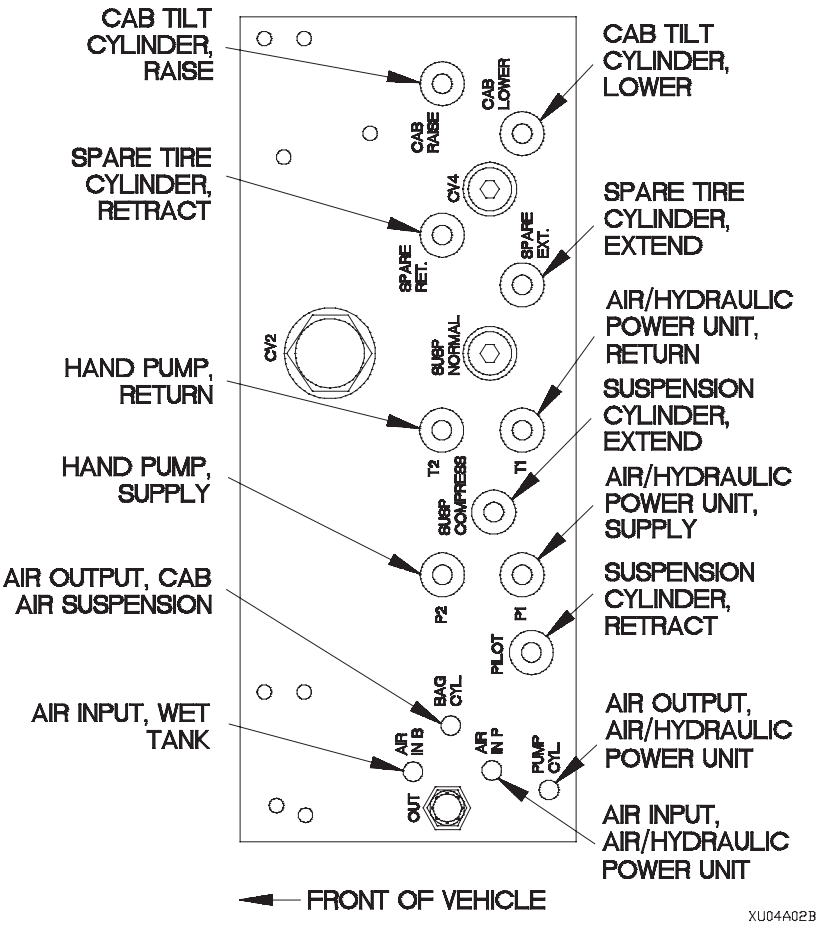


Figure 19-1. Hydraulic Manifold PN HFC32598 Rear View

19-4. HYDRAULIC MANIFOLD REPLACEMENT/REPAIR (CONT)

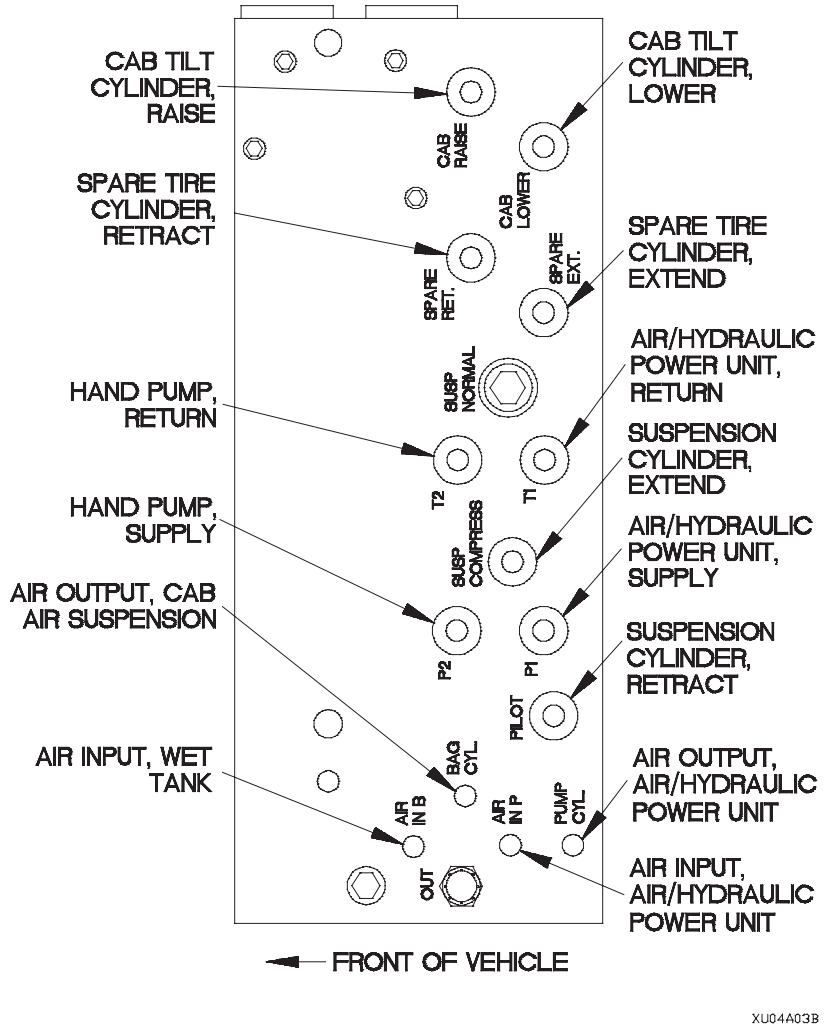
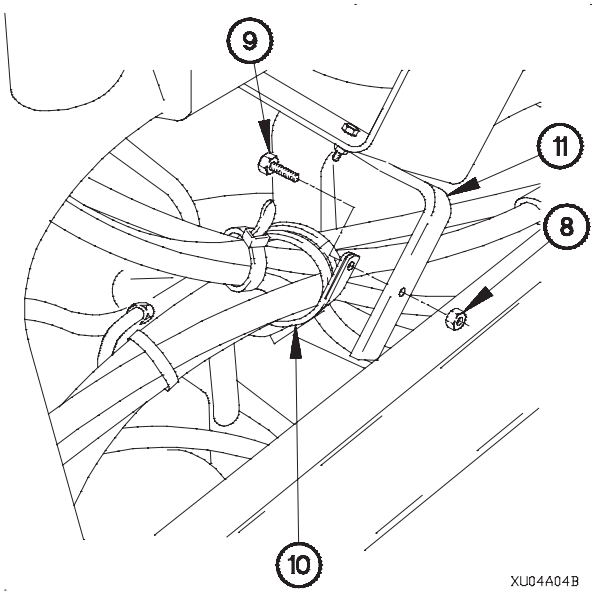
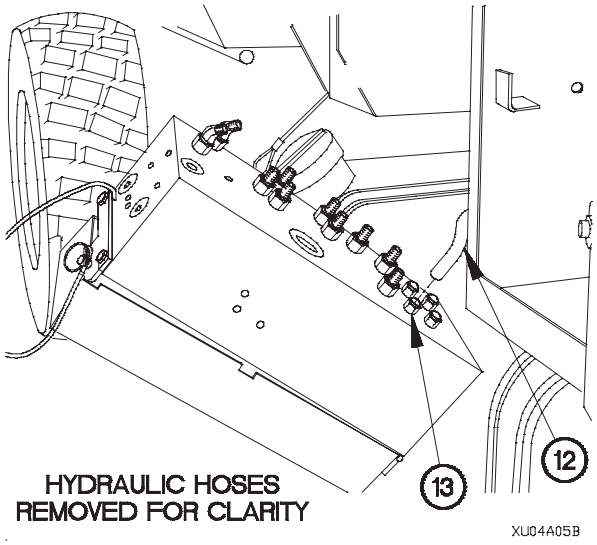


Figure 19-1.1. Hydraulic Manifold PN 65234 Rear View

(4) Remove self-locking nut (8), bolt (9), and clamp (10) from bracket (11). Discard self-locking nut.





NOTE

Perform steps (6) and (7) on vehicle serial numbers 0001 through 4202 that have not previously had pneumatic fitting or air hose replaced.

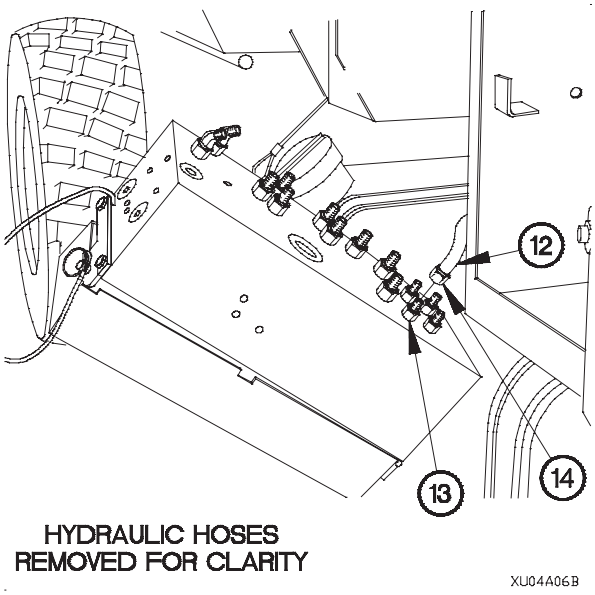
(6) Disconnect four air hoses (12) from fitting (13).

(7) Cut four air hose couplings (14) from air hoses (12). Discard air hose couplings.

NOTE

- Tag hoses and connection points prior to disconnecting.
- Remove plastic cable ties as required.
- Perform step (5) on vehicle serial number 4203 and higher, and vehicle serial numbers 0001 through 4202 that have previously had pneumatic fitting or air hose replaced.

(5) Disconnect four air hoses (12) from fittings (13).



19-4. HYDRAULIC MANIFOLD REPLACEMENT/REPAIR (CONT)

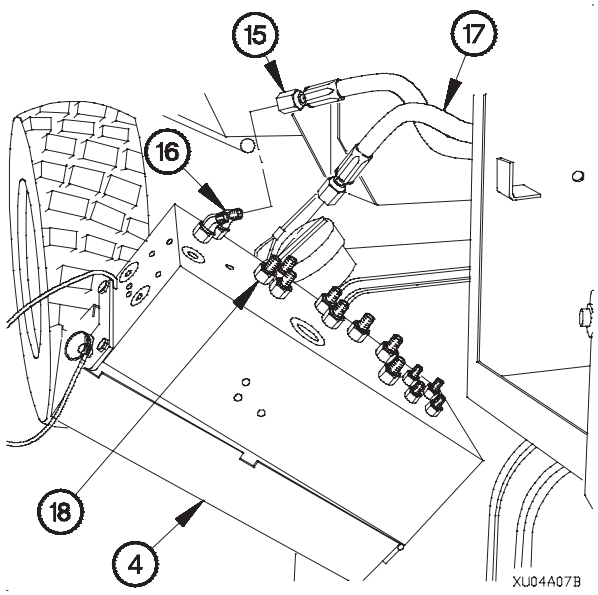
(8) Position drain pan under hydraulic manifold (4).

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.

CAUTION

Cap or plug hydraulic hoses and connection points to prevent contamination of hydraulic system. Failure to comply may result in damage to equipment.

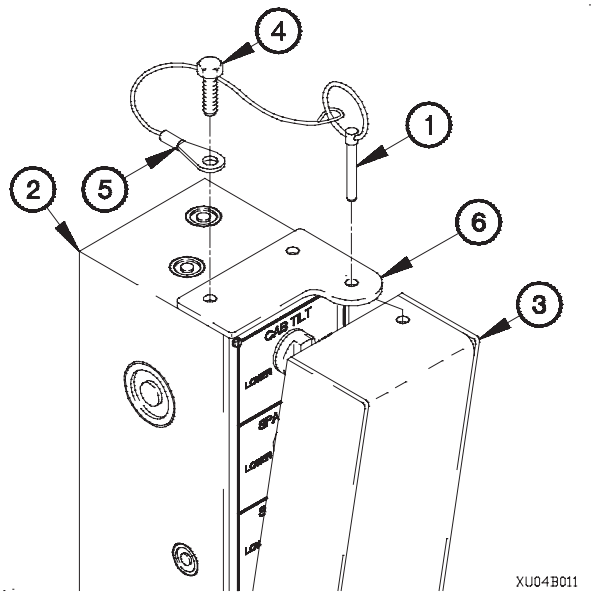


(9) Disconnect two hydraulic hoses (15) from 45-degree fittings (16).

(10) Disconnect eight hydraulic hoses (17) from fittings (18).

(11) Remove hydraulic manifold (4) from vehicle.

b. Disassembly (PN HFC32598).



(1) Remove retaining pin (1) from hydraulic manifold (2) and open cover (3).

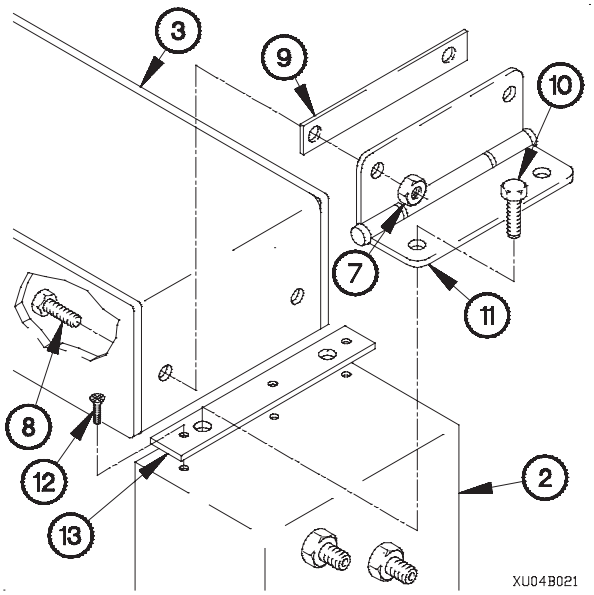
(2) Remove two screws (4), lanyard (5), and plate (6) from hydraulic manifold (2).

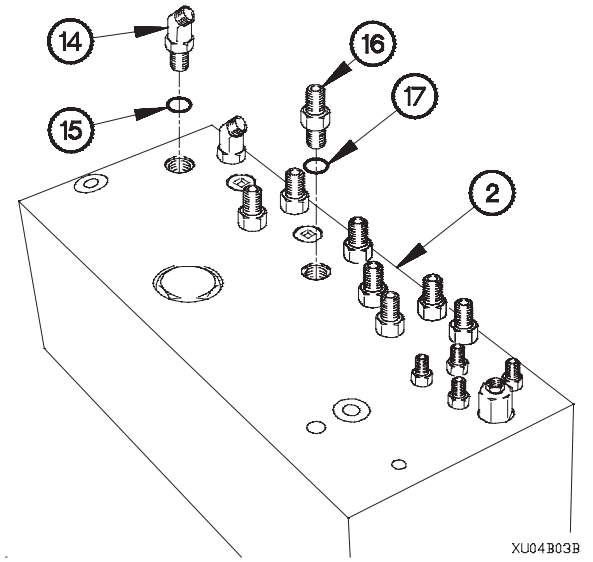
NOTE

Note position of spacer prior to removal.

(3) Remove two self-locking nuts (7), screws (8), spacer (9), and cover (3) from hydraulic manifold (2). Discard self-locking nuts.

(4) Remove two screws (10), hinge (11), three screws (12), and plate (13) from hydraulic manifold (2).





NOTE

Note position and location of valves, plugs, and fittings prior to disassembly.

(5) Remove two 45-degree fittings (14) from hydraulic manifold (2).

(6) Remove two preformed packings (15) from 45-degree fittings (14). Discard preformed packings.

(7) Remove eight fittings (16) from hydraulic manifold (2).

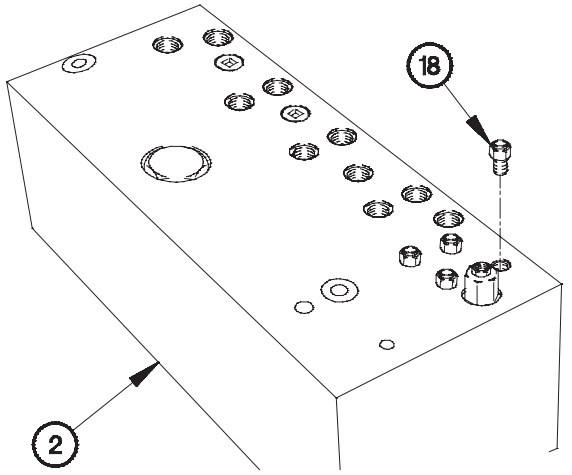
(8) Remove eight preformed packings (17) from fittings (16). Discard preformed packings.

19-4. HYDRAULIC MANIFOLD REPLACEMENT/REPAIR (CONT)

NOTE

Perform step (9) on vehicle serial number 4203 and higher and vehicle serial numbers 0001 through 4202 that have previously had pneumatic fitting or air hose replaced.

(9) Remove four fittings (18) from hydraulic manifold (2).



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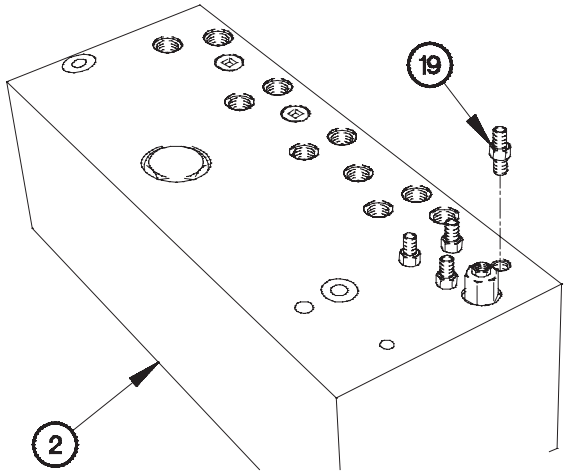

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NOTE

Perform step (10) on vehicle serial numbers 0001 through 4202 that have not previously had pneumatic fitting or air hose replaced.

(10) Remove four fittings (19) from hydraulic manifold (2). Discard fittings.

(11) Remove muffler (20) from check valve (21).

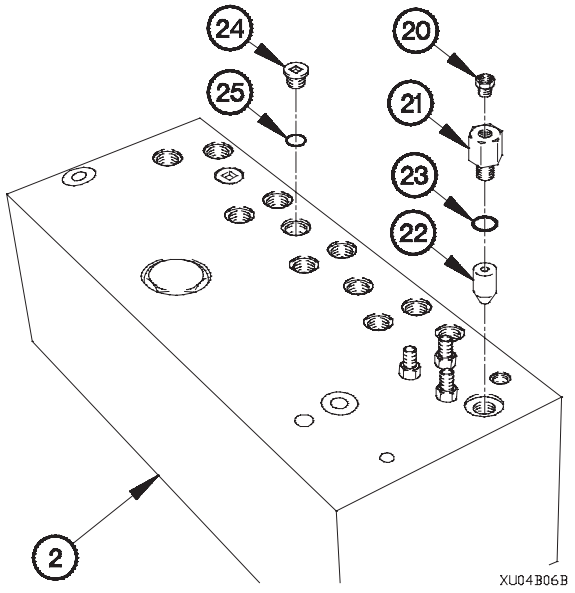
(12) Remove check valve (21) from adapter (22).

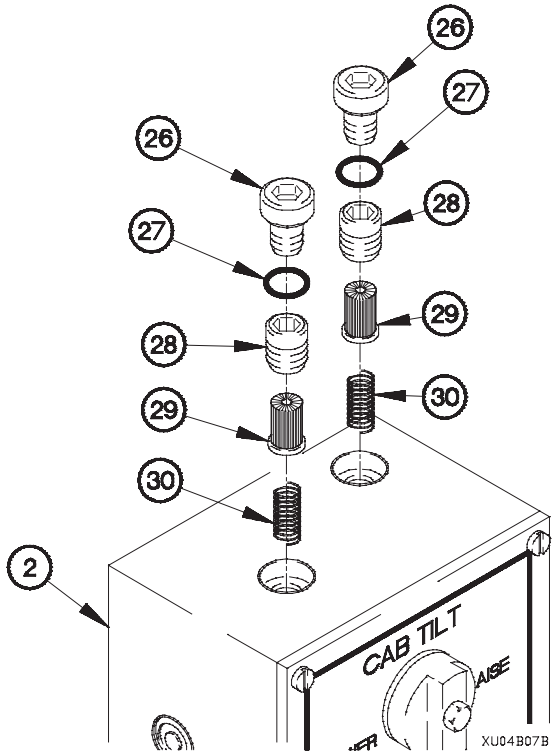
(13) Remove preformed packing (23) from check valve (21). Discard preformed packing and check valve.

(14) Remove adapter (22) from hydraulic manifold (2).

(15) Remove plug (24) from hydraulic manifold (2).

(16) Remove preformed packing (25) from plug (24). Discard preformed packing.

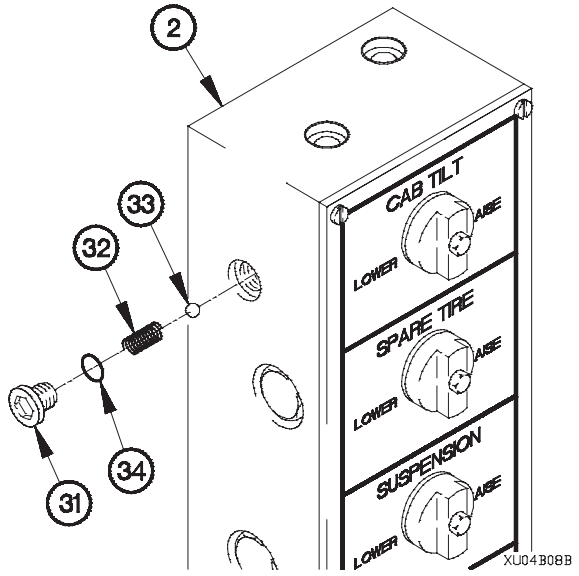




(17) Remove two plugs (26) from hydraulic manifold (2).

(18) Remove two preformed packings (27) from plugs (26). Discard preformed packings and plugs.

(19) Remove two retainers (28), filters (29), and springs (30) from hydraulic manifold (2). Discard retainers, filters, and springs.



(20) Remove plug (31), spring (32), and ball seat (33) from hydraulic manifold (2). Discard plug, spring, and ball seat.

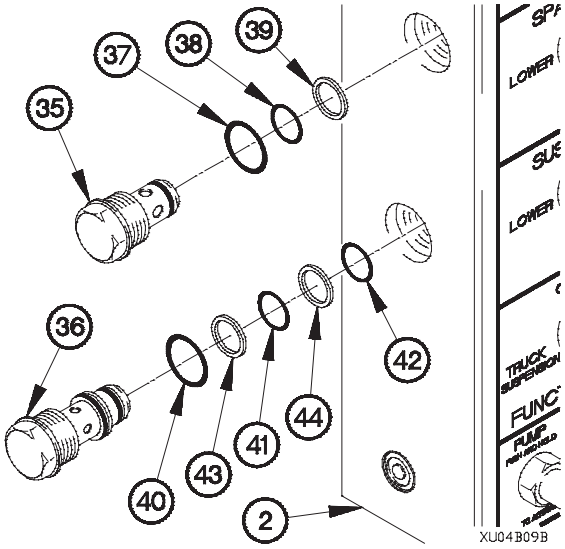
(21) Remove preformed packing (34) from plug (31). Discard preformed packing and plug.

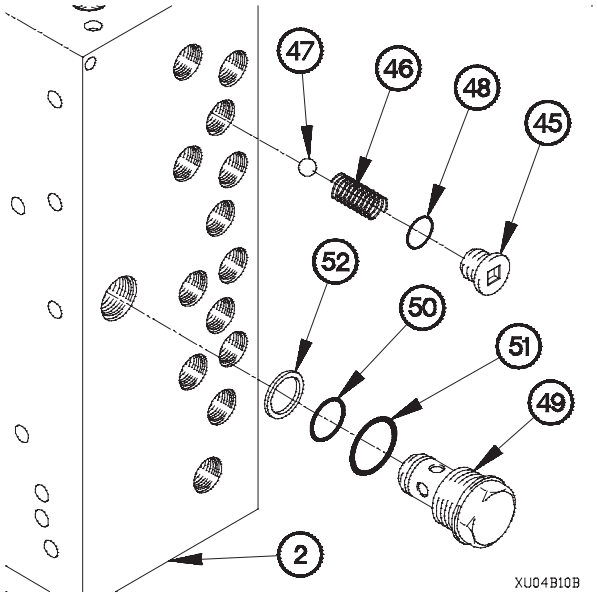
19-4. HYDRAULIC MANIFOLD REPLACEMENT/REPAIR (CONT)

(22) Remove cartridge valves (35 and 36) from hydraulic manifold (2).

(23) Remove preformed packings (37 and 38) and back-up ring (39) from cartridge valve (35). Discard preformed packings and back-up ring.

(24) Remove preformed packings (40, 41, and 42) and back-up rings (43 and 44) from cartridge valve (36). Discard preformed packings and back-up rings.





(25) Remove plug (45), spring (46), and ball seat (47) from hydraulic manifold (2). Discard plug, spring, and ball seat.

(26) Remove preformed packing (48) from plug (45). Discard preformed packing and plug.

(27) Remove cartridge valve (49) from hydraulic manifold (2).

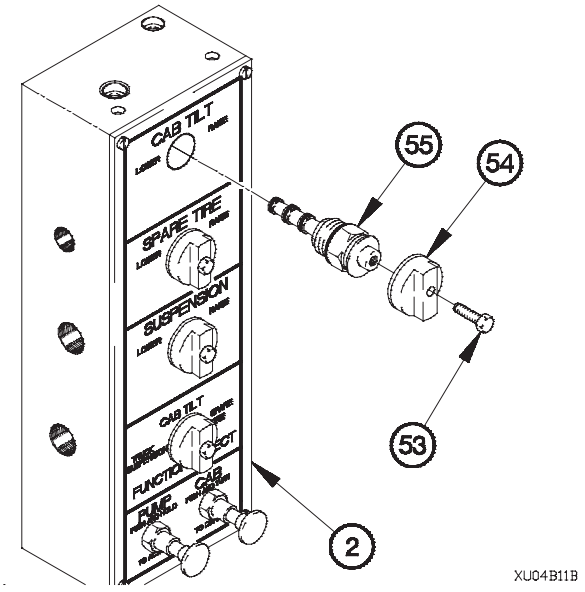
(28) Remove preformed packings (50 and 51) and back-up ring (52) from cartridge valve (49). Discard preformed packings and back-up ring.

NOTE

Top three manifold valves are two position valves, bottom manifold valve is a three position. Note position of manifold valves prior to removal.

(29) Remove four screws (53) and knobs (54) from hydraulic manifold (2).

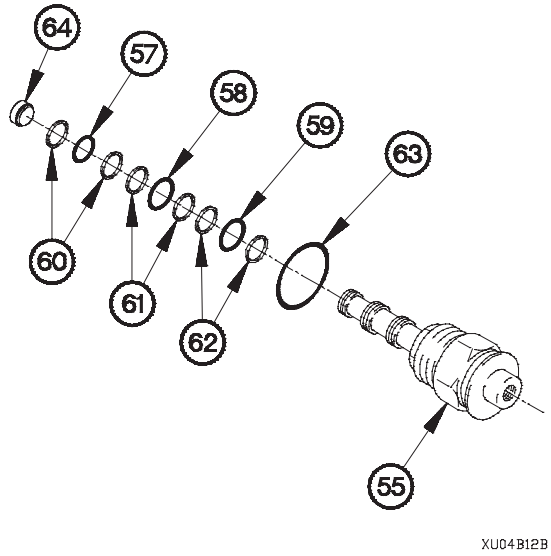
(30) Remove four manifold valves (55) from hydraulic manifold (2).

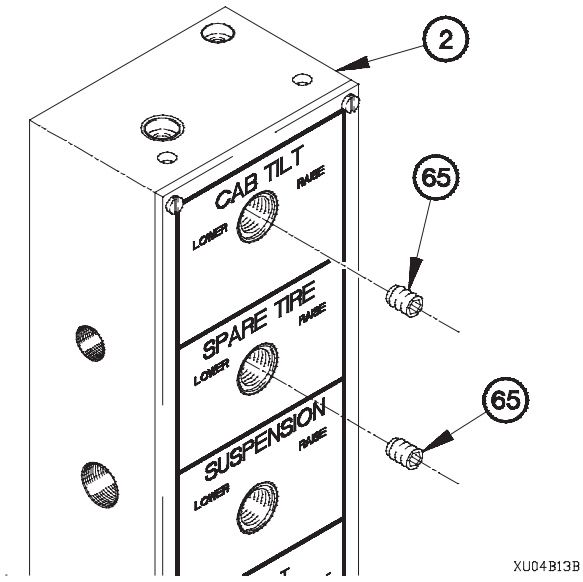


(31) Remove four preformed packings (57, 58, and 59) and eight back-up rings (60, 61, and 62) from four manifold valves (55). Discard preformed packings and back-up rings.

(32) Remove four preformed packings (63) from manifold valves (55). Discard preformed packings.

(33) Remove two orifice filters (64) from four manifold valves (55). Discard orifice filters.

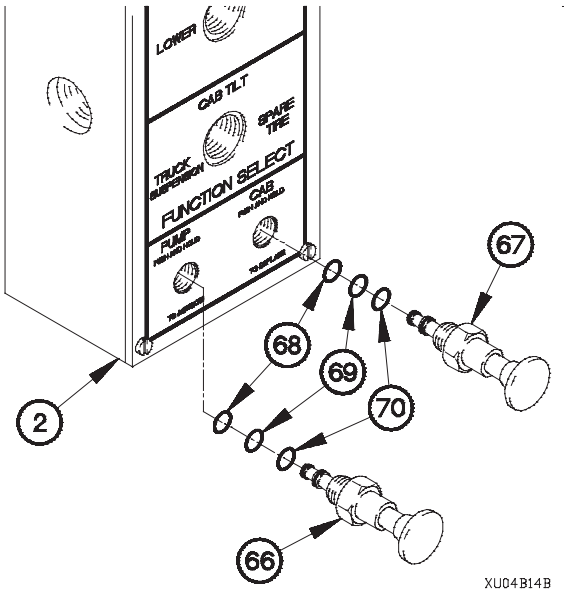




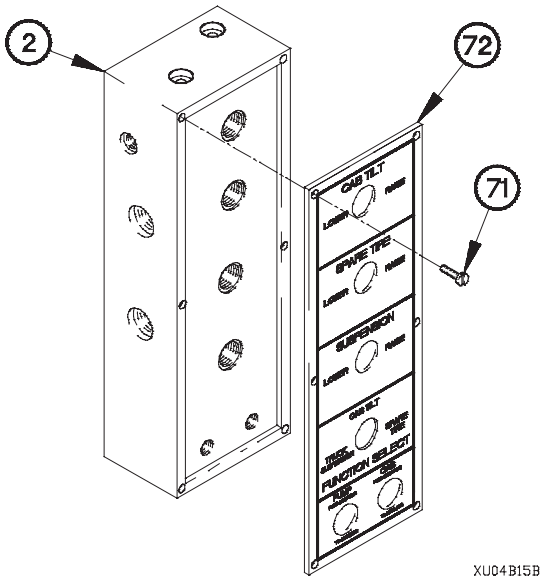
(34) Remove two orifice plugs (65) from hydraulic manifold (2).

(35) Remove air valves (66 and 67) from hydraulic manifold (2).

(36) Remove two preformed packings (68, 69, and 70) from air valves (66 and 67). Discard preformed packings.

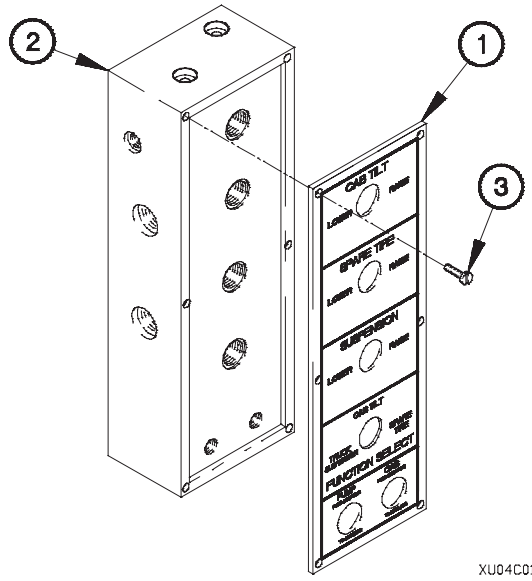


19-4. HYDRAULIC MANIFOLD REPLACEMENT/REPAIR (CONT)



(37) Remove six screws (71) and plate (72) from hydraulic manifold (2).

c. Assembly (PN HFC32598).



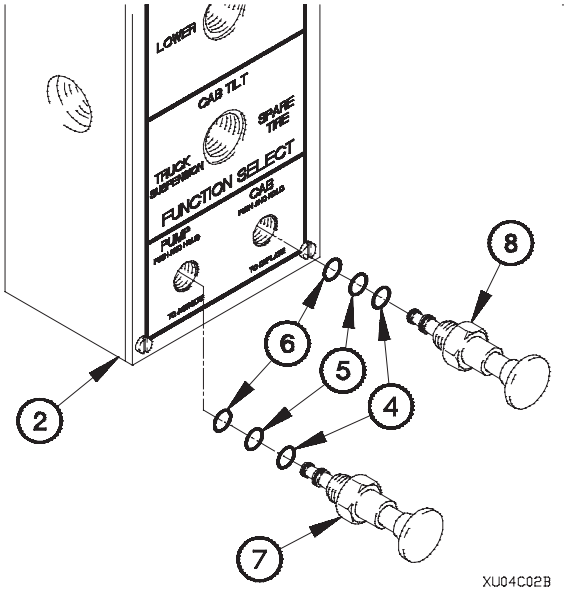
(1) Install plate (1) on hydraulic manifold (2) with six screws (3).

NOTE

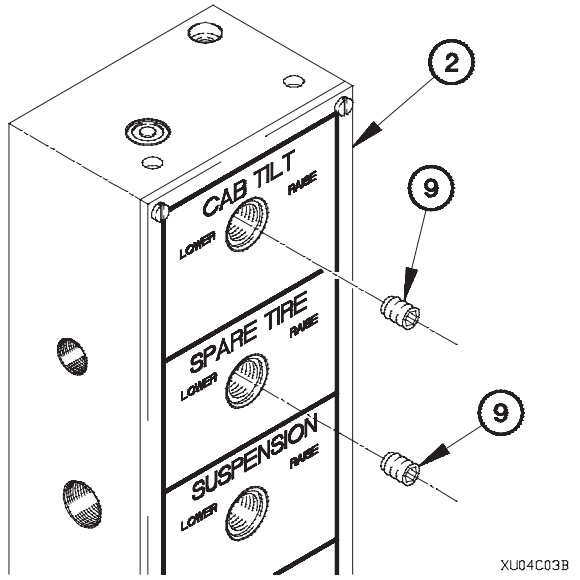
Lubricate parts with oil as required.

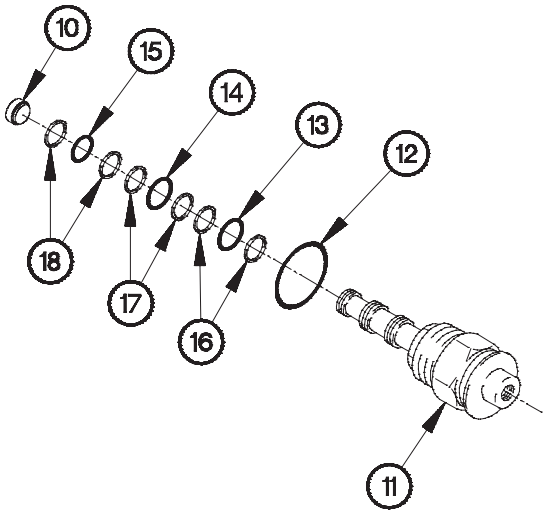
(2) Install two preformed packings (4, 5, and 6) on air valves (7 and 8).

(3) Install air valves (7 and 8) in hydraulic manifold (2).



(4) Install two orifice plugs (9) in hydraulic manifold (2).





(5) Install two orifice filters (10) in four manifold valves (11).

(6) Install four preformed packings (12) on manifold valves (11).

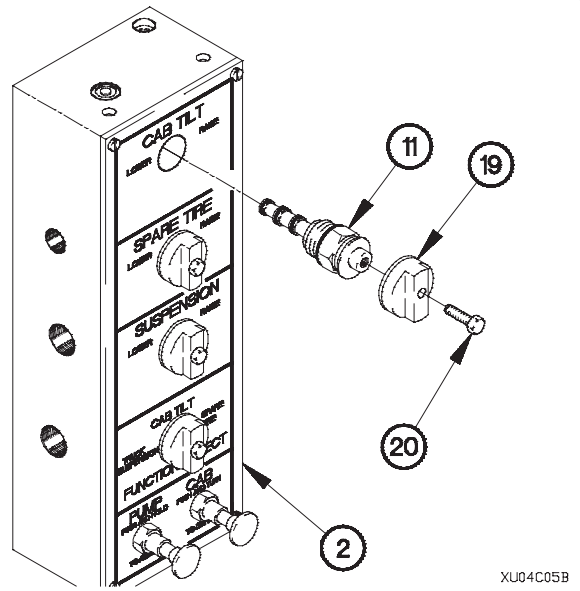
(7) Install four preformed packings (13, 14, and 15) and eight back-up rings (16, 17, and 18) on four manifold valves (11).

NOTE

Position manifold valves as noted during disassembly.

(8) Install four manifold valves (11) in hydraulic manifold (2).

(9) Install four knobs (19) on manifold valves (11) with screws (20).



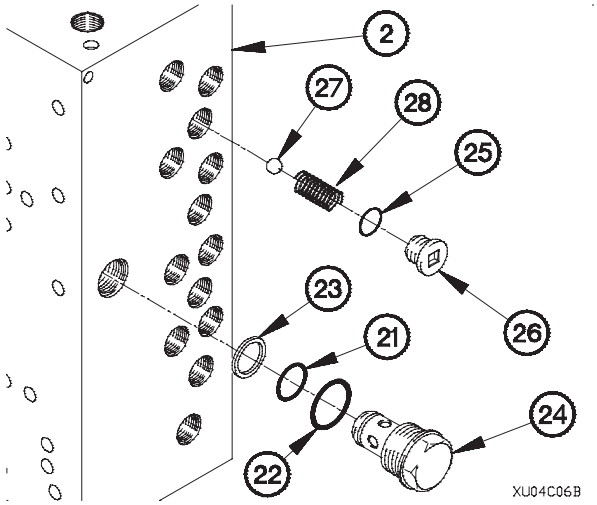
19-4. HYDRAULIC MANIFOLD REPLACEMENT/REPAIR (CONT)

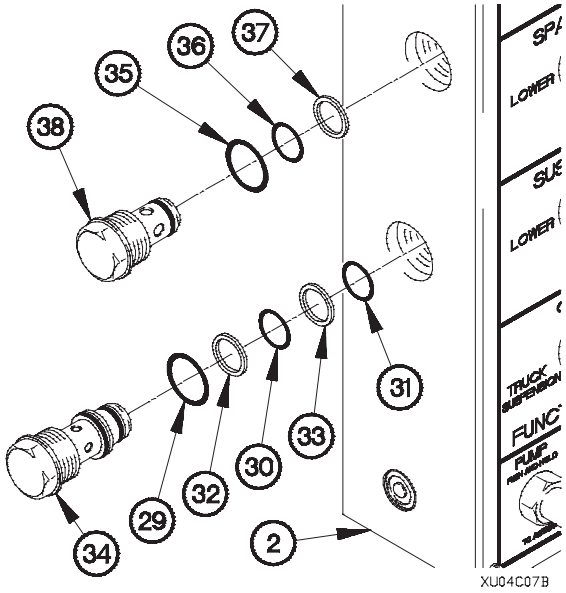
(10) Install preformed packings (21 and 22) and back-up ring (23) on cartridge valve (24).

(11) Install cartridge valve (24) in hydraulic manifold (2).

(12) Install preformed packing (25) on plug (26).

(13) Install ball seat (27), spring (28), and plug (26) in hydraulic manifold (2).





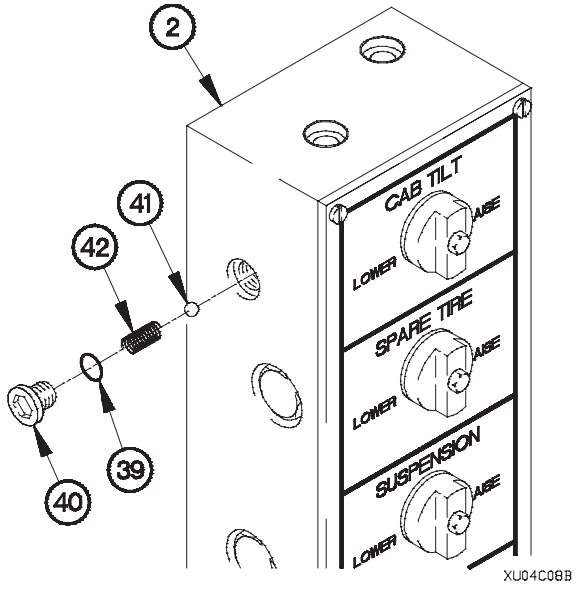
(14) Install preformed packings (29, 30, and 31) and back-up rings (32 and 33) on cartridge valve (34).

(15) Install preformed packings (35 and 36) and back-up ring (37) on cartridge valve (38).

(16) Install cartridge valves (34 and 38) in hydraulic manifold (2).

(17) Install preformed packing (39) on plug (40).

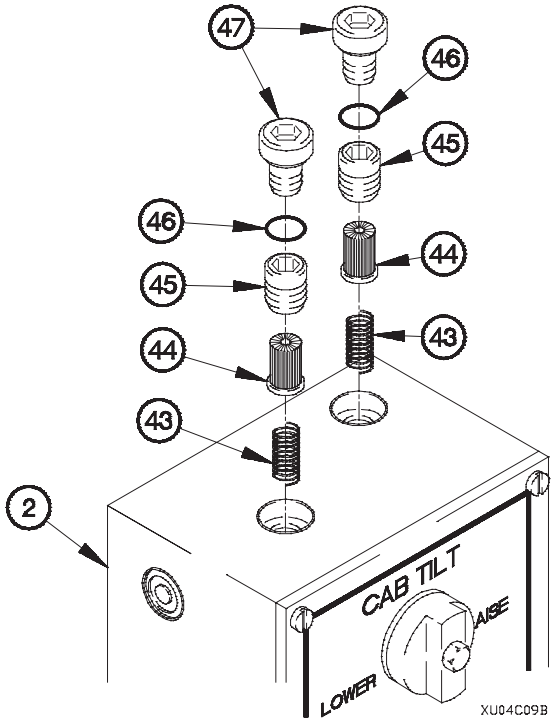
(18) Install ball seat (41), spring (42), and plug (40) in hydraulic manifold (2).

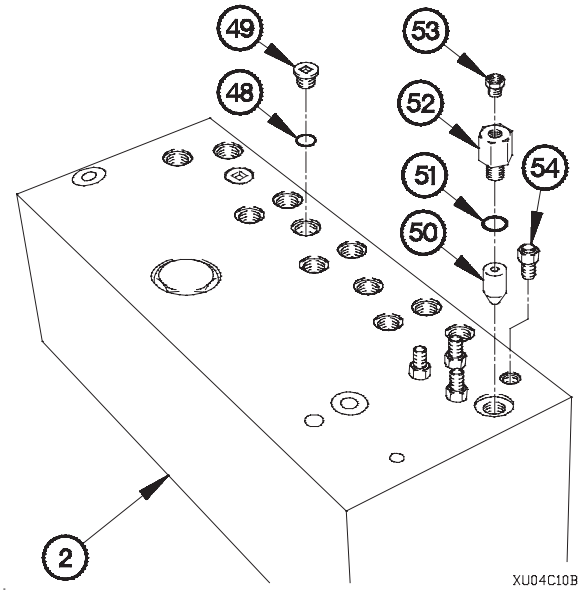


(19) Position two springs (43) and filters (44) in hydraulic manifold (2) with two retainers (45).

(20) Install two preformed packings (46) on plugs (47).

(21) Install two plugs (47) in hydraulic manifold (2).





(22) Install preformed packing (48) on plug (49).

(23) Install plug (49) in hydraulic manifold (2).

(24) Install adapter (50) in hydraulic manifold (2).

(25) Install preformed packing (51) on check valve (52).

(26) Install check valve (52) in adapter (50).

(27) Install muffler (53) in check valve (52).

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.

(28) Apply antiseize compound to four fittings (54).

(29) Install four fittings (54) in hydraulic manifold (2).

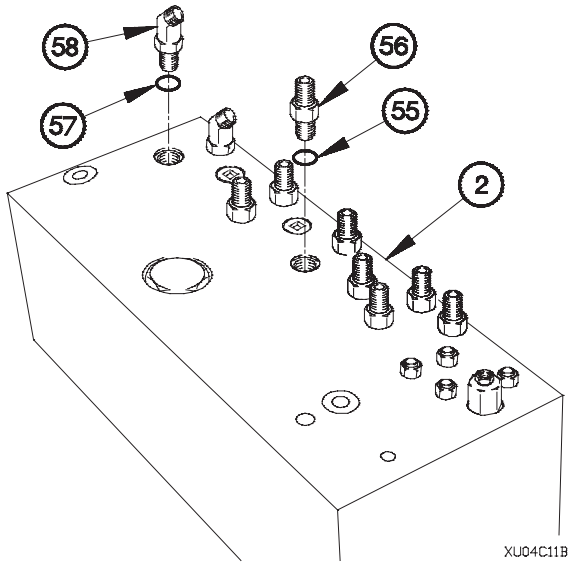
19-4. HYDRAULIC MANIFOLD REPLACEMENT/REPAIR (CONT)

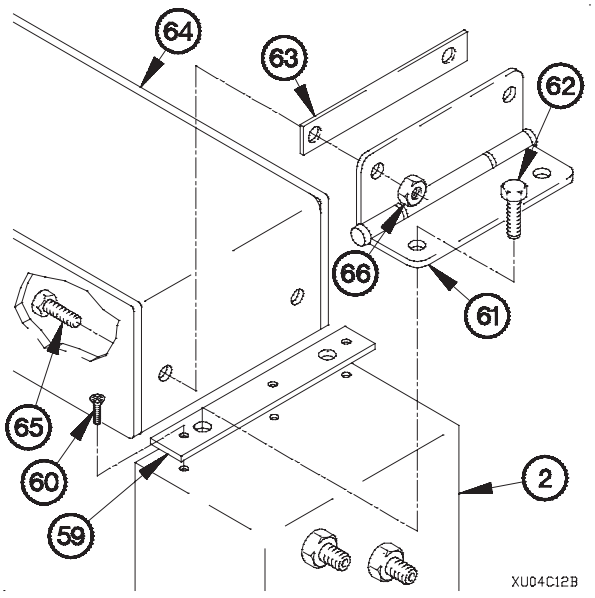
(30) Install eight preformed packings (55) on fittings (56).

(31) Install eight fittings (56) in hydraulic manifold (2).

(32) Install two preformed packings (57) on 45-degree fittings (58).

(33) Install two 45-degree fittings (58) in hydraulic manifold (2).





(34) Position spacer (59) on hydraulic manifold (2) with three screws (60).

(35) Tighten three screws (60) to 72-120 lb-in. (8-14 N·m).

(36) Position hinge (61) on plate (59) with two screws (62).

(37) Tighten two screws (62) to 18-22 lb-ft (24-30 N·m).

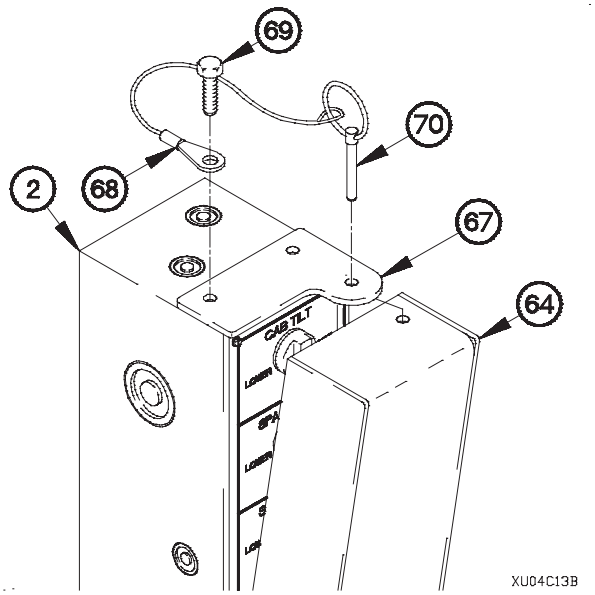
(38) Position spacer (63) and cover (64) on hinge (61) with two screws (65) and self-locking nuts (66).

(39) Tighten two self-locking nuts (66) to 18-22 lb-ft (24-30 N·m).

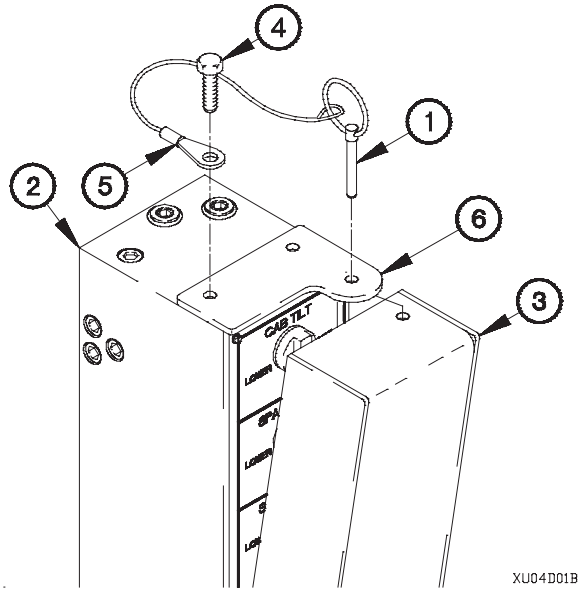
(40) Position plate (67) and lanyard (68) on hydraulic manifold (2) with two screws (69).

(41) Tighten two screws (69) to 18-22 lb-ft (24-30 N·m).

(42) Close cover (64) and install retaining pin (70).



d. Disassembly (PN 65234).



(1) Remove retaining pin (1) from hydraulic manifold (2) and open cover (3).

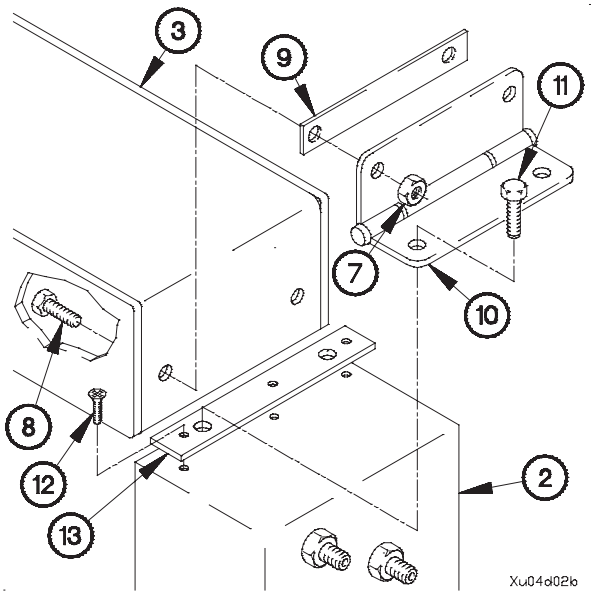
(2) Remove two screws (4), lanyard (5), and plate (6) from hydraulic manifold (2).

NOTE

Note position of spacer prior to removal.

(3) Remove two self-locking nuts (7), screws (8), spacer (9), and cover (3) from hinge (10). Discard self-locking nuts.

(4) Remove two screws (11), hinge (10), three screws (12), and plate (13) from hydraulic manifold (2).



19-4. HYDRAULIC MANIFOLD REPLACEMENT/REPAIR (CONT)

NOTE

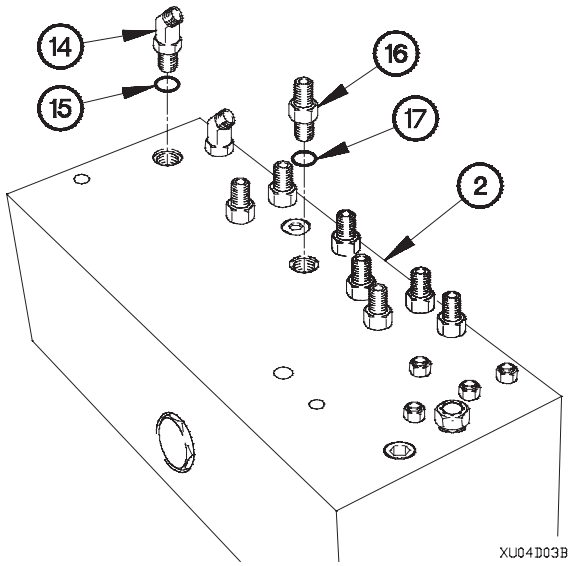
Note position and location of valves, plugs, and fittings prior to disassembly.

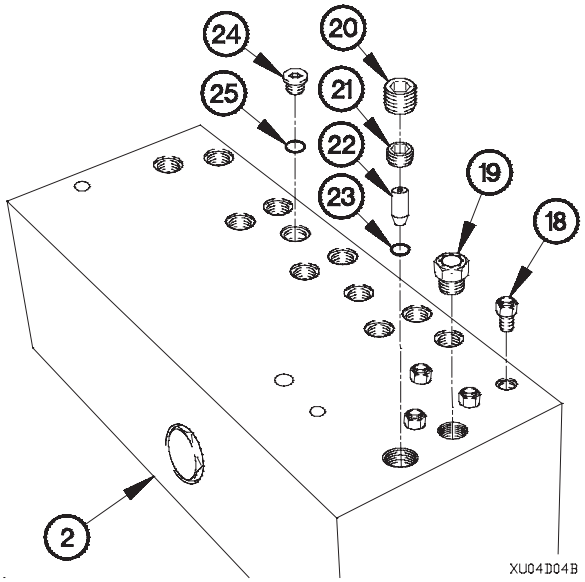
(5) Remove two 45-degree fittings (14) from hydraulic manifold (2).

(6) Remove two preformed packings (15) from 45-degree fittings (14). Discard preformed packings.

(7) Remove eight fittings (16) from hydraulic manifold (2).

(8) Remove eight preformed packings (17) from fittings (16). Discard preformed packings.





(9) Remove four air fittings (18) from hydraulic manifold (2).

(10) Remove breather cap (19) from hydraulic manifold (2).

(11) Remove plug (20), setscrew (21), check valve (22), and preformed packing (23) from hydraulic manifold (2).

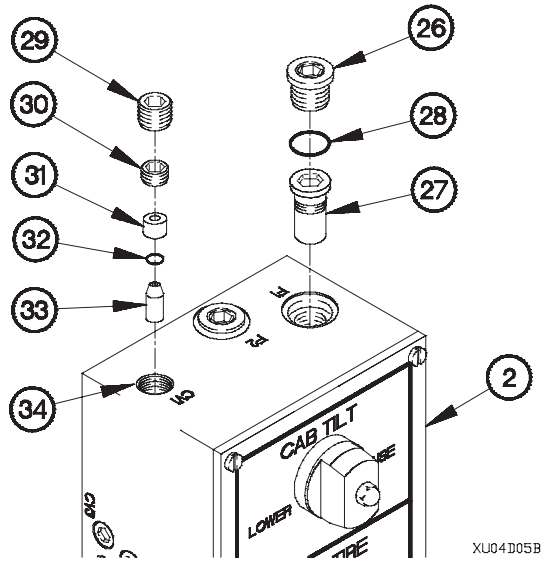
(12) Remove plug (24) from hydraulic manifold (2).

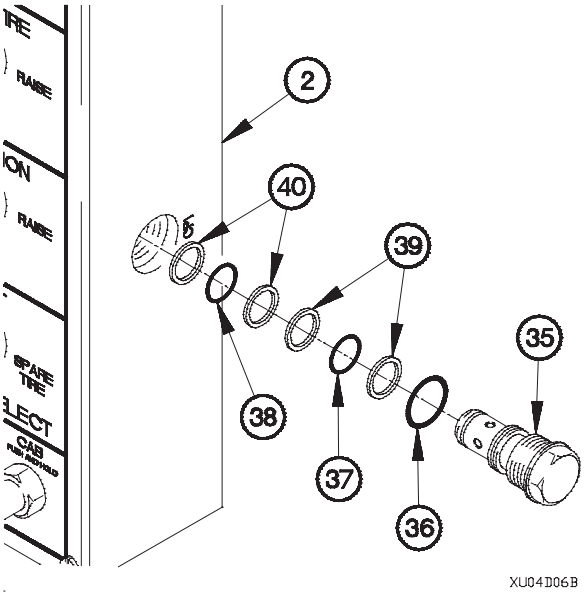
(13) Remove preformed packing (25) from plug (24). Discard preformed packing.

(14) Remove two plugs (26) and filters (27) from hydraulic manifold (2). Discard filters.

(15) Remove two preformed packings (28) from plugs (26). Discard preformed packings.

(16) Remove plug (29), setscrew (30), spacer (31), preformed packing (32), and check valve (33) from CV1 orifice (34). Discard preformed packing.





(17) Remove cartridge valve (35) from hydraulic manifold (2).

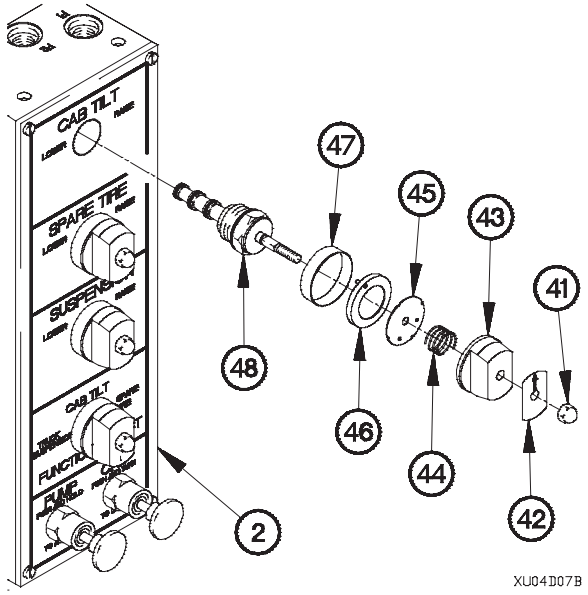
(18) Remove preformed packings (36, 37, and 38) and back-up rings (39 and 40) from cartridge valve (35). Discard preformed packings and back-up rings.

NOTE

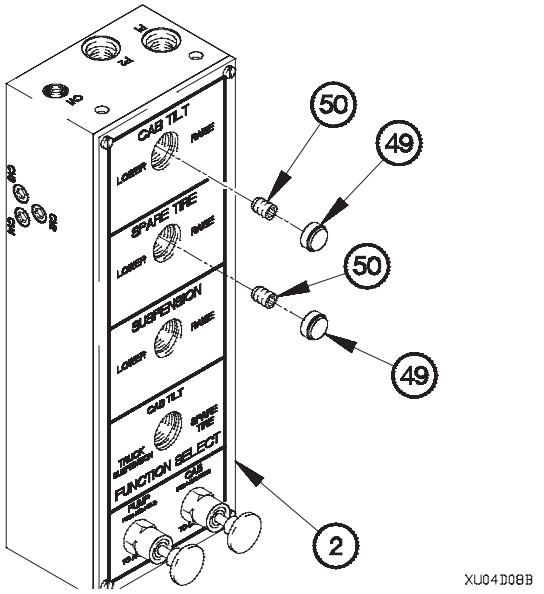
Top three manifold valves are two position valves. Bottom manifold valve is a three position. Note position of manifold valves and retainer rings prior to removal.

(19) Remove four nuts (41), name plates (42), knobs (43), springs (44), spacers (45), retainer rings (46), and dust boots (47) from manifold valves (48).

(20) Remove four manifold valves (48) from hydraulic manifold (2).

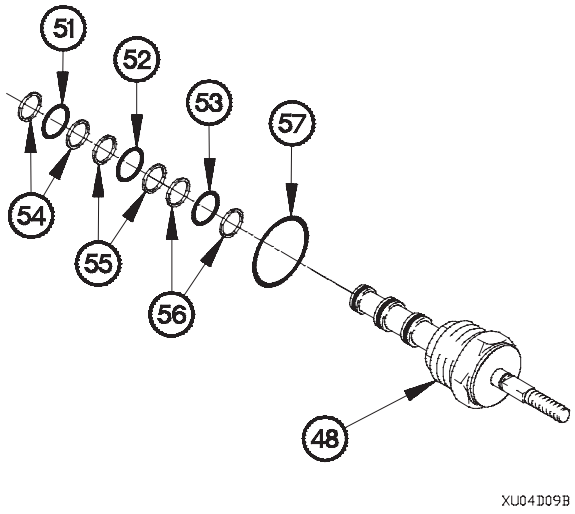


19-4. HYDRAULIC MANIFOLD REPLACEMENT/REPAIR (CONT)



(21) Remove two orifice filters (49) from hydraulic manifold (2). Discard orifice filters.

(22) Remove two orifice plugs (50) from hydraulic manifold (2).

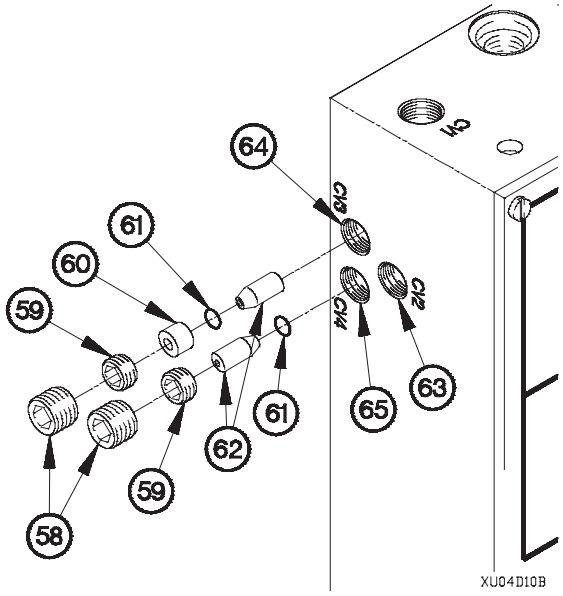


(23) Remove four preformed packings (51, 52, and 53) and eight back-up rings (54, 55, and 56) from four manifold valves (48). Discard preformed packings and back-up rings.

(24) Remove four preformed packings (57) from manifold valves (48). Discard preformed packings.

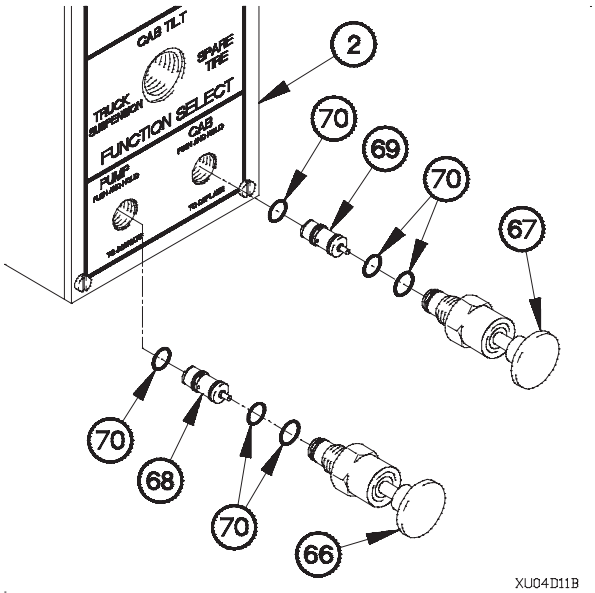
(25) Remove two plugs (58), setscrews (59), spacers (60), preformed packings (61), and check valves (62) from CV2 orifice (63) and CV3 orifice (64). Discard preformed packings.

(26) Remove plug (58), setscrew (59), check valve (62), and preformed packing (61) from CV4 orifice (65). Discard preformed packing.



(27) Remove air valves (66 and 67) and valves (68 and 69) from hydraulic manifold (2).

(28) Remove six preformed packings (70) from air valves (66 and 67) and valves (68 and 69). Discard preformed packings.



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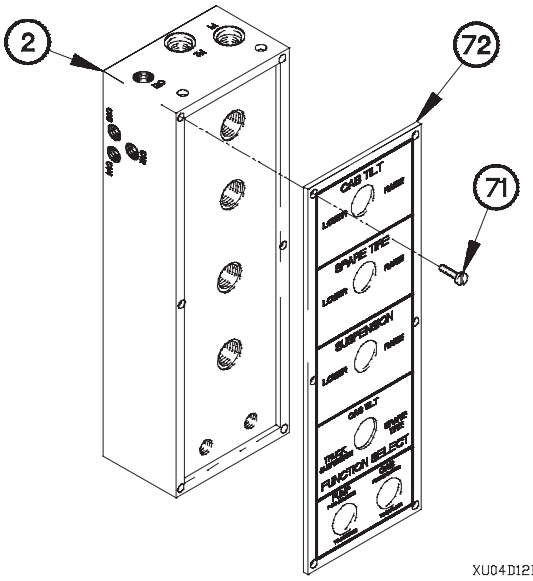

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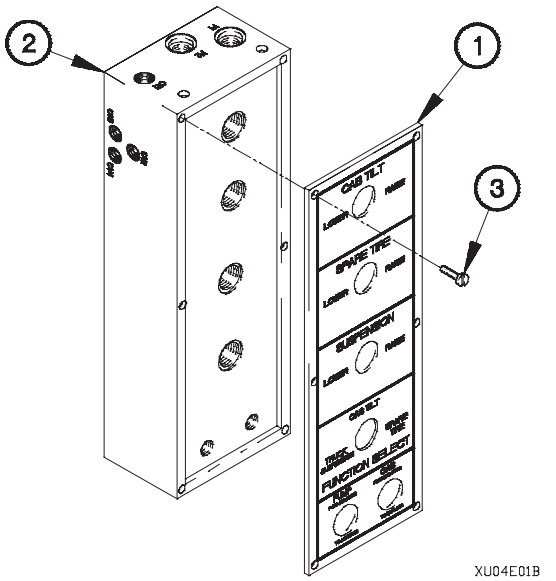
(29) Remove six screws (71) and plate (72) from hydraulic manifold (2).

e. Assembly (PN 65234).

(1) Install plate (1) on hydraulic manifold (2) with six screws (3).



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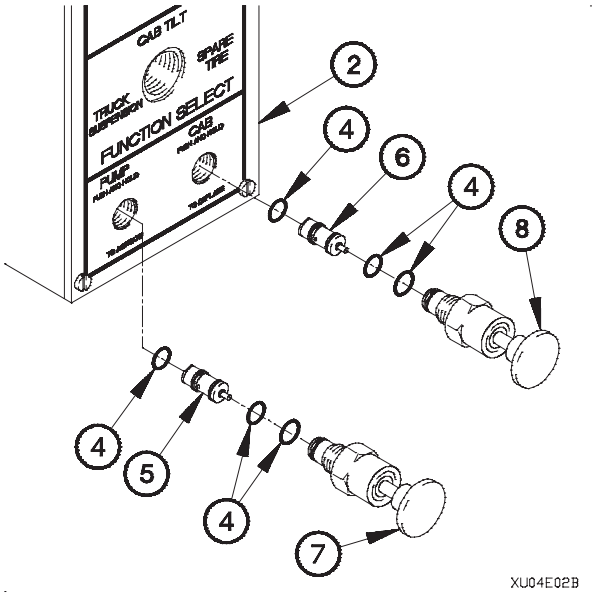
19-4. HYDRAULIC MANIFOLD REPLACEMENT/REPAIR (CONT)

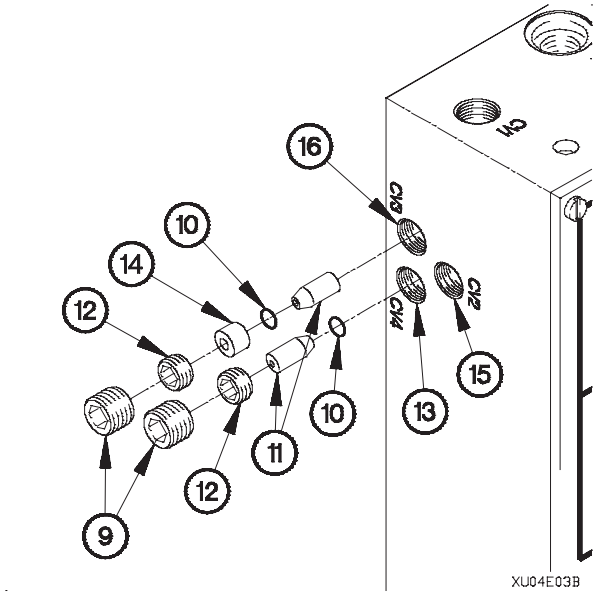
(2) Install six preformed packings (4) on valves (5 and 6) and air valves (7 and 8).

NOTE

Lubricate parts with oil as required.

(3) Install valves (5 and 6) and air valves (7 and 8) in hydraulic manifold (2).





WARNING

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(4) Apply sealing compound to threads of three plugs (9).

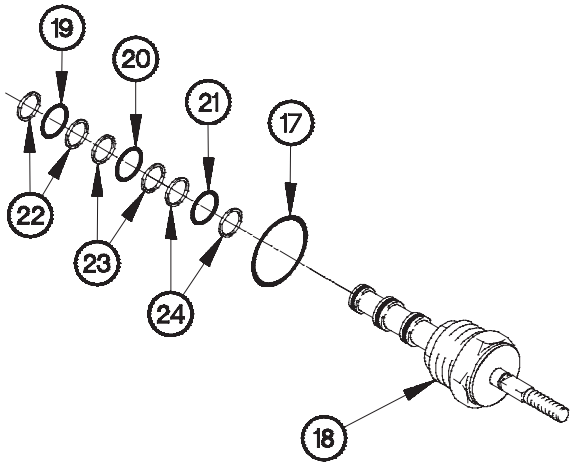
(5) Position preformed packing (10), check valve (11), setscrew (12), and plug (9) in CV4 orifice (13).

(6) Position two check valves (11), preformed packings (10), spacers (14), setscrews (12), and plugs (9) in CV2 orifice (15) and CV3 orifice (16).

(7) Tighten three plugs (9) to 21 lb-ft (28 N·m).

(8) Install four preformed packings (17) on manifold valves (18).

(9) Install four preformed packings (19, 20, and 21) and eight back-up rings (22, 23, and 24) on four manifold valves (18).



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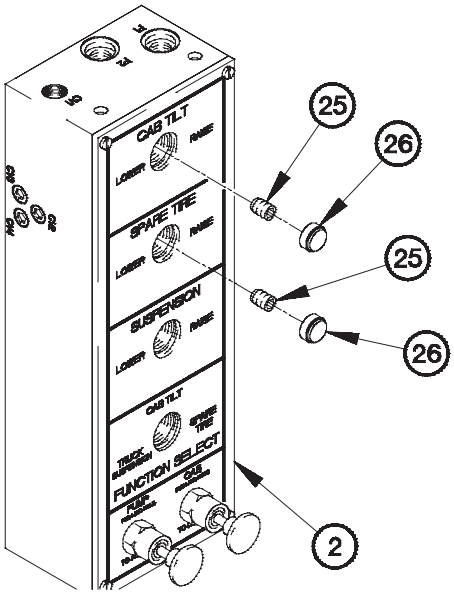

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(10) Install two orifice plugs (25) in hydraulic manifold (2).

(11) Install two orifice filters (26) in hydraulic manifold (2).

NOTE

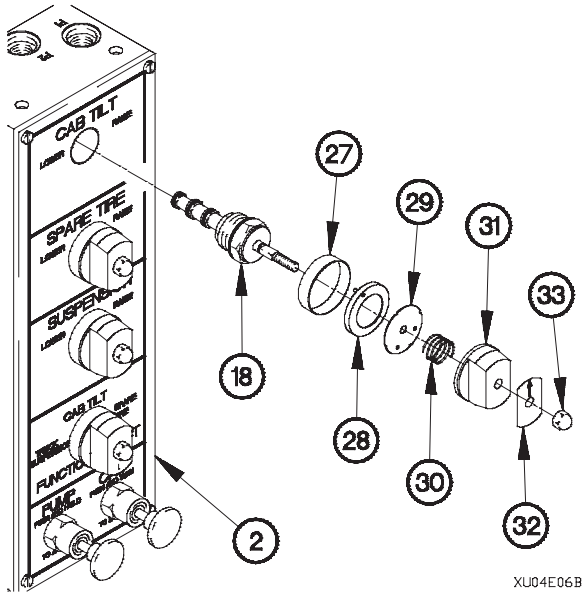
Position retainer rings and manifold valves as noted during disassembly.

(12) Position four manifold valves (18) in hydraulic manifold (2).

(13) Tighten four manifold valves (18) to 40 lb-ft (54 N·m).

(14) Position four dust boots (27), retainer rings (28), spacers (29), springs (30), knobs (31), and name plates (32) on manifold valves (18) with nuts (33).

(15) Tighten four nuts (33) to 40 lb-in. (5 N·m).



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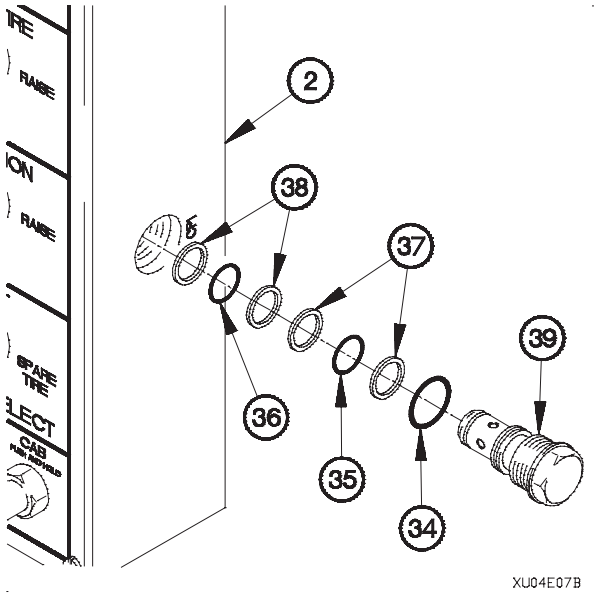
19-4. HYDRAULIC MANIFOLD REPLACEMENT/REPAIR (CONT)

(16) Install preformed packings (34, 35, and 36) and back-up rings (37 and 38) on cartridge valve (39).

(17) Position cartridge valve (39) in hydraulic manifold (2).

(18) Tighten cartridge valve (39) to 40 lb-ft (54 N·m).



WARNING

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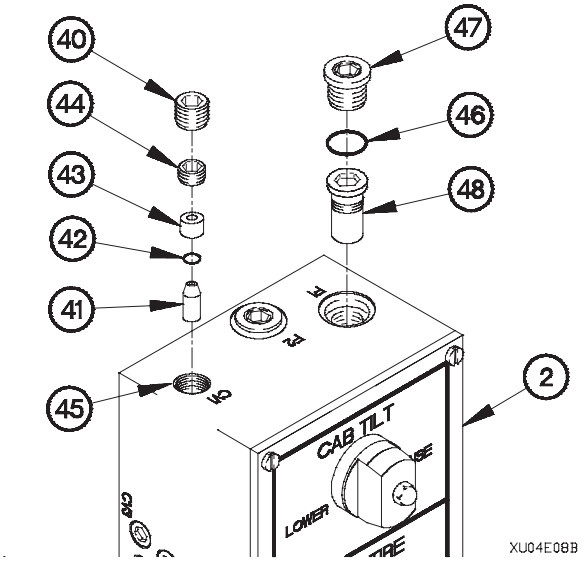

(19) Apply sealing compound to threads of plug (40).

(20) Position check valve (41), preformed packing (42), spacer (43), setscrews (44), and plug (40) in CV1 orifice (45).

(21) Tighten plug (40) to 21 lb-ft (28 N·m).

(22) Install two preformed packings (46) on plugs (47).

(23) Install two filters (48) and plugs (47) in hydraulic manifold (2).

(24) Install preformed packing (49) on plug (50).

(25) Position plug (50) in hydraulic manifold (2).

(26) Tighten plug (50) to 13 lb-ft (18 N·m).

WARNING

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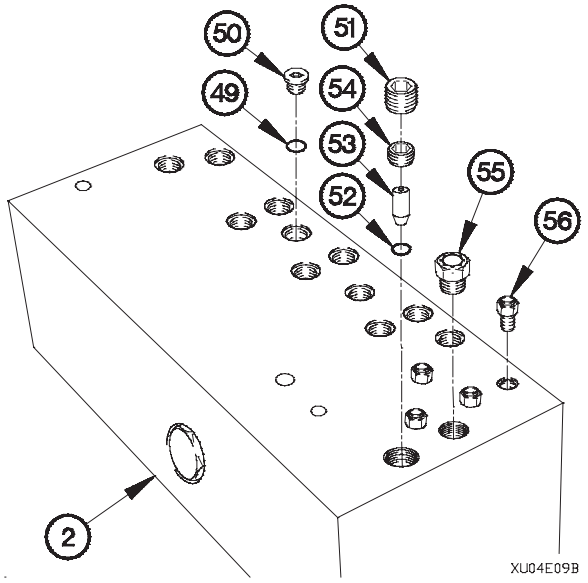


(27) Apply sealing compound to threads of plug (51).

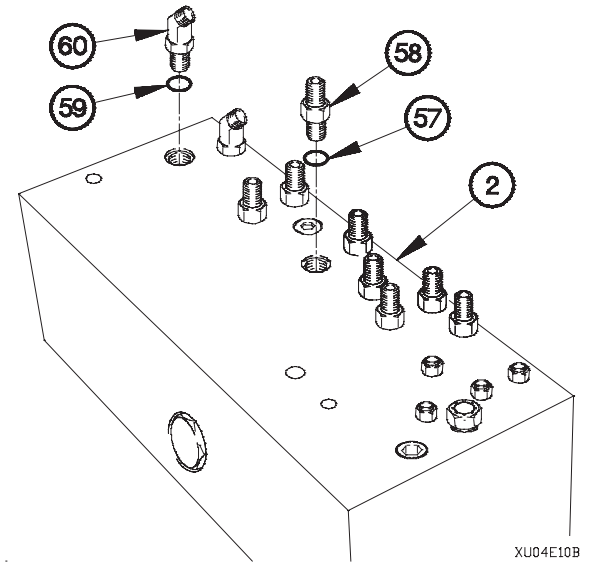
(28) Position preformed packing (52), check valve (53), setscrew (54), and plug (51) in hydraulic manifold (2).

(29) Tighten plug (51) to 21 lb-ft (28 N·m).

(30) Install breather cap (55) in hydraulic manifold (2).

(31) Apply antiseize compound to four air fittings (56).

(32) Install four air fittings (56) in hydraulic manifold (2).



(33) Install eight preformed packings (57) on fittings (58).

(34) Install eight fittings (58) in hydraulic manifold (2).

(35) Install two preformed packings (59) on 45-degree fittings (60).

(36) Install two 45-degree fittings (60) in hydraulic manifold (2).

19-4. HYDRAULIC MANIFOLD REPLACEMENT/REPAIR (CONT)

(37) Position spacer (61) on hydraulic manifold (2) with three screws (62).

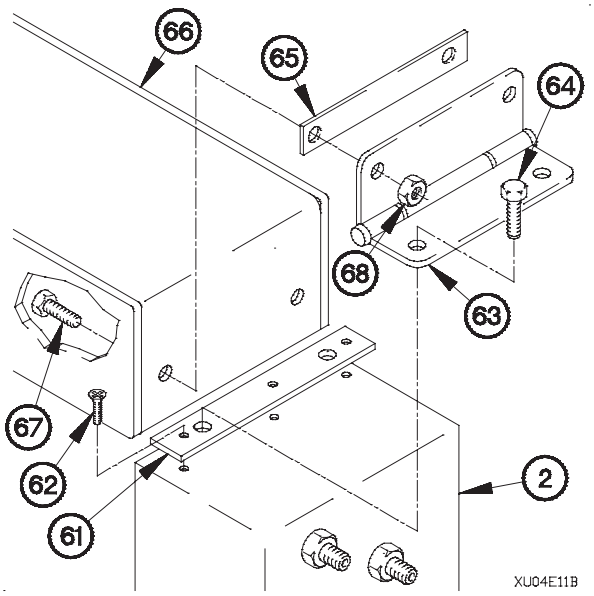
(38) Tighten two screws (62) to 72-120 lb-in. (8-14 N·m).

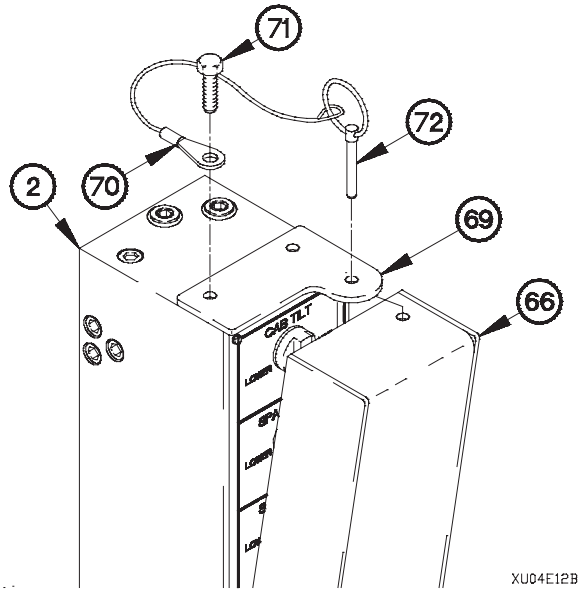
(39) Position hinge (63) on spacer (61) with two screws (62).

(40) Tighten two screws (64) to 18-22 lb-ft (24-30 N·m).

(41) Position spacer (65) and cover (66) on hinge (63) with two screws (67) and self-locking nuts (68).

(42) Tighten two self-locking nuts (68) to 18-22 lb-ft (24-30 N·m).





(43) Position plate (69) and lanyard (70) on hydraulic manifold (2) with two screws (71).

(44) Tighten two screws (71) to 18-22 lb-ft (24-30 N·m).

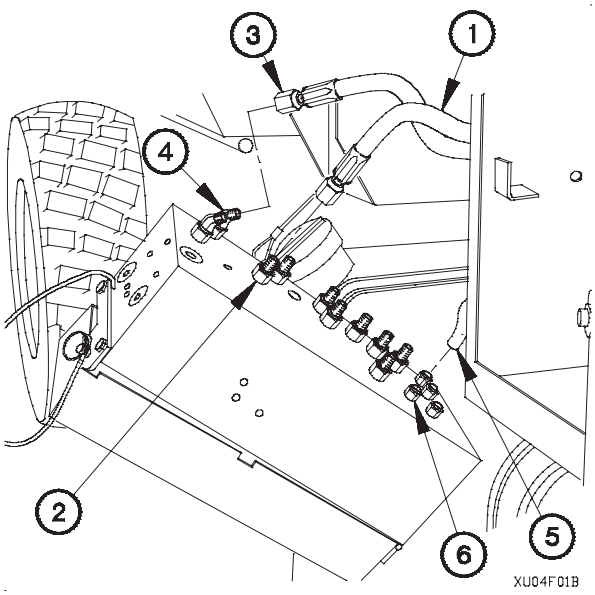
(45) Close cover (66) and install retaining pin (72).

f. Installation.

(1) Connect eight hydraulic hoses (1) to fittings (2).

(2) Connect two hydraulic hoses (3) to 45-degree fittings (4).

(3) Connect four air hoses (5) to air fittings (6).

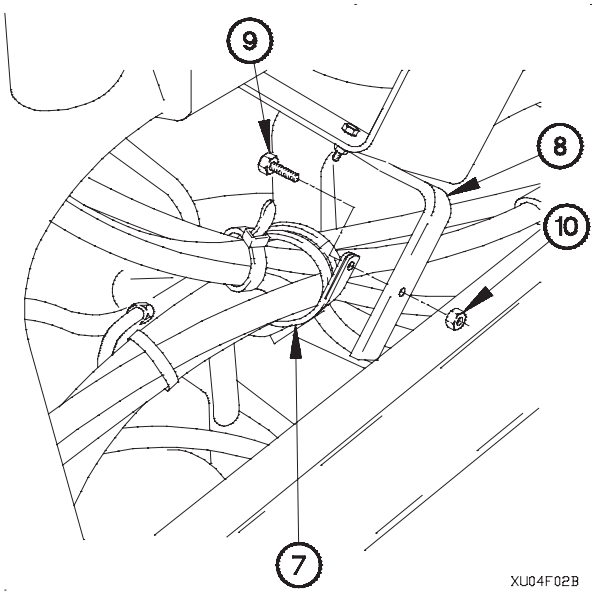


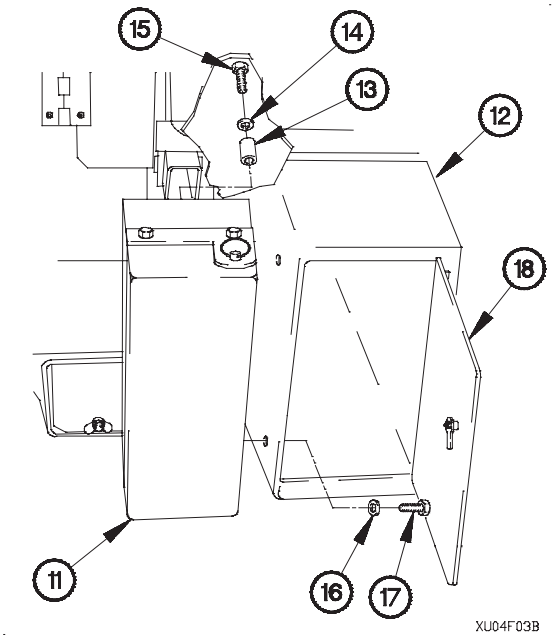
NOTE

Install plastic cable ties as required.

(4) Position clamp (7) on bracket (8) with bolt (9) and self-locking nut (10).

(5) Tighten self-locking nut (10) to 84-132 lb-in. (9-15 N·m).





(6) Position hydraulic manifold (11) on tool box (12) with two spacers (13), spacers (14), and screws (15).

(7) Position two spacers (16) and screws (17) in hydraulic manifold (11).

(8) Tighten two screws (15) and screws (17) to 18-22 lb-ft (24-30 N·m).

(9) Close tool box door (18).

g. Follow-On Maintenance.

(1) Raise spare tire (TM 9-2320-366-10-2).

(2) Fill hydraulic system (Appendix H).

(3) Raise cab and check hydraulic manifold for oil leaks (TM 9-2320-366-10-1).

End of Task.

19-5. HYDRAULIC MANIFOLD FILTER REPLACEMENT

This task covers:

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

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-366-10-1).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Gloves, Rubber (Item 13, Appendix C)
Goggles, Industrial (Item 15, Appendix C)

Materials/Parts
Hydraulic Fluid A (Item 25, Appendix D)
Filter Assembly (2) (Item 14, Appendix G)

a. Removal.

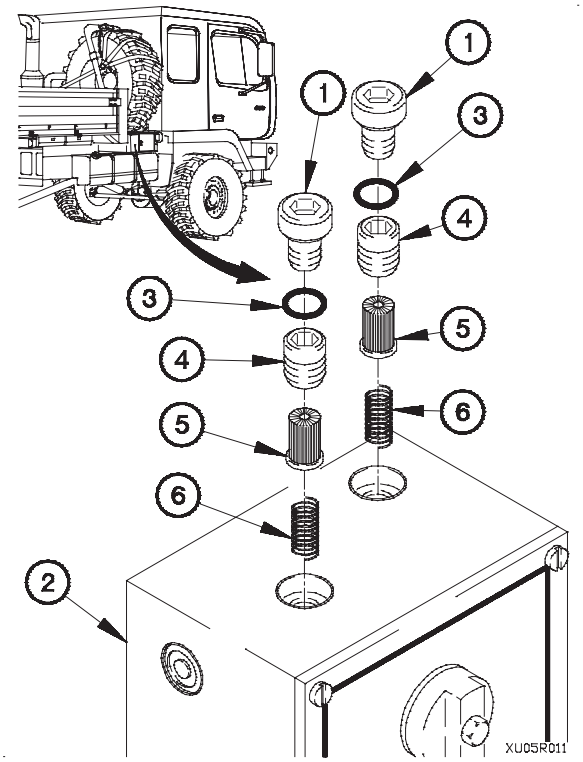
WARNING

Hydraulic fluid (MIL-L-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.

(1) Remove two plugs (1) from hydraulic manifold (2).

(2) Remove two preformed packings (3) from plugs (1). Discard preformed packings and plugs.

(3) Remove two retainers (4), filters (5), and springs (6) from hydraulic manifold (2). Discard retainers, filters, and springs.

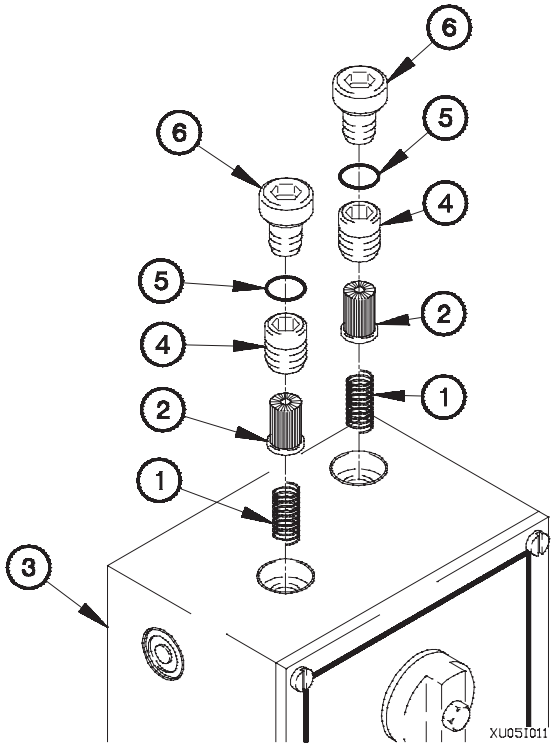


b. Installation.

(1) Position two springs (1) and filters (2) in hydraulic manifold (3) with two retainers (4).

(2) Install two preformed packings (5) on plugs (6).

(3) Install two plugs (6) in hydraulic manifold (3).



c. Follow-On Maintenance.

Fill air transportability hydraulic system (Appendix H).

End of Task.

19-6. M1089 WRECKER CONTROL PANEL HOSES AND TUBING REPLACEMENT

This task covers:

a. Hydraulic Hose and Tubing Locations

b. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-366-10-1)

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Pan, Drain (Item 24, Appendix C)
Goggles, Industrial (Item 15, Appendix C)
Wrench, Torque, 0-175 lb-ft (Item 58, Appendix C)
Adapter, Socket Wrench (Item 2, Appendix B)
Crowfoot Attachment, Socket Wrench (Item 9, Appendix B)
Crowfoot Attachment, Socket Wrench (Item 14, Appendix B)

Tools and Special Tools (Cont)
Crowfoot Attachment, Socket Wrench (Item 13, Appendix B)
Crowfoot Attachment, Socket Wrench (Item 12, Appendix B)

Materials/Parts
Dispenser, Pressure Sensitive Adhesive Tape (Item 20, Appendix D)
Cap and Plug Set (Item 14, Appendix D)
Ties, Cable, Plastic (Item 69, Appendix D)
Oil, Lubricating, OE/HDO 10 (Item 42, Appendix D)

a. Hydraulic Hose and Tubing 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.**
- **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 hoses, tubes, and connection points to prevent contamination of M1089 wrecker control panel hydraulic system. Failure to comply may result in damage to equipment.

NOTE

- Refer to **Table 19-1. M1089 Wrecker Control Panel External Power Hydraulic Hose and Tubing Locations** and **Table 19-2. M1089 Wrecker Control Panel Pressure and Function Hydraulic Hose and Tubing Locations** for locations of wrecker control panel hydraulic hoses and tubes. It may not be necessary to remove all hoses and/or tubes at one time.
- Tag hoses, tubes, and connection points prior to removal.
- Remove plastic cable ties as required.
- Remove clamps and support brackets as required.
- Position drain pan to collect oil.

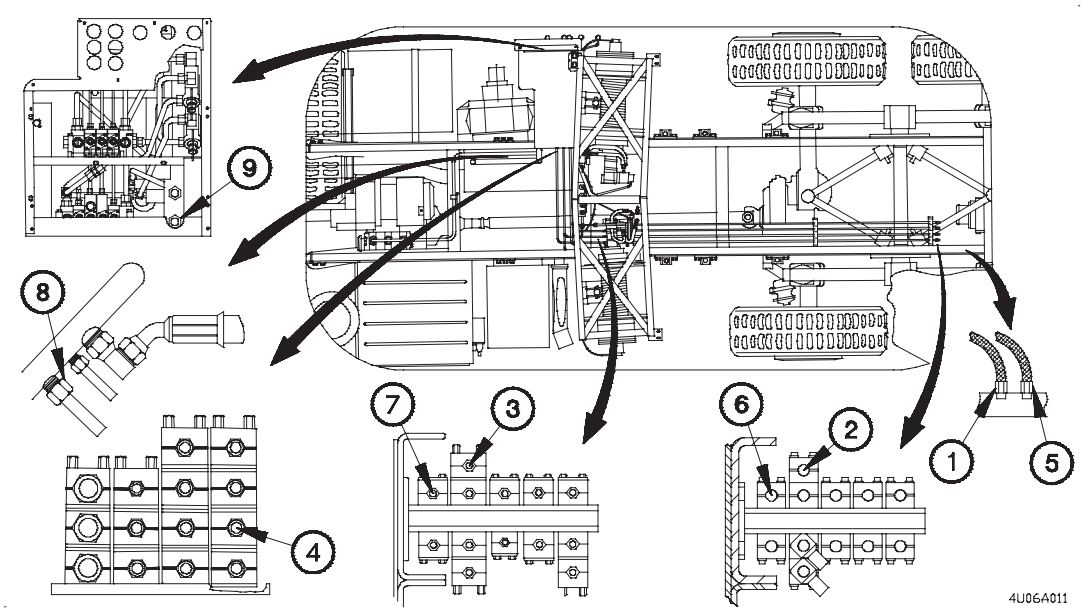


Figure 19-1.2. M1089 Wrecker Control Panel External Power Hydraulic Hose and Tubing Locations

Table 19-1. M1089 Wrecker Control Panel External Power Hydraulic Hose and Tubing Locations

Hydraulic Hose or Tube Name	From	To	Torque
External Power Pressure Hose	Bulkhead head fitting (1)	Union (2)	36-39 lb-ft (49-53 N·m)
Rear External Power Pressure Tube	Union (2)	Union (3)	36-39 lb-ft (49-53 N·m)
Intermediate External Power Pressure Tube	Union (3)	Union (4)	36-39 lb-ft (49-53 N·m)
External Power Return Hose	Bulkhead fitting (5)	Union (6)	36-39 lb-ft (49-53 N·m)
Rear External Power Return Tube	Union (6)	Union (7)	36-39 lb-ft (49-53 N·m)
Front External Power Return Tube	Union (7)	Return Manifold Fitting (8)	36-39 lb-ft (49-53 N·m)
Forward External Power Pressure Tube	Union (4)	Slave/External Power Valve Fitting (9)	36-39 lb-ft (49-53 N·m)

19-6. M1089 WRECKER CONTROL PANEL HOSES AND TUBING REPLACEMENT (CONT)

Figure 19-2. M1089 Wrecker Control Panel Pressure and Function Hydraulic Hose and Tubing Locations

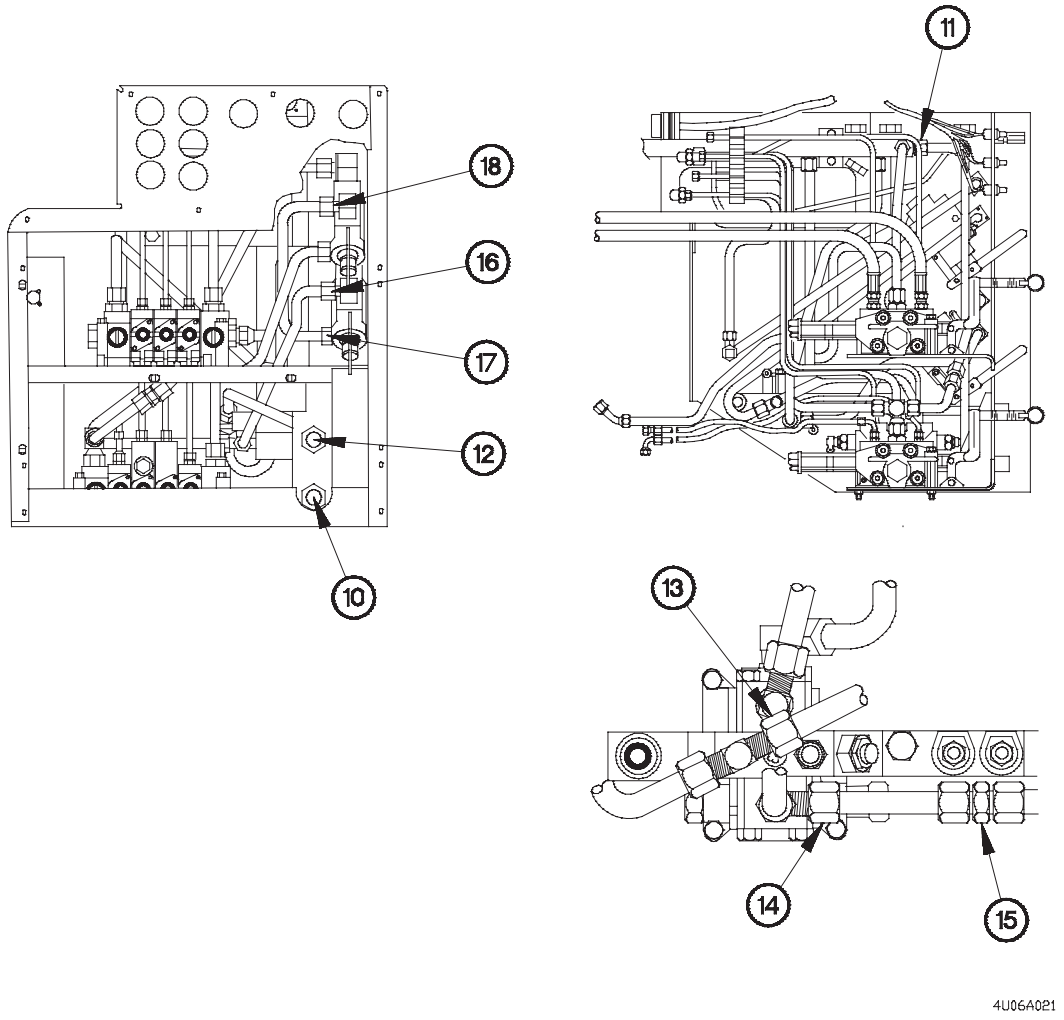


Table 19-2. M1089 Wrecker Control Panel Pressure and Function Hydraulic Hose and Tubing Locations

Hydraulic Hose or Tube Name	From	To	Torque
Slave Power Return Tube	Bulkhead fitting (10)	Return manifold fitting (11)	36-39 lb-ft (49-53 N·m)
Slave Power Pressure Tube	Bulkhead fitting (12)	Slave/External Power valve fitting (13)	39-88 lb-ft (49-119 N·m)
Secondary Pressure Lower	Slave External Power Valve fitting (14)	Check valve (15)	39-88 lb-ft (49-119 N·m)
Secondary Power Upper	Check valve (15)	Secondary circuit manual control valve fitting (16)	39-88 lb-ft (49-119 N·m)
Mode-Secondary Circuit Interconnect Tube	Secondary circuit manual control valve fitting (17)	Mode selector manual control valve fitting (18)	39-88 lb-ft (49-119 N·m)

Figure 19-2. M1089 Wrecker Control Panel Pressure and Function Hydraulic Hose and Tubing Locations (Cont)

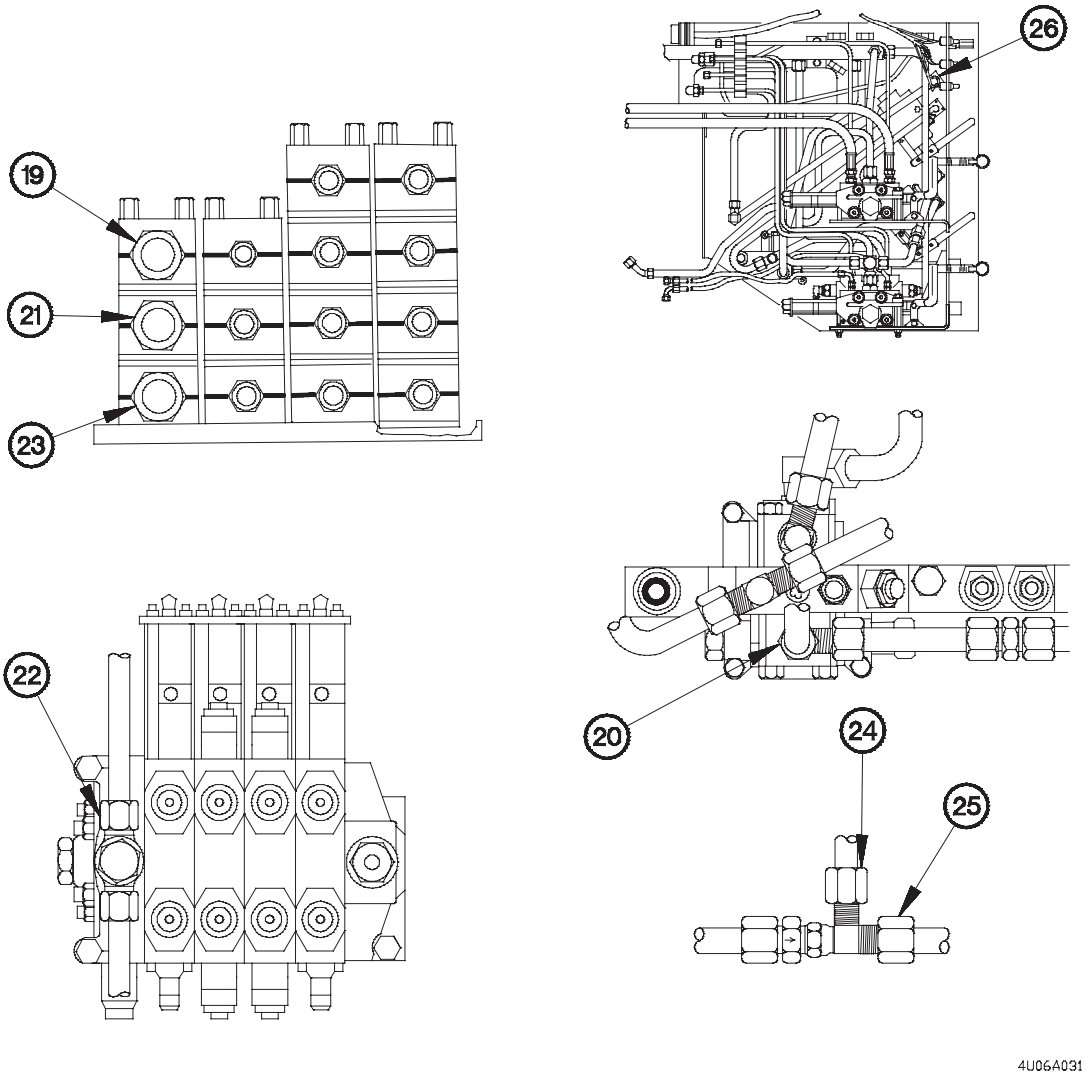


Table 19-2. M1089 Wrecker Control Panel Pressure and Function Hydraulic Hose and Tubing Locations (Cont)

Hydraulic Hose or Tube Name	From	To	Torque
Circuit "A" Pressure Tube	Union (19)	Slave/External Power Valve Fitting (20)	39-88 lb-ft (49-119 N·m)
Circuit "B" Pressure Tube	Union (21)	Four function manual control valve fitting (22)	39-88 lb-ft (49-119 N·m)
Circuit "C" Pressure Tube	Union (23)	Three way tee fitting (24)	39-88 lb-ft (49-119 N·m)
Mode Select Pressure Tube	Three way tee fitting (25)	Mode selector manual control valve fitting (26)	39-88 lb-ft (49-119 N·m)

19-6. M1089 WRECKER CONTROL PANEL HOSES AND TUBING REPLACEMENT (CONT)

Figure 19-2. M1089 Wrecker Control Panel Pressure and Function Hydraulic Hose and Tubing Locations (Cont)

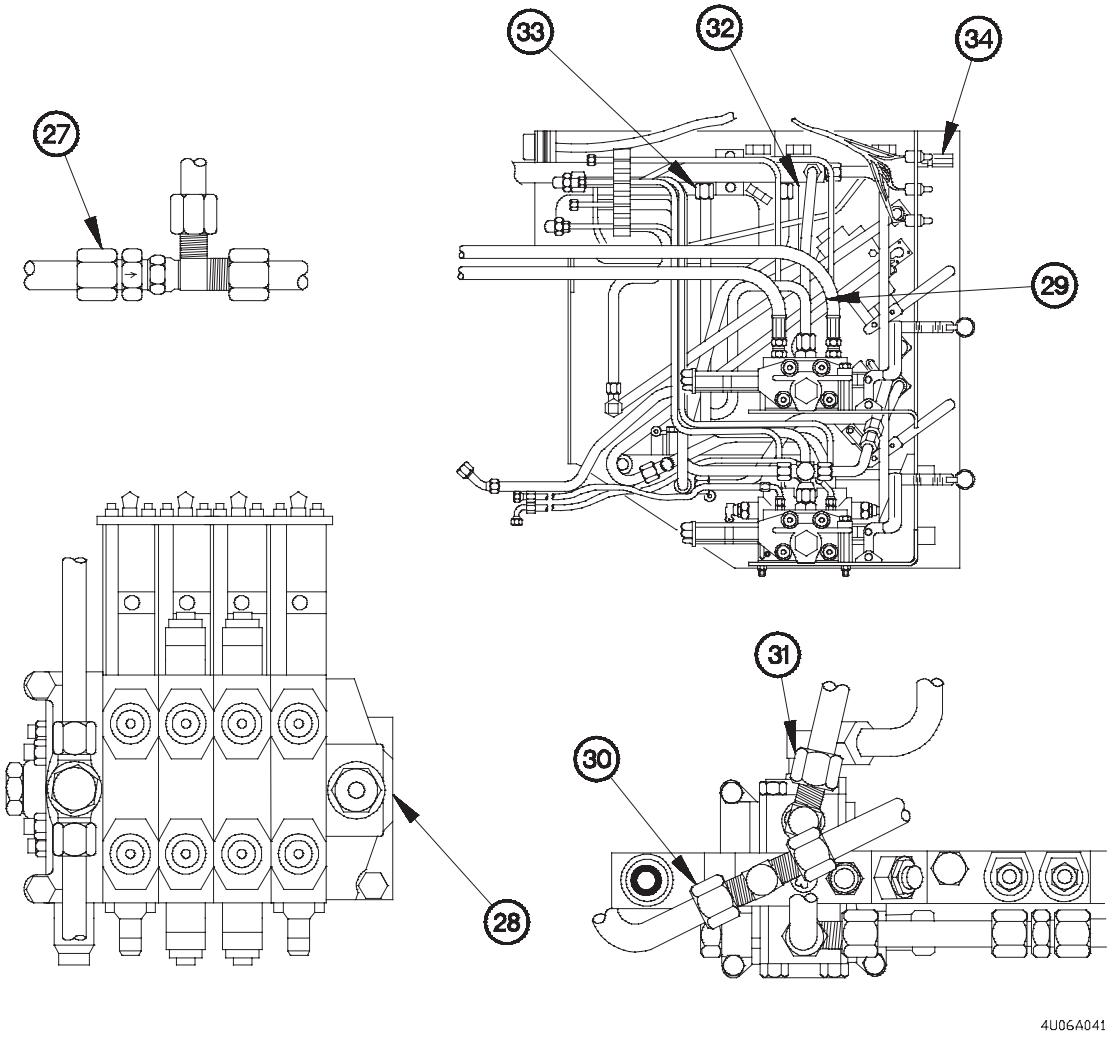


Table 19-2. M1089 Wrecker Control Panel Pressure and Function Hydraulic Hose and Tubing Locations (Cont)

Hydraulic Hose or Tube Name	From	To	Torque
Material Handling Crane Pressure Tube	Three way tee fitting (27)	Eight function manual control valve fitting (28)	39-88 lb-ft (49-119 N·m)
Interconnect Pressure Tube	Mode selector manual control valve fitting (29)	Slave/External Power Valve Fitting (30)	39-88 lb-ft (49-119 N·m)
Slave/External Power Valve Return Tube	Slave/External Power Valve Fitting (31)	Return manifold fitting (32)	39-88 lb-ft (49-119 N·m)
Oil Sample Hose	Return manifold fitting (33)	Control panel oil sample valve fitting (34)	36-39 lb-ft (49-53 N·m)

Figure 19-2. M1089 Wrecker Control Panel Pressure and Function Hydraulic Hose and Tubing Locations (Cont)

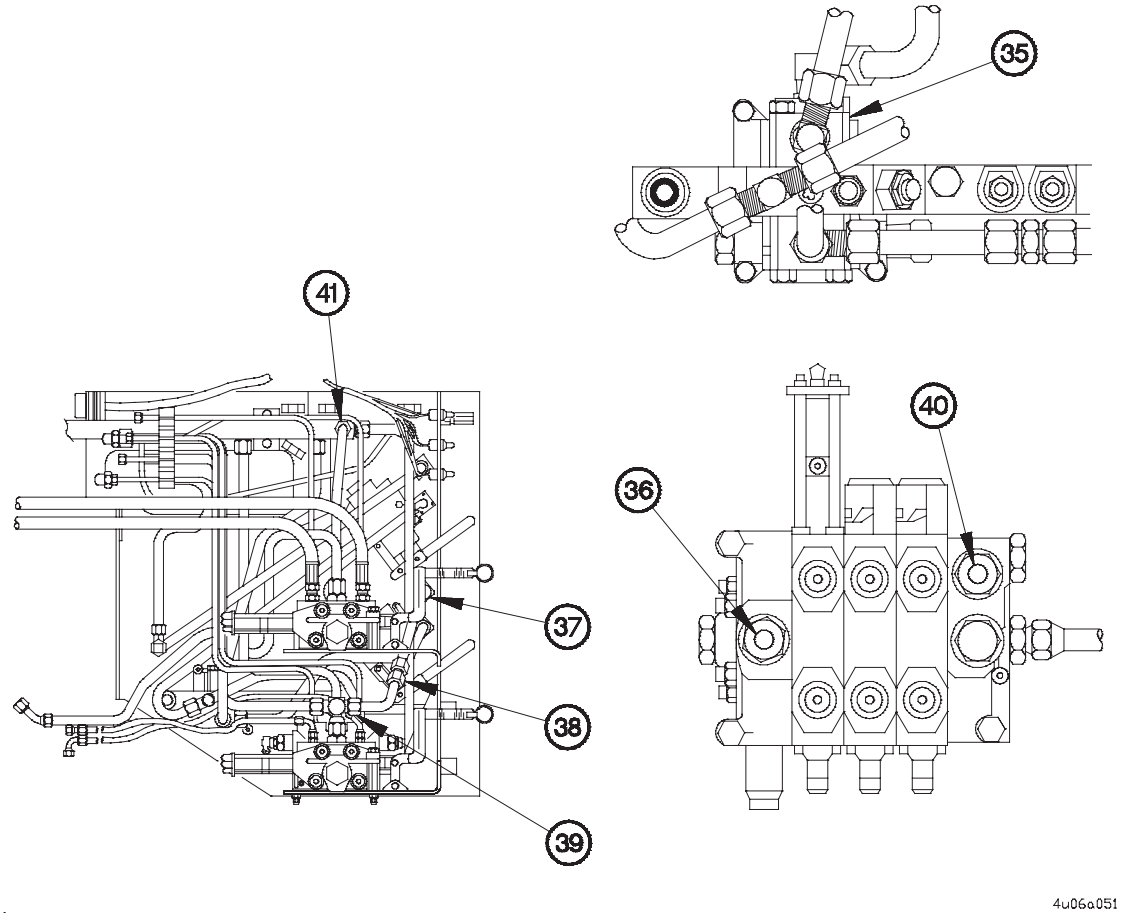


Table 19-2. M1089 Wrecker Control Panel Pressure and Function Hydraulic Hose and Tubing Locations (Cont)

Hydraulic Hose or Tube Name	From	To	Torque
Three Function Manual Control Valve Pressure Tube	Slave/External Power Valve Fitting (35)	Three Function Manual Control Valve Fitting (36)	39-88 lb-ft (49-119 N·m)
Four Function Manual Control Valve Pressure Tube Front	Secondary Circuit Manual Control Valve Fitting (37)	Check Valve (38)	39-88 lb-ft (49-119 N·m)
Four Function Manual Control Valve Pressure Tube Rear	Check Valve (38)	Four Function Manual Control Valve Fitting (39)	39-88 lb-ft (49-119 N·m)
Three Function Manual Control Valve Return Tube	Three Function Manual Control Valve Fitting (40)	Return Manifold Fitting (41)	39-88 lb-ft (49-119 N·m)

19-6. M1089 WRECKER CONTROL PANEL HOSES AND TUBING REPLACEMENT (CONT)

Figure 19-2. M1089 Wrecker Control Panel Pressure and Function Hydraulic Hose and Tubing Locations (Cont)

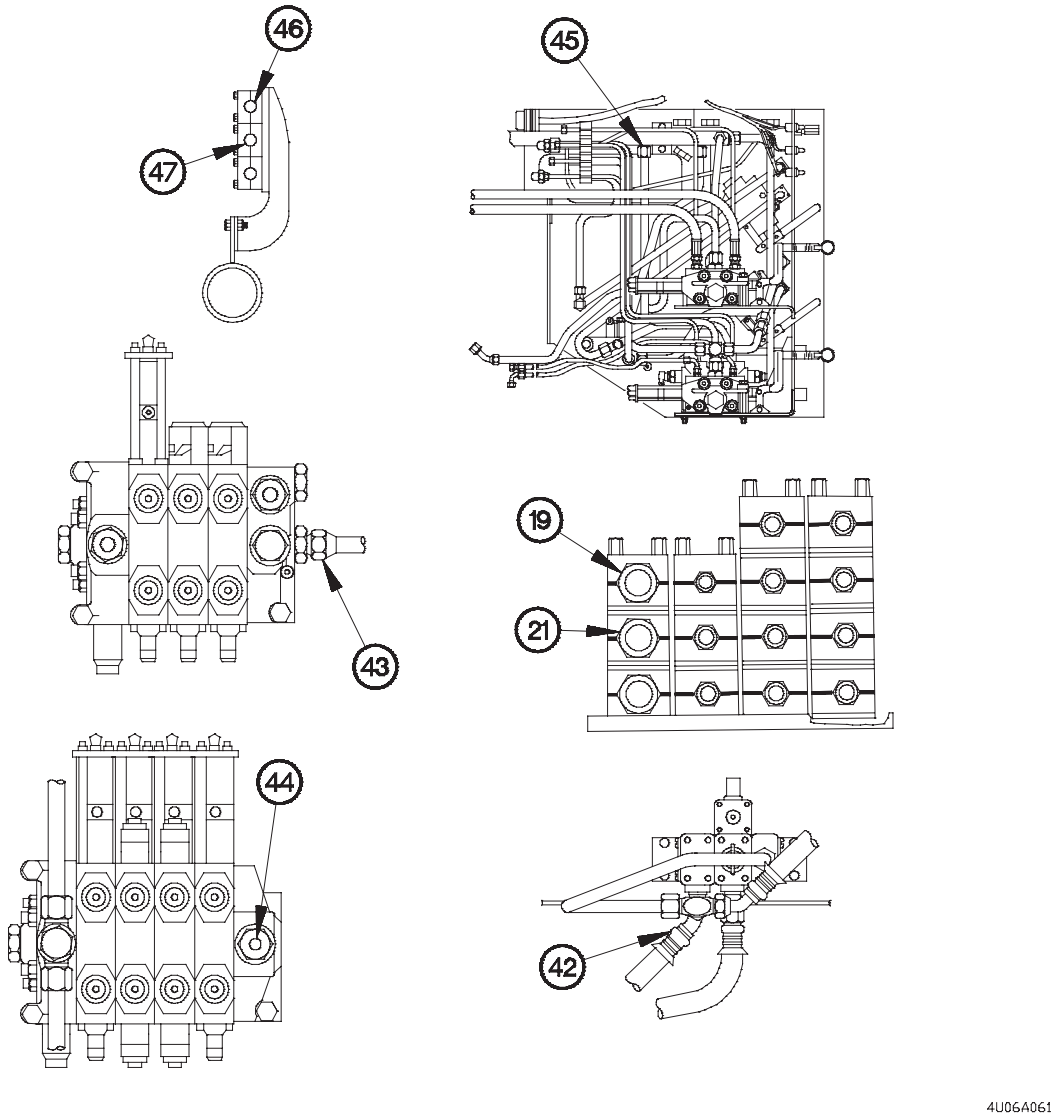


Table 19-2. M1089 Wrecker Control Panel Pressure and Function Hydraulic Hose and Tubing Locations (Cont)

Hydraulic Hose or Tube Name	From	To	Torque
Self-Recovery Winch Return Hose	Self-Recovery Control Valve Fitting (42)	Three Function Manual Control Valve Fitting (43)	39-88 lb-ft (49-119 N·m)
Four Function Manual Control Return Tube	Four Function Manual Control Valve Fitting (44)	Return Manifold Fitting (45)	39-88 lb-ft (49-119 N·m)
Circuit "A" Pressure Tube Forward	Union (19)	Union (46)	39-88 lb-ft (49-119 N·m)
Circuit "B" Pressure Tube Forward	Union (21)	Union (47)	39-88 lb-ft (49-119 N·m)

b. Follow-On Maintenance.

(1) Fill hydraulic tank with oil (Appendix H).

(2) Operate 30K winches, 15K SRW, underlift, and MHC (TM 9-2320-366-10-2).

(3) Check for oil leaks around hoses, tubes, and fittings.

End of Task.

19-7. CAB HYDRAULIC LATCH REPLACEMENT/ADJUSTMENT

This task covers:

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

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-366-10-1).
Cab raised (TM 9-2320-366-10-1).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Wrench, Torque, 0-175 lb-ft (Item 58, Appendix C)
Pan, Drain (Item 24, Appendix C)
Goggles, Industrial (Item 15, Appendix C)
Gloves, Rubber (Item 13, Appendix C)

Materials/Parts
Cap and Plug Set (Item 14, Appendix D)
Hydraulic Fluid A (Item 25, Appendix D)
Nut, Self-Locking (4) (Item 168, Appendix G)

a. Removal.

(1) Position drain pan under hydraulic hose (1).

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.

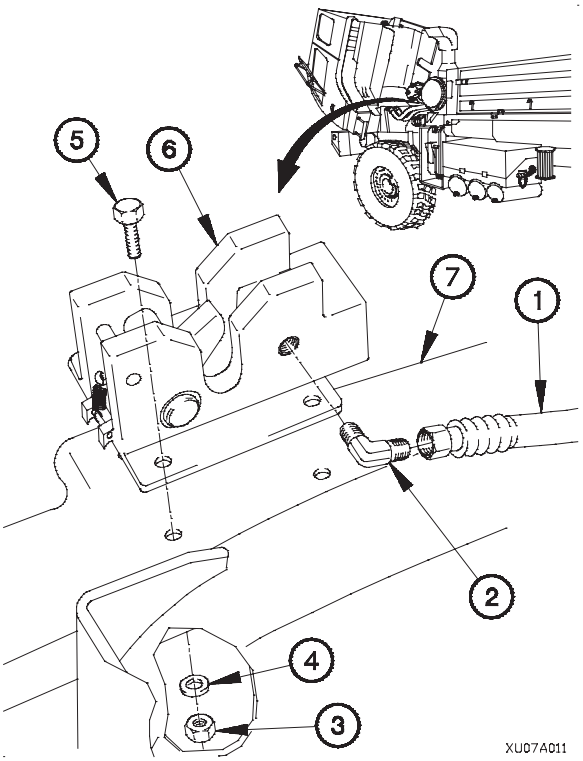
CAUTION

Cap or plug hydraulic hose and connection point to prevent contamination of hydraulic system. Failure to comply may result in damage to equipment.

(2) Disconnect hydraulic hose (1) from 90-degree fitting (2).

(3) Remove four self-locking nuts (3), washers (4), screws (5), and hydraulic latch (6) from cab support assembly (7). Discard self-locking nuts.

(4) Remove 90-degree fitting (2) from hydraulic latch (6).

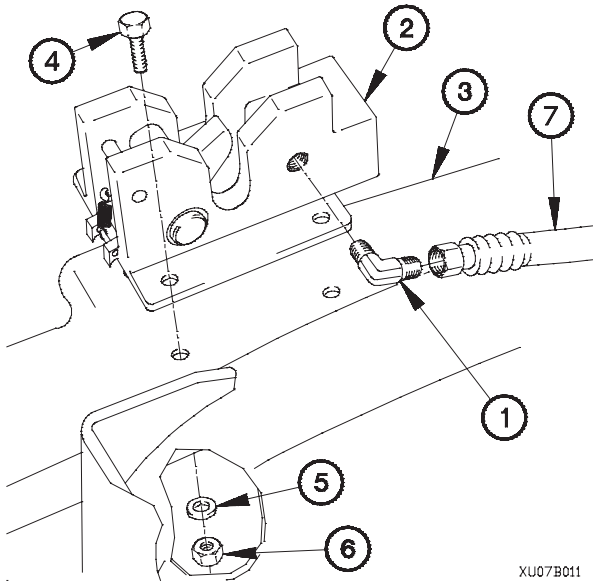


b. Installation.

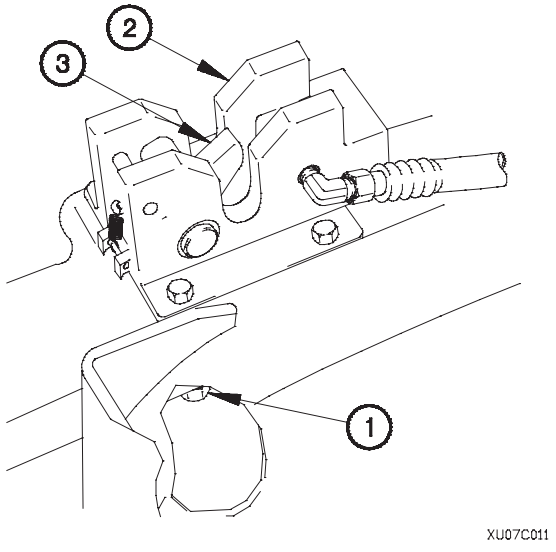
(1) Install 90-degree fitting (1) in hydraulic latch (2).

(2) Position hydraulic latch (2) on cab support assembly (3) with four screws (4), washers (5), and self-locking nuts (6).

(3) Connect hydraulic hose (7) to 90-degree fitting (1).



c. Adjustment.



(1) Loosen four nuts (1) on hydraulic latch (2).

NOTE

Perform step (2) and note position of cab latching hook assembly when it is near hydraulic latch.

(2) Lower cab (TM 9-2320-366-10-1).

(3) Raise cab (TM 9-2320-366-10-1).

(4) Position hydraulic latch (2) to engage cab latching hook assembly (3).

(5) Tighten four self-locking nuts (1) to 34-44 lb-ft (46-60 N·m).

(6) Lower cab (TM 9-2320-366-10-1).

(7) Check cab latching hook assembly (3) for proper operation.

(8) Perform steps (1) through (7), as required.

19-7. CAB HYDRAULIC LATCH REPLACEMENT/ADJUSTMENT (CONT)

d. Follow-On Maintenance.

Fill air transportability hydraulic system (Appendix H).

End of Task.

19-8. AIR TRANSPORTABILITY HYDRAULIC SYSTEM SERVICE

This task covers:

a. Purging

b. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-366-10-1).
Air tanks drained (TM 9-2320-366-10-1).
M13 decontamination unit removed, if equipped (TM 3-4230-214-12&P).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Pan, Drain (Item 24, Appendix C)
Wrench, Torque 0-175 lb-ft (Item 58, Appendix C)
Gloves, Rubber (Item 13, Appendix C)
Goggles, Industrial (Item 15, Appendix C)

Materials/Parts
Dispenser, Pressure Sensitive Adhesive Tape (Item 20, Appendix D)
Solvent, Dry Cleaning (Item 65, Appendix D)
Hydraulic Fluid A (Item 25, Appendix D)
Washer, Spring (4) (Item 292, Appendix G)
Gasket (Item 31, Appendix G)
Filter Assembly (2) (Item 14, Appendix G)
Packing, Preformed (Item 186, Appendix G)

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.

a. Purging.

NOTE

Perform the following steps to ensure all air and contaminants are removed from air transportability hydraulic system.

(1) Remove two screws (1), washers (2) and cover (3) from back-up hydraulic pump (4).

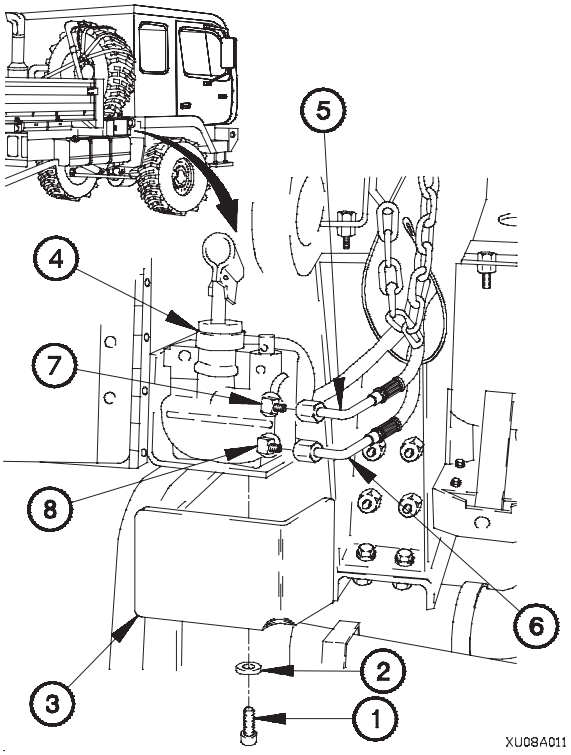
(2) Position drain pan under back-up hydraulic pump (4).

NOTE

Tag hoses and connection points prior to disconnecting.

(3) Disconnect hydraulic hoses (5 and 6) from 90-degree fittings (7 and 8).

(4) Operate back-up hydraulic pump (4) until hydraulic fluid stops flowing (TM 9-2320-366-10-2).



19-8. AIR TRANSPORTABILITY HYDRAULIC SYSTEM SERVICE (CONT)

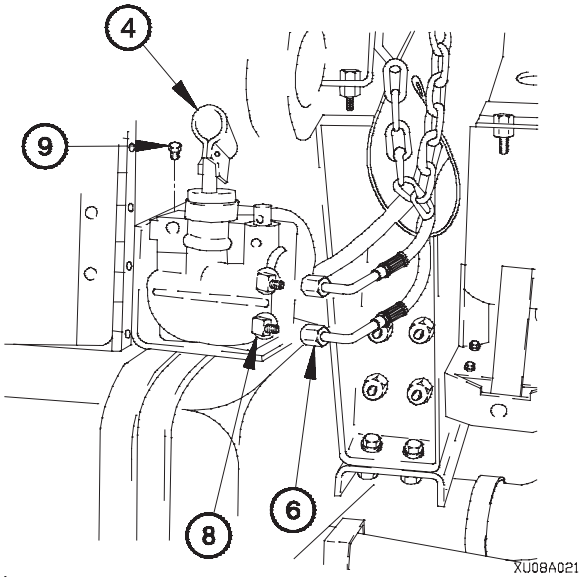
(5) Remove filler plug (9) from back-up hydraulic pump (4).

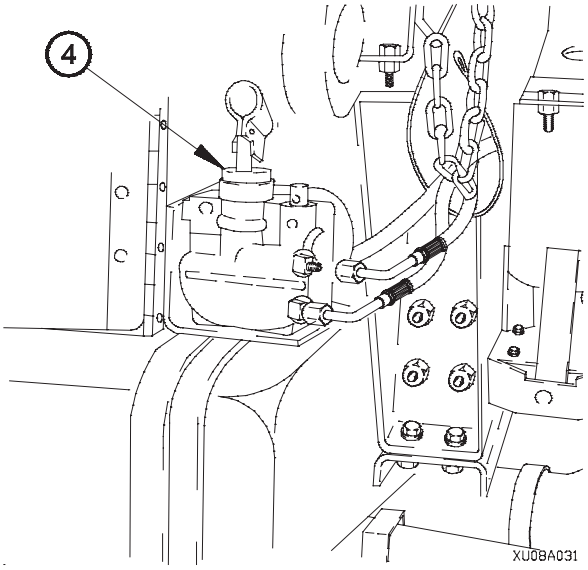
(6) Fill back-up hydraulic pump (4) with hydraulic fluid (Appendix H).

(7) Install filler plug (9) in back-up hydraulic pump (4).

(8) Operate back-up hydraulic pump (4) until hydraulic fluid starts flowing (TM 9-2320-366-10-2).

(9) Install bottom hydraulic hose (6) on 90-degree fitting (8).





(10) Repeat steps (5) through (7).

(11) Raise cab with back-up hydraulic pump (4) (TM 9-2320-366-10-2).

(12) Repeat steps (5) through (7).

(13) Lower cab with back-up hydraulic pump (4) (TM 9-2320-366-10-2).

(14) Repeat steps (5) through (7).

(15) Repeat steps (11) through (14) until hydraulic fluid is cleared of foam, grit, and other contaminants.

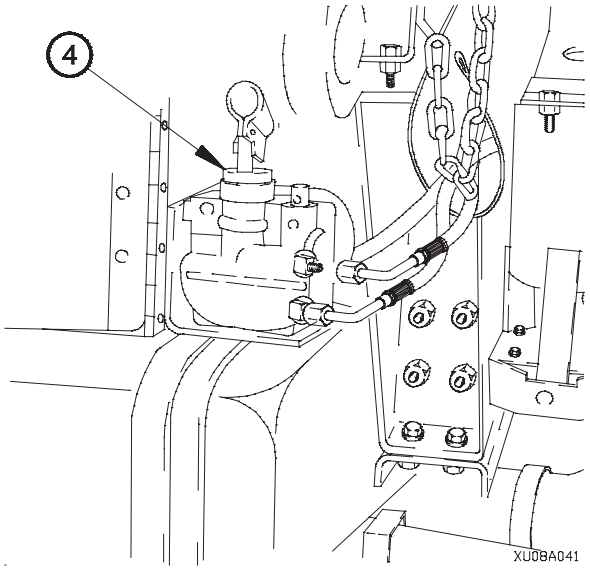
(16) Lower spare tire with back-up hydraulic pump (4) (TM 9-2320-366-10-2).

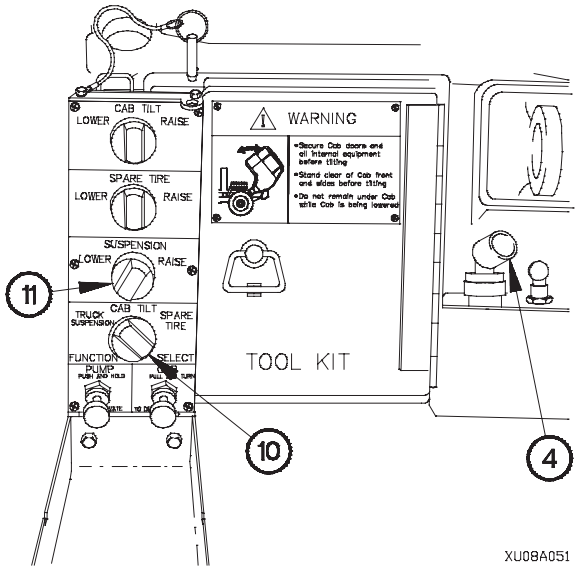
(17) Repeat steps (5) through (7).

(18) Raise spare tire with back-up hydraulic pump (4) (TM 9-2320-366-10-2).

(19) Repeat steps (5) through (7).

(20) Repeat steps (16) through (19) until hydraulic fluid is cleared of foam, grit, and other contaminants.





(21) Position FUNCTION SELECT knob (10) to TRUCK SUSPENSION.

(22) Position SUSPENSION knob (11) to RAISE.

(23) Extend suspension cylinder with back-up hydraulic pump (4) (TM 9-2320-366-10-2).

(24) Repeat steps (5) through (7).

(25) Position SUSPENSION knob (11) to LOWER.

(26) Retract suspension cylinder with back-up hydraulic pump (4) (TM 9-2320-366-10-2).

(27) Repeat steps (5) through (7).

(28) Repeat steps (22) through (27) until hydraulic fluid is cleared of foam, grit, and other contaminants.

19-8. AIR TRANSPORTABILITY HYDRAULIC SYSTEM SERVICE (CONT)

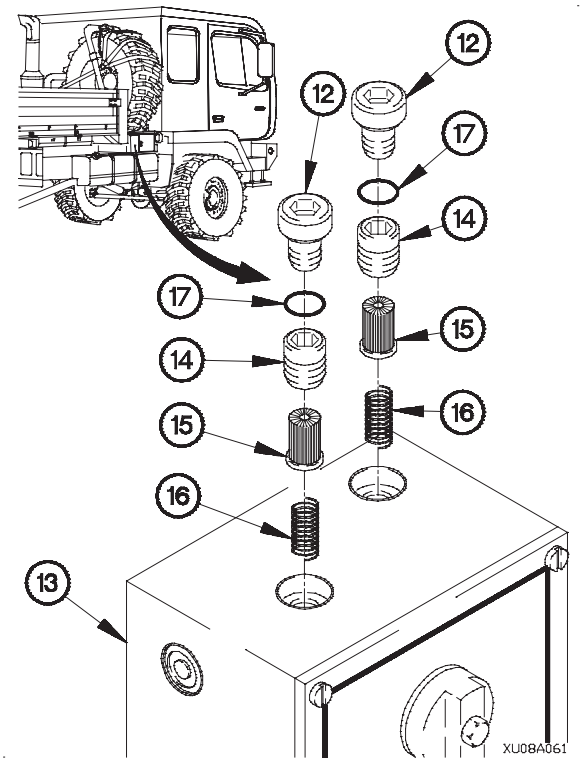
(29) Remove two plugs (12) from hydraulic manifold (13). Discard plugs.

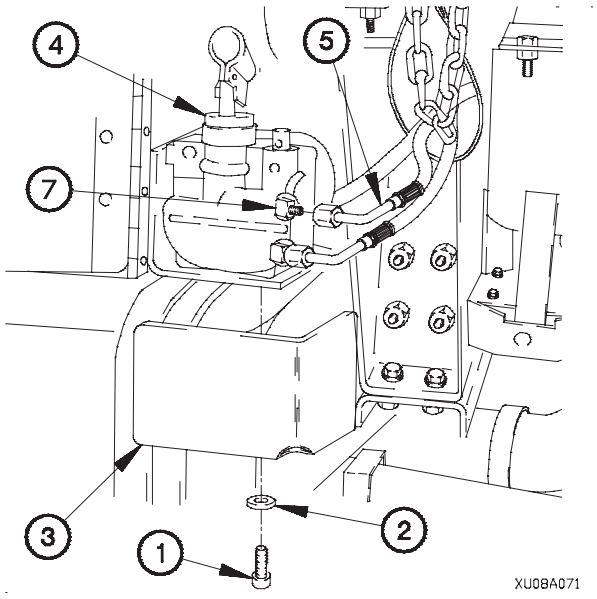
(30) Remove two retainers (14), filters (15), and springs (16) from hydraulic manifold (13). Discard retainers, filters, and springs.

(31) Position two springs (16) and filters (15) in hydraulic manifold (13) with two retainers (14).

(32) Install two preformed packings (17) on plugs (12).

(33) Install two plugs (12) in hydraulic manifold (13).





(34) Install top hydraulic hose (5) on 90-degree fitting (7).

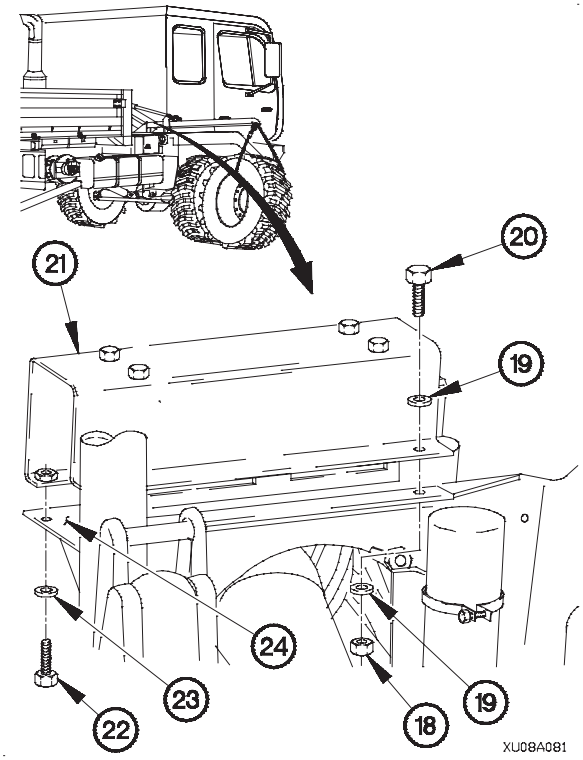
(35) Position cover (3) on back-up hydraulic pump (4) with two washers (2) and screws (1).

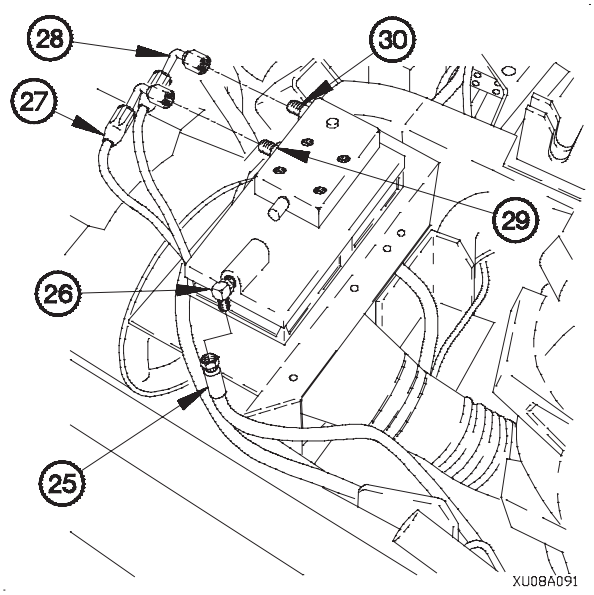
(36) Tighten two screws (1) to 19-28 lb-ft (24-38 N·m).

(37) Lower spare tire retainer with back-up hydraulic pump (TM 9-2320-366-10-2).

(38) Remove two nuts (18), four washers (19), and two screws (20) from decontamination unit mounting bracket (21).

(39) Remove two screws (22), washers (23), and decontamination unit mounting bracket (21) from spare tire retainer (24).





CAUTION

Cap or plug hoses and connection points prior to disconnecting to prevent contamination of system. Failure to comply may result in damage to equipment.

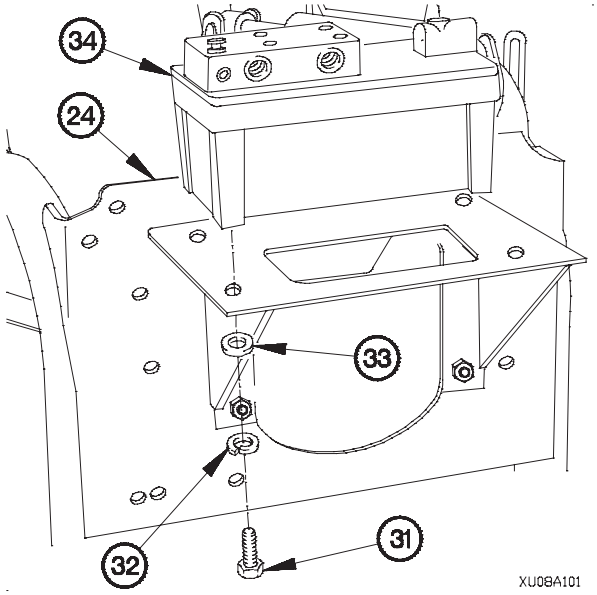
(40) Disconnect air hose (25) from 90-degree fitting (26).

(41) Disconnect hydraulic hoses (27 and 28) from fittings (29 and 30).

19-8. AIR TRANSPORTABILITY HYDRAULIC SYSTEM SERVICE (CONT)

(42) Remove four screws (31), spring washers (32), washers (33) and air/hydraulic power unit (34) from spare tire retainer (24). Discard spring washers.

(43) Remove air/hydraulic power unit (34) from vehicle.

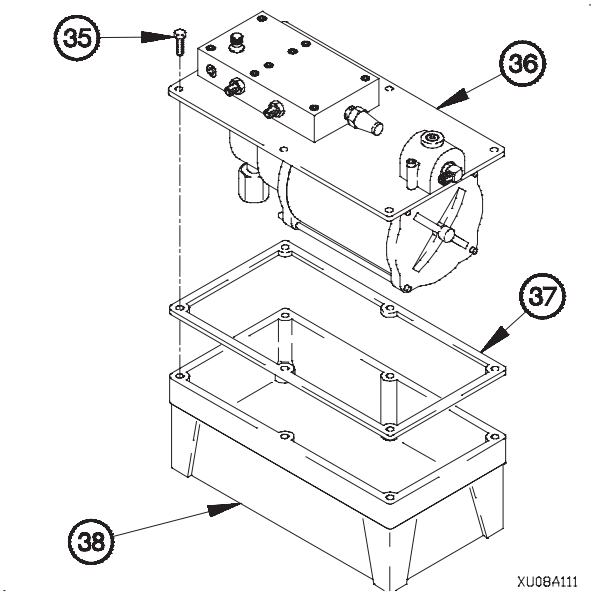


(44) Remove six screws (35), pump assembly (36) and gasket (37) from reservoir (38). Discard gasket.

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 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.**

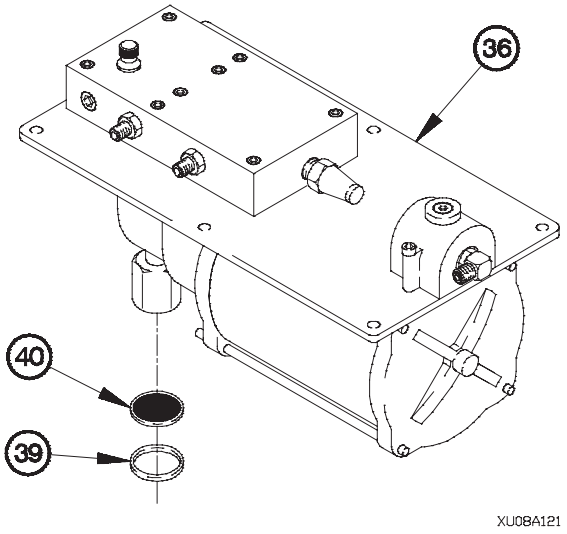


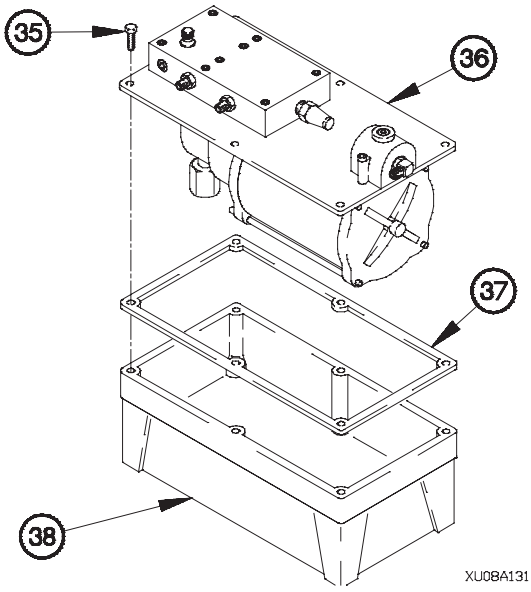
(45) Drain hydraulic oil from reservoir (38) and flush with dry cleaning solvent.

(46) Remove retaining ring (39) and strainer (40) from pump assembly (36).

(47) Flush strainer (40) and pump assembly (36) with dry cleaning solvent.

(48) Install strainer (40) on pump assembly (36) with retaining ring (39).

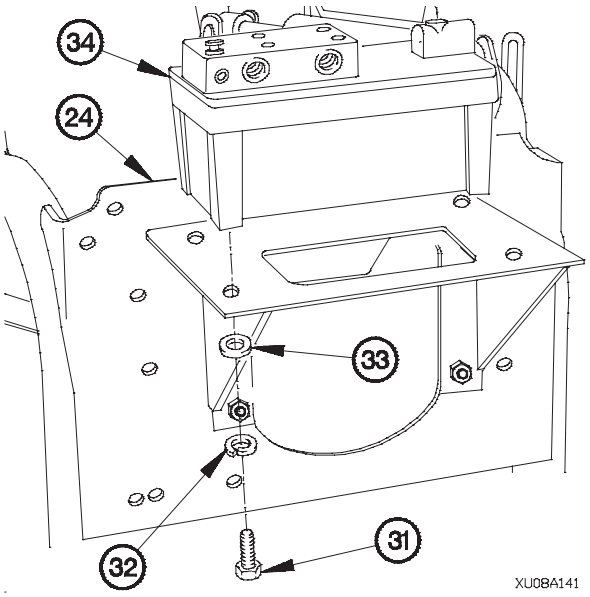




(49) Install gasket (37) and pump assembly (36) on reservoir (38) with six screws (35).

(50) Position air/hydraulic power unit (34) on spare tire retainer (24) with four washers (33), spring washers (32) and screws (31).

(51) Tighten four screws (31) to 18-22 lb-ft (24-34 N·m).



19-8. AIR TRANSPORTABILITY HYDRAULIC SYSTEM SERVICE (CONT)

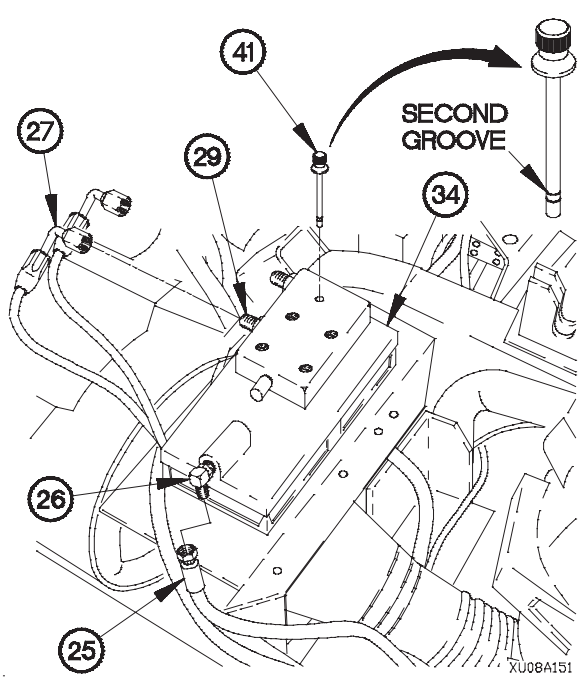
(52) Connect hydraulic hose (27) to fitting (29).

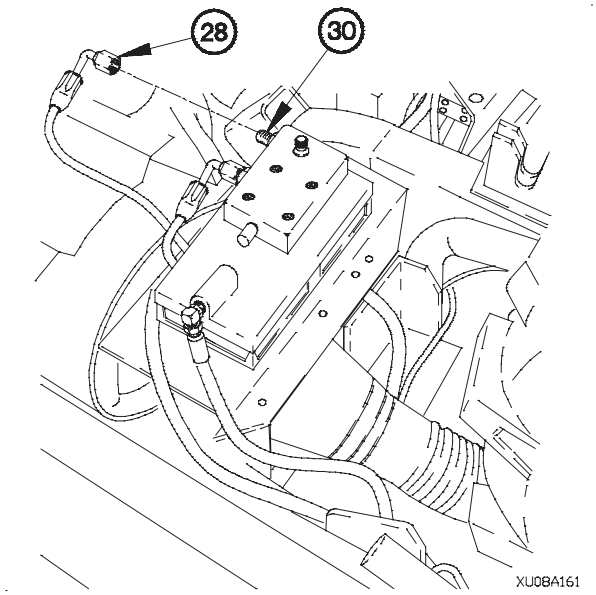
(53) Connect air hose (25) to 90-degree fitting (26).

(54) Remove dipstick (41) from air/hydraulic power unit (34).

(55) Fill air/hydraulic power unit (34) to second groove from bottom on dipstick (Appendix H).

(56) Install dipstick (41) in air/hydraulic power unit (34) and hand tighten.





(57) Start engine and allow air system to pressurize (TM 9-2320-366-10-1).

(58) Raise and lower cab using hydraulic manifold (TM 9-2320-366-10-1) until hydraulic fluid is cleared of foam, grit, and other contaminants.

(59) Repeat steps (54) through (56) as required.

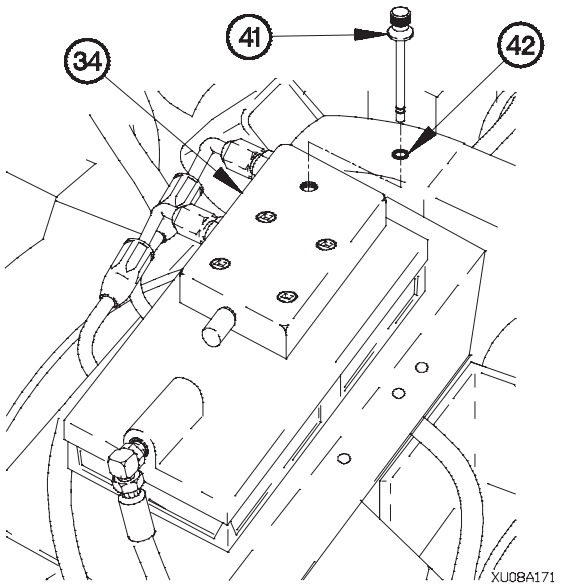
(60) Connect hydraulic hose (28) to fitting (30).

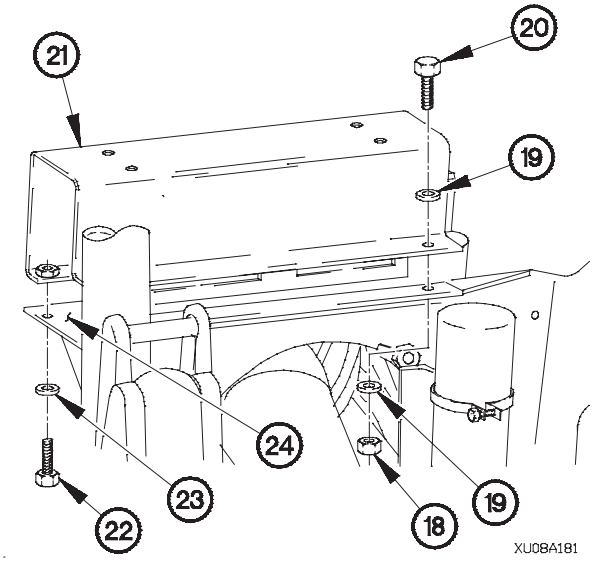
(61) Remove dipstick (41) from air/hydraulic power unit (34).

(62) Remove preformed packing (42) from dipstick (41). Discard preformed packing.

(63) Install preformed packing (42) on dipstick (41).

(64) Install dipstick (41) in air/hydraulic power unit (34) and hand tighten.





(65) Position decontamination unit mounting bracket (21) on spare tire retainer (24) with two washers (23) and screws (22).

(66) Position four washers (19), two screws (20), and nuts (18) in decontamination unit mounting bracket (21).

(67) Tighten two screws (22) and nuts (18) to 18-22 lb-ft (24-30 N·m).

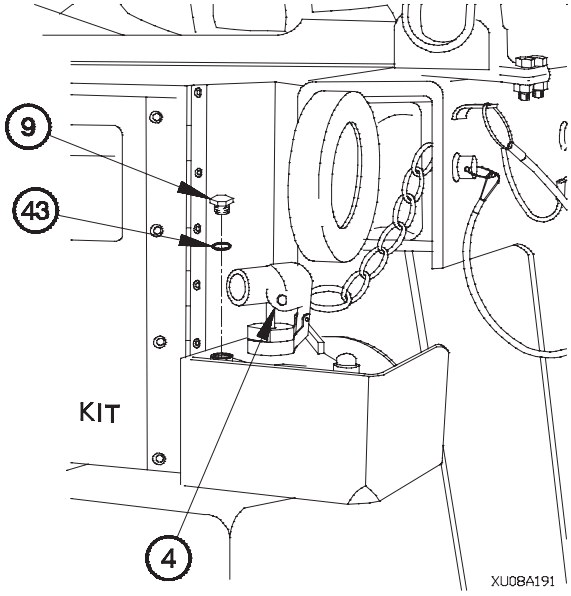
(68) Remove filler plug (9) from back-up hydraulic pump (4).

(69) Remove preformed packing (43) from filler plug (9). Discard preformed packing.

(70) Fill back-up hydraulic pump (4) with hydraulic fluid.

(71) Install preformed packing (43) on filler plug (9).

(72) Install filler plug (9) in back-up hydraulic pump (4).



19-8. AIR TRANSPORTABILITY HYDRAULIC SYSTEM SERVICE (CONT)

b. Follow-On Maintenance.

Raise and lower cab (TM 9-2320-366-10-1) and check for hydraulic fluid leaks around hoses and fittings.

End of Task.

19-9. EMERGENCY CAB LIFT PROCEDURE

This task covers:

a. Cab Lift

b. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-366-10-1).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Goggles, Industrial (Item 15, Appendix C)
Gloves, Rubber (Item 13, Appendix C)
Pan, Drain (Item 24, Appendix C)
Cab Support Tool (Item E-4, Appendix E)

Materials/Parts
Cap and Plug Set (Item 14, Appendix D)
Nut, Self-locking (4) (Item 168, Appendix G)

Personnel Required
(2)

a. Cab Lift.

CAUTION

Perform this task in the event that the air/ hydraulic power unit and the back-up hydraulic pump are inoperative at the same time.

(1) Place drain pan under hydraulic hose (1).

WARNING

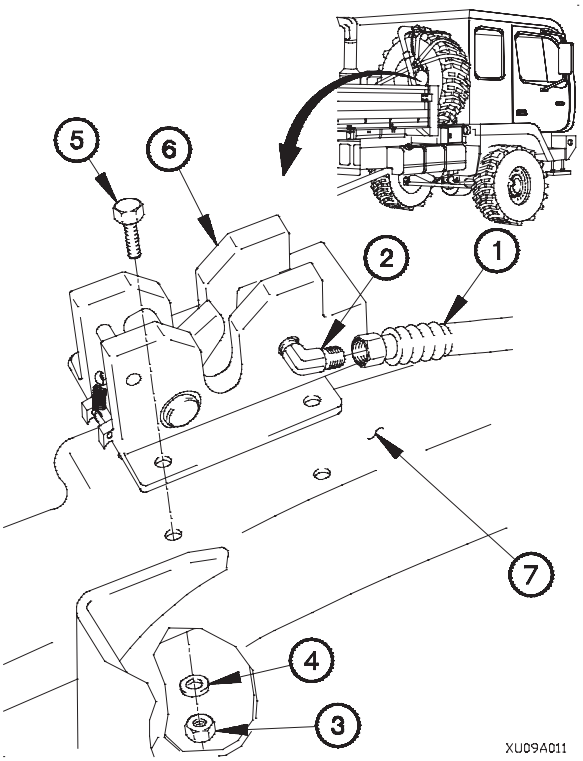
Hydraulic fluid (MIL-H-5606) is TOXIC. Wear protective goggles and gloves; use only in well-ventilated area; avoid contact with skin, eyes, and clothes. Skin and clothing that come in contact with hydraulic oil should be washed immediately. Saturated clothing should be removed immediately. Failure to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

CAUTION

Cap or plug hose and connection point to prevent contamination of hydraulic system. Failure to comply may result in damage to equipment.

(2) Disconnect hydraulic hose (1) from 90-degree fitting (2).

(3) Remove four self-locking nuts (3), washers (4), screws (5), from cab hydraulic latch (6) and cab support assembly (7). Discard self-locking nuts.



19-9. EMERGENCY CAB LIFT PROCEDURE (CONT)

WARNING

Cab weighs approximately 3000 lbs (1362 kgs) attach a suitable lifting device prior to raising cab. Failure to comply may result in injury to personnel.

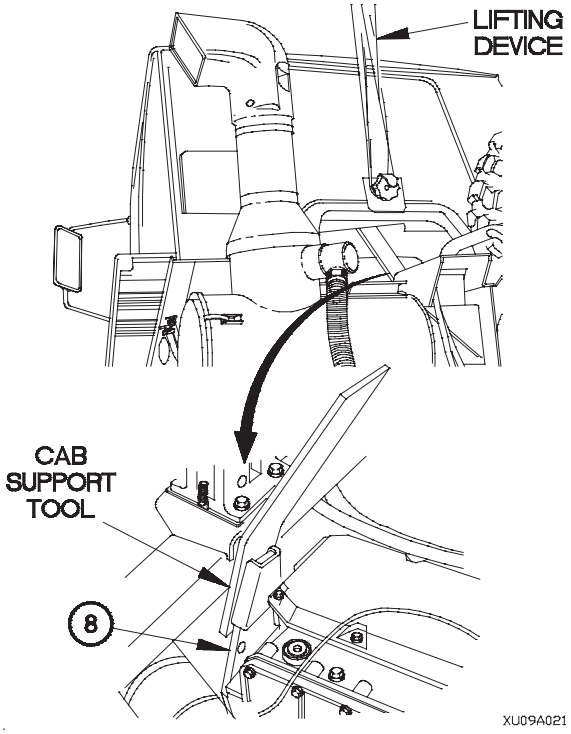
NOTE

Steps (4) through (6) require the aid of an assistant.

(4) Raise cab.

(5) Install cab support tool on rear engine lift bracket (8).

(6) Lower cab on cab support tool.



b. Follow-On Maintenance.

(1) Perform air transportability hydraulic system troubleshooting to determine cause of malfunction.

(2) Install cab hydraulic latch (para 19-7).

End of Task.

19-10. SUSPENSION CYLINDER REPLACEMENT

This task covers:

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

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-366-10-1).
Cab raised (TM 9-2320-366-10-1).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Goggles, Industrial (Item 15, Appendix C)
Gloves, Rubber (Item 13, Appendix C)
Wrench, Torque, 0-175 lb-ft (Item 58, Appendix C)
Wrench, Torque, 0-600 lb-ft (Item 60, Appendix C)
Wrench, Torque, 0-200 lb-in. (Item 59, Appendix C)
Wrench Set, Socket (Item 50, Appendix C)
Socket Set, Socket Wrench (Item 34, Appendix C)

Materials/Parts
Cap and Plug Set (Item 14, Appendix D)
Hydraulic Fluid A (Item 25, Appendix D)
Packing, Preformed (2) (Item 186, Appendix G)
Nut, Self-Locking (Item 128, Appendix G)
Pin, Cotter (Item 226, Appendix G)

Personnel Required
(2)

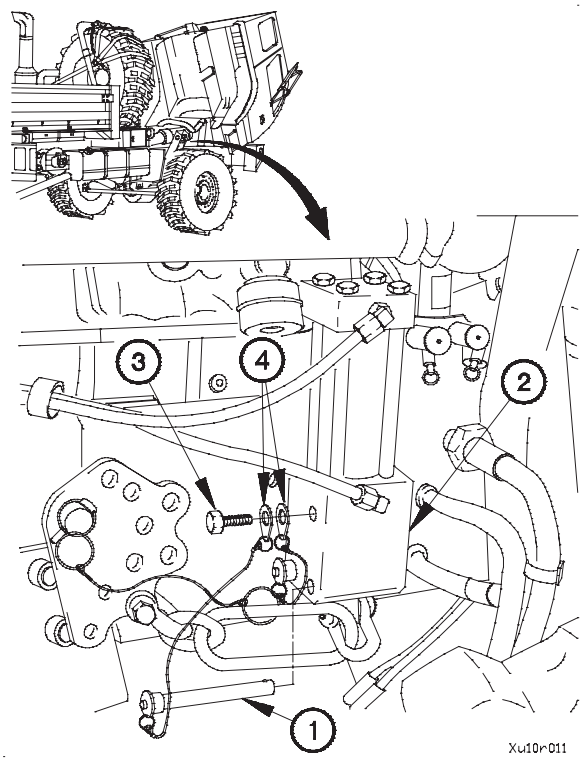
a. Removal.

NOTE

Left and right suspension cylinders are removed the same way. Right side shown.

(1) Remove two quick release pins (1) from suspension cylinder (2).

(2) Remove screw (3) and two lanyards (4) from suspension cylinder (2).



19-10. SUSPENSION CYLINDER REPLACEMENT (CONT)

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 comes in contact with hydraulic oil should be washed immediately. Saturated clothing should be removed immediately. Failure to comply may result in injury to personnel.

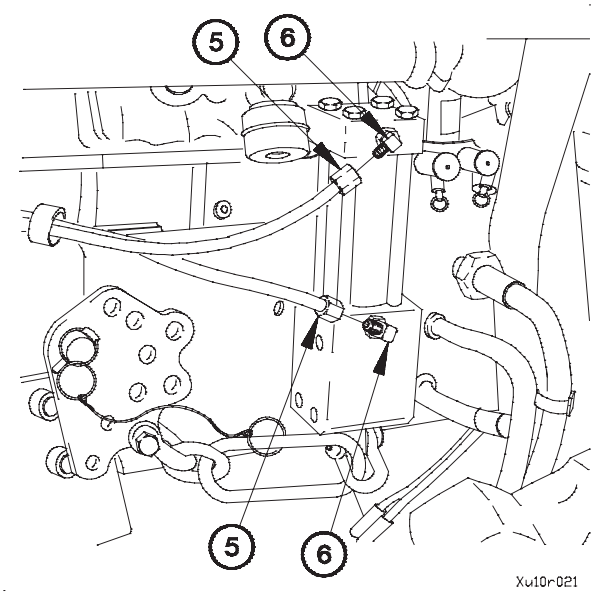
CAUTION

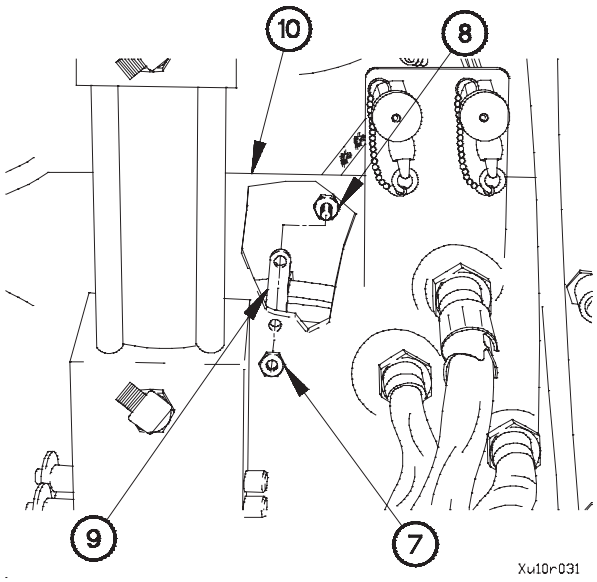
Cap or plug hydraulic hoses and connection points to prevent contamination of hydraulic system. Failure to comply may result in damage to equipment.

NOTE

Tag hydraulic hoses and connection points prior to disconnecting.

(3) Disconnect two hydraulic hoses (5) from 90-degree fittings (6).





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

Step (4) requires the aid of an assistant.

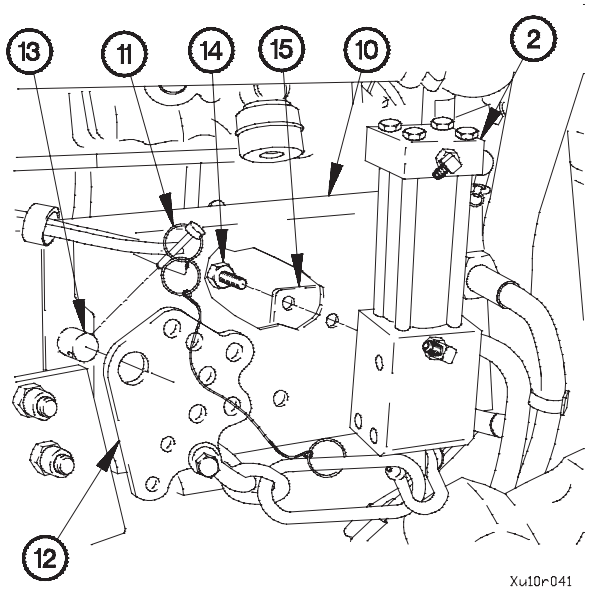
(4) Remove self-locking nut (7), screw (8), and clamp (9) from frame rail (10). Discard self-locking nut.

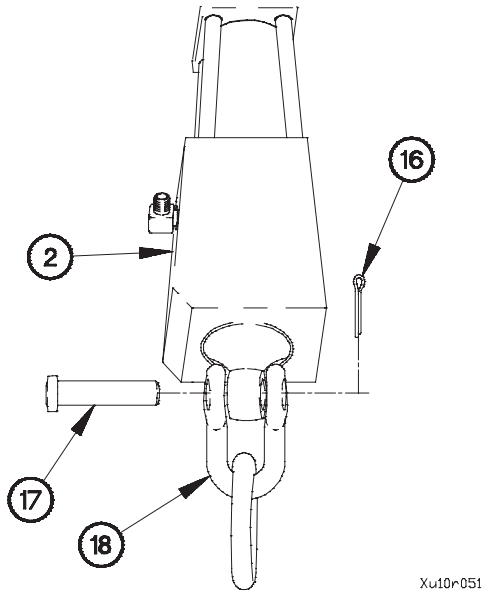
(5) Remove spring pin (11) and suspension compression plate (12) from suspension compression plate stud (13).

NOTE

Step (6) requires the aid of an assistant.

(6) Remove three screws (14), plate (15), and suspension cylinder (2) from frame rail (10).





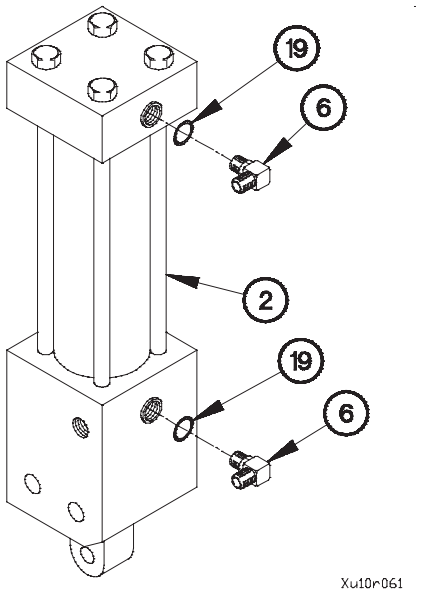
(7) Remove cotter pin (16), pin (17), and shackle (18) from suspension cylinder (2). Discard cotter pin.

NOTE

Note orientation of fittings prior to removal.

(8) Remove two 90-degree fittings (6) from suspension cylinder (2).

(9) Remove two preformed packings (19) from 90-degree fittings (6). Discard preformed packings.



19-10. SUSPENSION CYLINDER REPLACEMENT (CONT)

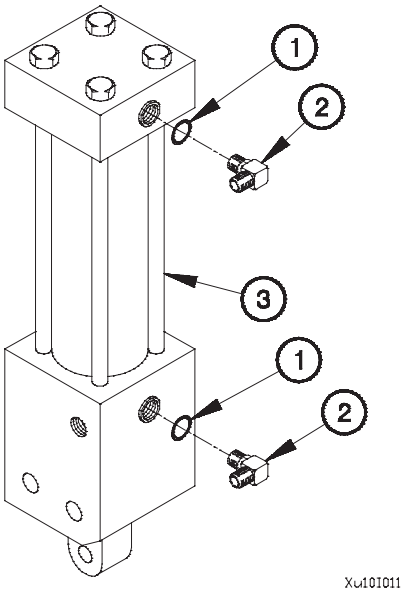
b. Installation.

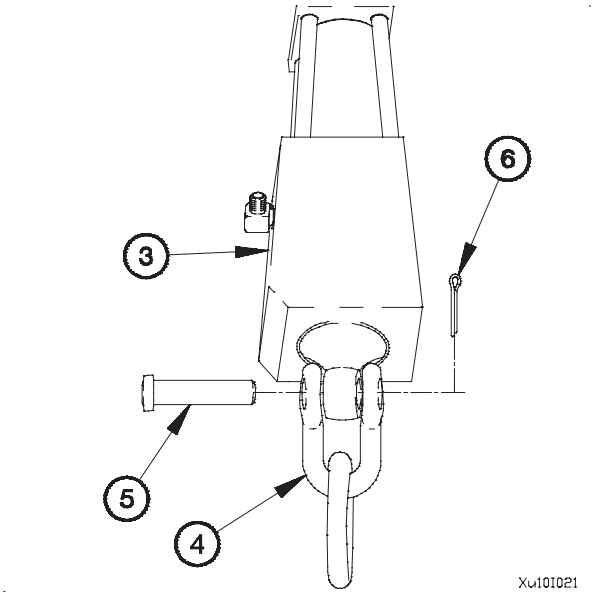
NOTE

Left and right side suspension cylinders are installed the same way. Right side shown.

(1) Install two preformed packings (1) on 90-degree fittings (2).

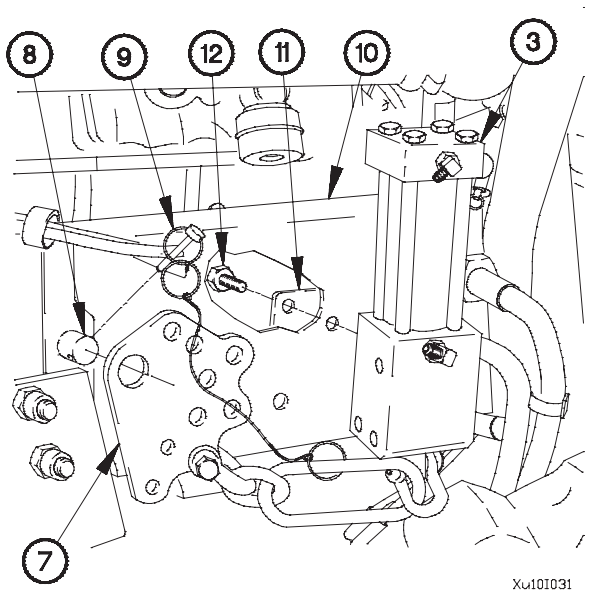
(2) Install two 90-degree fittings (2) in suspension cylinder (3).





(3) Install shackle (4) on suspension cylinder (3) with pin (5) and cotter pin (6).

(4) Install suspension compression plate (7) on suspension compression plate stud (8) with spring pin (9).



WARNING

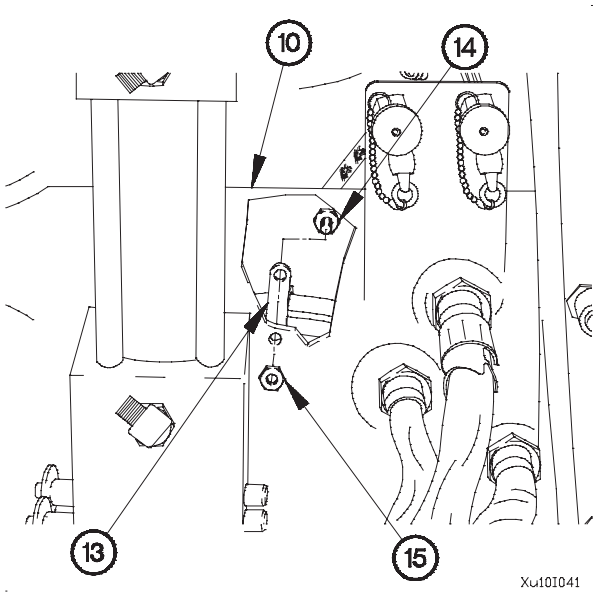
Wear appropriate eye protection when working under vehicle due to the possibility of falling debris. Failure to comply may result in injury to personnel.

NOTE

Steps (5) through (8) require the aid of an assistant.

(5) Position suspension cylinder (3) on frame rail (10) with plate (11) and three screws (12).

(6) Tighten three screws (12) to 149-183 lb-ft (202-248 N·m).

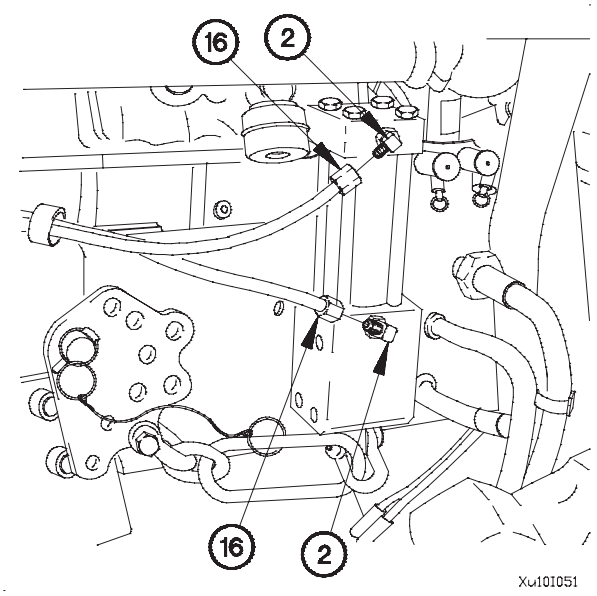


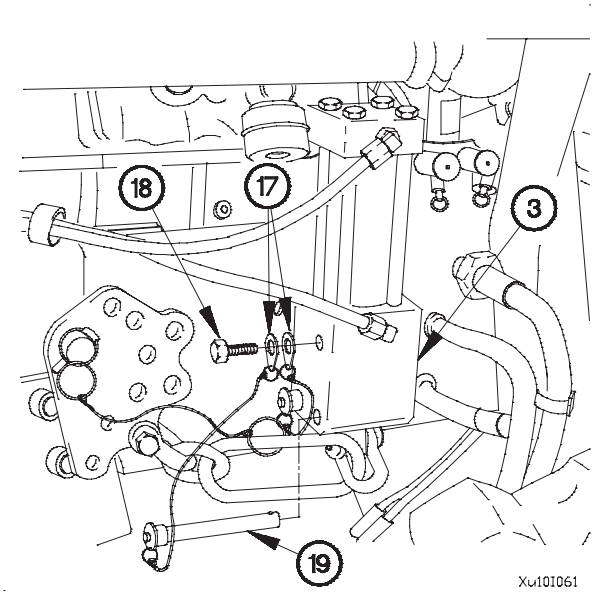
(7) Position clamp (13) on frame rail (10) with screw (14), and self-locking nut (15).

(8) Tighten self-locking nut (15) to 84-108 lb-in. (9-12 N·m).

19-10. SUSPENSION CYLINDER REPLACEMENT (CONT)

(9) Connect two hydraulic hoses (16) to 90-degree fittings (2).





(10) Position two lanyards (17) on suspension cylinder (3) with screw (18).

(11) Tighten screw (18) to 18-22 lb-ft (24-30 N·m).

(12) Install two quick release pins (19) in suspension cylinder (3).

c. Follow-On Maintenance.

(1) Fill air transportability hydraulic system (Appendix H).

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

End of Task.

19-11. CAB HYDRAULIC CYLINDER REPLACEMENT

This task covers:

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

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-366-10-1).

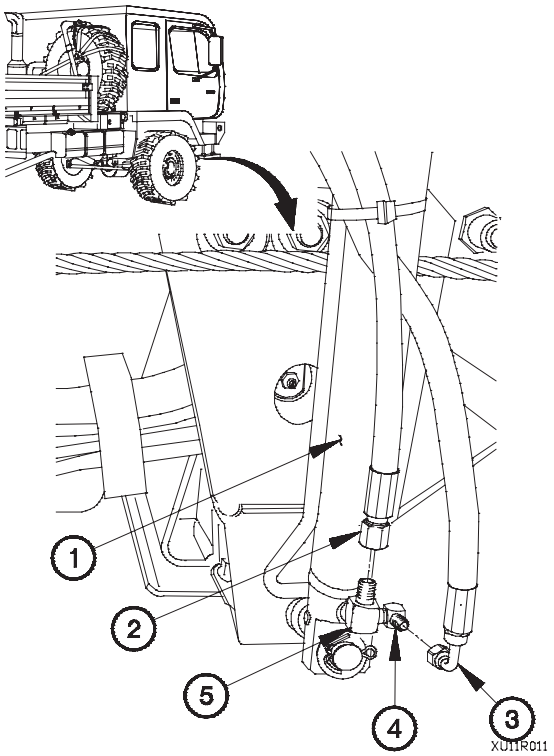
Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Wrench, Torque 0-600 lb-ft (Item 60, Appendix C)
Wrench Set, Socket (Item 50, Appendix C)
Pan, Drain (Item 24, Appendix C)
Sling, Endless (Item 32, Appendix C)
Gloves, Rubber (Item 13, Appendix C)
Goggles, Industrial (Item 15, Appendix C)
Cab Support Tool (Item E-4, Appendix E)

Materials/Parts
Dispenser, Pressure Sensitive Adhesive Tape (Item 20, Appendix D)
Ties, Cable, Plastic (Item 69, Appendix D)
Nipple, Tube (Item 33, Appendix D)
Grease, Automotive and Artillery (GAA) (Item 22, Appendix D)
Hydraulic Fluid A (Item 25, Appendix D)
Packing, Preformed (2) (Item 181, Appendix G)
Packing, Preformed (Item 188, Appendix G)
Nut, Self-Locking (Item 170, Appendix G)
Pin, Cotter (Item 230, Appendix G)
Pin, Cotter (Item 231, Appendix G)
Washer, Spring (Item 286, Appendix G)
Washer, Spring (Item 295, Appendix G)

Personnel Required
(2)

a. Removal.

(1) Place drain pan under cab hydraulic cylinder (1).



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.

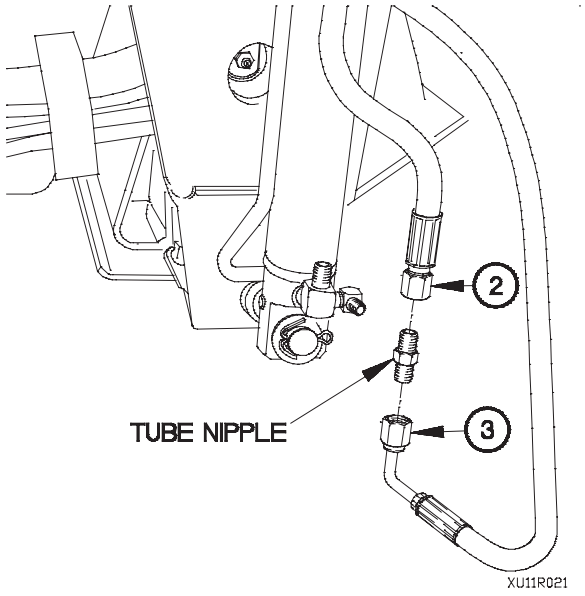
NOTE

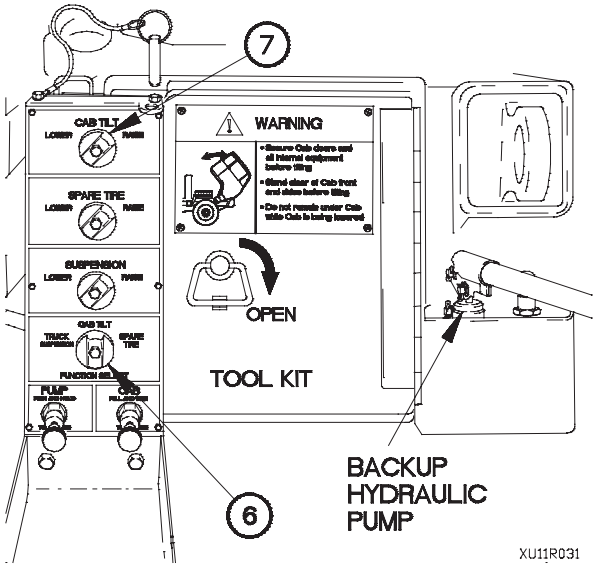
- Remove plastic cable ties as required.
- Tag hoses and connection points prior to disconnecting.

(2) Disconnect hoses (2 and 3) from 90-degree fittings (4 and 5).

19-11. CAB HYDRAULIC CYLINDER REPLACEMENT (CONT)

(3) Connect hoses (2 and 3) to tube nipple.





(4) Turn FUNCTION SELECT valve (6) to CAB TILT position.

(5) Turn CAB TILT valve (7) to the RAISE position.

CAUTION

Use only the backup hydraulic pump to unlatch cab. Failure to comply may result in damage to equipment.

(6) Operate backup hydraulic pump (TM 9-2320-366-10-2).

WARNING

Cab weighs approximately 3000 lbs (1362 kgs) attach a suitable lifting device prior to raising cab. Failure to comply may result in injury to personnel.

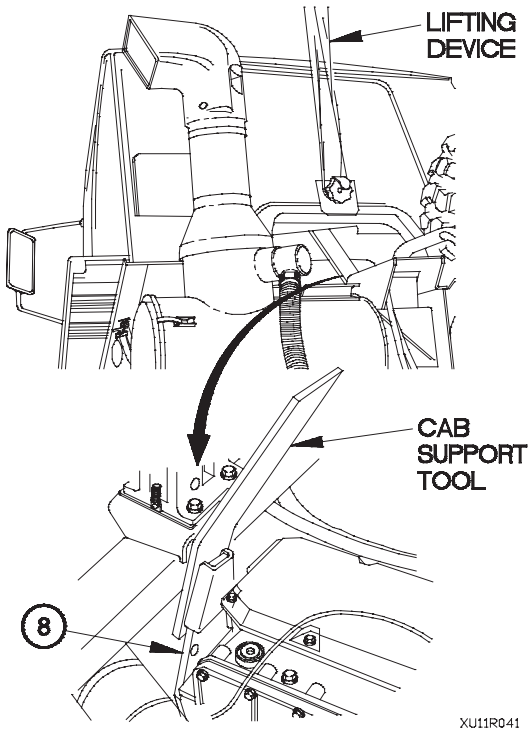
NOTE

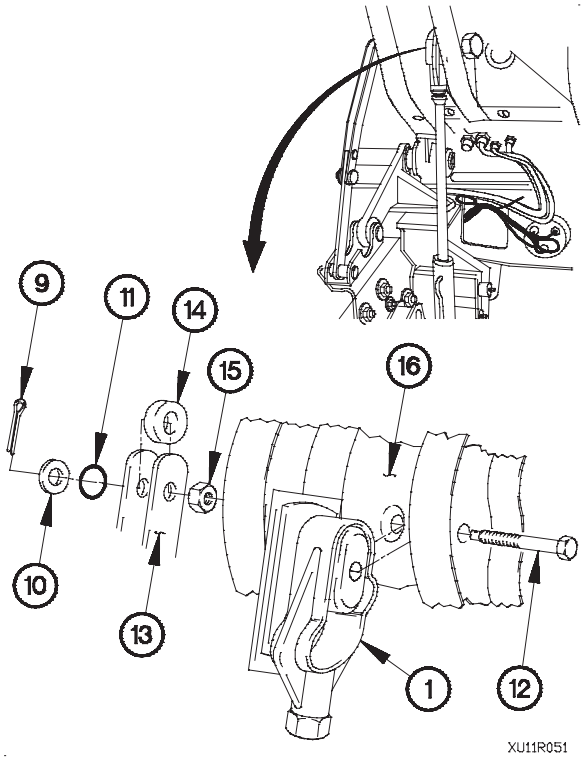
Steps (7) through (9) require the aid of an assistant.

(7) Raise cab.

(8) Install cab support tool on engine rear lifting bracket (8).

(9) Lower cab on cab support tool.





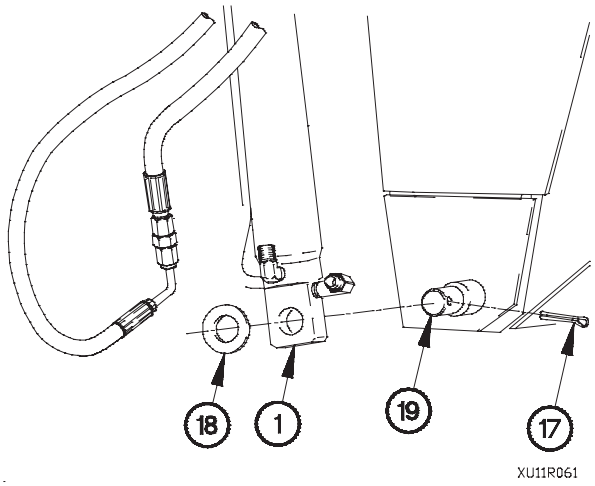
(10) Remove cotter pin (9), washer (10), and preformed packing (11) from cab hydraulic cylinder mounting bolt (12). Discard cotter pin and preformed packing.

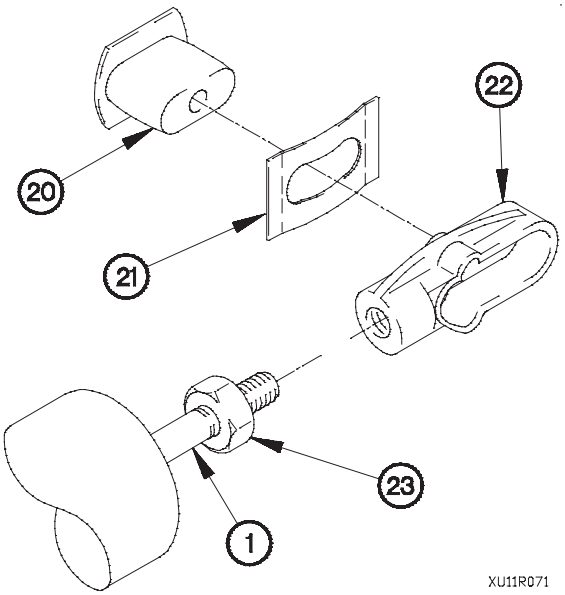
(11) Disengage pivot arm (13) and spacer (14) from cab hydraulic cylinder mounting bolt (12).

(12) Remove self-locking nut (15), cab hydraulic cylinder mounting bolt (12), and cab hydraulic cylinder (1) from cab frame (16). Discard self-locking nut.

19-11. CAB HYDRAULIC CYLINDER REPLACEMENT (CONT)

(13) Remove cotter pin (17), spring washer (18), and cab hydraulic cylinder (1) from stud (19). Discard cotter pin and spring washer.

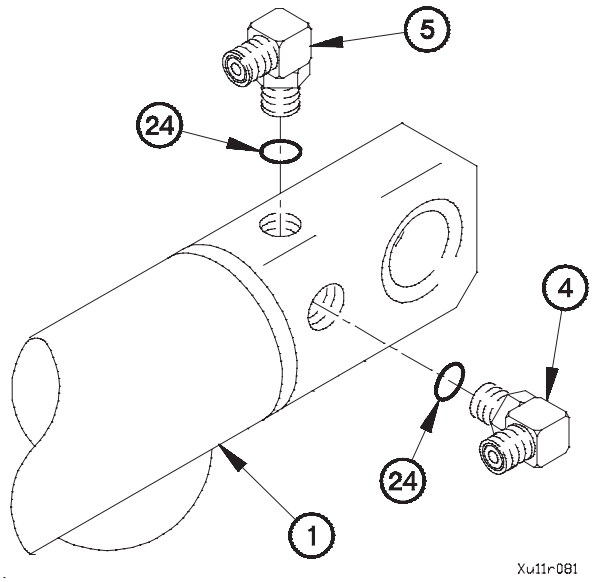




(14) Remove control cam (20) and spring washer (21) from mounting bracket (22). Discard spring washer.

(15) Loosen jamnut (23) under mounting bracket (22) until jamnut (23) bottoms out on threads.

(16) Remove mounting bracket (22) from cab hydraulic cylinder (1).



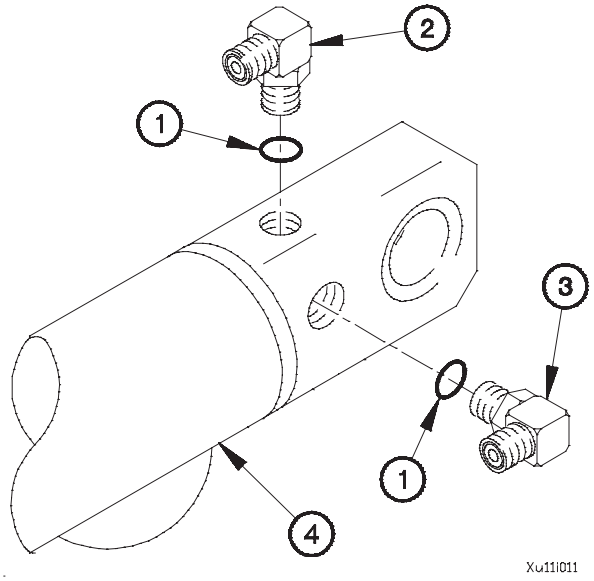
(17) Remove 90-degree fittings (4 and 5) from cab hydraulic cylinder (1).

(18) Remove preformed packings (24) from 90-degree fittings (4 and 5). Discard preformed packings.

b. Installation.

(1) Install two preformed packings (1) on 90-degree fittings (2 and 3).

(2) Install 90-degree fittings (2 and 3) in cab hydraulic cylinder (4).



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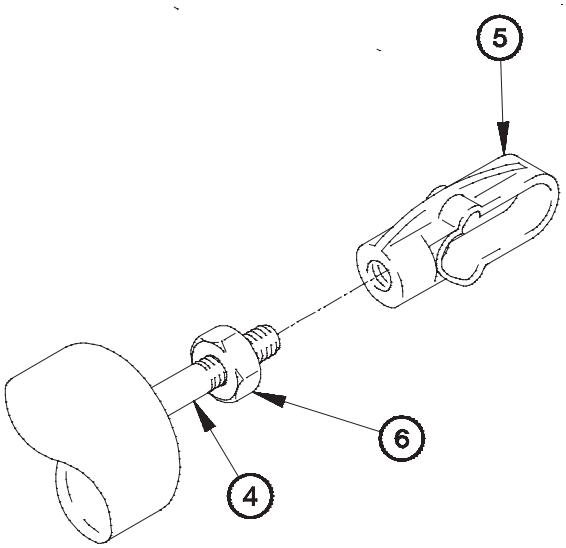

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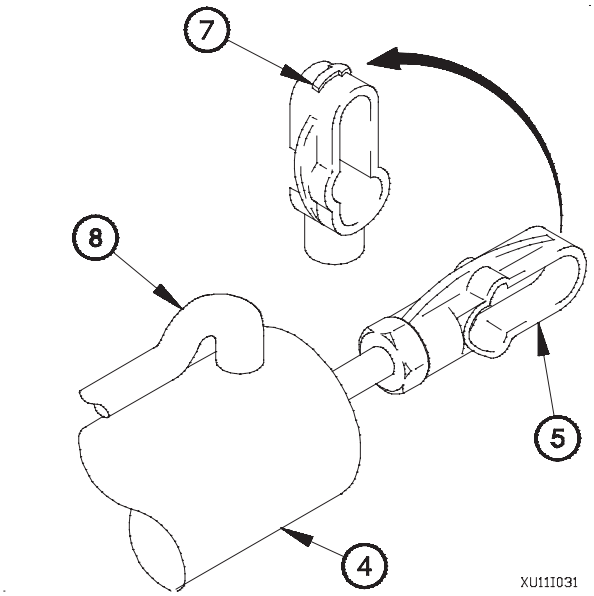
(3) Install mounting bracket (5) on cab hydraulic cylinder (4) until mounting bracket bottoms out on threads.

(4) Tighten jamnut (6) against mounting bracket (5).

(5) Align mounting bracket (5) so arrow (7) on top of mounting bracket is aligned 180 degrees opposite tube (8) on cab hydraulic cylinder (4).



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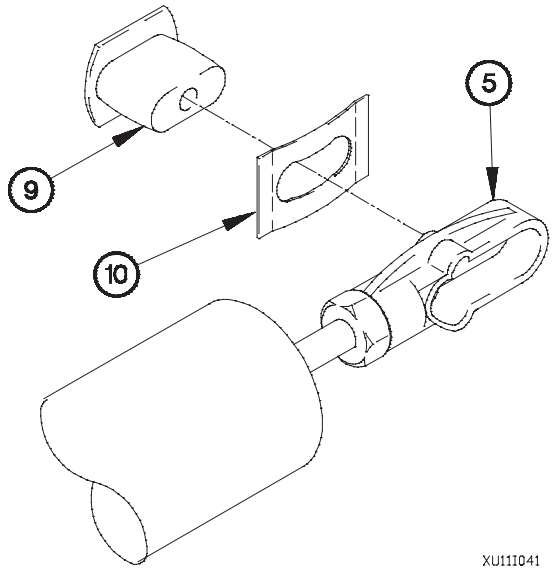
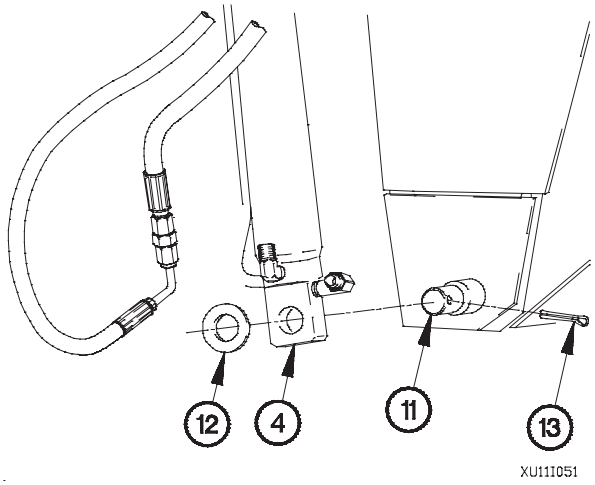
19-11. CAB HYDRAULIC CYLINDER REPLACEMENT (CONT)

(6) Apply grease to inside of mounting bracket (5).

(7) Assemble control cam (9) and spring washer (10) and insert in mounting bracket (5) with long side of control cam aligned in long slot of mounting bracket.

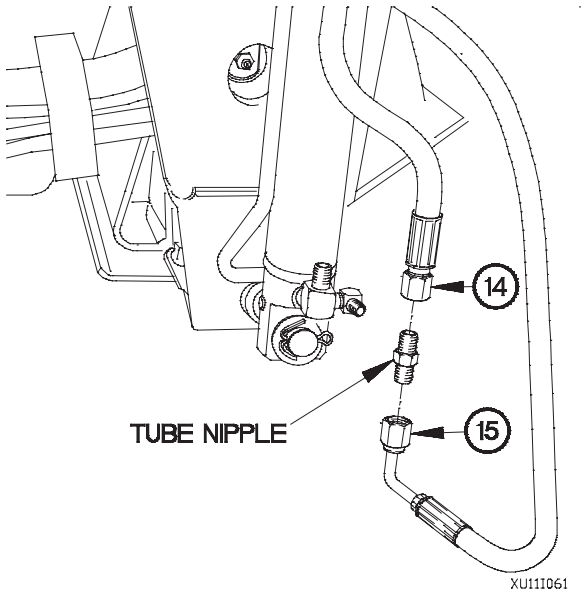




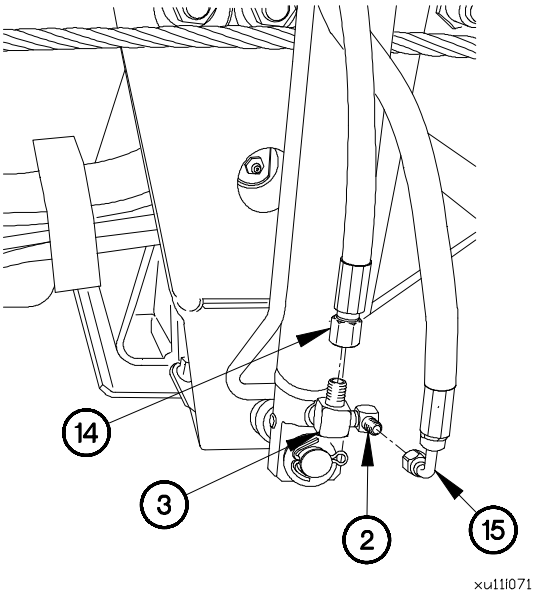
NOTE

Cab hydraulic cylinder is installed so that hydraulic fittings face away from engine and arrow on top of mounting bracket points toward front of vehicle.

(8) Install cab hydraulic cylinder (4) on stud (11) with spring washer (12) and cotter pin (13).



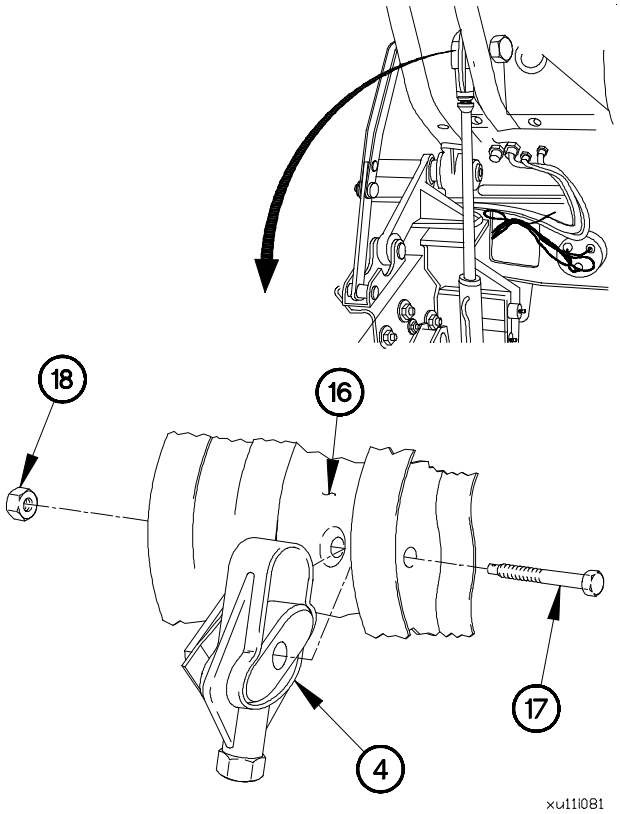
(9) Remove hoses (14 and 15) from tube nipple.



NOTE

Install plastic cable ties as required.

(10) Install hoses (14 and 15) on 90-degree fittings (2 and 3).



(11) Position cab hydraulic cylinder (4) between cab frame (16) with cab hydraulic cylinder mounting bolt (17) and self-locking nut (18).

CAUTION

Ensure long side of control cam remains aligned with short slot in mounting bracket. Failure to comply may result in damage to equipment.

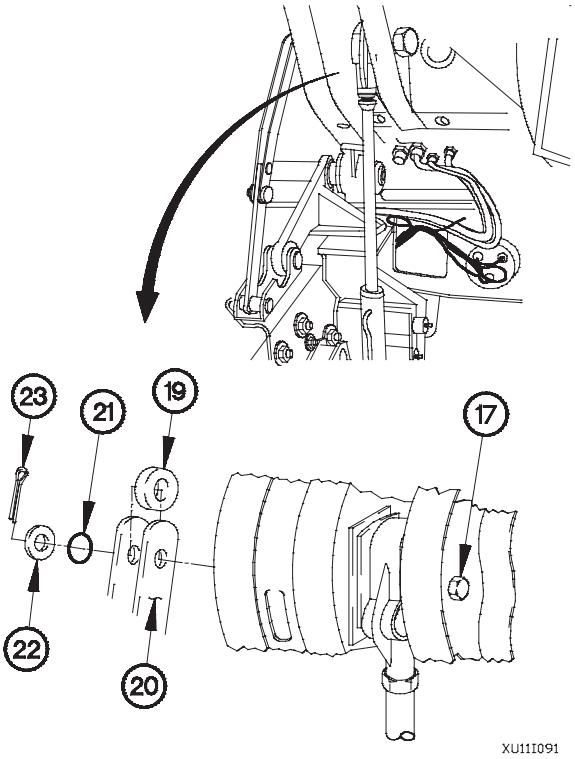
(12) Tighten self-locking nut (18) to 180-232 lb-ft 244-314 N•m).

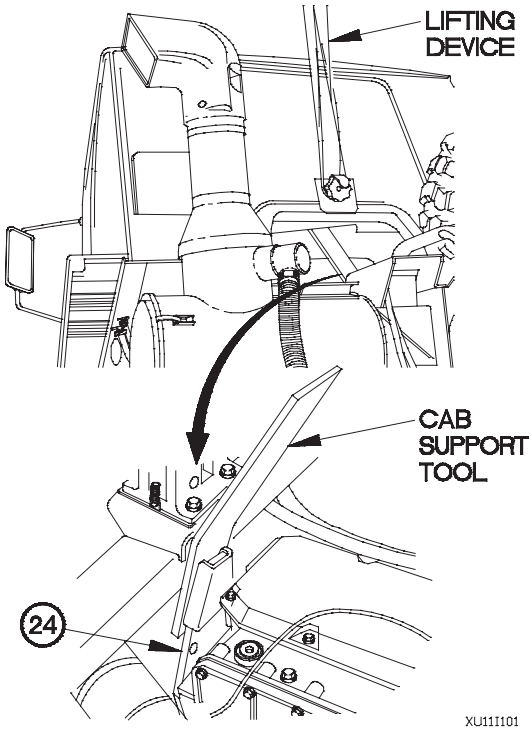
19-11. CAB HYDRAULIC CYLINDER REPLACEMENT (CONT)

(13) Position spacer (19) between locking arms (20) and install cab hydraulic cylinder mounting bolt (17) through locking arms.

(14) Raise cab.

(15) Install preformed packing (21), washer (22), and cotter pin (23) on cab hydraulic cylinder mounting bolt (17).





(16) Remove lifting device.

(17) Remove cab support tool from engine rear lifting bracket (24).

(18) Lower cab.

c. Follow-On Maintenance.

Perform air transportability hydraulic system service (para 19-8).

End of Task.

19-12. AIR TRANSPORTABILITY HYDRAULIC HOSE REPLACEMENT

This task covers:

a. Hydraulic Hose Locations

b. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-366-10-1).
Cab raised, if required (TM 9-2320-366-10-1).
Spare tire lowered, if required (TM 9-2320-366-10-2).
Manifold removed from tool box (para 19-4).
Back-up hydraulic pump cover removed, if required.
Decontamination unit mounting bracket removed, if required (para 19-3).

Tools and Special Tools
Tool Kit, General Mech (Item 46, Appendix C)

Tools and Special Tools (Cont)
Pan, Drain (Item 24, Appendix C)
Goggles, Industrial (Item 15, Appendix C)
Gloves, Rubber (Item 13, Appendix C)

Materials/Parts
Dispenser, Pressure Sensitive Adhesive Tape (Item 20, Appendix D)
Cap and Plug Set (Item 14, Appendix D)
Rag, Wiping (Item 50, Appendix D)
Ties, Cable Plastic (Item 69, Appendix D)

a. Hydraulic 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.**
- **Hydraulic fluid (MIL-H-5606) is TOXIC. Wear protective goggles and gloves; use only in well ventilated areas; 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.**

CAUTION

Cap or plug hoses and connection points to prevent contamination of air transportability hydraulic system. Failure to comply may result in damage to equipment.

NOTE

- Refer to **Table 19-3. Air Transportability Hydraulic Hose Locations** for locations of hydraulic hoses on the air transportability hydraulic system. It may not be necessary to remove all hydraulic hoses at one time.
- Tag hoses and connection points prior to removal.
- Remove plastic cable ties as required.
- Remove clamps and support brackets as required.
- Position drain pan to collect hydraulic fluid.

19-12. AIR TRANSPORTABILITY HYDRAULIC HOSE REPLACEMENT (CONT)

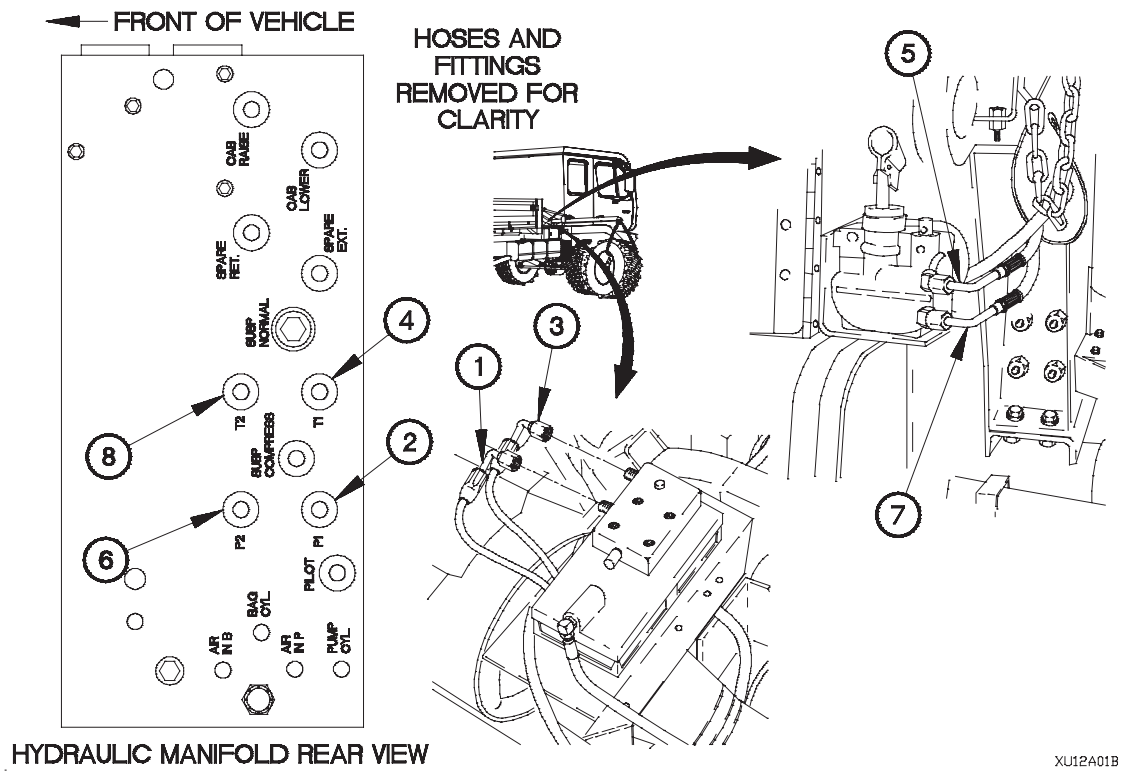


Figure 19-3. Air Transportability Hydraulic Hose Locations

Table 19-3. Air Transportability Hydraulic Hose Locations

Hydraulic Hose Name (Number)	From	To
Main Pressure (515)	Air/Hydraulic power unit fitting (1)	Fitting P1 (2)
Main Return (514)	Air/Hydraulic power unit fitting (3)	Fitting T1 (4)
Hand Pump Pressure (521)	Hand pump fitting (7)	Fitting P2 (6)
Hand Pump Return (520)	Hand pump fitting (5)	Fitting T2 (8)

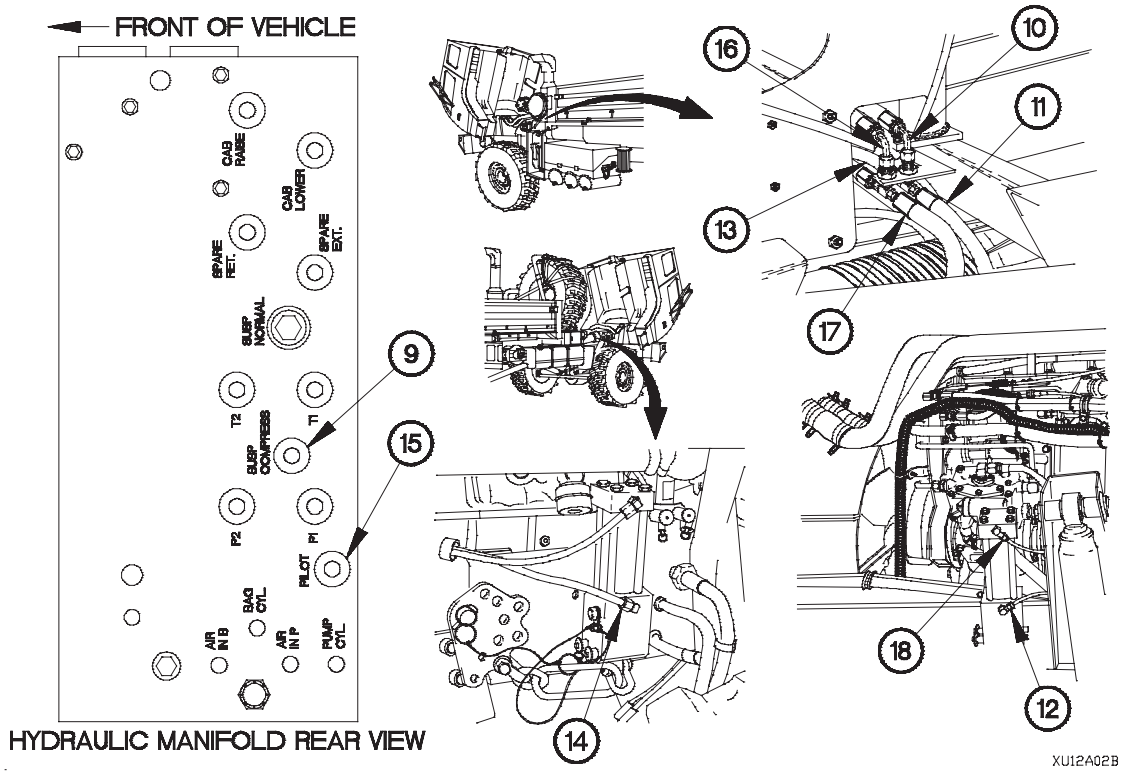


Figure 19-3. Air Transportability Hydraulic Hose Locations (Cont)

Table 19-3. Air Transportability Hydraulic Hose Locations (Cont)

Hydraulic Hose Name (Number)	From	To
Suspension Lower (512)	SUSP COMPRESS fitting (9)	Three way tee fitting (10)
Suspension Lower, Left (510)	Three way tee fitting (11)	Left suspension hydraulic cylinder fitting (12)
Suspension Lower, Right (508)	Three way tee fitting (13)	Right suspension hydraulic cylinder fitting (14)
Suspension Normal (513)	PILOT fitting (15)	Three way tee fitting (16)
Suspension Normal, Left (511)	Three way tee fitting (17)	Left suspension hydraulic cylinder fitting (18)

19-12. AIR TRANSPORTABILITY HYDRAULIC HOSE REPLACEMENT (CONT)

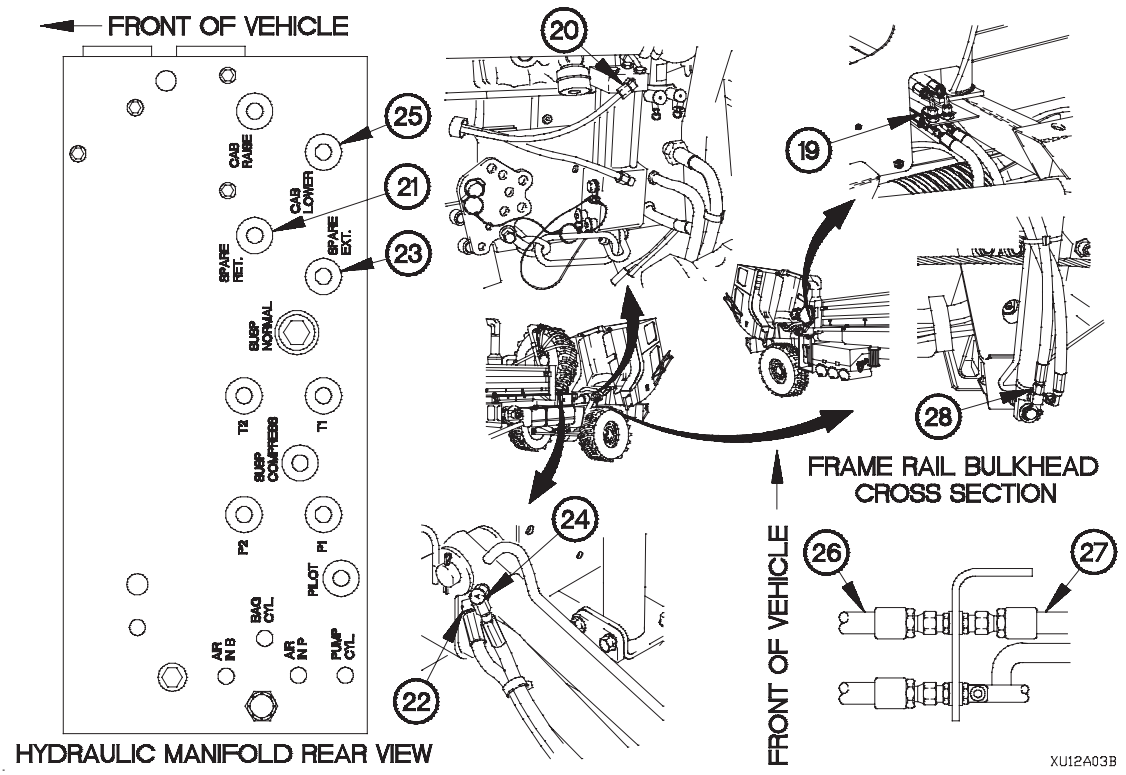


Figure 19-3. Air Transportability Hydraulic Hose Locations (Cont)

Table 19-3. Air Transportability Hydraulic Hose Locations (Cont)

Hydraulic Hose Name (Number)	From	To
Suspension Normal Right (509)	Three way tee fitting (19)	Right suspension hydraulic cylinder fitting (20)
Spare Tire Retract (517)	SPARE RET. fitting (21)	Spare tire carrier hydraulic cylinder fitting (22)
Spare Tire Extend (516)	SPARE EXT. fitting (23)	Spare tire carrier hydraulic cylinder fitting (24)
Cab Tilt Retract Rear (518)	CAB LOWER fitting (25)	Bulkhead fitting (26)
Cab Tilt Retract Forward	Bulkhead fitting (27)	Cab tilt hydraulic fitting (28)

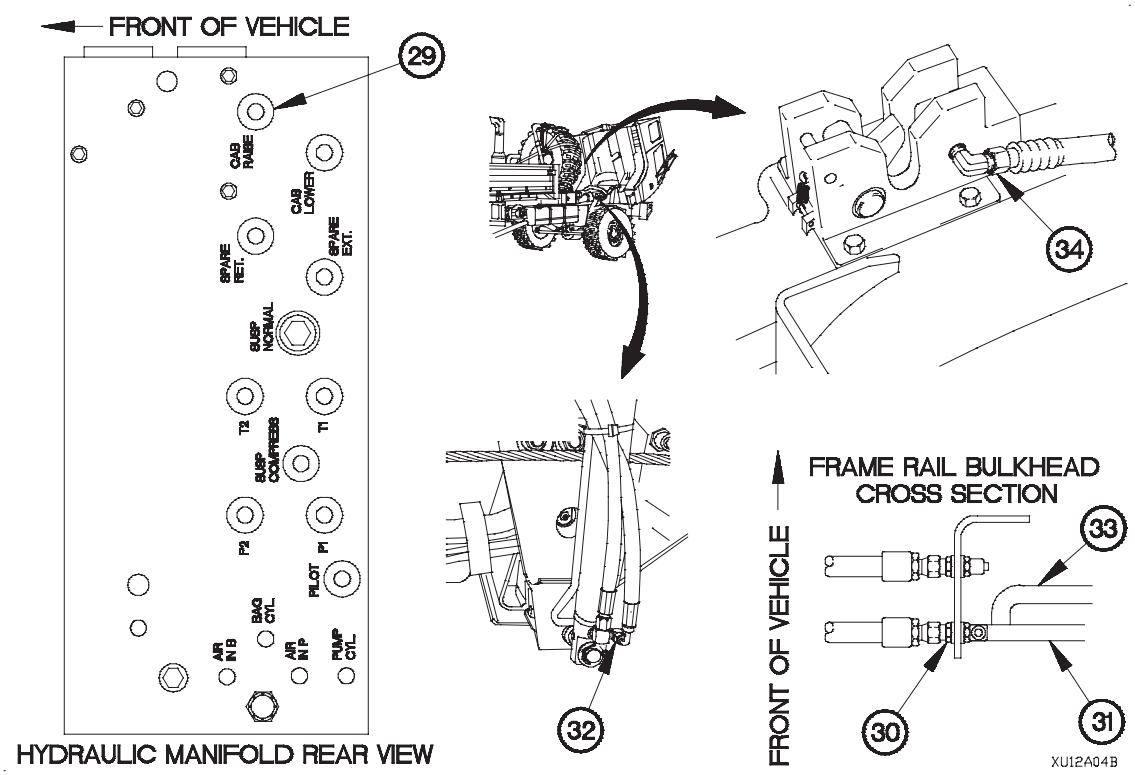


Figure 19-3. Air Transportability Hydraulic Hose Locations (Cont)

Table 19-3. Air Transportability Hydraulic Hose Locations (Cont)

Hydraulic Hose Name (Number)	From	To
Cab Tilt Extend Rear (519)	CAB RAISE fitting (29)	Bulkhead fitting (30)
Cab Tilt Extend Forward	Bulkhead fitting (31)	Cab tilt hydraulic cylinder fitting (32)
Cab Latch	Bulkhead fitting (33)	Rear cab latch fitting (34)

b. Follow-On Maintenance.

(1) Service air transportability hydraulic system as required (para 19-8 and Appendix H).

(2) Operate hydraulic manifold to raise and lower cab, lower and raise spare tire, and compress and decompress front suspension, checking for proper operation (TM 9-2320-366-10-1 and TM 9-2320-366-10-2).

(3) Check for hydraulic fluid leaks.

End of Task

19-13. HYDRAULIC OIL FILTER ASSEMBLY SERVICE/REPLACEMENT

This task covers:

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

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-366-10-1).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Wrench, Torque, 0-175 lb-ft (Item 58, Appendix C)
Pan, Drain (Item 24, Appendix C)

Materials/Parts
Filter Element, Fluid (Item 20, Appendix G) (Service)
Seal, Plain (Item 271.1, Appendix G) (Service)
Dispenser, Pressure Sensitive Adhesive Tape (Item 20, Appendix D)
Tape, Antiseizing (Item 66, Appendix D)
Oil, Lubricating, OE/HDO 10W (Item 43, Appendix D)
Filter Element, Fluid (Item 20, Appendix G)
Packing, Preformed (2) (Item 180, Appendix G)

a. Service.

(1) Remove hydraulic oil filter assembly bowl (1) from filter assembly base (2).

(2) Remove fluid filter element (3) from oil filter assembly base (2). Discard fluid filter element.

(3) Remove seal (4) from hydraulic oil filter assembly base (1). Discard seal.

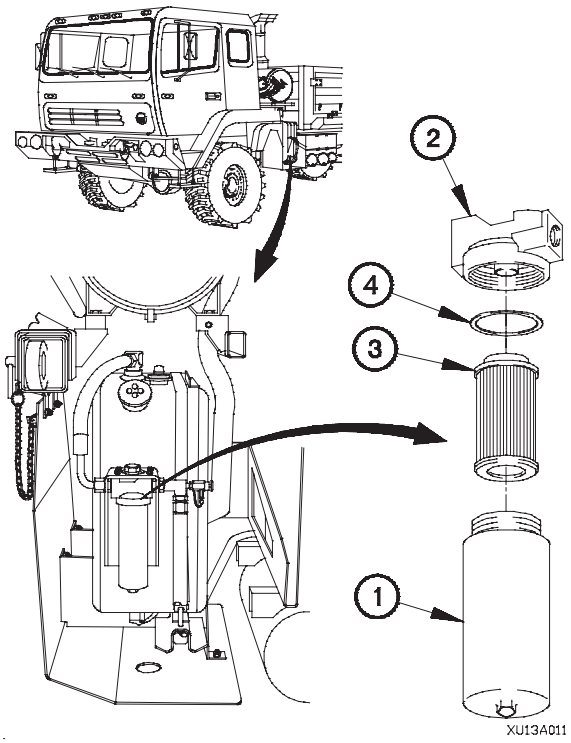
NOTE

Apply lubricating oil to seal prior to installation.

(4) Install seal (4) on hydraulic oil filter assembly base (2).

(5) Install fluid filter element (3) in hydraulic oil filter assembly base (2).

(6) Install hydraulic oil filter assembly bowl (1) on filter assembly base (2) and hand tighten.



b. Removal.

NOTE

Tag hoses and connection points prior to disconnecting.

(1) Position drain pan under hydraulic oil filter assembly (1).

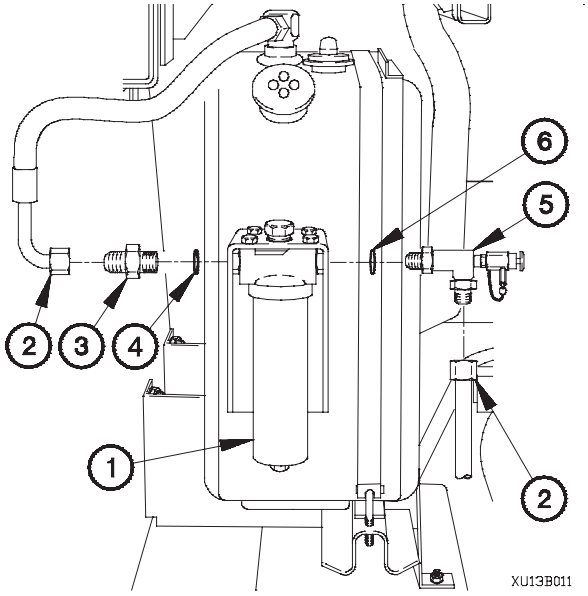
(2) Disconnect two hoses (2) from hydraulic oil filter assembly (1).

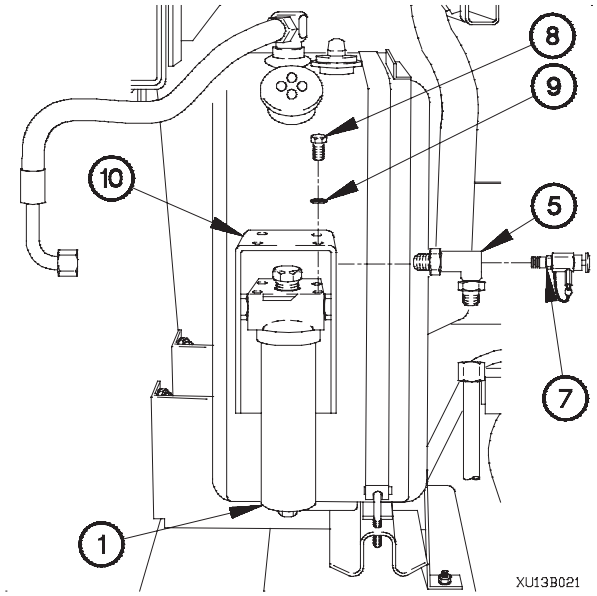
(3) Remove fitting (3) from hydraulic oil filter assembly (1).

(4) Remove preformed packing (4) from fitting (3). Discard preformed packing.

(5) Remove adapter (5) from hydraulic oil filter assembly (1).

(6) Remove preformed packing (6) from adapter (5). Discard preformed packing.





(7) Remove hydraulic oil sampling valve (7) from adapter (5).

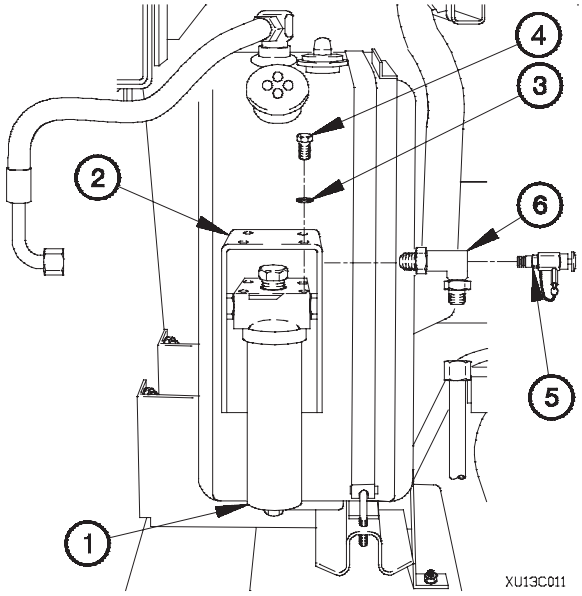
(8) Remove four screws (8), washers (9), and hydraulic oil filter assembly (1) from bracket (10).

19-13. HYDRAULIC OIL FILTER ASSEMBLY SERVICE/REPLACEMENT (CONT)

c. Installation.

NOTE

Apply lubricating oil to preformed packings during installation.

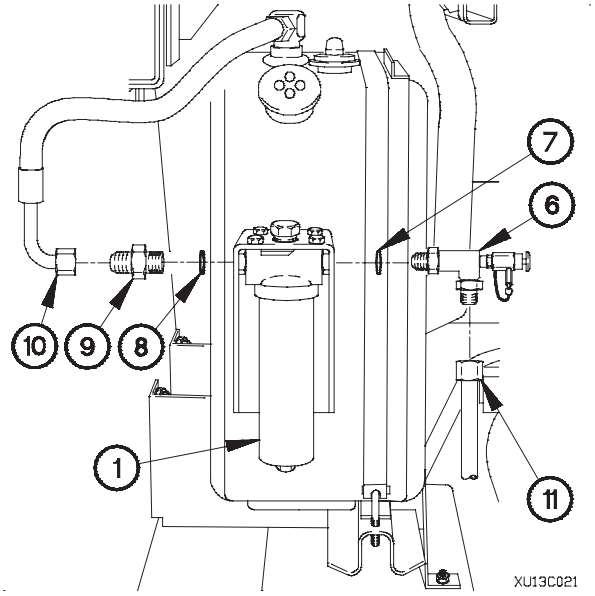


(1) Install hydraulic oil filter assembly (1) on bracket (2) with four washers (3) and screws (4).

(2) Tighten four screws (4) to 20-24 ft-lb (27-33 N·m).

(3) Apply antiseizing tape to threads of hydraulic oil sampling valve (5).

(4) Install hydraulic oil sampling valve (5) in adapter (6).



(5) Install preformed packing (7) on adapter (6).

(6) Install adapter (6) in hydraulic oil filter assembly (1).

(7) Install preformed packing (8) on fitting (9).

(8) Install fitting (9) on hydraulic oil filter assembly (1).

(9) Connect hose (10) to fitting (9).

(10) Connect hose (11) to adapter (6).

d. Follow-On Maintenance.

(1) Fill hydraulic reservoir (Appendix H).

(2) Start engine (TM 9-2320-366-10-1).

(3) Check for oil leaks around hydraulic oil filter.

(4) Shut down engine (TM 9-2320-366-10-1).

End of Task.

19-14. M1089 HYDRAULIC TANK FILTER REPLACEMENT

This task covers:

a. Removal

b. Installation

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-366-10-1).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Wrench, Torque, 0-175 lb-ft (Item 58, Appendix C)

Materials/Parts
Gasket (Item 29, Appendix G)
Filter Element, Fluid (Item 16, Appendix G)

a. Removal.

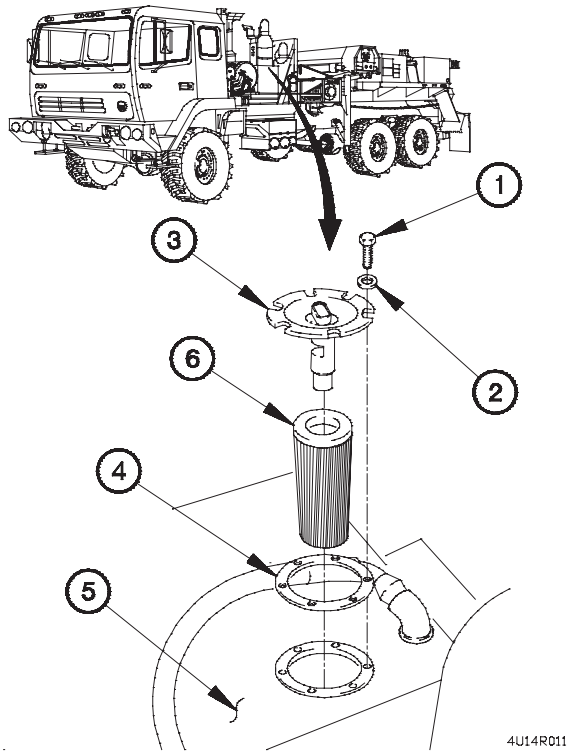
(1) Remove six screws (1) and washers (2) from filter cover (3).

(2) Remove filter cover (3) and gasket (4) from hydraulic tank (5). Discard gasket.

NOTE

Some filters were originally equipped with a preformed packing. If equipped, remove and discard preformed packing.

(3) Remove filter (6) from filter cover (3). Discard filter.



b. Installation.

NOTE

If preformed packing is included with replacement filter kit, discard preformed packing.

(1) Install filter (6) on filter cover (3).

(2) Position gasket (4) and filter cover (3) on hydraulic tank (5) with six washers (2) and screws (1).

(3) Tighten six screws (1) to 23-25 lb-ft (31-34 N·m).

End of Task.

19-15. M1090/M1094 HYDRAULIC HOSES REPLACEMENT

This task covers:

a. Hydraulic Hose Locations

b. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-366-10-1).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Pan, Drain (Item 24, Appendix C)
Goggles, Industrial (Item 15, Appendix C)
Wrench, Torque, 0-175 lb-ft (Item 58, Appendix C)
Crowfoot Attachment Socket Wrench (Item 5, Appendix B)

Tools and Special Tools (Cont)
Crowfoot Attachment Socket Wrench (Item 9, Appendix B)

Materials/Parts
Dispenser, Pressure Sensitive Adhesive Tape (Item 20, Appendix D)
Cap and Plug Set (Item 14, Appendix D)
Ties, Cable, Plastic (Item 69, Appendix D)

a. Hydraulic 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.**
- **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 hoses and connection points to prevent contamination of M1090/M1094 dump body hydraulic system. Failure to comply may result in damage to equipment.

NOTE

- Refer to **Table 19-4. M1090/M1094 Hydraulic Hose Locations** for locations of hydraulic hoses on the M1090/M1094 dump body. It may not be necessary to remove all hydraulic hoses at one time.
- Tag hoses and connection points prior to removal.
- Remove plastic cable ties as required.
- Remove clamps and support brackets as required.
- Position drain pan to collect oil.

Figure 19-4. M1090/M1094 Hydraulic Hose Locations

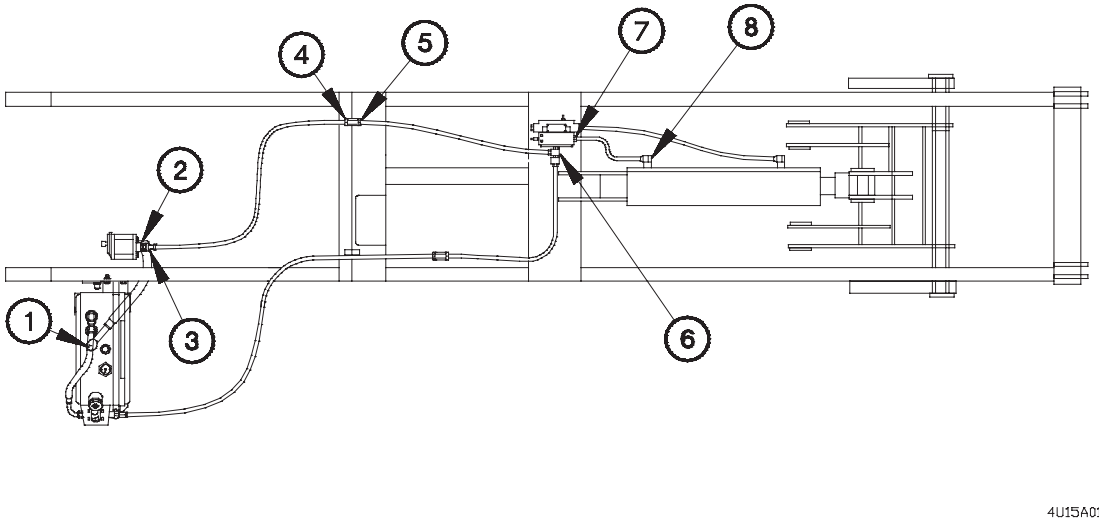


Table 19-4. M1090/M1094 Hydraulic Hose Locations

Hydraulic Hose Name	From	To	Torque
Suction	Hydraulic oil tank fitting (1)	Hydraulic pump fitting (2)	127-133 lb-ft (172-180 N·m)
Pressure Forward	Hydraulic pump fitting (3)	Bulkhead fitting (4)	79-88 lb-ft (107-119 N·m)
Pressure Intermediate	Bulkhead fitting (5)	Four way relief valve fitting (6)	79-88 lb-ft (107-119 N·m)
Cylinder Front	Four way relief valve fitting (7)	Hydraulic lift cylinder fitting (8)	79-88 lb-ft (107-119 N·m)

19-15. M1090/M1094 HYDRAULIC HOSES REPLACEMENT (CONT)

Figure 19-4. M1090/M1094 Hydraulic Hose Locations (Cont)

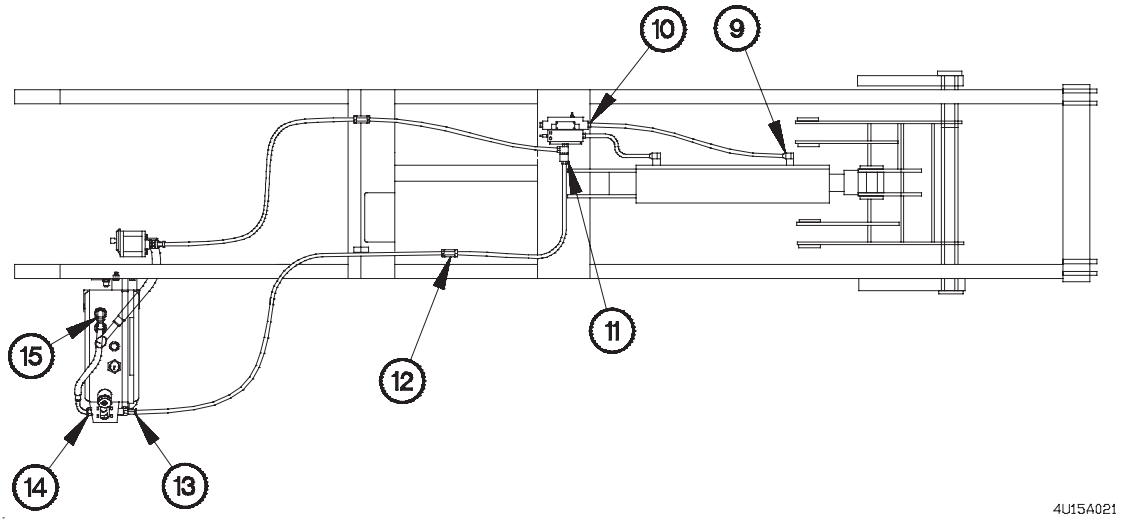


Table 19-4. M1090/M1094 Hydraulic Hose Locations (Cont)

Hydraulic Hose Name	From	To	Torque
Cylinder Rear	Hydraulic lift cylinder fitting (9)	Four way relief valve fitting (10)	79-88 lb-ft (107-119 N·m)
Return Rear	Four way relief valve fitting (11)	Fitting (12)	79-88 lb-ft (107-119 N·m)
Return Intermediate	Fitting (12)	Hydraulic oil filter fitting (13)	79-88 lb-ft (107-119 N·m)
Return Forward	Hydraulic oil filter fitting (14)	Hydraulic oil tank fitting (15)	79-88 lb-ft (107-119 N·m)

b. Follow-On Maintenance.

(1) Fill hydraulic reservoir (Appendix H).

(2) Raise and lower dump body (TM 9-2320-366-10-1).

(3) Check hoses for oil leaks.

End of Task.

19-16. M1089 UNDERLIFT/WINCH HYDRAULIC HOSES REPLACEMENT

This task covers:

a. Hydraulic Hose Locations

b. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-366-10-1).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Pan, Drain (Item 24, Appendix C)
Goggles, Industrial (Item 15, Appendix C)
Wrench, Torque, 0-175 lb-ft (Item 58, Appendix C)
Crowfoot Attachment, Socket Wrench (Item 12, Appendix B)

Materials/Parts
Dispenser, Pressure Sensitive Adhesive Tape (Item 20, Appendix D)
Cap and Plug Set (Item 14, Appendix D)
Ties, Cable, Plastic (Item 69, Appendix D)

a. Hydraulic 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.**
- **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 hoses and connection points to prevent contamination of M1089 underlift and winch hydraulic system. Failure to comply may result in damage to equipment.

NOTE

- Refer to **Table 19-5. M1089 Underlift Hydraulic Hose Locations** for locations of hydraulic hoses on the M1089 underlift and winches. It may not be necessary to remove all hydraulic hoses at one time.
- Tag hoses and connection points prior to removal.
- Remove plastic cable ties as required.
- Remove clamps and support brackets as required.
- Position drain pan to collect oil.

19-16. M1089 UNDERLIFT/WINCH HYDRAULIC HOSES REPLACEMENT (CONT)

Figure 19-5. M1089 Underlift Hydraulic Hose Locations

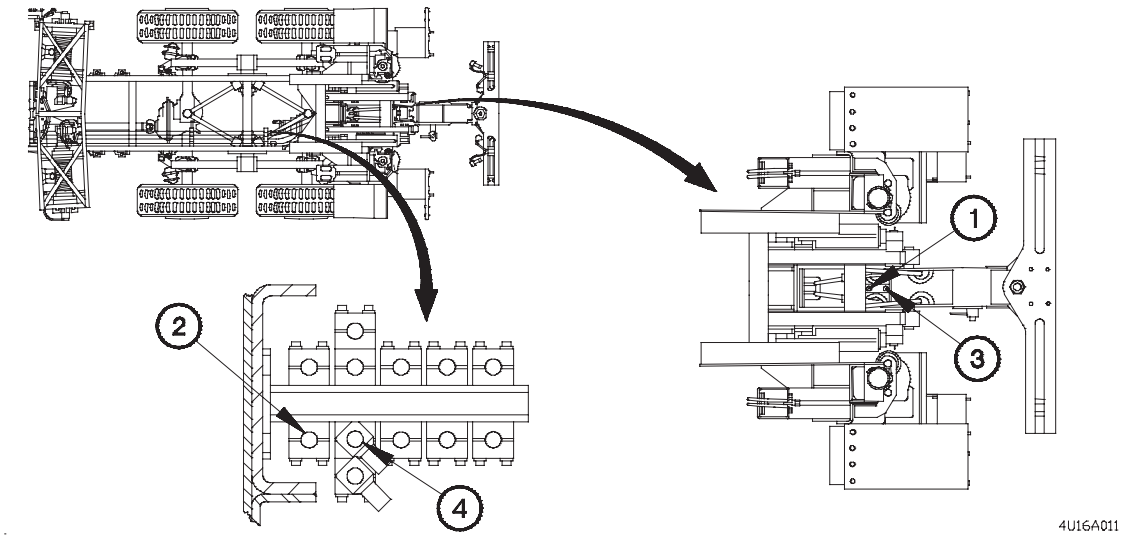


Table 19-5. M1089 Underlift Hydraulic Hose Locations

Hydraulic Hose Name	From	To	Torque
Stinger Out	Hydraulic Cylinder Fitting (1)	Union (2)	36-39 lb-ft (49-53 N·m)
Stinger In	Hydraulic Cylinder Fitting (3)	Union (4)	36-39 lb-ft (49-53 N·m)

Figure 19-5. M1089 Underlift Hydraulic Hose Locations (Cont)

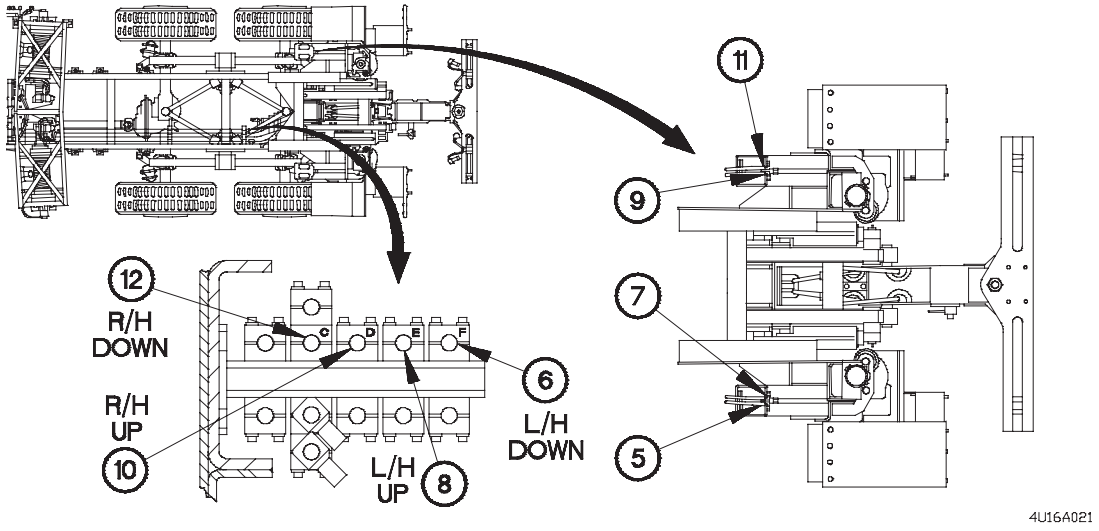


Table 19-5. M1089 Underlift Hydraulic Hose Locations (Cont)

Hydraulic Hose Name	From	To	Torque
Left Stiffleg Out	Left Stiffleg Hydraulic Cylinder Fitting (5)	Union (6)	36-39 lb-ft (49-53 N·m)
Left Stiffleg In	Left Stiffleg Hydraulic Cylinder Fitting (7)	Union (8)	36-39 lb-ft (49-53 N·m)
Right Stiffleg Out	Right Stiffleg Hydraulic Cylinder Fitting (9)	Union (10)	36-39 lb-ft (49-53 N·m)
Right Stiffleg In	Right Stiffleg Hydraulic Cylinder Fitting (11)	Union (12)	36-39 lb-ft (49-53 N·m)

19-16. M1089 UNDERLIFT/WINCH HYDRAULIC HOSES REPLACEMENT (CONT)

Figure 19-5. M1089 Underlift Hydraulic Hose Locations (Cont)

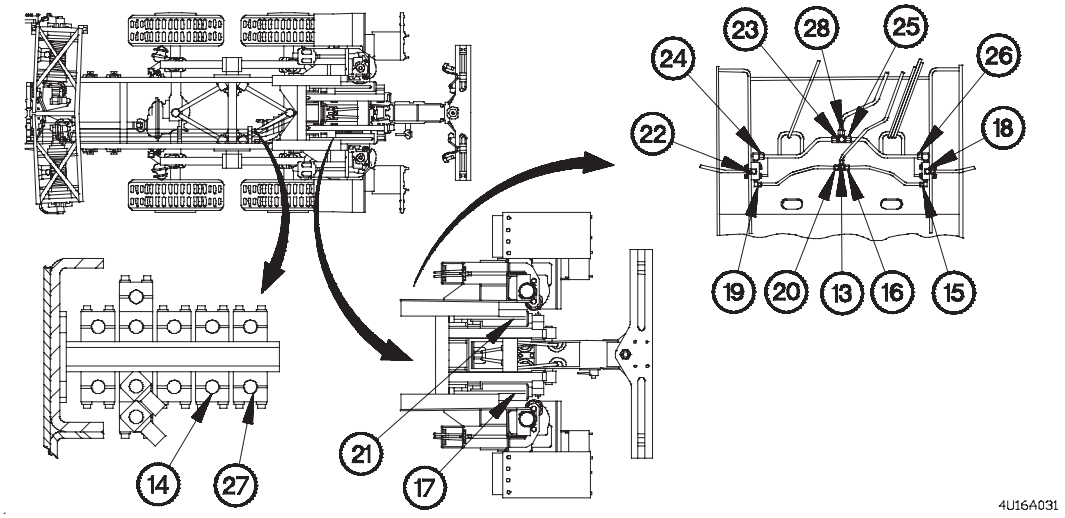


Table 19-5. M1089 Underlift Hydraulic Hose Locations (Cont)

Hydraulic Hose Name	From	To	Torque
Underlift Power	Bottom Three Way Tee Fitting (13)	Union (14)	36-39 lb-ft (49-53 N·m)
Underlift Intermediate Pressure Left	Left Holding Valve Fitting (15)	Bottom Three Way Tee Fitting (16)	36-39 lb-ft (49-53 N·m)
Underlift Rear Left	Underlift Hydraulic Cylinder Fitting (17)	Left Holding Valve Fitting (18)	18-20 lb-ft (24-27 N·m)
Underlift Intermediate Pressure Right	Right Holding Valve Fitting (19)	Bottom Three Way Tee Fitting (20)	36-39 lb-ft (49-53 N·m)
Underlift Rear Right	Underlift Hydraulic Cylinder Fitting (21)	Right Holding Valve Fitting (22)	36-39 lb-ft (49-53 N·m)
Underlift Intermediate Return Right	Top Three Way Tee Fitting (23)	Right Holding Valve Fitting (24)	36-39 lb-ft (49-53 N·m)
Underlift Intermediate Return Left	Top Three Way Tee Fitting (25)	Left Holding Valve Fitting (26)	36-39 lb-ft (49-53 N·m)
Underlift Up	Union (27)	Top Three Way Tee Fitting (28)	36-39 lb-ft (49-53 N·m)

Figure 19-5. M1089 Underlift Hydraulic Hose Locations (Cont)

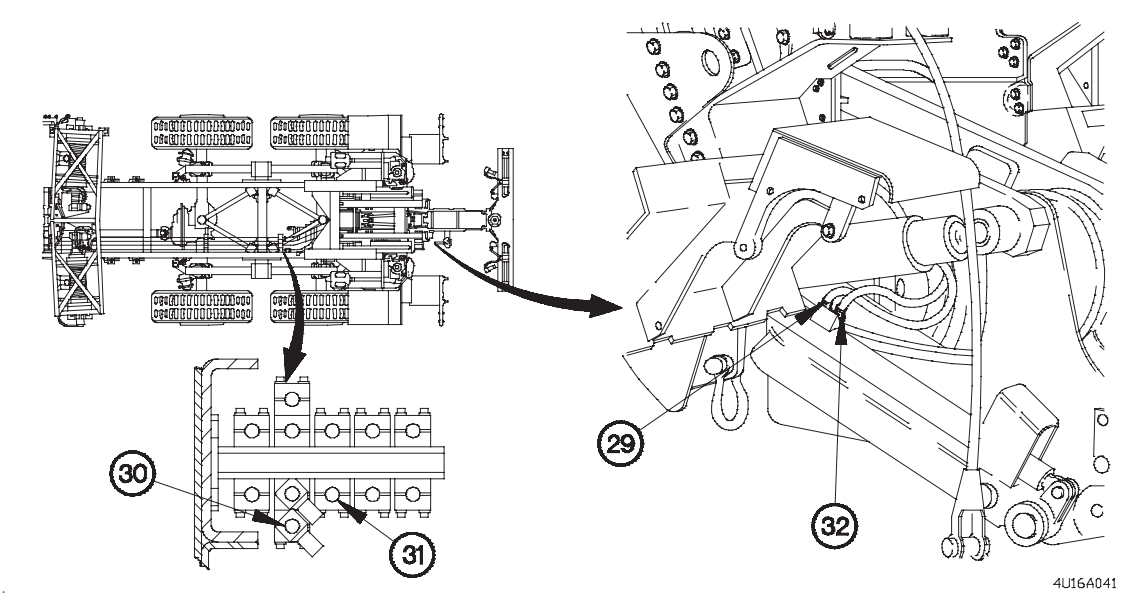


Table 19-5. M1089 Underlift Hydraulic Hose Locations (Cont)

Hydraulic Hose Name	From	To	Torque
Underlift Fold Down	Underlift Fold Hydraulic Cylinder Fitting (29)	Union (30)	36-39 lb-ft (49-53 N·m)
Underlift Fold Up	Union (31)	Underlift Fold Hydraulic Cylinder Fitting (32)	18-20 lb-ft (24-27 N·m)

b. Follow-On Maintenance.

(1) Fill hydraulic tank (Appendix H).

(2) Operate underlift (TM 9-2320-366-10-2).

(3) Check hoses and fittings for oil leaks.

End of Task.

19-17. M1089 UNDERLIFT HYDRAULIC TUBING REPLACEMENT

This task covers:

a. Hydraulic Tubing Locations

b. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-366-10-1).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Pan, Drain (Item 24, Appendix C)
Goggles, Industrial (Item 15, Appendix C)
Wrench, Torque, 0-175 lb-ft (Item 58, Appendix C)
Crowfoot Attachment, Socket Wrench (Item 6, Appendix B)

Materials/Parts
Dispenser, Pressure Sensitive Adhesive Tape (Item 20, Appendix D)
Cap and Plug Set (Item 14, Appendix D)
Ties, Cable, Plastic (Item 60, Appendix D)
Oil, Lubricating, OE/HDO 10 (Item 42, Appendix D)

a. Hydraulic Tubing 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.**
- **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 tubes and connection points to prevent contamination of M1089 underlift hydraulic system. Failure to comply may result in damage to equipment.

NOTE

- Refer to **Table 19-6. M1089 Underlift Hydraulic Tubing Locations** for locations of hydraulic tubing on the M1089 underlift. It may not be necessary to remove all hydraulic tubes at one time.
- Tag tubes and connection points prior to removal.
- Remove plastic cable ties as required.
- Remove clamps and support brackets as required.
- Position drain pan to collect oil.

Figure 19-6. M1089 Underlift Hydraulic Tubing Locations

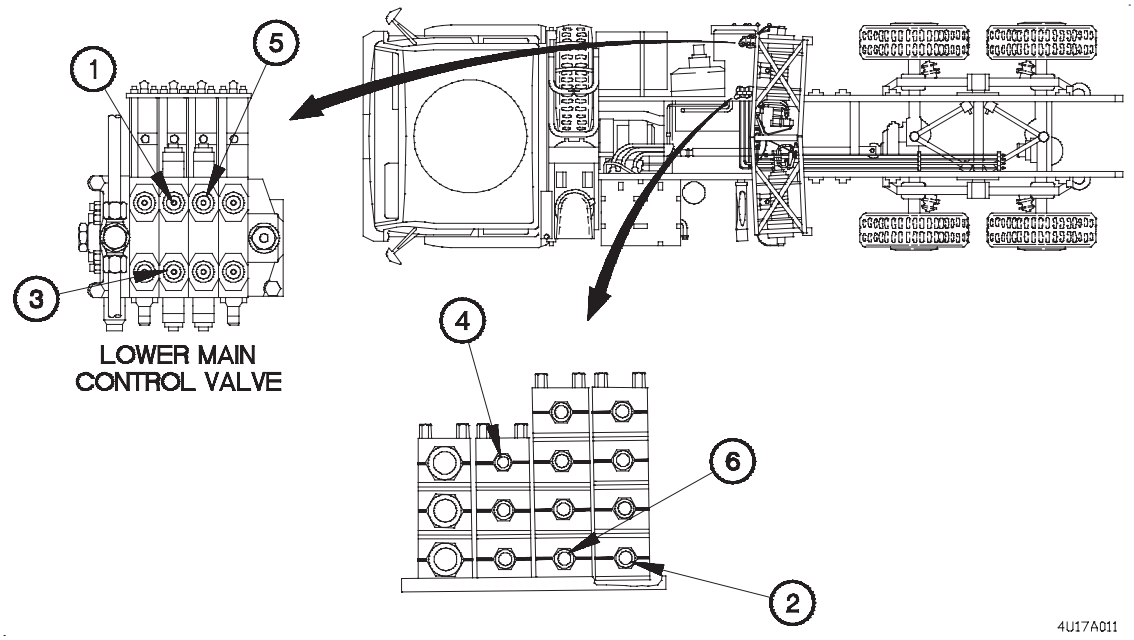


Table 19-6. M1089 Underlift Hydraulic Tubing Locations

Hydraulic Tube Name	From	To	Torque
Underlift Fold Down 1	Underlift Fold Manual Control Valve Fitting (1)	Union (2)	36-39 lb-ft 49-53 N·m
Underlift Fold Up 1	Underlift Fold Manual Control Valve Fitting (3)	Union (4)	36-39 lb-ft 49-53 N·m
Underlift Down 1	Underlift Down Manual Control Valve Fitting (5)	Union (6)	36-39 lb-ft 49-53 N·m

19-17. M1089 UNDERLIFT HYDRAULIC TUBING REPLACEMENT (CONT)

Figure 19-6. M1089 Underlift Hydraulic Tubing Locations (Cont)

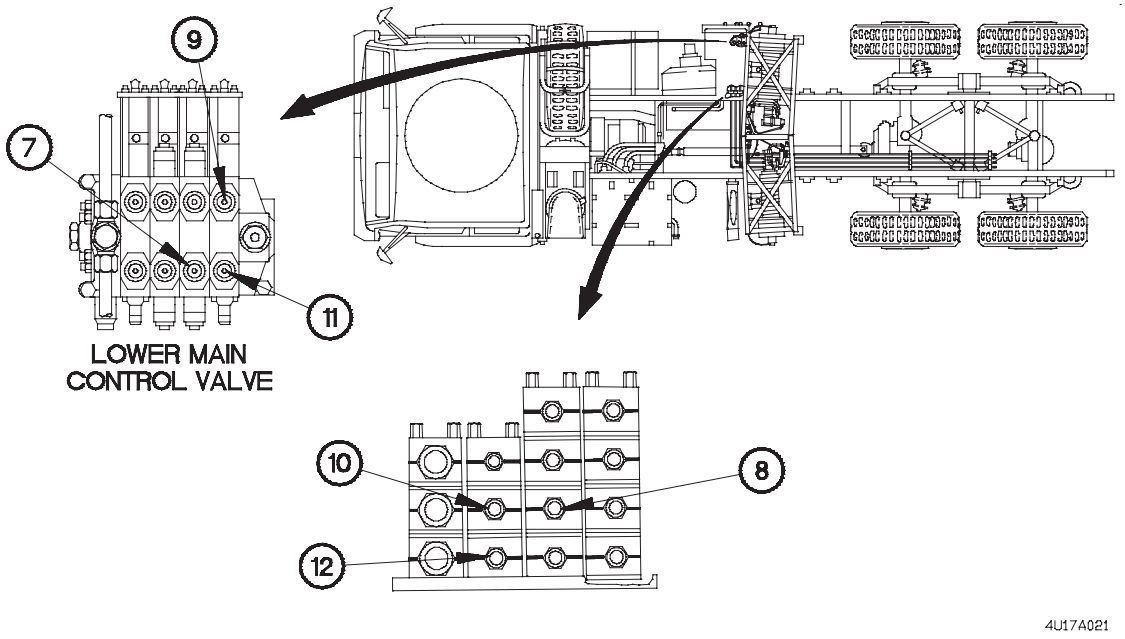


Table 19-6. M1089 Underlift Hydraulic Tubing Locations (Cont)

Hydraulic Tube Name	From	To	Torque
Underlift Up 1	Underlift Up Manual Control Valve Fitting (7)	Union (8)	36-39 lb-ft 49-53 N·m
Stinger Out 1	Stinger Manual Control Valve Fitting (9)	Union (10)	36-39 lb-ft 49-53 N·m
Stinger In 1	Stinger Manual Control Valve Fitting (11)	Union (12)	36-39 lb-ft 49-53 N·m

Figure 19-6. M1089 Underlift Hydraulic Tubing Locations (Cont)

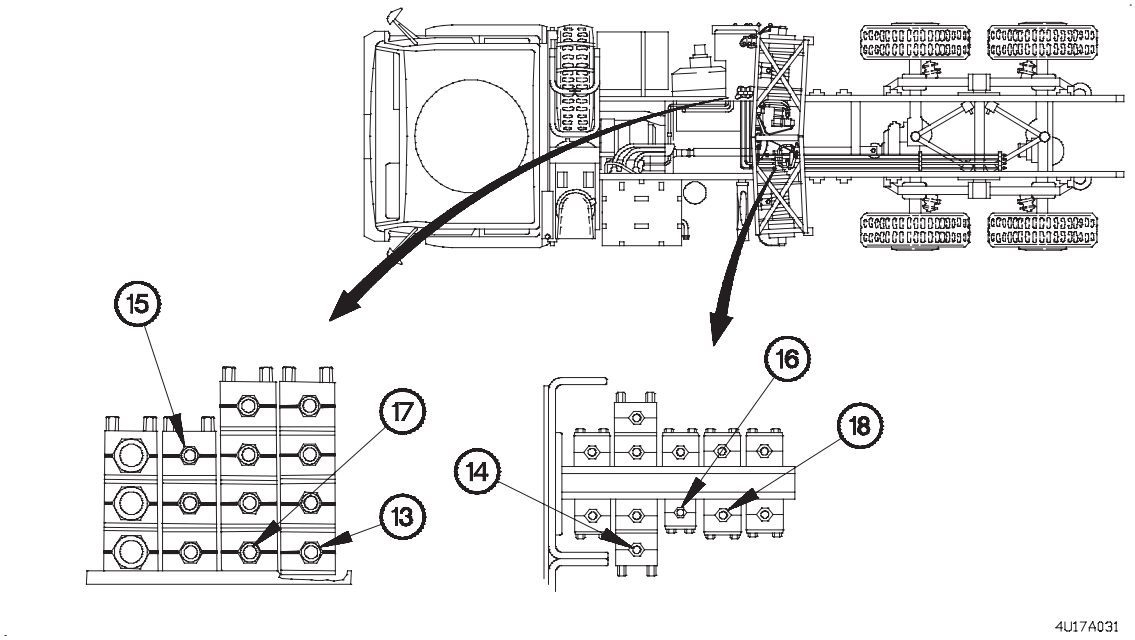


Table 19-6. M1089 Underlift Hydraulic Tubing Locations (Cont)

Hydraulic Tube Name	From	To	Torque
Underlift Fold Down 2	Union (13)	Union (14)	36-39 lb-ft 49-53 N·m
Underlift Fold Up 2	Union (15)	Union (16)	36-39 lb-ft 49-53 N·m
Underlift Down 2	Union (17)	Union (18)	36-39 lb-ft 49-53 N·m

19-17. M1089 UNDERLIFT HYDRAULIC TUBING REPLACEMENT (CONT)

Figure 19-6. M1089 Underlift Hydraulic Tubing Locations (Cont)

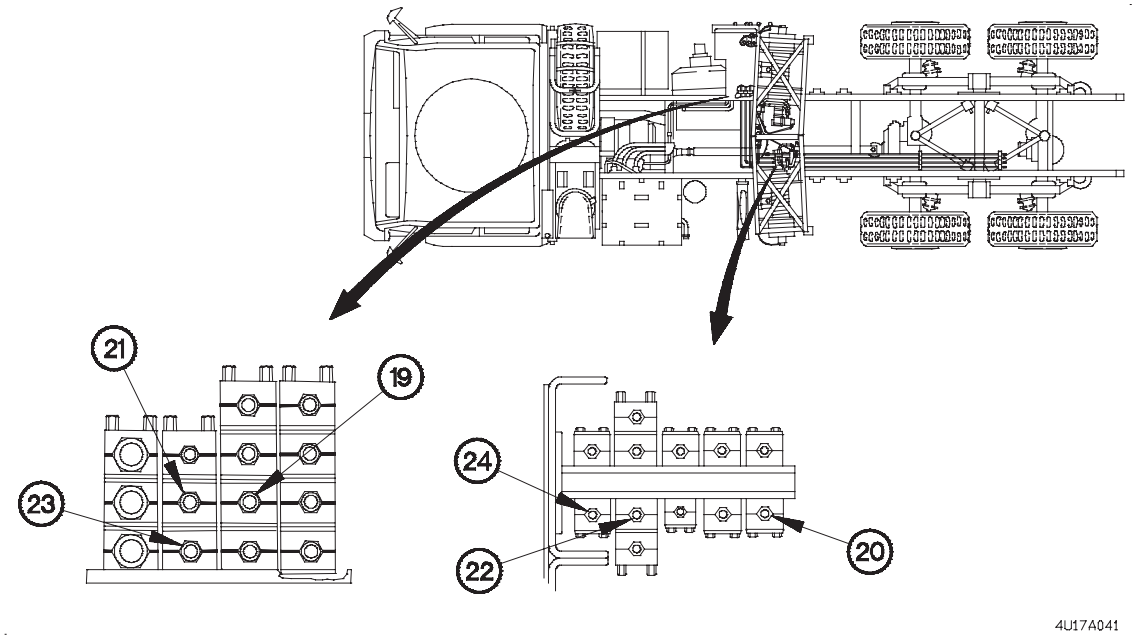


Table 19-6. M1089 Underlift Hydraulic Tubing Locations (Cont)

Hydraulic Tube Name	From	To	Torque
Underlift Up 2	Union (19)	Union (20)	36-39 lb-ft 49-53 N·m
Stinger In 2	Union (21)	Union (22)	36-39 lb-ft 49-53 N·m
Stinger Out 2	Union (23)	Union (24)	36-39 lb-ft 49-53 N·m

Figure 19-6. M1089 Underlift Hydraulic Tubing Locations (Cont)

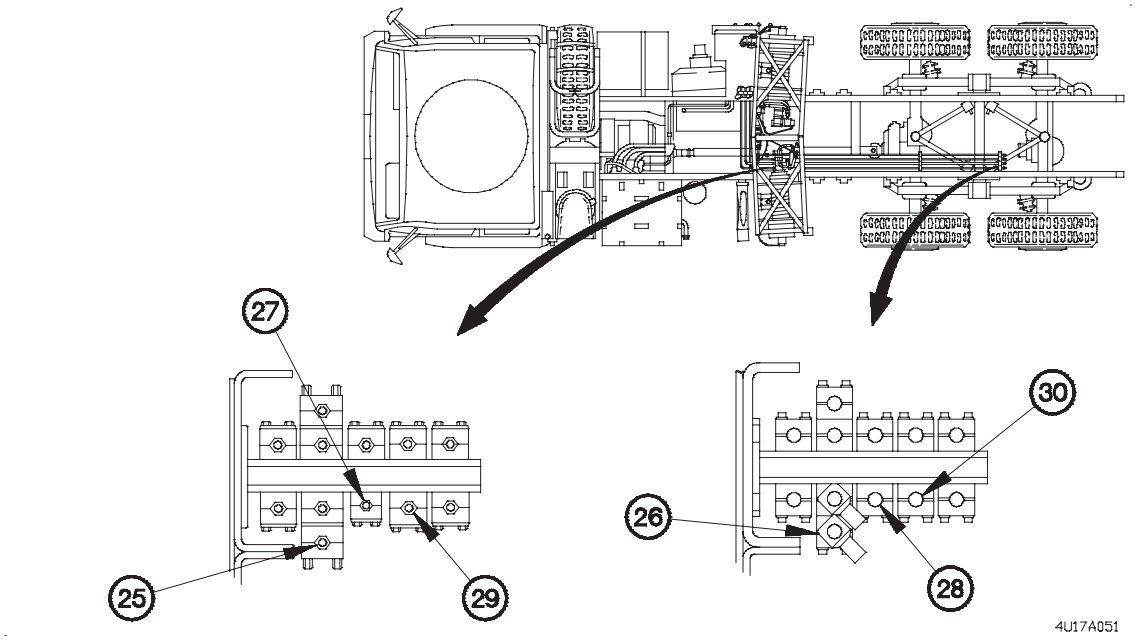


Table 19-6. M1089 Underlift Hydraulic Tubing Locations (Cont)

Hydraulic Tube Name	From	To	Torque
Underlift Fold Down 3	Union (25)	Union (26)	36-39 lb-ft 49-53 N·m
Underlift Fold Up 3	Union (27)	Union (28)	36-39 lb-ft 49-53 N·m
Underlift Down 3	Union (29)	Union (30)	36-39 lb-ft 49-53 N·m

19-17. M1089 UNDERLIFT HYDRAULIC TUBING REPLACEMENT (CONT)

Figure 19-6. M1089 Underlift Hydraulic Tubing Locations (Cont)

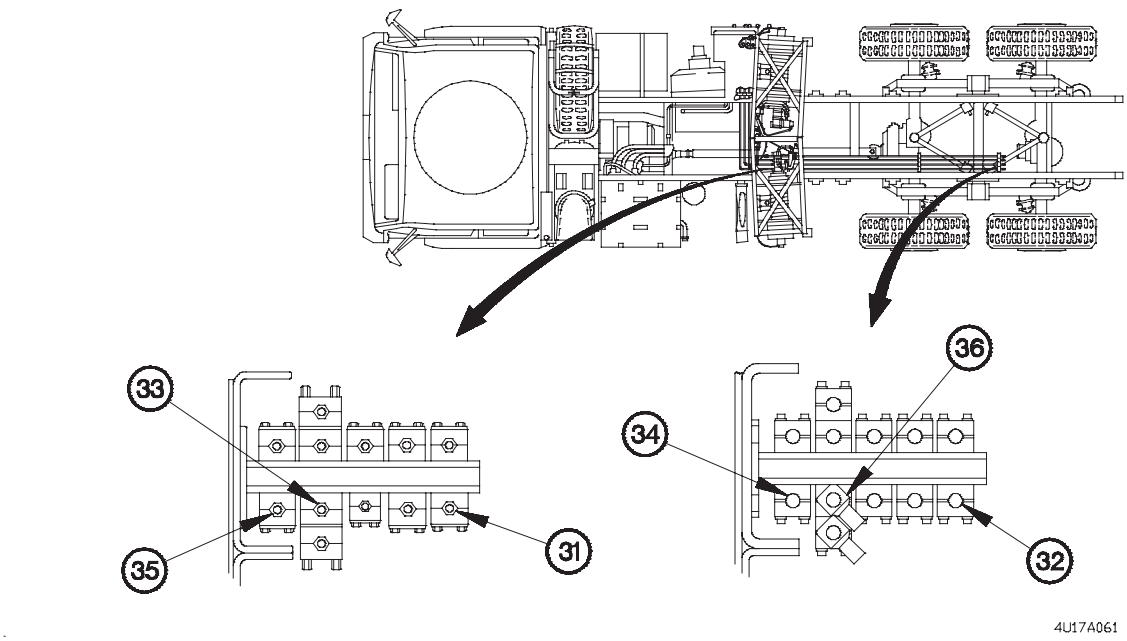


Table 19-6. M1089 Underlift Hydraulic Tubing Locations (Cont)

Hydraulic Tube Name	From	To	Torque
Underlift Up 3	Union (31)	Union (32)	36-39 lb-ft 49-53 N·m
Stinger In 3	Union (33)	Union (34)	36-39 lb-ft 49-53 N·m
Stinger Out 3	Union (35)	Union (36)	36-39 lb-ft 49-53 N·m

Figure 19-6. M1089 Underlift Hydraulic Tubing Locations (Cont)

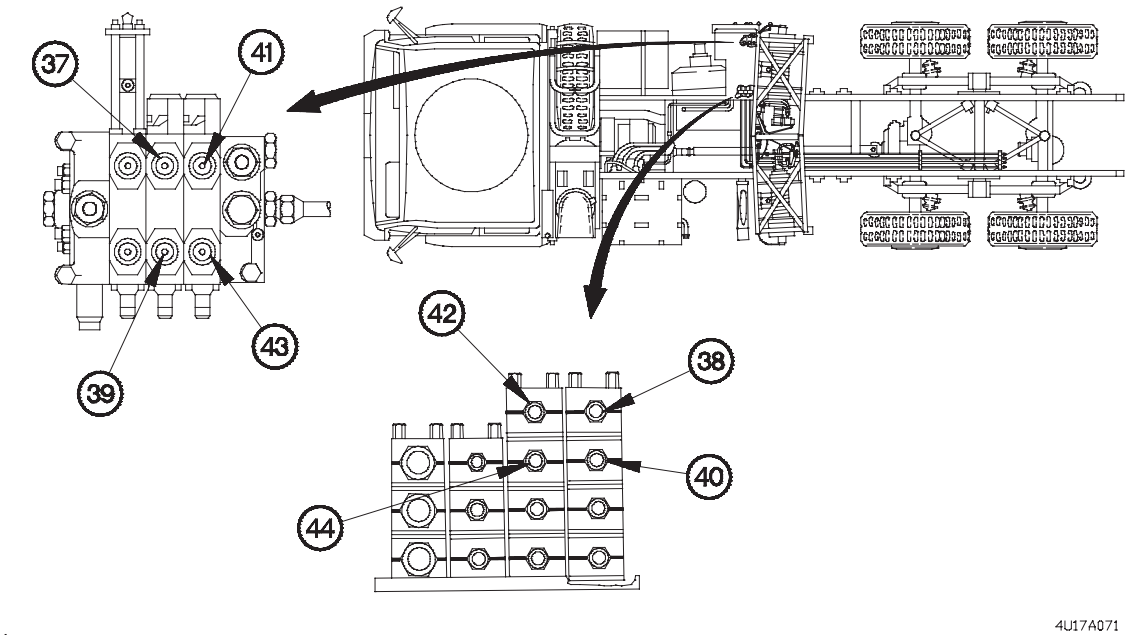


Table 19-6. M1089 Underlift Hydraulic Tubing Locations (Cont)

Hydraulic Tube Name	From	To	Torque
Left Stiffleg Up 1	Left Stiffleg Manual Control Valve Fitting (37)	Union (38)	36-39 lb-ft 49-53 N·m
Left Stiffleg Down 1	Left Stiffleg Manual Control Valve Fitting (39)	Union (40)	36-39 lb-ft 49-53 N·m
Right Stiffleg Up 1	Right Stiffleg Manual Control Valve Fitting (41)	Union (42)	36-39 lb-ft 49-53 N·m
Right Stiffleg Down 1	Right Stiffleg Manual Control Valve Fitting (43)	Union (44)	36-39 lb-ft 49-53 N·m

19-17. M1089 UNDERLIFT HYDRAULIC TUBING REPLACEMENT (CONT)

Figure 19-6. M1089 Underlift Hydraulic Tubing Locations (Cont)

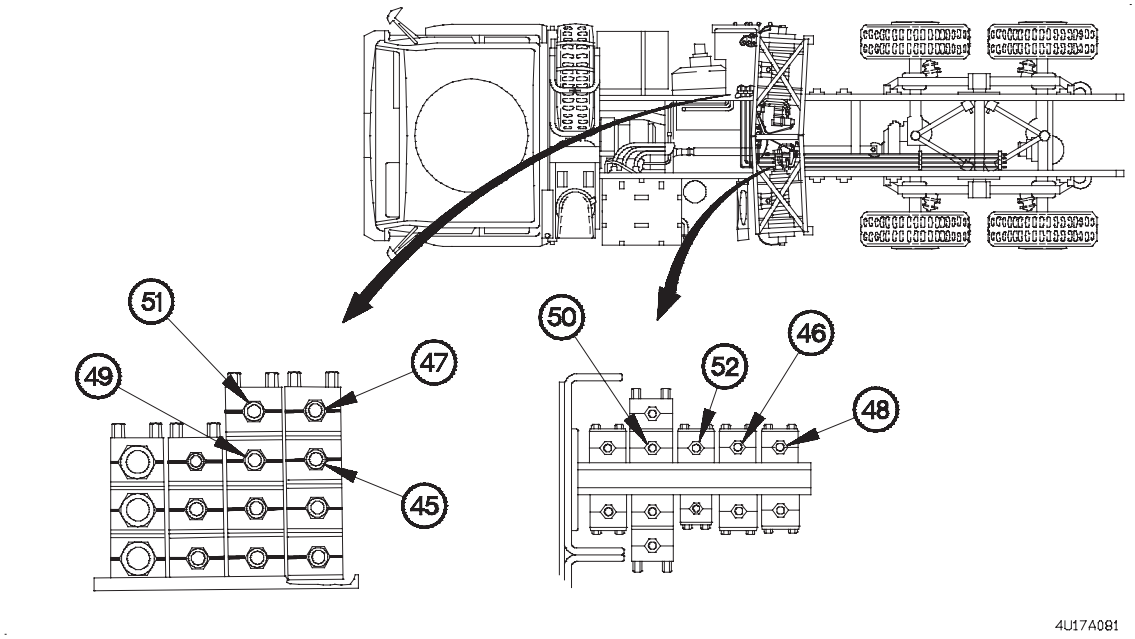


Table 19-6. M1089 Underlift Hydraulic Tubing Locations (Cont)

Hydraulic Tube Name	From	To	Torque
Left Stiffleg Up 2	Union (45)	Union (46)	36-39 lb-ft 49-53 N·m
Left Stiffleg Down 2	Union (47)	Union (48)	36-39 lb-ft 49-53 N·m
Right Stiffleg Up 2	Union (49)	Union (50)	36-39 lb-ft 49-53 N·m
Right Stiffleg Down 2	Union (51)	Union (52)	36-39 lb-ft 49-53 N·m

Figure 19-6. M1089 Underlift Hydraulic Tubing Locations (Cont)

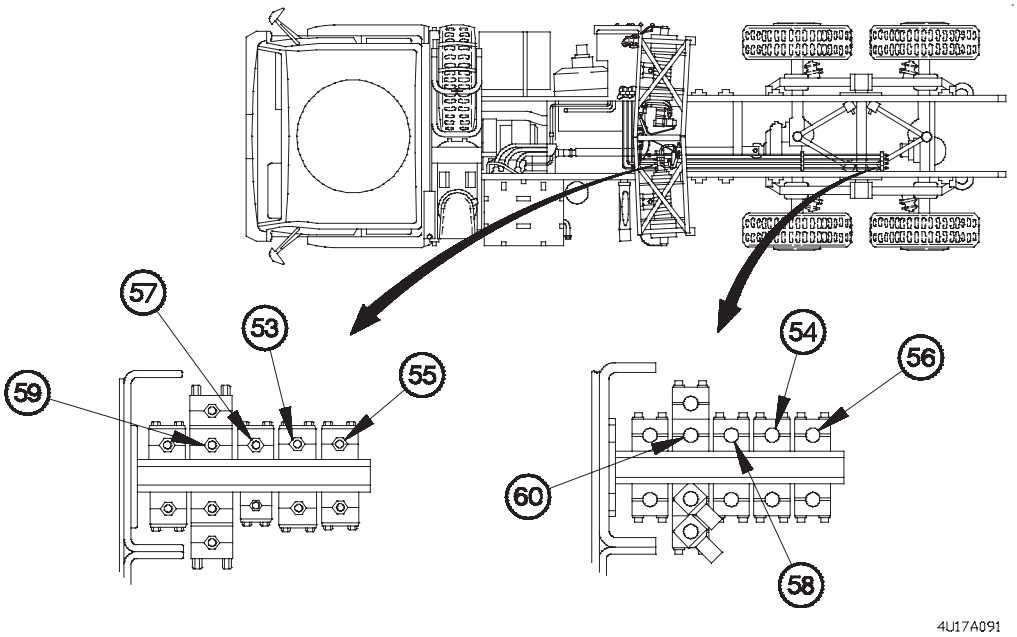


Table 19-6. M1089 Underlift Hydraulic Tubing Locations (Cont)

Hydraulic Tube Name	From	To	Torque
Left Stiffleg Up 3	Union (53)	Union (54)	36-39 lb-ft 49-53 N·m
Left Stiffleg Down 3	Union (55)	Union (56)	36-39 lb-ft 49-53 N·m
Right Stiffleg Down 3	Union (57)	Union (58)	36-39 lb-ft 49-53 N·m
Right Stiffleg Up 3	Union (59)	Union (60)	36-39 lb-ft 49-53 N·m

b. Follow-On Maintenance.

(1) Fill hydraulic tank (Appendix H).

(2) Operate underlift, stinger, and stifflegs, and check for oil leaks.

End of Task.

19-18. M1089 HYDRAULIC SYSTEM HOSES REPLACEMENT

This task covers:

a. Hydraulic Hose Locations

b. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-366-10-1).
Hydraulic tank removed (para 19-15).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Pan, Drain (Item 24, Appendix C)
Goggles, Industrial (Item 15, Appendix C)
Wrench, Torque, 0-175 lb-ft (Item 58, Appendix C)
Adapter, Socket Wrench (Item 1, Appendix C)

Tools and Special Tools (Cont)
Crowfoot Attachment, Socket Wrench (Item 9, Appendix B)
Crowfoot Attachment, Socket Wrench (Item 6, Appendix B)

Materials/Parts
Dispenser, Pressure Sensitive Adhesive Tape (Item 20, Appendix D)
Cap and Plug Set (Item 14, Appendix D)
Antiseize Compound (Item 13, Appendix D)
Ties, Cable, Plastic (Item 69, Appendix D)

a. Hydraulic 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.**
- **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.**
- **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.**

CAUTION

Cap or plug hoses and connection points to prevent contamination of M1089 hydraulic system. Failure to comply may result in damage to equipment.

NOTE

- Refer to **Table 19-7. M1089 Hydraulic System Hose Locations** for locations of primary hydraulic hoses on the M1089 hydraulic system. It may not be necessary to remove all hydraulic hoses at one time.
- Tag hoses and connection points prior to removal.
- Remove plastic cable ties as required.

NOTE

- Remove clamps and support brackets as required.
- Position drain pan to collect oil.
- Apply antiseize compound to first two to five threads of all fittings prior to installation.

Figure 19-7. M1089 Hydraulic System Hose Locations

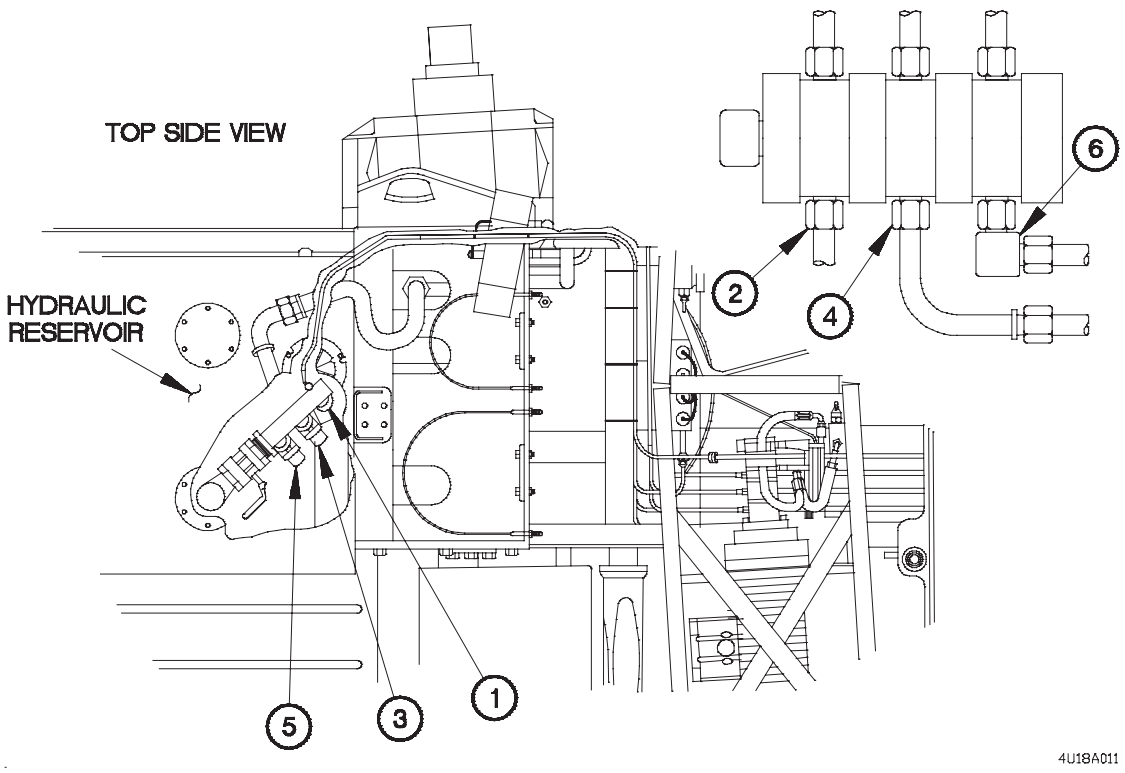


Table 19-7. M1089 Hydraulic System Hose Locations

Hydraulic Hose or Tube Name	From	To	Torque
Suction Circuit A	Supply tank manifold tube bottom rear fitting (1)	Hydraulic pump bottom front fitting (2)	148-161 lb-ft (201-218 N·m)
Suction Circuit B	Supply tank manifold tube bottom middle fitting (3)	Hydraulic pump bottom middle fitting (4)	148-161 lb-ft (201-218 N·m)
Suction Circuit C	Supply tank manifold tube bottom forward fitting (5)	Hydraulic pump bottom rear fitting (6)	148-161 lb-ft (201-218 N·m)

19-18. M1089 HYDRAULIC SYSTEM HOSES REPLACEMENT (CONT)

Figure 19-7. M1089 Hydraulic System Hose Locations (Cont)

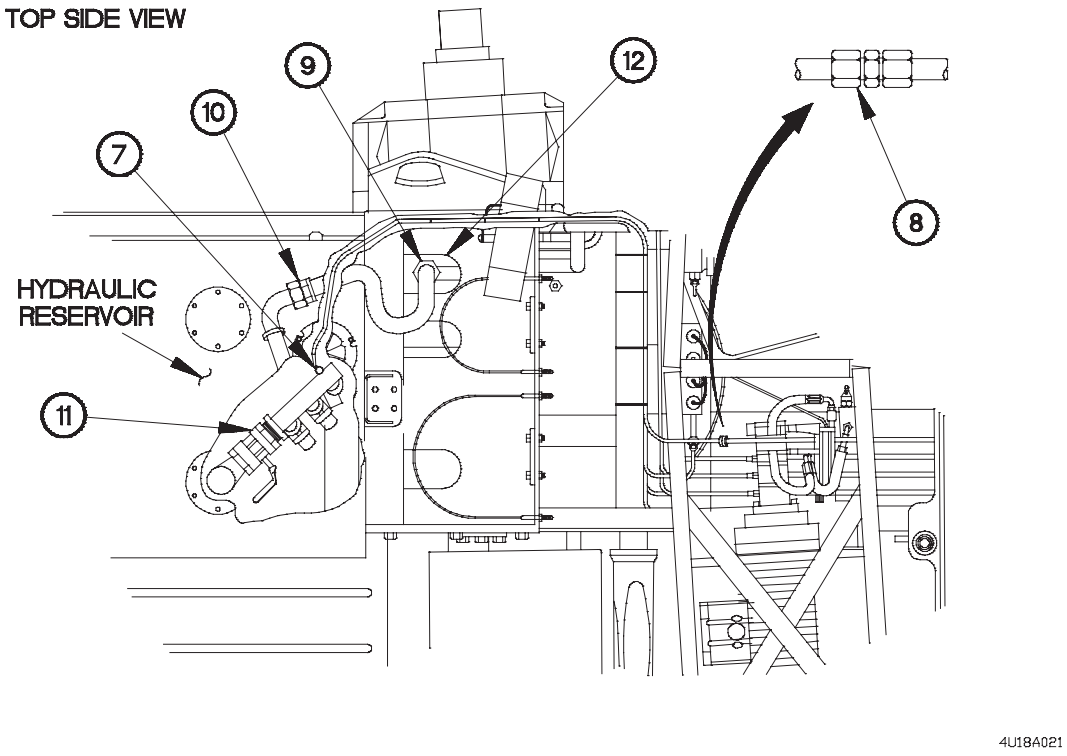


Table 19-7. M1089 Hydraulic System Hose Locations (Cont)

Hydraulic Hose or Tube Name	From	To	Torque
Suction Hand Pump	Supply tank manifold tube bottom forward fitting (7)	Hand pump supply tube front fitting (8)	36-39 lb-ft (49-53 N·m)
Return	Return shut-off valve top fitting (9)	Hydraulic oil tank top fitting (10)	148-161 lb-ft (201-218 N·m)
Suction Manifold	Hydraulic suction shut-off valve rear fitting (11)	Hydraulic system suction hoses and tubes	148-161 lb-ft (201-218 N·m)
Return Manifold	Hydraulic system return shut-off valve bottom fitting (12)	Hydraulic system return hoses and tubes	148-161 lb-ft (201-218 N·m)

b. Follow-On Maintenance.

(1) Install hydraulic tank (para 19-20).

(2) Fill hydraulic tank (Appendix H).

(3) Start engine (TM 9-2320-366-10-1).

(4) Operate 30K winches, underlift, and MHC, and check for oil leaks (TM 9-2320-366-10-2).

(5) Shut down engine (TM 9-2320-366-10-1).

End of Task.

19-19. HYDRAULIC RESERVOIR AND BRACKET REPLACEMENT

This task covers:

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

INITIAL SETUP

Equipment Conditions
Hydraulic oil filter assembly removed (para 19-13).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Wrench, Torque, 0-175 lb-ft (Item 58, Appendix C)
Wrench, Torque 0-600 lb-ft (Item 60, Appendix C)
Socket Set, Socket Wrench (Item 33, Appendix C)
Container (30 gal (113 L) capacity)

Materials/Parts
Dispenser, Pressure Sensitive Adhesive Tape (Item 20, Appendix D)
Cap and Plug Set (Item 14, Appendix D)

Materials/Parts (Cont)
Sealing Compound (Item 57, Appendix D)
Oil, Lubricating, OE/HDO 10W (Item 43, Appendix D)
Packing, Preformed (2) (Item 185, Appendix G)
Nut, Self-Locking (Item 152, Appendix G)
Nut, Self-Locking (4) (Item 157, Appendix G)
Insulator, Tank (Item 60, Appendix G)
Insulator, Tank (Item 61, Appendix G)

Personnel Required
(2)

a. Removal.

CAUTION

Cap or plug hydraulic connections and connection points to prevent contamination of hydraulic system. Failure to comply may result in damage to equipment.

NOTE

Tag hoses and connection points prior to disconnecting.

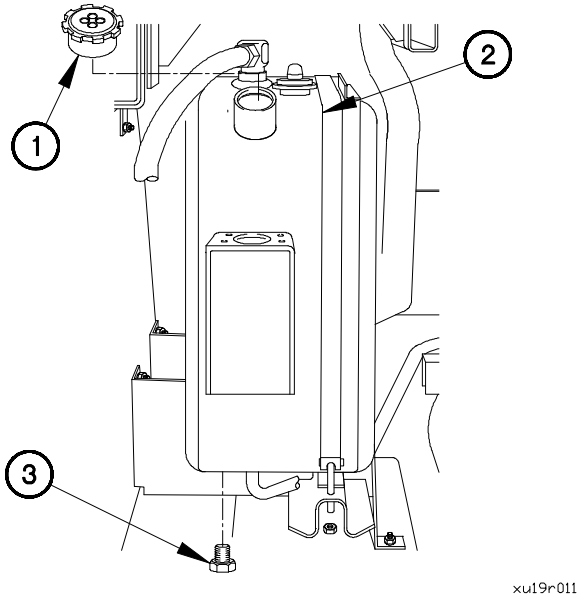
(1) Remove cap (1) from hydraulic reservoir (2).

(2) Position container under drain plug (3).

(3) Remove drain plug (3) from hydraulic reservoir (2) and drain oil.

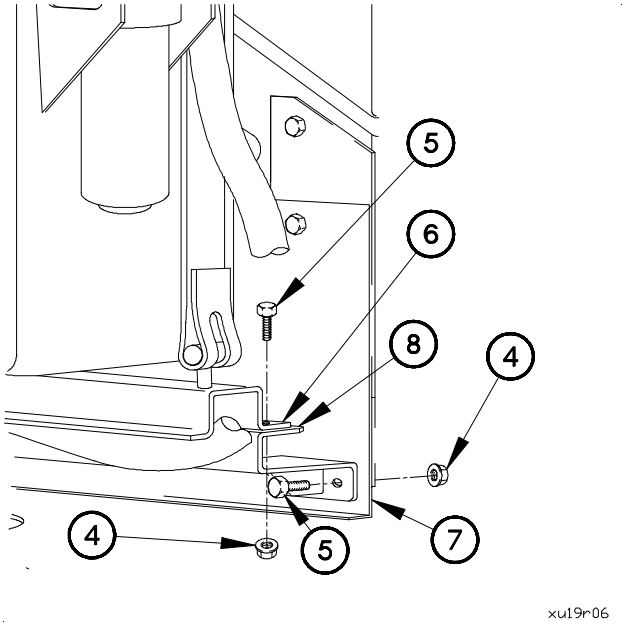
(4) Install drain plug (3) in hydraulic reservoir (2).

(5) Install cap (1) on hydraulic reservoir (2).



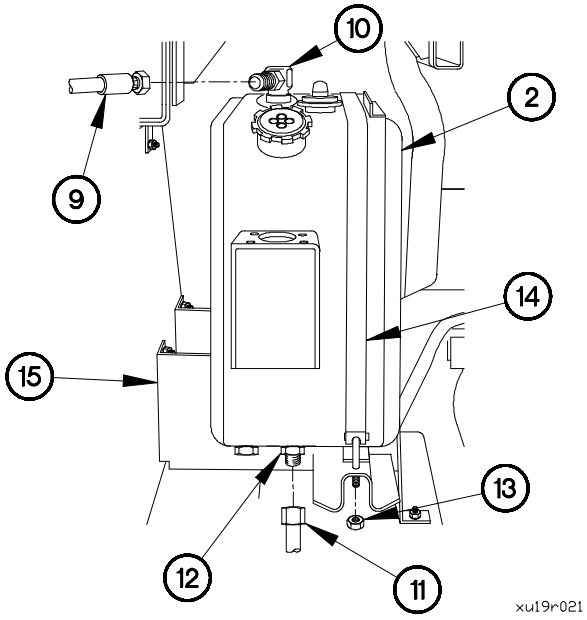
NOTE

Perform steps (6) and (7) on models M1090 and M1094.



