TM 9-2320-391-10*
AIR FORCE TO 36A12-1B-1133-1
***Supersedes copy dated May 2000**

TECHNICAL MANUAL

OPERATOR'S MANUAL FOR THE M1078A1 SERIES 2-½ TON, 4 X 4 LIGHT MEDIUM TACTICAL VEHICLES (LMTV)

MODEL	NSN	EIC
TRK, CAR., LMTV, M1078A1		
W/WN	2320-01-447-3888	BHV
W/O WN	2320-01-447-6343	BHR
TRK., VAN, LMTV, M1079A1		
W/WN	2320-01-447-4933	BHW
W/O WN	2320-01-447-4938	BHS
TRK., CHAS, LMTV, M1080A1	2320-01-447-6345	BHT

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

HEADQUARTERS, DEPARTMENTS OF THE ARMY AND AIR FORCE

NOVEMBER 2004

WARNING SUMMARY

WARNING

CARBON MONOXIDE (EXHAUST GAS) CAN KILL YOU.

Carbon monoxide is a colorless, odorless, DEADLY POISONOUS gas and when breathed deprives body of oxygen and causes SUFFOCATION. Breathing air with carbon monoxide produces symptoms of headache, dizziness, loss of muscular control, a sleepy feeling, and coma. Permanent BRAIN DAMAGE or DEATH can result from severe exposure.

The following precautions MUST be followed to ensure personnel are safe whenever any type of personnel heater or engine is operated for any purpose. Failure to comply may result in serious injury or death to personnel.

DO NOT operate heater or engine in an enclosed area without adequate ventilation.

DO NOT drive any vehicle with inspection plates, cover plates, or engine compartment covers removed unless necessary for maintenance purposes.

NEVER sleep in a vehicle when heater is operating or the engine is idling.

BE ALERT at all times during vehicle operation for exhaust odors and exposure symptoms. If either is present, IMMEDIATELY VENTILATE personnel compartments. Treatment of affected personnel shall be: exposure to fresh air; keep warm; DO NOT PERMIT PHYSICAL EXERCISE. If necessary, give cardiopulmonary resuscitation, as described in FM 21-11, and get immediate medical attention. Failure to comply may result in serious injury or death to personnel.

THE BEST DEFENSE AGAINST CARBON MONOXIDE POISONING IS GOOD VENTILATION.

WARNING

CARBON MONOXIDE (EXHAUST GAS) CAN KILL YOU.

DO NOT operate troopseat heater or engine in an enclosed area without adequate ventilation. NEVER sleep in a vehicle when troopseat heater is operating or the engine is idling. Failure to comply may result in serious injury or death to personnel.

WARNING SUMMARY - Continued

WARNING

Nuclear, Biological, or Chemical (NBC) contaminated air filters must be handled and disposed of only by authorized and trained personnel. The unit commander or senior officer in charge of maintenance personnel must ensure that prescribed protective clothing (FM 3-4) is used, and prescribed safety measures and decontamination procedures (FM 3-5 and TB 700-4) are followed. The unit standard operating procedures describe what personnel are responsible for final disposal of contaminated air filters. Failure to comply may result in serious injury or death 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 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 serious injury to personnel.

WARNING

Do not touch extremely cold metal (below -26°F [-32° C]). Bare skin may freeze to cold metal. Failure to comply may result in injury to personnel.

WARNING

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

WARNING

Never raise cab while occupied or when parked uphill on a steep grade. Failure to comply may result in serious injury or death to personnel.

WARNING

Cab hydraulic latch must be locked before driving vehicle. Failure to comply may result in serious injury or death to personnel or damage to equipment.

WARNING SUMMARY - Continued

WARNING

Do not pull seat belt more than 1 in. (2.54 cm) away from shoulder. Seat belt will not be effective if accident occurs. Failure to comply may result in serious injury or death to personnel.

WARNING

Vehicle must be secure. Chock wheels when stopped on incline. Vehicle may roll downhill. Failure to comply may result in serious injury or death to personnel or damage to equipment.

WARNING

Ensure vehicle is parked on level ground before changing flat tire. Vehicle may roll. Failure to comply may result in serious injury or death to personnel.

WARNING

Both suspension compression plates must be installed on axle studs. Failure to comply may result in serious injury or death to personnel.

WARNING

Wear arctic clothing when cab temperatures fall and remain below 30° F (-1° C). Cold stress preventive measures in FM 31-70 should be applied when vehicle cab temperatures fall and remain below 30° F (-1° C). Failure to comply may result in serious injury or death to personnel.

WARNING

Engine compartment and accessories may be extremely hot when engine is running or has been running recently. Use caution around engine when cab is raised. Failure to comply may result in injury to personnel.

WARNING

Ensure engine oil is cool before performing any maintenance. Failure to comply may result in serious injury to personnel.

WARNING SUMMARY - Continued

WARNING

Engine compartment contains a partially exposed fan blade. Use extreme caution around front of engine. Failure to comply may result in injury to personnel.

WARNING

Cargo cover weighs approximately 60 lbs (27 kgs). Arctic cargo cover weighs approximately 100 lbs (45 kgs). An assistant is required to lift cargo cover. Failure to comply may result in injury to personnel or damage to equipment.

WARNING

Ensure both doors are securely closed before cab is raised. Do not allow personnel near cab when cab is being raised. Cab doors could open. Failure to comply may result in serious injury or death to personnel or damage to equipment.

WARNING

Ensure both doors are securely closed before cab is lowered. Do not allow personnel near cab when cab is being lowered. Cab doors could open. Failure to comply may result in serious injury or death to personnel or damage to equipment.

WARNING

Ensure safety strap is fastened across back and front of vehicle before transporting troops. Failure to comply may result in serious injury or death to personnel.

WARNING

Data and instruction plates given below must be followed at all times to safely operate vehicle. Failure to comply may result in injury to personnel or damage to equipment.

WARNING

Do not drive vehicle until windshield is sufficiently clear of frost/ice. Failure to comply may result in severe injury or death to personnel.

WARNING SUMMARY - Continued

WARNING

Tire weighs approximately 350 lbs (159 kgs). If treads of tire catch on tool box during lowering, raise tire and pull tire away from tool box and continue lowering. Use extreme care when lowering or handling tire. Failure to comply may result in injury to personnel.

WARNING

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

WARNING

Place hydraulic jack on flat surface. Do not allow personnel under vehicle when jacking. Failure to comply may result in serious injury or death to personnel.

WARNING

Handle tire with care. Tire may have exposed broken metal cords or sharp debris in it. Failure to comply may result in injury to personnel.

WARNING

Use caution when inflating tire. Over inflation may cause tire to blow apart. Failure to comply may result in serious injury or death to personnel or damage to equipment.

WARNING

Wheels must be chocked and service brakes applied before parking brake is released. Vehicle may roll if wheels are not chocked. Failure to comply may result in serious injury or death to personnel.

WARNING

All cleaning procedures must be accomplished in well-ventilated areas. Failure to comply may result in injury to personnel or damage to equipment.

WARNING SUMMARY - Continued

WARNING

Protective gloves, clothing, and/or respiratory equipment must be worn whenever caustic, toxic, or flammable cleaning solutions are used. Failure to comply may result in injury to personnel.

WARNING

A fire extinguisher must be available and ready during all cleaning operations involving solvents. Failure to comply may result in injury to personnel or damage to equipment.

WARNING

Ensure tires have correct tire pressure for terrain conditions and driving speed (refer to table 1 Cold Tire Inflation Pressure and Restrictions). Failure to comply may result in serious injury or death to personnel.

WARNING

Lead-acid battery gases can explode. Do not smoke, have open flames, or make sparks around a battery, especially if caps are off. Battery may give off gas which can explode. Failure to comply may result in serious injury or death 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 breath vapors. Keep away from heat or flame. Never smoke when using Dry Cleaning Solvent; the flashpoint for Type I Dry Cleaning Solvent is 100° F (38° C) and for Type II is 138° F (50° C). Failure to comply may result in serious injury or death to personnel.

WARNING

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 medical attention. Failure to comply may result in serious injury or death to personnel.

WARNING SUMMARY - Continued

WARNING

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

WARNING

Do not back up vehicle without an assistant. Operator has limited vision while backing vehicle. Failure to comply may result in serious injury or death to personnel or damage to equipment.

WARNING

Remove rings, bracelets, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry may catch on equipment or may short across an electrical circuit or battery terminal. Failure to comply may result in serious injury or death to personnel.

WARNING

Do not smoke, have open flame, or make sparks near batteries when starting vehicle. Batteries can explode. Failure to comply may result in serious injury or death to personnel.

WARNING

Ensure master power switch on both vehicles is turned off before connecting NATO Power cable. Vehicles must not touch each other. 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 fuel 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 SUMMARY - Continued

WARNING

Do not perform fuel/water separator checks, inspections, or draining while smoking, or when near fire or sparks. Fuel could ignite. Failure to comply may result in serious injury or death to personnel.

WARNING

Gasoline is highly flammable. Do not operate swingfire heater while filling gas tank. Do not smoke or have open fires within 25 ft (7.6 m) of area while filling gas tank. Failure to comply may result in serious injury or death to personnel.

WARNING

Allow swingfire heater to cool down before draining gasoline from swingfire heater gas tank. Failure to comply may result in serious injury or death to personnel.

WARNING

Diesel fuel or gasoline must never be used for cleaning. Failure to comply may result in injury to personnel or damage to equipment.

WARNING

Exhaust fumes from swingfire heater are poisonous. Do not operate swingfire heater in a closed room. Ensure adequate ventilation is available. If personnel become dizzy, seek immediate medical attention. Failure to comply may result in serious injury or death to personnel.

WARNING

Operating in water or mud causes brake linings to get wet and can impair vehicle braking. Dry brakes by driving vehicle about 500 ft (153 m) while applying service brakes often. If adequate braking is not restored by drying brakes, notify Unit Maintenance. Failure to comply may result in injury to personnel or damage to equipment.

WARNING SUMMARY - Continued

WARNING

Rear axle service brakes will not operate if REAR BRAKE AIR pressure gage reads below 75 psi (517 kPa). Rear axle braking will be provided by rear spring brakes for a limited time. Allow greater stopping distance. Discontinue vehicle operation as soon as possible. Failure to comply may result in serious injury or death to personnel.

WARNING

Front axle service brakes will not operate if FRONT BRAKE AIR pressure gage reads below 75 psi (517 kPa). Allow greater stopping distance. Discontinue vehicle operation as soon as possible. Failure to comply may result in serious injury or death to personnel.

WARNING

Notify Unit Maintenance that lugnuts need to be tightened to 415-475 lb-ft (563-644 N·m) as soon as possible. Wheel may come loose if lugnuts are not tightened to proper torque. Failure to comply may result in serious injury or death to personnel.

WARNING

Bridges along your route may be marked with a class number. The bridge class number shows the safe capacity of the bridge. If the bridge class number on your vehicle is equal to or less than the bridge class number, the bridge will hold your vehicle. If the bridge class number on your vehicle is greater than the bridge class number, DO NOT CROSS BRIDGE. Failure to comply may result in serious injury or death to personnel or damage to equipment.

WARNING

Vehicle speed should be reduced to 5-10 mph (8-16 km/h) during blackout conditions. Failure to comply may result in serious injury or death to personnel.

WARNING

Do not engage engine exhaust brake feature in icy or slippery conditions. Failure to comply may result in injury to personnel or damage to equipment.

WARNING SUMMARY - Continued

WARNING

Do not press brake pedal hard three or four times in a row. Air supply will be used up and service brakes will not work until air pressure builds up again. Do not operate vehicle until FRONT and REAR BRAKE AIR pressure reaches at least 100 psi (690 kPa). Failure to comply may result in serious injury or death to personnel or damage to equipment.

WARNING

Transmission incorporates a hold feature to prohibit upshifting above selected gear during normal driving. However, during downhill operation, transmission may upshift above selected gear. On downgrades, vehicle speed may need to be restricted by using service brakes. Failure to comply may result in serious injury or death to personnel or damage to equipment.

WARNING

Avoid driving diagonally across a hill. Vehicle could roll over. Failure to comply may result in serious injury or death to personnel or damage to equipment.

WARNING

Do not straddle or drive on sides of sand mounds. Loose sand will not support vehicle on steep slopes. Avoid driving diagonally across a hill. Vehicle may roll over. Failure to comply may result in serious injury or death to personnel or damage to equipment.

WARNING

Ensure that engine is not running before disconnecting circuit breaker box NATO connector from vehicle NATO connector. Failure to comply may result in injury or death to personnel.

WARNING

Towing vehicle and disabled vehicle must have parking brakes applied before connecting/disconnecting towbar. Vehicles may roll into each other. Failure to comply may result in serious injury or death to personnel.

WARNING SUMMARY - Continued

WARNING

Towbar weighs approximately 100 lbs (45 kgs) and requires two or more personnel to carry. Failure to comply may result in injury to personnel.

WARNING

Do not place hands near pintle hook when connecting/disconnecting towbar from pintle hook. Failure to comply may result in injury to personnel.

WARNING

Personnel must not occupy towed vehicle during towing operation. Towed vehicle may become disconnected while being towed. Failure to comply may result in serious injury or death to personnel.

WARNING

Ground guide is required to guide vehicle backing up. Failure to comply may result in injury to personnel or damage to equipment.

WARNING

Wear heavy leather-palmed work gloves when handling cable. Cables can become frayed or contain broken wires. Never let moving cable slide through hands, even when wearing gloves. Failure to comply may result in injury to personnel.

WARNING

Listen for air leaks coming from the connections at the SERVICE and EMERGENCY gladhands. Failure to comply may result in serious injury or death to personnel or damage to equipment.

WARNING

There must always be at least five wraps of cable on 11K Self-Recovery Winch (SRW). If load is applied with less than five wraps of cable on 11K SRW, cable may come loose on drum. Failure to comply may result in serious injury or death to personnel.

WARNING SUMMARY - Continued

WARNING

Keep all personnel clear of area when tension is on 11K Self-Recovery Winch (SRW) cable. Failure to comply may result in serious injury or death to personnel.

WARNING

Ensure line pull does not exceed capacity of 11K Self-Recovery Winch (SRW). Failure to comply may result in serious injury or death to personnel.

WARNING

Do not overfill coolant reservoir. Overfilling coolant reservoir will not allow enough space for coolant to expand during troopseat heater operation. Failure to comply may result in injury to personnel or damage to personnel.

WARNING

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

WARNING

Ground rod must be driven into ground 18-24 in. (46-61 cm) and ground cable connected to the chassis before power can be taken from outside source or equipment operated inside van. Failure to comply may result in serious injury or death to personnel or damage to equipment.

WARNING

Ensure that ground cable terminal makes good metal-to-metal contact with bare metal on van body. If required scrape contact area clean of dirt, paint, or rust. Failure to comply may result in serious injury or death to personnel or damage to equipment.

WARNING

Cargo bed is approximately 5 ft (1.5 m) above ground level. Use care during any Light Material Handling Crane (LMHC) operation. Failure to comply may result in injury or death to personnel.

WARNING SUMMARY - Continued

WARNING

Ensure that wheels are chocked prior to setting up Light Material Handling Crane (LMHC). Failure to comply may result in injury to personnel.

WARNING

Power cable must be connected to Light Material Handling Crane (LMHC) before being connected to circuit breaker box. Failure to comply may result in serious injury or death to personnel.

WARNING

Ensure that engine is shut down before connecting power cable at vehicle NATO connector. Failure to comply may result in injury or death to personnel.

WARNING

Determine required Light Material Handling Crane (LMHC) settings prior to raising boom. Failure to comply may result in injury to personnel or damage to equipment.

WARNING

Ensure that ground cable terminal makes good metal-to-metal contact with bare metal on van body. If required, scrape contact area clean of dirt, paint, or rust. Failure to comply may result in injury or death to personnel or damage to equipment.

WARNING

Power source must be turned off before disconnecting power cable. Failure to comply may result in injury to personnel or damage to equipment.

WARNING

Light Material Handling Crane (LMHC) boom and winch weighs approximately 110 lbs (50 kgs). The aid of an assistant is required to remove LMHC boom and winch. Failure to comply may result in injury to personnel.

WARNING SUMMARY - Continued

WARNING

Light Material Handling Crane (LMHC) mast weighs approximately 110 lbs (50 kgs). Use the aid of an assistant to remove mast from cargo bed pocket. Failure to comply may result in injury to personnel.

WARNING

Light Material Handling Crane (LMHC) mast weighs approximately 110 lbs (50 kgs). Use the aid of an assistant to install mast from cargo bed pocket. Failure to comply may result in injury to personnel.

WARNING

Light Material Handling Crane (LMHC) boom and winch weighs approximately 110 lbs (50 kgs). The aid of an assistant is required to install LMHC boom and winch. Failure to comply may result in injury to personnel.

WARNING

Heavy objects/loads, such as tool boxes and heavy parts, must always be carried on the floor with the weight distributed as equally as possible between left and right sides of M1079A1 van. Failure to comply decreases the stability of the M1079A1 van and will increase the likelihood of a rollover.

WARNING

Heavy cabinets must always be mounted as low as possible with the weight distributed as equally as possible between left and right sides of M1079A1 van. Remember to consider the weight of the items that will be stored in the cabinets. Failure to comply decreases the stability of the M1079A1 van and will increase the likelihood of a rollover.

WARNING

Always keep in mind, when placing items inside the M1079A1 van, that heavier items must always be positioned as low as possible and the weight distributed as equally as possible between left and right sides of M1079A1 van. Failure to comply decreases the stability of the M1079A1 van and will increase the likelihood of a rollover.

WARNING SUMMARY - Continued

WARNING

Determine required Light Material Handling Crane (LMHC) settings prior to telescoping boom. Failure to comply may result in injury to personnel or damage to equipment.

WARNING

Do not remove ladder through top slots of bracket. Failure to comply may result in serious injury to personnel.

WARNING

Extreme care should be taken when removing radiator cap if WATER TEMP gage reads above 180° F (82° C). Contact with steam or hot coolant under pressure may result. Failure to comply may result in injury to personnel.

WARNING

Gasoline is highly flammable. Do not smoke or have open flames within 25 feet of area when draining tank. Failure to comply may result in serious injury or death to personnel.

WARNING

Do not exceed maximum vehicle speed and grade limitations during normal operations. Do not exceed maximum approach or departure angles or ford water greater than maximum depth. Failure to comply may result in serious injury or death to personnel or damage to equipment.

WARNING

When operating the vehicle in snowy or icy conditions, apply the brake pedal momentarily, every few miles. This will ensure that brake linings do not become encrusted with snow or ice. Failure to comply may result in injury to personnel or damage to equipment.

WARNING SUMMARY - Continued

WARNING

Operate vehicle at high idle (1350 rpm) until coolant temperature is 165° F (74° C) and windshield is sufficiently clear of frost/ice. Failure to comply may cause serious injury to personnel or may result in damage to equipment.

WARNING

Vehicle Operator and all crew members must wear properly fitted and approved hearing protection devices when operating any FMTV at speeds of 40 mph (64 km/h) and above. Failure to comply may result in injury to personnel.

WARNING

All personnel working within 12 ft (3.5 m) of an operating M1079A1 Van must wear properly fitted and approved hearing protection devices. Failure to comply may result in injury to personnel.

WARNING

Personnel firing M240/M2HB machine gun or Mark 19 grenade launcher from an FMTV vehicle during training exercises must be wearing properly fitted an approved hearing protection devices. Failure to comply may result in injury to personnel.

WARNING

All personnel within 180 ft (55 m) of weapons being fired from an FMTV vehicle during training exercises must be wearing properly fitted and approved hearing protection devices. Failure to comply may result in injury to personnel.

WARNING

When mission requires the vehicle Operator and crew to remain in a stationary FMTV vehicle with the engine running in outside temperatures above 90° F (32° C), vehicle Operator and crew must observe proper safety precautions to prevent heat stress injury. Refer to FM 21-10 Field Hygiene and Sanitation, and FM 21-11 First Aid for Soldiers for proper precautions and preventive measures. Failure to comply may result in injury to personnel.

WARNING SUMMARY - Continued

WARNING

When mission requires the vehicle Operator and crew to operate the FMTV vehicle in outside temperatures above 90° F (32° C) with the windows closed, vehicle Operator and crew must observe proper safety precautions to prevent heat stress injury. Refer to FM 21-10 Field Hygiene and Sanitation, and FM 21-11 First Aid for Soldiers for proper precautions and preventive measures. Failure to comply may result in injury to personnel.

WARNING

Do not flat tow a fully loaded MTV and trailer combination. The FMTV Wrecker towbar can be damaged if weight capacity is exceeded. Failure to comply may result in serious injury or death to personnel or damage to equipment.

WARNING

When towing a vehicle with nonfunctional brakes, use extreme caution and reduce/adjust speed accordingly. Failure to comply may result in serious injury or death to personnel or damage to equipment.

WARNING

Vehicles S/N 18,548 or higher are equipped with a Load and Battery Control Device (LBCD). LBCD have internal capacitors, which must be discharged prior to maintenance or troubleshooting procedures being performed. Failure to comply may result in damage to equipment or injury to personnel.

WARNING

Do not operate vehicle if radiator cap is damaged or missing. Failure to comply will result in injury to personnel or damage to equipment.

INSET LATEST UPDATED PAGES/WORK PACKAGES, DESTROY SUPERSEDED DATA

LIST OF EFFECTIVE PAGES / WORK PACKAGES

NOTE: The portion of text affected by the updates is indicated by a vertical line in the outer margins of the page. Updates to illustrations are indicated by miniature pointing hands. Updates to wiring diagrams are indicated by shaded areas.

Dates of issue for original and updated pages / work packages are:

Original ..0..31 May 2000
Revision ..A 1 November 2004

TOTAL NUMBER OF PAGES FOR FRONT AND REAR MATTER IS 88 AND TOTAL NUMBER OF WORK PACKAGES IS 99 CONSISTING OF THE FOLLOWING

Page / WP	*Change No.
Cover (Back Blank)	0
A to q (Back Blank)	0
A (B Blank)	0
Title (Back Blank)	0
i to v (iv Blank)	0
Chapter 1 Cover (Back Blank)	0
WP 0001 to WP 00016	0
WP 0016 01	0
WP 0017 to WP 0091	0
WP 0091 01	0
WP 0092 to WP 0097	0
Index 1 to 54 Blank	0
Metric Chart (Back Blank)	0
Authentication	0
Back Cover	0

*Zero in this column indicates an original page or work package.

TM 9-2320-391-10

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., 1 November 2004

TECHNICAL MANUAL
OPERATOR'S MANUAL
THE M1078A1 SERIES 2-½ TON, 4 X 4
LIGHT MEDIUM TACTICAL VEHICLES (LMTV)

MODEL	NSN	EIC
TRK, CAR., LMTV, M1078A1		
W/WN	2320-01-447-3888	BHV
W/O WN	2320-01-447-6343	BHR
TRK., VAN, LMTV, M1079A1		
W/WN	2320-01-447-4933	BHW
W/O WN	2320-01-447-4938	BHS
TRK., CHAS, LMTV, M1080A1	2320-01-447-6345	BHT

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this publication. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Submit your DA Form 2028 (Recommended Changes to Equipment Technical Publications), through the Internet, on the Army Electronic Product Support (AEPS) website. The Internet address is http://aeps.ria.army.mil. If you need a password, scroll down and click on "ACCESS REQUEST FORM". The DA Form 2028 is located in the ONLINE FORMS PROCESSING section of the AEPS. Fill out the form and click on SUBMIT. Using this form on the AEPS will enable us to respond quicker to your comments and better manage the DA Form 2028 program. You may also mail, fax or email your letter DA Form 2028, direct to: AMSTA-LC-CI/TECH PUBS, TACOM-R1, 1 Rock Island, IL 61299-7630. The email address is TACOM-TECH-PUBS@ria.army.mil. The fax number is DSN 793-0726 or Commercial (309) 782-0726.

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

TABLE OF CONTENTS

WP Sequence No.

WARNING SUMMARY ..... a

HOW TO USE THIS MANUAL iv

CHAPTER 1 - INTRODUCTORY INFORMATION WITH THEORY OF OPERATION FOR THE M1078A1 SERIES VEHICLES

M1078A1 Series General Information ..... WP 0001 00
M1078A1 Series Equipment Description and Data ..... WP 0002 00
M1078A1 Series Theory of Operation ..... WP 0003 00

CHAPTER 2 - OPERATING INSTRUCTIONS FOR THE M1078A1 SERIES VEHICLES

Controls and Indicators Work Packages

Instrument Panel Controls and Indicators ..... WP 0004 00
Auxiliary Panel Controls and Indicators ..... WP 0005 00
Center Console Controls and Indicators ..... WP 0006 00
Steering Column Controls ..... WP 0007 00
Floor-Mounted Controls ..... WP 0008 00
Door-Mounted Controls ..... WP 0009 00
Seat Controls ..... WP 0010 00
Exterior Controls and Indicators ..... WP 0011 00
Special Purpose Kit Controls and Indicators ..... WP 0012 00
M1079A1 Van Controls ..... WP 0013 00

Operation Under Usual Conditions Work Packages

M1079A1 Van Preparation for Movement ..... WP 0014 00
Preparation for Use ..... WP 0015 00
Vehicle Operation (Vehicles S/N 18,549 or lower) ..... WP 0016 00
Vehicle Operation (Vehicles S/N 18,550 or higher) ..... WP 0016 01
Raising/Lowering Cab ..... WP 0017 00
Central Tire Inflation System (CTIS) Operation ..... WP 0018 00
Light Material Handling Crane (LMHC) Operation ..... WP 0019 00
Heater/Defroster Operation ..... WP 0020 00
Ladder, Side Panels, and Stakes Operation ..... WP 0021 00
Cargo Cover Kit Installation/Removal ..... WP 0022 00
Cargo Cover Flap Operation ..... WP 0023 00
Troopseat Kit Lowering/Raising ..... WP 0024 00
M1079A1 Van Ladder Mounting/Stowing ..... WP 0025 00
M1079A1 Van Doors Opening/Closing ..... WP 0026 00
M1079A1 Van AC Power Connecting/Disconnecting ..... WP 0027 00
M1079A1 Van Window Operation ..... WP 0028 00
M1079A1 Van Lighting ..... WP 0029 00
M1079A1 Van Fan Operation ..... WP 0030 00
M1079A1 Van 24 VDC Binding Post Operation ..... WP 0031 00

WP Sequence No.

Operation Under Usual Conditions Work Packages – Continued

M1079A1 Van Field Phone Binding Post Operation ..... WP 0032 00
M1079A1 Van 12/24 VDC Power Connection/Disconnection ..... WP 0033 00
M1079A1 Van Air Conditioner/Heater Operation ..... WP 0034 00
Back-up Hydraulic Pump Operation ..... WP 0035 00
Data and Instruction Plates ..... WP 0036 00
Auxiliary Equipment Operation ..... WP 0037 00

Operation Under Unusual Conditions Work Packages

Operation in Extreme Heat ..... WP 0038 00
Operation in Extreme Dust ..... WP 0039 00
Operation in Forest or on Rocky Terrain ..... WP 0040 00
Operation in Sand or Mud ..... WP 0041 00
Operation in Desert Environment ..... WP 0042 00
Vehicle Operation in Cold Environment 32° F to -25° F (0° C to -32° C) ..... WP 0043 00
Arctic Start from -26° F to -50° F (-32°C to -46°C) Operation ..... WP 0044 00
Vehicle Operation in Extreme Cold Environment -26° F to -65° F (-32° C to -54° C) ..... WP 0045 00
Cab Arctic Heater Operation ..... WP 0046 00
Cargo Area Arctic Heater Operation ..... WP 0047 00
Preparation for Internal Air Transport, Highway or Rail Shipment ..... WP 0048 00
Fire Extinguisher Operation ..... WP 0049 00
Highway Emergency Marker Kit Setup ..... WP 0050 00
Towbar Connection/Disconnection ..... WP 0051 00
Towing Disabled Vehicle ..... WP 0052 00
11K Self-Recovery Winch (SRW) Operation ..... WP 0053 00
Emergency Procedures ..... WP 0054 00
Preparation for Machine Gun Operation ..... WP 0055 00
Amber Warning Light Kit Installation/Removal ..... WP 0056 00
Starting on Hill Operation ..... WP 0057 00
Tire Chains Installation/Removal ..... WP 0058 00

CHAPTER 3 - TROUBLESHOOTING PROCEDURES FOR THE M1078A1 SERIES VEHICLES

Troubleshooting Introduction WP 0059 00
Malfunction/Symptom Index WP 0060 00

Troubleshooting Procedure Work Packages

Engine System Troubleshooting WP 0061 00
Fuel System Troubleshooting WP 0062 00
Exhaust System Troubleshooting WP 0063 00
Cooling System Troubleshooting WP 0064 00
Electrical System Troubleshooting WP 0065 00
Transmission System Troubleshooting WP 0066 00
Propeller Shaft Troubleshooting WP 0067 00
Power Take-Off (PTO) Troubleshooting WP 0068 00
Brake System Troubleshooting WP 0069 00
Air System Troubleshooting WP 0070 00

WP Sequence No.

Troubleshooting Procedure Work Packages - Continued

Wheel Troubleshooting ..... WP 0071 00
Hydraulic System Troubleshooting ..... WP 0072 00
Central Tire Inflation System (CTIS) Troubleshooting ..... WP 0073 00
Axle Troubleshooting ..... WP 0074 00
Steering System Troubleshooting ..... WP 0075 00
Suspension System Troubleshooting ..... WP 0076 00
11K Self-Recovery Winch (SRW) System Troubleshooting ..... WP 0077 00
Steering Hydraulic System Troubleshooting ..... WP 0078 00
Air Transport System Troubleshooting ..... WP 0079 00
Special Purpose Kits Troubleshooting ..... WP 0080 00
Cab Tilt and Spare Tire Retainer Troubleshooting ..... WP 0081 00
Frame Troubleshooting ..... WP 0082 00

CHAPTER 4 - PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) AND MAINTENANCE INSTRUCTIONS FOR THE M1078A1 SERIES VEHICLES

PMCS Work Package

M1078A1 Series Preventive Maintenance Checks and Services (PMCS) ..... WP 0083 00

Maintenance Work Packages

Maintenance Introduction ..... WP 0084 00
Changing Tire ..... WP 0085 00
Servicing Tires ..... WP 0086 00
Cleaning Vehicle ..... WP 0087 00
Opening Battery Box/Testing Batteries ..... WP 0088 00
Servicing Air Filter (Emergency Procedure) ..... WP 0089 00
Troopseat Kit Installation/Removal ..... WP 0090 00
Power Distribution Panel (PDP) Cover Removal/Installation ..... WP 0091 00
Bumperette Kit Installation/Removal ..... WP 0091 01
Rear Spring Brake Caging ..... WP 0092 00

CHAPTER 5 - SUPPORTING INFORMATION FOR THE M1078A1 SERIES VEHICLES

References ..... WP 0093 00
Components of End Item (COEI) and Basic Issue Items (BII) Lists ..... WP 0094 00
Additional Authorization List (AAL) ..... WP 0095 00
Expendable and Durable Items List ..... WP 0096 00
Stowage Location/Decal/Stencil Guide ..... WP 0097 00

Subject Index 1

HOW TO USE THIS MANUAL

OVERVIEW

This Technical Manual (TM) is provided to help you operate and maintain the Light Medium Tactical Vehicles (LMTV). It is divided into the following major sections in order of appearance:

Front Cover. Provides information about the type of manual and vehicle models covered by the TM.

Warning Summary. Provides a summary of all warnings that apply throughout the manual. Read all WARNINGS and CAUTIONS before performing any operation, troubleshooting, or maintenance procedures.

Table of Contents. Lists the Chapters, Work Packages, and Alphabetical Index in order of appearance.

Chapter 1, Introductory Information with Theory of Operation for M1078A1 Series Vehicles. Describes the LMTV and provides equipment data.

Chapter 2, Operating Instructions for M1078A1 Series Vehicles. Describes operator's controls and indicators, and operating instructions.

Chapter 3, Troubleshooting Procedures for M1078A1 Series Vehicles. Provides instructions for troubleshooting problems with the LMTV.

Chapter 4, Preventive Maintenance Checks and Services (PMCS) and Maintenance Instructions for M1078A1 Series Vehicles. Provides instructions for Operator maintenance.

Chapter 5, Supporting Information for M1078A1 Series Vehicles. Contains information about references, Components of End Items (COEI) and Basic Issue Items (BII) lists, Additional Authorization List (AAL), Expendable and Durable Items List, and Stowage and Decal/Data Plate Guide.

Subject Index. Lists important subjects contained in this TM in alphabetical order. It also gives the work package and page numbers where each subject is located.

FINDING INFORMATION

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

Table of Contents. Lists Chapters, Sections, and Indexes with Work Package Numbers in order of appearance.

HOW TO USE THIS MANUAL - Continued

FINDING INFORMATION - Continued

Malfunction/Symptom Index. Lists malfunctions contained in Troubleshooting with Work Package Numbers in order of appearance.

Alphabetical (Subject) Index. Lists all important topics, in alphabetical order, with Work Package and page numbers.

TROUBLESHOOTING

Troubleshooting is contained in Chapter 3. When you have a problem with the operation of your equipment, look at Malfunction/Symptom Index in WP 0060 00. Find the malfunction in the Index. Turn to the Work Package listed for the malfunction. Perform the steps required to correct the malfunction. If you cannot find the malfunction, or the malfunction is not corrected, notify Unit Maintenance.

OPERATION AND MAINTENANCE

Operation. Before you operate the LMTV, familiarize yourself with the controls and indicators (Chapter 2, WP 0004 00 through WP 0013 00). Perform your BEFORE preventive maintenance (Chapter 4, WP 0083 00, Table 1). Read the operating instructions contained in Chapter 2, WP 0014 00 through WP 0058 00. Always follow WARNINGS and CAUTIONS. During operation, perform your DURING preventive maintenance (WP 0083 00, Table 2). Perform your AFTER preventive maintenance after operation (WP 0083 00, Table 3).

Maintenance. When you perform maintenance, look over the entire procedure before starting. Make sure you have the necessary tools and materials at hand. Always observe WARNINGS and CAUTIONS.

CHAPTER 1

INTRODUCTORY INFORMATION WITH THEORY OF OPERATION FOR THE M1078A1 SERIES VEHICLES

M1078A1 SERIES GENERAL INFORMATION 0001 00

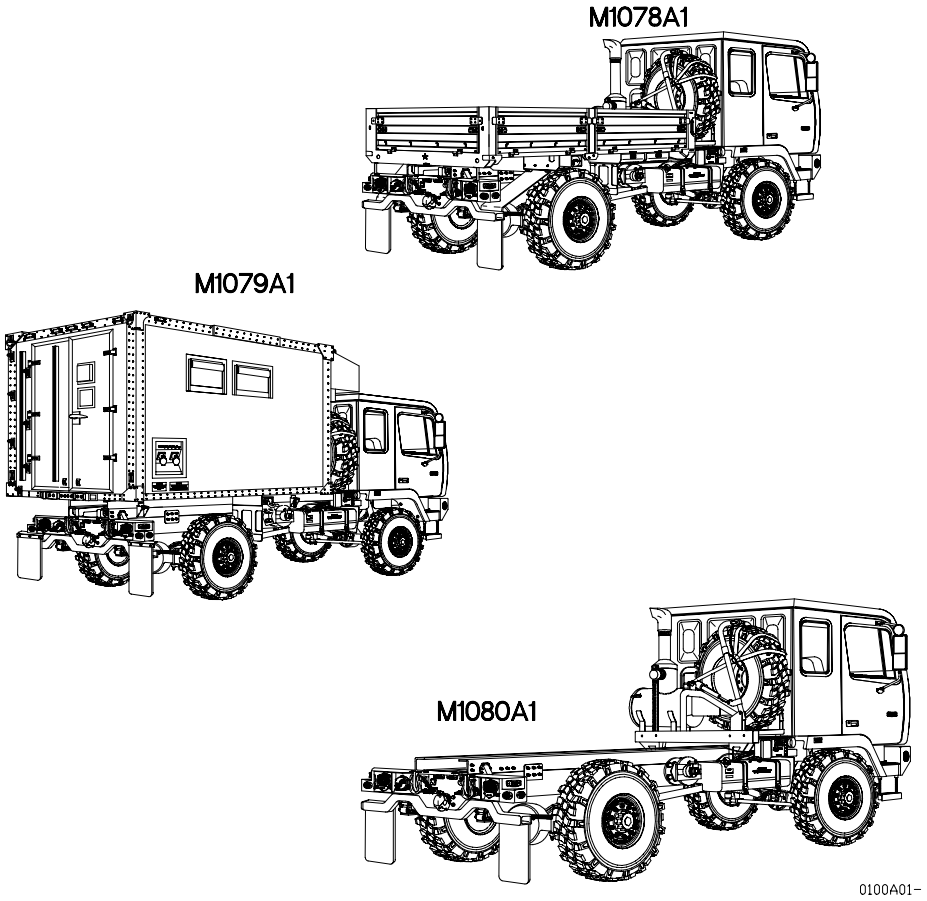
SCOPE

This Technical Manual (TM) contains instructions for operation, checks, and corrective maintenance for the M1078A1 series Light Medium Tactical Vehicle (LMTV). The LMTV will herein be referred to as the vehicle.

Type of Manual: Operator's Instructions

Name and Model: M1078A1 Truck, Cargo: 2 1/2-Ton, 4x4, Drop Side Panel; M1079A1 Truck, Van: 2 1/2-Ton, 4x4; M1080A1 Truck, Chassis: 2 1/2-Ton, 4x4.

Purpose of Equipment: The M1078A1 series is a family of 4x4 wheeled vehicles. The M1078A1 is a cargo hauling vehicle that can be outfitted for troop transport when equipped with a troopseat kit. The M1079A1 is a van that can be outfitted with communications equipment or shop equipment. The M1080A1 is a vehicle chassis that will accept a cargo bed or can be modified for special missions.



M1078A1 SERIES GENERAL INFORMATION - Continued 0001 00

MAINTENANCE FORMS AND PROCEDURES

Department of the Army forms and procedures used for equipment maintenance will be those prescribed by (as applicable) DA PAM 738-750, Functional Users Manual for The Army Maintenance Management System (TAMMS).

REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR)

If your vehicle needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you don't like about your equipment. Let us know why you don't like the design or performance. Put it on an SF 368 (Product Quality Deficiency Report). Mail it to us at: Commander, U.S. Army Tank-automotive and Armaments Command, ATTN: AMSTA-RE-E/MPA, Warren, MI 48397-5000. We'll send you a reply.

HAND RECEIPT (HR) MANUALS

This manual has a companion document with a TM number followed by "-HR" (which stands for Hand Receipt). TM 9-2320-391-10-HR consists of preprinted hand receipts that list end item related equipment (i.e. COEI, BII, and AAL) that must be accounted for. As an aid to property accountability, additional HR manuals may be requisitioned through normal publication channels.

CORROSION PREVENTION AND CONTROL (CPC)

The vehicle has a total service life of 20 years which allows for extended periods of operation in a corrosive environment. A corrosive environment includes exposure to high humidity, salt spray, road de-icing chemicals, gravel damage, and atmospheric contamination. No action beyond normal washing and repair of damaged areas is needed to control corrosion. To prevent moisture accumulation, drain holes are provided on structural and sheet metal areas where needed, and stowage boxes are provided with seals and baffled drains.

Corrosion Prevention and Control (CPC) of Army materiel is a continuing concern. It is important that any corrosion problems with the vehicle be reported so that the problem can be corrected and improvements made to prevent the problem in future items.

While corrosion is typically associated with rusting of metals, it can also include deterioration of other materials, such as rubber and plastic. Unusual cracking, softening, swelling, or breaking of these materials may be a corrosion problem.

M1078A1 SERIES GENERAL INFORMATION - Continued 0001 00

CORROSION PREVENTION AND CONTROL (CPC) - Continued

If a corrosion problem is identified, it can be reported using form SF 368 (Product Quality Deficiency Report). Use of key words such as “corrosion”, “rust”, “deterioration”, or “cracking” will ensure that the information is identified as a CPC problem.

The form should be submitted to the address specified in DA PAM 738-750, Functional Users Manual for The Army Maintenance Management System (TAMMS).

DESTRUCTION OF ARMY MATERIEL TO PREVENT ENEMY USE

Command decision, according to the tactical situation, will determine when the using organization is to destroy a vehicle. A destruction plan will be prepared by the using organization, unless one was prepared by a higher authority. For general vehicle destruction procedures, refer to TM 750-244-6, Procedures for Destruction of Tank-Automotive Equipment to Prevent Enemy Use (U.S. Army Tank-automotive and Armaments Command).

PREPARATION FOR SHIPMENT

WARNING

Heavy objects/loads, such as tool boxes and heavy parts, must always be carried on the floor with the weight distributed as equally as possible between left and right sides of M1079A1 van. Failure to comply decreases the stability of the M1079A1 van and will increase the likelihood of a rollover.

Heavy cabinets must always be mounted as low as possible with the weight distributed as equally as possible between left and right sides of M1079A1 van. Remember to consider the weight of the items that will be stored in the cabinets. Failure to comply decreases the stability of the M1079A1 van and will increase the likelihood of a rollover.

Always keep in mind, when placing items inside the M1079A1 van, that heavier items must always be positioned as low as possible and the weight distributed as equally as possible between left and right sides of M1079A1 van. Failure to comply decreases the stability of the M1079A1 van and will increase the likelihood of a rollover.

M1078A1 SERIES GENERAL INFORMATION - Continued 0001 00

PREPARATION FOR SHIPMENT - Continued
Land, Sea, and Air Shipment

Instructions for shipment of the vehicle by land, sea, and air are contained in the following publications:

PUBLICATION NUMBER	PUBLICATION TITLE
MTMCTEA PAM 56-1	Marine Terminal Lifting Guidance
MTMCTEA PAM 55-19	Tiedown Handbook for Rail Movements
MTMCTEA Ref 92-55-20	Tiedown Handbook for Truck Movements
FM 55-450-3	Multiservice Helicopter External Air Transport: Basic Operations and Equipment
FM 55-450-4	Multiservice Helicopter External Air Transport: Single-Point Load Rigging Procedures
FM 55-450-5	Multiservice Helicopter External Air Transport: Dual-Point Load Rigging Procedures
TB 55-46-1	Standard Characteristics (Dimensions, Weight, and Cube) for Transportability of Military Vehicles and Other Outsize/Overweight Equipment (in TOE Line Item Number Sequence)

Preparation of Internal Air Transport Procedure

The Preparation for Internal Air Transport procedure for reducing cab height is contained in WP 0048 00.

Tie Down and Helicopter-Lift

Vehicle Tie Down and Helicopter-Lift instructions are contained in Data and Instruction Plates (WP 0036 00).

Preparation for Highway or Rail Shipment

Cab air springs must be deflated and pinned for shipment (WP 0048 00). Upon arrival at destination, cab air springs must be unpinned and inflated (WP 0048 00).

M1078A1 SERIES GENERAL INFORMATION - Continued 0001 00

WARRANTY INFORMATION

The vehicle is warranted by Stewart & Stevenson Services, Inc., Tactical Vehicle Systems Division for 18 months or 12,000 miles (19,308 km), whichever comes first. For complete information covering this warranty, refer to TB 9-2300-426-15, Warranty Program for M1078A1 Series, 2 1/2 Ton, 4x4, Light Medium Tactical Vehicles (LMTV).

NOMENCLATURE CROSS-REFERENCE LIST

Common Name	Official Nomenclature
Cold Start System	Ether quick-start system
Engine Coolant	Antifreeze, ethylene glycol mixture
Gladhand	Quick-disconnect coupling
Parking Brake	SYSTEM PARK Control
Throttle Pedal	Accelerator pedal

LIST OF ABBREVIATIONS/ACRONYMS

Abbreviation/Acronym	
AAL	Additional Authorization List
ABS	Anti-lock Brake System
amp	Amperes
AOAP	Army Oil Analysis Program
ATAAC	Air-to-Air Aftercooler
BII	Basic Issue Item
BO	Blackout (Drive)
BRT	Bright
° C	Degrees Celsius
CAC	Charge Air Cooler
CAGEC	Commercial and Government Entity Code
CBR	Chemical, Biological, and Radiological
CCW	Counterclockwise
cid	Cubic Inch Displacement
cm	Centimeter
COEI	Component of End Item
CPC	Corrosion Prevention and Control
CTA	Common Tables of Allowance
CTIS	Central Tire Inflation System
CW	Clockwise
DA	Department of the Army
DRIC	Dual Relay Interconnect Controller
ECM	Electronic Control Module
ECU	Electronic Control Unit
EIR	Equipment Improvement Recommendations
° F	Degrees Fahrenheit
FMVSS	Federal Motor Vehicle Safety Standard

M1078A1 SERIES GENERAL INFORMATION - Continued 0001 00

LIST OF ABBREVIATIONS/ACRONYMS - Continued

Abbreviation/Acronym	
ft	Foot
gal	Gallon, U.S.
GCWR	Gross Combination Weight Rating
GPFU	Gas Particulate Filter Unit
GVW	Gross Vehicle Weight
HEUI	Hydraulic Electronic Unit Injector
HD	Heavy Duty
HI	High
hp	Horsepower
in.	Inch
JTA	Joint Tables of Allowance
kg	Kilogram
km/h	Kilometer Per Hour
kPa	Kilopascal
kw	Kilowatt
L	Liter
lb	Pound
LBCD	Load and Battery Control Device
LED	Light Emitting Diode
LH	Left Hand
LMHC	Light Material Handling Crane
LMTV	Light Medium Tactical Vehicle
LO	Low
m	Meter
MBDS	Manual Battery Disconnect Switch
MGVW	Maximum Gross Vehicle Weight
mi	Mile
mm	Millimeter
mph	Miles Per Hour
MTOE	Modified Table of Organization and Equipment
N	Neutral (Drive)
NBC	Nuclear, Biological, Chemical
PCB	Printed Circuit Board
PDP	Power Distribution Panel
PMCS	Preventive Maintenance Checks and Services
psi	Pounds Per Square Inch
PTO	Power Take-Off
qt	Quart
QTY	Quantity
REQD	Required
RH	Right Hand
rpm	Revolutions Per Minute
SAE	Society of Automotive Engineers

M1078A1 SERIES GENERAL INFORMATION - Continued 0001 00

LIST OF ABBREVIATIONS/ACRONYMS - Continued

Abbreviation/Acronym	
SER	Service (Drive)
SRW	Self-Recovery Winch
TAMMS	The Army Maintenance Management System
TDA	Tables of Distribution and Allowance
TM	Technical Manual
TPS	Throttle Position Sensor
TPSS	Transmission Pushbutton Shift Selector
U/M	Unit of Measure
vac	Volts Alternating Current
vdc	Volts Direct Current
WTEC III	World Transmission Electronic Control III
XMSN	Transmission

M1078A1 SERIES EQUIPMENT DESCRIPTION AND DATA 0002 00

EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES

Characteristics

The LMTVs are a series of 4x4 tactical vehicles designed for use over all types of roads, cross-country terrain, and in all weather conditions. The cab and chassis for all vehicle models are similar. Each vehicle model is equipped with a unique body and may be equipped with other auxiliary equipment depending on vehicle mission.

Capabilities

1. The vehicle operates in temperatures from -25° F to 120° F (-32° C to 49° C) and to -50° F (-46° C) with arctic kit(s) installed.

2. The vehicle can ford water up to 30 in. (76 cm) deep for 15 minutes without damage or requiring maintenance before operation can continue.

3. The normal operating range for the vehicle is 300 mi (483 km), based on 54 gal (204 L) of usable fuel and vehicle at maximum gross vehicle weight when operated at an average speed of 25 mph (40 km/h). Varying loads, prolonged idle, use of Power Take-Off (PTO), off-road driving, and climatic conditions will affect operating range.

4. Tiedown points are located so that the vehicle can be restrained in all directions during air transport in C-130 and C-141 aircraft. The vehicles are capable of being transported by highway, rail, and sea.

Features

1. An in-line, six-cylinder, 442 cid (7.2 L), turbocharged diesel engine, producing 275 hp (205 kW).

2. An automatic transmission with seven forward speeds and one reverse speed. The transmission incorporates an integral transfer case. Normal mode is used when operating the vehicle under usual conditions. Off-road mode is used when operating on unimproved road surfaces. When operating in the normal mode, 70 percent of the power is distributed to the rear axle and 30 percent to the front axle. When operating in the off-road mode, power is evenly distributed between front and rear axles.

3. The braking system is equipped with Anti-lock Braking System (ABS). ABS monitors wheel speeds at all times and controls braking during wheel lock situations.

M1078A1 SERIES EQUIPMENT DESCRIPTION AND DATA - Continued 0002 00

EQUIPMENT CHARACTERISTICS, CAPABILITIES, AND FEATURES - Continued

4. A power steering system consisting of a recirculating ball type steering gear box with hydraulic boost. Mechanical linkage provides the Operator with control in the event of steering oil pressure loss.

5. A fuel system which includes a 56 gal (212 L) capacity fuel tank with 54 usable gal (204 L), fuel/water separator with fuel priming pump, fuel transfer pump, secondary fuel filter, and fuel injectors.

6. Two front and two rear towing eyes with shackles.

7. A manually operated pintle hook for towing a trailer or a disabled vehicle.

8. A Central Tire Inflation System (CTIS) that allows the Operator to adjust tire pressure, with the touch of a button, to suit terrain conditions.

9. A cab with accommodations for three personnel, or two personnel if a radio is installed.

10. SERVICE and EMERGENCY gladhands at the rear and front of the vehicle. Gladhands at the front of the vehicle are used for towing the vehicle if it becomes disabled. Gladhands at the rear of the vehicle are for towing a trailer or another disabled vehicle.

11. An air-powered, hydraulically-operated system that allows the Operator to raise and lower the cab and spare tire quickly and easily. This system also provides the Operator with a the means to safely and easily lower and raise the vehicle suspension for internal air transport. In addition, a back-up hydraulic pump is provided in the event there is not enough air pressure available to operate the primary system.

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS

Major External Components to All Vehicles Variants

Table 1 describes common external components found on M1078A1 series vehicles.

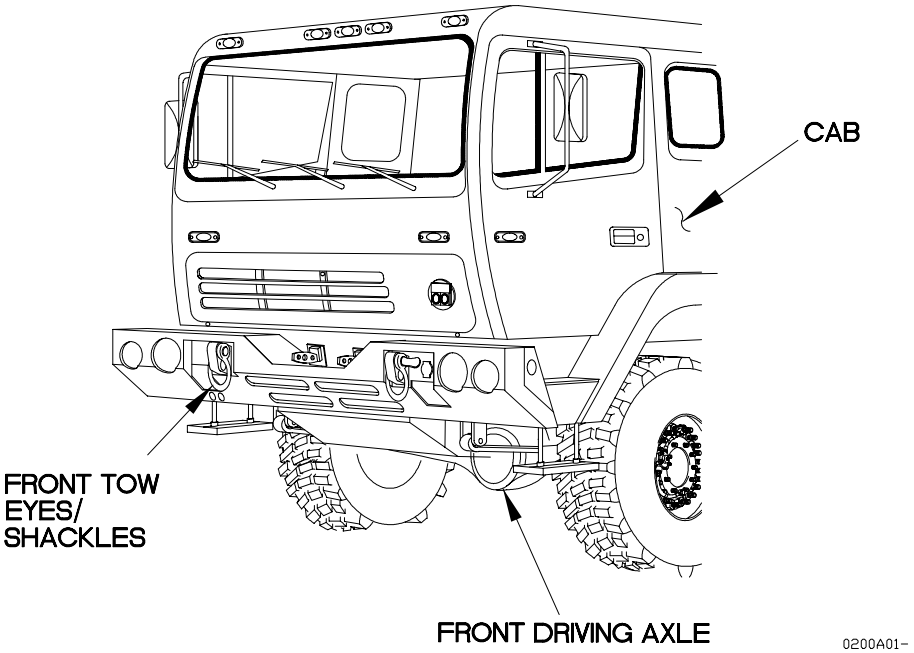


Table 1. M1078A1 Series Vehicles Common Components Location.

COMPONENT	DESCRIPTION
Cab	The cab provides the crew with protection from the weather and contains the controls, gages, and indicators needed to operate the vehicle. The cab accommodates three fully-equipped personnel if no radio is installed, and two fully-equipped personnel if a radio is installed. The cab can be raised and lowered from the hydraulic manifold located on the passenger side of the vehicle.
Front driving axle	Supports the weight of the vehicle and transmits power to drive the front wheels.
Front tow eyes/shackles	Provides attachment points for towing.

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS - Continued

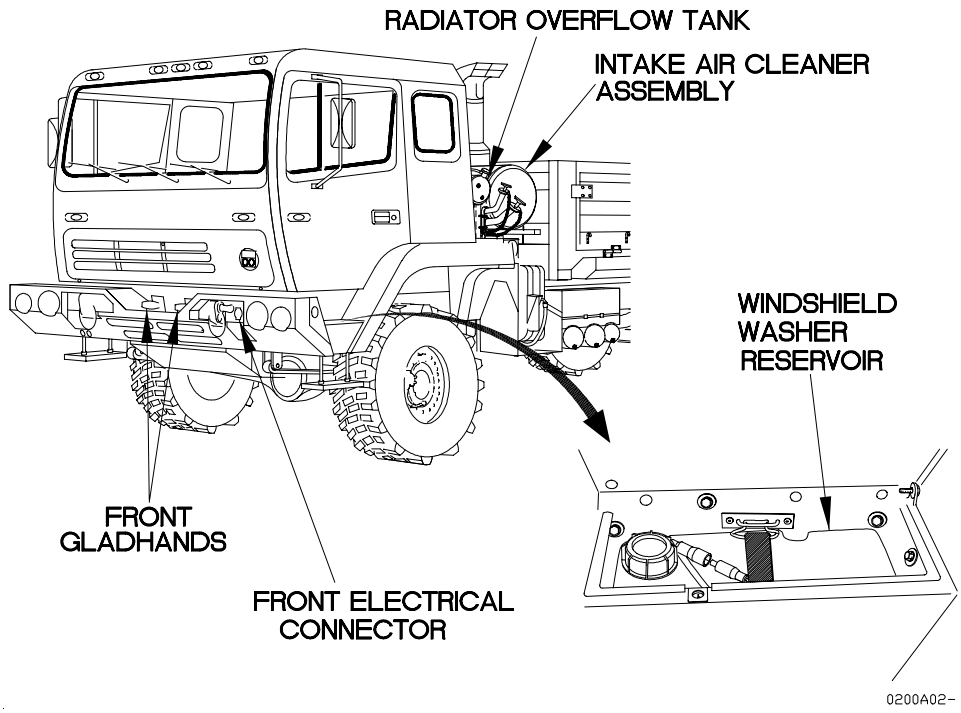


Table 1. M1078A1 Series Vehicles Common Components Location - Continued.

COMPONENT	DESCRIPTION
Front gladhands	Allows connection of brake air supply between vehicles during towing operations.
Front electrical connector	A connector that receives 12 vdc power from a towing vehicle through an intervehicular cable.
Windshield washer reservoir	A 3-quart (3 L) reservoir that stores fluid used to clean the windshield.
Radiator overflow tank	A reservoir that can store up to eight quarts (8 L) of engine coolant.
Intake air cleaner assembly	A cartridge-type filter that removes particles from the air before it enters the turbocharger.

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS - Continued

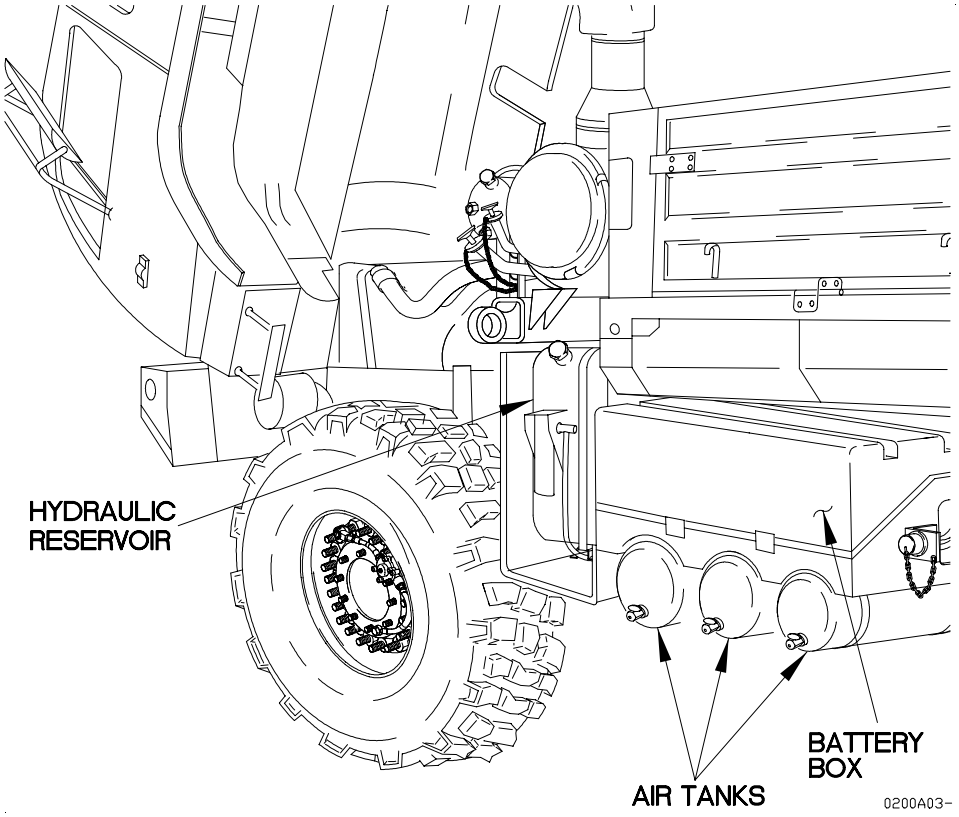


Table 1. M1078A1 Series Vehicles Common Components Location - Continued.

COMPONENT	DESCRIPTION
Battery box	The battery box contains four, 12 vdc, lead-acid batteries connected in series and parallel.
Air tanks	The primary and secondary air tanks and the wet tank store compressed air for operation of the brakes, Central Tire Inflation System (CTIS), and the air/hydraulic power unit.
Hydraulic reservoir (if equipped)	A 27 gal (102 L) reservoir that stores the oil needed to operate the 11K Self-Recovery Winch (SRW).

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS - Continued

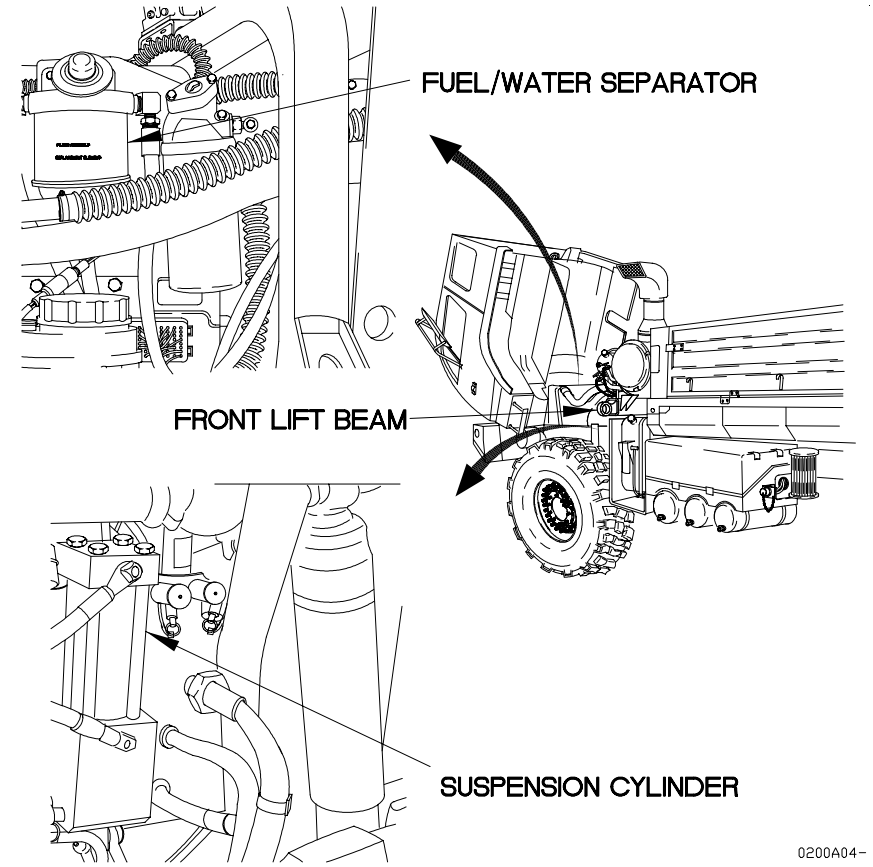


Table 1. M1078A1 Series Vehicles Common Components Location - Continued.

COMPONENT	DESCRIPTION
Front lift beam	Provides attachment points for lifting/loading operations.
Fuel/water separator	Removes moisture and contaminants from the fuel before it enters the fuel pump. The fuel/water separator incorporates a fuel priming pump and an electric heater to prevent gelling of the fuel in cold weather.
Suspension cylinder	Provides a means of compressing the vehicle suspension in preparation for internal air transport.

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS - Continued

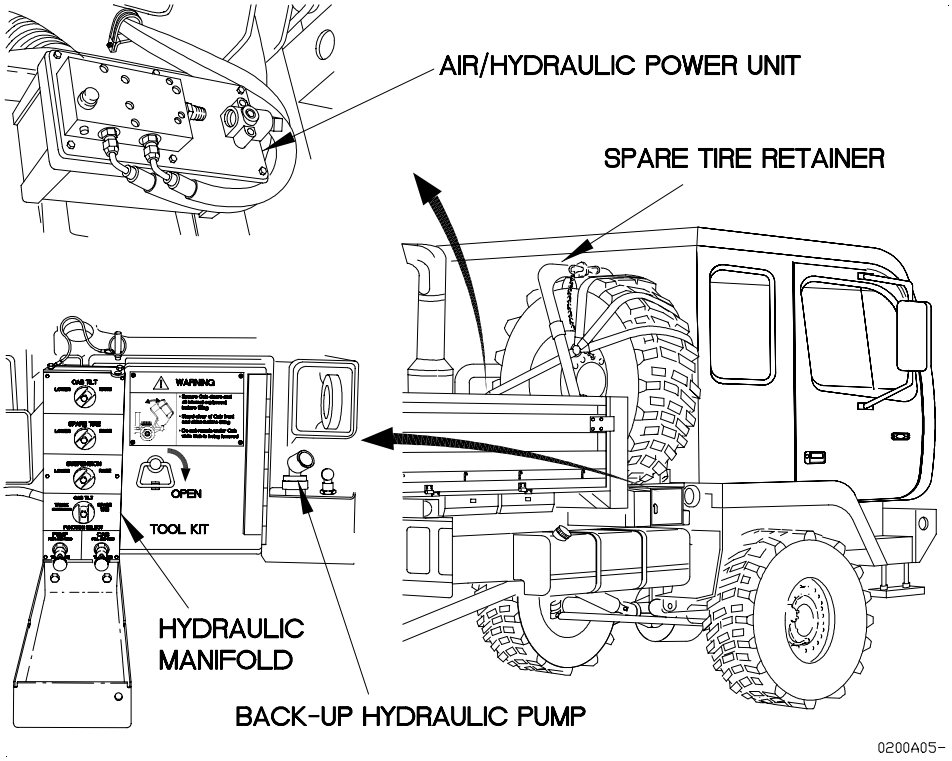


Table 1. M1078A1 Series Vehicles Common Components Location - Continued.

COMPONENT	DESCRIPTION
Spare tire retainer	Provides a stowage location for the spare tire. The operation of the spare tire retainer is controlled from the hydraulic manifold.
Hydraulic manifold	The hydraulic manifold contains the valves and controls used to raise and lower the cab, spare tire, and vehicle suspension.
Back-up hydraulic pump	This manual pump serves as a back-up for the hydraulic manifold. This pump is used in the event that there is not enough air pressure in the air tanks to operate the air/hydraulic power unit.
Air/hydraulic power unit	Converts air pressure into hydraulic pressure to operate the cylinders used to raise and lower the cab, spare tire, and vehicle suspension.

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS - Continued

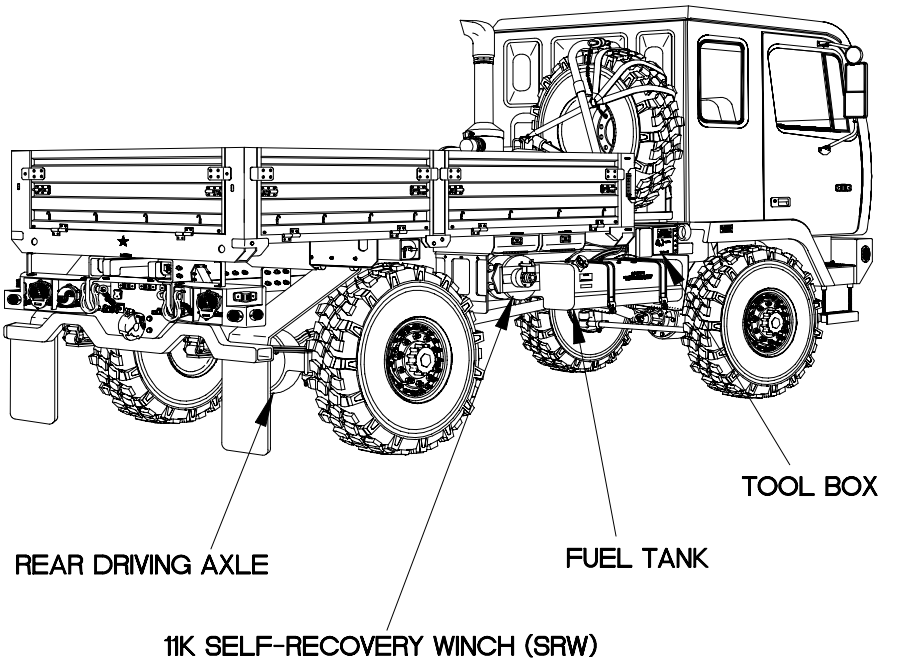


Table 1. M1078A1 Series Vehicles Common Components Location - Continued.

COMPONENT	DESCRIPTION
Tool box	Used to stow Basic Issue Items (BII), Components of End Item (COEI), and Additional Authorization List (AAL) items.
Fuel tank	Stores fuel used to operate the engine. The fuel tank has a 56 gal (212 L) fill capacity and usable fuel capacity of 54 gal (204 L).
11K SRW (if equipped)	Provides the Operator with the ability to recover his vehicle from a stranded condition. It also allows the Operator to attempt retrieval of a light vehicle not equipped with an 11K SRW.
Rear driving axle	Supports the weight of the vehicle and transmits power to drive the rear wheels.

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS - Continued

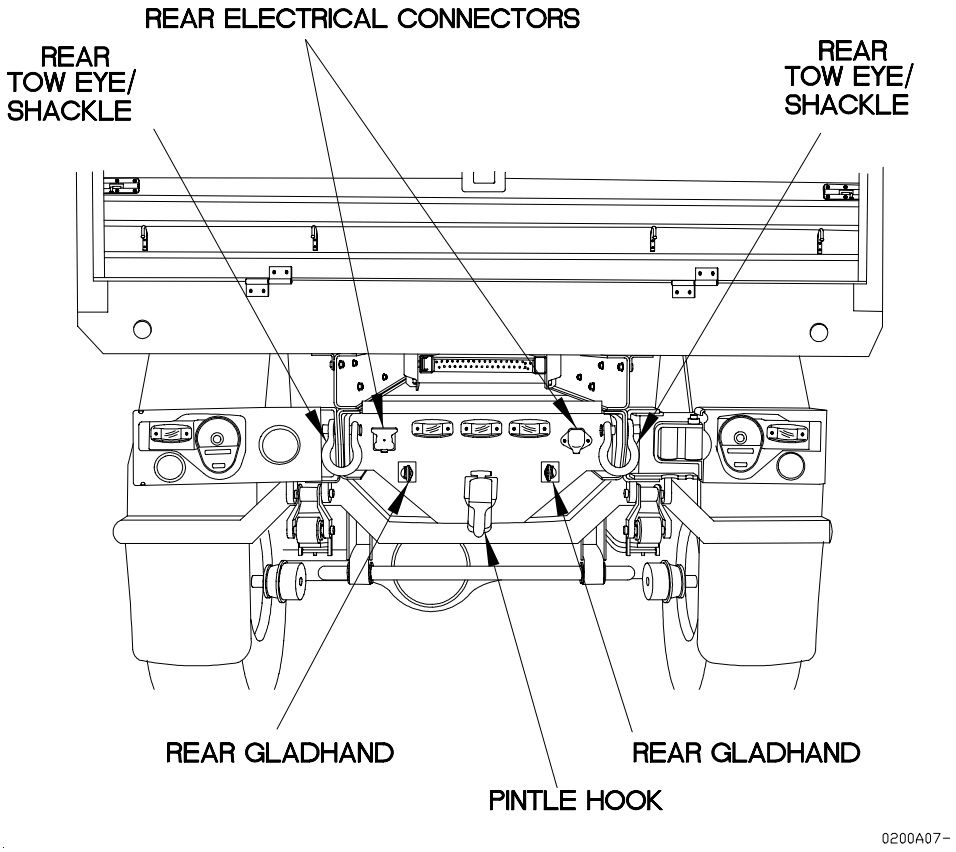


Table 1. M1078A1 Series Vehicles Common Components Location - Continued.

COMPONENT	DESCRIPTION
Rear electrical connectors	Two connectors (24 vdc/12-pin and 12-vdc/7-pin) that supply electrical power to a trailer or a towed vehicle through an intervehicular cable.
Pintle hook	Hook used for towing a trailer.
Rear gladhands	Allows connection of brake air supply to towed vehicle or the trailer during towing operations.
Rear tow eyes/shackles	Provides attachment points for towing.

M1078A1 SERIES EQUIPMENT DESCRIPTION AND DATA - Continued 0002 00

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS - Continued

Major External Components Common to M1078A1 Cargo Vehicles

Table 2 describes the external components common to the M1078A1 cargo vehicle.

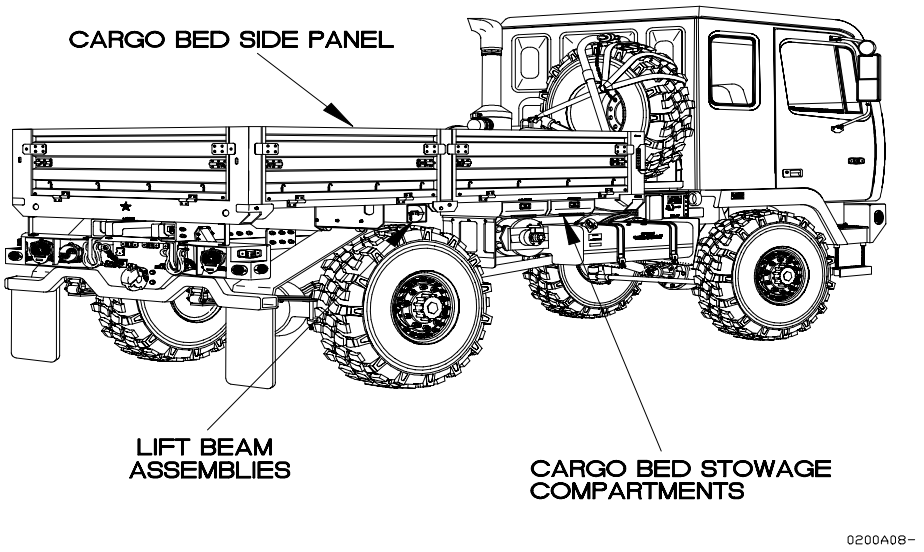


Table 2. M1078A1 Cargo Vehicles Components Locations.

COMPONENT	DESCRIPTION
Cargo bed side panels	Aluminum panels used to keep cargo from falling out of cargo bed. They may be raised or lowered, or removed and stowed under the cargo bed.
Cargo bed stowage compartments	Two compartments used to stow cargo bed side panels when removed.
Lift beam assemblies	Two extendible beams that act as sling spreaders, when deployed, to prevent damage to cargo dropsides during external air transport.

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS - Continued

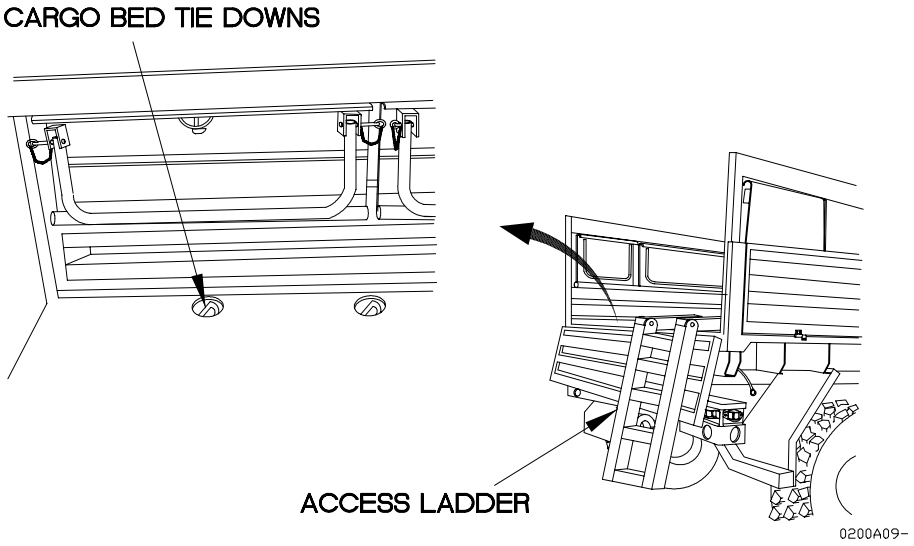


Table 2. M1078A1 Cargo Vehicles Components Locations - Continued.

COMPONENT	DESCRIPTION
Cargo bed tie downs	Anchor points for securing cargo.
Access ladder	Used to assist personnel when climbing into or out of cargo bed. The access ladder is stored underneath the cargo bed when not in use.

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS - Continued

Major External Components Common to M1079A1 Van

Table 3 describes the external components of the M1079A1 Van.

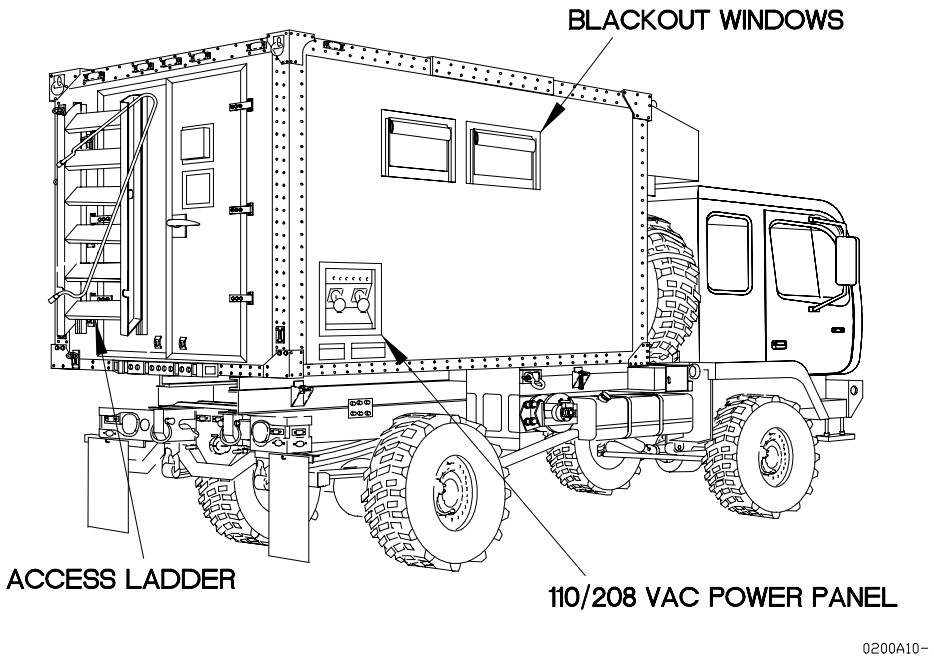


Table 3. M1079A1 Van Components Location.

COMPONENT	DESCRIPTION
Blackout windows	Windows capable of being covered during blackout operations.
Access ladder	Ladder mounted at the rear of the van body which slides down to provide access to the interior of the van body.
110/208 vac power panel	Receptacles used to provide van with 110/208 vac.

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS - Continued

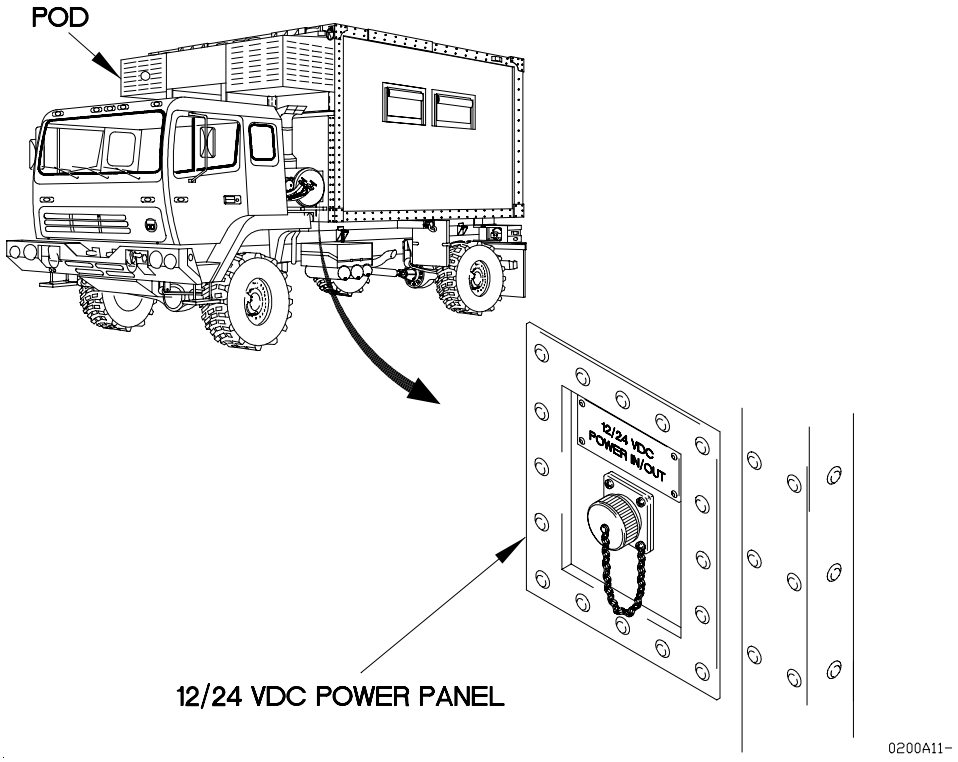


Table 3. M1079A1 Van Components Location - Continued.

COMPONENT	DESCRIPTION
Pod	Housing for vent fan, heater, and air conditioner.
12/24 vdc power panel	Provides 12 vdc for van marker lights and 24 vdc for binding posts and door switch power.

DIFFERENCES BETWEEN MODELS

Table 4 describes major equipment and operational differences between models of the M1078A1 series vehicles. An “X” means that model is provided with the equipment/capability listed.

M1078A1 SERIES EQUIPMENT DESCRIPTION AND DATA - Continued 0002 00

DIFFERENCES BETWEEN MODELS - Continued

Table 4. Differences Between Models.

FEATURE	M1078A1	M1079A1	M1080A1
Body Feature			
Cargo Bed, 12.75 ft (3.9 m)	X		
Van Body		X	
11K Self-Recovery Winch (SRW)	X	X	
Bumperette Kit	X	X	X
Convex Mirror Kit	X	X	X
Operating Function			
Personnel/Cargo Transport	X		
Containment/Storage		X	
RH Convex Mirror Kit	X	X	X
Resilient Mount Kit	X	X	X
Rim Cover Kit	X	X	X
Special Purpose Kits[1]			
Arctic Kits			
Swingfire Arctic Kit	X	X	X
Arctic Engine Preheat Kit	X	X	X
Cab Heater	X	X	X
Cargo Area Arctic Heater	X		
Cargo Cover Kit	X		
Light Material Handling Crane (LMHC)	X		
Machine Gun Ring Mount Kit	X	X	X
Rotating Warning Light Kit	X	X	X
Troopseat Kit	X		
Van Body Air Conditioner Kit		X	
Van Body Heater		X	
200 Amp Alternator Kit	X	X	X
Auxiliary Panel Kit	X	X	X
Arctic Front	X	X	X

[1] Vehicles may or may not be equipped with special purpose kits. If an "X" appears under model number, it means that special purpose kit is available for vehicle model.

DIFFERENCES BETWEEN MODELS – Continued

Table 4. Differences Between Models (Cont).

FEATURE	M1078A1	M1079A1	M1080A1
S-280 Shelter			
Tiedown Kit (Unmodified)	X		
Modification Kit, Tiedown	X		
Tiedown Kit (Modified)	X		
Ladder Adapter Bracket Kit, S-280 Shelter Tiedown	X		
Vehicle Turning Radius (35 ft. 11 m)	X	X	X
Wheelbase			
154 in. (390 cm)	X	X	X

EQUIPMENT DATA

Table 5 provides overall dimensions for the M1078A1 series vehicles.

Table 5. Vehicle Dimensions.

Vehicle	Overall Length	Overall Width	Overall Height
Truck, Cargo, M1078A1	20 ft 11 in. (6.4 m)	8 ft (2.4 m)	9 ft 4 in. (2.8 m)
Truck, Van, M1079A1	21 ft. 11 in. (6.7 m)	8 ft (2.4 m)	11 ft 10 in (3.6 m)
Truck, Chassis, M1080A1	20 ft 11 in. (6.4 m)	8 ft (2.4 m)	9 ft 4 in. (2.8 m)

EQUIPMENT DATA - Continued

Table 6 provides information regarding the weight and payload of M1078A1 series vehicles.

Table 6. Vehicle Weights and Payloads.

Vehicle	Curb Weight[2]	Payload	Maximum Towed Load[3]	Vehicle Load
Truck, Cargo, M1078A1	17,770 lbs (8,068 Kgs)	5,000 lbs (2,270 Kgs)	12,000 lbs (5,448 Kgs)	1,200 lbs (549 Kgs)
Truck, Van, M1079A1	18, 834 lbs (8,550 Kgs)	5,000 lbs (2,270 Kgs)	12,000 lbs (5,448 Kgs)	1,200 lbs (549 Kgs)
Truck, Chassis, M1080A1	14,861 lbs (6,747 Kgs)	5,000 lbs (2,270 Kgs)	12,000 lbs (5,448 Kgs)	1,200 lbs (549 Kgs)

WARNING

Do not exceed maximum vehicle speed and grade limitations during normal operations. Do not exceed maximum approach or departure angles or ford water greater than maximum depth. Failure to comply may result in serious injury or death to personnel or damage to equipment.

Table 7 provides information that is applicable to all M1078A1 series vehicles.

Table 7. Vehicle Performance Data.

Maximum Speed	Cruising Range	Maximum Grade	Maximum Approach Angle	Maximum departure Angles	Maximum Fording Depth
55 mph (88 km/h)	300 mi (480 km)	60 percent	40 degrees	40 degrees	30 in. (76 cm)

Table 8 provides information regarding fluid requirements for all M1078A1 series vehicles.

---

2 Curb weight is defined as vehicle weight plus 404 lbs (183 Kgs) of fuel weight and 606 lbs (275 Kgs) of crew weight.

3 Any 2 1/2 ton LMTV vehicle can flat tow any other LMTV vehicle up to GVW (Gross Vehicle Weight = Curb Weight + Payload).

M1078A1 SERIES EQUIPMENT DESCRIPTION AND DATA - Continued 0002 00

EQUIPMENT DATA - Continued

Table 8. Fluid Capacities.

Cooling system	43.8 qt (41.5 L)
Cooling system w/arctic kit	58.3 qt (55.2 L)
Engine crankcase	25 qt (24 L)
Transmission/transfer case assembly	43.3 qt (41 L)
Fuel tank	56 gal (212 L) total, 54 gal (204 L) usable
Steering system reservoir	5 qt (4.8 L)
Windshield washer reservoir	7.5 qt (7.1 L)
Front differential housing	8.5-21.1 qt (8.0-20 L)
Rear differential housing	8.5-21.1 qt (8.0-20 L)
Hydraulic reservoir	27 gal (102.2 L0
Air transport hydraulic system (total system)	3 qts (2.8 L)
Air/hydraulic power unit	3 pt (1.4 L)
Backup hydraulic pump	19 oz (562 ml)

Table 9 provides detail information for the major components of the M1078A1 series vehicles.

Table 9. System Data.

ENGINE

Make	Caterpillar
Model	3126 ATAAC
Type	in-line diesel, 4-cycle, turbocharged
Number of Cylinders	6
Bore	4.33 in. (10.5 cm)
Stroke	5.0 in. (12.7 cm)
Displacement	440 cid (7.2 L)
Maximum Brake Horsepower (at 2,600 rpm)	275 hp SAE (205.1 kW)
Maximum Governed Engine Speed (loaded)	2,600 rpm
Maximum Governed Engine speed (no load)	2,860 rpm
Oil Filter Type	Full flow, replaceable element
Oil Filter Quantity	1

M1078A1 SERIES EQUIPMENT DESCRIPTION AND DATA - Continued 0002 00

EQUIPMENT DATA - Continued

Table 9. System Data - Continued.

FUEL SYSTEM

Type.....Mechanical Injection, Cam-driven
Number of Fuel Tanks 1
Fuel Types

NOTE

Primary fuels listed below must be used whenever possible. Alternate I fuels are most desirable if primary fuels are not available, with emergency fuels second most and least desirable.

Primary Fuels

Diesel fuel, VV-F-800, grade DF-2..... Do not use below +32°F (0°C) (NATO code no. F54)

Diesel fuel, VV-F-800, grade DF-1..... Do not use below +10°F (-23°C) (NATO code no F-54)

Diesel fuel, VV-F-800, grade DF-A .....All temperatures (NATO code no. F-54)

Alternate l Fuels

Turbine fuel, MIL-T-5624, grade JP-5 ..... Do not use below -51°F (-46°C) (NATO code no. F-44)

Diesel fuel, MIL-F-16884.....Do not use below +15°F (-9°C) (NATO code no. F-75 or F-76)

Turbine fuel, aviation, kerosene type, ... Do not use below -58°F (-50°C) MIL-T-83133, grade JP-8 (NATO code no. F-34)

M1078A1 SERIES EQUIPMENT DESCRIPTION AND DATA - Continued 0002 00

EQUIPMENT DATA - Continued

Table 9. System Data - Continued.

WARNING

Never mix gasoline or JP-4 turbine fuel with other fuels outside vehicle fuel tank. Any mixing should be done by adding fuels to fuel tank. Gasoline and JP-4 turbine fuel are highly combustible and may explode, resulting in injury or death to personnel.

CAUTION

If engine runs rough when using any alternate II fuel, add 10% to 30% diesel fuel to smooth engine performance. Failure to add diesel fuel may result in damage to pistons.

Alternate II Fuels

Turbine fuel, MIL-T-5624, grade JP-4 ..... Do not use below -72°F (-58°C) (NATO code no. F-40)

Caution

Extended operation on emergency fuels may cause early clogging of fuel filters and early fouling of fuel injector nozzles. Add diesel fuel as required to smooth engine performance.

Commercial burner fuel oil ..... Do not use below 0°F (-18°C) (ASTM D396), grade FO-1

Commercial burner fuel oil ..... Do not use below +20°F (-7°C) (ASTM D396), grade FO-2

ASTM D3699 Kerosene ..... (NATO F45)

Fuel Filter (primary)..... Fuel/Water Separator
Fuel Filter (secondary) ..... Particulate type
Air Cleaner Type..... Dry element

COOLING SYSTEM

Type..... Water, Radiator
Maximum Radiator Working Pressure..... 15 psi (103 kPa)
Fan ..... Engine-driven, clutch-type

M1078A1 SERIES EQUIPMENT DESCRIPTION AND DATA - Continued 0002 00

EQUIPMENT DATA - Continued

Table 9. System Data - Continued.

AIR COMPRESSOR

Make	Midland
Model	EL 1600
Type	Piston-type, two-cylinder

ELECTRICAL SYSTEM

Alternator

Make	C.E. Niehoff
Model (100 Amps, 14 vdc/28 vdc)	N1506-1
Type	Engine-driven, EMI/RFI suppressed, waterproof

Voltage Regulator

Make	C.E. Niehoff
Model	N3030
Type	Solid State

Starting Motor

Make	Prestolite
Model	M0017703ME

Batteries

Make	Exide
Type	6TL
Quantity	4
Battery Connection	Series-parallel
Ratings	600 cold cranking amps at 0° F (-18° C) for 60 seconds 350 cold cranking amps at -40° F (-40° C) for 60 seconds

TRANSMISSION

Make	Allison
Model	MD3070PT
Type	Automatic
Forward Speeds	7
Reverse Speeds	1

Power Take-Off (PTO) (if equipped)

Make	Chelsea
Model	275 XMFJX-D5XK

M1078A1 SERIES EQUIPMENT DESCRIPTION AND DATA - Continued 0002 00

EQUIPMENT DATA - Continued

Table 9. System Data - Continued.

AXLES

Front
Make ..... Rockwell
Carrier Type ..... Single reduction, amboid gearing, ABS
Wheel End Type ..... Bevel wheel end reduction
Wheel End Ratio ..... 2 to 1
Overall Axle Gear Ratio ..... 7.8 to 1
Steering Angle ..... 35 degrees
Rear
Make ..... Rockwell
Carrier Type ..... Single reduction, amboid gearing
Wheel End Type ..... Bevel wheel end reduction
Wheel End Ratio ..... 2 to 1
Overall Axle Gear Ratio ..... 7.8 to 1

DRIVE SHAFTS

Make ..... Rockwell

SUSPENSION SYSTEM

Make
Front ..... Standen's Limited
Rear ..... Standen's Limited
Type
Front ..... Multiple Leaf Spring
Rear ..... Multiple Leaf Spring

CAB

Personnel Capacity 3
Seat Design ..... Cushioned with Springs, Driver's Forward/Backward Adjustable
Steering Wheel ..... Adjustable, Tilt and Telescopic

BRAKE SYSTEM

Front
Make ..... Rockwell
Model ..... Stopmaster, RSA-1550-830
Type ..... Full air, wedge-type, self-adjusting, ABS
Drum Size ..... 17.2 in. (43.7 cm) diameter by 8.2 in. (20.8 cm) wide
Number of Brake Air Chambers ..... 1 per wheel
Pressure Range ..... 60-120 psi (414-827 kPa)

M1078A1 SERIES EQUIPMENT DESCRIPTION AND DATA - Continued 0002 00

EQUIPMENT DATA - Continued

Table 9. System Data - Continued.

BRAKE SYSTEM (Cont)

Rear
Make ..... Rockwell
Model ..... Stopmaster, RDA-1550-831
Type ..... Full air, wedge-type, self-adjusting, ABS
Drum Size ..... 17.2 in. (43.7 cm) diameter by 8.2 (20.8 cm) wide
Number of Brake Air Chambers ..... 2 per wheel
Pressure Range ..... 60-120 psi (414-827 kPa)

TOWING EYES
Quantity ..... 4 (2 front, 2 rear)

PINTLE HOOK
Type ..... Manual-release
Maximum Load Capacity
Pulling ..... 12,000 lb (5,448 kg)
Vertical ..... 1,200 lb (549 kg)

WHEELS
Make ..... Titan
Rim Size and Type ..... 20 by 10, two-piece, bolt-together
Quantity ..... 5 (including spare)
Studs Per Wheel 10
Maximum Wheel Load ..... 9,000 lbs (4,086 Kgs)

TIRES
Make ..... Michelin
Size ..... 395/85 R20 XML
Tread Design ..... Non-directional, on-off road
Ply Rating PR14
Tube or Tubeless ..... Tubeless
Load Range 159G
Maximum Load ..... 9,645 lbs (4,379 Kgs)
Maximum Cold Inflation Pressure ..... 95 psi (655 kPa)
Maximum Highway Speed ..... 55 mph (88 km/h)

CENTRAL TIRE INFLATION SYSTEM (CTIS)
Make ..... Eaton

M1078A1 SERIES EQUIPMENT DESCRIPTION AND DATA - Continued 0002 00

EQUIPMENT DATA - Continued

Table 9. System Data - Continued.

TIRE PRESSURES

Terrain Condition	Maximum Speed	Tire Pressure
Highway	55 mph (88 km/h)	55 psi (379 kPa)
Cross Country	40 mph (64 km/h)	33 psi (228 kPa)
Sand (soft terrain)	12 mph (19 km/h)	29 psi (138 kPa)
Emergency (10 minutes only)	5 mph (8 km/h)	14 psi (97 kPa)

11K SELF-RECOVERY WINCH (SRW) (if equipped)

Make ..... DP Manufacturing
Model 11K
Rated Capacity ..... 11,000 lb (4,999 Kgs)
Speeds 1
Cable Dimension ..... 0.5 in. (1.27 cm) diameter by 280 ft (85 m)

SPECIAL PURPOSE KITS[4]

Arctic Kits
Make ..... ESPAR
Part No. (Swingfire Heater Adapter) 57K1973
Output ..... 40,000 Btu

Make ..... Webasto
Part No. (Cab Heater) 57K1217
Output ..... 40,000 Btu

Arctic Kits
Make ..... Global Thermoelectric
Part No. (Cargo Area Arctic Heater) 57K4364
Output ..... 30,000/60,000 Btu
Make ..... Beru
Part No. (Arctic Engine Preheat) 57K4366

Arctic Front
Part No. 57K1945

Arctic Cargo Cover Kit
Part No. (M1078A1) 57K1923

4 Vehicle may be equipped with these items depending on mission, climate, and other factors.

M1078A1 SERIES EQUIPMENT DESCRIPTION AND DATA - Continued 0002 00

EQUIPMENT DATA - Continued

Table 9. System Data - Continued.

SPECIAL PURPOSE KITS[4]

Soft Top Cover Kit (Green Camo)
Part No. (M1078A1) 57K1898

Soft Top Cover Kit (Tan)
Part No. (M1078A1) 57K1925

Light Material Handling Crane (LMHC) Kit
Make ..... Grove
Part No. 57K1215
Maximum Capacity with Boom Fully Raised ..... 1,500 lb (681 kg)

Machine Gun Ring Mount Kit
Part No. 57K1224

Rotating Amber Warning Light Kit
Part No. 57K1220
Type ..... 24 vdc, Magnet-Mounted

Troopseat Kit
Part No. 57K1893-001

200 Amp Alternator Kit
Part No. 57K1912

M1079A1 Van Body Air Conditioner Kit
Part No. 57K1947

M1079A1 Van Body Heater Kit
Part No. 57K1948

Tiedown, S-280 Shelter
Part No ..... 57K1952 (Unmodified)
Part No ..... 57K4449 (Modified)
Modification Kit, S-280 Shelter
Part No 57K4448
Ladder Adapter Bracket Kit, S-280 Shelter
Part No 57K1950

Bumperette Kit
Part No 57K3398

M1078A1 SERIES EQUIPMENT DESCRIPTION AND DATA - Continued 0002 00

EQUIPMENT DATA - Continued

Table 9. System Data - Continued.

Convex Mirror Kit
Part No 57K1995

RH Convex Mirror Kit
Part No 57K2008

Rim Cover Kit
Part No 57K1996

Resilient Mount Kit
Part No 57K2003

WARNING

Bridges along your route may be marked with a class number. The bridge class number shows the safe capacity of the bridge. If the bridge class number on your vehicle is equal to or less than the bridge class number, the bridge will hold your vehicle. If the bridge class number on your vehicle is greater than the bridge class number, DO NOT CROSS BRIDGE. Failure to comply may result in serious injury or death to personnel.

NOTE

Refer to FM 5-36 Route Reconnaissance and Classification for more information on bridge classification.

Table 10 provides the vehicle class number for the M1078A1 series vehicle.

Table 10. Vehicle Classification.

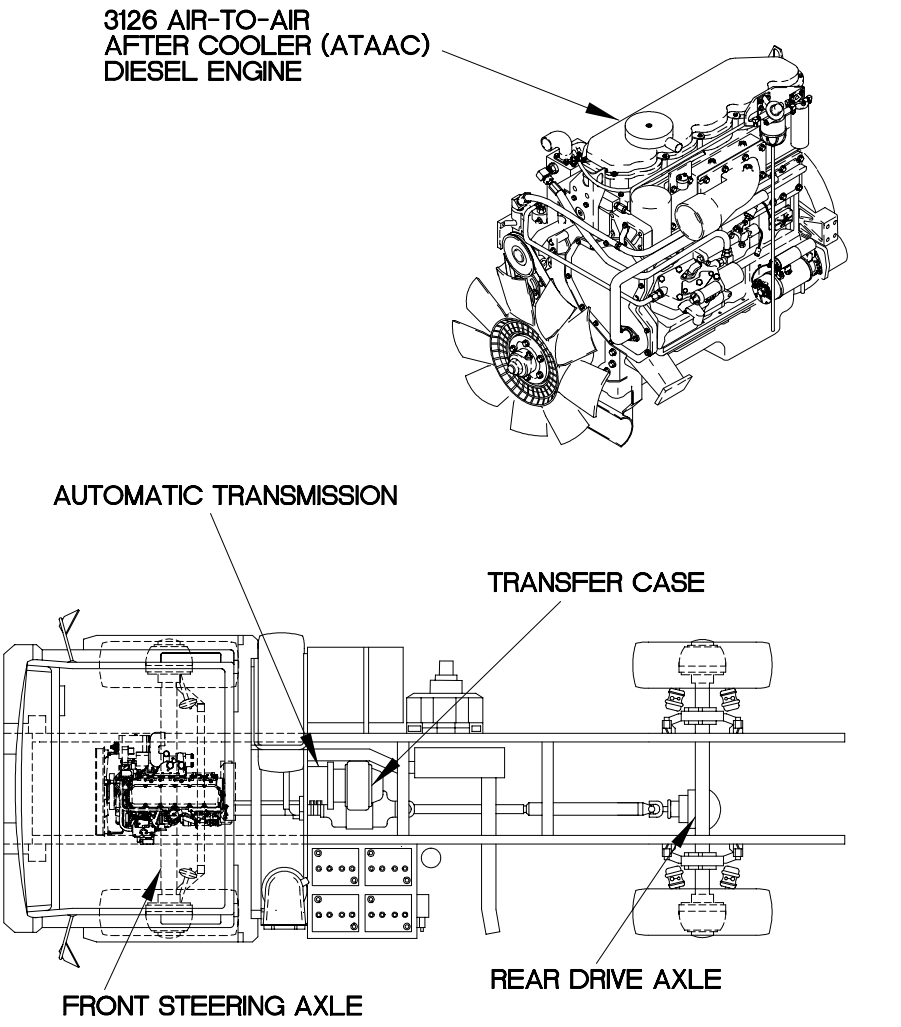
Vehicle	Vehicle Class Number
	Cross-Country/ off-highway
M1078A1	11
M1078A1 w/winch	11
M1079A1	11
M1079A1 w/winch	12
M1080A1	8

M1078A1 SERIES THEORY OF OPERATION 0003 00

POWERTRAIN

The Powertrain for the vehicle is provided by a diesel engine which is coupled directly to an automatic transmission. Power from the automatic transmission is supplied to the transfer case and on to the front steering axle and rear drive axle through a series of drive shafts and universal joints. The capability of the powertrain is enhanced by the use of a seven-speed transmission.

Engine. The vehicle is equipped with a Caterpillar model 3126 Air-to-Air Aftercooler (ATAAC) diesel engine rated at 275 hp (205 kW).

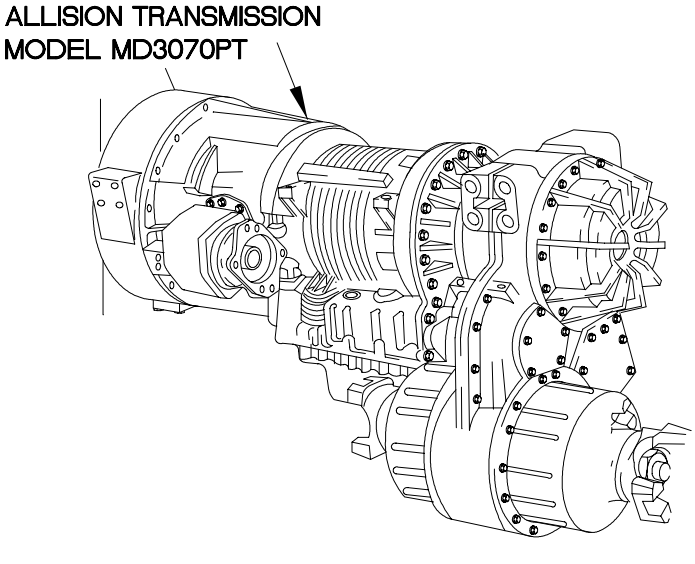


0300A01-

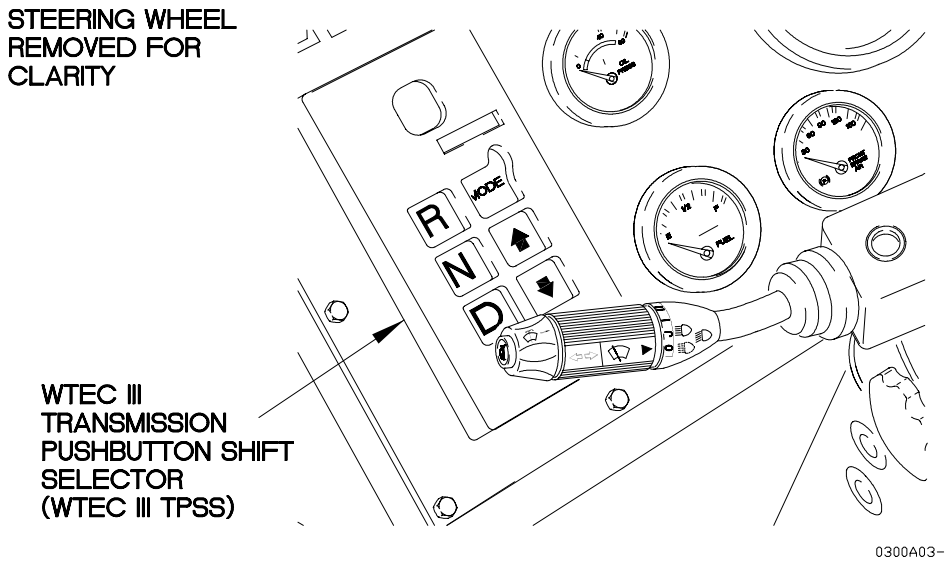
M1078A1 SERIES THEORY OF OPERATION - Continued 0003 00

POWERTRAIN - Continued

Transmission. The vehicle is equipped with a fully automatic, electronically controlled, seven-speed, close-ratio Allison transmission Model MD3070PT.



1. The WTEC III Transmission Pushbutton Shift Selector (TPSS) is located in the instrument panel assembly, to the Operator's left.



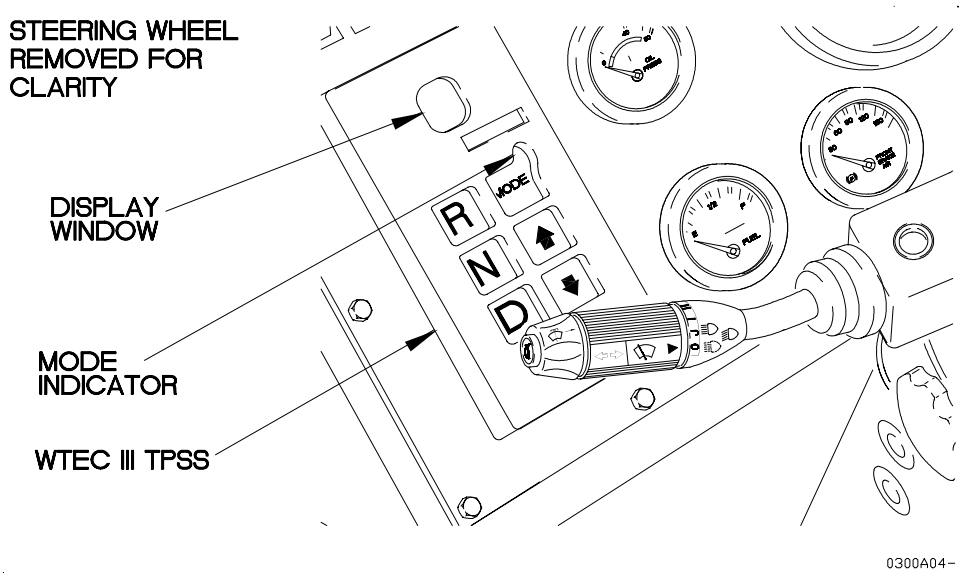
M1078A1 SERIES THEORY OF OPERATION - Continued 0003 00

POWERTRAIN - Continued

2. The transmission defaults to Neutral (**N**) whenever the master power switch is positioned to off. When the master power switch is positioned to on, the mode indicator will illuminate briefly on the WTEC III TPSS. The mode indicator will go out and **N** will appear in the display window. This lets you know that the transmission is in highway mode and Neutral (**N**) range.

3. The Drive (**D**) gear selection is used for normal driving conditions. The transmission will engage 2nd gear when **D** is selected and the vehicle is stopped. The WTEC III TPSS display window will illuminate **7**, indicating the highest available gear. Low gear (1st gear), is available only through manual selection by pressing the down arrow button until **1** is displayed in the display window. You may manually downshift or upshift to a lower or higher gear range as required. The transmission will not downshift to a lower gear if the engine speed is too high for the gear selected. Selecting a specific gear, for example 3rd, will prevent the transmission upshifting past the selected gear.

4. Until **MODE** is pressed on the WTEC III TPSS, the vehicle is operating as a 2 x 4 vehicle. When **MODE** is pressed, the mode indicator will illuminate and the vehicle is operating as a 4 x 4 (all-wheel drive) vehicle. If the vehicle is stopped, the display window will illuminate **5,** indicating that 5th gear is the highest available gear. This off-road mode is useful if road or load conditions require the use of a lower gear range for maximum torque. The vehicle must be completely stopped and engine operating at idle speed before the transmission will allow you to shift from a forward gear to Reverse (**R**) gear.

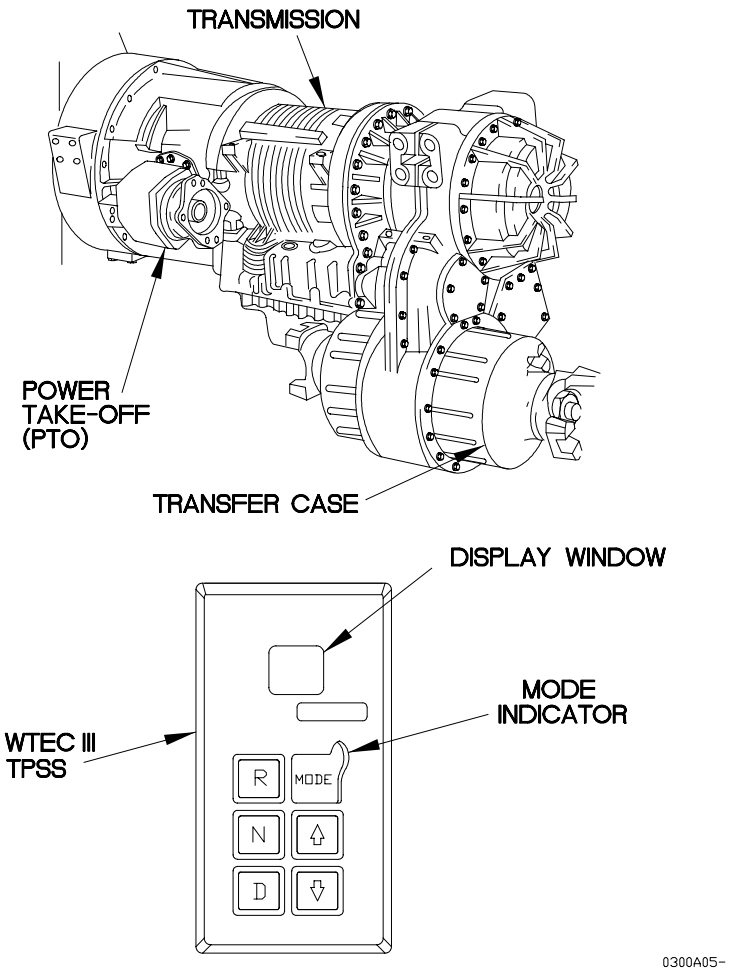


M1078A1 SERIES THEORY OF OPERATION - Continued 0003 00

POWERTRAIN - Continued

5. The transmission may include an electronically controlled Power Take-Off (PTO). The PTO provides power to a hydraulic pump, which powers the 11K Self-Recovery Winch (SRW) if equipped. The transmission will not shift from Neutral (**N**) if the PTO is engaged and the winch switch is in the on position.

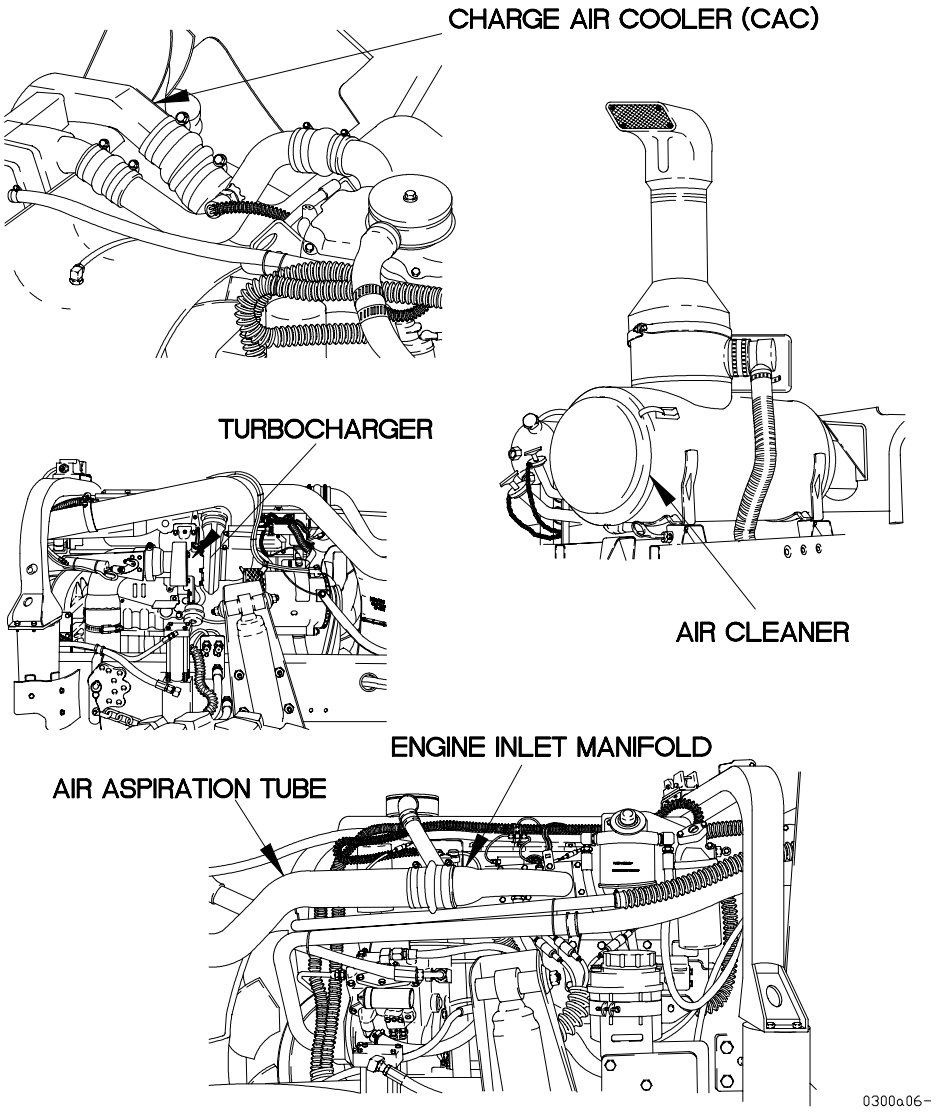
Transfer Case. The transfer case contains the gears and clutches that provide the transmission with the seventh gear. The transfer case delivers power from the transmission to the front driveshaft and rear driveshaft. In normal driving conditions the transfer case splits the output torque of the transmission, providing 70 percent of the torque to the rear and 30 percent to the front. In 1st gear, or any time the mode indicator is illuminated, the output torque of the transmission is split evenly between front and rear.



M1078A1 SERIES THEORY OF OPERATION - Continued 0003 00

ENGINE AIR INTAKE SYSTEM

The Engine Air Intake System consists of a dry-type air cleaner, turbocharger, and a Charge Air Cooler (CAC). The turbocharger increases engine horsepower by delivering a higher volume of air to the engine. The turbocharger compresses the air and delivers it to the CAC. The air flows through the CAC which cools the air before it is delivered to the engine cylinders. The air aspiration tubes pass the cooled and compressed air to the engine inlet manifold. The compressed air/fuel mixture allows more complete burning of the fuel. The result is an increase in horsepower and lower emissions.



M1078A1 SERIES THEORY OF OPERATION - Continued 0003 00

FUEL SYSTEM

The Fuel System consists of a 56 gal (212 L) capacity fuel tank with 54 usable gal (204 L) of fuel, fuel priming pump and fuel/water separator, fuel transfer pump, secondary fuel filter, and fuel injectors.

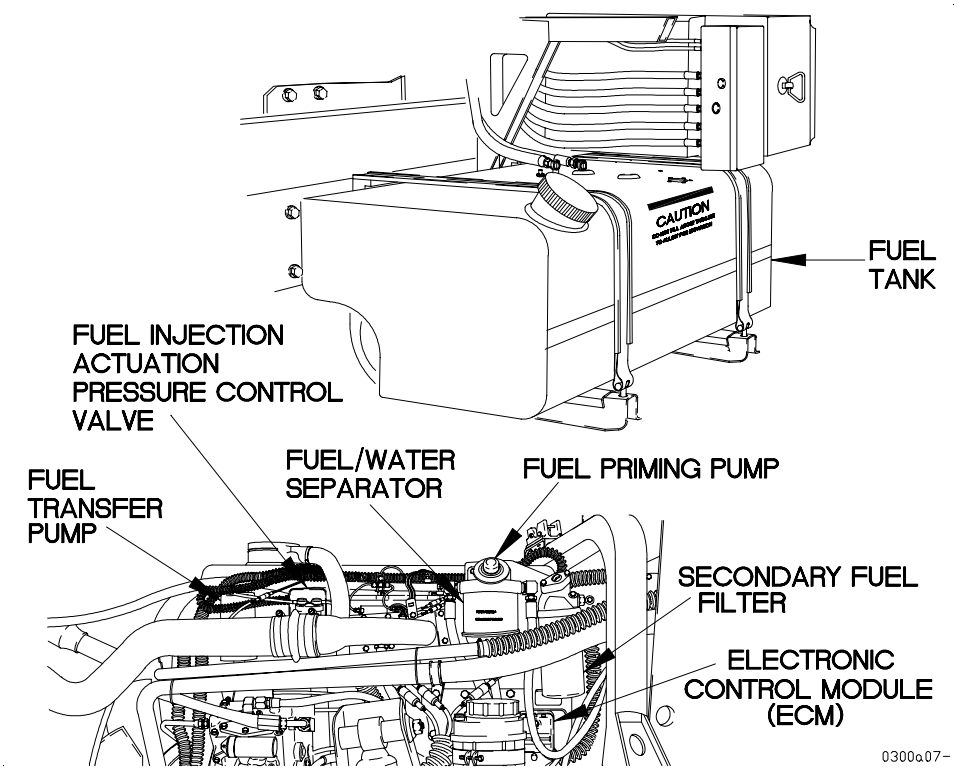
1. The fuel priming pump acts as an engine priming feature and is hand actuated. The fuel transfer pump is used to fuel the secondary fuel filter.

2. The fuel/water separator removes water and large solid particles from the fuel before it is passed to the fuel injectors.

3. The fuel injection actuation pressure control valve receives the fuel passed from the fuel transfer pump when it is energized by the Electronic Control Module (ECM).

4. The ECM adjusts the amount of fuel delivered to the engine as engine speed changes.

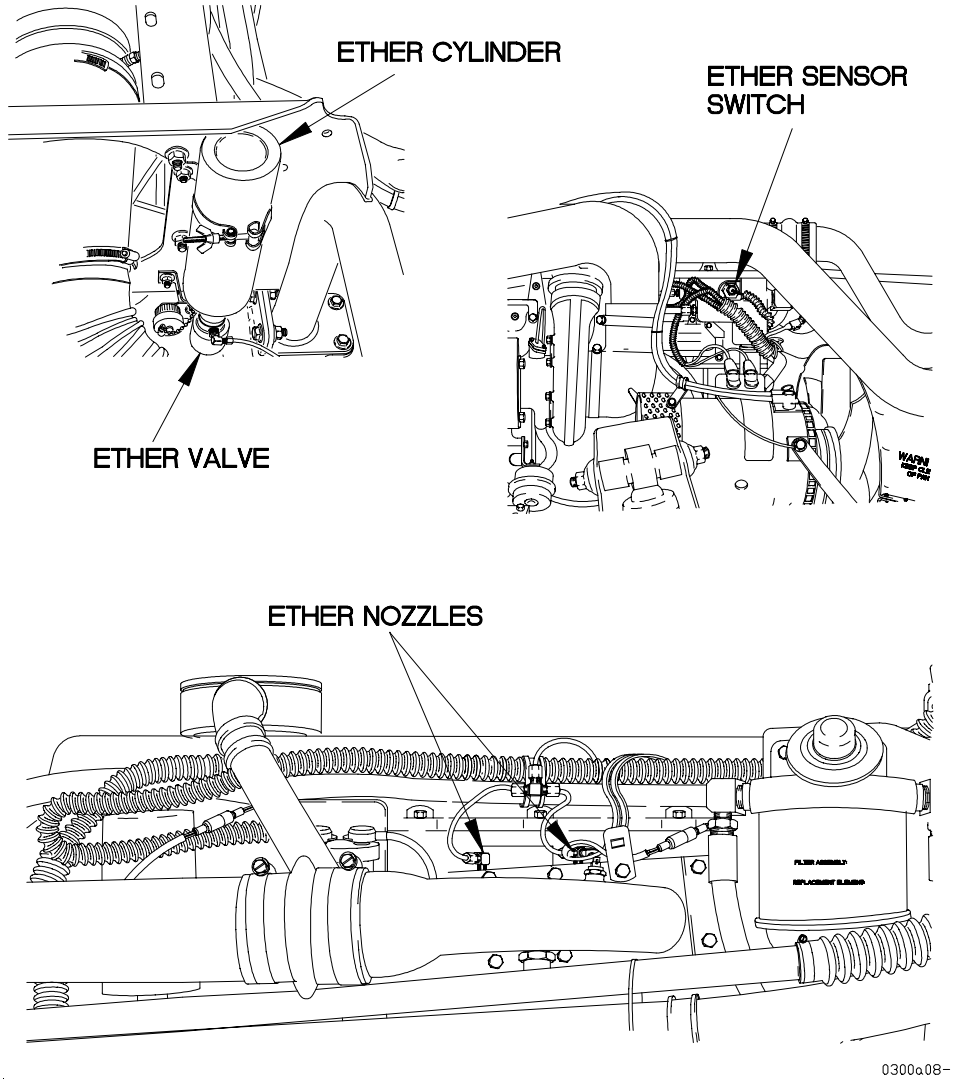
5. The secondary fuel filter removes finer particles from the fuel before it reaches the cylinder head.



M1078A1 SERIES THEORY OF OPERATION - Continued 0003 00

FUEL SYSTEM - Continued

6. The vehicle is also equipped with an ether quick start system for starting the engine when the outside temperature is below 32° F (0° C). The ether quick start system is composed of an ether cylinder, ether valve, two ether nozzles, and an ether sensor switch. The ether sensor switch detects the temperature of the engine coolant and disables the ether valve if the coolant temperature is above 100° F (38° C).



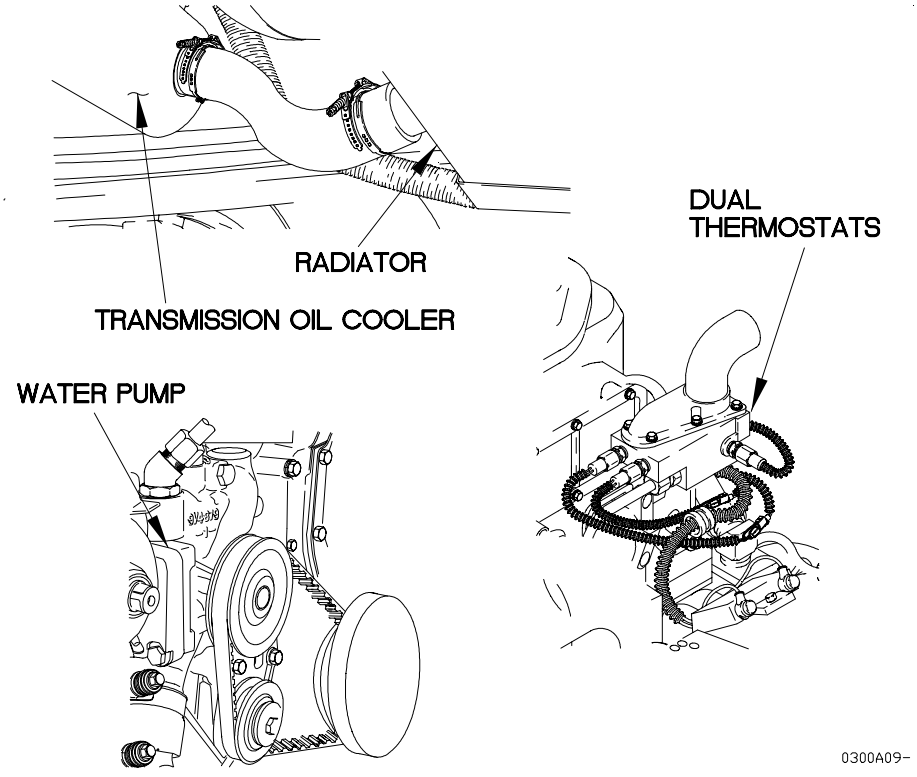
M1078A1 SERIES THEORY OF OPERATION - Continued 0003 00

COOLING SYSTEM

The Cooling System protects the engine, transmission, and air compressor by providing a means of removing the heat generated during operation of the vehicle.

1. The radiator pressure cap, in combination with the ethylene glycol-based antifreeze, effectively raises the boiling point of the coolant to well above 212° F (100° C).

2. The dual thermostats help the engine to warm up quickly by remaining closed until the coolant temperature reaches approximately 199° F (93° C). When the coolant temperature reaches approximately 199° F (93° C), the thermostats open and coolant is circulated through the water jacket in the engine to maintain the correct operating temperature for the engine. Coolant is drawn from the radiator, through the transmission oil cooler, and circulated through the cooling system by the water pump. Heat is drawn from the radiator by the engine fan pulling air over the radiator cooling fins.

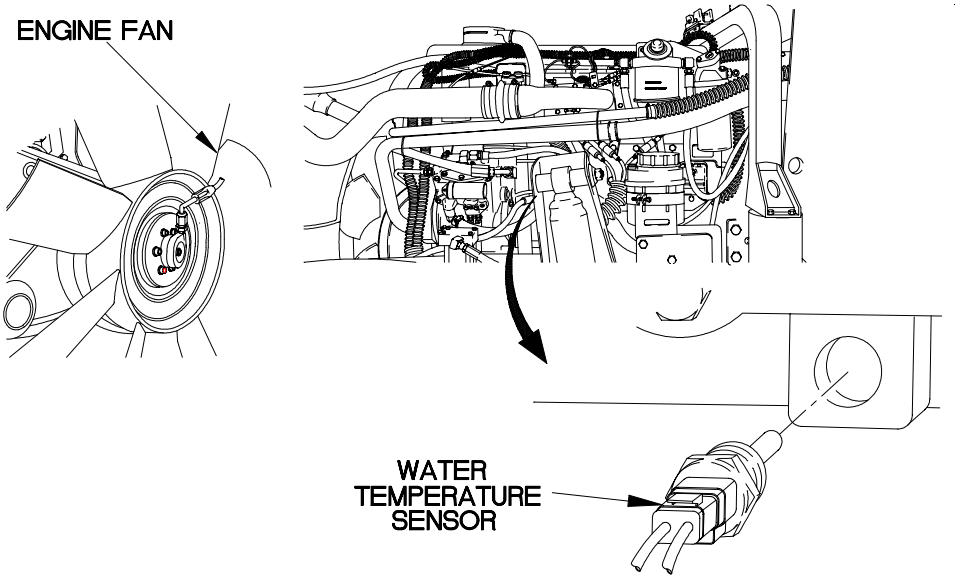


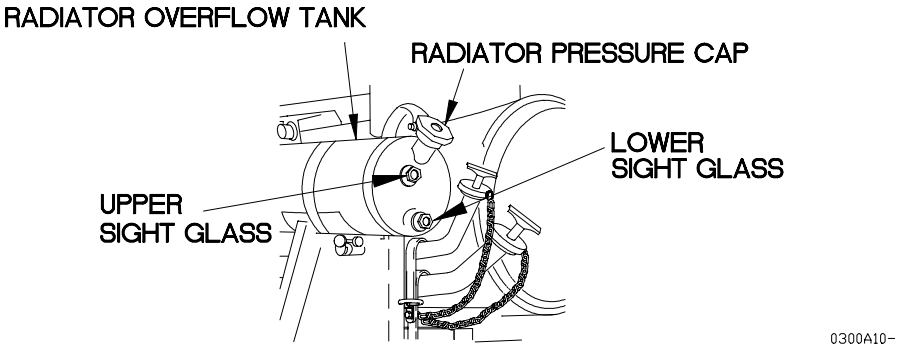
M1078A1 SERIES THEORY OF OPERATION - Continued 0003 00

COOLING SYSTEM - Continued

3. A radiator overflow tank is provided to allow for expansion of the coolant. The radiator overflow tank also serves as the point where new coolant is introduced into the cooling system. The radiator overflow tank has two sight glasses. The upper sight glass indicates the coolant level to fill to with the engine shut down. If coolant is not visible in the lower sight glass, do not operate the vehicle.

4. The engine fan, with pneumatic fan clutch, is activated by the water temperature sensor. Whenever this sensor detects a high engine temperature condition, air pressure is removed from the fan clutch and the engine fan is engaged.



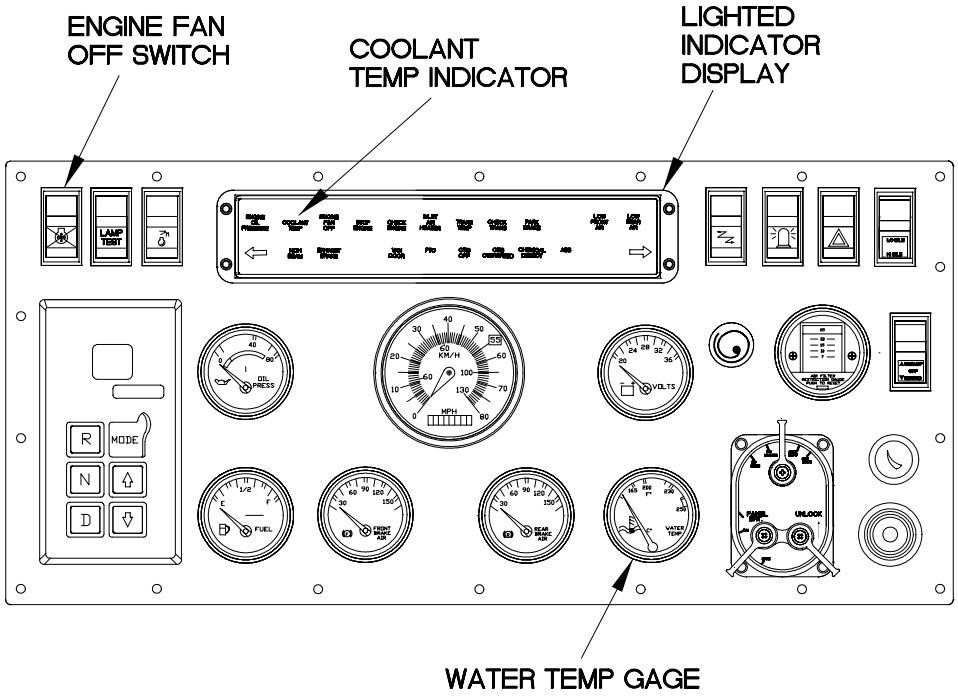


M1078A1 SERIES THEORY OF OPERATION - Continued 0003 00

COOLING SYSTEM - Continued

5. Positioning the engine fan off switch to the on position keeps the engine fan from engaging while fording water more than 30 in. (76 cm) deep.

6. The WATER TEMP gage on the instrument panel assembly allows you to monitor coolant temperature. In addition, the COOLANT TEMP indicator on the lighted indicator display illuminates when the coolant temperature exceeds 230° F (110° C). When the personnel heater is in use, warm coolant is used to heat the air in the cab before being returned to the radiator. Otherwise, coolant is returned directly to the radiator to be cooled.



ELECTRICAL SYSTEM

The vehicle Electrical System is a combined 12/24 vdc system. Four 12-volt batteries are connected in series-parallel with the negative terminal grounded to the vehicle chassis.