(6) Remove four self-locking nuts (4) and bolts (5) from guard support bracket (6) and stone guard (7). Discard self-locking nut.

(7) Remove guard support bracket (6) from bracket (8).

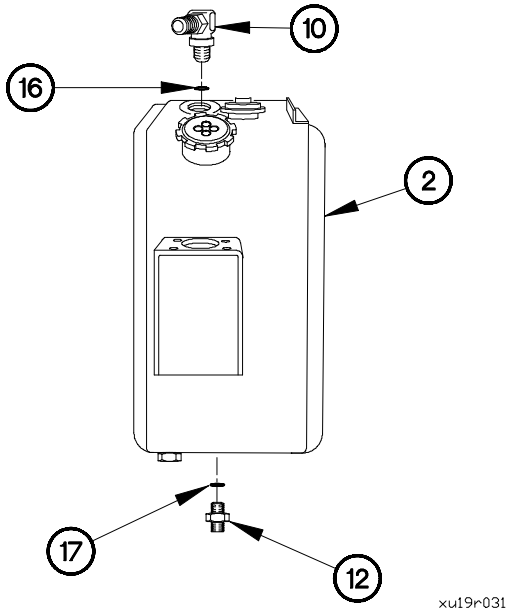


(8) Disconnect hose (9) from 90-degeree fitting (10).

(9) Disconnect hose (11) from fitting (12).

(10) Remove nut (13) from strap (14).

(11) Remove hydraulic reservoir (2) from support (15).



(12) Remove 90-degree fitting (10) from hydraulic reservoir (2).

(13) Remove preformed packing (16) from 90-degree fitting (10). Discard preformed packing.

(14) Remove fitting (12) from hydraulic reservoir (2).

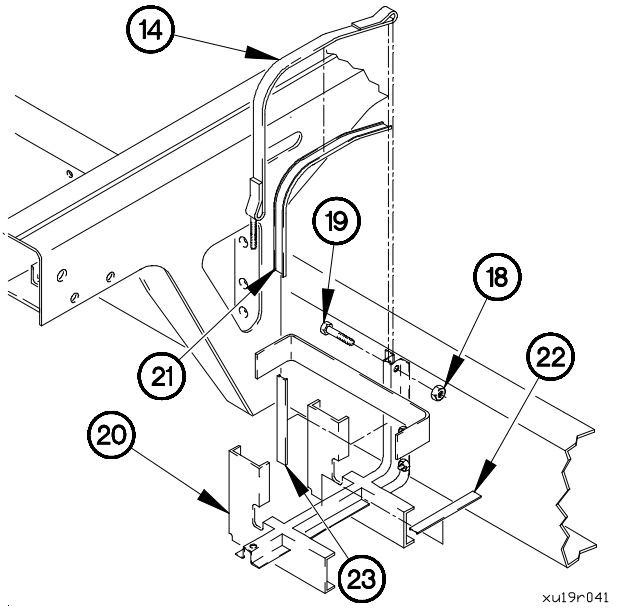
(15) Remove preformed packing (17) from fitting (12). Discard preformed packing.

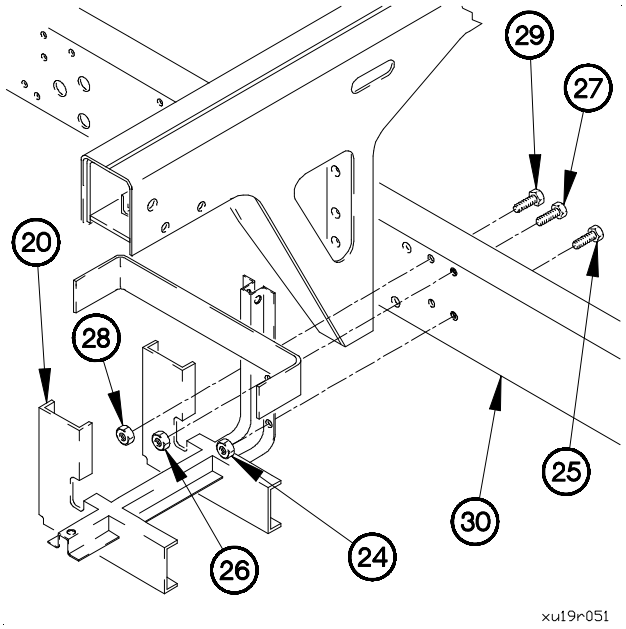
19-19. HYDRAULIC RESERVOIR AND BRACKET REPLACEMENT (CONT)

(16) Remove self-locking nut (18), bolt (19),and strap (14) from bracket (20). Discard self-locking nut.

(17) Remove insulator strap (21) from strap (14).

(18) Remove insulators (22 and 23) from bracket (20). Discard insulators.





(19) Remove self-locking nut (24) and bolt (25) from bracket (20). Discard self-locking nut.

(20) Remove self-locking nut (26) and bolt (27) from bracket (20). Discard self-locking nut.

(21) Remove two self-locking nuts (28), bolts (29),and bracket (20) from frame rail (30). Discard self-locking nuts.

b. Disassembly.

NOTE

Perform steps (1) through (8) on models M1090 and M1094.

(1) Remove liquid indicator (1) from cover plate (2).

(2) Remove six bolts (3) from cover plate (2).

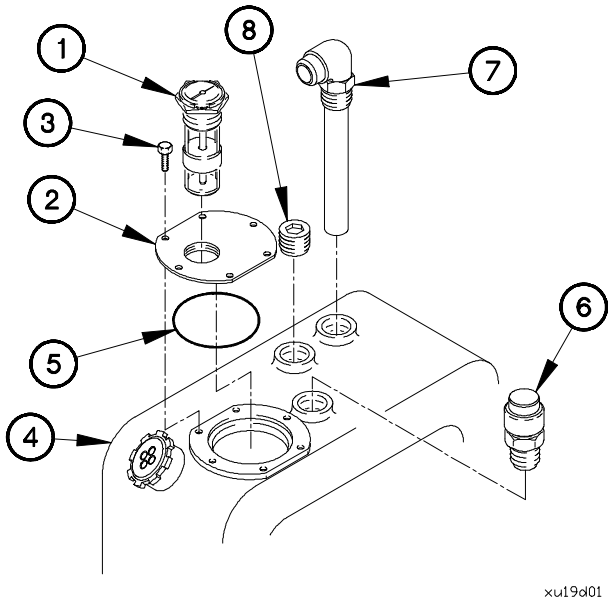
(3) Remove cover plate (2) from hydraulic reservoir (4).

(4) Remove preformed packing (5) from cover plate (2). Discard preformed packing.

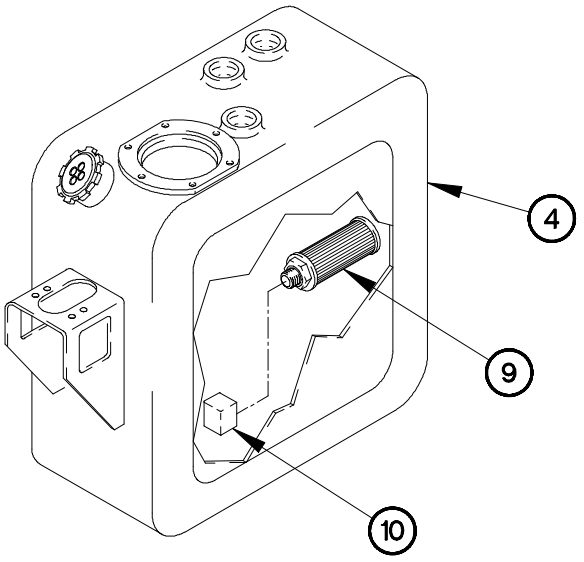
(5) Remove vent valve (6) from hydraulic reservoir (4).

(6) Remove tube assembly (7) from hydraulic reservoir (4).

(7) Remove plug (8) from hydraulic reservoir (4).



xu19d01



xu19d02

(8) Remove filter element (9) from 90-degree fitting (10) in bottom of hydraulic tank (4).

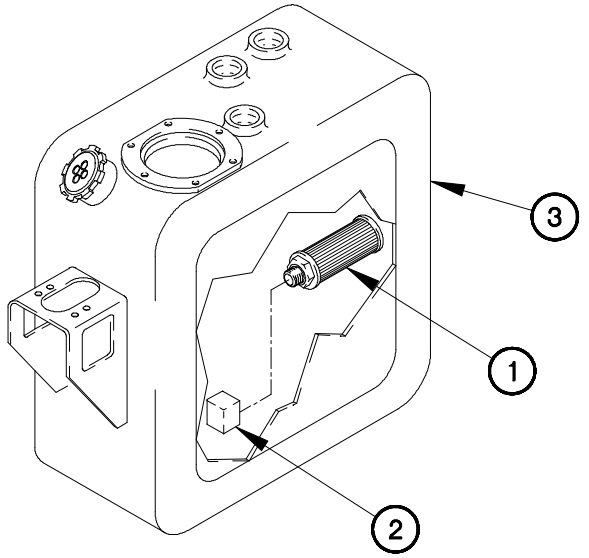
19-19. HYDRAULIC RESERVOIR AND BRACKET REPLACEMENT (CONT)

c. Assembly.

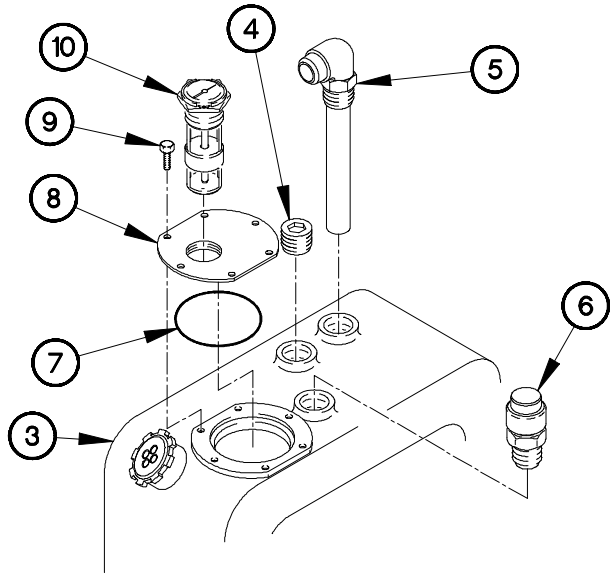
NOTE

- Perform steps (1) through (8) on models M1090 and M1094).
- Apply lubricating oil to performed packings during installation.

(1) Install filter element (1) on 90-degree fitting (2) in bottom of hydraulic tank (3).



xu19c01



xu19c02

(2) Install plug (4) in hydraulic reservoir (3).

(3) Install tube assembly (5) in hydraulic reservoir (3).

(4) Install vent valve (6) in hydraulic reservoir (3).

(5) Install preformed packing (7) on cover plate (8).

(6) Position cover plate (8) on hydraulic reservoir (3) with six bolts (9).

(7) Tighten bolts (9) to 64-80 lb-in (87-108 N•m).

(8) Install liquid indicator (10) in cover plate (8).

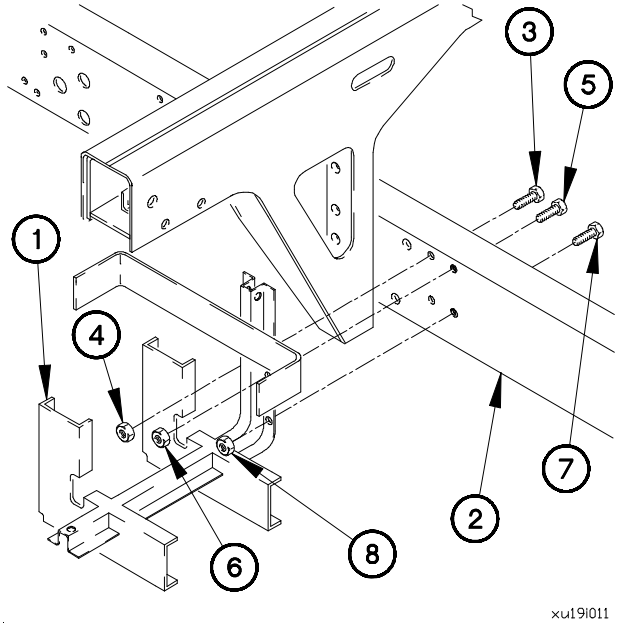
d. Installation.

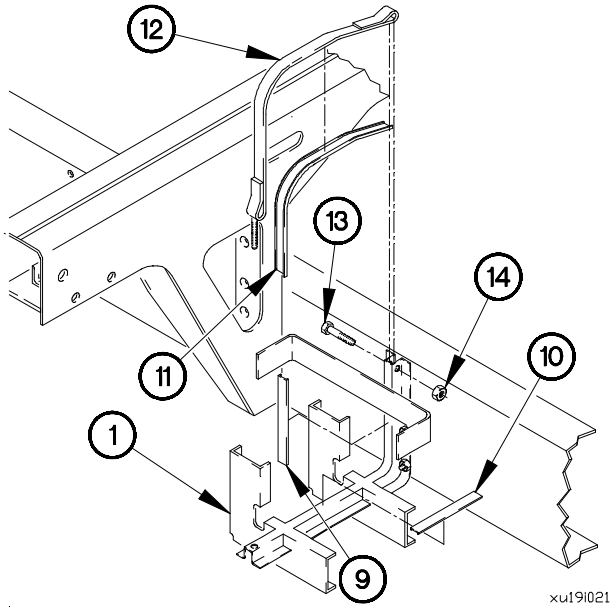
(1) Position bracket (1) on frame rail (2) with two bolts (3) and self-locking nuts (4).

(2) Position bolt (5) and self-locking nut (6) in bracket (1).

(3) Position bolt (7) and self-locking nut (8) in bracket (1).

(4) Tighten two self-locking nuts (4) and self-locking nuts (6 and 8) to 210-225 lb-ft (285-305 N•m).





(5) Install insulators (9 and 10) on bracket (1).

(6) Install insulator strap (11) on strap (12).

(7) Position strap (12) on bracket (1) with bolt (13) and self-locking nut (14).

(8) Tighten self-locking nut (14) to 39-47 lb-ft (52-64 N•m).

NOTE

Apply lubricating oil to preformed packings during installation.

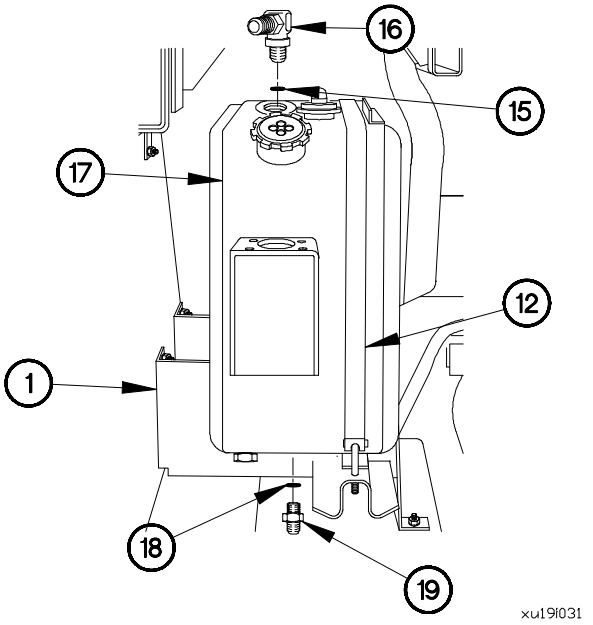
(9) Install preformed packing (15) on 90-degree fitting (16).

(10) Install 90-degree fitting (16) in hydraulic reservoir (17).

(11) Install preformed packing (18) on fitting (19).

(12) Install fitting (19) in hydraulic reservoir (17).

(13) Position hydraulic reservoir (17) in bracket (1) with strap (12) positioned around hydraulic reservoir (17).



19-19. HYDRAULIC RESERVOIR AND BRACKET 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, washer immediately with soap and water. Failure to comply may result in injury to personnel.

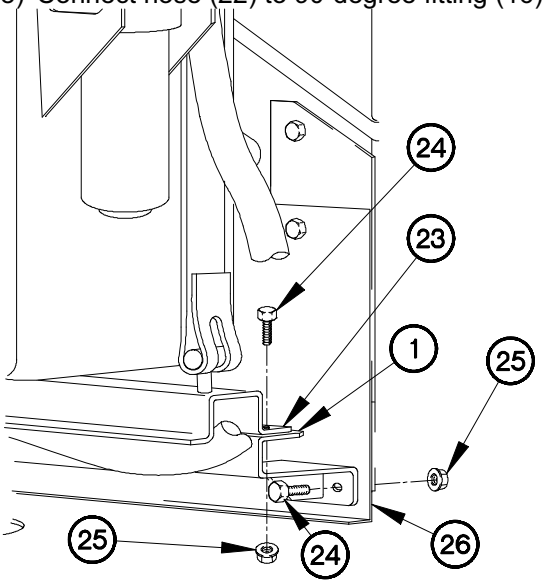
(14) Apply sealing compound to threads of nut (20).

(15) Position nut (20) on strap (12).

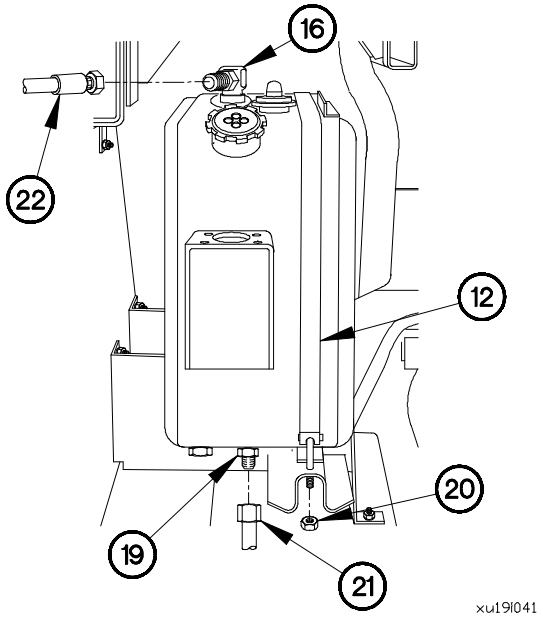
(16) Tighten nut (20) to 42-52 ft-lb (57-71 N•m).

(17) Connect hose (21) to fitting (19).

(18) Connect hose (22) to 90-degree fitting (16).



xu19l05



xu19l041

NOTE

Perform steps (19) through (21) on models M1090 and M1094.

(19) Position guard support bracket (23) on bracket (1) with two bolts (24) and self-locking nuts (25).

(20) Position two bolts (24) and self locking nuts (25) in guard support bracket (23) and stone guard (26).

(21) Tighten four self-locking nuts (25) to 20-24 lb-ft (27-33 N•m).

e. Follow-On Maintenance.

(1) Install hydraulic oil filter assembly (para 19-13).

(2) Fill hydraulic reservoir (Appendix H).

End of Task.

19-20. M1089 HYDRAULIC TANK AND MANIFOLD REPLACEMENT/REPAIR

This task covers:

a. Hydraulic Tank Removal
b. Hydraulic Tank Disassembly
c. Manifold Disassembly
d. Cleaning/Inspection
e. Manifold Assembly
f. Hydraulic Tank Assembly
g. Hydraulic Tank Installation
h. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-366-10-1).
Hydraulic tank supply and return valves closed (TM 9-2320-366-10-2).
Spare tire lowered (TM 9-2320-366-10-2).
Hydraulic tank filter removed (para 19-14).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Goggles, Industrial (Item 15, Appendix C)
Gloves, Rubber (Item 13, Appendix C)
Apron, Rubber (Item 3, Appendix C)
Dispensing Pump, Hand Driven (Item 5, Appendix C)
Container (75 gal (284 L) capacity)
Pan, Drain (Item 24, Appendix C)
Trestle, Motor Vehicle Maintenance (4) (Item 47, Appendix C)
Crowfoot Attachment, Socket Wrench (Item 9, Appendix B)
Socket Set, Socket Wrench (Item 36, Appendix C)

Tools and Special Tools (Cont)
Crowfoot Attachment, Socket Wrench (Item 6, Appendix B)
Wrench Set, Socket (Item 51, Appendix C)
Wrench, Torque, 0-175 lb-ft (Item 58, Appendix C)
Wrench, Torque, 0-200 lb-in. (Item 59, Appendix C)

Materials/Parts
Dispenser Pressure Sensitive Adhesive Tape (Item 20, Appendix D)
Cap and Plug Set (Item 14, Appendix D)
Antiseize Compound (Item 13, Appendix D)
Sealing Compound (Item 58, Appendix D)
Pad, Cushioning (2) (Item 217, Appendix G)
Gasket (3) (Item 29, Appendix G)
Cover, Fluid Filter (Item 10, Appendix G)
Indicator, Sight, Liquid (Item 56, Appendix G)
Lockwasher (8) (Item 96, Appendix G)
Mount, Resilient (2) (Item 120, Appendix G)
Nut, Self-Locking (8) (Item 134, Appendix G)
Nut, Self-Locking (4) (Item 136, Appendix G)

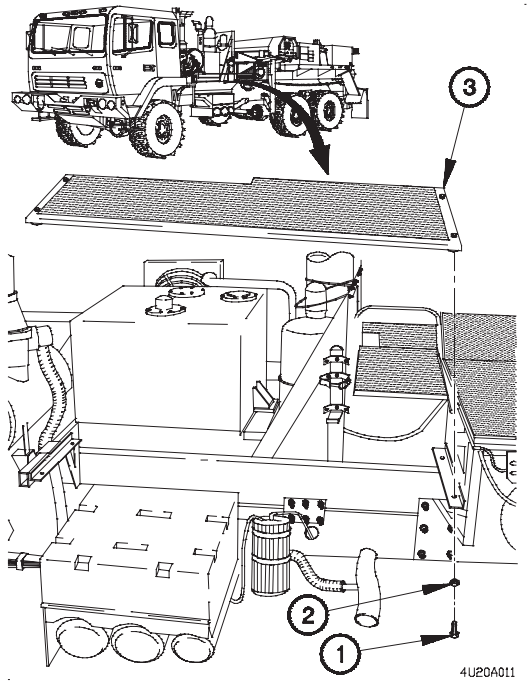
Personnel Required
(2)

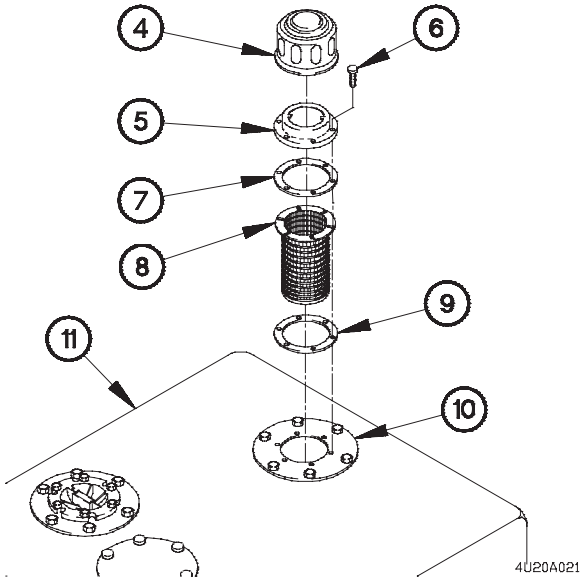
a. Hydraulic Tank Removal.

NOTE

Step (1) requires the aid of an assistant.

(1) Remove four screws (1), washers (2), and catwalk (3) from vehicle.





NOTE

Tag hoses and connection points prior to disconnecting.

(5) Position drain pan under hydraulic tank (11).

(6) Disconnect three hoses (12) from manifold (13).

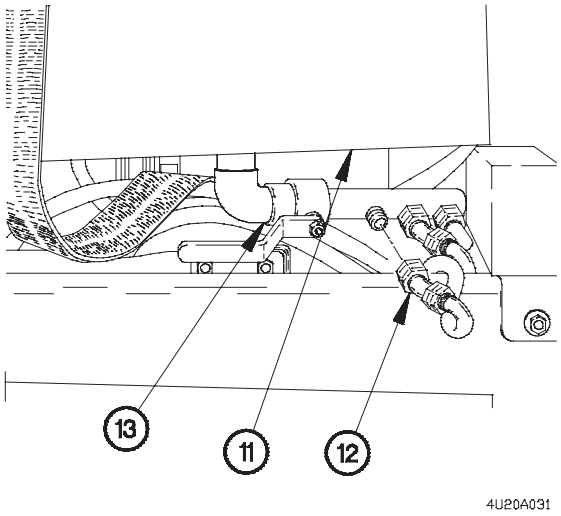
(2) Remove filler cap (4) from flange (5). Discard filler cap.

(3) Remove six screws (6), flange (5), gasket (7), strainer (8), and gasket (9) from tank plate (10). Discard flange, gaskets, and strainer.

NOTE

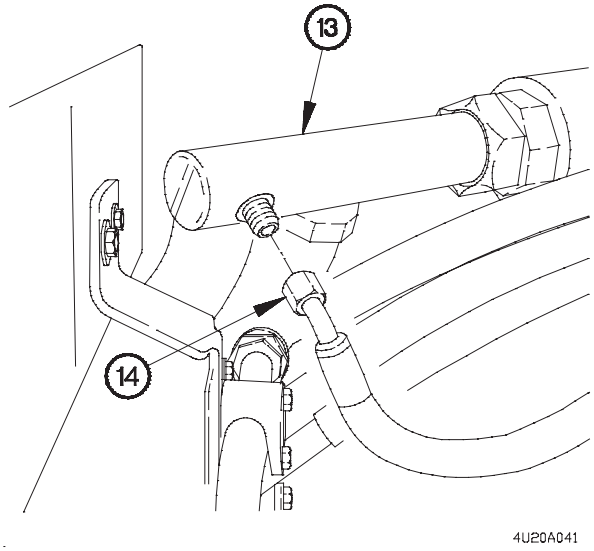
Hydraulic tank fluid capacity is 70 gallons (265 liters).

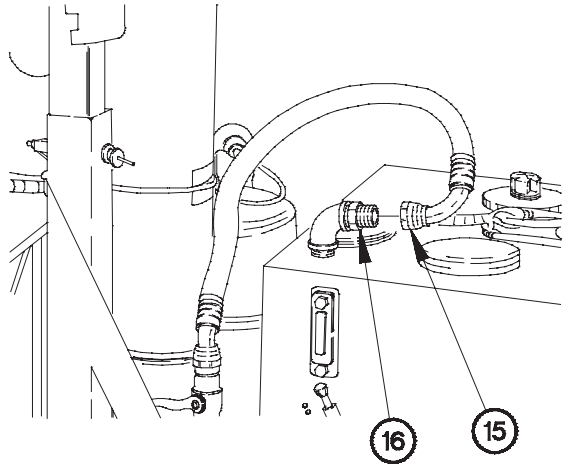
(4) Pump oil from hydraulic tank (11)



19-20. M1089 HYDRAULIC TANK AND MANIFOLD ASSEMBLY REPAIR (CONT)

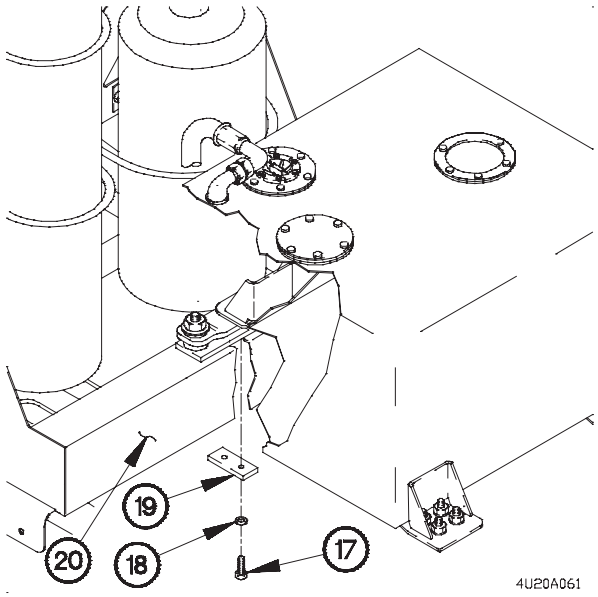
(7) Disconnect hose (14) from manifold (13).



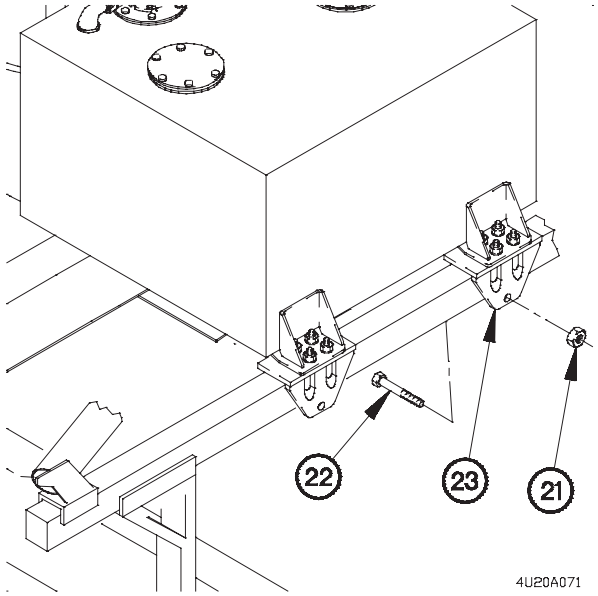


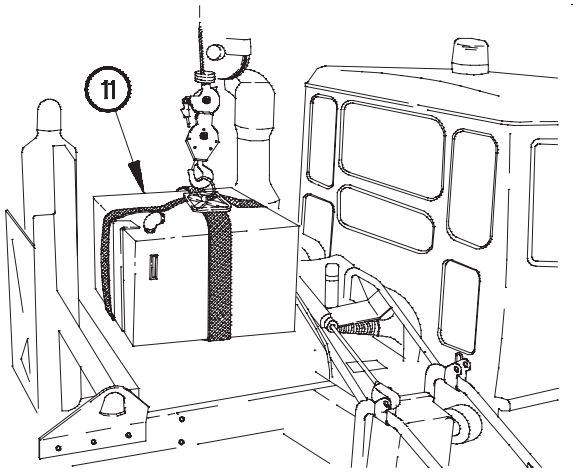
(8) Disconnect hose (15) from 90-degree fitting (16).

(9) Remove four screws (17), lockwashers (18), and two plates (19) from boom rest (20). Discard lockwashers.



(10) Remove two self-locking nuts (21) and screws (22) from front resilient mounts (23). Discard self-locking nuts.





WARNING

Hydraulic tank weighs approximately 190 lbs (86 kgs). Attach a suitable lifting device prior to removal. Failure to comply may result in injury to personnel or damage to equipment.

CAUTION

Use care while lifting hydraulic oil tank to avoid contact with auxiliary transmission oil cooler. Failure to comply may result in damage to equipment.

NOTE

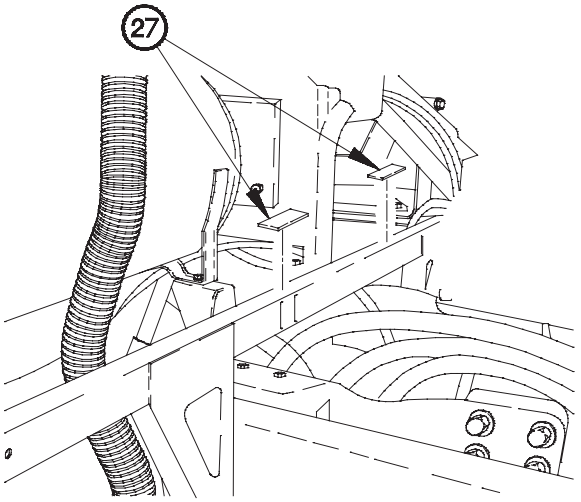
Steps (11) and (12) require the aid of an assistant.

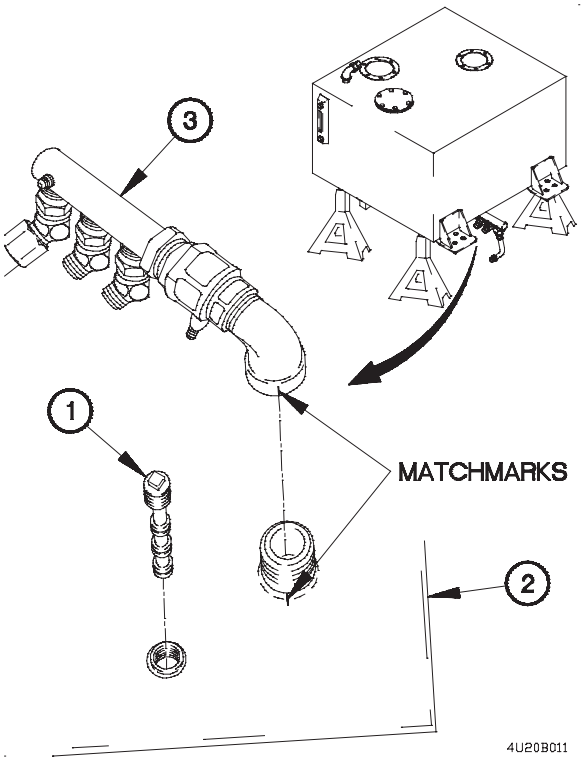
(11) Remove hydraulic tank (11) from vehicle.

(12) Place hydraulic tank (11) on four trestles.

19-20. M1089 HYDRAULIC TANK AND MANIFOLD ASSEMBLY REPAIR (CONT)

(13) Remove two cushioning pads (27) from vehicle. Discard cushioning pads.





b. Hydraulic Tank Disassembly.

NOTE

Residual oil may be present in hydraulic tank.

(1) Remove magnetic plug (1) from hydraulic tank (2).

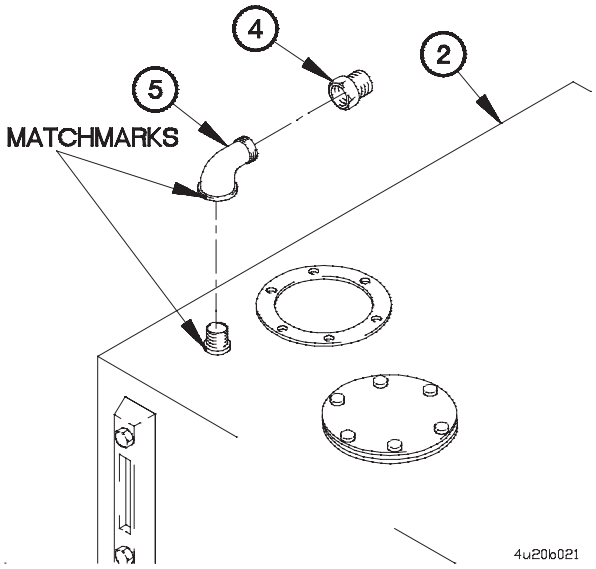
(2) Match mark manifold (3) to hydraulic tank (2) prior to removal.

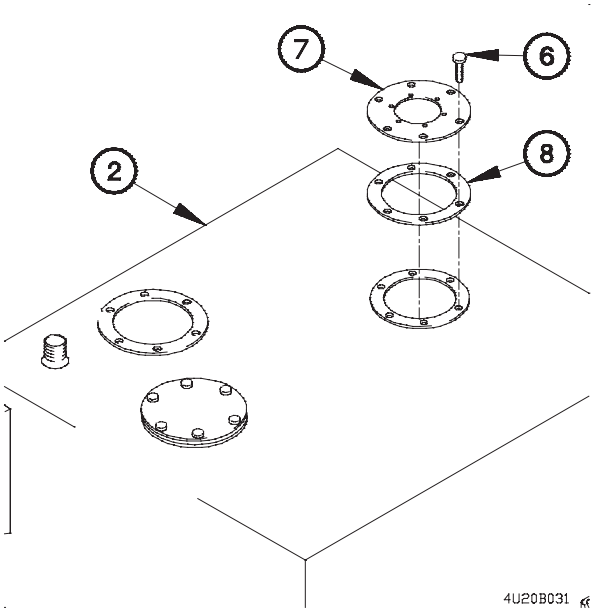
(3) Remove manifold (3) from hydraulic tank (2).

(4) Remove adapter (4) from 90-degree fitting (5).

(5) Match mark 90-degree fitting (5) to hydraulic tank (2).

(6) Remove 90-degree fitting (5) from hydraulic tank (2).



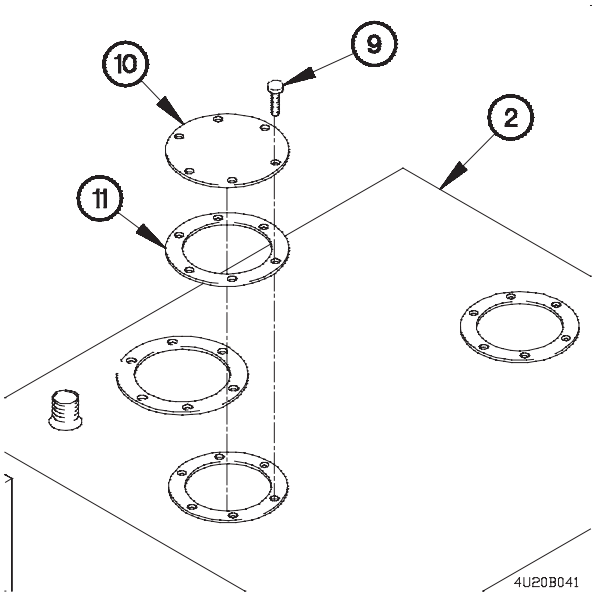


(7) Remove six screws (6) from tank plate (7).

(8) Remove tank plate (7) and gasket (8) from hydraulic tank (2). Discard gasket.

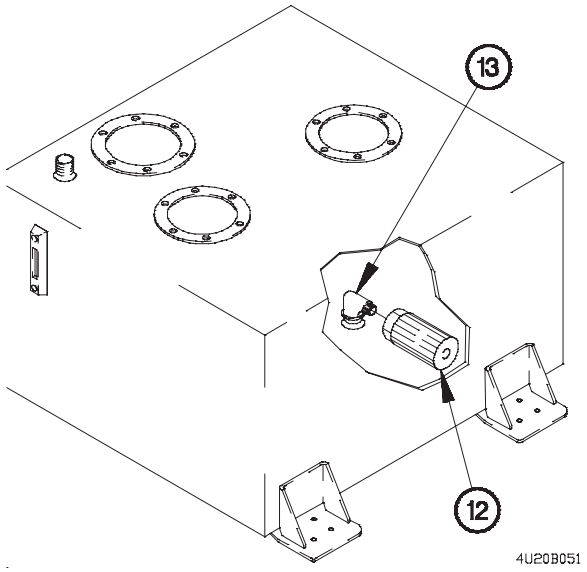
(9) Remove six screws (9) from tank plate (10).

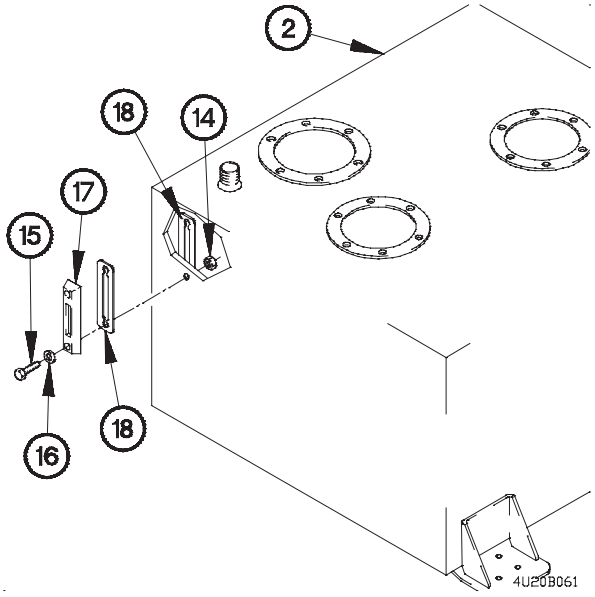
(10) Remove tank plate (10) and gasket (11) from hydraulic tank (2). Discard gasket.



19-20. M1089 HYDRAULIC TANK AND MANIFOLD ASSEMBLY REPAIR (CONT)

(11) Remove strainer (12) from 90-degree fitting (13).

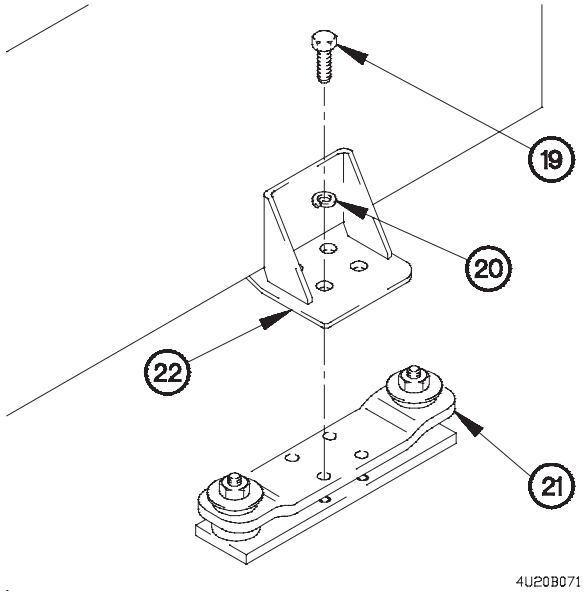




(12) Remove two nuts (14), screws (15), and washers (16) from sight level indicator (17). Discard nuts, screws, and washers.

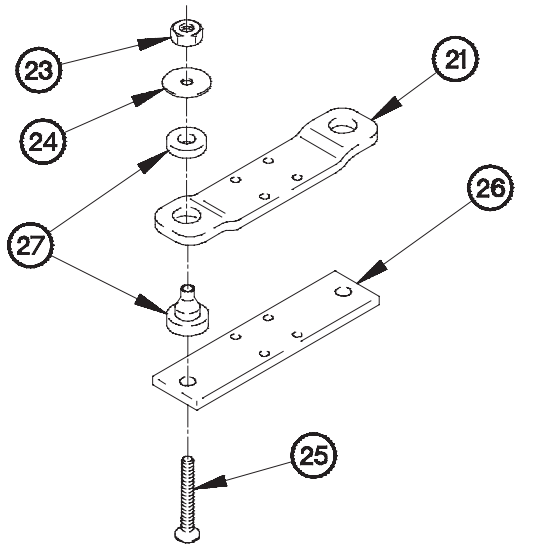
(13) Remove sight level indicator (17) and two gaskets (18) from hydraulic tank (2). Discard gaskets and sight level indicator.

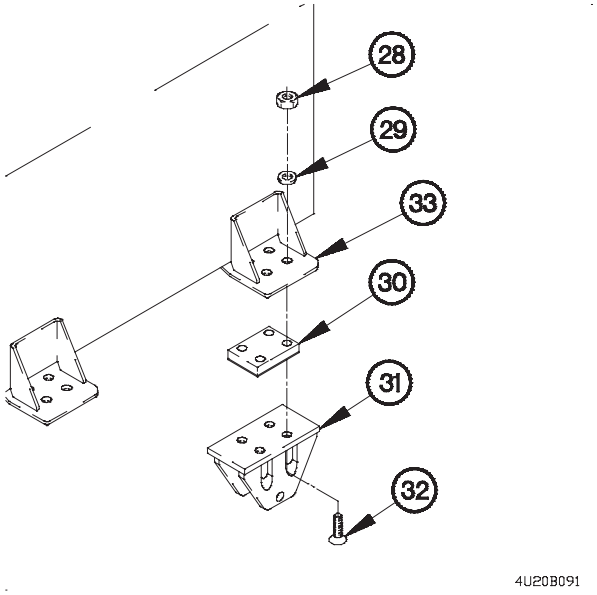
(14) Remove four screws (19), lockwashers (20), and support plate (21) from rear bracket (22). Discard lockwashers.



(15) Remove two self-locking nuts (23), washers (24), screws (25), and support plate (21) from base plate (26). Discard self-locking nuts.

(16) Remove two sections of resilient mounts (27) from each side of support plate (21). Discard resilient mounts.





(17) Remove four self-locking nuts (28), spacers (29), cushion (30), resilient mount (31), and four screws (32) from two front brackets (33). Discard self-locking nuts.

c. Manifold Disassembly.

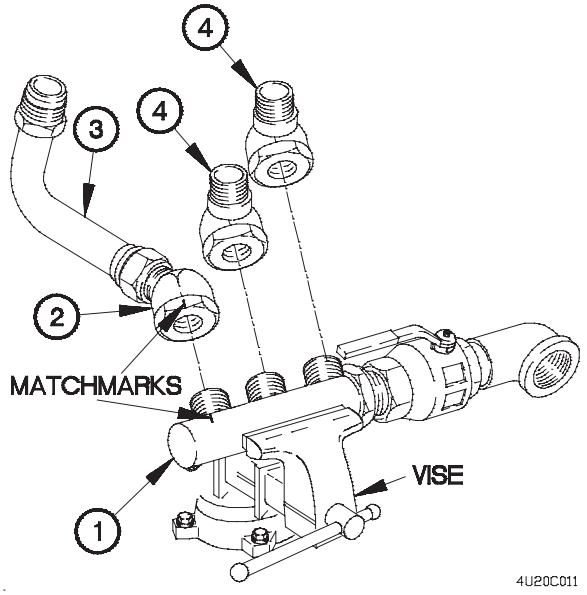
(1) Place manifold (1) in vise.

(2) Match mark 45-degree fitting (2) to manifold (1).

(3) Remove 45-degree fitting (2) and 90-degree fitting (3) from manifold.

(4) Match mark two 45-degree fittings (4) to manifold (1).

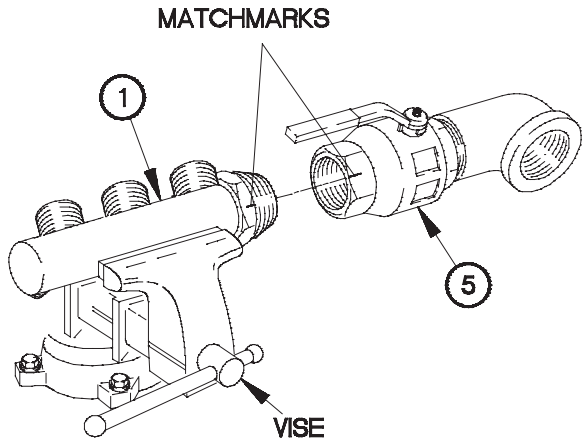
(5) Remove two 45-degree fittings (4) from manifold (1).



19-20. M1089 HYDRAULIC TANK AND MANIFOLD ASSEMBLY REPAIR (CONT)

(6) Match mark valve (5) to manifold (1).

(7) Remove valve (5) from manifold (1).



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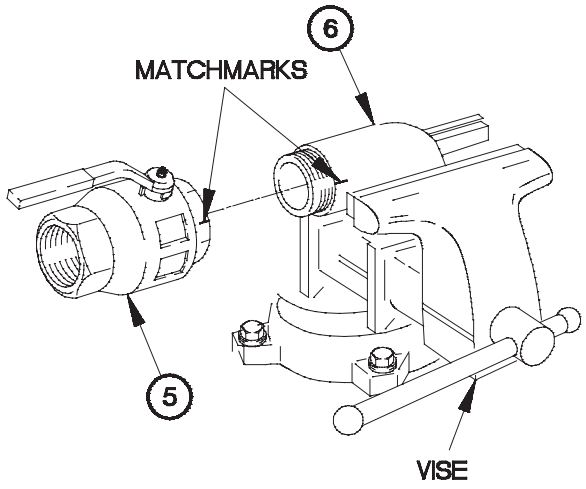

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(8) Match mark 90-degree fitting (6) to valve (5).

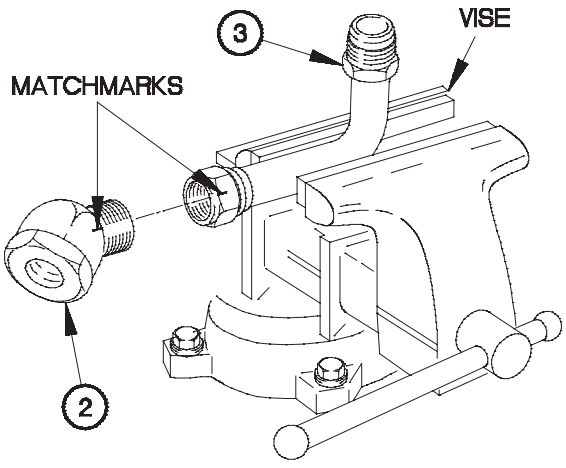
(9) Place 90-degree fitting (6) in vise.

(10) Remove valve (5) from 90-degree fitting (6).

(11) Match mark 90-degree fitting (3) to 45-degree fitting (2).

(12) Position 90-degree fitting (3) in vise.

(13) Remove 45-degree fitting (2) from 90-degree fitting (3).



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d. 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 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.**

(1) Clean all metal parts with dry cleaning solvent.

NOTE

Replace any part that fails visual inspection.

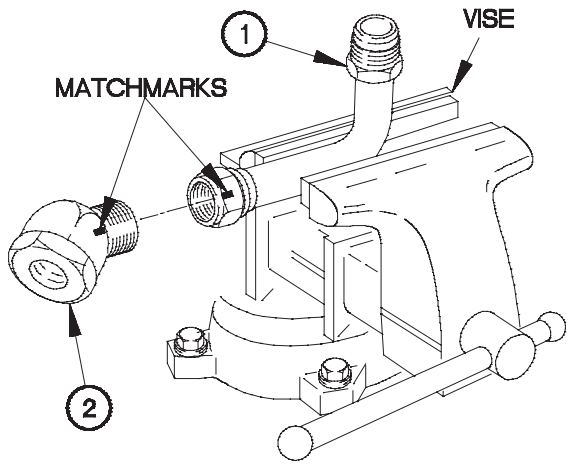
(2) Inspect all parts for visible cracks or damage.

e. Manifold Assembly.

(1) Place 90-degree fitting (1) in vise.

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 45-degree fitting (2).

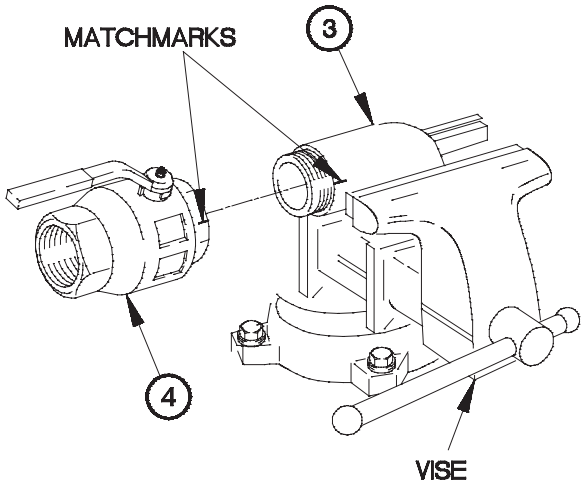
(3) Install 45-degree fitting (2) on 90-degree fitting (1) with matchmarks aligned.

19-20. M1089 HYDRAULIC TANK AND MANIFOLD ASSEMBLY REPAIR (CONT)

(4) Position 90-degree fitting (3) in vise.

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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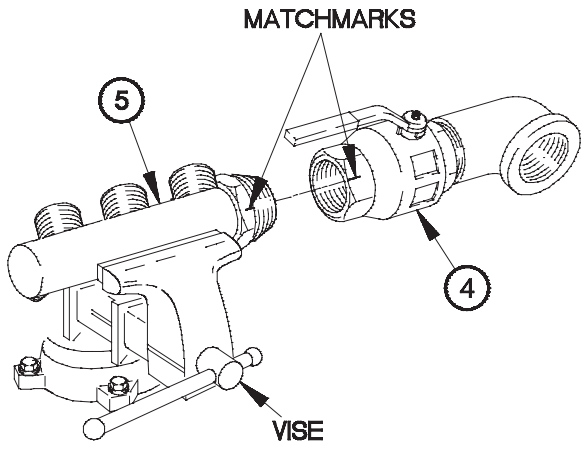
(5) Apply antiseize compound to threads of valve (4).

(6) Install valve (4) on 90-degree fitting (3) with matchmarks aligned.



4U20E031

(7) Position manifold (5) in vise.

(8) Apply antiseize compound to threads of manifold (5).

(9) Install manifold (5) on valve (4) with matchmarks aligned.

WARNING

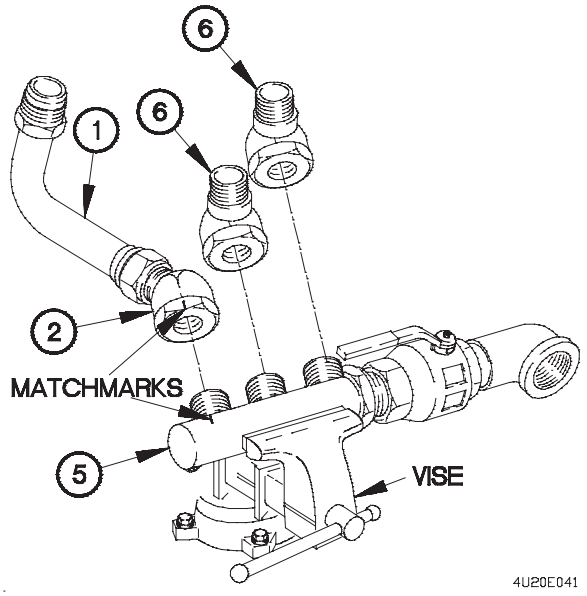
Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure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

(10) Apply antiseize compound to two 45-degree fittings (6).

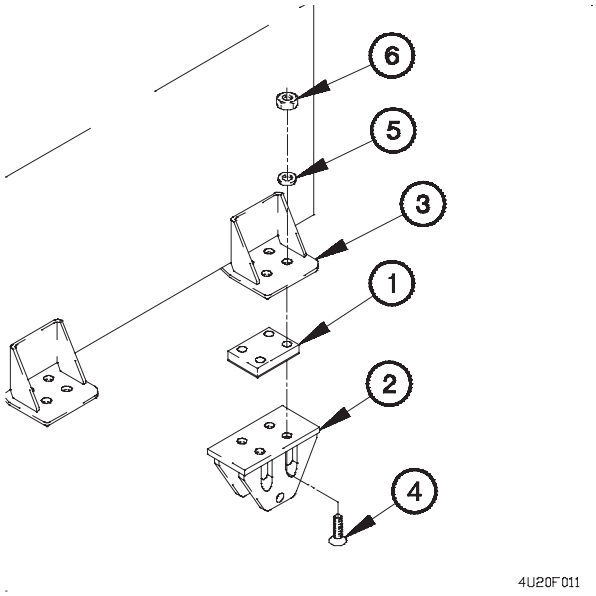
(11) Install two 45-degree fittings (6) on manifold (5).

(12) Apply antiseize compound to threads of 45-degree fitting (2).

(13) Install 45-degree fitting (2) and 90-degree fitting (1) on manifold (5) with matchmarks aligned.



f. Hydraulic Tank Assembly.



CAUTION

Metal side of cushion must be against resilient mount. Failure to comply may result in damage to equipment.

(1) Position two cushions (1) and resilient mounts (2) on front brackets (3) with eight screws (4), spacers (5), and self-locking nuts (6).

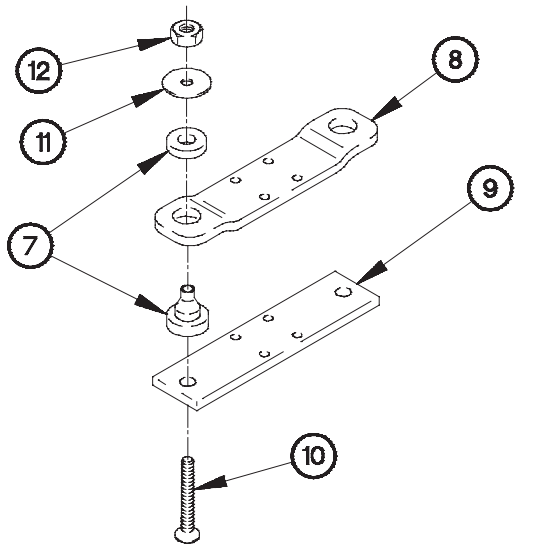
(2) Tighten eight self-locking nuts (6) to 144-192 lb-in. (16-22 N·m).

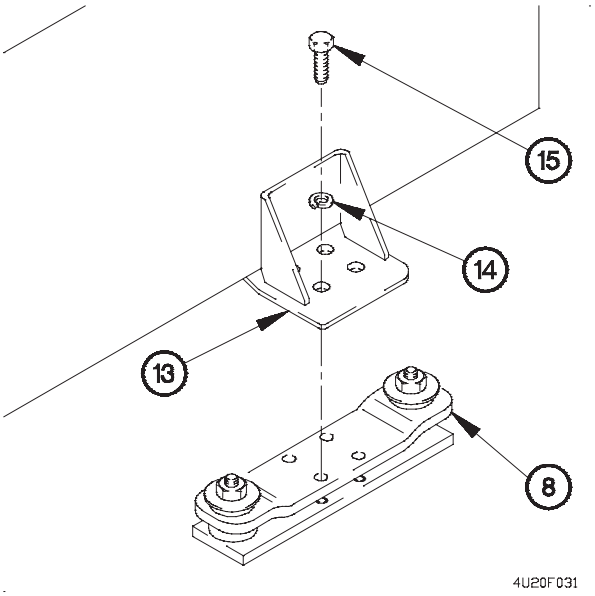
19-20. M1089 HYDRAULIC TANK AND MANIFOLD ASSEMBLY REPAIR (CONT)

(3) Install two sections of resilient mounts (7) in each side of support plate (8).

(4) Position support plate (8) on base plate (9) with two screws (10), washers (11), and self-locking nuts (12).

(5) Tighten two self-locking nuts (12) to 76-84 lb-ft (103-114 N·m).





(6) Install support plate (8) on rear bracket (13) with four washers (14) and screws (15).

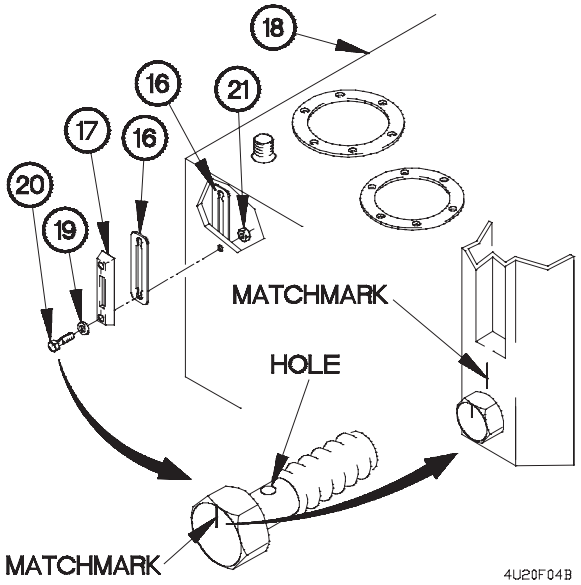
CAUTION

Holes in bolts must align towards center of sight level indicator. Failure to comply may result in damage to equipment.

(6.1) Matchmark bolt (16) so that mark aligns with hole in shank of bolt.

(7) Position two gaskets (16) and sight level indicator (17) on hydraulic tank (18) with two washers (19) and screws (20).

(8) Install two nuts (21) on screws (20) with matchmarks aligned.

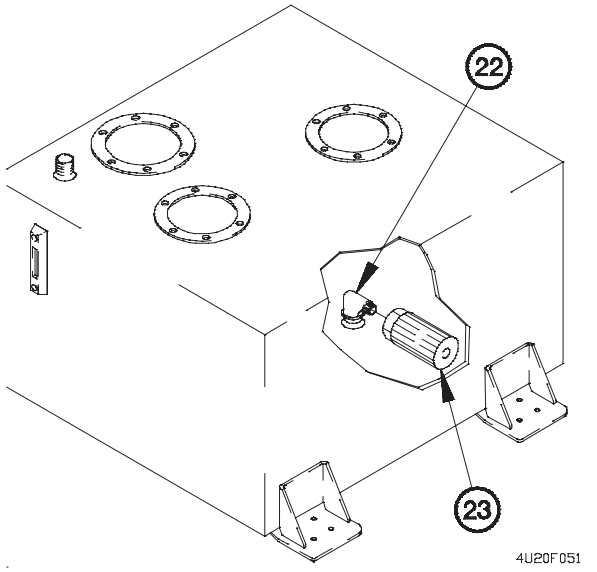


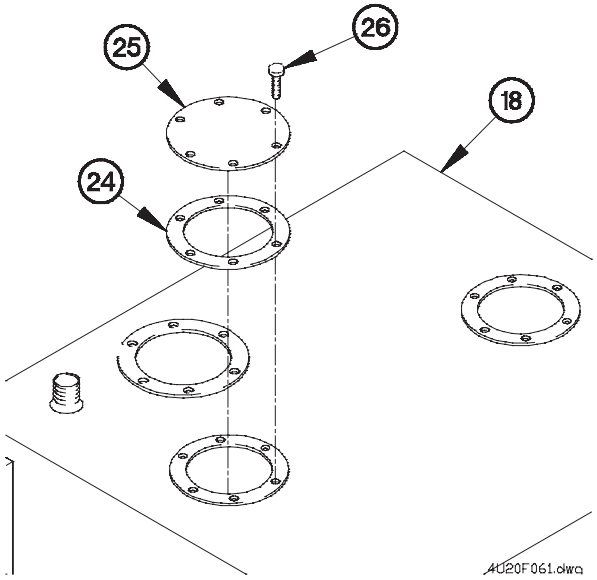
WARNING

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 90-degree fitting (22).

(10) Install strainer (23) on 90-degree fitting (22).



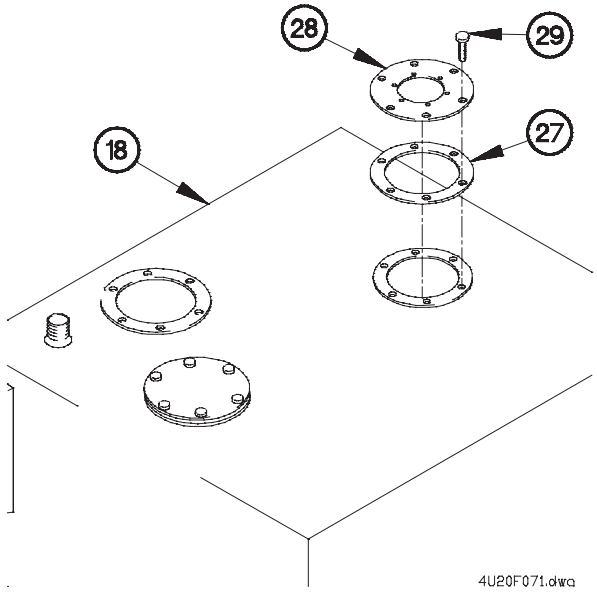


(11) Position gasket (24) and tank plate (25) on hydraulic tank (18) with six screws (26).

(12) Tighten six screws (26) to 23-25 lb-ft (31-34 N·m).

(13) Position gasket (27) and tank plate (28) on hydraulic tank (18) with six screws (29).

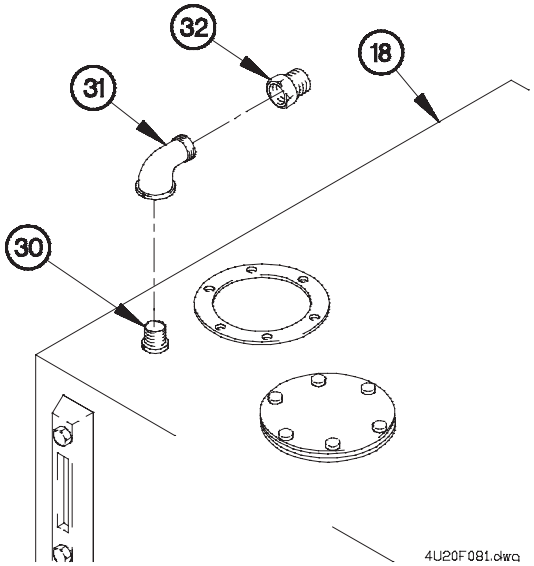
(14) Tighten six screws (29) to 23-25 lb-ft (31-34 N·m).



19-20. M1089 HYDRAULIC TANK AND MANIFOLD ASSEMBLY 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.

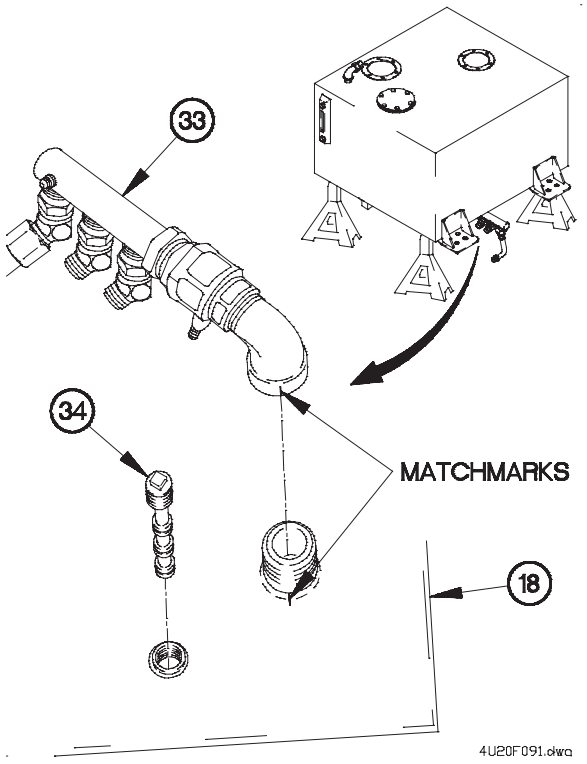


(15) Apply antiseize compound to threads of the hydraulic tank nipple (30).

(16) Install 90-degree fitting (31) on hydraulic tank (18).

(17) Apply antiseize compound to threads of adapter fitting (32).

(18) Install adapter fitting (32) on 90-degree fitting (31).



(19) Apply antiseize compound to threads of manifold (33).

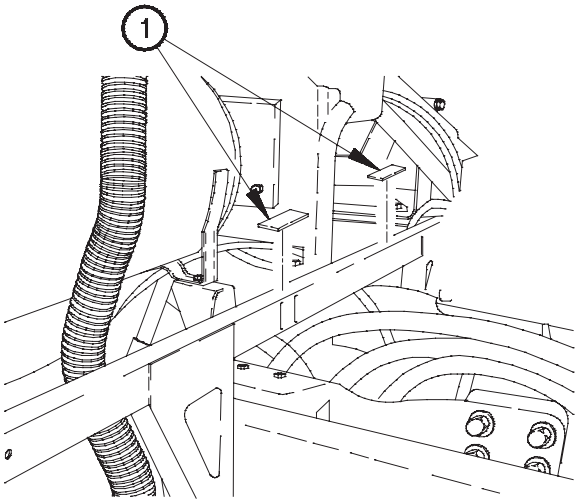
(20) Install manifold (33) on hydraulic tank (18) with matchmarks aligned.

(21) Apply antiseize compound to threads of magnetic plug (34).

(22) Install magnetic plug (34) in hydraulic tank (18).

g. Hydraulic Tank Installation.

(1) Position two cushioning pads (1) on vehicle.



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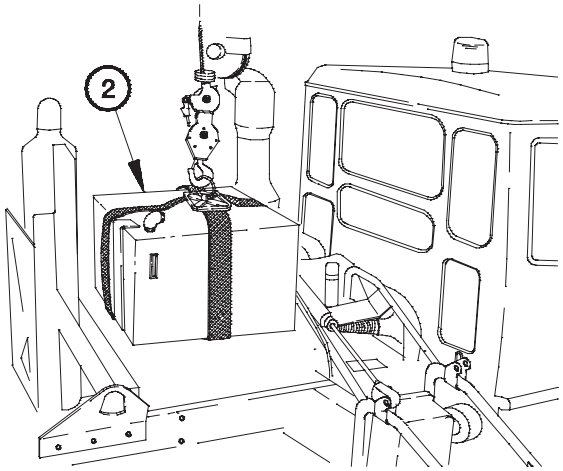


AUXILIARY
TRANSMISSION OIL COOLER
REMOVED FOR CLARITY

4U20G021

WARNING

Hydraulic tank weighs approximately 190 lbs (86 kgs). Attach a suitable lifting device prior to installation. Failure to comply may result in injury to personnel or damage to equipment.

CAUTION

Use care while lowering hydraulic oil tank to avoid contact with auxiliary transmission oil cooler. Failure to comply may result in damage to equipment.

NOTE

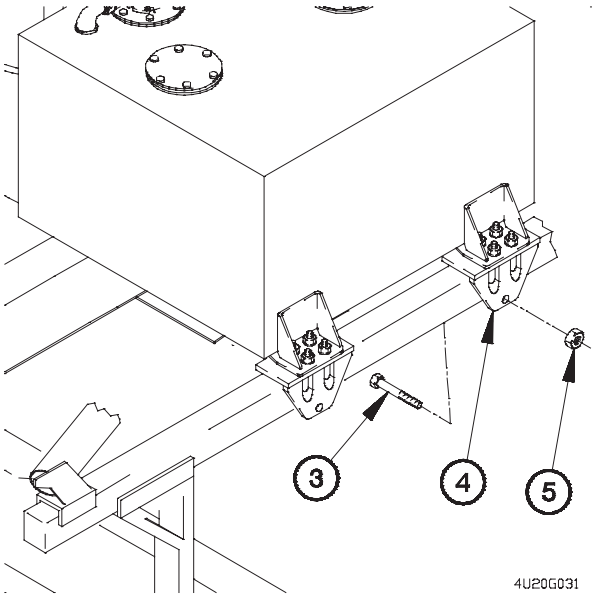
Step (2) requires the aid of an assistant.

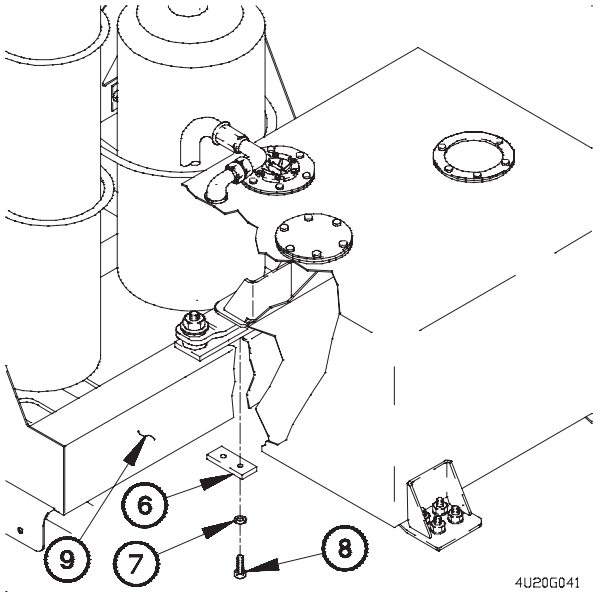
(2) Position hydraulic tank (2) on vehicle.

19-20. M1089 HYDRAULIC TANK AND MANIFOLD ASSEMBLY REPAIR (CONT)

(3) Position two screws (3) in front resilient mounts (4) with self-locking nuts (5).

(4) Tighten two self-locking nuts (5) to 76-84 lb-ft (103-114 N·m).

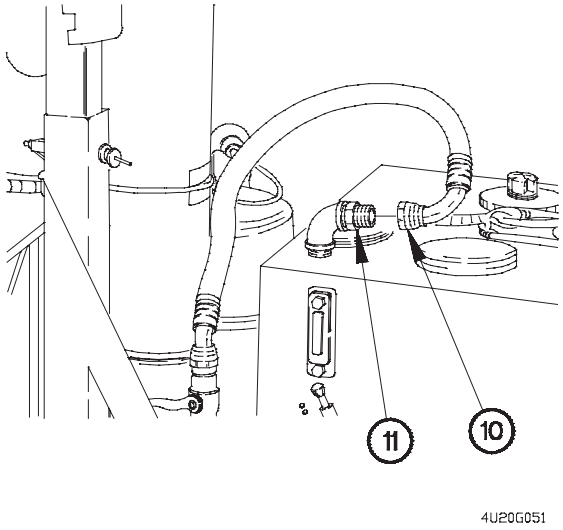




(5) Install two plates (6), four lockwashers (7), and screws (8) in boom rest (9).

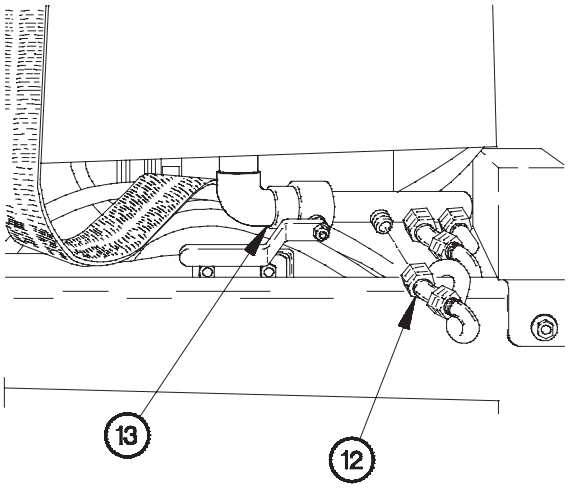
(6) Position hose (10) on 90-degree fitting (11).

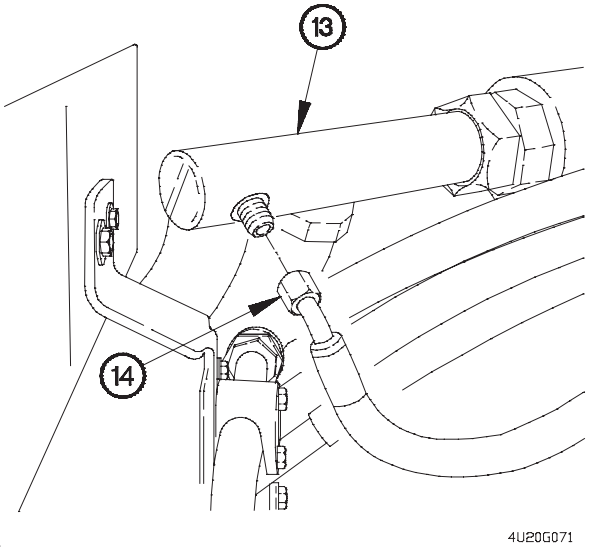
(7) Tighten hose (10) to 148-161 lb-ft (201-218 N·m).



(8) Position three hoses (12) on manifold (13).

(9) Tighten three hoses (12) to 148-161 lb-ft (201-218 N·m).



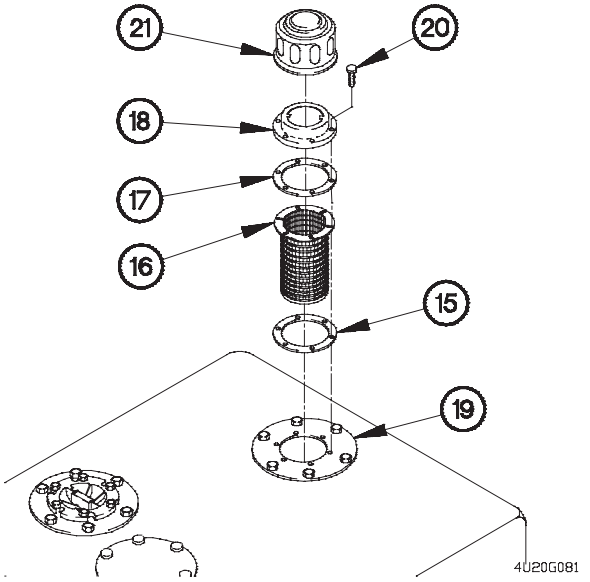


(10) Position hose (14) on manifold (13).

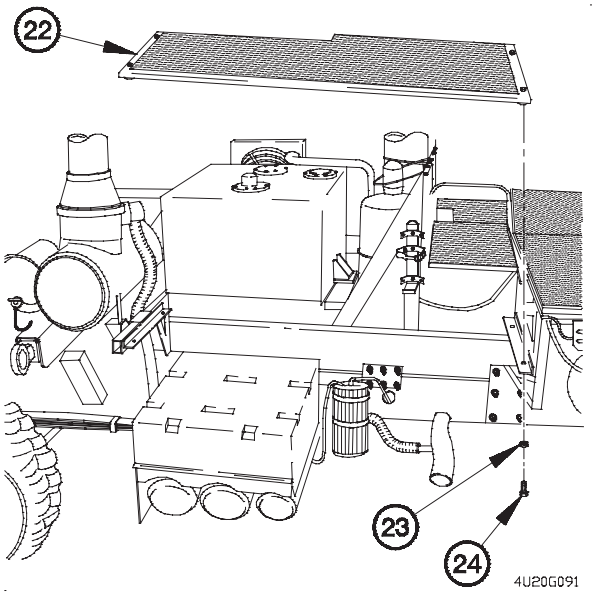
(11) Tighten hose (14) to 36-39 lb-ft (49-53 N·m).

(12) Install gasket (15), strainer (16), gasket (17), and flange (18) on tank plate (19) with six screws (20).

(13) Install filler cap (21) on flange (18).



19-20. M1089 HYDRAULIC TANK AND MANIFOLD ASSEMBLY REPAIR (CONT)



(14) Position catwalk (22) on vehicle with four washers (23) and screws (24).

(15) Tighten four screws (24) to 33-37 lb-ft (45-50 N·m).

h. Follow-On Maintenance.

(1) Install hydraulic filter (para 19-14).

(2) Fill hydraulic tank with oil (Appendix H).

(3) Raise spare tire (TM 9-2320-366-10-2).

(4) Open hydraulic tank supply and return valves (TM 9-2320-366-10-2).

(5) Operate underlift and check for proper operation and for leaks (TM 9-2320-366-10-2).

End of Task.

19-21. M1089 HYDRAULIC TANK RETURN VALVE REPLACEMENT/REPAIR

This task covers:

a. Removal
b. Disassembly
c. Cleaning/Inspection
d. Assembly
e. Installation
f. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-366-10-1).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Wrench, Torque, 0-175 lb-ft (Item 58, Appendix C)
Goggles, Industrial (Item 15, Appendix C)
Gloves, Rubber (Item 13, Appendix C)
Pan, Drain (Item 24, Appendix C)

Materials/Parts
Solvent, Dry Cleaning (Item 65, Appendix D)
Sealing Compound (Item 58, Appendix D)
Dispense Pressure Sensitive Adhesive Tape (Item 20, Appendix D)

a. Removal.

NOTE

Tag hoses and connection points prior to disconnecting.

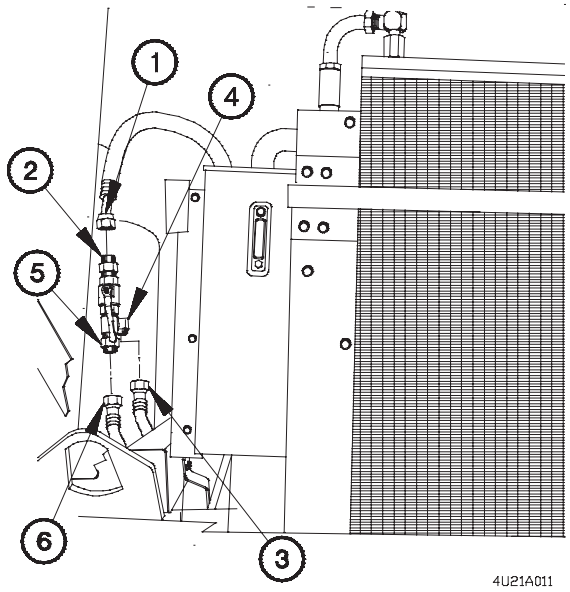
(1) Disconnect hydraulic hose (1) from adapter (2).

(2) Disconnect hydraulic hose (3) from 90-degree fitting (4).

NOTE

Note position of valve assembly prior to removal.

(3) Remove valve assembly (5) from hydraulic tube (6).



19-21. M1089 HYDRAULIC TANK RETURN VALVE REPLACEMENT/REPAIR (CONT)

b. Disassembly.

(1) Place tee (1) in vise with valve (2) down.

NOTE

Note position of valve, tee and 90-degree fitting prior to disassembly.

(2) Remove adapter (3) from valve (2).

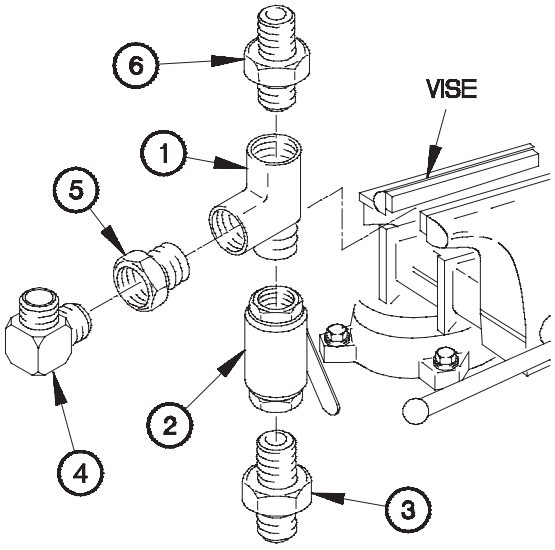
(3) Remove valve (2) from tee (1).

(4) Remove 90-degree fitting (4) from adapter (5).

(5) Remove adapter (5) from tee (1).

(6) Remove adapter (6) from tee (1).

(7) Remove tee (1) from vise.



c. 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 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.**

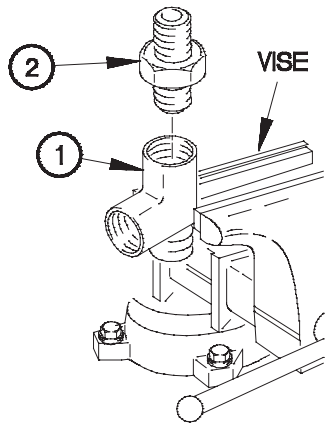
(1) Clean threads of three adapters, fitting and tee.

d. Assembly.

(1) Place tee (1) in vise.

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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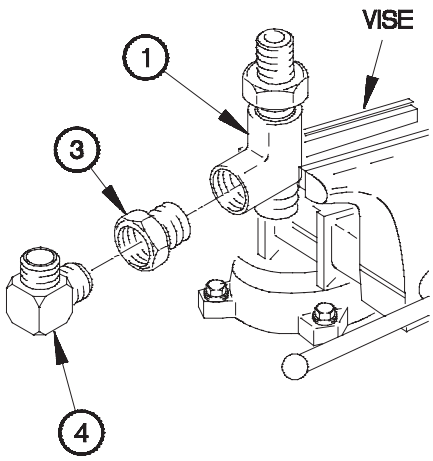
(2) Apply sealing compound to first two to five threads of adapter (2).

(3) Position adapter (2) in tee (1).

(4) Tighten adapter (2) to 79-87 lb-ft (107-118 N·m).



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(5) Apply sealing compound to first two to five threads of adapter (3).

(6) Position adapter (3) in tee (1).

(7) Tighten adapter (3) to 79-87 lb-ft (107-118 N·m).

(8) Apply sealing compound to first two to five threads of 90-degree fitting (4).

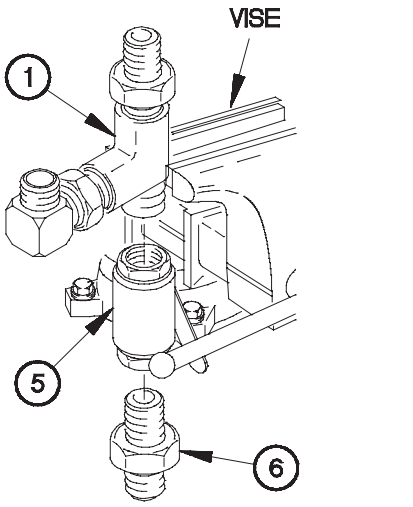
(9) Position 90-degree fitting (4) in adapter (3).

(10) Tighten 90-degree fitting (4) to 79-87 lb-ft (107-118 N·m).

19-21. M1089 HYDRAULIC TANK RETURN VALVE 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.



4U13A03A

(11) Apply sealing compound to first two to five threads of tee (1).

(12) Position valve (5) on tee (1).

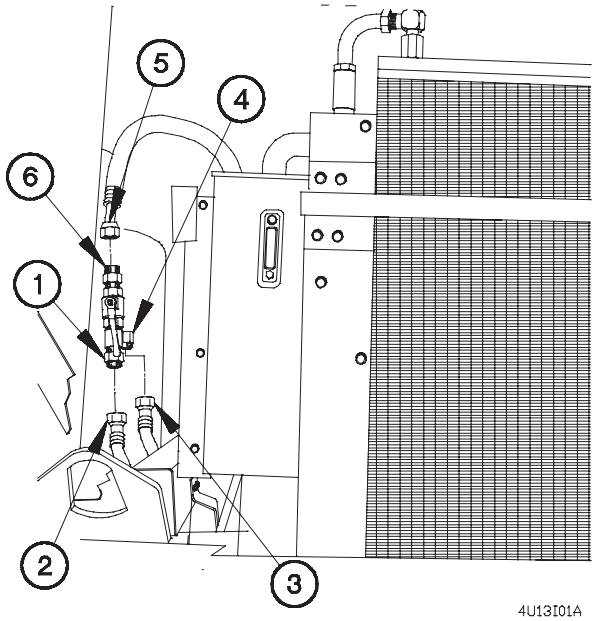
(13) Tighten valve (5) to 79-87 lb-ft (107-118 N·m).

(14) Apply sealing compound to first two to five threads of adapter (6).

(15) Position adapter (6) in valve (5).

(16) Tighten adapter (6) to 79-87 lb-ft (107-118 N·m).

e. Installation.



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(1) Position valve assembly (1) on hydraulic tube (2).

(2) Tighten valve assembly (1) to 148-161 lb-ft (201-218 N·m).

(3) Position hydraulic hose (3) on 90-degree fitting (4).

(4) Tighten hydraulic hose (3) to 148-161 lb-ft (201-218 N·m).

(5) Position hydraulic hose (5) on adapter (6).

(6) Tighten hydraulic hose (5) to 148-161 lb-ft (201-218 N·m).

f. Follow-On Maintenance.

Operate underlift, checking for proper operation and for oil leaks (TM 9-2320-366-10-2).

End of Task.

19-22. M1090/M1094 FOUR-WAY RELIEF VALVE SOLENOID REPLACEMENT

This task covers:

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

INITIAL SETUP

Equipment Conditions
Dump body raised to maintenance position (TM 9-2320-366-10-1).
Engine shut down (TM 9-2320-366-20-1).
Batteries disconnected (TM 9-2320-366-20-1).

Tools and Special Tools
Tool Kit, Genl Mech (Item 78, Appendix B)
Wrench, Torque, 0-200 lb-in. (Item 59, Appendix B)
Socket Set, Socket Wrench (Item 36, Appendix C)
Pan, Drain (Item 43, Appendix E)

Tools and Special Tools (Cont)
Screwdriver Attachment, Socket Wrench (Item 49.1, Appendix B)

Materials/Parts
Gasket (2) (Item 29.1, Appendix G)
Parts Kits, Seal Replacement, Mechanical (Item 222.1, Appendix G)
Dispenser, Pressure Sensitive Adhesive Tape (Item 20, Appendix D)

Personnel Required
(2)

a. Removal.

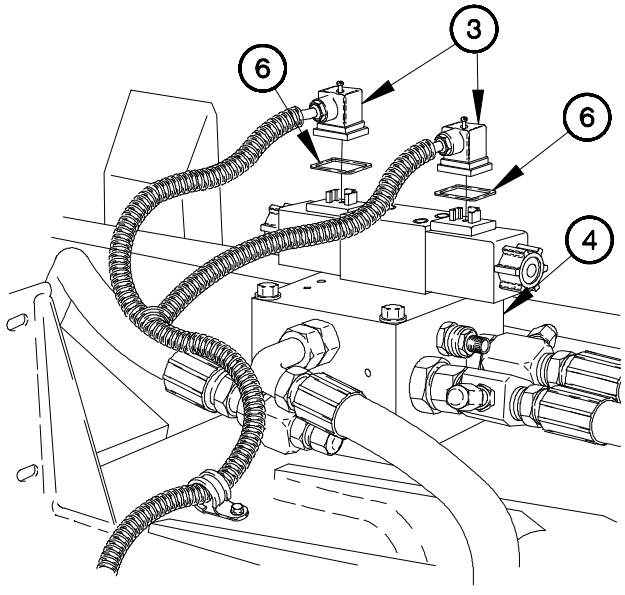
NOTE

Tag connectors and connection points prior to disconnecting.

(1) Loosen screw (1) on connector L8 (2) and connector L9 (3).

(2) Disconnect connector L8 (2) from four way relief valve (4).

(3) Remove gasket (5) from connector L8 (2). Discard gasket.



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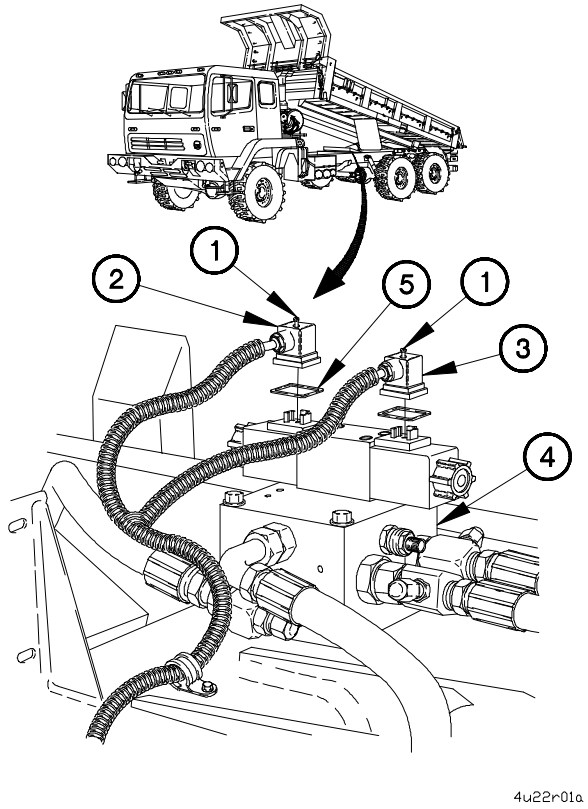

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(4) Disconnect connector L9 (3) from four way relief valve (4).

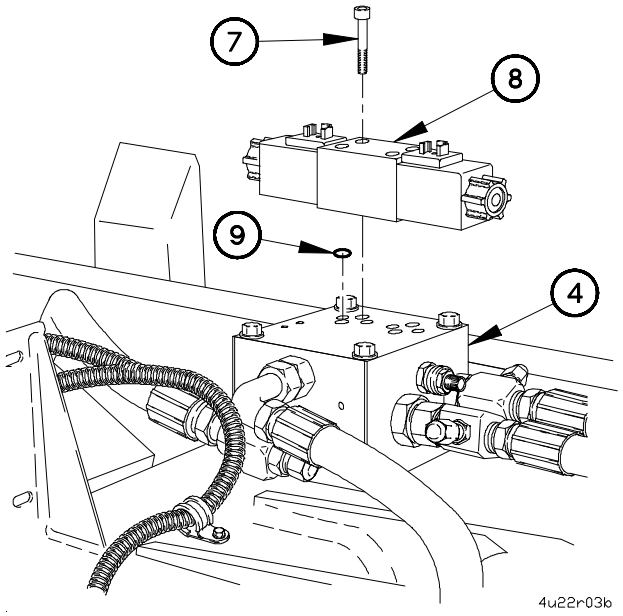
(5) Remove gasket (6) from connectors L9 (3). Discard gasket.

19-22. M1090/M1094 FOUR-WAY RELIEF VALVE SOLENOID REPLACEMENT (CONT)

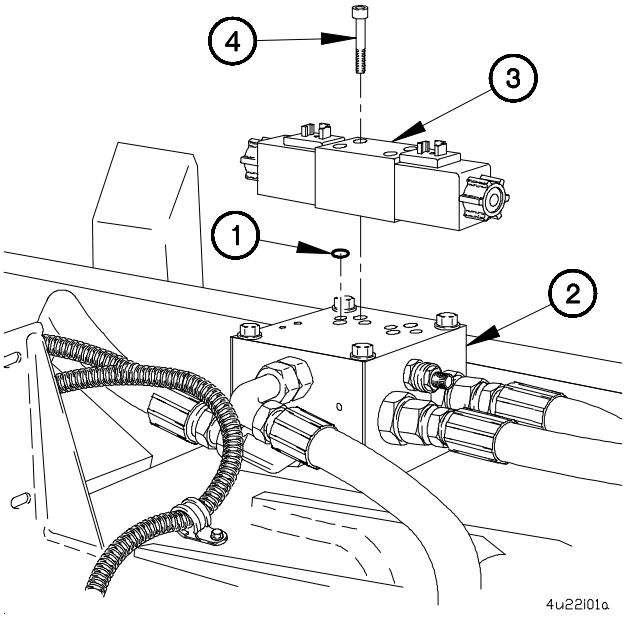
(6) Position drain pan under four-way relief valve (4).

(7) Remove four screws (7) and solenoid valve (8) from four-way relief valve (4).

(8) Remove four preformed packings (9) from four-way relief valve (4). Discard preformed packings.



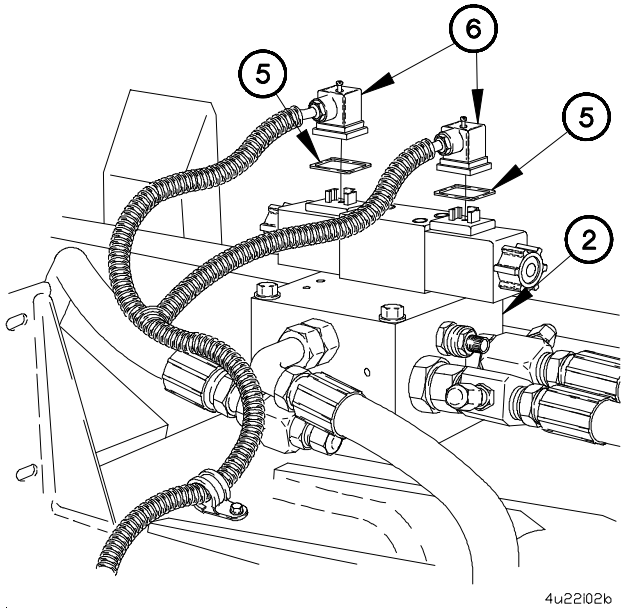
b. Installation.



(1) Install four preformed packings (1) on four-way relief valve (2).

(2) Position solenoid valve (3) on four-way relief valve
(2) with four screws (4).

(3) Tighten four screws (4) to 45-55 lb-in. (5-6 N m).



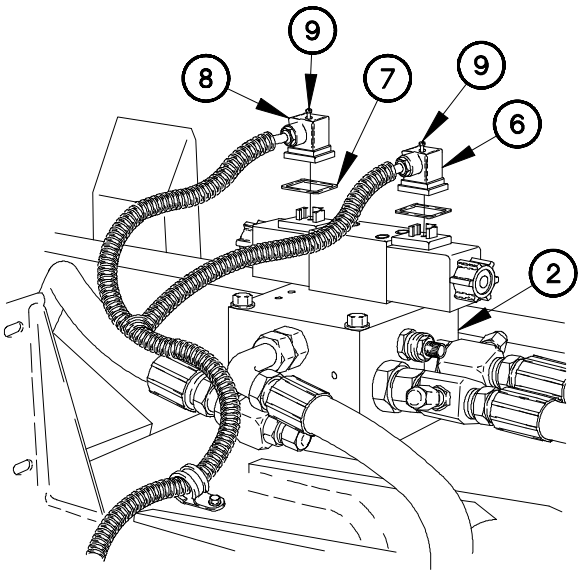
(4) Install gasket (5) on connector L9 (6).

(5) Connect connector L9 (6) to four-way relief valve (2).

(6) Install gasket (7) on connector L8 (8).

(7) Connect connector L8 (8) to four way relief valve (2).

(8) Tighten screw (9) on connectors L9 (6) and connector L8 (8).



c. Follow-On Maintenance.

(1) Connect batteries (TM 9-2320-366-20-1).

(2) Check dump body for proper operation (TM 9-2320-366-10-1).

End of task.

CHAPTER 20
SPECIAL PURPOSE KITS MAINTENANCE

RESTRICTED MAINTENANCE NOTICE

Units not authorized SC 4910-95-CL-A72 (SHOP EQUIPMENT, COMMON NO. 2) in their T.O.E. may be unable to perform some of the maintenance tasks described in this chapter. If the required tools are not authorized, the equipment must be submitted to DS Maintenance for repair.

Section I. INTRODUCTION

20-1. INTRODUCTION

This chapter contains maintenance instructions for replacing, repairing, and installing special purpose kit components authorized by the Maintenance Allocation Chart (MAC) at the Unit Maintenance level.

Section II. MAINTENANCE PROCEDURES

20-2. DELETED

All data on pages 20-3 through 20-226, including pages 20-5 through 20-226 deleted.

20-43. 200 AMP ALTERNATOR KIT INSTALLATION

This task covers:

a. Installation

b. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions
100 amp alternator removed (para 7-2).
100 amp reverse polarity relay removed (para 7-30).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Wrench, Torque, 0-175 lb-ft (Item 58, Appendix C)
Wrench, Torque, 0-200 lb-in. (Item 59, Appendix C)
Socket Set, Socket Wrench (Item 36, Appendix C)
Caps, Vise Jaw (Item 4, Appendix C)
Vise, Machinist (Item 48, Appendix C)

Materials/Parts
Ties, Cable, Plastic (Item 69, Appendix D)
Nut, Self-Locking (Item 153, Appendix G)
Nut, Self-Locking (M1093/M1094) (2) (Item 156, Appendix G)
Nut, Self-Locking (3) (Item 168, Appendix G)
Washer, Spring (M1093/M1094) (2) (Item 293, Appendix G)
Lockwasher (2) (Item 92, Appendix G)

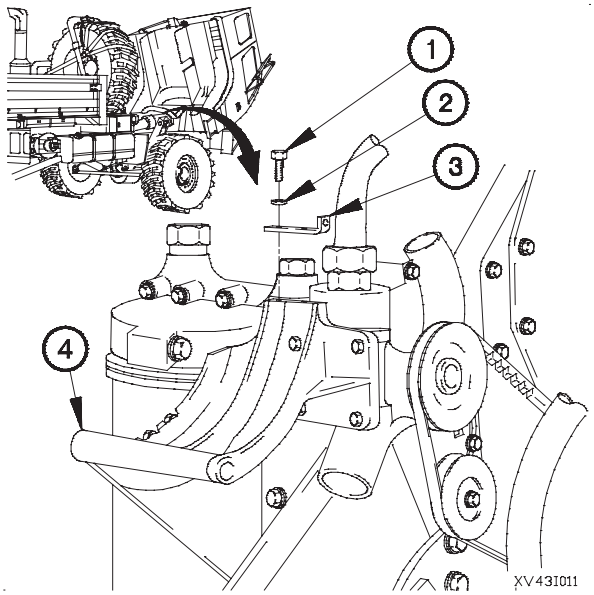
Personnel Required
(2)

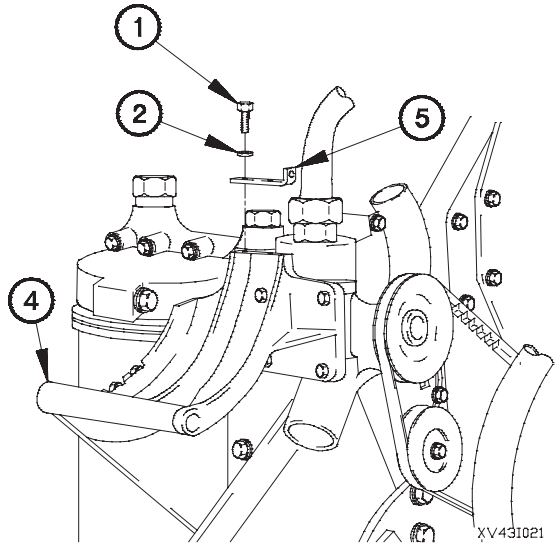
a. Installation.

NOTE

Retain belt adjusting arm for future installation.

(1) Remove two screws (1), lockwashers (2), and belt adjusting arm (3) from alternator bracket (4). Discard lockwashers.



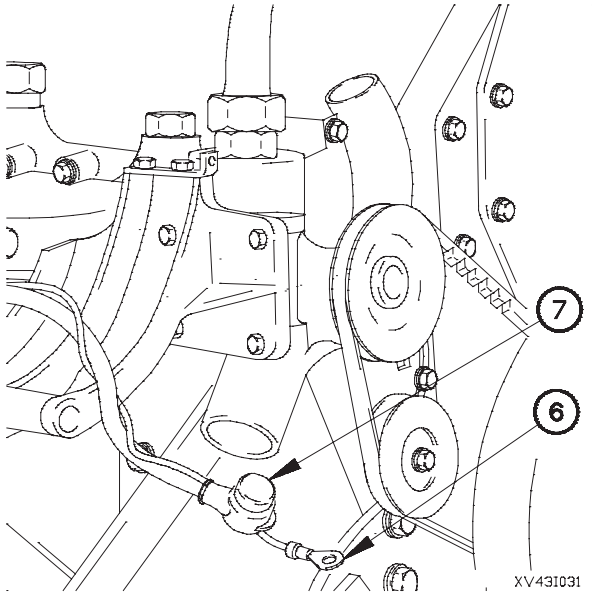


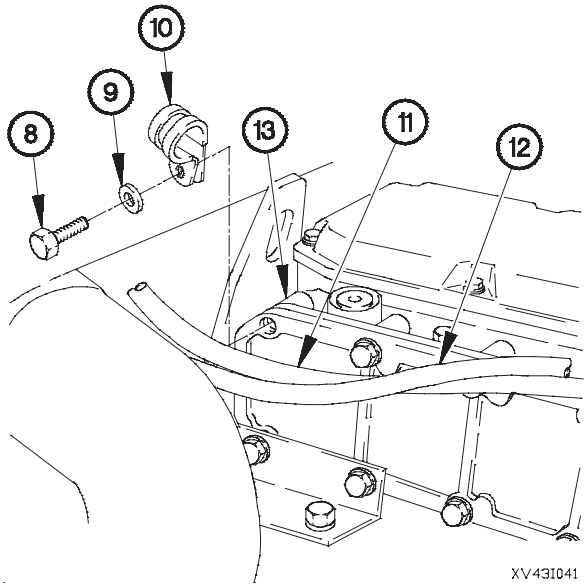
(2) Position belt adjusting arm (5) on alternator bracket (4) with two lockwashers (2) and screws (1).

(3) Tighten two screws (1) to 25-32 lb-ft (35-43 N·m).

20-43. 200 AMP ALTERNATOR KIT INSTALLATION (CONT)

(4) Remove terminal lug TL6 (6) from dust boot (7).





NOTE

Retain 24 vdc and 12 vdc cable assemblies for future installation.

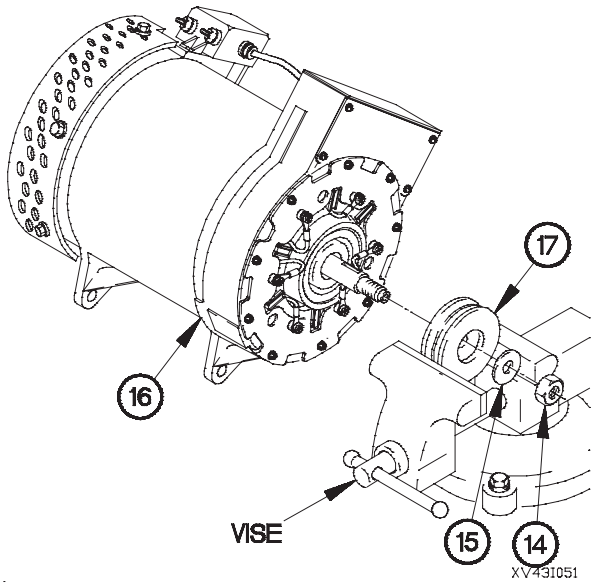
(5) Remove three screws (8), washers (9), clamps (10), 24 vdc cable (11), and 12 vdc cable (12) from air inlet manifold (13).

(6) Remove three clamps (10) from 24 vdc cable (11) and 12 vdc cable (12).

(7) Remove self-locking nut (14) and washer (15) from alternator (16).

CAUTION

Ensure pulley does not contact wires, terminal lugs, or terminal screws on front of alternator. Failure to comply may result in damage to equipment.



(8) Position pulley (17) on alternator (16) with washer (15) and self-locking nut (14).

(9) Position pulley (17) in vise.

(10) Tighten self-locking nut (14) to 106-130 lb-ft (144-176 N·m).

(11) Remove pulley (17) from vise.

WARNING

200 amp alternator weighs approximately 72 lbs (33 kgs). The aid of an assistant is required to install 200 amp alternator. Failure to comply may result in injury to personnel.

NOTE

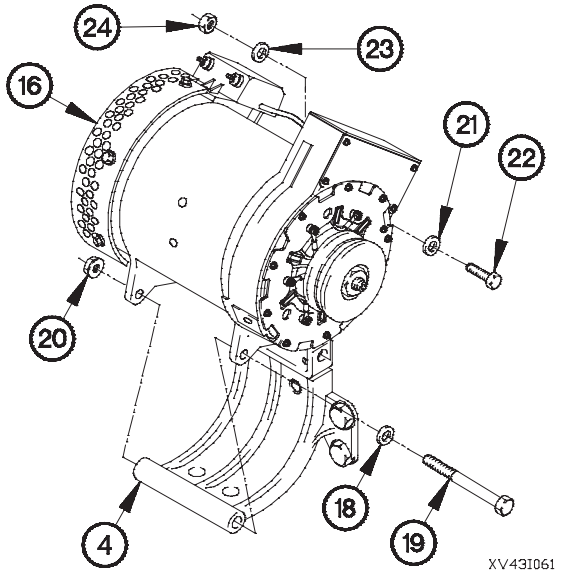
Step (12) requires the aid of an assistant.

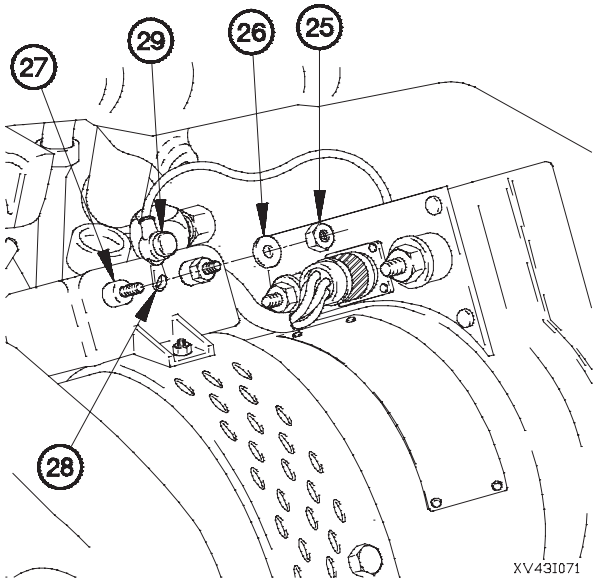
(12) Position alternator (16) on alternator bracket (4) with washer (18), screw (19), and self-locking nut (20).

(13) Position washer (21), screw (22), washer (23), and self-locking nut (24) on alternator (16).

(14) Tighten self-locking nut (20) to 45-55 lb-ft (61-75 N·m).

(14.1) Tighten self-locking nut (24) to 25-32 lb-ft (35-43 N·m).





(15) Remove self-locking nut (25) and washer (26) from voltage regulator terminal (27).

(16) Position terminal lug TL110 (28) on voltage regulator terminal (27) with washer (26) and self-locking nut (25).

(17) Tighten self-locking nut (25) to 24 lb-in. (3 N·m).

(18) Position dust boot (29) on terminal lug TL110 (28).

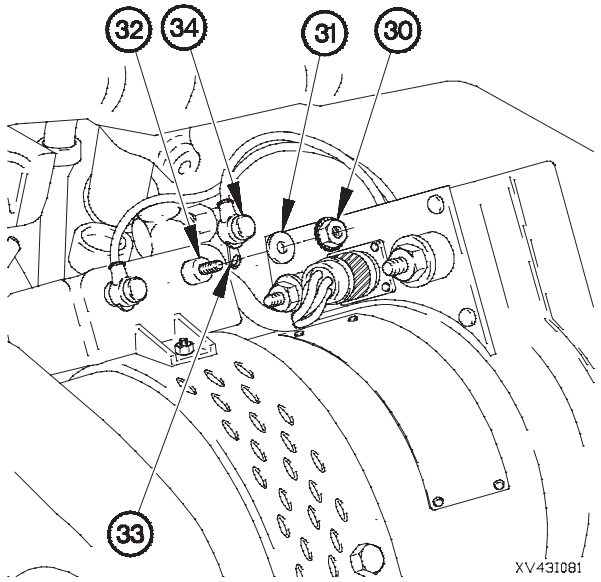
20-43. 200 AMP ALTERNATOR KIT INSTALLATION (CONT)

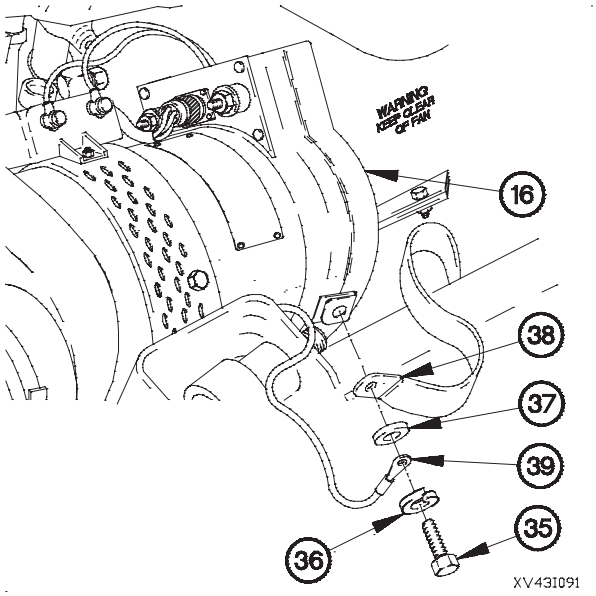
(19) Remove self-locking nut (30), and washer (31) from voltage regulator terminal (32).

(20) Position terminal lug TL35 (33) on voltage regulator terminal (32) with washer (31), and self-locking nut (30).

(21) Tighten self-locking nut (30) to 24 lb-in. (3 N·m).

(22) Position dust boot (34) on terminal lug TL35 (33).





(23) Remove screw (35), lockwasher (36), and washer (37) from alternator (16).

(24) Position ground strap (38) and terminal lug TL5 (39) on alternator (16) with washer (37), lockwasher (36) and screw (35).

(25) Tighten screw (35) to 60-84 lb-in. (7-9 N·m).

(26) Position 12 vdc cable (40) and 24 vdc cable (41) in engine compartment with terminal lugs TL2 (42) and TL60 (43) located next to alternator (16).

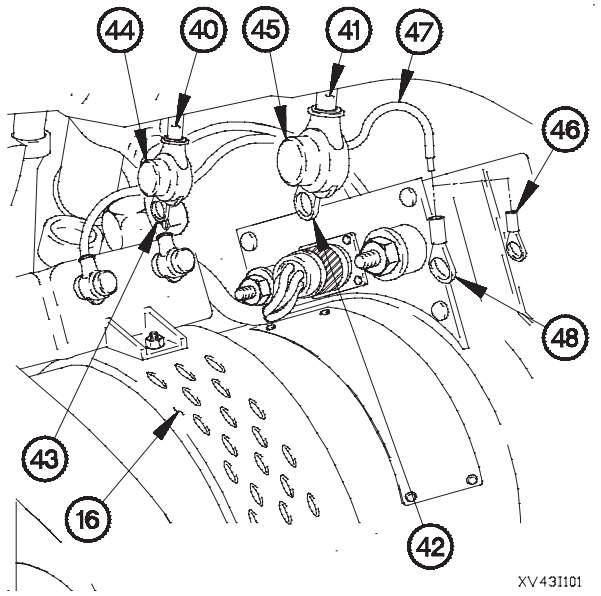
(27) Install dust boot (44) on 12 vdc cable (40).

(28) Install dust boot (45) on 24 vdc cable (41).

(29) Remove terminal lug TL6 (46) from wire (47). Discard terminal lug.

(30) Position wire (47) in dust boot (45) with terminal lug TL2 (42).

(31) Install terminal lug TL6 (48) on wire (47).

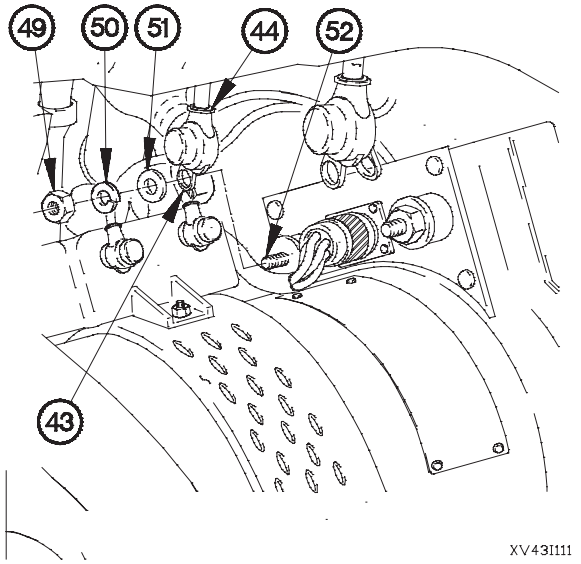


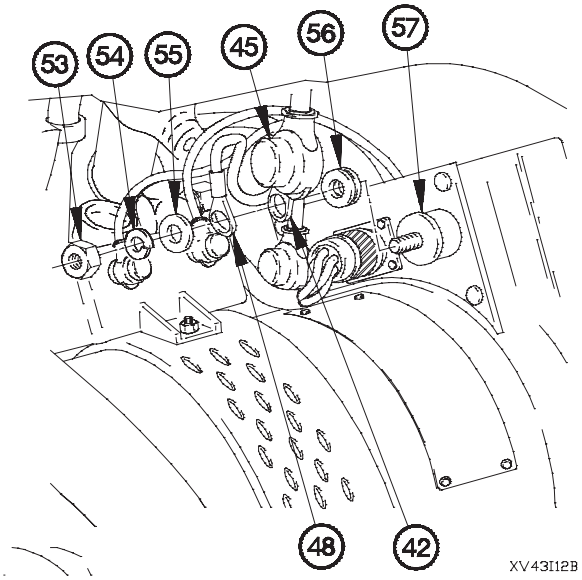
(32) Remove nut (49), lockwasher (50), and washer (51) from alternator terminal (52).

(33) Position terminal lug TL60 (43) on alternator terminal (52) with washer (51), lockwasher (50), and nut (49).

(34) Tighten nut (49) to 156-180 lb-in. (17-21 N·m).

(35) Position dust boot (44) on terminal lug TL60 (43).





(36) Remove nut (53), lockwasher (54), insulation washer (55), and fuse link (56) from alternator terminal (57).

(37) Position fuse link (56), terminal lugs TL2 (42) and TL6 (48), insulation washer (55), lockwasher (54), and nut (53) on alternator terminal (57).

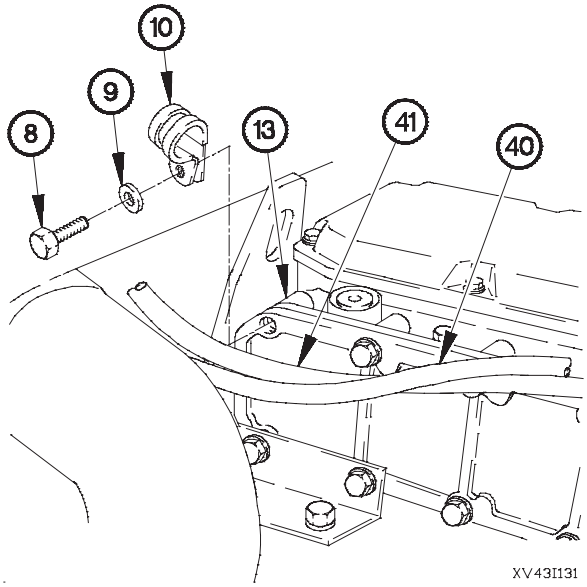
(38) Tighten nut (53) to 156-180 lb-in. (17-21 N·m).

(39) Position dust boot (45) on terminal lugs TL2 (42) and TL6 (48).

(40) Position three clamps (10) on 12 vdc cable (40) and 24 vdc cable (41).

(41) Position three clamps (10) on air inlet manifold (13) three with washers (9) and screws (8).

(42) Tighten three screws (8) to 22-27 lb-ft (31-37 N·m).



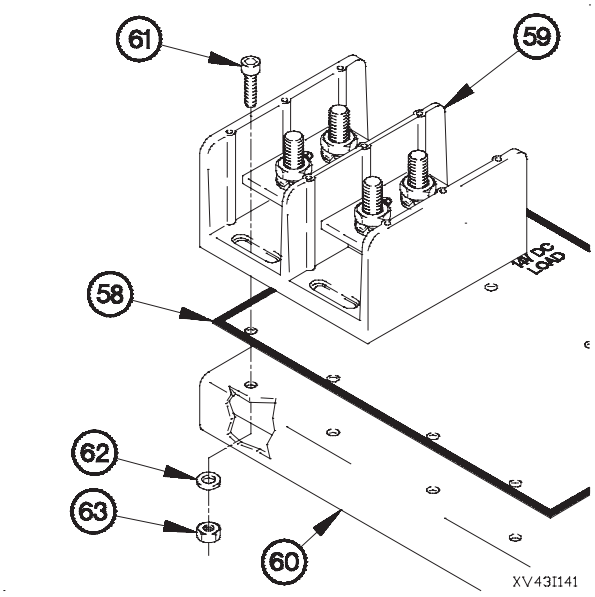
20-43. 200 AMP ALTERNATOR KIT INSTALLATION (CONT)

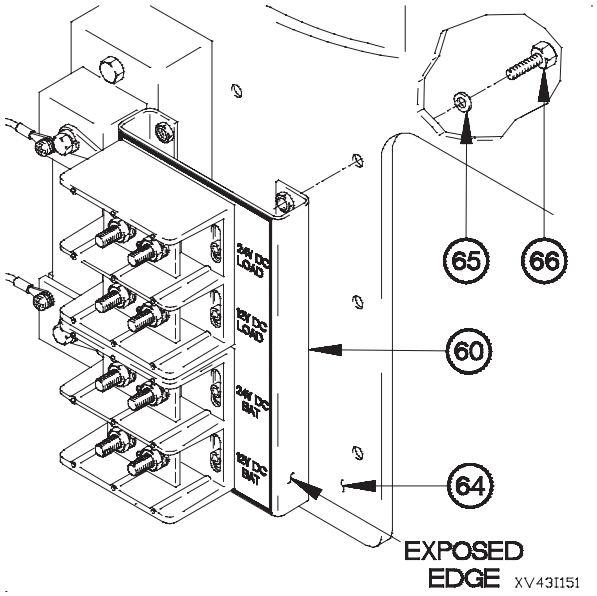
CAUTION

Position both terminal blocks loosely on mounting bracket and align correctly before tightening nuts. Failure to comply may result in damage to equipment.

(43) Position identification plate (58) and two terminal blocks (59) on bracket (60) with eight screws (61), washers (62), and self-locking nuts (63).

(44) Tighten eight self-locking nuts (63) to 48 lb-in. (5 N·m).





NOTE

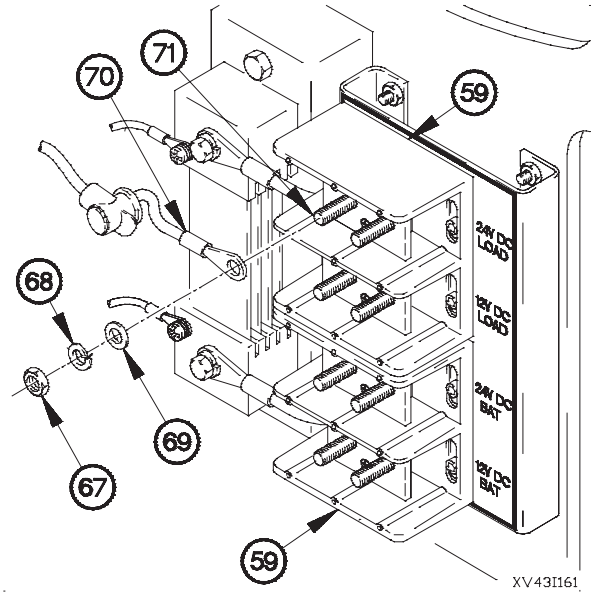
- Terminal blocks are not centered on bracket. Position bracket on spare tire retainer with exposed edge of identification plate toward cab.
- Step (45) requires the aid of an assistant.

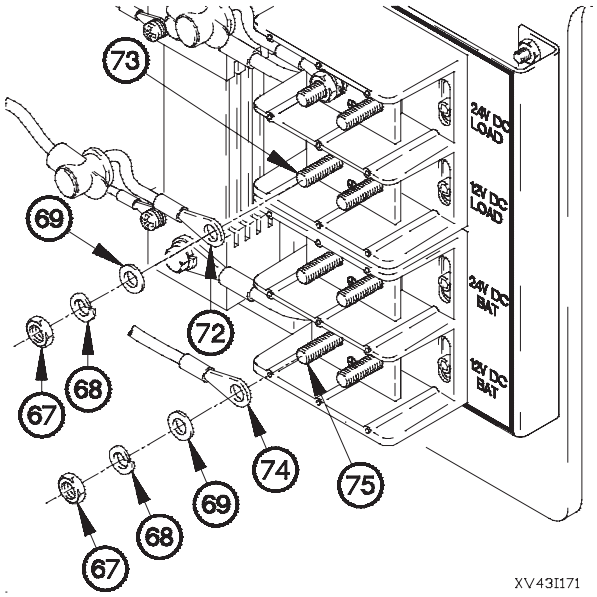
(45) Position bracket (60) on spare tire retainer (64) with four washers (65) and screws (66).

(46) Tighten four screws (66) to 48 lb-in. (5 N·m).

(47) Remove eight nuts (67), lockwashers (68), and washers (69) from two terminal blocks (59).

(48) Position terminal lug TL44 (70) on terminal block terminal (71) with washer (69), lockwasher (68), and nut (67).

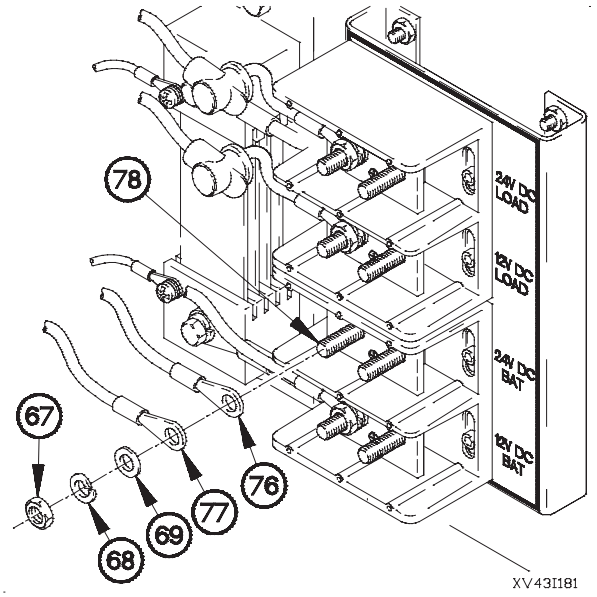




(49) Position terminal lug TL80 (72) on terminal block terminal (73) with washer (69), lockwasher (68), and nut (67).

(50) Position terminal lug TL47 (74) on terminal block terminal (75) with washer (69), lockwasher (68), and nut (67).

(51) Position terminal lugs TL36 (76) and TL37 (77) on terminal block terminal (78) with washer (69), lockwasher (68), and nut (67).

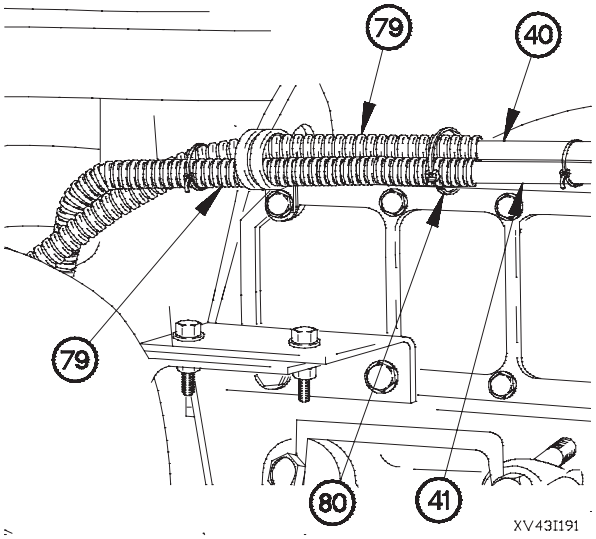


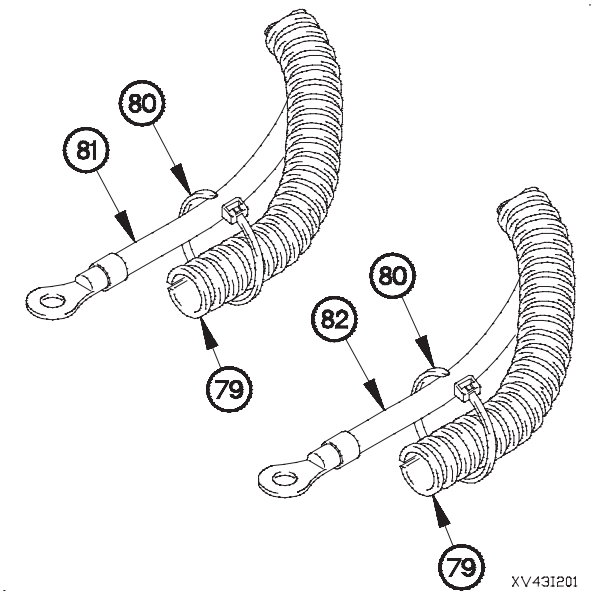
20-43. 200 AMP ALTERNATOR KIT INSTALLATION (CONT)

(52) Install 17.7 in. (45.0 cm) of convoluted tubing (79) on 12vdc cable (40).

(53) Install 19.6 in. (50.0 cm) of convoluted tubing (79) on 24vdc cable (41).

(54) Install three plastic cable ties (80) on convoluted tubing (79).





NOTE

24 vdc load cable terminates with terminal lugs TL167 and TL169. 24 vdc battery cable terminates with terminal lugs TL166 and TL168.

(55) Install 21.6 in. (55.5 cm) of convoluted tubing (79) on 24vdc load cable (81).

(56) Install 21.5 in. (55.0 cm) of convoluted tubing (79) on 24vdc battery cable (82).

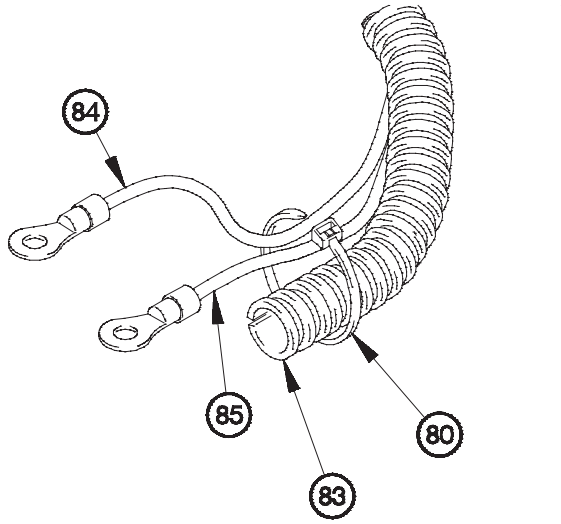
(57) Install plastic cable ties (80) on convoluted tubing (79).

NOTE

- 12 vdc load cable terminates with terminal lugs TL172 and TL174. 12 vdc battery cable terminates with terminal lugs TL171 and TL173.
- Position terminal lugs TL171 and TL172 at the same end.

(58) Install 21.6 in. (55.0 cm) of convoluted tubing (83) on 12vdc load cable (84) and 12vdc battery cable (85).

(59) Install plastic cable ties (80) on convoluted tubing (83).



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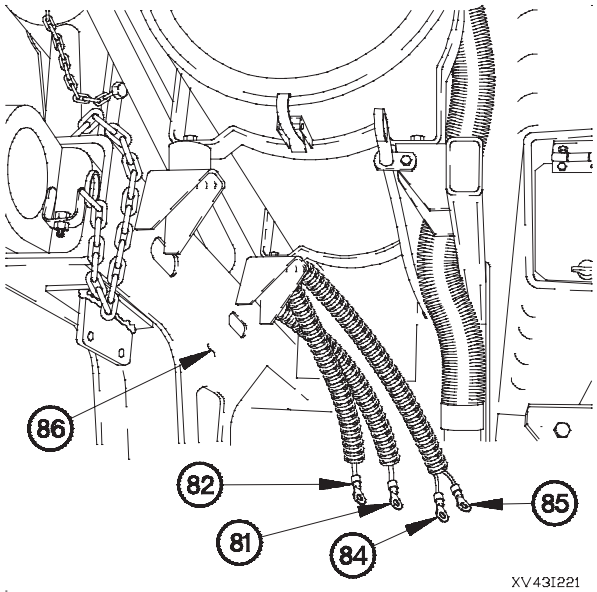

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NOTE

Position 24vdc load cable, 24vdc battery cable, 12vdc load cable, and 12vdc battery cable with terminal lugs TL167, TL172, TL166, and TL171 at terminal block.

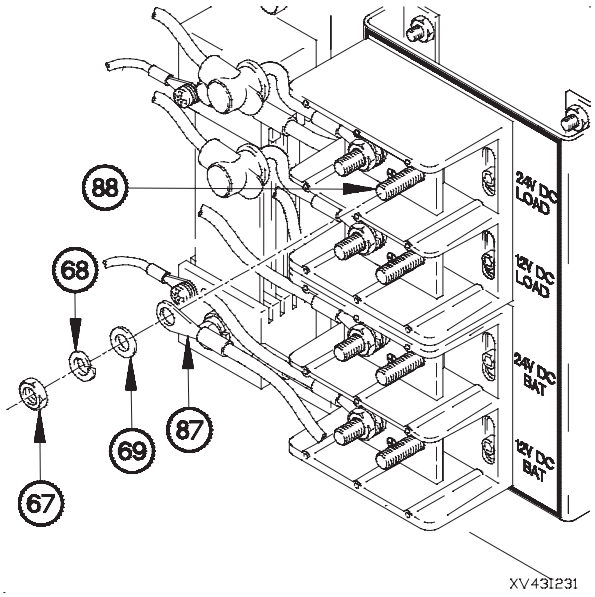
(60) Position 24vdc load cable (81) on rear side of front lifting beam (86).

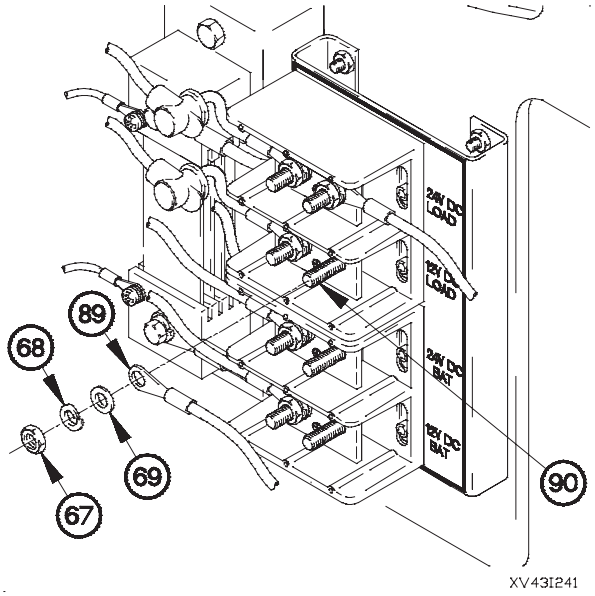
(61) Position 24vdc battery cable (82) on rear side of front lifting beam (86).

(62) Position 12vdc load cable (84) and 12vdc battery cable (85) on rear side of front lifting beam (86).

20-43. 200 AMP ALTERNATOR KIT INSTALLATION (CONT)

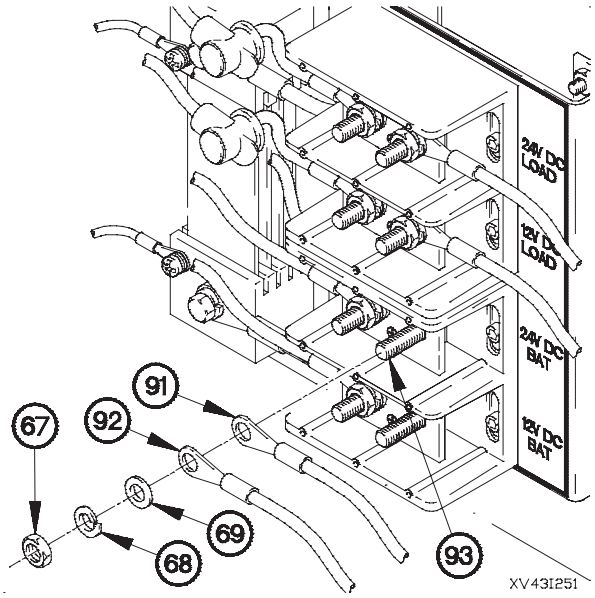
(63) Position terminal lug TL167 (87) on terminal block terminal (88) with washer (69), lockwasher (68), and nut (67).



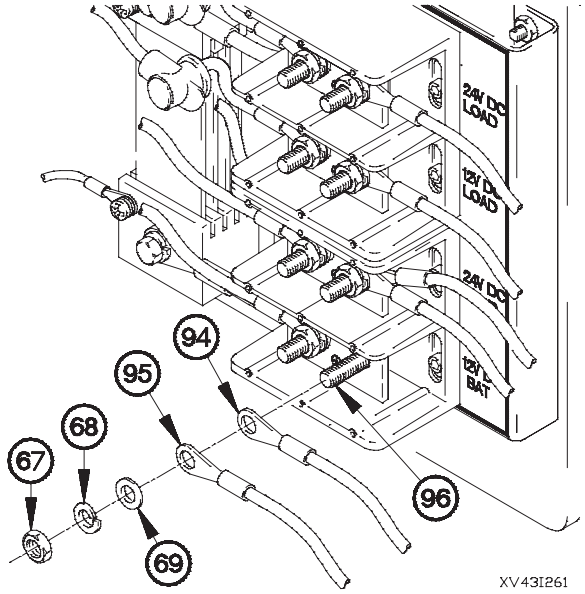


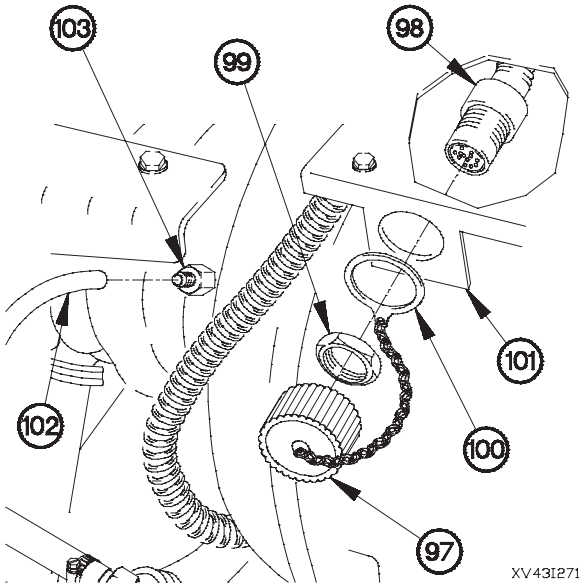
(64) Position terminal lug TL172 (89) on terminal block terminal (90) with washer (69), lockwasher (68), and nut (67).

(65) Position terminal lugs TL1 (91) and TL166 (92) on terminal block terminal (93) with washer (69), lockwasher (68), and nut (67).



(66) Position terminal lugs TL61 (94) and TL171 (95) on terminal block terminal (96) with washer (69), lockwasher (68), and nut (67).





(67) Remove dust cap (97) from connector J106 (98).

(68) Remove nut (99), dust cap lanyard (100), and connector J106 (98) from chemical detection unit mounting bracket (101).

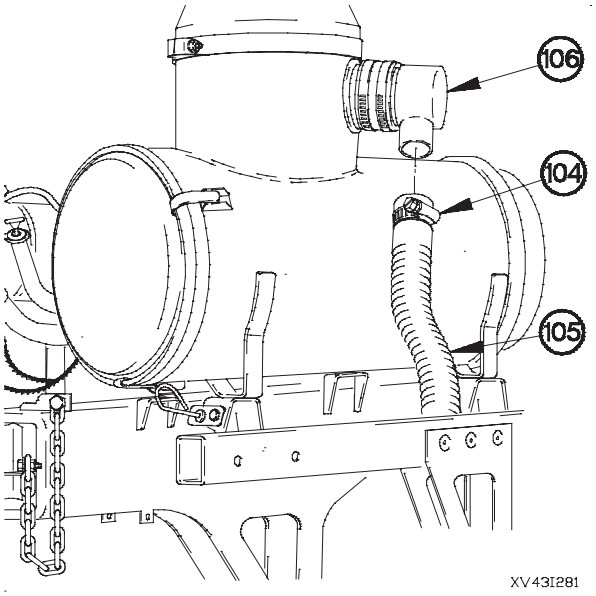
(69) Disconnect air filter restriction gauge hose (102) from air flow sensor (103).

NOTE

Perform steps (70) through (104) on all models except M1093/M1094.

(70) Loosen clamp (104) on particle extraction hose (105).

(71) Remove particle extraction hose (105) from adapter (106).

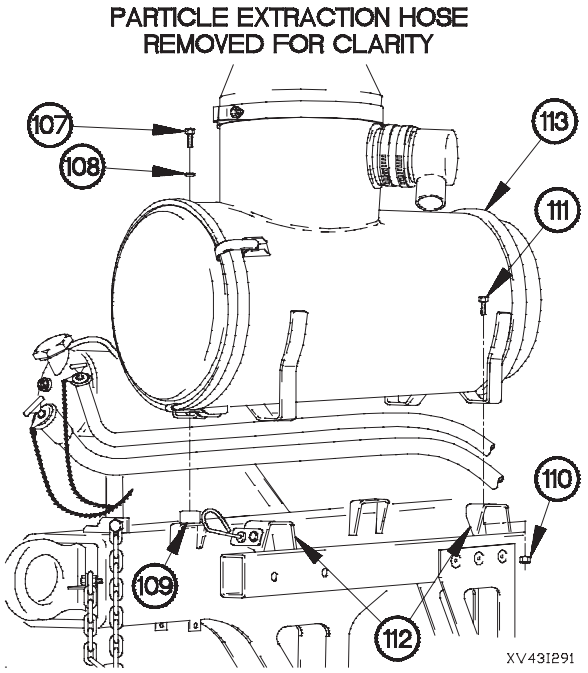


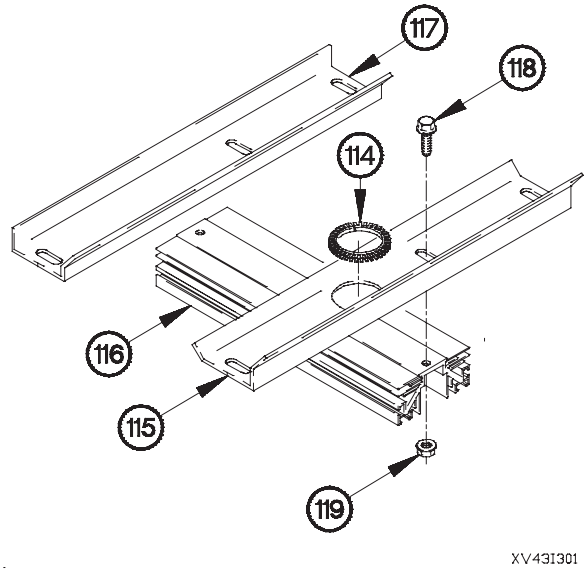
20-43. 200 AMP ALTERNATOR KIT INSTALLATION (CONT)

(72) Remove screw (107) and washer (108) from resilient mount (109).

(73) Remove three self-locking nuts (110) and screws (111) from mounting brackets (112). Discard self-locking nuts.

(74) Remove intake air cleaner housing (113) from mounting brackets (112) and resilient mount (109).





(75) Cut grommet (114) to 8 1/4 in. (210 mm).

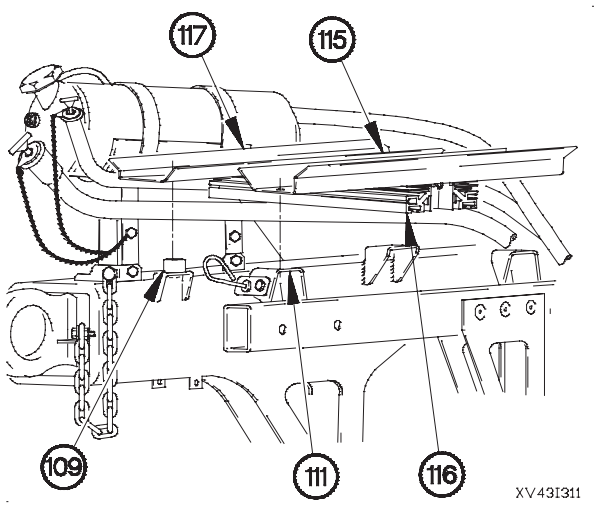
(76) Install grommet (114) in bracket (115).

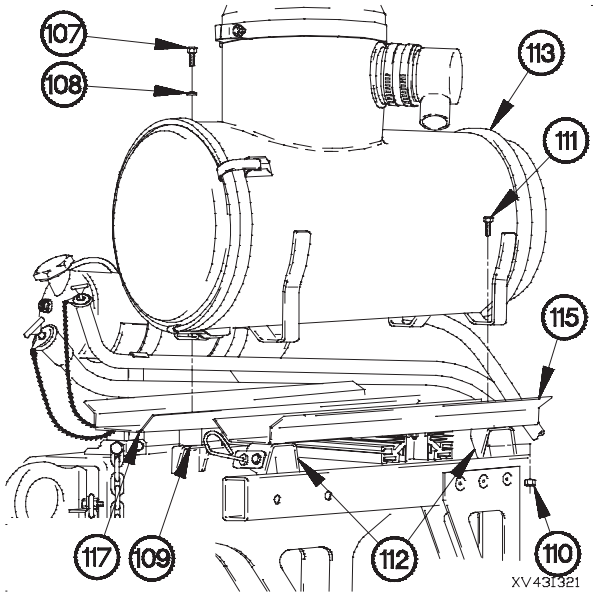
NOTE

Position reverse polarity relay 24V terminals toward front of vehicle.

(77) Position reverse polarity relay (116) on brackets (115 and 117) with two screws (118) and self-locking nuts (119).

(78) Position reverse polarity relay (116) and brackets (115 and 117) on mounting brackets (112) and resilient mount (109) with bracket (115) toward rear of vehicle.





(79) Position intake air cleaner housing (113) on brackets (115 and 117).

(80) Position washer (108) and screw (107) in resilient mount (109).

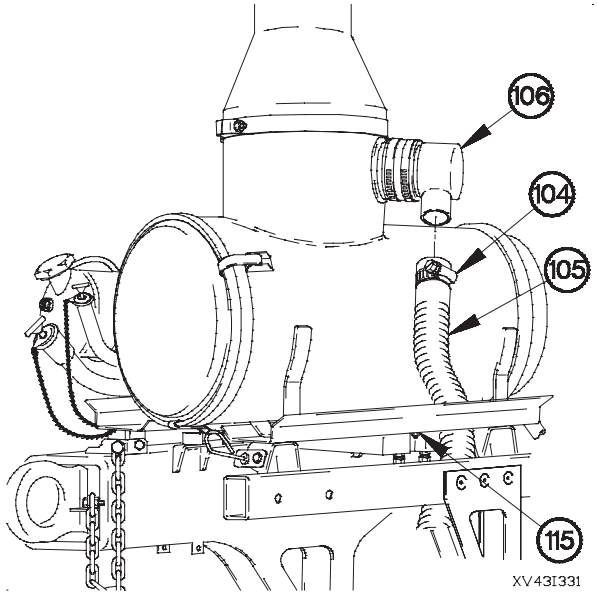
(81) Position three screws (111) and self-locking nuts (110) in mounting brackets (112).

(82) Tighten screw (107) to 26-31 lb-ft (35-42 N·m).

(83) Tighten three self-locking nuts (110) to 35-51 lb-ft (47-69 N·m).

(84) Position particle extraction hose (105) through bracket (115).

(85) Install particle extraction hose (105) on adapter (106) with clamp (104).

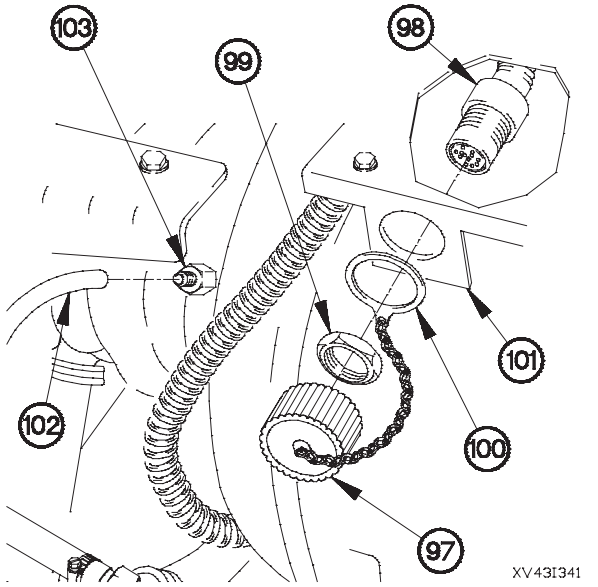


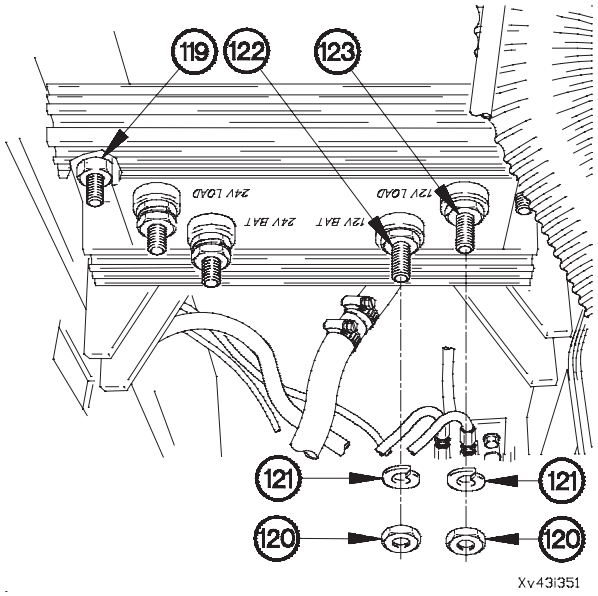
20-43. 200 AMP ALTERNATOR KIT INSTALLATION (CONT)

(86) Connect air filter restriction gauge hose (102) to air flow sensor (103).

(87) Install connector J106 (98) and dust cap lanyard (100) on chemical detection unit mounting bracket (101) with nut (99).

(88) Install dust cap (97) on connector J106 (98).



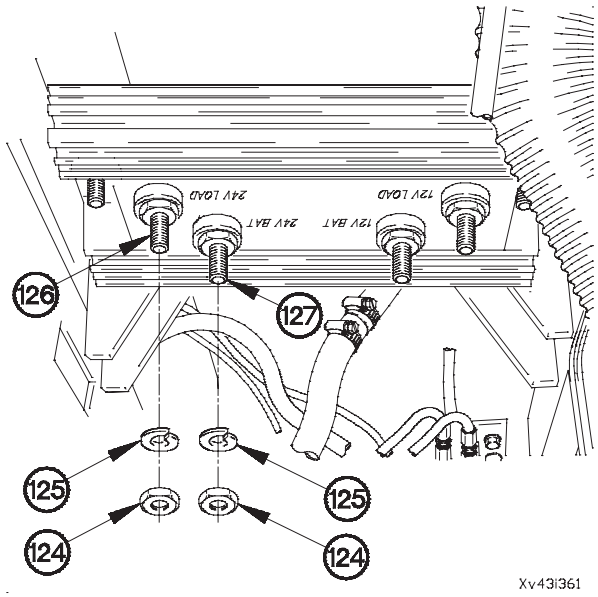


NOTE

Step (89) requires the aid of an assistant.

(89) Tighten two self-locking nuts (119) to 25-31 lb-ft (35-43 N·m).

(90) Remove two nuts (120) and lockwashers (121) from reverse polarity relay 12V BAT terminal (122) and 12V LOAD terminal (123).



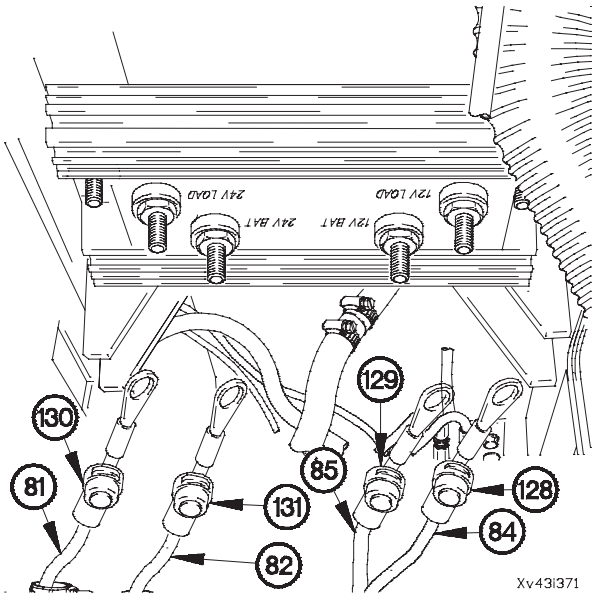
(91) Remove two nuts (124) and lockwashers (125) from reverse polarity relay 24V LOAD terminal (126) and 24V BAT terminal (127).

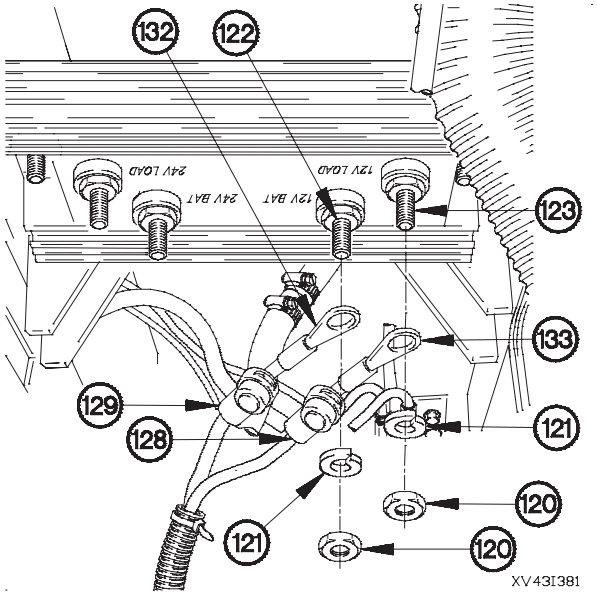
(92) Install dust boot (128) on 12 vdc load cable (84).

(93) Install dust boot (129) on 12 vdc battery cable (85).

(94) Install dust boot (130) on 24 vdc load cable (81).

(95) Install dust boot (131) on 24 vdc battery cable (82).





NOTE

Steps (96) through (101) require the aid of an assistant.

(96) Position terminal lug TL173 (132) on reverse polarity relay 12V BAT terminal (122) with lockwasher (121) and nut (120).

(97) Position terminal lug TL174 (133) on reverse polarity relay 12V LOAD terminal (123) with lockwasher (121) and nut (120).

(98) Tighten two nuts (120) to 108-132 lb-in. (13-15 N·m).

(99) Position dust boots (128 and 129) on terminal lugs TL173 (132) and TL174 (133).

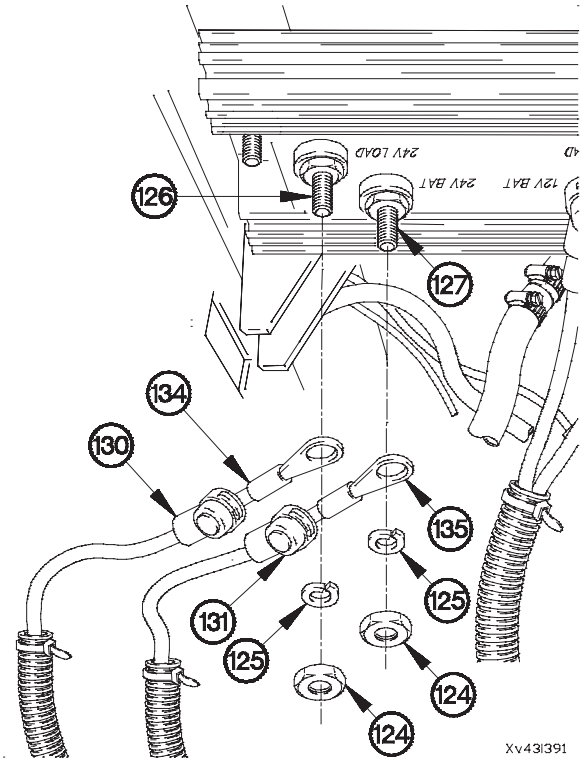
20-43. 200 AMP ALTERNATOR KIT INSTALLATION (CONT)

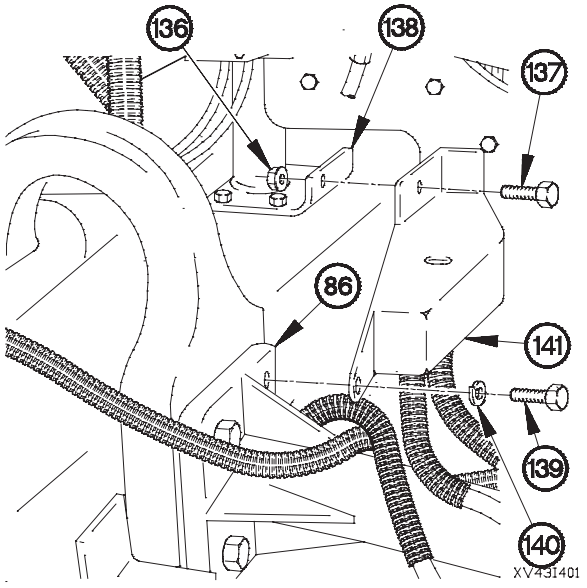
(100) Position terminal lug TL169 (134) on reverse polarity relay 24V LOAD terminal (126) with lockwasher (125) and nut (124).

(101) Position terminal lug TL168 (135) on reverse polarity relay 24V BAT terminal (127) with lockwasher (125) and nut (124).

(102) Tighten two nuts (124) to 27-33 lb-ft (37-47 N·m).

(103) Install dust boots (130 and 131) on terminal lugs TL169 (134) and TL168 (135).





NOTE

Perform steps (104) through (131) on M1093/M1094 only.

(104) Remove self-locking nut (136) and screw (137) from spare tire retainer (138). Discard self-locking nut.

(105) Remove screw (139) and spring washer (140) from front lifting beam (86). Discard spring washer.

(106) Position bracket (141) on spare tire retainer (138) with screw (137) and self-locking nut (136).

(107) Position bracket (141) on front lifting beam (86) with spring washer (140) and screw (139).

(108) Tighten self-locking nut (136) to 43-51 lb-ft (58-69 N·m).

(109) Tighten screw (139) to 43-51 lb-ft (58-69 N·m).

(110) Remove self-locking nut (142) and screw (143) from spare tire retainer (138). Discard self-locking nut.

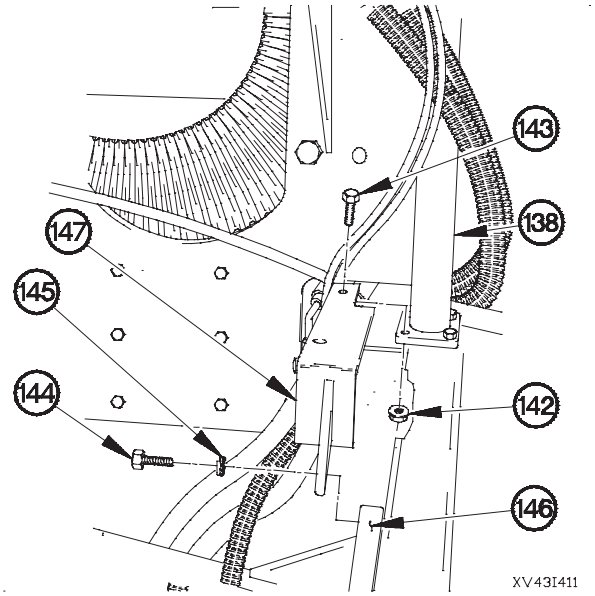
(111) Remove screw (144) and spring washer (145) from rear support brace (146). Discard spring washer.

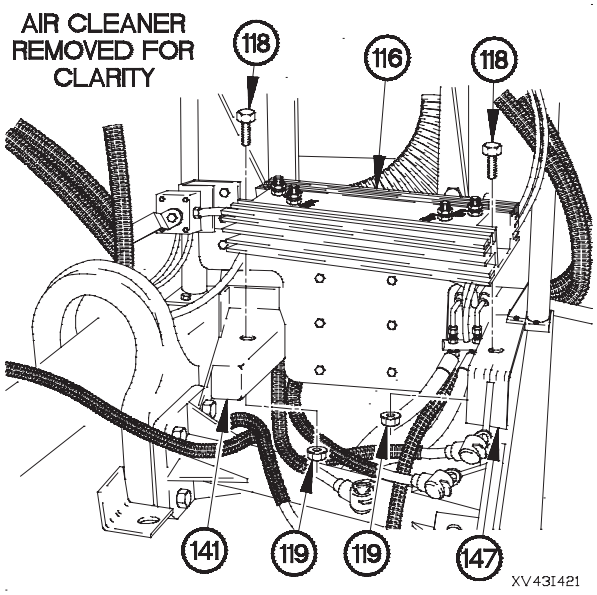
(112) Position bracket (147) on spare tire retainer (138) with screw (143) and self-locking nut (142).

(113) Position bracket (147) on rear support brace (146) with spring washer (145) and screw (144).

(114) Tighten self-locking nut (142) to 43-51 lb-ft (58-69 N·m).

(115) Tighten screw (144) to 43-51 lb-ft (58-69 N·m).





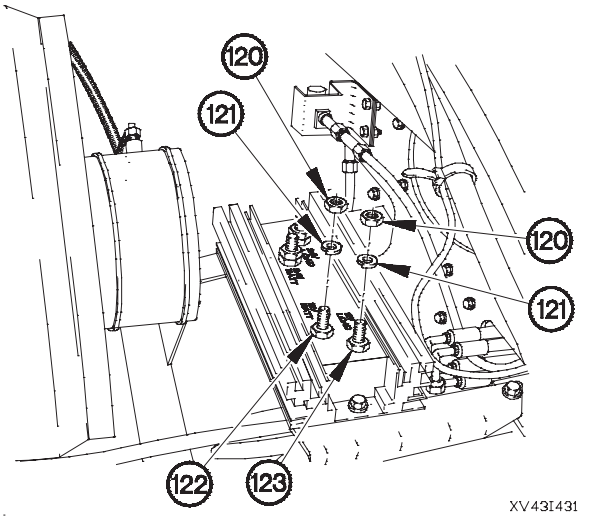
NOTE

Position reverse polarity relay 24V terminals toward front of vehicle.

(116) Position reverse polarity relay (116) on brackets (141 and 147) with two screws (118) and self-locking nuts (119).

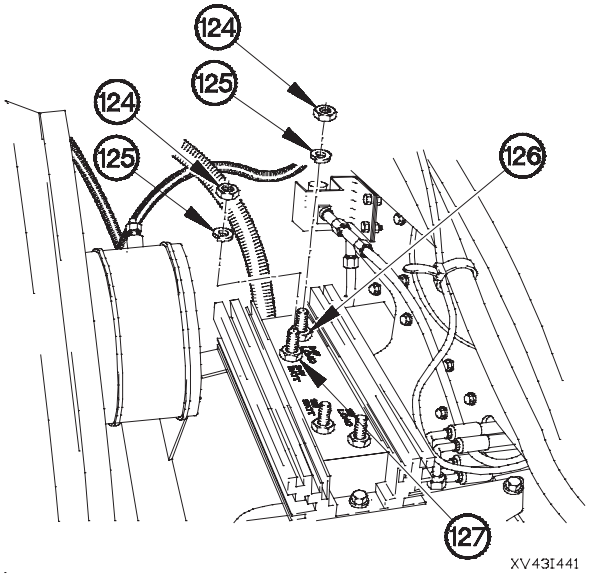
(117) Tighten two self-locking nuts (119) to 25-31 lb-ft (35-43 N·m).

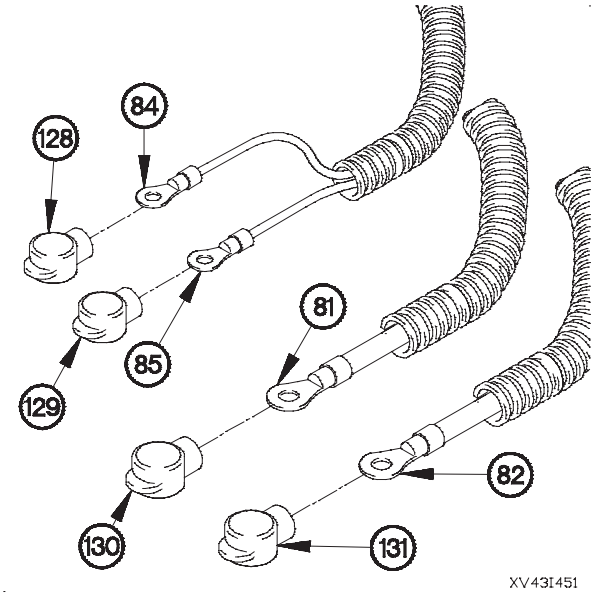
(118) Remove two nuts (120) and lockwashers (121) from reverse polarity relay 12V BAT terminal (122) and 12V LOAD terminal (123).



20-43. 200 AMP ALTERNATOR KIT INSTALLATION (CONT)

(119) Remove two nuts (124) and lockwashers (125) from reverse polarity relay 24V LOAD terminal (126) and 24V BAT terminal (127).





(120) Install dust boot (128) on 12vdc load cable (84).

(121) Install dust boot (129) on 12vdc battery cable (85).

(122) Install dust boot (130) on 24vdc load cable (81).

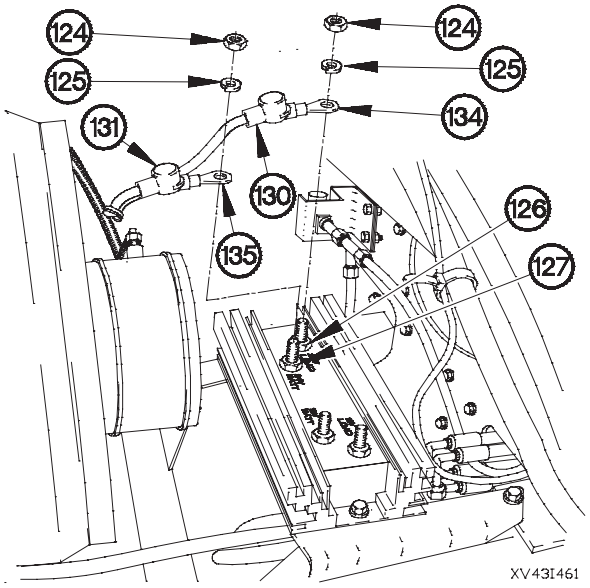
(123) Install dust boot (131) on 24vdc battery cable (82).

(124) Position terminal lug TL169 (134) on reverse polarity relay 24V LOAD terminal (126) with lockwasher (125) and nut (124).

(125) Position terminal lug TL168 (135) on reverse polarity relay 24V BAT terminal (127) with lockwasher (125) and nut (124).

(126) Tighten two nuts (124) to 27-33 lb-ft (34-45 N·m).

(127) Position dust boots (130 and 131) on terminal lugs TL169 (134) and TL168 (135).

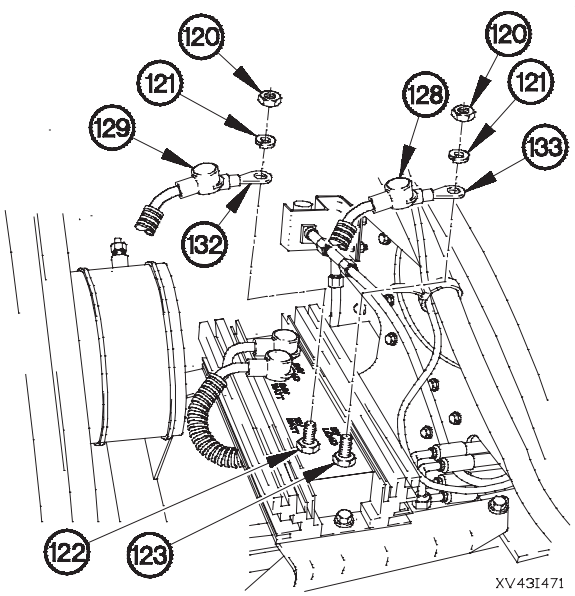


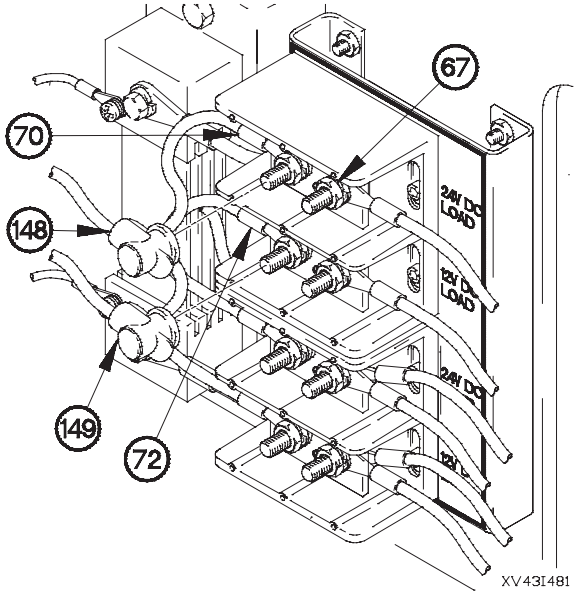
(128) Position terminal lug TL173 (132) on reverse polarity relay 12V BAT terminal (122) with lockwasher (121) and nut (120).

(129) Position terminal lug TL174 (133) on reverse polarity relay 12V LOAD terminal (123) with lockwasher (121) and nut (120).

(130) Tighten two nuts (120) to 120 lb-in. (14 N·m).

(131) Position dust boots (128 and 129) on terminal lugs TL173 (132) and TL174 (133).





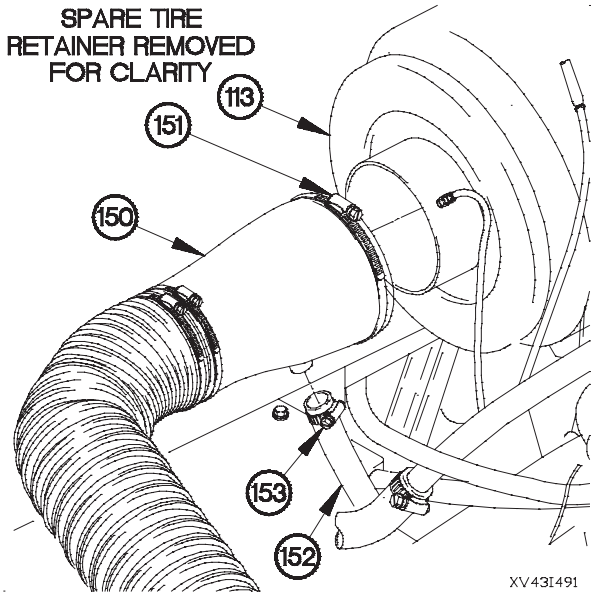
(132) Tighten eight nuts (67) to 15-19 lb-ft (21-25 N·m).

(133) Position dust boots (148 and 149) on terminal lugs TL44 (70) and TL80 (72).

(134) Position intake air cleaner boot (150) on intake air cleaner housing (113) with clamp (151).

(135) Position air compressor intake hose (152) on intake air cleaner boot (150) with clamp (153).

(136) Tighten clamps (151 and 153) to 36-48 lb-in. (4-5 N·m).



20-43. 200 AMP ALTERNATOR KIT INSTALLATION (CONT)

b. Follow-On Maintenance.

(1) Install alternator belts (para 7-3).

(2) Raise spare tire (TM 9-2320-366-10-2).

(3) Connect batteries (para 7-57).

(4) Start engine (TM 9-2320-366-10-1).

(5) Check VOLTS gage for charge indication (TM 9-2320-366-10-1).

(6) Shut down engine (TM 9-2320-366-10-1).

End of Task.

20-44. 200 AMP ALTERNATOR KIT REMOVAL

This task covers:

a. Removal

b. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions
Batteries disconnected (para 7-57).
Spare tire lowered (TM 9-2320-366-20-2).
Cab raised (TM 9-2320-366-10-1).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Wrench, Torque, 0-175 lb-ft (Item 58, Appendix C)
Vise, Machinist (Item 48, Appendix C)
Caps, Vise Jaw (Item 4, Appendix C)

Materials/Parts
Ties, Cable, Plastic (Item 69, Appendix D)
Lockwasher (2) (Item 72, Appendix G)
Lockwasher (2) (Item 73, Appendix G)
Lockwasher (8) (Item 96, Appendix G)
Lockwasher (Item 103, Appendix G)
Lockwasher (2) (Item 105, Appendix G)

Materials/Parts
Washer, Spring (2) (M1093/M1094) (Item 293, Appendix G)
Terminal, Lug (Item 277, Appendix G)
Terminal, Lug (Item 278, Appendix G)
Nut, Self-Locking (2) (Item 155, Appendix G)
Nut, Self-Locking (3) (all models except M1093/M1094) (Item 156, Appendix G)
Nut, Self-Locking (2) (M1093/M1094) (Item 156, Appendix G)
Nut, Self-Locking (8) (Item 165, Appendix G)
Nut, Self-Locking (Item 142, Appendix G)
Nut, Self-Locking (Item 143, Appendix G)
Nut, Self-Locking (Item 144, Appendix G)
Lockwasher (2) (Item 96, Appendix G)

Personnel Required
(2)

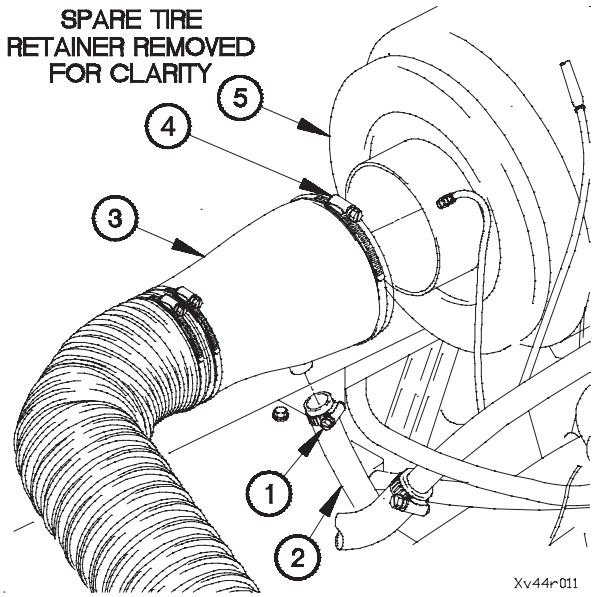
a. Removal.

(1) Loosen clamp (1) on air compressor intake hose (2).

(2) Remove air compressor intake hose (2) from intake air cleaner boot (3).

(3) Loosen clamp (4) on intake air cleaner boot (3).

(4) Remove intake air cleaner boot (3) from intake air cleaner housing (5).



20-44. 200 AMP ALTERNATOR KIT REMOVAL (CONT)

NOTE

- Perform steps (5) through (27) on M1093/M1094.
- Remove plastic cable ties as required.

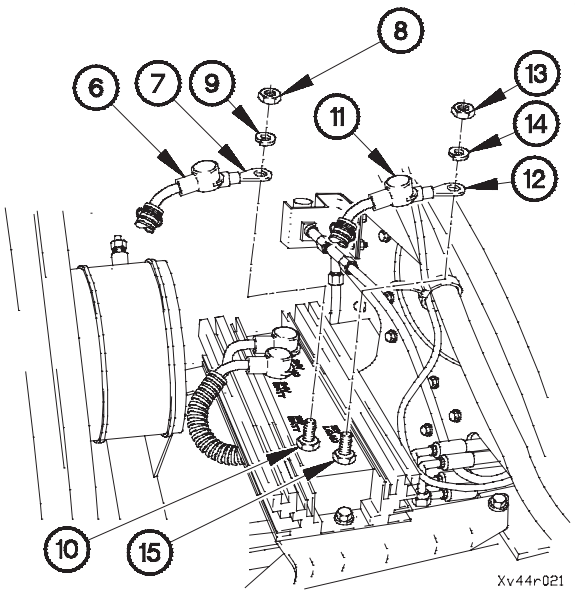
(5) Lift dust boot (6) on terminal lug TL173 (7).

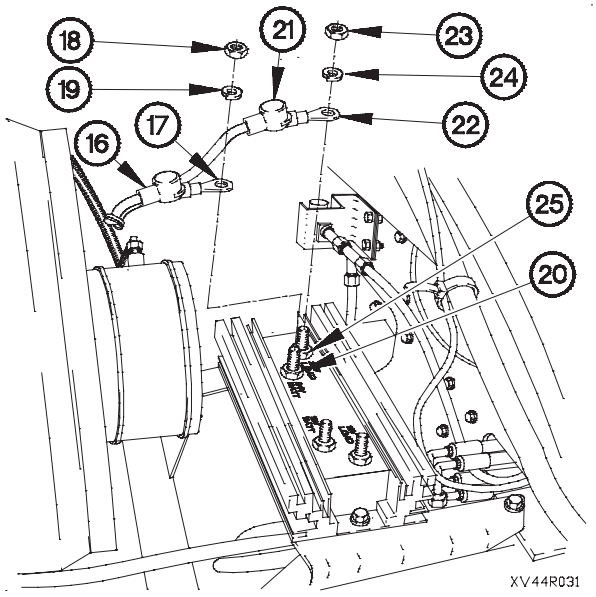
(6) Remove nut (8), lockwasher (9), and terminal lug TL173 (7) from reverse polarity relay 12V BAT terminal (10). Discard lockwasher.

(7) Lift dust boot (11) on terminal lug TL174 (12).

(8) Remove nut (13), lockwasher (14), and terminal lug TL174 (12) from reverse polarity relay 12V LOAD terminal (15). Discard lockwasher.

(9) Position lockwashers (9 and 14) and nuts (8 and 13) on reverse polarity relay 12V BAT terminal (10) and 12V LOAD terminal (15).





(10) Lift dust boot (16) on terminal lug TL168 (17).

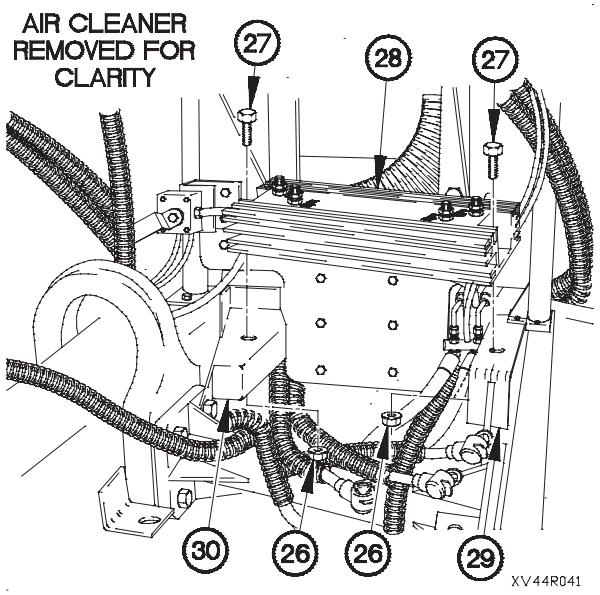
(11) Remove nut (18), lockwasher (19), and terminal lug TL168 (17) from reverse polarity relay 24V BAT terminal (20). Discard lockwasher.

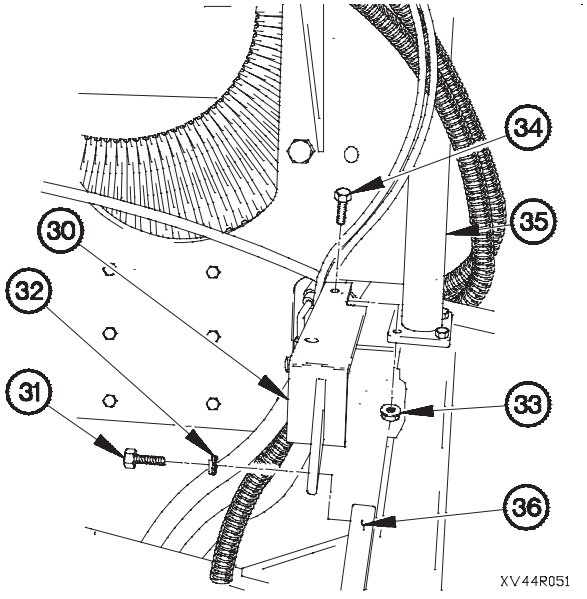
(12) Lift dust boot (21) on terminal lug TL169 (22).

(13) Remove nut (23), lockwasher (24), and terminal lug TL169 (22) from reverse polarity relay 24V LOAD terminal (25). Discard lockwasher.

(14) Position lockwashers (19 and 24) and nuts (18 and 23) on reverse polarity relay 24V BAT terminal (20) and 24V LOAD terminal (25).

(15) Remove two self-locking nuts (26), screws (27), and reverse polarity relay (28) from brackets (29 and 30). Discard self-locking nuts.





(16) Remove screw (31) and lockwasher (32) from bracket (30). Discard lockwasher.

(17) Remove self-locking nut (33), screw (34), and bracket (30) from spare tire retainer (35). Discard self-locking nut.

(18) Position screw (34) and self-locking nut (33) in spare tire retainer (35).

(19) Tighten self-locking nut (33) to 43-51 lb-ft (58-69 N·m).

(20) Position lockwasher (32) and screw (31) in rear support brace (36).

(21) Tighten screw (31) to 43-51 lb-ft (58-69 N·m).

20-44. 200 AMP ALTERNATOR KIT REMOVAL (CONT)

(22) Remove screw (37) and lockwasher (38) from bracket (29). Discard lockwasher.

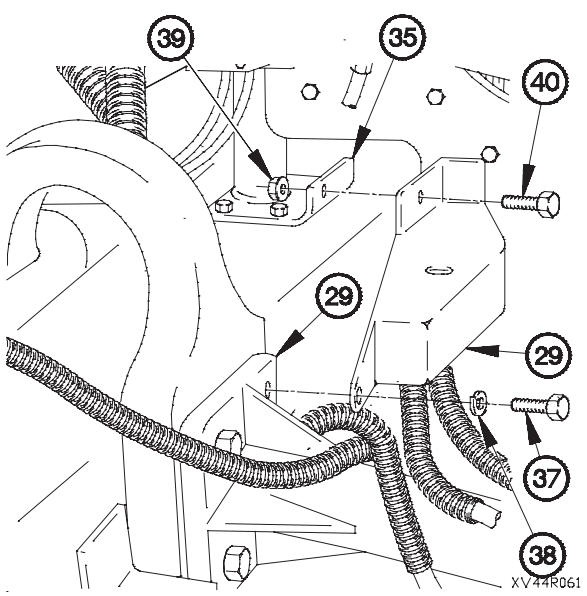
(23) Remove self-locking nut (39), screw (40), and bracket (29) from spare tire retainer (35). Discard self-locking nut.

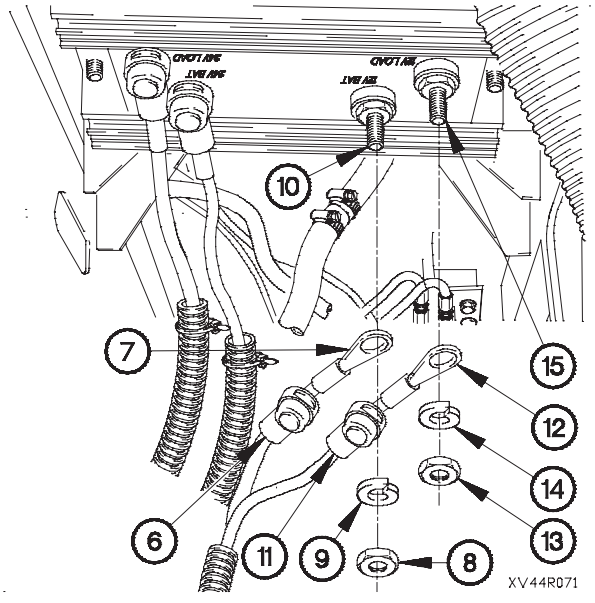
(24) Position screw (40) and self-locking nut (39) in spare tire retainer (35).

(25) Tighten self-locking nut (39) to 43-51 lb-ft (58-69 N·m).

(26) Position lockwasher (38) and screw (37) in front lifting beam (41).

(27) Tighten screw (37) to 43-51 lb-ft (58-69 N·m).





NOTE

- Perform steps (28) through (56) on all models except M1093/M1094.
- Remove plastic cable ties as required.

(28) Lift dust boot (6) on terminal lug TL173 (7).

(29) Remove nut (8), lockwasher (9), and terminal lug TL173 (7) from reverse polarity relay 12V BAT terminal (10). Discard lockwasher.

(30) Lift dust boot (11) on terminal lug TL174 (12).

(31) Remove nut (13), lockwasher (14), and terminal lug TL174 (12) from reverse polarity relay 12V LOAD terminal (15). Discard lockwasher.

(32) Position lockwashers (9 and 14) and nuts (8 and 13) on reverse polarity relay 12V BAT terminal (10) and 12V LOAD terminal (15).

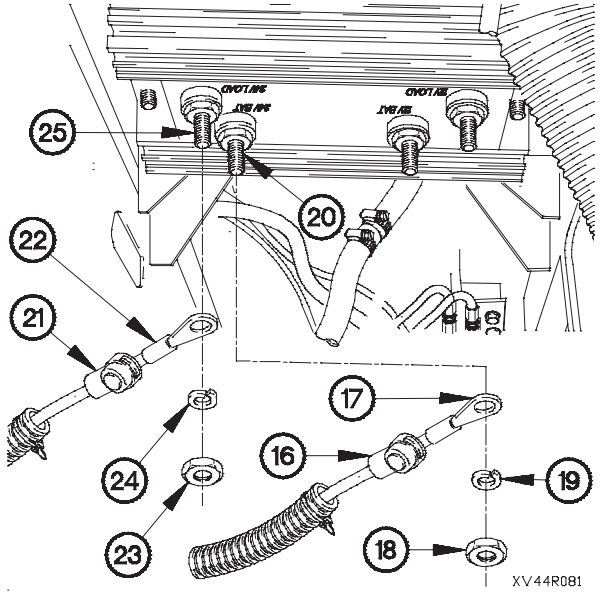
(33) Lift dust boot (16) on terminal lug TL168 (17).

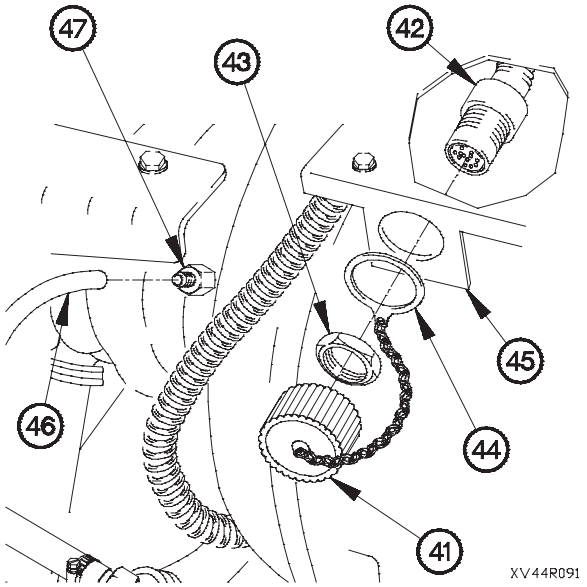
(34) Remove nut (18), lockwasher (19), and terminal lug TL168 (17) from reverse polarity relay 24V BAT terminal (20). Discard lockwasher.

(35) Lift dust boot (21) on terminal lug TL169 (22).

(36) Remove nut (23), lockwasher (24), and terminal lug TL169 (22) from reverse polarity relay 24V LOAD terminal (25). Discard lockwasher.

(37) Position lockwashers (19 and 24) and nuts (18 and 23) on reverse polarity relay 24V BAT terminal (20) and 24V LOAD terminal (25).

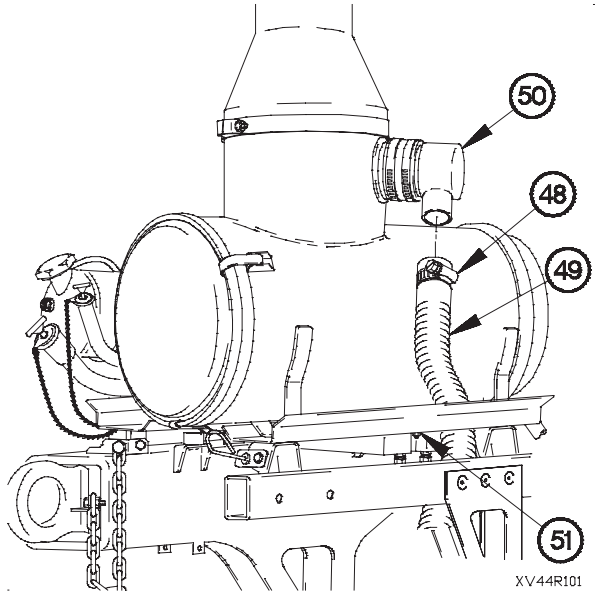




(38) Remove dust cap (41) from connector J106 (42).

(39) Remove nut (43), dust cap lanyard (44), and connector J106 (42) from chemical detection unit mounting bracket (45).

(40) Disconnect air filter restriction gauge hose (46) from air flow sensor (47).



(41) Loosen clamp (48) on particle extraction hose (49).

(42) Disconnect particle extraction hose (49) from adapter (50).

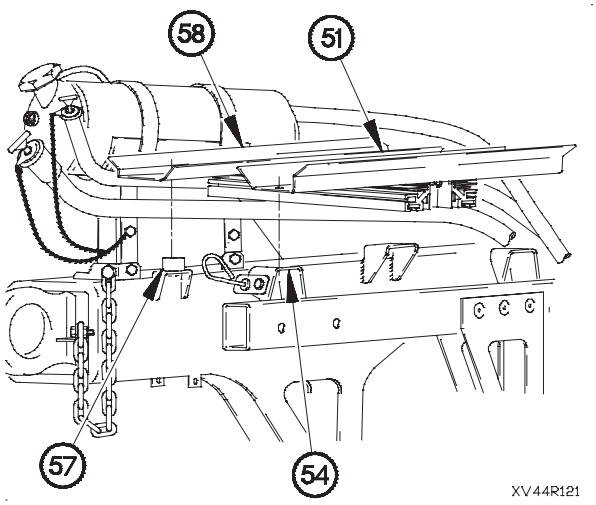
(43) Remove particle extraction hose (49) from bracket (51).

20-44. 200 AMP ALTERNATOR KIT REMOVAL (CONT)

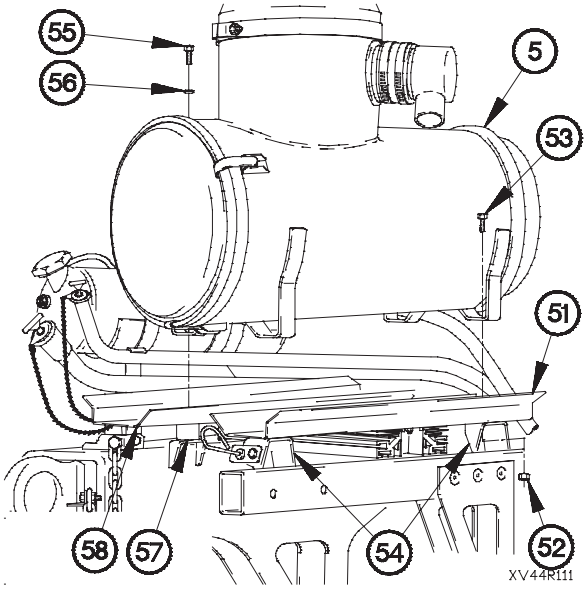
(44) Remove three self-locking nuts (52) and screws (53) from mounting brackets (54). Discard self-locking nuts.

(45) Remove screw (55) and washer (56) from resilient mount (57).

(46) Remove intake air cleaner housing (5) from brackets (51 and 58).

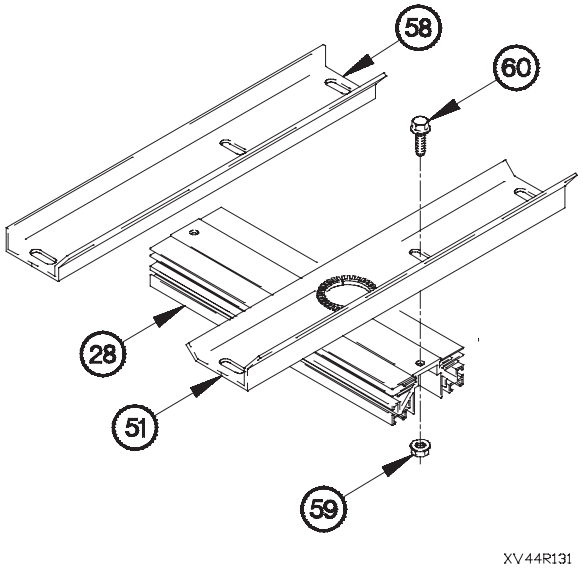


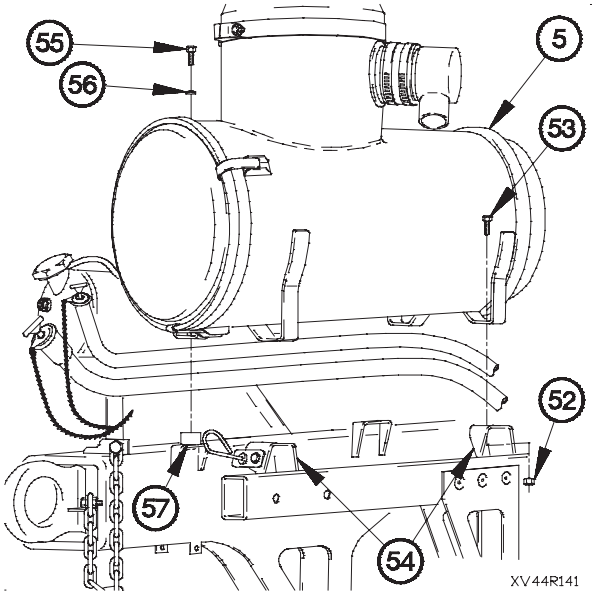
PARTICLE EXTRACTION HOSE REMOVED FOR CLARITY



(47) Remove brackets (51 and 58) from three mounting brackets (54) and resilient mount (57).

(48) Remove two self-locking nuts (59), screws (60), and reverse polarity relay (28) from brackets (51 and 58). Discard self-locking nuts.



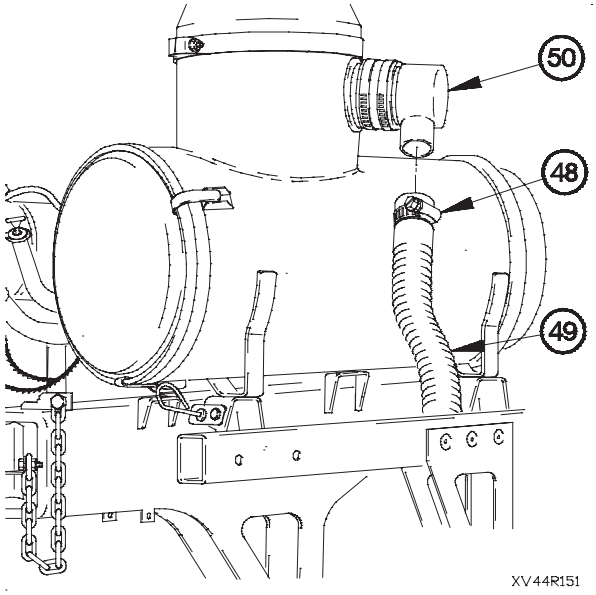


(49) Position intake air cleaner housing (5) on three mounting brackets (54) with three screws (53) and self-locking nuts (52).

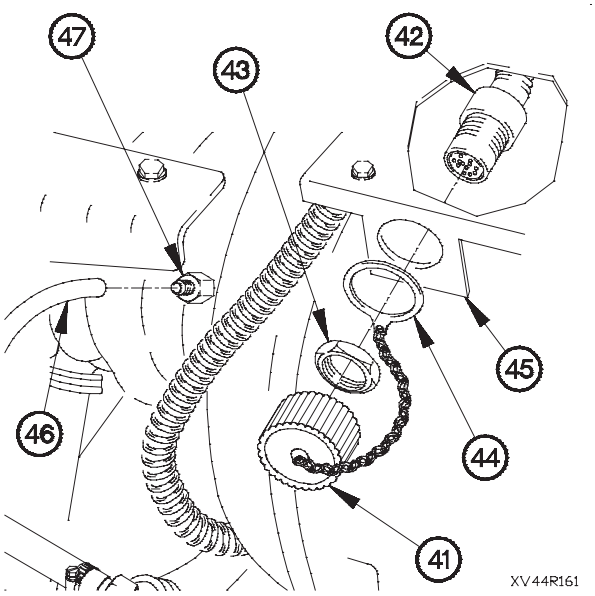
(50) Position washer (56) and screw (55) in resilient mount (57).

(51) Tighten screw (55) to 26-31 lb-ft (35-42 N·m).

(52) Tighten three self-locking nuts (52) to 35-51 lb-ft (47-69 N·m).



(53) Install particle extraction hose (49) on adapter (50) with clamp (48).



(54) Connect air filter restriction gauge hose (46) to air flow sensor (47).

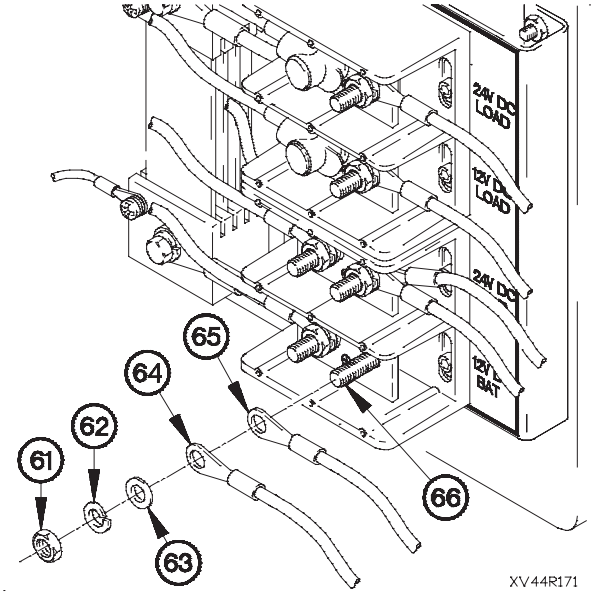
(55) Install connector J106 (42) and dust cap lanyard (44) on chemical detection unit mounting bracket (45) with nut (43).

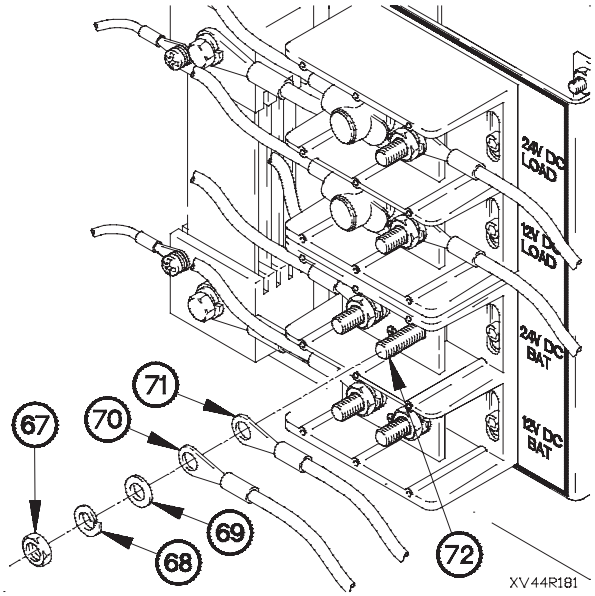
(56) Install dust cap (41) on connector J106 (42).

20-44. 200 AMP ALTERNATOR KIT REMOVAL (CONT)

(57) Remove nut (61), lockwasher (62), washer (63), and terminal lugs TL171 (64) and TL61 (65) from terminal block terminal (66). Discard lockwasher.

(58) Position washer (63), lockwasher (62), and nut (61) on terminal block terminal (66).



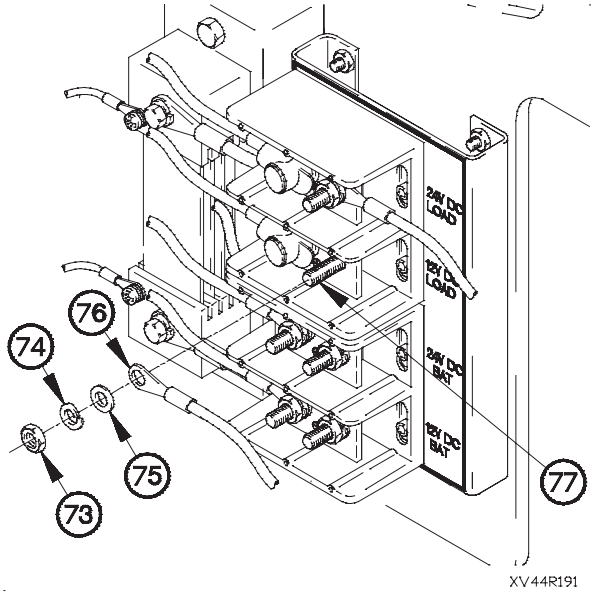


(59) Remove nut (67), lockwasher (68), washer (69), and terminal lugs TL1 (70) and TL166 (71) from terminal block terminal (72). Discard lockwasher.

(60) Position washer (69), lockwasher (68), and nut (67) on terminal block terminal (72).

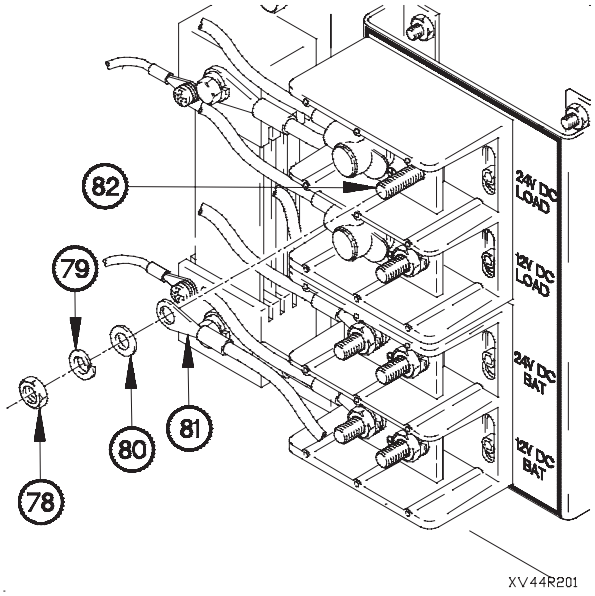
(61) Remove nut (73), lockwasher (74), washer (75), and terminal lug TL172 (76) from terminal block terminal (77). Discard lockwasher.

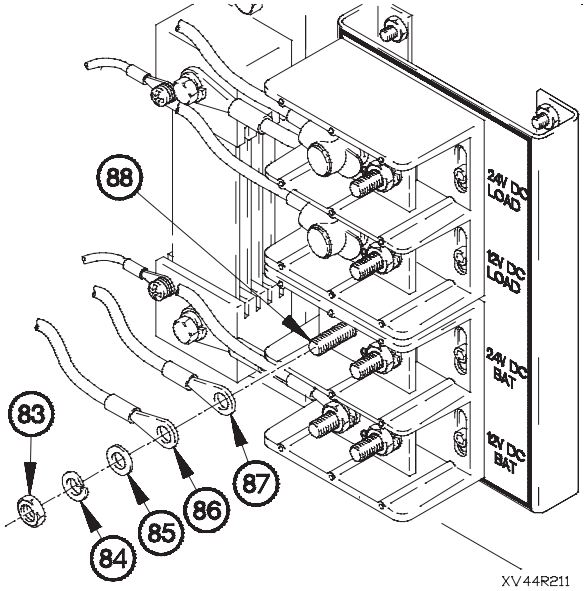
(62) Position washer (75), lockwasher (74), and nut (73) on terminal block terminal (77).



(63) Remove nut (78), lockwasher (79), washer (80), and terminal lug TL167 (81) from terminal block terminal (82). Discard lockwasher.

(64) Position washer (80), lockwasher (79), and nut (78) on terminal block terminal (82).



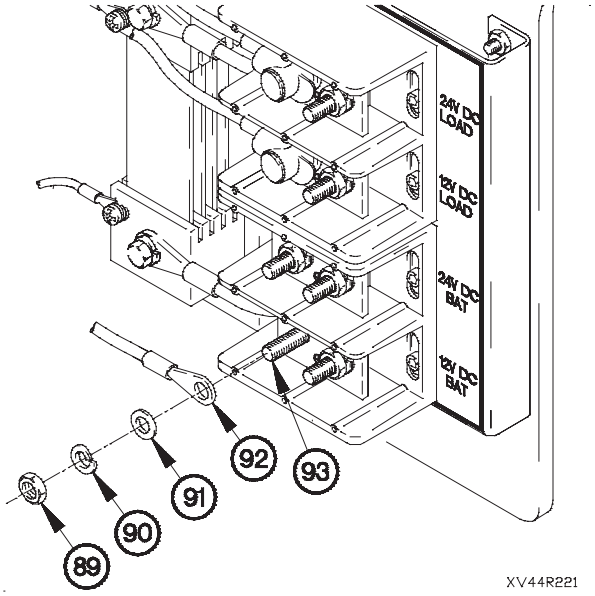


(65) Remove nut (83), lockwasher (84), washer (85), and terminal lugs TL37 (86) and TL36 (87) from terminal block terminal (88). Discard lockwasher.

(66) Position washer (85), lockwasher (84), and nut (83) on terminal block terminal (88).

(67) Remove nut (89), lockwasher (90), washer (91), and terminal lug TL47 (92) from terminal block terminal (93). Discard lockwasher.

(68) Position washer (91), lockwasher (90), and nut (89) on terminal block terminal (93).

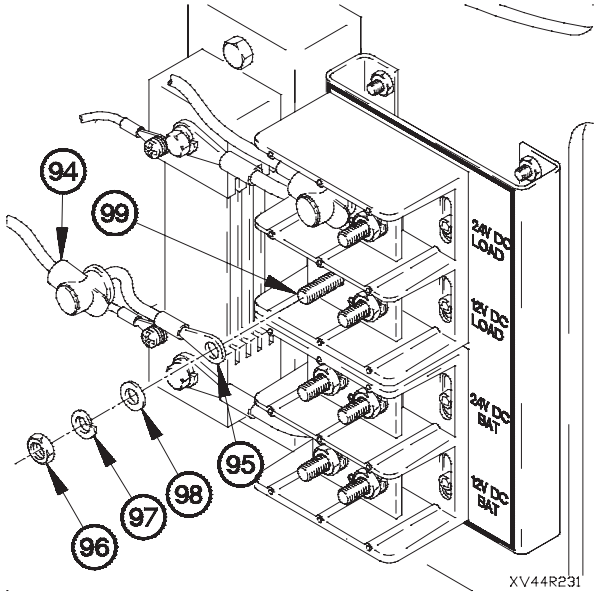


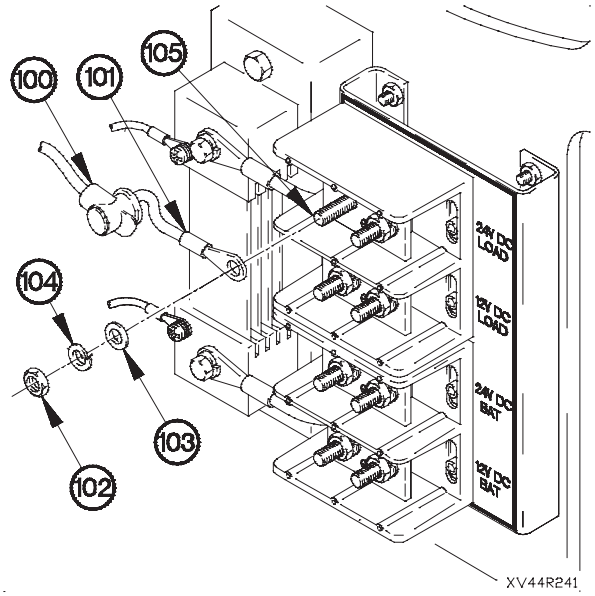
20-44. 200 AMP ALTERNATOR KIT REMOVAL (CONT)

(69) Lift dust boot (94) on terminal lug TL80 (95).

(70) Remove nut (96), lockwasher (97), washer (98), and terminal lug TL80 (95) from terminal block terminal (99). Discard lockwasher.

(71) Position washer (98), lockwasher (97), and nut (96) on terminal block terminal (99).



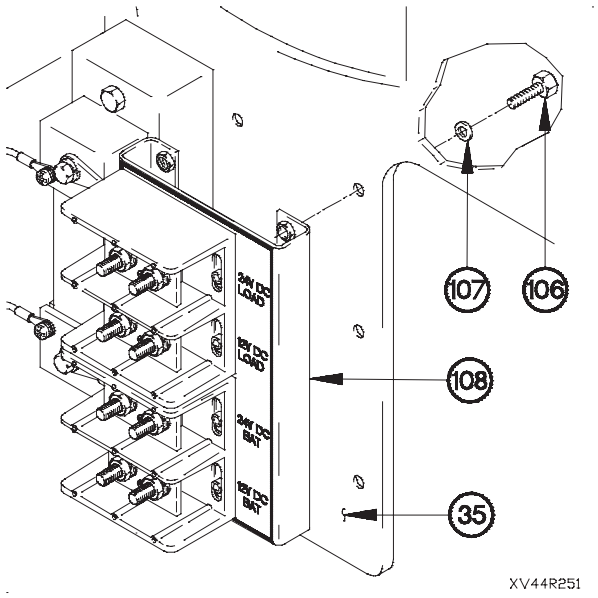


(72) Lift dust boot (100) on terminal lug TL44 (101).

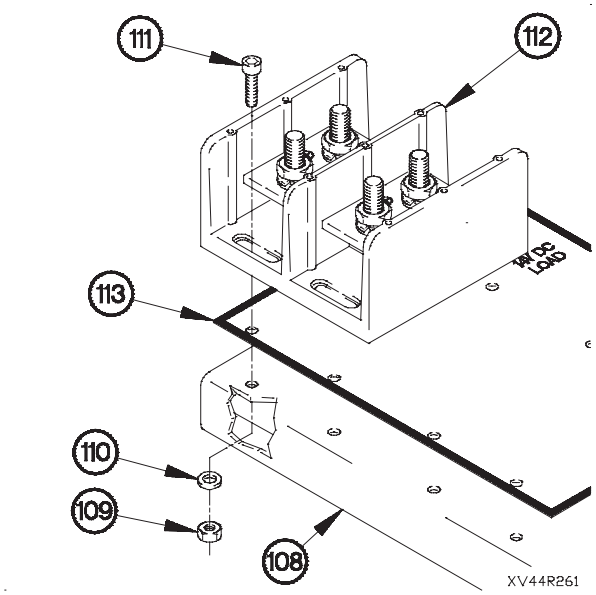
(73) Remove nut (102), lockwasher (103), washer (104), and terminal lug TL44 (101) from terminal block terminal (105). Discard lockwasher.

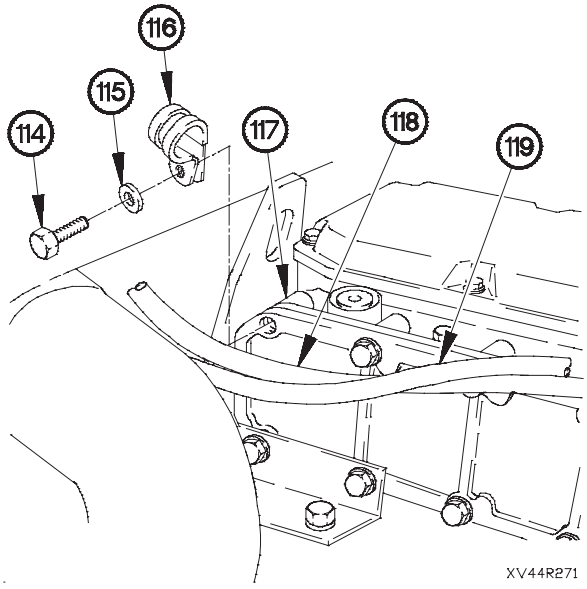
(74) Position washer (104), lockwasher (103), and nut (102) on terminal block terminal (105).

(75) Remove four screws (106), washers (107), and bracket (108) from spare tire retainer (35).



(76) Remove eight self-locking nuts (109), washers (110), screws (111), two terminal blocks (112) and identification plate (113) from bracket (108). Discard self-locking nuts.





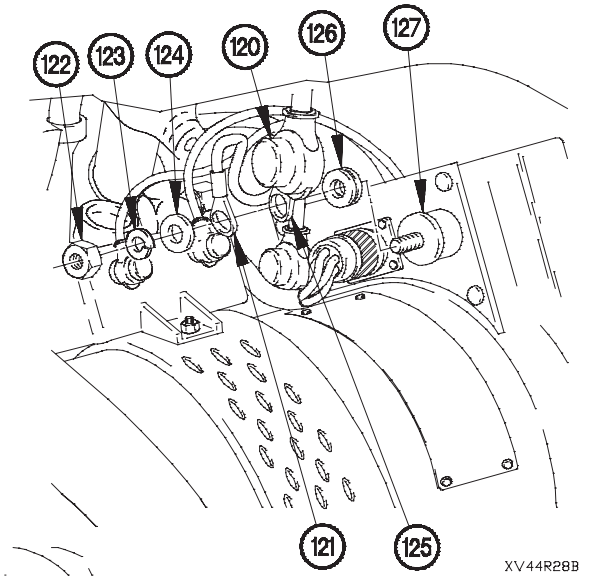
(77) Remove three screws (114), washers (115), and clamps (116) from air inlet manifold (117).

(78) Remove three clamps (116) from 12vdc cable (118) and 24vdc cable (119).

(79) Lift dust boot (120) on terminal lug TL6 (121).

(80) Remove nut (122), lockwasher (123), washer (124), and terminal lugs TL6 (121), TL2 (125) and fuse link (126) from alternator terminal (127). Discard lockwasher.

(81) Position fuse link (126), washer (124), lockwasher (123), and nut (122) on alternator terminal (127).

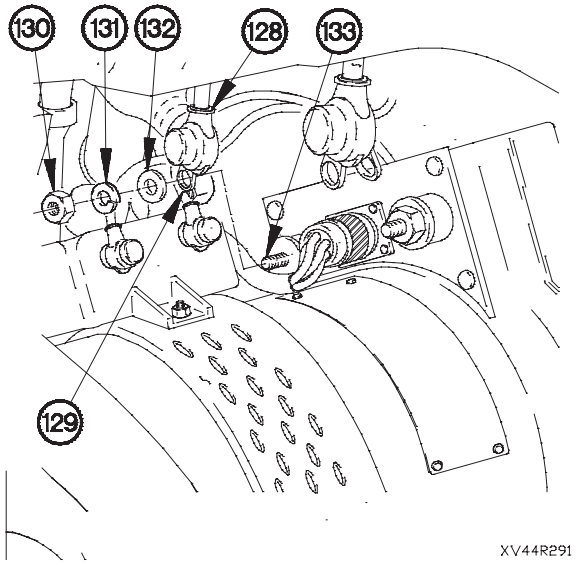


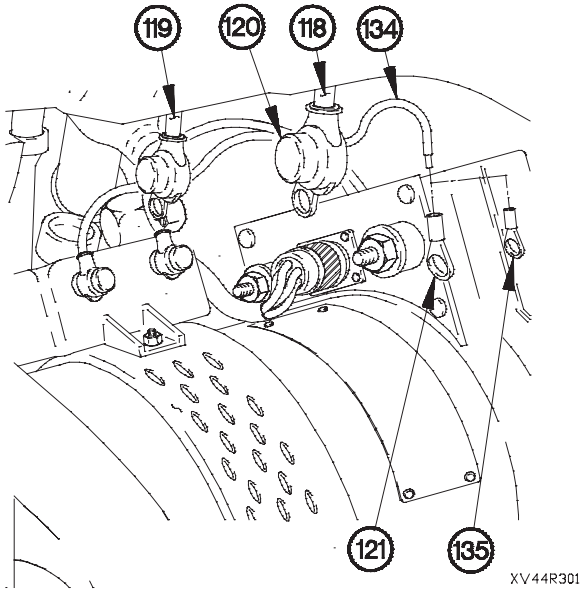
20-44. 200 AMP ALTERNATOR KIT REMOVAL (CONT)

(82) Lift dust boot (128) on terminal lug TL60 (129).

(83) Remove nut (130), lockwasher (131), washer (132), and terminal lug TL60 (129) from alternator terminal (133). Discard lockwasher.

(84) Position washer (132), lockwasher (131), and nut (130) on alternator terminal (133).





(85) Remove terminal lug TL6 (121) from wire (134). Discard terminal lug.

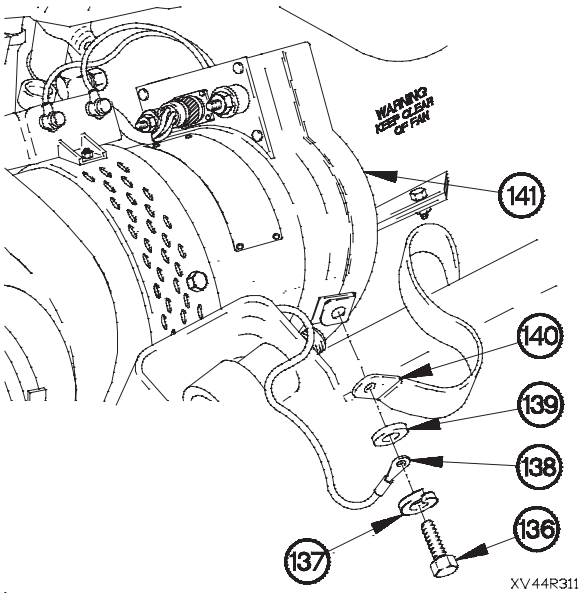
(86) Remove wire (134) from dust boot (120).

(87) Install terminal lug TL6 (135) on wire (134).

(88) Remove 12vdc cable (118) and 24vdc cable (119) from vehicle.

(89) Remove screw (136), lockwasher (137), terminal lug TL5 (138), washer (139), and ground strap (140) from alternator (141). Discard lockwasher.

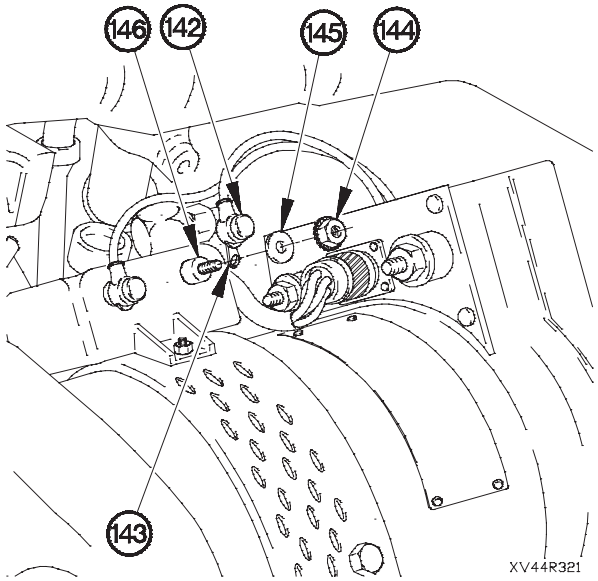
(90) Position washer (139), lockwasher (137), and screw (136) in alternator (141).

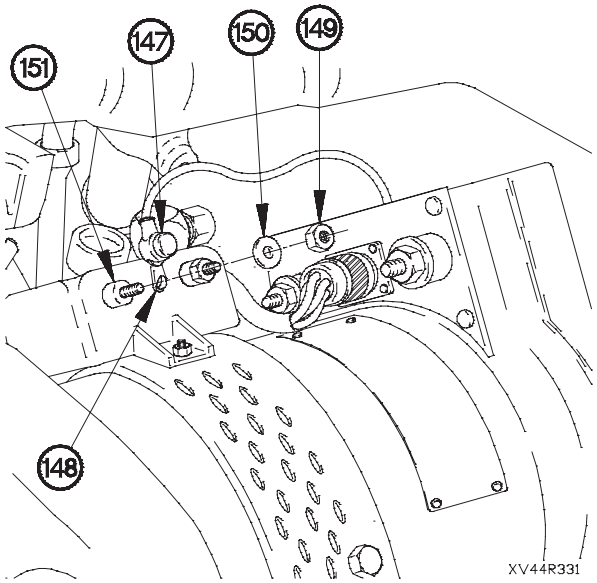


(91) Lift dust boot (142) on terminal lug TL35 (143).

(92) Remove self-locking nut (144), washer (145), and terminal lug TL35 (143) from voltage regulator terminal (146). Discard self-locking nut.

(93) Position washer (145) and self-locking nut (144) on voltage regulator terminal (146).





(94) Lift dust boot (147) on terminal lug TL110 (148).

(95) Remove self-locking nut (149), washer (150), and terminal lug TL110 (148) from voltage regulator terminal (151). Discard self-locking nut.

(96) Position washer (150) and self-locking nut (149) on voltage regulator terminal (151).

(97) Remove nut (152), washer (153), screw (154), and washer (155) from alternator (141).

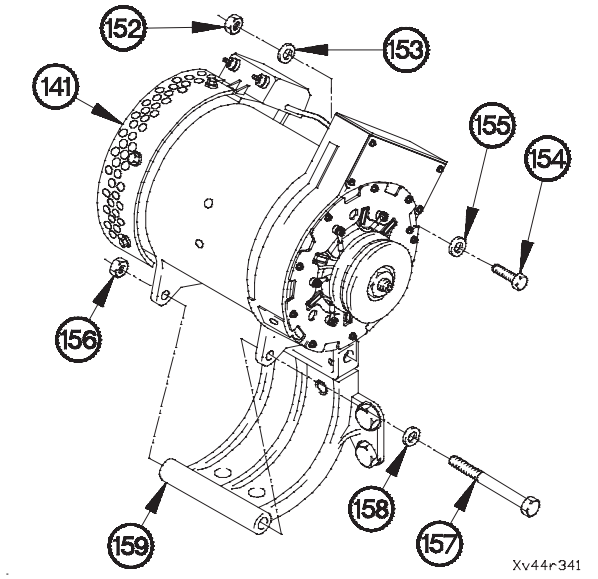
WARNING

200 amp alternator weighs approximately 72 lbs (33 kgs). The aid of an assistant is required to remove 200 amp alternator. Failure to comply may result in injury to personnel.

NOTE

Step (98) requires the aid of an assistant.

(98) Remove nut (156), screw (157), washer (158), and alternator (141) from alternator bracket (159).



20-44. 200 AMP ALTERNATOR KIT REMOVAL (CONT)

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.

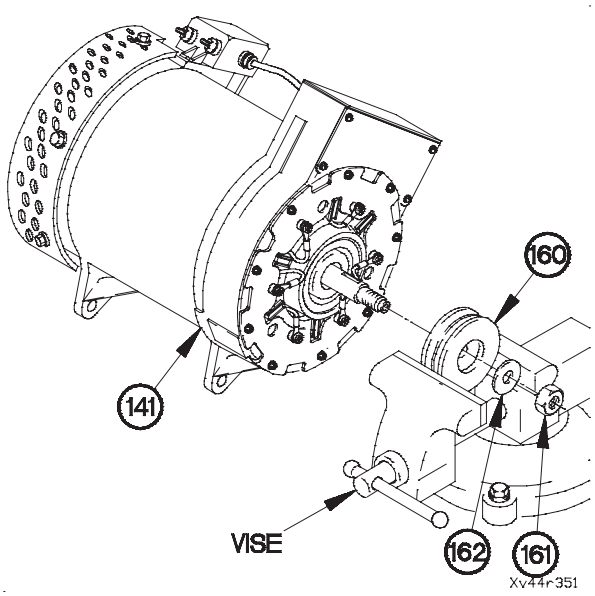
(99) Position pulley (160) in vise.

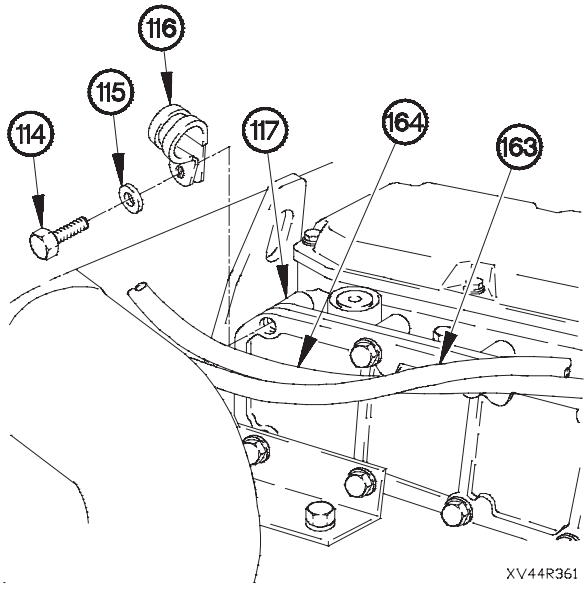
(100) Loosen self-locking nut (161).

(101) Remove pulley (160) from vise.

(102) Remove self-locking nut (161), washer (162), and pulley (160) from alternator (141). Discard self-locking nut.

(103) Position washer (162) and self-locking nut (161) on alternator (141).





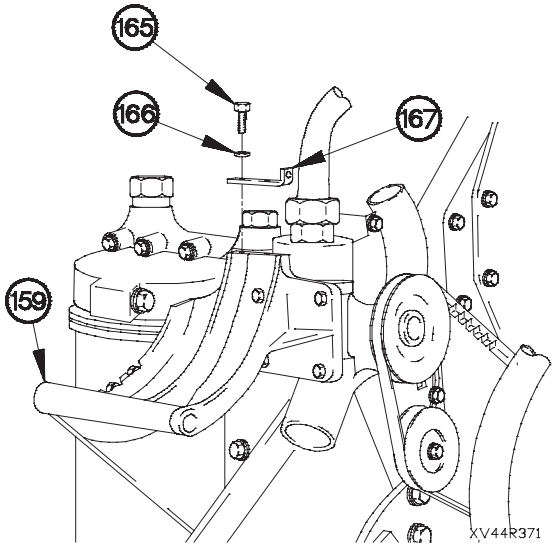
(104) Position three clamps (116) on 12vdc cable (163) and 24vdc cable (164).

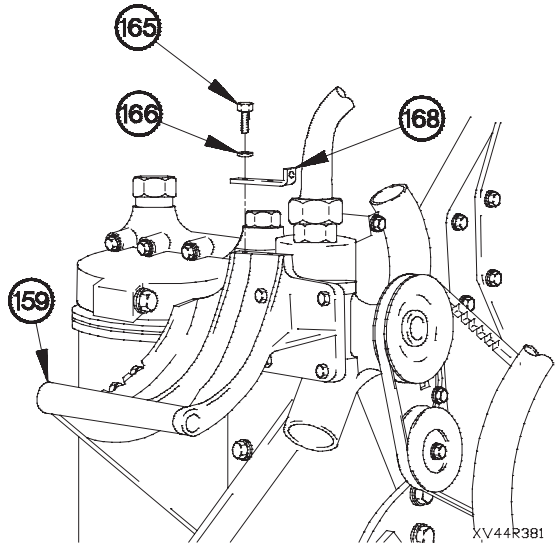
(105) Position three clamps (116) on air inlet manifold (117) with three washers (115) and screws (114).

(106) Tighten three screws (114) to 22-27 lb-ft (31-37 N·m).

(107) Position 12vdc cable (163) and 24 vdc cable (164) on vehicle.

(108) Remove two screws (165),lockwashers (166), and belt adjusting arm (167) from alternator bracket (159). Discard lockwashers.





(109) Position belt adjusting arm (168) on alternator bracket (159) with two lockwashers (166) and screws (165).

(110) Tighten two screws (165) to 25-32 lb-ft (35-43 N·m).

b. Follow-On Maintenance.

(1) Install 100 amp reverse polarity relay (para 7-30).

(2) Install 100 amp alternator (para 7-2).

(3) Raise spare tire (TM 9-2320-366-10-2).

(4) Lower cab (TM 9-2320-366-20-1).

(5) Connect batteries (para 7-57).

(6) Start engine (TM 9-2320-366-10-1).

(7) Check VOLTS gage for charge indication (TM 9-2320-366-10-1).

(8) Shut down engine (TM 9-2320-366-10-1).

End of Task.

20-45. 200 AMP ALTERNATOR REPLACEMENT

This task covers:

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

INITIAL SETUP

Equipment Conditions
Batteries disconnected (para 7-57).
Alternator belts removed (para 7-3).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Sling, Cargo (Item 31, Appendix C)
Vise, Machinist (Item 48, Appendix C)
Caps, Vise Jaw (Item 4, Appendix C)
Wrench, Torque, 0-175 lb-ft (Item 58, Appendix C)
Wrench, Torque, 0-200 lb-in. (Item 59, Appendix C)
Socket Set, Socket Wrench (Item 34, Appendix C)

Materials/Parts
Dispenser, Pressure Sensitive Adhesive Tape (Item 20, Appendix D)
Nut, Self-Locking (Item 153, Appendix G)

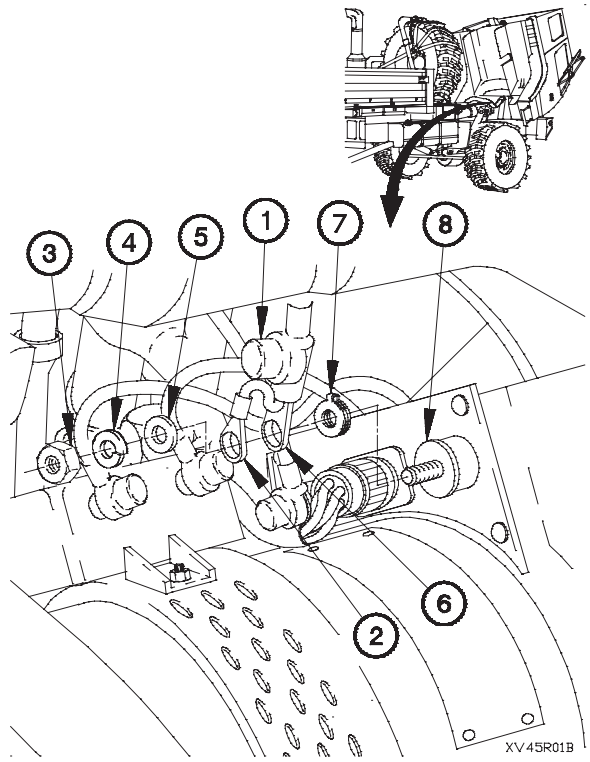
Personnel Required
(2)

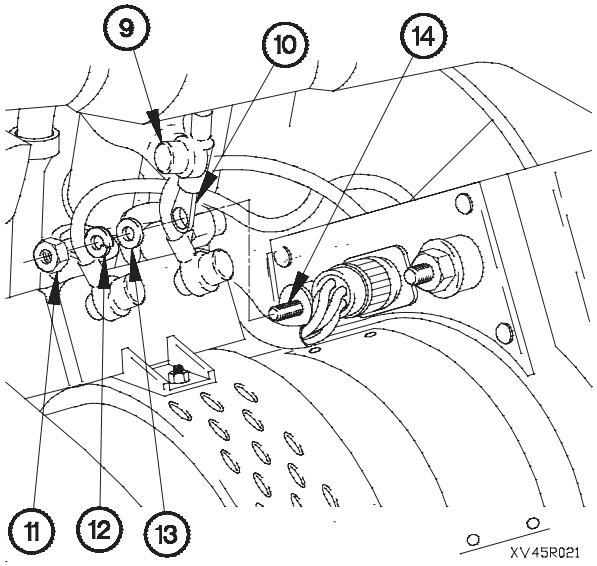
a. Removal.

(1) Lift dust boot (1) on terminal lug TL6 (2).

(2) Remove nut (3), lockwasher (4), washer (5), terminal lugs TL6 (2) TL2 (6) and fuse link (7) from alternator terminal (8).

(3) Position fuse link (7), washer (5), lockwasher (4), and nut (3) on alternator terminal (8).





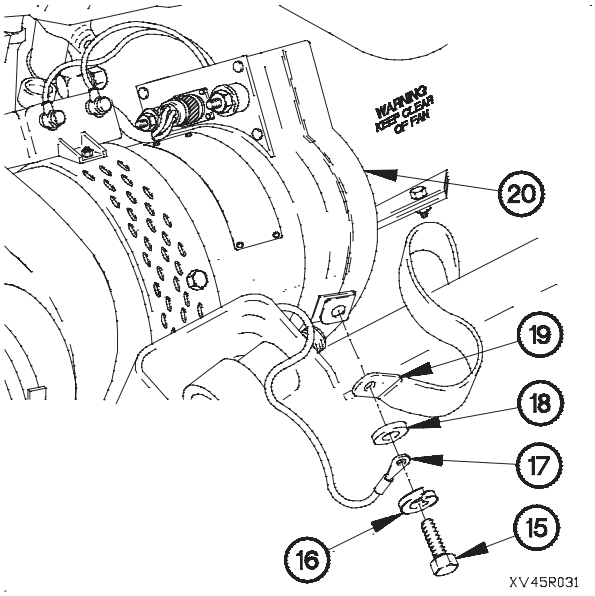
(4) Lift dust boot (9) on terminal lug TL60 (10).

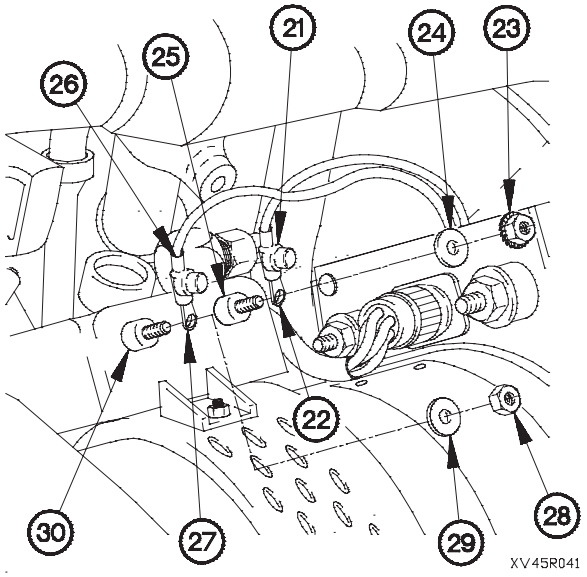
(5) Remove nut (11), lockwasher (12), washer (13), and terminal lug TL60 (10) from alternator terminal (14).

(6) Position washer (13), lockwasher (12) and nut (11) on alternator terminal (14).

(7) Remove screw (15), lockwasher (16), terminal lug TL5 (17), washer (18), and ground strap (19) from alternator (20).

(8) Position washer (18), lockwasher (16), and screw (15) on alternator (20).





(9) Lift dust boot (21) on terminal lug TL35 (22).

(10) Remove self-locking nut (23), washer (24), and terminal lug TL35 (22) from voltage regulator terminal (25).

(11) Position washer (24) and self-locking nut (23) on voltage regulator terminal (25).

(12) Lift dust boot (26) on terminal lug TL110 (27).

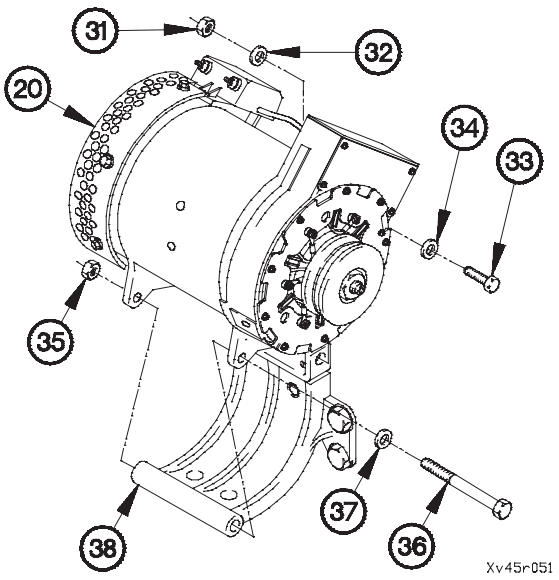
(13) Remove self-locking nut (28), washer (29), and terminal lug TL110 (27) from voltage regulator terminal (30).

(14) Position washer (29) and self-locking nut (28) on voltage regulator terminal (30).

20-45. 200 AMP ALTERNATOR REPLACEMENT (CONT)

(15) Remove nut (31), washer (32), screw (33), and washer (34) from alternator (20).

(16) Remove self-locking nut (35), screw (36), and washer (37) from alternator (20)



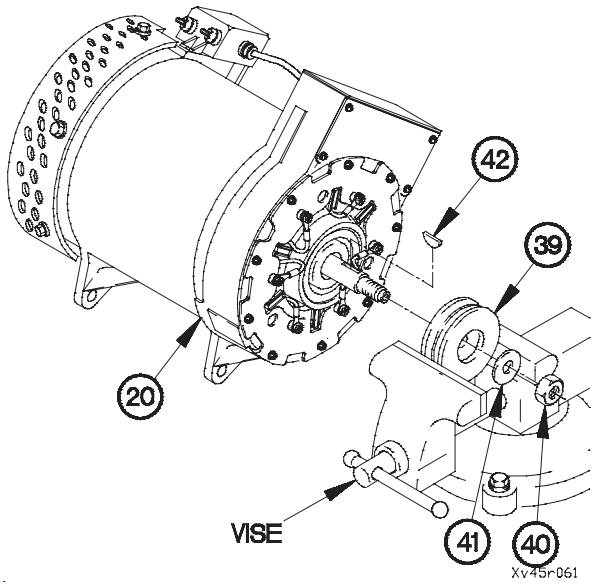
WARNING

Alternator weighs approximately 70 lbs (32 kgs). Attach a suitable lifting device prior to removal. Failure to comply may result in injury to personnel.

NOTE

Step (17) requires the aid of an assistant.

(17) Remove alternator (20) from alternator support bracket (38).



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.

(18) Position pulley (39) in vise.

(19) Loosen self-locking nut (40).

(20) Remove pulley (39) from vise.

(21) Remove self-locking nut (40), washer (41), pulley (39), and key (42) from alternator (20).

(22) Position washer (41) and self-locking nut (40) on alternator (20).

b. Installation.

(1) Remove self-locking nut (1) and washer (2) from alternator (3).

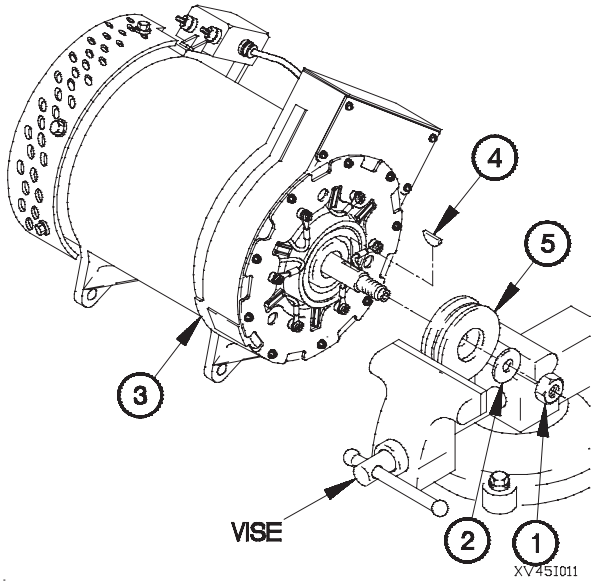
CAUTION

Ensure pulley does not contact wires, terminal lugs, or terminal screws on front of alternator. Failure to comply will result in damage to equipment.

(2) Position key (4) and pulley (5) on alternator (3) with washer (2) and self-locking nut (1).

CAUTION

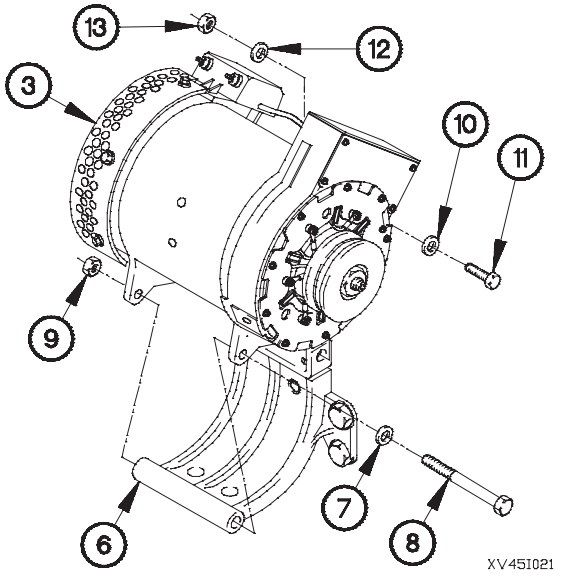
Alternator pulley must be positioned in a vise equipped with vise jaw caps when tightening self-locking nut. Failure to comply may result in damage to equipment.



(3) Position pulley (5) in vise.

(4) Tighten self-locking nut (1) to 106-130 lb-ft (144-176 N·m).

(5) Remove pulley (5) from vise.



WARNING

Alternator weighs approximately 70 lbs (32 kgs). Attach a suitable lifting device prior to installation. Failure to comply may result in injury to personnel.

NOTE

Step (6) requires the aid of an assistant.

(6) Position alternator (3) on alternator support bracket (6) with washer (7), screw (8), and self-locking nut (9).

(7) Position washer (10), screw (11), washer (12), and nut (13) in alternator (3).

(8) Tighten nut (13) to 25-32 lb-ft (35-43 N·m).

(9) Tighten self-locking nut (9) to 45-55 lb-ft (61-75 N·m).

20-45. 200 AMP ALTERNATOR REPLACEMENT (CONT)

(10) Remove self-locking nut (14) and washer (15) from voltage regulator terminal (16).

(11) Position terminal lug TL110 (17) on voltage regulator terminal (16) with washer (15) and self-locking nut (14).

(12) Tighten self-locking nut (14) to 24 lb-in. (3 N·m).

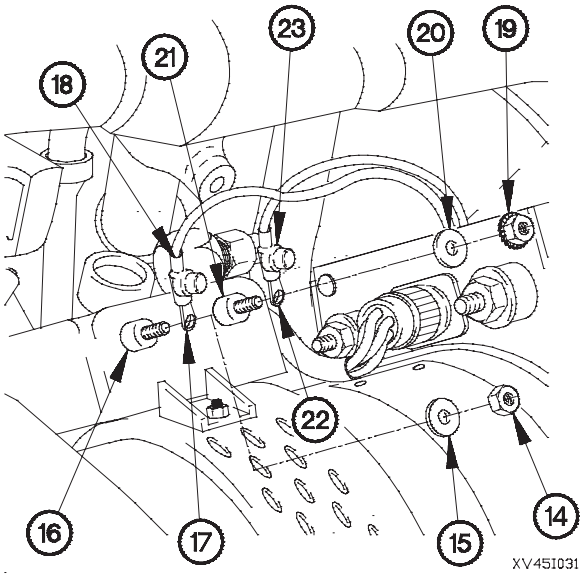
(13) Position dust boot (18) on terminal lug TL110 (17).

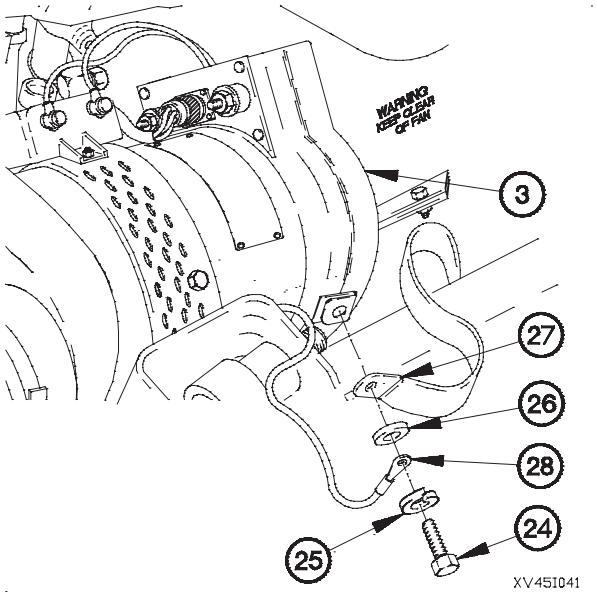
(14) Remove self-locking nut (19) and washer (20) from voltage regulator terminal (21).

(15) Position terminal lug TL35 (22) on voltage regulator terminal (21) with washer (20) and self-locking nut (19).

(16) Tighten self-locking nut (19) to 24 lb-in. (3 N·m).

(17) Position dust boot (23) on terminal lug TL35 (22).





(18) Remove screw (24), lockwasher (25), and washer (26) from alternator (3).

(19) Position ground strap (27), washer (26), and terminal lug TL5 (28) on alternator (3) with lockwasher (25) and screw (24).

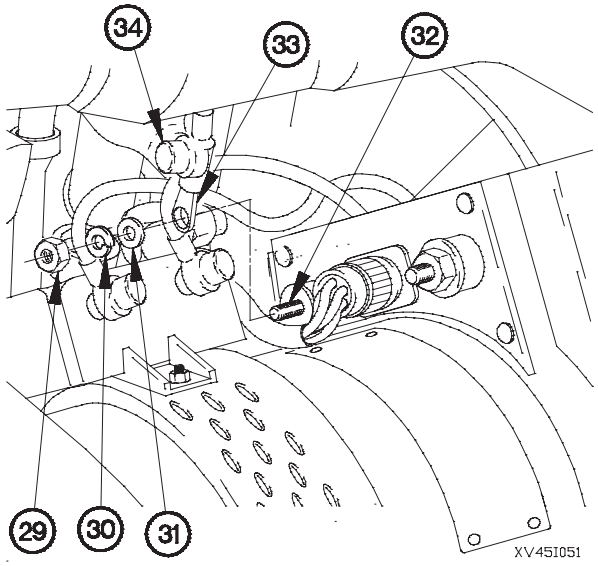
(20) Tighten screw (24) to 60-84 lb-in. (7-9 N·m).

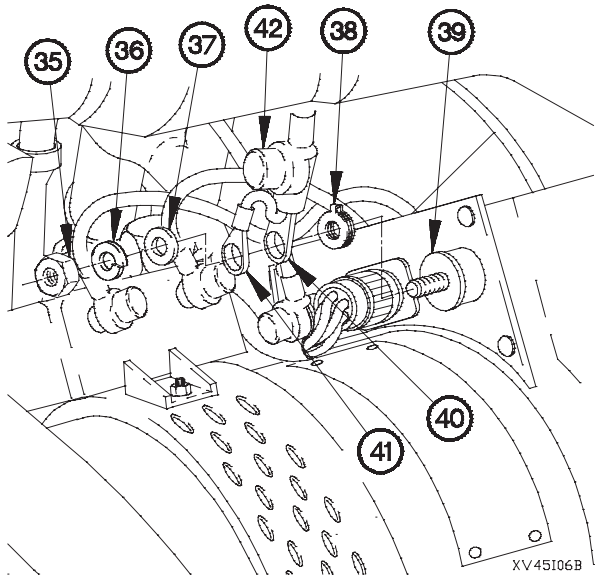
(21) Remove nut (29), lockwasher (30), and washer (31) from alternator terminal (32).

(22) Position terminal lug TL60 (33) on alternator terminal (32) with washer (31), lockwasher (30), and nut (29).

(23) Tighten nut (29) to 156-180 lb-in. (17-21 N·m).

(24) Position dust boot (34) on terminal lug TL60 (33).





(25) Remove nut (35), lockwasher (36), washer (37), and fuse link (38) from alternator terminal (39).

(26) Position fuse link (38), terminal lugs TL2 (40) and TL6 (41) on alternator terminal (39) with washer (37), lockwasher (36), and nut (35).

(27) Tighten nut (35) to 156-180 lb-in. (17-21 N·m).

(28) Position dust boot (42) on terminal lug TL6 (41).

c. Follow-On Maintenance.

(1) Install alternator belts (para 7-3).

(2) Connect batteries (para 7-57).

(3) Start engine (TM 9-2320-366-10-1).

(4) Check VOLTS gage for charge indication (TM 9-2320-366-10-1).

(5) Shut down engine (TM 9-2320-366-10-1).

End of Task.

20-46. 200 AMP VOLTAGE REGULATOR REPLACEMENT

This task covers:

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

INITIAL SETUP

Equipment Conditions
Cab raised (TM 9-2320-366-10-1).
Batteries disconnected (para 7-57).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Wrench, Torque, 0-200 lb-in. (Item 59, Appendix C)
Socket Set, Socket Wrench (Item 36, Appendix C)

Materials/Parts
Sealing Compound (Item 59, Appendix D)
Lockwasher (2) (Item 104, Appendix G)
Nut, Self-Locking (Item 143, Appendix G)
Nut, Self-Locking (Item 144, Appendix G)

a. Removal.

NOTE

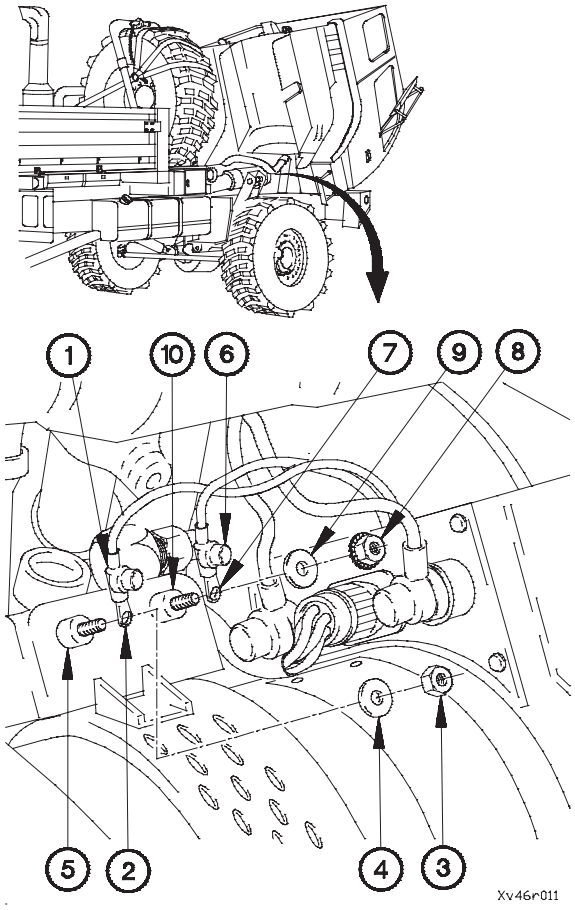
Tag terminal lugs and connection points prior to removal.

(1) Lift dust boot (1) on terminal lug TL110 (2).

(2) Remove self-locking nut (3), washer (4), and terminal lug TL110 (2) from voltage regulator terminal (5). Discard self-locking nut.

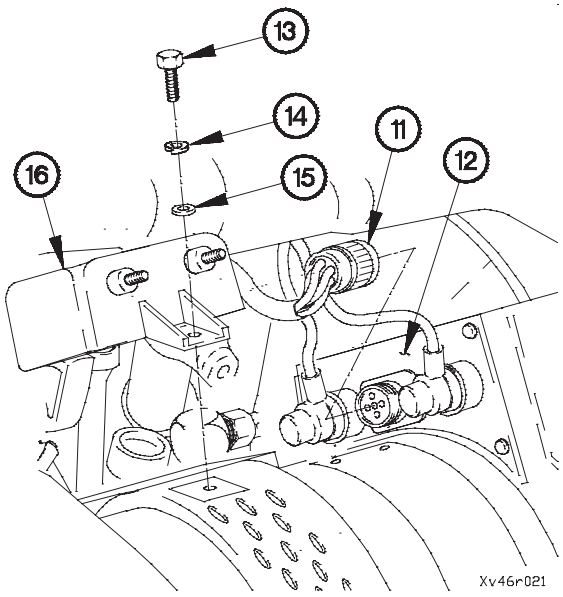
(3) Lift dust boot (6) on terminal lug TL35 (7).

(4) Remove self-locking nut (8), washer (9), and terminal lug TL35 (7) from voltage regulator terminal (10). Discard self-locking nut.

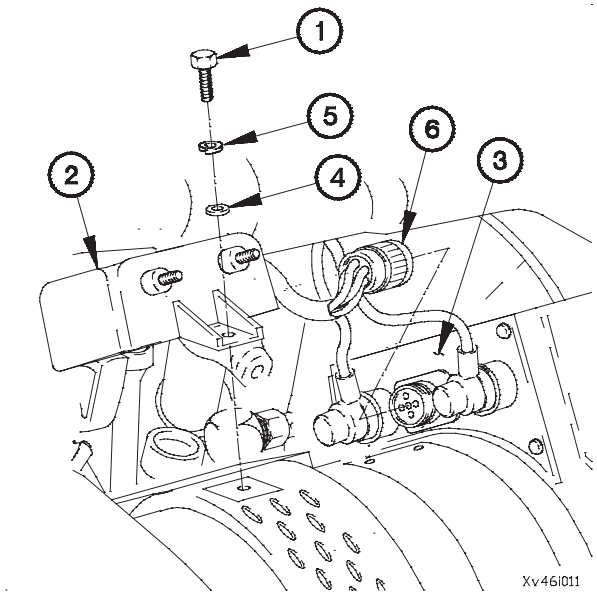


(5) Disconnect voltage regulator connector (11) from alternator (12).

(6) Remove two screws (13), lockwashers (14), washers (15) and voltage regulator (16) from alternator (12). 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.

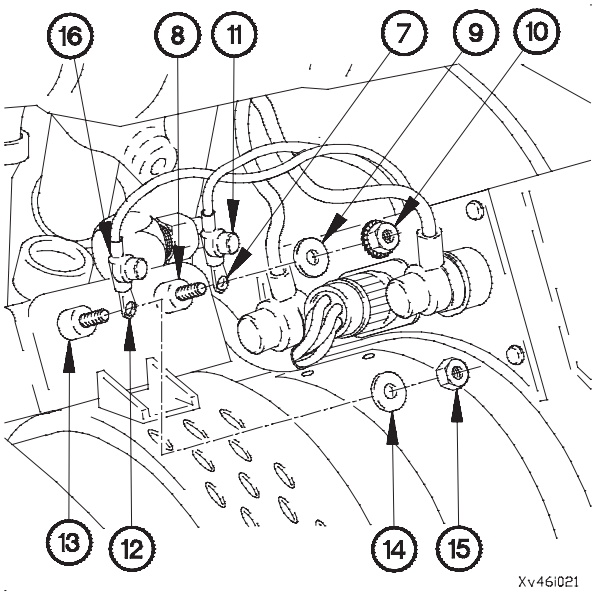
(1) Apply sealing compound to threads of two screws (1).

(2) Position voltage regulator (2) on alternator (3) with two washers (4), lockwashers (5), and screws (1).

(3) Tighten two screws (1) to 75 lb-in. (8 N·m).

(4) Connect voltage regulator connector (6) to alternator (3).

20-46. 200 AMP VOLTAGE REGULATOR REPLACEMENT (CONT)



(5) Position terminal lug TL35 (7) on voltage regulator terminal (8) with washer (9) and self-locking nut (10).

(6) Tighten self-locking nut (10) to 25 lb-in. (3 N·m).

(7) Position dust boot (11) on terminal lug TL35 (7).

(8) Position terminal lug TL110 (12) on voltage regulator terminal (13) with washer (14) and self-locking nut (15).

(9) Tighten self-locking nut (15) to 25 lb-in. (3 N·m).

(10) Position dust boot (16) on terminal lug TL110 (12).

c. Follow-On Maintenance.

(1) Lower cab (TM 9-2320-366-10-1).

(2) Connect batteries (para 7-57).

(3) Start engine (TM 9-2320-366-10-1).

(4) Check VOLTS gage for charge indication (TM 9-2320-366-10-1).

(5) Shut down engine (TM 9-2320-366-10-1).

End of Task.

20-47. 200 AMP REVERSE POLARITY RELAY REPLACEMENT

This task covers:

a. Removal (All Models Except M1093/M1094)
b. Installation (All Models Except M1093/M1094)
c. Removal (M1093/M1094)
d. Installation (M1093/M1094)
e. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions
Spare tire lowered (TM 9-2320-366-10-2).
Batteries disconnected (para 7-57).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Wrench, Torque, 0-175 lb-ft (Item 58, Appendix C)
Wrench, Torque, 0-200 lb-in. (Item 59, Appendix C)
Socket Set, Socket Wrench (Item 36, Appendix C)

Material/Parts
Dispenser, Pressure Sensitive Adhesive Tape (Item 20, Appendix D)
Ties, Cable, Plastic (Item 69, Appendix D)
Lockwasher (2) (Item 72, Appendix G)
Lockwasher (2) (Item 73, Appendix G)
Nut, Self-Locking (2) (Item 155, Appendix G)

a. Removal (All Models Except M1093/M1094).

NOTE

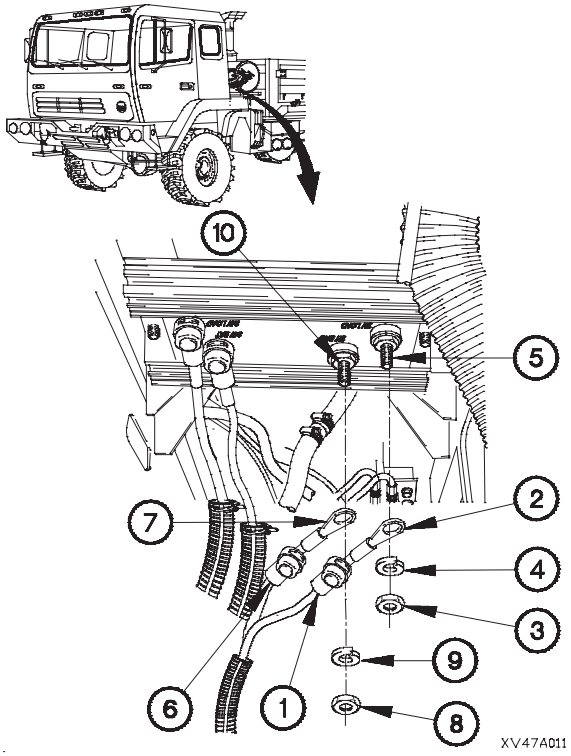
- Tag cables and connection points prior to disconnecting.
- Remove plastic cable ties as required.

(1) Lift dust boot (1) on terminal lug TL174 (2).

(2) Remove nut (3), lockwasher (4), and terminal lug TL174 (2) from reverse polarity relay 12V LOAD terminal (5). Discard lockwasher.

(3) Lift dust boot (6) on terminal lug TL173 (7).

(4) Remove nut (8), lockwasher (9), and terminal lug TL173 (7) from reverse polarity relay 12V BAT terminal (10). Discard lockwasher.



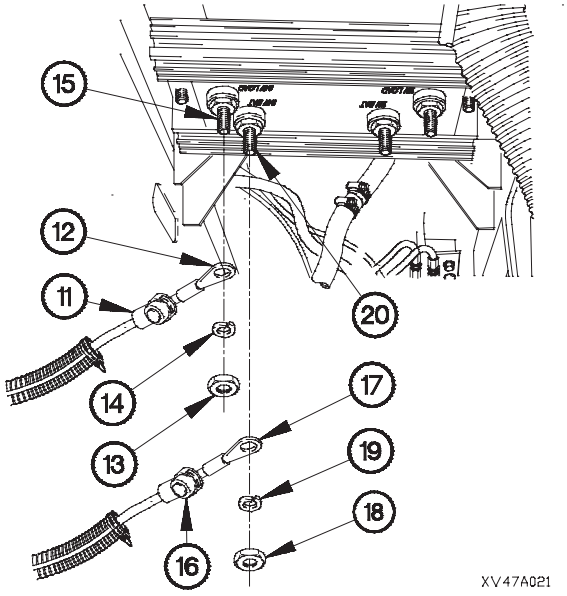
20-47. 200 AMP REVERSE POLARITY RELAY REPLACEMENT (CONT)

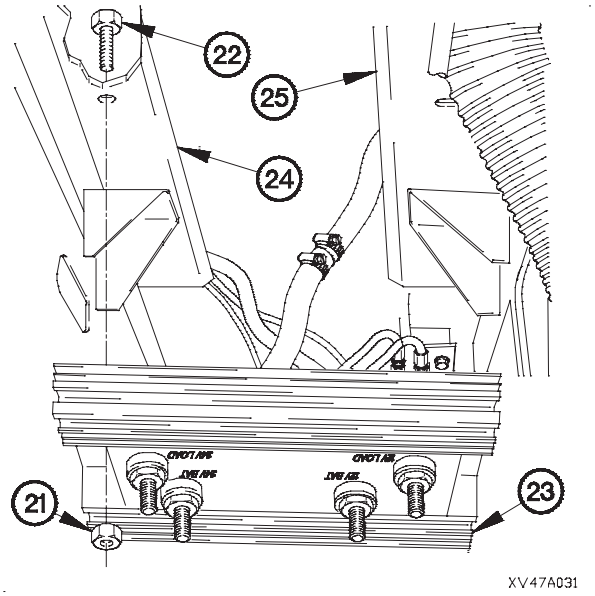
(5) Lift dust boot (11) on terminal lug TL169 (12).

(6) Remove nut (13), lockwasher (14), and terminal lug TL169 (12) from reverse polarity relay 24V LOAD terminal (15). Discard lockwasher.

(7) Lift dust boot (16) on terminal lug TL168 (17).

(8) Remove nut (18), lockwasher (19), and terminal lug TL168 (17) from reverse polarity relay 24V BAT terminal (20). Discard lockwasher.





NOTE

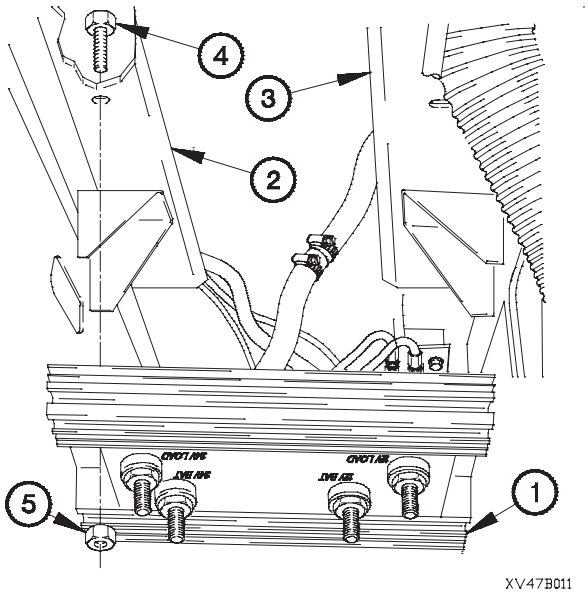
Note orientation of reverse polarity relay prior to removal.

(9) Remove two self-locking nuts (21), screws (22), and reverse polarity relay (23) from brackets (24 and 25). Discard self-locking nuts.

b. Installation (All Models Except M1093/M1094).

(1) Position reverse polarity relay (1) on brackets (2 and 3) with two screws (4) and self-locking nuts (5).

(2) Tighten two self-locking nuts (5) to 22-27 lb-ft (31-37 N·m).



NOTE

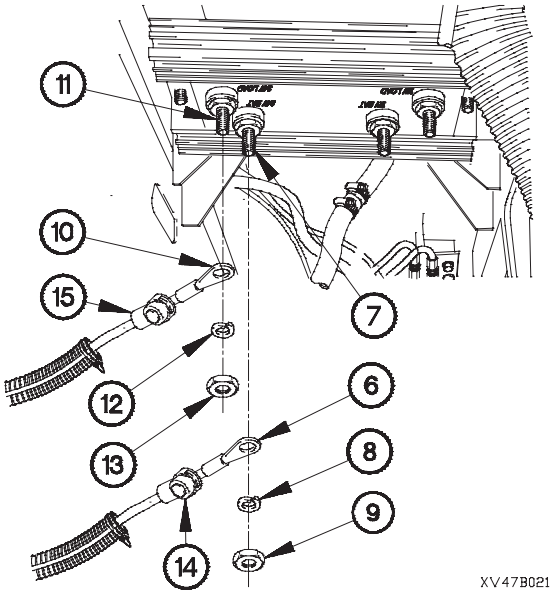
Install plastic cable ties as required.

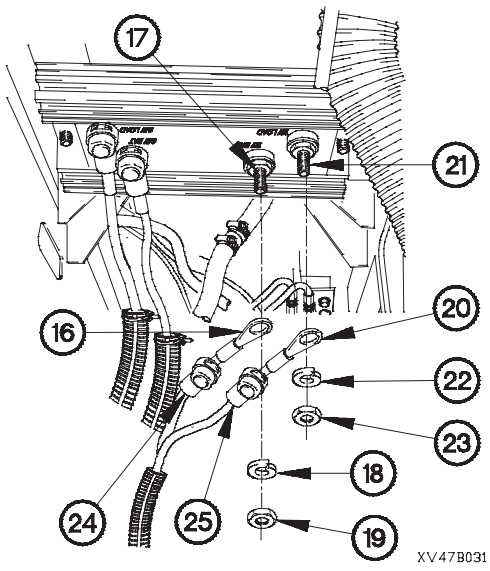
(3) Position terminal lug TL168 (6) on reverse polarity relay 24V BAT terminal (7) with lockwasher (8) and nut (9).

(4) Position terminal lug TL169 (10) on reverse polarity relay 24V LOAD terminal (11) with lockwasher (12) and nut (13).

(5) Tighten nuts (9 and 13) to 27-33 lb-ft (37-45 N·m).

(6) Position dust boots (14 and 15) on terminal lugs TL168 (6) and TL169 (10).





(7) Position terminal lug TL173 (16) on reverse polarity relay 12V BAT terminal (17) with lockwasher (18) and nut (19).

(8) Position terminal lug TL174 (20) on reverse polarity relay 12V LOAD terminal (21) with lockwasher (22) and nut (23).

(9) Tighten nuts (19 and 23) to 108-132 lb-in. (12-15 N·m).

(10) Position dust boots (24 and 25) on terminal lugs TL173 (16) and TL174 (20).

20-47. 200 AMP REVERSE POLARITY RELAY REPLACEMENT (CONT)

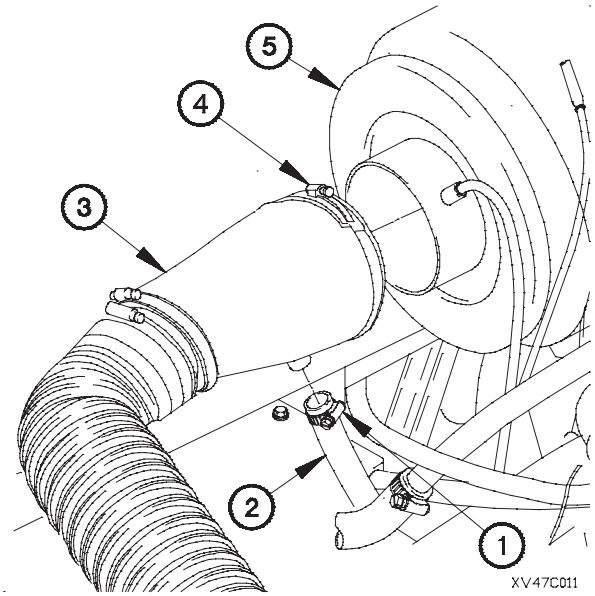
c. Removal (M1093/M1094).

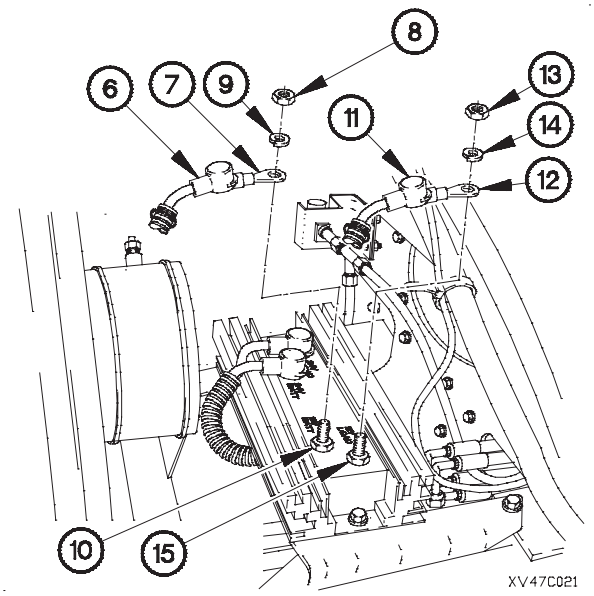
(1) Loosen clamp (1) on air compressor intake hose (2).

(2) Remove air compressor intake hose (2) from intake air cleaner boot (3).

(3) Loosen clamp (4) on intake air cleaner boot (3).

(4) Remove intake air cleaner boot (4) from intake air cleaner housing (5).





NOTE

- Tag cables and connection points prior to disconnecting.
- Remove plastic cable ties as required.

(5) Lift dust boot (6) on terminal lug TL173 (7).

(6) Remove nut (8), lockwasher (9), and terminal lug TL173 (7) from reverse polarity relay 12V BAT terminal (10). Discard lockwasher.

(7) Lift dust boot (11) on terminal lug TL174 (12).

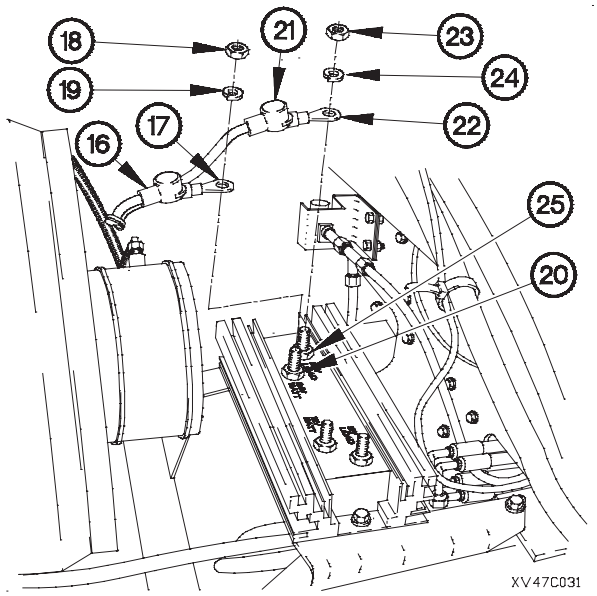
(8) Remove nut (13), lockwasher (14), and terminal lug TL174 (12) from reverse polarity relay 12V LOAD terminal (15). Discard lockwasher.

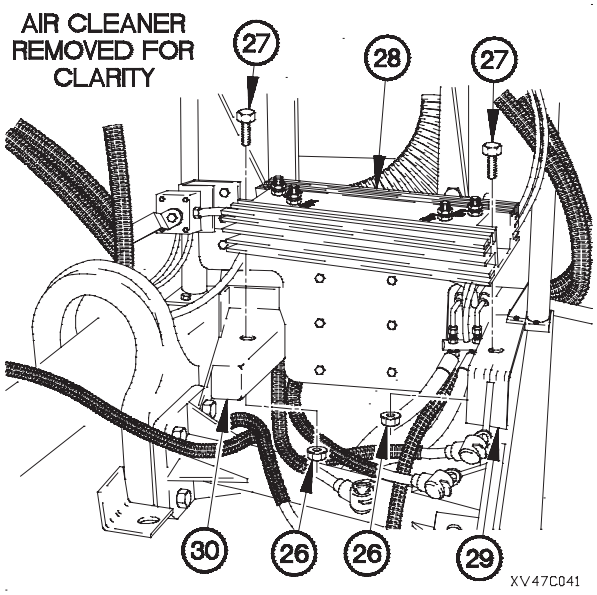
(9) Lift dust boot (16) on terminal lug TL168 (17).

(10) Remove nut (18), lockwasher (19), and terminal lug TL168 (17) from reverse polarity relay 24V BAT terminal (20). Discard lockwasher.

(11) Lift dust boot (21) on terminal lug TL169 (22).

(12) Remove nut (23), lockwasher (24), and terminal lug TL169 (22) from reverse polarity relay 24V LOAD terminal (25). Discard lockwasher.

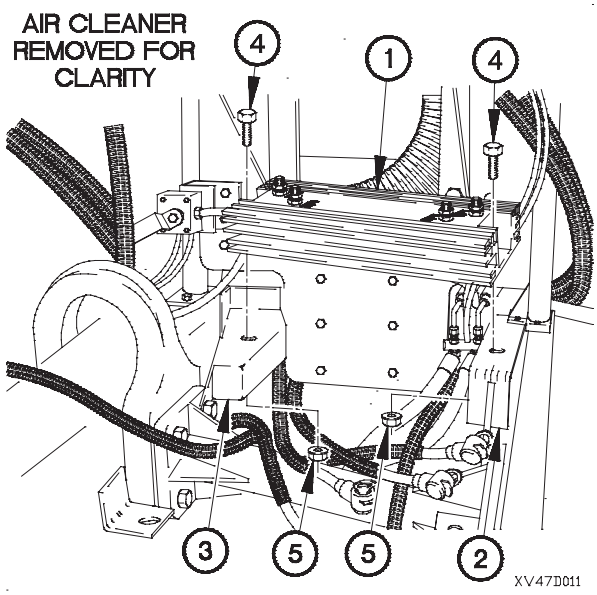




NOTE

Note orientation of reverse polarity relay prior to removal.

(13) Remove two self-locking nuts (26), screws (27), and reverse polarity relay (28) from brackets (29 and 30). Discard self-locking nuts.



d. Installation (M1093/M1094).

(1) Position reverse polarity relay (1) on brackets (2 and 3) with two screws (4) and self-locking nuts (5).

(2) Tighten two self-locking nuts (5) to 22-27 lb-ft (31-37 N·m).

20-47. 200 AMP REVERSE POLARITY RELAY REPLACEMENT (CONT)

NOTE

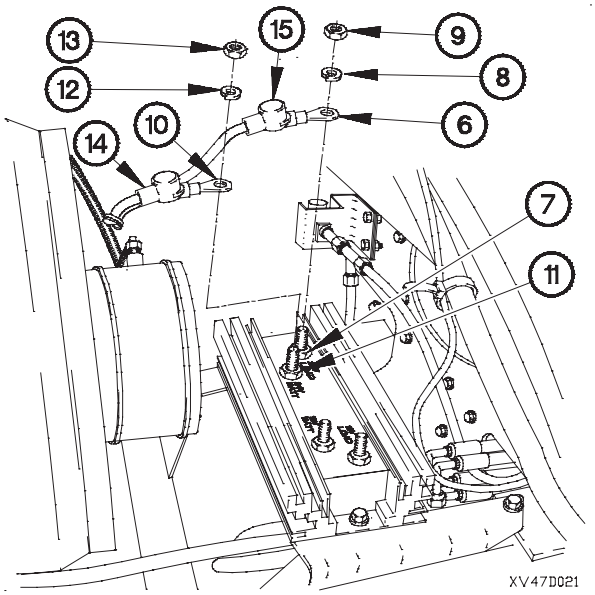
Install plastic cable ties as required.

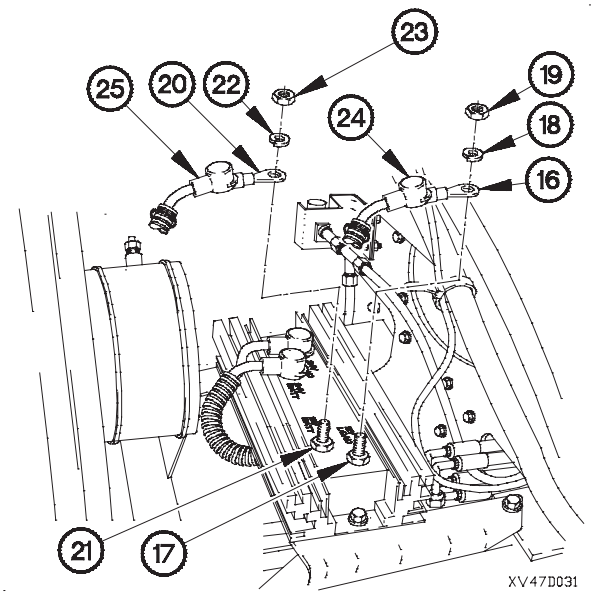
(3) Position terminal lug TL169 (6) on reverse polarity relay 24V LOAD terminal (7) with lockwasher (8) and nut (9).

(4) Position terminal lug TL168 (10) on reverse polarity relay 24V BAT terminal (11) with lockwasher (12) and nut (13).

(5) Tighten nuts (9 and 13) to 27-33 lb-ft (37-45 N·m).

(6) Position dust boots (14 and 15) on terminal lugs TL169 (6) and TL168 (10).





(7) Position terminal lug TL174 (16) on reverse polarity relay 12V LOAD terminal (17) with lockwasher (18) and nut (19).

(8) Position terminal lug TL173 (20) on reverse polarity relay 12V BAT terminal (21) with lockwasher (22) and nut (23).

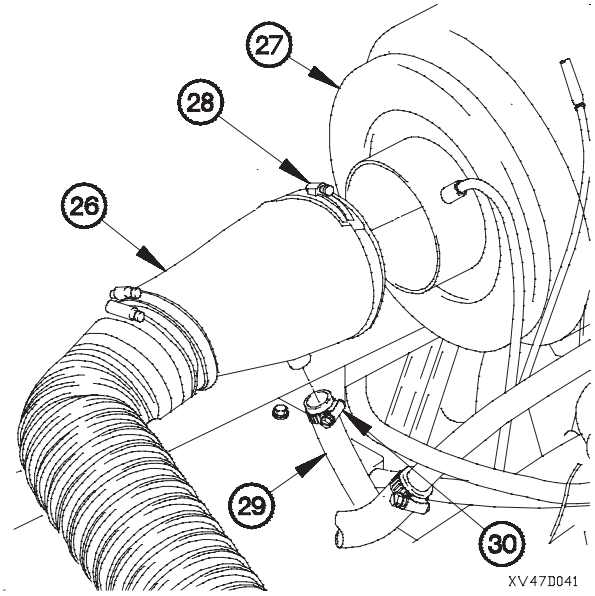
(9) Tighten nuts (19 and 23) to 108-132 lb-in. (12-15 N·m).

(10) Position dust boots (24 and 25) on terminal lugs TL174 (16) and TL173 (20).

(11) Position intake air cleaner boot (26) on intake air cleaner housing (27) with clamp (28).

(12) Position air compressor intake hose (29) on intake air cleaner boot (26) with clamp (30).

(13) Tighten clamps (28 and 30) to 36-48 lb-in. (4-5 N·m).



e. Follow-On Maintenance.

(1) Connect batteries (para 7-57).

(2) Raise spare tire (TM 9-2320-366-10-2).

(3) Start engine (TM 9-2320-366-10-1).

(4) Check VOLTS gage for charge indication (TM 9-2320-366-10-1).

(5) Shut down engine (TM 9-2320-366-10-1).

End of Task.

20-48. 200 AMP ALTERNATOR TO TERMINAL BLOCK 12 VDC CABLE REPLACEMENT

This task covers:

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

INITIAL SETUP

Equipment Conditions
Spare tire lowered (TM 9-2320-366-10-2).
Cab raised (TM 9-2320-366-10-1).
Batteries disconnected (para 7-57).

Materials/Parts
Ties, Cable, Plastic (Item 69, Appendix D)
Lockwasher (Item 96, Appendix G)
Lockwasher (Item 105, Appendix G)

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Wrench, Torque, 0-175 lb-ft (Item 58, Appendix C)
Wrench, Torque, 0-200 lb-in. (Item 59, Appendix C)
Socket Set, Socket Wrench (Item 34, Appendix C)

a. Removal.

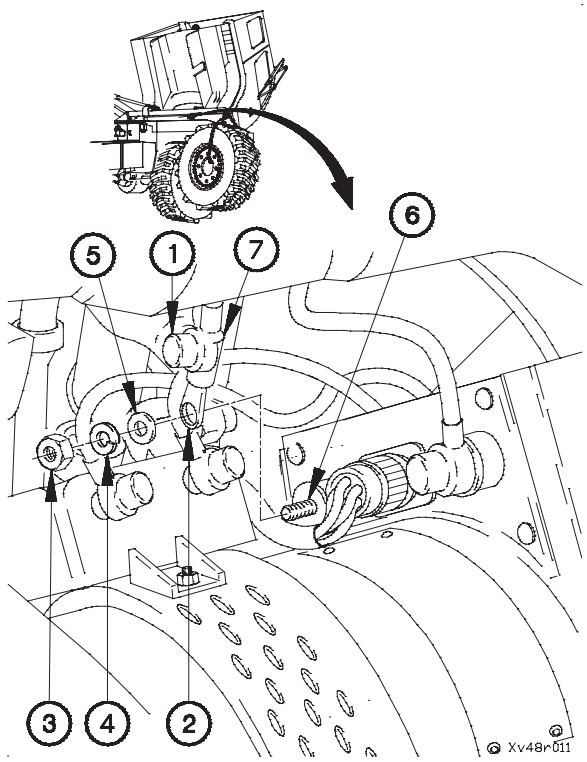
NOTE

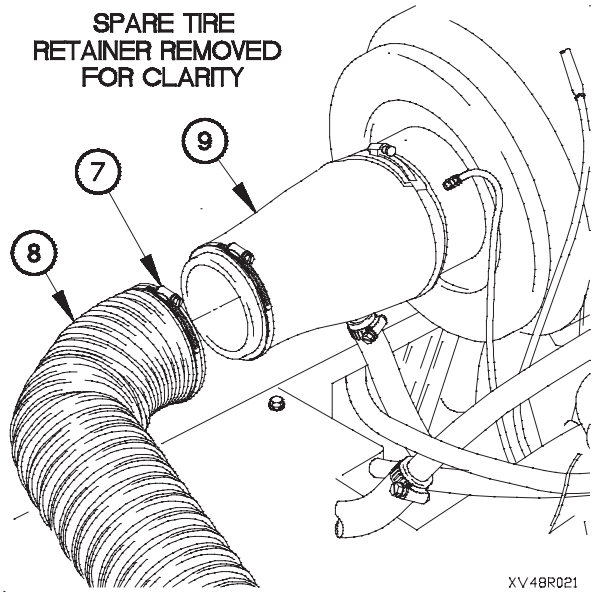
Remove plastic cable ties as required.

(1) Lift dust boot (1) on terminal lug TL60 (2).

(2) Remove nut (3), lockwasher (4), washer (5), and terminal lug TL60 (2) from alternator terminal (6). Discard lockwasher.

(3) Remove dust boot (1) from terminal lug TL60 (2).

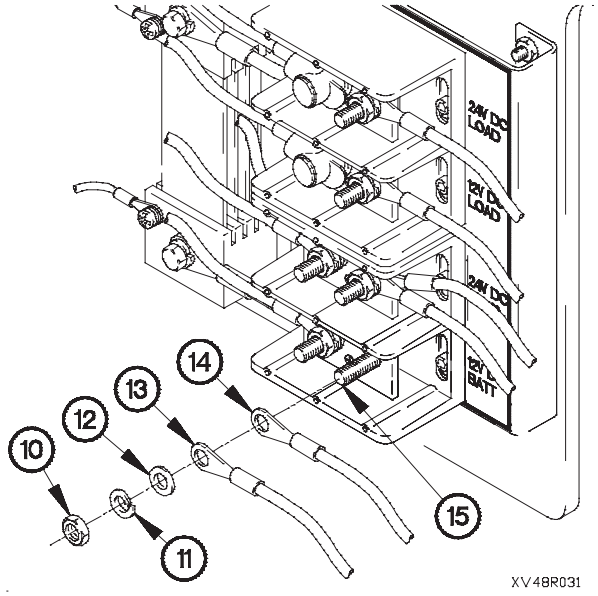


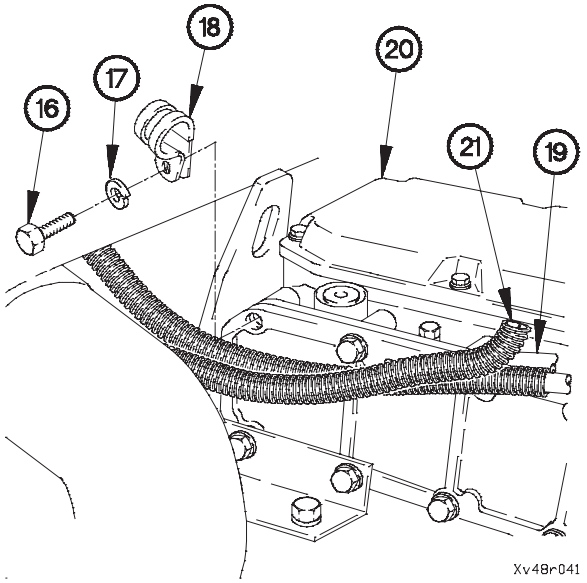


(4) Loosen clamp (7) on turbocharger intake hose (8).

(5) Remove turbocharger intake hose (8) from intake air cleaner boot (9).

(6) Remove nut (10), lockwasher (11), washer (12), and terminal lugs TL61 (13) and TL171 (14) from terminal block terminal (15). Discard lockwasher.





(7) Remove three screws (16), washers (17), clamps (18), and 200 amp alternator to terminal block 12 vdc cable (19) from engine (20).

(8) Remove convoluted tubing (21) from 200 amp alternator to terminal block 12 vdc cable (19).

b. Installation.

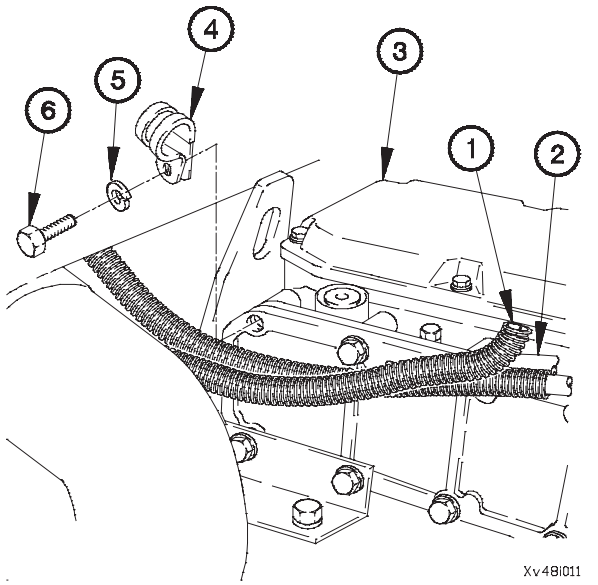
NOTE

Install plastic cable ties as required.

(1) Install convoluted tubing (1) on 200 amp alternator to terminal block 12 vdc cable (2).

(2) Position 200 amp alternator to terminal block 12 vdc cable (2) on engine (3) with three clamps (4), washers (5), and screws (6).

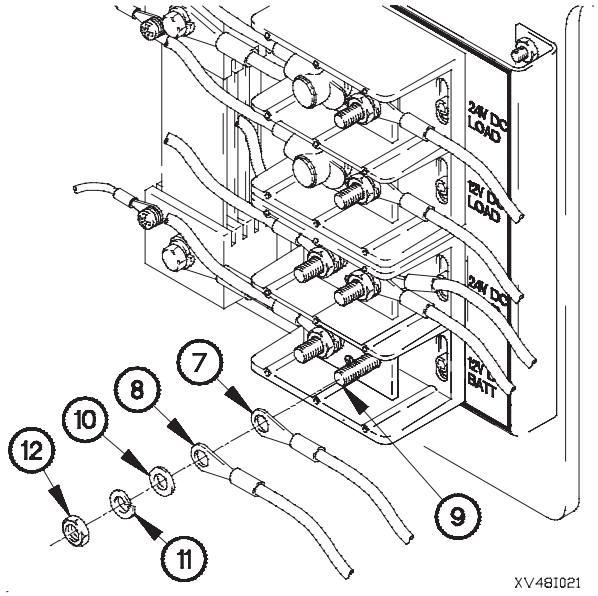
(3) Tighten three screws (6) to 22-27 lb-ft (31-37 N·m).

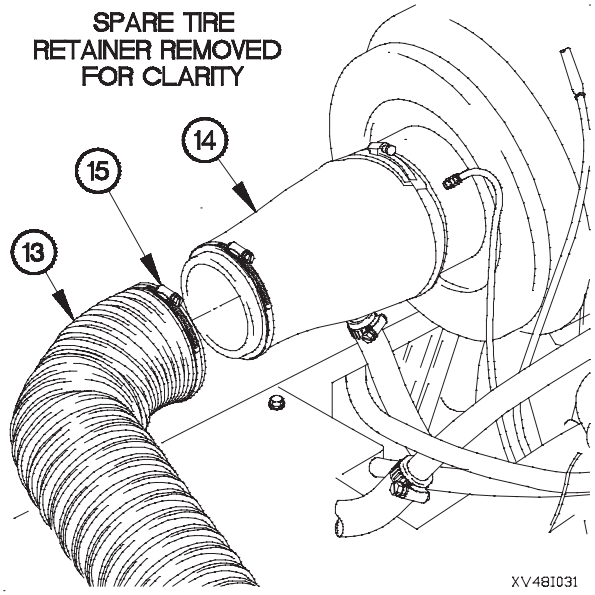


20-48. 200 AMP ALTERNATOR TO TERMINAL BLOCK 12 VDC CABLE REPLACEMENT (CONT)

(4) Position terminal lugs TL171 (7) and TL61 (8) on terminal block terminal (9) with washer (10), lockwasher (11), and nut (12).

(5) Tighten nut (12) to 15-19 lb-ft (21-25 N·m).





(6) Position turbocharger intake hose (13) on intake air cleaner boot (14) with clamp (15).

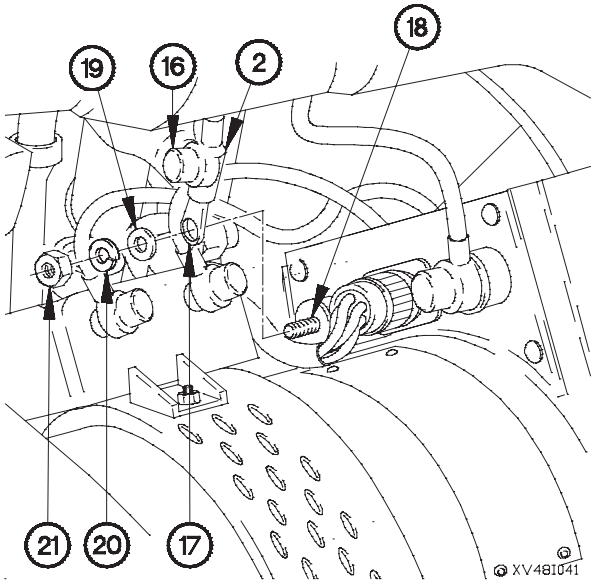
(7) Tighten clamp (15) to 36-48 lb-in. (4-5 N·m).

(8) Install dust boot (16) on terminal lug TL60 (17).

(9) Position terminal lug TL60 (17) on alternator terminal (18) with washer (19), lockwasher (20), and nut (21).

(10) Tighten nut (21) to 144-192 lb-in. (17-21 N·m).

(11) Position dust boot (16) on terminal lug TL60 (17).



c. Follow-On Maintenance.

(1) Connect batteries (para 7-57).

(2) Raise spare tire (TM 9-2320-366-10-2).

(3) Lower cab (TM 9-2320-366-10-1).

(4) Start engine (TM 9-2320-366-10-1).

(5) Check VOLTS gage for charge indication (TM 9-2320-366-10-1).

(6) Shut down engine (TM 9-2320-366-10-1).

End of Task.

20-49. 200 AMP TERMINAL BLOCK TO REVERSE POLARITY RELAY 12 VDC LOAD CABLE REPLACEMENT

This task covers:

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

INITIAL SETUP

Equipment Conditions
Spare tire lowered (TM 9-2320-366-10-2).
Cab raised (TM 9-2320-366-10-1).
Batteries disconnected (para 7-57).

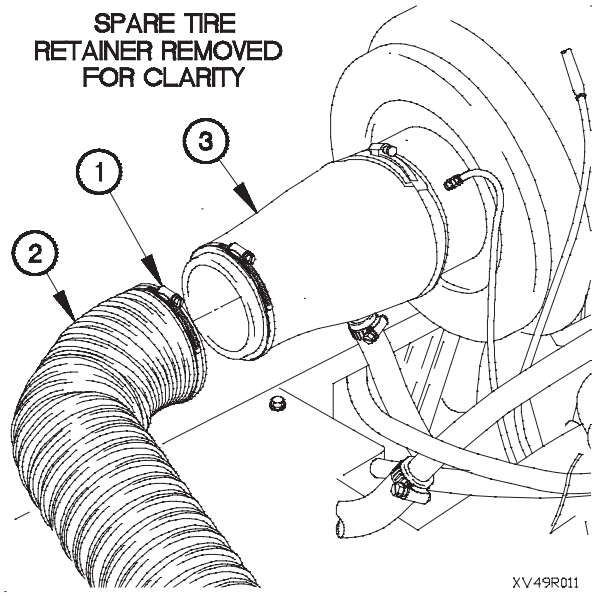
Materials/Parts
Ties, Cable, Plastic (Item 69, Appendix D)
Lockwasher (Item 72, Appendix G)
Lockwasher (Item 96, Appendix G)

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Wrench, Torque, 0-200 lb-in. (Item 59, Appendix C)
Wrench, Torque, 0-175 lb-ft (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).



NOTE

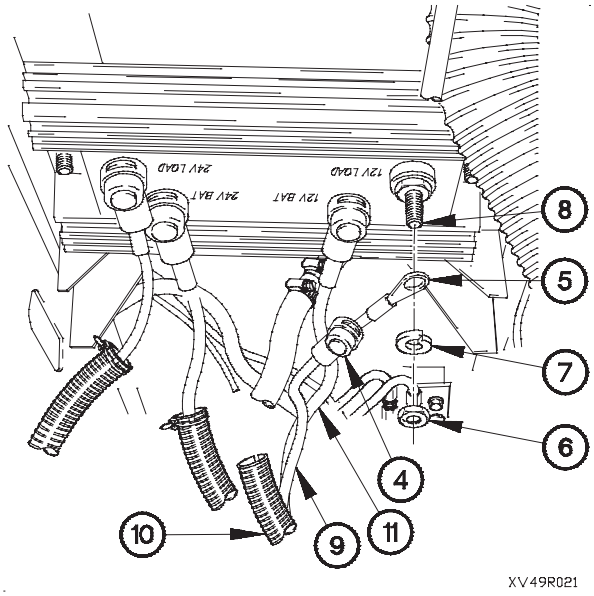
Remove plastic cable ties as required.

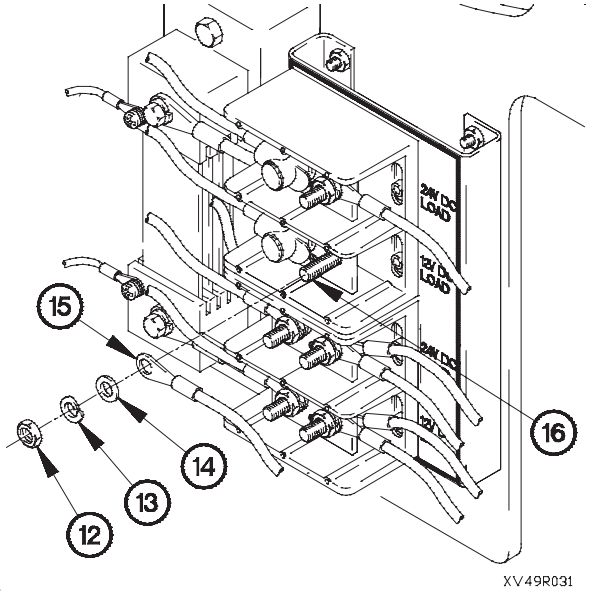
(3) Lift dust boot (4) on terminal lug TL174 (5).

(4) Remove nut (6), lockwasher (7), and terminal lug TL174 (5) from reverse polarity relay (8). Discard lockwasher.

(5) Remove dust boot (4) from 200 amp terminal block to reverse polarity relay 12 vdc load cable (9).

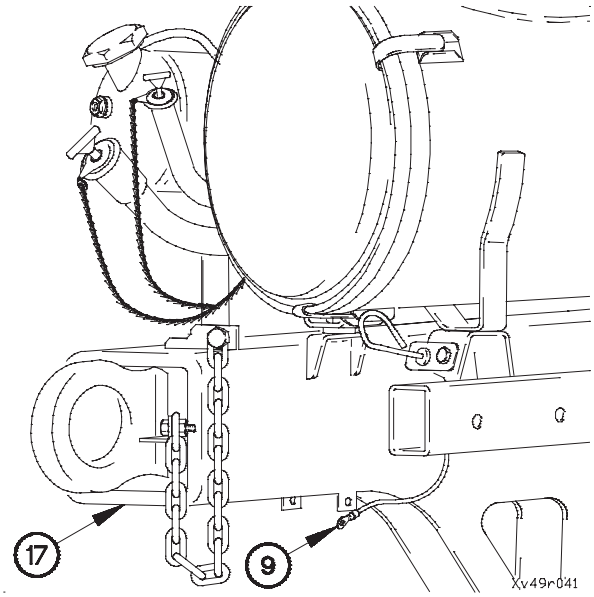
(6) Remove convoluted tubing (10) from 200 amp terminal block to reverse polarity relay 12 vdc load cable (9) and 200 amp terminal block to reverse polarity relay 12 vdc battery cable (11).





(7) Remove nut (12), lockwasher (13), washer (14), and terminal lug TL172 (15) from terminal block terminal (16). Discard lockwasher.

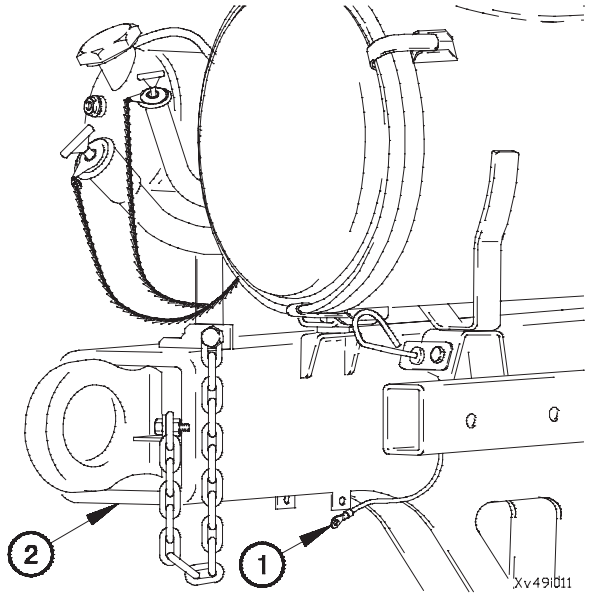
(8) Remove 200 amp terminal block to reverse polarity relay 12 vdc load cable (9) from rear side of front lifting beam (17).

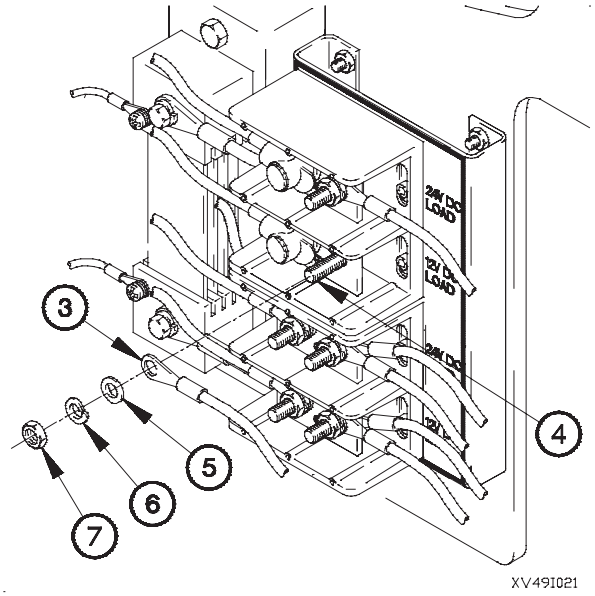


20-49. 200 AMP TERMINAL BLOCK TO REVERSE POLARITY RELAY 12 VDC LOAD CABLE REPLACEMENT (CONT)

b. Installation.

(1) Position 200 amp terminal block to reverse polarity relay 12 vdc load cable (1) on rear side of front lifting beam (2).





(2) Position terminal lug TL172 (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).

NOTE

Install plastic cable ties as required.

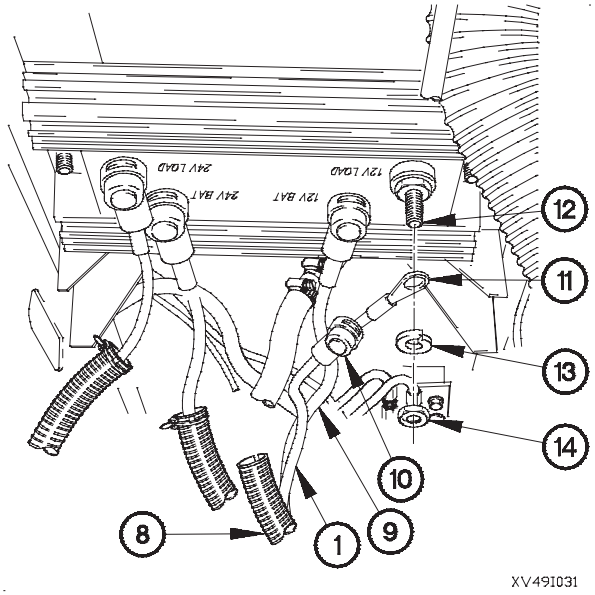
(4) Install convoluted tubing (8) on 200 amp terminal block to reverse polarity relay 12 vdc load cable (1) and 200 amp terminal block to reverse polarity relay 12 vdc battery cable (9).

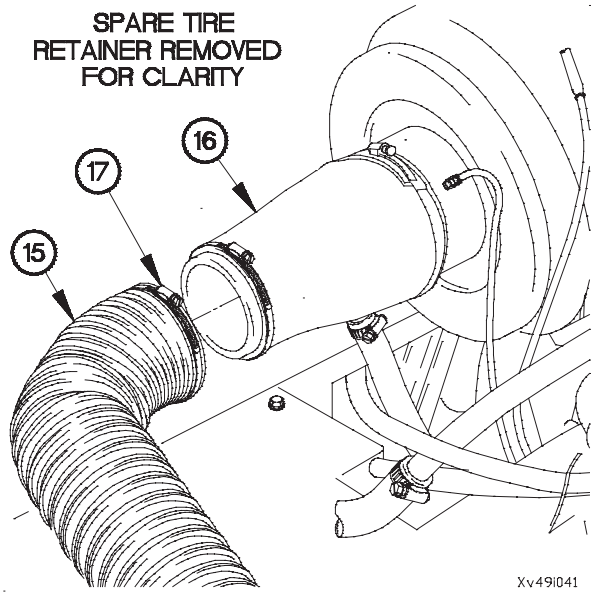
(5) Install dust boot (10) on 200 amp terminal block to reverse polarity relay 12 vdc load cable (1).

(6) Position terminal lug TL174 (11) on reverse polarity relay (12) with lockwasher (13), and nut (14).

(7) Tighten nut (14) to 108-132 lb-in. (12-15 N·m).

(8) Position dust boot (10) on terminal lug TL174 (11).





(9) Position turbocharger intake hose (15) on intake air cleaner boot (16) with clamp (17).

(10) Tighten clamp (17) to 36-48 lb-in. (4-5 N·m).

c. Follow-On Maintenance.

(1) Connect batteries (para 7-57).

(2) Raise spare tire (TM 9-2320-366-10-2).

(3) Lower cab (TM 9-2320-366-10-1).

(4) Start engine (TM 9-2320-366-10-1).

(5) Check VOLTS gage for charge indication (TM 9-2320-366-10-1).

(6) Shut down engine (TM 9-2320-366-10-1).

End of Task.

20-50. 200 AMP ALTERNATOR TO TERMINAL BLOCK 24 VDC CABLE REPLACEMENT

This task covers:

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

INITIAL SETUP

Equipment Conditions
Spare tire lowered (TM 9-2320-366-10-2).
Cab raised (TM 9-2320-366-10-1).
Batteries disconnected (para 7-57).

Materials/Parts
Ties, Cable, Plastic (Item 69, Appendix D)
Lockwasher (Item 96, Appendix G)
Lockwasher (Item 105, Appendix G)

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Wrench, Torque, 0-175 lb-ft (Item 58, Appendix C)
Wrench, Torque, 0-200 lb-in. (Item 59, Appendix C)
Socket Set, Socket Wrench (Item 34, Appendix C)

a. Removal.

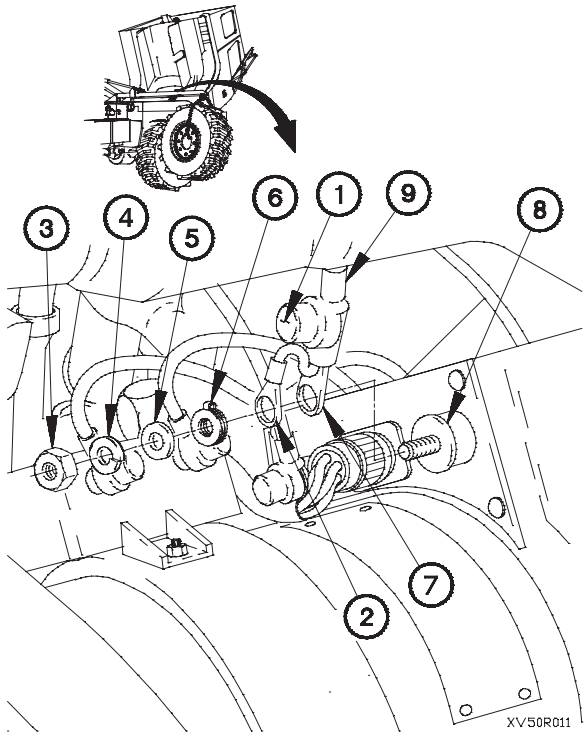
(1) Lift dust boot (1) on terminal lug TL2 (2).

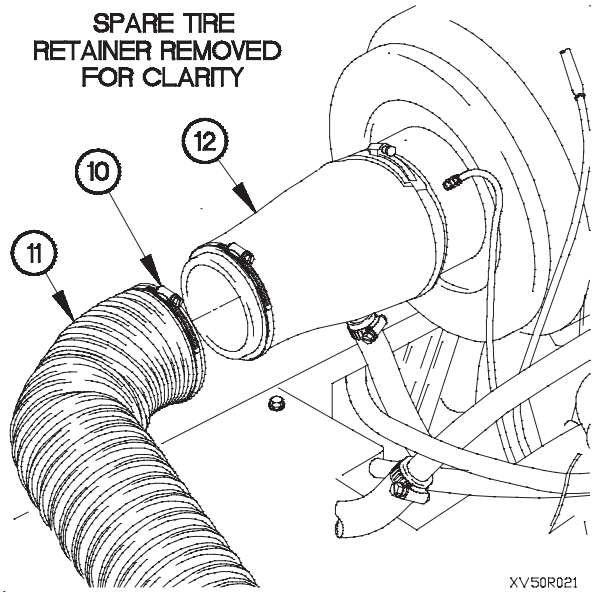
NOTE

Remove plastic cable ties as required.

(2) Remove nut (3), lockwasher (4), washer (5), fuse (6), and terminal lugs TL2 (2) and TL8 (7) from alternator terminal (8). Discard lockwasher.

(3) Remove alternator to terminal block 24 vdc cable (9) from dust boot (1).

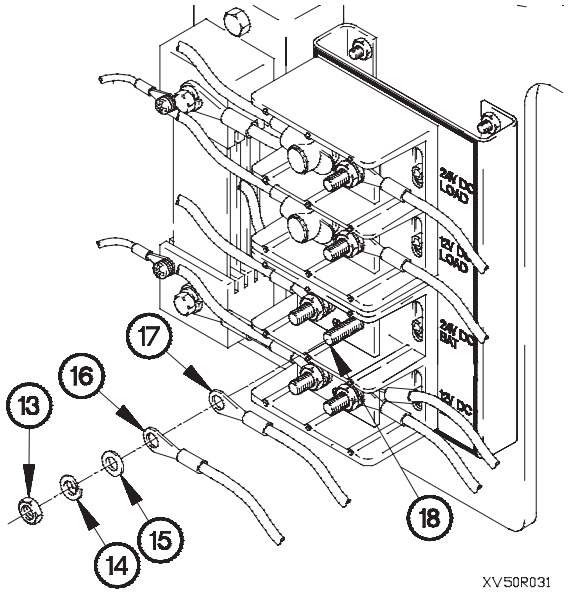


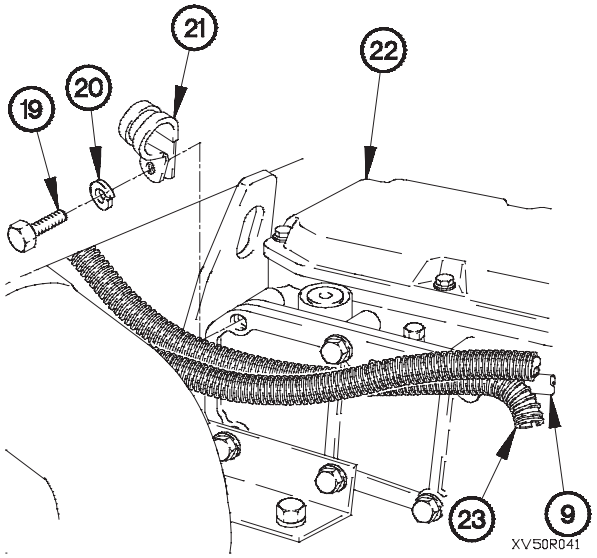


(4) Loosen clamp (10) on turbocharger intake hose (11).

(5) Remove turbocharger intake hose (11) from intake air cleaner boot (12).

(6) Remove nut (13), lockwasher (14), washer (15), and terminal lugs TL1 (16) and TL166 (17) from terminal block terminal (18). Discard lockwasher.





(7) Remove three screws (19), washers (20), clamps (21), and 200 amp alternator to terminal block 24 vdc cable (9) from engine (22).

(8) Remove convoluted tubing (23) from 200 amp alternator to terminal block 24 vdc cable (9).

b. Installation.

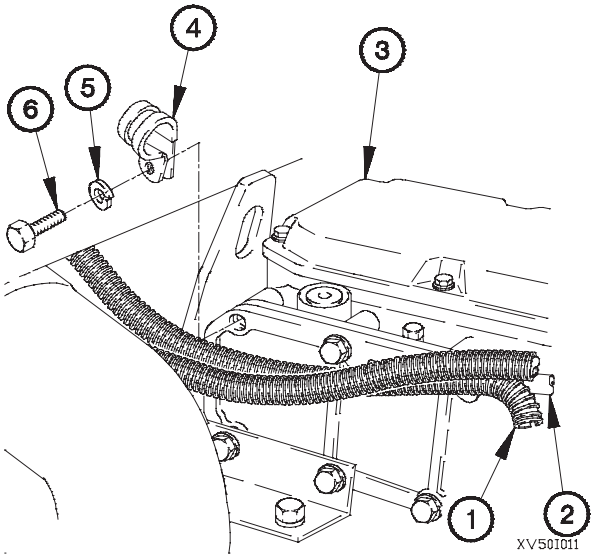
NOTE

Install plastic cable ties as required.

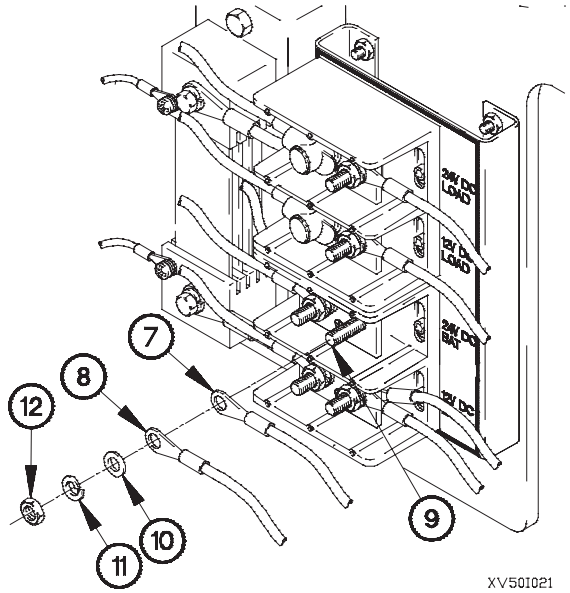
(1) Install convoluted tubing (1) on 200 amp alternator to terminal block 24 vdc cable (2).

(2) Position 200 amp alternator to terminal block 24 vdc cable (2) on engine (3) with three clamps (4), washers (5), and screws (6).

(3) Tighten three screws (6) to 22-27 lb-ft (31-37 N·m).

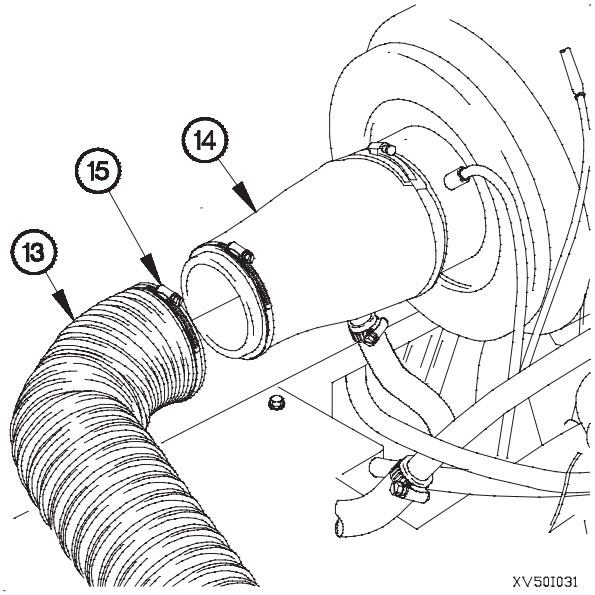


20-50. 200 AMP ALTERNATOR TO TERMINAL BLOCK 24 VDC CABLE REPLACEMENT (CONT)



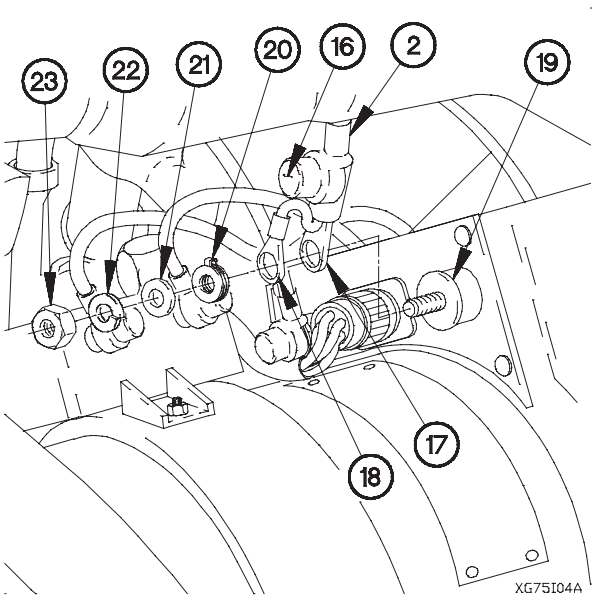
(4) Position terminal lugs TL166 (7) and TL1 (8) on terminal block terminal (9) with washer (10), lockwasher (11), and nut (12).

(5) Tighten nut (12) to 15-19 lb-ft (21-25 N·m).



(6) Position turbocharger intake hose (13) on intake air cleaner boot (14) with clamp (15).

(7) Tighten clamp (15) to 36-48 lb-in. (4-5 N·m).



(8) Install 200 amp alternator to terminal block 24 vdc cable (2) in dust boot (16).

(9) Position terminal lugs TL8 (17) and TL2 (18) on alternator terminal (19) with fuse (20), washer (21), lockwasher (22), and nut (23).

(10) Tighten nut (23) to 144-192 lb-in. (17-21 N·m).

(11) Install dust boot (16) on terminal lug TL2 (18).

c. Follow-On Maintenance.

(1) Connect batteries (para 7-57).

(2) Raise spare tire (TM 9-2320-366-10-2).

(3) Start engine (TM 9-2320-366-10-1).

(4) Check VOLTS gage for charge indication (TM 9-2320-366-10-1).

(5) Shut down engine (TM 9-2320-366-10-1).

End of Task.

20-51. 200 AMP TERMINAL BLOCK TO REVERSE POLARITY RELAY 24 VDC LOAD CABLE REPLACEMENT

This task covers:

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

INITIAL SETUP

Equipment Conditions
Spare tire lowered (TM 9-2320-366-10-2).
Cab raised (TM 9-2320-366-10-1).
Batteries disconnected (para 7-57).

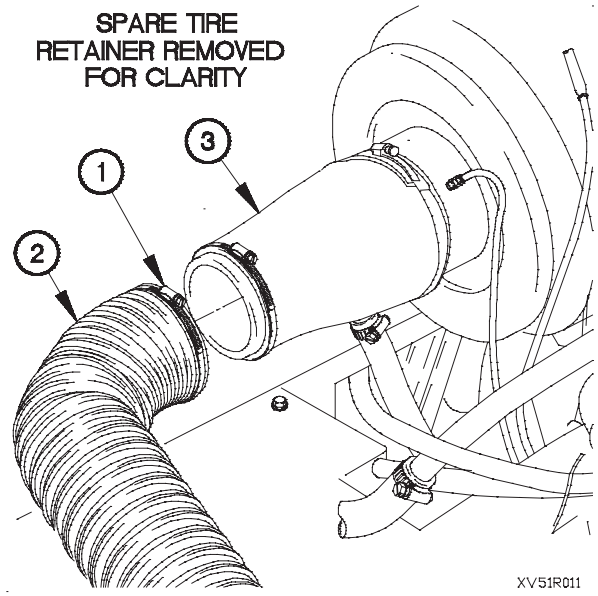
Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Wrench, Torque, 0-175 lb-ft (Item 58, Appendix C)
Wrench, Torque, 0-200 lb-in. (Item 59, Appendix C)
Socket Set, Socket Wrench (Item 34, Appendix C)

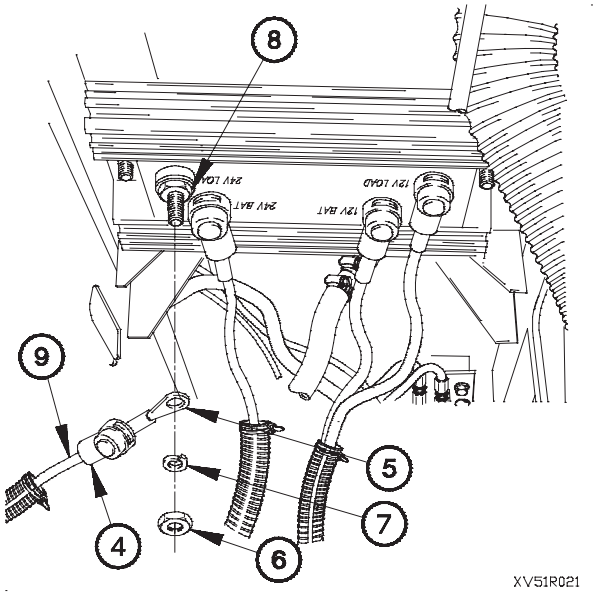
Materials/Parts
Ties, Cable, Plastic (Item 69, Appendix D)
Lockwasher (Item 73, Appendix G)
Lockwasher (Item 96, Appendix G)

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 dust boot (4) on terminal lug TL168 (5).

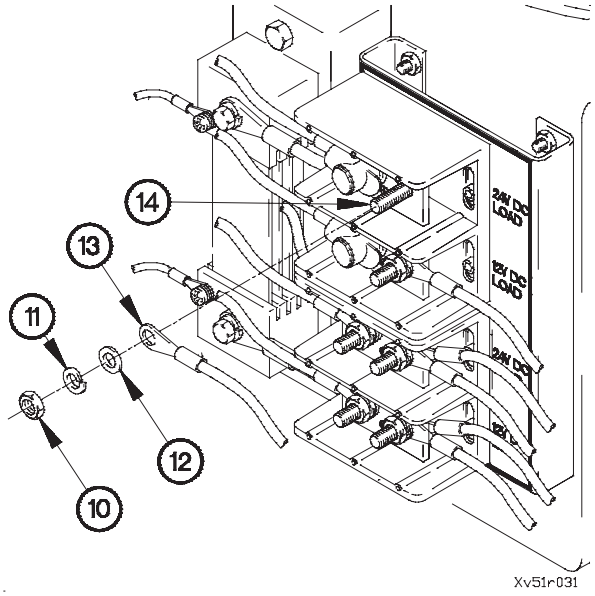
NOTE

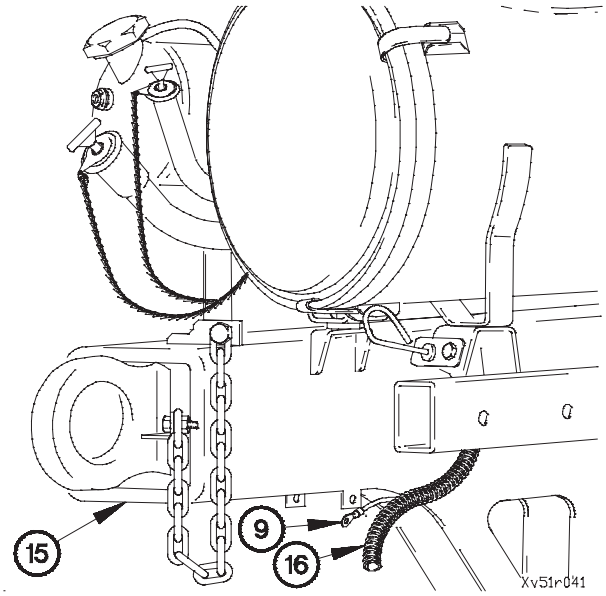
Remove plastic cable ties as required.

(4) Remove nut (6), lockwasher (7), and terminal lug TL168 (5) from reverse polarity relay 24 VDC LOAD terminal (8). Discard lockwasher.

(5) Remove dust boot (4) from 200 amp terminal block to reverse polarity relay 24 vdc load cable (9).

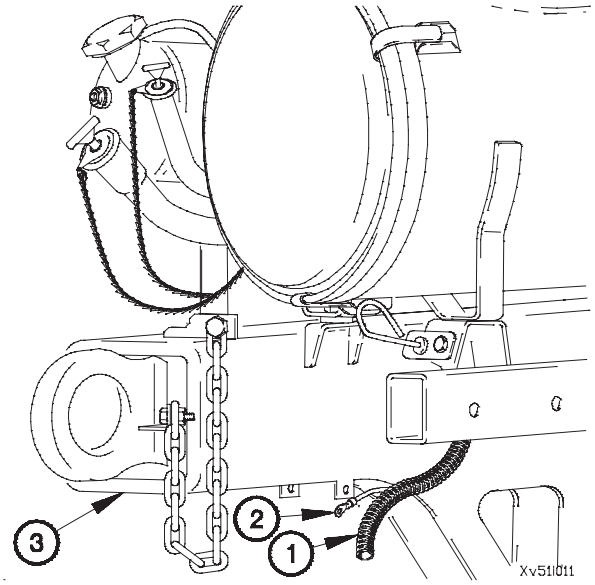
(6) Remove nut (10), lockwasher (11), washer (12), and terminal lug TL167 (13) from terminal block terminal (14). Discard lockwasher.





(7) Remove 200 amp terminal block to reverse polarity relay 24 vdc load cable (9) from rear side of front lifting beam (15).

(8) Remove convoluted tubing (16) from 200 amp terminal block to reverse polarity relay 24 vdc load cable (9).



b. Installation.

NOTE

Install plastic cable ties as required.

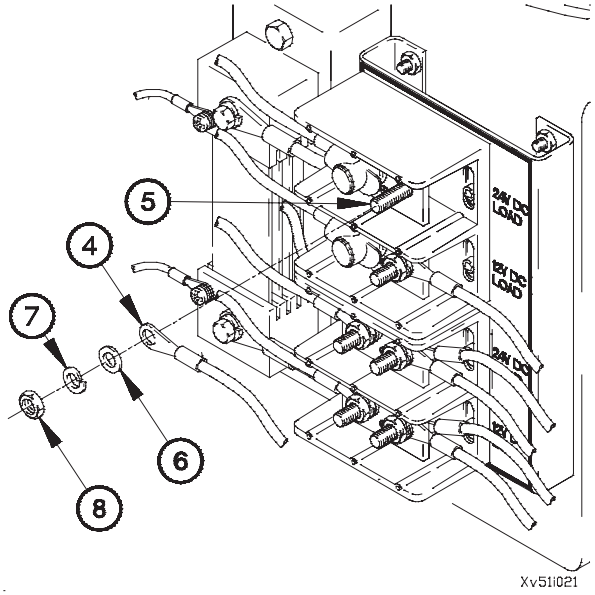
(1) Install convoluted tubing (1) on 200 amp terminal block to reverse polarity relay 24 vdc load cable (2).

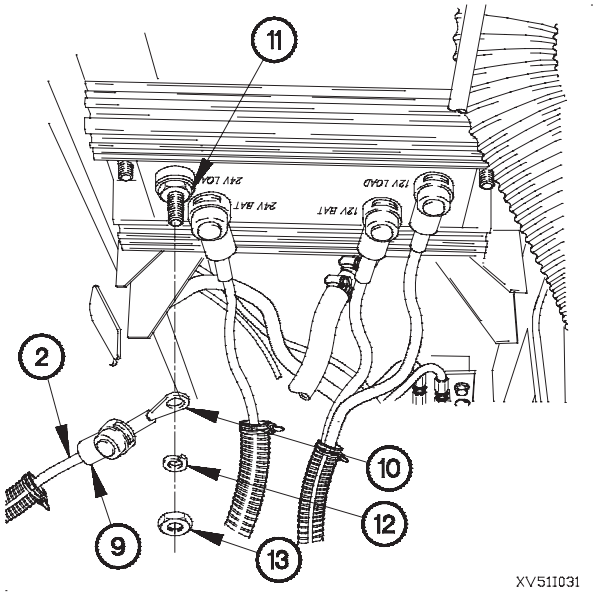
(2) Route 200 amp terminal block to reverse polarity relay 24 vdc load cable (2) on rear side of front lifting beam (3).

20-51. 200 AMP TERMINAL BLOCK TO REVERSE POLARITY RELAY 24 VDC LOAD CABLE REPLACEMENT (CONT)

(3) Position terminal lug TL167 (4) on terminal block terminal (5) with washer (6) lockwasher (7) and nut (8).

(4) Tighten nut (8) to 15-19 lb-ft (21-25 N·m).



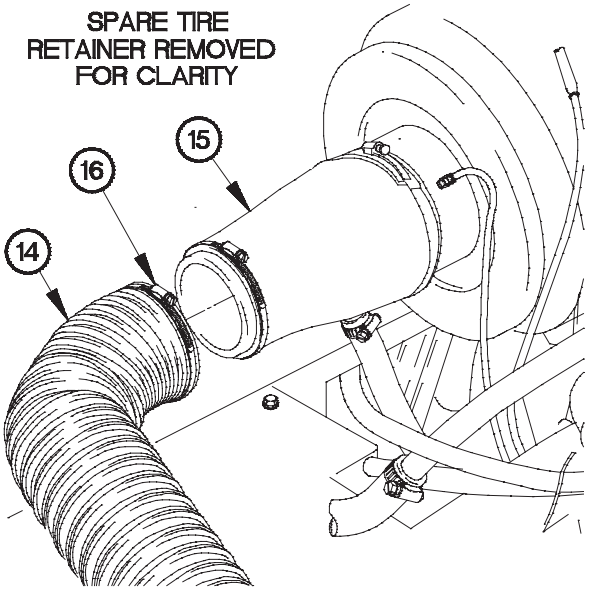


(5) Install dust boot (9) on 200 amp terminal block to reverse polarity relay 24 vdc load cable (2).

(6) Position terminal lug TL168 (10) on reverse polarity relay 24 VDC LOAD terminal (11) with lockwasher (12) and nut (13).

(7) Tighten nut (13) to 27-33 lb-ft (37-45 N·m).

(8) Position dust boot (9) on terminal lug TL168 (10).



(9) Position turbocharger intake hose (14) on intake air cleaner boot (15) with clamp (16).

(10) Tighten clamp (16) to 36-48 lb-in. (4-5 N·m).

c. Follow-On Maintenance.

(1) Connect batteries (para 7-57).

(2) Raise spare tire (TM 9-2320-366-10-2).

(3) Start engine (TM 9-2320-366-10-1).

(4) Check VOLTS gage for charge indication (TM 9-2320-366-10-1).

(5) Shut down engine (TM 9-2320-366-10-1).

End of Task.

20-52. BATTERY TO 200 AMP TERMINAL BLOCK 12 VDC CABLE ASSEMBLY REPLACEMENT

This task covers:

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

INITIAL SETUP

Equipment Conditions
Spare tire lowered (TM 9-2320-366-10-2).
Cab raised (TM 9-2320-366-10-1).
Batteries disconnected (para 7-57).

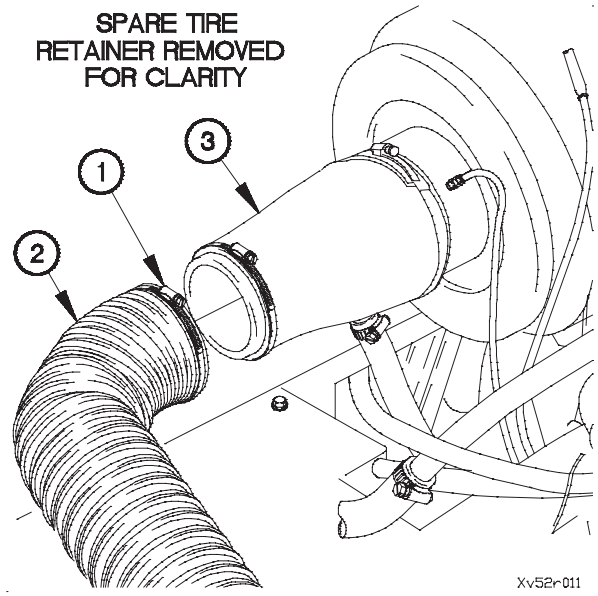
Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Wrench, Torque, 0-175 lb-ft (Item 58, Appendix C)
Wrench, Torque, 0-200 lb-in. (Item 59, Appendix C)
Socket Set, Socket Wrench (Item 34, Appendix C)

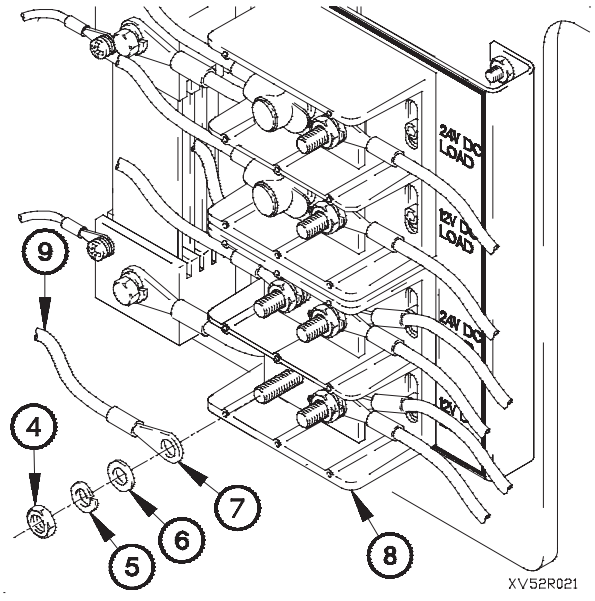
Materials/Parts
Ties, Cable, Plastic (Item 63, Appendix C)
Lockwasher (Item 96, Appendix G)

a. Removal.

(1) Loosen clamp (1) on turbocharger intake hose (2).

(2) Remove turbocharger intake hose (2) from intake air cleaner boot (3).





(3) Remove nut (4), lockwasher (5), washer (6), and terminal lug TL47 (7) from terminal block (8). Discard lockwasher.

NOTE

- Note routing of battery to 200 amp terminal block 12 vdc cable prior to removal.
- Remove plastic cable ties as required.

(4) Remove battery to 200 amp terminal block 12 vdc cable (9) from vehicle.

b. Installation.

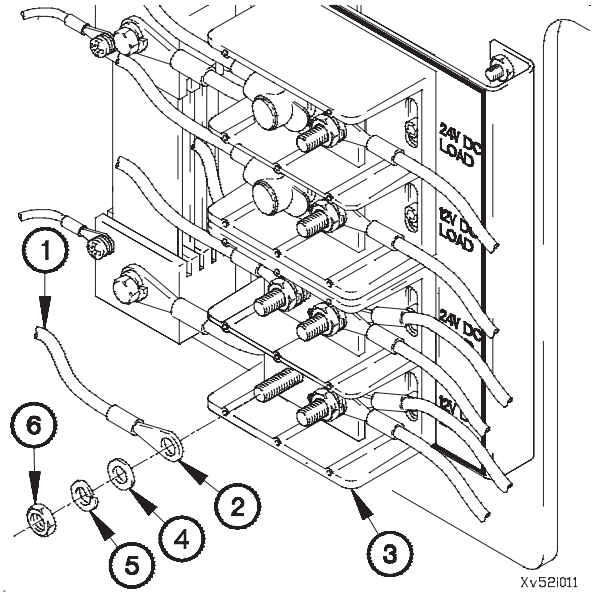
NOTE

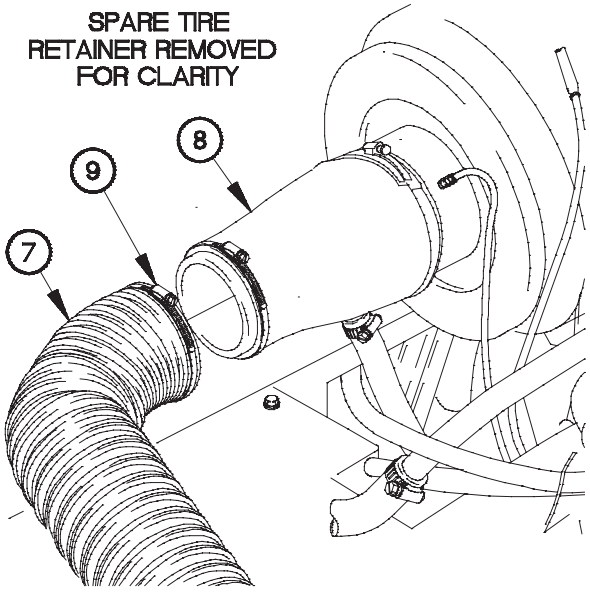
Install plastic cable ties as required.

(1) Position battery to 200 amp terminal block 12 vdc cable (1) on vehicle.

(2) Position terminal lug TL47 (2) on terminal block (3) with washer (4), lockwasher (5), and nut (6).

(3) Tighten nut (6) to 15-19 lb-ft (21-25 N·m).





(4) Position turbocharger intake hose (7) on intake air cleaner boot (8) with clamp (9).

(5) Tighten clamp (9) to 36-48 lb-in. (4-5 N·m).

c. Follow-On Maintenance.

(1) Connect batteries (para 7-57).

(2) Raise spare tire (TM 9-2320-366-10-2).

(3) Start engine (TM 9-2320-366-10-1).

(4) Check VOLTS gage for charge indication (TM 9-2320-366-10-1).

(5) Shut down engine (TM 9-2320-366-10-1).

End of Task.

20-53. BATTERY TO 200 AMP TERMINAL BLOCK 24 VDC CABLE ASSEMBLY REPLACEMENT

This task covers:

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

INITIAL SETUP

Equipment Conditions
Spare tire lowered (TM 9-2320-366-10-2).
Cab raised (TM 9-2320-366-10-1).
Batteries disconnected (para 7-57).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Wrench, Torque, 0-175 lb-ft (Item 58, Appendix C)
Wrench, Torque, 0-200 lb-in. (Item 59, Appendix C)
Socket Set, Socket Wrench (Item 34, Appendix C)

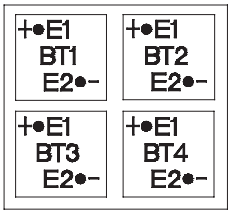
Materials/Parts
Ties, Cable, Plastic (Item 69, Appendix D)
Lockwasher (Item 96, Appendix G)

a. Removal.

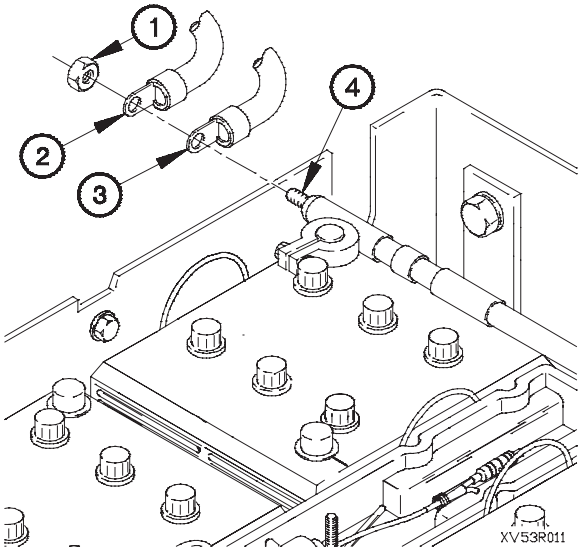
WARNING

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 and rubber gloves 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 cable BT1 E1 (4).

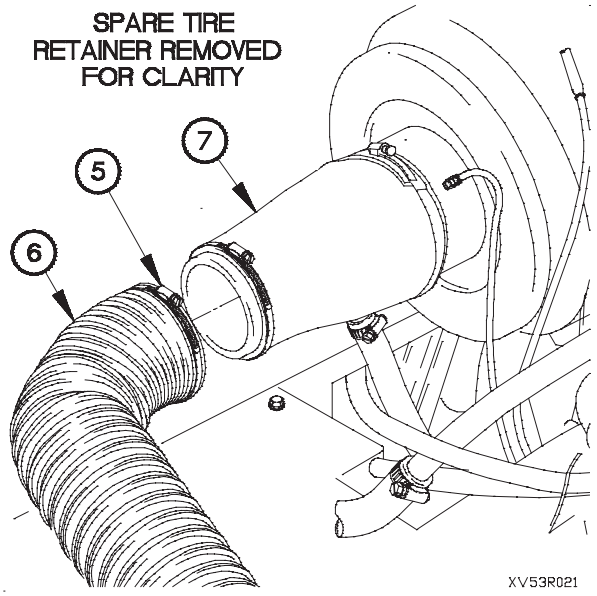


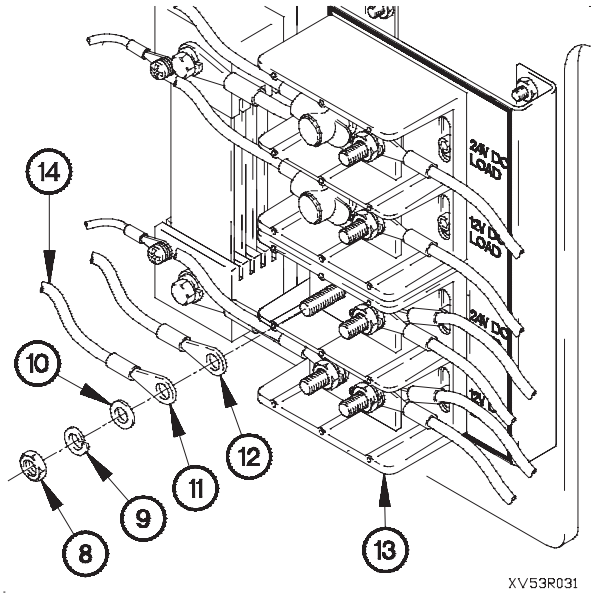
BATTERY INSTALLATION DIAGRAM



(2) Loosen clamp (5) on turbocharger intake hose (6).

(3) Remove turbocharger intake hose (6) from intake air cleaner boot (7).





(4) Remove nut (8), lockwasher (9), washer (10), and two terminal lugs TL37 (11) and TL36 (12) from terminal block (13). Discard lockwasher.

NOTE

Remove plastic cable ties as required.

(5) Remove battery to 200 amp terminal block 24 vdc cable (14) from vehicle.

b. Installation.

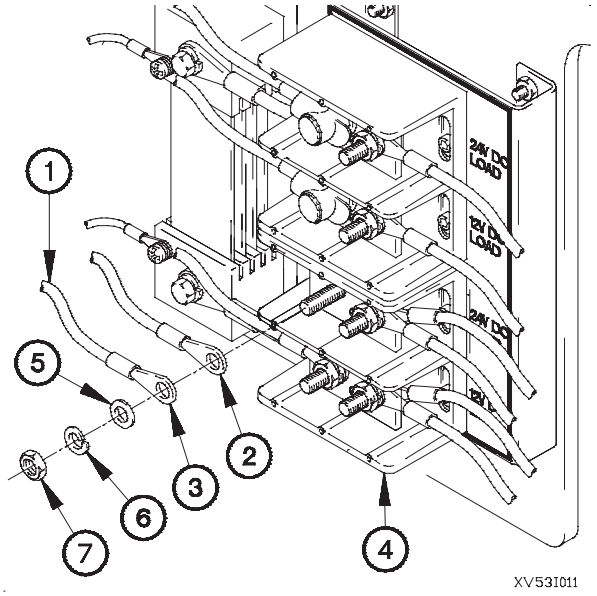
NOTE

Install plastic cable ties as required.

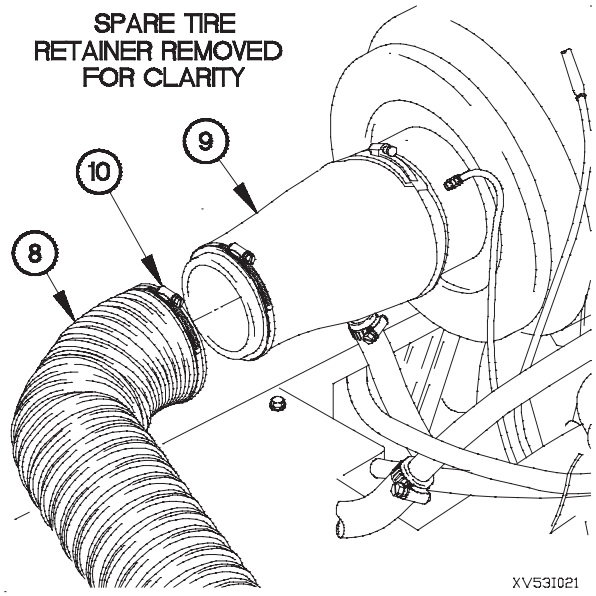
(1) Position battery to 200 amp terminal block 24 vdc cable assembly (1) on vehicle.

(2) Position terminal lugs TL36 (2) and TL37 (3) on terminal block (4) with washer (5), lockwasher (6), and nut (7).

(3) Tighten nut (7) to 15-19 lb-ft (21-25 N·m).

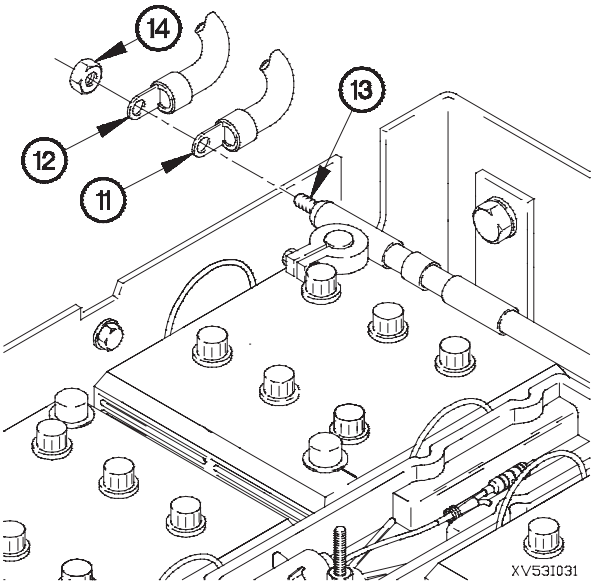


20-53. BATTERY TO 200 AMP TERMINAL BLOCK 24 VDC CABLE ASSEMBLY REPLACEMENT (CONT)



(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).



(6) Install terminal lugs TL10 (11) and TL39 (12) on battery cable BT1 E1 (13) with nut (14).

c. Follow-On Maintenance.

(1) Connect batteries (para 7-57).

(2) Raise spare tire (TM 9-2320-366-10-2).

(3) Start engine (TM 9-2320-366-10-1).

(4) Check VOLTS gage for charge indication (TM 9-2320-366-10-1).

(5) Shut down engine (TM 9-2320-366-10-1).

End of Task.

20-54. 200 AMP TERMINAL BLOCK 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 7-57).
PDP cover removed (para 16-2).
Spare tire lowered (TM 9-2320-366-10-2).
Lower radiator fan shroud removed (para 6-4).

Materials/Parts
Ties, Cable, Plastic (Item 69, Appendix D)
Lockwasher (Item 84, Appendix G)
Lockwasher (Item 96, Appendix G)
Nut, Self-Locking (2) (Item 153, Appendix G)

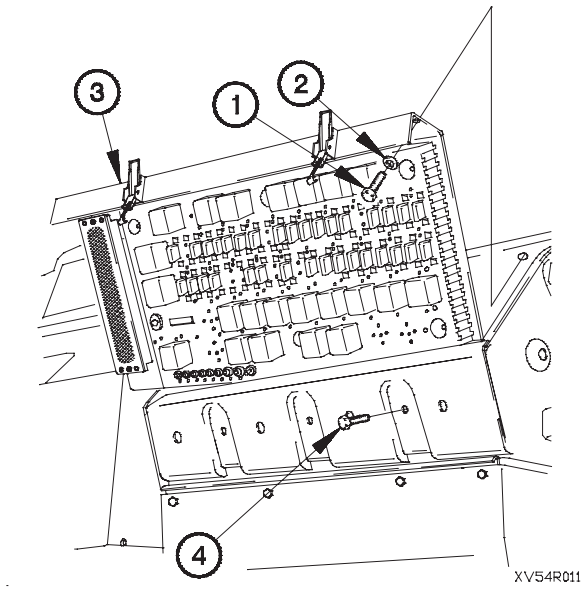
Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Wrench, Torque, 0-175 lb-ft (Item 58, Appendix C)
Wrench, Torque, 0-200 lb-in. (Item 59, Appendix C)
Socket Set, Socket Wrench (Item 34, Appendix C)

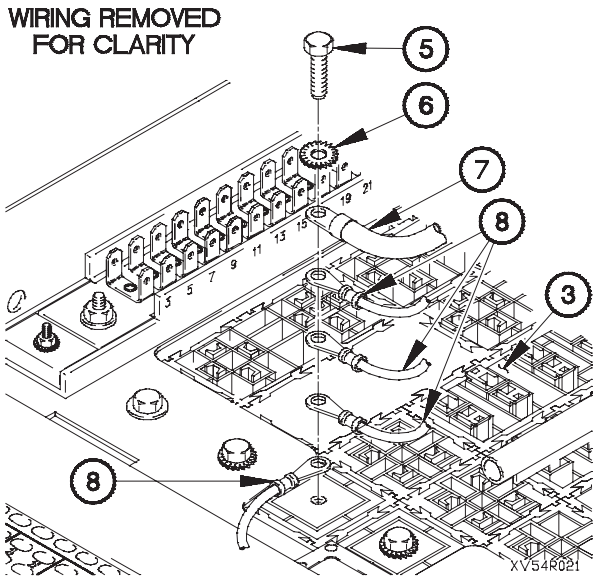
a. Removal.

(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 TL41 (7), and four terminal lugs (8) from PDP (3). Discard lockwasher.

(5) Position four terminal lugs (8) on PDP (3) with screw (5).

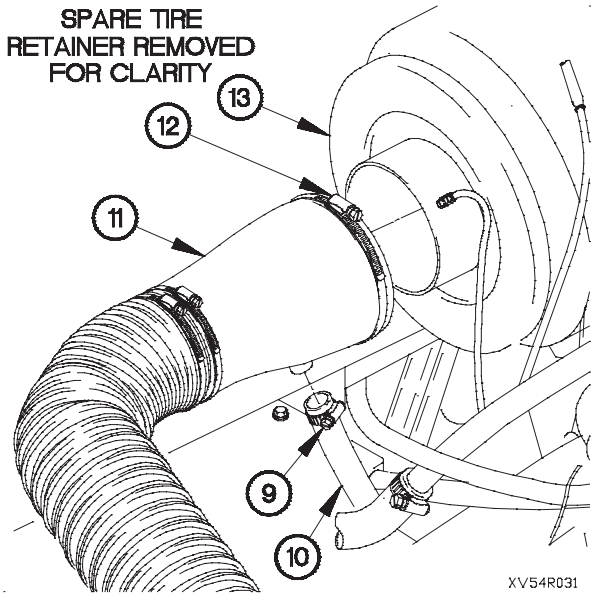
20-54. 200 AMP TERMINAL BLOCK TO POWER DISTRIBUTION PANEL (PDP) 12 VDC CABLE REPLACEMENT (CONT)

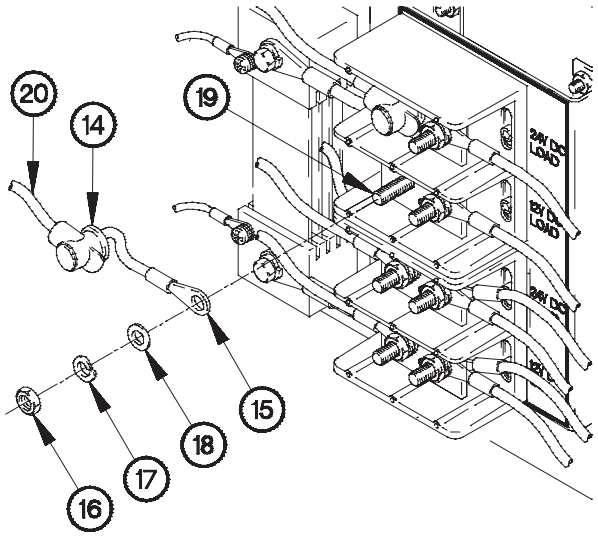
(6) Loosen clamp (9) on air compressor intake hose (10).

(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).



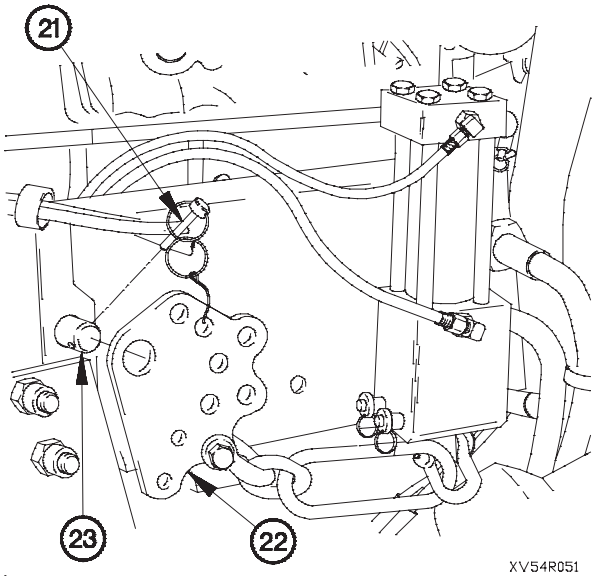


(10) Lift dust boot (14) on terminal lug TL80 (15).

(11) Remove nut (16), lockwasher (17), washer (18) and terminal lug TL80 (15) from terminal block terminal (19). Discard lockwasher.

(12) Remove dust boot (14) from 200 amp terminal block to PDP 12 vdc cable (20).

(13) Remove spring pin (21) and suspension compression plate (22) from suspension compression plate stud (23).

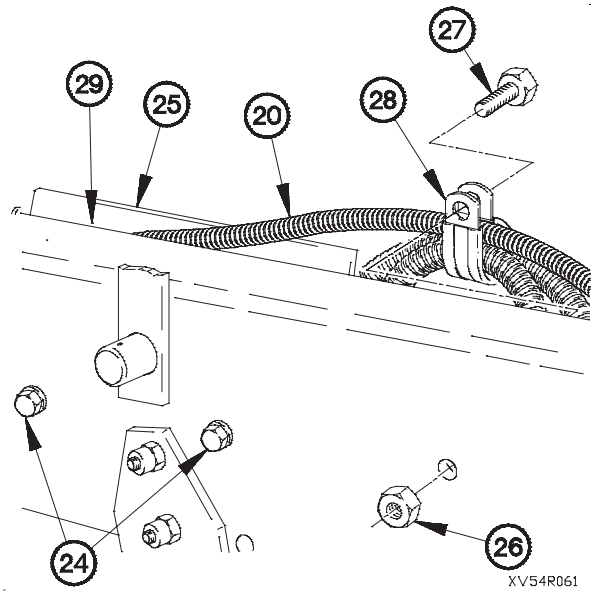


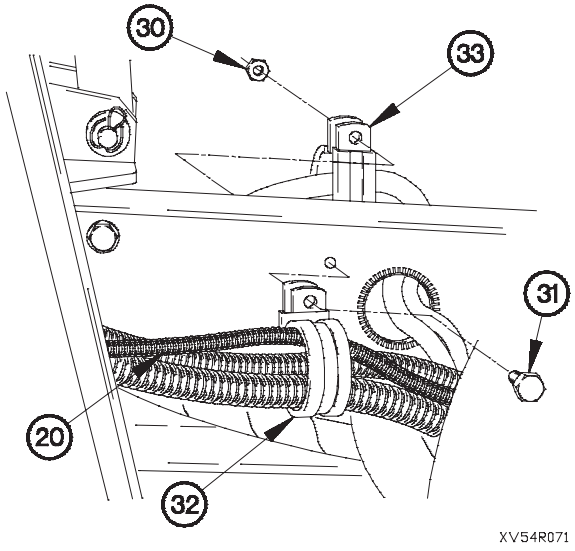
(14) Loosen two screws (24) in heat shield assembly (25).

(15) Remove 200 amp terminal block to PDP 12 vdc cable (20) from heat shield assembly (25).

(16) Remove self-locking nut (26), screw (27), clamp (28), and 200 amp terminal block to PDP 12 vdc cable (20) from frame rail (29). Discard self-locking nut.

(17) Remove 200 amp terminal block to PDP 12 vdc cable (20) from clamp (28).

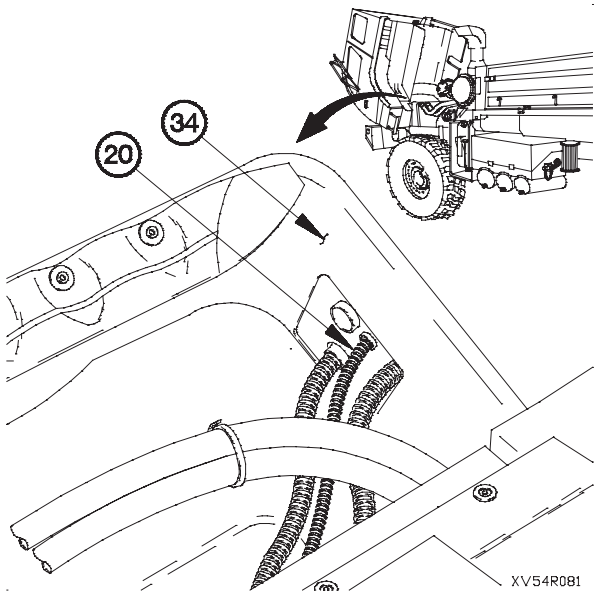




(18) Remove self-locking nut (30) and screw (31) from clamps (32 and 33). Discard self-locking nut.

(19) Remove 200 amp terminal block to PDP 12 vdc cable (20) from clamp (32).

(20) Remove 200 amp terminal block to PDP 12 vdc cable (20) from cab (34).



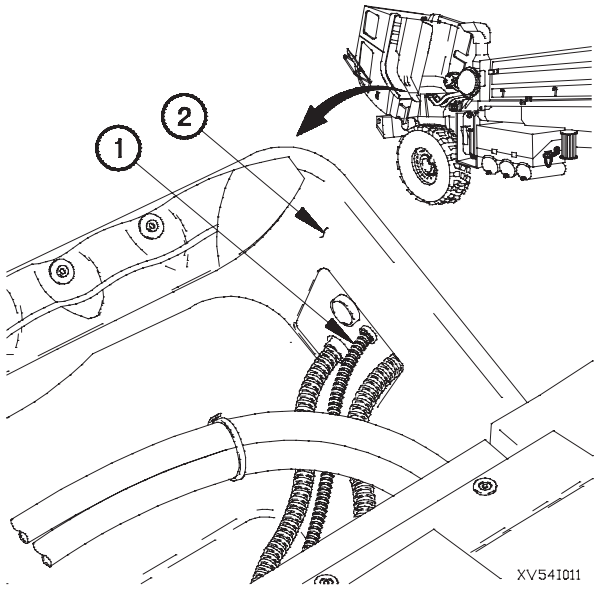
20-54. 200 AMP TERMINAL BLOCK TO POWER DISTRIBUTION PANEL (PDP) 12 VDC CABLE REPLACEMENT (CONT)

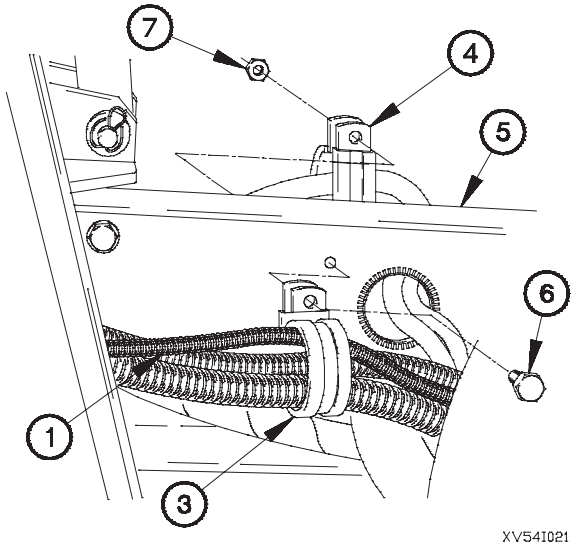
b. Installation.

NOTE

Install plastic cable ties as required.

(1) Route 200 amp terminal block to PDP 12 vdc cable (1) through bottom of cab (2).





(2) Position 200 amp terminal block to PDP 12 vdc cable (1) in clamp (3).

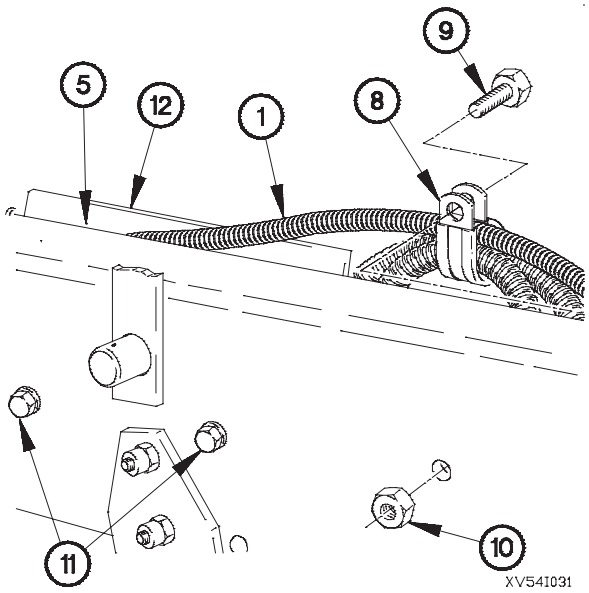
(3) Install clamps (3 and 4) on frame rail (5) with screw (6) and self-locking nut (7).

(4) Position 200 amp terminal block to PDP 12 vdc cable (1) in clamp (8).

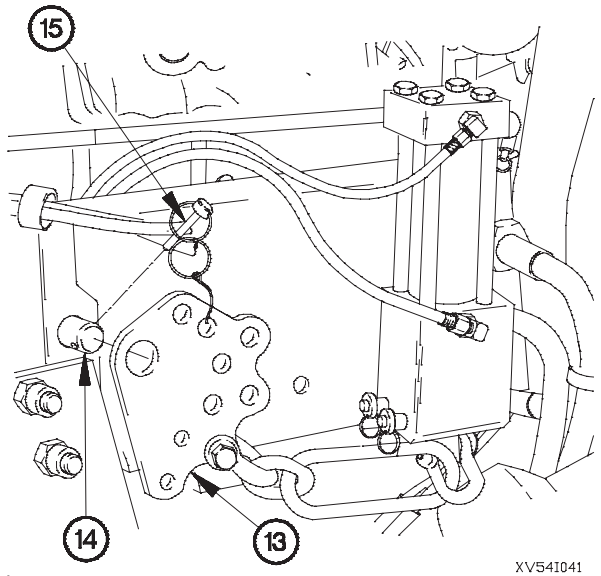
(5) Position clamp (8) on frame rail (5) with screw (9), and self-locking nut (10).

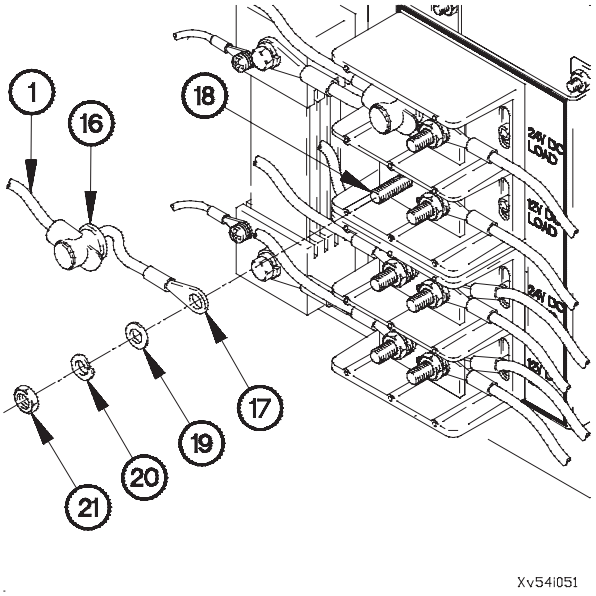
(6) Tighten self-locking nut (10) to 84-108 lb-in. (10-12 N·m).

(7) Tighten two screws (11) in heat shield assembly (12).



(8) Install suspension compression plate (13) on suspension compression plate stud (14) with spring pin (15).



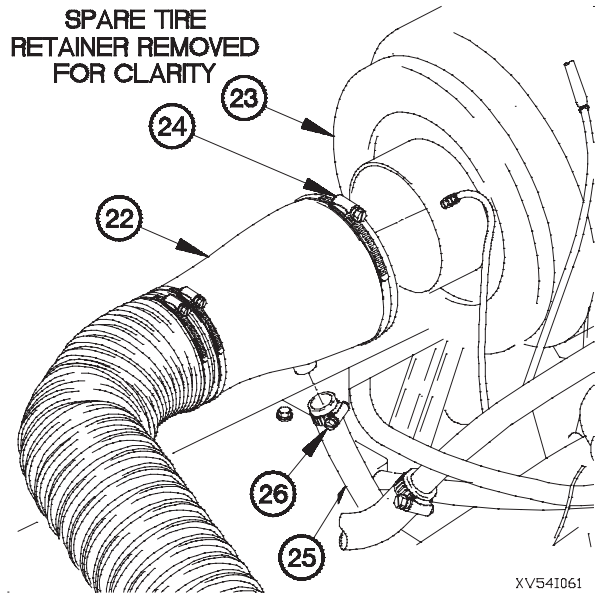


(9) Install dust boot (16) on 200 amp terminal block to PDP 12 vdc cable (1).

(10) Position terminal lug TL80 (17) on terminal block terminal (18) with washer (19), lockwasher (20), and nut (21).

(11) Tighten nut (21) to 15-19 lb-ft (21-25 N·m).

(12) Position dust boot (16) on terminal lug TL80 (17).



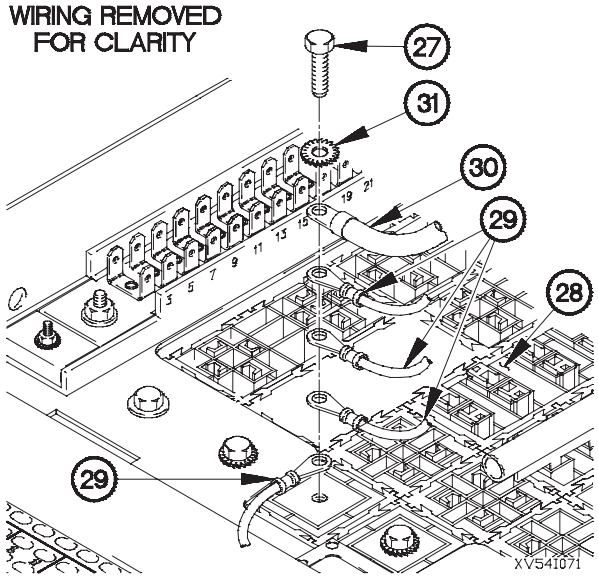
(13) Position intake air cleaner boot (22) on intake air cleaner housing (23) with clamp (24).

(14) Position air compressor intake hose (25) on intake air cleaner boot (22) with clamp (26).

(15) Tighten clamps (24 and 26) to 36-48 lb-in. (4-5 N·m).

(16) Lower cab (TM 9-2320-366-10-1).

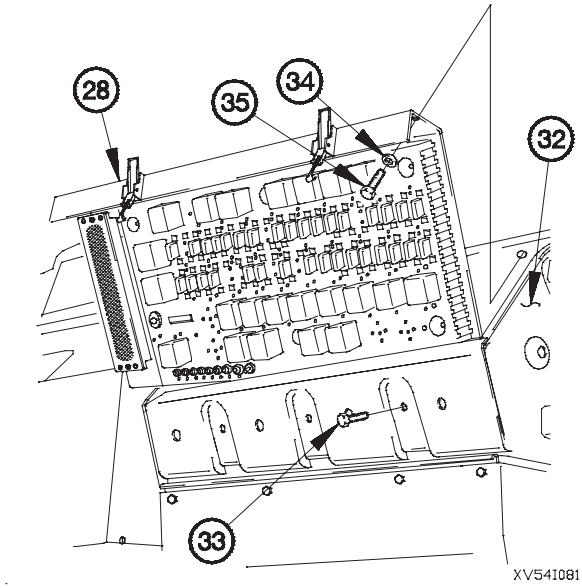
20-54. 200 AMP TERMINAL BLOCK TO POWER DISTRIBUTION PANEL (PDP) 12 VDC CABLE REPLACEMENT (CONT)



(17) Remove screw (27) from PDP (28).

(18) Position four terminal lugs (29) and terminal lug TL41 (30) on PDP (28) with lockwasher (31) and screw (27).

(19) Tighten screw (27) to 35-45 lb-in. (4-5 N·m).



(20) Install PDP (28) on dashboard (32) with three screws (33).

(21) Install three washers (34) and screws (35) in PDP (28).

c. Follow-On Maintenance.

(1) Install PDP cover (para 16-2).

(2) Install lower radiator fan shroud (para 6-4).

(3) Connect batteries (para 7-57).

(4) Raise spare tire (TM 9-2320-366-10-2).

(5) Start engine (TM 9-2320-366-10-1).

(6) Check VOLTS gage for charge indication (TM 9-2320-366-10-1).

(7) Shut down engine (TM 9-2320-366-10-1).

End of Task.

20-55. 200 AMP TERMINAL BLOCK TO REVERSE POLARITY RELAY 12 VDC BATTERY CABLE REPLACEMENT

This task covers:

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

INITIAL SETUP

Equipment Conditions
Spare tire lowered (TM 9-2320-366-10-2).
Cab raised (TM 9-2320-366-10-1).
Batteries disconnected (para 7-57).

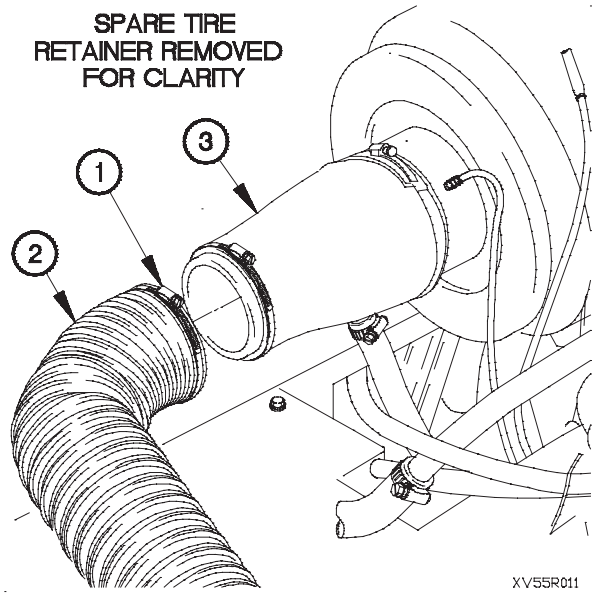
Materials/Parts
Ties, Cable, Plastic (Item 63, Appendix C)
Lockwasher (Item 72, Appendix G)
Lockwasher (Item 96, Appendix G)

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Wrench, Torque, 0-175 lb-ft (Item 58, Appendix C)
Wrench, Torque, 0-200 lb-in. (Item 59, 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).



20-55. 200 AMP TERMINAL BLOCK TO REVERSE POLARITY RELAY 12 VDC BATTERY CABLE REPLACEMENT (CONT)

(3) Lift dust boot (4) on terminal lug TL173 (5).

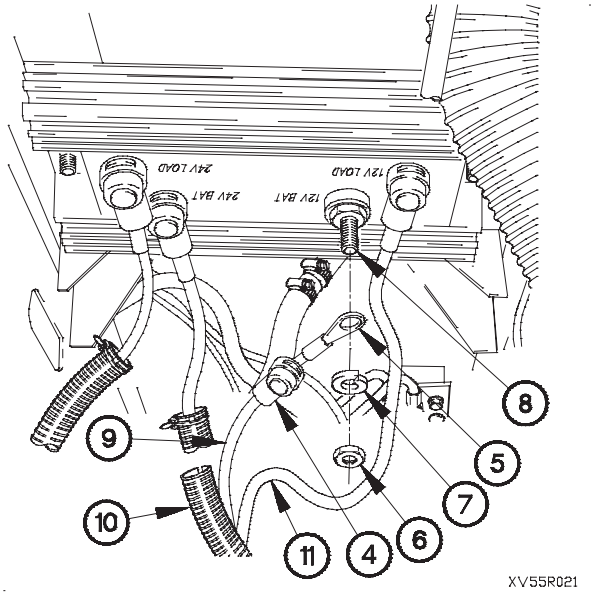
NOTE

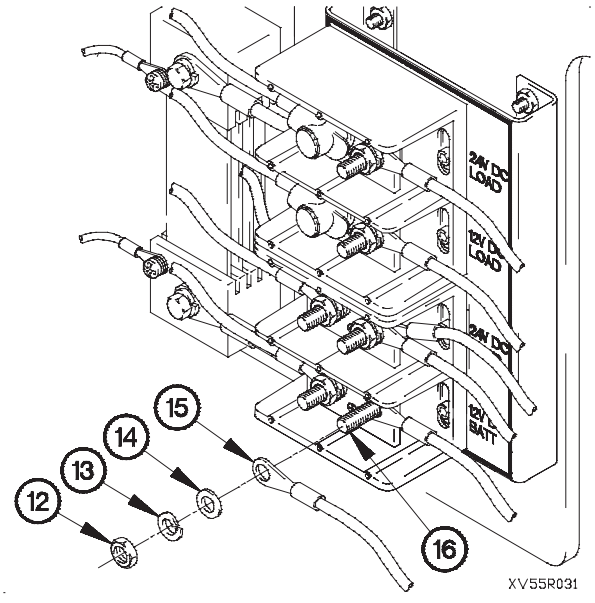
Remove plastic cable ties as required.

(4) Remove nut (6), lockwasher (7), and terminal lug TL173 (5) from reverse polarity relay 12 VDC BAT terminal (8). Discard lockwasher.

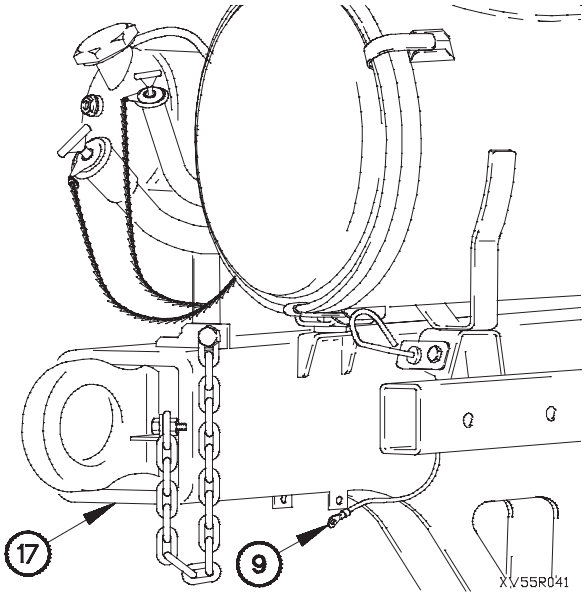
(5) Remove dust boot (4) from 200 amp terminal block to reverse polarity relay 12 vdc battery cable (9).

(6) Remove convoluted tubing (10) from 200 amp terminal block to reverse polarity relay 12 vdc battery cable (9) and 200 amp terminal block to reverse polarity relay 12 vdc load cable (11).



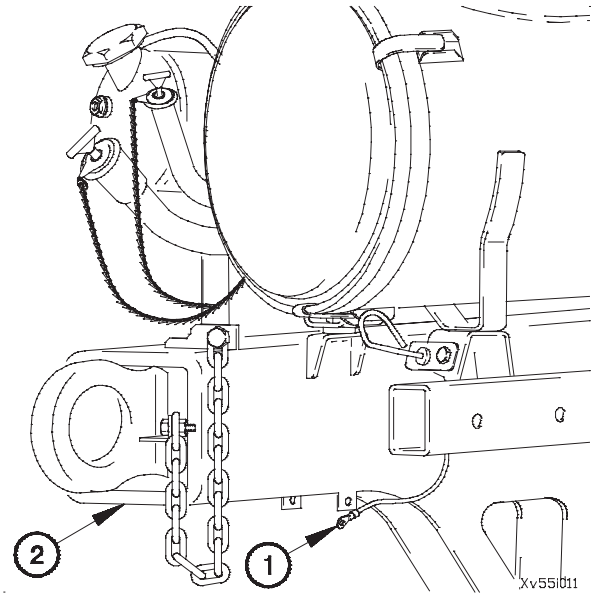


(7) Remove nut (12), lockwasher (13), washer (14), and terminal lug TL171 (15) from terminal block terminal (16). Discard lockwasher.

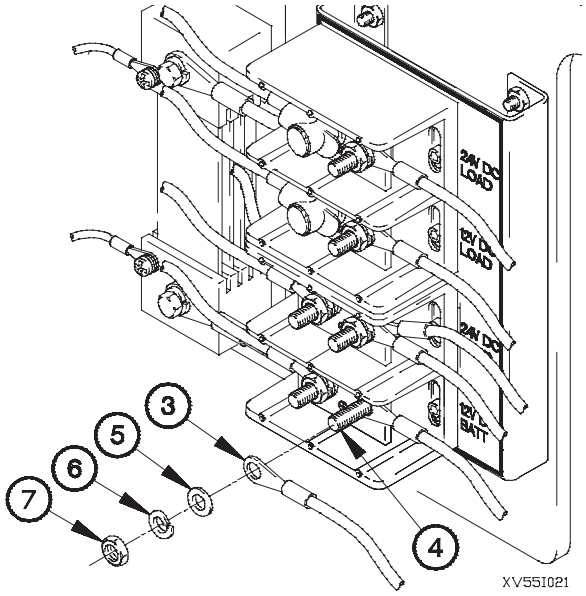


(8) Remove 200 amp terminal block to reverse polarity relay 12 vdc battery cable (9) from rear side of front lifting beam (17).

b. Installation.



(1) Route 200 amp terminal block to reverse polarity relay 12 vdc battery cable (1) to rear side of front lifting beam (2).



(2) Position terminal lug TL171 (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).

20-55. 200 AMP TERMINAL BLOCK TO REVERSE POLARITY RELAY 12 VDC BATTERY CABLE REPLACEMENT (CONT)

NOTE

Install plastic cable ties as required.

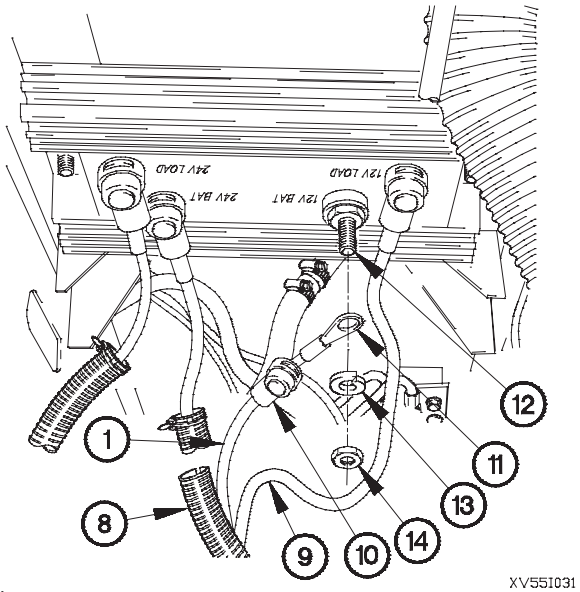
(4) Install convoluted tubing (8) on 200 amp terminal block to reverse polarity relay 12 vdc battery cable (1) and 200 amp terminal block to reverse polarity relay 12 vdc load cable (9).

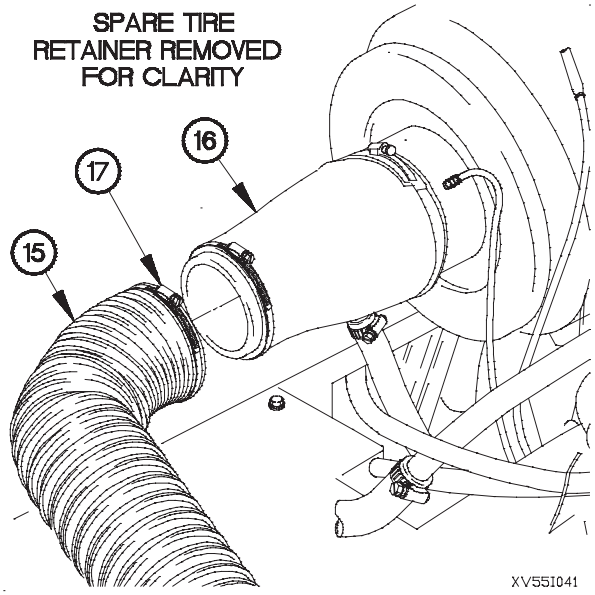
(5) Install dust boot (10) on 200 amp terminal block to reverse polarity relay 12 vdc battery cable (1).

(6) Position terminal lug TL173 (11) on reverse polarity relay 12 VDC BAT terminal (12) with lockwasher (13), and nut (14).

(7) Tighten nut (14) to 120 lb-in. (14 N·m).

(8) Position dust boot (10) on terminal lug TL173 (11).





(9) Position turbocharger intake hose (15) on intake air cleaner boot (16) with clamp (17).

(10) Tighten clamp (17) to 36-48 lb-in. (4-5 N·m).

c. Follow-On Maintenance.

(1) Connect batteries (para 7-57).

(2) Raise spare tire (TM 9-2320-366-10-2).

(3) Start engine (TM 9-2320-366-10-1).

(4) Check VOLTS gage for charge indication (TM 9-2320-366-10-1).

(5) Shut down engine (TM 9-2320-366-10-1).

End of Task.

20-56. 200 AMP TERMINAL BLOCK TO REVERSE POLARITY RELAY 24 VDC BATTERY CABLE REPLACEMENT

This task covers:

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

INITIAL SETUP

Equipment Conditions
Spare tire lowered (TM 9-2320-366-10-2).
Cab raised (TM 9-2320-366-10-1).
Batteries disconnected (para 7-57).

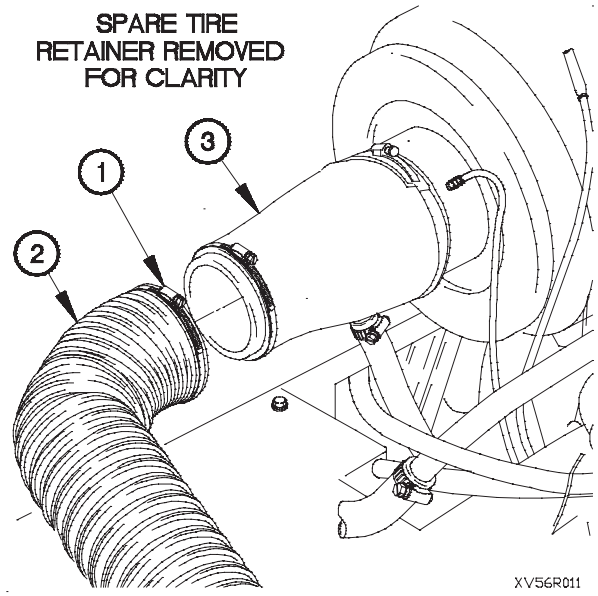
Materials/Parts
Ties, Cable, Plastic (Item 69, Appendix D)
Lockwasher (Item 73, Appendix G)
Lockwasher (Item 96, Appendix G)

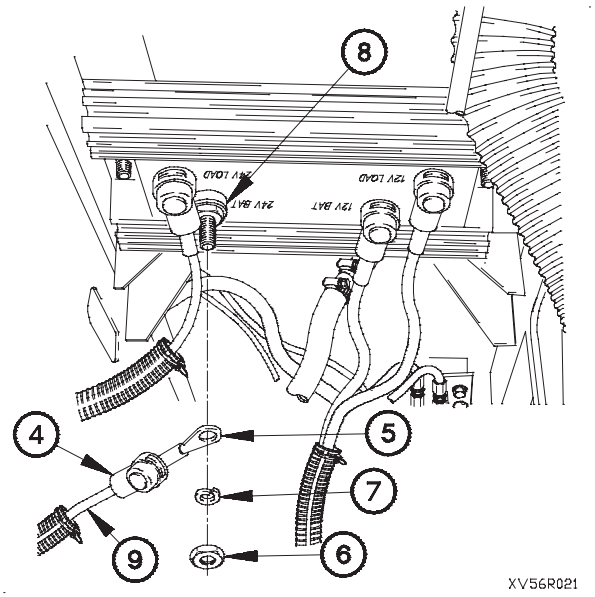
Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Wrench, Torque, 0-175 lb-ft (Item 58, Appendix C)
Wrench, Torque, 0-200 lb-in. (Item 59, Appendix C)
Socket Set, Socket Wrench (Item 34, Appendix C)

a. Removal.

(1) Loosen clamp (1) on turbocharger intake hose (2).

(2) Remove turbocharger intake hose (2) from intake air cleaner boot (3).





(3) Lift dust boot (4) on terminal lug TL169 (5).

NOTE

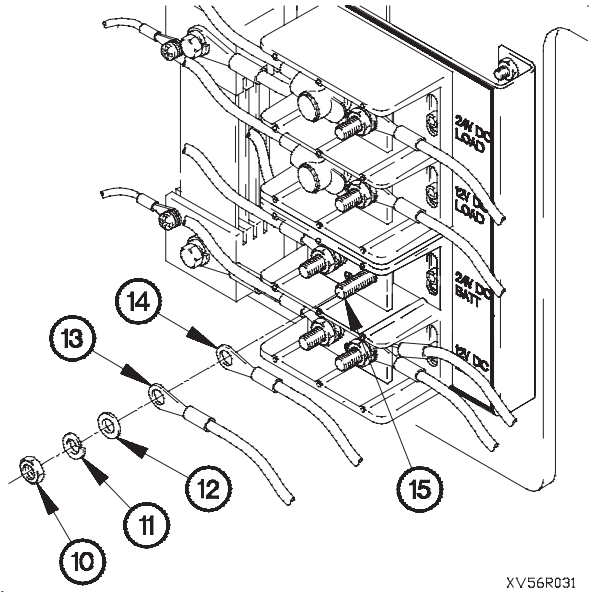
Remove plastic cable ties as required.

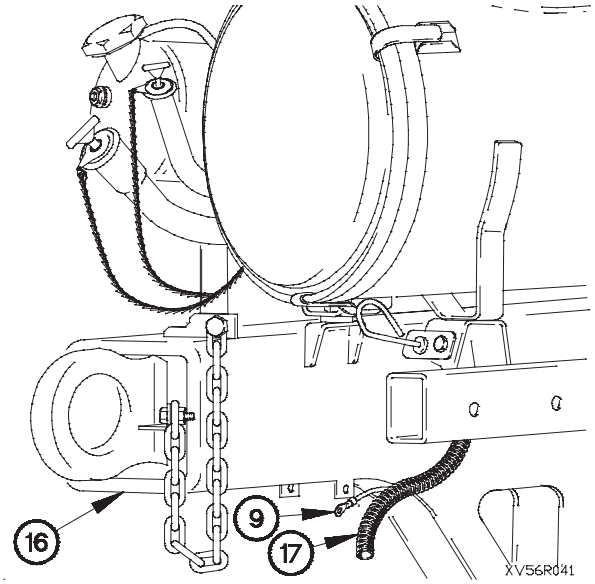
(4) Remove nut (6), lockwasher (7), and terminal lug TL169 (5) from reverse polarity relay 24 VDC BAT terminal (8). Discard lockwasher.

(5) Remove dust boot (4) from 200 amp terminal block to reverse polarity relay 24 vdc battery cable (9).

20-56. 200 AMP TERMINAL BLOCK TO REVERSE POLARITY RELAY 24 VDC BATTERY CABLE REPLACEMENT (CONT)

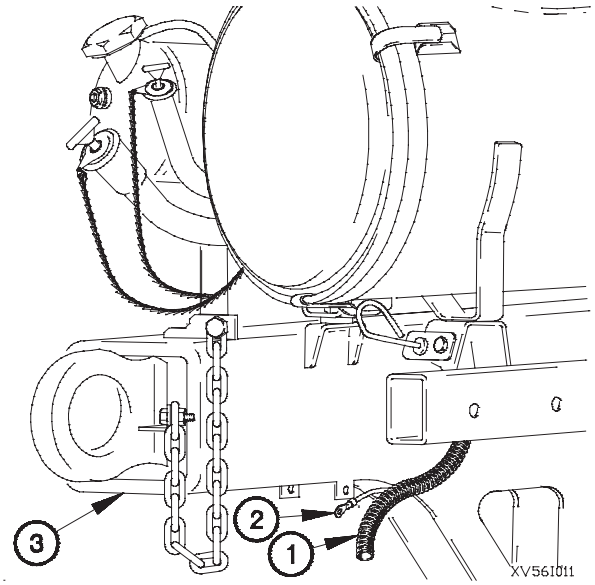
(6) Remove nut (10), lockwasher (11), washer (12), and terminal lugs TL1 (13) and TL166 (14) from terminal block terminal (15). Discard lockwasher.





(7) Remove 200 amp terminal block to reverse polarity relay 24 vdc battery cable (9) from rear side of front lifting beam (16).

(8) Remove convoluted tubing (17) from 200 amp terminal block to reverse polarity relay 24 vdc battery cable (9).



b. Installation.

NOTE

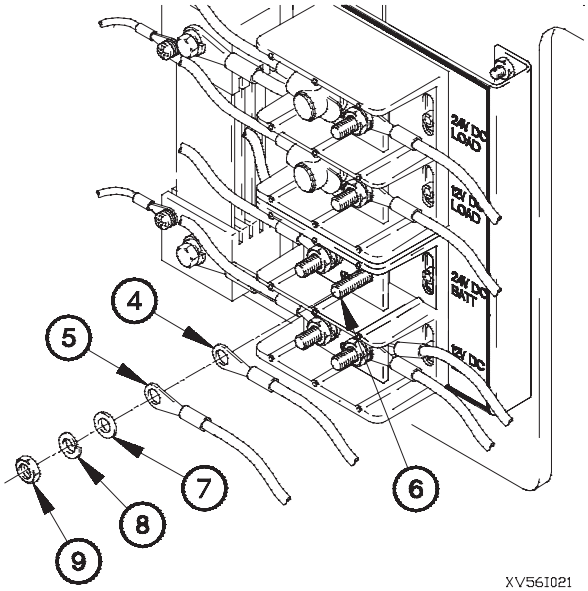
Install plastic cable ties as required.

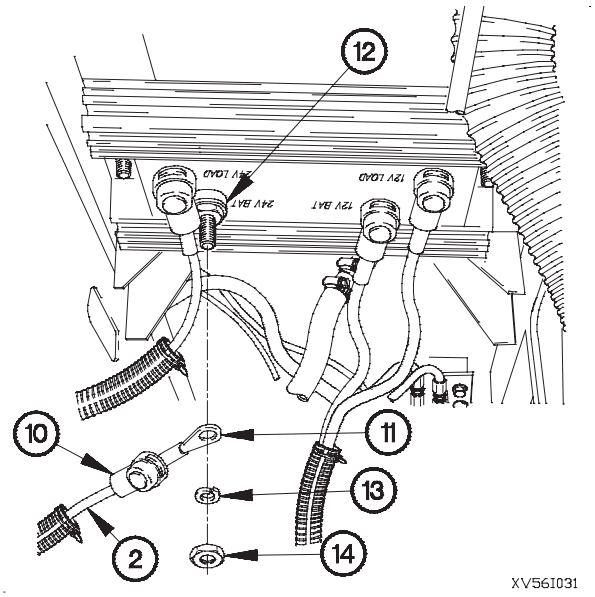
(1) Install convoluted tubing (1) on 200 amp terminal block to reverse polarity relay 24 vdc battery cable (2).

(2) Position 200 amp terminal block to reverse polarity relay 24 vdc battery cable (2) on rear side of front lifting beam (3).

(3) Position terminal lugs TL166 (4) and TL1 (5) on terminal block terminal (6) with washer (7), lockwasher (8), and nut (9).

(4) Tighten nut (9) to 15-19 lb-ft (21-25 N·m).





(5) Install dust boot (10) on 200 amp terminal block to reverse polarity relay 24 vdc battery cable (2).

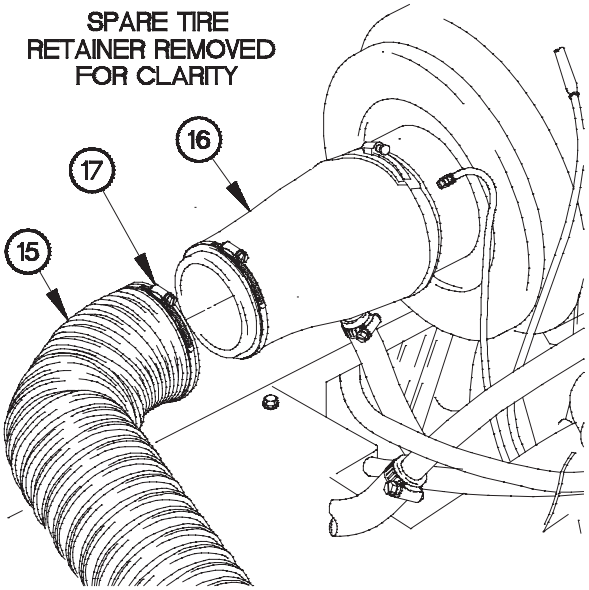
(6) Position terminal lug TL169 (11) on reverse polarity relay 24 VDC BAT terminal (12) with lockwasher (13) and nut (14).

(7) Tighten nut (14) to 30 lb-ft (41 N·m).

(8) Position dust boot (10) on terminal lug TL169 (11).

(9) Position turbocharger intake hose (15) on intake air cleaner boot (16) with clamp (17).

(10) Tighten clamp (17) to 36-48 lb-in. (4-5 N·m).



20-56. 200 AMP TERMINAL BLOCK TO REVERSE POLARITY RELAY 24 VDC BATTERY CABLE REPLACEMENT (CONT)

c. Follow-On Maintenance.

(1) Connect batteries (para 7-57).

(2) Raise spare tire (TM 9-2320-366-10-2).

(3) Start engine (TM 9-2320-366-10-1).

(4) Check VOLTS gage for charge indication (TM 9-2320-366-10-1).

(5) Shut down engine (TM 9-2320-366-10-1).

End of Task.

20-57. 200 AMP TERMINAL BLOCK 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 7-57).
PDP cover removed (para 16-2).
Spare tire lowered (TM 9-2320-366-10-2).
Bottom radiator fan shroud removed (para 6-4).

Materials/Parts
Ties, Cable, Plastic (Item 69, Appendix D)
Lockwasher (Item 84, Appendix G)
Lockwasher (Item 96, Appendix G)
Nut, Self-Locking (2) (Item 153, Appendix G)

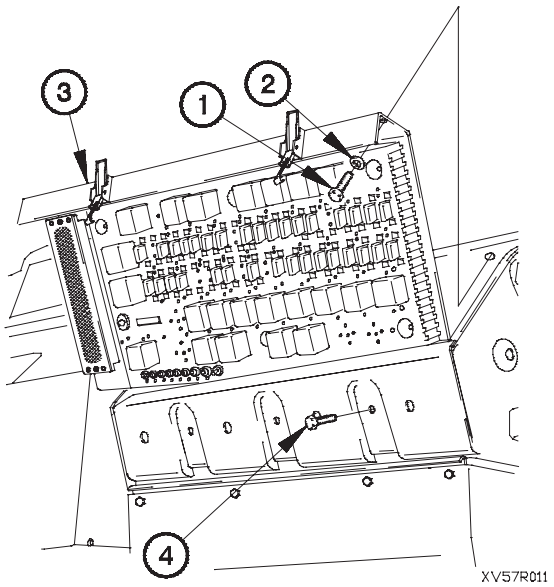
Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Wrench, Torque, 0-175 lb-ft (Item 58, Appendix C)
Wrench, Torque, 0-200 lb-in. (Item 59, Appendix C)
Socket Set, Socket Wrench (Item 34, Appendix C)

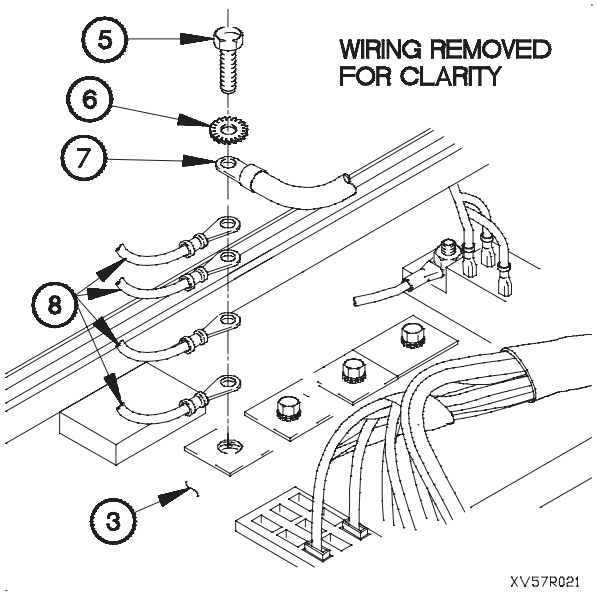
a. Removal.

(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 TL42 (7), and four terminal lugs (8) from PDP (3). Discard lockwasher.

(5) Position four terminal lugs (8) on PDP (3) with screw (5).

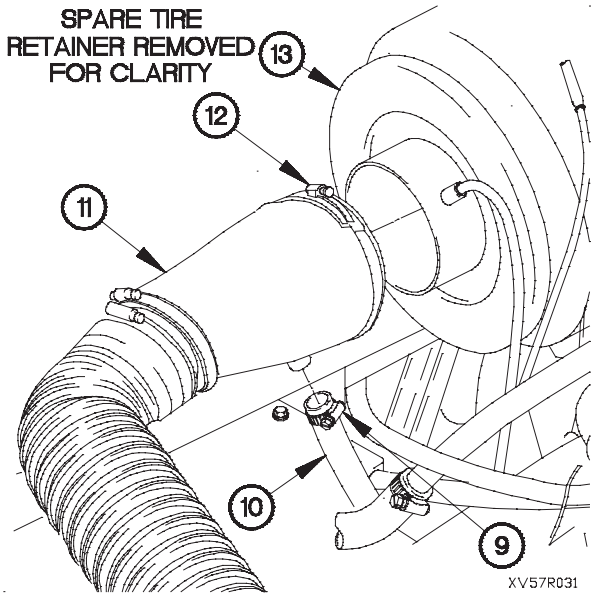
20-57. 200 AMP TERMINAL BLOCK TO POWER DISTRIBUTION PANEL (PDP) 24 VDC CABLE REPLACEMENT (CONT)

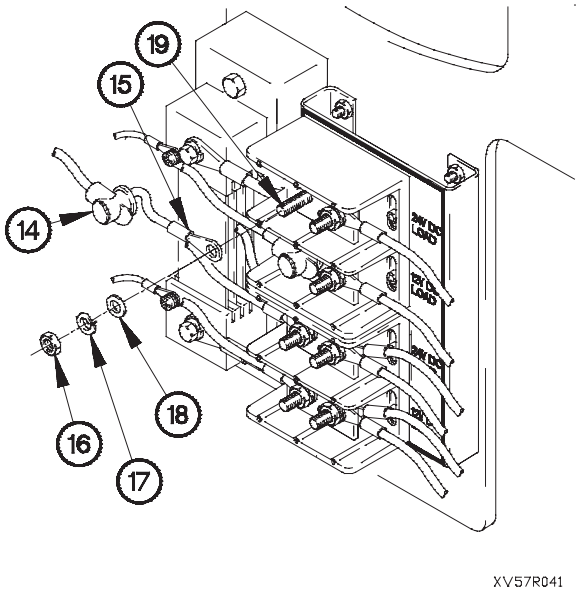
(6) Loosen clamp (9) on air compressor intake hose (10).

(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).



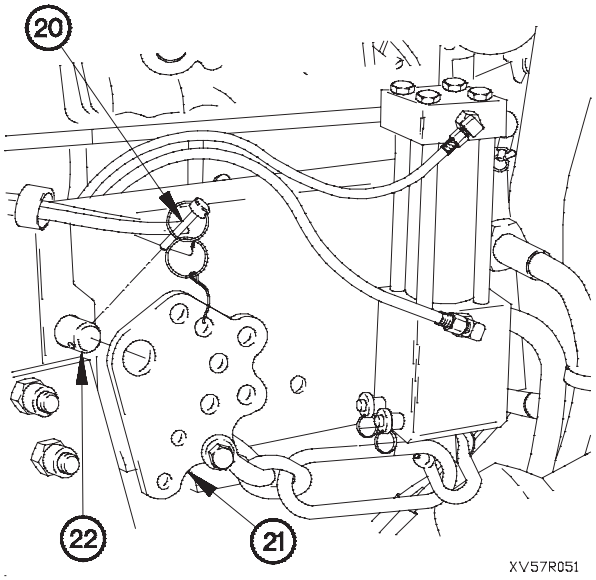


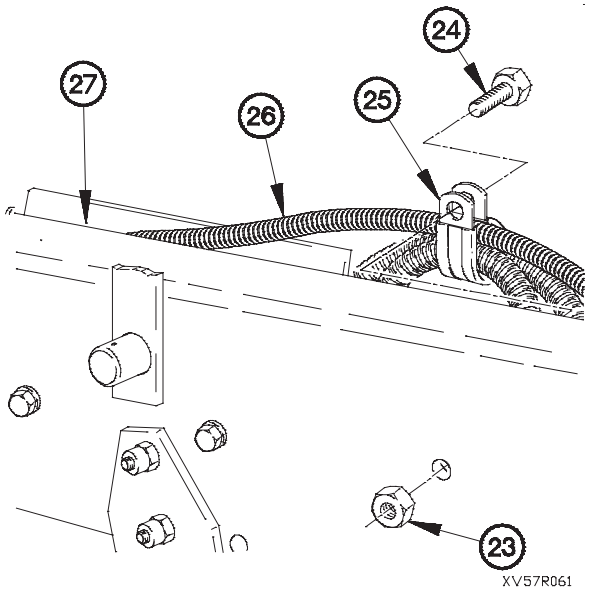
(10) Lift dust boot (14) on terminal lug TL44 (15).

(11) Remove nut (16), lockwasher (17), washer (18), and terminal lug TL44 (15) from terminal block terminal (19). Discard lockwasher.

(12) Raise cab (TM 9-2320-366-10-1).

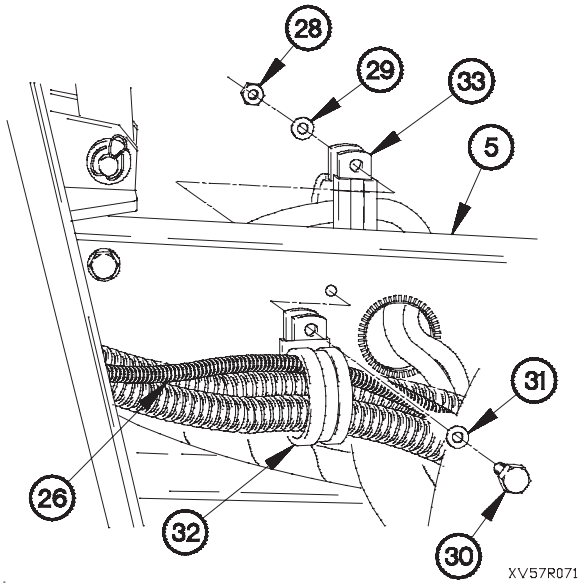
(13) Remove spring pin (20) and suspension compression plate (21) from suspension compression plate stud (22).





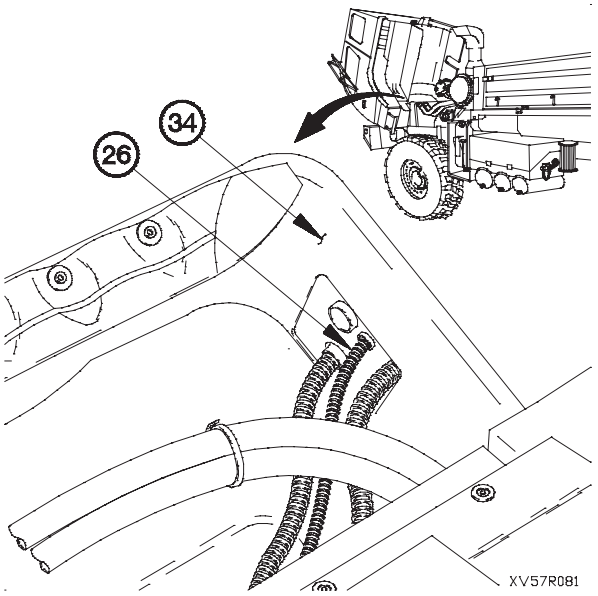
(14) Remove self-locking nut (23), screw (24), clamp (25), and 200 amp terminal block to PDP 24 vdc cable (26) from frame rail (27).

(15) Remove 200 amp terminal block to PDP 24 vdc cable (26) from clamp (25).



(16) Remove self-locking nut (28), washer (29), screw (30), and washer (31) from clamps (32 and 33). Discard self-locking nut.

(17) Remove 200 amp terminal block to PDP 24 vdc cable (26) from clamp (32).



(18) Remove 200 amp terminal block to PDP 24 vdc cable (26) from cab (34).

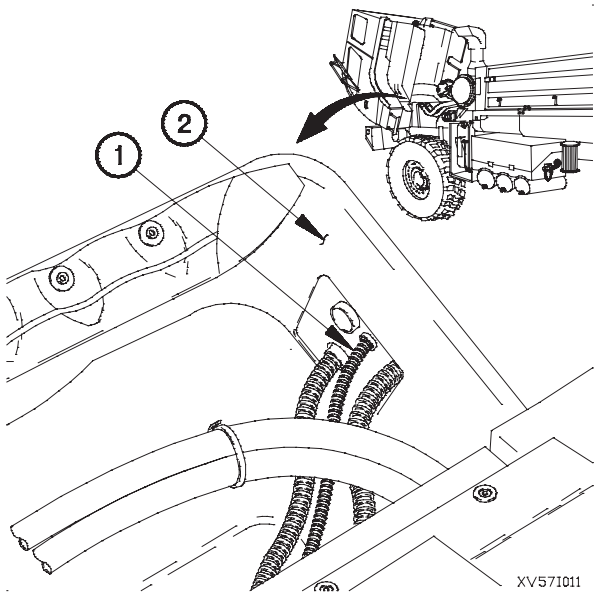
20-57. 200 AMP TERMINAL BLOCK TO POWER DISTRIBUTION PANEL (PDP) 24 VDC CABLE REPLACEMENT (CONT)

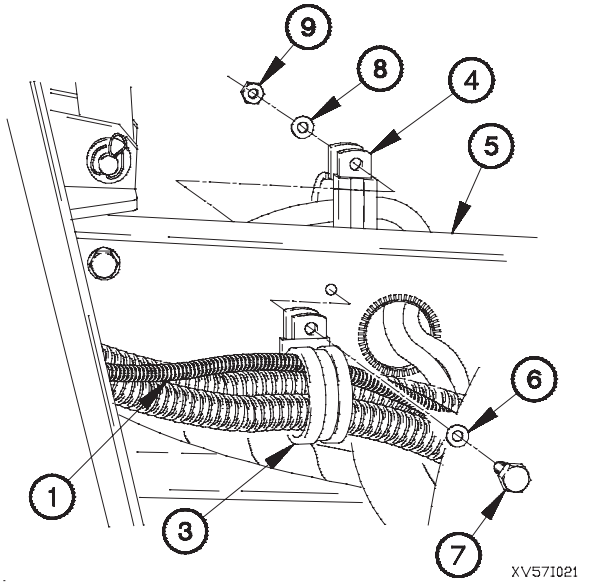
b. Installation.

NOTE

Install plastic cable ties as required.

(1) Route 200 amp terminal block to PDP 24 vdc cable (1) through bottom of cab (2).





(2) Position 200 amp terminal block to PDP 24 vdc cable (1) in clamp (3).

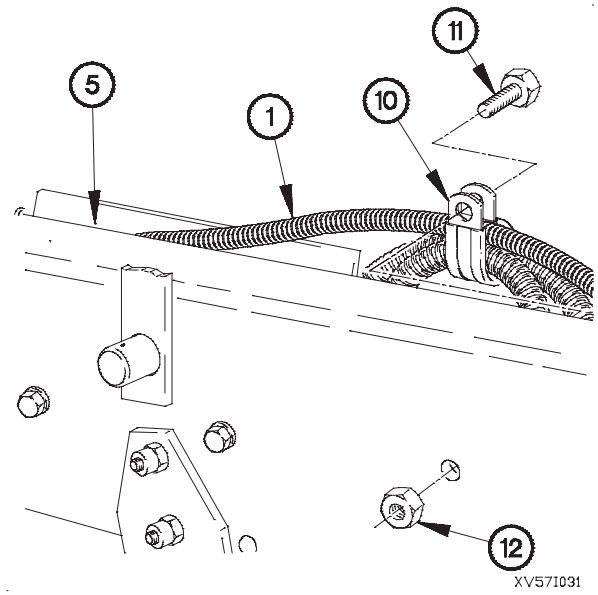
(3) Position clamps (3 and 4) on frame rail (5) with washer (6), screw (7), washer (8), and self-locking nut (9).

(4) Tighten self-locking nut (9) to 97-120 lb-in. (11-14 N·m).

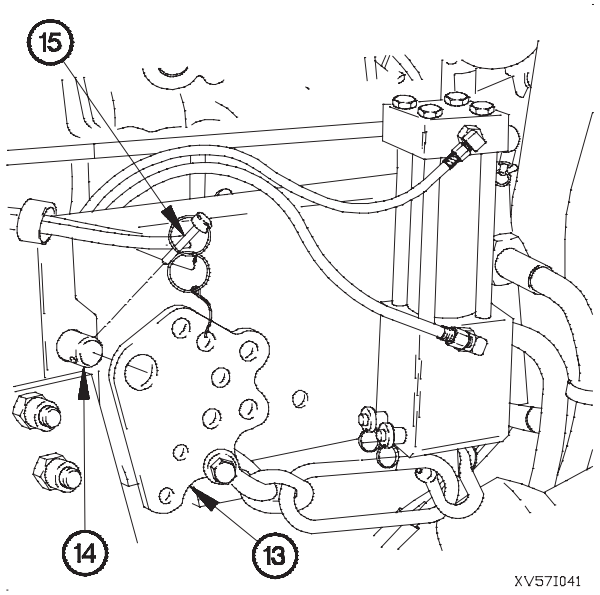
(5) Position 200 amp terminal block to PDP 24 vdc cable (1) in clamp (10)

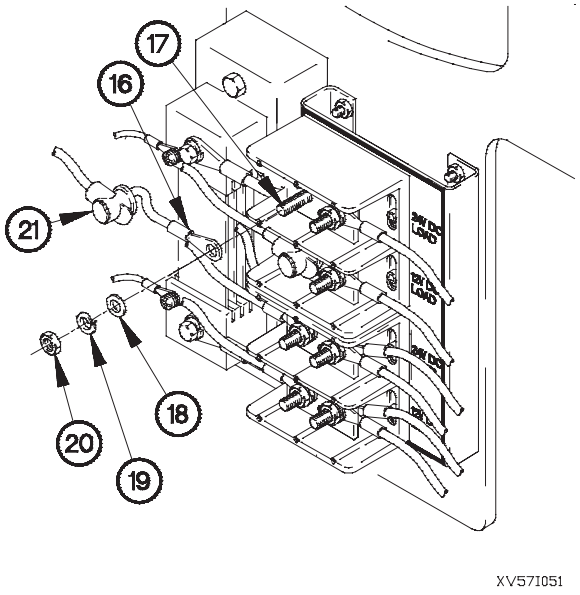
(6) Position clamp (10) on frame rail (5) with screw (11) and self-locking nut (12).

(7) Tighten self-locking nut (12) to 97-120 lb-in. (11-14 N·m).



(8) Install suspension compression plate (13) on suspension compression plate stud (14) with spring pin (15).

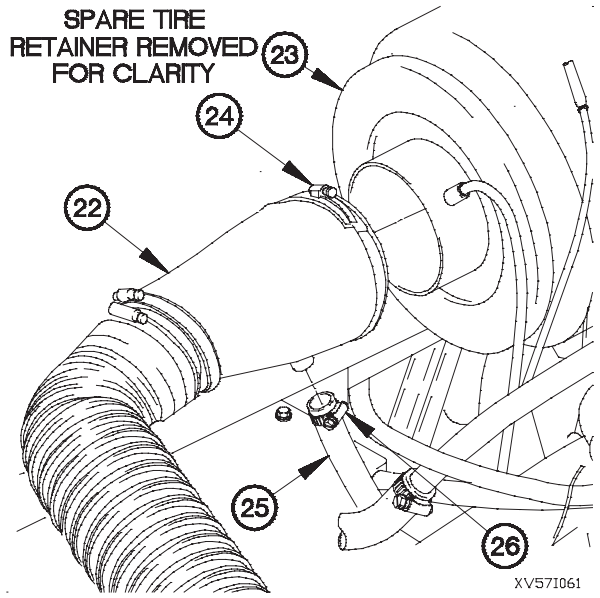




(9) Position terminal lug TL44 (16) on terminal block terminal (17) with washer (18), lockwasher (19) and nut (20).

(10) Tighten nut (20) to 15-19 lb-ft (21-25 N·m).

(11) Position dust boot (21) on terminal lug TL44 (16).



(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).

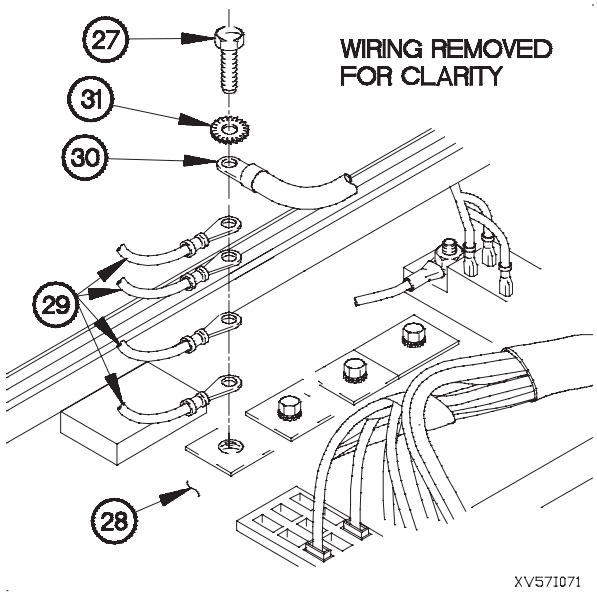
(15) Lower cab (TM 9-2320-366-10-1).

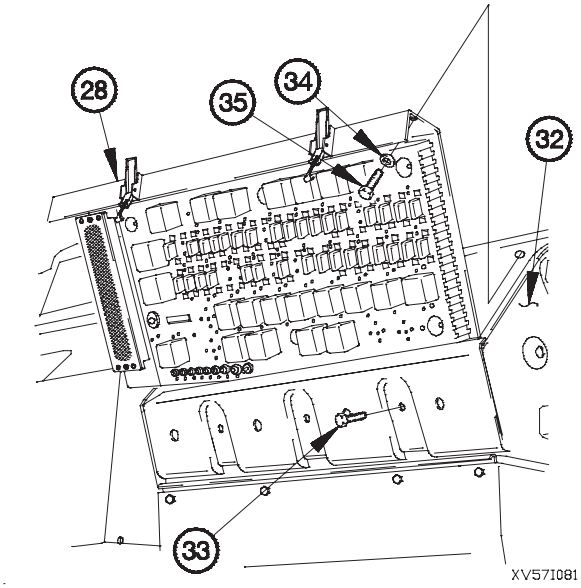
20-57. 200 AMP TERMINAL BLOCK TO POWER DISTRIBUTION PANEL (PDP) 24 VDC CABLE REPLACEMENT (CONT)

(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).

c. Follow-On Maintenance.

(1) Raise cab (TM 9-2320-366-10-1).

(2) Install bottom radiator fan shroud (para 6-4).

(3) Raise spare tire (TM 9-2320-366-10-2).

(4) Install PDP cover (para 16-2).

(5) Connect batteries (para 7-57).

(6) Start engine (TM 9-2320-366-10-1).

(7) Check VOLTS gage for charge indication (TM 9-2320-366-10-1).

(8) Shut down engine (TM 9-2320-366-10-1).

End of Task.

20-58. 200 AMP TERMINAL BLOCK REPLACEMENT

This task covers:

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

INITIAL SETUP

Equipment Conditions
Spare tire lowered (TM 9-2320-366-10-2).
Batteries disconnected (para 7-57).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Wrench, Torque, 0-175 lb-ft (Item 58, Appendix C)
Wrench, Torque, 0-200 lb-in. (Item 59, Appendix C)
Socket Set, Socket Wrench (Item 34, Appendix C)

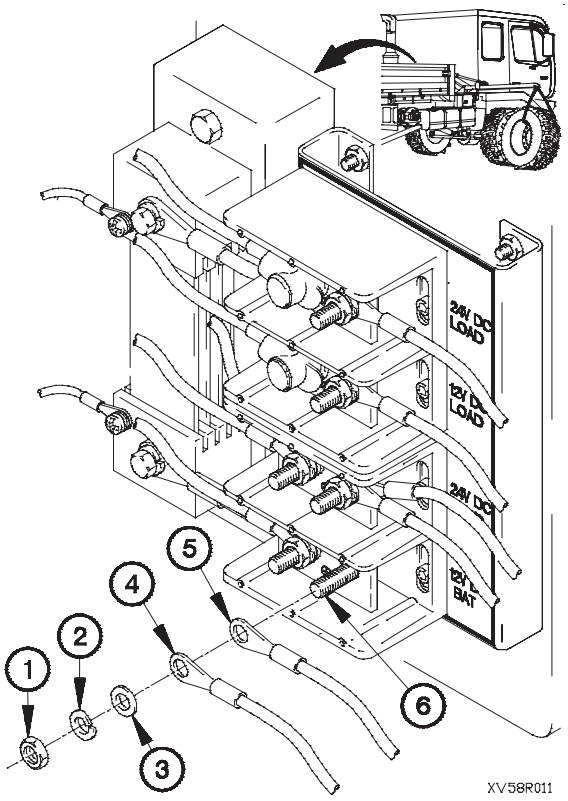
Materials/Parts
Ties, Cable, Plastic (Item 69, Appendix D)
Lockwasher (8) (Item 96, Appendix G)
Nut, Self-Locking (8) (Item 165, Appendix G)

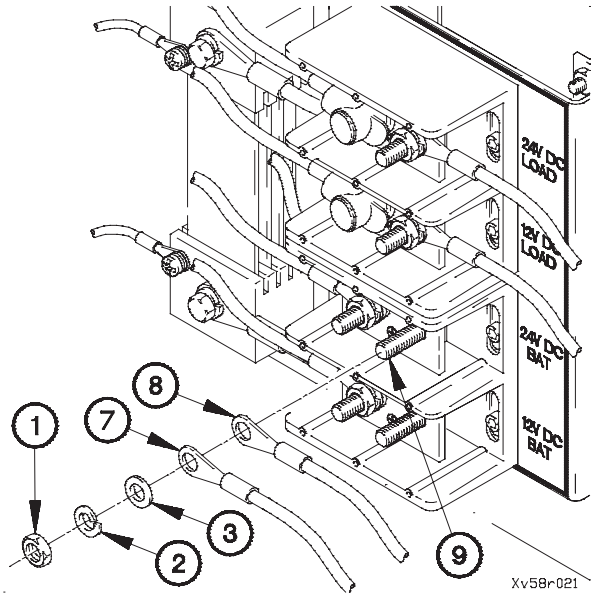
a. Removal.

NOTE

- Tag wires and connection points prior to disconnecting.
- Remove plastic cable ties as required.

(1) Remove nut (1), lockwasher (2), washer (3), and terminal lugs TL171 (4) and TL61 (5) from terminal block terminal (6). Discard lockwasher.

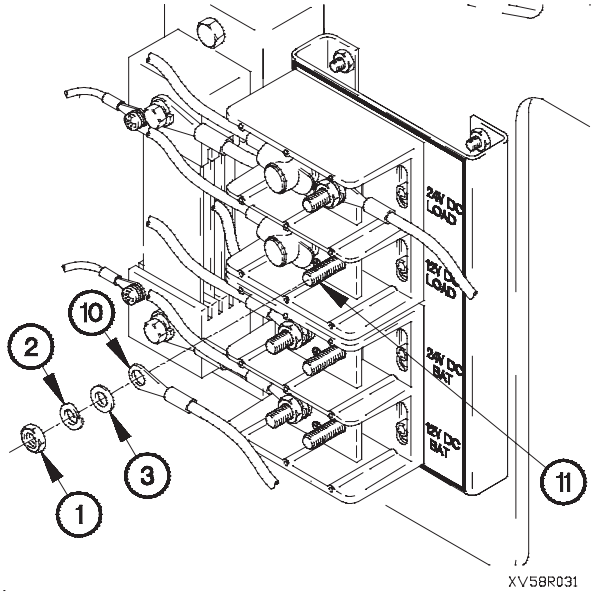


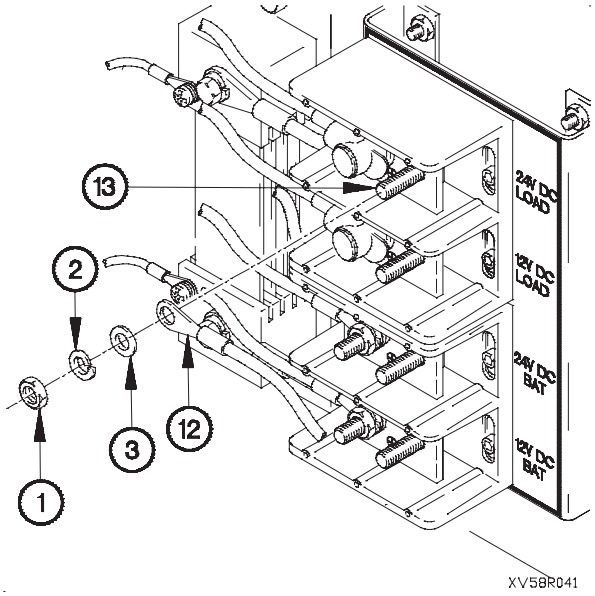


(2) Remove nut (1), lockwasher (2), washer (3), and terminal lugs TL166 (7) and TL1 (8) from terminal block terminal (9). Discard lockwasher.

20-58. 200 AMP TERMINAL BLOCK REPLACEMENT (CONT)

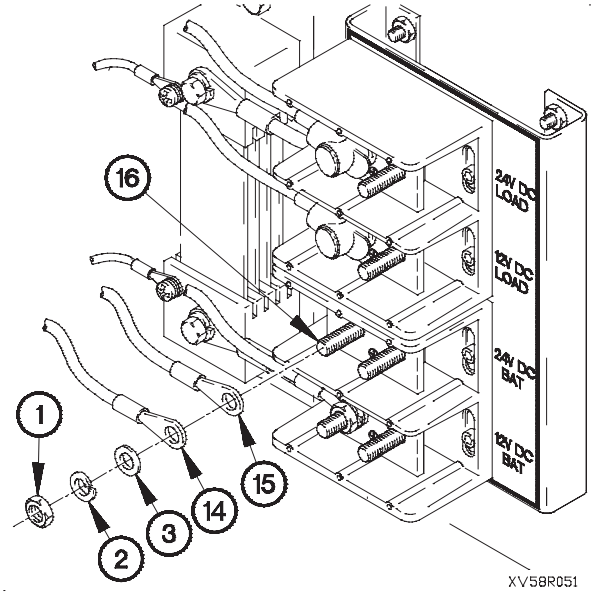
(3) Remove nut (1), lockwasher (2), washer (3), and terminal lug TL172 (10) from terminal block terminal (11). Discard lockwasher.





(4) Remove nut (1), lockwasher (2), washer (3), and terminal lug TL167 (12) from terminal block terminal (13). Discard lockwasher.

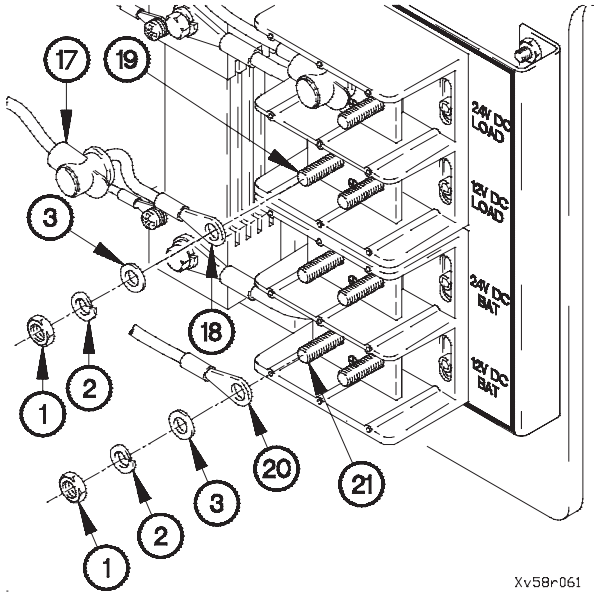
(5) Remove nut (1), lockwasher (2), washer (3), and terminal lugs TL37 (14) and TL36 (15) from terminal block terminal (16). Discard lockwasher.

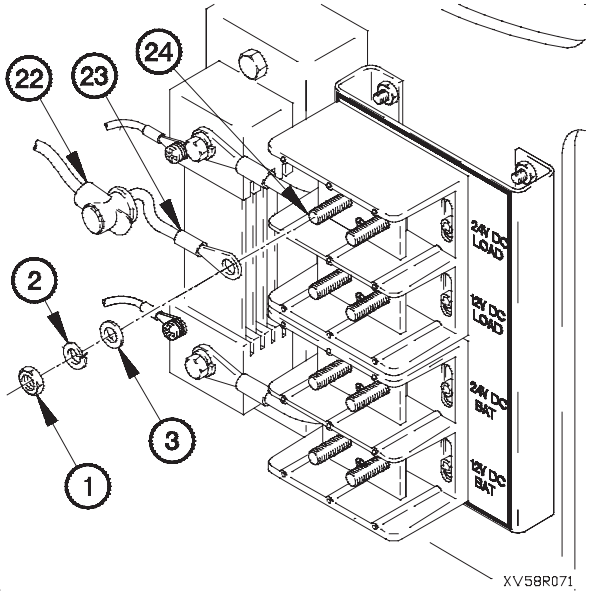


(6) Lift dust boot (17) on terminal lug TL80 (18).

(7) Remove nut (1), lockwasher (2), washer (3), and terminal lug TL80 (18) from terminal block terminal (19). Discard lockwasher.

(8) Remove nut (1), lockwasher (2), washer (3), and terminal lug TL47 (20) from terminal block terminal (21). Discard lockwasher.

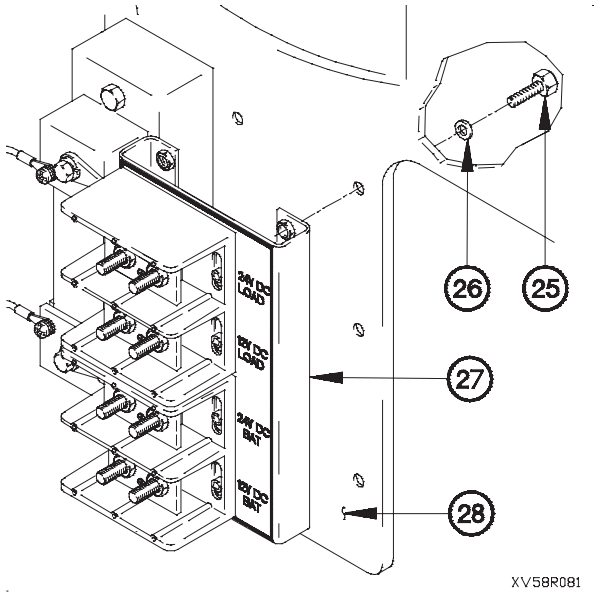




(9) Lift dust boot (22) on terminal lug TL44 (23).

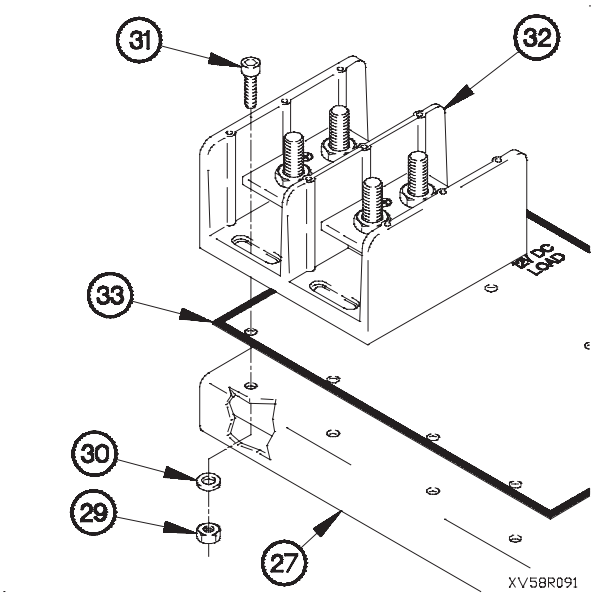
(10) Remove nut (1), lockwasher (2), washer (3), and terminal lug TL44 (23) from terminal block terminal (24). Discard lockwasher.

(11) Remove four screws (25), washers (26), and bracket (27) from spare tire retainer (28).

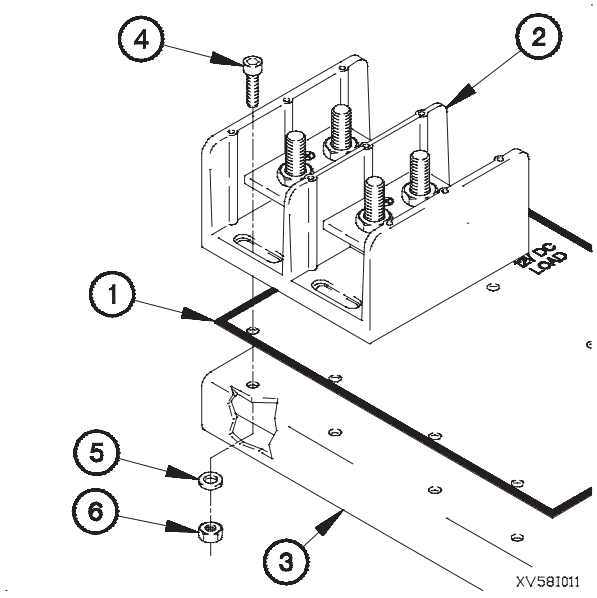


20-58. 200 AMP TERMINAL BLOCK REPLACEMENT (CONT)

(12) Remove eight self-locking nuts (29), washers (30), screws (31), two terminal blocks (32), and identification plate (33) from bracket (27). Discard self-locking nuts.



b. Installation.



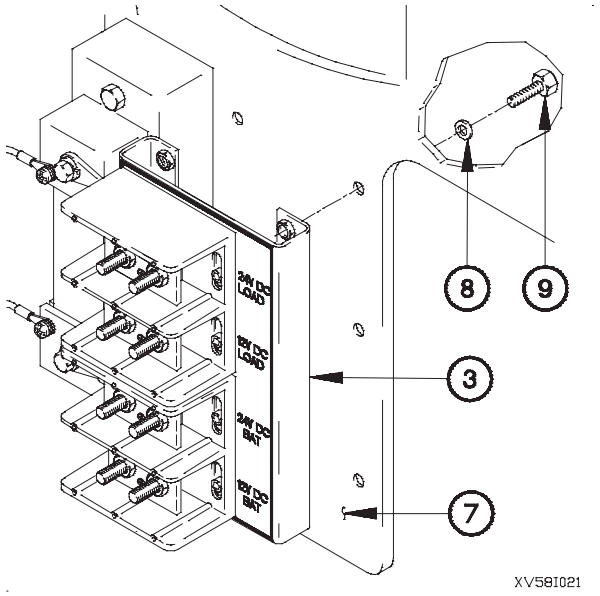
CAUTION

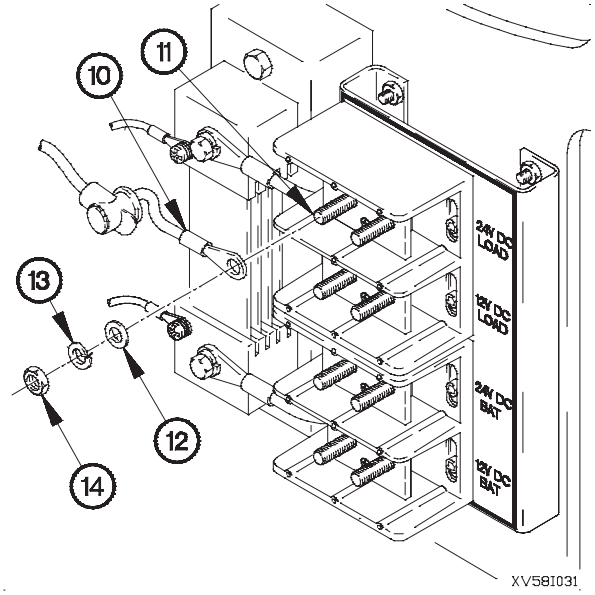
Both terminal blocks must be positioned loosely to align correctly on mounting bracket before tightening hardware. Failure to comply may result in damage to equipment.

(1) Position identification plate (1) and two terminal blocks (2) on bracket (3) with eight screws (4), washers (5), and self-locking nuts (6).

(2) Tighten eight self-locking nuts (6) to 48 lb-in. (5 N·m).

(3) Install bracket (3) on spare tire retainer (7) with four washers (8) and screws (9).

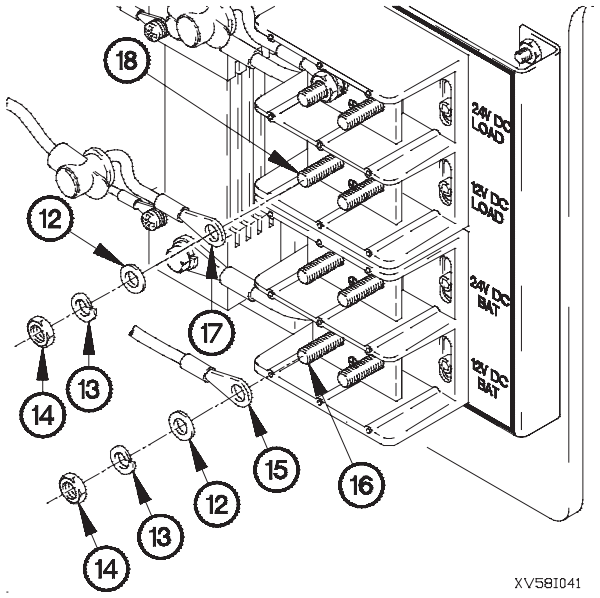




(4) Position terminal lug TL44 (10) on terminal block terminal (11) with washer (12), lockwasher (13), and nut (14).

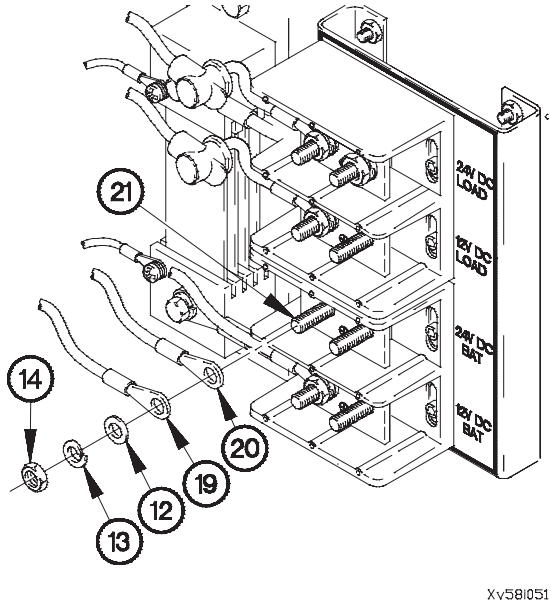
(5) Position terminal lug TL47 (15) on terminal block terminal (16) with washer (12), lockwasher (13), and nut (14).

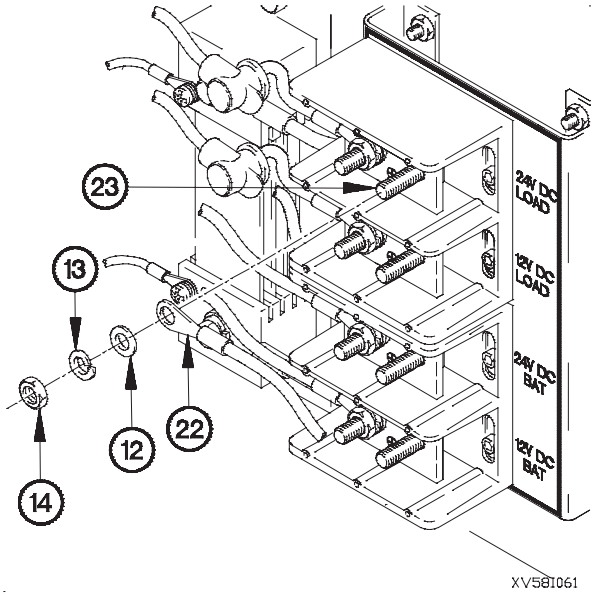
(6) Position terminal lug TL80 (17) on terminal block terminal (18) with washer (12), lockwasher (13), and nut (14).



20-58. 200 AMP TERMINAL BLOCK REPLACEMENT (CONT)

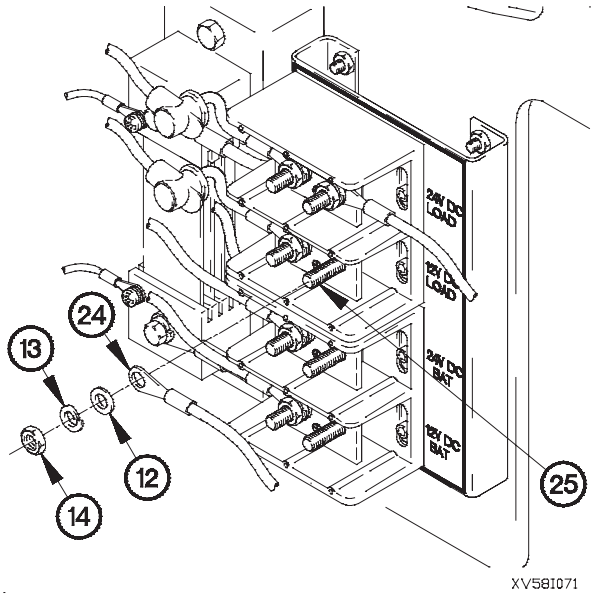
(7) Position terminal lugs TL37 (19) and TL36 (20) on terminal block terminal (21) with washer (12), lockwasher (13), and nut (14).



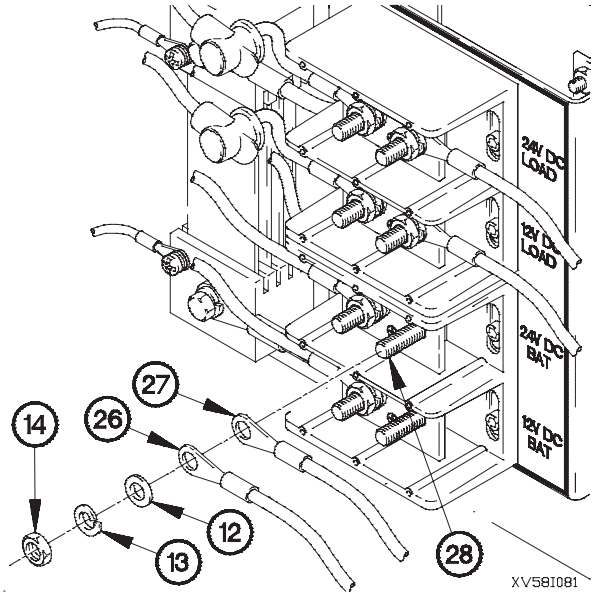


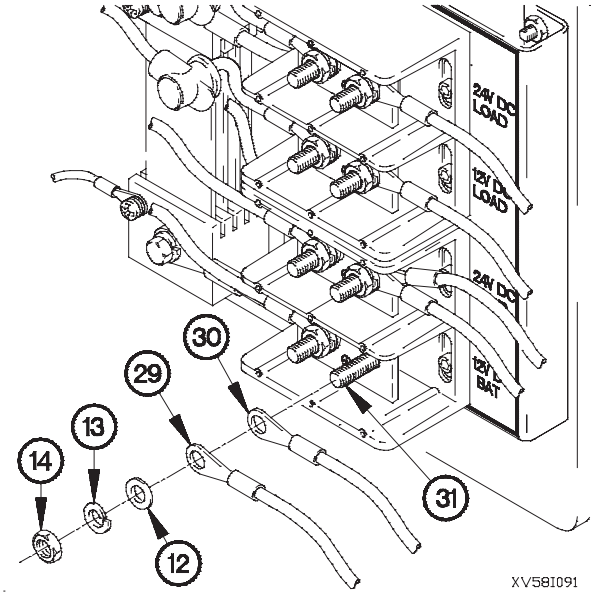
(8) Position terminal lug TL167 (22) on terminal block terminal (23) with washer (12), lockwasher (13), and nut (14).

(9) Position terminal lug TL172 (24) on terminal block terminal (25) with washer (12), lockwasher (13), and nut (14).

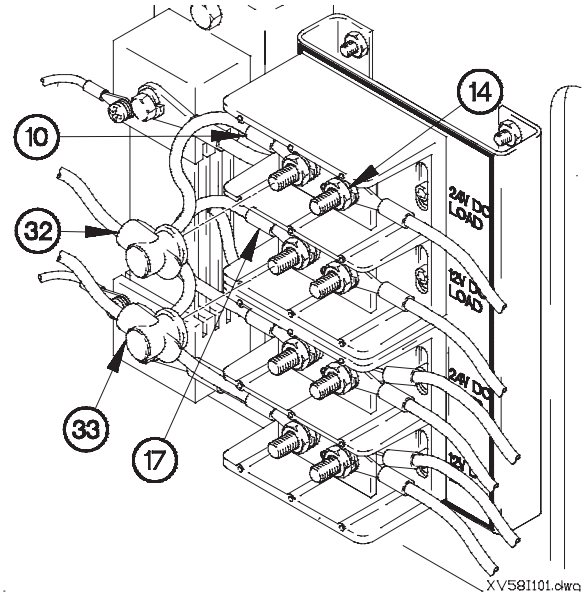


(10) Position terminal lugs TL166 (26) and TL1 (27) on terminal block terminal (28) with washer (12), lockwasher (13), and nut (14).





(11) Position terminal lugs TL171 (29) and TL61 (30) on terminal block terminal (31) with washer (12), lockwasher (13) and nut (14).



(12) Tighten eight nuts (14) to 15-19 lb-ft (21-25 N·m).

(13) Position dust boot (32) on terminal lug TL44 (10).

(14) Position dust boot (33) on terminal lug TL80 (17).

20-58. 200 AMP TERMINAL BLOCK REPLACEMENT (CONT)

c. Follow-On Maintenance.

(1) Raise spare tire (TM 9-2320-366-10-2).

(2) Connect batteries (para 7-57).

(3) Start engine (TM 9-2320-366-10-1).

(4) Check VOLTS gage for charge indication (TM 9-2320-366-10-1).

(5) Shut down engine (TM 9-2320-366-10-1).

End of Task.

20-59. M1089 FUEL/WATER CAN BRACKET KIT INSTALLATION/REMOVAL

This task covers:

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

INITIAL SETUP

Equipment Conditions
Left catwalk removed (for installation) (para 14-4).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Goggles, Industrial (Item 15, Appendix C)
Drill, Portable, Electric (Item 7, Appendix C)
Drill Set, Twist (Item 6, Appendix C)
Wrench, Torque, 0-175 lb-ft (Item 58, Appendix C)

Materials/Parts
Nut, Self-Locking (8) (Item 156, Appendix G)

Personnel Required
(2)

a. Installation.

NOTE

Reference points are front edge and roadside edge of left catwalk.

(1) Measure and mark a line (1) on left catwalk (2) 3 in. (7.6 cm) from roadside reference.

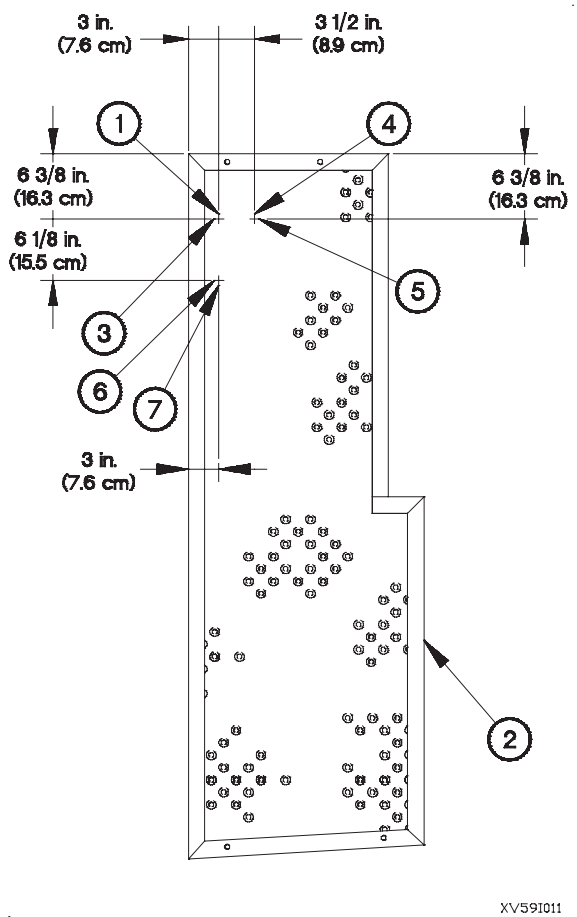
(2) Measure and mark a line (3) on left catwalk (2) 6 3/8 in. (16.3 cm) from front reference.

(3) Measure and mark a line (4) on left catwalk (2) 3 1/2 in. (8.9 cm) from line (3).

(4) Measure and mark a line (5) on left catwalk (2) 6 3/8 in. (16.3 cm) from roadside reference.

(5) Measure and mark a line (6) on left catwalk (2) 6 1/8 in. (15.5 cm) from line (1).

(6) Measure and mark a line (7) on left catwalk (2) 3 in. (7.6 cm) from roadside reference.



20-59. M1089 FUEL/WATER CAN BRACKET KIT INSTALLATION/REMOVAL (CONT)

(7) Measure and mark a line (8) on left catwalk (2) 6 1/8 in. (15.5 cm) from line (5).

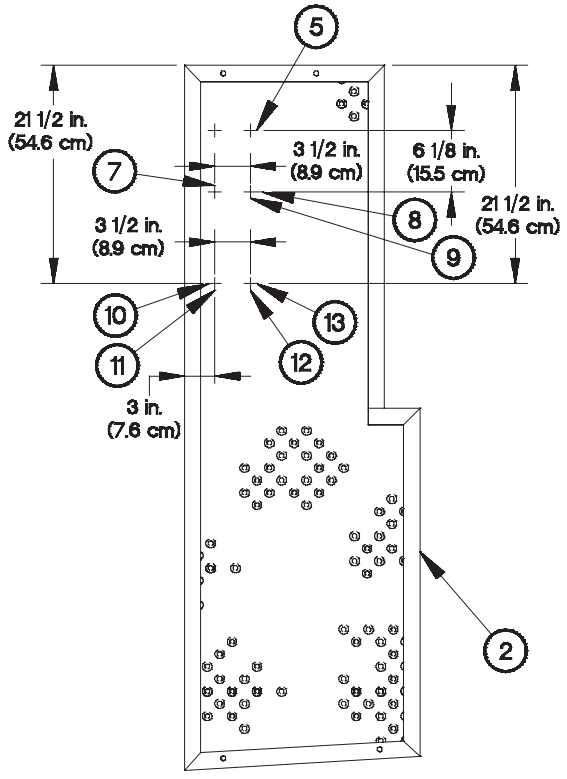
(8) Measure and mark a line (9) on left catwalk (2) 3 1/2 in. (8.9 cm) from line (7).

(9) Measure and mark a line (10) on left catwalk (2) 21 1/2 in. (54.6 cm) from front reference.

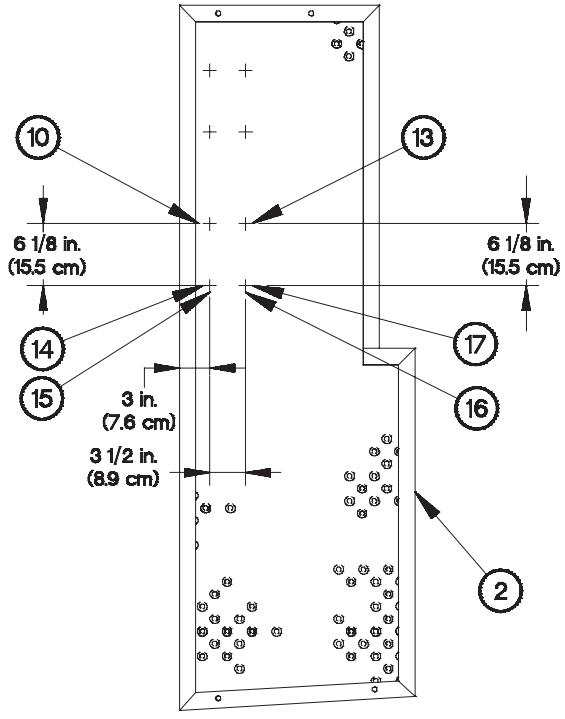
(10) Measure and mark a line (11) on left catwalk (2) 3 in. (7.6 cm) from roadside reference.

(11) Measure and mark a line (12) on left catwalk (2) 3 1/2 in. (8.9 cm) from line (11).

(12) Measure and mark a line (13) on left catwalk (2) 21 1/2 in. (54.6 cm) from front reference.



XV591021



XV591031

(13) Measure and mark a line (14) on left catwalk (2) 6 1/8 in. (15.5 cm) from line (10).

(14) Measure and mark a line (15) on left catwalk (2) 3 in. (7.6 cm) from roadside reference.

(15) Measure and mark a line (16) on left catwalk (2) 3 1/2 in. (8.9 cm) from line (15).

(16) Measure and mark a line (17) on left catwalk (2) 6 1/8 in. (15.5 cm) from line (13).

WARNING

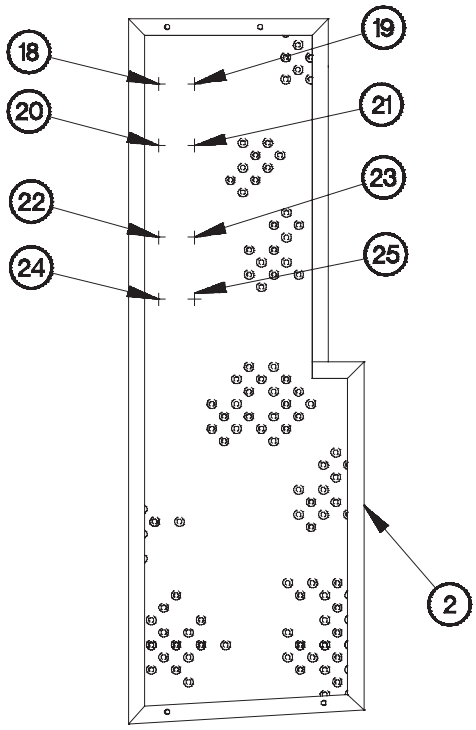
Wear appropriate eye protection when drilling holes. Failure to comply may result in injury to personnel.

CAUTION

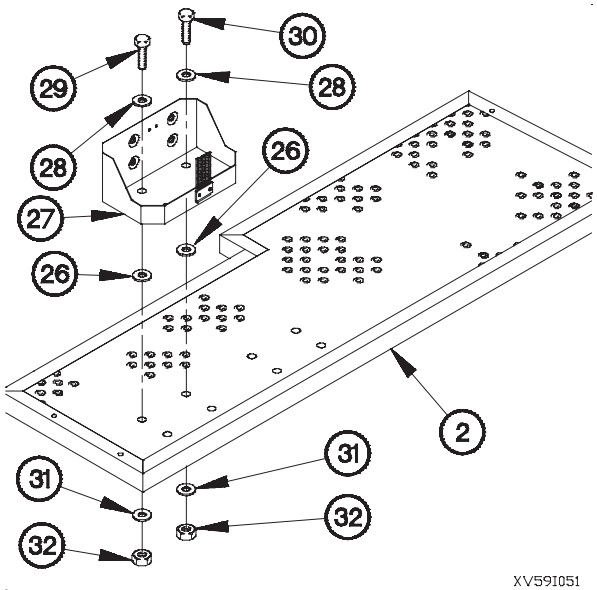
Use care while drilling and enlarging holes. Do not break through wall of left catwalk bracing. Failure to comply will result in damage to equipment.

(17) Drill a pilot hole at eight points (18 through 25) in left catwalk (2).

(18) Enlarge pilot holes (18 through 25) to 3/8 in. (0.95 cm).



XV59I041



XV59I051

(19) Position four washers (26) and front bracket (27) on left catwalk (2) with four washers (28), screws (29 and 30), four washers (31), and self-locking nuts (32).

NOTE

Step (20) requires the aid of an assistant.

(20) Tighten four self-locking nuts (32) to 31-39 lb-ft (42-55 N·m).

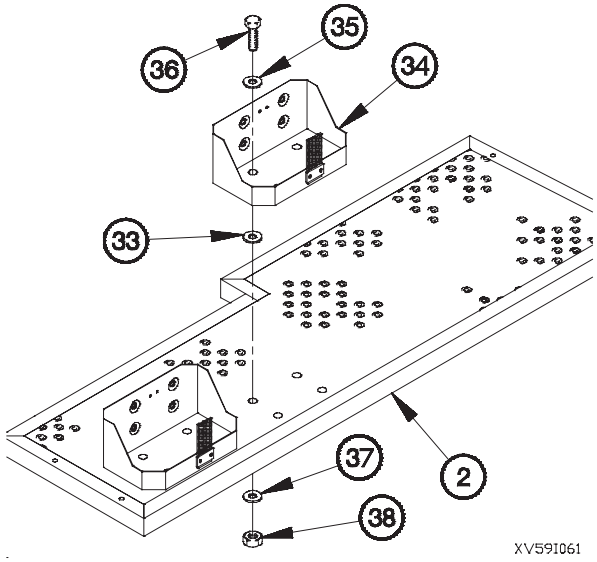
20-59. M1089 FUEL/WATER CAN BRACKET KIT INSTALLATION/REMOVAL (CONT)

(21) Position four washers (33) and rear bracket (34) on left catwalk (2) with four washers (35), screws (36), washers (37), and self-locking nuts (38).

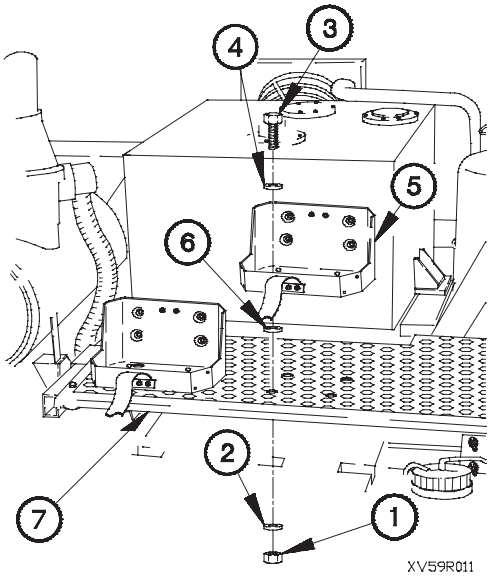
NOTE

Step (22) requires the aid of an assistant.

(22) Tighten four self-locking nuts (38) to 31-39 lb-ft (42-55 N·m).

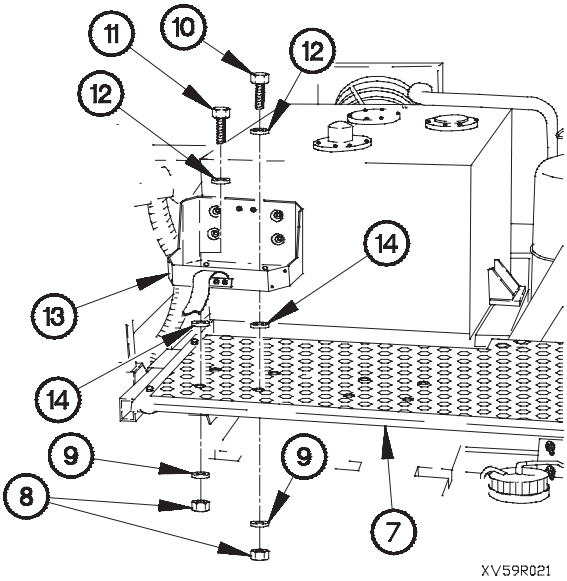


b. Removal.



(1) Remove four self-locking nuts (1), washers (2), screws (3), washers (4), rear bracket (5) and four washers (6) from left catwalk (7). Discard self-locking nuts.

(2) Remove four self-locking nuts (8), washers (9), screws (10 and 11), washers (12), front bracket (13), and four washers (14) from left catwalk (7). Discard self-locking nuts.



c. Follow-On Maintenance.

Install left catwalk (after fuel/water can bracket kit installation) (para 14-4).

End of Task.

20-60. LIGHT MATERIAL HANDLING CRANE (LMHC) ASSEMBLY/DISASSEMBLY

This task covers:

a. Assembly

b. Disassembly

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-366-10-1).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Sling, Cargo (Item 31, Appendix C)

Materials/Parts
Lockwasher (2) (Item 96, Appendix G)

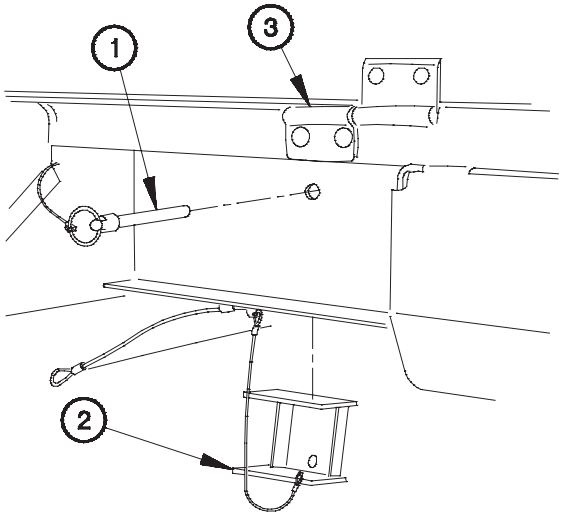
Personnel Required
(2)

a. Assembly.

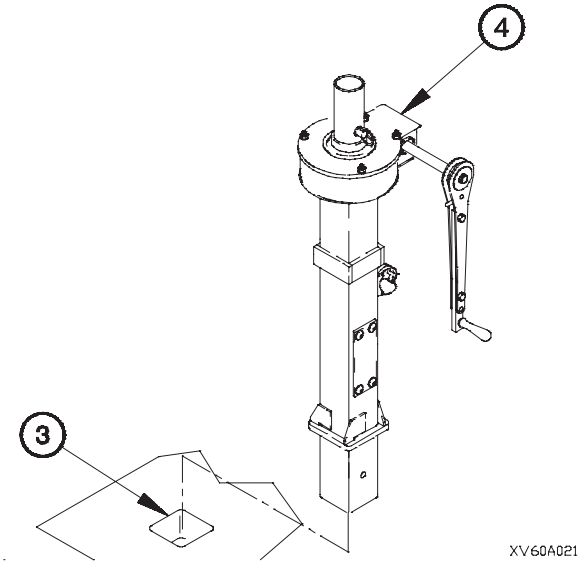
NOTE

LMHC may be installed in any of the four cargo bed pockets. Left front cargo bed pocket shown.

(1) Remove quick release pin (1) and plug (2) from cargo bed pocket (3).



XV60A011



XV60A021

WARNING

Light Material 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.

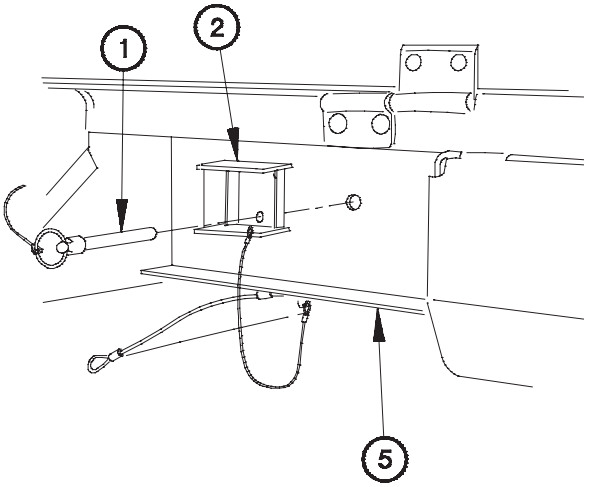
NOTE

- Step (2) requires the aid of an assistant.
- Position mast in cargo bed so handle does not extend over front or rear edge of cargo bed.

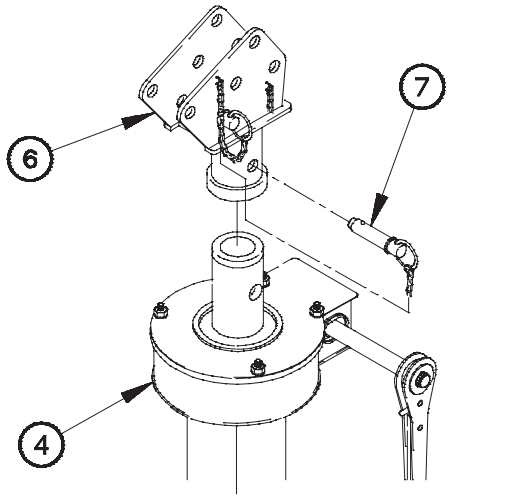
(2) Install mast (4) in cargo bed pocket (3).

20-60. LIGHT MATERIAL HANDLING CRANE (LMHC) ASSEMBLY/DISASSEMBLY (CONT)

(3) Install plug (2) on cargo bed frame (5) with quick release pin (1).



XV60A031



XV60A041

(4) Position turret (6) on mast (4).

(5) Install quick release pin (7) in turret (6).

WARNING

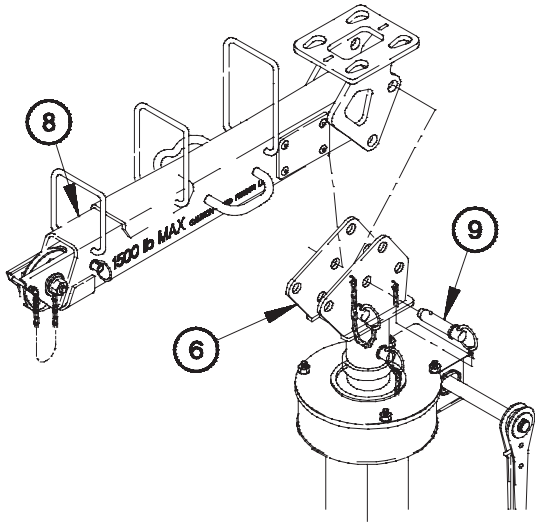
Light Material Handling Crane (LMHC) boom weighs approximately 60 lbs (27 kgs). Attach a suitable lifting device prior to installation. Failure to comply may result in injury to personnel or damage to equipment.

NOTE

Step (6) requires the aid of an assistant.

(6) Position boom (8) in turret (6).

(7) Install two quick release pins (9) in turret (6).

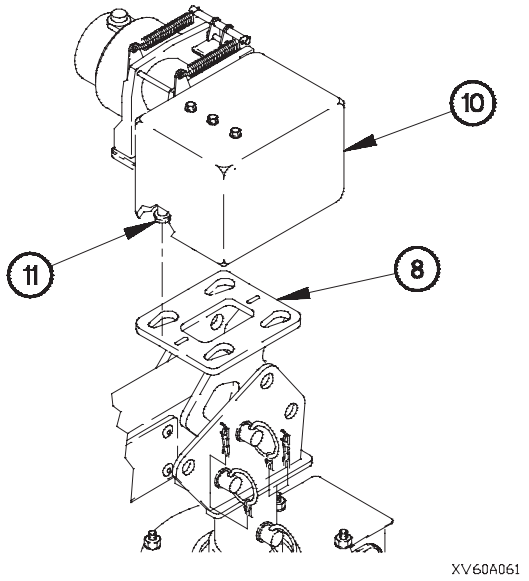


XV60A051

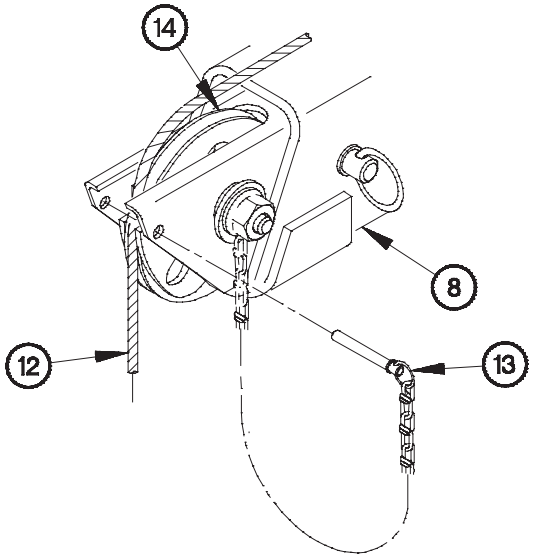
(8) Position winch (10) on boom (8).

(9) Slide winch (10) to front of boom (8).

(10) Tighten four screws (11) on winch (10).



XV60A061



XV60A071

(11) Connect power and remote control cables (TM 9-2320-366-10-1).

(12) Extend winch cable (12) approximately 6 feet (1.8 m).

(13) Remove quick release pin (13) from boom (8).

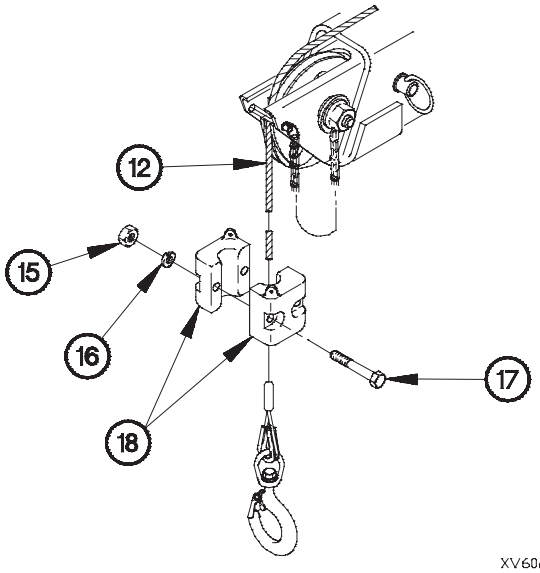
(14) Position winch cable (12) on boom sheave (14).

(15) Install quick release pin (13) in boom (8).

(16) Remove two nuts (15), lockwashers (16), and screws (17) from weight blocks (18). Discard lockwashers.

(17) Install two weight blocks (18) on winch cable (12) with two screws (17), lockwashers (16), and nuts (15).

(18) Position boom in stowed position (TM 9-2320-366-10-1).



XV60A081

20-60. LIGHT MATERIAL HANDLING CRANE (LMHC) ASSEMBLY/DISASSEMBLY (CONT)

b. Disassembly.

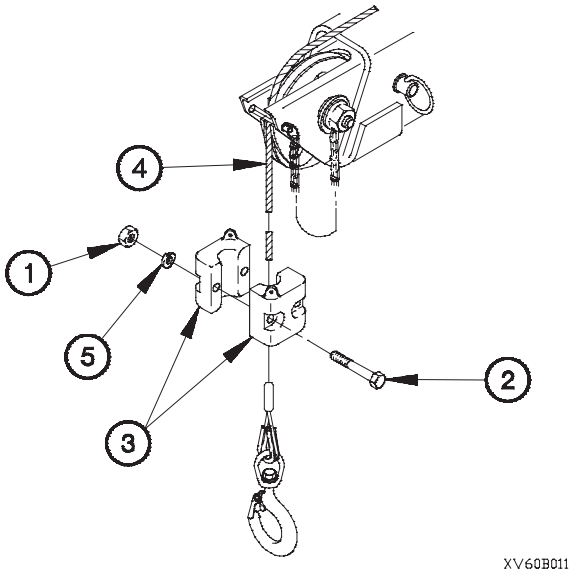
(1) Position boom in the 0-degree position (TM 9-2320-366-10-1).

(2) Remove two nuts (1), screws (2), lockwashers (5), and weight blocks (3) from winch cable (4). Discard lockwashers.

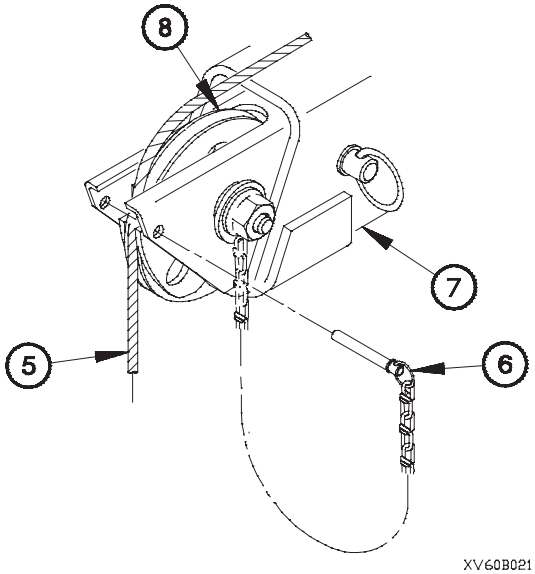
NOTE

Perform step (3) for stowage of weight block.

(3) Install two screws (2) in weight blocks (3) with lockwashers (5) and nuts (1).



XV60B011



XV60B021

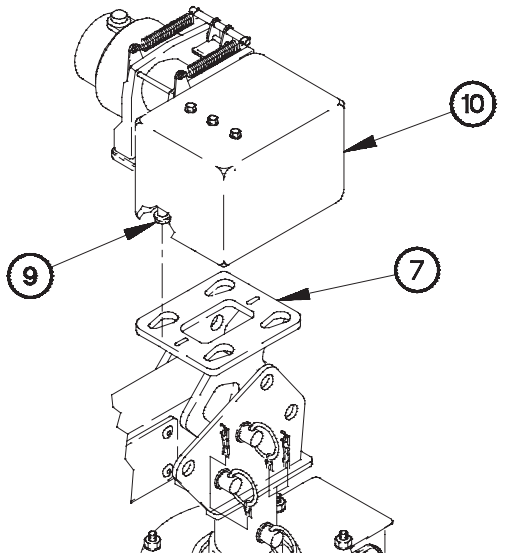
(4) Remove quick release pin (6) from boom (7).

(5) Remove winch cable (5) from boom sheave (8).

(6) Install quick release pin (6) in boom (7).

(7) Retract winch cable approximately 6 feet (1.8 m).

(8) Disconnect remote control and power cables (TM 9-2320-366-10-1).



XV60B031

(9) Loosen four screws (9) on winch (10).

(10) Slide winch (10) to rear of boom (7).

(11) Remove winch (10) from boom (7).

WARNING

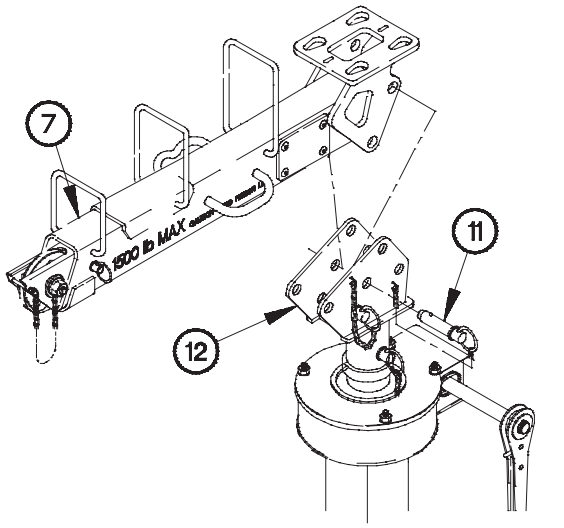
Light Material Handling Crane (LMHC) boom weighs approximately 60 lbs (27 kgs). Attach a suitable lifting device prior to removal. Failure to comply may result in injury to personnel or damage to equipment.

NOTE

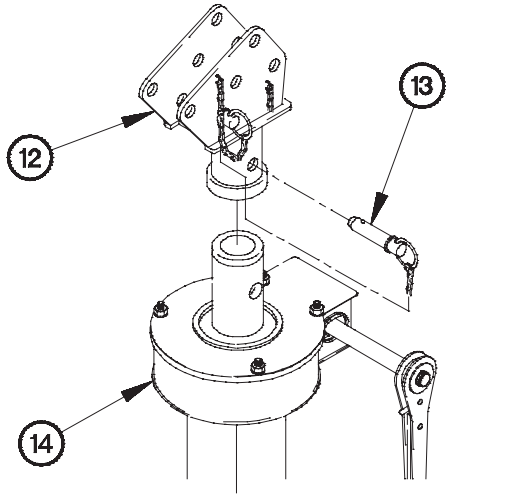
Steps (12) and (13) require the aid of an assistant.

(12) Remove two quick release pins (11) from turret (12).

(13) Remove boom (7) from turret (12).



XV60B041



XV60B051

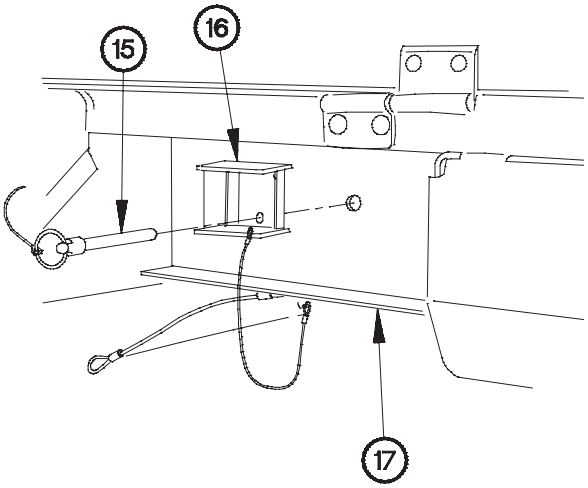
(14) Remove quick release pin (13) from turret (12).

(15) Remove turret (12) from mast (14).

NOTE

LMHC may be installed in any of the four cargo bed pockets. Left front cargo bed pocket shown.

(16) Remove quick release pin (15) and plug (16) from cargo bed frame (17).



XV60B061

20-60. LIGHT MATERIAL HANDLING CRANE (LMHC) ASSEMBLY/DISASSEMBLY (CONT)

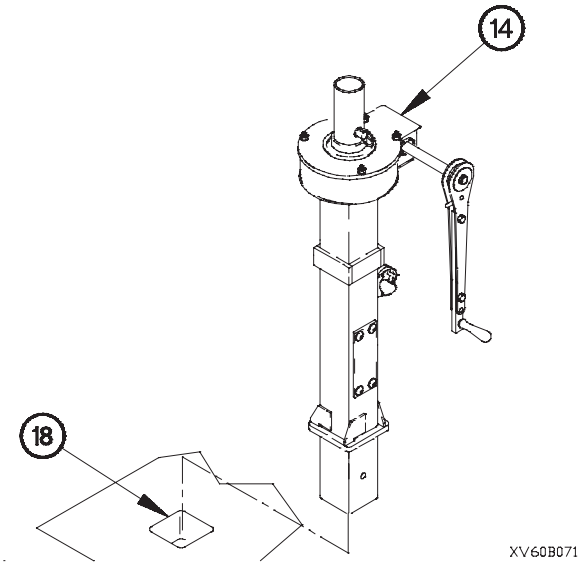
WARNING

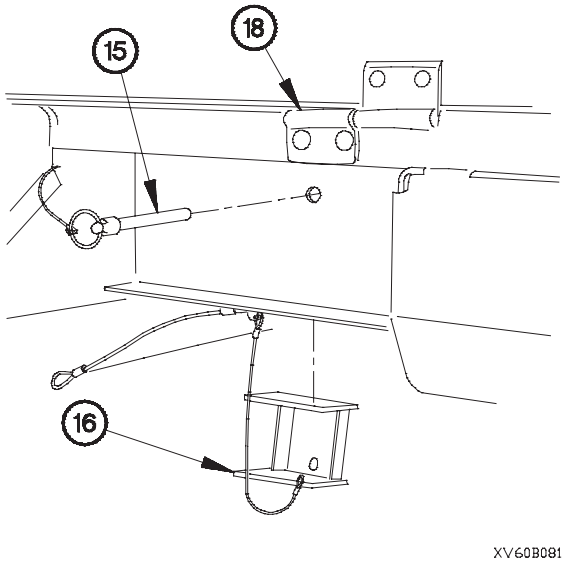
Light Material Handling Crane (LMHC) mast weighs approximately 110 lbs (50 kgs). Attach a suitable lifting device prior to removal. Failure to comply may result in injury to personnel or damage to equipment.

NOTE

Step (17) requires the aid of an assistant.

(17) Remove mast (14) from cargo bed pocket (18).





(18) Install plug (16) in cargo bed pocket (18) with quick release pin (15).

End of Task.

20-61. LIGHT MATERIAL HANDLING CRANE (LMHC) REPLACEMENT

This task covers:

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

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-366-10-1).
LMHC power cable removed (TM 9-2320-366-10-1).
LMHC remote control cable removed (TM 9-2320-366-10-1).

Tools and Special Tools
Sling, Cargo (2) (Item 31, Appendix C)

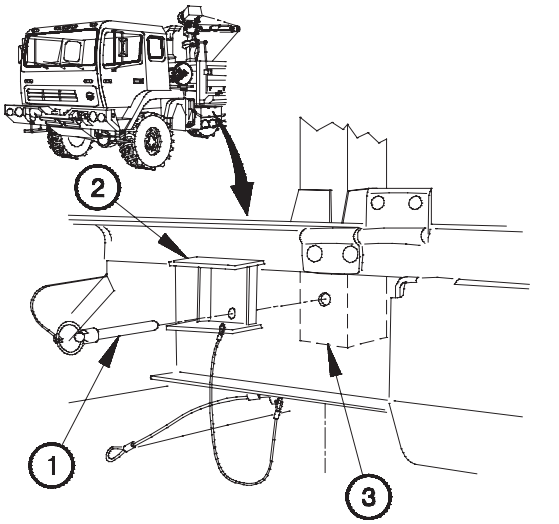
Personnel Required
(2)

a. Removal.

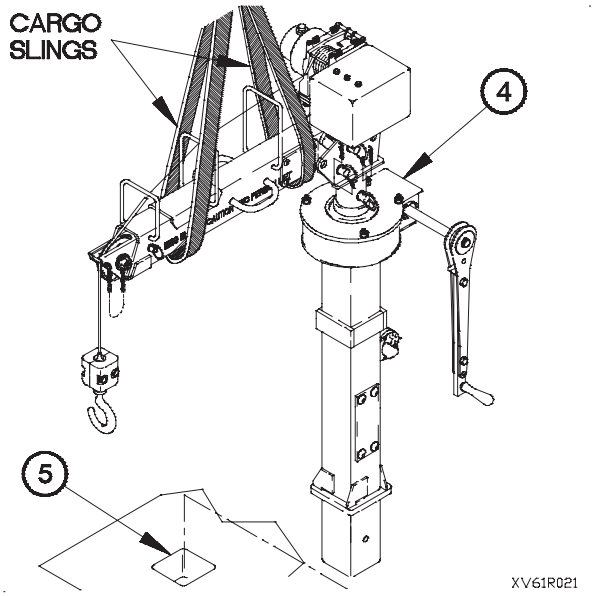
NOTE

LMHC may be install in any of the four cargo bed pockets. Left front cargo bed pocket shown.

(1) Remove quick release pin (1) and plug (2) from cargo bed frame (3).



XV61R011



XV61R021

WARNING

Light Material 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.

NOTE

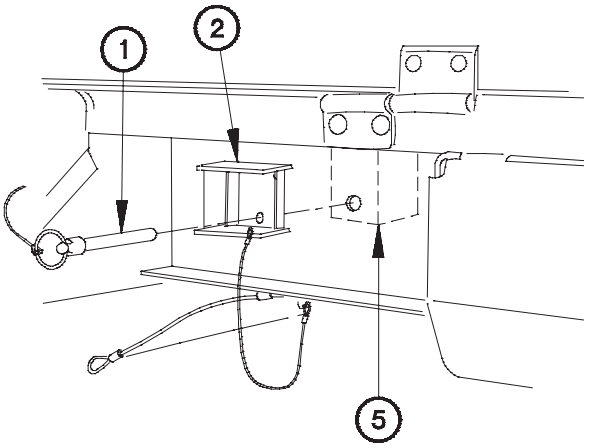
Step (2) requires the aid of an assistant.

(2) Remove LMHC (4) from cargo bed pocket (5).

20-61. LIGHT MATERIAL HANDLING CRANE (LMHC) REPLACEMENT (CONT)

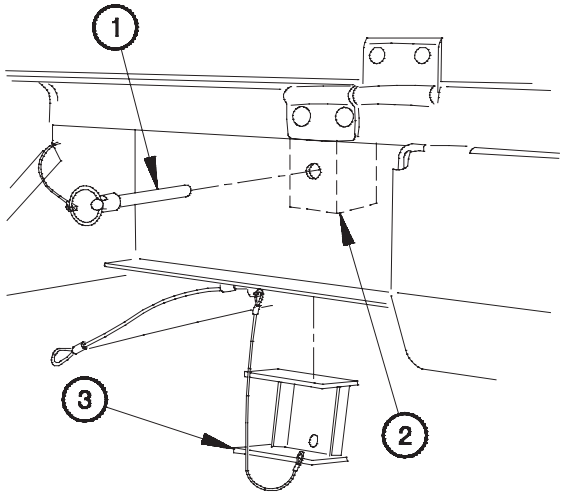
(3) Install plug (2) in cargo bed pocket (5).

(4) Install quick release pin (1) in cargo bed pocket (5).



XV61R031

b. Installation.



XV61I011

WARNING

Light Material 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.

NOTE

Step (3) requires the aid of an assistant.

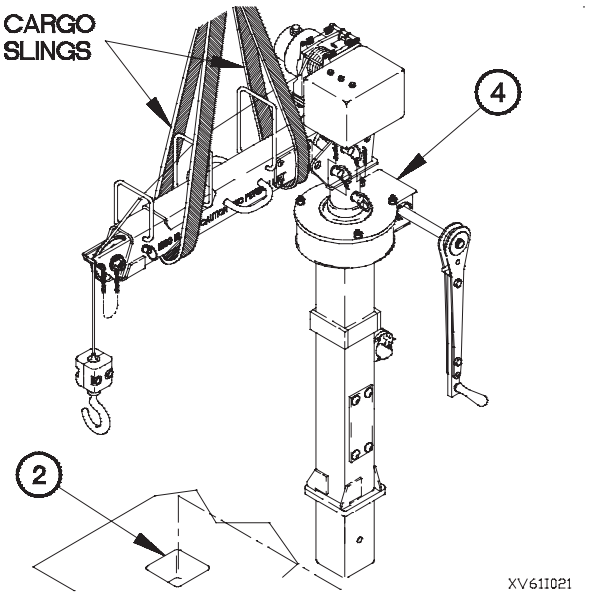
(3) Position LMHC (4) in cargo bed pocket (2).

NOTE

LMHC may be install in any of the four cargo bed pockets. Left front cargo bed pocket shown.

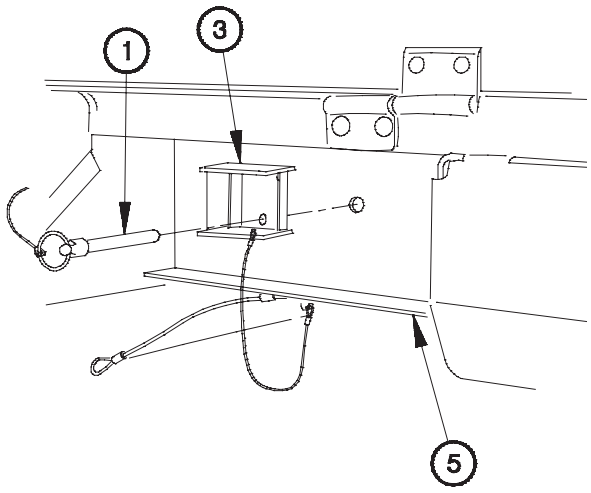
(1) Remove quick release pin (1) from cargo bed pocket (2).

(2) Remove plug (3) from cargo bed pocket (2).



XV61I021

(4) Install plug (3) on cargo bed frame (5) with quick release pin (1).



c. Follow-On Maintenance.

Operate LMHC and check for proper operation (TM 9-2320-366-10-1).

End of Task.

20-62. LIGHT MATERIAL HANDLING CRANE (LMHC) WEIGHT BLOCK AND WIRE ROPE REPLACEMENT/REPAIR

This task covers:

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

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-366-10-1).
LMHC circuit breaker positioned to ON (TM 9-2320-366-10-1).
LMHC power cable installed (TM 9-2320-366-10-1).
LMHC remote control cable installed (TM 9-2320-366-10-1).
LMHC wire rope assembly fully extended (TM 9-2320-366-10-1).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Gloves, Welder's (Item 14, Appendix C)

Materials/Parts
Lockwasher (2) (Item 96, Appendix G)

Personnel Required
(2)

a. Removal.

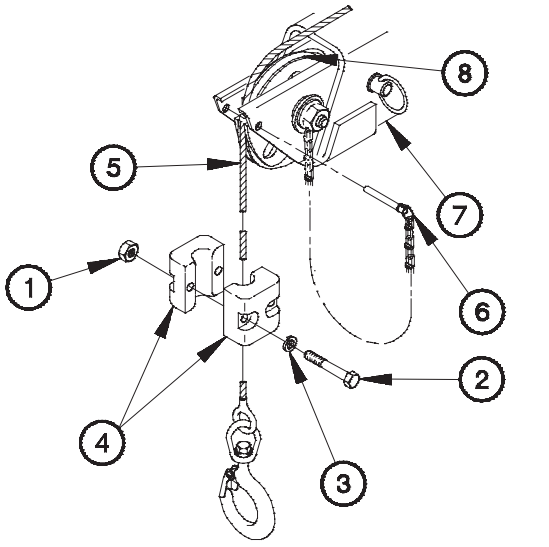
NOTE

Perform step (1) if replacing weight block.

(1) Remove two nuts (1), screws (2), lockwashers (3), and weight blocks (4) from wire rope (5). Discard lockwashers.

(2) Remove quick release pin (6) from boom (7).

(3) Remove wire rope (5) from sheave (8).



WARNING

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

(4) Remove two springs (9) from winch assembly (10).

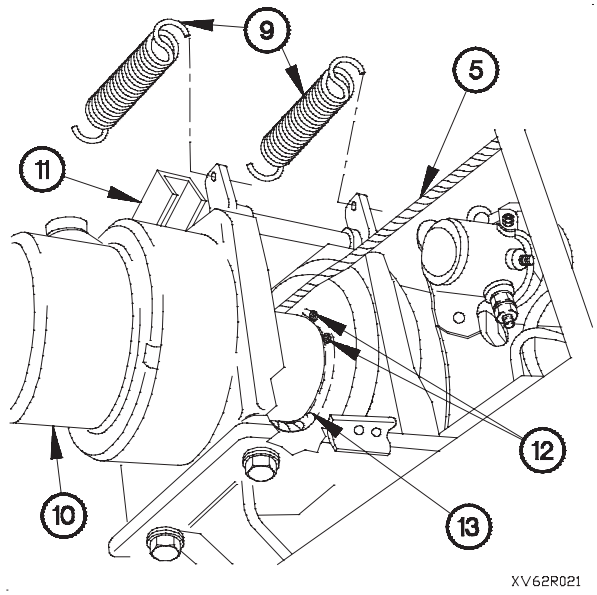
(5) Position tensioner (11) for access.

(6) Loosen two set screws (12) on drum (13).

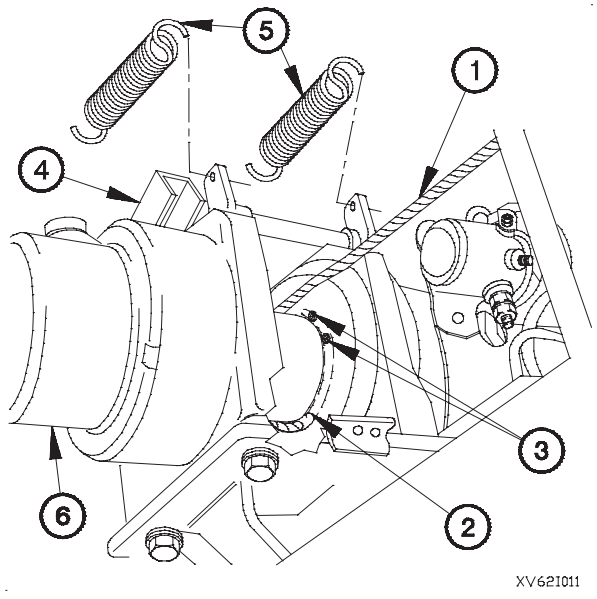
WARNING

- **Cable can become frayed or contain broken wires. Wear heavy leather-palmed work gloves when handling wire rope. Failure to comply may result in injury to personnel.**
- **Never let moving cable slide through hands, even when wearing gloves. A broken wire could pierce through glove and cut hands. Failure to comply may result in injury to personnel.**

(7) Remove wire rope (5) from drum (13).



b. Installation.



(1) Position wire rope (1) in drum (2).

(2) Tighten two set screws (3) on drum (2).

(3) Position tensioner (4) on drum (2).

WARNING

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

(4) Install two springs (5) on winch assembly (6).

20-62. LIGHT MATERIAL HANDLING CRANE (LMHC) WEIGHT BLOCK AND WIRE ROPE REPLACEMENT/REPAIR.

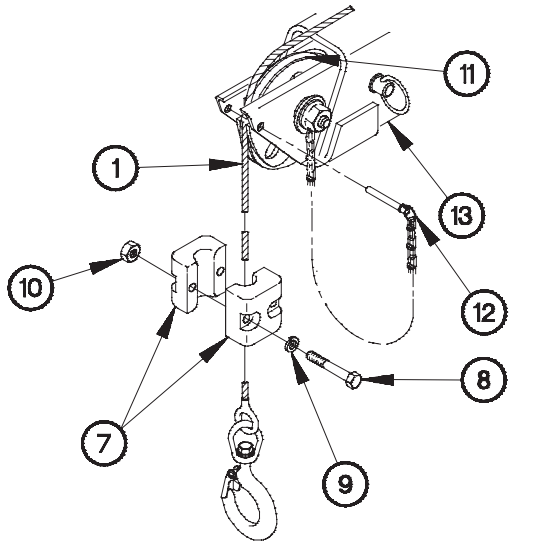
NOTE

Perform step (5) if weight block was replaced.

(5) Install two weight blocks (7) on wire rope (1) with two screws (8), lockwashers (9), and nuts (10).

(6) Position wire rope (1) in sheave (11).

(7) Install quick release pin (12) in boom (13).



c. Follow-On Maintenance.

(1) Retract LMHC wire rope assembly (TM 9-2320-366-10-1).

(2) Extend and retract LMHC wire rope assembly to check for proper function (TM 9-2320-366-10-1).

(3) Remove LMHC remote control cable (TM 9-2320-366-10-1).

(4) Remove LMHC power cable (TM 9-2320-366-10-1).

(5) Notify DS maintenance to perform LHMC load test.

End of Task.

20-63. LIGHT MATERIAL HANDLING CRANE (LMHC) WINCH REPLACEMENT/REPAIR

This task covers:

a. Removal
b. Base Plate Disassembly
c. Winch Disassembly
d. Cleaning/Inspection
e. Winch Assembly
f. Base Plate Assembly
g. Installation
h. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions
LMHC weight block and wire rope removed (para 20-62).
LMHC power cable removed (TM 9-2320-366-10-1).
LMHC remote control cable removed (TM 9-2320-366-10-1).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Goggles, Industrial (Item 15, Appendix C)
Gloves, Rubber (Item 13, Appendix C)

Materials/Parts
Dispenser, Pressure Sensitive Adhesive Tape (Item 20, Appendix D)
Solvent, Dry Cleaning (Item 65, Appendix D)
Grease, Molybdenum Disulfide (Item 24, Appendix D)
Rag, Wiping (Item 50, Appendix D)
Gasket (3) (Item 27, Appendix G)

Personnel Required
(2)

a. Removal.

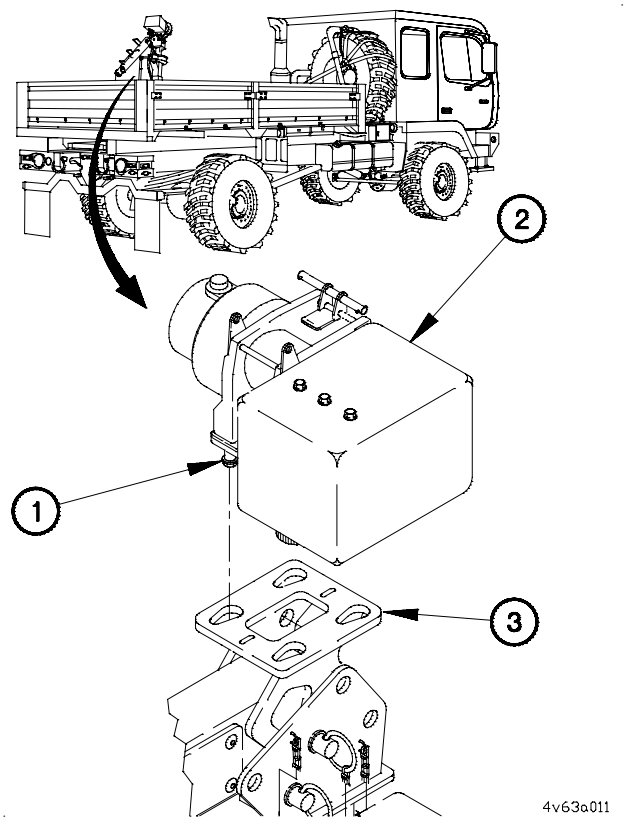
(1) Loosen four screws (1) on winch (2).

NOTE

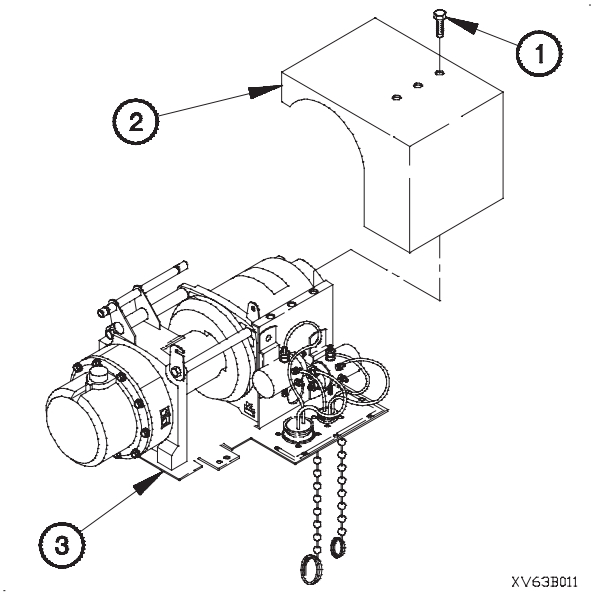
Step (2) and (3) require the aid of an assistant.

(2) Slide winch (2) to rear of boom (3).

(3) Remove winch (2) from boom (3).

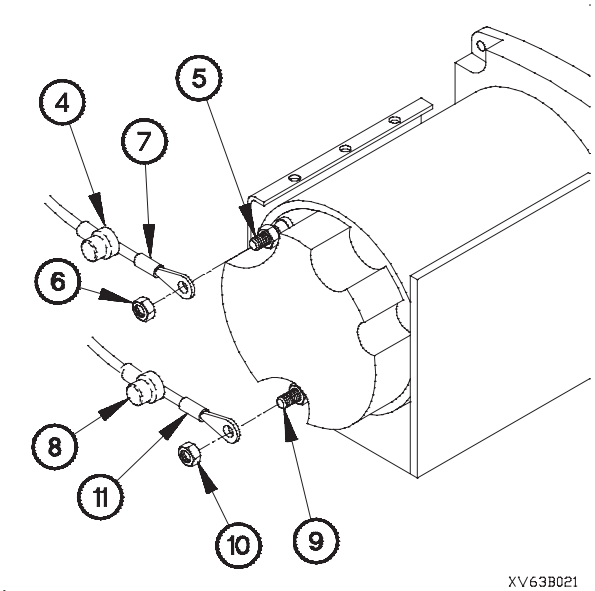


20-63. LIGHT MATERIAL HANDLING CRANE WINCH (LMHC) REPLACEMENT/REPAIR (CONT)



b. Base Plate Disassembly.

(1) Remove 18 screws (1) and cover (2) from base plate (3).



NOTE

- Tag wires and connection points prior to disconnecting.
- Note position of wires prior to removal.

(2) Remove rubber boot (4) from negative terminal (5).

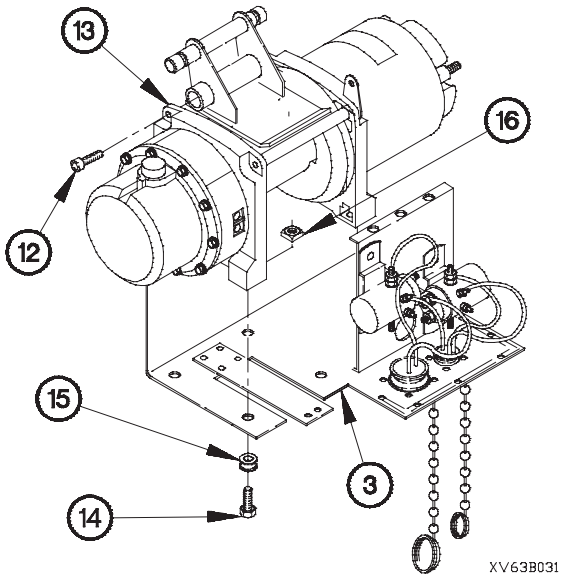
(3) Remove nut (6) and terminal lug (7) from negative terminal (5).

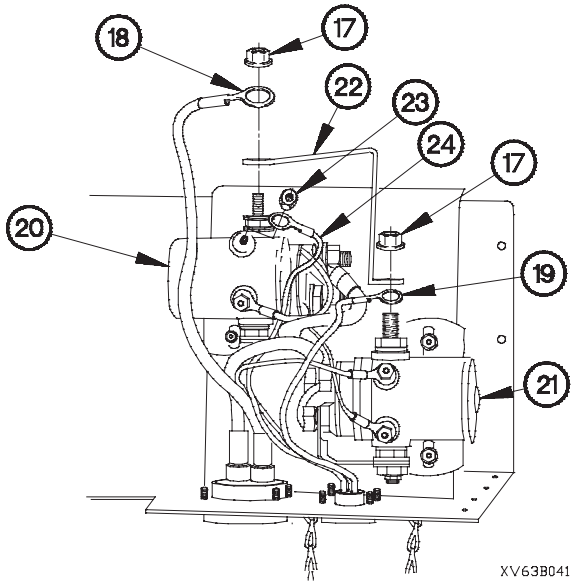
(4) Remove rubber boot (8) from positive terminal (9).

(5) Remove nut (10) and terminal lug (11) from positive terminal (9).

(6) Remove two screws (12) from winch assembly (13).

(7) Remove four screws (14), mounting feet (15), nuts (16), and winch assembly (13) from base plate (3).





(8) Remove two nuts (17) and terminal lugs (18 and 19) from solenoids (20 and 21).

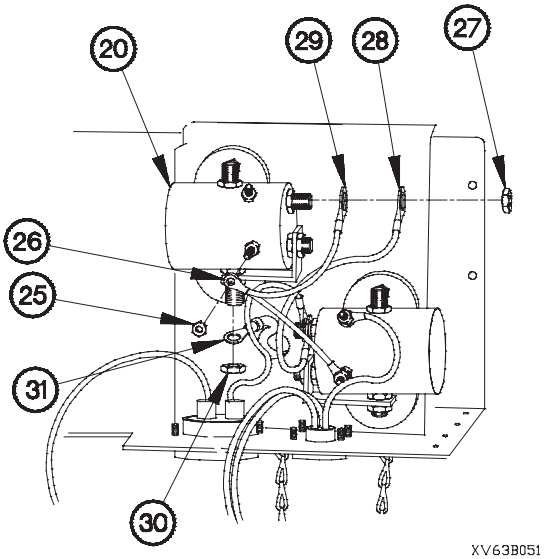
(9) Remove strap (22) from solenoids (20 and 21).

(10) Remove nut (23) and terminal lug (24) from solenoid (20).

(11) Remove nut (25) and terminal lug (26) from solenoid (20).

(12) Remove nut (27) and two terminal lugs (28 and 29) from solenoid (20).

(13) Remove nut (30) and terminal lug (31) from solenoid (20).

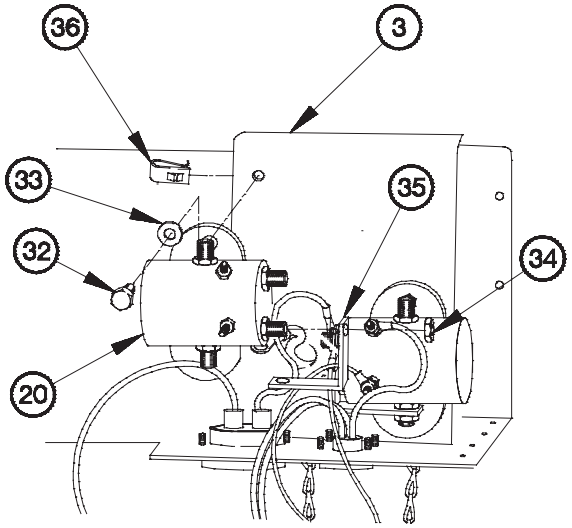


20-63. LIGHT MATERIAL HANDLING CRANE WINCH (LMHC) REPLACEMENT/REPAIR (CONT)

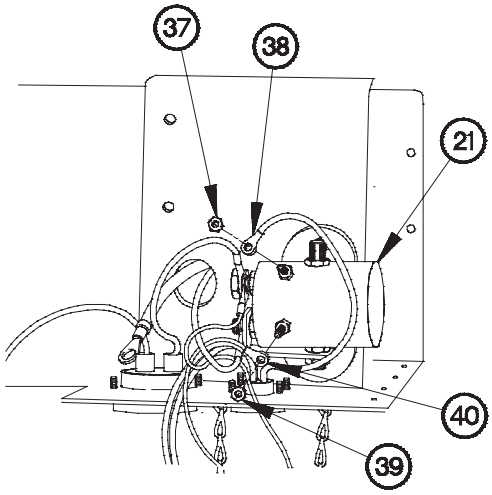
(14) Remove two screws (32), washers (33), and solenoid (20) from base plate (3).

(15) Remove nut (34) and strap (35) from solenoid (20).

(16) Remove two clip nuts (36) from base plate (3).



XV63B061



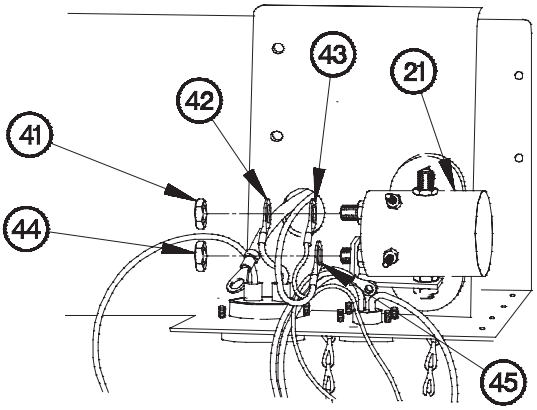
XV63B071

(17) Remove nut (37) and terminal lug (38) from solenoid (21).

(18) Remove nut (39) and terminal lug (40) from solenoid (21).

(19) Remove nut (41) and two terminal lugs (42 and 43) from solenoid (21).

(20) Remove nut (44) and terminal lug (45) from solenoid (21).

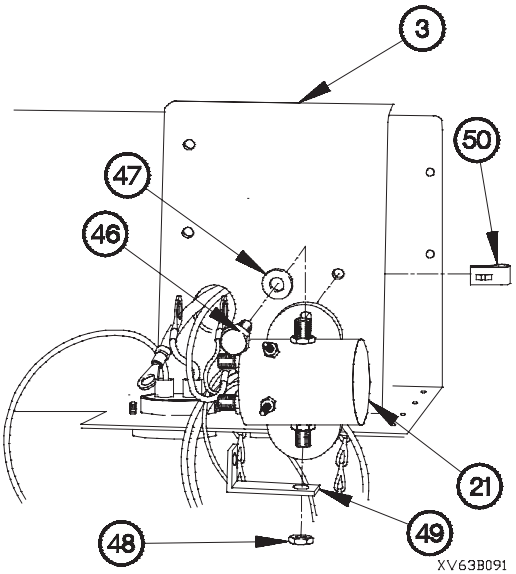


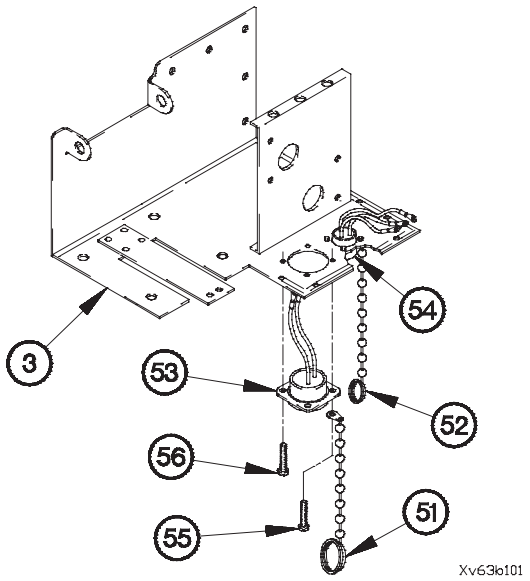
XV63B081

(21) Remove two screws (46), washers (47), and solenoid (21) from base plate (3).

(22) Remove nut (48) and strap (49) from solenoid (21).

(23) Remove two clip nuts (50) from base plate (3).





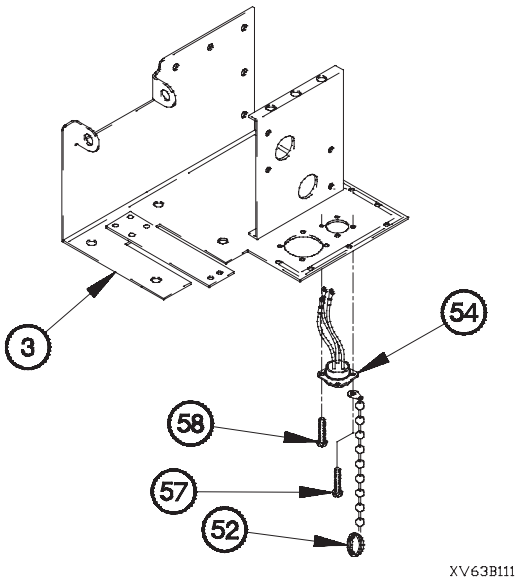
(24) Remove dust caps (51 and 52) from power connector (53) and remote control connector (54).

(25) Remove screw (55) and dust cap (51) from power connector (53).

(26) Remove three screws (56) and power connector (53) from base plate (3).

(27) Remove screw (57) and dust cap (52) from remote control connector (54).

(28) Remove three screws (58) and remote control connector (54) from base plate (3).



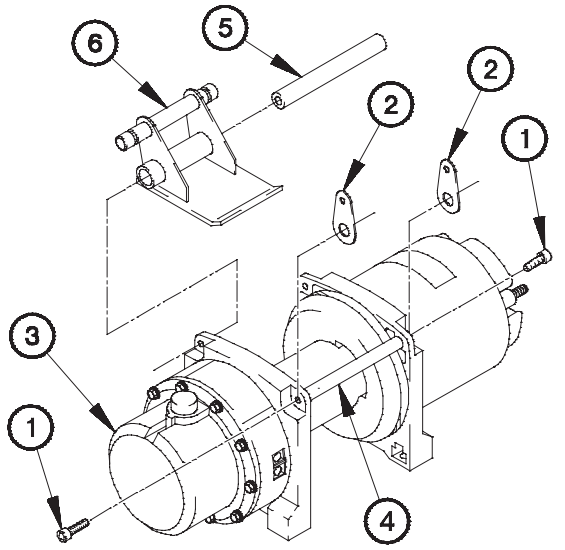
20-63. LIGHT MATERIAL HANDLING CRANE WINCH (LMHC) REPLACEMENT/REPAIR (CONT)

c. Winch Disassembly.

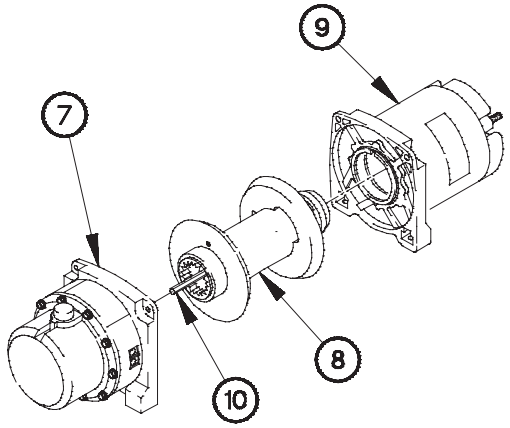
(1) Remove two screws (1) and brackets (2) from winch assembly (3).

(2) Remove tie rods (4 and 5) from winch assembly (3).

(3) Remove tensioner (6) from tie rod (5).



XV63C011



XV63C021

(4) Remove housing assembly (7) from drum assembly (8).

(5) Remove drum assembly (8) from 24 vdc motor assembly (9).

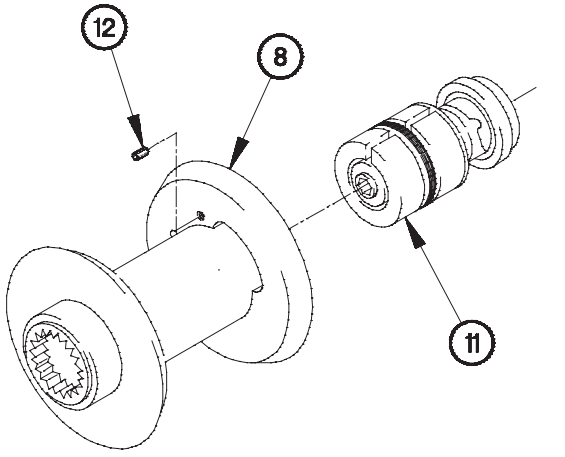
(6) Remove hex shaft (10) from drum assembly (8).

NOTE

Note position of break in drum assembly prior to removal.

(7) Remove brake (11) from drum assembly (8).

(8) Remove two screws (12) from drum assembly (8).

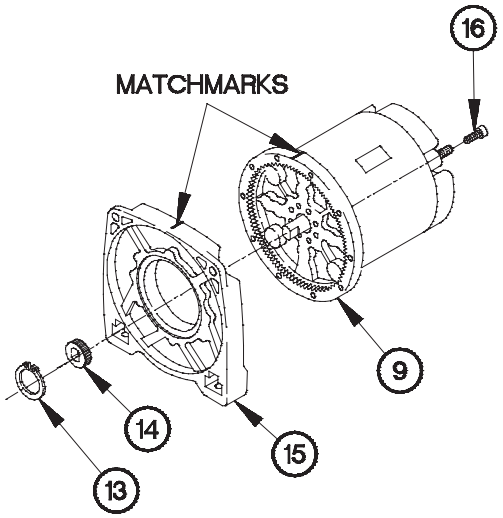


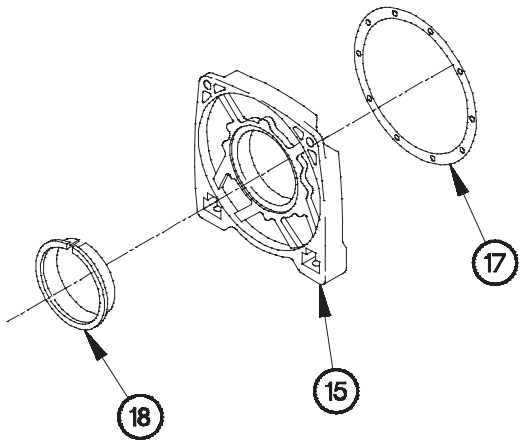
XV63C031

(9) Remove circlip (13) and gear (14) from 24 vdc motor assembly (9).

(10) Match mark drum support (15) and 24 vdc motor assembly (9).

(11) Remove 10 screws (16) and drum support (15) from 24 vdc motor assembly (9).





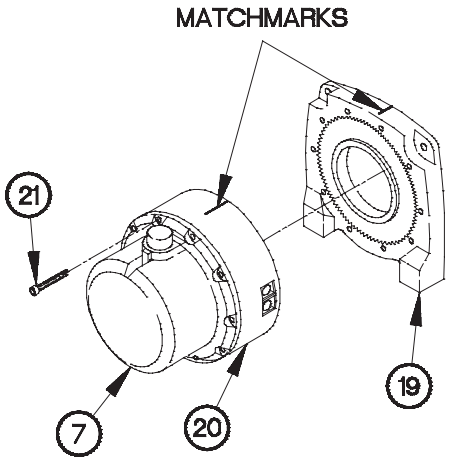
XV63C051

(12) Remove gasket (17) from drum support (15). Discard gasket.

(13) Remove sleeve bushing (18) from drum support (15).

(14) Match mark drum support (19) spur gear (20) and housing assembly (7).

(15) Remove 10 screws (21) and drum support (19) from spur gear (20).

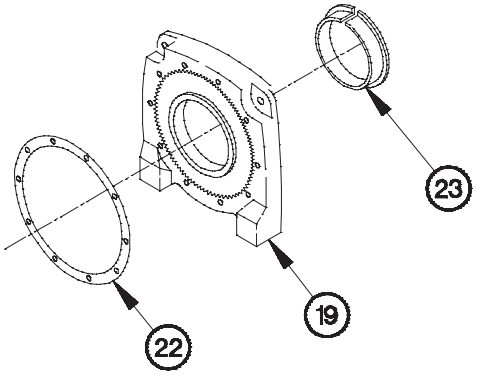


XV63C061

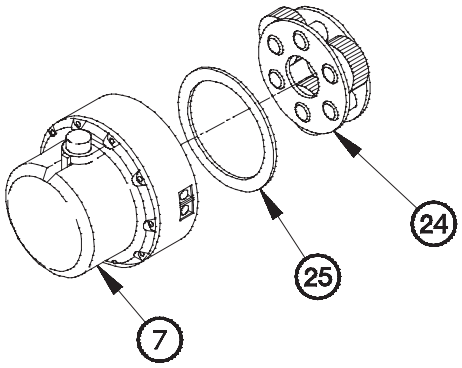
20-63. LIGHT MATERIAL HANDLING CRANE WINCH (LMHC) REPLACEMENT/REPAIR (CONT)

(16) Remove gasket (22) from drum support (19). Discard gasket.

(17) Remove sleeve bushing (23) from drum support (19).



XV63C071



XV63C081

NOTE

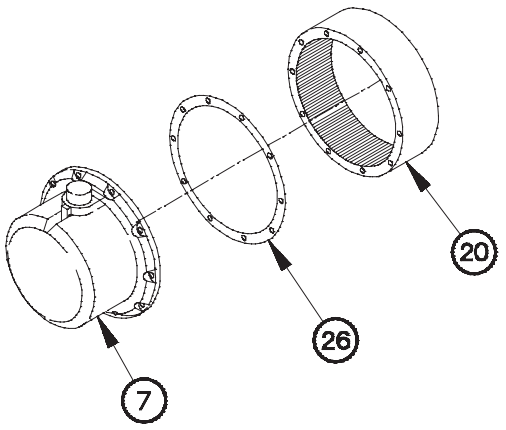
Note position of stage 3 carrier in housing assembly prior to removal.

(18) Remove stage 3 carrier (24) from housing assembly (7).

(19) Remove washer (25) from stage 3 carrier (24).

(20) Remove spur gear (20) from housing assembly (7).

(21) Remove gasket (26) from spur gear (20). Discard gasket.



XV63C091

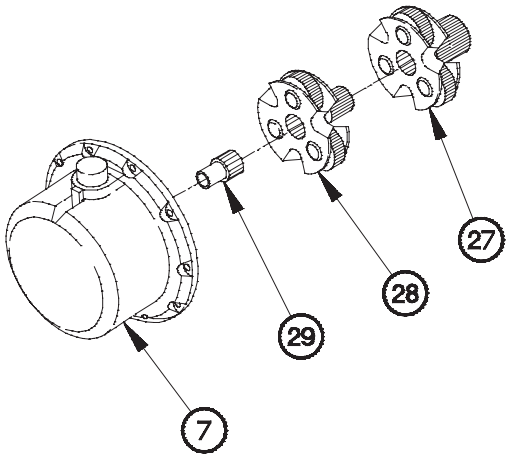
NOTE

Note position of stage 2 carrier, WI carrier, and spur gear in housing assembly prior to removal.

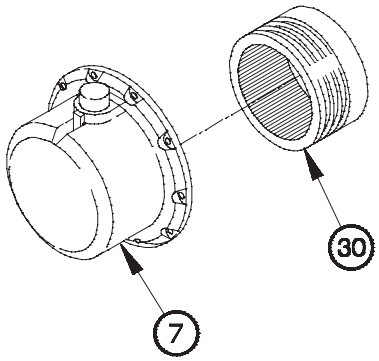
(22) Remove stage 2 carrier (27) from housing assembly (7).

(23) Remove WI carrier (28) from housing assembly (7).

(24) Remove spur gear (29) from housing assembly (7).



XV63C101



XV63C111

NOTE

Note position of internal gear in housing assembly prior to removal.

(25) Remove internal gear (30) from housing assembly (7).

20-63. LIGHT MATERIAL HANDLING CRANE WINCH (LMHC) REPLACEMENT/REPAIR (CONT)

d. 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 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.**

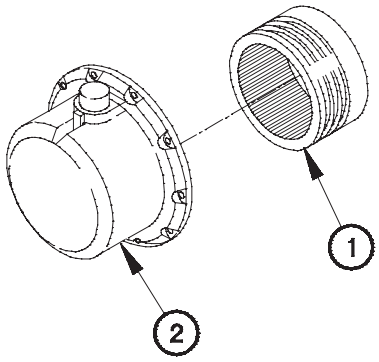
(1) Clean all metal parts thoroughly with dry cleaning solvent.

NOTE

Replace any part that fails visual inspection.

(2) Inspect all parts for visible cracks or damage.

e. Winch Assembly.



XV63E011

(1) Position internal gear (1) in housing assembly (2).

(2) Apply grease to spur gear (3).

(3) Install spur gear (3) in housing assembly (2).

(4) Apply grease to WI carrier (4).

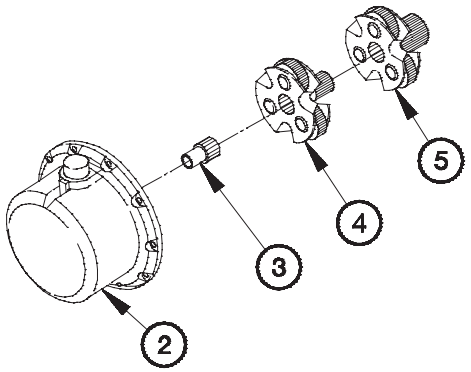
NOTE

Hex shaft may be used to align WI carrier with spur gear.

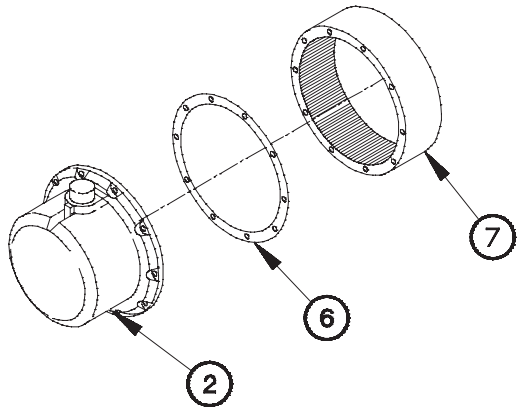
(5) Install WI carrier (4) in housing assembly (2).

(6) Apply grease to stage 2 carrier (5).

(7) Install stage 2 carrier (5) in housing assembly (2).



XV63E021

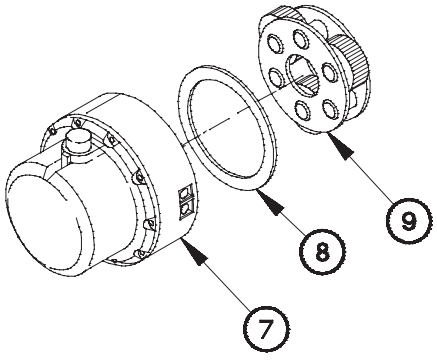


XV63E031

(8) Position gasket (6) and spur gear (7) on housing assembly (2).

(9) Apply grease to washer (8) and stage 3 carrier (9).

(10) Position washer (8) and stage 3 carrier (9) in spur gear (7).



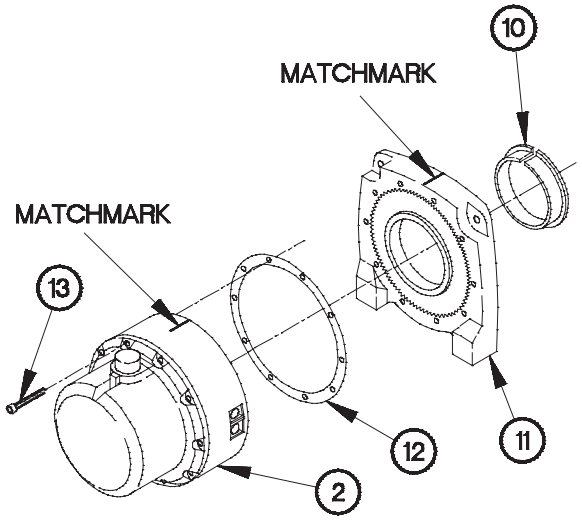
XV63E041

20-63. LIGHT MATERIAL HANDLING CRANE WINCH (LMHC) REPLACEMENT/REPAIR (CONT)

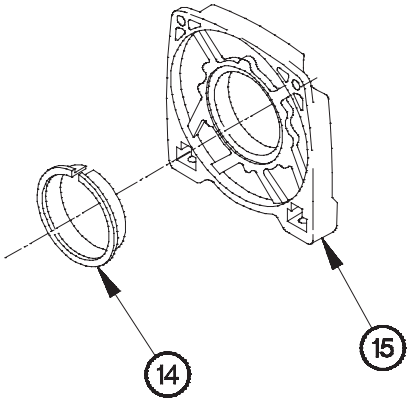
(11) Install sleeve bushing (10) in drum support (11).

(12) Install gasket (12) and drum support (11) on housing assembly (2) with matchmarks aligned.

(13) Install 10 screws (13) in housing assembly (2).



XV63E051



XV63E061

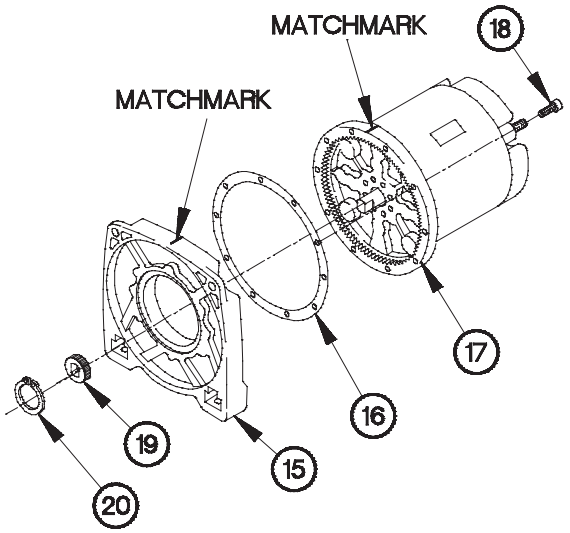
(14) Install sleeve bushing (14) in drum support (15).

(15) Install gasket (16) and drum support (15) on 24 vdc motor assembly (17) with matchmarks aligned.

(16) Install 10 screws (18) in 24 vdc motor assembly (17).

(17) Apply grease to gear (19).

(18) Install gear (19) on 24 vdc motor assembly (17) with circlip (20).

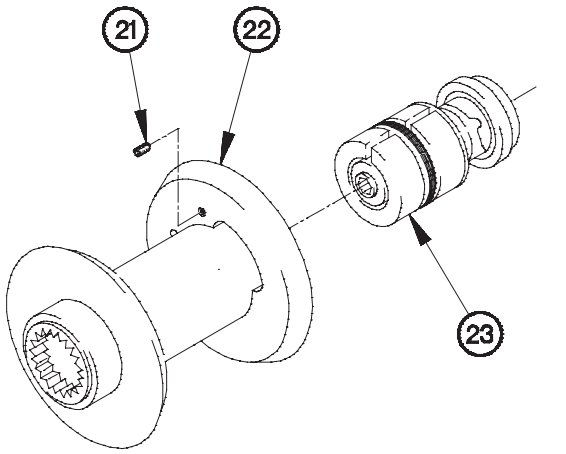


XV63E071

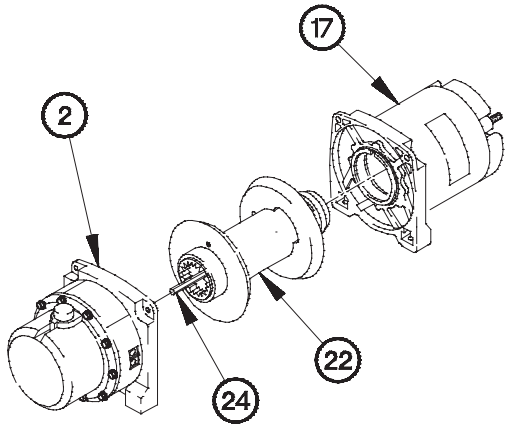
(19) Position two screws (21) in drum assembly (22).

(20) Apply grease to brake (23).

(21) Install brake (23) in drum assembly (22).



XV63E081



XV63E091

(22) Apply grease to hex shaft (24).

(23) Install hex shaft (24) in drum assembly (22).

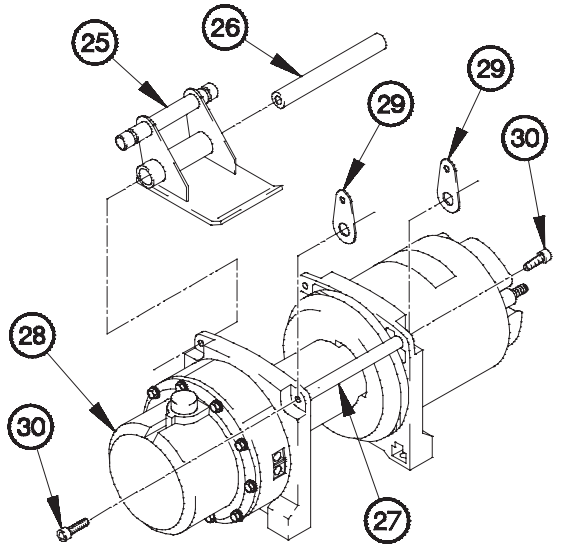
(24) Position drum assembly (22) on 24 vdc motor assembly (17).

(25) Position housing assembly (2) on drum assembly (22).

(26) Position tensioner (25) on tie rod (26).

(27) Position tie rods (26 and 27) in winch assembly (28).

(28) Install two brackets (29) on winch assembly (28) with two screws (30).



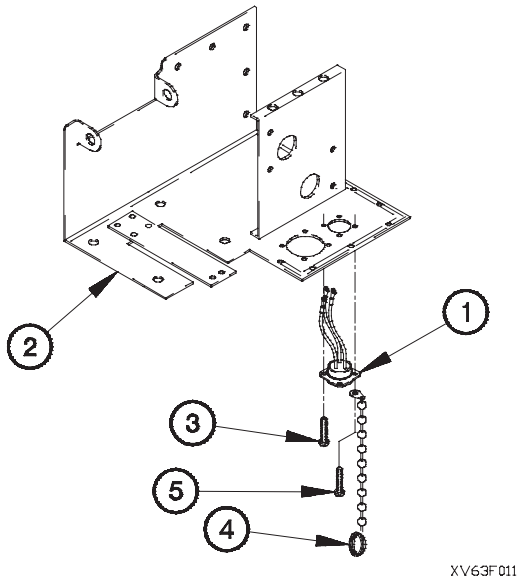
XV63E101

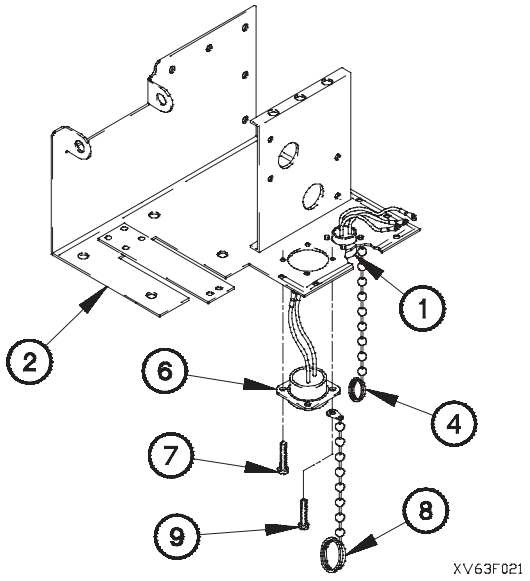
20-63. LIGHT MATERIAL HANDLING CRANE WINCH (LMHC) REPLACEMENT/REPAIR (CONT)

f. Base Plate Assembly.

(1) Install remote control connector (1) on base plate (2) with three screws (3).

(2) Install dust cap (4) on remote control connector (1) with screw (5).





(3) Install power connector (6) on base plate (2) with three screws (7).

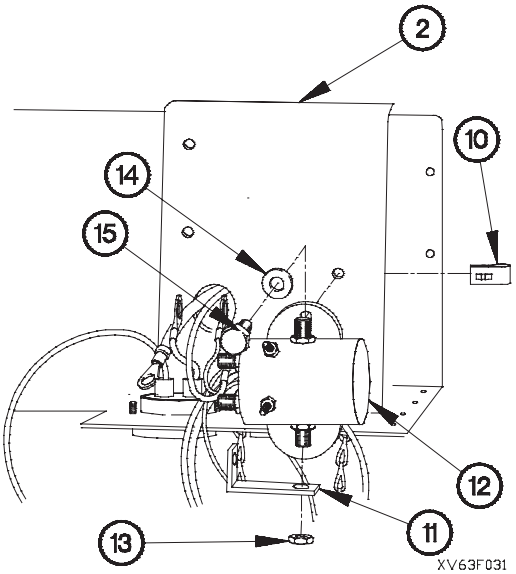
(4) Install dust cap (8) on power connector (6) with screw (9).

(5) Install dust caps (4 and 8) on remote control connector (1) and remote control connector (6).

(6) Install two clip nuts (10) on base plate (2).

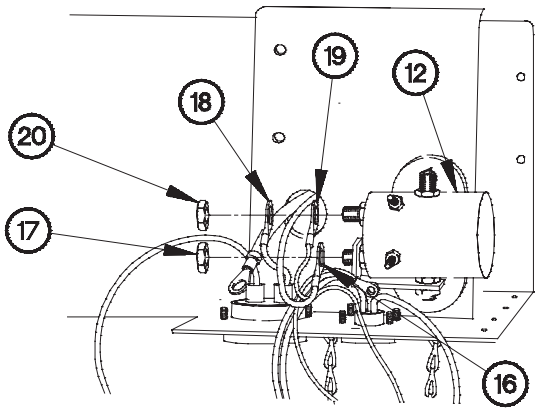
(7) Install strap (11) on solenoid (12) with nut (13).

(8) Install solenoid (12) on base plate (2) with two washers (14) and screws (15).

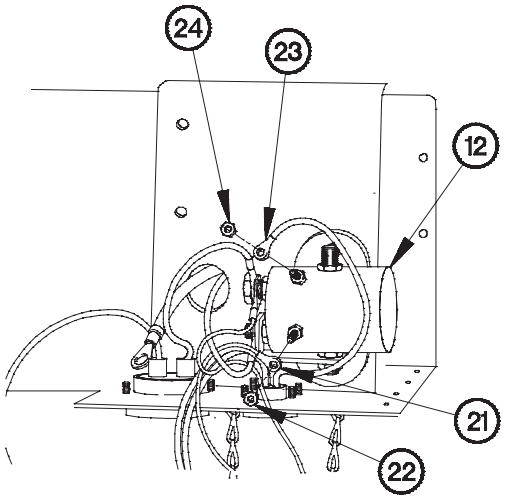


(9) Install terminal lug (16) on solenoid (12) with nut (17).

(10) Install terminal lugs (18 and 19) on solenoid (12) with nut (20).



XV63F041



XV63F051

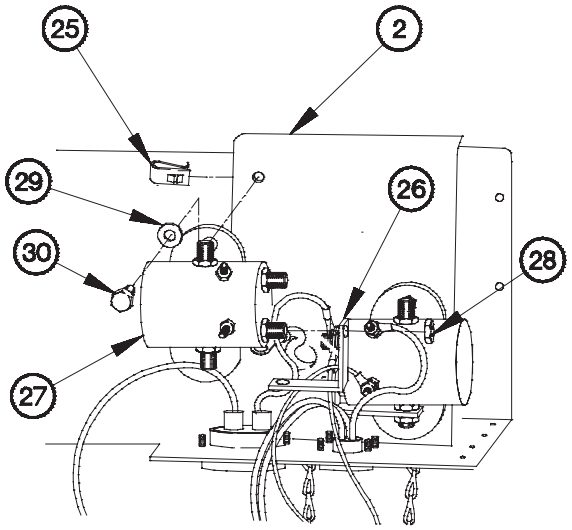
(11) Install terminal lug (21) on solenoid (12) with nut (22).

(12) Install terminal lug (23) on solenoid (12) with nut (24).

(13) Install two clip nuts (25) on base plate (2).

(14) Install strap (26) on solenoid (27) with nut (28).

(15) Install solenoid (27) on base plate (2) with two washers (29) and screws (30).



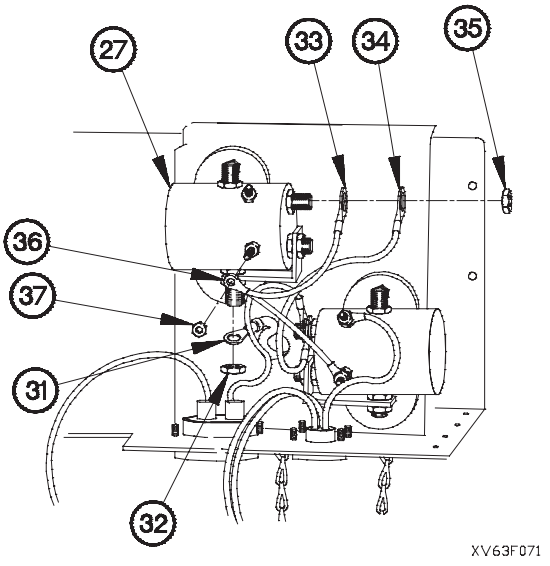
XV63F061

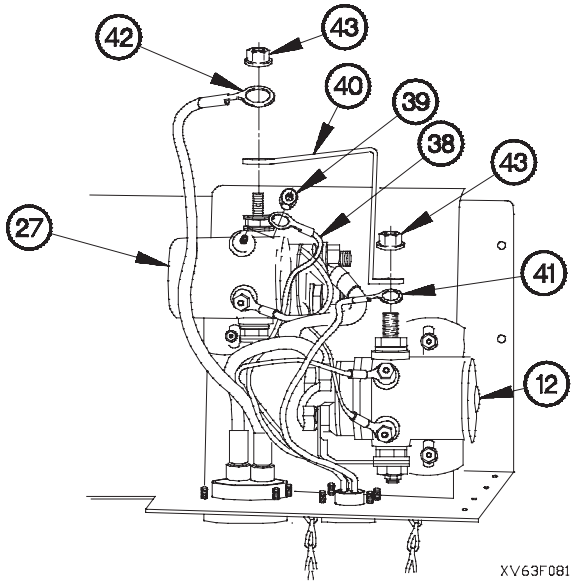
20-63. LIGHT MATERIAL HANDLING CRANE WINCH (LMHC) REPLACEMENT/REPAIR (CONT)

(16) Install terminal lug (31) on solenoid (27) with nut (32).

(17) Install terminal lugs (33 and 34) on solenoid (27) with nut (35).

(18) Install terminal lug (36) on solenoid (27) with nut (37).

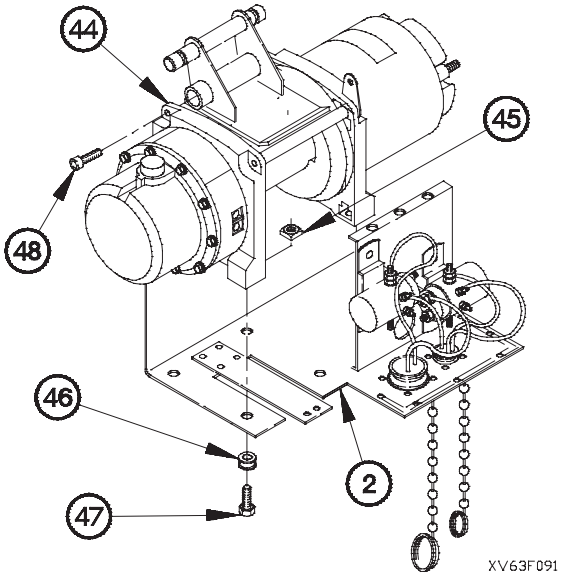




(19) Install terminal lug (38) on solenoid (27) with nut (39).

(20) Install strap (40) on solenoids (12 and 27).

(21) Install terminal lugs (41 and 42) on solenoids (12 and 27) with nuts (43).



(22) Install winch assembly (44) on base plate (2) with four nuts (45), mounting feet (46), and screws (47).

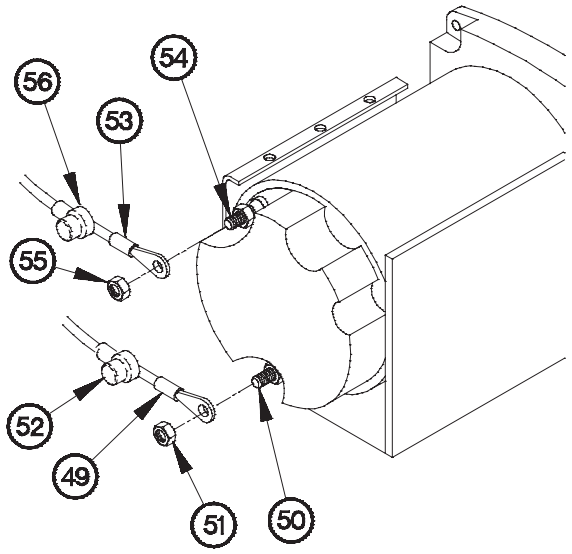
(23) Install two screws (48) in winch assembly (44).

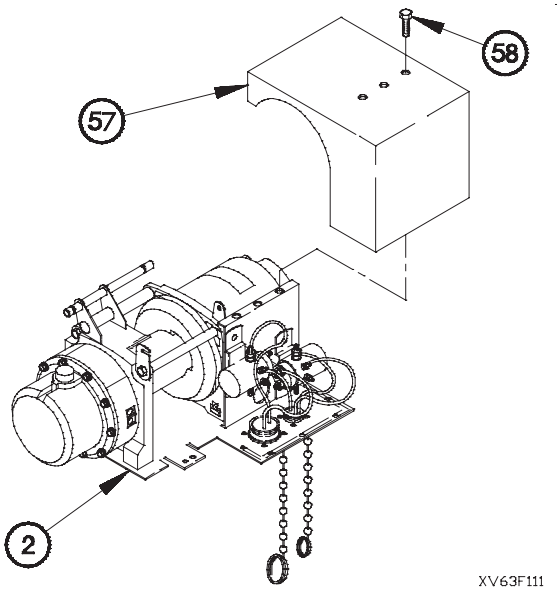
(24) Install terminal lug (49) on positive terminal (50) with nut (51).

(25) Install rubber boot (52) on positive terminal (50).

(26) Install terminal lug (53) on negative terminal (54) with nut (55).

(27) Install rubber boot (56) on negative terminal (54).





(28) Install cover (57) on base plate (2) with 18 screws (58).

g. Installation.

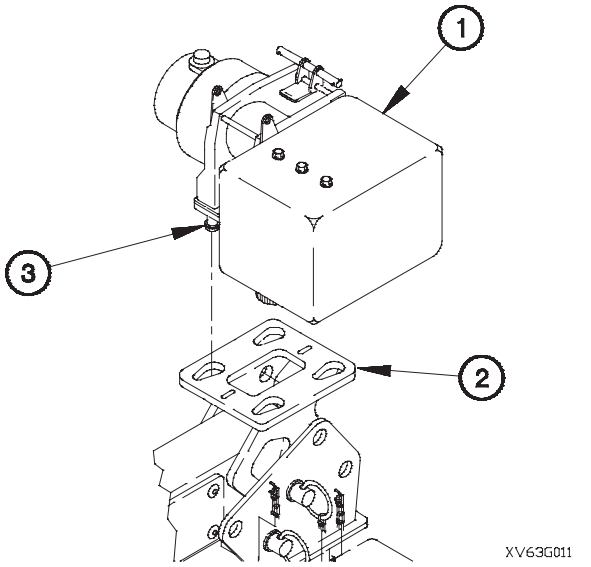
NOTE

Steps (1) and (2) require the aid of an assistant.

(1) Position winch (1) on boom (2).

(2) Slide winch (1) toward front of boom (2).

(3) Tighten four screws (3).



20-63. LIGHT MATERIAL HANDLING CRANE WINCH (LMHC) REPLACEMENT/REPAIR (CONT)

h. Follow-On Maintenance.

(1) Install LMHC remote control cable (TM 9-2320-366-10-1).

(2) Install LMHC power cable (TM 9-2320-366-10-1).

(3) Install LMHC weight block and wire rope (para 20-62).

End of Task.

20-64. LIGHT MATERIAL HANDLING CRANE (LMHC) BOOM REPLACEMENT

This task covers:

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

INITIAL SETUP

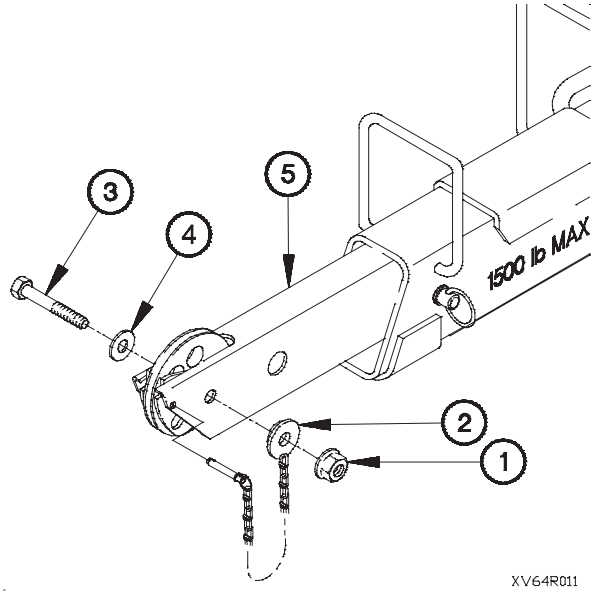
Equipment Conditions
Engine shut down (TM 9-2320-366-10-1).
LMHC winch removed (para 20-63).

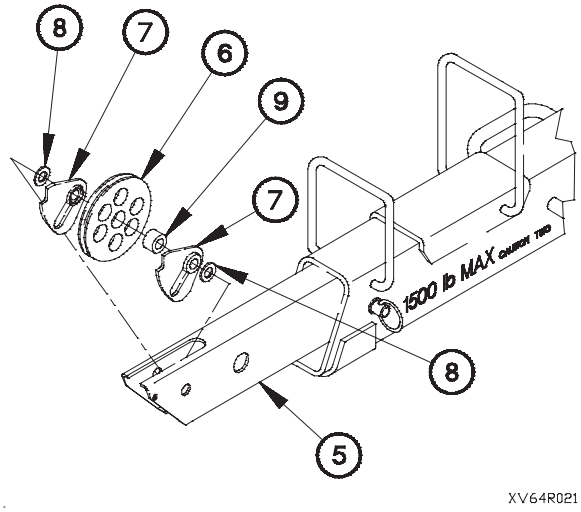
Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Gloves, Welder's (Item 14, Appendix C)

Materials/Parts
Nut, Self-Locking (Item 137, Appendix G)
Bushing, Sleeve (Item 6, Appendix G)

a. Removal.

(1) Remove self-locking nut (1), chain assembly (2), screw (3), and washer (4) from fly section (5). Discard self-locking nut.





(2) Remove sheave (6), two detent plates (7), and washers (8) from fly section (5).

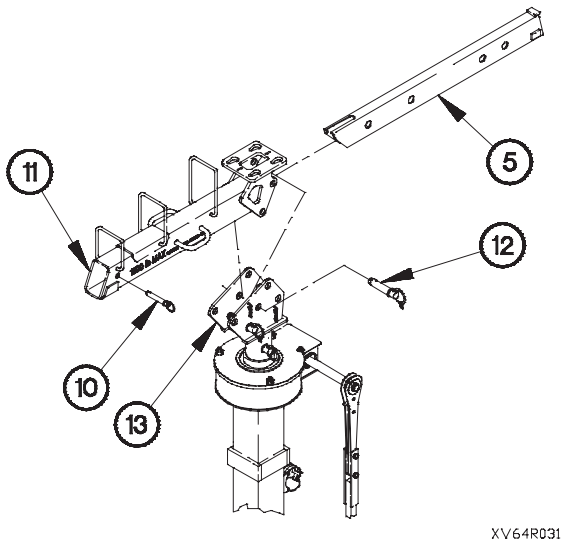
(3) Remove bushing (9) from sheave (6). Discard bushing.

20-64. LIGHT MATERIAL HANDLING CRANE (LMHC) BOOM REPLACEMENT (CONT)

(4) Remove quick release pin (10) from base weld (11) and fly section (5).

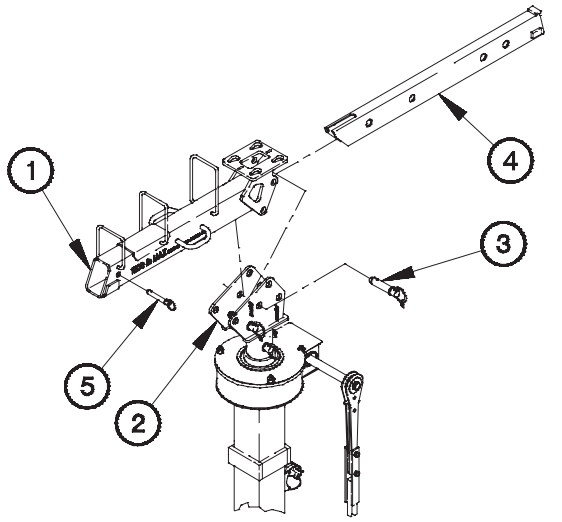
(5) Remove fly section (5) from base weld (11).

(6) Remove quick release pin (12) and base weld (11) from turret (13).



XV64R031

b. Installation.



XV64I011

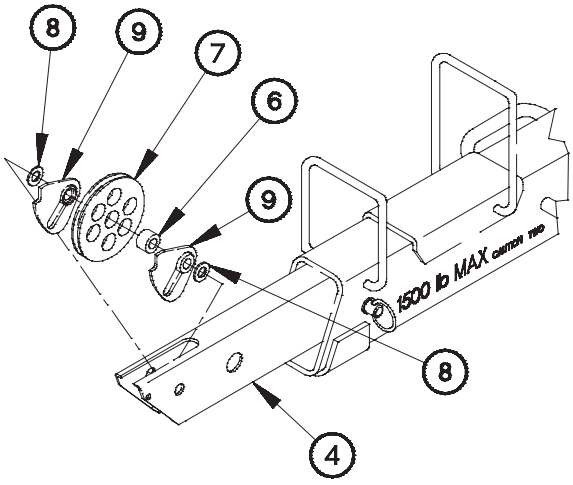
(1) Install base weld (1) in turret (2) with quick release pin (3).

(2) Position fly section (4) in base weld (1).

(3) Install quick release pin (5) through base weld (1) and fly section (4).

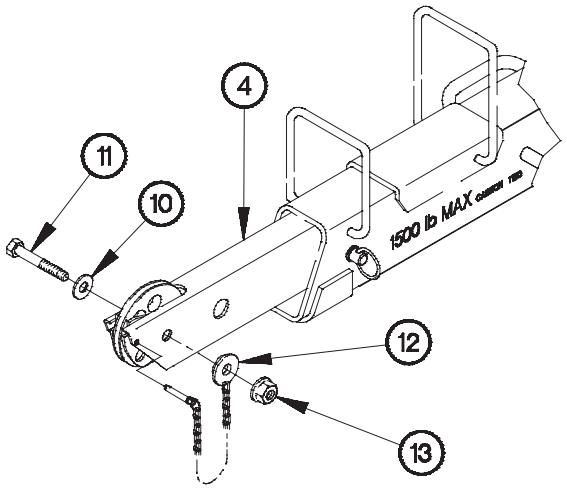
(4) Install bushing (6) in sheave (7).

(5) Position two washers (8), detent plates (9), and sheave (7) in fly section (4).



XV64I021

(6) Install washer (10), screw (11), chain assembly (12), and self-locking nut (13) in fly section (4).



XV641031

c. Follow-On Maintenance.

Install LMHC winch (para 20-63).

End of Task.

20-65. LIGHT MATERIAL HANDLING CRANE (LMHC) BOOM SHEAVE REPLACEMENT

This task covers:

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

INITIAL SETUP

Equipment Conditions
LMHC power cable removed (TM 9-2320-366-10-1).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Gloves, Welder's (Item 14, Appendix C)

Materials/Parts
Nut, Self-Locking (Item 137, Appendix G)
Bushing, Sleeve (Item 6, Appendix G)

a. Removal.

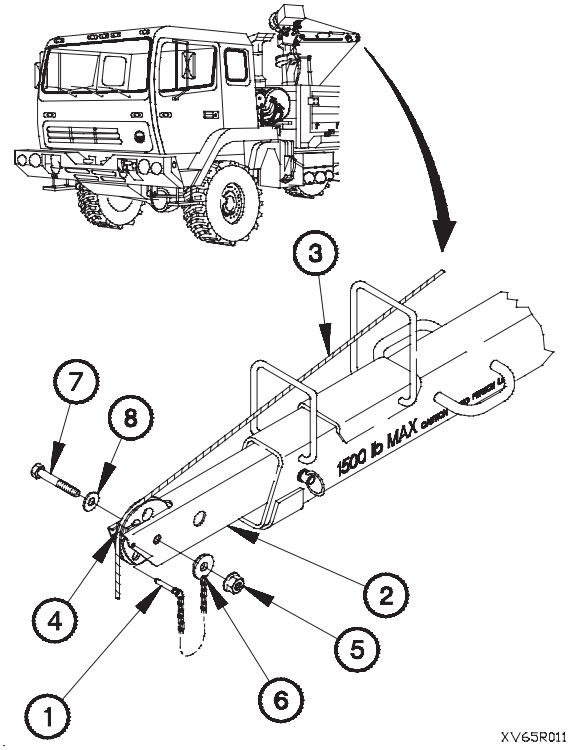
(1) Remove quick release pin (1) from fly section (2).

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.

(2) Remove wire rope (3) from sheave (4).

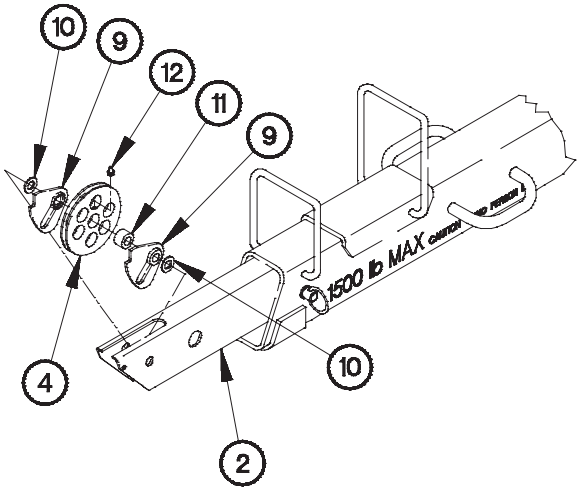
(3) Remove self-locking nut (5), chain assembly (6), screw (7), and washer (8) from fly section (2). Discard self-locking nut.



(4) Remove sheave (4), two detent plates (9), and washers (10) from fly section (2).

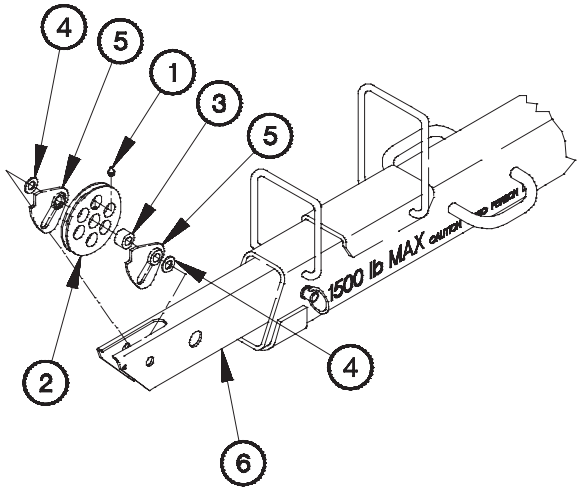
(5) Remove bushing (11) from sheave (4). Discard bushing.

(6) Remove fitting (12) from sheave (4).



XV65R021

b. Installation.



XV65I011

(1) Install fitting (1) in sheave (2).

(2) Install bushing (3) in sheave (2).

(3) Position sheave (2), two washers (4), and detent plates (5) in fly section (6).

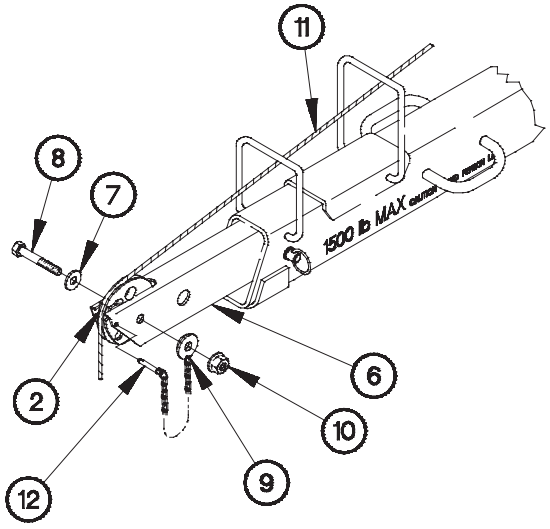
(4) Install washer (7), screw (8), chain assembly (9), and self-locking nut (10) in fly section (6).

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.

(5) Install wire rope (11) in sheave (2).

(6) Install quick release pin (12) in fly section (6).



XV65I021

20-65. LIGHT MATERIAL HANDLING CRANE (LMHC) BOOM SHEAVE REPLACEMENT (CONT)

c. Follow-On Maintenance.

(1) Install LMHC power cable (TM 9-2320-366-10-1).

(2) Extend and retract LMHC wire rope assembly to check for proper function (TM 9-2320-366-10-1).

End of Task.

20-66. LIGHT MATERIAL HANDLING CRANE (LMHC) TURRET REPLACEMENT

This task covers:

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

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-366-10-1).
LMHC power cable removed (TM 9-2320-366-10-1).
LMHC remote control cable removed (TM 9-2320-366-10-1).

Personnel Required
(2)

a. Removal.

WARNING

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

NOTE

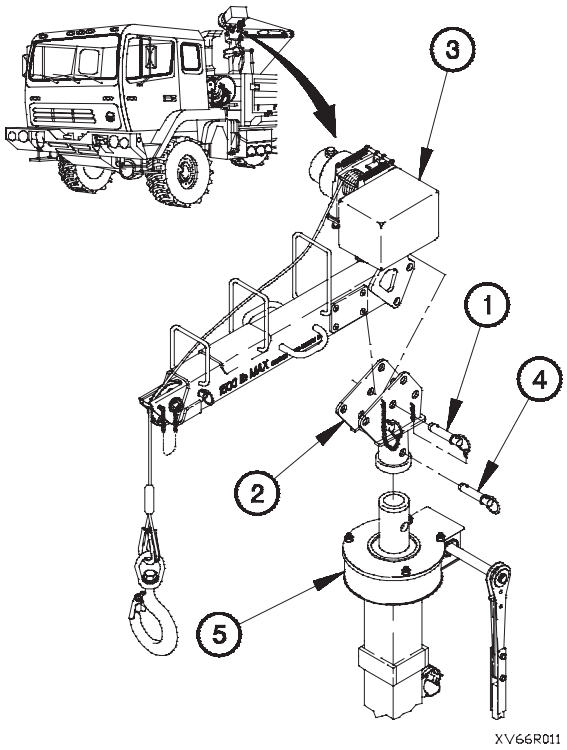
Steps (1) and (2) require the aid of an assistant.

(1) Remove quick release pin (1) from turret (2).

(2) Remove boom assembly (3) from turret (2).

(3) Remove quick release pin (4) from turret (2).

(4) Remove turret (2) from mast (5).



20-66. LIGHT MATERIAL HANDLING CRANE (LMHC) TURRET REPLACEMENT (CONT)

b. Installation.

(1) Position turret (1) on mast (2).

(2) Install quick release pin (3) in turret (1).

WARNING

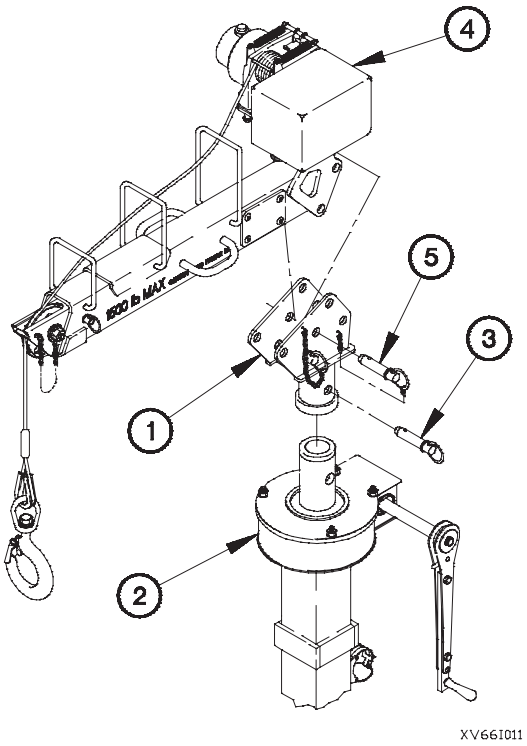
Light Material Handling Crane (LMHC) boom assembly weighs approximately 150 lbs (68 kgs). Use the aid of assistant when installing boom assembly. Failure to comply may result in injury to personnel.

NOTE

Steps (3) and (4) require the aid of an assistant.

(3) Install boom assembly (4) on turret (1).

(4) Install quick release pin (5) in boom assembly (4).



XV661011

c. Follow-On Maintenance.

(1) Install LMHC remote control unit cable (TM 9-2320-366-10-1).

(2) Install LMHC power cable (TM 9-2320-366-10-1).

(3) Operate LMHC and check for proper operation (TM 9-2320-366-10-1).

End of Task.

20-67. LIGHT MATERIAL HANDLING CRANE (LMHC) CONTROL BOX REPAIR

This task covers:

a. Disassembly
b. Assembly
c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions
LMHC control box power cable removed (TM 9-2320-366-10-1).
LMHC control box removed (TM 9-2320-366-10-1).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Tool Kit, Auto Fuel (Item 43, Appendix C)

Materials/Parts
Dispenser, Pressure Sensitive Adhesive Tape (Item 20, Appendix D)
Lockwasher (2) (Item 104, Appendix G)
Lockwasher (4) (Item 115, Appendix G)
Lockwasher (2) (Item 116, Appendix G)
Gasket (Item 27, Appendix G)
Terminal, Lug (2) (Item 279, Appendix G)

a. Disassembly.

(1) Remove eight screws (1), cover (2), and retainer (3) from NATO plug (4).

NOTE

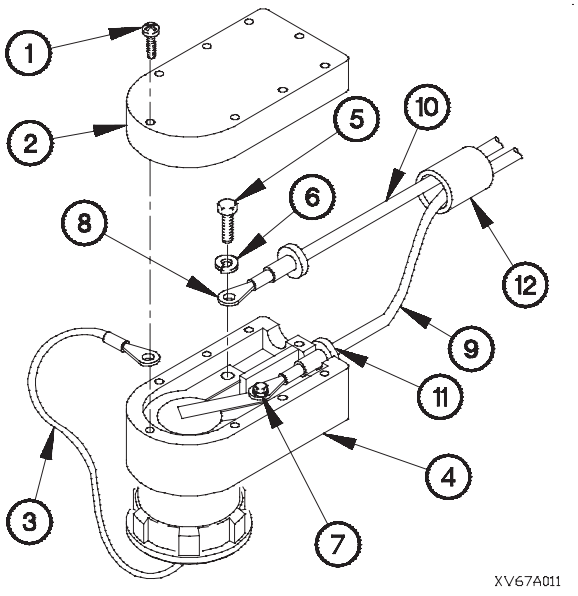
Tag wires and connection points prior to disconnecting.

(2) Remove two screws (5), lockwashers (6), and terminal lugs (7 and 8) from NATO plug (4). Discard lockwashers.

(3) Remove terminal lugs (7 and 8) from wires (9 and 10). Discard terminal lugs.

(4) Remove two grommets (11) from wires (9 and 10).

(5) Remove sleeve (12) from wires (9 and 10).



20-67. LIGHT MATERIAL HANDLING CRANE (LMHC) CONTROL BOX REPAIR (CONT)

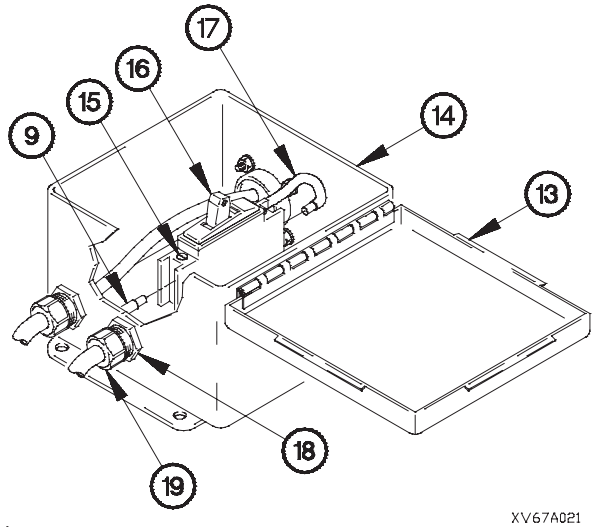
(6) Open cover (13) on control box (14).

(7) Loosen two screws (15) on circuit breaker (16).

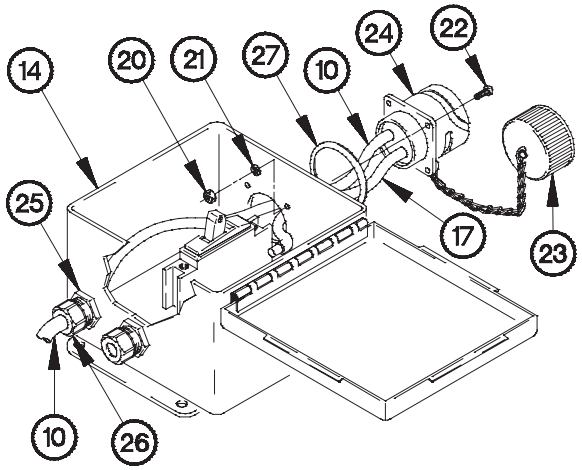
(8) Disconnect wires (17 and 9) from circuit breaker (16).

(9) Loosen nut (18) on box connector (19).

(10) Remove wire (9) from control box (14).



XV67A021



XV67A031

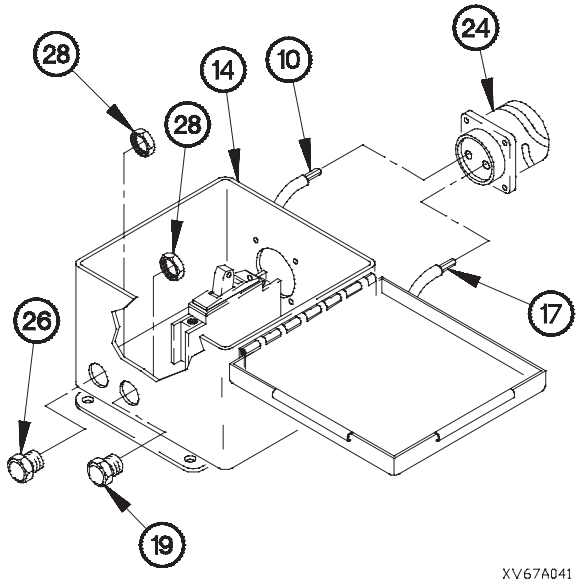
(11) Remove four nuts (20), lockwashers (21), screws (22), and cap (23) from receptacle (24). Discard lockwashers.

(12) Loosen nut (25) on box connector (26).

(13) Remove receptacle (24), wires (17 and 10), and gasket (27) from control box (14). Discard gasket.

(14) Remove wires (17 and 10) from receptacle (24).

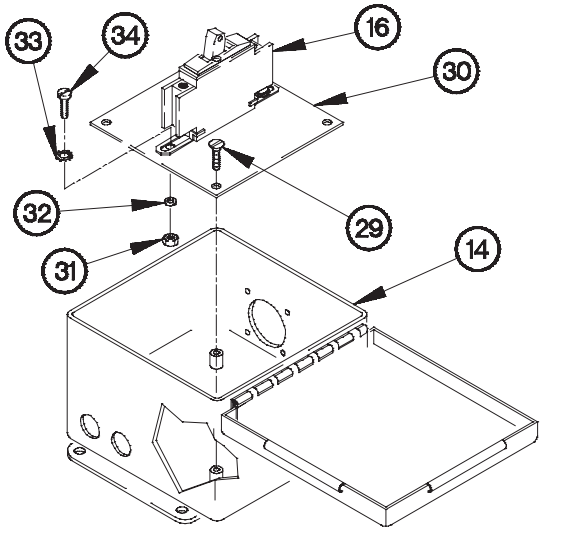
(15) Remove two nuts (28) and box connectors (19 and 26) from control box (14).



XV67A041

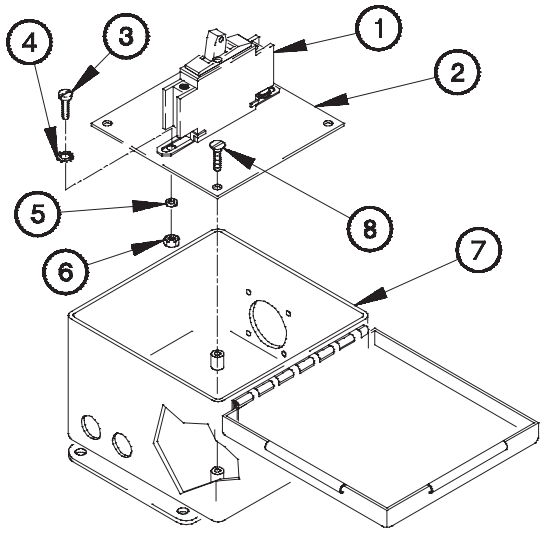
(16) Remove four screws (29) and plate (30) from control box (14).

(17) Remove two nuts (31), lockwashers (32), washers (33), screws (34), and circuit breaker (16) from plate (30). Discard lockwashers.



XV67A051

b. Assembly.



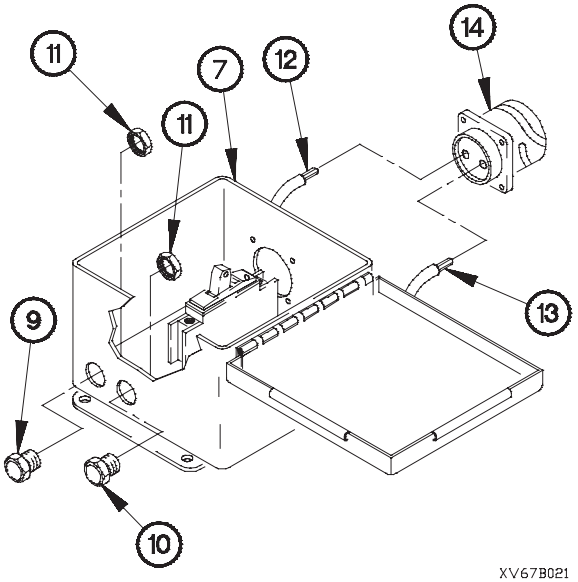
XV67B011

(1) Install circuit breaker (1) on plate (2) with two screws (3), washers (4), lockwashers (5), and nuts (6).

(2) Install plate (2) in control box (7) with four screws (8).

(3) Install box connectors (9 and 10) in control box (7) with nuts (11).

(4) Install wires (12 and 13) in receptacle (14).



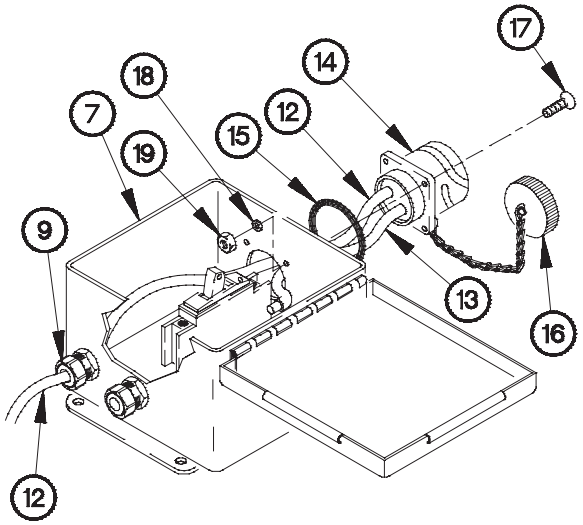
XV67B021

20-67. LIGHT MATERIAL HANDLING CRANE (LMHC) CONTROL BOX REPAIR (CONT)

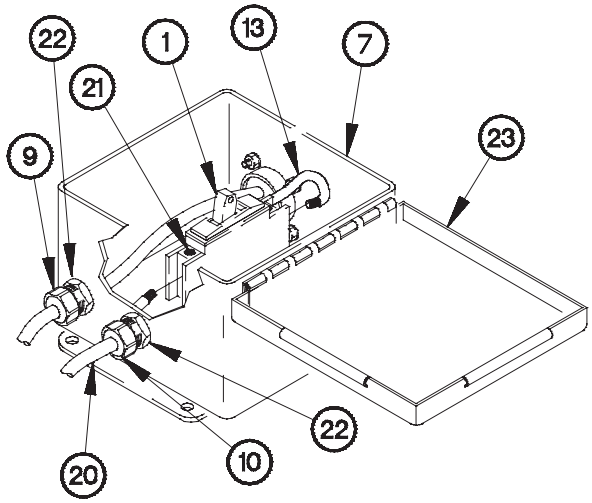
(5) Install wires (12 and 13), gasket (15), and receptacle (14) in control box (7).

(6) Position wire (12) through box connector (9).

(7) Install cap (16), four screws (17), lockwashers (18), and nuts (19) in receptacle (14).



XV67B031



XV67B041

(8) Position wire (20) through box connector (10).

(9) Install wires (13 and 20) in circuit breaker (1) with two screws (21).

(10) Tighten two nuts (22) on box connectors (9 and 10).

(11) Close cover (23) on control box (7).

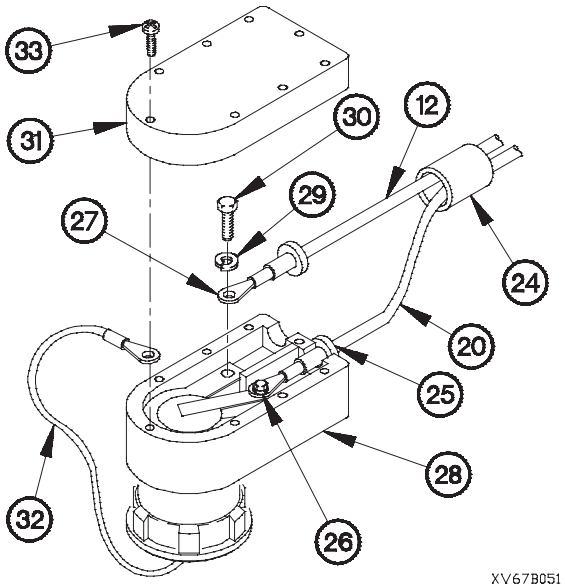
(12) Install sleeve (24) on wires (12 and 20).

(13) Install two grommets (25) on wires (12 and 20).

(14) Install terminal lugs (26 and 27) on wires (12 and 20).

(15) Install wires (12 and 20) on NATO plug (28) with two lockwashers (29) and screws (30).

(16) Install cover (31) and retainer (32) on NATO plug (28) with eight screws (33).



XV67B051

c. Follow-On Maintenance.

Operate LMHC and check for proper operation (TM 9-2320-366-10-1).

End of Task.

20-68. LIGHT MATERIAL HANDLING CRANE (LMHC) MAST AND SWING ASSEMBLY REPAIR

This task covers:

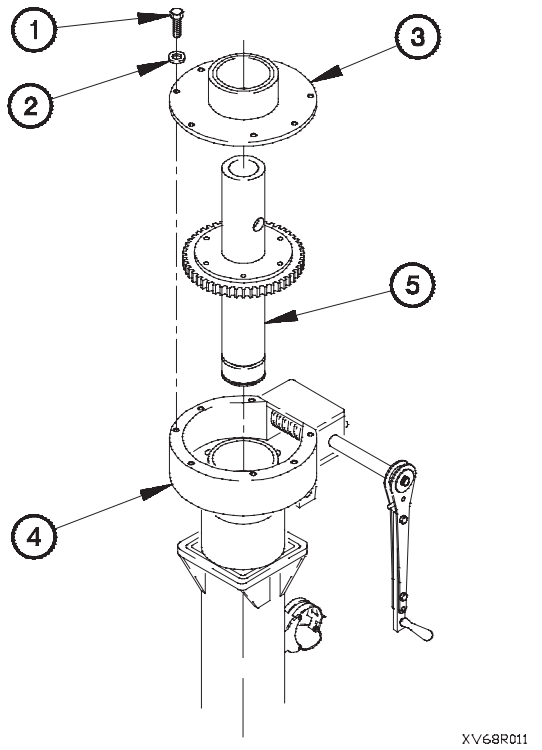
a. Disassembly
b. Cleaning
c. Assembly
d. Follow-on Maintenance

INITIAL SETUP

Equipment Condition
LMHC disassembled (para 20-64).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Goggles, Industrial (Item 15, Appendix C)
Gloves, Rubber (Item 13, Appendix C)

Materials/Parts
Solvent, Dry Cleaning (Item 20, Appendix D)
Rag, Wiping (Item 50, Appendix D)
Lockwasher (3) (Item 93, Appendix G)
Lockwasher (2) (Item 95, Appendix G)



a. Disassembly.

(1) Remove seven screws (1) and washers (2) from top plate (3).

(2) Remove top plate (3) from housing (4).

(3) Remove rotator (5) from housing (4).

WARNING

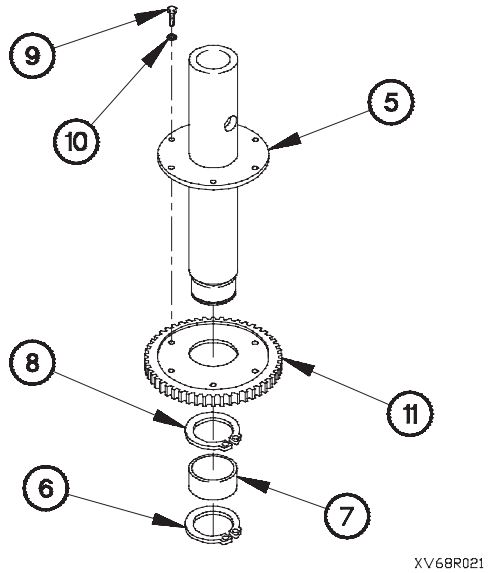
Retaining rings are under tension and can act as projectiles when released causing severe eye injury. Use care when removing retaining rings. Failure to comply may result in injury to personnel.

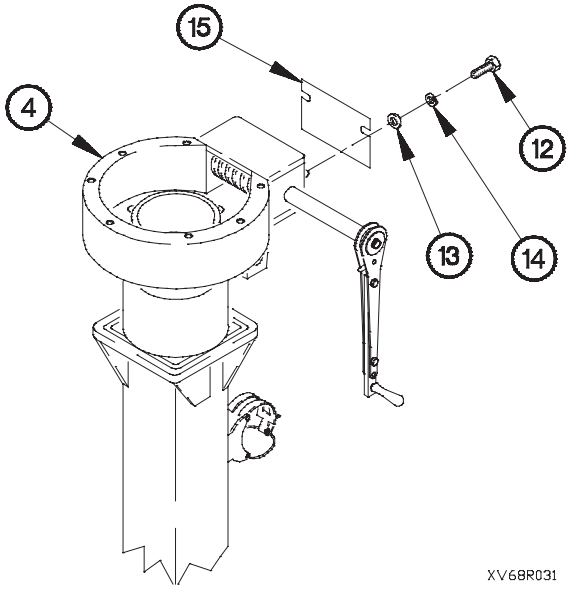
(4) Remove retaining ring (6) from rotator (5).

(5) Remove bearing (7) from rotator (5).

(6) Remove retaining ring (8) from rotator (5).

(7) Remove six screws (9), washers (10), and gear (11) from rotator (5).

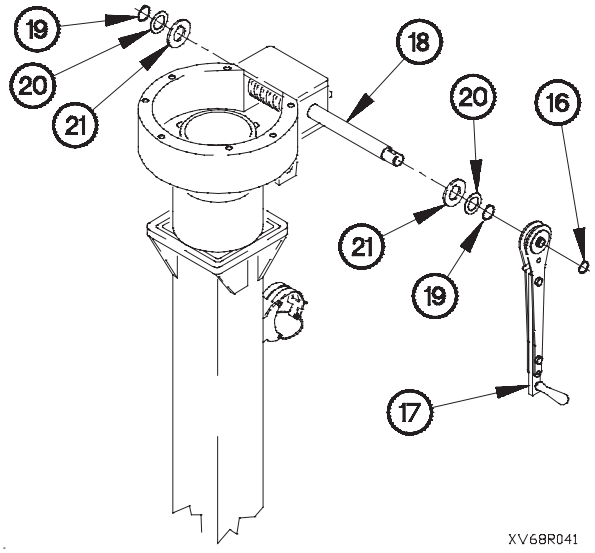




(8) Remove two screws (12), washers (13), lockwashers (14), and plate (15) from housing (4). Discard lockwashers.

(9) Remove retaining ring (16) and handle (17) from shaft (18).

(10) Remove two retaining rings (19), washers (20), and washers (21) from shaft (18).

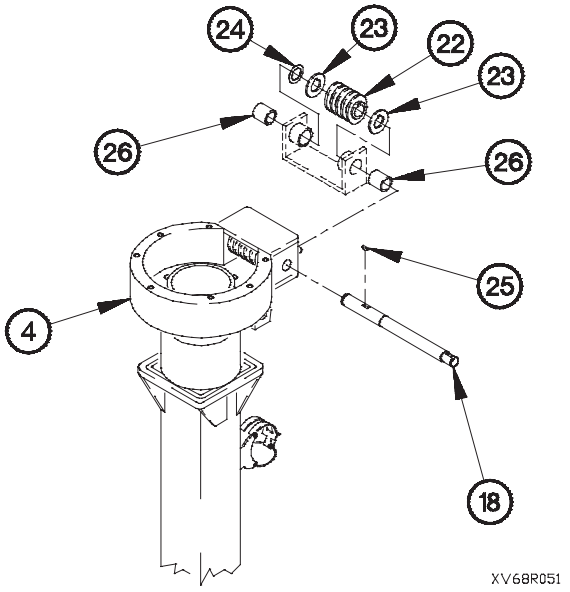


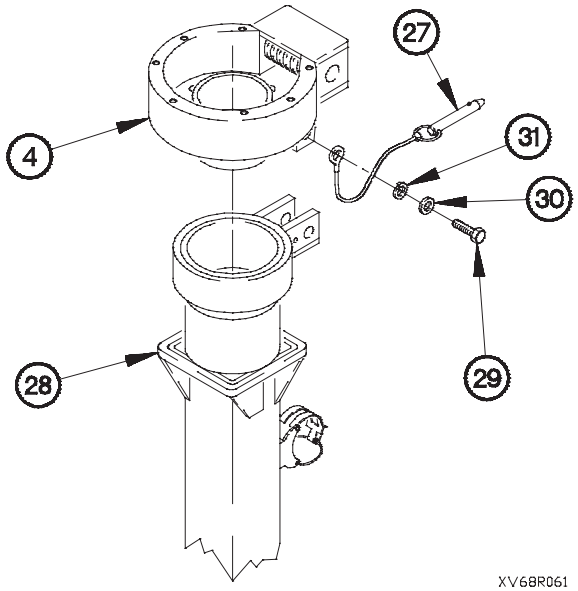
20-68. LIGHT MATERIAL HANDLING CRANE (LMHC) MAST AND SWING ASSEMBLY REPAIR (CONT)

(11) Remove shaft (18), worm gear (22), two washers (23), and washer (24) from housing (4).

(12) Remove woodruff key (25) from shaft (18).

(13) Remove two bearings (26) from housing (4).

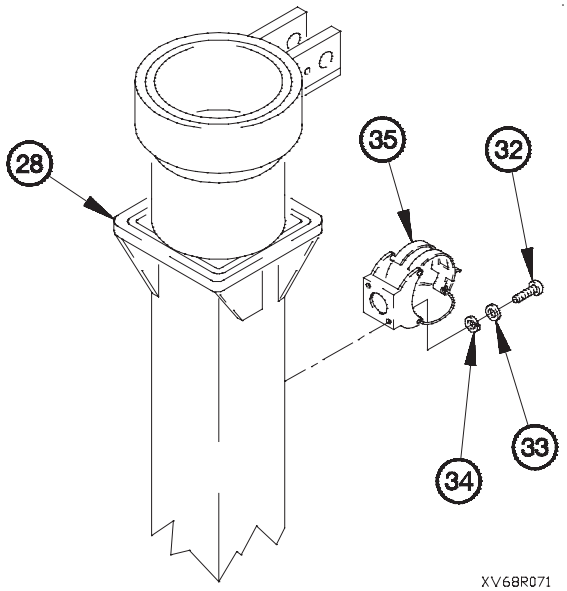




(14) Remove quick release pin (27) from housing (4).

(15) Remove housing (4) from mast (28).

(16) Remove screw (29), washer (30), lockwasher (31), and quick release pin (27) from housing (4). Discard lockwasher.



(17) Remove two screws (32), washers (33), lockwashers (34), and clamp (35) from mast (28). Discard lockwashers.

b. Cleaning.