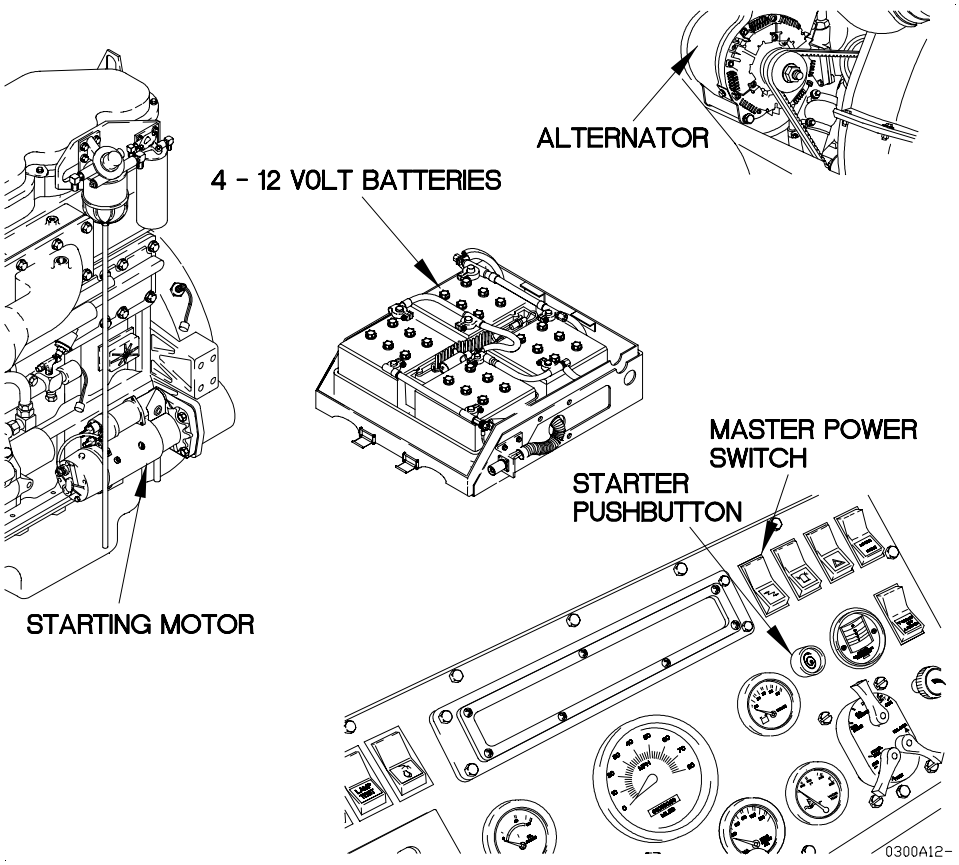
M1078A1 SERIES THEORY OF OPERATION - Continued 0003 00

ELECTRICAL SYSTEM - Continued

1. Positioning the master power switch to on applies power to all electrical circuits needed to operate the vehicle.

2. The starting motor operates directly from the 24 vdc source through the starter pushbutton.

3. A 12/24-volt, belt-driven alternator with a 100 amp capacity maintains the charge on the batteries. The 24 vdc source supplies electrical power to operate the starting motor, Central Tire Inflation System (CTIS), fuel/water separator, air dryer, ether injection system, instrument panel assembly gages, and windshield wipers/washer. The 12 vdc source supplies electrical power to the vehicle lights and instrument panel assembly lights.



M1078A1 SERIES THEORY OF OPERATION - Continued 0003 00

ELECTRICAL SYSTEM - Continued

4. Vehicle S/N 18,550 and higher are equipped with a Dual-Voltage, 100 Amp Alternator. The Dual-Voltage, 100 Amp Alternator.

- Can operate without batteries
- Provides a trickle charge to the batteries
- Has on-board voltage regulator
- Is equipped with two on-board LEDs: one for the 12 vdc output and one for the 24 vdc output

Table 1 shows how to interpret the alternator LED status.

Table 1. Alternator LED Status (Vehicle S/N 18,550 or Higher).

LED COLOR	SYSTEM STATUS
OFF	Regulator is not energized
FLASHING	
Green	The respective system voltage (12 or 24 vdc) is normal.
Amber	The respective system voltage (12 or 24 vdc) is low.
Red	The respective system voltage (12 or 24 vdc) is high.
STEADY	
Red	The alternator is shut down and is not producing power for either voltage (12 or 24 vdc).

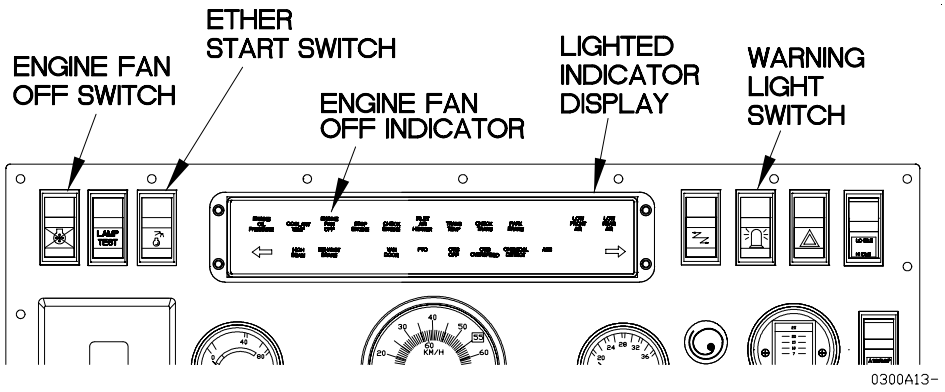
M1078A1 SERIES THEORY OF OPERATION - Continued 0003 00

ELECTRICAL SYSTEM - Continued

5. The engine fan off switch is used to keep the engine fan from engaging during deep water fording. The ENGINE FAN OFF indicator will illuminate on the lighted indicator display when the engine fan off switch is positioned to on.

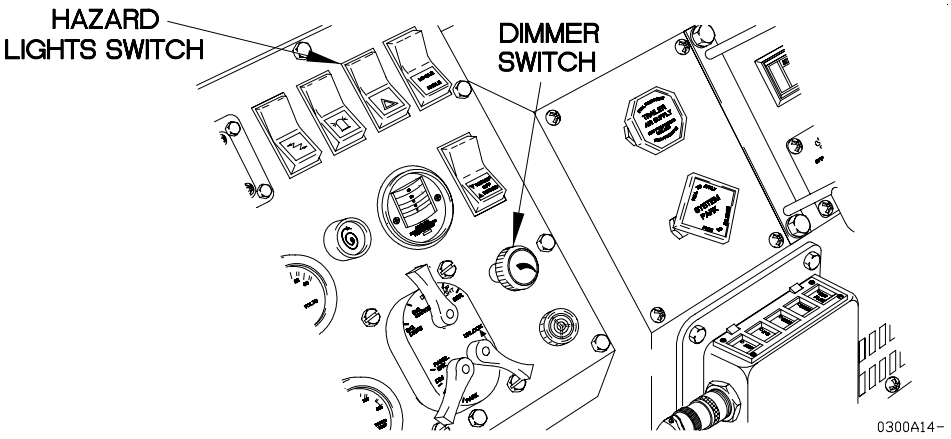
6. The ether start switch is used to start the engine when the outside temperature is 32° F (0° C) or below. Pressing the ether start switch sends a measured charge of ether to the engine to make starting easier.

7. The warning light switch operates the amber warning light on the cab roof when installed.



8. Positioning the hazard lights switch to on causes both left and right turn signals to flash.

9. On vehicle S/N 18,549 or lower, a dimmer switch is provided so that you can adjust the brightness of the instrument panel assembly lighting.



M1078A1 SERIES THEORY OF OPERATION - Continued 0003 00

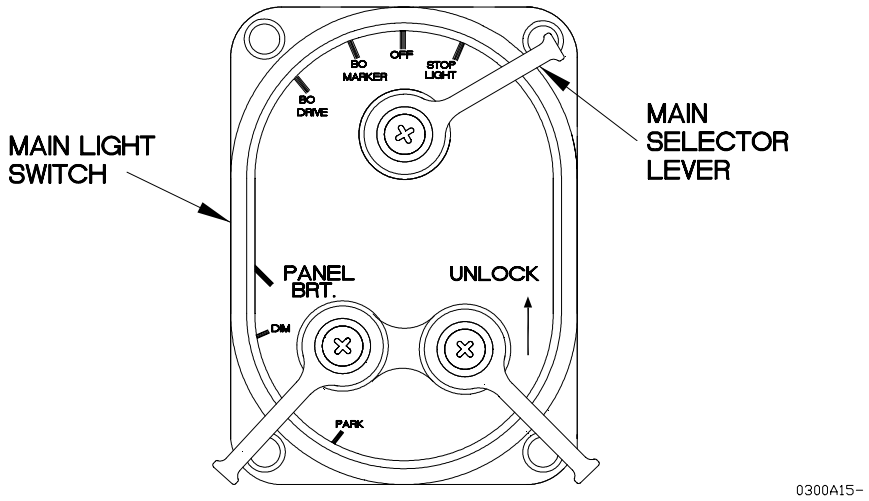
ELECTRICAL SYSTEM - Continued

NOTE

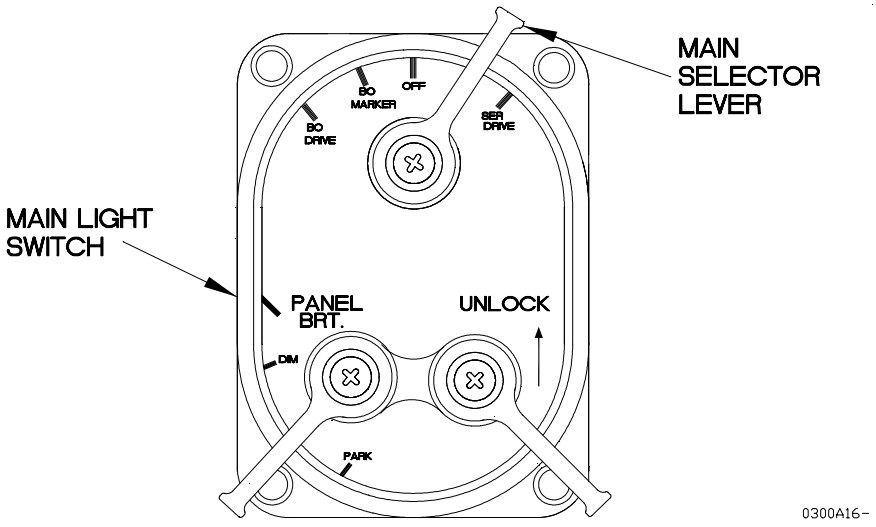
This paragraph describes the main light switch for vehicle S/N 18,549 or lower.

10. The main light switch is the only switch that is active even when the master power switch is off.

    a. Positioning the main selector lever to SER DRIVE causes the headlights, taillights, marker lights, and clearance lights to illuminate; stoplights will illuminate when the ignition switch is turned on and brake pedal is depressed.



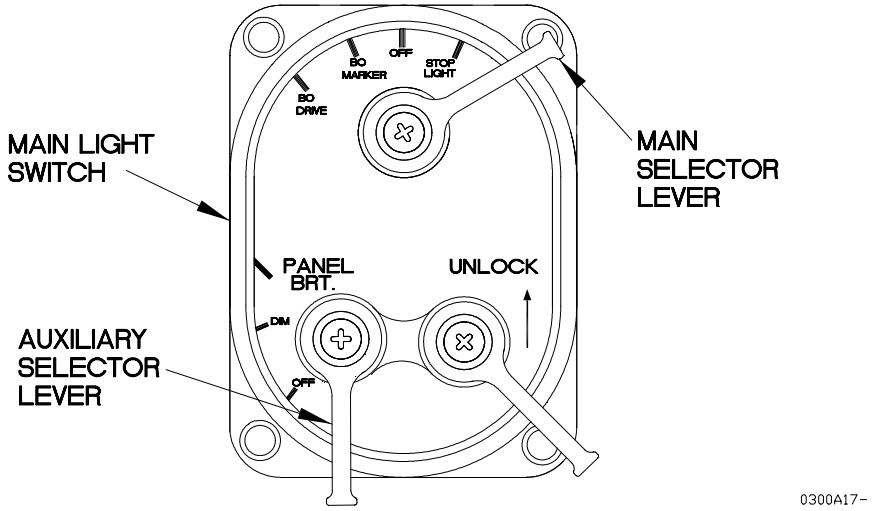
    b. Positioning the main selector lever to STOP LIGHT extinguishes all vehicle lights but allows stoplights to illuminate when brake pedal is depressed.



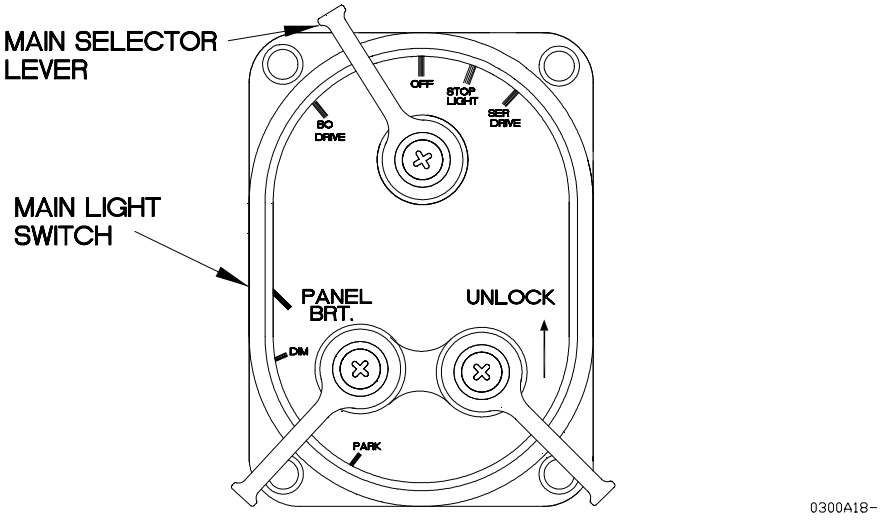
M1078A1 SERIES THEORY OF OPERATION - Continued 0003 00

ELECTRICAL SYSTEM - Continued

c. Positioning the auxiliary selector lever to PARK with the main selector lever in SER DRIVE causes the headlights to extinguish and the front parking lights to illuminate.



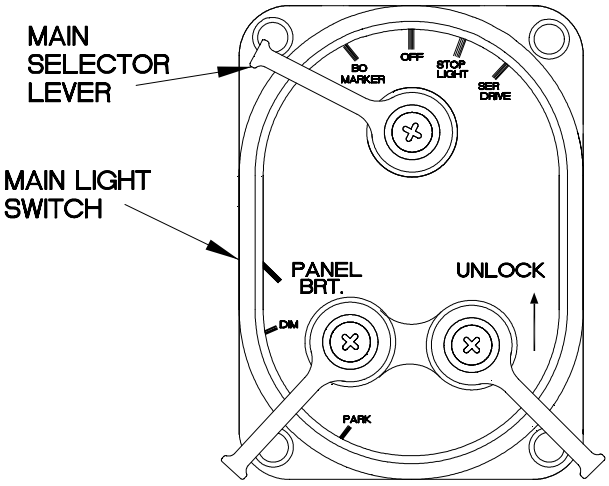
d. Positioning the main selector lever to BO MARKER causes the blackout marker lights to illuminate.



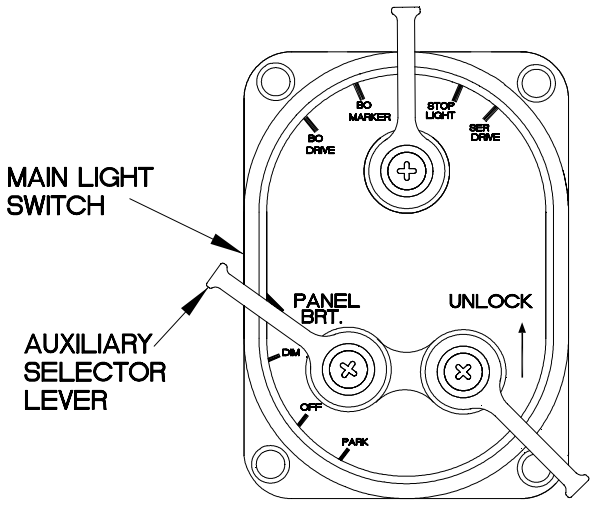
M1078A1 SERIES THEORY OF OPERATION - Continued 0003 00

ELECTRICAL SYSTEM - Continued

e. Positioning the main selector lever to BO DRIVE causes the blackout drive light and blackout marker lights to illuminate.



f. Instrument panel assembly lights are illuminated when the auxiliary selector lever is in PANEL BRT position.

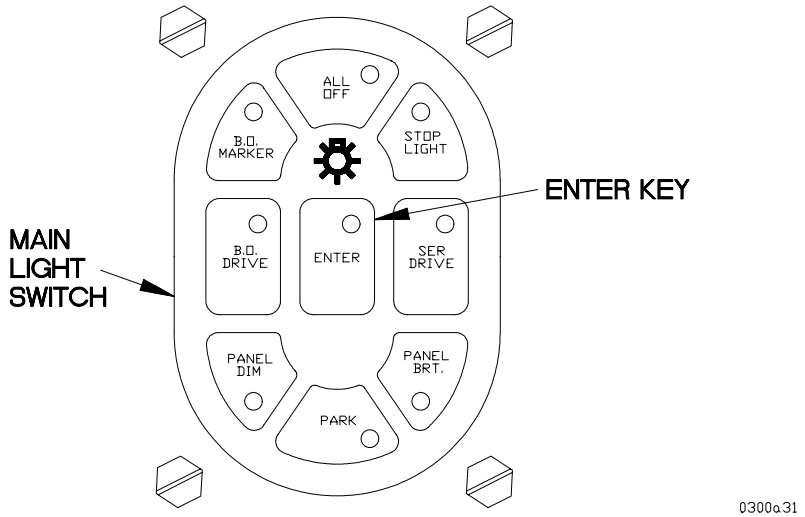


M1078A1 SERIES THEORY OF OPERATION - Continued 0003 00

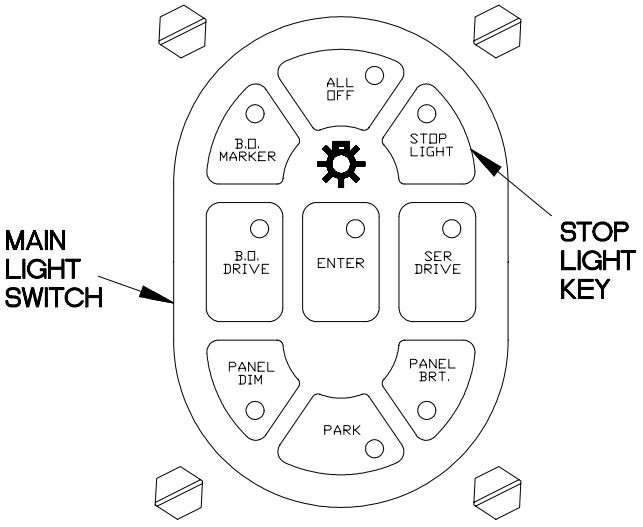
ELECTRICAL SYSTEM - Continued

11. This paragraph describes the main light switch equipped on vehicle S/N 18,550 or higher, in addition to controlling activation of vehicle lighting systems, the main light switch provides dimming for both the 12 vdc and 24 vdc panel lighting. The main light switch also provides variable backlighting to indicate switch position.

    a. Pressing the ENTER key after a selection has been made enters the selected function. If ENTER is not pressed within 5 seconds after the selection has been made, the switch will reset to the previous mode to prevent accidental switching.



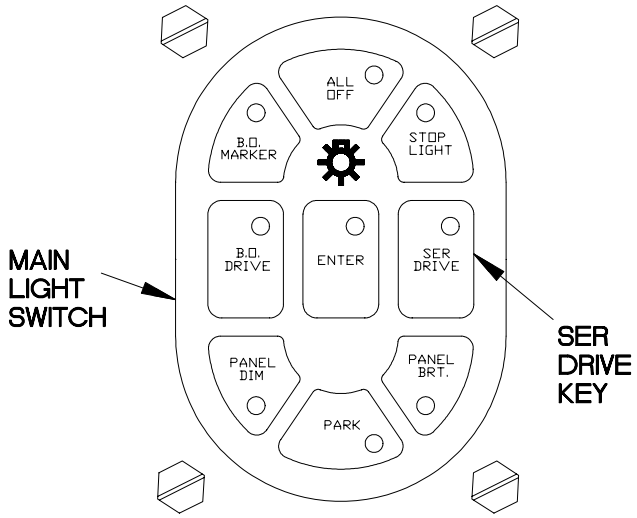
    b. When STOP LIGHT key is selected, the stop lights operate when the brake pedal is pressed.



M1078A1 SERIES THEORY OF OPERATION - Continued 0003 00

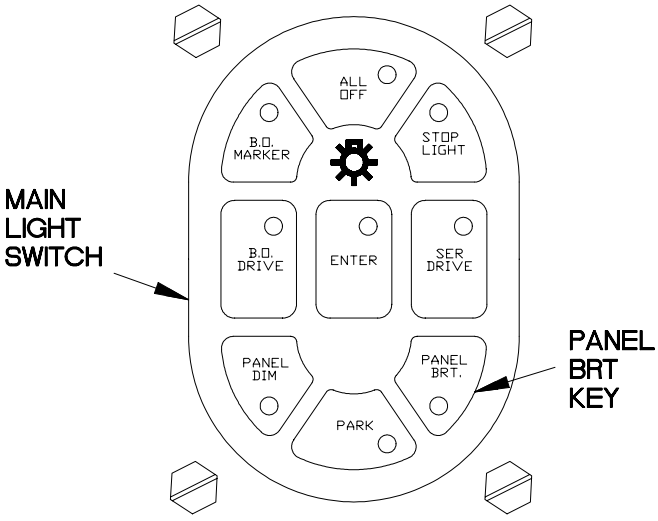
ELECTRICAL SYSTEM - Continued

c. When the SER DRIVE key is selected, all service lights operate.



0300a33

d. When the PANEL BRT key is selected, all dashboard illuminators are illuminated.

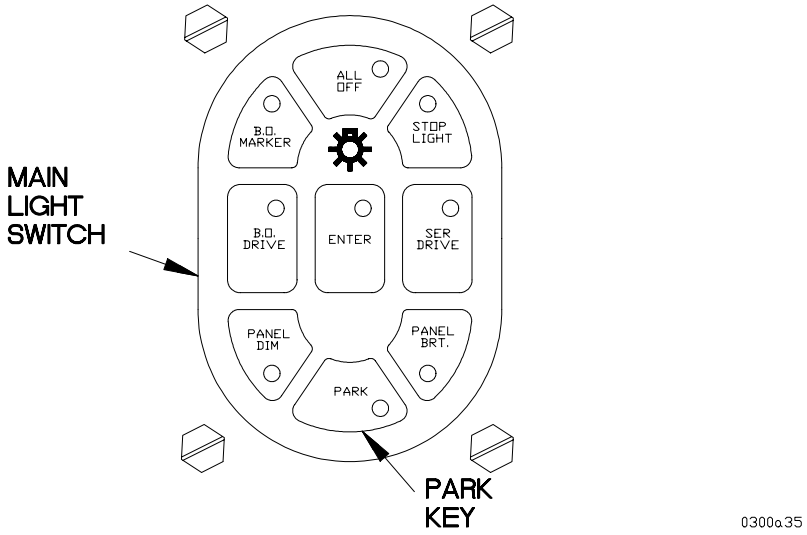


0300a34

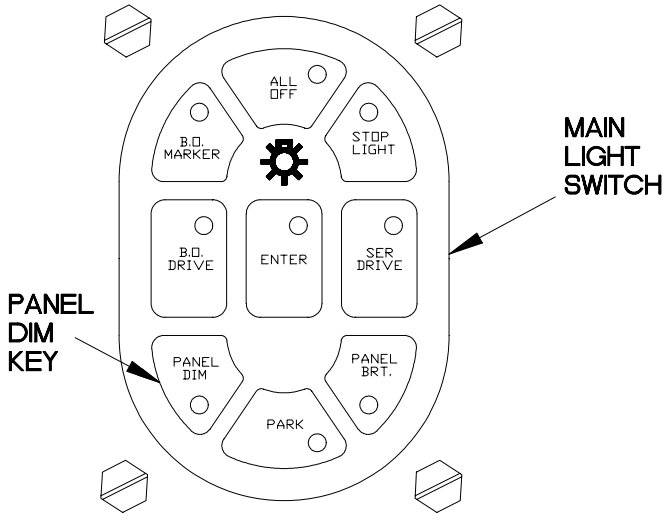
M1078A1 SERIES THEORY OF OPERATION - Continued 0003 00

ELECTRICAL SYSTEM - Continued

e. When the PARK key is selected, parking brake lights will illuminate.



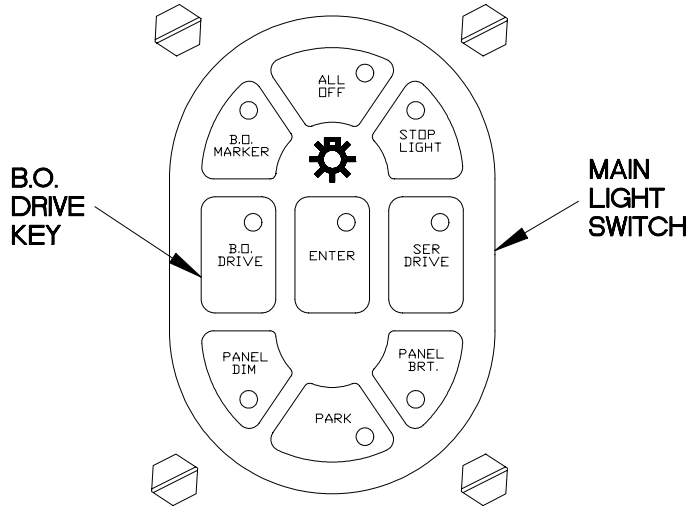
f. When the PANEL DIM is selected, all dashboard illumination is turned off.



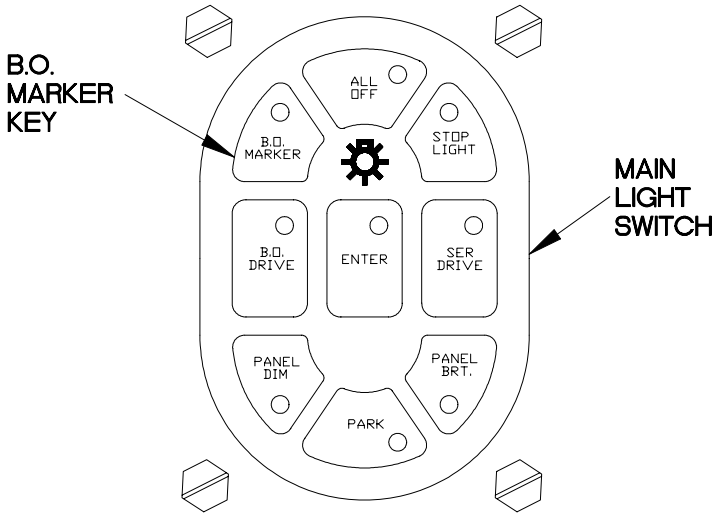
M1078A1 SERIES THEORY OF OPERATION - Continued 0003 00

ELECTRICAL SYSTEM - Continued

g. When the B.O. DRIVE key is selected, all blackout lights will operate.



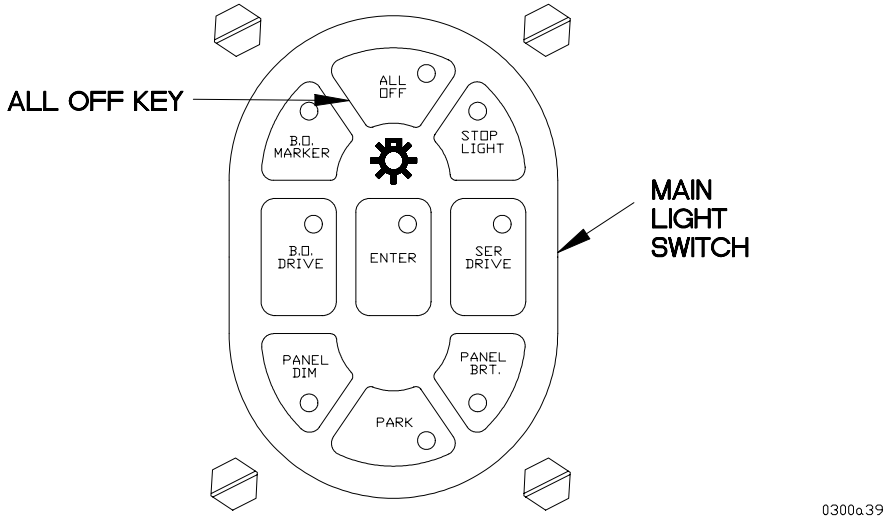
h. When the B.O. MARKER key is selected, blackout marker lights illuminate.



M1078A1 SERIES THEORY OF OPERATION - Continued 0003 00

ELECTRICAL SYSTEM – Continued

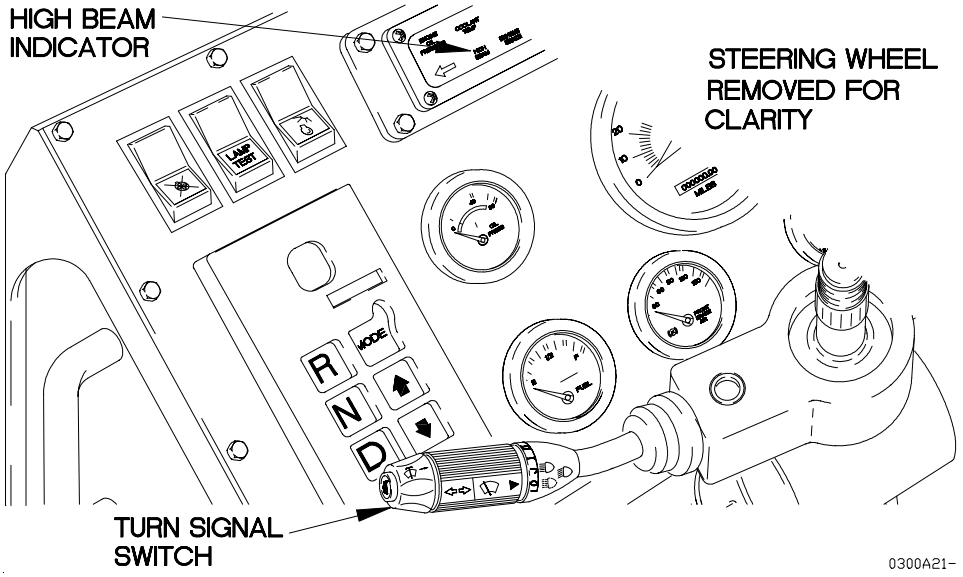
i. When the ALL OFF key is selected, all main light switch functions are turned off.



12. Headlight high beams are controlled from the turn signal switch.

    a. Pulling the turn signal switch towards you will switch the headlights from low beam to high beam. The HIGH BEAM indicator will illuminate when high beams are on.

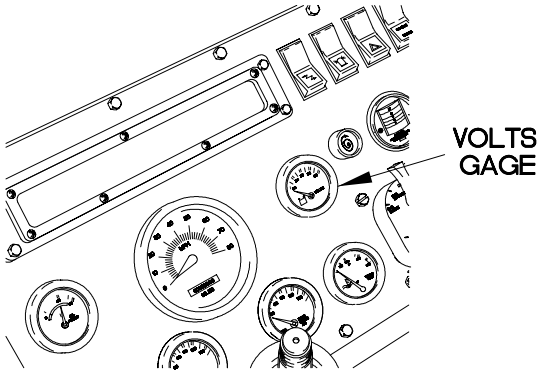
    b. Pulling the turn signal switch again will switch the headlights from high beam to low beam.



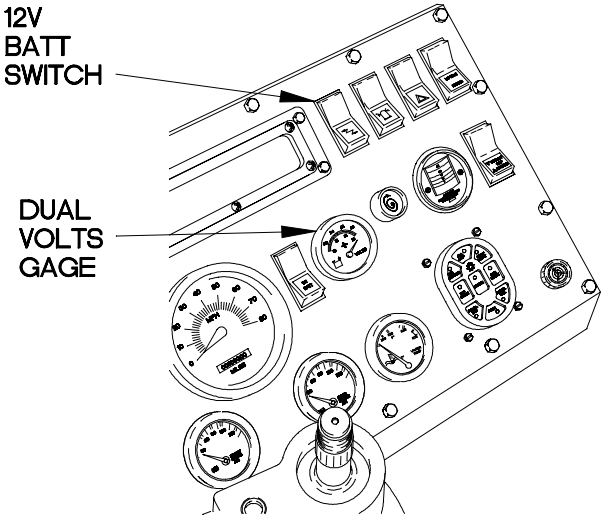
M1078A1 SERIES THEORY OF OPERATION - Continued 0003 00

ELECTRICAL SYSTEM - Continued

13. The VOLTS gage shows the voltage output for the 24 vdc system (vehicle S/N 18,549 or lower).



14. Vehicles S/N 18,550 and higher are equipped with a momentary 12V BATT switch and a dual-voltage VOLTS gage. The normal indication of the VOLTS GAGE is 24 vdc. Depressing the 12V BATT switch changes the VOLTS indication to 12 vdc.

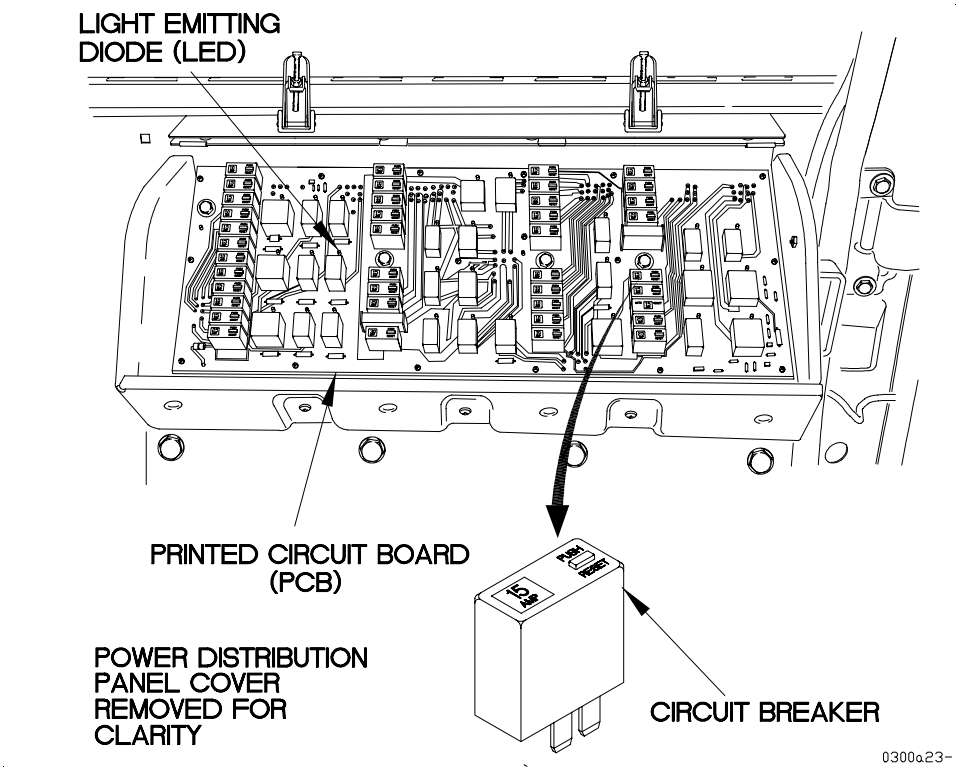


M1078A1 SERIES THEORY OF OPERATION - Continued 0003 00

ELECTRICAL SYSTEM - Continued

15. The PCB is equipped with LEDs. If the LEDs illuminate, the circuit is functioning.

16. All electrical circuits are protected against overloads by circuit breakers.



17. Wiring harness and electrical cable assemblies carry electrical current to operate equipment and accessories. Most electrical equipment and accessories are grounded directly to the vehicle chassis.

BRAKE SYSTEM

The vehicle is equipped with a brake system that complies with the Federal Motor Vehicle Safety Standard (FMVSS) 121. The brake system is made up of an air compressor, air dryer, primary and secondary air tanks, and several valves to control the application and release of the brakes. An Anti-lock Braking System (ABS) is also provided. The ABS monitors wheel speed at all times and prevents brake lock situations. An exhaust brake is also installed to add driveline braking to the FMTV. The result of this feature is quicker safer stops with less brake lining wear than vehicles that do not have this system installed.

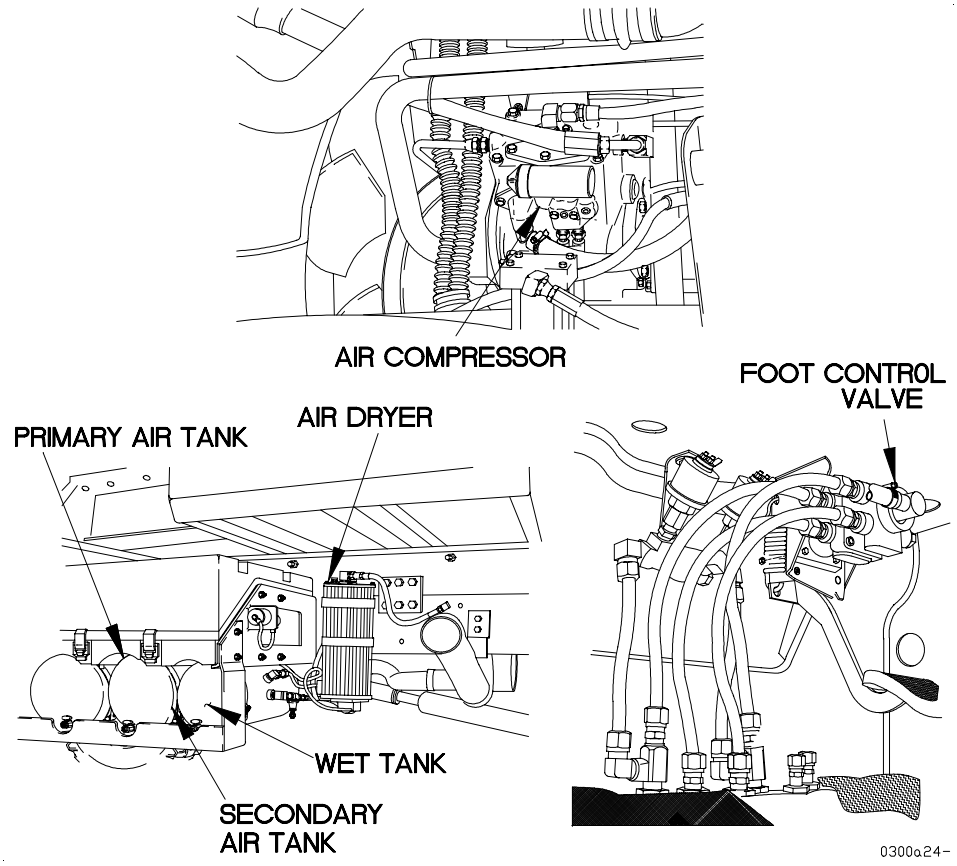
M1078A1 SERIES THEORY OF OPERATION - Continued 0003 00

BRAKE SYSTEM - Continued

1. The air compressor supplies approximately 120 psi (827 kPa) to the air dryer.

2. The air dryer contains a heating element and a desiccant cartridge to remove moisture from the air before it is delivered to the primary air tank and secondary air tank.

3. The foot control valve receives pressurized air from both the primary and secondary air tanks. The foot control valve is a two circuit design, with one set of ports directing air to the front brakes from the secondary air tank and a second set of ports directing air to the rear brakes from the primary air tank. The plumbing between the primary and secondary air tanks is designed to allow controlled braking in the event of a failure in the primary (rear brakes) or secondary (front brakes) brake circuit. When air pressure in the wet tank falls below a preset limit, pressurized air, normally used for the CTIS and fan solenoid, is redirected to the primary brake circuit.



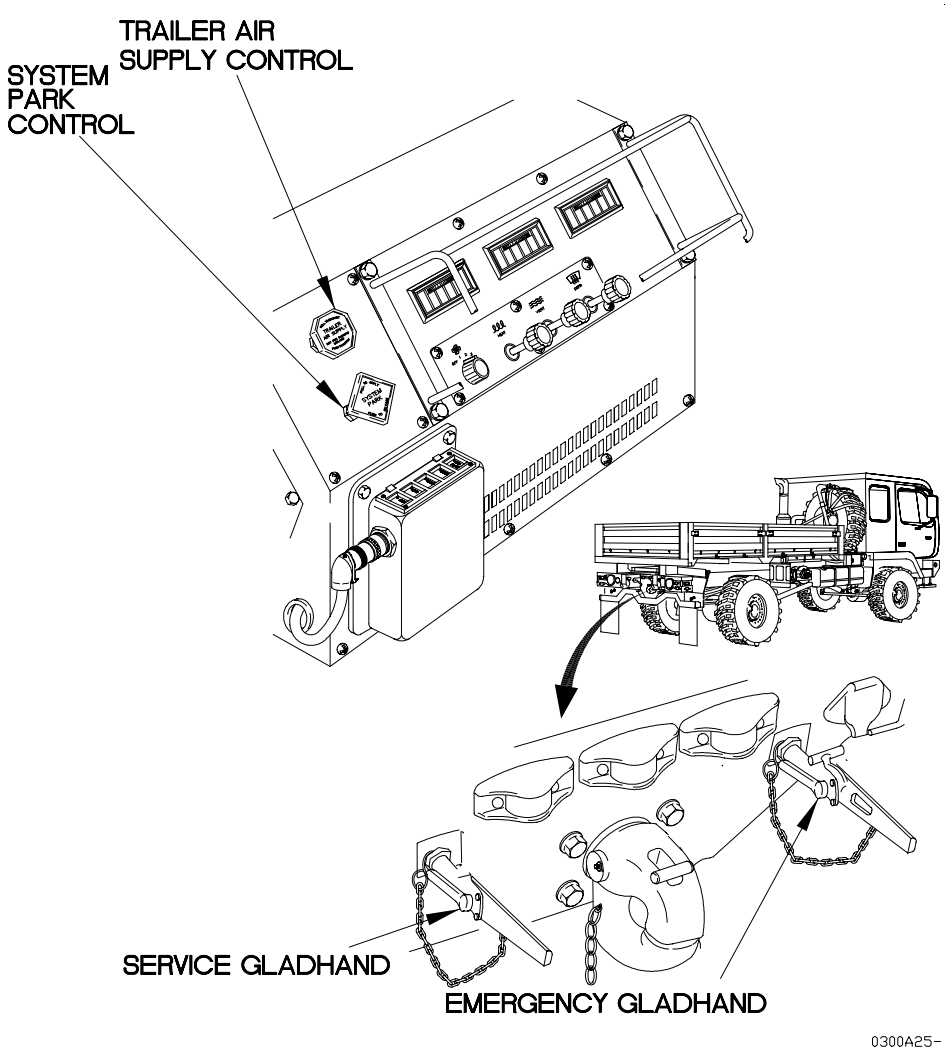
M1078A1 SERIES THEORY OF OPERATION - Continued 0003 00

BRAKE SYSTEM - Continued

4. The SYSTEM PARK control vents air pressure from the primary brake circuit and applies the rear spring brakes. It also supplies air to the trailer supply valve.

5. The TRAILER AIR SUPPLY control supplies brake air pressure to a towed vehicle or trailer.

6. SERVICE gladhand and EMERGENCY gladhand provide the necessary connections to supply a towed vehicle or trailer with brake air pressure.



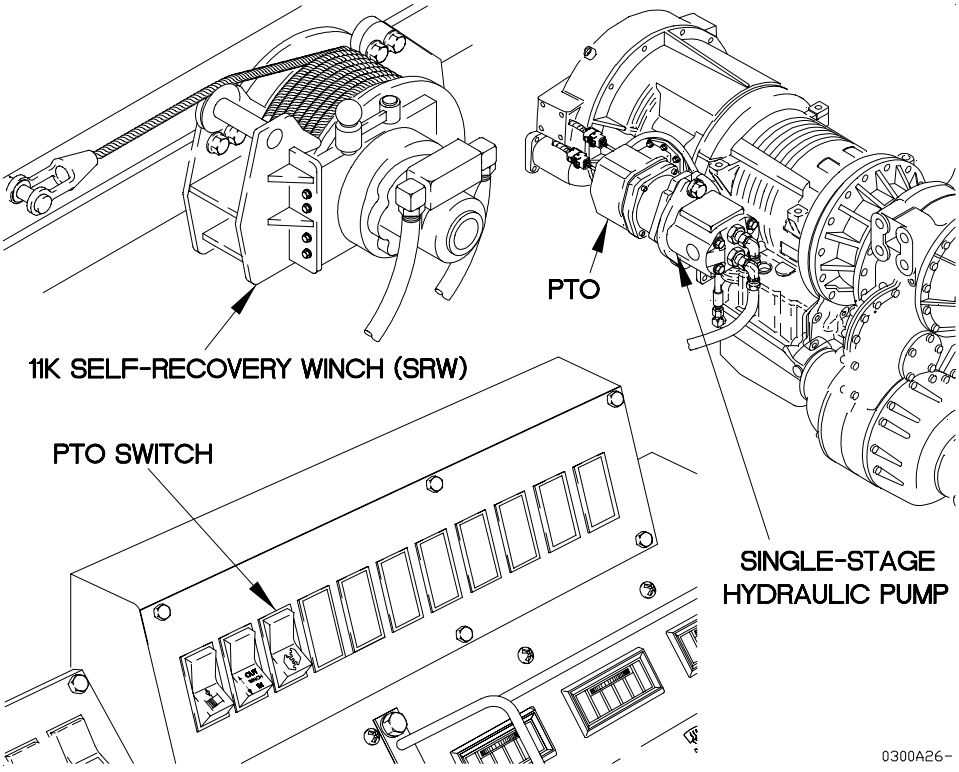
M1078A1 SERIES THEORY OF OPERATION - Continued 0003 00

11K SELF-RECOVERY WINCH (SRW)

11K SRW. When specified, the vehicle may be equipped with an 11K SRW mounted on the right hand frame rail. The 11K SRW is rated for 11,000 lbs (48,924 N) pull when the winch drum has one full layer of cable. Pulling capacity is reduced with each layer of cable added to the winch drum. One full layer of cable is the minimum amount of cable that may be left on the drum when using the 11K SRW. Pulling capacity with seven full layers of cable on the winch drum is 6,780 lbs (30,157 N). For recovery operations, the 11K SRW cable may be routed to the front or to the rear on all vehicles so equipped.

1. Hydraulic pressure to operate the 11K SRW is supplied by a single-stage hydraulic pump mounted on the back of the PTO.

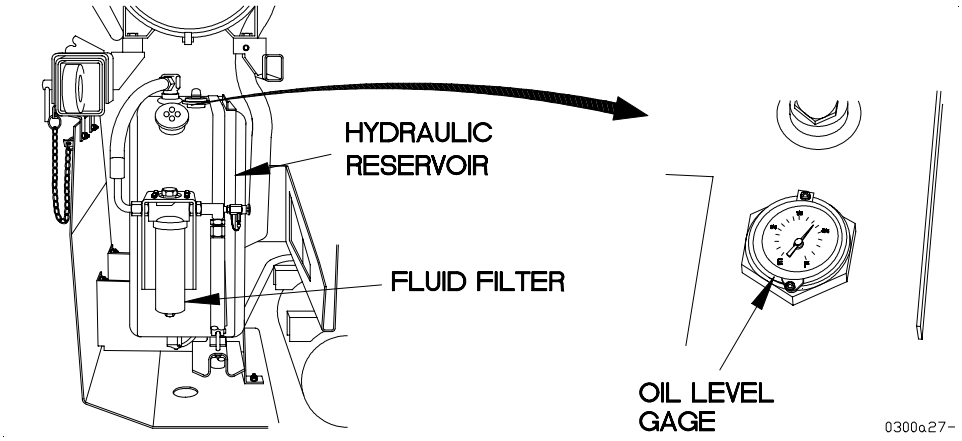
2. Placing the PTO switch in the on position causes the PTO drive gear to engage with the transmission. When the PTO is engaged, it drives the single-stage hydraulic pump.



M1078A1 SERIES THEORY OF OPERATION - Continued 0003 00

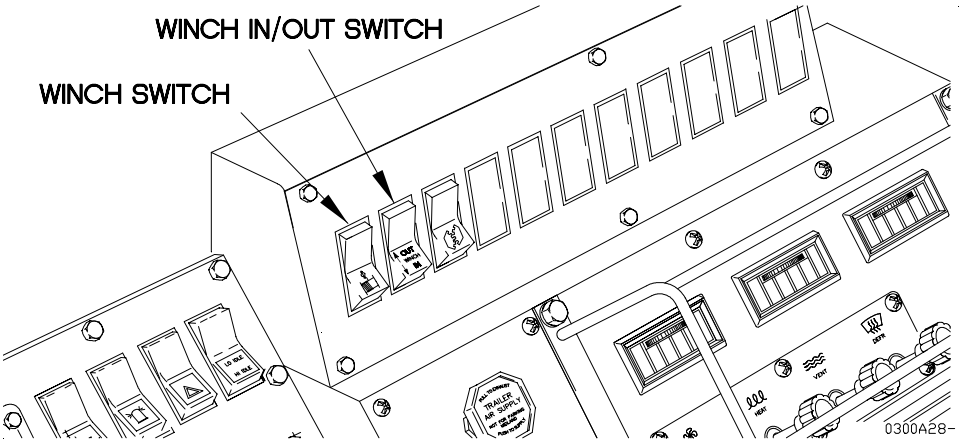
11K SELF-RECOVERY WINCH (SRW) - Continued

Hydraulic Reservoir. The hydraulic reservoir is mounted on the left hand frame rail and contains the oil needed to operate the 11K SRW. The hydraulic reservoir holds 27 gal (102 L) of oil and is equipped with an oil level gage. A fluid filter is also mounted on the hydraulic reservoir to remove contaminates.



1. When the winch switch is turned on, hydraulic power is supplied to the 11K SRW and the transmission is locked in neutral.

2. The 11K SRW cable can be payed out or reeled in by pressing the WINCH IN/OUT switch.



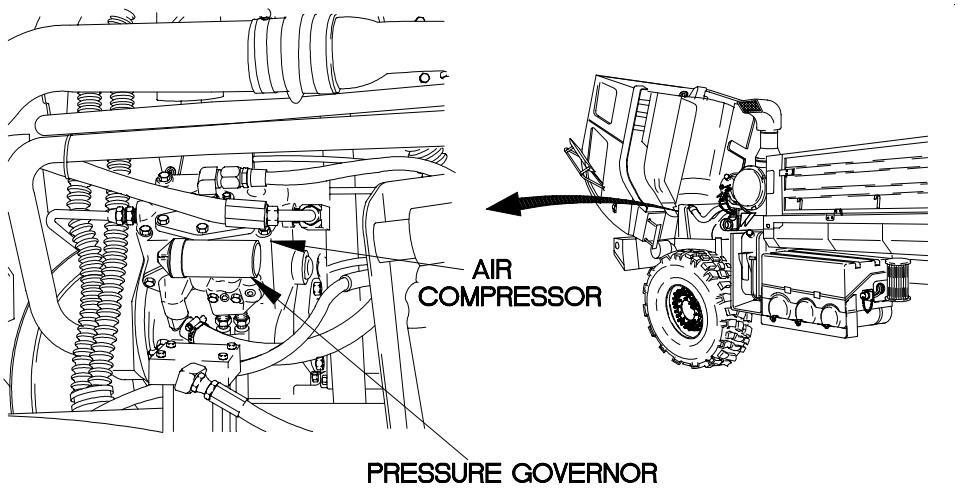
M1078A1 SERIES THEORY OF OPERATION - Continued 0003 00

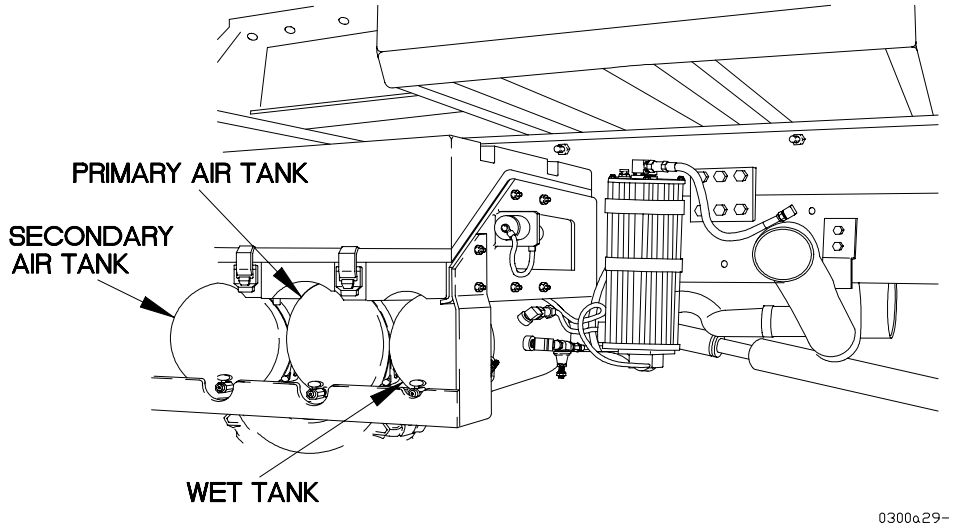
AIR SYSTEM

The Air System provides clean, dry air for use in the air brake system and the CTIS.

1. The air system is pressurized by an engine driven air compressor with an average output pressure of 125 psi (862 kPa). The system pressure is controlled by a pressure governor which maintains the output pressure between 105-125 psi (724-862 kPa).

2. Air is supplied to the air brake portion of the system by the primary air tank and secondary air tank. Air for the CTIS and fan solenoid comes from the wet tank.

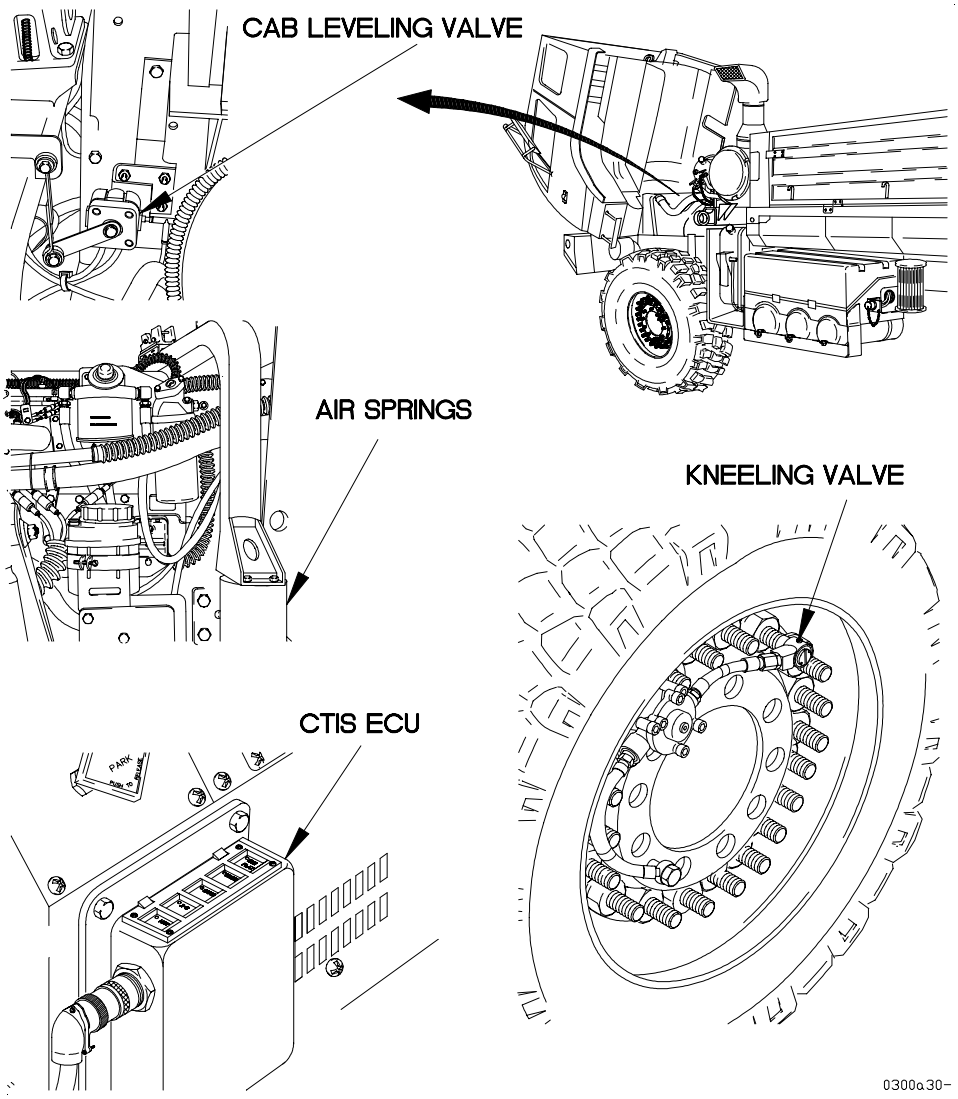




M1078A1 SERIES THEORY OF OPERATION - Continued 0003 00

AIR SYSTEM - Continued

3. Air pressure in the tires is controlled by the CTIS ECU. The CTIS ECU provides four tire pressure settings: highway, cross-country, sand, and emergency. Run flat is an enhance mode used in all four modes. Kneeling valves on the front tires allow the front of the vehicle to be lowered for internal air transport (C-130 and C-141). Air pressure is also used to keep the cab level through the use of air springs, mounted below the rear cab support, and a cab leveling valve.



CHAPTER 2

OPERATING INSTRUCTIONS FOR THE M1078A1 SERIES VEHICLES

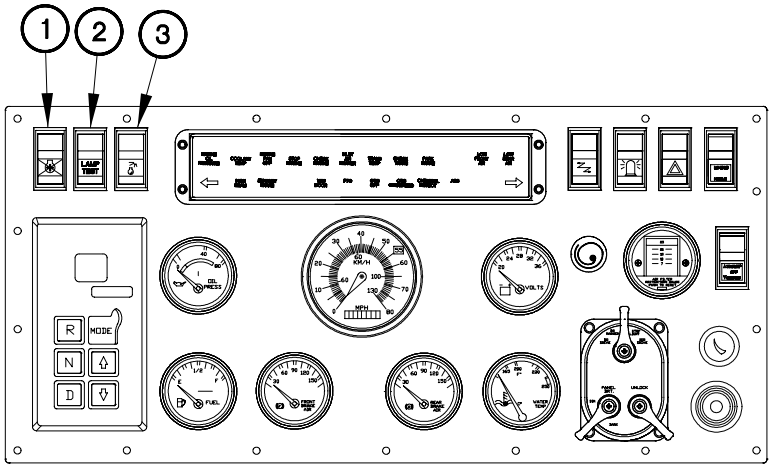
INSTRUMENT PANEL CONTROLS AND INDICATORS 0004 00

GENERAL

The following paragraphs contain illustrations that show the location of each control and indicator for the M1078A1 series vehicles. Each control and indicator is clearly labeled as it appears on the vehicle. Callouts on the illustration are keyed to the tabular listing which contains the name, based on the panel markings, and the functional description of each control and indicator.

INSTRUMENT PANEL ASSEMBLY CONTROLS AND INDICATORS

Table 1 describes controls and indicators on the instrument panel assembly (vehicle S/N 18,549 or lower.
Table 2 describes controls and indicators on the instrument panel assembly (vehicle S/N 18,550 or higher.



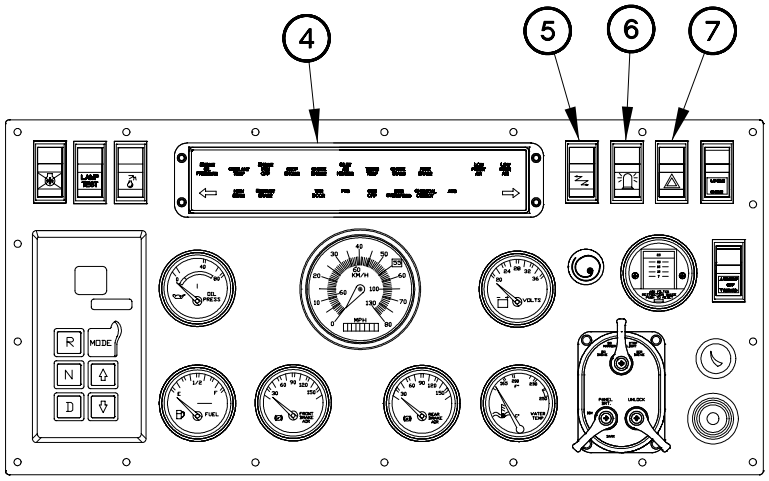
0400A01-

Table 1. Instrument Panel Assembly Controls and Indicators (Vehicle S/N 18,549 or lower).

KEY	CONTROL OR INDICATOR	FUNCTION
1	Engine fan off switch	When positioned to on, the engine fan off switch will disable engine fan and cause the ENGINE FAN OFF indicator to illuminate. The Engine fan off switch is only used to turn off the engine fan during fording operations.
2	LAMP TEST switch	Tests all lights on Lighted Indicator Display.
3	Ether start switch	Injects ether into engine intake system to assist with cold weather starting when switch is pressed.

INSTRUMENT PANEL ASSEMBLY CONTROLS AND INDICATORS - Continued 0004 00

INSTRUMENT PANEL ASSEMBLY CONTROLS AND INDICATORS - Continued



STEERING WHEEL
REMOVED FOR CLARITY

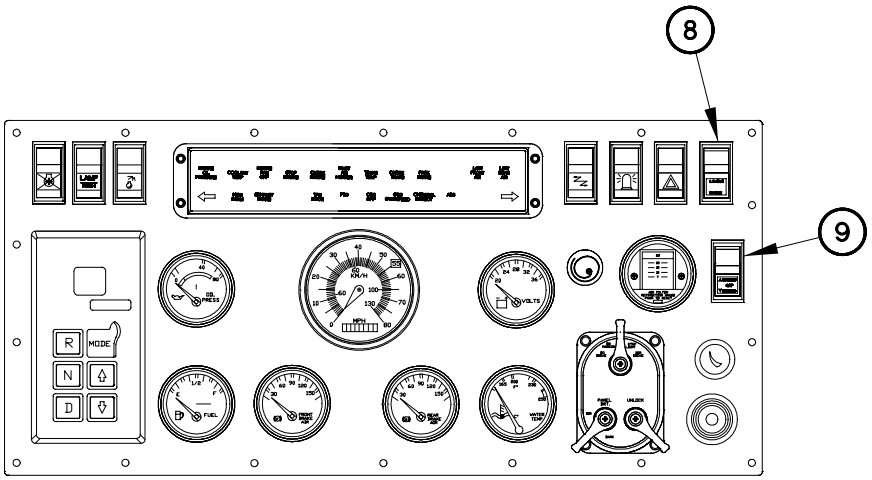
0400A02-

Table 1. Instrument Panel Assembly Controls and Indicators (Vehicle S/N 18,549 or lower) - Continued.

KEY	CONTROL OR INDICATOR	FUNCTION
4	Lighted indicator display	Indicators illuminate to indicate operating characteristics of the vehicle. Table 3 describes all indicators on the Lighted Indicator Display.
5	Master power switch	Controls electrical power for engine starting and/or electrical system operation.
6	Warning light switch	Operates vehicle warning light(s) (when installed).
7	Hazard lights switch	Operates hazard lights. Left and right turn signals and indicators flash when switch is on.

INSTRUMENT PANEL ASSEMBLY CONTROLS AND INDICATORS - Continued 0004 00

INSTRUMENT PANEL ASSEMBLY CONTROLS AND INDICATORS - Continued



STEERING WHEEL
REMOVED FOR CLARITY

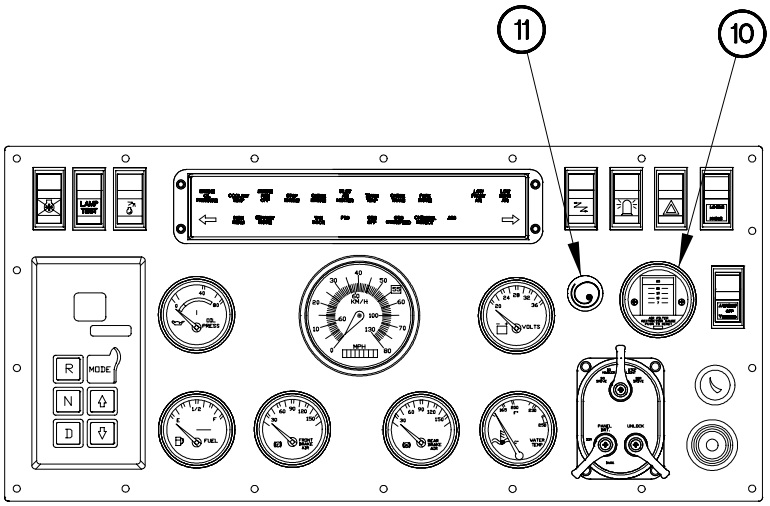
0400A03-

Table 1. Instrument Panel Assembly Controls and Indicators (Vehicle S/N 18,549 or lower) - Continued.

KEY	CONTROL OR INDICATOR	FUNCTION
8	LO IDLE/HI IDLE switch	Momentary switch. Press switch once, engine runs at 1350 RPM. Press switch again, engine returns to 700 RPM.
9	WARMUP/OFF/RETARD switch	Three position switch. Top portion of switch used to warm up engine in temperatures below 32° F (0° C). Bottom portion of switch is used to engage exhaust brake. When positioned to the center, both functions are off.

INSTRUMENT PANEL ASSEMBLY CONTROLS AND INDICATORS - Continued 0004 00

INSTRUMENT PANEL ASSEMBLY CONTROLS AND INDICATORS - Continued



STEERING WHEEL
REMOVED FOR CLARITY

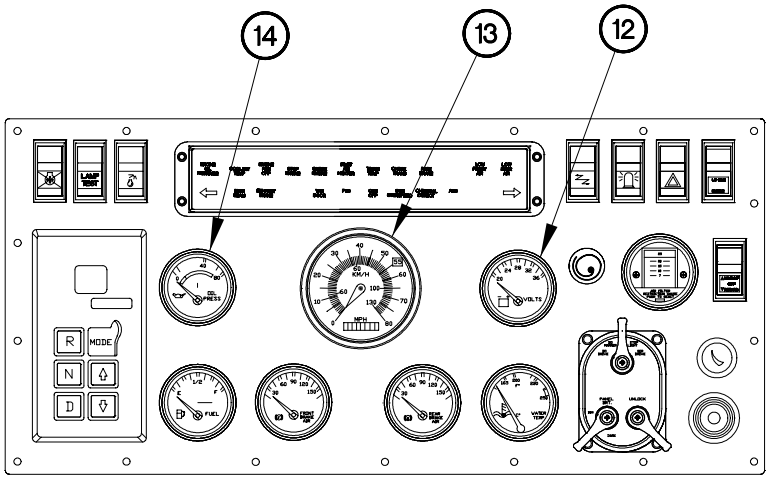
0400A04-

Table 1. Instrument Panel Assembly Controls and Indicators (Vehicle S/N 18,549 or lower) - Continued.

KEY	CONTROL OR INDICATOR	FUNCTION
10	AIR FILTER RESTRICTION GAUGE	Indicates when air filter is restricted. Diaphragm enters red zone when air filter is clogged and needs service. RESET button on face of gauge can be pressed to reset gauge after air cleaner is serviced.
11	Starter pushbutton	Starts engine. Starter pushbutton operates only when master power switch is positioned to on.

INSTRUMENT PANEL ASSEMBLY CONTROLS AND INDICATORS - Continued 0004 00

INSTRUMENT PANEL ASSEMBLY CONTROLS AND INDICATORS - Continued



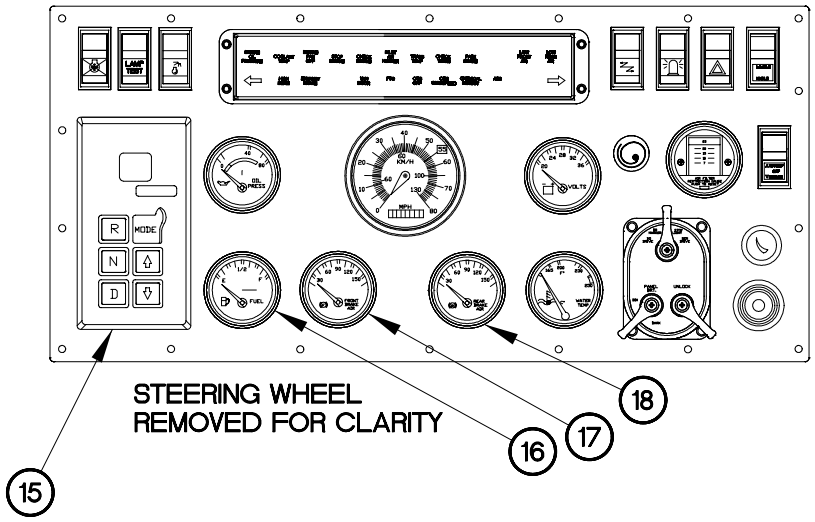
0400A05-

Table 1. Instrument Panel Assembly Controls and Indicators (Vehicle S/N 18,549 or lower) - Continued.

KEY	CONTROL OR INDICATOR	FUNCTION
12	VOLTS gage	Shows battery output voltage when engine is not running and alternator output voltage when engine is running.
13	Speedometer/Odometer	Speedometer shows vehicle speed in miles per hour (mph) and kilometers per hour (km/h). Odometer indicates number of miles the vehicle has traveled.
14	OIL PRESS gage	Shows engine oil pressure (in psi). Normal oil pressure range is 15-80 psi.

INSTRUMENT PANEL ASSEMBLY CONTROLS AND INDICATORS - Continued 0004 00

INSTRUMENT PANEL ASSEMBLY CONTROLS AND INDICATORS - Continued



0400A06-

Table 1. Instrument Panel Assembly Controls and Indicators (Vehicle S/N 18,549 or lower) - Continued.

KEY	CONTROL OR INDICATOR	FUNCTION
15	WTEC III Transmission Pushbutton Shift Selector (WTEC III TPSS)	Used to select forward or reverse range, to set highest gear range, to switch from highway to off-road mode, and to monitor transmission operation. Table 5 describes all controls and indicators on the WTEC III TPSS.
16	FUEL gage	Shows fuel level in fuel tank.
17	FRONT BRAKE AIR pressure gage	Shows air pressure (in psi) available to operate front brakes. Normal air pressure range is 75-120 psi.
18	REAR BRAKE AIR pressure gage	Shows air pressure (in psi) available to operate rear brakes. Normal air pressure range is 75-120 psi.

INSTRUMENT PANEL ASSEMBLY CONTROLS AND INDICATORS - Continued 0004 00

INSTRUMENT PANEL ASSEMBLY CONTROLS AND INDICATORS - Continued

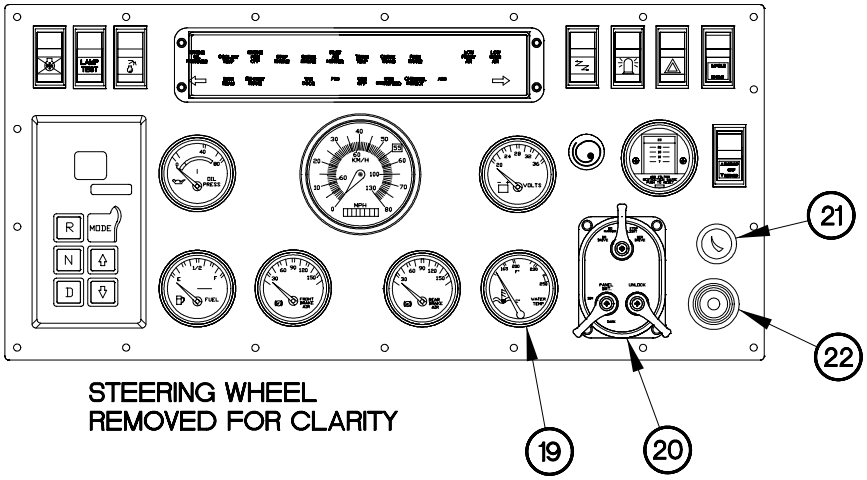
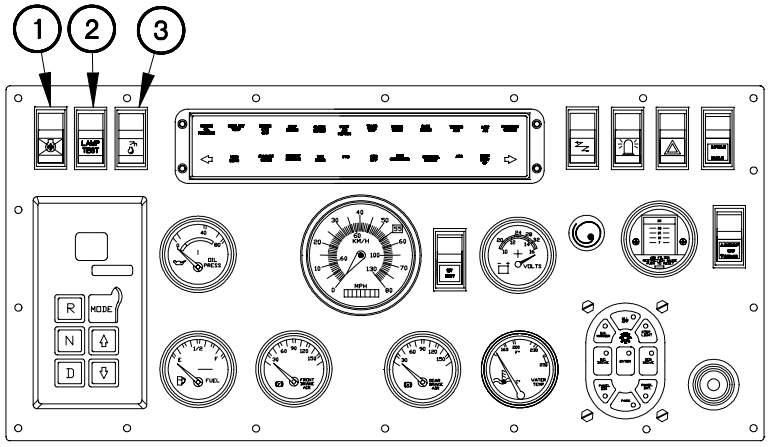


Table 1. Instrument Panel Assembly Controls and Indicators (Vehicle S/N 18,549 or lower)- Continued.

KEY	CONTROL OR INDICATOR	FUNCTION
19	WATER TEMP gage	Shows engine coolant temperature in degrees Fahrenheit. Normal temperature range is 165-230° F.
20	Main light switch	Control service and blackout lights. Table 6 shows all controls on the main light switch.
21	Dimmer switch	Controls brightness of instrument panel assembly lighting. Turn control left to increase brightness, right to decrease brightness.
22	Audible alarm	A steady tone sounds when air pressure is below 75 psi. A wavering (dual) tone sounds when troop transport alarm switch is activated (on vehicles with troopseat kits).

INSTRUMENT PANEL CONTROLS AND INDICATORS 0004 00

INSTRUMENT PANEL ASSEMBLY CONTROLS AND INDICATORS



STEERING WHEEL
REMOVED FOR CLARITY

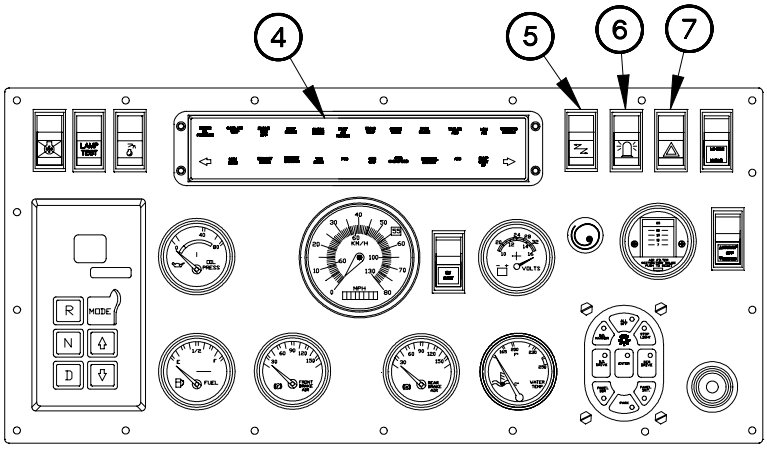
0400A18

Table 2. Instrument Panel Assembly Controls and Indicators (Vehicle S/N 18,550 or higher).

KEY	CONTROL OR INDICATOR	FUNCTION
1	Engine fan off switch	When positioned to on, engine fan off switch will disable the engine fan and cause the ENGINE FAN OFF indicator to illuminate. Engine fan off switch is only used to turn off the engine fan during fording operations.
2	LAMP TEST switch	Tests all lights on Lighted Indicator Display.
3	Ether start switch	Injects ether into engine intake system to assist with cold weather starting when switch is pressed.

INSTRUMENT PANEL ASSEMBLY CONTROLS AND INDICATORS - Continued 0004 00

INSTRUMENT PANEL ASSEMBLY CONTROLS AND INDICATORS – Continued



STEERING WHEEL
REMOVED FOR CLARITY

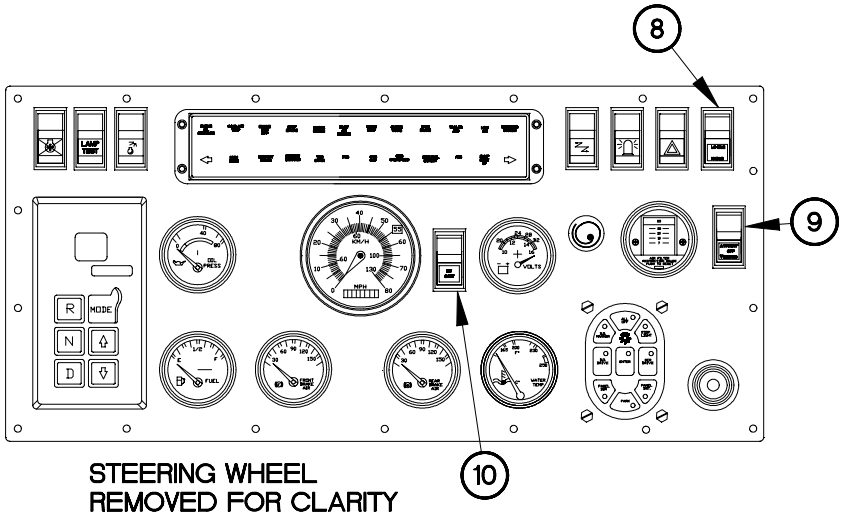
0400A19

Table 2. Instrument Panel Assembly Controls and Indicators (Vehicle S/N 18,550 or higher) - Continued.

KEY	CONTROL OR INDICATOR	FUNCTION
4	Lighted indicator display	Indicators illuminate to indicate operating characteristics of the vehicle. Table 4 describes indicators on the Lighted Indicator Display.
5	Master power switch	Controls electrical power for engine starting and/or electrical system operation.
6	Warning light switch	Operates vehicle warning light(s) (when installed).
7	Hazard lights switch	Operates hazard lights. Left and right turn signals and indicators flash when switch is on.

INSTRUMENT PANEL ASSEMBLY CONTROLS AND INDICATORS - Continued 0004 00

INSTRUMENT PANEL ASSEMBLY CONTROLS AND INDICATORS - Continued



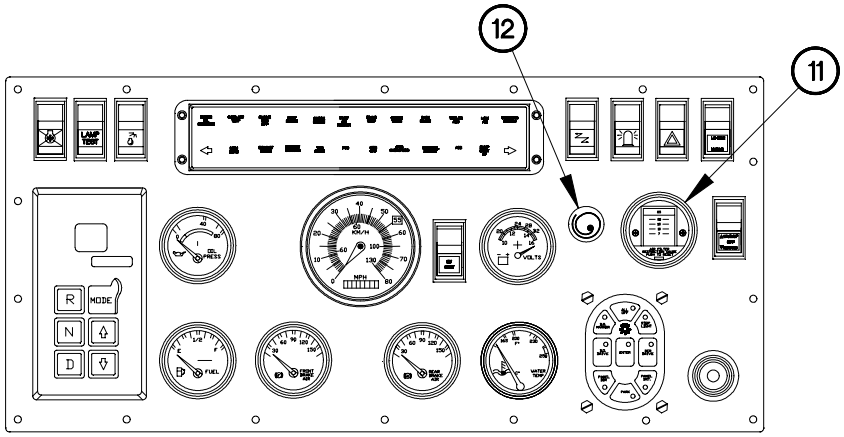
0400b20

Table 2. Instrument Panel Assembly Controls and Indicators (Vehicle S/N 18,550 or higher) - Continued.

KEY	CONTROL OR INDICATOR	FUNCTION
8	LO IDLE/HI IDLE switch	Momentary switch. Press switch once, engine runs at 1350 RPM. Press switch again, engine returns to 700 RPM.
9	WARMUP/OFF/RETARD switch	Three position switch. Top portion of switch used to warm up engine in temperatures below 32° F (0° C). Bottom portion of switch is used to engage exhaust brake. When positioned to the center, both functions are off.
10	12V BATT switch	Momentary switch. Displays 12 volt DC ignition power on VOLTS gage when depressed.

INSTRUMENT PANEL ASSEMBLY CONTROLS AND INDICATORS - Continued 0004 00

INSTRUMENT PANEL ASSEMBLY CONTROLS AND INDICATORS - Continued



STEERING WHEEL
REMOVED FOR CLARITY

0400A21

Table 2. Instrument Panel Assembly Controls and Indicators (Vehicle S/N 18,550 or higher) - Continued.

KEY	CONTROL OR INDICATOR	FUNCTION
11	AIR FILTER RESTRICTION GAUGE	Indicates when air filter is restricted. Diaphragm enters red zone when air filter is clogged and needs service. RESET button on face of gauge can be pressed to reset gauge after air cleaner is serviced.
12	Starter pushbutton	Starts engine. Starter pushbutton operates only when master power switch is positioned to on.

INSTRUMENT PANEL ASSEMBLY CONTROLS AND INDICATORS - Continued 0004 00

INSTRUMENT PANEL ASSEMBLY CONTROLS AND INDICATORS – Continued

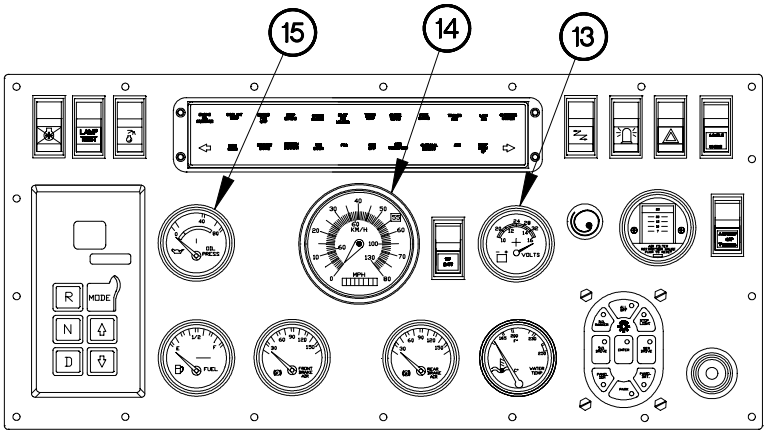


Table 2. Instrument Panel Assembly Controls and Indicators (Vehicle S/N 18,550 or higher) - Continued.

KEY	CONTROL OR INDICATOR	FUNCTION
13	VOLTS gage	Displays 24 VDC battery output voltage when engine is not running and 24 VDC alternator output voltage when engine is running. 12 VDC is displayed when 12 VDC BATT switch is depressed (Key 10).
14	Speedometer/Odometer	Speedometer shows vehicle speed in miles per hour (mph) and kilometers per hour (km/h). Odometer indicates number of miles the vehicle has traveled.
15	OIL PRESS gage	Shows engine oil pressure (in psi). Normal oil pressure range is 15-80 psi.

INSTRUMENT PANEL ASSEMBLY CONTROLS AND INDICATORS - Continued 0004 00

INSTRUMENT PANEL ASSEMBLY CONTROLS AND INDICATORS - Continued

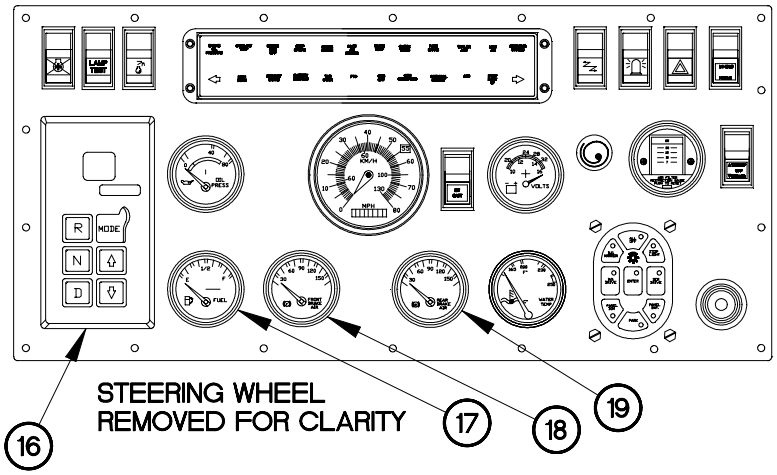
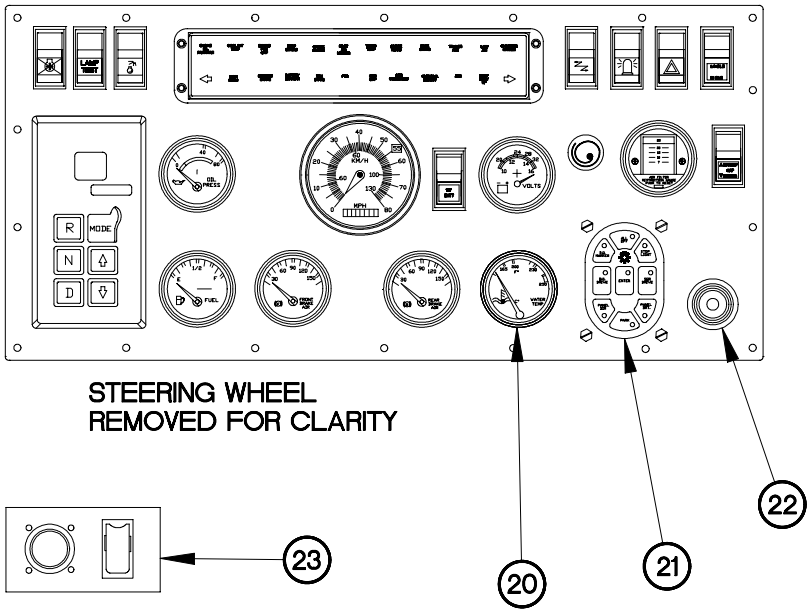


Table 2. Instrument Panel Assembly Controls and Indicators (Vehicle S/N 18,550 or higher) - Continued.

KEY	CONTROL OR INDICATOR	FUNCTION
16	WTEC III Transmission Pushbutton Shift Selector (WTEC III TPSS)	Used to select forward or reverse range, to set highest gear range, to switch from highway to off-road mode, and to monitor transmission operation. Table 5 describes all controls and indicators on the WTEC III TPSS.
17	FUEL gage	Shows fuel level in fuel tank.
18	FRONT BRAKE AIR pressure gage	Shows air pressure (in psi) available to operate front brakes. Normal air pressure range is 75-120 psi.
19	REAR BRAKE AIR pressure gage	Shows air pressure (in psi) available to operate rear brakes. Normal air pressure range is 75-120 psi.

INSTRUMENT PANEL ASSEMBLY CONTROLS AND INDICATORS - Continued 0004 00

INSTRUMENT PANEL ASSEMBLY CONTROLS AND INDICATORS - Continued



0400a17

Table 2. Instrument Panel Assembly Controls and Indicators (Vehicle S/N 18,550 or higher)- Continued.

KEY	CONTROL OR INDICATOR	FUNCTION
20	WATER TEMP gage	Shows engine coolant temperature in degrees Fahrenheit. Normal temperature range is 165-230° F.
21	Main light switch	Control service and blackout lights. Table 7 shows all controls on the main light switch.
22	Audible alarm	A steady tone sounds when air pressure is below 75 psi or when M1079A1 van door is open. A wavering (dual) tone sounds when troop transport alarm switch is activated (on vehicles with troopseat kits).
23	BATTERY DISCONNECT SWITCH	Two-position toggle switch disconnects battery power from vehicle.

INSTRUMENT PANEL ASSEMBLY CONTROLS AND INDICATORS - Continued

0004 00

LIGHTED INDICATOR DISPLAY

Table 3 describes Lighted Indicator Display (vehicle S/N 18,549 or lower).
Table 4 describes Lighted Indicator Display (vehicle S/N 18,550 or higher).

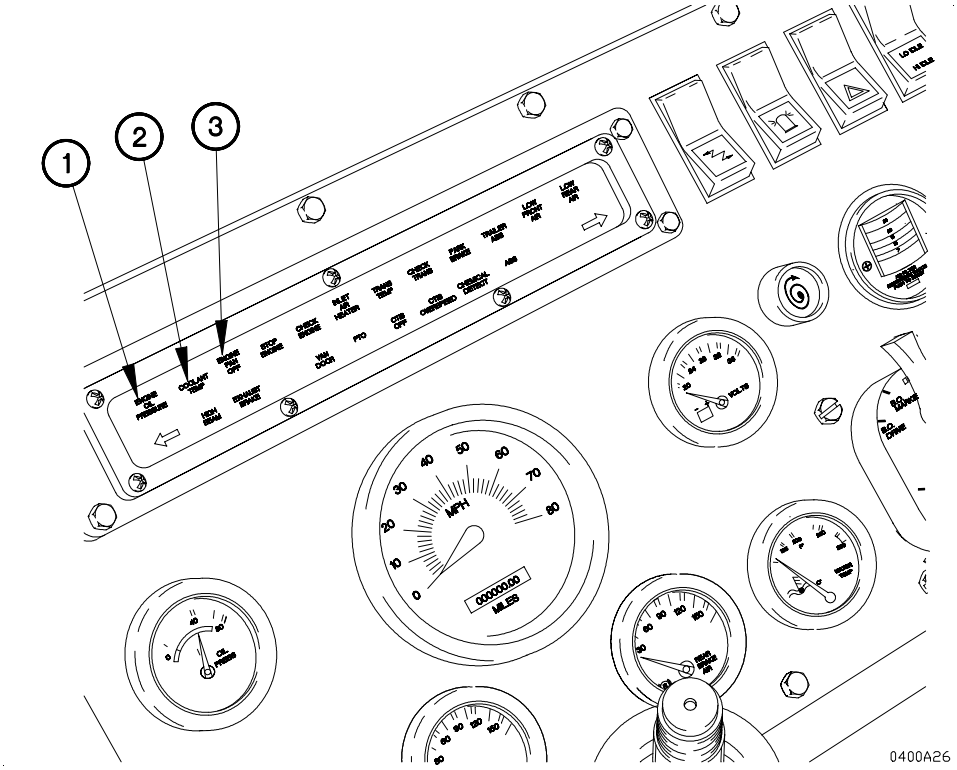


Table 3. Lighted Indicator Display (Vehicle S/N 18,549 or lower).

KEY	CONTROL OR INDICATOR	FUNCTION
1	ENGINE OIL PRESSURE indicator	Illuminates (red) when engine oil pressure drops below 6 psi. STOP ENGINE indicator illuminates when ENGINE OIL PRESSURE indicator is on.
2	COOLANT TEMP indicator	Illuminates (red) when engine coolant temperature is greater than 230° F.
3	ENGINE FAN OFF indicator	Illuminates (amber) when the engine fan is disabled. Indicates the engine fan off switch is on.

INSTRUMENT PANEL ASSEMBLY CONTROLS AND INDICATORS - Continued 0004 00

LIGHTED INDICATOR DISPLAY - Continued

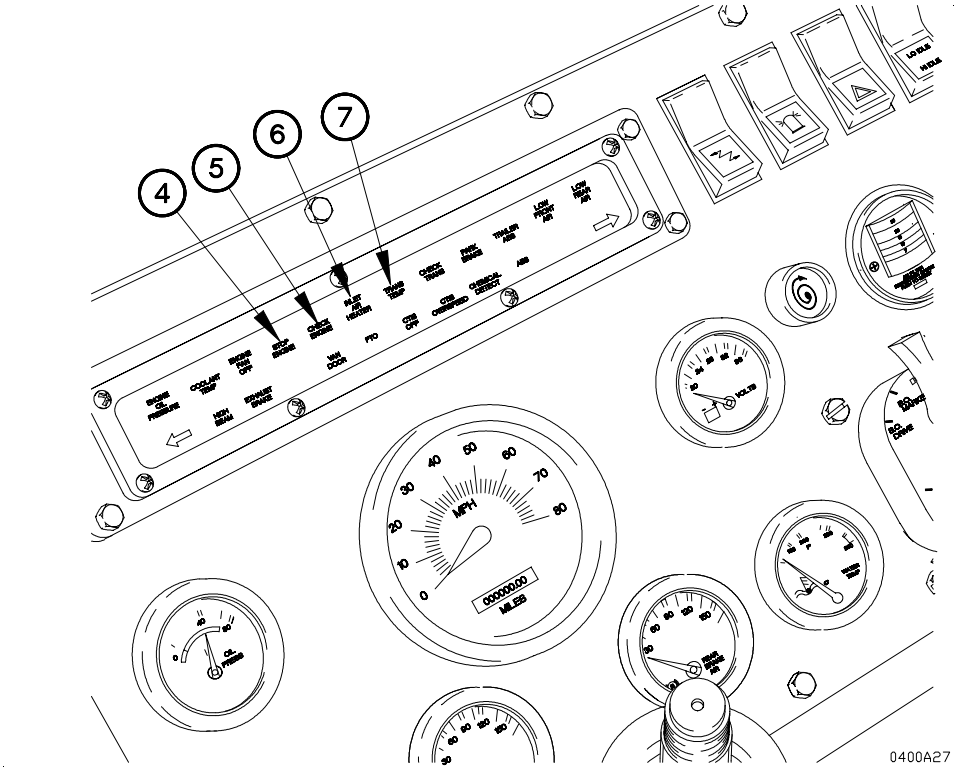


Table 3. Lighted Indicator Display (Vehicle S/N 18,549 or lower) - Continued.

KEY	CONTROL OR INDICATOR	FUNCTION
4	STOP ENGINE indicator	Illuminates (red) upon engine start, for approximately two seconds. If an engine fault occurs the indicator will flash (red).
5	CHECK ENGINE indicator	Illuminates (amber) at ignition, for approximately two seconds. If the Electronic Control Module (ECM) senses an active code, indicator will flash (amber).
6	INLET AIR HEATER indicator	Illuminates (red) briefly when engine coolant and inlet manifold air temperature is below 77° F.
7	TRANS TEMP indicator	Illuminates (red) when transmission oil temperature is greater than 225° F.

INSTRUMENT PANEL ASSEMBLY CONTROLS AND INDICATORS - Continued

0004 00

LIGHTED INDICATOR DISPLAY – Continued

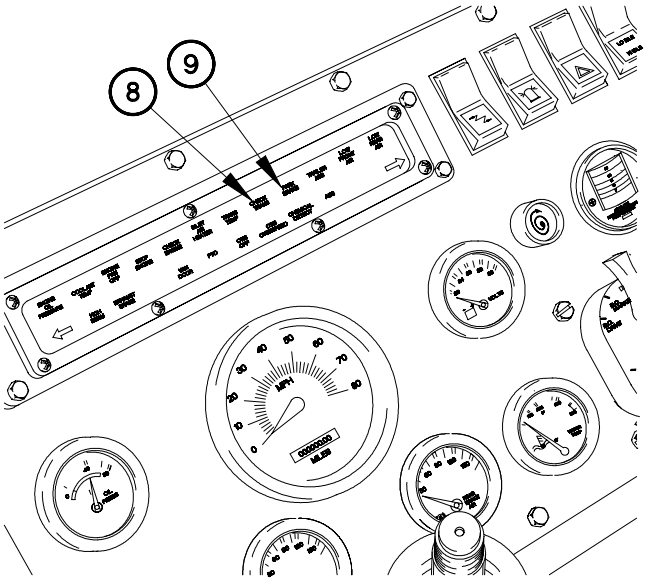


Table 3. Lighted Indicator Display (Vehicle S/N 18,549 or lower) - Continued.

KEY	CONTROL OR INDICATOR	FUNCTION
	NOTE Depending on the problem with the transmission, the WTEC III Transmission Electronic Control Unit (ECU) may or may not respond to WTEC III TPSS requests. Gear shifting capability may be limited.	
8	CHECK TRANS indicator	Illuminates (amber) any time WTEC III Transmission ECU detects a do not shift condition. Notify Unit Maintenance if CHECK TRANS indicator illuminates. Also illuminates briefly when engine is started.
9	PARK BRAKE indicator	Illuminates (amber) when parking brake is applied.

INSTRUMENT PANEL ASSEMBLY CONTROLS AND INDICATORS - Continued

0004 00

LIGHTED INDICATOR DISPLAY – Continued

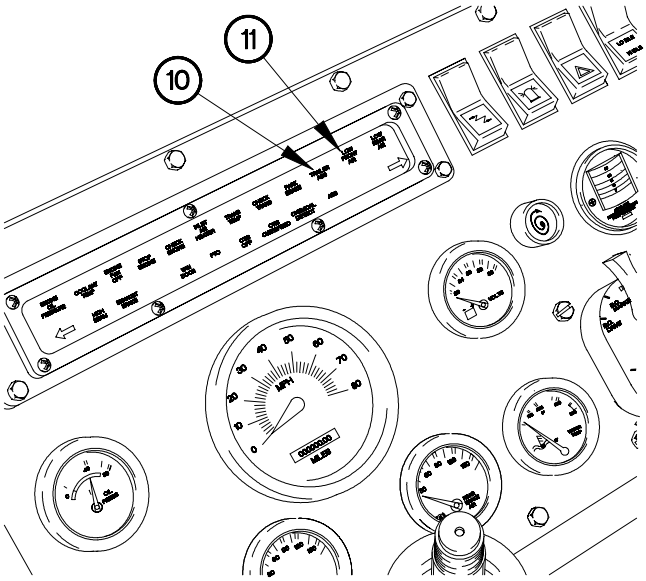


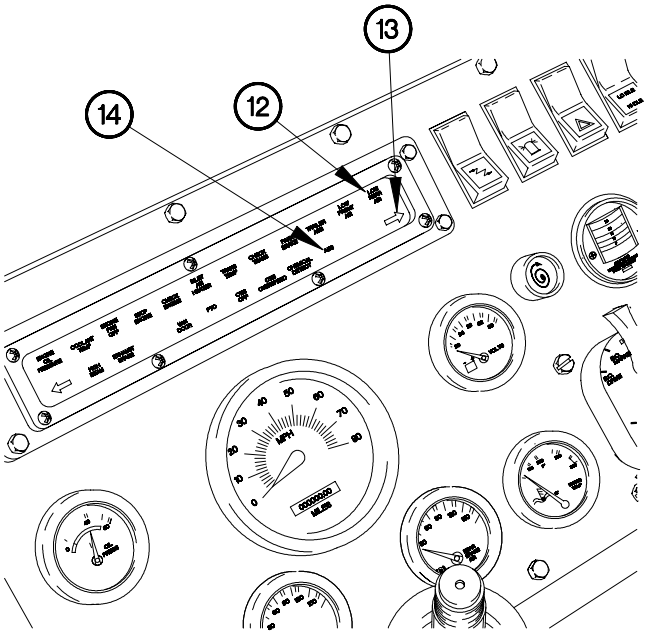
Table 3. Lighted Indicator Display (Vehicle S/N 18,549 or lower) - Continued.

KEY	CONTROL OR INDICATOR	FUNCTION
10	TRAILER ABS indicator (vehicle S/N 15,676 or higher)	Illuminates (red) if the trailer Anti-Lock Braking System (ABS) ECU detects a problem with the ABS at speeds above 4 mph (6 km/h). Also illuminates briefly when engine is started. If ABS indicator illuminates, continue with mission and notify Unit Maintenance upon completion of the mission.
11	LOW FRONT AIR indicator	Illuminates (red) when air pressure for the front service brakes drops below 75 psi. Audible alarm sounds and STOP ENGINE indicator illuminates when LOW FRONT AIR indicator is on.

INSTRUMENT PANEL ASSEMBLY CONTROLS AND INDICATORS - Continued

0004 00

LIGHTED INDICATOR DISPLAY – Continued



0400A29

Table 3. Lighted Indicator Display (Vehicle S/N 18,549 or lower) - Continued.

KEY	CONTROL OR INDICATOR	FUNCTION
12	LOW REAR AIR indicator	Illuminates (red) when air pressure for the rear service brakes drops below 75 psi. Audible alarm sounds and STOP ENGINE indicator illuminates when LOW REAR AIR indicator is on.
13	Right turn signal	Flashes (green) when right turn signal is on.
	Note	
	After service, ABS indicator will stay illuminated until vehicle is driven at speeds above 4 mph (6 km/h).	
14	ABS indicator	Illuminates (red) if the Anti-Lock Braking System (ABS) ECU detects a problem with the ABS at speeds above 4 mph (6 km/h). Also illuminates briefly when engine is started. If ABS indicator illuminates, continue with the mission and notify Unit Maintenance upon completion of the mission.

INSTRUMENT PANEL ASSEMBLY CONTROLS AND INDICATORS - Continued

0004 00

LIGHTED INDICATOR DISPLAY – Continued

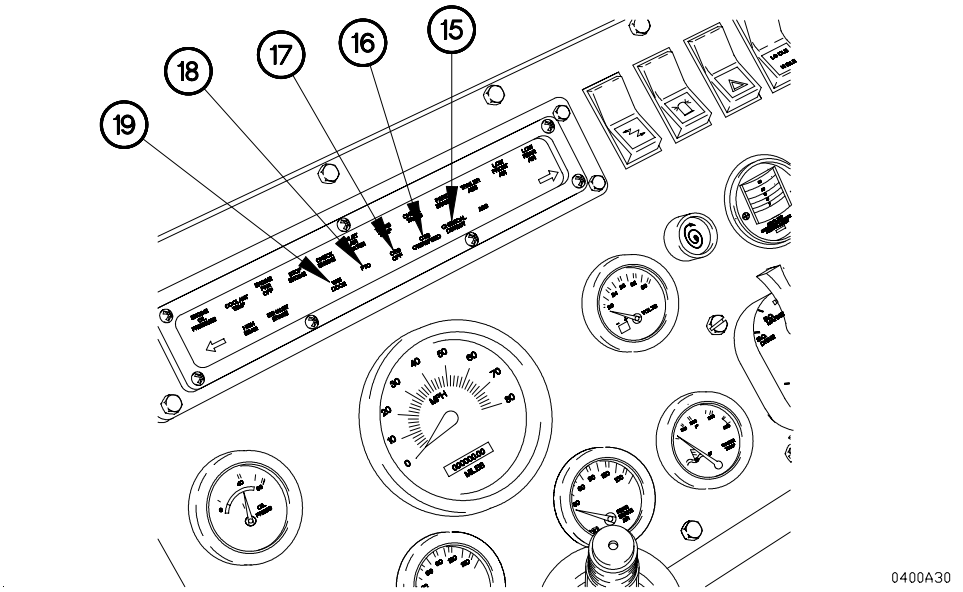


Table 3. Lighted Indicator Display (Vehicle S/N 18,549 or lower) - Continued.

KEY	CONTROL OR INDICATOR	FUNCTION
15	CHEMICAL DETECT indicator	Illuminates (red) when M43 chemical detector senses a chemical agent. M42 alarm sounds when CHEMICAL DETECT indicator is on.
16	CTIS OVERSPEED indicator	Illuminates (amber) when vehicle speed exceeds safe limit for selected tire inflation pressure.
17	CTIS OFF indicator	Illuminates (green) when operator disables Central Tire Inflation System (CTIS).
18	PTO indicator	Illuminates (green) when Power Take-Off (PTO) is engaged.
19	VAN DOOR indicator	Flashes (amber) when M1079A1 van door is open.

INSTRUMENT PANEL ASSEMBLY CONTROLS AND INDICATORS - Continued

0004 00

LIGHTED INDICATOR DISPLAY - Continued

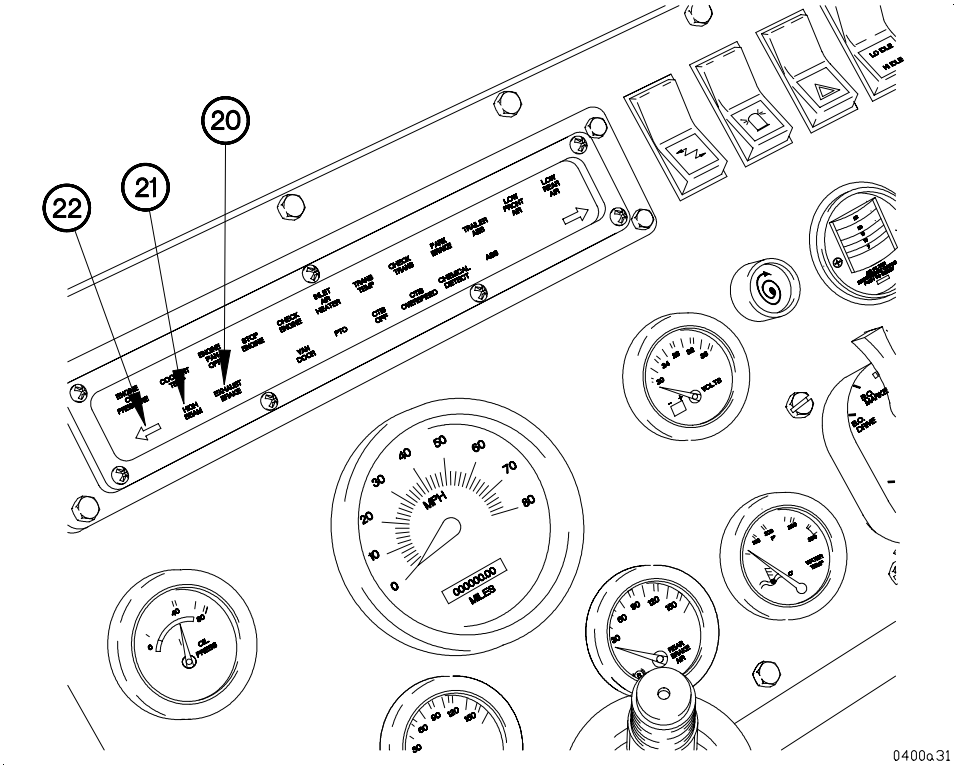


Table 3. Lighted Indicator Display (Vehicle S/N 18,549 or lower) - Continued.

KEY	CONTROL OR INDICATOR	FUNCTION
20	EXHAUST BRAKE indicator	Illuminates (green) when WARM UP/OFF/RETARD switch is engaged in the retard position.
21	HIGH BEAM indicator	Illuminates (green) when high beam headlights are on.
22	Left turn signal	Flashes (green) when left turn signal is on.

INSTRUMENT PANEL ASSEMBLY CONTROLS AND INDICATORS - Continued

0004 00

LIGHTED INDICATOR DISPLAY

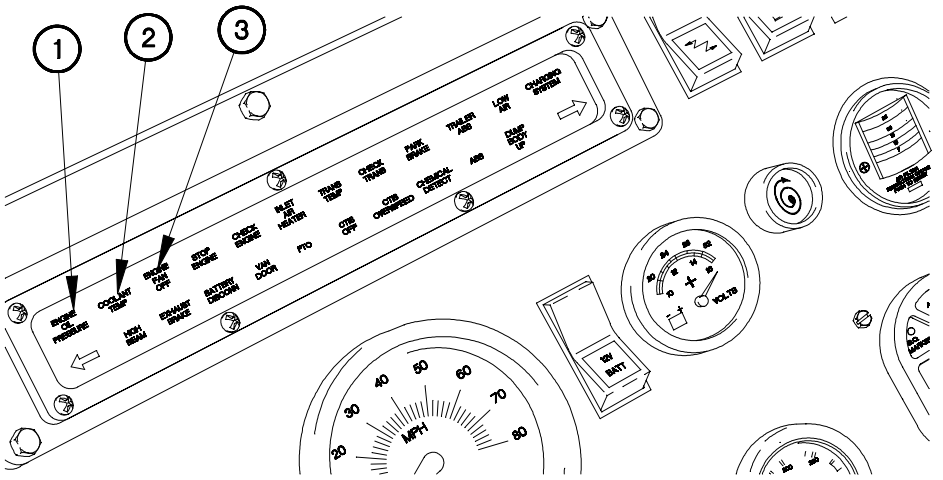
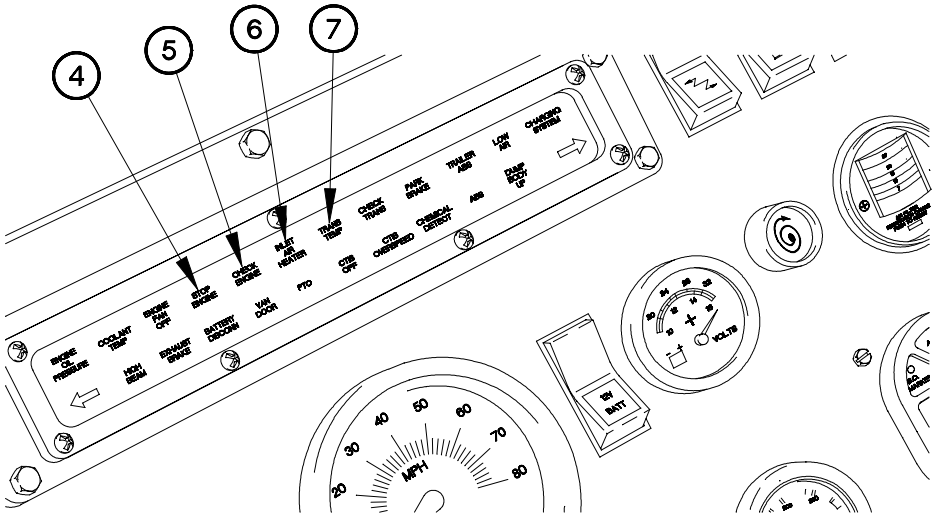


Table 4. Lighted Indicator Display (Vehicle S/N 18,550 or higher).

KEY	CONTROL OR INDICATOR	FUNCTION
1	ENGINE OIL PRESSURE indicator	Illuminates (red) when engine oil pressure drops below 6 psi. STOP ENGINE indicator illuminates when ENGINE OIL PRESSURE indicator is on.
2	COOLANT TEMP indicator	Illuminates (red) when engine coolant temperature is greater than 230° F.
3	ENGINE FAN OFF indicator	Illuminates (amber) when the engine fan is disabled. Indicates the engine fan off switch is on.

INSTRUMENT PANEL ASSEMBLY CONTROLS AND INDICATORS - Continued 0004 00

LIGHTED INDICATOR DISPLAY - Continued



0400a33

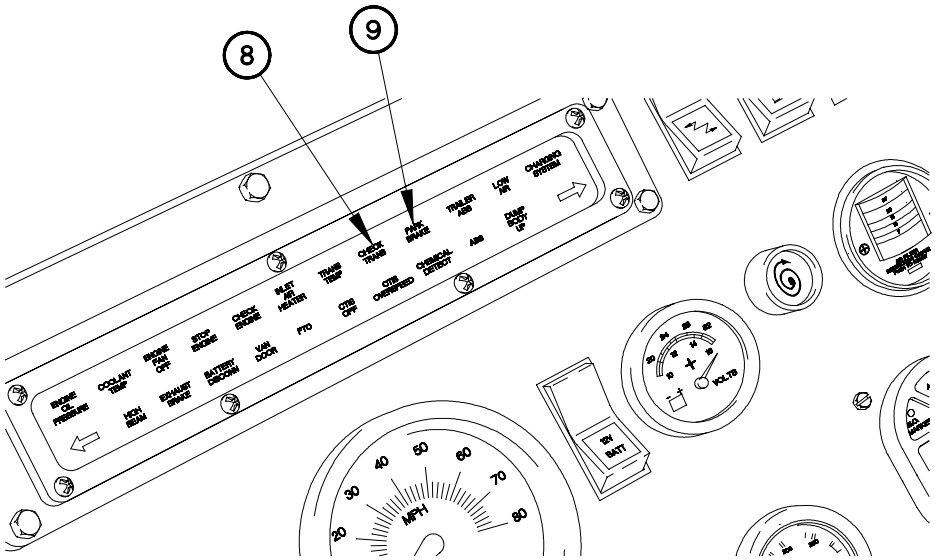
Table 4. Lighted Indicator Display (Vehicle S/N 18,550 or higher) - Continued.

KEY	CONTROL OR INDICATOR	FUNCTION
4	STOP ENGINE indicator	Illuminates (red) upon engine start, for approximately two seconds. If an engine fault occurs the indicator will flash (red).
5	CHECK ENGINE indicator	Illuminates (amber) at ignition, for approximately two seconds. If the Electronic Control Module (ECM) senses an active code, indicator will flash (amber).
6	INLET AIR HEATER indicator	Illuminates (red) briefly when engine coolant and inlet manifold air temperature is below 77° F.
7	TRANS TEMP indicator	Illuminates (red) when transmission oil temperature is greater than 225° F.

INSTRUMENT PANEL ASSEMBLY CONTROLS AND INDICATORS - Continued

0004 00

LIGHTED INDICATOR DISPLAY - Continued



0400a34

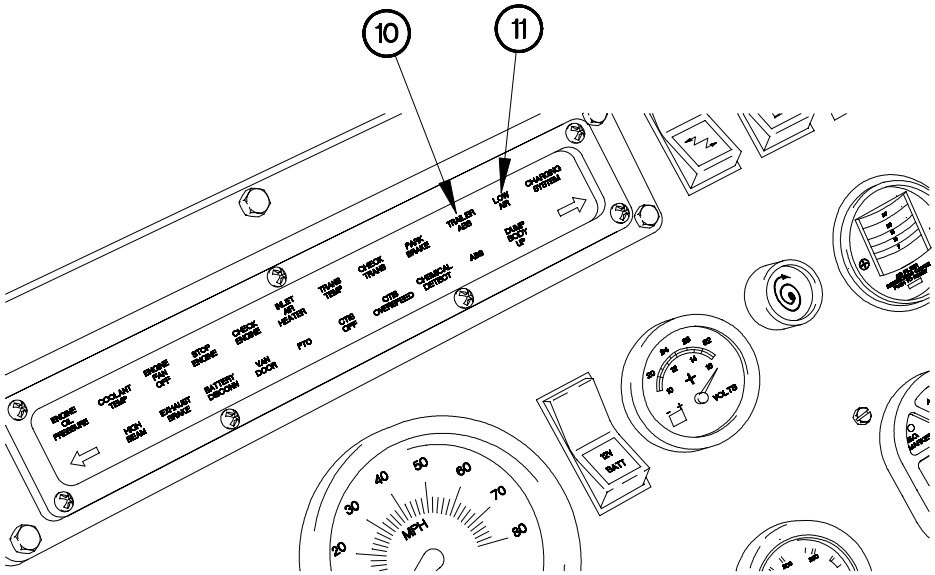
Table 4. Lighted Indicator Display (Vehicle S/N 18,550 or higher) - Continued.

KEY	CONTROL OR INDICATOR	FUNCTION
	NOTE Depending on the problem with the transmission, the WTEC III Transmission Electronic Control Unit (ECU) may or may not respond to WTEC III TPSS requests. Gear shifting capability may be limited.	
8	CHECK TRANS indicator	Illuminates (amber) any time WTEC III Transmission ECU detects a do not shift condition. Notify Unit Maintenance if CHECK TRANS indicator illuminates. Also illuminates briefly when engine is started.
9	PARK BRAKE indicator	Illuminates (amber) when parking brake is applied.

INSTRUMENT PANEL ASSEMBLY CONTROLS AND INDICATORS - Continued

0004 00

LIGHTED INDICATOR DISPLAY - Continued



0400a35

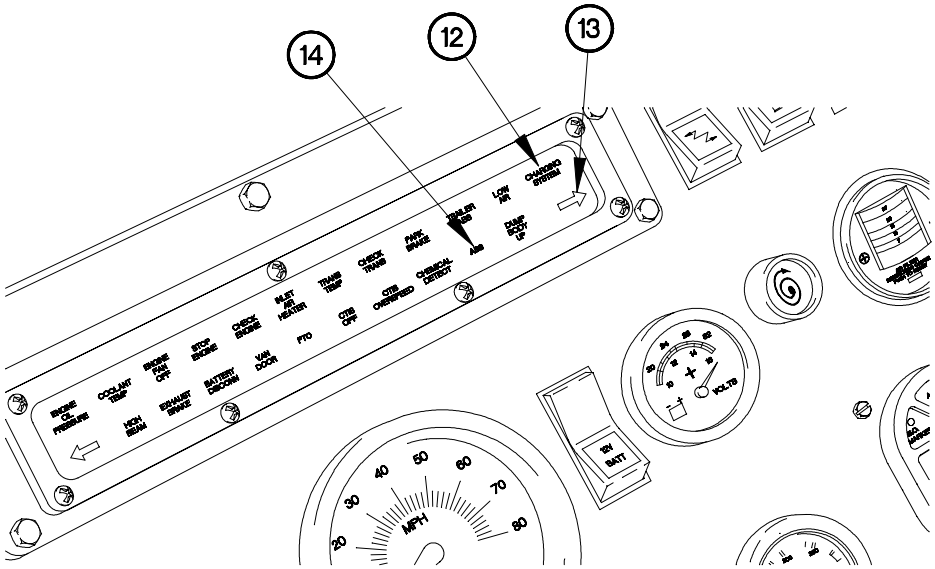
Table 4. Lighted Indicator Display (Vehicle S/N 18,550 or higher) - Continued.

KEY	CONTROL OR INDICATOR	FUNCTION
10	TRAILER ABS indicator (vehicle S/N 15,676 or higher)	Illuminates (red) if the trailer Anti-Lock Braking System (ABS) ECU detects a problem with the ABS at speeds above 4 mph (6 km/h). Also illuminates briefly when engine is started. If ABS indicator illuminates, continue with mission and notify Unit Maintenance upon completion of the mission.
11	LOW AIR indicator	Illuminates (red) when air pressure for the front service brakes drops below 75 psi. Audible alarm sounds and STOP ENGINE indicator illuminates when LOW AIR indicator is on.

INSTRUMENT PANEL ASSEMBLY CONTROLS AND INDICATORS - Continued

0004 00

LIGHTED INDICATOR DISPLAY - Continued



0400a36

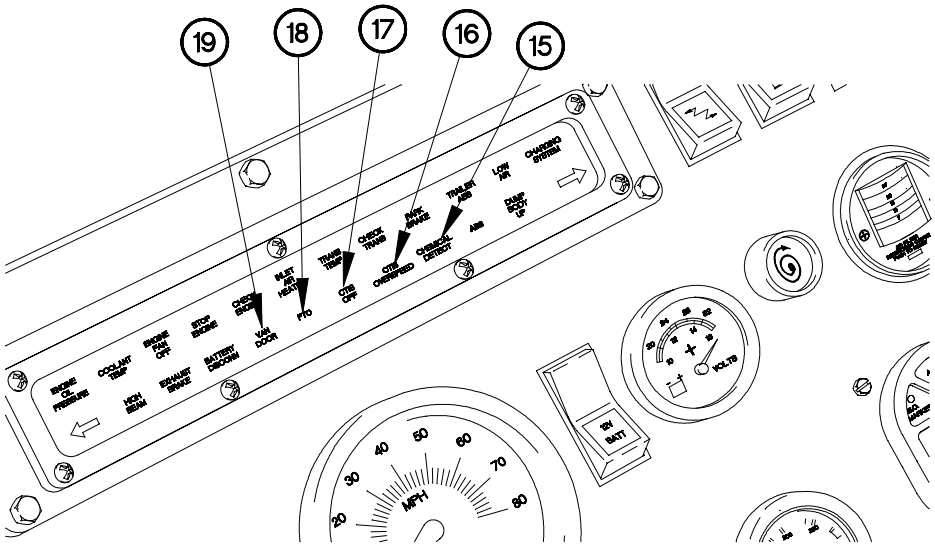
Table 4. Lighted Indicator Display (Vehicle S/N 18,550 or higher) - Continued.

KEY	CONTROL OR INDICATOR	FUNCTION
12	CHARGING SYSTEM indicator	Illuminates (red) when the alternator ceases to provide an output. Vehicle continues to operate until 24 VDC batteries discharge to approximately 10 VCD.
13	Right turn signal	Flashes (green) when right turn signal is on.
	Note	
	After service, ABS indicator will stay illuminated until vehicle is driven at speeds above 4 mph (6 km/h).	
14	ABS indicator	Illuminates (red) if the Anti-Lock Braking System (ABS) ECU detects a problem with the ABS at speeds above 4 mph (6 km/h). Also illuminates briefly when engine is started. If ABS indicator illuminates, continue with the mission and notify Unit Maintenance upon completion of mission.

INSTRUMENT PANEL ASSEMBLY CONTROLS AND INDICATORS - Continued

0004 00

LIGHTED INDICATOR DISPLAY - Continued



0400a37

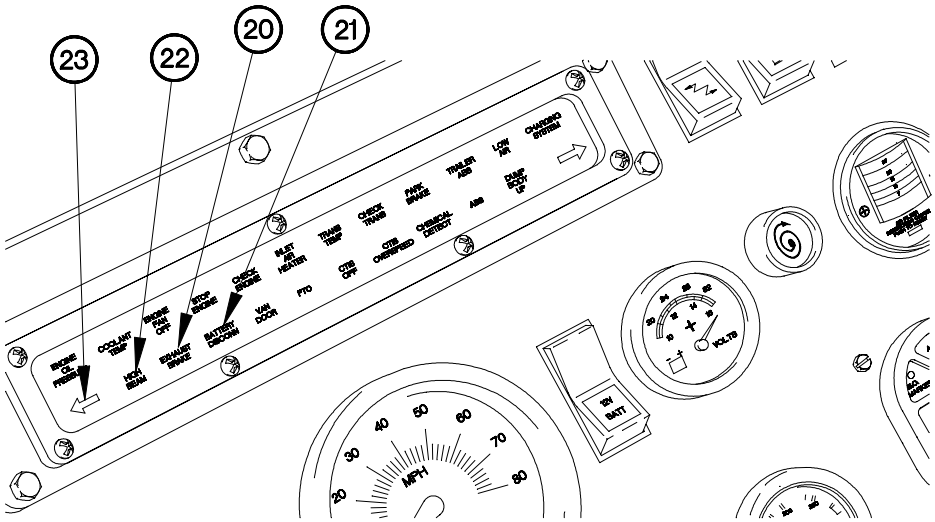
Table 4. Lighted Indicator Display (Vehicle S/N 18,550 or higher) - Continued.

KEY	CONTROL OR INDICATOR	FUNCTION
15	CHEMICAL DETECT indicator	Illuminates (red) when M43 chemical detector senses a chemical agent. M42 alarm sounds when CHEMICAL DETECT indicator is on.
16	CTIS OVERSPEED indicator	Illuminates (amber) when vehicle speed exceeds safe limit for selected tire inflation pressure.
17	CTIS OFF indicator	Illuminates (green) when operator disables Central Tire Inflation System (CTIS).
18	PTO indicator	Illuminates (green) when Power Take-Off (PTO) is engaged.
19	VAN DOOR indicator	Flashes (amber) when M1079A1 van door is open.

INSTRUMENT PANEL ASSEMBLY CONTROLS AND INDICATORS - Continued

0004 00

LIGHTED INDICATOR DISPLAY - Continued



0400a38

Table 4. Lighted Indicator Display (Vehicle S/N 18,550 or higher) - Continued.

KEY	CONTROL OR INDICATOR	FUNCTION
20	EXHAUST BRAKE indicator	Illuminates (green) when WARM UP/OFF/RETARD switch is engaged in the retard position.
21	BATTERY DISCONNECT indicator	Illuminates (red) when the batteries have been disconnected. The Limp Home System recharges undercharged batteries while they are disconnected and reintroduces them when an adequate battery voltage level is achieved. Illuminates (red) for approximately 6 seconds after starting engine.
22	HIGH BEAM indicator	Illuminates (green) when high beam headlights are on.
23	Left turn signal	Flashes (green) when left turn signal is on.

INSTRUMENT PANEL ASSEMBLY CONTROLS AND INDICATORS - Continued 0004 00

WTEC III TRANSMISSION PUSHBUTTON SHIFT SELECTOR (WTEC III TPSS)

Table 5 describes controls and indicators on the WTEC III TPSS.

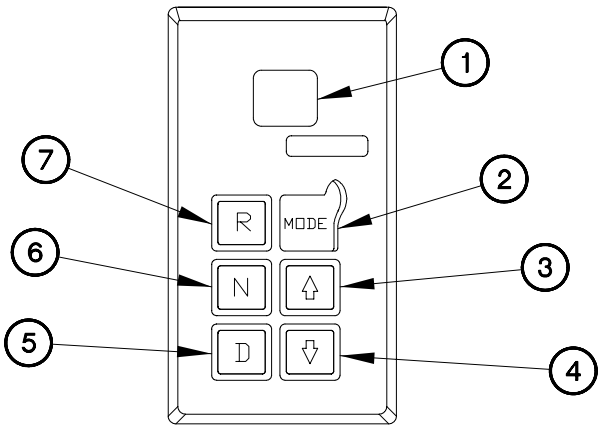


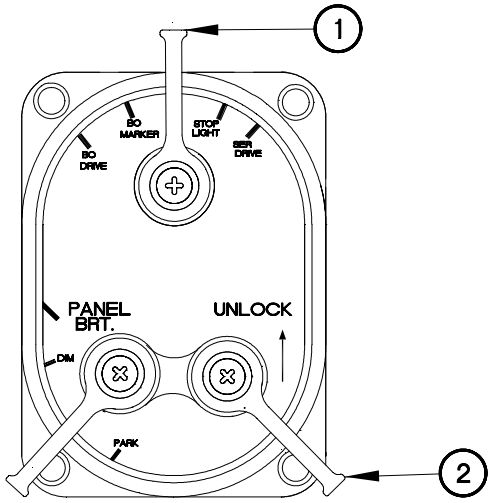
Table 5. WTEC III Transmission Pushbutton Shift Selector (TPSS).

KEY	CONTROL OR INDICATOR	FUNCTION
1	WTEC III TPSS display window	Displays the following information: a. R - Reverse gear selected. b. N - Neutral (no gear selector mode or transmission placed in Neutral). c. 1 through 7 - current forward gear selected.
2	MODE select button	Switches transmission between highway mode and off-road mode.
3	Up arrow button	Switches transmission to next higher forward gear or to select maximum forward gear.
4	Down arrow button	Switches transmission to next lower forward gear or to downshift to first gear.
5	D range button	Switches transmission to Drive. Automatically selects seventh gear as maximum forward gear. Second gear is the lowest gear available. First gear is available only as a manual selection.
6	N range button	Switches transmission to Neutral.
7	R range button	Switches transmission to Reverse.

INSTRUMENT PANEL ASSEMBLY CONTROLS AND INDICATORS -Continued 0004 00

MAIN LIGHT SWITCH

Table 6 describes controls on the Main Light Switch (vehicle S/N 18,549 or lower).
Table 7 describes controls on the Main Light Switch (vehicle S/N 18,550 or higher).



0400A15-

Table 6. Main Light Switch Controls (Vehicle S/N 18,549 or lower).

KEY	CONTROL OR INDICATOR	FUNCTION
1	Main selector lever	Controls operation of service and blackout lights. a. All blackout lights operate when main selector lever is positioned to BO DRIVE. b. Blackout marker lights operate when main selector lever is positioned to BO MARKER. c. Stoplights operate when main selector lever is positioned to STOP LIGHT and brake pedal is pressed. d. All service drive lights operate when main selector lever is positioned to SER DRIVE. e. No exterior lights operate when main selector lever is positioned to OFF.
2	UNLOCK lever	Locks main light switch. UNLOCK lever must be lifted and held in order to place main selector lever in any position except BO MARKER.

INSTRUMENT PANEL ASSEMBLY CONTROLS AND INDICATORS - Continued

MAIN LIGHT SWITCH – Continued

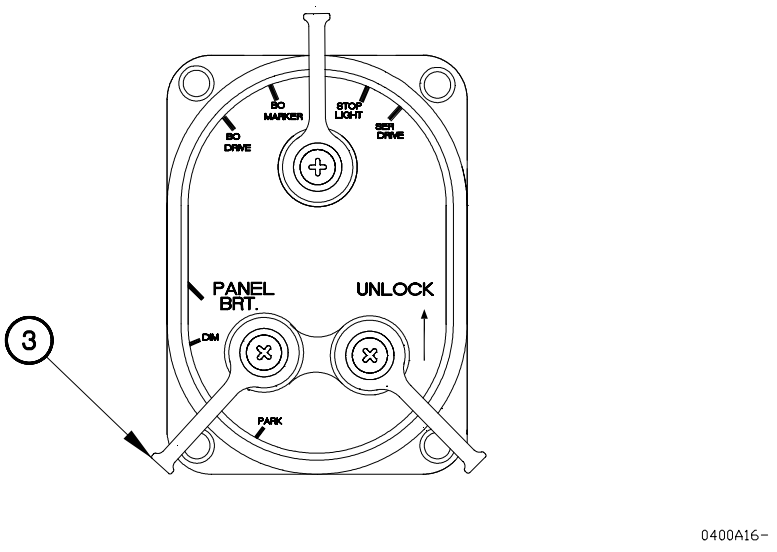
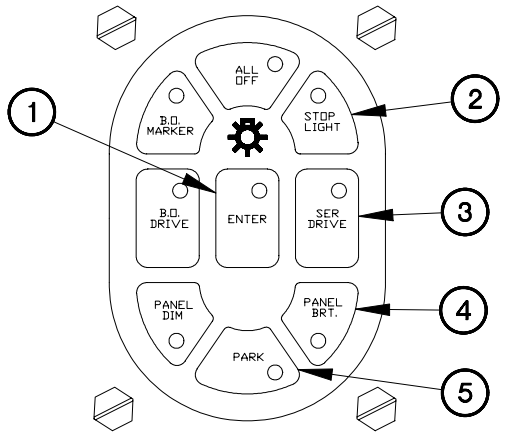


Table 6. Main Light Switch Controls (Vehicle S/N 18,549 or lower) - Continued.

KEY	CONTROL OR INDICATOR	FUNCTION
3	Auxiliary lever	Controls operation of parking lights. a. Operates parking lights when auxiliary lever is positioned to PARK and main selector lever is positioned to SER DRIVE. b. PANEL BRT position allows adjustment of Instrument Panel Assembly illumination by using the dimmer switch. c. DIM position turns off all illumination on Instrument Panel Assembly.

INSTRUMENT PANEL ASSEMBLY CONTROLS AND INDICATORS - Continued 0004 00

MAIN LIGHT SWITCH



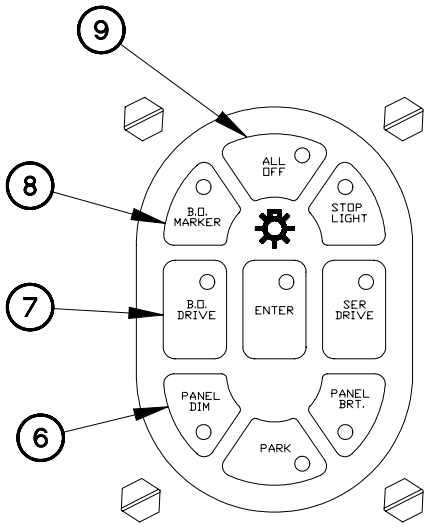
0400a39

Table 7. Main Light Switch Controls (Vehicle S/N 18,550 or higher).

KEY	CONTROL OR INDICATOR	FUNCTION
1	ENTER key	Enter desired function after selection has been made. If ENTER is not pressed within five seconds after selection has been made, switch will reset to previous mode. This prevents accidental switching.
2	STOP LIGHT key	When selected, stoplights operate when brake pedal is pressed.
3	SER DRIVE key	When selected, all service drive lights operate.
4	PANEL BRT key	When selected, illuminates all dashboard switches and gages.
5	PARK key	When selected, parking lights will illuminate.

INSTRUMENT PANEL ASSEMBLY CONTROLS AND INDICATORS - Continued

MAIN LIGHT SWITCH - Continued



0400a40

Table 7. Main Light Switch Controls (Vehicle S/N 18,550 or higher) - Continued.

KEY	CONTROL OR INDICATOR	FUNCTION
6	PANEL DIM key	When selected, turns off all dashboard illuminations.
7	B.O. DRIVE key	When selected, all blackout lights operate.
8	B.O. MARKER key	When selected, blackout marker lights operate.
9	ALL OFF key	When selected, turns off all main light switch functions.

AUXILIARY PANEL CONTROLS AND INDICATORS 0005 00

GENERAL

The following paragraphs contain illustrations that show the location of each control and indicator for the auxiliary panel of the M1078A1 series vehicles. Each control and indicator is clearly labeled as it appears on the vehicle. Callouts on the illustration are keyed to the tabular listing which contains the name and the functional description of each control and indicator.

AUXILIARY PANEL CONTROLS AND INDICATORS

Table 1 describes controls and indicators that may be located on the auxiliary panel. Some switch locations may be blank depending on the model of your vehicle.

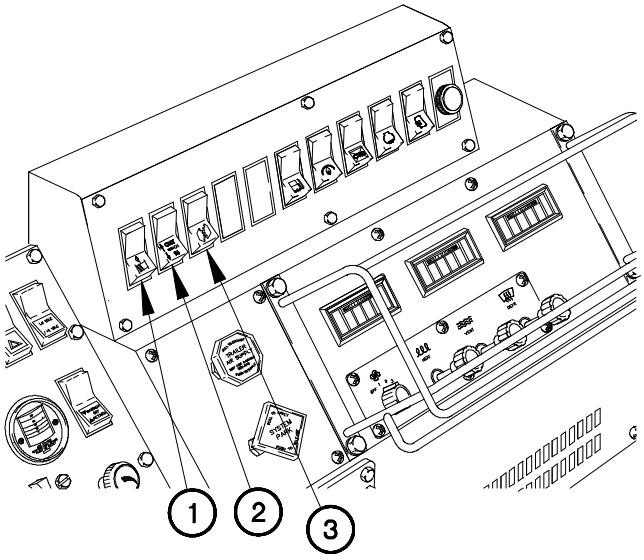


Table 1. Auxiliary Panel Controls and Indicators.

KEY	CONTROL OR INDICATOR	FUNCTION
1	Winch on/off switch (Models with 11K Self-Recovery Winch [SRW])	Provides power to the WINCH IN/OUT SWITCH.
2	WINCH IN/OUT switch (Models with 11K SRW)	Controls reel in/pay out of 11K SRW cable. Power Take-Off (PTO) switch must be positioned to on before WINCH IN/OUT switch will operate. Push top half of switch to pay out cable, bottom half of switch to reel in cable.
3	PTO on/off switch (Models with PTO)	When placed to ON, engine automatically idles at 1350 rpm and transmission is locked in Neutral.

AUXILIARY PANEL CONTROLS AND INDICATORS - Continued 0005 00

AUXILIARY PANEL CONTROLS AND INDICATORS - Continued

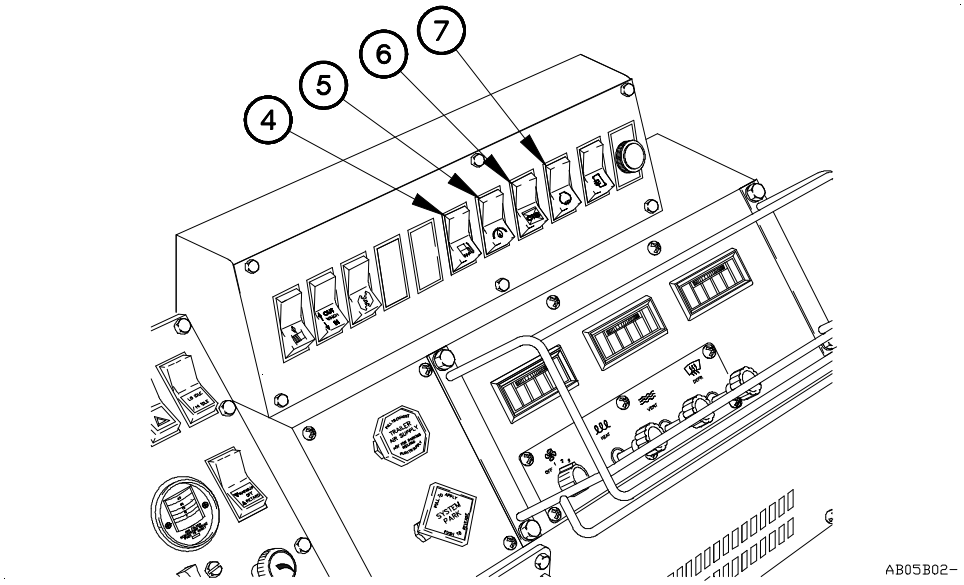


Table 1. Auxiliary Panel Controls and Indicators - Continued.

KEY	CONTROL OR INDICATOR	FUNCTION
4	Fuel preheat switch (Models with cab arctic heater)	Controls operation of fuel preheater.
5	Arctic heater switch (Models with cab arctic heater)	Controls operation of arctic heater for cab.
6	CTIS on/off switch (Models with cab arctic heater)	Controls operation of Central Tire Inflation System (CTIS). Push top half of switch to turn CTIS on, bottom half of switch to turn CTIS off.
7	Swingfire pump switch (Models with cab arctic heater)	Controls operation of the pump which circulates engine coolant through the swingfire heat exchanger.

AUXILIARY PANEL CONTROLS AND INDICATORS - Continued 0005 00

AUXILIARY PANEL CONTROLS AND INDICATORS - Continued

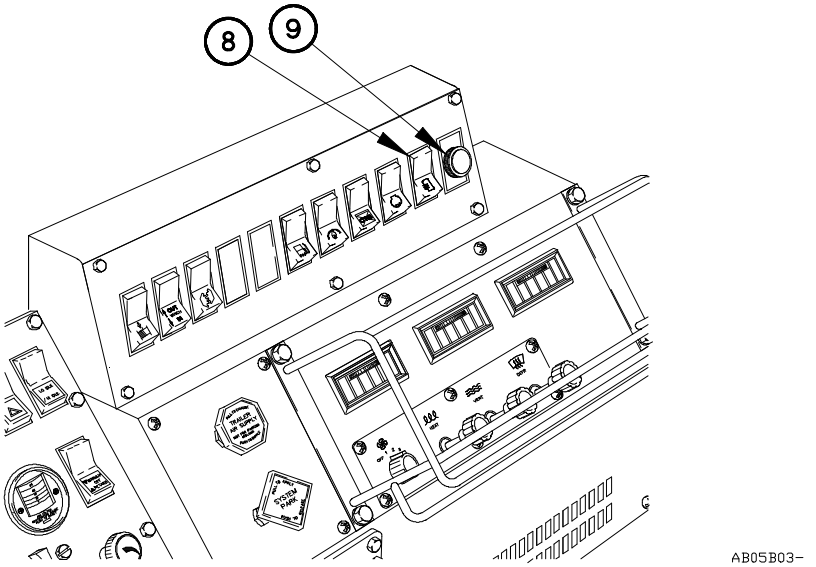


Table 1. Auxiliary Panel Controls and Indicators - Continued.

KEY	CONTROL OR INDICATOR	FUNCTION
8	Arctic engine preheat check switch (models with cab arctic heater)	Initiates back-up diagnostic check.
9	Arctic engine preheat indicator light (models with cab arctic heater)	Indicates system operation and is used for diagnosis.

CENTER CONSOLE CONTROLS AND INDICATORS 0006 00

GENERAL

The following paragraphs contain illustrations that show the location of each control and indicator for the center console of the M1078A1 series vehicles. Each control and indicator is clearly labeled as it appears on the vehicle. Callouts on the illustration are keyed to the tabular listing which contains the name and the functional description of each control and indicator.

AIR SYSTEM CONTROLS

Table 1 describes air system controls on the center console.

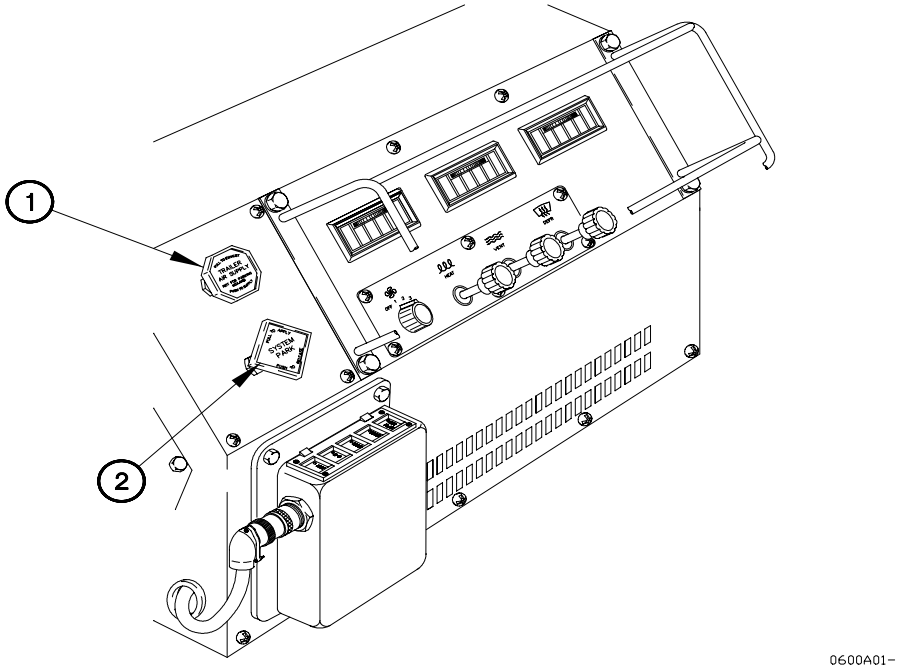


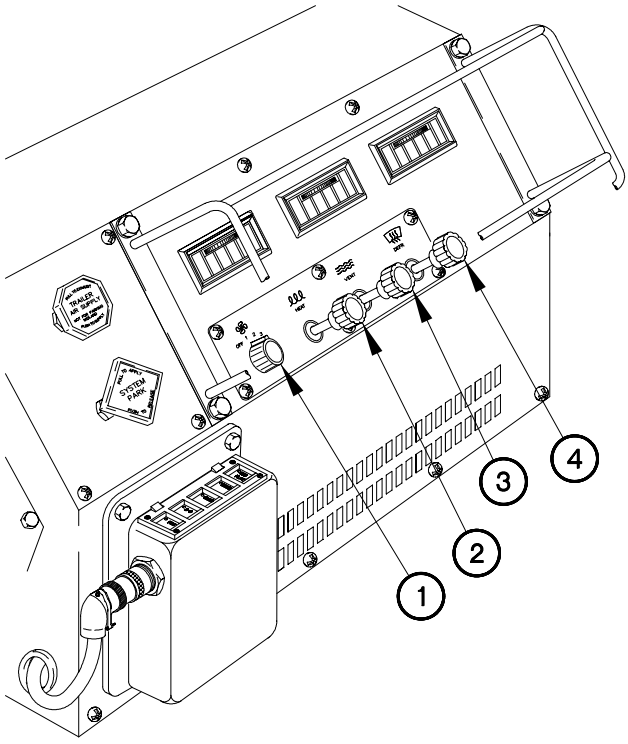
Table 1. Air System Controls.

KEY	CONTROL OR INDICATOR	FUNCTION
1	TRAILER AIR SUPPLY control	Controls air supply to trailer brakes. Air is supplied to trailer when control is pushed in and the SYSTEM PARK is activated.
2	SYSTEM PARK control	Applies and releases the parking brakes and trailer parking brakes (if equipped). Parking brakes are applied when control is pulled. It also supplies air to the TRAILER AIR SUPPLY valve.

CENTER CONSOLE CONTROLS AND INDICATORS - Continued 0006 00

HEATER/DEFROST CONTROLS

Table 2 describes heater controls on the center console.



0600A02-

Table 2. Heater/Defrost Controls.

KEY	CONTROL OR INDICATOR	FUNCTION
1	Fan switch	Four-position switch used to control operation and speed of heater fan.
2	HEAT control	Controls temperature of air that heats cab interior and defrosts windshield. Temperature of air increases when control is pulled.
3	VENT control	Controls flow of outside air to cab. When control is pulled, fresh air is vented into cab
4	DEFR (Defrost) control	Controls windshield defrosting. Air is routed from heater to defrost windshield when control is pulled.

CENTER CONSOLE CONTROLS AND INDICATORS - Continued 0006 00

INCLINOMETER.

Table 3 describes the Inclinometer on the center console.

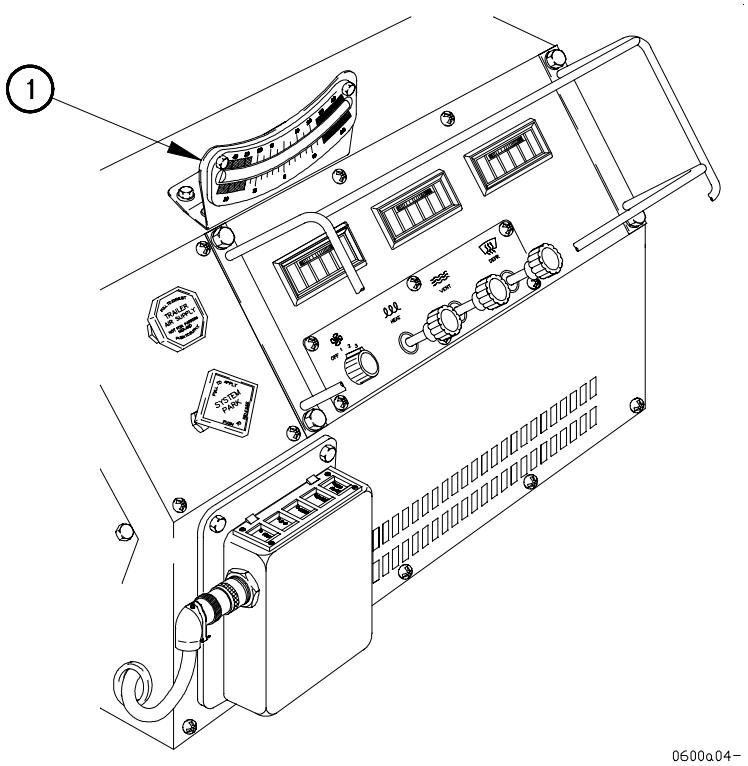


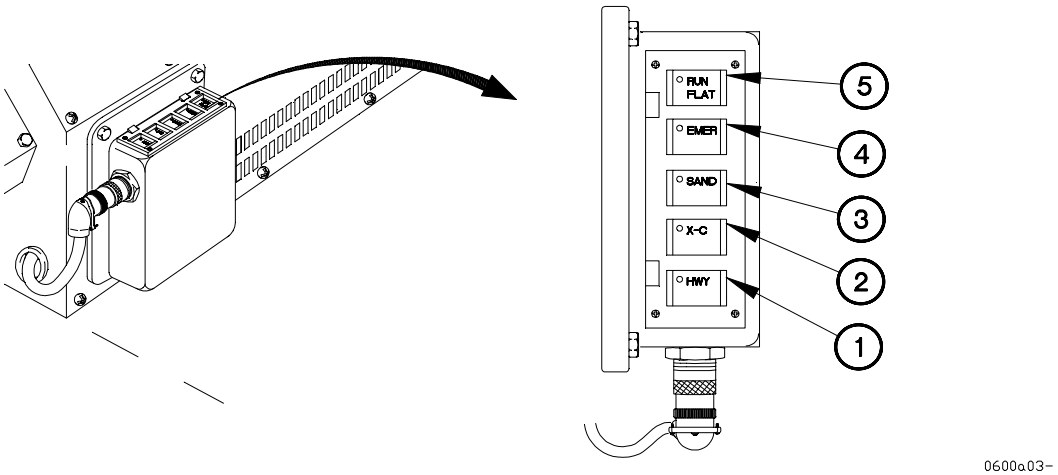
Table 3. Inclinometer.

KEY	CONTROL OR INDICATOR	FUNCTION
1	Inclinometer (Vehicle S/N 15,676 or higher)	Used on vehicles to prevent flip-over. Color zones (RED) = flip-over danger, BLACK = safe operation) are used to instantly alert the operator of danger. The color zones are based on degree settings. Inclinometer may be mounted on personnel heater or auxiliary panel on later models.

CENTER CONSOLE CONTROLS AND INDICATORS - Continued 0006 00

CTIS ELECTRONIC CONTROL UNIT (ECU)

Table 4 describes CTIS controls and indicators on the center console.



0600a03-

Table 4. CTIS Electronic Control Unit (ECU) Controls and Indicators.

KEY	CONTROL OR INDICATOR	FUNCTION
1	HWY (Highway) mode button and indicator	Pressed to set CTIS in highway mode. Indicator illuminates steady when tire pressure is 55 psi (379 kPa). Maximum speed is 55 mph (88 km/h) in HWY mode.
2	X-C (Cross-Country) mode button and indicator	Pressed to set CTIS in cross-country mode. Indicator illuminates steady when tire pressure is 33 psi (228 kPa). Maximum speed is 40 mph (64 km/h) in X-C mode.
3	SAND (Soft Terrain) mode button and indicator	Pressed to set CTIS in soft terrain mode. Indicator illuminates steady when tire pressure is 20 psi (138 kPa). Maximum speed is 12 mph (19 km/h) in SAND mode.
4	EMER (Emergency) mode button and indicator	Pressed to set CTIS in emergency mode. Indicator illuminates steady when tire pressure is 14 psi (97 kPa). Maximum speed is 5 mph (8 km/h) in EMER mode.
5	RUN FLAT mode button and indicator	Enhance mode used to maintain tire air pressure in the event of a leak in the other four modes.

STEERING COLUMN CONTROLS 0007 00

GENERAL

The following paragraph contains illustrations that show the location of each steering column control of the M1078A1 series vehicles. Each control and indicator is clearly labeled as it appears on the vehicle. Callouts on the illustration are keyed to the tabular listing which contains the name and the functional description of each control and indicator.

STEERING COLUMN CONTROLS

Table 1 describes controls on the steering column.

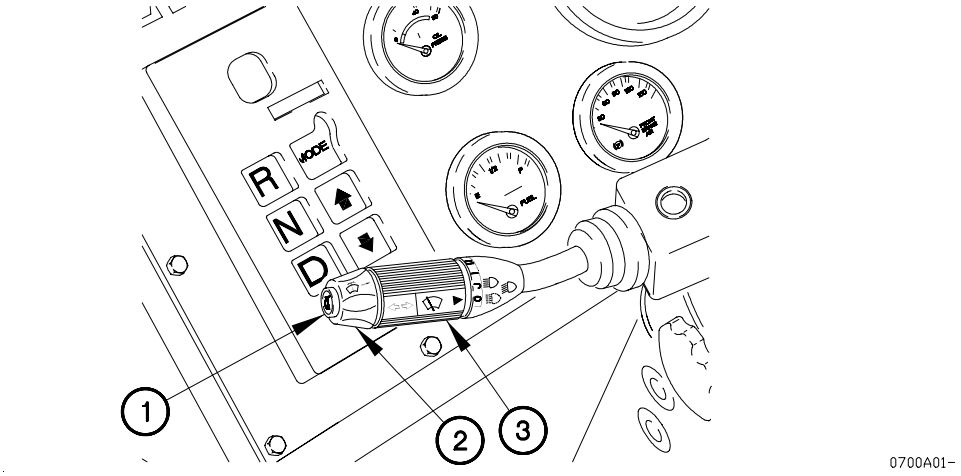
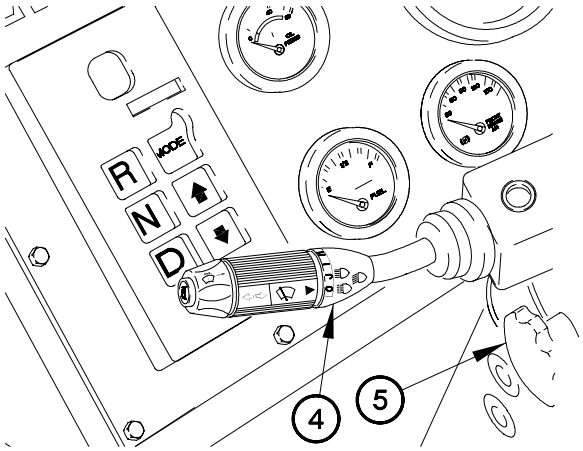


Table 1. Steering Column Controls.

KEY	CONTROL OR INDICATOR	FUNCTION
1	Horn button	Sounds horn when pressed.
2	Windshield washer switch	Activates windshield washer when pushed in.
3	Windshield wiper switch	Four-position switch used to operate and control the speed of the windshield wipers. Windshield wipers operate intermittently when switch is placed in the "J" position. Windshield wipers operate at low or high speed when switch is placed in the "I" or "II" position.

STEERING COLUMN CONTROLS 0007 00

STEERING COLUMN CONTROLS - Continued



0700A02-

Table 1. Steering Column Controls - Continued.

KEY	CONTROL OR INDICATOR	FUNCTION
4	Turn signal/headlight dimmer control	Operates turn signals and controls headlight dimming. Right turn signal indicator will flash when control is pushed up. Left turn signal indicator will flash when control is pushed down. Headlight dimming is controlled by pulling the control toward the Operator. HIGH BEAM indicator illuminates when high beam headlights are on.
5	Steering wheel tilt/telescope control	Adjusts angle and height of steering wheel.

FLOOR-MOUNTED CONTROLS 0008 00

GENERAL

The following paragraph contains an illustration that shows the location of each floor-mounted control of the M1078A1 series vehicles. Each control and indicator is clearly labeled as it appears on the vehicle. Callouts on the illustration are keyed to the tabular listing which contains the name and the functional description of each control and indicator.

FLOOR-MOUNTED CONTROLS

Table 1 describes floor-mounted controls.

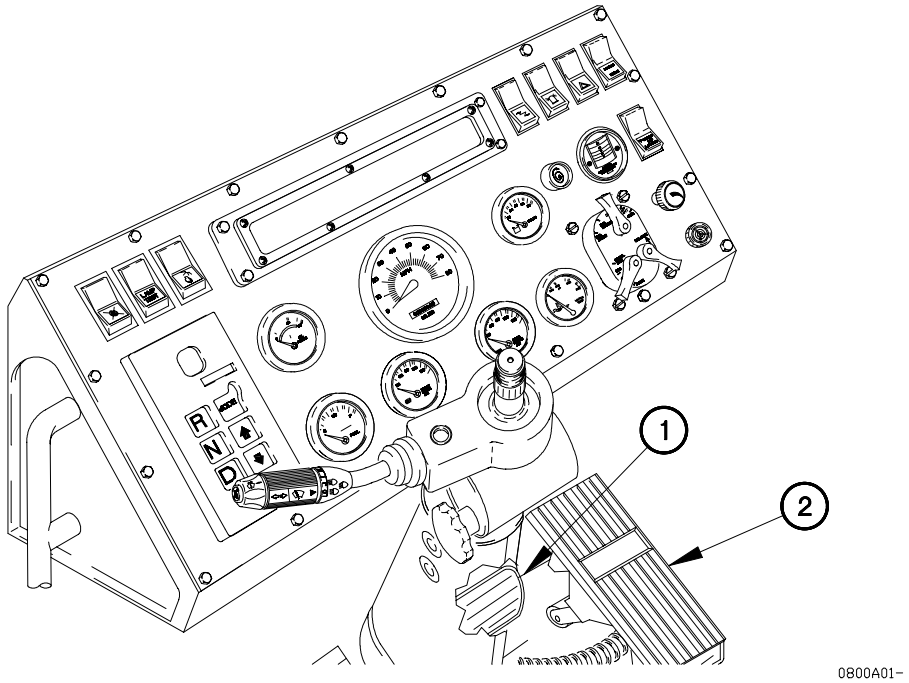


Table 1. Floor-Mounted Controls.

KEY	CONTROL OR INDICATOR	FUNCTION
1	Brake pedal	Applies service brakes when pressed. Also applies trailer service brakes when the vehicle is coupled to a trailer and TRAILER AIR SUPPLY control is pushed in.
2	Accelerator pedal	Controls engine speed.

DOOR-MOUNTED CONTROLS 0009 00

GENERAL

The following paragraph contains an illustration that shows the location of each door-mounted control for the M1078A1 series vehicles. Each control and indicator is clearly labeled as it appears on the vehicle. Callouts on the illustration are keyed to the tabular listing which contains the name and the functional description of each control and indicator.

DOOR MOUNTED CONTROLS

Table 1 describes door-mounted controls.

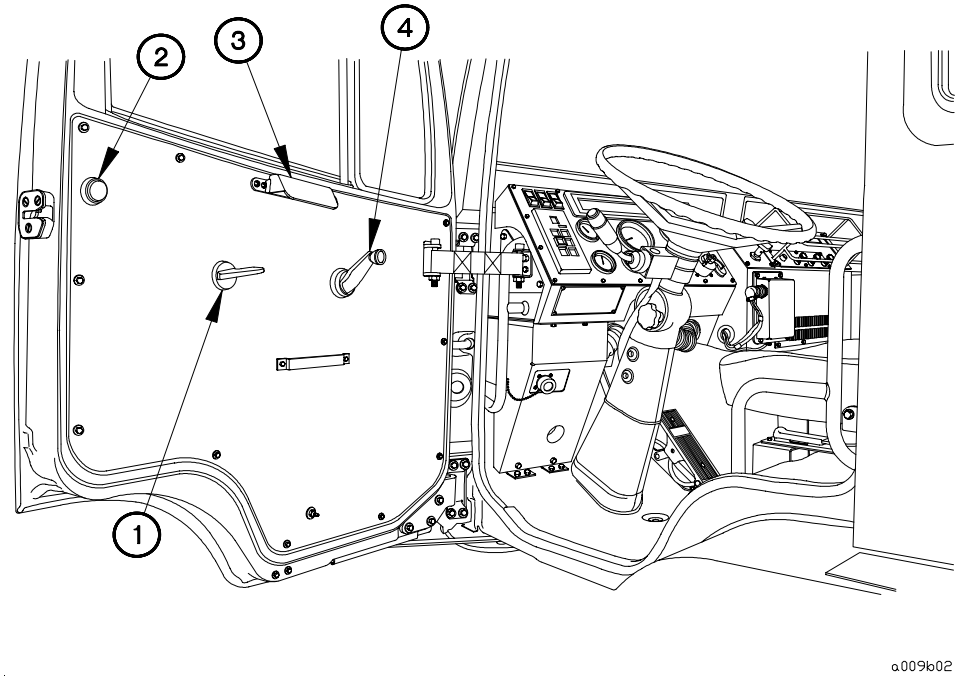


Table 1. Door-Mounted Controls.

KEY	CONTROL OR INDICATOR	FUNCTION
1	Cab door latch	Opens cab door from inside or outside of vehicle when pulled.
2	Cab door lock	Locks door so that it cannot be opened from the outside of the vehicle.
3	Cab door pull bar	Pulls cab door closed
4	Cab door window glass regulator	Raises and lowers window glass when handle is turned.

SEAT CONTROLS 0010 00

GENERAL

The following paragraph contains an illustration that shows the location of each seat control for the M1078A1 series vehicles. Each control and indicator is clearly labeled as it appears on the vehicle. Callouts on the illustration are keyed to the tabular listing which contains the name and the functional description of each control and indicator.

SEAT CONTROLS

Table 1 describes controls on the driver's and passenger's seat.

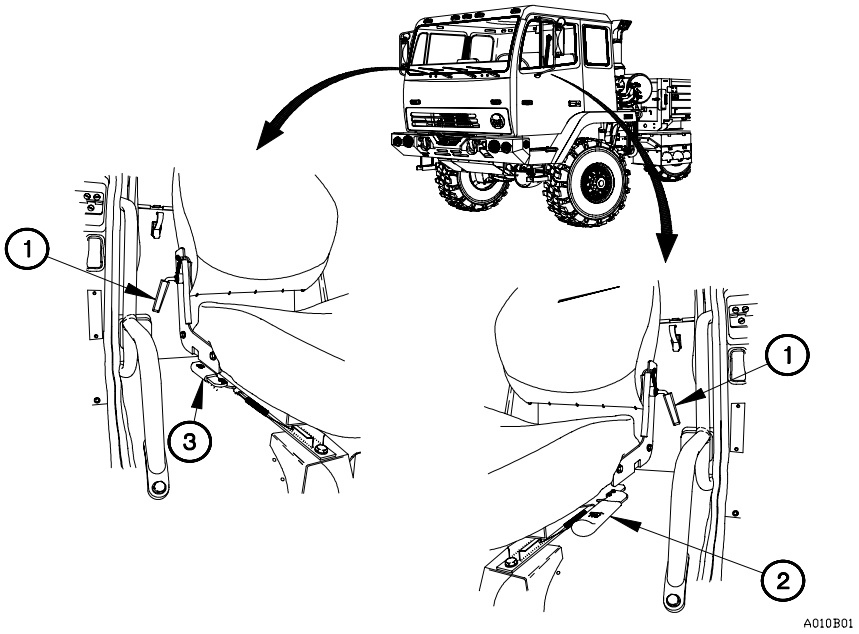


Table 1. Seat Controls.

KEY	CONTROL OR INDICATOR	FUNCTION
1	Seat back release knob	Allows the seat back to fold forward for access to stowage area behind seat.
2	Forward/backward adjustment control	Pulls outward to allow the driver's seat to be moved forward or backward.
	NOTE	
	The following control is provided on vehicle S/N 18,550 or higher.	
3	Forward/Backward adjustment control.	Pulls outward to allow passenger's seat to be moved forward or backward.

EXTERIOR CONTROLS AND INDICATORS 0011 00

GENERAL

The following paragraphs contain illustrations that show the location of each exterior control and indicator of the M1078A1 series vehicles. Each control and indicator is clearly labeled as it appears on the vehicle. Callouts on the illustration are keyed to the tabular listing which contains the name and the functional description of each control and indicator.

PASSENGER SIDE EXTERIOR CONTROLS AND INDICATORS

Table 1 describes controls on the exterior passenger side of the vehicle.

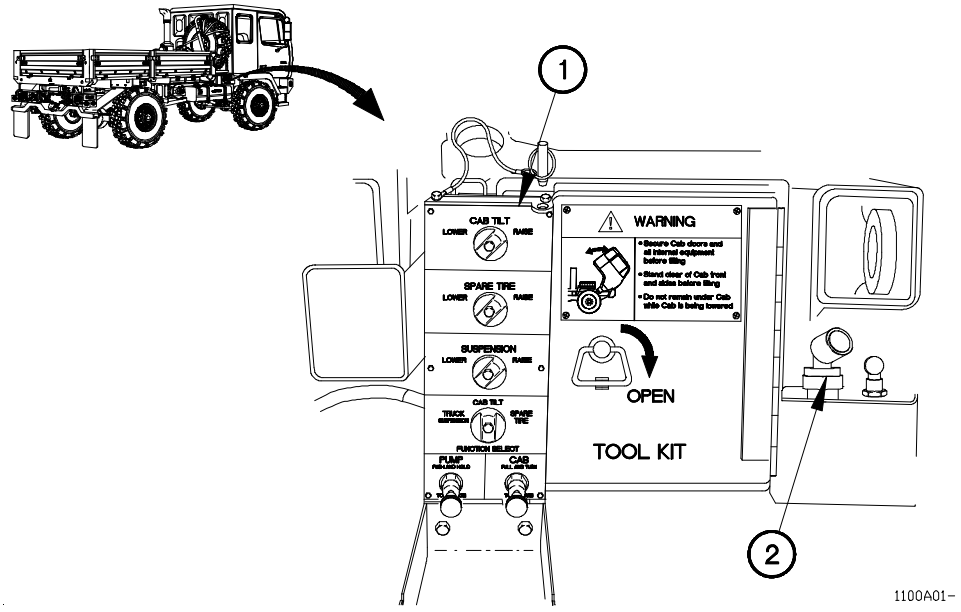


Table 1. Passenger Side Exterior Controls.

KEY	CONTROL OR INDICATOR	FUNCTION
1	Hydraulic manifold	Used to raise and lower the cab and spare tire, and to compress the suspension for internal air transport. Table 2 describes all controls on hydraulic manifold.
2	Back-up hydraulic pump	Hydraulic hand pump that provides back-up power in case of failure to the hydraulic manifold.

EXTERIOR CONTROLS AND INDICATORS - Continued 0011 00

PASSENGER SIDE EXTERIOR CONTROLS AND INDICATORS - Continued

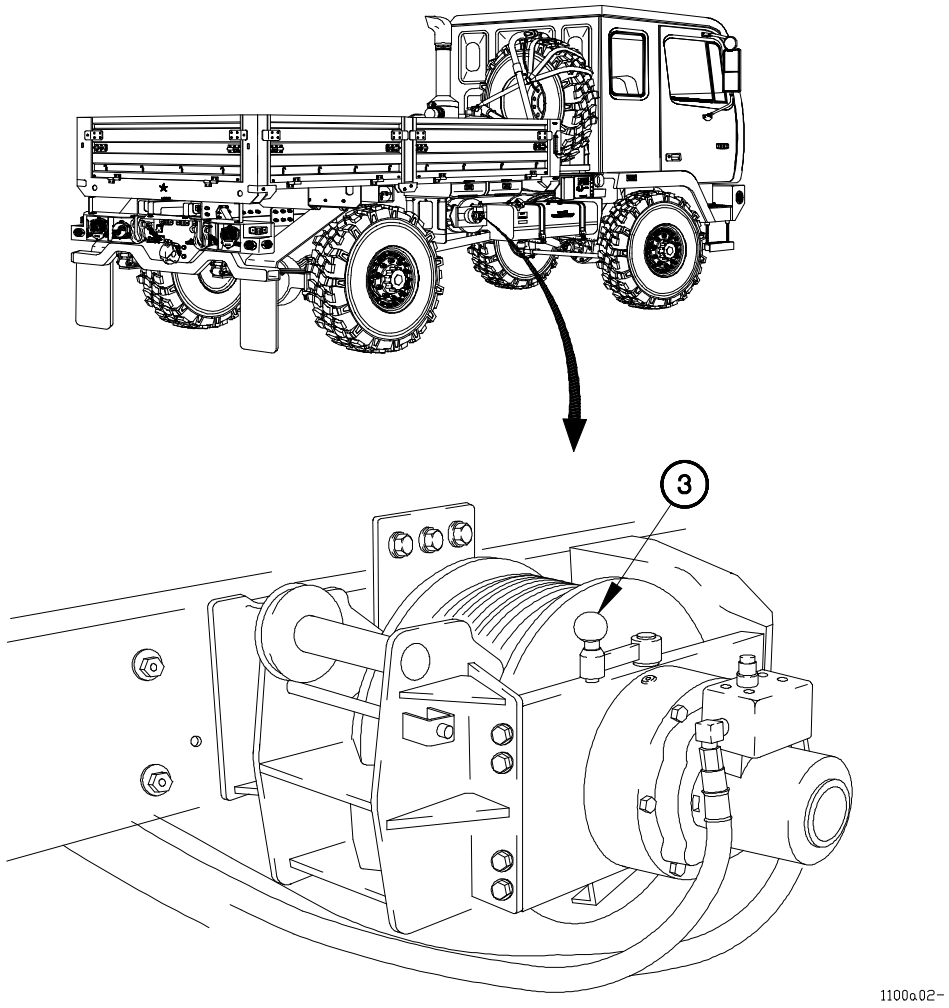


Table 1. Passenger Side Exterior Controls - Continued.

KEY	CONTROL OR INDICATOR	FUNCTION
3	Winch clutch control lever (Models with 11K Self-Recovery Winch [SRW])	Engages and disengages 11K SRW clutch. When disengaged, winch drum will spool freely and cable can be payed out by hand. When engaged, 11K SRW operation is controlled from the WINCH IN/OUT switch inside cab.

EXTERIOR CONTROLS AND INDICATORS - Continued 0011 00

PASSENGER SIDE EXTERIOR CONTROLS AND INDICATORS - Continued

NOTE

The following three controls are only equipped on vehicle S/N 18,550 or higher.

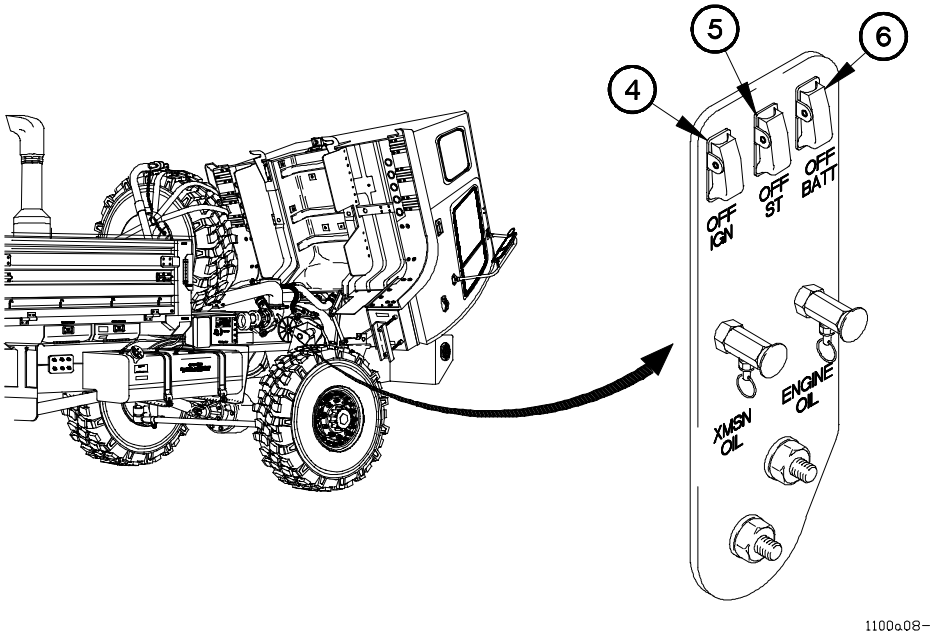


Table 1. Passenger Side Exterior Controls - Continued.

KEY	CONTROL OR INDICATOR	FUNCTION
4	OFF IGN switch	Placing the OFF IGN switch to the on position supplies battery power to the 12 VDC and 24 VDC ignition
5	OFF ST switch	Placing the OFF ST switch (momentary) to the ON position starts the vehicle.
		NOTE To prevent alternator load dump (voltage spike) the OFF BATT switch is to be operated after the engine is shut down.
6	OFF BATT switch	Placing the OFF BATT switch to the OFF position supplies a ground signal to the master battery disconnect relay and after a 1 second delay, disconnects the batteries from the electrical system.

EXTERIOR CONTROLS AND INDICATORS - Continued 0011 00

HYDRAULIC MANIFOLD CONTROLS

Table 2 describes controls on the hydraulic manifold.

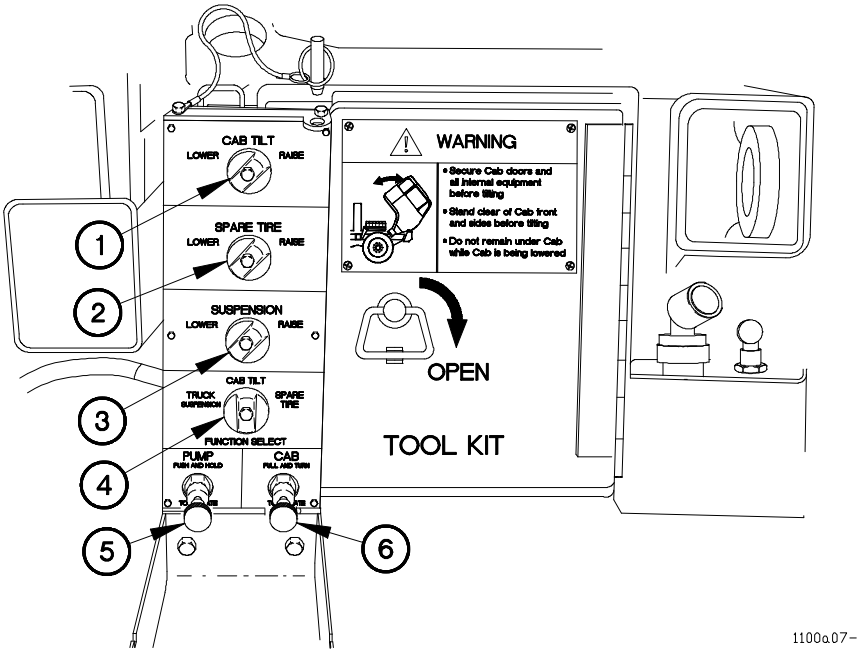


Table 2. Hydraulic Manifold Controls.

KEY	CONTROL OR INDICATOR	FUNCTION
1	CAB TILT knob	Allows operator to raise or lower the cab.
2	SPARE TIRE knob	Allows operator to raise or lower the spare tire.
3	SUSPENSION knob	Allows operator to raise or lower the suspension.
4	FUNCTION SELECT knob	Allows operator to determine what component will receive hydraulic pressure.
5	PUMP knob	Pushing in and holding PUMP knob will activate pre-selected system: SUSPENSION, CAB TILT, or SPARE TIRE. Works with FUNCTION SELECT knob.
6	CAB knob	Turn knob to the left and pull out to deflate cab air springs. Press and turn knob to the right to inflate cab air springs.

EXTERIOR CONTROLS AND INDICATORS - Continued 0011 00

DRIVER'S SIDE EXTERIOR CONTROLS AND INDICATORS

Table 3 describes controls and indicators on the exterior driver's side of the vehicle.

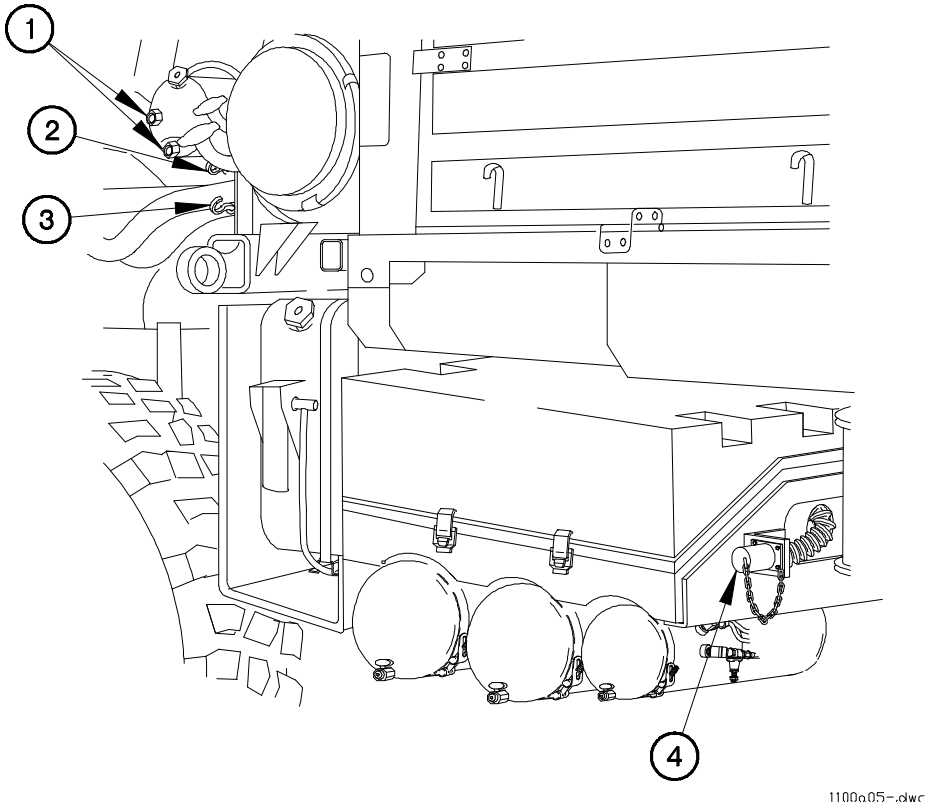


Table 3. Driver's Side Exterior Controls and Indicators.

KEY	CONTROL OR INDICATOR	FUNCTION
1	Radiator overflow tank sight glasses	Top sight glass indicates safe coolant level with the engine not running. When coolant is not visible in lower sight glass, vehicle should not be operated.
2	XMSN (Transmission) DIPSTICK	Indicates oil level in the transmission.
3	Engine oil dipstick	Indicates oil level in the engine.
4	NATO receptacle	Receptacle used for starting the vehicle using external power.

EXTERIOR CONTROLS AND INDICATORS - Continued 0011 00

DRIVER'S SIDE EXTERIOR CONTROLS AND INDICATORS - Continued

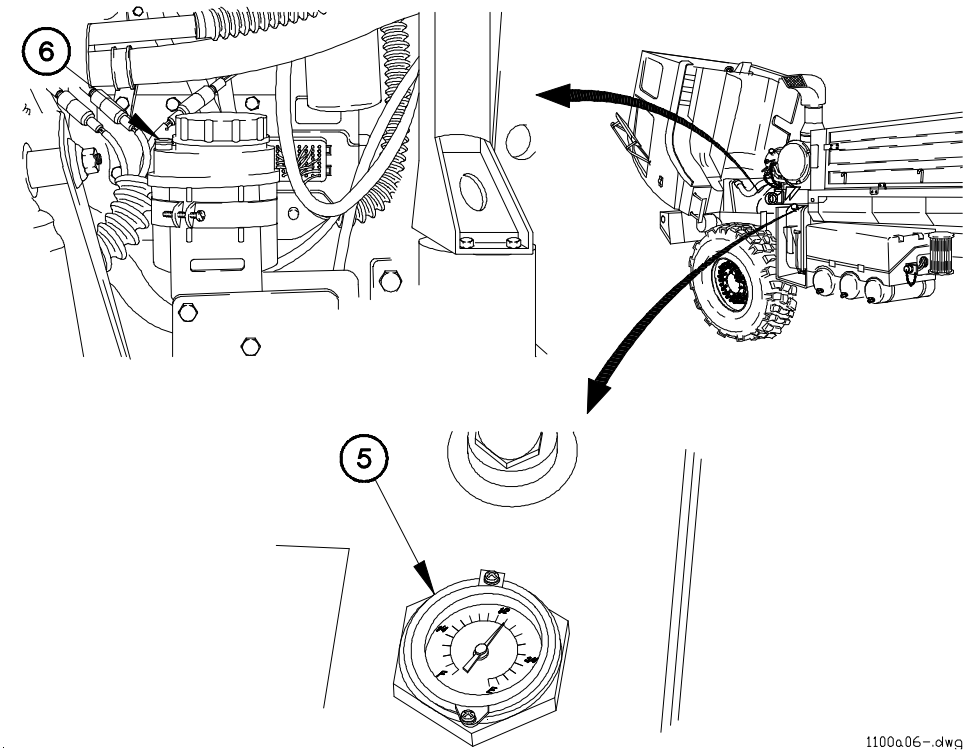


Table 3. Driver's Side Exterior Controls and Indicators - Continued.

KEY	CONTROL OR INDICATOR	FUNCTION
5	Hydraulic oil level gage (Models with 11K SRW)	Indicates oil level in the hydraulic reservoir.
6	Power steering dipstick	Indicates oil level in the power steering reservoir.

EXTERIOR CONTROLS AND INDICATORS - Continued 0011 00

DRIVER'S SIDE EXTERIOR CONTROLS AND INDICATORS (Vehicle S/N 18,550 or Higher)

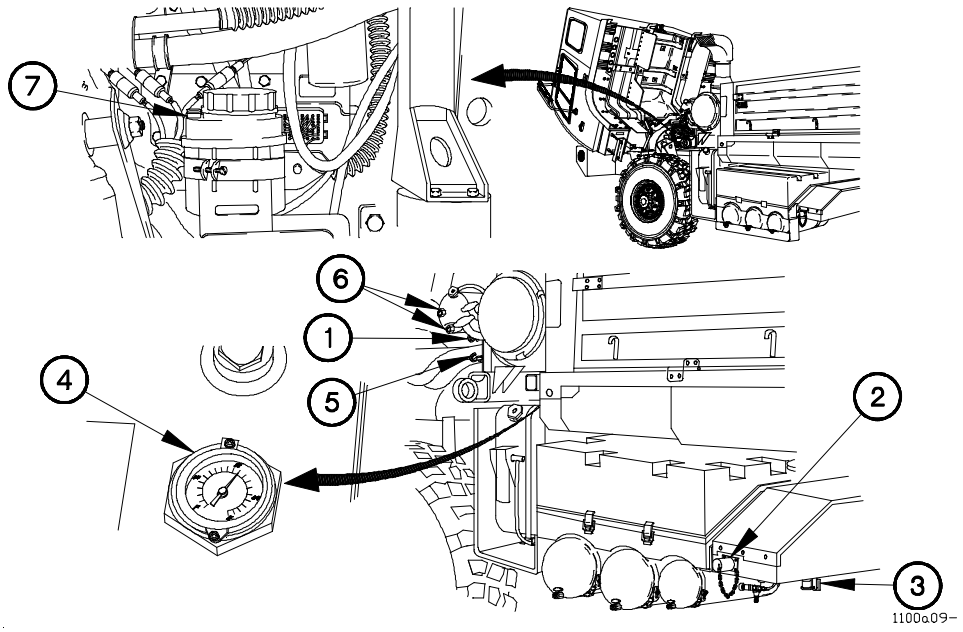


Table 3. Driver's Side Exterior Controls and Indicators. (Vehicle S/N 18,550 or Higher)

KEY	CONTROL OR INDICATOR	FUNCTION
1	XMSN (Transmission) DIPSTICK	Indicates oil level in the transmission.
2	NATO receptacle	Receptacle used for starting the vehicle using external power.
3	Manual Battery Disconnect Switch (MBDS)	When switched to the OFF position, disconnects the batteries from the electrical system.
4	Hydraulic oil lever gage (Models with 11K SRW)	Indicates oil level in the hydraulic reservoir.
5	Engine oil dipstick	Indicates oil level in the engine.
6	Radiator overflow tank sight glasses	Top sight glass indicates safe coolant level with engine not running.
7	Power steering dipstick	Indicates oil level in the power steering reservoir.

SPECIAL PURPOSE KIT CONTROLS AND INDICATORS 0012 00

GENERAL

The following paragraphs contain illustrations that show the location of each special purpose kit control and indicator for the M1078A1 series vehicles. Each control and indicator is clearly labeled as it appears on the vehicle. Callouts on the illustration are keyed to the tabular listing which contains the name and the functional description of each control and indicator.

TROOP TRANSPORT ALARM SWITCH

Table 1 describes the troop transport alarm switch.

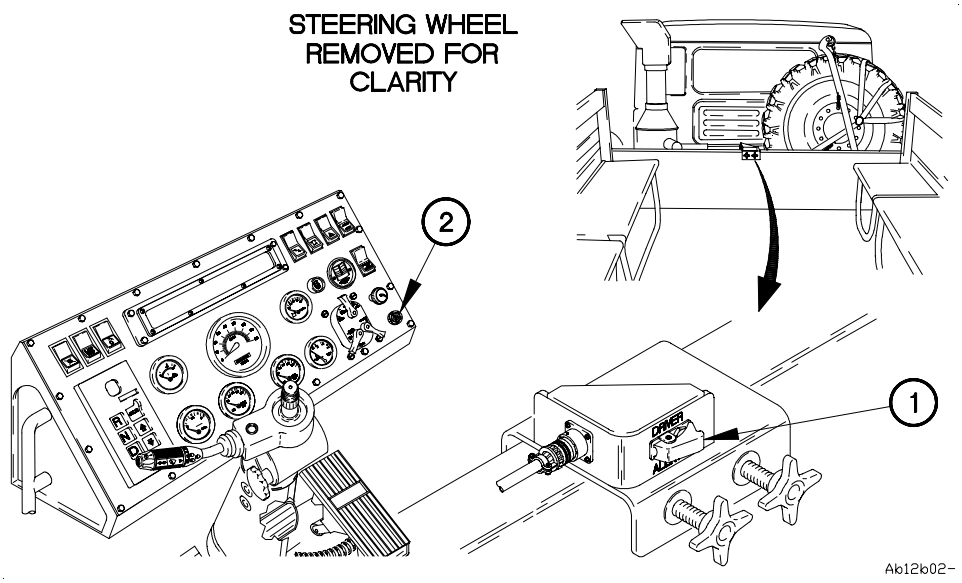


Table 1. Troop Transport Alarm Switch.

KEY	CONTROL OR INDICATOR	FUNCTION
1	Troop transport alarm switch	The troop transport alarm switch is part of the troopseat kit. The troop transport alarm switch is a momentary switch located in the cargo bed when the troopseat kit is installed. The troop transport alarm switch is used to alert the driver to stop the vehicle.
2	Troop transport alarm	The troop transport alarm is a dual tone audible alarm located in the cab. When activated by the troop transport alarm switch located in the cargo bed, the troop transport alarm alerts the driver to stop the vehicle.

SPECIAL PURPOSE KIT CONTROLS AND INDICATORS - Continued 0012 00

LIGHT MATERIAL HANDLING CRANE (LMHC)

Table 2 describes LMHC controls and indicators.

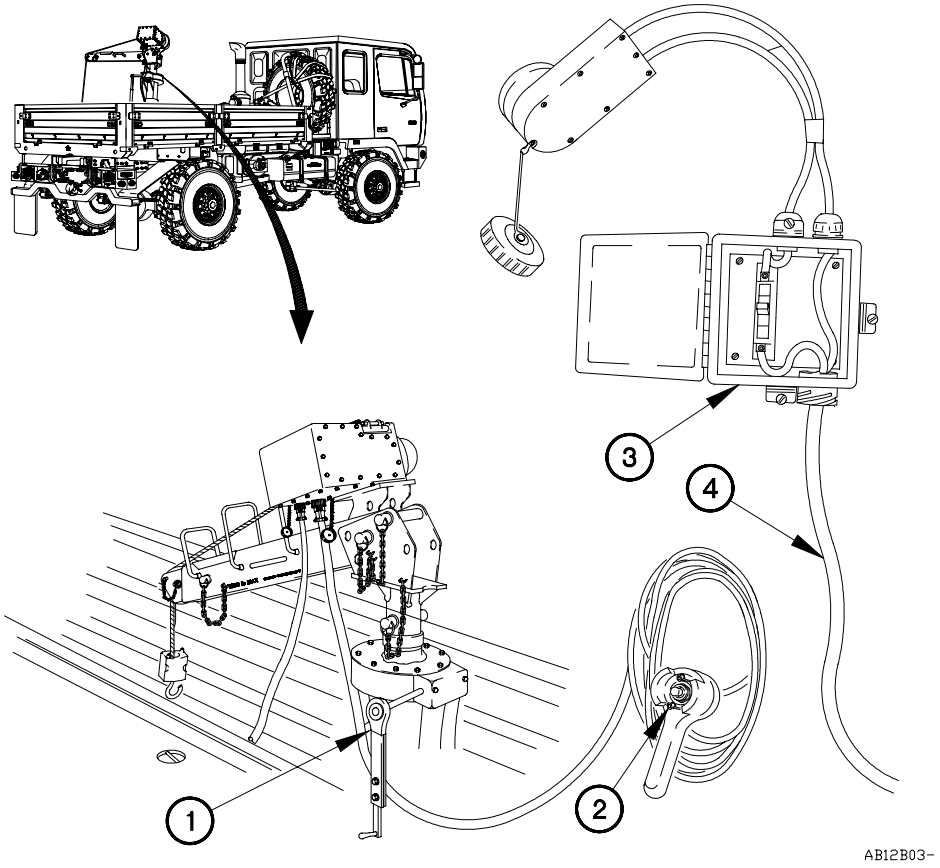


Table 2. LMHC Controls and Indicators.

KEY	CONTROL OR INDICATOR	FUNCTION
1	Swing control	Swings LMHC boom to right and left.
2	Winch remote control	Remote control unit used to extend and retract hoist cable.
3	Circuit breaker box	Turns power on and off and protects LMHC from damage from electrical overloads.
4	Power cable	Supplies power to circuit breaker box.

SPECIAL PURPOSE KIT CONTROLS AND INDICATORS - Continued 0012 00

CARGO AREA ARCTIC HEATER

Table 3 describes cargo area arctic heater controls and indicators.

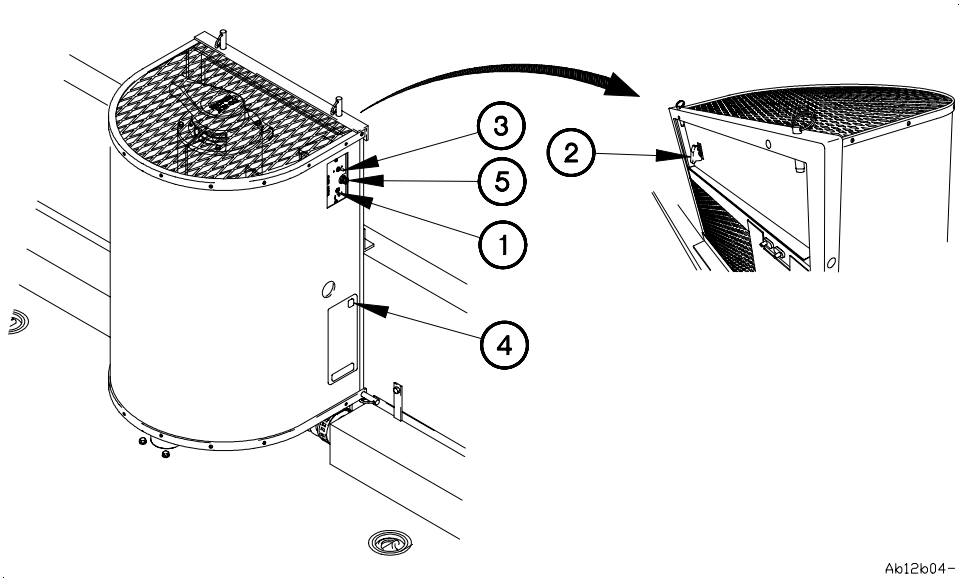


Table 3. Cargo Area Arctic Heater Controls and Indicators.

KEY	CONTROL OR INDICATOR	FUNCTION
1	START/OFF/RUN switch	Turns power on and off, also starts diagnostic mode for cargo area arctic heater.
2	Override switch	Allows cargo area arctic heater to operate while engine is not running.
3	LO/HI switch	Switches cargo area arctic heater from low heat (30,000 BTU) to high heat (60,000 BTU).
4	Diagnostic Display	Displays diagnostic codes for cargo area arctic heater.
5	Control Box Lamp	Illuminates to indicate cargo area arctic heater has achieved ignition. Flashes to indicate abnormal conditions are present in cargo area arctic heater.

SPECIAL PURPOSE KIT CONTROLS AND INDICATORS - Continued 0012 00

ARCTIC ENGINE PREHEAT INDICATOR AND SWITCH

Table 4 describes the arctic engine preheat indicator light and switch.

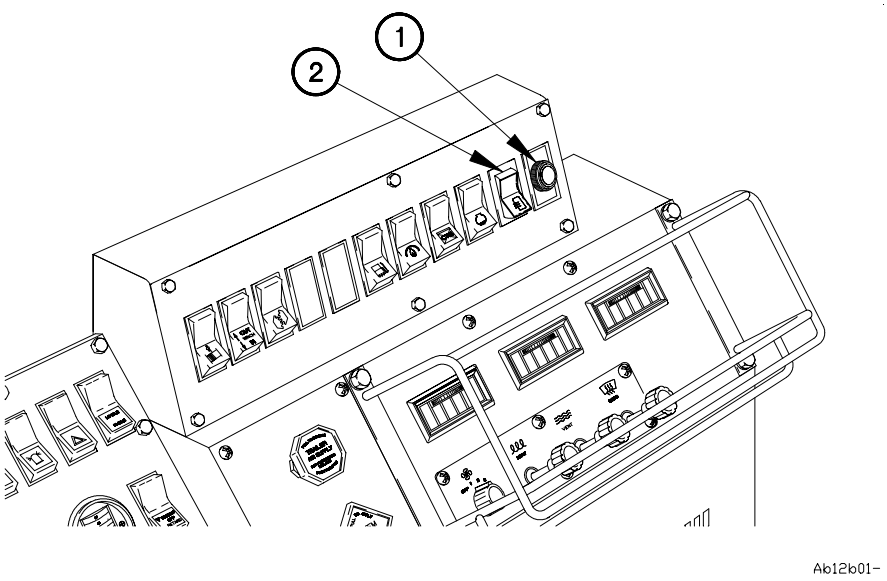


Table 4. Arctic Engine Preheat Indicator and Switch.

KEY	CONTROL OR INDICATOR	FUNCTION
1	Arctic engine preheat indicator light	The arctic engine preheat indicator light is part of the arctic engine preheat kit. It is located on the auxiliary panel and is used to show arctic engine preheat system status and for diagnostics.
2	Arctic engine preheat check switch	The arctic engine preheat check switch is a rocker switch located on the auxiliary panel. When activated, it starts a diagnostic check of the arctic engine preheat system.

SPECIAL PURPOSE KIT CONTROLS AND INDICATORS - Continued 0012 00

ENGINE BLOCK ARCTIC HEATER INDICATORS

Table 5 describes the engine block arctic heater indicator lights.

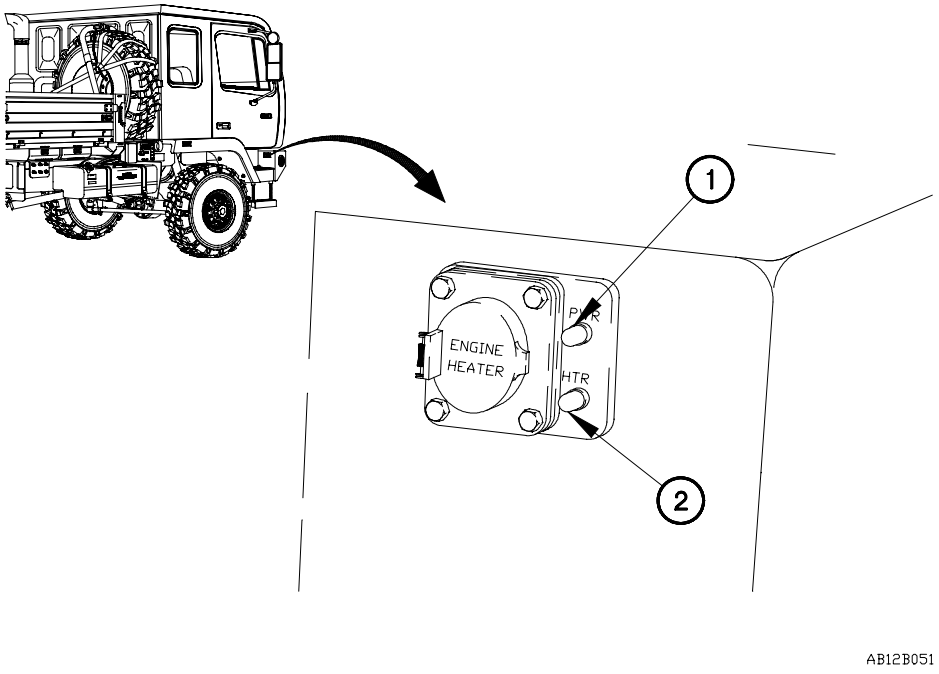


Table 5. Engine Block Arctic Heater Indicator Lights.

KEY	CONTROL OR INDICATOR	FUNCTION
1	Engine Block Arctic Heater Power (PWR) indicator light	The engine block arctic heater power indicator light is part of the engine block arctic heater kit. It is located on the rear RH side of the front bumper and is used to show engine block arctic heater system AC power is ON/OFF.
2	Engine Block Arctic Heater (HTR) indicator	The engine block arctic heater indicator light is part of the engine block arctic heater kit. It is located on the rear RH side of the front bumper and is used to show engine block arctic heater system is ON/OFF.

M1079A1 VAN CONTROLS 0013 00

GENERAL

The following paragraphs contain illustrations that show the location of each control and indicator for the M1079A1 van. Each control and indicator is clearly labeled as it appears on the vehicle. Callouts numbers on the illustration are keyed to the tabular listing which contains the names and the functional descriptions of each control and indicator.

INTERIOR CONTROLS

Table 1 describes van controls and indicators inside the van.

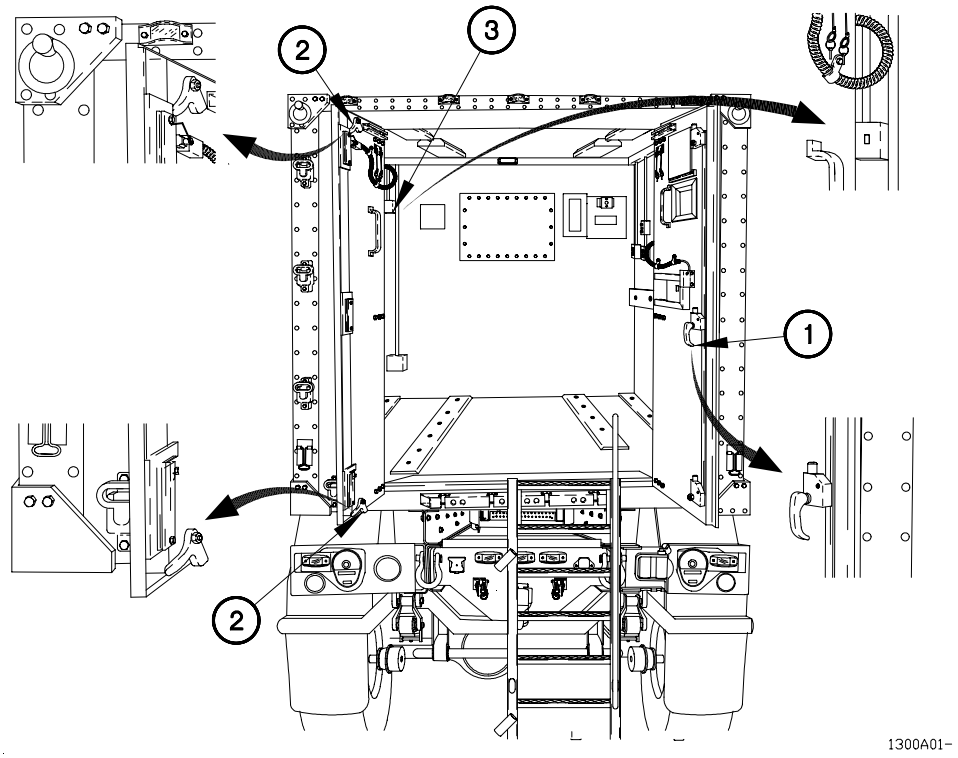


Table 1. Van Interior Controls.

KEY	CONTROL OR INDICATOR	FUNCTION
1	RH door handle	Opens RH door when turned and pulled. Located on inside and outside of RH door.
2	LH door latches	Both upper and lower latches must be turned to open LH door. RH door handle must be opened first.
3	FAN switch	Controls operation of the ventilation fan.

M1079A1 VAN CONTROLS - Continued 0013 00

INTERIOR CONTROLS - Continued

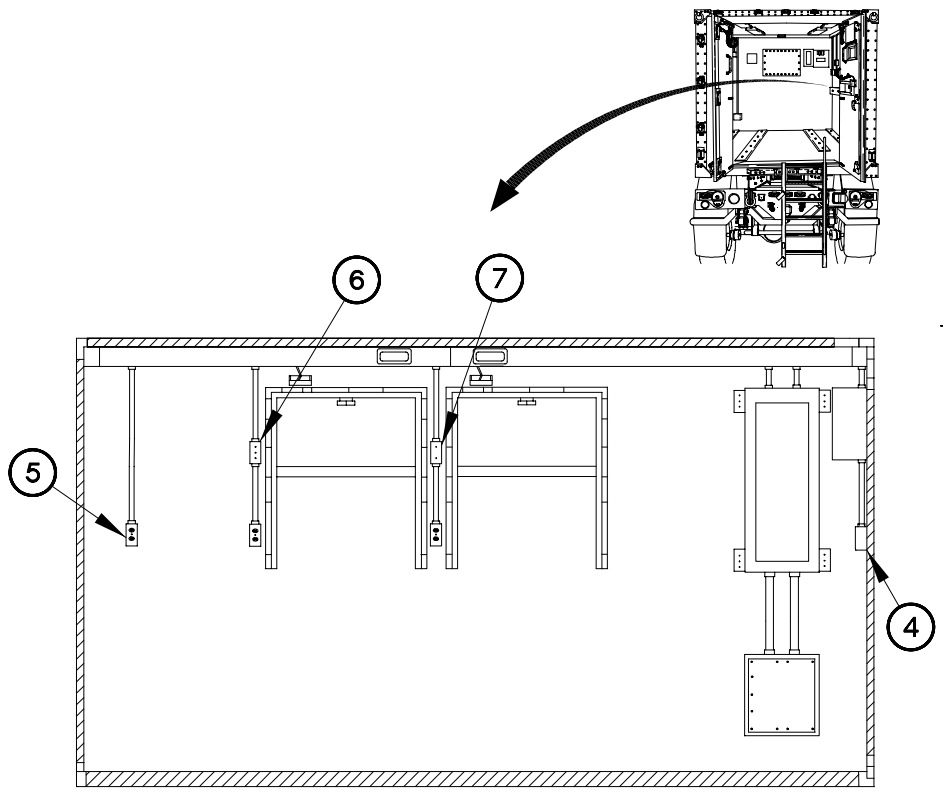


Table 1. Van Interior Controls - Continued.

KEY	CONTROL OR INDICATOR	FUNCTION
4	INTERIOR LIGHTS switch	Light switch, located at entrance of van body, that controls operation of lights inside van body.
5	110 VAC electrical outlets	Six receptacles (three on each side of van body) that supply 110 vac power.
6	24 VDC binding posts	Two outlets (one on each side of van body) that supply 24 vdc power.
7	Field phone binding posts	Two outlets (one on each side of van body) which provide for field phone installation.

M1079A1 VAN CONTROLS - Continued 0013 00

EXTERIOR CONTROLS

Table 2 describes exterior van controls and indicators.

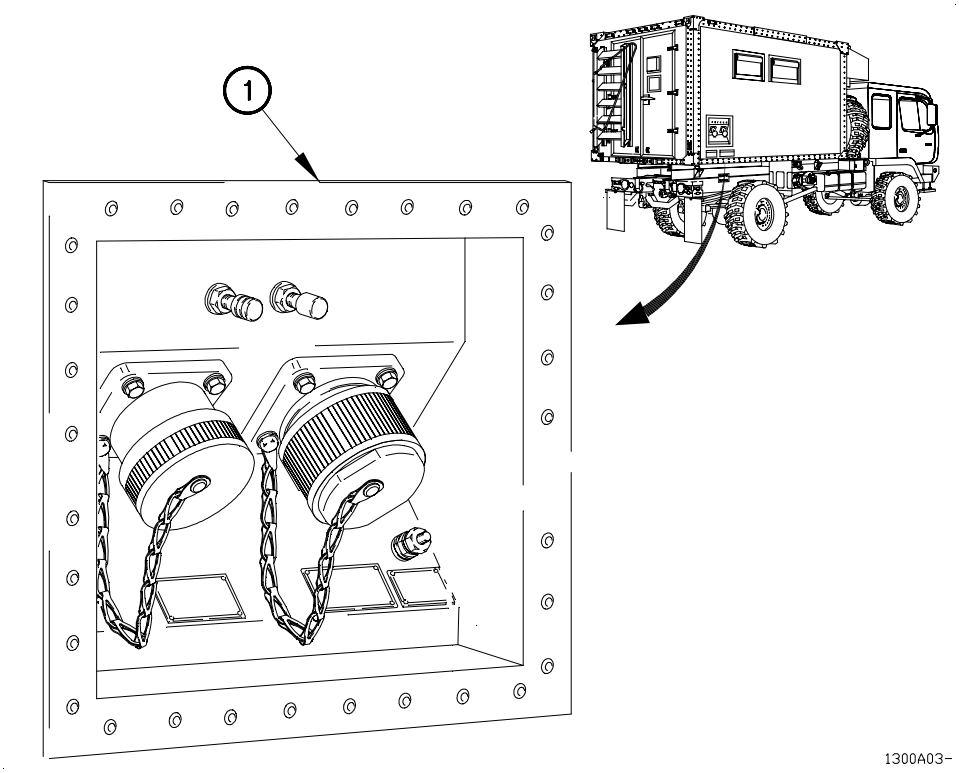


Table 2. Van Exterior Controls.

KEY	CONTROL OR INDICATOR	FUNCTION
1	110/208 VAC power panel	Two receptacles used to provide van body with 110/208 vac. When an electrical cable is connected from a generator to the POWER IN receptacle, 110/208 vac is supplied to six electrical receptacles inside the van body. Other equipment (independent of van) that requires 110/208 vac can also be powered by connecting to the POWER OUT receptacle. Phone jacks are mounted above power connectors.

M1079A1 VAN CONTROLS - Continued 0013 00

EXTERIOR CONTROLS - Continued

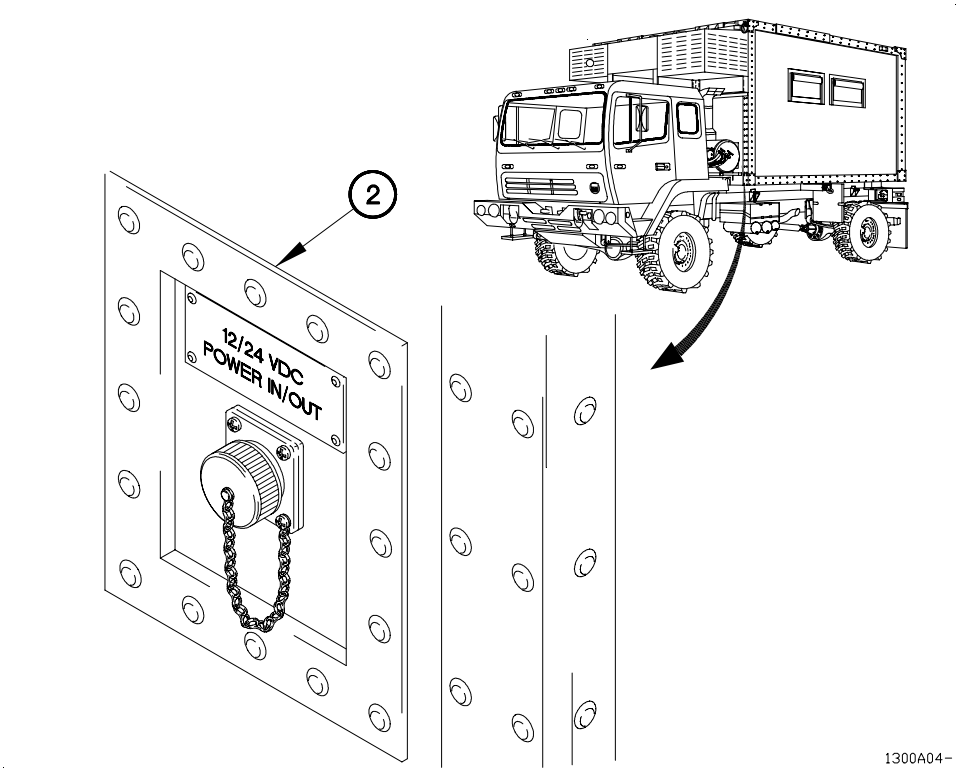


Table 2. Van Exterior Controls - Continued.

KEY	CONTROL OR INDICATOR	FUNCTION
2	12/24 VDC POWER IN/OUT panel	Provides 24 vdc for outlets and van door switch and 12 vdc for van body marker lights.

M1079A1 VAN PREPARATION FOR MOVEMENT 0014 00

INITIAL SETUP:

Maintenance level	References
Operator	WP 0025 00 WP 0026 00 WP 0027 00 WP 0028 00 WP 0029 00 WP 0033 00

GENERAL

The preparation for movement work package provides the data and the procedures for preparing to move the M1079A1 van.

PREPARATION FOR MOVEMENT

WARNING

Heavy object/loads, such as tool boxes and heavy parts, must always be carried on the floor with the weight distributed as equally as possible between left and right sides of M1079A1 van. Failure to comply decreases the stability of the M1079A1 van and will increase the likelihood of a rollover.

Heavy cabinets must always be mounted as low as possible with the weight distributed as equally as possible between left and right sides of M1079A1 van. Remember to consider the weight of the items that will be stored in the cabinets. Failure to comply decreases the stability of the M1079A1 van and will increase the likelihood if a rollover.

Always keep in mind, when placing items inside the M1079A1 van, that heavier items must always be positioned as low as possible and the weight distributed as equally as possible between left and right sides of M1079A1 van. Failure to comply decreases the stability of the M1079A1 van and will increase the likelihood of a rollover.

1. All objects that can shift during movement will be secured by using a bracing, cushioning, or tie-down method. The method used will be performed in a manner that will not cause damage to the walls or equipment.

2. Verify that all workbenches, lockers, cabinets, and shelves are securely attached to walls and floor.

M1079A1 VAN PREPARATION FOR MOVEMENT - Continued 0014 00

PREPARATION FOR MOVEMENT - Continued

3. Close van windows (WP 0028 00).
4. Turn off van lighting (WP 0029 00).
5. Disconnect van field telephone (WP 0033 00) if connected.
6. Disconnect van AC power (WP 0027 00).
7. Close van doors (WP 0026 00).
8. Stow van ladder (WP 0025 00).

END OF OPERATING PROCEDURE

PREPARATION FOR USE 0015 00

INITIAL SETUP:

Maintenance Level
Operator

GENERAL

The vehicle must be properly prepared before each use. The paragraphs in this work package provide the data and procedures to be used by the operator when preparing the vehicle for use. Items covered include Fueling Vehicle, Changing Bridge Classification Numbers, Adjusting Mirrors, Adjusting Driver's Seat, Adjusting Passenger Seat, Operating Seat Belt, and Operation In Off-Road Conditions.

FUELING VEHICLE

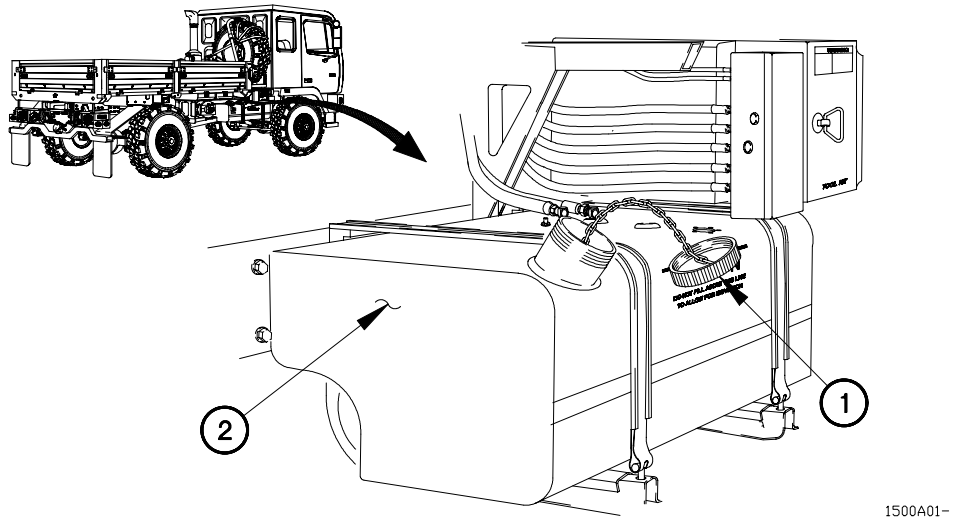
1. Remove fuel cap (1) from fuel tank (2).

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.

2. Fill fuel tank (2) with fuel.

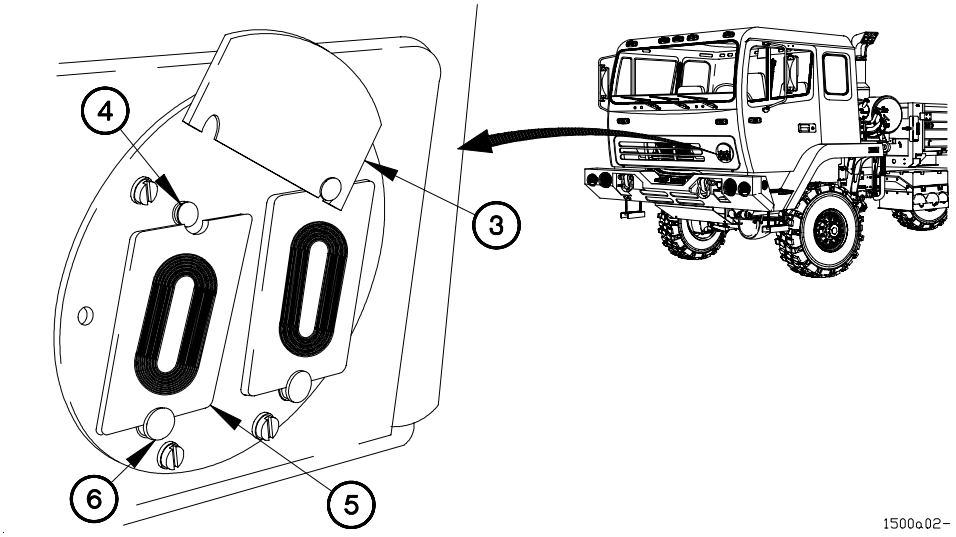
3. Install fuel cap (1) on fuel tank (2).



PREPARATION FOR USE - Continued 0015 00

CHANGING BRIDGE CLASSIFICATION NUMBERS

1. Press in bottom of lockplate (3).
2. Push lockplate (3) up and off one top lockpin (4).
3. Remove number plate (5) from top and bottom lockpins (4 and 6).
4. Place correct number on top of number plate (5).
5. Install number plate (5) on top and bottom lockpins (4 and 6).
6. Perform steps 1 through 5 for remaining number plate.
7. Press in on bottom of lockplate (3).
8. Slide lockplate (3) on two top lockpins (4).



1500a02-

PREPARATION FOR USE - Continued 0015 00

ADJUSTING CAB MIRRORS

CAUTION

Do not attempt to move mirror support. Cab mirror and convex mirror are adjustable. Failure to comply may result in damage to equipment.

NOTE

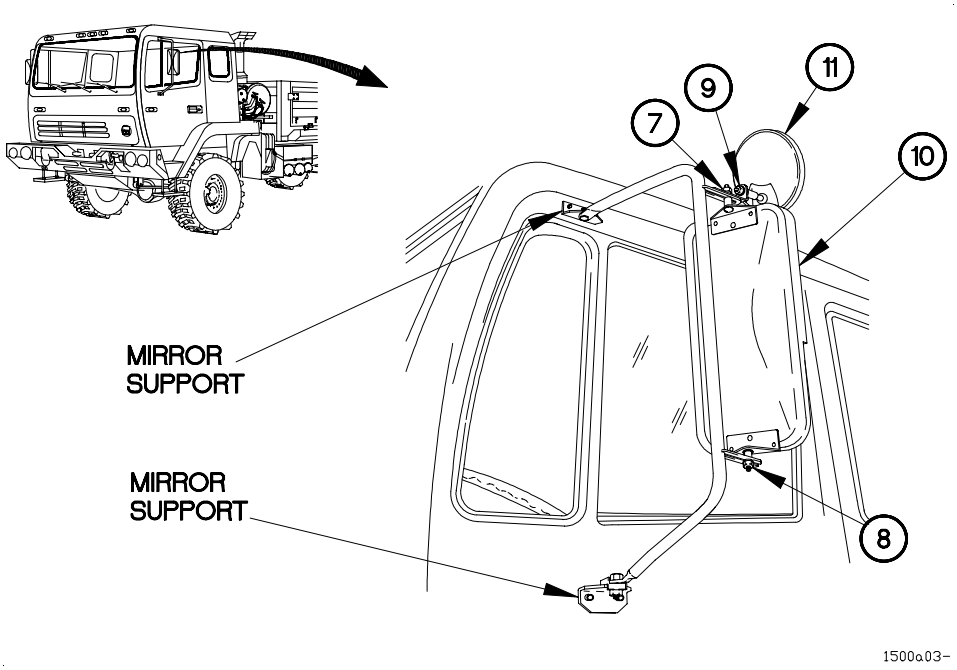
Left and right cab mirrors and convex mirrors are adjusted the same way. Left mirror shown.

1. Loosen nuts (7 and 8) and bracket (9) on mirror (10).
2. Adjust cab mirror (10) and convex mirror (11) to desired position.

NOTE

Notify Unit Maintenance to tighten nuts to 53-71 lb-in. (6-8 N•m).

3. Tighten nuts (7 and 8).



ADJUSTING DRIVER'S SEAT

1. Driver's Seat Adjustment.

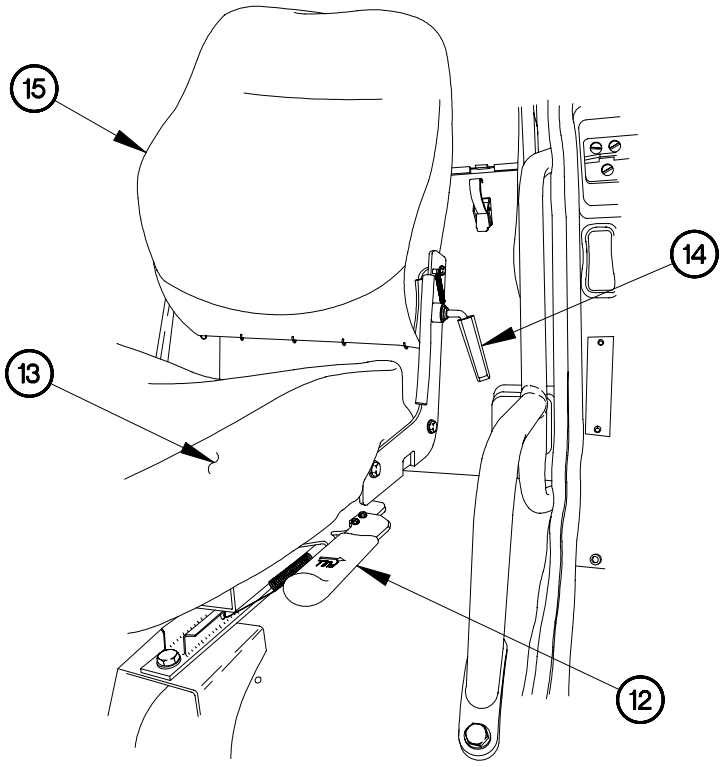
    a. Pull lever (12) outward (towards door) and slide seat (13) forward or backward.

    b. Release lever (12) to lock seat (13) in place.

2. Driver's Seat Fold Down.

    a. Turn knob (14) to release latch on seat back (15).

    b. Fold seat back (15) forward and release knob (14).



1500a04-

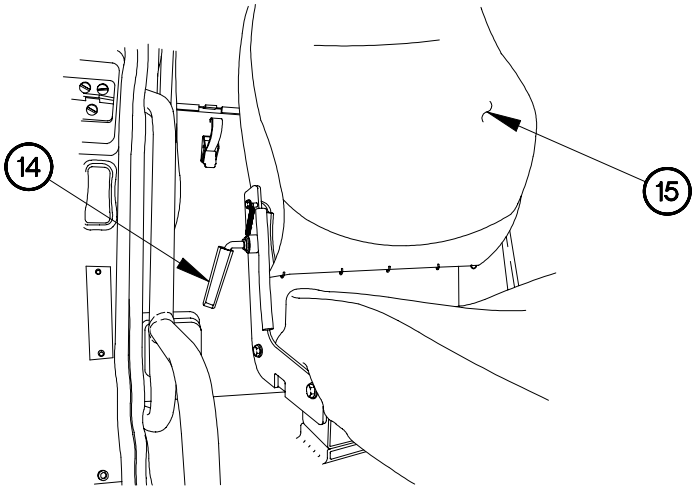
PREPARATION FOR USE - Continued 0015 00

ADJUSTING PASSENGER SEAT (Vehicles S/N 18,549 or Lower)

Passenger Seat Fold Down.

a. Turn knob (14) to release latch on seat back (15).

b. Fold seat back (15) forward and release knob (14).



ADJUSTING PASSENGER SEAT (Vehicles S/N 18,550 or Higher)

Passenger Seat Adjustment.

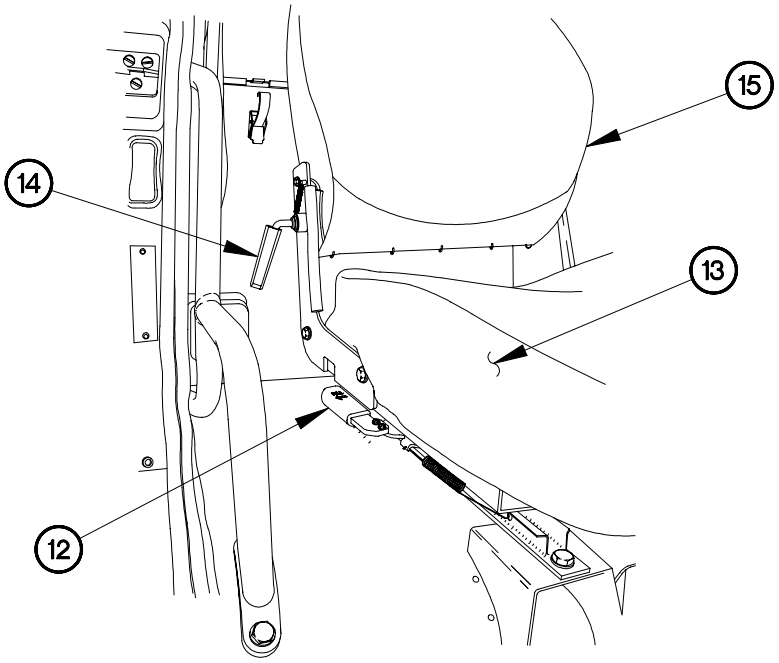
a. Pull lever (12) outward (towards door) and slide seat (13) forward or backward.

b. Release lever (12) to lock seat (13) in place.

Passenger Seat Fold Down.

a. Turn knob (14) to release latch on seat back (15).

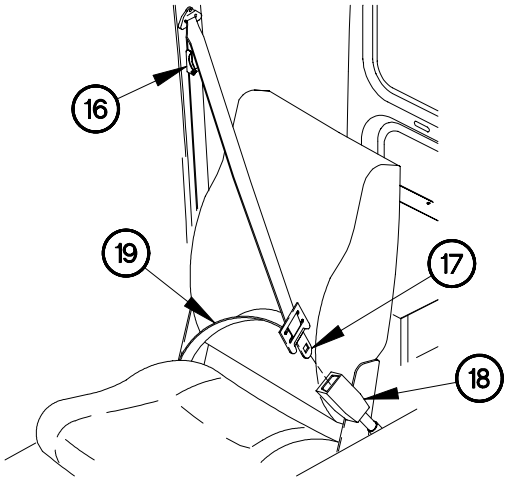
b. Fold seat back (15) forward and release knob (14).



1500A10-

OPERATING SEAT BELT

1. Unlock comfort latch (16).
2. Insert seat belt flat metal end (17) in buckle (18) until click is heard.
3. Position seat belt (18) as low as possible across hips.



1500a06-

PREPARATION FOR USE - Continued 0015 00

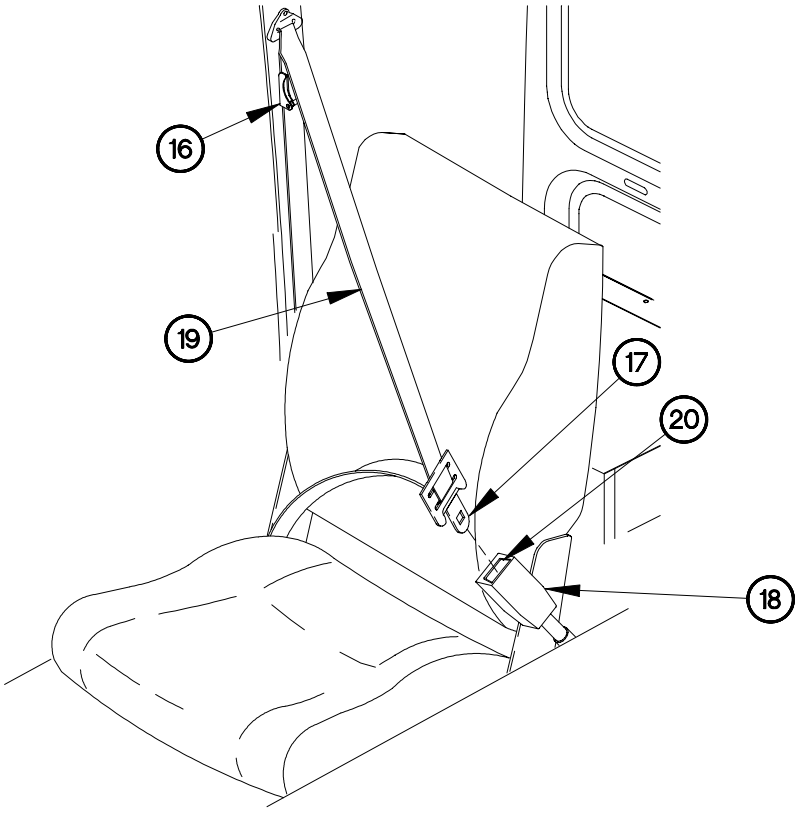
OPERATING SEAT BELT - Continued

WARNING

Do not pull seat belt more than 1 in. (2.54 cm) away from shoulder. Seat belt will not be effective if accident occurs. Failure to comply may result in serious injury or death to personnel.

4. Adjust seat belt (19) away from shoulder and lock comfort latch (15).

5. Push button (20) on buckle (18) and pull out seat belt flat metal end (17) to release seat belt (19).

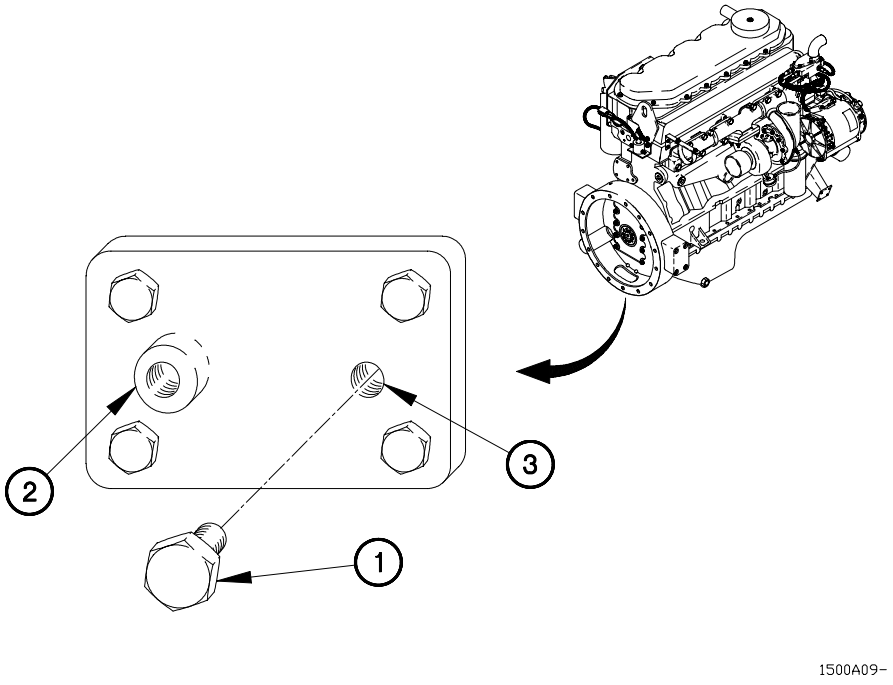


1500a07-

INSTALLING FLYWHEEL HOUSING VENT PLUG

CAUTION

If vehicle will be operating in water 30 in. (762 mm) or of unknown depth, flywheel housing vent plug must be installed. Failure to comply may result in damage to equipment.



1500A09-

1. Remove flywheel housing vent plug (1) from stowage mount (2).
2. Install flywheel housing vent plug (1) in flywheel vent hole (3).

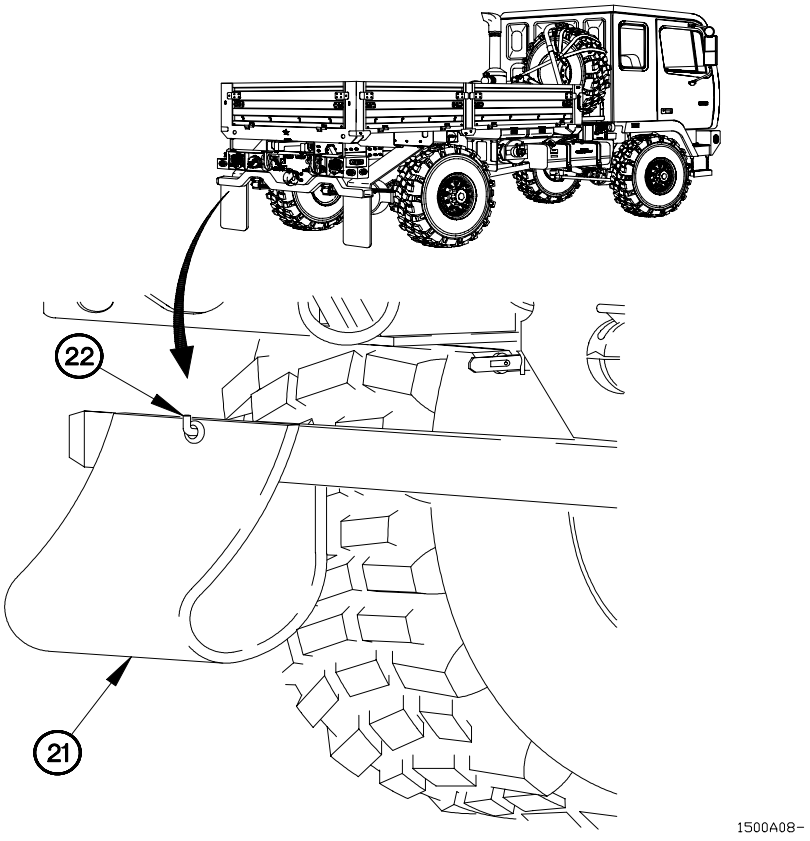
PREPARATION FOR USE - Continued 0015 00

OPERATION IN OFF-ROAD CONDITIONS

CAUTION

Before driving off-road, raise and hook rear mudflaps. Failure to comply may result in damage to equipment.

Attach two mudflaps (21) on two hooks (22).



END OF OPERATING PROCEDURE

VEHICLE OPERATION (VEHICLE S/N 18,549 OR LOWER 0016 00

INITIAL SETUP:

Maintenance Level
Operator

Tools/Special Tools
Chock, Wheel (Item 10, Table 2, WP 0094 00)

References
FM 31-70
WP 0020 00
WP 0044 00
WP 0061 00
WP 0070 00

NOTE

If vehicle S/N is 18,550 or higher, use WP 0016 01.

GENERAL

The paragraphs in this work package provide data and procedures to be used by the Operator when performing basic vehicle operation. Items covered include Engine Start, Operate Vehicle Lights, Operate Service Brakes, Select Transmission Operating Range, Shut Down Engine, Park Vehicle, Drain Air Tanks, and Secure Vehicle.

WARNING

Wear arctic clothing when cab temperatures fall and remain below 30° F (-1° C). Cold stress preventative measures in FM 31-70 should be applied when vehicle cab temperatures fall and remain below 30° F (-1° C). Failure to comply may result in injury to personnel.

CAUTION

Cold weather radiator cover will be installed, if temperatures are consistently below 40° F (4° C). It should be removed if temperatures are above 40° F (4° C), it must be removed if temperatures reach 70° F (21° C). Failure to comply may result in damage to equipment.

NOTE

If cold weather radiator cover has not been installed or needs to be removed Notify Unit Maintenance.

CAUTION

When ambient temperature rises above -25° F (-32° C), the vehicle must not be operated with arctic belts installed. Notify unit maintenance. Failure to comply may result in damage to equipment.

VEHICLE OPERATION (VEHICLE S/N 18,549 OR LOWER) - Continued 0016 00

ENGINE START

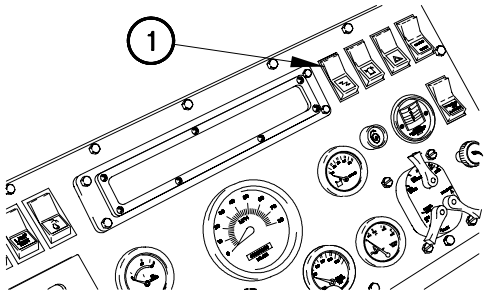
CAUTION

If vehicle is equipped with cab arctic front cover, do not leave vehicle running unattended with flaps fully closed in temperatures above -25° (-32° C). Operating temperature is 165° (74° C) to 210° F (100° C). Failure to comply may result in damage to equipment.

NOTE

Refer to WP 0044 00 if outside temperature is between -26° F (-32° C) and -50° F (-46° C).

1. Position master power switch (1) to on.



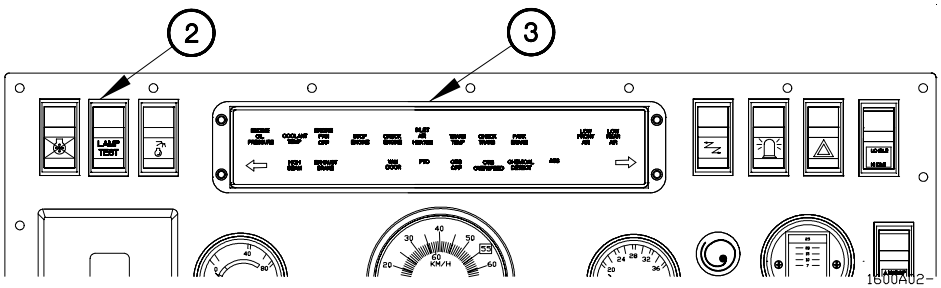
1600A01-

NOTE

ENGINE OIL PRESSURE, CHECK TRANS, PARK BRAKE, ABS, LOW FRONT AIR, and LOW REAR AIR indicators will remain on until operating pressures are achieved or are manually released.

INLET AIR HEATER indicator on lighted indicator display will illuminate for a minimum of 2 seconds regardless of coolant temperature.

2. Press LAMP TEST switch (2) to verify that all warning indicators illuminate on lighted indicator display (3).



1600A02-

VEHICLE OPERATION (VEHICLE S/N 18,549 OR LOWER) - Continued 0016 00

ENGINE START – Continued

NOTE

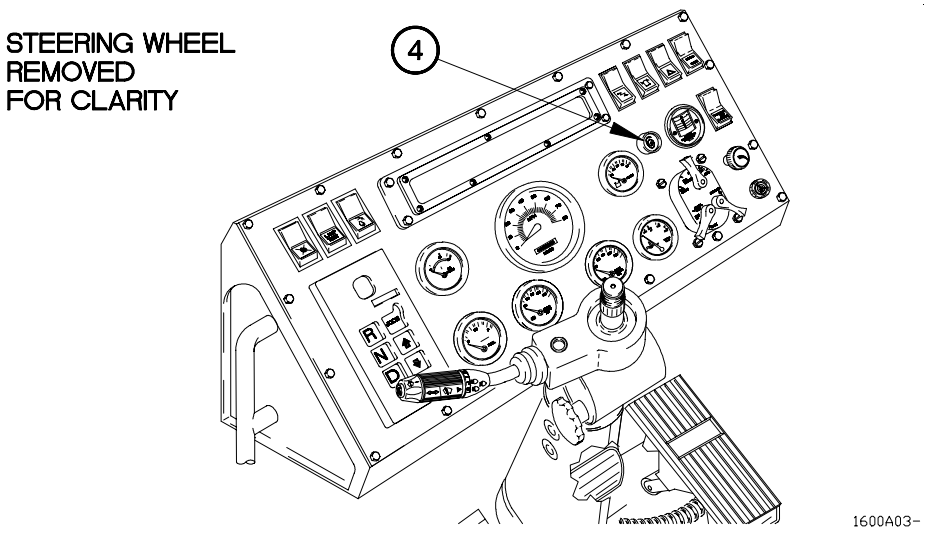
After turning master power switch on and completing lamp test, INLET AIR HEATER indicator may remain on up to 30 seconds, indicating that the inlet air heater is in cold start mode.

Inlet air preheat is complete when INLET AIR HEATER indicator goes out.

It is normal for INLET AIR HEATER indicator to cycle on/off during the cranking operation.

If engine does not start in first 30 seconds of cranking, release starter pushbutton and wait 30 seconds before attempting to start engine again.

3. Press and hold starter pushbutton (4) after INLET AIR HEATER indicator goes out.



VEHICLE OPERATION (VEHICLE S/N 18,549 OR LOWER) - Continued 0016 00

ENGINE START - Continued

CAUTION

Do not press ether switch unless engine is cranking. Failure to comply may result in damage to equipment.

Do not use ether after engine has reached idle speed and is no longer in danger of stalling. Failure to comply may result in damage to equipment.

NOTE

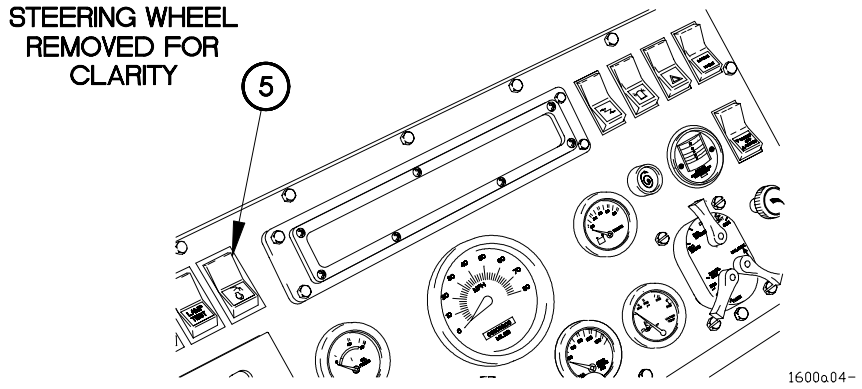
Perform steps 4 and 5 if outside temperature is 32° F (0° C) to -25° F (-32° C).

Ether is not required unless outside temperature is less than 32° F (0° C).

Continue to inject ether if engine has started but will not run without ether.

After engine starts and maintains low idle speed for 2 minutes, engine idle speed may increase. If idle speed increases, engine will maintain increased idle speed until engine reaches a predetermined temperature or after operating for 12 minutes at increased idle speed. Engine speed may be returned to low idle speed to begin vehicle operations by pressing and releasing accelerator pedal.

4. Press and hold ether start switch (5) for 5 seconds.
5. Release ether start switch (5) for 3 seconds.
6. Repeat steps 4 and 5 until engine has started, engine speed has increased over cranking speed, and engine maintains idle speed.



VEHICLE OPERATION (VEHICLE S/N 18,549 OR LOWER) - Continued 0016 00

ENGINE START - Continued

7. Release starter pushbutton (4) when engine starts or after 30 seconds.

CAUTION

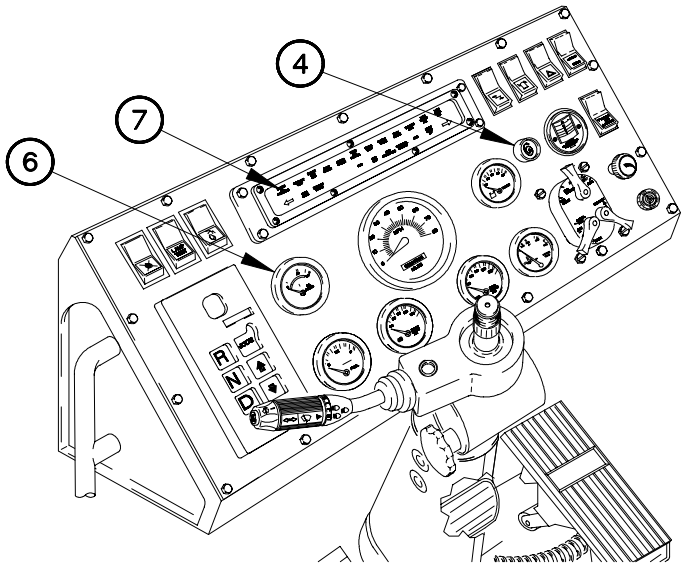
If STOP ENGINE indicator flashes (red) to warn Operator about a potential engine failure, shut down engine immediately (WP 0016 00) and perform Engine System Troubleshooting (WP 0061 00). Failure to comply may result in damage to equipment.

If OIL PRESS gage does not show engine oil pressure of 15-80 psi within 10-15 seconds after starting engine, shut down engine immediately (WP 0016 00) and perform Engine System Troubleshooting (WP 0061 00). Failure to comply may result in damage to equipment.

NOTE

Oil pressure will increase when engine speed increases and will decrease when engine speed decreases.

8. Check that OIL PRESS gage (6) reads between 15 psi and 80 psi. If OIL PRESS gage reads in red zone and ENGINE OIL PRESSURE indicator (7) is illuminated, shut down engine (WP 0016 00) and perform Engine System Troubleshooting (WP 0061 00).



1600A05-

VEHICLE OPERATION (VEHICLE S/N 18,549 OR LOWER) - Continued 0016 00

ENGINE START – Continued

WARNING

Do not drive vehicle until windshield is sufficiently clear of frost/ice. Failure to comply may result in severe injury or death to personnel.

9. Operate windshield defrost (WP 0020 00) as required.

10. Operate cab heat (WP 0020 00) as required.

NOTE

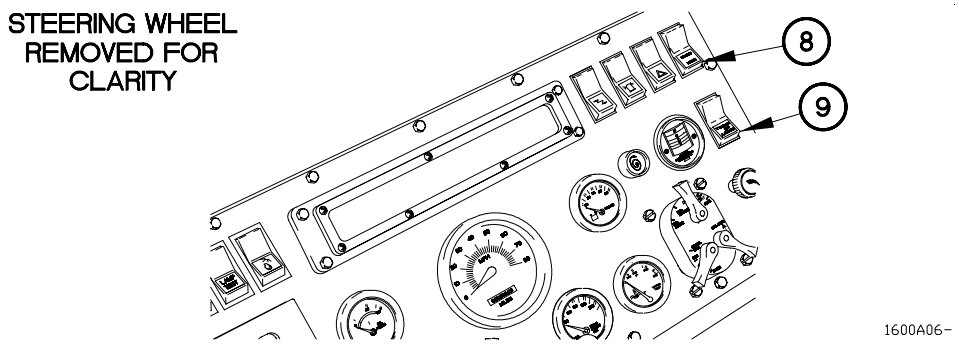
Perform steps 11 through 15 in outside temperatures of 32° F (0° C) to -25° F (-32° C).

11. Press LO IDLE/HI IDLE SWITCH (8) to engage HI IDLE.

NOTE

EXHAUST BRAKE indicator will illuminate when WARMUP/OFF/RETARD switch is positioned to WARMUP.

12. Position WARMUP/OFF/RETARD switch (9) to WARMUP.



VEHICLE OPERATION (VEHICLE S/N 18,549 OR LOWER) - Continued 0016 00

ENGINE START – Continued

13. Check that WATER TEMP gage (10) reads less than 230° F (110° C). If WATER TEMP gage reads in the red zone or COOLANT TEMP indicator (11) is illuminated, shut down engine (WP 0016 00) and perform Engine System Troubleshooting (WP 0061 00).

NOTE

Perform steps 14 and 15 when windshield is clear of frost/ice and prior to driving vehicle.

14. Position WARMUP/OFF/RETARD switch (9) to OFF.

15. Press LO IDLE/HI IDLE switch (8) to engage LO IDLE.

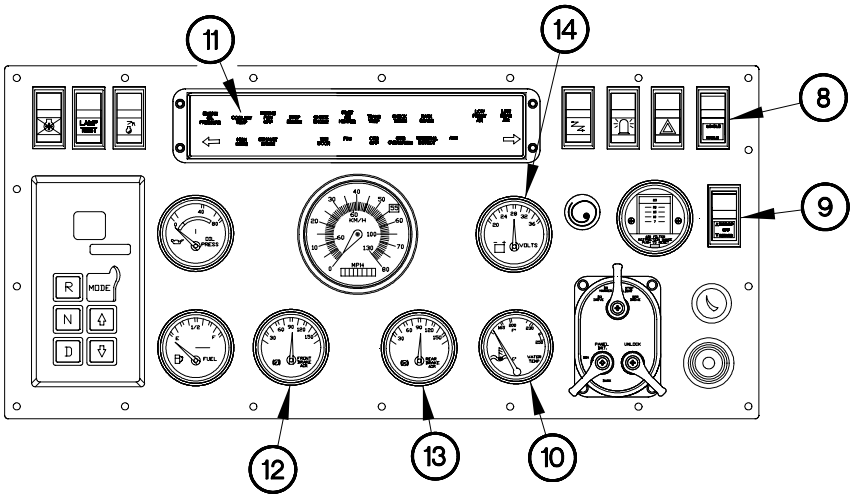
NOTE

If FRONT BRAKE AIR and REAR BRAKE AIR pressure gages do not read between 75-120 psi (517-827 kPa) after engine warms up, shut down engine (WP 0016 00) and perform Air System Troubleshooting (WP 0070 00).

LOW FRONT AIR and LOW REAR AIR indicators will illuminate (red) and audible alarm will sound until air pressure is between 75-85 psi (517-827 kPa).

16. Check that FRONT BRAKE AIR pressure gage (12) and REAR BRAKE AIR pressure gage (13) read between 75-120 psi (517-827 kPa).

17. Check that VOLTS gage (14) reads between 26 and 30 volts.



1600A07-

VEHICLE OPERATION (VEHICLE S/N 18,549 OR LOWER) - Continued 0016 00

ENGINE START - Continued

18. Check that AIR FILTER RESTRICTION GAUGE (15) reads below 25 in.

    a. Press reset button (16) if AIR FILTER RESTRICTION GAUGE (15) reads greater than 25 in. (in red area).

    b. Shut down engine (WP 0016 00) and service air filter (WP 0089 00) if AIR FILTER RESTRICTION GAUGE (15) still reads greater than 25 in. (in red area).

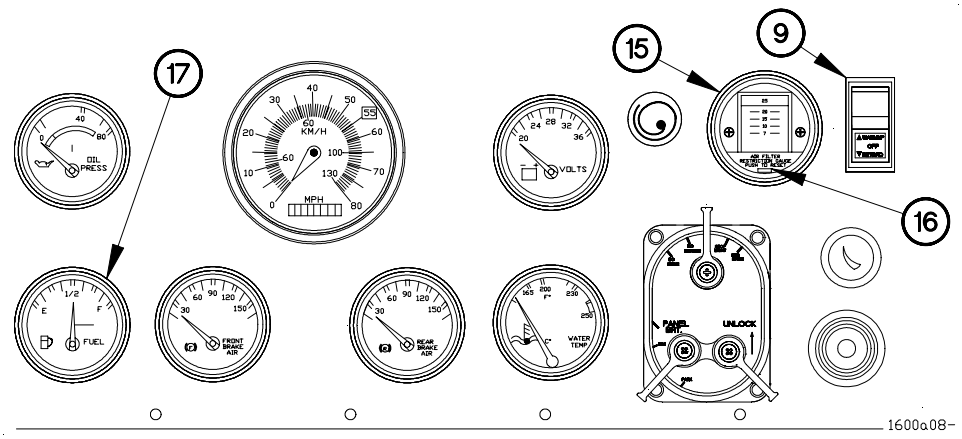
19. Check that FUEL gage (17) shows sufficient fuel to accomplish mission.

WARNING

Do not engage engine exhaust brake feature in icy or slippery conditions. Failure to comply may result in injury to personnel or damage to equipment.

20. Position WARMUP/OFF/ RETARD switch (9) to RETARD.

21. Select desired transmission operating range (WP 0016 00).



CAUTION

Water temperature must be maintained at a minimum of 165° F (74° C) for 1 to 3 minutes prior to engine shutdown. Failure to comply may result in damage to equipment.

22. Shut down engine (WP 0016 00).

VEHICLE OPERATION (VEHICLE S/N 18,549 OR LOWER) - Continued 0016 00

OPERATE VEHICLE LIGHTS

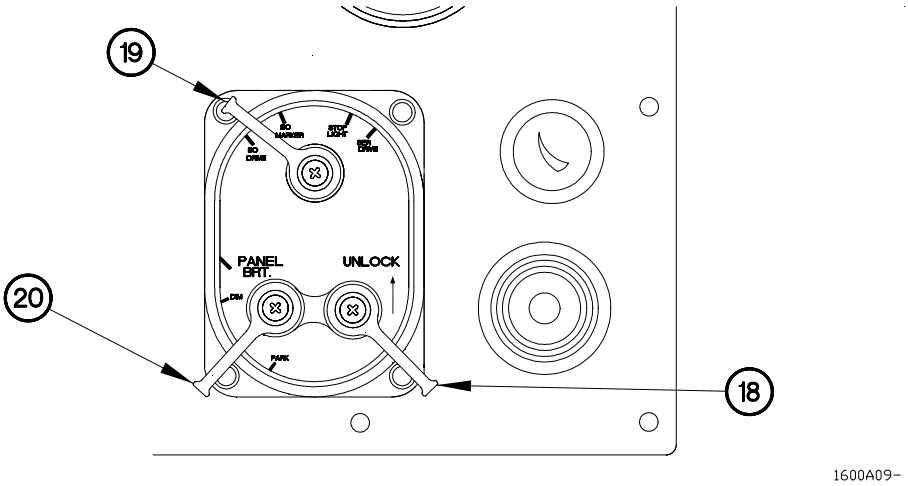
1. Operate Instrument Panel Lights.

   a. Lift up and hold UNLOCK lever (18).

   b. Set main selector lever (19) to any position except OFF.

   c. Release UNLOCK lever (18).

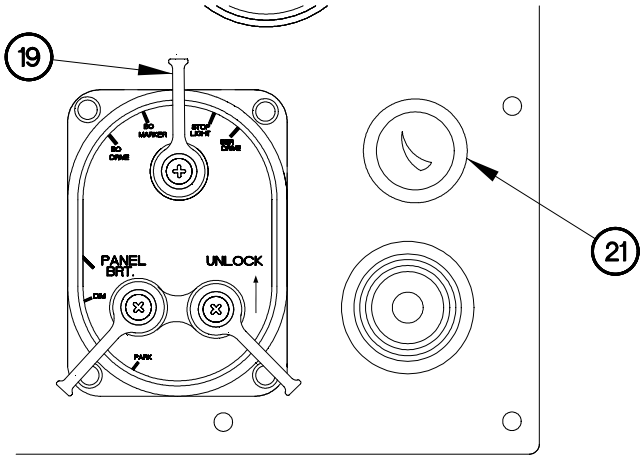
   d. Position auxiliary lever (20) to PANEL BRT.



1600A09-

   e. Turn dimmer switch (21) left to increase brightness or right to decrease brightness.

   f. Set main selector lever (19) to OFF. All vehicle lights will go off.



1600A10-

VEHICLE OPERATION (VEHICLE S/N 18,549 OR LOWER) - Continued 0016 00

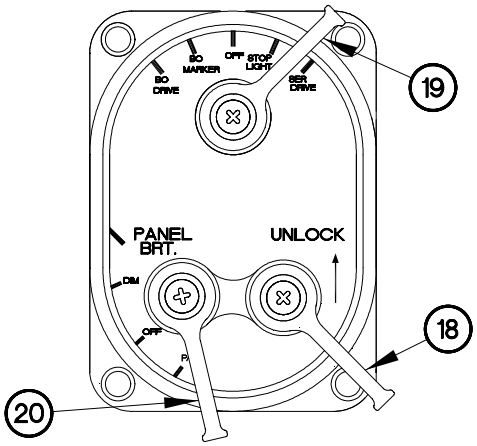
OPERATE VEHICLE LIGHTS - Continued

2. Operate Parking Lights.

   a. Lift up and hold UNLOCK lever (18).

   b. Set main selector lever (19) to SER DRIVE.

   c. Set auxiliary lever (20) to PARK.

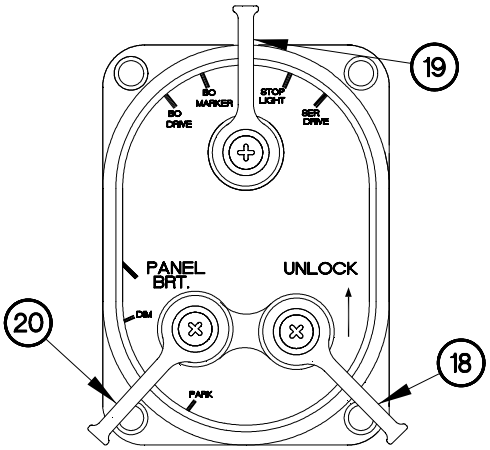


1600A11-

   d. Release UNLOCK lever (18).

   e. Set auxiliary lever (20) to OFF to shut off only parking lights.

   f. Set main selector lever (19) to OFF. All vehicle lights will go off.



1600A12-

VEHICLE OPERATION (VEHICLE S/N 18,549 OR LOWER) - Continued 0016 00

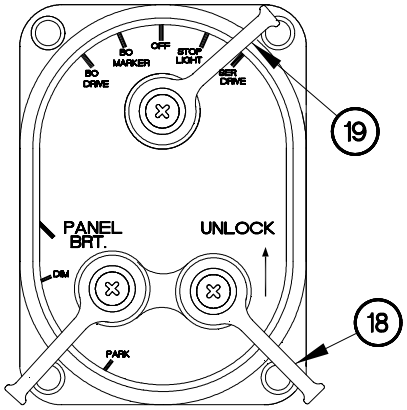
OPERATE VEHICLE LIGHTS - Continued

3. Operate Service Drive and Backup Lights.

   a. Lift up and hold UNLOCK lever (18).

   b. Set main selector lever (19) to SER DRIVE.

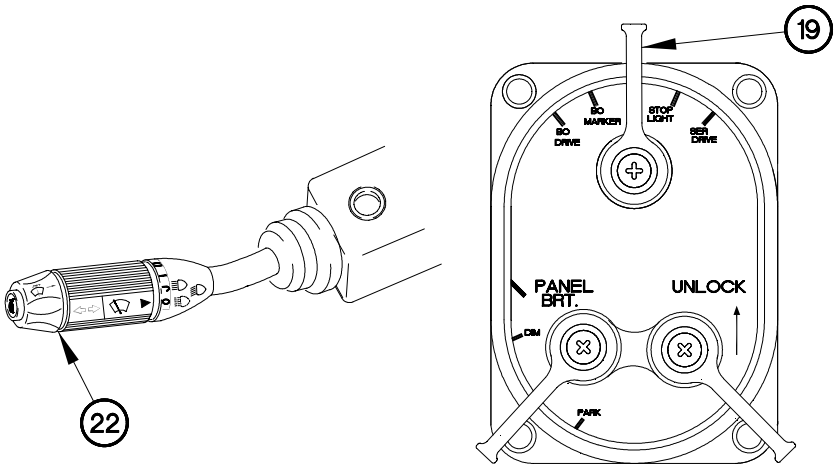
   c. Release UNLOCK lever (18).



1600A13-

   d. Pull turn signal switch (22) to operate headlights at high beam or low beam.

   e. Set main selector lever (19) to OFF.



1600A14-

VEHICLE OPERATION (VEHICLE S/N 18,549 OR LOWER) - Continued 0016 00

OPERATE VEHICLE LIGHTS - Continued

4. Operate Stoplights.

   a. Lift up and hold UNLOCK lever (18).

   b. Set main selector lever (19) to STOP LIGHT.

   c. Release UNLOCK lever (18).

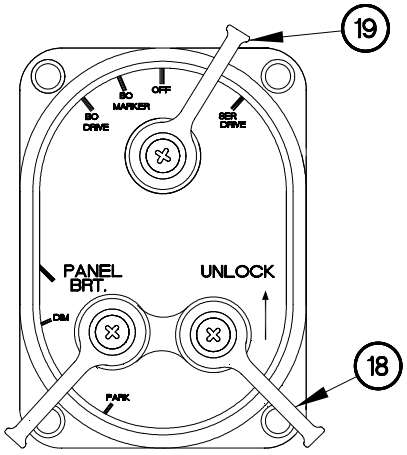
   d. Set main selector lever (19) to OFF. All vehicle lights will go off.

WARNING

Vehicle speed should be reduced to 5-10 mph (8-16 km/h) during blackout conditions. Failure to comply may result in serious injury or death to personnel.

5. Operate Blackout Drive Lights.

   a. Lift up and hold UNLOCK lever (18).



1600A15-

VEHICLE OPERATION (VEHICLE S/N 18,549 OR LOWER) - Continued

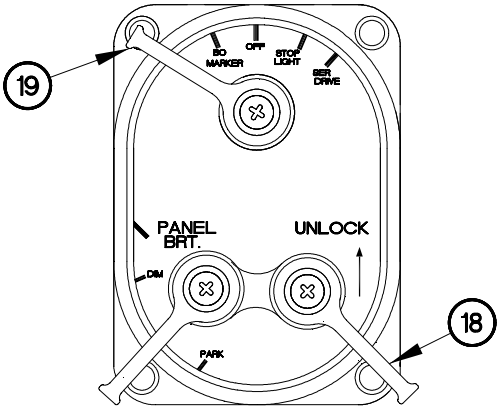
OPERATE VEHICLE LIGHTS - Continued

5. Operate Blackout Drive Lights - Continued.

   b. Set main selector lever (19) to BO DRIVE.

   c. Release UNLOCK lever (18).

   d. Set main selector lever (19) to OFF.

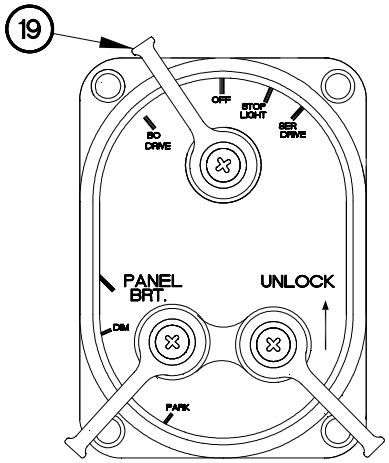


1600A16-

6. Operate Blackout Marker Lights.

   a. Set main selector lever (19) to BO MARKER.

   b. Set main selector lever (19) to OFF.



1600A17-

VEHICLE OPERATION (VEHICLE S/N 18,549 OR LOWER) - Continued 0016 00

OPERATE VEHICLE LIGHTS - Continued

7. Operate Warning Light.

   a. Install amber warning light (WP 0066 00).

   b. Lift up and hold UNLOCK lever (18).

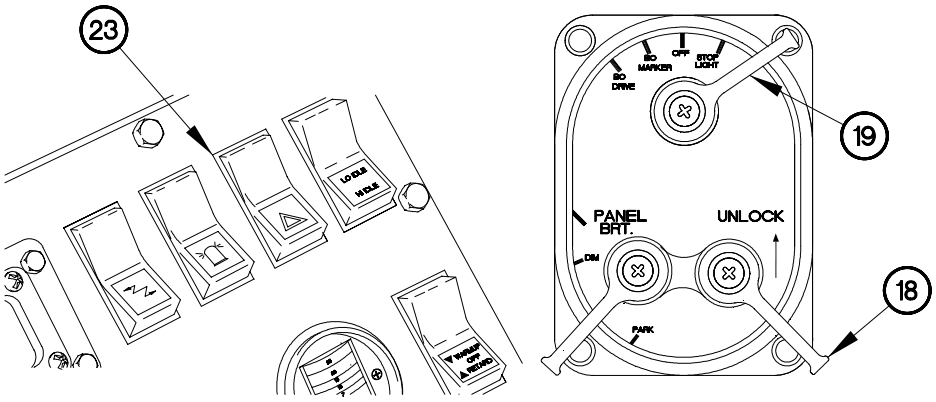
   c. Set main selector lever (19) to SER DRIVE or STOP LIGHT.

   d. Release UNLOCK lever (18).

   e. Position warning light switch (23) to on.

   f. Position warning light switch (23) to off.

   g. Set main selector lever (19) to OFF. All vehicle lights will go off.



1600A18-

VEHICLE OPERATION (VEHICLE S/N 18,549 OR LOWER) - Continued 0016 00

OPERATE SERVICE BRAKES

WARNING

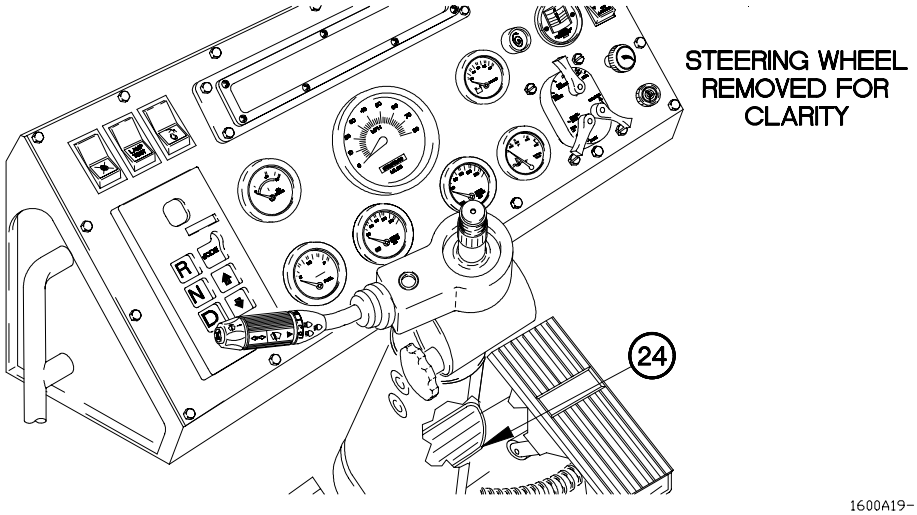
Operating in water or mud causes brake linings to get wet and can impair vehicle braking. Dry brakes by driving vehicle about 500 ft (150 m) while applying service brakes often. If adequate braking is not restored by drying brakes, notify Unit Maintenance. Failure to comply may result in injury to personnel or damage to equipment.

Do not press brake pedal hard three or four times in a row. Air supply will be used up and service brakes will not work until air pressure builds up again. Do not operate vehicle until FRONT and REAR BRAKE AIR pressure reaches at least 100 psi (690 kPa). Failure to comply may result in serious injury or death to personnel or damage to equipment.

CAUTION

If ABS indicator, or TRAILER ABS indicator on vehicle 15,676 or higher, illuminates, the Anti-lock Braking System (ABS) ECU has detected a fault. Notify Unit Maintenance upon completion of mission. Failure to comply may result in damage to the equipment.

Push down and hold brake pedal (24) to slow or stop vehicle.



VEHICLE OPERATION (VEHICLE S/N 18,549 OR LOWER) - Continued

SELECT TRANSMISSION OPERATING RANGE

1. Start engine (WP 0016 00).

CAUTION

Engine speed must be at idle prior to selecting any forward or reverse operating range. Failure to comply may result in damage to equipment.

Do not allow vehicle to coast in N (Neutral). Failure to comply may result in damage to equipment.

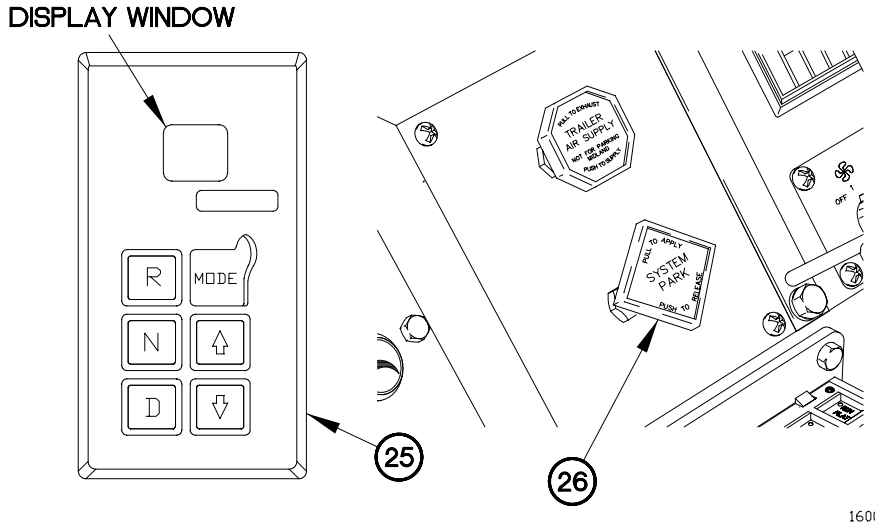
NOTE

When transmission is operating normally, display window of WTEC III TPSS will indicate selected operating range.