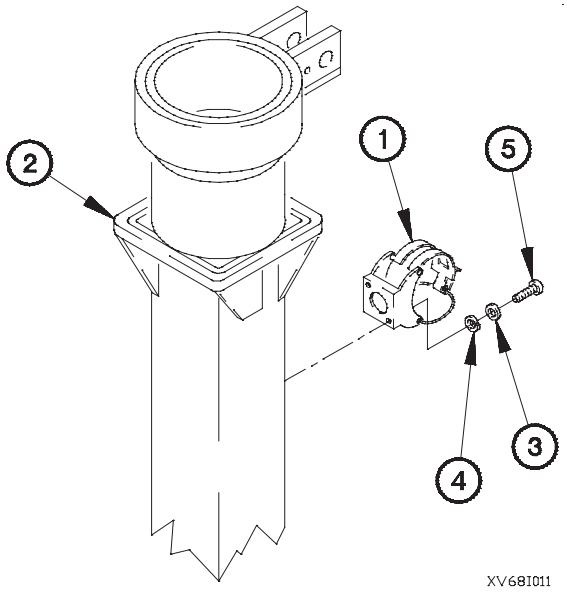
WARNING

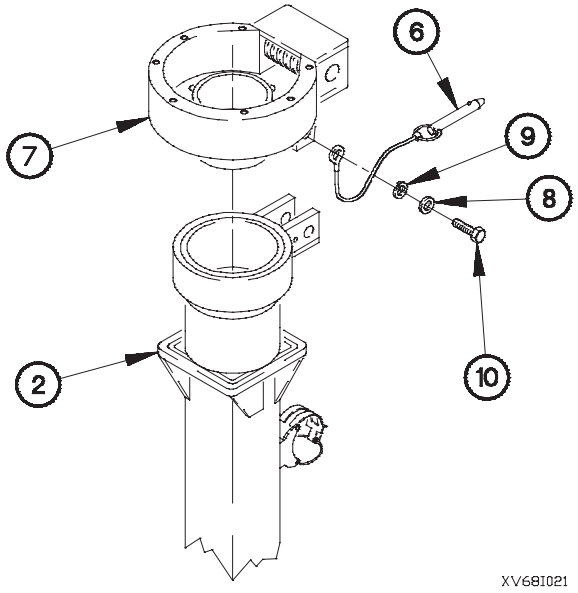
- **Dry Cleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles and gloves; use only in well ventilated area; avoid contact with skin, eyes, and clothes, and do breathe vapors. Keep away from heat or flame. Never smoke when using solvent; the flashpoint or Type I Dry Cleaning Solvent is 100°F (38°C) and for Type II is 130°F (50°C). Failure to comply may result in 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.**

Clean all metal parts with dry cleaning solvent.

c. Assembly.

(1) Install clamp (1) on mast (2) with two lockwashers (3), washers (4), and screws (5).





(2) Install quick release pin (6) on housing (7) with lockwasher (8), washer (9), and screw (10).

(3) Position housing (7) on mast (2).

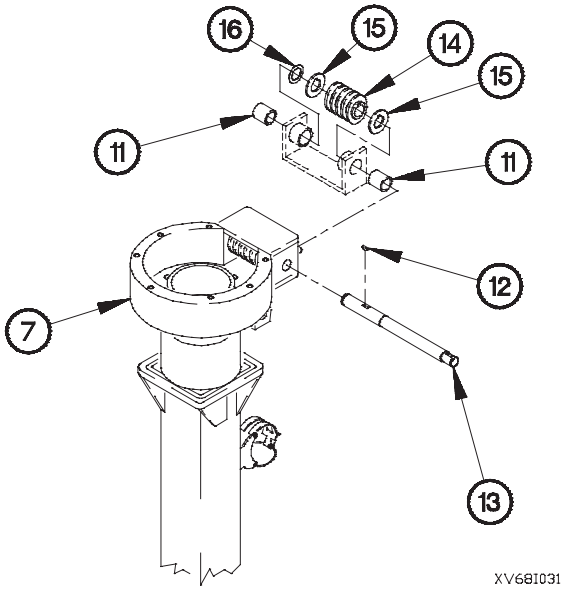
(4) Install quick release pin (6) in housing (7).

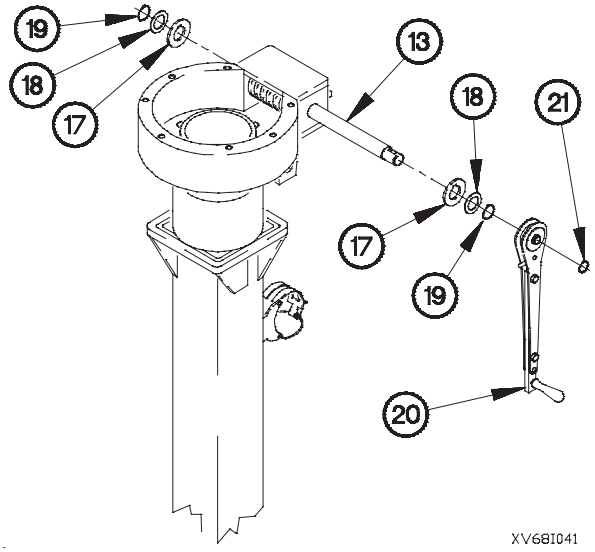
20-68. LIGHT MATERIAL HANDLING CRANE (LMHC) MAST AND SWING ASSEMBLY REPAIR (CONT)

(5) Install two bearings (11) in housing (7).

(6) Install woodruff key (12) on shaft (13).

(7) Install worm gear (14), two washers (15), washer (16), and shaft (13) in housing (7).





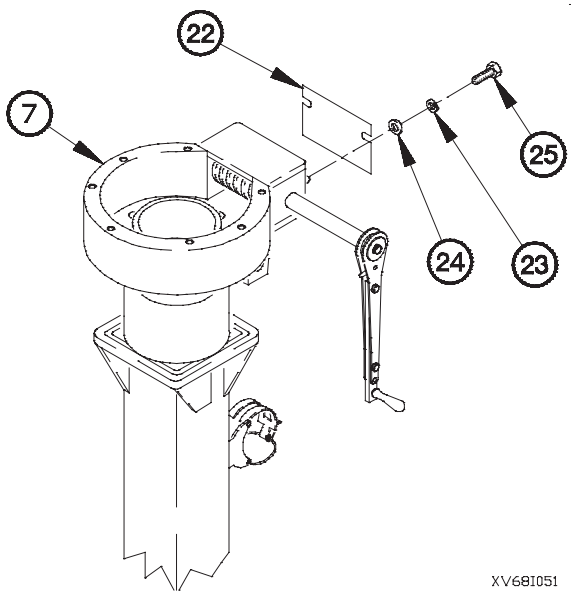
WARNING

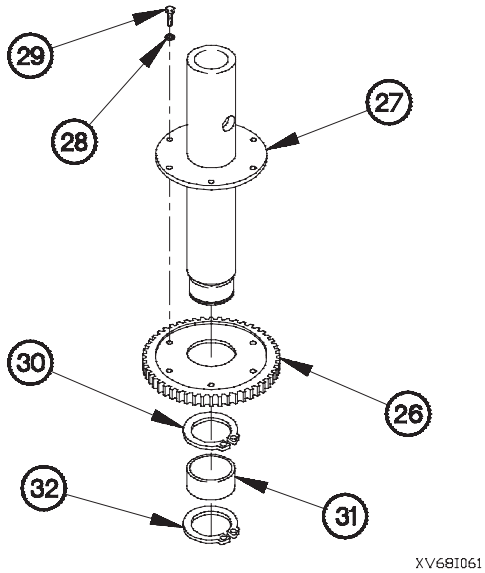
Retaining rings are under tension and can act as projectiles when released causing severe eye injury. Use care when installing retaining rings. Failure to comply may result in injury to personnel.

(8) Install two washers (17), washers (18), and retaining rings (19) on shaft (13).

(9) Install handle (20) on shaft (13) with retaining ring (21).

(10) Install plate (22) on housing (7) with two lockwashers (23), washers (24), and screws (25).





(11) Install gear (26) on rotator (27) with six washers (28) and screws (29).

WARNING

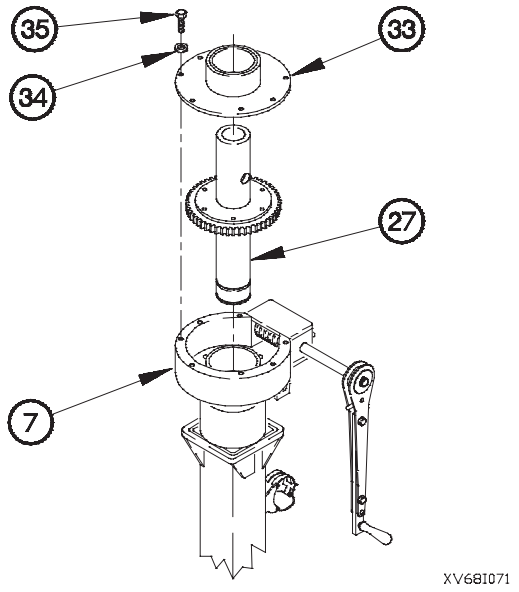
Retaining rings are under tension and can act as projectiles when released causing severe eye injury. Use care when installing retaining rings. Failure to comply may result in injury to personnel.

(12) Install retaining ring (30) on rotator (27).

(13) Install bearing (31) on rotator (27).

(14) Install retaining ring (32) on rotator (27).

20-68. LIGHT MATERIAL HANDLING CRANE (LMHC) MAST AND SWING ASSEMBLY REPAIR (CONT)



(15) Install rotator (27) in housing (7).

(16) Install top plate (33) on housing (7) with seven washers (34) and screws (35).

d. Follow-On Maintenance.

Assemble LMHC (para 20-60).

End of Task.

20-69. TROOP TRANSPORT ALARM CABLE ASSEMBLY REPLACEMENT

This task covers:

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

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-366-10-1)
Cab Raised (TM 9-2320-366-10-1)

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)

Materials/Parts
Ties, Cable, Plastic (Item 69, Appendix D)

a. Removal.

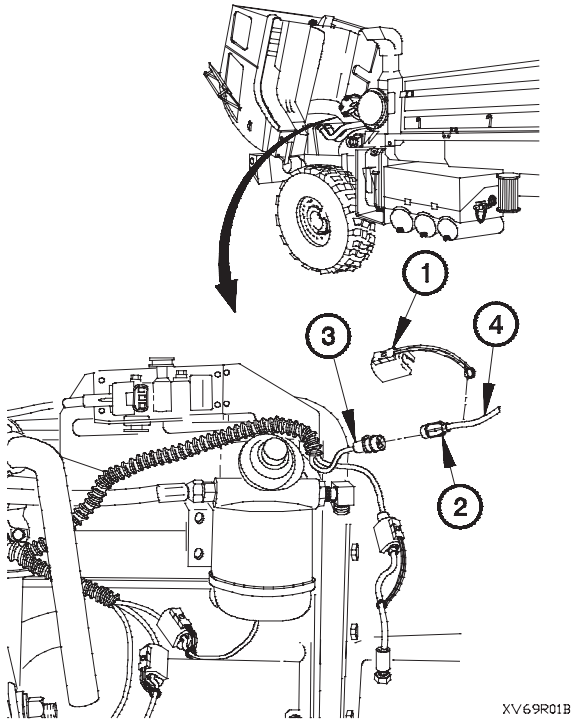
NOTE

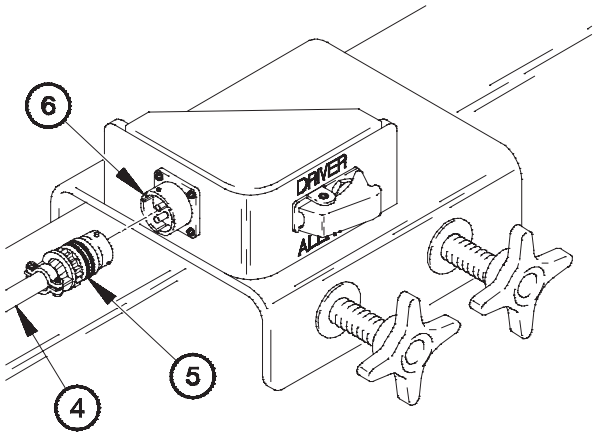
Remove plastic cable ties as required.

(1) Disconnect connector clamp (1) from connector J39 (2).

(2) Disconnect connector J39 (2) from connector P39 (3).

(3) Remove connector clamp (1) from troop transport alarm cable (4).





(4) Disconnect connector P921 (5) from connector J921 (6).

NOTE

Note routing of cable assembly prior to removal.

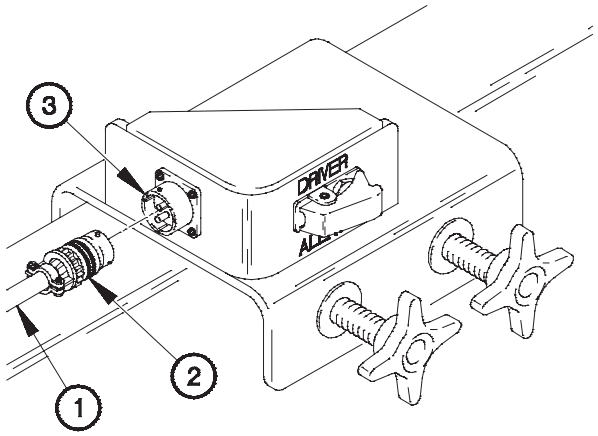
(5) Remove troop transport alarm cable (4) from vehicle.

20-69. TROOP TRANSPORT ALARM CABLE ASSEMBLY REPLACEMENT (CONT)

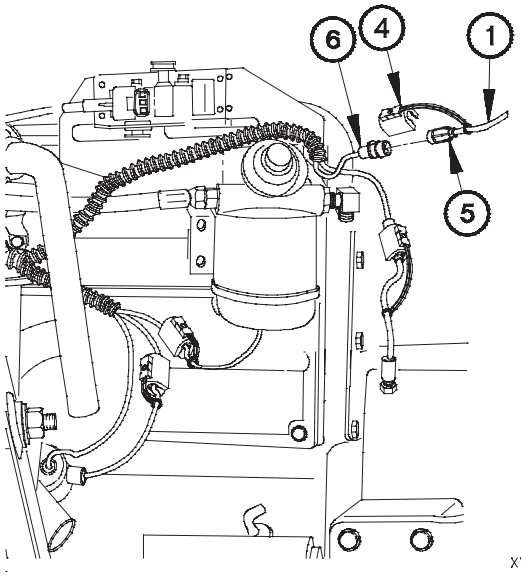
b. Installation.

(1) Position troop transport alarm cable assembly (1) on vehicle.

(2) Connect connector P921 (2) to connector J921 (3).



XV69I01B



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NOTE

Install plastic cable ties as required.

(3) Install connector clamp (4) on troop transport alarm cable (1).

(4) Connect connector J39 (5) to connector P39 (6).

(5) Connect connector clamp (4) to connector J39 (5).

c. Follow-On Maintenance.

(1) Lower cab (TM 9-2320-366-10-1).

(2) Operate troop transport alarm and check for proper operation (TM 9-2320-366-10-1).

End of Task.

20-70. TROOP TRANSPORT ALARM SWITCH, CONNECTOR, AND BRACKET REPLACEMENT

This task covers:

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

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-366-10-1).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Vise, Machinist (Item 48, Appendix C)

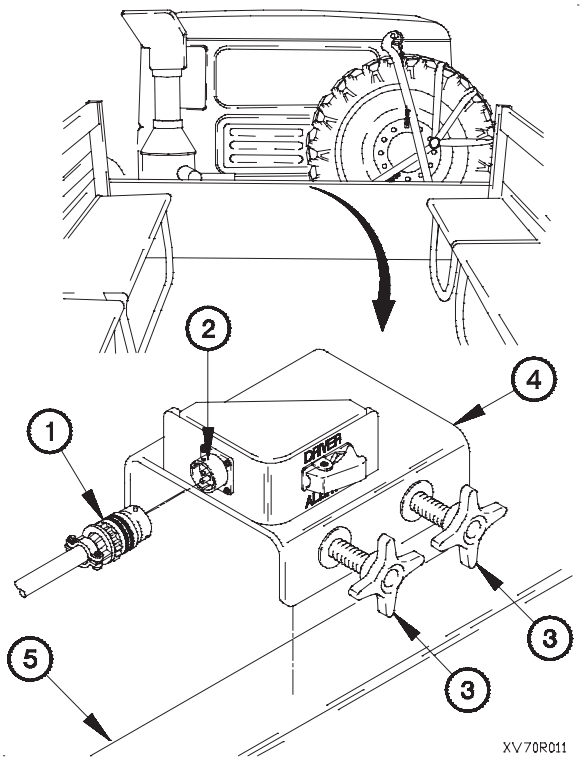
Materials/Parts
Dispenser, Pressure Sensitive Adhesive Tape (Item 20, Appendix D)
Adhesive (Item 8, Appendix D)
Sealing Compound (Item 59, Appendix D)
Nut, Self-Locking (4) (Item 130, Appendix G)

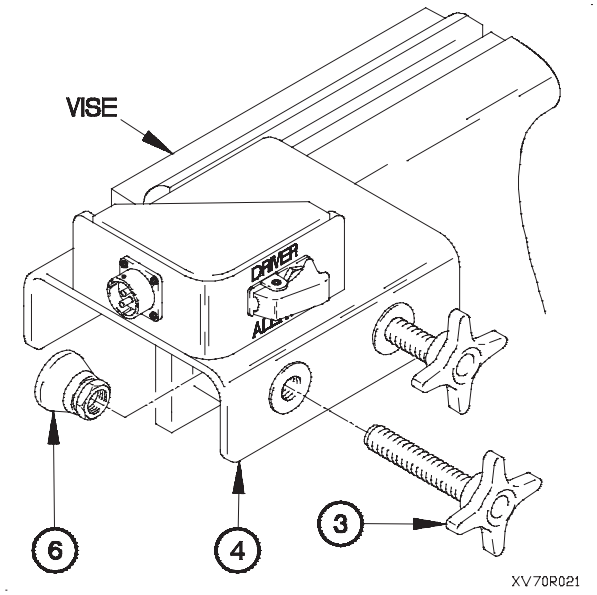
a. Removal.

(1) Disconnect connector P921 (1) from connector J921 (2).

(2) Loosen two knobs (3) on bracket (4).

(3) Remove bracket (4) from cargo bed (5).





(4) Position bracket (4) in vise.

(5) Remove two mounts (6) from knobs (3).

(6) Remove two knobs (3) from bracket (4).

20-70. TROOP TRANSPORT ALARM SWITCH, CONNECTOR, AND BRACKET REPLACEMENT (CONT)

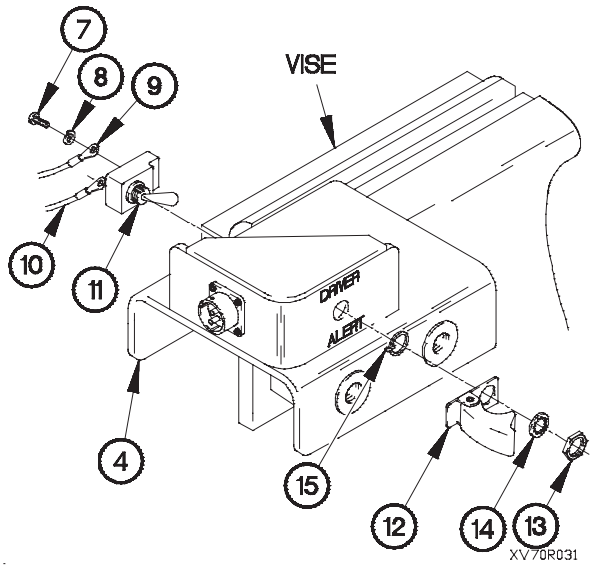
NOTE

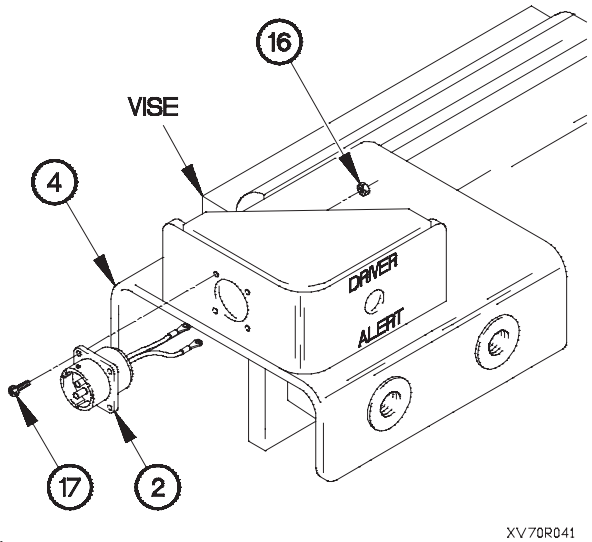
Tag wires and connection points prior to disconnecting.

(7) Remove two screws (7), lockwashers (8), and terminal lugs TL164 (9) and TL165 (10) from switch (11).

(8) Lift switch cover (12) on switch (11).

(9) Remove nut (13), lockwasher (14), switch cover (12), locking ring (15), and switch (11) from bracket (4).





(10) Remove four self-locking nuts (16), screws (17), and connector J921 (2) from bracket (4). Discard self-locking nuts.

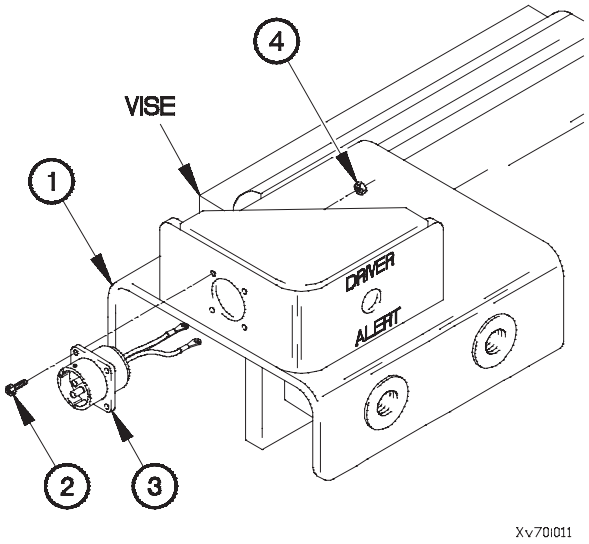
(11) Remove bracket (4) from vise.

b. Installation.

(1) Position bracket (1) in vise.

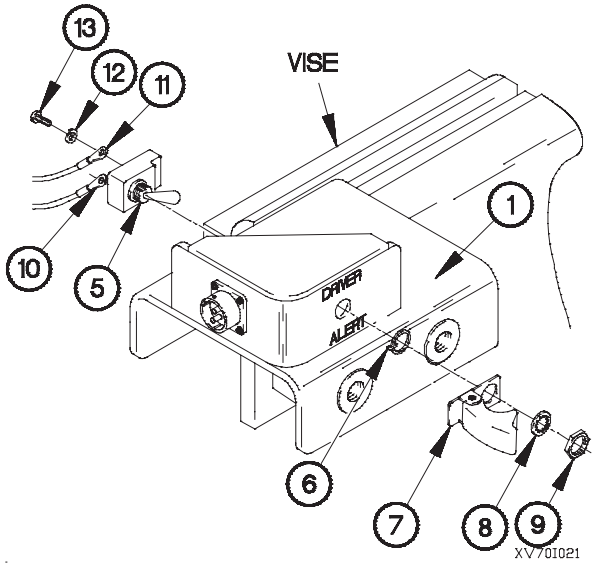
WARNING

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 sealing compound to threads of four screws (2).

(3) Install connector J921 (3) on bracket (1) with four screws (2) and self-locking nuts (4).



(4) Install switch (5) on bracket (1) with locking ring (6), switch cover (7), lockwasher (8) and nut (9).

(5) Close switch cover (7) on switch (5).

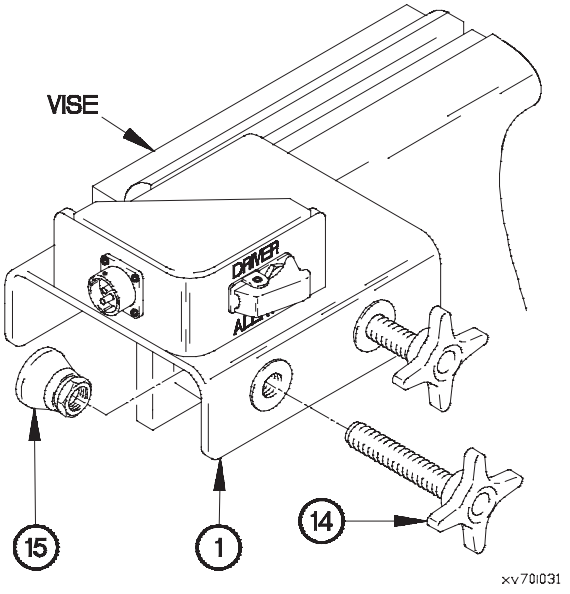
(6) Install terminal lugs TL164 (10) and TL165 (11) on switch (5) with two lockwashers (12) and screws (13).

(7) Apply adhesive to two screws (13), lockwashers (12), and terminal lugs TL164 (10) and TL165 (11).

20-70. TROOP TRANSPORT ALARM SWITCH, CONNECTOR, AND BRACKET 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.

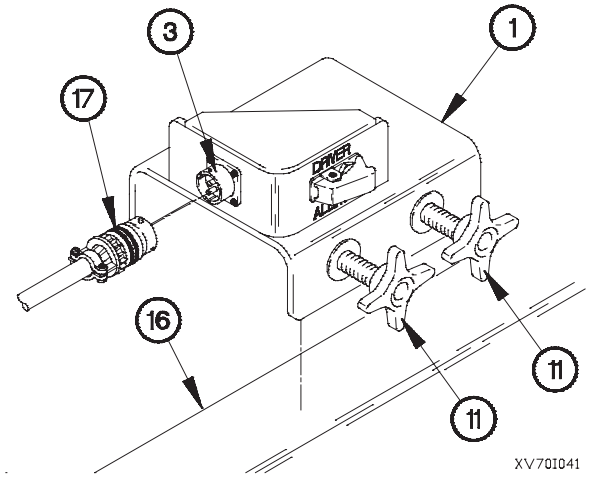


(8) Apply sealing compound to threads of two knobs (14).

(9) Install two knobs (14) on bracket (1).

(10) Install two mounts (15) on knobs (14).

(11) Remove bracket (1) from vise.



(12) Install bracket (1) on cargo bed (16) with two knobs (11).

(13) Connect connector P921 (17) to connector J921 (3).

c. Follow-On Maintenance.

Operate troop transport alarm and check for proper operation (TM 9-2320-366-10-1).

End of Task.

20-71. AMBER WARNING LIGHT ASSEMBLY REPAIR (EXCEPT M1089)

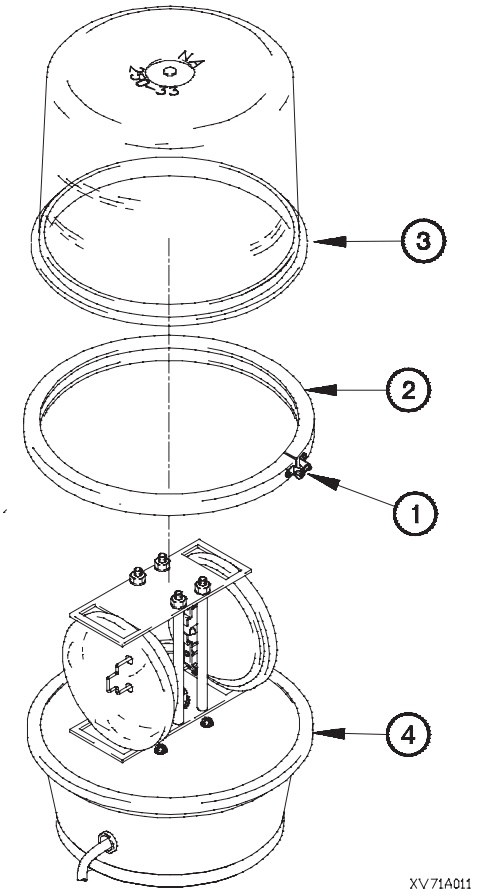
This task covers:

a. Disassembly
b. Assembly
c. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)

Materials/Parts
Lockwasher (4) (Item 77, Appendix G)



a. Disassembly.

(1) Loosen screw (1) on clamp (2).

(2) Remove lens (3) from lamp housing (4).

(3) Remove clamp (2) from lamp housing (4).

20-71. AMBER WARNING LIGHT ASSEMBLY REPAIR (CONT) (EXCEPT M1089)

NOTE

Perform step (4) on amber warning lights equipped with nuts containing a captive lockwasher.

(4) Remove four self-locking nuts (5) and lamp mounting plate (6) from mounting studs (7). Discard self-locking nuts.

NOTE

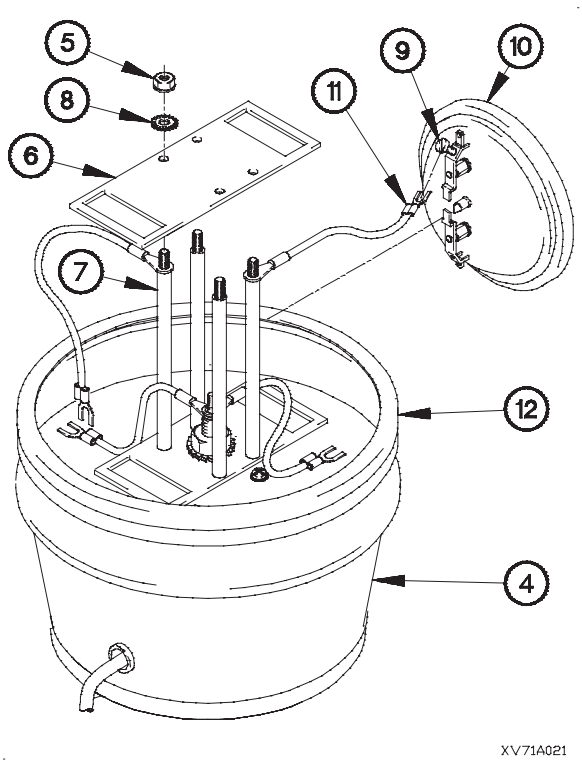
Perform step (5) on amber warning lights equipped with nuts and lockwashers.

(5) Remove four nuts (5), lockwashers (8), and lamp mounting plate (6) from mounting studs (7). Discard lockwashers.

(6) Loosen four screws (9) on two lamps (10).

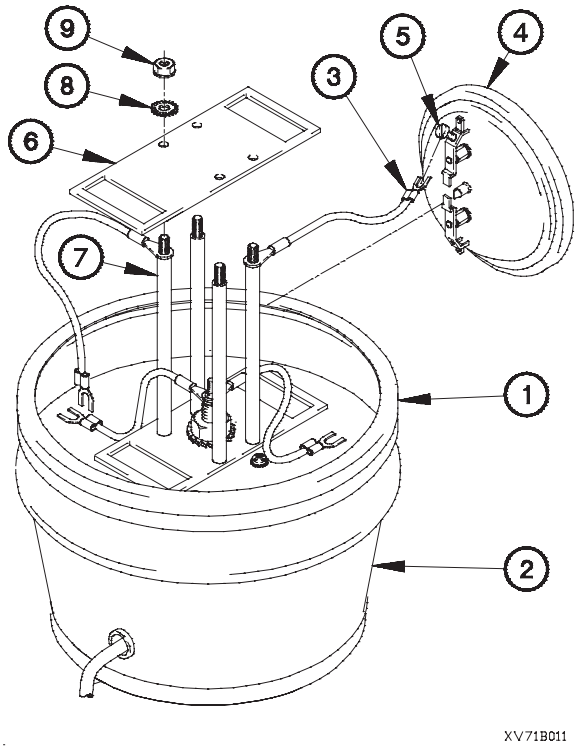
(7) Remove four terminal lugs (11) from two lamps (10).

(8) Remove seal (12) from lamp housing (4).



XV71A021

b. Assembly.



XV71B011

(1) Install seal (1) on lamp housing (2).

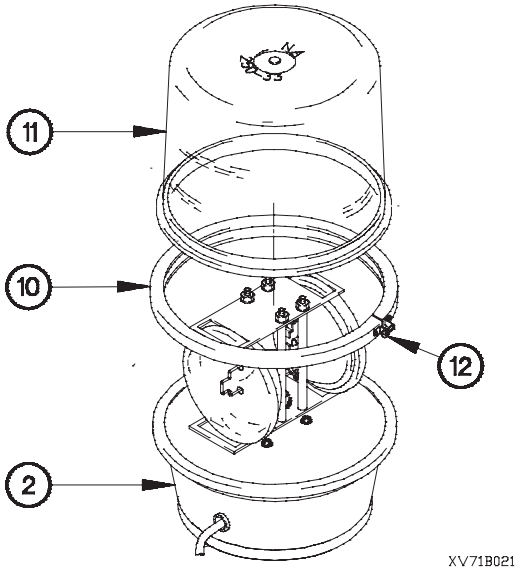
(2) Install four terminal lugs (3) on two lamps (4) with four screws (5).

(3) Install lamp mounting plate (6) on four mounting studs (7) with lockwashers (8) and nuts (9).

(4) Position clamp (10) on lamp housing (2).

(5) Install lens (11) on lamp housing (2).

(6) Tighten screw (12) in clamp (10).



c. Follow-On Maintenance.

Operate amber warning light and check for proper operation (TM 9-2320-366-10-1).

End of Task.

20-72. M1083/M1093 COLLAPSIBLE DRUMS TIEDOWN KIT INSTALLATION/REMOVAL

This task covers:

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

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-366-10-1).
Cargo bed side panels and stakes removed (TM 9-2320-366-10-1).

Tools and Special Tools
Sling, Cargo (Item 31, Appendix C)
Tool Kit, Genl Mech (Item 46, Appendix C)

Tools and Special Tools (Cont)
Wrench, Torque 0-600 lb-ft (Item 60, Appendix C)
Wrench Set, Socket (Item 47, Appendix C)

Materials/Parts
Pin, Cotter (20) (Item 277, Appendix G)

Personnel Required
(2)

WARNING

Ensure vehicle is on level ground prior to installation of collapsible drums. Failure to comply may result in serious injury or death to personnel or damage to equipment.

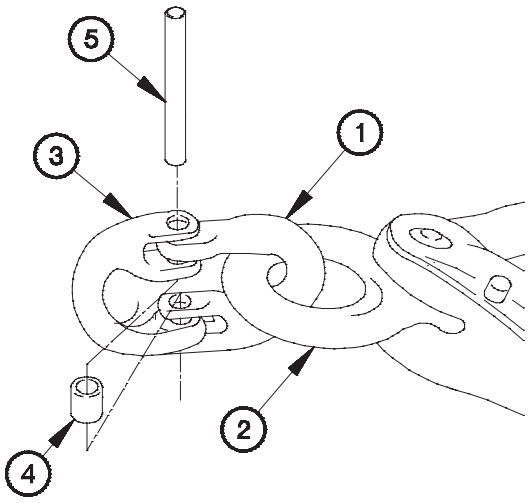
a. Installation.

NOTE

Front and rear chains are assembled the same way. One front chain shown.

(1) Position clamp half (1) in hook (2).

(2) Install clamp half (3) on clamp half (1) with spring collar (4) and pin (5).

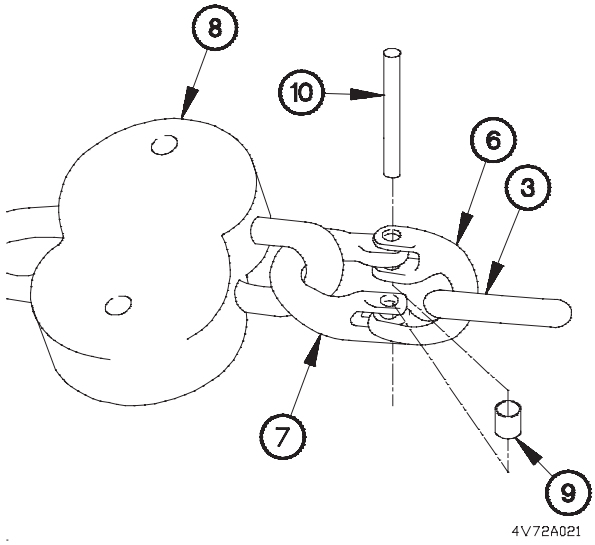


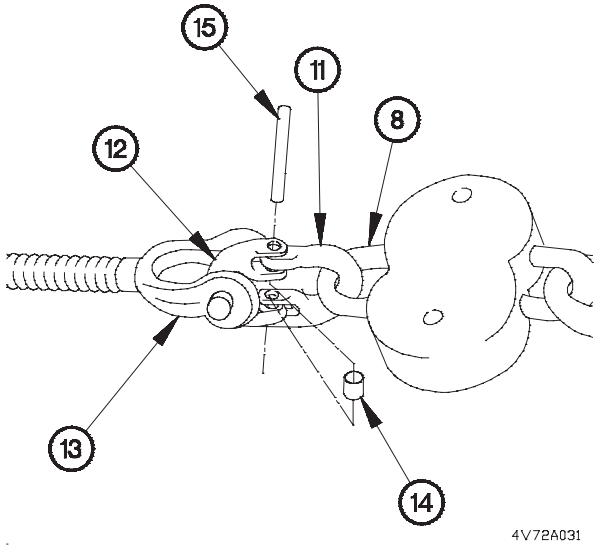
4V72A011

(3) Position clamp half (6) on clamp half (3).

(4) Position clamp half (7) on shock mount (8).

(5) Install clamp half (6) on clamp half (7) with spring collar (9) and pin (10).





(6) Position clamp half (11) on shock mount (8).

(7) Position clamp half (12) on turnbuckle (13).

(8) Install clamp half (11) on clamp half (12) with spring collar (14) and pin (15).

(9) Perform steps (1) through (8) on remaining front and rear chains.

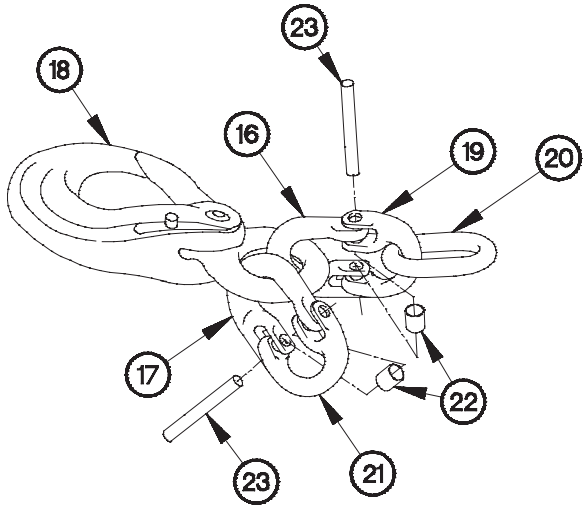
NOTE

Four middle chains are assembled the same way. One middle chain shown.

(10) Position clamp halves (16 and 17) on hook (18).

(11) Position clamp half (19) on chain (20).

(12) Install clamp halves (19 and 21) on clamp halves (16 and 17) with two spring collars (22) and pins (23).

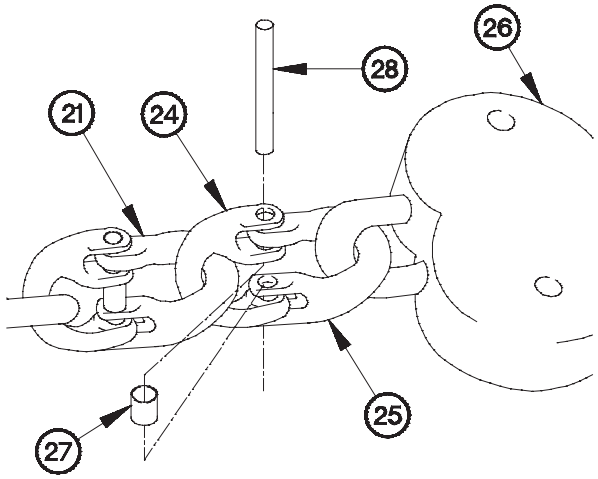


20-72. M1083/M1093 COLLAPSIBLE DRUMS TIEDOWN KIT INSTALLATION/REMOVAL (CONT)

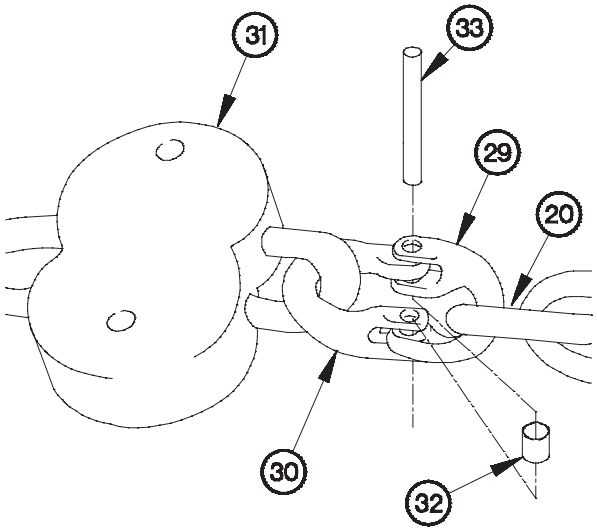
(13) Position clamp half (24) on clamp half (21).

(14) Position clamp half (25) on shock mount (26).

(15) Install clamp half (24) on clamp half (25) with spring collar (27) and pin (28).



4V72A051



4V72A061

(16) Position clamp half (29) on chain (20).

(17) Position clamp half (30) on shock mount (31).

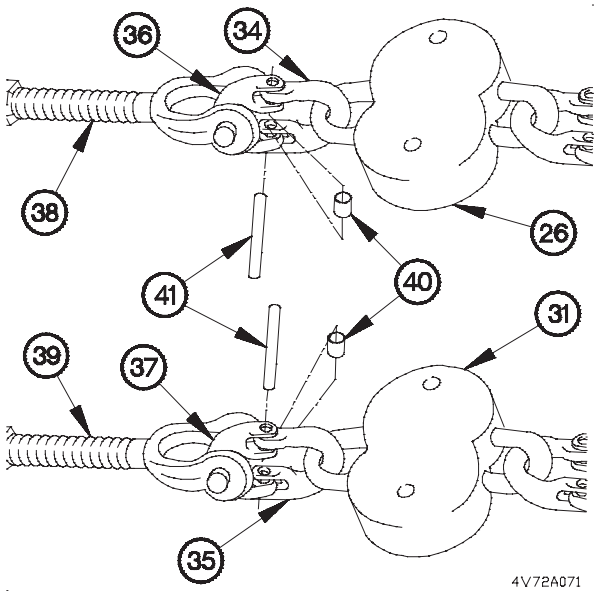
(18) Install clamp half (29) on clamp half (30) with spring collar (32) and pin (33).

(19) Position clamp halves (34 and 35) on shock mounts (26 and 31).

(20) Position clamp halves (36 and 37) on turnbuckles (38 and 39).

(21) Install clamp halves (34 and 35) on clamp halves (36 and 37) with two spring collars (40) and pins (41).

(22) Perform steps (10) through (21) on remaining middle chains.

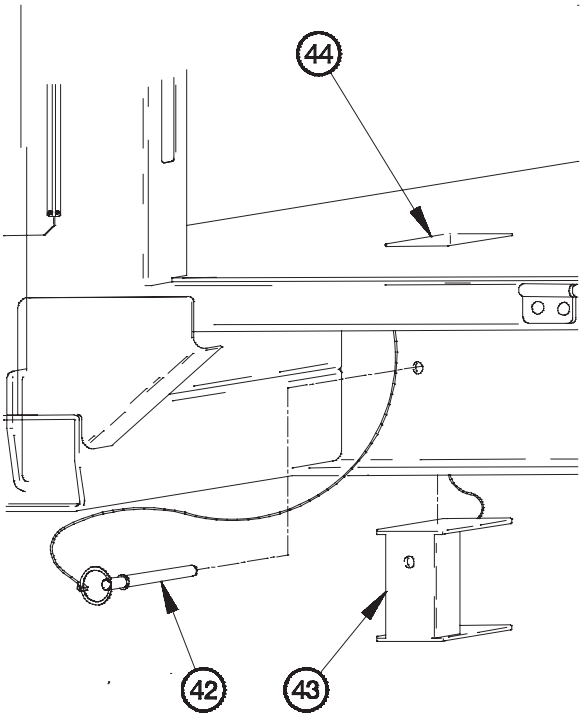


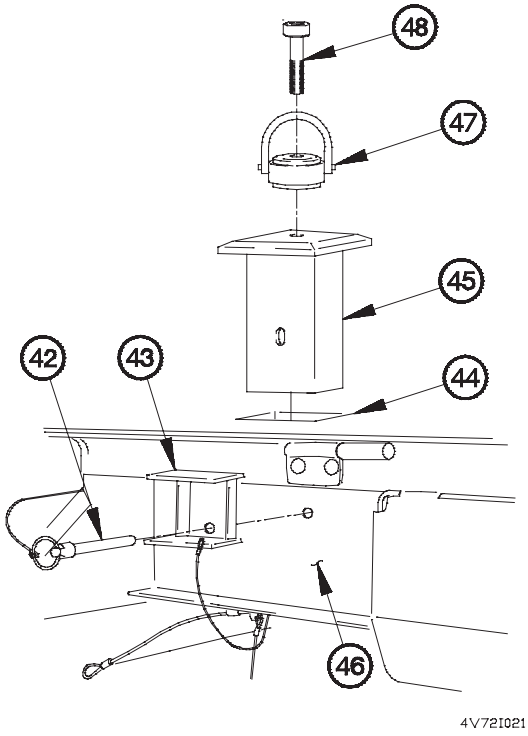
4V72A071

WARNING

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

(23) Remove four quick release pins (42) and plugs (43) from crane pockets (44).





(24) Install four tiedown posts (45) in crane pockets (44).

CAUTION

Ensure quick release pins are installed through both sides of crane pockets. Failure to comply may result in damage to equipment.

(25) Install four plugs (43) on frame (46) with four quick release pins (42).

(26) Position four tiedown hoist rings (47) on tiedown posts (45) with screws (48).

(27) Tighten four screws (48) to 230 lb-ft (312 N·m).

(28) Lower ladder (TM 9-2320-366-10-1).

20-72. M1083/M1093 COLLAPSIBLE DRUMS TIEDOWN KIT INSTALLATION/REMOVAL (CONT)

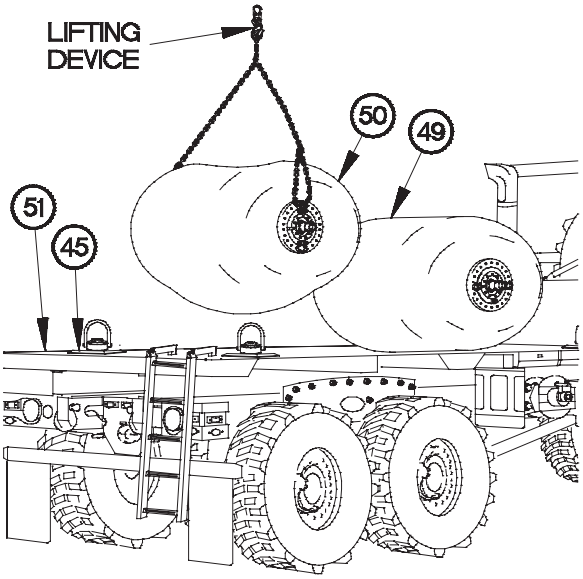
WARNING

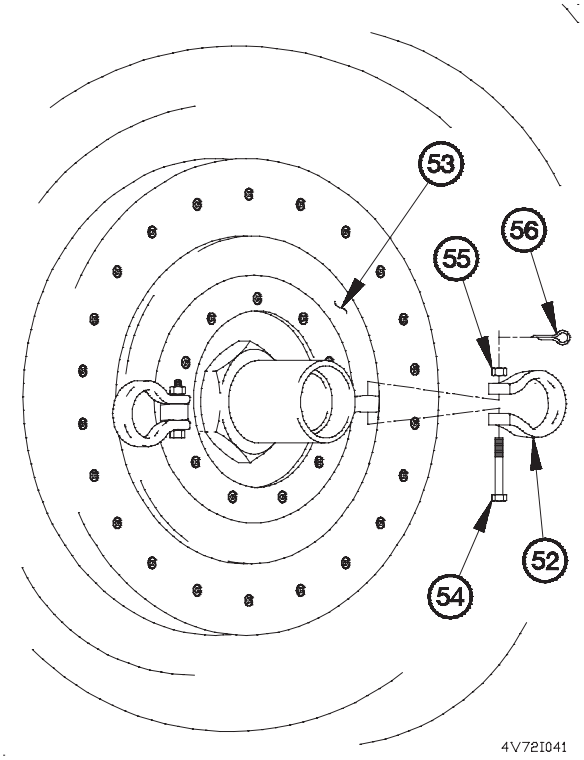
Both collapsible drums weigh approximately 235 lbs (107 kgs) empty and 3800 lbs (1725 kgs) full. Attach a suitable lifting device prior to installation. Failure to comply may result in serious injury or death to personnel or damage to equipment.

NOTE

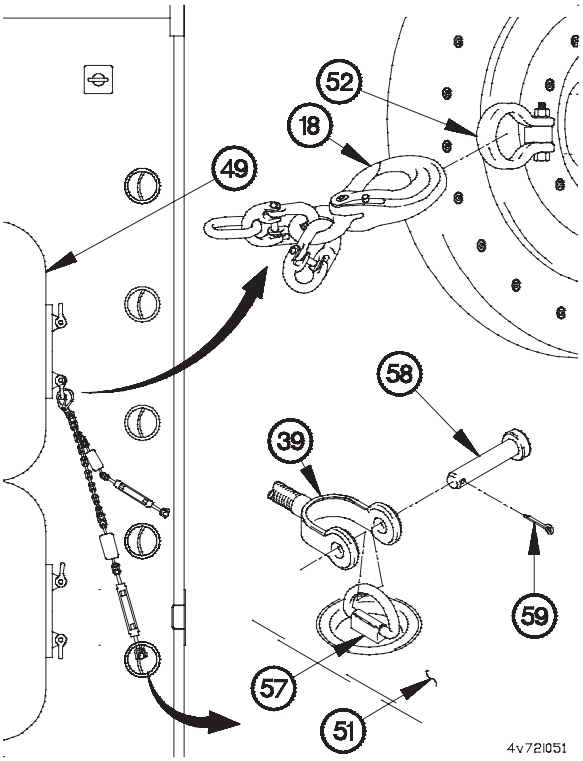
- Position both hose connectors on collapsible drums to same side of vehicle.
- Step (29) requires the aid of an assistant.

(29) Position front and rear collapsible drums (49 and 50) on cargo bed (51) centered between four tiedown posts (45).





(30) Install eight shackles (52) on four rotating center rings (53) with eight bolts (54), nuts (55), and cotter pins (56).

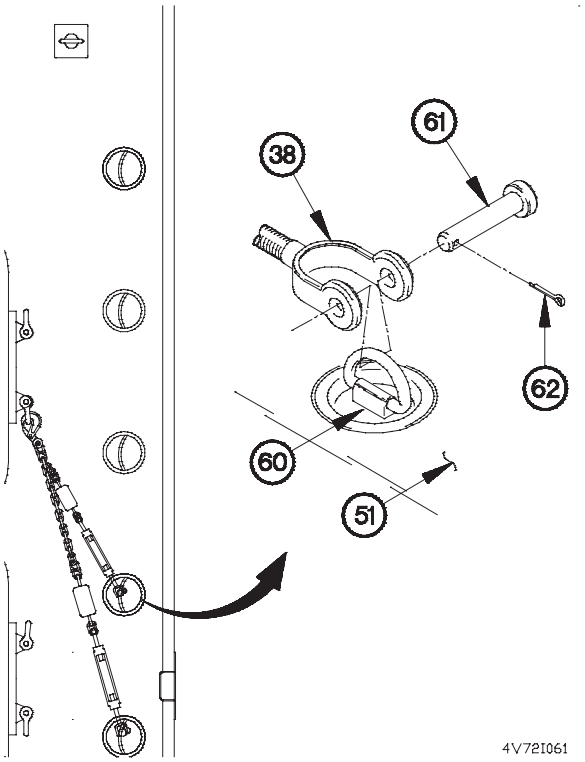


NOTE

Left and right middle chains are installed the same way. Right middle chains shown.

(31) Install hook (18) on shackle (52) on rear of front collapsible drum (49).

(32) Install turnbuckle (39) on second cargo bed tiedown (57) from rear of cargo bed (51) with pin (58) and cotter pin (59).

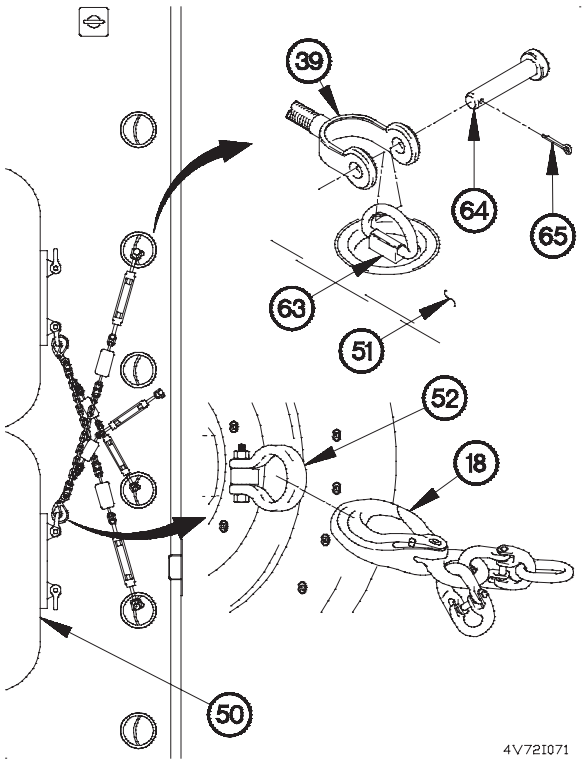


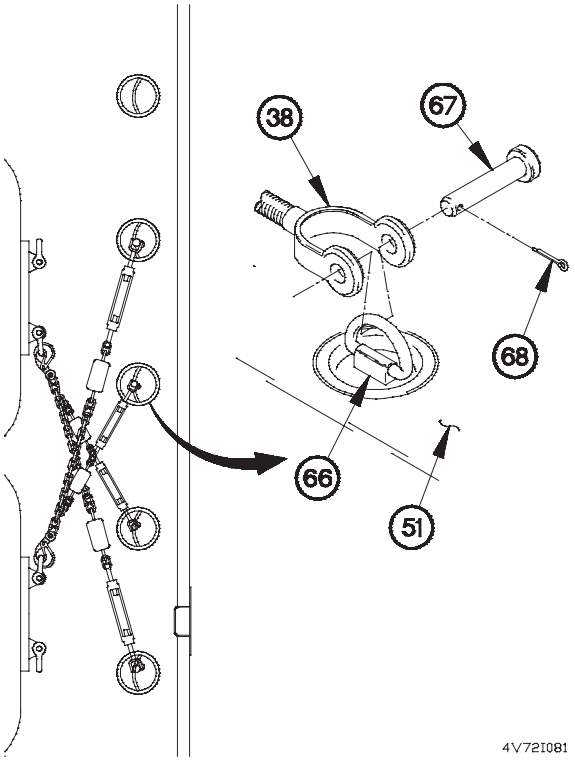
(33) Install turnbuckle (38) on third cargo bed tiedown (60) from rear of cargo bed (51) with pin (61) and cotter pin (62).

20-72. M1083/M1093 COLLAPSIBLE DRUMS TIEDOWN KIT INSTALLATION/REMOVAL (CONT)

(34) Install hook (18) on shackle (52) on front of rear collapsible drum (50).

(35) Install turnbuckle (39) on second cargo bed tiedown (63) from front of cargo bed (51) with pin (64) and cotter pin (65).

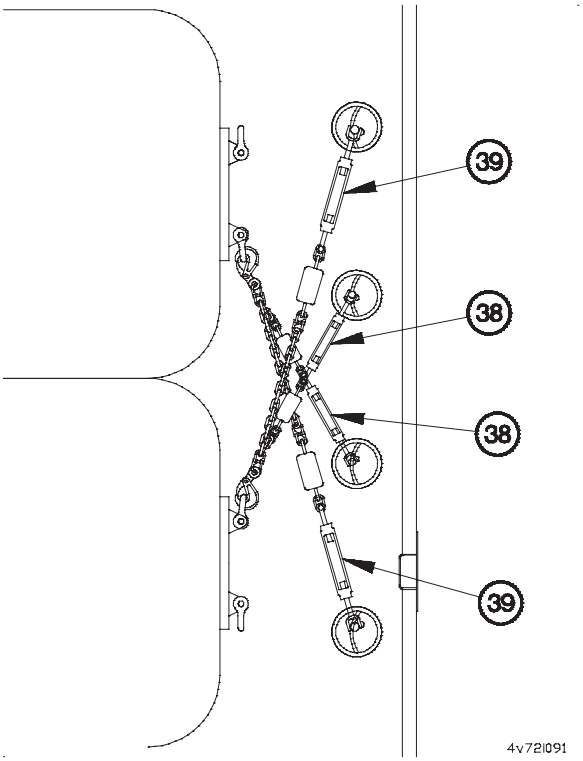


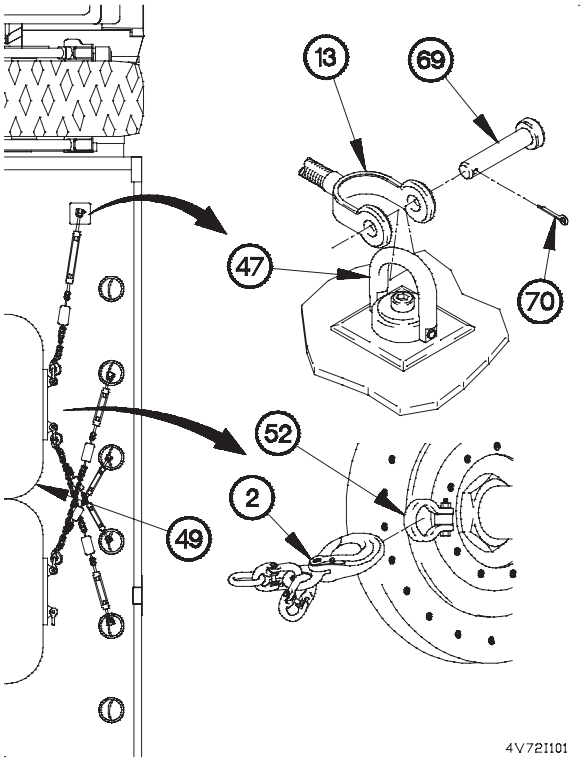


(36) Install turnbuckle (38) on third cargo bed tiedown (66) from front of cargo bed (51) with pin (67) and cotter pin (68).

(37) Perform steps (31) through (36) left middle chains.

(38) Remove slack from four turnbuckles (38 and 39).





NOTE

Left and right front chains are installed the same way. Right front chain shown.

(39) Install hook (2) on shackle (52) on front of front collapsible drum (49).

(40) Install turnbuckle (13) on front tiedown hoist ring (47) with pin (69) and cotter pin (70).

(41) Perform steps (39) and (40) on left front chain.

(42) Remove slack from two turnbuckles (13).

20-72. M1083/M1093 COLLAPSIBLE DRUMS TIEDOWN KIT INSTALLATION/REMOVAL (CONT)

NOTE

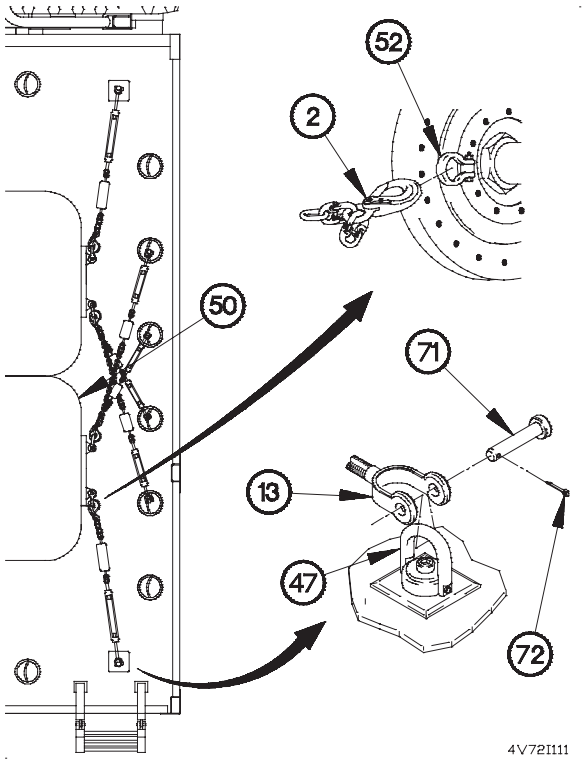
Left and right rear chains are installed the same way. Right rear chain shown.

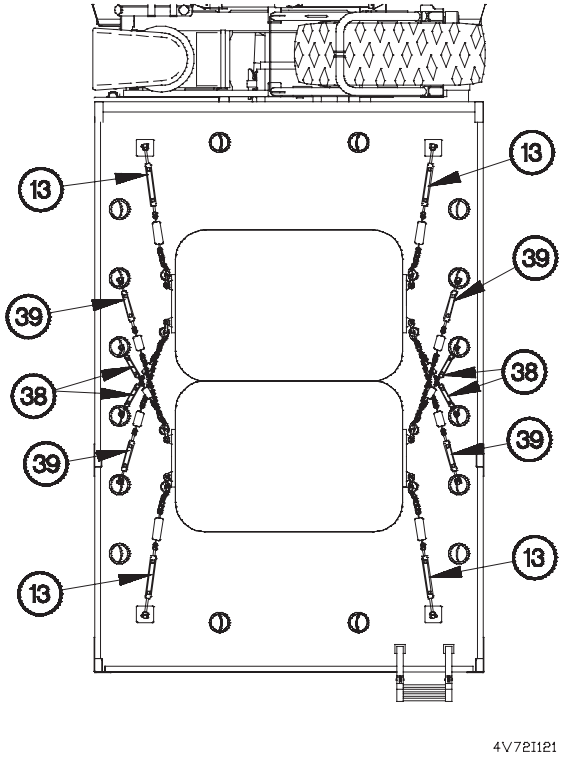
(43) Install hook (2) on shackle (52) on rear of rear collapsible drum (50).

(44) Install turnbuckle (13) on rear tiedown hoist ring (47) with pin (71) and cotter pin (72).

(45) Perform steps (43) and (44) on left rear chain.

(46) Remove slack from two turnbuckles (13).





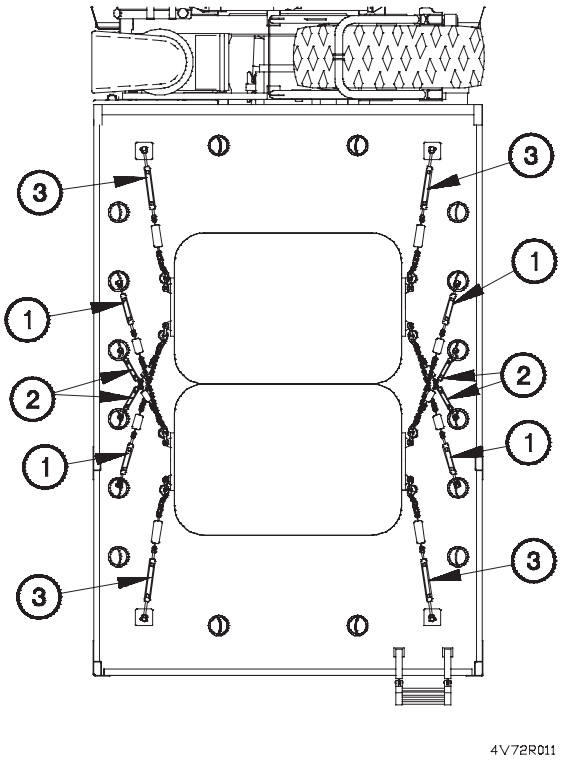
(47) Tighten four turnbuckles (13, 38, and 39) 1 1/2 additional turns.

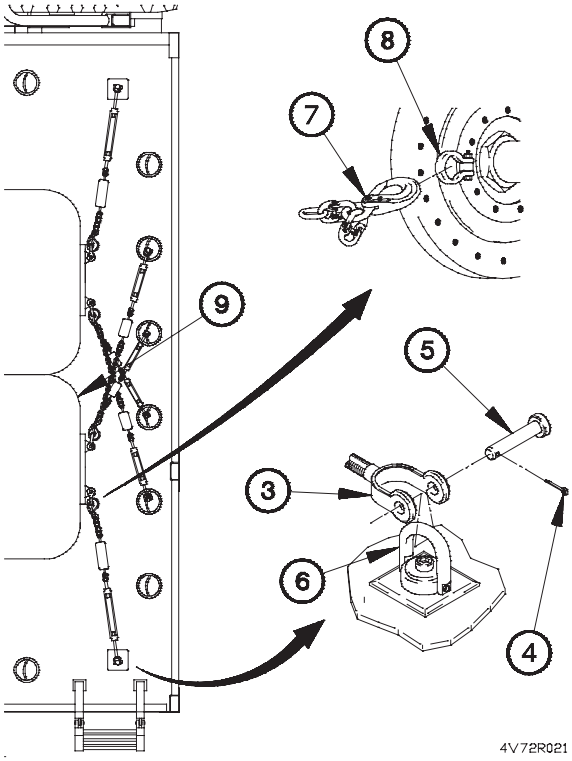
(48) Raise ladder (TM 9-2320-366-10-1).

b. Removal.

(1) Lower ladder (TM 9-2320-366-10-1).

(2) Loosen four turnbuckles (1, 2, and 3).





NOTE

Left and right rear chains are removed the same way. Right rear chain shown.

(3) Remove cotter pin (4), pin (5), and turnbuckle (3) from rear tiedown hoist ring (6). Discard cotter pin.

(4) Remove hook (7) from shackle (8) on rear of rear collapsible drum (9).

(5) Perform steps (3) and (4) on left rear chain.

20-72. M1083/M1093 COLLAPSIBLE DRUMS TIEDOWN KIT INSTALLATION/REMOVAL (CONT)

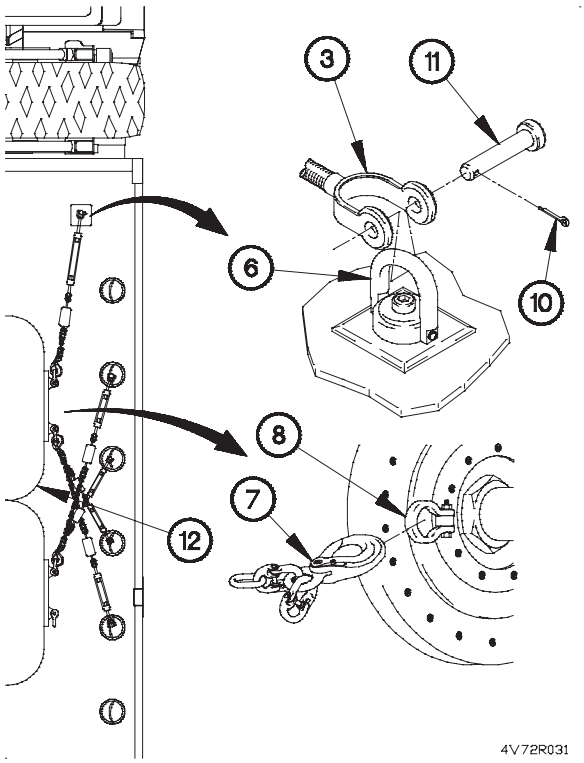
NOTE

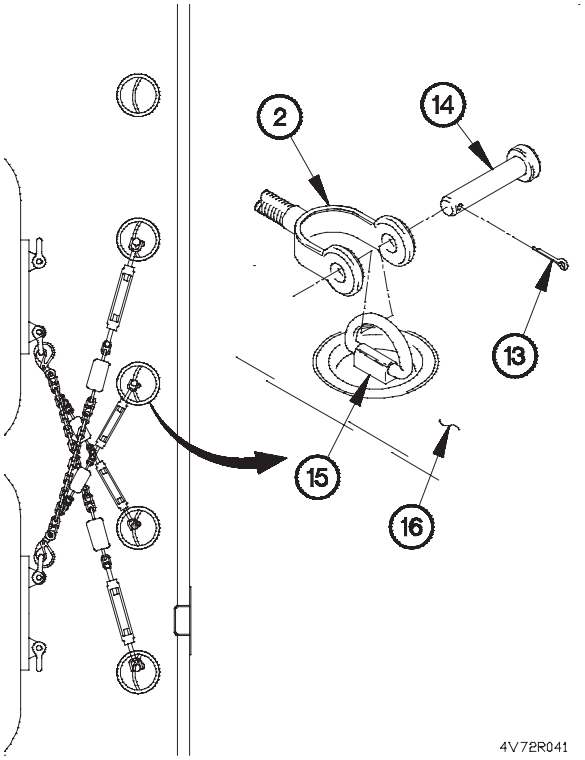
Left and right front chains are removed the same way. Right front chain shown.

(6) Remove cotter pin (10), pin (11), and turnbuckle (3) from front tiedown hoist ring (6). Discard cotter pin.

(7) Remove hook (7) from shackle (8) on front of front collapsible drum (12).

(8) Perform steps (6) and (7) on left front chain.





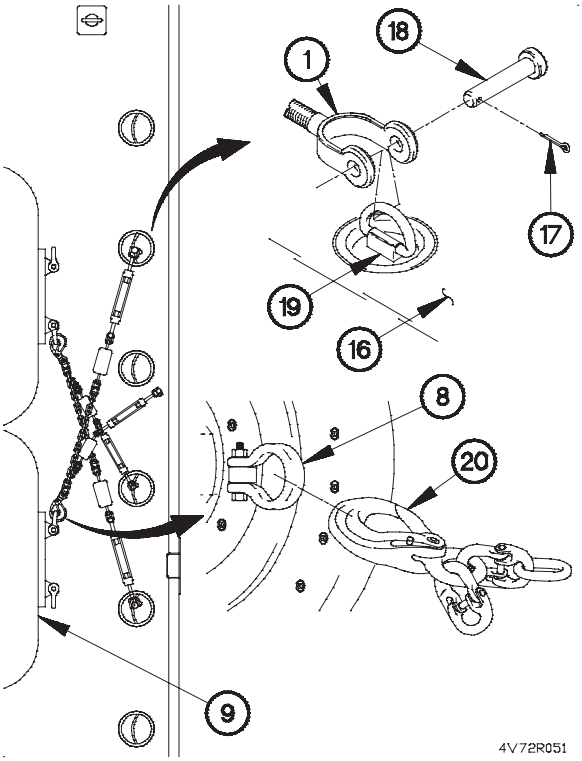
NOTE

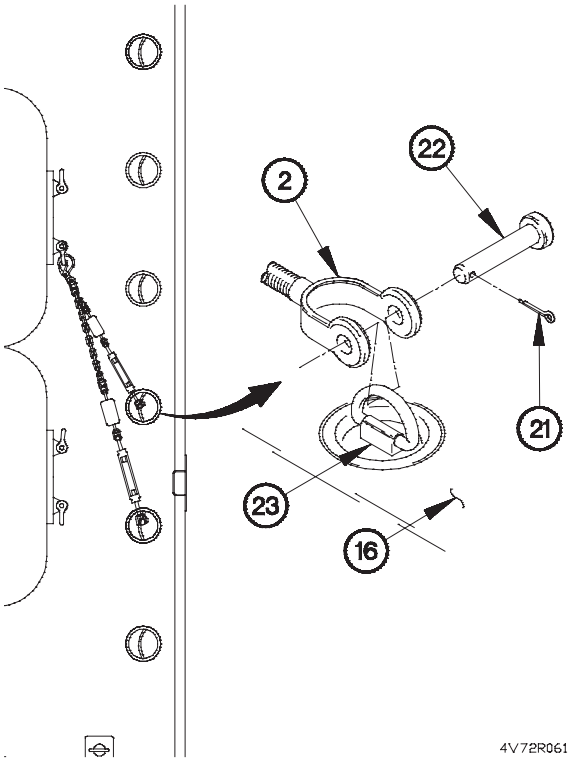
Left and right middle chains are removed the same way. Right middle chains shown.

(9) Remove cotter pin (13), pin (14), and turnbuckle (2) from third cargo bed tiedown (15) from front of cargo bed (16). Discard cotter pin.

(10) Remove cotter pin (17), pin (18), and turnbuckle (1) from second cargo bed tiedown (19) from front of cargo bed (16). Discard cotter pin.

(11) Remove hook (20) from shackle (8) on front of rear collapsible drum (9).





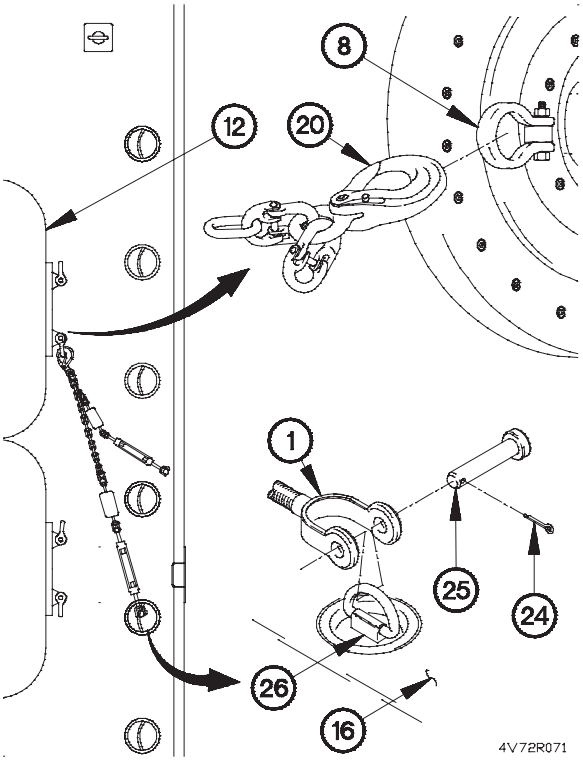
(12) Remove cotter pin (21), pin (22), and turnbuckle (2) from third cargo bed tiedown (23) from rear of cargo bed (16). Discard cotter pin.

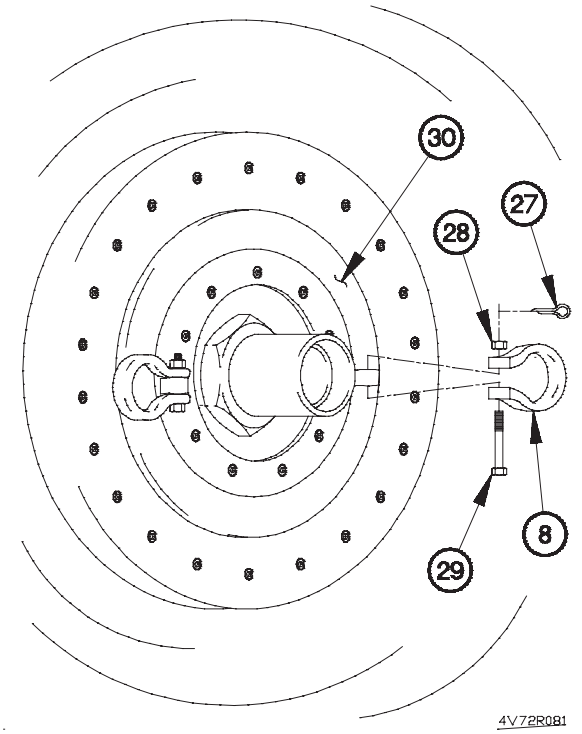
20-72. M1083/M1093 COLLAPSIBLE DRUMS TIEDOWN KIT INSTALLATION/REMOVAL (CONT)

(13) Remove cotter pin (24), pin (25), and turnbuckle (1) from second cargo bed tiedown (26) from rear of cargo bed (16). Discard cotter pin.

(14) Remove hook (20) from shackle (8) on rear of front collapsible drum (12).

(15) Perform steps (9) through (14) on two left middle chains.





(16) Remove eight cotter pins (27), nuts (28), bolts (29), and shackles (8) from four rotating center rings (30). Discard cotter pins.

WARNING

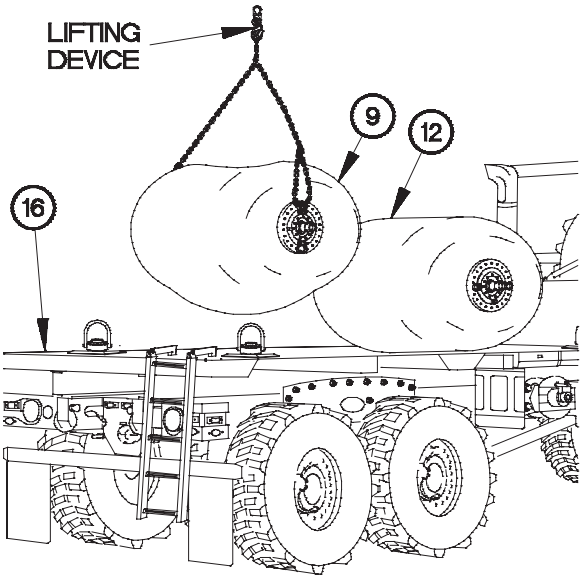
Both collapsible drums weigh approximately 235 lbs (107 kgs) empty and 3800 lbs (1725 kgs) full. Attach a suitable lifting device prior to removal. Failure to comply may result in serious injury or death to personnel or damage to equipment.

CAUTION

Ensure hose connectors do not get positioned under collapsible drums. Failure to comply may result in damage to equipment.

NOTE

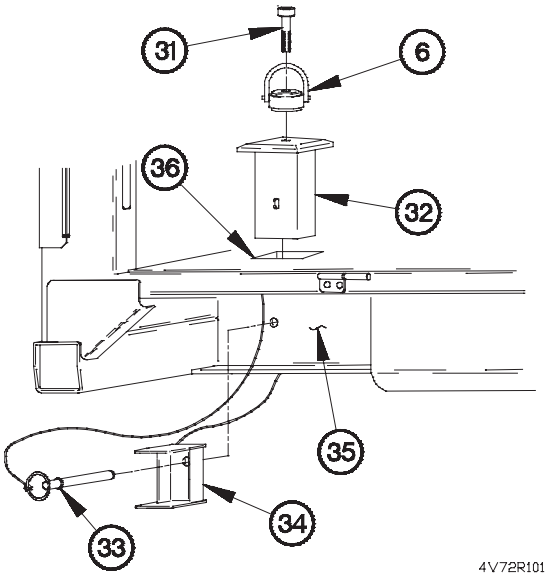
Step (17) requires the aid of an assistant.



4V72R091

(17) Remove rear and front collapsible drums (9 and 12) from cargo bed (16).

(18) Raise ladder (TM 9-2320-366-10-1).



4V72R101

(19) Remove four screws (31) and tiedown hoist rings (6) from tieddown post (32).

(20) Remove four quick release pins (33) and plugs (34) from frame (35).

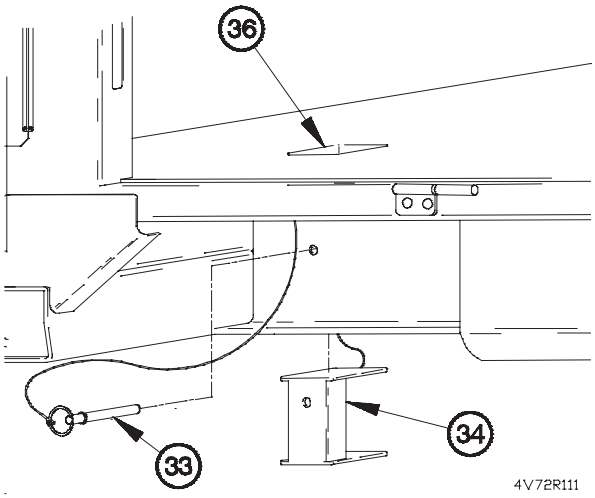
(21) Remove four tiedown posts (32) from crane pockets (36).

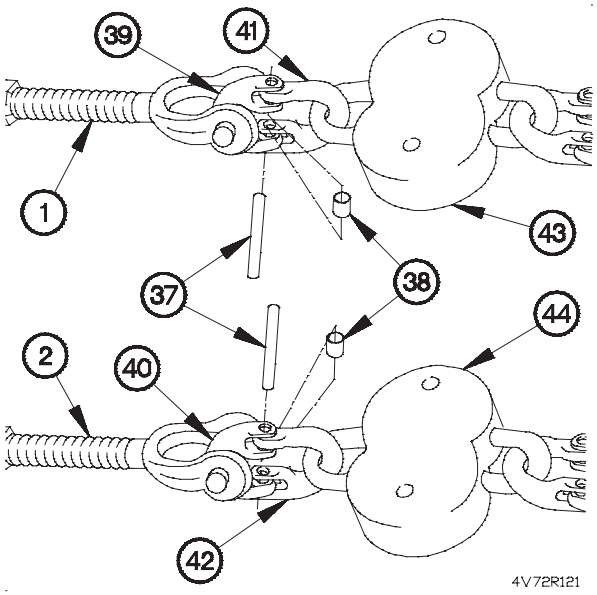
20-72. M1083/M1093 COLLAPSIBLE DRUMS TIEDOWN KIT INSTALLATION/REMOVAL (CONT)

CAUTION

Ensure quick release pins are installed through both sides of crane pockets. Failure to comply may result in damage to equipment.

(22) Install four plugs (34) in crane pockets (36) with quick release pins (33).





NOTE

Four middle chains are disassembled the same way. One middle chain shown.

(23) Remove two pins (37), spring collars (38), and clamp halves (39 and 40) from clamp halves (41 and 42).

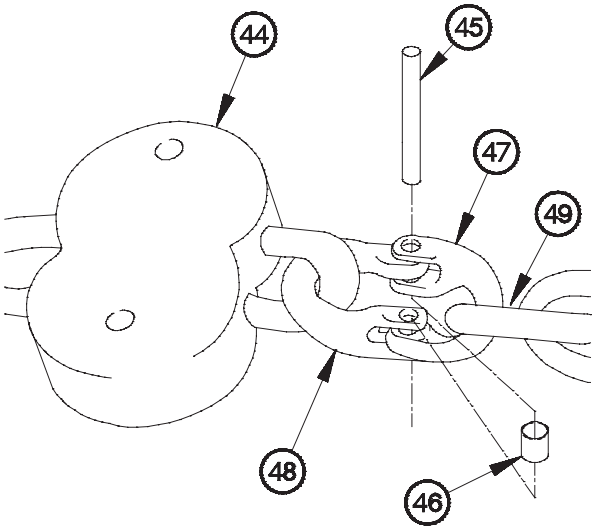
(24) Remove clamp halves (39 and 40) from turnbuckles (1 and 2).

(25) Remove clamp halves (41 and 42) from shock mounts (43 and 44).

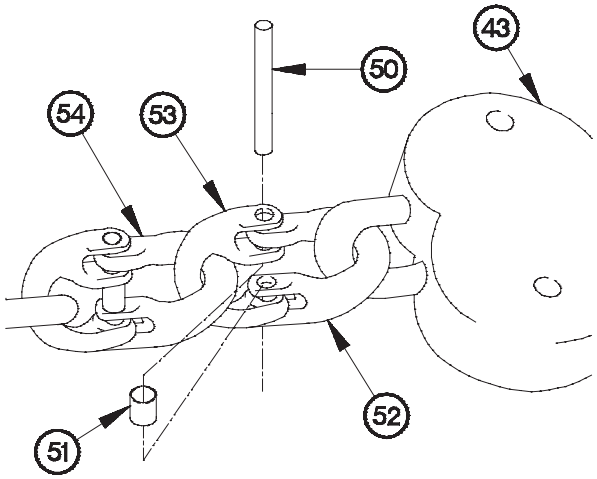
(26) Remove pin (45), spring collar (46), and clamp half (47) from clamp half (48).

(27) Remove clamp half (48) from shock mount (44).

(28) Remove clamp half (47) from chain (49).



4V72R131



4V72R141

(29) Remove pin (50), spring collar (51), and clamp half (52) from clamp half (53).

(30) Remove clamp half (52) from shock mount (43).

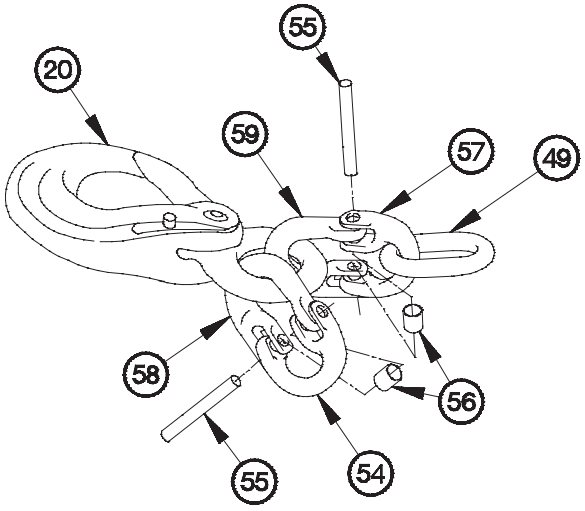
(31) Remove clamp half (53) from clamp half (54).

(32) Remove two pins (55), spring collars (56) and clamp halves (54 and 57) from clamp halves (58 and 59).

(33) Remove clamp half (57) from chain (49).

(34) Remove clamp halves (58 and 59) from hook (20).

(35) Perform steps (23) through (34) on remaining middle chains.



4V72R151

20-72. M1083/M1093 COLLAPSIBLE DRUMS TIEDOWN KIT INSTALLATION/REMOVAL (CONT)

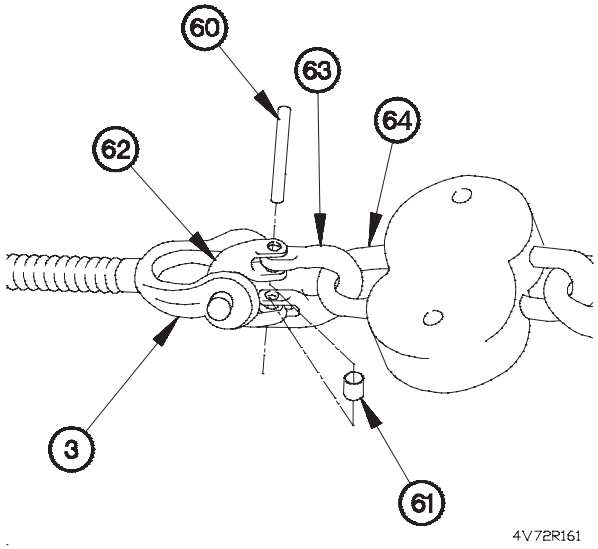
NOTE

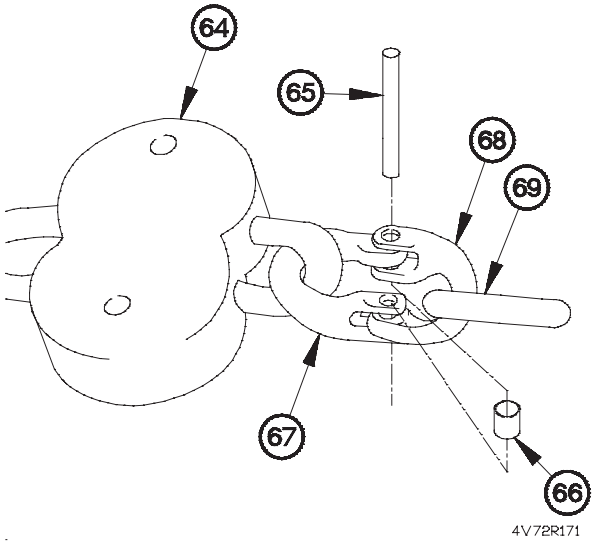
Front and rear chains are disassembled the same way. One front chain shown.

(36) Remove pin (60), spring collars (61), and clamp half (62) from clamp half (63).

(37) Remove clamp half (62) from turnbuckle (3).

(38) Remove clamp half (63) from shock mount (64).

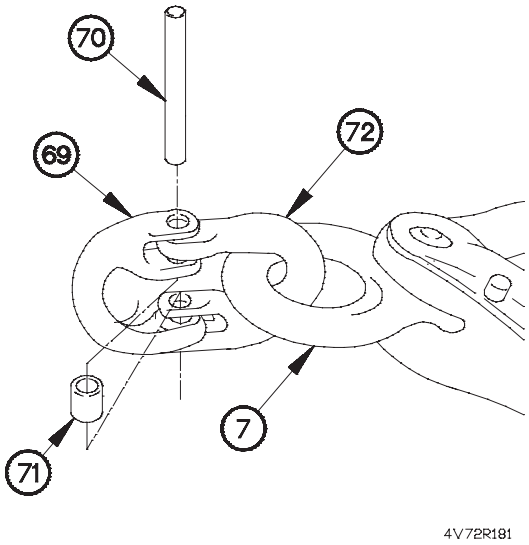




(39) Remove pin (65), spring collars (66), and clamp half (67) from clamp half (68).

(40) Remove clamp half (67) from shock mount (64).

(41) Remove clamp half (68) from clamp half (69).



(42) Remove pin (70), spring collars (71), and clamp half (72) from clamp half (69).

(43) Remove clamp half (72) from hook (7).

(44) Perform steps (36) through (43) on remaining front and rear chains.

c. Follow-On Maintenance.

Install cargo bed side panels and stakes (TM 9-2320-366-10-1).

End of Task.

20-73. M1085 COLLAPSIBLE DRUMS TIEDOWN KIT INSTALLATION/REMOVAL

This task covers:

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

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-366-10-1).
Cargo bed side panels and stakes removed (TM 9-2320-366-10-1).

Tools and Special Tools
Sling, Cargo (Item 31, Appendix C)
Tool Kit, Genl Mech (Item 46, Appendix C)

Tools and Special Tools (Cont)
Wrench, Torque, 0-600 lb-ft (Item 60, Appendix C)
Wrench Set, Socket (Item 50, Appendix C)

Materials/Parts
Pin, Cotter (20) (Item 277, Appendix G)

Personnel Required
(2)

WARNING

Ensure vehicle is on level ground prior to installation or removal of collapsible drums. Failure to comply may result in serious injury or death to personnel or damage to equipment.

a. Installation.

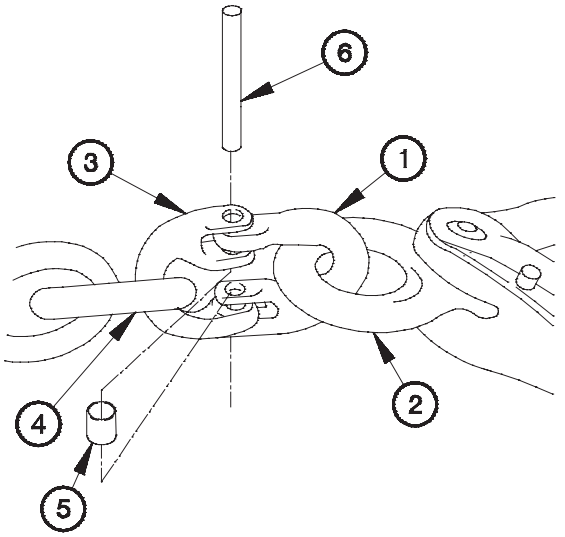
NOTE

- Rear middle chains are assembled the same way. One rear middle chain shown.
- Steps (1) through (6) requires 39 link chain.

(1) Position clamp half (1) in hook (2).

(2) Position clamp half (3) in chain (4).

(3) Install clamp half (1) in clamp half (3) with spring collar (5) and pin (6).



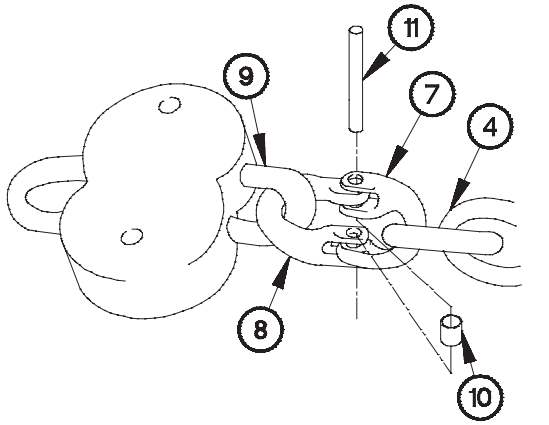
4V73R011

20-73. M1085 COLLAPSIBLE DRUMS TIEDOWN KIT INSTALLATION/REMOVAL (CONT)

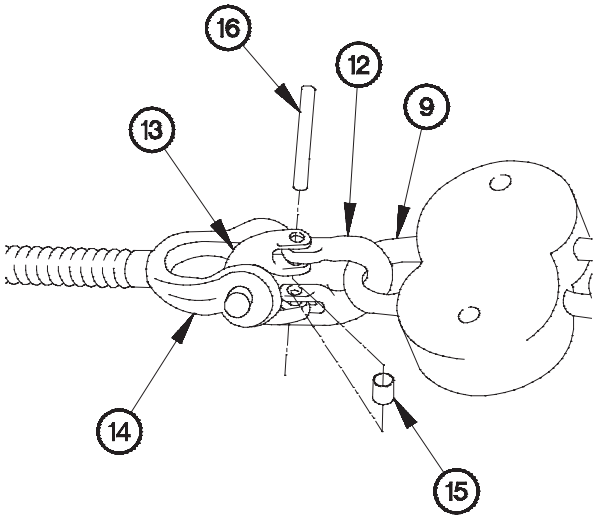
(4) Position clamp half (7) in chain (4).

(5) Position clamp half (8) in shock mount (9).

(6) Install clamp half (7) in clamp half (8) with spring collar (10) and pin (11).



4V73R021



4V73R031

(7) Position clamp half (12) in shock mount (9).

(8) Position clamp half (13) in turnbuckle (14).

(9) Install clamp half (12) in clamp half (13) with spring collar (15) and pin (16).

(10) Perform steps (1) through (9) on remaining rear middle chain.

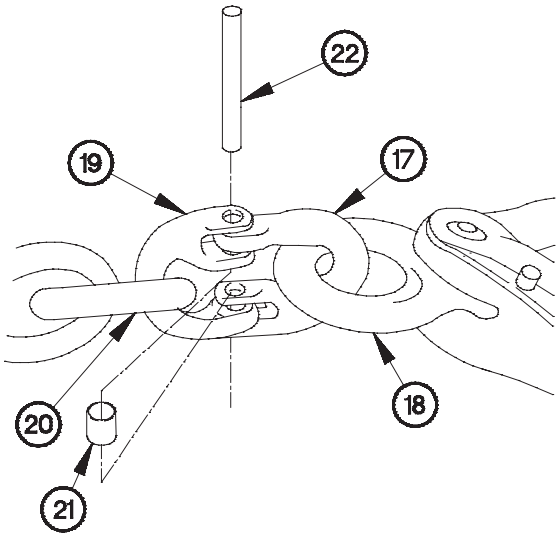
NOTE

- Front middle chains are assembled the same way. One front middle chain shown.
- Steps (11) through (15) requires 39 link chain.

(11) Position clamp half (17) in hook (18).

(12) Position clamp half (19) in chain (20).

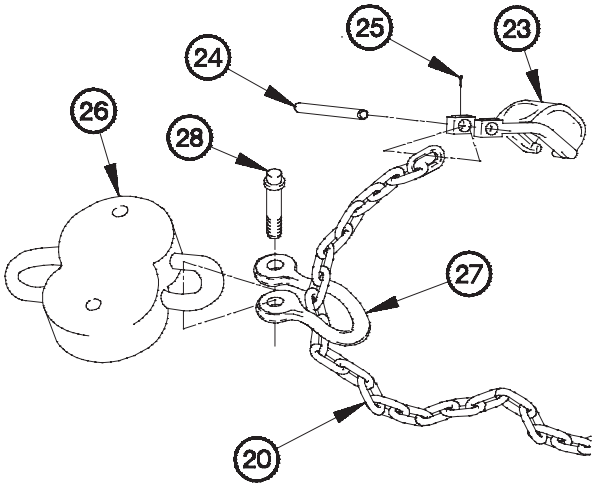
(13) Install clamp half (17) in clamp half (19) with spring collar (21) and pin (22).



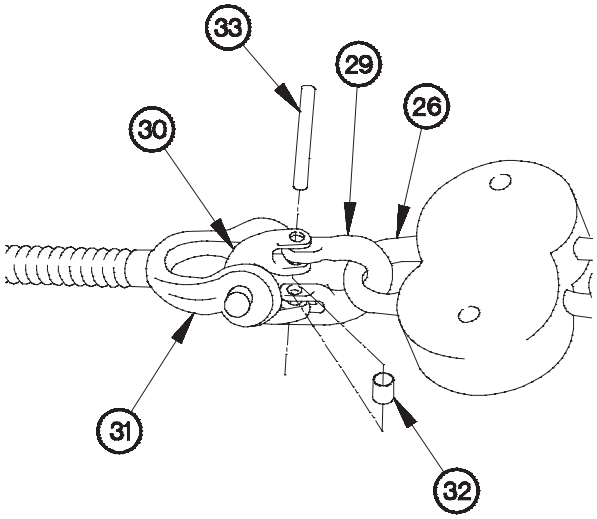
4V73R041

(14) Position chain shortener (23) on chain (20) with pin (24) and roll pin (25).

(15) Position chain (20) on shock mount (26) with shackle (27) and pin (28).



4V73R051



4V73R061

(16) Position clamp half (29) in shock mount (26).

(17) Position clamp half (30) in turnbuckle (31).

(18) Install clamp half (29) in clamp half (30) with spring collar (32) and pin (33).

(19) Perform steps (11) through (18) on remaining front middle chain.

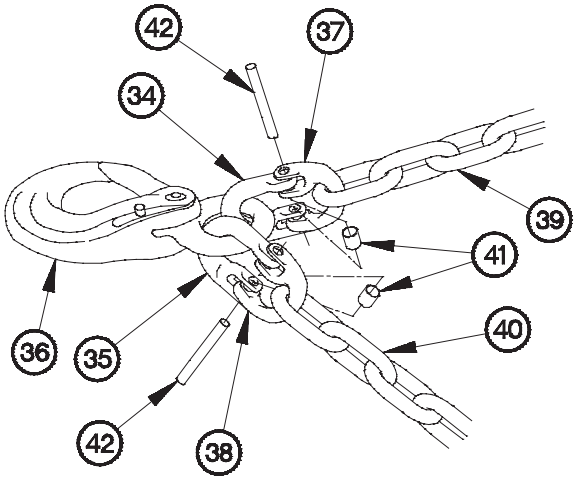
NOTE

- Front chains are assembled the same way. One front chain shown.
- Steps (20) through (26) requires 35 and 15 link chains.

(20) Position clamp halves (34 and 35) in hook (36).

(21) Position clamp halves (37 and 38) in chains (39 and 40).

(22) Install clamp halves (34 and 35) in clamp halves (37 and 38) with two spring collars (41) and pins (42).

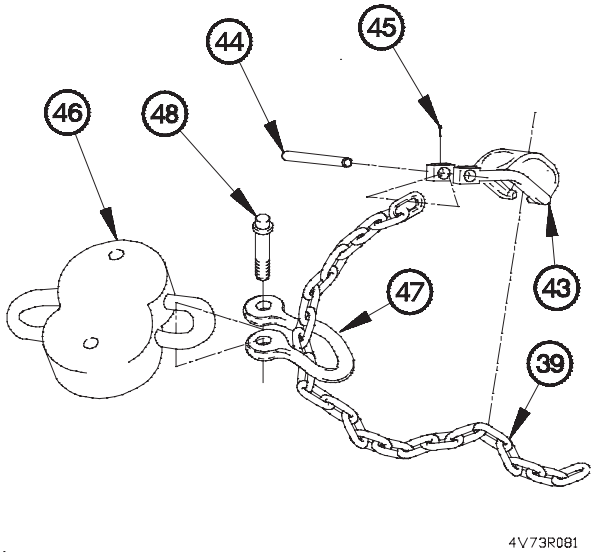


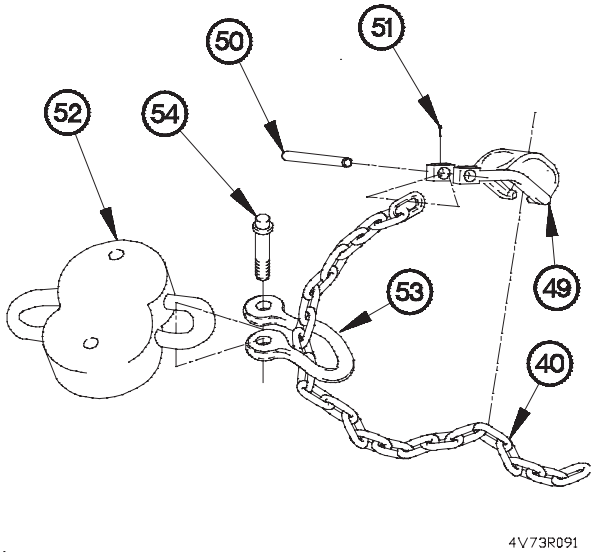
4V73R071

20-73. M1085 COLLAPSIBLE DRUMS TIEDOWN KIT INSTALLATION/REMOVAL (CONT)

(23) Position chain shortener (43) on chain (39) with pin (44) and roll pin (45).

(24) Position chain (39) on shock mount (46) with shackle (47) and pin (48).





(25) Position chain shortener (49) on chain (40) with pin (50) and roll pin (51).

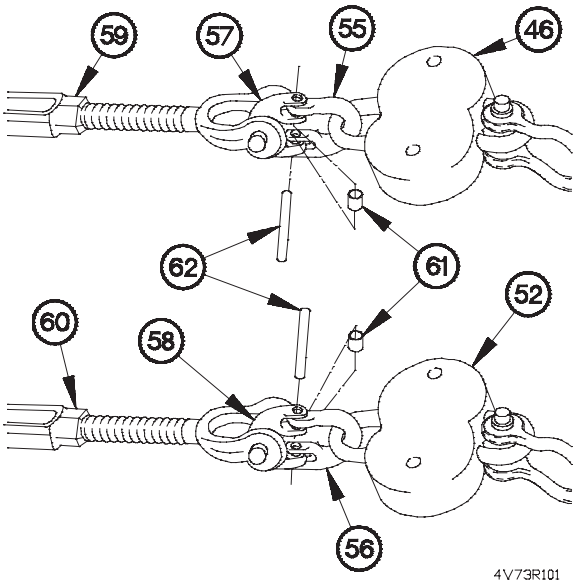
(26) Position chain (40) on shock mount (52) with shackle (53) and pin (54).

(27) Position clamp halves (55 and 56) in shock mounts (46 and 52).

(28) Position clamp halves (57 and 58) in turnbuckles (59 and 60).

(29) Install clamp halves (55 and 56) in clamp halves (57 and 58) with two spring collars (61) and pins (62).

(30) Perform steps (20) through (29) on remaining front chain.



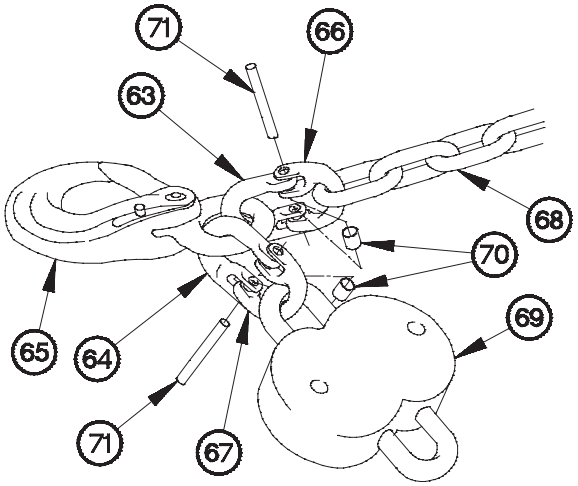
NOTE

- Rear chains are assembled the same way. One rear chain shown.
- Steps (31) through (39) requires 13 link chain.

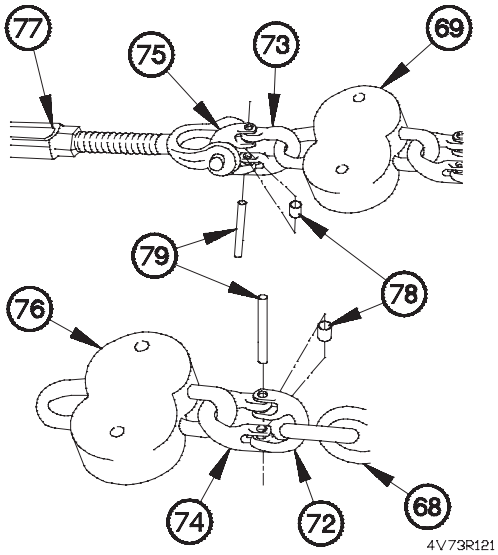
(31) Position clamp halves (63 and 64) in hook (65).

(32) Position clamp halves (66 and 67) in chain (68) and shock mount (69).

(33) Install clamp halves (63 and 64) in clamp halves (66 and 67) with two spring collars (70) and pins (71).



4V73R111



4V73R121

(34) Position clamp halves (72 and 73) in chain (68) and shock mount (69).

(35) Position clamp halves (74 and 75) in shock mount (76) and turnbuckle (77).

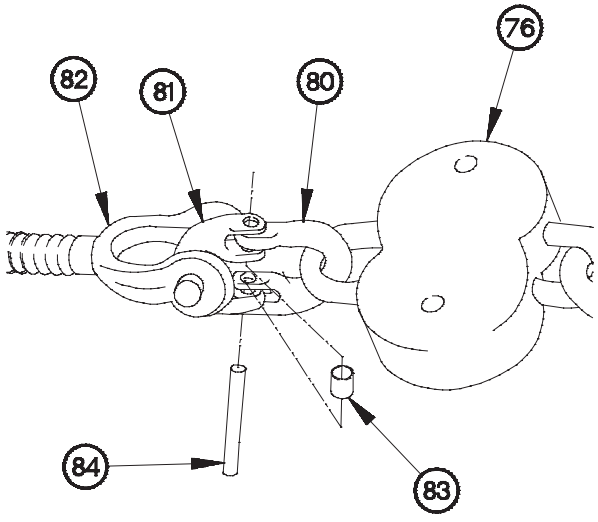
(36) Install clamp halves (72 and 73) in clamp halves (74 and 75) with two spring collars (78) and pins (79).

(37) Position clamp half (80) in shock mount (76).

(38) Position clamp half (81) in turnbuckle (82).

(39) Install clamp half (80) in clamp half (81) with spring collar (83) and pin (84).

(40) Perform steps (31) through (39) on remaining rear chain.



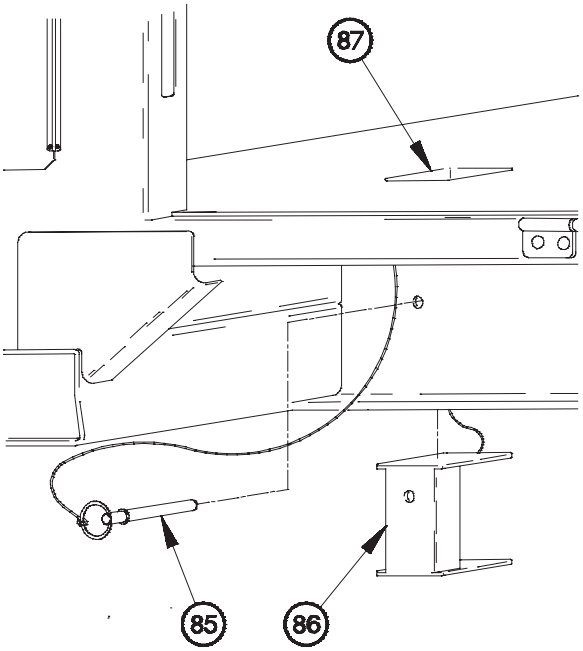
4V73R131

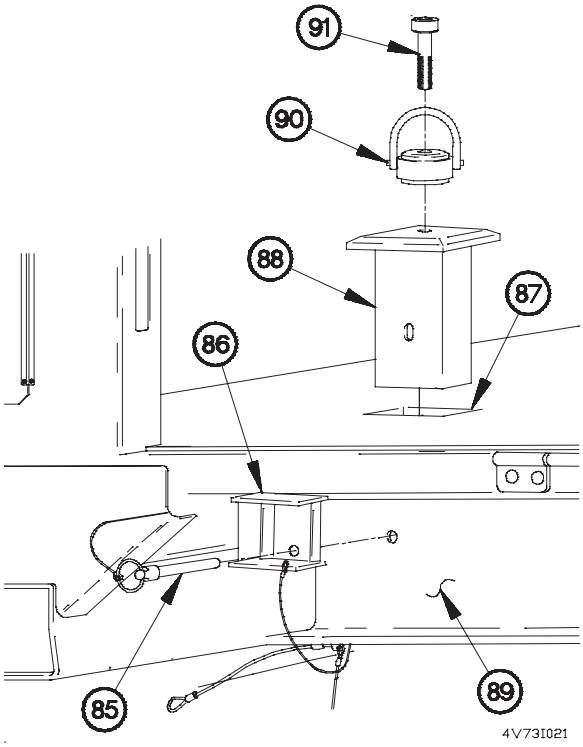
20-73. M1085 COLLAPSIBLE DRUMS TIEDOWN KIT INSTALLATION/REMOVAL (CONT)

WARNING

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

(41) Remove four quick release pins (85) and plugs (86) from crane pocket (87).





(42) Install four tiedown posts (88) in crane pockets (87).

CAUTION

Ensure quick release pins are installed through both sides of crane pockets. Failure to comply may result in damage to equipment.

(43) Install four plugs (86) on frame (89) with four quick release pins (85).

(44) Position four tiedown hoist rings (90) on tiedown posts (88) with screws (91).

(45) Tighten four screws (91) to 230 lb-ft (312 N·m).

(46) Lower ladder (TM 9-2320-366-10-1).

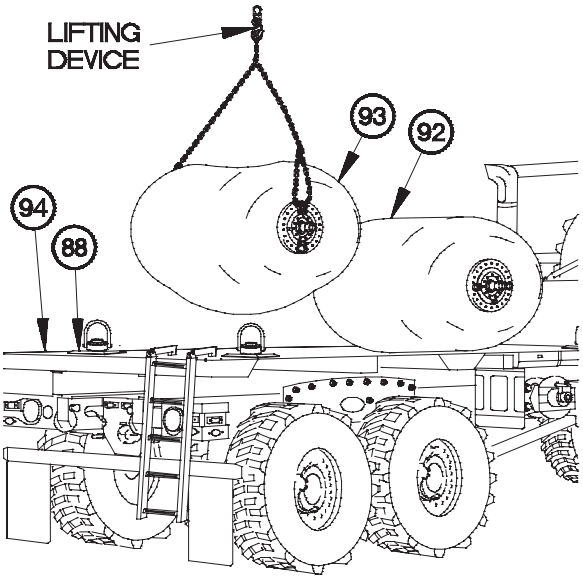
WARNING

Both collapsible drums weigh approximately 235 lbs (107 kgs) empty and 3800 lbs (1725 kgs) full. Attach a suitable lifting device prior to installation. Failure to comply may result in serious injury or death to personnel or damage to equipment.

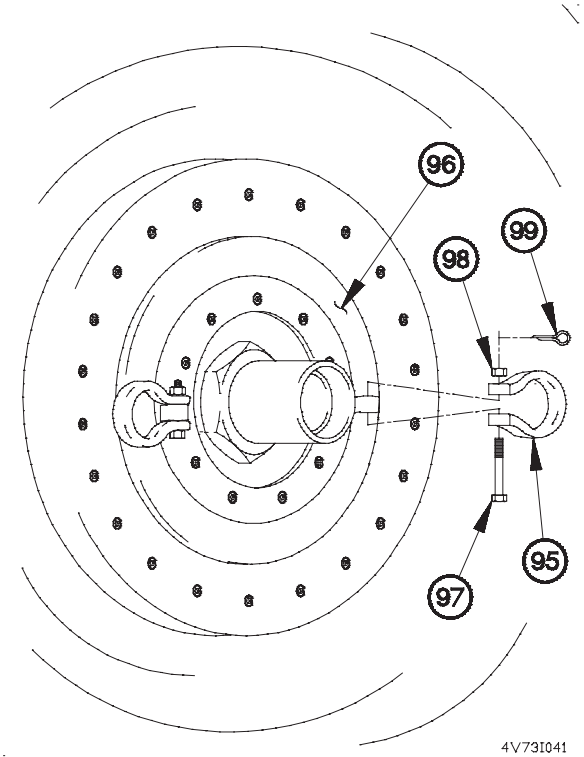
NOTE

- Position both hose connectors on collapsible drums to same side of vehicle.
- Step (47) requires the aid of an assistant.

(47) Position front collapsible drum (92) and rear collapsible drum (93) on cargo bed (94) centered between four tiedown posts (88).



4V73I031



4V73I041

(48) Install eight shackles (95) on four rotating center rings (96) with eight bolts (97), nuts (98), and cotter pins (99).

20-73. M1085 COLLAPSIBLE DRUMS TIEDOWN KIT INSTALLATION/REMOVAL (CONT)

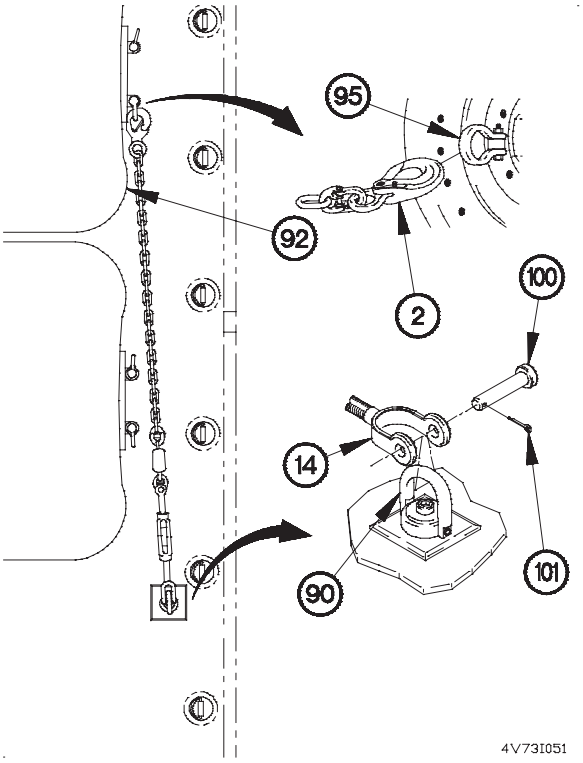
NOTE

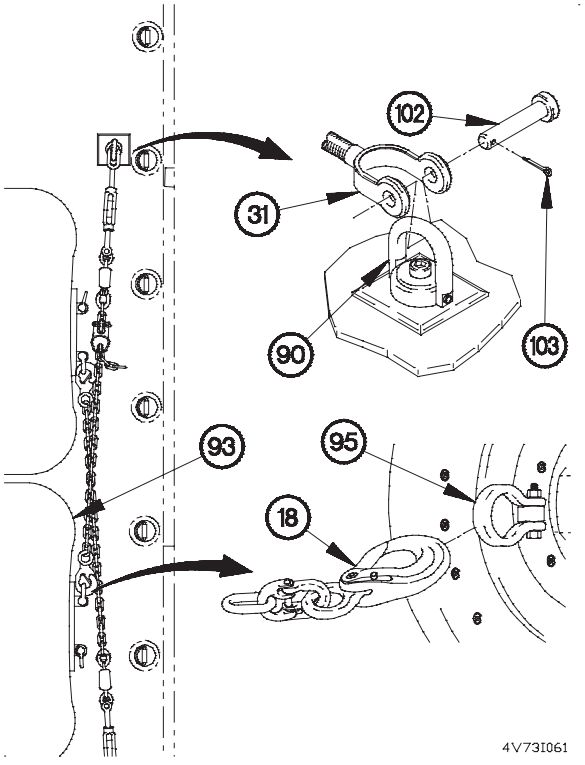
Left and right rear middle chains are installed the same way. Right rear middle chain shown.

(49) Install hook (2) on shackle (95) on rear of front collapsible drum (92).

(50) Install turnbuckle (14) on rear tiedown hoist ring (90) with pin (100) and cotter pin (101).

(51) Perform steps (49) and (50) on left rear middle chain.





NOTE

Left and right front middle chains are installed the same way. Right front middle chain shown.

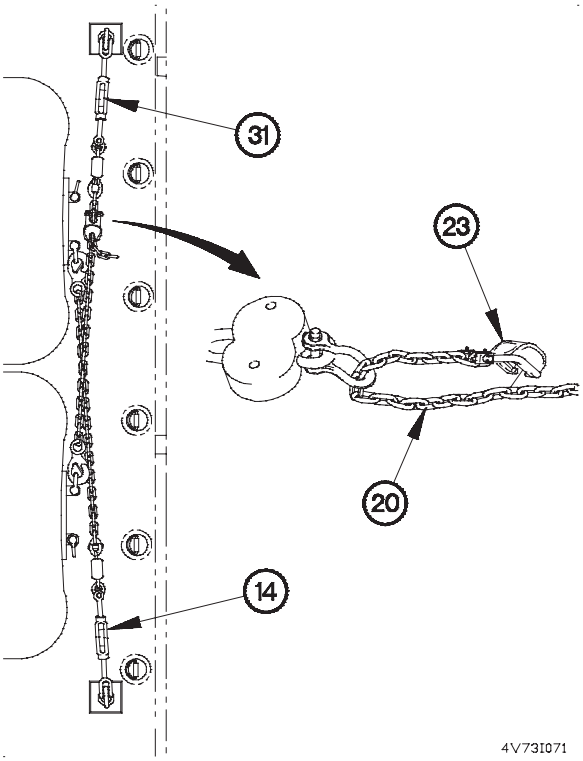
(52) Install hook (18) on shackle (95) on front of rear collapsible drum (93).

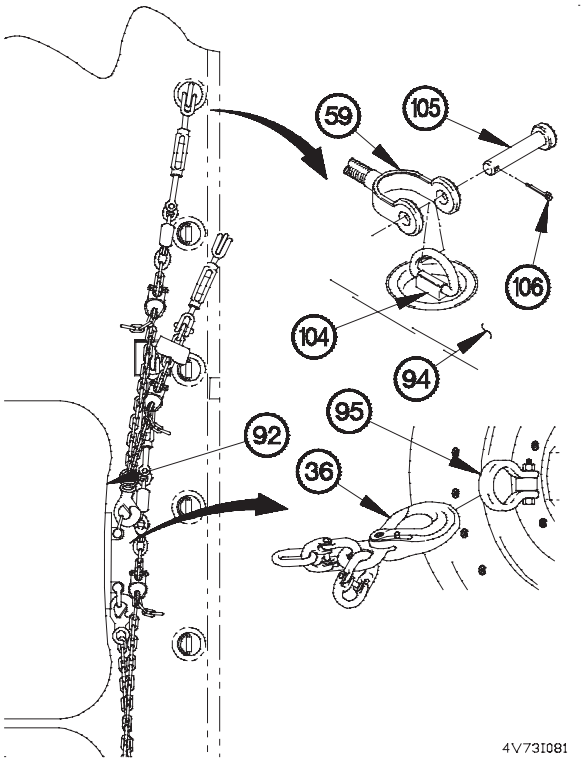
(53) Install turnbuckle (31) on front tiedown hoist ring (90) with pin (102) and cotter pin (103).

(54) Perform steps (52) and (53) on left front middle chain.

(55) Install two chain shorteners (23) on chains (20).

(56) Remove slack from two turnbuckles (14 and 31).





NOTE

Left and right front chains are installed the same way. Right front chain shown.

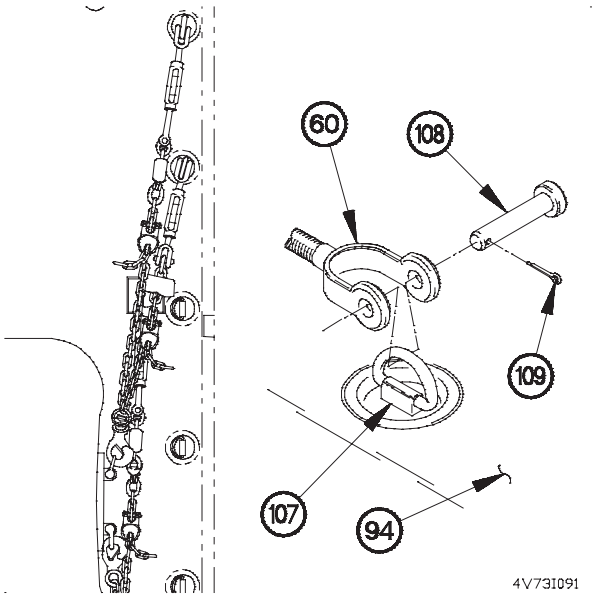
(57) Install hook (36) on shackle (95) on front of front collapsible drum (92).

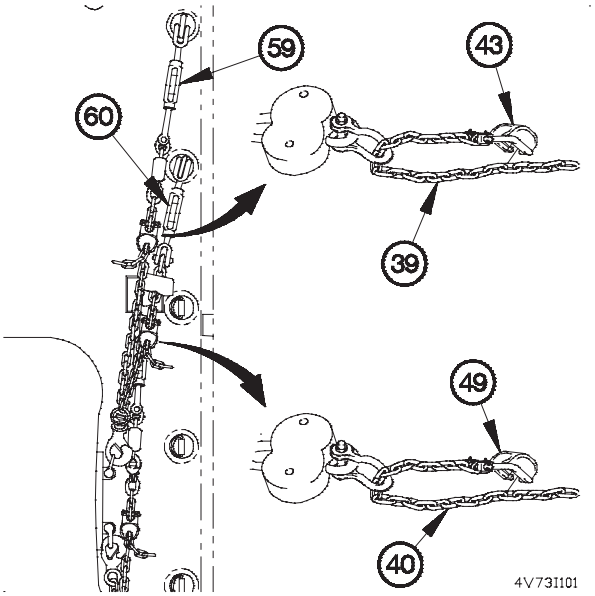
(58) Install turnbuckle (59) on first cargo bed tiedown (104) from front of cargo bed (94) with pin (105) and cotter pin (106).

20-73. M1085 COLLAPSIBLE DRUMS TIEDOWN KIT INSTALLATION/REMOVAL (CONT)

(59) Install turnbuckle (60) on second cargo bed tiedown (107) from front of cargo bed (94) with pin (108) and cotter pin (109).

(60) Perform steps (57) through (59) on left front chain.



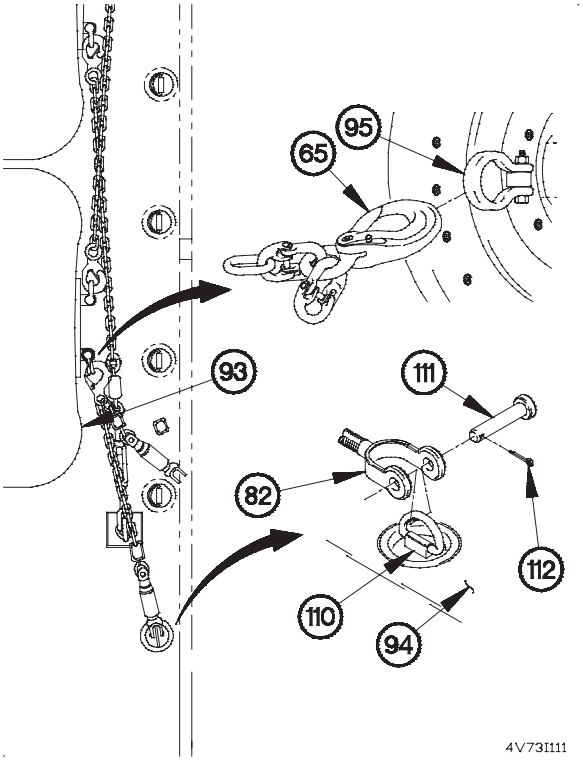


(61) Install two chain shorteners (43 and 49) on two chains (39 and 40).

(62) Remove slack from two turnbuckles (59 and 60).

NOTE

Left and right rear chains are installed the same way. Right rear chain shown.



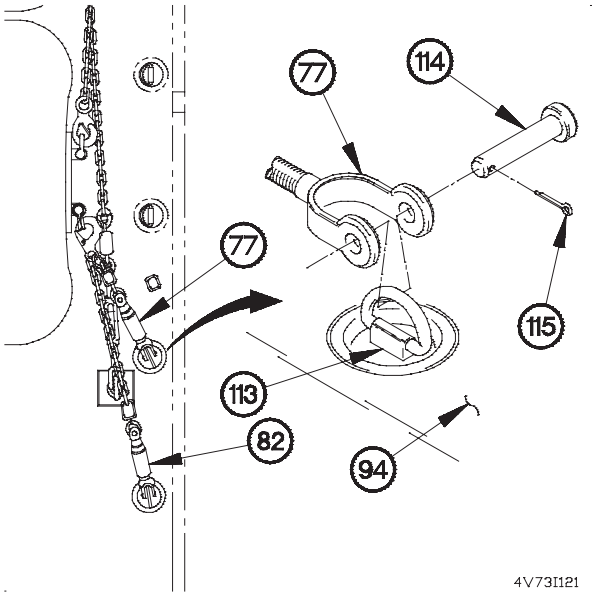
(63) Install hook (65) on shackle (95) on rear of rear collapsible drum (93).

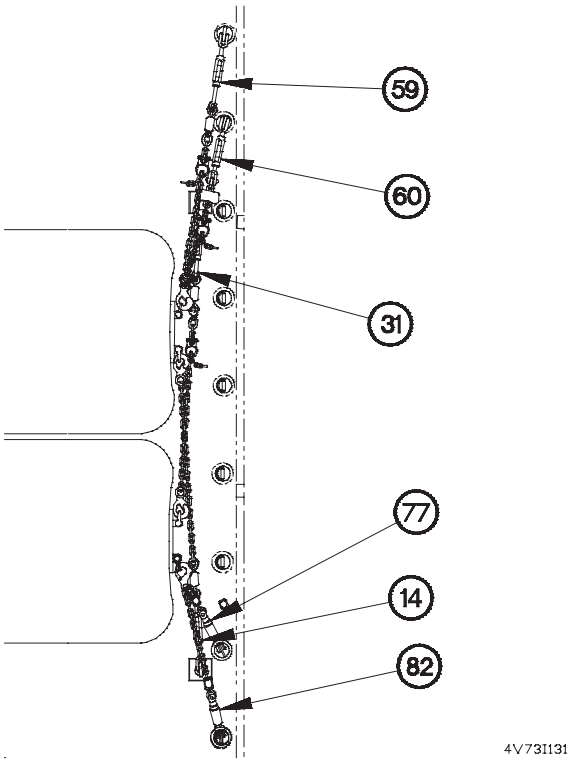
(64) Install turnbuckle (82) on first cargo bed tiedown (110) from rear of cargo bed (94) with pin (111) and cotter pin (112).

(65) Install turnbuckle (77) on second cargo bed tiedown (113) from rear of cargo bed (94) with pin (114) and cotter pin (115).

(66) Perform steps (63) through (65) on left rear chain.

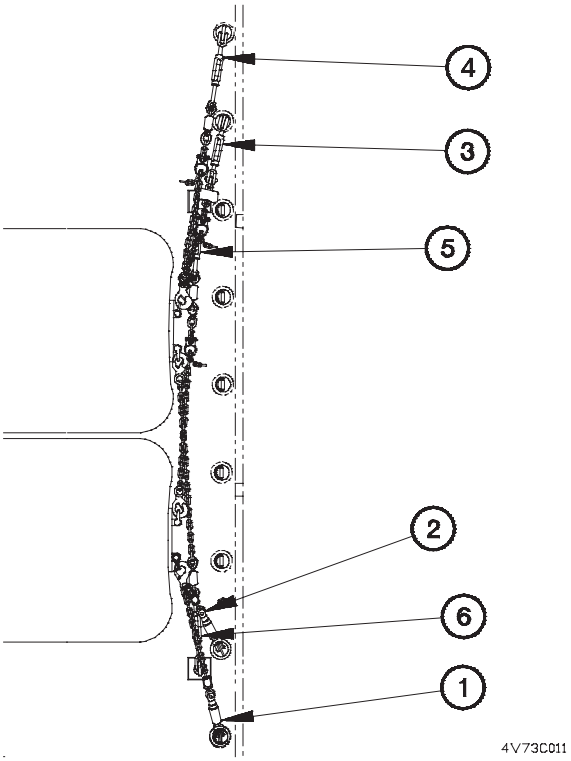
(67) Remove slack from turnbuckles (77 and 82).





(68) Tighten turnbuckles (14, 31, 59, 60, 77, and 82) 1 1/2 additional turns.

(69) Raise ladder (TM 9-2320-366-10-1).



b. Removal.

(1) Lower ladder (TM 9-2320-366-10-1).

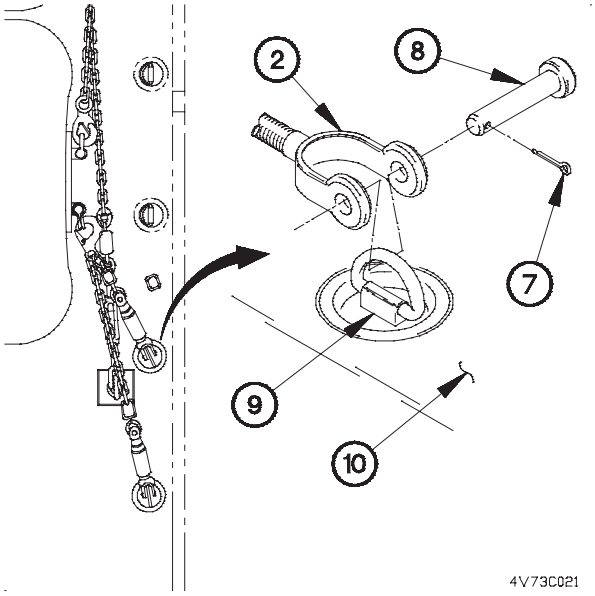
(2) Loosen turnbuckles (1, 2, 3, 4, 5, and 6).

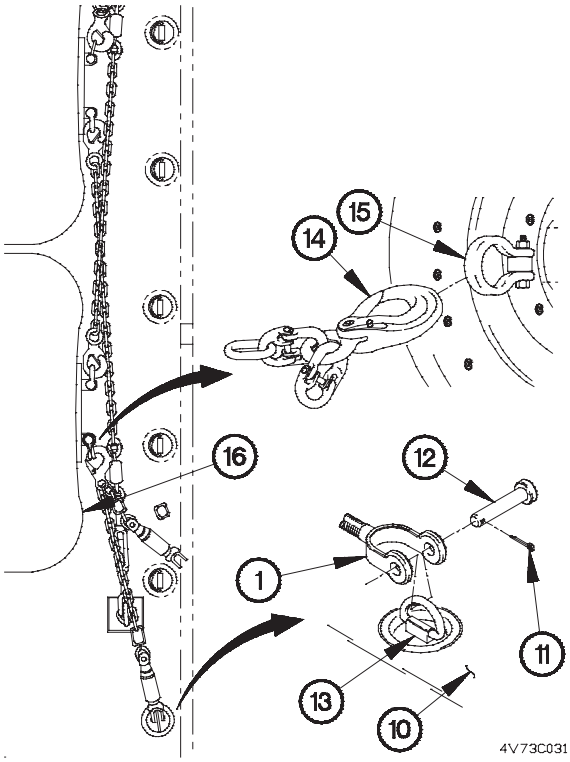
20-73. M1085 COLLAPSIBLE DRUMS TIEDOWN KIT INSTALLATION/REMOVAL (CONT)

NOTE

Left and right rear chains are removed the same way. Right rear chain shown.

(3) Remove cotter pin (7), pin (8), and turnbuckle (2) from second cargo bed tiedown (9) from rear of cargo bed (10). Discard cotter pin.





(4) Remove cotter pin (11), pin (12), and turnbuckle (1) from first cargo bed tiedown (13) from rear of cargo bed (10). Discard cotter pin.

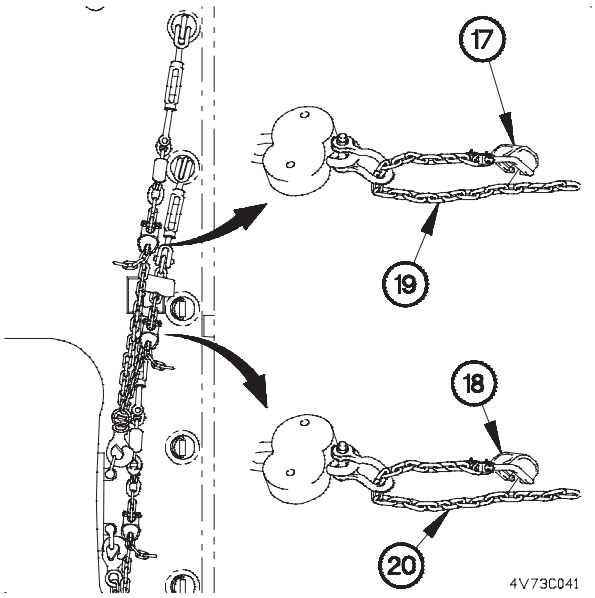
(5) Remove hook (14) from shackle (15) on rear of rear collapsible drum (16).

(6) Perform steps (3) through (5) on left rear chain.

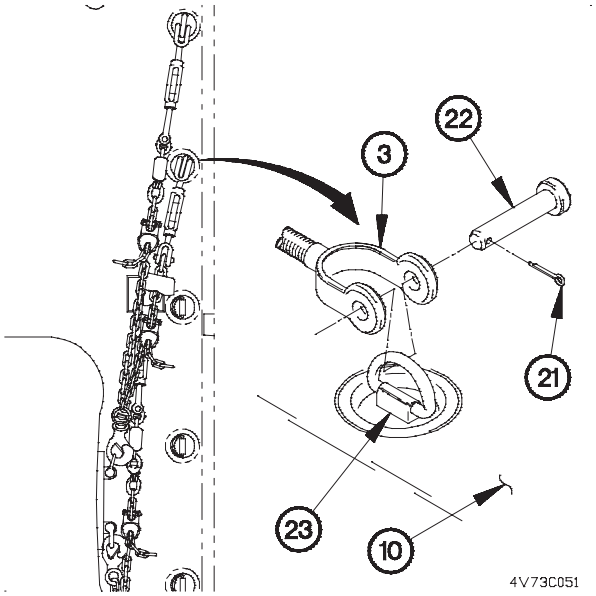
NOTE

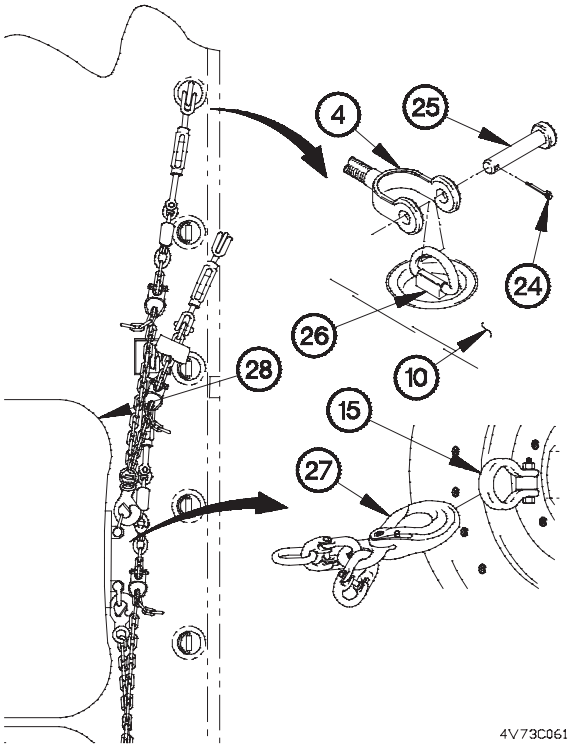
Left and right front chains are removed the same way. Right front chain shown.

(7) Remove two chain shorteners (17 and 18) from chains (19 and 20).



(8) Remove cotter pin (21), pin (22), and turnbuckle (3) from second cargo bed tiedown (23) from front of cargo bed (10). Discard cotter pin.





(9) Remove cotter pin (24), pin (25), and turnbuckle (4) from first cargo bed tiedown (26) from front of cargo bed (10). Discard cotter pin.

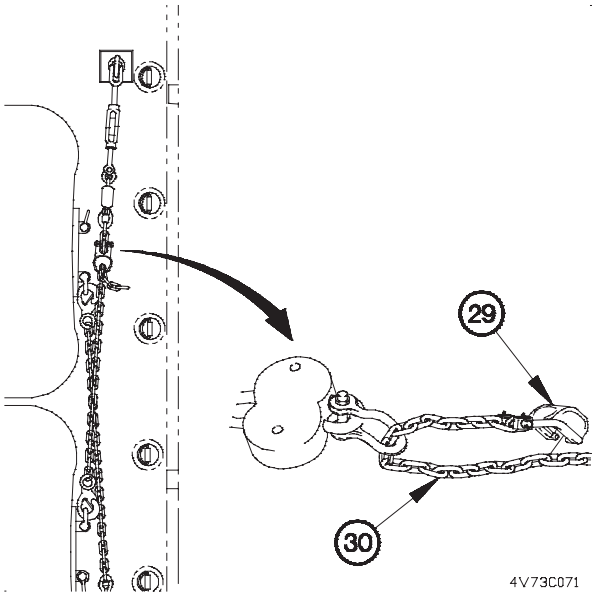
(10) Remove hook (27) from shackle (15) on front of front collapsible drum (28).

(11) Perform steps (7) through (10) on left front chain.

NOTE

Left and right front middle chains are removed the same way. Right front middle chain shown.

(12) Remove chain shortener (29) from chain (30).

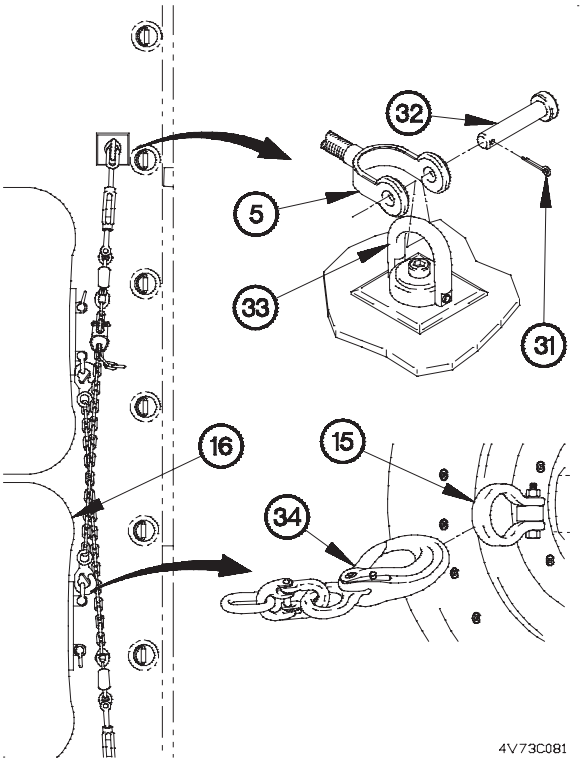


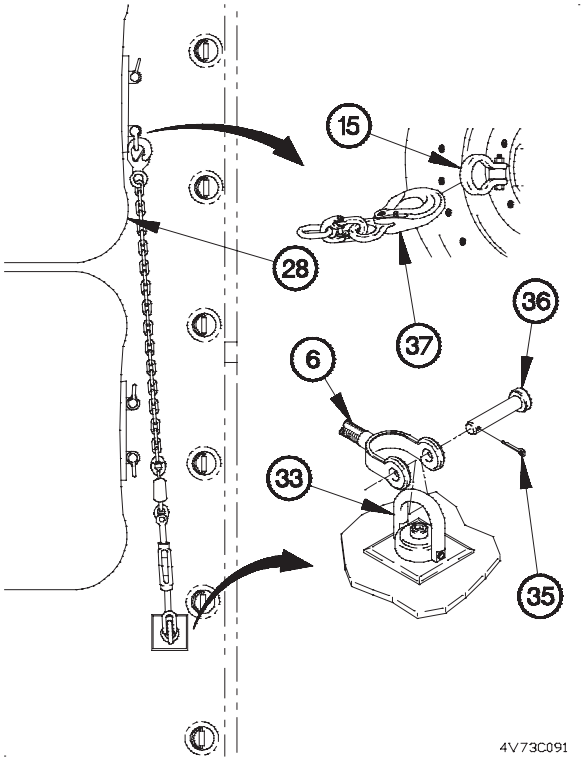
20-73. M1085 COLLAPSIBLE DRUMS TIEDOWN KIT INSTALLATION/REMOVAL (CONT)

(13) Remove cotter pin (31), pin (32), and turnbuckle (5) from front tiedown hoist ring (33). Discard cotter pin.

(14) Remove hook (34) from shackle (15) on front of rear collapsible drum (16).

(15) Perform steps (12) through (14) on right front middle chain.





NOTE

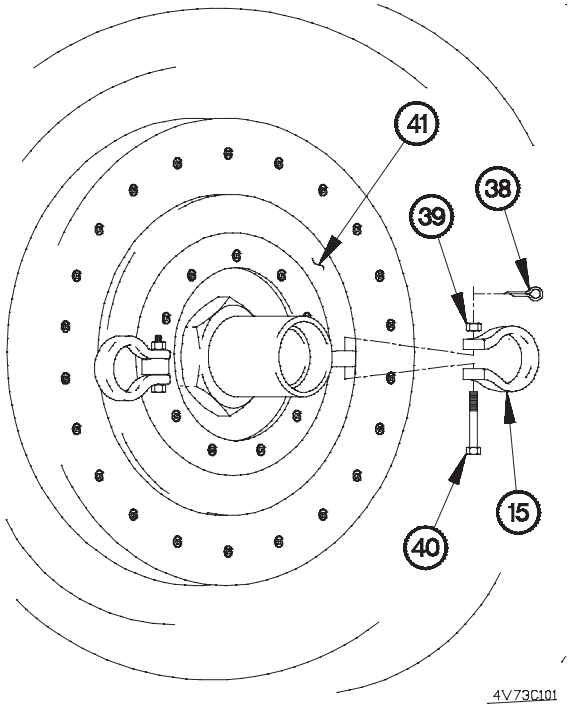
Left and right rear middle chains are removed the same way. Right rear middle chain shown.

(16) Remove cotter pin (35), pin (36), and turnbuckle (6) from rear tiedown hoist ring (33). Discard cotter pin.

(17) Remove hook (37) from shackle (15) on rear of front collapsible drum (28).

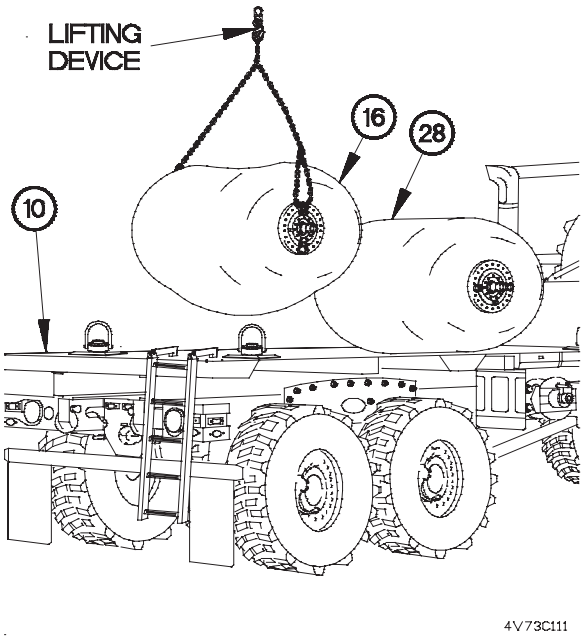
(18) Perform steps (16) and (17) on left rear middle chain.

(19) Remove eight cotter pins (38), nuts (39), bolts (40), and shackles (15) from four rotating center rings (41). Discard cotter pins.



WARNING

Both collapsible drums weigh approximately 235 lbs (107 kgs) empty and 3800 lbs (1725 kgs) full each. Attach a suitable lifting device prior to removal. Failure to comply may result in serious injury or death to personnel or damage to equipment.



CAUTION

Ensure hose connectors do not get positioned under collapsible drums. Failure to comply may result in damage to equipment.

NOTE

Step (20) requires the aid of an assistant.

(20) Remove front and rear collapsible drums (28 and 16) from cargo bed (10).

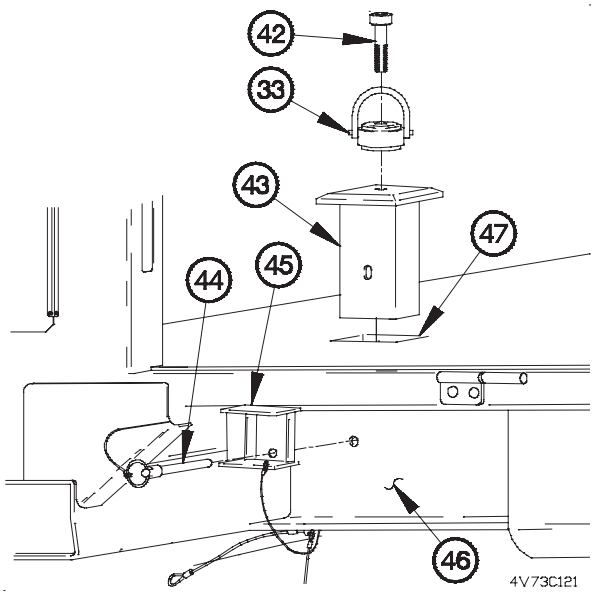
(21) Raise ladder (TM 9-2320-366-10-1).

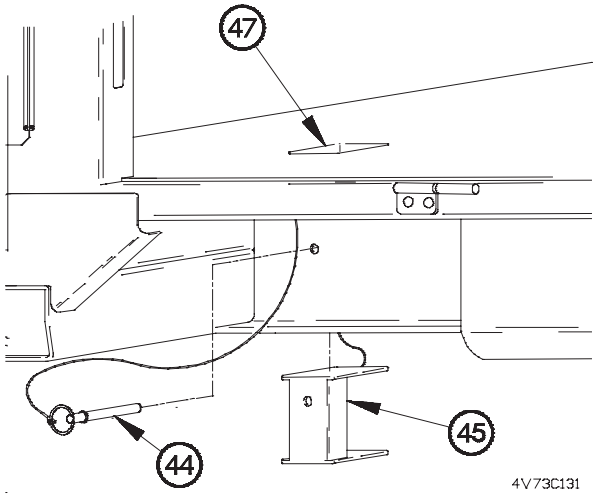
20-73. M1085 COLLAPSIBLE DRUMS TIEDOWN KIT INSTALLATION/REMOVAL (CONT)

(22) Remove four screws (42) and tiedown hoist rings (33) from tiedown posts (43).

(23) Remove four quick release pins (44) and plugs (45) from frame (46).

(24) Remove four tiedown posts (43) from crane pockets (47).





CAUTION

Ensure quick release pins are installed through both sides of crane pockets. Failure to comply may result in damage to equipment.

(25) Install four plugs (45) in crane pockets (47) with quick release pins (44).

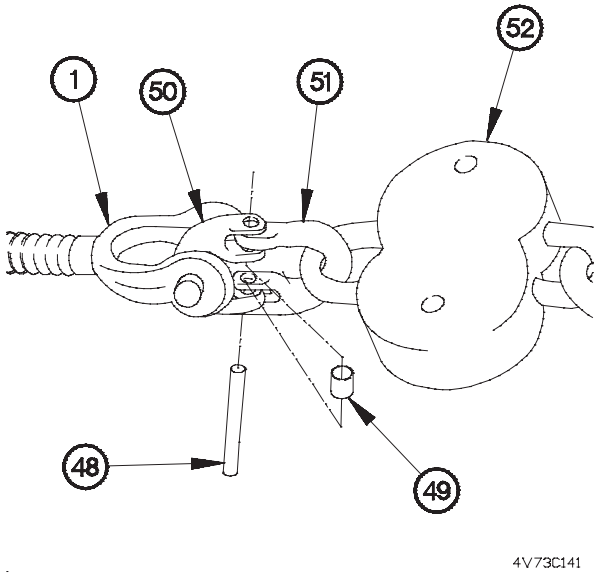
NOTE

Rear chains are disassembled the same way. One rear chain shown.

(26) Remove pin (48), spring collar (49), and clamp half (50) from clamp half (51).

(27) Remove clamp half (50) from turnbuckle (1).

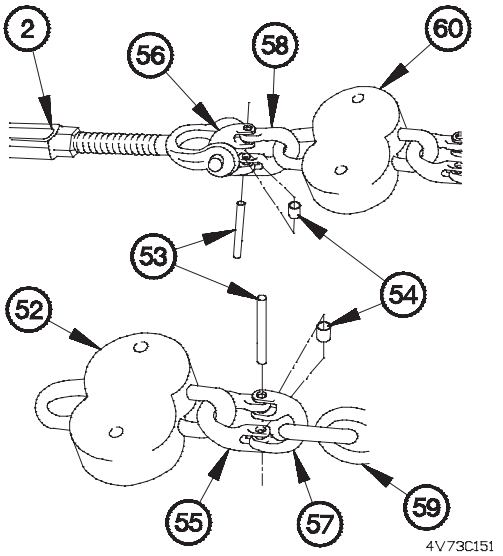
(28) Remove clamp half (51) from shock mount (52).

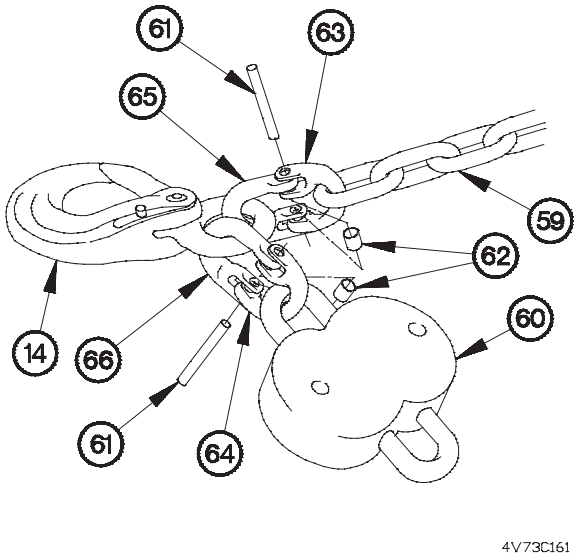


(29) Remove two pins (53), spring collars (54), and clamp halves (55 and 56) from clamp halves (57 and 58).

(30) Remove clamp halves (55 and 56) from shock mount (52) and turnbuckle (2).

(31) Remove clamp halves (57 and 58) from chain (59) and shock mount (60).





(32) Remove two pins (61), spring collars (62) and clamp halves (63 and 64) from clamp halves (65 and 66).

(33) Remove clamp halves (63 and 64) from chain (59) and shock mount (60).

(34) Remove clamp halves (65 and 66) from hook (14).

(35) Perform steps (26) through (34) on remaining rear chain.

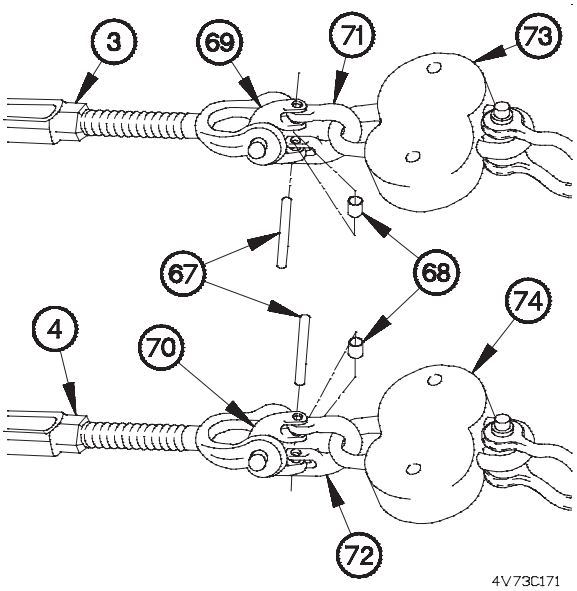
NOTE

Front chains are disassembled the same way. One front chain shown.

(36) Remove two pins (67), spring collars (68), and clamp halves (69 and 70) from clamp halves (71 and 72).

(37) Remove clamp halves (69 and 70) from turnbuckles (3 and 4).

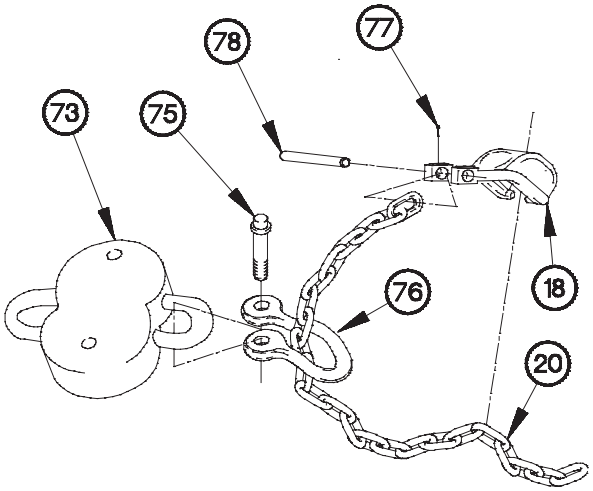
(38) Remove clamp halves (71 and 72) from shock mounts (73 and 74).



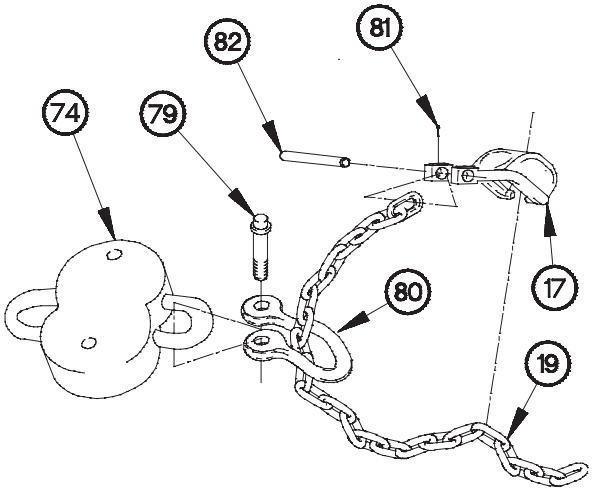
20-73. M1085 COLLAPSIBLE DRUMS TIEDOWN KIT INSTALLATION/REMOVAL (CONT)

(39) Remove pin (75), shackle (76), and chain (20) from shock mount (73).

(40) Remove roll pin (77), pin (78), and chain shortener (18) from chain (20).



4V73C181



4V73C191

(41) Remove pin (79), shackle (80), and chain (19) from shock mount (74).

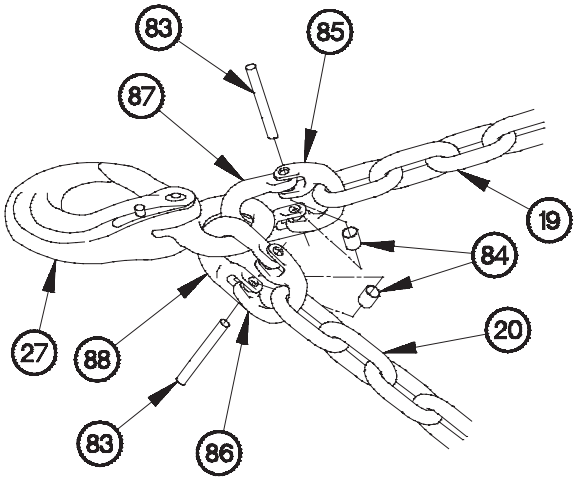
(42) Remove roll pin (81), pin (82), and chain shortener (17) from chain (19).

(43) Remove two pins (83), spring collars (84), and clamp halves (85 and 86) from clamp halves (87 and 88).

(44) Remove clamp halves (85 and 86) from chains (19 and 20).

(45) Remove clamp halves (87 and 88) from hook (27).

(46) Perform steps (36) through (45) on remaining front chain.



4V73C201

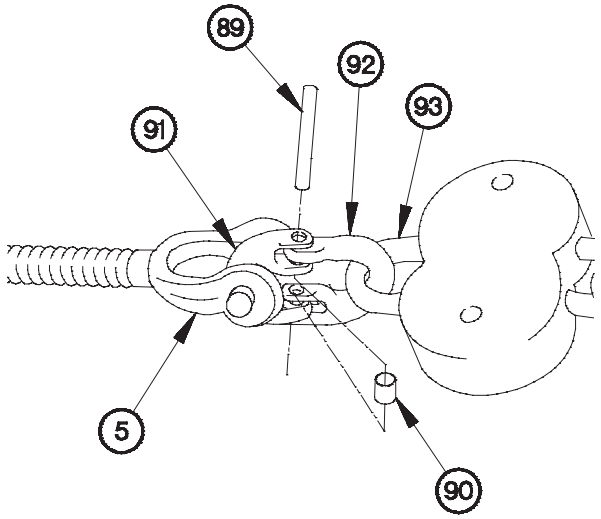
NOTE

Front middle chains are disassembled the same way. One front middle shown.

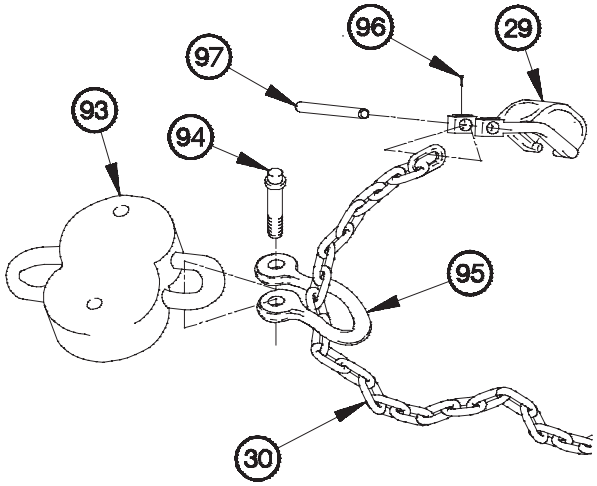
(47) Remove pin (89), spring collar (90), and clamp half (91) from clamp half (92).

(48) Remove clamp half (91) from turnbuckle (5).

(49) Remove clamp half (92) from shock mount (93).



4V73C211



4V73C221

(50) Remove pin (94), shackle (95), and chain (30) from shock mount (93).

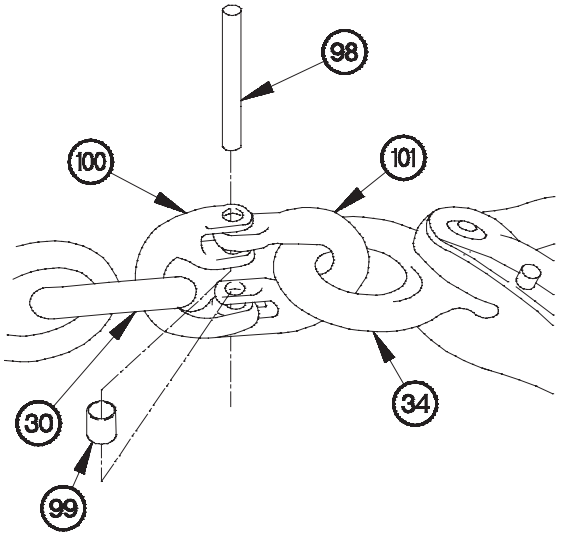
(51) Remove roll pin (96), pin (97), chain shortener (29) from chain (30).

(52) Remove pin (98), spring collar (99), and clamp half (100) from clamp half (101).

(53) Remove clamp half (100) from chain (30).

(54) Remove clamp half (101) from hook (34).

(55) Perform steps (47) through (54) on remaining front middle chain.



4V73C231

20-73. M1085 COLLAPSIBLE DRUMS TIEDOWN KIT INSTALLATION/REMOVAL (CONT)

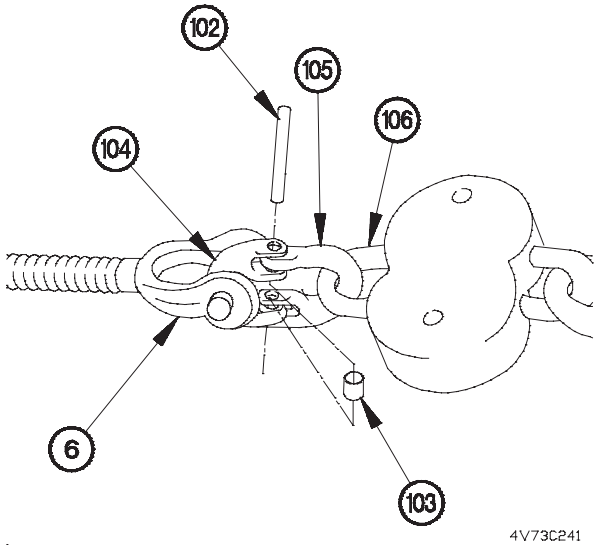
NOTE

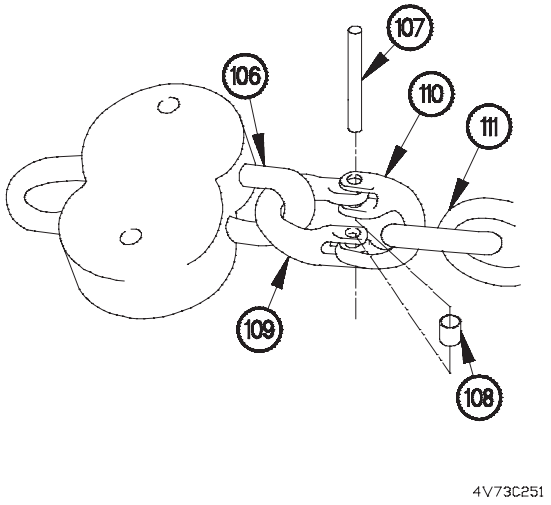
Rear middle chains are disassembled the same way. One rear middle chain shown.

(56) Remove pin (102), spring collar (103), and clamp half (104) from clamp half (105).

(57) Remove clamp half (104) from turnbuckle (6).

(58) Remove clamp half (105) from shock mount (106).





(59) Remove pin (107), spring collar (108), and clamp half (109) from clamp half (110).

(60) Remove clamp half (109) from shock mount (106).

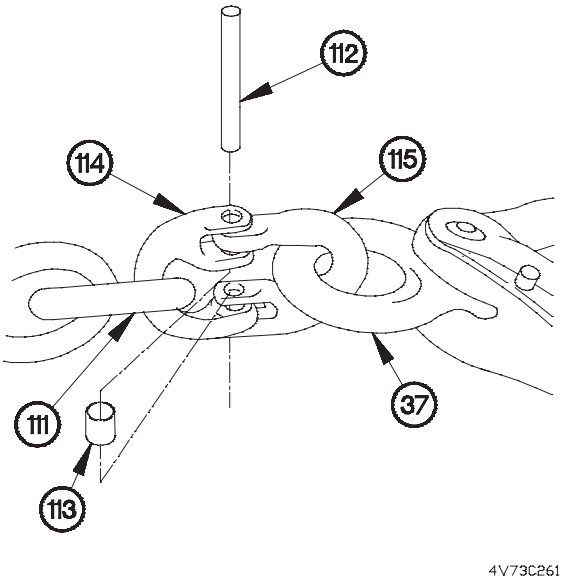
(61) Remove clamp half (110) from chain (111).

(62) Remove pin (112), spring collar (113) and clamp half (114) from clamp half (115).

(63) Remove clamp half (114) from chain (111).

(64) Remove clamp half (115) from hook (37).

(65) Perform steps (56) through (64) on remaining rear middle chain.



c. Follow-On Maintenance.

Install cargo bed side panels and stakes (TM 9-2320-366-10-1).

End of Task.

20-74. M1083/M1093 S-280 SHELTER MODELS A, B, OR C TIEDOWN KIT INSTALLATION/REMOVAL

This task covers:

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

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-366-10-1).
Cargo bed side panels and stakes removed (TM 9-2320-366-10-1).

Tools and Special Tools
Drill Set, Twist (Item 8, Appendix C)
Drill Portable, Electric (Item 7, Appendix C)
Tool Kit, Genl Mech (Item 46, Appendix C)
Sling, Cargo (2) (Item 31, Appendix C)
Tap, Thread, Cutting (Item 41.3, Appendix C)
Tap and Die Set (Item 41.2, Appendix C)

Materials/Parts
Nut, Self-Locking (4) (Item 159, Appendix G)
Lockwasher (24) (Item 73.1, Appendix G)

Personnel Required
(2)

NOTE

Overall height of shelter models A, B, and C is 83 1/2 to 89 in. (214 to 226 cm). If shelter height is less than 83 1/2 in. (214 cm), shorten cable to remove slack in turnbuckle.

a. Installation.

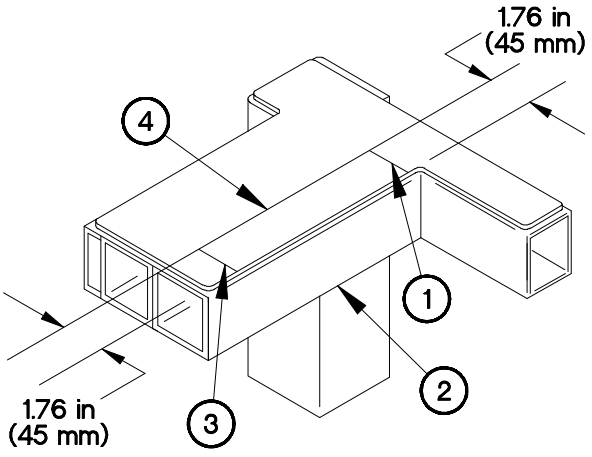
NOTE

Perform steps (1) through (3) on tiedowns not originally modified.

(1) Measure and mark a line (1) 1.76 in. (45 mm) from corner of tiedown bracket (2).

(2) Measure and mark a line (3) 1.76 in. (45 mm) from end of tiedown (2).

(3) Transfer line (4) from line (3), line (1), and to the side of tiedown bracket (2)



4v74a011

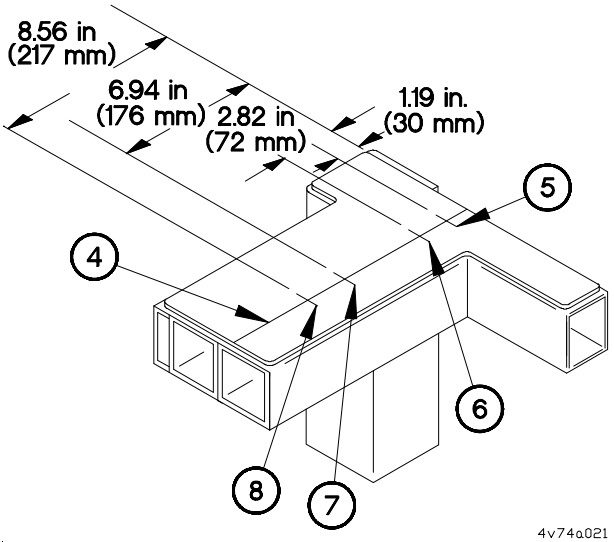
20-74. M1083/M1093 S-280 SHELTER MODELS A, B, OR C TIEDOWN KIT INSTALLATION/REMOVAL (CONT)

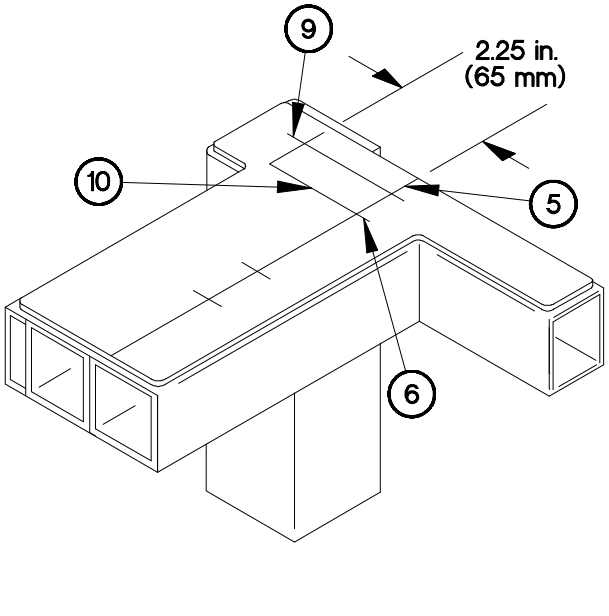
(4) Measure and mark a line (5) 1.19 in. (30 mm) from LH side of line (4).

(5) Measure and mark a line (6) 2.82 in. (72 mm) from LH side of line (4).

(6) Measure and mark a line (7) 6.94 in. (176 mm) from LH side of line (4).

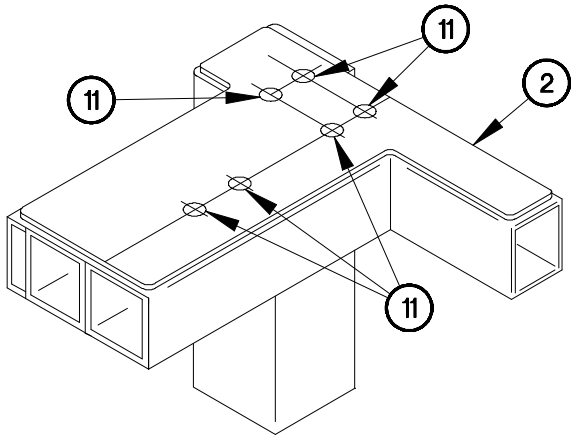
(7) Measure and mark a line (8) 8.56 in. (217 mm) from LH side of line (4).





(8) Measure and mark a line (9) 2.55 in. (65 mm) down from line (5).

(9) Measure and mark a line (10) 2.55 in. (65 mm) down from (6).



(10) Drill six 27/64 in holes (11) in tiedown bracket (2).

(11) Tap six holes (11) check tool kit for tap.

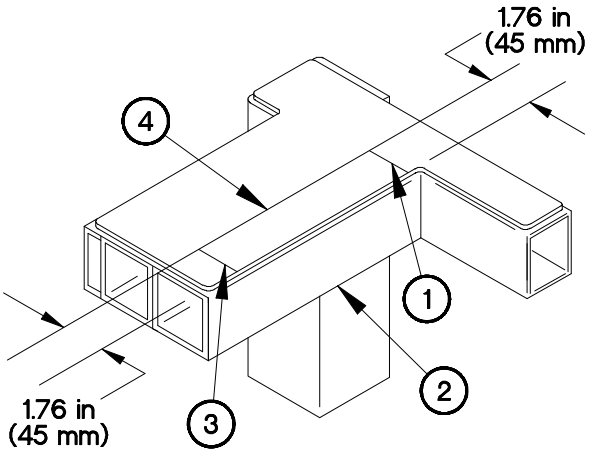
(12) Perform steps (1) through (11) on remaining tiedowns.

NOTE

All tiedowns are assembled the same way. Both left and right tiedowns shown.

(13) Install two isolators (12) in left and right tiedowns (13 and 14).

(14) Install two threaded blocks (15) in left and right tiedowns (13 and 14) with two eyebolts (16).



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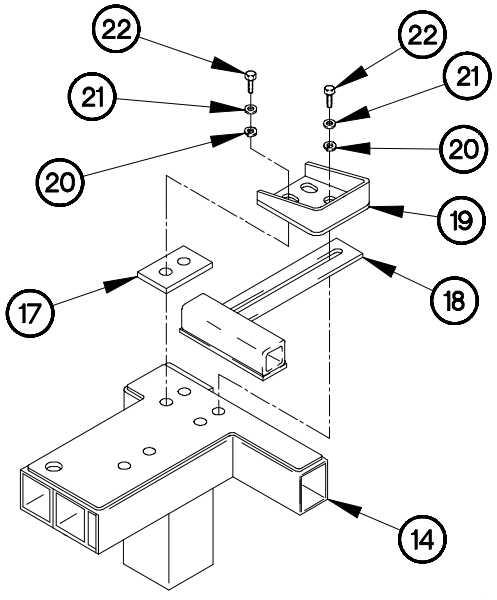


4v74a051

(15) Position tow spacers (17), sliders (18), and stops (19) on left and right tiedowns (13 and 14) with 12 washers (20), lockwashers (21), and screws (22).

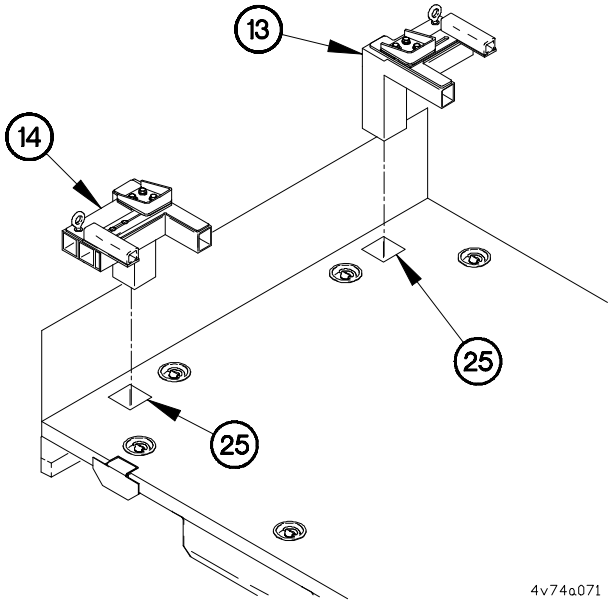
(16) Perform step (15) on remaining left and right tiedowns.

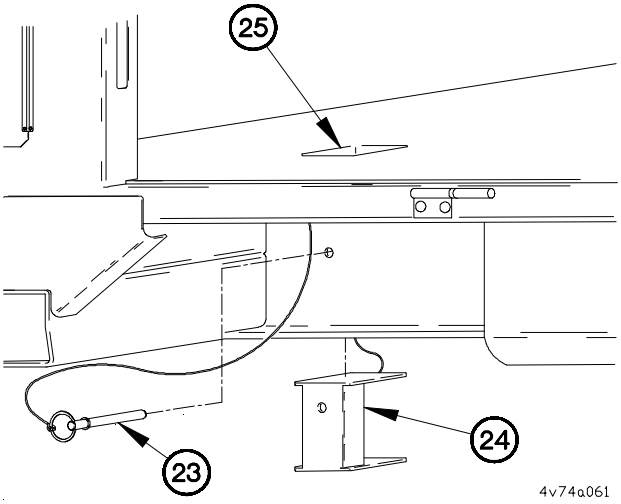
20-74. M1083/M1093 S-280 SHELTER MODELS A, B, OR C TIEDOWN KIT INSTALLATION/REMOVAL (CONT)

WARNING

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

(17) Remove four quick release pins (23) and plugs (24) from crane pockets (25).





(18) Lower ladder (TM 9-2320-366-10-1).

NOTE

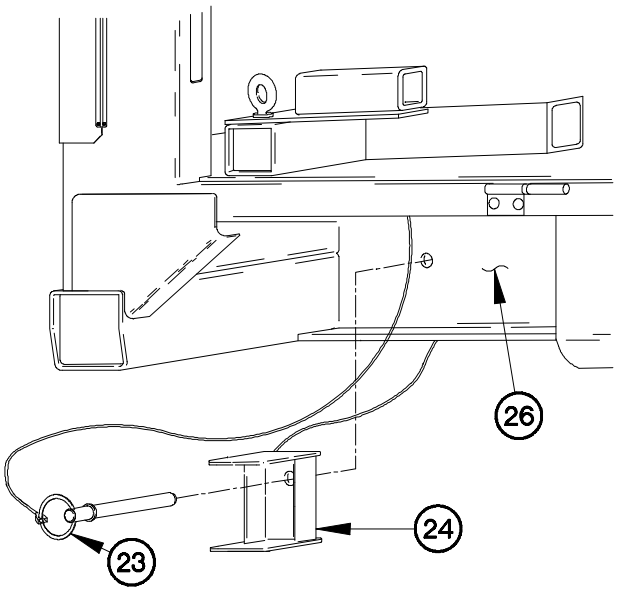
Tiedowns are positioned with eyebolts toward four corners of cargo bed.

(19) Install two tiedowns (13 and 14) in four crane pockets (25).

CAUTION

Ensure quick release pins are installed through both sides of crane pockets. Failure to comply may result in damage to equipment.

(20) Install four plugs (24) on frame rail (26) with four quick release pins (23).



CAUTION

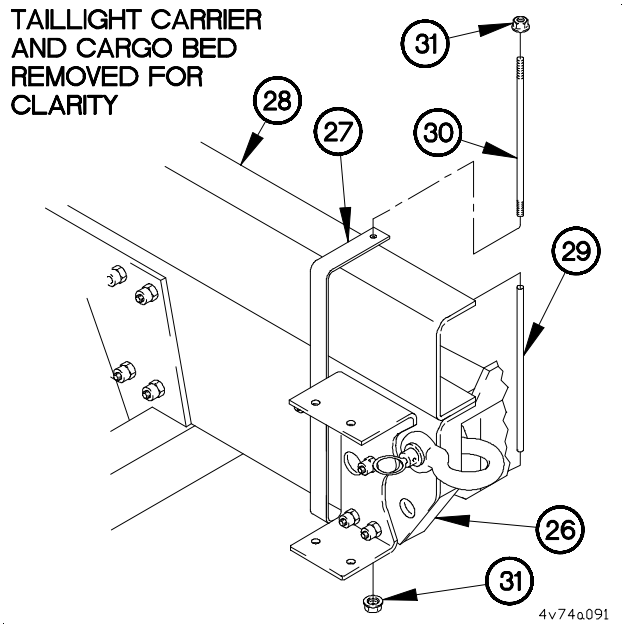
Ensure at least two whole threads are showing past nuts after installation. Failure to comply may result in damage to equipment.

NOTE

Left and right clamps are installed the same way. Left clamp shown.

(21) Install clamp (27) on frame rail (26) and subframe rail (28) with spacer (29), tie-rod (30), and two self-locking nuts (31).

(22) Perform step (21) on right clamp.



20-74. M1083/M1093 S-280 SHELTER MODELS A, B, OR C TIEDOWN KIT INSTALLATION/REMOVAL (CONT)

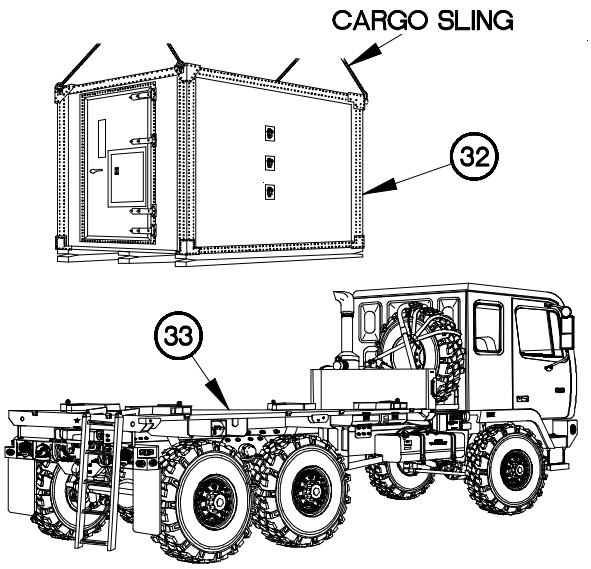
WARNING

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.

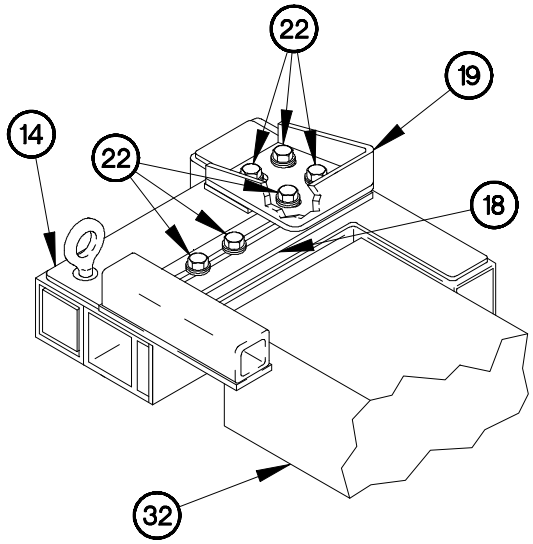
NOTE

Steps (23) through (27) require the aid of an assistant.

(23) Position S-280 shelter (32) on cargo bed (33).



4v74a101



4v74a111

NOTE

All tiedowns are adjusted the same way. Left front tiedown shown.

(24) Adjust tiedown (14) until four slides (18) and stops (19) are flush with side and end of S-280 shelter (32).

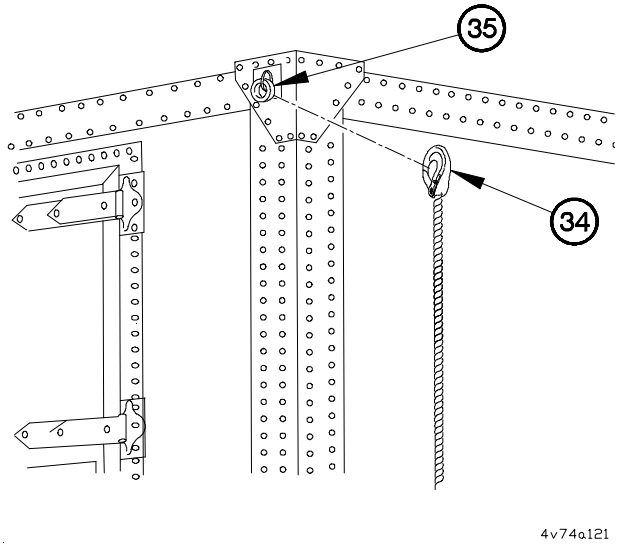
(25) Tighten six screws (22).

(26) Perform steps (24) and (25) on remaining tiedowns.

NOTE

- Four tiedown cables are installed the same way. One tiedown cable shown.
- Large end of S-280 tiedown ring points toward cargo bed.

(27) Install hook (34) on upper S-280 shelter tiedown ring (35).

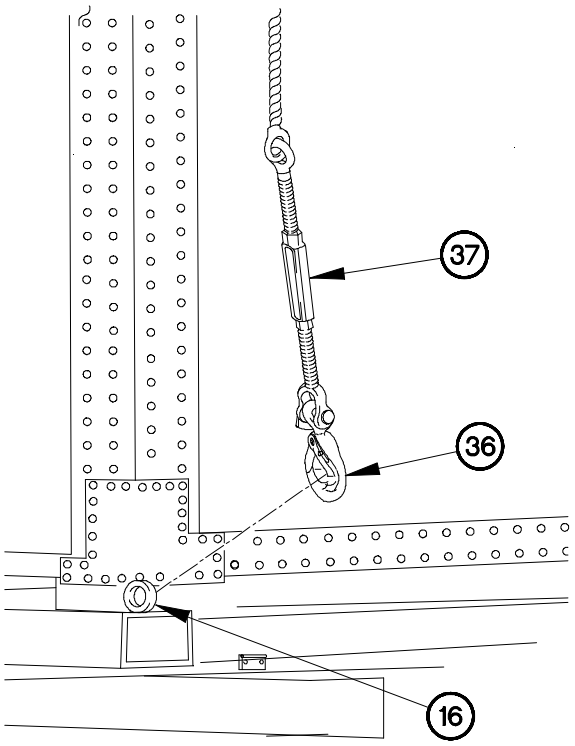


20-74. M1083/M1093 S-280 SHELTER MODELS A, B, OR C TIEDOWN KIT INSTALLATION/REMOVAL (CONT)

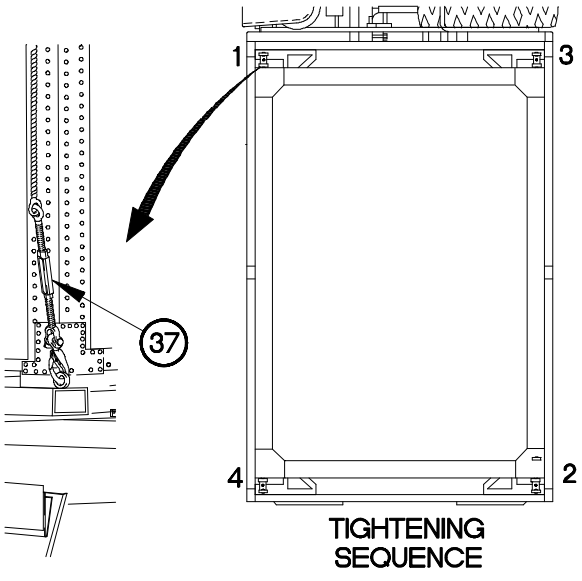
(28) Install hook (36) on eyebolt (16).

(29) Perform steps (27) and (28) on remaining tiedown cables.

(30) Remove slack from four turnbuckles (37).



4v74a131



4v74a141

(31) Tighten four turnbuckles (37) 1/2 turn in sequence shown.

(32) Repeat step (31) four more times.

(33) Raise ladder (TM 9-2320-366-10-1).

b. Removal.

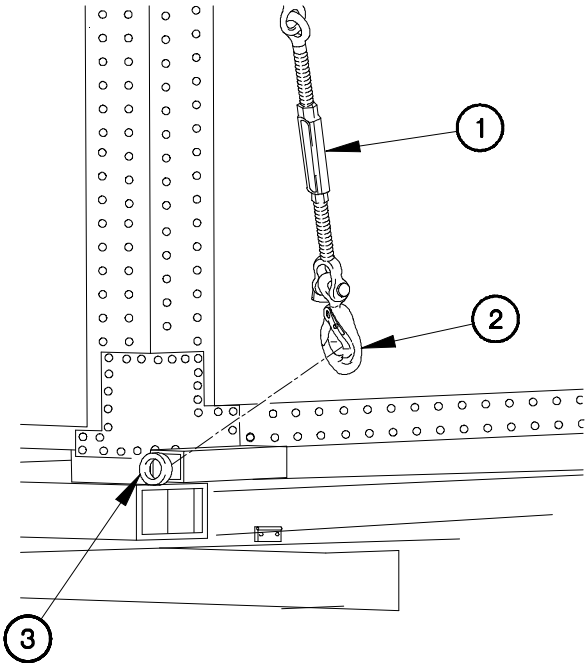
(1) Lower ladder (TM 9-2320-366-10-1).

NOTE

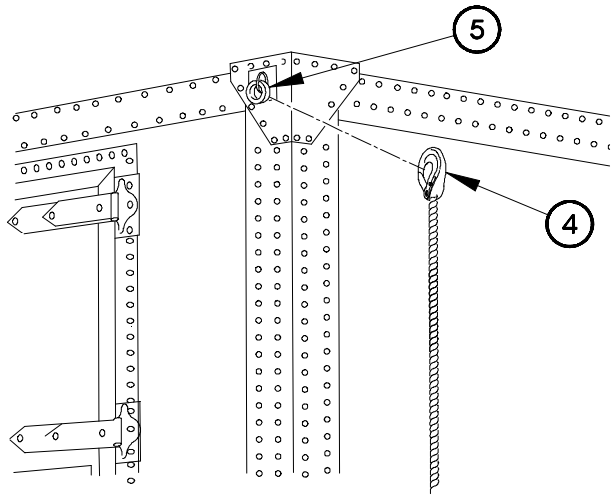
Four tiedown cables are removed the same way. One tiedown cable shown.

(2) Loosen four turnbuckles (1).

(3) Remove hook (2) from eyebolt (3).



4v74b011



4v74b021

(4) Remove hook (4) from upper S-280 shelter tiedown ring (5).

(5) Perform steps (3) and (4) on remaining tiedown cables.

20-74. M1083/M1093 S-280 SHELTER MODELS A, B, OR C TIEDOWN KIT INSTALLATION/REMOVAL (CONT)

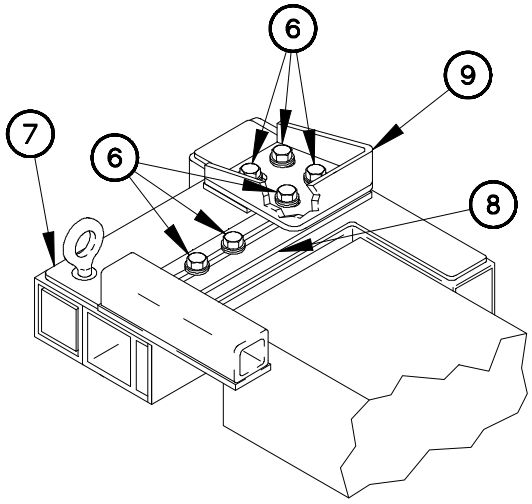
NOTE

All tiedowns are loosened the same way left front tiedown shown.

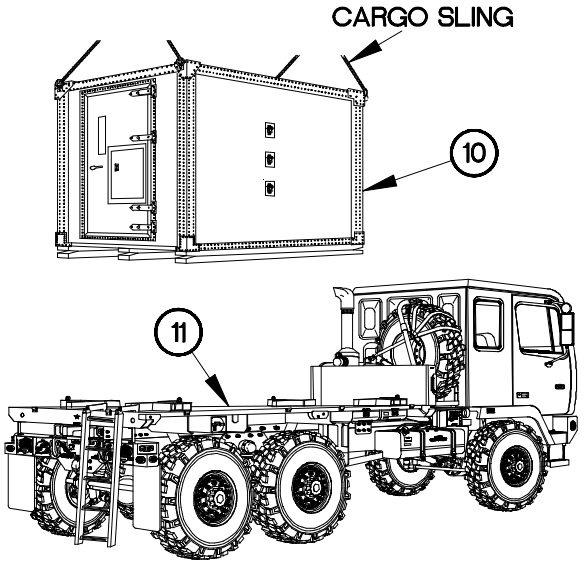
(6) Loosen six screws (6).

(7) Adjust tiedown (7) until four sliders (8) and stops (9) are removed from side and end of S-280 shelter (10).

(8) Perform steps (6) and (7) on remaining tiedowns.



4v74b031



4v74b041

WARNING

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

NOTE

Step (9) requires the aid of an assistant.

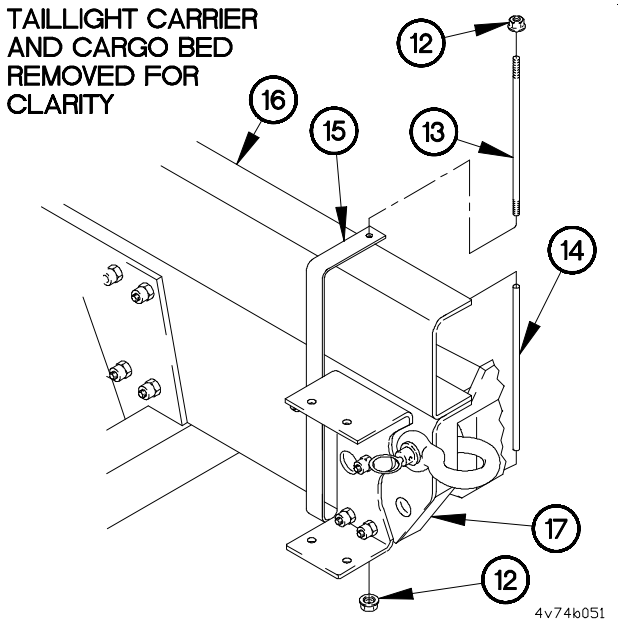
(9) Remove S-280 shelter (10) from cargo bed (11).

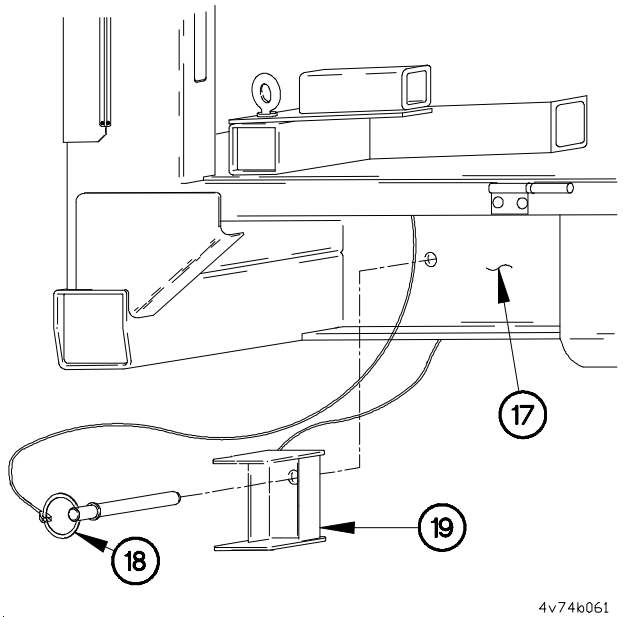
NOTE

Left and right clamps are removed the same way. Left clamp shown.

(10) Remove two self-locking nuts (12), tie-rod (13), spacer (14), and clamp (15) from subframe rail (16) and frame rail (17). Discard self-locking nuts.

(11) Perform step (10) on right clamp.

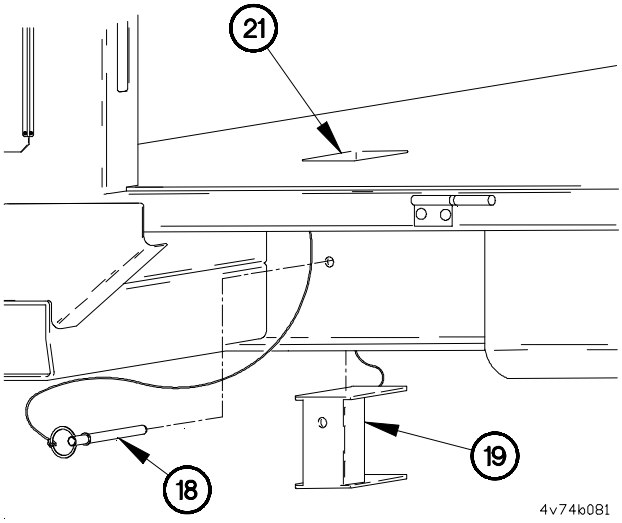




(12) Remove four quick release pins (18) and plugs (19) from frame rail (17).

(13) Remove two tiedowns (20 and 7) from four crane pockets (21).

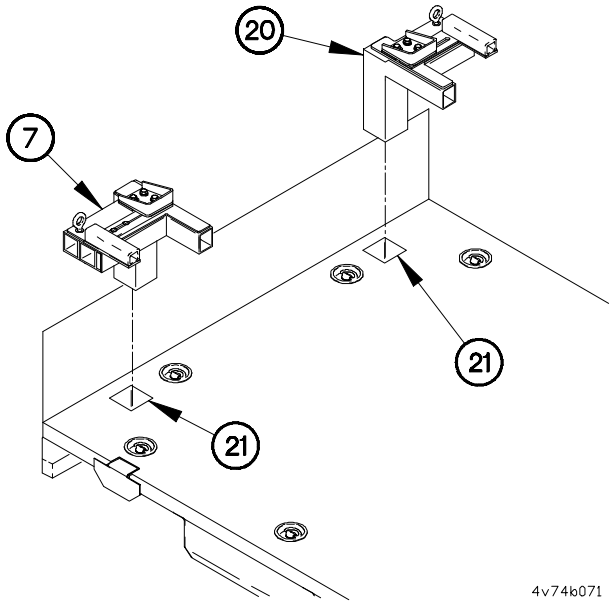
(14) Raise ladder (TM 9-2320-366-10-1).



NOTE

All tiedowns are disassembled the same way. Both left and right tiedowns shown.

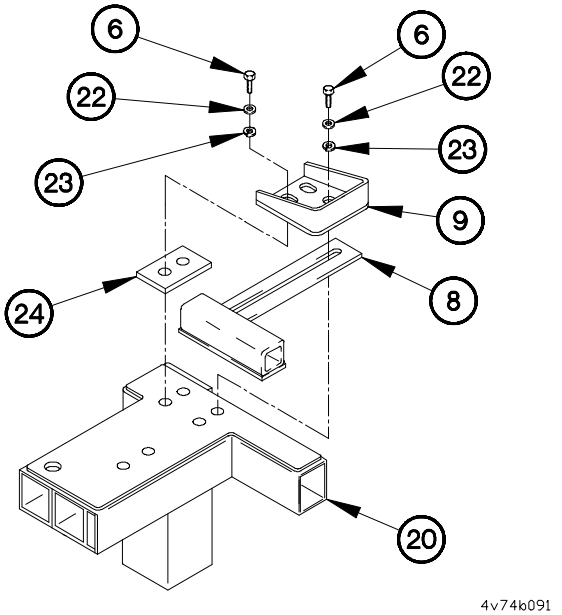
(16) Remove 12 screws (6), lockwashers (22), washers (23), two stops (9), sliders (8), and spacers (24) from left and right tiedowns (20 and 7). Discard lockwashers.



CAUTION

Ensure quick release pins are installed through both sides of crane pockets. Failure to comply may result in damage to

(15) Install four plugs (19) in crane pockets (21) with quick release pins (18).

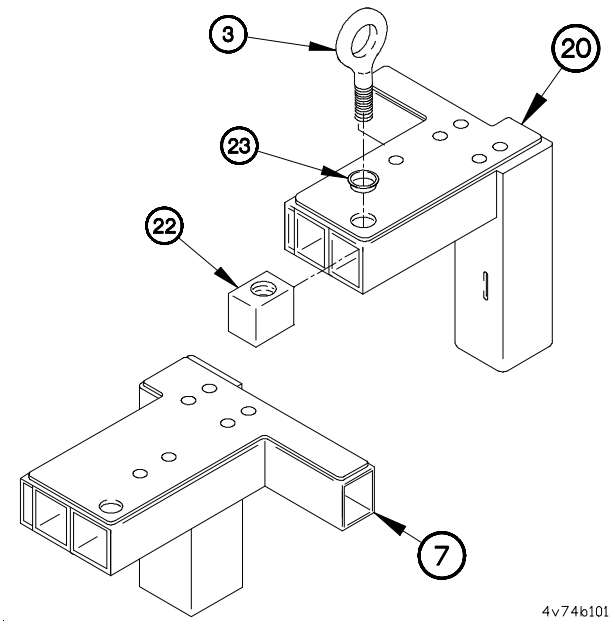


20-74. M1083/M1093 S-280 SHELTER MODELS A, B, OR C TIEDOWN KIT INSTALLATION/REMOVAL (CONT)

(17) Remove four eyebolts (3) and threaded blocks (22) from two tiedowns (20 and 7).

(18) Remove four isolators (23) from two tiedowns (20 and 7).

(19) Perform steps (16) through (18) on remaining left and right tiedowns.



c. Follow-On Maintenance.

Install cargo bed side panels and stakes (TM 9-2320-366-10-1).

End of Task.

20-75. M1085 S-280 SHELTER MODELS A, B, OR C TIEDOWN KIT INSTALLATION/ REMOVAL

This task covers:

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

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-366-10-1).
Cargo bed side panels and stakes removed (TM 9-2320-366-10-1).

Tools and Special Tools
Drill set, Twist (Item 8, Appendix C)
Drill, Portable, Electric (Item 7, Appendix C)
Tap, Thread, Cutting (Item 41.3, Appendix C)
Tap and Die Set (Item 41.2, Appendix C)
Tool Kit, Genl Mech (Item 46, Appendix C)
Sling, Cargo (2) (Item 31, Appendix C)

Materials/Parts
Nut, Self-Locking (4) (Item 159, Appendix G)
Lockwasher (8) (Item 73.1, Appendix G)

Personnel Required
(2)

NOTE

Overall height for shelter models A, B, or C is 83 1/2 to 89 in. (214 to 226 cm). If shelter height is below 83 1/2 in. (214 cm), shorten cable to remove slack in turnbuckle assembly.

a. Installation.

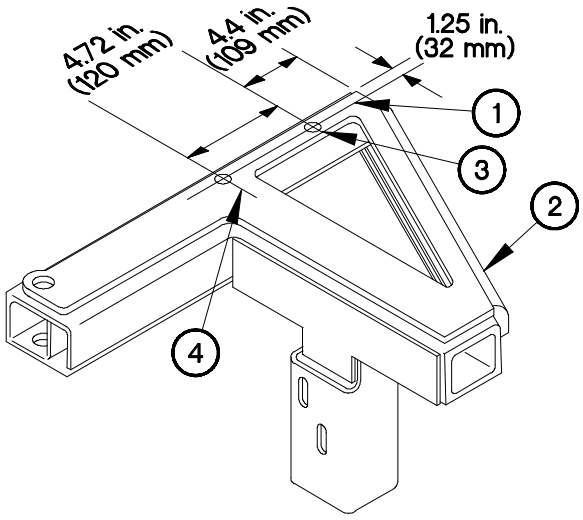
NOTE

- Perform steps (1) through (6) on tiedowns not originally modified.
- All tiedowns are modified the same way. RH front tiedown shown.
- Measurements will be taken from upper LH corner on LH tiedown bracket.

(1) Measure and mark a line (1) 1.25 in (32 mm) down from upper RH corner of tiedown bracket (2).

(2) Measure and mark a line (3) 4.4 in (109 mm) from RH side of line (1).

(3) Measure and mark a line (4) 4.72 in (120 mm) from RH side of line (3).



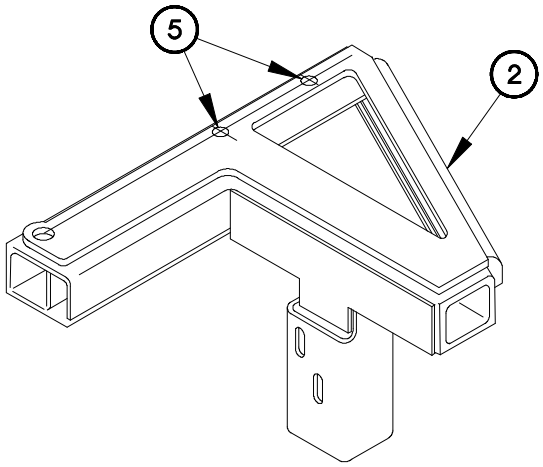
4v75a011

20-75. M1085 S-280 SHELTER MODELS A, B, OR C TIEDOWN KIT INSTALLATION/ REMOVAL (CONT)

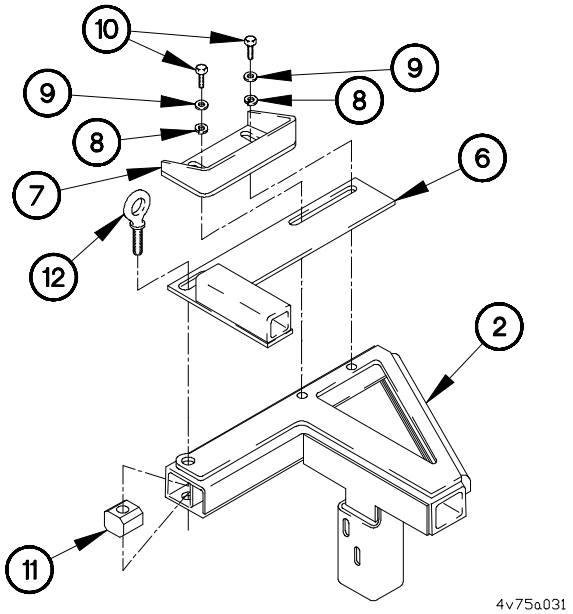
(4) Drill two 27/64 in. holes (5) in tiedown bracket (2).

(5) Tap two holes (5).

(6) Perform steps (1) through (5) on remaining tiedowns.



4v75a021



4v75a031

NOTE

All tiedowns are assembled the same way. RH front tideown bracket shown.

(7) Position slider (6) and stop (7) on tiedown bracket (2) with two lockwashers (8), washers (9), and screws (10).

(8) Install threaded block (11) in tiedown bracket (2) with eyebolt (12).

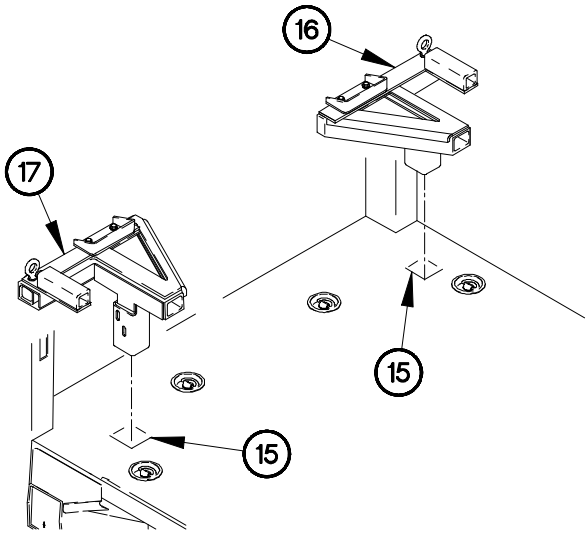
(9) Perform steps (7) and (8) on remaining tiedown brackets.

WARNING

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

(10) Remove four quick release pins (13) and plugs (14) from crane pockets (15).

(11) Lower ladder (TM 9-2320-366-10-1).

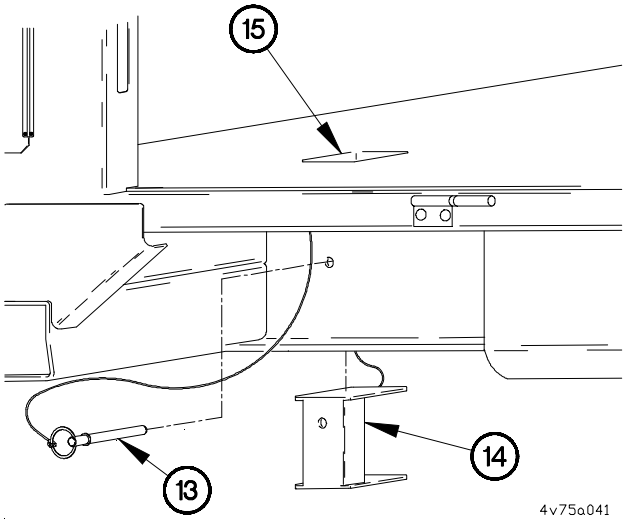


4v75a051

CAUTION

Ensure quick release pins are installed through both sides of crane pockets. Failure to comply may result in damage to equipment.

(13) Install four plugs (14) on frame rail (18) with four quick release pins (13)

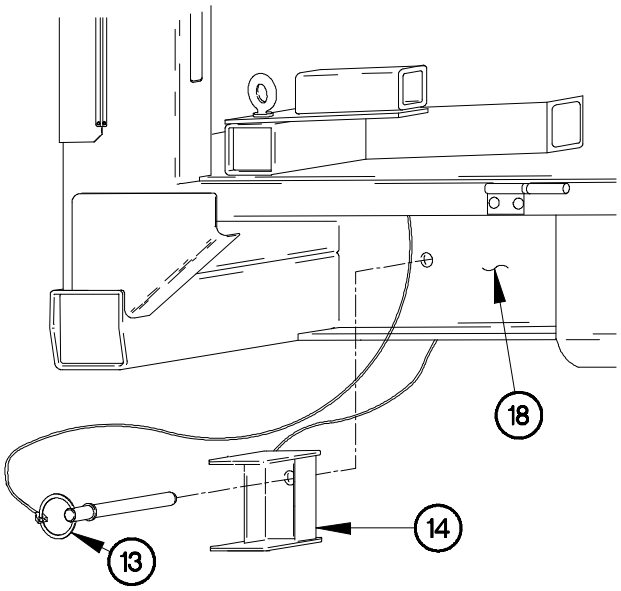


4v75a041

NOTE

Tiedowns are positioned with eyebolts toward four corners of cargo bed.

(12) Install two tiedowns (16 and 17) in four crane pockets (15).



4v75a061

20-75. M1085 S-280 SHELTER MODELS A, B, OR C TIEDOWN KIT INSTALLATION/ REMOVAL (CONT)

CAUTION

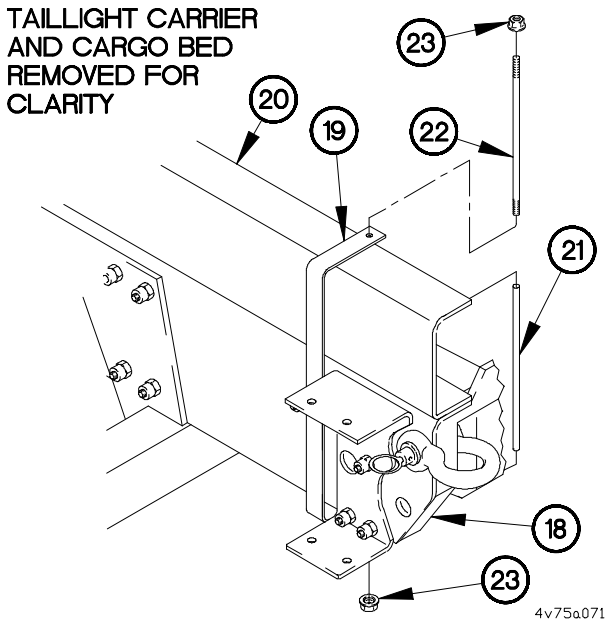
Ensure at least two whole threads are showing past nuts after installation. Failure to comply may result in damage to equipment.

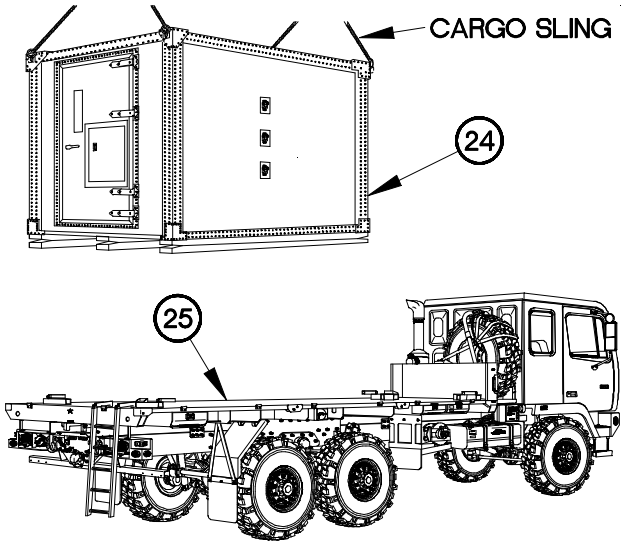
NOTE

Left and right clamps are installed the same way. Left clamp shown.

(14) Install clamp (19) on frame rail (18) and subframe rail (20) with spacer (21), tie-rod (22), and two self-locking nuts (23).

(15) Perform step (14) on right clamp.





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.

NOTE

Steps (16) through (23) require the aid of an assistant.

(16) Position S-280 shelter (24) on cargo bed (25).

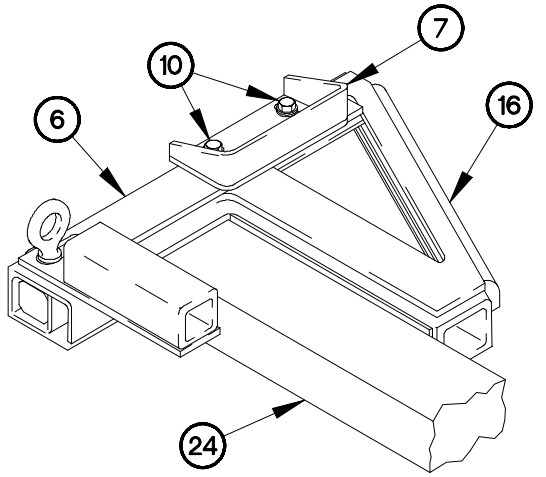
NOTE

All tiedowns are adjusted the same way. RH front tiedown shown.

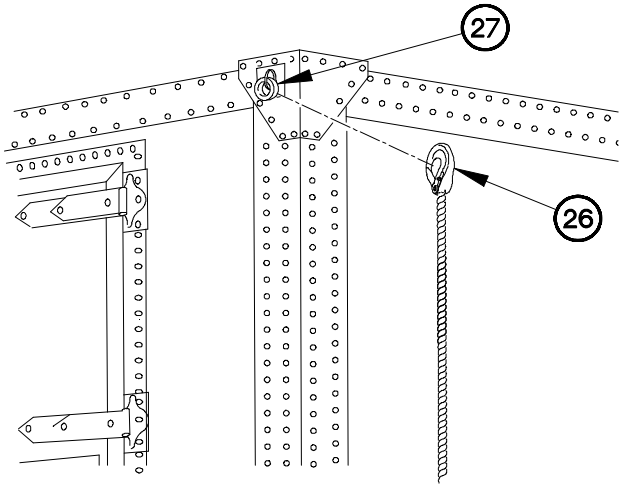
(17) Adjust tiedown (16) until slider (6) and stop (7) are flush with side and end of S-280 shelter (24).

(18) Tighten two screws (10).

(19) Perform steps (17) and (18) on remaining tiedowns.



4v75a091



4v75a101

NOTE

- Four tiedown cables are installed the same way. One tiedown cable shown.
- Large end of S-280 tiedown ring points toward cargo bed.

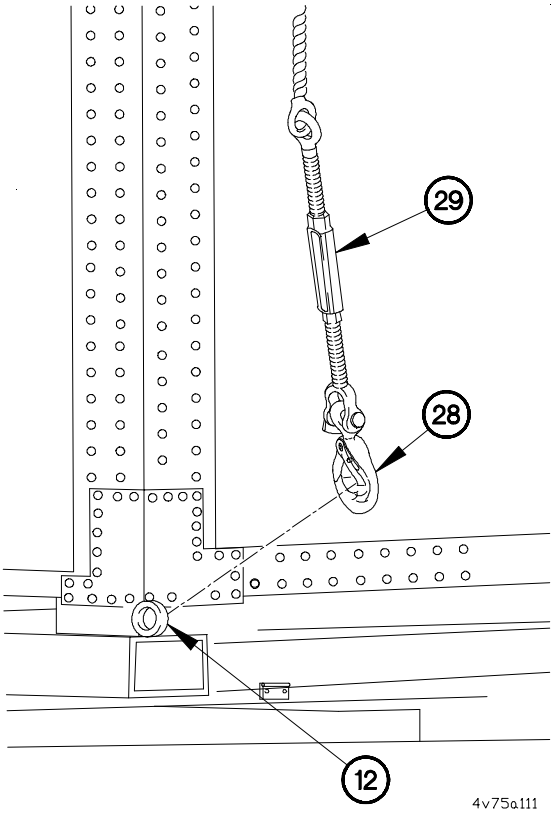
(20) Install hook (26) on upper S-280 shelter tiedown ring (27).

20-75. M1085 S-280 SHELTER MODELS A, B, OR C TIEDOWN KIT INSTALLATION/ REMOVAL (CONT)

(21) Install hook (28) on eyebolt (12).

(22) Perform steps (20) and (21) on remaining tiedown cables.

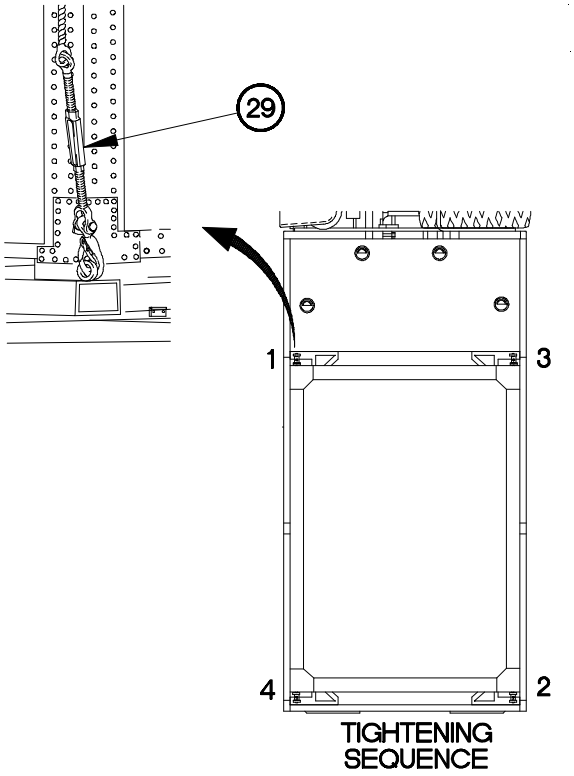
(23) Remove slack from four turnbuckles (29).



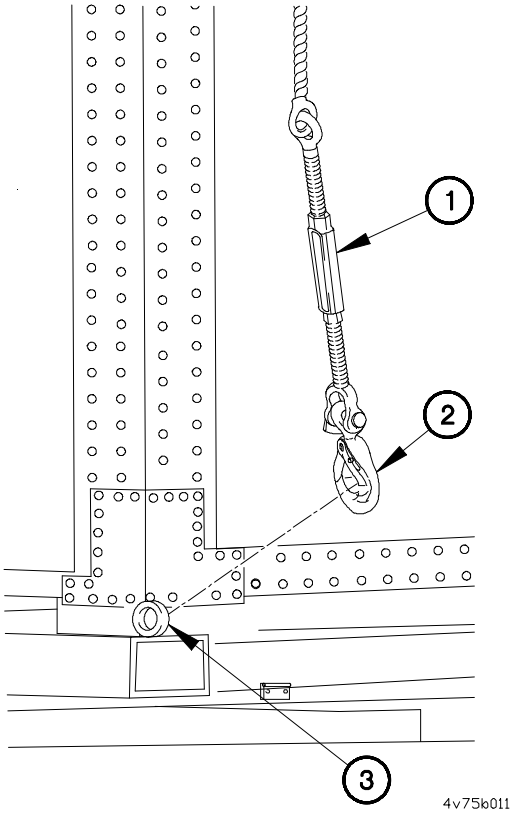
(24) Tighten four turnbuckles (29) 1/2 turn in sequence shown.

(25) Repeat step (24) four more times.

(26) Raise ladder (TM 9-2320-366-10-1).



b. Removal.



(1) Lower ladder (TM 9-2320-366-10-1).

(2) Loosen four turnbuckles (1).

NOTE

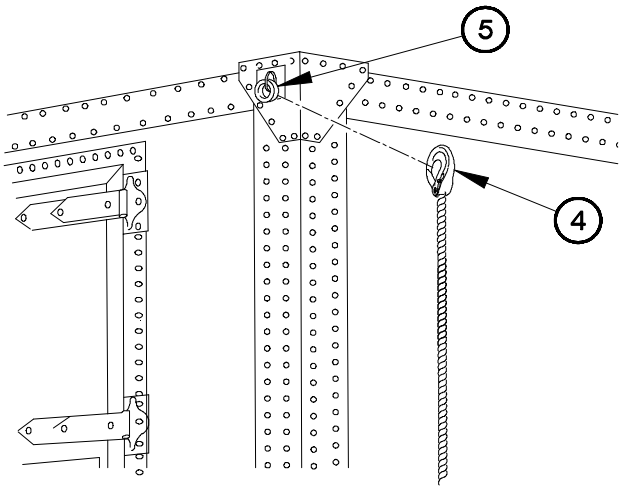
Four tiedown cables are removed the same way. One tiedown cable shown.

(3) Remove hook (2) from eyebolt (3).

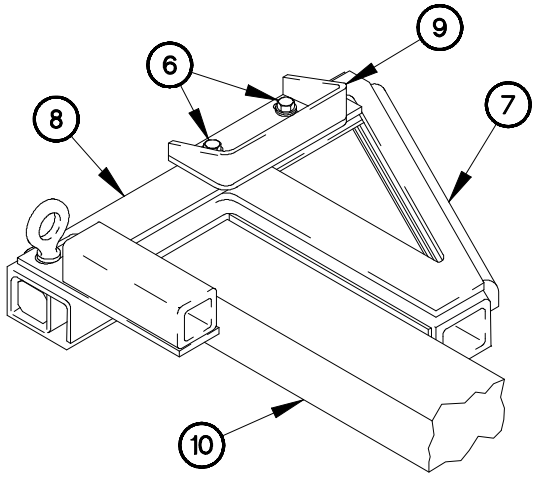
20-75. M1085 S-280 SHELTER MODELS A, B, OR C TIEDOWN KIT INSTALLATION/ REMOVAL (CONT)

(4) Remove hook (4) from upper S-280 shelter tiedown ring (5).

(5) Perform steps (3) and (4) on remaining tiedown cables.



4v75b021



4v75b031

(6) Loosen two screws (6).

(7) Adjust tiedown (7) until slider (8) and stop (9) are removed from side and end of S-280 shelter (10).

NOTE

All tiedowns are loosened the same way. RH front tiedown shown.

(8) Perform steps (6) and (7) on remaining tiedowns.

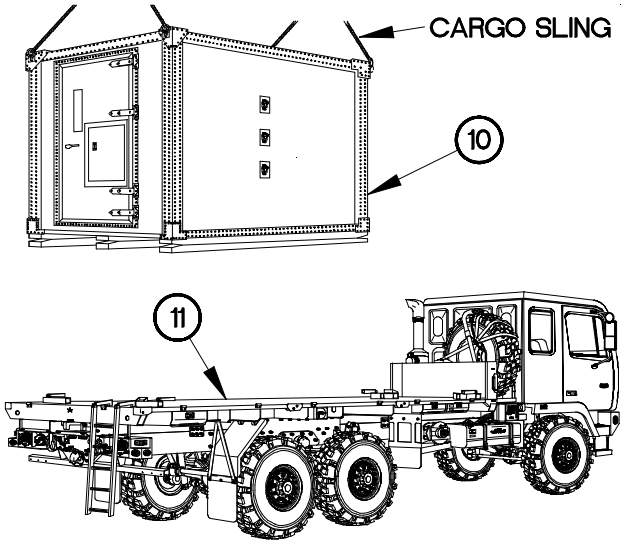
WARNING

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

NOTE

Step (9) requires the aid of an assistant.

(9) Remove S-280 shelter (10) from cargo bed (11).

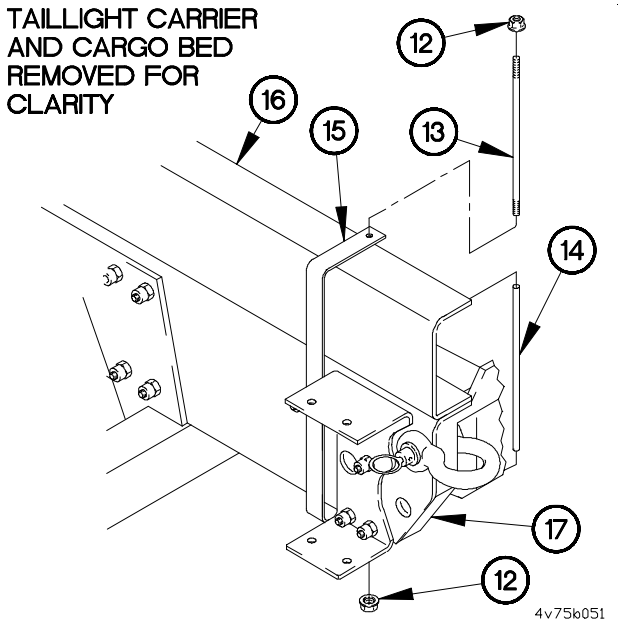


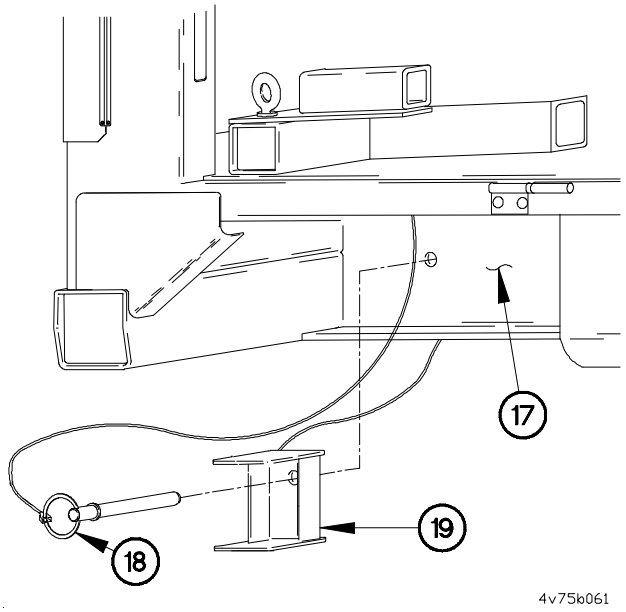
NOTE

Left and right clamps are removed the same way. Left clamp shown.

(10) Remove two self-locking nuts (12), tie-rod (13), spacer (14), and clamp (15) from subframe rail (16) and frame rail (17).

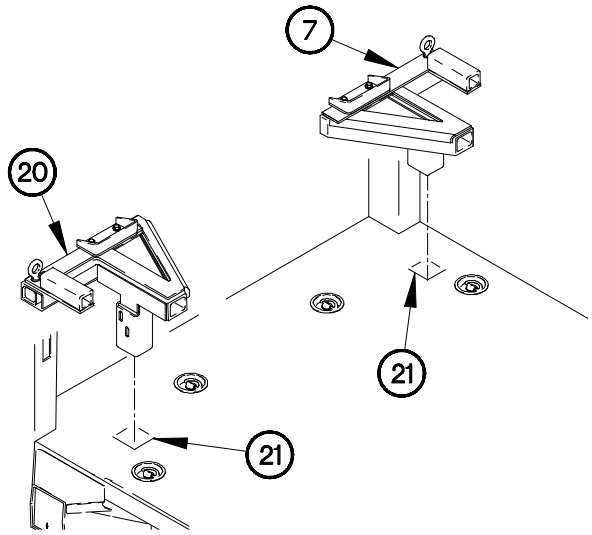
(11) Perform step (10) on right clamp.

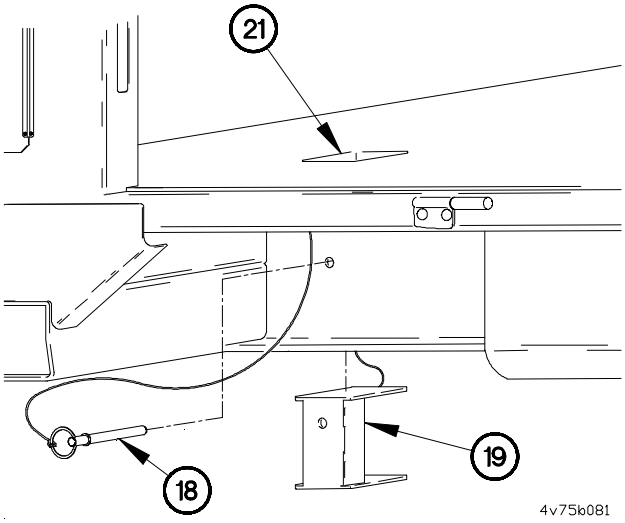




(12) Remove four quick release pins (18) and plugs (19) from frame rail (17).

(13) Remove two tiedowns (7 and 20) from four crane pockets (21).





CAUTION

Ensure quick release pins are installed through both sides of crane pockets. Failure to comply may result in damage to equipment.

(14) Install four plugs (19) in crane pockets (21) with quick release pins (18).

(15) Raise ladder (TM 9-2320-366-10-1).

20-75. M1085 S-280 SHELTER MODELS A, B, OR C TIEDOWN KIT INSTALLATION/ REMOVAL (CONT)

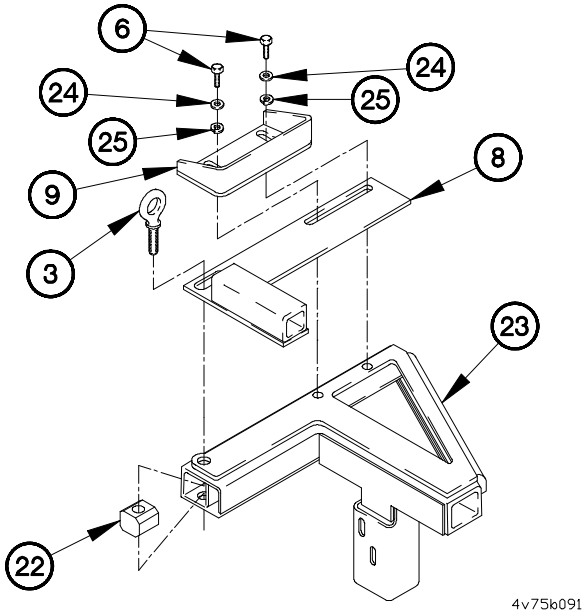
NOTE

All tiedowns are disassembled the same way. RH front tiedown shown.

(16) Remove eyebolt (3) and threaded block (22) from tiedown bracket (23).

(17) Remove two screws (6), washers (24), lockwashers (25), stop (9), and slider (8) from tiedown bracket (23). Discard lockwshers.

(18) Perform steps (16) and (17) on remaining tiedowns.



c. Follow-On Maintenance.

Install cargo bed side panels and stakes (TM 9-2320-366-10-1).

End of Task.

20-76. M1085 TANK AND PUMP UNIT TIEDOWN KIT INSTALLATION/REMOVAL

This task covers:

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

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-366-10-1).
Cargo bed side panels and stakes removed (TM 9-2320-366-10-1).

Tools and Special Tools
Sling, Cargo (Item 31, Appendix C)
Tool Kit, Genl Mech (Item 46, Appendix C)

Tools and Special Tools (Cont)
Wrench, Torque (Item 58, Appendix C)

Materials/Parts
Pin, Cotter (20) (Item 277, Appendix G)

Personnel Required
(2)

WARNING

Ensure vehicle is on level ground prior to installation or removal of tank and pump unit. Failure to comply may result in serious injury or death to personnel or damage to equipment.

a. Installation.

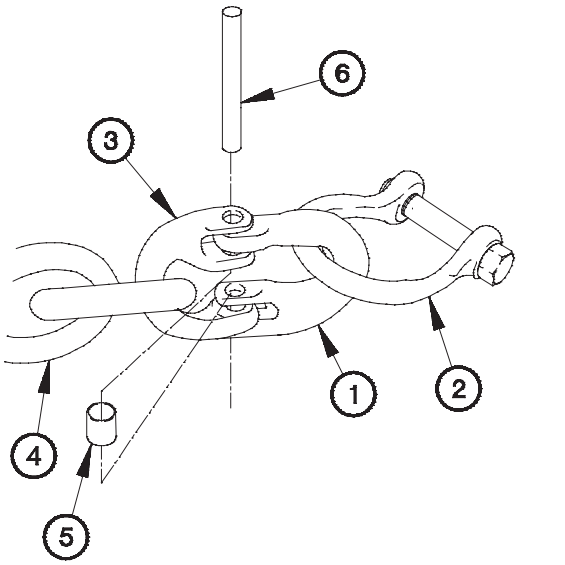
NOTE

Four middle chains are assembled the same way. One middle chain shown.

(1) Position clamp half (1) in shackle (2).

(2) Position clamp half (3) in chain (4).

(3) Install clamp half (1) in clamp half (3) with spring collar (5) and pin (6).

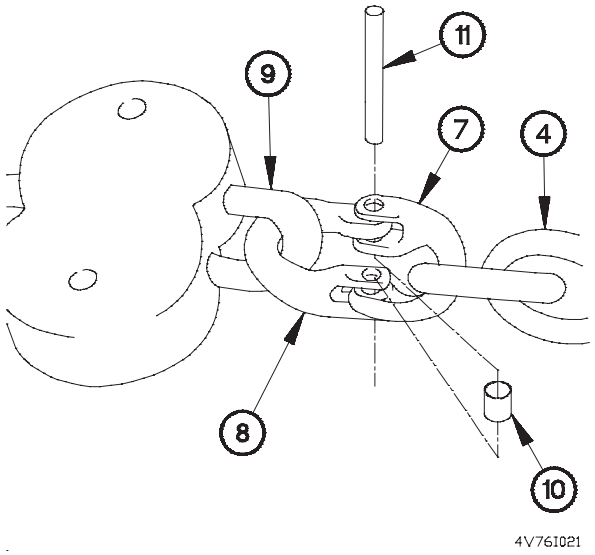


20-76. M1085 TANK AND PUMP UNIT TIEDOWN KIT INSTALLATION/REMOVAL (CONT)

(4) Position clamp half (7) in chain (4).

(5) Position clamp half (8) in shock mount (9).

(6) Install clamp half (7) in clamp half (8) with spring collar (10) and pin (11).



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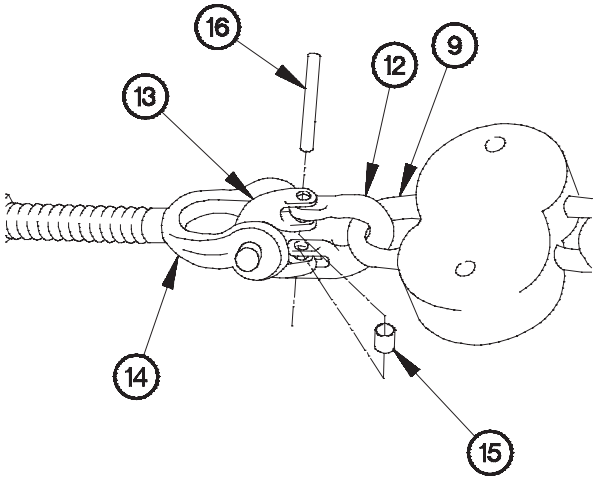


4V761031

(7) Position clamp half (12) in shock mount (9).

(8) Position clamp half (13) in turnbuckle (14).

(9) Install clamp half (12) in clamp half (13) with spring collar (15) and pin (16).

(10) Perform steps (1) through (9) on remaining middle chains.

NOTE

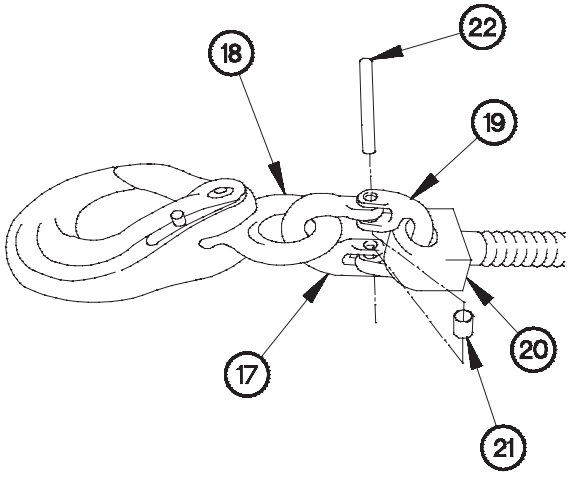
Four adjustable safety hooks are assembled the same way. One adjustable safety hook shown.

(11) Position clamp half (17) in safety hook (18).

(12) Position clamp half (19) in threaded rod (20).

(13) Install clamp half (17) in clamp half (19) with spring collar (21) and pin (22).

(14) Perform steps (11) through (13) on remaining safety hooks.

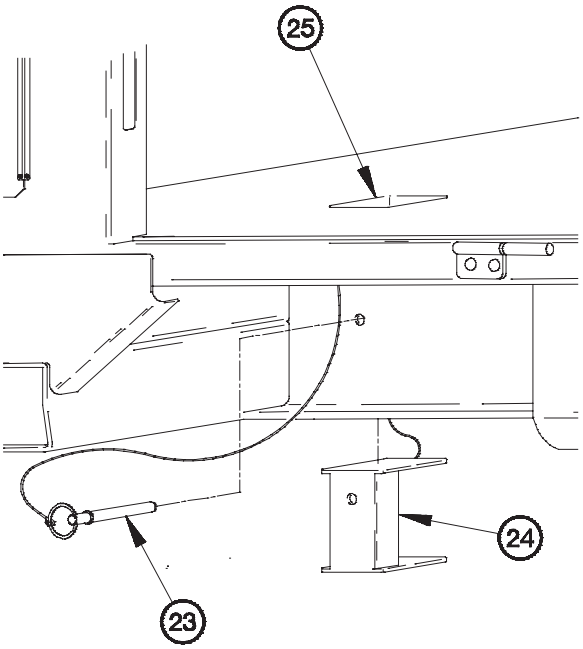


4V761041

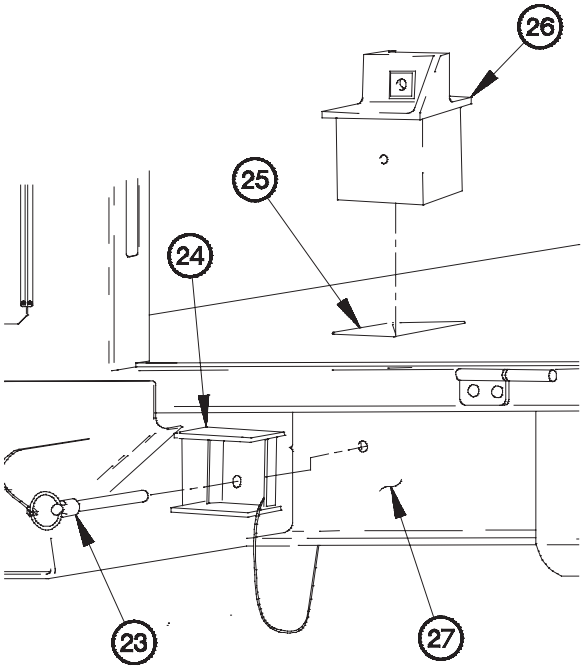
WARNING

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

(15) Remove four quick release pins (23) and plugs (24) from crane pocket (25).



4V76I051



4V76I061

NOTE

Holes in four tiedown posts are pointed up and toward center of cargo bed.

(16) Install four tiedown posts (26) in crane pockets (25).

CAUTION

Ensure quick release pins are installed through both sides of crane pockets. Failure to comply may result in damage to equipment.

(17) Install four plugs (24) on frame (27) with four quick release pins (23).

(18) Lower ladder (TM 9-2320-366-10-1).

20-76. M1085 TANK AND PUMP UNIT TIEDOWN KIT INSTALLATION/REMOVAL (CONT)

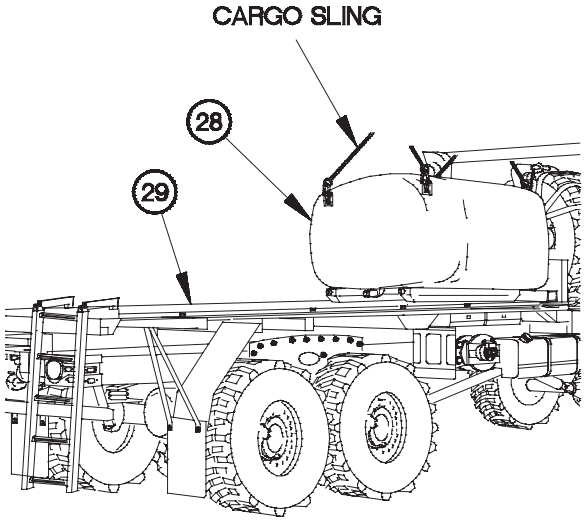
WARNING

Tank weighs approximately 500 lbs (227 kgs) empty or 4000 lbs (1816 kgs) full. Attach a suitable lifting device prior to installation. Failure to comply may result in serious injury or death to personnel or damage to equipment.

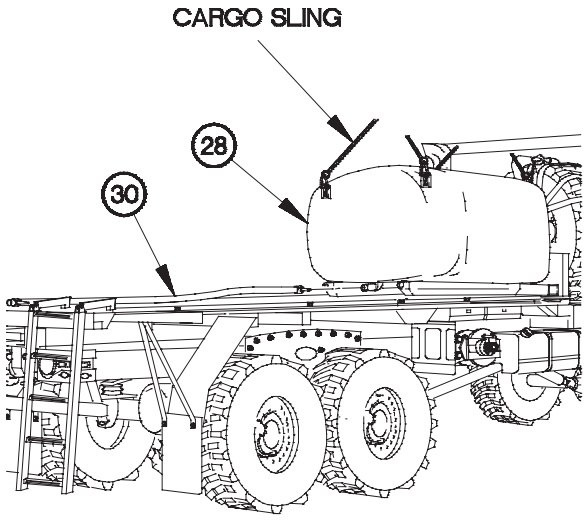
NOTE

- Holes in skid of tank face toward front of vehicle.
- Center tanks between four tiedown posts.
- Step (19) requires the aid of an assistant.

(19) Position tank (28) on cargo bed (29).



4V76I071



4V76I081

NOTE

Route hose toward rear center of vehicle.

(20) Connect hose (30) to tank (28).

WARNING

Tank weighs approximately 500 lbs (227 kgs) empty or 4000 lbs (1816 kgs) full. Attach a suitable lifting device prior to installation. Failure to comply may result in serious injury or death to personnel or damage to equipment.

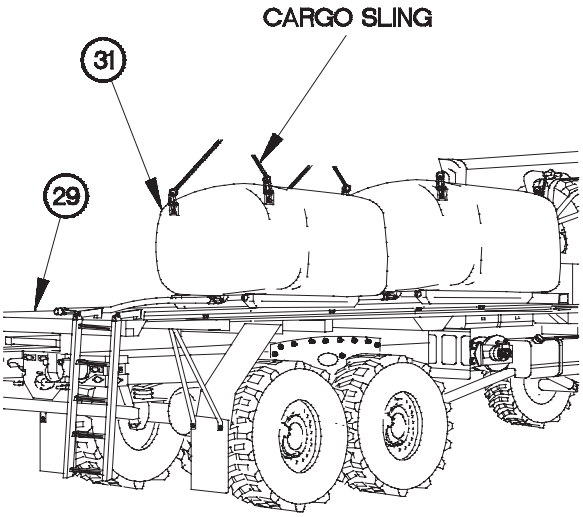
CAUTION

Use care when positioning tank on cargo bed so that hose is not pinched or crushed. Failure to comply may result in damage to equipment.

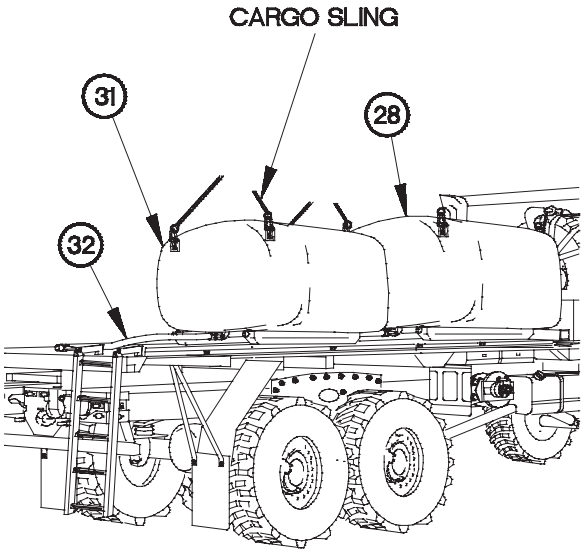
NOTE

- Holes in skid of tank face toward front of vehicle.
- Step (21) requires the aid of an assistant.

(21) Position tank (31) on cargo bed (29).



4V76I091



4V76I101

(22) Connect tank (28) to tank (31) with two inserts and holes in skids.

(23) Connect hose (32) to tank (31).

20-76. M1085 TANK AND PUMP UNIT TIEDOWN KIT INSTALLATION/REMOVAL (CONT)

NOTE

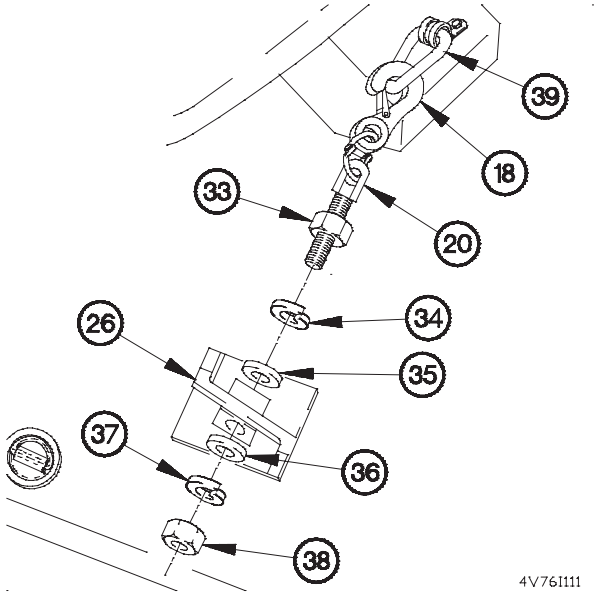
Four adjustable safety hooks are installed the same way. One adjustable safety hook shown.

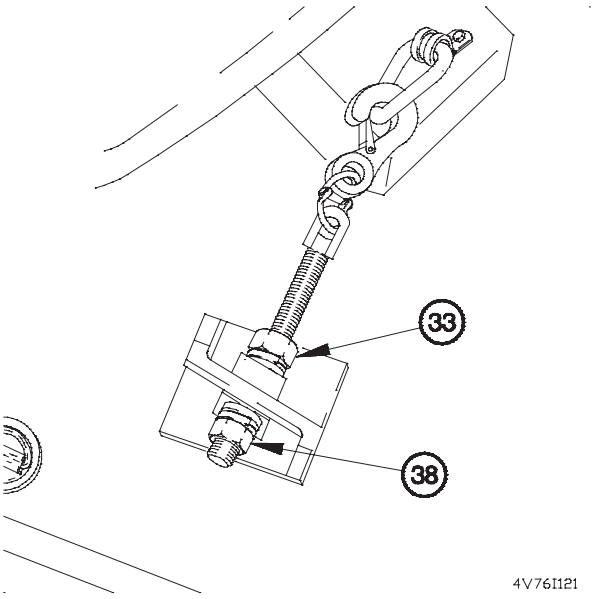
(24) Position nut (33), lockwasher (34), and washer (35), on threaded rod (20).

(25) Position threaded rod (20) in tiedown post (26) with washer (36), lockwasher (37), and nut (38).

(26) Position safety hook (18) on lower tiedown ring (39).

(27) Perform steps (24) through (26) on remaining safety hooks.



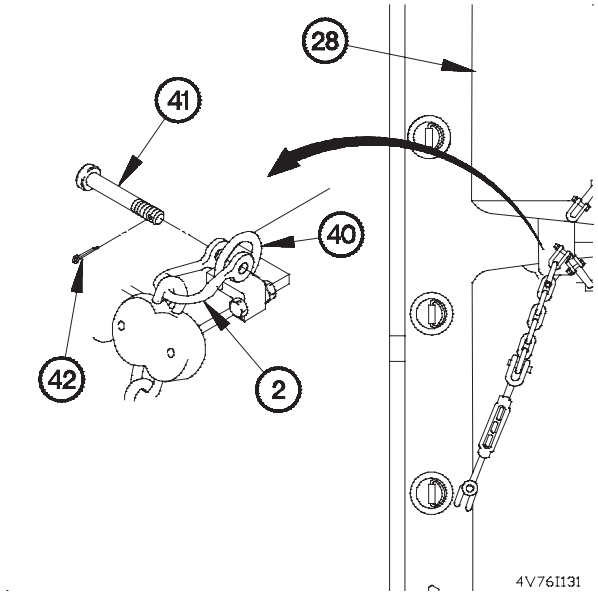


(28) Tighten four nuts (33 and 38) to 75 lb-ft (102 N·m).

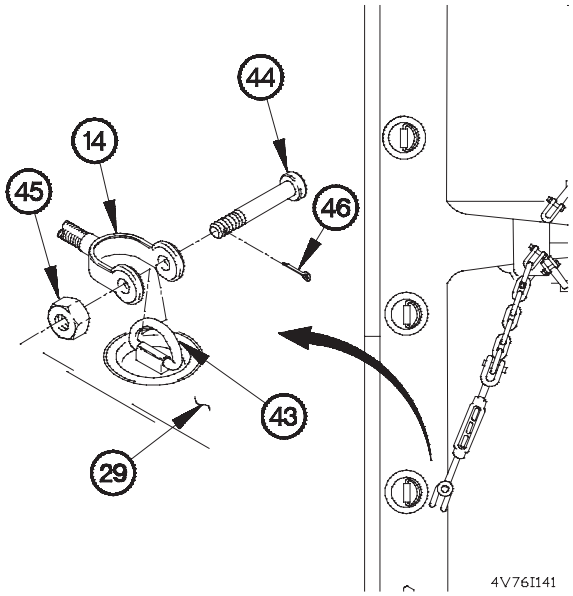
NOTE

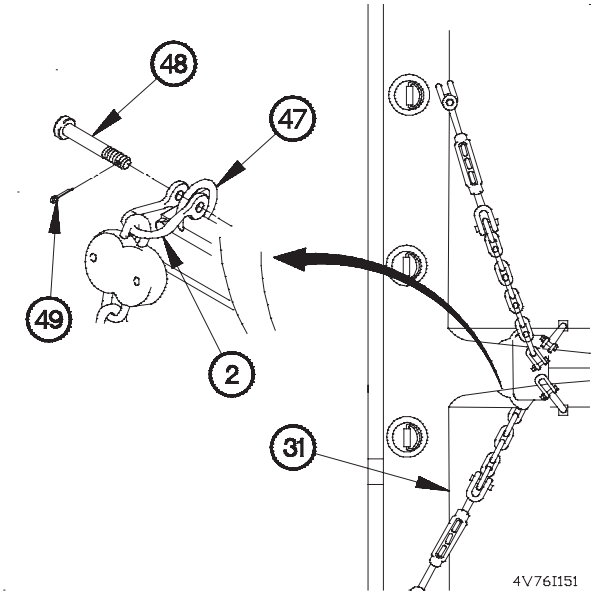
Left and right middle chains are installed the same way. Left middle chains shown.

(29) Install shackle (2) on lower tiedown ring (40) on tank (28) with pin (41) and cotter pin (42).



(30) Install turnbuckle (14) on third tiedown ring (43) from rear of cargo bed (29) with pin (44), nut (45), and cotter pin (46).

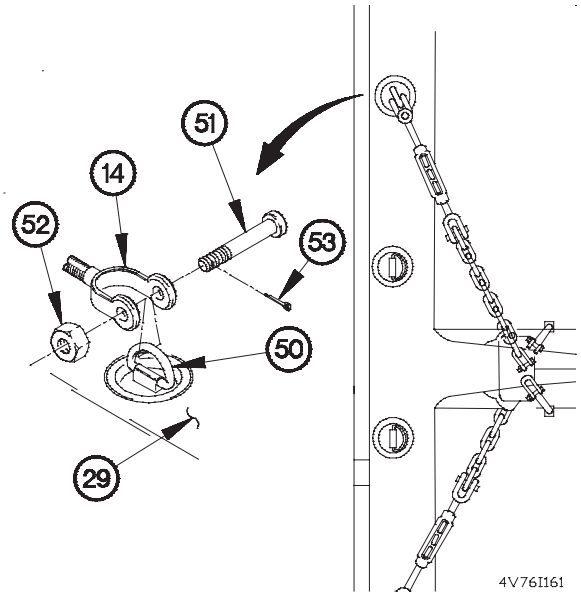




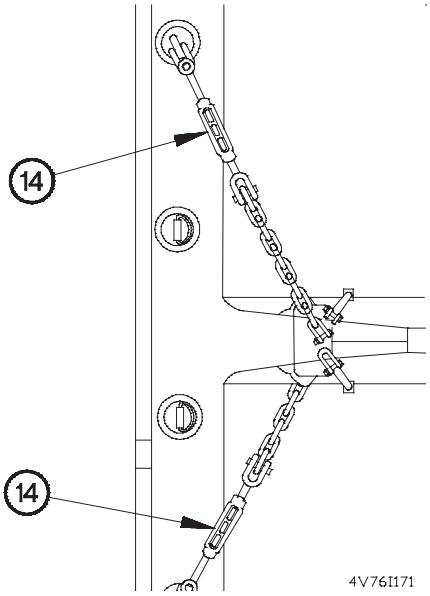
(31) Install shackle (2) on lower tiedown ring (47) on tank (31) with pin (48) and cotter pin (49).

(32) Install turnbuckle (14) on fourth tiedown ring (50) from front of cargo bed (29) with pin (51), nut (52), and cotter pin (53).

(33) Perform steps (29) through (32) on right middle chains.

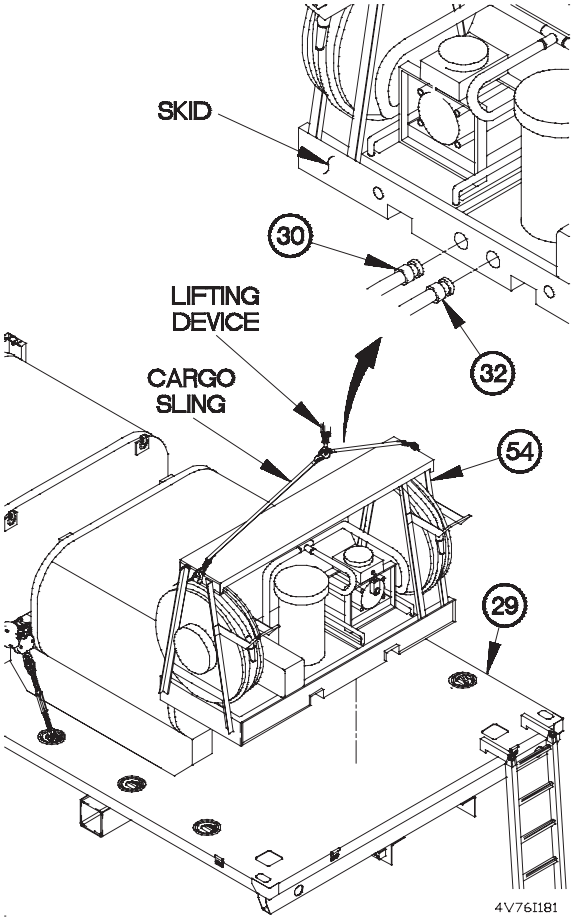


20-76. M1085 TANK AND PUMP UNIT TIEDOWN KIT INSTALLATION/REMOVAL (CONT)



(34) Remove slack from four turnbuckles (14).

(35) Tighten four turnbuckles (14) 1 1/2 additional turns.



WARNING

Pump unit weighs approximately 870 lbs (395 kgs). Attach a suitable lifting device prior to installation. Failure to comply may result in serious injury or death to personnel or damage to equipment.

CAUTION

Use care when positioning pump unit on cargo bed so hoses are not pinched or crushed. Failure to comply may result in damage to equipment.

NOTE

- Holes in skid of pump unit face toward front of vehicle.
- Steps (36) and (37) require the aid of an assistant.

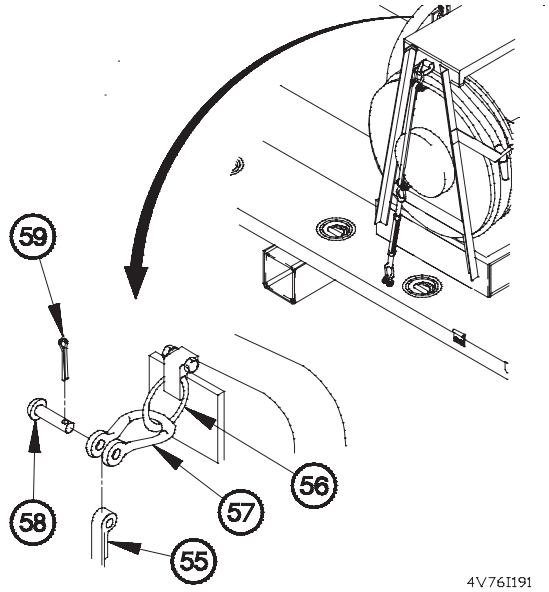
(36) Route hoses (30 and 32) through holes in skid.

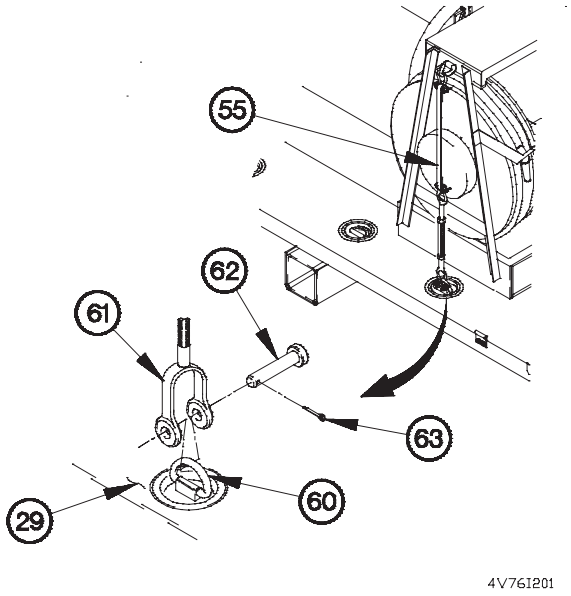
(37) Position pump unit (54) on cargo bed (29).

NOTE

Left and right pump straps are installed the same way. Left pump strap shown.

(38) Install pump strap (55) on pump tiedown ring (56) with shackle (57), pin (58), and cotter pin (59).





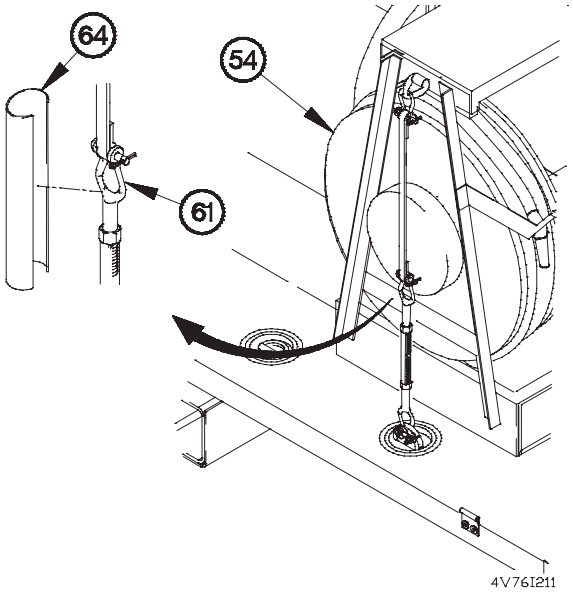
(39) Install pump strap (55) on first tiedown ring (60) from rear of cargo bed (29) with turnbuckle (61), pin (62), and cotter pin (63).

(40) Position sleeve (64) between pump unit (54) and turnbuckle (61).

(41) Perform steps (38) through (40) on right side pump strap.

(42) Remove slack from two turnbuckles (61).

(43) Tighten two turnbuckles (61) 1 1/2 additional turns.

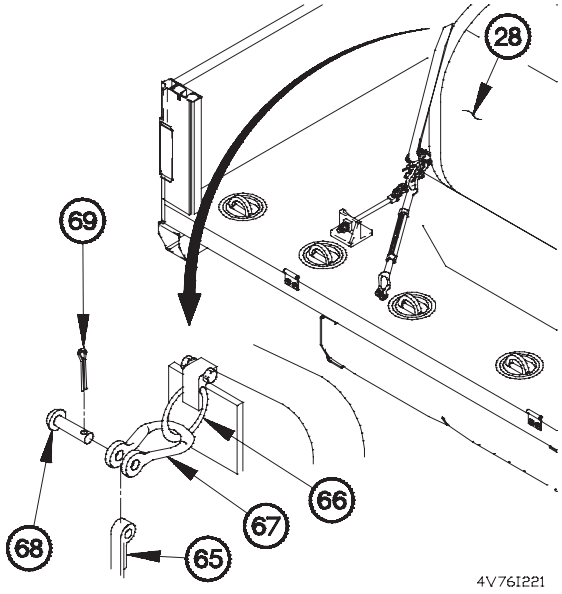


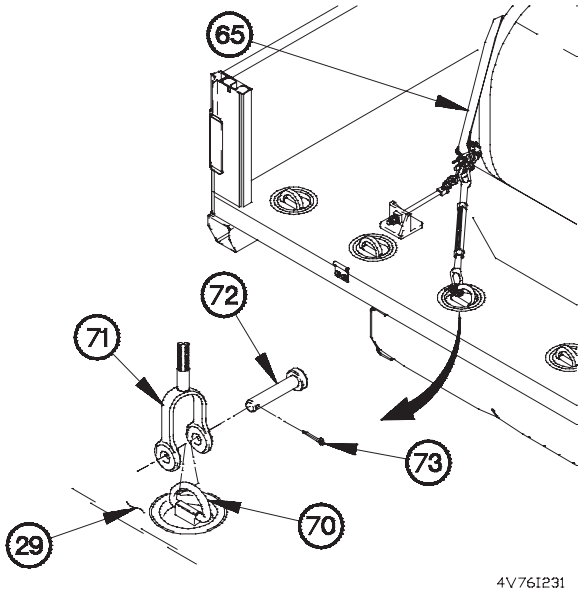
20-76. M1085 TANK AND PUMP UNIT TIEDOWN KIT INSTALLATION/REMOVAL (CONT)

NOTE

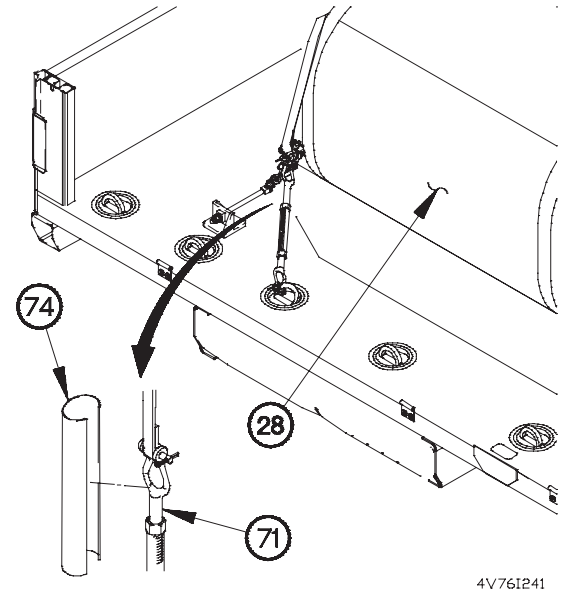
Left and right front straps are installed the same way. Left front strap shown.

(44) Install front strap (65) on upper tiedown ring (66) on tank (28) with shackle (67), pin (68), and cotter pin (69).





(45) Install front strap (65) on third tiedown ring (70) from front of cargo bed (29) with turnbuckle (71), pin (72), and cotter pin (73).



(46) Position sleeve (74) between turnbuckle (71) and tank (28).

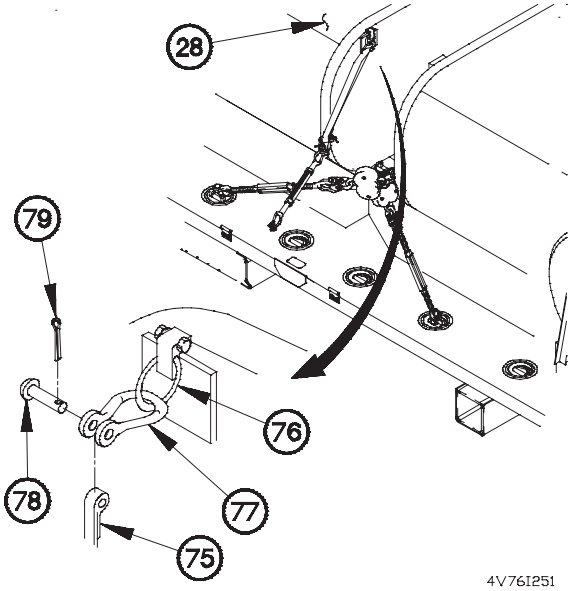
(47) Perform steps (44) through (46) on right front strap.

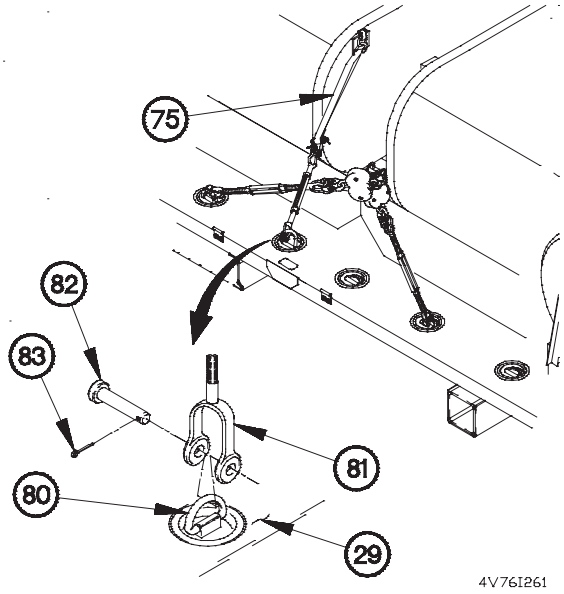
(48) Remove slack from two turnbuckles (71).

NOTE

Left and right middle straps are installed the same way. Left middle straps shown.

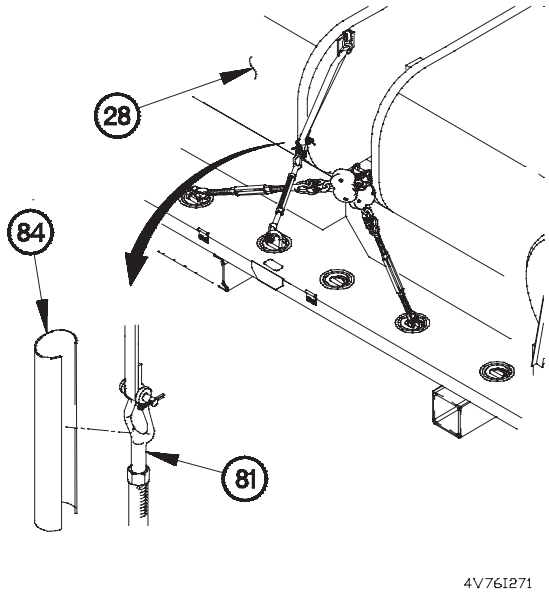
(49) Install middle strap (75) on upper tiedown ring (76) on tank (28) with shackle (77), pin (78), and cotter pin (79).





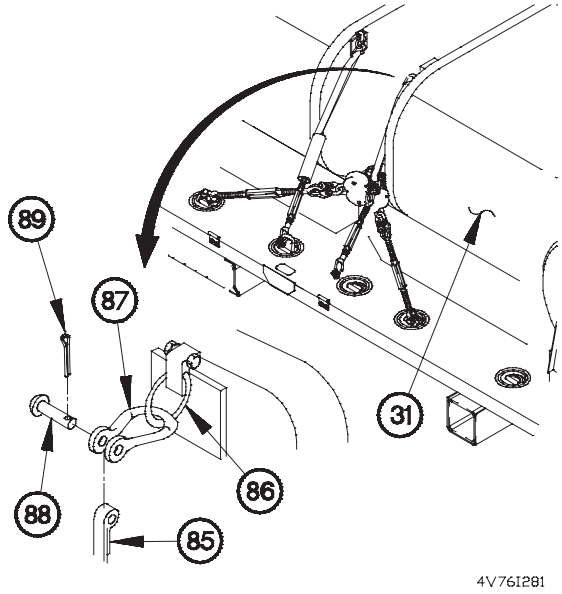
(50) Install middle strap (75) on fifth tiedown ring (80) from front of cargo bed (29) with turnbuckle (81), pin (82), and cotter pin (83).

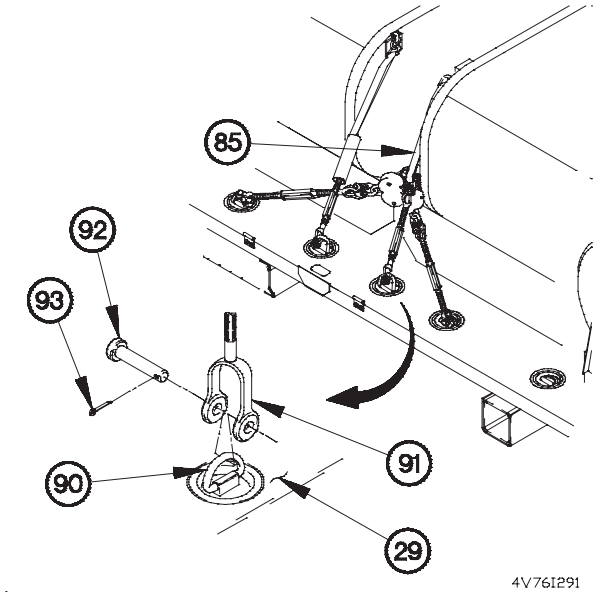
(51) Position sleeve (84) between turnbuckle (81) and tank (28).



20-76. M1085 TANK AND PUMP UNIT TIEDOWN KIT INSTALLATION/REMOVAL (CONT)

(52) Install middle strap (85) on upper tiedown ring (86) on tank (31) with shackle (87), pin (88), and cotter pin (89).



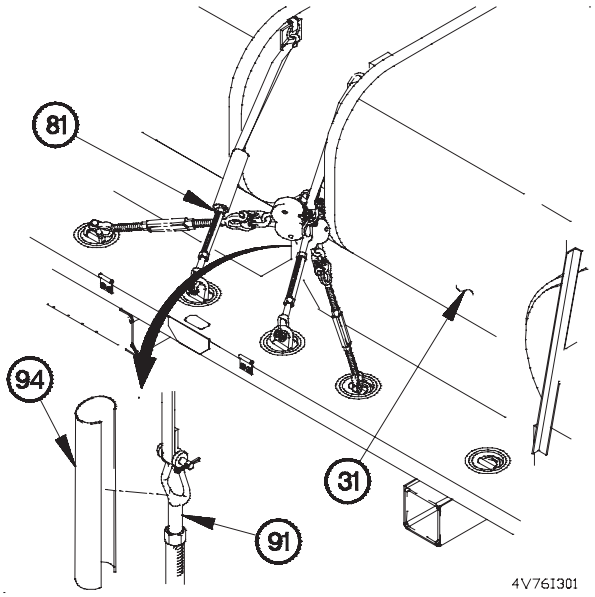


(53) Install middle strap (85) on fourth tiedown ring (90) from rear of cargo bed (29) with turnbuckle (91), pin (92), and cotter pin (93).

(54) Install sleeve (94) between turnbuckle (91) and tank (31).

(55) Perform steps (49) through (54) on right middle straps.

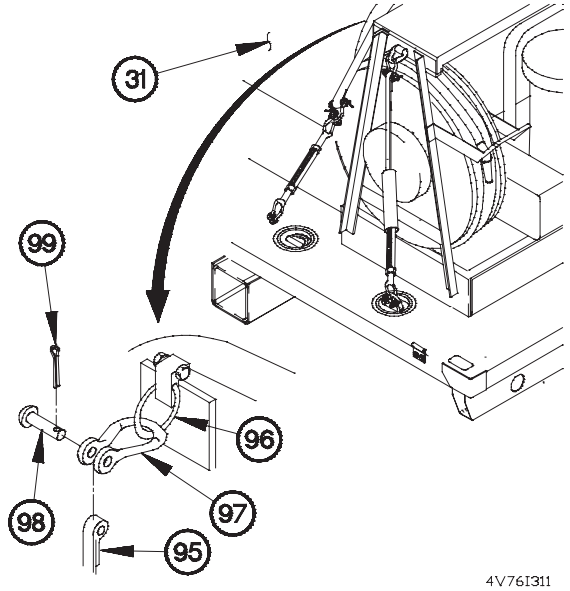
(56) Remove slack from two turnbuckles (81 and 91).

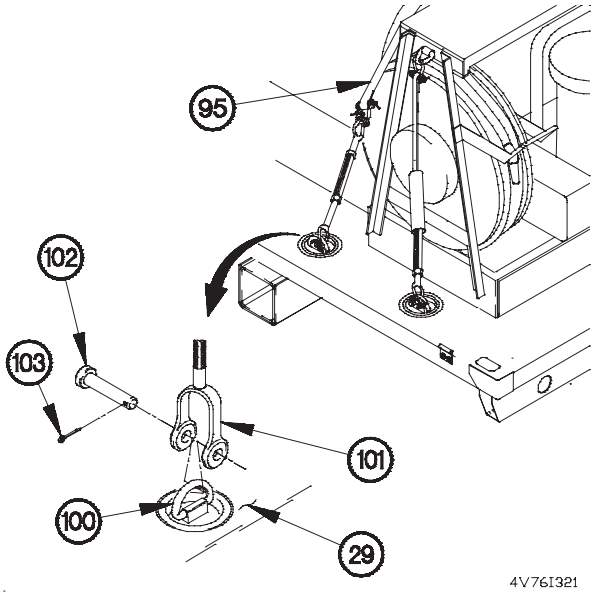


NOTE

Left and right rear straps are installed the same way. Left rear strap shown.

(57) Install rear strap (95) on upper tiedown ring (96) on tank (31) with shackle (97), pin (98), and cotter pin (99).



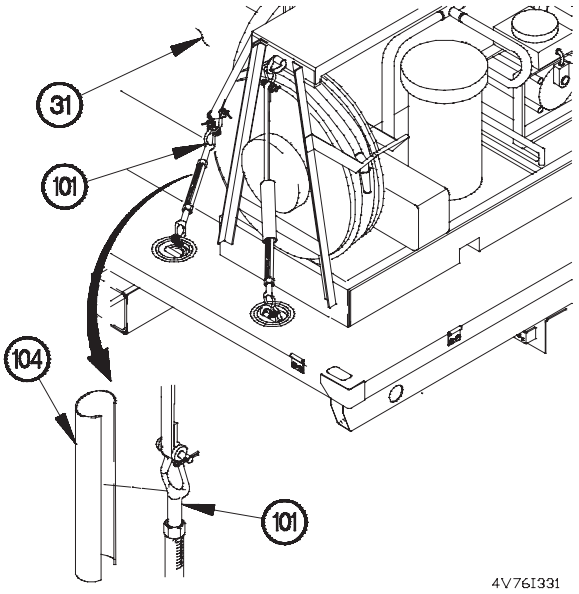


(58) Install rear strap (95) on second tiedown ring (100) from rear of cargo bed (29) with turnbuckle (101), pin (102), and cotter pin (103).

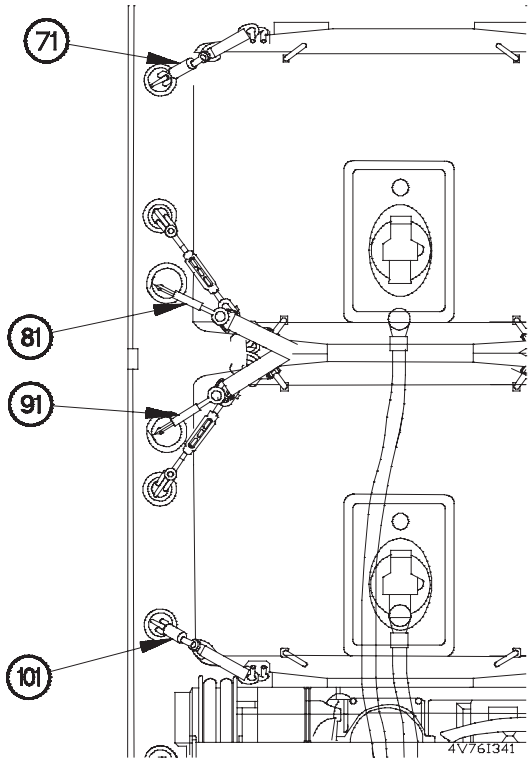
(59) Position sleeve (104) between turnbuckle (101) and tank (31).

(60) Perform steps (57) through (59) on right side rear strap.

(61) Remove slack from two turnbuckles (101).



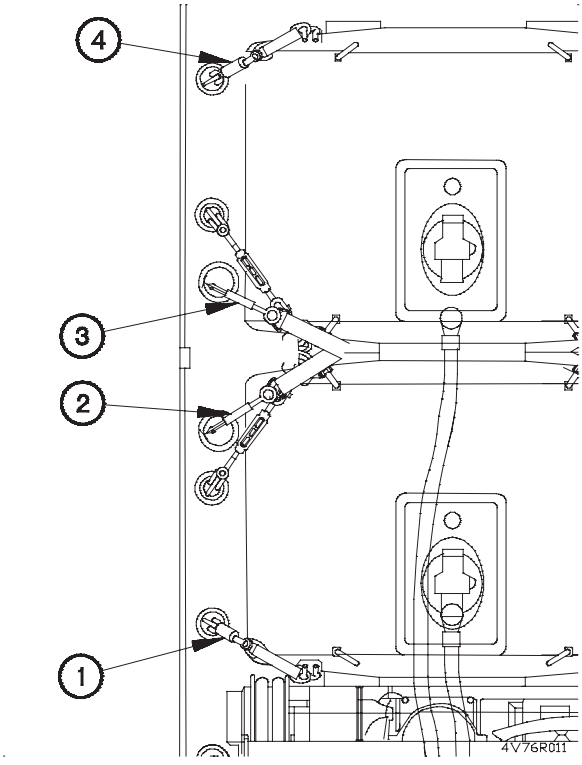
20-76. M1085 TANK AND PUMP UNIT TIEDOWN KIT INSTALLATION/REMOVAL (CONT)



(62) Tighten two turnbuckles (71, 81, 91, and 101) 1 1/2 additional turns.

(63) Raise ladder (TM 9-2320-366-10-1).

b. Removal.



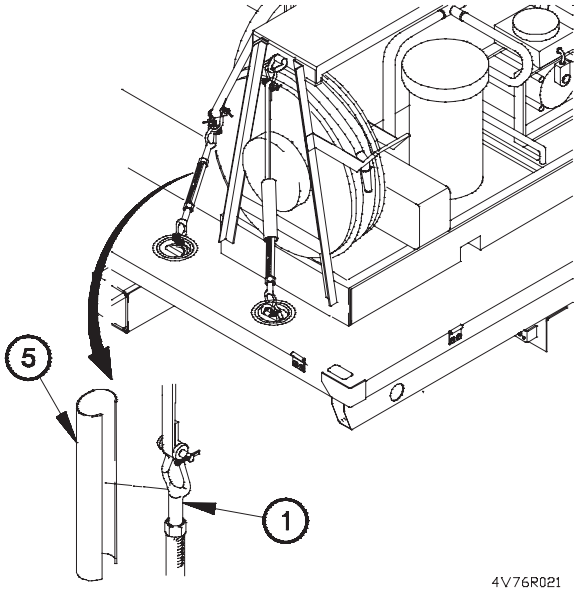
(1) Lower ladder (TM 9-2320-366-10-1).

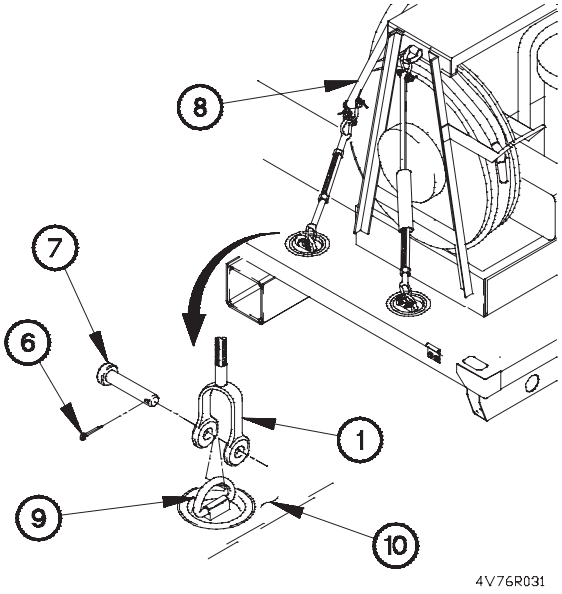
(2) Loosen two turnbuckles (1, 2, 3, and 4).

NOTE

Left and right rear straps are removed the same way. Left rear strap shown.

(3) Remove sleeve (5) from turnbuckle (1).

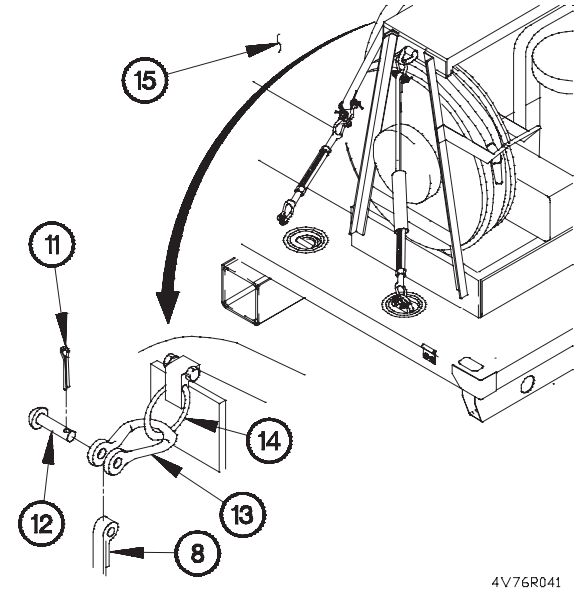




(4) Remove cotter pin (6), pin (7), turnbuckle (1), and rear strap (8) from second tiedown ring (9) from rear of cargo bed (10). Discard cotter pin.

(5) Remove cotter pin (11), pin (12), shackle (13), and rear strap (8) from upper tiedown ring (14) on tank (15). Discard cotter pin.

(6) Perform steps (3) through (5) on right rear strap.

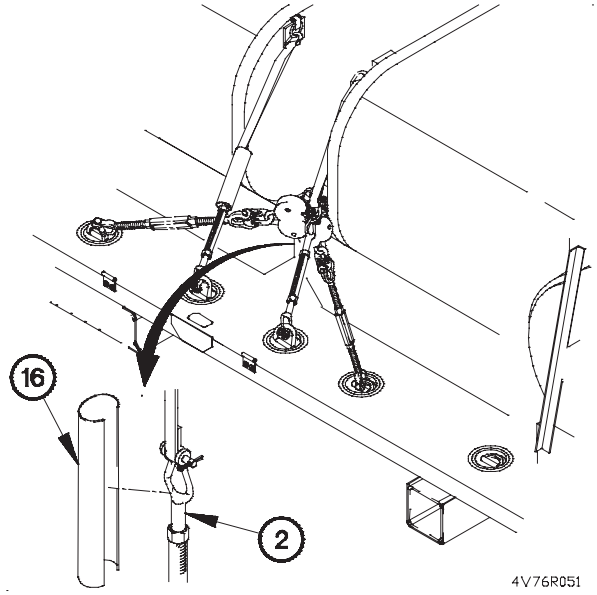


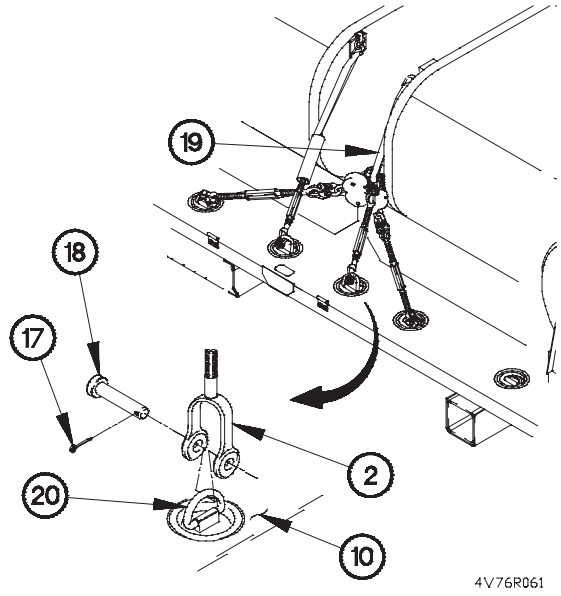
20-76. M1085 TANK AND PUMP UNIT TIEDOWN KIT INSTALLATION/REMOVAL (CONT)

NOTE

Left and right middle straps are removed the same way. Left middle straps shown.

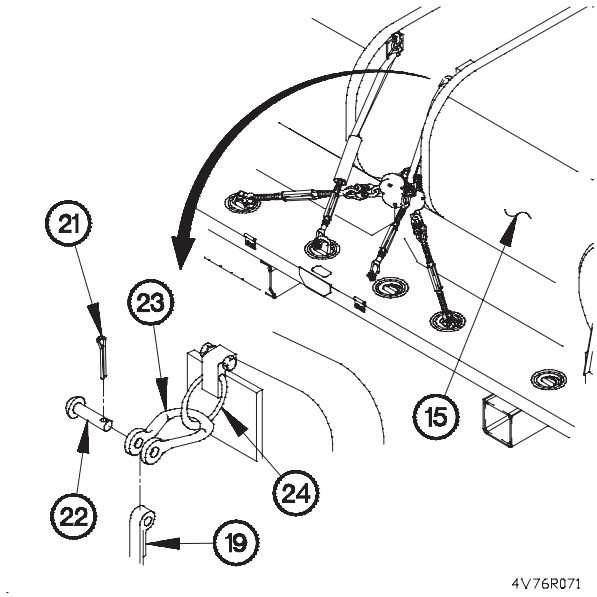
(7) Remove sleeve (16) from turnbuckle (2).



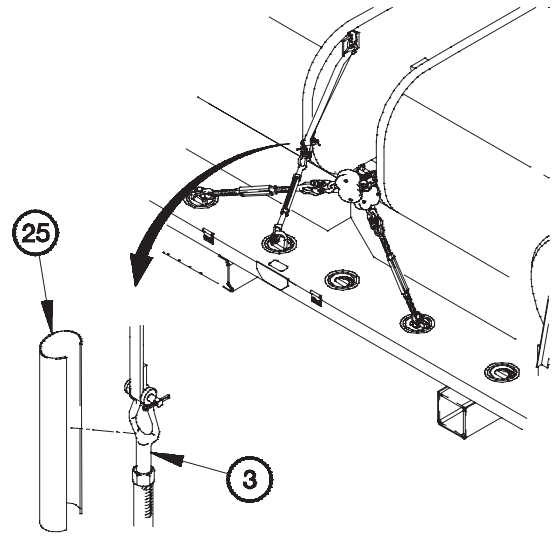


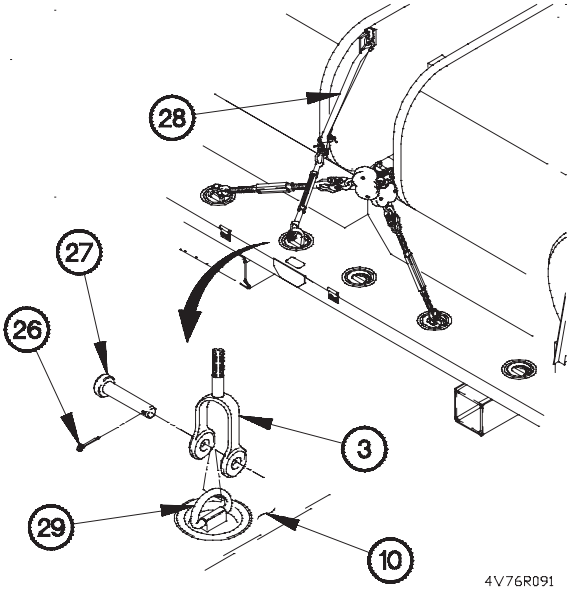
(8) Remove cotter pin (17), pin (18), turnbuckle (2), and middle strap (19) from fourth tiedown ring (20) from rear of cargo bed (10). Discard cotter pin.

(9) Remove cotter pin (21), pin (22), shackle (23), and middle strap (19) from upper tiedown ring (24) on tank (15). Discard cotter pin.



(10) Remove sleeve (25) from turnbuckle (3).

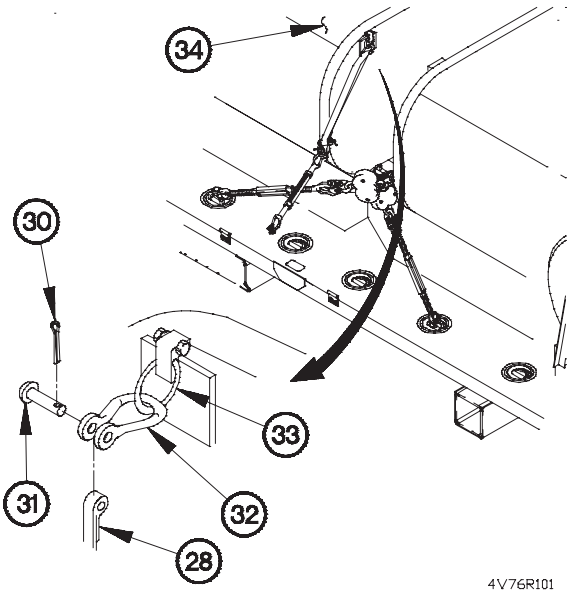




(11) Remove cotter pin (26), pin (27), turnbuckle (3), and middle strap (28) from fifth tiedown ring (29) from front of cargo bed (10). Discard cotter pin.

(12) Remove cotter pin (30), pin (31), shackle (32), and middle strap (28) from upper tiedown ring (33) on tank (34). Discard cotter pin.

(13) Perform steps (7) through (12) on right middle straps.

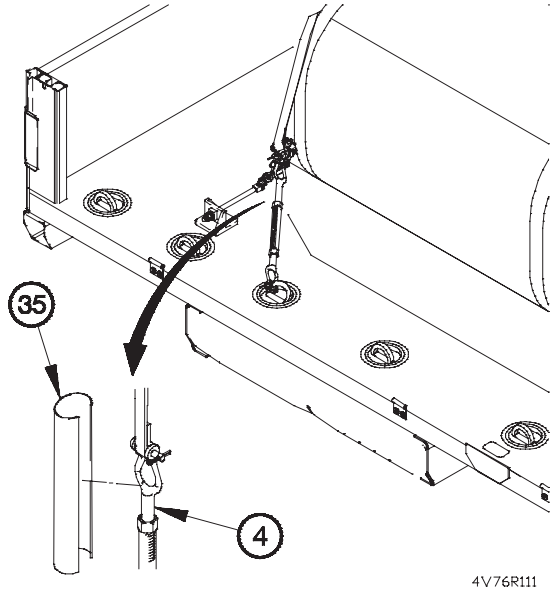


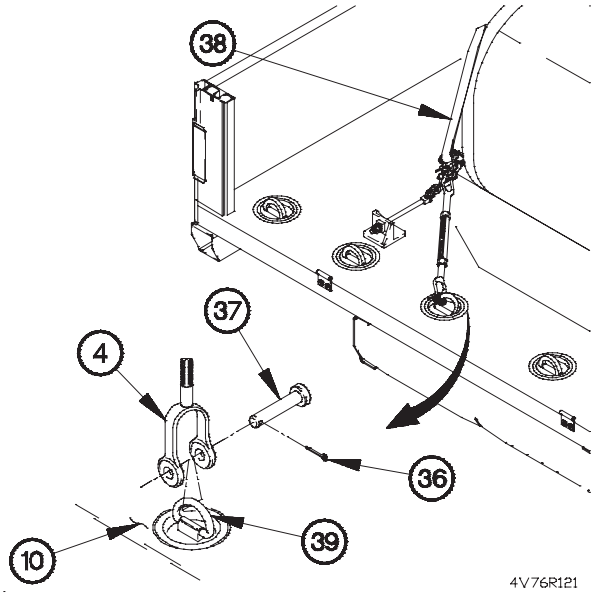
20-76. M1085 TANK AND PUMP UNIT TIEDOWN KIT INSTALLATION/REMOVAL (CONT)

NOTE

Left and right front straps are removed the same way. Left front strap shown.

(14) Remove sleeve (35) from turnbuckle (4).

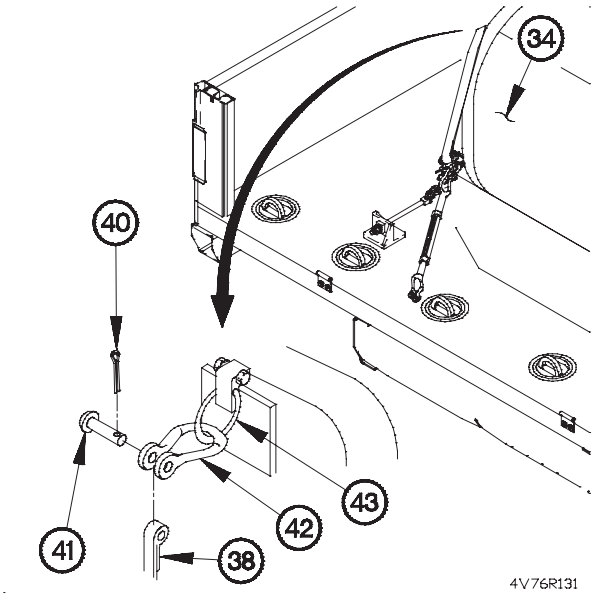




(15) Remove cotter pin (36), pin (37), turnbuckle (4), and front strap (38) from third tiedown ring (39) from front of cargo bed (10). Discard cotter pin.