When D (Drive) is selected, the default selected operating range is 7.

2. Select desired travel direction (D for Drive or R for Reverse) on WTEC III TPSS (25).

3. Push in SYSTEM PARK control (26).



VEHICLE OPERATION (VEHICLE S/N 18,549 OR LOWER) - Continued 0016 00

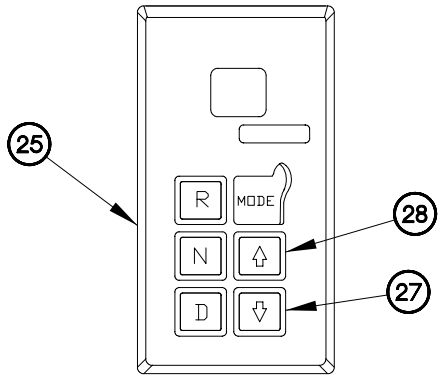
SELECT TRANSMISSION OPERATING RANGE - Continued

WARNING

Transmission incorporates a hold feature to prohibit upshifting above selected operating range during normal driving. However, during downhill operation, transmission may upshift above selected operating range. On downgrades, vehicle speed may need to be restricted by using service brakes. Failure to comply may result in serious injury or death to personnel or damage to equipment.

4. Press down arrow button (27) on WTEC III TPSS (25) to shift transmission to lower operating range.

5. Press up arrow button (28) on WTEC III TPSS (25) to shift transmission to higher operating range.



1600A21-

CAUTION

If illumination of last selected operating range goes out, WTEC III ECU has detected a problem that needs correcting. Do not attempt to shift transmission to N (Neutral) or any other operating range. Operate vehicle at reduced speed to a safe parking location. Failure to comply may result in damage to equipment.

NOTE

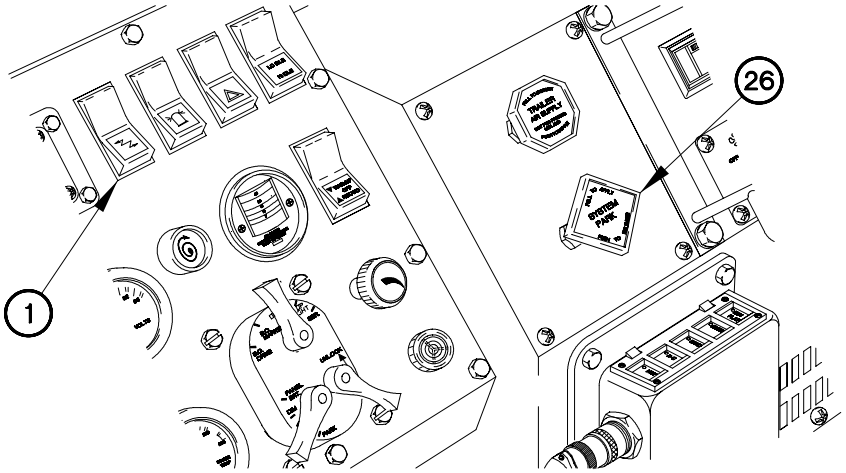
Perform steps 6 through 9 if display window is not showing last selected operating range.

6. Stop vehicle (WP 0016 00).

VEHICLE OPERATION (VEHICLE S/N 18,549 OR LOWER) - Continued 0016 00

SELECT TRANSMISSION OPERATING RANGE - Continued

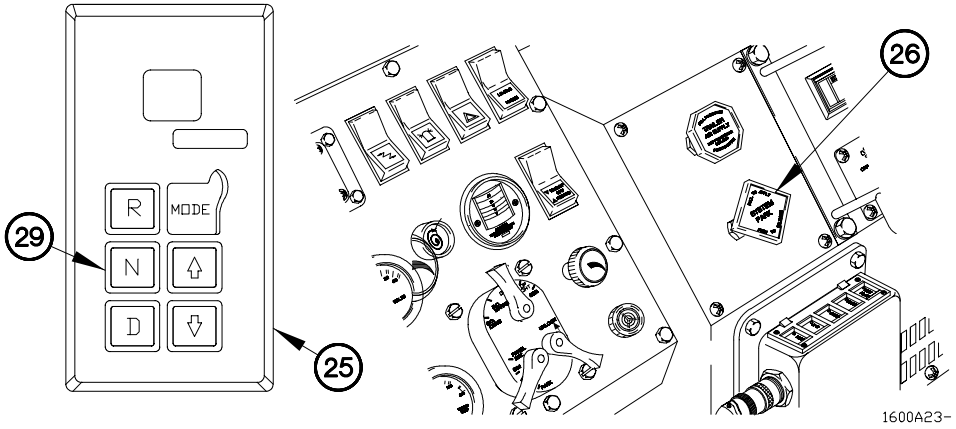
7. Position master power switch (1) to off.
8. Pull out SYSTEM PARK control (26).
9. Notify Unit Maintenance.



1600A22-

SHUT DOWN ENGINE

1. Stop vehicle (WP 0016 00).
2. Press N (Neutral) button (29) on WTEC III TPSS (25).
3. Pull out SYSTEM PARK control (26).



1600A23-

VEHICLE OPERATION (VEHICLE S/N 18,549 OR LOWER) - Continued 0016 00

SHUT DOWN ENGINE - Continued

CAUTION

Water temperature must be maintained at a minimum of 165° F (74° C) for 1 to 3 minutes prior to engine shutdown. Failure to comply may result in damage to equipment.

When outside temperatures are below 32° F (0° C), do not continuously operate engine at HI IDLE without WARMUP/OFF/RETARD switch in WARMUP position. Failure to comply may result in damage to equipment.

NOTE

Steps 4 - 7 are only necessary to meet 165° F (74° C) requirements.

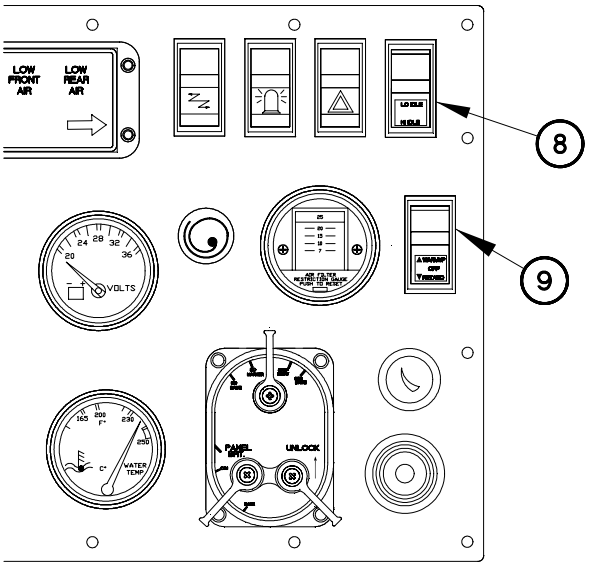
LO IDLE/HI IDLE and WARMUP/OFF/RETARD switches are used until WATER TEMP gage reaches and maintains 165° F (74° C) for 1 to 3 minutes.

4. Press LO IDLE/HI IDLE switch (8) to engage HI IDLE.

NOTE

EXHAUST BRAKE indicator will illuminate when WARMUP/OFF/RETARD switch is positioned to WARMUP.

5. Position WARMUP/OFF/RETARD switch (9) to WARMUP.



1600A24-

VEHICLE OPERATION (VEHICLE S/N 18,549 OR LOWER) - Continued 0016 00

SHUT DOWN ENGINE – Continued

NOTE

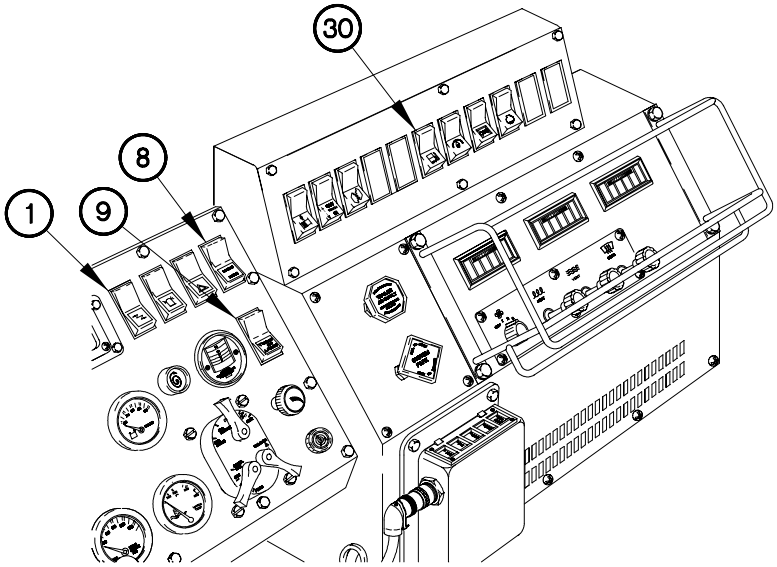
Perform steps 6 and 7 after engine has maintained 165° F (74° C) for 1 to 3 minutes.

6. Position WARMUP/OFF/RETARD switch (9) to OFF.
7. Press LO IDLE/HI IDLE switch (8) to engage LO IDLE.
8. Turn off lights and electrical accessories (WP 0016 00).

NOTE

Perform step 9 in outside temperatures below -25 °F (-32° C).

9. Position fuel preheat switch (30) to off.
10. Position master power switch (1) to off.
11. Chock wheels (WP 0016 00).



1600A25-

VEHICLE OPERATION (VEHICLE S/N 18,549 OR LOWER) - Continued 0016 00

SHUT DOWN ENGINE – Continued

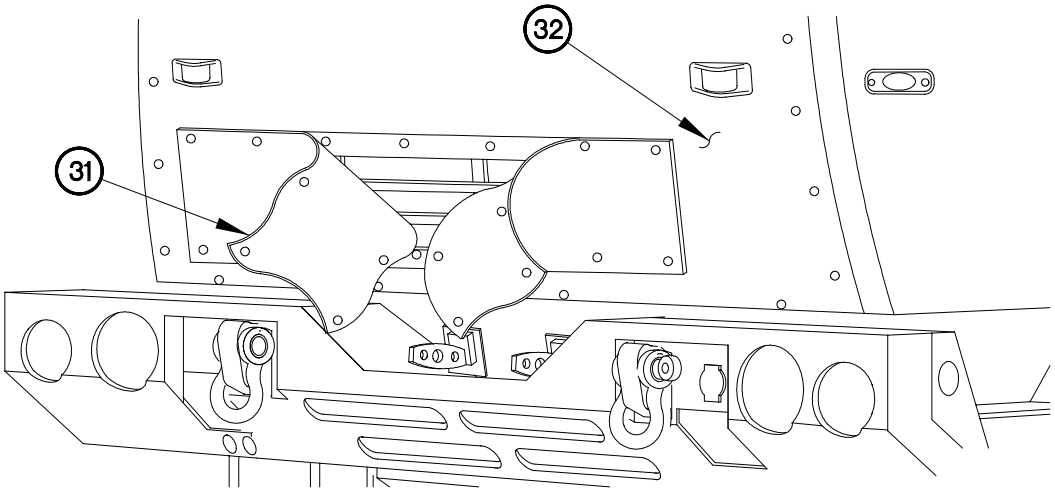
CAUTION

Cab arctic cover may be left on vehicle in temperatures up to , 40° F (4° C), except when engine requires maximum cooling such as in extreme off-road conditions or when vehicle is operating fully loaded. Ensure flaps are adjusted so that engine temperatures is between 165° F (73° C) and 210° F (99° C) during vehicle operation. Failure to comply may result in damage to equipment.

NOTE

Perform step 12 if vehicle is equipped with an arctic cold front.

12. Close flaps (31) on the cab arctic front cover (32).



1600A26-

VEHICLE OPERATION (VEHICLE S/N 18,549 OR LOWER) - Continued 0016 00

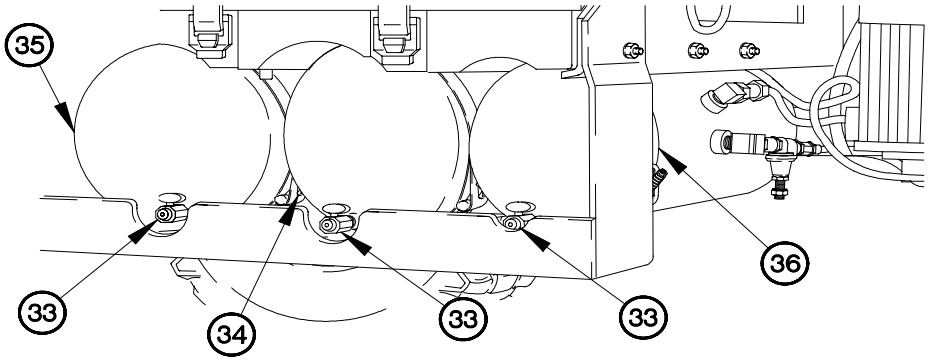
DRAIN AIR TANKS

CAUTION

Drain air tanks when vehicle will not be operated for 12 hours or more, or when operating in temperatures below 50° F (10° C). Failure to comply may result in damage to equipment.

1. Open drain valves (33) on primary air tank (34), secondary air tank (35), and wet tank (36) until air cannot be heard escaping.

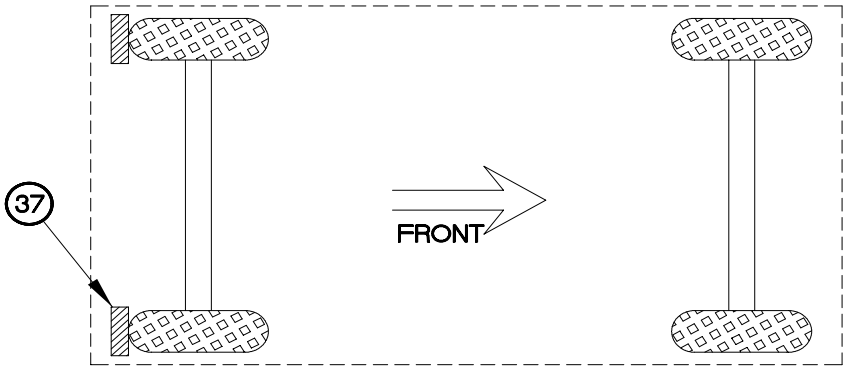
2. Close drain valves (33) on primary air tank (34), secondary air tank (35), and wet tank (36).



1600A27-

PARK VEHICLE

1. Install wheel chocks (37) in back of rear wheels when parked facing uphill.

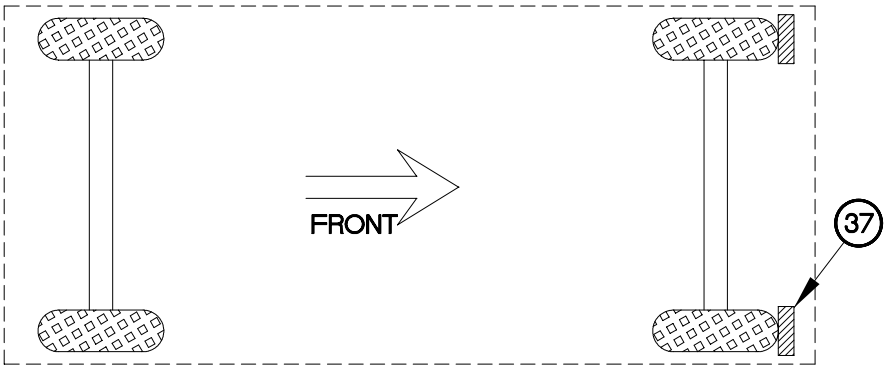


1600A28-

VEHICLE OPERATION (VEHICLE S/N 18,549 OR LOWER) - Continued 0016 00

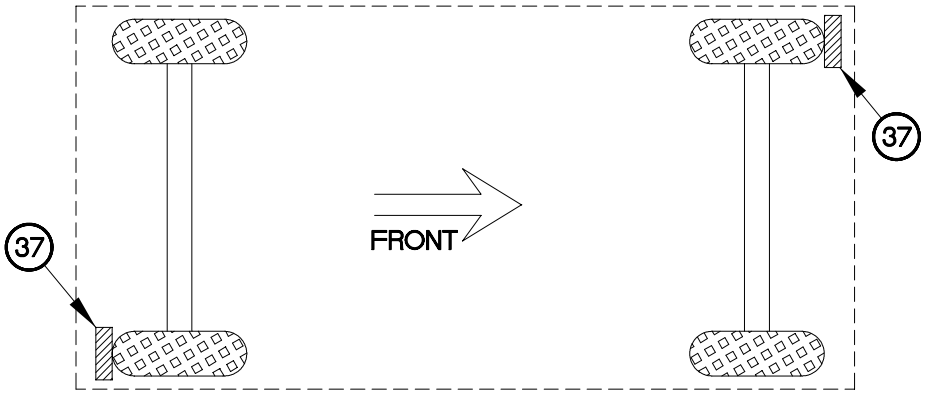
PARK VEHICLE - Continued

2. Install wheel chocks (37) in front of front wheels when parked facing downhill.



1600A29-

3. Install wheel chocks (37) in front of one front wheel and the second wheel chock in back of the opposite wheel when parked on level ground.



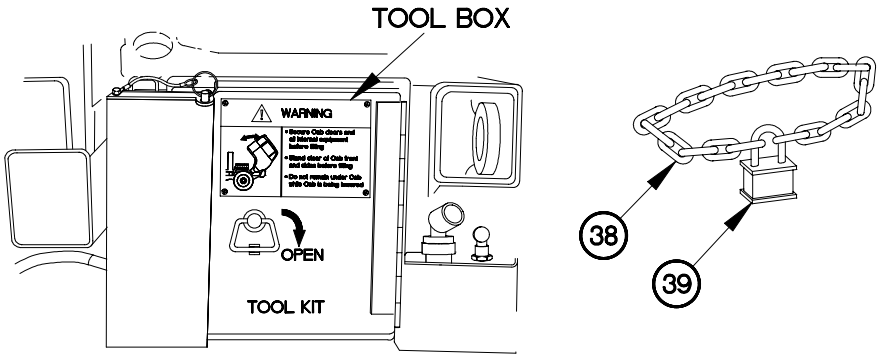
1600A30-

VEHICLE OPERATION (VEHICLE S/N 18,549 OR LOWER) - Continued 0016 00

SECURE VEHICLE

1. Install Chain.

   a. Remove chain (38) and padlock (39) from tool box.



1600A31-

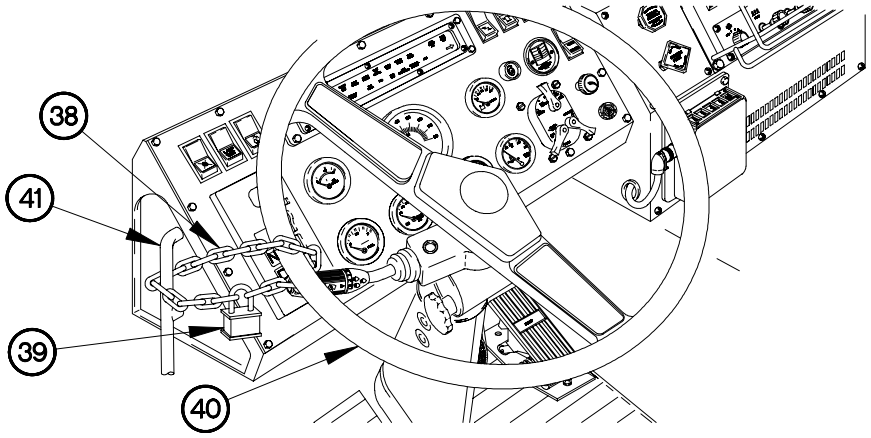
NOTE

Turn steering wheel either full right or full left before installing chain.

   b. Wrap chain (38) around steering wheel (40) and cab handhold (41).

   c. Connect padlock (39) to chain (38).

   d. Lock padlock (39).



1600A32-

VEHICLE OPERATION (VEHICLE S/N 18,549 OR LOWER) - Continued 0016 00

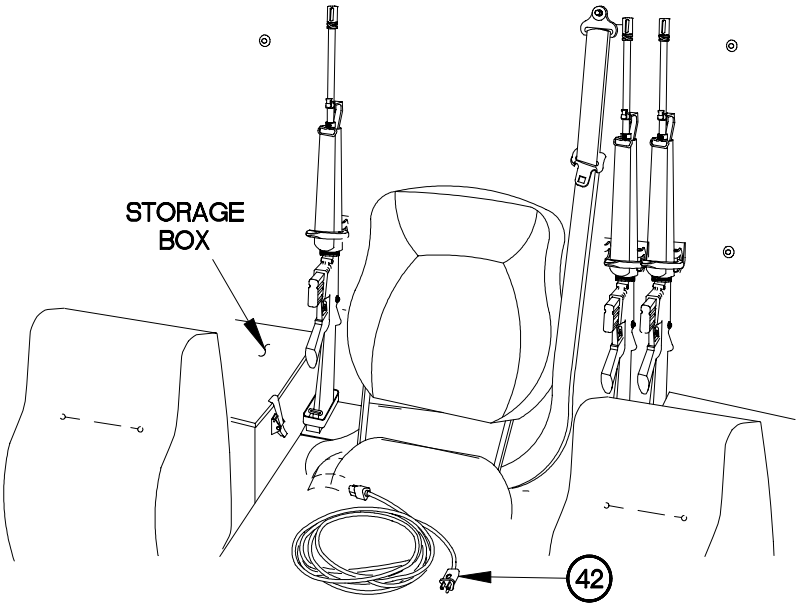
SECURE VEHICLE - Continued

NOTE

Perform step (2) on vehicles equipped with engine block arctic heater.

2. Connect power to engine block arctic heater.

   a. Remove extension cord (42) from CO-DRIVER'S SIDE STORAGE BOX.



1600A35-

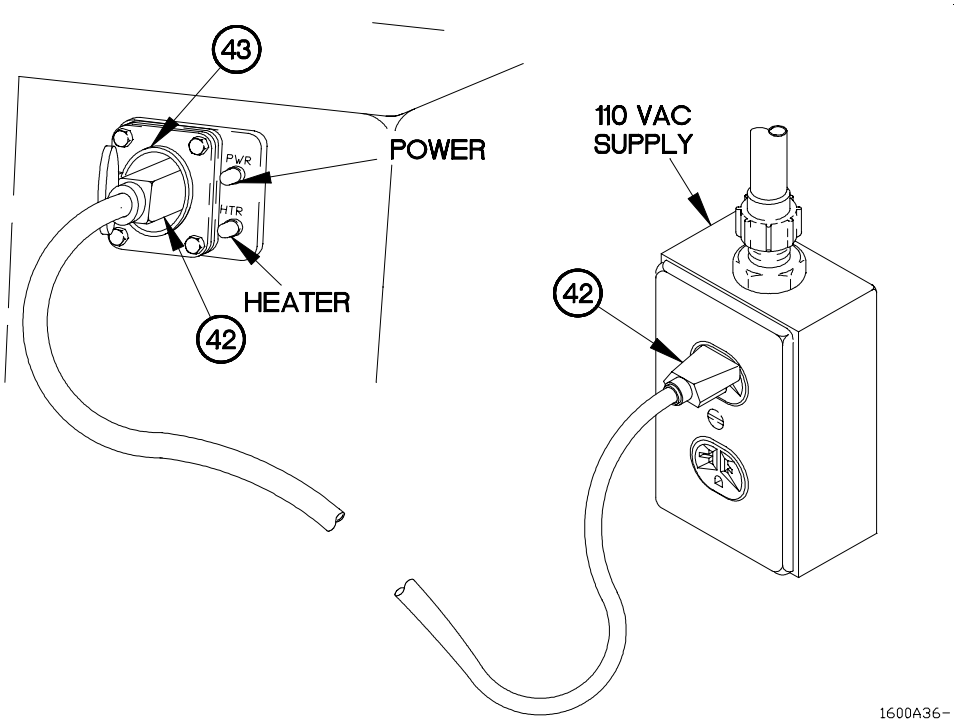
VEHICLE OPERATION (VEHICLE S/N 18,549 OR LOWER) - Continued 0016 00

SECURE VEHICLE - Continued

b. Connect female connector of extension cord (42) to ENGINE HEATER receptacle (43).

c. Connect male connector of extension cord (42) to 110 VAC supply.

d. Note the PWR lamp (green) and HTR lamp (red) are illuminated.



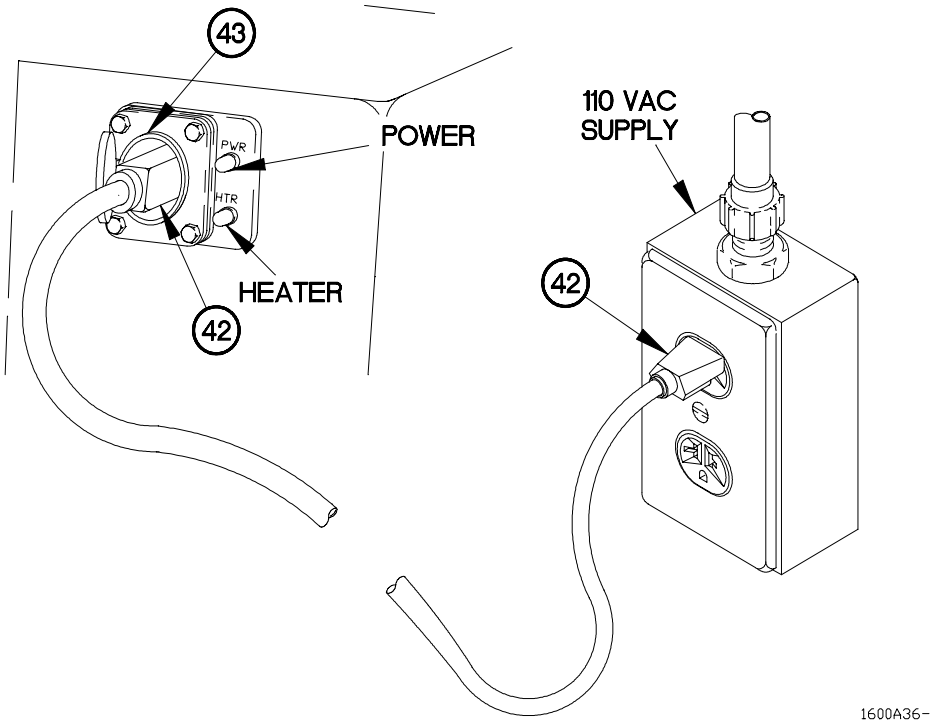
VEHICLE OPERATION (VEHICLE S/N 18,549 OR LOWER) - Continued

SECURE VEHICLE - Continued

3. Disconnect power to engine block arctic heater.

   a. Disconnect male connector of extension cord (42) from 110 VAC supply.

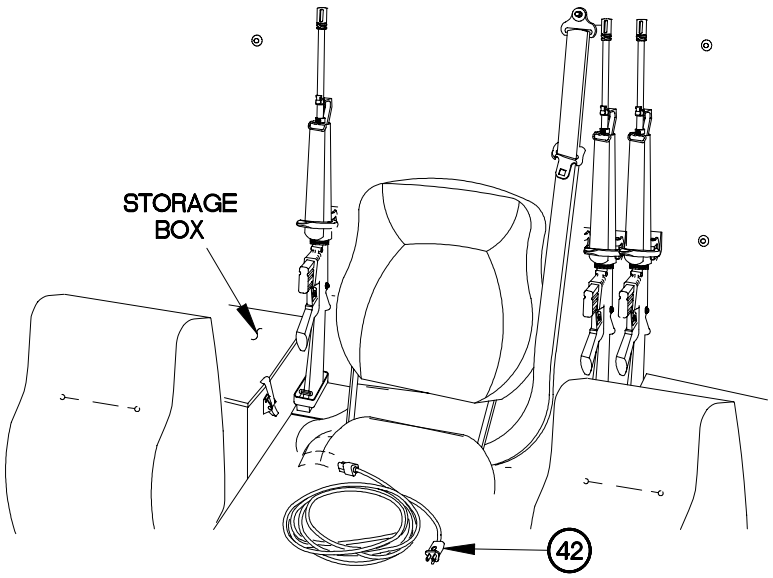
   b. Disconnect female connector of extension cord (42) from ENGINE HEATER receptacle (45).



VEHICLE OPERATION (VEHICLE S/N 18,549 OR LOWER) - Continued 0016 00

SECURE VEHICLE - Continued

c. Place extension cord (42) in CO-DRIVER'S SIDE STORAGE BOX.



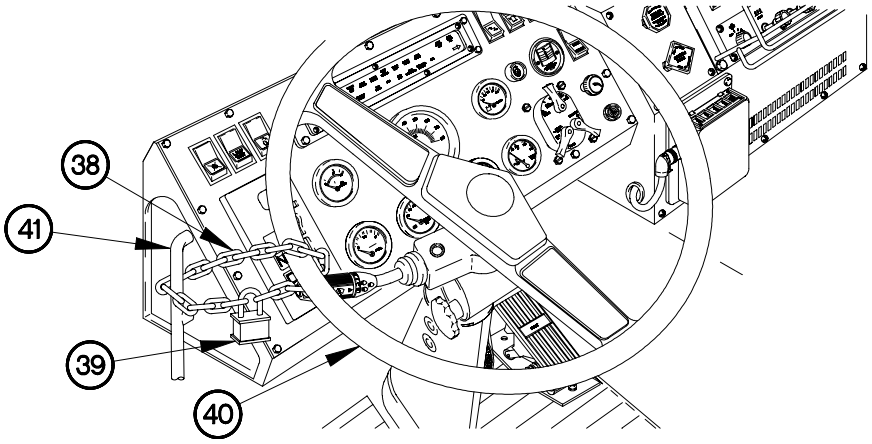
1600A35-

4. Remove Chain.

a. Unlock padlock (39).

b. Remove padlock (39) from chain (38).

c. Remove chain (38) from steering wheel (40) and cab handhold (41).

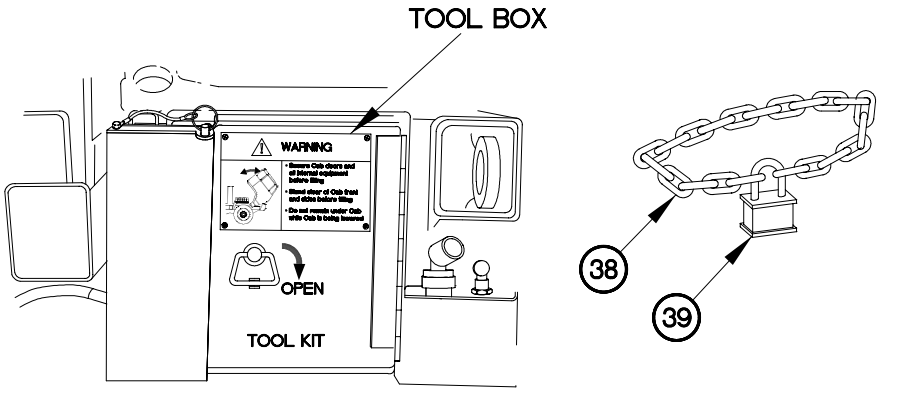


1600A33-

VEHICLE OPERATION (VEHICLE S/N 18,549 OR LOWER) - Continued 0016 00

SECURE VEHICLE - Continued

d. Place chain (38) and padlock (39) in tool box.



1600A34-

END OF OPERATING PROCEDURE

VEHICLE OPERATION (VEHICLE S/N 18,550 OR HIGHER 0016 01

INITIAL SETUP:

Maintenance Level
Operator

Tools/Special Tools
Chock, Wheel (Item 10, Table 2, WP 0094 00)

References
FM 31-70
WP 0020 00
WP 0044 00
WP 0061 00
WP 0070 00

GENERAL

The paragraphs in this work package provide data and procedures to be used by the Operator when performing basic vehicle operation. Items covered include Engine Start, Operate Vehicle Lights, Operate Service Brakes, Select Transmission Operating Range, Shut Down Engine, Park Vehicle, Drain Air Tanks, and Secure Vehicle.

WARNING

Wear arctic clothing when cab temperatures fall and remain below 30° F (-1° C). Cold stress preventative measures in FM 31-70 should be applied when vehicle cab temperatures fall and remain below 30° F (-1° C). Failure to comply may result in injury to personnel.

CAUTION

Cold weather radiator cover will be installed, if temperatures are consistently below 40° F (4° C). It should be removed if temperatures are above 40° F (4° C), it must be removed if temperatures reach 70° F (21° C). Failure to comply may result in damage to equipment.

NOTE

If cold weather radiator cover has not been installed or needs to be removed Notify Unit Maintenance.

CAUTION

When ambient temperature rises above -25° F (-32° C), the vehicle must not be operated with arctic belts installed. Notify unit maintenance. Failure to comply may result in damage to equipment.

VEHICLE OPERATION (VEHICLE S/N 18,550 OR HIGHER) - Continued 0016 01

ENGINE START

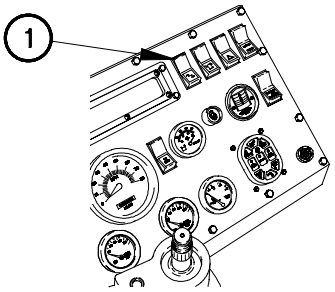
CAUTION

If vehicle is equipped with cab arctic front cover, do not leave vehicle running unattended with flaps fully closed in temperatures above -25° (-32° C). Operating temperature is 165° (74° C) to 210° F (100° C). Failure to comply may result in damage to equipment.

NOTE

Refer to WP 0044 00 if outside temperature is between -26° F (-32° C) and -50° F (-46° C).

1. Position master power switch (1) to on.



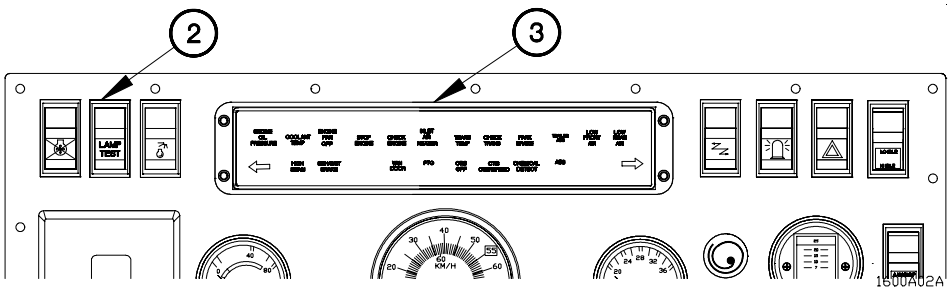
1600A01A

NOTE

ENGINE OIL PRESSURE, CHECK TRANS, PARK BRAKE, ABS, and LOW AIR indicators will remain on until operating pressures are achieved or are manually released.

INLET AIR HEATER indicator on lighted indicator display will illuminate for a minimum of 2 seconds regardless of coolant temperature.

2. Press LAMP TEST switch (2) to verify that all warning indicators illuminate on lighted indicator display (3).



1600A02A

VEHICLE OPERATION (VEHICLE S/N 18,550 OR HIGHER) - Continued 0016 01

ENGINE START – Continued

NOTE

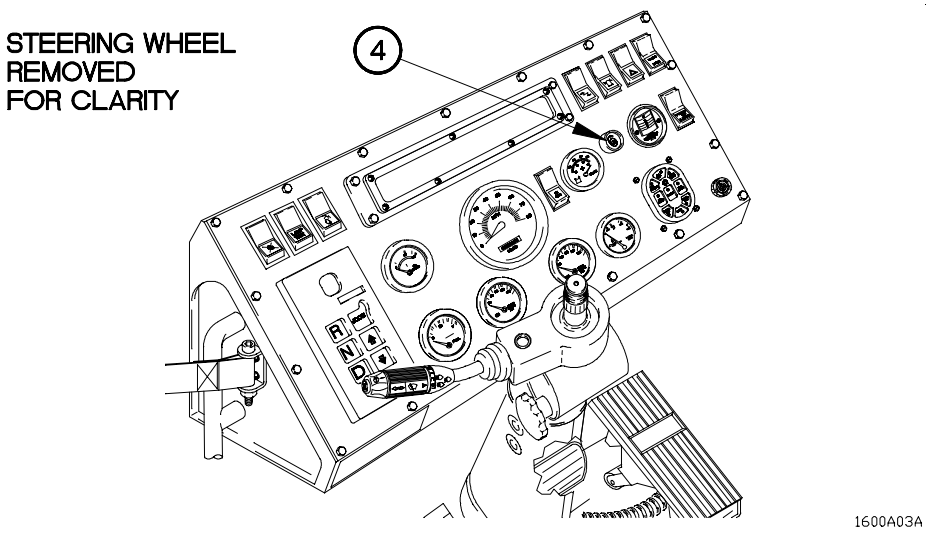
After turning master power switch on and completing lamp test, INLET AIR HEATER indicator may remain on up to 30 seconds, indicating that the inlet air heater is in cold start mode.

Inlet air preheat is complete when INLET AIR HEATER indicator goes out.

It is normal for INLET AIR HEATER indicator to cycle on/off during the cranking operation.

If engine does not start in first 30 seconds of cranking, release starter pushbutton and wait 30 seconds before attempting to start engine again.

3. Press and hold starter pushbutton (4) after INLET AIR HEATER indicator goes out.



VEHICLE OPERATION (VEHICLE S/N 18,550 OR HIGHER) - Continued 0016 01

ENGINE START - Continued

CAUTION

Do not press ether switch unless engine is cranking. Failure to comply may result in damage to equipment.

Do not use ether after engine has reached idle speed and is no longer in danger of stalling. Failure to comply may result in damage to equipment.

NOTE

Perform steps 4 and 5 if outside temperature is 32° F (0° C) to -25° F (-32° C).

Ether is not required unless outside temperature is less than 32° F (0° C).

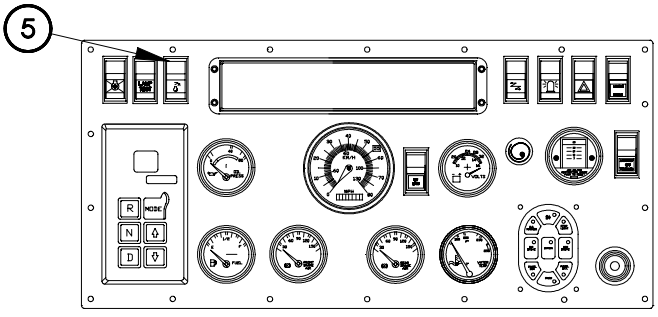
Continue to inject ether if engine has started but will not run without ether.

After engine starts and maintains low idle speed for 2 minutes, engine idle speed may increase. If idle speed increases, engine will maintain increased idle speed until engine reaches a predetermined temperature or after operating for 12 minutes at increased idle speed. Engine speed may be returned to low idle speed to begin vehicle operations by pressing and releasing accelerator pedal.

4. Press and hold ether start switch (5) for 5 seconds.

5. Release ether start switch (5) for 3 seconds.

6. Repeat steps 4 and 5 until engine has started, engine speed has increased over cranking speed, and engine maintains idle speed.



1600A04A

VEHICLE OPERATION (VEHICLE S/N 18,550 OR HIGHER) - Continued 0016 01

ENGINE START - Continued

7. Release starter pushbutton (4) when engine starts or after 30 seconds.

CAUTION

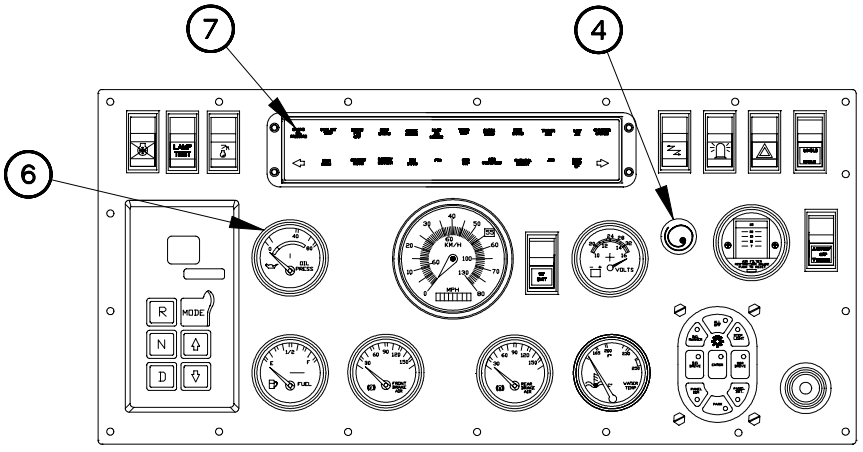
If STOP ENGINE indicator flashes (red) to warn Operator about a potential engine failure, shut down engine immediately (WP 0016 01) and perform Engine System Troubleshooting (WP 0061 00). Failure to comply may result in damage to equipment.

If OIL PRESS gage does not show engine oil pressure of 15-80 psi within 10-15 seconds after starting engine, shut down engine immediately (WP 0016 01) and perform Engine System Troubleshooting (WP 0061 00). Failure to comply may result in damage to equipment.

NOTE

Oil pressure will increase when engine speed increases and will decrease when engine speed decreases.

8. Check that OIL PRESS gage (6) reads between 15 psi and 80 psi. If OIL PRESS gage reads in red zone and ENGINE OIL PRESSURE indicator (7) is illuminated, shut down engine (WP 0016 01) and perform Engine System Troubleshooting (WP 0061 00).



STEERING WHEEL
REMOVED FOR CLARITY

1600A05A

VEHICLE OPERATION (VEHICLE S/N 18,550 OR HIGHER) - Continued 0016 01

ENGINE START – Continued

WARNING

Do not drive vehicle until windshield is sufficiently clear of frost/ice. Failure to comply may result in severe injury or death to personnel.

9. Operate windshield defrost (WP 0020 00) as required.

10. Operate cab heat (WP 0020 00) as required.

NOTE

Perform steps 11 through 15 in outside temperatures of 32° F (0° C) to -25° F (-32° C).

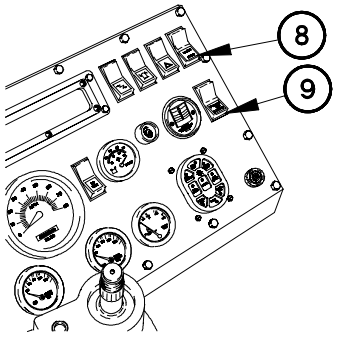
11. Press LO IDLE/HI IDLE SWITCH (8) to engage HI IDLE.

NOTE

EXHAUST BRAKE indicator will illuminate when WARMUP/OFF/RETARD switch is positioned to WARMUP.

12. Position WARMUP/OFF/RETARD switch (9) to WARMUP.

STEERING WHEEL REMOVED FOR CLARITY



1600A06A

VEHICLE OPERATION (VEHICLE S/N 18,550 OR HIGHER) - Continued 0016 01

ENGINE START – Continued

13. Check that WATER TEMP gage (10) reads less than 230° F (110° C). If WATER TEMP gage reads in the red zone or COOLANT TEMP indicator (11) is illuminated, shut down engine (WP 0016 01) and perform Engine System Troubleshooting (WP 0061 00).

NOTE

Perform steps 14 and 15 when windshield is clear of frost/ice and prior to driving vehicle.

14. Position WARMUP/OFF/RETARD switch (9) to OFF.

15. Press LO IDLE/HI IDLE switch (8) to engage LO IDLE.

NOTE

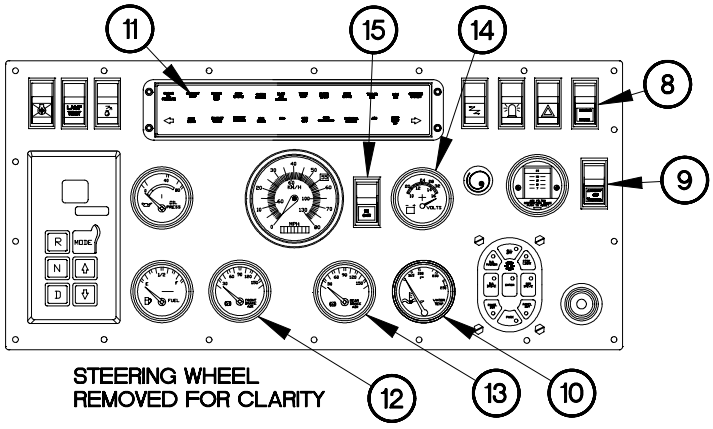
If FRONT BRAKE AIR and REAR BRAKE AIR pressure gages do not read between 75-120 psi (517-827 kPa) after engine warms up, shut down engine (WP 0016 01) and perform Air System Troubleshooting (WP 0070 00).

LOW AIR indicator will illuminate (red) and audible alarm will sound until air pressure is between 75-85 psi (517-827 kPa).

16. Check that FRONT BRAKE AIR pressure gage (12) and REAR BRAKE AIR pressure gage (13) read between 75-120 psi (517-827 kPa).

17. Check that VOLTS gage (14) reads between 24 and 28 volts.

18. Press momentary 12V BAT switch (15). Check that VOLTS gage (14) reads between 12 and 14 volts.



VEHICLE OPERATION (VEHICLE S/N 18,550 OR HIGHER) - Continued 0016 01

ENGINE START - Continued

19. Check that AIR FILTER RESTRICTION GAUGE (16) reads below 25 in.

    a. Press reset button (17) if AIR FILTER RESTRICTION GAUGE (16) reads greater than 25 in. (in red area).

    b. Shut down engine (WP 0016 01) and service air filter (WP 0089 00) if AIR FILTER RESTRICTION GAUGE (16) still reads greater than 25 in. (in red area).

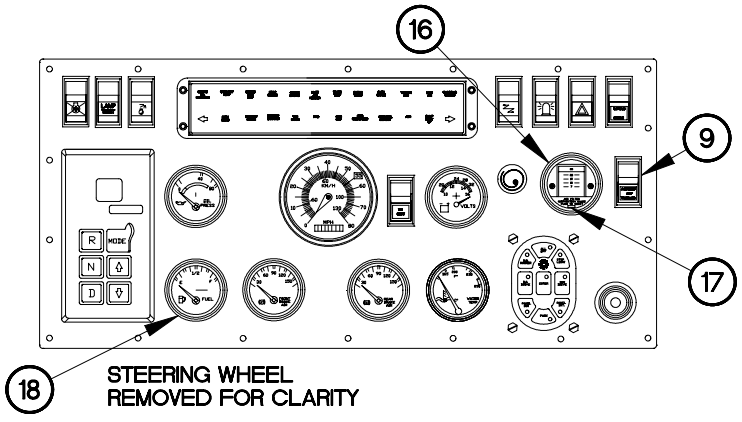
20. Check that FUEL gage (18) shows sufficient fuel to accomplish mission.

WARNING

Do not engage engine exhaust brake feature in icy or slippery conditions. Failure to comply may result in injury to personnel or damage to equipment.

21. Position WARMUP/OFF/ RETARD switch (9) to RETARD.

22. Select desired transmission operating range (WP 0016 01).



CAUTION

Water temperature must be maintained at a minimum of 165° F (74° C) for 1 to 3 minutes prior to engine shutdown. Failure to comply may result in damage to equipment.

23. Shut down engine (WP 0016 01).

VEHICLE OPERATION (VEHICLE S/N 18,550 OR HIGHER) - Continued

OPERATE VEHICLE LIGHTS

NOTE

Pressing the ENTER key after a selection has been made enters the selected function. If ENTER is not pressed within 5 seconds after the selection has been made, the switch will reset to the previous mode to prevent accidental switching. After making a selection, the indicator keys will flash blue until the enter key is pressed.

If there is no blue indcators illuminated, then no vehicle external lights are turned on. Amber backlight is for the keypad only.

1. Operate Instrument Panel Lights.

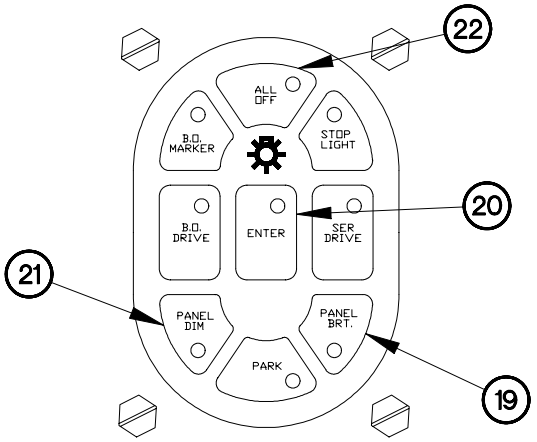
   a. Press PANEL BRT key (19).

   b. Press ENTER key (20).

   c. To dim lights, press PANEL DIM key (21).

   d. Press ALL OFF key (22).

   e. Press ENTER key (20). All vehicle lights will go off.



1600A09A

VEHICLE OPERATION (VEHICLE S/N 18,550 OR HIGHER) - Continued 0016 01

OPERATE VEHICLE LIGHTS - Continued

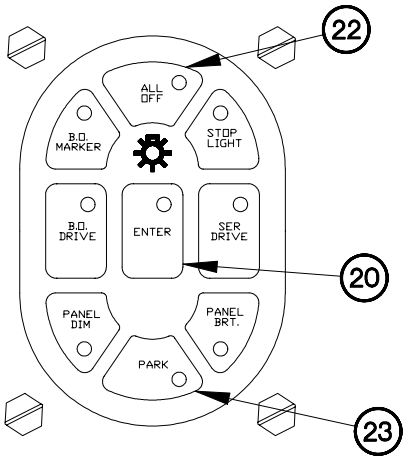
2. Operate Parking Lights.

   a. Press PARK key (23).

   b. Press ENTER key (20).

   c. Press ALL OFF key (22)

   d. Press ENTER key (20). All vehicle lights will go off.



1600A10A

VEHICLE OPERATION (VEHICLE S/N 18,550 OR HIGHER) - Continued 0016 01

OPERATE VEHICLE LIGHTS - Continued

3. Operate Service Drive Lights.

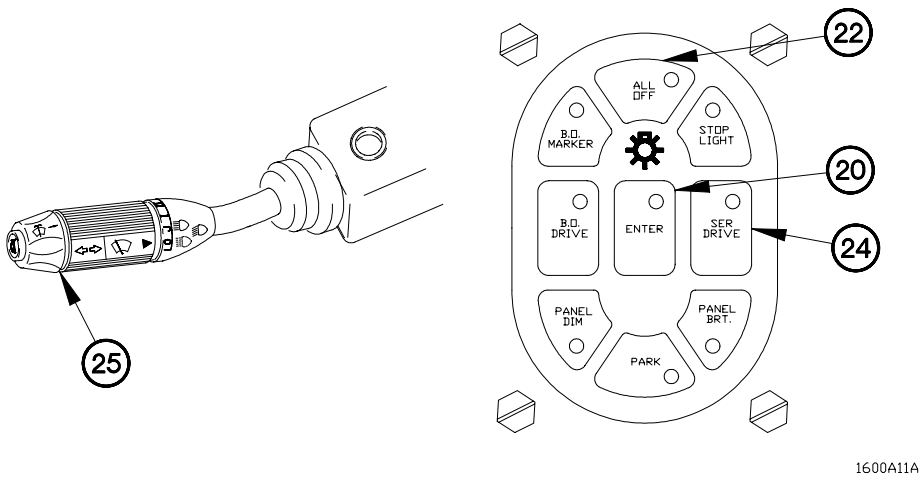
   a. Press SER DRIVE key (24).

   b. Press ENTER key (20).

   c. Pull turn signal switch (25) to operate headlights at high beam or low beam.

   d. Press ALL OFF key (22).

   e. Press ENTER key (20). All vehicle lights will go off.



VEHICLE OPERATION (VEHICLE S/N 18,550 OR HIGHER) - Continued 0016 01

OPERATE VEHICLE LIGHTS – Continued

WARNING

Vehicle speed should be reduced to 5-10 mph (8-16 km/h) during blackout conditions. Failure to comply may result in serious injury or death to personnel.

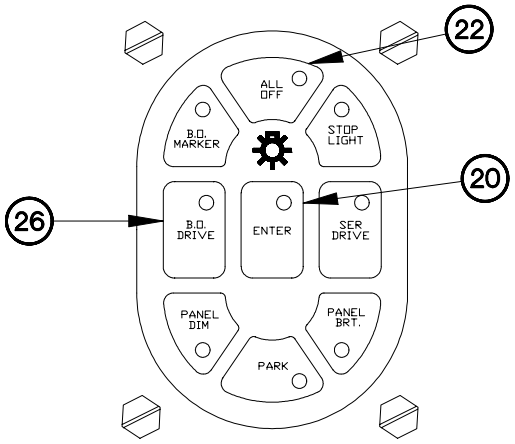
4. Operate Blackout Drive Lights.

   a. Press B.O. Drive key (26).

   b. Press ENTER key (20).

   c. Press ALL OFF key (22).

   d. Press ENTER key (20).



1600A12A

VEHICLE OPERATION (VEHICLE S/N 18,550 OR HIGHER) - Continued 0016 01

OPERATE VEHICLE LIGHTS - Continued

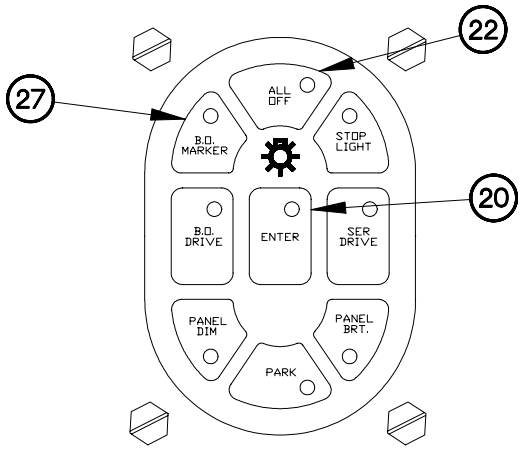
5. Operate Blackout Marker Lights.

   a. Press B.O. MARKER key (27)

   b. Press ENTER key (20).

   c. Press ALL OFF key (22).

   d. Press ENTER key (20).



1600A13A

VEHICLE OPERATION (VEHICLE S/N 18,550 OR HIGHER) - Continued

OPERATE VEHICLE LIGHTS - Continued

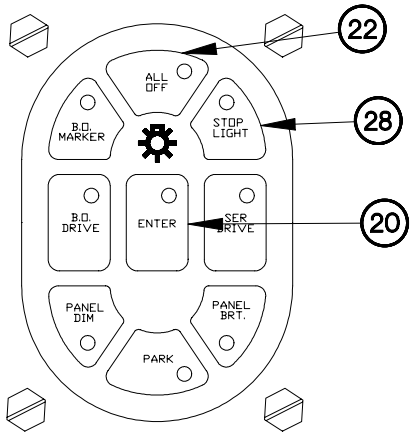
6. Operate Stoplights.

   a. Press STOP LIGHT key (28).

   b. Press ENTER key (20).

   c. Press ALL OFF key (22).

   d. Press ENTER key (20). All vehicle lights will go off.



1600A14A

VEHICLE OPERATION (VEHICLE S/N 18,550 OR HIGHER) - Continued

0016 01

OPERATE VEHICLE LIGHTS - Continued

7. Operate Warning Lights.

   a. Install amber warning light (WP 0066 00).

   b. Press SER DRIVE (24) or STOP LIGHT key (28).

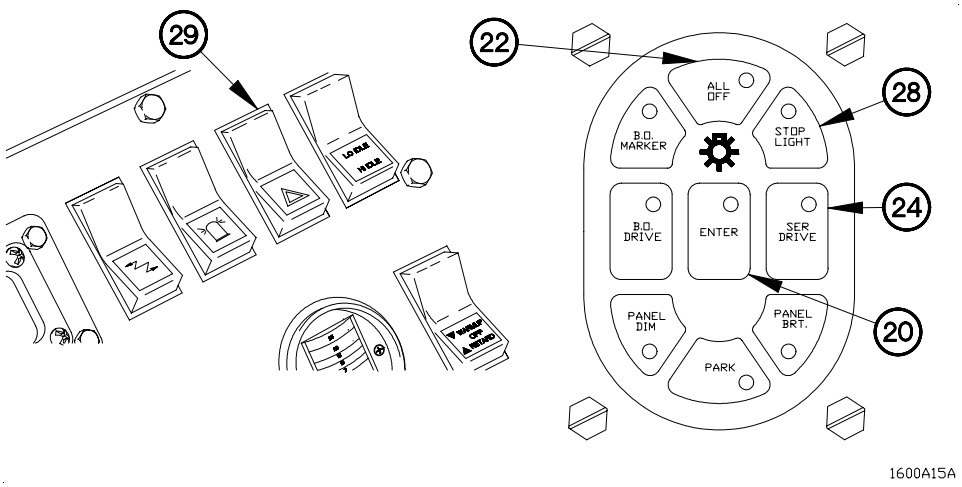
   c. Press ENTER key (20).

   d. Position warning light switch (29) to ON.

   e. Position warning light switch (29) to OFF.

   f. Press ALL OFF key (22).

   g. Press ENTER key (20). All vehicle lights will go off.



VEHICLE OPERATION (VEHICLE S/N 18,550 OR HIGHER) - Continued 0016 01

OPERATE SERVICE BRAKES

WARNING

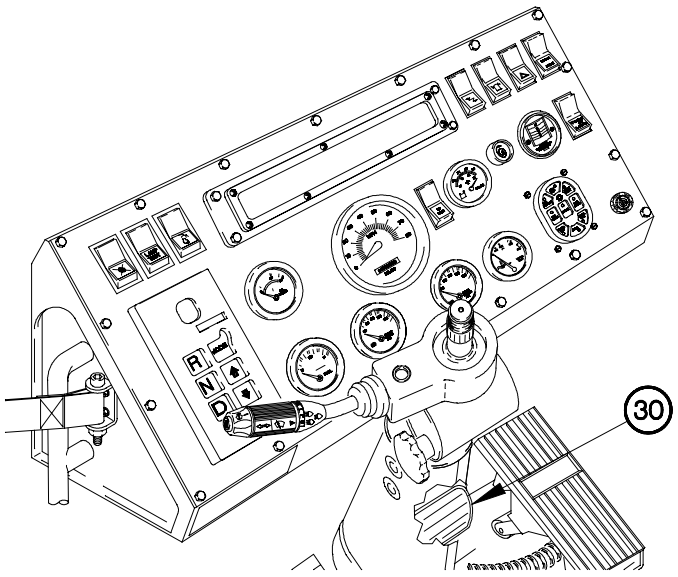
Operating in water or mud causes brake linings to get wet and can impair vehicle braking. Dry brakes by driving vehicle about 500 ft (150 m) while applying service brakes often. If adequate braking is not restored by drying brakes, notify Unit Maintenance. Failure to comply may result in injury to personnel or damage to equipment.

Do not press brake pedal hard three or four times in a row. Air supply will be used up and service brakes will not work until air pressure builds up again. Do not operate vehicle until FRONT and REAR BRAKE AIR pressure reaches at least 100 psi (690 kPa). Failure to comply may result in serious injury or death to personnel or damage to equipment.

CAUTION

If ABS or TRAILER ABS indicator on vehicle S/N 15,676 or higher, illuminates, the Anti-lock Braking System (ABS) ECU has detected a fault. Notify Unit Maintenance upon completion of mission. Failure to comply may result in damage to the equipment.

Push down and hold brake pedal (30) to slow or stop vehicle.



STEERING WHEEL REMOVED FOR CLARITY

1600A19A

VEHICLE OPERATION (VEHICLE S/N 18,550 OR HIGHER) - Continued 0016 01

SELECT TRANSMISSION OPERATING RANGE

1. Start engine (WP 0016 01).

CAUTION

Engine speed must be at idle prior to selecting any forward or reverse operating range. Failure to comply may result in damage to equipment.

Do not allow vehicle to coast in N (Neutral). Failure to comply may result in damage to equipment.

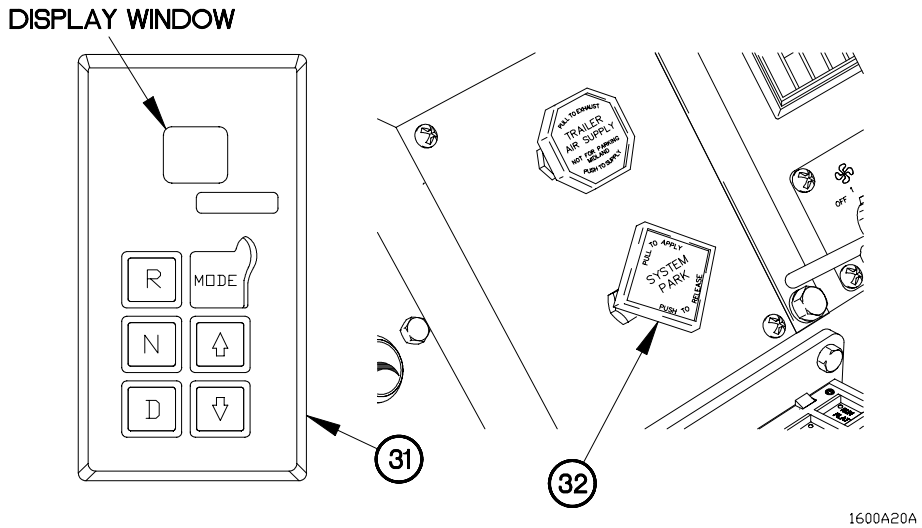
NOTE

When transmission is operating normally, display window of WTEC III TPSS will indicate selected operating range.

When D (Drive) is selected, the default selected operating range is 7.

2. Select desired travel direction (D for Drive or R for Reverse) on WTEC III TPSS (31).

3. Push in SYSTEM PARK control (32).



VEHICLE OPERATION (VEHICLE S/N 18,550 OR HIGHER) - Continued 0016 01

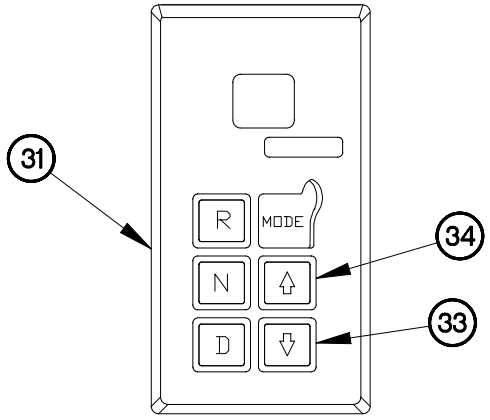
SELECT TRANSMISSION OPERATING RANGE - Continued

WARNING

Transmission incorporates a hold feature to prohibit upshifting above selected operating range during normal driving. However, during downhill operation, transmission may upshift above selected operating range. On downgrades, vehicle speed may need to be restricted by using service brakes. Failure to comply may result in serious injury or death to personnel or damage to equipment.

4. Press down arrow button (33) on WTEC III TPSS (31) to shift transmission to lower operating range.

5. Press up arrow button (34) on WTEC III TPSS (31) to shift transmission to higher operating range.



1600A21A

CAUTION

If illumination of last selected operating range goes out, WTEC III ECU has detected a problem that needs correcting. Do not attempt to shift transmission to N (Neutral) or any other operating range. Operate vehicle at reduced speed to a safe parking location. Failure to comply may result in damage to equipment.

NOTE

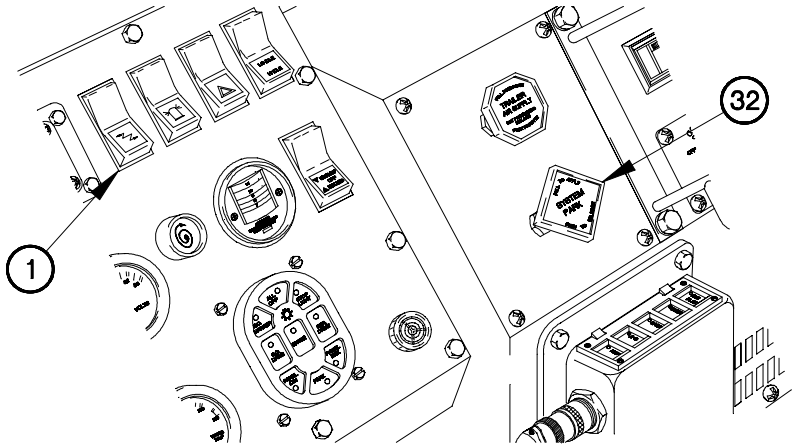
Perform steps 6 through 9 if display window is not showing last selected operating range.

6. Stop vehicle (WP 0016 01).

VEHICLE OPERATION (VEHICLE S/N 18,550 OR HIGHER) - Continued 0016 01

SELECT TRANSMISSION OPERATING RANGE - Continued

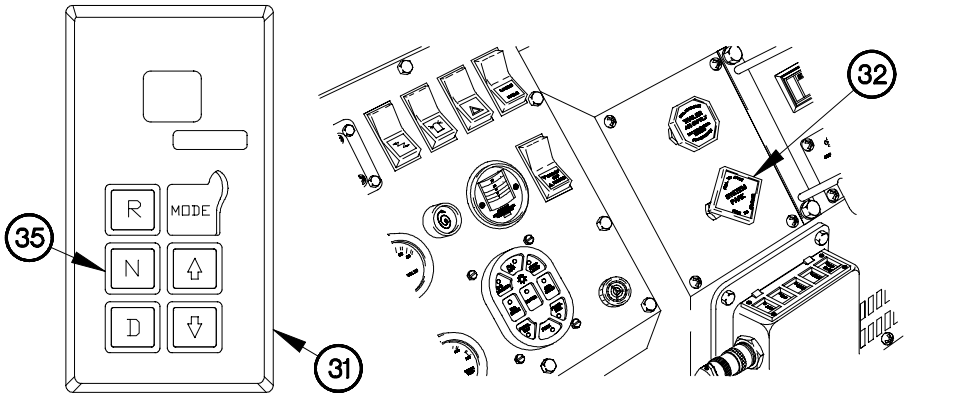
7. Position master power switch (1) to off.
8. Pull out SYSTEM PARK control (32).
9. Notify Unit Maintenance.



1600A22A

SHUT DOWN ENGINE

1. Stop vehicle (WP 0016 01).
2. Press N (Neutral) button (35) on WTEC III TPSS (31).
3. Pull out SYSTEM PARK control (32).



1600A23A

VEHICLE OPERATION (VEHICLE S/N 18,550 OR HIGHER) - Continued 0016 01

SHUT DOWN ENGINE - Continued

CAUTION

Water temperature must be maintained at a minimum of 165° F (74° C) for 1 to 3 minutes prior to engine shutdown. Failure to comply may result in damage to equipment.

When outside temperatures are below 32° F (0° C), do not continuously operate engine at HI IDLE without WARMUP/OFF/RETARD switch in WARMUP position. Failure to comply may result in damage to equipment.

NOTE

Steps 4 - 7 are only necessary to meet 165° F (74° C) requirements.

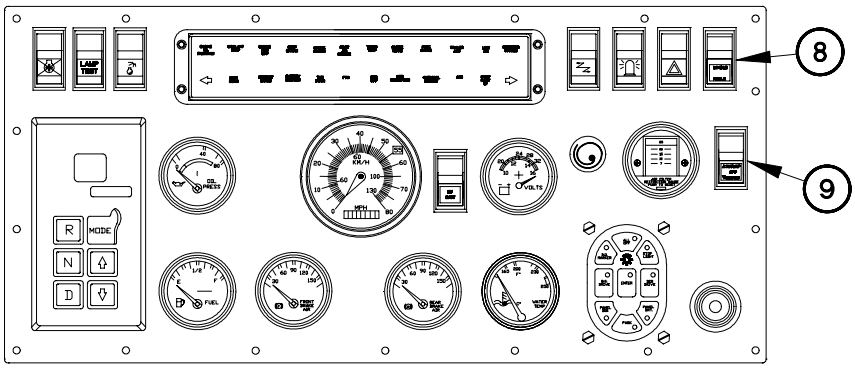
LO IDLE/HI IDLE and WARMUP/OFF/RETARD switches are used until WATER TEMP gage reaches and maintains 165° F (74° C) for 1 to 3 minutes.

4. Press LO IDLE/HI IDLE switch (8) to engage HI IDLE.

NOTE

EXHAUST BRAKE indicator will illuminate when WARMUP/OFF/RETARD switch is positioned to WARMUP.

5. Position WARMUP/OFF/RETARD switch (9) to WARMUP.



STEERING WHEEL
REMOVED FOR CLARITY

1600A24A

VEHICLE OPERATION (VEHICLE S/N 18,550 OR HIGHER) - Continued 0016 01

SHUT DOWN ENGINE – Continued

NOTE

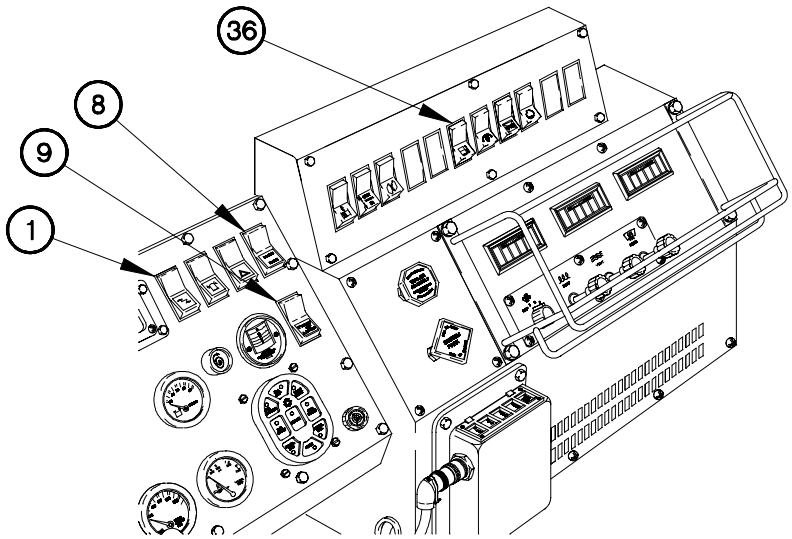
Perform steps 6 and 7 after engine has maintained 165° F (74° C) for 1 to 3 minutes.

6. Position WARMUP/OFF/RETARD switch (9) to OFF.
7. Press LO IDLE/HI IDLE switch (8) to engage LO IDLE.
8. Turn off lights and electrical accessories (WP 0016 01).

NOTE

Perform step 9 in outside temperatures below -25 °F (-32° C).

9. Position fuel preheat switch (36) to off.
10. Position master power switch (1) to off.
11. Chock wheels (WP 0016 01).



1600A25A

VEHICLE OPERATION (VEHICLE S/N 18,550 OR HIGHER) - Continued 0016 01

SHUT DOWN ENGINE – Continued

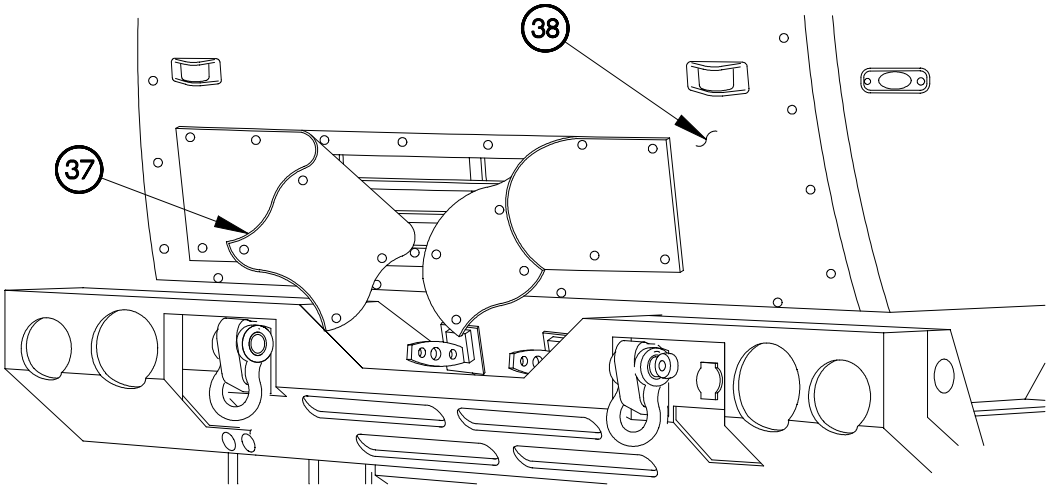
CAUTION

Cab arctic cover may be left on vehicle in temperatures up to , 40° F (4° C), except when engine requires maximum cooling such as in extreme off-road conditions or when vehicle is operating fully loaded. Ensure flaps are adjusted so that engine temperatures is between 165° F (73° C) and 210° F (99° C) during vehicle operation. Failure to comply may result in damage to equipment.

NOTE

Perform step 12 if vehicle is equipped with an arctic cold front.

12. Close flaps (37) on the cab arctic front cover (38).



1600A26A

VEHICLE OPERATION (VEHICLE S/N 18,550 OR HIGHER) - Continued

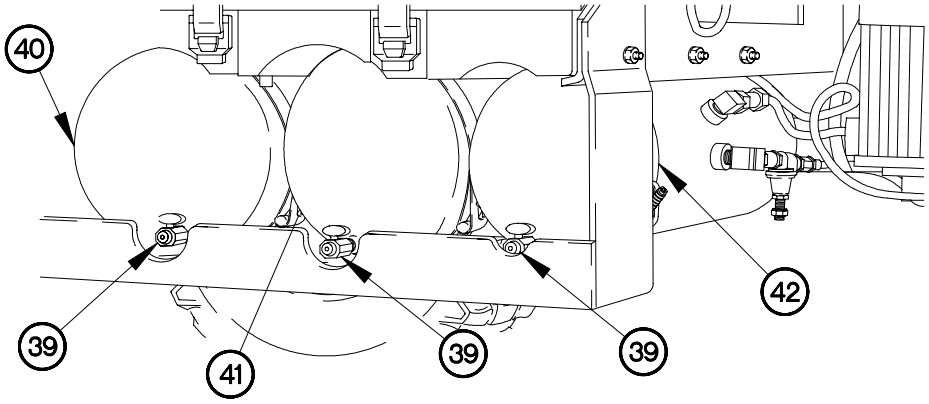
DRAIN AIR TANKS

CAUTION

Drain air tanks when vehicle will not be operated for 12 hours or more, or when operating in temperatures below 50° F (10° C). Failure to comply may result in damage to equipment.

1. Open drain valves (39) on primary air tank (40), secondary air tank (41), and wet tank (42) until air cannot be heard escaping.

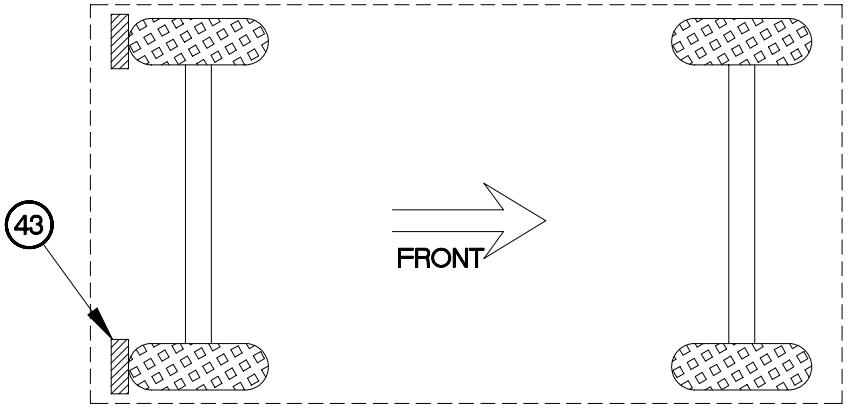
2. Close drain valves (39) on primary air tank (40), secondary air tank (41), and wet tank (42).



1600A27A

PARK VEHICLE

1. Install wheel chocks (43) in back of rear wheels when parked facing uphill.

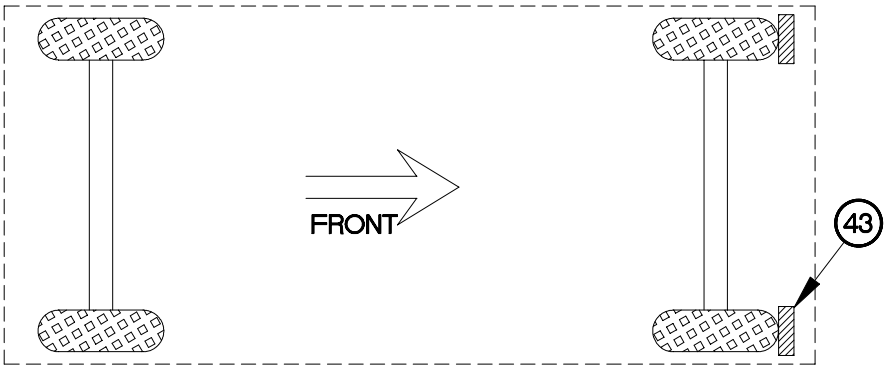


1600A28A

VEHICLE OPERATION (VEHICLE S/N 18,550 OR HIGHER) - Continued 0016 01

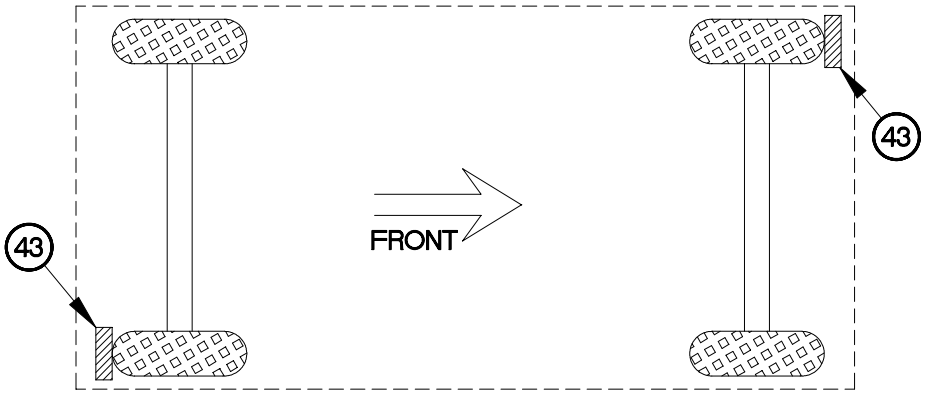
PARK VEHICLE - Continued

2. Install wheel chocks (43) in front of front wheels when parked facing downhill.



1600A29A

3. Install wheel chocks (43) in front of one front wheel and the second wheel chock in back of the opposite wheel when parked on level ground.



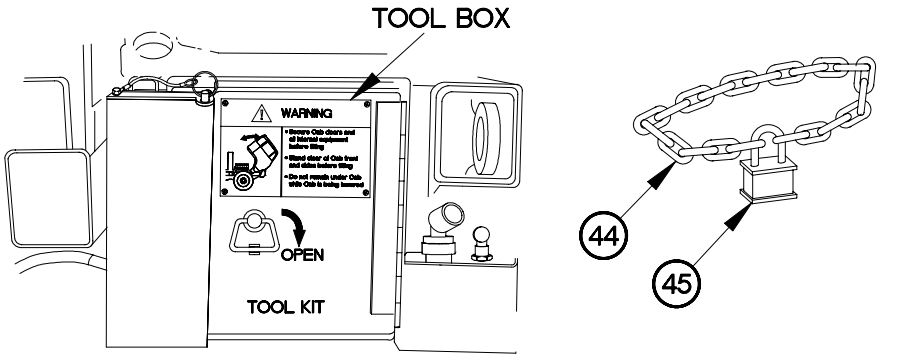
1600A30A

VEHICLE OPERATION (VEHICLE S/N 18,550 OR HIGHER) - Continued

SECURE VEHICLE

1. Install Chain.

   a. Remove chain (44) and padlock (45) from tool box.



1600A31A

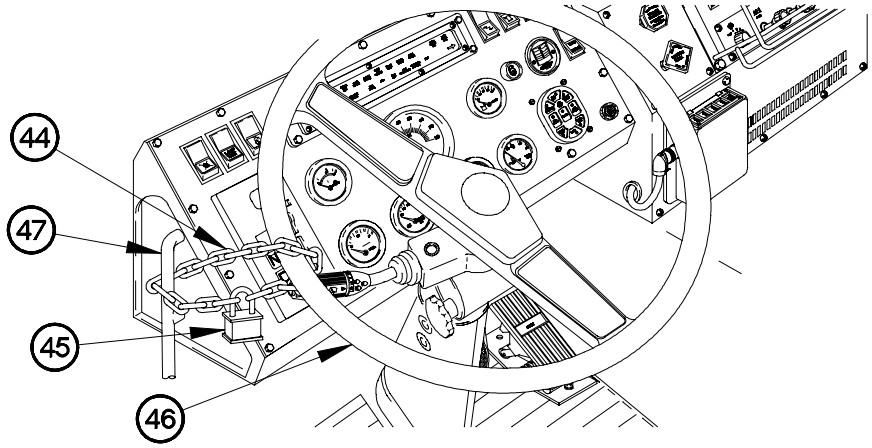
NOTE

Turn steering wheel either full right or full left before installing chain.

   b. Wrap chain (44) around steering wheel (46) and cab handhold (47).

   c. Connect padlock (45) to chain (44).

   d. Lock padlock (45).



1600A32A

VEHICLE OPERATION (VEHICLE S/N 18,550 OR HIGHER) - Continued 0016 01

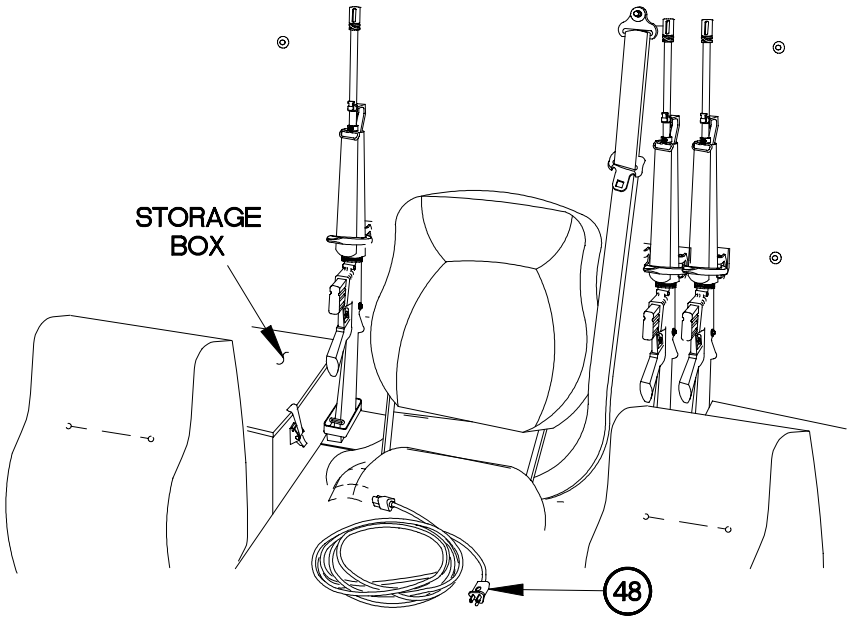
SECURE VEHICLE - Continued

NOTE

Perform step (2) on vehicles equipped with engine block arctic heater.

2. Connect power to engine block arctic heater.

   a. Remove extension cord (48) from CO-DRIVER'S SIDE STORAGE BOX.



1600A35A

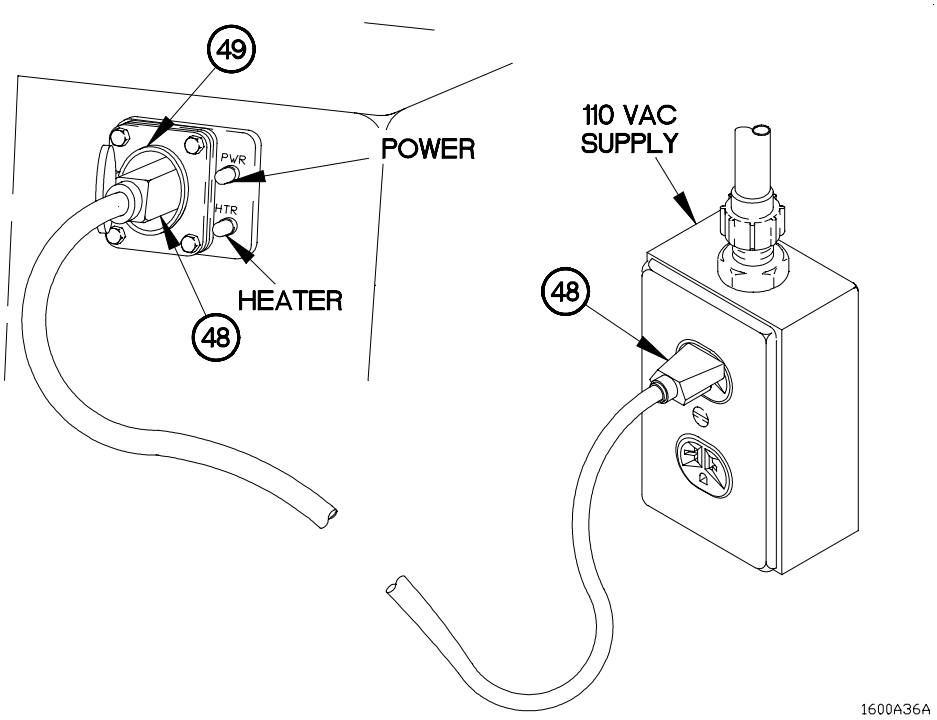
VEHICLE OPERATION (VEHICLE S/N 18,550 OR HIGHER) - Continued 0016 01

SECURE VEHICLE - Continued

b. Connect female connector of extension cord (48) to ENGINE HEATER receptacle (49).

c. Connect male connector of extension cord (48) to 110 VAC supply.

d. Note the PWR lamp (green) and HTR lamp (red) are illuminated.



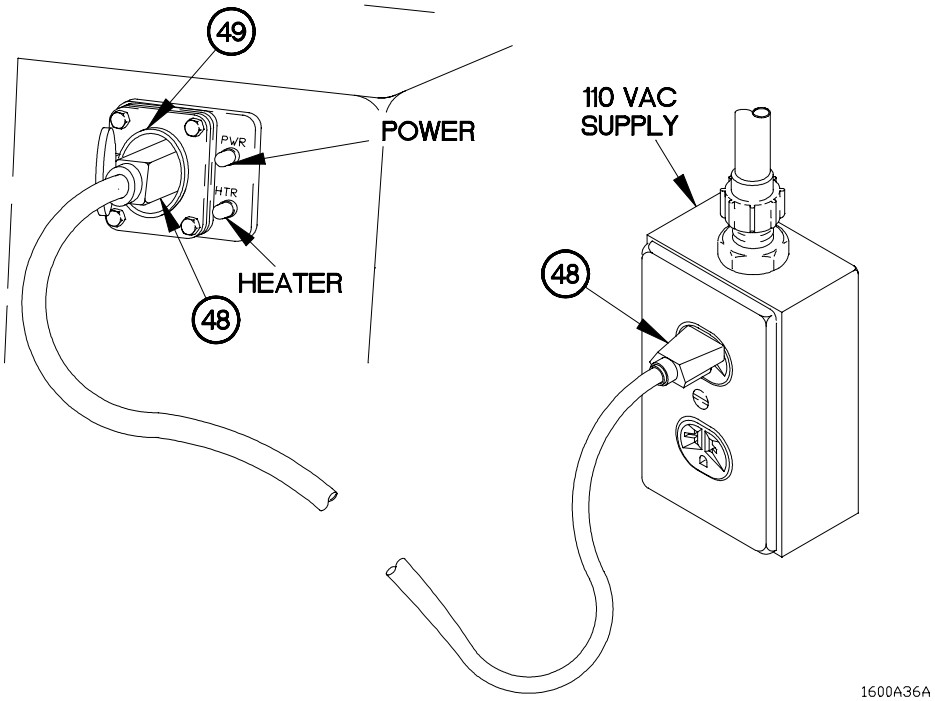
VEHICLE OPERATION (VEHICLE S/N 18,550 OR HIGHER) - Continued 0016 01

SECURE VEHICLE - Continued

3. Disconnect power to engine block arctic heater.

   a. Disconnect male connector of extension cord (48) from 110 VAC supply.

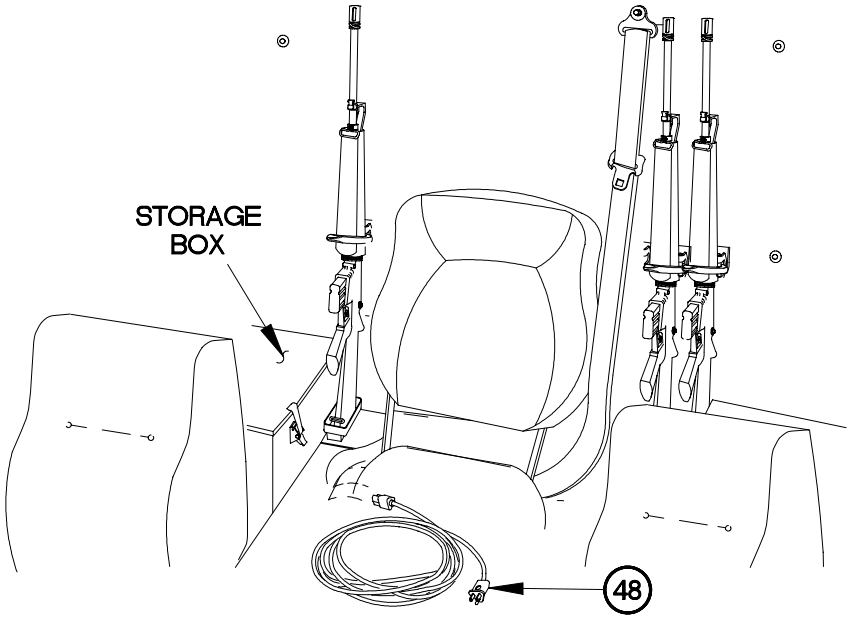
   b. Disconnect female connector of extension cord (48) from ENGINE HEATER receptacle (49).



VEHICLE OPERATION (VEHICLE S/N 18,550 OR HIGHER) - Continued 0016 01

SECURE VEHICLE - Continued

c. Place extension cord (48) in CO-DRIVER'S SIDE STORAGE BOX.



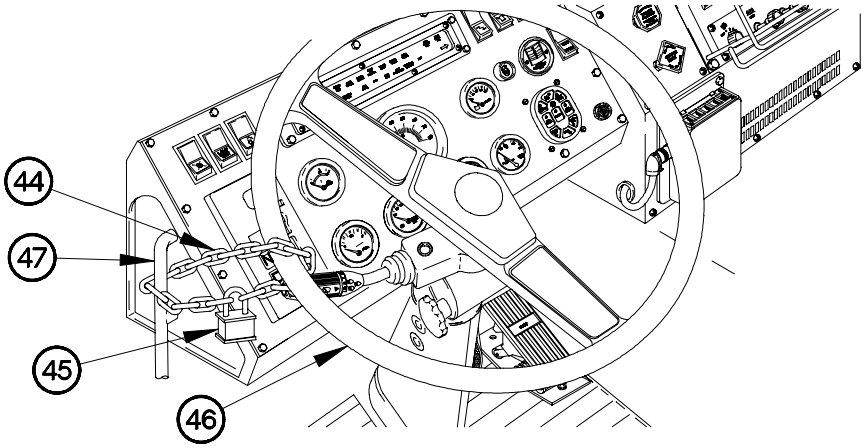
1600A35A

4. Remove Chain.

   a. Unlock padlock (45).

   b. Remove padlock (45) from chain (44).

   c. Remove chain (44) from steering wheel (46) and cab handhold (47).

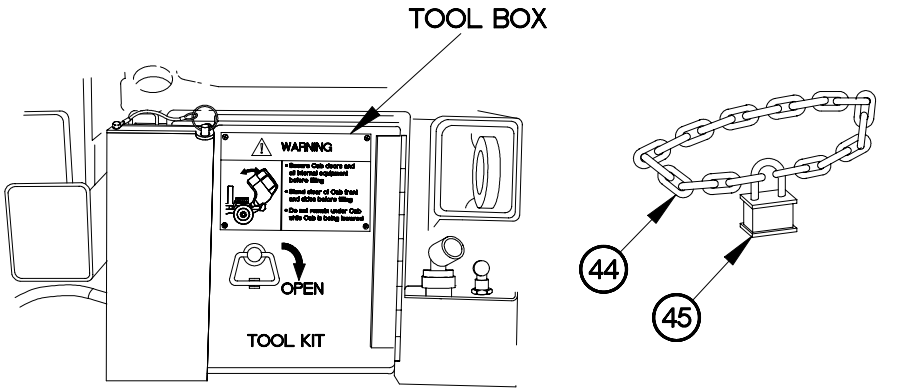


1600A33A

VEHICLE OPERATION (VEHICLE S/N 18,550 OR HIGHER) - Continued 0016 01

SECURE VEHICLE - Continued

d. Place chain (44) and padlock (45) in tool box.



1600A34A

END OF OPERATING PROCEDURE

RAISING/LOWERING CAB 0017 00

INITIAL SETUP:

Maintenance Level	Reference
Operator	WP 0035 00

GENERAL

This work package provides the data and procedures for Raising Cab and Lowering Cab on the M1078A1 series vehicles.

RAISING CAB

WARNING

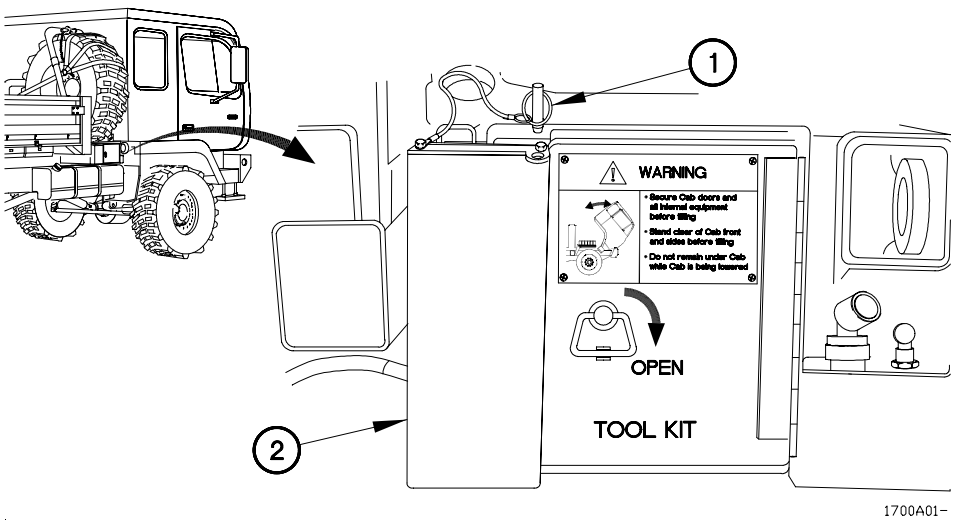
Engine compartment and accessories may be extremely hot when engine is running or has been running recently. Use caution around engine when cab is raised. Failure to comply may result in injury to personnel.

Engine compartment contains a partially exposed fan blade. Use extreme caution around front of engine. Failure to comply may result in injury to personnel.

NOTE

Cab will not raise unless system park control is pulled out.

1. Remove pin (1) from hydraulic manifold cover (2).



RAISING/LOWERING CAB - Continued 0017 00

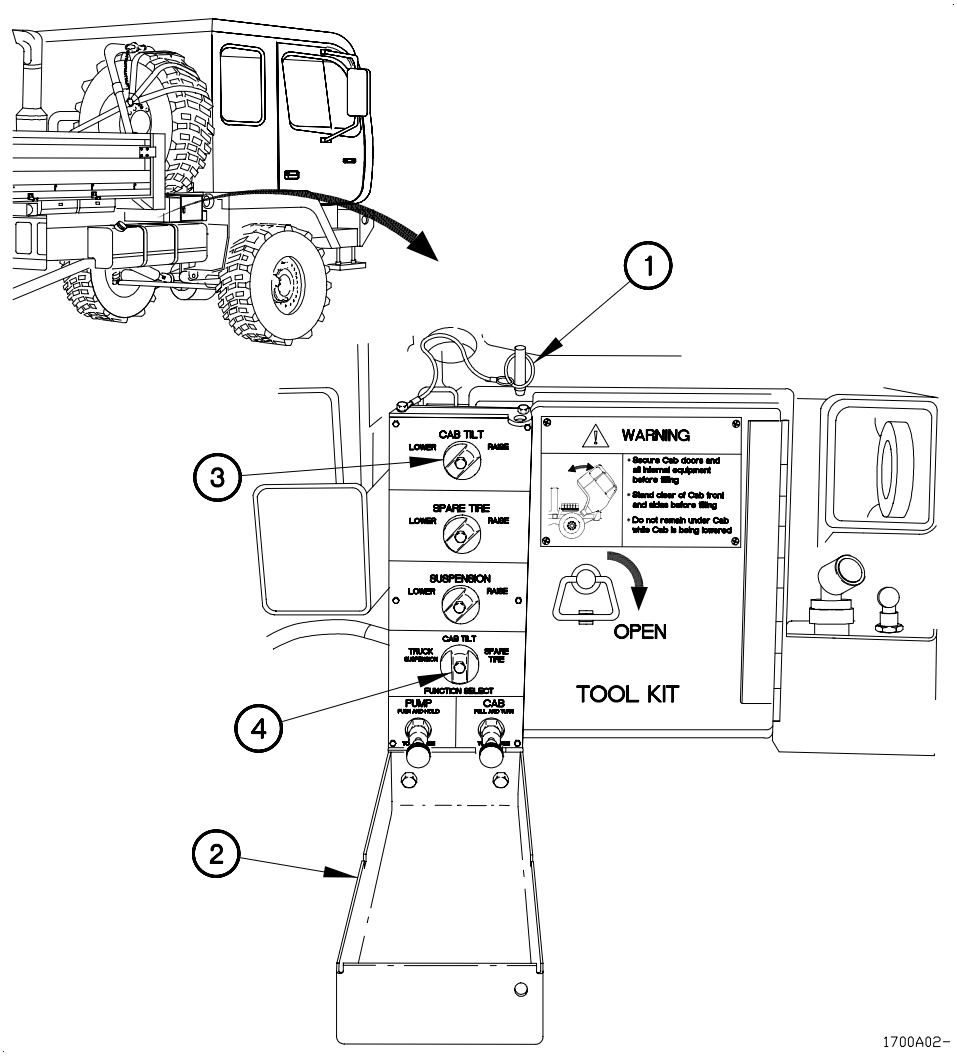
RAISING CAB - Continued

NOTE

If air tanks are fully charged, cab may be raised and lowered twice without starting engine.

2. Position CAB TILT knob (3) to RAISE.

3. Position FUNCTION SELECT knob (4) to CAB TILT.



RAISING/LOWERING CAB - Continued 0017 00

RAISING CAB - Continued

WARNING

Never raise cab while occupied or parked uphill on a steep grade. Failure to comply may result in serious injury or death to personnel.

Ensure both doors are securely closed before cab is raised. Do not allow personnel near cab when cab is being raised. Cab doors could open. Failure to comply may result in serious injury or death to personnel or damage to equipment.

CAUTION

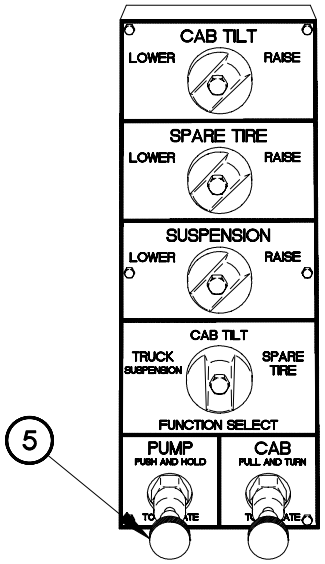
Remove all loose objects from cab before raising cab. Failure to comply may result in damage to equipment.

Cab height is higher than normal when raised. Ensure area above and in front of cab is adequate before raising cab. Failure to comply may result in damage to equipment.

NOTE

Use back-up hydraulic pump (WP 003500) if temperature is below -25° F (-32° C) or if pressing PUMP knob does not accomplish step 4.

4. Press and hold PUMP knob (5) until cab is fully raised.



1700a03-

LOWERING CAB

WARNING

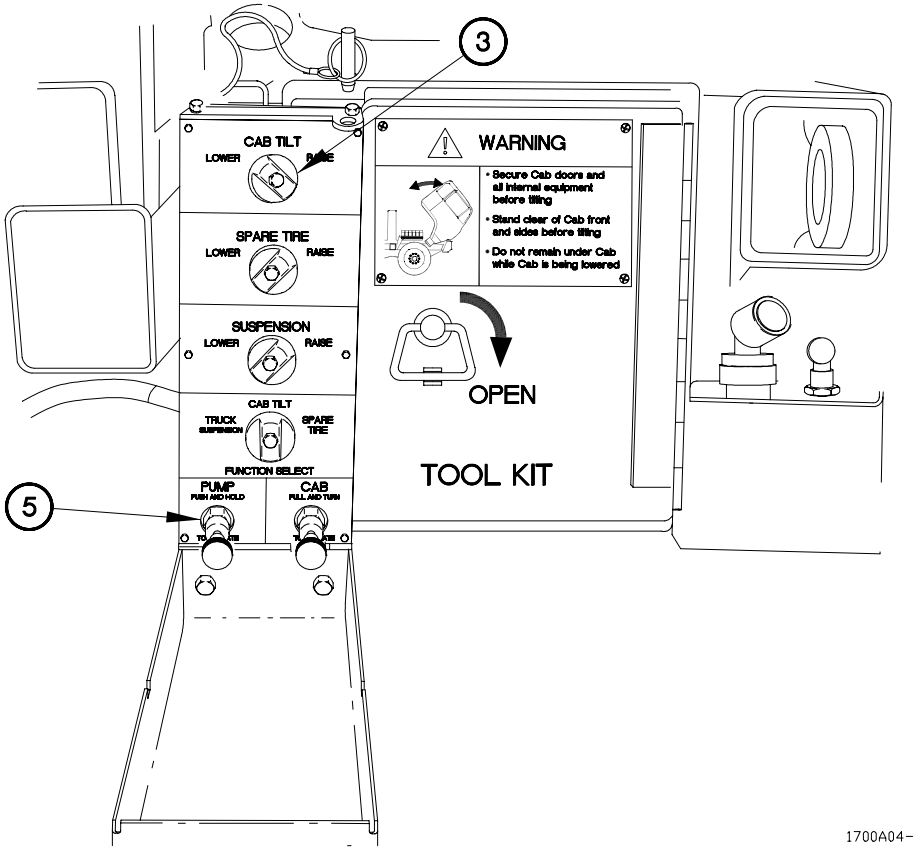
Ensure both doors are securely closed before cab is lowered. Do not allow personnel near cab when cab is being lowered. Cab doors could open. Failure to comply may result in serious injury or death to personnel or damage to equipment.

1. Position CAB TILT knob (3) to LOWER.

NOTE

Use back-up hydraulic pump (WP 0035 00) if temperature is below -25° F (-32° C) or if pressing PUMP knob does not accomplish step 2.

2. Press and hold PUMP knob (5) until cab is fully lowered.



LOWERING CAB - Continued

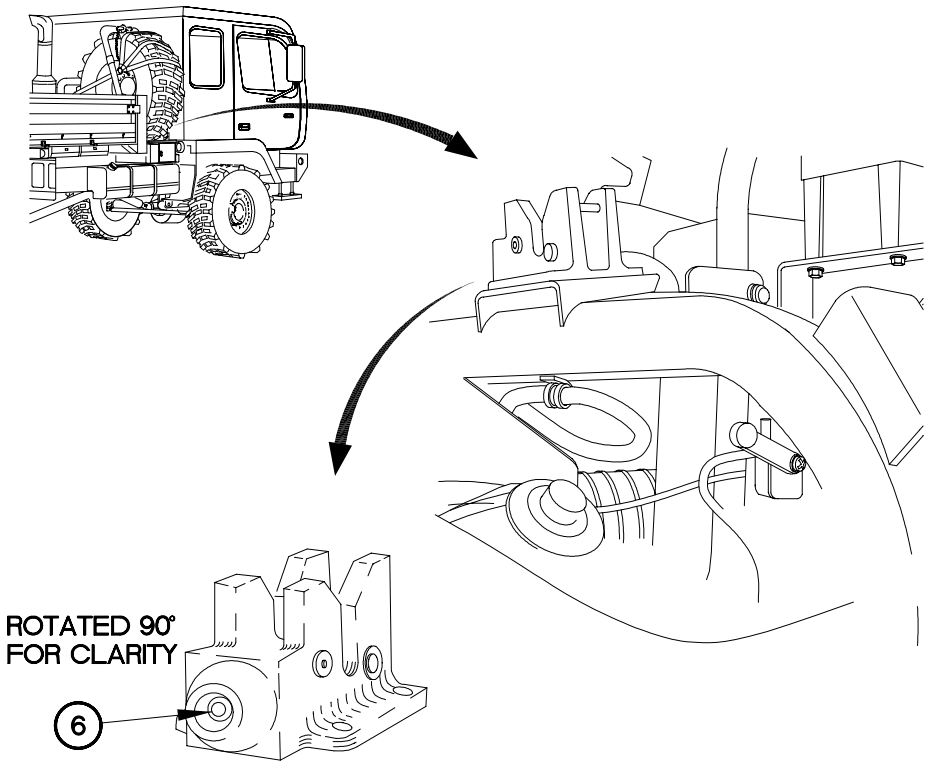
WARNING

Cab hydraulic latch must be locked before driving vehicle. Failure to comply may result in serious injury or death to personnel or damage to equipment.

NOTE

Button on right end of cab hydraulic latch shows status of latch. Button pressed in shows cab is latched. Button out shows cab is not latched.

3. Check button (6) position to confirm cab is latched.



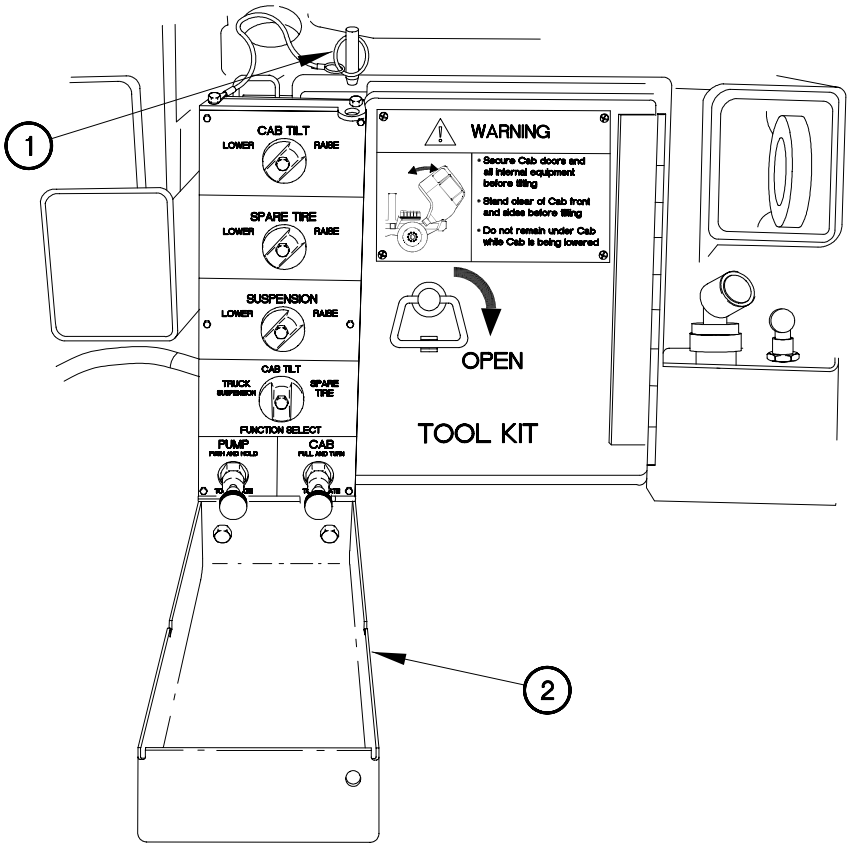
1700A05-

RAISING/LOWERING CAB - Continued 0017 00

LOWERING CAB - Continued

4. Close hydraulic manifold cover (2).

5. Install pin (1) in hydraulic manifold cover (2).



1700A06-

END OF OPERATING PROCEDURE

CENTRAL TIRE INFLATION SYSTEM (CTIS) OPERATION 0018 00

INITIAL SETUP:

Maintenance level
Operator

References
WP 0016 00
WP 0073 00
WP 0085 00
WP 0086 00

GENERAL

The Central Tire Inflation System (CTIS) allows the operator to adjust tire pressures for current vehicle operating conditions. This work package provides the data and procedures for operating the CTIS. Items covered include Normal CTIS Operation, Operation In Emergency (EMER) Mode, Operation In RUN FLAT, Operation With Four CTIS ECU Mode Lights Flashing; and Resetting the CTIS.

NORMAL CTIS OPERATION

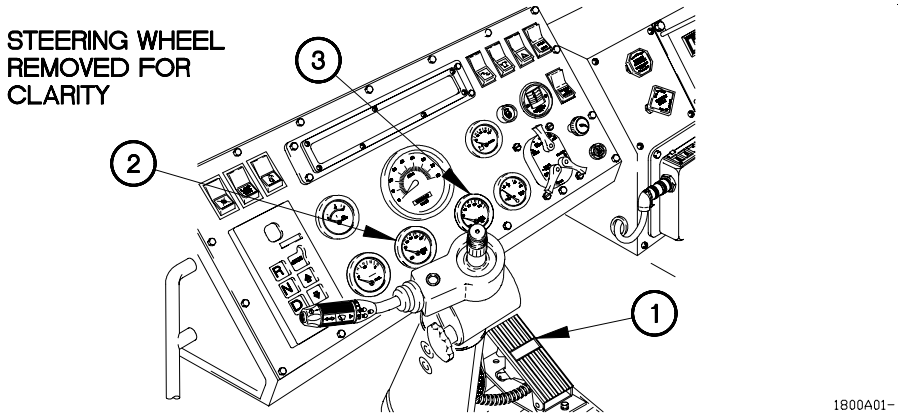
1. Start engine (WP 0016 00).

NOTE

If vehicle is stopped when CTIS mode is changed, it may be necessary to increase engine speed to provide adequate air supply to tires.

CTIS will automatically shut off when air system pressure drops below 74 psi (510 kPa), or when CTIS malfunction occurs.

2. Slowly press down on accelerator pedal (1) if FRONT BRAKE AIR pressure gage (2) and REAR BRAKE AIR pressure gage (3) read less than 100 psi (690 kPa).



CENTRAL TIRE INFLATION SYSTEM (CTIS) OPERATION - Continued 0018 00

NORMAL CTIS OPERATION - Continued

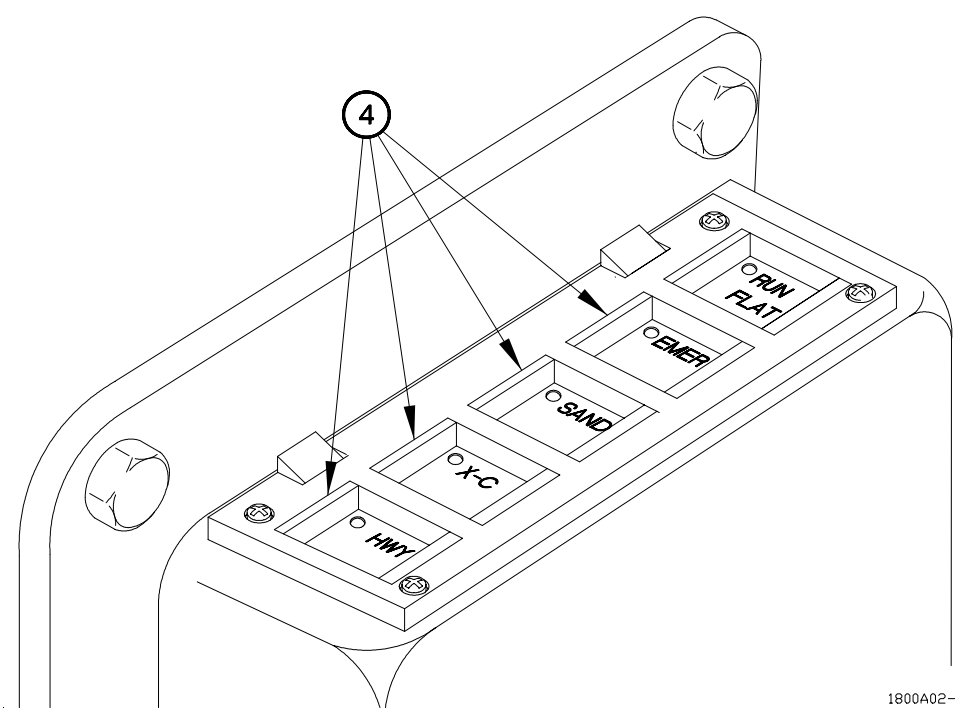
NOTE

Mode light on CTIS ECU will flash when tire pressure is changing to air pressure setting for that mode. Mode light will illuminate steady when tire reaches air pressure setting for that mode.

3. Press appropriate CTIS mode button (4) for vehicle speed and terrain conditions (Refer to Table 1, CTIS Tire Pressures and Restrictions).

Table 1. CTIS Tire Pressures and Restrictions.

Operating Mode	Maximum Speed	Time Restriction	Tire Pressure
Highway (HWY)	55 mph (88 km/h)	NONE	55 psi (379 kPa)
Cross-Country (X-C)	40 mph (64 km/h)	NONE	33 psi (228 kPa)
Sand	12 mph (19 km/h)	NONE	20 psi (138 kPa)
Emergency (EMER)	5 mph (8km/h)	10 MINUTES	14 psi (97 kPa)



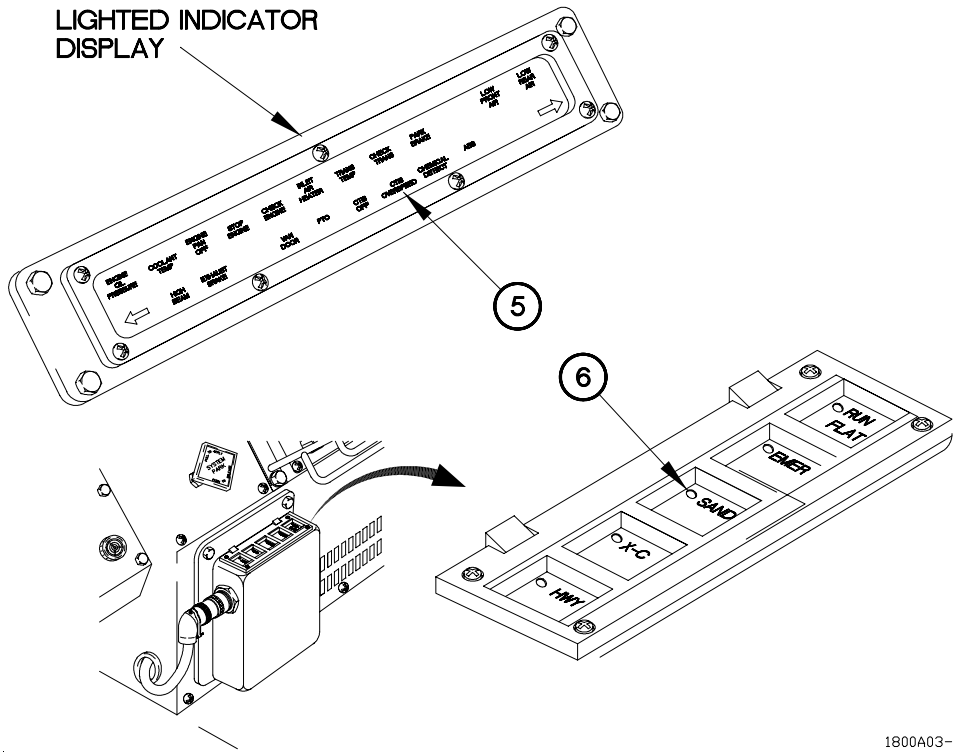
CENTRAL TIRE INFLATION SYSTEM (CTIS) OPERATION - Continued 0018 00

NORMAL CTIS OPERATION - Continued

NOTE

If average speed of vehicle exceeds speed limit of selected CTIS mode for 1 minute, CTIS OVERSPEED indicator will flash. If average speed of vehicle exceeds speed limit of selected CTIS mode for 2 minutes, CTIS will automatically inflate tires to pressure setting of next higher mode.

. If CTIS OVERSPEED indicator (5) flashes, reduce vehicle speed until CTIS OVERSPEED indicator goes out. Check that CTIS mode light (6) illuminates steady. Steady illumination of CTIS mode light indicates the CTIS mode selected is correct for the vehicle speed.



CENTRAL TIRE INFLATION SYSTEM (CTIS) OPERATION - Continued 0018 00

OPERATION IN EMERGENCY (EMER) MODE

CAUTION

Do not exceed 5 mph (8 km/h) when CTIS is operating in EMER mode. Operating vehicle in EMER mode is limited to ten minutes. Failure to comply may result in damage to equipment.

Continued operation in EMER mode will result in eventual reduction in tire life. Failure to comply may result in damage to equipment.

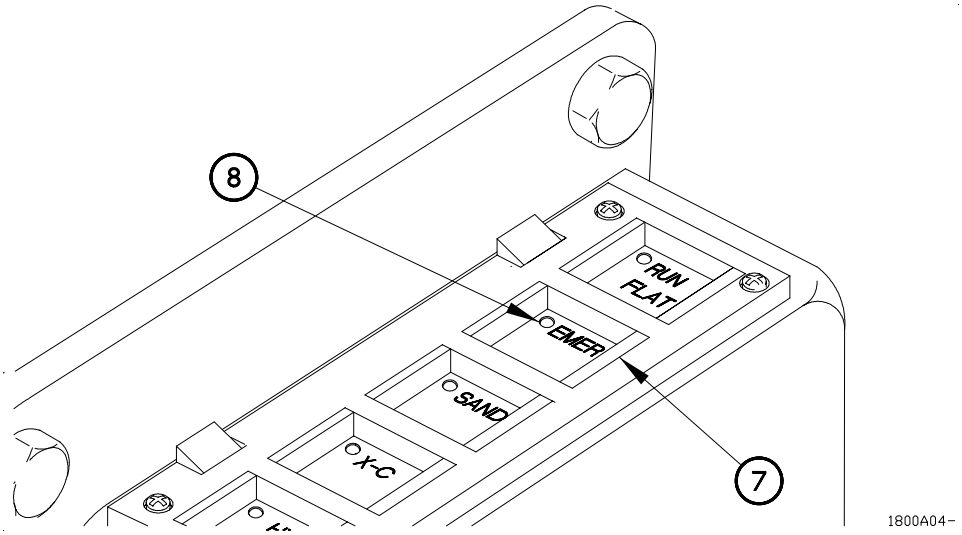
NOTE

CTIS OVERSPEED indicator will flash when in EMER mode, regardless of speed.

CTIS is operated in EMER mode when a lower tire pressure (16 psi [110 kPa]) is needed to free vehicle from a stuck condition or to travel a short distance over terrain that is known to require tire pressure less than 25 psi (172 kPa]). Time at this pressure is limited to 10 minutes, after which time inflation to SAND will begin. If Operator still requires EMER mode, then EMER mode button must be pressed again.

1. Press EMER mode button (7). EMER mode light (8) will illuminate while CTIS is operating in EMER mode.

2. If operating CTIS in EMER mode is no longer required, press the mode button you wish to select. EMER mode light (8) will go out.



CENTRAL TIRE INFLATION SYSTEM (CTIS) OPERATION - Continued 0018 00

OPERATE IN RUN FLAT

CAUTION

Do not use RUN FLAT continuously for more than 40 minutes. Using RUN FLAT for more than 40 minutes can cause tires to over-inflate. Failure to comply may cause damage to equipment.

NOTE

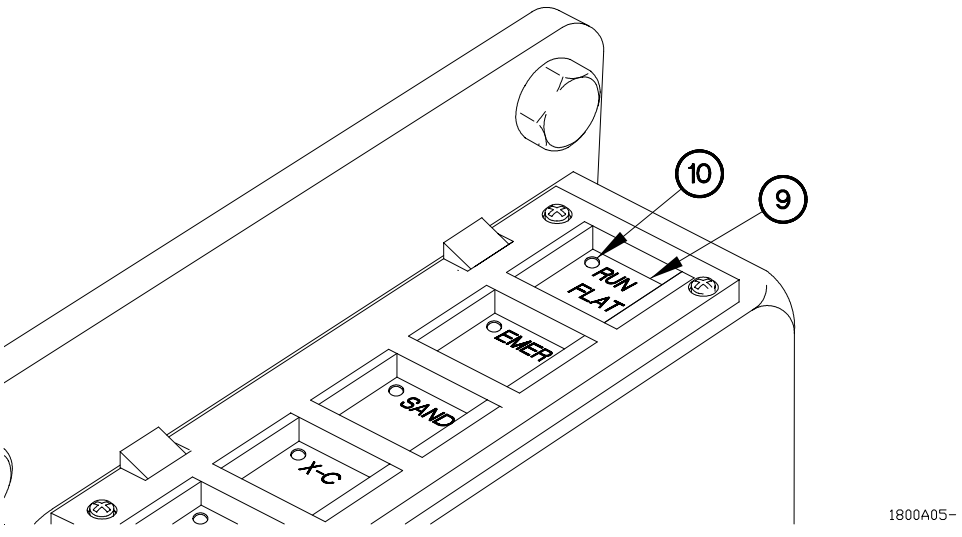
CTIS is operated in RUN FLAT when tire(s) have been punctured. RUN FLAT causes CTIS to check tire pressure every 15 seconds (normal interval is every 15 minutes). If low air pressure is sensed, CTIS will supply air in wet tank to leaking tire(s) every 15 seconds.

CTIS will begin inflating tires to selected mode pressure after RUN FLAT has been operating for 10 minutes. RUN FLAT button must be pressed again to continue operating in RUN FLAT.

1. Press RUN FLAT mode button (9). RUN FLAT light (10) will illuminate when CTIS is operating in RUN FLAT.

2. If operating CTIS in RUN FLAT is no longer required, press RUN FLAT mode button (9) again. RUN FLAT light (10) will go out.

3. Change leaking tire(s) (WP 0085 00) as soon as possible.



CENTRAL TIRE INFLATION SYSTEM (CTIS) OPERATION - Continued 0018 00

OPERATION WITH FOUR CTIS ECU MODE LIGHTS FLASHING

CAUTION

There is possible tire damage found if four CTIS ECU mode lights are flashing. Visually inspect tires and check tire pressure before continuing vehicle operation. Do not use RUN FLAT if tire has large chunks missing, large cracks, or other major damage. Failure to comply may result in damage to equipment.

NOTE

If four CTIS ECU mode lights are flashing, perform steps 1 through 5.

If major tire damage is found, change tire (WP 0085 00) before continuing vehicle operation.

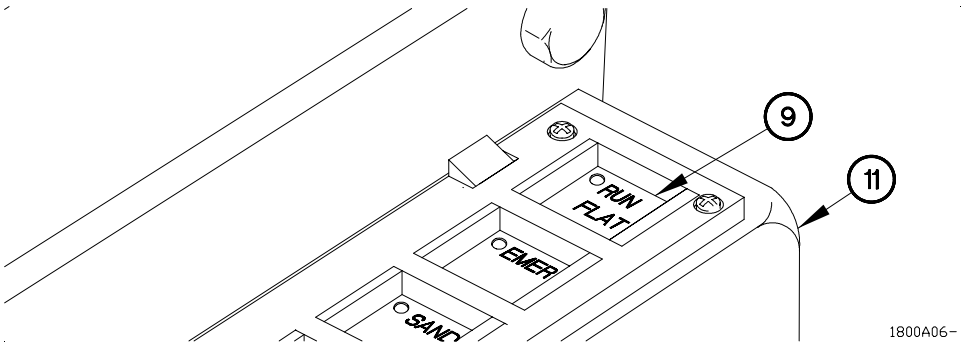
1. Check tire pressure with tire-inflator gage (WP 0086 00).
2. Visually inspect tires for damage.
3. Start engine (WP 0016 00).

NOTE

If four CTIS ECU mode lights continue to flash after RUN FLAT button has been pushed, perform CTIS Troubleshooting (WP 0073 00).

If RUN FLAT indicator and the selected mode indicator continue to flash after the RUN FLAT button has been pushed, an air leak has been detected by CTIS.

4. Press RUN FLAT mode button (9) on CTIS ECU (11).



CENTRAL TIRE INFLATION SYSTEM (CTIS) OPERATION - Continued 0018 00

OPERATION WITH FOUR CTIS ECU MODE LIGHTS FLASHING - Continued

5. Notify Unit Maintenance to get air leak repaired.

RESET CTIS

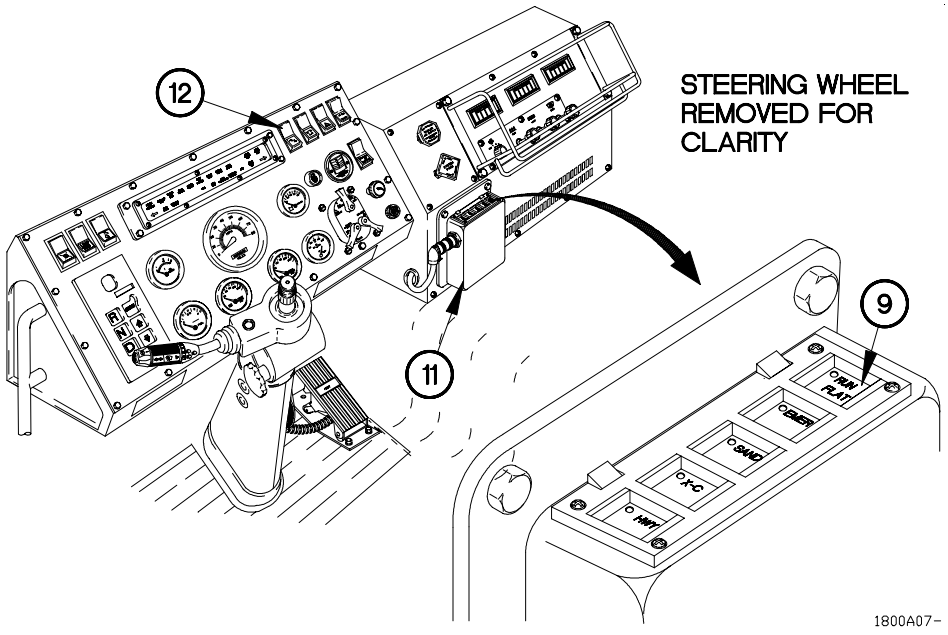
NOTE

If all five CTIS ECU mode lights flash, perform steps 1 through 4.

If temperatures are below -15° F (-26° C) and the CTIS does not return to normal operation after completing CTIS reset procedure, perform steps in WP 0050 00

If all five CTIS ECU mode lights continue to flash, notify Unit Maintenance.

1. Position master power switch (12) to off.
2. Position master power switch (12) to on.
3. Press RUN FLAT mode button (9) on CTIS ECU (11).
4. Start engine (WP 0016 00).



END OF OPERATING PROCEDURE

LIGHT MATERIAL HANDLING CRANE (LMHC) OPERATION 0019 00

INITIAL SETUP

Maintenance Level
Operator

Personnel Required
Two

Tools and Special Tools
Wheel Chocks (Item 10, Table 2 WP 0094 00)

References
WP 0016 00

GENERAL

This work package provides the data and procedures to be used by the Operator when performing Light Material Handling Crane (LMHC) operations. Items covered include How To Determine Required LMHC Settings, Reset The Circuit Breaker, Change LMHC Location, Prepare LMHC For Use, Install Long Handle, Raise Boom, Telescope Boom, Swing Boom, Raise And Lower Load, Install Short Handle, and Stow LMHC.

DETERMINE REQUIRED LIGHT MATERIAL HANDLING CRANE (LMHC) SETTINGS

1. Determine the weight of load.

2. Determine the radius from centerline of LMHC rotation to position of load.

LIGHT MATERIAL HANDLING CRANE (LMHC) OPERATION - Continued

0019 00

DETERMINE REQUIRED LIGHT MATERIAL HANDLING CRANE (LMHC) SETTINGS - Continued

3. To determine boom angle and length required for load being lifted, see Table 1. Capacity Chart for LMHC.

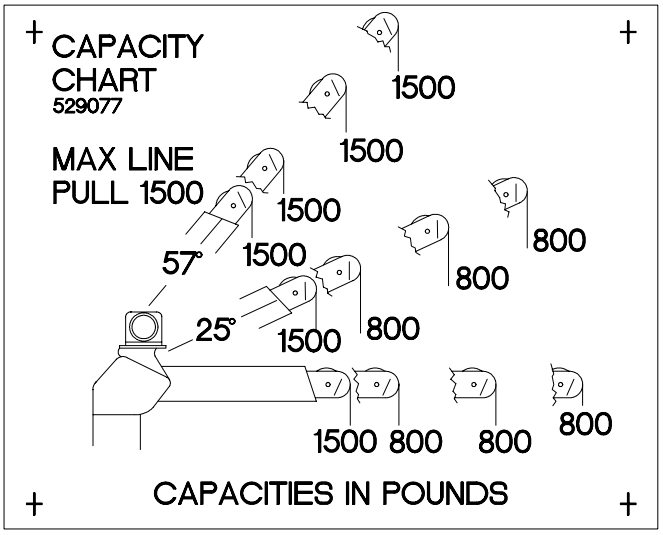
Example:

Load to be lifted from ground is at a radius of 48 in. (122 cm) from LMHC centerline of rotation and must be placed on cargo bed.

Step 1.	Determine the load		
	Load	= 1,200	lbs (545 kgs)
	Sling	= 10	lbs (5 kgs)
	Total Load	= 1,210	lbs (549 kgs

Step 2. Refer to Table 1. Capacity Chart for LMHC to see that load does not exceed ratings.

Table 1. Capacity Chart for LMHC.



1900A01-

LIGHT MATERIAL HANDLING CRANE (LMHC) OPERATION - Continued 0019 00

RESET CIRCUIT BREAKER

NOTE

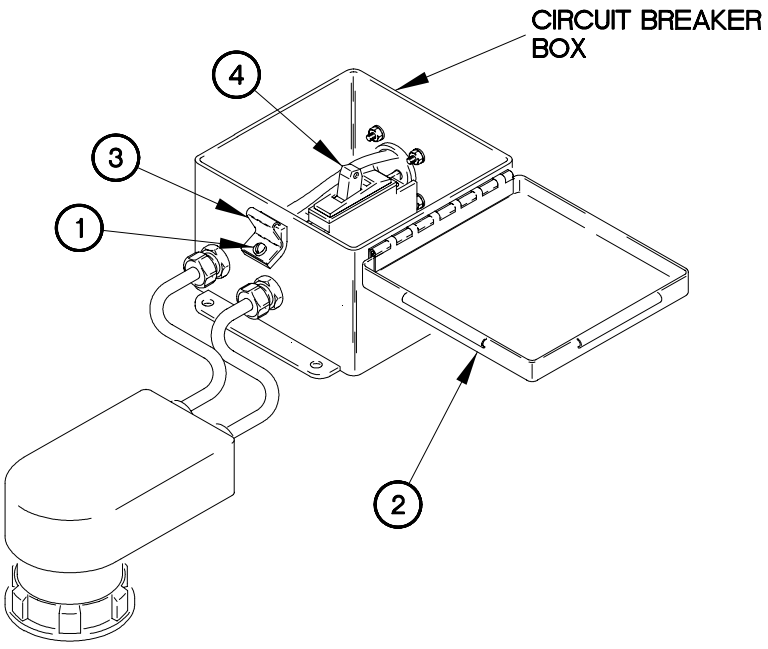
Circuit breaker located inside circuit breaker box will occasionally trip due to sudden high amperage inputs. If circuit breaker trips more than four times during a mission, notify Unit Maintenance.

1. Loosen, but do not remove, three screws (1) securing box cover (2).
2. Rotate three clamps (3) and open box cover (2).

CAUTION

Use care when positioning circuit breaker switch. Do not damage mounting lugs. Failure to comply may result in damage to equipment.

3. Position circuit breaker switch (4) to ON.
4. Close box cover (2) and rotate three clamps (3) back to original position.
5. Tighten three screws (1).



1900A02-

LIGHT MATERIAL HANDLING CRANE (LMHC) 0019 00
OPERATION - Continued

CHANGING LMHC LOCATION

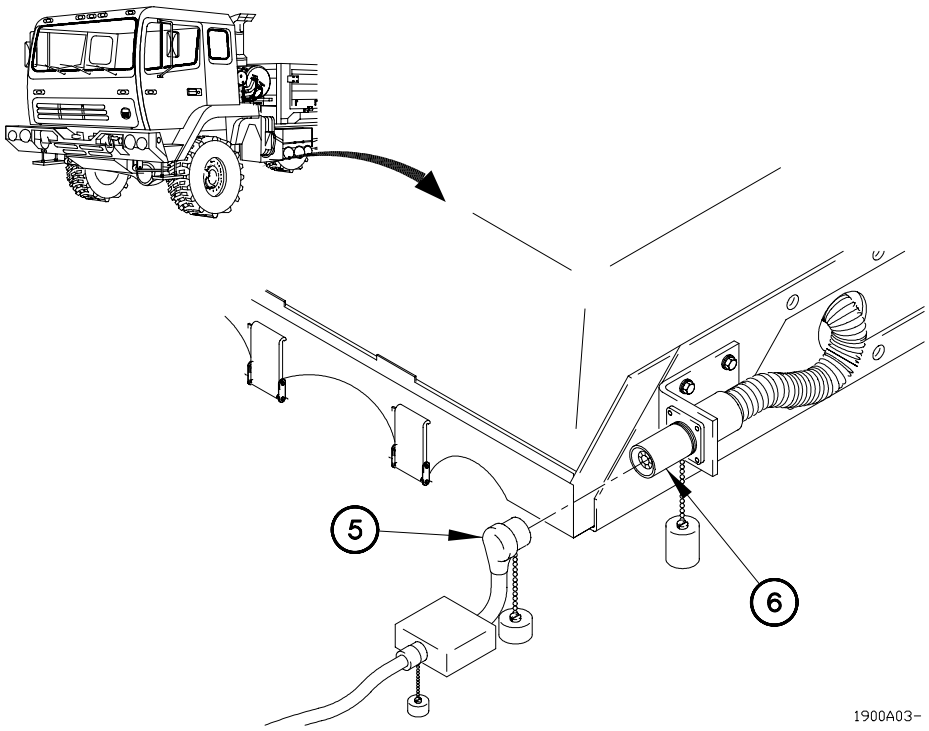
WARNING

Ensure that engine is not running before disconnecting circuit breaker box NATO connector from vehicle NATO connector. Failure to comply may result in injury to personnel.

CAUTION

Ensure that power cable does not come in contact with exhaust pipe. Failure to comply may result in damage to equipment.

1. Disconnect circuit breaker box NATO connector (5) from vehicle NATO connector (6).

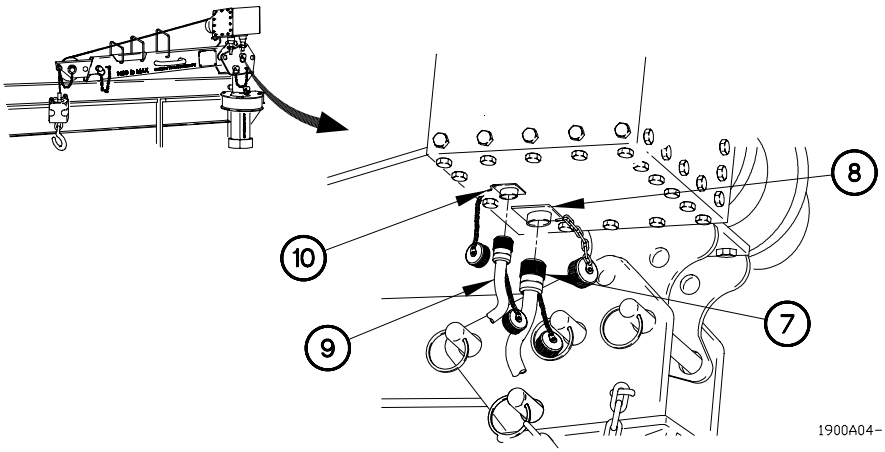


LIGHT MATERIAL HANDLING CRANE (LMHC) OPERATION - Continued 0019 00

CHANGING LMHC LOCATION - Continued

2. Disconnect power cable connector (7) from winch power cable connector (8).

3. Disconnect remote control connector (9) from winch remote control connector (10).

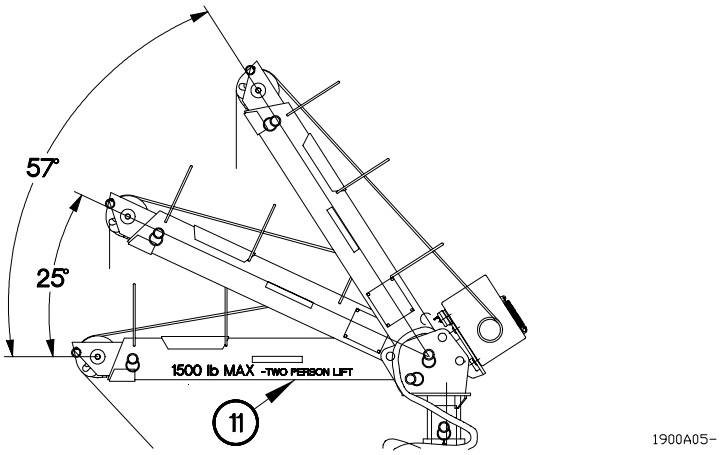


NOTE

Perform steps 4 through 8 if boom was in 25-degree or 57-degree position.

Steps 4 through 8 require the aid of an assistant.

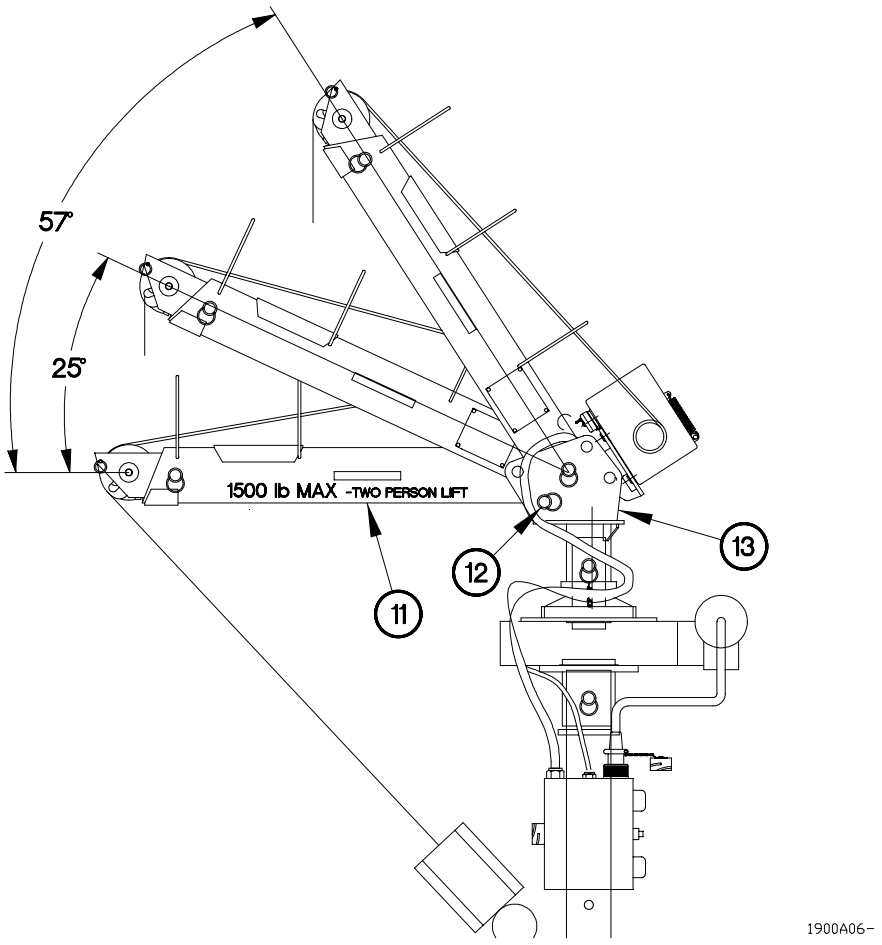
4. Support end of boom (11).



LIGHT MATERIAL HANDLING CRANE (LMHC) OPERATION - Continued 0019 00

CHANGING LMHC LOCATION - Continued

5. Remove quick release pin (12) from turret (13).
6. Lower boom (11) to 0-degree position.
7. Align holes in turret (13) and boom (11).
8. Install quick release pin (12) in turret (13).



LIGHT MATERIAL HANDLING CRANE (LMHC) OPERATION - Continued 0019 00

CHANGING LMHC LOCATION - Continued

9. Remove quick release pins (12) and (14) from turret (13).

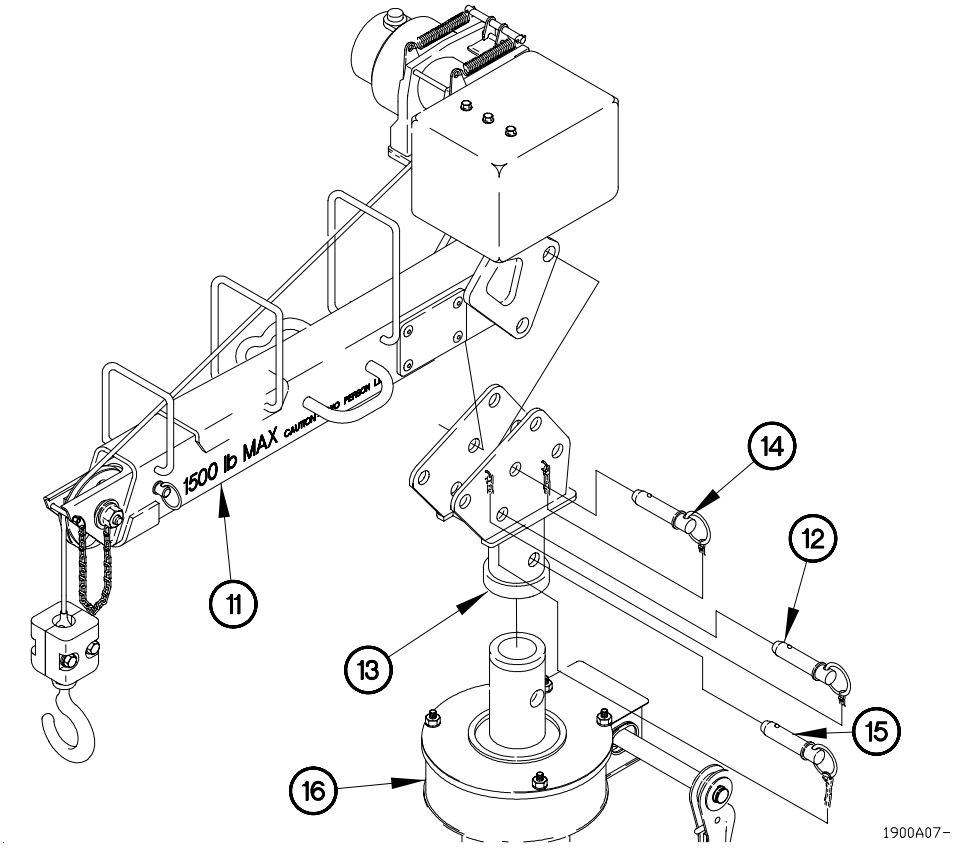
WARNING

Light Material Handling Crane (LMHC) boom and winch weighs approximately 110 lbs (50 kgs). The aid of an assistant is required to remove LMHC boom and winch. Failure to comply may result in injury to personnel.

10. Remove boom (11) from turret (13).

11. Remove quick release pin (15) from turret (13).

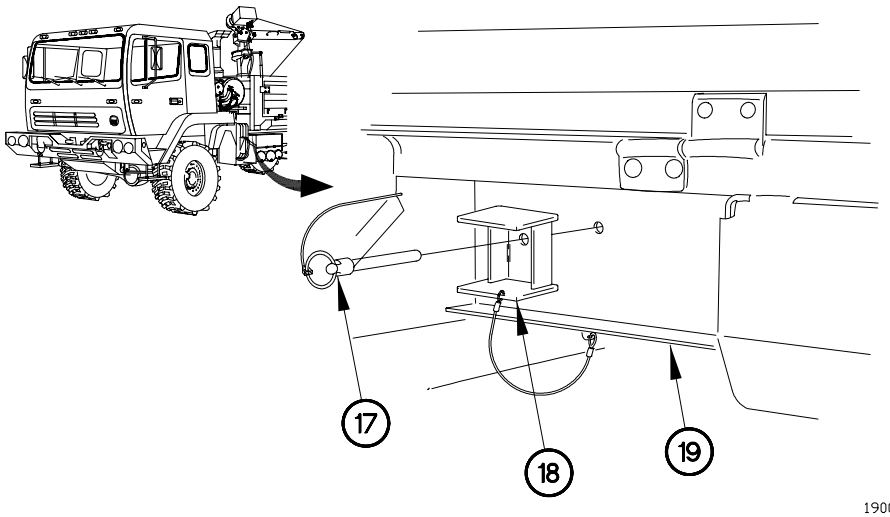
12. Remove turret (13) from mast (16).



LIGHT MATERIAL HANDLING CRANE (LMHC) OPERATION - Continued

CHANGING LMHC LOCATION - Continued

13. Remove quick release pin (17) and plug (18) from cargo bed (19).

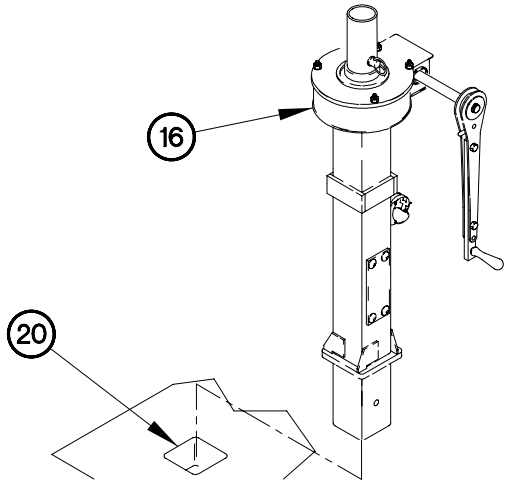


1900A08-

WARNING

Light Material Handling Crane (LMHC) mast weighs approximately 110 lbs (50 kgs). Use the aid of an assistant to remove mast from cargo bed pocket. Failure to comply may result in injury to personnel.

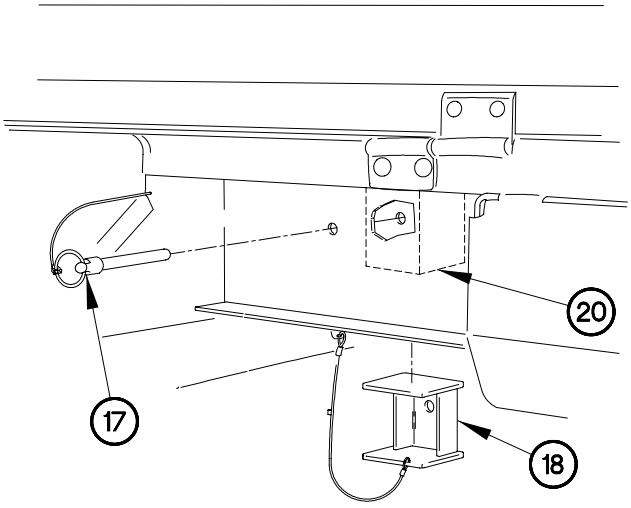
14. Remove mast (16) from cargo bed pocket (20).



1900A09-

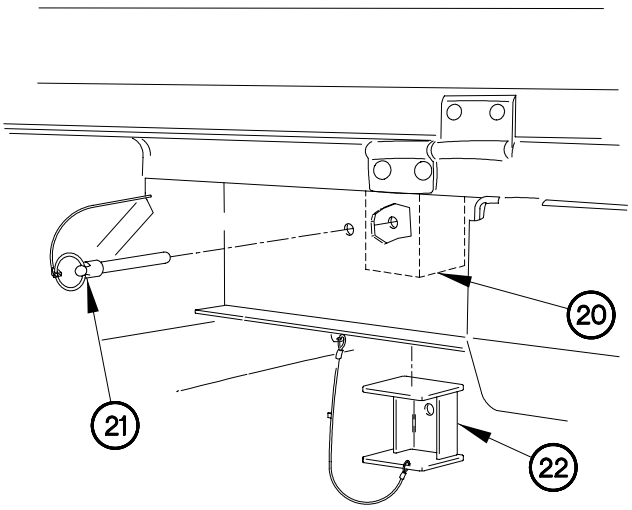
CHANGING LMHC LOCATION - Continued

15. Install plug (18) in cargo bed pocket (20) with quick release pin (17).



1900A10-

16. Remove quick release pin (21) and plug (22) from desired cargo bed pocket (20).



1900A11-

LIGHT MATERIAL HANDLING CRANE (LMHC) OPERATION - Continued 0019 00

CHANGING LMHC LOCATION - Continued

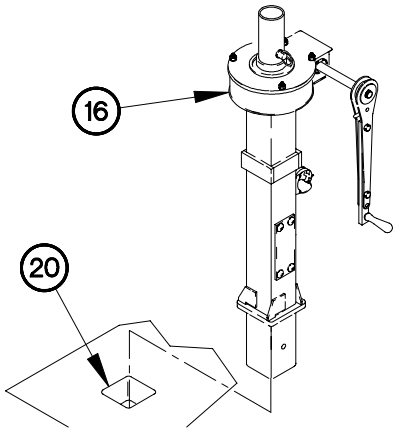
WARNING

Light Material Handling Crane (LMHC) mast weighs approximately 110 lbs (50 kgs). Use the aid of an assistant to install mast in cargo bed pocket. Failure to comply may result in injury to personnel.

NOTE

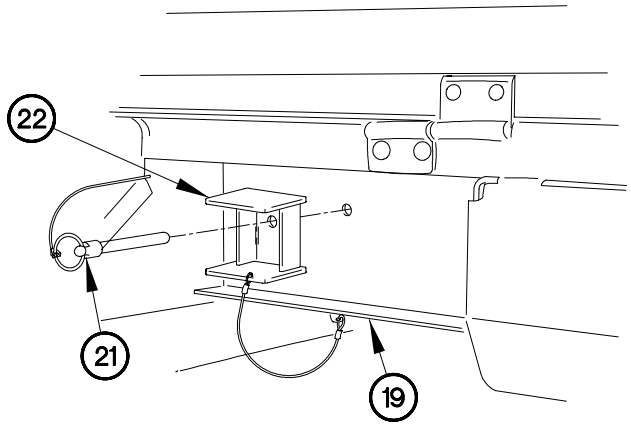
Position mast in cargo bed pocket so handle does not extend over front or rear edge of cargo bed.

17. Install mast (16) in cargo bed pocket (20).



1900a12-

18. Install plug (22) on cargo bed (19) with quick release pin (21).



1900A13-

LIGHT MATERIAL HANDLING CRANE (LMHC) OPERATION - Continued

CHANGING LMHC LOCATION - Continued

19. Position turret (13) on mast (16).

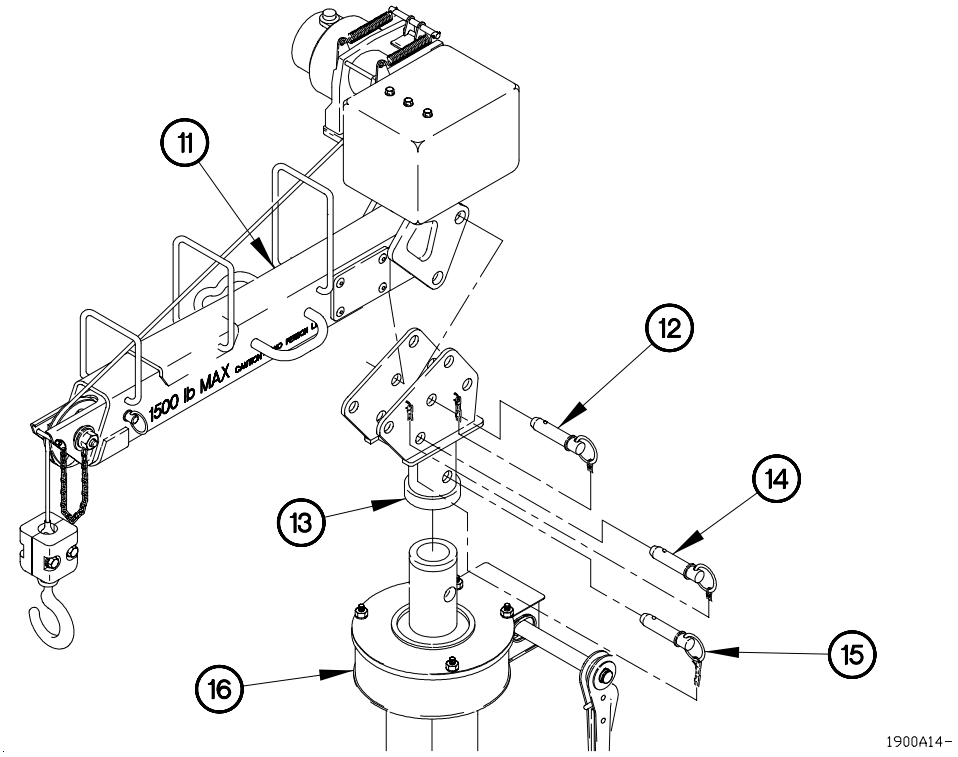
20. Install quick release pin (15) in turret (13).

WARNING

Light Material Handling Crane (LMHC) boom and winch weighs approximately 110 lbs (50 kg). The aid of an assistant is required to install boom and winch. Failure to comply may result in injury to personnel.

21. Position boom (11) on turret (13).

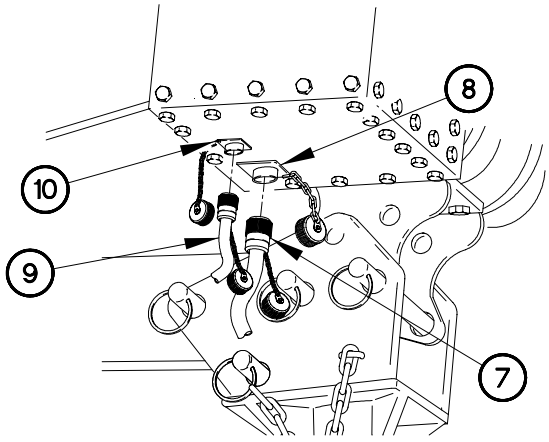
22. Install quick release pins (12) and (14) in turret (13).



CHANGING LMHC LOCATION - Continued

23. Connect remote control connector (9) on winch remote control connector (10).

24. Connect power cable connector (7) on winch power cable connector (8).



1900A15-

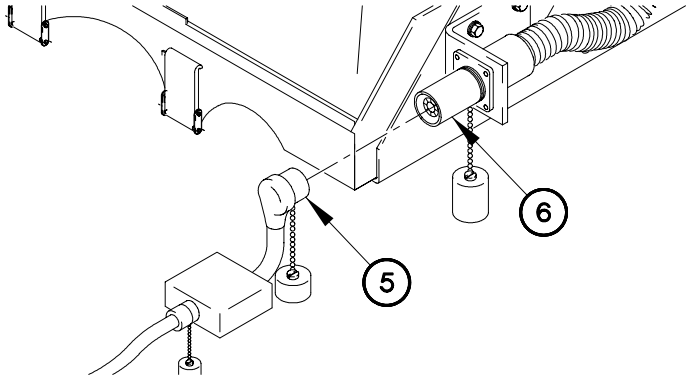
WARNING

Ensure that engine is not running before connecting circuit breaker box NATO connector at vehicle NATO connector. Failure to comply may result in injury to personnel.

CAUTION

Ensure that power cable does not come in contact with exhaust pipe. Failure to comply may result in damage to equipment.

25. Connect circuit breaker box NATO connector (5) to vehicle NATO connector (6).



1900A16-

LIGHT MATERIAL HANDLING CRANE (LMHC) OPERATION - Continued 0019 00

PREPARE LMHC FOR USE

WARNING

Cargo bed is approximately 5 ft (1.5 m) above ground level. Use care during any Light Material Handling Crane (LMHC) operation. Failure to comply may result in injury or death to personnel.

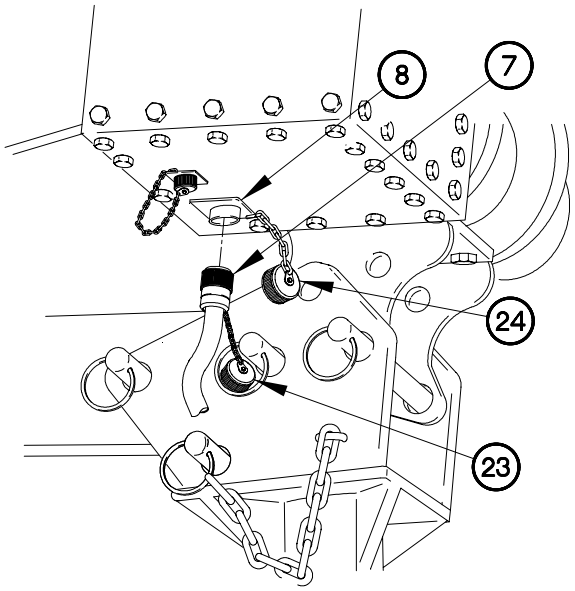
Ensure that wheels are chocked prior to setting up Light Material Handling Crane (LMHC). Failure to comply may result in injury to personnel.

1. Chock wheels (WP 0016 00).

WARNING

Power cable must be connected to Light Material Handling Crane (LMHC) before being connected to circuit breaker box. Failure to comply may result in injury or death to personnel.

2. Remove dust cap (23) from power cable connector (7).
3. Remove dust cap (24) from winch power cable connector (8).
4. Connect power cable connector (7) to winch power cable connector (8).



1900A17-

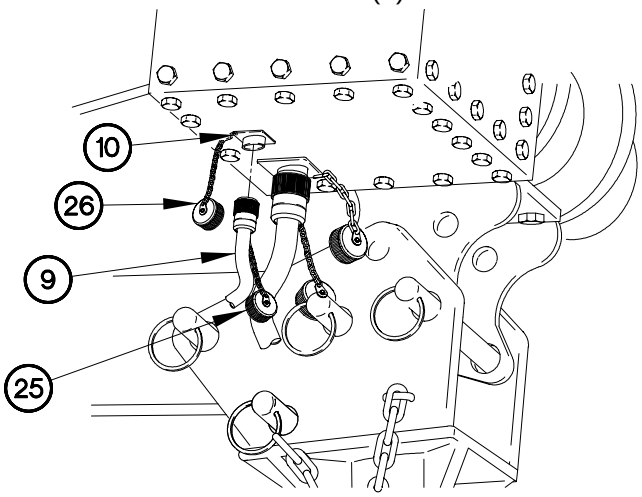
LIGHT MATERIAL HANDLING CRANE (LMHC) 0019 00
OPERATION - Continued

PREPARE LMHC FOR USE - Continued

5. Remove dust cap (25) from remote control connector (9).

6. Remove dust cap (26) from winch remote control connector (10).

7. Connect remote control connector (9) to winch remote control connector (10).



1900A18-

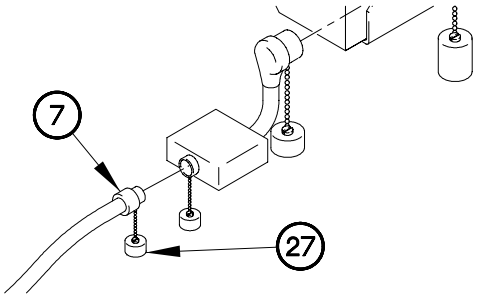
WARNING

Ensure that engine is shut down before connecting power cable at vehicle NATO connector. Failure to comply may result in injury or death to personnel.

CAUTION

Ensure that power cable does not come in contact with hot exhaust pipe. Failure to comply may result in damage to equipment.

8. Remove dust cap (27) from power cable connector (7).

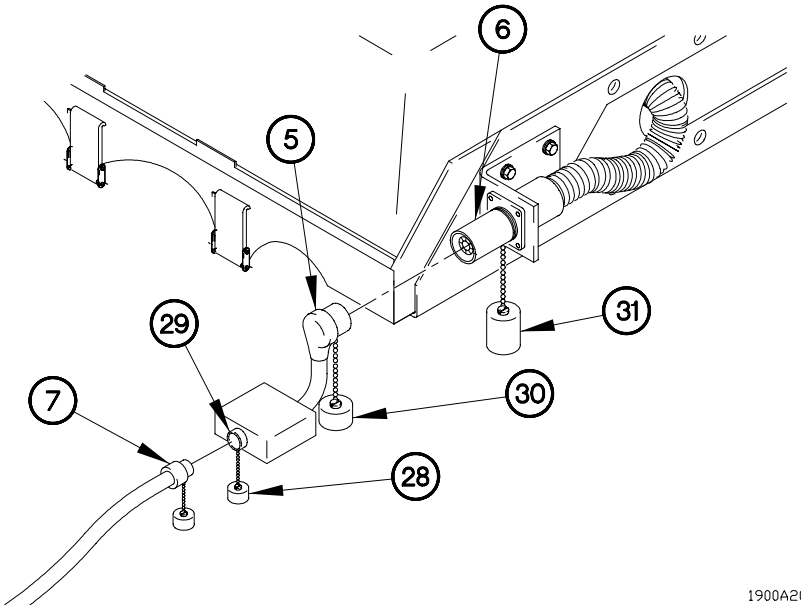


1900A19-

LIGHT MATERIAL HANDLING CRANE (LMHC) OPERATION - Continued 0019 00

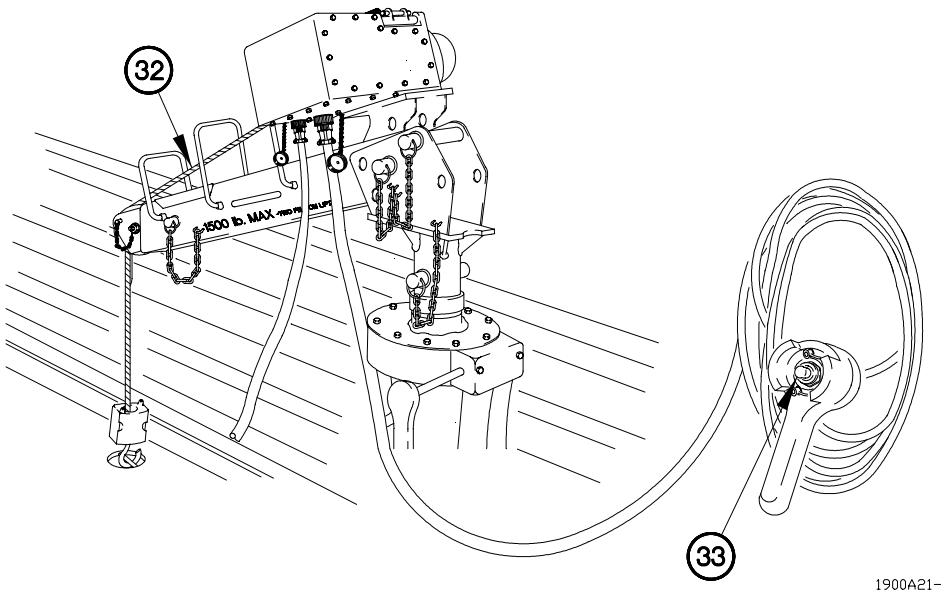
PREPARE LMHC FOR USE - Continued

9. Remove dust cap (28) from circuit breaker box connector (29).
10. Connect power cable connector (7) to circuit breaker box connector (29).
11. Remove dust cap (30) from circuit breaker box NATO connector (5).
12. Remove dust cap (31) from vehicle NATO connector (6).
13. Connect circuit breaker box NATO connector (5) to vehicle NATO connector (6).

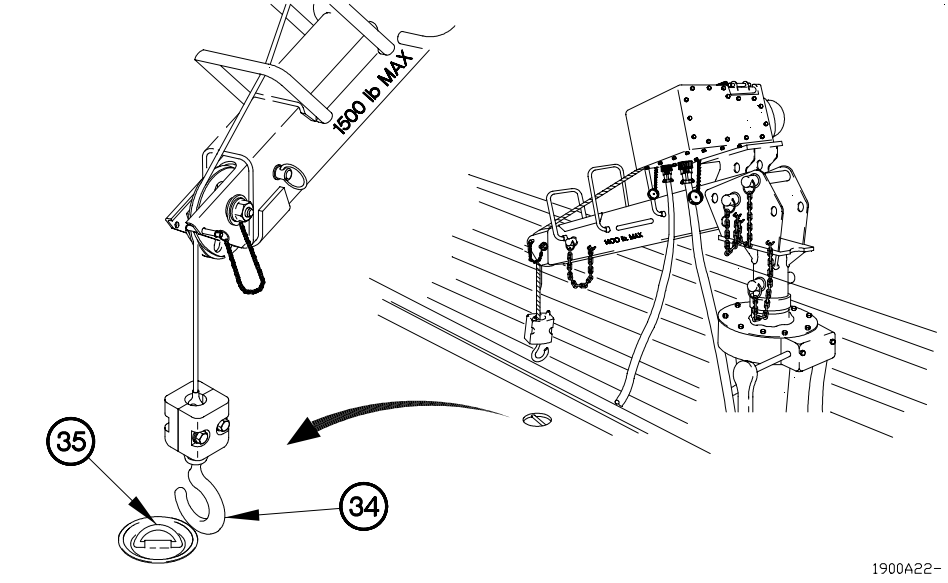


PREPARE LMHC FOR USE - Continued

14. To lower cable (32) place hoist control switch (33) in CABLE OUT position.



15. Disconnect hook (34) from cargo bed tie-down ring (35).



LIGHT MATERIAL HANDLING CRANE (LMHC) OPERATION - Continued 0019 00

INSTALLING LONG HANDLE (IF REQUIRED)

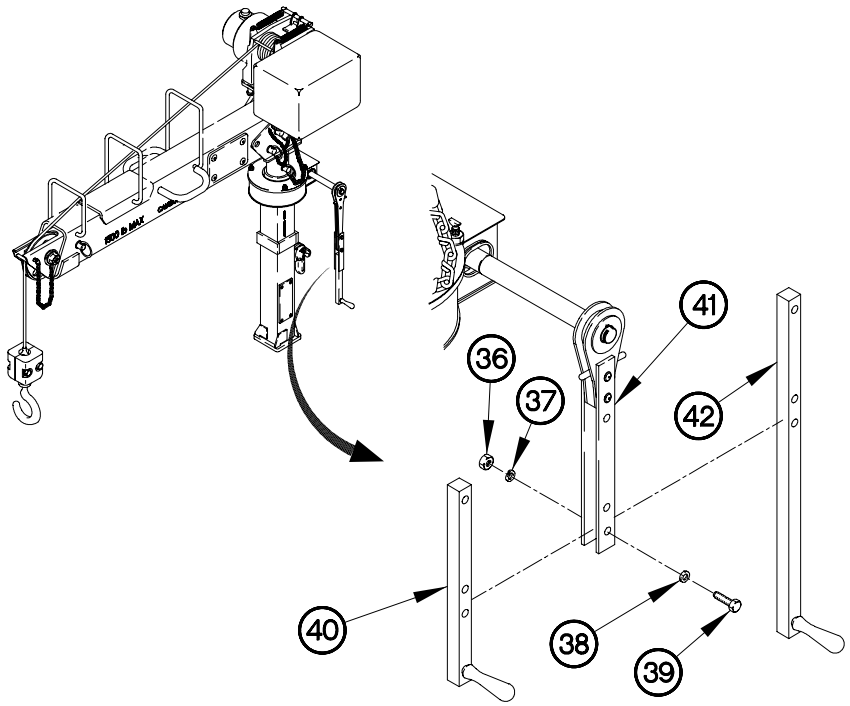
NOTE

The long handle may be installed and used to rotate crane. To remove short handle and install long handle, perform steps 1 and 2.

1. Remove two nuts (36), lockwashers (37), washers (38), screws (39) and short handle (40) from ratchet (41).

2. Install long handle (42) in ratchet (41) with two washers (38), screws (39), lockwashers (37) and nuts (36).

3. Notify Unit Maintenance to replace lockwashers.



1900A23-

LIGHT MATERIAL HANDLING CRANE (LMHC) OPERATION - Continued

RAISE BOOM

WARNING

Determine required Light Material Handling Crane (LMHC) settings prior to raising boom. Failure to comply may result in injury to personnel or damage to equipment.

NOTE

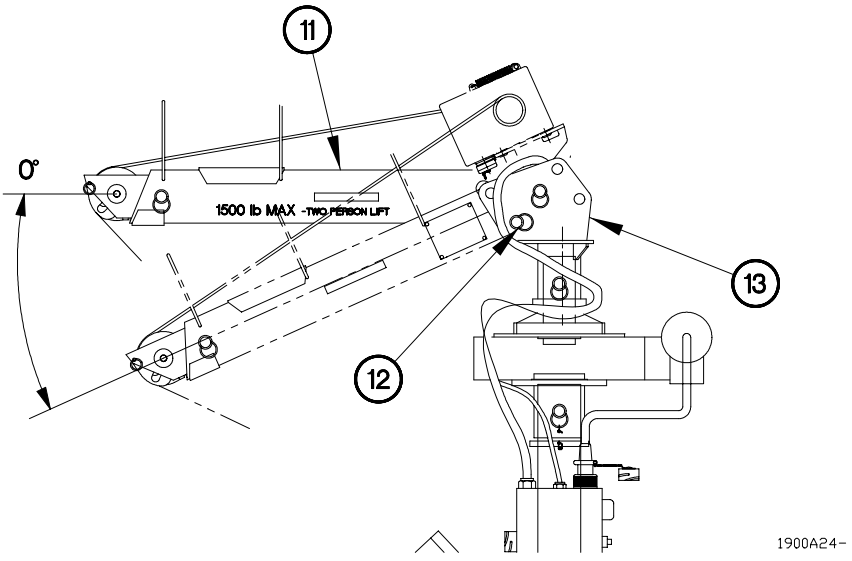
Steps 1 through 8 require the aid of an assistant.

1. Support end of boom (11).

NOTE

Perform steps 2 through 5 to raise the boom to the 0-degree position.

2. Remove quick release pin (12) from turret (13).
3. Raise boom (11) to 0-degree position.
4. Align holes in turret (13) and boom (11).
5. Install quick release pin (12) in turret (13).



LIGHT MATERIAL HANDLING CRANE (LMHC) 0019 00
OPERATION - Continued

RAISE BOOM - Continued

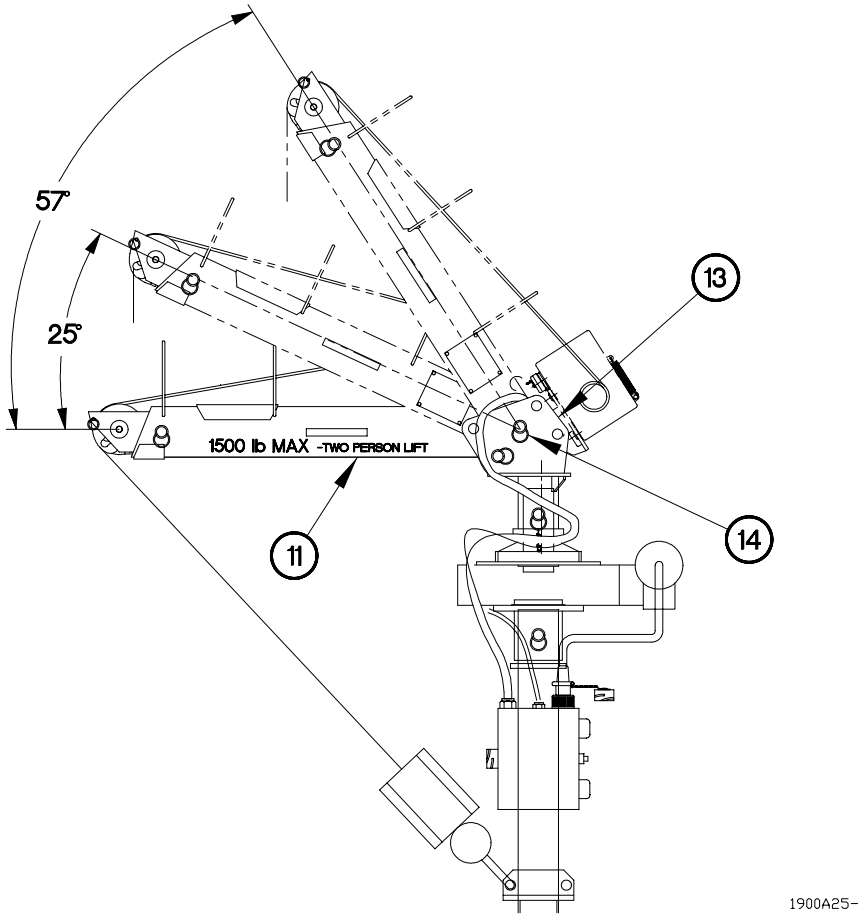
NOTE

Perform steps 6 through 8 to raise boom to 25-degree or 57-degree position.

6. Remove quick release pin (14) from turret (13).

7. Raise boom (11) to desired position.

8. Install quick release pin (14) in turret (13).



LIGHT MATERIAL HANDLING CRANE (LMHC) OPERATION - Continued 0019 00

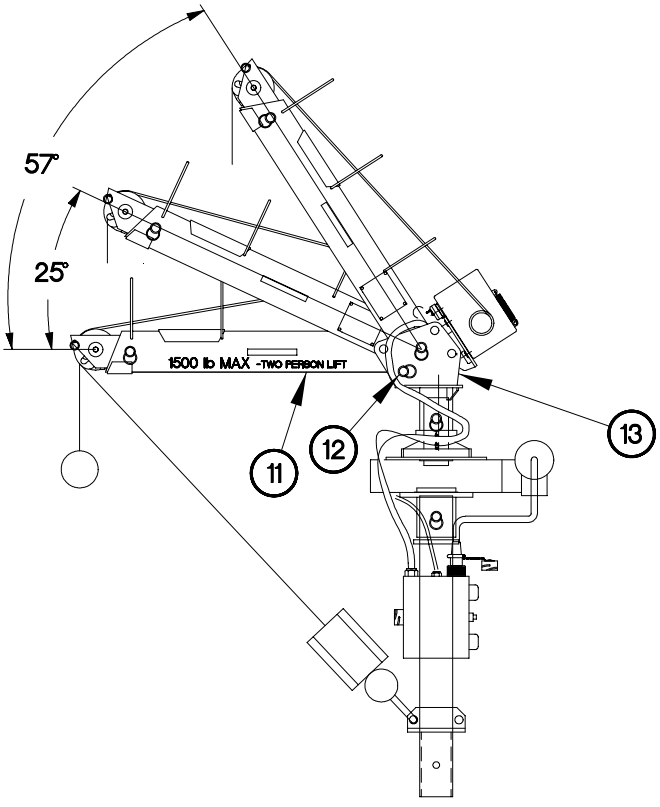
TELESCOPE BOOM

NOTE

Steps 1 through 5 require the aid of an assistant.

Perform steps 1 through 5 if boom was in 25-degree or 57-degree position.

1. Support end of boom (11).
2. Remove quick release pin (12) from turret (13).
3. Lower boom (11) to 0-degree position.
4. Align holes in turret (13) and boom (11).
5. Install quick release pin (12) in turret (13).



1900A26-

LIGHT MATERIAL HANDLING CRANE (LMHC) OPERATION - Continued 0019 00

TELESCOPE BOOM - Continued

CAUTION

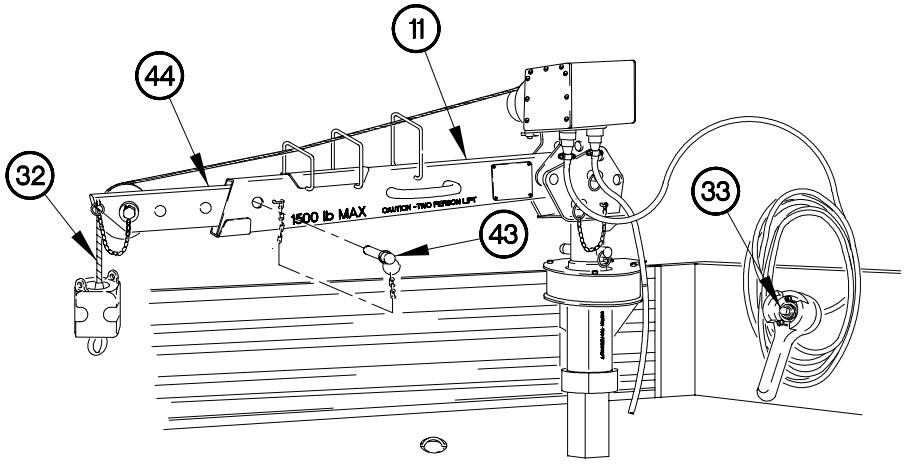
Cable must be lowered to extend boom. Failure to comply may result in damage to equipment.

6. Place hoist control switch (33) in CABLE OUT position to lower cable (32).
7. Remove quick release pin (43) from boom (11).
8. Set boom extension (44) to desired position.

WARNING

Determine required Light Material Handling Crane (LMHC) settings prior to telescoping boom. Failure to comply may result in injury to personnel or damage to equipment.

9. Align holes in boom extension (44) and boom (11).
10. Install quick release pin (43) in boom (11).

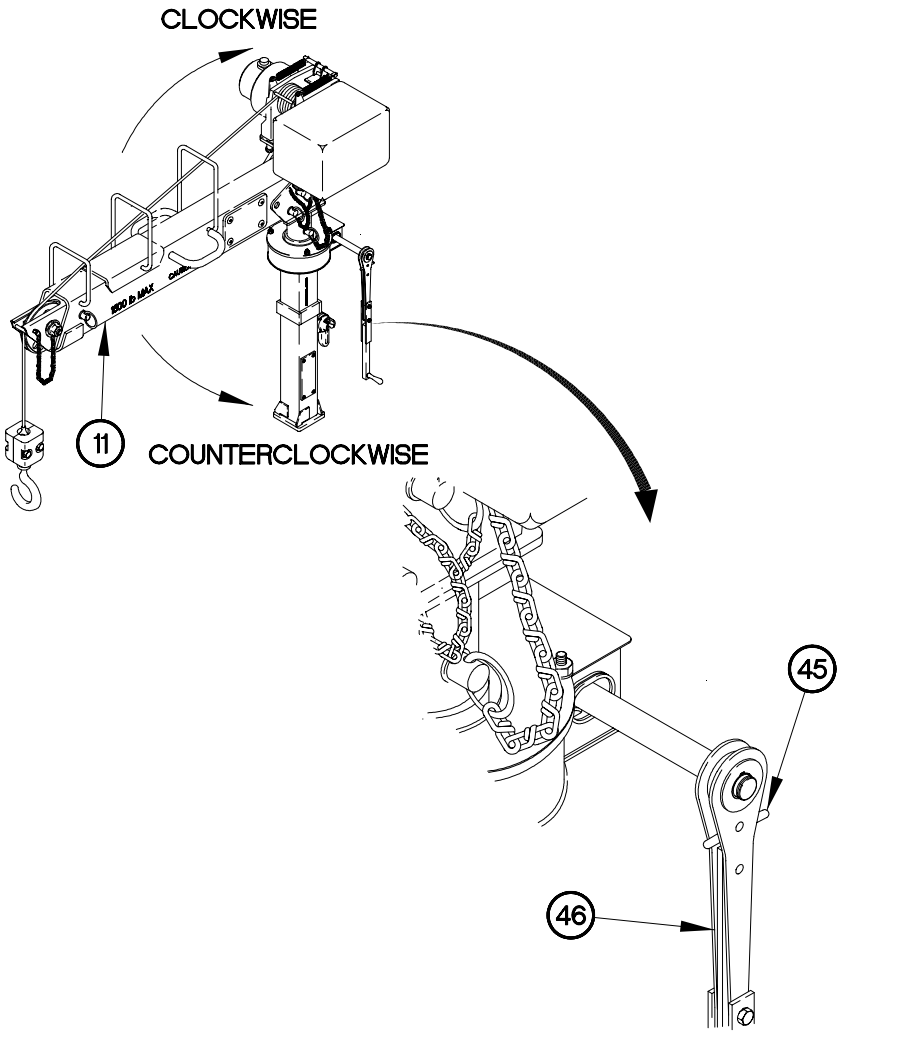


1900A27-

LIGHT MATERIAL HANDLING CRANE (LMHC) OPERATION - Continued 0019 00

SWING BOOM

1. Press ratchet lever (45) in.
2. Crank handle (46) to swing boom (11) counterclockwise.
3. Press ratchet lever (45) out.
4. Crank handle (46) to swing boom (11) clockwise.



LIGHT MATERIAL HANDLING CRANE (LMHC) OPERATION - Continued

RAISE AND LOWER LOAD

CAUTION

Do not lift load over maximum load rating for Light Material Handling Crane (LMHC). Failure to comply may result in damage to equipment.

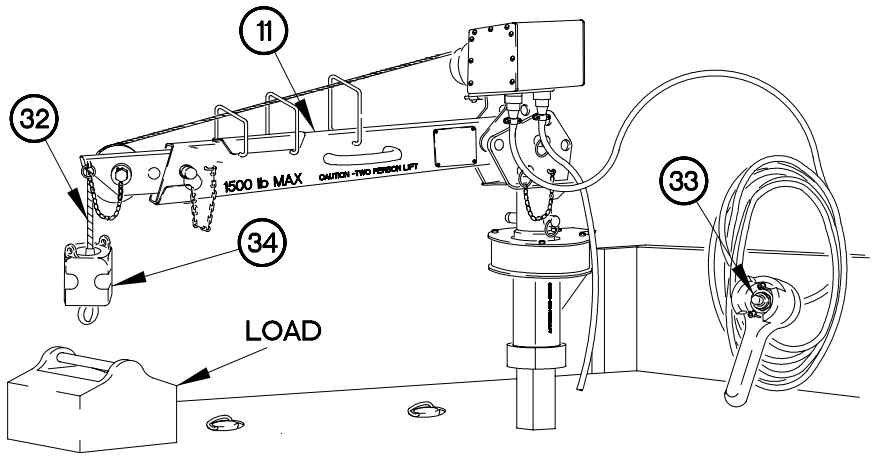
Use only a straight pull when lifting load. Failure to comply may result in damage to equipment.

After performing eight cycles with LMHC, allow 30 minutes to cool down. A cycle is defined as pickup, move, and place a load. A cycle may be from cargo bed of vehicle to ground or ground to cargo bed of vehicle. Failure to comply may result in damage to equipment.

NOTE

Steps 1 through 7 require the aid of an assistant.

1. Adjust boom (11) until end of boom is over load (WP 0019 00).
2. Position hoist control switch (33) to CABLE OUT and lower cable (32).
3. Connect hook (34) to load.



1900A29-

LIGHT MATERIAL HANDLING CRANE (LMHC) OPERATION - Continued

RAISE AND LOWER LOAD - Continued

WARNING

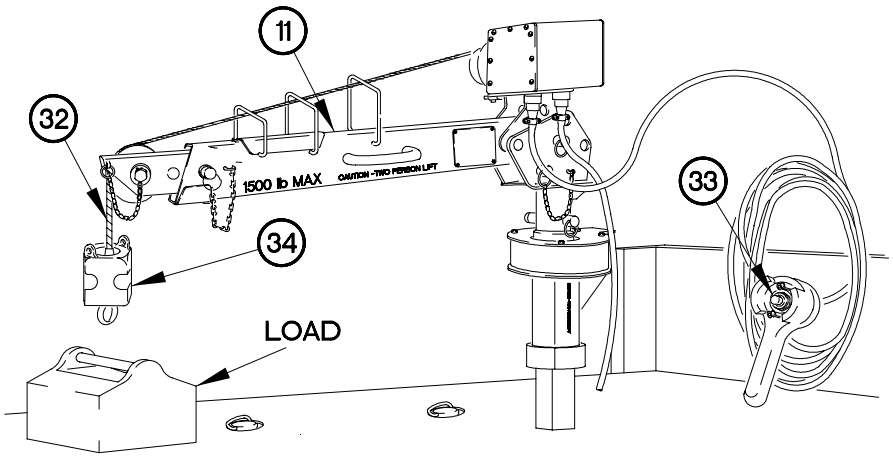
Ensure there are at least two wraps of cable on hoist drum at all times. Cable could come off hoist drum while load is being lifted. Failure to comply may result in injury to personnel or damage to equipment.

CAUTION

If circuit breaker trips while Light Material Handling Crane (LMHC) is operating, allow 30 minutes to cool down. If load is suspended, reset circuit breaker and lower load. If circuit breaker trips again, notify Unit Maintenance. Failure to comply may result in damage to equipment.

Do not jerk hoist control causing load to bounce. Failure to comply may result in damage to equipment.

4. Position hoist control switch (33) to CABLE IN and take in cable (32) and lift load.
5. Swing boom (11) to place load in desired location (WP 0019 00).
6. Position hoist control switch (33) to CABLE DOWN and lower load.
7. Remove hook (34) from load.



1900A30-

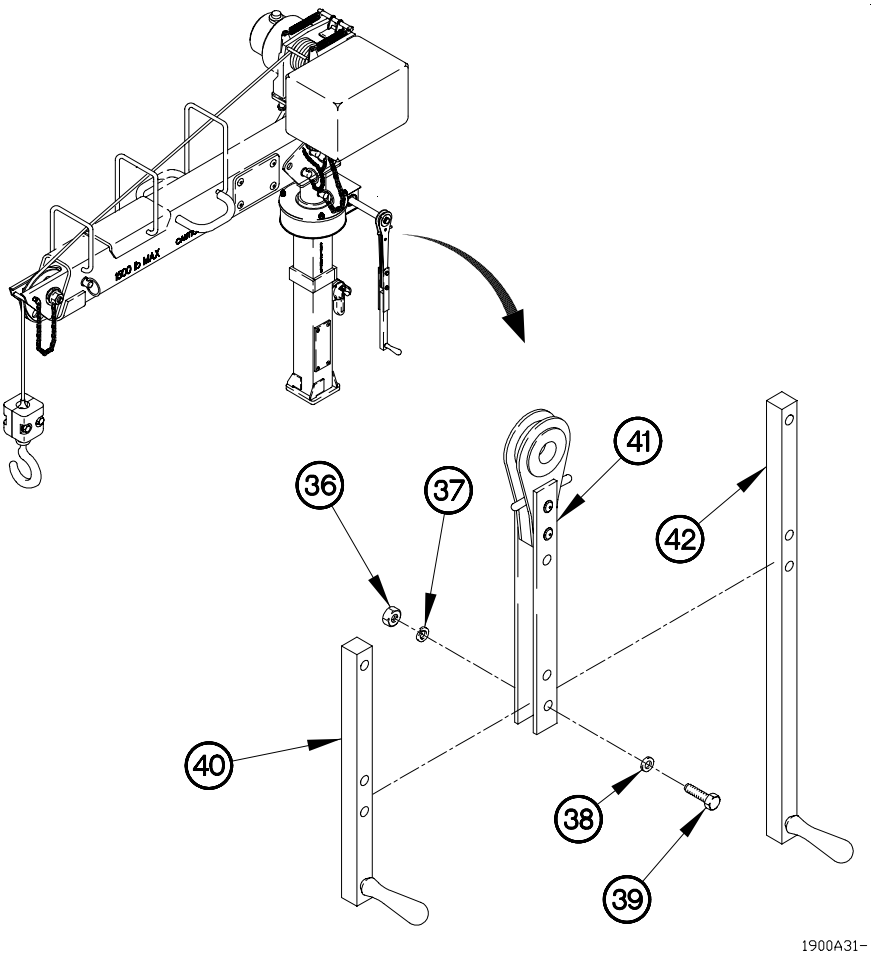
LIGHT MATERIAL HANDLING CRANE (LMHC) 0019 00
OPERATION - Continued

INSTALLING SHORT HANDLE (IF REQUIRED)

1. Remove two nuts (36), lockwashers (37), washers (38), screws (39) and long handle (42) from ratchet (41).

2. Install short handle (40) in ratchet (41) with two washers (38), screws (39), lockwashers (37) and nuts (36).

3. Notify Unit Maintenance to replace lockwashers.



LIGHT MATERIAL HANDLING CRANE (LMHC) OPERATION - Continued 0019 00

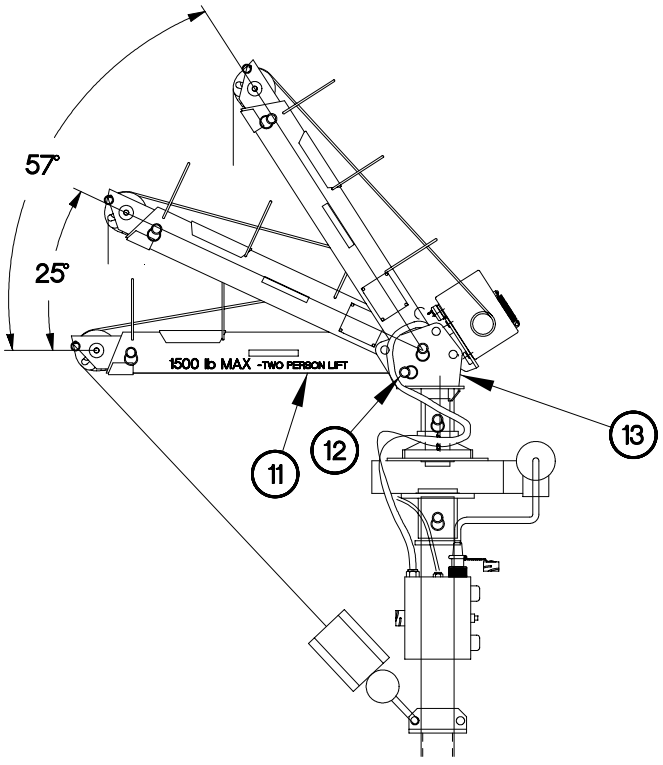
STOW LMHC

NOTE

Steps 1 through 13 require the aid of an assistant.

Perform steps 1 through 5 if boom was in 25-degree or 57-degree position.

1. Support end of boom (11).
2. Remove quick release pin (12) from turret (13).
3. Lower boom (11) to 0-degree position.
4. Align holes in turret (13) and boom (11).
5. Install quick release pin (12) in turret (13).



1900A32-

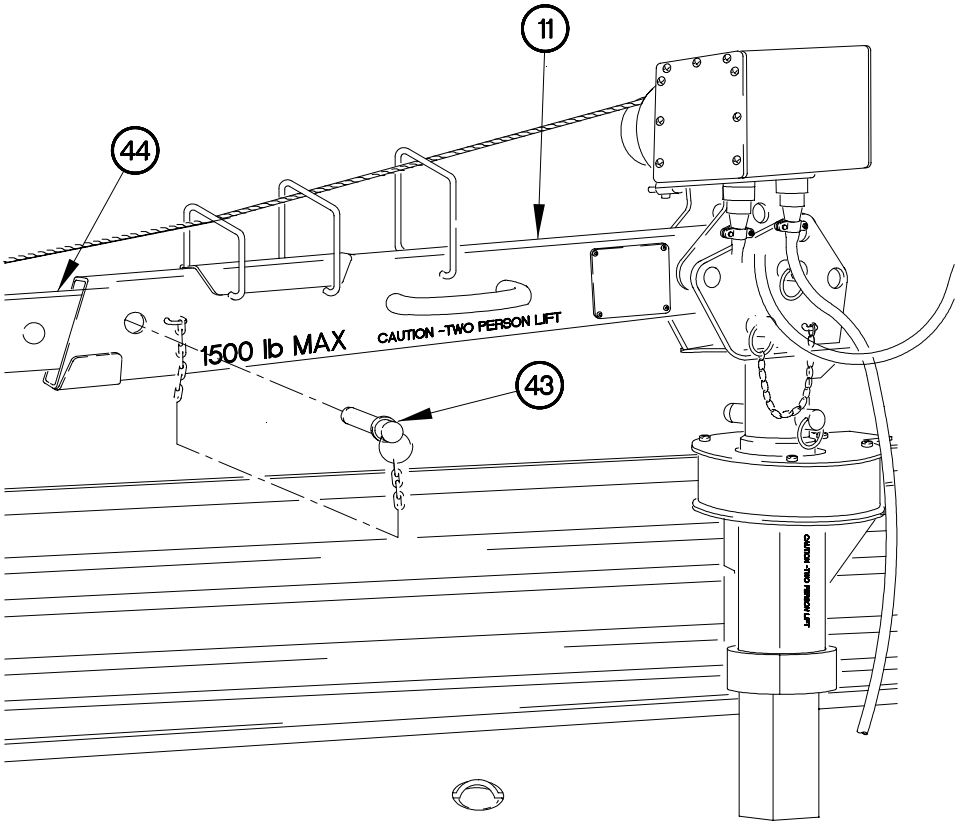
LIGHT MATERIAL HANDLING CRANE (LMHC) OPERATION - Continued 0019 00

STOW LMHC - Continued

NOTE

Perform steps 6 through 9 if boom was extended.

6. Remove quick release pin (43) from boom (11).
7. Push in end of boom extension (44) so that boom (11) is fully retracted.
8. Align hole in boom extension (44) with hole in boom (11).
9. Install quick release pin (43) in boom (11).

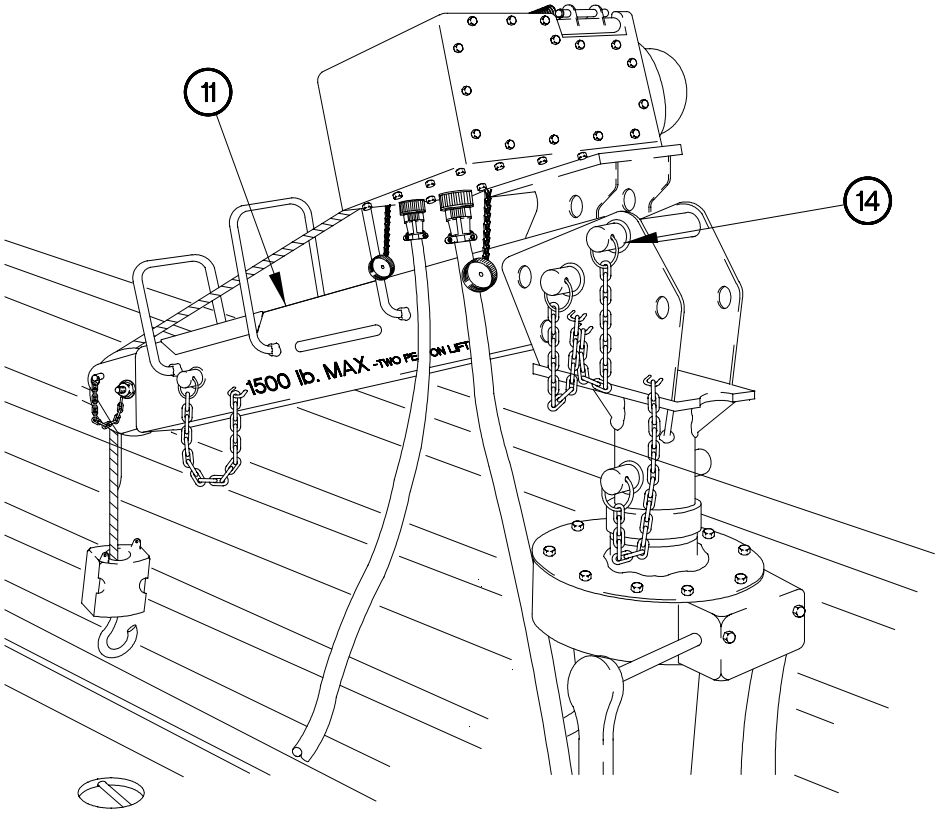


1900A33-

LIGHT MATERIAL HANDLING CRANE (LMHC) OPERATION - Continued 0019 00

STOW LMHC - Continued

10. Support end of boom (11).
11. Remove quick release pin (14).
12. Lower boom (11) to stowed position.
13. Install quick release pin (14) in one of unused holes.

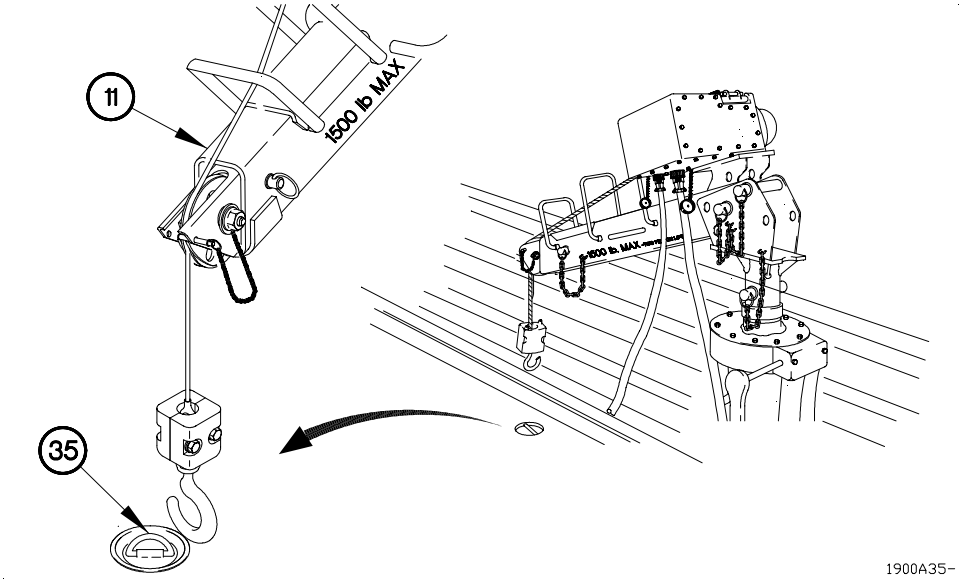


1900A34-

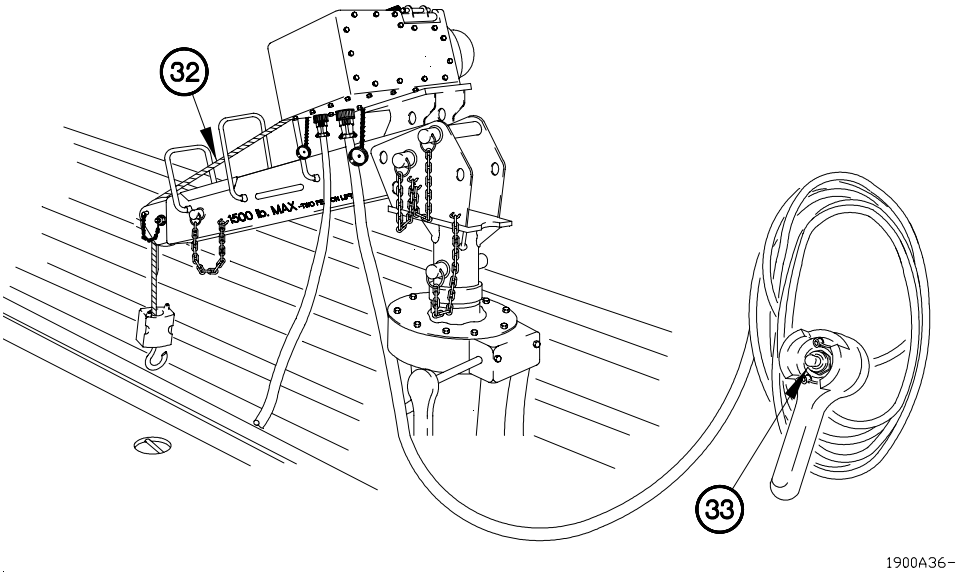
LIGHT MATERIAL HANDLING CRANE (LMHC) OPERATION - Continued

STOW LMHC - Continued

14. Adjust boom (11) so that end of boom is in line with cargo bed tiedown ring (35).



15. Position hoist control switch (33) to CABLE DOWN and lower cable (32).



LIGHT MATERIAL HANDLING CRANE (LMHC) OPERATION - Continued 0019 00

STOW LMHC - Continued

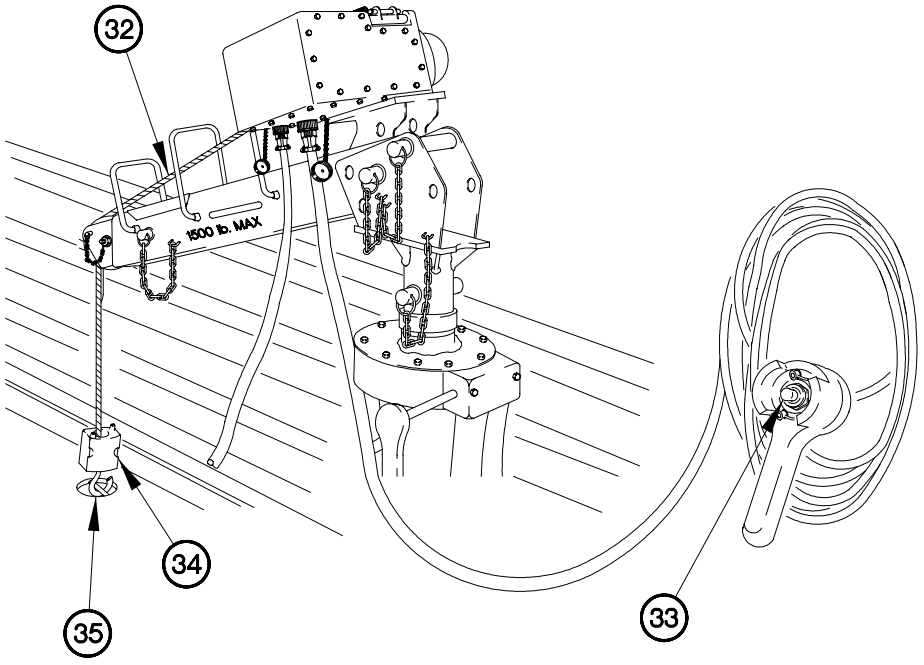
CAUTION

Do not overtighten cable. Failure to comply may result in damage to equipment.

Tension must be maintained on cable to prevent unraveling from spool. Failure to comply may result in damage to equipment.

16. Connect hook (34) to cargo bed tiedown ring (35).

17. Position hoist control switch (33) to CABLE UP and remove slack from cable (32).



1900A37-

LIGHT MATERIAL HANDLING CRANE (LMHC) 0019 00
OPERATION - Continued

STOW LMHC - Continued

WARNING

Ensure that engine is not running before disconnecting circuit breaker box NATO connector at vehicle NATO connector. Failure to comply may result in injury or death to personnel.

CAUTION

Ensure that power cable does not come in contact with exhaust pipe. Failure to comply may result in damage to equipment.

18. Disconnect circuit breaker box NATO connector (5) from vehicle NATO connector (6).

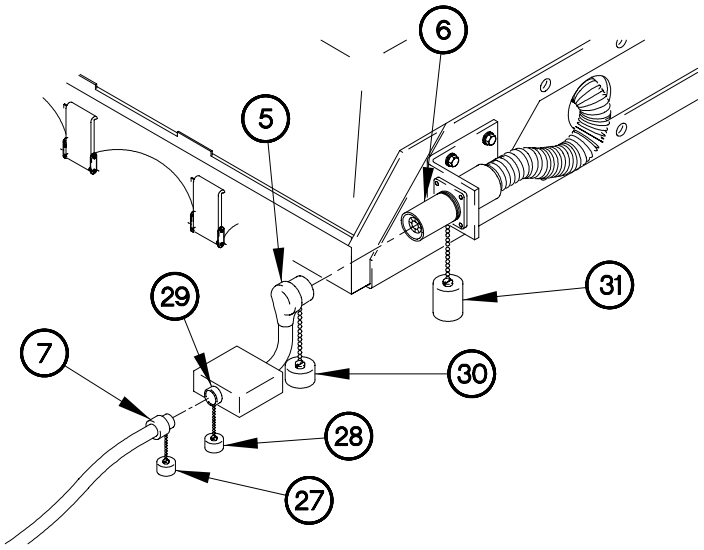
19. Install dust cap (31) on vehicle NATO connector (6).

20. Install dust cap (30) on circuit breaker box NATO connector (5).

21. Disconnect power cable connector (7) from circuit breaker box connector (29).

22. Install dust cap (28) on circuit breaker box connector (29).

23. Install dust cap (27) on power cable connector (7).



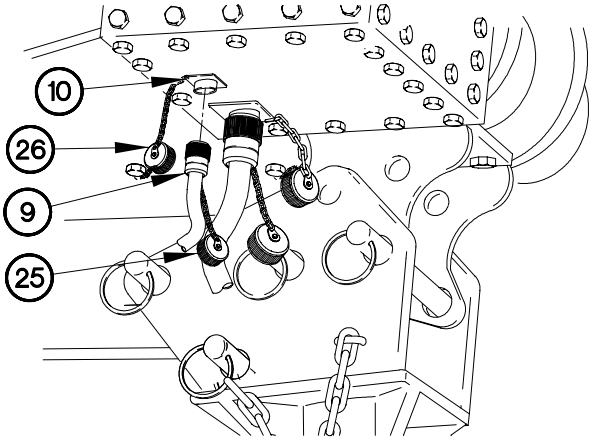
LIGHT MATERIAL HANDLING CRANE (LMHC) OPERATION - Continued 0019 00

STOW LMHC - Continued

24. Disconnect remote control connector (9) from winch remote control connector (10).

25. Install dust cap (26) on winch remote control connector (10).

26. Install dust cap (25) on remote control connector (9).



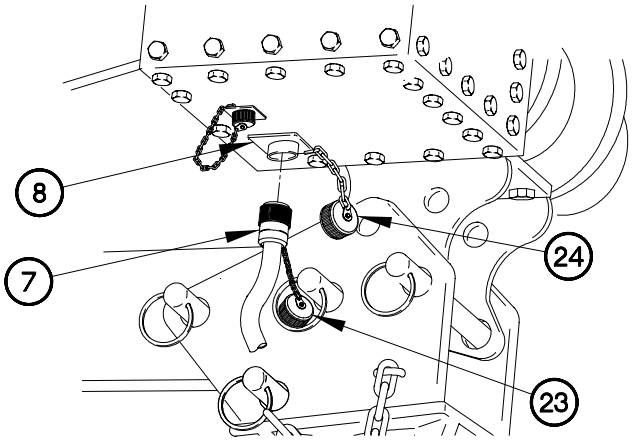
1900A39-

27. Disconnect power cable connector (7) from winch power cable connector (8).

28. Install dust cap (24) on winch power cable connector (8).

29. Install dust cap (23) on power cable connector (7).

30. Remove wheel chocks (WP 0016 00) from rear wheels.



1900A40-

END OF OPERATING PROCEDURE

HEATER/DEFROST OPERATION 0020 00

INITIAL SETUP:

Maintenance Level
Operator

GENERAL

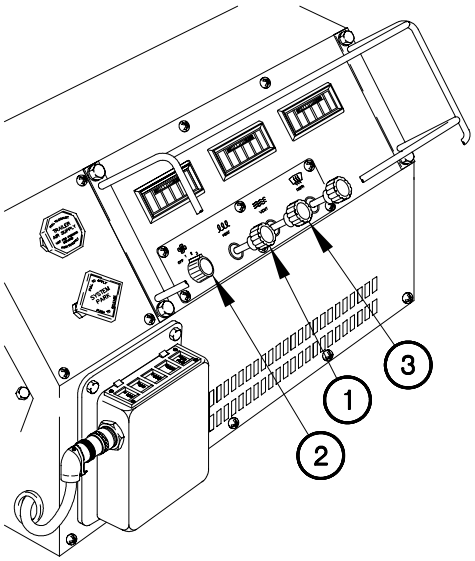
This work package provides the data and procedures for heater/defrost operation in the vehicle. Items covered are Operating Cab Heat and Operating Windshield Defrost.

OPERATE CAB HEAT

NOTE

Heat output increases as HEAT control is pulled farther out.

1. Pull HEAT control (1) to desired setting.
2. Position FAN switch (2) to desired speed.
3. Pull VENT control (3) to allow outside air to enter cab for ventilation.
4. Push in VENT control (3) to stop flow of outside air.
5. Push in HEAT control (1) to turn off heat.
6. Position FAN switch (2) to OFF to turn off fan.



2000A01-

HEATER/DEFROSTER OPERATION - Continued 0020 00

OPERATE WINDSHIELD DEFROST

NOTE

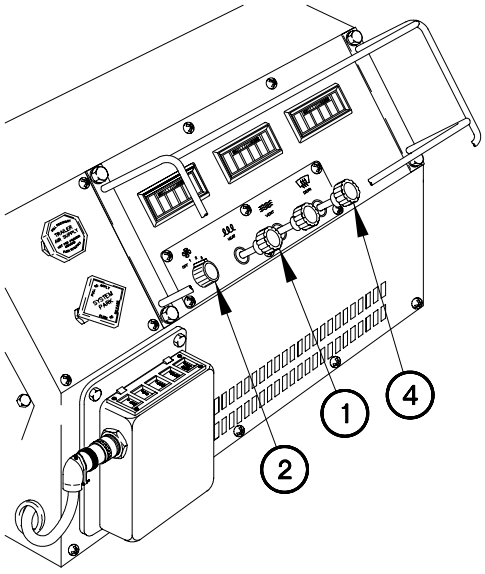
The amount of air directed to cab windshield increases as DEFR control is pulled farther out.

1. Pull DEFR control (4) outward to desired position.

NOTE

Temperature of air output directed to windshield increases as HEAT control is pulled farther out.

2. Pull HEAT control (1) to desired position.
3. Position FAN switch (2) to desired speed.
4. Push in HEAT control (1) to turn heat off.
5. Position FAN switch (2) to OFF to turn fan off.
6. Push in DEFR control (4) to stop directing air on windshield.



2000A02-

END OF OPERATING PROCEDURE

LADDER, SIDE PANELS, AND STAKES OPERATION 0021 00

INITIAL SETUP:

Maintenance Level
Operator

GENERAL

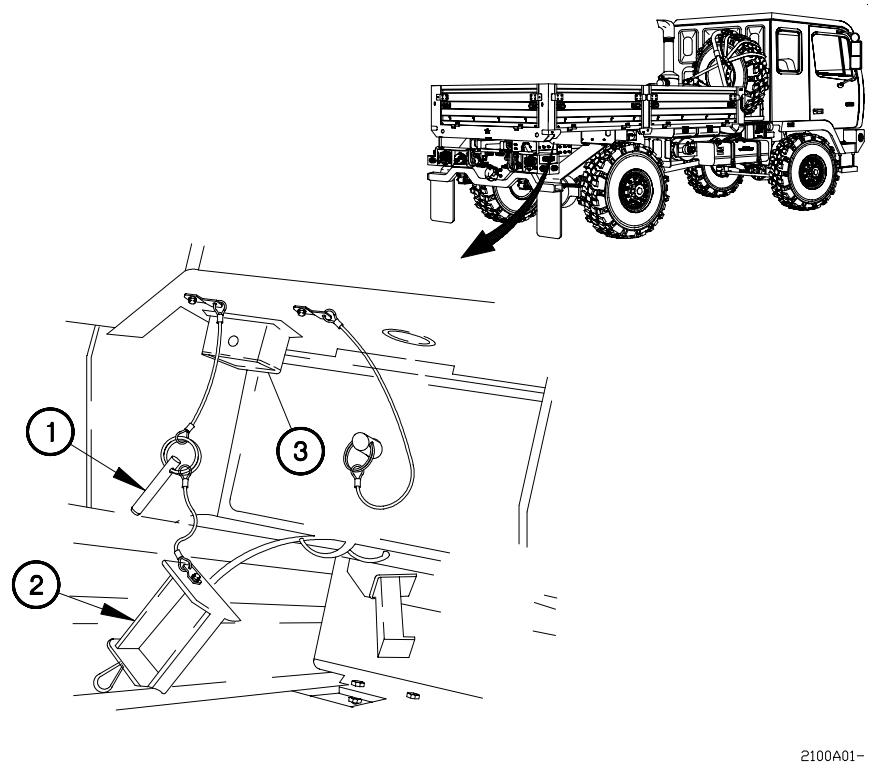
This work package provides the data and procedures for operation of the ladder, side panels, and stakes on the M1078A1 cargo vehicle. Items covered include Lower Ladder, Stow Ladder, Lower Cargo Bed Side Panels, Raise Cargo Bed Side Panels, Stow Cargo Bed Side Panels, Install Cargo Bed Side Panels, Cargo Bed Stake Removal, and Cargo Bed Stake Installation.

LOWER LADDER

CAUTION

Do not use gladhands as a step to access cargo bed. Failure to comply may result in damage to equipment.

1. Remove two pins (1) and ladder plugs (2) from ladder mounting holes (3).



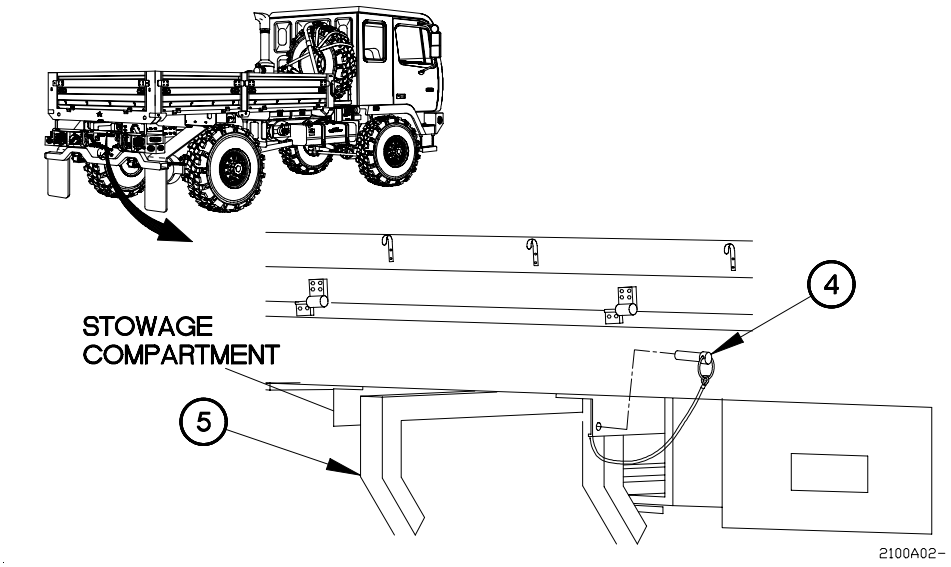
2100A01-

LADDER, SIDE PANELS, AND STAKES OPERATION - Continued 0021 00

LOWER LADDER - Continued

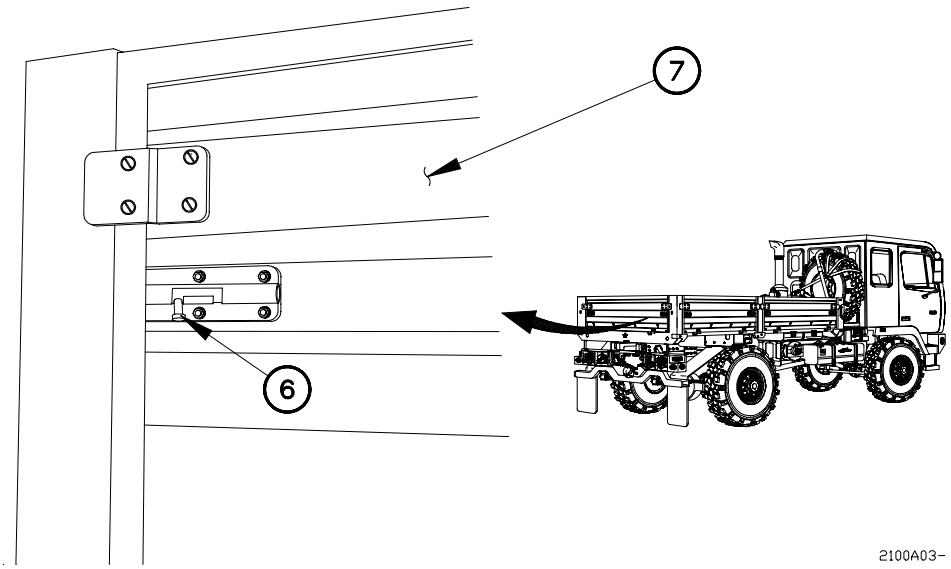
2. Remove locking pin (4) from ladder (5).

3. Remove ladder (5) from stowage compartment.



4. Unlatch two latches (6) from tailgate (7).

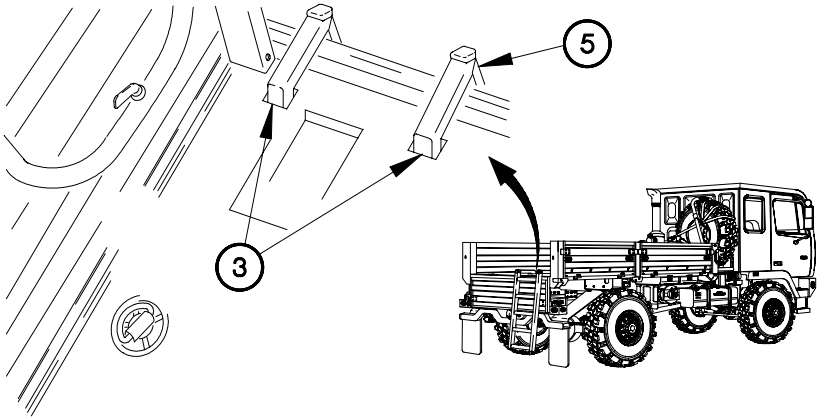
5. Lower tailgate (7).



LADDER, SIDE PANELS, AND STAKES OPERATION - Continued 0021 00

LOWER LADDER - Continued

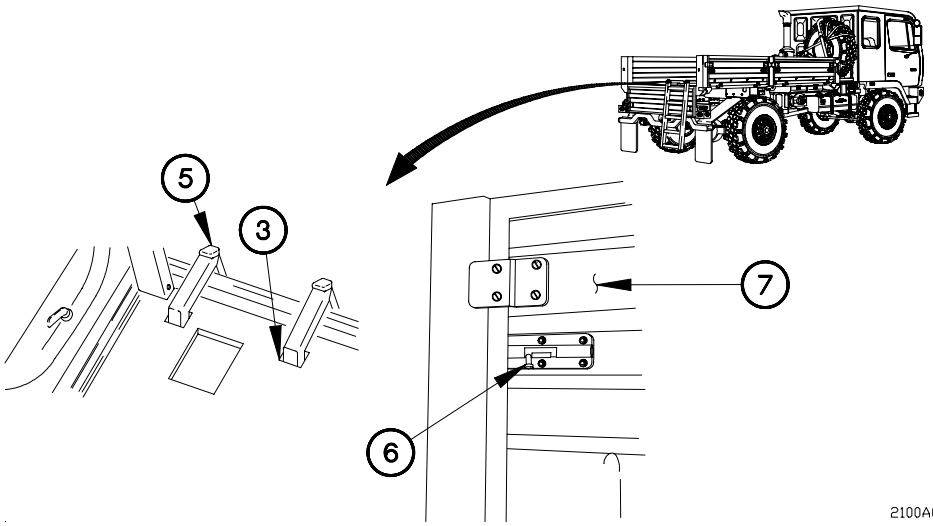
6. Mount ladder (5) in two ladder mounting holes (3).



2100A04-

STOW LADDER

1. Remove ladder (5) from ladder mounting holes (3).
2. Raise tailgate (7).
3. Fasten two latches (6).



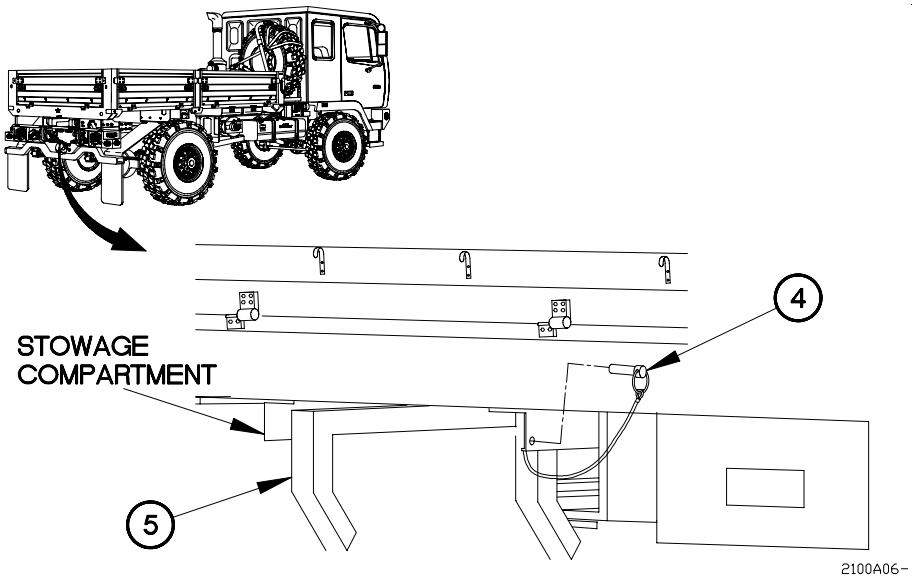
2100A05-

LADDER, SIDE PANELS, AND STAKES OPERATION - Continued 0021 00

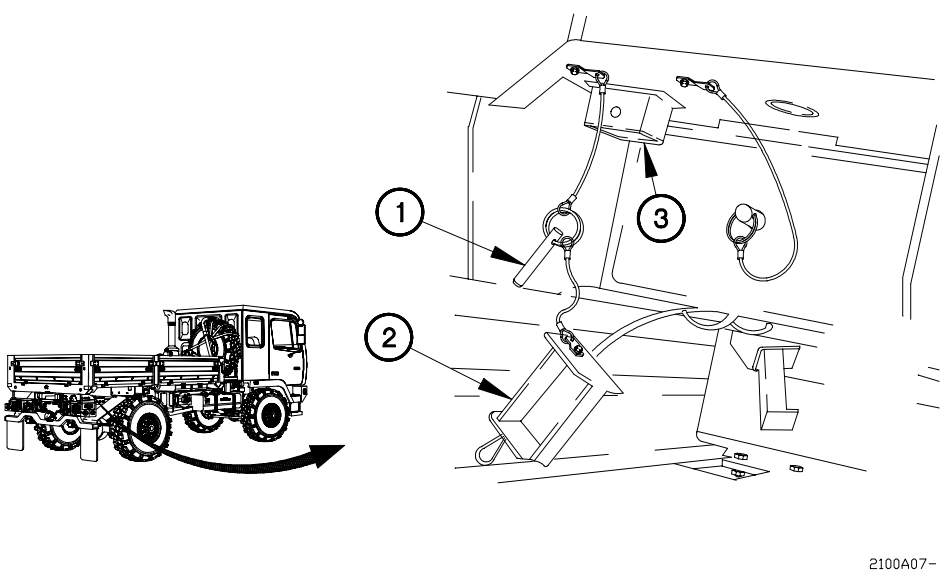
STOW LADDER - Continued

3. Install ladder (5) in stowage compartment.

4. Install locking pin (4) in ladder (5).



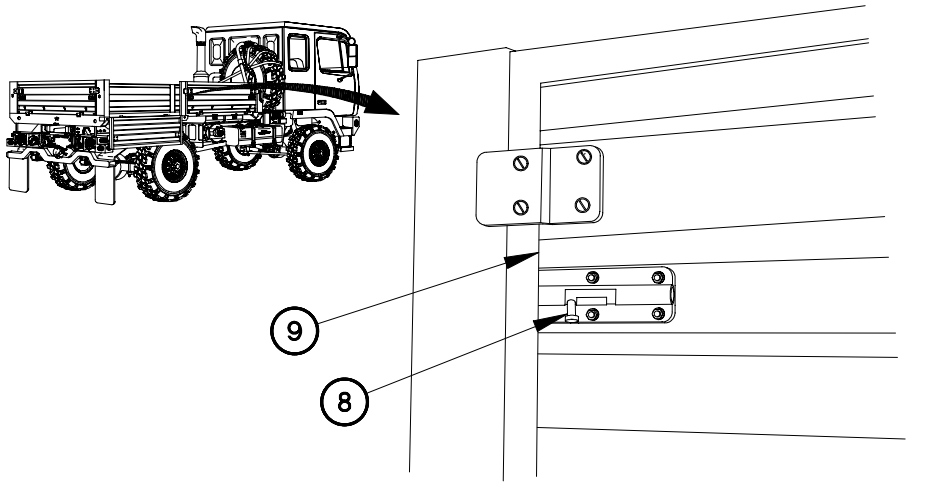
5. Install two ladder plugs (2) in ladder mounting holes (3) with two pins (1).



LADDER, SIDE PANELS, AND STAKES OPERATION - Continued 0021 00

LOWER CARGO BED SIDE PANELS

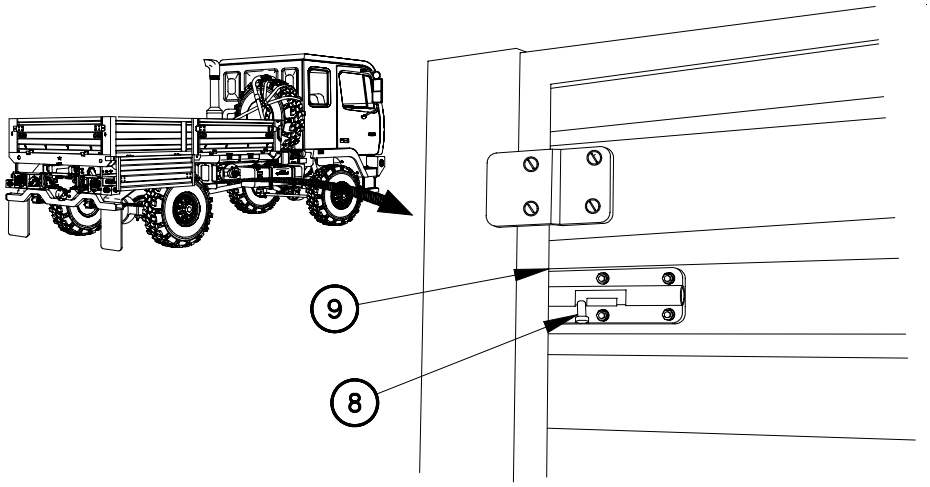
1. Unlock two latches (8) and lower cargo bed side panel (9).
2. Repeat step 1 for remaining cargo bed side panels as required.



2100A08-

RAISE CARGO BED SIDE PANELS

1. Raise cargo bed side panel (9) and latch two latches (8).
2. Repeat step 1 for remaining cargo bed side panels as required.

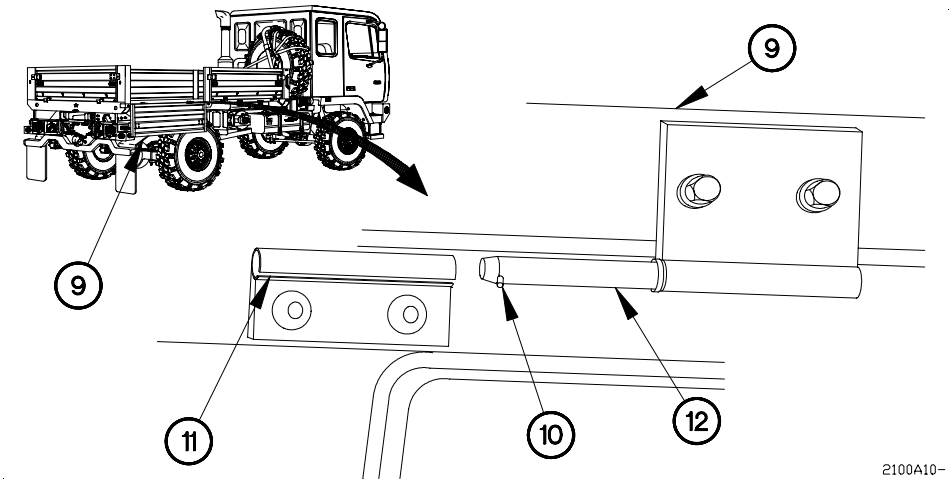


2100A09-

LADDER, SIDE PANELS, AND STAKES OPERATION - 0021 00 Continued

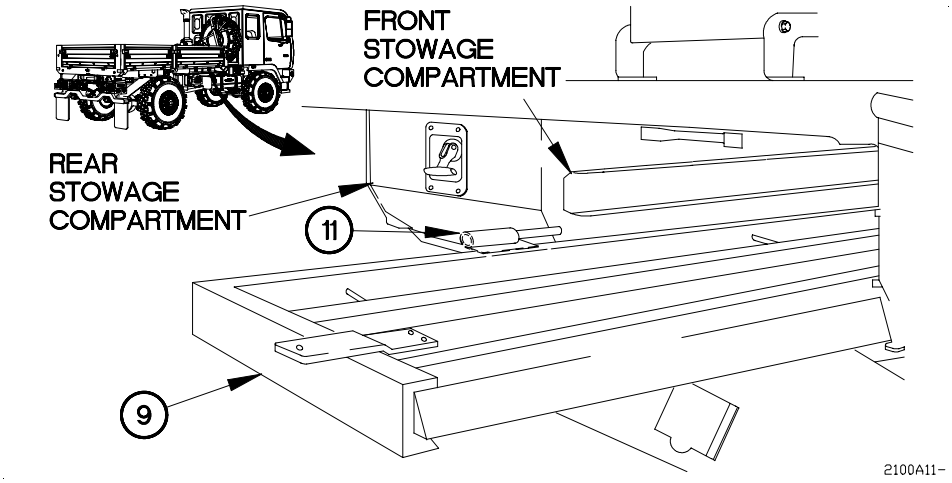
REMOVE CARGO BED SIDE PANELS

1. Lower cargo bed side panel (WP 0021 00).
2. Align pin (10) with slot in lower hinge half (11).
3. Slide hinge shaft (12) out of lower hinge half (11) and remove cargo bed side panel (9) from vehicle.



STOW CARGO BED SIDE PANELS

1. Stow cargo bed side panel (9) in cargo bed stowage compartment with hinges (11) facing up (refer to Table 1, Cargo Bed Side Panel Stowage Information).
2. Repeat step 1 as required for remaining cargo bed side panels.



LADDER, SIDE PANELS, AND STAKES OPERATION - Continued 0021 00

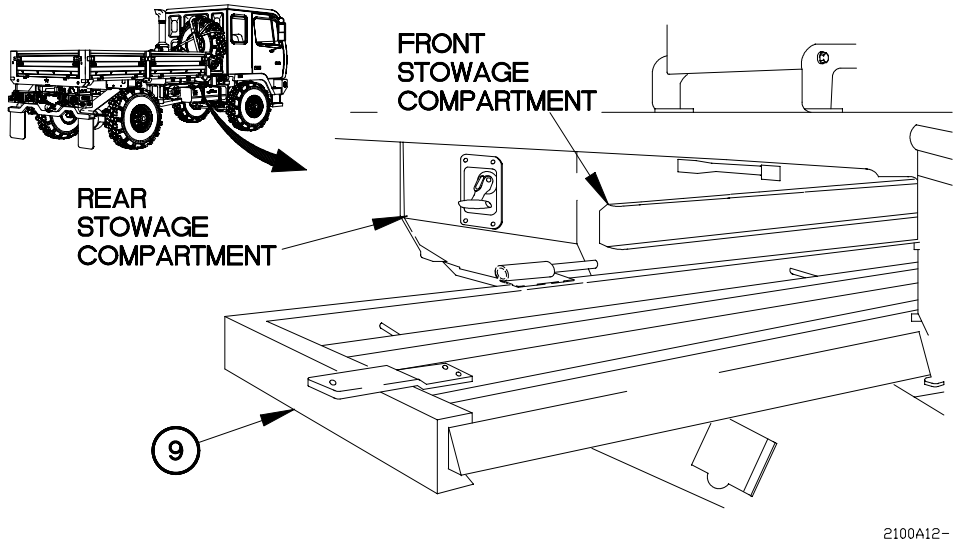
STOW CARGO BED SIDE PANELS - Continued

Table 1. Cargo Bed Side Panel Stowage Information.

Cargo Bed Side Panel Stowed	Stowage Compartment Used	Position of Cargo Bed Side Panel	Shelf Used to Stow Cargo Bed Side Panel
1st side stowed	Front	Hinges on left side of panel	Bottom shelf
2nd side stowed	Front	Hinges on right side of panel	Middle shelf
3rd side stowed	Front	Hinges on right side of panel	Top shelf
4th side stowed	Rear	Hinges on left side of panel	Top shelf
Tailgate stowed	Rear	Hinges on left side of panel	Middle shelf

INSTALL CARGO BED SIDE PANELS

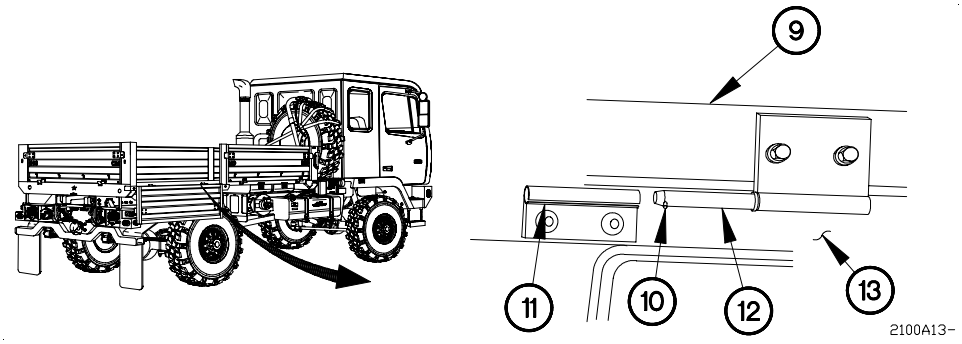
1. Remove cargo bed side panel (9) from stowage compartment.



LADDER, SIDE PANELS, AND STAKES OPERATION - Continued 0021 00

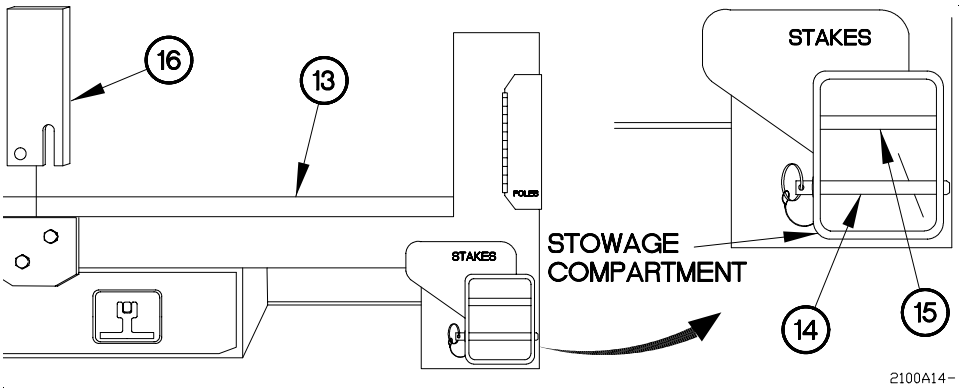
INSTALL CARGO BED SIDE PANELS - Continued

2. Align pin (10) on hinge shaft (12) with slot in lower hinge half (11).
3. Install cargo bed side panel (9) on cargo bed (13) by sliding hinge shaft (12) into lower hinge half (11).
4. Raise cargo bed side panel (WP 0021 00).
5. Repeat steps 1 through 4 for remaining cargo bed side panels as required.



CARGO BED STAKE REMOVAL

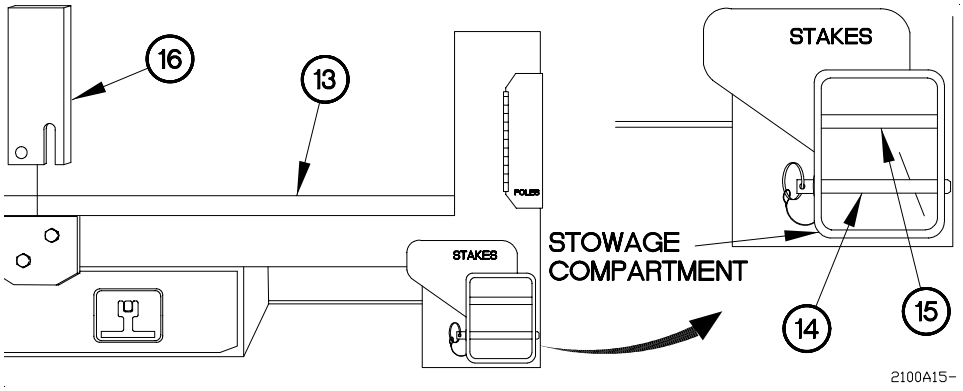
1. Remove detention pins (14 and 15) from stowage compartment.
2. Remove cargo bed stake (16) from cargo bed (13).
3. Place cargo bed stake (16) in stowage compartment.
4. Perform steps 2 and 3 on remaining cargo bed stakes.
5. Install detention pins (14 and 15) on stowage compartment.



LADDER, SIDE PANELS, AND STAKES OPERATION - Continued 0021 00

CARGO BED STAKE INSTALLATION

1. Remove detention pins (14 and 15) from stowage compartment.
2. Remove cargo bed stake (16) from stowage compartment.
3. Install cargo bed stake (16) on cargo bed (13).
4. Perform steps 2 and 3 on remaining cargo bed stakes.
5. Install detention pins (14 and 15) on stowage compartment.



END OF OPERATING PROCEDURE

CARGO COVER KIT INSTALLATION/REMOVAL 0022 00

INITIAL SETUP:

Maintenance Level
Operator

Personnel Required
Two

References
WP 0021 00
WP 0085 00

GENERAL

This work package provides the data and procedures for installing and removing the cargo cover kit. Items covered include Soft Top Kit (Steel Bows) Installation, Soft Top (Steel Bows) Installation, Soft Top (Steel Bows) Removal, and Soft Top Kit (Steel Bows) Removal.

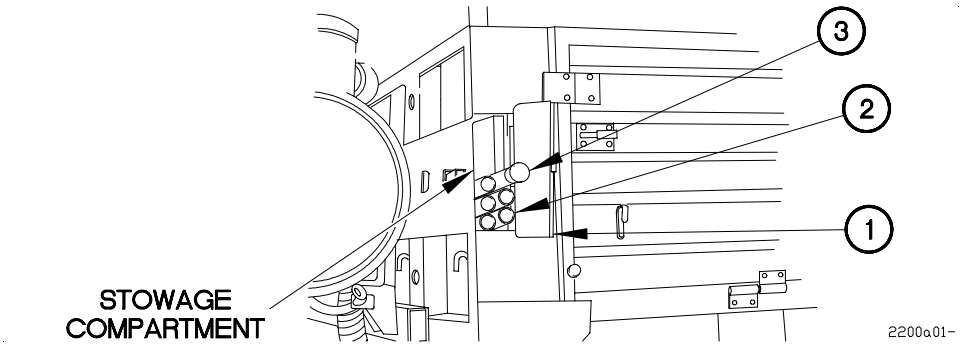
SOFT TOP KIT (STEEL BOWS) INSTALLATION

1. Lower ladder (WP 0021 00).
2. Open stowage compartment door (1).

NOTE

Soft top kit is equipped with a total of 10 tubes. Five front tubes are longer than rear tubes.

3. Stow five front tubes (2) and steel pole (3) in stowage compartment.
4. Close stowage compartment door (1).



CARGO COVER KIT INSTALLATION/REMOVAL - Continued 0022 00

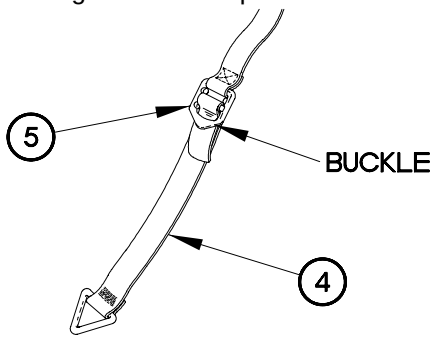
SOFT TOP KIT (STEEL BOWS) INSTALLATION - Continued

NOTE

Front, center, and rear bows have two bow straps and tiedown straps. All tiedown straps are installed on bow straps the same way. One tiedown strap shown.

5. Install tiedown strap (4) through buckle of bow strap (5).

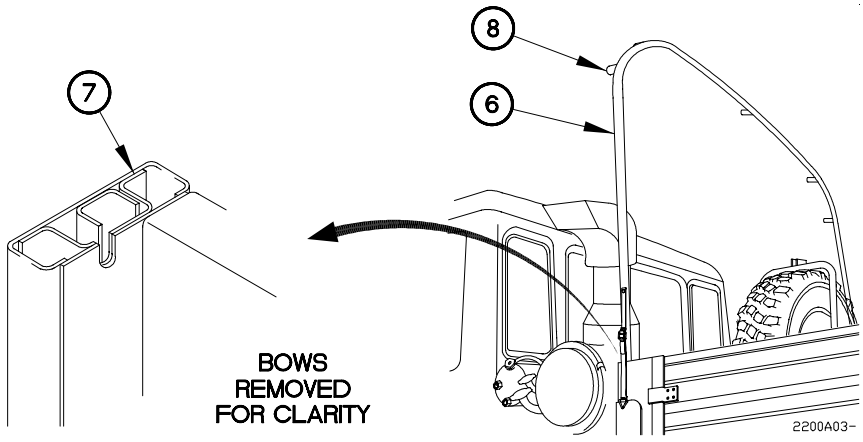
6. Perform step 5 on remaining tiedown straps.



NOTE

Steps 7 through 9 require the aid of an assistant.

7. Position front bow (6) in front cargo bed pockets (7) with front bow brackets (8) toward front of vehicle.

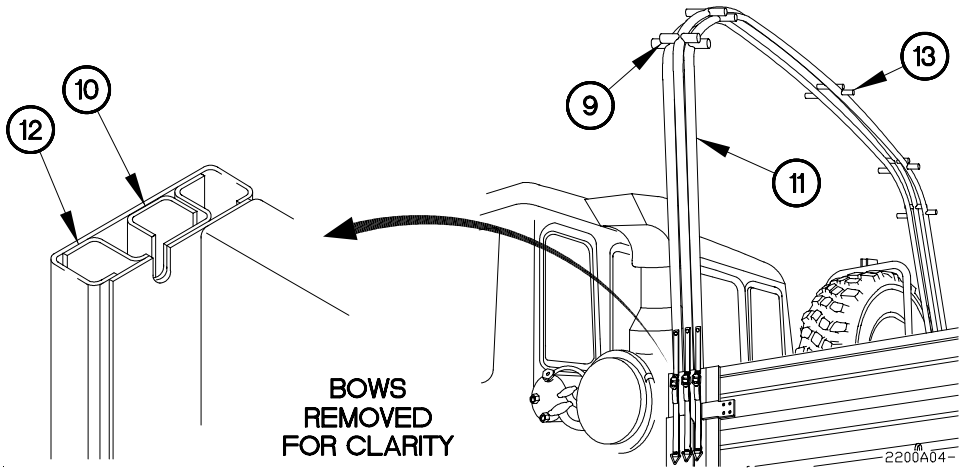


CARGO COVER KIT INSTALLATION/REMOVAL - Continued 0022 00

SOFT TOP KIT (STEEL BOWS) INSTALLATION - Continued

8. Position center bow (9) in middle cargo bed pockets (10).

9. Position rear bow (11) in rear cargo bed pockets (12) with rear bow brackets (13) toward rear of vehicle.



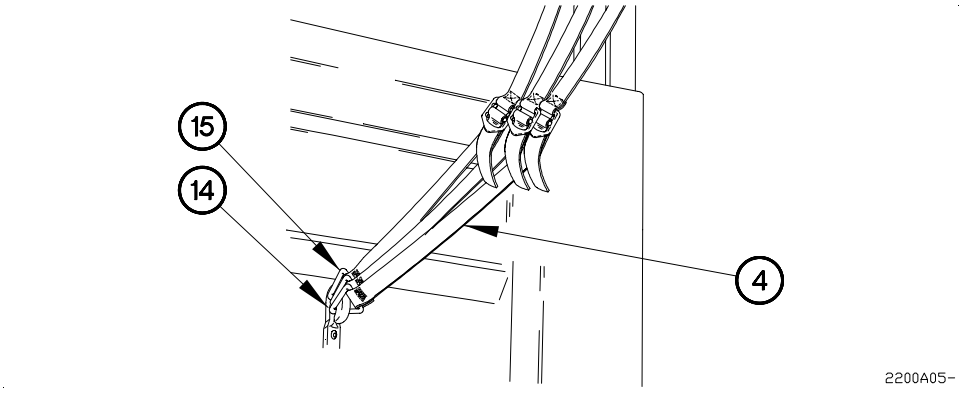
NOTE

Left and right sides of front, center, and rear bows are secured the same way. Right side shown.

10. Position three tiedown straps (4) on J-hook (14) with three tri-rings (15).

11. Tighten three tiedown straps (4).

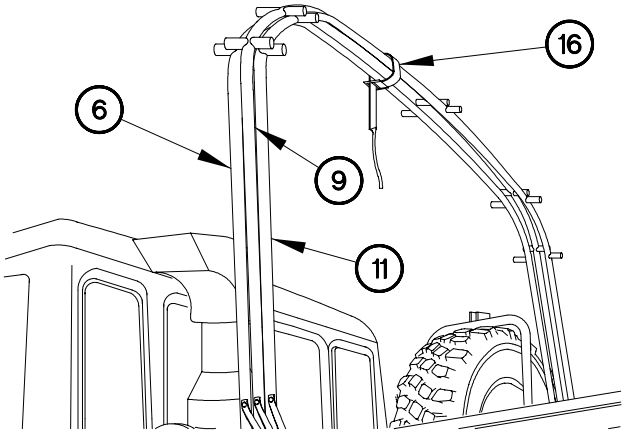
12. Perform steps 10 and 11 on left side.



CARGO COVER KIT INSTALLATION/REMOVAL - Continued 0022 00

SOFT TOP KIT (STEEL BOWS) INSTALLATION - Continued

13. Install stowage strap (16) on front bow (6), center bow (9), and rear bow (11).

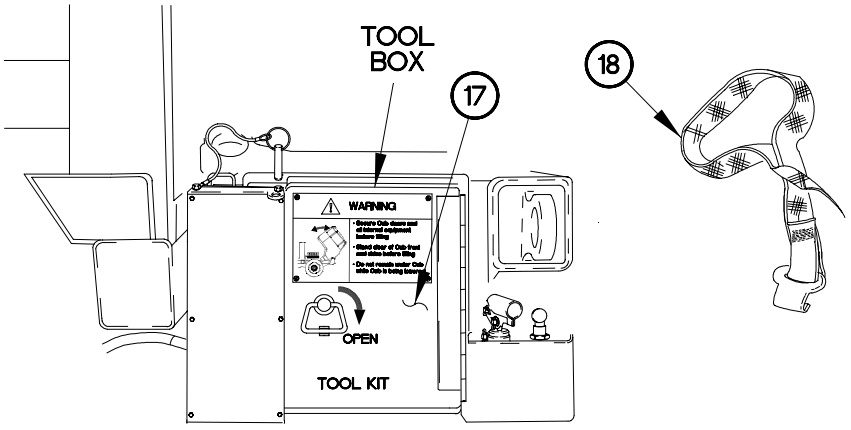


2200A06-

14. Open door (17) on tool box.

15. Stow three cargo cover tiedowns (18) in tool box.

16. Close door (17) on tool box.



2200A07-

CARGO COVER KIT INSTALLATION/REMOVAL - Continued 0022 00

SOFT TOP KIT (STEEL BOWS) INSTALLATION - Continued

WARNING

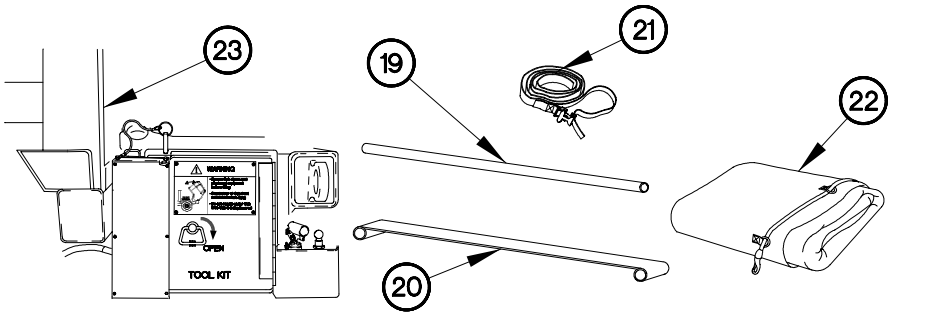
Cargo cover weighs approximately 60 lbs (27 kgs). Arctic cargo cover weighs approximately 100 lbs (45 kgs). An assistant is required to lift cargo cover. Failure to comply may result in injury to personnel or damage to equipment.

NOTE

Step 17 requires the aid of an assistant.

17. Stow five rear tubes (19), four braces (20), two strap supports (21), and cargo cover (22) on cargo bed (23).

18. Stow ladder (WP 0021 00).



SOFT TOP (STEEL BOWS) INSTALLATION

1. Lower ladder (WP 0021 00).

2. Lower spare tire (WP 0085 00).

CARGO COVER KIT INSTALLATION/REMOVAL - Continued 0022 00

SOFT TOP (STEEL BOWS) INSTALLATION

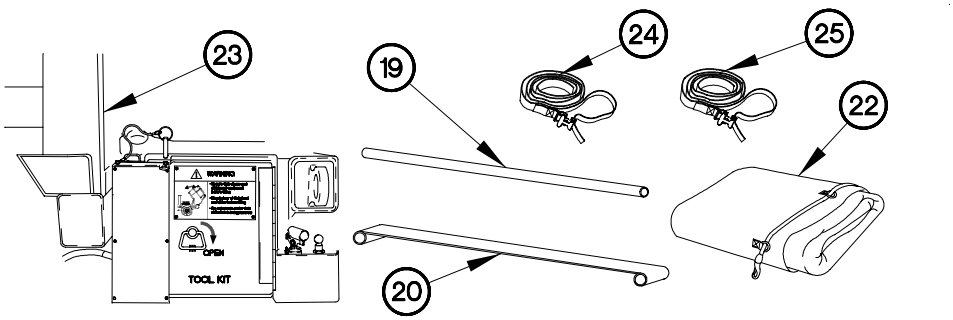
WARNING

Cargo cover weighs approximately 60 lbs (27 kgs). Arctic cargo cover weighs approximately 100 lbs (45 kgs). An assistant is required to lift cargo cover. Failure to comply may result in injury to personnel or damage to equipment.

NOTE

Step 3 requires the aid of an assistant.

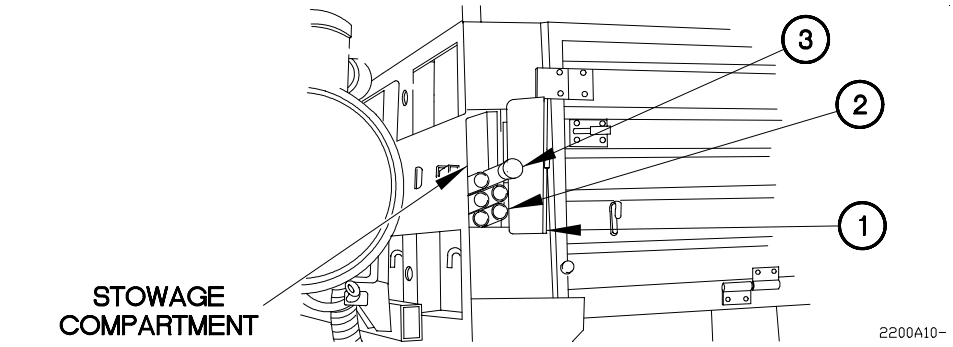
3. Remove rear five tubes (19), four braces (20), left strap support (24), right strap support (25), and cargo cover (22) from cargo bed (23).



4. Open stowage compartment door (1).

5. Remove five front tubes (2) and steel pole (3) from stowage compartment.

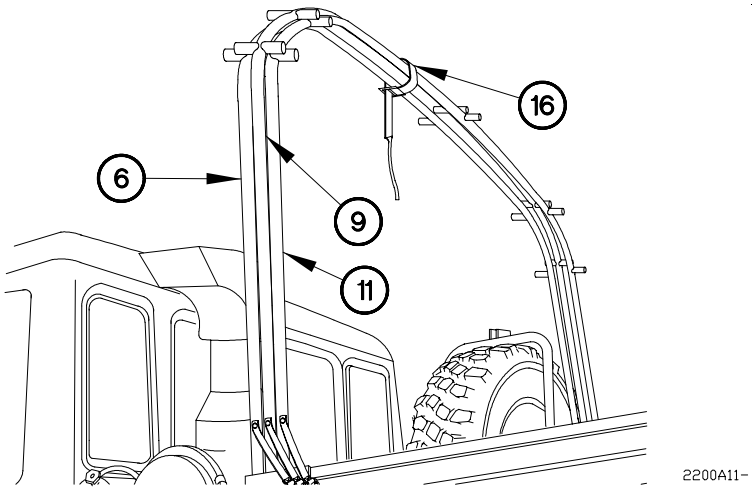
6. Close stowage compartment door (1).



CARGO COVER KIT INSTALLATION/REMOVAL - Continued 0022 00

SOFT TOP (STEEL BOWS) INSTALLATION - Continued

7. Remove stowage strap (16) from front bow (6), center bow (9), and rear bow (11).



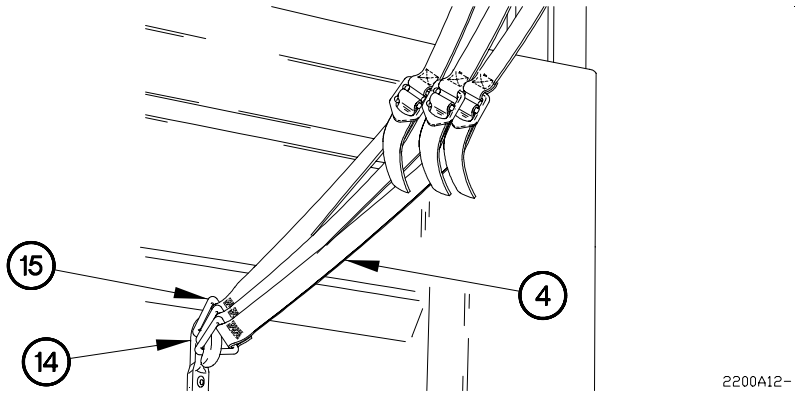
NOTE

Left and right sides of front, center, and rear bows are released the same way. Right side shown.

8. Loosen three tiedown straps (4).

9. Remove three tri-rings (15) on tiedown straps (4) from J-hook (14).

10. Perform steps 8 and 9 on left side.



CARGO COVER KIT INSTALLATION/REMOVAL - Continued 0022 00

SOFT TOP (STEEL BOWS) INSTALLATION - Continued

NOTE

Steps 11 through 16 require the aid of an assistant.

11. Remove rear bow (11) from rear cargo bed pockets (12).

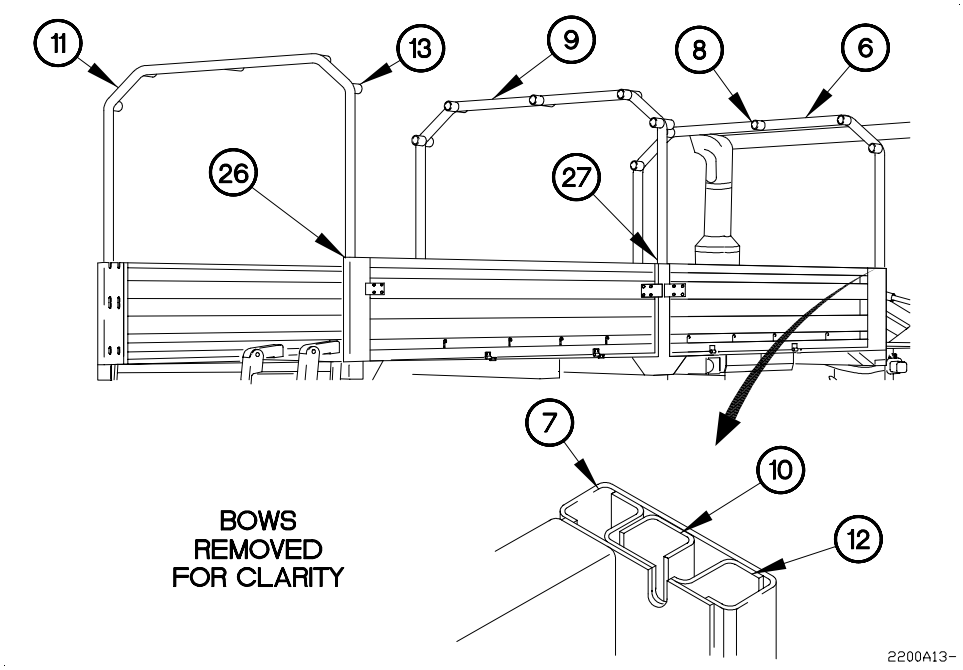
12. Position rear bow (11) in rear pockets of rear cargo bed stakes (26) with rear bow brackets (13) towards front of vehicle.

13. Remove center bow (9) from middle cargo bed pockets (10).

14. Position center bow (9) in rear pockets of center cargo bed stakes (27).

15. Remove front bow (6) from front cargo bed pockets (7).

16. Position front bow (6) in front cargo bed pockets (7) with front bow brackets (8) toward rear of vehicle.



SOFT TOP (STEEL BOWS) INSTALLATION - Continued

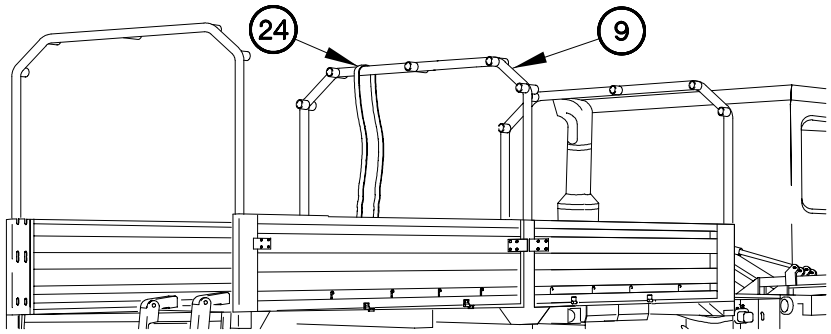
NOTE

Strap support is marked with FRONT and an arrow to indicate front bottom of strap support.

Strap supports are to be centered between center bow brackets and left and right inside of bow brackets.

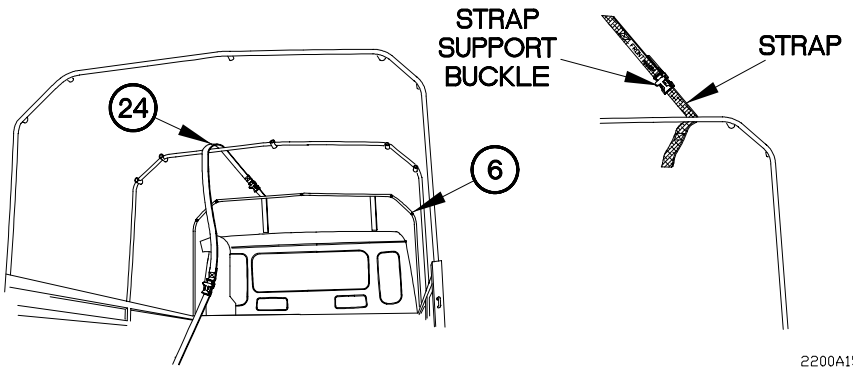
Left and right strap supports are installed the same way. Left strap support shown.

17. Position left strap support (24) over center bow (9).



2200A14-

18. Position left strap support (24) around front bow (6) and through strap support buckle.



2200A15-

CARGO COVER KIT INSTALLATION/REMOVAL - Continued 0022 00

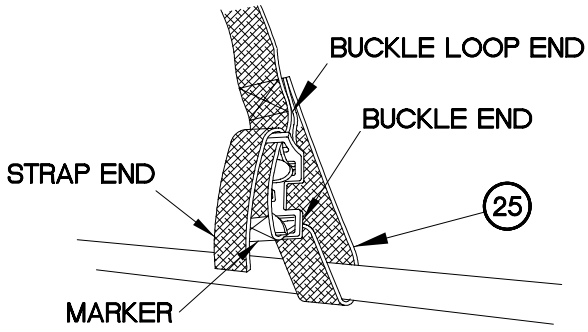
SOFT TOP (STEEL BOWS) INSTALLATION - Continued

19. Tighten left strap support (24) until marker is through the buckle end.

CAUTION

Strap end must be installed in the buckle loop end after strap is tightened. Failure to comply may result in damage to equipment.

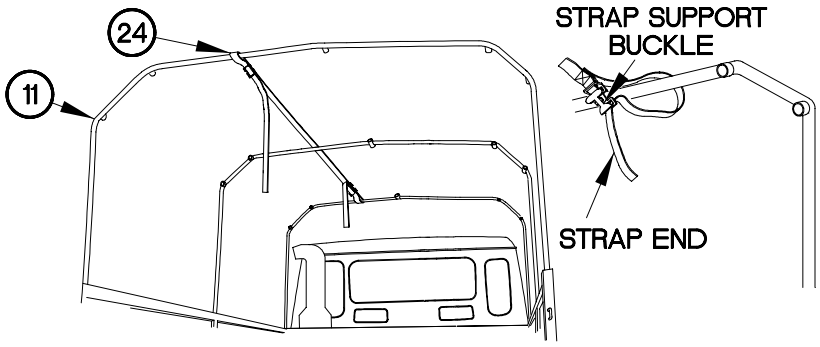
20. Install strap end through buckle loop end on left strap support (24).