(16) Remove cotter pin (40), pin (41), shackle (42), and front strap (38) from upper tiedown ring (43) on tank (34). Discard cotter pin.

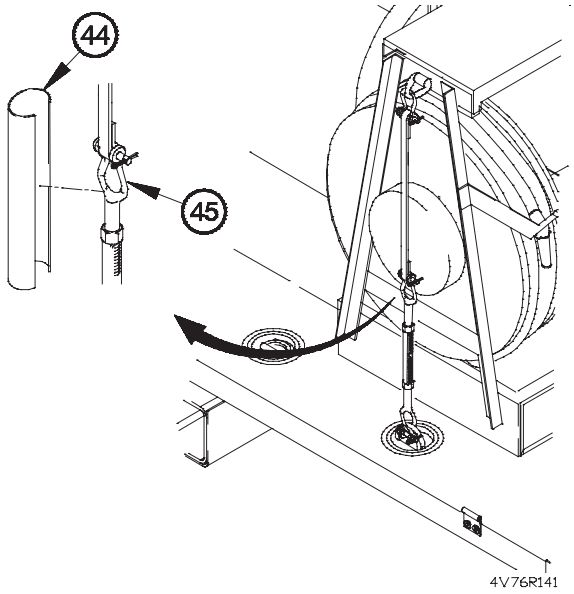
(17) Perform steps (14) through (16) on right front strap.

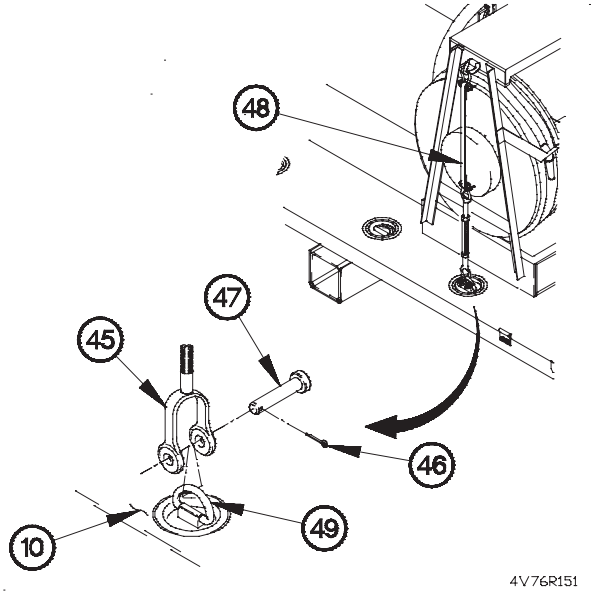


NOTE

Left and right pump straps are removed the same way. Left pump strap shown.

(18) Remove sleeve (44) from turnbuckle (45).

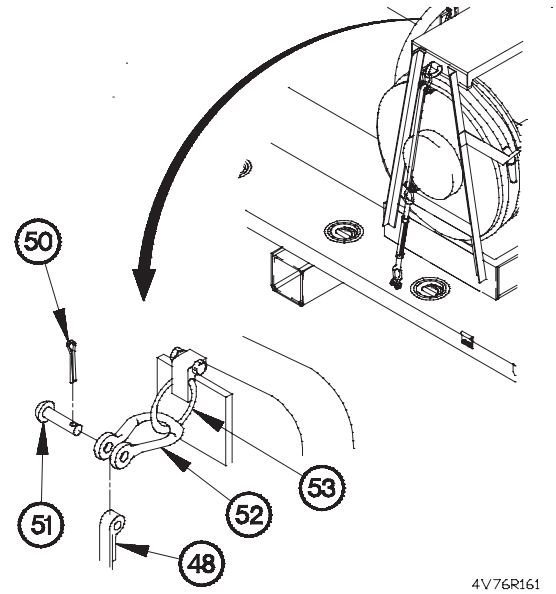




(19) Remove cotter pin (46), pin (47), turnbuckle (45), and pump strap (48) from first tiedown ring (49) from rear of cargo bed (10). Discard cotter pin.

(20) Remove cotter pin (50), pin (51), shackle (52), and pump strap (48) from pump tiedown ring (53). Discard cotter pin.

(21) Perform steps (18) through (20) on right pump strap.



20-76. M1085 TANK AND PUMP UNIT TIEDOWN KIT INSTALLATION/REMOVAL (CONT)

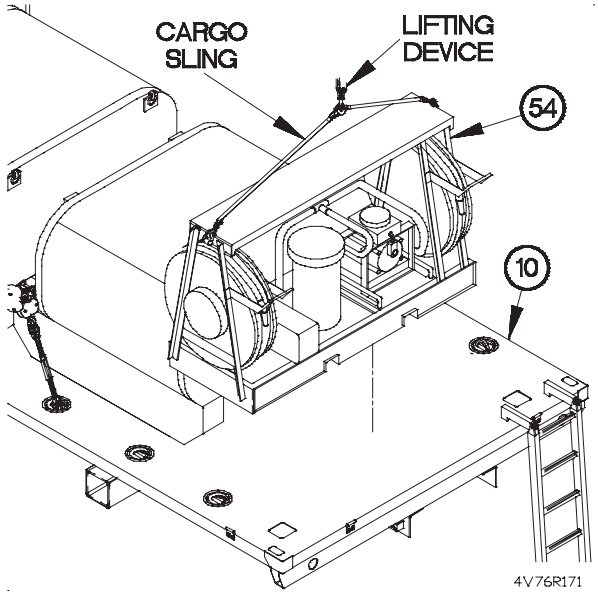
WARNING

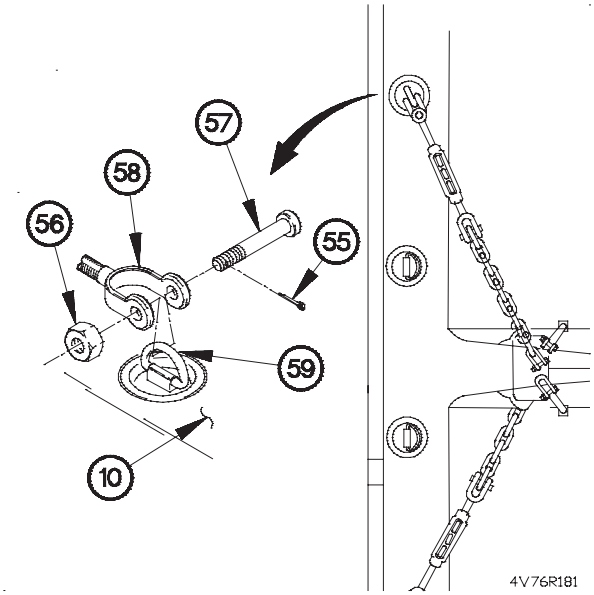
Pump unit weighs approximately 870 lbs (395 kgs). Attach a suitable lifting device prior to removal. Failure to comply may result in serious injury or death to personnel or damage to equipment.

NOTE

Step (22) requires the aid of an assistant.

(22) Remove pump unit (54) from cargo bed (10).

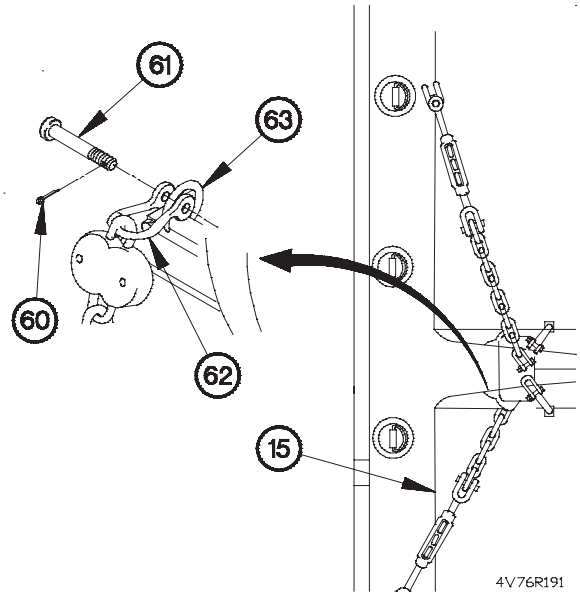




NOTE

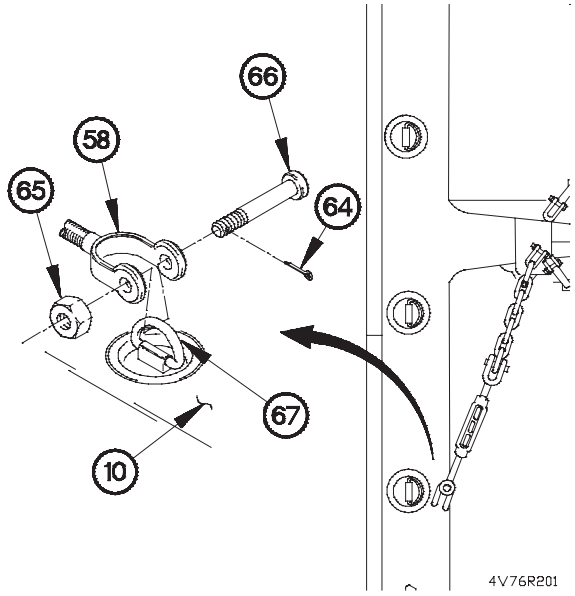
Left and right middle chains are removed the same way. Left middle chains shown.

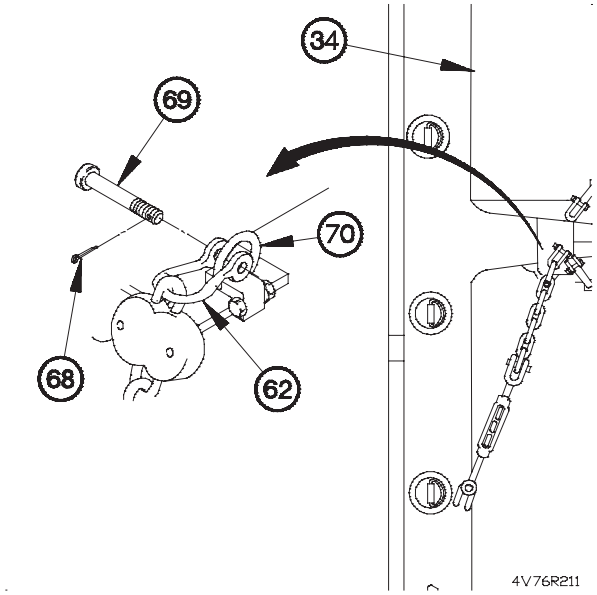
(23) Remove cotter pin (55), nut (56), pin (57), and turnbuckle (58) from fourth tiedown ring (59) from front of cargo bed (10). Discard cotter pin.



(24) Remove cotter pin (60), pin (61), and shackle (62), from tiedown ring (63) on tank (15). Discard cotter pin.

(25) Remove cotter pin (64), nut (65), pin (66), and turnbuckles (58) from third tiedown ring (67) from rear of cargo bed (10). Discard cotter pin.





(26) Remove cotter pin (68), pin (69), and shackle (62), from lower tiedown ring (70) on tank (34). Discard cotter pin.

(27) Perform steps (23) through (26) on right middle chains.

NOTE

Four adjustable safety hooks are removed the same way. One adjustable safety hook shown.

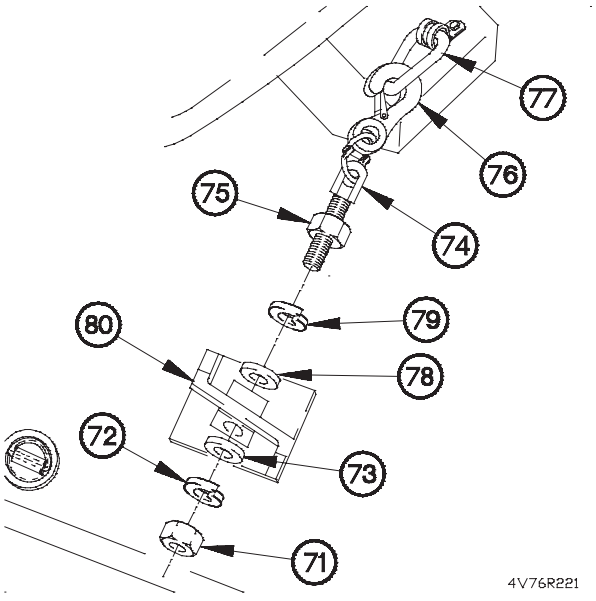
(28) Remove nut (71), lockwasher (72), and washer (73) from threaded rod (74). Discard lockwasher.

(29) Loosen nut (75) on threaded rod (74).

(30) Remove safety hook (76) from lower tiedown ring (77).

(31) Remove threaded rod (74), washer (78), lockwasher (79), and nut (75) from tiedown post (80). Discard lockwashers.

(32) Perform steps (28) through (31) on remaining adjustable safety hooks.



20-76. M1085 TANK AND PUMP UNIT TIEDOWN KIT INSTALLATION/REMOVAL (CONT)

(33) Disconnect hose (81) from tank (15).

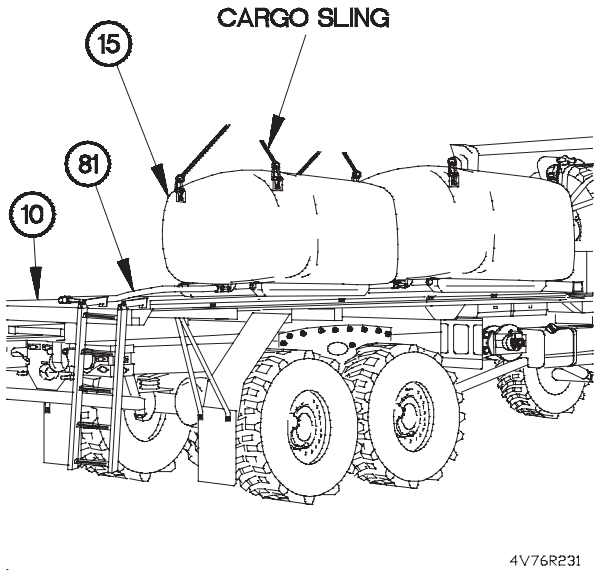
WARNING

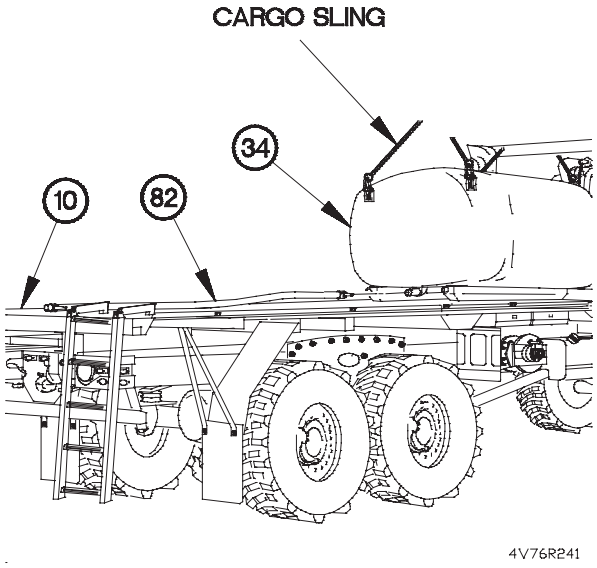
Tank weighs approximately 500 lbs (227 kgs) empty or 4000 lbs (1816 kgs) full. Attach a suitable lifting device prior to removal. Failure to comply may result in serious injury or death to personnel or damage to equipment.

NOTE

Step (34) requires the aid of an assistant.

(34) Remove tank (15) from cargo bed (10).



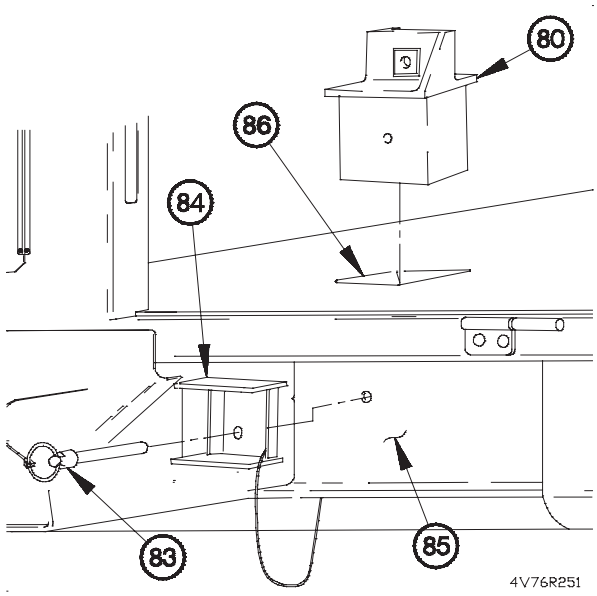


(35) Disconnect hose (82) from tank (34).

NOTE

Step (36) requires the aid of an assistant.

(36) Remove tank (34) from cargo bed (10).



(37) Remove four quick release pins (83) and plugs (84) from frame (85).

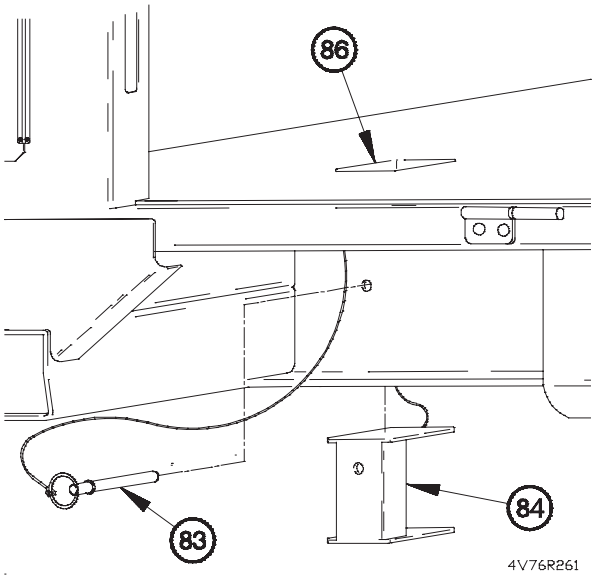
(38) Remove four tiedown posts (80) from crane pockets (86).

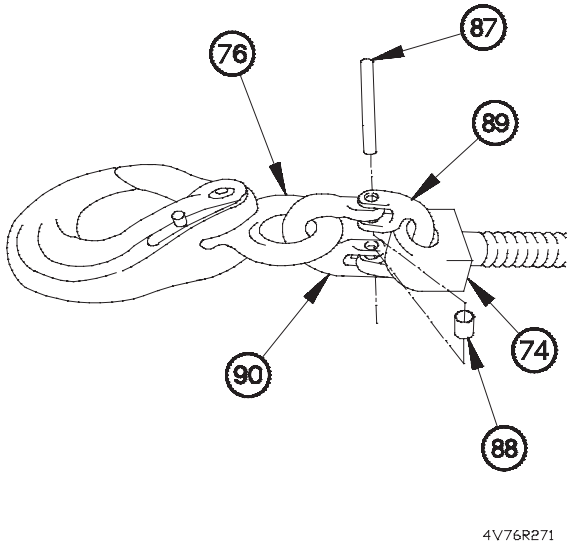
(39) Raise ladder (TM 9-2320-366-10-1).

CAUTION

Ensure quick release pins are installed through both sides of crane pockets. Failure to comply may result in damage to equipment.

(40) Install four plugs (84) in crane pockets (86) with quick release pins (83).





NOTE

Four adjustable safety hooks are disassembled the same way. One adjustable safety hook shown.

(41) Remove pin (87), spring collar (88), and clamp half (89) from clamp half (90).

(42) Remove clamp half (89) from thread rod (74).

(43) Remove clamp half (90) from safety hook (76).

(44) Perform steps (41) through (43) on remaining adjustable safety hooks.

20-76. M1085 TANK AND PUMP UNIT TIEDOWN KIT INSTALLATION/REMOVAL (CONT)

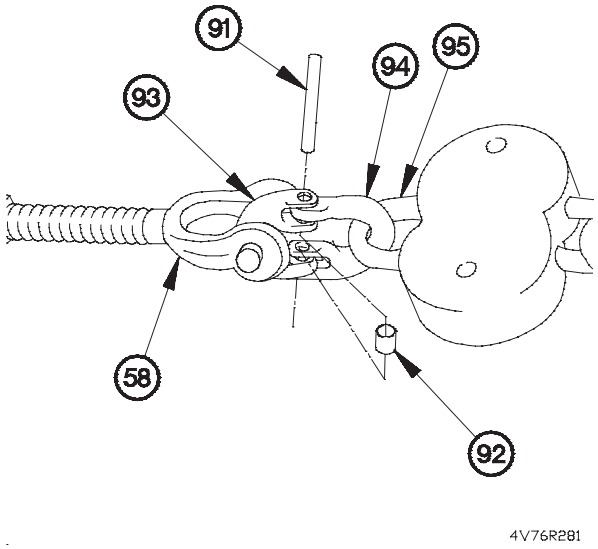
NOTE

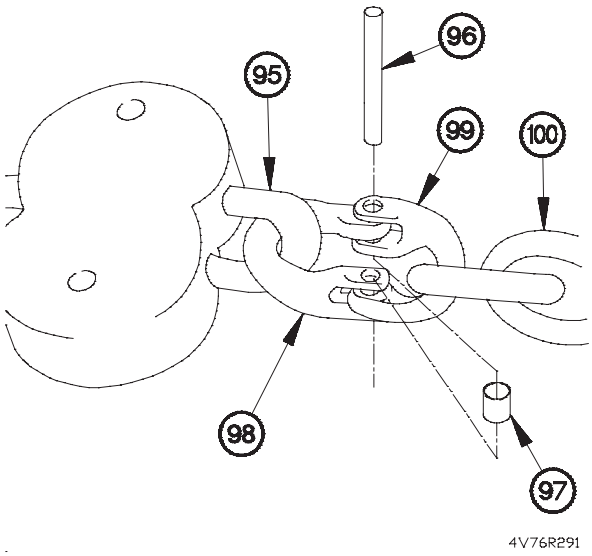
Four middle chains are disassembled the same way. One middle chain shown.

(45) Remove pin (91), spring collar (92), and clamp half (93) from clamp half (94).

(46) Remove clamp half (93) from turnbuckle (58).

(47) Remove clamp half (94) from shock mount (95).





(48) Remove pin (96), spring collar (97), and clamp half (98) from clamp half (99).

(49) Remove clamp half (98) from shock mount (95).

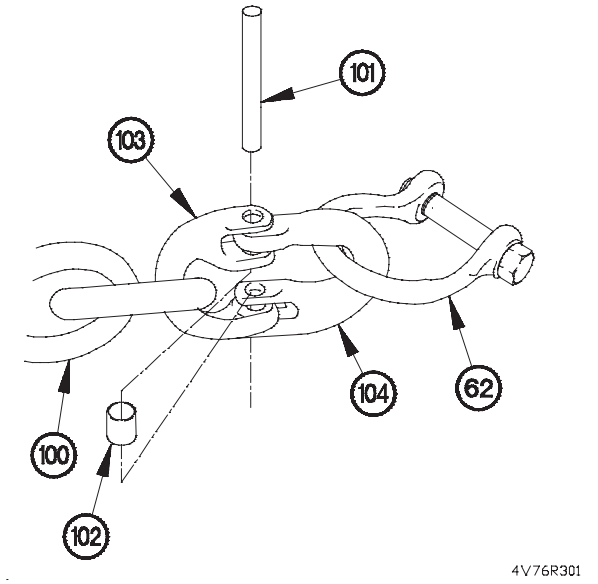
(50) Remove clamp half (99) from chain (100).

(51) Remove pin (101), spring collar (102), and clamp half (103) from clamp half (104).

(52) Remove clamp half (103) from chain (100).

(53) Remove clamp half (104) from shackle (62).

(54) Perform steps (45) through (53) on remaining middle chains.



c. Follow-On Maintenance.

Install cargo bed side panels and stakes (TM 9-2320-366-10-1).

End of Task.

20-77. M1083/M1093 TANK AND PUMP UNIT TIEDOWN KIT INSTALLATION/REMOVAL

This task covers:

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

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-366-10-1).
Cargo bed side panels and stakes removed (TM 9-2320-366-10-1).

Tools and Special Tools
Sling, Cargo (Item 31, Appendix C)
Tool Kit, Genl Mech (Item 46, Appendix C)
Wrench, Torque 0-175 lb-ft (Item 58, Appendix C)

Materials/Parts
Pin, Cotter (20) (Item 277, Appendix G)
Lockwasher (4) (Item 90.1, Appendix G)

Personnel Required
(2)

WARNING

Ensure vehicle is on level ground prior to installation or removal of tank and pump unit. Failure to comply may result in serious injury or death to personnel or damage to equipment.

a. Installation.

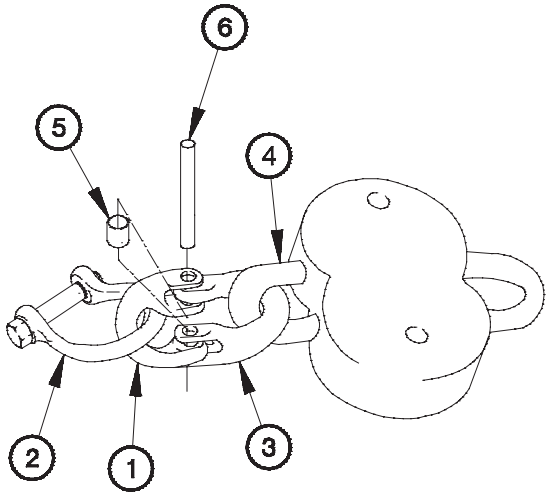
NOTE

Four middle turnbuckles are assembled the same way. One middle turnbuckle shown.

(1) Position clamp half (1) in shackle (2).

(2) Position clamp half (3) in shock mount (4).

(3) Install clamp half (1) in clamp half (3) with spring collar (5) and pin (6).



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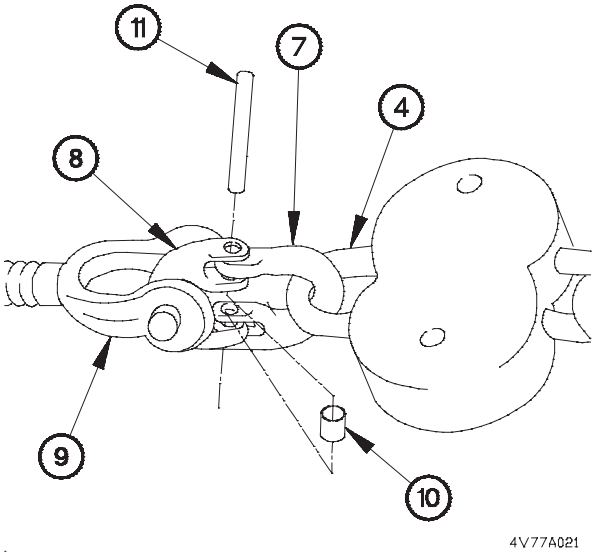
20-77. M1083/M1093 TANK AND PUMP UNIT TIEDOWN KIT INSTALLATION/REMOVAL (CONT)

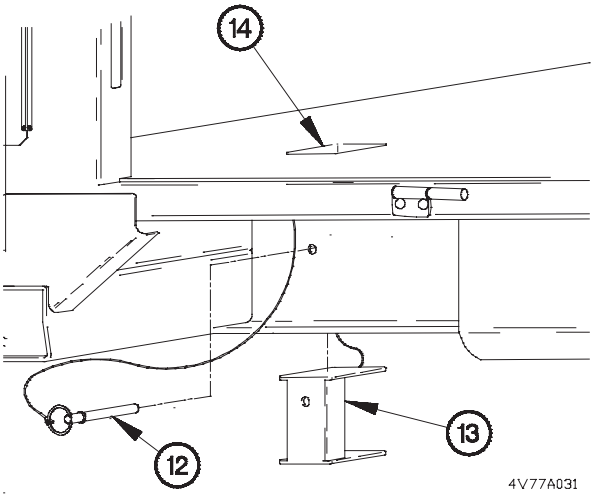
(4) Position clamp half (7) in shock mount (4).

(5) Position clamp half (8) in turnbuckle (9).

(6) Install clamp half (7) in clamp half (8) with spring collar (10) and pin (11).

(7) Perform steps (1) through (6) on remaining middle turnbuckles.





WARNING

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

(8) Remove four quick release pins (12) and plugs (13) from crane pockets (14).

(9) Lower ladder (TM 9-2320-366-10-1).

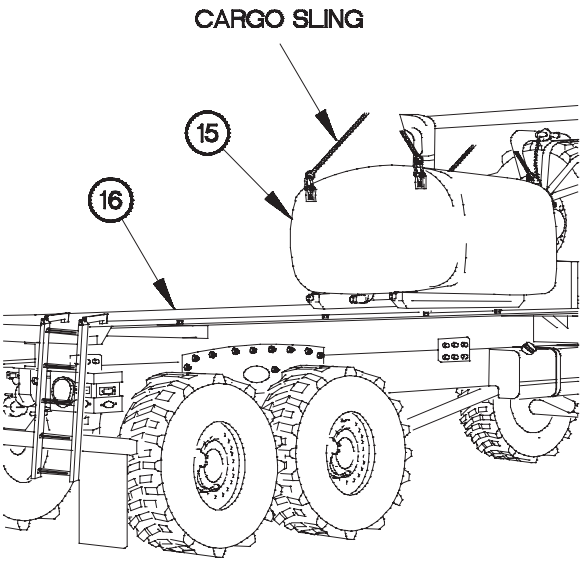
WARNING

Tank weighs approximately 500 lbs (227 kgs). Tank must be installed 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.

NOTE

- Holes in skids of tanks face toward front of vehicle.
- Center tanks between left and right sides of cargo bed and as far forward as possible.
- Step (10) requires the aid of an assistant.

(10) Position tank (15) on cargo bed (16).



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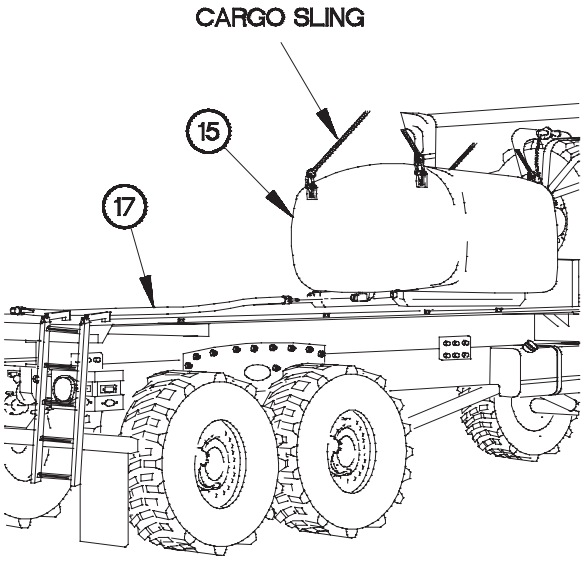

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NOTE

Route hose toward rear center of vehicle.

(11) Connect hose (17) to tank (15).

20-77. M1083/M1093 TANK AND PUMP UNIT TIEDOWN KIT INSTALLATION/REMOVAL (CONT)

WARNING

Tank weighs approximately 500 lbs (227 kgs). Tank must be installed 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.

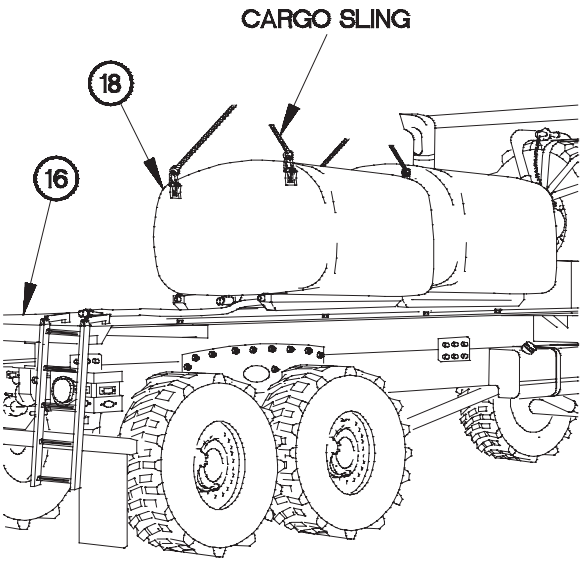
CAUTION

Use care when positioning tank on cargo bed so that hose is not pinched or crushed. Failure to comply may result in damage to equipment.

NOTE

Step (12) requires the aid of an assistant.

(12) Position tank (18) on cargo bed (16).



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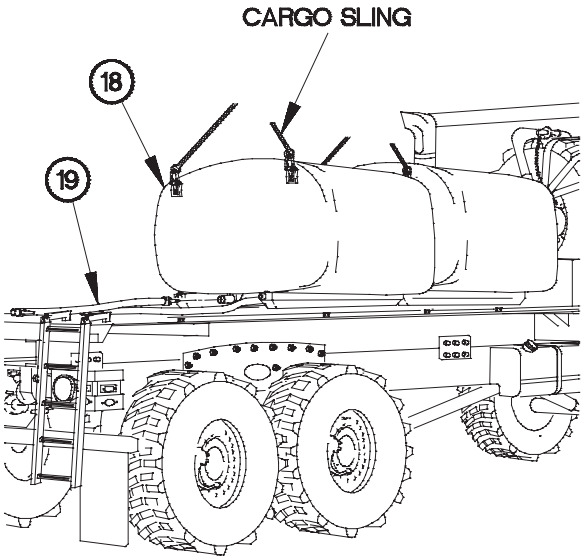

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(13) Connect hose (19) to tank (18).

WARNING

Pump unit weighs approximately 870 lbs (395 kgs). Attach a suitable lifting device prior to installation. Failure to comply may result in serious injury or death to personnel or damage to equipment.

CAUTION

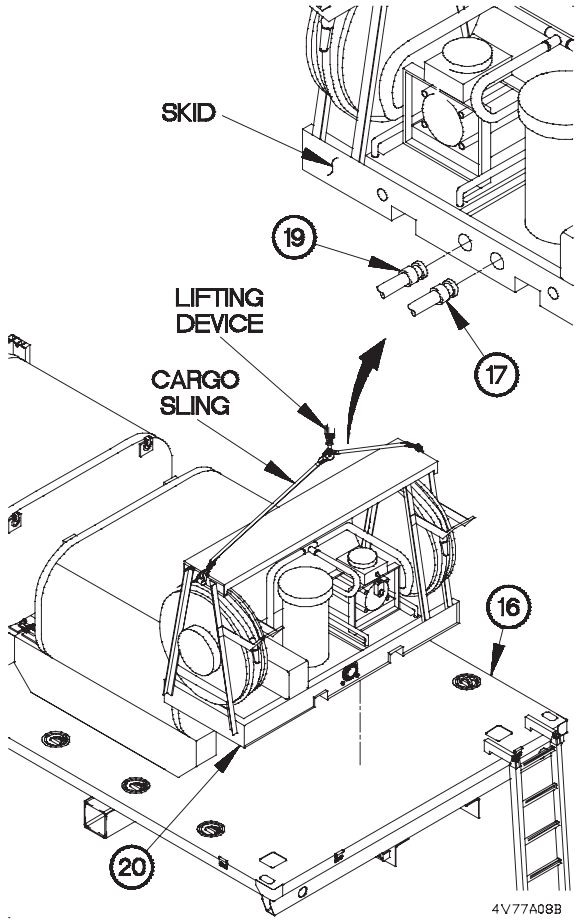
Use care when positioning pump unit on cargo bed so hoses are not pinched or crushed. Failure to comply may result in damage to equipment.

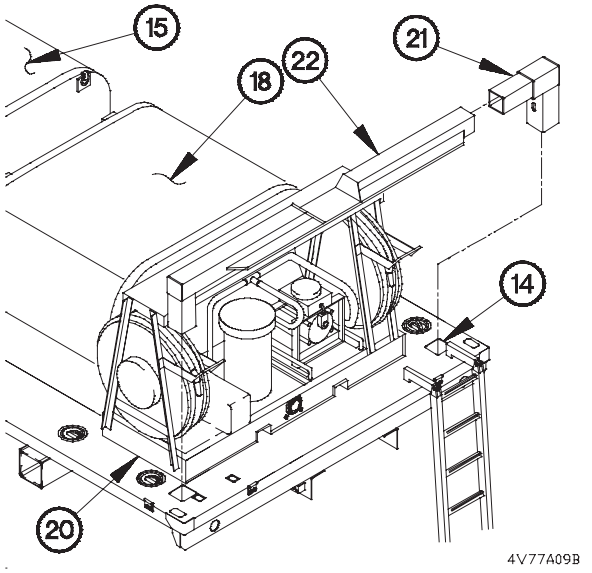
NOTE

- Holes in skid of pump unit face toward front of vehicle.
- Steps (14) and (15) require the aid of an assistant.

(14) Position pump unit (20) on cargo bed (16).

(15) Route hoses (17 and 19) through holes in skid.





(16) Install bar post (21) in rear bar (22).

(17) Install bar post (21) and rear bar (22) in two crane pockets (14).

(18) Position pump unit (20) against rear bar (22).

(19) Connect tank (18) to pump unit (20) with two inserts and holes in skids.

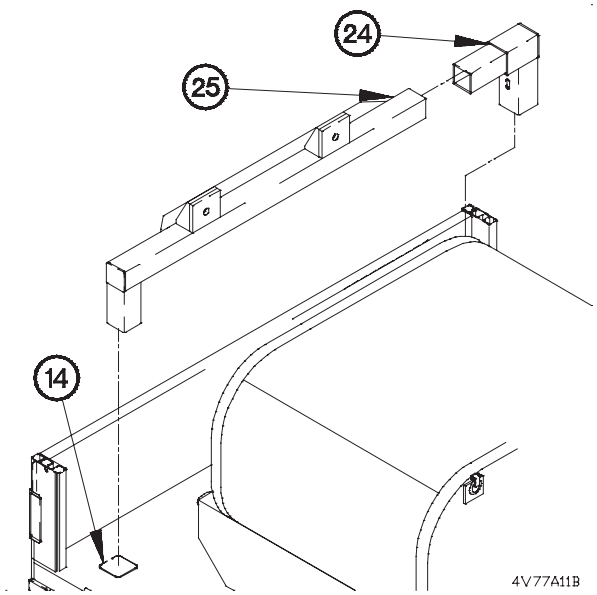
(20) Connect tank (15) to tank (18) with two inserts and holes in skids.

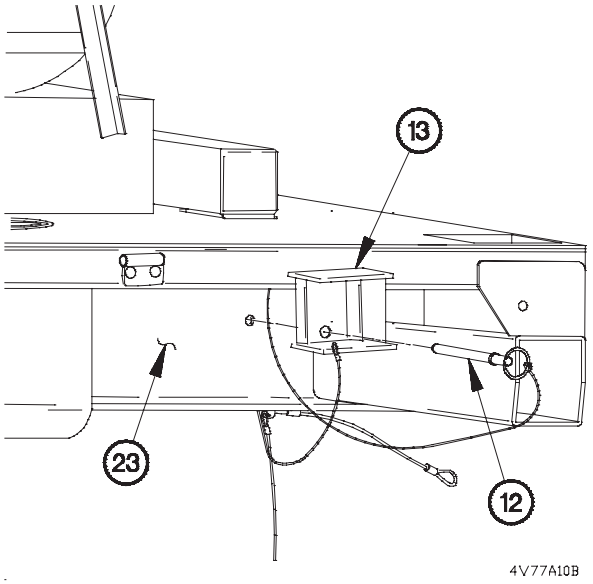
20-77. M1083/M1093 TANK AND PUMP UNIT TIEDOWN KIT INSTALLATION/REMOVAL (CONT)

CAUTION

Ensure quick release pins are installed through both sides of crane pockets. Failure to comply may result in damage to equipment.

(21) Install two plugs (13) on frame (23) with two quick release pins (12).





NOTE

Front bar brackets face toward rear of cargo bed.

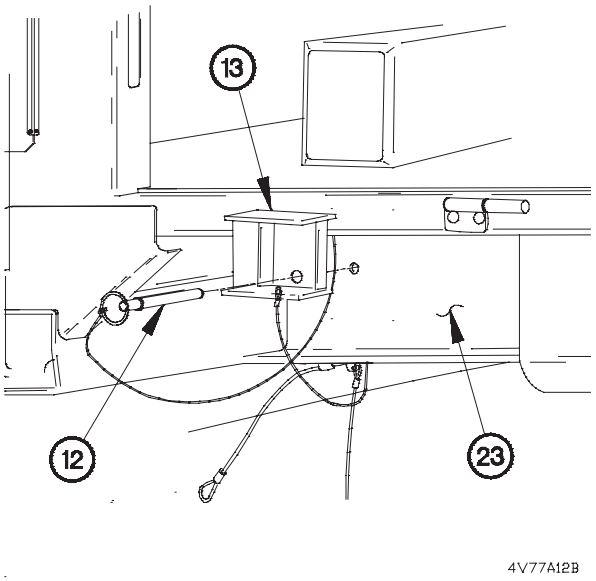
(22) Install bar post (24) in front bar (25).

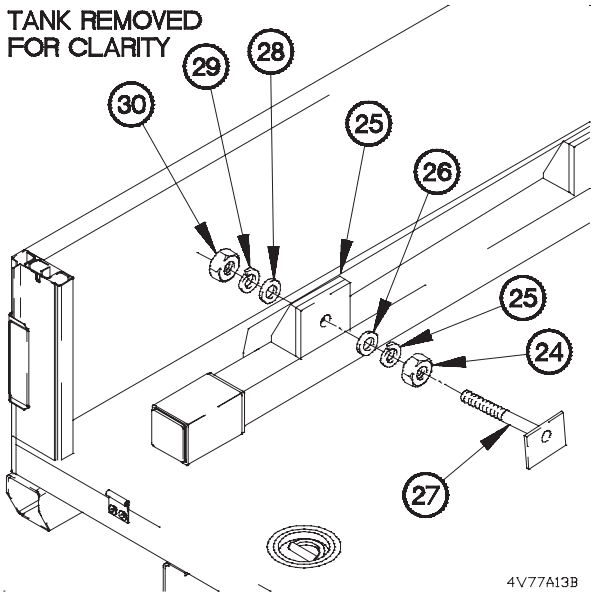
(23) Install bar post (24) and front bar (25) in two crane pockets (14).

CAUTION

Ensure quick release pins are installed through both sides of crane pockets. Failure to comply may result in damage to equipment.

(24) Install two plugs (13) on frame (23) with two quick release pins (12).





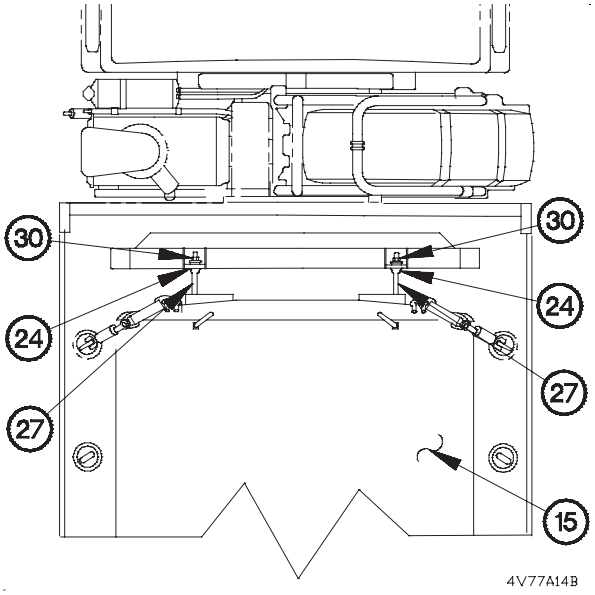
NOTE

Left and right front jack posts are installed the same way. Left front jack post shown.

(25) Position nut (24), lockwasher (25), and washer (26) on jack post (27).

(26) Position jack post (27) on front bar (25) with washer (28), lockwasher (29), and nut (30).

(27) Perform steps (25) and (26) on right front jack post.



(28) Position two jack posts (27) against tank (15).

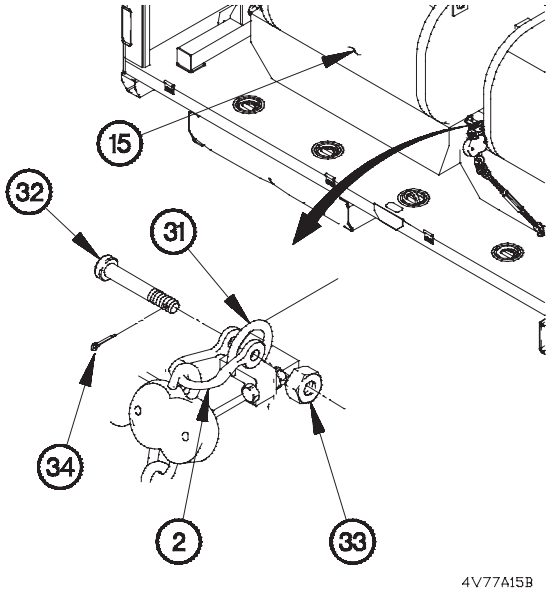
(29) Tighten two nuts (30) to 75 lb-ft (102 N·m).

(30) Tighten two nuts (24).

NOTE

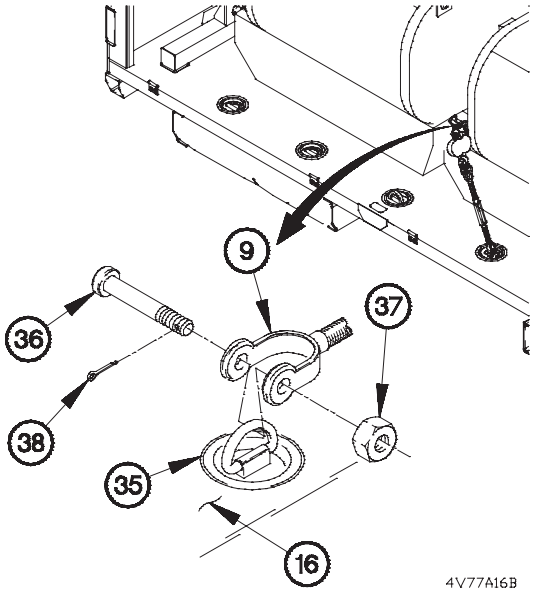
Left and right middle turnbuckles are installed the same way. Left middle turnbuckles shown.

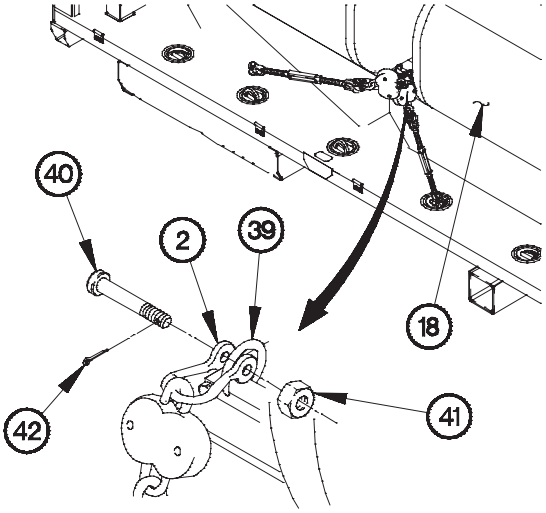
(31) Install shackle (2) on lower tiedown ring (31) on tank (15) with pin (32), nut (33), and cotter pin (34).



20-77. M1083/M1093 TANK AND PUMP UNIT TIEDOWN KIT INSTALLATION/REMOVAL (CONT)

(32) Install turnbuckle (9) on third tiedown ring (35) from rear of cargo bed (16) with pin (36), nut (37), and cotter pin (38).





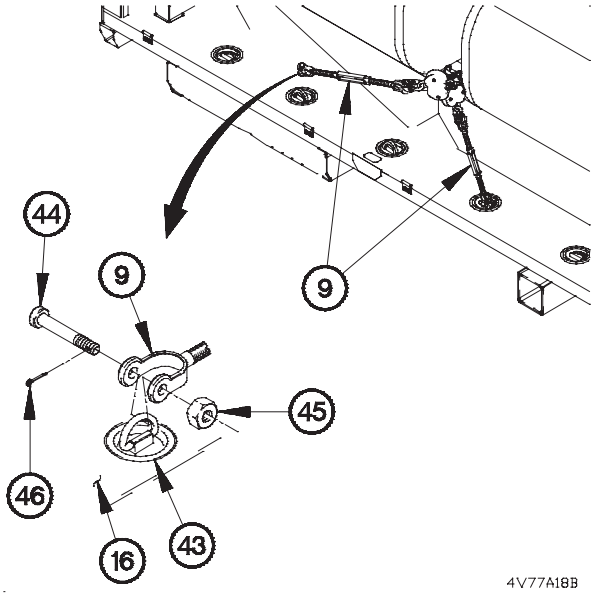
(33) Install shackle (2) on lower tiedown ring (39) on tank (18) with pin (40), nut (41), and cotter pin (42).

(34) Install turnbuckle (9) on second tiedown ring (43) from front of cargo bed (16) with pin (44), nut (45), and cotter pin (46).

(35) Perform steps (31) through (34) on right middle turnbuckles.

(36) Remove slack from four turnbuckles (9).

(37) Tighten four turnbuckles (9) 1 1/2 additional turns.

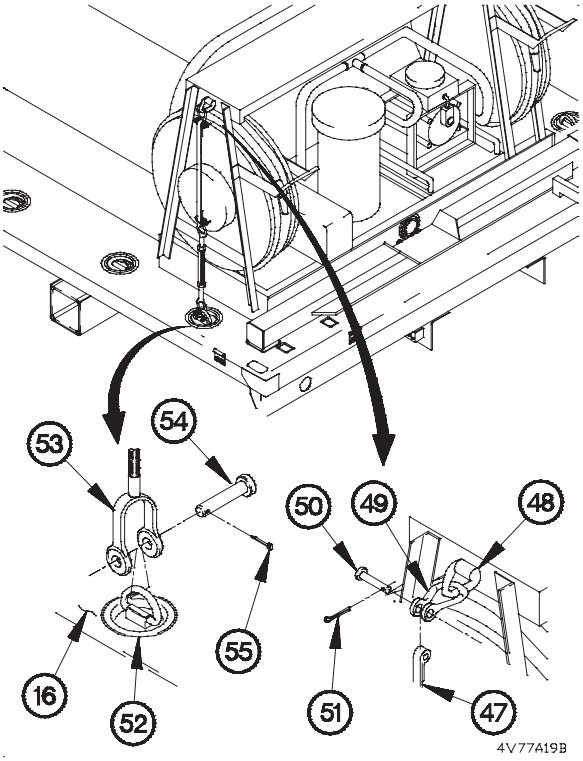


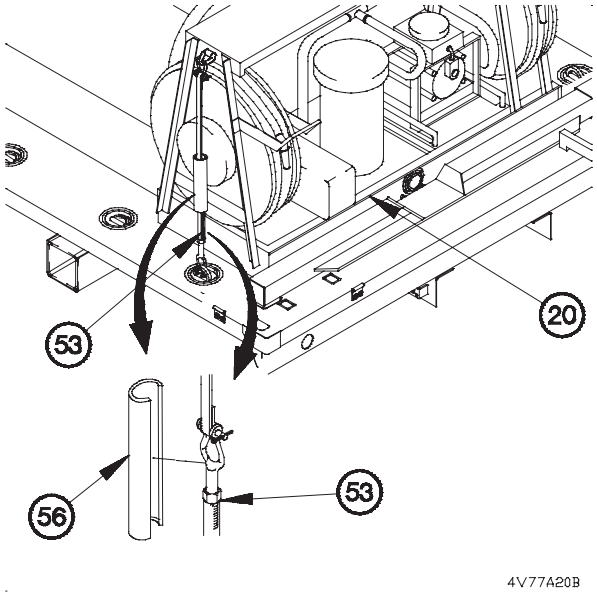
NOTE

Left and right pump straps are installed the same way. Left pump strap shown.

(38) Install pump strap (47) on pump tiedown ring (48) with shackle (49), pin (50), and cotter pin (51).

(39) Install pump strap (47) on first tiedown ring (52) from rear of cargo bed (16) with turnbuckle (53), pin (54), and cotter pin (55).





(40) Position sleeve (56) between pump unit (20) and turnbuckle (53).

(41) Perform steps (38) through (40) on right pump strap assembly.

(42) Remove slack from two turnbuckles (53).

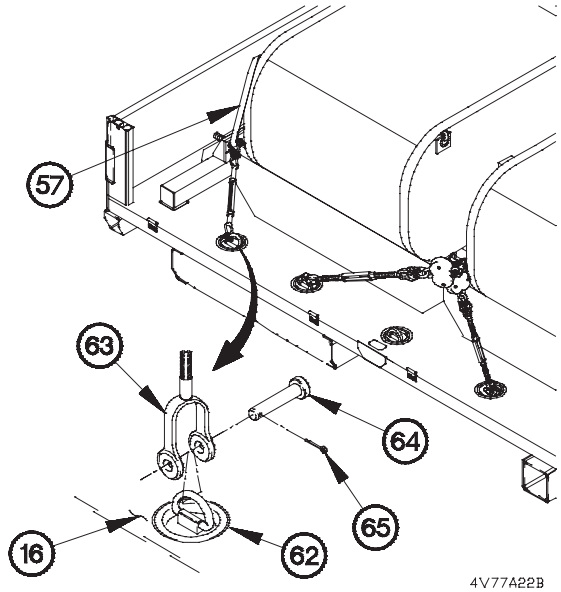
(43) Tighten two turnbuckles (53) 1 1/2 additional turns.

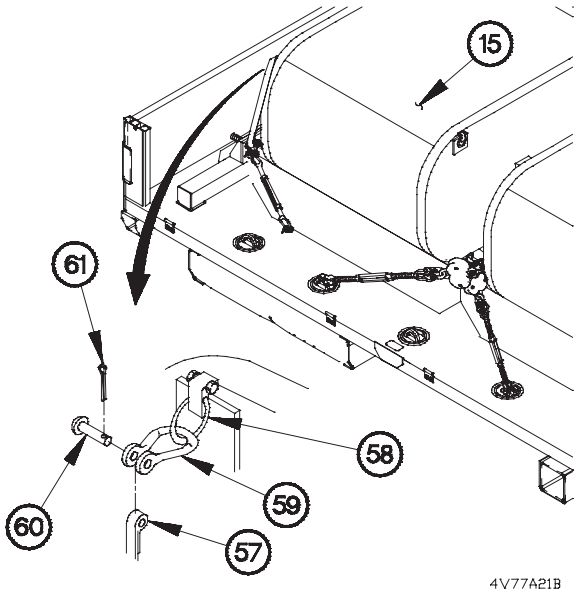
20-77. M1083/M1093 TANK AND PUMP UNIT TIEDOWN KIT INSTALLATION/REMOVAL (CONT)

NOTE

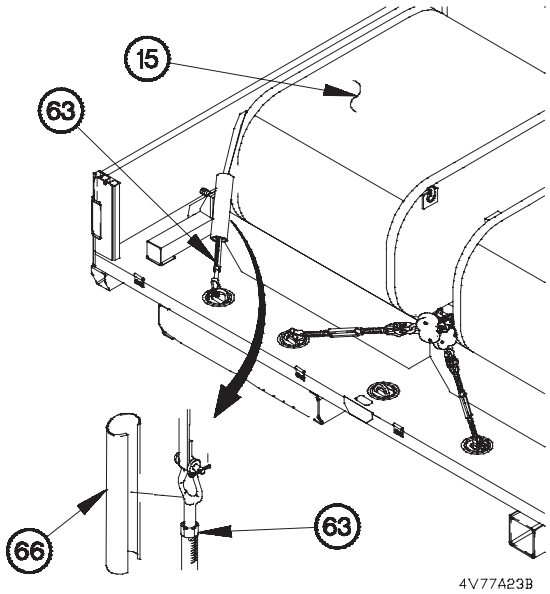
Left and right front straps are installed the same way. Left front strap shown.

(44) Install front strap (57) on upper tiedown ring (58) on tank (15) with shackle (59), pin (60), and cotter pin (61).





(45) Install front strap (57) on first tiedown ring (62) from front of cargo bed (16) with turnbuckle (63), pin (64), and cotter pin (65).



(46) Position sleeve (66) between turnbuckle (63) and tank (15).

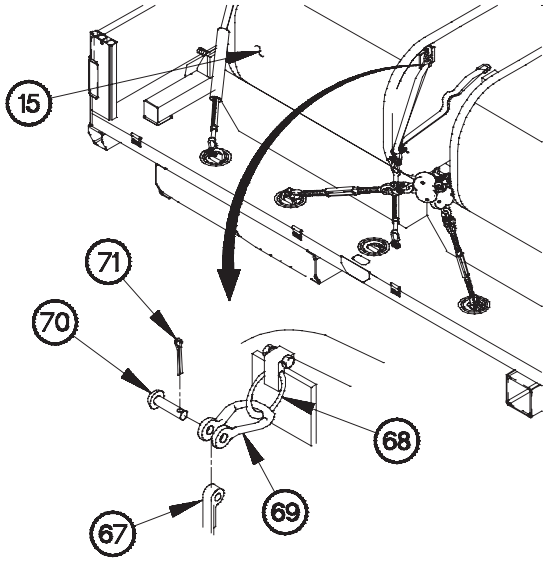
(47) Perform steps (44) through (46) on right front strap.

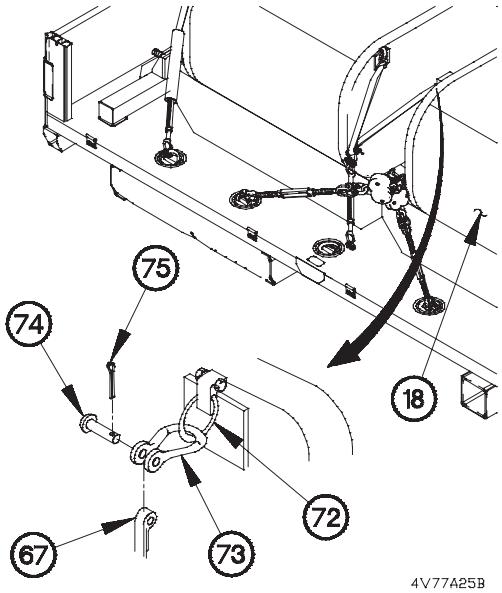
(48) Remove slack from two turnbuckles (63).

NOTE

Left and right middle straps are installed the same way. Left middle straps shown.

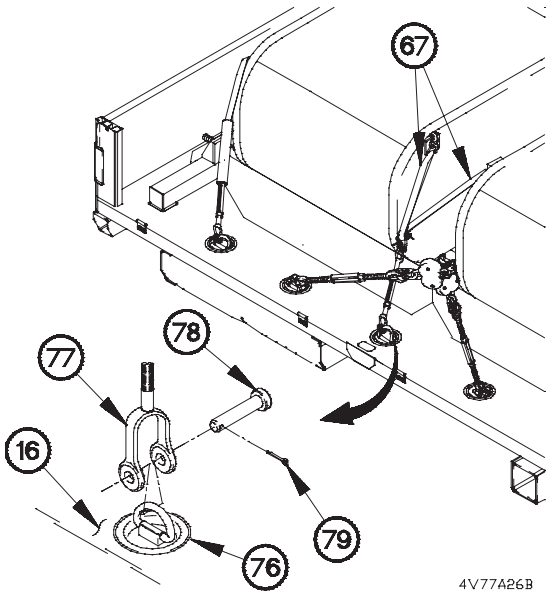
(49) Install middle strap (67) on upper tiedown ring (68) on tank (15) with shackle (69), pin (70), and cotter pin (71).





(50) Install middle strap (67) on upper tiedown ring (72) on tank (18) with shackle (73), pin (74), and cotter pin (75).

(51) Install middle strap (67) on third tiedown ring (76) from front of cargo bed (16) with turnbuckle (77), pin (78), and cotter pin (79).

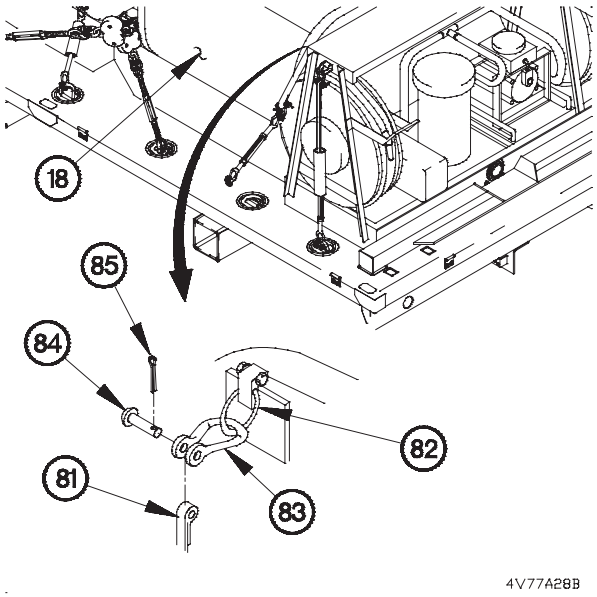


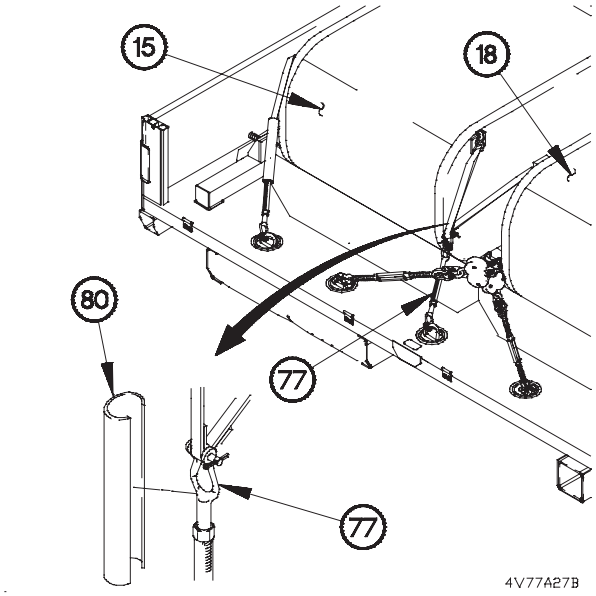
20-77. M1083/M1093 TANK AND PUMP UNIT TIEDOWN KIT INSTALLATION/REMOVAL (CONT)

(52) Position sleeve (80) between tanks (15 and 18) and on turnbuckle (77).

(53) Perform steps (49) through (52) on right middle straps.

(54) Remove slack from two turnbuckles (77).



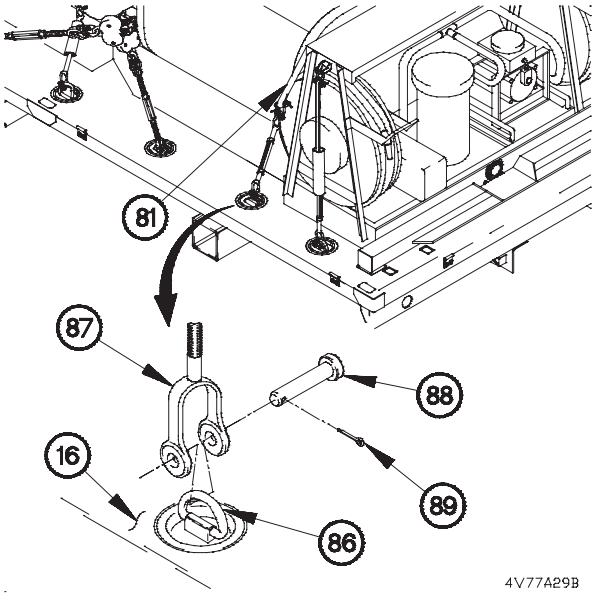


NOTE

Left and right rear straps are installed the same way. Left rear strap shown.

(55) Install rear strap (81) on upper tiedown ring (82), on tank (18) with shackle (83), pin (84), and cotter pin (85).

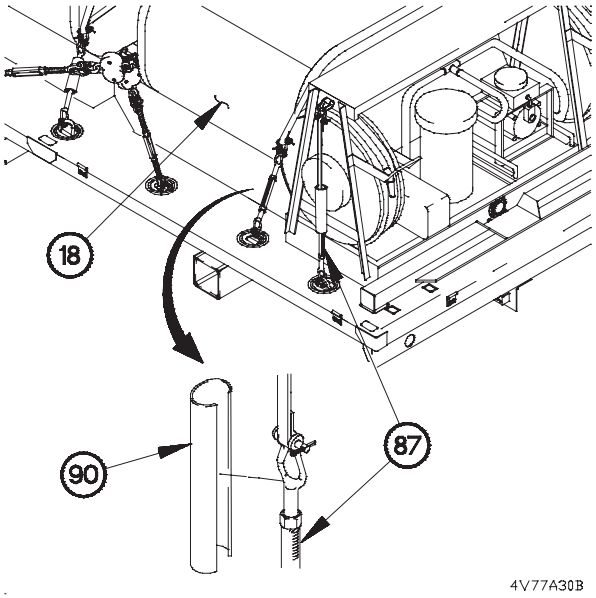
(56) Install rear strap (81) on second tiedown ring (86) from rear of cargo bed (16) with turnbuckle (87), pin (88), and cotter pin (89).

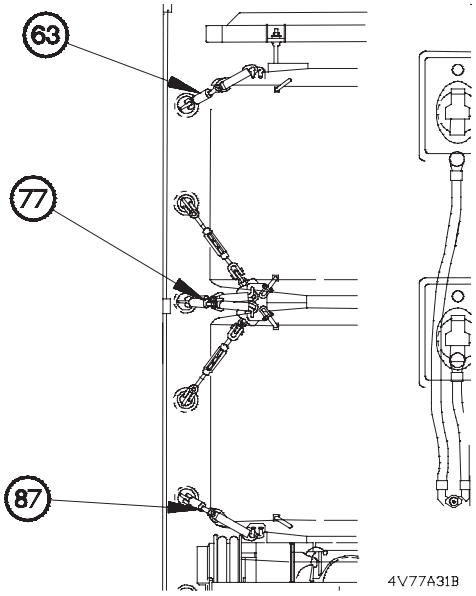


(57) Position sleeve (90) between turnbuckle (87) and tank (18).

(58) Perform steps (55) through (57) on right side rear strap.

(59) Remove slack from two turnbuckles (87).





(60) Tighten turnbuckles (63, 77, and 87) 1 1/2 additional turns.

(61) Raise ladder (TM 9-2320-366-10-1).

20-77. M1083/M1093 TANK AND PUMP UNIT TIEDOWN KIT INSTALLATION/REMOVAL (CONT)

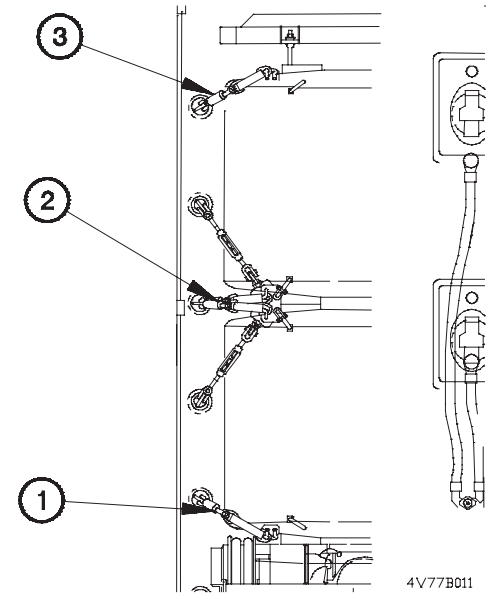
b. Removal.

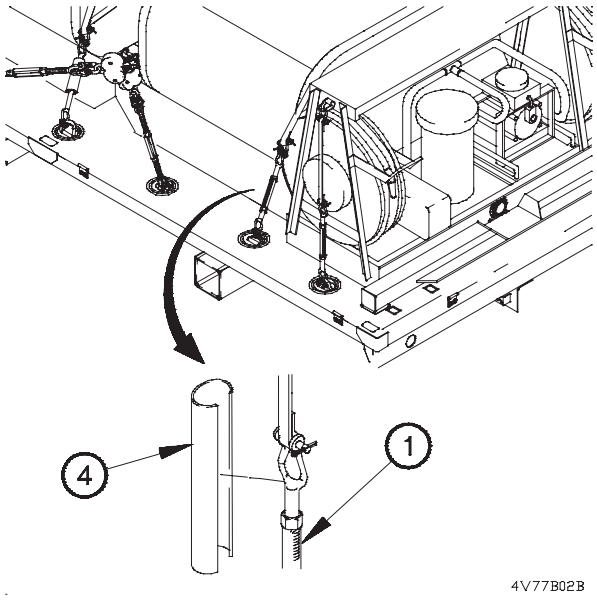
WARNING

Ensure tanks are empty prior to removal. Failure to comply may result in injury to personnel or damage to equipment.

(1) Lower ladder (TM 9-2320-366-10-1).

(2) Loosen turnbuckles (1, 2, and 3).

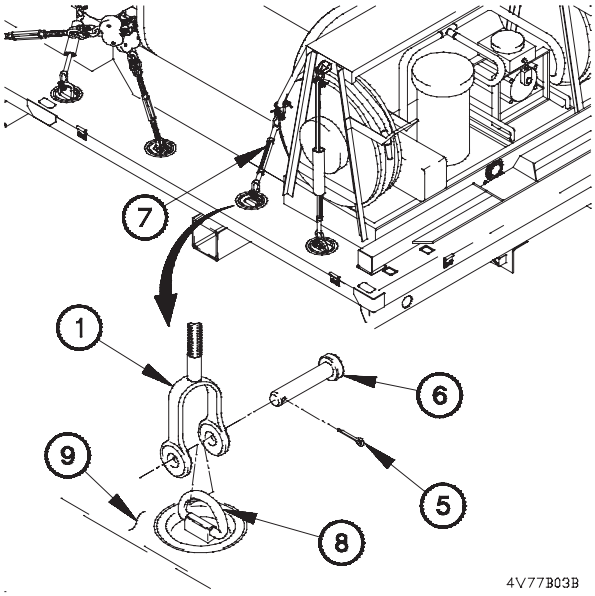




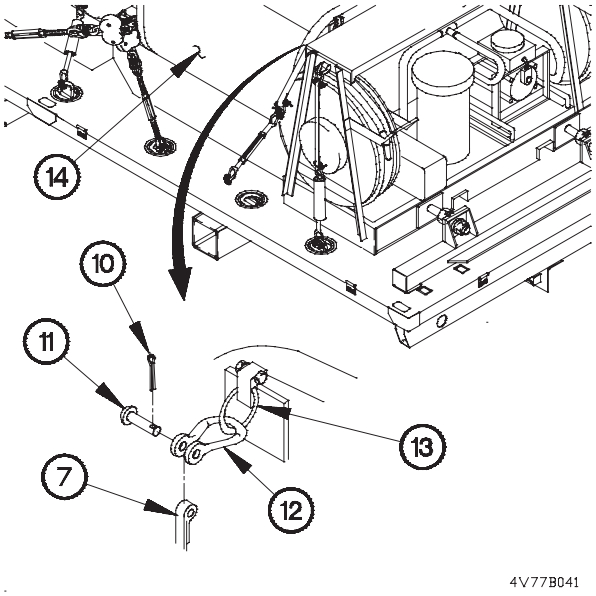
NOTE

Left and right rear straps are removed the same way. Left rear strap shown.

(3) Remove sleeve (4) from turnbuckle (1).

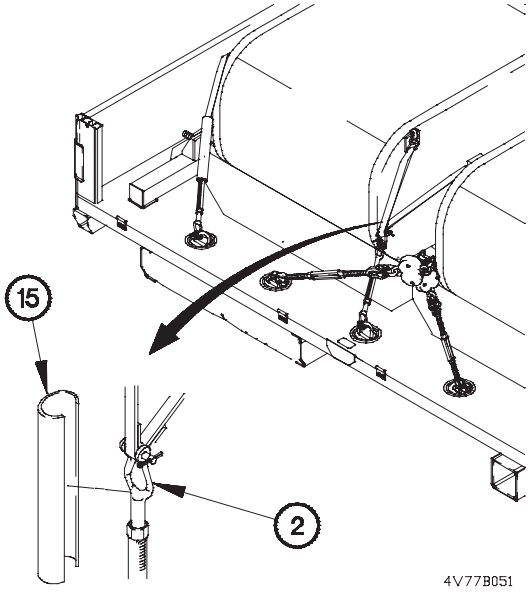


(4) Remove cotter pin (5), pin (6), turnbuckle (1), and rear strap (7) from second tiedown ring (8) from rear of cargo bed (9). Discard cotter pin.



(5) Remove cotter pin (10), pin (11), shackle (12), and rear strap (7) from upper tiedown ring (13) on tank (14). Discard cotter pin.

(6) Perform steps (3) through (5) on right rear strap.

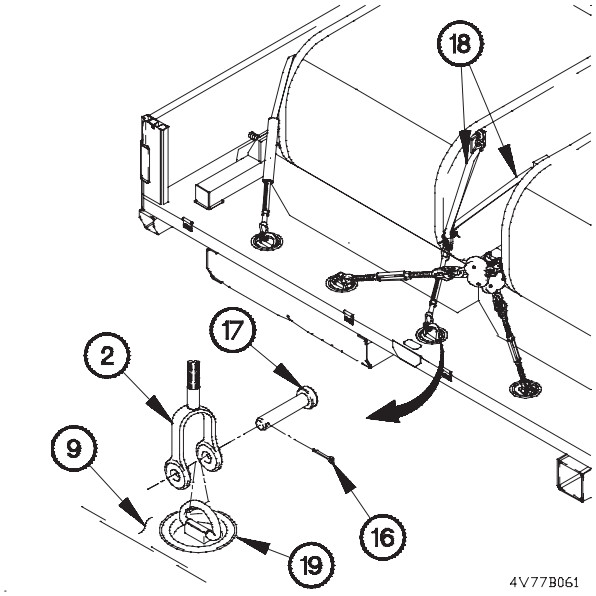


NOTE

Left and right middle straps are removed the same way. Left middle straps shown.

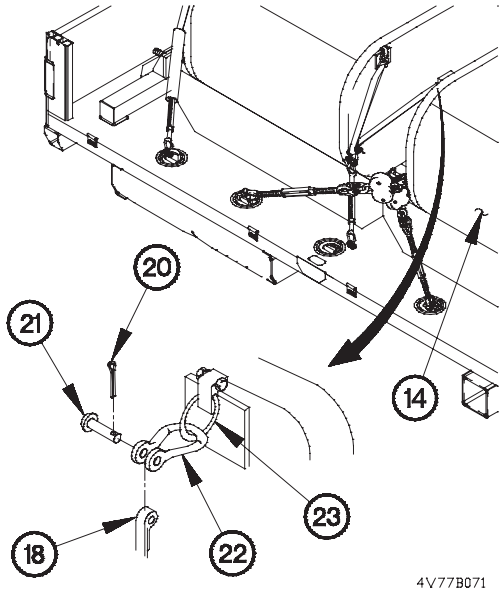
(7) Remove sleeve (15) from turnbuckle (2).

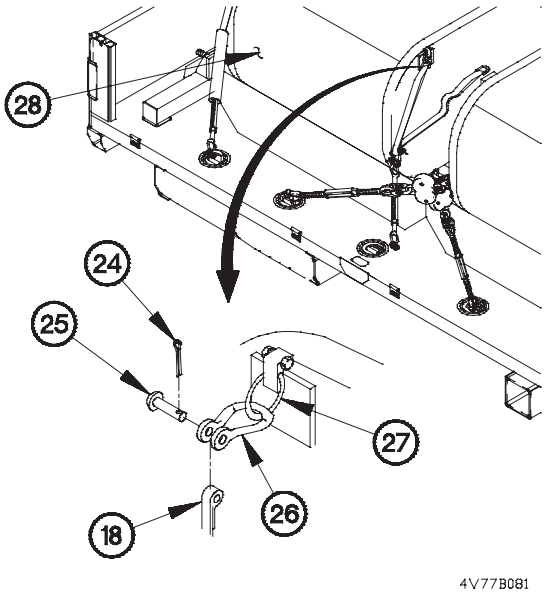
(8) Remove cotter pin (16), pin (17), turnbuckle (2), and middle strap (18) from third tiedown ring (19) from front of cargo bed (9). Discard cotter pin.



20-77. M1083/M1093 TANK AND PUMP UNIT TIEDOWN KIT INSTALLATION/REMOVAL (CONT)

(9) Remove cotter pin (20), pin (21), shackle (22), and middle strap (18) from upper tiedown ring (23) on tank (14). Discard cotter pin.





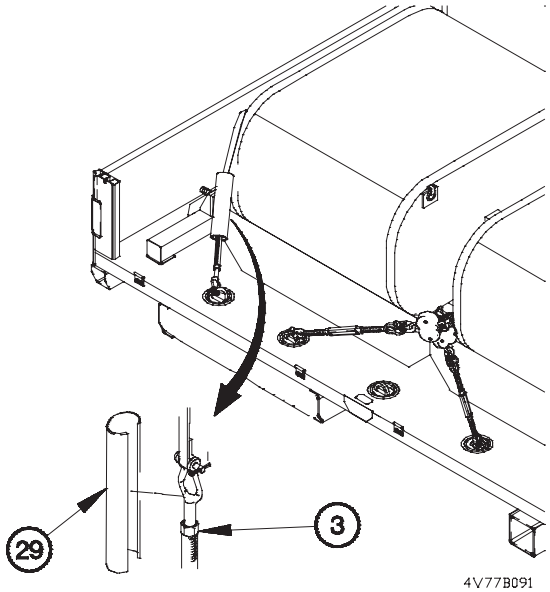
(10) Remove cotter pin (24), pin (25), shackle (26), and middle strap (18) from upper tiedown ring (27) on tank (28).

(11) Perform steps (7) through (10) on right middle straps.

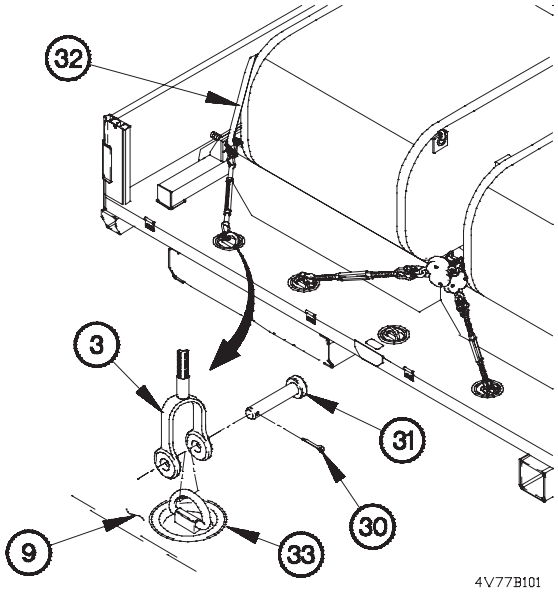
NOTE

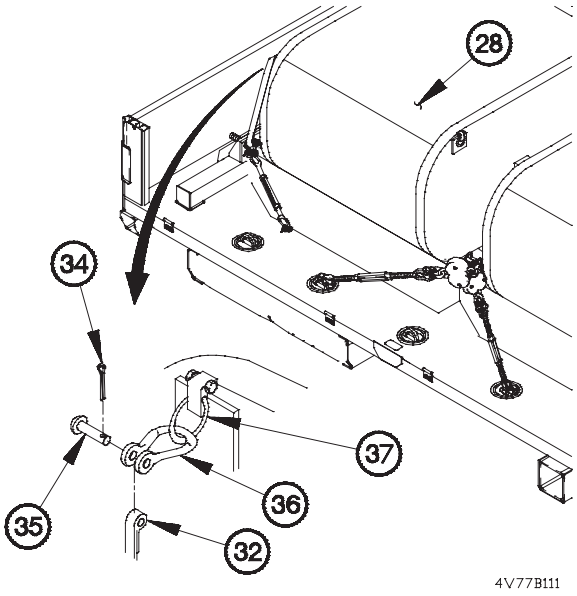
Left and right front straps are removed the same way. Left front strap shown.

(12) Remove sleeve (29) from turnbuckle (3).



(13) Remove cotter pin (30), pin (31), turnbuckle (3), and front strap (32) from first tiedown ring (33) from front of cargo bed (9). Discard cotter pin.





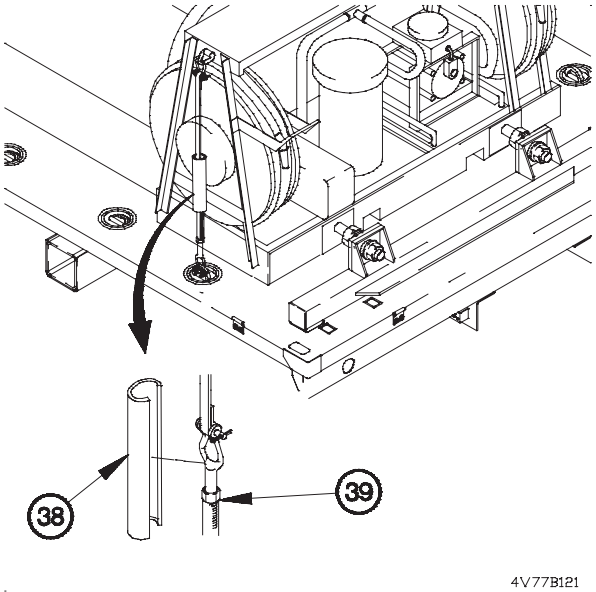
(14) Remove cotter pin (34), pin (35), shackle (36), and front strap (32) from upper tiedown ring (37) on tank (28). Discard cotter pin.

(15) Perform steps (12) through (14) on right pump strap.

NOTE

Left and right pump straps are removed the same way. Left pump strap shown.

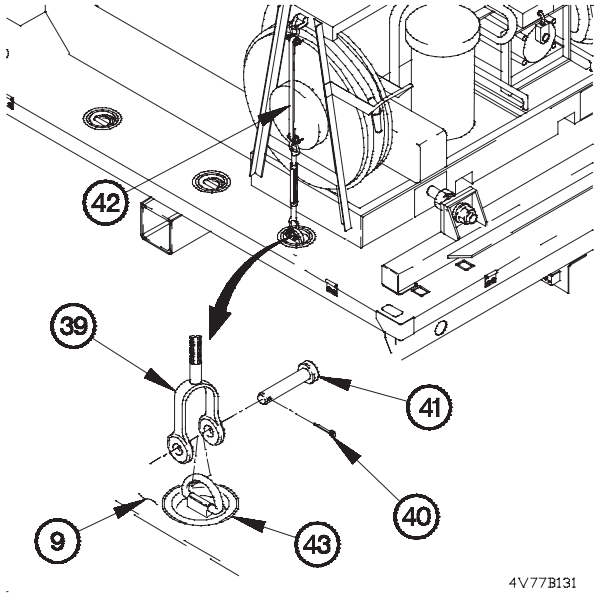
(16) Remove sleeve (38) from turnbuckle (39).

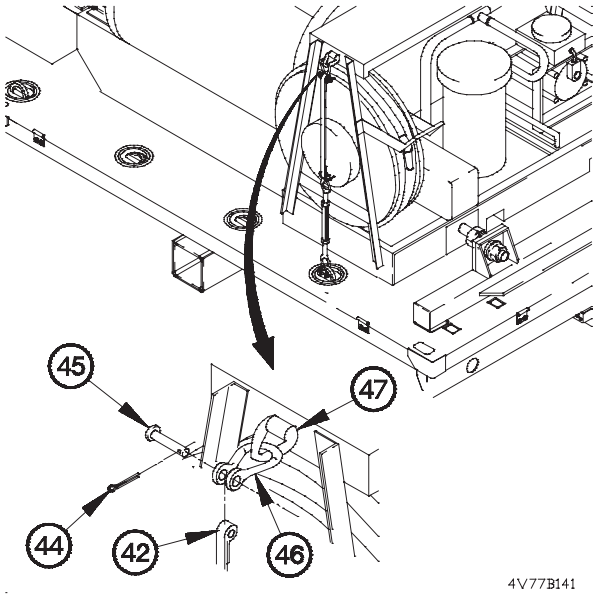


20-77. M1083/M1093 TANK AND PUMP UNIT TIEDOWN KIT INSTALLATION/REMOVAL (CONT)

(17) Loosen turnbuckle (39).

(18) Remove cotter pin (40), pin (41), turnbuckle (39), and pump strap (42) from first tiedown ring (43) from rear of cargo bed (9). Discard cotter pin.





(19) Remove cotter pin (44), pin (45), shackle (46), and front strap (42) from pump tiedown ring (47). Discard cotter pin.

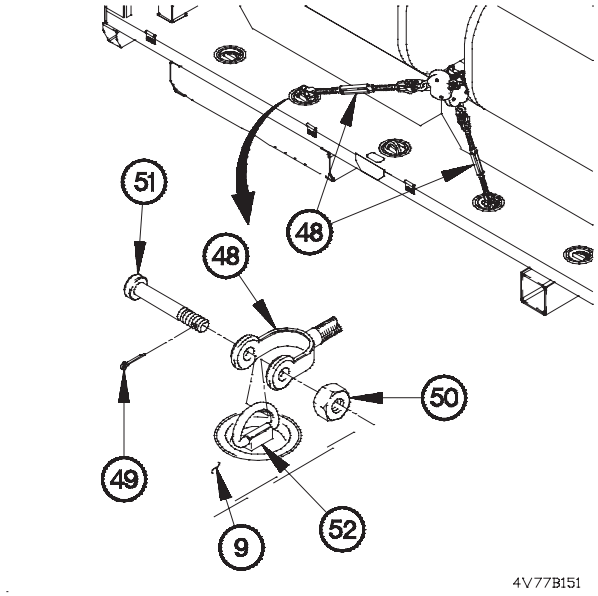
(20) Perform steps (16) through (19) on right pump strap.

NOTE

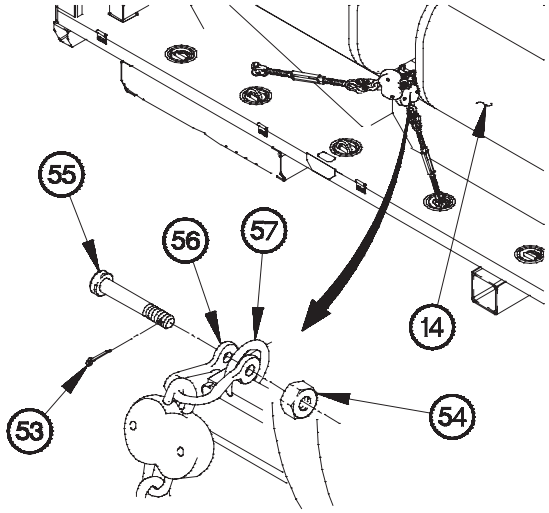
Left and right middle turnbuckles are removed the same way. Left middle turnbuckles shown.

(21) Loosen two turnbuckles (48).

(22) Remove cotter pin (49), nut (50), pin (51), and turnbuckle (48) from second tiedown ring (52) from front of cargo bed (9). Discard cotter pin.



(23) Remove cotter pin (53), nut (54), pin (55), and shackle (56) from lower tiedown ring (57) on tank (14). Discard cotter pin.



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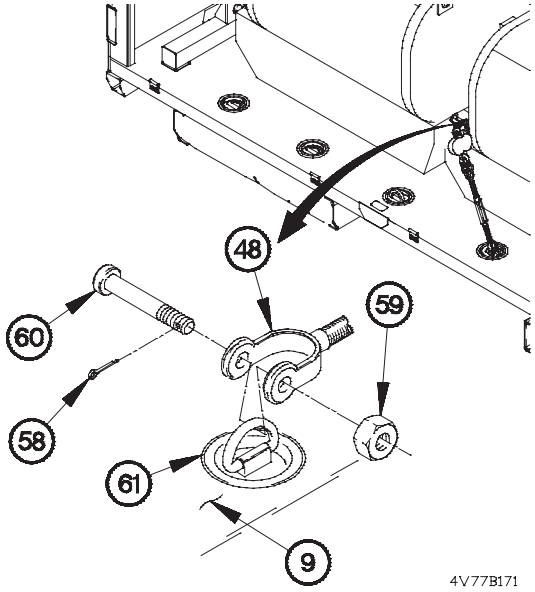
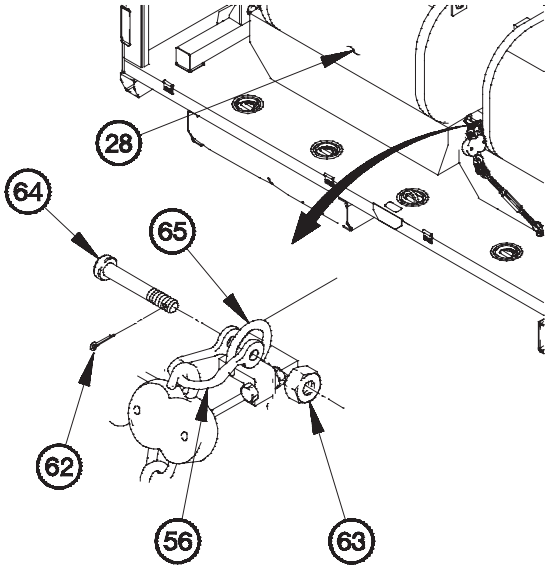


4V77B171

(24) Remove cotter pin (58), nut (59), pin (60), and turnbuckle (48) from third tiedown ring (61) from rear of cargo bed (9). Discard cotter pin.

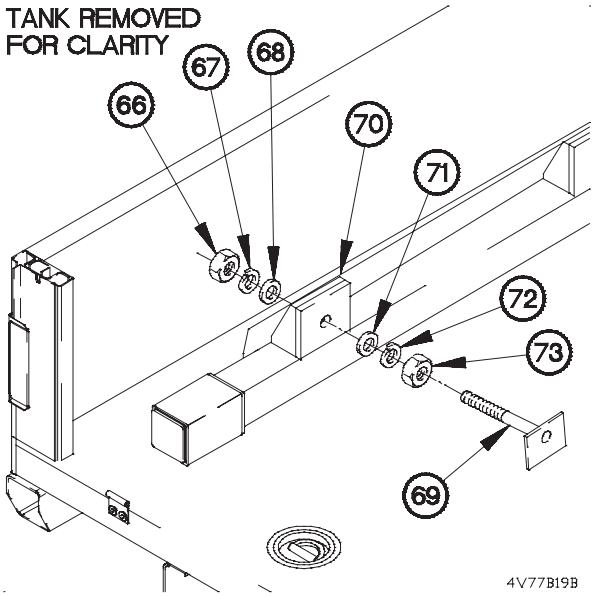


4V77B181

(25) Remove cotter pin (62), nut (63), pin (64), and shackle (56) from lower tiedown ring (65) on tank (28).

(26) Perform steps (21) through (25) on right middle turnbuckles.

20-77. M1083/M1093 TANK AND PUMP UNIT TIEDOWN KIT INSTALLATION/REMOVAL (CONT)



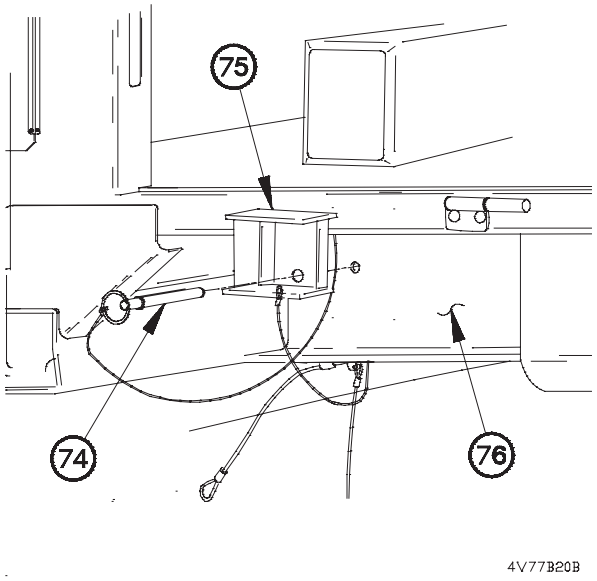
NOTE

Left and right front jack posts are removed the same way. Left front jack post shown.

(27) Remove nut (66), lockwasher (67), washer (68), and jack post (69) from front bar (70). Discard lockwasher.

(28) Remove washer (71), lockwasher (72), and nut (73) from jack post (69). Discard lockwasher.

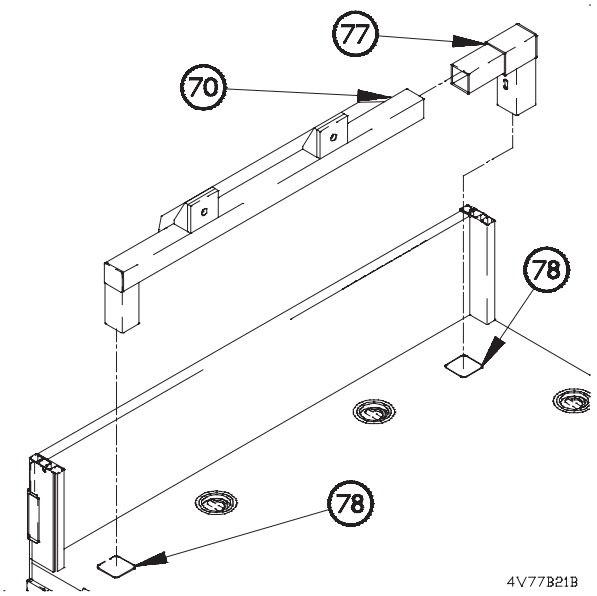
(29) Perform steps (27) and (28) on right front jack post.



(30) Remove two quick release pin (74) and plugs (75) from frame (76).

(31) Remove front bar (70) and bar post (77) from two crane pockets (78).

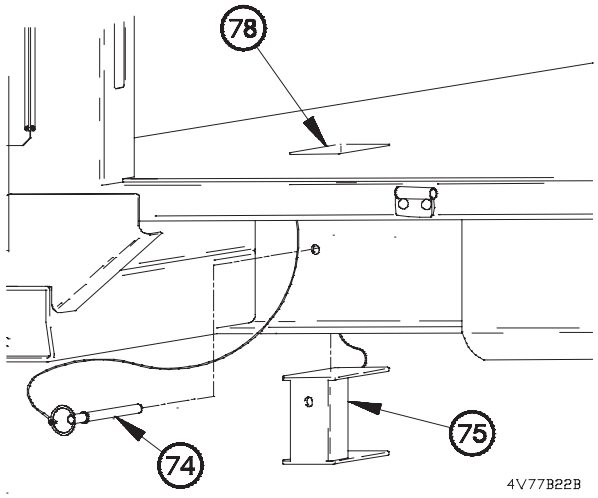
(32) Remove bar post (77) from front bar (70).

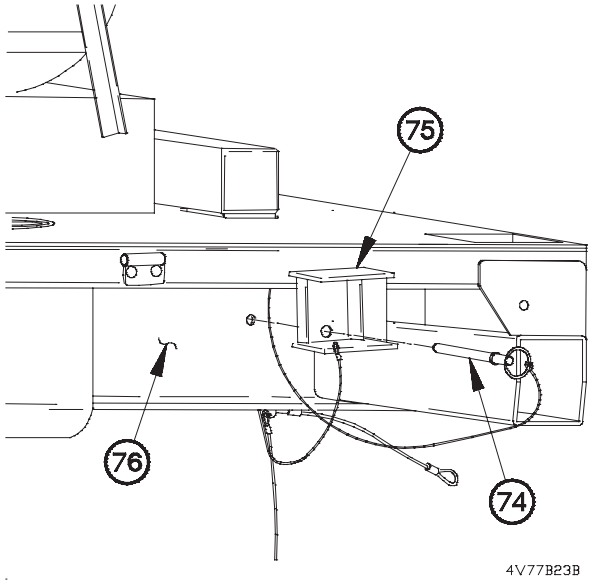


CAUTION

Ensure quick release pins are installed through both sides of crane pockets. Failure to comply may result in damage to equipment.

(33) Install two plugs (75) in crane pockets (78) with quick release pins (74).

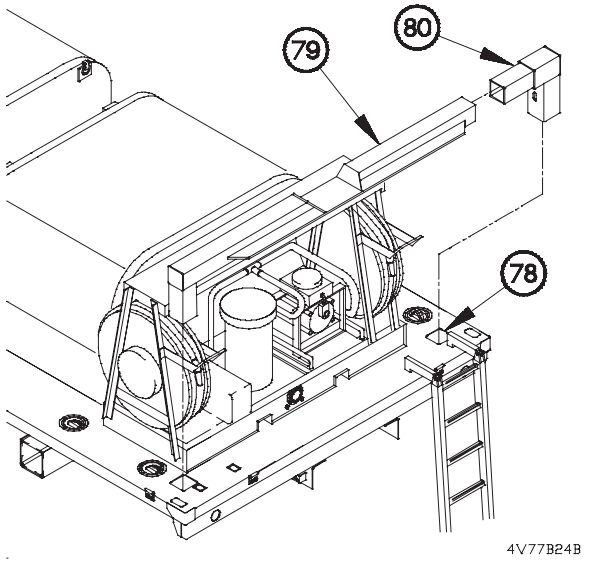




(34) Remove two quick release pins (74) and plugs (75) from frame (76).

(35) Remove rear bar (79) and bar post (80) from two crane pockets (78).

(36) Remove bar post (80) from rear bar (79).

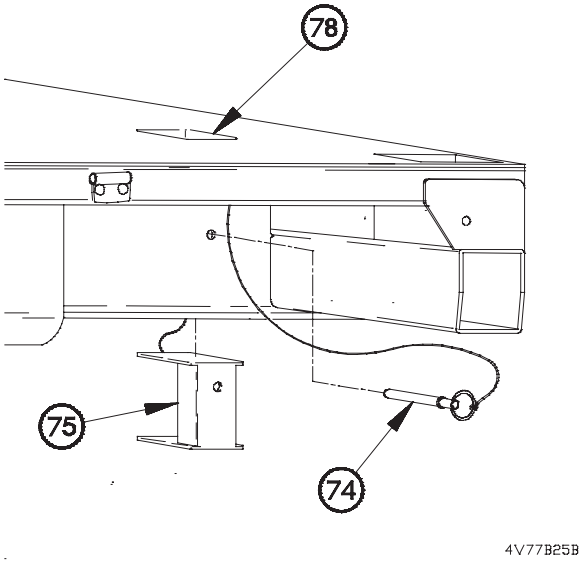


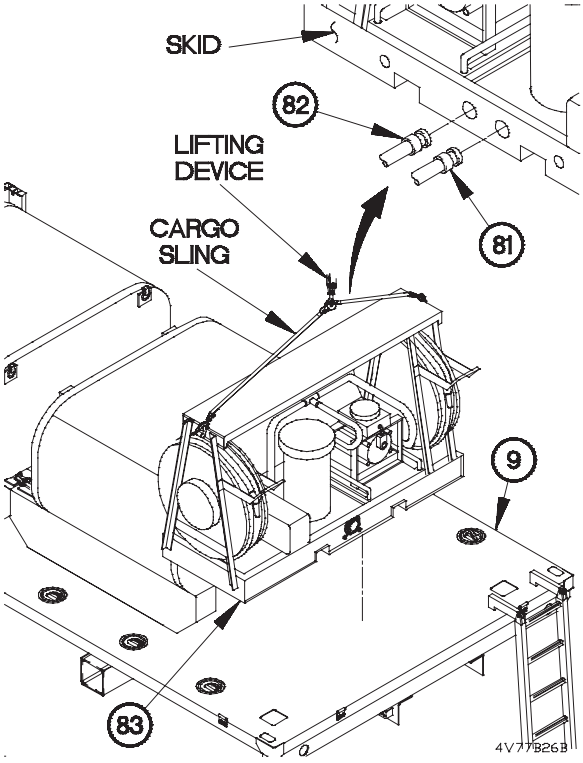
20-77. M1083/M1093 TANK AND PUMP UNIT TIEDOWN KIT INSTALLATION/REMOVAL (CONT)

CAUTION

Ensure quick release pins are installed through both sides of crane pockets. Failure to comply may result in damage to equipment.

(37) Install two plugs (75) in crane pockets (78) with quick release pins (74).





(38) Remove hoses (81 and 82) from holes in skid.

WARNING

Pump unit weighs approximately 870 lbs (395 kgs). Attach a suitable lifting device prior to removal. Failure to comply may result in serious injury or death to personnel or damage to equipment.

NOTE

Step (39) requires the aid of an assistant.

(39) Remove pump unit (83) from cargo bed (9).

(40) Disconnect hose (81) from tank (14).

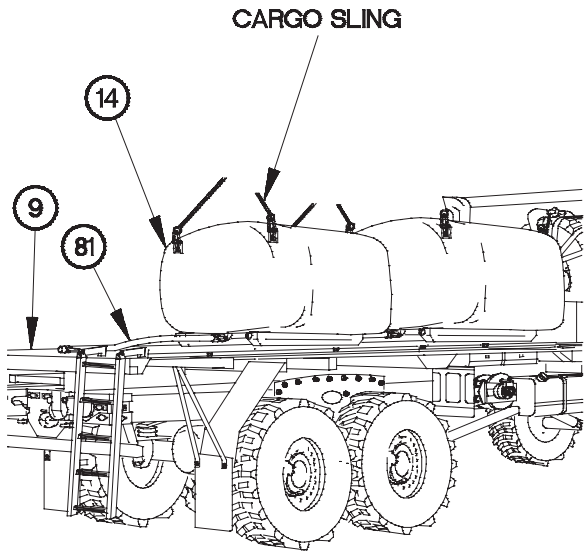
WARNING

Tank weighs approximately 500 lbs (227 kgs). Tank can only be removed empty. Attach a suitable lifting device prior to removal. Failure to comply may result in serious injury or death to personnel or damage to equipment.

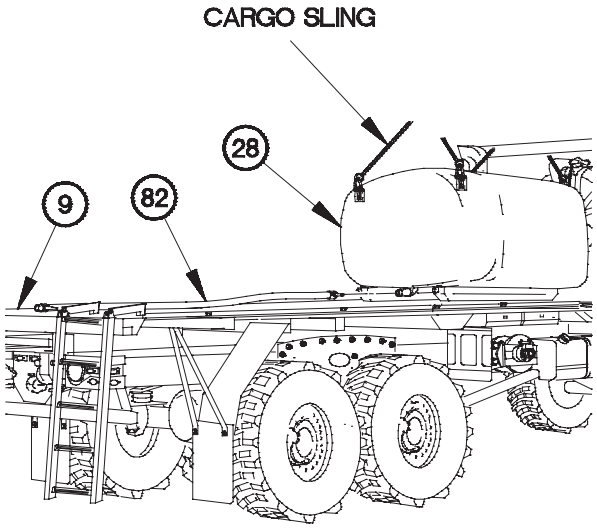
NOTE

Step (41) requires the aid of an assistant.

(41) Remove tank (14) from cargo bed (9).



4V77B27B



4V77B28B

(42) Disconnect hose (82) from tank (28).

NOTE

Step (43) requires the aid of an assistant.

(43) Remove tank (28) from cargo bed (9).

(44) Raise ladder (TM 9-2320-366-10-1).

20-77. M1083/M1093 TANK AND PUMP UNIT TIEDOWN KIT INSTALLATION/REMOVAL (CONT)

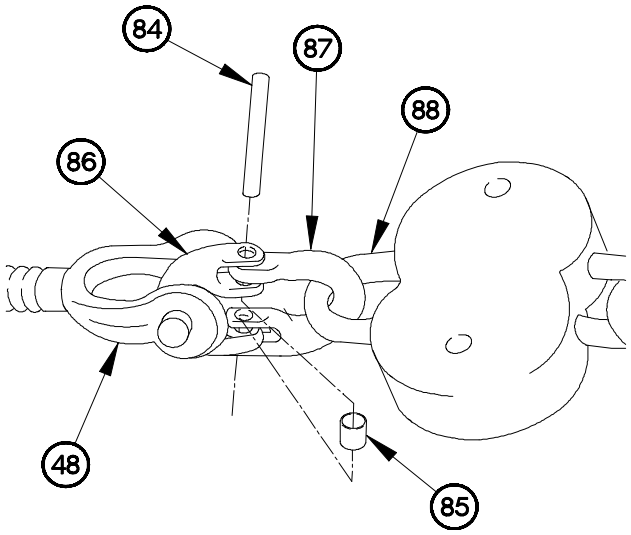
NOTE

Four middle turnbuckles are disassembled the same way. One middle turnbuckle shown.

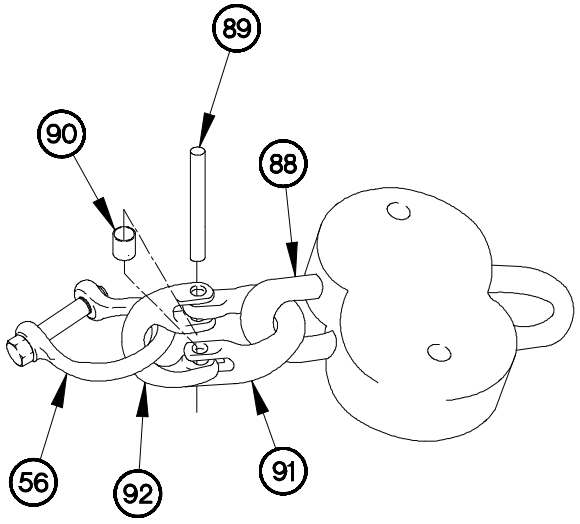
(45) Remove pin (84), spring collar (85), and clamp half (86) from clamp half (87).

(46) Remove clamp half (86) from turnbuckle (48).

(47) Remove clamp half (87) from shock mount (88).



4v77b29b



4v77b30b

(48) Remove pin (89), spring collar (90), and clamp half (91) from clamp half (92).

(49) Remove clamp half (91) from shock mount (88).

(50) Remove clamp half (92) from shackle (56).

(51) Perform steps (45) through (50) on remaining middle turnbuckles.

c. Follow-On Maintenance.

Install cargo bed side panels and stakes (TM 9-2320-366-10-1).

End of Task.

20-78. DIGITIZATION KIT REMOVAL

This task covers:

a. Removal
b. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-366-10-1)
Batteries discounted (para 7-57)
Kick panel removed (para 16-3)
Power distribution panel removed (para 7-11 WTEC II, Para 7-13 WTEC III)
RH seat removed (para 16-15)

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)

Materials/Parts
Lockwasher (2) (Item 113.1 Appendix G)
Lockwasher (6) (Item 107.1 Appendix G)
Nut Self-Locking (6) (Item 146.1 Appendix G)

Personnel Required
(2)

NOTE

Retain digitization kit parts for future use.

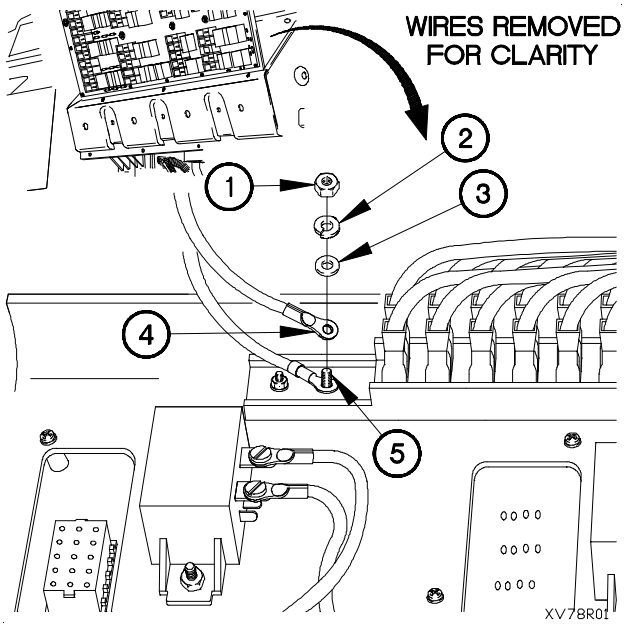
a. Removal.

NOTE

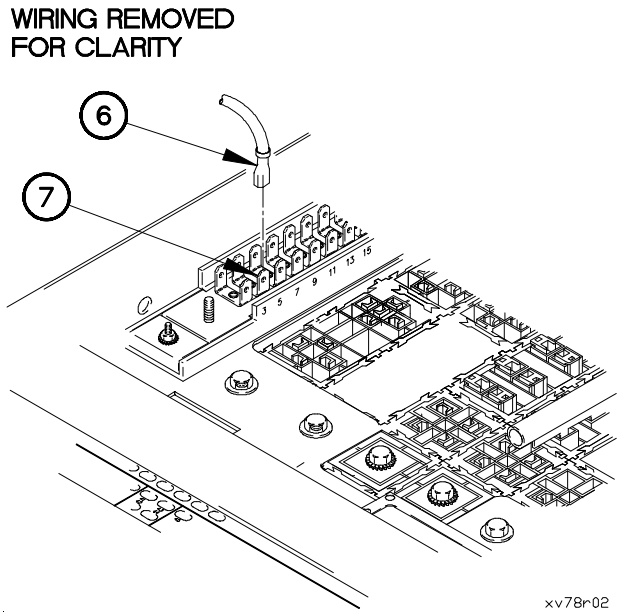
Other terminal lugs are present at this location.

(1) Remove nut (1), lockwasher (2), washer (3), and terminal lug TL21 (4) from ground stud (5). Discard lockwasher.

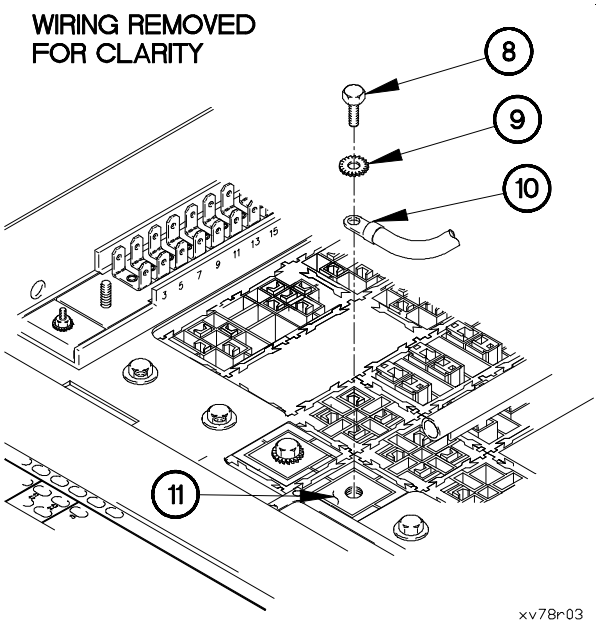
(2) Install washer (3) ground stud (5) with nut (1).



20-78. DIGITIZATION KIT REMOVAL (CONT)



(3) Disconnect terminal lug TL14 (6) from terminal block TB2 connector 5 (7).



NOTE

Other terminal lugs are present at this location.

(4) Remove screw (8), lockwasher (9), and terminal lug TL20 (10) from 24 VDC connector X1 (11). Discard lockwasher.

(5) Install screw (8) on 24 VDC connector X1 (11).

(6) Remove two nuts (12), lockwashers (13), washers (14), cover (15), and two washers (14) from terminal block TB1 (16). Discard lockwasher.

NOTE

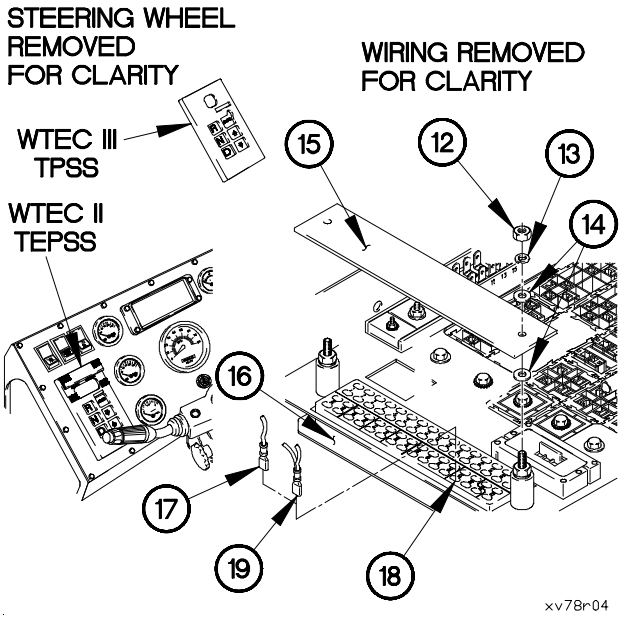
Perform step (7) on vehicles equipped with WTEC II transmission controllers.

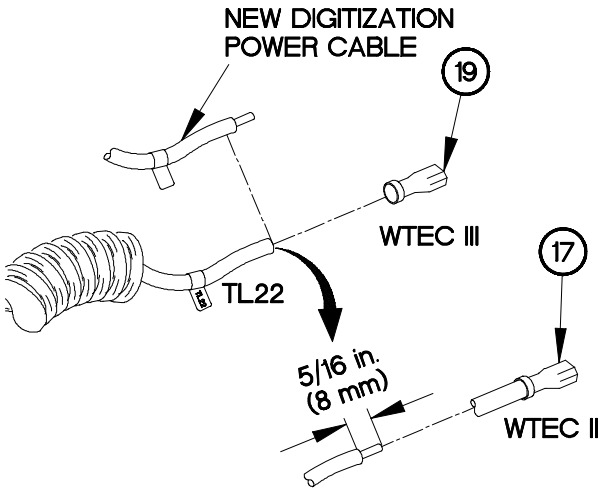
(7) Remove terminal lug TL22 (17) from terminal block TB1 connector 58 (18).

NOTE

Perform step (8) on vehicles equipped with WTEC III transmission controllers.

(8) Remove terminal lug TL22 (19) from terminal block TB1 connector 58 (18).





NOTE

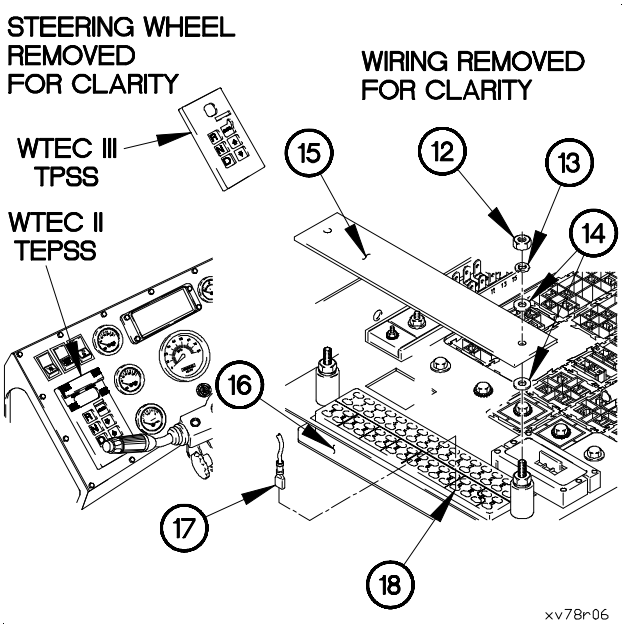
Perform steps (9) through (11) on vehicle serial numbers 00001 through 11347 equipped with WTEC III controls.

(9) Remove terminal lug TL22(19) from wire 146 and digitization power cable.

(10) Strip insulation 5/16 (8 mm) on wire 146.

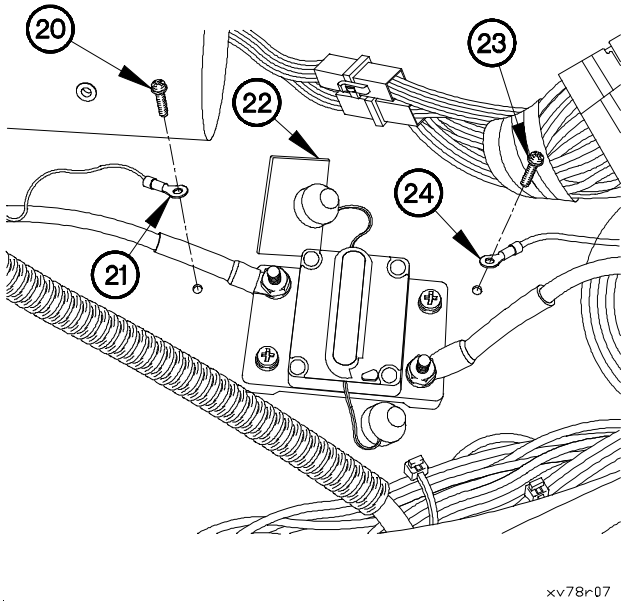
(11) Install terminal lug (17) on wire 146.

20-78. DIGITIZATION KIT REMOVAL (CONT)



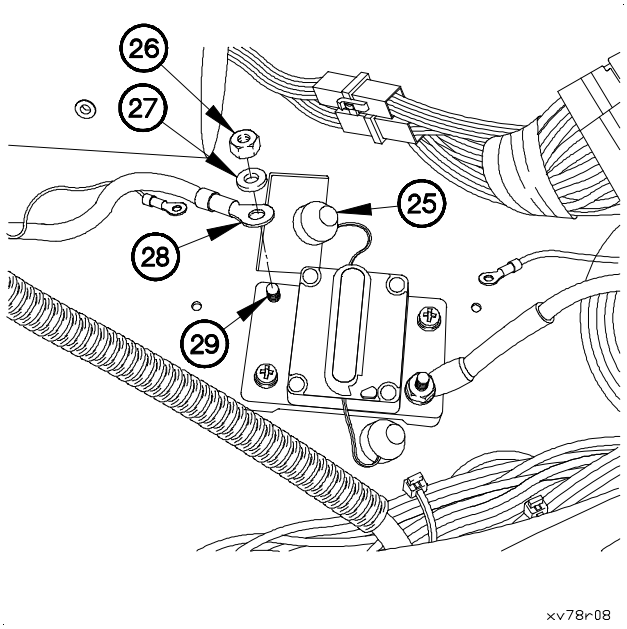
(12) Install wire 146 (17) on terminal block TB1 connector 58 (18).

(13) Install two washers (14) and cover (15) on terminal block TB1 (16) with two washers (14), lockwashers (13), and nuts (12).



(14) Remove screw (20) and terminal lug TL25 (21) from dashboard (22).

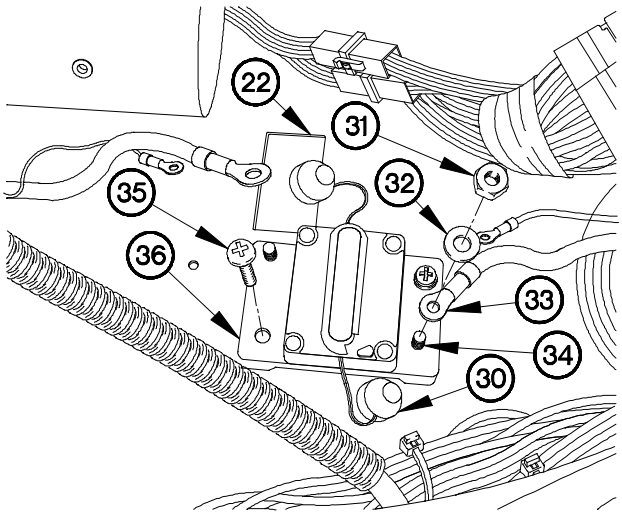
(15) Remove screw (23) and terminal lug TL19 (24) from dashboard (22).



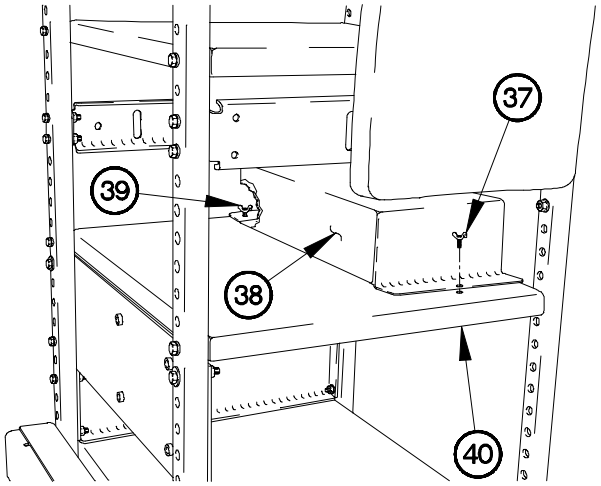
(16) Remove dust boot (25), nut (26), washer (27), and terminal lug TL23 (28) from stud (29).

(17) Remove dust boot (30), nut (31), washer (32), and terminal lug TL24 (33) from stud (34).

(18) Remove two screws (35) and circuit breaker CB11 (36) from dashboard (22).



xv78r09



xv78r24

(19) Remove wing screw (37) from electrical distibution block cover (38).

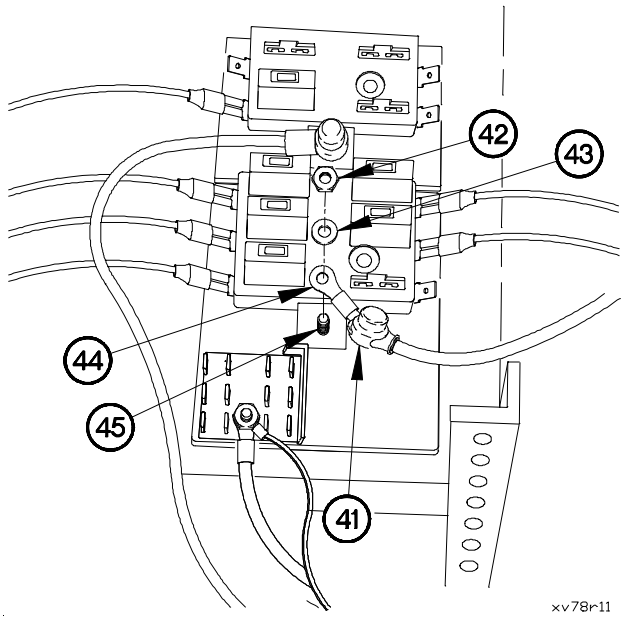
(20) Loosen wing screw (39) on electrical distribution block
cover (38).

(21) Remove electrical distribution block cover (38) from power distribution shelf (40).

(22) Position wing screw (37) in power distribution shelf (40).

(23) Remove dust boot (41), nut (42), washer (43), and terminal lug TL16 (44) from stud (45).

(24) Position washer (43) on stud (45) with nut (42).

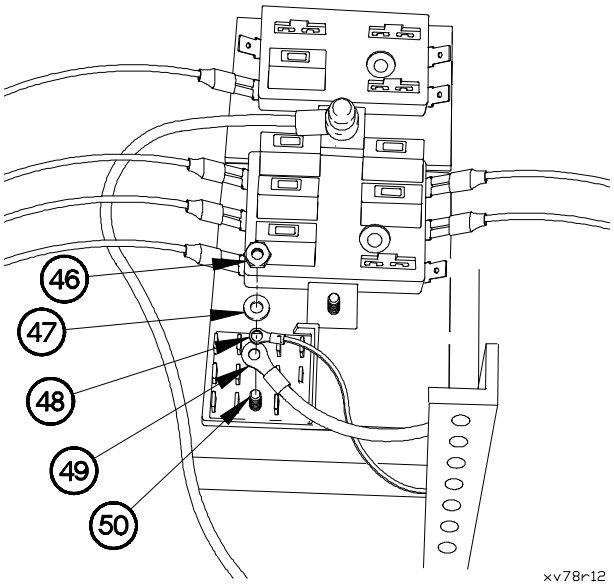


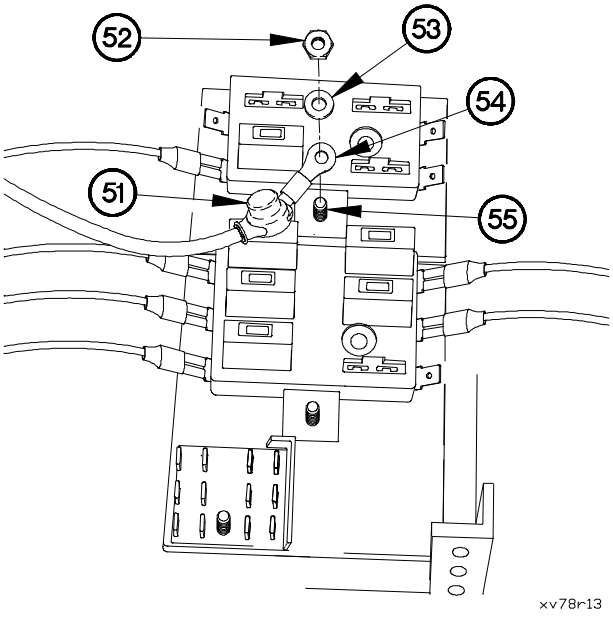
xv78r11

20-78. DIGITIZATION KIT REMOVAL (CONT)

(25) Remove nut (46), washer (47), terminal lug TL17 (48), and terminal lug TL18 (49) from stud (50).

(26) Position washer (47) on stud (50) with nut (46).





(27) Remove dust boot (51), nut (52), washer (53), and terminal lug TL15 (54) from stud (55).

(28) Position washer (53) on stud (55) with nut (52).

NOTE

- Terminal lugs are disconnected the same way. One terminal lug shown.
- Refer to Table 1 Terminal Lug Locations and Connectors for details.

(29) Disconnect terminal lug TL1 (56) from distribution panel PD1 CB10 connector (57).

(30) Perform step (29) on remaining terminal lugs.

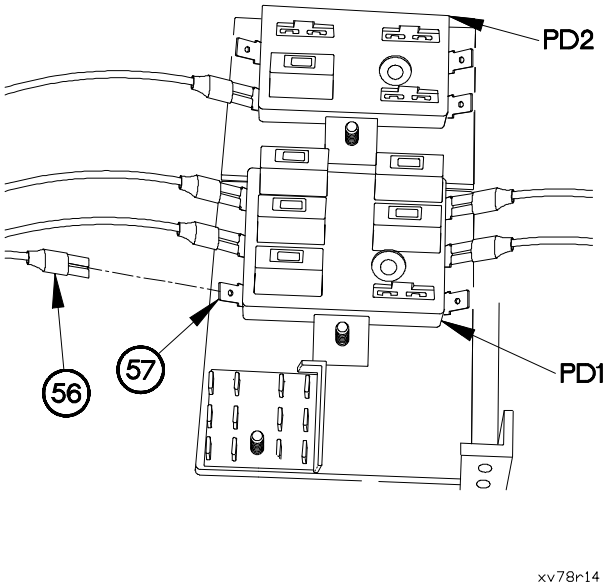


Table 1 – Terminal Lug Locations and Connectors

LOCATION	FUNCTION	PD	CONNECTOR	AMP
CB1	MTS SENSE	PD2	TL6	7.5A
CB2	Spare	PD2		Spare
CB3	Spare	PD2		Spare
CB4	Spare	PD2		Spare
CB5	EPLRS	PD1	TL8	10 A
CB6	DVE	PD1	TL3	7.5 A
CB7	PLGR	PD1	TL9	7.5 A
CB8	SINCGAR/FBC2	PD1	TL2	15 A
CB9	Spare	PD1		Spare
CB10	MTS PWR	PD1	TL1	20 A

20-78. DIGITIZATION KIT REMOVAL (CONT)

(31) Remove circuit breakers from distribution panels PD1 and PD2 (Para 20-87).

(32) Remove four nuts (58), lockwashers (59), screws (60) and distribution panel PD1 (61) from power distribution shelf (40). Discard lockwashers.

(33) Remove two nuts (62), lockwshers (63), screws (64) and distribution panel PD2 (65) from power distribution shelf (40). Discard lockwashers.

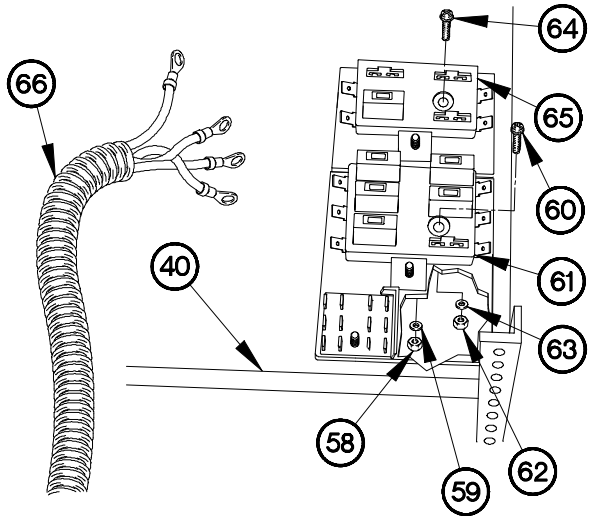
NOTE

Note routing of digitization power cable before removing from vehicle.

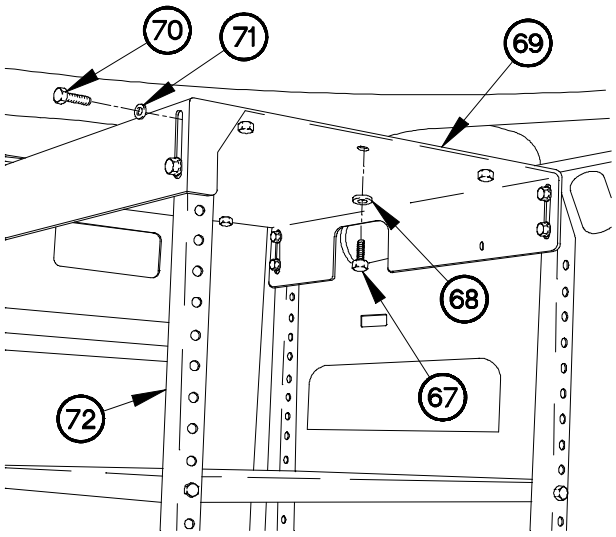
(34) Remove digitization power cable (66) from vehicle.

(35) Position four screws (60) in distribution panel PD1 (61).

(36) Position two screws (64) in distribution panel PD2 (65) with nuts (62).



xv78r15



xv78r16

(37) Remove six screws (67) and washers (68) from top support (69).

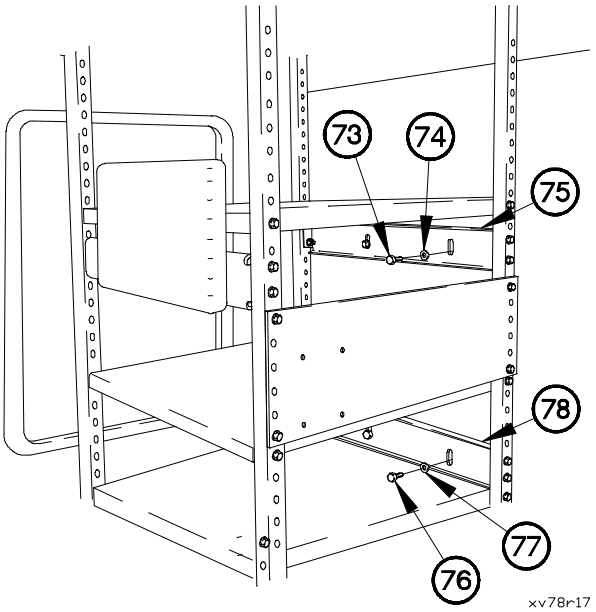
(38) Remove eight screws (70), washers (71), and top support (69) from rack assembly (72).

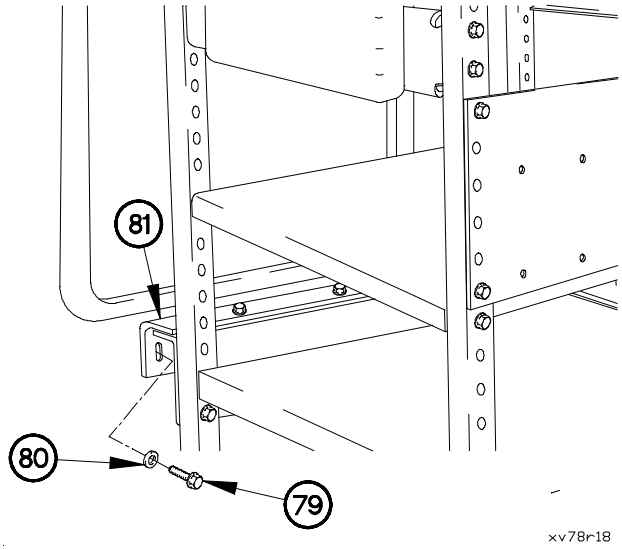
CAUTION

Spacers may be used with vehicles equipped with rear panels. Use caution when removing screws so washers do not fall behind panel or disassembly may be required to recover washers.

(39) Remove two screws (73) and washers (74) from rear upper support (75).

(40) Remove two screws (76) and washers (77) from rear mid support (78).





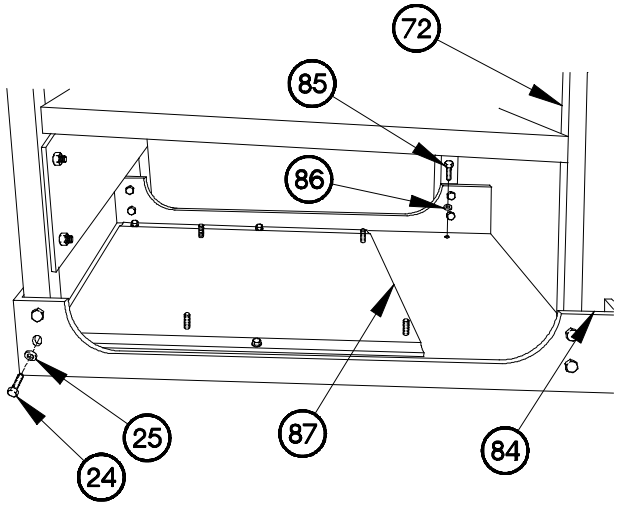
(41) Remove three screws (79) and washers (80) from side mid support (81).

20-78. DIGITIZATION KIT REMOVAL (CONT)

(42) Remove eight screws (82) and washers (83) from bottom support (84).

(43) Remove six screws (85), washers (86), and MTS mounting bracket (87) from bottom support (84).

(44) Remove rack assembly (72) and bottom support (84) from cab.



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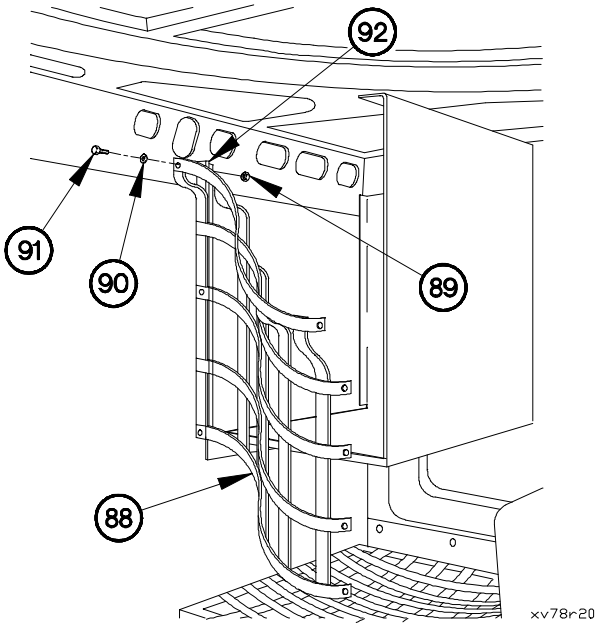


xv78r20

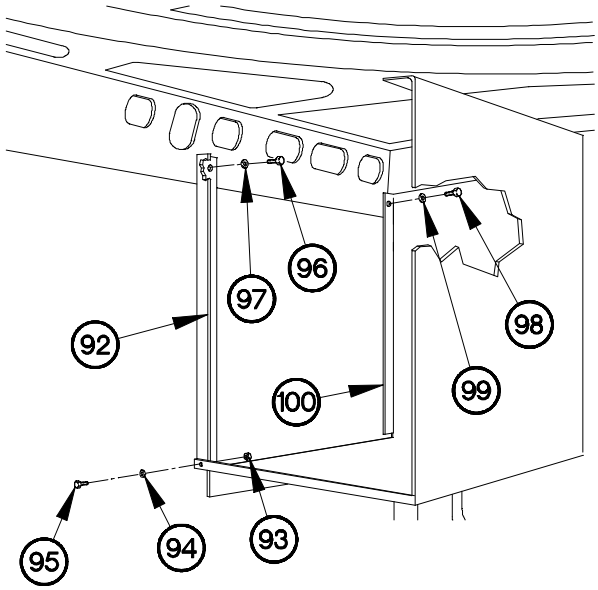
(45) Unsnap webbing (88).

(46) Remove three nuts (89), webbing (88), washers (90), and screws (91) from angle (92).

(47) Remove nut (93), washer (94), and screw (95) from angle (92).

(48) Remove screw (96), washer (97), and angle (92) from vehicle.

(49) Remove two screws (98) and washers (99) from Co-Driver's Storage Box (100).



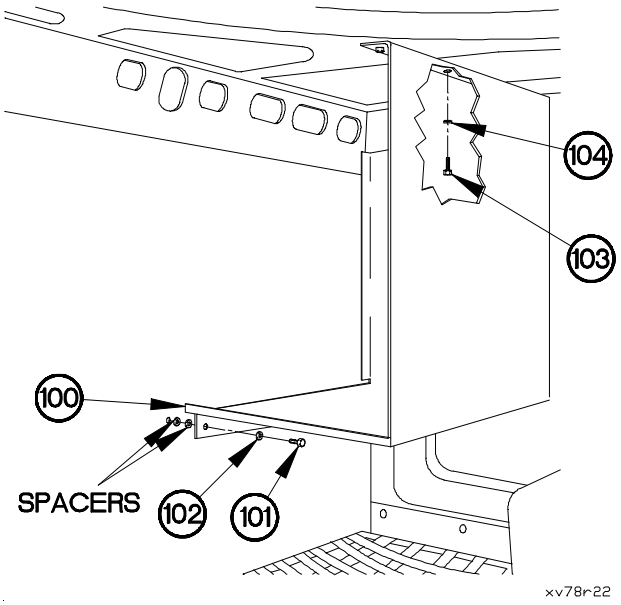
xv78r21

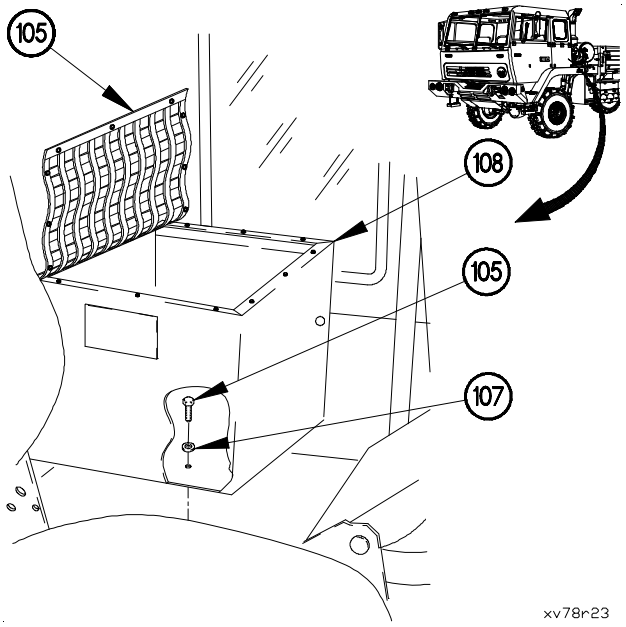
CAUTION

Spacers may be used with vehicles equipped with rear panels. Use caution when removing screws so washers do not fall behind panel or disassembly may be required to recover washers.

(50) Remove three screws (101) and washers (102) from Co-Driver's Storage Box (100).

(51) Remove three screws (103), washers (104), and Co-Driver's Storage Box (100) from vehicle.





(52) Unsnap webbing (105).

(53) Remove six screws (106) and washers (107) from Driver's Storage Box (108).

(54) Remove Driver's Storage Box (108) from cab.

b. Follow-on Maintenance

(1) Install RH Seat (Para 16-15).

(2) Install power distribution panel (Para 7-11 WTEC II, Para 7-13 WTEC III).

(3) Install kick panel (Para 16-3).

(4) Connect batteries (Para 7-57).

(5) Install driver and co-driver storage boxes (Para 16-18).

End of Task

20-79. DIGITIZATION KIT INSTALLATION

This task covers:

a. Installation
b. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-366-10-1)
Batteries discounted (para 7-57)
Power distribution panel removed (para 7-11 WTEC II, para 7-13 WTEC III)
Kick panel removed (para 16-3)
RH seat removed (para 16-15)

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Wrench, Torque (0-200 Lb-in) (Item 59, Appendix C)
Wrench Set, Socket (Item 51, Appendix C)

Materials/Parts
Plastic Cable Ties (Item 69, Appendix D)
Sealant (Item 55.1.1 Appendix D)

Personnel Required
(2)

a. Installation.

(1) Position drivers storage box (1) in cab.

WARNING

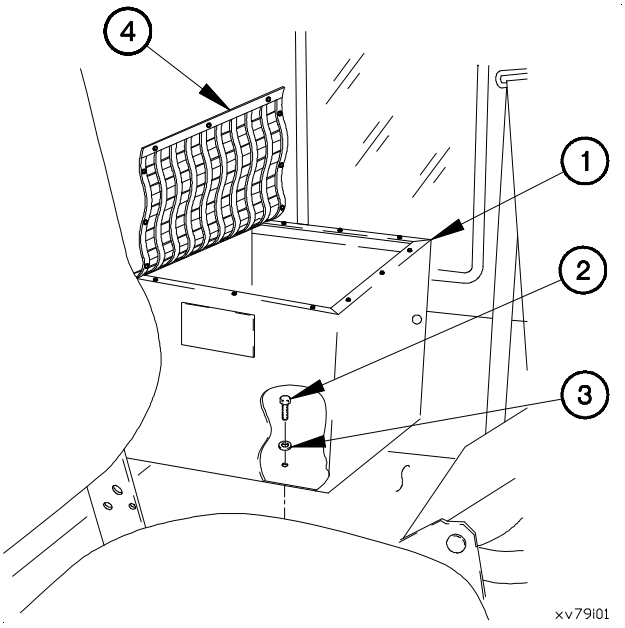
Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure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

(2) Apply sealant to threads of six screws (2).

(3) Position six washers (3) and screws (2) in drivers storage box (1).

(4) Tighten six screws (2) to 70-85 lb-in. (8-10 N•m).

(5) Snap webbing (4).



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 sealant to threads of six screws (6).

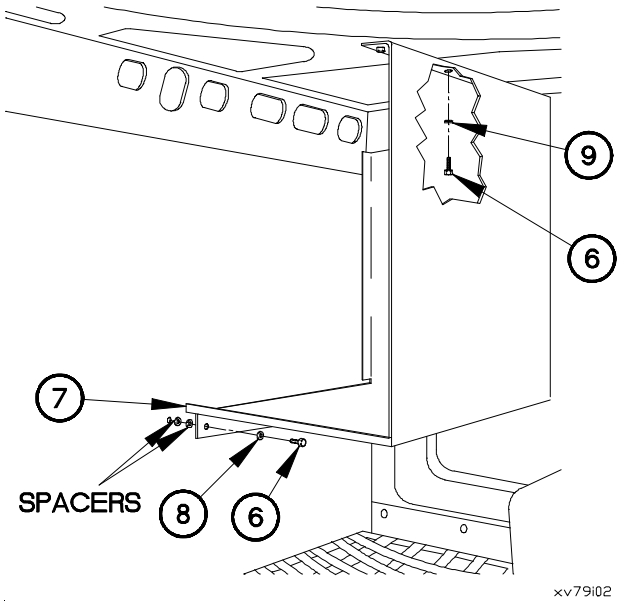
CAUTION

Add spacers behind supports on vehicles equipped with rear panels. Failure to comply may result in damage to equipment.

(7) Position co-drivers storage box (7) in cab with three washers (8) and screws (6).

(8) Position three washers (9) and screws (6) in co-drivers storage box (7).

(9) Tighten six screws (6) to 70-85 lb-in. (8-10 N•m).



20-79. DIGITIZATION KIT INSTALLATION (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.

(10) Apply sealant to threads of screws (10 and 11).

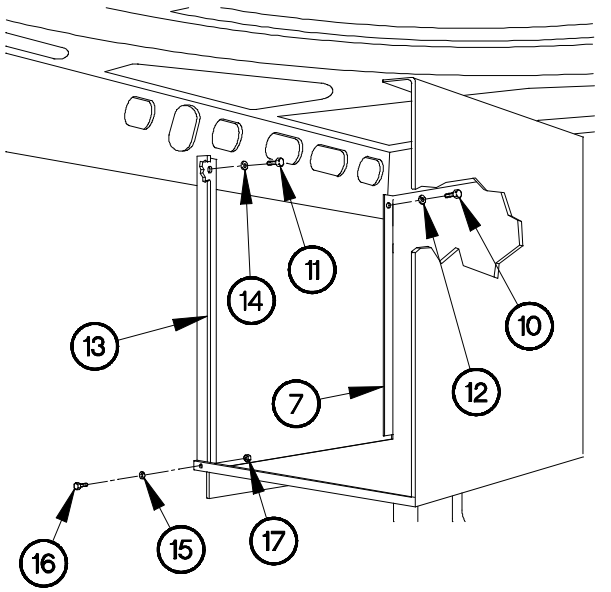
(11) Position washer (12) and screw (10) in co-drivers storage box (7).

(12) Position angle (13) on cab with washer (14) and screw (11).

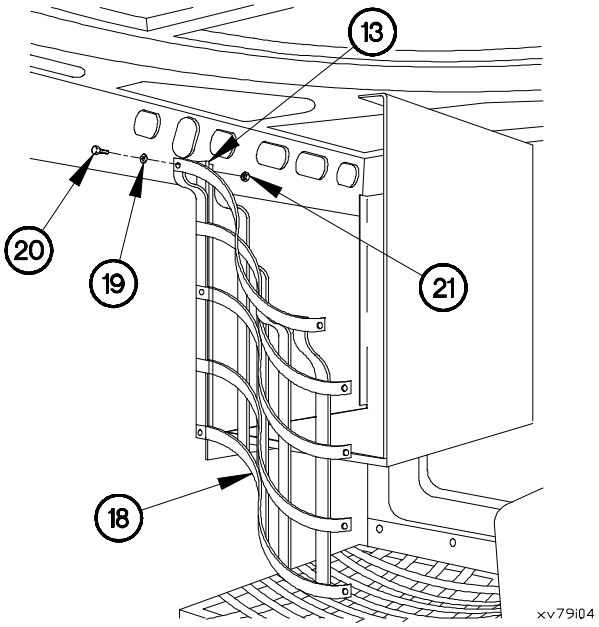
(13) Position washer (15) and screw (16) in co-drivers storage box (7) with self-locking nut (17).

(14) Tighten screws (10 and 11) to 70-85 lb-in. (8-10 N•m).

(15) Tighten self-locking nut (17) to 100-120 lb-in. (12-13 N•m).



xv79i03



xv79i04

(16) Position webbing (18) on angle (13) with three washers (19), screws (20), and self-locking nuts (21).

(17) Tighten three self-locking nuts (21) to 110-120 lb-in (12-13 N•m).

(18) Snap webbing (18).

(19) Position rack assembly (22) and bottom support (23) in cab.

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 sealant to threads of eight screws (24).

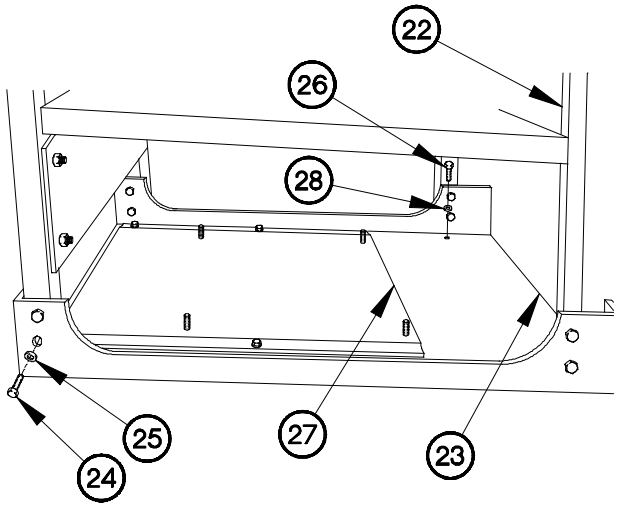
(21) Position eight washers (25) and screws (24) in bottom support (23).

(22) Tighten eight screws (24) to 110-120 lb-in. (12-13 N•m).

(23) Apply sealant to threads of six screws (26).

(24) Position MTS mounting bracket (27) on bottom support (23) with six washers (28) and screws (26).

(25) Tighten six screws (26) to 70-85 lb-in (8-10 N•m).



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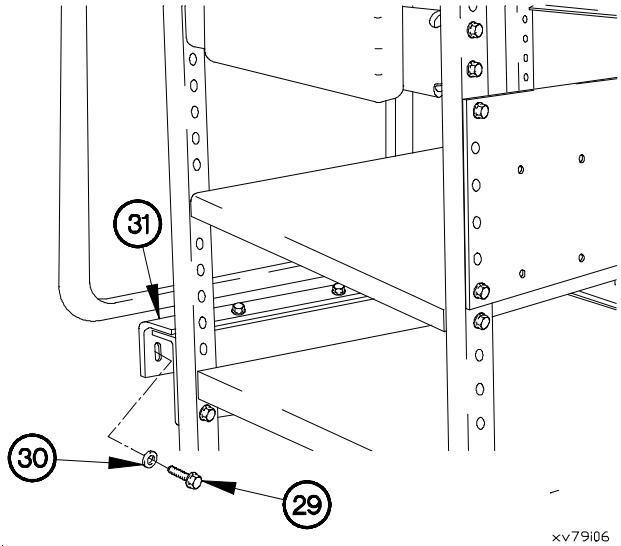


xv79i06

(26) Apply sealant to threads of three screws (29).

(27) Position three washers (30) and screws (29) in outer side support (31).

20-79 DIGITIZATION KIT INSTALLATION (CONT)

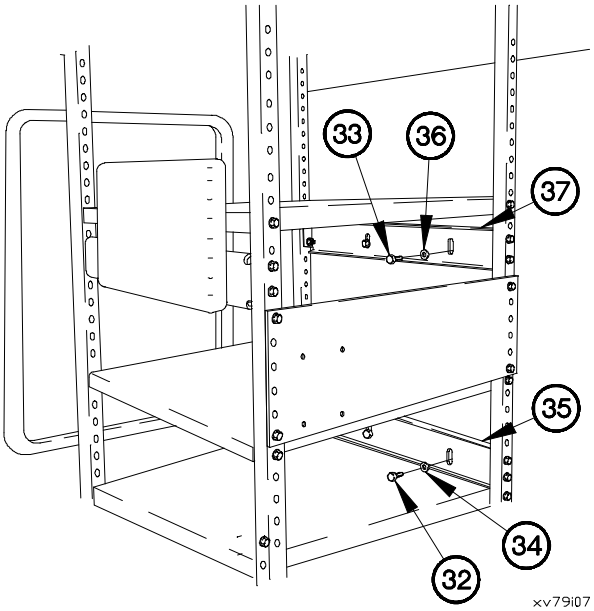
WARNING

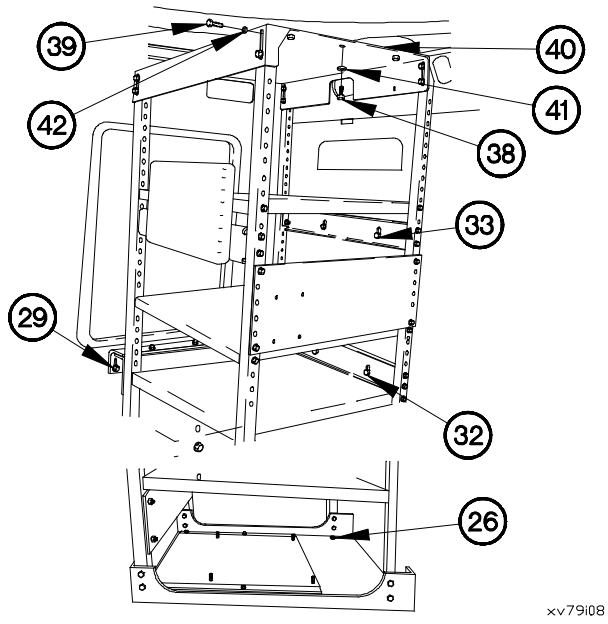
Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure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

(28) Apply sealant to threads of two screws (32 and 33).

(29) Position two washers (34) and screws (32) on lower rear support (35).

(30) Position two washers (36) and screws (33) on upper rear support (37).





(31) Apply sealant to threads of six screws (38) and eight screws (39).

(32) Position top support (40) in cab with six washers (41) and screws (38).

(33) Position eight washers (42) and screws (39) in top support (40).

(34) Tighten eight screws (39) to 110-120 lb-in. (12-13 N•m).

(35) Tighten six screws (26), three screws (29), two screws (32), two screws (33), and six screws (38) to 70-85 lb-in. (8-10 N•m).

NOTE

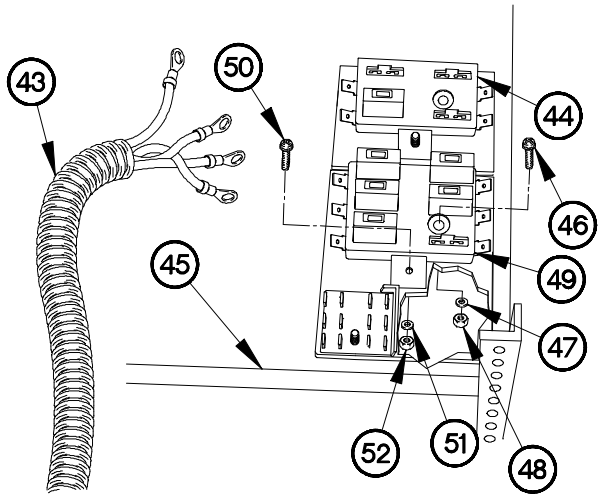
Install plastic cable ties as required.

(36) Position digitization power cable (43) in vehicle.

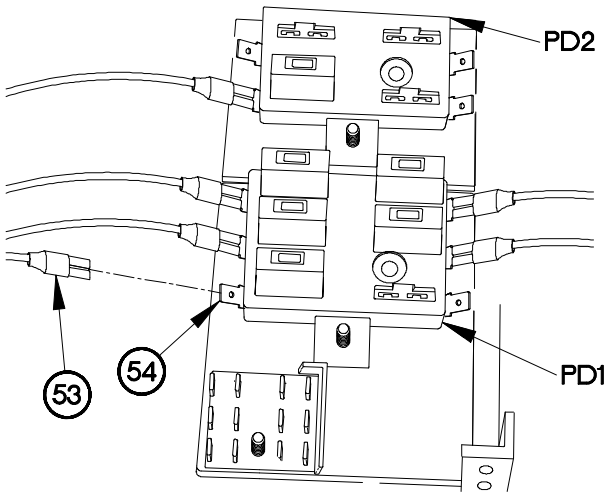
(37) Install distribution panel PD2 (44) on power distribution shelf (45) with two screws (46), lockwashers (47), and nuts (48).

(38) Install distribution panel PD1 (49) on power distribution shelf (45) with four screws (50), lockwashers (51), and nuts (52).

(39) Install circuit breakers in distribution panels PD2 and PD1 (para 20-87).



xv79109



xv79110

NOTE

- Terminal lugs are connected the same way. One terminal lug shown.
- Refer to Table 1 Terminal Lug Locations and Connectors for details.

(40) Connect terminal lug TL1 (53) to distribution panel PD1 CB10 (54).

(41) Perform step (40) on remaining terminal lugs.

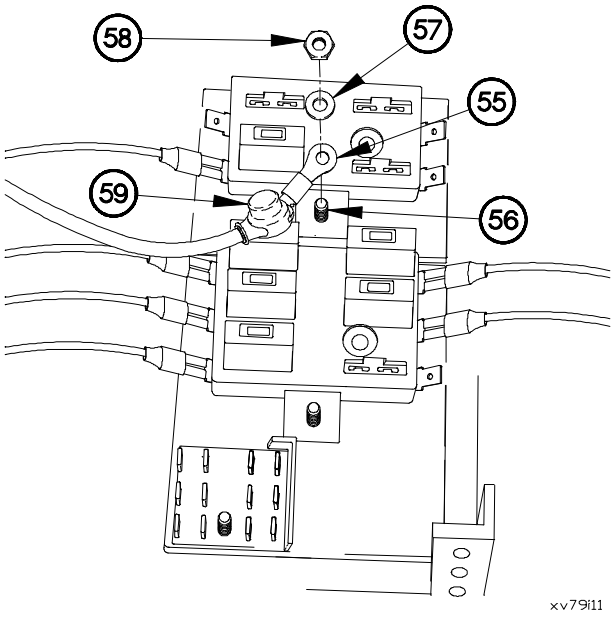
Table 1 – Terminal Lug Locations and Connectors

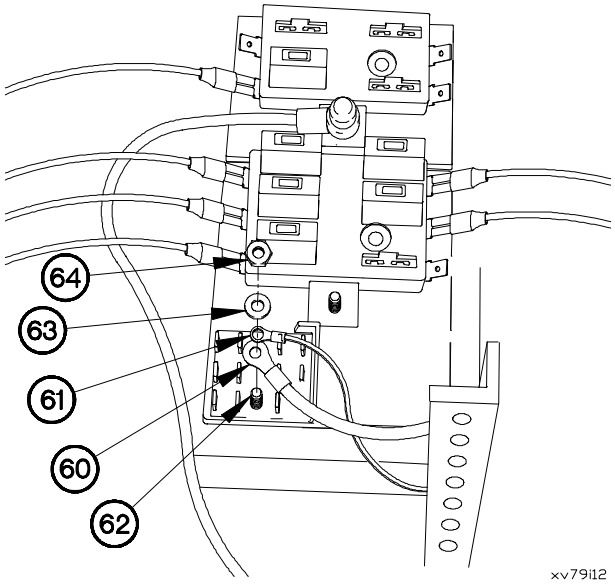
LOCATION	FUNCTION	PD	CONNECTOR	AMP
CB1	MTS SENSE	PD2	TL6	7.5A
CB2	Spare	PD2		Spare
CB3	Spare	PD2		Spare
CB4	Spare	PD2		Spare
CB5	EPLRS	PD1	TL8	10 A
CB6	DVE	PD1	TL3	7.5 A
CB7	PLGR	PD1	TL9	7.5 A
CB8	SINCGAR/FBC2	PD1	TL2	15 A
CB9	Spare	PD1		Spare
CB10	MTS PWR	PD1	TL1	20 A

20-79 DIGITIZATION KIT INSTALLATION (CONT)

(42) Install terminal lug TL15 (55) on stud (56) with washer (57) and nut (58).

(43) Install dust boot (59) on stud (56).

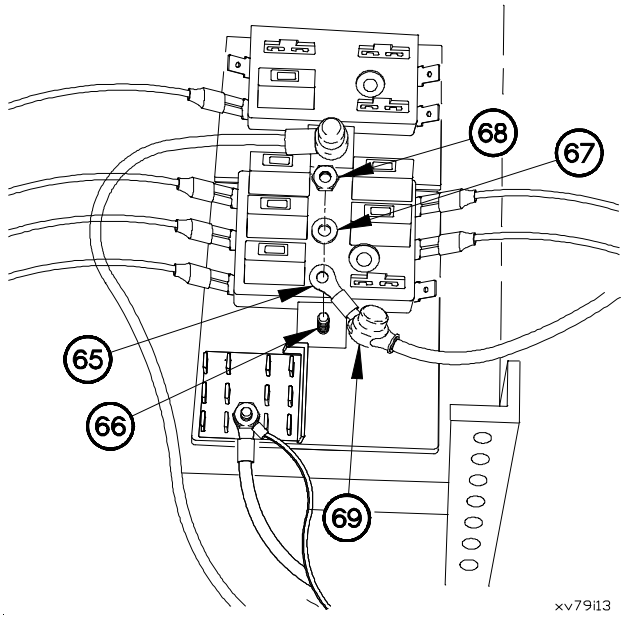


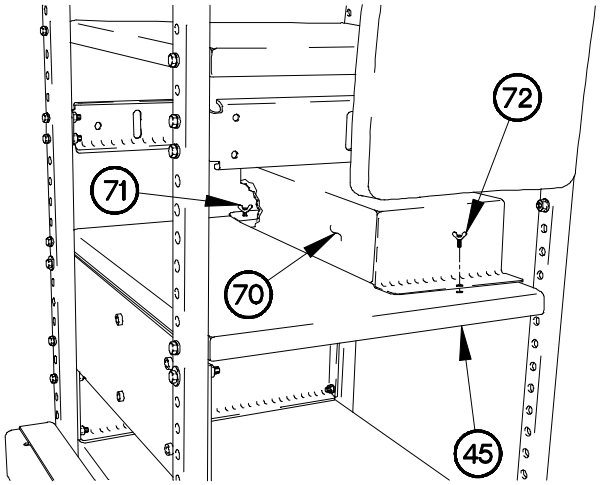


(44) Install terminal lug TL18 (60) and terminal lug TL17 (61) on stud (62) with washer (63) and nut (64).

(45) Install terminal lug TL16 (65) on stud (66) with washer (67) and nut (68).

(46) Install dust boot (69) on stud (66).





(47) Position electrical distribution block cover (70) on power distribution shelf (45).

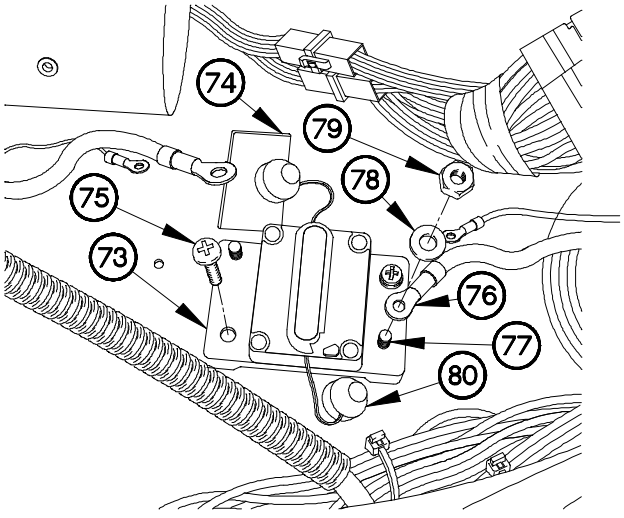
(48) Tighten wing screw (71) on electrical distribution block cover (70).

(49) Install wing screw (72) in electrical distribution block cover (70).

(50) Install circuit breaker CB11 (73) on dashboard (74) with two screws (75).

(51) Install terminal lug TL24 (76) on stud (77) with washer (78) and nut (79).

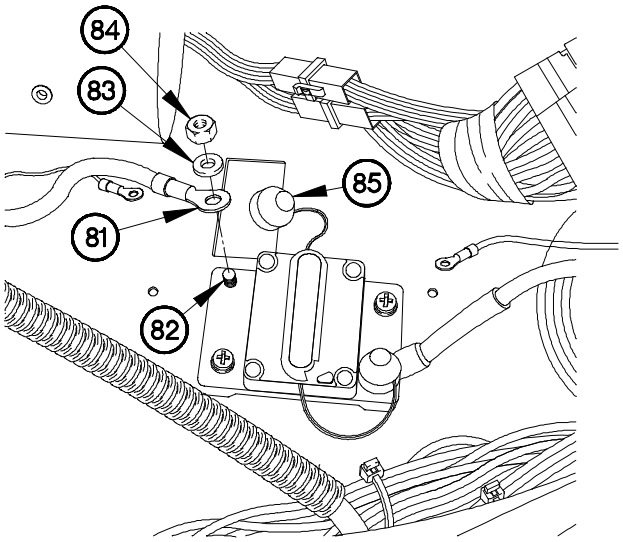
(52) Install dust boot (80) on stud (77).



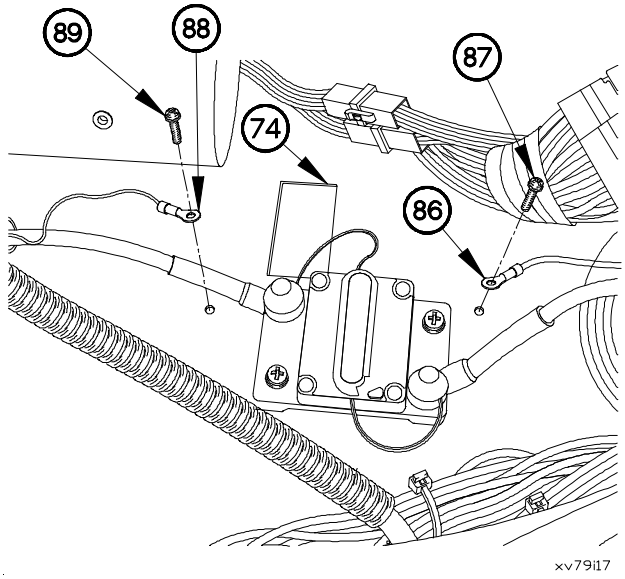
20-79. DIGITIZATION KIT INSTALLATION (CONT)

(53) Install terminal lug TL23 (81) on stud (82) with washer (83) and nut (84).

(54) Install dust boot (85) on stud (82).



xv79i16



xv79i17

(55) Install terminal lug TL25 (86) on dashboard (74) with screw (87).

(56) Install terminal lug TL19 (88) on dashboard (74) with screw (89).

NOTE

- Perform steps (57) through (60) if a new digitization power cable is being installed.
- Perform steps (57) and (58) if replacing the digitization power cable on vehicle serial numbers 00001 through 11347 equipped with WTEC II controller.

(57) Remove terminal lug TL22 ring terminal (90) from NEW digitization power cable and strip insulation 5/16 in (8 mm).

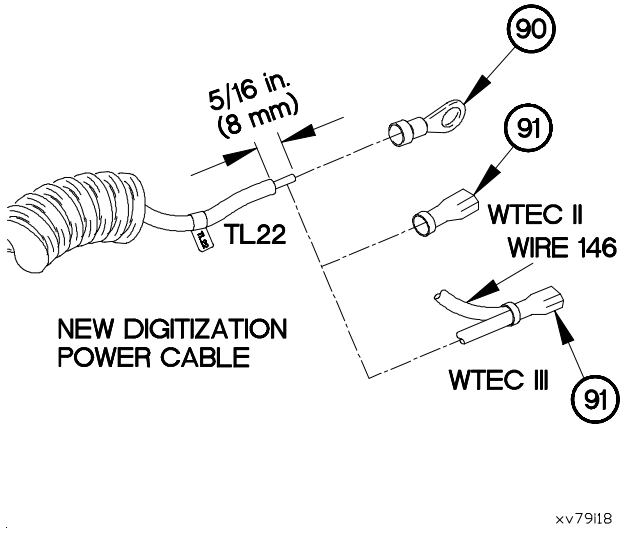
(58) Install terminal lug TL22 spade terminal (91) on NEW digitization power cable.

NOTE

Perform steps (59) and (60) if replaicng the digitization power cable on vehicle serial numbers 00001 through 11347 equipped with WTEC III controller.

(59) Remove terminal lug TL22, ring terminal (90) from NEW digitization power cable and strip insulation 5/16 in (8 mm).

(60) Install terminal lug TL22, spade terminal (91) on NEW digitization power cable and wire 146.



20-79. DIGITIZATION KIT INSTALLATION (CONT)

NOTE

- Perform steps (61) through (68) on vehicle serial numbers 00001 through 11437.
- Peform step (61) on vehicles equipped with WTEC II transmission controllers.

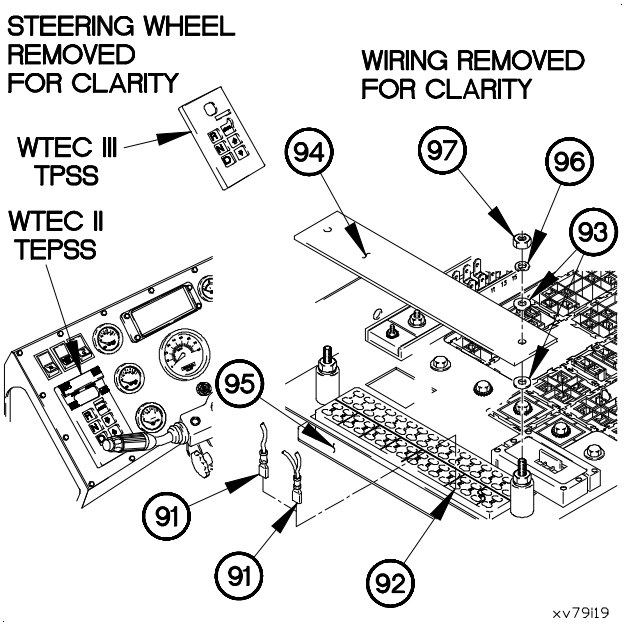
(61) Install terminal lug TL22 (91) on terminal block TB1 connector 58 (92).

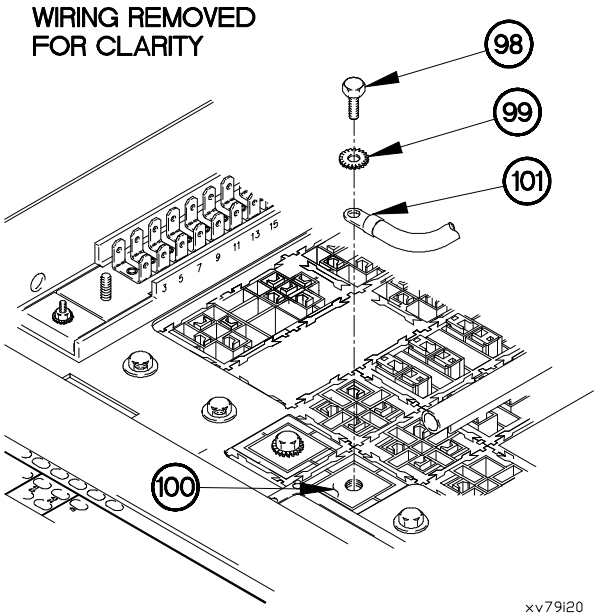
NOTE

Perform step (62) on vehicles equipped with WTEC III transmission controllers.

(62) Install terminal lug TL22 (91) on terminal block TB1 connector 58 (92).

(63) Install two washers (93) and cover (94) on terminal block TB1 (95) with two washers (93), lockwashers (96), and nuts (97).





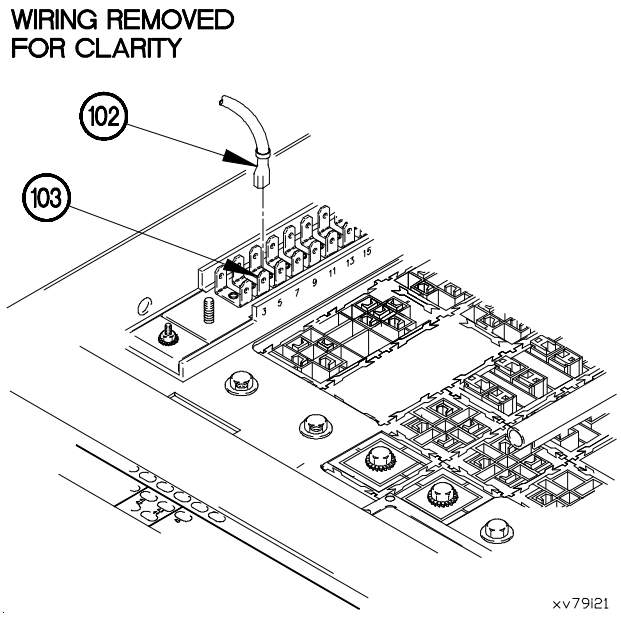
NOTE

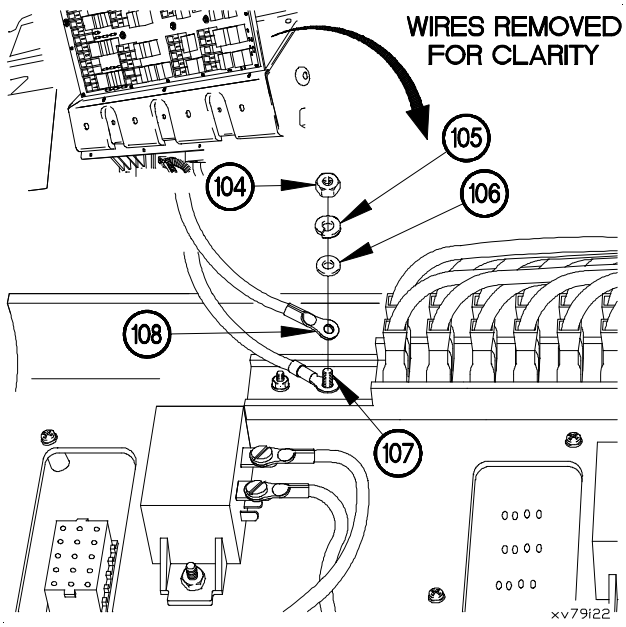
Other terminal lugs are present at this location.

(64) Remove screw (98) and lockwasher (99) from 24 VDC connector X1 (100).

(65) Install terminal lug TL20 (101) on 24 VDC connector X1 (100) with lockwasher (99) and screw (98).

(66) Connect terminal lug TL14 (102) to terminal block TB2 connector 43 (103).





NOTE

Other terminal lugs are present at this location.

(67) Remove nut (104), lockwasher (105), and washer (106) from ground stud (107).

(68) Install terminal lug TL21 (108) on ground stud (107) with washer (106), lockwasher (105), and nut (104).

b. Follow-on Maintenance

(1) Install power distribution panel (para 7-11 WTEC II, Para 7-13 WTEC III).

(2) Install kick panel (para 16-3).

(3) Connect batteries (para 7-57).

(4) Install RH seat (para 7-57)

(5) Operate equipment, check for proper operation.

End of Task

20-80. DIGITIZATION KIT CIRCUIT BREAKER REPLACEMENT

This task covers:

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

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-366-10-1)
Batteries discounted (para 7-57)

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)

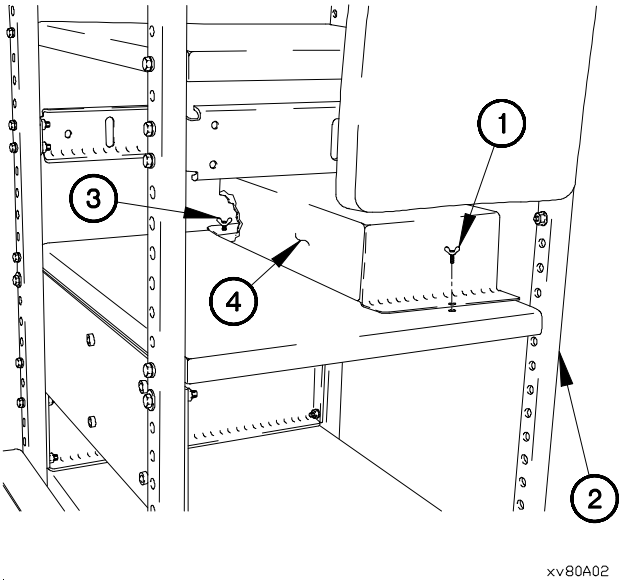
Personnel Required
(2)

a. Removal.

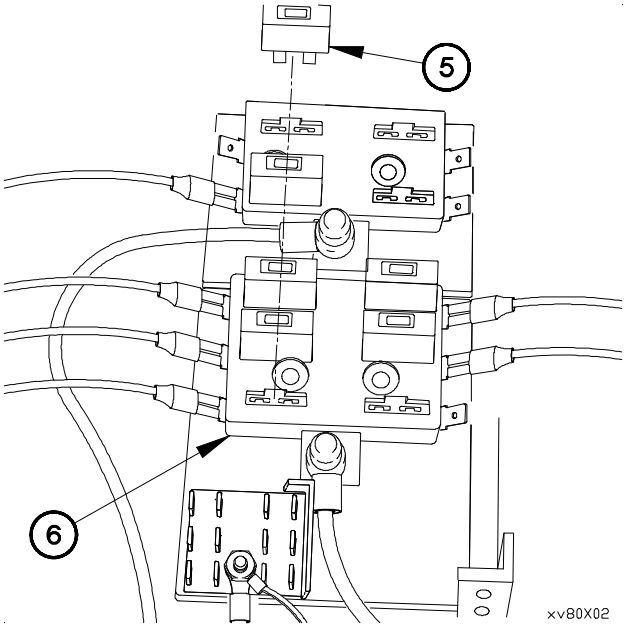
(1) Removal wing screw (1) from power distribution shelf (2).

(2) Loosen wing screw (3) on electrical distribution block cover (4).

(3) Remove electrical distribution block cover (4) from power distribution shelf (2).



xv80A02



xv80X02

NOTE

All circuit breakers in digitization power distribution panels PD1 and PD2 are replaced the same way. MTS Power CB10

(4) Locate circuit breaker to be replaced.

NOTE

Refer to **Figure 3-1. Power Distribution Circuit Breaker Locations** and **Table 3-1 Power Distribution Circuit Breakers** for details.

(5) Remove circuit breaker (5) from power distribution panel PD1 (6).

Figure 3-1. Power Distribution Circuit Breaker Locations

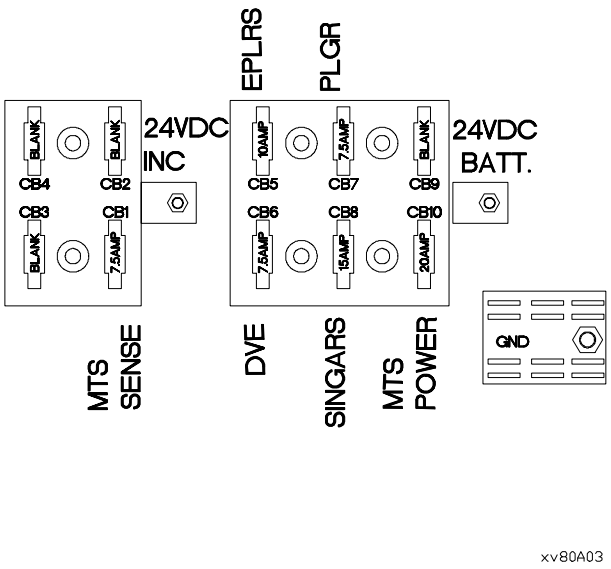


Table 3-1. Power Distribution Panel Circuit Breakers.

CB	Amp	Function	Reset	P/N
CB1	7.5 AMP	MTS SENSE	Manual	223-7.5-400
CB2		Blank		
CB3		Blank		
CB4		Blank		
CB5	10 AMP	DPLARS	Manual	223-10-400
CB6	7.5 AMP	DVE	Manual	223-7.5-400
CB7	7.5 AMP	PLGR	Manual	223-7.5-400
CB8	15 AMP	SINCGARS/FBCB2	Manual	223-15-400
CB9		Blank		
CB10	20 AMP	MTS POWER	Manual	2223-20-400

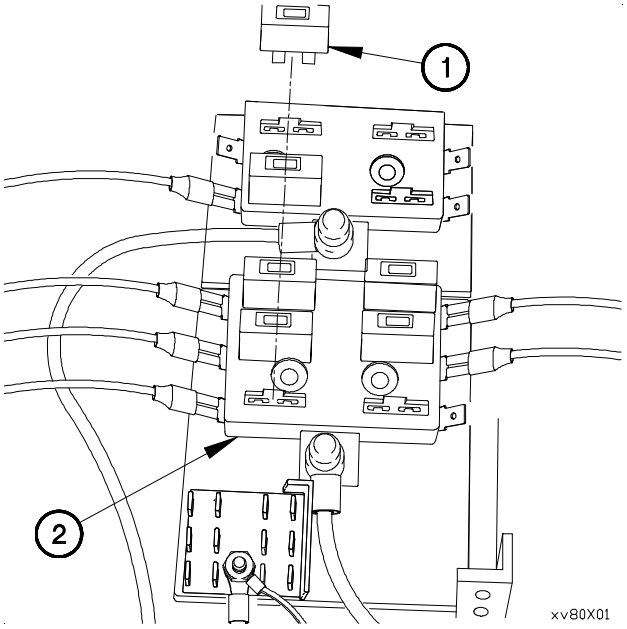
20-80. DIGITIZATION KIT CIRCUIT BREAKER REPLACEMENT (CONT)

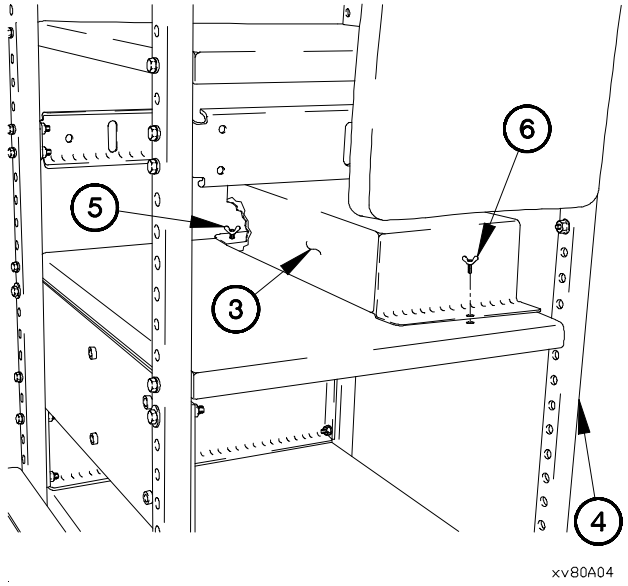
b. Installation

NOTE

Refer to **Figure 3-1. Power distribution Circuit Breaker Locations** and **Table 3-1 Power Distribution Circuit Breakers** for details.

(1) Install circuit breaker (1) on power distribution panel PD1 (2).





(2) Position electrical distribution block cover (3) on power distribution shelf (4).

(3) Tighten wing screw (5) on electrical distribution block cover (3).

(4) Install wing screw (6) in power distribution shelf (4).

c. Follow-on Maintenance

Connect batteries (para 7-57)

End of Task

20-81. DIGITIZATION KIT POWER CABLE REMOVAL/INSTALLATION

This task covers:

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

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-366-10-1)
Batteries discounted (para 7-57)
Kick panel removed (para 16-3)
Power Distribution Panel removed for access (para 16-2)

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Tool Kit Electrical Contact Repair (Item 45 Appendix C)

Materials/Parts
Lockwasher (2) (Item 113.1, Appendix G)
Ties, Cable, Plastic (Item 69, Appendix D)
Lockwasher (6) (Item 107.1, Appendix G)
Dispenser Pressure Sensitive Adhesive Tape (Item 20, Appendix D)
Terminal Lug (Item 279.01, Appendix G)
Nut, Self-Locking (Item 146.1, Appendix G)

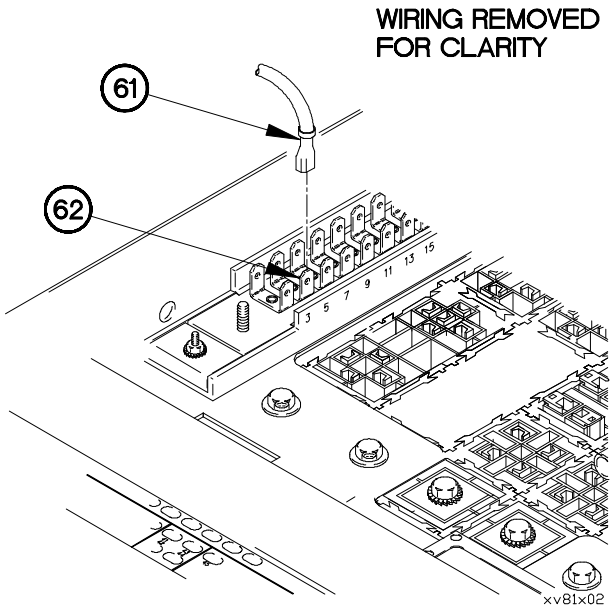
Personnel Required
(2)

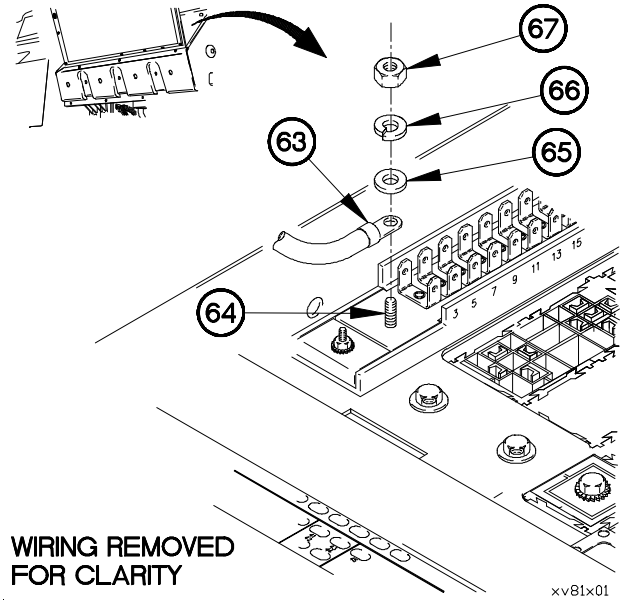
a. Removal.

NOTE

Perform steps (1) through (4) on vehicle serial numbers 00001 through 11437.

(1) Remove nut (1), lockwasher (2), washer (3), and terminal lug TL21 (4) from ground stud (5). Discard lockwasher.

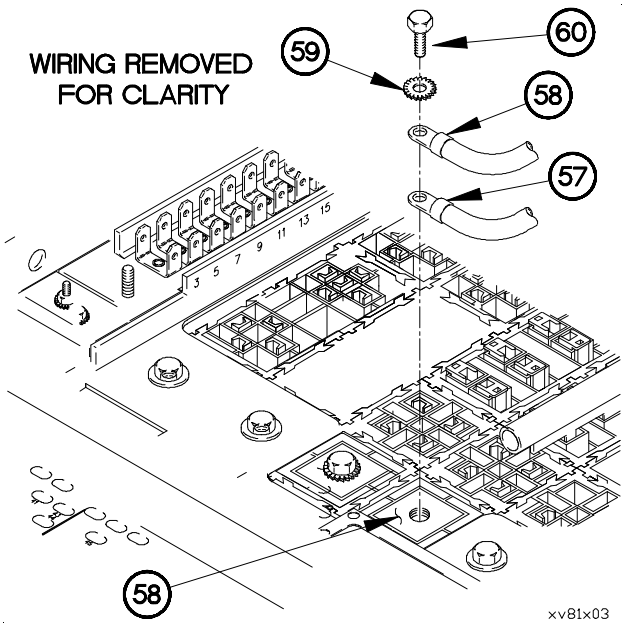


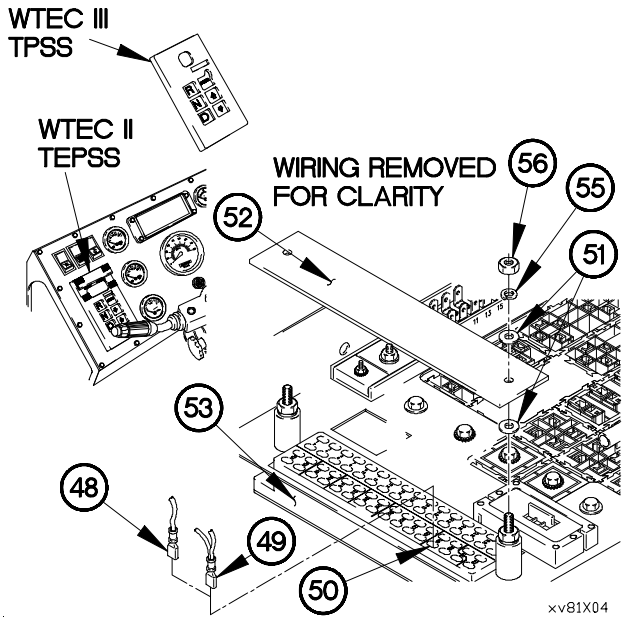


(2) Disconnect terminal lug TL14 (6) from terminal block TB2 connector 5 (7).

20-81. DIGITIZATION KIT POWER CABLE REMOVAL/INSTALLATION (CONT)

(3) Remove screw (8), lockwasher (9), and terminal lug TL20 (10) from 24 VDC connector X1 (11). Discard lockwasher.





(4) Remove two nuts (12), lockwashers (13), washers (14), cover (15), and two washers (14) from terminal block TB1 (16). Discard lockwasher.

NOTE

Perform step (5) on vehicles equipped with WTEC II transmission controllers.

(5) Remove terminal lug TL22 (17) from terminal block TB1 connector 58 (18).

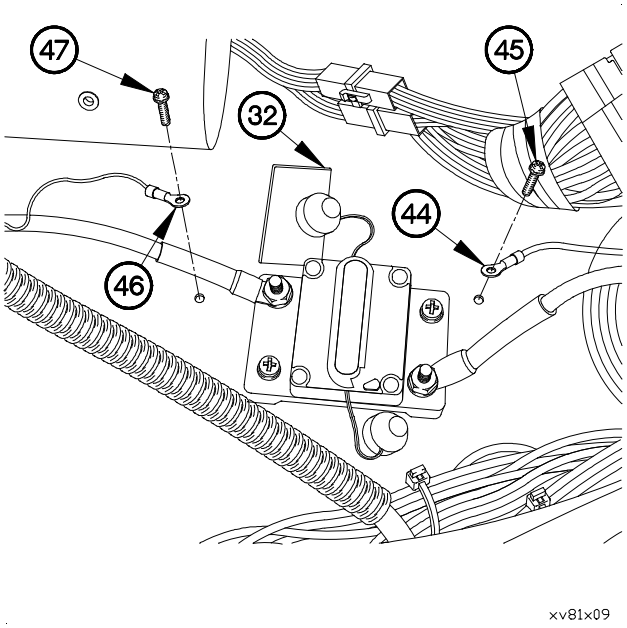
NOTE

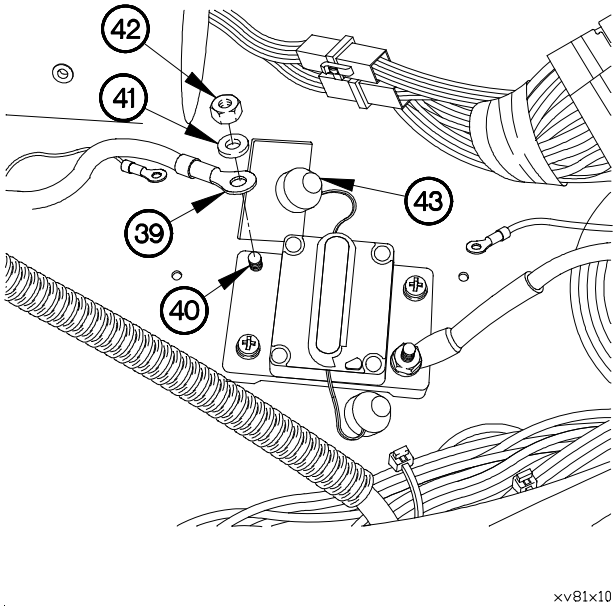
Perform step (6) on vehicles equipped with WTEC III transmission controllers.

(6) Remove terminal lug TL22 (19) from terminal block TB1 connector 58 (18).

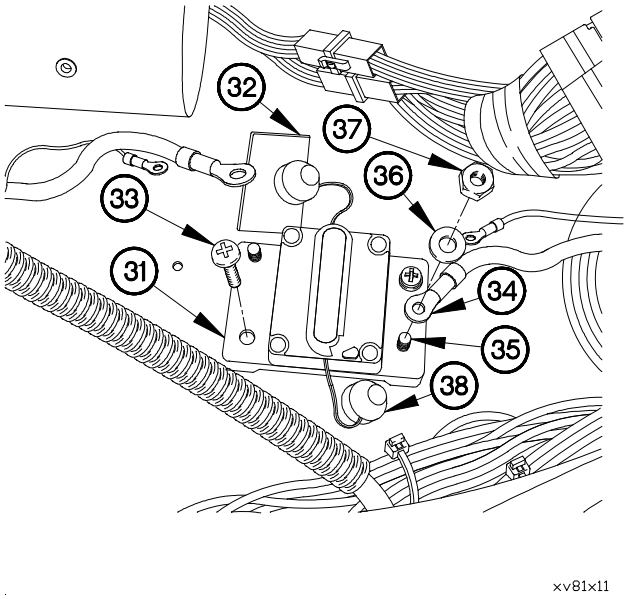
(11) Remove screw (20) and terminal lug TL25 (21) from dashboard (22).

(12) Remove screw (23) and terminal lug TL19 (24) from dashboard (22).





(13) Remove dust boot (25), nut (26), washer (27), and terminal lug TL23 (28) from stud (29).



(14) Remove dust boot (30), nut (31), washer (32), and terminal lug TL24 (33) from stud (34).

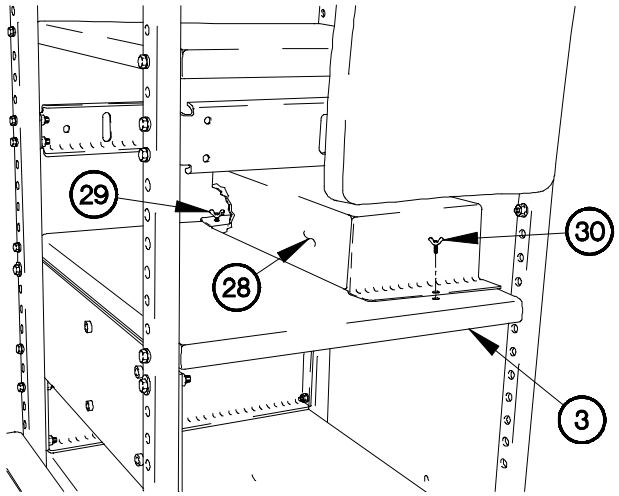
(15) Remove two screws (35) and circuit breaker CB11 (36) from dashboard (22).

20-81. DIGITIZATION KIT POWER CABLE REMOVAL/INSTALLATION (CONT)

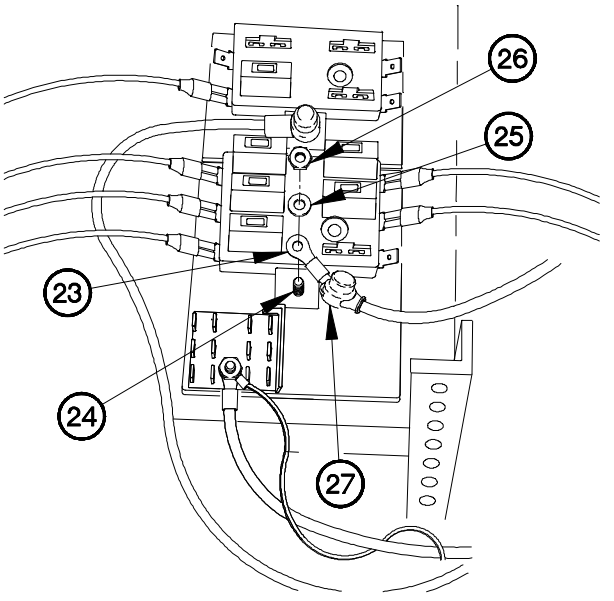
(16) Remove wing screw (37) from electrical distribution block cover (38).

(17) Loosen wing screw (39) on electrical distribution block cover (38).

(18) Remove electrical distribution block cover (38) from power distribution shelf (40).

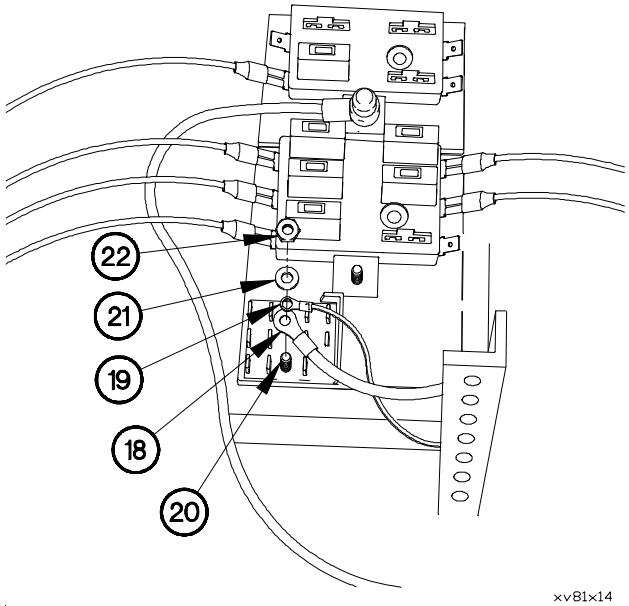


xv81x12



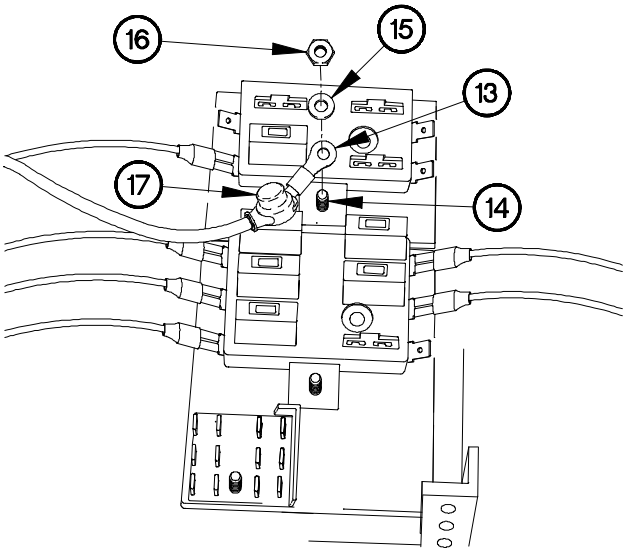
xv81x13

(19) Remove dust boot (41), nut (42), washer (43), and terminal lug TL16 (44) from stud (45).



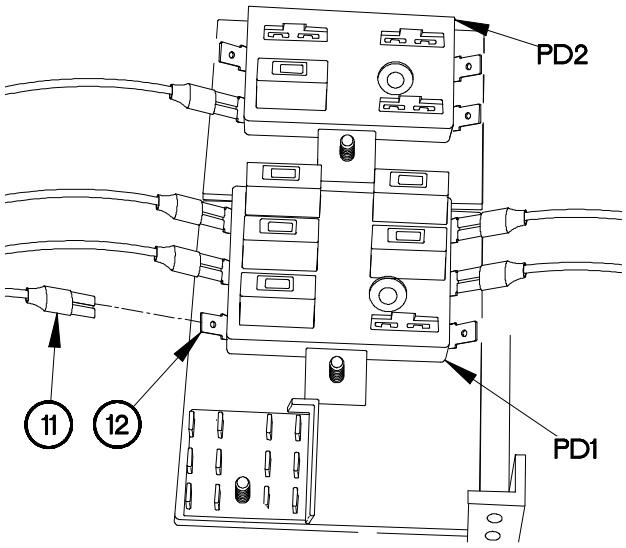
xv81x14

(20) Remove nut (46), washer (47), terminal lug TL17 (48), and terminal lug TL18 (49) from stud (50).



xv81x15

(21) Remove dust boot (51), nut (52), washer (53), and terminal lug TL15 (54) from stud (55).



xv81x16

NOTE

- Terminal lugs are disconnected the same way. One terminal lug shown.
- Refer to **Table 1 Terminal Lug Locations and Connectors** for details.

(22) Disconnect terminal lug TL1 (56) from distribution panel PD1 CB10 connector (57).

(23) Perform step (22) on remaining terminal lugs.

Table 1 – Terminal Lug Locations and Connectors

LOCATION	FUNCTION	PD	CONNECTOR	AMP
CB1	MTS SENSE	PD2	TL6	7.5A
CB2	Spare	PD2		Spare
CB3	Spare	PD2		Spare
CB4	Spare	PD2		Spare
CB5	EPLRS	PD1	TL8	10 A
CB6	DVE	PD1	TL3	7.5 A
CB7	PLGR	PD1	TL9	7.5 A
CB8	SINCGAR/FBC2	PD1	TL2	15 A
CB9	Spare	PD1		Spare
CB10	MTS PWR	PD1	TL1	20 A

20-81. DIGITIZATION KIT POWER CABLE REMOVAL/INSTALLATION (CONT)

(24) Remove circuit breakers from distribution panels PD1 and PD2 (para 20-80).

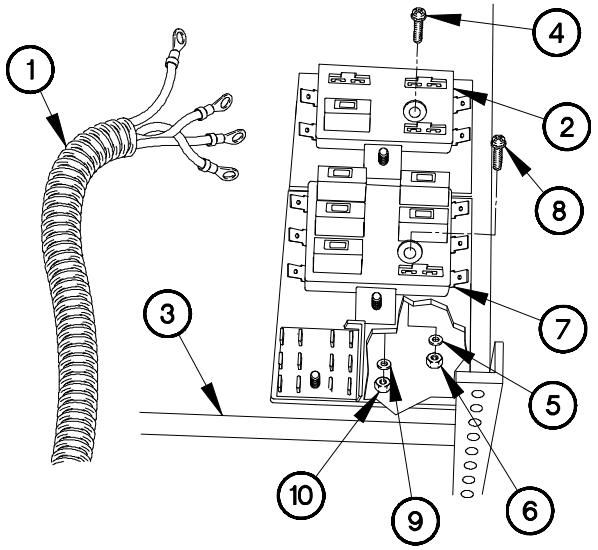
(25) Remove four nuts (58), lockwashers (59), screws (60), and distribution panel PD1 (61) from power distribution shelf (40). Discard lockwashers.

(26) Remove two nuts (62), lockwashers (63), screws (64), and distribution panel PD2 (65) from power distribution shelf (40). Discard lockwashers.

NOTE

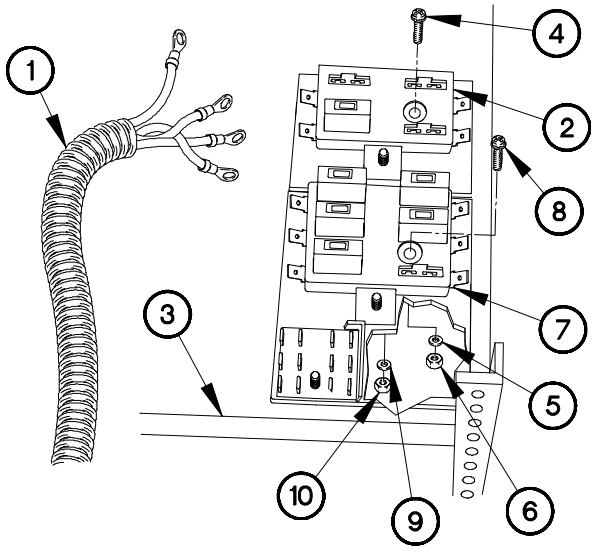
Note routing of digitization power cable prior to removal.

(27) Remove digitization power cable (66) from vehicle.



xv81x17

b. Installation



xv81x17

(1) Position digitization power cable (1) in vehicle.

(2) Install distribution panel PD2 (2) on power distribution shelf (3) with two screws (4), lockwashers (5), and nuts (6).

(3) Install distribution panel PD1 (7) on power distribution shelf (3) with four screws (8), lockwashers (9), and nuts (10).

(4) Install circuit breakers in distribution panels PD2 and PD1 (para 20-80).

NOTE

- Terminal lugs are connected the same way. One terminal lug shown.
- Refer to **Table 1 Terminal Lug Locations and Connectors** for details.

(5) Connect terminal lug TL1 (11) to distribution panel PD1 CB10 (12).

(6) Perform step (5) on remaining terminal lugs.

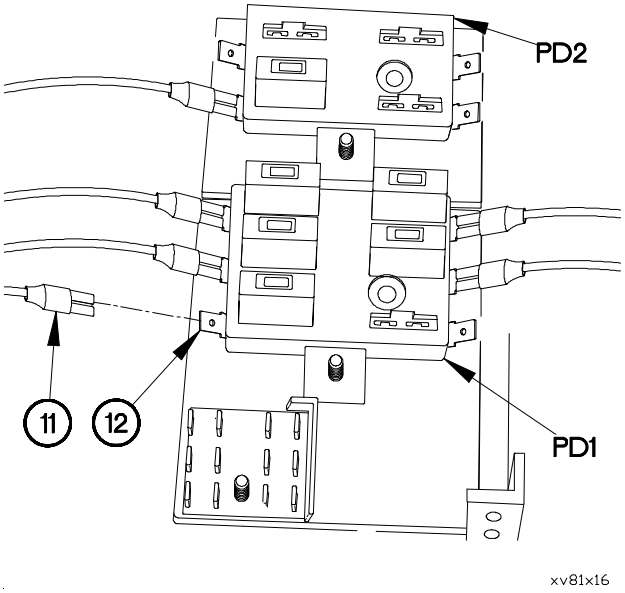


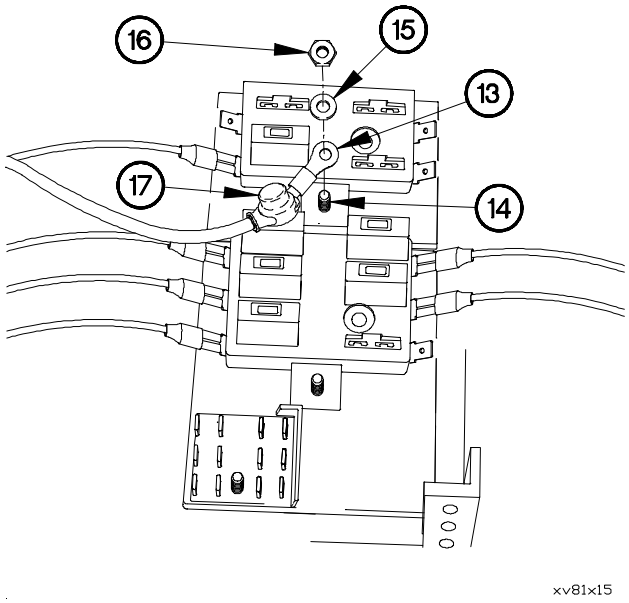
Table 1 – Terminal Lug Locations and Connectors

LOCATION	FUNCTION	PD	CONNECTOR	AMP
CB1	MTS SENSE	PD2	TL6	7.5A
CB2	Spare	PD2		Spare
CB3	Spare	PD2		Spare
CB4	Spare	PD2		Spare
CB5	EPLRS	PD1	TL8	10 A
CB6	DVE	PD1	TL3	7.5 A
CB7	PLGR	PD1	TL9	7.5 A
CB8	SINCGAR/FBC2	PD1	TL2	15 A
CB9	Spare	PD1		Spare
CB10	MTS PWR	PD1	TL1	20 A

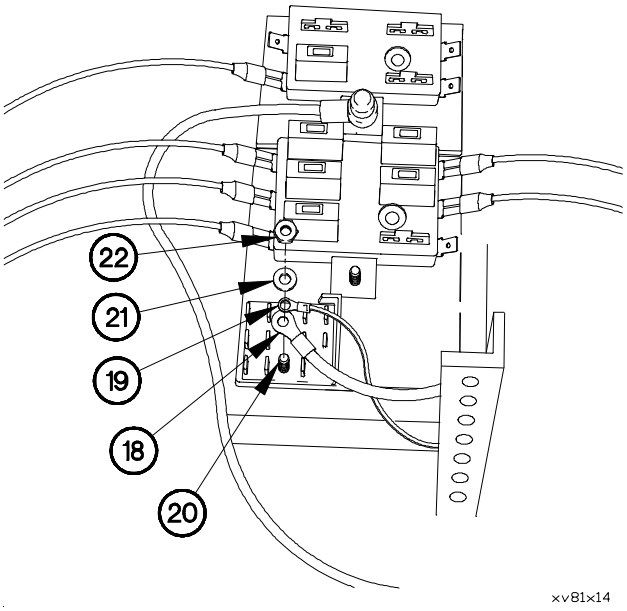
20-81. DIGITIZATION KIT POWER CABLE REMOVAL/INSTALLATION (CONT)

(7) Install terminal lug TL15 (13) on stud (14) with washer (15) and nut (16).

(8) Install dust boot (17) on stud (14).



xv81x15

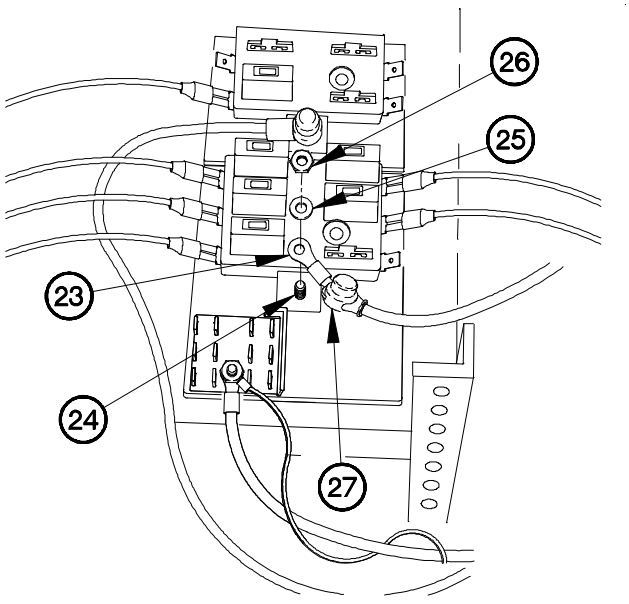


xv81x14

(9) Install terminal lug TL18 (18) and terminal lug TL17 (19) on stud (20) with washer (21) and nut (22).

(10) Install terminal lug TL16 (23) on stud (24) with washer (25) and nut (26).

(11) Install dust boot (27) on stud (24).

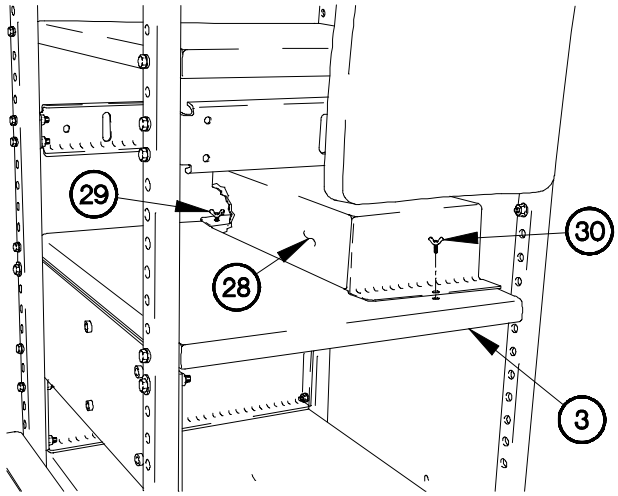


xv81x13

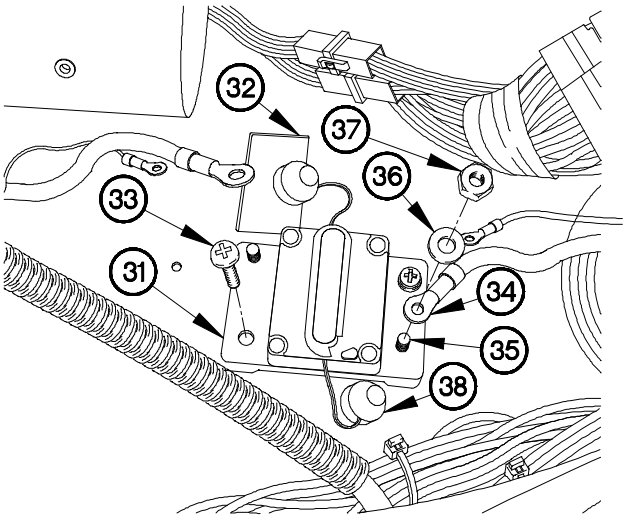
(12) Position electrical distribution block cover (28) on power distribution shelf (3).

(13) Tighten wing screw (29) on electrical distribution block cover (28).

(14) Install wing screw (30) in electrical distribution block cover (28).



xv81x12



xv81x11

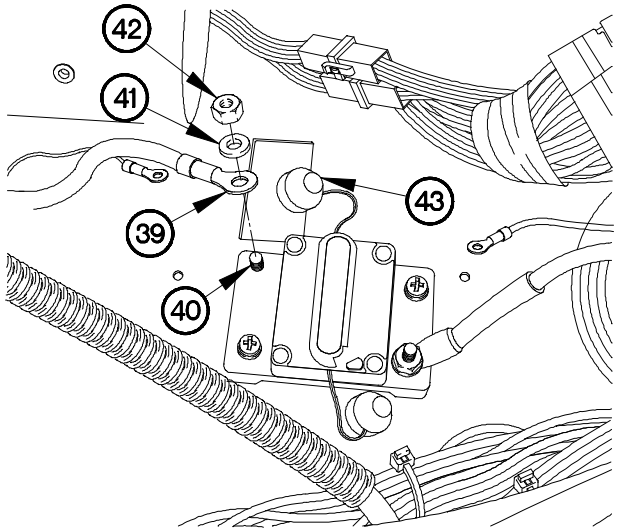
(15) Install circuit breaker CB11 (31) on dashboard (32) with two screws (33).

(16) Install terminal lug TL24 (34) on stud (35) with washer (36) and nut (37).

(17) Install dust boot (38) on stud (35).

(18) Install terminal lug TL23 (39) on stud (40) with washer (41) and nut (42).

(19) Install dust boot (43) on stud (40).

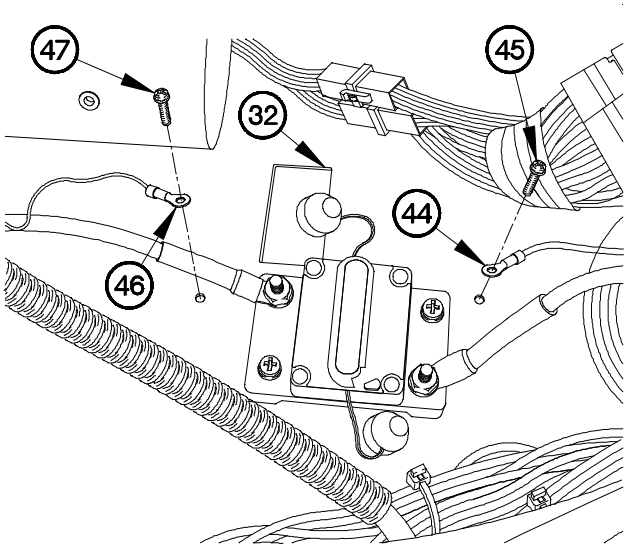


xv81x10

20-81. DIGITIZATION KIT POWER CABLE REMOVAL/INSTALLATION (CONT)

(20) Install terminal lug TL25 (44) on dashboard (32) with screw (45).

(21) Install terminal lug TL19 (46) on dashboard (32) with screw (47).



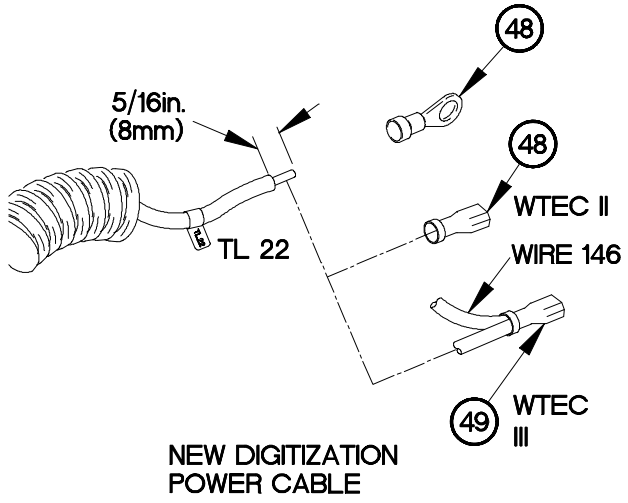
xv81x09

NOTE

Perform steps (22) and (23) if replacing the digitization power cable on vehicle serial numbers 0001 through 11347 equipped with WTEC II controller.

(22) Remove terminal lug TL22 ring terminal (48) from NEW digitization power cable and strip insulation 5/16 in (8 mm).

(23) Install terminal lug TL22 spade terminal (48) on NEW digitization power cable.



xv81X18

NOTE

Perform steps (24) and (25) if replacing the digitization power cable on vehicle serial numbers 00001 through 11347 equipped with WTEC III controller.

(24) Remove terminal lug TL22, ring terminal (49) from NEW digitization power cable and strip insulation 5/16 in (8 mm).

(25) Install terminal lug TL22, spade terminal (49) on NEW digitization power cable and wire 146.

NOTE

Perform step (26) on vehicles equipped with WTEC II transmission controllers.

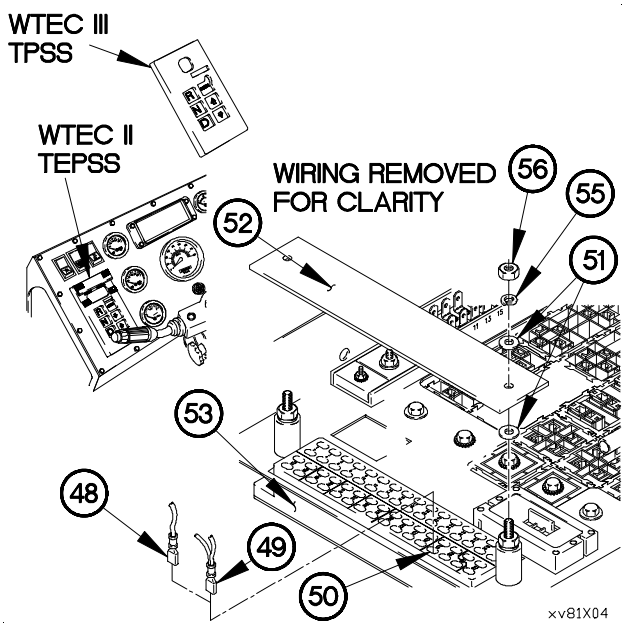
(26) Install terminal lug TL22 (48) on terminal block TB1 connector 58 (18).

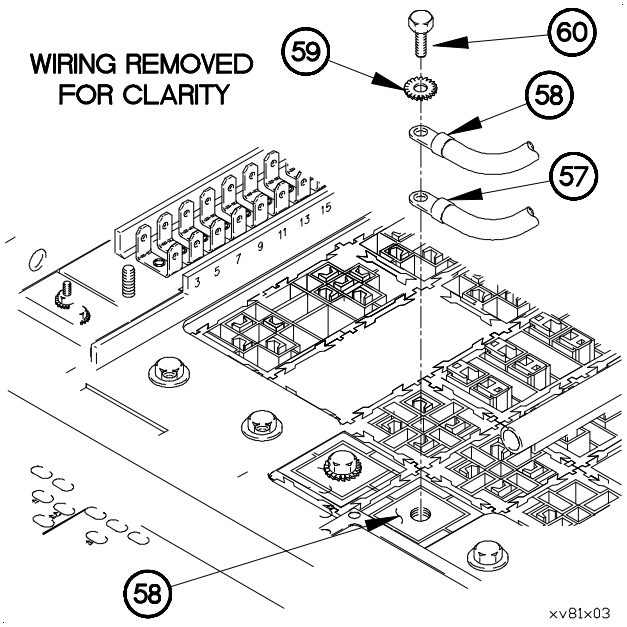
NOTE

Perform step (27) on vehicles equipped with WTEC III transmission controllers.

(27) Install terminal lug TL22 (49) on terminal block TB1 connector 58 (50).

(28) Install two washers (51) and cover (52) on terminal block TB1 (53) with two washers (54), lockwashers (55), and nuts (56).

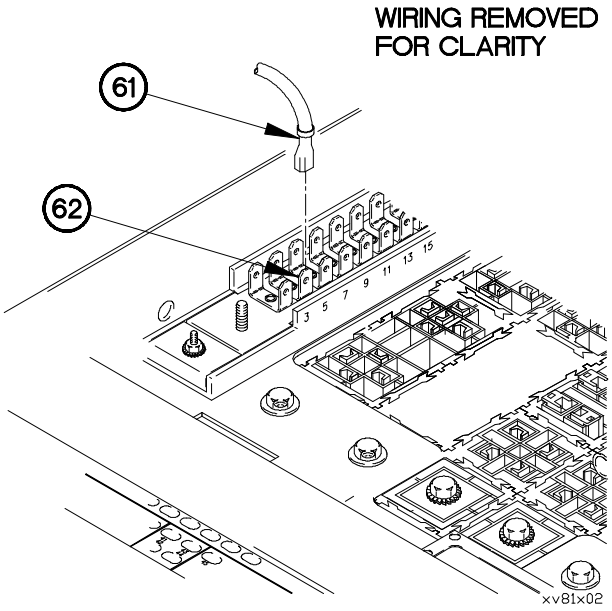


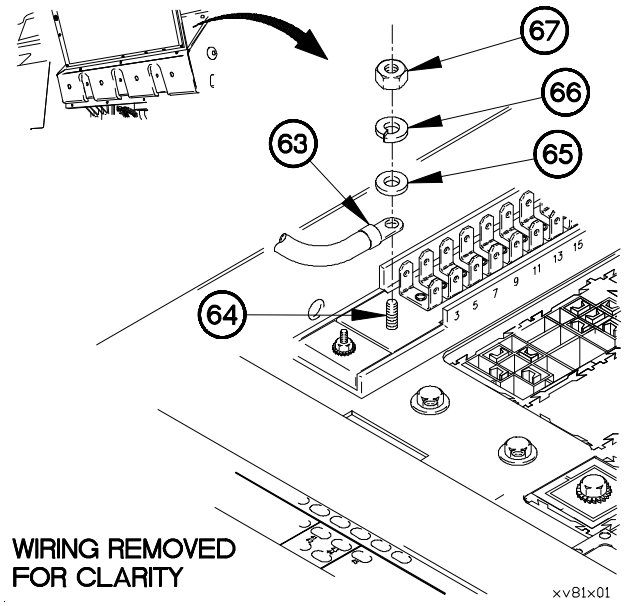


(29) Install terminal lug TL20 (57) on 24 VDC connector X1 (58) with lockwasher (59) and screw (60).

20-81. DIGITIZATION KIT POWER CABLE REMOVAL/INSTALLATION (CONT)

(30) Connect terminal lug TL14 (61) to terminal block TB2 connector 43 (62).





(31) Install terminal lug TL21 (63) on ground stud (64) with washer (65), lockwasher (66), and nut (67).

c. Follow-on Maintenance

(1) Install power distribution panel (para 16-2).

(2) Install kick panel (para 16-3)

(3) Connect batteries (para 7-57).

(4) Operate equipment, check for proper operation.

End of Task

20-82. DIGITIZATION KIT RADIO RACK ASSEMBLY REPLACEMENT/REPAIR

This task covers:

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

INITIAL SETUP

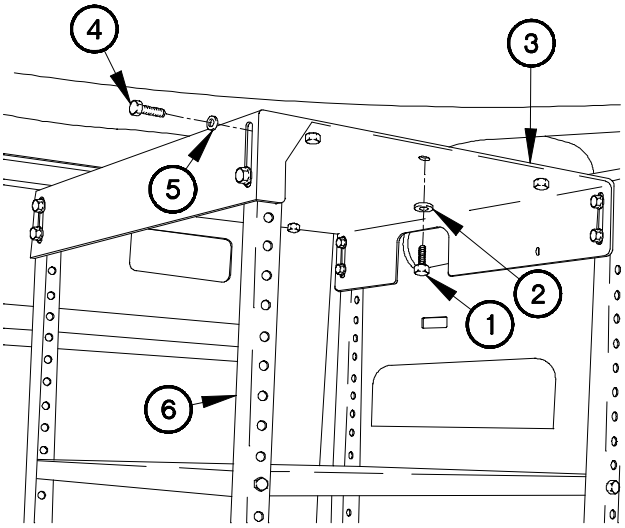
Equipment Conditions
Engine shut down (TM 9-2320-366-10-1)
Batteries discounted (para 7-57)
Equipment and mounting base(s) removed.
Digitization power cable, removed (para 20-81)
RH seat removed, (para 16-15)

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Wrench, Torque,0-150lb-in. (Item 59 Appendix C)
Socket Wrench Set (Item 51, Appendix C)

Materials/Parts
Ties, Cable, Plastic (Item 69, Appendix D)
Sealant (Item 55.1, Appendix D)

Personnel Required
(2)

a. Removal.



xv82A01

(1) Remove six screws (1) and washers (2) from top support (3).

(2) Remove eight screws (4),washers (5), and top support (3) from rack assembly (6).

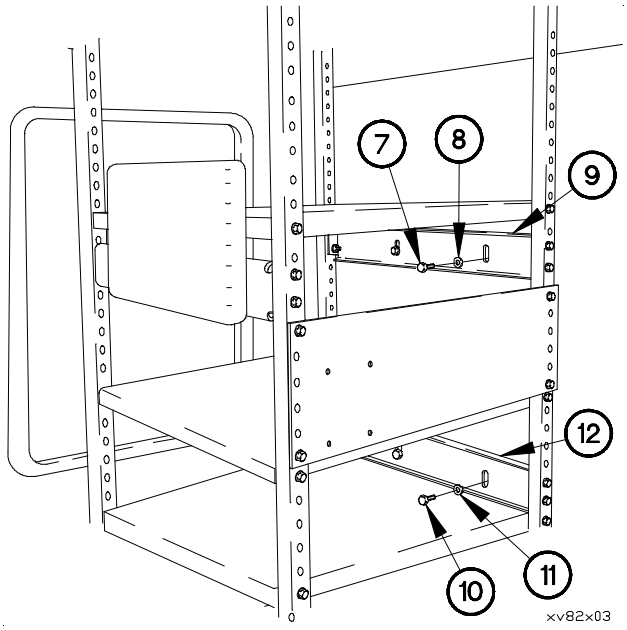
20-82. DIGITIZATION KIT RADIO RACK ASSEMBLY REPLACEMENT/REPAIR (CONT)

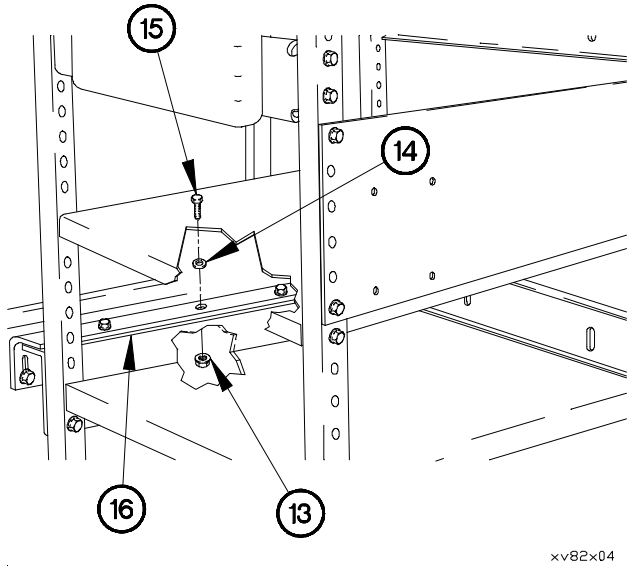
CAUTION

Spacers may be used with vehicles equipped with rear panels. Use caution when removing screws so that washers do not fall behind panel or disassembly may be required to recover washers.

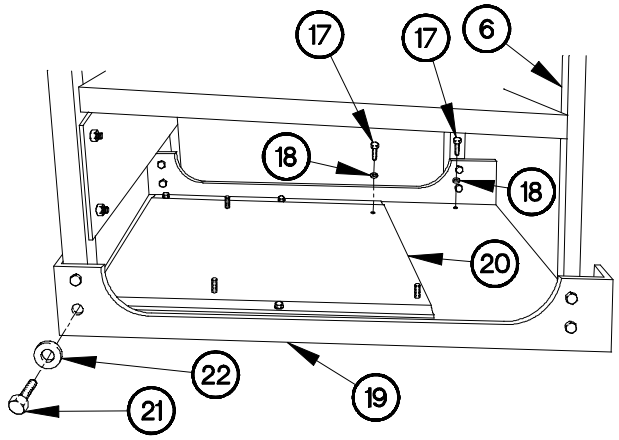
(3) Remove two screws (7) and washers (8) from rear upper support (9).

(4) Remove two screws (10) and washers (11) from rear mid support (12).





(5) Remove three self-locking nuts (13), washers (14), and screws (15) from outer side support (16). Discard self-locking nuts.



xv82x05

(6) Remove two screws (17) and washers (18) from bottom support (19).

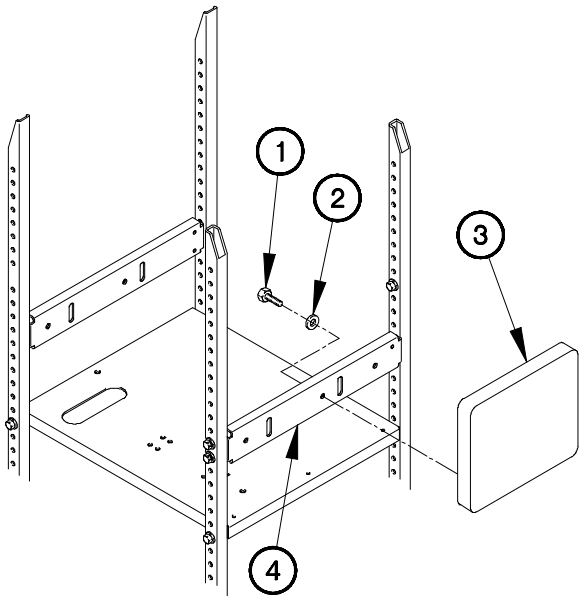
(7) Remove four screws (17), washers (18), and MTS plate (20) from bottom support (19).

(8) Remove eight screws (21) and washers (22) from bottom support (19).

(9) Remove rack assembly (6) from bottom support (19).

(10) Remove rack assembly (6) and bottom support (19) from cab.

b. Disassembly.



xv82a03

(1) Remove four screws (1), washers (2), and head pad (3) from head pad base (4).

20-82. DIGITIZATION KIT RADIO RACK ASSEMBLY REPLACEMENT/REPAIR (CONT)

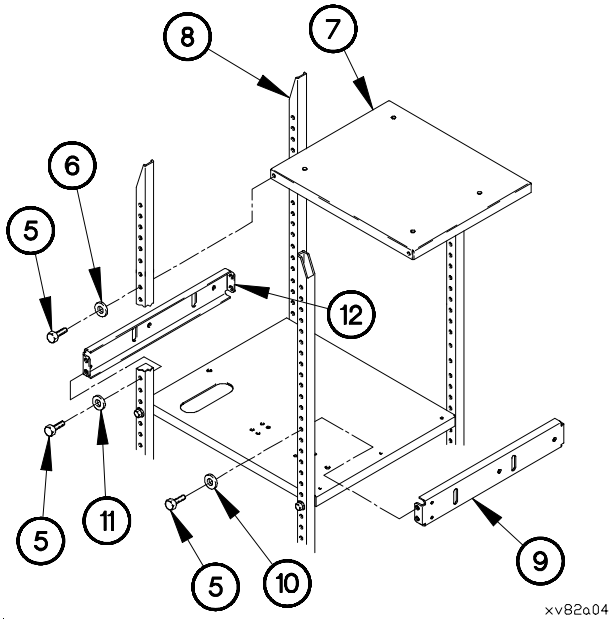
NOTE

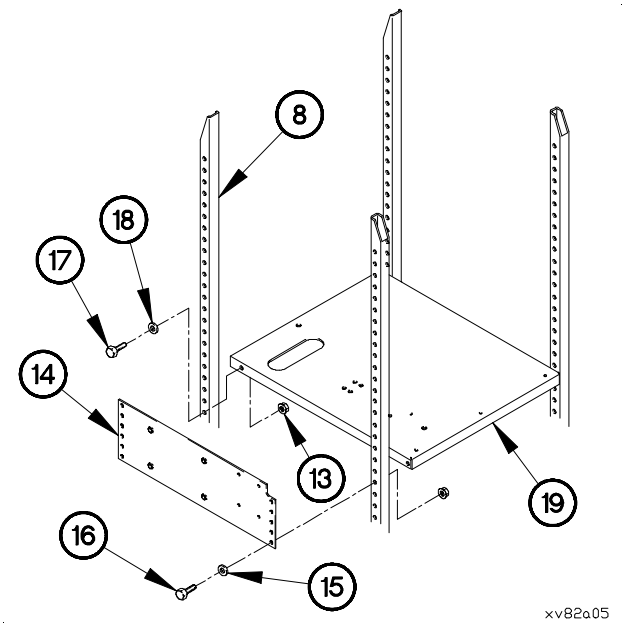
Note shelf and brace locations prior to removal.

(2) Remove four screws (5), washers (6), and SINGGAR shelf (7) from support legs (8).

(3) Remove four screws (5), washers (10), and head pad brace (9) from four support legs (8).

(4) Remove four screws (5), washers (11), and top rear wall brace (12) from four support legs (8).



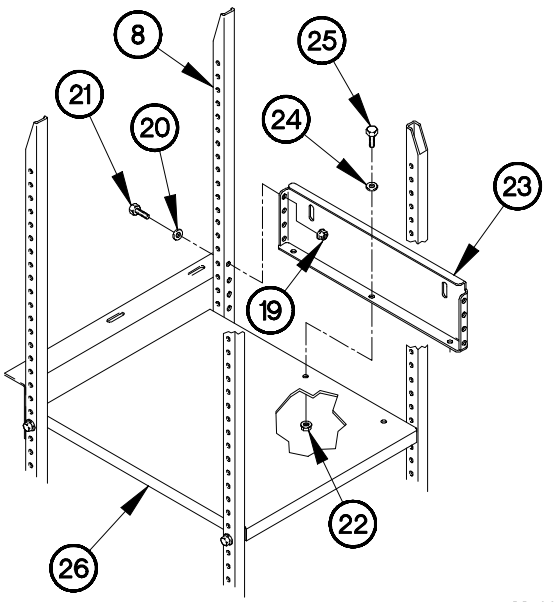


(5) Remove four self-locking nuts (13), PLGR/M42 alarm plate (14), four washers (15), and screws (16) from support legs (8). Discard self-locking nuts.

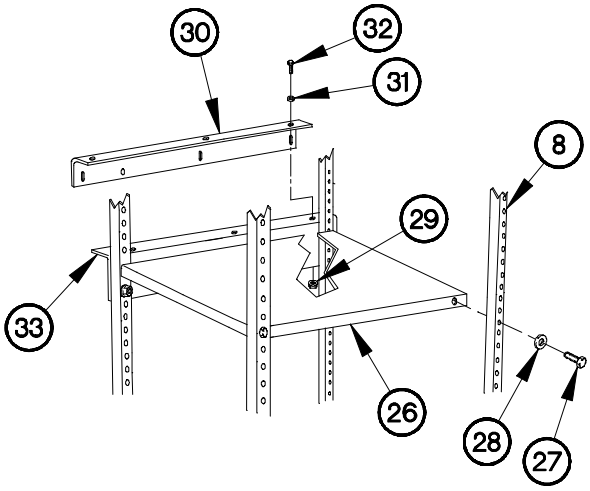
(6) Remove four screws (17), washers (18), and power distribution panel (19) from support legs (8).

(7) Remove four self-locking nuts (19), washers (20), and screws (21) from support legs (8). Discard self-locking nuts.

(8) Remove three self-locking nuts (22), rear M10 support (23), three washers (24), and screws (25) from EPLRS shelf (26). Discard self-locking nuts.



xv82a06

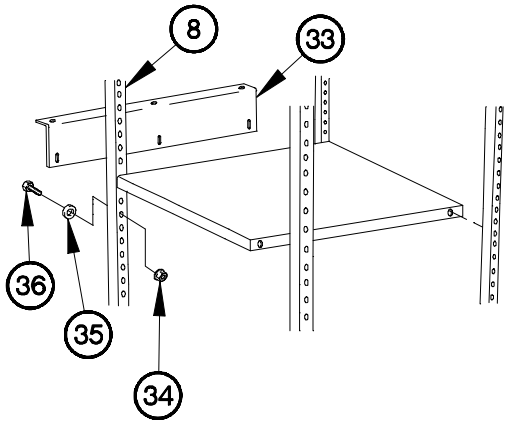


xv82a07

(9) Remove four screws (27), washers (28), and EPLRS shelf (26) from support legs (8).

(10) Remove three self-locking nuts (29), outer side support (30), three washers (31), and screws (32) from inter side support (33). Discard self-locking nuts.

(11) Remove two self-locking nuts (34), inner side support (33), two washers (35), and screws (36) from support legs (8).

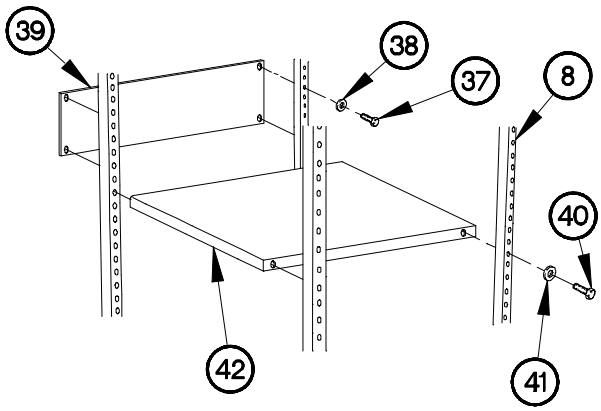


xv82a15

20-82. DIGITIZATION KIT RADIO RACK ASSEMBLY REPLACEMENT/REPAIR (CONT)

(12) Remove four screws (37), washers (38), and stiffening plate (39) from four support legs (8).

(13) Remove four screws (40), washers (41), and support legs (8) from FBCB2 shelf (42).

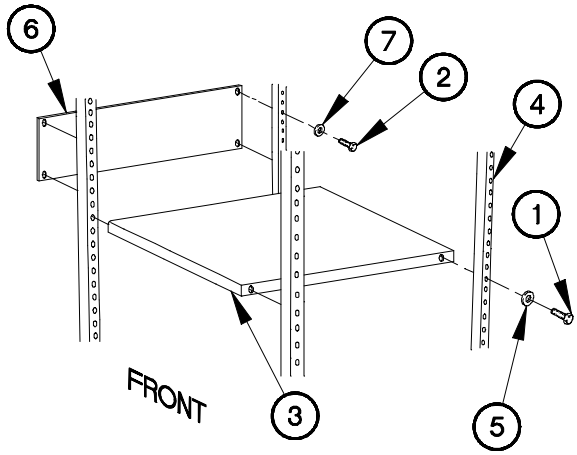


xv82a08

c. 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.



xv82a09

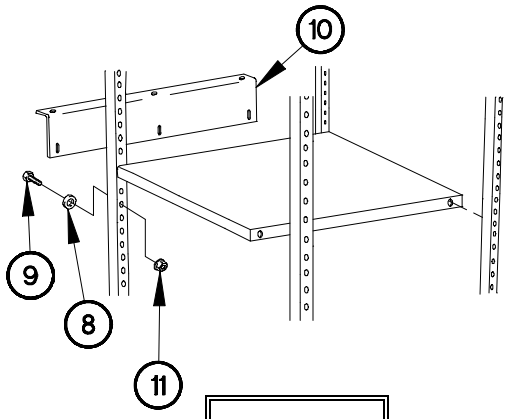
(1) Apply sealant to threads of four screws (1 and 2).

(2) Install FBCB2 (3) on four support legs (4) with washers (5) and screws (1).

(3) Install stiffening plate (6) on support legs (4) with four washers (7) and screws (2).

(4) Position two washers (8) and screws (9) in inner side support (10) with two self locking nuts (11).

(5) Tighten two self-locking nuts (11) to 110-120 lb-in. (12-14 N•m).



xv82a16

WARNING

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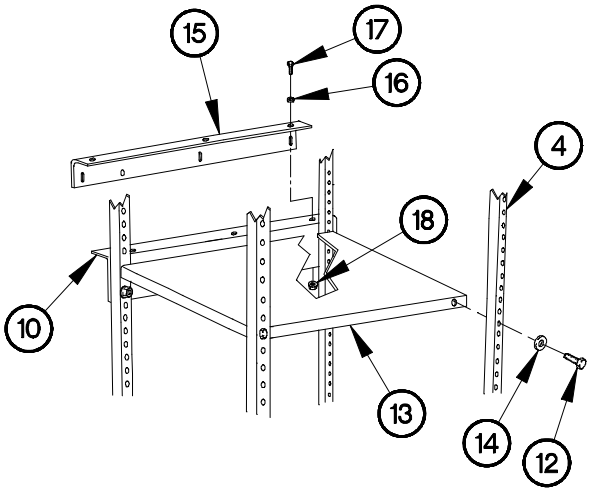


xv82a018

(6) Apply sealant to threads of four screws (12).

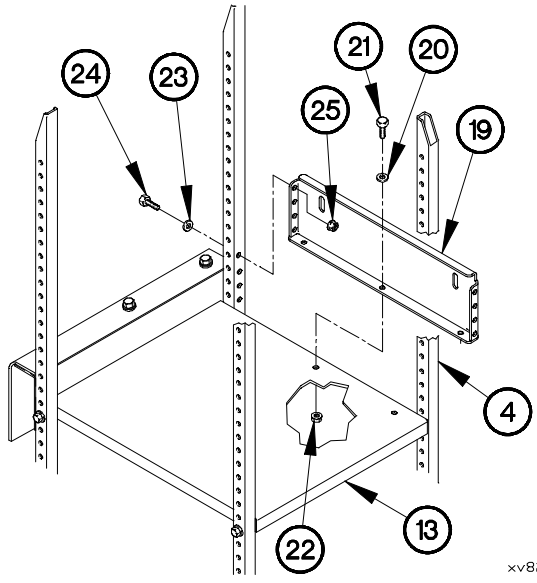
(7) Install EPLRS shelf (13) and inter side support (10) on support legs (4) with four washers (14) and screws (12).

(8) Position outside support (15) on inter side support (10) with three washers (16), screws (17), and self-locking nuts (18).

(9) Position mid rear support (19) on EPLRS shelf (13) with three washers (20), screws (21), and self locking nuts (22).

(10) Position four washers (23) and screws (24) in support legs (4) with self-locking nuts (25).

(11) Tighten three self-locking nuts (22) and four self-locking nuts (25) to 110-120 lb-in. (12-13 N•m).



xv82a11

20-82. DIGITIZATION KIT RADIO RACK ASSEMBLY REPLACEMENT/REPAIR (CONT)

WARNING

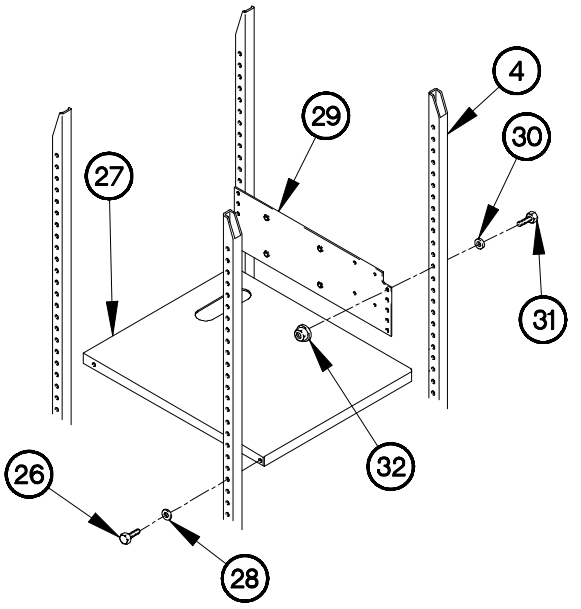
Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure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

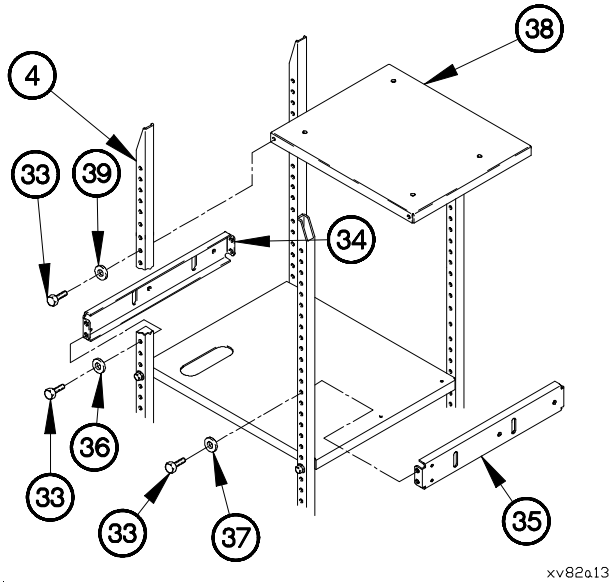
(12) Apply sealant to threads of four screws (26).

(13) Install power distribution shelf (27) in support legs (4) with four washers (28) and screws (26).

(14) Position PLGR/M42 alarm plate (29) on support legs (4) with four washers (30), screws (31), and self-locking nuts (32).

(15) Tighten four self-locking nuts (32) to 110-120 lb-in. (12-13 N•m).





(16) Apply sealant to threads of 12 screws (33).

(17) Install top rear wall bracket (34) and front head pad bracket (35) on support legs (4) with four washers (36 and 37) and screws (33).

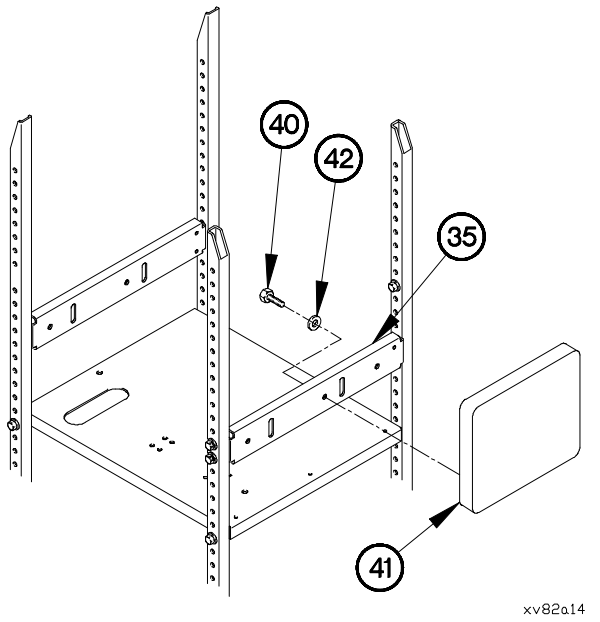
(18) Install SINGGAR shelf (38) on support legs (4) with four washers (39) and screws (33).

WARNING

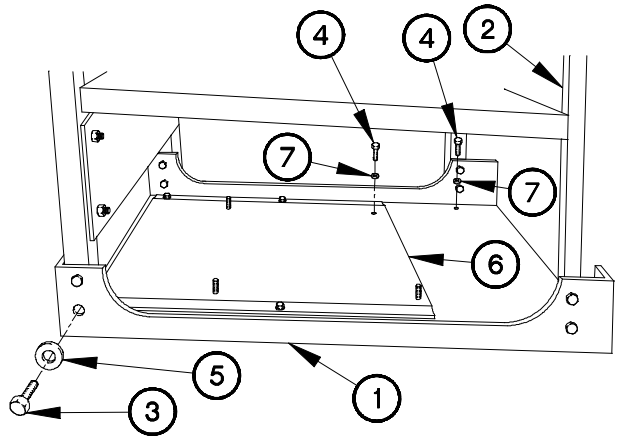
Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure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

(19) Apply sealant to threads of four screws (40).

(20) Install head pad (41) on front head pad brace (35) with four washers (42) and screws (40).



d. Installation.



(1) Position bottom support (1) and rack assembly (2) in cab.

(2) Apply sealant to threads of eight screws (3) and six screws (4).

(3) Position rack assembly (2) on bottom support (1) with eight washers (5) and screws (3).

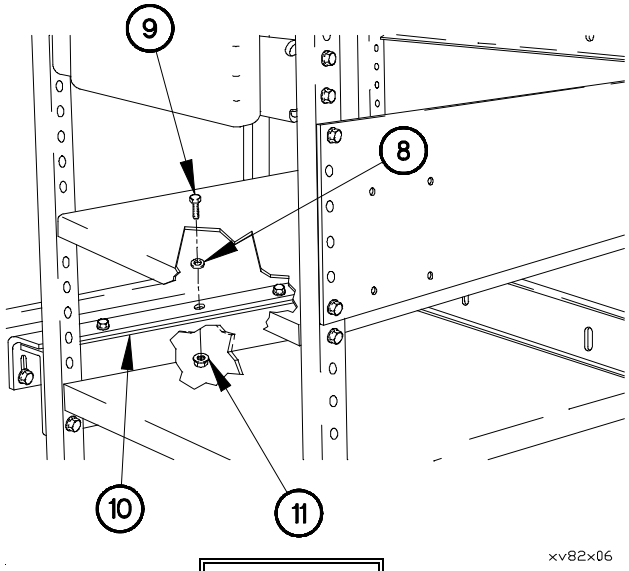
(4) Tighten eight screws (3) to 110-120 lb-in. (12-13 N•m).

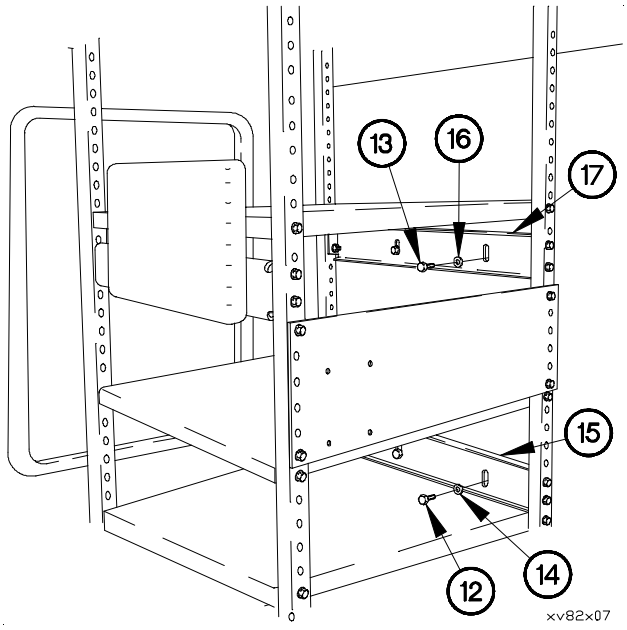
(5) Position MTS plate (6) on bottom support (1) with four washers (7) and screws (4).

(6) Position two washers (7) and screws (4) in bottom support (1).

20-82. DIGITIZATION KIT RADIO RACK ASSEMBLY REPLACEMENT/REPAIR (CONT)

(7) Position three washers (8) and screws (9) in outer side support (10) with three self-locking nuts (11).





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 sealant to threads of two screws (12 and 13).

CAUTION

Add spacers behind support to vehicles equipped with rear panels. Failure to comply may result in damage to equipment.

(9) Position two washers (14) and screws (12) in lower rear support (15).

(10) Position two washers (16) and screws (13) in upper rear support (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.

(11) Apply sealant to threads of six screws (18) and eight screws (19).

(12) Position top support (20) on rack assembly (2) with six washers (21) and screws (18).

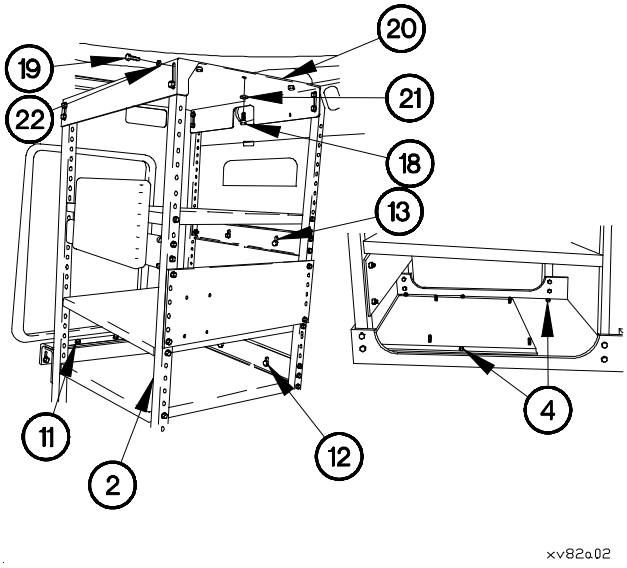
(13) Position eight washers (22) and screws (19) in top support (20).

(14) Tighten two screws (12 and 13) to 70-85 lb-in. (8-10 N•m).

(15) Tighten three self-locking nuts (11) to 110-120 lb-in.(12-13 N•m).

(16) Tighten six screws (18) to 70-85 lb-in. (8-10 N•m).

(17) Tighten eight screws (19) to 110-120 lb-in. (12-13 N•m).



e. Follow-on Maintenance

(1) Install RH seat (Para 16-15)

(2) Install digitization power cable (Para 20-81)

(3) Install mounting base(s) and equipment.

(4) Connect batteries (Para 7-57)

End of Task

20-83. DIGITIZATION KIT AFT STOWAGE BOX REPLACEMENT/REPAIR

This task covers:

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

INITIAL SETUP

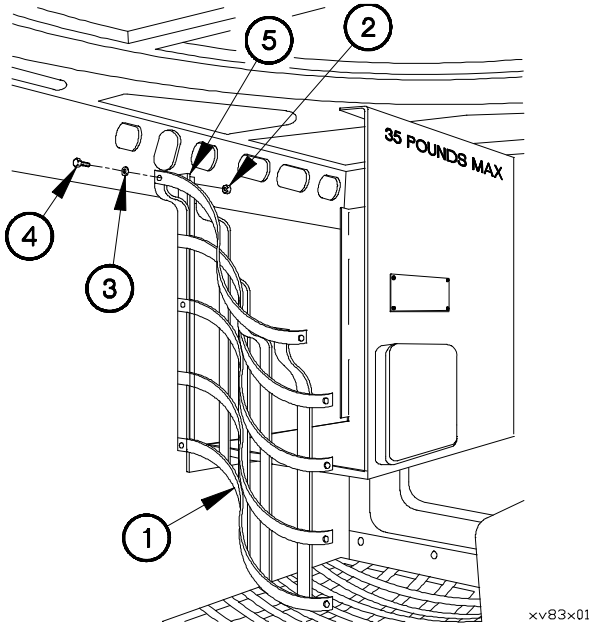
Equipment Conditions
Engine shut down (TM 9-2320-366-10-1)
Remove contents from AFT Storage Box

Tools and Special Tools
Drill, electric (Item 7, Appendix C)
Drill set, twist (Item 8, Appendix C)
Tool Kit, Blind Rivet (Item 44, Appendix C)
Tool Kit, Genl Mech (Item 46, Appendix C)
Wrench Set, Socket (Item 51, Appendix C)
Wrench, Torque,0-200 lb-in. (Item 59 Appendix C)

Materials/Parts
Nut, self-locking (13) (Item 146.1, Appendix G)
Rivet (4) (Item 259, Appendix G)
Washer, Spring (3) (Item 297, Appendix G)
Sealant (Item 55.1, Appendix D)

Personnel Required
(2)

a. Removal.



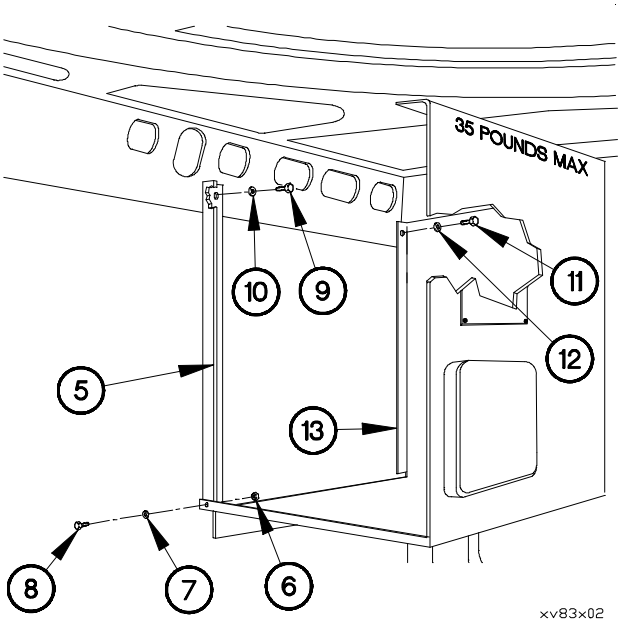
(1) Unwrap webbing (1).

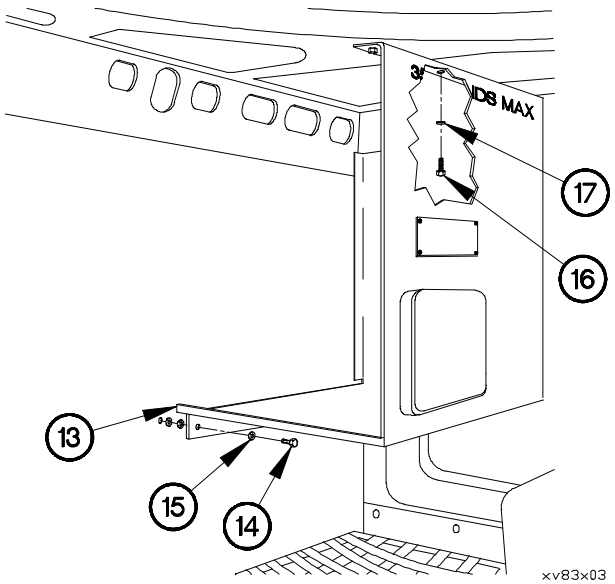
(2) Remove three nuts (2), webbing (1), washers (3), and screws (4) from angle (5).

(3) Remove nut (6), washer (7), and screw (8) from angle (5).

(4) Remove screw (9), washer (10), and angle (5) from cab.

(5) Remove two screws (11) and washers (12) from AFT Storage Box (13).





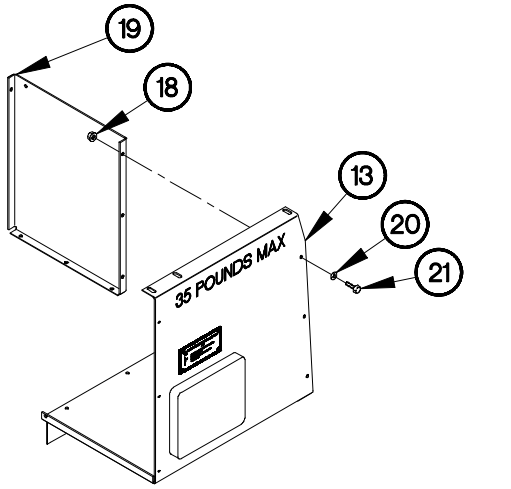
(6) Remove three screws (14) and washers (15) from AFT Storage Box (13).

(7) Remove three screws (16), washers (17), and AFT Storage Box (13) from cab.

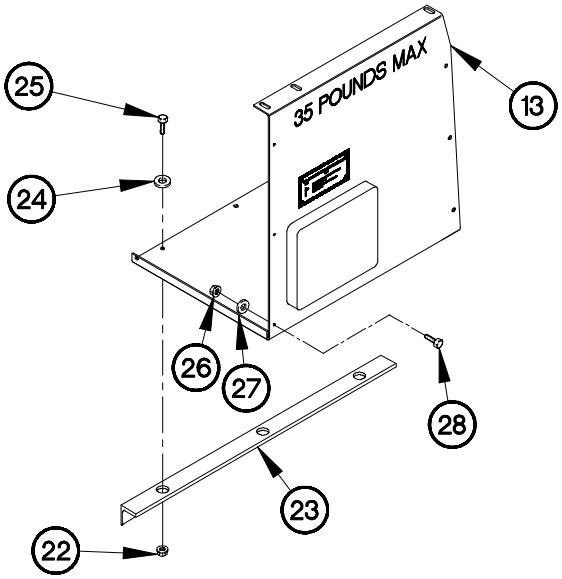
20-83. DIGITIZATION KIT AFT STOWAGE BOX REPLACEMENT/REPAIR (CONT)

b. Disassembly.

(1) Remove six self-locking nuts (18), side panel (19), six washers (20), and screws (21) from AFT Storage Box (13). Discard self-locking nuts.



xv83x04



xv83x05

(2) Remove three self-locking nuts (22), bracket (23), three washers (24), and screws (25) from AFT Storage Box (13). Discard three self-locking nuts.

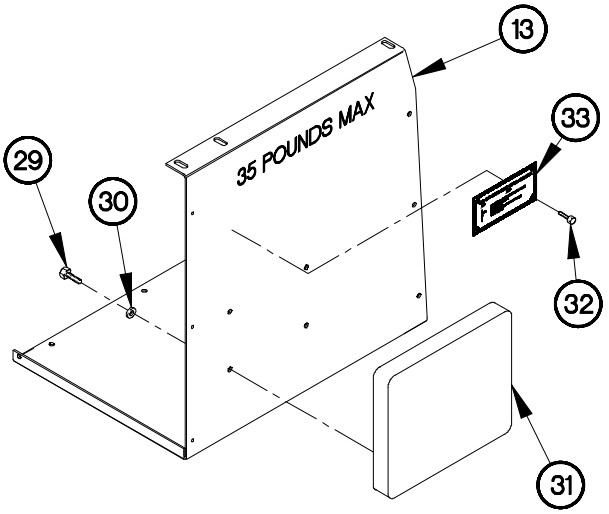
(3) Remove three nuts (26), lockwashers (27), and snap screws (28) from AFT Storage Box (13).

(4) Remove four screws (29), washers (30), and headrest (31) from AFT Storage Box (13).

WARNING

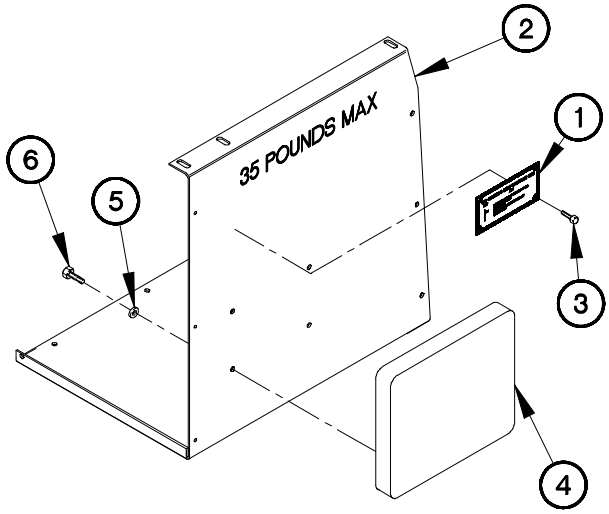
Wear appropriate eye protection when drilling out rivets. Failure to comply may result in injury to personnel.

(5) Remove four rivets (32) and data plate (33) from AFT Storage Box (13).



xv83x06

c. Assembly.



xv83x07

(1) Install data plate (1) on AFT Storage Box (2) with four rivets (3).

(2) Position headrest (4) on AFT Storage Box (2) with four washers (5) and screws (6).

(3) Tighten four screws (6) to 70-85 lb-in. (8-10 N•m).

20-83. DIGITIZATION KIT AFT STOWAGE BOX REPLACEMENT/REPAIR (CONT)

WARNING

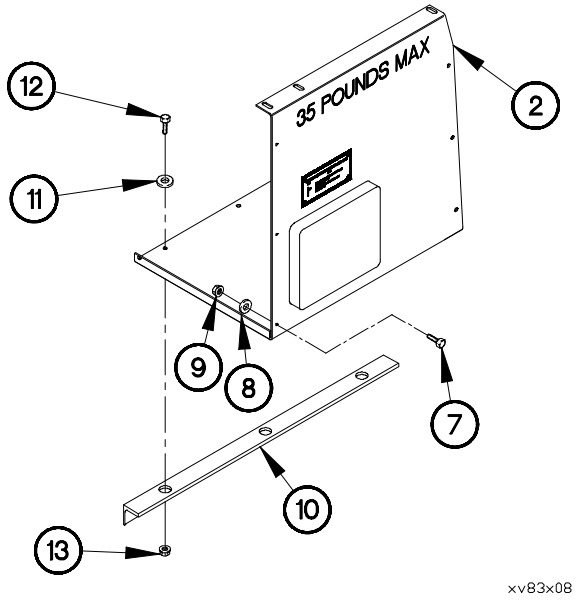
Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure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

(4) Apply sealant to threads of three snap screws (7).

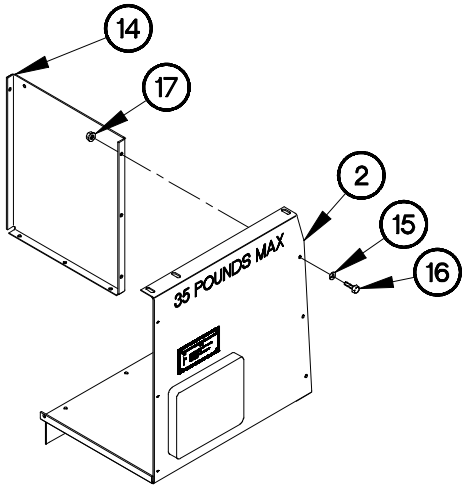
(5) Install three snap screws (7) on AFT Storage Box (2) with three lockwashers (8) and nuts (9).

(6) Position bracket (10) on AFT Storage Box (2) with three washers (11) screws (12) and self-locking nuts (13).

(7) Tighten three self-locking nuts (13) to 95-110 lb-in. (11-12 N•m).



xv83x08



xv83x09

(8) Position side panel (14) on AFT Storage Box (2) with six washers (15), screws (16), and self-locking nuts (17).

(9) Tighten six self-locking nuts (17) to 95-110 lb-in. (11-12 N•m).

d. Installation.

WARNING

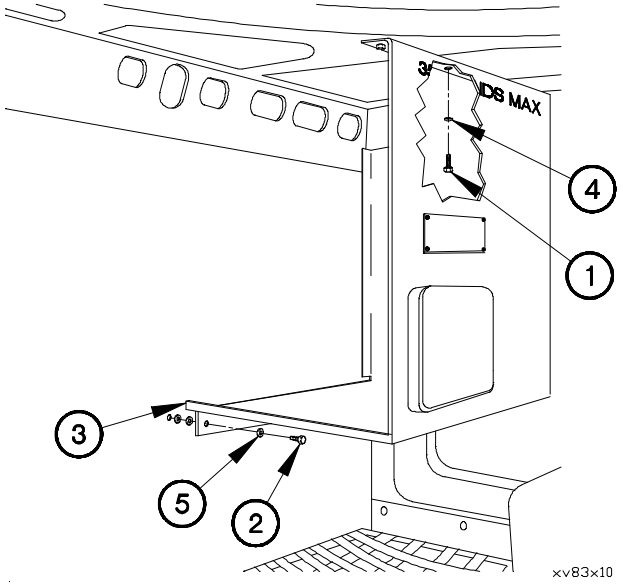
Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure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

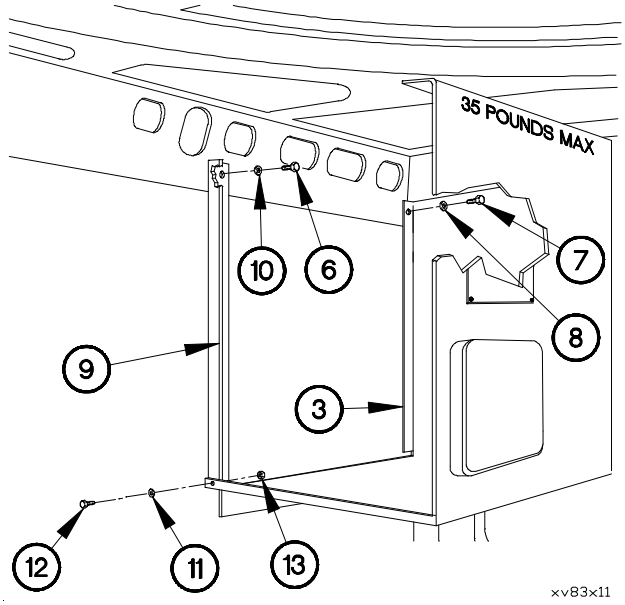
(1) Apply sealant on threads of three screws (1 and 2).

(2) Position AFT Storage Box (3) in cab with three washers (4) and screws (1).

(3) Position three washers (5) and screws (2) in AFT Storage Box (3).

(4) Tighten three screws (1 and 2) to 70-85 lb-in. (8-10 N•m).





(5) Apply sealant to threads of screws (6 and 7).

(6) Position washer (8) and screw (7) in AFT Storage Box (3).

(7) Position angle (9) on cab with washer (10) and screw (6).

(8) Position angle (9) on AFT Storage Box (3) with washer (11), screw (12), and self-locking nut (13).

(9) Tighten two screws (6 and 7) to 70-85 lb-in. (8-10 N•m).

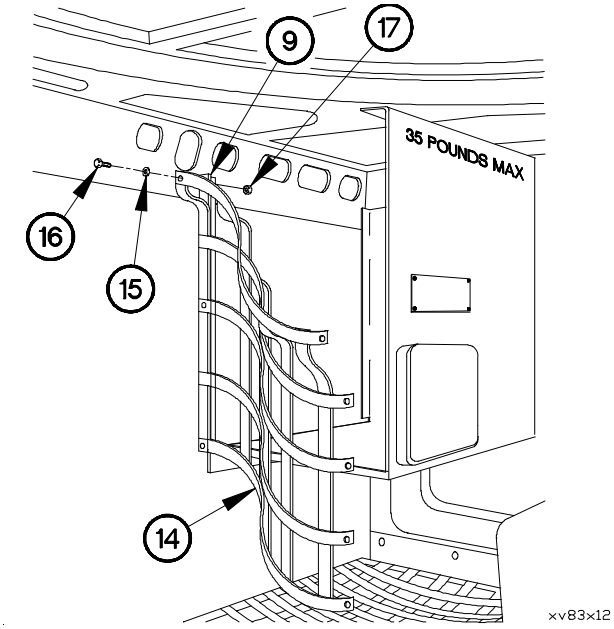
(10) Tighten self-locking nut (13) to 95-110 lb-in. (11-12 N•m).

20-83. DIGITIZATION KIT AFT STOWAGE BOX REPLACEMENT/REPAIR (CONT)

(11) Position webbing (14) on angle (9) with three washers (15), screws (16), and self-locking nuts (17).

(12) Tighten three self-locking nuts (17) to 95-110 lb-in. (11-12 N•m).

(13) Snap webbing (14).



End of Task

20-84. DIGITIZATION KIT DRIVERS STORAGE BOX REPLACEMENT/REPAIR

This task covers:

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

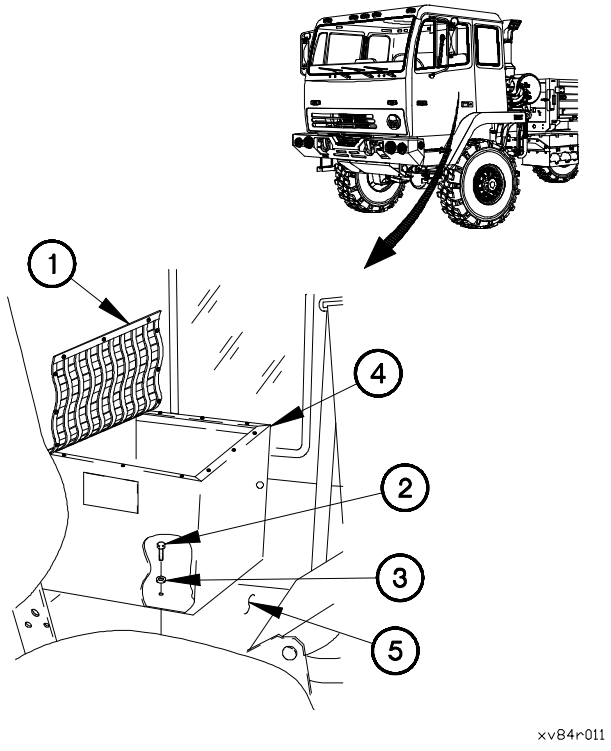
INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-366-10-1)
Co-Drivers storage box, removed (para 20-85)

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Wrench, Torque, 0-200 lb in (Item 59, Appendix-C)
Wrench Set, Socket (Item 51, Appendix C)

Materials/Parts
Lockwasher (9) (Item 107.1, Appendix G)

a. Removal.



(1) Unsnap webbing (1).

(2) Remove six screws (2) and washers (3) from drivers storage box (4).

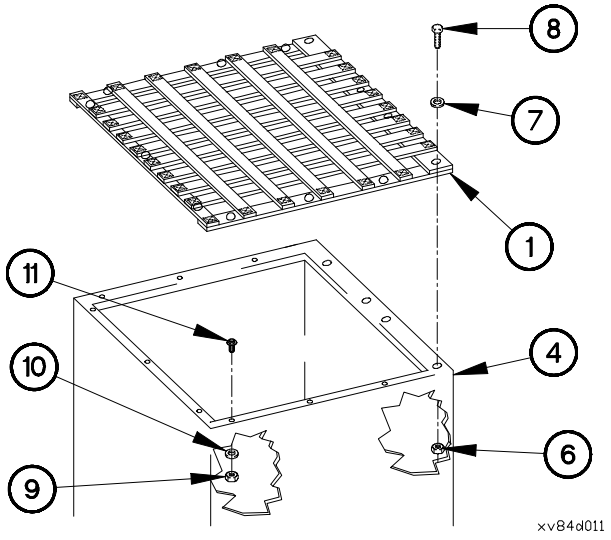
(3) Remove drivers storage box (4) from cab floor (5).

20-84. DIGITIZATION KIT DRIVERS STORAGE BOX REPLACEMENT/REPAIR (CONT)

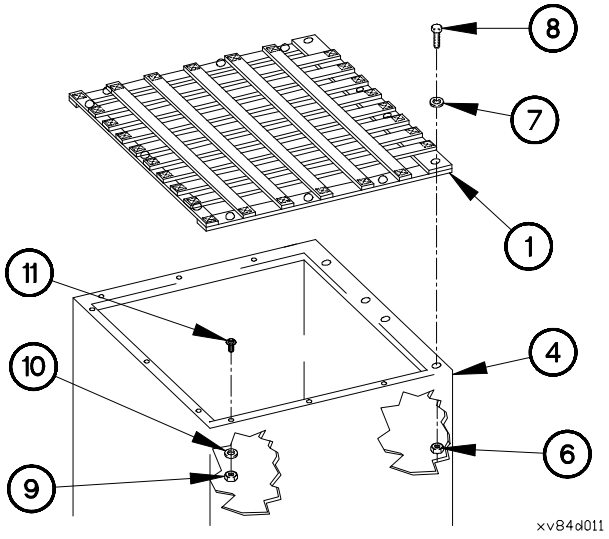
b. Disassembly.

(1) Remove four nuts (6), washers (7), screws (8), and webbing (1) from drivers storage box (4).

(2) Remove nine nuts (9), lockwashers (10), and snap screws (11) from drivers storage box (4). Discard lockwashers.



c. Assembly.



(1) Install nine snap screws (11) on drivers storage box (4) with nine lockwashers (1) and nuts (9).

(2) Install webbing (1) on drivers storage box (4) with four washers (7), screws (8), and nuts (6).

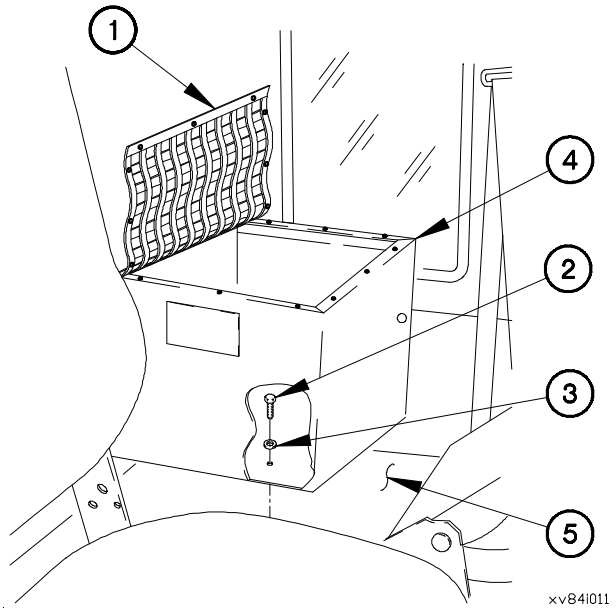
d. Installation.

(1) Position drivers storage box (4) in mounting location on cab floor (5).

(2) Position six washers (3) and screws (2) in drivers storage box (4).

(3) Tighten six screws (2) to 70-85 lb-in (8-10 N•m).

(4) Snap webbing (1).



e. Follow-On Maintenance

Install Co-Drivers storage box (para 20-85)

End of Task.

20-85. DIGITIZATION KIT CO-DRIVERS SEAT REPLACEMENT/REPAIR

This task covers:

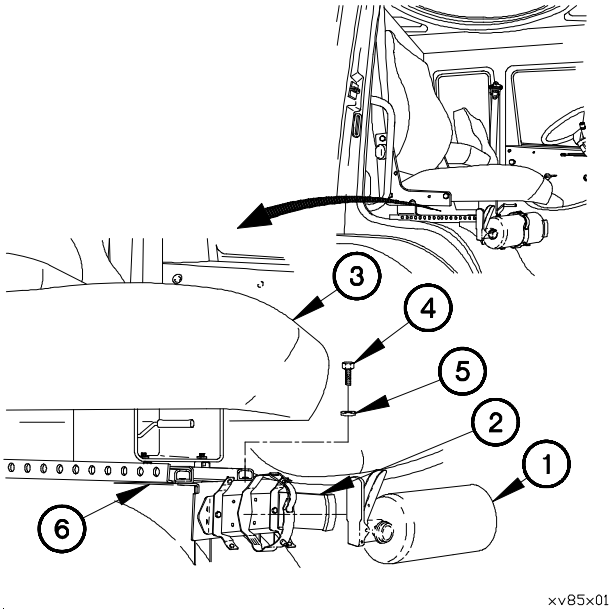
a. Removal
b. Disassembly
c. Assembly
d. Installation

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-366-10-1)

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)

a. Removal.

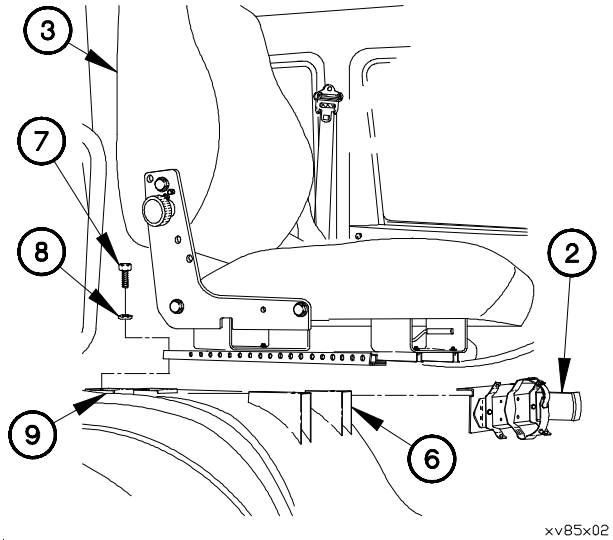


xv85x01

(1) Remove fire extinguisher (1) from bracket (2).

(2) Slide seat (3) toward back of vehicle.

(3) Remove two screws (4) and washers (5) from front seat mount (6).



xv85x02

(4) Slide seat (3) toward front of vehicle.

(5) Remove two screws (7) and washers (8) from rear seat mount (9).

(6) Remove seat (3) and bracket (2) from seat mounts (6 and 9).

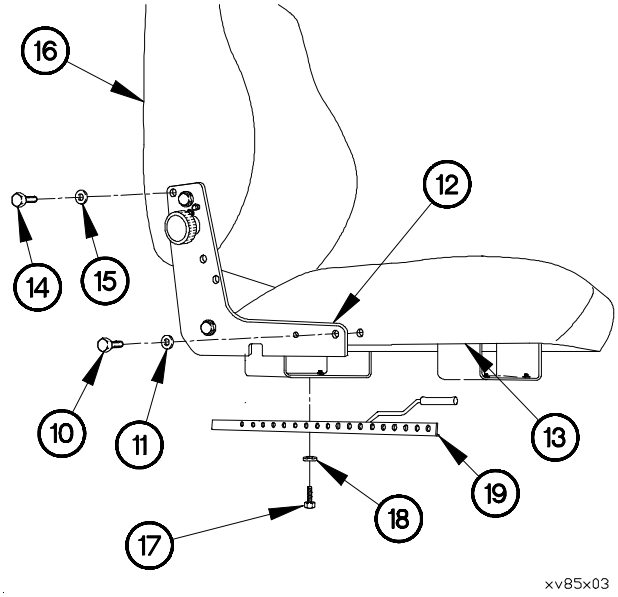
b. Disassembly.

(1) Remove four bolts (10) and washers (11) from two seat hinges (12).

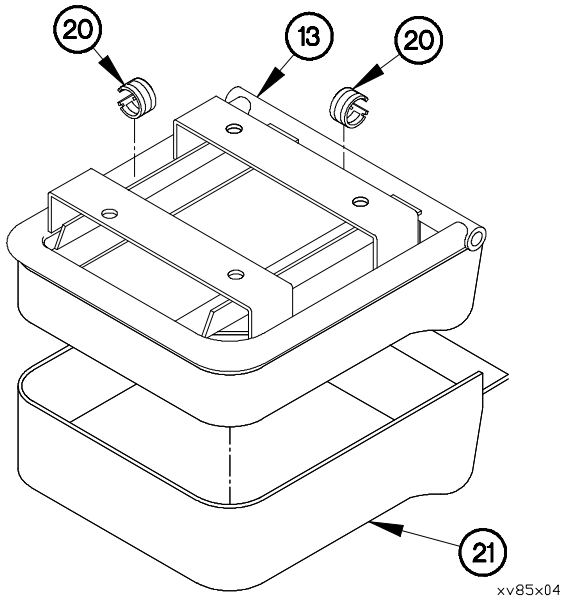
(2) Remove seat bottom (13) from two seat hinges (12).

(3) Remove two bolts (14), washers (15), and two seat hinges (12) from seat back (16).

(4) Remove two bolts (17), washers (18), and seat adjuster (19) from seat bottom (13).



xv85x03



xv85x04

WARNING

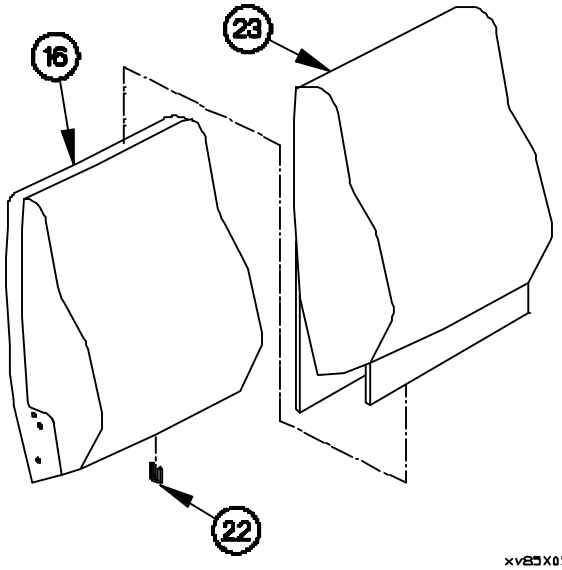
Wear appropriate eye protection when removing spring rings. Spring rings are under tension and can act as projectiles when being removed. Failure to comply may result in injury to personnel.

(5) Remove 10 hog rings (20) from seat bottom cover (21).

(6) Remove seat bottom cover (21) from seat bottom (13).

(7) Remove five hog rings (22) from seat back cover (23).

(8) Remove seat back cover (23) from seat back (16).



xv85x05

20-85. DIGITIZATION KIT CO-DRIVERS SEAT REPLACEMENT/REPAIR

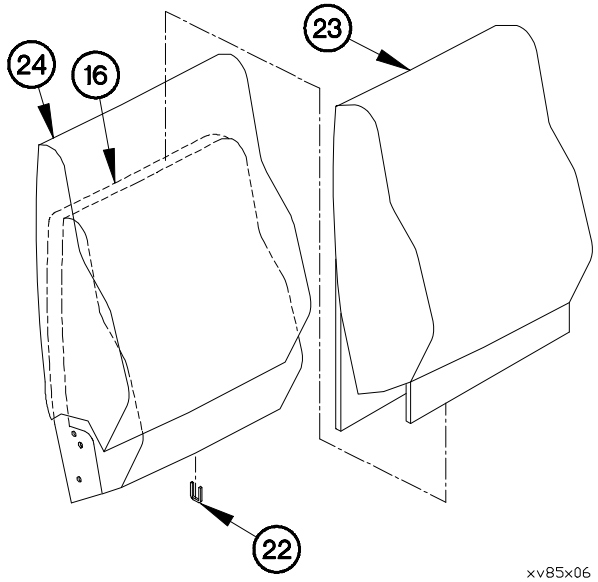
c. Assembly.

NOTE

Plastic film is provided in replacement seat cover kit.

(1) Position plastic film (24) over seat back (16).

(2) Position seat back cover (23) over plastic film (24) and seat back (16).



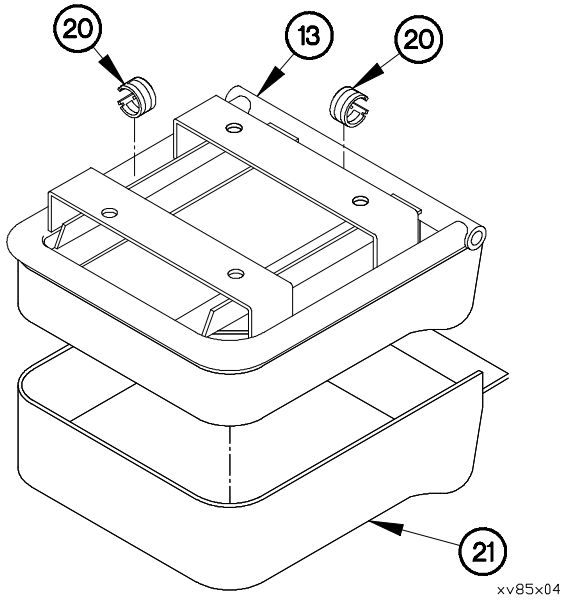
WARNING

Wear appropriate eye protection when installing spring rings. Spring rings are under tension and can act as projectiles when being removed. Failure to comply may result in injury to personnel.

CAUTION

Ensure hog rings are crimped over support wires on bottom of seat back. Failure to comply may result in damage to equipment.

(3) Pull seat back cover (23) tight over seat back (16) and install five hog rings (22) equally spaced on seat back cover (23).



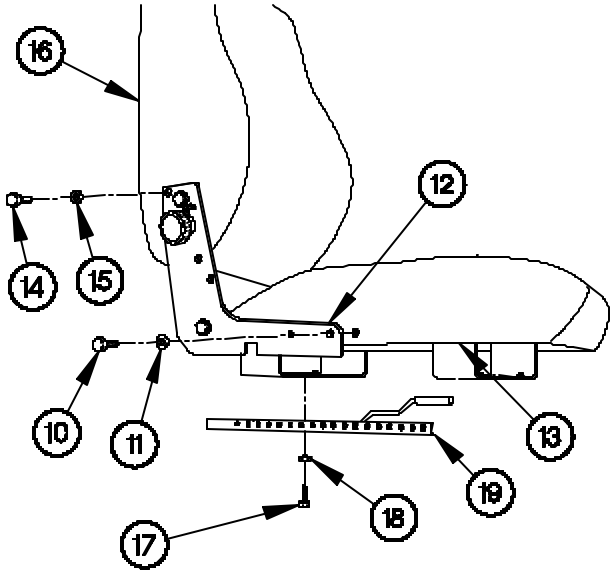
(4) Position seat bottom cover (21) on seat bottom (13).

(5) Pull seat bottom cover (21) tight over seat bottom (13) and install 10 hog rings (20) on seat bottom cover (21).

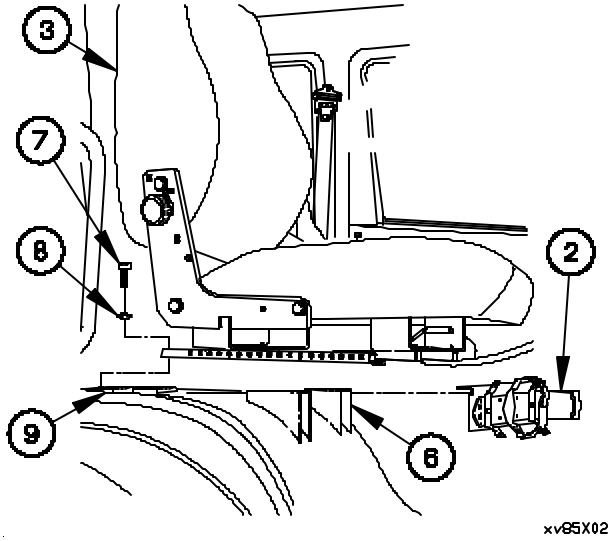
(6) Install seat adjuster (19) on seat bottom (13) with two washers (18) and bolts (17).

(7) Install two seat hinges (12) on seat back (16) with two washers (15) and bolts (14).

(8) Install seat bottom (13) on two seat hinges (12) with four washers (11) and bolts (10).



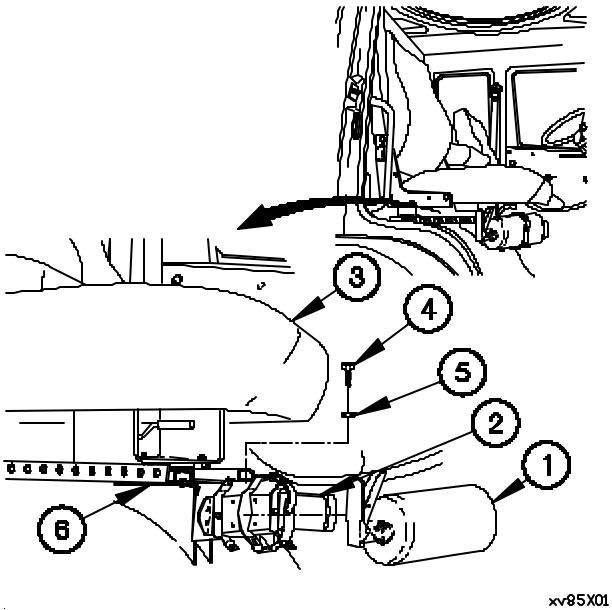
d. Installation.



(1) Position bracket (2) and seat (3) on seat mounts (6 and 9).

(2) Slide seat (3) toward front of vehicle.

(3) Install two washers (8) and screws (7) on rear seat mount (9).



(4) Slide seat (3) toward rear of vehicle.

(5) Install two washers (5) and screws (4) on front seat mount (6) and bracket (2).

(6) Install fire extinguisher (1) on bracket (2).

End of Task.

20-86. RH CONVEX MIRROR INITIAL INSTALLATION

This task covers:

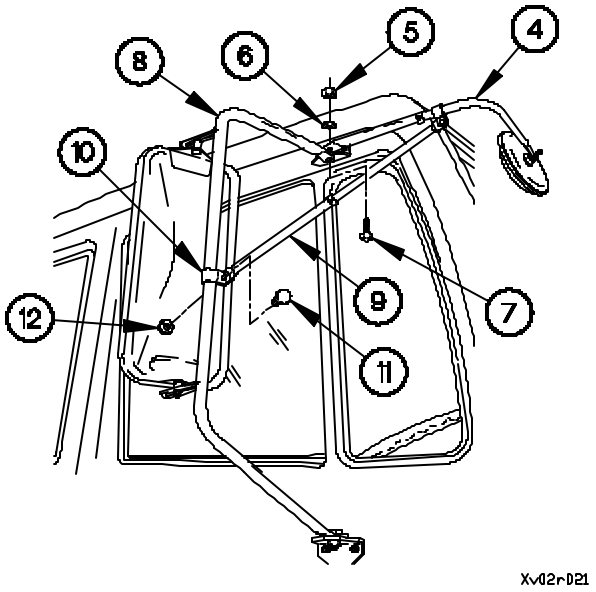
a. Installation

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-366-10-1)

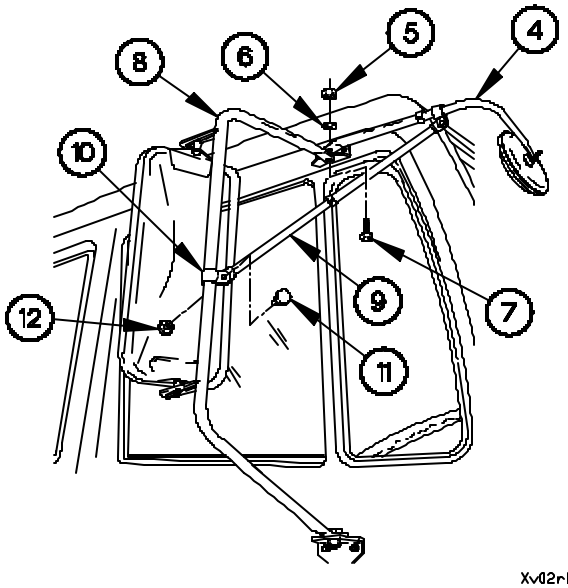
Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Wrench, Torque 1-200 lb-in (Item 59, Appendix C)

a. Installation.



(1) Remove nut (1) and washer (2) from mirror (3).

(2) Position mirror (3) on bracket arm (4) with washer (2) and nut (1).



(3) Remove nut (5), washer (6), and screw (7) from mirror arm (8).

(4) Position bracket arm (9) on mirror arm (8) with clip (10), screw (11), and nut (12).

(5) Position bracket arm (4) on mirror arm (8) with screw (7), washer (6), and nut (5).

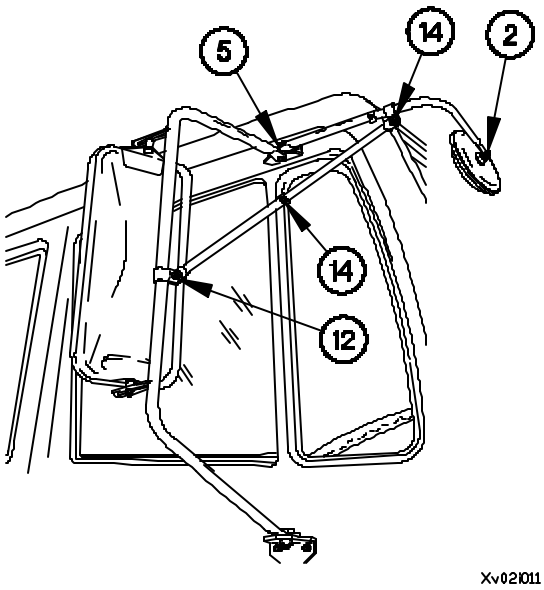
(6) Tighten nut (5) to 156-204 lb-in (17-23 N•m).

(7) Tighten nut (2) to 36-60 lb-in (4-6 N•m).

(8) Tighten nut (12) to 84-108 lb-in (9-12 N•m).

(9) Tighten two set screws (14) to 36-60 lb-in (4-6 N•m).

End of Task.



20-87. CONVEX MIRROR INITIAL INSTALLATION

This task covers:

a. Installation

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-366-10-1)

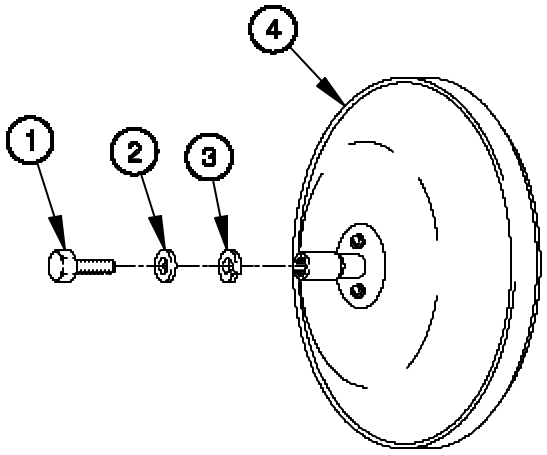
Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Wrench, Torque 1-200 lb-in (Item 59, Appendix C)
Lockwashers (3) (Item 105.3, Appendix G)

a. Installation.

NOTE

Perform step (1) on convex mirror mounted with bracket.

(1) Remove bolt (1), washer (2), and lockwasher (3) from convex mirror (4).



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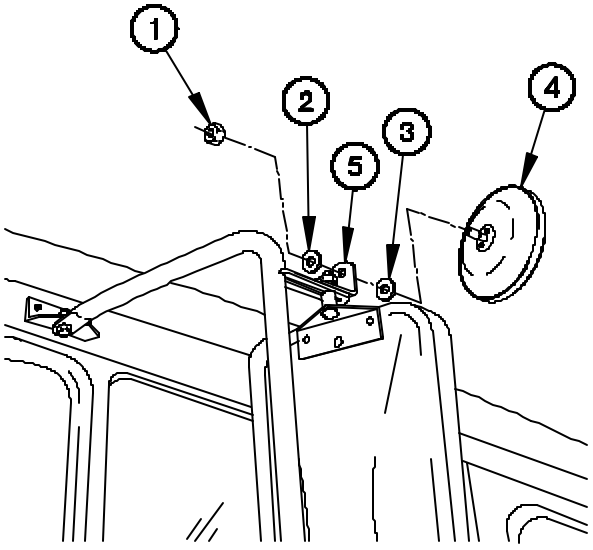

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NOTE

Perform step (2) on convex mirror mounted with clamp.

(2) Position convex mirror (4) on bracket (5) with lockwasher (3), washer (2), and bolt (1).

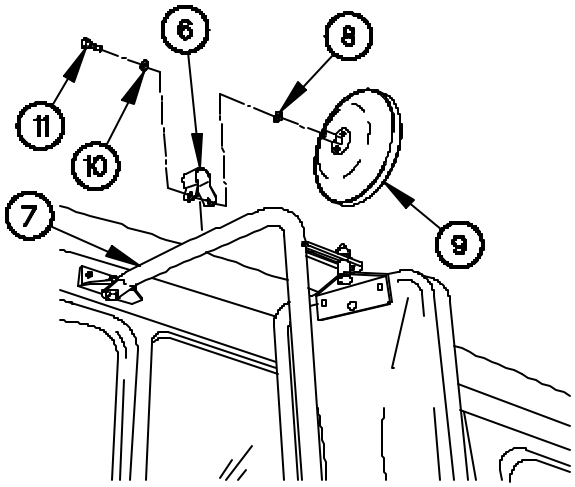
NOTE

Perform steps (3) and (4) on convex mirror with clamp.

(3) Position clamp (6) on mirror arm (7).

(4) Install washer (8) and convex mirror (9) on clamp (6) with lockwasher (10) and bolt (11).

(5) Tighten bolts (1 and 11) to 56-68 lb-in (6-7 N•m).



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End of Task.

20-88. RIM COVER INITIAL INSTALLATION

This task covers:

a. Installation

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-366-10-1)

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Wrench, Torque 1-175 lb-in (Item 58, Appendix C)

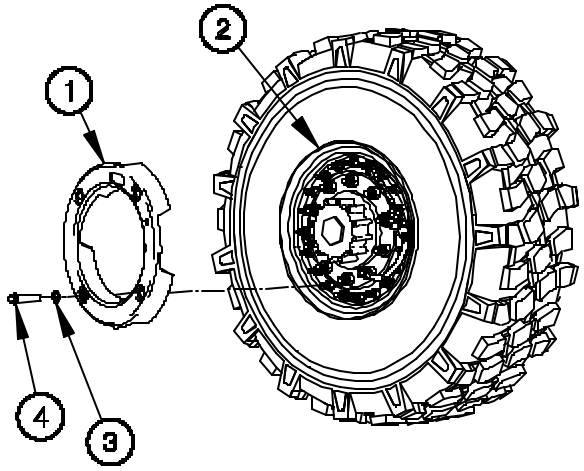
a. Installation

NOTE

Slotted hole in rim cover is aligned with pressure valve extension.

(1) Position rim cover (1) on wheel (2) with four washers (3) and bolts (4).

(2) Tighten four bolts (1) to 71-95 lb-ft (96-128 N•m).



XV04I011

End of Task.

CHAPTER 21
ARMAMENT/SIGHTING AND FIRE CONTROL MATERIEL MAINTENANCE

RESTRICTED MAINTENANCE NOTICE

Units not authorized SC 4910-95-CL-A72 (SHOP EQUIPMENT, COMMON NO. 2) in their T.O.E. may be unable to perform some of the maintenance tasks described in this chapter. If the required tools are not authorized, the equipment must be submitted to DS Maintenance for repair.

Section I. INTRODUCTION

21-1. INTRODUCTION

This chapter contains maintenance instructions for replacing armament/sighting and fire control materiel components authorized by the Maintenance Allocation Chart (MAC) at the Unit Maintenance level.

Section II. MAINTENANCE PROCEDURES

21-2. MACHINE GUN RING REPLACEMENT

This task covers:

a. Removal

b. Installation

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-366-10-1).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Wrench, Torque, 0-175 lb-ft (Item 58, Appendix C)

Tools and Special Tools (Cont)
Crowfoot Attachment, Socket Wrench (Item 10, Appendix B)

Personnel Required
(2)

a. Removal.

(1) Remove 12 screws (1) and washers (2) from machine gun ring (3).

(2) Position three wooden blocks on cab roof (4).

WARNING

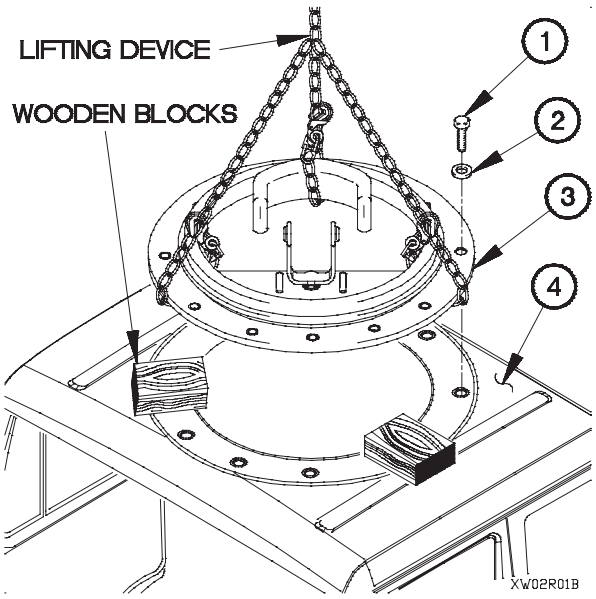
Machine gun ring assembly weighs approximately 350 lbs (159 kgs). Attach a suitable lifting device prior to removal. Failure to comply may result in injury to personnel or damage to equipment.

NOTE

Steps (3) through (7) require the aid of an assistant.

(3) Position machine gun ring (3) on three wooden blocks.

(4) Re-position lifting device on machine gun ring (3).

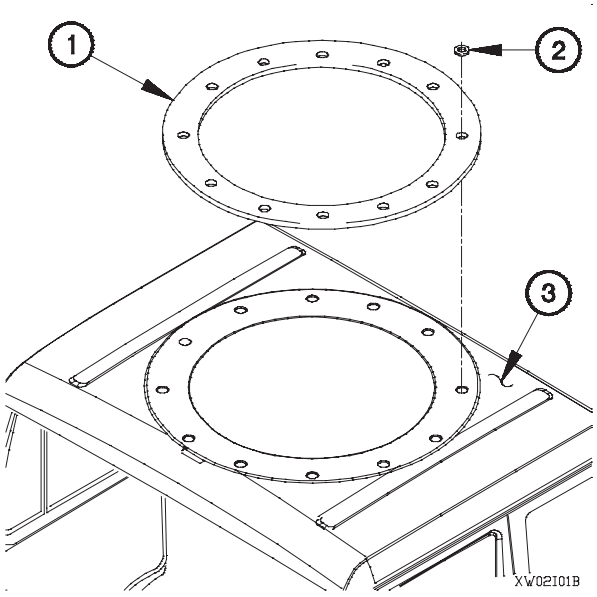


(5) Remove machine gun ring (3) from cab roof (4).

(6) Remove three wooden blocks from cab roof (4).

(7) Remove 12 washers (5) and ring spacer (6) from cab roof (4).

b. Installation.



WARNING

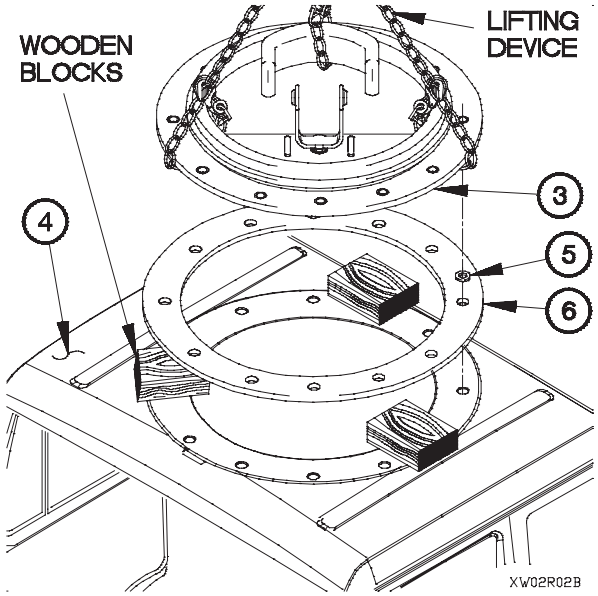
Machine gun ring assembly weighs approximately 350 lbs (159 kgs). Attach a suitable lifting device prior to removal. Failure to comply may result in injury to personnel or damage to equipment.

NOTE

Steps (2) through (6) require the aid of an assistant.

(2) Position three wooden blocks on cab roof (3).

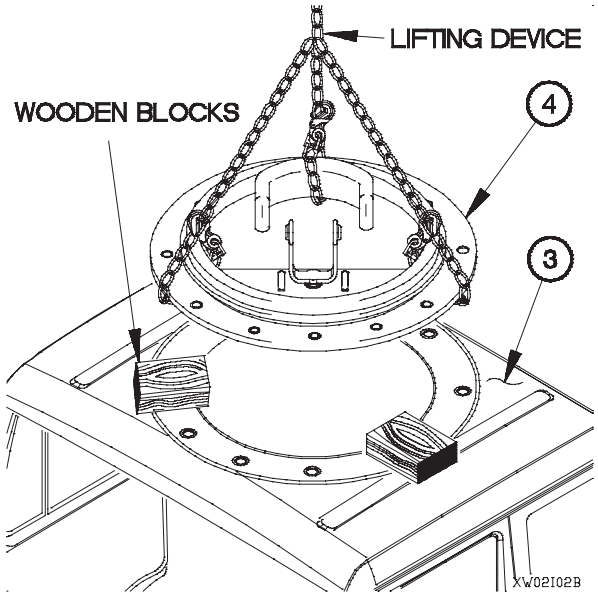
(3) Position machine gun ring (4) on cab roof on three wooden blocks.



NOTE

- Align ring spacer and washers with threaded holes in cab roof.
- Ring spacer should have 1/4 in. (0.635 cm) clearance from inner lip of cab rood to allow free rotation of machine gun ring.

(1) Position ring spacer (1) and 12 washers (2) on cab roof (3).



21-2. MACHINE GUN RING REPLACEMENT (CONT)

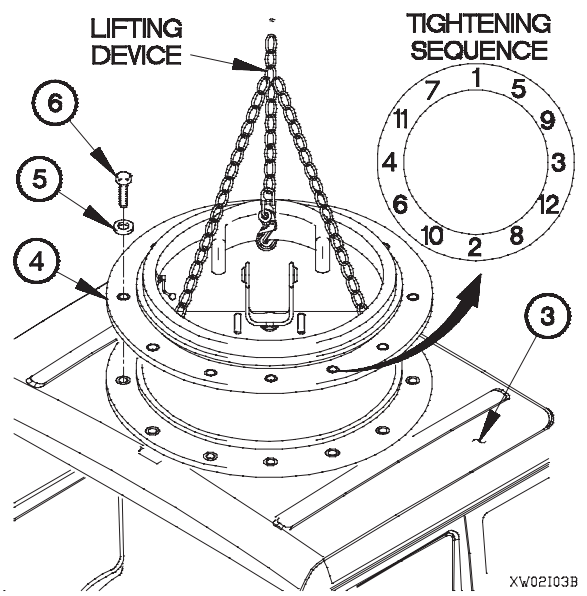
(4) Re-position lifting device on machine gun ring (4).

(5) Remove three wooden blocks from cab roof (3).

(6) Position machine gun ring (4) on cab roof (3).

(7) Position 12 mounting washers (5) and screws (6) in machine gun ring (4).

(8) Tighten mounting screws (6) to 49-61 lb-ft (66-82 N·m).



End of Task.

21-3. MACHINE GUN RING LOWER PLATFORM REPLACEMENT

This task covers:

a. Removal

b. Installation

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-366-10-1).

Materials/Parts
Pin, Cotter (4) (Item 226, Appendix G)

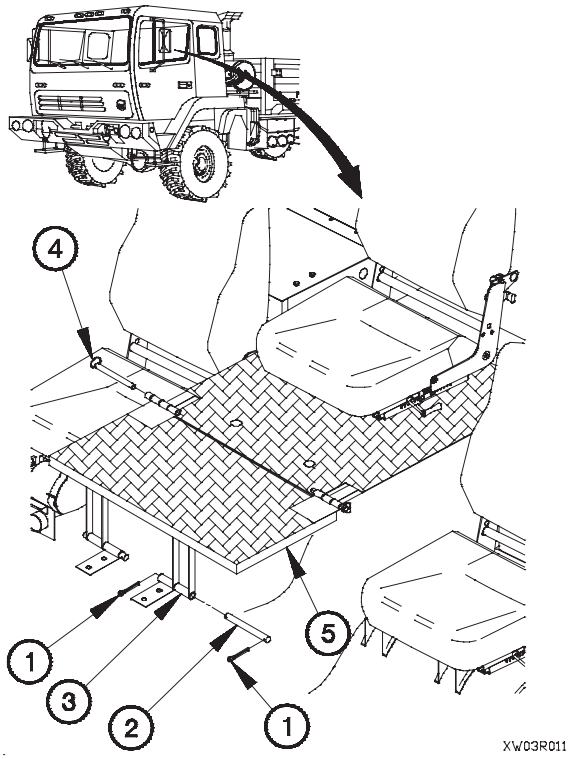
Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)

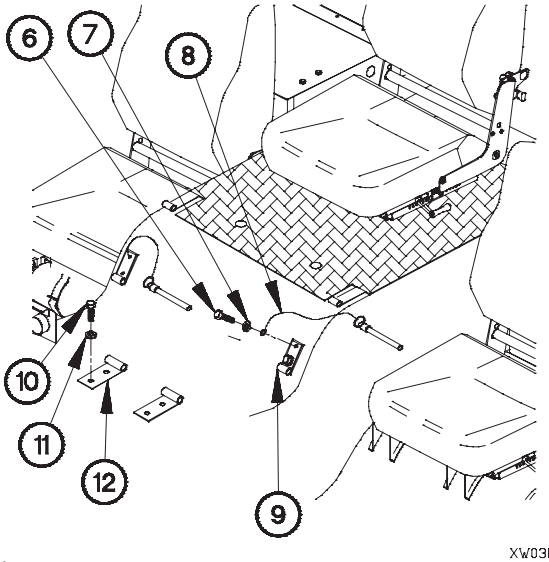
a. Removal.

(1) Remove four cotter pins (1) and straight pins (2) from two legs (3). Discard cotter pins.

(2) Remove two quick-release pins (4) from lower platform (5).

(3) Remove lower platform (5) from cab.





(4) Remove four screws (6), washers (7), and two lanyards (8) from two brackets (9).

(5) Remove two brackets (9) from cab floor.

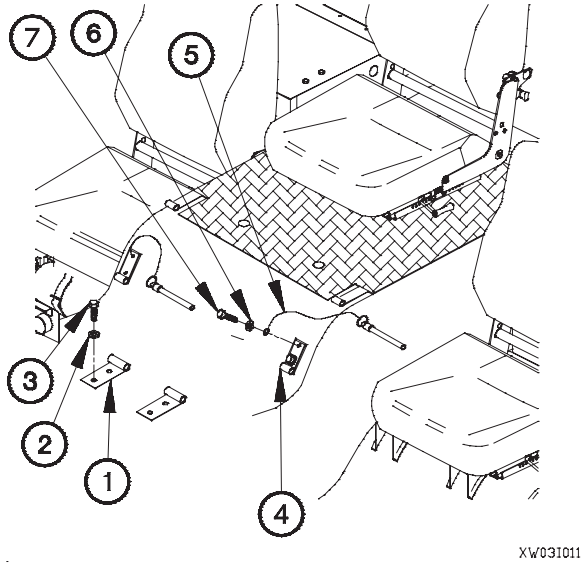
(6) Remove four screws (10), washers (11), and two brackets (12) from cab floor.

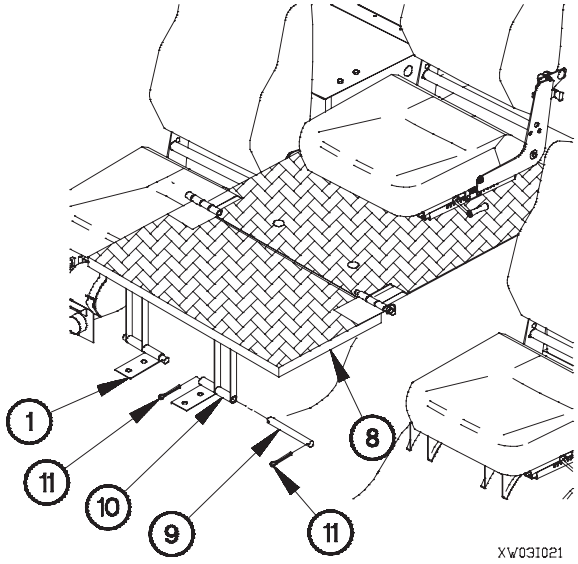
21-3. MACHINE GUN RING LOWER PLATFORM REPLACEMENT (CONT)

b. Installation.

(1) Install two brackets (1) with four washers (2) and screws (3).

(2) Install two brackets (4) and lanyards (5) with four washers (6) and screws (7).





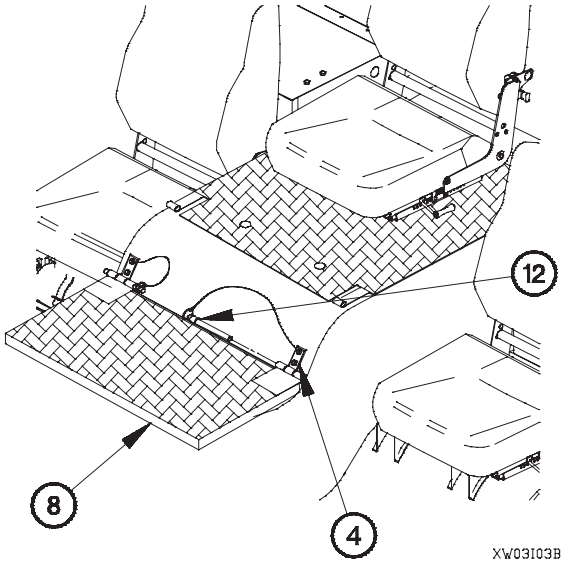
(3) Position lower platform (8) on two brackets (1).

(4) Install two straight pins (9) in legs (10).

(5) Install four cotter pins (11) in two straight pins (9).

(6) Place lower platform (8) in storage position.

(7) Install two quick-release pins (12) in lower platform (8) and two brackets (4).



End of Task.

21-4. MACHINE GUN RING TOP PLATFORM REPLACEMENT

This task covers:

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

INITIAL SETUP

Equipment Conditions
Machine gun ring center seat removed (para 21-5).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)

a. Removal.

(1) Remove two screws (1) and washers (2), from platform (3).

(2) Remove platform (3) from cab.

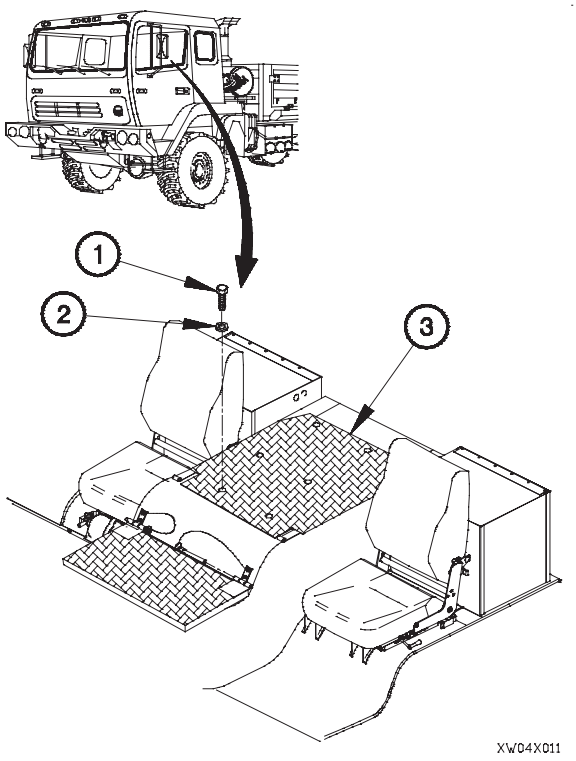
b. Installation.

Install platform (3) in cab with two washers (2) and screws (1).

c. Follow-On Maintenance.

Install machine gun ring, center seat (para 21-5).

End of Task.



21-5. MACHINE GUN RING CENTER SEAT REPLACEMENT

This task covers:

a. Removal

b. Installation

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-366-10-1).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)

Materials/Parts
Sealing Compound (Item 60, Appendix D)
Spacer (4) (Item 276.1, Appendix G)

a. Removal.

(1) Fold back of center seat (1) down and slide fully forward.

NOTE

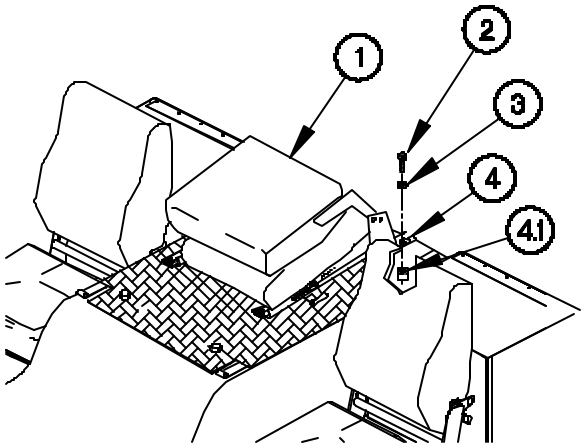
Perform step (2) on vehicles with cabs S/N 12075G or lower. Cab S/N located on B pillar.

(2) Remove two screws (2) and washers (3) from seat mount (4).

NOTE

Perform step (3) on vehicles with cabs S/N 12076G or higher.

(3) Remove two screws (2), washers (3), and spacers (4.1) from seat mount (4). Discard spacers.



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(4) Slide center seat (1) fully rearward.

NOTE

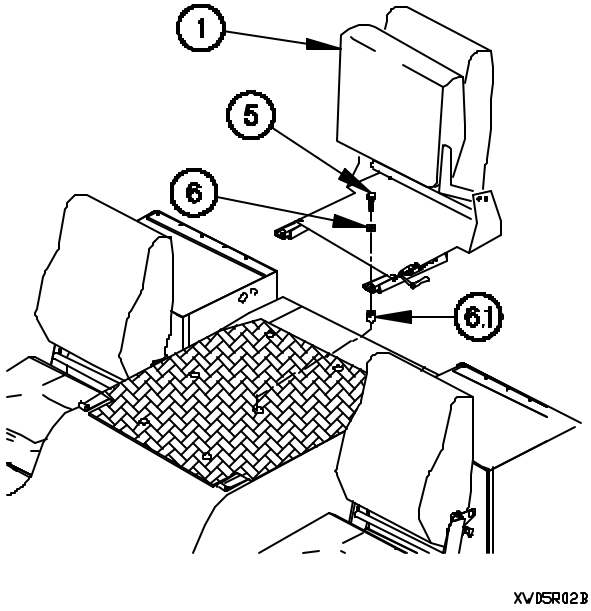
Perform step (5) on vehicles with cabs S/N 12075G or lower.

(5) Remove two screws (5), washers (6), and center seat (1) from vehicle.

NOTE

Perform step (6) on vehicles with cabs S/N 12076G or higher.

(6) Remove two screws (5), washers (6), spacers (6.1), and center seat (1) from vehicle. Discard spacers.



21-5. MACHINE GUN RING CENTER SEAT REPLACEMENT (CONT)

b. Installation.

WARNING

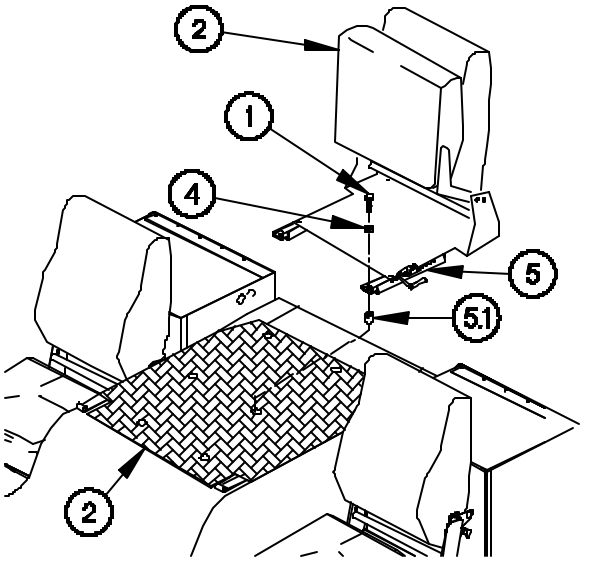
Adhesive Sealant MIL-S-46163 can damage your eyes. Wear safety goggles when using; avoid contact with eyes. If sealant contacts eyes, flush eyes with water and get immediate medical attention. Failure to comply may result in injury to personnel.

(1) Apply sealing compound to threads of two screws (1).

NOTE

- Perform step (2) on vehicles with cabs S/N 12075G or lower. Cab S/N located on B pillar.
- Install center seat in folded and raised position with seat rails in the forward position.

(2) Position center seat (2) on platform (3).



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NOTE

- Flat sides of screw will be in line with seat tracks.
- Perform step (3) on vehicles with cabs S/N 12075G or lower.

(3) Position washers (4) and screws (1) in seat mount (5).

NOTE

Perform step (4) on vehicles with cabs S/N 12076G or higher.

(4) Position two spacers (5.1), washers (4), and screws (1) in seat mounts (5).

(5) Slide center seat (2) fully forward.

(6) Fold center seat (2) down

NOTE

Perform step (7) on vehicles with cabs S/N 12075 or lower.

(7) Position two washers (6) and screws (7) in seat mount (5).

NOTE

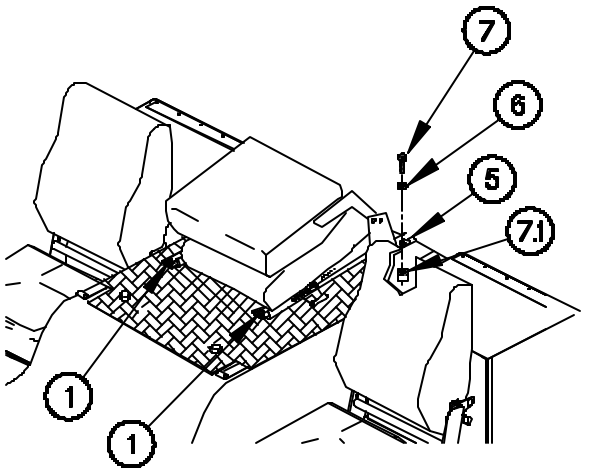
Perform step (8) on vehicles with cabs S/N 12076G or higher.

(8) Position two spacers (7.1), washers (6), and screws (7) in seat mount (5).

NOTE

When tightening screws, flat sides of screws are to be in line with track sides.

(9) Tighten two screws (1 and 7) to 14-18 lb-ft (19-24 N•m).



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End Of Task

21-6. MACHINE GUN RING ROOF SUPPORT REPLACEMENT

This task covers:

a. Removal

b. Installation

INITIAL SETUP

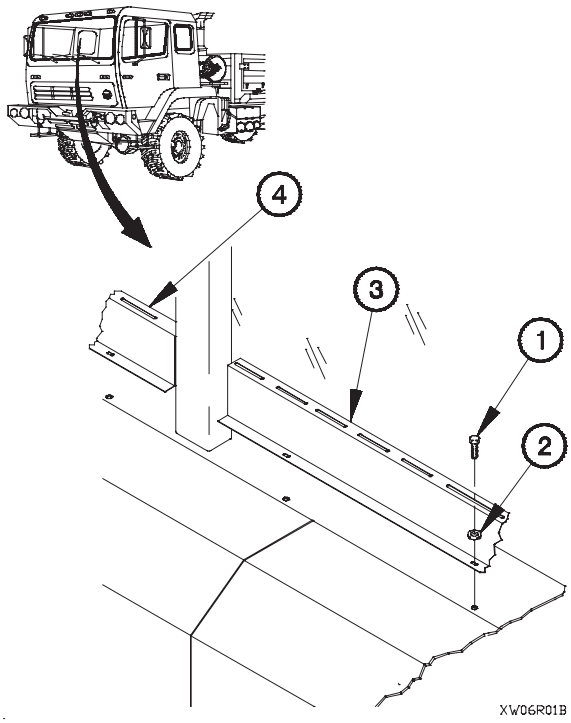
Equipment Conditions
Engine shut down (TM 9-2320-366-10-1).

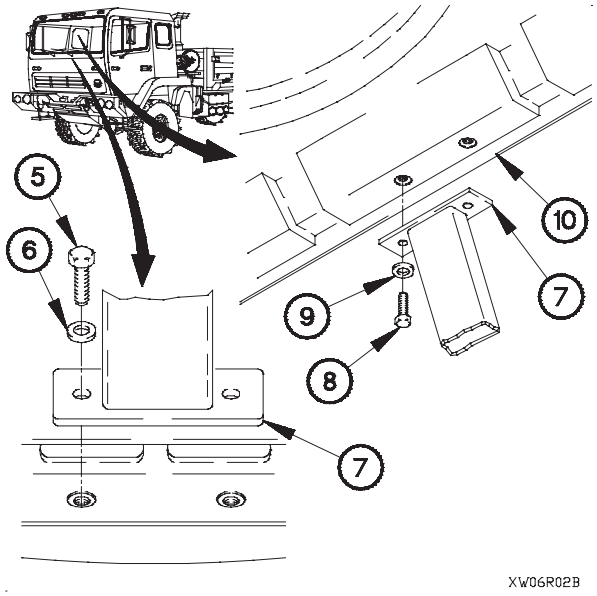
Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)

Tools and Special Tools (Cont)
Wrench, Torque, 0-175 lb-ft (Item 58, Appendix C)
Wrench, Torque 0-200 lb-in. (Item 59, Appendix C)

a. Removal.

(1) Remove six screws (1), washers (2), LH defrost cover (3), and RH defrost cover (4) from vehicle.





(2) Remove two screws (5) and washers (6) from roof support (7).

(3) Remove two screws (8) and washers (9) from roof support (7).

(4) Remove roof support (7) from cab roof (10).

b. Installation.

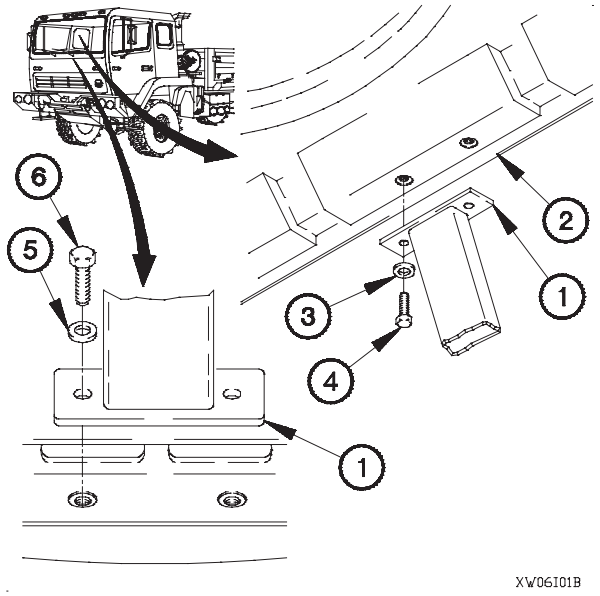
(1) Deleted.

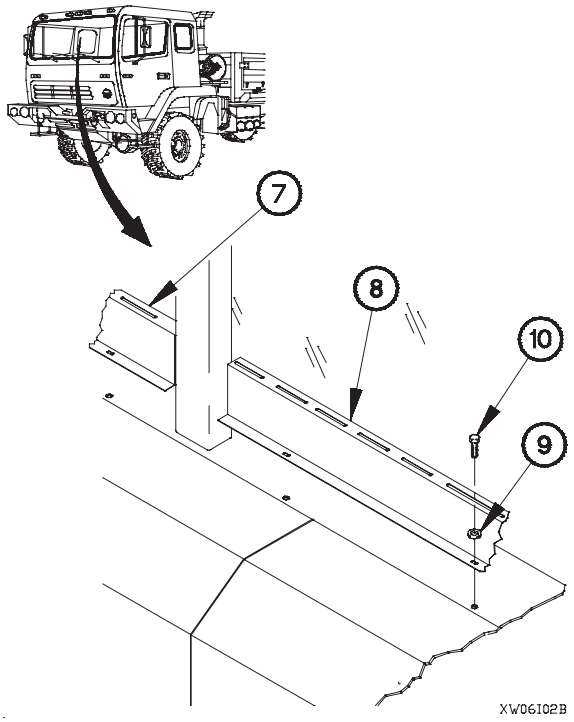
(2) Deleted.

(3) Position roof support (1) on cab roof (2) with two washers (3) and screws (4).

(4) Position two washers (5) and screws (6) in roof support (1).

(5) Tighten two screws (4 and 6) to 21-27 lb-ft (29-37 N·m).





(6) Position LH defrost cover (7) and RH defrost cover (8) in vehicle with six washers (9) and screws (10).

(6.1) Tighten six screws (10) to 22-27 lb-in. (2-3 N·m).

End of Task.

21-7. SMALL ARMS MOUNT REPLACEMENT

This task covers:

a. Removal

b. Installation

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-366-10-1).

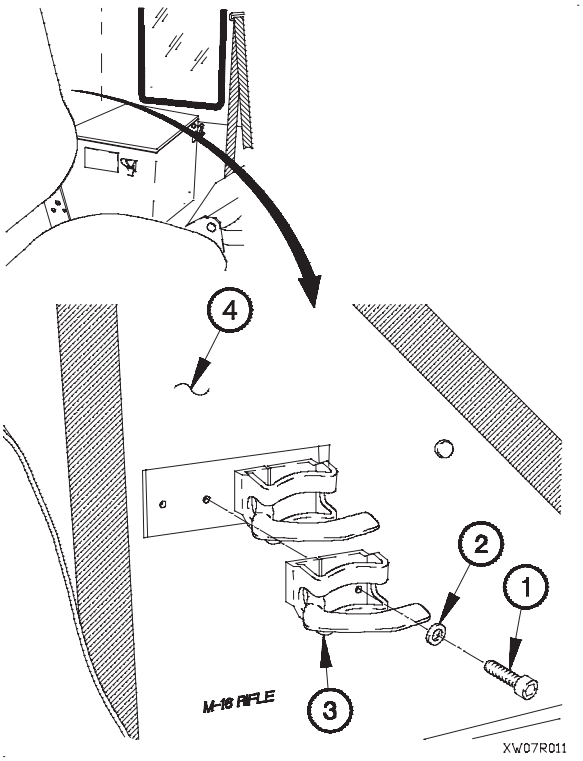
Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Wrench, Torque, 0-200 lb-in. (Item 59, Appendix C)
Socket Set, Socket Wrench (Item 36, Appendix C)

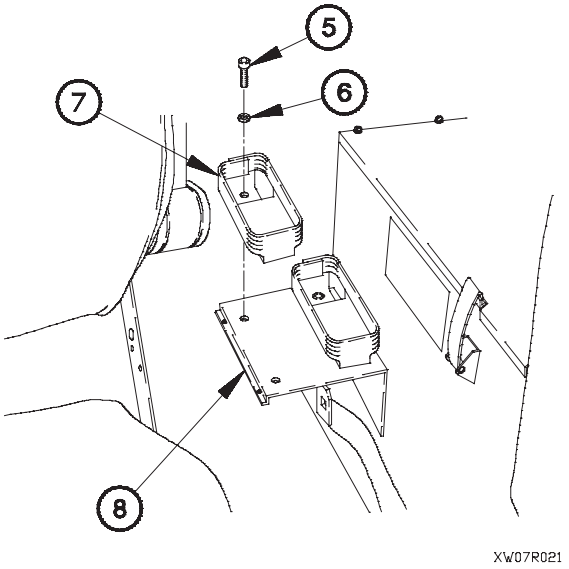
a. Removal.

NOTE

All three small arms mounts are removed the same way. Driver's side shown.

(1) Remove two screws (1), washers (2), and storage rack (3) from back wall of cab (4).





(2) Remove two screws (5), washers (6), and weapon support (7) from support (8).

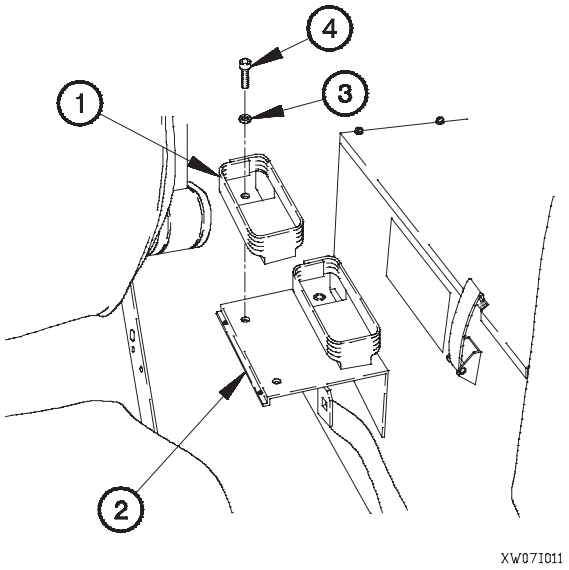
b. Installation.

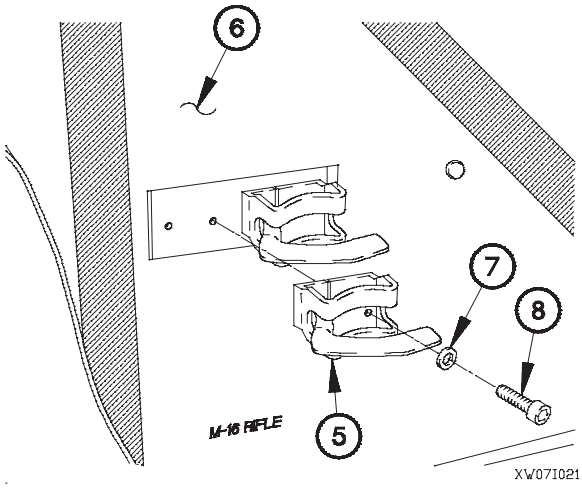
NOTE

All three small arms mounts are installed the same way. Driver's side shown.

(1) Position weapon support (1) on support (2) with two washers (3) and screws (4).

(2) Tighten two screws (4) to 36-44 lb-in. (4-5 N·m).





(3) Position storage rack (5) on back wall of cab (6) with two washers (7) and screws (8).

(4) Tighten two screws (8) to 36-44 lb-in. (4-5 N·m).

End of Task.

CHAPTER 22
ELECTRICAL ILLUMINATING EQUIPMENT MAINTENANCE

RESTRICTED MAINTENANCE NOTICE

Units not authorized SC 4910-95-CL-A72 (SHOP EQUIPMENT, COMMON NO. 2) in their T.O.E. may be unable to perform some of the maintenance tasks described in this chapter. If the required tools are not authorized, the equipment must be submitted to DS Maintenance for repair.

Section I. INTRODUCTION

22-1. INTRODUCTION

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

Section II. MAINTENANCE PROCEDURES

22-2. M1089 AMBER WARNING LIGHT ASSEMBLY REPAIR

This task covers:

a. Disassembly
b. Assembly
c. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Vise, Machinist (Item 48, Appendix C)
Wrench, Torque, 0-200 lb-in. (Item 59, Appendix C)
Socket Set, Socket Wrench (Item 36, Appendix C)

Materials/Parts
Adhesive (Item 5, Appendix D)
Nut, Plain, Hex (Item 127, Appendix G)

Materials/Parts (Cont)
Nut, Self-Locking (2) (Item 128, Appendix G)
Nut, Self-Locking (6) (Item 167, Appendix G)
Grommet, Nonmetallic (Item 47, Appendix G)
Lockwasher (4) (Item 77, Appendix G)
Washer, Nylon (3) (Item 185, Appendix G)
Washer, Nylon (3) (Item 284, Appendix G)
Insert, Nylon (3) (Item 57, Appendix G)
Insert, Nylon (2) (Item 59, Appendix G)

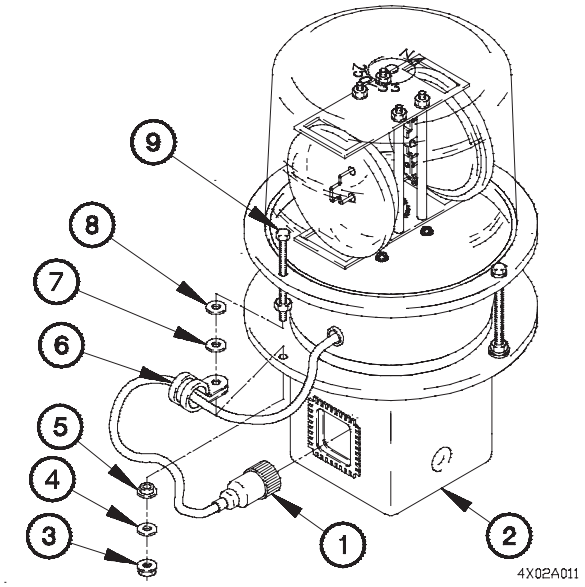
a. Disassembly.

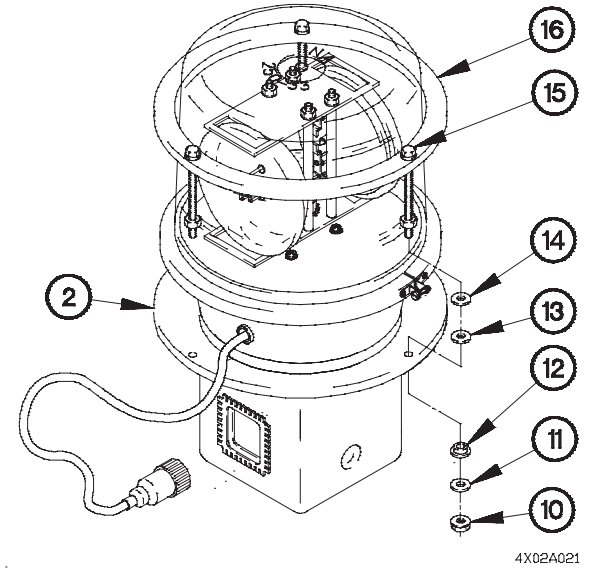
(1) Remove amber warning light cable (1) from support bracket (2).

NOTE

Note location of clamp prior to removal.

(2) Remove self-locking nut (3), washer (4), nylon insert (5), clamp (6), nylon washer (7), and washer (8) from screw (9). Discard self-locking nut, nylon insert, and nylon washer.



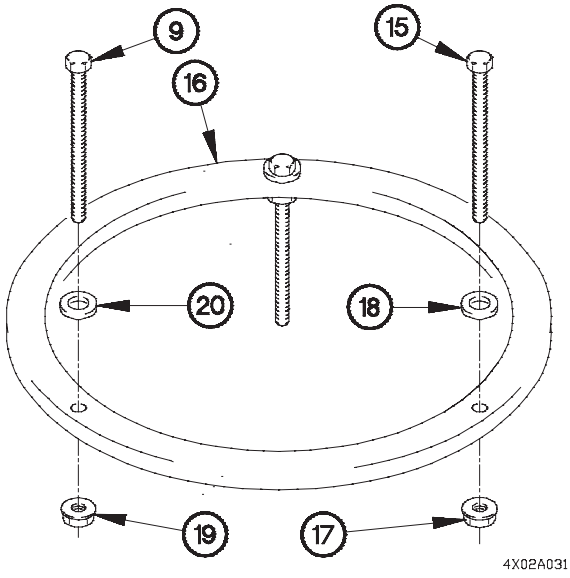


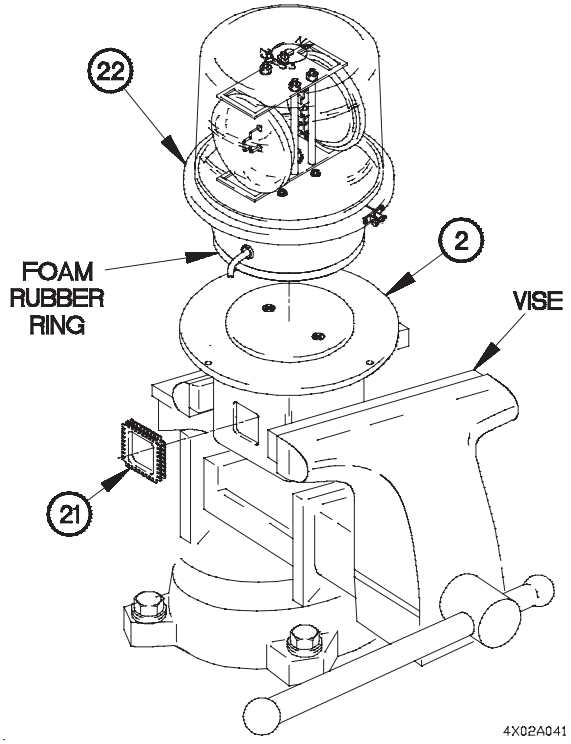
(3) Remove two self-locking nuts (10), washers (11), nylon inserts (12), nylon washers (13), and washers (14) from screws (15). Discard self-locking nuts, nylon inserts, and nylon washers.

(4) Remove support ring (16) from support bracket (2).

(5) Remove two self-locking nuts (17), screws (15), and washers (18) from support ring (16). Discard self-locking nuts.

(6) Remove self-locking nut (19), screw (9), and washer (20) from support ring (16). Discard self-locking nut.





(7) Remove grommet (21) from support bracket (2). Discard grommet.

(8) Position support bracket (2) in vise.

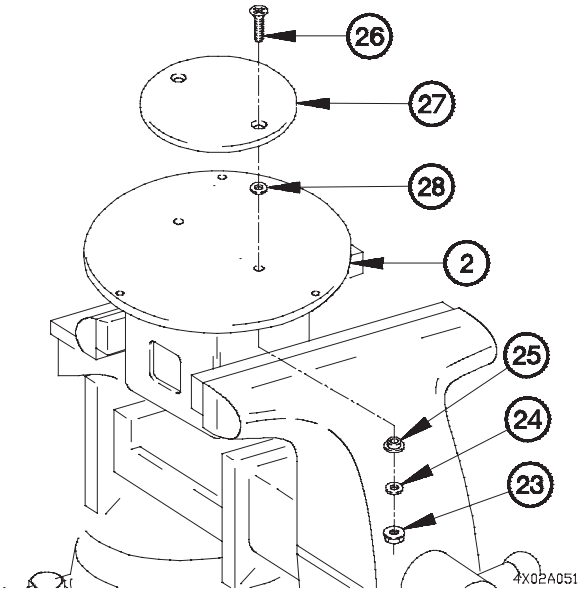
CAUTION

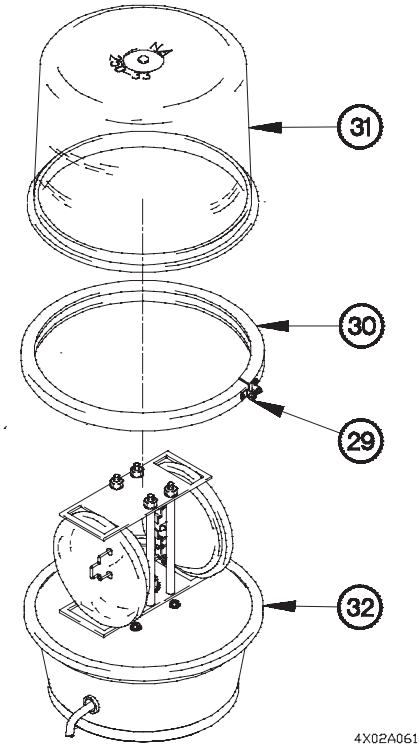
Amber warning light contains a very powerful magnetic base and must be pryed from support bracket. Prying must be done between foam rubber ring and support bracket. Failure to comply may result in damage to equipment.

(9) Remove amber warning light (22) from support bracket (2).

22-2. M1089 AMBER WARNING LIGHT ASSEMBLY REPAIR (CONT)

(10) Remove two self-locking nuts (23), washers (24), nylon inserts (25), screws (26), support plate (27), and two nylon washers (28) from support bracket (2). Discard self-locking nuts, nylon inserts, and nylon washers.





(11) Loosen screw (29) on clamp (30).

(12) Remove lens (31) from lamp housing (32).

(13) Remove clamp (30) from lamp housing (32).

NOTE

Perform step (14) on amber warning lights equipped with nuts containing a captive lockwasher.

(14) Remove four self-locking nuts (33) and lamp mounting plate (34) from mounting studs (35). Discard self-locking nuts.

NOTE

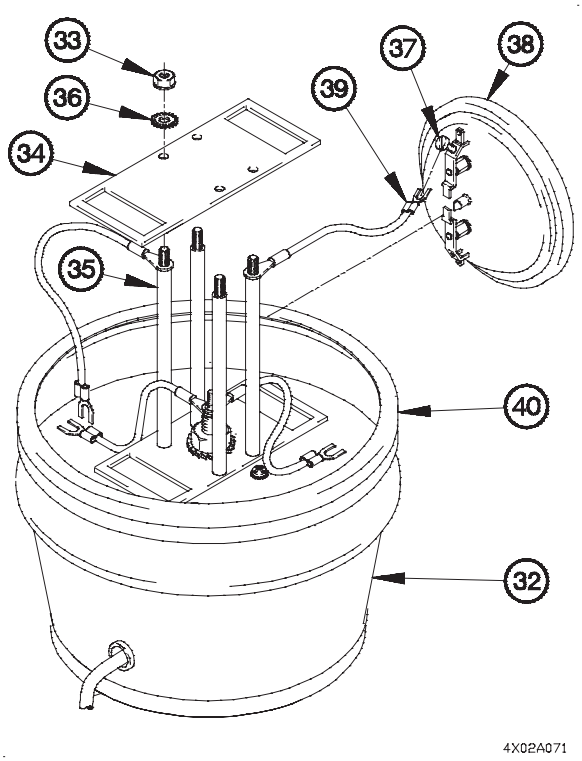
Perform step (15) on amber warning lights equipped with nuts and lockwashers.

(15) Remove four nuts (33), lockwashers (36), and lamp mounting plate (34) from mounting studs (35). Discard lockwashers.

(16) Loosen four screws (37) on two lamps (38).

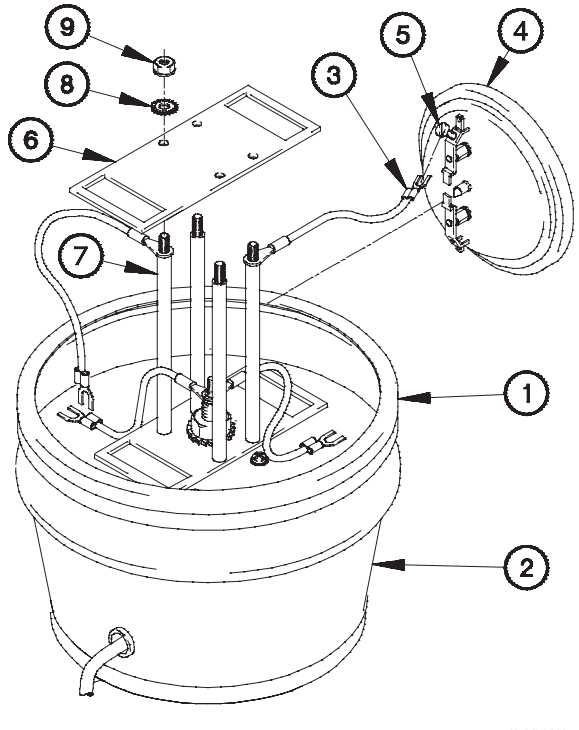
(17) Remove four terminal lugs (39) from two lamps (38).

(18) Remove seal (40) from lamp housing (32).



4X02A071

b. Assembly.



4X02B011

(1) Install seal (1) on lamp housing (2).

(2) Install four terminal lugs (3) on two lamps (4) with four screws (5).

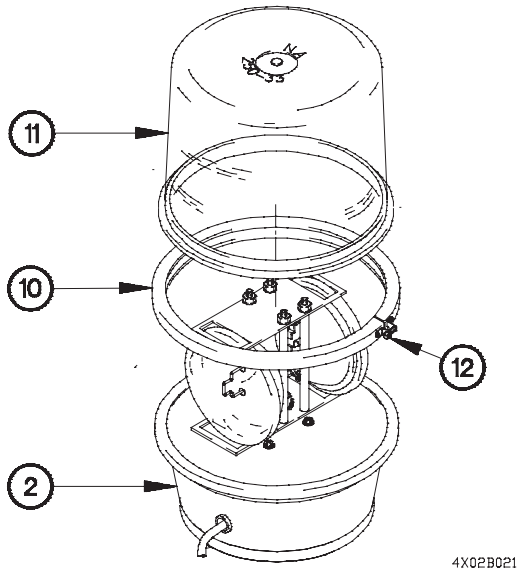
(3) Install lamp mounting plate (6) on four mounting studs (7) with lockwashers (8) and nuts (9).

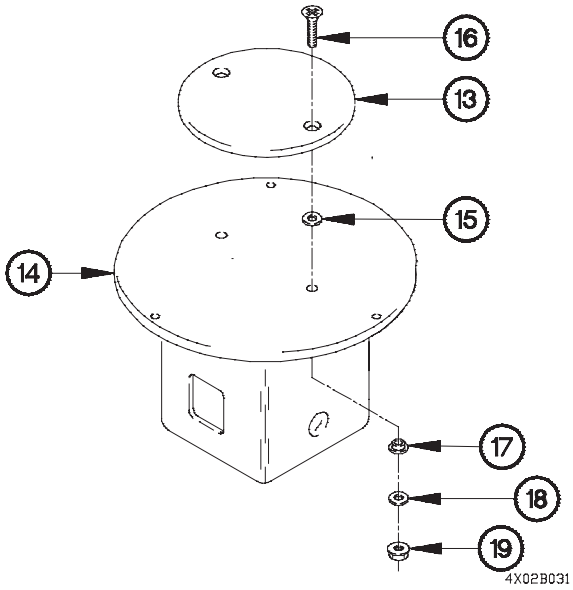
22-2. M1089 AMBER WARNING LIGHT ASSEMBLY REPAIR (CONT)

(4) Position clamp (10) on lamp housing (2).

(5) Install lens (11) on lamp housing (2).

(6) Tighten screw (12) in clamp (10).



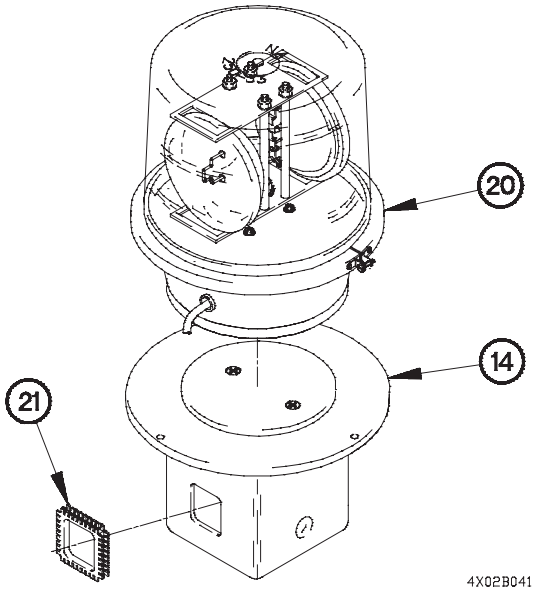


(7) Position support plate (13) on support bracket (14) with two nylon washers (15), screws (16), nylon inserts (17), washers (18), and self-locking nuts (19).

(8) Tighten two self-locking nuts (19) to 26-35 lb-in. (3-4 N·m).

(9) Install amber warning light (20) on support bracket (14).

(10) Install grommet (21) on support bracket (14).



(11) Position support ring (22) on amber warning light (20).

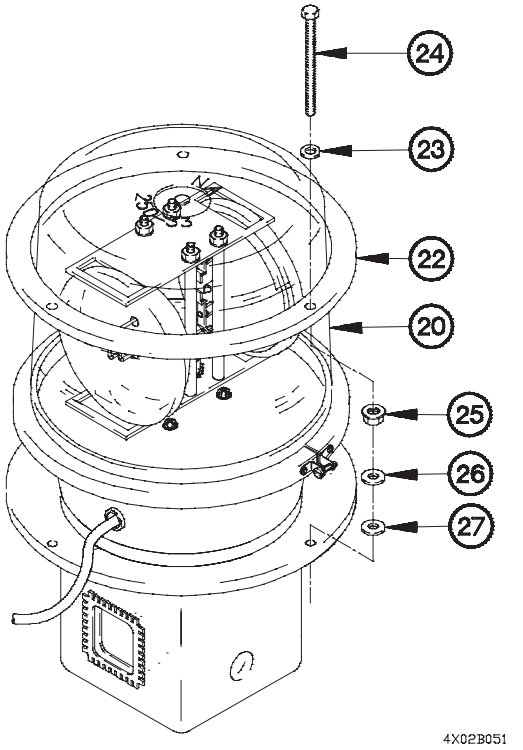
(12) Install two washers (23) and screws (24) in support ring (22).

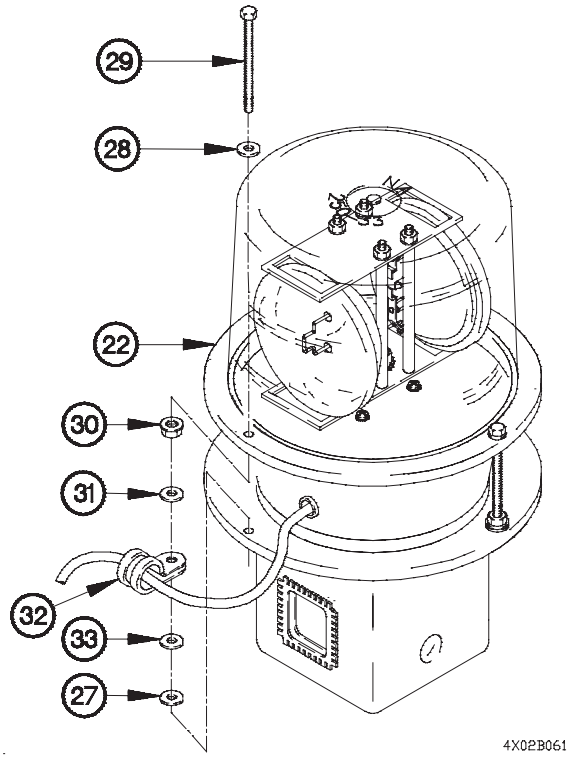
NOTE

Install self-locking nuts with flanged side toward screw head.

(13) Install two self-locking nuts (25), washers (26), and nylon washers (27) on screws (24).

(14) Adjust position of two self-locking nuts (25) so that screws (24) just rest on upper washers (23) with nylon washers (27) and washers (26) in place.





(15) Install washer (28) and screw (29) in support ring (22).

NOTE

Install self-locking nut with flanged side toward screw head.

(16) Install self-locking nut (30), washer (31), clamp (32), washer (33), and nylon washer (27) on screw (29).

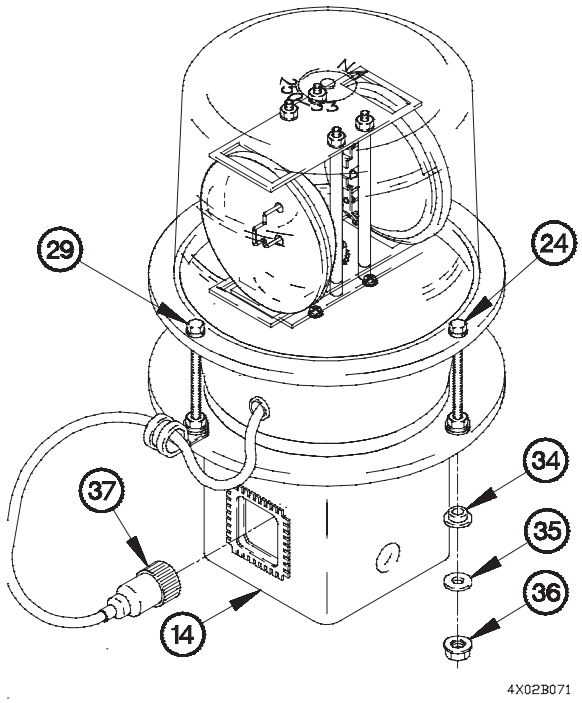
(17) Adjust position of self-locking nut (30) so that screw (29) just rests on washer (28) with nylon washer (27), clamp (32), and washers (31 and 33) in place.

22-2. M1089 AMBER WARNING LIGHT ASSEMBLY REPAIR (CONT)

(18) Position three nylon inserts (34), washers (35), and self-locking nuts (36) on two screws (24) and screw (29).

(19) Tighten three self-locking nuts (36) to 106-124 lb-in. (12-14 N·m).

(20) Install amber warning light cable (37) in support bracket (14).



c. Follow-On Maintenance.

Check operation of M1089 amber warning light (TM 9-2320-366-10-2).

End of Task.

22-3. M1089 AMBER WARNING LIGHT MAST REPLACEMENT

This task covers:

a. Removal

b. Installation

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-366-10-1).
Spare tire lowered (for right side) (TM 9-2320-366-10-2).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Goggles, Industrial (Item 15, Appendix C)
Drill, Portable, Electric (Item 7, Appendix C)
Drill Set, Twist (Item 6, Appendix C)
Tool Kit, Blind Rivet (Item 44, Appendix C)
Wrench, Torque, 0-175 lb-ft (Item 58, Appendix C)

Materials/Parts
Rivet, Blind (Item 256, Appendix G)
Mount, Resilient (5) (Item 121, Appendix G)
Nut, Self-Locking (5) (Item 167, Appendix G)
Nut, Self-Locking (5) (Item 168, Appendix G)
Insert, Nylon (5) (Item 57, Appendix G)
Insert, Nylon (Item 58, Appendix G)

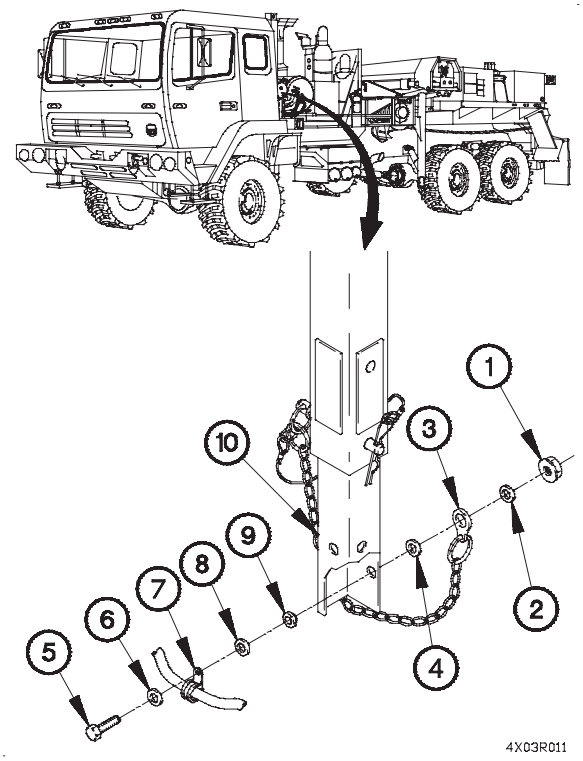
Personnel Required
(2)

a. Removal.

NOTE

Left and right side amber warning light masts are removed the same way. Left side shown.

(1) Remove self-locking nut (1), washer (2), lanyard tab (3), nylon insert (4), screw (5), washer (6), clamp (7), washer (8), and nylon washer (9) from handle (10). Discard self-locking nut, nylon insert, and nylon washer.



22-3. M1089 AMBER WARNING LIGHT MAST REPLACEMENT (CONT)

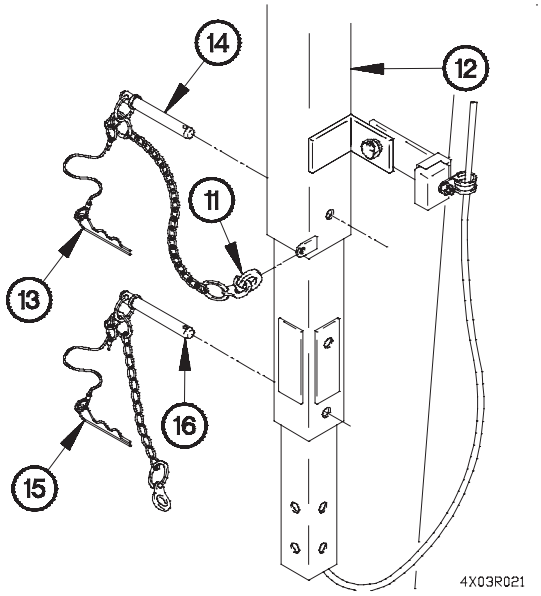
(2) Remove split ring (11) from mast (12).

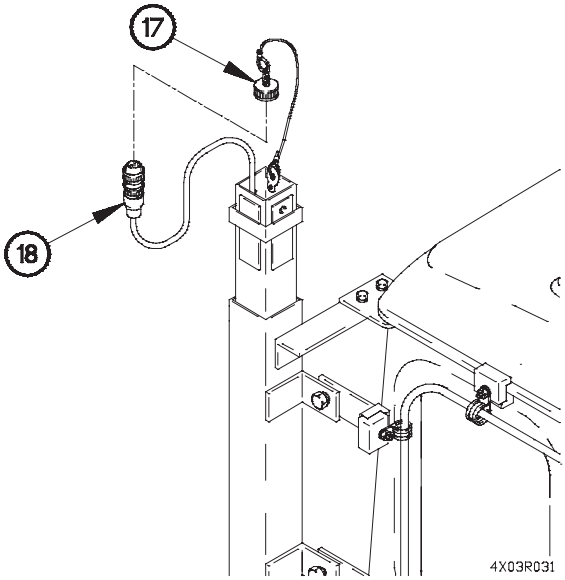
(3) Remove clevis pin (13) from hitch pin (14).

(4) Remove hitch pin (14) from mast (12).

(5) Remove clevis pin (15) from hitch pin (16).

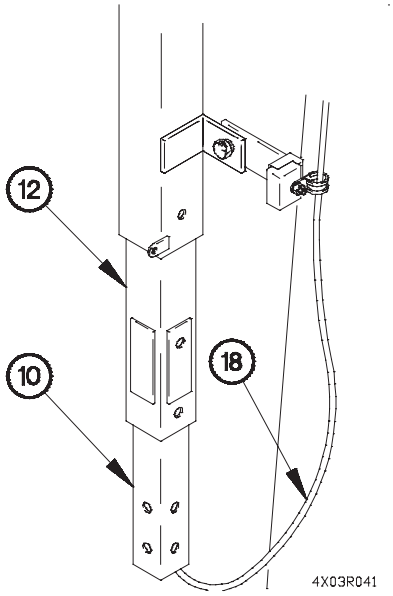
(6) Remove hitch pin (16) from mast (12).



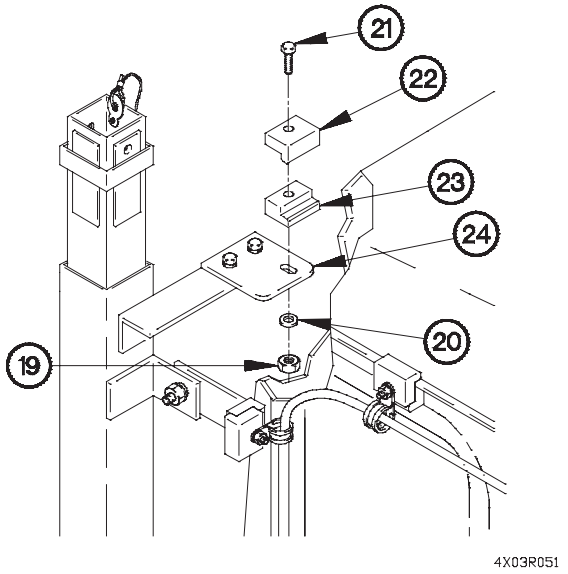


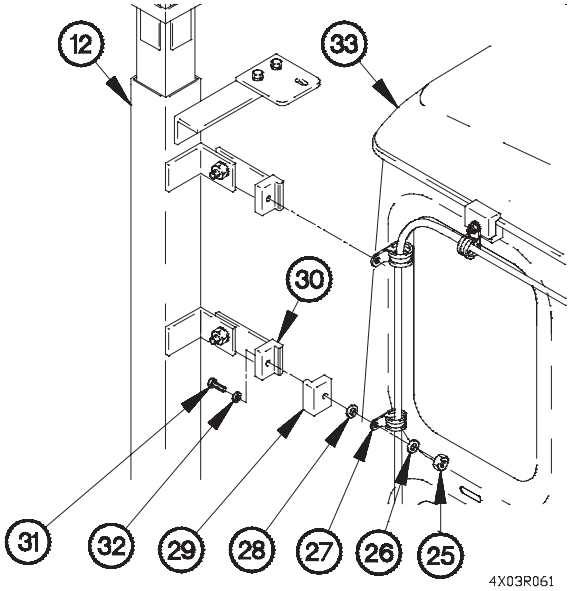
(7) Remove dust cap (17) from warning lights cable assembly (18).

(8) Remove warning lights cable assembly (18) and handle (10) from mast (12).



(9) Remove self-locking nut (19), washer (20), bolt (21), clamp half (22), and clamp half (23) from plate (24). Discard self-locking nut.



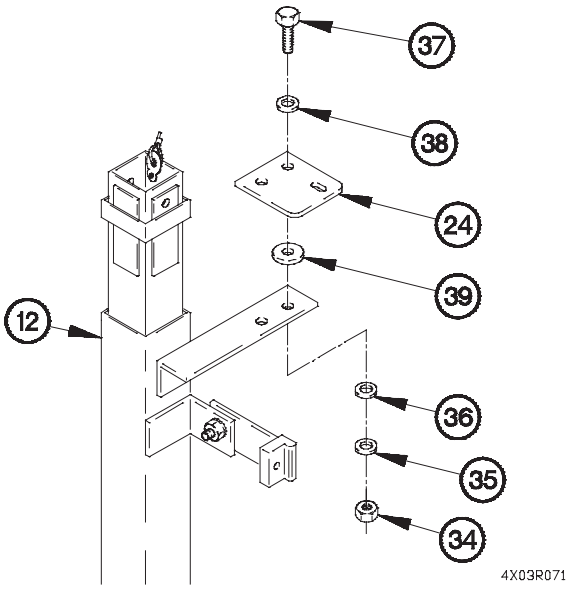


NOTE

Step (10) requires the aid of an assistant.

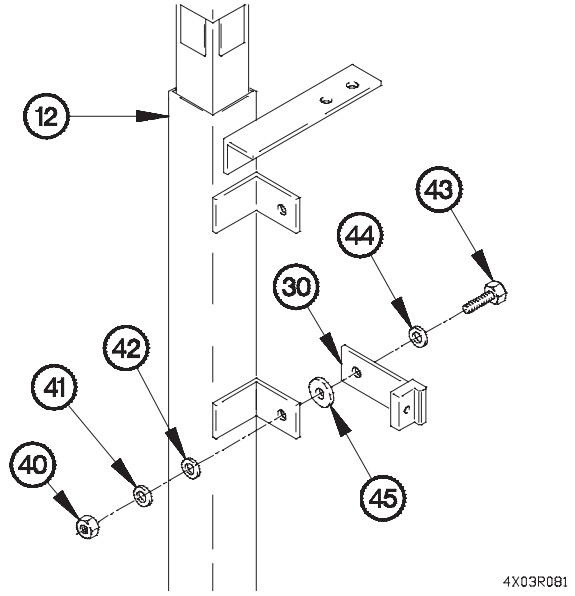
(10) Remove three self-locking nuts (25), washers (26), clamps (27), washers (28), clamp halves (29), clamp halves (30), screws (31), washers (32), and mast (12) from cab (33).

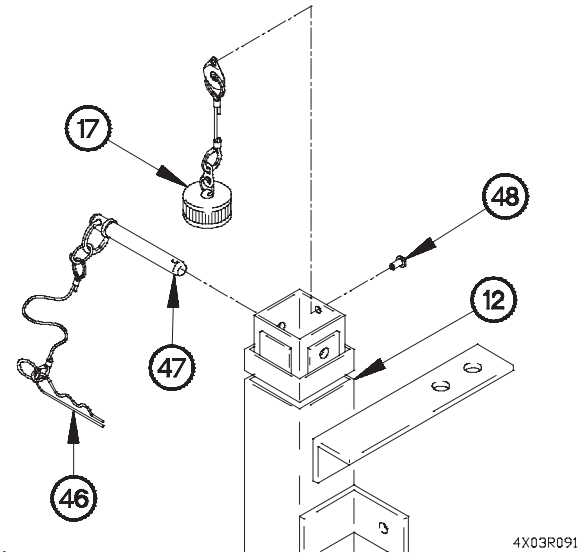
(11) Remove two self-locking nuts (34), washers (35), nylon inserts (36), screws (37), washers (38), plate (24) and two resilient mounts (39) from mast (12). Discard self-locking nuts, nylon inserts, and resilient mounts.



22-3. M1089 AMBER WARNING LIGHT MAST REPLACEMENT (CONT)

(12) Remove three self-locking nuts (40), washers (41), nylon inserts (42), screws (43), washers (44), clamp halves (30), and resilient mounts (45) from mast (12). Discard self-locking nuts, nylon inserts, and resilient mounts.





(13) Remove clevis pin (46) from hitch pin (47).

(14) Remove hitch pin (47) from mast (12).

WARNING

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

(15) Remove rivet (48) and dust cap (17) from mast (12).

b. Installation.

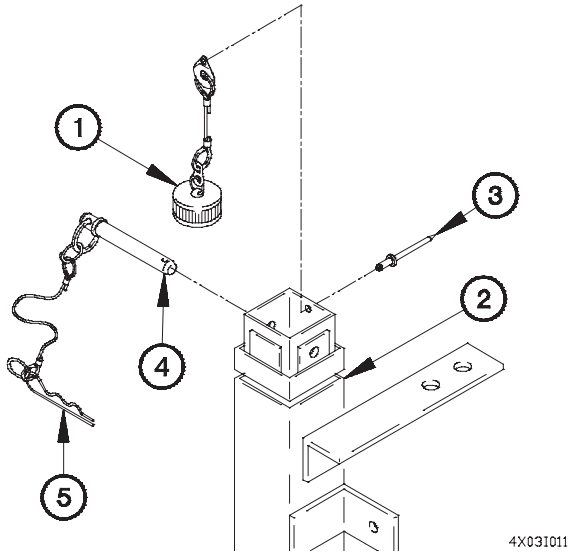
NOTE

Left and right side amber warning light masts are installed the same way. Left side shown.

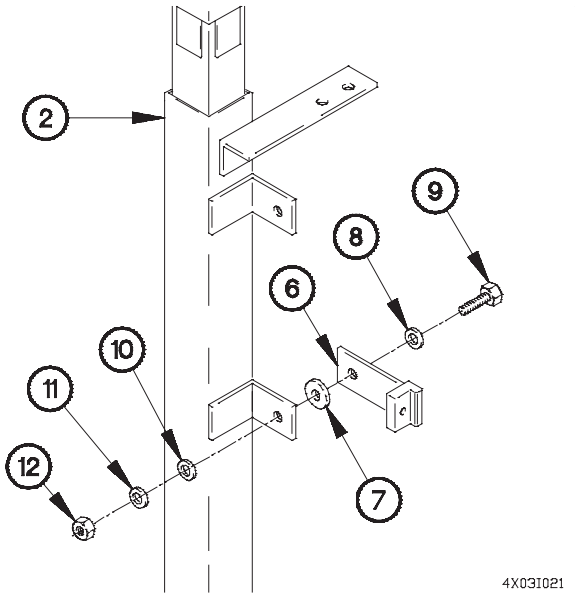
(1) Install dust cap (1) on mast (2) with rivet (3).

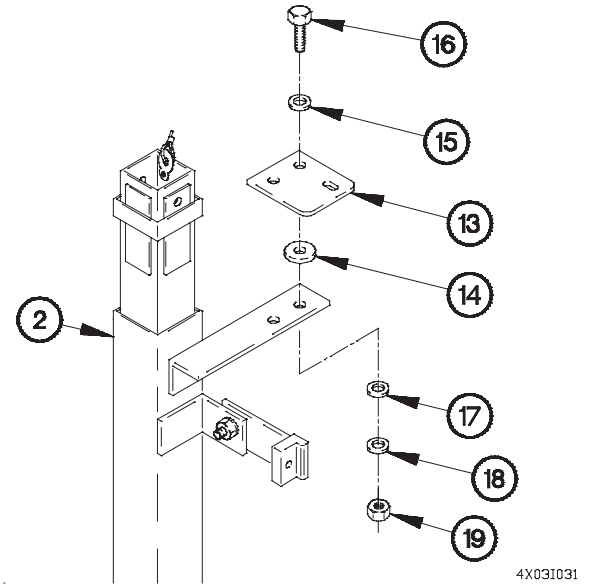
(2) Install hitch pin (4) in mast (2).

(3) Install clevis pin (5) in hitch pin (4).



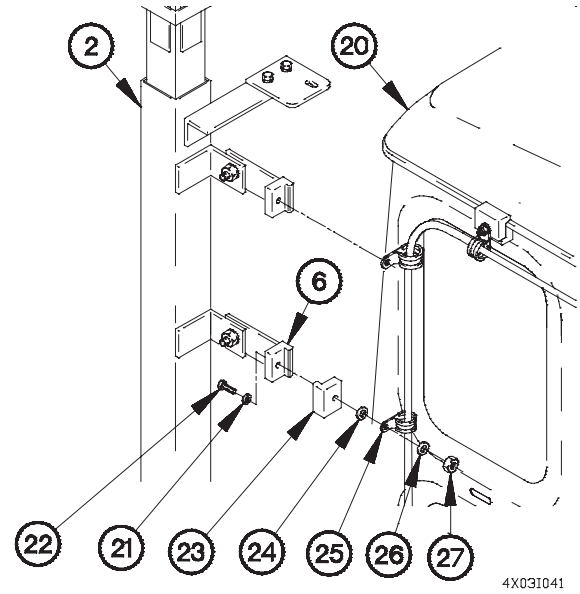
(4) Install three clamp halves (6) on mast (2) with three resilient mounts (7), washers (8), screws (9), nylon inserts (10), washers (11), and self-locking nuts (12).





(5) Install plate (13) on mast (2) with two resilient mounts (14), washers (15), screws (16), nylon inserts (17), washers (18), and self-locking nuts (19).

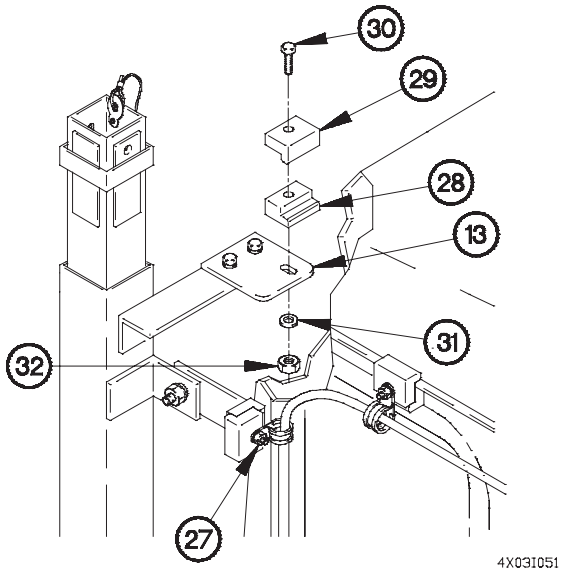
(6) Position mast (2) on cab (20) with three washers (21), screws (22), clamp halves (6), clamp halves (23), washers (24), clamps (25), washers (26), and self-locking nuts (27).

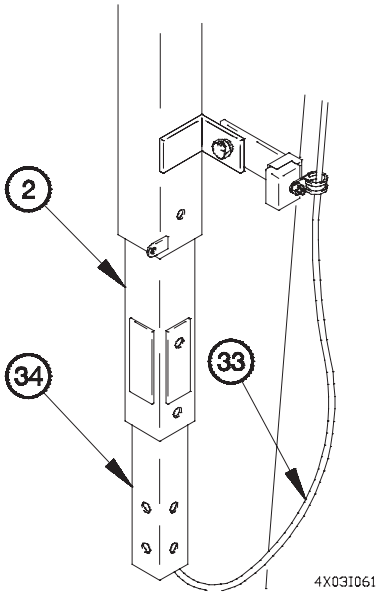


22-3. M1089 AMBER WARNING LIGHT MAST REPLACEMENT (CONT)

(7) Position clamp half (28) and clamp half (29) on plate (13) with screw (30), washer (31), and self-locking nut (32).

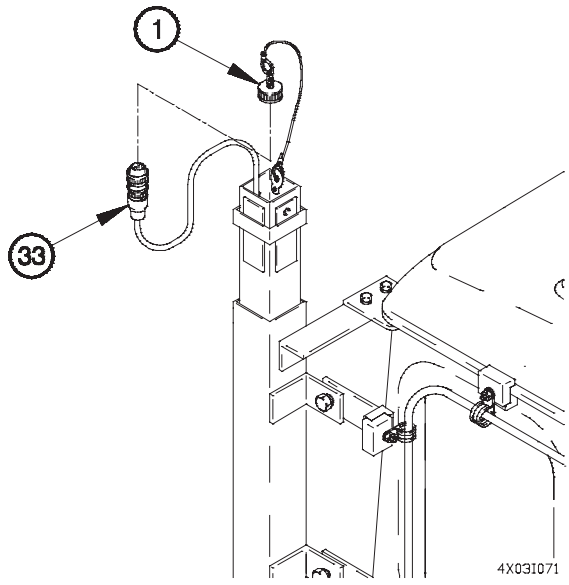
(8) Tighten three self-locking nuts (27) and self-locking nut (32) to 26-32 lb-ft (35-43 N·m).





(9) Position warning lights cable assembly (33) and handle (34) in mast (2).

(10) Install dust cap (1) on warning lights cable assembly (33).



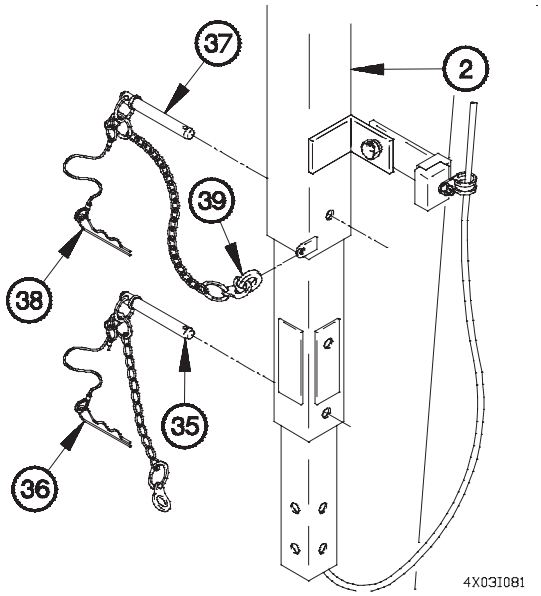
(11) Install hitch pin (35) in mast (2).

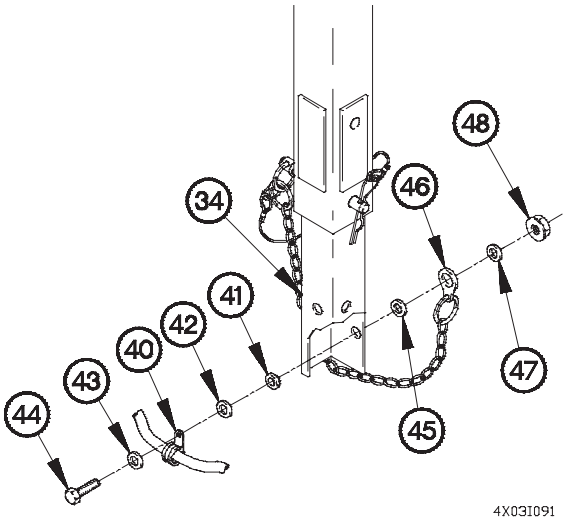
(12) Install clevis pin (36) in hitch pin (35).

(13) Install hitch pin (37) in mast (2).

(14) Install clevis pin (38) in hitch pin (37).

(15) Install split ring (39) on mast (2).





(16) Install clamp (40) on handle (34) with nylon insert (41), washer (42), washer (43), screw (44), washer (45), lanyard tab (46), washer (47), and self-locking nut (48).

c. Follow-On Maintenance.

Raise spare tire (for right side) (TM 9-2320-366-10-2).

End of Task.

22-4. M1089 WARNING LIGHTS CABLE ASSEMBLY REPLACEMENT

This task covers:

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

INITIAL SETUP

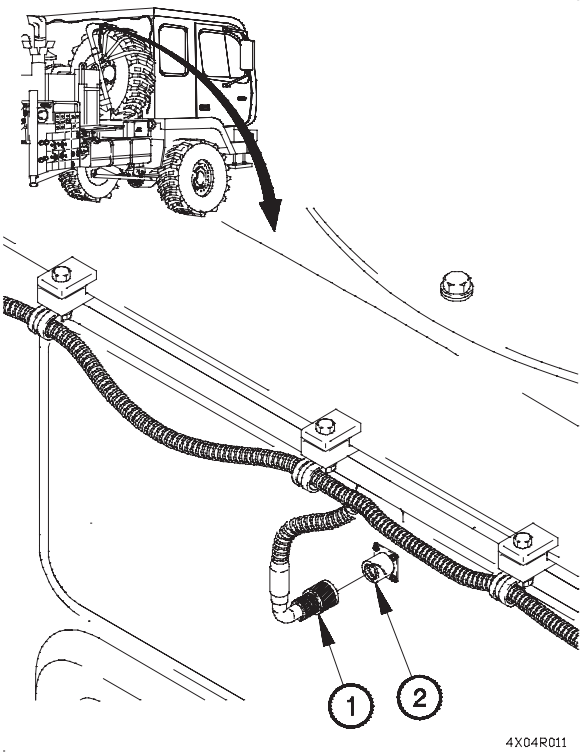
Equipment Conditions
Amber warning light masts removed (para 22-3).

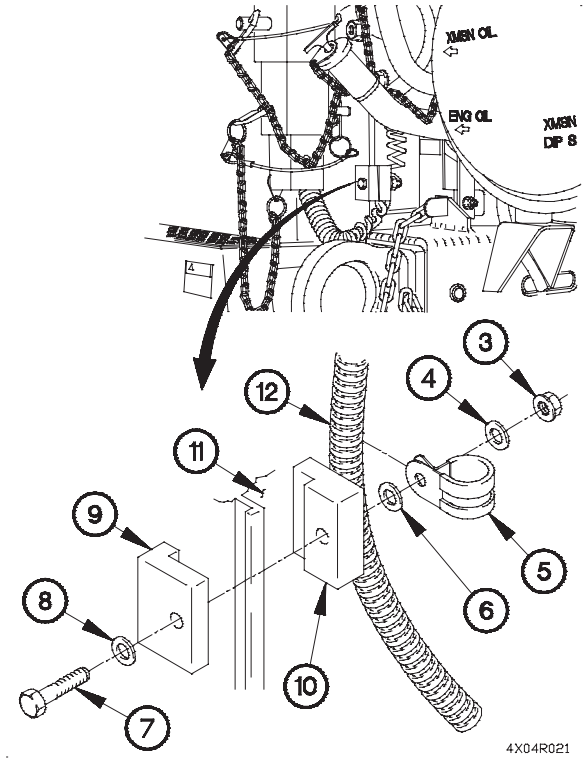
Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Wrench, Torque, 0-175 lb-ft (Item 58, Appendix C)

Materials/Parts
Nut, Self-Locking (8) (Item 168, Appendix G)

a. Removal.

(1) Disconnect connector P62A (1) from connector J62 (2).





NOTE

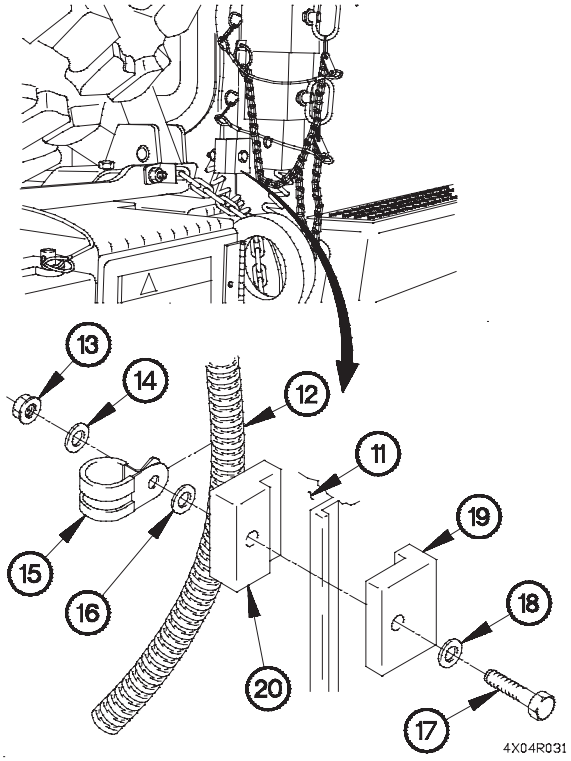
Note location of clamps prior to removal.

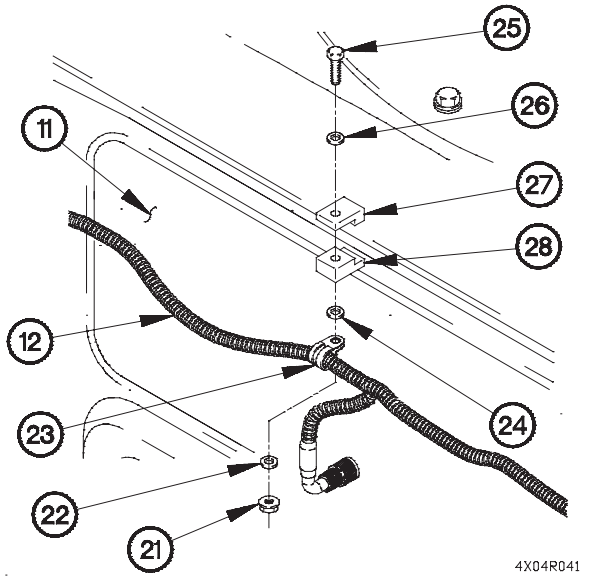
(2) Remove self-locking nut (3), washer (4), clamp (5), washer (6), screw (7), washer (8), clamp half (9), and clamp half (10) from cab (11). Discard self-locking nut.

(3) Remove clamp (5) from M1089 warning lights cable assembly (12).

(4) Remove self-locking nut (13), washer (14), clamp (15), washer (16), screw (17), washer (18), clamp half (19), and clamp half (20) from cab (11). Discard self-locking nut.

(5) Remove clamp (15) from M1089 warning lights cable assembly (12).



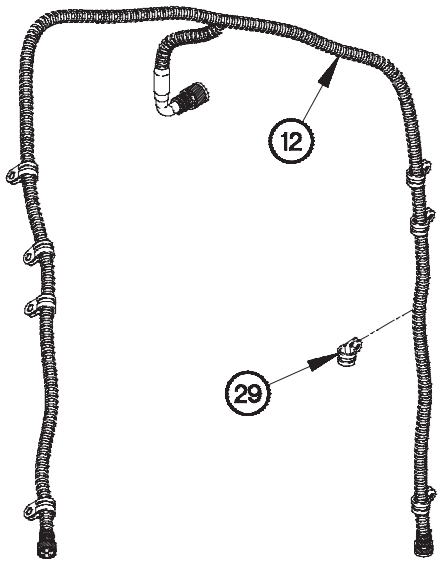


(6) Remove six self-locking nuts (21), washers (22), clamps (23), M1089 warning lights cable assembly (12), six washers (24), screws (25), washers (26), clamp halves (27), and clamp halves (28) from cab (11). Discard self-locking nuts.

(7) Remove six clamps (23) from M1089 warning lights cable assembly (12).

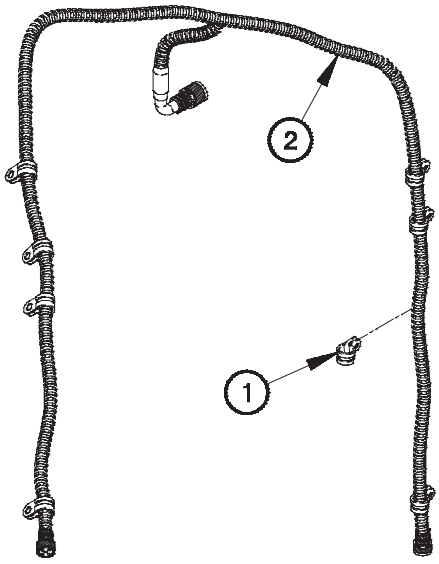
22-4. M1089 WARNING LIGHTS CABLE REPLACEMENT (CONT)

(8) Remove eight clamps (29) from M1089 warning lights cable assembly (12).



4X04R051

b. Installation.



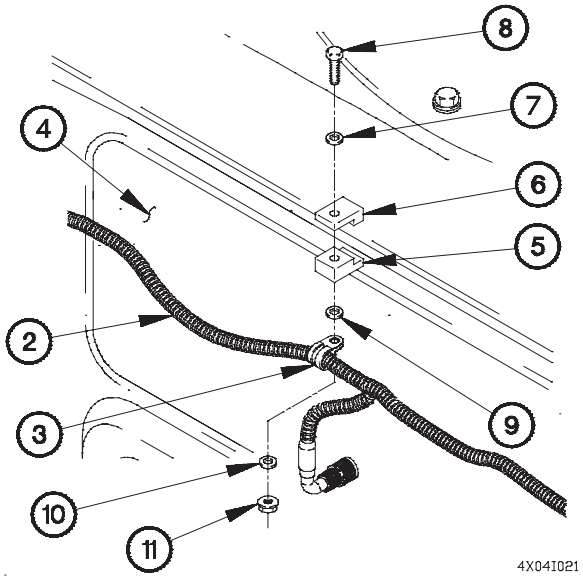
4X041011

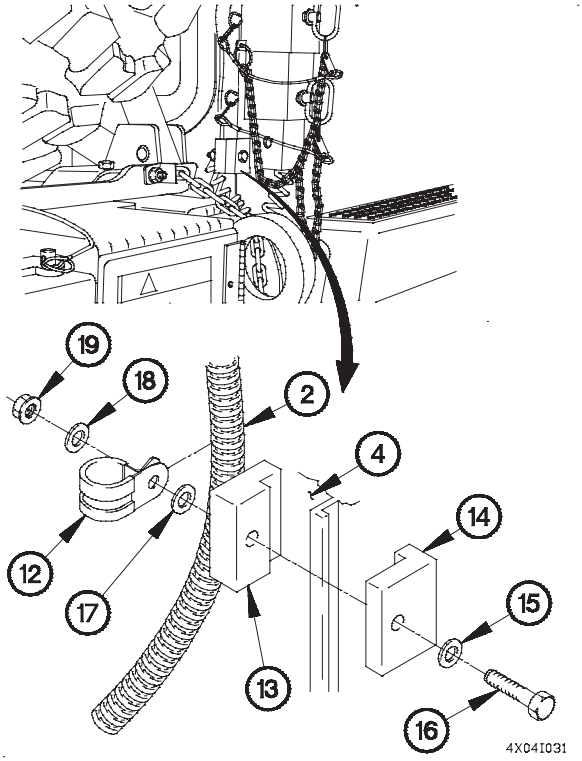
(1) Position eight clamps (1) on M1089 warning lights cable assembly (2).

(2) Install six clamps (3) on M1089 warning lights cable assembly (2).

(3) Position M1089 warning lights cable assembly (2) on cab (4) with six clamps (3), clamp halves (5), clamp halves (6), washers (7), screws (8), washers (9), washers (10), and self-locking nuts (11).

(4) Tighten six self-locking nuts (11) to 26-32 lb-ft (35-43 N·m).





(5) Install clamp (12) on M1089 warning lights cable assembly (2).

(6) Position clamp (12), clamp half (13), and clamp half (14) on cab (4) with washer (15), screw (16), washer (17), washer (18), and self-locking nut (19).

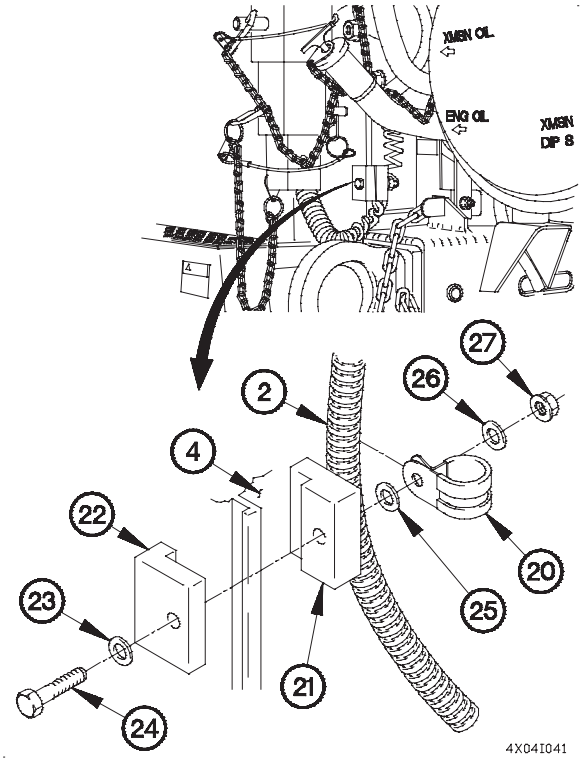
(7) Tighten self-locking nut (19) to 26-32 lb-ft (35-43 N·m).

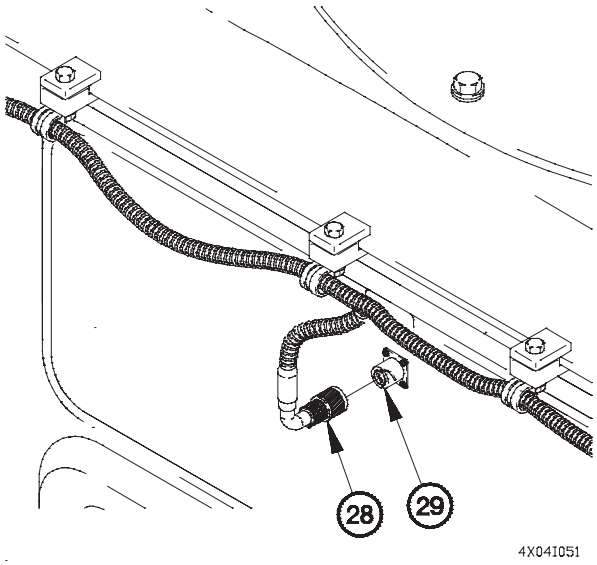
22-4. M1089 WARNING LIGHTS CABLE REPLACEMENT (CONT)

(8) Install clamp (20) on M1089 warning lights cable assembly (2).

(9) Position clamp (20), clamp half (21), and clamp half (22) on cab (4) with washer (23), screw (24), washer (25), washer (26), and self-locking nut (27).

(10) Tighten self-locking nut (27) to 26-32 lb-ft (35-43 N·m).





(11) Connect connector P62A (28) to connector J62 (29).

c. Follow-On Maintenance.

Install amber warning light masts (para 22-3).

End of Task.

22-5. WARNING LIGHT CABLE ASSEMBLY REPLACEMENT

This task covers:

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

INITIAL SETUP

Equipment Conditions
Batteries disconnected (para 7-57).
Rear cab liner removed (para 16-14).
Kick panel removed (para 16-3).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)

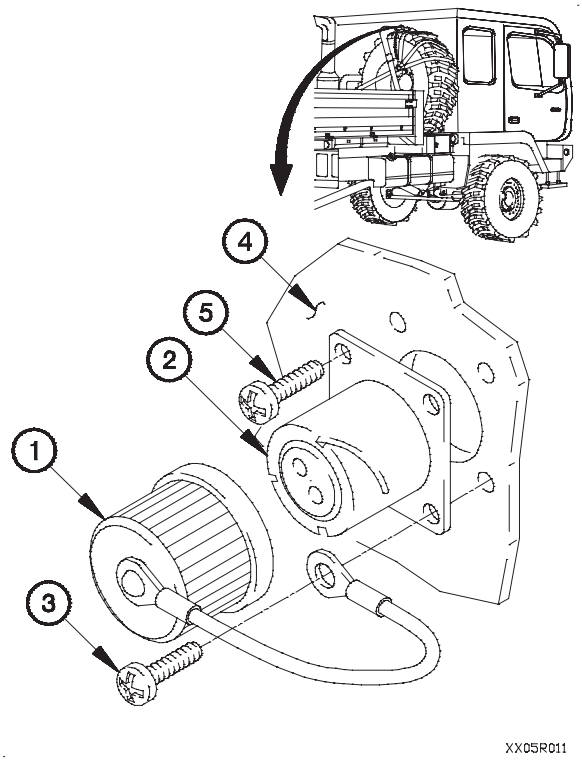
Material/Parts
Ties, Cable, Plastic (Item 69, Appendix D)

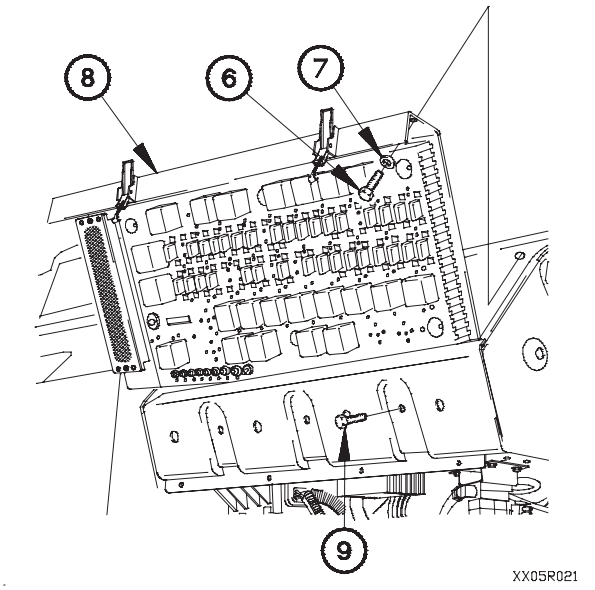
a. Removal.

(1) Remove dustcap (1) from connector J62 (2).

(2) Remove screw (3) and dustcap (1) from cab (4).

(3) Remove three screws (5) and connector J62 (2) from cab (4).





(4) Remove three screws (6) and washers (7) from PDP (8).

(5) Remove three screws (9) from PDP (8).

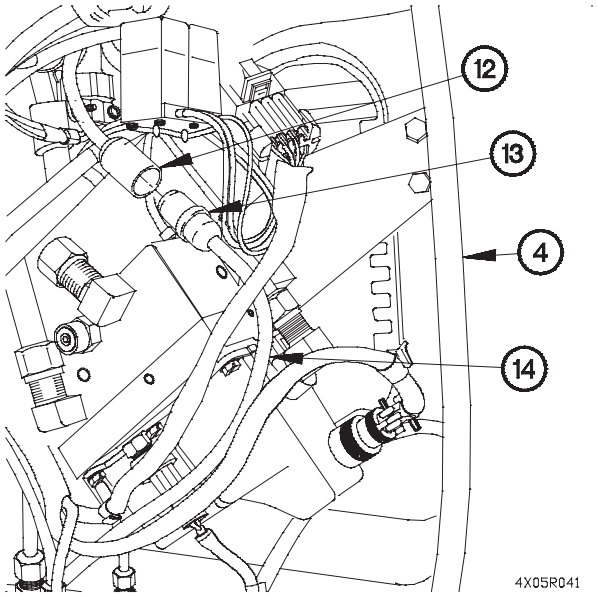
(6) Lift PDP (8) outward to gain access.

22-5. WARNING LIGHT CABLE ASSEMBLY REPLACEMENT (CONT)

NOTE

Remove plastic cable ties as required.

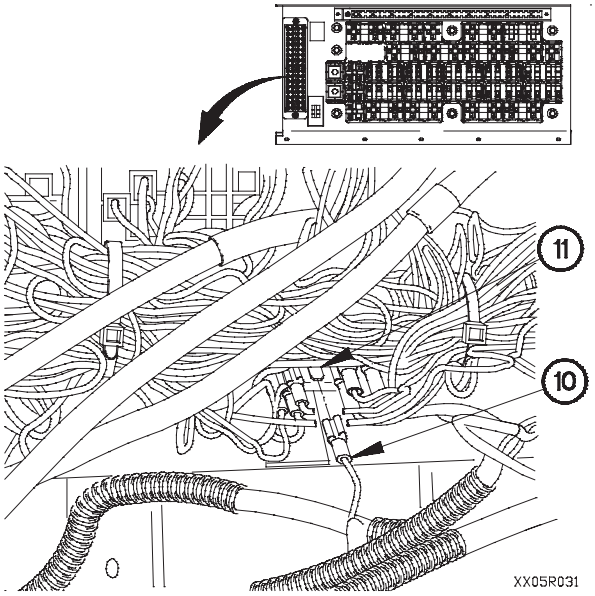
(7) Disconnect terminal lug TL14 (10) from terminal board TB2 (11) position 12.



b. Installation.

(1) Position warning light cable assembly (1) in cab (2).

(2) Connect connector P65 (3) to connector J65 (4).

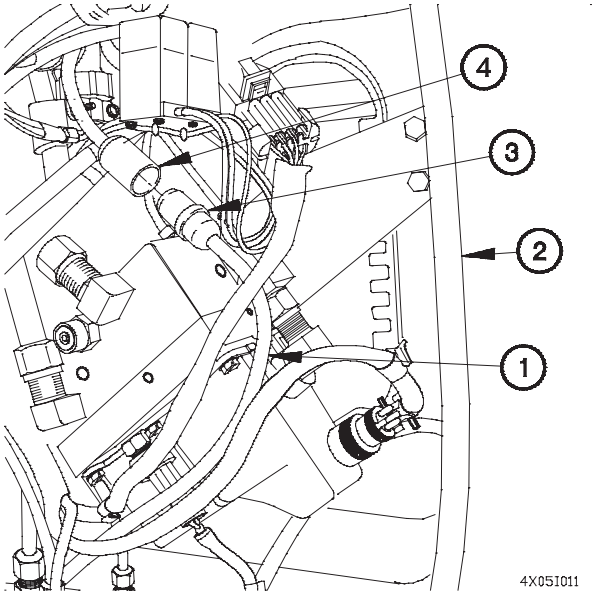


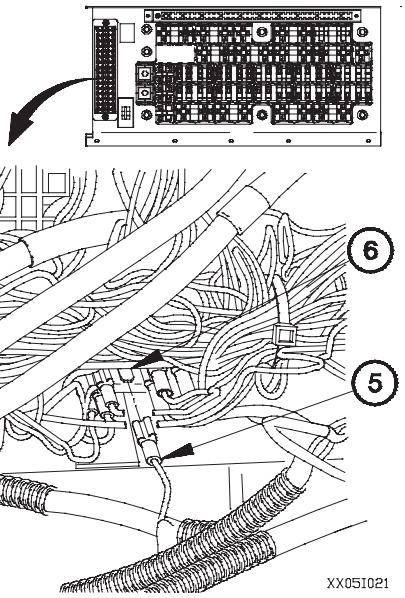
(8) Disconnect connector J65 (12) from connector P65 (13).

NOTE

Note routing of warning light cable assembly prior to removal.

(9) Remove warning light cable assembly (14) from cab (4).

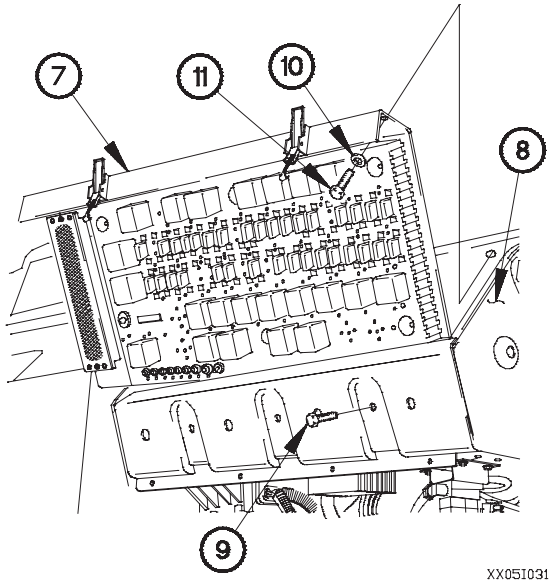




NOTE

Install plastic cable ties as required.

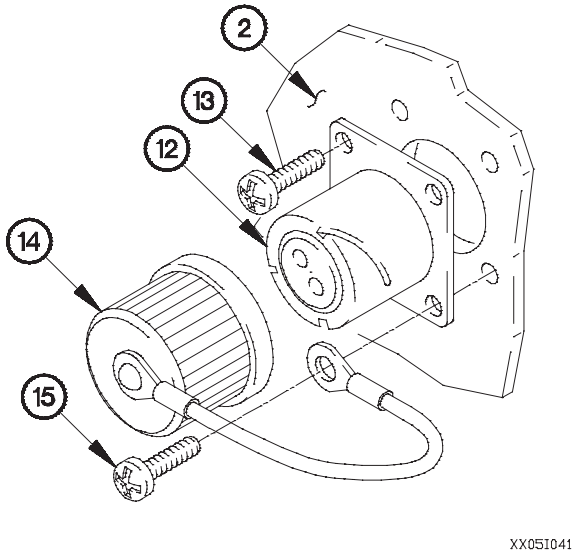
(3) Connect terminal lug TL14 (5) to terminal board TB2 (6) position 12.



(4) Position PDP (7) on dashboard (8).

(5) Install three screws (9) in PDP (7).

(6) Install three washers (10) and screws (11) in PDP (7).



(7) Install connector J62 (12) in cab (2) with three screws (13).

(8) Install dustcap (14) on cab (2) with screw (15).

(9) Install dustcap (14) on connector J62 (12).

22-5. WARNING LIGHT CABLE ASSEMBLY REPLACEMENT (CONT)

c. Follow-On Maintenance.

(1) Install rear cab liner (para 16-14).

(2) Install kick panel (para 16-3).

(3) Connect batteries (para 7-57).

(4) Operate warning lights and check for proper operation (TM 9-2320-366-10-2).

End of Task.

CHAPTER 23
AIR SYSTEM MAINTENANCE

RESTRICTED MAINTENANCE NOTICE

Units not authorized SC 4910-95-CL-A72 (SHOP EQUIPMENT, COMMON NO. 2) in their T.O.E. may be unable to perform some of the maintenance tasks described in this chapter. If the required tools are not authorized, the equipment must be submitted to DS Maintenance for repair.

Section I. INTRODUCTION

23-1. INTRODUCTION

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

Section II. MAINTENANCE PROCEDURES

23-2. PRIMARY AND CENTRAL TIRE INFLATION SYSTEM (CTIS) AIR HOSES REPLACEMENT

This task covers:

a. Hose Locations

b. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-366-10-1).
Air tanks drained (TM 9-2320-366-10-1).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Goggles, Industrial (Item 15, Appendix C)

Materials/Parts
Dispenser, Pressure Sensitive Adhesive Tape (Item 20, Appendix D)
Ties, Cable, Plastic (Item 69, Appendix D)
Cap and Plug Set (Item 14, Appendix D)

a. 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 primary air supply and CTIS air hoses on the vehicle. It will 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 air hoses and fittings for cracks, kinks, nicks, stripped threads and cuts. Replace damaged parts.

Figure 23-1. Primary Air Supply Hose Locations

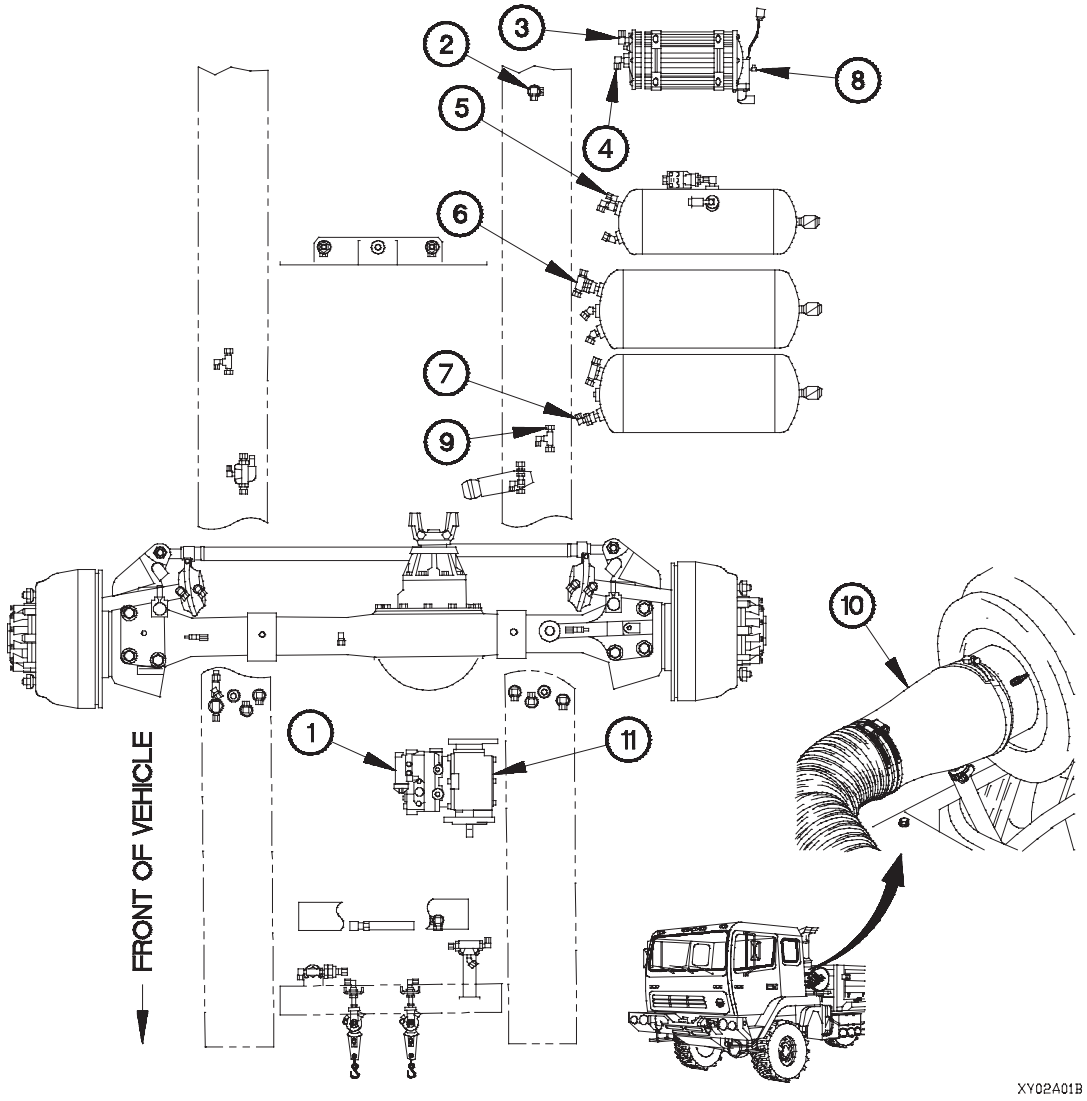


Table 23-1. Primary Air Supply Hose Locations

HOSE NAME	FROM	TO
Primary supply	Air compressor output fitting (1)	Bulkhead fitting (2)
Primary supply tie	Bulkhead fitting (2)	Air dryer input fitting (3)
Wet tank supply	Air dryer output fitting (4)	Wet tank supply fitting (5)
Primary tank supply	Wet tank supply fitting (5)	Primary tank supply fitting (6)
Secondary tank supply	Primary tank supply fitting (6)	Secondary tank supply fitting (7)
Air dryer pressure	Air dryer bottom fitting (8)	Hose fitting (9)
Air compressor intake hose	Intake air cleaner (10)	Air compressor (11)

23-2. PRIMARY AND CENTRAL TIRE INFLATION SYSTEM (CTIS) AIR HOSES REPLACEMENT (CONT)

Figure 23-1. Primary Air Supply Hose Locations (Cont)

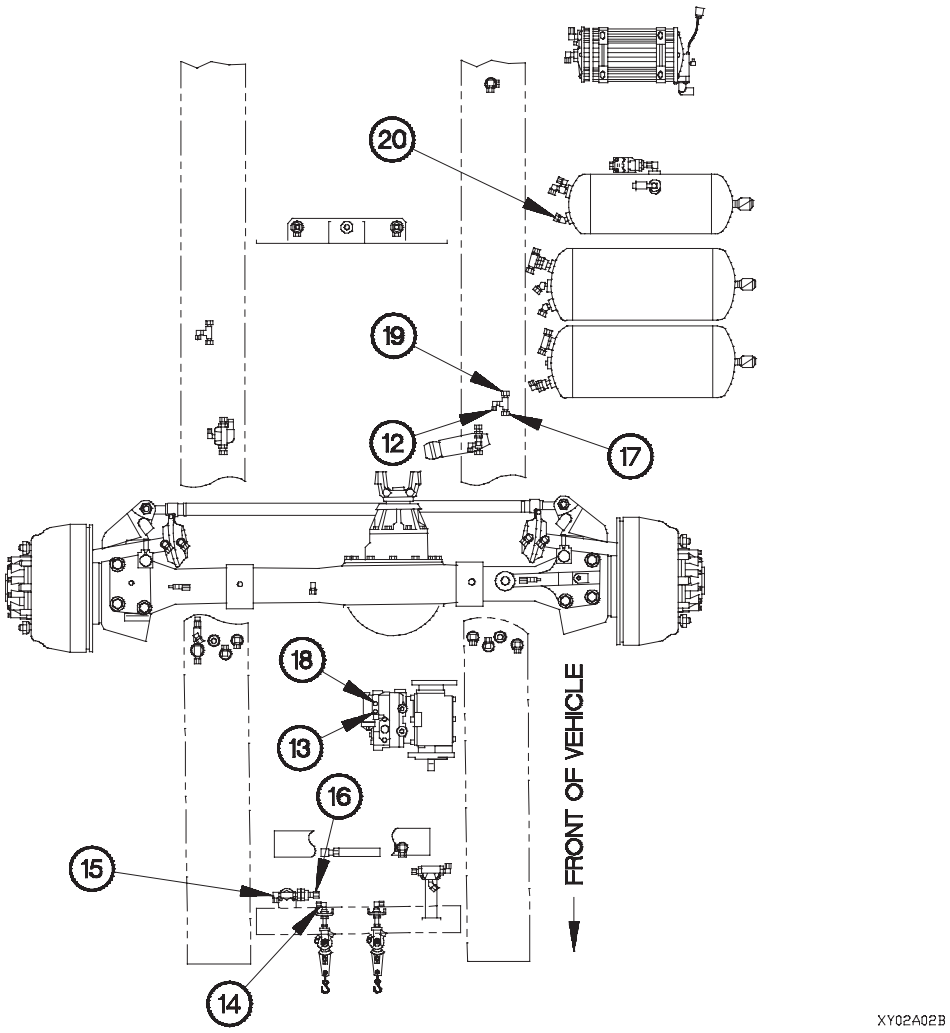


Table 23-1. Primary Air Supply Hose Locations (Cont)

HOSE NAME	FROM	TO
Governor input #1	Hose fitting (12)	Governor input #1 fitting (13)
Emergency supply	Emergency supply fitting (14)	Hose fitting (15)
Emergency Supply Tie #1	Gladhand check valve fitting (16)	Hose fitting (17)
Governor input #2	Hose fitting (17)	Governor input #2 fitting (18)
Emergency supply tie #2	Hose fitting (19)	Wet tank fitting (20)

Figure 23-2. Central Tire Inflation System (CTIS) Air Hose Locations

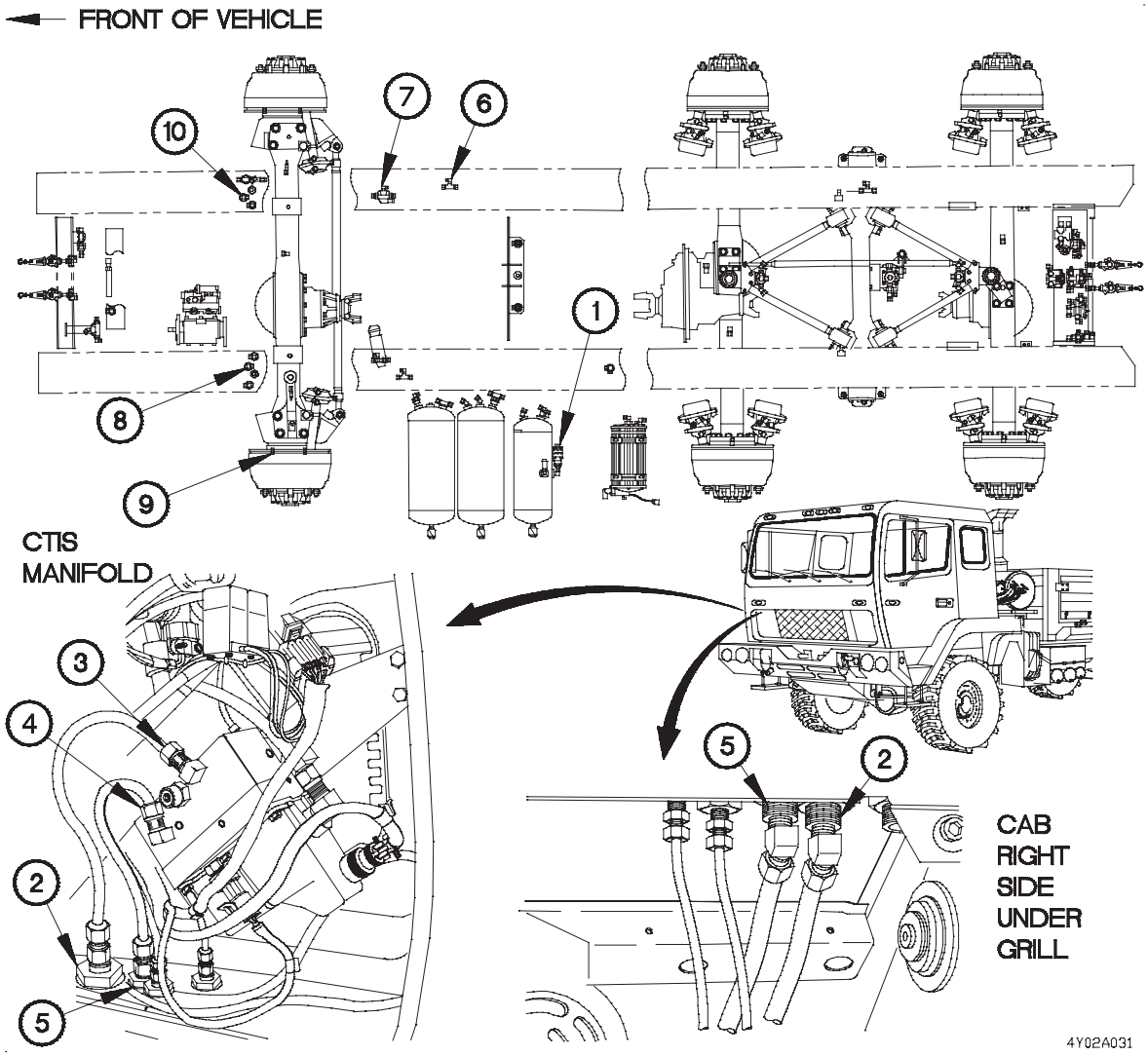


Table 23-2. Central Tire Inflation System (CTIS) Air Hose Locations

HOSE NAME	FROM	TO
Main air supply	Tank pressure valve (1)	Cab bulkhead fitting (2)
CTIS manifold input	Cab bulkhead fitting (2)	CTIS manifold valve input fitting (3)
CTIS manifold output	CTIS manifold output fitting (4)	Cab bulkhead fitting (5)
CTIS air supply	Cab bulkhead fitting (5)	Front two way splitter fitting (6)
Supply tie	Front two way splitter fitting (6)	Front axle quick release valve fitting (7)
Left front supply hose	Front axle quick release valve fitting (7)	Left front bulkhead fitting (8)
Left front drum supply	Left front bulkhead fitting (8)	Left front drum fitting (9)
Right front supply hose	Front axle quick release valve fitting (7)	Right front bulkhead fitting (10)

23-2. PRIMARY AND CENTRAL TIRE INFLATION SYSTEM (CTIS) AIR HOSES REPLACEMENT (CONT)

Figure 23-2. Central Tire Inflation System (CTIS) Air Hose Locations (Cont)

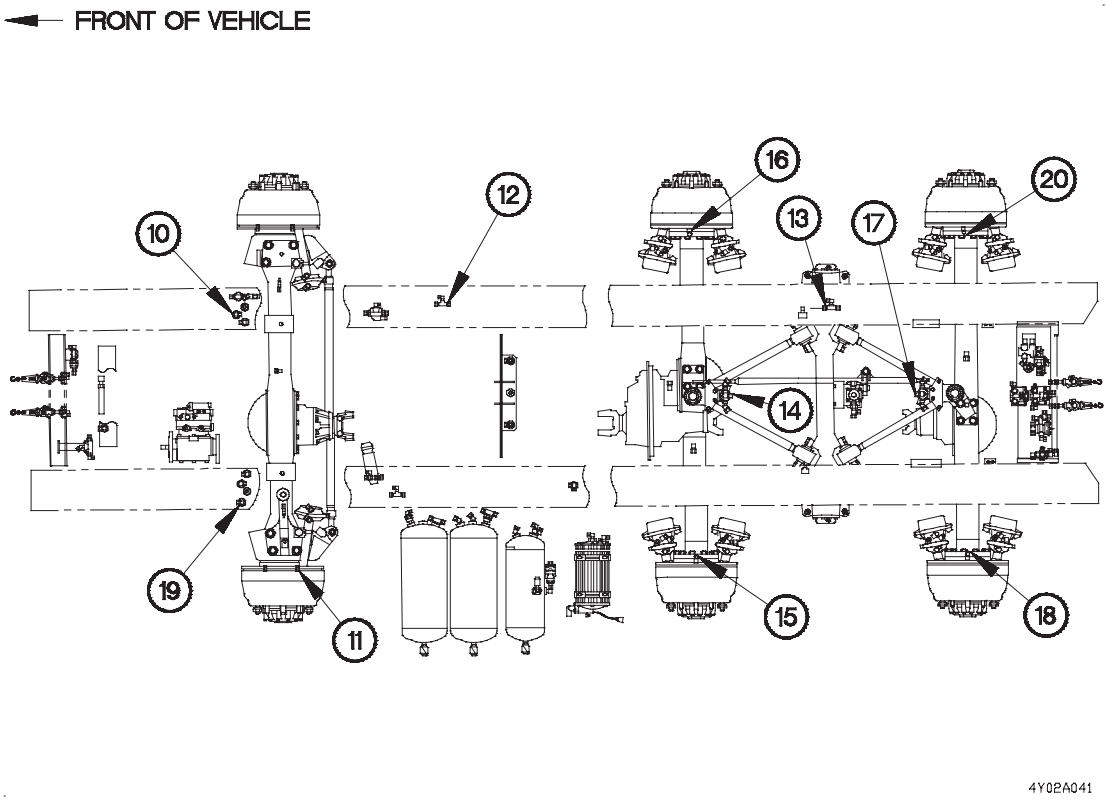


Table 23-2. Central Tire Inflation System (CTIS) Air Hose Locations (Cont)

HOSE NAME	FROM	TO
Right front drum supply	Right front bulkhead fitting (10)	Bulkhead fitting (19)
Rear main supply	Front two way splitter fitting (12)	Rear two way splitter fitting (13)
Intermediate quick release	Rear two way splitter fitting (13)	Intermediate axle quick release valve fitting (14)
Intermediate drum supply	Intermediate axle quick release valve fitting (14)	Left intermediate drum fitting (15)
Right intermediate drum supply	Intermediate axle quick release valve fitting (14)	Right intermediate drum fitting (16)
Rear axle quick release	Rear two way splitter fitting (13)	Rear axle quick release valve fitting (17)
Left rear drum supply	Rear axle quick release valve fitting (17)	Left rear drum fitting (18)
Right rear drum supply	Rear axle quick release valve fitting (17)	Right rear drum fitting (20)
Left front drum vent	Left front drum fitting (11)	Bulkhead fitting (19)

Figure 23-2. Central Tire Inflation System (CTIS) Air Hose Locations (Cont)

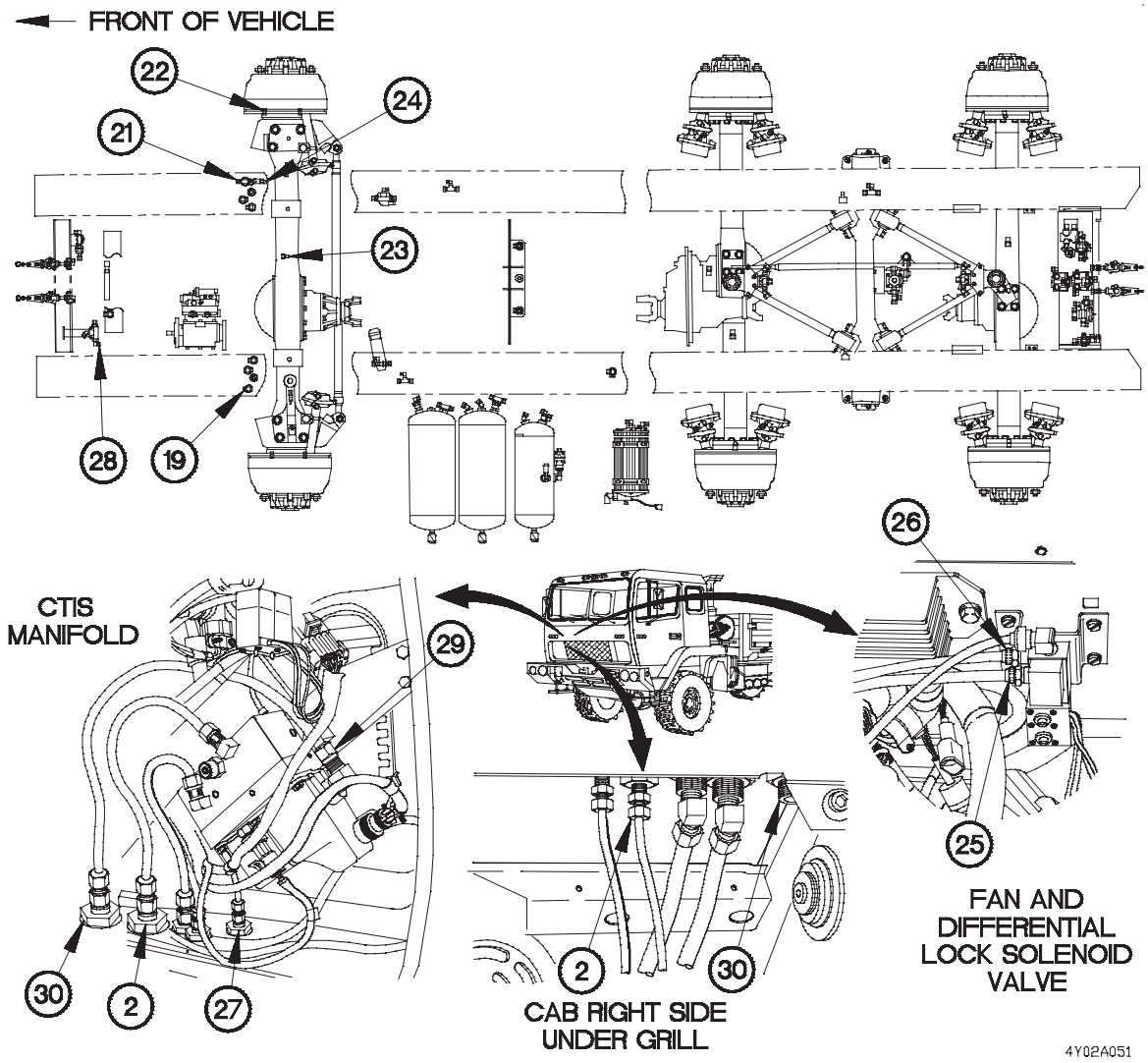


Table 23-2. Central Tire Inflation System (CTIS) Air Hose Locations (Cont)

HOSE NAME	FROM	TO
Vent tie	Bulkhead fitting (19)	Bulkhead fitting (21)
Right front drum vent	Right front drum fitting (22)	Bulkhead fitting (21)
Axle vent	Axle vent fitting (23)	Vent fitting (24)
Fan supply	Bulkhead fitting (2)	Solenoid valve fitting (25)
Fan supply tie #1	Solenoid valve fitting (26)	Bulkhead fitting (27)
Fan supply tie #2	Bulkhead fitting (27)	Fan input fitting (28)
Manifold vent	Manifold fitting (29)	Bulkhead fitting (30)

23-2. PRIMARY AND CENTRAL TIRE INFLATION SYSTEM (CTIS) AIR HOSES REPLACEMENT (CONT)

b. Follow-On Maintenance

(1) Start engine (TM 9-2320-366-10-1).

(2) Check around air hoses and fittings for air leaks.

(3) Shut down engine (TM 9-2320-366-10-1).

End of Task

23-3. AIR TRANSPORTABILITY AIR HOSES REPLACEMENT

This task covers:

a. Hose Locations

b. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-366-10-1).
Air tanks drained (TM 9-2320-366-10-1).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Goggles, Industrial (Item 15, Appendix C)

Materials/Parts
Dispenser, Pressure Sensitive Adhesive Tape (Item 20, Appendix D)
Cap and Plug Set (Item 14, Appendix D)
Ties, Cable, Plastic (Item 69, Appendix D)

a. 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 air transportability air 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 air hoses and fittings for cracks, kinks, nicks, stripped threads and cuts. Replace damaged parts.

23-3. AIR TRANSPORTABILITY AIR HOSES REPLACEMENT (CONT)

Figure 23-3. Air Transportability Air Hose Locations

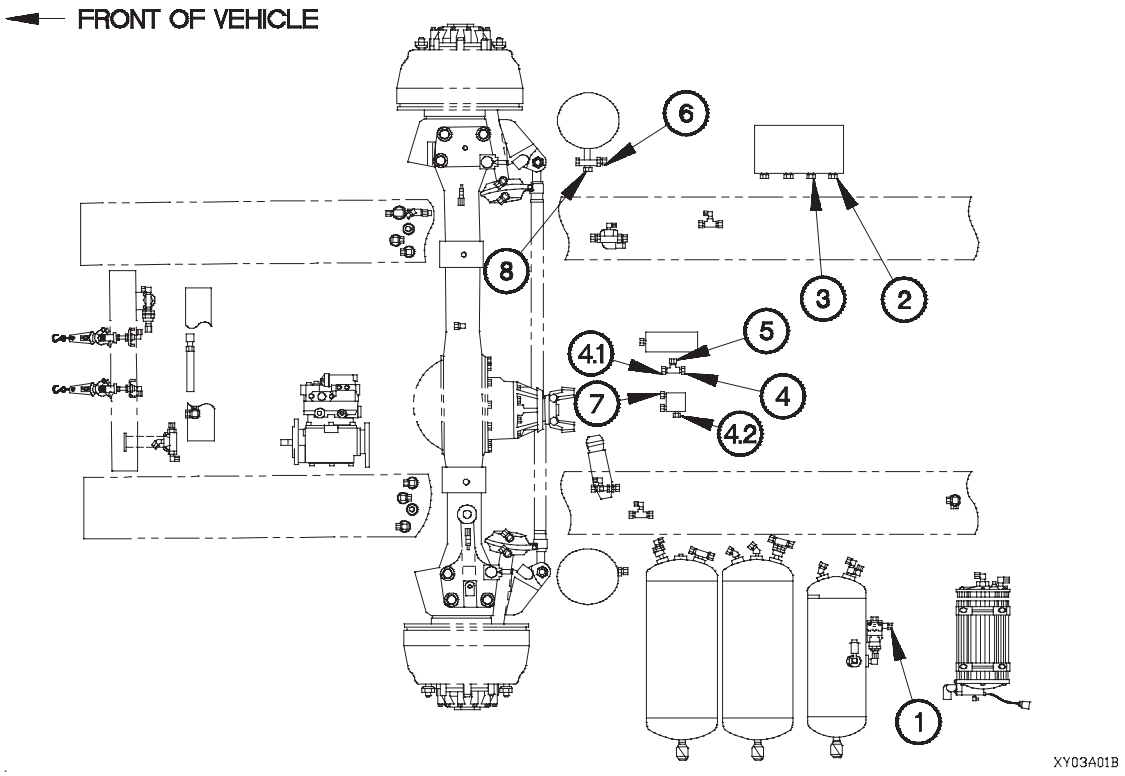


Table 23-3. Air Transportability Air Hose Locations

HOSE NAME (NUMBER)	FROM	TO
Wet tank supply (501)	Wet tank pressure valve fitting (1)	Manifold input (2)
Cab leveling valve tee supply (506)	Manifold output (3)	Cab leveling valve tee fitting (4)
Cab leveling valve supply (522)	Cab leveling valve tee fitting (4.1)	Cab leveling valve input fitting (4.2)
Check valve tie (503)	Cab leveling valve tee fitting (5)	Check valve output fitting (6)
Passenger cylinder (504)	Cab leveling valve fitting (7)	Passenger cylinder fitting (8)

Figure 23-3. Air Transportability Air Hose Locations (Cont)

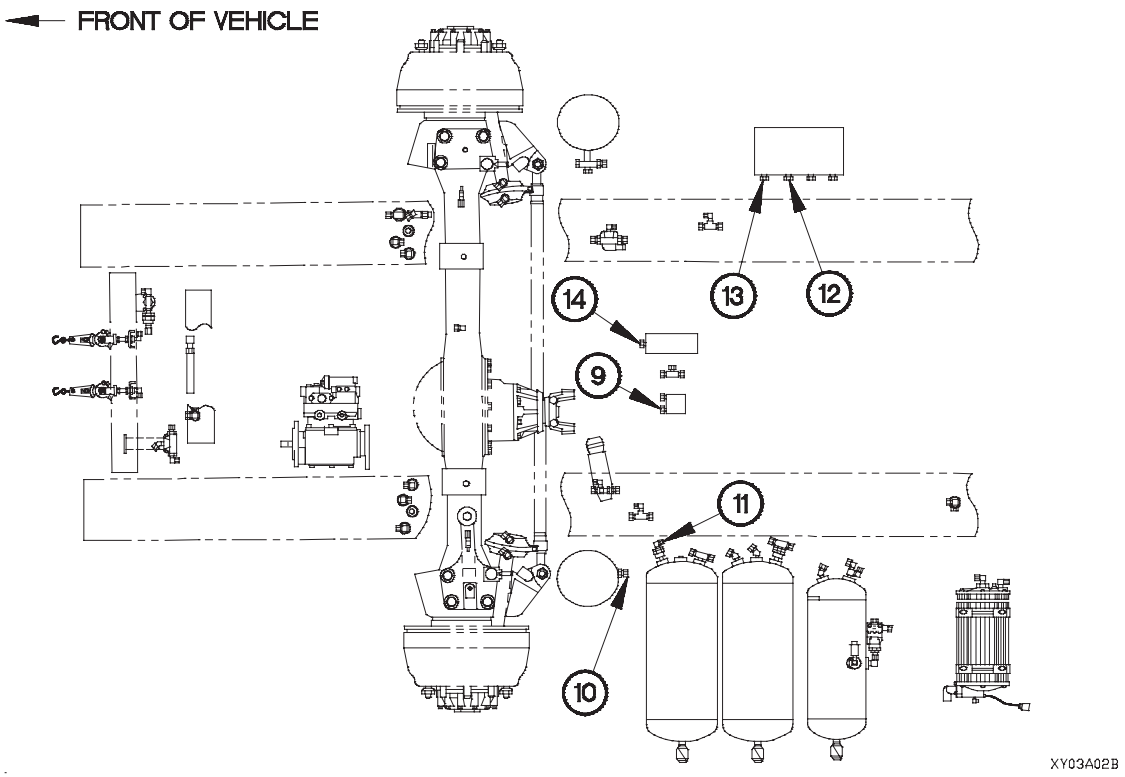


Table 23-3. Air Transportability Air Hose Locations (Cont)

HOSE NAME (NUMBER)	FROM	TO
Driver cylinder (505)	Cab leveling valve fitting (9)	Driver cylinder fitting (10)
Inversion valve supply (502)	Inversion valve fitting (11)	Manifold input (12)
Air/hyd supply (507)	Manifold output fitting (13)	Air/hyd power unit fitting (14)

b. Follow-On Maintenance

(1) Start engine (TM 9-2320-366-10-1).

(2) Check around air hoses and fittings for air leaks.

(3) Shut down engine (TM 9-2320-366-10-1).

End of Task.

23-4. M1090/M1094 AIR HOSES REPLACEMENT

This task covers:

a. Hose Locations

b. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-366-10-1).
Air tanks drained (TM 9-2320-366-10-1).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Goggles, Industrial (Item 15, Appendix C)

Materials/Parts
Dispenser, Pressure Sensitive Adhesive Tape (Item 20, Appendix D)
Cap and Plug Set (Item 14, Appendix D)
Ties, Cable, Plastic (Item 69, Appendix D)

a. 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 air hoses on the M1090/M1094 dump body. It will 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 air hoses and fittings for cracks, kinks, nicks, stripped threads and cuts. Replace damaged parts.

Figure 23-4. M1090/M1094 Air Hose Locations

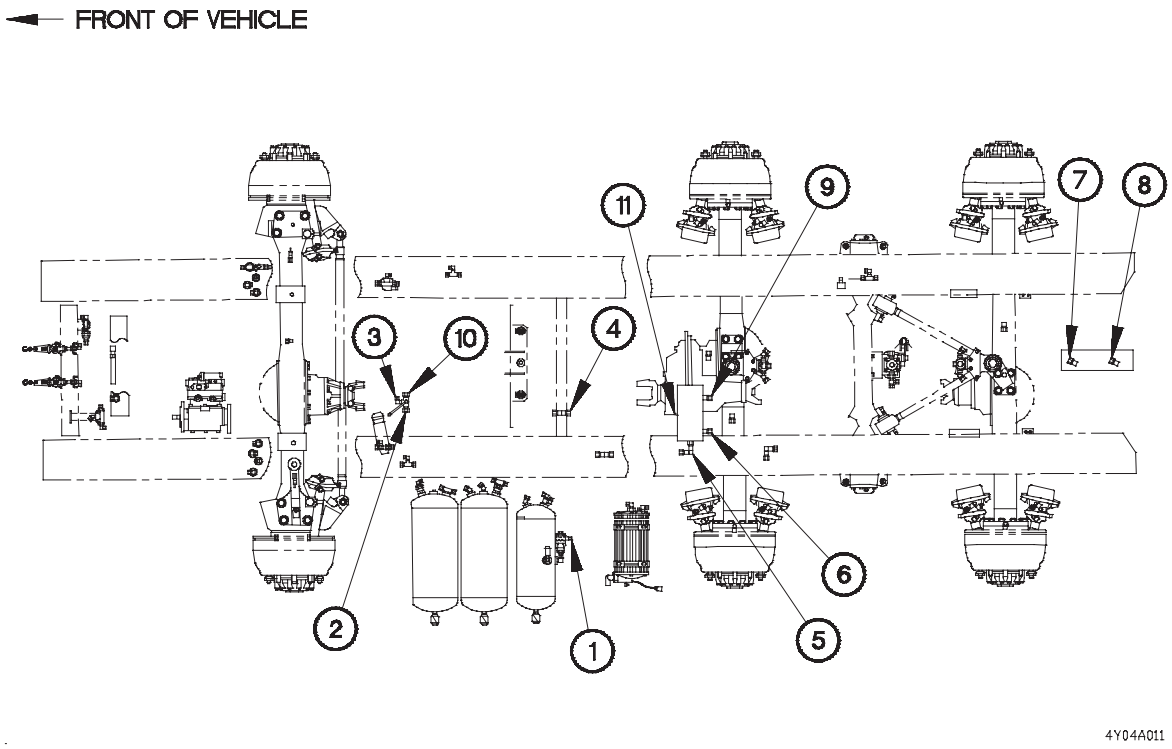


Table 23-4. M1090/M1094 Air Hose Locations

HOSE NAME	FROM	TO
Air supply	Tank pressure valve fitting (1)	Tailgate manual release lever (2)
Air supply tie	Tailgate manual release lever (3)	Bulkhead fitting (4)
Air supply tie	Bulkhead fitting (4)	Solenoid valve input fitting (5)
Cylinder supply	Solenoid output fitting (6)	Cylinder extend fitting (7)
	Cylinder retract fitting (8)	Solenoid valve return fitting (9)

b. Follow-On Maintenance

(1) Start engine (TM 9-2320-366-10-1).

(2) Check around air hoses and fittings for air leaks.

(3) Shut down engine (TM 9-2320-366-10-1).

End of Task.

23-5. M1089 30K WINCH AIR HOSES REPLACEMENT

This task covers:

a. Hose Locations

b. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-366-10-1).
Air tanks drained (TM 9-2320-366-10-1).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Goggles, Industrial (Item 15, Appendix C)

Materials/Parts
Dispenser, Pressure Sensitive Adhesive Tape (Item 20, Appendix D)
Cap and Plug Set (Item 14, Appendix D)
Ties, Cable, Plastic (Item 69, Appendix D)

a. 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 air hoses and fittings for cracks, kinks, nicks, stripped threads and cuts. Replace damaged parts.

Figure 23-5. 30K Winch Air Hose Locations

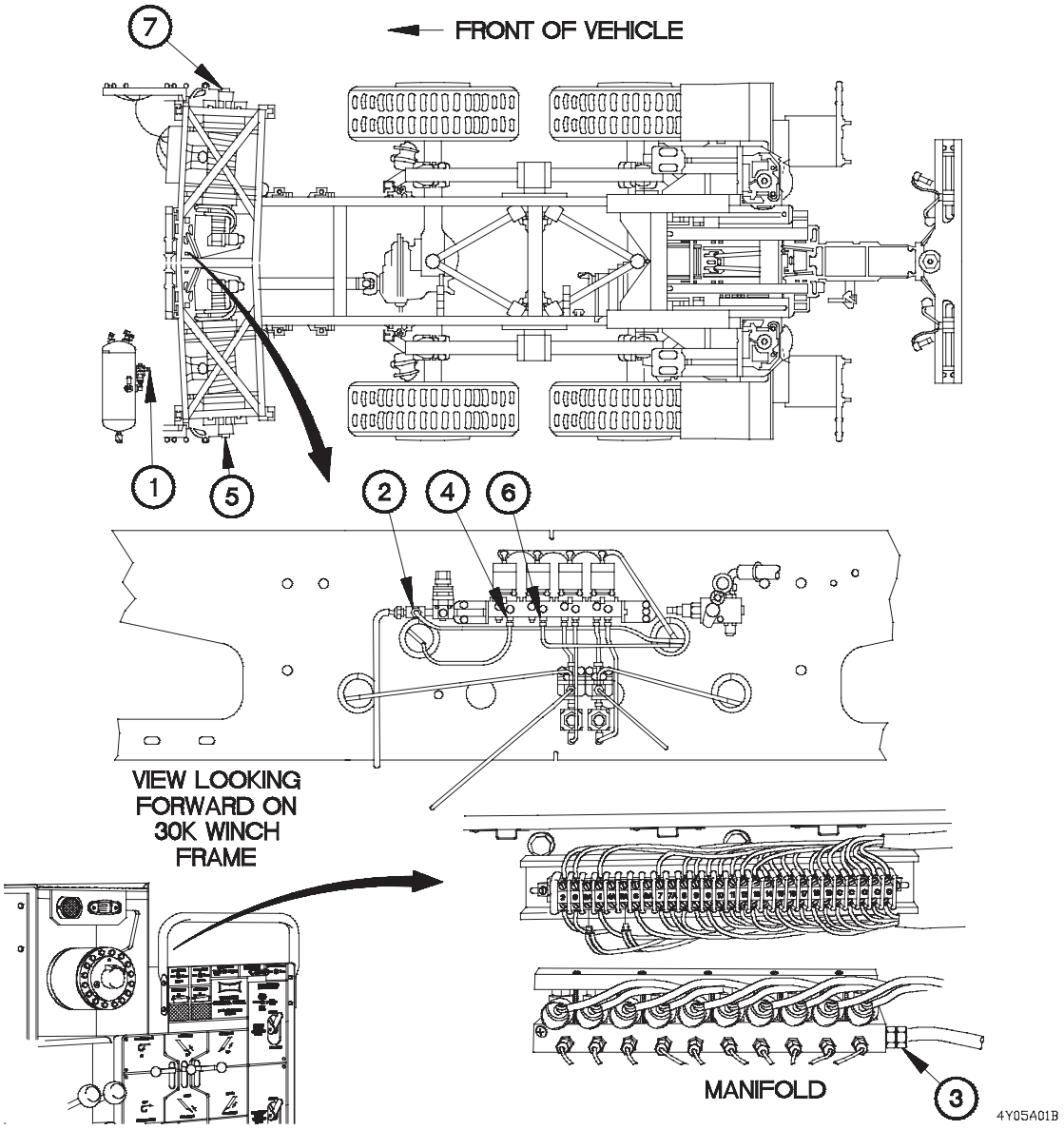


Table 23-5. 30K Winch Air Hose Locations

HOSE NAME	FROM	TO
Air supply	Tank pressure valve fitting (1)	Tee fitting (2)
Manifold supply	Tee fitting (2)	Manifold input fitting (3)
LH free spool	Manifold output fitting (4)	LH free spool input fitting (5)
RH free spool	Manifold output fitting (6)	RH free spool input fitting (7)

23-5. M1089 30K WINCH AIR HOSES REPLACEMENT (CONT)

Figure 23-5. 30K Winch Air Hose Locations (Cont)

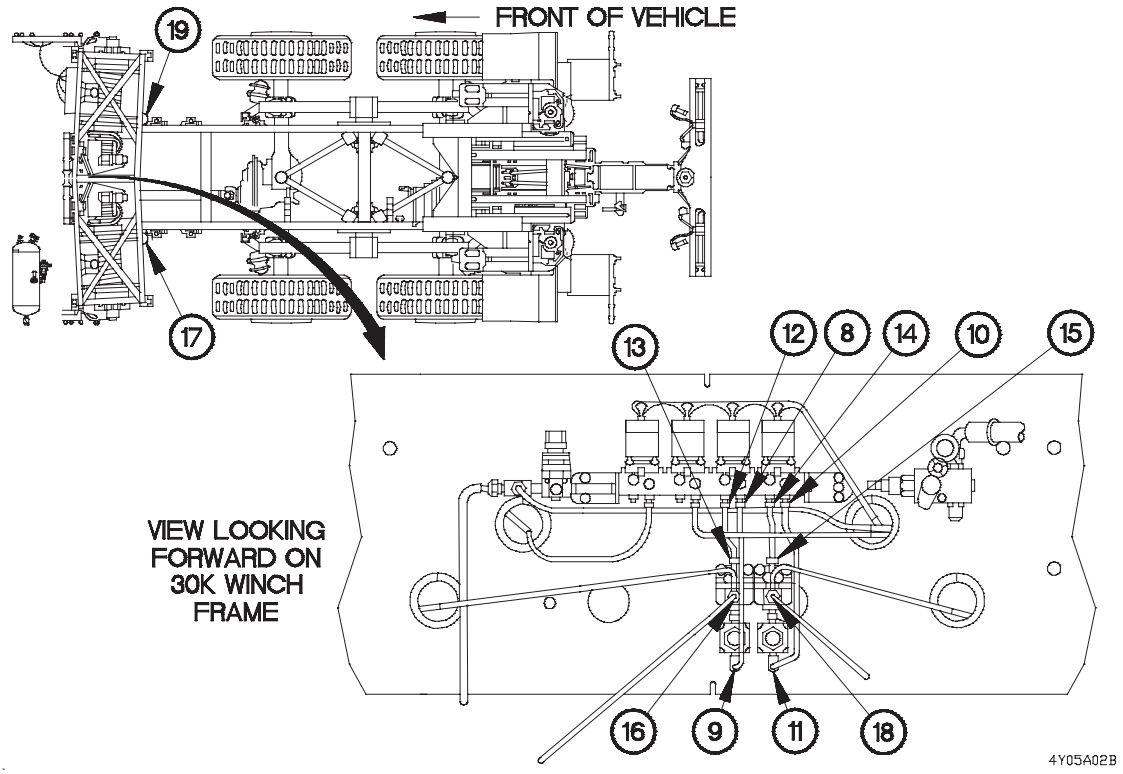


Table 23-5. 30K Winch Air Hose Locations (Cont)

HOSE NAME	FROM	TO
LH regulator input	Manifold fitting (8)	LH tensioners regulator fitting (9)
RH regulator input	Manifold fitting (10)	RH tensioners regulator fitting (11)
LH check valve return	Manifold fitting (12)	LH check valve fitting (13)
RH check valve return	Manifold fitting (14)	RH check valve fitting (15)
Front LH tension supply	LH check valve output fitting (16)	Front LH tensioner fitting (17)
Front RH tension supply	RH check valve output fitting (18)	Front RH tensioner fitting (19)

Figure 23-5. 30K Winch Air Hose Locations (Cont)

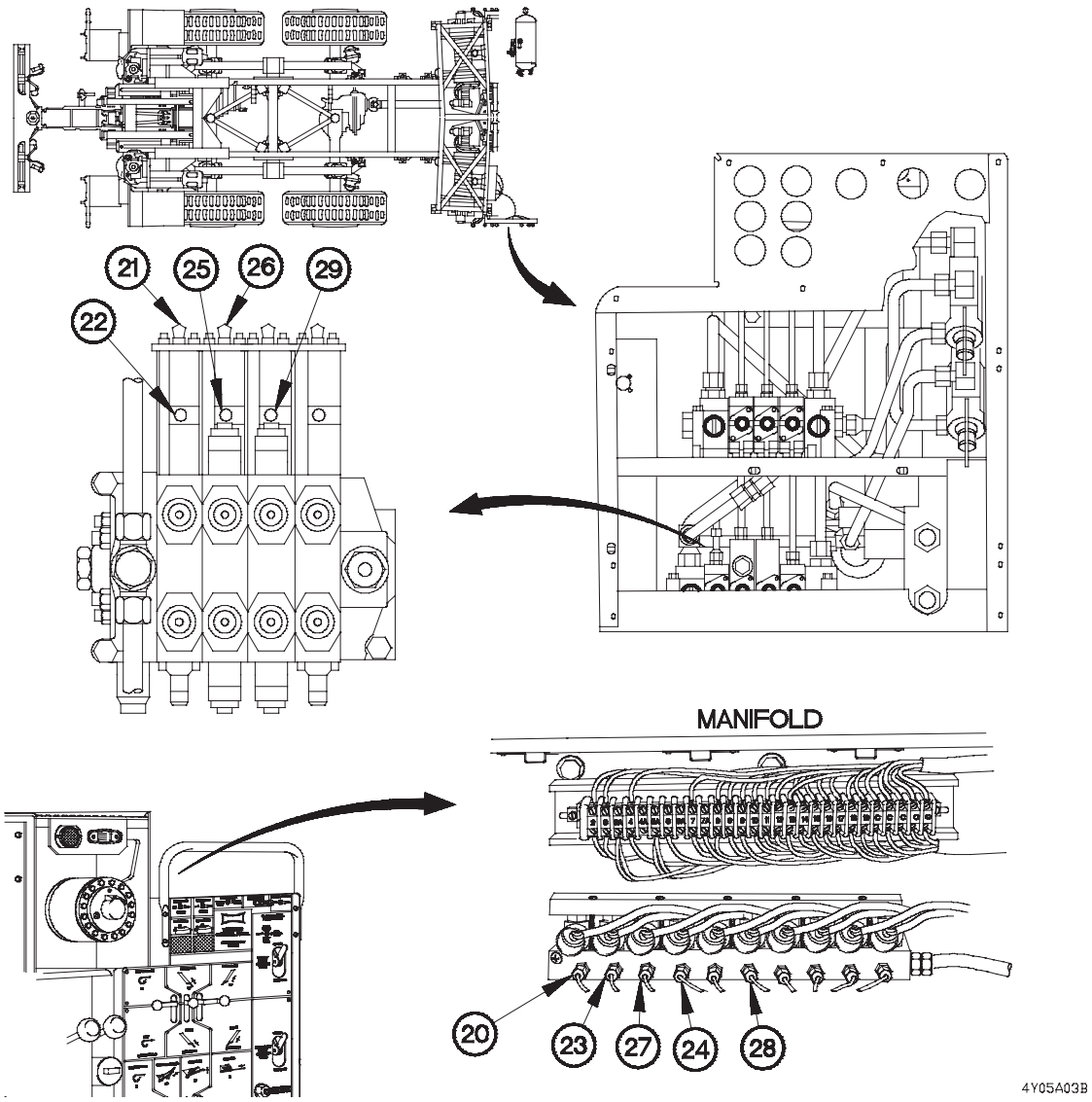


Table 23-5. 30K Winch Air Hose Locations (Cont)

HOSE NAME	FROM	TO
RH 30K winch supply	Manifold L1 fitting (20)	RH 30K winch supply A fitting (21)
RH 30K winch return	RH 30K winch B fitting (22)	Manifold L2 fitting (23)
Underlift fold supply	Manifold L18 fitting (24)	Underlift fold A fitting (25)
Underlift fold return	Underlift fold B fitting (26)	Manifold L15 fitting (27)
Underlift supply	Manifold L14 fitting (28)	Underlift supply A fitting (29)

23-5. M1089 30K WINCH AIR HOSES REPLACEMENT (CONT)

Figure 23-5. 30K Winch Air Hose Locations (Cont)

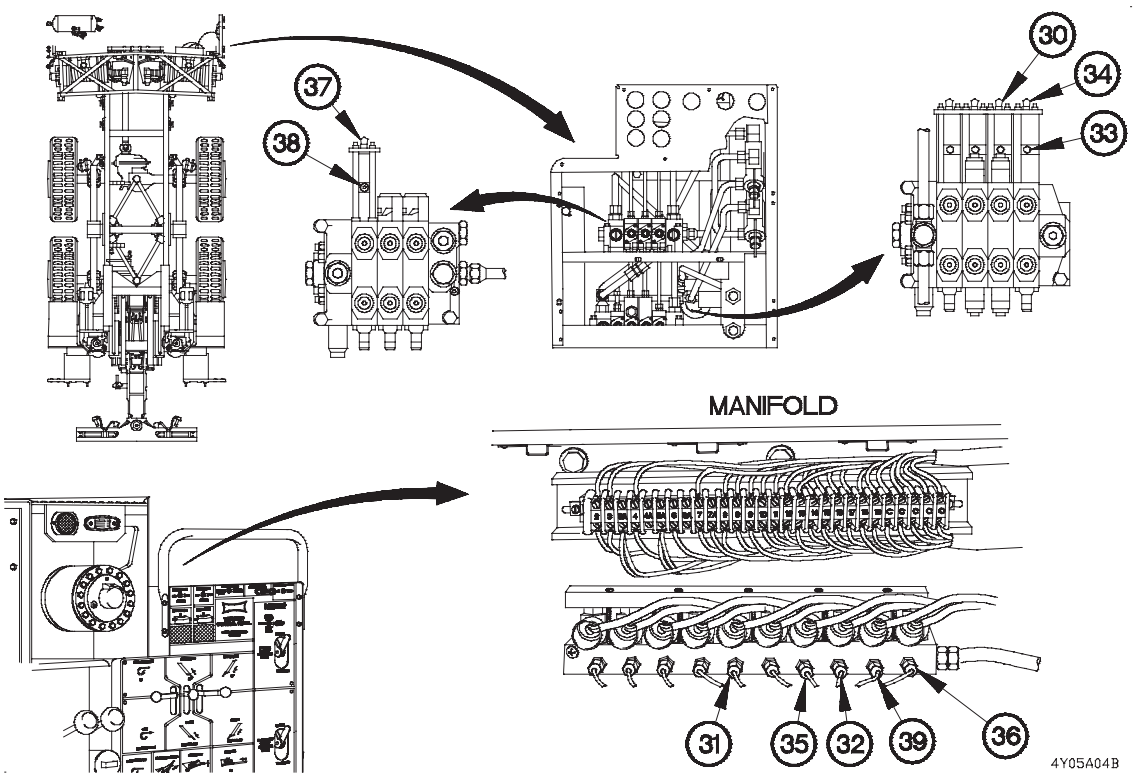


Table 23-5. 30K Winch Air Hose Locations (Cont)

HOSE NAME	FROM	TO
Underlift return	Underlift B fitting (30)	Manifold L11 fitting (31)
Stinger supply	Manifold L16 fitting (32)	Stinger supply A fitting (33)
Stinger return	Stinger B fitting (34)	Manifold L13 fitting (35)
LH 30K winch supply	Manifold L5 fitting (36)	LH 30K winch A fitting (37)
LH 30K winch return	LH 30K winch B fitting (38)	Manifold L6 fitting (39)

b. Follow-On Maintenance

(1) Start engine (TM 9-2320-366-10-1).

(2) Check around air hoses and fittings for air leaks.

(3) Shut down engine (TM 9-2320-366-10-1).

End of Task.

23-6. INVERSION VALVE REPLACEMENT

This task covers:

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

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-366-10-1).
Cab raised (TM 9-2320-366-10-1).
Air tanks drained (TM 9-2320-366-10-1).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Goggles, Industrial (Item 15, Appendix C)

Materials/Parts
Antiseize Compound (Item 58, Appendix D)

a. Removal.

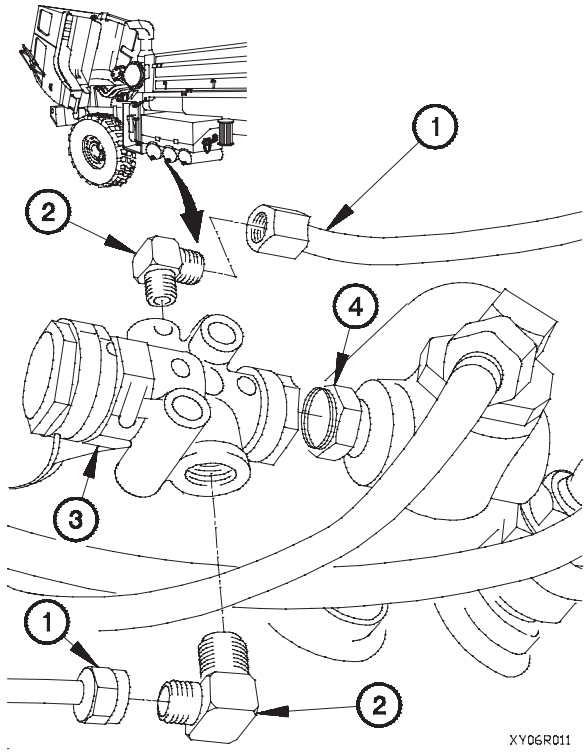
WARNING

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

(1) Disconnect two air hoses (1) from 90-degree fittings (2).

(2) Remove inversion valve (3) from fitting (4).

(3) Remove two 90-degree fittings (2) from inversion valve (3).

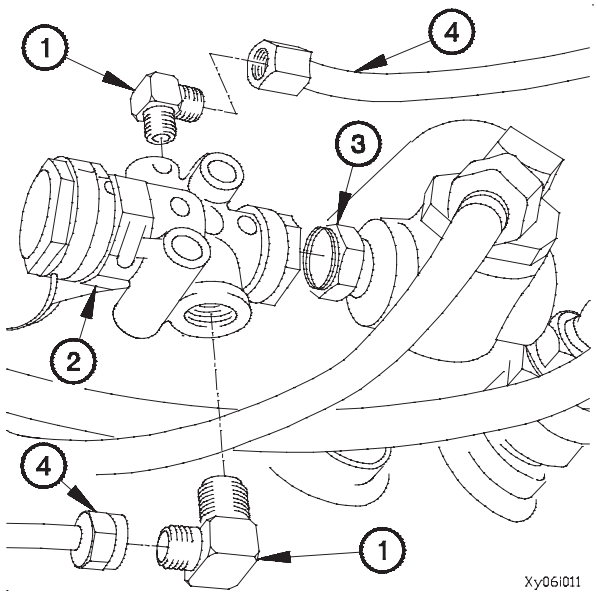


23-6. INVERSION VALVE REPLACEMENT (CONT)

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 or water. Failure to comply may result in injury to personnel.



(1) Apply antiseize compound to threads of two 90-degree fittings (1).

(2) Install two 90-degree fittings (1) on inversion valve (2).

(3) Install inversion valve (2) on fitting (3).

(4) Connect two air hoses (4) to 90-degree fittings (1).

c. Follow-On Maintenance.

(1) Start engine (TM 9-2320-366-10-1).

(2) Check for air leaks around inversion valve.

(3) Shut down engine (TM 9-2320-366-10-1).

End of Task.

23-7. SHUTTLE VALVE REPLACEMENT

This task covers:

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

INITIAL SETUP

Equipment Conditions
Inversion valve removed (para 23-6).

Materials/Parts
Antiseize Compound (Item 58, Appendix D)

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Goggles, Industrial (Item 15, Appendix C)

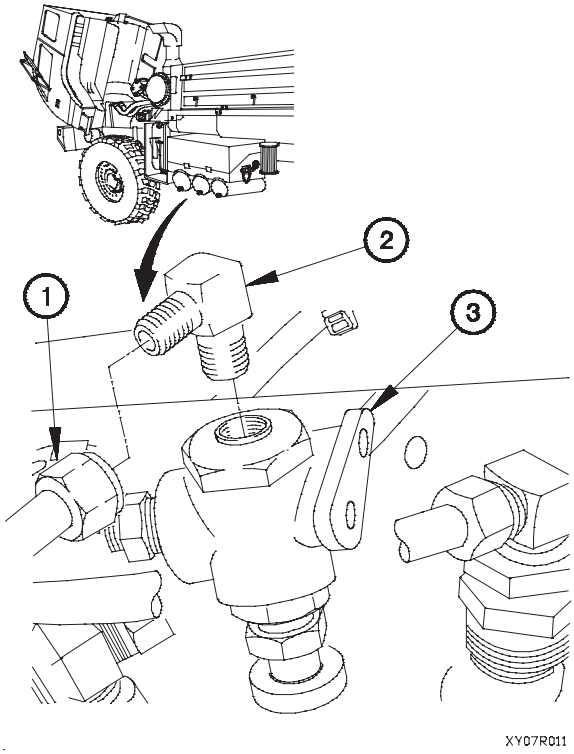
WARNING

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

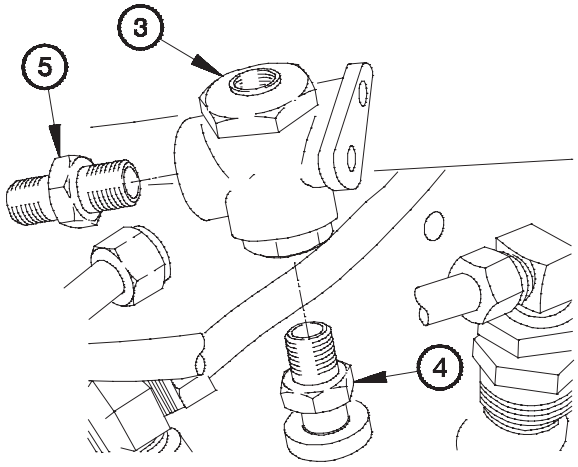
a. Removal.

(1) Disconnect air hose (1) from 90-degree fitting (2).

(2) Remove 90-degree fitting (2) from shuttle valve (3).



XY07R011



XY07R021

(3) Remove shuttle valve (3) from adapter (4).

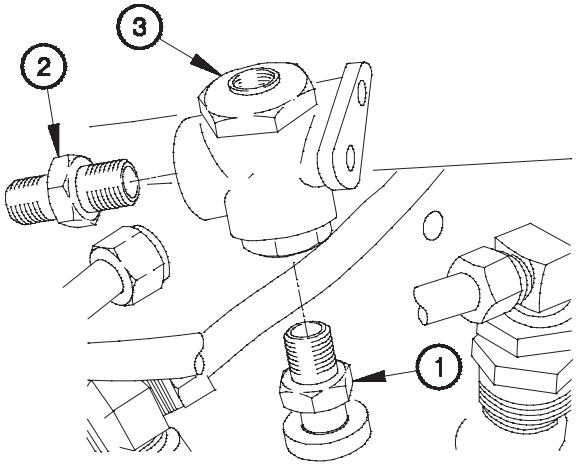
(4) Remove adapter (5) from shuttle valve (3).

23-7. SHUTTLE 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.

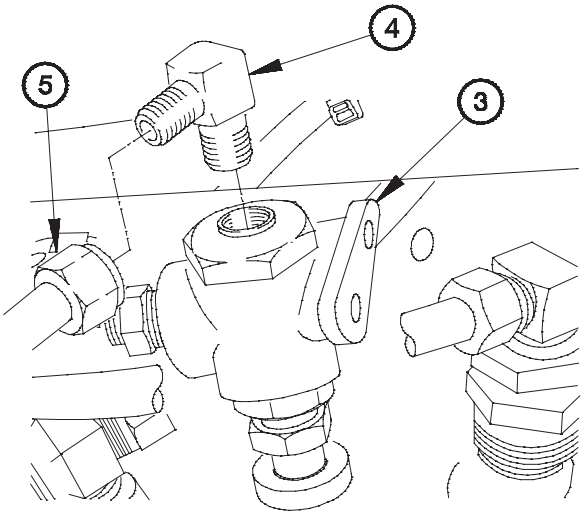


XY07I011

(1) Apply antiseize compound to threads of adapter (1) and adapter (2).

(2) Install shuttle valve (3) on adapter (1).

(3) Install adapter (2) in shuttle valve (3).



XY07I021

(4) Apply antiseize compound to threads of 90-degree fitting (4).

(5) Install 90-degree fitting (4) on shuttle valve (3).

(6) Connect air hose (5) to 90-degree fitting (4).

c. Follow-On Maintenance.

(1) Install inversion valve (para 23-6).

(2) Start engine (TM 9-2320-366-10-1).

(3) Check for air leaks around shuttle valve and inversion valve.

(4) Shut down engine (TM 9-2320-366-10-1).

End of Task.

23-8. M1090/M1094 MANUAL OVERRIDE THREE-WAY VALVE REPLACEMENT

This task covers:

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

INITIAL SETUP

Equipment Conditions
Batteries disconnected (para 7-57).
Air tanks drained (TM 9-2320-366-10-1).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Socket, Socket Wrench (Item 39, Appendix C)
Wrench, Torque, 0-175 lb-ft (Item 58, Appendix C)

Materials/Parts
Dispenser, Pressure Sensitive Adhesive Tape (Item 20, Appendix D)
Antiseize Compound (Item 13, Appendix D)
Ties, Cable, Plastic (Item 69, Appendix D)
Lockwasher (2) (Item 92, Appendix G)
Nut, Self-Locking (2) (Item 156, Appendix G)

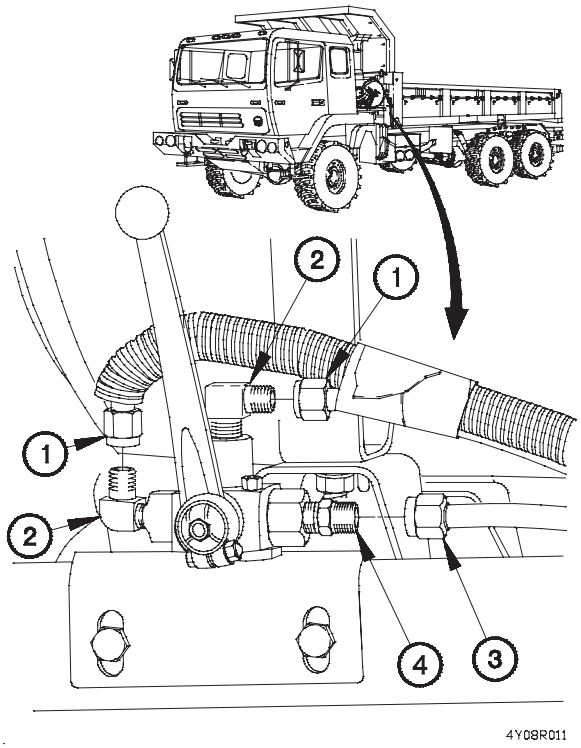
a. Removal.

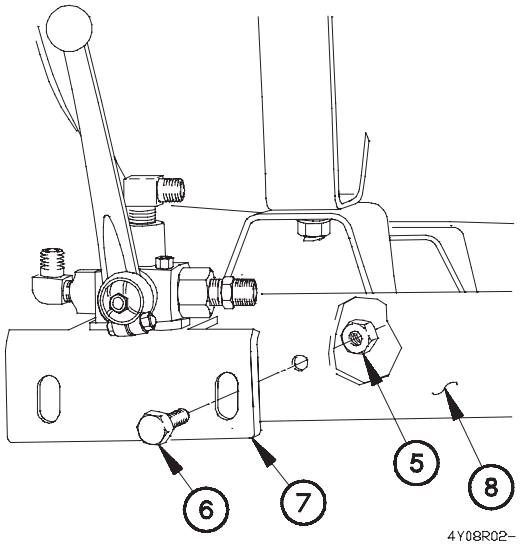
NOTE

Tag hoses and connection points prior to disconnecting.

(1) Disconnect two hoses (1) from 90-degree fittings (2).

(2) Disconnect hose (3) from fitting (4).

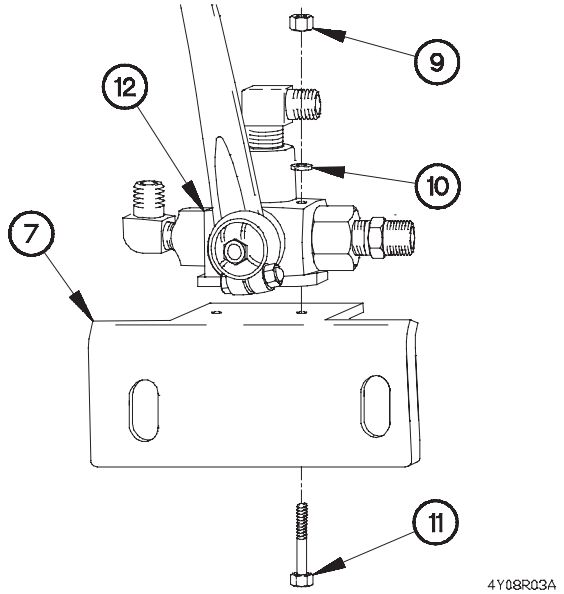


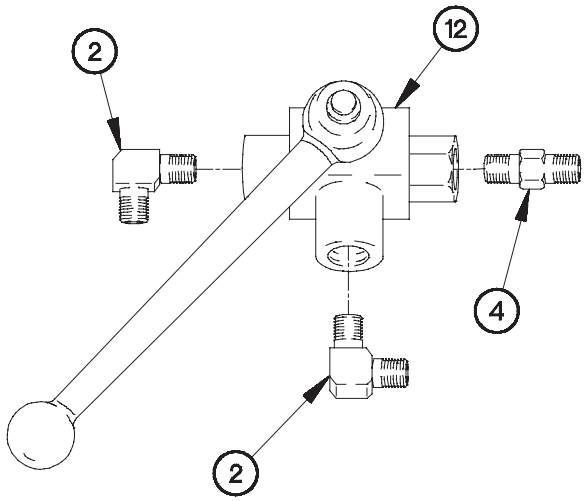


(3) Remove two self-locking nuts (5), screws (6), and bracket (7) from support (8). Discard self-locking nuts.

23-8. M1090/M1094 MANUAL OVERRIDE THREE-WAY VALVE REPLACEMENT (CONT)

(4) Remove two nuts (9), lockwashers (10), screws (11), and valve (12) from bracket (7). Discard lockwashers.





NOTE

Note orientation of fittings prior to removal.

(5) Remove two 90-degree fittings (2) from valve (12).

(6) Remove fitting (4) from valve (12).

b. Installation.

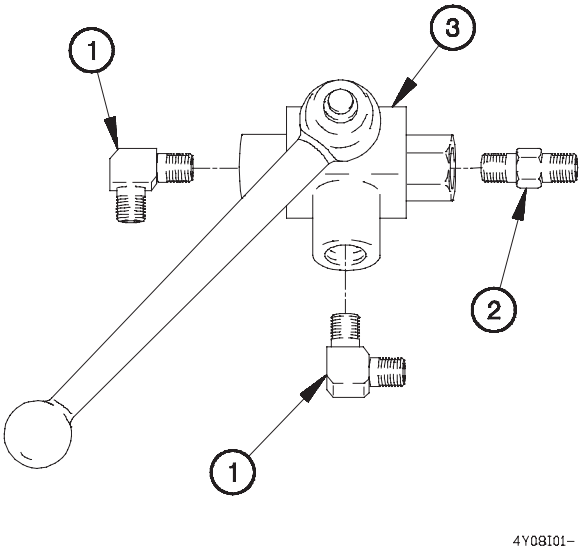
WARNING

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 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.

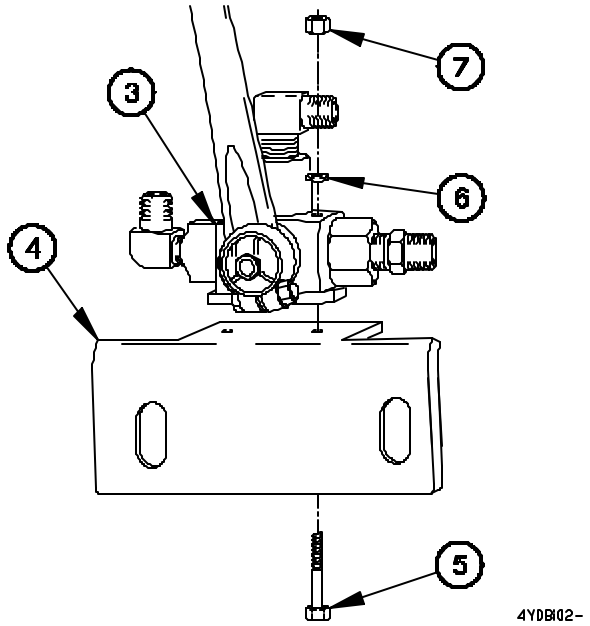
(1) Apply antiseize compound to threads of two 90-degree fittings (1) and fitting (2).

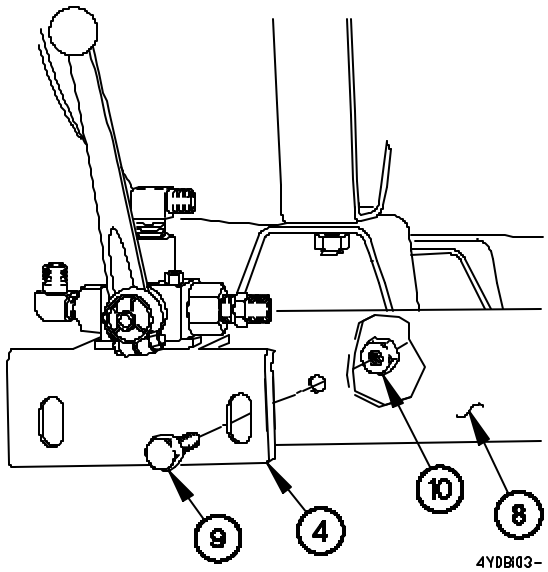
(2) Install two 90-degree fittings (1) in valve (3).

(3) Install fitting (2) in valve (3).



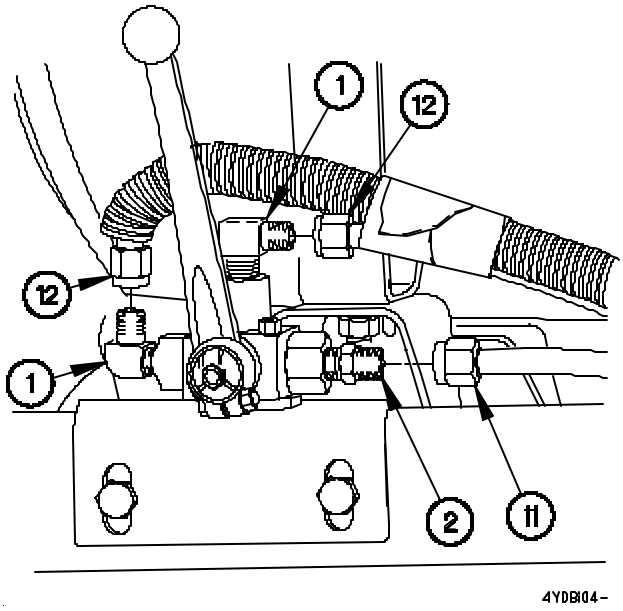
(4) Install valve (3) on bracket (4) with two screws (5), lockwashers (6), and nuts (7).





(5) Position bracket (4) on support (8) with two screws (9) and self-locking nuts (10).

(6) Tighten two self-locking nuts (10) to 35-42 lb-ft (47-57 N•m).



(7) Connect hose (11) to fitting (2).

(8) Connect two hoses (12) to 90-degree fittings (1).

c. Follow-On Maintenance.

(1) Connect batteries (para 7-57).

(2) Start engine (TM 9-2320-366-10-1).

(3) Check operation of dump body tailgate and check for air leaks (TM 9-2320-366-10-1).

(4) Shut down engine (TM 9-2320-366-10-1).

End of Task.

23-9. M1090/M1094 TAILGATE PNEUMATIC CYLINDER REPLACEMENT

This task covers:

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

INITIAL SETUP

Equipment Conditions
Dump body raised to maintenance position (TM 9-2320-366-10-1).
Engine shut down (TM 9-2320-366-10-1).
Air tanks drained (TM 9-2320-366-10-1).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Goggles, Industrial (Item 15, Appendix C)

Material/Parts
Dispenser, Pressure Sensitive Adhesive Tape (Item 20, Appendix D)
Antiseize Compound (Item 13, 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. Removal.

NOTE

Tag hoses and connection points prior to disconnecting.

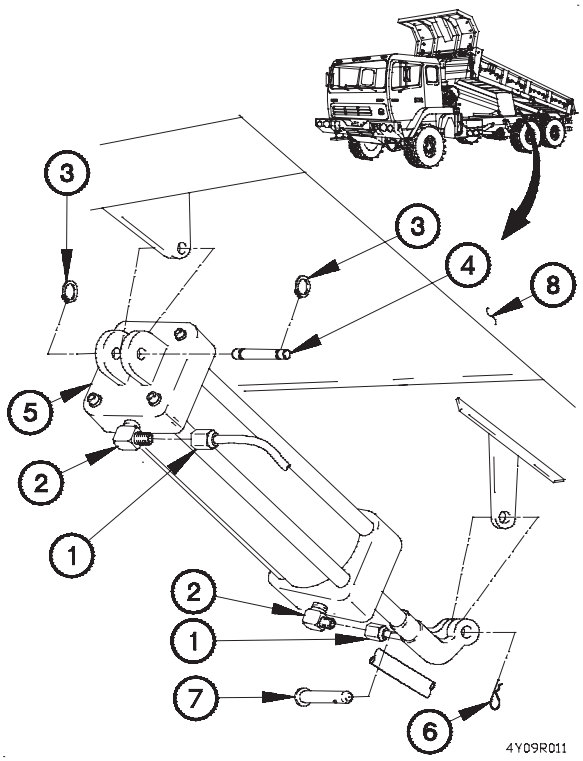
(1) Disconnect two hoses (1) from 90-degree fittings (2).

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.

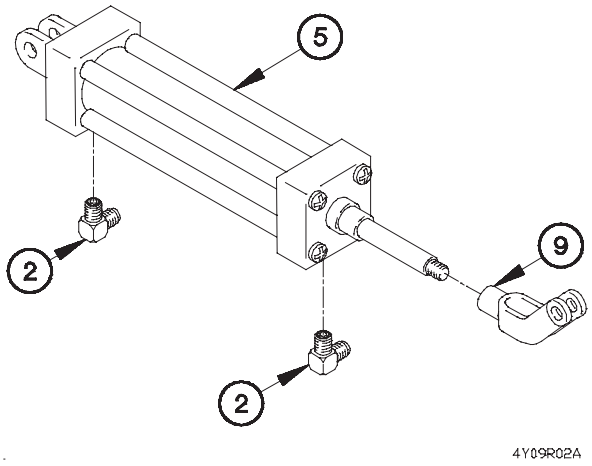
(2) Remove two retaining rings (3) and pivot pin (4) from tailgate pneumatic cylinder (5).

(3) Remove cotter pin (6), pivot pin (7), and tailgate pneumatic cylinder (5) from dump body (8).

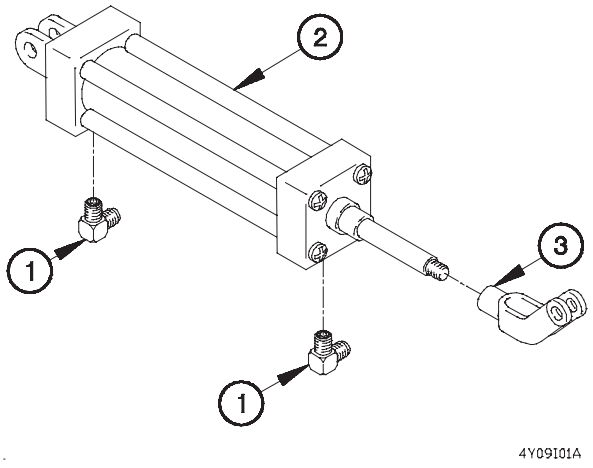


(4) Remove rod clevis (9) from tailgate pneumatic cylinder (5).

(5) Remove two 90-degree fittings (2) from tailgate pneumatic cylinder (5).



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).

(2) Install two 90-degree fittings (1) in tailgate pneumatic cylinder (2).

(3) Install rod clevis (3) on tailgate pneumatic cylinder (2).

23-9. M1090/M1094 TAILGATE PNEUMATIC CYLINDER REPLACEMENT (CONT)

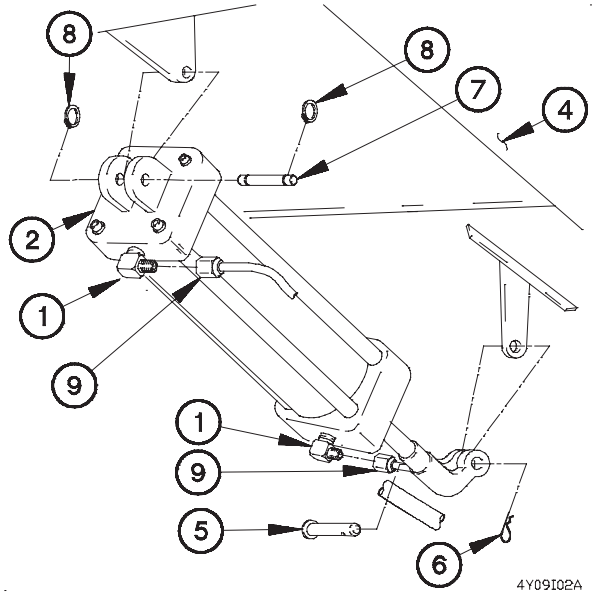
(4) Position tailgate pneumatic cylinder (2) on dump body (4) with pivot pin (5) and cotter pin (6).

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.

(5) Install tailgate pneumatic cylinder (2) on dump body (4) with pivot pin (7) and two retaining rings (8).

(6) Connect two hoses (9) to 90-degree fittings (1).



c. Follow-On Maintenance.

(1) Operate tailgate rocker switch (TM 9-2320-366-10-1) and check proper operation of tailgate pneumatic cylinder.

(2) Check for air leaks around hoses and fittings.

(3) Lower dump body from maintenance position (TM 9-2320-366-10-1).

End of Task.

23-10. M1090/M1094 TAILGATE PNEUMATIC SOLENOID VALVE REPLACEMENT

This task covers:

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

INITIAL SETUP

Equipment Conditions
Dump body raised to maintenance position (TM 9-2320-366-10-1).
Batteries disconnected (para 7-57).
Air tanks drained (TM 9-2320-366-10-1).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Socket Set, Socket Wrench (Item 34, Appendix C)
Wrench, Torque, 0-200 lb-in. (Item 59, Appendix C)

Materials/Parts
Dispenser, Pressure Sensitive Adhesive Tape (Item 20, Appendix D)
Ties, Cable, Plastic (Item 69, Appendix D)
Antiseize Compound (Item 13, Appendix D)
Lockwasher (2) (Item 93, Appendix G)

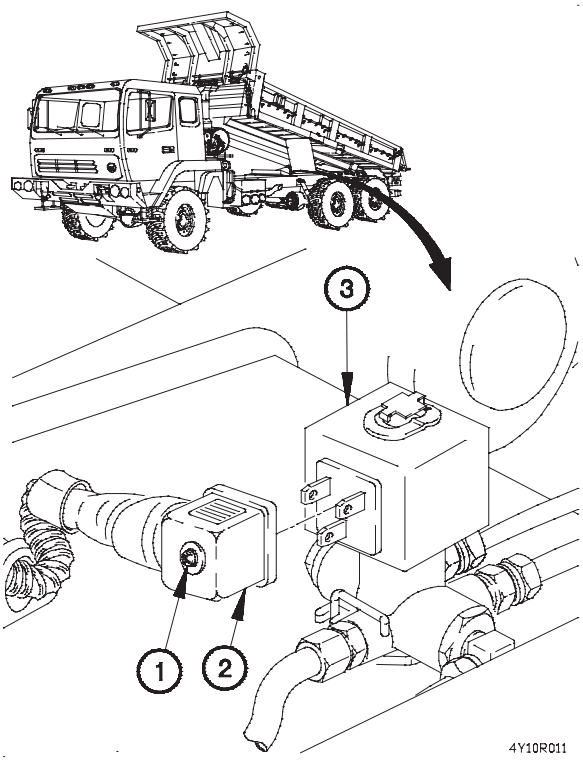
a. Removal.

NOTE

Remove plastic cable ties as required.

(1) Loosen captive screw (1) in connector L7 (2).

(2) Remove connector L7 (2) from magnetic coil (3).



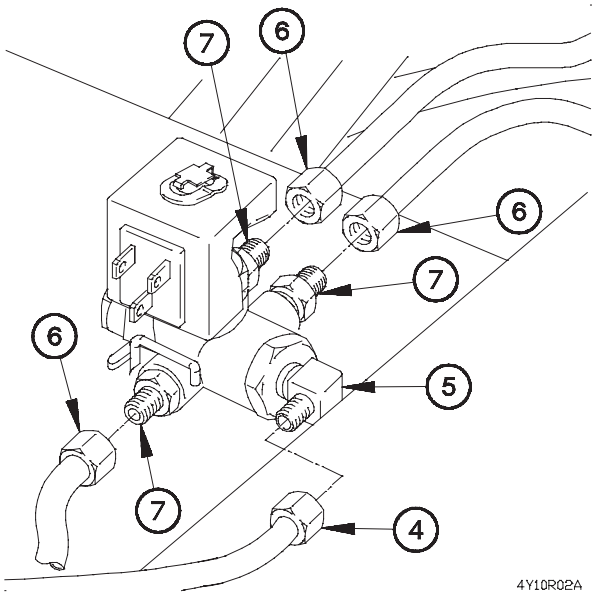
23-10. M1090/M1094 TAILGATE PNEUMATIC SOLENOID VALVE REPLACEMENT (CONT)

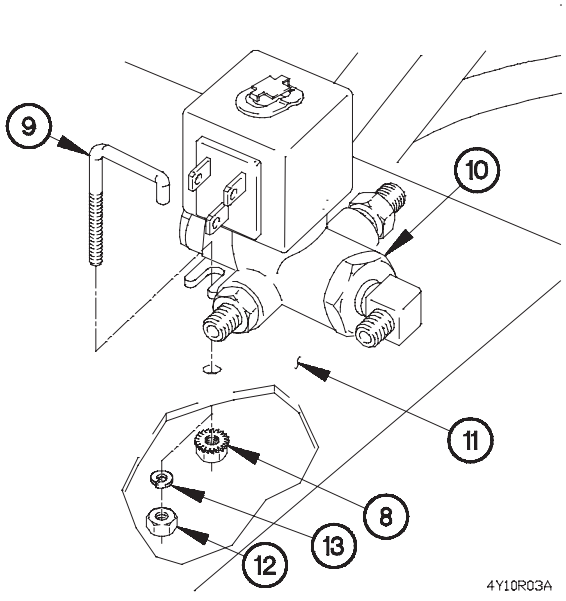
NOTE

Tag air hoses and connection points prior to disconnecting.

(3) Disconnect air hose (4) from 90-degree fitting (5).

(4) Disconnect three air hoses (6) from fittings (7).





NOTE

Perform step (5) on vehicles equipped with nuts containing a captive lockwasher.

(5) Remove two self-locking nuts (8), J-bolts (9), and tailgate pneumatic solenoid valve (10) from crossmember (11). Discard self-locking nuts.

NOTE

Perform step (6) on vehicles equipped with nuts and lockwashers.

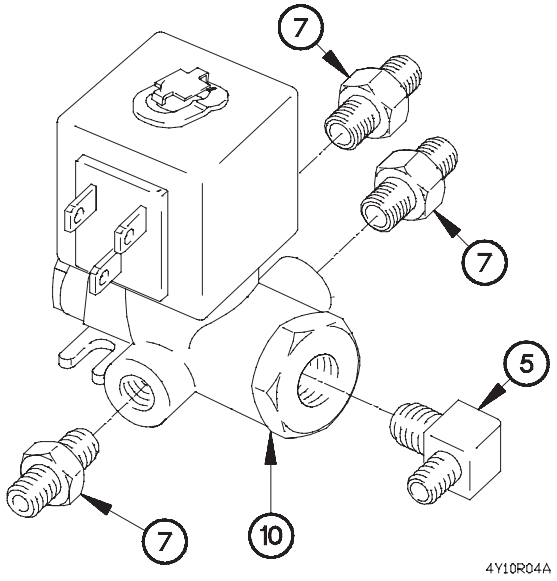
(6) Remove two nuts (12), lockwashers (13), J-bolts (9), and tailgate pneumatic solenoid valve (10) from crossmember (11). Discard lockwashers.

NOTE

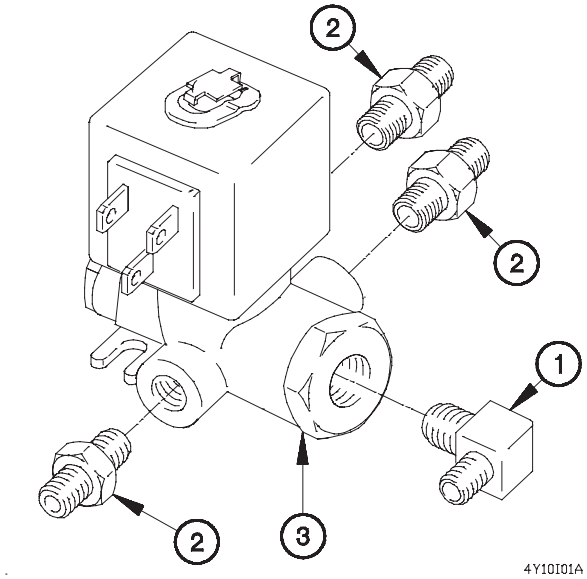
Note orientation of fittings prior to removal.

(7) Remove 90-degree fitting (5) from tailgate pneumatic solenoid valve (10).

(8) Remove three fittings (7) from tailgate pneumatic solenoid valve (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 90-degree fitting (1) and three fittings (2).

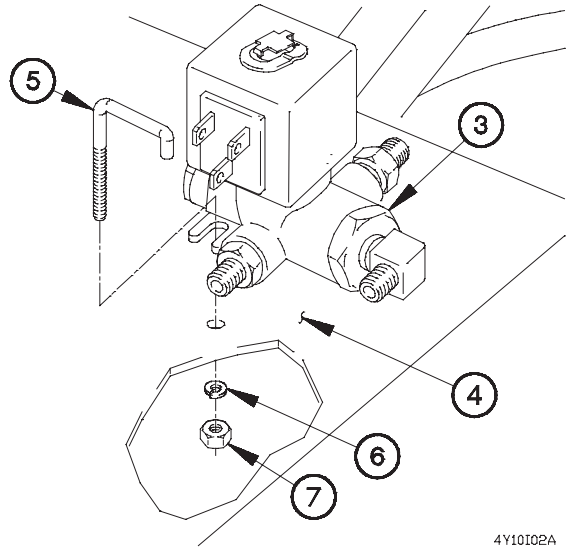
(2) Install three fittings (2) in tailgate pneumatic solenoid valve (3).

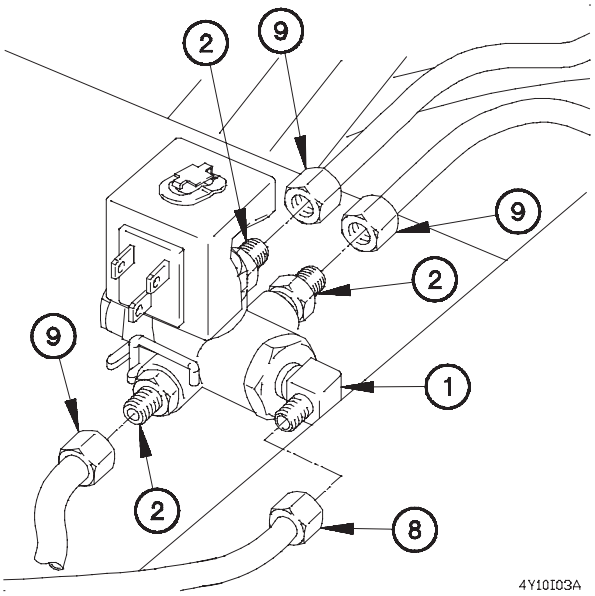
(3) Install 90-degree fitting (1) in tailgate pneumatic solenoid valve (3).

23-10. M1090/M1094 TAILGATE PNEUMATIC SOLENOID VALVE REPLACEMENT (CONT)

(4) Position tailgate pneumatic solenoid valve (3) on crossmember (4) with two J-bolts (5), lockwashers (6) and nuts (7).

(5) Tighten two nuts (7) to 36 lb-in. (4-5 N·m).



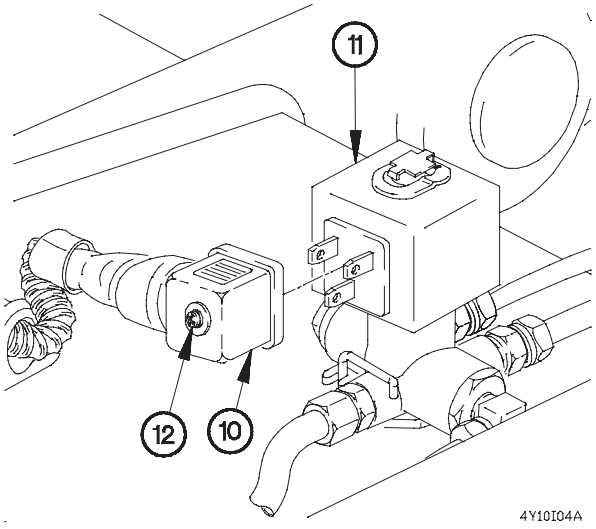


(6) Connect hose (8) to 90-degree fitting (1).

(7) Connect three hoses (9) to fittings (2).

(8) Install connector L7 (10) on magnetic coil (11).

(9) Tighten captive screw (12) in connector L7 (10).



c. Follow-On Maintenance.

(1) Connect batteries (para 7-57).

(2) Start engine (TM 9-2320-366-10-1).

(3) Operate TAILGATE RELEASE switch and check for air leaks (TM 9-2320-366-10-1).

(4) Lower dump body from maintenance position (TM 9-2320-366-10-1).

(5) Shut down engine (TM 9-2320-366-10-1).

End of Task.

23-11. AIR DRYER REPLACEMENT/REPAIR

This task covers:

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

INITIAL SETUP

Equipment Conditions
Batteries disconnected (para 7-57).
Air tanks drained (TM 9-2320-366-10-1).
Booster Valve Removed (Para 11-5)

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Goggles, Industrial (Item 15, Appendix C)
Wrench, Torque, 0-175 lb-ft (Item 58, Appendix C)
Wrench, Torque, 0-200 lb-in. (Item 59, Appendix C)
Socket Set, Socket Wrench (Item 34, Appendix C)
Purge Valve Tool (Item E-23, Appendix E)
Hammer, Hand (Item 18, Appendix C)

Materials/Parts
Dispenser, Pressure Sensitive Adhesive Tape (Item 20, Appendix D)
Ties, Cable, Plastic (Item 69, Appendix D)
Nut, Plain, Hex (Item 34, Appendix D)
Boot Kit, Exhaust (Item 3, Appendix G)
Parts Kit, Dehydrator (Item 218, Appendix G)
Nut, Self-Locking (4) (Item 168, Appendix G)

Personnel Required
(2)

a. Removal.

WARNING

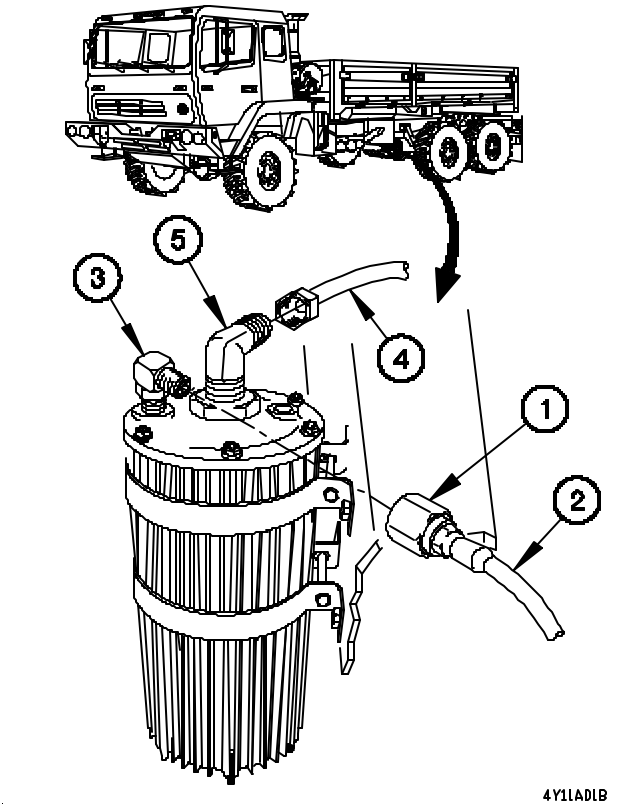
Air dryer may contain air pressure. Loosen input air hose connector slowly to vent off air pressure. Failure to comply may result in injury to personnel.

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) Loosen input air hose nut (1).

(2) Disconnect input air hose (2) from 90-degree fitting (3).

(3) Disconnect outlet air hose (4) from 90-degree fitting (5).

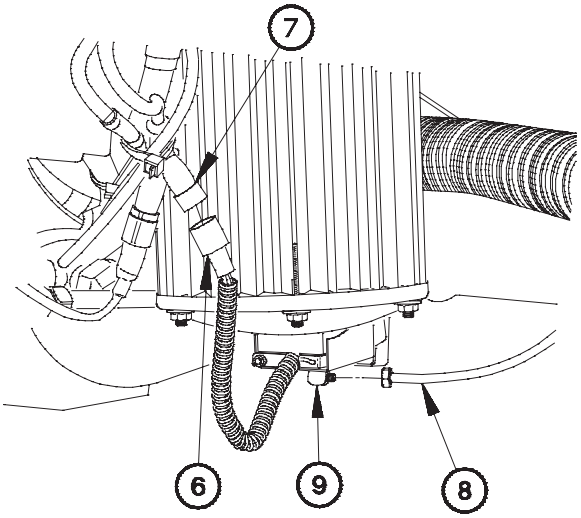


NOTE

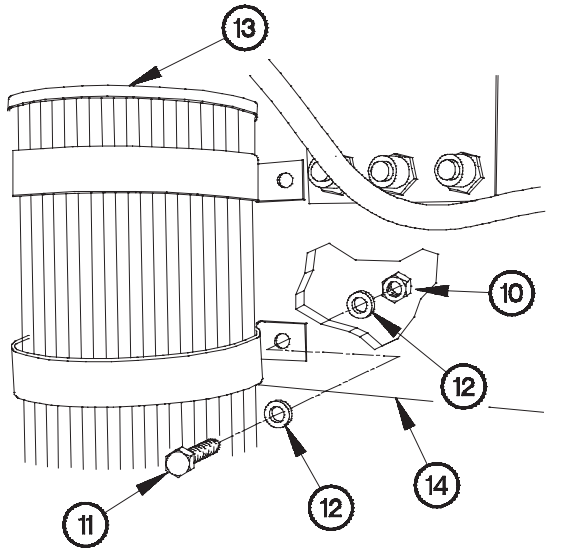
Remove plastic cable ties as required.

(4) Disconnect air dryer electrical connector (6) from connector P80 (7).

(5) Disconnect air hose (8) from 90-degree fitting (9).



XY11A02-



XY11A03-

NOTE

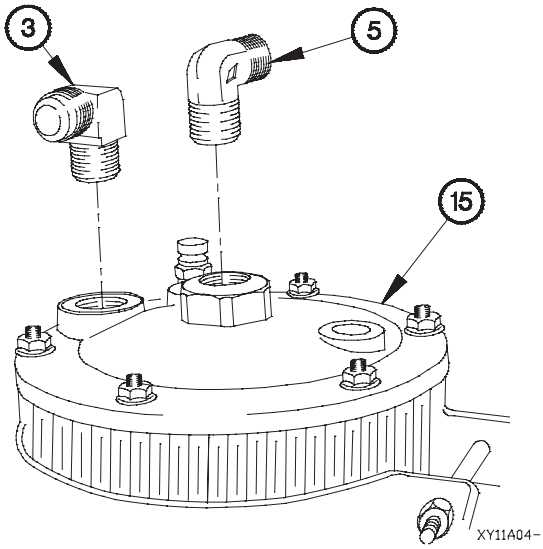
- Note the position of the retaining bands on air dryer prior to removal.
- Step (6) requires the aid of an assistant.

(6) Remove four self-locking nuts (10), screws (11), eight washers (12), and air dryer (13) from frame (14). Discard self-locking nuts.

NOTE

Tag fittings and connection points prior to removal.

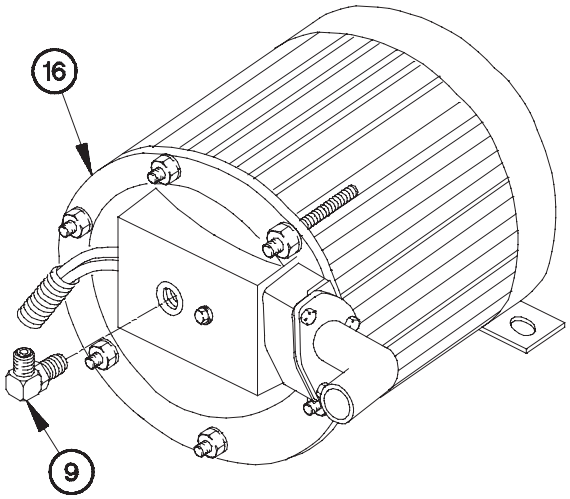
(7) Remove 90-degree fittings (3 and 5) from top cover (15).



XY11A04-

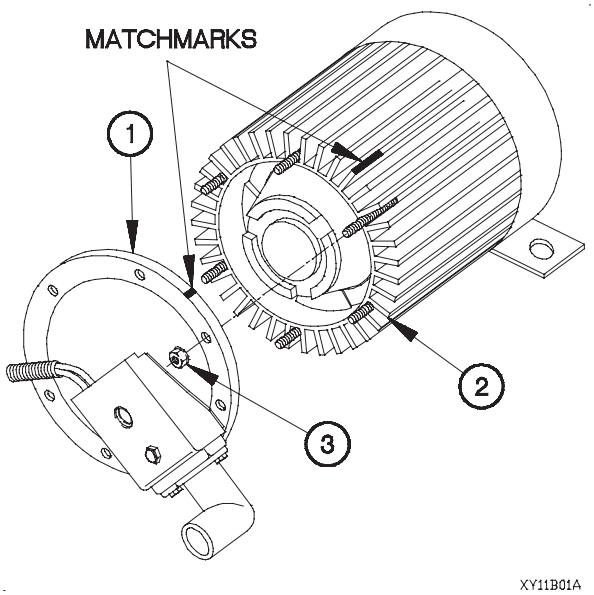
23-11. AIR DRYER REPLACEMENT/REPAIR (CONT)

(8) Remove 90-degree fitting (9) from lower cover (16).



XY11A05-

b. Disassembly.



XY11B01A

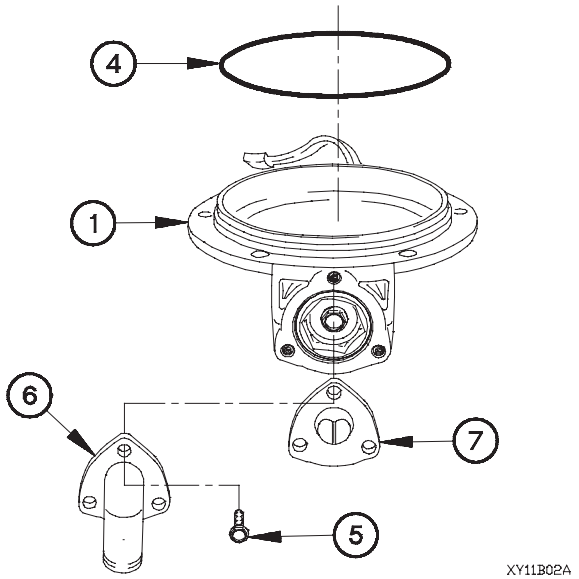
(1) Match mark lower cover (1) to air dryer housing (2).

(2) Remove six flange nuts (3) from lower cover (1).

(3) Remove lower cover (1) from air dryer housing (2).

(4) Remove preformed packing (4) from lower cover (1). Discard preformed packing.

(5) Remove three screws (5), purge exhaust fitting (6), and exhaust boot (7) from lower cover (1). Discard exhaust boot.

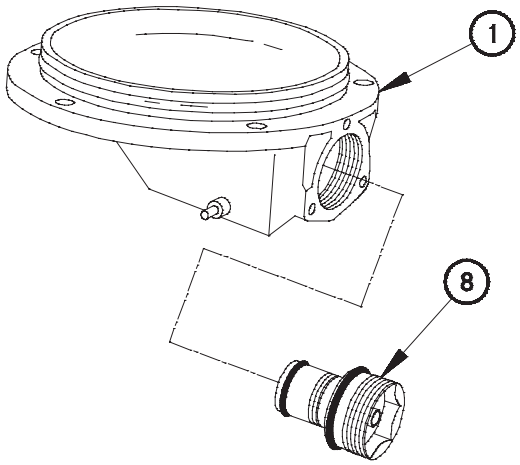


XY11B02A

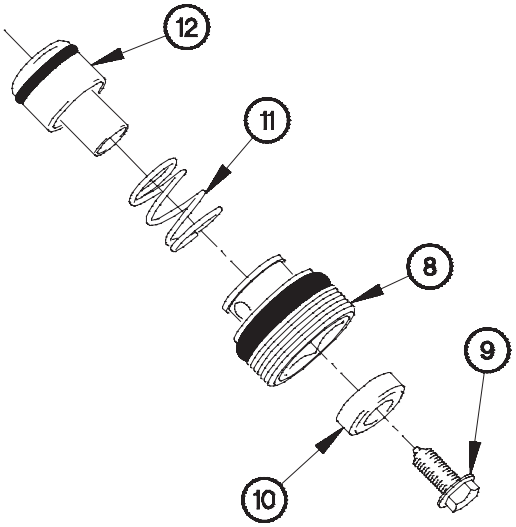
(6) Deleted.

(7) Turn purge valve (8) to the left until removed from lower cover (1).

(8) Deleted.

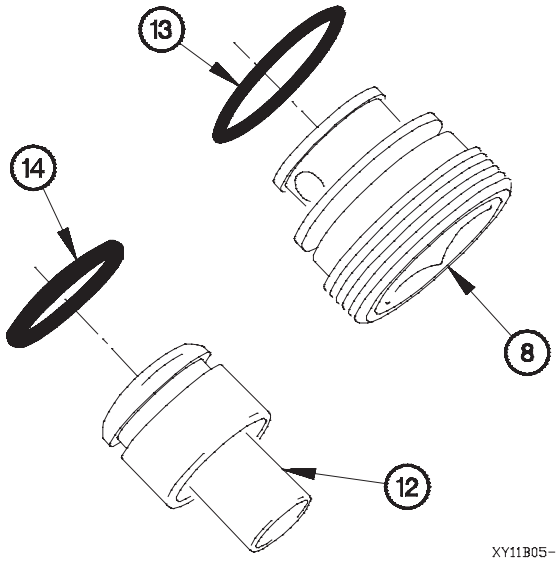


XY11B03B



XY11B04-

(9) Remove screw (9), purge valve seat (10), spring (11), and purge piston (12) from purge valve (8). Discard purge valve seat.



XY11B05-

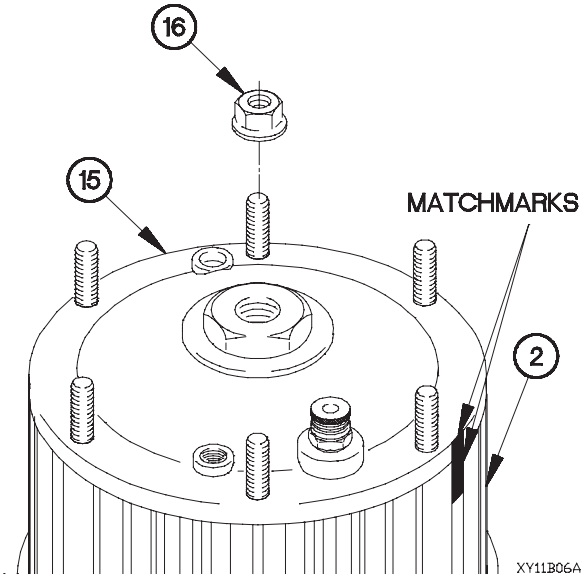
(10) Remove preformed packing (13) from purge valve (8). Discard preformed packing.

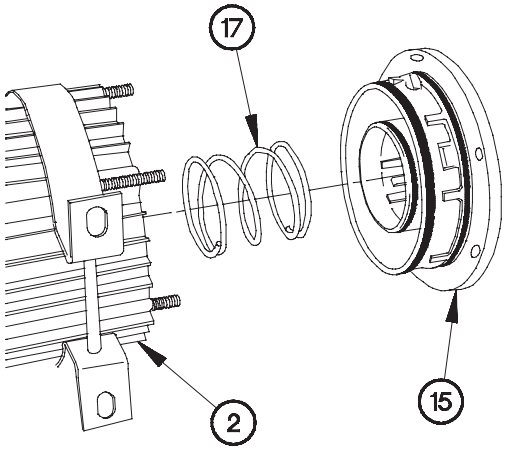
(11) Remove preformed packing (14) from purge piston (12). Discard preformed packing.

23-11. AIR DRYER REPLACEMENT/REPAIR (CONT)

(12) Match mark top cover (15) to air dryer housing (2).

(13) Remove six flange nuts (16) from top cover (15).



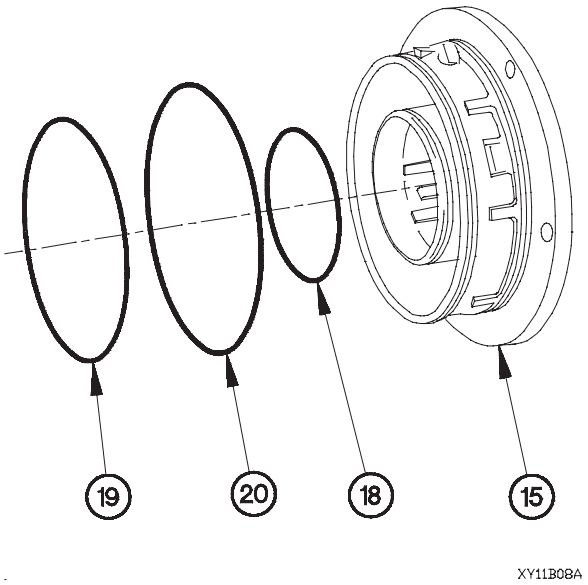


NOTE

It may be necessary to tap on top cover to loosen.

(14) Remove top cover (15) and spring (17) from air dryer housing (2).

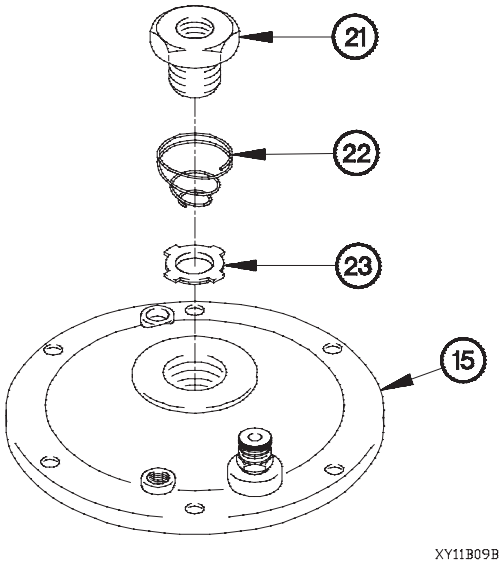
(15) Remove preformed packings (18, 19 and 20) from top cover (15). Discard preformed packings.

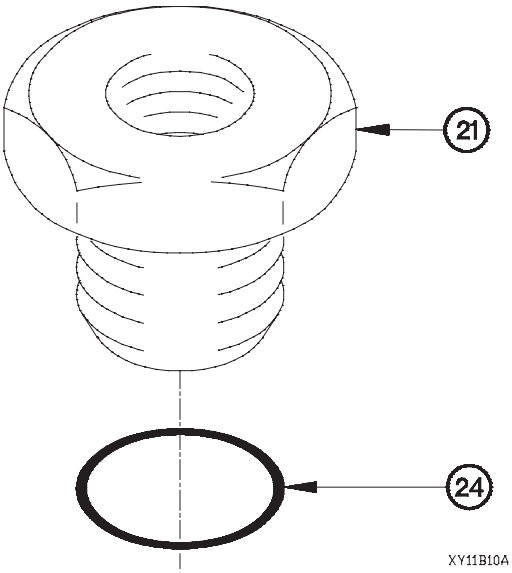


NOTE

Note orientation of valve disc prior to removal.

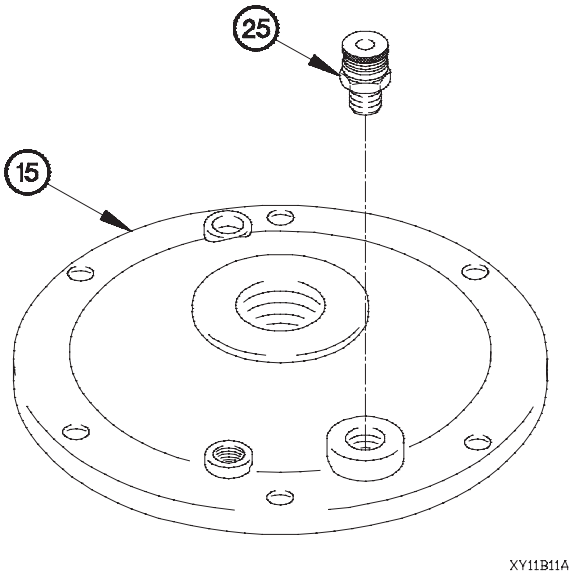
(16) Remove check valve end cap (21), spring (22), and valve disc (23) from top cover (15).





(17) Remove preformed packing (24) from check valve end cap (21). Discard preformed packing.

(18) Remove relief valve (25) from top cover (15).



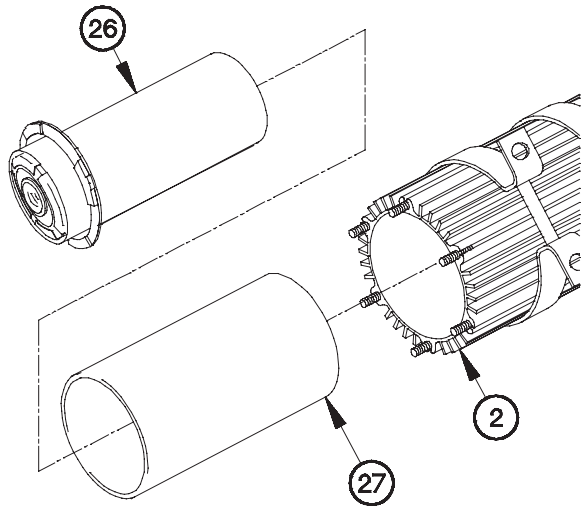
23-11. AIR DRYER REPLACEMENT/REPAIR (CONT)

NOTE

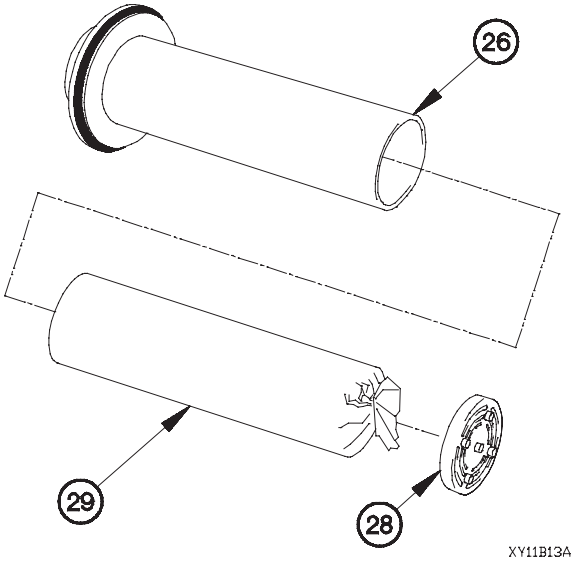
Desiccant canister and inner aluminum shell can be removed as one unit.

(19) Remove desiccant canister (26) and inner aluminum shell (27) from air dryer housing (2).

(20) Remove desiccant canister (26) from inner aluminum shell (27).



XY11B12A



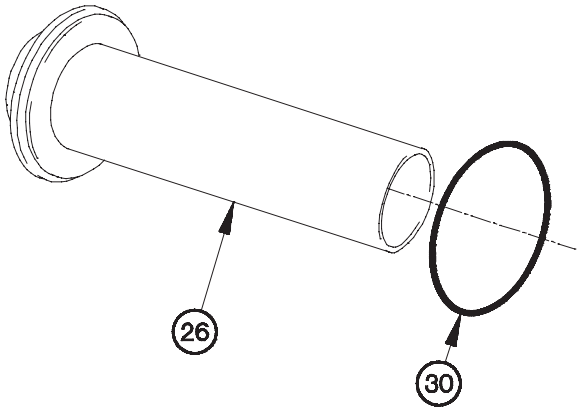
XY11B13A

NOTE

Desiccant follower will come out with desiccant. Retrieve for reuse.

(21) Remove desiccant follower (28) and desiccant cartridge (29) from desiccant canister (26). Discard desiccant cartridge.

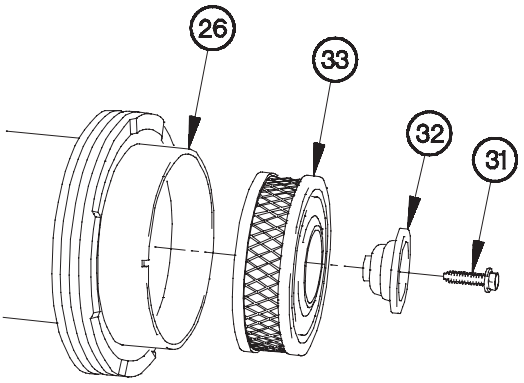
(22) Remove preformed packing (30) from desiccant canister (26). Discard preformed packing.



XY11B14A

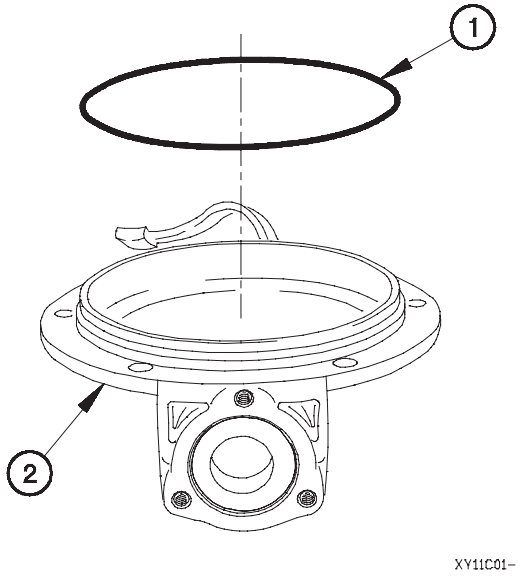
(23) Remove screw (31) and filter retainer (32) from filter element (33).

(24) Remove filter element (33) from desiccant canister (26). Discard filter element.



XY11B15A

c. Assembly.

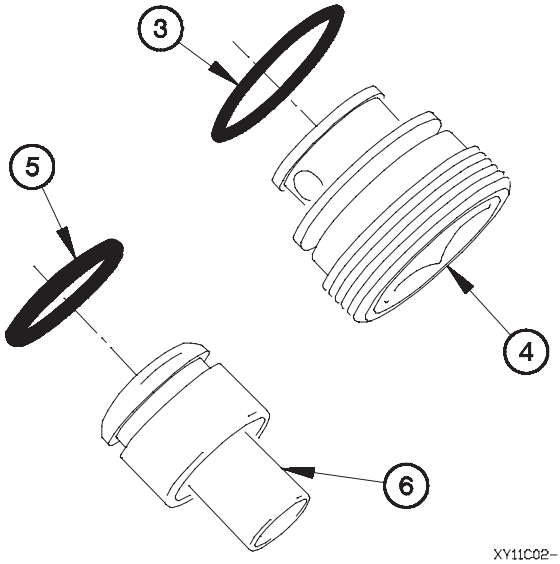


XY11C01-

(1) Install preformed packing (1) on lower cover (2).

(2) Install preformed packing (3) on purge valve (4).

(3) Install preformed packing (5) on purge piston (6).

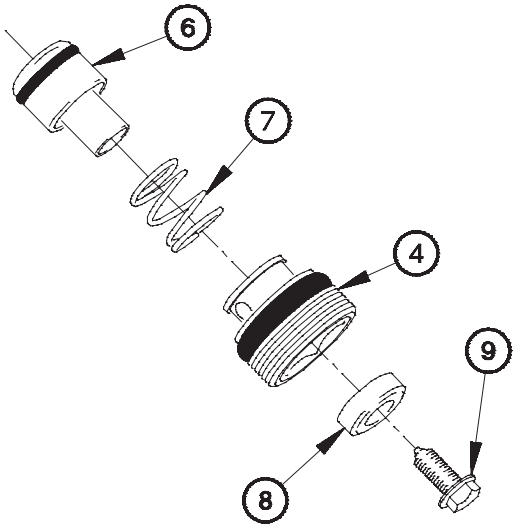


XY11C02-

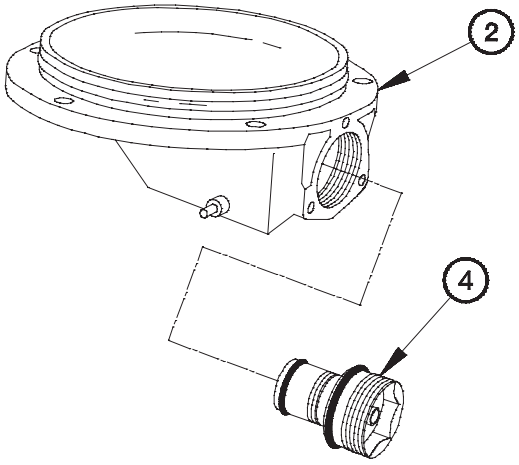
23-11. AIR DRYER REPLACEMENT/REPAIR (CONT)

(4) Position spring (7), purge piston (6), purge valve seat (8), and screw (9) on purge valve (4).

(5) Tighten screw (9) to 50-80 lb-in. (6-9 N·m).



XY11C03-



XY11C04B

(6) Position purge valve (4) in lower cover (2).

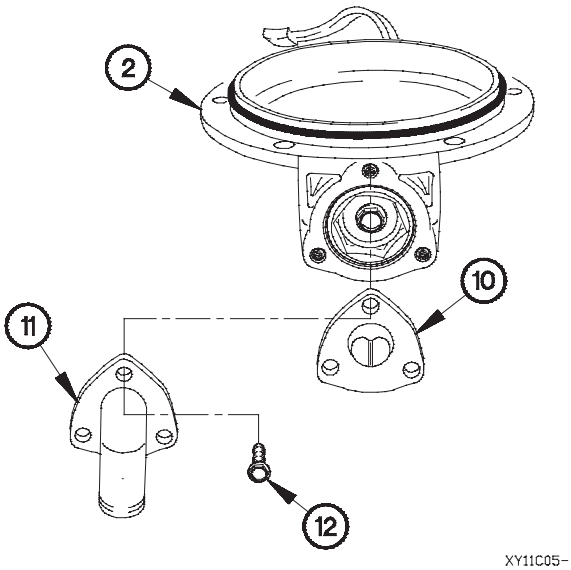
(7) Install nut in purge valve (4).

(8) Tighten purge valve (4) to 35-50 lb-in. (4-6 N·m).

(9) Remove nut from purge valve (4).

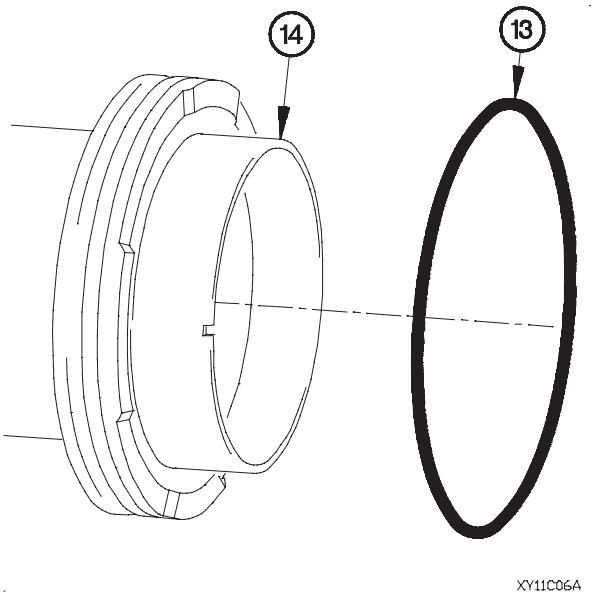
(10) Position exhaust boot (10) and purge exhaust fitting (11) on lower cover (2) with three screws (12).

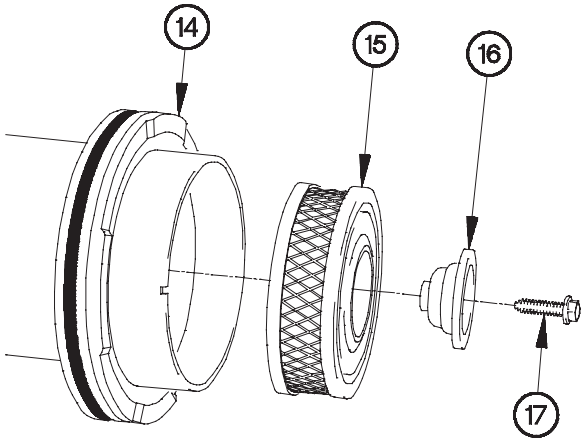
(11) Tighten three screws (12) to 50-70 lb-in. (6-8 N·m).



XY11C05-

(12) Install preformed packing (13) on desiccant canister (14).





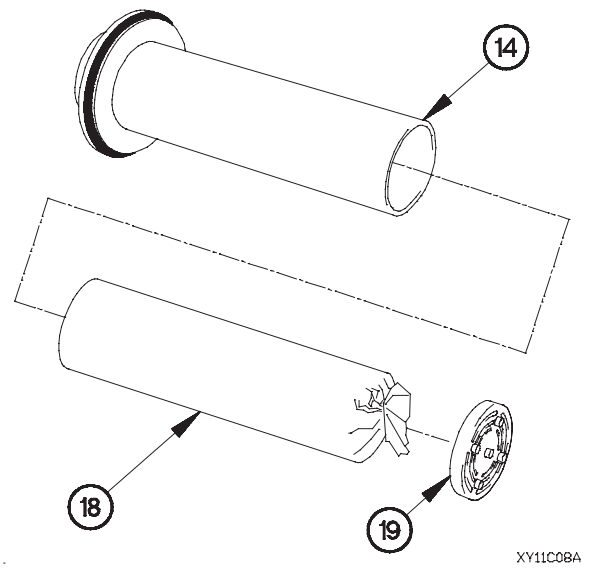
(13) Position filter element (15) on desiccant canister (14).

(14) Position filter retainer (16) and screw (17) in desiccant canister (14).

(15) Tighten screw (17) to 60-90 lb-in. (7-10 N·m).

(16) Slide desiccant cartridge (18) in desiccant canister (14).

(17) Install desiccant follower (19) in desiccant canister (14).

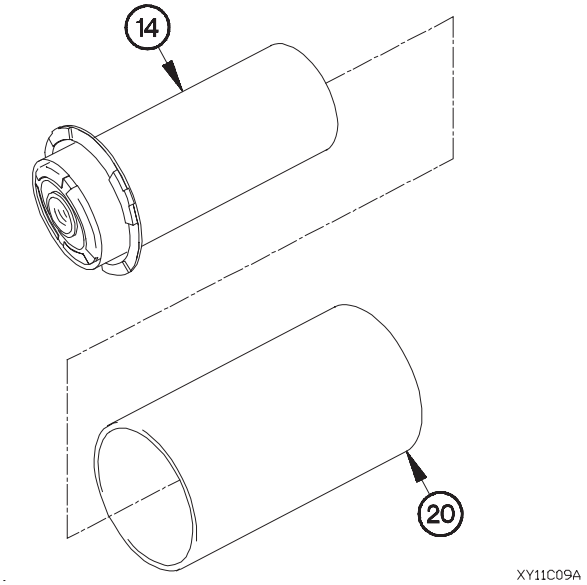


23-11. AIR DRYER REPLACEMENT/REPAIR (CONT)

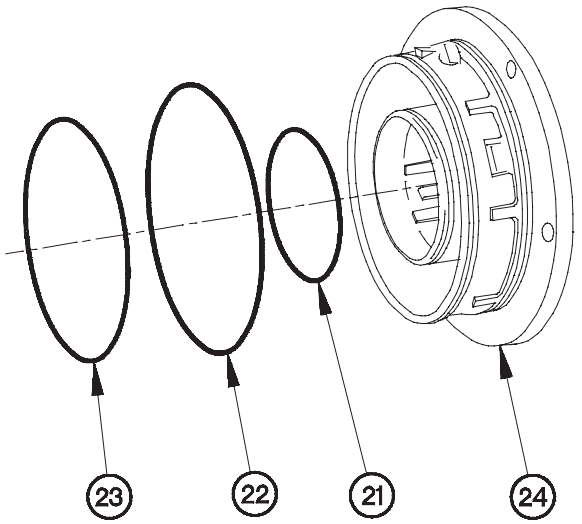
CAUTION

Use caution when installing desiccant canister in inner aluminum shell. Preformed packing can easily be damaged. Failure to comply may result in damage to equipment.

(18) Install desiccant canister (14) in inner aluminum shell (20).



XY11C09A



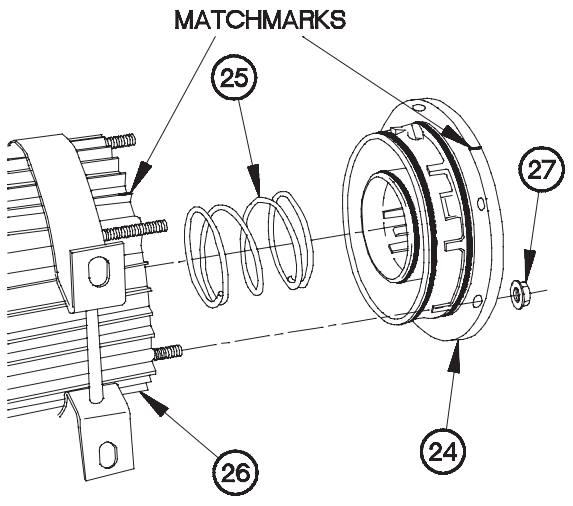
XY11C10-

(19) Install preformed packings (21, 22 and 23) on top cover (24).

(20) Position spring (25) and top cover (24) on air dryer housing (26) with matchmarks aligned.

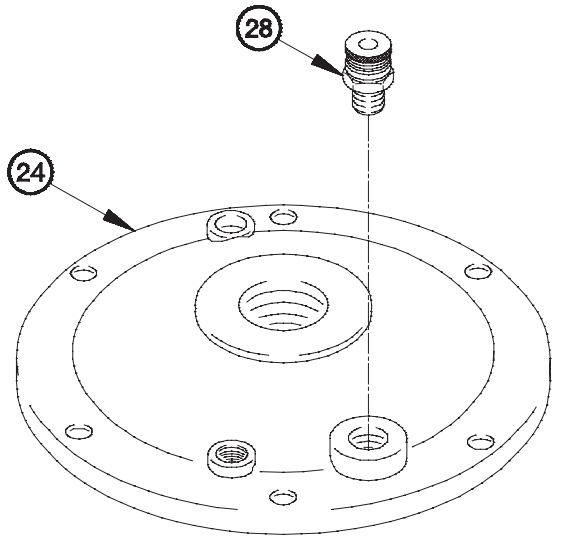
(21) Position six flange nuts (27) on top cover (24).

(22) Tighten six flange nuts (27) to 150-200 lb-in. (17-23 N·m).

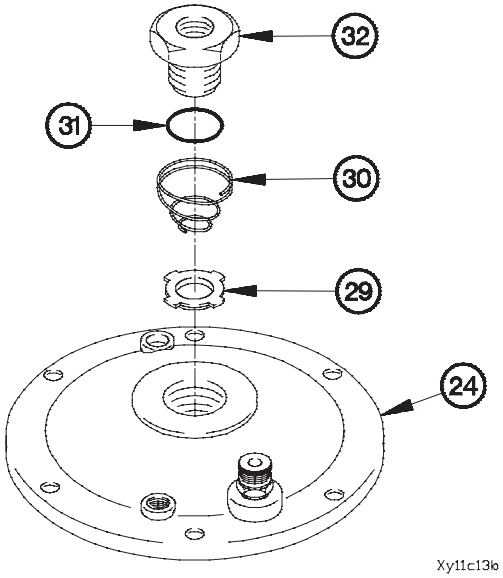


XY11C11A

(23) Install relief valve (28) in top cover (24).



XY11C12A



Xy11c13b

NOTE

Install valve disc with rubber side down.

(24) Install valve disc (29) in top cover (24).

NOTE

Install spring with small end toward valve disc.

(25) Install spring (30) in top cover (24).

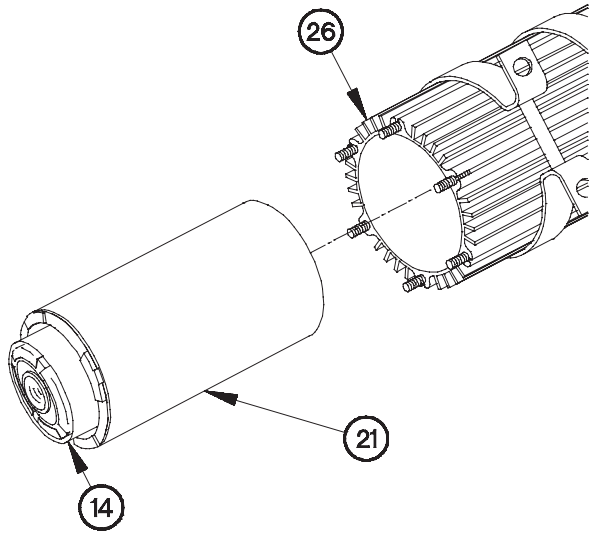
(26) Install preformed packing (31) on check valve end cap (32).

(27) Position check valve end cap (32) on top cover (24).

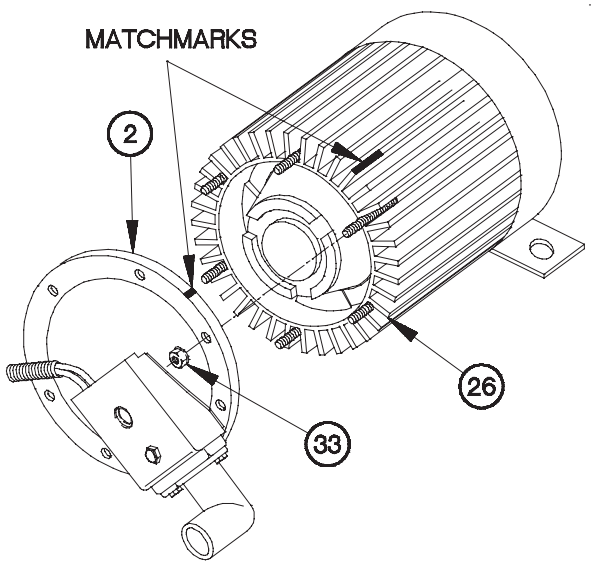
(28) Tighten check valve end cap (32) to 35-50 lb-ft (47-68 N·m).

23-11. AIR DRYER REPLACEMENT/REPAIR (CONT)

(29) Install desiccant canister (14) and inner aluminum shell (21) in air dryer housing (26).



XY11C14A



XY11C15A

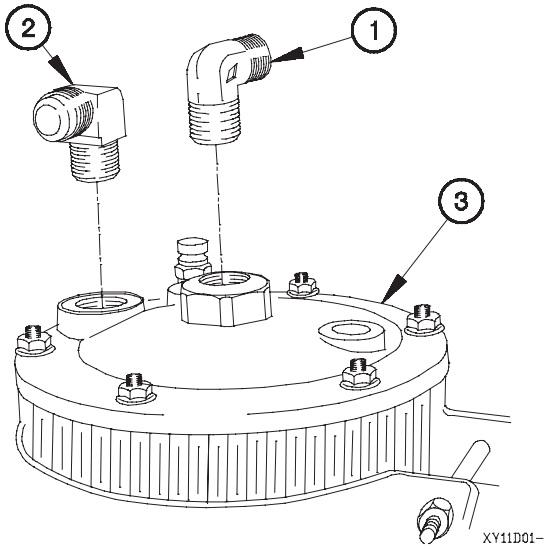
(30) Position lower cover (2) on air dryer housing (26) with matchmarks aligned.

(31) Position six flange nuts (33) on lower cover (2).

(32) Tighten six flange nuts (33) to 150-200 lb-in. (17-23 N·m).

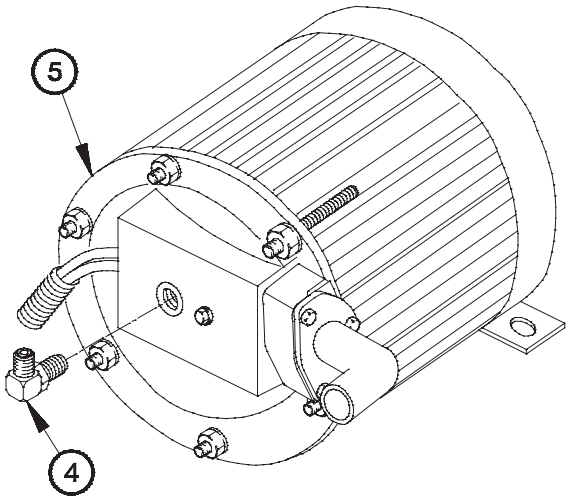
d. Installation.

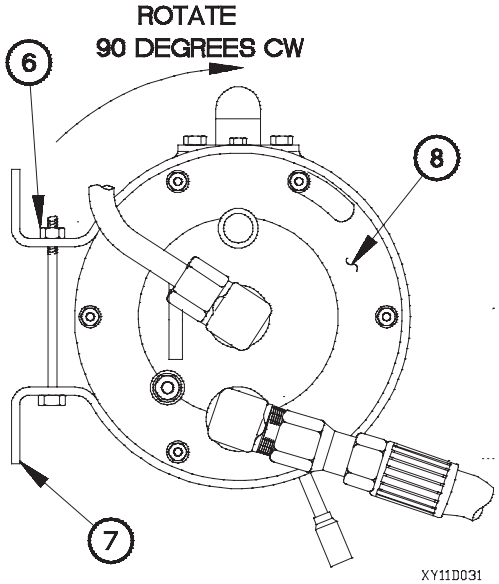
(1) Install 90-degree fittings (1 and 2) in top cover (3).



XY11D01-

(2) Install 90-degree fitting (4) in lower cover (5).





CAUTION

When installing a new air dryer, it is necessary to change the orientation of the retaining bands. Failure to comply may result in damage to equipment.

NOTE

Perform steps (3) through (5) if installing a new air dryer.

(3) Loosen two nuts (6) on retaining bands (7).

NOTE

Position retaining bands on air dryer as noted in removal.

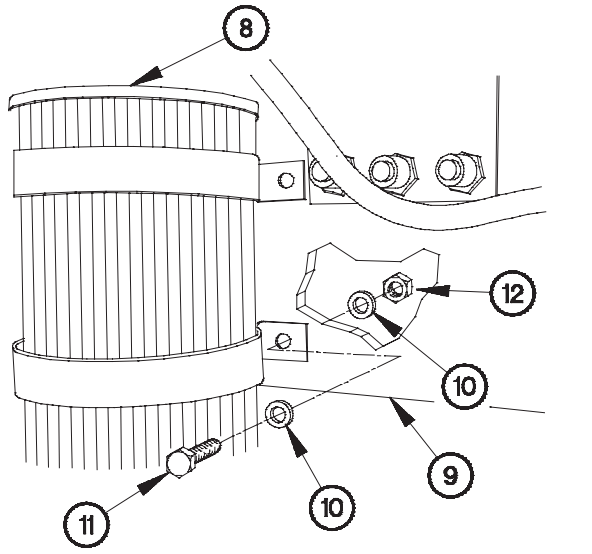
(4) Rotate two retaining bands (7) 90-degrees clockwise as viewed from top of air dryer (8).

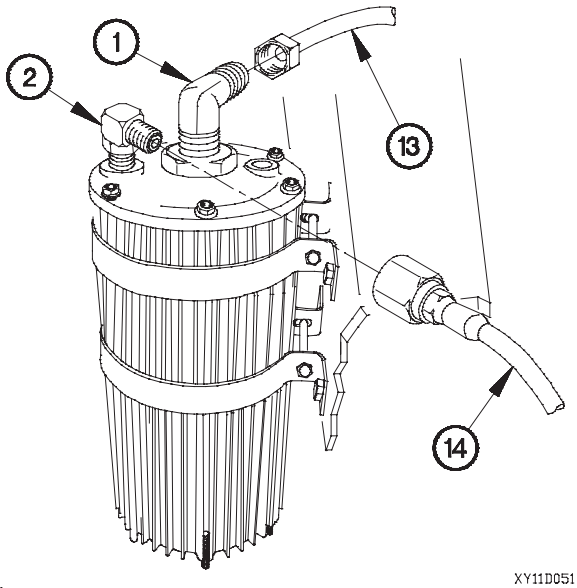
(5) Tighten two nuts (6) on retaining bands (7).

23-11. AIR DRYER REPLACEMENT/REPAIR (CONT)

(6) Position air dryer (8) on frame (9) with eight washers (10), four screws (11), and self-locking nuts (12).

(7) Tighten four self-locking nuts (12) to 34-42 lb-ft (47-57 N·m).



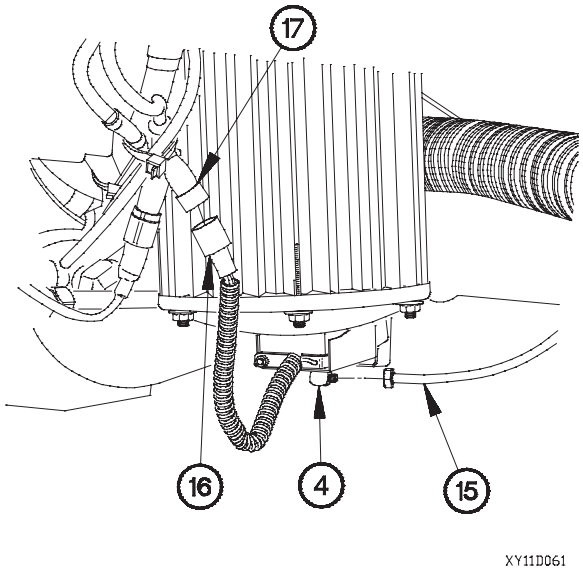


(8) Connect output air hose (13) to 90-degree fitting (1).

(9) Connect input air hose (14) to 90-degree fitting (2).

(10) Connect air hose (15) to 90-degree fitting (4).

(11) Connect air dryer electrical connector (16) to connector P80 (17).



e. Follow-On Maintenance.

(1) Install booster valve (Para 11-15).

(2) Connect batteries (para 7-57).

(3) Start engine (TM 9-2320-366-10-1) and allow air pressure to build up to normal pressure.

(4) Check air dryer and air hoses for air leaks.

(5) Shut down engine (TM 9-2320-366-10-1).

End of Task.

23-12. WET TANK REPLACEMENT

This task covers:

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

INITIAL SETUP

Equipment Conditions
Pressure protection valve removed (para 11-29).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Goggles, Industrial (Item 15, Appendix C)

Materials/Parts
Dispenser, Pressure Sensitive Adhesive Tape (Item 20, Appendix D)
Antiseize Compound (Item 58, Appendix D)
Nut, Self-Locking (2) (Item 130.1, Appendix G)

WARNING

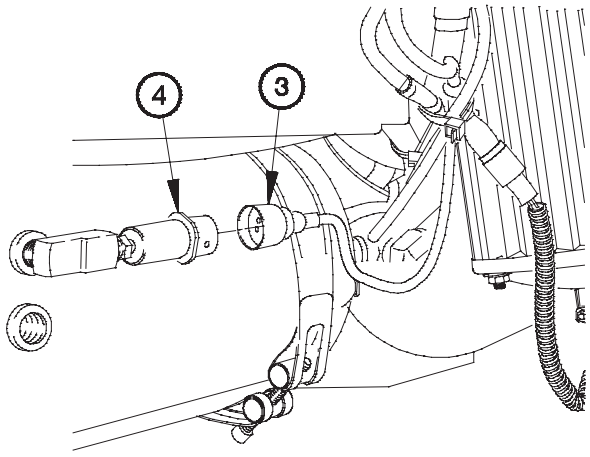
Wear appropriate eye protection when working under vehicle due to the possibility of falling debris. Failure to comply may result in injury to personnel.

a. Removal.

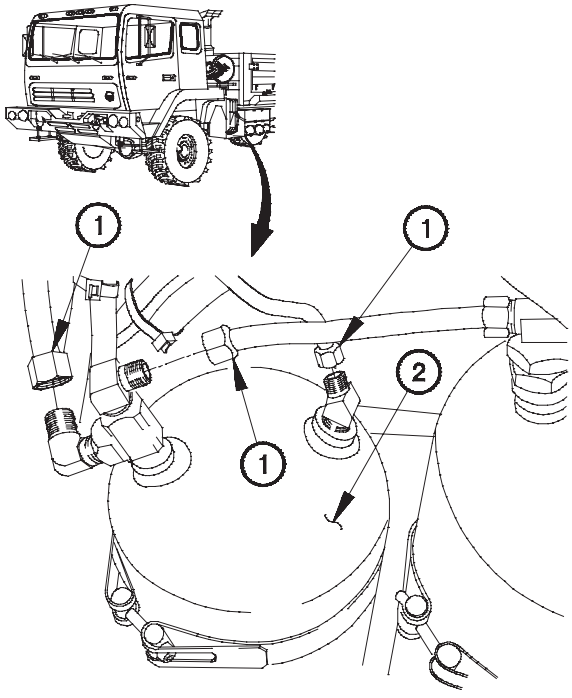
NOTE

Tag hoses and connectors prior to removal.

(1) Disconnect three air hoses (1) from wet tank (2).



XY12R02B



XY12R01B

(2) Disconnect connector P84 (3) from pressure switch (4).

NOTE

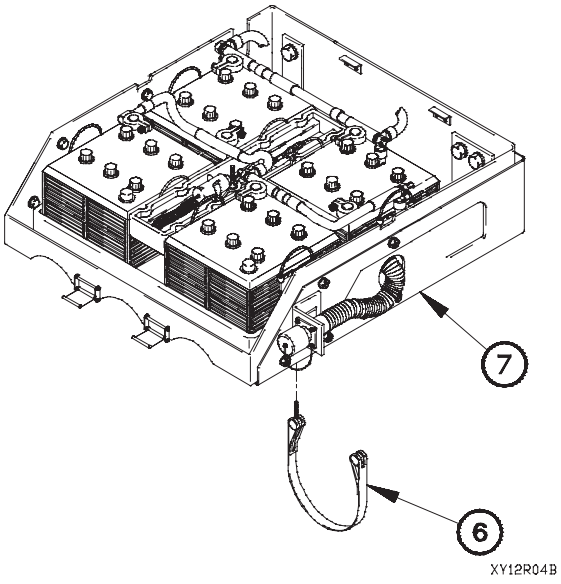
- Vehicles may be equipped with either corrosion enhanced clamps or non-corrosion enhanced clamps. Corrosion enhanced clamps have a self-locking nut and cork lining. When removing a non-corrosion enhanced clamp, replace it with a corrosion enhanced clamp.
- Perform steps (3) through (5) on vehicles not equipped with corrosion enhanced clamps.

(3) Remove two screws (5) from clamps (6).

NOTE

Note the orientation of wet tank prior to removal.

(4) Remove wet tank (2) from two clamps (6).



NOTE

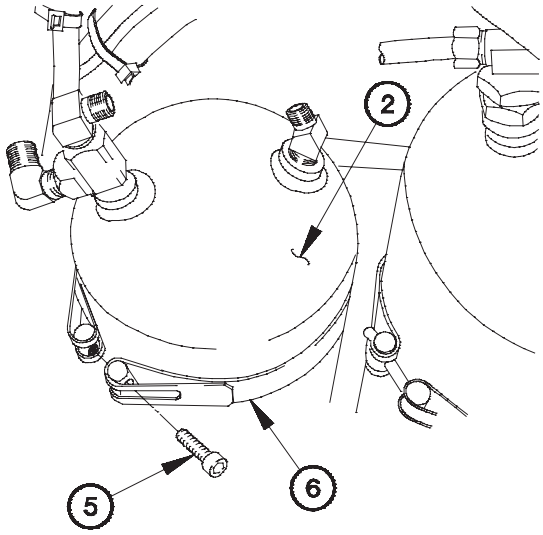
Perform steps (6) and (7) on vehicles equipped with corrosion enhanced clamps.

(6) Remove two self-locking nuts (8) from clamps (6). Discard self-locking nuts.

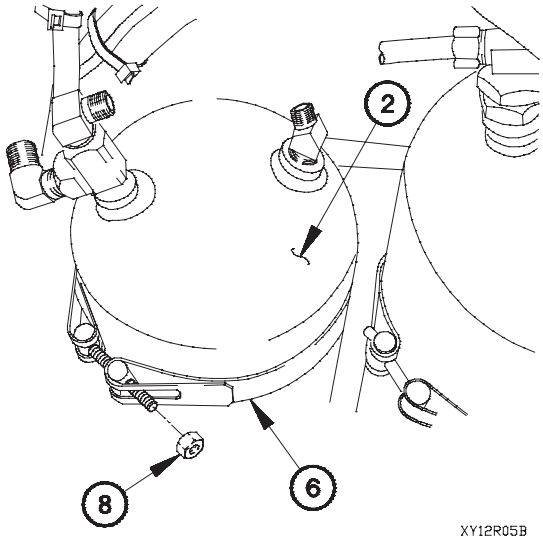
NOTE

Note the orientation of wet tank prior to removal.

(7) Remove wet tank (2) from two clamps (6).

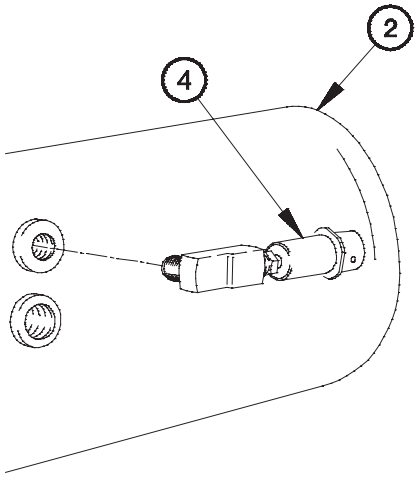


(5) Remove two clamps (6) from battery box (7). Discard clamps.

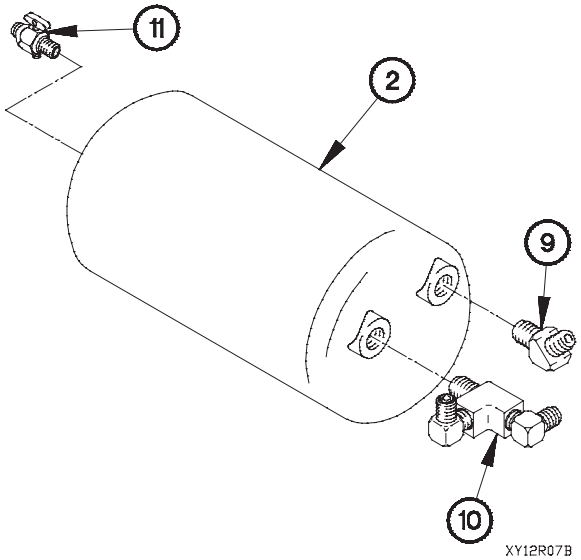


23-12. WET TANK REPLACEMENT (CONT)

(8) Remove pressure switch (4) from wet tank (2).



XY12R06B



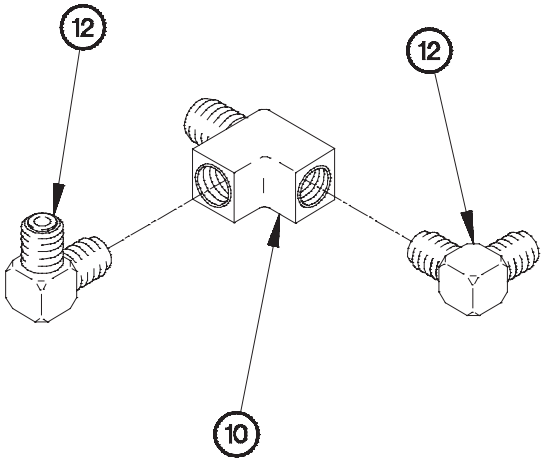
XY12R07B

(9) Remove 45-degree fitting (9) from wet tank (2).

(10) Remove street tee fitting (10) from wet tank (2).

(11) Remove drain valve (11) from wet tank (2).

(12) Remove two 90-degree fittings (12) from street tee fitting (10).

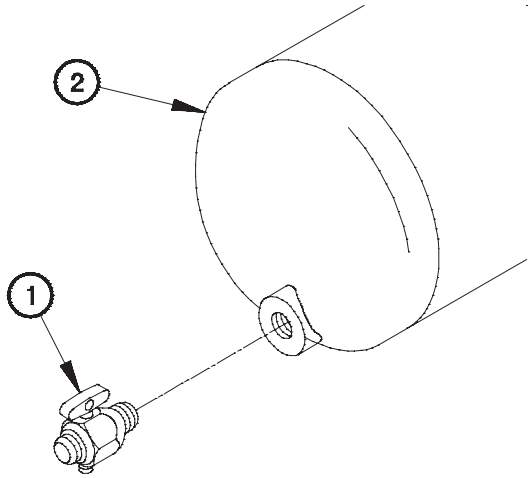


XY12R08B

b. Installation.

WARNING

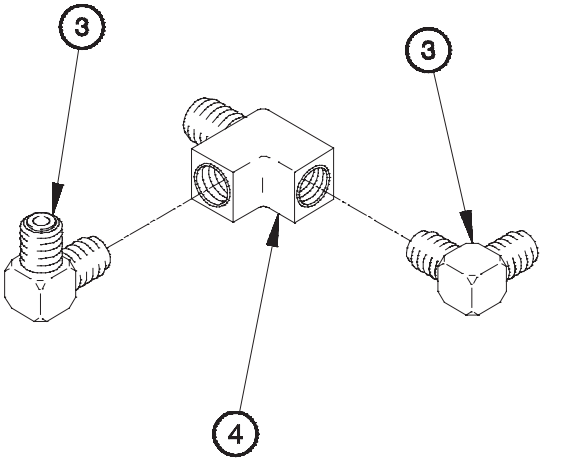
Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure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



XY12I01-

(1) Apply antiseize compound to threads of drain valve (1).

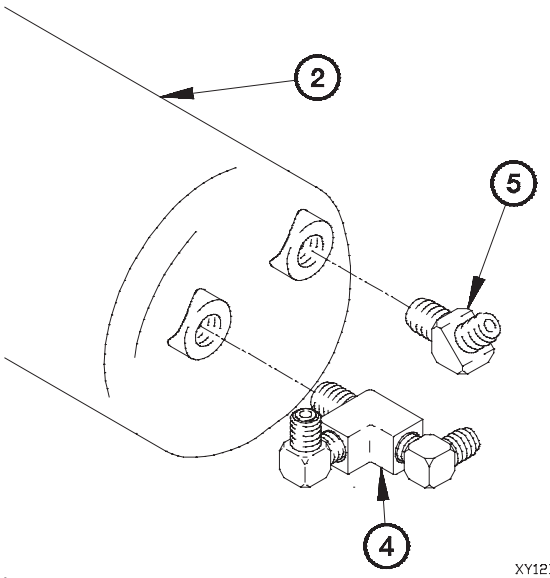
(2) Install drain valve (1) in wet tank (2).



XY12I02B

(3) Apply antiseize compound to threads of two 90-degree fitting (3).

(4) Install two 90-degree fittings (3) on street tee fitting (4).



XY12I03B

(5) Apply antiseize compound to threads of street tee fitting (4).

(6) Install street tee fitting (4) in wet tank (2).

(7) Apply antiseize compound to threads of 45-degree fitting (5).

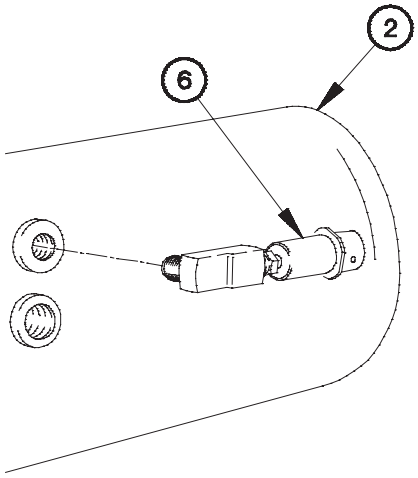
(8) Install 45-degree fitting (5) in wet tank (2).

23-12. WET TANK REPLACEMENT (CONT)

WARNING

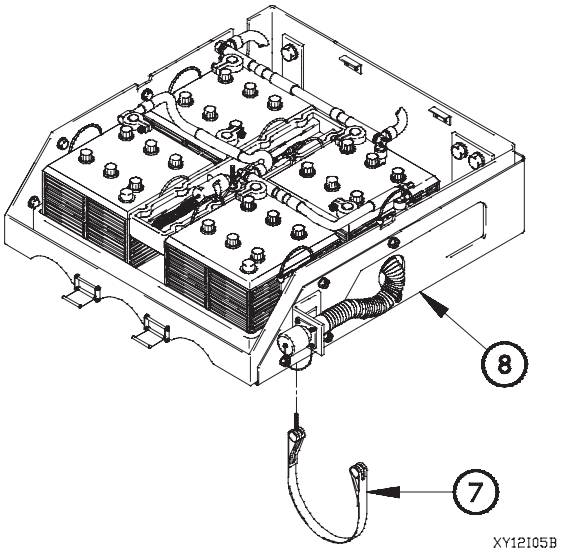
Adhesives, solvents. and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure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

(9) Apply antiseize compound to threads of pressure switch (6).



XY12I04B

(10) Install pressure switch (6) in wet tank (2).

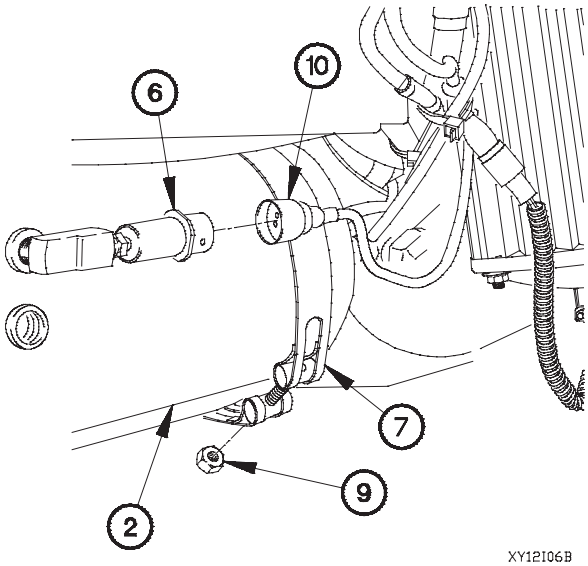


XY12I05B

NOTE

Perform step (11) on vehicles not previously equipped with corrosion enhanced clamps.

(11) Position two clamps (7) on battery box (8).



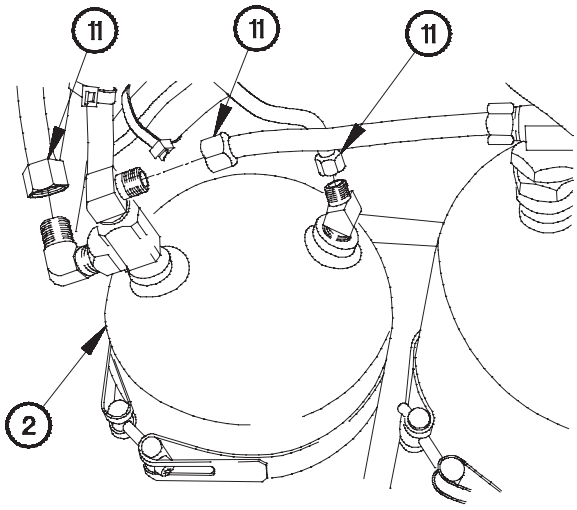
XY12I06B

(12) Position wet tank (2) in two clamps (7) with self-locking nuts (9).

(13) Tighten two self-locking nuts (9) to 4-5 lb-ft. lb-ft (5-7 N·m).

(14) Connect connector P84 (10) to pressure switch (6).

(15) Connect three air hoses (11) to wet tank (2).



c. Follow-on Maintenance.

(1) Install pressure protection valve (para 11-29).

(2) Start engine (TM 9-2320-366-10-1).

(3) Check air hoses and wet tank fittings for leaks.

(4) Shut down engine (TM 9-2320-366-10-1).

End of Task.

23-13. PRESSURE SWITCH REPLACEMENT

This task covers:

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

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-366-10-1).
Air tanks drained (TM 9-2320-366-10-1).

Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)
Goggles, Industrial (Item 15, Appendix C)

Materials/Parts
Dispenser, Pressure Sensitive Adhesive Tape (Item 20, Appendix D)
Antiseize Compound (Item 13, 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.

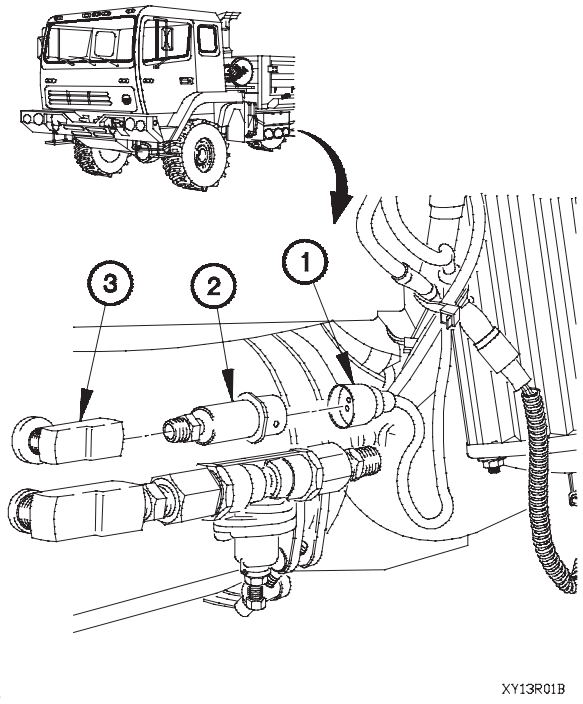
a. Removal.

NOTE

Tag connectors prior to removal.

(1) Disconnect connector P84 (1) from pressure switch (2).

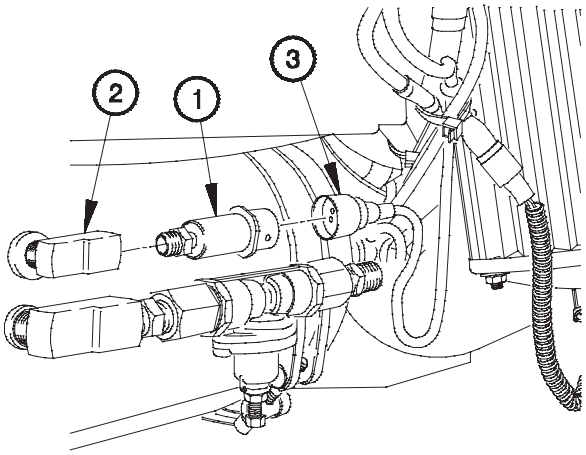
(2) Remove pressure switch (2) from 90-degree fitting (3).



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.



XY13I01B

(1) Apply antiseize compound to threads of pressure switch (1).

(2) Install pressure switch (1) in 90-degree fitting (2).

(3) Connect connector P84 (3) to pressure switch (1).

c. Follow-On Maintenance.

(1) Start engine (TM 9-2320-366-10-1).

(2) Check air pressure switch fitting for air leaks.

(3) Shut down engine (TM 9-2320-366-10-1).

End of Task.

CHAPTER 24
GAGES (NON-ELECTRICAL) MAINTENANCE

RESTRICTED MAINTENANCE NOTICE

Units not authorized SC 4910-95-CL-A72 (SHOP EQUIPMENT, COMMON NO. 2) in their T.O.E. may be unable to perform some of the maintenance tasks described in this chapter. If the required tools are not authorized, the equipment must be submitted to DS Maintenance for repair.

Section I. INTRODUCTION

24-1. INTRODUCTION

This chapter contains maintenance instructions for replacing non-electrical gauges authorized by the Maintenance Allocation Chart (MAC) at the Unit Maintenance level.

Section II. MAINTENANCE PROCEDURES

24-2. AIR FILTER RESTRICTION GAUGE 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).

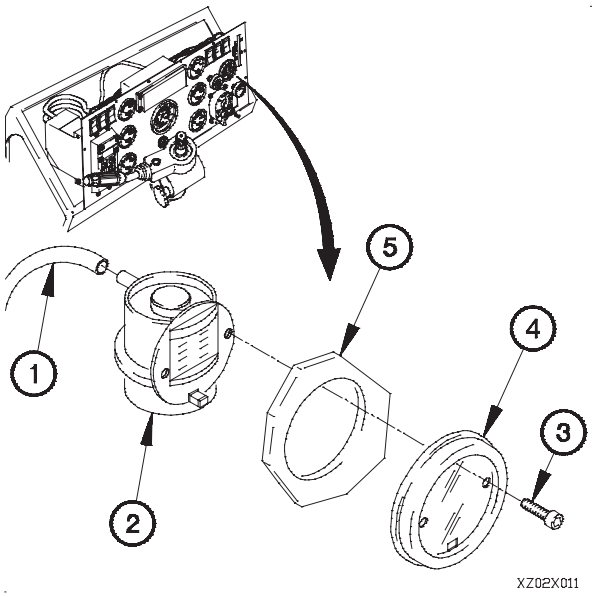
Tools and Special Tools
Tool Kit, Genl Mech (Item 46, Appendix C)

a. Removal.

(1) Disconnect vacuum hose (1) from AIR FILTER RESTRICTION GAUGE (2).

(2) Remove two screws (3) and AIR FILTER RESTRICTION GAUGE faceplate (4) from instrument panel assembly (5).

(3) Remove AIR FILTER RESTRICTION GAUGE (2) from instrument panel assembly (5).



b. Installation.

(1) Position AIR FILTER RESTRICTION GAUGE (2) in instrument panel assembly (5).

(2) Install AIR FILTER RESTRICTION GAUGE faceplate (4) on instrument panel assembly (5) with two screws (3).

(3) Connect vacuum hose (1) to AIR FILTER RESTRICTION GAUGE (2).

c. Follow-On Maintenance.

(1) Install instrument panel assembly (para 7-15).

(2) Start engine (TM 9-2320-366-10-1).

(3) Check operation of AIR FILTER RESTRICTION GAUGE.

(4) Shut down engine (TM 9-2320-366-10-1).

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.

Recommended Changes to DA Publications and Blank Forms . . . . . DA Form 2028-2
Equipment Inspection and Maintenance Worksheet . . . . . DA Form 2404
Maintenance Request . . . . . DA Form 2407
Equipment Control Record . . . . . DA Form 2408-9
Processing and Deprocessing Record of Shipping, Storage, and Issue of Vehicles and Spare Engines . . . . . DD Form 1397
Packaging Improvement Report . . . . . DD Form 6
Report of Item Discrepancy (ROID) . . . . . SF 364
Product Quality Deficiency Report . . . . . SF 368

A-4. OTHER PUBLICATIONS

The following publications contain information pertinent to the MTV 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. MTV.

Direct Support and General Support Maintenance Manual for M1083 Series, 5-Ton, 6x6, Medium Tactical Vehicle (MTV) . . . . . TM 9-2320-366-34
Hand Receipt Covering Contents of Components of End Item (COEI), Basic Issue Items (BII), and Additional Authorization List (AAL), for M1083 Series, 5-Ton, 6x6, Medium Tactical Vehicles (MTV) . . . . . TM 9-2320-366-10-HR
Operator's Manual for M1083 Series, 5-Ton, 6x6, Medium Tactical Vehicle (MTV) . . . . . TM 9-2320-366-10
Unit, Direct Support, and General Support Repair Parts and Special Tools List for M1083 Series, 5-Ton, 6x6, Medium Tactical Vehicle (MTV) . . . . . TM 9-2320-366-24P
Warranty Program for M1083 Series, 5-Ton, 6x6, Medium Tactical Vehicle (MTV) . . . . . TB 9-2300-366-15

c. General Vehicle Operation.

Army Motor Transport Units and Operations . . . . . FM 55-30
Deleted
Manual for the Wheeled Vehicle Driver . . . . . FM 21-305
Petroleum Tank Vehicle Operations . . . . . FM 10-71
Safety Prevention of Motor Vehicle Accidents . . . . . AR 385-557
Vehicle Recovery Operations . . . . . FM 20-22

d. General Maintenance and Repair.

Army Oil 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
Materials Used for Cleaning, Preserving, Abrading, and Cementing Ordnance Materiel and Related Materials Including Chemicals . . . . . TM 9-247
Metal Body Repair and Related Operations . . . . . FM 43-2
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

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 Techniques, Procedures, and Applications . . . . . 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 Decontamination . . . . . FM 3-5
NBC Protection . . . . . FM 3-4

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, 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

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

i. Land, Sea, and Air Shipment.

Airdrop of Supplies and Equipment: Rigging 5-Ton Trucks . . . . . FM 10-526
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

A-4. OTHER PUBLICATIONS (CONT)

i. Land, Sea, and Air Shipment (Cont).

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/FIELD - includes two subcolumns, C (Operator/Crew) and O (Unit) maintenance.

Direct Support/FIELD - includes an F subcolumn.

General Support/SUSTAINMENT - includes an H subcolumn.

Depot/SUSTAINMENT - 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 services[1] including fault location/troubleshooting[2], removal/installation, and disassembly/assembly[3] procedures, and maintenance actions[4] 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.

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[1]Services – Inspect, test, service, adjust, align calibrate, and/or replace.

[2]Fault 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).

[3]Disassembly/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).