2200A16-

21. Position left strap support (24) around rear bow (11) and through strap support buckle.

22. Perform steps 17 through 21 on right strap support.



2200A17-

CARGO COVER KIT INSTALLATION/REMOVAL - Continued 0022 00

SOFT TOP (STEEL BOWS) INSTALLATION - Continued

NOTE

Steps 23 through 25 require the aid of an assistant.

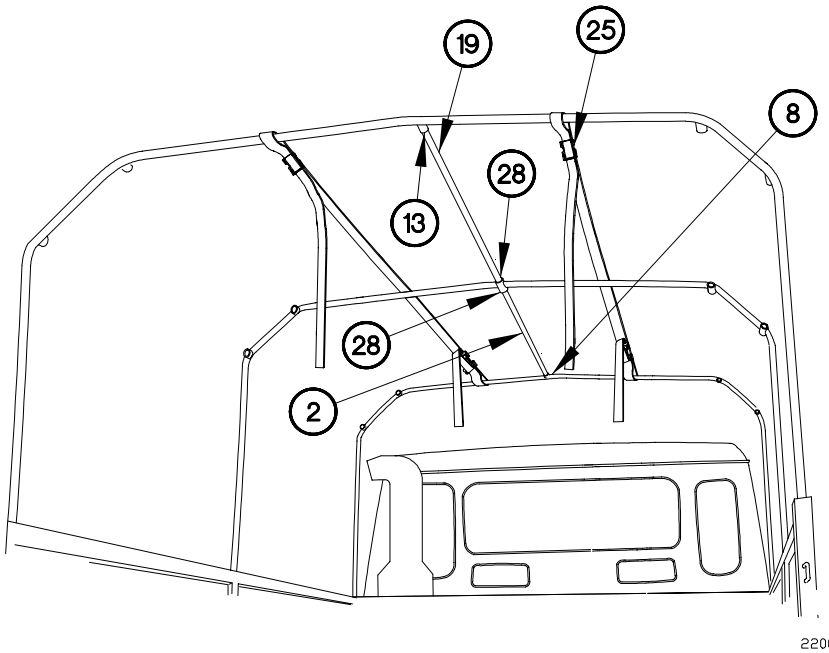
23. Install front tube (2) in front bow bracket (8) and center bow bracket (28).

24. Install rear tube (19) in center bow bracket (28) and rear bow bracket (13).

CAUTION

Strap supports must be aligned straight between front bow and rear bow. Failure to comply may result in damage to equipment.

25. Tighten right rear strap support (25).



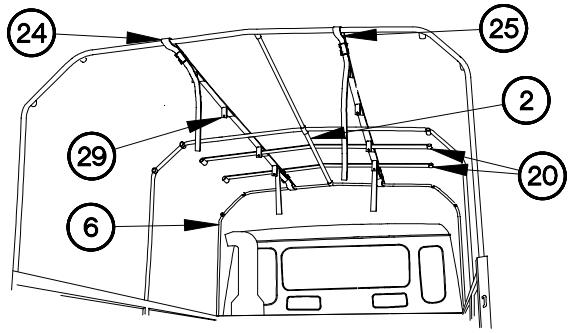
SOFT TOP (STEEL BOWS) INSTALLATION - Continued

NOTE

Left and right strap supports have six flaps. From front to rear of vehicle, perform step 26 on first, second, third, and fifth straps on each strap support.

26. Open four flaps (29) on left strap support (24) and right strap support (25).

27. Position two braces (20) over front tube (2) and under left strap support (24) and right strap support (25) with approximately 2 feet (0.6 m) between front bow (6) and each brace (20).



2200a19-

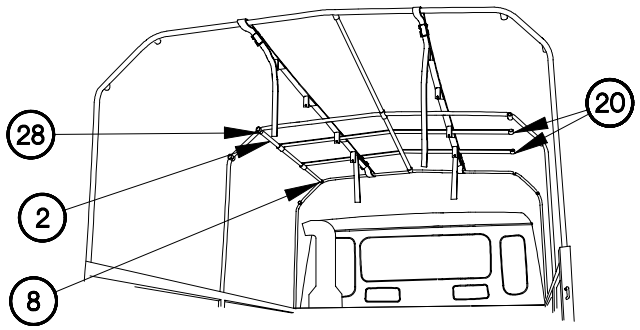
NOTE

Left and right tubes are installed the same way. Left side tubes shown.

Steps 28 through 36 require the aid of an assistant.

28. Position front tube (2) through two braces (20).

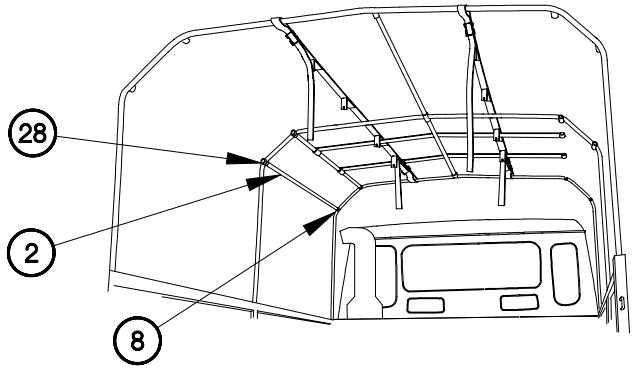
29. Install front tube (2) in front bow bracket (8) and center bow bracket (28).



2200A21-

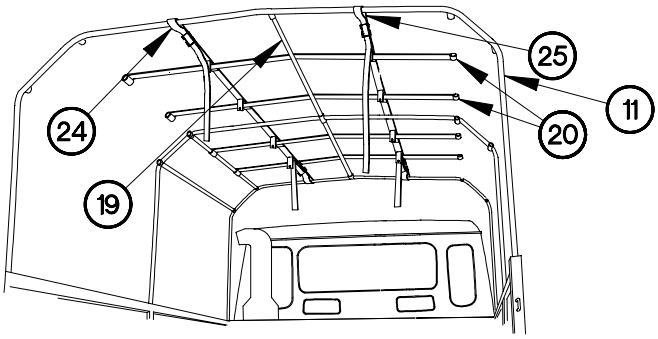
SOFT TOP (STEEL BOWS) INSTALLATION - Continued

30. Install front tube (2) in front bow bracket (8) and center bow bracket (28).



2200A22-

31. Position two braces (20) over rear tube (19) and under left strap support (24) and right strap support (25) with approximately 2 feet (0.6 m) between rear bow (11) and each brace (20).

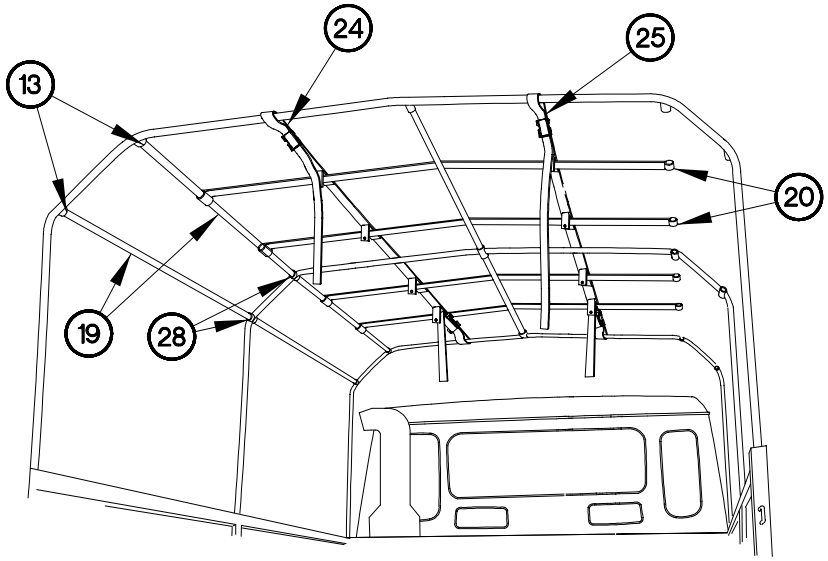


2200a20-

CARGO COVER KIT INSTALLATION/REMOVAL - Continued 0022 00

SOFT TOP (STEEL BOWS) INSTALLATION - Continued

32. Install rear tube (19) in rear bow bracket (13) and center bow bracket (28).
33. Position rear tube (19) through two braces (20).
34. Install rear tube (19) in rear bow bracket (13) and center bow bracket (28).
35. Tighten left rear strap support (24).
36. Loosen right rear strap support (25).
37. Perform steps 29 through 34 on right side tubes.



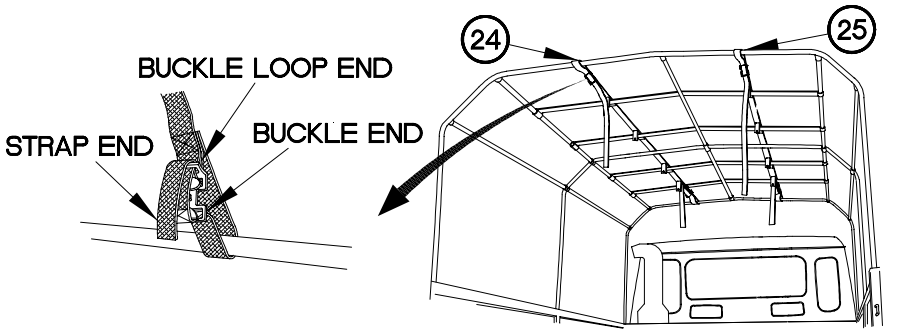
2200A23-

CARGO COVER KIT INSTALLATION/REMOVAL - Continued 0022 00

SOFT TOP (STEEL BOWS) INSTALLATION - Continued

38. Tighten right rear strap support (25).

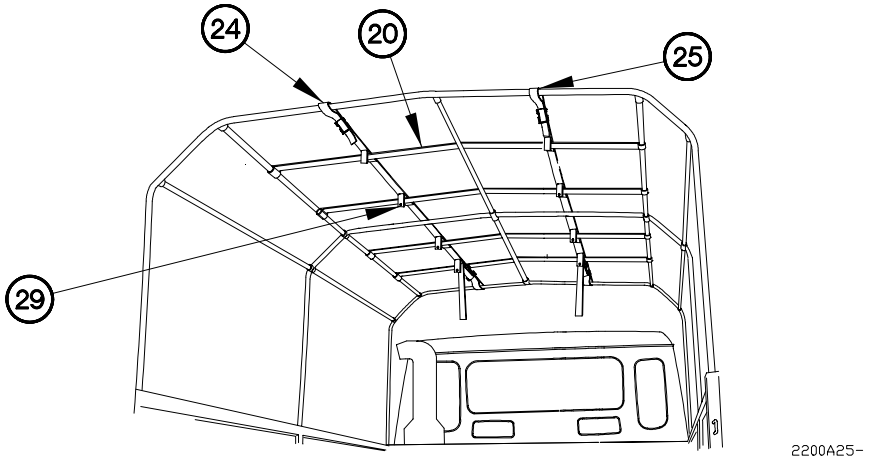
39. Install two strap ends through buckle loop ends on left strap support (24) and right strap support (25).



NOTE

Adjust braces as needed to snap and attach flaps over braces.

40. Close four flaps (29) over four braces (20) on left strap support (24) and right strap support (25).



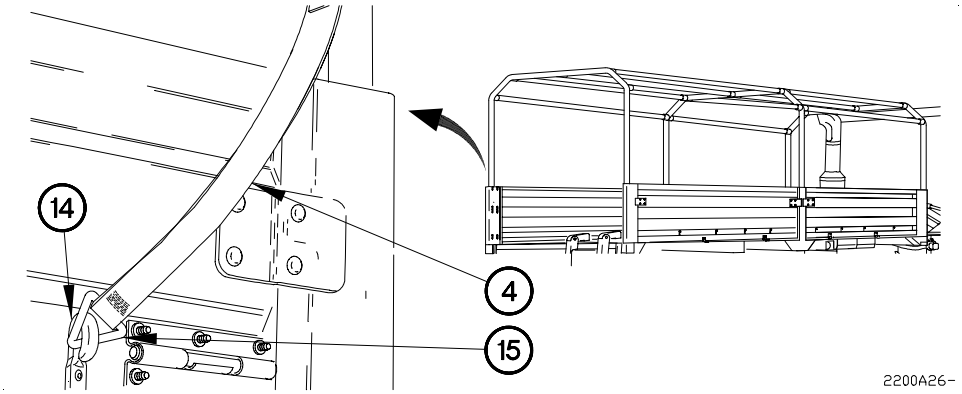
CARGO COVER KIT INSTALLATION/REMOVAL - Continued 0022 00

SOFT TOP (STEEL BOWS) INSTALLATION - Continued

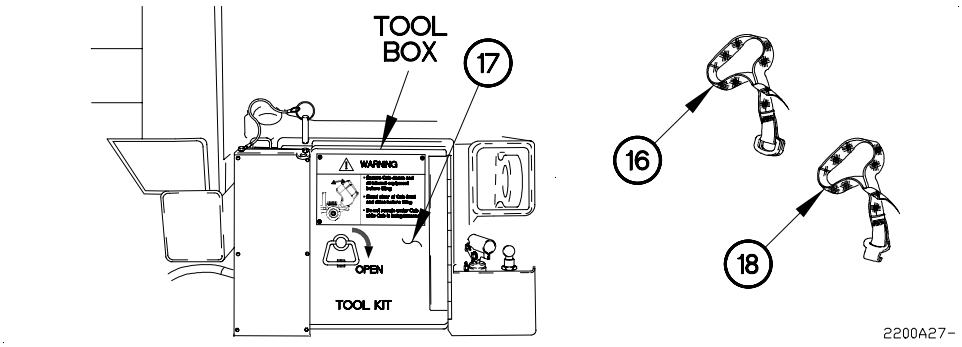
NOTE

Left and right sides of front, center, and rear bows are secured the same way. Rear bow left side shown.

41. Position tiedown strap (4) on J-hook (14) with tri-ring (15).
42. Tighten tiedown strap (4).
43. Perform steps 41 and 42 on remaining tiedown straps.



44. Open door (17) on tool box.
45. Remove three cargo cover tiedowns (18) from tool box.
46. Stow stowage strap (16) in tool box.
47. Close door (17) on tool box.



CARGO COVER KIT INSTALLATION/REMOVAL - Continued 0022 00

SOFT TOP (STEEL BOWS) INSTALLATION - Continued

WARNING

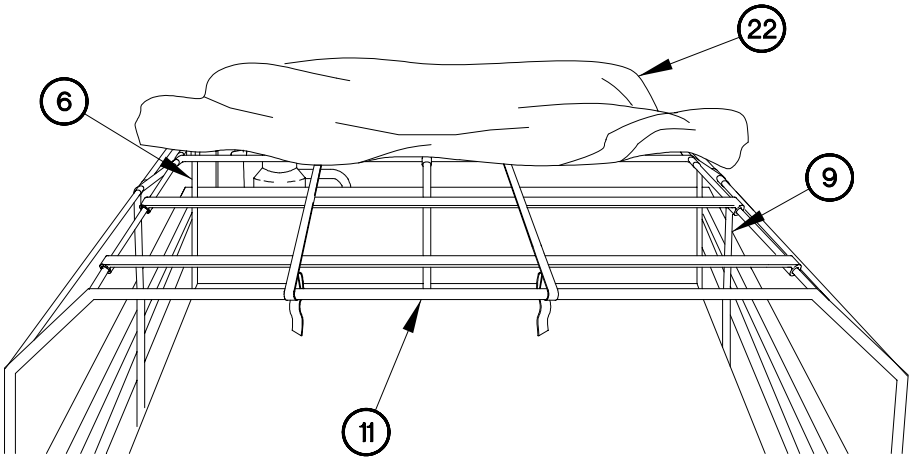
Cargo cover weighs approximately 60 lbs (27 kgs). Arctic cargo cover weighs approximately 100 lbs (45 kgs). An assistant is required to lift cargo cover. Failure to comply may result in injury to personnel or damage to equipment.

NOTE

Steps 48 through 71 require the aid of an assistant.

Cargo cover is marked with FRONT on the front flap.

48. Position cargo cover (22) on front bow (6), center bow (9), and rear bow (11).



2200A28-

CARGO COVER KIT INSTALLATION/REMOVAL - Continued 0022 00

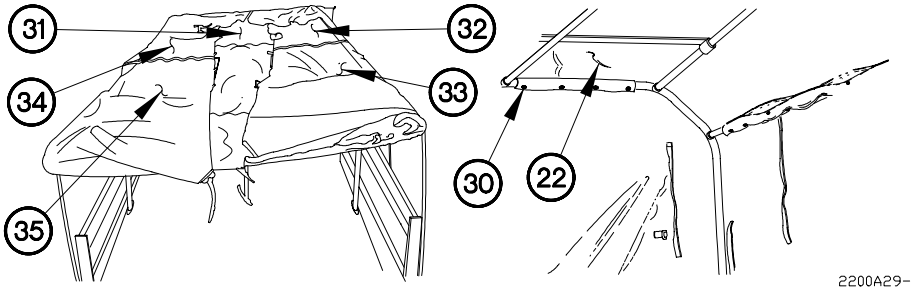
SOFT TOP (STEEL BOWS) INSTALLATION - Continued

NOTE

Use snap extensions as required.

49. Fasten snaps (30) on front, rear, sides, and center of cargo cover (22).

50. Unfold front flap (31), right side front flap (32), right side rear flap (33), left side front flap (34), and left side rear flap (35).

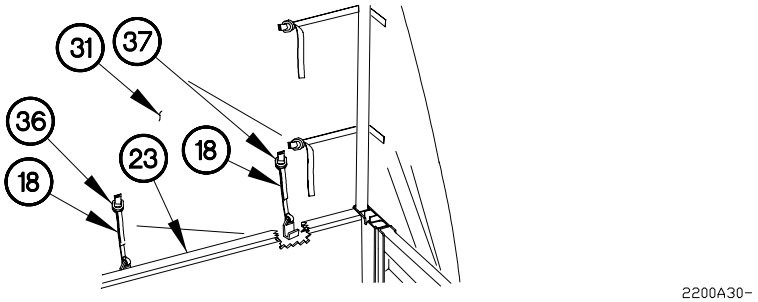


NOTE

Cargo covers are equipped with either D-rings or buckles and D-rings. Cargo cover with D-rings shown.

51. Install cargo cover tiedown (18) in center D-ring (36) on front flap (31) with hook end of strap in outside lip of cargo bed (23).

52. Install cargo cover tiedown (18) in right side D-ring (37) on front flap (31) with hook end of strap in outside lip of cargo bed (23).

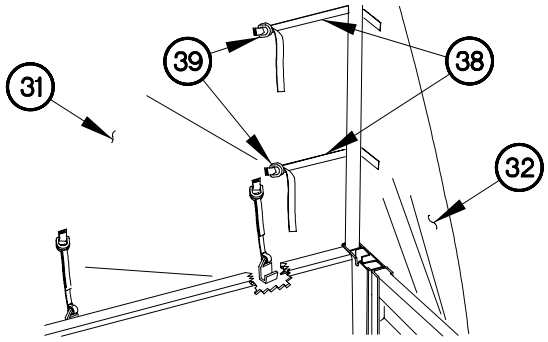


CARGO COVER KIT INSTALLATION/REMOVAL - Continued 0022 00

SOFT TOP (STEEL BOWS) INSTALLATION - Continued

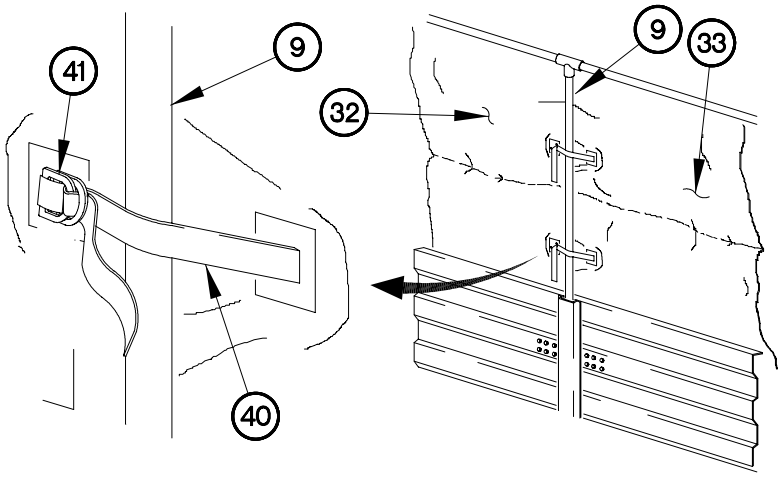
53. Install two straps (38) on right side front flap (32) in two D-rings (39) on front flap (31).

54. Perform steps 52 and 53 on left side front flap.



55. Install two straps (40) from right side rear flap (33) on inside of center bow (9) in two D-rings (41) on right side front flap (32).

56. Perform step 55 on left side of vehicle.



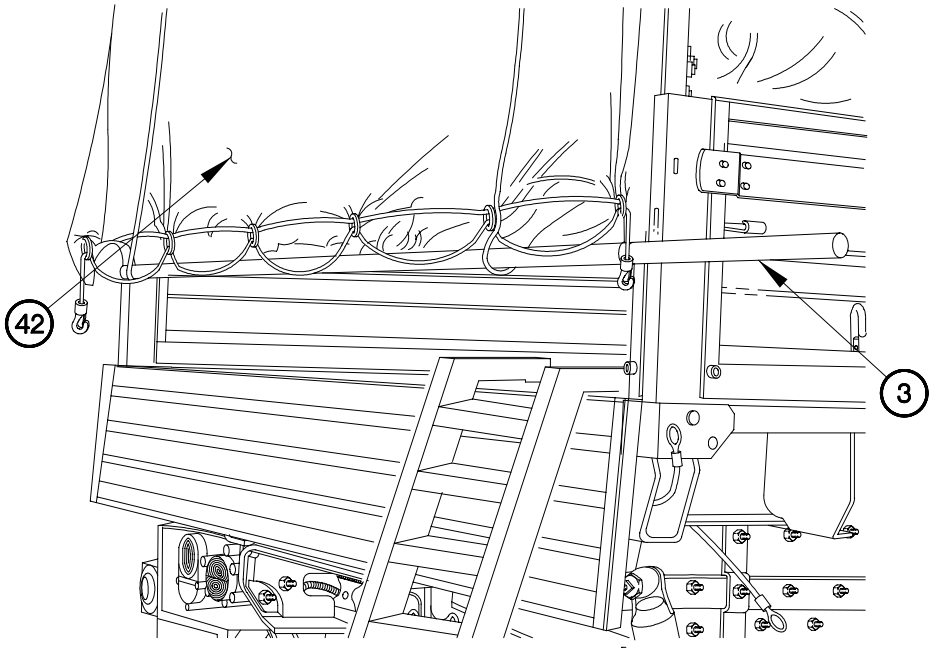
CARGO COVER KIT INSTALLATION/REMOVAL - Continued 0022 00

SOFT TOP (STEEL BOWS) INSTALLATION - Continued

57. Unfold rear flap (42).

58. Position steel pole (3) in lower portion of rear flap (42).

59. Stow ladder (WP 0021 00).



2200A33-

CARGO COVER KIT INSTALLATION/REMOVAL - Continued 0022 00

SOFT TOP (STEEL BOWS) INSTALLATION - Continued

NOTE

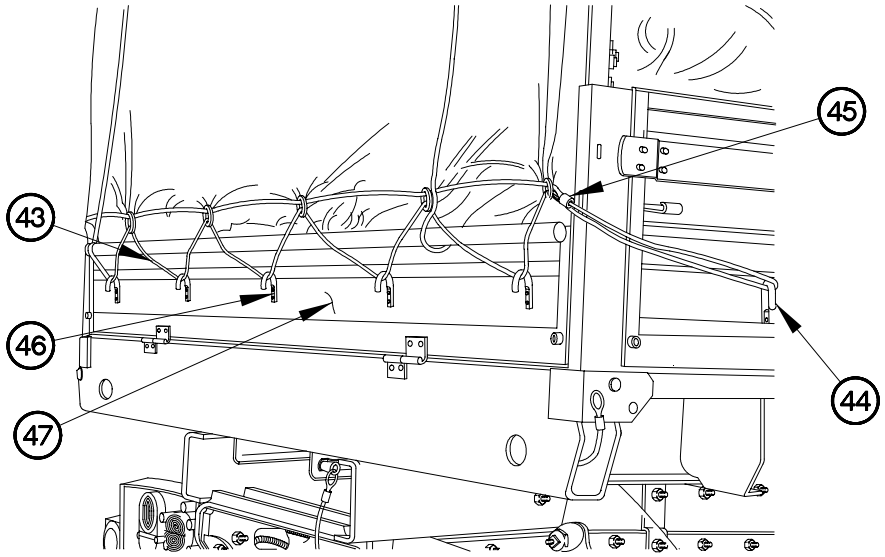
Cargo cover flaps are equipped with either D-rings or buckles and D-rings. Cargo cover flaps with D-rings shown.

D-rings are attach to lower part of flaps with shock cord placed through D-rings. Shock cord is attached to J-hooks on cargo bed to hold flap down.

60. Position shock cord (43) on right side of rear flap (42) on J-hook (44) and D-ring (45).

61. Perform step 60 on left side of vehicle.

62. Install shock cord (43) on five J-hooks (46) on tailgate (47).



2200A34-

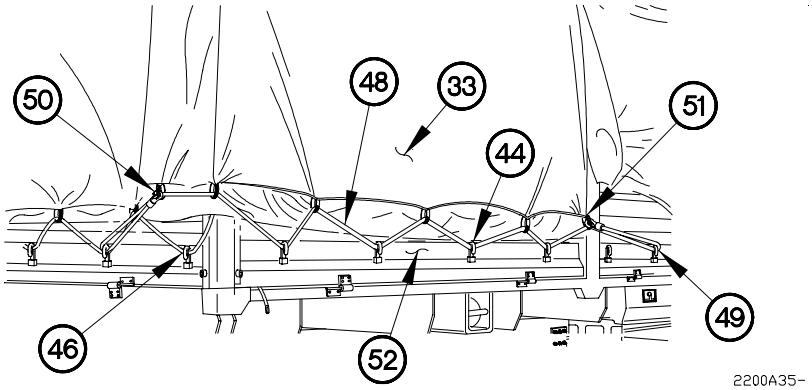
CARGO COVER KIT INSTALLATION/REMOVAL - Continued 0022 00

SOFT TOP (STEEL BOWS) INSTALLATION - Continued

63. Position shock cord (48) on right side rear flap (33) on J-hooks (48 and 51) and D-rings (52 and 53).

64. Install shock cord (48) on four J-hooks (44) on right rear side panel (52).

65. Perform steps 63 and 64 on left side of vehicle.

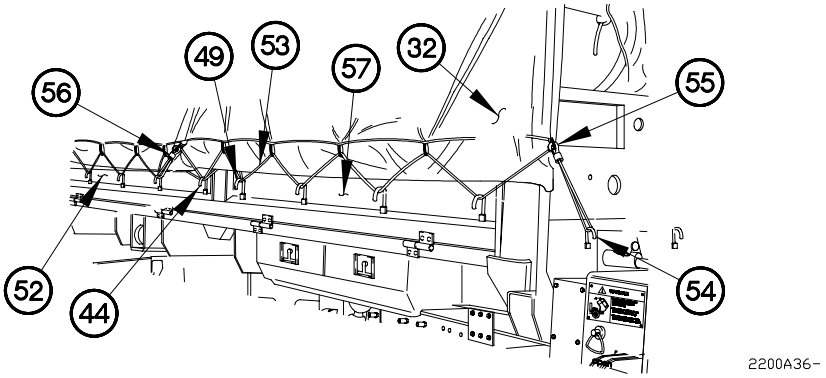


66. Position shock cord (53) on right side front flap (32) on J-hook (54) and D-ring (55).

67. Position shock cord (53) on right side front flap (32) on J-hook (44) and D-ring (56).

68. Install shock cord (53) on four J-hooks (49) on right front side panel (57) and J-hook (44) on right rear side panel (52).

69. Perform steps 66 through 68 on left side of vehicle.

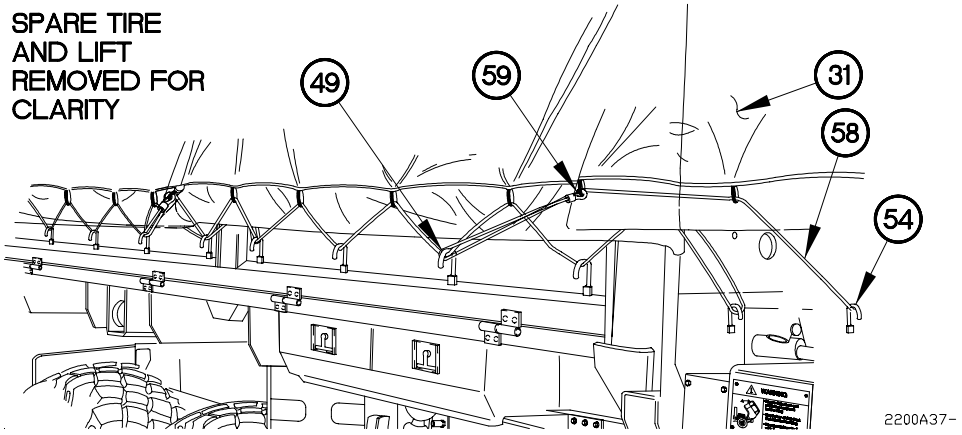


CARGO COVER KIT INSTALLATION/REMOVAL - Continued 0022 00

SOFT TOP (STEEL BOWS) INSTALLATION - Continued

70. Install shock cord (58) on right side of front flap (31) on J-hook (54).

71 Install shock cord (57) on right side of front flap (31) on J-hook (49) and D-ring (59).



72. Perform steps 70 and 71 on left side of vehicle.

73. Raise spare tire (WP 0085 00).

SOFT TOP (STEEL BOWS) REMOVAL

1. Lower spare tire (WP 0085 00).

CARGO COVER KIT INSTALLATION/REMOVAL - Continued 0022 00

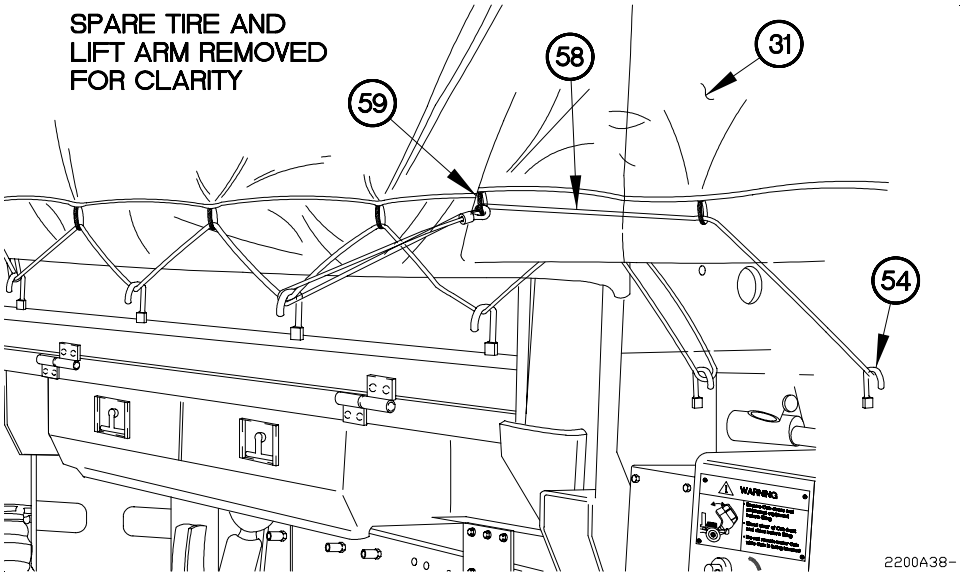
SOFT TOP (STEEL BOWS) REMOVAL - Continued

NOTE

Cargo cover flaps are equipped with either D-rings or loops and D-rings. Cargo cover flaps with D-rings shown.

Steps 2 through 28 require the aid of an assistant.

2. Remove shock cord (58) from D-ring (59) on right side of front flap (31).
3. Remove shock cord (58) from J-hook (54).
4. Perform steps 2 and 3 on left side of front flap.



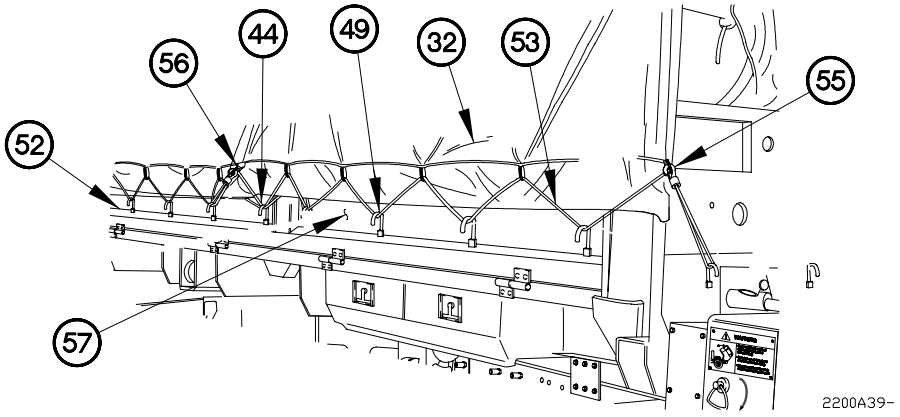
CARGO COVER KIT INSTALLATION/REMOVAL - Continued 0022 00

SOFT TOP (STEEL BOWS) REMOVAL - Continued

5. Remove shock cord (53) from four J-hooks (49) on right front side panel (57) and J-hook (44) on right rear side panel (52).

6. Remove shock cord (53) from D-rings (57 and 58) on right side front flap (32).

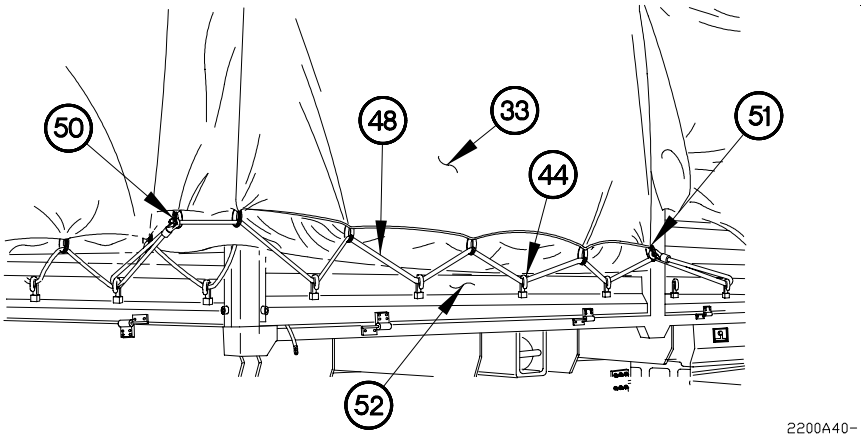
7 Perform steps 5 and 6 on left side front flap.



8. Remove shock cord (48) from four J-hooks (44) on right rear side panel (52).

9. Remove shock cord (48) from D-rings (52 and 53) on right side rear flap (33).

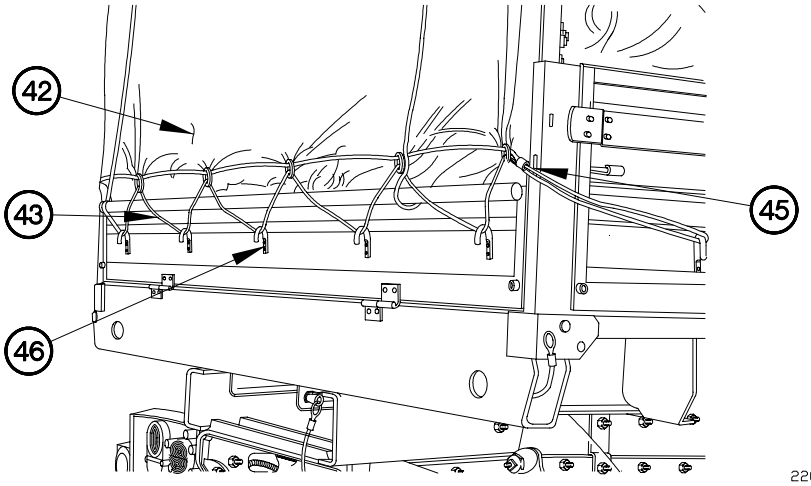
10. Perform steps 8 and 9 on left side rear flap.



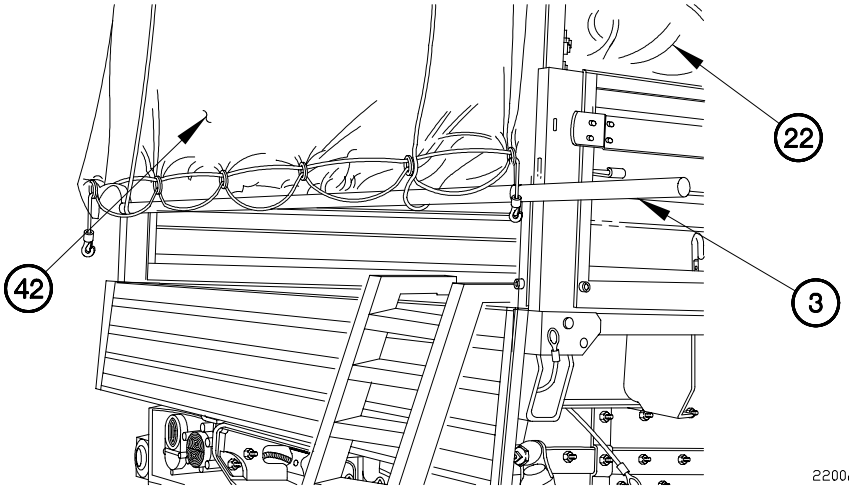
CARGO COVER KIT INSTALLATION/REMOVAL - Continued 0022 00

SOFT TOP (STEEL BOWS) REMOVAL - Continued

11. Remove shock cord (44) from five J-hooks (46).
12. Remove shock cord (44) from D-ring (45) on rear flap (43).
13. Perform step 12 on left side of vehicle.



14. Lower ladder (WP 0021 00).
15. Remove steel pole (3) from rear flap (42).
16. Fold rear flap (42) on top of cargo cover (22).

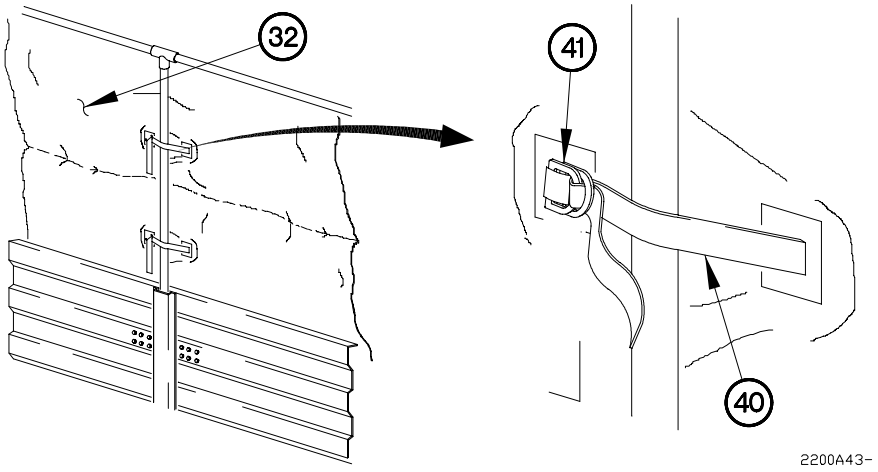


CARGO COVER KIT INSTALLATION/REMOVAL - Continued 0022 00

SOFT TOP (STEEL BOWS) REMOVAL - Continued

17. Remove two straps (40) from D-rings (41) on center right side front side flap (32).

18. Perform step 17 on left side of vehicle.

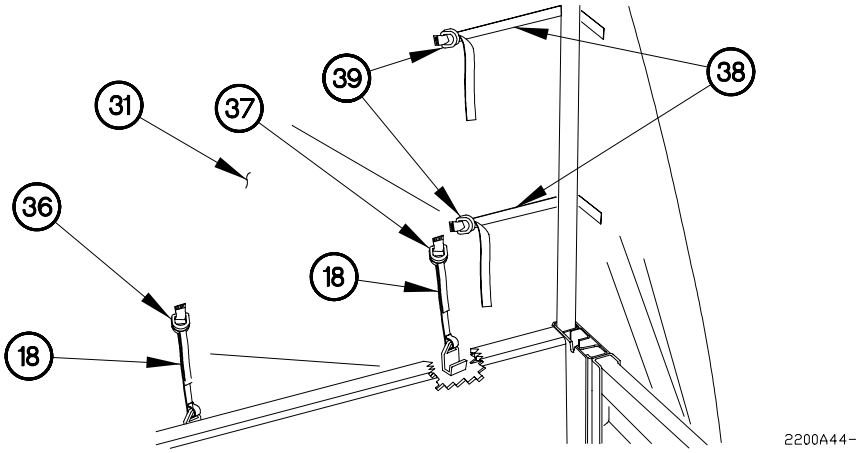


19. Remove two straps (38) from D-rings (39) on right side of front flap (31).

20. Remove cargo cover tiedown (18) from right side D-ring (37) on front flap (31).

21. Perform steps 19 and 20 on left side of front flap.

22. Remove cargo cover tiedown (18) from center D-ring (36) on front flap (31).



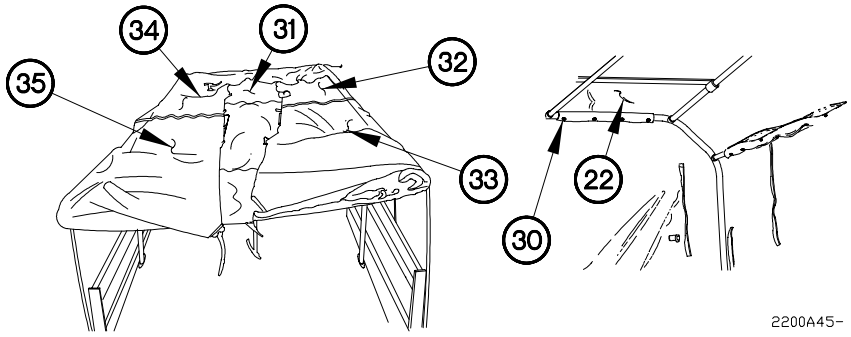
CARGO COVER KIT INSTALLATION/REMOVAL - Continued 0022 00

SOFT TOP (STEEL BOWS) REMOVAL - Continued

23. Fold front flap (31), right side front flap (32), right side rear flap (33), left side front flap (34), and left side rear flap (35) on top of cargo cover (22).

24. Unfasten snaps (30) on front, rear, sides, and center of cargo cover (22).

25. Fold cargo cover (22) to front of vehicle.



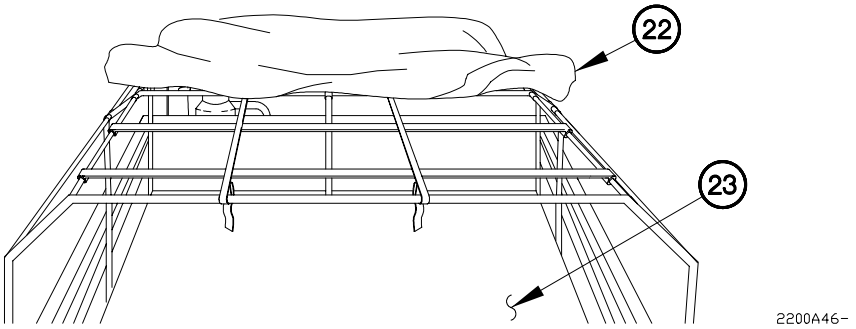
26. Fold right side of cargo cover (22) toward center of cargo bed (23).

27. Fold left side of cargo cover (22) toward center of cargo bed (23).

WARNING

Cargo cover weighs approximately 60 lbs (27 kgs). Arctic cargo cover weighs approximately 100 lbs (45 kgs). An assistant is required to lift cargo cover. Failure to comply may result in injury to personnel or damage to equipment.

28. Remove cargo cover (22) from vehicle.



CARGO COVER KIT INSTALLATION/REMOVAL - Continued 0022 00

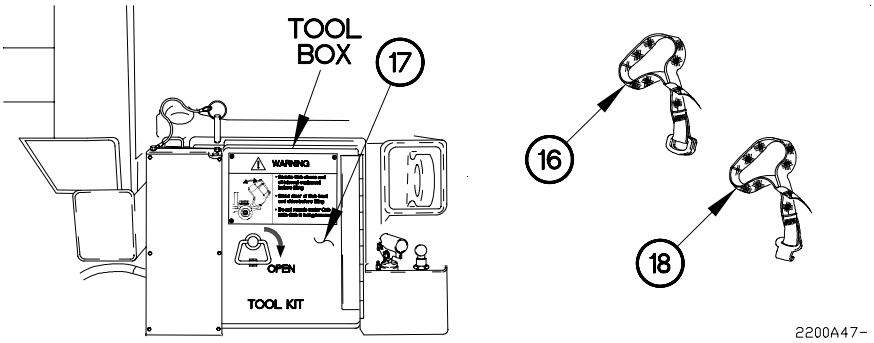
SOFT TOP (STEEL BOWS) REMOVAL - Continued

29. Open door (17) on tool box.

30. Remove stowage strap (16) from tool box.

31. Stow three cargo cover tiedowns (18) in tool box.

32. Close door (17) on tool box.



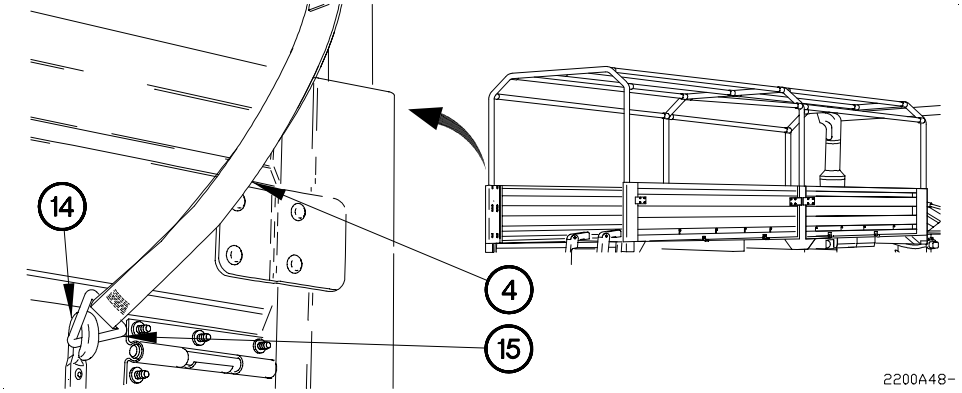
NOTE

Left and right sides of front, center, and rear bows are unsecured the same way. Rear bow left side shown.

33. Loosen tiedown strap (4).

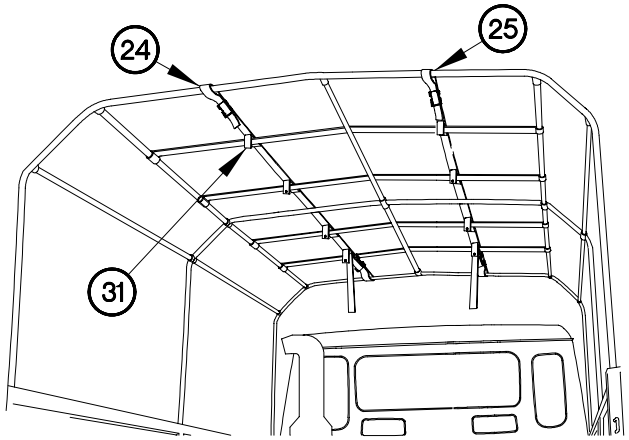
34. Remove tri-ring (15) on tiedown strap (4) from J-hook (14).

35. Perform steps 33 and 34 on remaining tiedown straps.



SOFT TOP (STEEL BOWS) REMOVAL - Continued

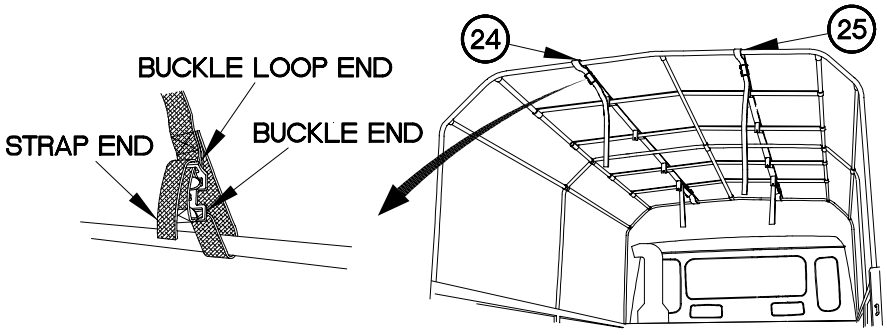
36. Open four flaps (31) on left strap support (24) and right strap support (25).



2200A49-

37. Remove two rear strap ends from buckle loop ends on left strap support (24) and right strap support (25).

38. Loosen left rear strap support (24).



2200A50-

CARGO COVER KIT INSTALLATION/REMOVAL - Continued 0022 00

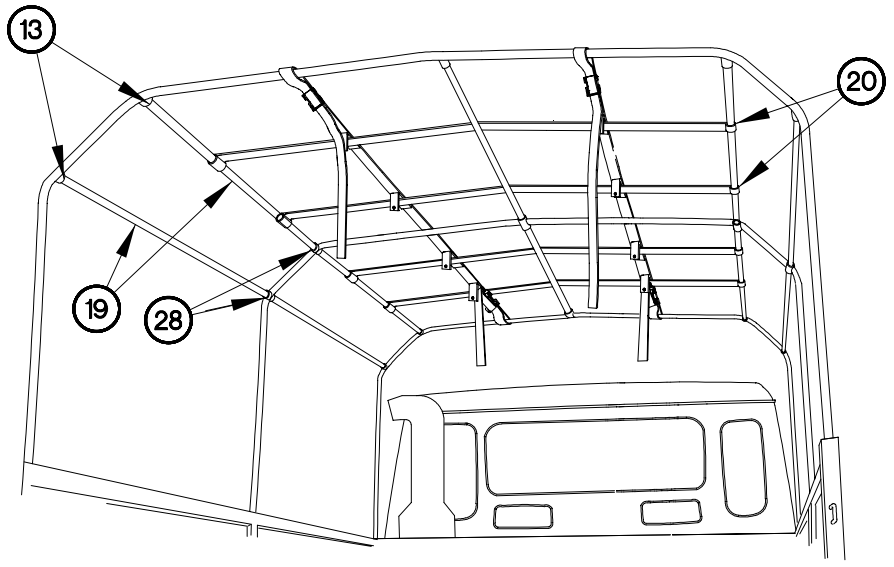
SOFT TOP (STEEL BOWS) REMOVAL - Continued

NOTE

Left and right tubes are removed the same way. Left side tubes shown.

Steps 39 through 46 require the aid of an assistant.

39. Remove rear tube (19) from rear bow bracket (13) and center bow bracket (28).
40. Remove rear tube (19) from center bow bracket (28) and rear bow bracket (13).
41. Remove rear tube (19) from two braces (20).

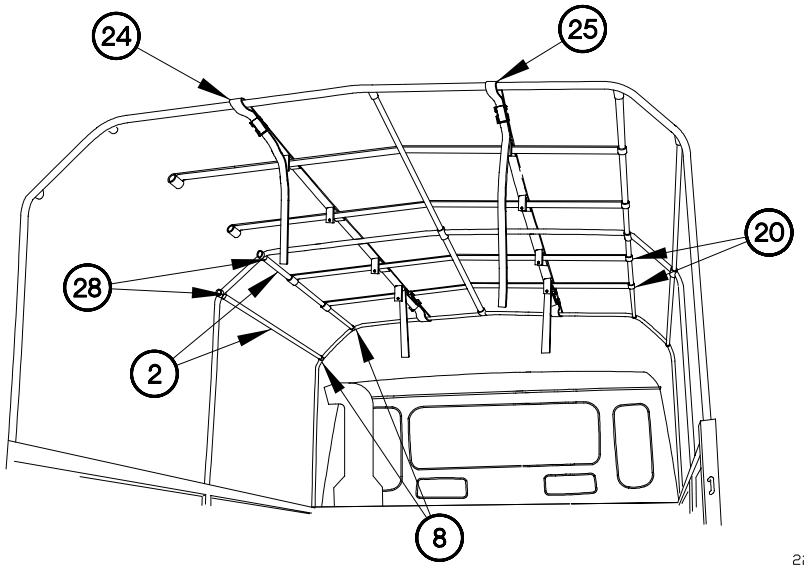


2200A51-

CARGO COVER KIT INSTALLATION/REMOVAL - Continued 0022 00

SOFT TOP (STEEL BOWS) REMOVAL - Continued

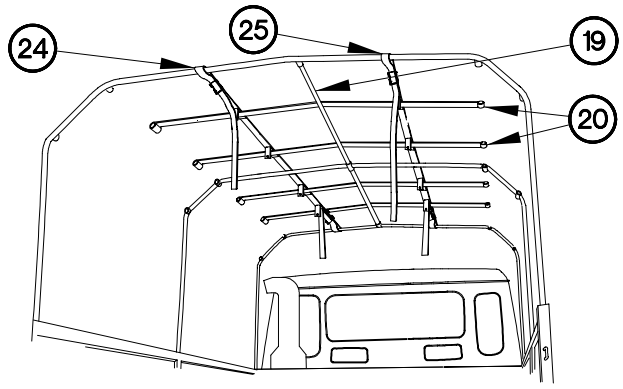
42. Remove front tube (2) from front bow bracket (8) and center bow bracket (28)
43. Remove front tube (2) from front bow bracket (8) and center bow bracket (28).
44. Remove front tube (2) from two braces (20).
45. Tighten left rear strap support (24).
46. Loosen right rear strap support (25).
47. Perform steps 39 through 44 on right side tubes.
48. Tighten right rear strap support (25).



CARGO COVER KIT INSTALLATION/REMOVAL - Continued 0022 00

SOFT TOP (STEEL BOWS) REMOVAL - Continued

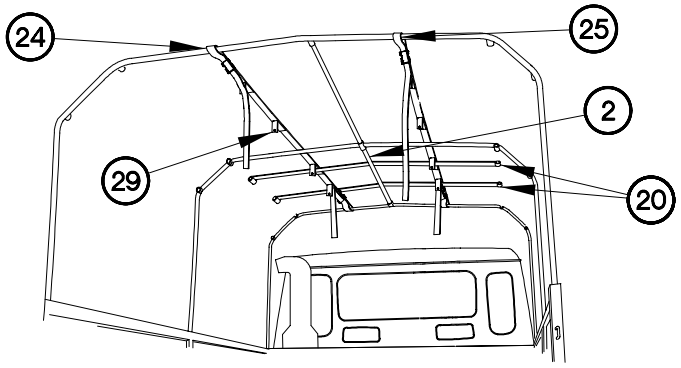
49. Remove two braces (20) from rear tube (19), left strap support (24), and right strap support (25).



2200A53-

50. Remove two braces (20) from front tube (2), left strap support (24), and right strap support (25).

51. Close four flaps (29) on left strap support (24) and right strap support (25).



2200A54-

CARGO COVER KIT INSTALLATION/REMOVAL - Continued 0022 00

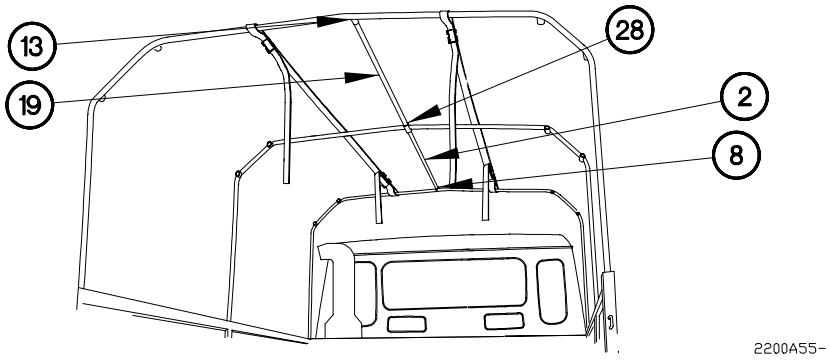
SOFT TOP (STEEL BOWS) REMOVAL - Continued

NOTE

Steps 52 and 53 require the aid of an assistant.

52. Remove rear tube (19) from center bow bracket (28) and rear bow bracket (13).

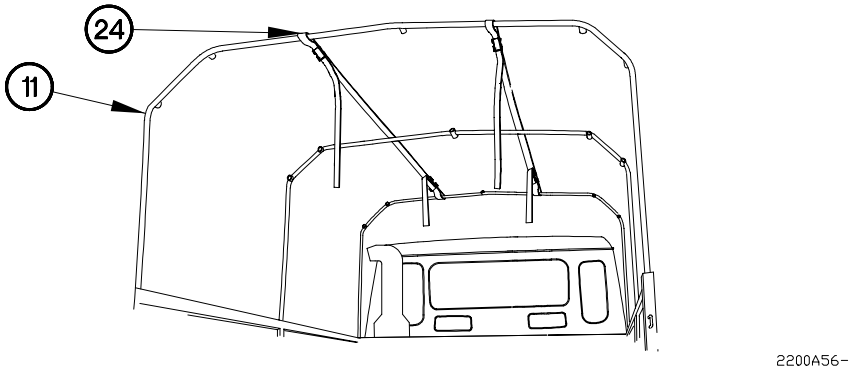
53. Remove front tube (2) from front bow bracket (8) and center bow bracket (28).



NOTE

Left and right strap supports are removed the same way. Left strap support shown.

54. Remove left strap support (24) from rear bow (11).

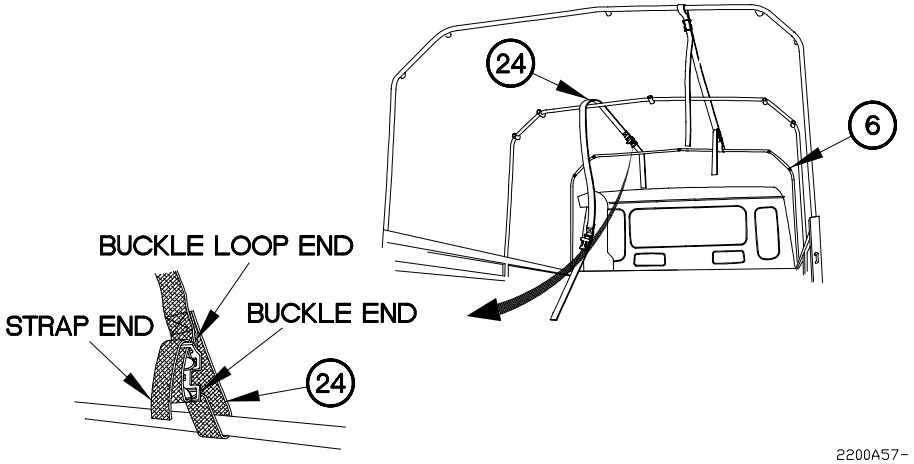


CARGO COVER KIT INSTALLATION/REMOVAL - Continued 0022 00

SOFT TOP (STEEL BOWS) REMOVAL - Continued

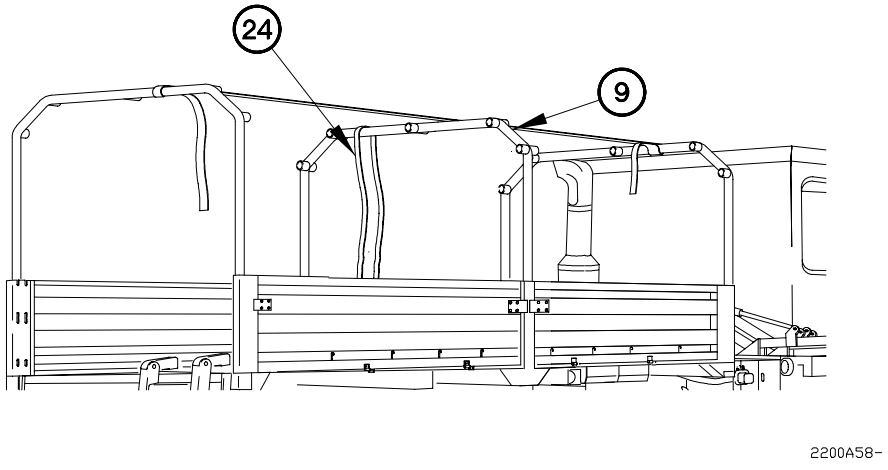
55. Remove front strap end from buckle loop end on left strap support (24).

56. Remove left strap support (24) from front bow (6).



57. Remove left strap support (24) from center bow (9).

58. Perform steps 54 through 57 on right strap support.



CARGO COVER KIT INSTALLATION/REMOVAL - Continued 0022 00

SOFT TOP (STEEL BOWS) REMOVAL - Continued

NOTE

Steps 59 through 64 require the aid of an assistant.

59. Remove front bow (6) from front cargo bed pockets (7).

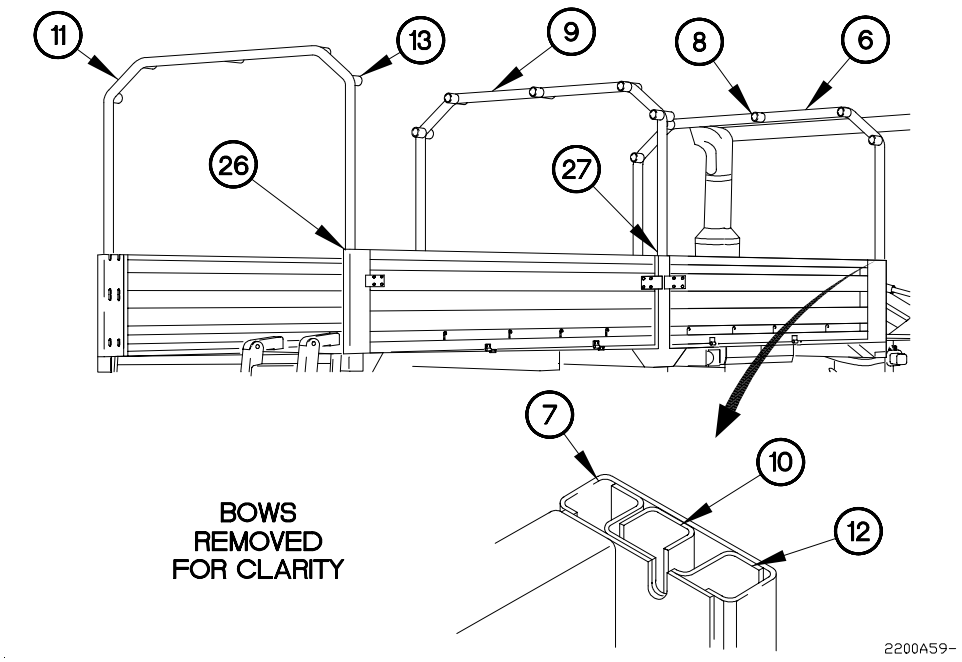
60. Position front bow (6) in front cargo bed pockets (7) with front bow brackets (8) towards front of vehicle.

61. Remove center bow (9) from rear pockets of center cargo bed stakes (27).

62. Position center bow (9) in middle cargo bed pockets (10).

63. Remove rear bow (11) from rear pockets of rear cargo bed stakes (26).

64. Position rear bow (11) in rear cargo bed pockets (12) with rear bow brackets (13) towards rear of vehicle.



CARGO COVER KIT INSTALLATION/REMOVAL - Continued 0022 00

SOFT TOP (STEEL BOWS) REMOVAL - Continued

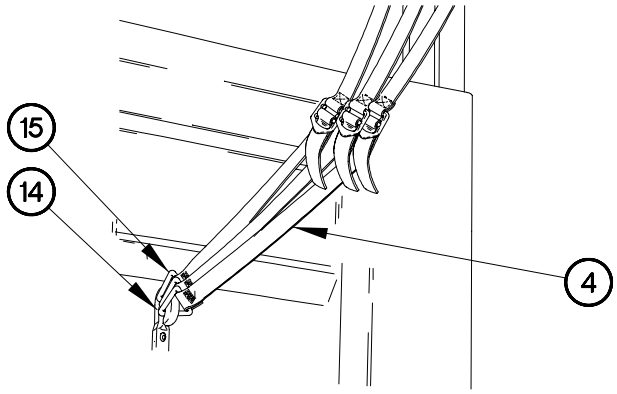
NOTE

Left and right sides of front, center, and rear bows are secured the same way. Right side shown.

65. Position three tiedown straps (4) on J-hook (14) with three tri-rings (15).

66. Tighten three tiedown straps (4).

67. Perform steps 65 and 66 on left side.

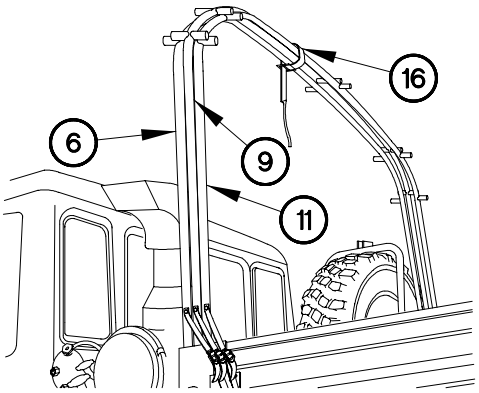


2200A60-

NOTE

Stowage strap should be positioned between center bow brackets and left inside bow brackets.

68. Install stowage strap (16) on front bow (6), center bow (9), and rear bow (11).



2200A61-

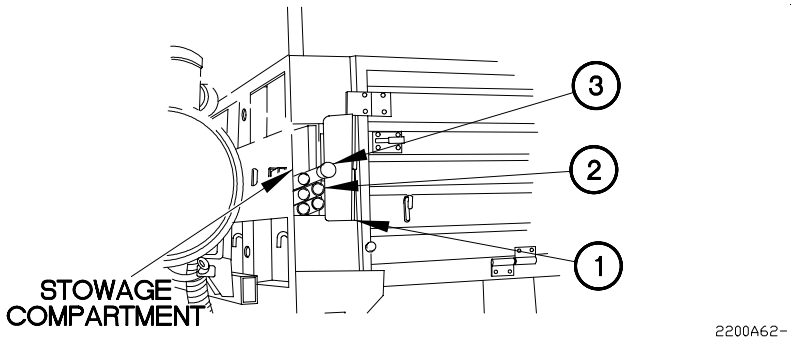
CARGO COVER KIT INSTALLATION/REMOVAL - Continued 0022 00

SOFT TOP (STEEL BOWS) REMOVAL - Continued

69. Open stowage compartment door (1).

70. Stow five front tubes (2) and steel pole (3) in stowage compartment.

71. Close stowage compartment door (1).



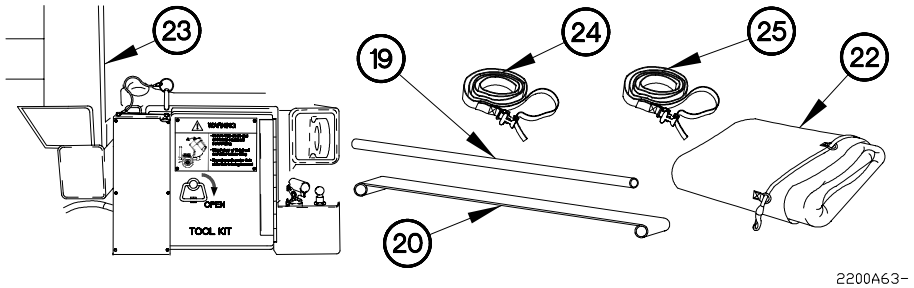
WARNING

Cargo cover weighs approximately 60 lbs (27 kgs). Arctic cargo cover weighs approximately 100 lbs (45 kgs). An assistant is required to lift cargo cover. Failure to comply may result in injury to personnel or damage to equipment.

NOTE

Step 72 requires the aid of an assistant.

72. Stow five rear tubes (19), four braces (20), left strap support (24), right strap support (25), and cargo cover (22) on cargo bed (23).



CARGO COVER KIT INSTALLATION/REMOVAL - Continued 0022 00

SOFT TOP (STEEL BOWS) REMOVAL - Continued

73. Raise spare tire (WP 0085 00).

74. Stow ladder (WP 0021 00).

SOFT TOP KIT (STEEL BOWS) REMOVAL

WARNING

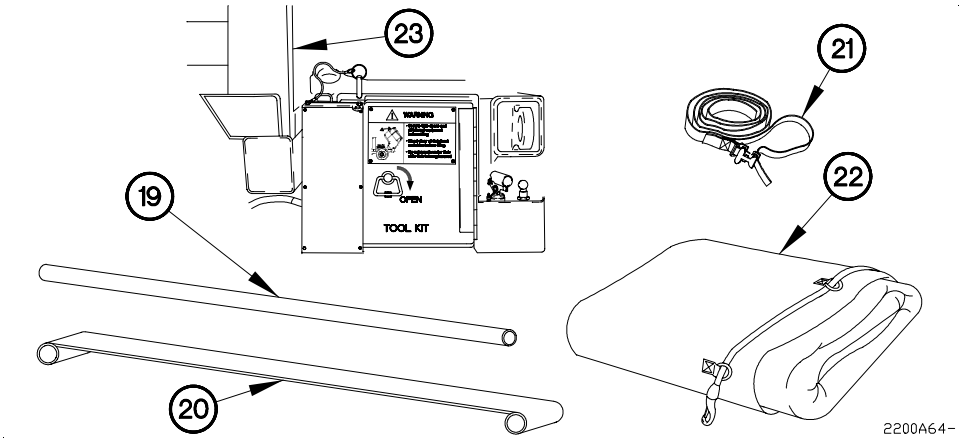
Cargo cover weighs approximately 60 lbs (27 kgs). Arctic cargo cover weighs approximately 100 lbs (45 kgs). An assistant is required to lift cargo cover. Failure to comply may result in injury to personnel or damage to equipment.

1. Lower ladder (WP 0021 00).

NOTE

Step 2 requires the aid of an assistant.

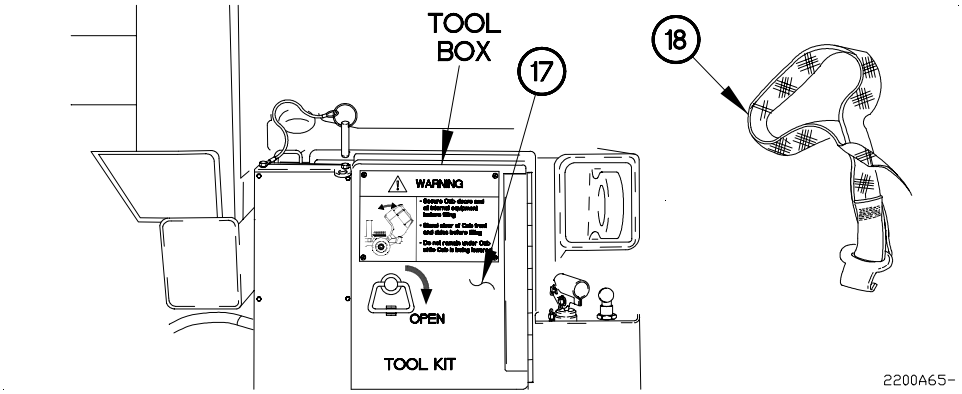
2. Remove five rear tubes (19), four braces (20), two strap supports (21), and cargo cover (22) from cargo bed (23).



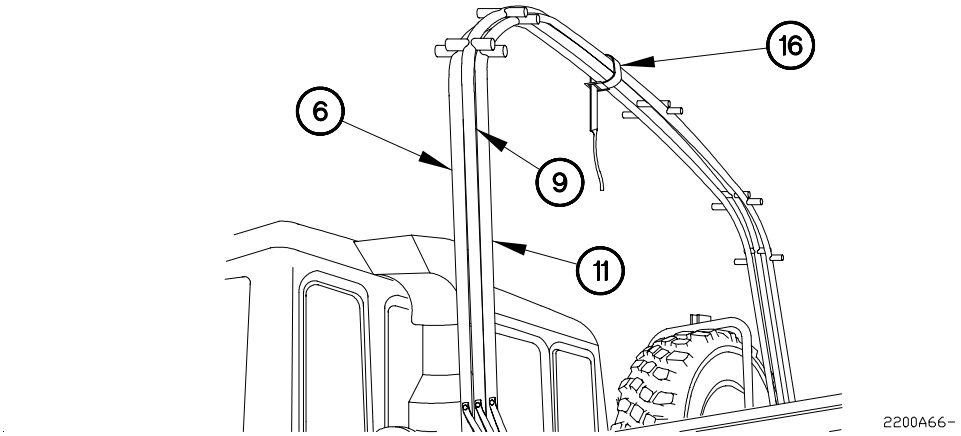
CARGO COVER KIT INSTALLATION/REMOVAL - Continued 0022 00

SOFT TOP KIT (STEEL BOWS REMOVAL) - Continued

3. Open door (17) on tool box.
4. Remove three cargo cover tiedowns (18) from tool box.
5. Close door (17) on tool box.



6. Remove stowage strap (16) from front bow (6), center bow (9), and rear bow (11).



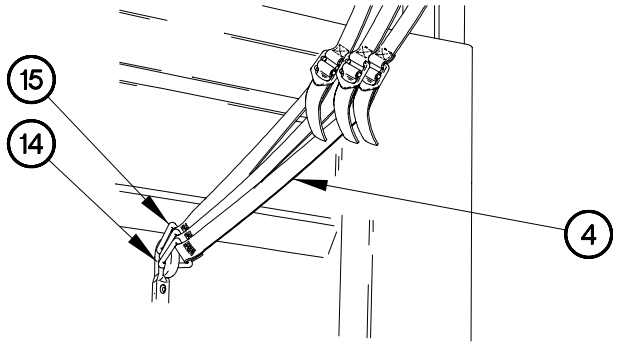
CARGO COVER KIT INSTALLATION/REMOVAL - Continued 0022 00

SOFT TOP KIT (STEEL BOWS) REMOVAL - Continued

NOTE

Left and right sides of front, center, and rear bows are unsecured the same way. Right side shown.

7. Loosen three tiedown straps (4).
8. Remove three tri-rings (14) on tiedown straps (4) from J-hook (15).
9. Perform steps 7 and 8 on left side.

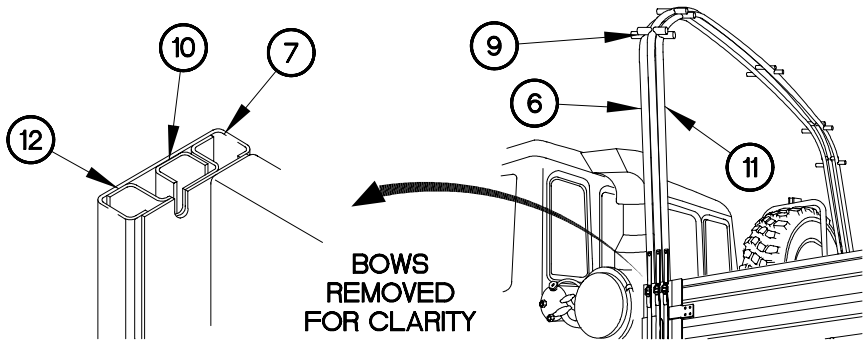


2200A67-

NOTE

Steps 10 through 12 require the aid of an assistant.

10. Remove rear bow (11) from rear cargo bed pockets (12).
11. Remove center bow (9) from middle cargo bed pockets (10).
12. Remove front bow (6) from front cargo bed pockets (7).



2200A68-

CARGO COVER KIT INSTALLATION/REMOVAL - Continued 0022 00

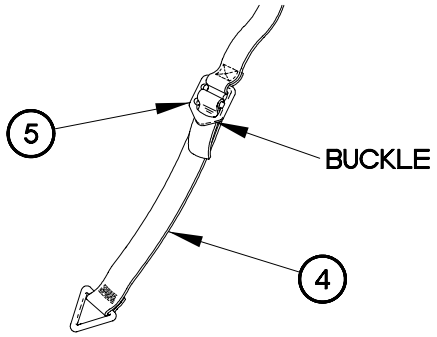
SOFT TOP (STEEL BOWS) REMOVAL - Continued

NOTE

Front, center, and rear bows have two bow straps and tiedown straps. All tiedown straps are removed from bow straps the same way. One shown.

13. Remove tiedown strap (4) from buckle on bow strap (5).

14. Perform step 13 on remaining tiedown straps.

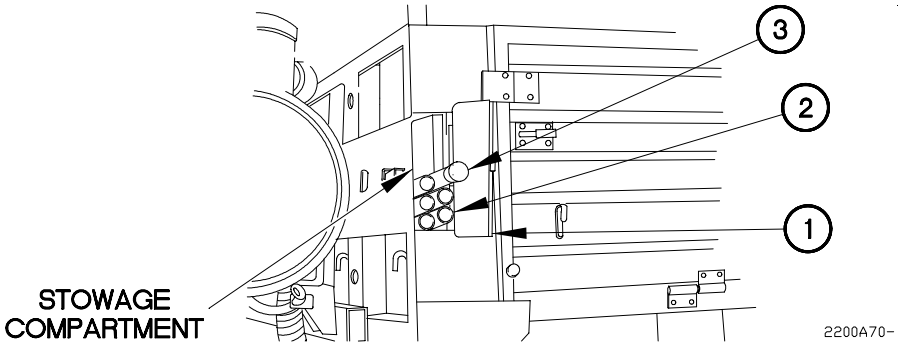


15. Open stowage compartment door (1).

16. Remove five front tubes (2) and steel pole (3) from stowage compartment.

17. Close stowage compartment door (1).

18. Raise ladder (WP 0021 00).



END OF OPERATING PROCEDURE

CARGO COVER FLAP OPERATION 0023 00

INITIAL SET UP:

Maintenance Level
Operator

References
WP 0021 00

Personnel Required
Three

GENERAL

This work package provides the data and procedures for cargo cover flap operation. Items covered include Raising Rear Flap, Lowering Rear Flap, Raising Side Flaps, and Lowering Side Flaps.

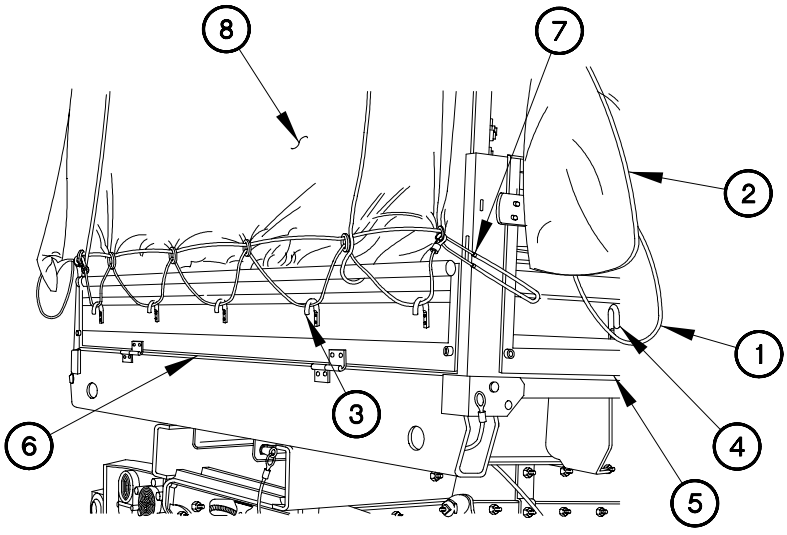
RAISING REAR FLAP

NOTE

Left and right side rear flaps are disconnected the same way. Right side rear flap shown.

1. Remove shock cord (1) on right side rear flap (2) from two J-hooks (3 and 4) on right side rear panel (5) and tailgate (6).

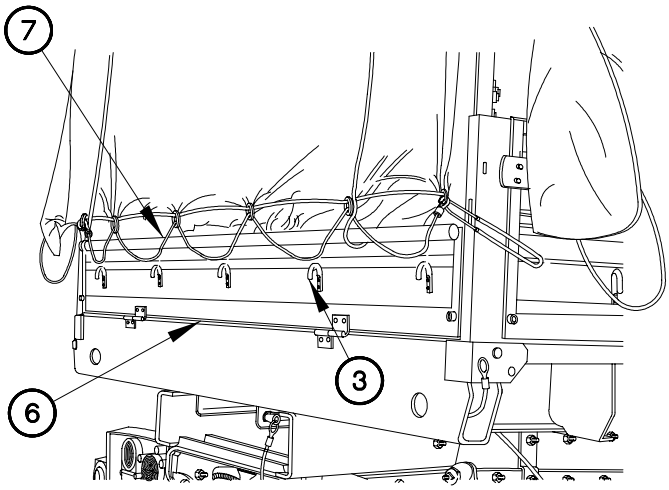
2. Remove shock cord (7) on right side of rear flap (8) from J-hook (4) on right side rear panel (5).



CARGO COVER FLAP OPERATION - Continued 0023 00

RAISING REAR FLAP - Continued

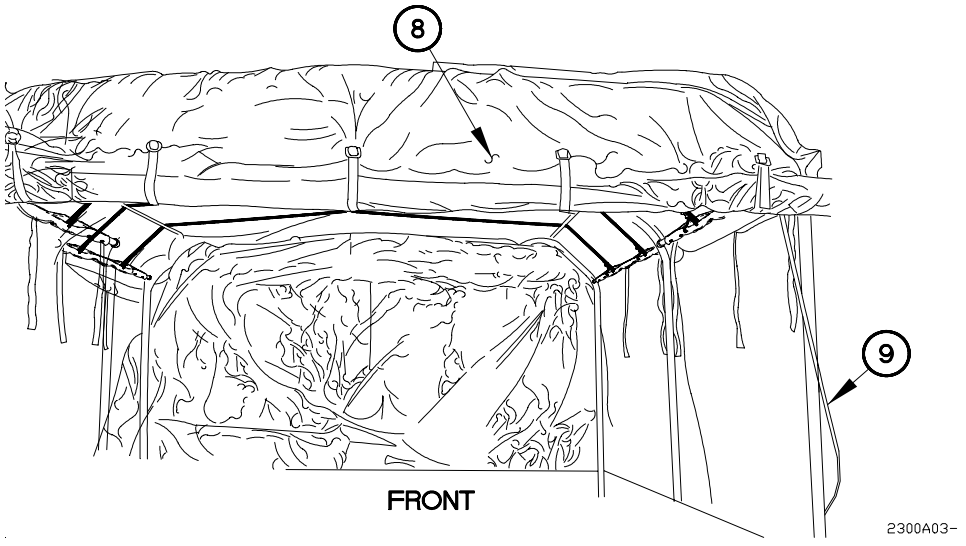
3. Perform steps 1 and 2 on left side of rear flap.
4. Remove shock cord (7) from five J-hooks (3) on tailgate (6).
5. Lower ladder (WP 0021 00).



NOTE

Steps 6 through 9 are performed from inside cargo bed.

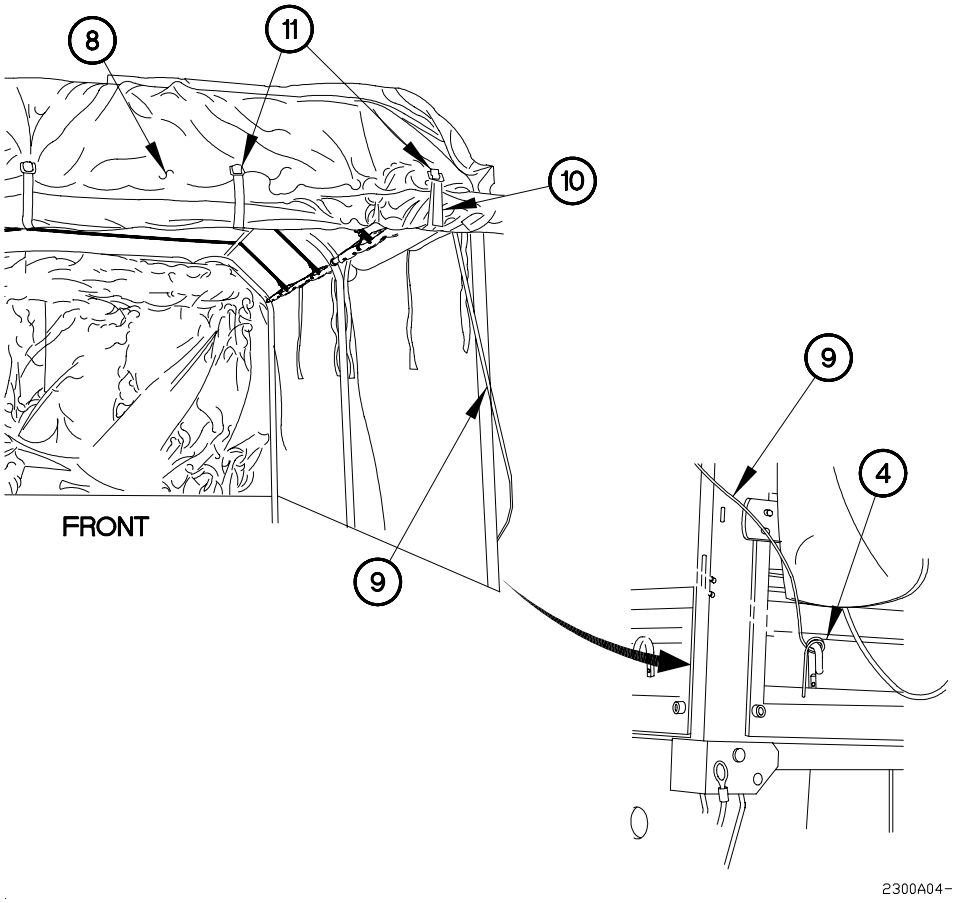
6. Pull draw string (9) to raise rear flap (8).



CARGO COVER FLAP OPERATION - Continued 0023 00

RAISING REAR FLAP - Continued

7. Tie draw string (9) to J-hook (4).
8. Install five straps (10) around rear flap (8) to five D-rings (11).
9. Stow ladder (WP 0021 00).



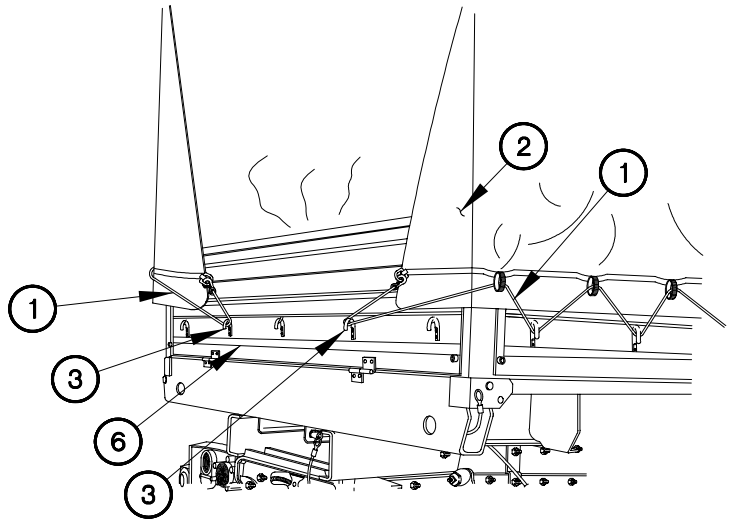
CARGO COVER FLAP OPERATION - Continued 0023 00

RAISING REAR FLAP - Continued

10. Pull right side rear flap (2) over tailgate (6).

11. Position shock cord (1) on J-hook (3).

12. Perform steps 10 and 11 on left side of rear flap.

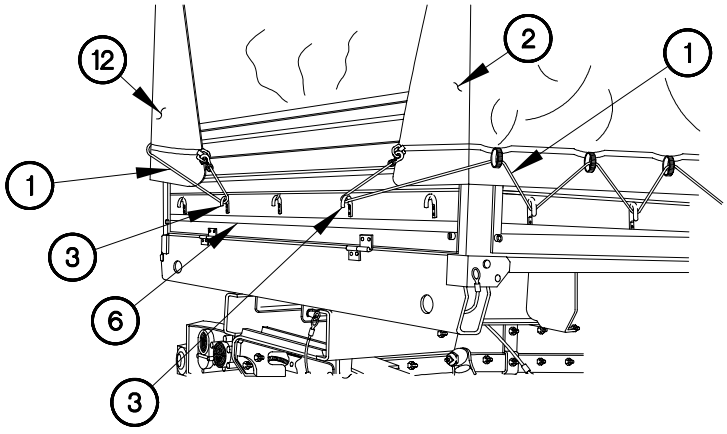


2300A05-

LOWERING REAR FLAP

1. Remove two shock cords (1) on right and left side rear flaps (2 and 12) from two J-hooks (3) on tailgate (6).

2. Lower ladder (WP 0021 00).



2300A06-

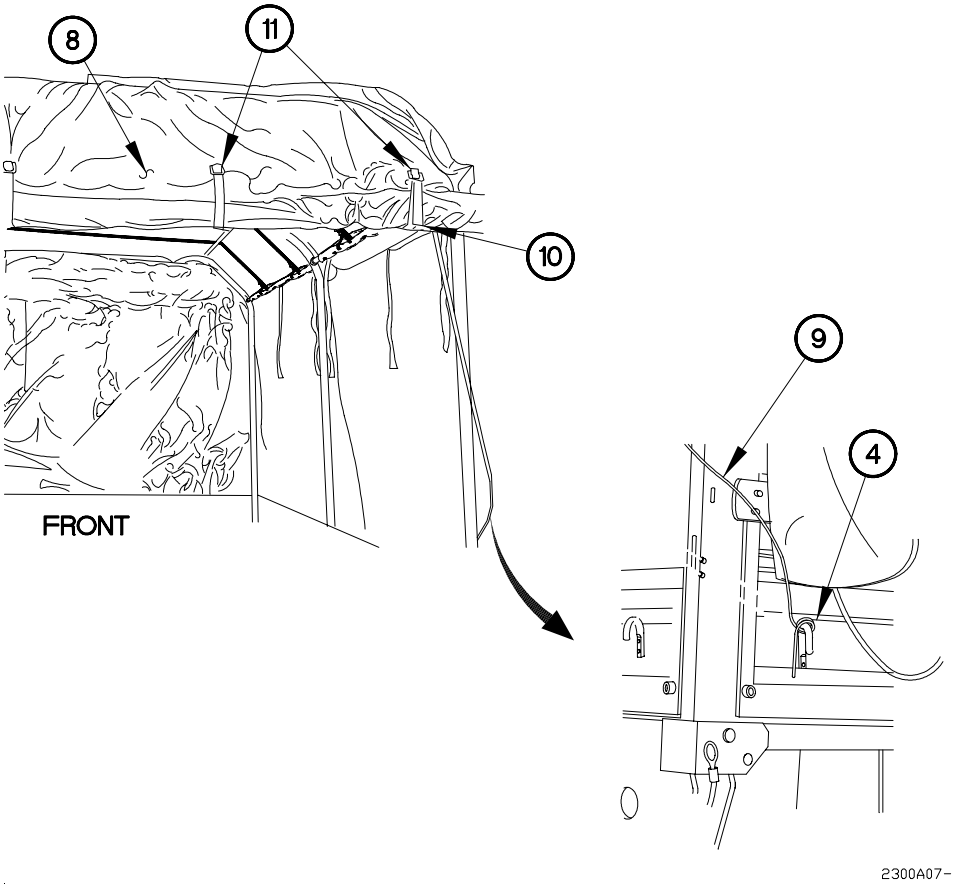
CARGO COVER FLAP OPERATION - Continued 0023 00

LOWERING REAR FLAP - Continued

NOTE

Steps 3 through 5 are performed inside cargo bed.

3. Disconnect five straps (10) from D-rings (11).
4. Remove draw string (9) from J-hook (4).
5. Lower rear flap (8) with draw string (9).
6. Stow ladder (WP 0021 00).



CARGO COVER FLAP OPERATION - Continued 0023 00

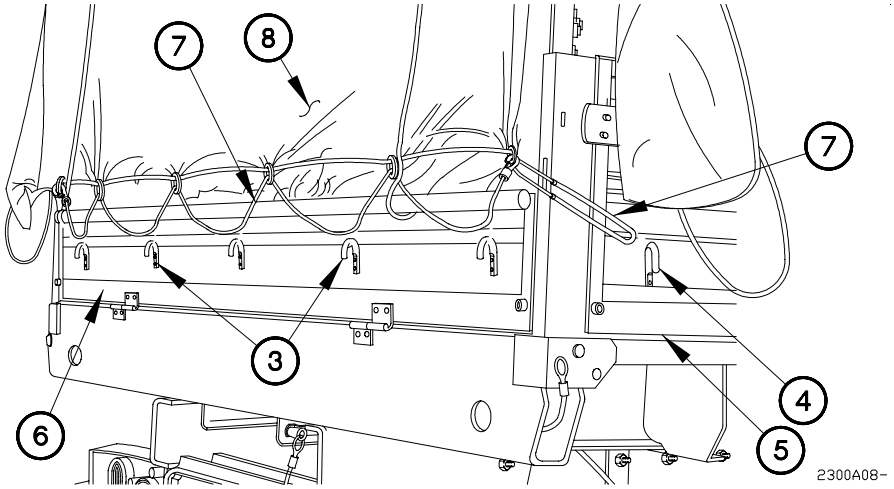
LOWERING REAR FLAP - Continued

NOTE

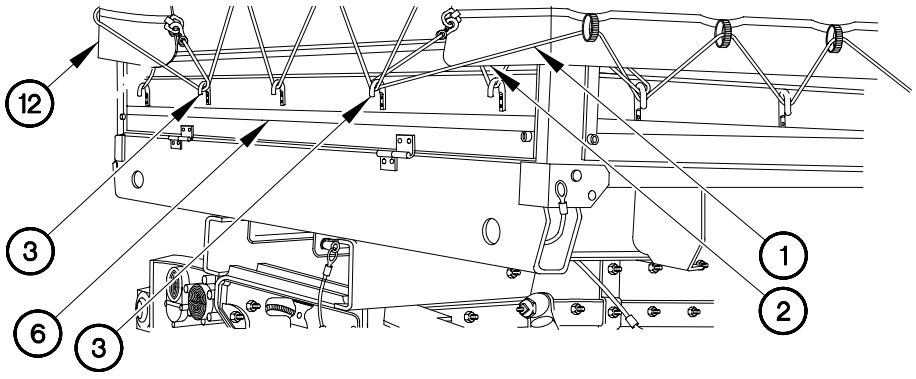
Right and left side rear flaps are installed the same way. Right side rear flap shown.

7. Install shock cord (7) on rear flap (8) to J-hook (4) on right side rear panel (5).

8. Install shock cord (7) on five J-hooks (3) on tailgate (6).



9. Install shock cord (1) from right and left side rear flaps (2 and 12) on two J-hooks (3) on tailgate (6).



CARGO COVER FLAP OPERATION - Continued 0023 00

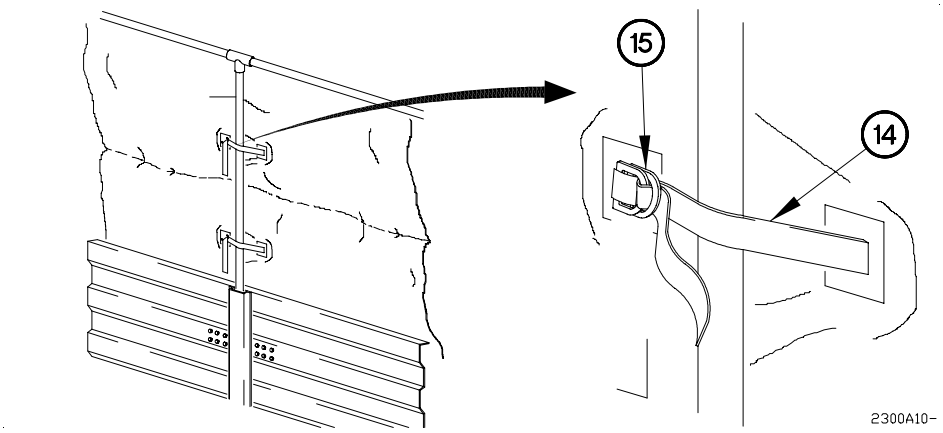
RAISING SIDE FLAPS

1. Lower ladder (WP 0021 00).
2. Raise rear flap (WP 0021 00).

NOTE

All side flaps are raised the same way. Right side rear flap shown.

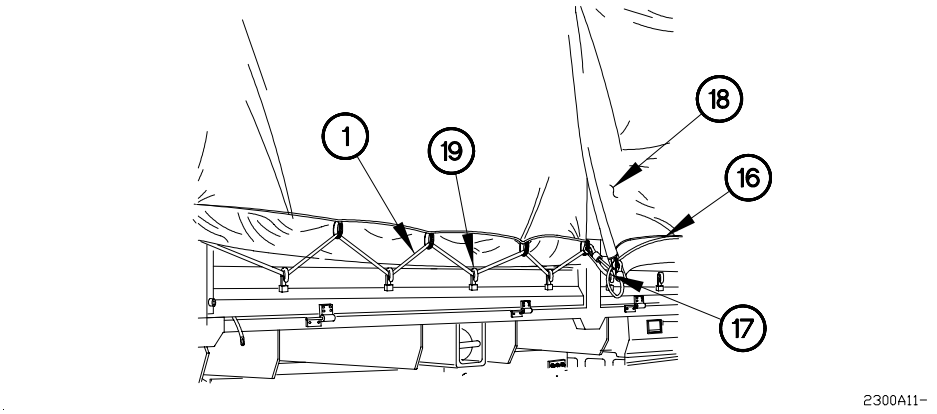
3. Disconnect two straps (14) from D-rings (15).



NOTE

Steps 4 through 8 require the aid of two assistants.

4. Remove shock cord (16) from two J-hooks (17) on right side of front flap (18).
5. Remove shock cord (1) from five J-hooks (19).



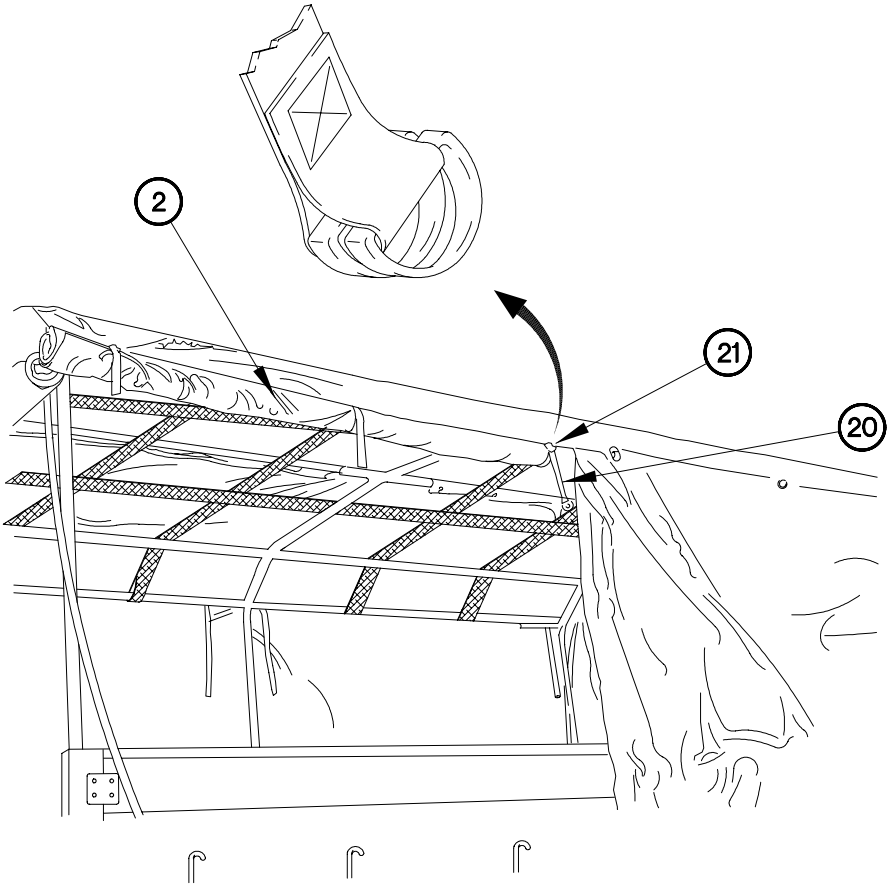
CARGO COVER FLAP OPERATION - Continued 0023 00

RAISING SIDE FLAPS - Continued

NOTE

Steps 6 through 8 are performed from inside cargo bed.

6. Roll up right side rear flap (2).
7. Wrap three straps (20) around right side rear flap (2).
8. Install three straps (20) through D-rings (21).
9. Raise ladder (WP 0021 00).



2300A12-

CARGO COVER FLAP OPERATION - Continued 0023 00

LOWERING SIDE FLAPS

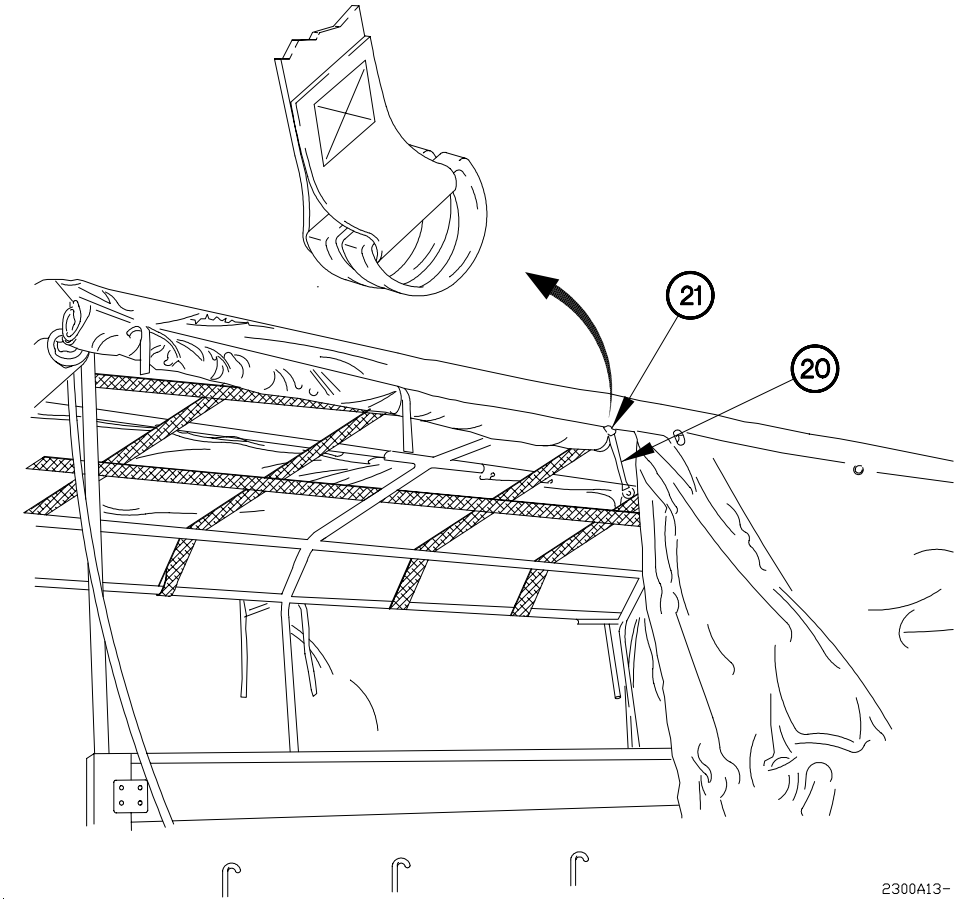
1. Lower ladder (WP 0021 00).

NOTE

All side flaps are lowered the same way. Right side rear flap shown.

Step 2 is performed from inside the cargo bed.

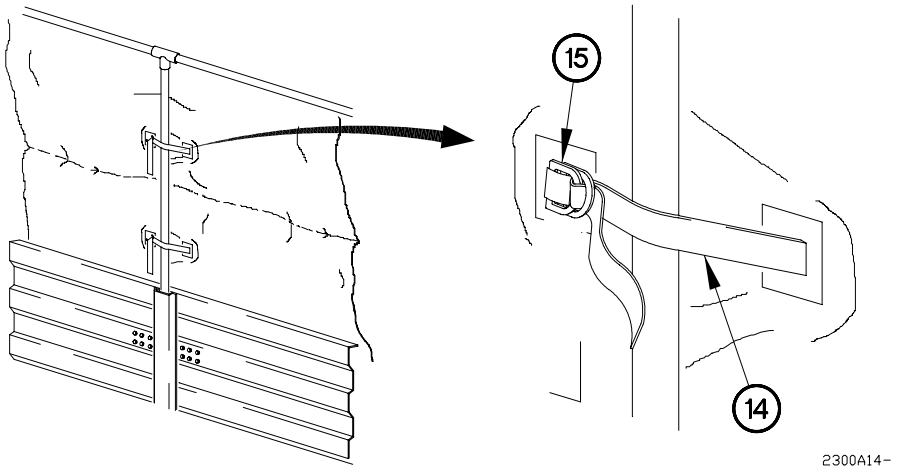
2. Remove three straps (20) from D-rings (21).



CARGO COVER FLAP OPERATION - Continued 0023 00

LOWERING SIDE FLAPS - Continued

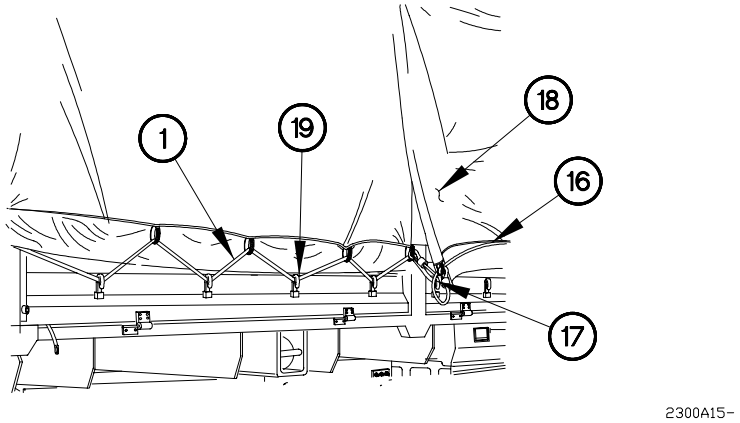
3. Connect two straps (14) to D-rings (15).



4. Install shock cord (1) on five J-hooks (19).

5. Install shock cord (16) on two J-hooks (17) on right side rear flap (18).

6. Lower rear flaps (WP 0023 00).



END OF OPERATING TASK

TROOPSEAT KIT LOWERING/RAISING 0024 00

INITIAL SETUP:

Maintenance Level	Reference
Operator	WP 0021 00

GENERAL

This work package provides the data and procedures for troopseat kit operation on the vehicle. Items covered include Lowering Troopseats and Raising Troopseats.

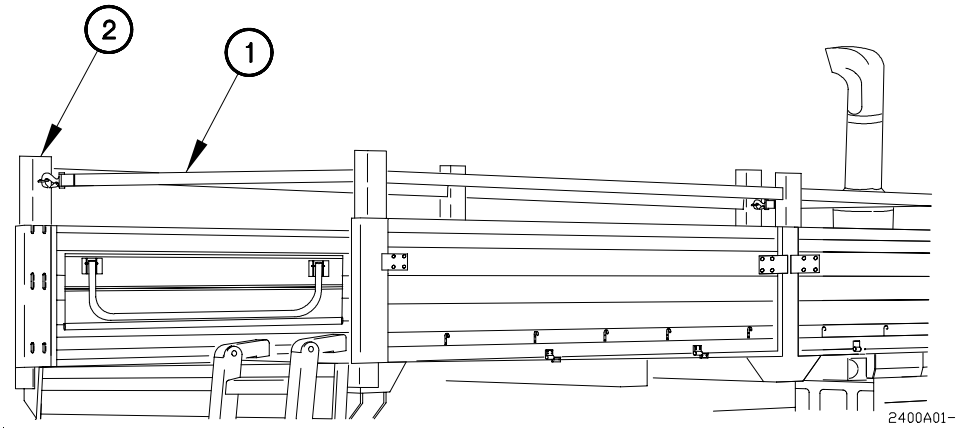
NOTE

Troopseats have two ways to secure seats in raised position. One of the ways is with a strap the other is with a holding bracket and budgie cord assembly.

LOWERING TROOPSEATS WITH STRAP.

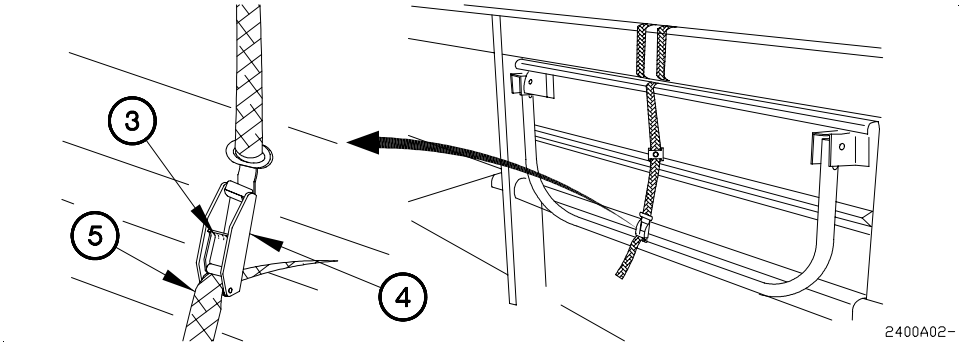
1. Lower ladder (WP 0021 00).

2. Disconnect safety strap (1) from left rear seat post (2).

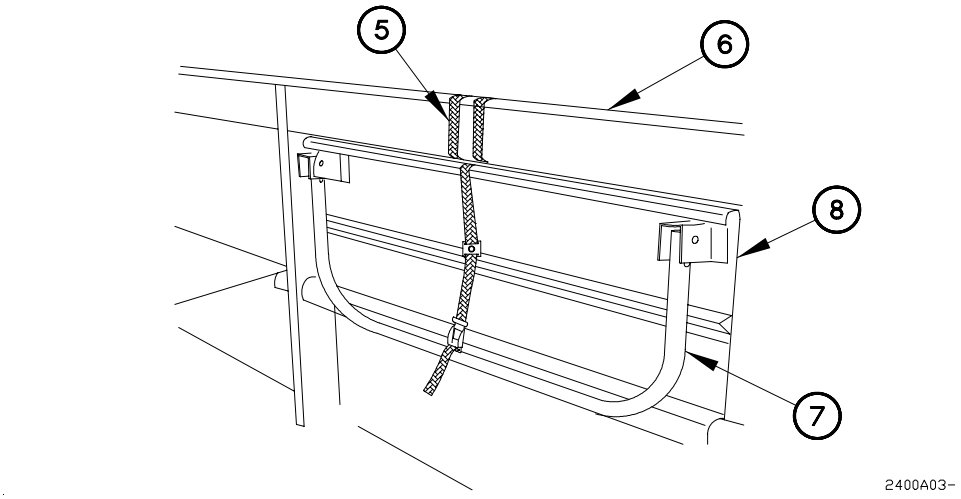


LOWERING TROOPSEATS WITH STRAP – Continued

3. Push release tab (3) on buckle (4).
4. Pull out on buckle (4) to loosen strap (5).
5. Unhook strap (5) from buckle (4).

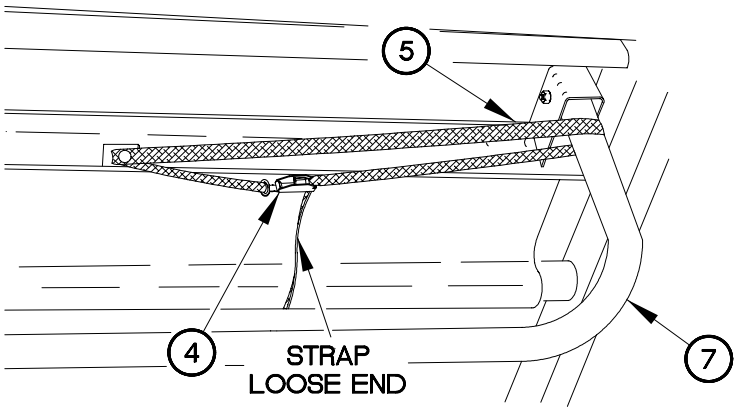


6. Unwrap strap (5) from backrest (6).
7. Unfold drop leg (7) from seat panel (8).
8. Lower seat panel (8) until drop leg (7) contacts floor of cargo bed.



LOWERING TROOPSEATS WITH STRAP - Continued

9. Wrap long end of strap (5) around drop leg (7).
10. Hook strap (5) to buckle (4).
11. Tighten strap (5) by pulling on loose end of strap.

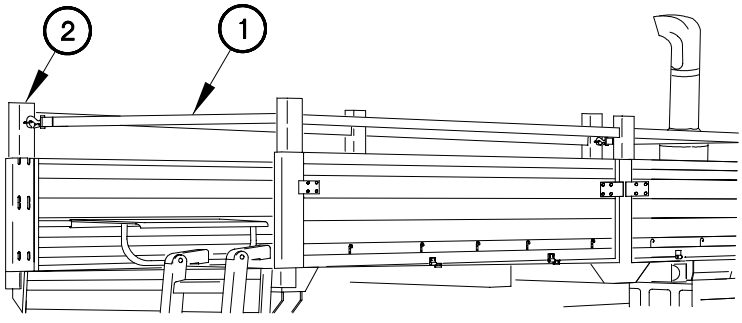


2400A04-

WARNING

Ensure safety strap is fastened across back and front of vehicle before transporting troops. Failure to comply may result in serious injury or death to personnel.

12. Connect safety strap (1) to left rear seat post (2).
13. Stow ladder (WP 0021 00).

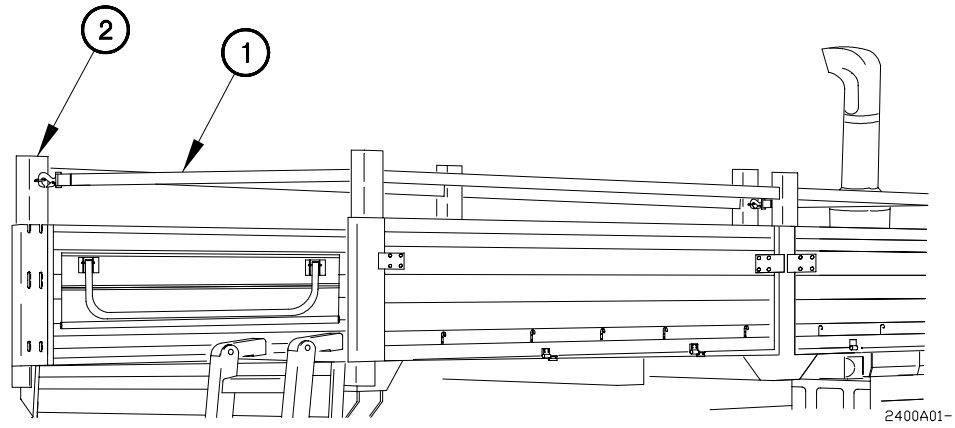


2400A05-

LOWERING TROOPSEATS WITH HOLDING BRACKET.

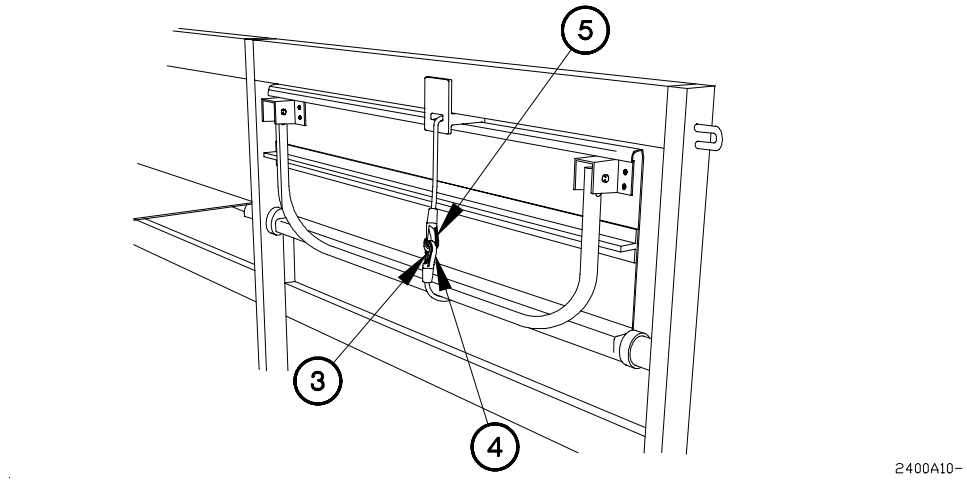
1. Lower ladder (WP 0021 00).

2. Disconnect safety strap (1) from left rear seat post (2).



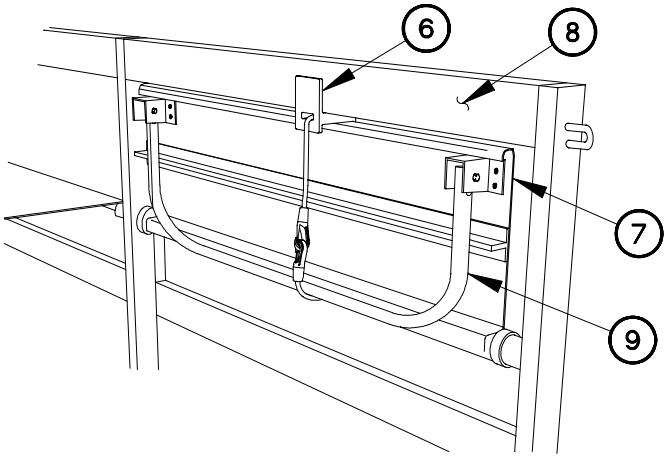
3. Press down on tab (3) on hook (4).

4. Remove lower hook (4) from upper hook (5).



LOWERING TROOPSEATS WITH HOLDING BRACKET - Continued.

5. Slide holding bracket (6) until holding bracket is slid off seat panel (7).
6. Remove holding bracket (6) from backrest (8).
7. Unfold drop leg (9) from seat panel (7).
8. Lower seat panel (7) until drop leg (9) contacts floor of cargo bed.



2400A11-

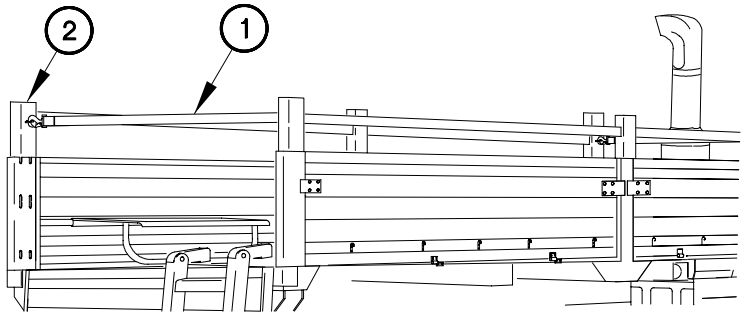
LOWERING TROOPSEATS WITH HOLDING BRACKET - Continued.

WARNING

Ensure safety strap is fastened across back and front of vehicle before transporting troops. Failure to comply may result in serious injury or death to personnel.

9. Connect safety strap (1) to left rear seat post (2).

10. Stow ladder (WP 0021 00).

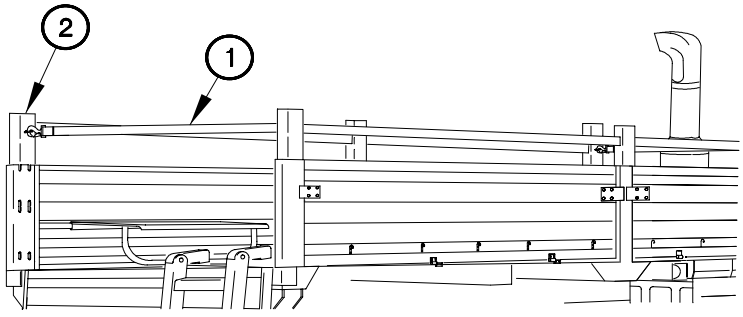


2400A05-

RAISING TROOPSEATS WITH HOLDING BRACKET.

1. Lower ladder (WP 0021 00).

2. Disconnect safety strap (1) from left rear seat post (2).



2400A06-

RAISING TROOPSEATS WITH HOLDING BRACKET – Continued

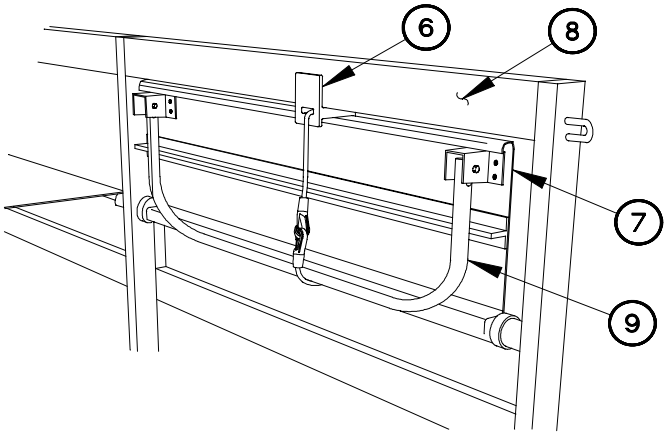
CAUTION

Troopseats must be stowed in the raised position when not in use. Failure to comply may result in damage to equipment.

3. Raise seat panel (7) up until edge of seat panel is under backrest (8).

4. Fold drop leg (9) down to seat panel (7).

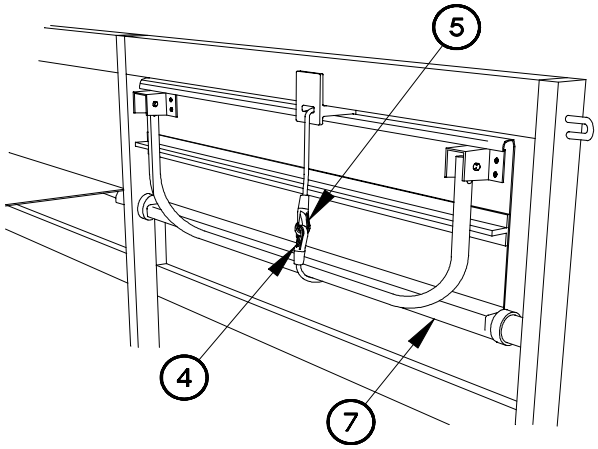
5. Slide holding bracket (6) on backrest (8) and seat panel (7) until holding bracket (6) is centered on seat panel (7).



2400A11-

6. Pull hook and budgie cord (4) around and under bottom of seat panel (7).

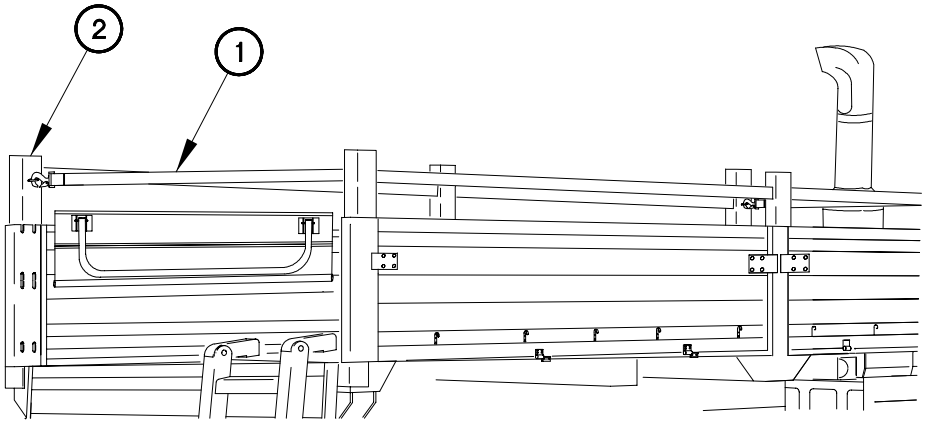
7. Pull up on hook and budgie cord (4) while pushing down on hook and budgie cord (5) until the two hooks can connect.



2400A12-

RAISING TROOPSEATS WITH HOLDING BRACKET - Continued

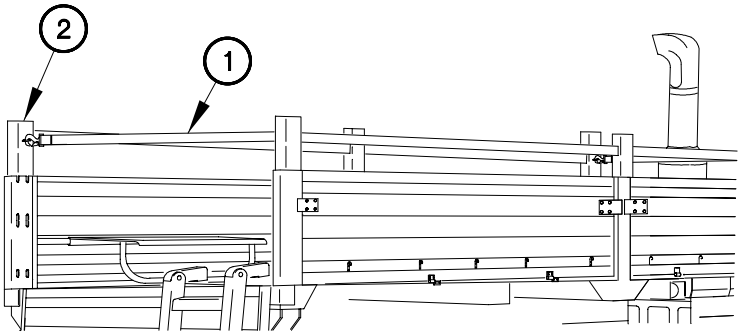
8. Connect safety strap (1) to left rear seat post (2).
9. Stow ladder (WP 0021 00).



2400A09-

RAISING TROOPSEATS WITH STRAP

1. Lower ladder (WP 0021 00).
2. Disconnect safety strap (1) from left rear seat post (2).



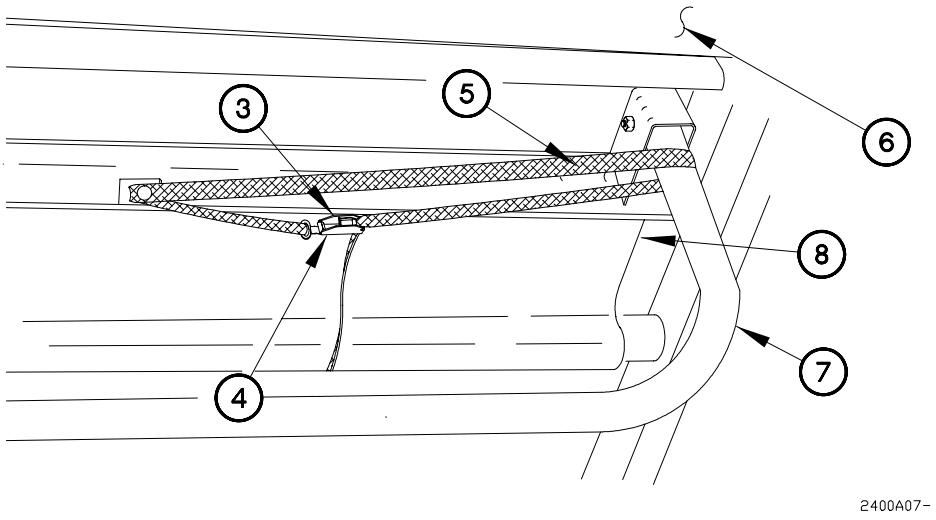
2400A06-

RAISING TROOPSEATS WITH STRAP – Continued.

CAUTION

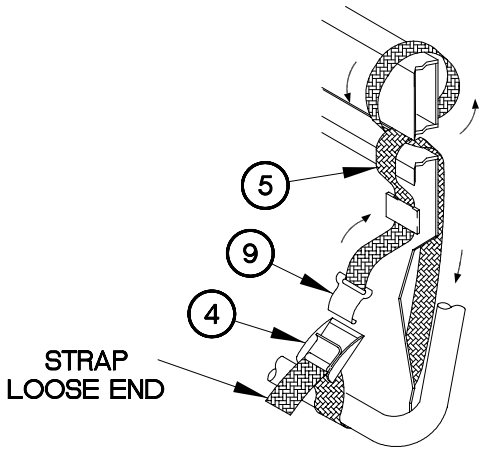
Troopseats must be stowed in the raised position when not in use. Failure to comply may result in damage to equipment.

3. Push release tab (3) on buckle (4).
4. Unhook strap (5) from drop leg (7).
5. Raise seat panel (8) up until edge of seat panel is under backrest (6).
6. Fold drop leg (7) down to seat panel (8).



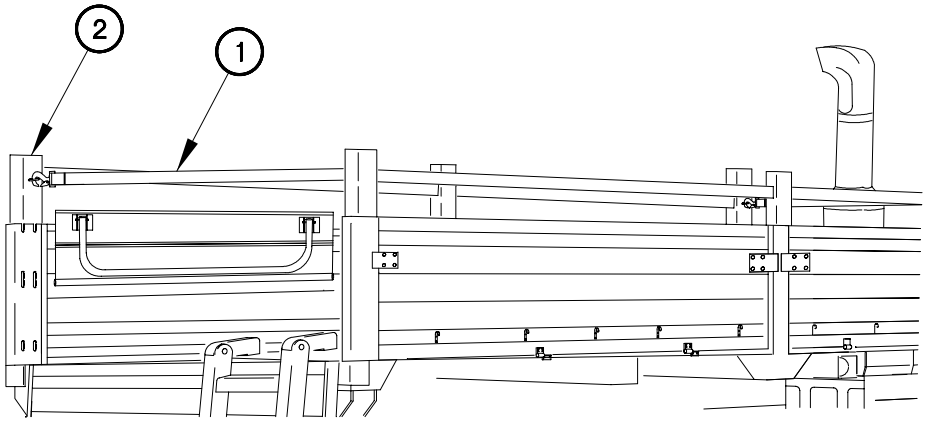
RAISING TROOPSEATS WITH STRAP – Continued.

7. Position hook (9) of strap (5) down.
8. Wrap strap (5), as shown, to connect to buckle (4).
9. Tighten strap (5) by pulling on loose end of strap.



2400A08-

10. Connect safety strap (1) to left rear seat post (2).
11. Stow ladder (WP 0021 00).



2400A09-

END OF OPERATING PROCEDURE

M1079A1 VAN LADDER MOUNTING/STOWING 0025 00

INITIAL SETUP:

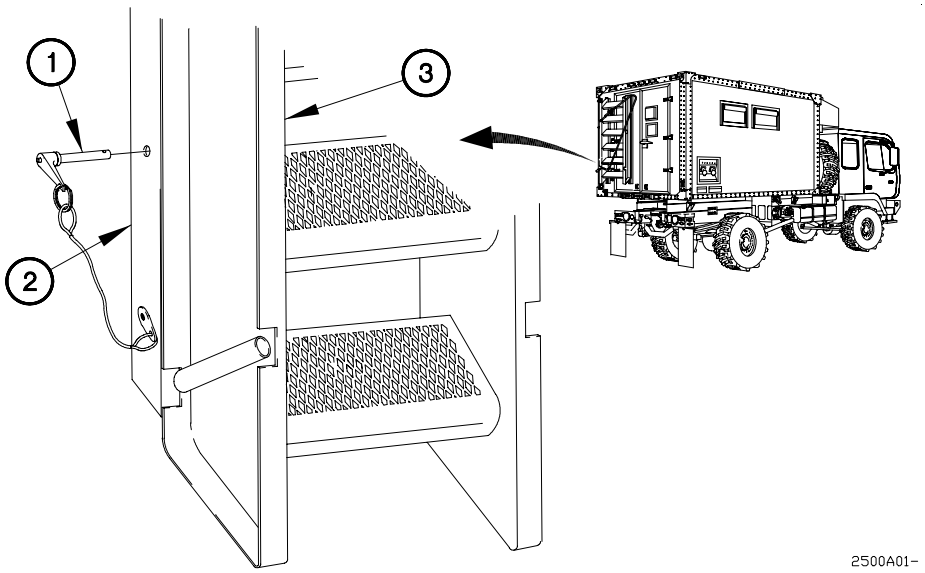
Maintenance Level	Personnel Required
Operator	Two

GENERAL

This work package provides the data and procedures for M1079A1 van ladder operations. Items covered include Ladder Mounting and Ladder Stowing.