[4]Actions - 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/Field maintenance
F .....Direct Support/Field maintenance
L ..... Specialized Repair Activity (SRA)[5]
H ..... General Support/Sustainment maintenance
D .....Depot/Sustainment 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 MTV VEHICLE

(1)	(2)	(3)	(4) Maintenance Level					(5)	(6)
			FIELD			SUSTAINMENT			
			Unit		Direct Support	General Support	Depot		
Group Number	Component/Assembly	Maintenance Function	C	O	F	H	D	Tools and Equipment Ref Code	Remarks Code
0100	ENGINE ASSEMBLY	Inspect		0.1				80	
		Test		1.5	0.3			80,81	
		Adjust			3.0			58,62,80,82	
		Service		0.8				59,61,80	
		Replace			7.0			19,58,61,63,80,81	
		Repair		0.4	1.6	3.3		19,35,36,46,58,61,62,63,80,81	
0101	CYLINDER HEAD ASSEMBLY	Inspect			0.1			80	
		Replace			2.0			46,58,61,62,80	
		Repair				2.5		58,61,62,63,64,80,83	
0102	CRANKSHAFT	Replace				16.0		58,59,62,73,80	
		Repair			3.8	16.0		19,35,36,58,61,62,63,80	
0103	FLEXPLATE, ENGINE	Replace			6.5			58,61,80	
		Repair			1.0			58,61,80	
0104	PISTON ASSEMBLY	Replace				9.0		58,59,61,62,64,80,81	
		Repair				0.6		80	
0105	CAMSHAFT ASSEMBLY	Replace				3.1		17,58,59,61,62,80	
		Repair				1.2		58,80	
0105	ROCKER ARM AND PUSH RODS	Replace			2.0			46,61,62,63,80	
		Repair			0.3			59,80	
0106	COOLER, ENGINE OIL	Replace			1.3			58,80	
		Repair			0.3			58,80	
0108	MANIFOLDS, INLET AND EXHAUST	Replace			1.5			58,62,63,80,81	
0301	INJECTOR ASSEMBLY, FUEL	Replace			2.1			46,59,80,82	
		Adjust			1.6			58,80,81,82	
0304	AIR INTAKE SYSTEM	Service		0.3					
		Repair		0.3				48,59,	

Section II. MAINTENANCE ALLOCATION CHART FOR THE MTV VEHICLE

(1)	(2)	(3)	(4) Maintenance Level					(5)	(6)
			FIELD			SUSTAINMENT			
Group Number	Component/Assembly	Maintenance Function	Unit		Direct Support	General Support	Depot	Tools and Equipment Ref Code	Remarks Code
			C	O	F	H	D		
0304	INTAKE AIR CLEANER	Service		0.2					
		Replace		0.8				6,48,59, 80	
		Repair		0.4				59,80	
0305	TURBOCHARGER	Replace			0.8			58,63,80,81	
0306	FUEL TANK	Inspect	0.1						
		Replace		1.5				59,61,80	
0308	GOVERNOR, ENGINE SPEED	Replace			1.0			59,62,78,80 ,81	
		Repair		0.5	0.7			59,80	
0309	FILTER, FUEL/WATER SEPARATOR	Inspect	0.2						
		Service	0.2	0.3				80	
		Replace		0.5				59,80	
0311	ETHER STARTING AID	Replace		0.6				59,61,80	
0312	ACCELERATOR/HAND THROTTLE	Replace		0.5				59,80	
		Adjust		0.2				59,80	
0401	EXHAUST MUFFLER/PIPES	Inspect	0.1	0.2					
		Replace		0.9				59,61,80	
0501	RADIATOR/CHARGE AIR COOLER	Inspect	0.1						
		Replace		2.5				2,31,55, 61,80	
		Service		1.5				61,80	
		Repair		0.6	2.0			2,31,55, 61,80	
0501	RADIATOR OVERFLOW TANK	Replace		0.5				48,59,80	
		Repair		0.3				80	
0502	SHROUD, FAN	Replace		1.0				59,61,80,90	
0503	HOSES, WATER	Replace		0.5				59,61,80,90	
0504	PUMP, WATER	Replace		0.8				18,59,61,80 ,90	
0505	CLUTCH, ENGINE FAN	Inspect		1.0				59	
		Replace		1.5				2,55,59, 80	
		Repair			1.2			58,61,62,63 ,80,81	

Section II. MAINTENANCE ALLOCATION CHART FOR THE MTV VEHICLE

(1)	(2)	(3)	(4) Maintenance Level					(5)	(6)
			FIELD			SUSTAINMENT			
			Unit		Direct Support	General Support	Depot		
Group Number	Component/Assembly	Maintenance Function	C	O	F	H	D	Tools and Equipment Ref Code	Remarks Code
0601	ALTERNATOR, 100 AMP	Inspect		0.2					
		Test		0.5	1.5			61,65,80	
		Replace		1.0				61,80	
		Repair		0.2	0.5			40,58,59,61 ,65,80,81	
0603	STARTING MOTOR, ENGINE	Inspect		0.1					
		Test		0.5	0.5			59,65	
		Replace		1.5				2,8,59, 61,80	
		Repair			2.1			54,58,61,62 ,78,80	
0606	SOLENOID, FUEL SHUTOFF	Replace			1.0			62,80,82	
0607	CABLE ASSEMBLY, DASHBOARD	Test		0.5				58	
		Replace		2.9				59,61,78,80	
		Repair		1.0	0.6			58,59,63,80	
0607	DISPLAY, LIGHTED INDICATOR	Test		0.3					
		Replace		0.5				80,90	
		Repair		0.3				80	
0608	JUNCTION BOX ASSEMBLY, M1084/M1086	Inspect	0.1						
		Replace		1.5				59,61,80,90	
		Repair		1.5				59,61,65,80	
0608	JUNCTION BOX ASSEMBLY, M1089	Inspect	0.1						
		Replace		1.5				59,61,80,90	
		Repair		1.5				59,61,65,80	
0609	LIGHT ASSEMBLY, BACKUP	Inspect	0.1						
		Replace		0.8				59,80	
		Repair		0.3				80	
0609	LIGHT, BLACKOUT DRIVE	Inspect	0.1						
		Replace		0.8				59,61,80	
		Repair		0.5				80	
		Replace		0.8				59,61,80	

Section II. MAINTENANCE ALLOCATION CHART FOR THE MTV VEHICLE

(1)	(2)	(3)	(4) Maintenance Level					(5)	(6)
			FIELD			SUSTAINMENT			
			Unit		Direct Support	General Support	Depot		
Group Number	Component/Assembly	Maintenance Function	C	O	F	H	D	Tools and Equipment Ref Code	Remarks Code
0609	TAILLIGHT ASSEMBLY, COMPOSITE	Inspect	0.1						
		Repair		0.5				80	
0609	LIGHT ASSEMBLY, FRONT TURN SIGNAL AND PARK	Inspect	0.1						
		Replace		0.8				59,61,80	
		Repair		0.5				80	
0609	HEADLIGHT	Inspect	0.1						
		Adjust		0.4					
		Replace		1.0				59,61,80	
0609	WORKLIGHT ASSEMBLY, M1088/M1089 STATIONARY	Inspect	0.1						
		Replace		0.8				80	
		Repair		0.3				80	
0610	AUDIBLE ALARM	Inspect	0.1						
		Replace		0.6				80	
0611	HORN, CAB	Inspect	0.1						
		Replace		0.4				59,80	
0612	BOX ASSEMBLY, BATTERY	Inspect	0.1						
		Test		0.5				59,80	
		Service		0.3				59	A
		Replace		1.0				59,61,80	
		Repair		0.2				65	
0613	CABLE ASSEMBLY, LH/RH CAB AND DOOR MARKER LIGHTS	Inspect	0.1						
		Replace		0.8				80	
		Repair		0.7				65	
0613	CABLE ASSEMBLY, LOWER, CAB MARKER LIGHTS, M1093/M1094	Inspect	0.1						
		Replace		0.6				80,90	
		Repair		0.5				65	
0613	CABLE ASSEMBLY, UPPER, CAB CLEARANCE AND MARKER LIGHTS, M1093/M1094	Inspect	0.1						
		Replace		0.8				80,90	
		Repair		0.5				65	

Section II. MAINTENANCE ALLOCATION CHART FOR THE MTV VEHICLE

(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Level					(5) Tools and Equipment Ref Code	(6) Remarks Code
			FIELD			SUSTAINMENT			
			Unit		Direct Support	General Support	Depot		
			C	O	F	H	D		
0613	CABLE ASSEMBLY, STE/ICE-R	Replace		1.0				80	
		Repair		0.5	0.8			65	
0613	CABLE ASSEMBLY, CAB CLEARANCE AND MARKER LIGHTS	Inspect	0.1						
		Replace		1.2				59,80	
		Repair		0.5	0.8			65	
0613	CABLE ASSEMBLY, WARNING LIGHT	Replace		0.5				50,80,90	
		Repair		0.3	0.5			65	
0613	CABLE ASSEMBLY, WINDSHIELD WASHER PUMP/EMI	Replace		0.5				80	
		Repair		0.3				65	
		Repair		0.5	0.5			65	
0613	CABLE ASSEMBLY, CRANE POWER	Inspect	0.1						
		Replace		1.2				80	
		Repair		0.5	0.5			65	
0613	BOX ASSEMBLY, CRANE REMOTE CONTROL	Test		0.5					
		Repair		0.7				80,90	
0613	CABLE ASSEMBLY, ENGINE CONTROL	Inspect	0.1						
		Replace		2.3				59,80	
		Repair		0.5	0.5			65	
0613	CABLE ASSEMBLY, FRONT INTERVEHICULAR, 12 VDC	Replace		0.8				61,80	
0613	CABLE ASSEMBLY, FRONT LIGHTS	Replace		2.0				59,61,80,90	
		Repair		0.5	0.5			65	
0613	CABLE ASSEMBLY, REAR LIGHTS	Replace		2.8				59,61,80	
		Repair		0.5	0.5			65	
0613	CABLE, M1084/M1086 BOOM DOWN LOCKOUT SOLENOID	Replace		2.0				59,80	
		Repair		0.5	0.8			65	
0613									

Section II. MAINTENANCE ALLOCATION CHART FOR THE MTV VEHICLE

(1)	(2)	(3)	(4) Maintenance Level					(5)	(6)
			FIELD			SUSTAINMENT			
			Unit		Direct Support	General Support	Depot		
Group Number	Component/Assembly	Maintenance Function	C	O	F	H	D	Tools and Equipment Ref Code	Remarks Code
	BOOM DOWN SOLENOID								
		Repair		0.5	0.8			65	
0613	CABLE, M1084/M1086 BOOM UP LOCKOUT SOLENOID	Replace		2.0				59,80	
		Repair		0.5	0.8			65	
0613	CABLE, M1084/M1086 BOOM UP SOLENOID	Replace		2.0				59,80	
		Repair		0.5	0.8			65	
0613	CABLE, M1084/M1086 CONTROL LOCKOUT SOLENOID	Replace		2.0				59,80	
		Repair		0.5	0.8			65	
0613	CABLE, M1084/M1086 CRANE POWER	Replace		2.0				59,80	
		Repair		0.5	0.8			65	
0613	CABLE, M1084/M1086 HOIST DOWN SOLENOID	Replace		2.0				59,80	
		Repair		0.5	0.8			65	
0613	CABLE, M1084/M1086 HOIST UP LOCKOUT SOLENOID	Replace		2.0				59,80	
		Repair		0.5	0.8			65	
0613	CABLE, M1084/M1086 HOIST UP SOLENOID	Replace		2.0				59,80	
		Repair		0.5	0.8			65	
0613	CABLE, M1084/M1086 LEFT JACK CYLINDER PROXIMITY SENSOR	Replace		1.0				59,80	
		Repair		0.5	0.8			65	
0613	CABLE, M1084/M1086 OVERLOAD LOCKOUT	Replace		2.0				59,80	
		Repair		0.5	0.8			65	
0613	CABLE, M1084/M1086 REMOTE CONTROL	Replace		2.0				59,80	
		Repair		0.5	0.8			65	
0613	CABLE, M1084/M1086 SWING CCW SOLENOID	Replace		2.0				59,80	
0613	CABLE, M1084/M1086 SWING CW SOLENOID	Replace		2.0				59,80	
		Repair		0.5	0.8			65	
0613	CABLE, M1084/M1086 SYSTEM SHUTDOWN SOLENOID	Replace		2.0				59,80	
		Repair		0.5	0.8			65	

Section II. MAINTENANCE ALLOCATION CHART FOR THE MTV VEHICLE

(1)	(2)	(3)	(4) Maintenance Level					(5)	(6)
			FIELD			SUSTAINMENT			
			Unit		Direct Support	General Support	Depot		
Group Number	Component/Assembly	Maintenance Function	C	O	F	H	D	Tools and Equipment Ref Code	Remarks Code
0613	CABLE, M1084/M1086 TELESCOPE IN SOLENOID	Replace		2.0				59,80	
		Repair		0.5	0.8			65	
0613	CABLE, M1084/M1086 TELESCOPE OUT LOCKOUT SOLENOID	Replace		2.0				59,80	
		Repair		0.5	0.8			65	
0613	CABLE, M1084/M1086 TELESCOPE OUT SOLENOID	Replace		2.0				59,80	
		Repair		0.5	0.8			65	
0613	CABLE, M1089 BOOM DOWN LOCKOUT SOLENOID	Replace		2.0				59,80	
		Repair		0.5	0.8			65	
0613	CABLE, M1089 BOOM DOWN SOLENOID	Replace		2.0				59,80	
		Repair		0.5	0.8			65	
0613	CABLE, M1089 BOOM UP LOCKOUT SOLENOID	Replace		2.0				59,80	
		Repair		0.5	0.8			65	
0613	CABLE, M1089 BOOM UP SOLENOID	Replace		2.0				59,80	
		Repair		0.5	0.8			65	
0613	CABLE ASSEMBLY, M1089 CONTROL PANEL POWER	Replace		2.0				80	
		Repair		0.5	0.8			65	
0613	CABLE, M1089 CRANE POWER	Replace		2.0				59,80	
		Repair		0.5	0.8			65	
0613	CABLE, M1089 HOIST DOWN SOLENOID	Replace		2.0				59,80	
		Repair		0.5	0.8			65	
0613	CABLE, M1089 HOIST UP LOCKOUT SOLENOID	Replace		2.0				59,80	
		Repair		0.5	0.8			65	
0613	CABLE, M1089 HOIST UP SOLENOID	Replace		2.0				59,80	
		Repair		0.5	0.8			65	
0613	CABLE, M1089 HYDRAULIC SYSTEM SOLENOID	Replace		2.0				59,80	
		Repair		0.5	0.8			65	
0613	CABLE, M1089 LEFT SIDE REMOTE CONTROL	Replace		2.0				59,80	

Section II. MAINTENANCE ALLOCATION CHART FOR THE MTV VEHICLE

(1)	(2)	(3)	(4) Maintenance Level					(5)	(6)
			FIELD			SUSTAINMENT			
			Unit		Direct Support	General Support	Depot		
Group Number	Component/Assembly	Maintenance Function	C	O	F	H	D	Tools and Equipment Ref Code	Remarks Code
		Repair		0.5	0.8			65	
0613	CABLE, M1089 OVERLOAD LOCKOUT	Replace		2.0				59,80	
		Repair		0.5	0.8			65	
0613	WIRING HARNESS, M1089 REMOTE CONTROL	Replace		2.0				80	
		Repair		0.5	0.8			65	
0613	CABLE, M1089 RIGHT SIDE REMOTE CONTROL	Replace		2.0				59,80	
		Repair		0.5	0.8			65	
0613	CABLE, M1089 SWING CCW SOLENOID	Replace		2.0				59,80	
		Repair		0.5	0.8			65	
0613	CABLE, M1089 SWING CW SOLENOID	Replace		2.0				59,80	
		Repair		0.5	0.8			65	
0613	CABLE, M1089 TELESCOPE IN SOLENOID	Replace		2.0				59,80	
		Repair		0.5	0.8			65	
0613	CABLE, M1089 TELESCOPE OUT LOCKOUT SOLENOID	Replace		2.0				59,80	
		Repair		0.5	0.8			65	
0613	CABLE, M1089 TELESCOPE OUT SOLENOID	Replace		2.0				59,80	
		Repair		0.5	0.8			65	
0613	BOX ASSEMBLY, WRECKER REMOTE CONTROL	Repair		1.6				59,80	
0613	CABLE ASSEMBLY, M1090/M1094 DUMP	Replace		0.8				59,61,80	
		Repair		0.5	0.8			65	
0613	CABLE ASSEMBLY, M1090/M1094 DUMP POWER	Replace		1.2				59,61,80	
		Repair		0.5	0.8			65	
0613	CABLE ASSEMBLY, PTO	Replace		1.6				59,61,80	
		Repair		0.5	0.8			65	
0613	CABLE ASSEMBLY, REAR INTERVEHICULAR, 24 VDC	Replace		0.6				61,80	
		Repair		0.5	0.8			65	
0613	CABLE ASSEMBLY, START AND CHARGING	Replace		2.0				59,80	
		Repair		0.5	0.8			65	

Section II. MAINTENANCE ALLOCATION CHART FOR THE MTV VEHICLE

(1)	(2)	(3)	(4) Maintenance Level					(5)	(6)
			FIELD			SUSTAINMENT			
			Unit		Direct Support	General Support	Depot		
Group Number	Component/Assembly	Maintenance Function	C	O	F	H	D	Tools and Equipment Ref Code	Remarks Code
0613	CABLE ASSEMBLY, WINCH CONTROL VALVE	Replace		1.8				59,61,80	
		Repair		0.5	0.8			65	
0613	CABLE ASSEMBLY, TRANSMISSION AUXILIARY OIL COOLER FAN	Replace		1.8				59,61,80	
		Repair		0.5				65	
0705	VEHICLE INTERFACE MODULE	Replace		0.6				80	
		Repair		0.8				80	
0708	TORQUE CONVERTER	Adjust			0.9			22,61,62,80	
		Remove/ Install			0.8			48,61,62,64 ,80	
		Repair			1.3			34,58,61,62 ,64,80	
0710	TRANSMISSION	Inspect		0.4				80	
		Service		1.5				59,61,80	
		Replace			7.0			58,61,62,63 ,80,81,87	
		Repair		0.4	2.7	1.9		3,22,23, 28,29,31,43 ,58,59,61,6 2,63,80,81, 87	
0710	MODULE, FRONT SUPPORT	Remove/ Install				2.0		58,59,61,62 ,63,80	
		Repair				0.7			
0710	MODULE, PLANETARY GEAR (P1)	Remove/ Install				2.0		61,62,73,80	
		Repair				1.5		61,62,73,80	
0710	MODULE, PLANETARY (P2)	Remove/ Install				2.0		3,58,61, 62,63,80	
		Repair				1.9		3,23,58, 61,62,63,73 ,80	
0710	PLANETARY CARRIER (P3)	Remove/ Install				2.0		3,58,62, 80	
		Repair				1.9		3,31,58, 62,80	
0710	MODULE, MAIN SHAFT	Remove/ Install				2.0		61,62,80	
		Repair				0.4		61,62,80	

Section II. MAINTENANCE ALLOCATION CHART FOR THE MTV VEHICLE

(1)	(2)	(3)	(4) Maintenance Level					(5)	(6)
			FIELD			SUSTAINMENT			
			Unit		Direct Support	General Support	Depot		
Group Number	Component/Assembly	Maintenance Function	C	O	F	H	D	Tools and Equipment Ref Code	Remarks Code
0710	MODULE, CONVERTER HOUSING	Remove/ Install				4.3		3,58,59, 61,62,80	
		Repair				2.0		3,23,29, 58,59,61,62 ,80	
0713	CLUTCH ASSEMBLY, C3/C4/C5, TRANSMISSION	Remove/ Install				2.0		58,59,61,62 ,80	
		Repair				1.0		43,58,59,61 ,62,80	
0713	MODULE, ROTATING CLUTCH	Remove/ Install				2.0		3,58,61, 62,80	
		Repair				2.4		3,23,28, 58,61,62, 80	
0714	VALVE ASSEMBLY, CONTROL MODULE	Remove/ Install			2.0			58,61,62,63 ,80,81	
		Repair		1.0	2.5			61,63,80,81	
0714	BODY ASSEMBLY, MAIN VALVE	Service		1.5				59,61,80	
		Remove/ Install			2.0			58,61,62,63 ,80,81	
		Repair		1.5	2.5			58,61,62,63 ,80,81	
0801	MODULE, TRANSFER CASE	Adjust				1.0			
		Remove/ Install				2.0		25,58,59,61 ,62,63,73,7 6,80,81	
		Repair				1.1		27,31,37,52 ,58,59,62,8 0	
0802	HOUSING ASSEMBLY, C6 AND C7 CLUTCH	Remove/ Install				2.0		58,61,62,63 ,80	
		Repair				0.8		23,27,30,31 ,32,33,58,6 1,62,63,64, 73,80	
0802	CONTROL VALVE ASSEMBLY	Remove/ Install				2.0		58,61,63,80 ,81	
		Repair				1.0		58,61,63,80 ,81	
0804	PUMP ASSEMBLY, OIL	Replace				1.0		81	
		Repair				0.8		81	
0900	PROPELLER SHAFT	Inspect		0.1					

Section II. MAINTENANCE ALLOCATION CHART FOR THE MTV VEHICLE

(1)	(2)	(3)	(4) Maintenance Level					(5)	(6)
			FIELD			SUSTAINMENT			
			Unit		Direct Support	General Support	Depot		
Group Number	Component/Assembly	Maintenance Function	C	O	F	H	D	Tools and Equipment Ref Code	Remarks Code
		Service		0.5				61	
		Repair		0.6				59,61,80	
		Replace		0.5				59,61,80	
1000	AXLE ASSEMBLY, FRONT	Inspect	0.1	0.3	0.7			80	
		Adjust			1.0			59,81	
		Service		0.5				61,80	
		Replace			4.5			58,59,61, 62,63,72, 80	
		Repair		2.3	2.2	6.0		58,59,61, 62,63,80	
1002	CARRIER ASSEMBLY DIFFERENTIAL	Inspect		0.1	0.1	0.1		80,81	
		Service			0.3			80	
		Replace				4.6		25,58,59, 61,62,80, 81	
		Repair				2.7		58,59,61, 62,80,81	
1004	STEERING KNUCKLE, AXLE	Inspect			0.2				
		Adjust			2.5			81	
		Service			0.3			81	
		Replace			5.1			58,59,61,62 ,73,80	
1100	AXLE ASSEMBLY, INTERMEDIATE	Inspect	0.1	0.4	0.7				
		Service		0.8				59,61,80	
		Replace			4.5			58,59,61,62 ,63,80,87	
		Repair			1.6	6.0		25,58,59,61 ,62,69,80	
1100	AXLE ASSEMBLY, REAR	Inspect	0.1	0.4	0.7				
		Service		0.8				59,61,80	
		Replace			4.5			38,58,59,61 ,62,80,87	
		Repair			0.9	6.0		25,58,59,61 ,62,80,87,8 8	

Section II. MAINTENANCE ALLOCATION CHART FOR THE MTV VEHICLE

(1)	(2)	(3)	(4) Maintenance Level					(5)	(6)
			FIELD			SUSTAINMENT			
			Unit		Direct Support	General Support	Depot		
Group Number	Component/Assembly	Maintenance Function	C	O	F	H	D	Tools and Equipment Ref	Remarks Code
1102	CARRIER ASSEMBLY DIFFERENTIAL INTERMEDIATE AXLE	Inspect		0.1	0.1	0.1		80,81	
		Service			0.3			80	
		Replace				4.6		25,58,59,61,62,69,80	
		Repair				2.7		25,58,59,61,62,63,69,75,80	
1102	CARRIER ASSEMBLY DIFFERENTIAL, REAR AXLE	Inspect		0.1	0.1	0.1		80,81	
		Service			0.3			80	
		Replace				4.6		25,58,59,61,62,80,81,88	
		Repair				2.7		25,39,58,59,61,62,73,75,80	
1202	BRAKE ASSEMBLY, FRONT AXLE	Inspect		0.1	1.0			61,80,81	
		Adjust		0.4				59,61,80	
		Repair		1.5	0.5			59,61,80,85	
1202	BRAKE ASSEMBLY, INTERMEDIATE AND REAR AXLE	Inspect		0.1	1.0			61,80,81	
		Adjust		0.4				59,61,80	
		Repair		1.5	0.5			59,61,80,85	
1208	AIR DRYER, BRAKE SYSTEM	Replace		0.5				59,61,80	
		Repair		1.0				59,61,80	
1209	AIR COMPRESSOR	Adjust		0.6				61,80	
		Replace			1.2			58,62,63,80,81	
1311	WHEEL ASSEMBLY, PNEUMATIC TIRE	Inspect	0.1					59	B
		Replace	1.0	1.2				59,61	
		Repair		2.0				59,61	
1313	TIRE, PNEUMATIC	Replace		2.0				59,61	
1401	STEERING SYSTEM	Inspect		0.2					
		Adjust			1.0			58,62,80	

Section II. MAINTENANCE ALLOCATION CHART FOR THE MTV VEHICLE

(1)	(2)	(3)	(4) Maintenance Level					(5)	(6)
			FIELD			SUSTAINMENT			
			Unit		Direct Support	General Support	Depot		
Group Number	Component/Assembly	Maintenance Function	C	O	F	H	D	Tools and Equipment Ref	Remarks Code
		Repair		1.0	1.5			56,58,59,61,62,63,80,81	
1407	STEERING GEAR ASSEMBLY	Replace			4.0			58,62,80	
1410	PUMP, POWER STEERING	Replace			1.5			49,58,61,62,80	
1411	HOSES, POWER STEERING	Replace		0.3				59,61,80,90	
1413	HYDRAULIC RESERVOIR, POWER STEERING	Service	0.1	0.5				80	
		Replace		0.8				61,80,90	
1501	FRAME ASSEMBLY	Inspect	0.1	0.3					
		Repair		0.8	14.0			58,59,61,62,63,80,81	
1501	BOOM REST ASSEMBLY, CRANE	Inspect	0.1						
		Replace			2.0			58,59,61,62,80,81,87	
		Repair			0.7			58,59,61,62,80,81,87	
1504	RETAINER, SPARE TIRE	Inspect	0.1	0.1					
		Replace		3.0				59,61,80	
		Repair		0.6				59,61,80	
1506	FIFTH WHEEL ASSEMBLY	Inspect	0.1						
		Service		0.5				21,80	
		Replace			4.0			58,61,62,80,81	
		Repair			2.5			21,58,61,62,66,80,81	
1601	LEAF SPRING ASSEMBLIES	Inspect	0.1	0.2					
		Service		0.3				59	
		Replace			2.7			58,59,61,62,80,81	
1604	SHOCK ABSORBERS	Inspect	0.1	0.3					
		Replace		0.5				59,61,80	
1605	STABILIZER BAR, REAR	Inspect		0.2					
		Replace		2.0				59,61,70,80	
		Repair		1.5				59,80	
1801	CAB BODY, STANDARD	Inspect	0.1						

Section II. MAINTENANCE ALLOCATION CHART FOR THE MTV VEHICLE

(1)	(2)	(3)	(4) Maintenance Level					(5)	(6)
			FIELD			SUSTAINMENT			
			Unit		Direct Support	General Support	Depot		
Group Number	Component/Assembly	Maintenance Function	C	O	F	H	D	Tools and Equipment Ref	Remarks Code
		Replace			60.0			58,59,62,63,80,81	
		Repair		0.6				59,61,80	
1801	CAB BODY, AIR DROP	Inspect	0.1						
		Replace			60.0			58,59,62,63,80,81	
		Repair		0.6				59,61,80	
1801	CAB DOORS, STANDARD	Inspect	0.1						
		Replace			1.0			57,61,80	
		Repair		2.7				51,59,80	
1801	CAB DOORS, AIR DROP	Inspect	0.1						
		Replace			1.0			57,61,80	
		Repair		2.7				51,59,80	
1801	SUPPORT ASSEMBLY, CAB FRONT	Inspect	0.1						
		Repair		1.1				59,61,80	
		Replace			3.0			7,15,59, 61,62,80, 81	
1801	SUPPORT ASSEMBLY, CAB REAR	Inspect	0.1						
		Replace		1.0				59,61,80	
		Repair		0.8				59,80	
1802	WINDSHIELD	Replace			0.6			57,61,80	
1802	FENDER, VEHICULAR, FRONT	Inspect	0.1						
		Replace		2.0				59,61,80	
		Repair		0.5				59,80	
1803	ROOF, CAB, M1093/M1094	Replace		1.0				47,52,59,61,80	
1805	STEP ASSEMBLY, CAB	Replace		1.0				59,80	
		Repair		0.7				59,80	
1808	TOOL BOX ASSEMBLY	Inspect	0.1						
		Replace		0.5				49,59,61,80	
		Repair		0.5				59,61,80	
1808	STOWAGE BOX, CAB	Replace		0.8				59,80	
		Repair		0.5				59,80	
1810	BODY, CARGO, (W/MHC, LWB AND LWB W/MHC)	inspect	0.1						
		Replace			4.0			58,59,61,62,80	

Section II. MAINTENANCE ALLOCATION CHART FOR THE MTV VEHICLE

(1)	(2)	(3)	(4) Maintenance Level					(5)	(6)
			FIELD			SUSTAINMENT			
			Unit		Direct Support	General Support	Depot		
Group Number	Component/Assembly	Maintenance Function	C	O	F	H	D	Tools and Equipment Ref Code	Remarks Code
								80	
		Repair		0.5				59,61,80	
1810	DUMP BODY ASSEMBLY	Inspect	0.1						
		Repair		0.5	4.0			58,59,61, 62,80	
1810	DUMP HYDRAULIC CYLINDER	Inspect	0.1						
		Replace			1.0			59,62,80	
		Repair				2.5		59,61,62,80 ,89	
1810	DUMP TAILGATE ASSEMBLY	Inspect	0.1						
		Replace		1.5				80	
		Repair		0.8				80	
1812	BOX ASSEMBLY, TOOL, M1089	Inspect	0.1						
		Remove/ Install		1.0				59,61,80	
		Repair		0.8				59,61,80	
2001	UNDERLIFT ASSEMBLY, M1089	Inspect	0.1						
		Test		0.5	0.1				
		Service		0.5				61	
		Replace			6.0			58,59,61,62 ,80,87	
		Repair			1.0			54,58,59,61 ,62,80,81,8 6,87	
2001	CROSSBAR ASSEMBLY, M1089	Inspect			0.1				
		Replace			0.5			58,59,61,62 ,80,81,86	
		Repair			1.0			58,59,61,62 ,81,86	
2001	LOWER ARM, UNDERLIFT	Inspect			0.1				
		Replace			2.0			58,59,61,62 ,80,87	
		Repair			0.5			58,59,61,62 ,80,87	
2001	CYLINDER, TELESCOPIC LIFT	Replace			1.5			59,61,80	
		Repair				1.0		61,62,63,80	
2001	STIFFLEG ASSEMBLY	Inspect			0.1				

Section II. MAINTENANCE ALLOCATION CHART FOR THE MTV VEHICLE

(1)	(2)	(3)	(4) Maintenance Level					(5)	(6)
			FIELD			SUSTAINMENT			
			Unit		Direct Support	General Support	Depot		
Group Number	Component/Assembly	Maintenance Function	C	O	F	H	D	Tools and Equipment Ref Code	Remarks Code
		Replace			2.0			59,61,62,80,87	
2001	BOOM FRAME, FOLDING, UNDERLIFT	Inspect			0.1				
		Repair			2.5			61,80	
2001	ARM ASSEMBLY, UPPER, UNDERLIFT	Repair			2.5			58,59,61,62,80	
2001	CYLINDER, UNDERLIFT FOLD	Replace			0.5			59,61,80,87	
		Repair				0.5		59,61,62,63,80	
2001	CYLINDER, UNDERLIFT STINGER	Replace			0.5			59,61,62,80,87	
		Repair				0.5		58,61,62,63,68,80,81	
2001	WINCH, 15K SELF-RECOVERY	Inspect	0.1	4.0					
		Service		0.2				61	
		Replace			1.0			61,62,80	
		Repair			0.9			61,62,80	
2001	MOTOR, HYDRAULIC, SELF-RECOVERY WINCH	Replace			0.5			59,80	
2001	MATERIAL HANDLING CRANE (MHC), M1089	Inspect	0.1	0.5				80	
		Test	0.2		0.3			59	
		Service		0.5				61	
		Replace			6.0			59,61,62,80,87	
		Repair		0.5				9,58,59,61,62,80	
2001	CYLINDER, LIFT, M1089 MHC	Inspect	0.1						
		Test			0.2			61	
		Replace			4.0			58,62,80	
		Repair				2.0		59,61,62,63,80	
2001	CYLINDER, ERECTION, M1089 MHC	Inspect	0.1						
		Test			0.2			61	
		Replace			4.0			58,62,80	
		Repair				2.0		59,61,62,63,80,81	
2001	HOIST ASSEMBLY, M1089 MHC	Inspect	0.1						

Section II. MAINTENANCE ALLOCATION CHART FOR THE MTV VEHICLE

(1)	(2)	(3)	(4) Maintenance Level					(5)	(6)
			FIELD			SUSTAINMENT			
			Unit		Direct Support	General Support	Depot		
Group Number	Component/Assembly	Maintenance Function	C	O	F	H	D	Tools and Equipment Ref Code	Remarks Code
		Test			0.2			61	
		Replace			6.0			61,62,80	
		Repair			3.0			59,61,62,80	
2001	HYDRAULIC MOTOR, HOIST, M1089 MHC	Inspect	0.1						
		Test			0.1			59,65	
		Replace			2.0			59,80	
		Repair				4.2		58,59,61,62,63,80	
2001	GEAR SET, M1089 MHC	Inspect		0.2					
		Test			0.2			61	
		Repair			1.7			61,62,80	
2001	BOOM ASSEMBLY, M1089 MHC	Inspect	0.1						
		Test			0.2				
		Replace			8.0			58,62,80	
		Repair			2.0			58,61,62,80	
2001	CYLINDER, TELESCOPIC, BOOM, M1089 MHC	Inspect	0.1						
		Test			0.2			61	
		Replace			6.0			58,61,62,80	
		Repair				2.0		59,61,62,80	
2001	SWING DRIVE ASSEMBLY, M1089 MHC	Inspect	0.1	0.5					
		Test			0.2			61	
		Service		0.3					
		Replace			4.0			59,61,62,80	
		Repair			4.0			59,61,62,80	
2001	MOTOR, ORBIT, HYDRAULIC, M1089 MHC	Inspect	0.1						
		Test			0.2				
		Replace			1.0			59,61,62,80	
		Repair				3.0		59,61,62,63,80,81	

Section II. MAINTENANCE ALLOCATION CHART FOR THE MTV VEHICLE

(1)	(2)	(3)	(4) Maintenance Level					(5)	(6)
			FIELD			SUSTAINMENT			
			Unit		Direct Support	General Support	Depot		
Group Number	Component/Assembly	Maintenance Function	C	O	F	H	D	Tools and Equipment Ref Code	Remarks Code
2001	CYLINDER ASSEMBLY, EXTENSION, OUTRIGGER, M1089 MHC	Inspect	0.1						
		Test			0.2			61	
		Replace			3.0			80	
		Repair				5.0		61,62,80	
2001	CYLINDER ASSEMBLY, JACK, M1089 MHC	Inspect	0.1						
		Test			0.2			61	
		Replace			3.0			62,80	
		Repair				5.0		59,61,62,80	
2001	VALVE ASSEMBLY, EIGHT-BANK, M1089 MHC	Inspect	0.1						
		Replace			0.5			58,59,61,80	
		Repair			2.0			58,59,61,80	
2001	WINCH ASSEMBLY, M1089 (30K)	Inspect	0.1						
		Test		0.5	0.2			63	
		Replace			9.0			20,59,61,62,80,81	
		Repair			0.5			59,61,62,63,73,80,81	
2001	MOTOR ASSEMBLY, DRIVE, (30K) WINCH	Replace			0.5			59,61,62,63,73,80,81	
		Repair			8.0			59,61,62,63,73,80,81	
2001	VALVE ASSEMBLY, MAIN, UPPER, M1089	Replace			0.5			61,62,80	
		Repair			0.5			61,62,80	
2001	VALVE ASSEMBLY, MAIN, LOWER, M1089	Replace			0.5			61,62,80	
		Repair			0.5			61,62,80	
2001	VALVE ASSEMBLY, MONO, M1089	Replace			1.5			59,61,62,80,87	
		Repair			1.0			59,61,62,80,87	
2001	MATERIAL HANDLING CRANE MHC), M1084/M1086	Inspect	0.1						
		Test			0.2			81	

Section II. MAINTENANCE ALLOCATION CHART FOR THE MTV VEHICLE

(1)	(2)	(3)	(4) Maintenance Level					(5)	(6)
			FIELD			SUSTAINMENT			
			Unit		Direct Support	General Support	Depot		
Group Number	Component/Assembly	Maintenance Function	C	O	F	H	D	Tools and Equipment Ref Code	Remarks Code
		Service		2.0				61	
		Replace			4.0			58,59,61,62,80	
		Repair				0.5		58,59,61,62,63,73,80,81	
2001	CYLINDER, LIFT, M1084/M1086 MHC	Inspect	0.1						
		Test			2.0			65,81	
		Replace			2.0			58,59,62,80	
		Repair				4.0		58,59,62,80	
2001	CYLINDER, ERECTION, M1084/M1086 MHC	Inspect	0.1						
		Test			0.2			65,81	
		Replace			4.0			58,62,80	
		Repair				4.0		59,61,63,80,81	
2001	HOIST ASSEMBLY, M1084/M1086 MHC	Inspect	0.1						
		Test			0.2			65,81	
		Replace			6.0			61,62,80	
		Repair				3.5		59,61,62,80	
2001	MOTOR, HYDRAULIC, HOIST, M1084/M1086 MHC	Inspect	0.1						
		Test			0.1			65,81	
		Replace			2.0			59,80	
		Repair				4.2		58,59,61,62,63,80	
2001	GEAR SET, M1084/M1086 MHC	Inspect		0.2					
		Test			0.2				
		Repair			4.5			61,62,80	
2001	CYLINDER, TELESCOPIC, BOOM, M1084/M1086 MHC	Inspect	0.1						
		Test			0.1			65,81	
		Replace			2.0			58,61,62,80	
		Repair				4.0		59,61,62,80	

Section II. MAINTENANCE ALLOCATION CHART FOR THE MTV VEHICLE

(1)	(2)	(3)	(4) Maintenance Level					(5)	(6)
			FIELD			SUSTAINMENT			
			Unit		Direct Support	General Support	Depot		
Group Number	Component/Assembly	Maintenance Function	C	O	F	H	D	Tools and Equipment Ref Code	Remarks Code
2001	SWING DRIVE ASSEMBLY, M1084/M1086 MHC	Inspect	0.1	0.5				61	
		Test			0.1			65,81	
		Service		0.3					
		Replace			4.0			59,61,62,80	
		Repair			3.5	4.2		59,61,62,80	
2001	MOTOR, ORBIT, HYDRAULIC, M1084/M1086 MHC	Inspect	0.1					61	
		Test			0.1			65,81	
		Replace			2.0			59,61,80	
		Repair				4.2		59,61,63,73 ,80,81	
2001	VALVE ASSEMBLY, CONTROL, FOUR WAY, M1084/M1086 MHC	Replace			0.8			59,61,62,80	
		Repair			1.1			59,61,62,80	
2001	VALVE ASSEMBLY, CONTROL, THREE WAY, M1084/M1086 MHC	Replace			0.8			59,61,62,80 ,81	
		Repair			1.1			59,61,62,80 ,81	
2001	CYLINDER, JACK, M1084/M1086 MHC	Inspect	0.1						
		Test			0.2			81	
		Replace			2.0			62,80	
		Repair				4.0		59,61,62,80	
2004	POWER TAKEOFF ASSEMBLY (PTO)	Inspect	0.1						
		Replace			1.0			58,59,61,62 ,80	
		Repair			0.8			58,59,61,62 ,80	
2201	CAB PROTECTOR, M1090/M1094	Inspect	0.1						
		Replace			2.0			58,80	
2202	MOTOR, WIPER, WINDSHIELD	Test		0.5					
		Replace		1.0				80	
2207	HEATER ASSEMBLY, PERSONNEL	Replace		2.0				59,61,80	

Section II. MAINTENANCE ALLOCATION CHART FOR THE MTV VEHICLE

(1)	(2)	(3)	(4) Maintenance Level					(5)	(6)
			FIELD			SUSTAINMENT			
			Unit		Direct Support	General Support	Depot		
Group Number	Component/Assembly	Maintenance Function	C	O	F	H	D	Tools and Equipment Ref Code	Remarks Code
2210	DECALS	Inspect	0.1						
		Replace		1.0				80	
2401	POWER UNIT, AIR/HYDRAULIC	Inspect	0.1						
		Test		0.2					
		Service		1.0					
		Replace		3.0				59,61,80	
		Repair			2.0			59,61,62,71 ,80,81	
2402	MANIFOLD, HYDRAULIC	Inspect	0.1						
		Test		0.2					
		Replace		1.5				53,59,61,80	
		Repair		1.0				53,59,61,80	
2406	FILTER, HYDRAULIC	Service		0.3				61,80	
		Replace		0.2				61,80	
2407	LATCH, HYDRAULIC, CAB	Inspect	0.1						
		Adjust		0.5				59,61,80	
		Replace		0.5				59,61,80	
2408	RESERVOIR, HYDRAULIC	Replace		1.0				59,61,80	
		Repair		0.5				59,61,80	
2408	TANK ASSEMBLY, HYDRAULIC, M1089	Inspect	0.1						
		Service		2.0				59,61,80	
		Replace		2.0				6,9,59, 61,80	
		Repair		0.5				59,61,80	
3307	ALTERNATOR KIT, 200 AMP	Inspect	0.1	0.2					
		Test		0.5					
		Remove/ Install		2.0				59,61,80	
		Replace		1.0				59,61,80	
		Repair			0.5			58,59,62,63 ,80	
3307	ALTERNATOR, 200 AMP	Inspect		0.2					
		Test		0.5	1.5			61,65,80	
		Replace		1.0				59,61,80	
		Repair		0.2	0.5			58,59,62,63 ,65,80	
3307	CRANE (LMHC), MATERIAL HANDLING, LIGHT	Inspect	0.1	0.1					
		Replace		0.5				61,78,80	

Section II. MAINTENANCE ALLOCATION CHART FOR THE MTV VEHICLE

(1)	(2)	(3)	(4) Maintenance Level					(5)	(6)
			FIELD			SUSTAINMENT			
			Unit		Direct Support	General Support	Depot		
Group Number	Component/Assembly	Maintenance Function	C	O	F	H	D	Tools and Equipment Ref Code	Remarks Code
		Repair		0.5					
		Test		0.5					
3307	WEIGHT BLOCK AND WIRE ROPE, LMHC	Inspect	0.1						
		Replace		0.1				61,80	
		Repair		0.5				61,80	
		Test			0.5				
3307	WINCH, LMHC	Inspect	0.1						
		Replace		0.5				61,80	
		Repair		1.0				61,80	
		Test		0.5					
3307	MAST/SWING ASSEMBLY, LMHC	Inspect	0.1						
		Repair		1.0				61,80	
		Test		0.5					
3307	CONTROL BOX, LMHC	Inspect	0.1						
		Replace		0.1					
		Repair		0.5				78,80	
		Test	0.1	0.5					
3307	TROOPSEAT KIT	Remove/ Install	1.0						
		Inspect	0.1						
		Replace		1.0					
		Repair		0.5				80	
3307	COVER KIT, CARGO SOFT TOP	Remove/ Install	1.5						
		Inspect	0.1						
		Replace		2.0					
		Repair		0.5					
3307	WARNING LIGHT ASSEMBLY, AMBER	Inspect	0.1						
		Repair		0.4				80	
		Test		0.2					
3401	MACHINE GUN RING KIT	Inspect	0.1						
		Remove/ Install			4.0			58,59,62, 80,81,87	
		Repair		1.1				10,59,80	
3402	MOUNT, SMALL ARMS	Inspect	0.1						
		Replace		0.3				80	
3901	WARNING LIGHT ASSEMBLY, AMBER, M1089	Repair		0.8				59,61,80	

Section II. MAINTENANCE ALLOCATION CHART FOR THE MTV VEHICLE

(1)	(2)	(3)	(4) Maintenance Level					(5)	(6)
			FIELD			SUSTAINMENT			
			Unit		Direct Support	General Support	Depot		
Group Number	Component/Assembly	Maintenance Function	C	O	F	H	D	Tools and Equipment Ref Code	Remarks Code
3903	MAST, WARNING LIGHT, AMBER, M1089	Replace		0.6				59,61,80	
3909	CABLE ASSEMBLY, WARNING LIGHT	Inspect	0.1						
		Replace		0.5				80	
4316	AIR HOSE, CTIS	Inspect	0.1						
		Replace		0.4				61,80	
4317	VALVE, INVERSION	Replace		0.5				61,80	
4318	CYLINDER, PNEUMATIC, TAILGATE, M1090/M1094	Replace		0.4				61,80	
4321	AIR DRYER	Inspect	0.1	0.1					
		Replace		1.0				59,61,80	
		Repair		0.6				59,61,80	
4702	GAUGE, AIR FILTER RESTRICTION	Replace		0.5				80	

Section III. TOOLS AND TEST EQUIPMENT FOR MTV 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
2.1	O	BASE, MAGNETIC		P5646
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	5120-01-074-7557	FCOM19
8	O	CROWFOOT ATTACHMENT, SOCKET WRENCH	5120-01-236-9996	FCOM15
9	O	CROWFOOT ATTACHMENT, SOCKET WRENCH	5120-01-335-1089	FCO28
10	O	CROWFOOT ATTACHMENT, SOCKET WRENCH	5120-01-335-1091	FCO32
11	O	CROWFOOT ATTACHMENT, SOCKET WRENCH	5120-01-335-1119	SCO34
12	O	CROWFOOT ATTACHMENT, SOCKET WRENCH	5120-01-335-1122	SCO40

Section III. TOOLS AND TEST EQUIPMENT FOR MTV VEHICLES

Tool or Test Equipment REF Code	Maintenance Level	Nomenclature	National Stock Number	Tool Number
12.1	O	CROWFOOT ATTACHMENT, SOCKET WRENCH	5120-01-335-1126	SCO48
13	O	CROWFOOT ATTACHMENT, SOCKET WRENCH	5120-01-335-1153	FCO20
14	O	CROWFOOT ATTACHMENT, SOCKET WRENCH	5120-01-335-1156	FCO26
15	F	CROWFOOT ATTACHMENT, SOCKET WRENCH	5120-01-348-9473	AN8508-19A
16	O	CUTTER, BOLT	5110-00-224-7057	GGG-C-740
16.1	O	DISPENSER, SEALANT	5120-00-061-1283	45RCT
16.2	F	DRILL SET, STOPCOLLAR	5133-01-383-7665	1955
17	H	DRIVER KIT, BEARING	4910-01-032-3128	8S0602
18		DELETED		
19	O,F	GAGE, BELT TENSION	6635-01-143-2237	GA-424
20	O,F	GAGE, PRESSURE, 0-150 psi	6685-00-474-5721	111T1D05A01
21	O	GAGE, PROFILE	5220-01-357-4913	TF-0237
22	F,H	GAGE, PROFILE	5220-01-388-1460	J-38548-1
23	H	HANDLE, DRIVE	5120-00-377-2259	J8092
24	O	HEATER, GUN TYPE, ELECTRIC	4940-00-561-1002	500A
25	F,H	HOLDING BAR, PINION	5120-01-166-0573	J3453
25.1	O	INDICATOR, DIAL		P36491
26	O	INSERTER AND REMOVER, ELECTRICAL CONTACT	5120-00-915-4588	MS3447-16
27	H	INSERTER AND REMOVER, SPRING	5120-01-388-3660	J38573
28	H	INSERTER AND REMOVER, SPRING	5120-01-388-4436	J35923
29	H	INSERTER, BEARING AND BUSHING	5120-01-388-7841	J-38565
30	H	INSERTER, BEARING AND BUSHING	5120-01-389-0658	J35921-1
31	H	INSERTER, BEARING AND BUSHING	5120-01-390-1104	J 38569
32	H	INSERTER, BEARING AND BUSHING	5120-01-390-1105	J 38568-3
33	H	INSERTER, BEARING AND BUSHING	5120-01-391-5133	J 38579
34	F,H	INSERTER, BEARING AND BUSHING	5120-01-414-7398	J38566
35	F	INSERTER, SEAL	5120-01-362-2026	1U7430
36	F	INSERTER, SEAL	5120-01-362-2027	1U7598
37	F	INSTALLER, SEAL	N/A	J38574
37.1	F	JACK, DOLLY TYPE HYDRAULIC	4910-01-396-5044	TTJ3
38	F	JACK, LEVELING SUPPORT, VEHICLE	2590-00-231-7418	10876244
38.1	O	KEY, SOCKET HEAD SCREW	5120-01-355-1670	AWML2.5
38.2	F	NOSE ASSEMBLY		99-3307
38.3	O	PLIERS, HOG RING STAPLE	5120-01-413-8837	0012
38.4	F	LIFTING SADDLE ASSEMBLY		TTJ-ZIFA
39	H	PULLER KIT, UNIVERSAL	5180-00-089-3660	A57QB
40	F	PULLER KIT, UNIVERSAL	5180-01-124-1903	1P3075
41	O	REMOVER, ELECTRICAL CONTACT	5120-00-148-9844	MS3448-001B
42	F	RIVETER, BLIND, HAND	5120-01-289-4310	HP-2

Section III. TOOLS AND TEST EQUIPMENT FOR MTV VEHICLES

Tool or Test Equipment REF Code	Maintenance Level	Nomenclature	National Stock Number	Tool Number
42.1	F	RIVETER, BLIND, PNEUMATIC	5130-01-232-4042	245
43	H	RIVETER, YOKE, HAND	5120-01-415-3558	J-39354
44	F	SCREWDRIVER ATTACHMENT, SOCKET WRENCH	5120-00-601-6934	LAW120A
45	O	SCREWDRIVER ATTACHMENT, SOCKET WRENCH	5120-01-053-4158	FAM5A
46	O,F,H	SCREWDRIVER ATTACHMENT, SOCKET WRENCH	5120-01-055-1308	ANSIB18.3.2M
47	O	SCREWDRIVER ATTACHMENT, SOCKET WRENCH	5120-01-079-8032	SAM8A
48	O	SCREWDRIVER ATTACHMENT, SOCKET WRENCH	5120-01-160-8862	S 6 HBS
49	O,F	SCREWDRIVER ATTACHMENT, SOCKET WRENCH	5120-01-367-3462	SA10A
49.1	O,F	SCREWDRIVER ATTACHMENT, SOCKET WRENCH	5120-01-367-3483	FA5LE
50	O,F	SCREWDRIVER ATTACHMENT, SOCKET WRENCH	5120-01-367-3497	TMP12A
51	O	SCREWDRIVER ATTACHMENT, SOCKET WRENCH	5120-01-367-3519	F23D
52	O	SCREWDRIVER ATTACHMENT, SOCKET WRENCH	5120-01-367-3526	FP24
53	O	SCREWDRIVER ATTACHMENT, SOCKET WRENCH	5120-01-367-3527	FP32A
54	F,H	SCREWDRIVER ATTACHMENT, SOCKET WRENCH	5120-01-367-3536	FTX40A
55	O	SCREWDRIVER ATTACHMENT, SOCKET WRENCH	5120-01-367-3574	GFA8A
56	O	SEPARATOR, BALL JOINT	5120-01-255-8238	2287
57	F	SETTING TOOL, WINDSHIELD	5120-01-316-4995	CRL216
58	O,F	SHOP EQUIPMENT, AUTOMOTIVE VEHICLE	4910-00-348-7696	SC4910-95CLA02
59	O,F,H	SHOP EQUIPMENT, AUTOMOTIVE VEHICLE	4910-00-754-0650	SC4910-95CLA72
60	O	SHOP EQUIPMENT, AUTOMOTIVE VEHICLE	4910-00-754-0653	SC4910-95CLA73
61	O,F,H	SHOP EQUIPMENT, AUTOMOTIVE VEHICLE	4910-00-754-0654	SC4910-95CLA74
62	F,H	SHOP EQUIPMENT, AUTOMOTIVE VEHICLE	4910-00-754-0705	SC4910-95CLA31
63	F,H	SHOP EQUIPMENT, AUTOMOTIVE VEHICLE	4910-00-754-0706	SC4910-95CLA62
64	O,F,H	SHOP EQUIPMENT, AUTOMOTIVE VEHICLE	4910-00-754-0707	SC4910-95CLA63
65	O,F	SHOP EQUIPMENT, FUEL AND ELECTRICAL	4910-00-754-0714	SC4910-95CLA01
66	F	SLIDER, SPRING COMPRESSOR	4910-01-165-6015	TF-TUN-J500
67	F	SLING, MULTIPLE LEG	3940-00-777-5744	A170

Section III. TOOLS AND TEST EQUIPMENT FOR MTV VEHICLES

Tool or Test Equipment REF Code	Maintenance Level	Nomenclature	National Stock Number	Tool Number
68	H	SOCKET SET, SOCKET WRENCH	5120-01-195-0640	208FA
69	F,H	SOCKET, SOCKET WRENCH	5120-01-068-5643	5555M
70	O	SOCKET, SOCKET WRENCH	5120-01-161-5907	GLDH382
71	F	SOCKET, SOCKET WRENCH	5120-01-335-0784	TW321
72	O	SOCKET, SOCKET WRENCH	5120-01-144-5324	ANS 1913A
73	F	SOLDERING AND BRAZING OUTFIT, RESISTANCE HEATING	3439-00-460-7198	SC4940-95-CLB20
74	O	SOLDERING IRON, ELECTRIC	3439-01-036-3308	3112-S3-40W
75	H	STAND, DIFFERENTIAL CARRIER REPAIR	4910-01-085-7729	J3409-D
76	H	STAND, MAINTENANCE, AUTOMOTIVE ENGINE	4910-00-808-3372	J29109
77	F	TOOL, DISTORTER	5120-01-119-1748	5P-7312
78	O,F	TOOL KIT, AUTO FUEL AND ELECTRICAL SYSTEM REPAIR	5180-00-754-0655	SC4910-95CLA50
79	F	TOOL KIT, BODY AND FENDER	5180-00-754-0643	SC5180-90-N34
80	O,F,H	TOOL KIT, GENERAL MECHANIC'S	5180-00-177-7033	SC5180-90-CL-N26
81	F,H	TOOL KIT, GENERAL MECHANIC'S	5180-00-699-5273	SC5180-90-CL-N05
82	F	TOOL KIT, INTERNAL COMBUSTION ENGINE	5180-01-356-8155	1U6680
83	H	TOOL KIT, DIESEL INJECTOR	5180-01-466-3966	143-2099
84	F	TOOL OUTFIT, HYDRAULIC	4940-01-036-5784	SC4940-95-CL-B07
85	O	TOOL, SPRING REMOVAL	5120-01-360-1918	TV940010
86	F	WIRE TWISTER, PLIER	5120-00-542-4171	GGG-W-340
87	F	WRENCH SET, CROWFOOT, RATCHETING	5120-00-293-0013	GGG-W-646
88	F	WRENCH SET, SOCKET	5120-00-148-3706	ANSI-B107.5
89	H	WRENCH SET, SPANNER	5120-00-215-1882	46D7578
90	O	WRENCH, TORQUE, 0-75 LB-IN.	5120-01-112-9532	TQSC6A

Section IV. REMARKS FOR THE MTV 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	5120-01-154-3029	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-A72

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	5210-01-223-3701	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	SC 4910-95-CL-A74
20	IRON, TIRE	5120-00-765-8536	T48A	SC 4910-95-CL-A74
21	JACK, HYDRAULIC, HAND	5120-00-224-7330	D120	SC 4910-95-CL-A74
22	MULTIMETER, DIGITAL	6625-01-139-2512	T00377	SC 4910-95-CL-A74
23	MULTIPLIER, TORQUE WRENCH	5120-00-574-9318	292	SC 4910-95-CL-A72
24	PAN, DRAIN	4910-00-387-9592	450	SC 4910-95-CL-A74
25	PAN, WASH	4940-00-617-9859	5582281	SC 4910-95-CL-A72
26	PRESSURE TESTER, RADIATOR	4910-01-170-4929	J24460-01	SC 4910-95-CL-A74
27	PULLER KIT, MECHANICAL	5120-00-313-9496	1178	SC 4910-95-CL-A74
28	PULLER, BATTERY TERMINAL	5120-00-944-4268	21	SC 4910-95-CL-A74
29	RESPIRATOR, AIR FILTER	4240-00-022-2524	GGG-M-125/6	SC 4910-95-CL-A72
30	SCALE, WEIGHING	6670-00-254-4634	AAA-S-133	SC 4910-95-CL-A74
31	SLING, CARGO	1670-00-823-5043	63J4261-13	CTA 50-970
32	SLING, ENDLESS	3940-00-675-5003	PD101-96	CTA 50-970
33	SOCKET SET, IMPACT	5120-01-117-0466	4151MMY	SC 4910-95-CL-A74
34	SOCKET SET, SOCKET WRENCH	5120-01-073-2821	217FMY	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
35	SOCKET SET, SOCKET WRENCH	5120-01-115-1149	315SIMMY	SC 4910-95-CL-A74
36	SOCKET SET, SOCKET WRENCH	5120-01-117-3876	221FSMY	SC 4910-95-CL-A72
37	SOCKET, SOCKET WRENCH	5120-00-181-6813	5530	SC 4910-95-CL-A74
38	SOCKET, SOCKET WRENCH	5120-00-232-5681	1242	SC 4910-95-CL-A74
39	SOCKET, SOCKET WRENCH	5120-00-243-7351	5316	SC 4910-95-CL-A74
40	SOCKET, SOCKET WRENCH	5120-01-112-0581	SIMM190	SC 4910-95-CL-A74
41	STE/ICE-R	4910-01-222-6589	12259266	SC 4910-95-CL-A74
41.1	TEST KIT, RADIATOR	4910-00-728-8227		SC 4910-95-CL-A74
41.2	TAP AND DIE SET	5136-01-119-0005	TDM99117	SC 4910-95-CL-A72
42.3	TAP, THREAD, CUTTING	5136-00-729-5692	B94.9 ½-13 UNCHSGH3	SC 4910-95-CL-A72
42	TESTER, ANTIFREEZE AND BATTERY	6630-00-105-1418	10425	SC 4910-95-CL-A74
43	TOOL KIT, AUTO FUEL	5180-00-754-0655		SC 5180-95-CL-A50
44	TOOL KIT, BLIND RIVET	5180-01-201-4978	D-100-MIL-1	SC 4910-95-CL-A74
45	TOOL KIT, ELECTRICAL	5180-00-876-9336	7550526	SC 4910-95-CL-A72
46	TOOL KIT, GENERAL MECHANIC'S	5180-00-177-7033		SC 5180-90-N26
47	TRESTLE, MOTOR VEHICLE MAINTENANCE	4910-00-251-8013	306	SC 4910-95-CL-A74
48	VISE, MACHINIST	5120-00-293-1439	504M2	SC 4910-95-CL-A74
49	WRENCH SET, SOCKET	5120-00-081-2305	GGG-W-641	SC 4910-95-CL-A74
50	WRENCH SET, SOCKET	5120-00-204-1999	GGG-W-641	SC 4910-95-CL-A74
51	WRENCH SET, SOCKET	5120-00-322-6231	51200017510	SC 4910-95-CL-A74
52	WRENCH, ADJUSTABLE	5120-00-264-3793	2117080	SC 4910-95-CL-A74
53	WRENCH, ADJUSTABLE, AUTOMOTIVE	5120-00-449-8083	1B7536	SC 4910-95-CL-A74
54	WRENCH, BOX AND OPEN END	5120-00-277-8833	1244	SC 4910-95-CL-A74
55	WRENCH, BOX AND OPEN END	5120-00-277-8834	GGG-W-636	SC 4910-95-CL-A74
56	WRENCH, PIPE	5120-00-277-1485		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
57	WRENCH, STRAP, ADJUSTABLE	5120-00-020-2947	A91C	SC 4910-95-CL-A74
58	WRENCH, TORQUE, 0-175 lb-ft	5120-00-640-6364	1753LDF	SC 4910-95-CL-A74
59	WRENCH, TORQUE, 0-200 lb-in.	5120-00-853-4538	F2001	SC 4910-95-CL-A72
59.1	WRENCH, TORQUE, 0-300 lb-in.	5120-00-776-1841	2163993	SC 4910-95-CL-A74
60	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 MTV 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	O	4730-00-248-9340	Adapter, Pipe to Tube (81343) 4-4 010103B	ea
1.1	O	4730-01-453-9651	Adapter, Straight, Pipe to Boss (19207) 12421890-001	ea
1.2	O	4730-01-457-4025	Adapter, Straight, Pipe to Tube (96906) MS51503B4-4	ea
1.3	O	4730-00-760-3525	Adapter, Straight, Tube to Boss (81361) C116-3-71	ea
2	O	8040-00-273-8717	Adhesive (81348) MMM-A-121	pt
3	O	8040-00-152-0063	Adhesive (81348) MMM-A-1617 TY3	bt
4	O	8040-01-250-3969	Adhesive (05972) 242	ea
5	O	8040-00-117-8510	Adhesive (71984) 3145 RTV Clear	tu
6	O	8040-00-776-9602	Adhesive (73168) 80055-31	kt
7	O	8040-00-522-3429	Adhesive (81349) (MIL-A-46106)	oz

Section II. EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST (CONT)

(1) Item Number	(2) Level	(3) National Stock Number	(4) Description	(5) U/M
8	O	8040-00-118-2695	Adhesive (72799) RTV162	kt
9	O	8040-01-331-7473	Adhesive (81349) (MIL-A-46106 GP3TY1)	tu
10	O	8040-01-331-7470	Adhesive (81349) MIL-A-46106 5 oz tube	oz
10.1	O	8040-01-446-7842	Adhesive (01139) RTV123	ca
10.2	O	8040-00-728-3088	Adhesive (78500) 1199-T-3842 6 oz	kt
11	C	6850-00-174-1806	Antifreeze, Arctic Type (81349) (MIL-A-11755) 55 gl drum	dr
12	C		Antifreeze, Multi-Engine Type (58536) (A-A-52624A)	dr
		6850-01-441-3218	Type I (Green) – 1 gal	gal
		6850-01-441-3221	Type I (Green) - 5 gal	co
		6850-01-441-3257	Type II (Purple) - 5 gal	co
13	O	8030-00-597-5367	Antiseize Compound (81349) (MIL-A-907)	lb
13.1	O	5340-01-454-4336	Bracket, Angle (0FW39) 12421859-001	ea
14	O	5340-00-450-5718	Cap and Plug Set (19207) 10935405	ea
14.1	O	5340-01-423-0972	Clamp, Loop (18076) S630H-20	ea
14.2	O	5340-01-377-6171	Clamp, Loop (18076) 5630H-24	ea
15	O	6850-00-926-2275	Cleaning Compound, Windshield (81349) O-C-1901 16 oz bottle	bt
16	O	7920-00-044-9281	Cloth, Cleaning (81349) (MIL-C-85043)	bx
17	O		Corrosion Preventive Compound (81349) (MIL-C-16173)	
		8030-00-062-6950	Grade 1 - 1 qt can	qt
		8030-01-149-1731	Grade 2 - 1 qt can	qt
		8030-00-837-6557	Grade 3 - 1 pt can	pt
		8030-00-903-0931	Grade 4 - 1 pt can	pt
18	O	8030-00-033-4291	Corrosion Preventive Compound (81349) (MIL-C-82594) 8 oz can	bt
18.1	O	2540-01-460-8048	Cover, Seat, Vehicular (27797) WM1058	ea
18.2	O	2540-01-463-8394	Cover, Seat, Vehicular (0FW39) WM1059	ea
19	C	9150-00-024-9621	Damping Fluid (81348) VV-D-1078	pt
20	O	7520-01-209-1152	Dispenser, Pressure Sensitive Adhesive Tape (75037) STD-0-9	ea
20.1	O	4730-01-454-1233	Elbow, Pipe to Boss (19207) 12421891-001	ea
20.2	O	4730-00-863-9098	Elbow, Pipe to Tube (30780) 4VBTXB	ea
21	O	5330-01-325-6993	Gasket Forming Compound (05972) 515	ea
21.1	O		Gasket Maker, RTV Silicone (05972) 5699	ea

Section II. EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST (CONT)

(1) Item Number	(2) Level	(3) National Stock Number	(4) Description	(5) U/M
22	O		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
23	O	9150-00-180-6382	Grease, General Purpose (81349) MIL-T-24139 6.5 lb can	lb
24	O	9150-00-935-4018	Grease, Molybenum Disulfide (81349) (MIL-G-21164)	ca
24.1	O	4720-01-469-9208	Hose Assembly, Nonmetallic (0FW39) 12418004-002	ea
24.2	O		Hose Assembly (0FW39) 12421278-003	ea
24.3	O		Hose Assembly (0FW39) 12421858-002	ea
24.4	O		Hose Assembly (0FW39) 12421858-003	ea
24.5	O		Hose Assembly (0FW39) 12421858-004	ea
24.6	O		Hose Assembly (0FW39) 12421858-005	ea
24.7	O	4720-01-384-0995	Hose Assembly, Nonmetallic (19207) 12421858-006	ea
24.8	O		Hose Assembly (0FW39) 12421927-001	ea
24.9	O		Hose Assembly (0FW39) 12421927-002	ea
24.10	O		Hose Assembly (0FW39) 12421927-003	ea
24.11	O	4720-01-469-9266	Hose Assembly, Nonmetallic (0FW39) 12421927-004	ea
24.12	O		Hose Assembly (0FW39) 12421991	ea
24.13	O	4720-00-988-3842	Hose Assembly, Nonmetallic (50599) R25679-1	ea
25	C		Hydraulic Fluid A (81349) (MIL-H-5606)	
		9150-00-252-6383	1 qt can	cn
		9150-00-223-4134	1 gl can	cn
26	O	7510-00-145-0559	Ink, Marking Stencil (81349) (MIL-I-43553)	oz
27	O	7510-01-386-0787	Inking Pad, Rubber Stamp (88001) 0603A	ea
28	O	5970-01-100-4464	Insulating Compound, Electrical (08800) RTV-102WHITE	tu
28.1	O	5970-01-378-3018	Insulation Sleeving, Electrical (06090) ATUM-1/4-0-4FT	lg
29	O	5970-00-838-5951	Insulation Sleeving, Electrical (06090) CRN3-16BLACK	ft
29.1	O	5970-01-161-6796	Insulation Sleeving, Electrical (06090) M23053/4-302-0	ft
29.2	O	5970-00-767-0524	Insulation Sleeving, Electrical (81349) (MIL-1-23053/5 4 in.	ea

Section II. EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST (CONT)

(1) Item Number	(2) Level	(3) National Stock Number	(4) Description	(5) U/M
30	O	1650-00-166-4834	Lockwire (90166) 68A32	ea
31	O	9150-01-360-1905	Lubricant, Solid Film (81349) (MIL-L-46147) 16 oz can	cn
31.1	O		Modification Kit, Junction Box 6-576-100041 (12361)	ea
32	O	4730-00-019-0608	Nipple, Pipe (81996) A2303-12-52PC102	ea
33	O	4730-00-825-7304	Nipple, Tube (96906) MS51501B4	ea
34	O	5310-00-059-4265	Nut, Plain, Hex (89346) 98881R1	ea
34.1	C		Oil, Commercial Burner Fuel, Grade FO-1 (ASTM D396)	
34.2	C		Oil, Commercial Burner Fuel, Grade FO-2 (ASTM D396)	
35	C		Oil, Fuel, Diesel, DF-A Arctic (81348) (VV-F-800)	
		9140-00-286-5282	5 gl can	cn
		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
36	C		Oil, Fuel, Diesel, DF-1, Winter (81348) (VV-F-800)	
		9140-00-286-5286	Bulk	gl
		9140-00-286-5287	5 gl can	cn
		9140-00-286-5288	55 gl drum, 16 gauge	dr
		9140-00-286-5289	55 gl drum, 18 gauge	dr
37	C		Oil, Fuel, Diesel, DF-2, Regular (81348) (VV-F-800)	
		9140-00-286-5294	Bulk	gl
		9140-00-286-5295	Can	cn
		9140-00-286-5296	55 gl drum, 16 gauge	dr
		9140-00-286-5297	55 gl drum, 18 gauge	dr
38	C		Oil, Lubricating, Arctic (81349) (MIL-L-46167)	
		9150-00-402-2372	5 gl can	cn
		9150-00-491-7197	55 gl drum	dr
39	C		Oil, Lubricating, Gear, GO 75W (81349) (MIL-L-2105)	
		9150-01-035-5390	1 qt can	cn
		9150-01-035-5391	5 gl can	cn
40	C		Oil, Lubricating, Gear, 80W-90 (81349) (MIL-L-2105)	
		9150-01-035-5392	1 qt can	qt
		9150-01-035-5393	5 gl can	cn
		9150-01-035-5394	55 gl drum, 16 gauge	dr

Section II. EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST (CONT)

(1) Item Number	(2) Level	(3) National Stock Number	(4) Description	(5) U/M
41	O		Oil, Lubricating, Gear, 85W-140 (81349) (MIL-L-2105)	
		9150-01-048-4591	1 qt can	qt
		9150-01-035-5395	5 gl can	cn
		9150-01-035-5396	55 gl drum	dr
42	C		Oil, Lubricating, OE/HDO 10 (81349) (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
43	C	9150-00-189-6727	Oil, Lubricating, OE/HDO 10W (81349) (MIL-L-2104) 1 qt can	cn
44	C		Oil, Lubricating, OE/HDO 15W-40 (81349) (MIL-L-2104)	
		9150-01-152-4117	1 qt can	cn
		9150-01-152-4118	5 gl can	cn
		9150-01-152-4119	55 gl drum	dr
45	C		Oil, Lubricating, OE/HDO 30 (SAE 30) (81349) (MIL-L-2104)	
		9150-00-183-7808	Bulk	gl
		9150-00-186-6681	1 qt can	cn
		9150-00-188-9858	5 gl can	cn
		9150-00-189-6729	55 gl drum, 18 gauge	dr
46	C		Oil, Lubricating, OE/HDO 40 (81349) (MIL-L-2104)	
		9150-00-405-2987	Bulk	gl
		9150-00-189-6730	1 qt can	cn
		9150-00-188-9862	5 gl can	cn
47	O	5350-00-067-7639	Paper, Abrasive (28124) 02347 pg contains 100 sheets	pg
48	O	8010-01-146-2650	Polyurethane Coating (81349) (MIL-C-46168)	kt
49	O	8030-00-181-8372	Primer, Sealing Compound (05972) 747-56	cn
50	C	7920-00-205-1711	Rag, Wiping (64067) 7920-00-205-1711 50 lb bale	be
51		DELETED		
52	O	4020-00-106-9342	Rope, Nylon (81349) (MIL-R-24050)	ro
53	O	7520-00-634-2442	Rubber Stamp Set, Fixed Type (02663) W-5-3/8-AZ SET	ea
53.1	O	5305-01-299-4602	Screw, Cap, Hex Hd (64678) 000933 006058	ea
53.2	O	5305-01-454-5938	Screw, Cap, Hex Hd (19207) 12419954-093	ea
53.3	O	5305-00-021-3740	Screw, Cap, Hex Hd (97942) 645A560H43	ea

Section II. EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST (CONT)

(1) Item Number	(2) Level	(3) National Stock Number	(4) Description	(5) U/M
54	O	5305-01-296-0019	Screw, Cap, Socket Head (06888) SHCM75275 50 ct box	bx
54.1	O	8030-01-157-0988	Sealing Compound (83574) PR-1422 A-1/2 6 oz	ca
54.2	O	8030-01-371-8405	Sealing Compound (83574) PR-1422 B-1/2 6 oz	ca
55	O	8030-00-111-2762	Sealing Compound (05972) 290-31	bt
55.1	O	8030-01-255-4144	Sealant (19207) 12297953	tb
55.2	O	8030-00-956-2397	Sealing Compound 104	ea
55.3	O	8030-00-728-9665	Sealant (62377) 80017	pt
56	O	8030-00-133-3164	Sealing Compound (05972) 571-31	bt
57	O	8030-00-148-9833	Sealing Compound (05972) 271-21	bx
58	O	8030-00-204-9149	Sealing Compound (05972) 592-41	tu
59	O	8030-00-656-1426	Sealing Compound (81349) (MIL-S-45180)	pt
60	O	8030-01-025-1692	Sealing Compound (05972) 242-41 (MIL-S-46163)	bt
61	O	8030-01-088-8140	Sealing Compound (52571) 9001512-0011	bt
62	O	8030-01-155-3238	Sealing Compound (11083) 6V6640	ml
63	C	7930-00-634-3935	Soap, Laundry (81348) P-S-1792	lb
64	O	3439-00-006-7764	Solder, Tin Alloy (81348) SN63WRAP3 1 lb spool	sl
65	C		Solvent, Dry Cleaning SD (P-D-680)	
		6850-00-281-1985	1 gl can	cn
		6850-00-664-5685	1 qt can	cn
65.1	O		Strap, Tiedown, Electrical Components (06383) PLP2S	ea
65.2	O	9320-01-244-0046	Tape, Adhesive, Rubber (18876) MIS-41157-08 180 ft	ro
66	O	8030-00-889-3534	Tape, Antiseizing (81349) (MIL-T-27730)	ea
67	O	5640-00-103-2254	Tape, Duct (39428) 1791K70	ea
68	O	5970-00-644-3167	Tape, Insulation, Electrical (80063) TL83	ro
68.1	O	4730-00-138-8050	Tee, Pipe (81343) 8-8-8 140424C	ea
69	O	5975-01-379-4997	Ties, Cable, Plastic (06383) PLT 35-C-O	hd
69.1	C		Turbine Fuel, Aviation, Kerosene Type (MIL-T-83133), Grade JP-8	
69.2	C		Turbine Fuel, (MIL-F-16884), (NATO Code No. F75 or F-72)	
		9140-00-255-7764	5 gl can	cn
		9140-00-273-2378	55 gl drum	dr
		9140-00-273-2377	1 gl can	cn

Section II. EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST (CONT)

(1) Item Number	(2) Level	(3) National Stock Number	(4) Description	(5) U/M
69.3	C		Turbine Fuel, (MIL-F-5624), Grade JP-4 (NATO Code No. F40)	
		9130-00-273-2380	Drum, 16 gage	dr
69.4	C		Turbine Fuel, (MIL-T-5624), Grade JP-5 (NATO Code No. F-44)	
		9130-01-305-5596	Bulk	gl
		9130-01-250-6353	Drum, 16 gage	dr
70	O	8010-00-180-6343	Varnish, Oil (23667) 515320	pt
71	O		Wire, Electrical (80009) 175-0825-00	
		6145-01-148-2263	50 ft	ft
72	O		Wire, Nonelectrical (96906) MS20995C47	
		9505-00-555-8648	5 lb spool	sl

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
Dump Body Lifting Bracket		E-5
Headlight Adjustment Screen		E-6
M1089 30K Winch Test Adapter		E-7
M1089 Solenoid Test Adapter		E-8
Relay Test Wire		E-9
Transmission Auxiliary Oil Cooler Rubber Seal		E-10
Wheel Bearing Shim Tool Rest		E-11
12414690-001	Pneumatic Tube	E-12
12414690-002	Pneumatic Tube	E-12
12414690-003	Pneumatic Tube	E-12
12414690-004	Pneumatic Tube	E-12
12414690-005	Pneumatic Tube	E-12
12414690-006	Pneumatic Tube	E-12
12414690-007	Pneumatic Tube	E-12
12414690-008	Pneumatic Tube	E-12
12414690-009	Pneumatic Tube	E-12
12414690-010	Pneumatic Tube	E-12
12414690-101	Pneumatic Tube	E-12
12414690-102	Pneumatic Tube	E-12
12414690-103	Pneumatic Tube	E-12
12414690-104	Pneumatic Tube	E-12
12414690-105	Pneumatic Tube	E-12
12414690-106	Pneumatic Tube	E-12
12414690-107	Pneumatic Tube	E-12
12414690-108	Pneumatic Tube	E-12
12414690-109	Pneumatic Tube	E-12
12414690-112	Pneumatic Tube	E-12
12414690-113	Pneumatic Tube	E-12
12414690-115	Pneumatic Tube	E-12
12414690-118	Pneumatic Tube	E-12
12414690-120	Pneumatic Tube	E-12
12414690-125	Pneumatic Tube	E-12
12414690-128	Pneumatic Tube	E-12
12414690-129	Pneumatic Tube	E-12
12414690-130	Pneumatic Tube	E-12

Section II. MANUFACTURED ITEMS INDEX (CONT)

ITEM NAME/PART NUMBER	ITEM DESCRIPTION	PARA NO.
12414690-131	Pneumatic Tube	E-12
12414690-132	Pneumatic Tube	E-12
12414690-133	Pneumatic Tube	E-12
12414690-134	Pneumatic Tube	E-12
12414690-135	Pneumatic Tube	E-12
12414690-136	Pneumatic Tube	E-12
12414690-137	Pneumatic Tube	E-12
12414690-138	Pneumatic Tube	E-12
12414690-139	Pneumatic Tube	E-12
12414690-140	Pneumatic Tube	E-12
12414690-141	Pneumatic Tube	E-12
12414690-142	Pneumatic Tube	E-12
12414690-143	Pneumatic Tube	E-12
12414690-144	Pneumatic Tube	E-12
12414690-145	Pneumatic Tube	E-12
12414690-146	Pneumatic Tube	E-12
12414690-147	Pneumatic Tube	E-12
12414690-148	Pneumatic Tube	E-12
12414690-149	Pneumatic Tube	E-12
12414690-150	Pneumatic Tube	E-12
12414690-151	Pneumatic Tube	E-12
12414690-152	Pneumatic Tube	E-12
12414690-153	Pneumatic Tube	E-12
12414690-154	Pneumatic Tube	E-12
12414690-155	Pneumatic Tube	E-12
12414690-156	Pneumatic Tube	E-12
12414690-157	Pneumatic Tube	E-12
12414690-158	Pneumatic Tube	E-12
12414690-159	Pneumatic Tube	E-12
12414690-160	Pneumatic Tube	E-12
12414690-161	Pneumatic Tube	E-12
12414690-162	Pneumatic Tube	E-12
12414690-163	Pneumatic Tube	E-12
12414690-164	Pneumatic Tube	E-12
12414690-165	Pneumatic Tube	E-12
12414690-166	Pneumatic Tube	E-12
12414690-167	Pneumatic Tube	E-12
12414690-168	Pneumatic Tube	E-12
12414690-169	Pneumatic Tube	E-12
12414690-201	Pneumatic Tube	E-12
12414690-202	Pneumatic Tube	E-12
12414690-203	Pneumatic Tube	E-12
12414690-205	Pneumatic Tube	E-12
12414690-206	Pneumatic Tube	E-12
12414690-207	Pneumatic Tube	E-12
12414690-208	Pneumatic Tube	E-12
12414690-209	Pneumatic Tube	E-12
12414690-210	Pneumatic Tube	E-12
12414690-211	Pneumatic Tube	E-12
12414690-212	Pneumatic Tube	E-12
12414690-215	Pneumatic Tube	E-12

ITEM NAME/PART NUMBER	ITEM DESCRIPTION	PARA NO.
12414690-216	Pneumatic Tube	E-12
12414690-217	Pneumatic Tube	E-12
12414690-218	Pneumatic Tube	E-12
12414690-219	Pneumatic Tube	E-12
12414690-220	Pneumatic Tube	E-12
12414690-221	Pneumatic Tube	E-12
12414690-222	Pneumatic Tube	E-12
12414690-223	Pneumatic Tube	E-12
12414690-224	Pneumatic Tube	E-12
12414690-225	Pneumatic Tube	E-12
12414690-228	Pneumatic Tube	E-12
12414690-229	Pneumatic Tube	E-12
12414690-230	Pneumatic Tube	E-12
12414690-231	Pneumatic Tube	E-12
12414690-232	Pneumatic Tube	E-12
12414690-233	Pneumatic Tube	E-12
12414690-234	Pneumatic Tube	E-12
12414690-235	Pneumatic Tube	E-12
12414690-236	Pneumatic Tube	E-12
12414690-237	Pneumatic Tube	E-12
12414690-238	Pneumatic Tube	E-12
12414690-239	Pneumatic Tube	E-12
12414690-240	Pneumatic Tube	E-12
12414690-241	Pneumatic Tube	E-12
12414690-242	Pneumatic Tube	E-12
12414690-243	Pneumatic Tube	E-12
12414690-244	Pneumatic Tube	E-12
12414690-245	Pneumatic Tube	E-12
12414690-246	Pneumatic Tube	E-12
12414690-247	Pneumatic Tube	E-12
12414690-248	Pneumatic Tube	E-12
12414690-249	Pneumatic Tube	E-12
12414690-301	Pneumatic Tube	E-12
12414690-302	Pneumatic Tube	E-12
12414690-303	Pneumatic Tube	E-12
12416381P1	Non-Metallic Electrical Cable Conduit	E-13
12416381P10	Non-Metallic Electrical Cable Conduit	E-13
12416381P11	Non-Metallic Electrical Cable Conduit	E-13
12416381P12	Non-Metallic Electrical Cable Conduit	E-13
12416381P13	Non-Metallic Electrical Cable Conduit	E-13
12416381P14	Non-Metallic Electrical Cable Conduit	E-13
12416381P15	Non-Metallic Electrical Cable Conduit	E-13
12416381P16	Non-Metallic Electrical Cable Conduit	E-13
12416381P17	Non-Metallic Electrical Cable Conduit	E-13
12416381P2	Non-Metallic Electrical Cable Conduit	E-13
12416381P20	Non-Metallic Electrical Cable Conduit	E-13
12416381P21	Non-Metallic Electrical Cable Conduit	E-13
12416381P22	Non-Metallic Electrical Cable Conduit	E-13
12416381P23	Non-Metallic Electrical Cable Conduit	E-13
12416381P26	Non-Metallic Electrical Cable Conduit	E-13
12416381P3	Non-Metallic Electrical Cable Conduit	E-13
12416381P30	Non-Metallic Electrical Cable Conduit	E-13
12416381P32	Non-Metallic Electrical Cable Conduit	E-13

Section II. MANUFACTURED ITEMS INDEX (CONT)

ITEM NAME/PART NUMBER	ITEM DESCRIPTION	PARA NO.
12416381P34	Non-Metallic Electrical Cable Conduit	E-13
12416381P35	Non-Metallic Electrical Cable Conduit	E-13
12416381P36	Non-Metallic Electrical Cable Conduit	E-13
12416381P37	Non-Metallic Electrical Cable Conduit	E-13
12416381P38	Non-Metallic Electrical Cable Conduit	E-13
12416381P4	Non-Metallic Electrical Cable Conduit	E-13
12416381P5	Non-Metallic Electrical Cable Conduit	E-13
12416381P6	Non-Metallic Electrical Cable Conduit	E-13
12416381P7	Non-Metallic Electrical Cable Conduit	E-13
12416381P8	Non-Metallic Electrical Cable Conduit	E-13
12416381P9	Non-Metallic Electrical Cable Conduit	E-13
12418037	Steering Gear Return Hose	E-14
12418460-001	Transmission Oil Cooler Hose	E-14
12418460-002	Transmission Oil Cooler Hose	E-14
12418763	Lanyard Assembly	E-15
12420196	Lanyard Assembly	E-15
12420197-001	Non-Metallic Vent Air Hose	E-16
12420197-002	Non-Metallic Vent Air Hose	E-16
12420197-003	Non-Metallic Vent Air Hose	E-16
12420197-004	Non-Metallic Vent Air Hose	E-16
12420197-005	Non-Metallic Vent Air Hose	E-16
12420197-006	Non-Metallic Vent Air Hose	E-16
12420198-001	Non-Metallic Vent Air Hose	E-16
12420198-002	Non-Metallic Vent Air Hose	E-16
12420308-457	Personnel Heater Air Duct Hose	E-17
12420308-760	Personnel Heater Air Duct Hose	E-17
12420489	Block Seal	E-18
3256-H-1048	CTIS Seal Driver	E-19
3256-K-1051	Wheel Hub Grease Seal Driver	E-20
Dimmer Switch Test Wire		E-21
Purge Valve Tool		E-22
M1089 30K Winch Air Hoses		E-23
M1089 30K Winch Pneumatic Test Adapter		E-24

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

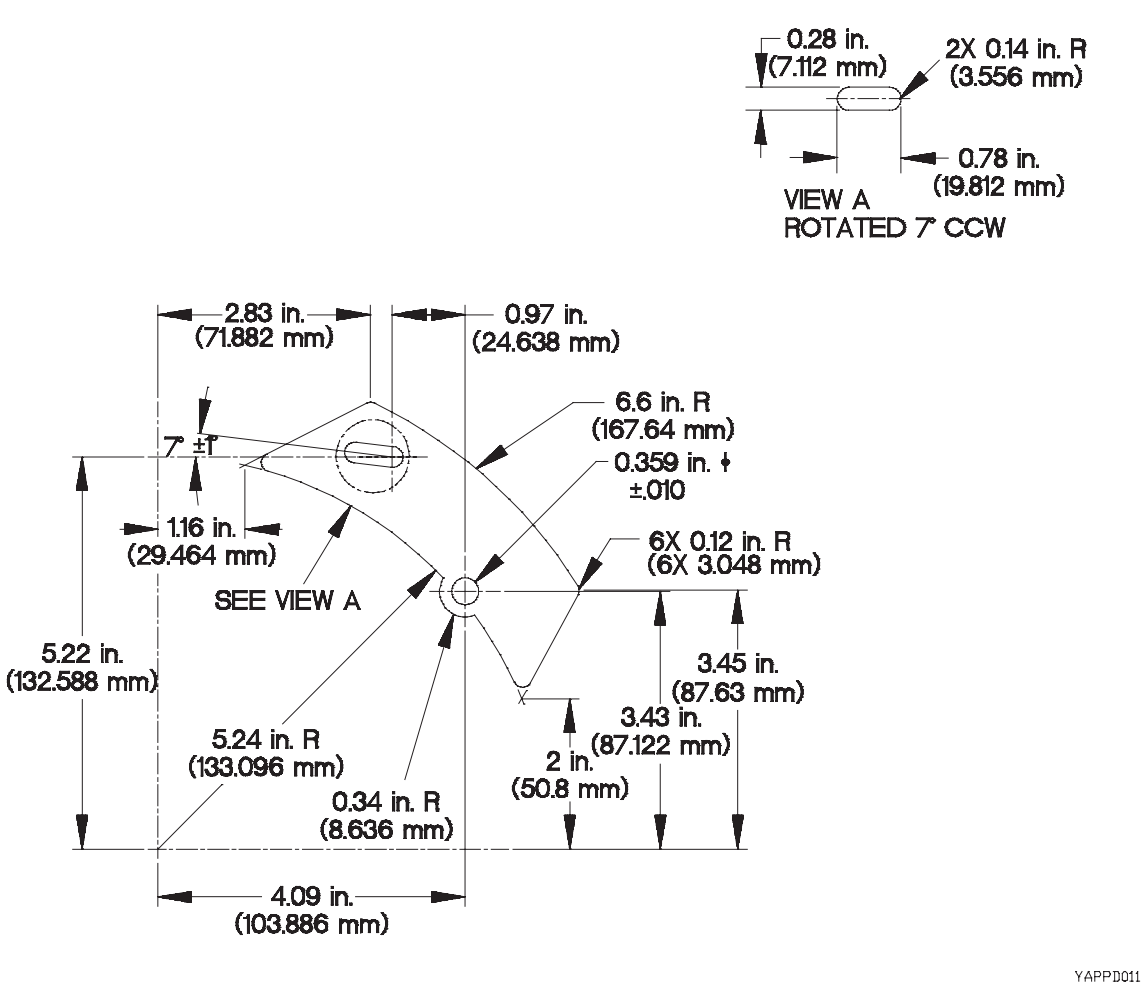


Figure E-1. Brake Adjusting Tool Support

a. All dimensions are in inches (millimeters).
b. Cut steel sheet as shown by dimensions on **Figure E-1. Brake Adjusting Tool Support**.
c. De-burr and remove sharp edges.

E-3. BRAKE PLUNGER SEAL DRIVER

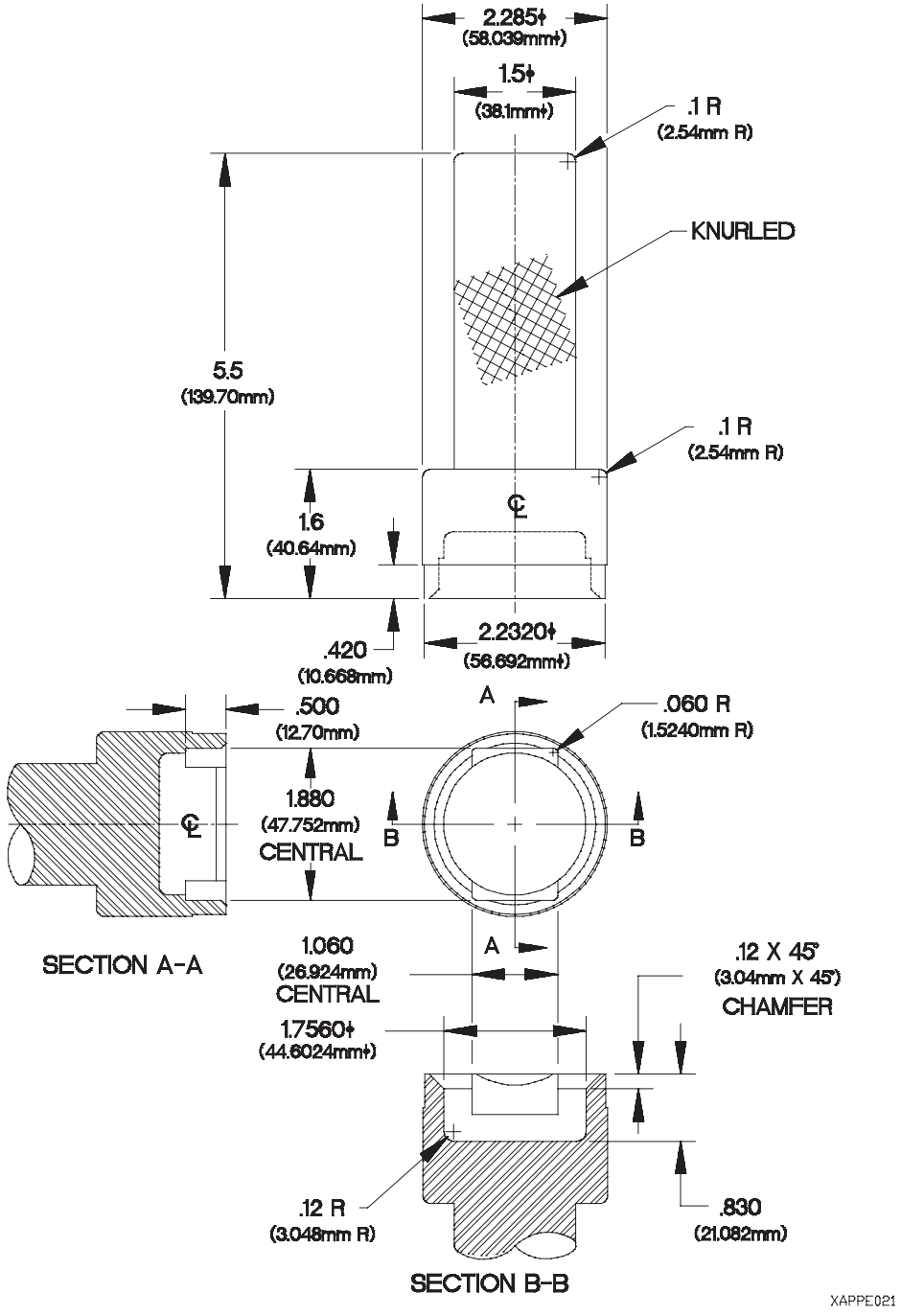


Figure E-2. Brake Plunger Seal Driver

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		

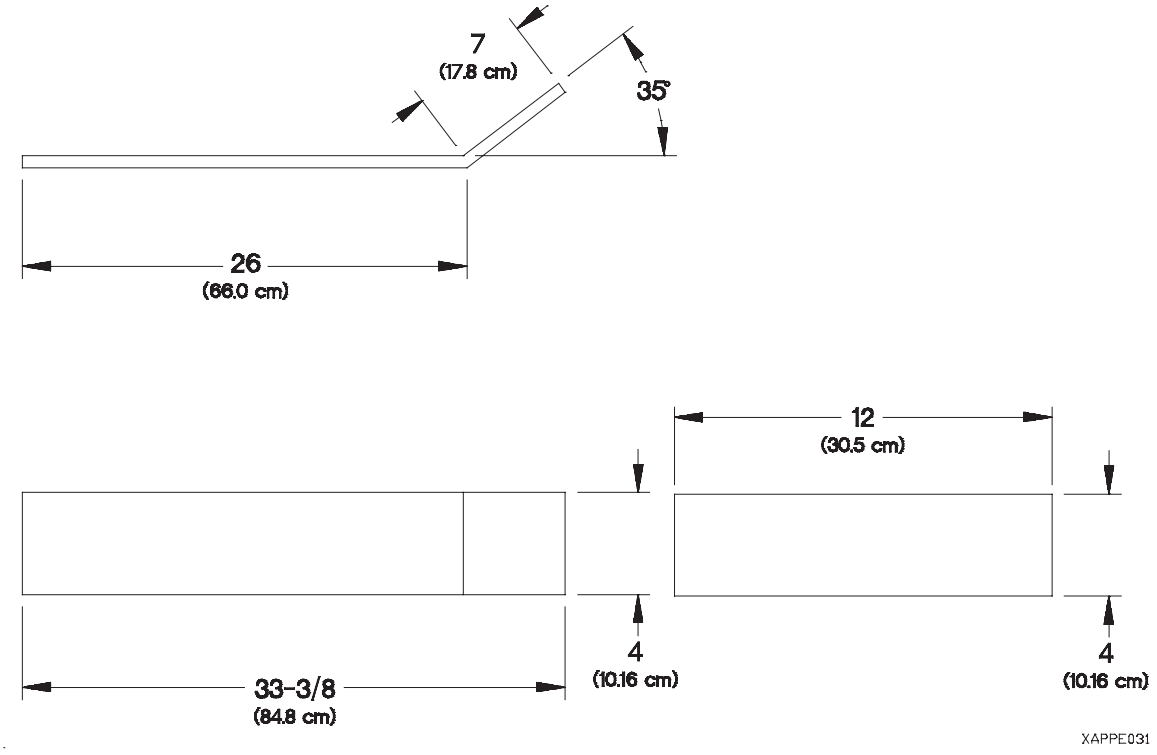


Figure E-3. Cab Support Tool Strut and Cab Rest

a. All dimensions are in inches (centimeters).
b. 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**.
c. Cut cab support tool cab rest (2) from steel flat bar.
d. De-burr and remove sharp edges.

E-4. CAB SUPPORT TOOL (CONT)

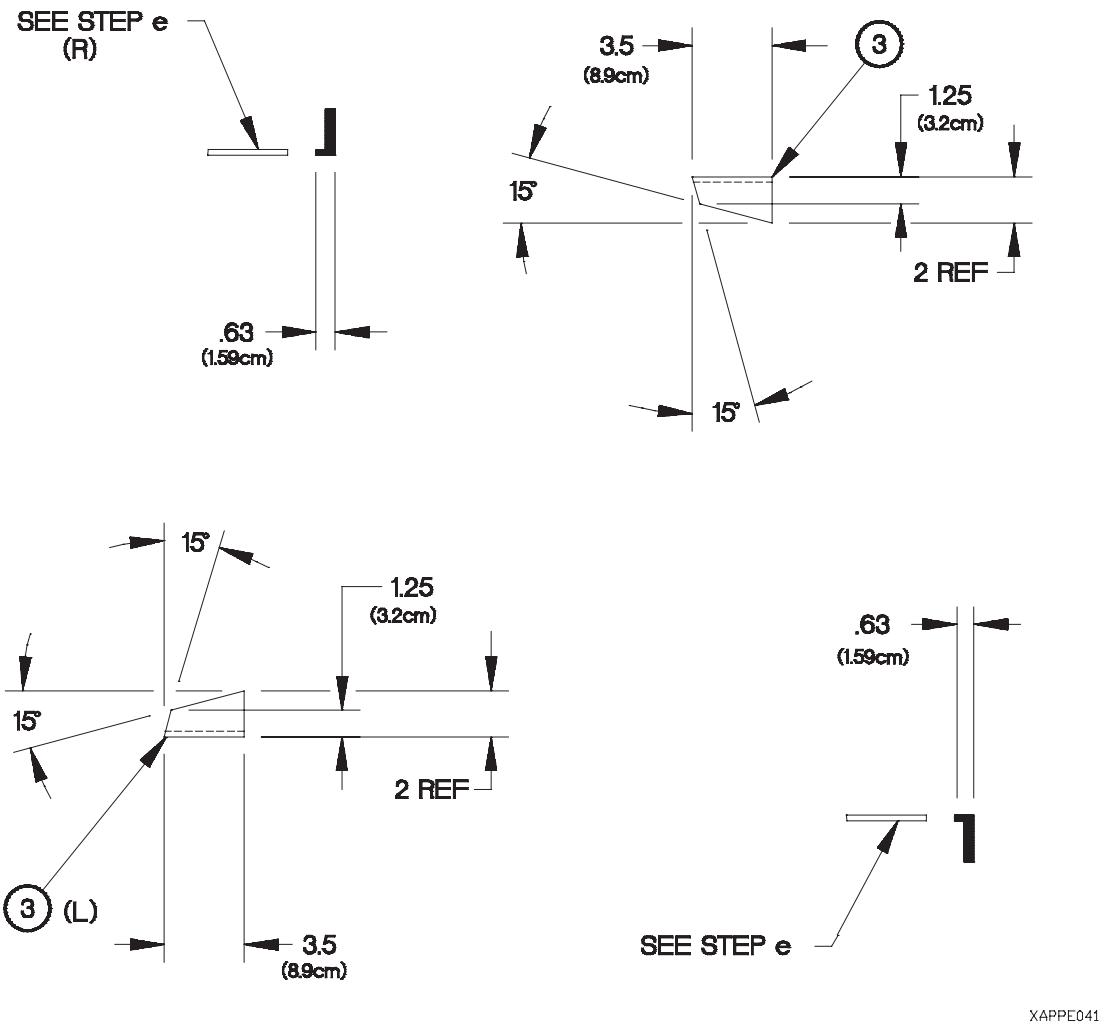


Figure E-4. Cab Support Tool Seat

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.

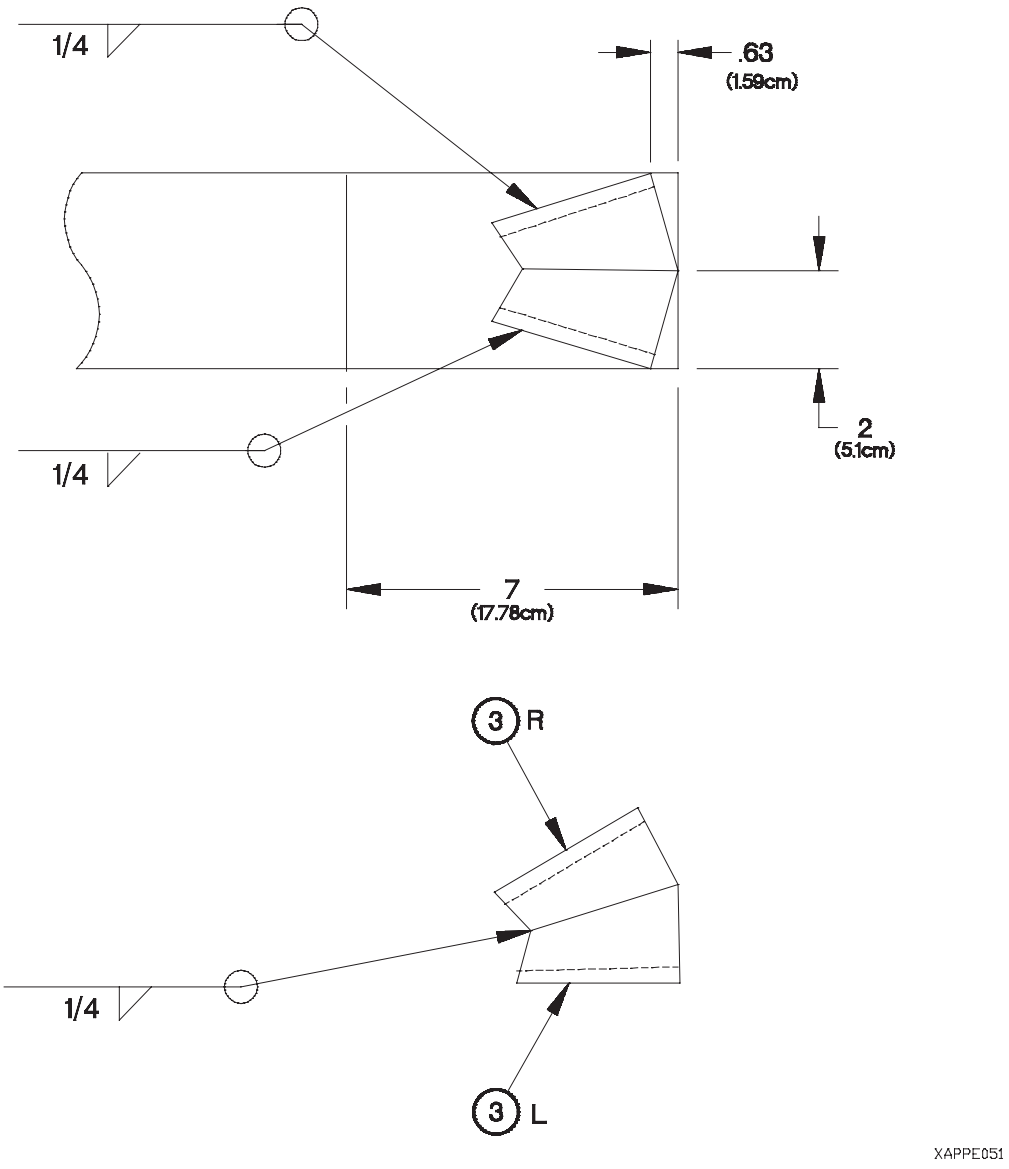


Figure E-5. Cab Support Tool Seat Layout

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.

E-4. CAB SUPPORT TOOL (CONT)

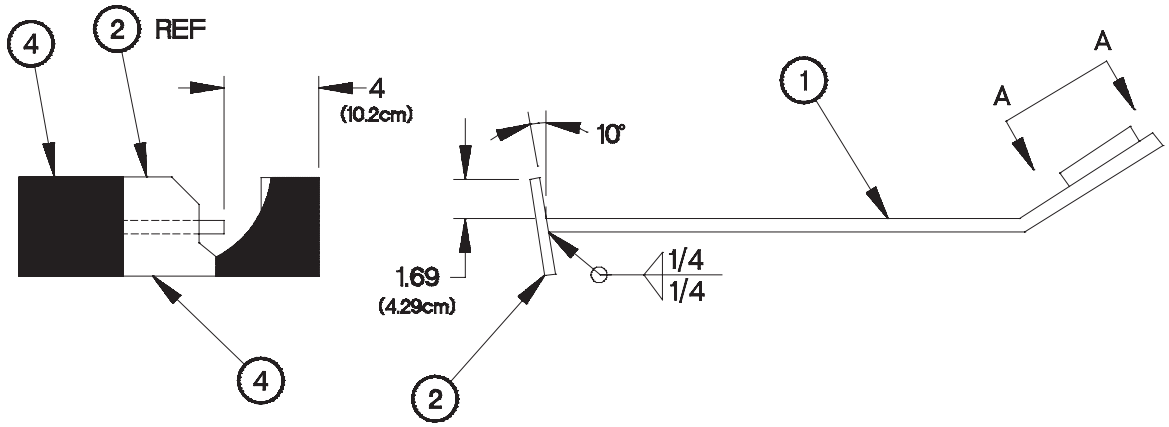


Figure E-6. Cab Support Tool Assembly

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. DUMP BODY LIFTING BRACKET

Make the dump body lifting bracket assembly from the front, rear, top, guide, and mount plates according to the following instructions. Refer to the parts list tables and accompanying figures for details.

Item	Part Number	Name/Description	Qty
1	N/A	Rear Plate	1
2	N/A	Top Plate	1
3	N/A	Front Plate	1
4	N/A	Guide Brace	1
5	N/A	Plate, Mounting	1

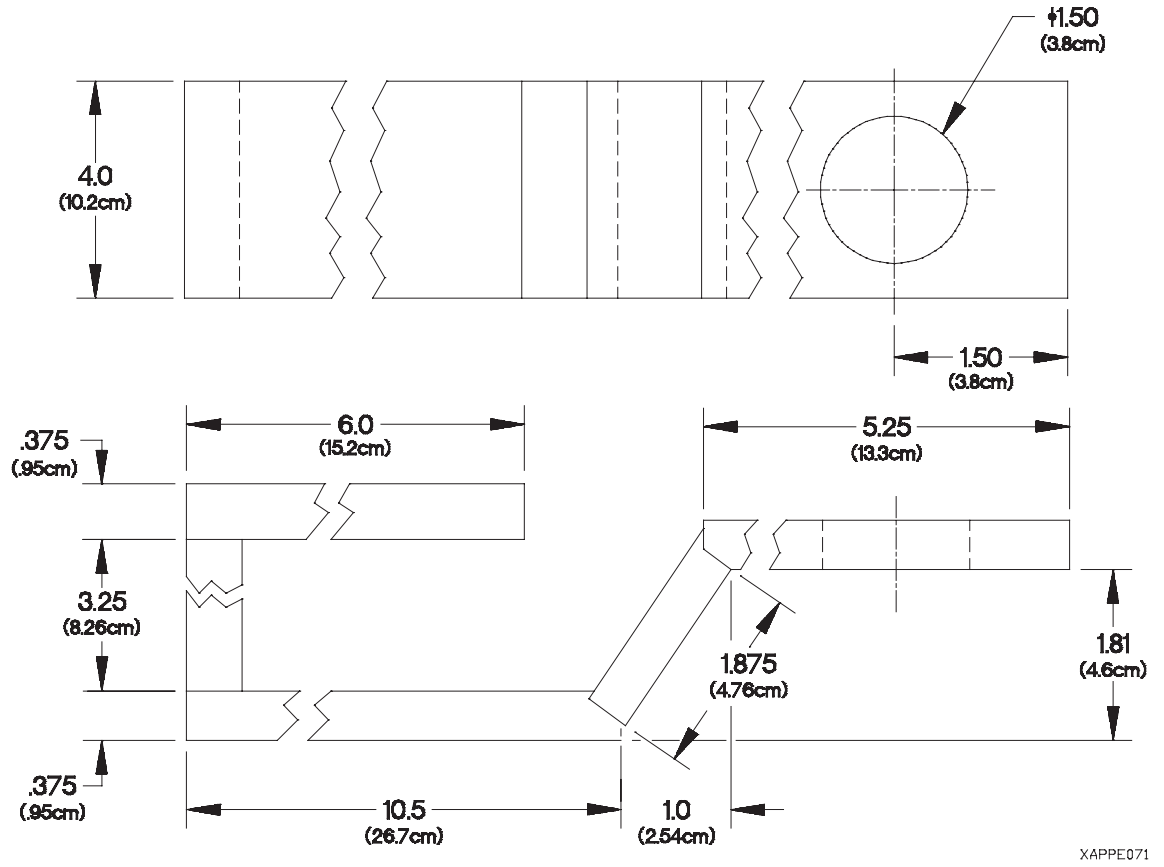


Figure E-7. Dump Body Lifting Bracket

a. All dimensions are in inches (centimeters).
b. Position and clamp pieces (1 through 5) together as shown by dimensions on **Figure E-7. Dump Body Lifting Bracket**.
c. Weld pieces together as shown in **Figure E-7. Dump Body Lifting Bracket**.
d. Coat all surfaces with Plastisol.

E-5. DUMP BODY LIFTING BRACKET (CONT)

Item	Part Number	Material Description	Size	Qty
1	N/A	Plate, steel, ASTM A-36	6.0 in. (15.2 cm) X 4.0 in. (10.2 cm) X 0.375 in. (0.95 cm)	1
2	N/A	Plate, steel, ASTM A-36	3.25 in. (8.26 cm) X 4.0 in. (10.2 cm) X 0.375 in. (0.95 cm)	1
4	N/A	Plate, steel, ASTM A-36	1.875 in. (10.2 cm) X 4.0 in. (10.2 cm) X 0.375 in. (0.95 cm)	1

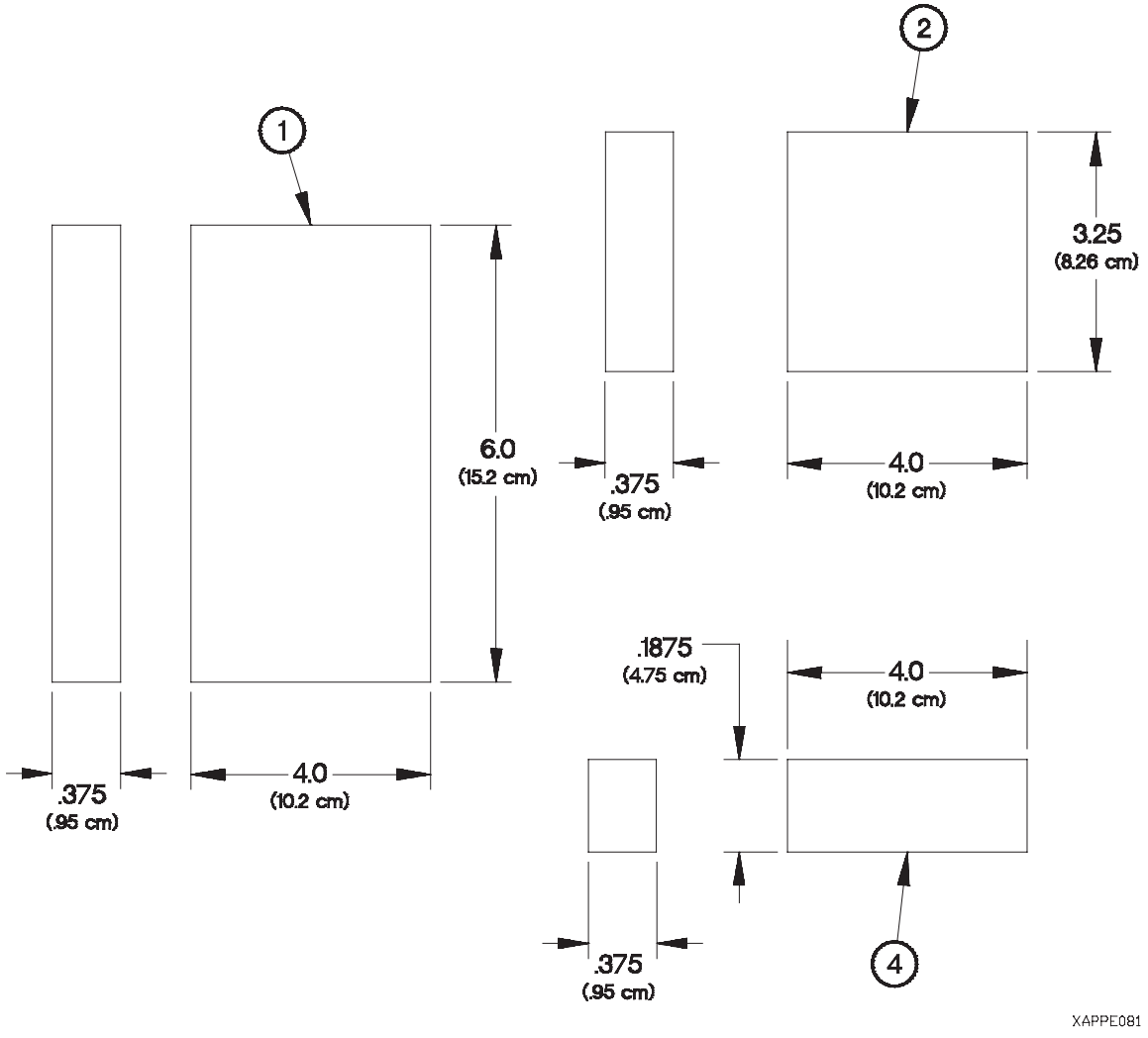


Figure E-8. Rear, Top, and Guide Plate

a. All dimensions are in inches (centimeters).
b. Fabricate (1),(2), and (4) from ASTM A-36 steel plate as shown on **Figure E-8. Rear, Top, and Guide Plate**.
c. De-burr and remove sharp edges.

Item	Part Number	Material Description	Size	Qty
3	N/A	Plate steel, ASTM A36	10.5 in. (26.7 cm) X 4.0 in. (10.2 cm) X 0.375 in. (0.95 cm)	1
5	N/A	Plate steel, ASTM A36	5.25 in. (13.3 cm) X 4.0 in. (10.2 cm) X 0.375 in. (0.95 cm)	1

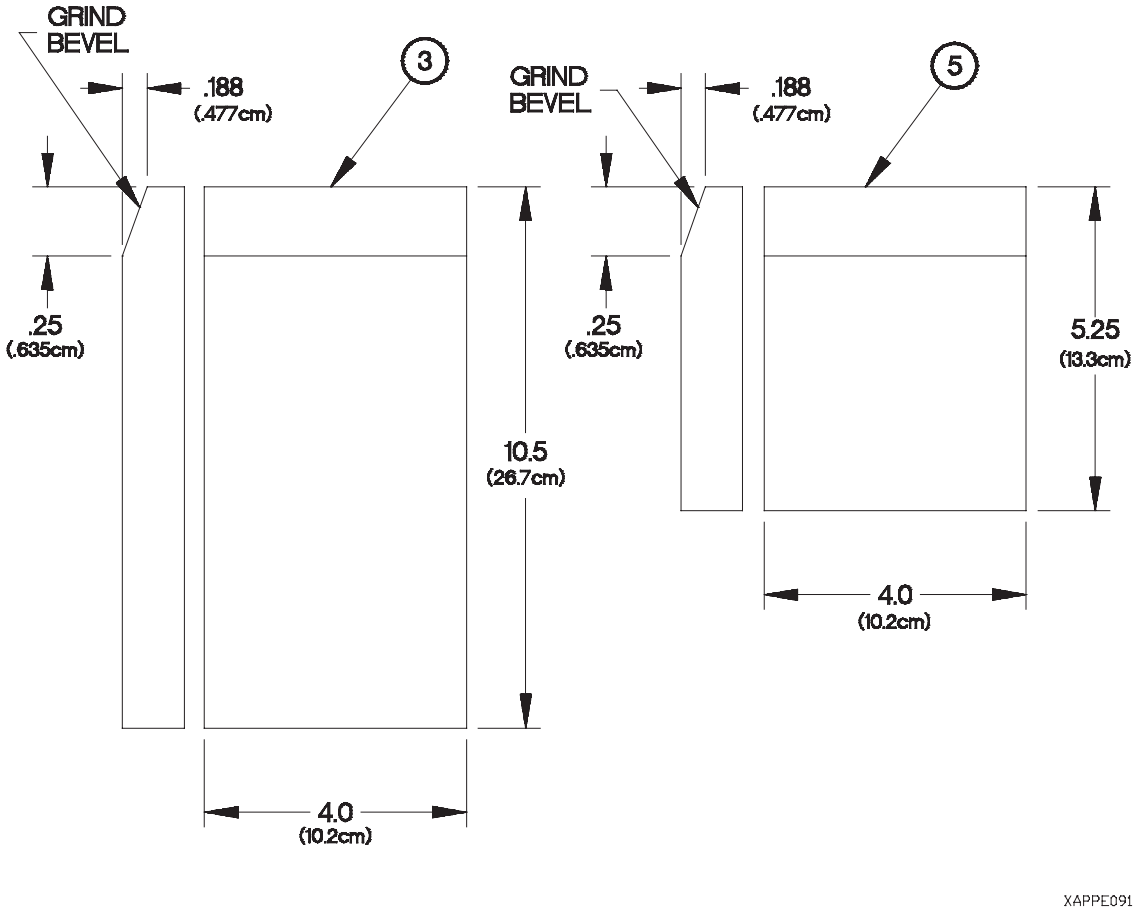


Figure E-9. Front and Mounting Plate

a. All dimensions are in inches (centimeters).
b. Fabricate (3) and (5) from ASTM A-36 steel plate.
c. Drill 1-1/2 inch (3.84 cm) diameter hoe in (5) as shown on **Figure E-9. Front and Mounting Plate**.
d. Grind bevel edge of each plate for weld surface as shown on **Figure E-9. Front and Mounting Plate**.
e. De-burr and remove sharp edges.

E-6. 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).

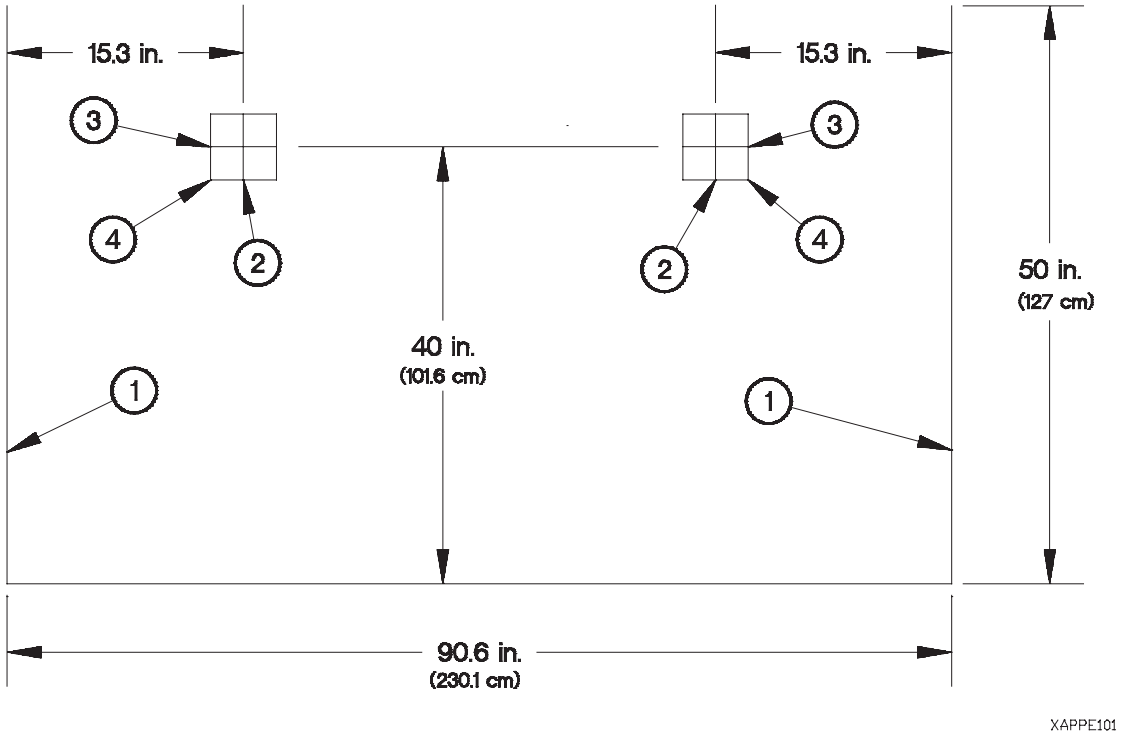


Figure E-10. Headlight Adjustment Screen

E-7. M1089 30K WINCH TEST ADAPTER

Assemble the M1089 30K winch test adapter according to the following steps. Refer to the following parts list and **Figure E-11. M1089 30K Winch Test Adapter** for details.

Part Number	Material Description	National Stock Number	Qty
4-4-4 100401BA	Tee, Tube	4730-01-095-3430	1
4-6 100102BA	Adapter, Straight, Pipe to Tube	4730-01-096-9398	1
207P-4	Coupling, Pipe	4730-00-881-1161	1
NB-4-035	Tubing, Nonmetallic	4720-01-071-4042	4 in.
MIL-T-27730	Tape, Antiseizing	8030-00-889-3534	1 roll

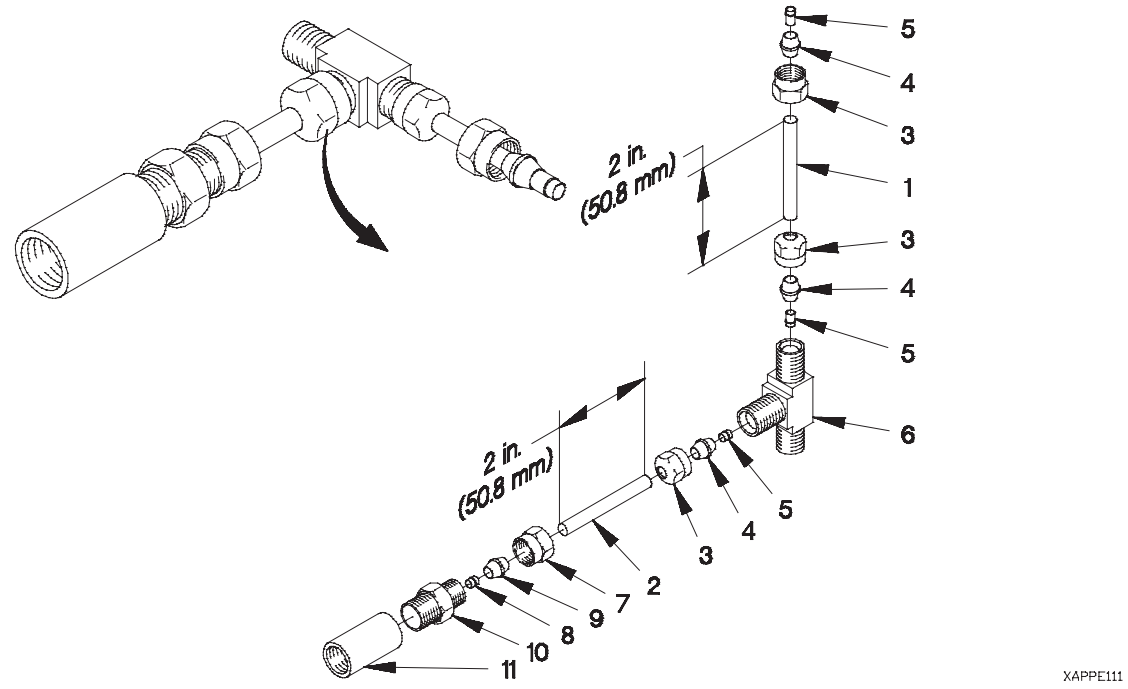


Figure E-11. M1089 30K Winch Test Adapter

a. All dimensions are in inches (millimeters).
b. Cut two pieces of nonmetallic tubing (1 and 2) to 2.0 in. (50.8 mm) long.
c. Remove three nuts (3), sleeves (4), and ferrules (5) from tube tee (6).
d. Install two nuts (3), sleeves (4), and ferrules (5) on nonmetallic tubing (1).
e. Install nonmetallic tubing (1) on tube tee (6).
f. Remove nut (7), sleeve (8), and ferrule (9) from straight adapter (10).
g. Install two nuts (3 and 7), sleeves (4 and 8), and ferrules (5 and 9) on nonmetallic tubing (2).
h. Install nonmetallic tubing (2) on tube tee (6).
i. Install nut (9) on straight adapter (10).
j. Apply one wrap of antiseizing tape to threads of straight adapter (10).
k. Install pipe coupling (11) on straight adapter (10).

E-8. M1089 SOLENOID TEST ADAPTER

Assemble the M1089 solenoid test adapter according to the following steps. Refer to the following parts list and **Figure E-12. M1089 Solenoid Test Adapter** for details.

Part Number	Material Description	National Stock Number	Qty
2-2-2 080401CA	Tee, Tube	4730-01-214-6990	1
2-2 080202CA	Elbow, Pipe to Tube	4730-00-845-5345	1
4-2 130140B	Bushing, Pipe	4730-00-828-0171	1
NB-2-031	Tubing, Nonmetallic	4720-01-287-4499	24 in.

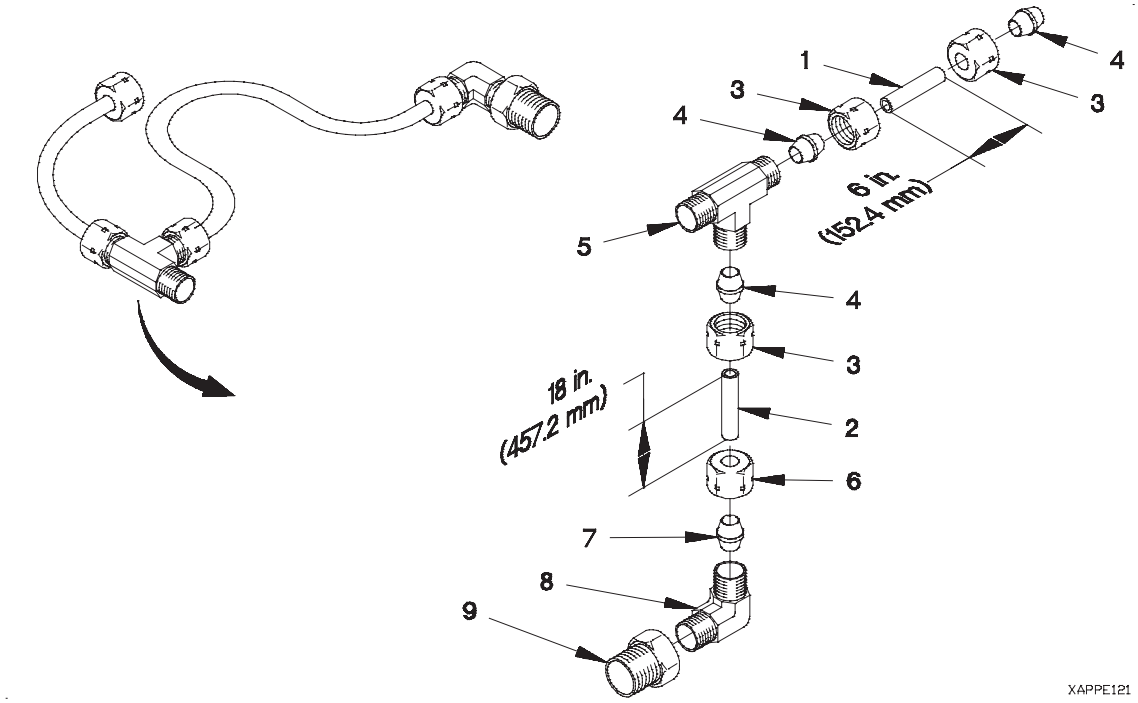


Figure E-12. M1089 Solenoid Test Adapter

a. All dimensions are in inches (millimeters).
b. Cut one piece of nonmetallic tubing (1) to 6.0 in. (152.4 mm) long.
c. Cut one piece of nonmetallic tubing (2) to 18.0 in. (457.2 mm) long.
c. Remove three nuts (3) and ferrule sleeves (4) from tube tee (5).
d. Install two nuts (3) and ferrule sleeves (4) on nonmetallic tubing (1).
e. Install nonmetallic tubing (1) on tube tee (5).
f. Remove nut (6) and ferrule sleeve (7) from pipe to tube elbow (8).
g. Install two nuts (3 and 6) and ferrule sleeves (4 and 7) on nonmetallic tubing (2).
h. Install nonmetallic tubing (2) on tube tee (5).
i. Install nut (6) on pipe to tube elbow (8).
j. Install pipe bushing (9) on pipe to tube elbow (8).

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. TRANSMISSION AUXILIARY OIL COOLER RUBBER SEAL

Fabricate the transmission auxiliary oil cooler rubber seals in accordance with the following parts list.

Part Number	Description	National Stock Number	Cut Length	
			inches	mm
MIL-R-6130	Tape, Adhesive, Rubber	9320-00-501-7537	24.7	627

E-11. 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-12. PNEUMATIC TUBES FABRICATION

Cut pneumatic tubes from bulk tubing stock listed in **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
12414690-003	NT-100-4 (79470)	15.0	38.1
12414690-004	NT-100-4 (79470)	74.8	190.0
12414690-005	NT-100-4 (79470)	69.7	177.0

E-12. PNEUMATIC TUBES FABRICATION (CONT)

Table E-1. Pneumatic Tube Lengths (Cont)

Tube Part Number	Bulk Tubing Part Number	Cut Length	
		inches	cm
12414690-006	NT-100-4 (79470)	239.0	607.0
12414690-007	NT-100-4 (79470)	254.8	647.0
12414690-008	NT-100-4 (79470)	286.3	727.0
12414690-009	NT-100-4 (79470)	294.1	747.0
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
12414690-118	J844TYBSIZE 3/8 (81343)	11.8	30.0
12414690-120	J844TYBSIZE 3/8 (81343)	11.9	30.2
12414690-125	J844TYBSIZE 3/8 (81343)	10.8	27.3
12414690-128	J844TYBSIZE 3/8 (81343)	180.1	457.5
12414690-129	J844TYBSIZE 3/8 (81343)	39.3	99.7
12414690-130	J844TYBSIZE 3/8 (81343)	164.4	417.5
12414690-131	J844TYBSIZE 3/8 (81343)	180.1	457.5
12414690-132	J844TYBSIZE 3/8 (81343)	219.5	557.5
12414690-133	J844TYBSIZE 3/8 (81343)		
12414690-134	J844TYBSIZE 3/8 (81343)	277.4	704.5
12414690-135	J844TYBSIZE 3/8 (81343)	325.0	825.5
12414690-136	J844TYBSIZE 3/8 (81343)	332.5	844.6
12414690-137	J844TYBSIZE 3/8 (81343)	51.0	129.5
12414690-138	J844TYBSIZE 3/8 (81343)	67.0	170.2
12414690-139	J844TYBSIZE 3/8 (81343)	98.5	250.2
12414690-140	J844TYBSIZE 3/8 (81343)	106.0	269.2
12414690-141	J844TYBSIZE 3/8 (81343)	52.5	133.4
12414690-142	J844TYBSIZE 3/8 (81343)	68.5	174.0
12414690-143	J844TYBSIZE 3/8 (81343)	100.0	254.0
12414690-144	J844TYBSIZE 3/8 (81343)	107.5	273.0

Table E-1. Pneumatic Tube Lengths (Cont)

Tube Part Number	Bulk Tubing Part Number	Cut Length	
		inches	cm
12414690-145	J844TYBSIZE 3/8 (81343)		
12414690-146	J844TYBSIZE 3/8 (81343)	267.3	679.0
12414690-147	J844TYBSIZE 3/8 (81343)	283.1	719.0
12414690-148	J844TYBSIZE 3/8 (81343)	314.6	799.0
12414690-149	J844TYBSIZE 3/8 (81343)	322.4	819.0
12414690-150	J844TYBSIZE 3/8 (81343)	296.1	752.0
12414690-151	J844TYBSIZE 3/8 (81343)	343.5	872.5
12414690-152	J844TYBSIZE 3/8 (81343)	36.0	91.5
12414690-153	J844TYBSIZE 3/8 (81343)	32.0	81.3
12414690-154	J844TYBSIZE 3/8 (81343)	48.0	122.0
12414690-155	J844TYBSIZE 3/8 (81343)	79.5	202.0
12414690-156	J844TYBSIZE 3/8 (81343)	87.0	221.0
12414690-157	J844TYBSIZE 3/8 (81343)	59.5	151.1
12414690-158	J844TYBSIZE 3/8 (81343)	66.5	169.0
12414690-159	J844TYBSIZE 3/8 (81343)	98.0	249.0
12414690-160	J844TYBSIZE 3/8 (81343)	105.5	268.0
12414690-161	J844TYBSIZE 3/8 (81343)	48.0	122.0
12414690-162	J844TYBSIZE 3/8 (81343)	36.0	91.5
12414690-163	J844TYBSIZE 3/8 (81343)	161.5	410.2
12414690-164	J844TYBSIZE 3/8 (81343)	120.0	304.8
12414690-165	J844TYBSIZE 3/8 (81343)	78.0	198.1
12414690-166	J844TYBSIZE 3/8 (81343)	108.0	274.3
12414690-167	J844TYBSIZE 3/8 (81343)	168.0	426.7
12414690-168	J844TYBSIZE 3/8 (81343)	108.0	274.3
12414690-169	J844TYBSIZE 3/8 (81343)	72.0	182.9
12414690-201	C608-100BLK (13174)	14.8	37.5
12414690-202	C608-100BLK (13174)	14.1	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)	14.8	37.7
12414690-207	C608-100BLK (13174)	15.6	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)	17.0	43.0
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

E-12. PNEUMATIC TUBES FABRICATION (CONT)

Table E-1. Pneumatic Tube Lengths (Cont)

Tube Part Number	Bulk Tubing Part Number	Cut Length	
		inches	cm
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
12414690-228	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
12414690-232	C608-100BLK (13174)	126.4	321.0
12414690-233	C608-100BLK (13174)	142.1	361.0
12414690-234	C608-100BLK (13174)		
12414690-235	C608-100BLK (13174)		
12414690-236	C608-100BLK (13174)	131.9	335.0
12414690-237	C608-100BLK (13174)	147.6	375.0
12414690-238	C608-100BLK (13174)	179.5	456.0
12414690-239	C608-100BLK (13174)	187.0	475.0
12414690-240	C608-100BLK (13174)	111.5	283.2
12414690-241	C608-100BLK (13174)	127.5	324.0
12414690-242	C608-100BLK (13174)	159.0	404.0
12414690-243	C608-100BLK (13174)	166.5	423.0
12414690-244	C608-100BLK (13174)	41.0	104.2
12414690-245	C608-100BLK (13174)	57.0	144.8
12414690-246	C608-100BLK (13174)	88.6	225.0
12414690-247	C608-100BLK (13174)	96.0	244.0
12414690-248	C608-100BLK (13174)	48.0	122.0
12414690-249	C608-100BLK (13174)	54.0	137.2
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-13. 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-14. 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	MS521302B110360 (96906)	17.5	44.4
12418460-002	MS521301A206R (96906)	16.0	40.6

E-15. 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-14. 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 cm) X .37 in. (9.5 mm) X 1.25 in. (32 mm)	1

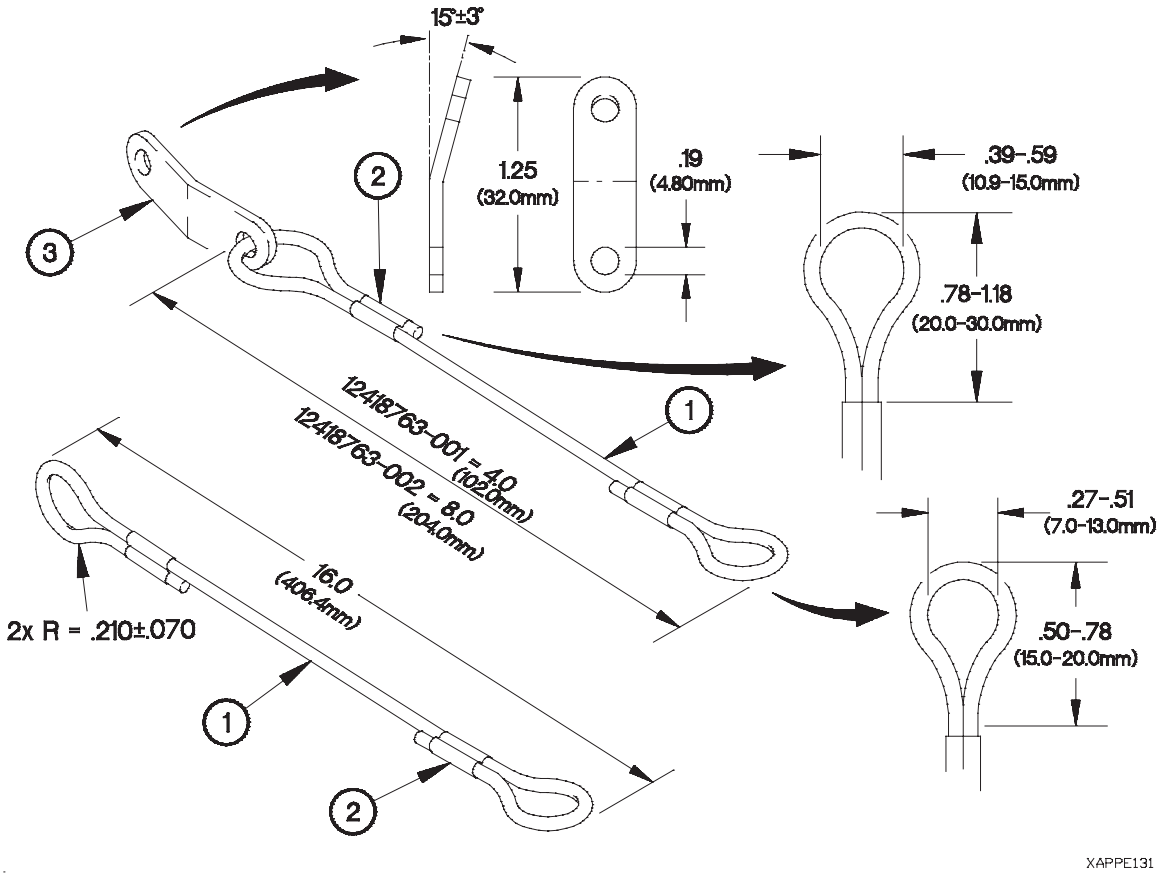


Figure E-14. Lanyard Assembly

a. All dimensions are in inches (millimeters).
b. Make from bulk cable and flat steel material as identified in parts list.
c. Drill two 0.19 in. (4.8 mm) diameter holes through tab material as shown on **Figure E-14. Lanyard Assembly**.
d. De-burr and remove sharp edges.
e. Bend tab as shown on **Figure E-14. Lanyard Assembly**.
f. 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**.
g. Crimp two sleeves over cable ends.

E-16. 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-17. 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-18. 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-19. CTIS SEAL DRIVER 3256-H-1048

Used on Front, Intermediate, and Rear Axle CTIS Seals.

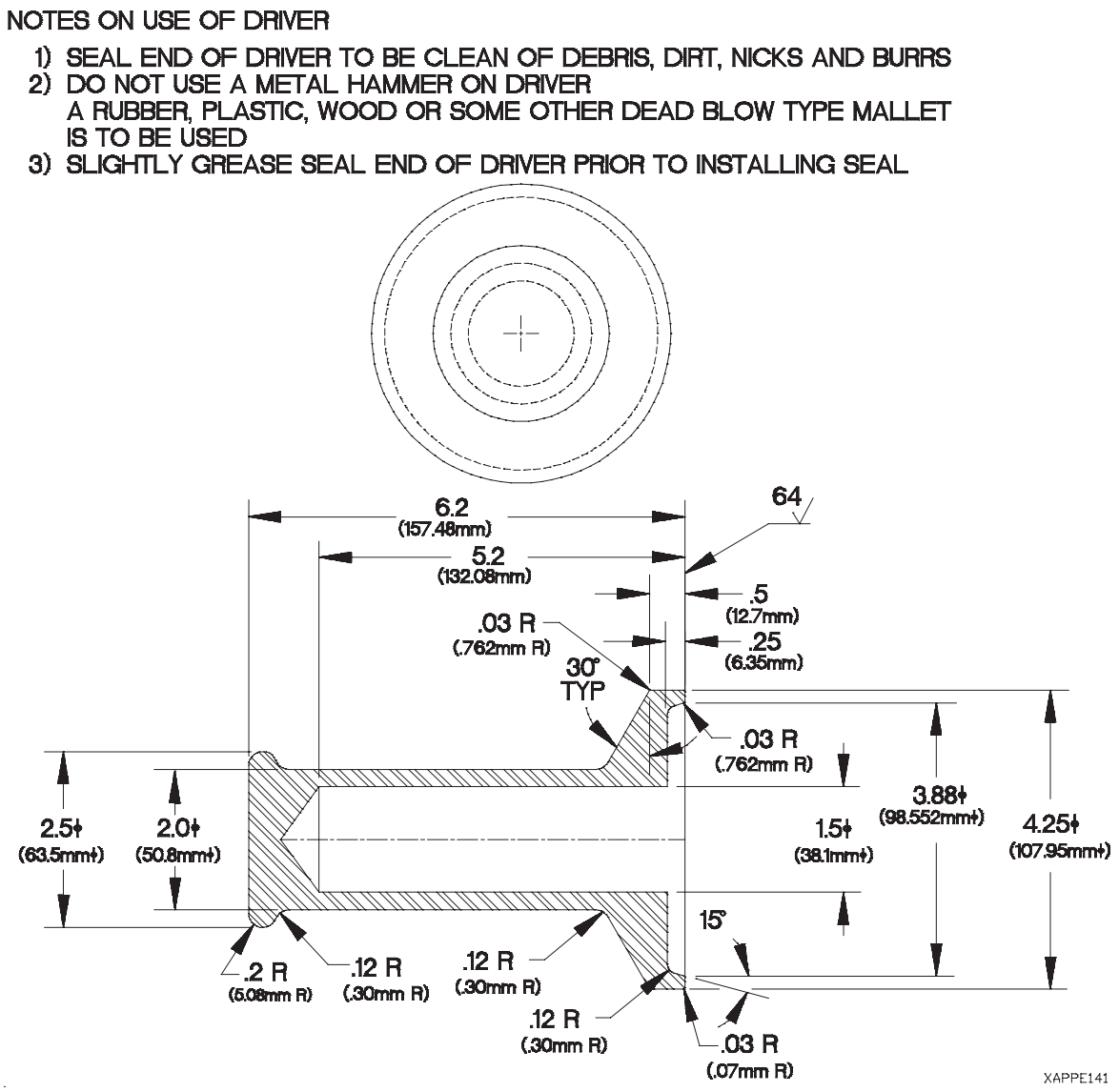


Figure E-15. CTIS Seal Driver

a. All dimensions are in inches (millimeters).
b. Manufacture from round steel stock.
c. De-burr and remove sharp edges.

E-20. WHEEL HUB GREASE SEAL DRIVER 3256-K-1051

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

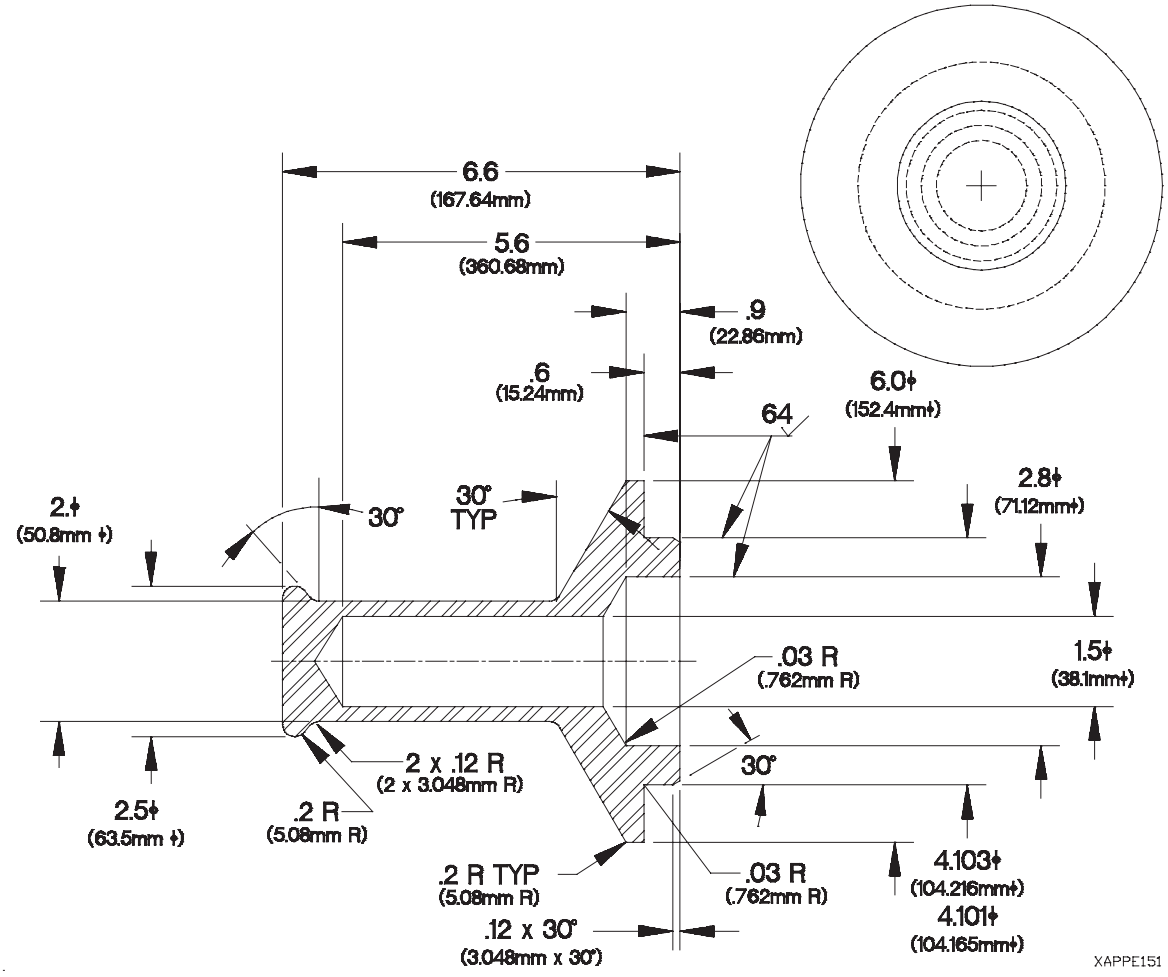


Figure E-16. Wheel Hub Grease Seal Driver

a. All dimensions are in inches (millimeters).
b. Manufacture from round steel stock.
c. De-burr and remove sharp edges.

E-21. DIMMER SWITCH TEST WIRE

Fabricate the dimmer switch test wire according to the following steps. Refer to the following parts list for materials.

Material Description	National Stock Number	Quantity	Cut Length
Wire, Electrical (M168678/14BKE9)	6145-01-229-4134	1	12 in (305 mm)
Pin, Grooved, Headless (12258939-1)	5315-01-156-6314	1	
Contact, Electrical (12258939-2)	5999-01-150-8808	1	

a. Dimensions are in inches (millimeters).
b. Cut a length of electrical wire approximately 12 in. (305 mm) long.
c. Remove approximately 1/4 in. (6 mm) of insulation from each end of electrical wire.
d. Crimp headless grooved pin on one end of electrical wire.
e. Crimp electrical contact on opposite end of electrical wire.

E-22. PURGE VALVE TOOL

Fabricate Purge Valve Tool according to the following instructions. Refer to Figure E-17. Purge Valve Tool for details.

Item	Part Number	Material Description	Size	Qty
1	N/A	Steel, ASTM A 108 or A576 Grade 1015-1025, BAR (Ref UNS G10150-G10250). Finish Black Oxide Coat, Class I, IAW MIL-C-13924.	14.0 in. (356 mm)	1

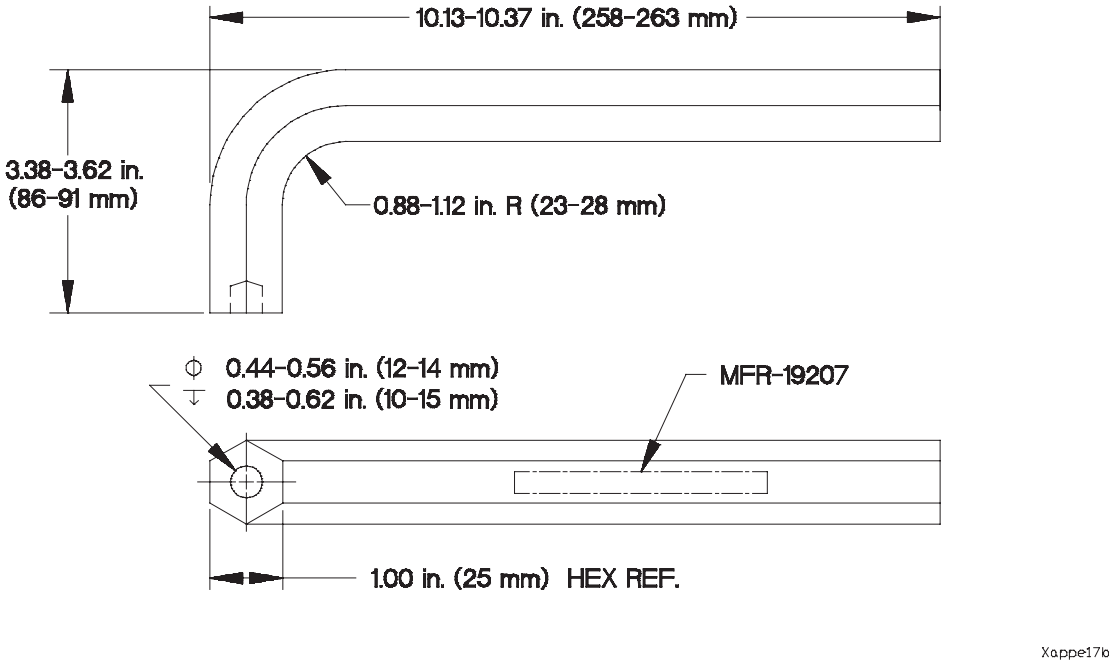


Figure E-17. Purge Valve Tool

a. All dimensions are in inches (cm).
b. Cut steel bar (1) and bend to shape as shown in Figure E-17.
c. Dimensional limits apply after coating.
d. All edges shall be broken and free from burrs.
e. Metal Stamp, electro etch, or engrave with the following marking IAW MIL-STD-130: 19207-12379968 MFR-19207.

E-23. M1089 30K WINCH AIR HOSES

Cut air hoses and convoluted tubing from bulk hose stock listed in Table E-3. M1089 30K Winch Air Hose Lengths and Fittings. Use a fine-toothed hacksaw or suitable cutting device and cut air hoses and convoluted tubing to required length.

Table E-3. M1089 30K Air Hose Lengths and Fittings

Hose Name	Bulk Hose P/N	Hose Cut Length		Bulk Convoluted Tubing P/N	Convoluted Tubing Cut Length		Fittings P/N	Fittings Qty.
		in.	mm		in.	mm		
Air Supply	NB-4-035	96.0	2438	12420924-001	94.0	2388	4-100110B 4-100115B 63NTA-4	2 2 2
Manifold Supply	NB-4-035	40.0	1016	12420924-001	38.0	965	4-100110B 4-100115B 63NTA-4	2 2 2
LH freespool	NB-4-035	66.0	1676	12420924-001	64.0	1626	4-100110B 4-100115B 63NTA-4	2 2 2
RH freespool	NB-4-035	48.0	1219	12420924-001	46.0	1168	4-100110B 4-100115B 63NTA-4	2 2 2
LH regulator input	NB-4-035	12.0	305	N/A	N/A	N/A	4-100110B 4-100115B 63NTA-4	2 2 2
RH regulator input	NB-4-035	12.0	305	N/A	N/A	N/A	4-100110B 4-100115B 63NTA-4	2 2 2
LH check valve return	NB-4-035	3.0	76	N/A	N/A	N/A	4-100110B 4-100115B 63NTA-4	2 2 2
RH check valve return	NB-4-035	3.0	76	N/A	N/A	N/A	4-100110B 4-100115B 63NTA-4	2 2 2
Front LH tension supply	NB-4-035	48.0	1219	12420924-001	46.0	1168	4-100110B 4-100115B 63NTA-4	2 2 2
Front RH tension supply	NB-4-035	66.0	1676	12420924-001	64.0	1626	4-100110B 4-100115B 63NTA-4	2 2 2

Table E-3. M1089 30K Air Hose Lengths and Fittings (Cont)

Hose Name	Bulk Hose P/N	Hose Cut Length		Bulk Convoluted Tubing P/N	Convoluted Tubing Cut Length		Fittings P/N	Fittings Qty.
		in.	mm		in.	mm		
RH 30K winch supply	NB-2-016	40.0	1016	N/A	N/A	N/A	2-2 100102BA 2-2 100202BA	1 1
RH 30K winch return	NB-2-016	40.0	1016	N/A	N/A	N/A	2-2 100102BA	2
Underlift fold supply	NB-2-016	40.0	1016	N/A	N/A	N/A	2-2 100102BA	1
Underlift fold return	NB-2-016	40.0	1016	N/A	N/A	N/A	2-2 100102BA 2-2 100202BA	1 1
Underlift supply	NB-2-016	40.0	1016	N/A	N/A	N/A	2-2 100102BA	2
Underlift return	NB-2-016	40.0	1016	N/A	N/A	N/A	2-2 100102BA 2-2 100202BA	1 1
Stinger supply	NB-2-016	40.0	1016	N/A	N/A	N/A	2-2 100102BA	2
Stinger Return	NB-2-016	40.0	1016	N/A	N/A	N/A	2-2 100102BA 2-2 100202BA	1 1
LH 30K Winch supply	NB-2-016	40.0	1016	N/A	N/A	N/A	2-2 100102BA 2-2 100202BA	1 1
LH 30K winch return	NB-2-016	40.0	1016	N/A	N/A	N/A	2-2 100102BA	2

E-24. M1089 30K WINCH PNEUMATIC TEST ADAPTER

Assembly the M1089 30K winch pneumatic test adapter to the following steps. Refer to the following parts list and **Figure E-18. M1089 30K Winch Pneumatic Test Adapter** for details.

Part Number	Material Description	National Stock Number	Qty.
NB-4-035	Tubing, Nonmetallic	4720-01-071-4042	14 in. (355.6 mm)
MIL-T-27730	Tape, antiseizing	8030-00-889-3534	1 roll
207P-4	Coupling, Pipe	4730-00-881-1161	1
4-6 100102 BA	Adapter, Straight, Pipe to Tube	4730-01-096-9398	1
4-4 100101 BA	Nipple, Tube	4730-01-091-4012	1

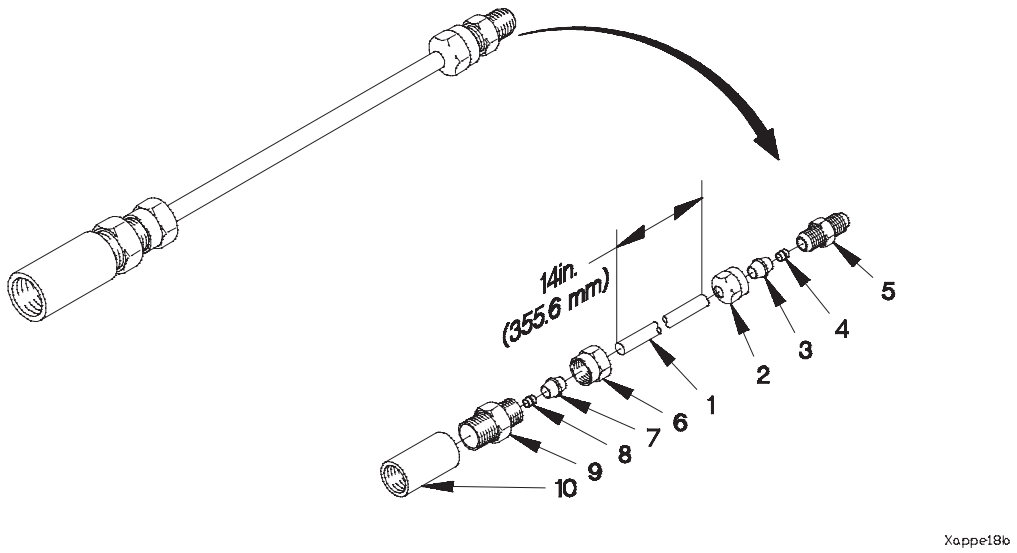


Figure E-18. M1089 30K Winch Pneumatic Test Adapter

a. All dimensions are in inches (millimeter).
b. Cut piece of nonmetallic tubing (1) to 14.0 in. (355.6 mm).
c. Remove two nuts (2), ferrules (3), and sleeves (4) from tube nipple (5).
d. Install nut (2), ferrule (3), and sleeve (4) on nonmetallic tubing (1).
e. Install nonmetallic tubing (1) on tube nipple (5).
f. Remove nut (6), ferrule (7), and sleeve (8) from straight adapter (9).
g. Install nut (6), ferrule (7), and sleeve (8) on nonmetallic tubing (1).
h. Install nonmetallic tubing (1) on straight adapter (9).
i. Apply on wrap of antiseizing tape to threads of straight adapter (9).
j. Install pipe coupling (10) on straight adapter (9).
k. Retain nut (2), ferrule (3), and sleeve (4) for future use.

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.

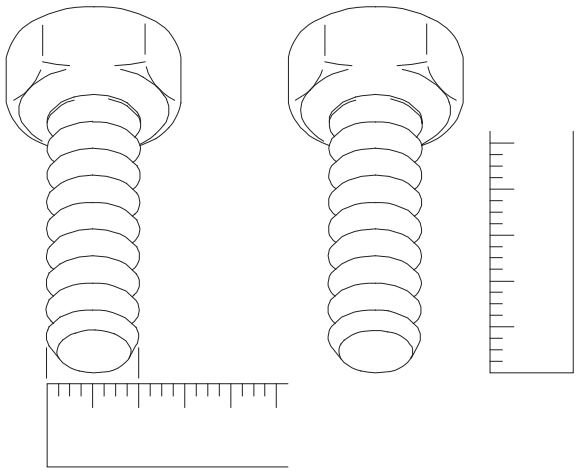
(2) Count the number of threads per inch.

(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

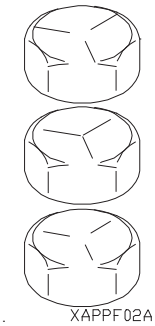
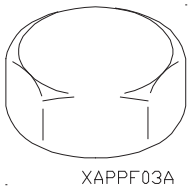
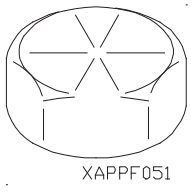
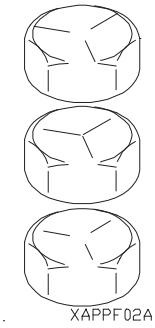
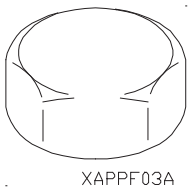
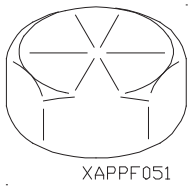
 XAPPF02A **NOTE Manufacturer's marks may vary. These are all SAE Grade 5.**		Material Grade Markings					
		 XAPPF03A **SAE Grade 2**		 XAPPF04A **SAE Grade 5**		 XAPPF051 **SAE Grade 8**	
Diameter	**Threads per inch**	**Torque**					
inch		**lb-ft**	**N·m**	**lb-ft**	**N·m**	**lb-ft**	**N·m**
1/4	20	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)

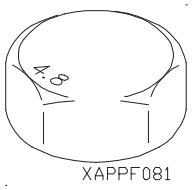
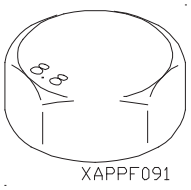
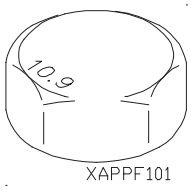
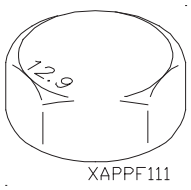
 XAPPF02A Manufacturer's marks may vary. These are all SAE Grade 5		Material Grade Markings					
		 XAPPF03A SAE Grade 2		 XAPPF04A SAE Grade 5		 XAPPF051 SAE Grade 8	
Diameter	Threads per inch	Torque					
inch		lb-ft	N·m	lb-ft	N·m	lb-ft	N·m
11/16	24	99-133	135-181	153-207	209-279	217-291	296-394
3/4	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			450-606	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			
		 XAPPF061		 XAPPF071	
		SAE Grade 5		SAE Grade 8	
Hole Diameter	Threads per inch	Torque			
inch		lb-ft	N·m	lb-ft	N·m
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

		Material Grade Markings							
		 Metric Grade 4.8		 Metric Grade 8.8		 Metric Grade 10.9		 Metric Grade 12.9	
Diameter	Thread Pitch	Torque							
mm		lb-ft	N·m	lb-ft	N·m	lb-ft	N·m	lb-ft	N·m
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	151-201
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

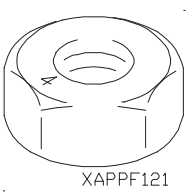
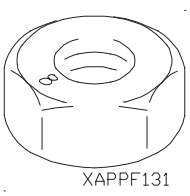
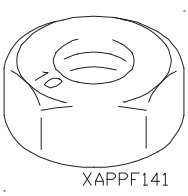
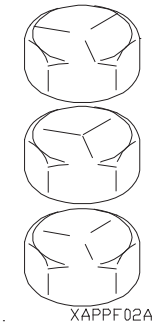
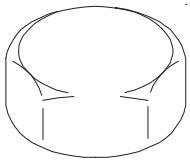
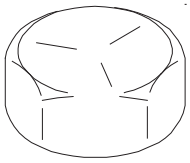
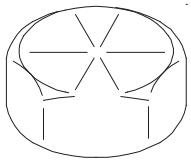
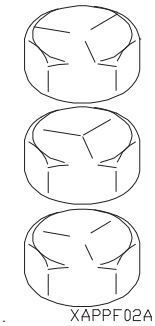
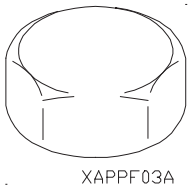
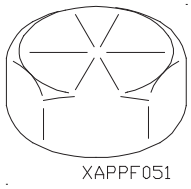
		Material Grade Markings							
		 Metric Grade 4.8		 Metric Grade 8.8		 Metric Grade 10.9		 Metric Grade 12.9	
Diameter	Thread Pitch	Torque							
mm		lb-ft	N·m	lb-ft	N·m	lb-ft	N·m	lb-ft	N·m
6	1	5-6	7-8	7-9	10-12	10-12	14-17	11-14	15-19
8	1.25	12-14	16-18	18-22	24-30	24-30	32-40	27-33	36-46
8	1	12-14	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 and 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		 XAPPF051 SAE Grade 8	
Diameter	Threads per inch	Torque					
inch		lb-ft	N·m	lb-ft	N·m	lb-ft	N·m
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)

 XAPPF02A **Manufacturer's marks may vary. These are all SAE Grade 5**		**Material Grade Markings**					
		 XAPPF03A **SAE Grade 2**		 XAPPF04A **SAE Grade 5**		 XAPPF051 **SAE Grade 8**	
Diameter	**Threads per inch**	**Torque**					
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 MTV vehicle.

G-2. EXPLANATION OF COLUMNS

a. Column (1) - Item Number. This number is assigned to each entry in the listing and is referenced in the Initial Setup of the applicable task under Materials/Parts.

b. Column (2) - Nomenclature. Name or identification of the part.

c. Column (3) - Part Number. The manufacturer's part number.

d. Column (4) - National Stock Number. The National stock number of the part.

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, NONMETALLIC	1011-05	5340-01-342-1110
5	BUMPER, RUBBER	12419182	5340-01-410-8397
6	BUSHING, SLEEVE	7-199-002668	3120-01-367-6894
7	CHANNEL, RUBBER	ZZR765/2-001A7	9390-01-420-4560
8	CLAMP	12421183-005	4730-01-447-4312
9	CLAMP	12411183-006	4730-01-447-4313
9.1	CLAMP, WIRE ROPE, SADDLED	MS51868-56	4030-00-042-7882
10	COVER, FLUID FILTER	12412628	2590-01-414-1243
11	DECAL	12340917	7690-01-256-4909
12	FASTENER TAPE	MIL-F-21840	8315-00-006-9855
13	FASTENER TAPE	50-534718-19	8315-00-935-6762
14	FILTER ASSEMBLY	75223-11	2940-01-417-9333

Section II. MANDATORY REPLACEMENT PARTS LIST (CONT)

(1) ITEM NO.	(2) NOMENCLATURE	(3) PART NUMBER	(4) NATIONAL STOCK NUMBER
15	FILTER ELEMENT	1048011	2940-01-385-8931
16	FILTER ELEMENT, FLUID	K05-0104	2910-01-377-3128
17	FILTER ELEMENT, FLUID	R22146	2910-01-360-6366
17.1	FILTER ELEMENT, FLUID	ST117073098-000	2910-01-467-4594
18	FILTER ELEMENT, FLUID	29507750	2940-01-361-2405
19	FILTER ELEMENT, FLUID	599791	4460-01-284-2344
20	FILTER ELEMENT, FLUID	931558	2940-01-363-4377
21	FILTER ELEMENT, INTAKE AIR CLEANER	P52-7750	2940-01-361-2407
22	FILTER, FUEL	7E9763	2910-01-363-3089
23	FILTER, OIL	1R0739	2940-00-029-0388
24	GASKET	F337576M6	
25	GASKET	M28840/24HA	5935-01-421-9754
26	GASKET	QS-1181	5330-01-058-3788
27	GASKET	10-36675-18	5330-00-298-0190
27.1	GASKET	11446	5330-00-247-4174
28	GASKET	119-2940	5330-01-424-7905
29	GASKET	12412394	5330-01-371-6199
29.1	GASKET	12421155	5330-01-295-0115
29.2	GASKET	12421469	5330-01-453-2980
29.3	GASKET	3N4087	5330-01-061-8003
30	GASKET	350700	5330-01-295-3053
31	GASKET	350903	5330-00-576-4626
32	GASKET	352200	5330-01-421-6105
33	GASKET	352302	5330-01-421-6107
34	GASKET	353400	5330-01-421-6102
35	GASKET	353806	5330-01-421-6103
36	GASKET	353810	5330-01-450-6666
37	GASKET	355148	5330-01-423-0596
38	GASKET	355175	5330-01-423-0623
39	GASKET	3K3257	5330-01-305-6550
40	GASKET	4P1624	5330-01-360-5934

Section II. MANDATORY REPLACEMENT PARTS LIST (CONT)

(1) ITEM NO.	(2) NOMENCLATURE	(3) PART NUMBER	(4) NATIONAL STOCK NUMBER
41	GASKET	4W0549	5330-01-347-3207
42	GASKET	9Y8103	5330-01-360-5931
43	GASKET and PREFORMED PACKING KIT	P4-4	5330-00-122-0624
43.1	GASKET and PREFORMED PACKING SET	9X8318	5330-01-360-9098
44	GASKET, FUEL FILTER	7C1159	5330-01-360-5941
45	NOT USED		
46	GASKET, THERMOSTAT	2W7212	5330-01-347-3206
47	GROMMET, NONMETALLIC	MS21266-3N	5325-00-926-1394
48	GROMMET, NONMETALLIC	MS35489-109	5325-00-290-0074
49	GROMMET, NONMETALLIC	MS35489-6	5325-00-263-6632
50	GROMMET, NONMETALLIC	12412334-2	9320-01-456-1672
51	GROMMET, NONMETALLIC	12417598	5325-01-375-1299
52	GROMMET, NONMETALLIC	12421402	5325-01-440-2178
53	GROMMET, NONMETALLIC	4082-37634-01	5325-01-194-3076
54	GROMMET, NONMETALLIC	50S12-1-1AA	5325-01-145-0105
55	GROMMET, NONMETALLIC	8741442	5325-00-088-6147
55.1	HEAD, FLUID FILTER	7632-002-144	2940-01-387-4397
56	INDICATOR, SIGHT, LIQUID	SLT-1214	6680-01-356-8162
57	INSERT, NYLON	12SWS2520	5310-01-439-8881
58	INSERT, NYLON	12SWS2542	5310-01-439-8883
59	INSERT, NYLON	12421463-003	5310-01-453-2087
60	INSULATOR, TANK	A1394J	5970-01-385-7317
61	INSULATOR, TANK	A1394K	5970-01-385-7262
62	NOT USED		
63	KIT, FILTER	29526899	5330-01-453-0770
64	KIT, FILTER	29503829	
65	LAMP, INCANDESCENT	CM7-7373	6240-00-270-6824
66	LAMP, INCANDESCENT	CM7376	6240-00-499-6278
67	LATCH, BAIL HEAD	68-20-101-10	2540-01-232-2470
68	LOCKNUT	0770-023-003	5310-01-423-3725
69	LOCKWASHER	ABCH207-LW-1/2	
70	LOCKWASHER	ABCH207-LW-3/8	

Section II. MANDATORY REPLACEMENT PARTS LIST (CONT)

(1) ITEM NO.	(2) NOMENCLATURE	(3) PART NUMBER	(4) NATIONAL STOCK NUMBER
71	LOCKWASHER	D70336/1-20	5310-01-110-7933
72	LOCKWASHER	D70336/3-50	5310-01-439-2542
73	LOCKWASHER	D70336/3-52	5310-01-439-2543
73.1	LOCKWASHER	ERNA245	5310-00-584-5272
74	LOCKWASHER	MS35333-136	5310-01-078-9699
75	LOCKWASHER	MS35333-78	5310-00-261-7156
76	LOCKWASHER	MS35335-30	5310-00-209-0788
77	LOCKWASHER	MS35335-31	5310-00-596-7693
78	LOCKWASHER	MS35335-33	5310-00-209-0786
79	LOCKWASHER	MS35335-36	5310-00-550-3503
80	LOCKWASHER	MS35335-37	5310-00-209-5116
81	LOCKWASHER	MS35335-38	5310-00-616-6354
82	LOCKWASHER	MS35335-58	5310-00-209-1366
83	LOCKWASHER	MS35335-61	5310-00-527-3634
84	LOCKWASHER	MS35335-62	5310-00-184-9562
85	LOCKWASHER	MS35337-25	5310-00-012-1637
86	LOCKWASHER	MS35338-100	5310-00-261-8278
87	LOCKWASHER	MS35338-103	5310-00-184-8971
88	LOCKWASHER	MS35338-137	5310-00-933-8119
89	LOCKWASHER	MS35338-138	5310-00-933-8120
90	LOCKWASHER	MS35338-141	5310-00-984-7042
90.1	LOCKWASHER	MS35338-147	5310-00-926-5871
91	LOCKWASHER	MS35338-41	5310-00-045-4007
92	LOCKWASHER	MS35338-42	5310-00-045-3299
93	LOCKWASHER	MS35338-43	5310-00-045-3296
94	LOCKWASHER	MS35338-44	5310-00-582-5965
95	LOCKWASHER	MS35338-45	5310-00-407-9566
96	LOCKWASHER	MS35338-46	5310-01-334-4710
97	LOCKWASHER	MS35338-47	5310-00-209-0965
98	LOCKWASHER	MS35338-51	5310-00-584-7888
99	LOCKWASHER	MS35338-58	5310-00-702-6286
100	LOCKWASHER	MS51414-1	5310-01-235-2057

Section II. MANDATORY REPLACEMENT PARTS LIST (CONT)

(1) ITEM NO.	(2) NOMENCLATURE	(3) PART NUMBER	(4) NATIONAL STOCK NUMBER
101	LOCKWASHER	MS51414-2	5310-01-310-1098
102	LOCKWASHER	MS51414-4	5310-01-251-9276
103	LOCKWASHER	N9015	5310-01-046-0186
104	LOCKWASHER	N9459	5310-01-348-8393
105	LOCKWASHER	N9461	5310-01-348-8392
105.1	LOCKWASHER	XP1113	5310-01-460-5991
105.2	LOCKWASHER	10241	5310-01-416-3010
105.3	LOCKWASHER	10030	
106	LOCKWASHER	114021	5310-01-081-0798
107	LOCKWASHER	1229-S-513-C	5310-01-062-3384
108	LOCKWASHER	12412477-14	
109	LOCKWASHER	12412601-02	5310-01-387-1152
110	LOCKWASHER	12414570-005	5310-01-452-9420
111	LOCKWASHER	12414570-011	5310-01-374-3292
112	LOCKWASHER	12414570-013	5310-01-374-4515
113	LOCKWASHER	12414570-015	5310-01-388-2043
113.1	LOCKWASHER	12414570-019	5310-01-470-2362
114	LOCKWASHER	12414570-021	5310-01-374-4516
115	NOT USED		
116	NOT USED		
117	NOT USED		
118	LOCKWASHER	1729B262	5310-00-964-7811
119	NOT USED		
120	MOUNT, RESILIENT	12413126	5340-01-439-3765
121	MOUNT, RESILIENT	12418476	5340-01-377-0693
122	NUT, CLIP	MS90724-24	5310-01-074-5041
123	NUT, CONDUIT	BL75	5975-00-642-7261
124	NUT, CONDUIT	141	5975-00-152-1075
125	NUT, CONDUIT	143	5975-00-714-8031
126	NUT, PLAIN, BLIND RIVET	ALS7-632-80	5325-01-465-0001
127	NUT, PLAIN, HEX	MS35649-282	5310-00-934-9757
127.1	NUT, PLAIN, ROUND	1727N40	5310-00-123-2572
128	NUT, SELF-LOCKING	DIN-934STM6	5310-01-342-2739

Section II. MANDATORY REPLACEMENT PARTS LIST (CONT)

(1) ITEM NO.	(2) NOMENCLATURE	(3) PART NUMBER	(4) NATIONAL STOCK NUMBER
129	NUT, SELF-LOCKING	MS20500-524	5310-00-208-4023
130	NUT, SELF-LOCKING	MS21042-04	5310-00-811-6419
130.1	NUT, SELF-LOCKING	MS21045L5	5310-00-857-5559
131	NUT, SELF-LOCKING	MS21083N08	5310-00-941-6019
132	NUT, SELF-LOCKING	MS21083N6	5310-00-926-1852
133	NUT, SELF-LOCKING	MS51922-1	5310-00-088-1251
134	NUT, SELF-LOCKING	MS51922-17	5310-00-087-4652
135	NUT, SELF-LOCKING	MS51922-2	5310-00-929-1807
136	NUT, SELF-LOCKING	MS51922-33	5310-00-225-6993
137	NUT, SELF-LOCKING	MS51922-49	5310-00-269-4040
138	NUT, SELF-LOCKING	MS51922-5	5310-00-959-7600
139	NUT, SELF-LOCKING	MS51922-57	5310-00-067-6356
140	NUT, SELF-LOCKING	MS51922-65	5310-00-225-6992
141	NUT, SELF-LOCKING	MS51922-9	5310-00-984-3806
142	NUT, SELF-LOCKING	N9406	5310-01-362-6171
143	NUT, SELF-LOCKING	N9410	5310-01-348-8398
143.1	NUT, SELF-LOCKING	N9453	5310-01-348-8314
144	NUT, SELF-LOCKING	N9467	5310-01-350-4257
144.1	NUT, SELF-LOCKING	N9556	5310-01-423-0880
145	NUT, SELF-LOCKING	12301125	5310-01-210-0199
146	NUT, SELF-LOCKING	12412476-09	5310-01-445-6346
146.1	NUT, SELF-LOCKING	12411174-008	
147	NUT, SELF-LOCKING	12412476-11	5310-01-407-7178
148	NUT, SELF-LOCKING	12412476-12	
149	NUT, SELF-LOCKING	12412478-04	5310-01-381-9901
150	NUT, SELF-LOCKING	12414308-002	5310-01-381-9819
151	NUT, SELF-LOCKING	12414308-003	5310-01-377-1549
152	NUT, SELF-LOCKING	12414308-004	5310-01-369-5703
153	NUT, SELF-LOCKING	12414308-007	5310-01-369-6073
154	NUT, SELF-LOCKING	12414308-017	5310-01-381-9830
155	NUT, SELF-LOCKING	12414308-018	5310-01-369-3337
156	NUT, SELF-LOCKING	12414308-019	5310-01-369-9522

Section II. MANDATORY REPLACEMENT PARTS LIST (CONT)

(1) ITEM NO.	(2) NOMENCLATURE	(3) PART NUMBER	(4) NATIONAL STOCK NUMBER
157	NUT, SELF-LOCKING	12414308-020	5310-01-381-9849
158	NUT, SELF-LOCKING	12414308-021	5310-01-369-3338
159	NUT, SELF-LOCKING	12414308-022	5310-01-417-1262
160	NUT, SELF-LOCKING	12414308-023	5310-01-369-6705
161	NUT, SELF-LOCKING	12414308-025	5310-01-369-6706
162	NUT, SELF-LOCKING	12414308-027	5310-01-369-3339
163	NUT, SELF-LOCKING	12414308-078	
164	NUT, SELF-LOCKING	12414315-002	5310-01-374-1381
165	NUT, SELF-LOCKING	12414315-003	5310-01-374-1382
166	NUT, SELF-LOCKING	12414315-005	5310-01-372-3023
167	NUT, SELF-LOCKING	12414315-006	5310-01-369-3332
168	NUT, SELF-LOCKING	12414315-009	5310-01-365-7236
169	NUT, SELF-LOCKING	12414315-015	5310-01-462-0580
170	NUT, SELF-LOCKING	12414315-017	5310-01-368-8065
171	NUT, SELF-LOCKING	12414420-004	5310-01-370-0010
172	NUT, SELF-LOCKING	12419003	5310-01-376-0773
173	NUT, SELF-LOCKING	29514660	
174	NUT, SELF-LOCKING	7-660-081600	5310-01-390-8487
175	NUT, SELF-LOCKING	7-660-082504	5310-01-354-8734
176	NUT, SELF-LOCKING	7794625	5310-00-579-1031
177	NUT, SELF-LOCKING	7951286	5310-00-789-0398
178	PACKING, PREFORMED	A82777	5330-00-579-6495
178.1	PACKING, PREFORMED	F4001-16	5331-01-466-0354
179	PACKING, PREFORMED	J515-16-3	5331-01-465-3634
180	PACKING, PREFORMED	5999807	5331-01-456-9156
181	PACKING, PREFORMED	MS28775-011	5330-00-582-2133
181.1	PACKING, PREFORMED	MS28775-910	5331-00-448-6753
182	PACKING, PREFORMED	MS28778-10	5330-00-285-9842
183	PACKING, PREFORMED	MS28778-12	5330-00-251-8839
184	PACKING, PREFORMED	MS28778-16	5330-00-804-5694
185	PACKING, PREFORMED	MS28778-20	5330-00-816-3546

Section II. MANDATORY REPLACEMENT PARTS LIST (CONT)

(1) ITEM NO.	(2) NOMENCLATURE	(3) PART NUMBER	(4) NATIONAL STOCK NUMBER
186	PACKING, PREFORMED	MS28778-4	5330-00-805-2966
187	PACKING, PREFORMED	MS28778-6	5330-00-804-5695
188	PACKING, PREFORMED	MS9955-113	5330-01-374-2325
189	PACKING, PREFORMED	M25988/1-246	5330-01-189-6351
189.1	PACKING, PREFORMED	M83461/1-442	5330-01-183-0987
190	PACKING, PREFORMED	OR420A	5330-01-389-6028
191	PACKING, PREFORMED	11639519-1	5330-00-463-0200
191.1	PACKING, PREFORMED	12422548-004	5331-01-059-1141
192	PACKING, PREFORMED	1509	5330-00-172-1919
192.1	PACKING, PREFORMED	195045	5331-00-618-5361
192.2	PACKING, PREFORMED	19755	5331-01-415-9632
192.3	PACKING, PREFORMED	198336	5331-00-584-1840
193	PACKING, PREFORMED	2-012N507-90	5330-01-092-5502
194	PACKING, PREFORMED	2-018N507-90	5330-01-092-5503
195	PACKING, PREFORMED	2M4453	5330-00-074-3768
196	PACKING, PREFORMED	22617-16	5330-01-168-0885
197	PACKING, PREFORMED	23043446	5330-01-424-6629
197.1	PACKING, PREFORMED	250192	5331-01-417-5105
197.2	PACKING, PREFORMED	251216	5330-01-417-5107
198	PACKING, PREFORMED	29500969	5330-01-360-7852
199	PACKING, PREFORMED	29503383	5330-01-360-6017
200	PACKING, PREFORMED	3-906N552-90	5330-01-104-1093
201	PACKING, PREFORMED	3-908N552-90	5330-00-929-8171
202	PACKING, PREFORMED	3D2824	5330-00-944-8281
203	PACKING, PREFORMED	3J1907	5330-01-333-6444
204	PACKING, PREFORMED	3J7354	5330-00-952-8008
205	PACKING, PREFORMED	3K0360	5330-00-948-6482
206	PACKING, PREFORMED	4J5477	5330-00-855-8059
207	PACKING, PREFORMED	4L9564	5330-00-828-8639
207.1	PACKING, PREFORMED	420828	5340-01-417-3788
208	PACKING, PREFORMED	5-X-1155	5330-01-392-1637
209	PACKING, PREFORMED	5F7054	5330-00-339-6224

Section II. MANDATORY REPLACEMENT PARTS LIST (CONT)

(1) ITEM NO.	(2) NOMENCLATURE	(3) PART NUMBER	(4) NATIONAL STOCK NUMBER
210	PACKING, PREFORMED	5P7813	5330-01-335-0042
211	PACKING, PREFORMED	6V8397	5330-00-579-6495
212	PACKING, PREFORMED	673268	
213	PACKING, PREFORMED	673269	5330-01-395-1252
214	PACKING, PREFORMED	7F8267	5330-00-291-7353
215	PACKING, PREFORMED	7320658	5330-00-297-7106
216	PACKING, PREFORMED	9604792-001	5330-01-429-3089
217	PAD, CUSHIONING	12413120	2590-01-474-8307
218	PARTS KIT, DEHYDRATOR	RN-60-A	4440-01-337-7324
219	PARTS KIT, HYDRAULIC PUMP	P1-12RP	4320-00-125-3208
220	PARTS KIT, SEAL REPLACEMENT	SK10-2	5330-01-350-4474
221	PARTS KIT, SEAL REPLACEMENT	SK10-3	5330-01-350-4472
222	PARTS KIT, SEAL REPLACEMENT	SK10-4	5330-01-343-2745
222.1	PARTS KIT, SEAL REPLACEMENT, MECHANICAL	SKD1VW	5330-01-309-2603
223	PIN, COTTER	K-2412-Z	5315-01-179-9882
224	PIN, COTTER	MS24665-151	5315-00-815-1405
225	PIN, COTTER	MS24665-298	5315-00-234-1861
226	PIN, COTTER	MS24665-385	5315-00-187-9382
227	PIN, COTTER	MS24665-394	5315-00-234-1628
228	PIN, COTTER	MS24665-423	5315-00-013-7228
229	PIN, COTTER	MS24665-455	5315-00-187-9392
230	PIN, COTTER	MS24665-457	5315-00-187-9393
231	PIN, COTTER	MS24665-459	5315-00-187-9394
232	PIN, COTTER	MS24665-494	
233	PIN, COTTER	MS24665-498	5315-00-849-9854
234	PIN, COTTER	MS24665-628	5315-00-846-0126
235	PIN, COTTER	MS24665-654	5315-00-187-9413
236	PIN, COTTER	MS24665-69	5315-00-828-8190
236.1	PIN, COTTER	XB-781-1	5315-01-369-1346
237	NOT USED		
238	PIN, SPRING	MS16562-142	5315-00-058-6115

Section II. MANDATORY REPLACEMENT PARTS LIST (CONT)

(1) ITEM NO.	(2) NOMENCLATURE	(3) PART NUMBER	(4) NATIONAL STOCK NUMBER
239	PIN, SPRING	MS16562-146	5315-00-853-3814
240	PLASTIC STRIP	352700	5330-01-396-2109
241	RECEPTACLE	50R4-1-1AA	5325-01-049-2049
241.1	REPAIR KIT, GOVERNOR	RN32W	
241.2	RETAINER, PACKING	11863-012	5330-01-417-7795
241.3	RETAINER, PACKING	202624	5330-01-417-7794
242	RETAINER	A-1205-D-2344	5330-01-360-5253
243	RIVET, BLIND	AD66H	5320-01-008-8204
243.1	RIVET, BLIND	MS20601AD5W3	5320-00-582-3299
243.2	RIVET, BLIND	MS20601B4W2	5320-00-616-5274
244	RIVET, BLIND	MS20604B3W2	5320-00-721-9075
245	RIVET, BLIND	M24243/1-B302	5320-00-999-0397
246	RIVET, BLIND	M24243/1-B610	5320-00-454-5156
247	RIVET, BLIND	M24243/1-D404	5320-00-865-8994
248	RIVET, BLIND	M24243/1-D502	5320-00-850-3248
249	RIVET, BLIND	M24243/1-D504	5320-01-020-9756
250	RIVET, BLIND	M24243/1-D506	5320-00-850-3225
251	RIVET, BLIND	M24243/1-D604	5320-00-850-3233
252	RIVET, BLIND	M24243/1-D608	5320-00-850-3246
253	RIVET, BLIND	M24243/1-D610	5320-01-030-3218
254	RIVET, BLIND	M24243/1-F402	5320-00-129-9706
254.1	RIVET, BLIND	M24243/1F608	5320-01-392-0699
254.2	RIVET, BLIND	M24243/1F610	
255	RIVET, BLIND	M24243/6-A503H	5320-00-490-2238
256	RIVET, BLIND	NAS1398C5A4	5320-00-321-2521
257	RIVET, BLIND	SD64BSLF	5320-01-397-3347
258	RIVET, BLIND	206057	5320-01-411-0081
259	RIVET, COMPRESSION	12418469	5320-01-376-0699
260	RUBBER STRIP	12412581	9320-01-399-4888
260.1	SCREW, CAP	CSH5-24-39	5305-01-479-7857
261	SCREW, CAP	12414475-131	5303-01-363-0703

Section II. MANDATORY REPLACEMENT PARTS LIST (CONT)

(1) ITEM NO.	(2) NOMENCLATURE	(3) PART NUMBER	(4) NATIONAL STOCK NUMBER
262	SCREW, CAP	6V-2315	5306-01-433-4753
263	SCREW, SELF-LOCKING	MS16998-61L	5305-01-211-3097
264	SEAL	VC08G1R0B	5330-01-389-6109
265	SEAL	355150	5330-01-423-0689
266	SEAL ASSEMBLY, CTIS	A1205-Q-2435	5330-01-360-7753
267	SEAL ASSEMBLY, HUB	A1205-R-2254	5330-01-360-5252
268	SEAL RING, METAL	29505809	5330-01-360-5329
269	SEAL, NONMETALLIC	CC3350	5330-01-431-7575
270	SEAL, NONMETALLIC	12417725	5330-01-375-2908
270.1	SEAL, NONMETALLIC	077032935	5330-01-387-2167
271	SEAL, NONMETALLIC	673999	5310-01-454-5553
271.1	SEAL, PLAIN	N72143	5330-01-453-4462
271.2	SEAL, SHAFT	SE-RUR25-2	5330-01-135-3376
272	SEAL, URETHANE FOAM	12420420-001	5680-01-453-8912
273	SEAL, URETHANE FOAM	12420420-002	5680-01-453-8485
274	SEAL, URETHANE FOAM	12420420-003	5680-01-453-8486
274.1	SEMICONDUCTOR DEVICE, DIODE	JANTX1N3957	5961-00-181-0661
274.2	SPIDER, UNIVERSAL JOINT, VEHICULAR	R279X	
274.3	SPLICE, CONDUCTOR	M7928/5-4	5940-01-079-1375
274.4	SPLICE, CONDUCTOR	M83519/1-2	5940-01-136-2540
274.5	SPLICE, CONDUCTOR	M83519/1-3	5940-01-135-7077
274.6	SPLICE, CONDUCTOR	M83519/1-5	5940-01-135-7079
274.7	SPLICE, CONDUCTOR	12420927-001	5940-01-456-1319
275	SPLICE, CONDUCTOR	23035	5940-01-210-9261
276	SPLICE, CONDUCTOR	23075	3830-01-210-9260
276.1	SPACER	12422545	5365-01-490-6790
277	TERMINAL, LUG	MS20659-163	5940-00-113-3145
278	TERMINAL, LUG	MS20659-164	5940-00-113-3148
278.1	TERMINAL, LUG	12420344	5940-01-082-3321
279	TERMINAL, LUG	MS25036-122	5940-00-113-8190
279.1	WASHER, FLAT	12414473-010	5310-01-374-6990
280	WASHER, FLAT	12417948-004	5365-01-436-8308

Section II. MANDATORY REPLACEMENT PARTS LIST (CONT)

(1) ITEM NO.	(2) NOMENCLATURE	(3) PART NUMBER	(4) NATIONAL STOCK NUMBER
280.1	WASHER, FLAT	251391	5310-01-417-1041
280.2	WASHER, FLAT	990 3861	5310-01-155-1911
281	WASHER, FLAT RUBBER	900.032	5330-01-378-7541
282	WASHER, KEY	TW107	5310-01-014-5136
283	WASHER, NYLON	MS51859-16	5310-01-381-9990
284	WASHER, NYLON	12421464-001	
285	WASHER, NYLON	12421464-002	5310-01-445-6828
286	WASHER, SPRING	D63474/1-30	5310-01-413-8475
287	WASHER, SPRING	110 7289	5310-01-246-1387
288	WASHER, SPRING	12414559-021	5310-01-374-4517
289	WASHER, SPRING	12414560-009	5310-01-333-5517
290	WASHER, SPRING	12414560-011	5310-01-421-9556
291	WASHER, SPRING	12414560-017	5310-01-395-0820
292	WASHER, SPRING	12414560-018	5310-01-381-3281
293	WASHER, SPRING	12414560-019	5310-01-369-6074
294	WASHER, SPRING	12417503	5310-01-406-6326
295	WASHER, SPRING	12418220	5310-01-372-3495
296	WASHER, SPRING	128BSTM4	5310-01-333-5517
297	WASHER, SPRING	12414560-009	5310-01-333-5517

APPENDIX H
LUBRICATION ORDER AND SERVICES

SECTION I. INTRODUCTION

H-1. GENERAL

The information contained in this appendix provides the lubrication/services requirements for the MTV 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 and services 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 6,000 miles (9,654 km). The lubrication/services 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 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.**

b. Cleaning fittings before lubricating. Clean parts with dry cleaning solvent (SD P-D-680) (Item 65, 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-13.

H-1. GENERAL (CONT)

g. Interval Symbols. The lubrications/services 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-biennially/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.**

Units participating in AOAP will sample engine oil every 3,000 miles (4,827 km) or 6 months, whichever occurs first and change engine oil as directed by AOAP. Units participating in AOAP will sample transmission oil every 6,000 miles (9,654 km) or 12 months, whichever occurs first and change transmission oil as directed by AOAP. Units participating in AOAP will sample hydraulic system oil initially after 6 weeks or 10 hours of operation, whichever occurs first. After initial oil change samples should be taken every 12 months or 50 hours of operation, whichever occurs first and change hydraulic oil as directed by AOAP.

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/SERVICES CHART

H-5. LUBRICATION/SERVICES 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	OE/HDO-15/40	OEA
Transmission (total system) (all models except M1088 and M1089)	49.3 qt (46.7 L)	OE/HDO-15/40	OE/HDO-10	OEA
Transmission (at oil change) (all models except M1088 and M1089)	36.8 qt (34.7 L)	OE/HDO-15/40	OE/HDO-10	OEA
Transmission (total system) (M1088 and M1089)	58.6 qt (55.4 L)	OE/HDO-15/40	OE/HDO-10	OEA
Transmission (at oil change) (M1088 and M1089)	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 (except M1089)	27 gal (102.2 L)	OE/HDO-10	OE/HDO-10	OEA
Hydraulic tank (M1089)	74 gal (280 L)	OE/HDO-10	OE/HDO-10	OEA
Front axle differential (maximum capacity)	9.5 qt (9 L)	GO-80/90	GO-80/90	SAE 75W90 OR GO-75
Intermediate axle differential (maximum capacity)	14.7 qt (13.9 L)	GO-80/90	GO-80/90	SAE 75W90 OR GO-75
Rear axle differential (maximum capacity)	12.15 qt (11.5 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

H-5. LUBRICATION/SERVICES 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)
Rear axle bogie	0.5 qt (0.5 L)	GO-85/140	GO-85/140	GO-85/140
15K Self-Recovery Winch (SRW)	As Required	GO-85/140	GO-80/90	GO-75
30K winches	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
Fifth wheel	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
Front axle inner wheel bearing	As Required	GAA	GAA	GAA
Intermediate 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
15K Self-Recovery Winch (SRW) cable	As Required	GW	GW	GW
30K winch cables	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**
A-A-52624A	Antifreeze, Multi-Engine Type
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)	A-A-52624A	A-A-52624A	
Cooling system (total system)	50.3 qt (47.6 L)	A-A-52624A	A-A-52624A	N/A
Cooling system (total system) (M1088, M1089)	52.8 qt (49.9 L)	A-A-52624A	A-A-52624A	N/A
Cooling system, Arctic (total system)	64.8 qt (61.3 L)	N/A	N/A	MIL-A-11755
Cooling system, Arctic (total system) (M1088, M1089)	76.5 qt (72.4 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

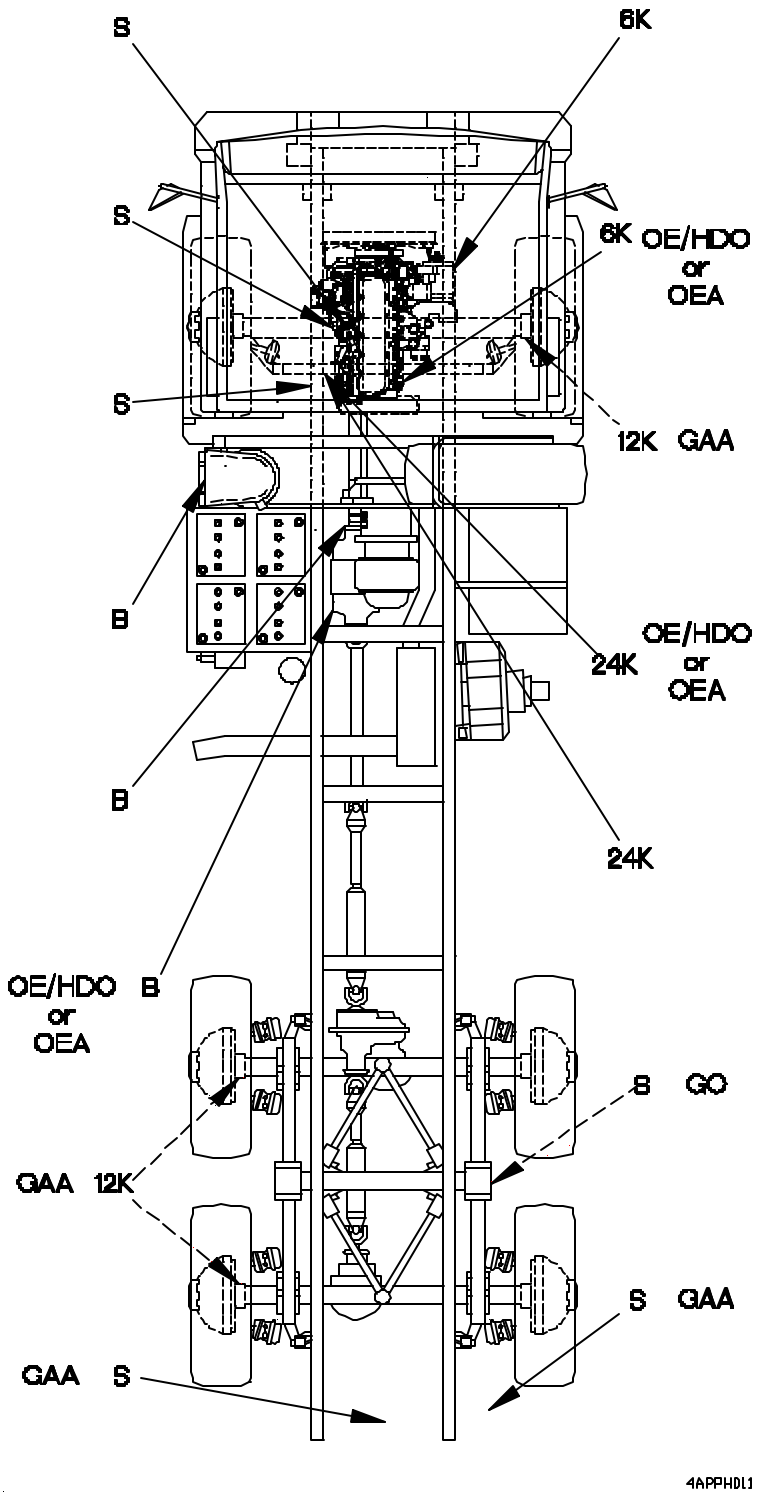
For arctic operation refer to FM 9-207.

H-6. LUBRICATION/SERVICES 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).*	6.0
Annually (A)	Lubrication performed once every year or every 12,000 mi. (19,308 km).*	1.5
Biennially (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).**	6.5
24K	Lubrication performed once every 24,000 mi. (38,616 km).**	0.5

* Whichever occurs first.
** No calendar interval.

H-7. LOCATOR VIEWS



CHASSIS

NOTE: Dashed arrows indicate lubrication on both sides of vehicle.

LUBRICANT INTERVAL

Spring Shackle
Fill (O)
(See note 18 and view I)

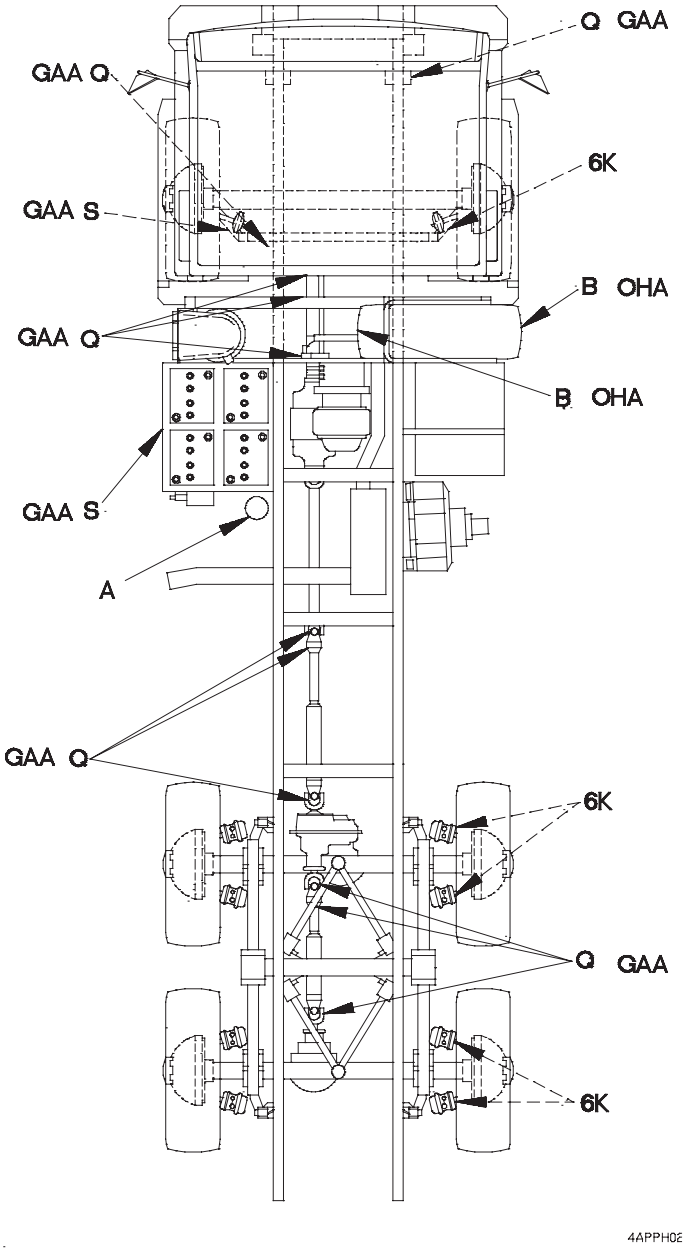
Tie Rod Ends
Fill (O)
(See note 13 and view N)

Universal and Slip Joints
Fill (O)
(See note 9 and view P)

Battery Posts (O)
(See note 19 and view Q)

Air Dryer (O)
(See note 37 and view BB)

Universal and Slip Joints
Fill (O)
(See note 9 and view P)



INTERVAL LUBRICANT

Spring Bolt
Fill (O)
(See note 18 and view H)

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)

Universal Joint and Slip Joints
Fill (O)
(See note 9 and view P)

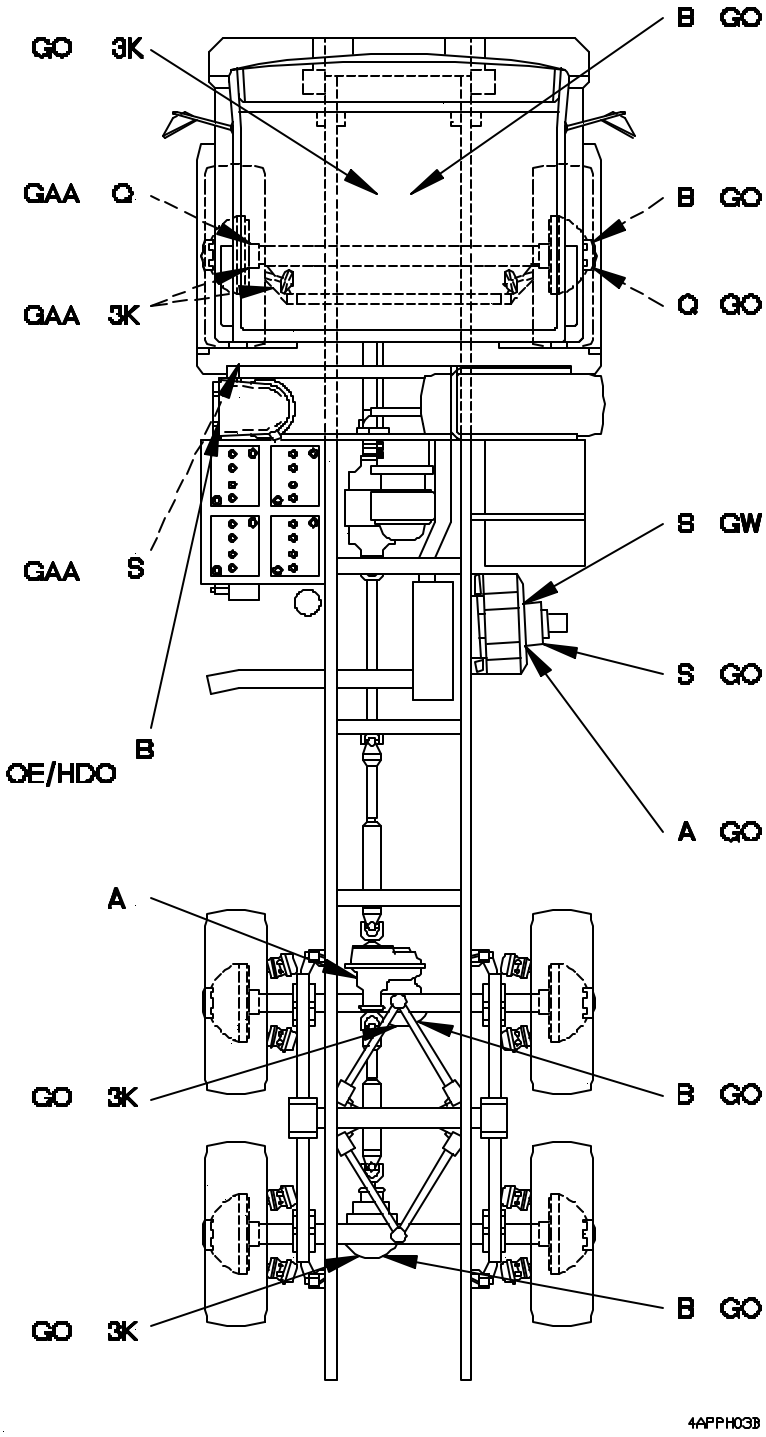
Brake Wedge and Air Chamber (O)
(See note 21 and view M)

CHASSIS

NOTE: Dashed arrows indicate lubrication on both sides of vehicle.

H-7. LOCATOR VIEWS (CONT)

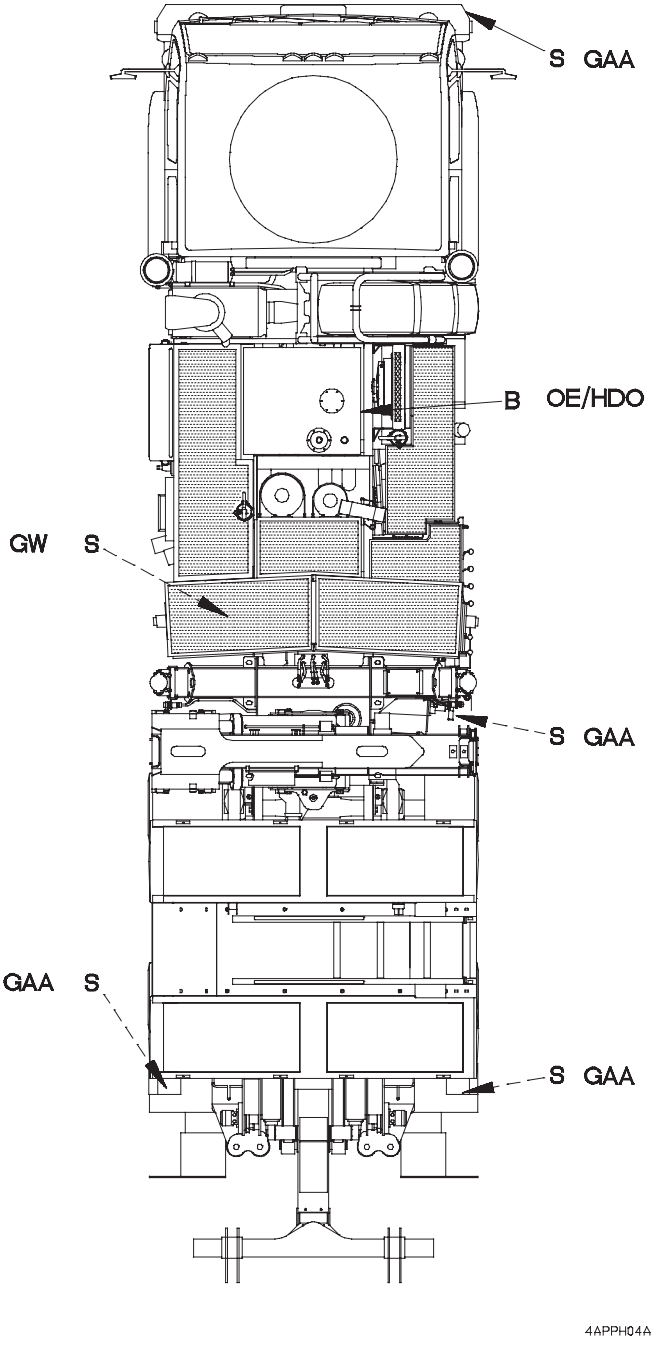
LUBRICANT	INTERVAL		INTERVAL	LUBRICANT
			B	GO
GO	3K			
Front Axle Check and Fill (O) (See note 11 and view T)				**Front Axle Drain and Fill (O)** (See note 11 and view T)
GAA	Q		B	GO
Axle Shaft U-Joints Fill (O) (See note 20 and view U)				**Wheel End Planetary Hubs Drain and Fill (O)** (See note 12 and view V)
GAA	3K		Q	GO
Steering Knuckles Fill (O) (See note 20 and view U)				**Wheel End Planetary Hubs Check and Fill (O)** (See note 12 and view V)
			S	GW
Front Lifting Beam Clean and Grease (O) (See note 36 and view AI)	GAA	S		**15K Self-Recovery Winch (SRW) Cable Fill (O)** (See note 14 and view W)
			S	GO
Hydraulic Reservoir and Filter Drain and Fill (O) (See note 8 and view X)	OE/HDO	B		**15K Self-Recovery Winch (SRW) Check and Fill (O)** (See note 15 and view Y)
			A	GO
Intermediate Axle Screen and Plug Oil Filter Assembly Clean (O) (See note 31 and view AH)		A		**15K Self-Recovery Winch (SRW) Drain and Fill (O)** (See note 15 and view Y)
			B	GO
Intermediate Axle Check and Fill (O) (See note 11 and view T)	GO	3K		**Intermediate Axle Drain and Fill (O)** (See note 11 and view T)
Rear Axle Check and Fill (O) (See note 11 and view T)				**Rear Axle Drain and Fill (O)** (See note 11 and view T)
	GO	3K	B	GO



CHASSIS

NOTE: Dashed arrows indicate lubrication on both sides of vehicle.

LUBRICANT	INTERVAL

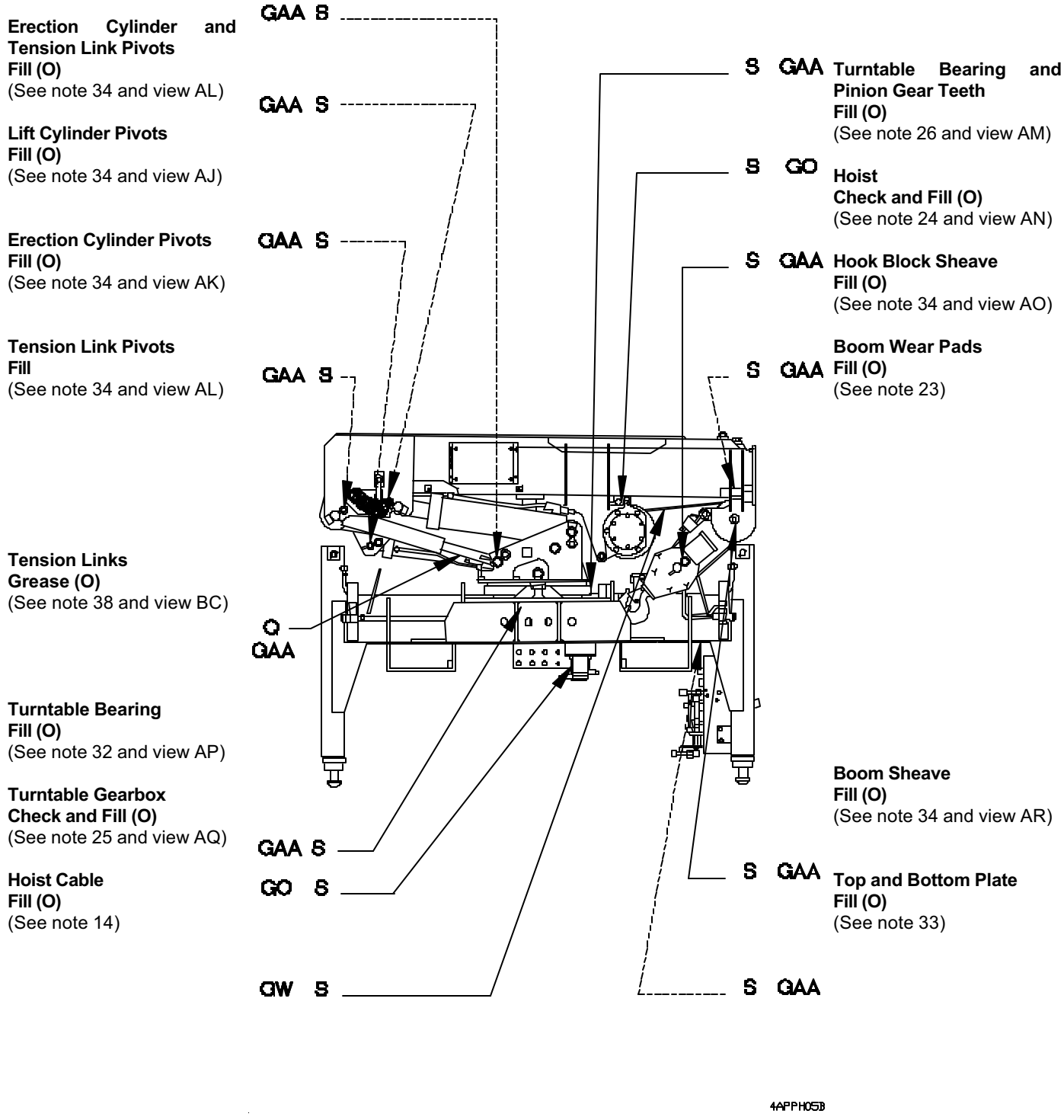


LUBRICANT	INTERVAL
	15K Self-Recovery Winch (SRW) Cable Front Roller Fairlead **Fill (O)** (See note 29 and views Z and AA)
	Hydraulic Tank and Filter Drain and Fill (O) (See note 22 and view AD)
30K Winch Cable **Fill (O)** (See note 14 and view AB)	
	30K Winch Cable Guide Rollers **Fill (O)** (See note 30 and view AB)
Pay-Out Assembly Lower Tension Sheave **Fill (O)** (See note 30 and view BA)	
	30K Winch Cable Guide Rollers **Fill (O)** (See note 30 and view AC)

M1089

NOTE: Dashed arrows indicate lubrication on both sides of vehicle.

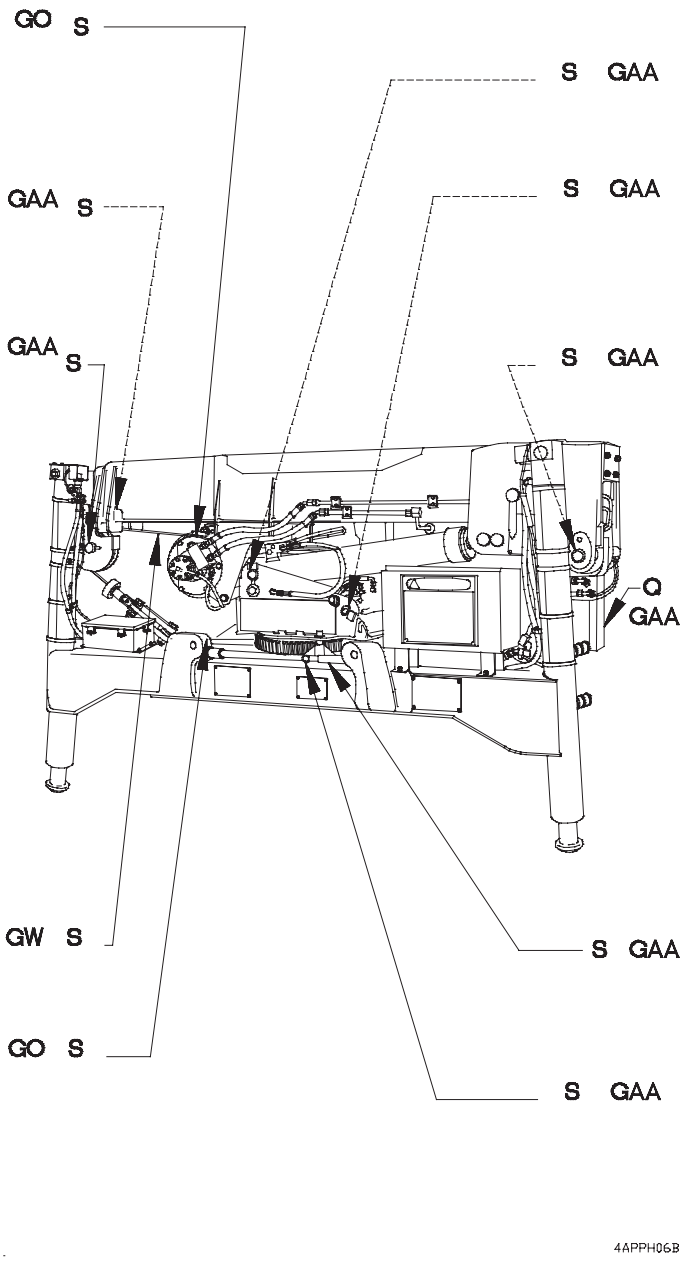
H-7. LOCATOR VIEWS (CONT)



M1089 MATERIAL HANDLING CRANE (MHC)

NOTE: Dashed arrows indicate lubrication on both sides of vehicle.

LUBRICANT	INTERVAL
Hoist **Check and Fill (O)** (See note 24 and view AS)	GO S
Boom Wear Pads **Fill (O)** (See note 23)	GAA S
Boom Sheave **Fill (O)** (See note 34 and view AT)	GAA S
Hoist Cable **Fill (O)** (See note 14)	GW S
Turntable Gearbox **Check and Fill (O)** (See note 25 and view AU)	GO S



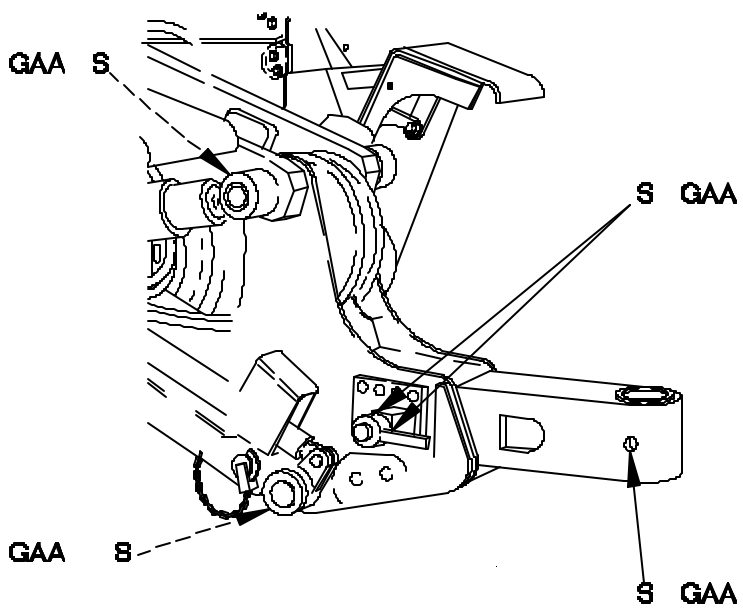
INTERVAL	LUBRICANT
S GAA	**Lift Cylinder Pivots** **Fill (O)** (See note 34 and view AV)
S GAA	**Erection Cylinder and Tension Link Pivots** **Fill (O)** (See note 34 and view AW)
S GAA	**Erection Cylinder and Tension Link Pivots** **Fill (O)** (See note 34 and view AX)
O GAA	**Tension Link** **Grease (O)** (See note 38 and view BC)
S GAA	**Turntable Bearing and Pinion Gear Teeth** **Fill (O)** (See note 26 and view AY)
S GAA	**Turntable Bearing** **Fill (O)** (See note 32 and view AZ)

M1084/M1086 MATERIAL HANDLING CRANE (MHC)

NOTE: Dashed arrows indicate lubrication on both sides of vehicle.

H-7. LOCATOR VIEWS (CONT)

LUBRICANT INTERVAL **INTERVAL LUBRICANT**



Camlock Assembly
Fill (O)
(See note 35)

Left and Right Lift Cylinder Pivots
Fill (O)
(See note 35)

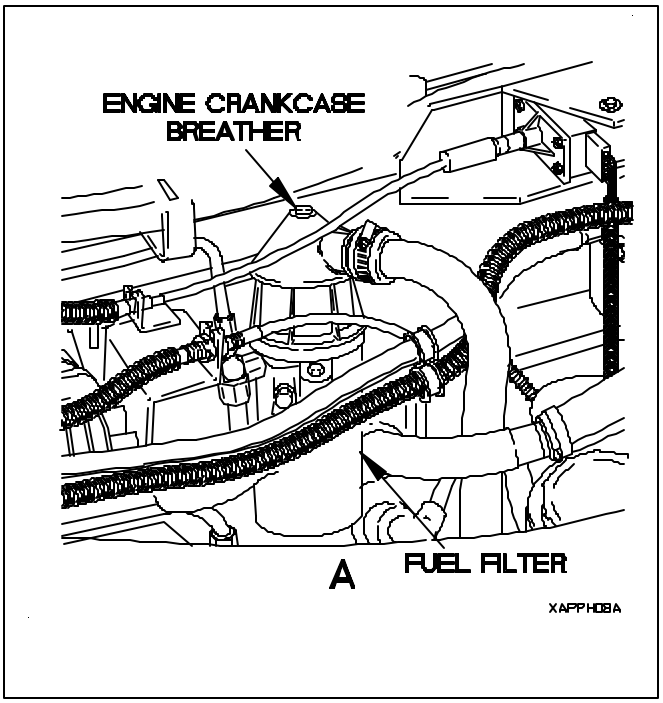
Crossbar Bushing
Fill (O)
(See note 35)

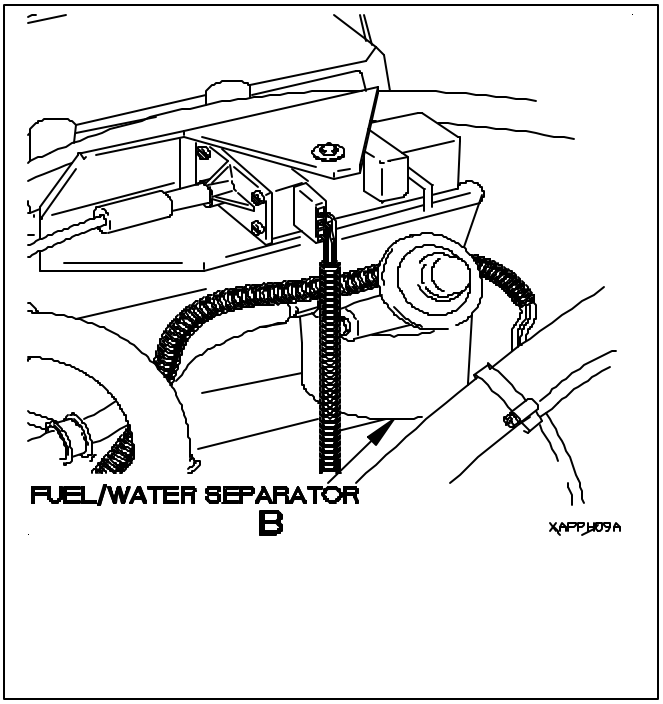
Left and Right Lower Arm Pivots
Fill (O)
(See note 35)

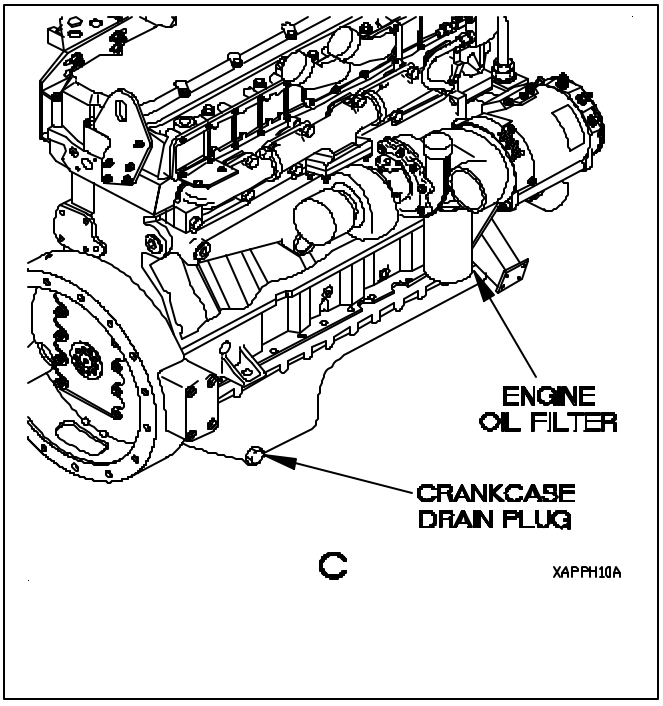
M1089 UNDERLIFT ASSEMBLY

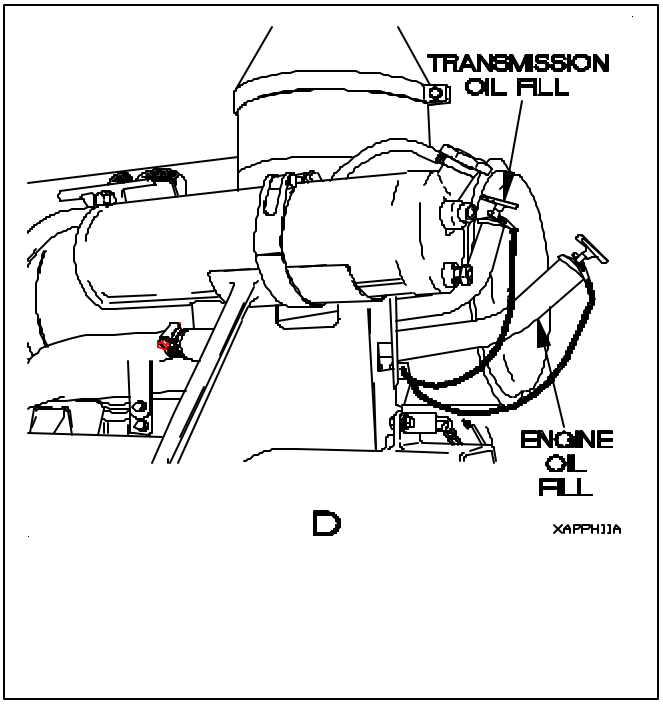
NOTE: Dashed arrows indicate lubrication on both sides of vehicle

H-8. LOCAL VIEWS

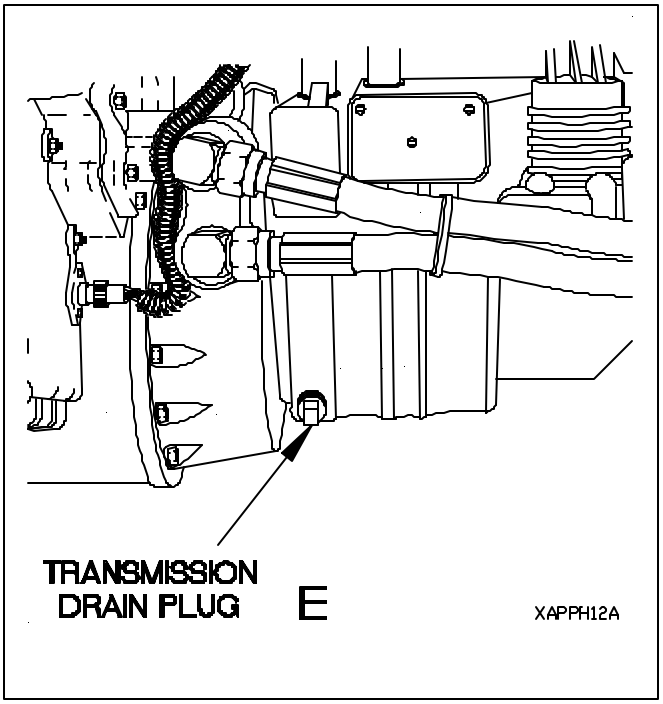


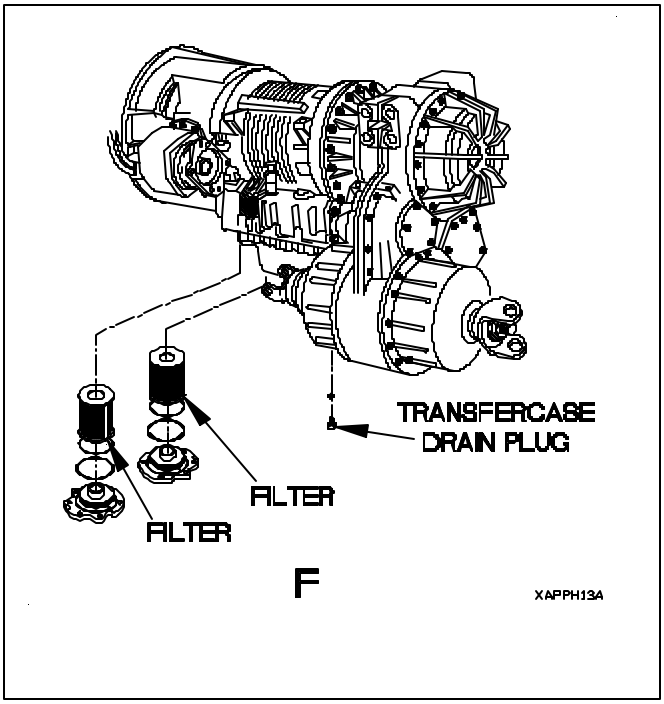


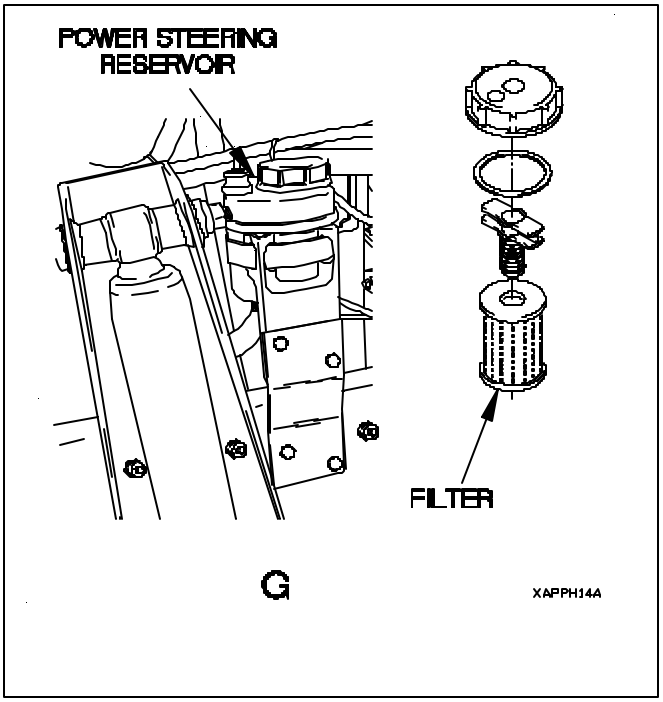


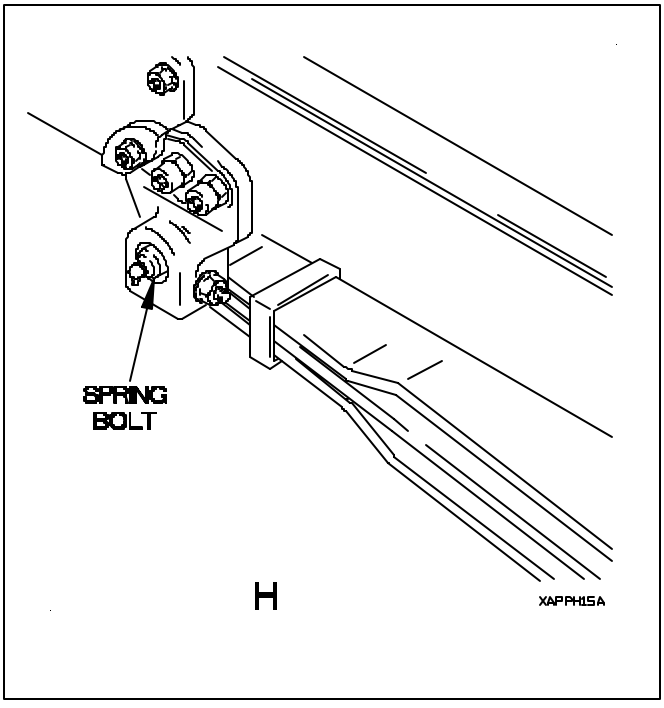


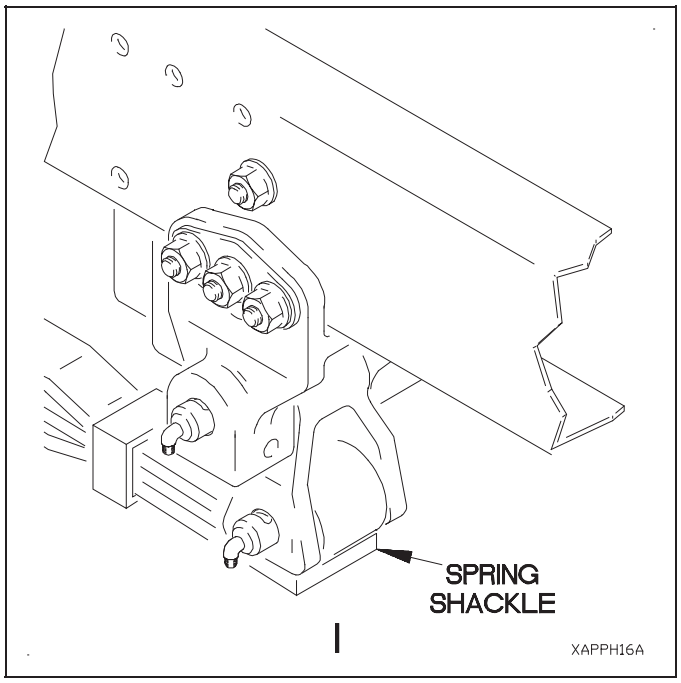
H-8. LOCAL VIEWS (CONT)



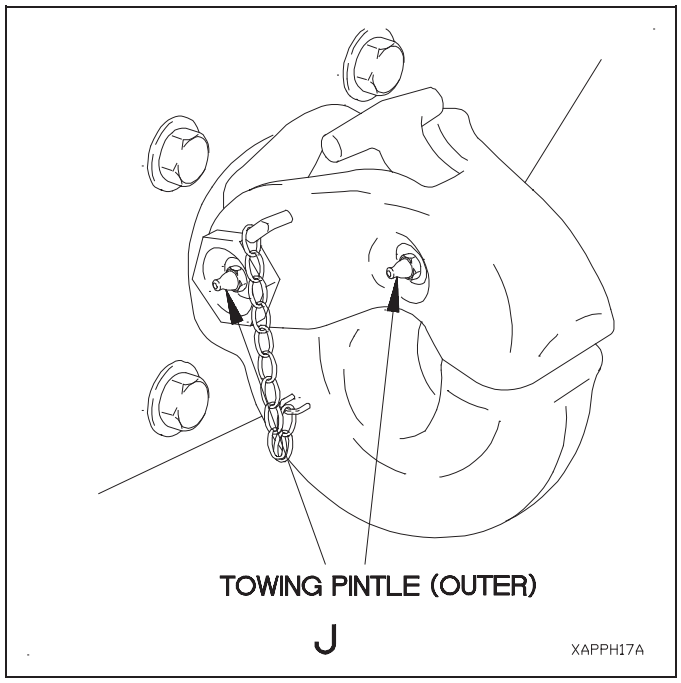




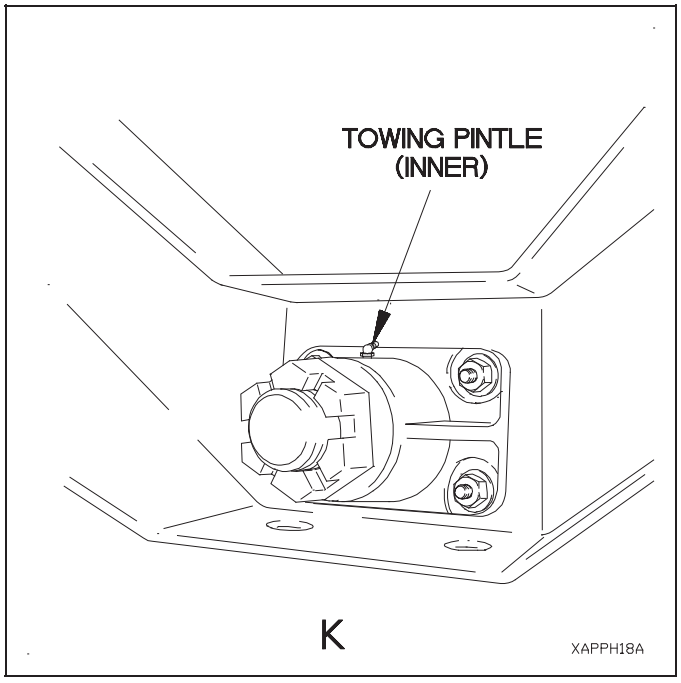



SPRING
SHACKLE
XAPPH16A

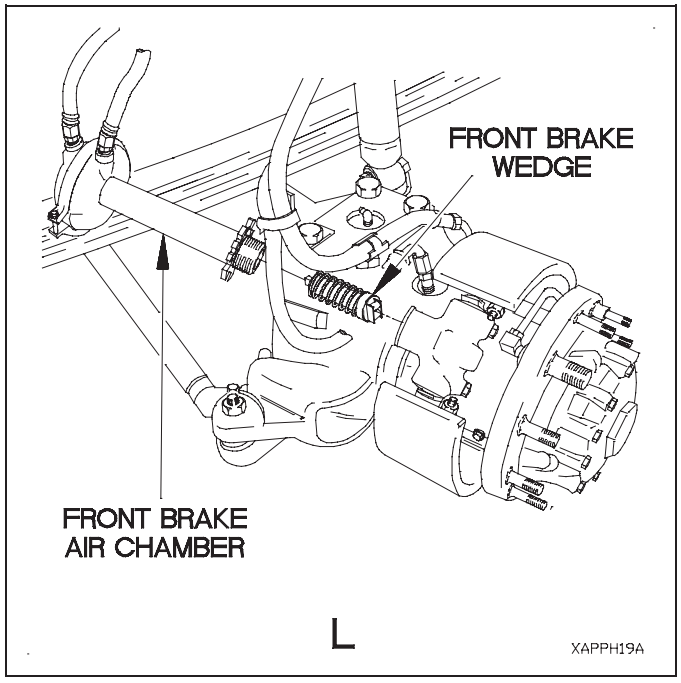
I


TOWING PINTLE (OUTER)
XAPPH17A

J

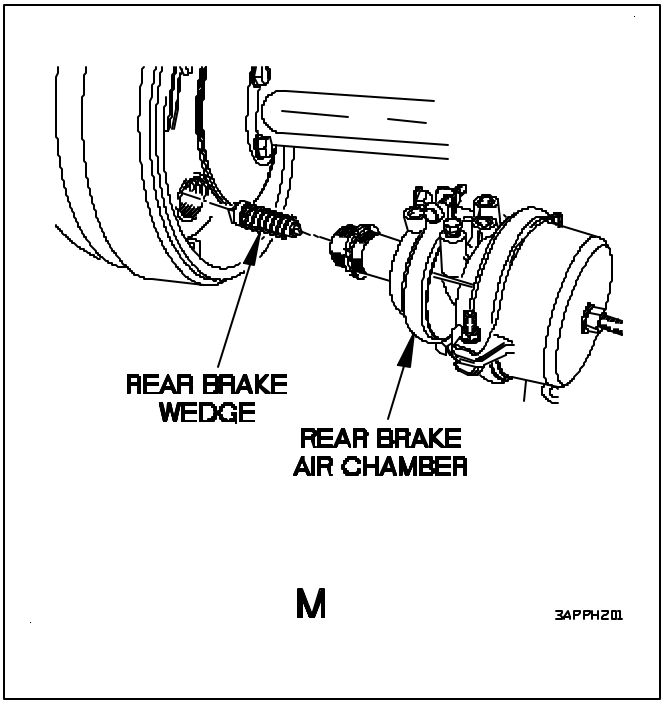

TOWING PINTLE
(INNER)
XAPPH18A

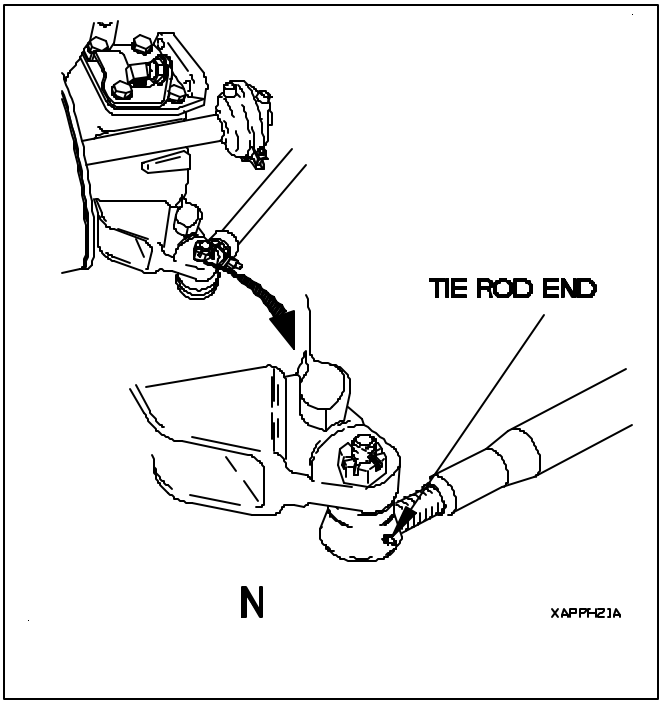
K

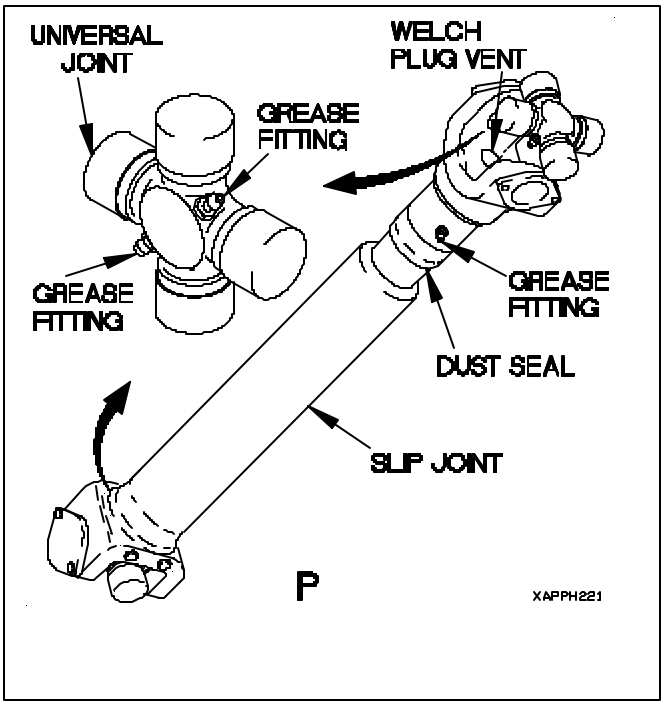

FRONT BRAKE
WEDGE
FRONT BRAKE
AIR CHAMBER
XAPPH19A

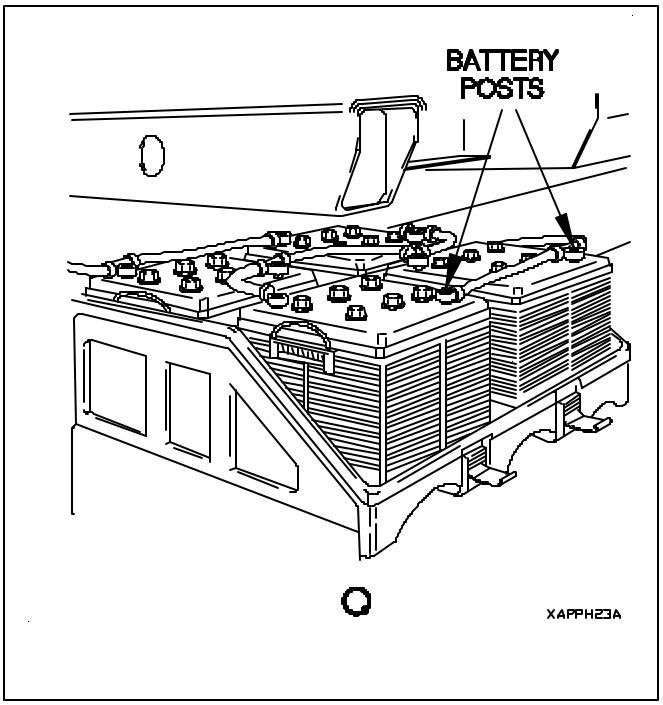
L

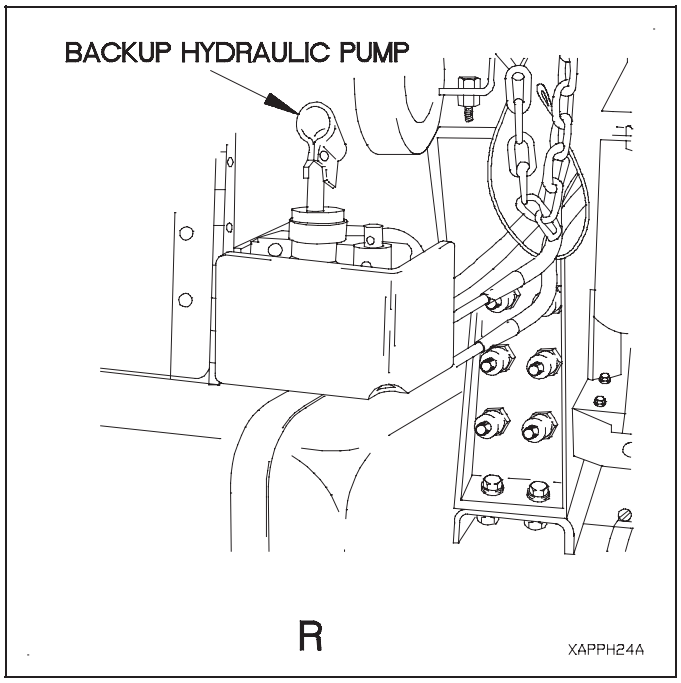
H-8. LOCAL VIEWS (CONT)










BACKUP HYDRAULIC PUMP
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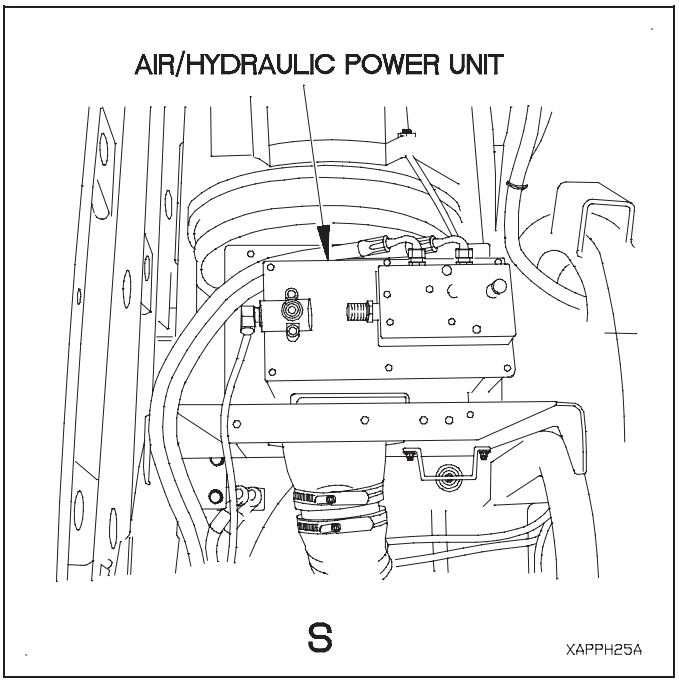
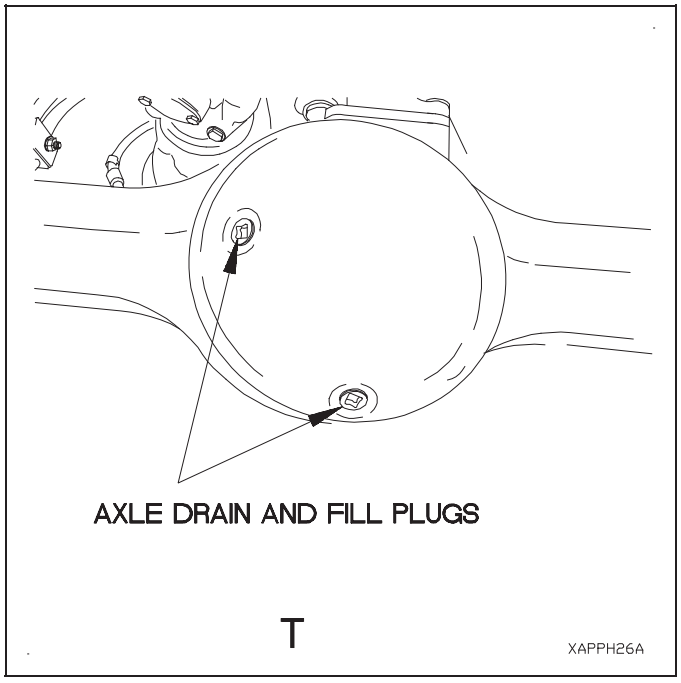
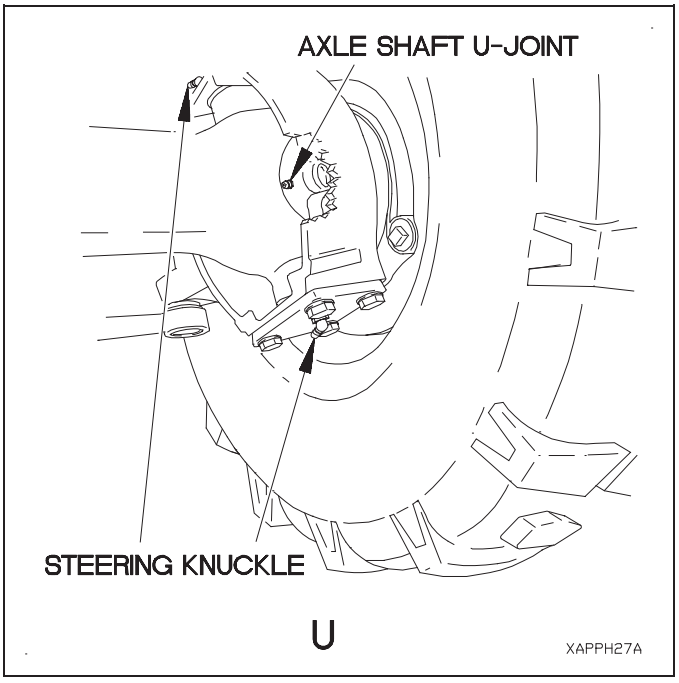
XAPPH24A


AIR/HYDRAULIC POWER UNIT
S
XAPPH25A


AXLE DRAIN AND FILL PLUGS
T
XAPPH26A


AXLE SHAFT U-JOINT
STEERING KNUCKLE
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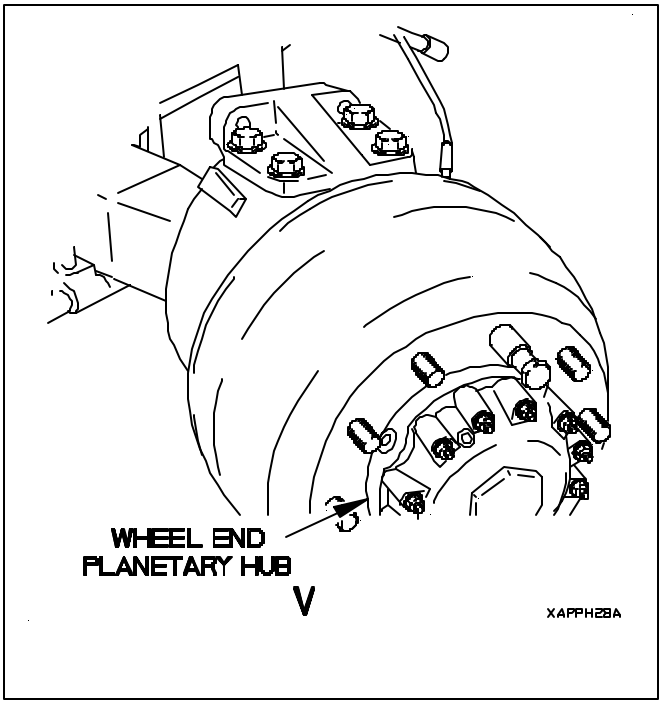
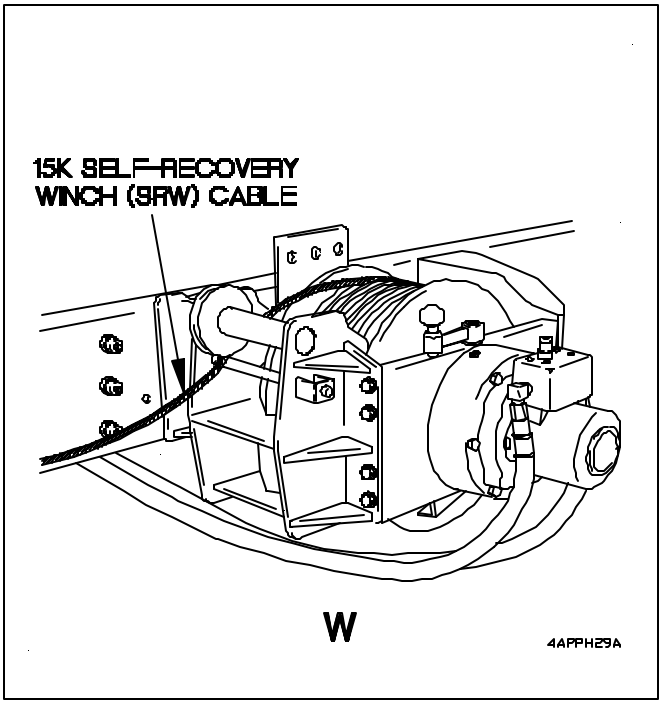
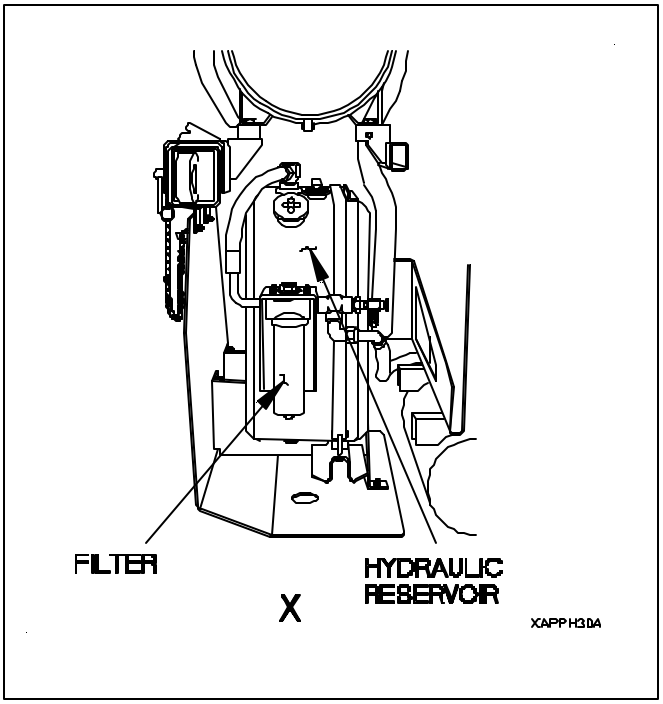
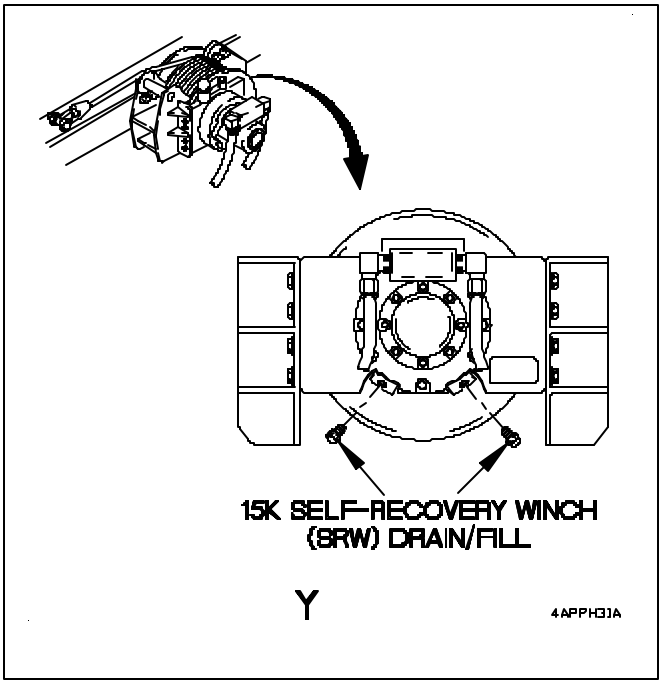
XAPPH27A

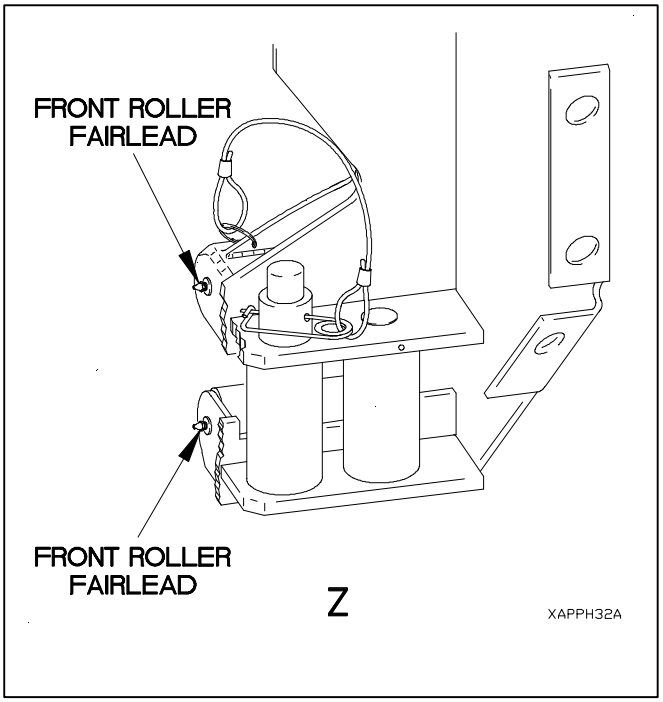
H-8. LOCAL VIEWS (CONT)







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FRONT ROLLER FAIRLEAD
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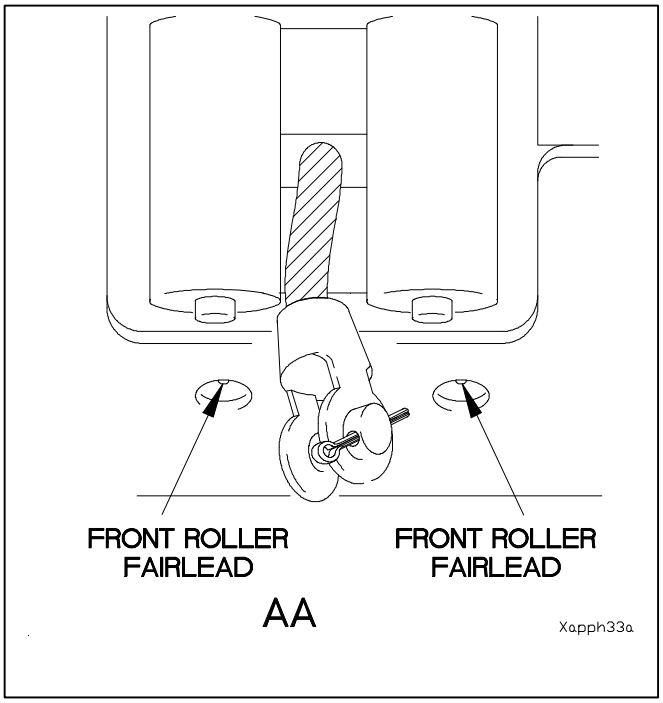
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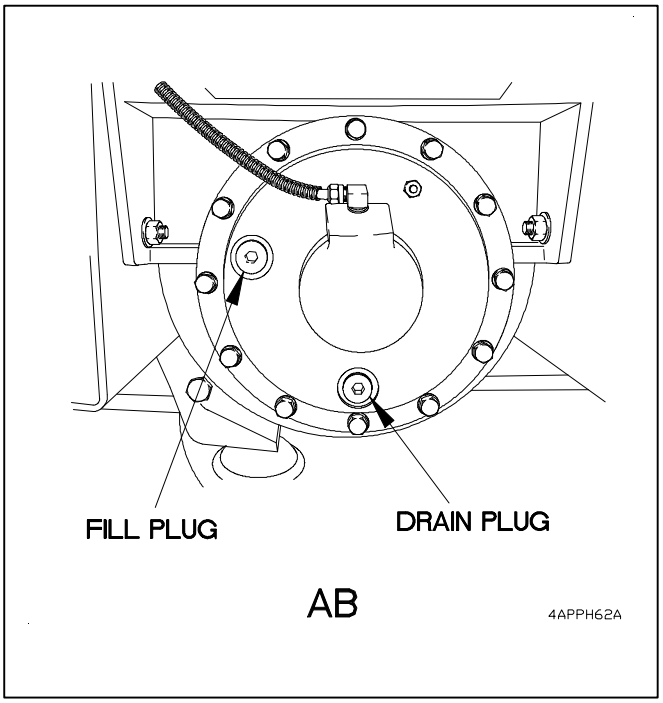
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DRAIN PLUG
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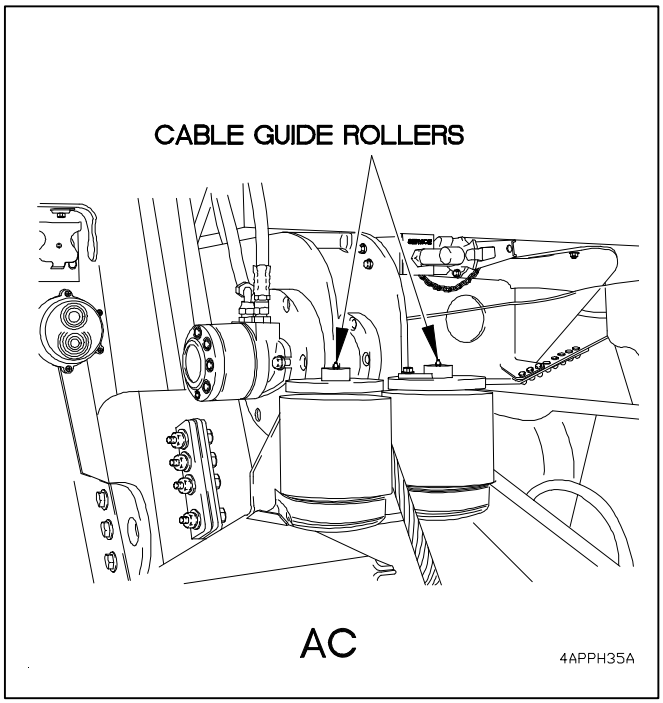
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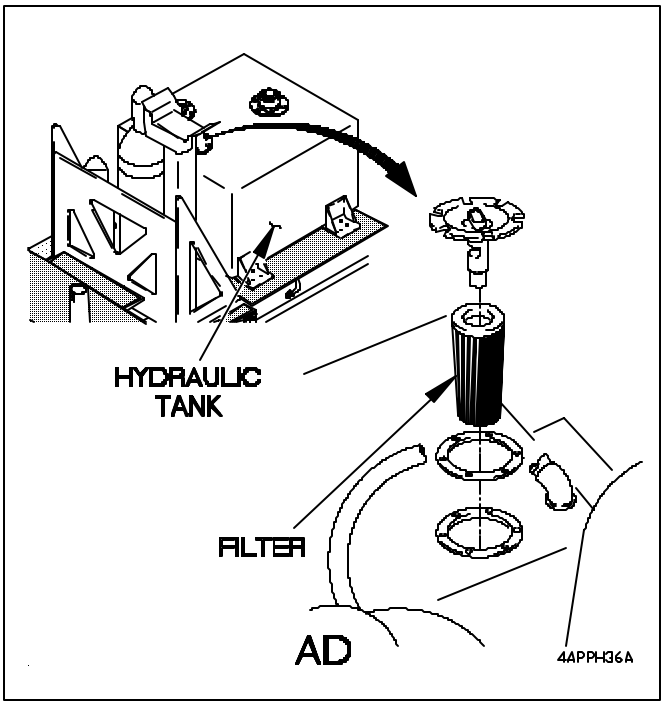
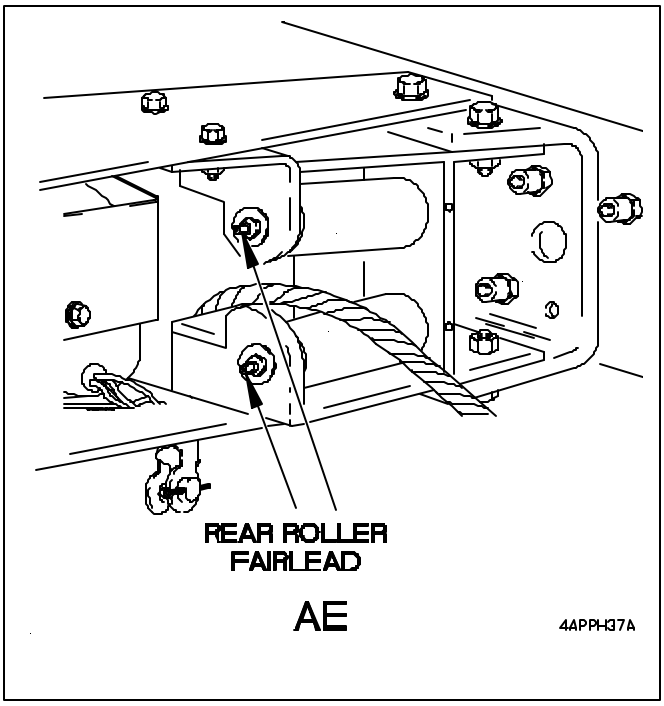
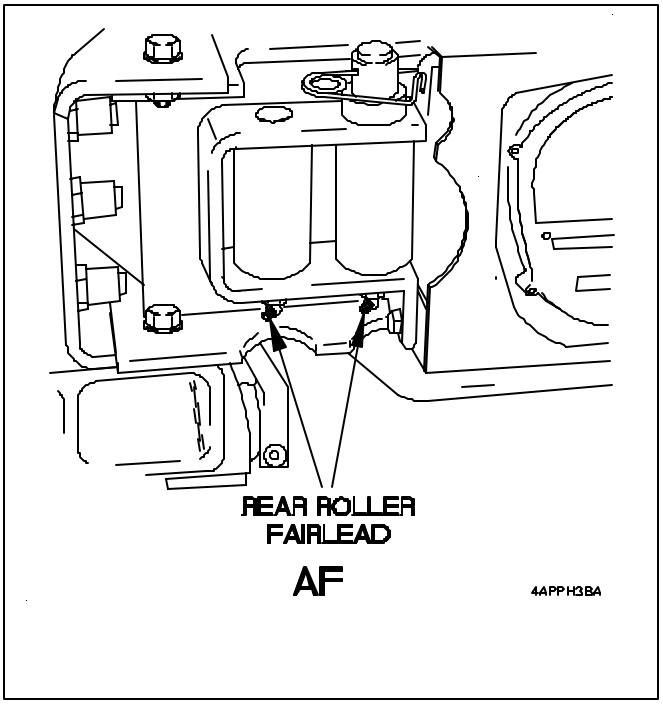
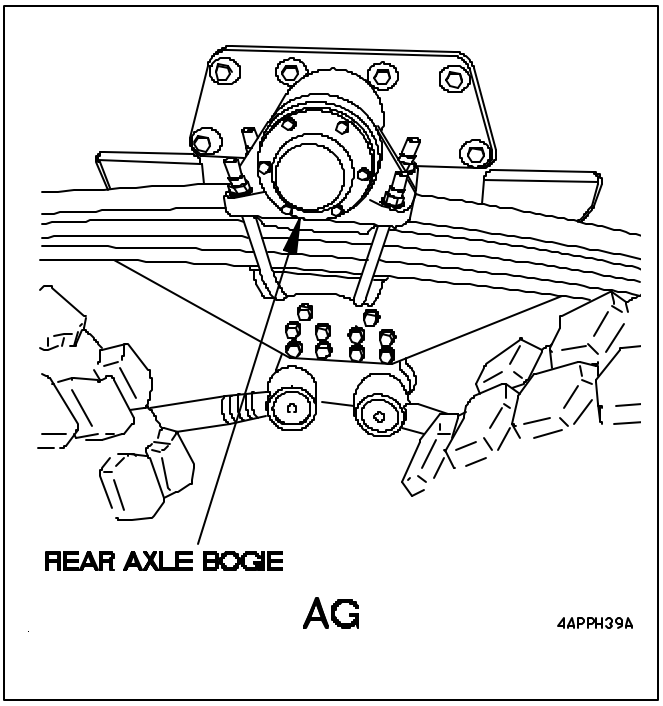
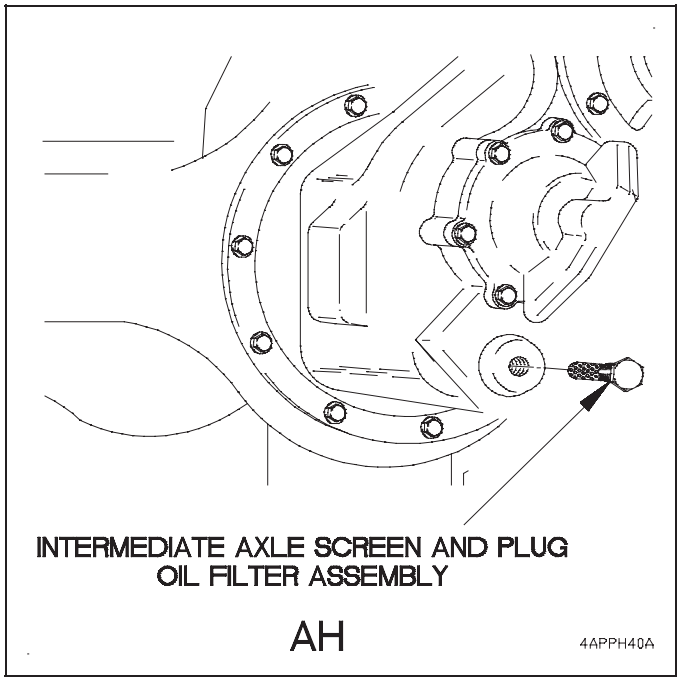
H-8. LOCAL VIEWS (CONT)











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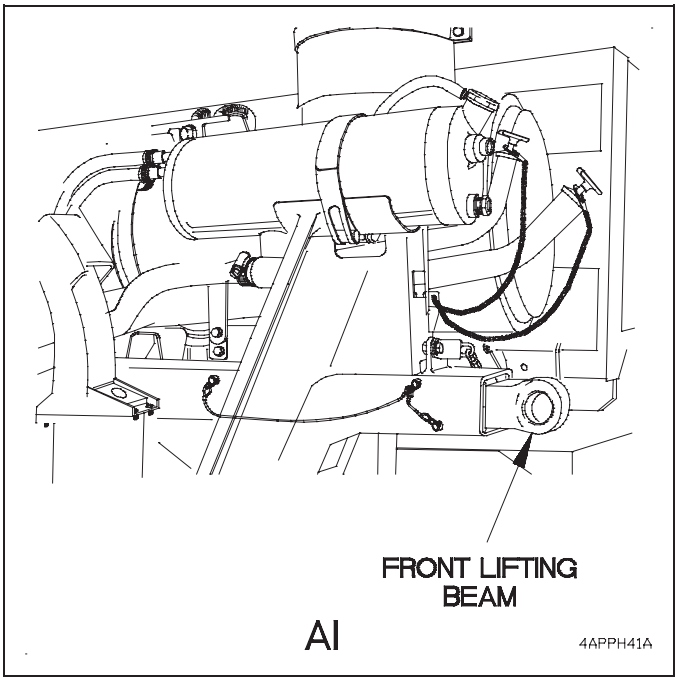

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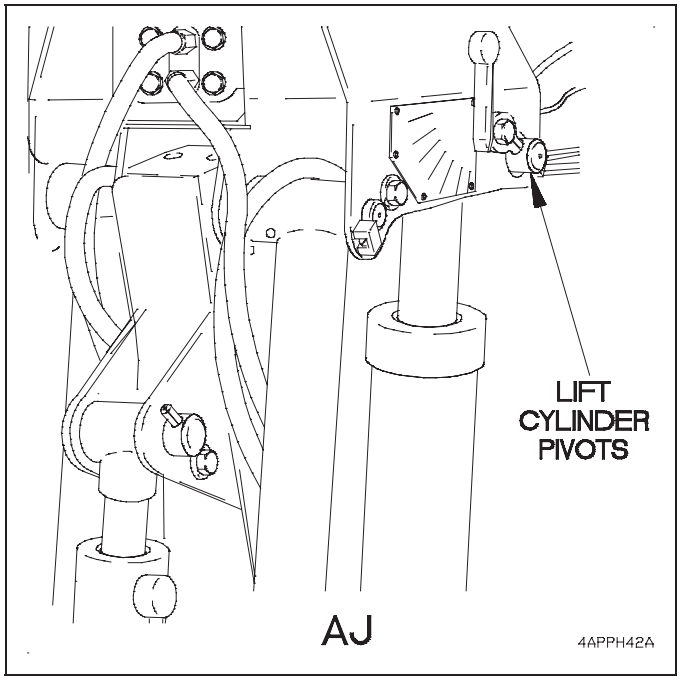

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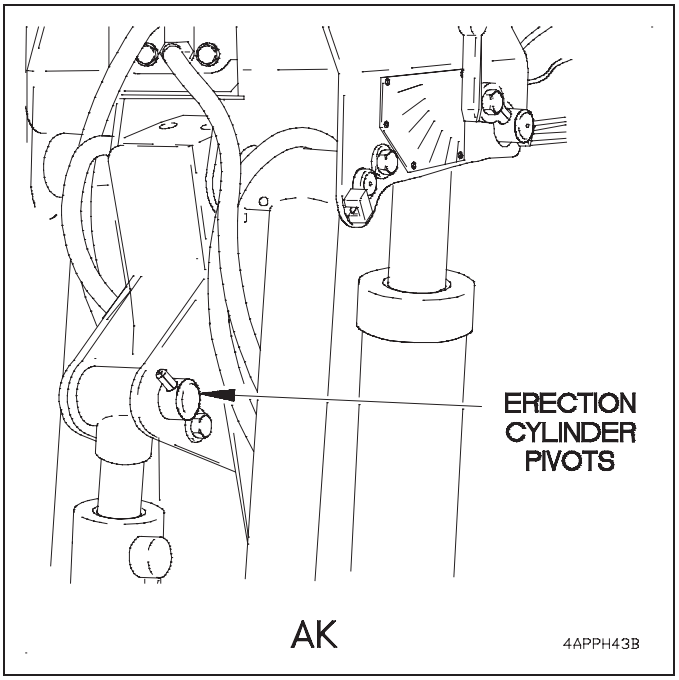

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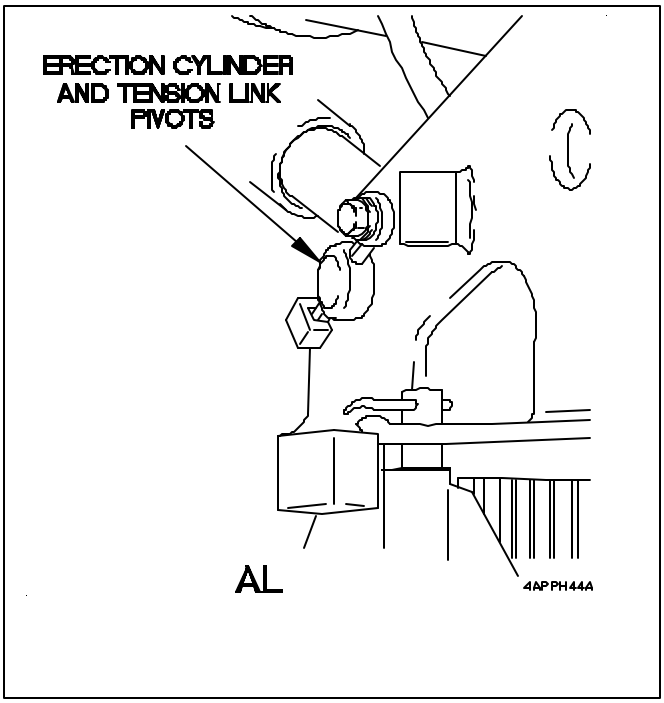
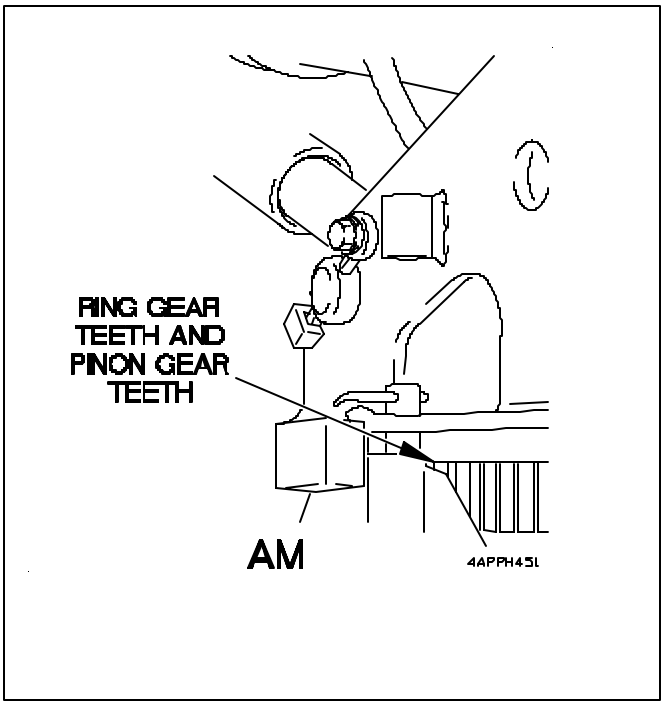
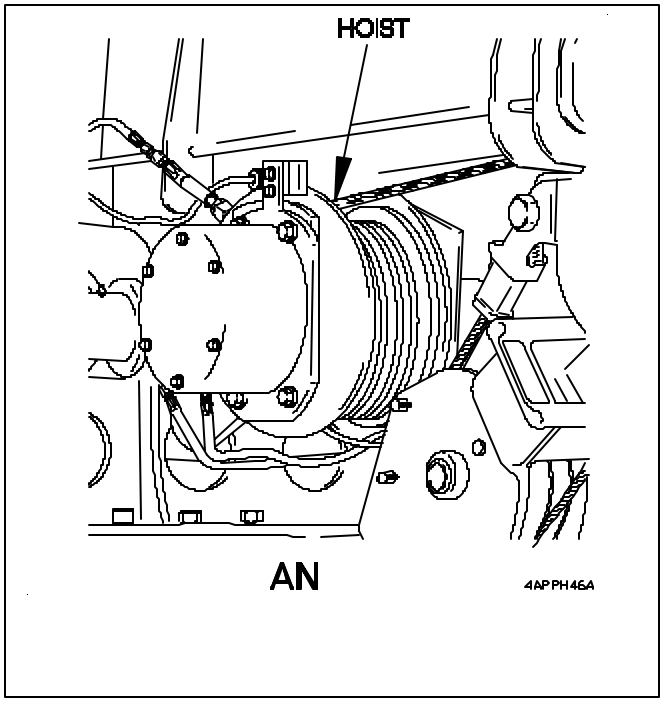
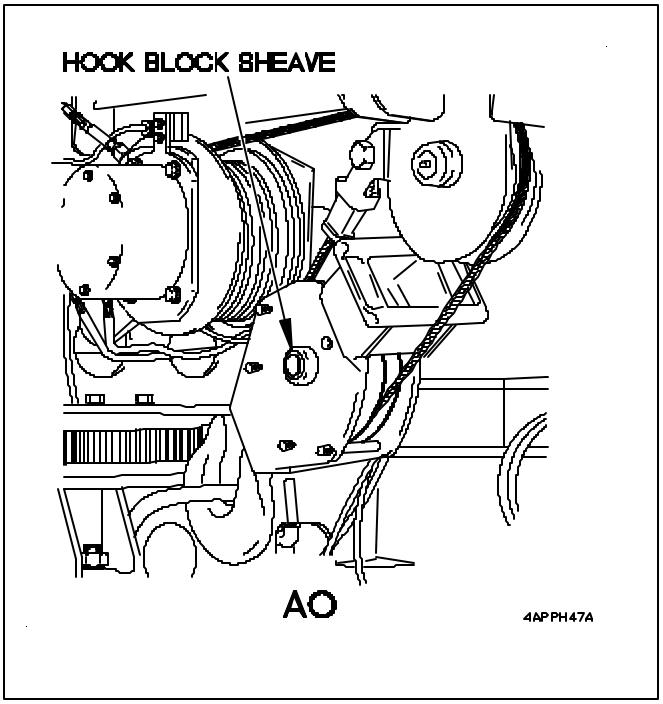
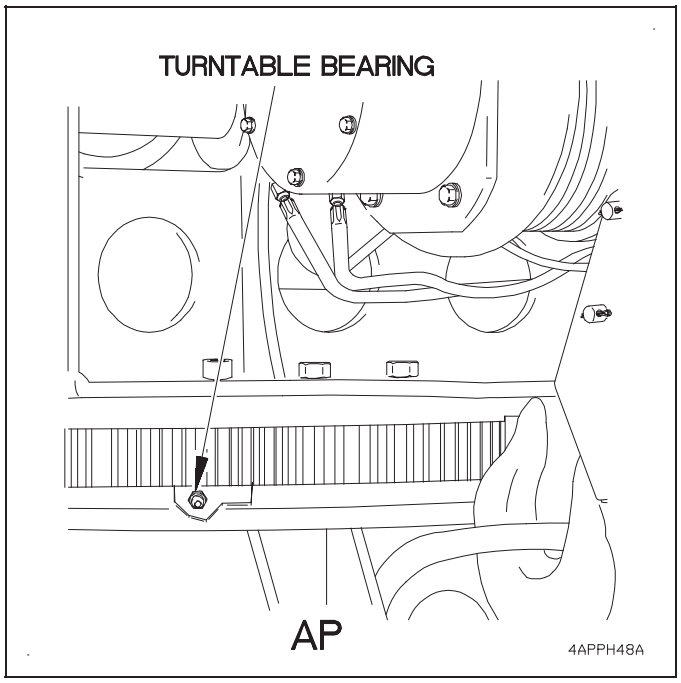
H-8. LOCAL VIEWS (CONT)







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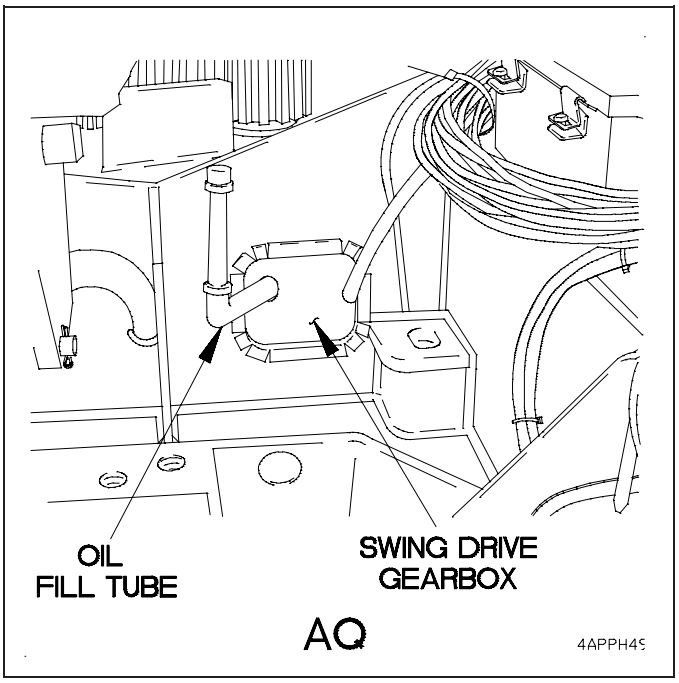
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FILL TUBE
SWING DRIVE
GEARBOX
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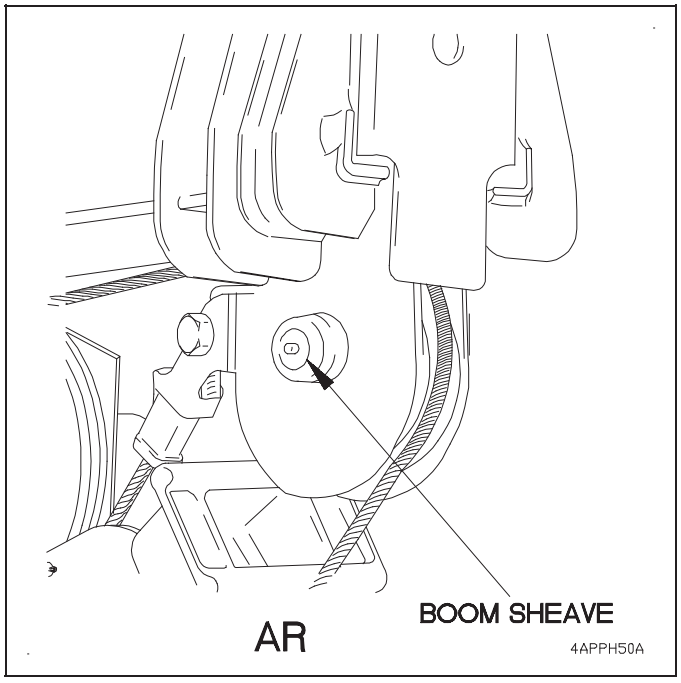
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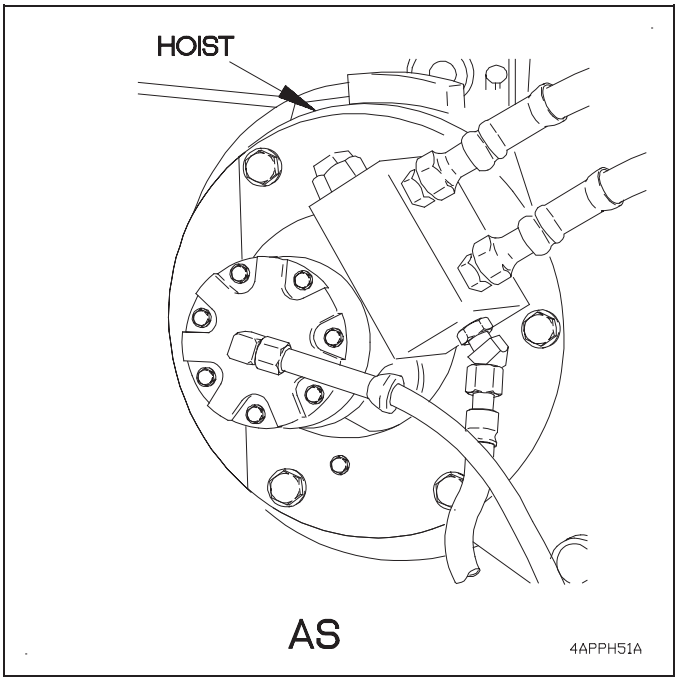
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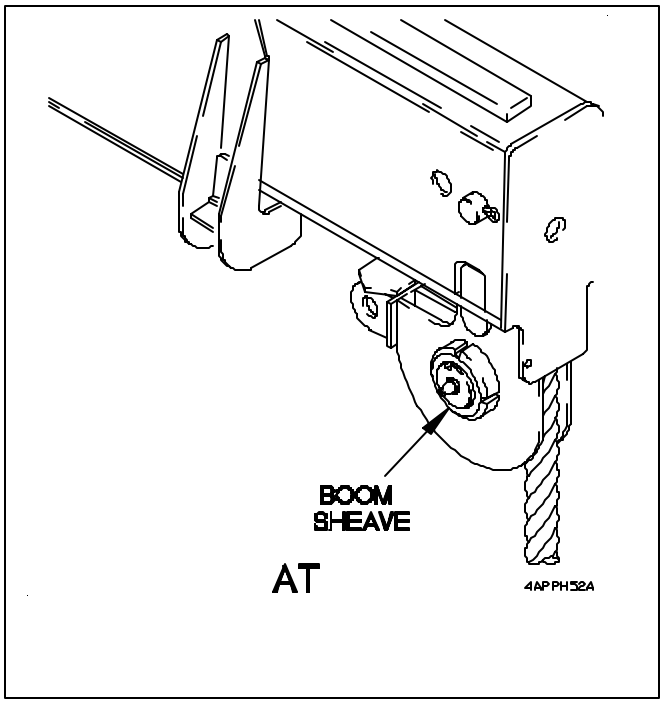
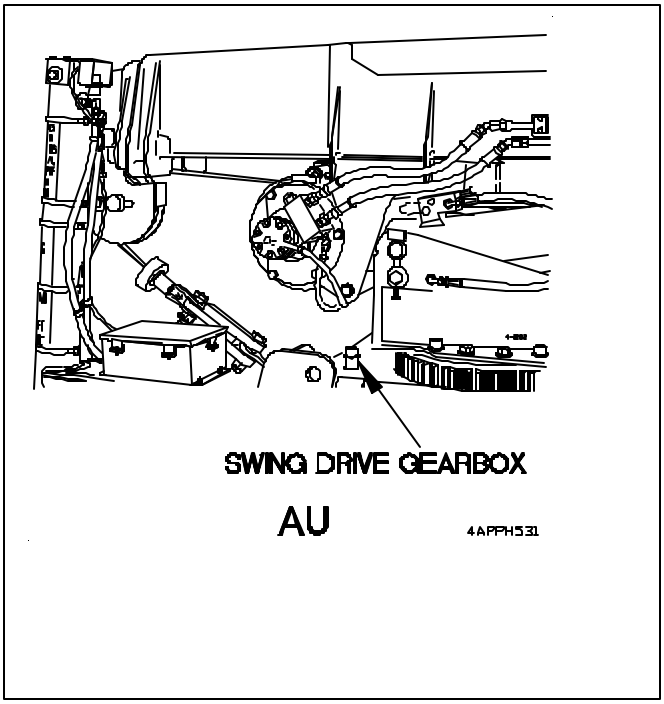
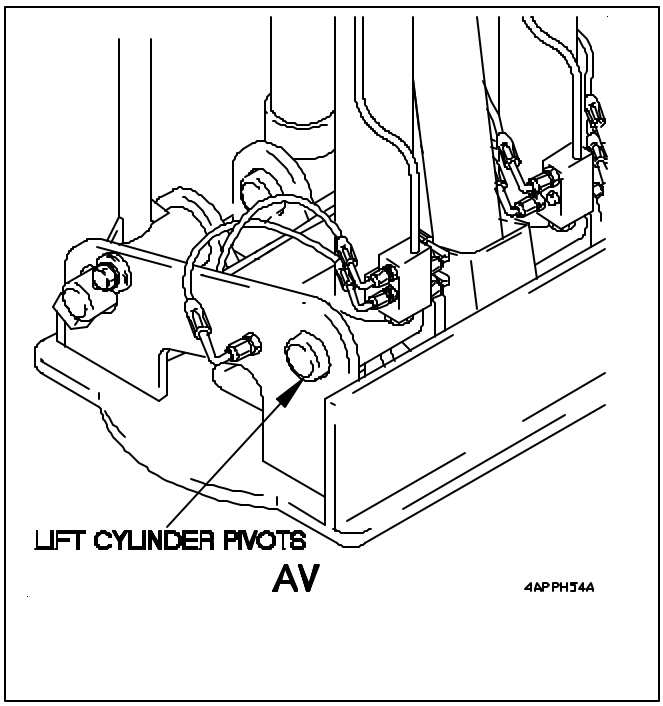
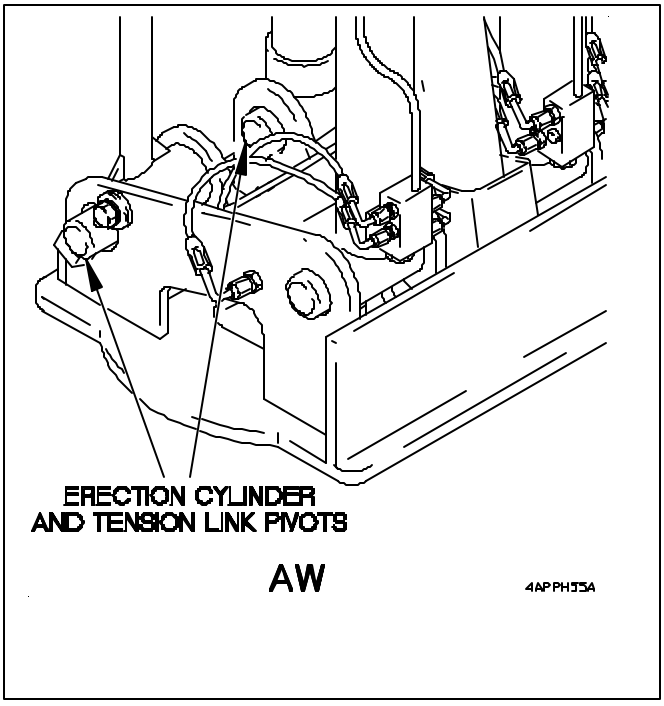
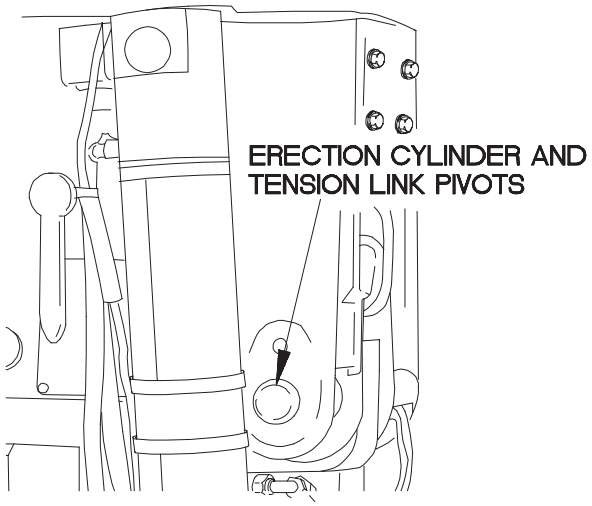
H-8. LOCAL VIEWS (CONT)











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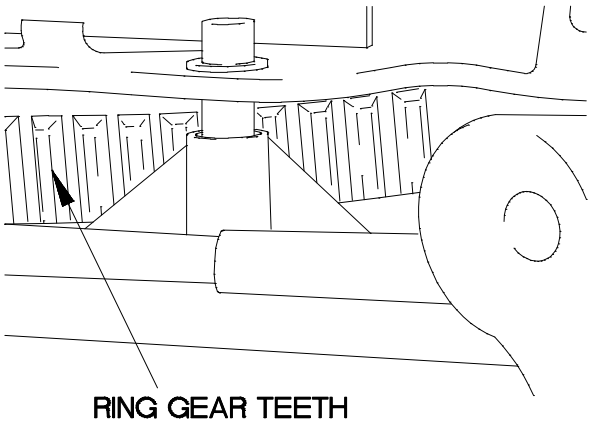

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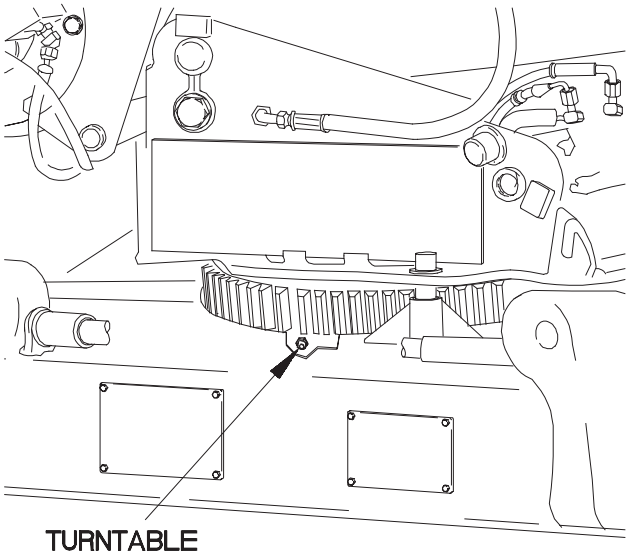

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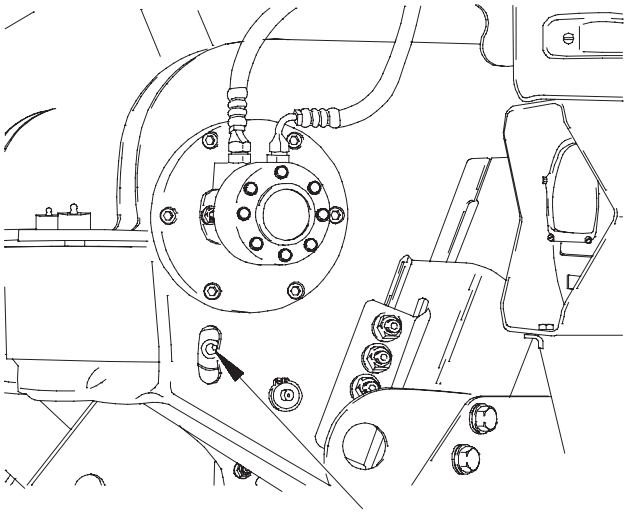

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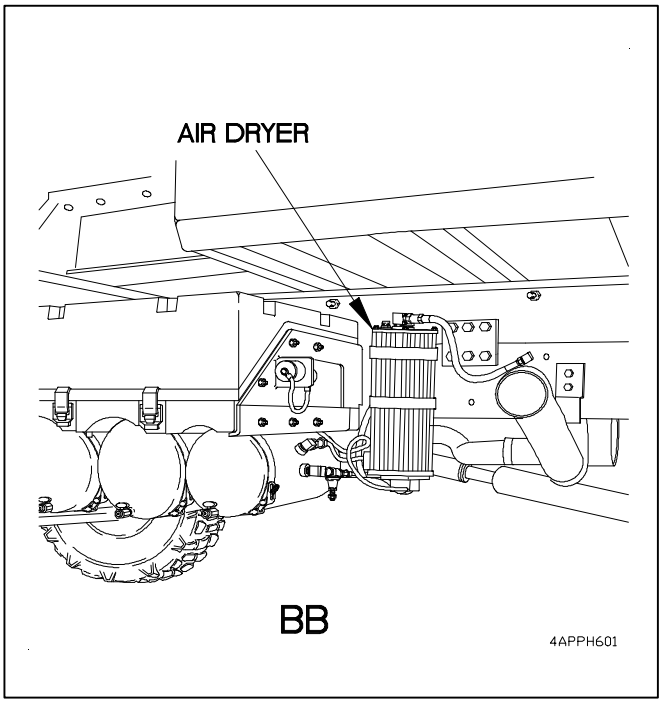
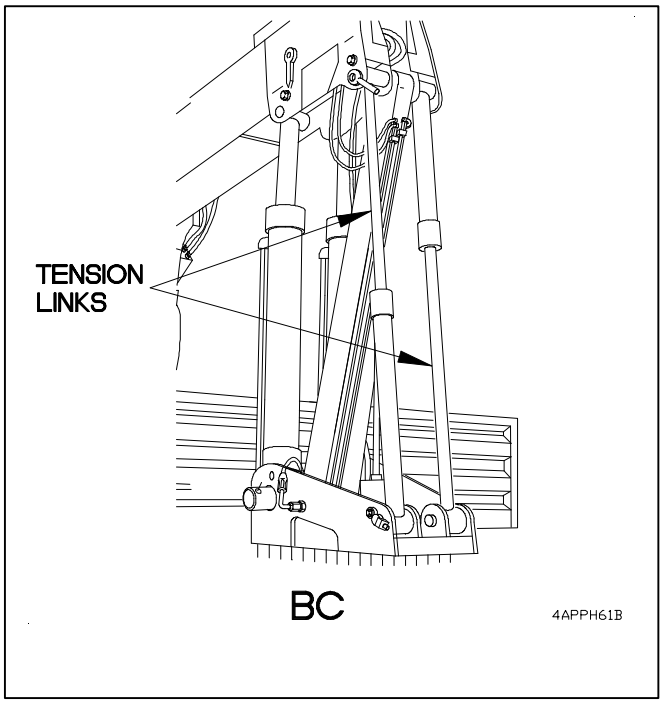
H-8. LOCAL VIEWS (CONT)





H-9. LUBRICATION/SERVICES 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 sample engine oil every 3,000 miles (4,827 km) or 6 months, whichever occurs first and change oil 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. 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 (para 3-4).

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 sample transmission oil every 6,000 miles (9,654 km) or 12 months, whichever occurs first and change oil 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 9-2320-366-10-1). Do not overfill. Replace oil filters each time transmission oil is changed (para 8-9).

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 (para 13-8).

5. FUEL/WATER SEPARATOR. Replace filter element every 6,000 miles (9,654 km) or once every six months, whichever occurs first (para 4-13).

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 (para 4-14).

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 (All Models Except M1089). 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 (para 19-13).

9. DRIVE SHAFT UNIVERSAL and SLIP YOKE.
Lubricate drive 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. Perform drive shaft hinging inspection every time drive shafts are serviced (para 9-3).

- 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, perform the following steps:
  (1) Loosen two screws on bearing cap that does not purge, approximately 1/4 in.
  (2) Apply grease to grease fitting for bearing cap that does not purge until bearing cap purges.
  (3) Remove and discard the two screws loosened in step (1).
  (4) Position two replacement screws in bearing cap and tighten down evenly.
  (5) Tighten two screws to 26-35 lb-ft (35-47 N m).

- 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, inspect drive shaft slip yoke (para 9-2).

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 para 19-8, 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.

H-9. LUBRICATION/SERVICES NOTES (CONT)

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. WINCH CABLES:

CAUTION

Do not use dry cleaning solvent to clean winch cables. Use of dry cleaning solvent will remove lubricant from inner strands of winch cables. Failure to comply may result in damage to equipment.

a. After winch operation:

Refer to FM 5-125.

b. Care of wire rope:

Refer to FM 5-125.

c. Inspection of wire rope:

Refer to FM 5-125.

d. Every six months:

(1) Unwind entire length of winch cable (TM 9-2320-366-10-1).
(2) Soak and clean winch cable with new OE/HDO 30.
(3) Wipe off excess OE/HDO 30.
(4) Coat winch cable with GW.
(5) Rewind winch cable (TM 9-2320-366-10-1).

15. 15K SRW. Check 15K SRW gear oil level every 6,000 miles (9,654 km) or once every six months, whichever occurs first. Refill 15K 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 15K 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 15K 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 3, Appendix D) to plug and position plug in top hole.
(6) Rotate drum until open hole is at top.
(7) Apply adhesive (Item 3, Appendix D) to plug and position plug in top hole.
(8) Tighten plugs to 13-15 lb-ft (18-20 N·m).

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 15K 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 15K SRW. Remove the plug.
(4) Position drain pan (Item 39, Appendix C) under 15K SRW.
(5) Rotate the drum until either hole is straight down to the bottom of the 15K 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 3, Appendix D) to plug and position plug in top hole.
(9) Rotate drum until open hole is at top.
(10) Apply adhesive (Item 3, 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.

H-9. LUBRICATION/SERVICES NOTES (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 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 65, Appendix D) or equivalent, and replace o-ring seal every 6,000 miles (9,654 km) or once every six months, whichever occurs first (para 3-5).

18. FRONT AXLE SPRING BOLT and SPRING SHACKLE. Lubricate front axle spring bolt and spring shackle 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, notify Direct Support to 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 (4,827 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: Refer to para 11-4 and 11-5

- Seals are replaced
- Plungers are removed
- Brakes are relined
- Grease becomes contaminated or hardened

22. HYDRAULIC TANK (M1089). Check oil level weekly and make sure oil level indicates 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 tank with OE/HDO specified for ambient operating temperature. Fill hydraulic tank until oil level is at the FULL mark on the sight glass. Do not overfill. Replace hydraulic oil filter (para 19-20) when oil is changed. Check oil level with Material Handling Crane (MHC) in the stowed position.

23. BOOM WEAR PADS (M1084/M1086/M1089). Lubricate every 6,000 miles (9,654 km) or once every six months, whichever occurs first. Coat boom wear pads with GAA while boom is extended, for the lower wear pads, boom must be retracted and access cover removed at rear of base boom to grease the upper wear pads. Extend boom in and out while applying grease. This method assures full lubrication for entire length of boom. If operating conditions are severe or abnormal, service at 1,000 miles (1,609 km) or once every month, whichever occurs first.

24. HOIST ASSEMBLY DRUM (M1084/M1086/M1089). Check hoist assembly drum oil level every 6,000 miles (9,654 km) or every six months, whichever occurs first. Check oil level in hoist assembly drum using two pipe plugs (90 degrees apart) on the drum housing. Operate hoist assembly drum so that one pipe plug is positioned at top of drum (fill point) and the other is accessible and level with ground (check level point). Oil level is full if a small quantity of oil runs from check level opening. If oil level is low, add oil at fill opening. to drain, operate drum so that one pipe plug is bottom of drum. Remove plug to drain. Drain and refill with GO specified for the ambient temperature, if oil becomes contaminated.

25. SWING DRIVE GEARBOX (M1084/M1086/M1089). Check swing drive gearbox oil level every 6,000 miles (9,654 km) or once every six months, whichever occurs first. Oil level is checked by removing pipe plug located on side of gear reducer. Oil level is full if a small quantity of oil runs out of opening. Add oil at fill point if necessary. Notify Direct Support to drain and refill with GO specified for the ambient temperature, if oil becomes contaminated.

26. RING GEAR TEETH and PINION GEAR TEETH (M1084/M1086/M1089). Lubricate every 6,000 miles (9,654 km), after washing, or once every six months, whichever occurs first. Apply a light coat of GAA to ring gear teeth and pinion gear teeth. Operate MHC (TM 9-2320-366-10) to rotate turntable. This will allow grease to be applied to all gear teeth. If operating conditions are severe or abnormal, service at 1,000 miles (1,609 km) or once every month, whichever occurs first.

27. FRONT, INTERMEDIATE, 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 (para 10-2).

28. REAR AXLE BOGIE. Change oil every 6,000 miles (9,654 km) or once every six months, whichever occurs first. Remove six screws and rear axle bogie cover from one side at a time. Raise axle on opposite side of vehicle to allow oil to drain out. Lower axle and repeat on other side of vehicle. Apply thin bead of silicone adhesive sealant 593 to seating surface of housing. Position cover (with fill plug at the 1 o'clock position) and six screws on housing. Tighten six screws to 24 lb-ft (32 N m). Remove plug from cover and plug from top of rear axle bogie housing. Refill rear axle bogie with GO specified for the ambient temperature, until level with port on housing cover. Install plugs in cover and housing.

29. 15K SELF-RECOVERY WINCH (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.

30. 30K WINCH CABLE GUIDE ROLLERS and PAY-OUT LOWER TENSION SHEAVE. 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.

H-9. LUBRICATION/SERVICES NOTES (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 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.**

31. SCREEN and PLUG OIL FILTER ASSEMBLY (intermediate axle only). Clean the area around the screen and plug oil filter assembly. Remove the screen and plug oil filter assembly. Clean with Dry Cleaning Solvent (Item 65, Appendix D) or equivalent, every 12,000 miles (19,308 km) or once every year, whichever occurs first. Clean filter each time the differential is drained. If screen is crushed or bent, replace with a new one. Clean the screen cavity in the carrier of all debris and particles. If excessive amount of metal particles are detected during oil filter servicing, notify Direct Support Maintenance personnel before refilling differential.

32. TURNTABLE BEARING (M1084/M1086/M1089). Lubricate with GAA every 6,000 miles (9,654 km), after washing, or once every six months, whichever occurs first. Use a low pressure lubrication gun. Apply lubrication to grease fitting inside turntable bearing. Operate MHC (TM 9-2320-366-10) to rotate turntable bearing through full range of travel between applications of grease. This method assures full lubrication of the turntable bearing. If operating conditions are severe or abnormal, service at 1,000 miles (1,609 km) or once every month, whichever occurs first.

33. TOP and BOTTOM PLATES (M1089). Lubricate every 6,000 miles (9,654 km) or once every six months, whichever occurs first. Coat top and bottom plates with GAA. Extending outriggers in and out while applying grease assures full lubrication for the entire length of top and bottom plates. If operating conditions are severe or abnormal, service at 1,000 miles (1,609 km) or once every month, whichever occurs first.

34. CRANE GREASE FITTINGS (M1084/M1086/M1089). Lubricate with GAA every 6,000 miles (9,654), after washing, or once every six months, whichever occurs first. Use 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.

35. UNDERLIFT ASSEMBLY GREASE FITTINGS. Lubricate with GAA every 6,000 miles (9,654), after washing, or once every six months, whichever occurs first. Use 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.

36. FRONT LIFTING BEAM. Remove left and right lifting beams and clean with Dry Cleaning Solvent (Item 65, 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.

37. AIR DRYER. Service air dryer (para 23-11) every 12,000 miles (19,308 km) or annually, whichever occurs first.

38. TENSION LINKS. Lubricate tension link(s) every three months with GAA.

39. FRONT LEAF SPRING AND REAR BOGIE AXLE. At initial 1000 miles (1609 km) of vehicle operation, tighten U-bolts to 390-510 lb-ft (529-692 N•m).

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 MTV.

J-2. GENERAL

This list identifies items that do not have to accompany the MTV 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

APPENDIX K
TRANSMISSION/TRANSMISSION CONTROLS ADAPTABILITY CHART

Section I. INTRODUCTION

K-1. INTRODUCTION

This appendix lists the various transmission controls and configuration modifications that may be required to permit the transmission to function correctly. This appendix will guide the mechanic through the hardware selection process by identifying compatibility issues between the transmission controls (WTEC II/WTEC III) and the numerous revisions of the Allison MD3070PT transmission (PRE-ID w/ 24-pin connector, PRE-ID w/ 31-pin connector, TID 1, TID 2, and TID 3). Refer to Figure 1. After replacing any component of the transmission controls or the transmission assembly, perform calibration procedures in TM 9-2320-366-20-4 paragraph 8-2 or 8-3.

K-2. EXPLANATION OF COLUMNS

a. Column (1) - Installed Controls or Controls Being Installed. This column lists all of the variables concerning which version of transmission controls are installed in the vehicle, or may need to be installed, to communicate correctly with the transmission.

b. Column (2) - Installed Transmission or Transmission Being Installed. This column lists all of the various revisions of the Allison MD3070PT transmissions that may be installed in the vehicle.

c. Column (3) - Required Modification. This column lists the various electrical interface (hardware) modifications that may be required to allow the transmission controls to communicate with the transmission.

K-3. HOW TO USE THIS CHART

a. Determine which controls and transmission are installed in the vehicle.

b. Determine which component requires replacement.

c. Read across the row to column (3) to determine the required modification.

Section II.

TRANSMISSION/TRANSMISSION CONTROLS ADAPTABILITY CHART

(1) Installed Controls or Controls Being Installed	(2) Installed Transmission or Transmission Being Installed	(3) Required Modification (Refer to Section III)
WTEC II (with 24-pin connector)	PRE-ID w/ 24-pin connector (transmission serial number prior to 6510032369)	No modification required.
WTEC II (with 24-pin connector)	PRE-ID w/ 31-pin connector (transmission serial number 6510032369 to 6510090785)	Install 31-pin connector.
WTEC II (with 24-pin connector)	TID 1 (transmission serial number 6510090786 to 6510142171)	Install 31-pin connector.
WTEC II (with 24-pin connector)	TID 2 (transmission serial number 6510142172 to 6510262116)	Install 31-pin connector and replace transmission internal wiring harness.

TRANSMISSION/TRANSMISSION CONTROLS ADAPTABILITY CHART (CONT)

(1) Installed Controls or Controls Being Installed	(2) Installed Transmission or Transmission Being Installed	(3) Required Modification (Refer to Section III)
WTEC II (with 24-pin connector)	TID 3 (transmission serial number 6510262117 and subsequent)	Install 31-pin connector, replace transmission internal wiring harness, and reprogram WTEC II TEPSS. [1]
WTEC II (with 31-pin connector)	PRE-ID w/ 24-pin connector (transmission serial number prior to 6510032369)	Install adapter cable assembly.
WTEC II (with 31-pin connector)	PRE-ID w/ 31-pin connector (transmission serial number 6510032369 to 6510090785)	No modification required.
WTEC II (with 31-pin connector)	TID 1 (transmission serial number 6510090786 to 6510142171)	No modification required.
WTEC II (with 31-pin connector)	TID 2 (transmission serial number 6510142172 to 6510262116)	Replace transmission internal wiring harness.
WTEC II (with 31-pin connector)	TID 3 (transmission serial number 6510262117 and subsequent)	Replace transmission internal wiring harness and reprogram WTEC II TEPSS. [1]
WTEC III (with ECU manufactured prior to October 1999) [2]	PRE-ID w/ 24-pin connector (transmission serial number prior to 6510032369)	Install adapter cable assembly and ID harness.
WTEC III (with ECU manufactured prior to October 1999) [2]	PRE-ID w/ 31-pin connector (transmission serial number 6510032369 to 6510090785)	Install ID harness.
WTEC III (with ECU manufactured prior to October 1999) [2]	TID 1 (transmission serial number 6510090786 to 6510142171)	No modification required.
WTEC III (with ECU manufactured prior to October 1999) [2]	TID 2 (transmission serial number 6510142172 to 6510262116)	No modification required.
WTEC III (with ECU manufactured prior to October 1999) [2]	TID 3 (transmission serial number 6510262117 and subsequent)	Reprogram WTEC III ECU [1] or install new WTEC III ECU (P/N 12421787-002).
WTEC III (with ECU manufactured after October 1999) [3]	PRE-ID w/ 24-pin connector (transmission serial number prior to 6510032369)	Install adapter cable assembly and ID harness.
WTEC III (with ECU manufactured after October 1999) [3]	PRE-ID w/ 31-pin connector (transmission serial number 6510032369 to 6510090785)	Install ID harness.
WTEC III (with ECU manufactured after October 1999) [3]	TID 1 (transmission serial number 6510090786 to 6510142171)	No modification required.

[1] Reprogramming can only be accomplished by an authorized Allison Transmission distributor. You must provide the transmission serial number of the transmission being installed to ensure correct reprogramming. If at a later time, an earlier version transmission is installed in a WTEC II equipped vehicle, WTEC II TEPSS will require reprogramming again.
[2] Vehicle serial number 012477 and lower. Refer to Figure 1.
[3] Vehicle serial number 012478 and higher. Refer to Figure 1.

(1) Installed Controls or Controls Being Installed	(2) Installed Transmission or Transmission Being Installed	(3) Required Modification (Refer to Section III)
WTEC III (with ECU manufactured after October 1999) [3]	TID 2 (transmission serial number 6510142172 to 6510262116)	No modification required.
WTEC III (with ECU manufactured after October 1999) [3]	TID 3 (transmission serial number 6510262117 and subsequent)	No modification required.

Section III.

MODIFICATION PARTS IDENTIFICATION

Identification	Part Number/NSN	Description
31-pin connector	300130 5935-21-921-1813	Converts a transmission external wiring harness from a 24-pin ("D" type) connector to a 31-pin (round type) connector.
Transmission internal wiring harness	29529474 6150-01-481-8088	Converts a TID 2 transmission to a TID 1 configuration to allow WTEC II controls to communicate with the transmission.
Gasket	29503283 5330-01-360-9035	Required when replacing transmission internal wiring harness.
ID harness	200100 6150-21-921-1191	Allows WTEC III controls to communicate with a PRE-ID transmission.
Adapter cable assembly	29519210 6150-01-420-5987	Adapts a PRE-ID transmission with 24-pin ("D" type) connector to a transmission external wiring harness with a 31-pin (round) connector.

MODIFICATION PARTS IDENTIFICATION (CONT)

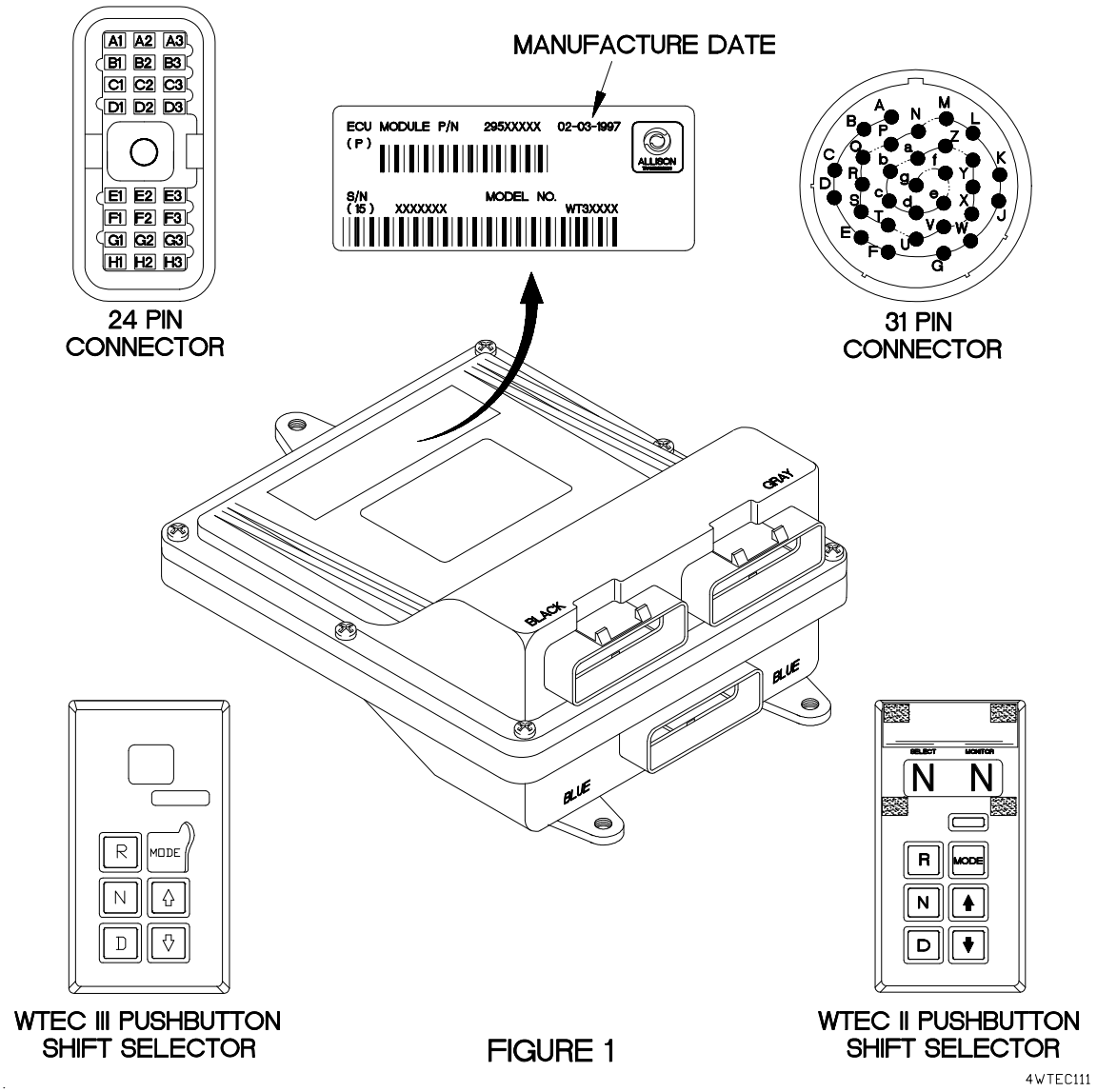


FIGURE 1

SUBJECT INDEX

SUBJECT INDEX (CONT)

Subject Para

C (Cont)

D

Subject Para

D (Cont)

E

F

G

H

SUBJECT INDEX (CONT)

SUBJECT INDEX (CONT)

SUBJECT INDEX (CONT)

Subject Para

S (Cont)

T

Subject Para

T (Cont)

SUBJECT INDEX (CONT)

GLOSSARY
ABBREVIATIONS

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	Left Hand
LMHC	Light Material Handling Crane
MAC	Maintenance Allocation Chart
MHC	Material Handling Crane
NATO	North Atlantic Treaty Organization
NBC	Nuclear, Biological, or Chemical
NO/NC	Normally Open/Normally Closed
O/R	Outrigger
PDP	Power Distribution Panel
PMCS	Preventive Maintenance Checks and Services
PTO	Power Takeoff
RH	Right Hand
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
TM	Technical Manual
TPS	Thottle Position Sensor

GLOSSARY
ABBREVIATIONS (CONT)

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)

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
05121

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	Publication Date	Publication Title

ITEM	PAGE	PARA-GRAPH	LINE	FIGURE NO.	TABLE	RECOMMENDED CHANGES AND REASON
10	15-33	15-7		4		Item 10. Change Illustration. Reason: Text calls out 90-degree fitting. Art shows straight fitting. Text is correct.
	19-6	19-2				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.

* *Reference to line numbers within the paragraph or subparagraph.*

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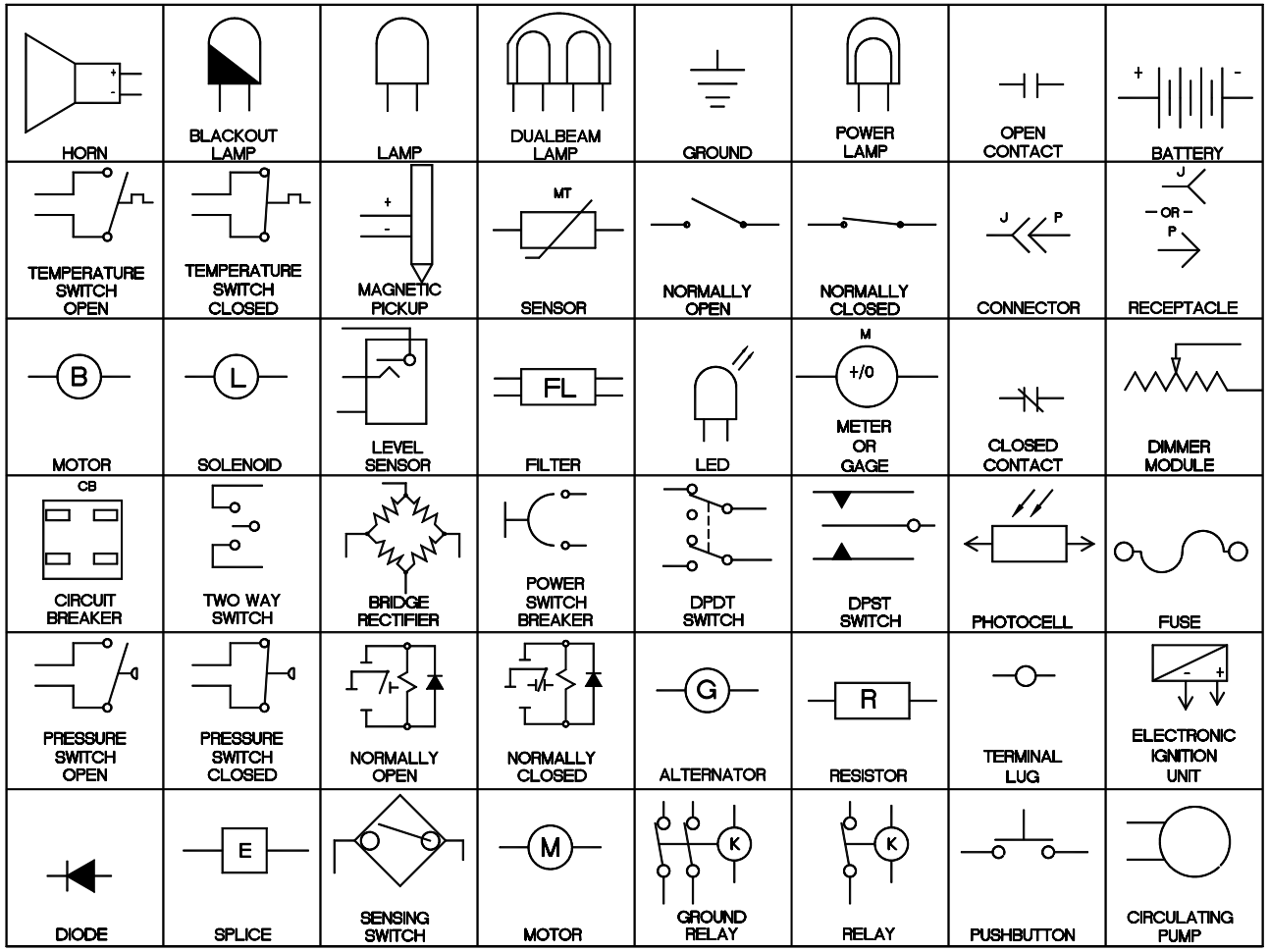

FIGURE FO-1 ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 1 OF 40

SIZE	ILL. NO.	
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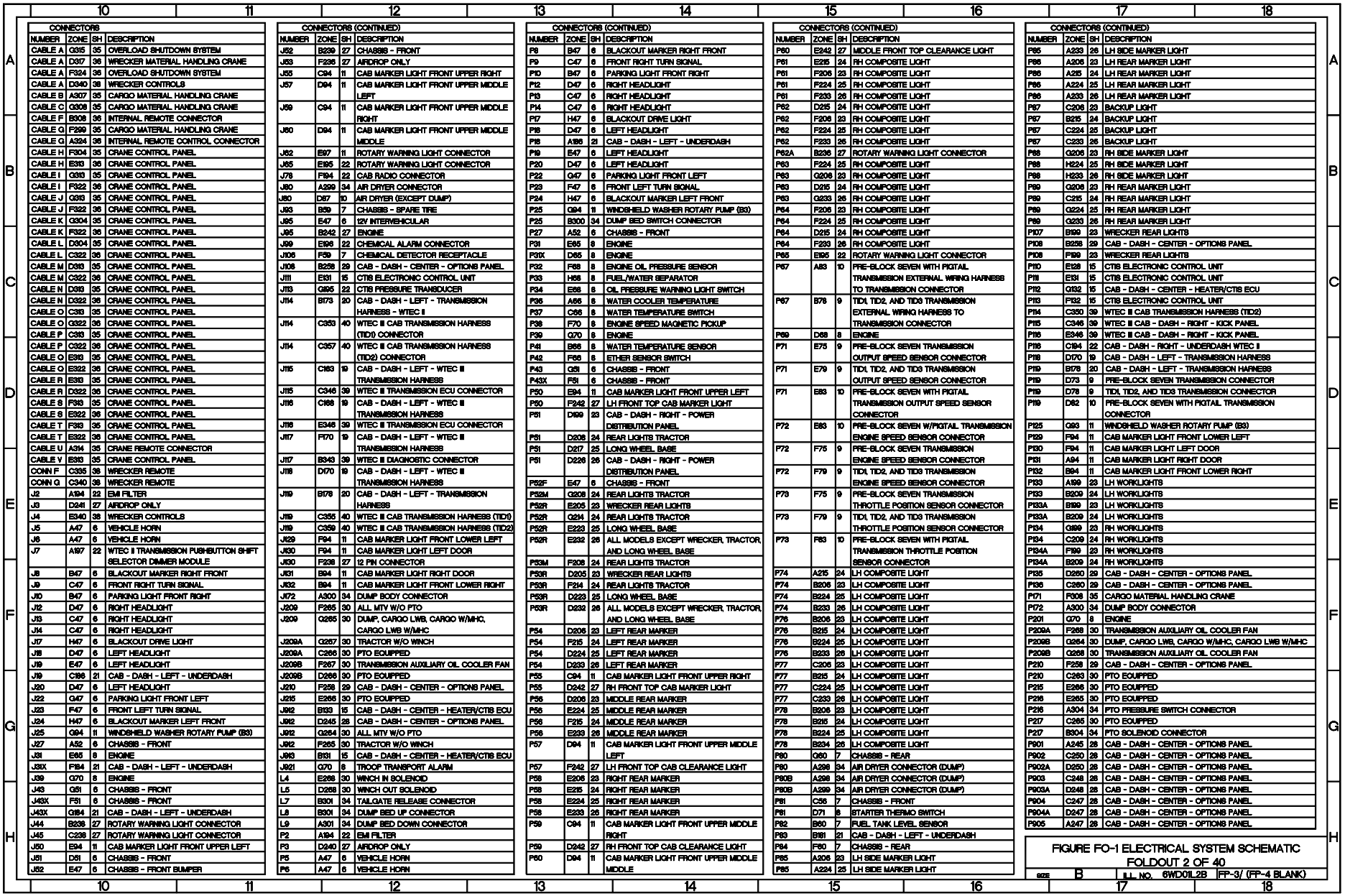

CONNECTORS			
NUMBER	ZONE	SH	DESCRIPTION
CABLE A	G315	35	OVERLOAD SHUTDOWN SYSTEM
CABLE A	D317	36	WRECKER MATERIAL HANDLING CRANE
CABLE A	F324	36	OVERLOAD SHUTDOWN SYSTEM
CABLE A	D340	38	WRECKER CONTROLS
CABLE B	A307	35	CARGO MATERIAL HANDLING CRANE
CABLE C	G308	35	CARGO MATERIAL HANDLING CRANE
CABLE F	B308	36	INTERNAL REMOTE CONNECTOR
CABLE G	F299	35	CARGO MATERIAL HANDLING CRANE
CABLE G	A324	36	INTERNAL REMOTE CONTROL CONNECTOR
CABLE H	F304	35	CRANE CONTROL PANEL
CABLE H	E313	36	CRANE CONTROL PANEL
CABLE I	G313	35	CRANE CONTROL PANEL
CABLE I	F322	36	CRANE CONTROL PANEL
CABLE J	G313	35	CRANE CONTROL PANEL
CABLE J	F322	36	CRANE CONTROL PANEL
CABLE K	G304	35	CRANE CONTROL PANEL
CABLE K	F322	36	CRANE CONTROL PANEL
CABLE L	D304	35	CRANE CONTROL PANEL
CABLE L	C322	36	CRANE CONTROL PANEL
CABLE M	D313	35	CRANE CONTROL PANEL
CABLE M	C322	36	CRANE CONTROL PANEL
CABLE N	D313	35	CRANE CONTROL PANEL
CABLE N	D322	36	CRANE CONTROL PANEL
CABLE O	C313	35	CRANE CONTROL PANEL
CABLE O	G322	36	CRANE CONTROL PANEL
CABLE P	C313	35	CRANE CONTROL PANEL
CABLE P	C322	36	CRANE CONTROL PANEL
CABLE Q	E313	35	CRANE CONTROL PANEL
CABLE Q	E322	36	CRANE CONTROL PANEL
CABLE R	E313	35	CRANE CONTROL PANEL
CABLE R	D322	36	CRANE CONTROL PANEL
CABLE S	F313	35	CRANE CONTROL PANEL
CABLE S	E322	36	CRANE CONTROL PANEL
CABLE T	F313	35	CRANE CONTROL PANEL
CABLE T	E322	36	CRANE CONTROL PANEL
CABLE U	A314	35	CRANE REMOTE CONNECTOR
CABLE V	E313	35	CRANE CONTROL PANEL
CONN F	C335	36	WRECKER REMOTE
CONN Q	C340	36	WRECKER REMOTE
J2	A194	22	EMI FILTER
J3	D241	27	AIRDROP ONLY
J4	E340	38	WRECKER CONTROLS
J5	A47	6	VEHICLE HORN
J6	A47	6	VEHICLE HORN
J7	A197	22	WTEC II TRANSMISSION PUSHBUTTON SHIFT SELECTOR DIMMER MODULE
J8	B47	6	BLACKOUT MARKER RIGHT FRONT
J9	C47	6	FRONT RIGHT TURN SIGNAL
J10	B47	6	PARKING LIGHT FRONT RIGHT
J12	D47	6	RIGHT HEADLIGHT
J13	C47	6	RIGHT HEADLIGHT
J14	C47	6	RIGHT HEADLIGHT
J17	H47	6	BLACKOUT DRIVE LIGHT
J18	D47	6	LEFT HEADLIGHT
J19	E47	6	LEFT HEADLIGHT
J19	C186	21	CAB - DASH - LEFT - UNDERDASH
J20	D47	6	LEFT HEADLIGHT
J22	G47	6	PARKING LIGHT FRONT LEFT
J23	F47	6	FRONT LEFT TURN SIGNAL
J24	H47	6	BLACKOUT MARKER LEFT FRONT
J25	G84	11	WINDSHIELD WASHER ROTARY PUMP (B3)
J27	A52	6	CHASSIS - FRONT
J31	E65	8	ENGINE
J31X	F184	21	CAB - DASH - LEFT - UNDERDASH
J39	G70	8	ENGINE
J43	G51	6	CHASSIS - FRONT
J43X	F51	6	CHASSIS - FRONT
J43X	G184	21	CAB - DASH - LEFT - UNDERDASH
J44	B238	27	ROTARY WARNING LIGHT CONNECTOR
J45	C238	27	ROTARY WARNING LIGHT CONNECTOR
J50	E94	11	CAB MARKER LIGHT FRONT UPPER LEFT
J51	D51	6	CHASSIS - FRONT
J52	E47	6	CHASSIS - FRONT BUMPER

CONNECTORS (CONTINUED)			
NUMBER	ZONE	SH	DESCRIPTION
J52	B239	27	CHASSIS - FRONT
J53	F236	27	AIRDROP ONLY
J55	C94	11	CAB MARKER LIGHT FRONT UPPER RIGHT
J57	D94	11	CAB MARKER LIGHT FRONT UPPER MIDDLE LEFT
J59	C94	11	CAB MARKER LIGHT FRONT UPPER MIDDLE RIGHT
J60	D94	11	CAB MARKER LIGHT FRONT UPPER MIDDLE MIDDLE
J62	E97	11	ROTARY WARNING LIGHT CONNECTOR
J65	E195	22	ROTARY WARNING LIGHT CONNECTOR
J78	F194	22	CAB RADIO CONNECTOR
J80	A299	34	AIR DRYER CONNECTOR
J80	D87	10	AIR DRYER (EXCEPT DUMP)
J93	B89	7	CHASSIS - SPARE TIRE
J95	E47	6	12V INTERVEHICULAR
J95	B242	27	ENGINE
J99	E196	22	CHEMICAL ALARM CONNECTOR
J106	F59	7	CHEMICAL DETECTOR RECEPTACLE
J108	B258	29	CAB - DASH - CENTER - OPTION8 PANEL
J111	E131	15	CTIS ELECTRONIC CONTROL UNIT
J113	G195	22	CTIS PRESSURE TRANSDUCER
J114	B173	20	CAB - DASH - LEFT - TRANSMISSION HARNESS - WTEC II
J114	C353	40	WTEC II CAB TRANSMISSION HARNESS (TID1) CONNECTOR
J114	C357	40	WTEC II CAB TRANSMISSION HARNESS (TID2) CONNECTOR
J115	C183	19	CAB - DASH - LEFT - WTEC II TRANSMISSION HARNESS
J115	C345	39	WTEC II TRANSMISSION ECU CONNECTOR
J116	C188	19	CAB - DASH - LEFT - WTEC II TRANSMISSION HARNESS
J116	E346	39	WTEC II TRANSMISSION ECU CONNECTOR
J117	F170	19	CAB - DASH - LEFT - WTEC II TRANSMISSION HARNESS
J117	B343	39	WTEC II DIAGNOSTIC CONNECTOR
J118	D170	19	CAB - DASH - LEFT - WTEC II TRANSMISSION HARNESS
J119	B178	20	CAB - DASH - LEFT - TRANSMISSION HARNESS
J119	C355	40	WTEC II CAB TRANSMISSION HARNESS (TID1)
J119	C359	40	WTEC II CAB TRANSMISSION HARNESS (TID2)
J129	F94	11	CAB MARKER LIGHT FRONT LOWER LEFT
J130	F94	11	CAB MARKER LIGHT LEFT DOOR
J131	B94	11	CAB MARKER LIGHT RIGHT DOOR
J132	B94	11	CAB MARKER LIGHT FRONT LOWER RIGHT
J172	A300	34	DUMP BODY CONNECTOR
J209	F265	30	ALL MTV W/O PTO
J209	G265	30	DUMP, CARGO LWB, CARGO W/MHC, CARGO LWB W/MHC
J209A	G257	30	TRACTOR W/O WINCH
J209A	C266	30	PTO EQUIPPED
J209B	F267	30	TRANSMISSION AUXILIARY OIL COOLER FAN
J209B	D266	30	PTO EQUIPPED
J210	F258	29	CAB - DASH - CENTER - OPTION8 PANEL
J215	E265	30	PTO EQUIPPED
J912	B193	15	CAB - DASH - CENTER - HEATER/CTIS ECU
J912	D245	28	CAB - DASH - CENTER - OPTION8 PANEL
J912	G264	30	ALL MTV W/O PTO
J912	F265	30	TRACTOR W/O WINCH
J913	B191	15	CAB - DASH - CENTER - HEATER/CTIS ECU
J921	G70	8	TROOP TRANSPORT ALARM
L4	E268	30	WINCH IN SOLENOID
L5	D268	30	WINCH OUT SOLENOID
L7	B301	34	TAILGATE RELEASE CONNECTOR
L8	B301	34	DUMP BED UP CONNECTOR
L9	A301	34	DUMP BED DOWN CONNECTOR
P2	A194	22	EMI FILTER
P3	D240	27	AIRDROP ONLY
P5	A47	6	VEHICLE HORN
P6	A47	6	VEHICLE HORN

CONNECTORS (CONTINUED)			
NUMBER	ZONE	SH	DESCRIPTION
P8	B47	6	BLACKOUT MARKER RIGHT FRONT
P9	C47	6	FRONT RIGHT TURN SIGNAL
P10	B47	6	PARKING LIGHT FRONT RIGHT
P12	D47	6	RIGHT HEADLIGHT
P13	C47	6	RIGHT HEADLIGHT
P14	C47	6	RIGHT HEADLIGHT
P17	H47	6	BLACKOUT DRIVE LIGHT
P18	D47	6	LEFT HEADLIGHT
P18	A186	21	CAB - DASH - LEFT - UNDERDASH
P19	E47	6	LEFT HEADLIGHT
P20	D47	6	LEFT HEADLIGHT
P22	G47	6	PARKING LIGHT FRONT LEFT
P23	F47	6	FRONT LEFT TURN SIGNAL
P24	H47	6	BLACKOUT MARKER LEFT FRONT
P25	G84	11	WINDSHIELD WASHER ROTARY PUMP (B3)
P25	B300	34	DUMP BED SWITCH CONNECTOR
P27	A52	6	CHASSIS - FRONT
P31	E65	8	ENGINE
P31X	D65	8	ENGINE
P32	F68	8	ENGINE OIL PRESSURE SENSOR
P33	H68	8	FUEL/WATER SEPARATOR
P34	E66	6	OIL PRESSURE WARNING LIGHT SWITCH
P35	A66	6	WATER COOLER TEMPERATURE
P37	C66	6	WATER TEMPERATURE SWITCH
P38	F70	8	ENGINE SPEED MAGNETIC PICKUP
P39	Q70	8	ENGINE
P41	B66	6	WATER TEMPERATURE SENSOR
P42	F66	6	ETHER SENSOR SWITCH
P43	Q51	6	CHASSIS - FRONT
P43X	F51	6	CHASSIS - FRONT
P50	E94	11	CAB MARKER LIGHT FRONT UPPER LEFT
P50	F242	27	LH FRONT TOP CAB MARKER LIGHT
P51	D199	23	CAB - DASH - RIGHT - POWER DISTRIBUTION PANEL
P51	D208	24	REAR LIGHTS TRACTOR
P51	D217	25	LONG WHEEL BASE
P51	D226	26	CAB - DASH - RIGHT - POWER DISTRIBUTION PANEL
P52F	E47	6	CHASSIS - FRONT
P52M	Q208	24	REAR LIGHTS TRACTOR
P52R	E205	23	WRECKER REAR LIGHTS
P52R	Q214	24	REAR LIGHTS TRACTOR
P52R	E223	25	LONG WHEEL BASE
P52R	E232	26	ALL MODELS EXCEPT WRECKER, TRACTOR, AND LONG WHEEL BASE
P53M	F208	24	REAR LIGHTS TRACTOR
P53R	D205	23	WRECKER REAR LIGHTS
P53R	F214	24	REAR LIGHTS TRACTOR
P53R	D223	25	LONG WHEEL BASE
P53R	D232	26	ALL MODELS EXCEPT WRECKER, TRACTOR, AND LONG WHEEL BASE
P54	D206	23	LEFT REAR MARKER
P54	F215	24	LEFT REAR MARKER
P54	D224	25	LEFT REAR MARKER
P54	D233	26	LEFT REAR MARKER
P55	C94	11	CAB MARKER LIGHT FRONT UPPER RIGHT
P55	D242	27	RH FRONT TOP CAB MARKER LIGHT
P56	D206	23	MIDDLE REAR MARKER
P56	E224	25	MIDDLE REAR MARKER
P56	F215	24	MIDDLE REAR MARKER
P56	E233	26	MIDDLE REAR MARKER
P57	D94	11	CAB MARKER LIGHT FRONT UPPER MIDDLE LEFT
P57	F242	27	LH FRONT TOP CAB CLEARANCE LIGHT
P58	E206	23	RIGHT REAR MARKER
P58	E215	24	RIGHT REAR MARKER
P58	E224	25	RIGHT REAR MARKER
P58	E233	26	RIGHT REAR MARKER
P59	C94	11	CAB MARKER LIGHT FRONT UPPER MIDDLE RIGHT
P59	D242	27	RH FRONT TOP CAB CLEARANCE LIGHT
P60	D94	11	CAB MARKER LIGHT FRONT UPPER MIDDLE MIDDLE

CONNECTORS (CONTINUED)			
NUMBER	ZONE	SH	DESCRIPTION
P60	E242	27	MIDDLE FRONT TOP CLEARANCE LIGHT
P61	E215	24	RH COMPOSITE LIGHT
P61	F206	23	RH COMPOSITE LIGHT
P61	F224	25	RH COMPOSITE LIGHT
P61	F233	26	RH COMPOSITE LIGHT
P62	D215	24	RH COMPOSITE LIGHT
P62	F206	23	RH COMPOSITE LIGHT
P62	F224	25	RH COMPOSITE LIGHT
P62	F233	26	RH COMPOSITE LIGHT
P62A	B236	27	ROTARY WARNING LIGHT CONNECTOR
P63	F224	25	RH COMPOSITE LIGHT
P63	Q206	23	RH COMPOSITE LIGHT
P63	D215	24	RH COMPOSITE LIGHT
P63	Q233	26	RH COMPOSITE LIGHT
P64	F205	23	RH COMPOSITE LIGHT
P64	F224	25	RH COMPOSITE LIGHT
P64	D215	24	RH COMPOSITE LIGHT
P64	F233	26	RH COMPOSITE LIGHT
P65	E195	22	ROTARY WARNING LIGHT CONNECTOR
P67	A83	10	PRE-BLOCK SEVEN WITH PIGTAIL TRANSMISSION EXTERNAL WIRING HARNESS TO TRANSMISSION CONNECTOR
P67	B78	9	TID1, TID2, AND TID3 TRANSMISSION EXTERNAL WIRING HARNESS TO TRANSMISSION CONNECTOR
P69	D68	8	ENGINE
P71	E75	9	PRE-BLOCK SEVEN TRANSMISSION OUTPUT SPEED SENSOR CONNECTOR
P71	E79	9	TID1, TID2, AND TID3 TRANSMISSION OUTPUT SPEED SENSOR CONNECTOR
P71	E83	10	PRE-BLOCK SEVEN WITH PIGTAIL TRANSMISSION OUTPUT SPEED SENSOR CONNECTOR
P72	E83	10	PRE-BLOCK SEVEN W/PIGTAIL TRANSMISSION ENGINE SPEED SENSOR CONNECTOR
P72	F75	9	PRE-BLOCK SEVEN TRANSMISSION ENGINE SPEED SENSOR CONNECTOR
P72	F79	9	TID1, TID2, AND TID3 TRANSMISSION ENGINE SPEED SENSOR CONNECTOR
P73	F75	9	PRE-BLOCK SEVEN TRANSMISSION THROTTLE POSITION SENSOR CONNECTOR
P73	F79	9	TID1, TID2, AND TID3 TRANSMISSION THROTTLE POSITION SENSOR CONNECTOR
P73	F83	10	PRE-BLOCK SEVEN WITH PIGTAIL TRANSMISSION THROTTLE POSITION SENSOR CONNECTOR
P74	A215	24	LH COMPOSITE LIGHT
P74	B206	23	LH COMPOSITE LIGHT
P74	B224	25	LH COMPOSITE LIGHT
P74	B233	26	LH COMPOSITE LIGHT
P76	B206	23	LH COMPOSITE LIGHT
P76	B215	24	LH COMPOSITE LIGHT
P76	B224	25	LH COMPOSITE LIGHT
P76	B233	26	LH COMPOSITE LIGHT
P77	C206	23	LH COMPOSITE LIGHT
P77	B215	24	LH COMPOSITE LIGHT
P77	C224	25	LH COMPOSITE LIGHT
P77	C233	26	LH COMPOSITE LIGHT
P78	B206	23	LH COMPOSITE LIGHT
P78	B215	24	LH COMPOSITE LIGHT
P78	B224	25	LH COMPOSITE LIGHT
P78	B234	26	LH COMPOSITE LIGHT
P80	Q60	7	CHASSIS - REAR
P80	A298	34	AIR DRYER CONNECTOR (DUMP)
P80B	A298	34	AIR DRYER CONNECTOR (DUMP)
P80B	A299	34	AIR DRYER CONNECTOR (DUMP)
P81	C55	7	CHASSIS - FRONT
P81	D71	8	STARTER THERMO SWITCH
P82	B60	7	FUEL TANK LEVEL SENSOR
P83	B181	21	CAB - DASH - LEFT - UNDERDASH
P84	F60	7	CHASSIS - REAR
P85	A205	23	LH SIDE MARKER LIGHT
P85	A224	25	LH SIDE MARKER LIGHT

CONNECTORS (CONTINUED)			
NUMBER	ZONE	SH	DESCRIPTION
P85	A233	26	LH SIDE MARKER LIGHT
P86	A206	23	LH REAR MARKER LIGHT
P86	A215	24	LH REAR MARKER LIGHT
P86	A224	25	LH REAR MARKER LIGHT
P86	A233	26	LH REAR MARKER LIGHT
P87	C206	23	BACKUP LIGHT
P87	B215	24	BACKUP LIGHT
P87	C224	25	BACKUP LIGHT
P87	C233	26	BACKUP LIGHT
P88	G206	23	RH SIDE MARKER LIGHT
P88	H224	25	RH SIDE MARKER LIGHT
P88	H233	26	RH SIDE MARKER LIGHT
P89	G206	23	RH REAR MARKER LIGHT
P89	C215	24	RH REAR MARKER LIGHT
P89	G224	25	RH REAR MARKER LIGHT
P89	G233	26	RH REAR MARKER LIGHT
P107	B199	23	WRECKER REAR LIGHTS
P108	B258	29	CAB - DASH - CENTER - OPTION8 PANEL
P108	F199	23	WRECKER REAR LIGHTS
P110	E128	15	CTIS ELECTRONIC CONTROL UNIT
P111	E131	15	CTIS ELECTRONIC CONTROL UNIT
P112	Q132	15	CAB - DASH - CENTER - HEATER/CTIS ECU
P113	F132	15	CTIS ELECTRONIC CONTROL UNIT
P114	C350	39	WTEC II CAB TRANSMISSION HARNESS (TID2)
P115	C346	39	WTEC II CAB - DASH - RIGHT - KICK PANEL
P116	E346	39	WTEC II CAB - DASH - RIGHT - KICK PANEL
P118	C184	22	CAB - DASH - RIGHT - UNDERDASH WTEC II
P118	D170	19	CAB - DASH - LEFT - TRANSMISSION HARNESS
P119	B178	20	CAB - DASH - LEFT - TRANSMISSION HARNESS
P119	D73	9	PRE-BLOCK SEVEN TRANSMISSION CONNECTOR
P119	D78	9	TID1, TID2, AND TID3 TRANSMISSION CONNECTOR
P119	D82	10	PRE-BLOCK SEVEN WITH PIGTAIL TRANSMISSION CONNECTOR
P125	Q93	11	WINDSHIELD WASHER ROTARY PUMP (B3)
P129	F94	11	CAB MARKER LIGHT FRONT LOWER LEFT
P130	F94	11	CAB MARKER LIGHT LEFT DOOR
P131	A94	11	CAB MARKER LIGHT RIGHT DOOR
P132	B94	11	CAB MARKER LIGHT FRONT LOWER RIGHT
P133	A199	23	LH WORKLIGHTS
P133	B209	24	LH WORKLIGHTS
P133A	B199	23	LH WORKLIGHTS
P133A	B209	24	LH WORKLIGHTS
P134	G199	23	RH WORKLIGHTS
P134	C209	24	RH WORKLIGHTS
P134A	F199	23	RH WORKLIGHTS
P134A	B209	24	RH WORKLIGHTS
P135	D260	29	CAB - DASH - CENTER - OPTION8 PANEL
P136	C260	29	CAB - DASH - CENTER - OPTION8 PANEL
P171	F308	35	CARGO MATERIAL HANDLING CRANE
P172	A300	34	DUMP BODY CONNECTOR
P201	G70	8	ENGINE
P209A	F268	30	TRANSMISSION AUXILIARY OIL COOLER FAN
P209B	G264	30	DUMP, CARGO LWB, CARGO W/MHC, CARGO LWB W/MHC
P209B	G268	30	TRANSMISSION AUXILIARY OIL COOLER FAN
P210	F258	29	CAB - DASH - CENTER - OPTION8 PANEL
P210	C263	30	PTO EQUIPPED
P215	E266	30	PTO EQUIPPED
P216	E265	30	PTO EQUIPPED
P216	A304	34	PTO PRESSURE SWITCH CONNECTOR
P217	C265	30	PTO EQUIPPED
P217	B304	34	PTO SOLENOID CONNECTOR
P901	A245	28	CAB - DASH - CENTER - OPTION8 PANEL
P902	C250	28	CAB - DASH - CENTER - OPTION8 PANEL
P902A	D250	28	CAB - DASH - CENTER - OPTION8 PANEL
P903	C248	28	CAB - DASH - CENTER - OPTION8 PANEL
P903A	D248	28	CAB - DASH - CENTER - OPTION8 PANEL
P904	C247	28	CAB - DASH - CENTER - OPTION8 PANEL
P904A	D247	28	CAB - DASH - CENTER - OPTION8 PANEL
P905	A247	28	CAB - DASH - CENTER - OPTION8 PANEL

FIGURE FO-1 ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 2 OF 40

SIZE	ILL NO.	
B	6WD01L2B	FP-3/ (FP-4 BLANK)

CONNECTORS (CONTINUED)

NUMBER	ZONE	SH	DESCRIPTION
P905A	B247	28	CAB - DASH - CENTER - OPTIONS PANEL
P906	A246	28	CAB - DASH - CENTER - OPTIONS PANEL
P906A	B248	28	CAB - DASH - CENTER - OPTIONS PANEL
P908	A251	28	CAB - DASH - CENTER - OPTIONS PANEL
P908A	B251	28	CAB - DASH - CENTER - OPTIONS PANEL
P909	A256	29	CAB - DASH - CENTER - OPTIONS PANEL
P909A	B256	29	CAB - DASH - CENTER - OPTIONS PANEL
P910	B251	28	CAB - DASH - CENTER - OPTIONS PANEL
P910A	D251	28	CAB - DASH - CENTER - OPTIONS PANEL
P911	B256	29	CAB - DASH - CENTER - OPTIONS PANEL
P911A	D256	29	CAB - DASH - CENTER - OPTIONS PANEL
P912	B133	15	CAB - DASH - CENTER - HEATER/CTIS - ECU
P912A	F134	15	CAB - DASH - CENTER - HEATER/CTIS - ECU
P913	B131	15	CAB - DASH - CENTER - HEATER/CTIS - ECU
P913	F245	28	CAB - DASH - CENTER - OPTIONS PANEL
P914	A250	28	CAB - DASH - CENTER - OPTIONS PANEL
P914A	B250	28	CAB - DASH - CENTER - OPTIONS PANEL
P921	G70	8	TROOP TRANSPORT ALARM
P94	A199	23	LH INTERMEDIATE MARKER
P94	A217	25	LH INTERMEDIATE MARKER
P95	G199	23	RH INTERMEDIATE MARKER
P95	G217	25	RH INTERMEDIATE MARKER
P99	F195	22	CHEMICAL ALARM CONNECTOR
PX1	A101	12	ENGINE FAN OFF SWITCH
PX10	D116	13	CAB - DASH - LEFT - INSTRUMENT PANEL
PX11	G116	13	CAB - DASH - LEFT - INSTRUMENT PANEL
PX12	C121	14	ROTATING WARNING LIGHT SWITCH
PX12A	E121	14	CAB - DASH - LEFT - INSTRUMENT PANEL
PX13	F101	12	ETHER STARTER SWITCH
PX13A	G101	12	CAB - DASH - LEFT - INSTRUMENT PANEL
PX14	F121	14	FULL HAZARD WARNING SWITCH
PX14A	H121	14	CAB - DASH - LEFT - INSTRUMENT PANEL
PX15	C124	14	MAIN LIGHT SWITCH
PX17	A121	14	IGNITION SWITCH
PX17A	C112	14	CAB - DASH - LEFT - INSTRUMENT PANEL
PX1A	B101	12	CAB - DASH - LEFT - INSTRUMENT PANEL
PX2	D101	12	LAMP TEST SWITCH
PX20	C197	22	TURN SIGNAL FLASHER
PX21	A143	16	WIPER DELAY MODULE
PX22	A193	22	EMI FILTER
PX24	G124	14	INSTRUMENT PANEL LIGHTS DIMMER MODULE
PX25	C128	15	CAB - DASH - CENTER - HEATER/CTIS - ECU
PX26	B188	21	CAB - DASH - LEFT - UNDERDASH
PX2A	E101	12	CAB - DASH - LEFT - INSTRUMENT PANEL
PX33	B191	22	CAB - DASH - RIGHT - UNDERDASH
PX33	G346	39	WTEC III TRANSMISSION PUSHBUTTON SHIFT SELECTOR
PX34	E197	22	FRONT AIR PRESSURE METER
PX4	F106	12	FAN SOLENOID
PX5	B106	12	REAR AIR PRESSURE METER
PX50	D197	22	INTER-AXLE DIFFERENTIAL SOLENOID
PX6	B116	13	CAB - DASH - LEFT - INSTRUMENT PANEL
PX7	A113	13	CAB - DASH - LEFT - INSTRUMENT PANEL
PX8	C111	13	CAB - DASH - LEFT - INSTRUMENT PANEL
PX9	D106	12	FUEL LEVEL METER

LIGHTS

NUMBER	ZONE	SH	DESCRIPTION
DS1	D105	12	CAB - DASH - LEFT - INSTRUMENT PANEL
DS2	G115	12	CAB - DASH - LEFT - INSTRUMENT PANEL
DS3	F105	12	CAB - DASH - LEFT - INSTRUMENT PANEL
DS4	B105	12	CAB - DASH - LEFT - INSTRUMENT PANEL
DS5	B115	13	CAB - DASH - LEFT - INSTRUMENT PANEL
DS6	G110	13	CAB - DASH - LEFT - INSTRUMENT PANEL
DS7	D115	13	CAB - DASH - LEFT - INSTRUMENT PANEL
DS8	C100	12	CAB - DASH - LEFT - INSTRUMENT PANEL
DS9	B110	13	DUMP BODY UP
DS10	E120	14	CAB - DASH - LEFT - INSTRUMENT PANEL
DS11	G100	12	CAB - DASH - LEFT - INSTRUMENT PANEL
DS12	H120	14	CAB - DASH - LEFT - INSTRUMENT PANEL
DS13	C120	14	CAB - DASH - LEFT - INSTRUMENT PANEL
DS14	B110	13	LEFT TURN SIGNAL
DS15	B110	13	RIGHT TURN SIGNAL

LIGHTS (CONTINUED)

NUMBER	ZONE	SH	DESCRIPTION
DS16	E110	13	HIGH BEAM
DS17	D128	15	HEATER CONTROL PANEL ILLUMINATION
DS18	A244	28	CAB - DASH - CENTER - OPTIONS PANEL
DS19	E110	13	RADIATOR FAN OFF
DS21	C110	13	EMERGENCY BRAKE
DS22	D110	13	PARKING BRAKE
DS23	C110	13	PTO ON
DS24	D110	13	OIL PRESSURE
DS25	C110	13	WATER TEMPERATURE
DS27	C110	13	REAR BRAKE AIR
DS28	E110	13	FRONT AIR BRAKE
DS29	D110	13	ENGINE OIL LEVEL
DS30	F110	13	MASTER STOP
DS31	D249	28	CAB - DASH - CENTER - OPTIONS PANEL
DS32	B110	13	CHEMICAL DETECT
DS34	C110	13	CTIS OVERSPEED
DS35	C207	23	WRECKER BLACKOUT STOP LEFT REAR
DS35	B216	24	TRACTOR BLACKOUT STOP LEFT REAR
DS35	C225	25	LONG WHEEL BASE BLACKOUT STOP LEFT REAR
DS35	C234	26	ALL MODELS EXCEPT WRECKER, TRACTOR, AND LONG WHEEL BASE BLACKOUT STOP LEFT REAR
DS36	G207	23	WRECKER BLACKOUT STOP RIGHT REAR
DS36	D216	24	TRACTOR BLACKOUT STOP RIGHT REAR
DS36	G225	25	LONG WHEEL BASE BLACKOUT STOP RIGHT REAR
DS36	G234	26	ALL MODELS EXCEPT WRECKER, TRACTOR, AND LONG WHEEL BASE BLACKOUT STOP RIGHT REAR
DS37	B207	23	WRECKER REAR LEFT COMPOSITE
DS37	A216	24	TRACTOR REAR LEFT COMPOSITE
DS37	B225	25	LONG WHEEL BASE REAR LEFT COMPOSITE
DS37	B234	26	ALL MODELS EXCEPT WRECKER, TRACTOR, AND LONG WHEEL BASE REAR LEFT COMPOSITE
DS38	F207	23	WRECKER REAR RIGHT COMPOSITE
DS38	E216	24	TRACTOR REAR RIGHT COMPOSITE
DS38	F225	25	LONG WHEEL BASE REAR RIGHT COMPOSITE
DS38	F234	26	ALL MODELS EXCEPT WRECKER, TRACTOR, AND LONG WHEEL BASE REAR RIGHT COMPOSITE
DS39	F46	6	FRONT LEFT TURN SIGNAL
DS41	D110	13	TRANSMISSION OIL TEMPERATURE
DS42	C47	6	FRONT RIGHT TURN SIGNAL
DS43	D248	28	CAB - DASH - CENTER - OPTIONS PANEL
DS44	D46	6	RIGHT HEADLIGHT
DS45	D207	23	WRECKER BACKUP LIGHT
DS45	C216	24	TRACTOR BACKUP LIGHT
DS45	C225	25	LONG WHEEL BASE BACKUP LIGHT
DS45	C234	26	ALL MODELS EXCEPT WRECKER, TRACTOR, AND LONG WHEEL BASE BACKUP LIGHT
DS46	D246	28	CAB - DASH - CENTER - OPTIONS PANEL
DS47	G46	6	PARKING LIGHT FRONT LEFT
DS48	B47	6	PARKING LIGHT FRONT RIGHT
DS49	G46	6	BLACKOUT MARKER LEFT FRONT
DS50	B47	6	BLACKOUT MARKER RIGHT FRONT
DS51	B207	23	WRECKER BLACKOUT MARKER LEFT REAR
DS51	B216	24	TRACTOR BLACKOUT MARKER LEFT REAR
DS51	B225	25	LONG WHEEL BASE BLACKOUT MARKER LEFT REAR
DS51	C234	26	ALL MODELS EXCEPT WRECKER, TRACTOR, AND WRECKER BLACKOUT MARKER LEFT REAR
DS52	F207	23	WRECKER BLACKOUT MARKER RIGHT REAR
DS52	D216	24	TRACTOR BLACKOUT MARKER RIGHT REAR
DS52	F225	25	LONG WHEEL BASE BLACKOUT MARKER RIGHT REAR
DS52	F234	26	ALL MODELS EXCEPT WRECKER, TRACTOR, AND LONG WHEEL BASE BLACKOUT MARKER RIGHT REAR
DS53	H46	6	BLACKOUT DRIVE LIGHT
DS54	D93	11	CAB MARKER LIGHT FRONT UPPER MIDDLE LEFT
DS54	F242	27	LH FRONT TOP CAB CLEARANCE LIGHT
DS52	F234	26	ALL MODELS EXCEPT WRECKER, TRACTOR, AND LONG WHEEL BASE BLACKOUT MARKER RIGHT REAR

LIGHTS (CONTINUED)

NUMBER	ZONE	SH	DESCRIPTION
DS53	H46	6	BLACKOUT DRIVE LIGHT
DS54	D93	11	CAB MARKER LIGHT FRONT UPPER MIDDLE LEFT
DS54	F242	27	LH FRONT TOP CAB CLEARANCE LIGHT
DS55	D93	11	CAB MARKER LIGHT FRONT UPPER MIDDLE MIDDLE
DS55	E242	27	MIDDLE FRONT TOP CLEARANCE LIGHT
DS56	C93	11	CAB MARKER LIGHT FRONT UPPER MIDDLE RIGHT
DS56	D242	27	RH FRONT TOP CAB CLEARANCE LIGHT
DS57	C93	11	CAB MARKER LIGHT FRONT UPPER RIGHT
DS57	D242	27	RH FRONT TOP CAB MARKER LIGHT
DS58	E93	11	CAB MARKER LIGHT FRONT UPPER LEFT
DS58	F242	27	LH FRONT TOP CAB MARKER LIGHT
DS59	B93	11	CAB MARKER LIGHT RIGHT DOOR
DS60	F93	11	CAB MARKER LIGHT FRONT LOWER LEFT
DS61	A93	11	CAB MARKER LIGHT RIGHT DOOR
DS62	F93	11	CAB MARKER LIGHT LEFT DOOR
DS63	B246	28	CAB - DASH - CENTER - OPTIONS PANEL
DS64	B248	28	CAB - DASH - CENTER - OPTIONS PANEL
DS65	A207	23	WRECKER LH SIDE MARKER LIGHT
DS65	A225	25	LONG WHEEL BASE LH SIDE MARKER LIGHT
DS65	A234	26	ALL MODELS EXCEPT WRECKER, TRACTOR, AND LONG WHEEL BASE LH SIDE MARKER LIGHT
DS66	A207	23	WRECKER LH REAR MARKER LIGHT
DS66	A216	24	TRACTOR LH REAR MARKER LIGHT
DS66	A225	25	LONG WHEEL BASE LH REAR MARKER LIGHT
DS66	A234	26	ALL MODELS EXCEPT WRECKER, TRACTOR, AND LONG WHEEL BASE LH REAR MARKER LIGHT
DS67	H207	23	WRECKER RH SIDE MARKER LIGHT
DS67	H225	25	LONG WHEEL BASE RH SIDE MARKER LIGHT
DS67	H234	26	ALL MODELS EXCEPT WRECKER, TRACTOR, AND LONG WHEEL BASE RH SIDE MARKER LIGHT
DS68	Q207	23	WRECKER RH REAR MARKER LIGHT
DS68	C216	24	TRACTOR RH REAR MARKER LIGHT
DS68	Q225	25	LONG WHEEL BASE RH REAR MARKER LIGHT
DS68	Q234	26	ALL MODELS EXCEPT WRECKER, TRACTOR, AND LONG WHEEL BASE RH REAR MARKER LIGHT
DS69	D207	23	WRECKER LEFT REAR MARKER
DS69	Q216	24	TRACTOR LEFT REAR MARKER
DS69	D225	25	LONG WHEEL BASE LEFT REAR MARKER
DS69	D234	26	ALL MODELS EXCEPT WRECKER, TRACTOR, AND LONG WHEEL BASE LEFT REAR MARKER
DS70	E207	23	WRECKER MIDDLE REAR MARKER
DS70	F216	24	TRACTOR MIDDLE REAR MARKER
DS70	E225	25	LONG WHEEL BASE MIDDLE REAR MARKER
DS70	E234	26	ALL MODELS EXCEPT WRECKER, TRACTOR, AND LONG WHEEL BASE MIDDLE REAR MARKER
DS71	E207	23	WRECKER RIGHT REAR MARKER
DS71	E216	24	TRACTOR RIGHT REAR MARKER
DS71	E225	25	LONG WHEEL BASE RIGHT REAR MARKER
DS71	E234	26	ALL MODELS EXCEPT WRECKER, TRACTOR, AND LONG WHEEL BASE RIGHT REAR MARKER
DS72	B207	23	WRECKER REAR LEFT COMPOSITE
DS72	B216	24	TRACTOR REAR LEFT COMPOSITE
DS72	B225	25	LONG WHEEL BASE REAR LEFT COMPOSITE
DS72	B234	26	ALL MODELS EXCEPT WRECKER, TRACTOR, AND LONG WHEEL BASE REAR LEFT COMPOSITE
DS73	F207	23	WRECKER REAR RIGHT COMPOSITE
DS73	E216	24	TRACTOR REAR RIGHT COMPOSITE
DS73	F225	25	LONG WHEEL BASE REAR RIGHT COMPOSITE
DS73	F234	26	ALL MODELS EXCEPT WRECKER, TRACTOR, AND LONG WHEEL BASE REAR RIGHT COMPOSITE
DS74	D46	6	LEFT HEADLIGHT
DS96	B251	28	CAB - DASH - CENTER - OPTIONS PANEL
DS97	B255	29	CAB - DASH - CENTER - OPTIONS PANEL
DS98	D251	28	CAB - DASH - CENTER - OPTIONS PANEL
DS99	D255	29	CAB - DASH - CENTER - OPTIONS PANEL
DS100	B249	28	CAB - DASH - CENTER - OPTIONS PANEL
DS101	D128	15	HEATER CONTROL PANEL ILLUMINATION
DS108	E100	12	CAB - DASH - LEFT - INSTRUMENT PANEL

CIRCUIT BREAKERS

NUMBER	ZONE	SH	DESCRIPTION
CB20	C149	17	CAB RADIO
CB21	C158	18	WTEC II VIM STE/ICE

CIRCUIT BREAKERS (CONTINUED)

NUMBER	ZONE	SH	DESCRIPTION
CB22	C158	18	FAN/ETHER
CB23	C156	18	HEATER BLOWER
CB30	C148	17	CHEMICAL ALARM
CB35	D158	18	WTEC II VIM POWER
CB36	C156	18	HORN POWER
CB37	C160	18	WINDSHIELD WIPER/WASHER
CB38	D156	18	ROTATING BEACON
CB39	C155	18	TRAILER BLACKOUT STOP
CB40	C159	18	CTIS COOLER
CB41	C151	17	TRAILER REAR LIGHTS POWER
CB42	C151	17	BLACKOUT MARKER LIGHTS POWER
CB43	C152	17	REAR COMPOSITE LIGHTS / WTEC II ECU
CB44	C152	17	REAR COMPOSITE LIGHTS
CB45	C148	17	FUEL PREHEAT
CB46	C149	17	ARCTIC CAB/ENGINE KILL
CB49	C160	18	PTO POWER
CB50	C155	18	SWINGFIRE PUMP POWER
CB53	D149	17	CAB - DASH - RIGHT - POWER DISTRIBUTION PNL
CB54	D151	17	BLACKOUT HEADLIGHT
CB61	D152	18	CAB - DASH - RIGHT - POWER DISTRIBUTION PNL
CB62	D152	18	CAB - DASH - RIGHT - POWER DISTRIBUTION PNL
CB63	D150	18	CAB - DASH - RIGHT - POWER DISTRIBUTION PNL
CB64	D150	18	CAB - DASH - RIGHT - POWER DISTRIBUTION PNL
CB65	D149	17	PARKING LIGHTS
CB66	D152	17	BLACKOUT MARKER POWER
CB67	D148	17	MARKER LIGHTS
CB68	C161	18	CAB - DASH - RIGHT - POWER DISTRIBUTION PNL
CB70	D155	18	IGNITION/MAIN LIGHT SWITCH
CB71	D158	18	HAZARD/FLASHER WORKLIGHTS
CB72	D148	17	CAB - DASH - RIGHT - POWER DISTRIBUTION PNL
CB73	D159	18	BACK-UP LIGHT POWER
CB74	D159	18	CAB - DASH - RIGHT - POWER DISTRIBUTION PNL
CB76	D152	17	BLACKOUT STOP RELAY POWER
CB77	C161	18	ENGINE INSTR POWER
CB78	D156	18	HEADLIGHTS
CB79	C159	18	WTEC II VIM POWER / WTEC III REVERSE WARNING RELAY
CB80	D151	17	TAILLIGHTS

TERMINAL LUGS

NUMBER	ZONE	SH	DESCRIPTION
TL1	B63	7	POLARITY PROTECTION
TL1	E69	8	ALTERNATOR
TL1	F62	7	200 AMP
TL2	D62	7	200 AMP
TL2	B62	7	POLARITY PROTECTION
TL2	D69	8	ALTERNATOR
TL3	C94	11	CAB MARKER LIGHT FRONT UPPER RIGHT
TL3	D242	27	RH FRONT TOP CAB MARKER LIGHT
TL4	C94	11	CAB MARKER LIGHT FRONT UPPER MIDDLE RIGHT
TL4	D242	27	RH FRONT TOP CAB CLEARANCE LIGHT
TL5	D69	8	ALTERNATOR
TL6	D69	8	ALTERNATOR
TL9	D56	7	24V AUXILIARY STARTER SOLENOID
TL8	D94	11	CAB MARKER LIGHT FRONT UPPER MIDDLE MIDDLE
TL8	E242	27	MIDDLE FRONT TOP CLEARANCE LIGHT
TL10	C61	7	CHASSIS - REAR (REF E1)
TL12	C58	7	BATTERIES
TL12	C71	8	STARTER/STARTER SOLENOID
TL14	E97	11	ROTARY WARNING LIGHT CONNECTOR
TL15	A206	23	WRECKER REAR LIGHTS
TL15	A224	25	LONG WHEEL BASE
TL15	A233	26	LH SIDE MARKER LIGHT
TL16	B206	23	WRECKER REAR LIGHTS
TL16	Q215	24	REAR LIGHTS TRACTOR
TL16	B224	25	LONG WHEEL BASE
TL16	A233	26	LH REAR MARKER LIGHT

TERMINAL LUGS (CONTINUED)

NUMBER	ZONE	SH	DESCRIPTION
TL17	C233	26	BACKUP LIGHT
TL17	C206	23	WRECKER REAR LIGHTS
TL17	C215	24	REAR LIGHTS TRACTOR
TL17	C224	25	LONG WHEEL BASE
TL18	C206	23	WRECKER REAR LIGHTS
TL18	H215	24	REAR LIGHTS TRACTOR
TL18	C224	25	LONG WHEEL BASE REAR LIGHTS
TL18	C233	26	LONG WHEEL BASE
TL19	H206	23	WRECKER REAR LIGHTS
TL19	H224	25	LONG WHEEL BASE
TL19	H233	26	RH SIDE MARKER LIGHT
TL20	G233	26	RH REAR MARKER LIGHT
TL20	C215	24	TRACTOR REAR LIGHTS
TL20	G224	25	LONG WHEELBASE REAR LIGHTS
TL20	G206	23	WRECKER REAR LIGHTS
TL21	G206	23	WRECKER REAR LIGHTS
TL21	D215	24	REAR LIGHTS TRACTOR
TL21	G224	25	LONG WHEEL BASE
TL21	G233	26	RH COMPOSITE LIGHT
TL22	D94	11	CAB MARKER LIGHTS
TL22	E242	27	LH FRONT TOP CAB CLEARANCE LIGHT
TL23	D56	7	24V AUXILIARY STARTER SOLENOID
TL24	D56	7	24V AUXILIARY STARTER SOLENOID
TL25	C56	7	CHASSIS - FRONT
TL25	C71	8	STARTER/STARTER SOLENOID
TL26	B56	7	CHASSIS - FRONT
TL26	C71	8	STARTER/STARTER SOLENOID
TL27	E94	11	CAB MARKER LIGHTS
TL27	F242	27	LH FRONT TOP CAB MARKER LIGHT
TL28	Q56	8	FUEL SOLENOID
TL29	H56	8	FUEL SOLENOID
TL30	D206	23	WRECKER REAR LIGHTS
TL30	E215	24	REAR LIGHTS TRACTOR
TL30	D224	25	LONG WHEEL BASE
TL30	D233	26	LEFT REAR MARKER
TL31	E206	23	WRECKER REAR LIGHTS
TL31	F215	24	REAR LIGHTS TRACTOR
TL31	E224	25	LONG WHEEL BASE
TL31	E233	26	MIDDLE REAR MARKER
TL32	E206	23	WRECKER REAR LIGHTS
TL32	Q215	24	REAR LIGHTS TRACTOR
TL32	E224	25	LONG WHEEL BASE
TL32	E233	26	RIGHT REAR MARKER
TL320	E268	30	PTO EQUIPPED
TL320	C277	31	ARCTIC KIT W/PTO EQUIPPED
TL33	E56	7	24V AUXILIARY STARTER SOLENOID
TL35	D70	8	ALTERNATOR
TL36	B62	7	POLARITY PROTECTION
TL36	F63	7	200 AMP
TL37	F63	7	200 AMP
TL37	B63	7	POLARITY PROTECTION
TL38	D59	7	SHUNT
TL39	C61	7	CHASSIS - REAR (REF E1)
TL41	B62	7	POLARITY PROTECTION
TL42	B62	7	POLARITY PROTECTION
TL44	B62	7	POLARITY PROTECTION
TL44	E63	7	200 AMP
TL45	D59	7	SHUNT
TL46	D58	7	SHUNT
TL46	D71	8	STARTER/STARTER SOLENOID
TL47	F63	7	200 AMP
TL47	C63	7	POLARITY PROTECTION
TL48	E61	7	CHASSIS - REAR (REF E2)
TL49A	D61	7	CHASSIS - REAR (REF E1)
TL49A	F61	7	NATO SLAVE RECEPTACLE
TL50	G190	15	CHASSIS GROUND
TL50A	F61	7	NATO SLAVE RECEPTACLE
TL51	E59	7	SHUNT
TL52	E59	7	SHUNT

FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 3 OF 40

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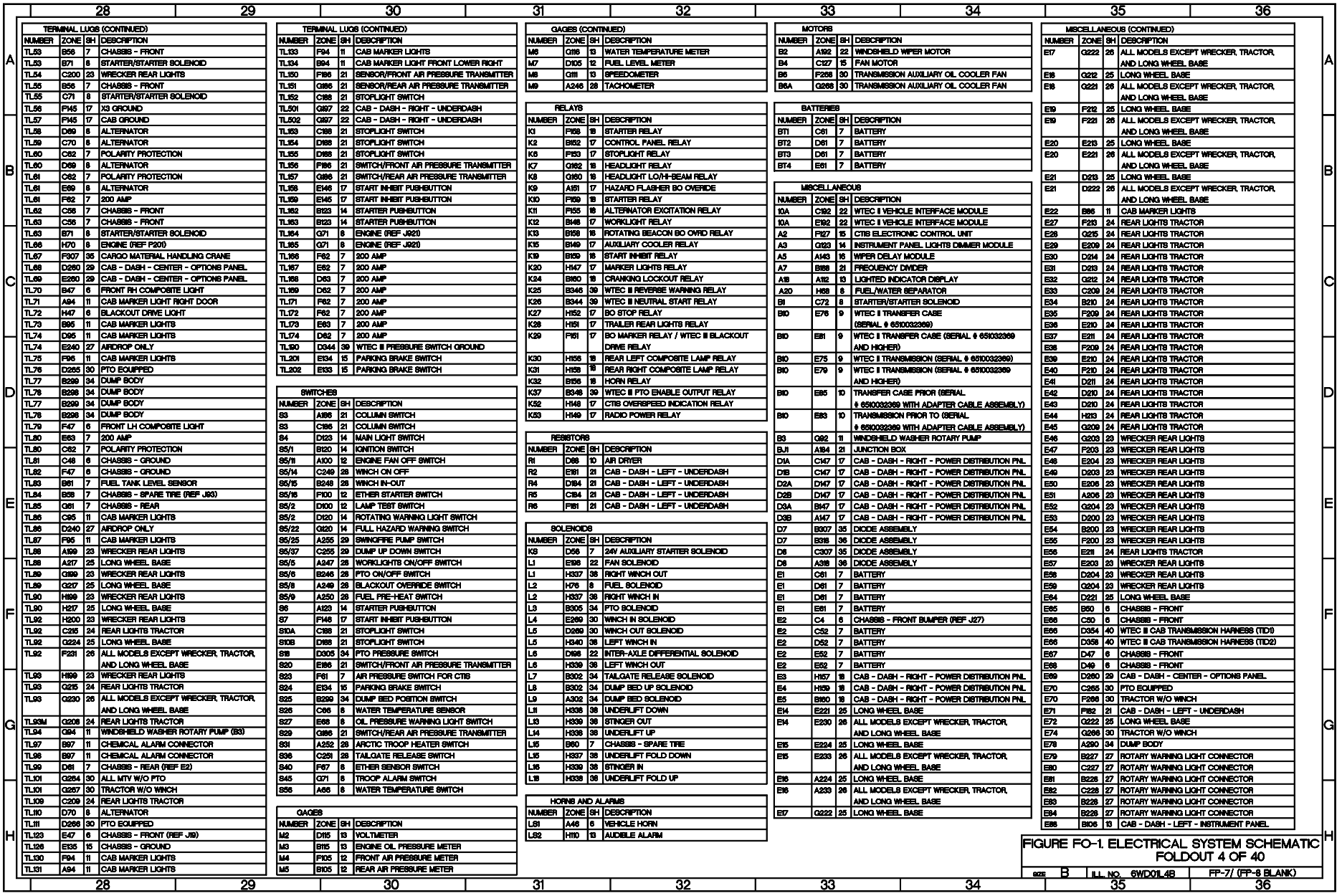


TERMINAL LUGS (CONTINUED)			
NUMBER	ZONE	SH	DESCRIPTION
TL53	B56	7	CHASSIS - FRONT
TL53	B71	8	STARTER/STARTER SOLENOID
TL54	C200	23	WRECKER REAR LIGHTS
TL55	B56	7	CHASSIS - FRONT
TL55	C71	8	STARTER/STARTER SOLENOID
TL56	F145	17	X3 GROUND
TL57	F145	17	CAB GROUND
TL58	D69	8	ALTERNATOR
TL59	C70	8	ALTERNATOR
TL60	C62	7	POLARITY PROTECTION
TL60	D69	8	ALTERNATOR
TL61	C62	7	POLARITY PROTECTION
TL61	E69	8	ALTERNATOR
TL61	F62	7	200 AMP
TL62	C56	7	CHASSIS - FRONT
TL63	C56	7	CHASSIS - FRONT
TL63	B71	8	STARTER/STARTER SOLENOID
TL66	H70	8	ENGINE (REF P201)
TL67	F307	35	CARGO MATERIAL HANDLING CRANE
TL68	D260	29	CAB - DASH - CENTER - OPTIONS PANEL
TL69	E260	29	CAB - DASH - CENTER - OPTIONS PANEL
TL70	B47	6	FRONT RH COMPOSITE LIGHT
TL71	A94	11	CAB MARKER LIGHT RIGHT DOOR
TL72	H47	6	BLACKOUT DRIVE LIGHT
TL73	B95	11	CAB MARKER LIGHTS
TL74	D95	11	CAB MARKER LIGHTS
TL74	E240	27	AIRDROP ONLY
TL75	F96	11	CAB MARKER LIGHTS
TL76	D265	30	PTO EQUIPPED
TL77	B299	34	DUMP BODY
TL78	B298	34	DUMP BODY
TL77	B299	34	DUMP BODY
TL78	B298	34	DUMP BODY
TL79	F47	6	FRONT LH COMPOSITE LIGHT
TL80	E63	7	200 AMP
TL80	C62	7	POLARITY PROTECTION
TL81	C48	6	CHASSIS - GROUND
TL82	F47	6	CHASSIS - GROUND
TL83	B61	7	FUEL TANK LEVEL SENSOR
TL84	B58	7	CHASSIS - SPARE TIRE (REF J93)
TL85	G61	7	CHASSIS - REAR
TL86	C95	11	CAB MARKER LIGHTS
TL86	D240	27	AIRDROP ONLY
TL87	F95	11	CAB MARKER LIGHTS
TL88	A199	23	WRECKER REAR LIGHTS
TL88	A217	25	LONG WHEEL BASE
TL89	G199	23	WRECKER REAR LIGHTS
TL89	G217	25	LONG WHEEL BASE
TL90	H199	23	WRECKER REAR LIGHTS
TL90	H217	25	LONG WHEEL BASE
TL92	H200	23	WRECKER REAR LIGHTS
TL92	C215	24	REAR LIGHTS TRACTOR
TL92	G224	25	LONG WHEEL BASE
TL92	F231	26	ALL MODELS EXCEPT WRECKER, TRACTOR, AND LONG WHEEL BASE
TL93	H199	23	WRECKER REAR LIGHTS
TL93	G215	24	REAR LIGHTS TRACTOR
TL93	G230	26	ALL MODELS EXCEPT WRECKER, TRACTOR, AND LONG WHEEL BASE
TL93M	G208	24	REAR LIGHTS TRACTOR
TL94	G94	11	WINDSHIELD WASHER ROTARY PUMP (B3)
TL97	B97	11	CHEMICAL ALARM CONNECTOR
TL98	B97	11	CHEMICAL ALARM CONNECTOR
TL99	D61	7	CHASSIS - REAR (REF E2)
TL101	G264	30	ALL MTV W/O PTO
TL101	G257	30	TRACTOR W/O WINCH
TL109	C209	24	REAR LIGHTS TRACTOR
TL110	D70	8	ALTERNATOR
TL111	D266	30	PTO EQUIPPED
TL123	E47	6	CHASSIS - FRONT (REF J16)
TL126	E135	15	CHASSIS - GROUND
TL130	F94	11	CAB MARKER LIGHTS
TL131	A94	11	CAB MARKER LIGHTS

TERMINAL LUGS (CONTINUED)			
NUMBER	ZONE	SH	DESCRIPTION
TL133	F94	11	CAB MARKER LIGHTS
TL134	B94	11	CAB MARKER LIGHT FRONT LOWER RIGHT
TL150	F186	21	SENSOR/FRONT AIR PRESSURE TRANSMITTER
TL151	G186	21	SENSOR/REAR AIR PRESSURE TRANSMITTER
TL152	C188	21	STOPLIGHT SWITCH
TL501	G197	22	CAB - DASH - RIGHT - UNDERDASH
TL502	G197	22	CAB - DASH - RIGHT - UNDERDASH
TL153	C188	21	STOPLIGHT SWITCH
TL154	D188	21	STOPLIGHT SWITCH
TL155	D188	21	STOPLIGHT SWITCH
TL156	F186	21	SWITCH/FRONT AIR PRESSURE TRANSMITTER
TL157	G186	21	SWITCH/REAR AIR PRESSURE TRANSMITTER
TL158	E146	17	START INHIBIT PUSHBUTTON
TL159	E145	17	START INHIBIT PUSHBUTTON
TL162	B123	14	STARTER PUSHBUTTON
TL163	B123	14	STARTER PUSHBUTTON
TL164	G71	8	ENGINE (REF J921)
TL165	G71	8	ENGINE (REF J921)
TL166	F62	7	200 AMP
TL167	E62	7	200 AMP
TL168	D63	7	200 AMP
TL169	D62	7	200 AMP
TL171	F62	7	200 AMP
TL172	F62	7	200 AMP
TL173	E63	7	200 AMP
TL174	D62	7	200 AMP
TL190	D344	39	WTEC III PRESSURE SWITCH GROUND
TL201	E134	15	PARKING BRAKE SWITCH
TL202	E133	15	PARKING BRAKE SWITCH

SWITCHES			
NUMBER	ZONE	SH	DESCRIPTION
S3	A196	21	COLUMN SWITCH
S3	C196	21	COLUMN SWITCH
S4	D123	14	MAIN LIGHT SWITCH
S5/1	B120	14	IGNITION SWITCH
S5/11	A100	12	ENGINE FAN OFF SWITCH
S5/14	C249	28	WINCH ON OFF
S5/15	B248	28	WINCH IN-OUT
S5/16	F100	12	ETHER STARTER SWITCH
S5/2	D100	12	LAMP TEST SWITCH
S5/2	D120	14	ROTATING WARNING LIGHT SWITCH
S5/22	G120	14	FULL HAZARD WARNING SWITCH
S5/25	A255	29	SWINGFIRE PUMP SWITCH
S5/37	C255	29	DUMP UP DOWN SWITCH
S5/5	A247	28	WORKLIGHTS ON/OFF SWITCH
S5/6	B246	28	PTO ON/OFF SWITCH
S5/8	A249	28	BLACKOUT OVERRIDE SWITCH
S5/9	A250	28	FUEL PRE-HEAT SWITCH
S6	A123	14	STARTER PUSHBUTTON
S7	F146	17	START INHIBIT PUSHBUTTON
S10A	C188	21	STOPLIGHT SWITCH
S10B	D188	21	STOPLIGHT SWITCH
S18	D305	34	PTO PRESSURE SWITCH
S20	E186	21	SWITCH/FRONT AIR PRESSURE TRANSMITTER
S23	F61	7	AIR PRESSURE SWITCH FOR CTIS
S24	E134	15	PARKING BRAKE SWITCH
S25	B299	34	DUMP BED POSITION SWITCH
S26	C96	8	WATER TEMPERATURE SENSOR
S27	E68	8	OIL PRESSURE WARNING LIGHT SWITCH
S29	G186	21	SWITCH/REAR AIR PRESSURE TRANSMITTER
S31	A252	28	ARCTIC TROOP HEATER SWITCH
S36	C251	28	TAILGATE RELEASE SWITCH
S40	F67	8	ETHER SENSOR SWITCH
S45	G71	8	TROOP ALARM SWITCH
S56	A66	8	WATER TEMPERATURE SWITCH

GAGES			
NUMBER	ZONE	SH	DESCRIPTION
M2	D115	13	VOLTMETER
M3	B115	13	ENGINE OIL PRESSURE METER
M4	F105	12	FRONT AIR PRESSURE METER
M5	B105	12	REAR AIR PRESSURE METER

GAGES (CONTINUED)			
NUMBER	ZONE	SH	DESCRIPTION
M6	G116	13	WATER TEMPERATURE METER
M7	D105	12	FUEL LEVEL METER
M8	C111	13	SPEEDOMETER
M9	A246	28	TACHOMETER

RELAYS			
NUMBER	ZONE	SH	DESCRIPTION
K1	F166	19	STARTER RELAY
K2	B152	17	CONTROL PANEL RELAY
K5	F153	17	STOPLIGHT RELAY
K7	G162	18	HEADLIGHT RELAY
K8	G160	18	HEADLIGHT LO/HI-BEAM RELAY
K9	A151	17	HAZARD FLASHER BO OVERIDE
K10	F159	18	STARTER RELAY
K11	F155	18	ALTERNATOR EXCITATION RELAY
K12	B146	17	WORKLIGHT RELAY
K13	B158	18	ROTATING BEACON BO OVRD RELAY
K15	B149	17	AUXILIARY COOLER RELAY
K19	B159	18	START INHIBIT RELAY
K20	H147	17	MARKER LIGHTS RELAY
K24	B160	18	CRANKING LOCKOUT RELAY
K25	B346	39	WTEC III REVERSE WARNING RELAY
K26	B344	39	WTEC III NEUTRAL START RELAY
K27	H152	17	BO STOP RELAY
K28	H151	17	TRAILER REAR LIGHTS RELAY
K29	F161	17	BO MARKER RELAY / WTEC III BLACKOUT DRIVE RELAY
K30	H156	18	REAR LEFT COMPOSITE LAMP RELAY
K31	H158	18	REAR RIGHT COMPOSITE LAMP RELAY
K32	B156	18	HORN RELAY
K37	B348	39	WTEC III PTO ENABLE OUTPUT RELAY
K52	H148	17	CTIS OVERSPEED INDICATION RELAY
K53	H149	17	RADIO POWER RELAY

RESISTORS			
NUMBER	ZONE	SH	DESCRIPTION
R1	D85	10	AIR DRYER
R2	E161	21	CAB - DASH - LEFT - UNDERDASH
R4	D184	21	CAB - DASH - LEFT - UNDERDASH
R5	C184	21	CAB - DASH - LEFT - UNDERDASH
R6	F181	21	CAB - DASH - LEFT - UNDERDASH

SOLENOIDS			
NUMBER	ZONE	SH	DESCRIPTION
K9	D56	7	24V AUXILIARY STARTER SOLENOID
L1	E196	22	FAN SOLENOID
L1	H337	38	RIGHT WINCH OUT
L2	H76	8	FUEL SOLENOID
L2	H337	38	RIGHT WINCH IN
L3	B305	34	PTO SOLENOID
L4	E289	30	WINCH IN SOLENOID
L5	D289	30	WINCH OUT SOLENOID
L5	H340	38	LEFT WINCH IN
L6	D196	22	INTER-AXLE DIFFERENTIAL SOLENOID
L6	H339	38	LEFT WINCH OUT
L7	B302	34	TAILGATE RELEASE SOLENOID
L8	B302	34	DUMP BED UP SOLENOID
L9	A302	34	DUMP BED SOLENOID
L11	H338	38	UNDERLIFT DOWN
L13	H339	38	STINGER OUT
L14	H336	38	UNDERLIFT UP
L15	B60	7	CHASSIS - SPARE TIRE
L15	H337	38	UNDERLIFT FOLD DOWN
L16	H339	38	STINGER IN
L18	H338	38	UNDERLIFT FOLD UP

HORNS AND ALARMS			
NUMBER	ZONE	SH	DESCRIPTION
LS1	A46	6	VEHICLE HORN
LS2	H110	13	AUDIBLE ALARM

MOTORS			
NUMBER	ZONE	SH	DESCRIPTION
B2	A192	22	WINDSHIELD WIPER MOTOR
B4	C127	15	FAN MOTOR
B5	F258	30	TRANSMISSION AUXILIARY OIL COOLER FAN
B5A	G258	30	TRANSMISSION AUXILIARY OIL COOLER FAN

BATTERIES			
NUMBER	ZONE	SH	DESCRIPTION
BT1	C61	7	BATTERY
BT2	D61	7	BATTERY
BT3	D61	7	BATTERY
BT4	E61	7	BATTERY

MISCELLANEOUS			
NUMBER	ZONE	SH	DESCRIPTION
10A	C192	22	WTEC II VEHICLE INTERFACE MODULE
10A	E192	22	WTEC II VEHICLE INTERFACE MODULE
A2	F127	15	CTIS ELECTRONIC CONTROL UNIT
A3	G123	14	INSTRUMENT PANEL LIGHTS DIMMER MODULE
A5	A143	16	WIPER DELAY MODULE
A7	B188	21	FREQUENCY DIVIDER
A18	A112	13	LIGHTED INDICATOR DISPLAY
A20	H58	8	FUEL/WATER SEPARATOR
B1	C72	8	STARTER/STARTER SOLENOID
B10	E76	9	WTEC II TRANSFER CASE (SERIAL # 6510032369)
B10	E81	9	WTEC II TRANSFER CASE (SERIAL # 6510032369 AND HIGHER)
B10	E75	9	WTEC II TRANSMISSION (SERIAL # 6510032369)
B10	E79	9	WTEC II TRANSMISSION (SERIAL # 6510032369 AND HIGHER)
B10	E85	10	TRANSFER CASE PRIOR (SERIAL # 6510032369 WITH ADAPTER CABLE ASSEMBLY)
B10	E83	10	TRANSMISSION PRIOR TO (SERIAL # 6510032369 WITH ADAPTER CABLE ASSEMBLY)
B3	G92	11	WINDSHIELD WASHER ROTARY PUMP
BJ1	A194	21	JUNCTION BOX
D1A	C147	17	CAB - DASH - RIGHT - POWER DISTRIBUTION PNL
D1B	C147	17	CAB - DASH - RIGHT - POWER DISTRIBUTION PNL
D2A	D147	17	CAB - DASH - RIGHT - POWER DISTRIBUTION PNL
D2B	D147	17	CAB - DASH - RIGHT - POWER DISTRIBUTION PNL
D3A	B147	17	CAB - DASH - RIGHT - POWER DISTRIBUTION PNL
D3B	A147	17	CAB - DASH - RIGHT - POWER DISTRIBUTION PNL
D7	B307	35	DIODE ASSEMBLY
D7	B316	36	DIODE ASSEMBLY
D8	C307	35	DIODE ASSEMBLY
D8	A316	36	DIODE ASSEMBLY
E1	C61	7	BATTERY
E1	D61	7	BATTERY
E1	D61	7	BATTERY
E1	E61	7	BATTERY
E2	C4	6	CHASSIS - FRONT BUMPER (REF J27)
E2	C52	7	BATTERY
E2	D52	7	BATTERY
E2	E52	7	BATTERY
E2	E52	7	BATTERY
E3	H157	18	CAB - DASH - RIGHT - POWER DISTRIBUTION PNL
E4	H159	18	CAB - DASH - RIGHT - POWER DISTRIBUTION PNL
E5	B160	18	CAB - DASH - RIGHT - POWER DISTRIBUTION PNL
E14	E221	25	LONG WHEEL BASE
E14	E230	26	ALL MODELS EXCEPT WRECKER, TRACTOR, AND LONG WHEEL BASE
E15	E224	25	LONG WHEEL BASE
E15	E233	26	ALL MODELS EXCEPT WRECKER, TRACTOR, AND LONG WHEEL BASE
E16	A224	25	LONG WHEEL BASE
E16	A239	26	ALL MODELS EXCEPT WRECKER, TRACTOR, AND LONG WHEEL BASE
E17	G222	25	LONG WHEEL BASE

MISCELLANEOUS (CONTINUED)			
NUMBER	ZONE	SH	DESCRIPTION
E17	G222	26	ALL MODELS EXCEPT WRECKER, TRACTOR, AND LONG WHEEL BASE
E18	G212	25	LONG WHEEL BASE
E18	G221	26	ALL MODELS EXCEPT WRECKER, TRACTOR, AND LONG WHEEL BASE
E19	F212	25	LONG WHEEL BASE
E19	F221	26	ALL MODELS EXCEPT WRECKER, TRACTOR, AND LONG WHEEL BASE
E20	E213	25	LONG WHEEL BASE
E20	E221	26	ALL MODELS EXCEPT WRECKER, TRACTOR, AND LONG WHEEL BASE
E21	D213	25	LONG WHEEL BASE
E21	D222	26	ALL MODELS EXCEPT WRECKER, TRACTOR, AND LONG WHEEL BASE
E22	B96	11	CAB MARKER LIGHTS
E27	F213	24	REAR LIGHTS TRACTOR
E28	G215	24	REAR LIGHTS TRACTOR
E29	E209	24	REAR LIGHTS TRACTOR
E30	D214	24	REAR LIGHTS TRACTOR
E31	D213	24	REAR LIGHTS TRACTOR
E32	G212	24	REAR LIGHTS TRACTOR
E33	C209	24	REAR LIGHTS TRACTOR
E34	B210	24	REAR LIGHTS TRACTOR
E35	F209	24	REAR LIGHTS TRACTOR
E36	E210	24	REAR LIGHTS TRACTOR
E37	E211	24	REAR LIGHTS TRACTOR
E38	F209	24	REAR LIGHTS TRACTOR
E39	E210	24	REAR LIGHTS TRACTOR
E40	F210	24	REAR LIGHTS TRACTOR
E41	D211	24	REAR LIGHTS TRACTOR
E42	D210	24	REAR LIGHTS TRACTOR
E43	D210	24	REAR LIGHTS TRACTOR
E44	H213	24	REAR LIGHTS TRACTOR
E45	G209	24	REAR LIGHTS TRACTOR
E46	G203	23	WRECKER REAR LIGHTS
E47	F203	23	WRECKER REAR LIGHTS
E48	E204	23	WRECKER REAR LIGHTS
E49	D203	23	WRECKER REAR LIGHTS
E50	E206	23	WRECKER REAR LIGHTS
E51	A206	23	WRECKER REAR LIGHTS
E52	G204	23	WRECKER REAR LIGHTS
E53	D200	23	WRECKER REAR LIGHTS
E54	B200	23	WRECKER REAR LIGHTS
E55	F200	23	WRECKER REAR LIGHTS
E56	E211	24	REAR LIGHTS TRACTOR
E57	E203	23	WRECKER REAR LIGHTS
E58	D204	23	WRECKER REAR LIGHTS
E59	G204	23	WRECKER REAR LIGHTS
E64	D221	25	LONG WHEEL BASE
E65	B50	6	CHASSIS - FRONT
E66	C50	6	CHASSIS - FRONT
E66	D354	40	WTEC III CAB TRANSMISSION HARNESS (TID1)
E66	D358	40	WTEC III CAB TRANSMISSION HARNESS (TID2)
E67	D47	6	CHASSIS - FRONT
E68	D49	6	CHASSIS - FRONT
E69	D260	29	CAB - DASH - CENTER - OPTIONS PANEL
E70	C265	30	PTO EQUIPPED
E70	F266	30	TRACTOR W/O WINCH
E71	F182	21	CAB - DASH - LEFT - UNDERDASH
E72	G222	25	LONG WHEEL BASE
E74	G266	30	TRACTOR W/O WINCH
E78	A290	34	DUMP BODY
E79	B227	27	ROTARY WARNING LIGHT CONNECTOR
E80	C227	27	ROTARY WARNING LIGHT CONNECTOR
E81	B226	27	ROTARY WARNING LIGHT CONNECTOR
E82	C226	27	ROTARY WARNING LIGHT CONNECTOR
E83	B226	27	ROTARY WARNING LIGHT CONNECTOR
E84	B226	27	ROTARY WARNING LIGHT CONNECTOR
E86	B106	13	CAB - DASH - LEFT - INSTRUMENT PANEL

FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 4 OF 40

SIZE B | ILL. NO. 6WD01L4B | FP-7/ (FP-8 BLANK)

MISCELLANEOUS (CONTINUED)			
NUMBER	ZONE	SH	DESCRIPTION
E89	C115	13	CAB - DASH - LEFT - INSTRUMENT PANEL
E90	E354	40	WTEC II CAB TRANSMISSION HARNESS (TID1)
E90	E358	40	WTEC II CAB TRANSMISSION HARNESS (TID2)
E91	C354	40	WTEC II CAB TRANSMISSION HARNESS (TID1)
E91	C358	40	WTEC II CAB TRANSMISSION HARNESS (TID2)
FL	E183	22	WTEC II VEHICLE INTERFACE MODULE
FL1	Q85	11	EMI FILTER
FL2	A184	22	EMI FILTER
FL3	C116	15	FAN MOTOR
GI	D70	6	ALTERNATOR
MPUI	F61	6	ENGINE SPEED MAGNETIC PICKUP
MT3	Q89	8	ENGINE OIL PRESSURE SENSOR
MT4	E177	21	SENSOR/FRONT AIR PRESSURE TRANSMITTER
MT5	Q186	21	SENSOR/REAR AIR PRESSURE TRANSMITTER
MT6	B66	8	WATER COOLER TEMPERATURE
MT7	B61	7	FUEL TANK LEVEL SENSOR
N8	E192	22	WTEC II VEHICLE INTERFACE MODULE
N8	F192	22	WTEC II VEHICLE INTERFACE MODULE
RII	D39	7	SHUNT
TB	C309	35	CARGO MATERIAL HANDLING CRANE
TB	F309	35	CARGO MATERIAL HANDLING CRANE
TB	D319	36	WRECKER MATERIAL HANDLING CRANE
TB	E247	38	WRECKER CONTROLS
TB1	C127	16	CAB - DASH - RIGHT - POWER DISTRIBUTION PANEL
TB2	F139	16	CAB - DASH - RIGHT - POWER DISTRIBUTION PANEL
X1	C146	17	24 VDC
X11	F61	7	NATO SLAVE RECEPTACLE
X2	D146	17	24 VDC
X3	F146	17	GROUND

TRANSMISSION			
NUMBER	ZONE	SH	DESCRIPTION
A10	B192	22	WTEC II VEHICLE INTERFACE MODULE
A11	C347	39	WTEC II TRANSMISSION ECU
A12	G347	39	WTEC II TRANSMISSION PUSHBUTTON SHIFT SELECTOR
A13	A75	9	PRE-BLOCK SEVEN TRANSMISSIONS
A13	A76	9	TID1, TID2 AND TID3 TRANSMISSIONS
A13	A82	10	PRE-BLOCK SEVEN WITH PIGTAIL TRANSMISSIONS
B10	E76	9	PRE-BLOCK SEVEN TRANSMISSION OUTPUT SPEED SENSOR
B10	E85	10	PRE-BLOCK SEVEN TRANSMISSION WITH PIGTAIL OUTPUT SPEED SENSOR
B10	E80	9	TID1, TID2, AND TID3 TRANSMISSION OUTPUT SPEED SENSOR
MT9	F76	9	PRE-BLOCK SEVEN TRANSMISSION ENGINE SPEED SENSOR
MT9	F85	10	PRE-BLOCK SEVEN WITH PIGTAIL TRANSMISSION ENGINE SPEED SENSOR
MT9	F80	9	TID1, TID2, AND TID3 TRANSMISSION ENGINE SPEED SENSOR
MTII	Q76	9	PRE-BLOCK SEVEN TRANSMISSION THROTTLE POSITION SENSOR
MTII	F85	10	PRE-BLOCK SEVEN WITH PIGTAIL TRANSMISSION THROTTLE POSITION SENSOR
MTII	F80	9	TID1, TID2, AND TID3 TRANSMISSION THROTTLE POSITION SENSOR
REV	C192	22	WTEC II VEHICLE INTERFACE MODULE
RW	D192	22	WTEC II VEHICLE INTERFACE MODULE
S02	F192	22	WTEC II VEHICLE INTERFACE MODULE
S03	F192	22	WTEC II VEHICLE INTERFACE MODULE
SF01	D192	22	WTEC II VEHICLE INTERFACE MODULE
SF01	D192	22	WTEC II VEHICLE INTERFACE MODULE
SF02	C192	22	WTEC II VEHICLE INTERFACE MODULE
SF02	D192	22	WTEC II VEHICLE INTERFACE MODULE
SF3	F192	22	WTEC II VEHICLE INTERFACE MODULE
SF04	C192	22	WTEC II VEHICLE INTERFACE MODULE
SF4	D192	22	WTEC II VEHICLE INTERFACE MODULE

FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 5 OF 40

SIZE	ILL NO.	
B	6WD01L5B	FP-9/ (FP-10 BLANK)

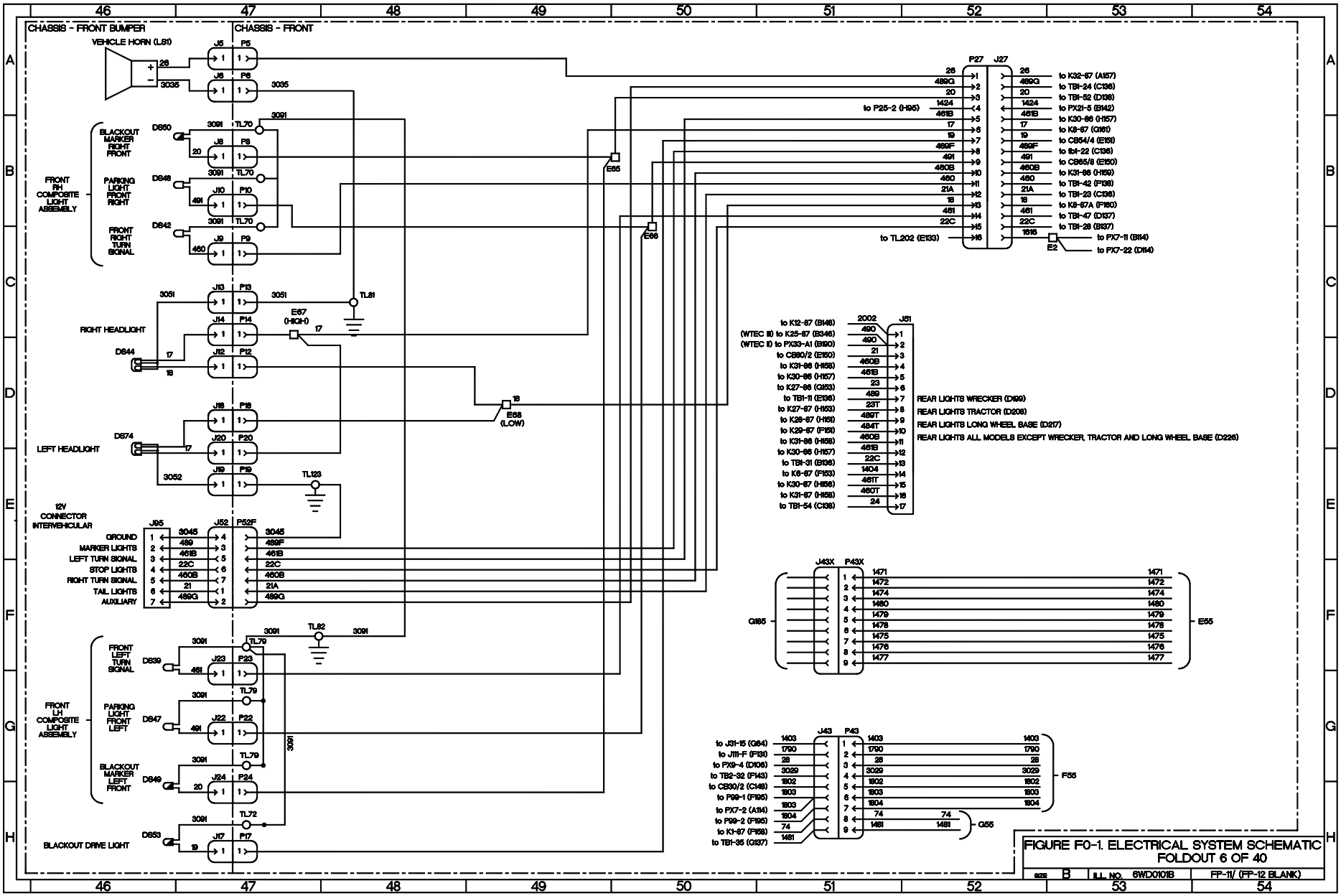
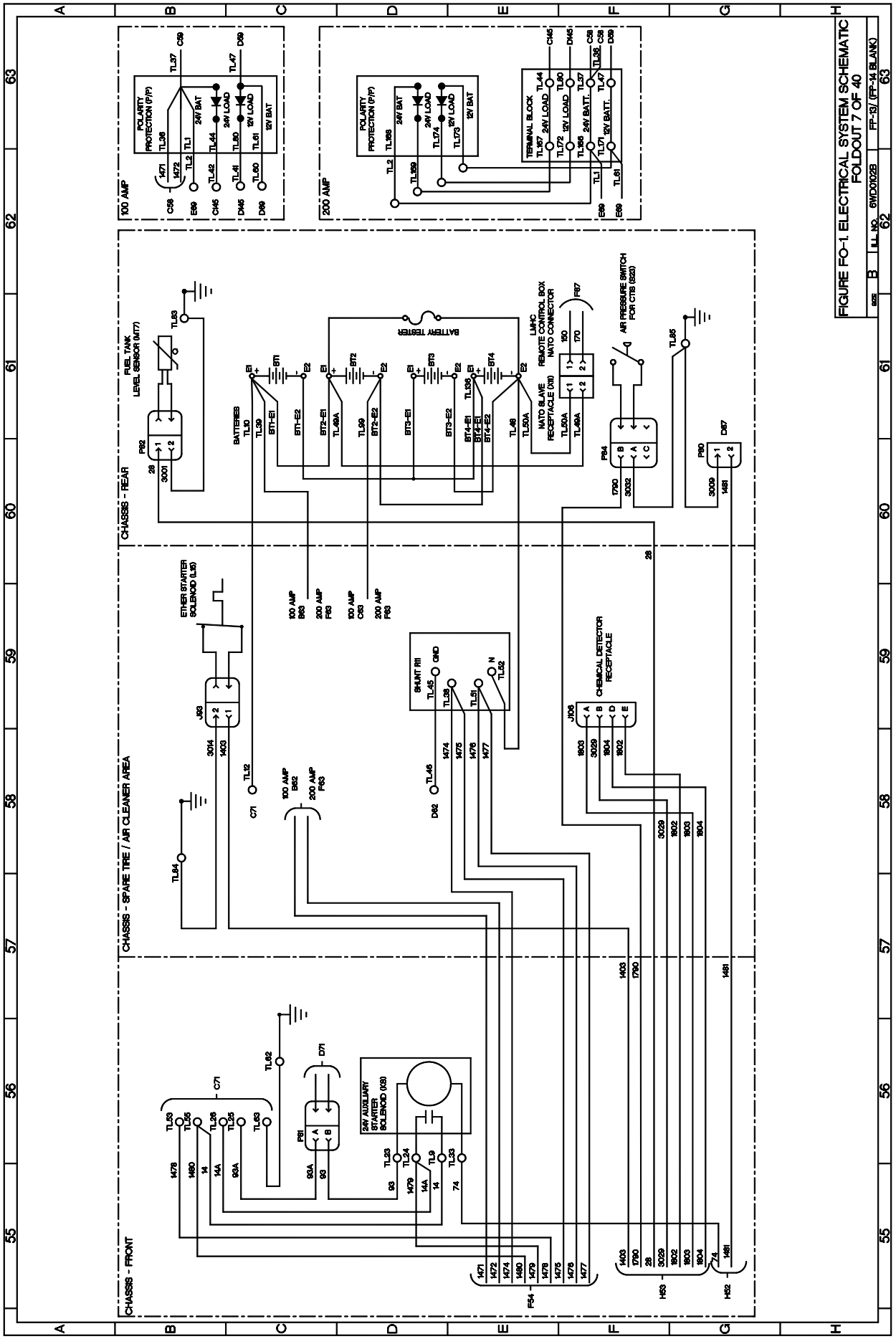


FIGURE F0-1. ELECTRICAL SYSTEM SCHEMATIC FOLDOUT 6 OF 40

SIZE	B	ILL. NO. 6WD0101B	FP-11/ (FP-12 BLANK)


CHASSIS - FRONT
CHASSIS - SPARE TIRE / AIR CLEANER AREA
CHASSIS - REAR
100 AMP
200 AMP
POLARITY PROTECTION (P/P)
24V BAT
24V LOAD
12V LOAD
12V BAT
TERMINAL BLOCK
24V BATT.
12V BATT.
FUEL TANK LEVEL SENSOR (M77)
BATTERIES
BATTERY TESTER
LMHC REMOTE CONTROL BOX NATO CONNECTOR
NATO SLAVE RECEPTACLE (XII)
AIR PRESSURE SWITCH FOR CTIS (S23)
ETHER STARTER SOLENOID (L16)
SHUNT RII
CHEMICAL DETECTOR RECEPTACLE
24V AUXILIARY STARTER SOLENOID (X8)
FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 7 OF 40
SIZE B
FP-9/ (FP-14 BLANK)

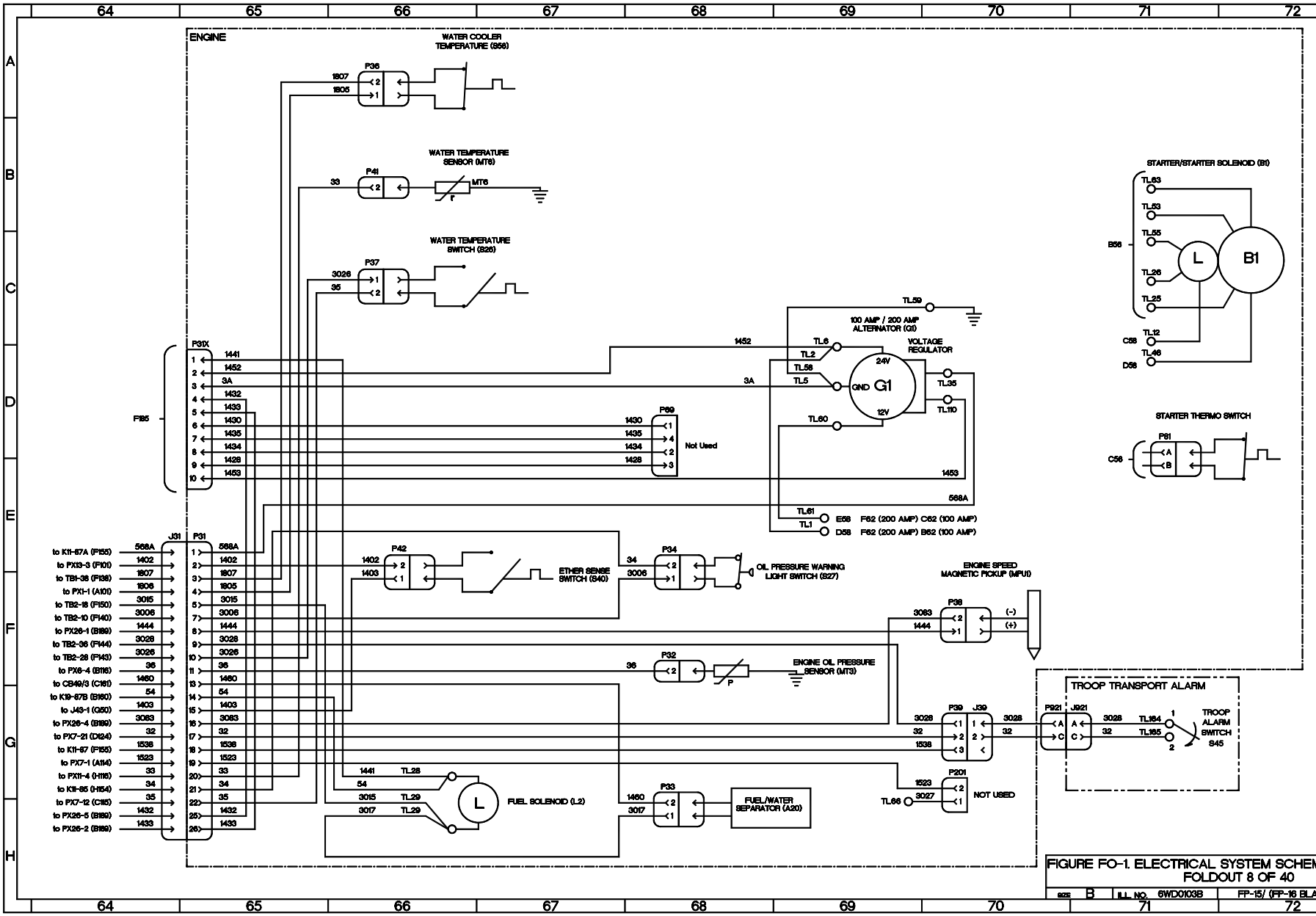


FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 8 OF 40

SIZE	B	ILL. NO. 6WD0103B	FP-15/ (FP-16 BLANK)

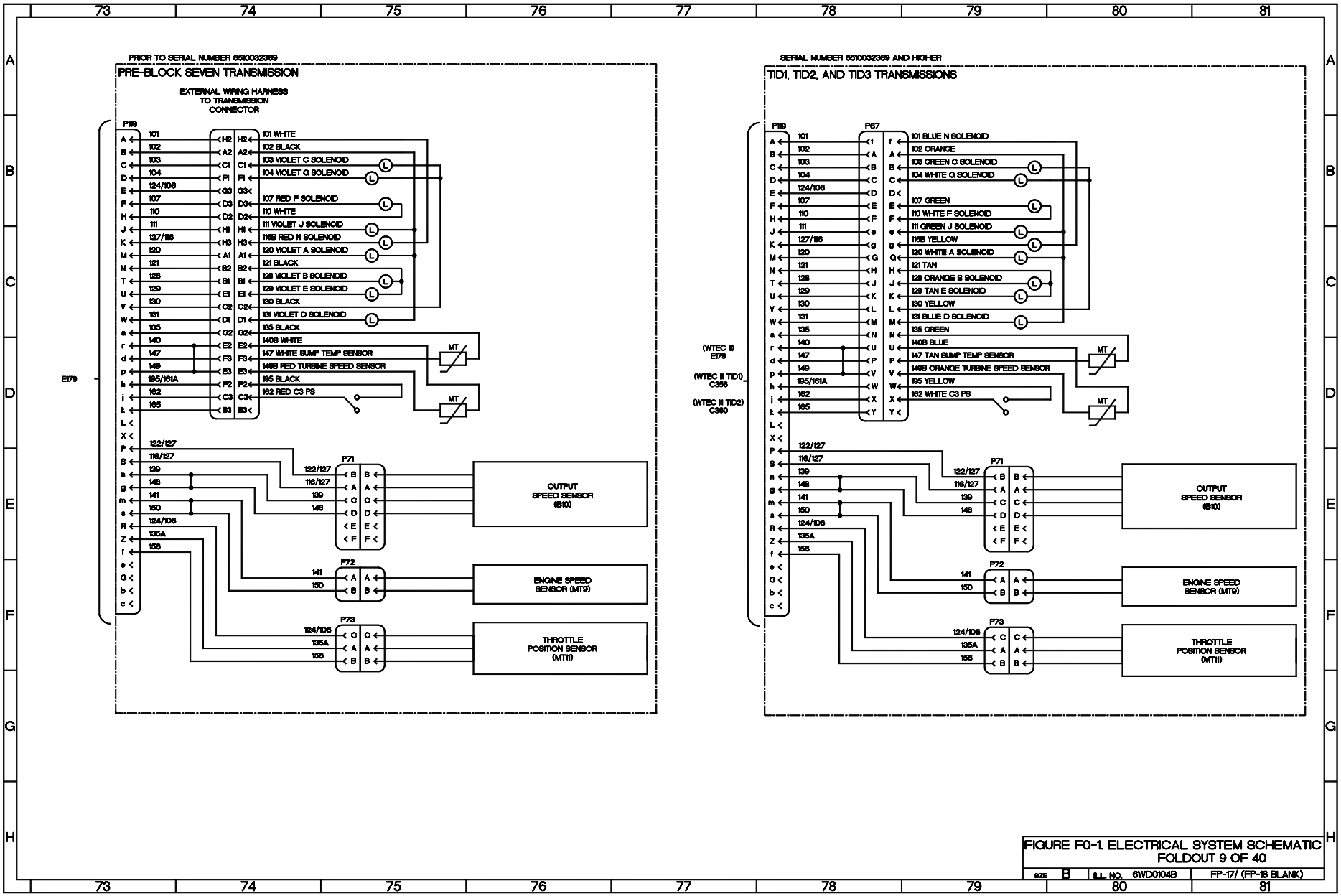


FIGURE F0-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 9 OF 40

SIZE	B	ILL. NO. 6WD0104B	FP-17/ (FP-18 BLANK)

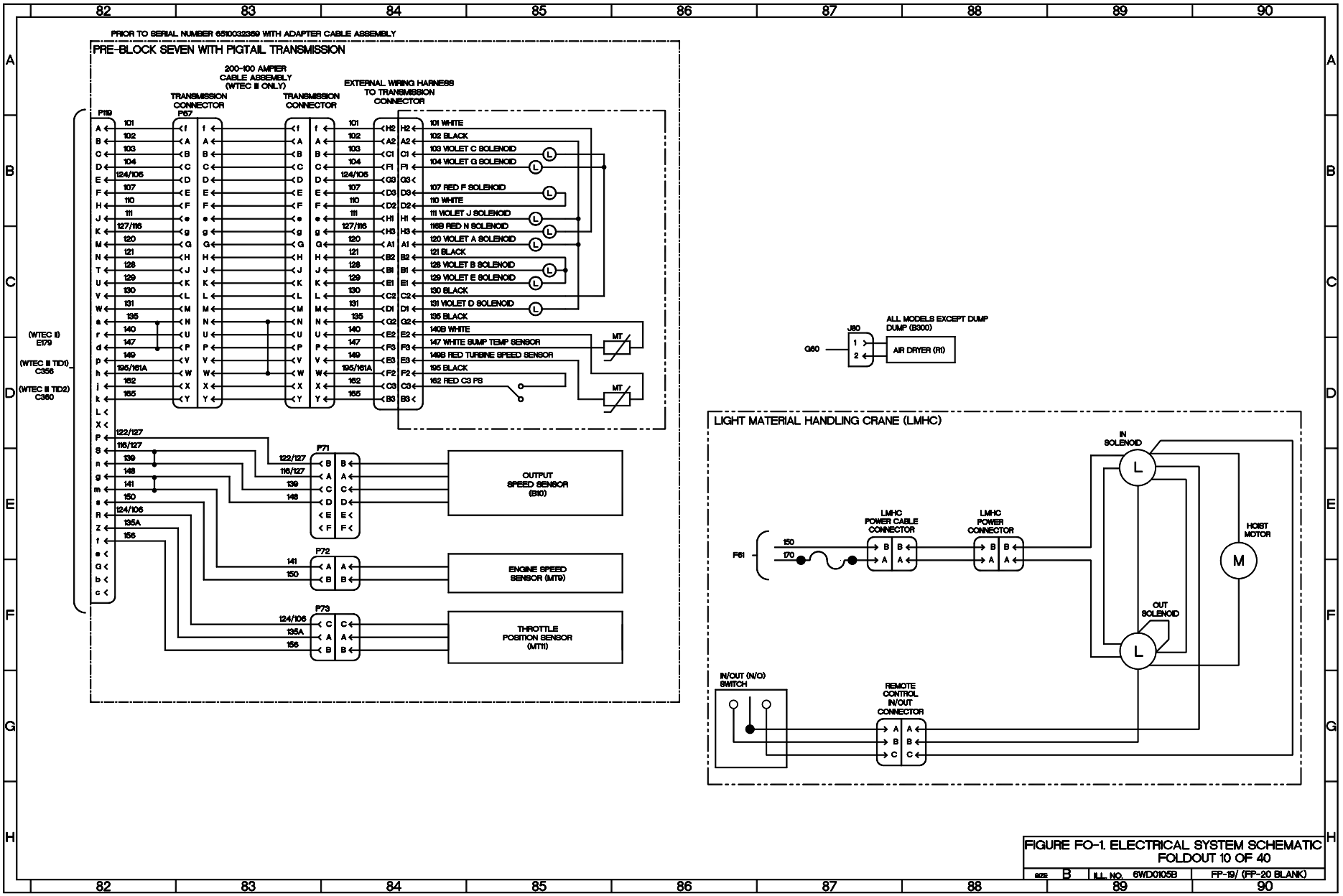


FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 10 OF 40

SIZE	B	ILL. NO. 6WD0105B	FP-19/ (FP-20 BLANK)

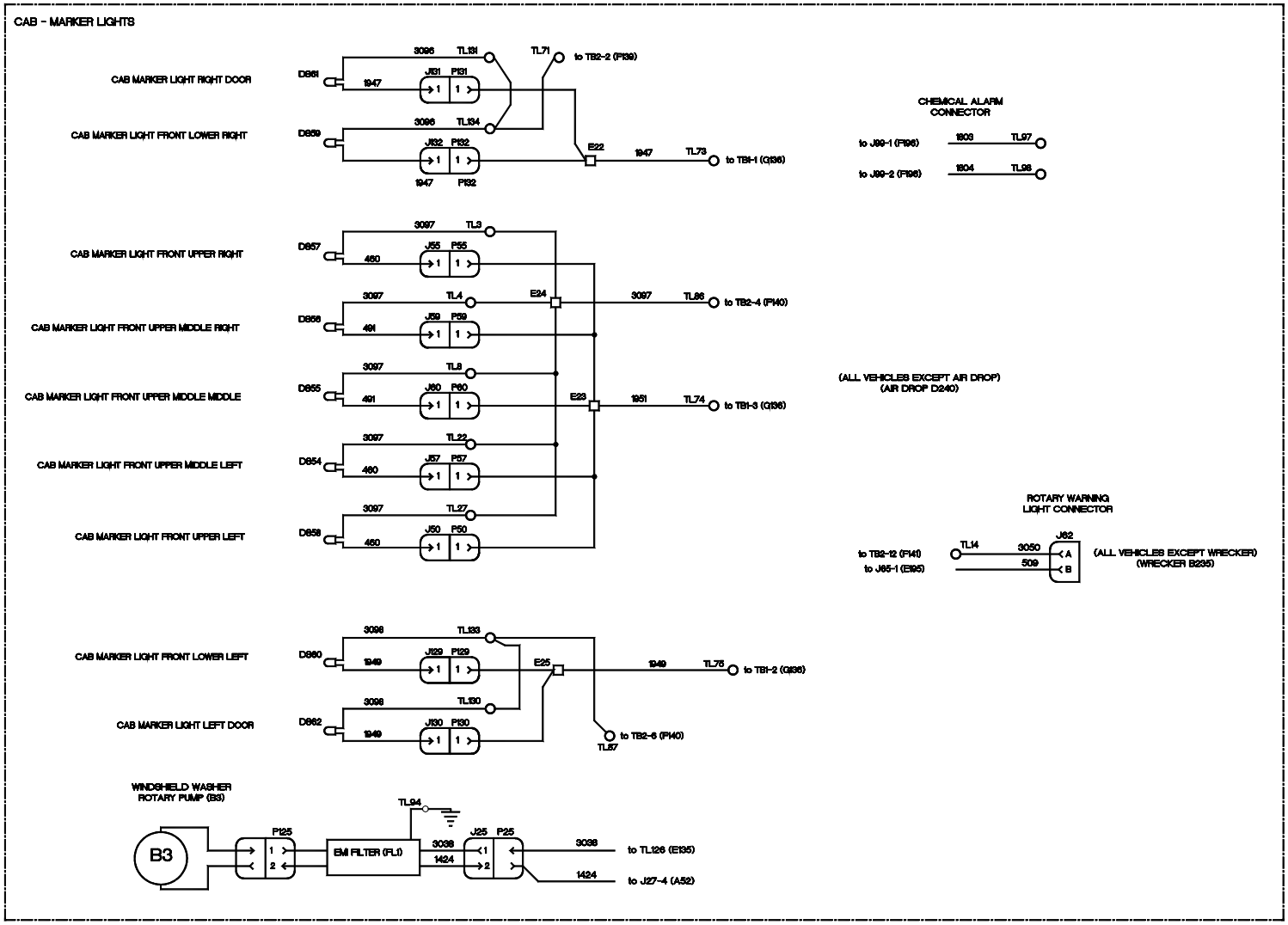


FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 11 OF 40

SIZE	ILL. NO.	
B	6WD0106B	FP-21/ (FP-22 BLANK)

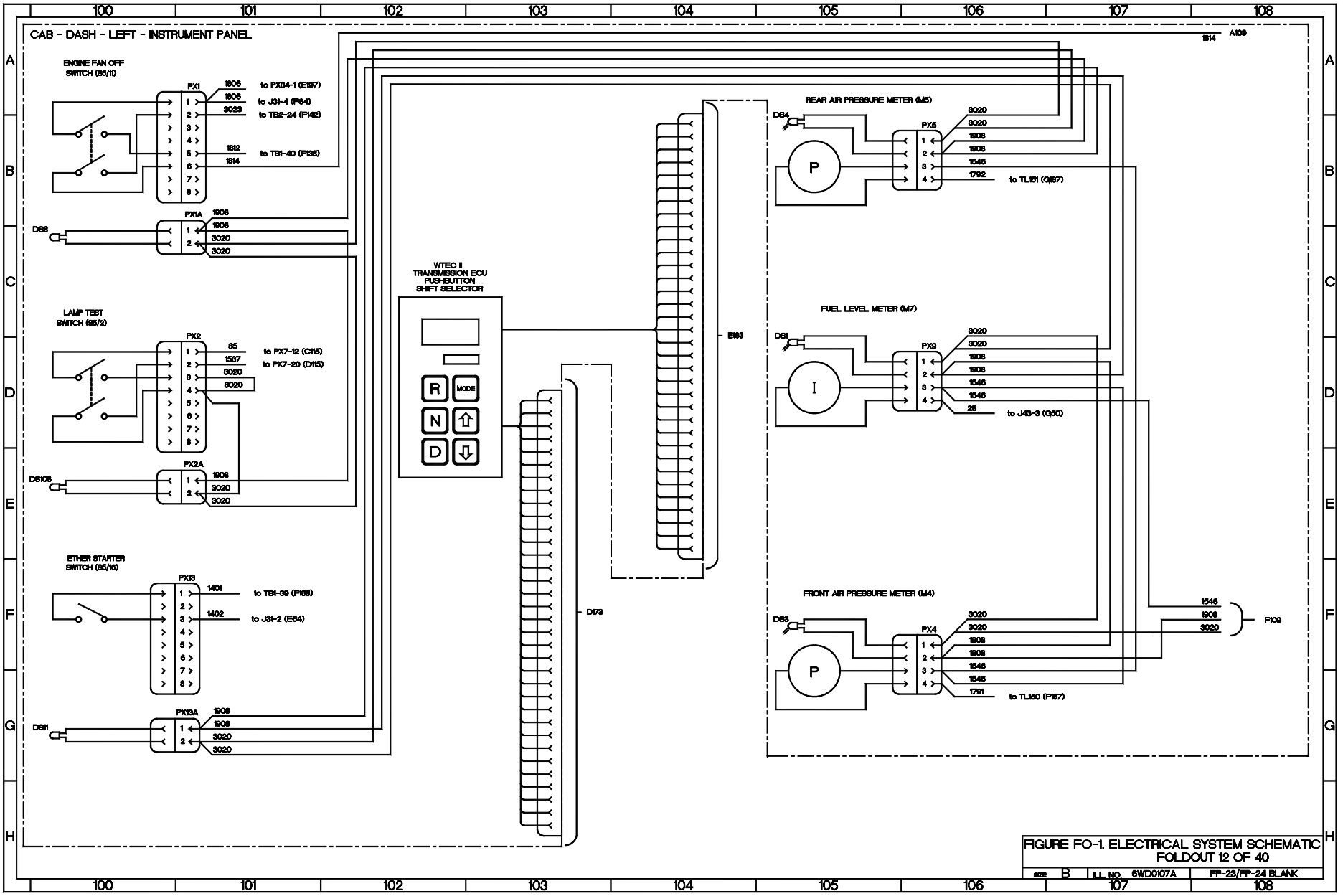


FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 12 OF 40

SIZE	ILL. NO.	
B	6WD0107A	FP-23/FP-24 BLANK

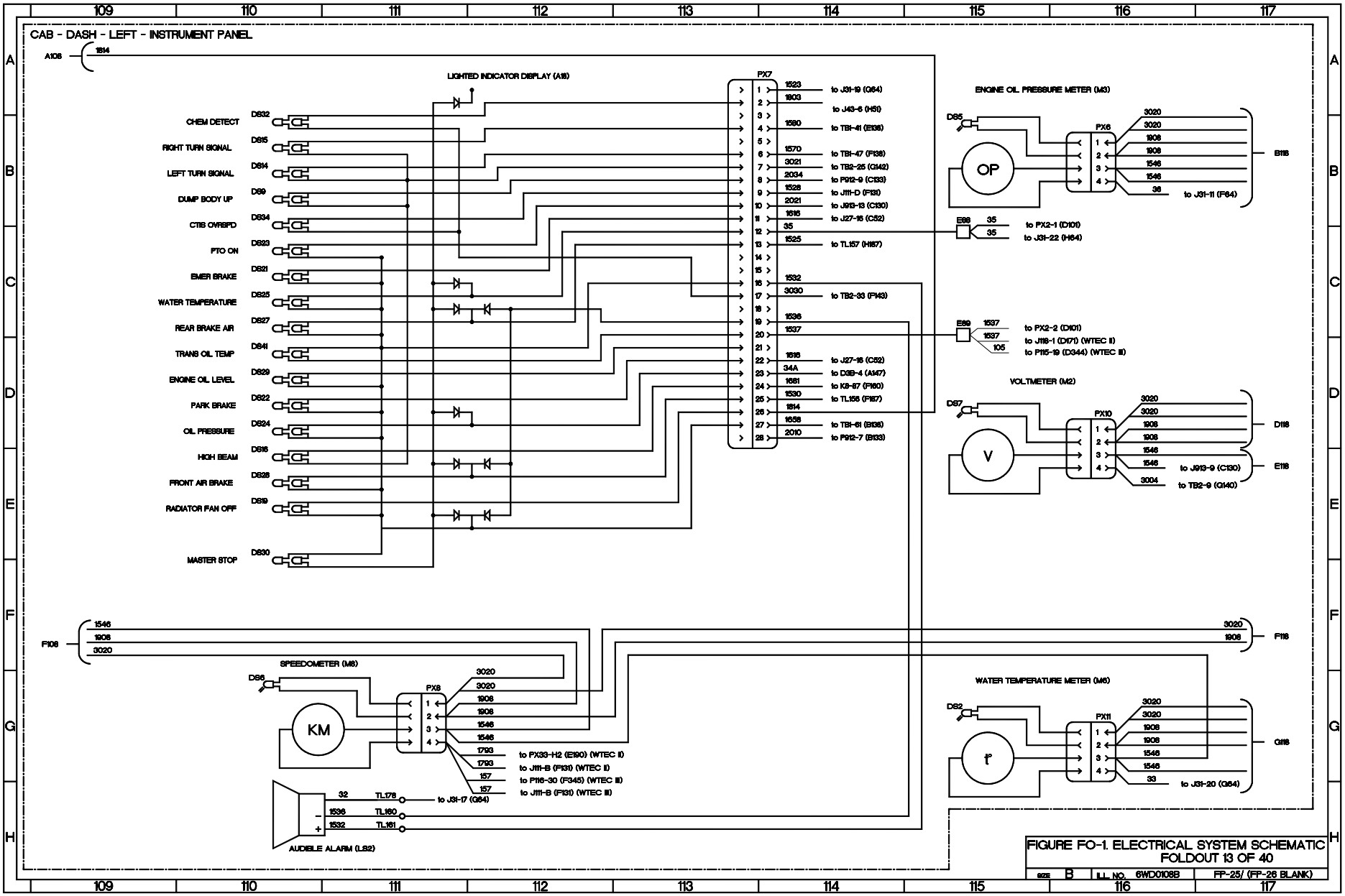


FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 13 OF 40

SIZE	ILL NO.	
B	6WD01088	FP-25/ (FP-26 BLANK)

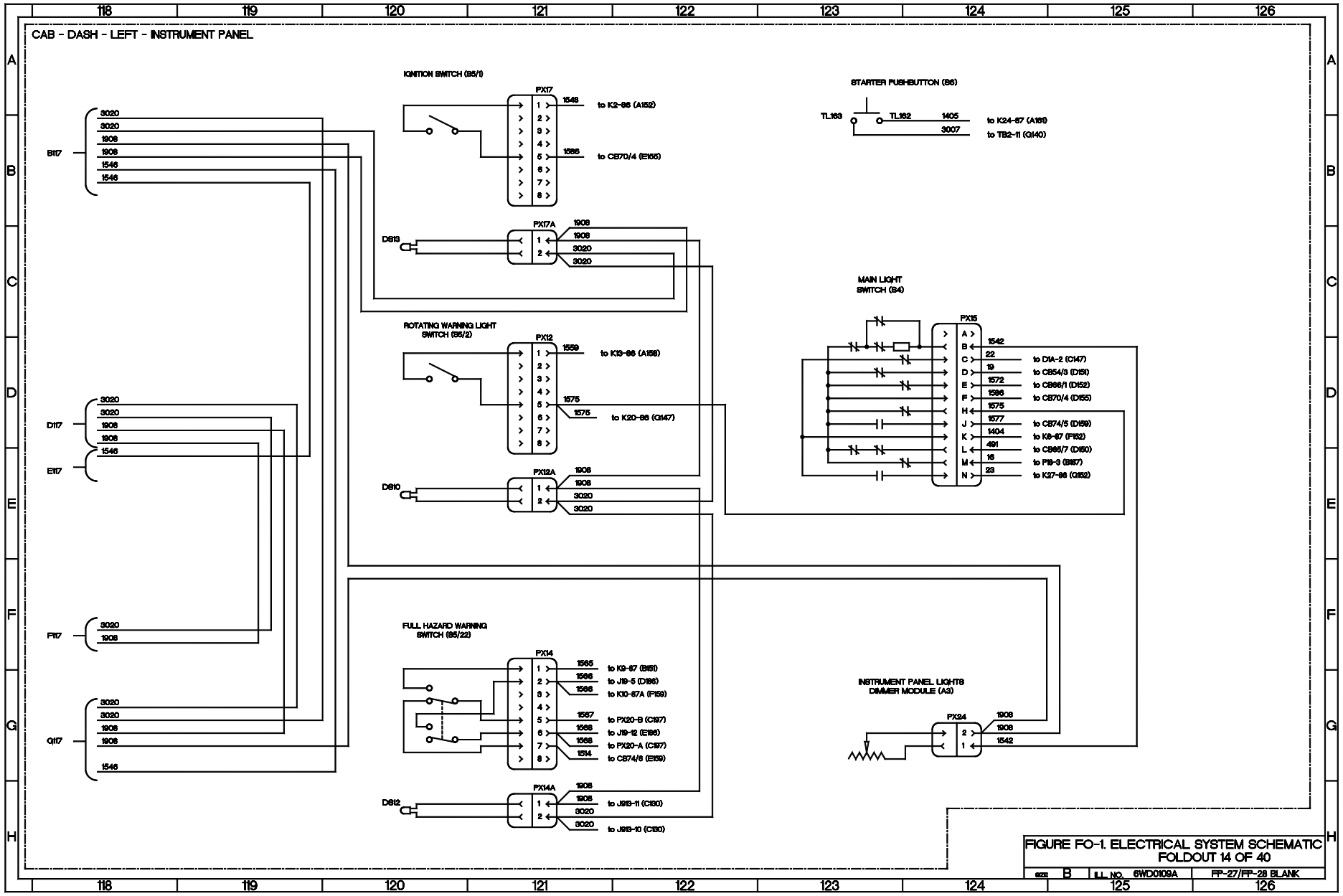


FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 14 OF 40

SIZE	ILL. NO.	
B	6WD0109A	FP-27/FP-28 BLANK

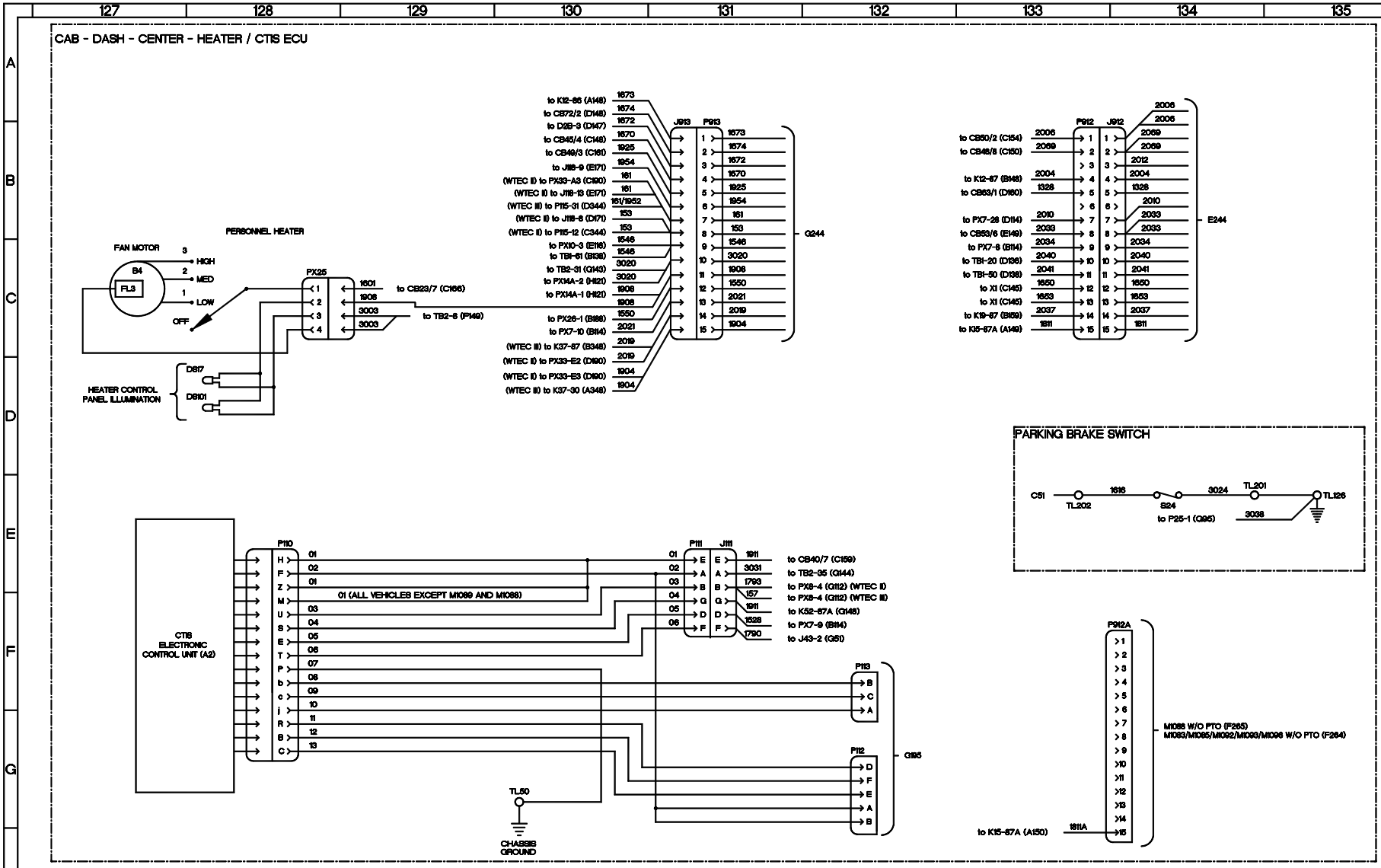


FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 15 OF 40

SIZE	B	ILL. NO. 6WD0110B	FP-29/ (FP-30 BLANK)

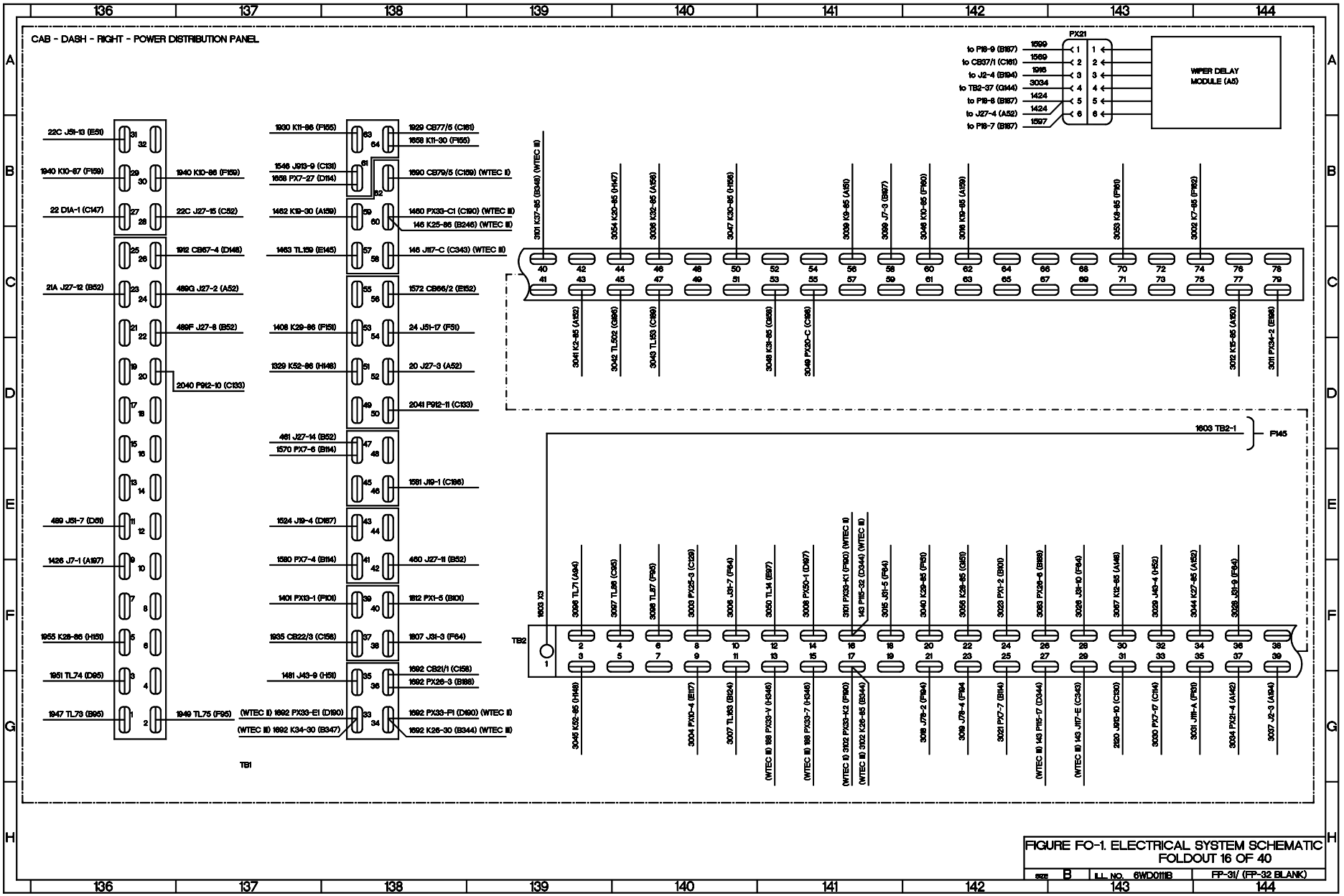


FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 16 OF 40

SIZE	ILL. NO.	
B	6WD0111B	FP-31/ (FP-32 BLANK)

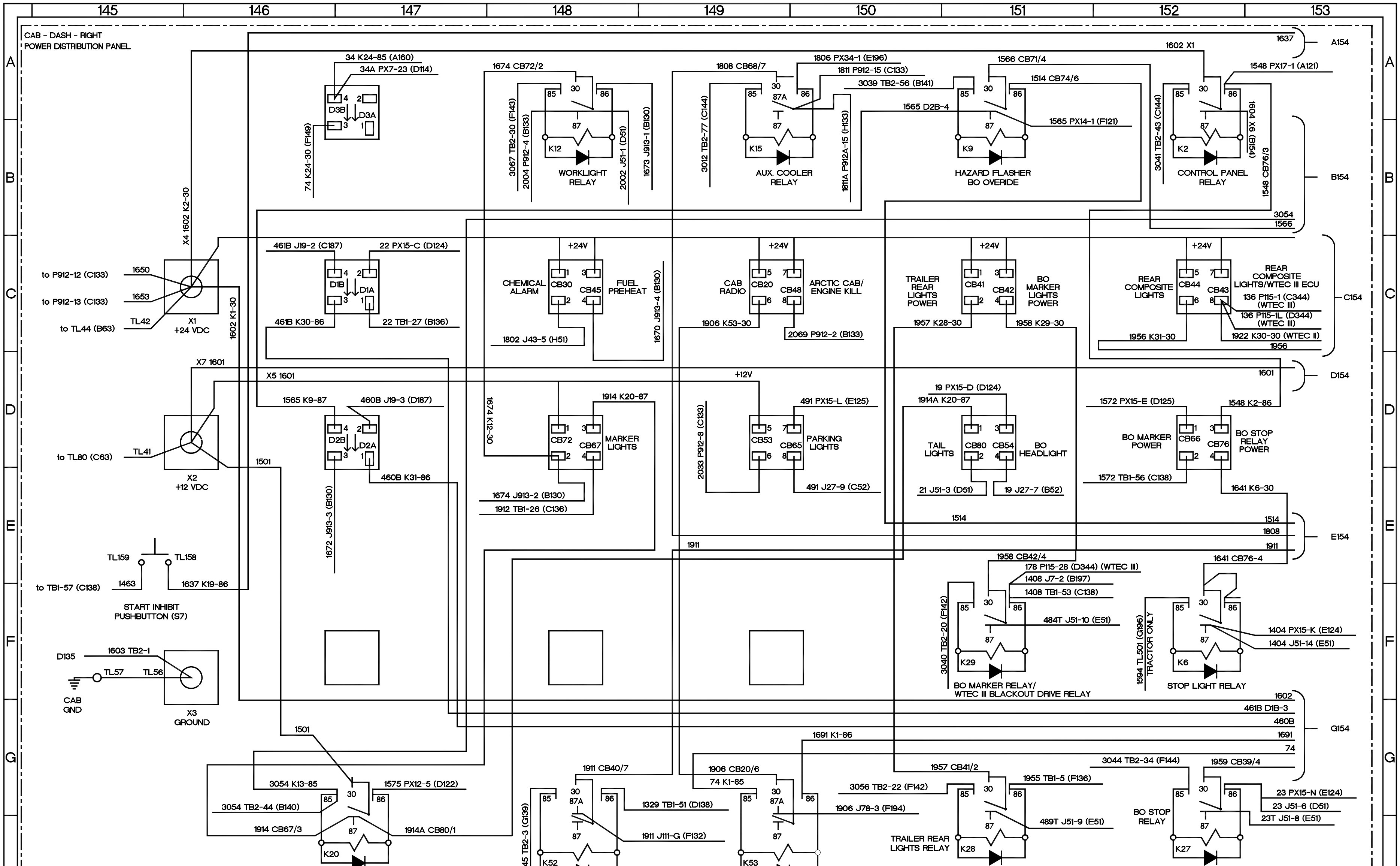


FIGURE F0-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 17 OF 40

SIZE B ILL. NO. 6WD0112B FP-33/ (FP-34 BLANK)

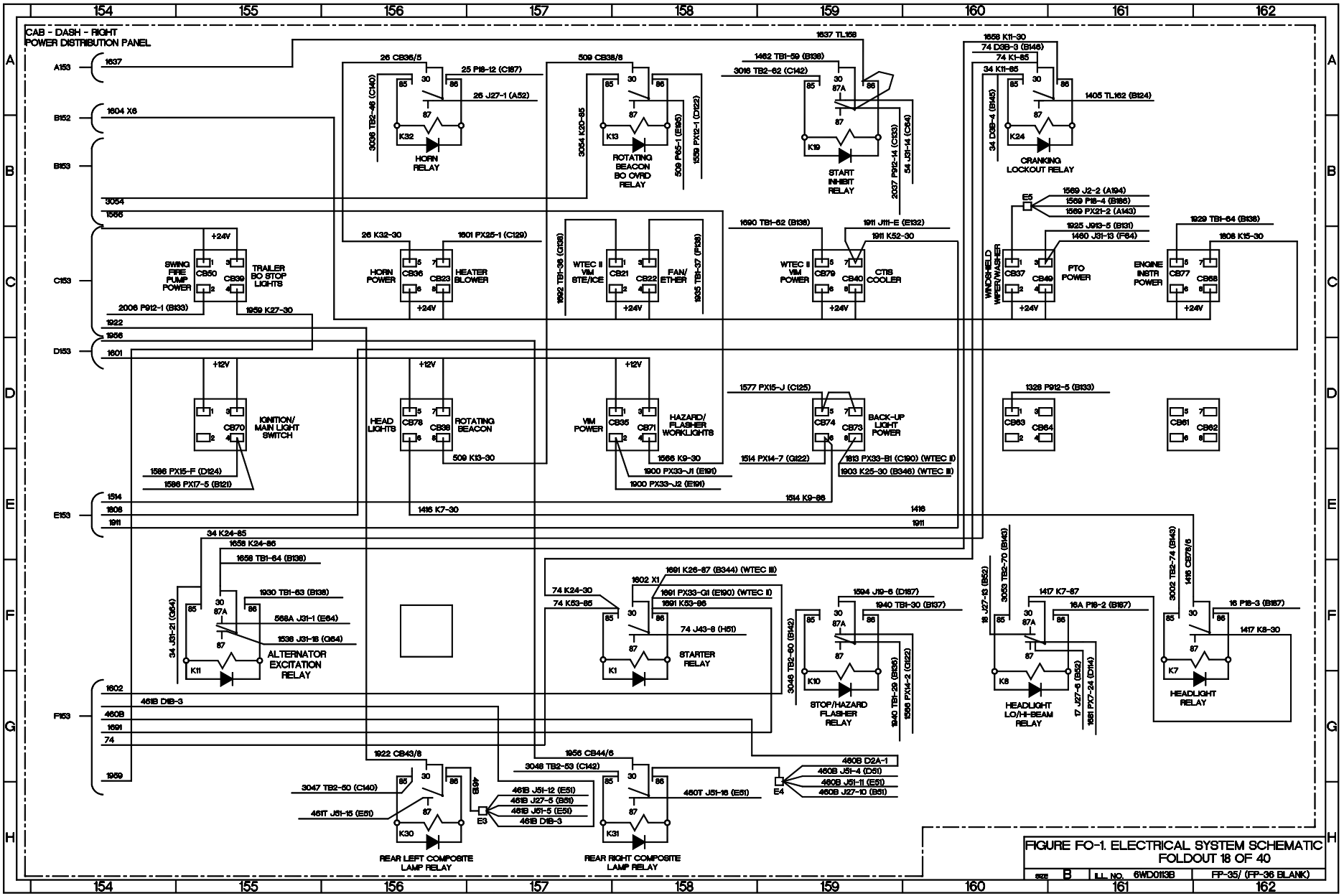


FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 18 OF 40

SIZE	ILL. NO.	
B	6WD0113B	FP-35/ (FP-36 BLANK)

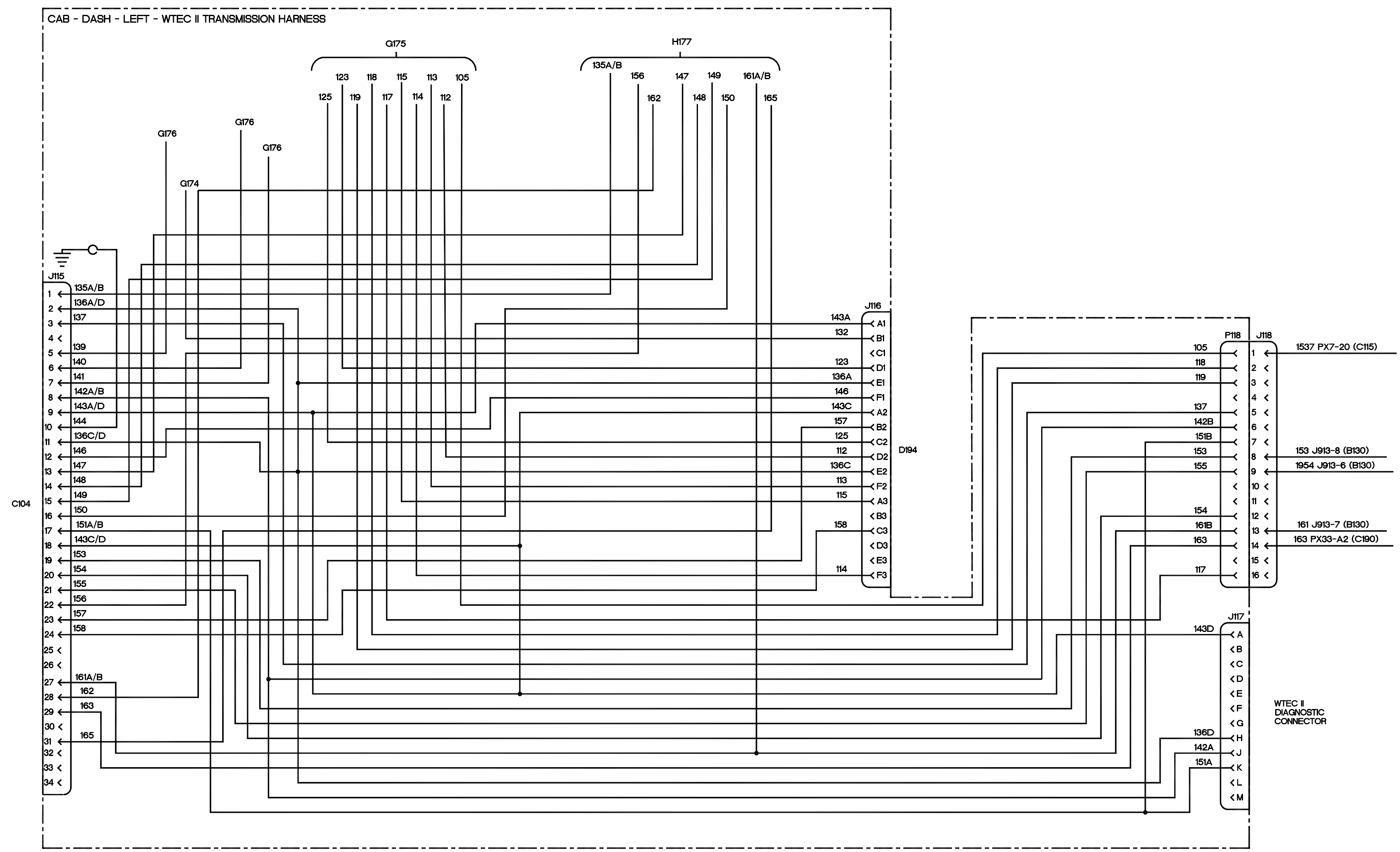
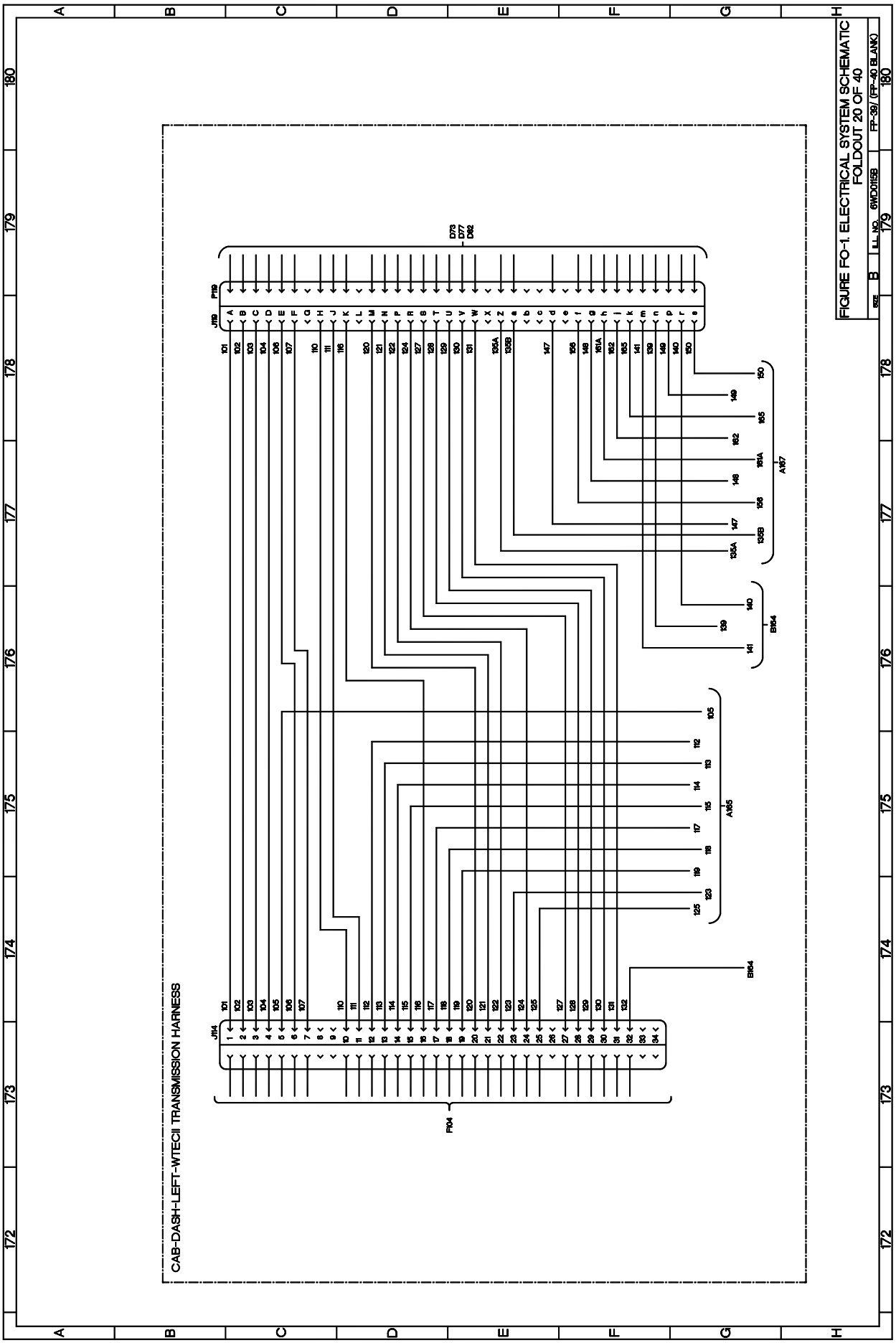


FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC FOLDOUT 19 OF 40

SIZE B ILL. NO. 6WD0114B FP-37/ (FP-38 BLANK)


CAB-DASH-LEFT-WTECII TRANSMISSION HARNESS
J114
P104
J119
P119
D73
D77
D82
A165
A167
B154
B154
FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 20 OF 40
SIZE B
LL NO. 6WD0115B
FP-39/(FP-40 BLANK)
Change 1

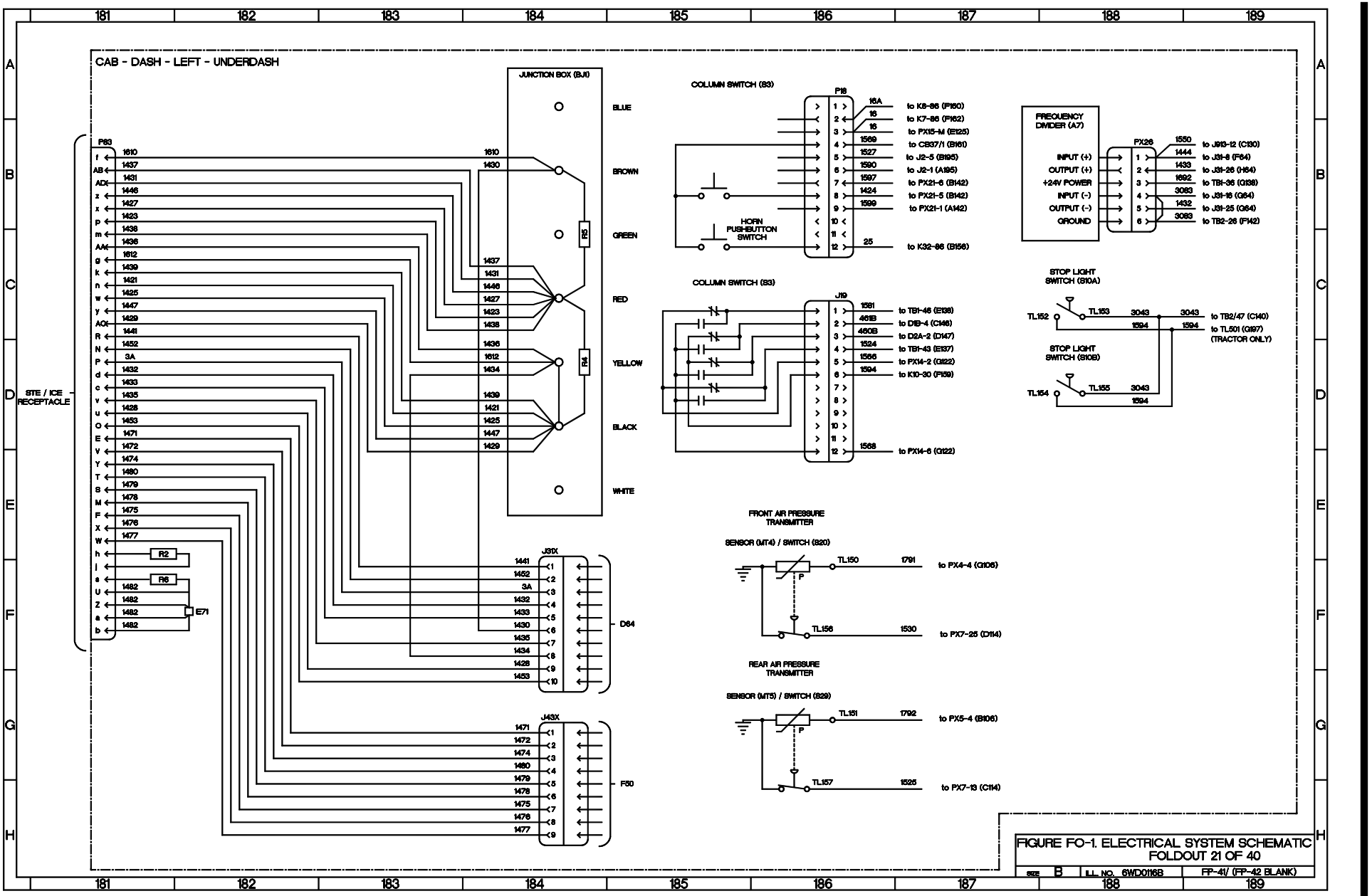


FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 21 OF 40

SIZE	ILL. NO.	
B	6WD0116B	FP-41/ (FP-42 BLANK)

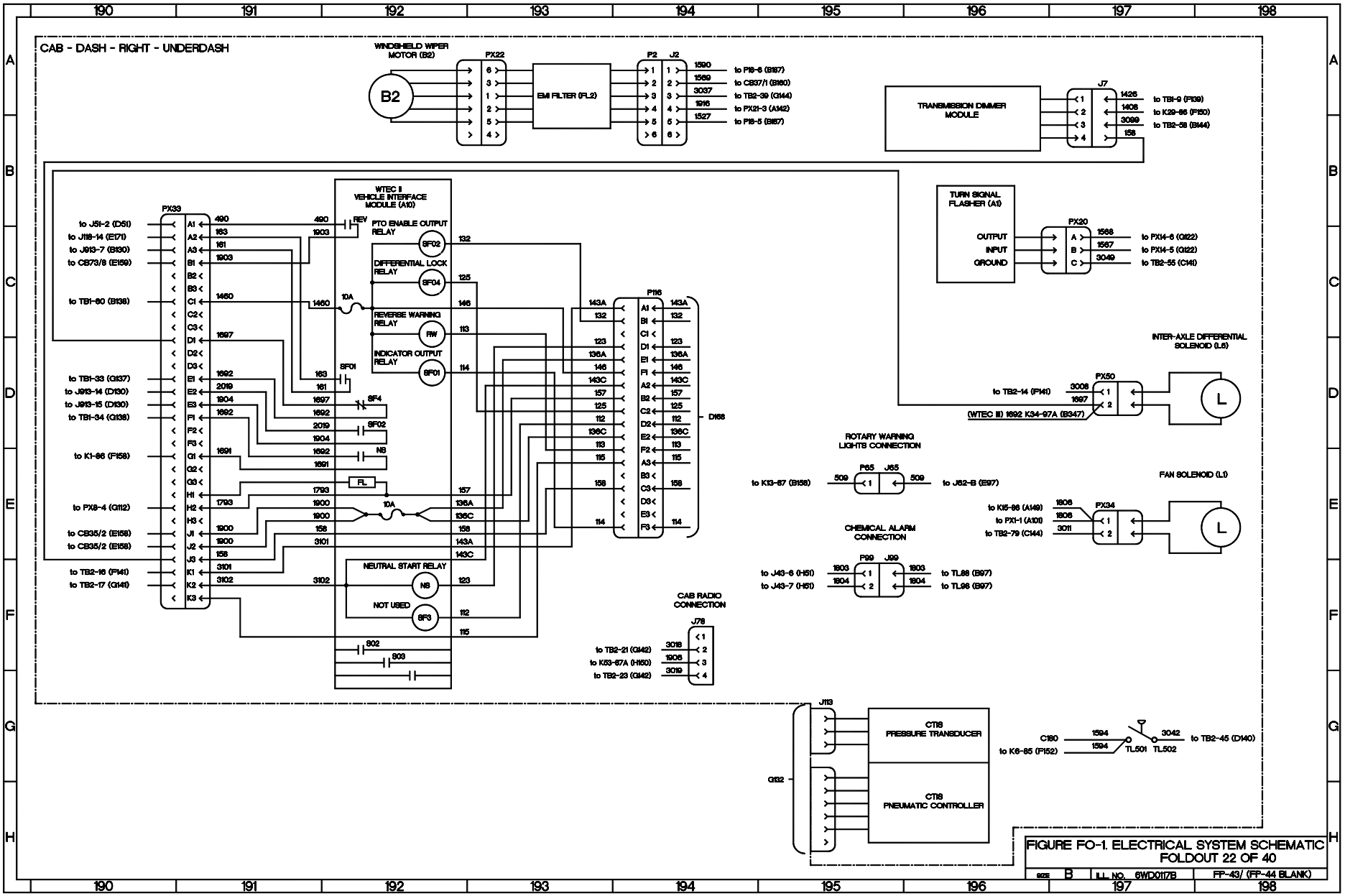


FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 22 OF 40

size	ILL NO.	
B	6WD0117B	FP-43/ (FP-44 BLANK)

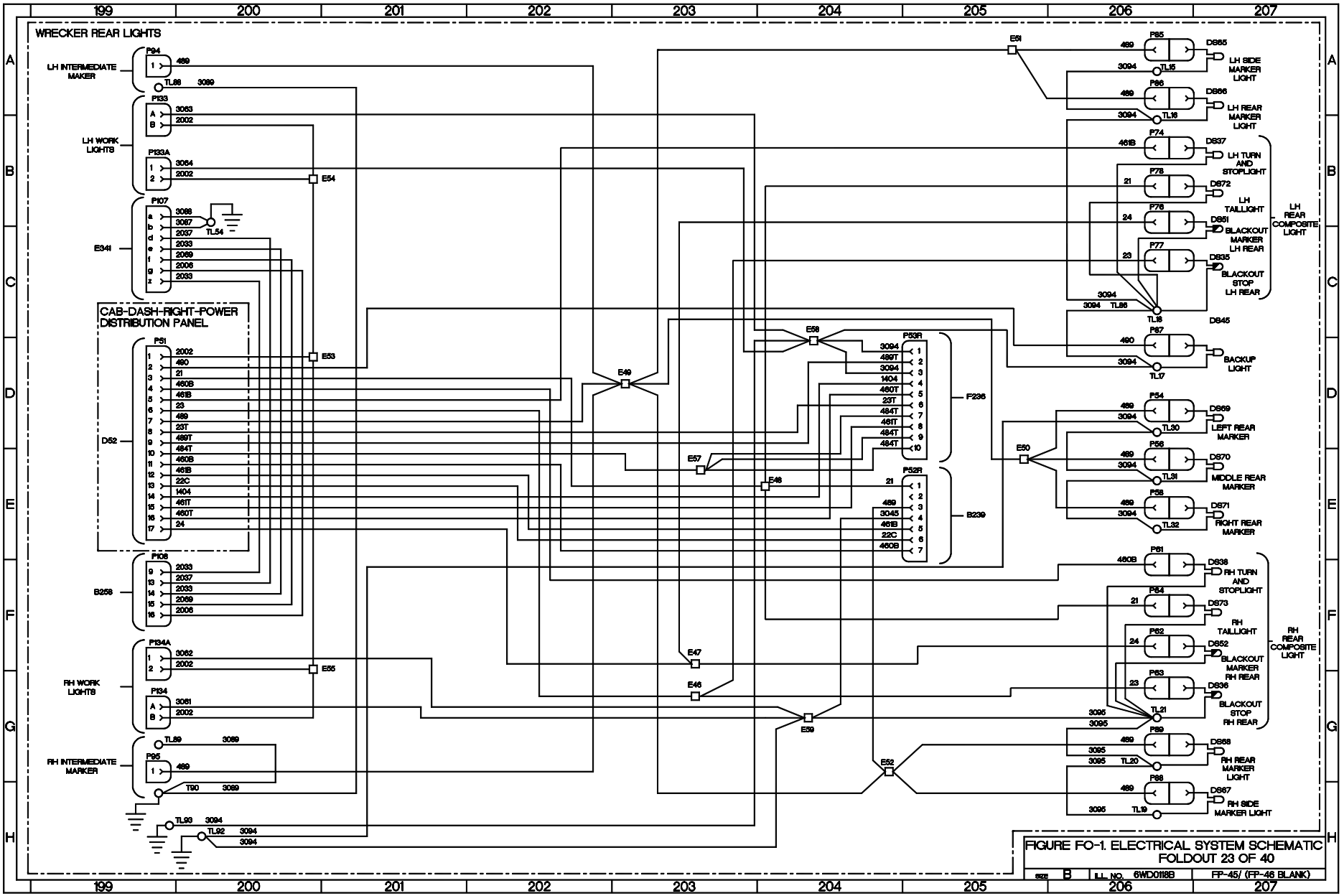


FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 23 OF 40

SIZE	ILL. NO.	
B	6WD0118B	FP-45/ (FP-46 BLANK)

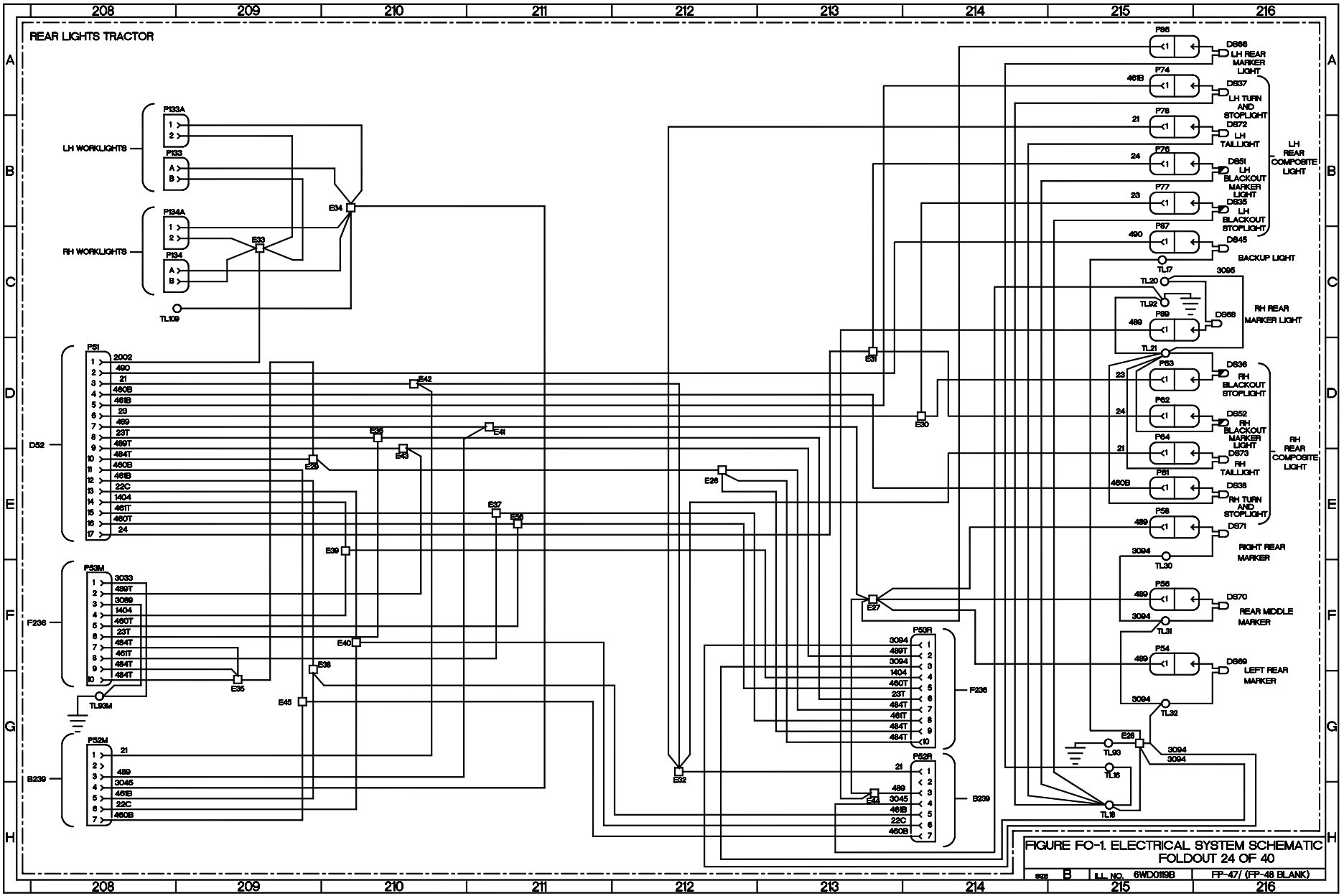


FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 24 OF 40

SIZE	ILL. NO.	
B	6WD0119B	FP-47/ (FP-48 BLANK)

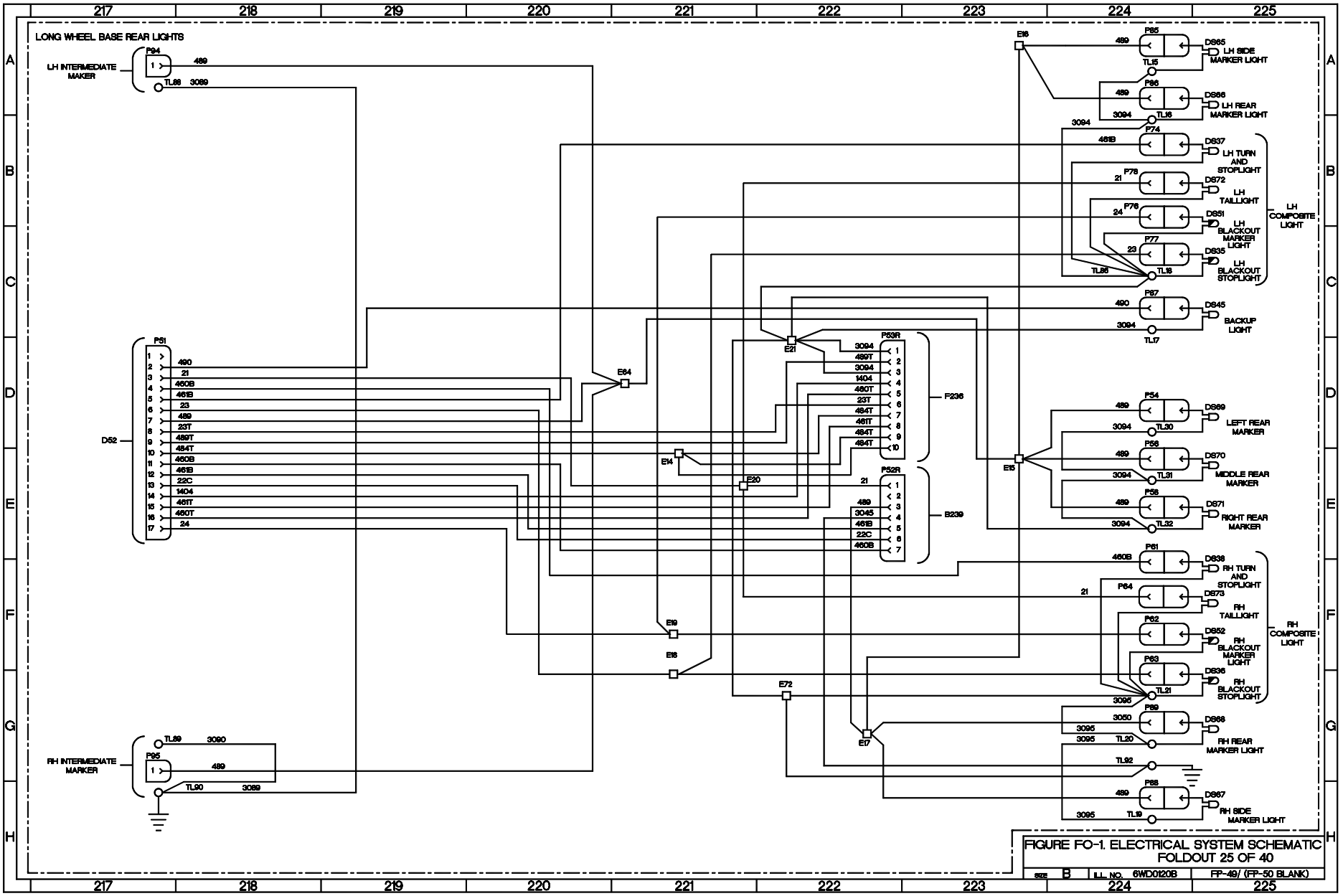


FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 25 OF 40

SIZE B | ILL. NO. 6WD0120B | FP-49/ (FP-50 BLANK)

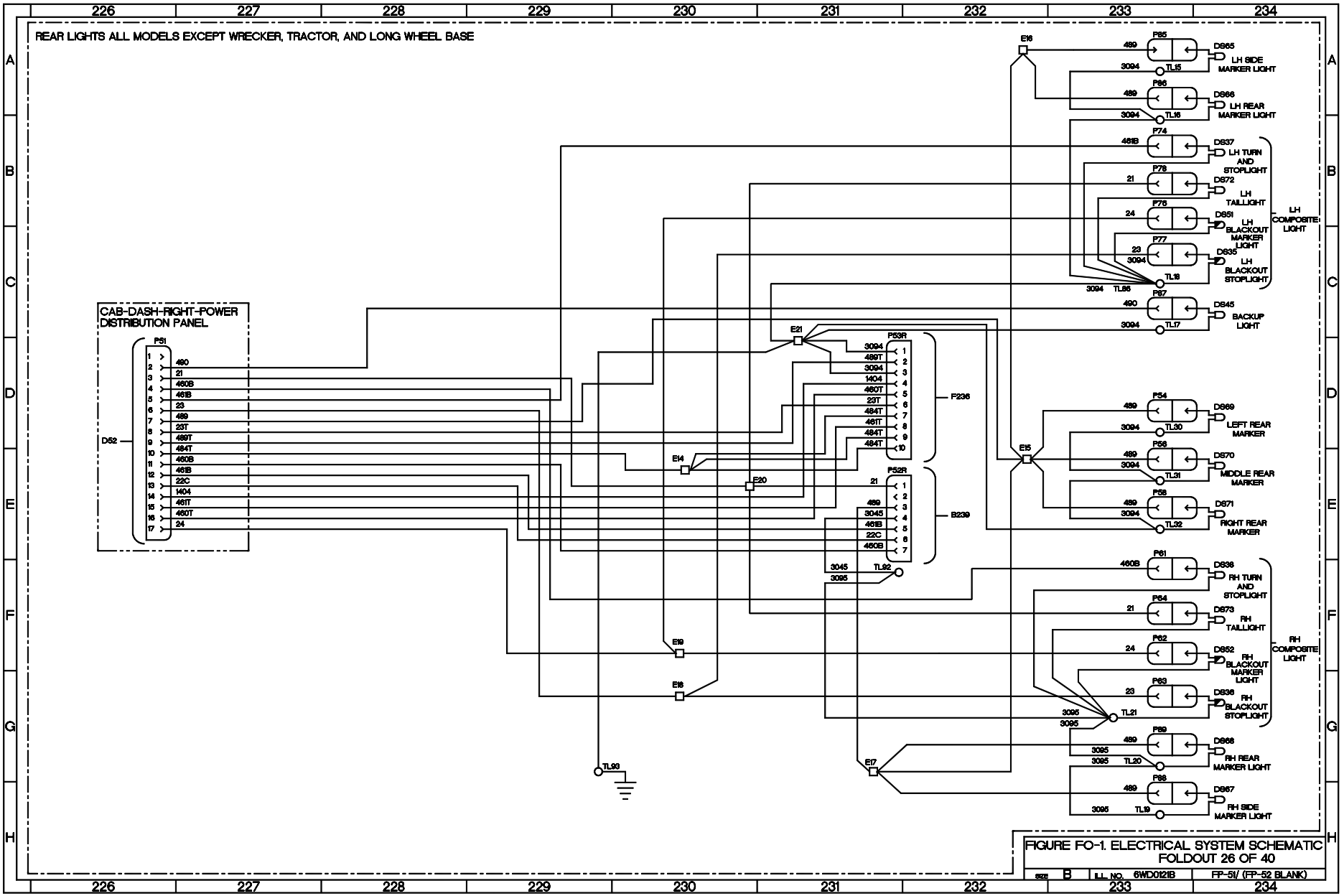


FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 26 OF 40

SIZE	ILL. NO.	
B	6WD0121B	FP-51/ (FP-52 BLANK)

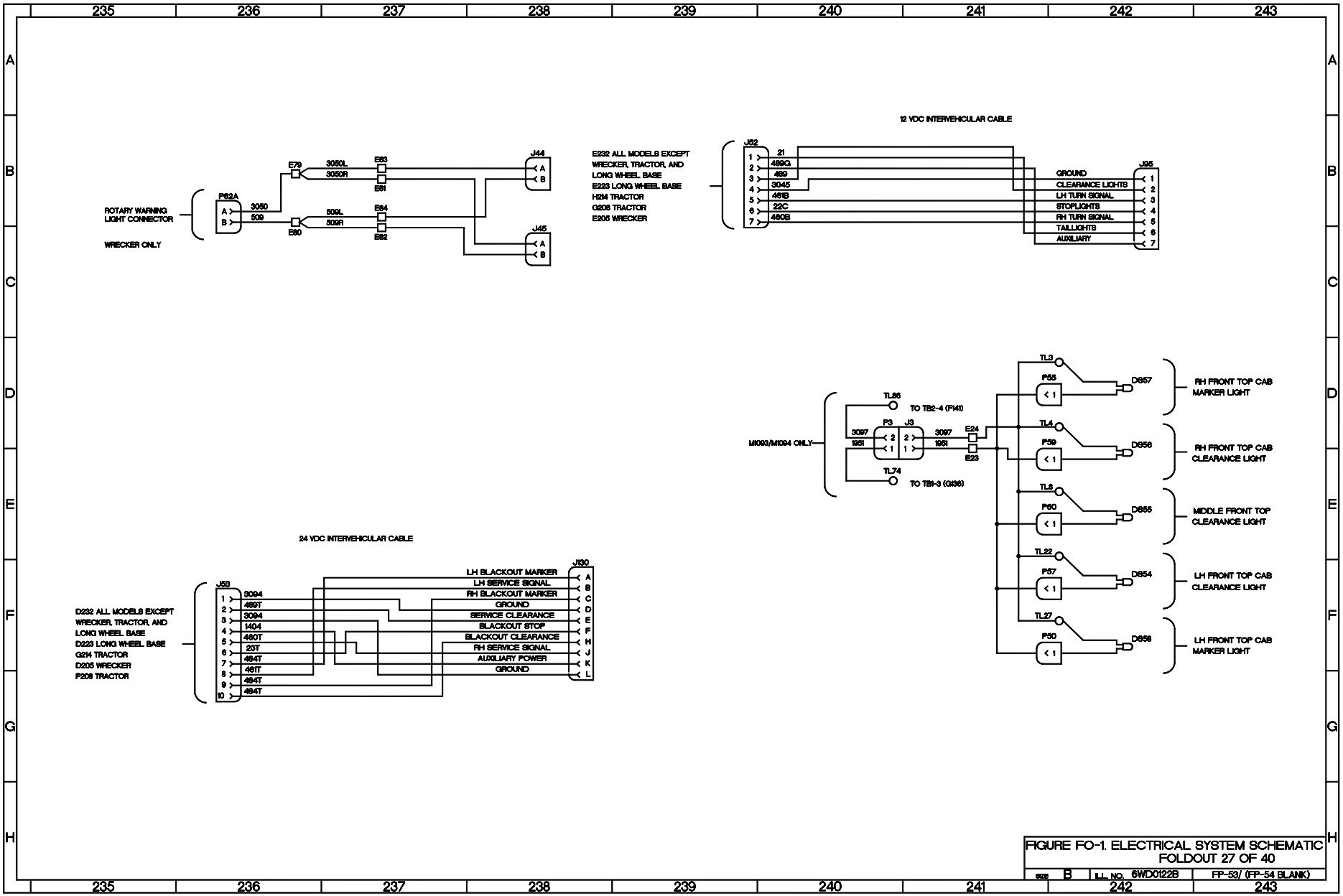


FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 27 OF 40

SIZE	ILL. NO.	
B	6WD0122B	FP-53/ (FP-54 BLANK)

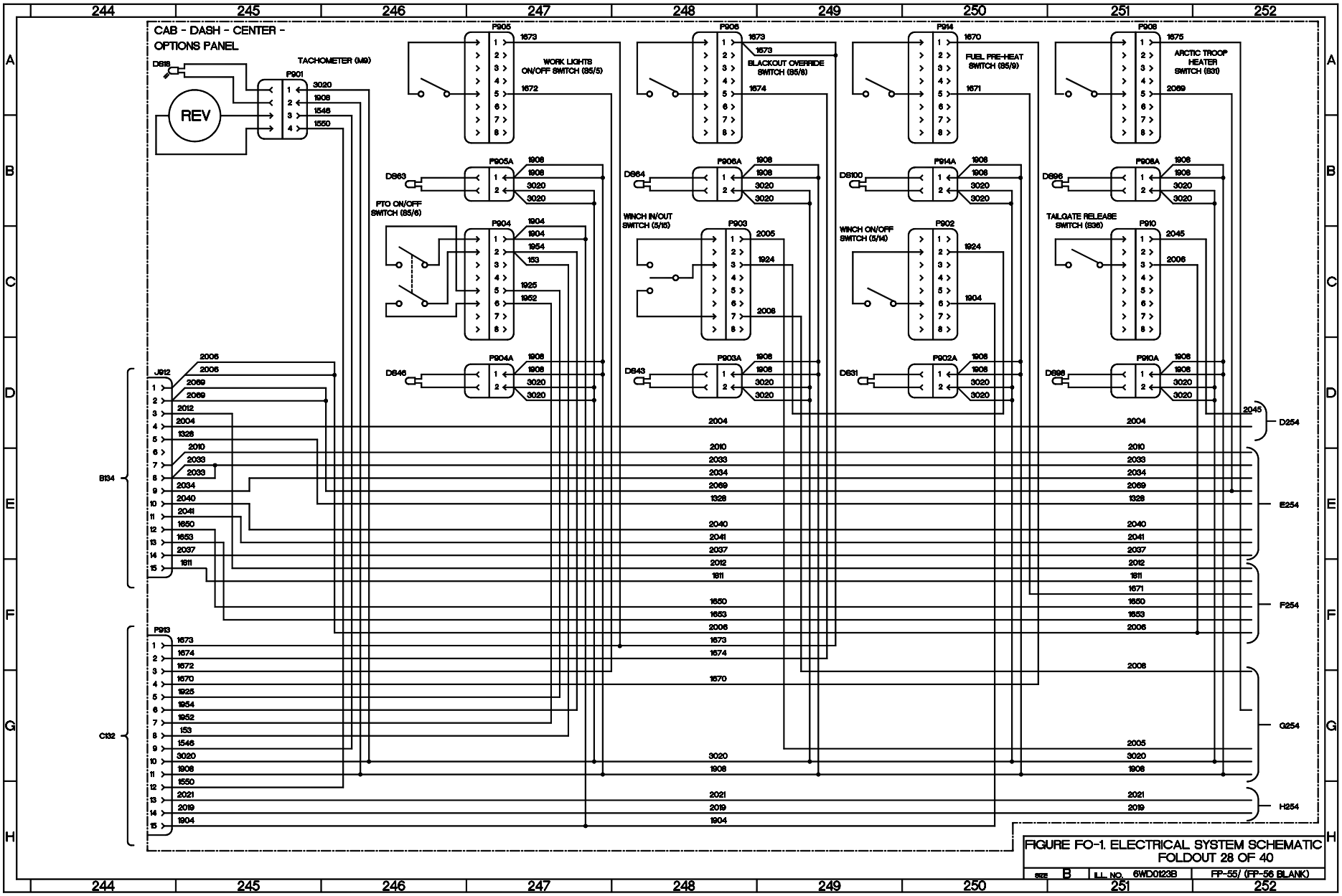


FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 28 OF 40

SIZE	ILL. NO.	
B	6WD0123B	FP-55/ (FP-56 BLANK)

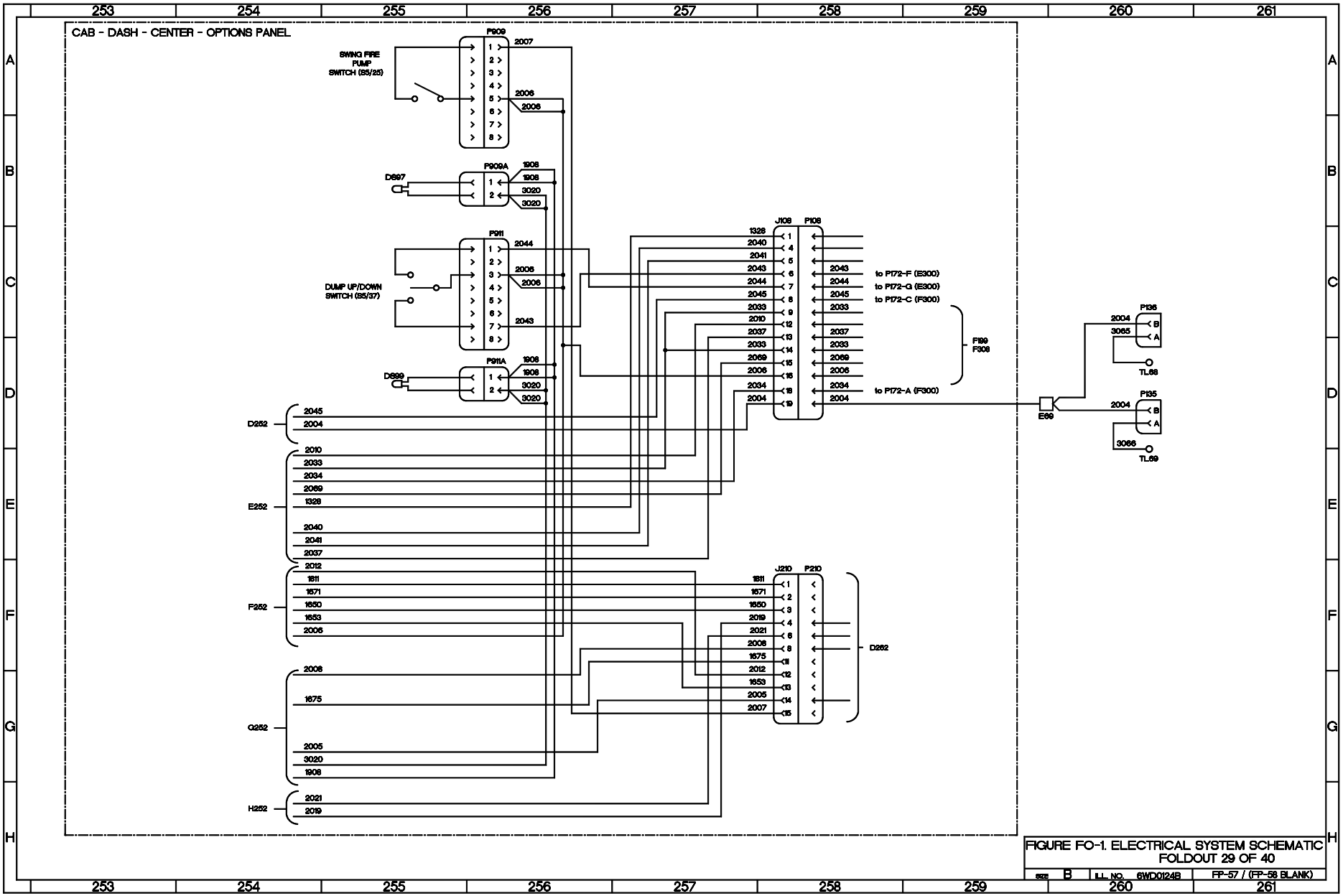


FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 29 OF 40

SIZE	ILL. NO.	
B	6WD0124B	FP-57 / (FP-58 BLANK)

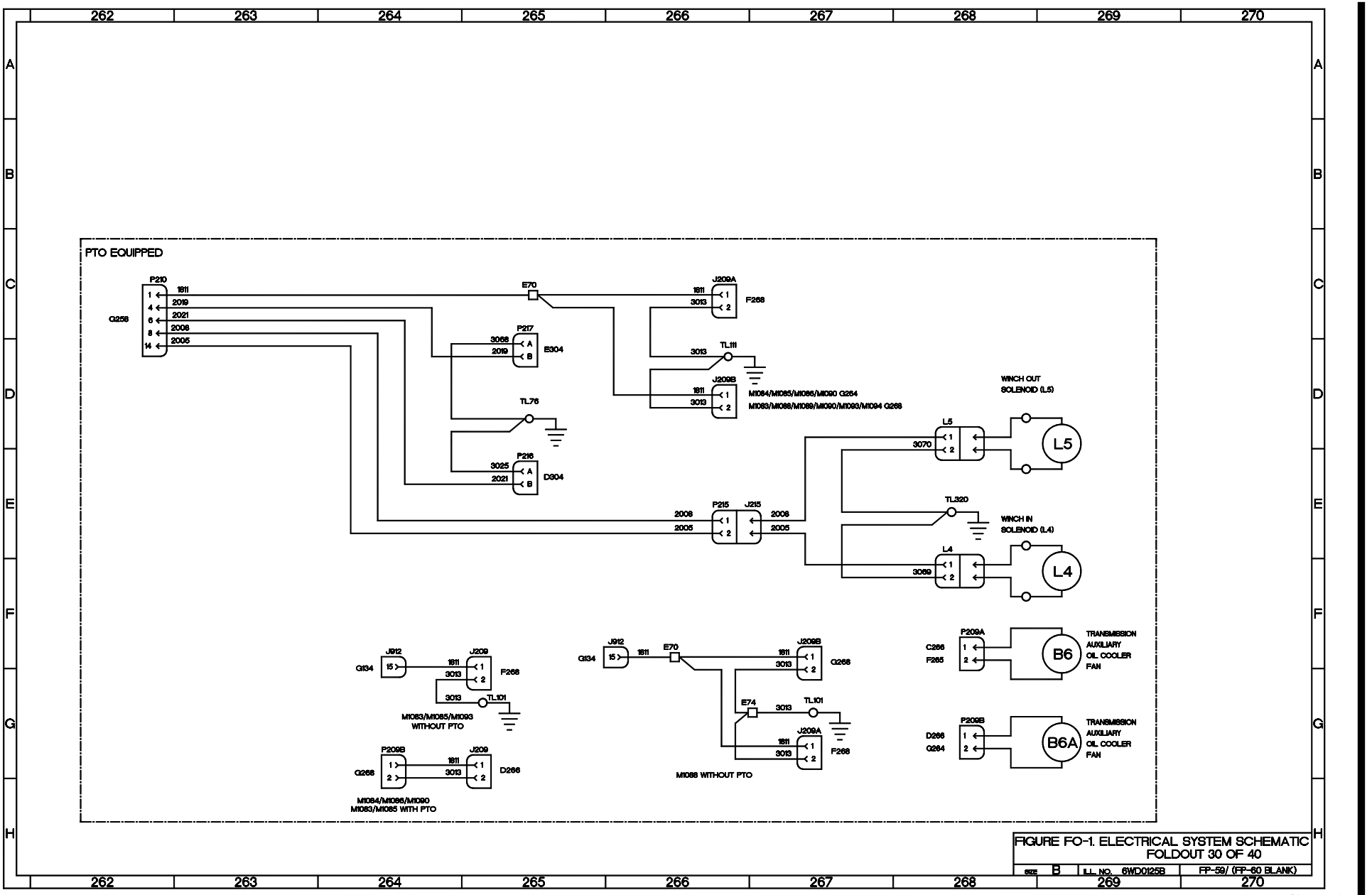


FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 30 OF 40

SIZE	ILL. NO.	
B	6WD0125B	FP-59/ (FP-60 BLANK)

DELETED

FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 31 OF 40

SIZE	ILL. NO.	
B	6WD0126B	FP-61/ (FP-62 BLANK)

DELETED

FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 32 OF 40

SIZE	ILL. NO.	
B	6WD0127B	FP-63/ (FP-64 BLANK)

DELETED

FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 33 OF 40

SIZE	ILL. NO.	
B	6WD0128B	FP-65/ (FP-66 BLANK)

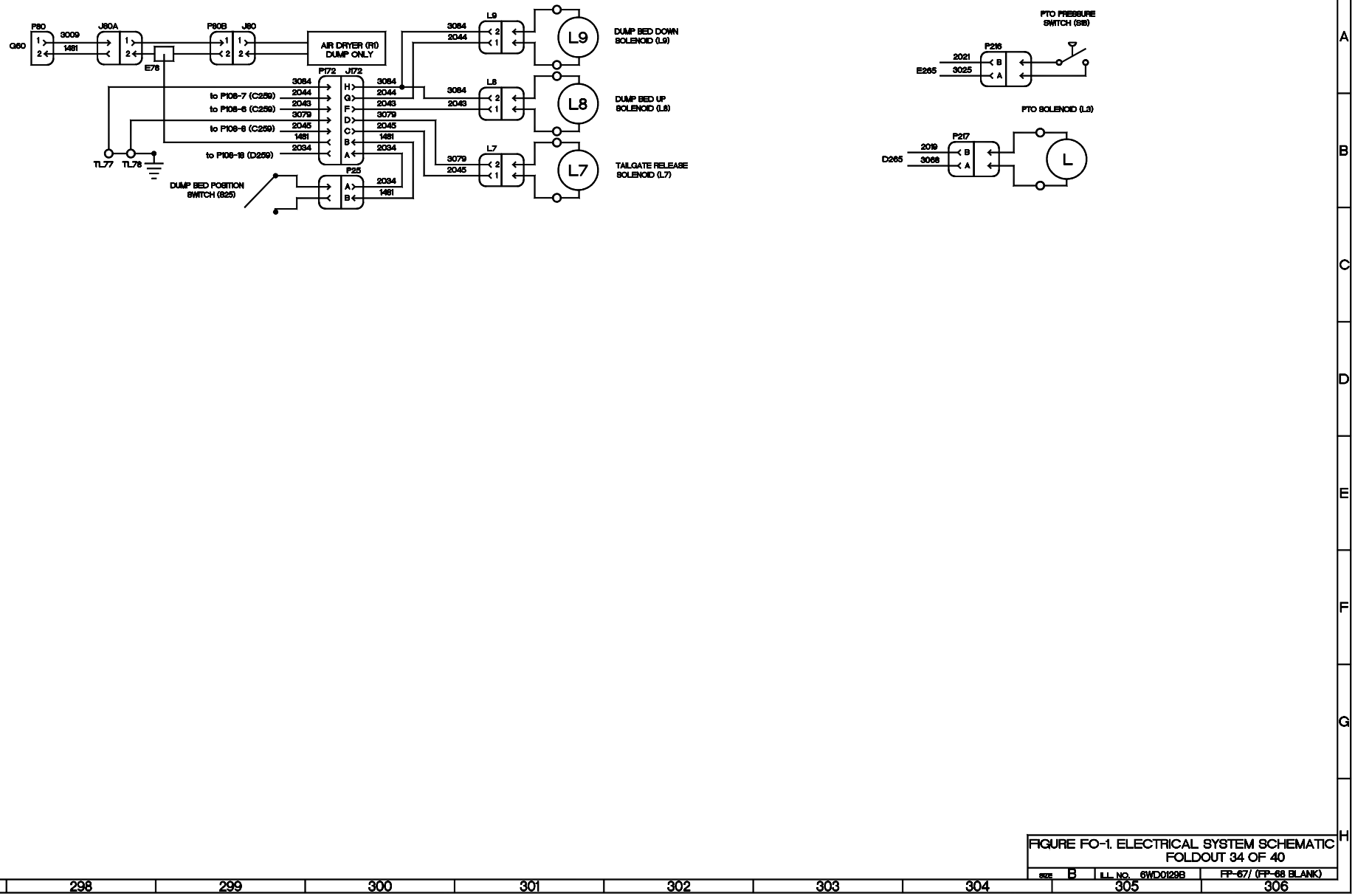


FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 34 OF 40

SIZE	ILL. NO.	
B	6WD0129B	FP-67/ (FP-68 BLANK)

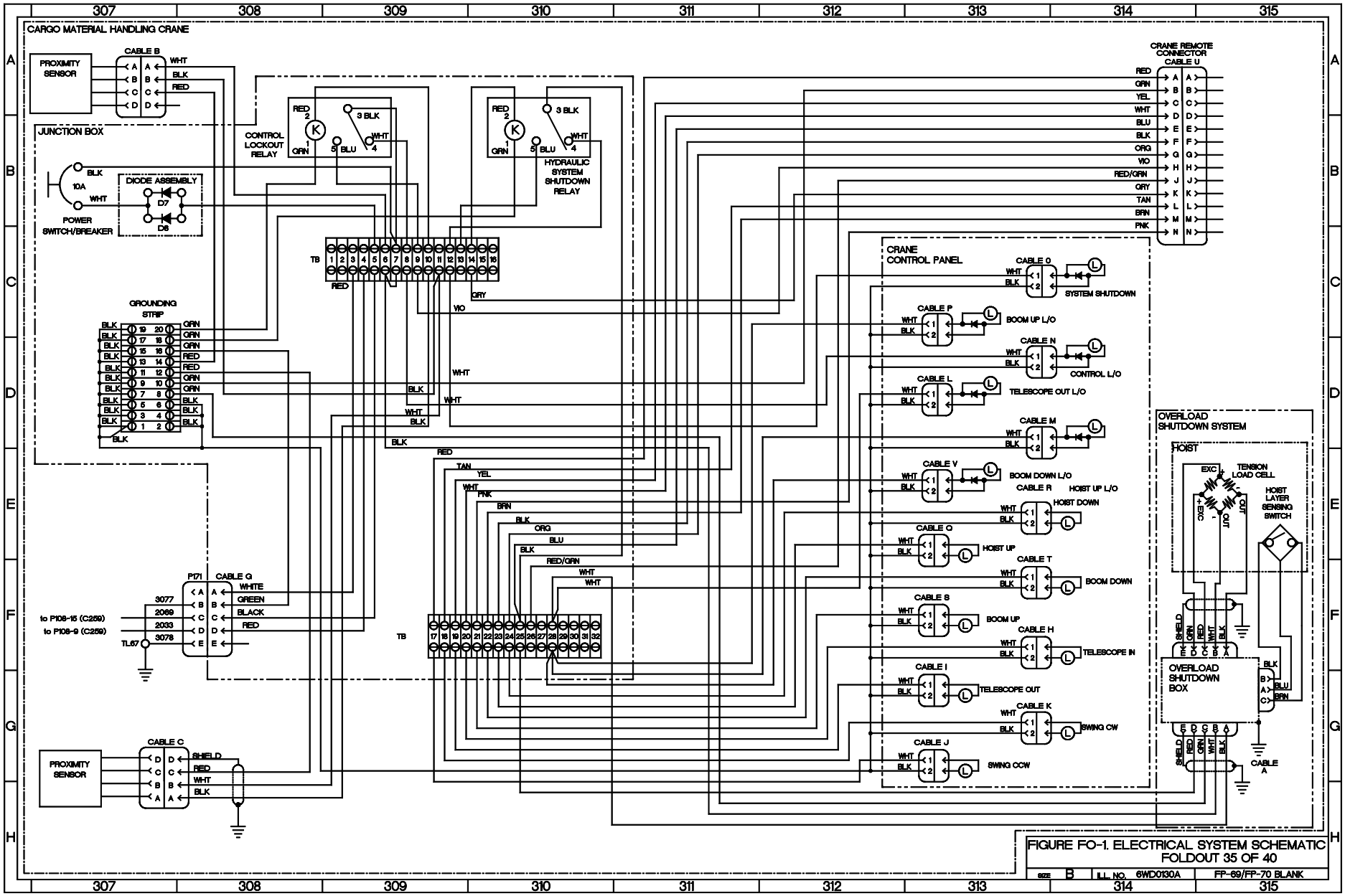


FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 35 OF 40

size	ILL. NO.	
B	6WD0130A	FP-69/FP-70 BLANK

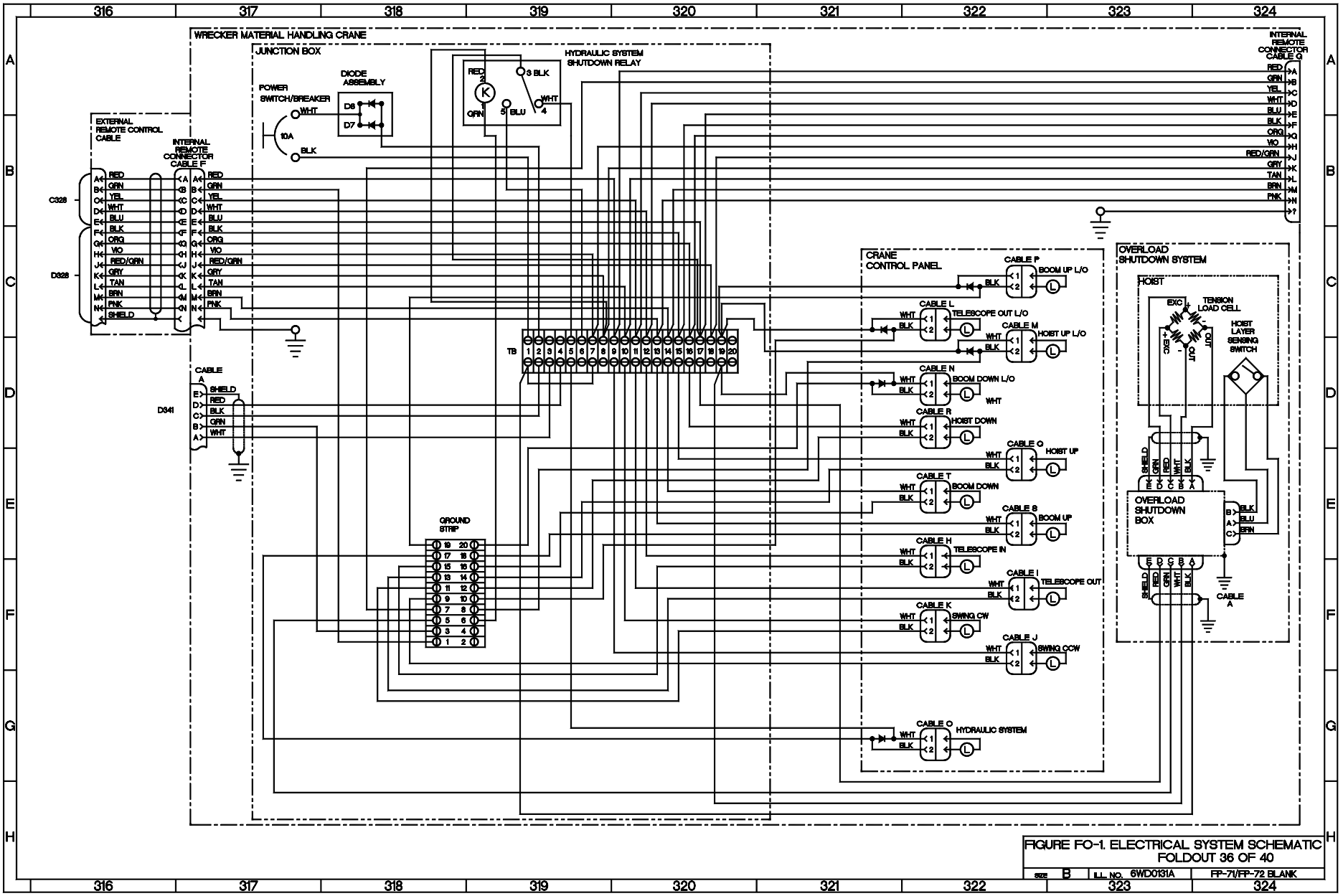


FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 36 OF 40

SIZE	ILL. NO.	
B	6WD0131A	FP-71/FP-72 BLANK

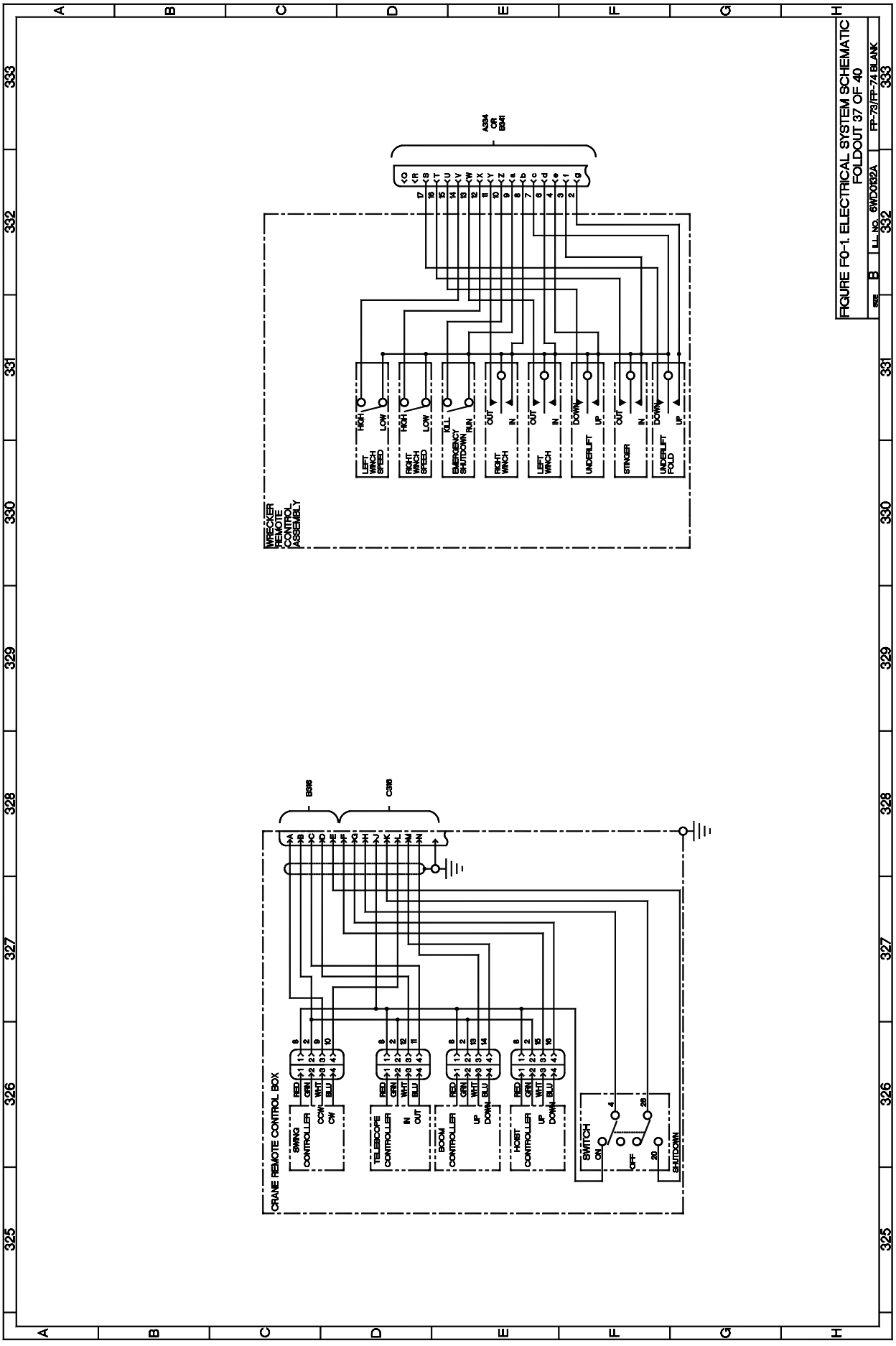


FIGURE F0-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 37 OF 40

SIZE B | LIL NO. 6WD092A | FP-73/FP-74 BLANK

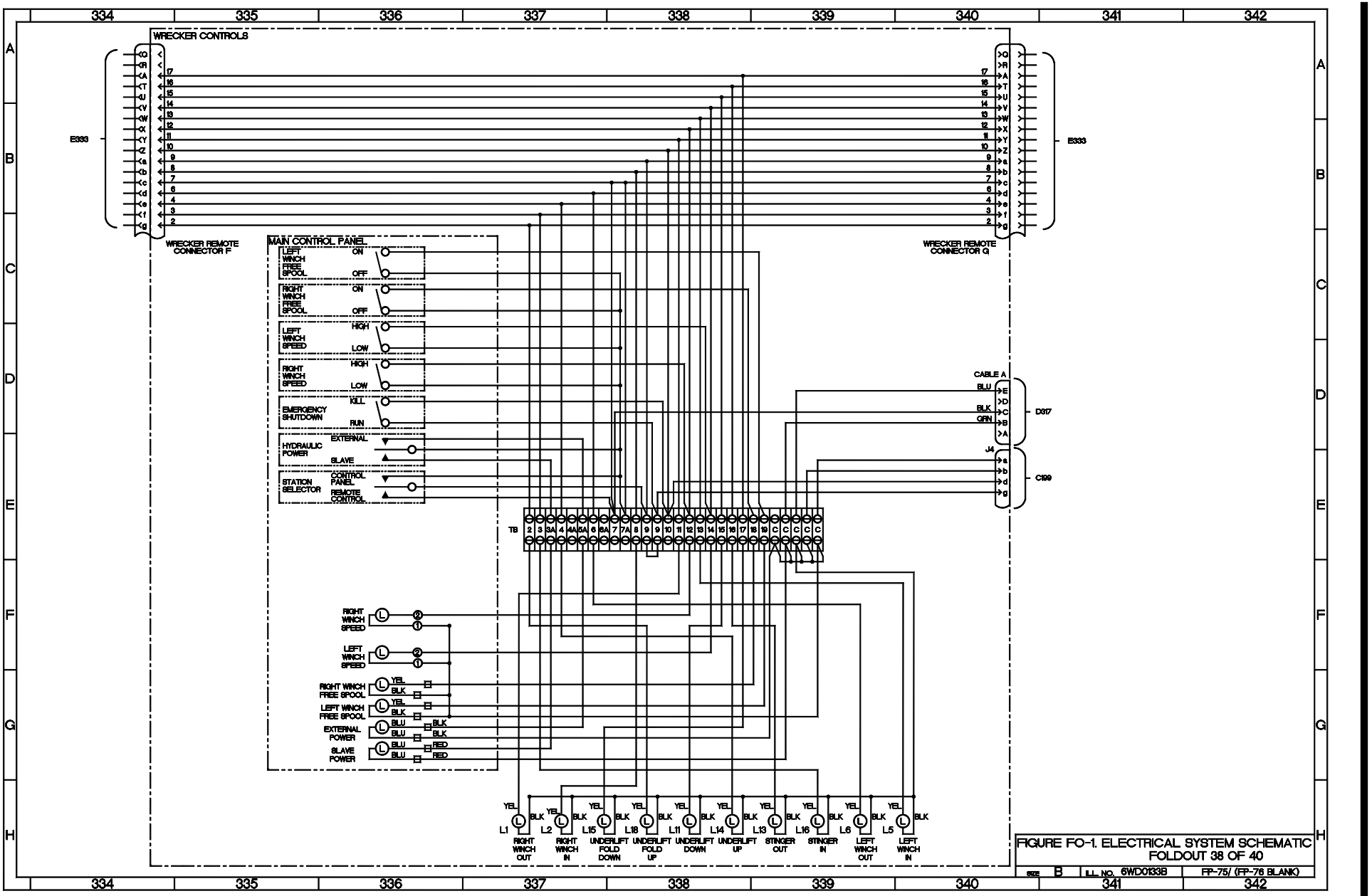


FIGURE FO-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 38 OF 40

SIZE	ILL. NO.	
B	6WD0338	FP-75/ (FP-76 BLANK)

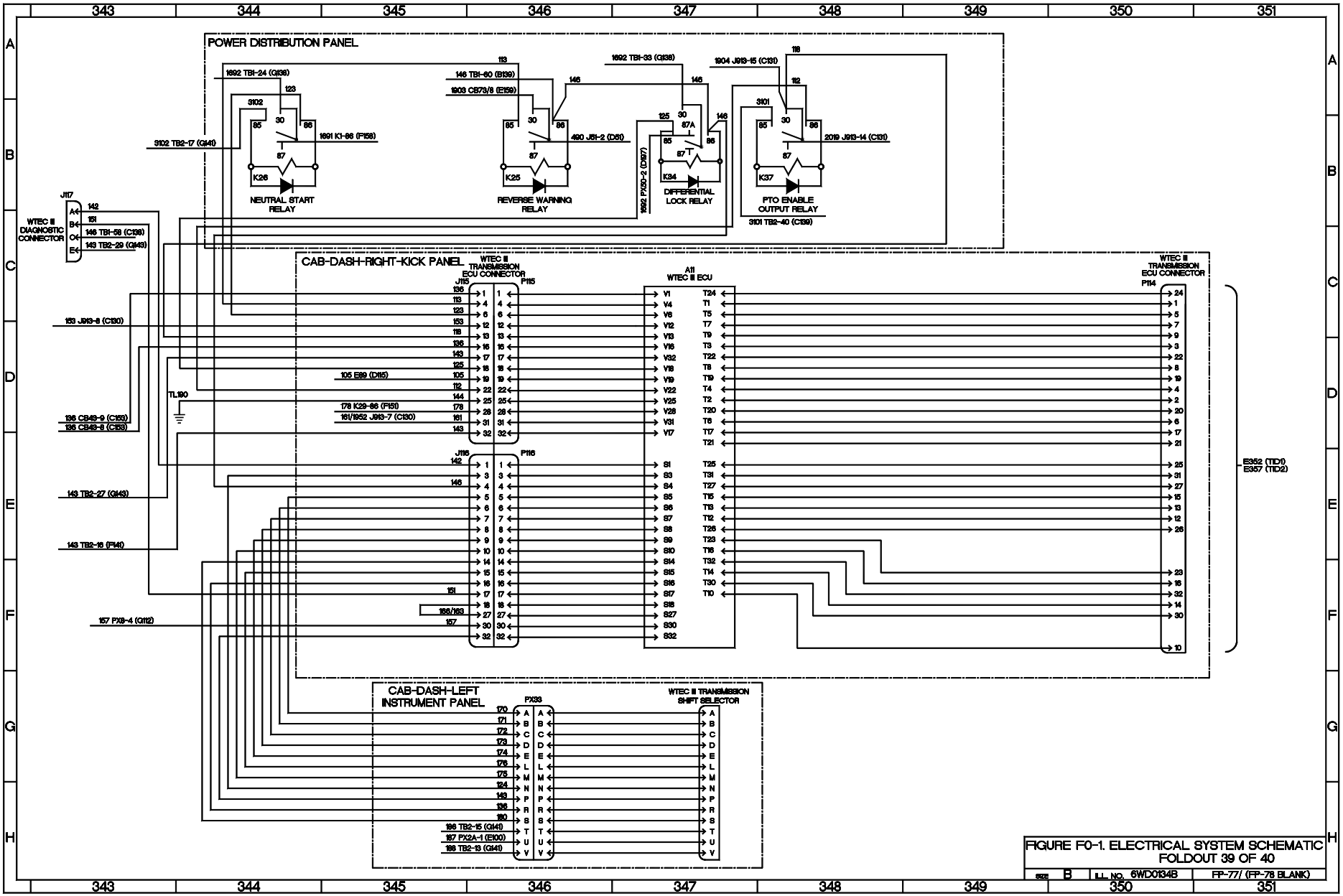
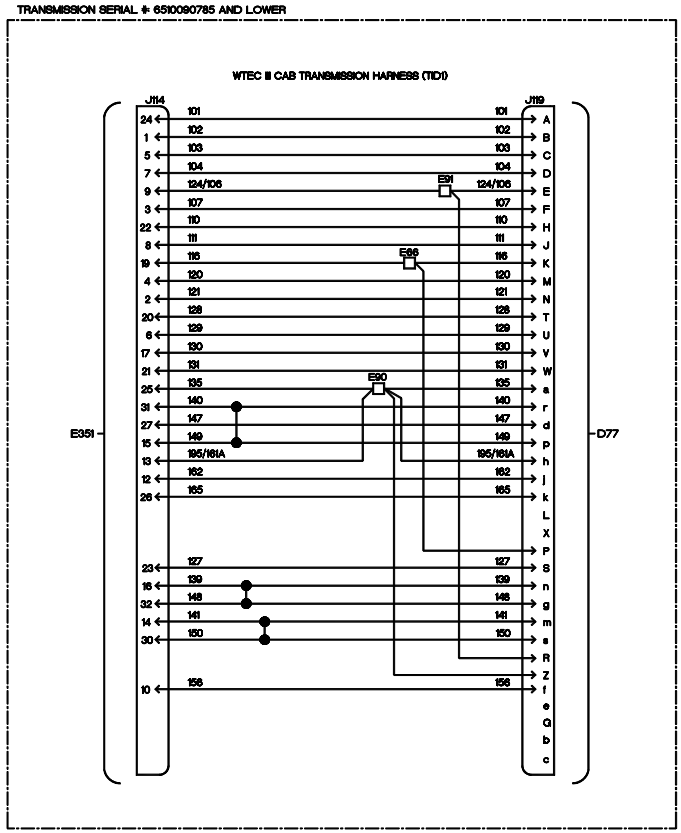


FIGURE F0-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 39 OF 40

SIZE	ILL. NO.	
B	6WD0134B	FP-77/ (FP-78 BLANK)



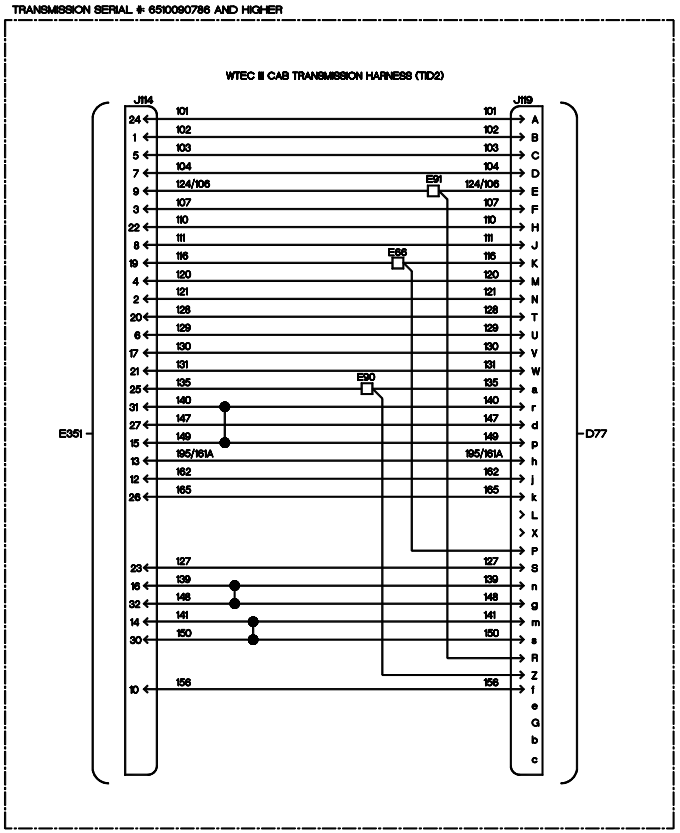


FIGURE F0-1. ELECTRICAL SYSTEM SCHEMATIC
FOLDOUT 40 OF 40

SIZE	ILL. NO.	
B	6WD0135B	FP-79/ (FP-80 BLANK)

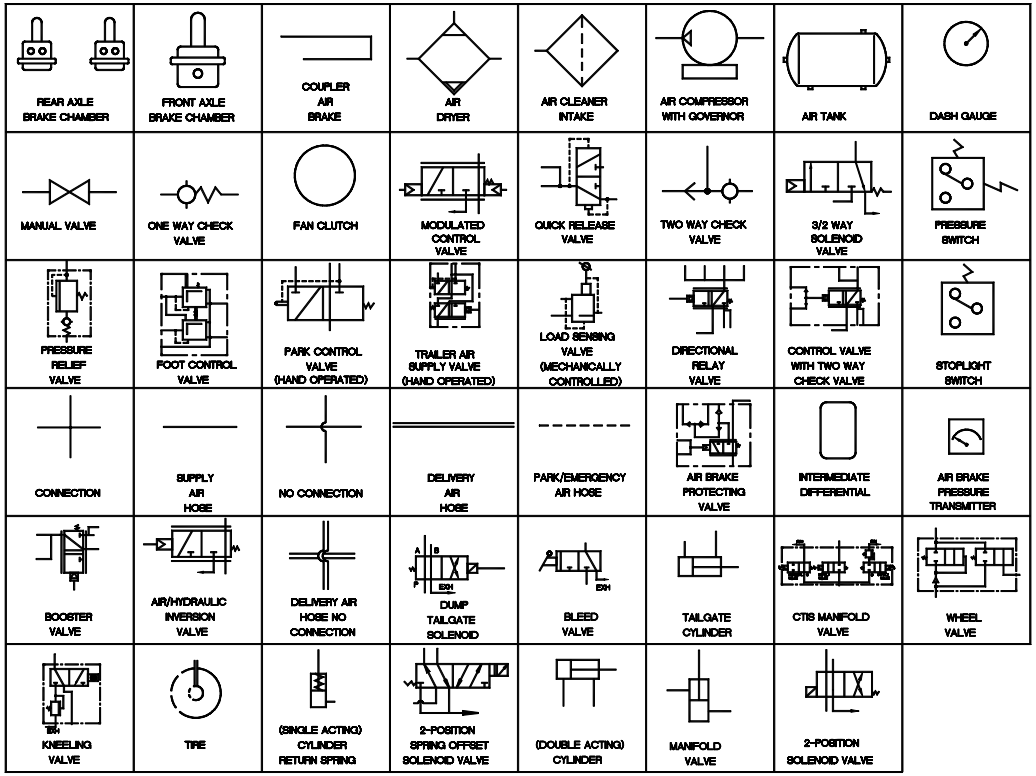


FIGURE F0-2 PNEUMATIC SYSTEM SCHEMATIC
FOLDOUT 1 OF 4

SIZE	B	ILL. NO.	6FD01AL1	FP-1/FP-2 BLANK

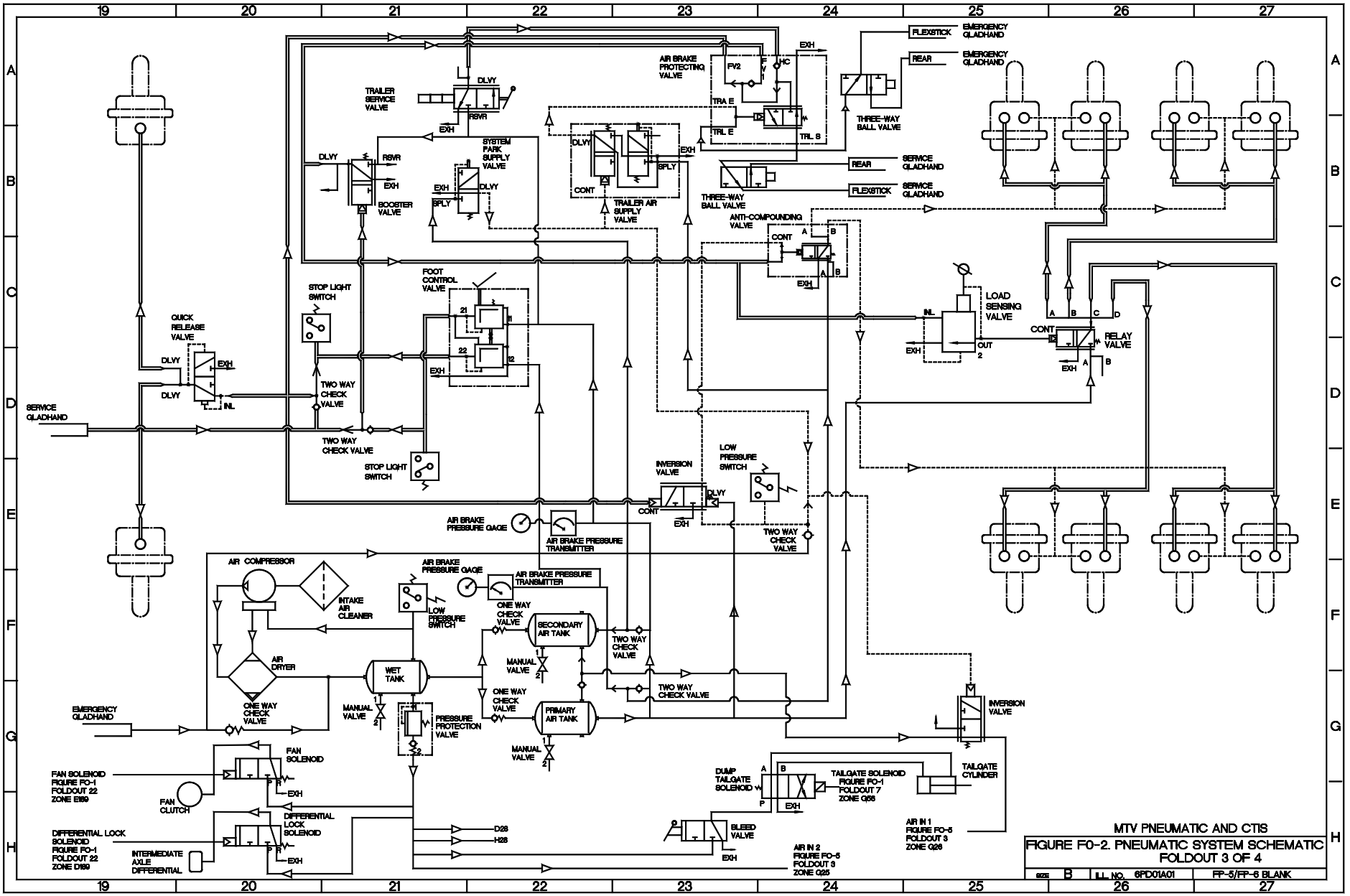
SH	ZONE	DESCRIPTION
3	E22	AIR BRAKE PRESSURE TRANSMITTER
3	F21	AIR BRAKE PRESSURE TRANSMITTER
3	A23	AIR BRAKE PROTECTING VALVE
3	F20	AIR COMPRESSOR
3	F20	AIR DRYER
3	B24	ANTI-COMPOUNDING VALVE
3	H23	BLEED VALVE
3	B21	BOOSTER VALVE
4	D30	CONTROL VALVE
4	C30	CTIS MANIFOLD VALVE
4	D31	DEFLATE VALVE
3	H20	DIFFERENTIAL LOCK SOLENOID
3	Q24	DUMP TAILGATE SOLENOID
3	A25	EMERGENCY QLADHAND
3	A25	EMERGENCY QLADHAND
3	G19	EMERGENCY QLADHAND
3	H20	FAN CLUTCH
3	Q20	FAN SOLENOID
3	C22	FOOT CONTROL VALVE
3	F20	INTAKE AIR CLEANER
3	H19	INTERMEDIATE AXLE DIFFERENTIAL
3	E23	INVERSION VALVE
3	Q25	INVERSION VALVE
4	A28	KNEELING VALVE
4	C28	KNEELING VALVE
4	E28	LH MAIN WINCH FREESPOOL
4	E30	LH MAIN WINCH TENSIONER
4	Q29	LH MAIN WINCH VALVE
3	C25	LOAD SENSING VALVE
3	E23	LOW PRESSURE SWITCH
3	F21	LOW PRESSURE SWITCH
4	F28	MANIFOLD
4	Q29	MANIFOLD
3	F22	MANUAL VALVE
3	Q21	MANUAL VALVE
3	Q22	MANUAL VALVE
3	F22	ONE WAY CHECK VALVE
3	Q20	ONE WAY CHECK VALVE
3	Q22	ONE WAY CHECK VALVE
3	Q21	PRESSURE PROTECTION VALVE
3	Q22	PRIMARY AIR TANK
4	B30	QUICK RELEASE VALVE
4	B33	QUICK RELEASE VALVE
4	B36	QUICK RELEASE VALVE
3	C20	QUICK RELEASE VALVE
4	E30	REGULATOR
4	E31	REGULATOR

SH	ZONE	DESCRIPTION
4	F28	REGULATOR
3	D26	RELAY VALVE
4	E29	RH MAIN WINCH FREESPOOL
4	E30	RH MAIN WINCH TENSIONER
4	G33	RH MAIN WINCH VALVE
3	F22	SECONDARY AIR TANK
3	B24	SERVICE QLADHAND
3	B24	SERVICE QLADHAND
3	D19	SERVICE QLADHAND
4	Q30	STINGER VALVE
3	C20	STOPLIGHT SWITCH
3	E21	STOPLIGHT SWITCH
4	D31	SUPPLY VALVE
3	B21	SYSTEM PARK SUPPLY VALVE
3	Q25	TAILGATE CYLINDER
3	A24	THREE WAY BALL VALVE
3	B23	THREE WAY BALL VALVE
3	B22	TRAILER AIR SUPPLY VALVE
3	A21	TRAILER SERVICE VALVE
3	D21	TWO WAY CHECK VALVE
3	D21	TWO WAY CHECK VALVE
3	E24	TWO WAY CHECK VALVE
4	E30	TWO WAY CHECK VALVE
4	E30	TWO WAY CHECK VALVE
3	F23	TWO WAY CHECK VALVE
3	Q23	TWO WAY CHECK VALVE
4	Q32	UNDERLIFT FOLD VALVE
4	Q31	UNDERLIFT VALVE
3	F21	WET TANK
4	C34	WHEEL VALVE
4	A28	WHEEL VALVE
4	A32	WHEEL VALVE
4	A34	WHEEL VALVE
4	C28	WHEEL VALVE
4	C32	WHEEL VALVE

MTV PNEUMATIC AND CTIS

FIGURE F0-2. PNEUMATIC SYSTEM SCHEMATIC FOLDOUT 2 OF 4

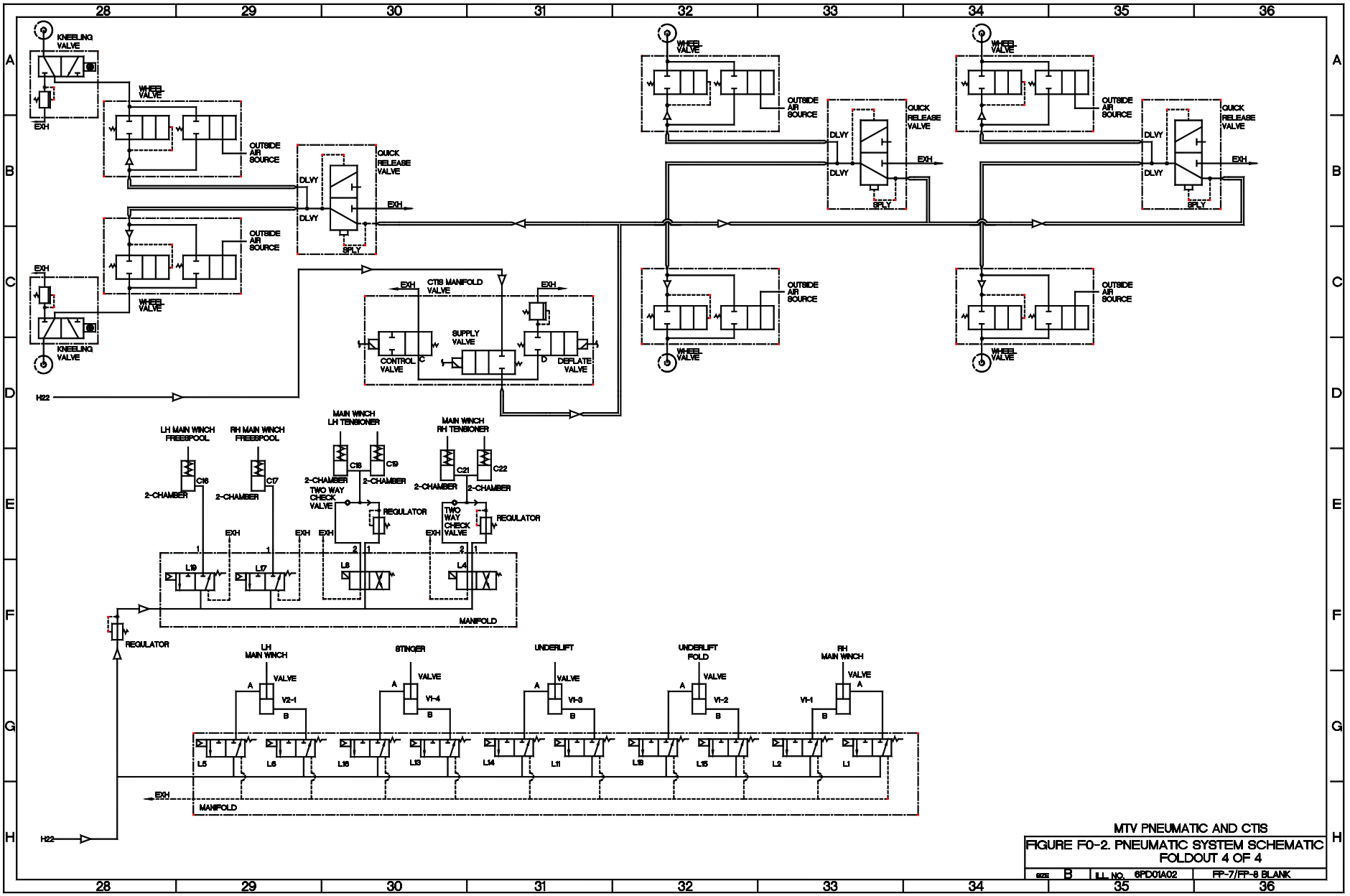
SIZE	ILL NO.	
B	6PDOIAL2	FP-3/FP-4 BLANK



MTV PNEUMATIC AND CTIS

FIGURE F0-2. PNEUMATIC SYSTEM SCHEMATIC
FOLDOUT 3 OF 4

SIZE	ILL. NO.	
B	6PD01A01	FP-5/FP-6 BLANK



MTV PNEUMATIC AND CTIS

FIGURE F0-2. PNEUMATIC SYSTEM SCHEMATIC FOLDOUT 4 OF 4

SIZE	ILL NO.	
B	6PD01A02	FP-7/FP-8 BLANK

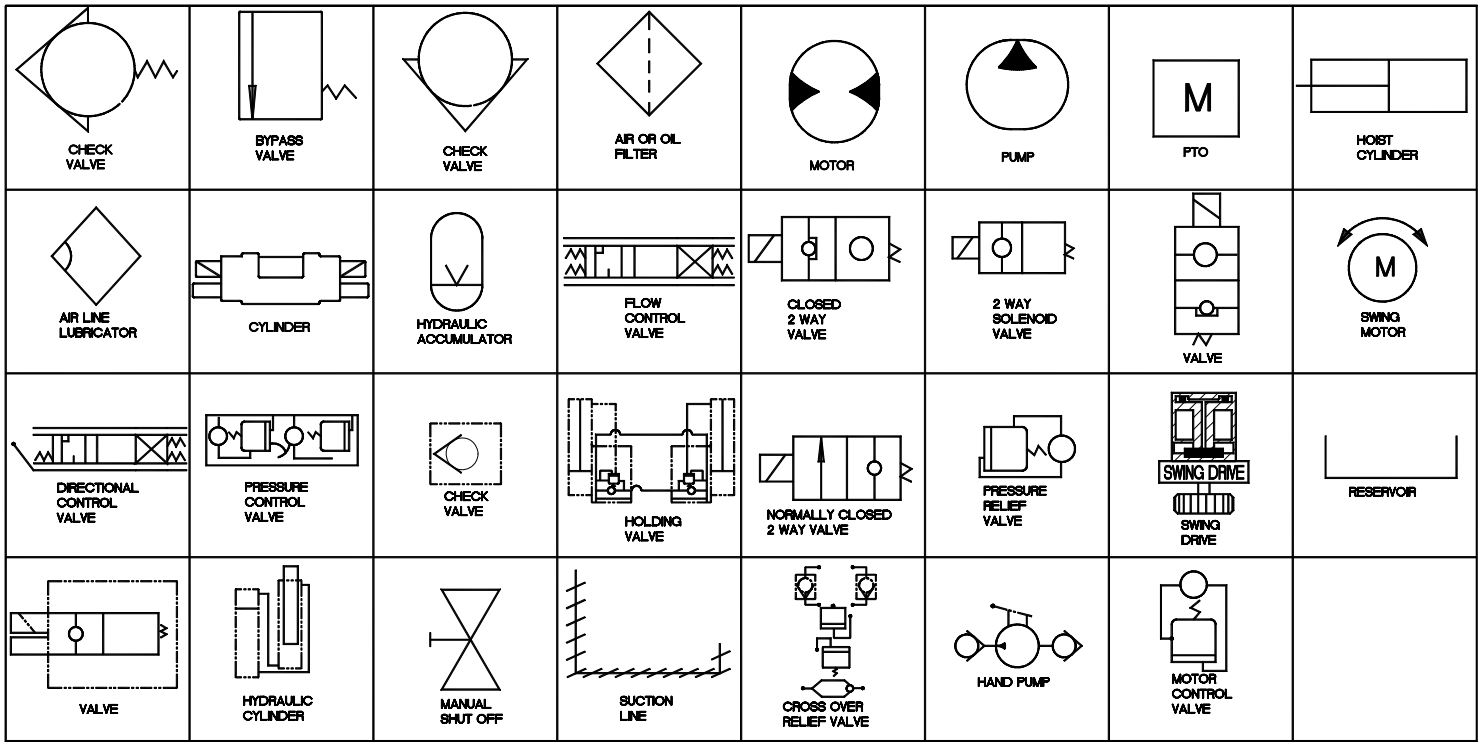


FIGURE FO-3. HYDRAULIC SYSTEM SCHEMATIC

FOLDOUT 1 OF 8

SIZE	ILL. NO.	
B	6HD01AL1	FP-1/FP-2 BLANK

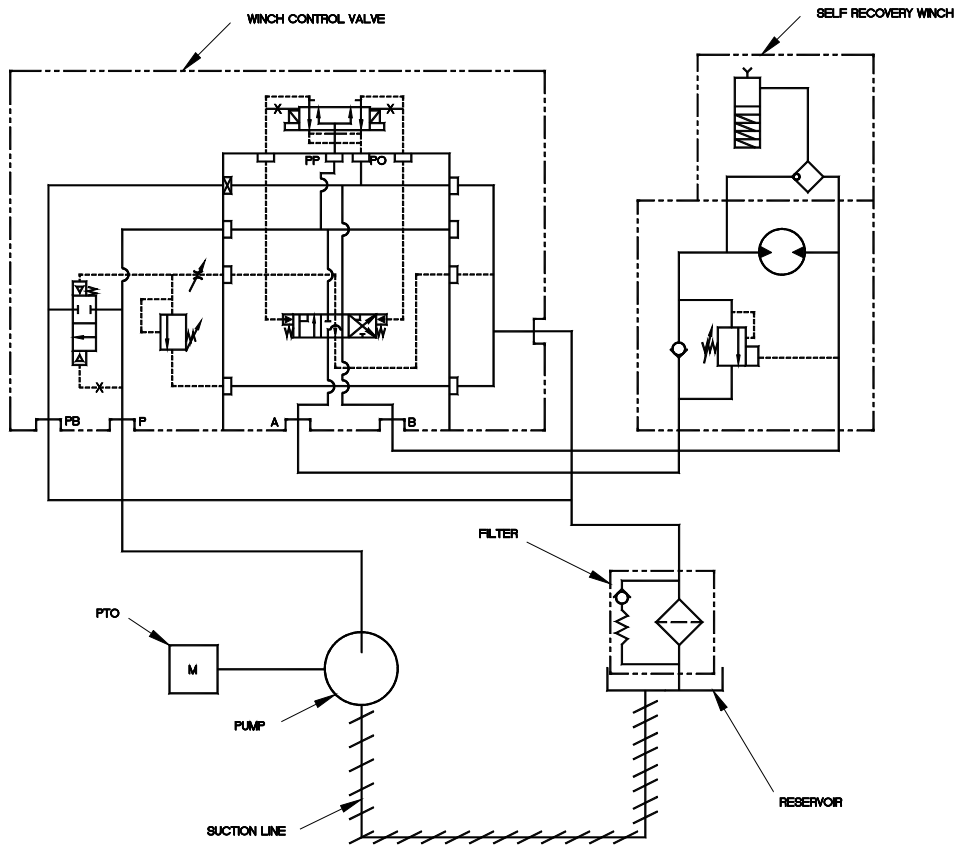
SH	ZONE	DESCRIPTION
6	D46	2 WAY SOLENOID VALVE
7	D60	2 WAY SOLENOID VALVE
7	D55	2 WAY SOLENOID VALVE, OPERATING PRESS
7	F60	3 BANK VALVE ASSEMBLY
7	C61	4 BANK VALVE ASSEMBLY
6	B52	BOOM
7	F55	BULKHEAD PLATE (SUBFRAME)
7	F57	CHECK VALVE
7	G62	CHECK VALVE
7	D55	CHECK VALVE
5	E37	CHECK VALVE CK1
5	E37	CHECK VALVE CK2
5	E37	CHECK VALVE CK3
5	E37	CHECK VALVE CK4
5	E37	CHECK VALVE CK5
5	E37	CHECK VALVE CK6
8	E65	CONTROL VALVE
5	B44	COUNTERBALANCE VALVE
6	B48	CROSS RELIEF VALVE
7	C57	CROSS RELIEF VALVE
8	E64	DUMP BODY HYDRAULIC HOIST
6	G48	ERECTION CYLINDER
5	E38	FC1 SLAVE POWER
5	E38	FC2 EXTERNAL POWER
3	F23	FILTER
4	D34	FILTER
8	E68	FILTER
5	B43	FLOW CONTROL VALVE
5	B45	FLOW CONTROL VALVE
5	B43	FOLD CYLINDER
7	C62	FULL FLOW
6	G54	GAUGE PORT
6	E47	HAND PUMP
7	E56	HAND PUMP
7	G57	HOIST
7	A62	HOIST
6	B53	HOIST
8	G65	HOIST CYLINDER
7	G58	HOIST MOTOR
6	G46	HOIST MOTOR
7	H57	HOIST MOTOR CONTROL VALVE
6	H46	HOIST MOTOR CONTROL VALVE
7	H59	HOLDING VALVE
7	G62	HOLDING VALVE
6	C47	HOLDING VALVE
6	H53	HOLDING VALVE
7	C55	HOLDING VALVE
7	G56	HOLDING VALVES
6	E48	HOLDING VALVES
6	G48	HOLDING VALVES
5	D41	HYDRAULIC MOTOR, PAY-OUT
5	E41	HYDRAULIC MOTOR, PAY-OUT
7	A60	HYDRAULIC ACCUMULATOR

SH	ZONE	DESCRIPTION
6	E54	HYDRAULIC ACCUMULATOR
7	H61	LEFT JACK CYLINDER
6	H49	LEFT JACK CYLINDER
5	Q42	LEFT MAIN WINCH
7	A61	LIFT
6	E48	LIFT CYLINDERS
5	C37	LINEAR DIRECTIONAL CONTROL VALVE
5	B42	LOWER MAIN CONTROL VALVE ASSEMBLY
5	D37	M1089 MATERIAL HANDLING CRANE LOC.
6	B51	MANUAL OVERRIDE
7	G61	MAST ERECTION
7	H59	MAST ERECTION CYLINDER
4	C30	MATERIAL HANDLING EQUIPMENT
5	E38	MC1 SLAVE POWER
5	E38	MC2 EXTERNAL POWER
5	D40	MONO BLOCK VALVE ASSEMBLY
7	G58	MOTOR DRAIN
6	G46	MOTOR DRAIN
6	D54	N/C 2 WAY VALVE
6	H52	OUTRIGGER EXTENSION CYLINDER
7	A60	PRESSURE CHECK POINT
3	F21	PTO
4	E32	PTO
8	G68	PTO
3	F22	PUMP
4	E33	PUMP
8	F68	PUMP
5	F37	PUMP ASSEMBLY
5	D41	RELIEF VALVE
5	E41	RELIEF VALVE
5	F42	RELIEF VALVE ASSEMBLY
5	B42	RELIEF VALVE ASSY (RIGHT MAIN WINCH)
3	F24	RESERVOIR
4	F34	RESERVOIR
8	G69	RESERVOIR
5	Q40	RETURN VALVE
5	B44	RH UNDERLIFT COUNTERBALANCE VALVE
7	G62	RIGHT JACK CYLINDER
6	H54	RIGHT JACK CYLINDER
5	B42	RIGHT MAIN WINCH
5	F40	SAMPLING VALVE
3	B24	SELF RECOVERY WINCH
5	G41	SELF RECOVERY WINCH
8	B71	SELF RECOVERY WINCH
5	Q43	STIFFLEG CYLINDER LH
5	G45	STIFFLEG CYLINDER RH
5	B45	STINGER CYLINDER
7	F55	SUCTION LINE-HAND PUMP
3	Q22	SUCTION LINE
4	F33	SUCTION LINE
5	F37	SUPPLY VALVE
7	A58	SWING
6	B50	SWING

SH	ZONE	DESCRIPTION
6	B48	SWING DRIVE
7	B57	SWING DRIVE
6	A48	SWING MOTOR
7	B57	SWING MOTOR
6	C46	TELESCOPE CYLINDER
7	A59	TELESCOPE
6	B51	TELESCOPE
7	B55	TELESCOPE CYLINDER
5	A44	TELESCOPIC LIFT CYLINDER, LH
5	A45	TELESCOPIC LIFT CYLINDER, RH
6	F49	UNLOADER VALVE
7	E56	UNLOADER VALVE
5	E42	UPPER MAIN CONTROL VALVE ASSEMBLY
5	E37	VALVE, SELECTOR
3	B21	WINCH CONTROL VALVE
8	B69	WINCH CONTROL VALVE

FIGURE FO-3 HYDRAULIC SYSTEM SCHEMATIC
FOLDOUT 2 OF 8

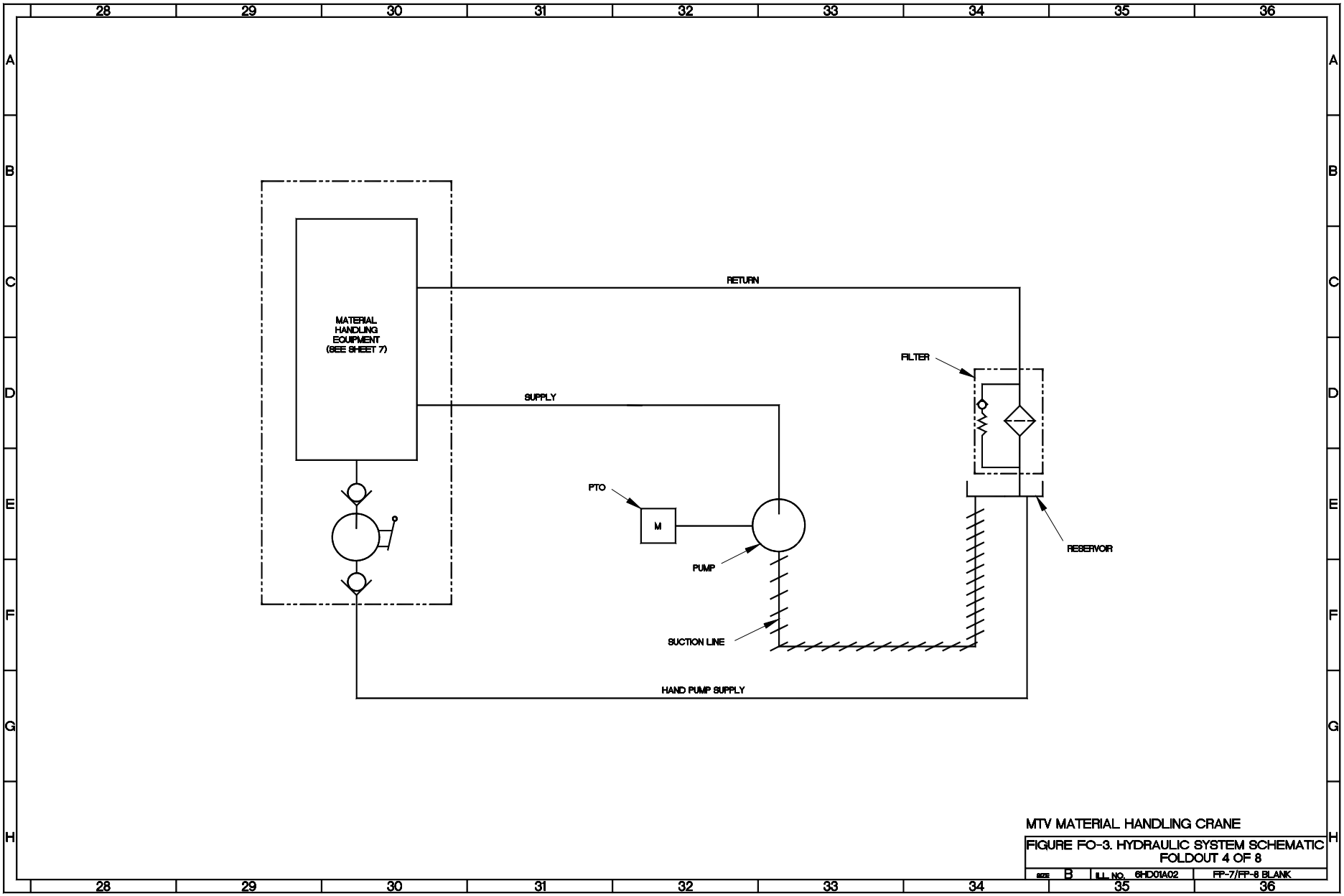
SIZE	B	ILL. NO. 9HD01AL2	FP-3/FP-4 BLANK



MTV TRUCK W/WINCH

FIGURE FO-3. HYDRAULIC SYSTEM SCHEMATIC
FOLDOUT 3 OF 8

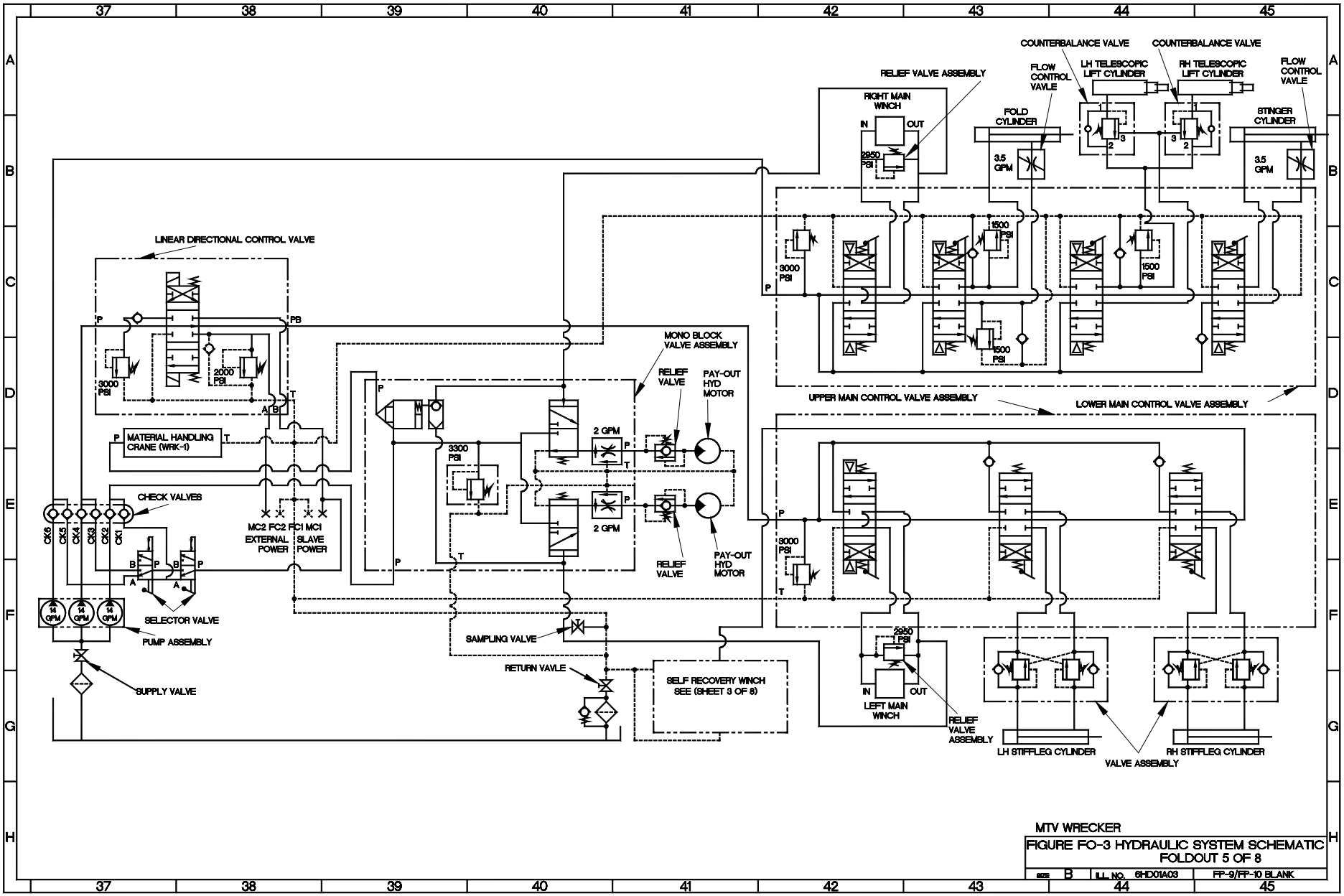
SIZE	ILL. NO.	
B	6HD01A01	FP-5/FP-6 BLANK



MTV MATERIAL HANDLING CRANE

FIGURE FO-3. HYDRAULIC SYSTEM SCHEMATIC
FOLDOUT 4 OF 8

SIZE	ILL. NO.	
B	6HD01A02	FP-7/FP-8 BLANK



MTV WRECKER

FIGURE FO-3 HYDRAULIC SYSTEM SCHEMATIC
FOLDOUT 5 OF 8

SIZE	ILL. NO.	
B	6HD01A03	FP-9/FP-10 BLANK

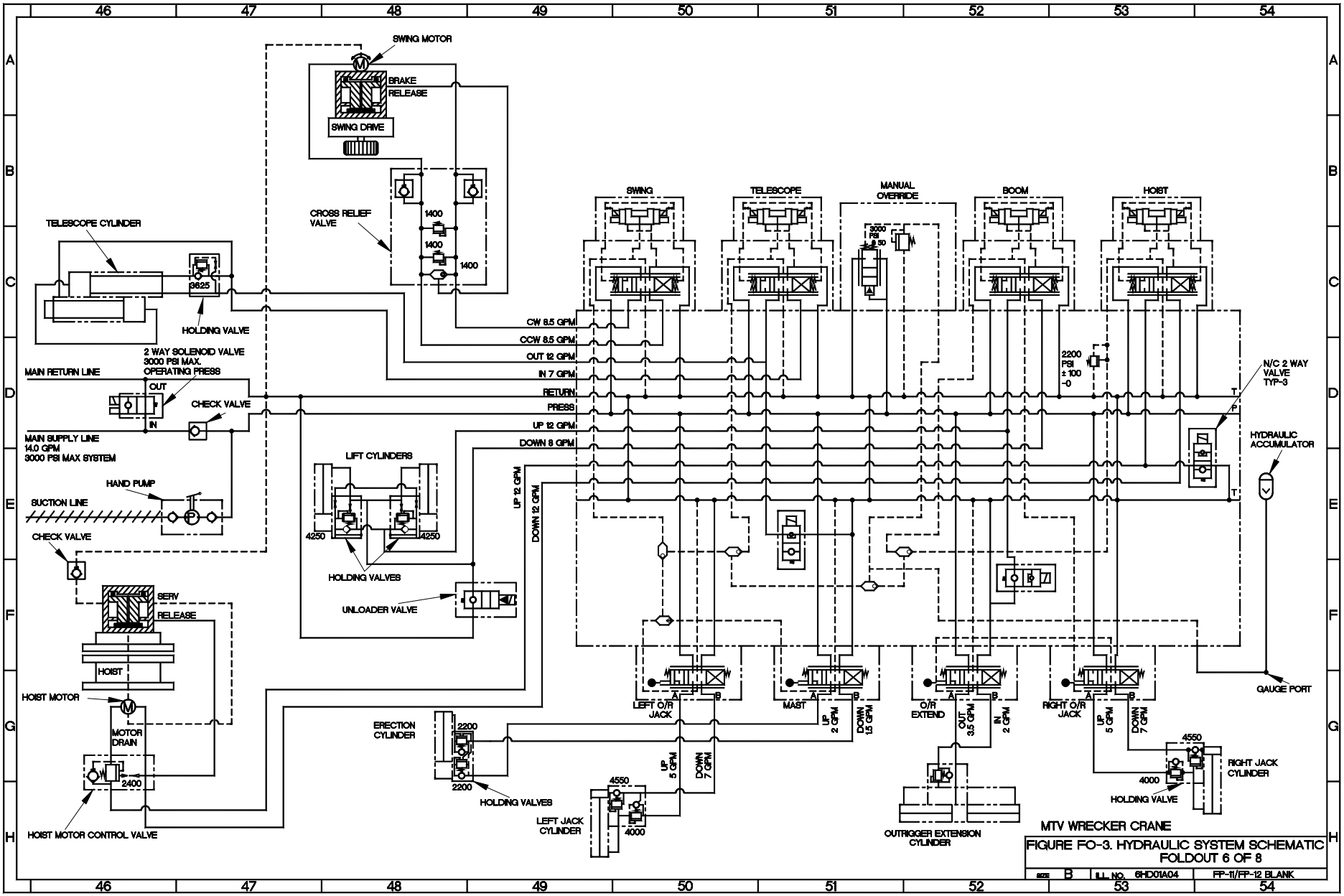
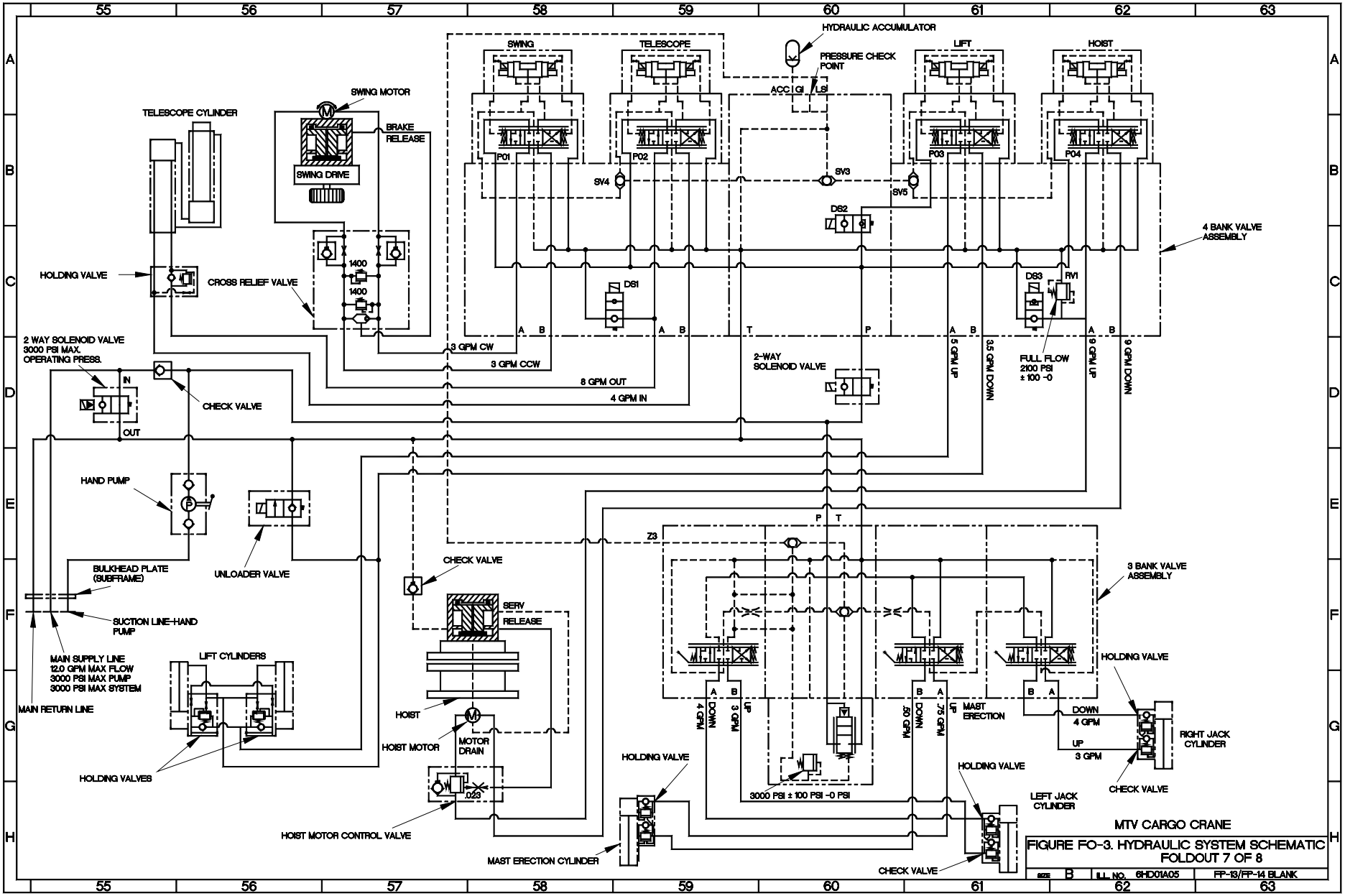
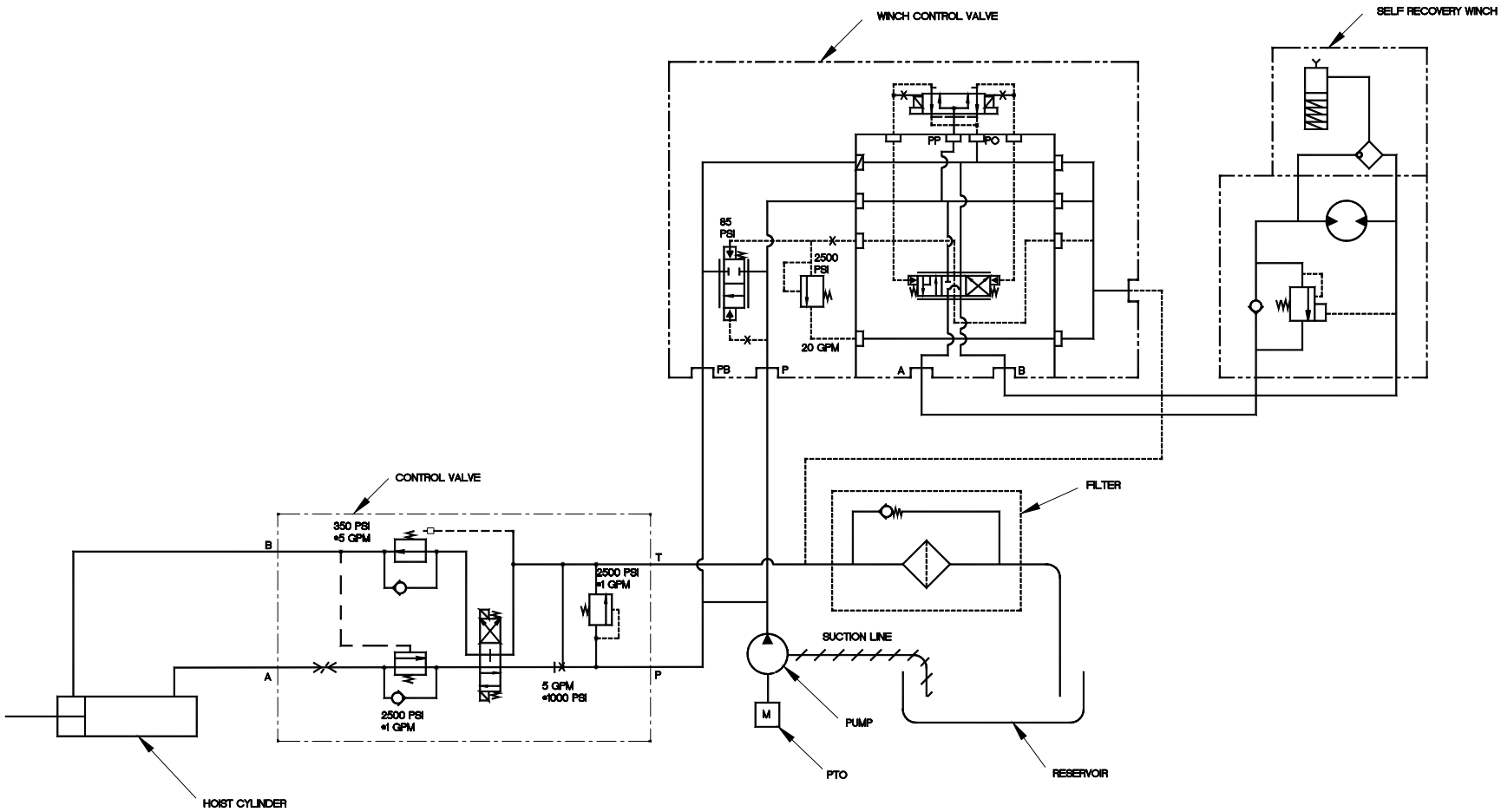


FIGURE FO-3. HYDRAULIC SYSTEM SCHEMATIC
FOLDOUT 6 OF 8

SIZE	ILL. NO.	
B	6HD01A04	FP-11/FP-12 BLANK

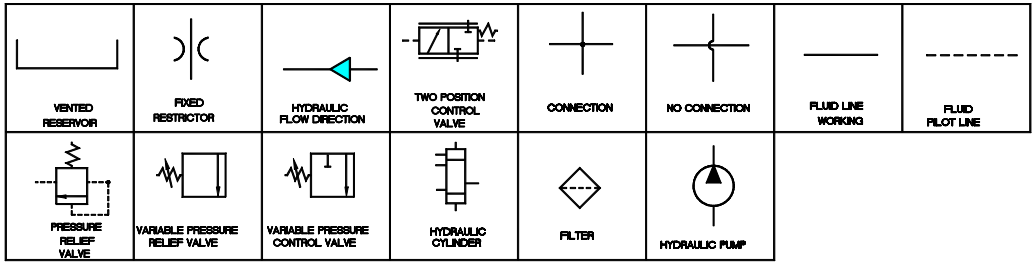

HYDRAULIC ACCUMULATOR
PRESSURE CHECK POINT
SWING
TELESCOPE
LIFT
HOIST
ACC
GI
LS
P01
P02
P03
P04
SV3
SV4
SV5
DS2
DS1
DS3
RV1
4 BANK VALVE ASSEMBLY
SWING MOTOR
BRAKE RELEASE
SWING DRIVE
TELESCOPE CYLINDER
HOLDING VALVE
CROSS RELIEF VALVE
1400
1400
2 WAY SOLENOID VALVE 3000 PSI MAX. OPERATING PRESS.
IN
OUT
CHECK VALVE
3 GPM CW
3 GPM CCW
8 GPM OUT
4 GPM IN
2-WAY SOLENOID VALVE
5 GPM UP
3.5 GPM DOWN
FULL FLOW 2100 PSI ± 100 -0
9 GPM UP
9 GPM DOWN
HAND PUMP
UNLOADER VALVE
BULKHEAD PLATE (SUBFRAME)
SUCTION LINE-HAND PUMP
MAIN SUPPLY LINE 12.0 GPM MAX FLOW 3000 PSI MAX PUMP 3000 PSI MAX SYSTEM
MAIN RETURN LINE
LIFT CYLINDERS
HOLDING VALVES
CHECK VALVE
SERV RELEASE
HOIST
HOIST MOTOR
MOTOR DRAIN
.023
HOIST MOTOR CONTROL VALVE
HOLDING VALVE
MAST ERECTION CYLINDER
Z3
P
T
3 BANK VALVE ASSEMBLY
4 GPM DOWN
3 GPM UP
50 GPM DOWN
75 GPM UP
MAST ERECTION
3000 PSI ± 100 PSI -0 PSI
HOLDING VALVE
DOWN 4 GPM
UP 3 GPM
RIGHT JACK CYLINDER
CHECK VALVE
HOLDING VALVE
LEFT JACK CYLINDER
CHECK VALVE
MTV CARGO CRANE
FIGURE FO-3. HYDRAULIC SYSTEM SCHEMATIC
FOLDOUT 7 OF 8
SIZE B
ILL NO. 6HD01A05
FP-13/FP-14 BLANK



MTV DUMP W/ WINCH
MTV DUMP W/O WINCH

FIGURE FO-3. HYDRAULIC SYSTEM SCHEMATIC
FOLDOUT 8 OF 8

SIZE	ILL NO.	
B	6HD01A06	FP-15/FP-16 BLANK



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

SIZE	ILL. NO.	
B	YSD01AL1	FP-1/FP-2 BLANK

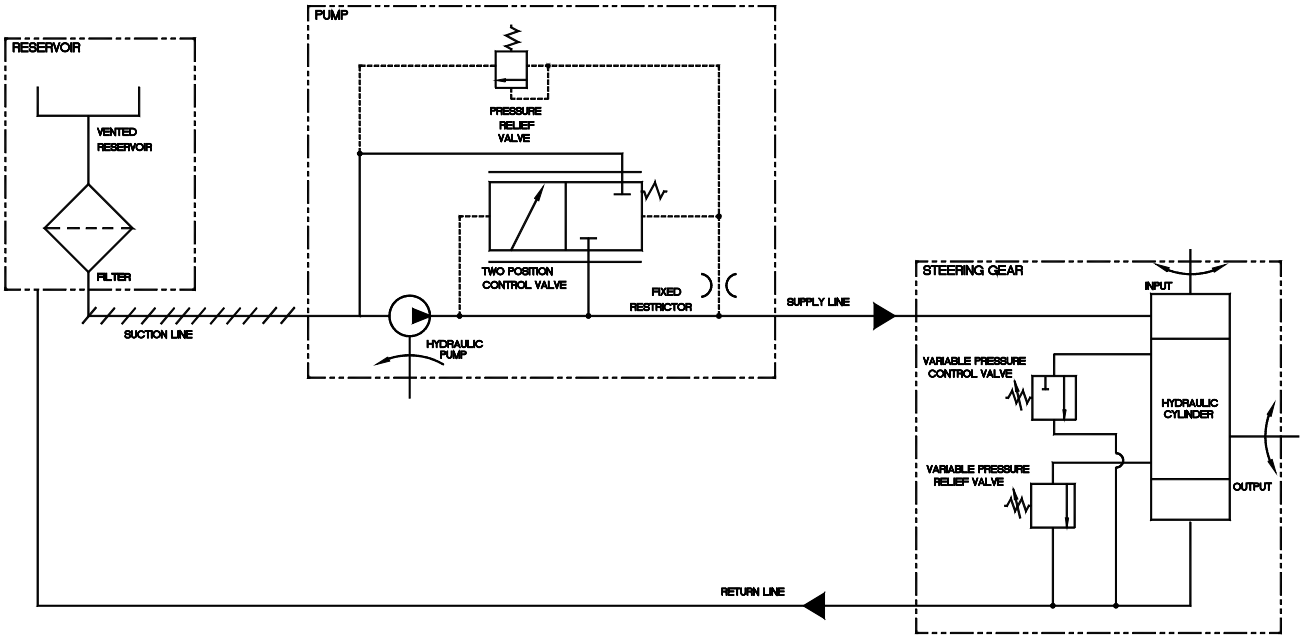


FIGURE FO-4 HYDRAULIC STEERING SYSTEM

FOLDOUT 2 OF 2

SIZE	B	ILL. NO. YSD01A01	FP-3/FP-4 BLANK

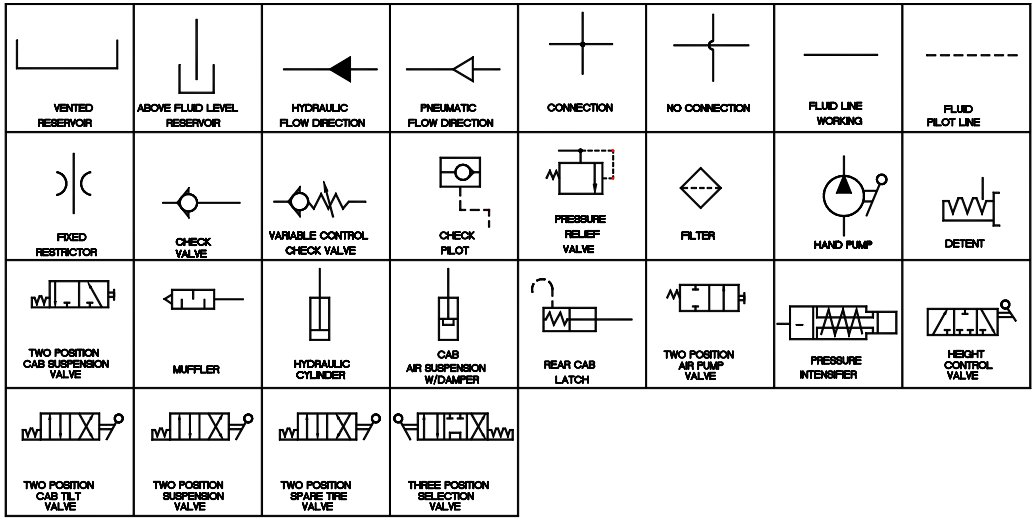


FIGURE F0-5 AIR TRANSPORTABILITY
HYDRAULIC/PNEUMATIC SYSTEM SCHEMATIC
FOLDOUT 1 OF 3

SIZE	ILL. NO.	
B	YAD01AL1	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 FO-5 AIR TRANSPORTABILITY
HYDRAULIC/PNEUMATIC SYSTEM SCHEMATIC
FOLDOUT 2 OF 3

SIZE B | ILL. NO. YAD01AL2 | FP-3/FP-4 BLANK

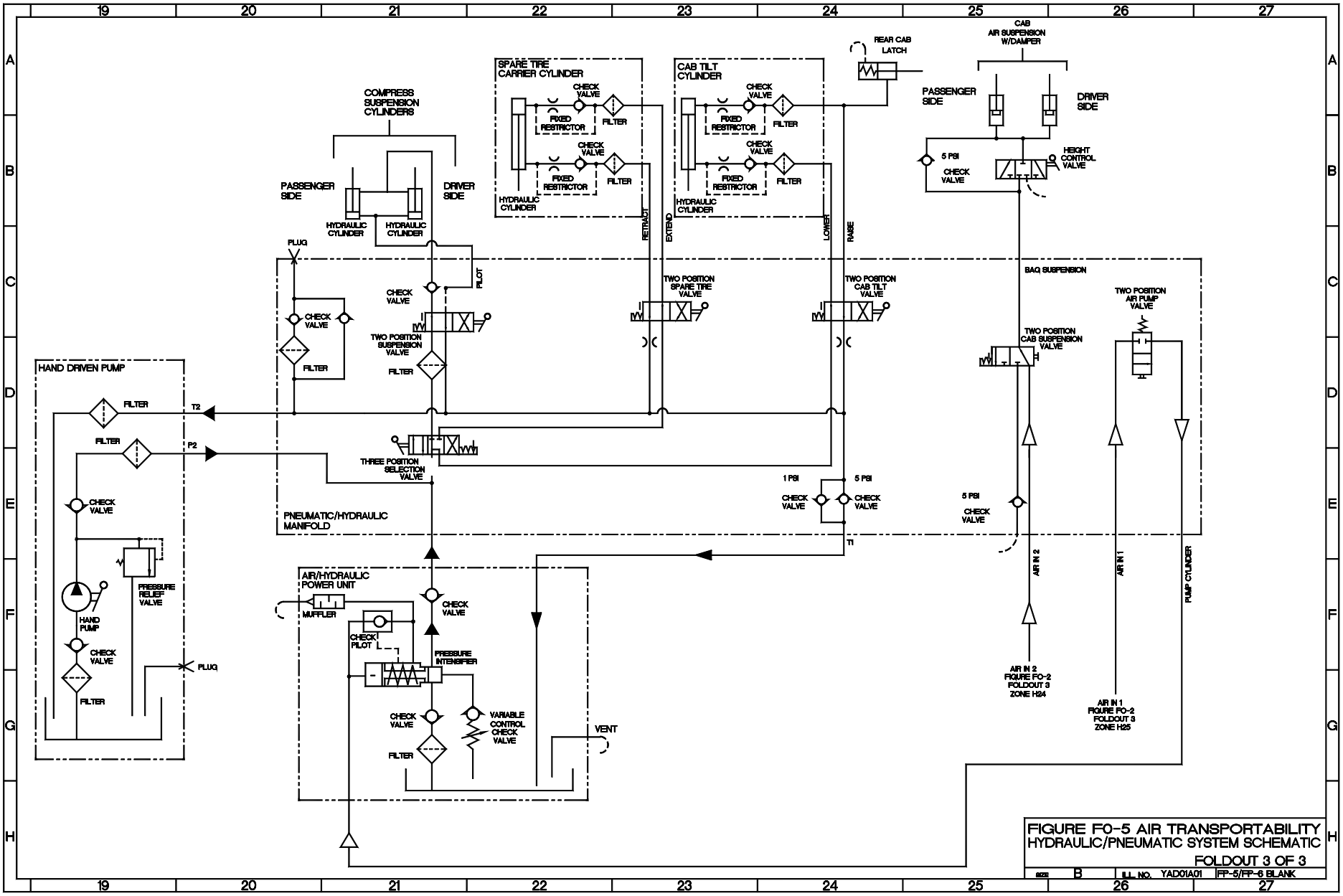


FIGURE FO-5 AIR TRANSPORTABILITY HYDRAULIC/PNEUMATIC SYSTEM SCHEMATIC
FOLDOUT 3 OF 3

SIZE B | ILL NO. YAD01A01 | FP-5/FP-6 BLANK

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

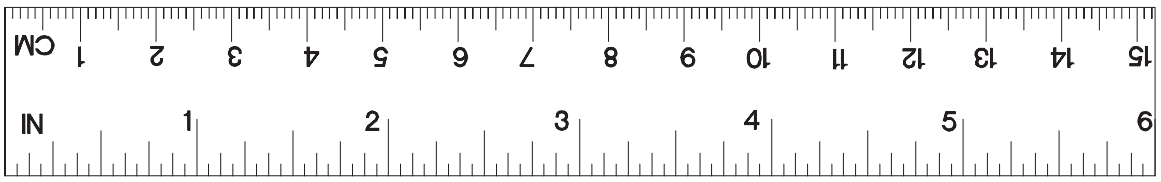
LIQUID MEASURE
1 Milliliter = 0.001 Liters = 0.0338 Fluid Ounces
1 Liter = 1000 Milliliters = 33.82 Fluid Ounces

TEMPERATURE
5/9 (°F - 32) = °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 C° + 32 = F°

APPROXIMATE CONVERSION FACTORS

TO CHANGE	TO	MULTIPLY BY
Inches	Centimeters	2.540
Inches	Millimeters	25.4
Feet	Meters	0.305
Yards	Meters	0.914
Miles	Kilometers	1.609
Square Inches	Square Centimeters	6.451
Square Feet	Square Meters	0.093
Square Yards	Square Meters	0.836
Square Miles	Square Kilometers	2.590
Acres	Square Hectometers	0.405
Cubic Feet	Cubic Meters	0.028
Cubic Yards	Cubic Meters	0.765
Fluid Ounces	Milliliters	29.57
Pints	Liters	0.473
Quarts	Liters	0.946
Gallons	Liters	3.785
Ounces	Grams	28.35
Pounds	Kilograms	0.454
Pounds (force)	Newtons	4.448
Short Tons	Metric Tons	0.907
Pound-Feet	Newton-Meters	1.356
Pounds/Sq Inch	Kilopascals	6.895
Miles per Gallon	Kilometers per Liter	0.425
Miles per Hour	Kilometers per Hour	1.609

TO CHANGE	TO	MULTIPLY BY
Centimeters	Inches	0.394
Millimeters	Inches	0.0394
Meters	Feet	3.280
Meters	Yards	1.094
Kilometers	Miles	0.621
Sq Centimeters	Square Inches	0.155
Square Meters	Square Feet	10.764
Square Meters	Square Yards	1.196
Square Kilometers	Square Miles	0.386
Sq Hectometers	Acres	2.471
Cubic Meters	Cubic Feet	35.315
Cubic Meters	Cubic Yards	1.308
Milliliters	Fluid Ounces	0.034
Liters	Pints	2.113
Liters	Quarts	1.057
Liters	Gallons	0.264
Grams	Ounces	0.035
Kilograms	Pounds	2.205
Newtons	Pounds (force)	0.2248
Metric Tons	Short Tons	1.102
Newton-Meters	Pound-Feet	0.738
Kilopascals	Pounds per Sq Inch	0.145
Km per Liter	Miles per Gallon	2.354
Km per Hour	Miles per Hour	0.621



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