LADDER MOUNTING

1. Remove pin (1) from bracket (2) on left side of ladder (3).



M1079A1 VAN LADDER MOUNTING/STOWING - Continued 0025 00

LADDER MOUNTING - Continued

WARNING

Do not remove ladder through top slots of bracket. Failure to comply may result in serious injury to personnel.

NOTE

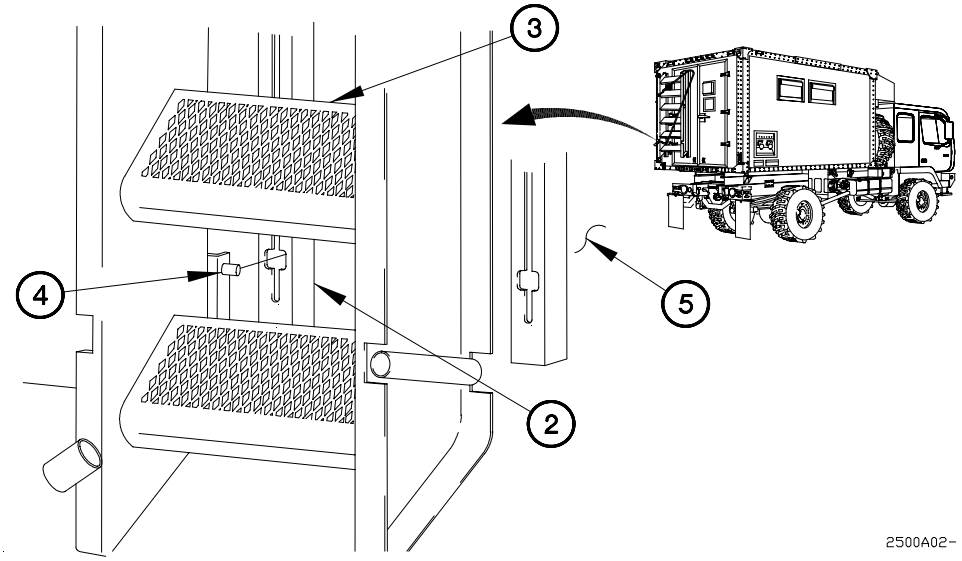
Top and bottom of ladder are removed from the van body the same way. Lower left side shown.

2. Raise ladder (3) until two tabs (4) at bottom of ladder (3) are aligned with bottom slots in brackets (2).

3. Remove two tabs (4) at bottom of ladder (3) from two brackets (2).

4. Lower ladder (3) until two tabs (4) at top of ladder (3) are aligned with bottom slots in brackets (2).

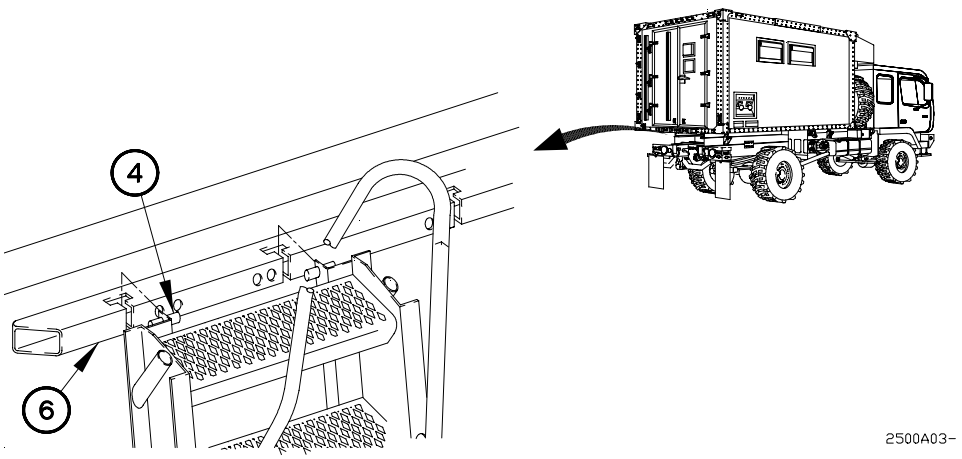
5. Remove ladder (3) from van body (5).



M1079A1 VAN LADDER MOUNTING/STOWING - Continued 0025 00

LADDER MOUNTING - Continued

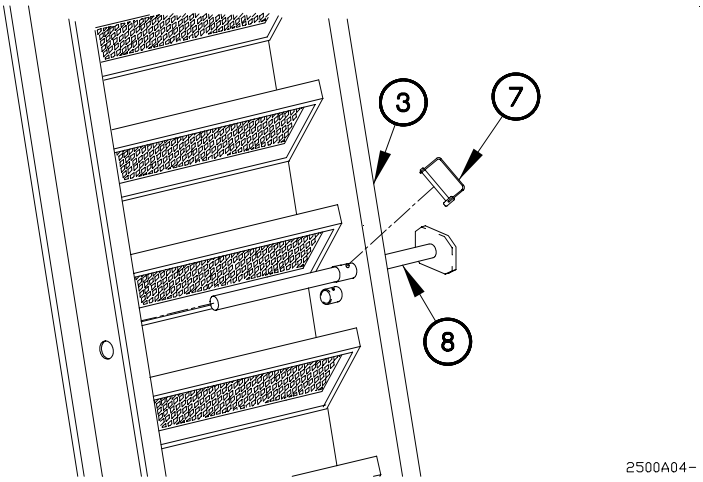
6. Install two tabs (4) in bracket (6).



NOTE

Left and right handle supports are removed the same way. Left handle support shown.

7. Remove pin (7) and handle support (8) from ladder (3).



M1079A1 VAN LADDER MOUNTING/STOWING - Continued 0025 00

LADDER MOUNTING - Continued

8. Remove strap (9) from ladder (3).

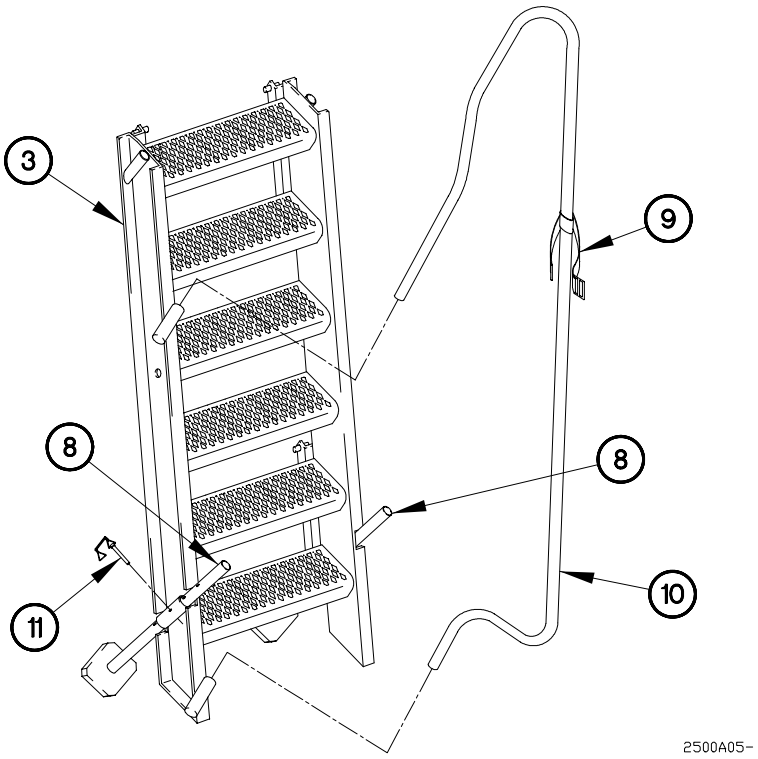
9. Remove handle (10) from ladder (3).

NOTE

Step 10 requires the aid of an assistant.

10. Raise ladder (3) and install two handle supports (8) on both sides of base of ladder (3).

11. Install two pins (11) in handle supports (8) and ladder (3).



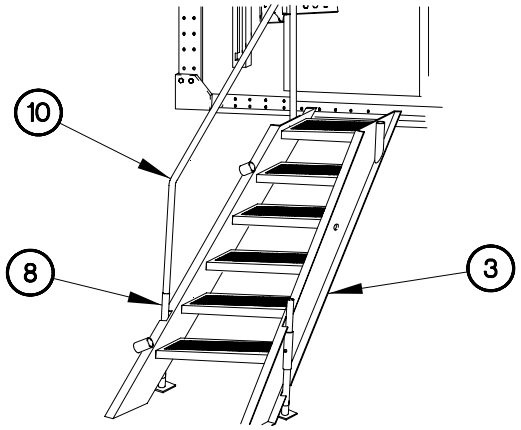
M1079A1 VAN LADDER MOUNTING/STOWING - Continued 0025 00

LADDER MOUNTING - Continued

NOTE

Handle can be installed on left or right side of ladder. Left side shown.

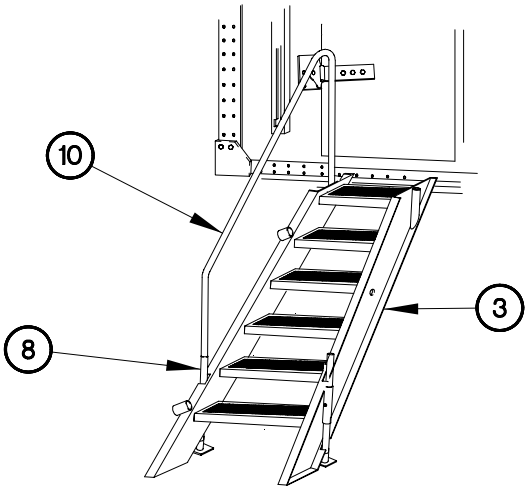
12. Install handle (10) on ladder (3) and over handle support (8).



2500A06-

LADDER STOWING

1. Remove handle (10) from ladder (3) and handle support (8).

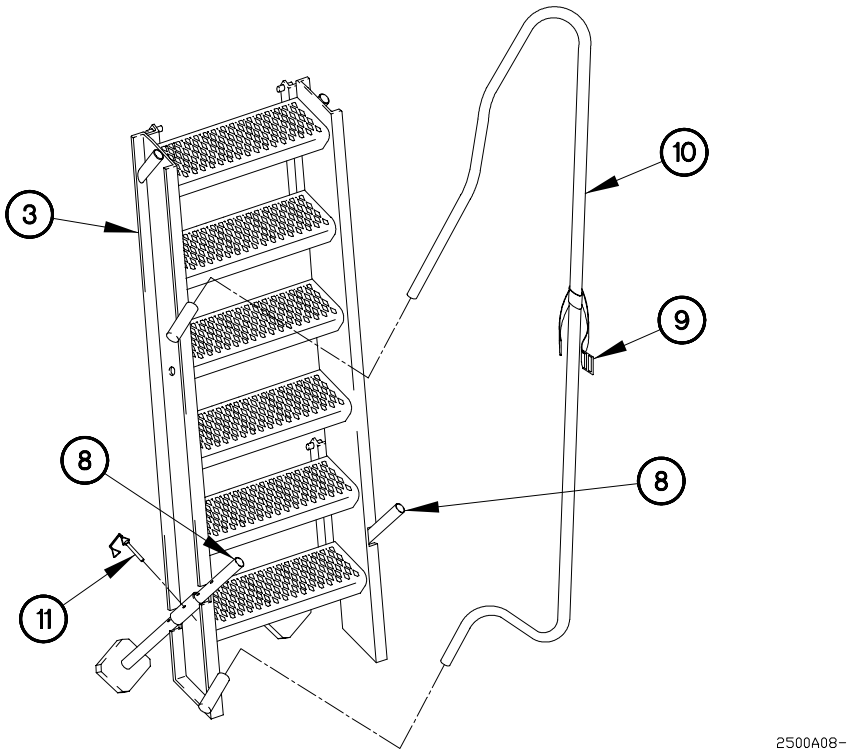


2500A07-

M1079A1 VAN LADDER MOUNTING/STOWING - Continued 0025 00

LADDER STOWING - Continued

2. Remove two pins (11) from handle supports (8).
3. Remove two handle supports (8) from ladder (3).
4. Install handle (10) on ladder (3).
5. Install strap (9) on ladder (3).



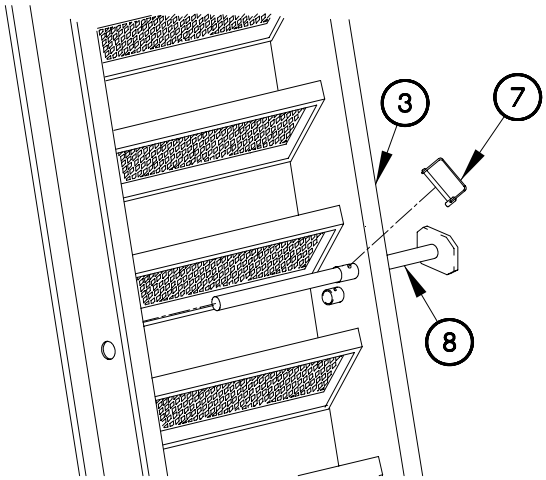
M1079A1 VAN LADDER MOUNTING/STOWING - Continued 0025 00

LADDER STOWING - Continued

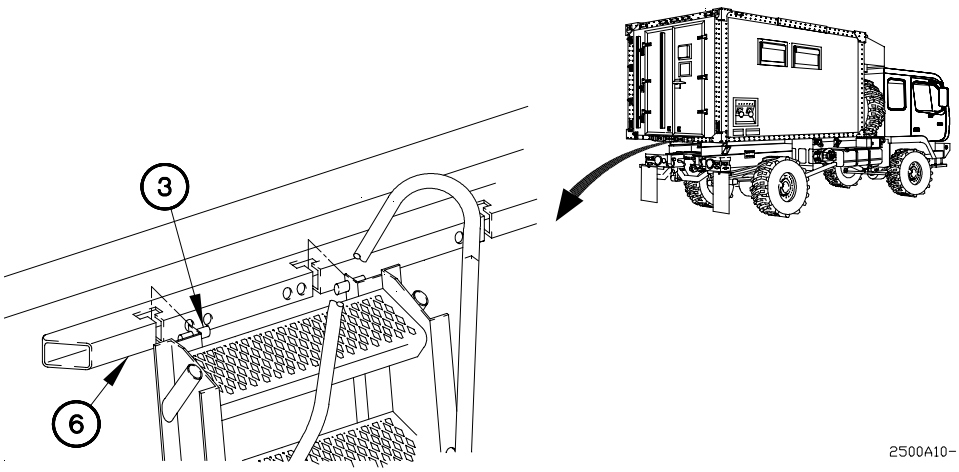
NOTE

Left and right handle supports are installed the same way. Left handle support shown.

6. Install handle support (8) on ladder (3) with pin (7).



7. Remove ladder (3) from bracket (6).



M1079A1 VAN LADDER MOUNTING/STOWING - Continued 0025 00

LADDER STOWING - Continued

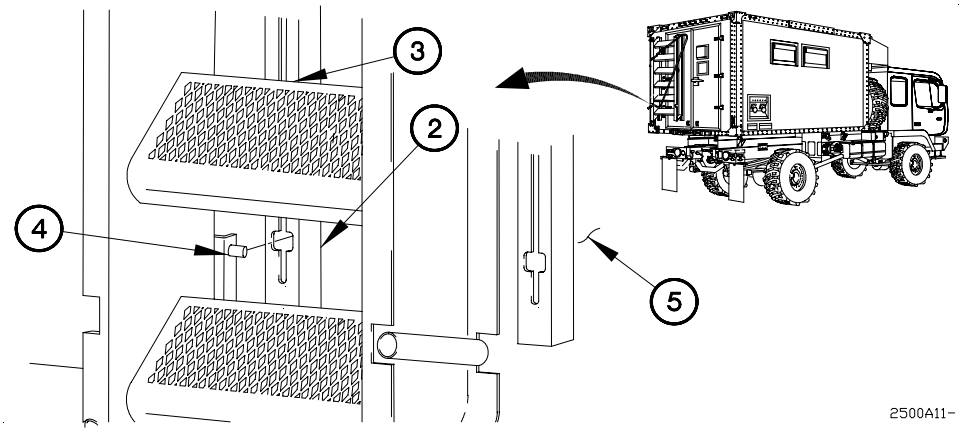
NOTE

Top and bottom of ladder are installed on the van body the same way. Lower left side shown.

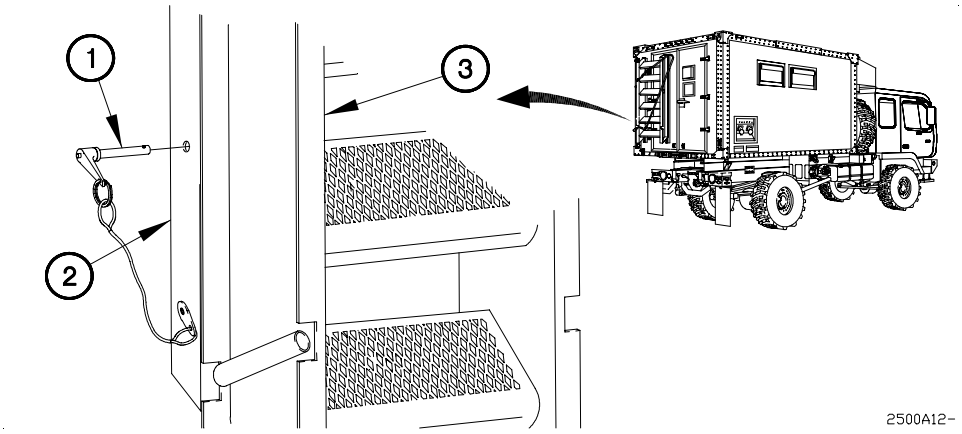
8. Position two tabs (4) at top of ladder (3) in bracket (2).

9. Raise ladder (3) up until two tabs (4) at bottom of ladder are aligned with slots in bracket (2).

10. Install ladder (3) on van body (5).



11. Install pin (1) in bracket (2) on left side of ladder (3).



END OF OPERATING PROCEDURE

M1079A1 VAN DOORS OPENING/CLOSING 0026 00

INITIAL SETUP:

Maintenance Level
Operator

GENERAL

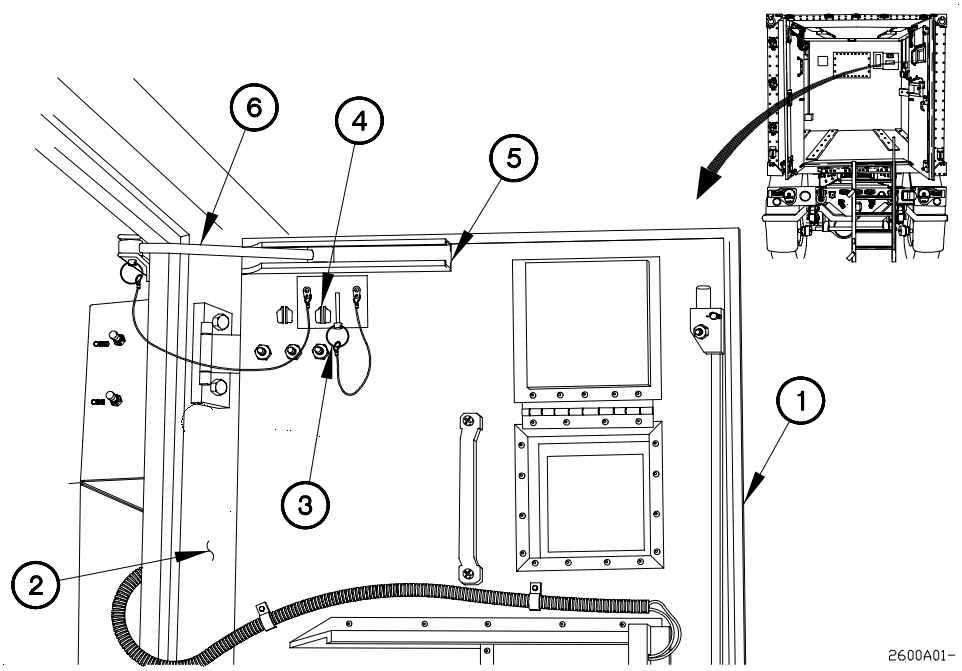
This work package provides the data and procedures for operating the doors on the M1079A1 van. Items covered include Securing Van Doors Open At 115 Degree Position, Closing Door From 115 Degree Position, Securing Van Doors To 180 Degree Position, and Closing Van Doors From 180 Degree Position.

SECURING VAN DOORS OPEN AT 115 DEGREE POSITION

NOTE

LH and RH doors are positioned at 115 degrees the same way. RH door shown.

1. Open door (1) to van body (2).
2. Remove quick release pin (3) from stowage clip (4).
3. Install quick release pin (3) in channel (5) and stay arm (6).



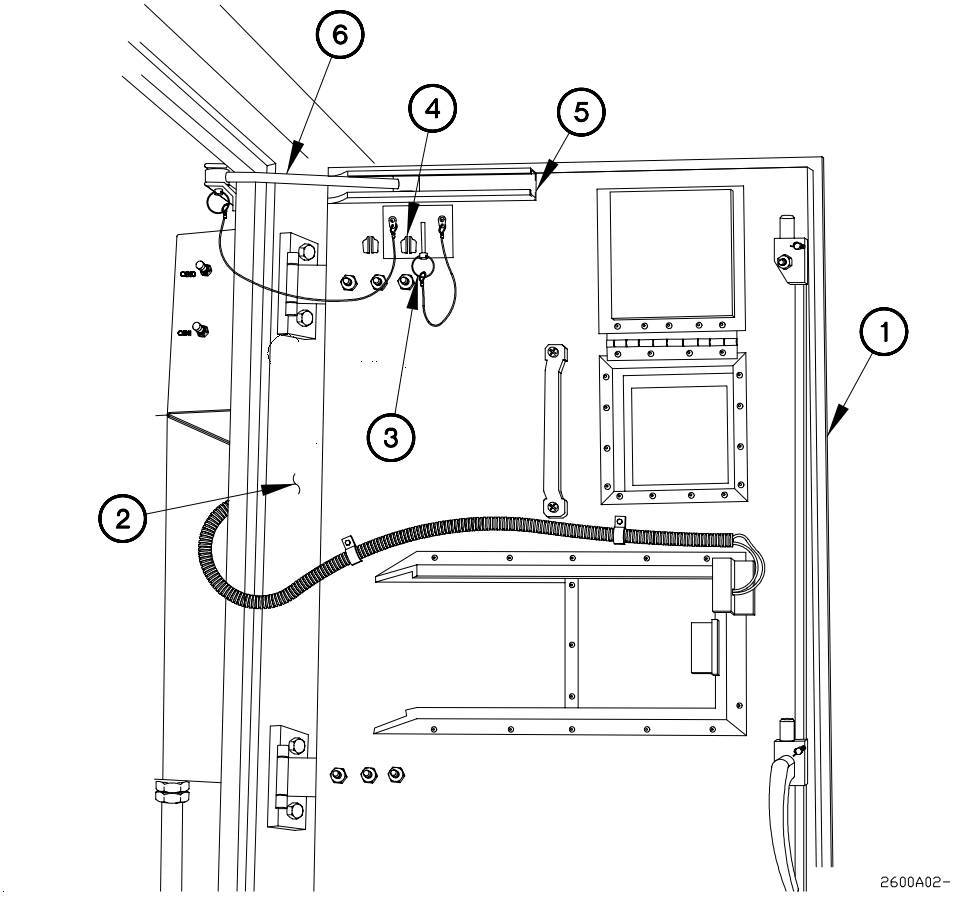
M1079A1 VAN DOORS OPENING/CLOSING - Continued 0026 00

CLOSING VAN DOORS FROM 115 DEGREE POSITION

NOTE

LH and RH doors are positioned at 115 degrees the same way. RH door shown.

1. Remove quick release pin (3) from stay arm (6) and channel (5).
2. Install quick release pin (3) in stowage clip (4).
3. Close door (1) on van body (2).



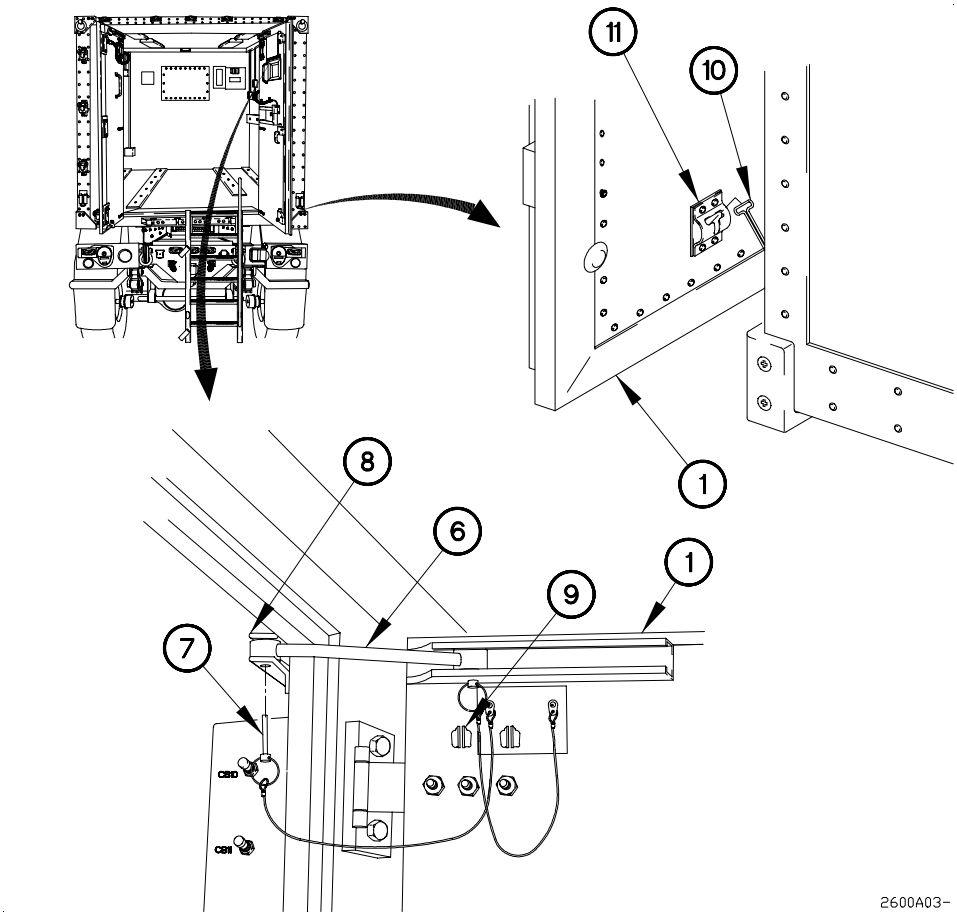
M1079A1 VAN DOORS OPENING/CLOSING - Continued 0026 00

SECURING VAN DOORS OPEN AT 180 DEGREE POSITION

NOTE

LH and RH doors are positioned at 180 degrees the same way. RH door shown.

1. Secure door (1) open at 115 degree position (WP 0026 00).
2. Remove quick release pin (7) from bracket (8) and stay arm (6).
3. Stow quick release pin (7) in stowage clip (9).
4. Fully open door (1) to 180 degree position.
5. Install “T” latch (10) in “T” latch receptacle (11) on door (1).



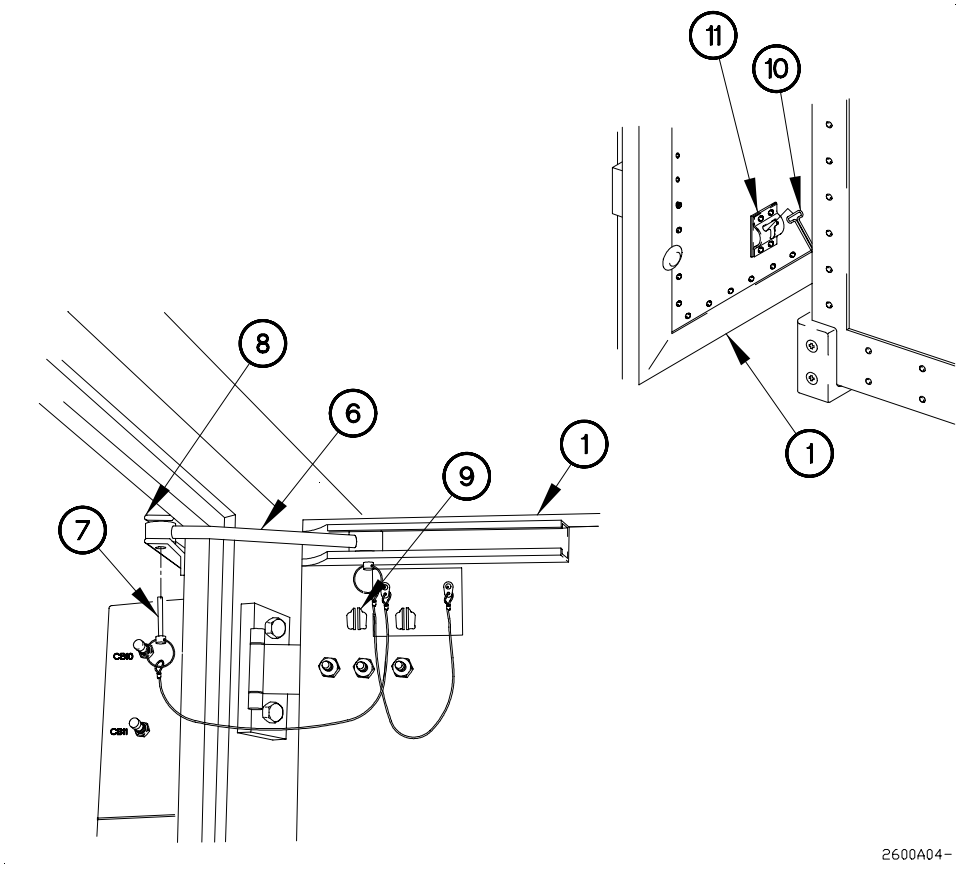
M1079A1 VAN DOORS OPENING/CLOSING - Continued 0026 00

CLOSING VAN DOORS FROM 180 DEGREE POSITION

NOTE

LH and RH doors are positioned at 180 degree the same way. RH door shown.

1. Remove “T” latch (10) from “T” latch receptacle (11) on door (1).
2. Position door (1) to 115 degree position.
3. Remove quick release pin (7) from stowage clip (9).
4. Install stay arm (6) in bracket (8) with quick release pin (7).
5. Close door (1) from 115 degree position (WP 0026 00).



END OF OPERATING PROCEDURE

M1079A1 VAN AC POWER CONNECTING/DISCONNECTING

0027 00

INITIAL SETUP:

Maintenance Level	Reference
Operator	WP 0016 00

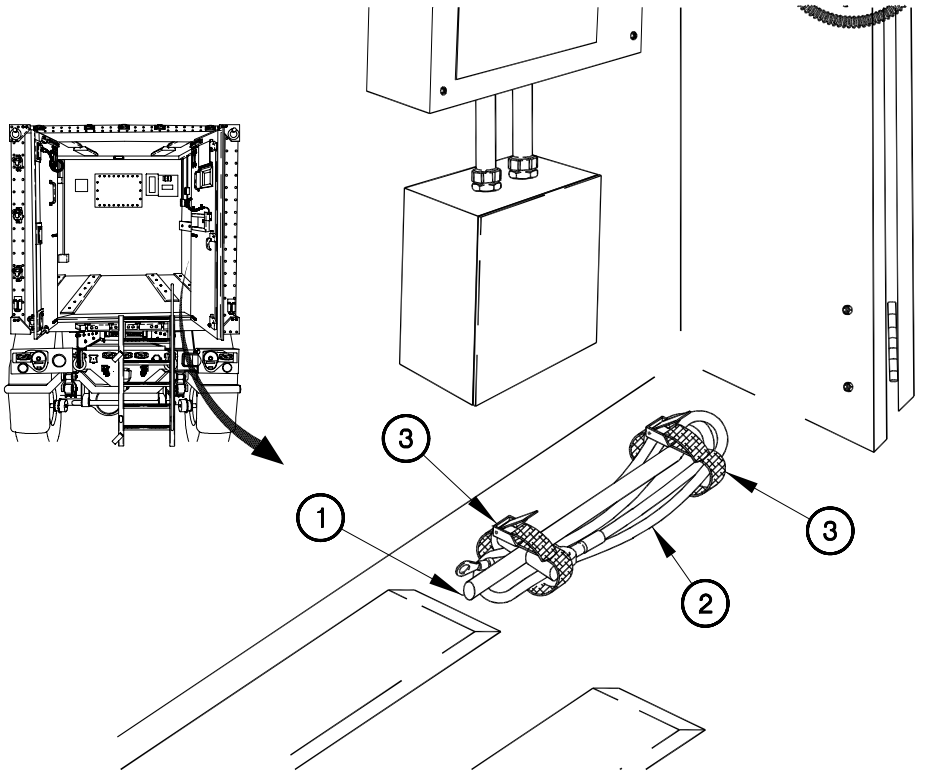
GENERAL

This work package provides the data and procedures for connecting and disconnecting the AC power cable on the M1079A1 van.

CONNECT AC POWER

1. Shut down engine (WP 0016 00).

2. Remove ground rod (1) and ground cable (2) from two straps (3).



2700A01-

M1079A1 VAN AC POWER CONNECTING/DISCONNECTING - Continued

0027 00

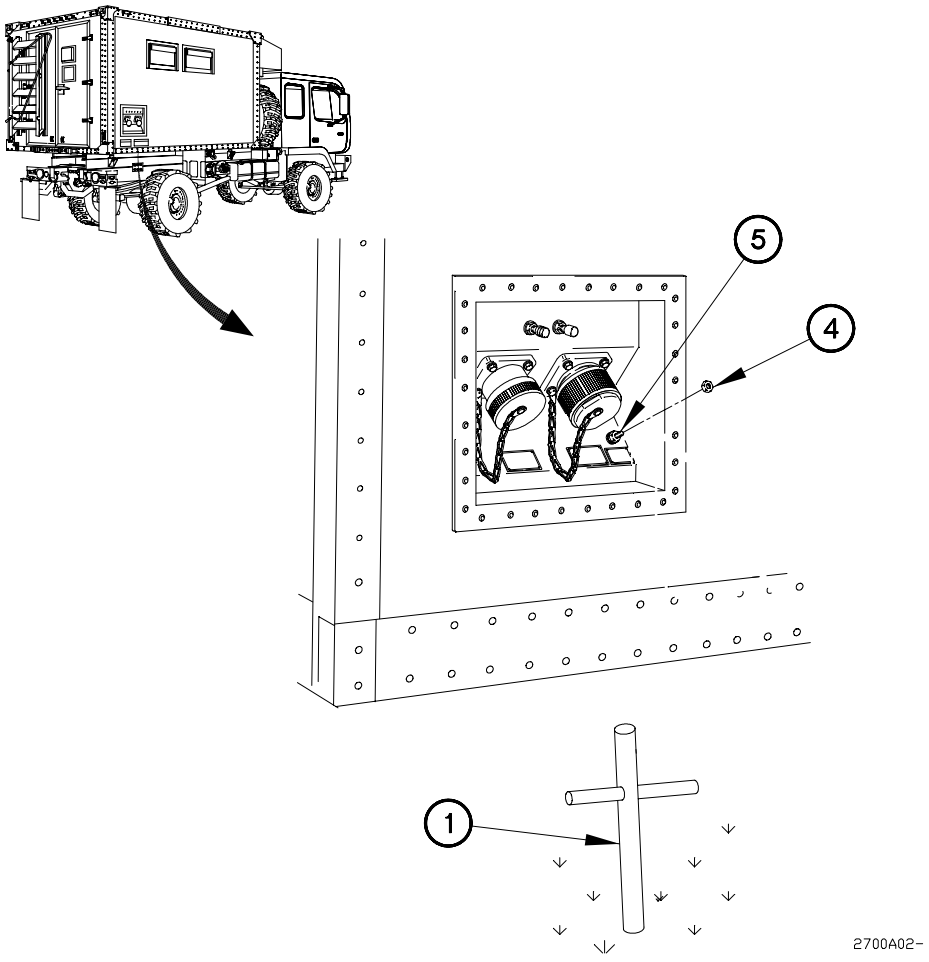
CONNECT AC POWER - Continued

WARNING

Ground rod must be driven into ground 18-24 in. (46-61 cm) and ground cable connected to the chassis before power can be taken from outside source or equipment. Failure to comply may result in injury or death to personnel or damage to equipment.

3. Drive ground rod (1) into ground.

4. Remove nut (4) from ground receptacle (5).



M1079A1 VAN AC POWER CONNECTING/DISCONNECTING - Continued

CONNECT AC POWER - Continued

WARNING

Ground cable must be connected between the chassis and the ground rod before power can be applied. Failure to comply may result in injury or death to personnel or damage to equipment.

Ensure that ground cable terminal makes good metal-to-metal contact with bare metal on van body. If required scrape contact are clean of dirt, paint, or rust. Failure to comply may result in injury or death to personnel or damage to equipment.

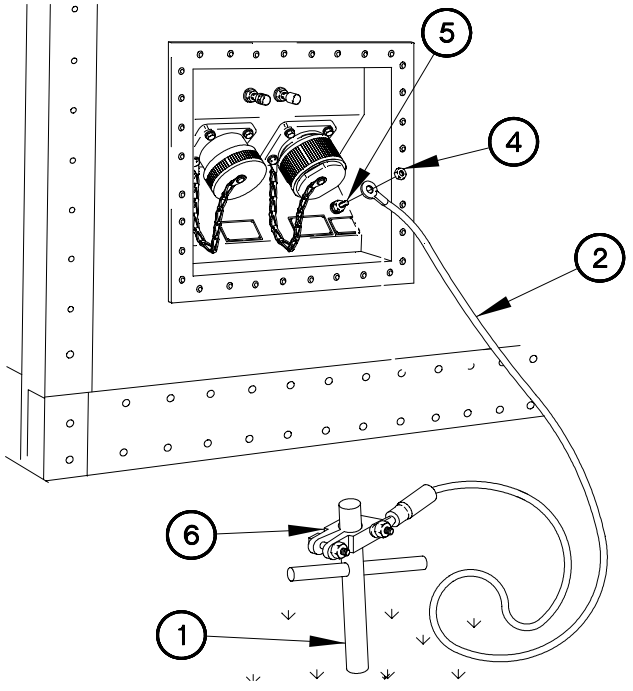
NOTE

If required, scrape contact area clean of dirt, paint, or rust to make good contact with ground receptacle.

5. Install ground cable (2) on ground receptacle (5) with nut (4).

6. Position ground cable (2) on ground rod (1).

7. Tighten nut (6) on ground cable (2).



2700A03-

M1079A1 VAN AC POWER CONNECTING/DISCONNECTING - Continued

0027 00

CONNECT AC POWER - Continued

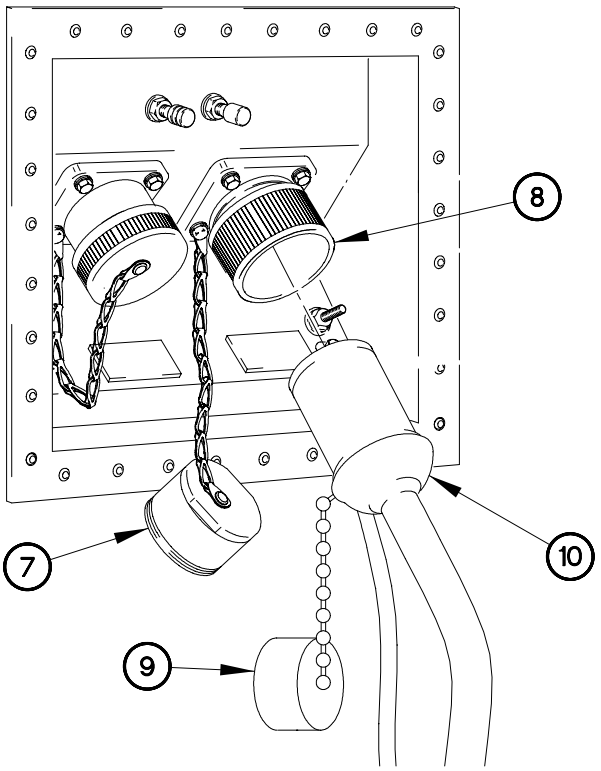
8. Remove dust cover (7) from 110/208 vac IN receptacle (8).
9. Remove dust cover (9) from AC power cable (10).
10. Remove AC power cable (10) from van.
11. Connect AC power cable (10) to 110/208 vac IN receptacle (8).

NOTE

Other equipment may be connected to the 110/208 vac OUT receptacle to share power. Power out from this receptacle is limited to 50 amps.

Setup AC power source to supply AC power to van (refer to Technical Manual of power source).

12. Connect other end of AC power cable (10) to AC power source.
13. Turn on AC power source (refer to Technical Manual of power source).



M1079A1 VAN AC POWER CONNECTING/DISCONNECTING - Continued

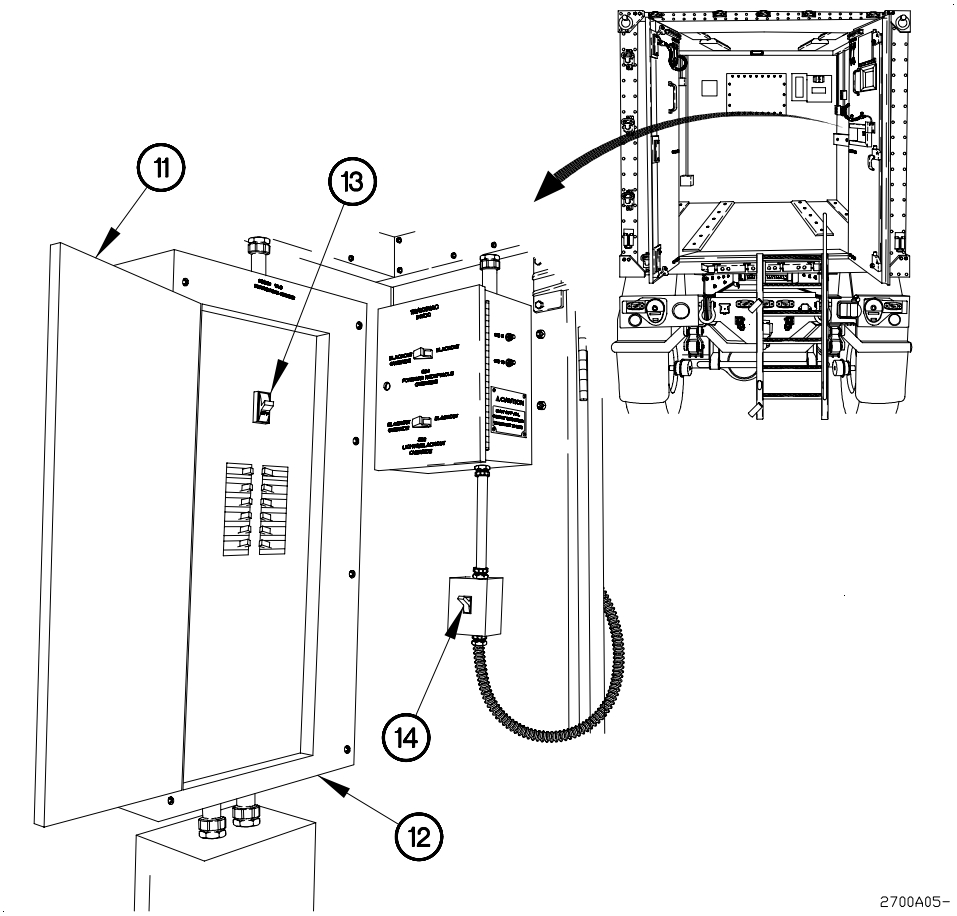
0027 00

CONNECT AC POWER - Continued

14. Open cover (11) on 110/208 VAC POWER DISTRIBUTION PANEL (12).

15. Position MAIN power switch (13) on 110/208 VAC POWER DISTRIBUTION PANEL (12) to ON.

16. Position INTERIOR LIGHTS switch (14) to ON.

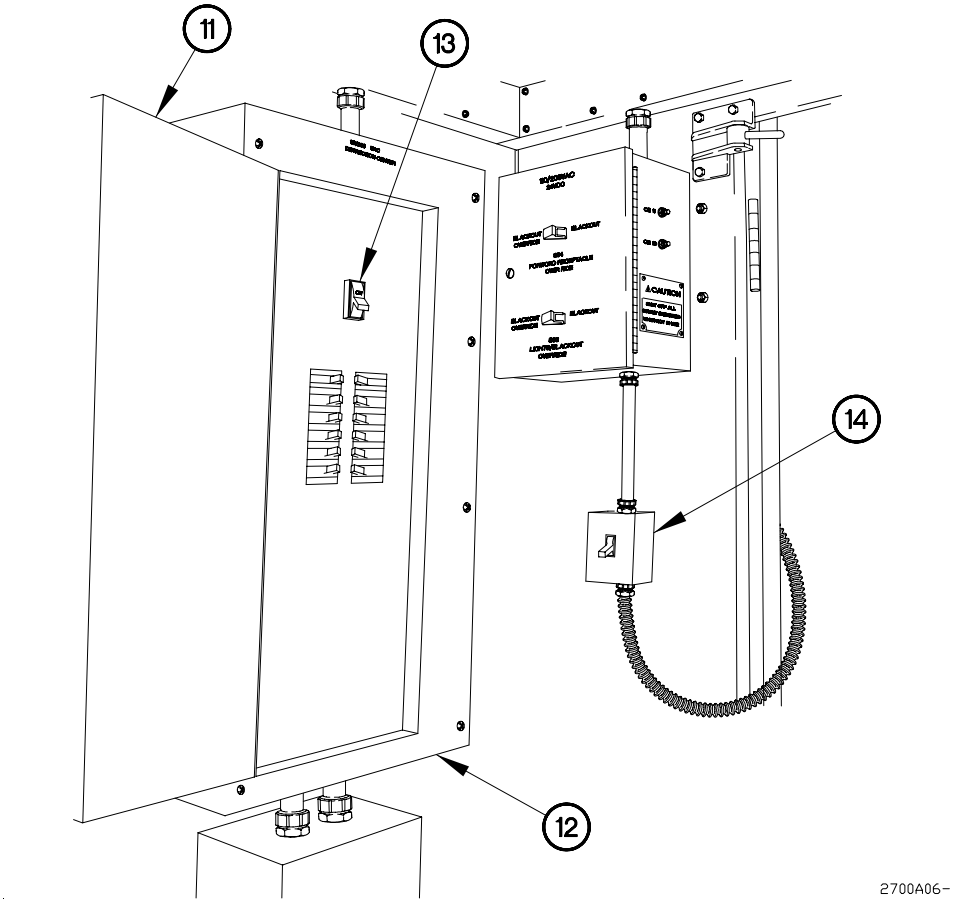


M1079A1 VAN AC POWER CONNECTING/DISCONNECTING - Continued

0027 00

DISCONNECT AC POWER CABLE

1. Open cover (11) on 110/208 VAC POWER DISTRIBUTION PANEL (12).
2. Position INTERIOR LIGHTS switch (14) to OFF.
3. Position MAIN power switch (13) on 110/208 VAC POWER DISTRIBUTION PANEL (12) to OFF.



M1079A1 VAN AC POWER CONNECTING/DISCONNECTING - Continued

DISCONNECT AC POWER CABLE - Continued

WARNING

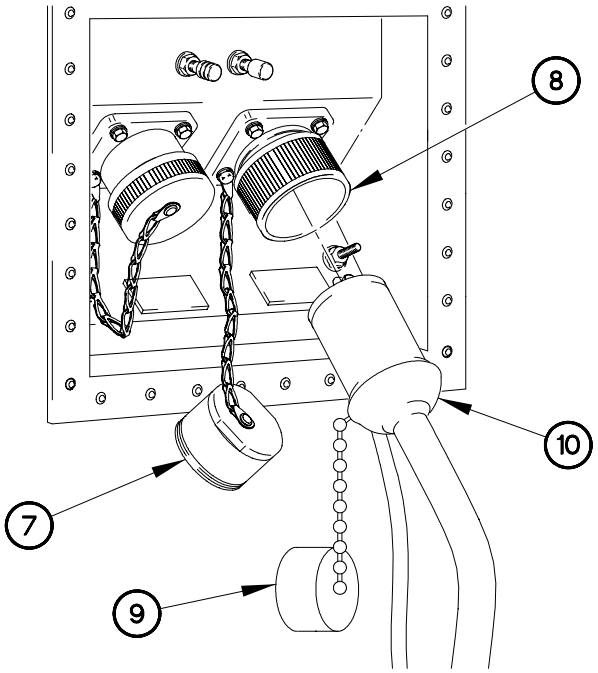
Power source must be turned off before disconnecting power cable. Failure to comply may result in serious injury to personnel or damage to equipment.

4. Turn off AC power source (refer to Technical Manual of power source).
5. Disconnect AC power cable (10) from power source.

NOTE

Other equipment should be disconnected from the 110/208 vac OUT receptacle before disconnecting AC Power cable from van.

6. Disconnect AC power cable (10) from 110/208 vac IN receptacle (8).
7. Install dust cover (7) on 110/208 vac IN receptacle (8).
8. Install dust cover (9) on AC power cable (10).
9. Stow AC power cable (10) in van.

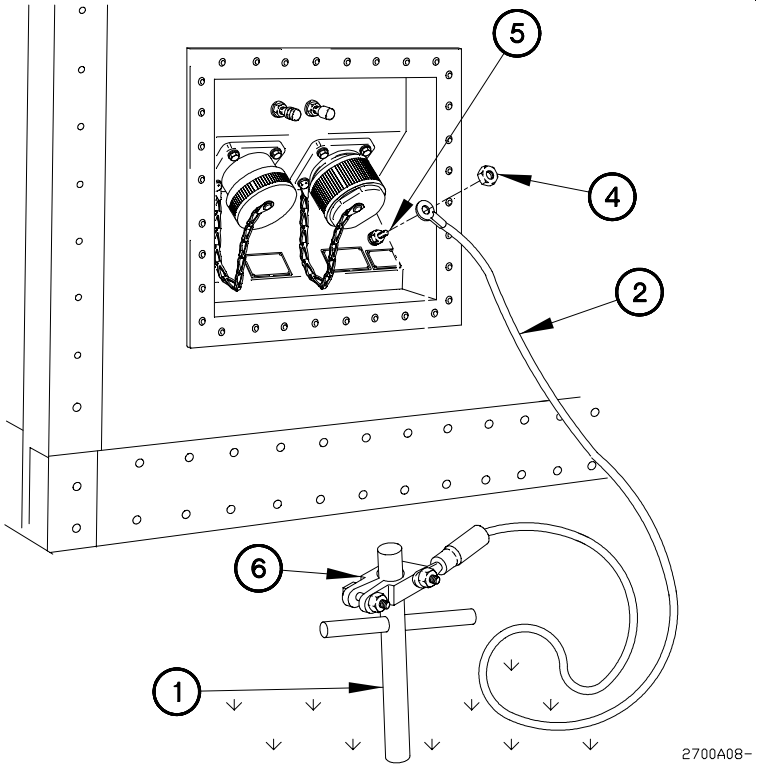


2700A07-

M1079A1 VAN AC POWER CONNECTING/DISCONNECTING - Continued

DISCONNECT AC POWER CABLE - Continued

10. Remove nut (4) from ground receptacle (5).
11. Remove ground cable (2) from ground receptacle (5).
12. Install nut (4) on ground receptacle (5).
13. Loosen nut (6) and remove ground cable (2) from ground rod (1).
14. Remove ground rod (1) from ground.

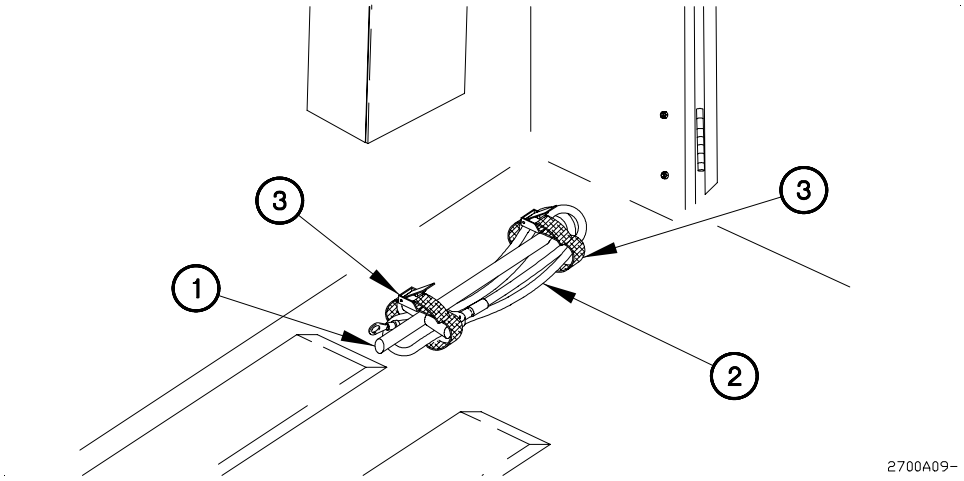


M1079A1 VAN AC POWER CONNECTING/DISCONNECTING - Continued

DISCONNECT AC POWER CABLE - Continued

15. Position ground cable (2) and ground rod (1) in two straps (3).

16. Tighten two straps (3).



END OF OPERATING PROCEDURE

M1079A1 VAN WINDOW OPERATION 0028 00

INITIAL SETUP:

Maintenance Level
Operator

GENERAL

This work package provides the data and procedures for the operation of M1079A1 van windows. Items covered include Opening Window and Closing Window.

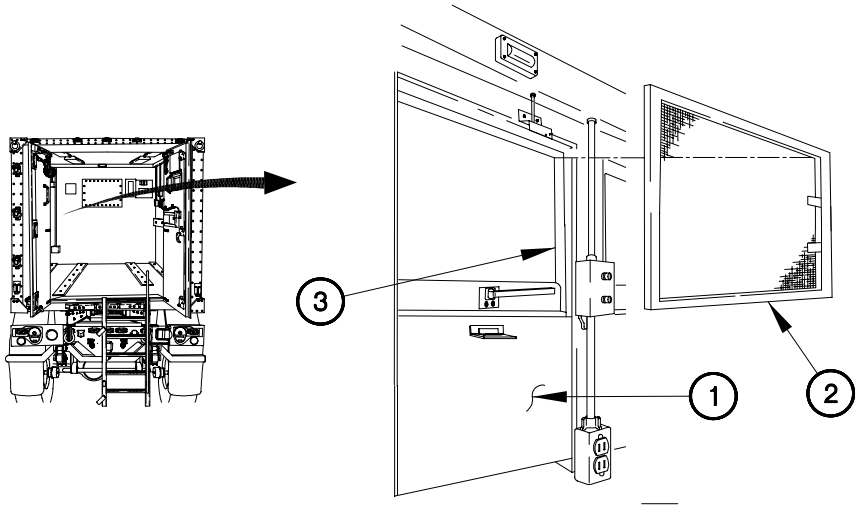
OPENING WINDOW

NOTE

All windows are operated the same way. Left rear window shown.

1. Lower blackout shield (1).

2. Remove screen (2) from window main frame (3).

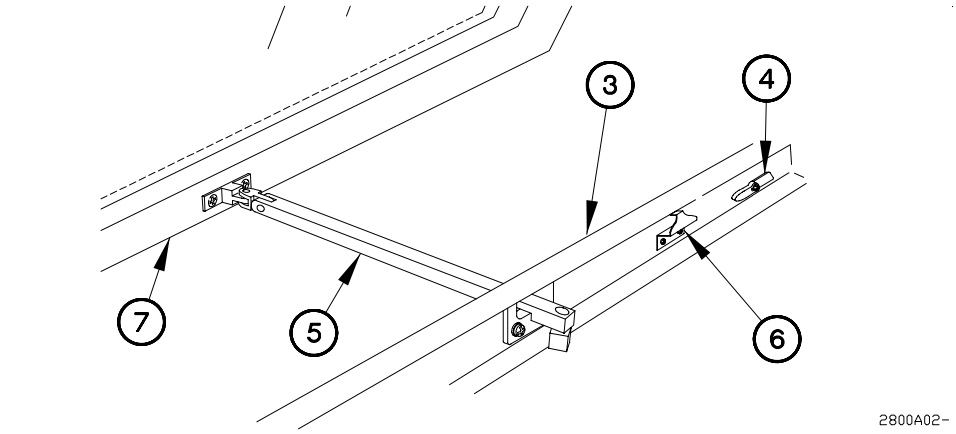


2800A01-

M1079A1 VAN WINDOW OPERATION - Continued 0028 00

OPENING WINDOW - Continued

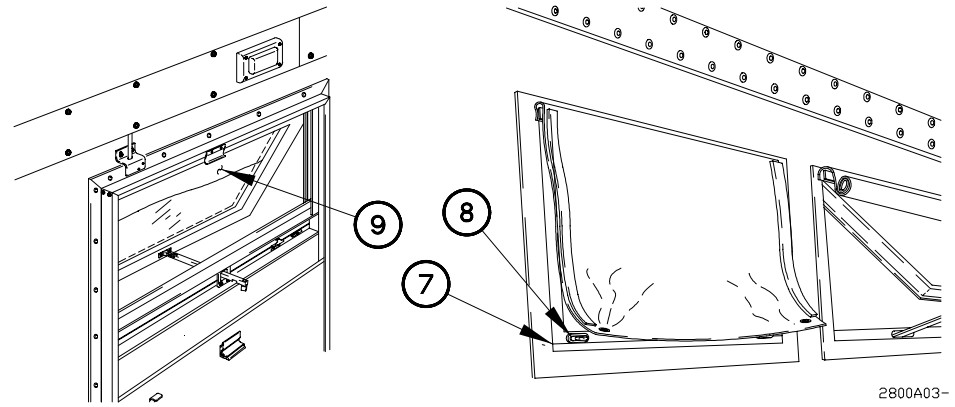
3. Open TRANSPORT LOCK (4) on window main frame (3).
4. Remove prop (5) from latch (6).
5. Open window sash assembly (7) to last notch on prop (5) for access.



NOTE

To access window cover reach through window opening.

6. Unlock two stud fasteners (8) from window cover (9).
7. Roll window cover (9) upward from window sash assembly (7).



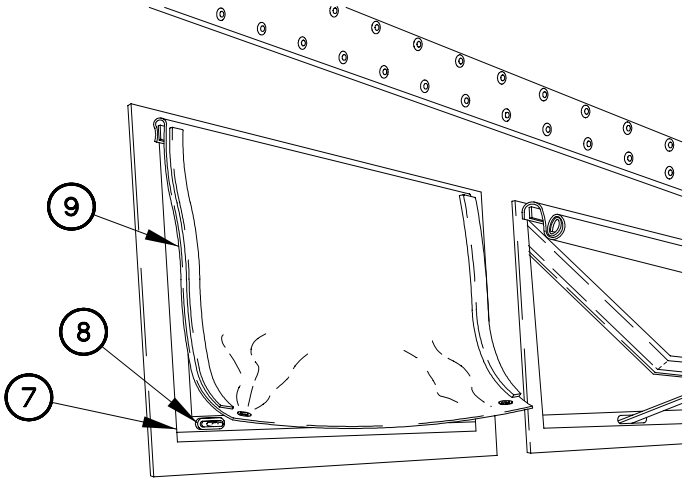
M1079A1 VAN WINDOW OPERATION - Continued 0028 00

CLOSING WINDOW

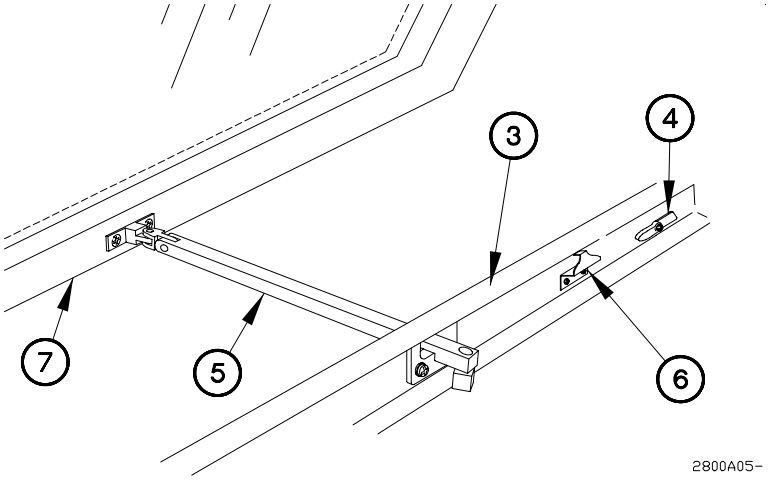
NOTE

To access window cover reach through window opening.

1. Unroll window cover (9) downward over window sash assembly (7).
2. Lock two stud fasteners (8) on window cover (9).



3. Close window sash assembly (7).
4. Position prop (5) in latch (6).
5. Close TRANSPORT LOCK (4) on window main frame (3).

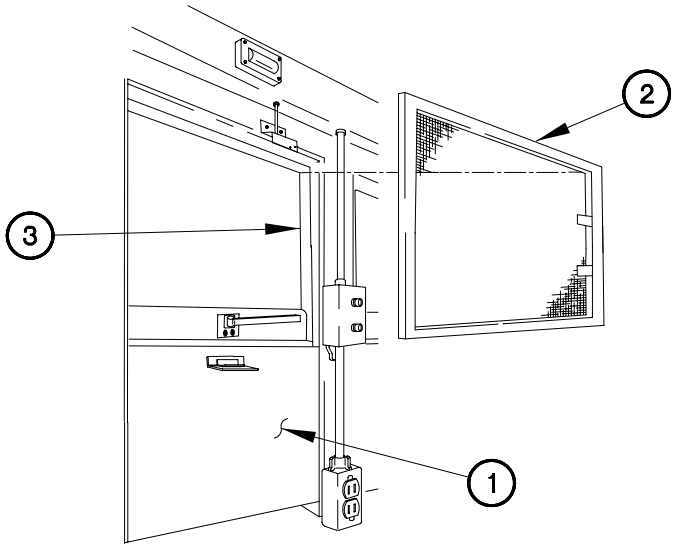


M1079A1 VAN WINDOW OPERATION - Continued 0028 00

OPENING WINDOW - Continued

6. Install screen (2) in window main frame (3).

7. Raise blackout shield (1).



END OF OPERATING PROCEDURE

M1079A1 VAN LIGHTING 0029 00

INITIAL SETUP:

Maintenance Level
Operator

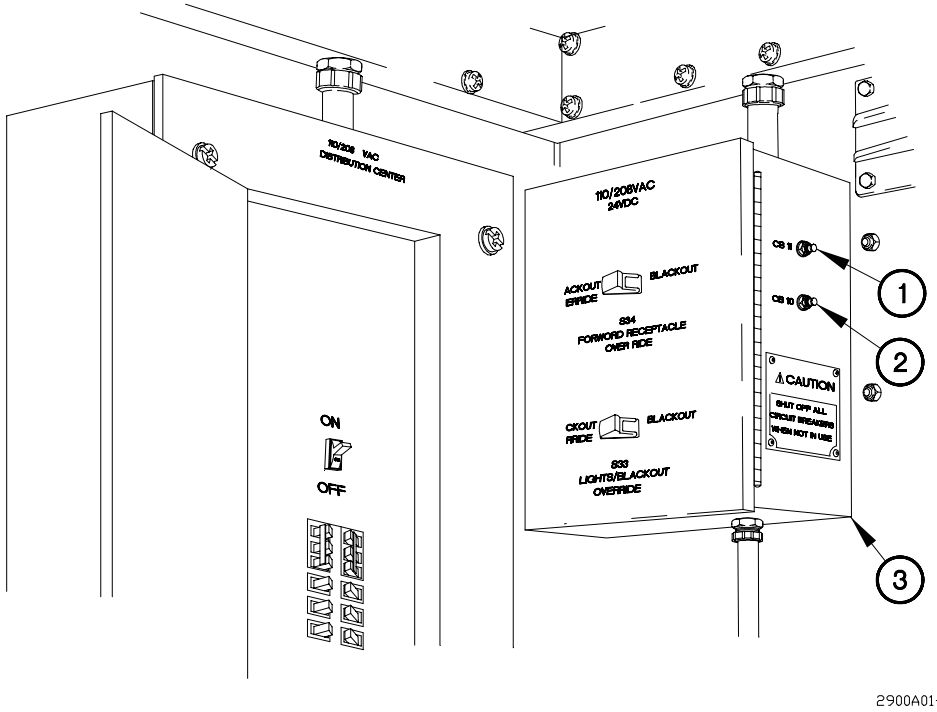
References
WP 0016 00
WP 0026 00
WP 0027 00

GENERAL

This work package provides the data and procedures for operating the lighting on the M1079A1 van. Items covered include Interior Lighting and Blackout Override.

INTERIOR LIGHTING

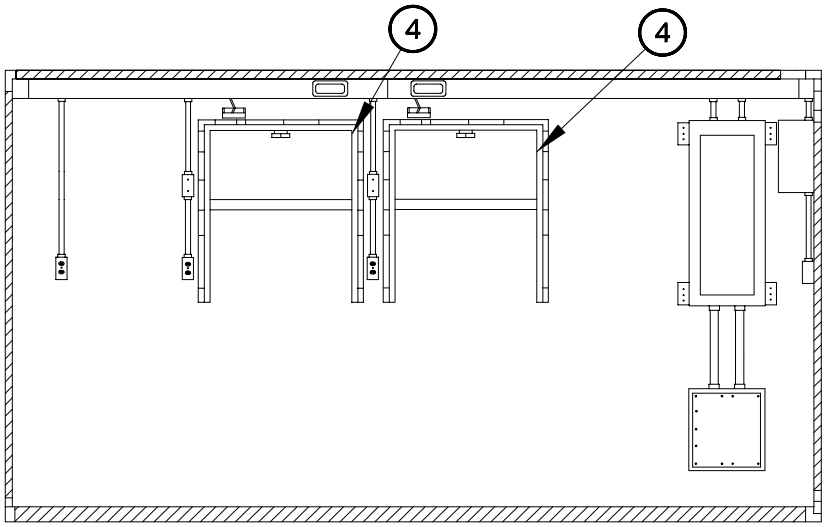
1. Shut down engine (WP 0016 00).
2. Connect AC power (WP 0027 00).
3. Push in CB11 (1) and CB10 (2) on relay panel (3).



2900A01-

INTERIOR LIGHTING - Continued

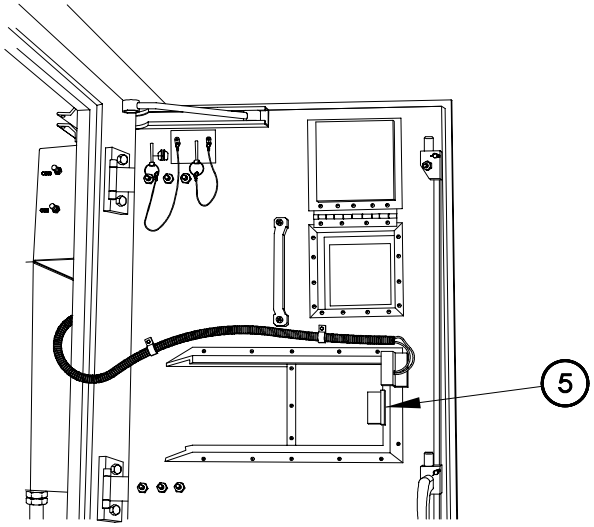
4. Close four blackout shields (4).



2900A02-

5. Close RH door window (5).

6. Close and latch LH and RH doors (WP 0026 00).



2900A03-

M1079A1 VAN LIGHTING - Continued 0029 00

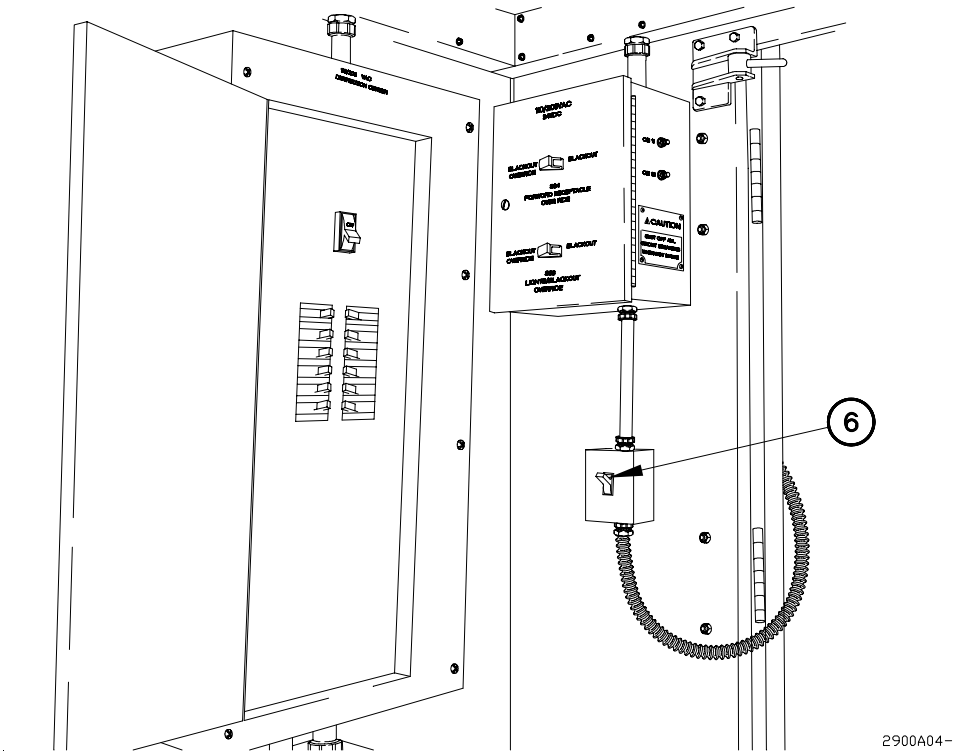
INTERIOR LIGHTING - Continued

NOTE

Interior lights will not illuminate with doors, windows, or blackout shields open.

With loss of DC power, four emergency lights (white) will illuminate, with both doors and blackout shields closed.

7. Position INTERIOR LIGHTS switch (6) to on.



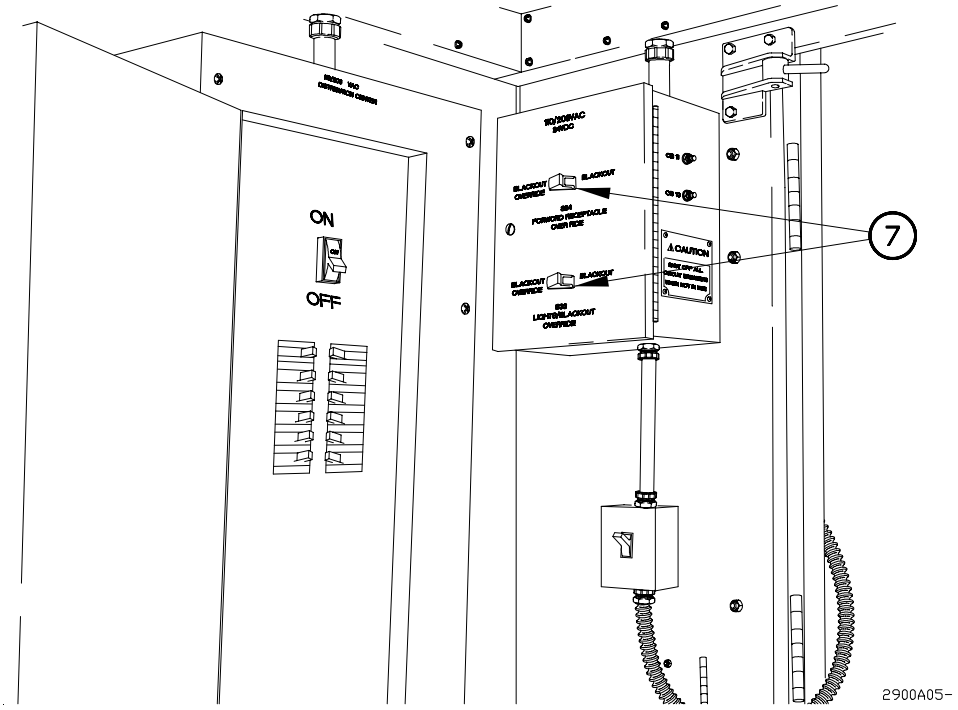
BLACKOUT OVERRIDE

NOTE

During blackout override only two forward AC outlets (J232 and J233) will have power.

When either door or any blackout shield is open, van will not have AC power unless BLACKOUT OVERRIDE switches are activated.

Position BLACKOUT OVERRIDE switches (7) to ON.



END OF OPERATING PROCEDURE

M1079A1 VAN FAN OPERATION 0030 00

INITIAL SETUP:

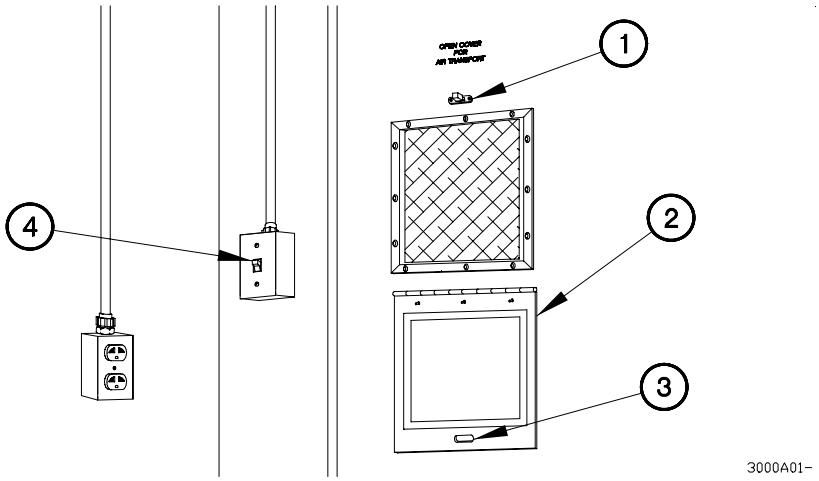
Maintenance Level
Operator

GENERAL

This work package provides the data and procedures for M1079A1 fan operation. Items covered include Turning Fan On and Turning Fan Off.

TURNING FAN ON

1. Unlock top stud fastener (1).
2. Open fan cover (2) and position on bottom stud fastener (3).
3. Lock bottom stud fastener (3).
4. Position FAN switch (4) to ON.



TURNING FAN OFF

1. Position FAN switch (4) to OFF.
2. Unlock bottom stud fastener (3).
3. Close fan cover (2) and position on top stud fastener (1).
4. Lock top stud fastener (1).

END OF OPERATING PROCEDURE

M1079A1 VAN 24 VDC BINDING POST OPERATION 0031 00

INITIAL SETUP:

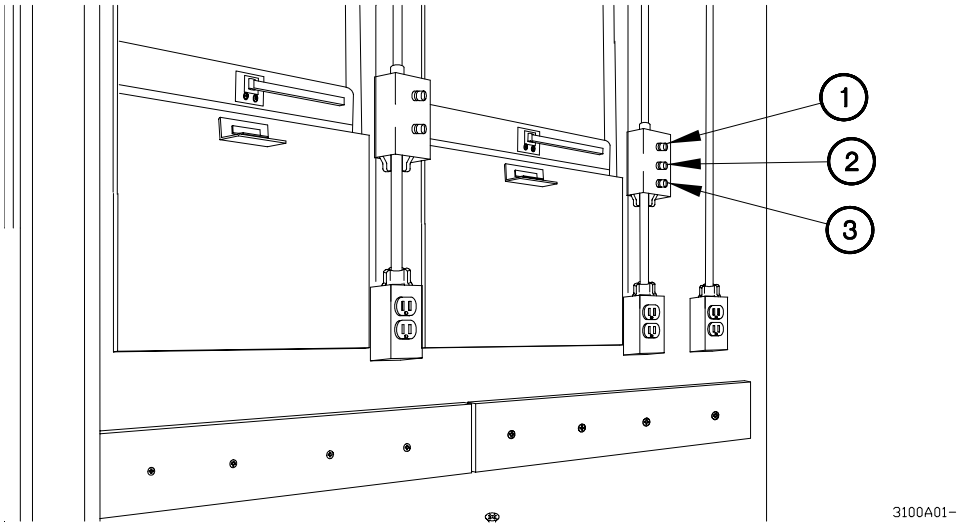
Maintenance Level
Operator

GENERAL

This work package provides the data and procedures for M1079A1 van 24 vdc binding post operation. Items covered include Connecting The 24 VDC Binding Posts and Disconnecting The 24 VDC Binding Post.

CONNECTING 24 VDC BINDING POSTS

1. Connect positive wire to 24 vdc POS binding post (1).
2. Connect negative wire to 24 vdc NEG binding post (2).
3. Connect ground wire to 24 vdc GND binding post (3).



DISCONNECTING 24 VDC BINDING POSTS

1. Disconnect ground wire from 24 vdc GND binding post (3).
2. Disconnect negative wire from 24 vdc NEG binding post (2).
3. Disconnect positive wire from 24 vdc POS binding post (1).

END OF OPERATING PROCEDURE

M1079A1 VAN FIELD PHONE BINDING POST OPERATION 0032 00

INITIAL SETUP:

Maintenance Level
Operator

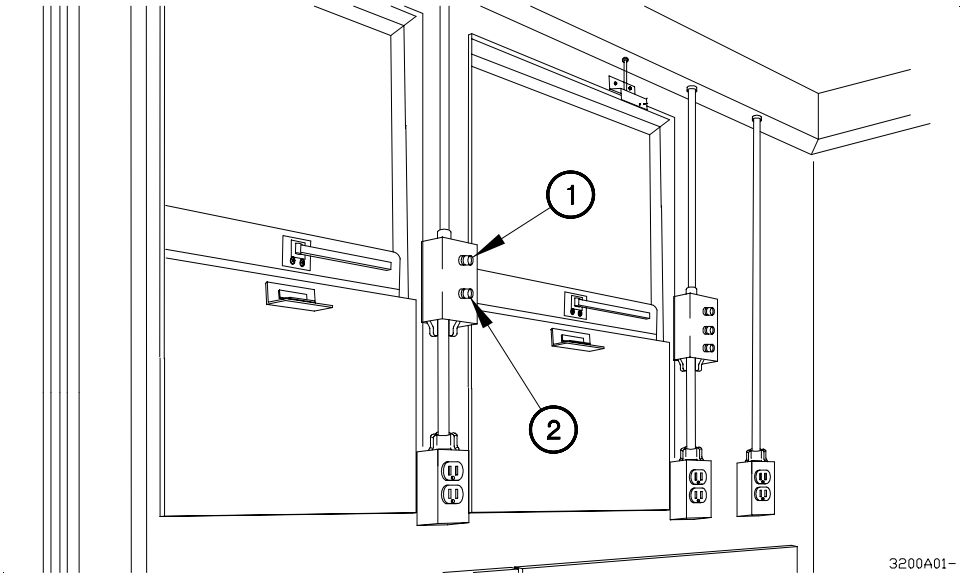
GENERAL

This work package provides the data and procedures for connecting field phone binding posts and disconnecting field phone binding posts on the M1079A1 van.

CONNECTING FIELD PHONE BINDING POSTS.

1. Connect positive wire to field PHONE POS binding post (1).

2. Connect negative wire to field PHONE NEG binding post (2).



DISCONNECTING FIELD PHONE BINDING POSTS

1. Disconnect negative wire from field PHONE NEG binding post (2).

2. Disconnect positive wire from field PHONE POS binding post (1).

END OF OPERATING PROCEDURE

M1079A1 VAN 12/24 VDC POWER CONNECTION/DISCONNECTION

0033 00

INITIAL SETUP:

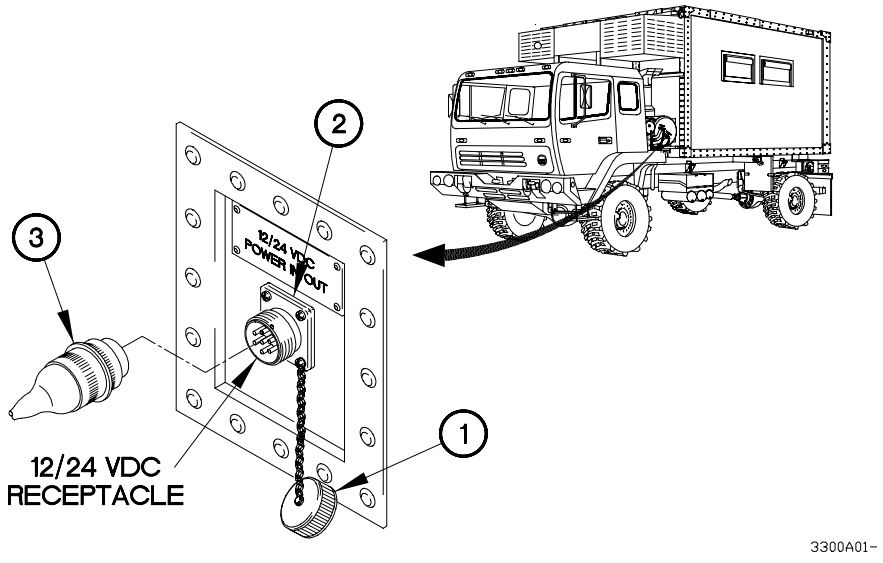
Maintenance Level
Operator

GENERAL

This work package provides the data and procedures for M1079A1 van 12/24 vdc power connection and disconnection.

CONNECTING 12/24 VDC POWER

1. Remove dust cap (1) from 12/24 vdc power receptacle (2).
2. Connect 12/24 vdc power cable (3) to 12/24 vdc power receptacle (2).



DISCONNECTING 12/24 VDC POWER

1. Disconnect 12/24 vdc power cable (3) from 12/24 vdc power receptacle (2).
2. Install dust cap (1) on 12/24 vdc power receptacle (2).

END OF OPERATING PROCEDURE

M1079A1 VAN AIR CONDITIONER/HEATER OPERATION 0034 00

INITIAL SETUP:

Maintenance Level
Operator

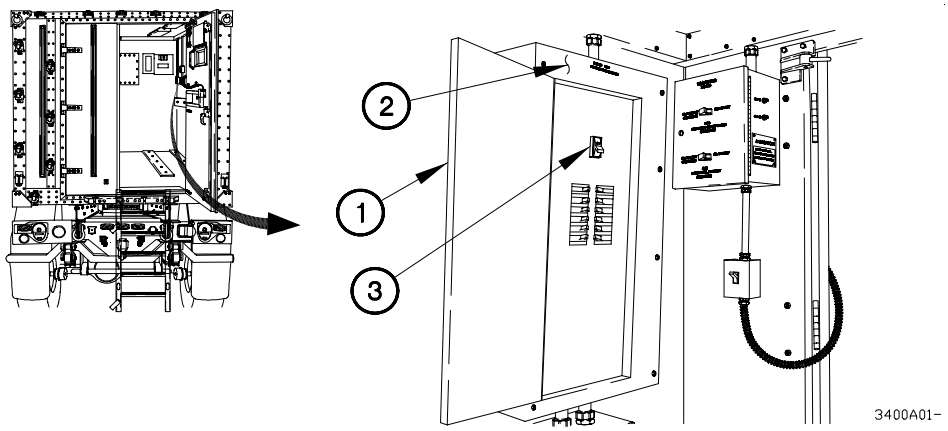
References
TM 5-4120-384-14
TM 5-4520-253-13

GENERAL

This work package provides the data and procedures for M1079A1 air conditioner and heater operations.

AIR CONDITIONER OPERATION

1. Open cover (1) on 110/208 VAC POWER DISTRIBUTION PANEL (2).
2. Position main power switch (3) to ON.
3. Refer to TM 5-4120-384-14, Operator's Organizational, Direct Support and General Support Maintenance Manual.



HEATER OPERATION

1. Open cover (1) on 110/208 VAC POWER DISTRIBUTION PANEL (2).
2. Position main power switch (3) to ON.
3. Refer to TM 5-4520-253-13, Operator's, Unit, and Intermediate Maintenance Manual.

END OF OPERATING PROCEDURE

BACK-UP HYDRAULIC PUMP OPERATION 0035 00

INITIAL SETUP:

Maintenance Level
Operator

Tools/Special Tools
Handle (Item 14, Table 2, WP 0094 00)

GENERAL

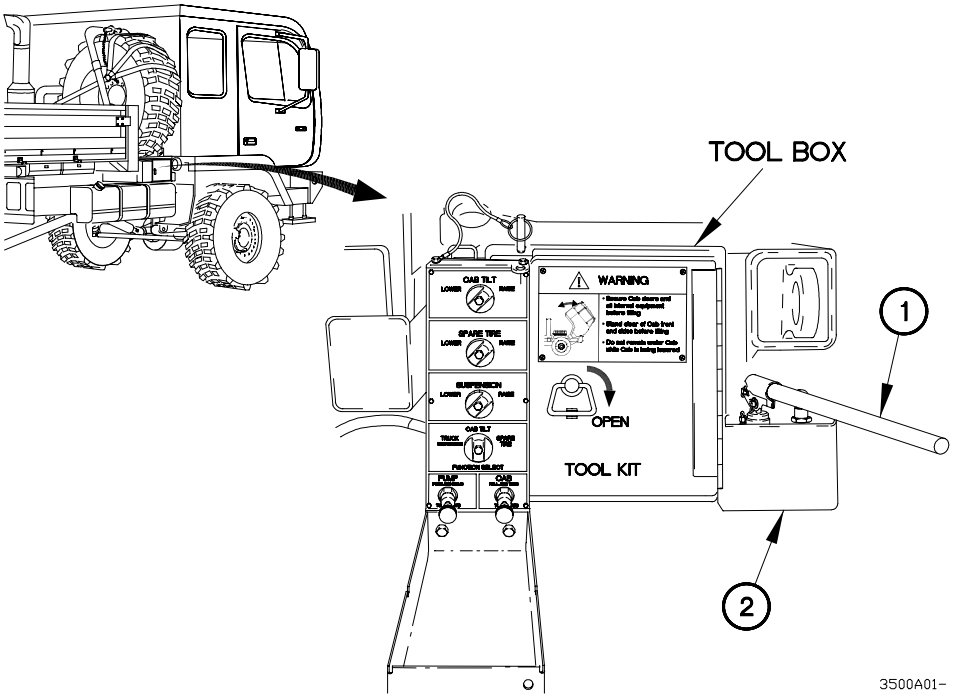
This work package provides the data and procedures for operating the back-up hydraulic pump for M1078A1 series vehicles.

BACK-UP HYDRAULIC PUMP OPERATION

NOTE

If outside temperature is above -25° F (-32° C), perform steps 1 through 3.

1. Remove handle (1) from tool box.
2. Insert handle (1) in back-up hydraulic pump (2).
3. Pump handle (1) until cab or spare tire is in desired position.



BACK-UP HYDRAULIC PUMP OPERATION - Continued

NOTE

If cab or spare tire does not move, perform steps 4 through 7.

If performing steps 4 through 7 does not accomplish the required action, notify Unit Maintenance.

4. Position CAB TILT (3) or SPARE TIRE (4) knob to opposite selection.

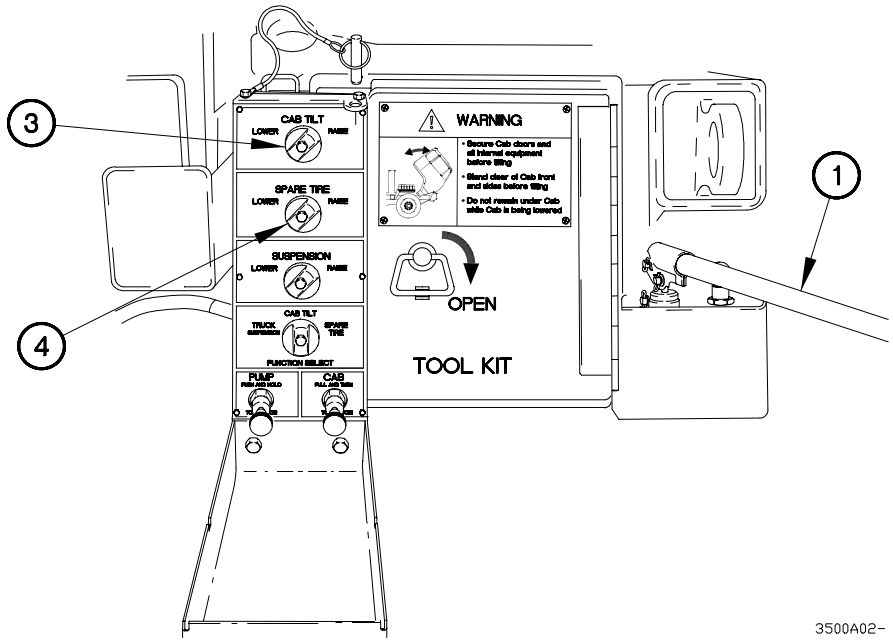
NOTE

If outside temperature is -25° F (-32° C), or below perform steps 5 through 8.

It may be necessary to perform step 5 several times before cab or spare tire begins to move.

A downward cycle should take approximately 3 seconds.

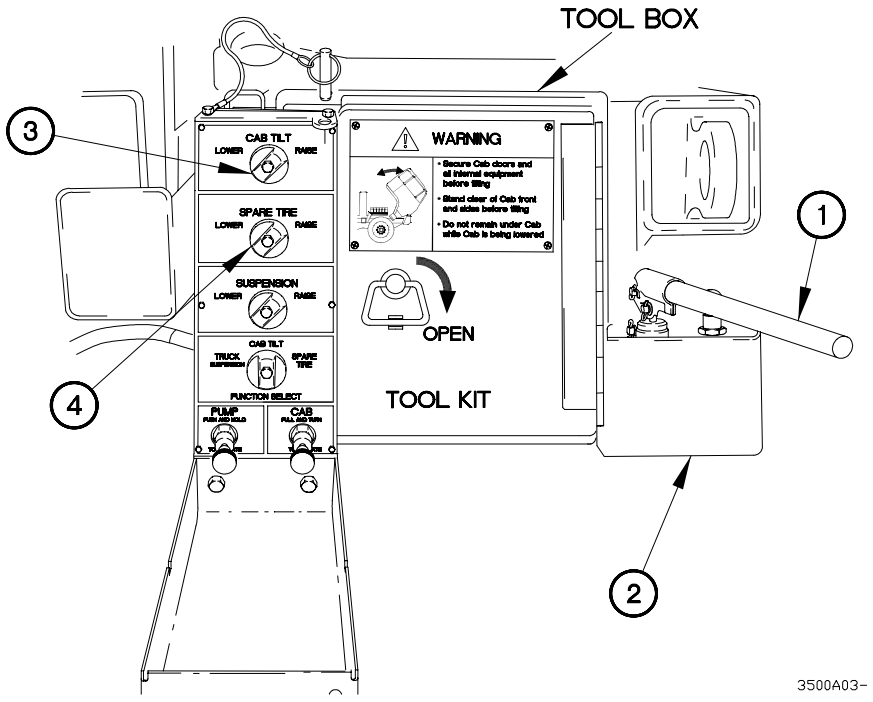
5. Pump handle (1) slowly downward until cab or spare tire moves a few inches.



BACK-UP HYDRAULIC PUMP OPERATION - Continued 0035 00

BACK-UP HYDRAULIC PUMP OPERATION - Continued

6. Position CAB TILT (3) or SPARE TIRE (4) knob to opposite selection.
7. Pump handle (1) until cab or spare tire is in desired position.
8. Place pump handle (1) in down position.
9. Remove handle (1) from back-up hydraulic pump (2).
10. Stow handle (1) in tool box.



END OF OPERATING PROCEDURE

DATA AND INSTRUCTION PLATES 0036 00

INITIAL SETUP:

Maintenance Level
Operator

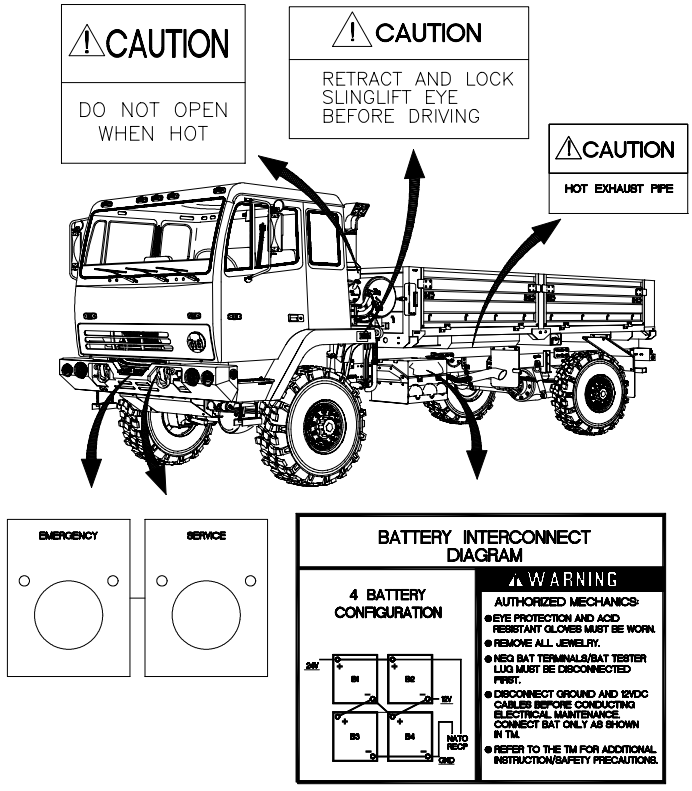
GENERAL

This work package provides the location and content of the data and instructions plates found on the M1078A1 series vehicles. Items covered include All Vehicles, Left Side; All Vehicles, Right Side; All Vehicles, Interior; Vehicles With 11K SRW; Vehicles With LMHC; M1079A1 Exterior; and M1079A1 Interior.

WARNING

Data and instruction plates given below must be followed at all times to safely operate vehicle. Failure to comply may result in serious injury or death to personnel or damage to equipment.

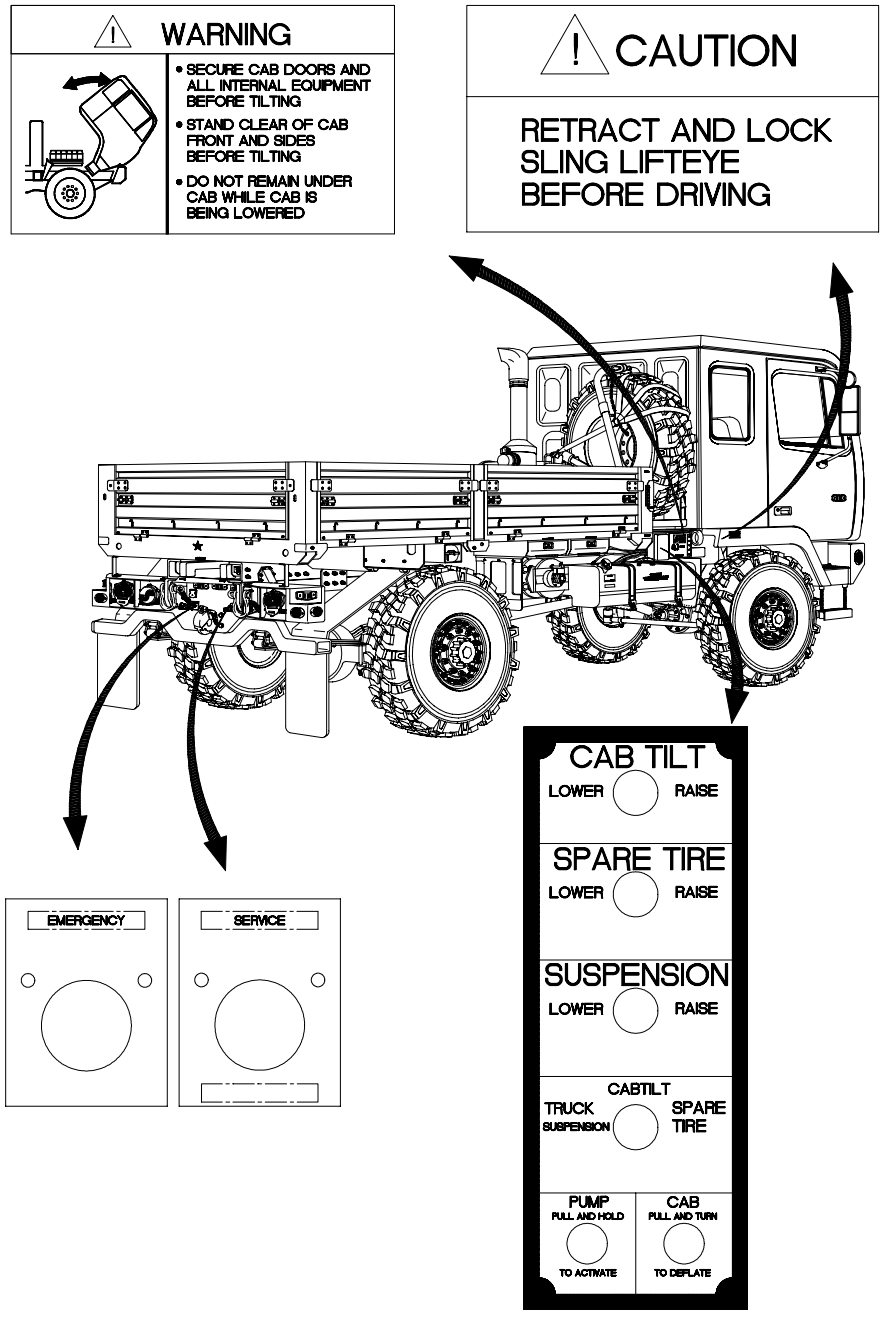
ALL VEHICLES, LEFT SIDE



3600A01-

DATA AND INSTRUCTION PLATES - Continued 0036 00

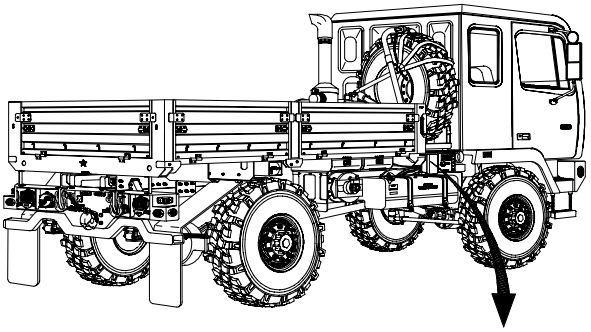
ALL VEHICLES, RIGHT SIDE



3600A02-

DATA AND INSTRUCTION PLATES - Continued 0036 00

ALL VEHICLES, RIGHT SIDE - CONTINUED



CAB

RAISE

1. ENSURE DOORS ARE SECURE AND PERSONNEL AND EQUIPMENT ARE AWAY FROM CAB FRONT.
2. SELECT "CAB TILT" FUNCTION.
3. SELECT CAB TILT "RAISE".
4. PRESS AND HOLD "PUMP" SWITCH UNTIL CAB MOVES PAST THE OVER-CENTER POSITION.

LOWER

1. ENSURE ALL TOOLS AND EQUIPMENT ARE REMOVED FROM ENGINE COMPARTMENT AND OFF TIRES.
2. SELECT "CAB TILT" FUNCTION.
3. SELECT CAB TILT "LOWER".
4. PRESS AND HOLD "PUMP" SWITCH UNTIL CAB MOVES PAST OVER-CENTER AND LET CAB FREE-FALL TO LATCH.
5. ENSURE CAB LOCK IS FULLY RETRACTED.

SPARE TIRE

LOWER

1. REMOVE SPARE TIRE RETAINING STRAP.
2. SELECT "SPARE TIRE" FUNCTION.
3. SELECT SPARE TIRE "LOWER".
4. PUSH AND HOLD "PUMP" SWITCH UNTIL SPARE TIRE IS OVER-CENTER THEN ALLOW TIRE TO FREE-FALL TO GROUND.

RAISE

1. INSTALL SPARE TIRE IN CARRIER.
2. SELECT "SPARE TIRE" FUNCTION.
3. SELECT SPARE TIRE "RAISE".
4. PUSH AND HOLD "PUMP" SWITCH UNTIL TIRE IS FULLY SEATED IN THE CARRIER.
5. INSTALL SPARE TIRE RETAINING STRAP.

SUSPENSION

LOWER

1. SET PARK BRAKE, START ENGINE AND LET IDLE.
2. OPEN TIRE VALVES TO DEFLATE FRONT TIRES.
3. RAISE CAB.
4. REMOVE SAFETY PINS FROM CYLINDERS AND REMOVE CHAINS FROM STOWAGE POSITION.
5. SELECT "TRUCK SUSPENSION" FUNCTION.
6. SELECT SUSPENSION "RAISE".
7. PUSH AND HOLD "PUMP" SWITCH UNTIL CHAINS ALIGN WITH PINS ON AXLE.
8. SECURE CHAINS TO AXLE WITH LYNCH PINS.
9. SELECT SUSPENSION "LOWER".
10. PUSH AND HOLD "PUMP" SWITCH UNTIL CYLINDER IS RETRACTED. INSTALL LOCK PINS.
11. LOWER CAB, DEFLATE AND SECURE AIR SPRINGS.

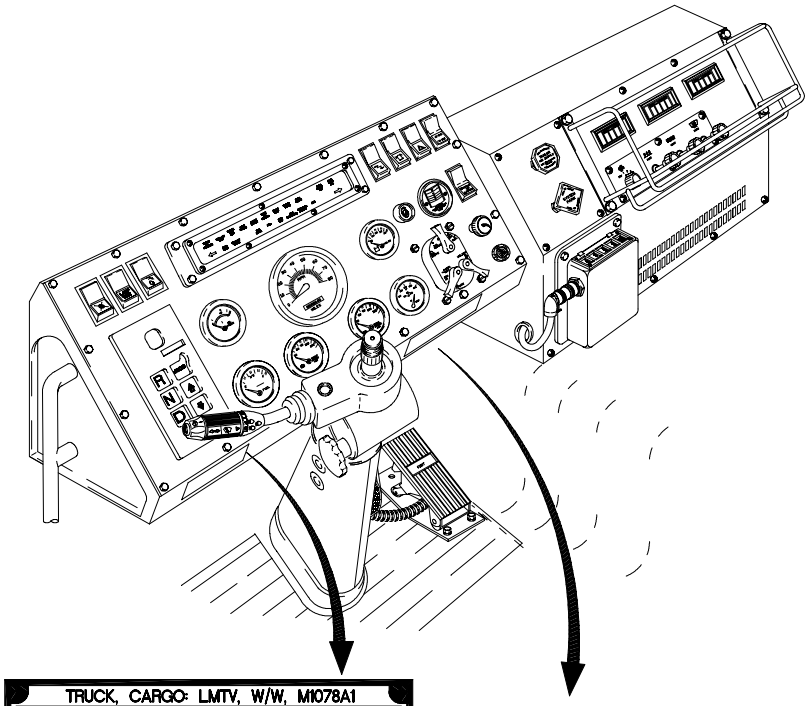
RAISE

1. SET PARK BRAKE, START ENGINE AND LET IDLE.
2. CLOSE TIRE VALVES, SELECT CTIS "RUN FLAT" AND "HIGHWAY" AT THE SAME TIME.
3. INFLATE CAB AIR SPRINGS BY REMOVING PINS THEN PUSH IN AND TURN "CAB" KNOB. STOW PINS.
4. SELECT "TRUCK SUSPENSION" FUNCTION.
5. SELECT SUSPENSION "LOWER".
6. PUSH AND HOLD "PUMP" SWITCH UNTIL CYLINDER LOCKING PINS CAN BE REMOVED. RAISE CAB IF NEEDED.
7. SELECT SUSPENSION "RAISE".
8. PUSH AND HOLD "PUMP" SWITCH UNTIL CHAINS CAN BE REMOVED FROM AXLE PINS.
9. RELEASE HOLD-DOWN CHAINS ON EACH SIDE OF FRONT SUSPENSION BY REMOVING LYNCH PINS. CHAINS WITH LYNCH PINS.
10. SELECT SUSPENSION "LOWER".
11. PUSH AND HOLD "PUMP" SWITCH UNTIL CYLINDER IS RETRACTED.
12. SECURE CYLINDER WITH LOCKING PINS.
13. STOW CHAINS WITH LYNCH PINS. LOWER CAB IF RAISED.

3600A03-

DATA AND INSTRUCTION PLATES - Continued 0036 00

ALL VEHICLES, INTERIOR



TRUCK, CARGO: LMTV, W/W, M1078A1

NATIONAL STOCK NO.	2320-01-447-3888
CONTRACT NO.	DAAE07-96-C-M005
MANUFACTURED BY	STEWART + STEVENSON SERVICES, INC. TACTICAL VEHICLE SYSTEMS DIVISION
CAGE NO. 0FW39	SEALY, TEXAS 77474
VSN/USA	[redacted]
MFG. SERIAL NO.	[redacted]
MFG. DATE	[redacted] U.S. PROPERTY
DELIVERY DATE	[redacted]
INSPECTED	[redacted]

WARRANTY

This vehicle is covered by a material and workmanship warranty for a period of 18 months or 12,000 miles which ever occurs first from the date of acceptance for the components identified below

Entire Vehicle As Delivered National Stock Number: [redacted]

Warranty claim procedures must be followed by the user to secure warranty services for those components or major assemblies covered by the warranty agreement. Contact the local Warranty Control Office (WARCO) and provide an accurate description of the problem along with the vehicle NSN, serial number and mileage. The Government may implement repairs and invoice Tactical Vehicle Systems or TVS will arrange for replacement or repair.

NOTE: The Government will not submit any claims in which the combined parts and labor costs does not exceed $150.00 for any single Depot/GS part failure. For warranty action, complete a DA Form 2407 or DA Form 5504 and submit as instructed in the Warranty Program Technical Bulletin for this vehicle.

	Date(yymm)	Miles
Warranty Begins:	[redacted]	[redacted]
Warranty Ends :	[redacted]	[redacted]

CAGE CODE 0FW39

Tactical Vehicle Systems
Stewart and Stevenson Services, Inc.
P.O. Box 330
5000 I-10 West
Sealy, Texas 77474

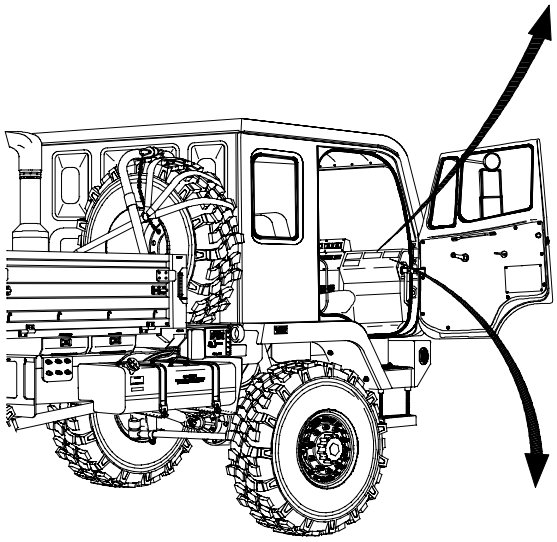
3600A04-

DATA AND INSTRUCTION PLATES - Continued 0036 00

ALL VEHICLES, INTERIOR - CONTINUED

⚠ WARNING

- NEVER LEAVE CAB WHILE ENGINE IS RUNNING UNLESS TRANSMISSION IS IN NEUTRAL AND PARKING BRAKES ARE SET
- USE WHEEL CHOCKS ON UNEVEN SURFACES



⚠ CAUTION

- DISENGAGE FAN CLUTCH WHEN FORDING MORE THAN 20 INCHES DEEP
- OBSERVE ENGINE TEMPERATURE GAUGE TO PREVENT ENGINE OVERHEATING
- AFTER FORDING REENGAGE FAN CLUTCH

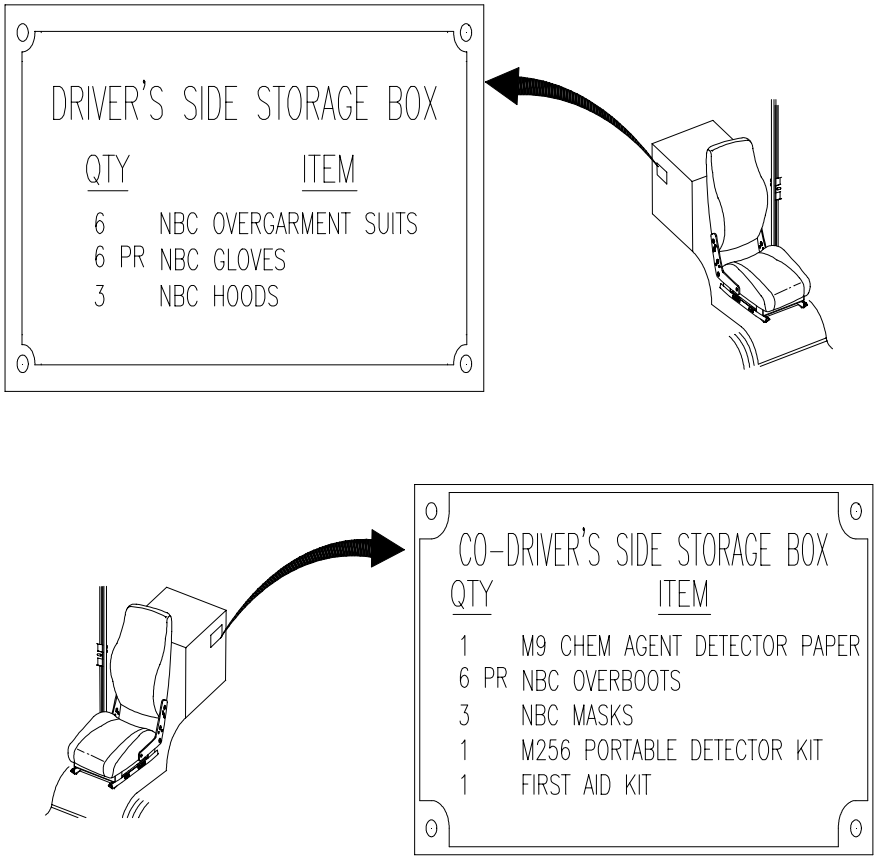
3600A05-

DATA AND INSTRUCTION PLATES - Continued 0036 00

ALL VEHICLES, INTERIOR - CONTINUED

NOTE

On Vehicle S/N 18,549 or lower



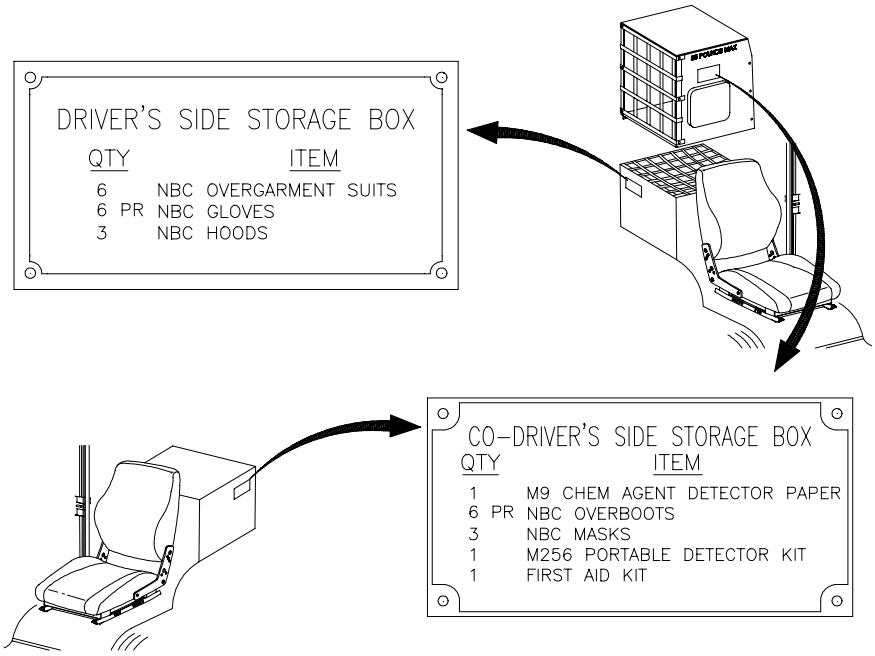
3600A06-

DATA AND INSTRUCTION PLATES - Continued 0036 00

ALL VEHICLES, INTERIOR - CONTINUED

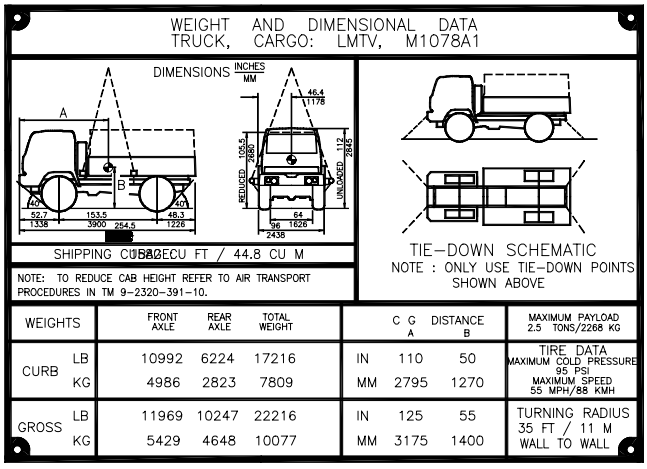
NOTE

On Vehicle S/N 18,550 or higher with and/or without digitization rack.

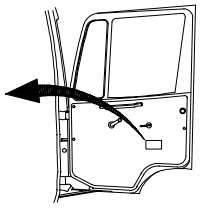


(NOT PRESENT IF VEHICLE EQUIPPED WITH DIGITIZATION RACK)

3600A12-



(TYPICAL)

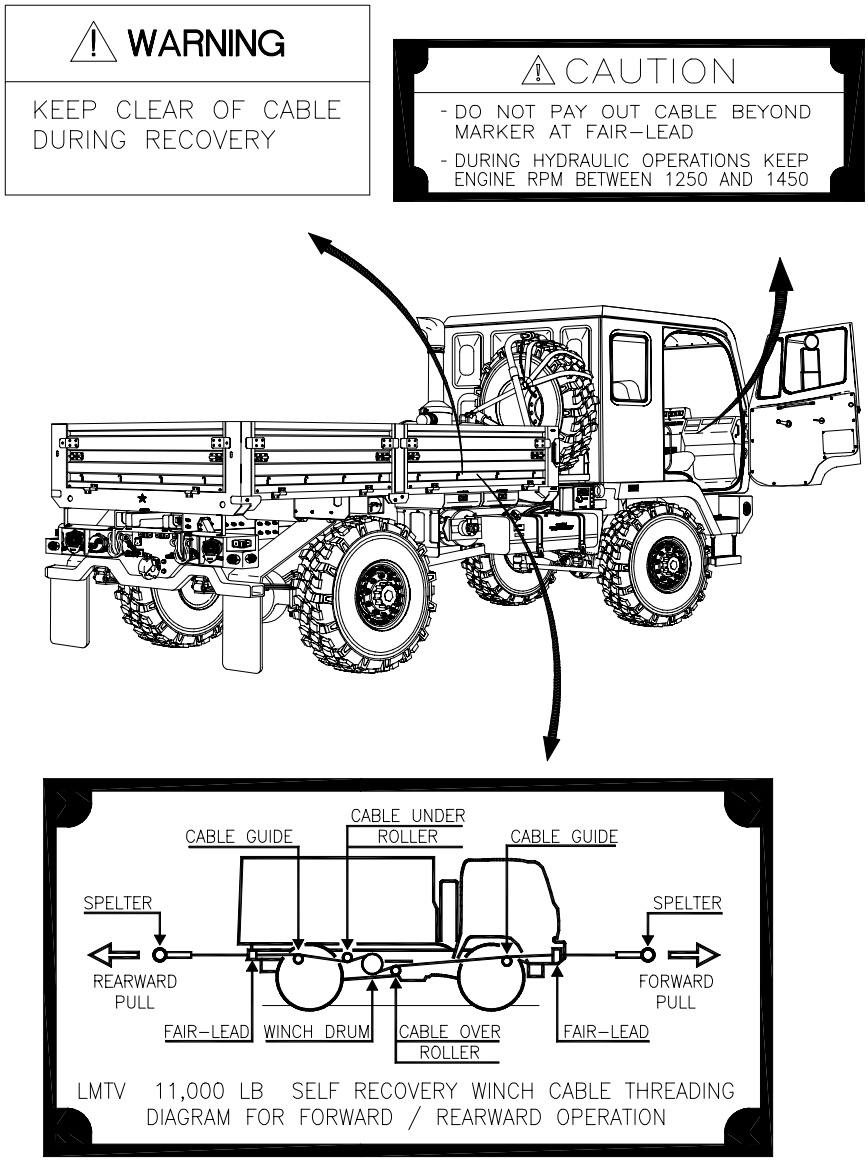


(RIGHT DOOR)

3600a13-

DATA AND INSTRUCTION PLATES - Continued 0036 00

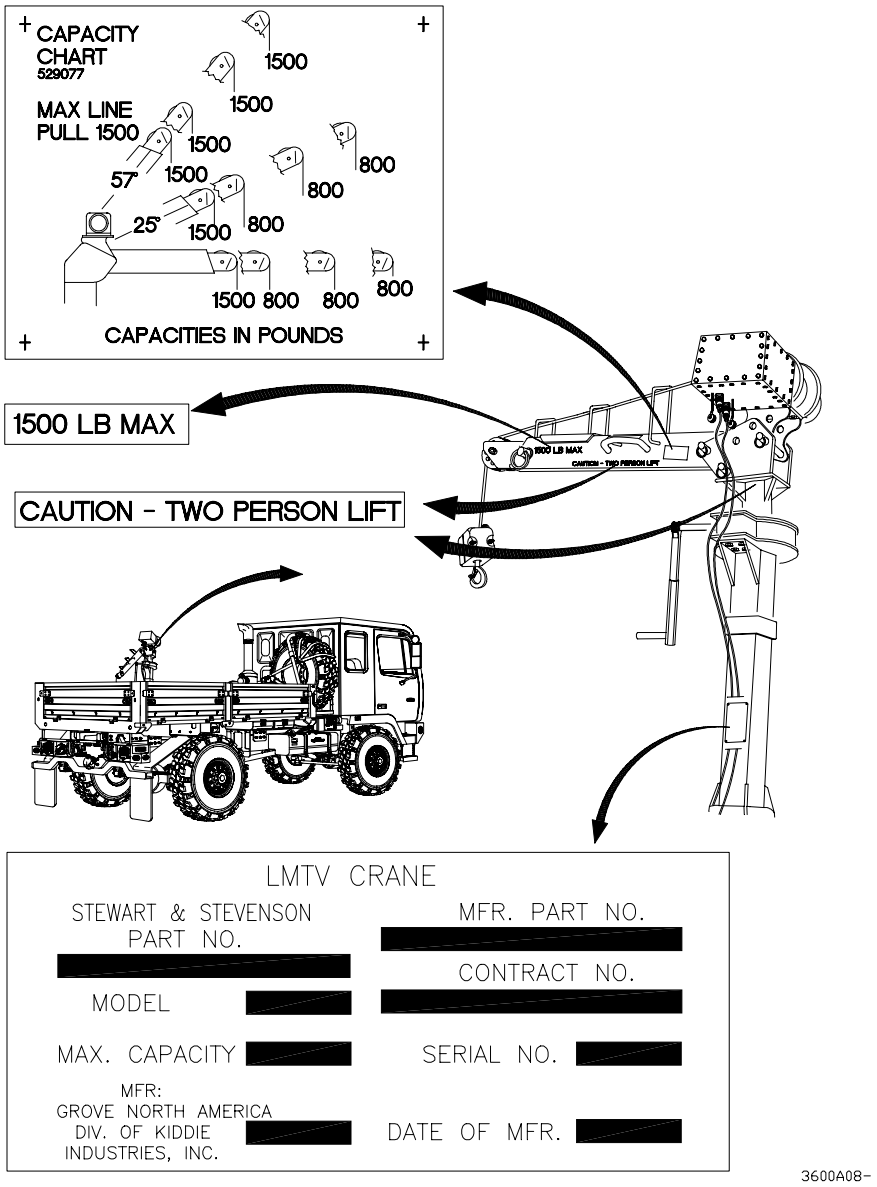
VEHICLES WITH 11K SRW



3600A07-

DATA AND INSTRUCTION PLATES - Continued 0036 00

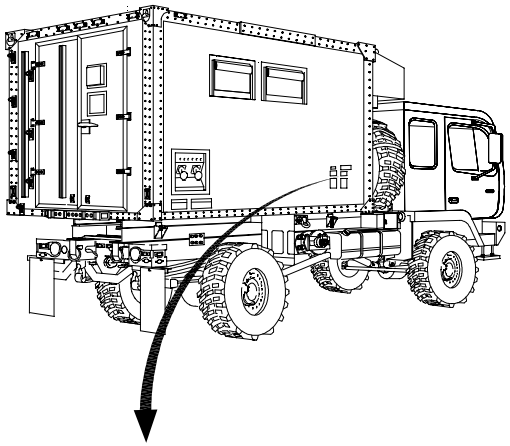
VEHICLES WITH LMHC



3600A08-

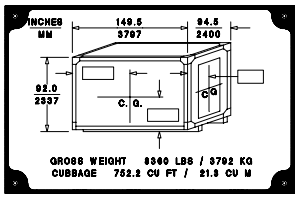
DATA AND INSTRUCTION PLATES - Continued 0036 00

M1079A1 EXTERIOR

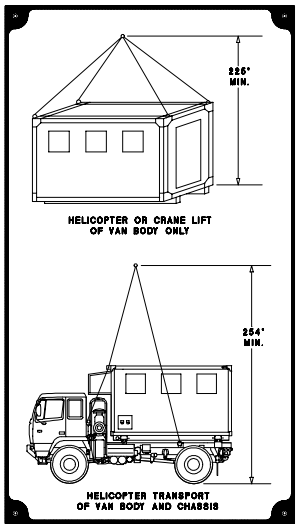


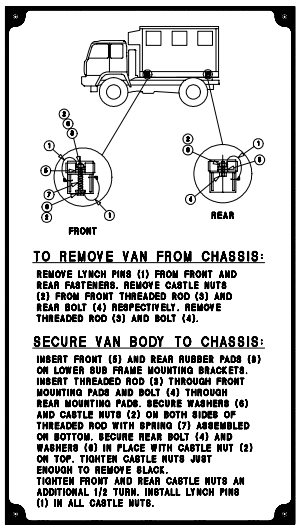
KEEP DRAIN PLUG LOOSE
DURING AIR AND RAIL
TRANSPORT

VAN, SHOP, M1079A1
NSN. 2320-01-447-4933
CONTRACT NO. DAAE07-98-C-M005
MFR-OPTSS DSGN ACT-19207
PART NO. 12421503
DELIVERY DATE [redacted]
SERIAL NO. [redacted]
U.S. PROPERTY



THE SURFACE OF THIS SHELTER
HAS BEEN PAINTED WITH
CARC
FOR TOUCH-UP
EXTERIOR-USE ONLY LUSTERLESS GREEN 383
POLYURETHANE IAW MIL-C-53039
INTERIOR-USE ONLY EPOXY PLOYAMIDE
IAW MIL-C-22750





TO REMOVE VAN FROM CHASSIS:

REMOVE LYNCH PINS (1) FROM FRONT AND REAR FASTENERS. REMOVE CASTLE NUTS (2) FROM FRONT THREADED ROD (3) AND REAR BOLT (4) RESPECTIVELY. REMOVE THREADED ROD (3) AND BOLT (4).

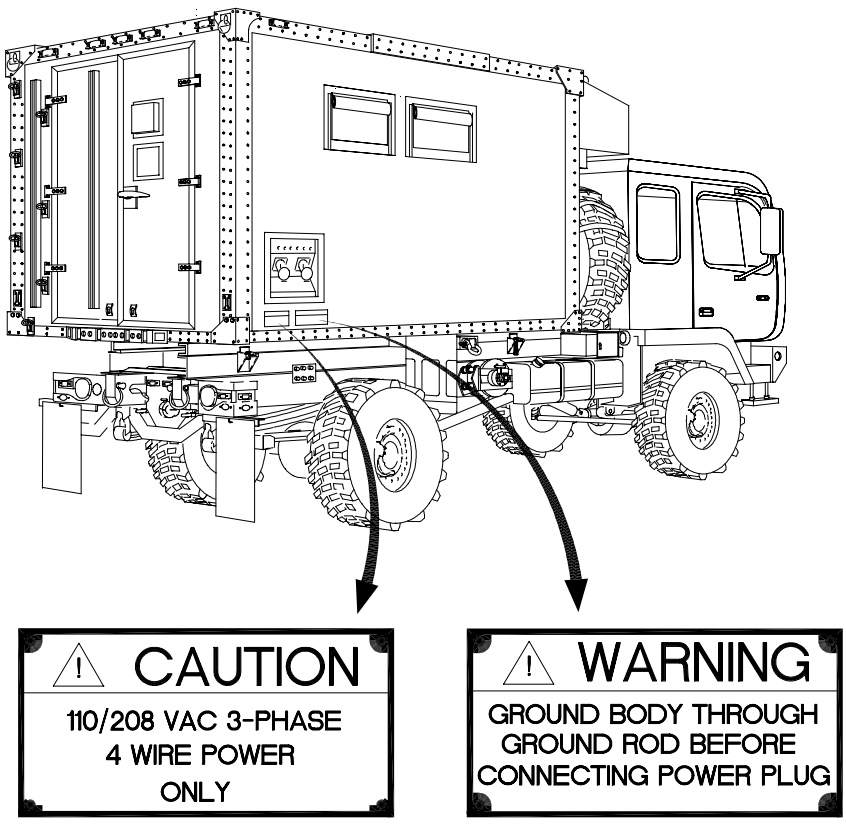
SECURE VAN BODY TO CHASSIS:

INSERT FRONT (5) AND REAR RUBBER PADS (5) ON LOWER SUB FRAME MOUNTING BRACKETS. INSERT THREADED ROD (3) THROUGH FRONT MOUNTING PADS AND BOLT (4) THROUGH REAR MOUNTING PADS. SECURE WASHERS (6) AND CASTLE NUTS (2) ON BOTH SIDES OF THREADED ROD WITH SPRING (7) ASSEMBLED ON BOTTOM. SECURE REAR BOLT (4) AND WASHERS (6) IN PLACE WITH CASTLE NUT (2) ON TOP. TIGHTEN CASTLE NUTS JUST ENOUGH TO REMOVE SLACK. TIGHTEN FRONT AND REAR CASTLE NUTS AN ADDITIONAL 1/2 TURN. INSTALL LYNCH PINS (1) IN ALL CASTLE NUTS.

3600A09-

DATA AND INSTRUCTION PLATES - Continued 0036 00

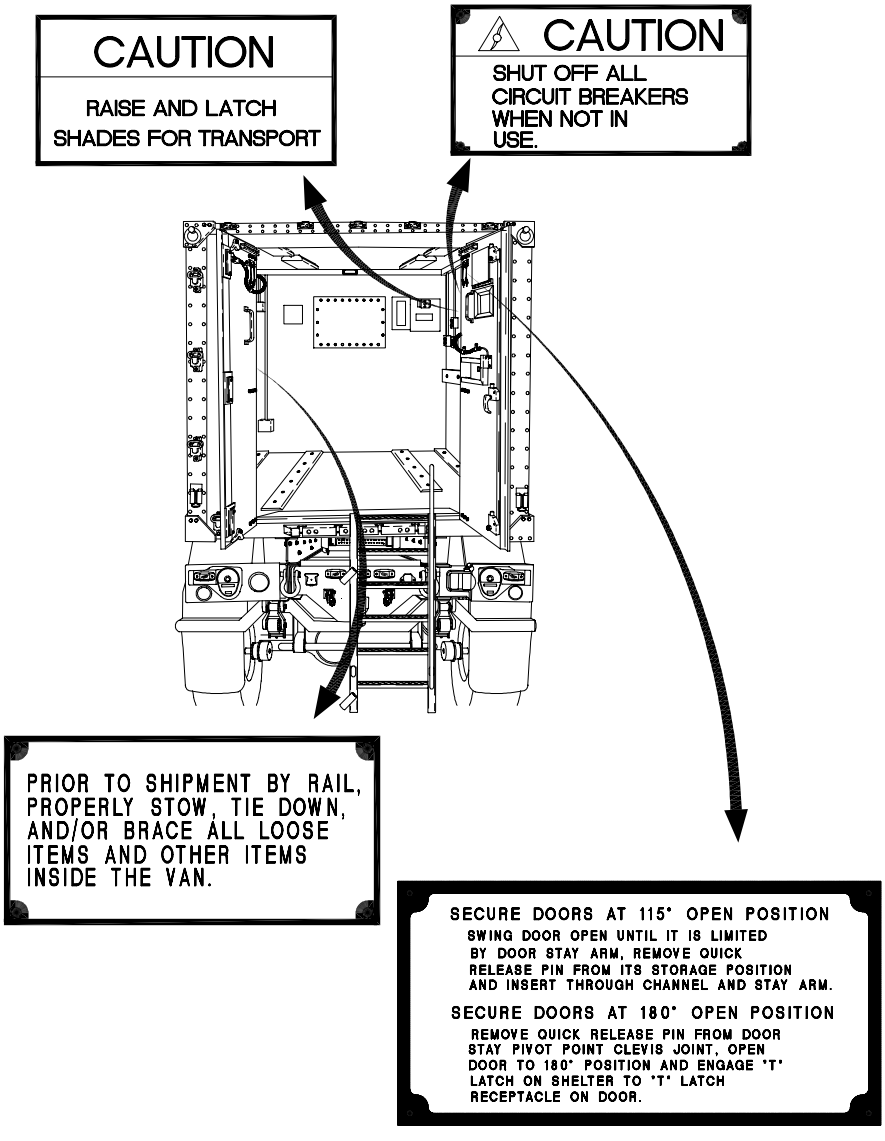
M1079A1 EXTERIOR - CONTINUED



3600A10-

DATA AND INSTRUCTION PLATES - Continued 0036 00

M1079A1 INTERIOR



3600A11-

END OF OPERATING PROCEDURE

AUXILIARY EQUIPMENT OPERATION 0037 00

INITIAL SETUP:

Maintenance Level
Operator

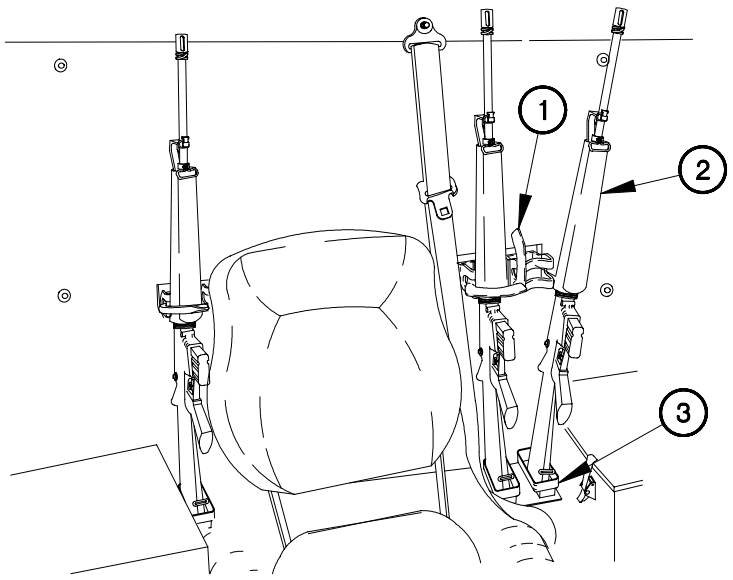
References
TM 3-6665-225-12
TM 3-4230-214-12 & P
TM 11-5820-401-10-1
TM 11-5820-890-10-1

GENERAL

This work package provides the data and procedures for operating the auxiliary equipment on the M1078A1 series vehicles. Items covered include Stowing Rifle In Mount, Removing Rifle From Mount, M42 Alarm Mounting Location, M43 Chemical Detector Mounting Location, Decontamination Apparatus Mounting Location, Operating M42 Chemical Alarm, Operating Decontamination Kit, and Operating Radio.

STOW RIFLE IN SMALL ARMS MOUNT (VEHICLE S/N 18,549 or LOWER)

1. Turn handle (1) up.
2. Position rifle (2) in support (3).
3. Pull out on handle (1).



3700A01-

STOW RIFLE IN SMALL ARMS MOUNT (VEHICLE S/N 18,549 or LOWER) Continued

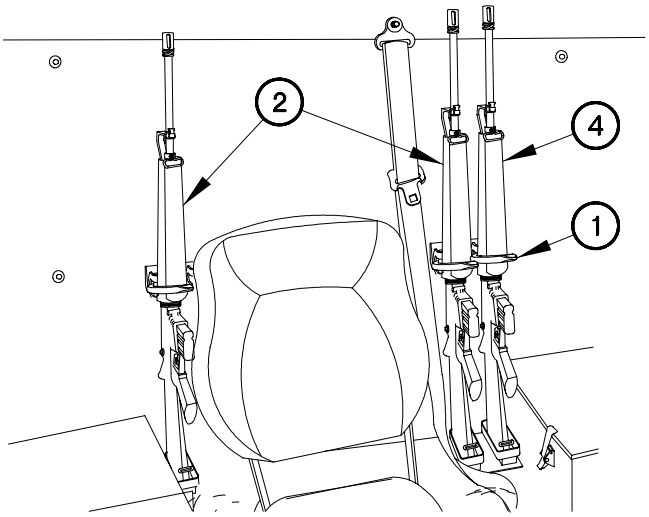
4. Turn handle (1) down over rifle handguard (4).

5. Check that rifle (2) is secure.

6. Perform steps 1 through 5 for remaining rifles (2).

REMOVE RIFLE FROM SMALL ARMS MOUNT (VEHICLE S/N 18,549 or LOWER)

1. Pull out on handle (1).

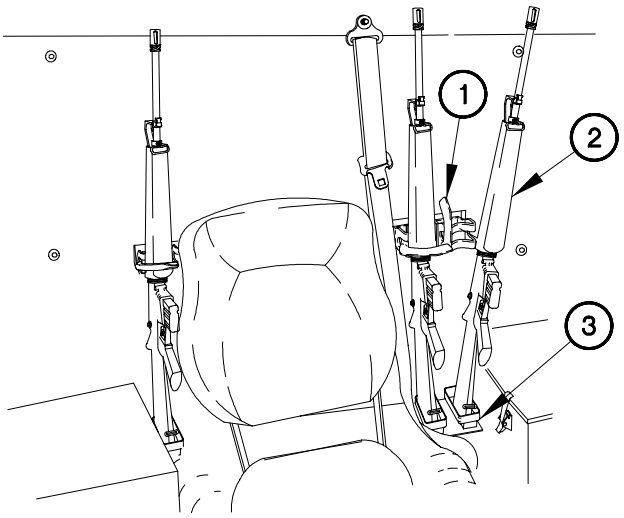


3700A02-

REMOVE RIFLE FROM SMALL ARMS MOUNT (VEHICLE S/N 18,549 or LOWER) Continued

2. Turn handle (1) up.

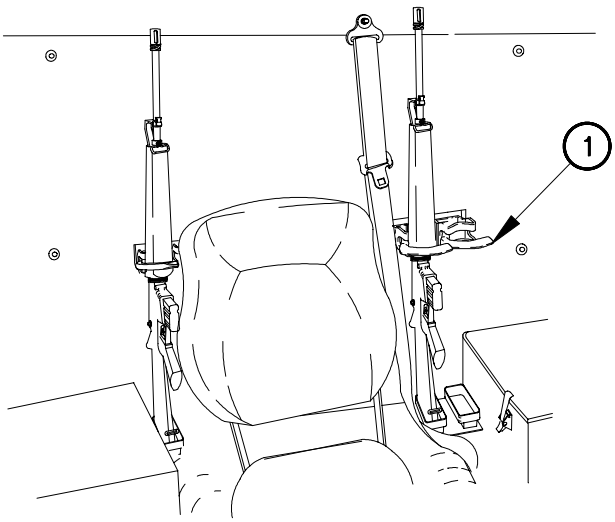
3. Remove rifle (2) from support (3).



3700A03-

4. Turn handle (1) down to the horizontal position.

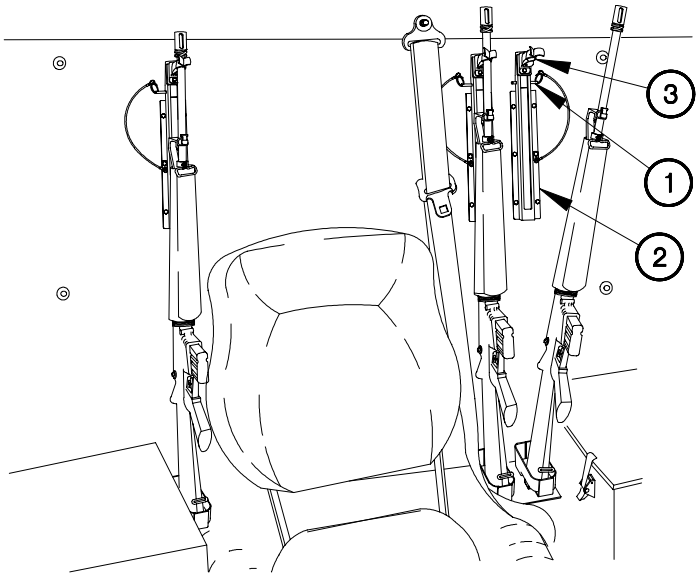
5. Perform steps 1 through 4 for remaining rifles.



3700a04-

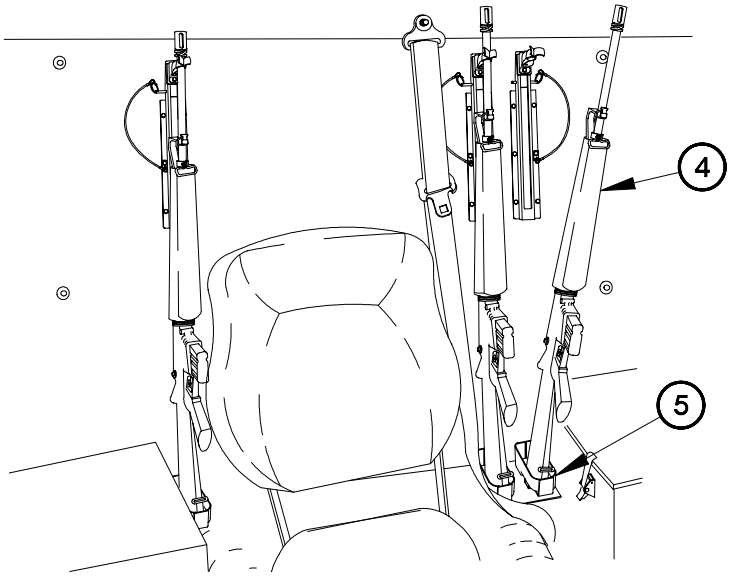
STOW RIFLE IN SMALL ARMS MOUNT (VEHICLE S/N 18,550 OR HIGHER)

1. Remove pin (1) from track (2).
2. Move clip (3) to desired height.
3. Install pin (1) in track (2).
4. Open clip (3).



3700A09-

5. Position rifle (4) in support (5).



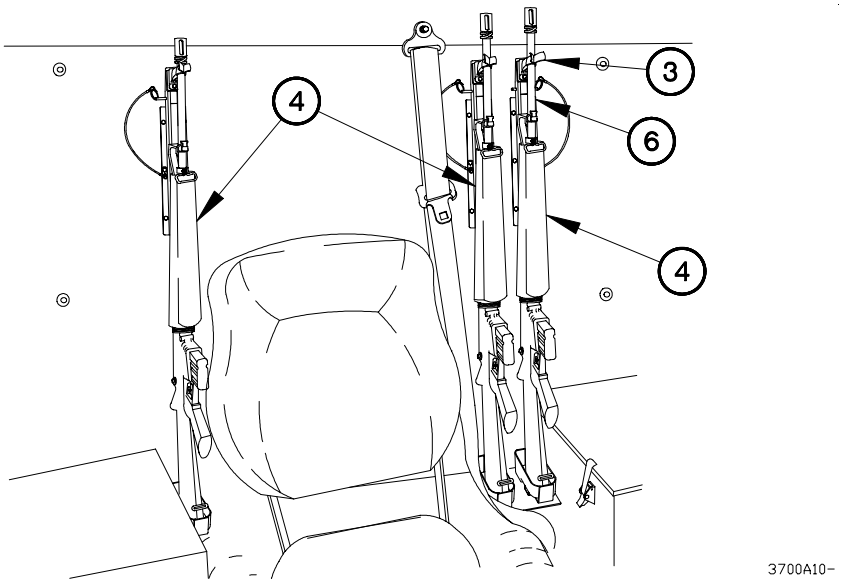
3700A11-

STOW RIFLE IN SMALL ARMS MOUNT (VEHICLE S/N 18,550 OR HIGHER) Continued

6. Close clip (3) around rifle handguard (6).

7. Check that rifle (4) is secure.

8. Perform the previous seven steps on remaining rifles.



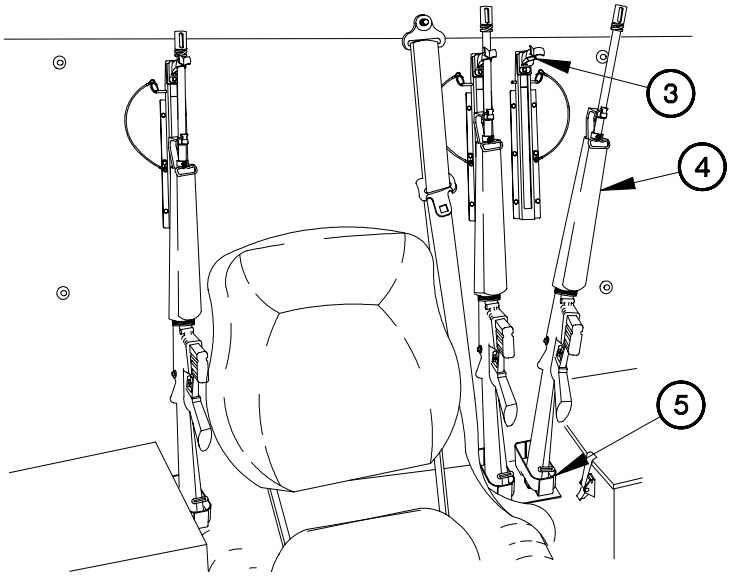
9. Remove rifle from small arm mount.

10. Open clip (3).

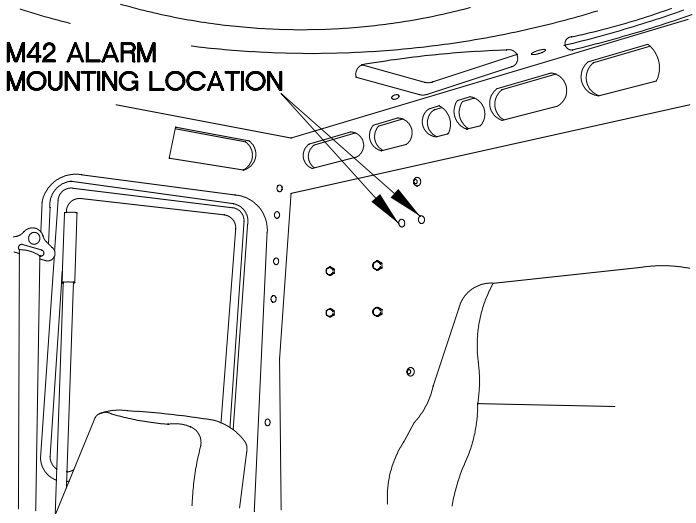
11. Remove rifle (4) from support (5).

12. Close clip (3).

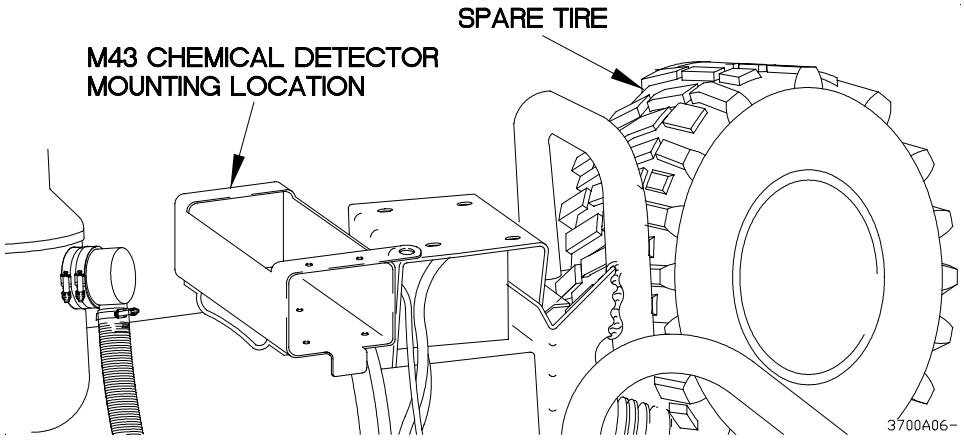
STOW RIFLE IN SMALL ARMS MOUNT (VEHICLE S/N 18,550 OR HIGHER) Continued



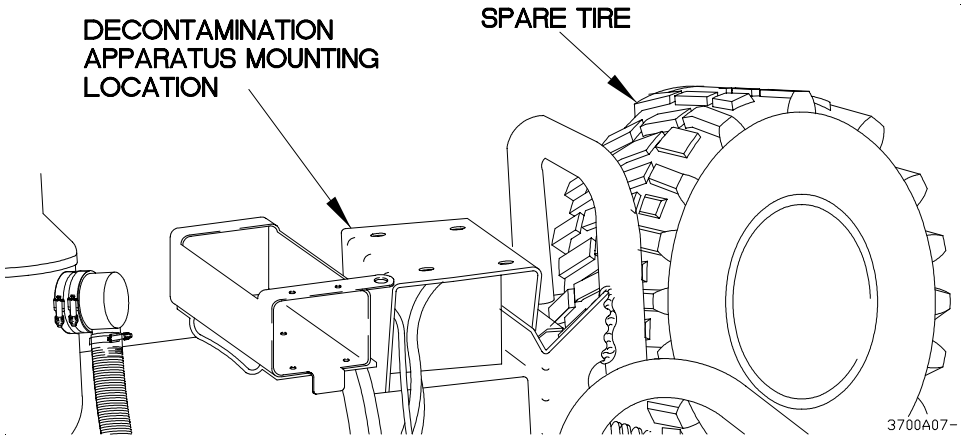
M42 ALARM MOUNTING LOCATION



M43 CHEMICAL DETECTOR MOUNTING LOCATION



DECONTAMINATION APPARATUS MOUNTING LOCATION



OPERATE M42 CHEMICAL ALARM

Refer to TM 3-6665-225-12 for operating instructions.

OPERATE DECONTAMINATION APPARATUS

Refer to TM 3-4320-214-12&P for operating instructions.

OPERATE RADIO

Radio equipment will be mounted in cab on rear panel. Refer to TM 11-5820-401-10-1 to operate Radio Set AN/VRC-46 or TM 11-5820-890-10-1 to operate Radio Set AN/VRC-90A.

END OF OPERATING PROCEDURE

OPERATION IN EXTREME HEAT 0038 00

INITIAL SETUP:

Maintenance Level
Operator

References
FM 21-10
FM 21-11
TM 9-6140-200-14
WP 0016 00
WP 0083 00
WP 0088 00

GENERAL

This work package provides the data and procedures to safely operate M1078A1 series vehicles in extreme heat.

VEHICLE OPERATION

WARNING

When mission requires the vehicle Operator and crew to remain in a stationary FMTV vehicle with the engine running in outside temperatures above 90° F (32° C), vehicle Operator and crew must observe proper safety precautions to prevent heat stress injury. Refer to FM 21-10 Field Hygiene and Sanitation, and FM 21-11 First Aid for Soldiers for proper precautions and preventive measures. Failure to comply may result in injury to personnel.

WARNING

When mission requires the vehicle Operator and crew to operate the FMTV vehicle in outside temperatures above 90° F (32° C) with the windows closed, vehicle Operator and crew must observe proper safety precautions to prevent heat stress injury. Refer to FM 21-10 Field Hygiene and Sanitation, and FM 21-11 First Aid for Soldiers for proper precautions and preventive measures. Failure to comply may result in injury to personnel.

OPERATION IN EXTREME HEAT - Continued 0038 00

VEHICLE OPERATION - Continued

CAUTION

When operating in temperatures above 100° F (38° C), extra care must be taken to prevent overheating the engine. Watch WATER TEMP gage, STOP ENGINE indicator, and COOLANT TEMP indicator closely. Failure to comply may result in damage to equipment.

Check oil levels often and keep operating strain as low as possible. Vehicle cooling and lubrication systems support each other. Failure of one system will rapidly cause failure of the other system. Failure to comply may result in damage to equipment.

Idle engine to cool down. Idling cools engine faster than quick shutdown and may prevent damage to engine from excessive heat. Failure to comply may result in damage to equipment.

Use low gear ranges only when necessary. Failure to comply may result in damage to equipment.

OPERATION IN EXTREME HEAT - Continued 0038 00

VEHICLE OPERATION - Continued

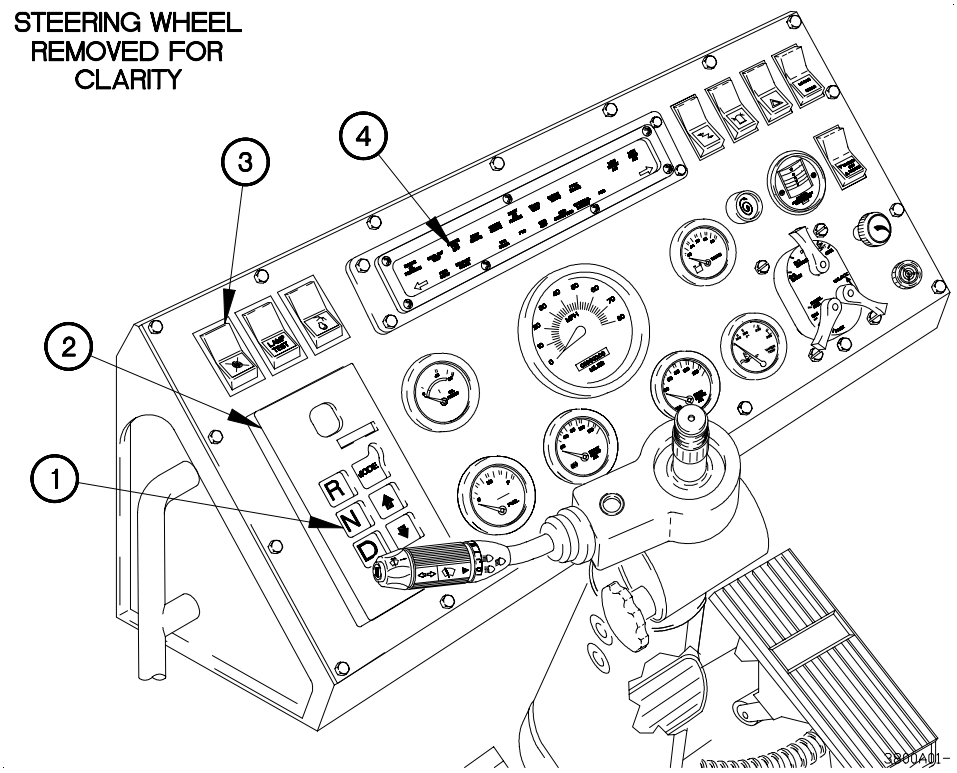
1. Push N (Neutral) select button (1) on WTEC III Transmission Pushbutton Shift Selector (TPSS) (2) while engine is running. Idle engine for approximately two minutes before engine shutdown.

CAUTION

Do not operate vehicle with engine fan off switch in the on position. Ensure ENGINE FAN OFF indicator is not illuminated. Failure to comply may result in damage to equipment.

Placing the engine fan off switch in the on position will cause the fan not to operate.

2. Check that engine fan off switch (3) is in the off position and the ENGINE FAN OFF indicator (4) is not illuminated.



OPERATION IN EXTREME HEAT - Continued 0038 00

VEHICLE OPERATION - Continued

CAUTION

Never operate engine for more than 30 seconds at full throttle while vehicle is not moving. Transmission oil temperature will become too hot. Failure to comply may result in damage to equipment.

3. If the TRANS TEMP indicator (5) illuminates and WATER TEMP gage (6) reads near 230° F (110° C), transmission oil is overheating:

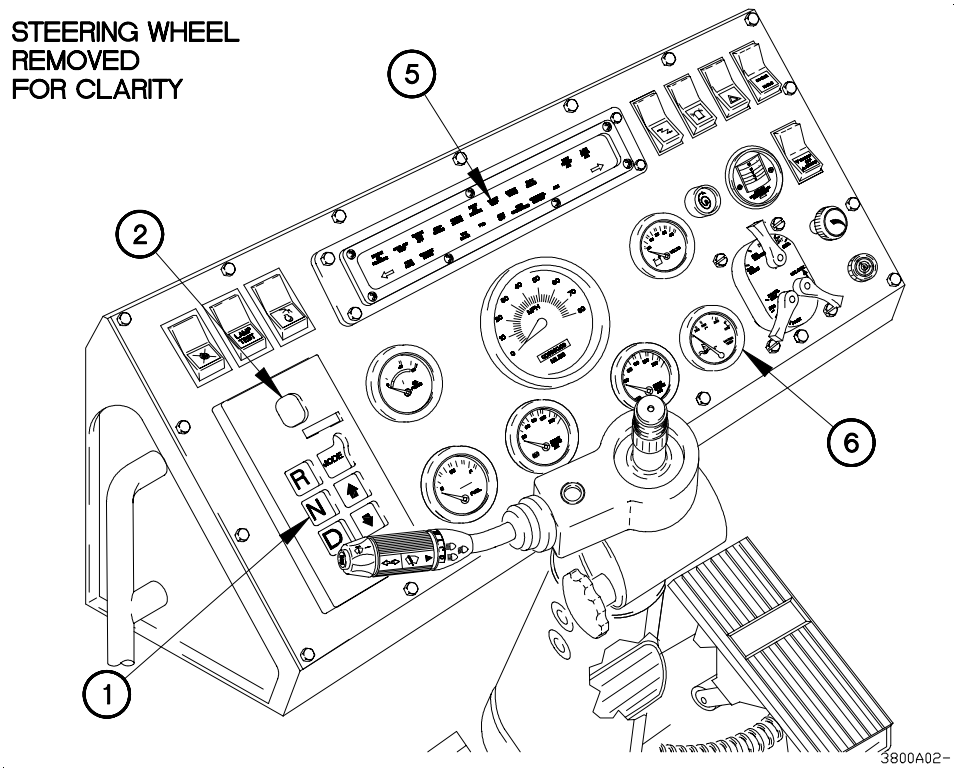
   a. Stop vehicle.

   b. Press the N (Neutral) select button (1) on WTEC III TPSS (2).

   c. Allow engine to operate at idle speed for three minutes.

   d. Continue normal vehicle operation when TRANS TEMP indicator (5) goes out.

   e. Shut down engine (WP 0016 00) and notify Unit Maintenance if TRANS TEMP indicator (5) does not go out.



OPERATION IN EXTREME HEAT - Continued 0038 00

VEHICLE OPERATION - Continued

4. Check cooling system often for the following conditions:

    a. Low coolant level in radiator overflow tank (WP 0083 00,Table 1, Item 3).

    b. Cracked or leaking radiator hoses (WP 0083 00, Table 4, Item 21).

    c. Radiator fins clogged with dust, leaves, or insects.

NOTE

Batteries do not hold charge well in extreme heat. Batteries will be tagged for use in tropical conditions or extreme heat. Batteries will have a white circle or dot painted on top. Battery electrolyte must be changed to adjust for such conditions. Refer to TM 9-6140-200-14 for procedures.

5. Check battery electrolyte level daily (WP 0088 00). If electrolyte level is low, service with distilled water.

6. In hot, damp climates check body and chassis often. Notify Unit Maintenance if any of the following conditions are found:

    a. Signs of pitting or paint blistering on metal surfaces.

    b. Signs of mildew, mold, or fungus on fabrics and rubber.

END OF OPERATING PROCEDURE

OPERATION IN EXTREME DUST 0039 00

INITIAL SETUP:

Maintenance Level
Operator

References:
WP 0083 00
WP 0087 00
WP 0089 00

GENERAL

This work package provides the data and procedures for safely operating the M1078A1 series vehicles in extreme dust.

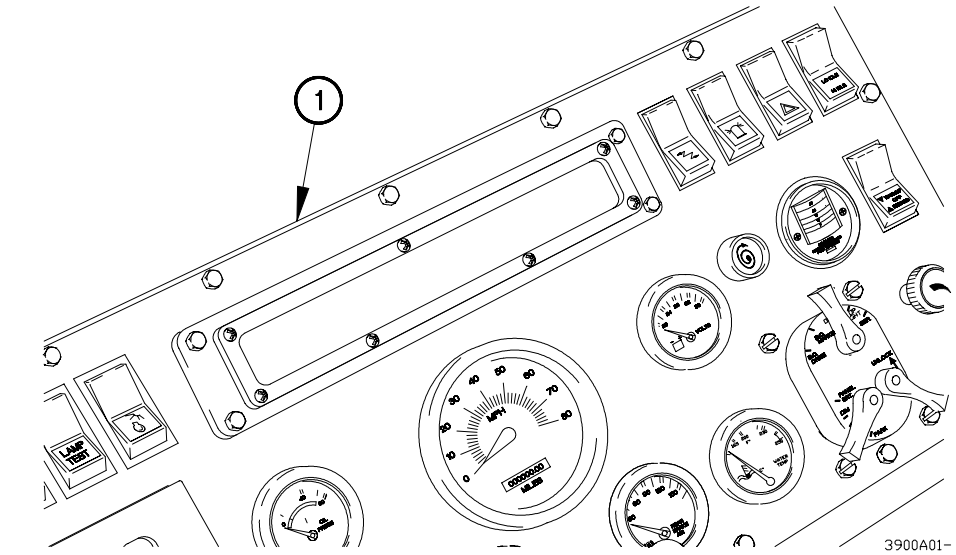
VEHICLE OPERATION

CAUTION

Check AIR FILTER RESTRICTION GAUGE often. If yellow diaphragm enters red zone (greater than 25 in.), shut down engine immediately and service air filter (WP 0089 00). Failure to comply may result in damage to equipment.

1. Service air filter (WP 0089 00). Check other gages and indicator lights on instrument panel assembly (1) to be sure dust does not affect other equipment.

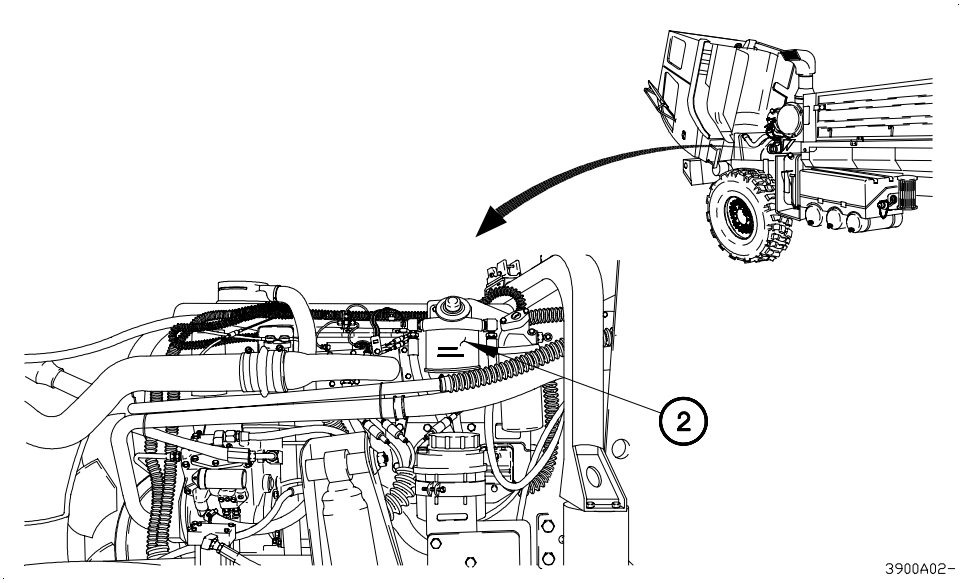
2. Allow as much distance as possible between vehicles and operate at low speeds.



OPERATION IN EXTREME DUST - Continued 0039 00

VEHICLE OPERATION - Continued

3. Check and drain fuel/water separator (2) at stops (WP 0083 00, Table 3, Item 4).



4. Park vehicle so that front of vehicle does not face into wind when possible.

5. Cover air intake, radiator, and cab with tarp during extended shutdown.

CAUTION

Keep glass surfaces covered with tarp as much as possible in blowing dust conditions. Failure to comply may result in scratched glass surfaces.

6. Cover glass surfaces when not needed for operation. Take extra care when cleaning glass to prevent scratching surfaces.

CAUTION

Do not direct high-pressure water stream at glass surfaces, seals, air intake, exhaust outlet, or any other component of vehicle that could be easily damaged by high-pressure water stream. Failure to comply may result in damage to equipment.

7. Clean dust from wheels, axles, universal joints, steering mechanism, and radiator as soon as possible (WP 0087 00).

END OF OPERATING PROCEDURE

OPERATION IN FOREST OR ON ROCKY TERRAIN 0040 00

INITIAL SETUP:

Maintenance Level
Operator

GENERAL

This work package provides the data and procedures for safely operating the M1078A1 series vehicles in a forest or on rocky terrain.

VEHICLE OPERATION

WARNING

Avoid driving diagonally across a hill. Vehicle could roll over. Failure to comply may result in serious injury or death to personnel or damage to equipment.

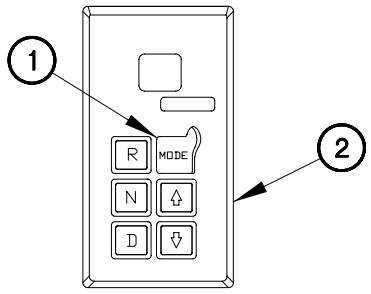
CAUTION

Ensure vehicle has enough clearance before driving over rough terrain. Rough terrain can damage components under vehicle. Failure to comply may result in damage to equipment.

Ensure vehicle can clear overhanging tree limbs. Failure to comply may result in damage to equipment.

Ensure that mirrors will not be damaged by rocks or trees by adjusting mirrors to keep rear of vehicle visible. Failure to comply may result in damage to equipment.

Push MODE select button (1) on WTEC III transmission pushbutton shift selector (TPSS) (2) to select desired transmission gear.



4000A01-

END OF OPERATING PROCEDURE

OPERATION IN SAND OR MUD 0041 00

THIS WORK PACKAGE COVERS:
Vehicle Operation

INITIAL SETUP:

Maintenance Level
Operator

References
WP 0087 00
WP 0089 00

GENERAL

This work package provides the data and procedures for safely operating the M1078A1 series vehicles in sand or mud.

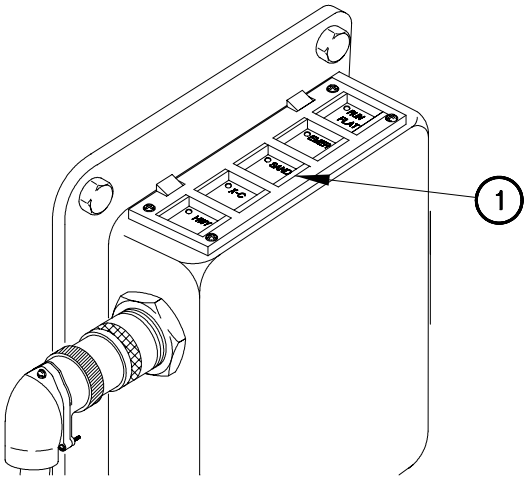
VEHICLE OPERATION

CAUTION

Keep glass surfaces covered with a tarp during blowing sand conditions. Use care when cleaning to prevent scratching glass surfaces. Failure to comply may result in scratched glass surfaces.

Check AIR FILTER RESTRICTION GAUGE often. If yellow diaphragm enters red zone (greater than 25 in.), shut down engine immediately and service air filter (WP 0089 00). Failure to comply may result in damage to equipment.

1. Press CTIS mode to SAND (1).



4100A01-

OPERATION IN SAND OR MUD - Continued 0041 00

VEHICLE OPERATION - Continued

WARNING

Operating in water or mud causes brake linings to get wet and can impair vehicle braking. Dry brakes by driving vehicle about 500 ft (153 m) while applying service brakes often. If adequate braking is not restored by drying brakes, notify Unit Maintenance. Failure to comply may result in serious injury to personnel or damage to equipment.

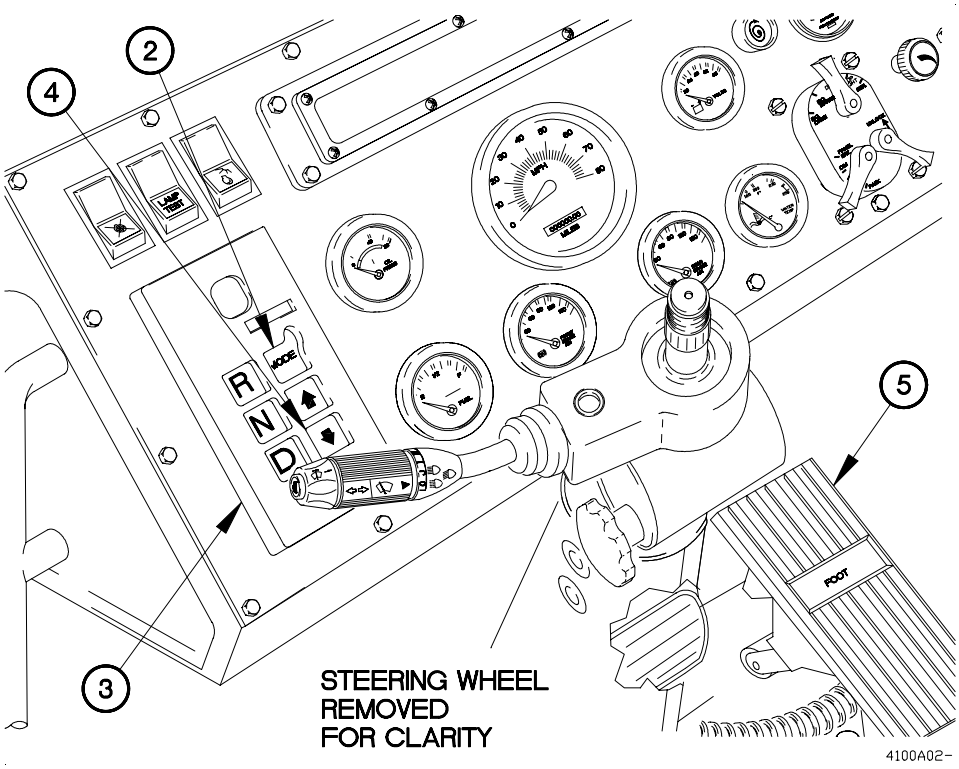
2. Push MODE select button (2) on WTEC III Transmission Pushbutton Shift Selector (TPSS) (3) to select desired transmission gear.

3. Accelerate slowly so tires do not spin and dig in sand or mud.

4. Press lower gear range button (4) on WTEC III TPSS (3).

5. Keep accelerator pedal (5) steady after vehicle reaches desired speed.

6. Turn vehicle slowly when in loose sand or mud.



OPERATION IN SAND OR MUD - Continued 0041 00

VEHICLE OPERATION - Continued

WARNING

Do not straddle or drive on sides of sand mounds. Loose sand will not support vehicle on steep slopes. Avoid driving diagonally across a hill. Vehicle may roll over. Failure to comply may result in serious injury or death to personnel or damage to equipment.

7. Steer vehicle straight up and down hills when possible. When driving across a hill is necessary, choose the lowest angle possible, keep vehicle moving, and avoid quick, sharp turns.

8. To move vehicle forward and turn after vehicle is stopped in loose sand or mud:

   a. Press MODE select button (2) on WTEC III TPSS (3).

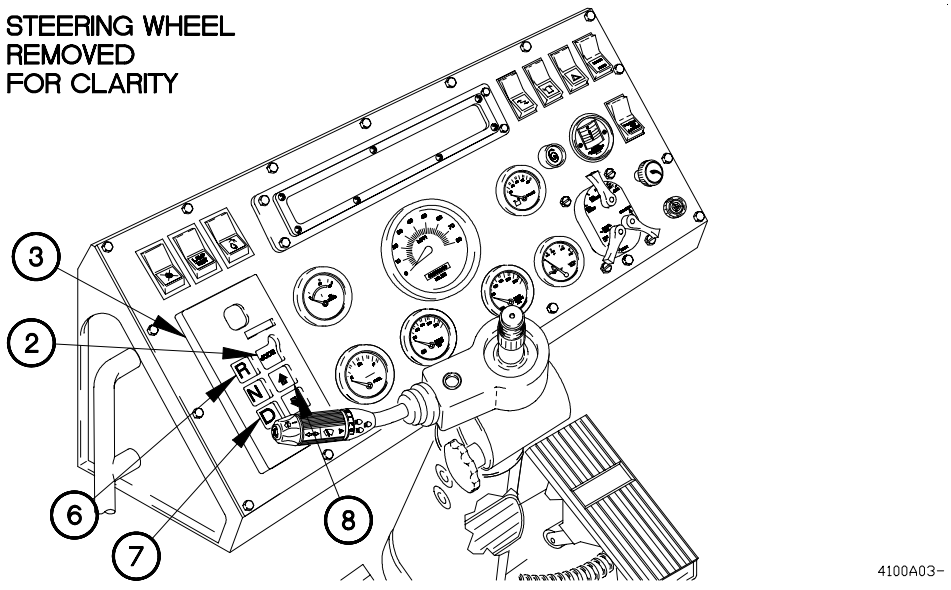
   b. Press R (Reverse) select button (6) on WTEC III TPSS (3).

   c. Move vehicle straight back approximately 20 ft (6.1 m).

   d. Stop vehicle.

   e. Press D (Drive) select button (7) on WTEC III TPSS (3).

   f. Press higher gear select button (8) on WTEC III TPSS (3).



OPERATION IN SAND OR MUD - Continued 0041 00

VEHICLE OPERATION - Continued

8. To move vehicle forward and turn after vehicle is stopped in loose sand or mud: - Continued.

    g. Move vehicle forward.

    h. Gradually turn vehicle as speed is obtained and vehicle is moving forward smoothly.

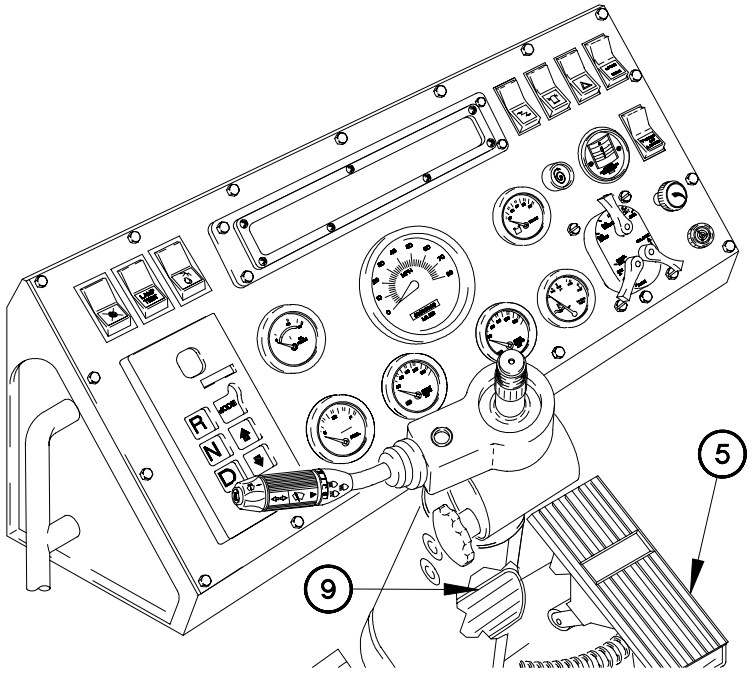
9. If vehicle starts to skid:

    a. Release accelerator pedal (5).

    b. Steer in direction of skid until vehicle stops skidding.

    c. Press brake pedal (9) lightly when vehicle is under control.

    d. Press accelerator pedal (5) slowly and steer vehicle on straight course.



4100A04-

OPERATION IN SAND OR MUD - Continued 0041 00

VEHICLE OPERATION - Continued

10. To park vehicle:

    a. Park vehicle so it does not face into the wind whenever possible.

    b. Clean mud off vehicle as soon as possible (WP 0087 00).

CAUTION

Do not direct high-pressure water stream at glass surfaces, seals, air intake, exhaust outlet, or any other components of the vehicle that could be easily damaged by high-pressure water stream. Failure to comply may result in damage to equipment.

    c. Clean mud from wheels, brakes, axles, universal joints, steering mechanism, and radiator as soon as possible (WP 0087 00).

END OF OPERATING PROCEDURE

OPERATION IN DESERT ENVIRONMENT 0042 00

INITIAL SETUP:

Maintenance Level	References
Operator	FM 90-3 WP 0038 00 WP 0039 00 WP 0041 00

GENERAL

This work package provides the data and procedures for safely operating the M1078A1 series vehicles in a desert environment.

VEHICLE OPERATION

NOTE

FM 90-3 contains detailed instructions for living in desert environment.

1. Principles of operation in extreme heat, extreme dust, and in sand or mud (WP 0038 00, 0039 00, 0041 00) apply to desert environment operation.

CAUTION

Vehicle must be properly prepared for temperature changes in desert environment. Failure to comply may result in damage to vehicle.

2. Temperatures can change as much as 70° F (40° C) between day and night.

3. Due to expansion and contraction of fluids and air, care should be taken when filling fuel tanks and fluid reservoirs to prevent overflow when temperatures change.

END OF OPERATING PROCEDURE

VEHICLE OPERATION IN COLD ENVIRONMENT 32° F TO -25° F (0° C to -32° C) 0043 00

INITIAL SETUP:

Maintenance Level
Operator

References
FM 9-207
FM 31-70

References - Continued
FM 21-305
FM 31-70
FM 31-71
WP 0016 00
WP 0058 00

GENERAL

This work package provides the data and procedures for safely operating the M1078A1 series vehicles in a cold environment 32° F to -25° F (0° C to -32° C). Items covered include Cold Environment Operations and Central Tire Inflation System (CTIS) Cold Weather Operation.

COLD ENVIRONMENT OPERATIONS

WARNING

Wear arctic clothing when cab temperatures fall and remain below 30° F (-1° C). Cold stress preventative measures in FM 31-70 should be applied when vehicle cab temperatures fall and remain below 30° F (-1° C). Failure to comply may result in serious injury or death to personnel.

Park in shelter when possible. If shelter is not available, park so vehicle does not face into wind. Follow procedures in FM 9-207 to prevent vehicle from freezing in place. Failure to comply may result in damage to equipment.

When operating the vehicle in snowy or icy conditions, apply the brake pedal momentarily, every few miles. This will ensure that brake linings do not become encrusted with snow or ice. Failure to comply may result in injury to personnel or damage to equipment.

VEHICLE OPERATION IN COLD ENVIRONMENT 32° F TO -25° F (0° C to -32° C) - Continued

COLD ENVIRONMENT OPERATIONS - Continued

CAUTION

Before operating vehicle, ensure the vehicle has been prepared for cold weather environment in accordance with FM 9-207. Refer to FM 31-70, FM 31-71, and FM 21-305 for additional information on operation in cold environment. Failure to comply may result in damage to equipment.

Monitor instrument panel assembly gages closely. If there are any unusual readings, stop vehicle and shut off engine. Check for cause immediately. Failure to comply may result in damage to equipment.

Park in shelter when possible. If shelter is not available, park so vehicle does not face into wind. Follow procedures in FM 9-207 to prevent vehicle from freezing in place. Failure to comply may result in damage to equipment.

Fuel filter should be drained before topping off fuel tank. Keep fuel tank as full as possible during cold weather operations. Moisture will form in fuel tank as it cools. Moisture will freeze and block fuel supply to engine. Failure to comply may result in damage to equipment.

All snow and ice should be removed from vehicle as soon as possible. Snow and ice may slow or prevent movement of equipment. Failure to comply may result in damage to equipment.

1. Start engine (WP 0016 00).

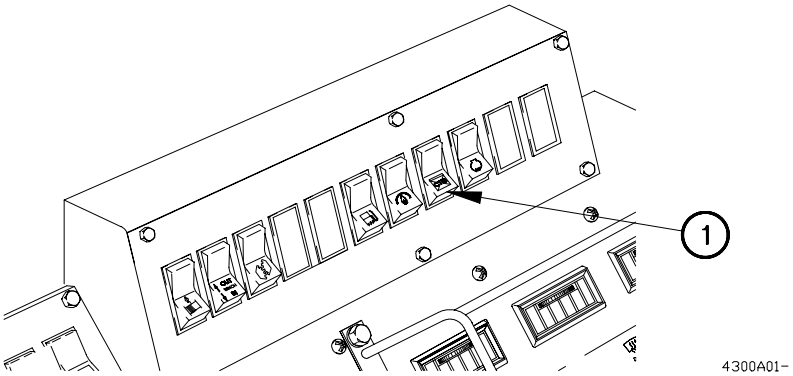
VEHICLE OPERATION IN COLD ENVIRONMENT 0043 00
32° F TO -25° F (0° C to -32° C) - Continued

CTIS COLD WEATHER OPERATION

NOTE

When temperatures are below -15° F (-26° C), CTIS air leaks may occur when the vehicle is started. This is indicated by four or five flashing mode lights on the CTIS ECU. When CTIS seals warm up and air leakage stops, the CTIS ECU should automatically reset and the CTIS ECU selected mode illuminate steady. When four or five mode lights are flashing perform steps 1 and 2.

1. Position CTIS on/off switch (1) to off by pressing the bottom half of the switch.



2. Drive vehicle for approximately 15-30 minutes or until CTIS ECU (2) resets.

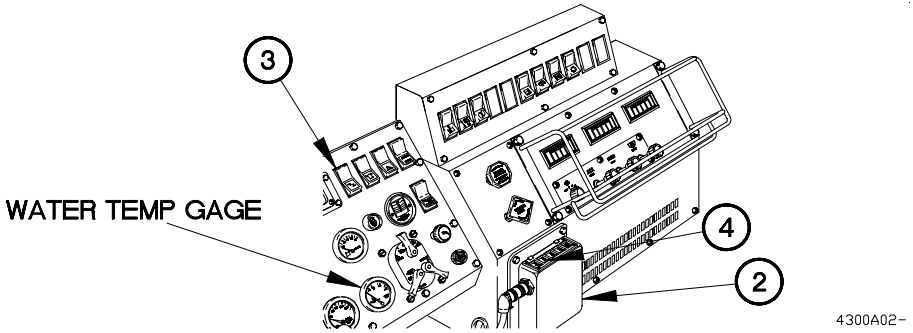
NOTE

If CTIS ECU does not reset, perform steps 3 through 5. If CTIS ECU does not reset after performing steps 3 through 5, notify Unit Maintenance.

3. Position master power switch (3) to off.

4. Position master power switch (3) to on.

5. Depress cross-country mode (XC) (4) on CTIS ECU (2).



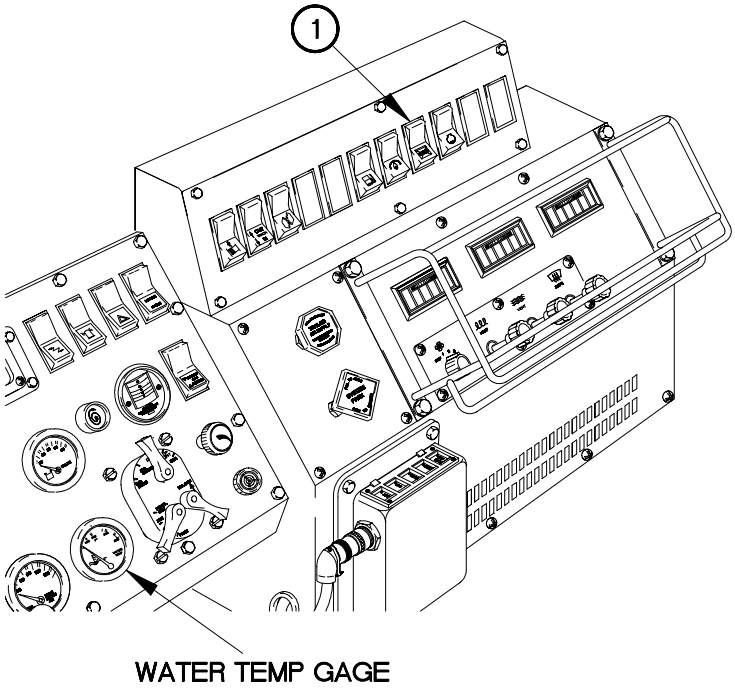
VEHICLE OPERATION IN COLD ENVIRONMENT 32° F TO -25° F (0° C to -32° C) - Continued

CTIS COLD WEATHER OPERATION - Continued

NOTE

Perform step 6 when CTIS ECU resets or WATER TEMP gage reaches a minimum of 100° F (38° C).

6. Position CTIS on/off switch (1) to on by pressing top half of switch.



4300A03-

END OF OPERATING PROCEDURE

ARCTIC START FROM -26° F TO -50° F (-32° C TO -46° C) OPERATION 0044 00

INITIAL SETUP:

Maintenance Level
Operator

References
FM 31-70
WP 0016 00

References - Continued
WP 0020 00
WP 0046 00
WP 0061 00
WP 0070 00
WP 0083 00

WARNING

Wear arctic clothing when cab temperatures fall and remain below 30° F (-1° C). Cold stress preventative measures in FM 31-70 should be applied when vehicle cab temperatures fall and remain below 30° F (-1° C). Failure to comply may result in serious injury or death to personnel.

GENERAL

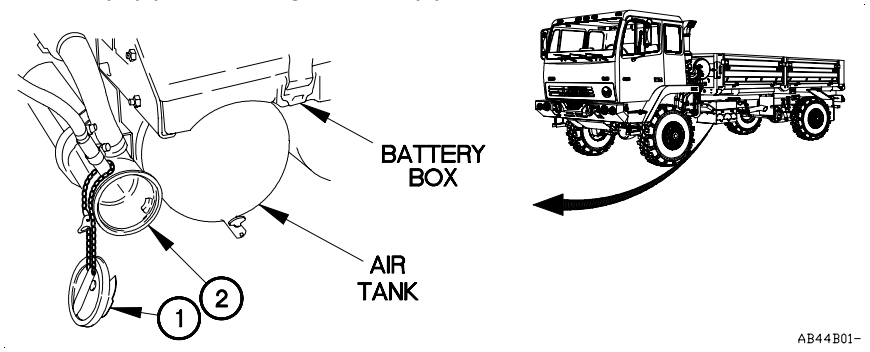
This work package provides the data and procedures for starting operations in arctic temperatures, -26° F to -50° F (-32° C to -46° C). Items covered include Swingfire Heater Operation, Swingfire Heater Removal, Start Engine (Arctic), and Shut Down Engine (Arctic).

SWINGFIRE HEATER OPERATION

CAUTION

Vehicle coolant must be visible in upper sightglass of radiator overflow tank before starting swingfire heater operations. Failure to comply may result in damage to equipment.

1. Remove cap (1) from swingfire tube (2).



ARCTIC START FROM -26° F TO -50° F (-32° C TO -46° C) OPERATION - Continued

SWINGFIRE HEATER OPERATION

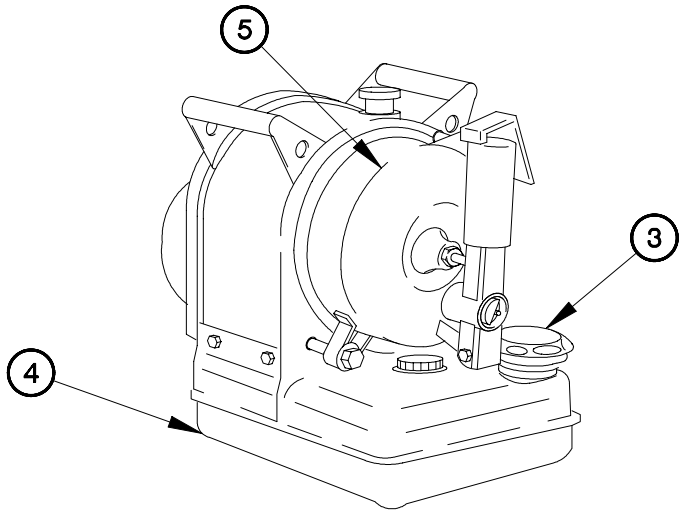
WARNING

Gasoline is highly flammable. Do not operate swingfire heater while filling gas tank. Do not smoke or have open fires within 25 ft (7.6 m) of area when filling gas tank. Failure to comply may result in serious injury or death to personnel.

CAUTION

Swingfire heater gas tank holds 1 gal (3.7 L) of leaded or unleaded gasoline. Do not use diesel fuel or other fuels. Failure to comply may result in damage to equipment.

2. Remove cap (3) from gas tank (4) of swingfire heater (5).
3. Fill gas tank (4) with gasoline.
4. Install cap (3) on gas tank (4).



Ab44b02-

ARCTIC START FROM -26° F TO -50° F (-32° C TO -46° C) OPERATION - Continued

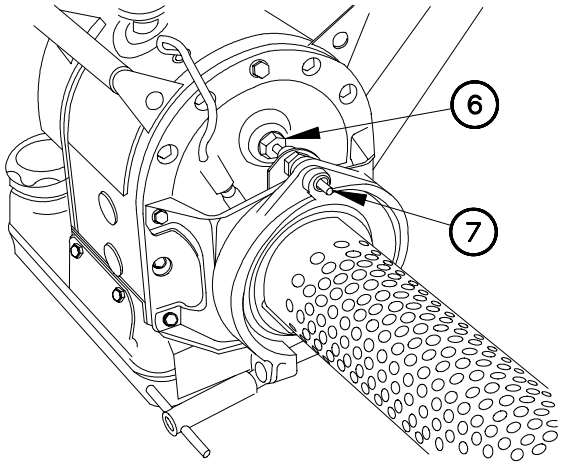
0044 00

SWINGFIRE HEATER OPERATION - Continued

CAUTION

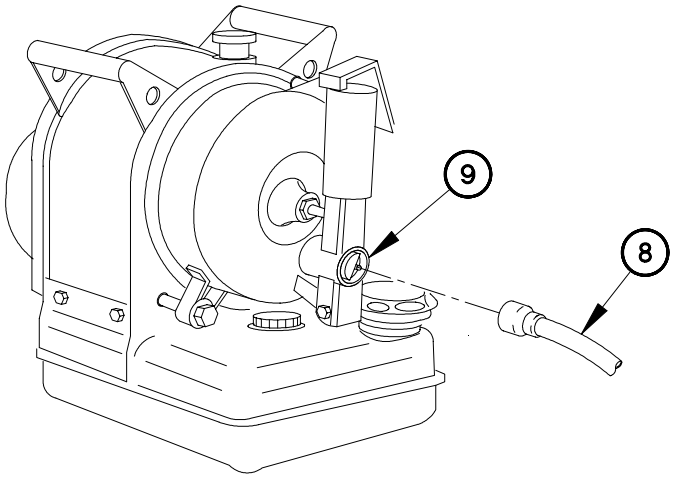
Pressure pin must spring back when released. If pressure spring does not spring back when released, notify Unit Maintenance. Failure to comply may result in damage to equipment.

5. Check air shut-off valve (6) operation by pushing pressure pin (7) in and releasing.



Ab44b03-

6. Connect electric start cable (8) to connector (9).



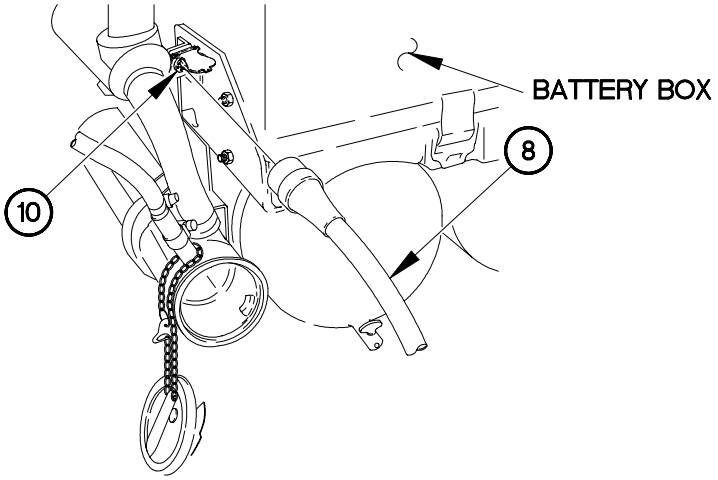
Ab44b04-

ARCTIC START FROM -26° F TO -50° F (-32° C TO -46° C) OPERATION - Continued

0044 00

SWINGFIRE HEATER OPERATION - Continued

7. Connect electric start cable (8) to swingfire connector (10).

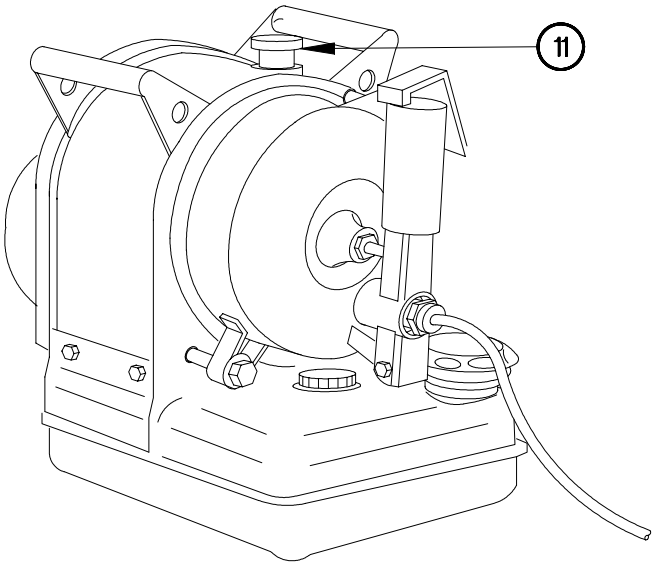


Ab44b05-

NOTE

Fuel regulator knob is adjusted by turning the knob right to close and left to open.

8. Close fuel regulator knob (11).



Ab44b06-

ARCTIC START FROM -26° F TO -50° F (-32° C TO -46° C) OPERATION - Continued

0044 00

SWINGFIRE HEATER OPERATION – Continued

NOTE

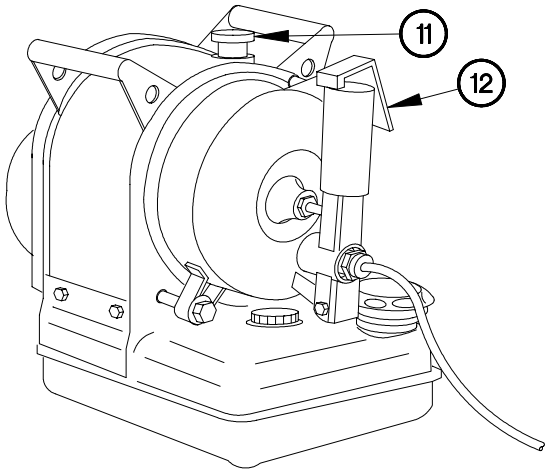
Swingfire heater igniter operation time depends on outside air temperature. When operating igniter, refer to Table 1.

9. Firmly compress handle (12) to operate igniter for minimum period of time indicated (refer to Table 1).

Table 1. Swingfire Heater Igniter Time/Temperature.

Minimum Operating Time	Temperature
3 minutes	-26° F (-32° C) to -30° F (-34° C)
4 minutes	-30° F (-34° C) to -40° F (-40° C)
5 minutes	-40° F (-40° C) to -50° F (-46° C)

10. Turn fuel regulator knob (11) to the left 1 to 1 1/2 turns.



Ab44b07-

ARCTIC START FROM -26° F TO -50° F (-32° C TO -46° C) OPERATION - Continued

0044 00

SWINGFIRE HEATER OPERATION - Continued

WARNING

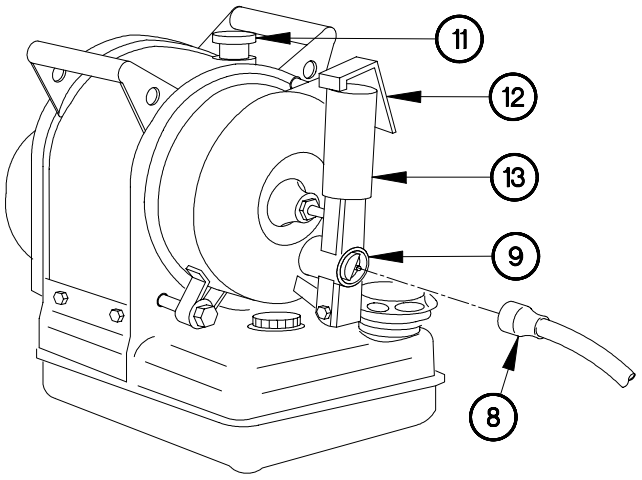
Exhaust fumes from swingfire heater are poisonous. Do not operate swingfire heater in a closed room. Ensure adequate ventilation is available. If personnel become dizzy, seek immediate medical attention. Failure to comply may result in serious injury or death to personnel.

NOTE

Operate pump lever until fuel regulator has been adjusted and pulsating sounds become steady.

Fuel regulator knob is adjusted by turning the knob right to close and left to open.

11. Operate pump lever (13).
12. Adjust fuel regulator knob (11) until pulsating sounds are steady.
13. When swingfire heater operates steadily, stop operating pump lever (13).
14. Release handle (12) on pump lever (13).
15. Remove electric start cable (8) from connector (9).

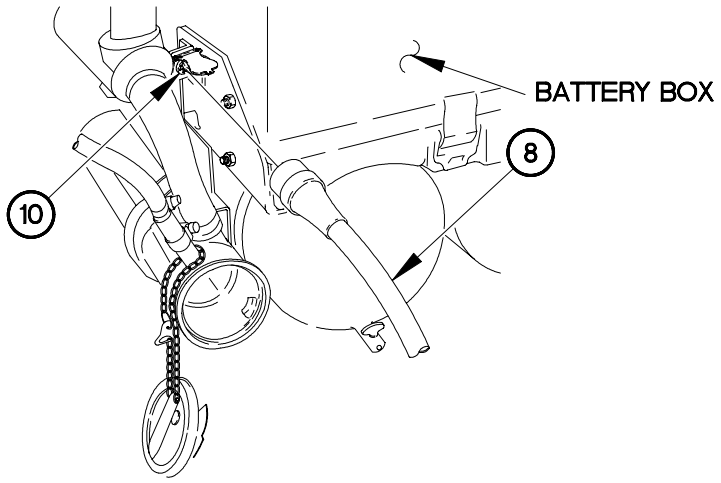


Ab44b08-

ARCTIC START FROM -26° F TO -50° F (-32° C TO -46° C) OPERATION - Continued 0044 00

SWINGFIRE HEATER OPERATION - Continued

16. Remove electric start cable (8) from swingfire connector (10).



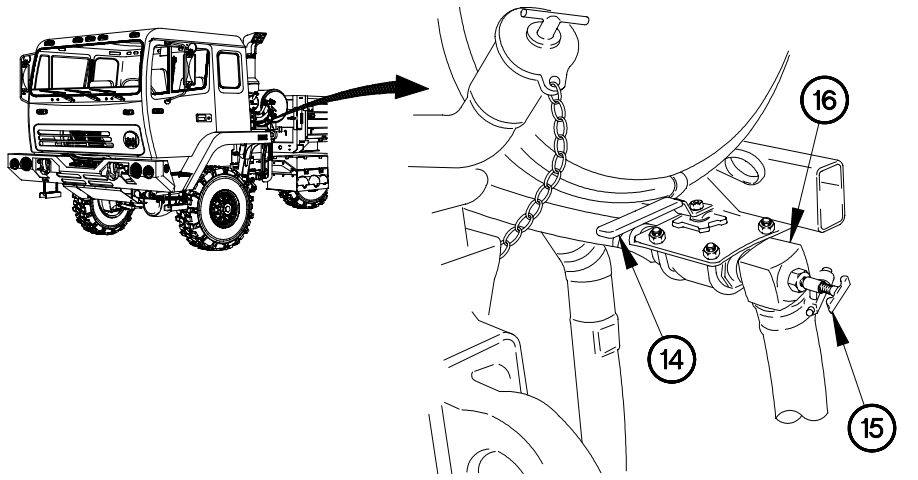
Ab44b09-

17. Position swingfire valve (14) in the closed position.

NOTE

A small amount of coolant should seep out of 90-degree fitting.

18. Open bleed valve (15) on 90-degree fitting (16).



Ab44b10-

ARCTIC START FROM -26° F TO -50° F (-32° C TO -46° C) OPERATION - Continued

0044 00

SWINGFIRE HEATER OPERATION - Continued

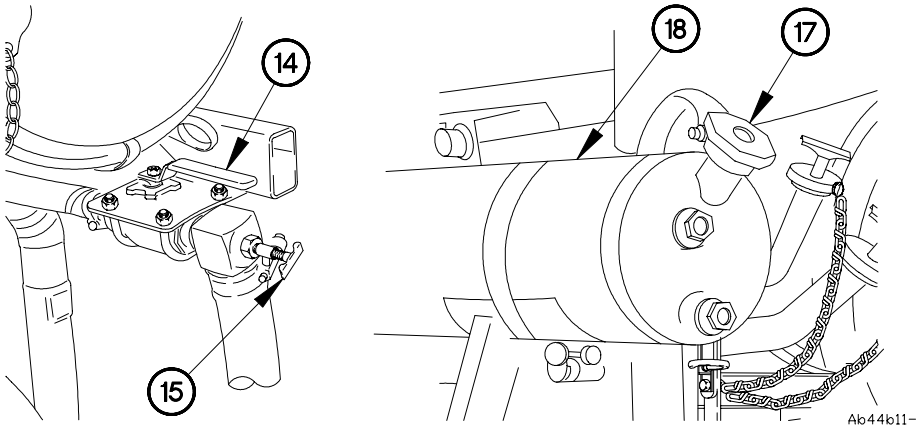
NOTE

When cap is open on radiator overflow tank, coolant seepage should increase to a flow with intermittent air releases. The flow should be steady after approximately 10 seconds.

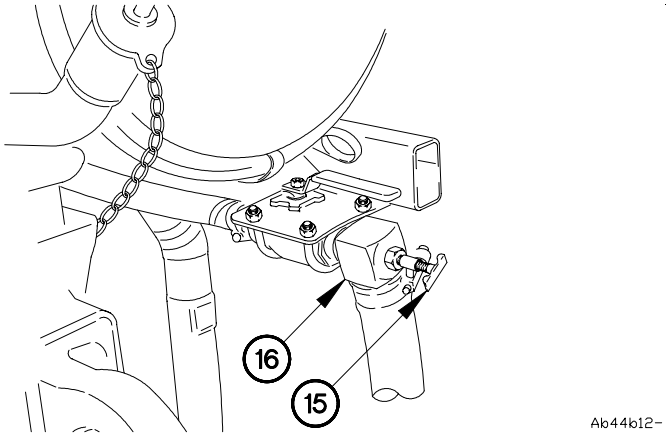
19. Open cap (17) on radiator overflow tank (18).

20. When a steady flow of coolant is visible at the bleed valve (15), position swingfire valve (14) to the open position.

21. If bubbles appear after swingfire valve is opened, close swingfire valve and repeat steps 17 through 20 until no bubbles appear.



22. Close bleed valve (15) on 90-degree fitting (16).

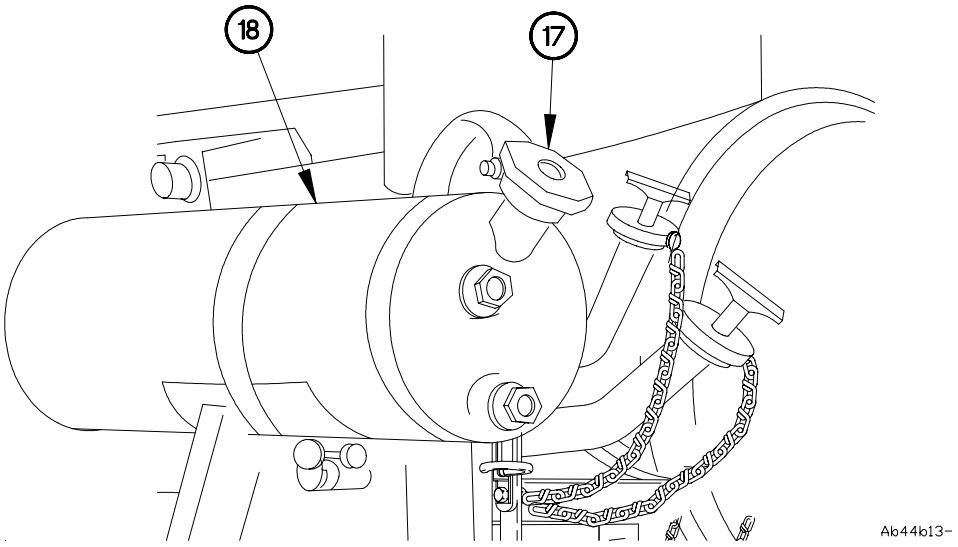


ARCTIC START FROM -26° F TO -50° F (-32° C TO -46° C) OPERATION - Continued 0044 00

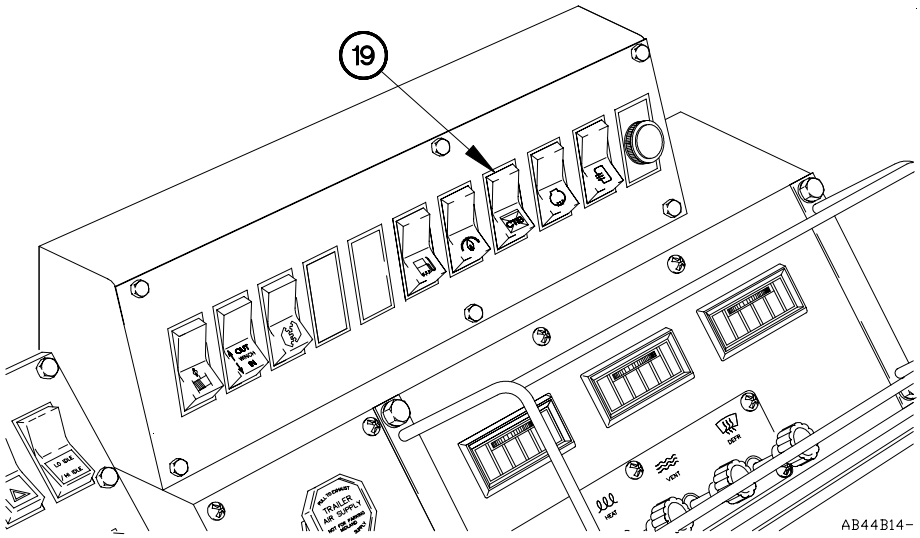
SWINGFIRE HEATER OPERATION - Continued

23. Add coolant to radiator overflow tank (18) (WP 0083, Table 1, Item 3).

24. Close radiator cap (17) on radiator overflow tank (18).



25. Position CTIS on/off switch (19) to off.



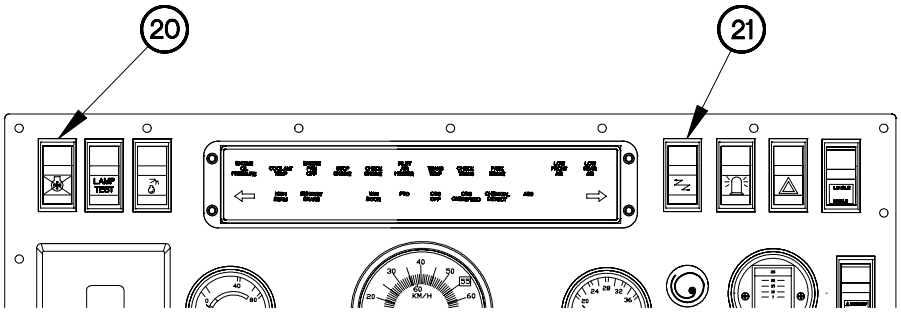
ARCTIC START FROM -26° F TO -50° F (-32° C TO -46° C) OPERATION - Continued

0044 00

SWINGFIRE HEATER OPERATION - Continued

26. Position engine fan off switch (20) to on.

27. Position master power switch (21) to on.



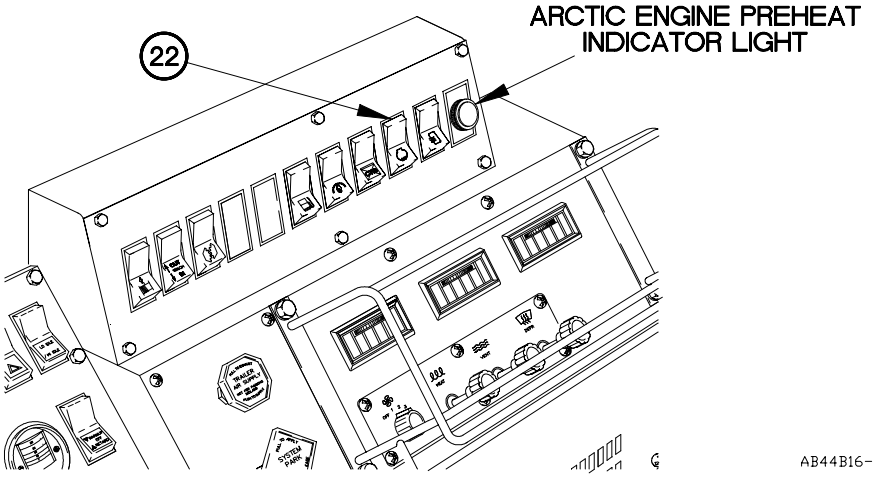
AB44B15-

NOTE

ENGINE OIL PRESSURE, CHECK TRANS, PARK BRAKE, ABS, LOW FRONT AIR, and LOW REAR AIR indicators will remain on until operating pressures are achieved or manually released.

Auxiliary panel mounted arctic engine preheat indicator light will come on steady. If light flashes when master power switch is turned on, go to WP 0080 00, Special Purpose Kits Troubleshooting.

28. Position swingfire circulation pump switch (22) to on.

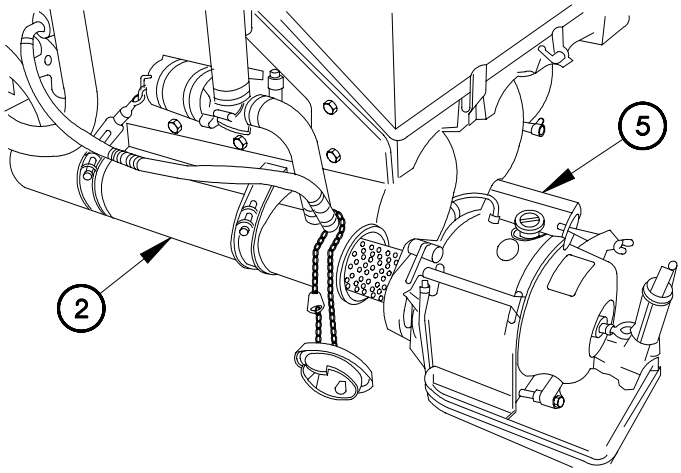


AB44B16-

ARCTIC START FROM -26° F TO -50° F (-32° C TO -46° C) OPERATION - Continued 0044 00

SWINGFIRE HEATER OPERATION - Continued

29. Insert swingfire heater (5) in swingfire tube (2).



Ab44b17-

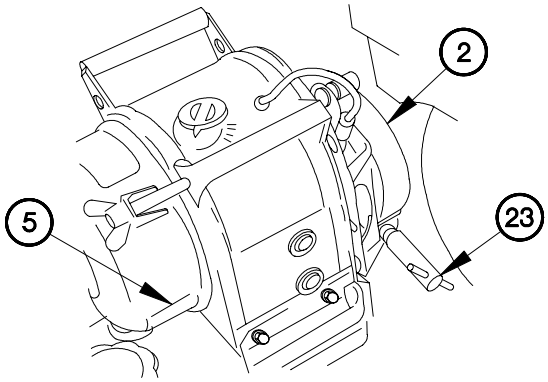
30. Tighten clamp (23) to secure swingfire heater (5) to swingfire tube (2).

NOTE

Adjustments of the fuel regulator knob may be required to keep swingfire heater operating.

Fuel regulator knob is adjusted by turning the knob right to close and left to open.

31. Operate swingfire heater (5) for a minimum of 40 minutes.

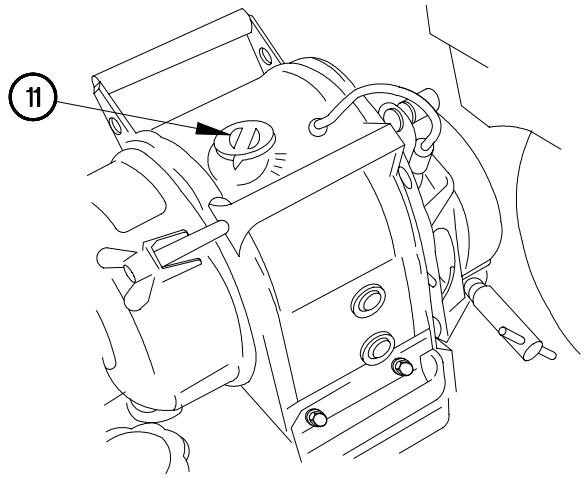


Ab44b18-

ARCTIC START FROM -26° F TO -50° F (-32° C TO -46° C) OPERATION - Continued 0044 00

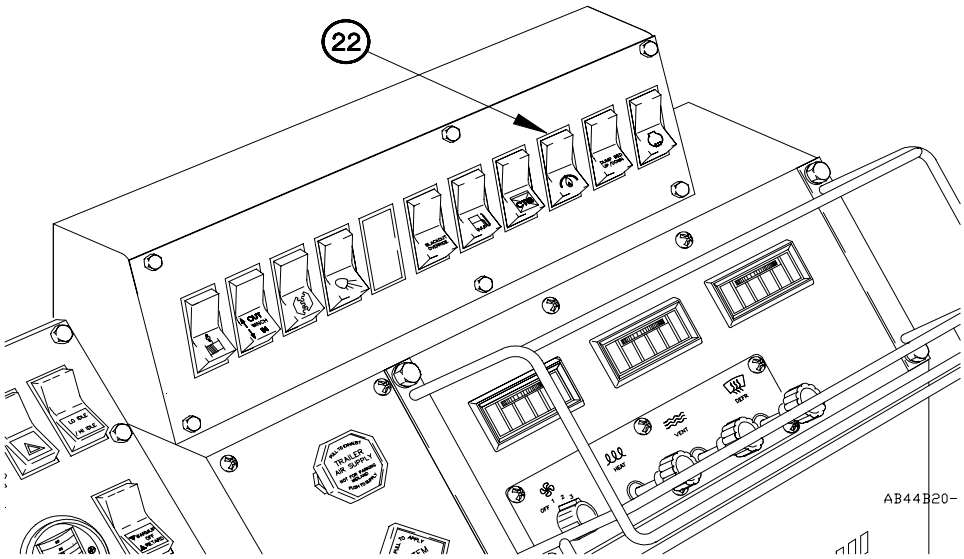
SWINGFIRE HEATER OPERATION - Continued

32. Close fuel regulator knob (11).



AB44819-

33. Position swingfire circulation pump switch (22) to off.



AB44820-

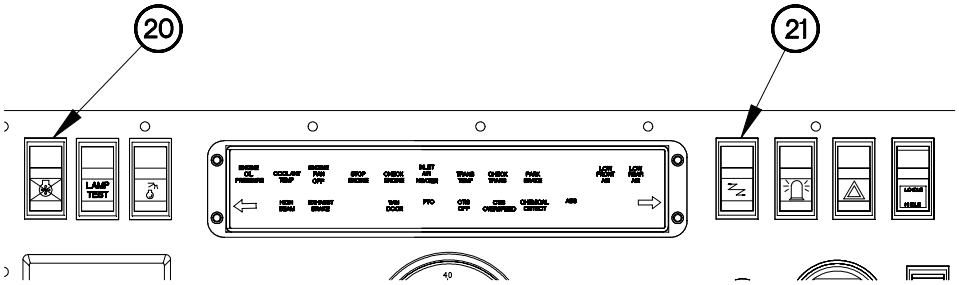
ARCTIC START FROM -26° F TO -50° F (-32° C TO -46° C) OPERATION - Continued

0044 00

SWINGFIRE HEATER OPERATION - Continued

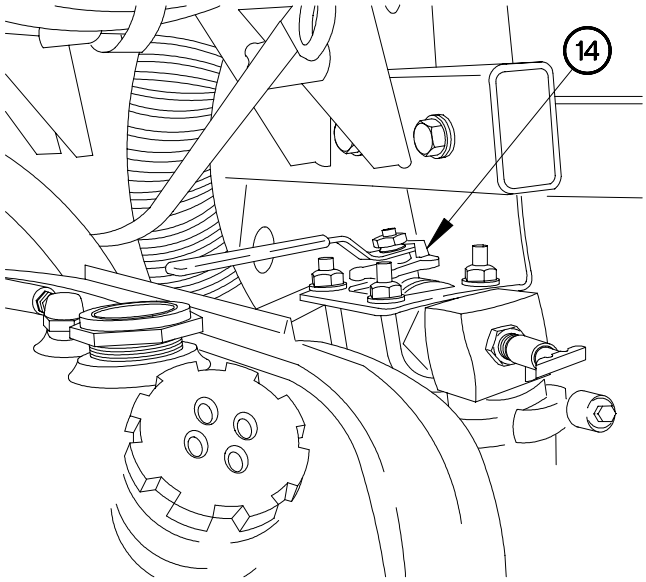
34. Position master power switch (21) to off.

35. Position engine fan off switch (20) to off.



Ab44b21-

36. Position swingfire valve (14) in the closed position.

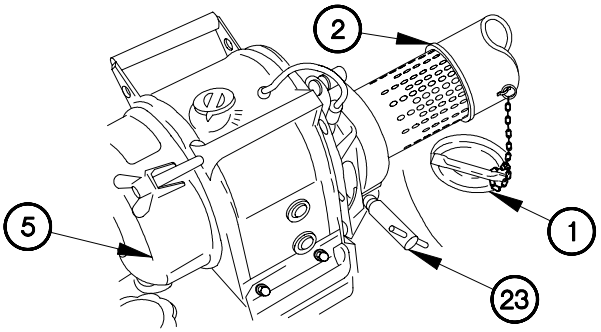


Ab44b22-

ARCTIC START FROM -26° F TO -50° F (-32° C TO -46° C) OPERATION - Continued

REMOVE SWINGFIRE HEATER

1. Loosen clamp (23) on swingfire heater (5).
2. Remove swingfire heater (5) from swingfire tube (2).
3. Install cap (1) on swingfire tube (2).



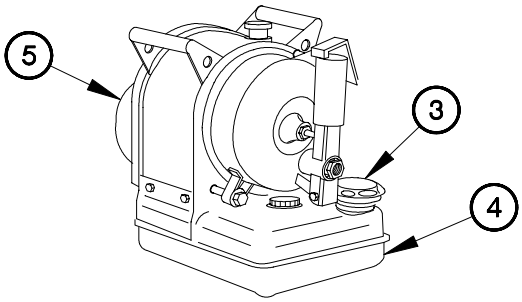
Ab44b23-

WARNING

Gasoline is highly flammable. Do not smoke or have open flames within 25 feet of area when draining tank. Failure to comply may result in serious injury or death to personnel.

Allow swingfire heater to cool down before draining gasoline from swingfire heater gas tank. Failure to comply may result in serious injury or death to personnel.

4. Remove cap (3) from gas tank (4) of swingfire heater (5).
5. Drain gasoline from gas tank (4) to container.
6. Install cap (3) on gas tank (4).



Ab44b24-

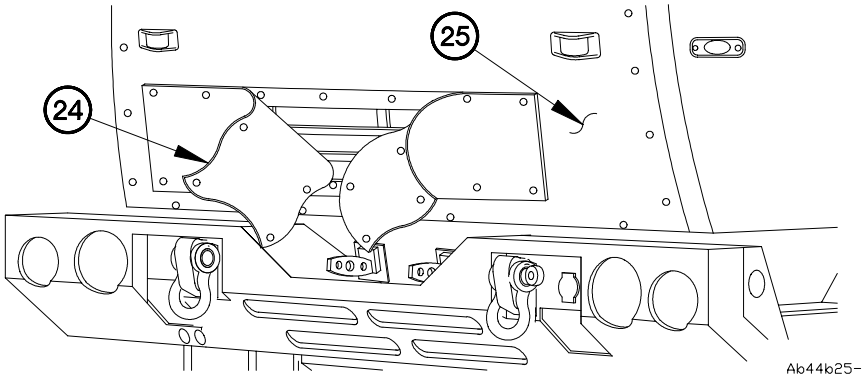
ARCTIC START FROM -26° F TO -50° F (-32° C TO -46° C) OPERATION - Continued

START ENGINE (ARCTIC)

CAUTION

Cab arctic cover may be left on vehicle in temperatures up to 40° F (4° C), except when engine requires, such as in extreme off-road conditions or when vehicle is fully loaded. Ensure flaps are adjusted so that engine temperature is maintained before 165° F (74° C) and 210° F (100° C) during vehicle operation. Failure to comply may result in damage to equipment.

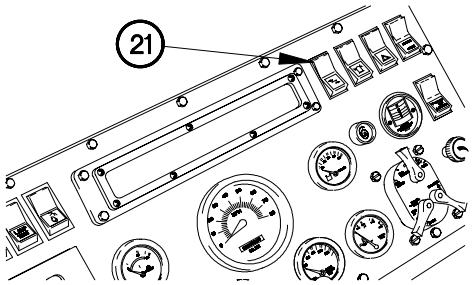
1. Close two flaps (24) on cab arctic cover (25).



2. Perform swingfire heater operation (WP 0044 00).

3. Remove swingfire heater (WP 0044 00).

4. Position master power switch (21) to on.



ARCTIC START FROM -26° F TO -50° F (-32° C TO -46° C) OPERATION - Continued 0044 00

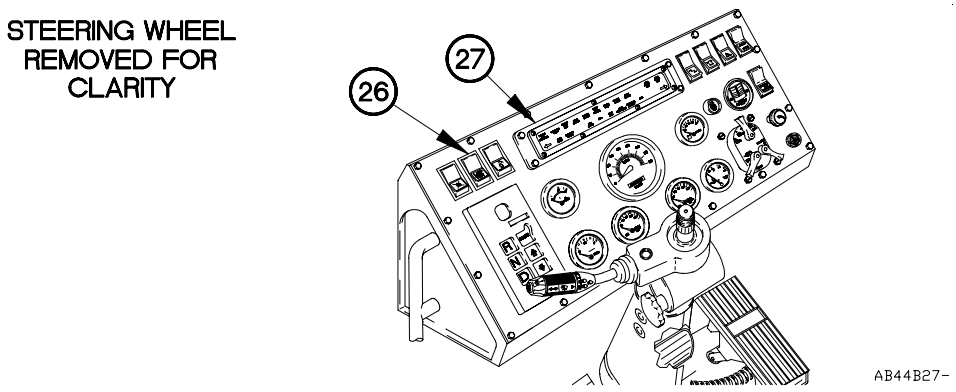
START ENGINE (ARCTIC) - Continued

NOTE

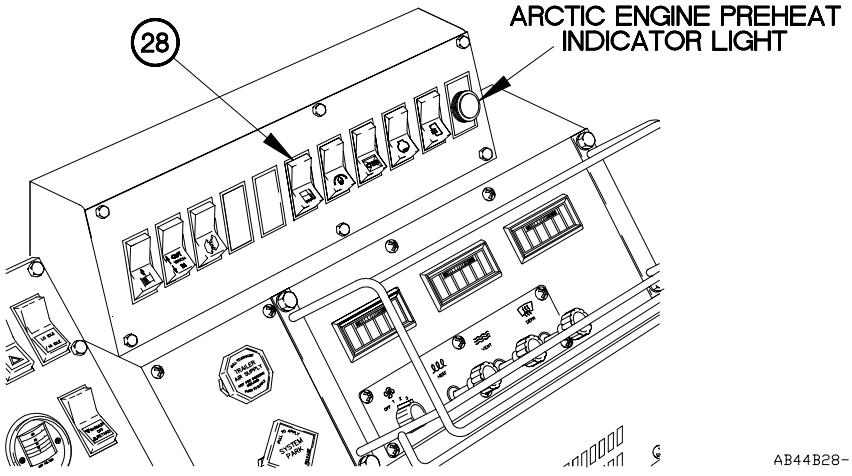
ENGINE OIL PRESSURE, CHECK TRANS, PARK BRAKE, ABS, LOW FRONT AIR, and LOW REAR AIR indicators will remain on until operating pressures are achieved or manually released.

Auxiliary panel mounted arctic engine preheat indicator light will come on steady. If light flashes when master power switch is turned on, go to WP 0080 00, Special Purpose Kits Troubleshooting.

5. Press LAMP TEST switch (26) to verify that all warning indicators illuminate on lighted indicator display (27).



6. Position fuel preheat switch (28) to on.



ARCTIC START FROM -26° F TO -50° F (-32° C TO -46° C) OPERATION - Continued

0044 00

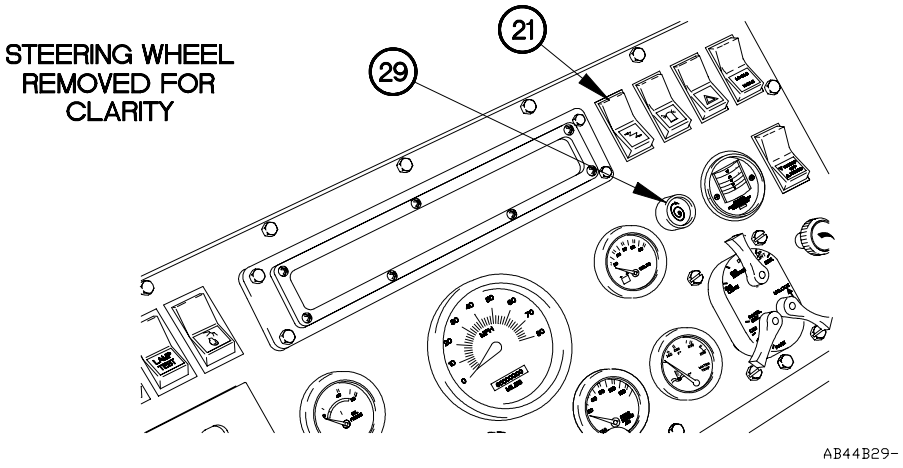
START ENGINE (ARCTIC) - Continued

7. Cycle master power switch (21) to off, then position to on.

NOTE

Auxiliary panel mounted arctic engine preheat indicator light will come on steady. At the end of the pre-heat time, light will go off, indicating arctic engine preheat is in cold star mode and the engine can be started.

8. Press starter pushbutton (29) until engine starts.



ARCTIC START FROM -26° F TO -50° F (-32° C TO -46° C) OPERATION - Continued 0044 00

START ENGINE (ARCTIC) - Continued

NOTE

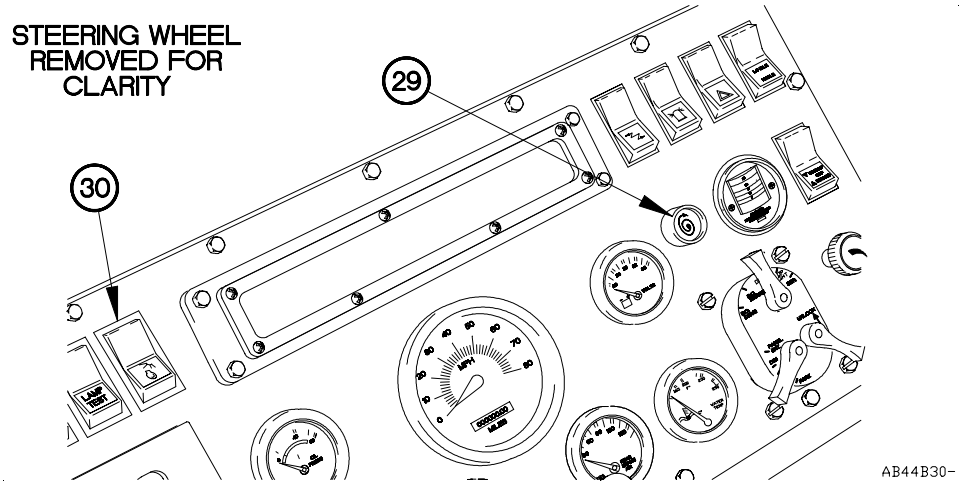
After engine starts and maintains low idle speed for 2 minutes, engine idle speed may increase. If idle speed increases, engine will maintain increased idle speed until engine reaches a predetermined temperature or after operating for 12 minutes at increased idle speed. Engine speed may be returned to low idle speed to begin vehicle operations by pressing and releasing accelerator pedal.

9. Repeat steps 7 and 8 until engine has started, engine speed has increased over cranking speed, and engine maintains speed.

NOTE

Auxiliary panel mounted arctic engine preheat light comes on steady after engine is started. The light remains on until engine coolant temperature stabilizes.

10. Release starter pushbutton (29) when engine starts.



ARCTIC START FROM -26° F TO -50° F (-32° C TO -46° C) OPERATION - Continued 0044 00

START ENGINE (ARCTIC) - Continued

CAUTION

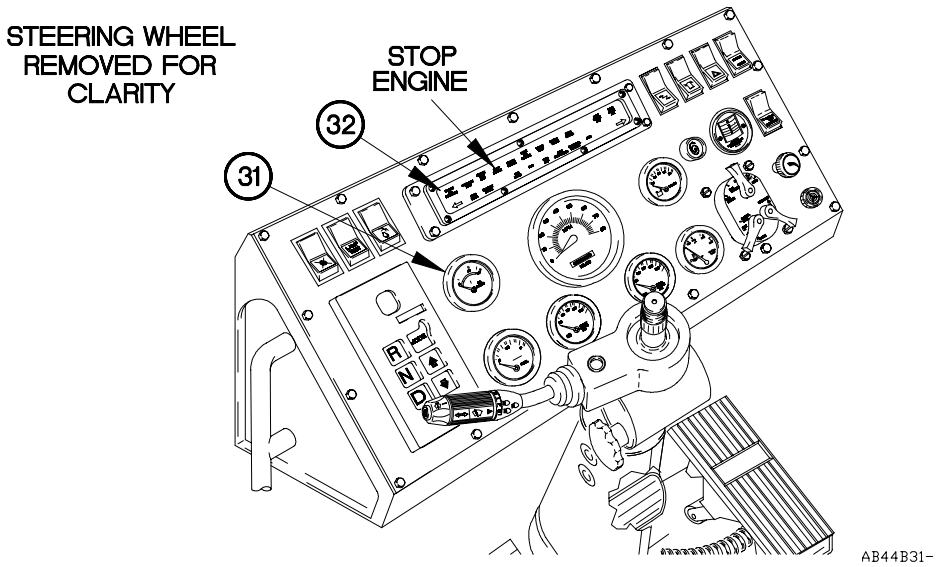
If STOP ENGINE indicator flashes (red) to warn Operator about a potential engine failure, shut down engine immediately and perform Engine System Troubleshooting (WP 0061 00). Failure to comply may result in damage to equipment.

If OIL PRESS gage does not show engine oil pressure of 15-80 psi within 10-15 seconds after starting engine, shut down engine immediately and perform Engine System Troubleshooting (WP 0061 00). Failure to comply may result in damage to equipment.

NOTE

Oil pressure will increase when engine speed increases and will decrease when engine speed decreases.

11. Check that OIL PRESS gage (31) reads between 15 psi and 80 psi. If OIL PRESS gage reads in red zone (0 to 7 psi) and ENGINE OIL PRESSURE indicator (32) is illuminated, shut down engine (WP 0016 00) and perform Engine System Troubleshooting (WP 0061 00).



ARCTIC START FROM -26° F TO -50° F (-32° C TO -46° C) OPERATION - Continued 0044 00

START ENGINE (ARCTIC) - Continued

WARNING

Do not drive vehicle until windshield is sufficiently clear of frost/ice. Failure to comply may result in serious injury or death to personnel.

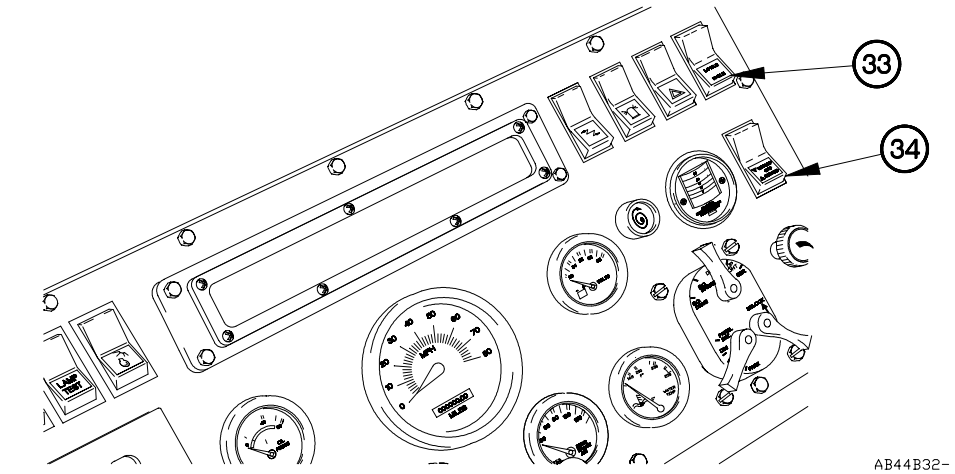
12. Operate cab arctic heater (WP 0046 00).

13. Position LO IDLE/HI IDLE SWITCH (33) to HI IDLE.

NOTE

EXHAUST BRAKE indicator will illuminate WARMUP/OFF/RETARD switch is positioned to WARMUP.

14. Position WARMUP/OFF/RETARD switch (34) to WARMUP.



NOTE

Operate windshield defrost on maximum setting.

15. Operate windshield defrost (WP 0020 00).

16. Operate cab heat (WP 0020 00).

ARCTIC START FROM -26° F TO -50° F (-32° C TO -46° C) OPERATION - Continued 0044 00

START ENGINE (ARCTIC) - Continued

NOTE

Engine will warm up to normal operating temperature of 165° F (74° C) more quickly if engine is under a load, such as driving.

Vehicle performance, including heater/defroster, will be reduced when engine coolant temperature is less than 165° F (74° C). Avoid conditions requiring maximum engine performance until coolant temperature reaches 165° F (74° C).

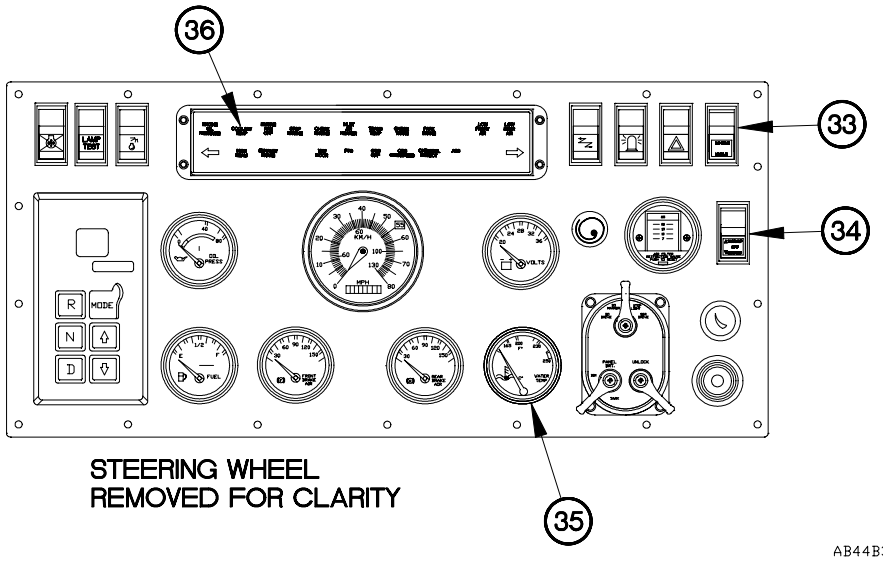
17. Check that WATER TEMP gage (35) reads less than 230° F (110° C). If WATER TEMP gage reads in the red zone or COOLANT TEMP indicator (36) is illuminated, shut down engine (WP 0016 00) and perform Engine System Troubleshooting (WP 0061 00).

NOTE

Perform steps 19 and 20 when windshield is clear of frost/ice and prior to driving.

18. Position WARMUP/OFF/RETARD switch (34) OFF.

19. Position LO IDLE/HI IDLE switch (33) to LO IDLE.



ARCTIC START FROM -26° F TO -50° F (-32° C TO -46° C) OPERATION - Continued 0044 00

START ENGINE (ARCTIC) - Continued

NOTE

If FRONT BRAKE AIR and REAR BRAKE AIR pressure gages do not read between 75-120 psi after engine warms up, shut down engine (WP 0016 00) and perform Air System Troubleshooting (WP 0070 00).

LOW FRONT AIR and LOW REAR AIR indicators will illuminate (red) and audible alarm will sound until air pressure is between 75-85 psi.

20. Check that FRONT BRAKE AIR pressure gage (37) and REAR BRAKE AIR pressure gage (38) read between 75-120 psi.

21. Check that VOLTS gage (39) reads between 26 and 30 volts.

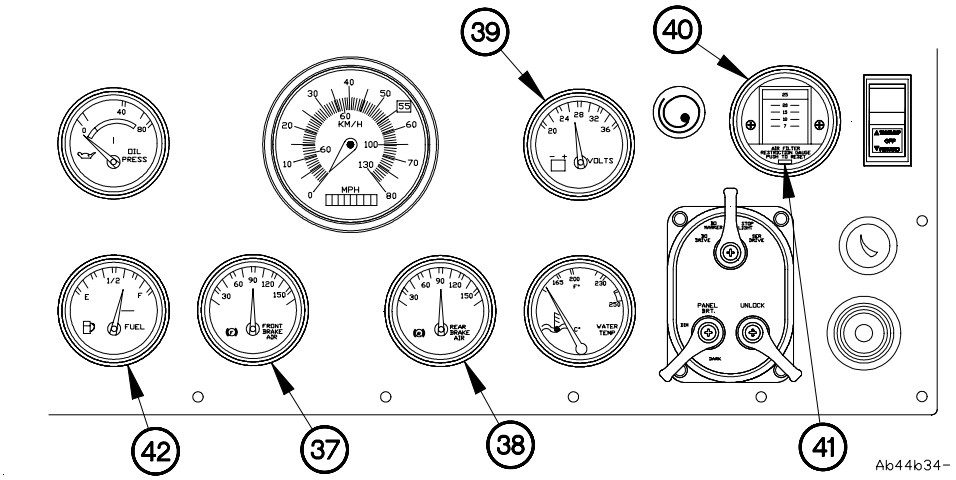
22. Check that AIR FILTER RESTRICTION GAUGE (40) reads below 25 in.

    a. Press reset button (41) if AIR FILTER RESTRICTION GAUGE (40) reads greater than 25 in. (in red area).

    b. Shut down engine (WP 0016 00) and notify Unit Maintenance if AIR FILTER RESTRICTION GAUGE (40) still reads greater than 25 in. (in red area).

23. Check that FUEL gage (42) shows sufficient fuel to accomplish mission.

24. Select desired transmission operating range (WP 0016 00).



ARCTIC START FROM -26° F TO -50° F (-32° C TO -46° C) OPERATION - Continued 0044 00

SHUT DOWN ENGINE (ARCTIC)

CAUTION

Water temperature must be maintained at a minimum of 165° F (74° C) for 1 to 3 minutes prior to engine shutdown. Failure to comply may result in damage to equipment.

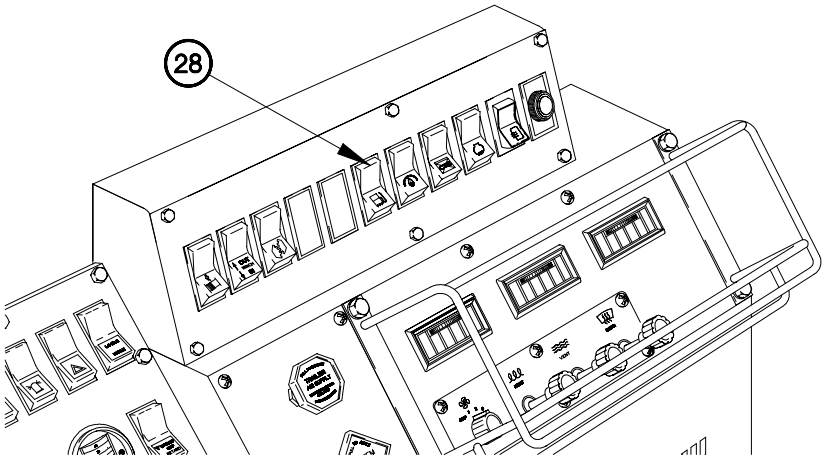
When outside temperatures are below -26° F (-32° C), do not continuously operate engine at high idle without WARMUP/OFF/RETARD switch in WARMUP position. Failure to comply may result in damage to equipment.

NOTE

During temporary engine shutdown, perform tasks quickly to minimize loss of engine temperature.

1. Position fuel preheat switch (28) to off.

2. Shut down engine (WP 0016 00).



Ab44b35-

END OF OPERATING PROCEDURE

VEHICLE OPERATION IN EXTREME COLD ENVIRONMENT, -26° F TO -65° F (-32° C TO -54° C) 0045 00

INITIAL SETUP:

Maintenance Level
Operator

References
FM 31-70
WP 0043 00
WP 0044 00
WP 0046 00

GENERAL

This work package provides the data and procedures for operating the M1078A1 series vehicles in an extreme cold environment, -26° F to -65° F (-32° C to -54° C).

VEHICLE OPERATION

WARNING

Wear arctic clothing when cab temperatures fall and remain below 30° F (-1° C). Cold stress preventative measures in FM 31-70 should be applied when vehicle cab temperatures fall and remain below 30° F (-1° C). Failure to comply may result in serious injury or death to personnel.

Do not touch extremely cold metal (below -26° F [-32° C]). Bare skin may freeze to cold metal. Failure to comply may result in injury to personnel.

NOTE

Refer to WP 0044 00, Arctic Start from -26° F to -50° F (-32° C to -46° C), when operating in extreme cold environment.

1. Perform vehicle operation in cold environment (32° F to -25° F [0° C to -32° C]) (WP 0043 00).

2. Operate cab arctic heater (WP 0046 00).

END OF OPERATING PROCEDURE

CAB ARCTIC HEATER OPERATION 0046 00

INITIAL SETUP:

Maintenance Level	References
Operator	WP 0016 00
	WP 0043 00

GENERAL

This work package provides the data and procedures for operating the cab arctic heater. Items covered include Operate Cab Arctic Heater and Shut Down Cab Arctic Heater.

OPERATE CAB ARCTIC HEATER

CAUTION

Engine must be running before operating the cab arctic heater. Failure to comply may cause excessive drain on batteries.

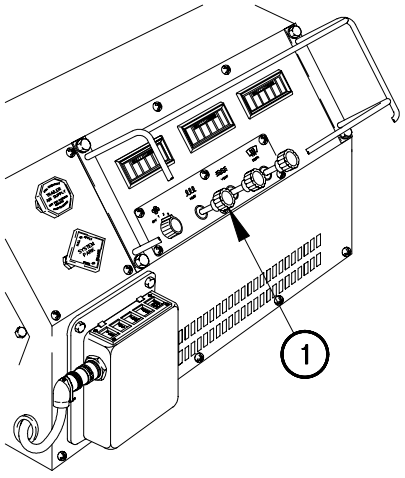
1. Start engine (WP 0016 00).

2. Perform CTIS cold weather operation (WP 0043 00).

CAUTION

Heater knob must be pulled to fully extended position before cab arctic heater is turned on. Failure to comply may result in damage to equipment.

3. Pull HEAT knob (1) to fully extended position.



4600A01-

CAB ARCTIC HEATER OPERATION - Continued 0046 00

OPERATE CAB ARCTIC HEATER - Continued

CAUTION

CTIS switch must be in the off position before cab arctic heater switch is turned on. Failure to comply may result in damage to equipment.

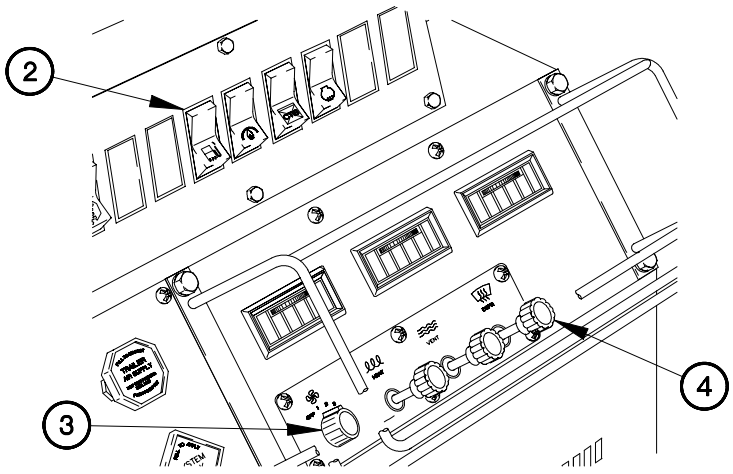
4. Position cab arctic heater switch (2) to on.

5. Position FAN knob (3) to number 3.

NOTE

Perform step 6 if windshield needs defrosting.

6. Pull DEFR knob (4) to fully extended position.



CAB ARCTIC HEATER OPERATION - Continued 0046 00

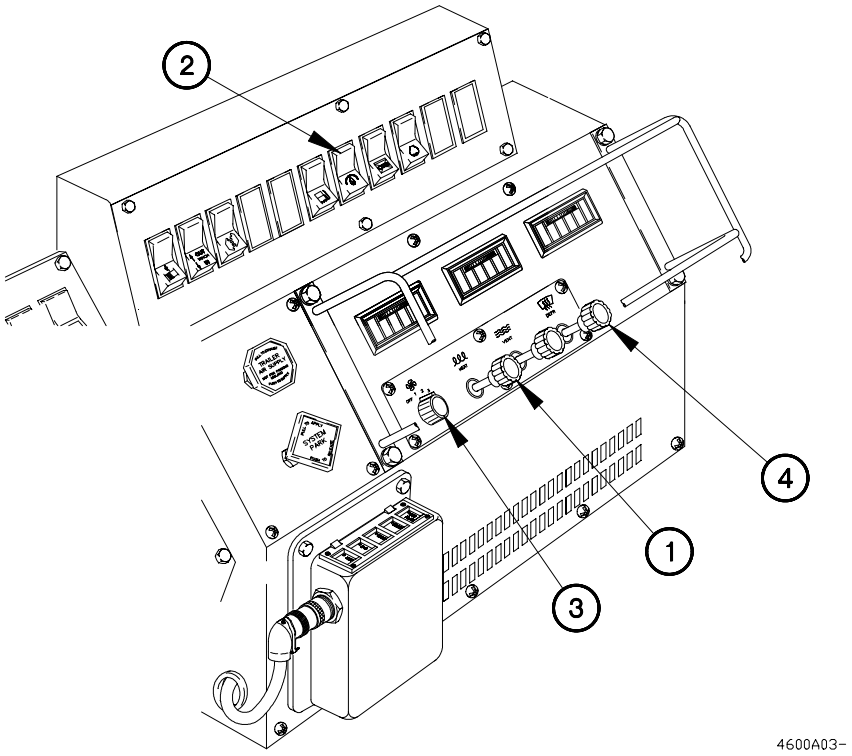
SHUT DOWN CAB ARCTIC HEATER

1. Position cab arctic heater switch (2) to off.

NOTE

Perform step 2 if defroster was used.

2. Push in DEFR knob (4).
3. Position FAN knob (3) to OFF.
4. Push in HEAT knob (1).



END OF OPERATING PROCEDURE

CARGO AREA ARCTIC HEATER OPERATION 0047 00

INITIAL SETUP:

Maintenance Level
Operator

References
WP 0083 00
WP 0016 00
TM 9-2450-207-14&P

GENERAL

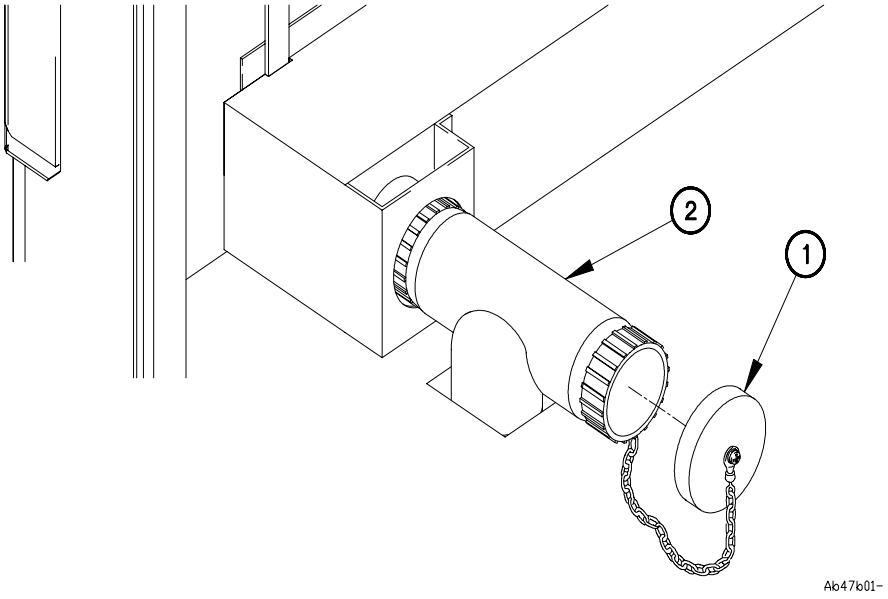
This work package provides the data and procedures for safely operating the cargo area arctic heater on M1078A1 series vehicles. Items covered include cargo area arctic heater start and cargo area arctic heater manual shutdown.

Cargo area arctic heater Start

NOTE

Perform step 1 on M1078A1.

1. Remove two caps (1) from ducts (2).



CARGO AREA ARCTIC HEATER OPERATION - Continued 0047 00

Cargo area arctic heater Start - Continued

2. For further information on the cargo area arctic heater, refer to TM 9-2450-207-14&P.

WARNING

CARBON MONOXIDE (EXHAUST GAS) CAN KILL YOU.

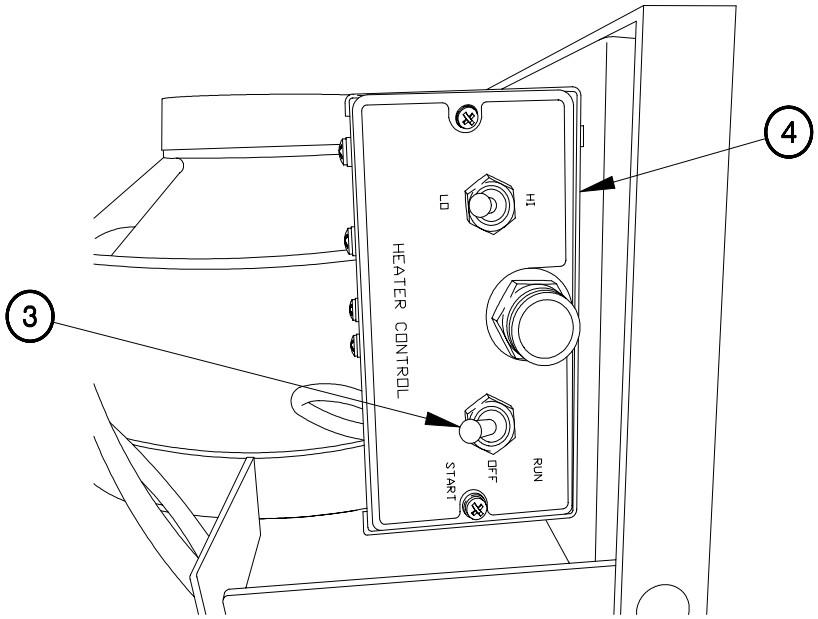
DO NOT operate cargo area arctic heater or engine in an enclosed area without adequate ventilation. NEVER sleep in a vehicle when heater is operating or the engine is idling. Failure to comply may result in serious injury or death to personnel.

CAUTION

Cargo area arctic heater can be started with either the engine running or by turning on the override switch on the front of the cargo area arctic heater. Failure to operate the cargo bay heater kit without the engine running over a period of time will result in batteries becoming discharged.

2. Start engine (WP 0016 00).

3. Position START/OFF/RUN switch (3) on control box (4) to START for a minimum of 4 seconds.



Ab47b02-

CARGO AREA ARCTIC HEATER OPERATION - Continued 0047 00

Cargo area arctic heater Start - Continued

NOTE

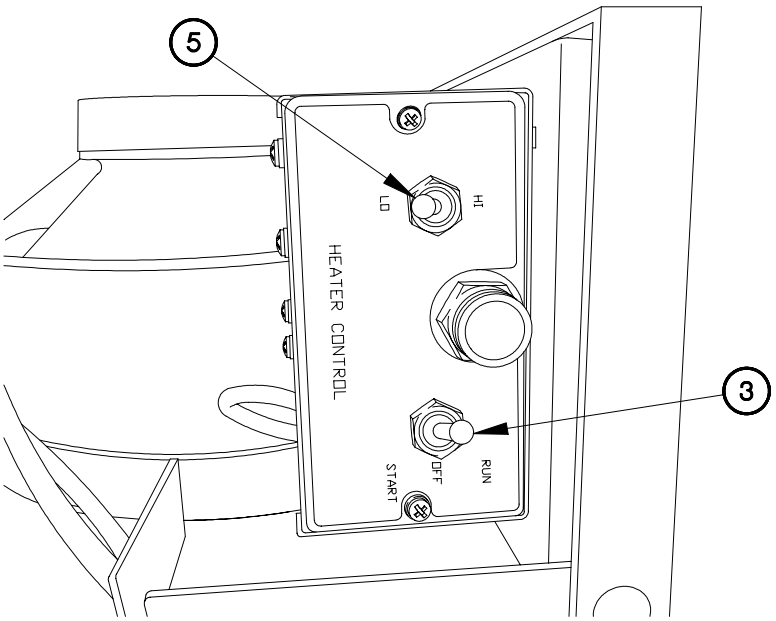
The heater performs several diagnostic functions prior to full operation for the first couple of minutes.

4. Position START/OFF/RUN switch (4) to RUN.

NOTE

The Display Diagnostic will display a code of 07 for LO and a 14 for HI during normal operation.

5. Position LO/HI switch (5) as required.



Ab47b03-

CARGO AREA ARCTIC HEATER OPERATION - Continued 0047 00

CARGO AREA ARCTIC HEATER MANUAL SHUTDOWN

1. For further information on the cargo area arctic heater, refer to TM 9-2450-207-14&P.

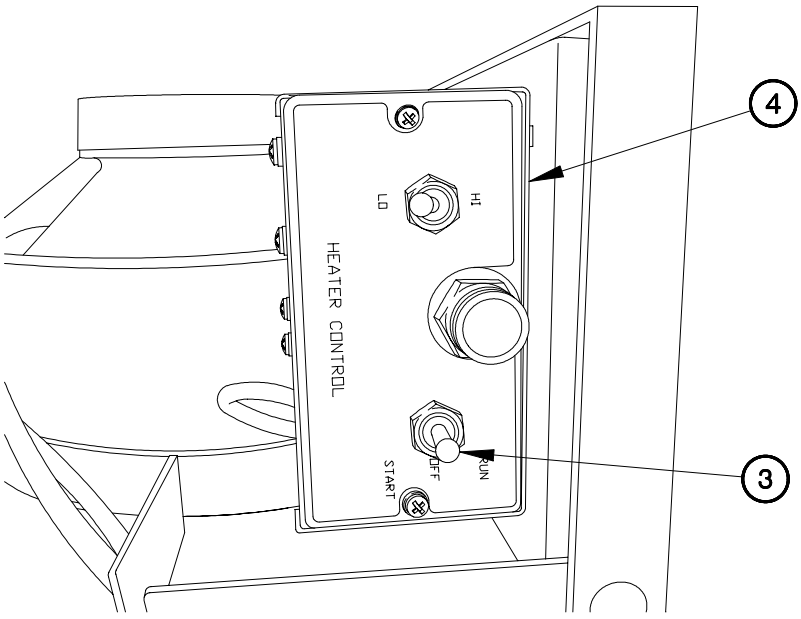
WARNING

Allow heater and exhaust pipe to cool before touching. Failure to comply may result in injury to personnel.

NOTE

Cargo area arctic heater will purge for approximately four minutes after switch is turned to OFF, then it will shutdown completely.

2. Position START/OFF/RUN switch (3) to OFF on control box (4).



Ab47b04-

END OF OPERATING PROCEDURE

PREPARATION FOR INTERNAL AIR TRANSPORT, HIGHWAY OR RAIL SHIPMENT 0048 00

INITIAL SETUP:

Maintenance Level
Operator

References
WP 0016 00
WP 0017 00
WP 0018 00
WP 0035 00

WARNING

Heavy objects/loads, such as tool boxes and heavy parts, must always be carried on the floor with the weight distributed as equally as possible between left and right sides of M1079A1 van.

Heavy cabinets must always be mounted as low as possible with the weight distributed as equally as possible between left and right sides of M1079A1 van. Remember to consider the weight of the items that will be stored in the cabinets. Failure to comply decreases the stability of the M1079A1 van and will increase the likelihood of a rollover.

Always keep in mind, when placing items inside the M1079A1 van, that heavier items must always be positioned between left and right sides of M1079A1 van. Failure to comply decreases the stability of the M1079A1 van and will increase the likelihood of a rollover.

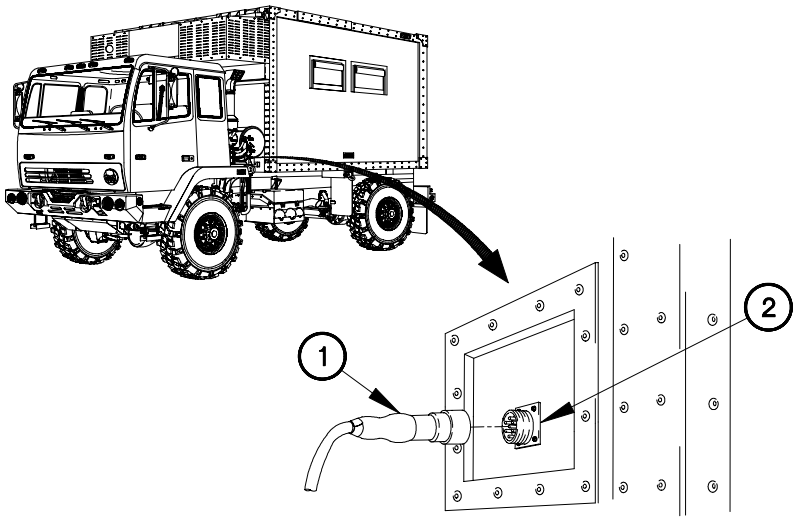
GENERAL

This work package provides the data and procedures for preparing M1078A1 series vehicles for internal air transport. Items covered include Front Tire Deflation, Cab Air Spring Deflation, Compressing Suspension, Folding Mirrors, Unfolding Mirrors, Decompressing Suspension, Cab Air Spring Inflation, and Front Tire Inflation.

PREPARATION FOR INTERNAL AIR TRANSPORT, HIGHWAY, OR RAIL SHIPMENT Continued 0048 00

VAN BODY REMOVAL

1. Disconnect connector P173 (1) from connector J173 (2).

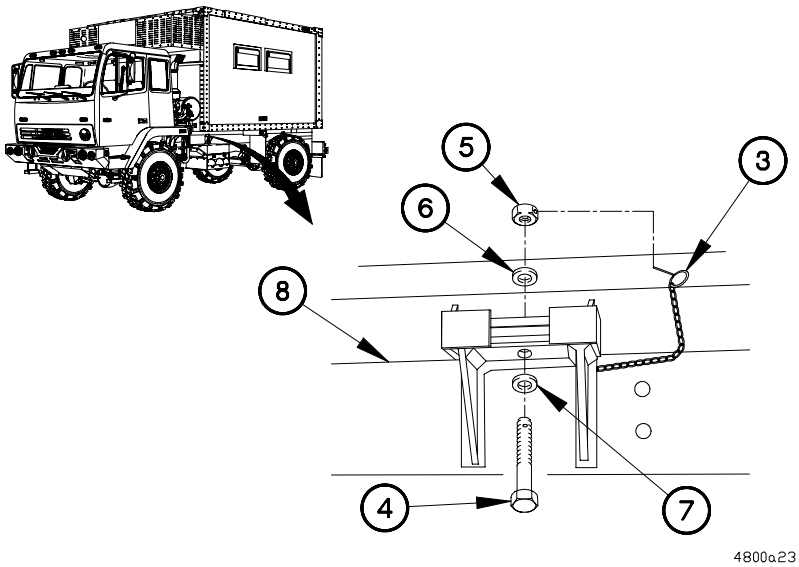


NOTE

Left and right van body mounting hardware is removed the same way. Left side shown.

2. Remove lynch pin (3) from bolt (4).

3. Remove slotted nut (5), washer (6), bolt (4), and washer (7) from subframe (8).



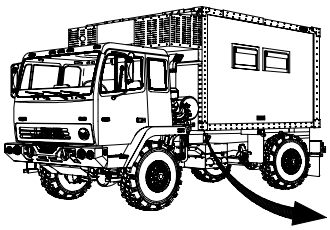
PREPARATION FOR INTERNAL AIR TRANSPORT, HIGHWAY, OR RAIL SHIPMENT Continued 0048 00

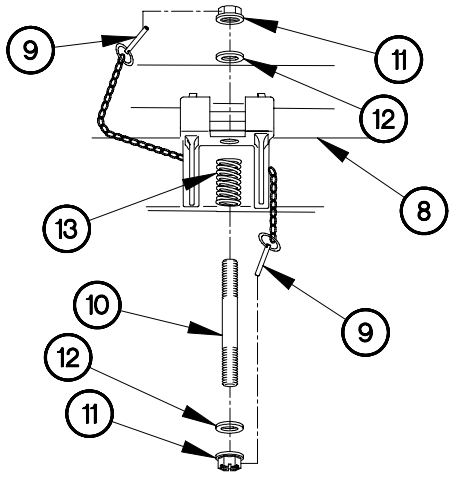
VAN BODY REMOVAL - Continued

4. Remove two lynch pins (9) from stud (10).

5. Remove two slotted nuts (11), washers (12), stud (10), and spring (13) from subframe (8).

6. Perform steps (2) through (5) on right side of van body.





4800a24

PREPARATION FOR INTERNAL AIR TRANSPORT, HIGHWAY, OR RAIL SHIPMENT Continued 0048 00

VAN BODY REMOVAL - Continued

WARNING

• Van body weighs approximately 3360 lbs (1525 kgs) empty. Attach a suitable lifting device prior to removal. Failure to comply may result in injury or death to personnel.

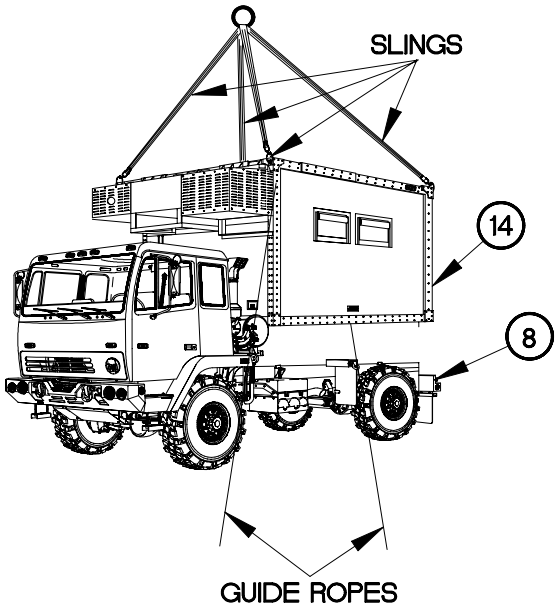
• Guide ropes must be attached at opposite corners of van body to aid in controlling van body during removal. Failure to comply may result in serious injury or death to personnel.

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

NOTE

Step (7) requires the aid of two assistants.

7. Remove van body (14) from subframe (8).

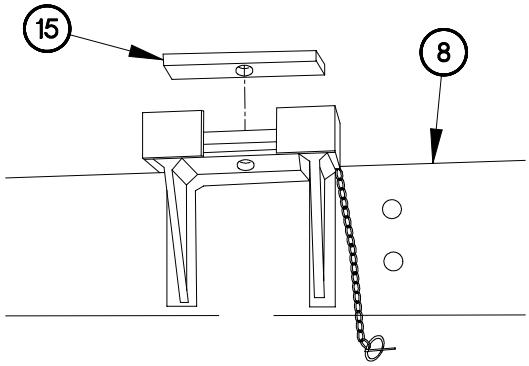


4800a25

PREPARATION FOR INTERNAL AIR TRANSPORT, HIGHWAY, OR RAIL SHIPMENT Continued 0048 00

VAN BODY REMOVAL - Continued

8. Remove four cushioning pads (15) from subframe (8) and store in tool box.

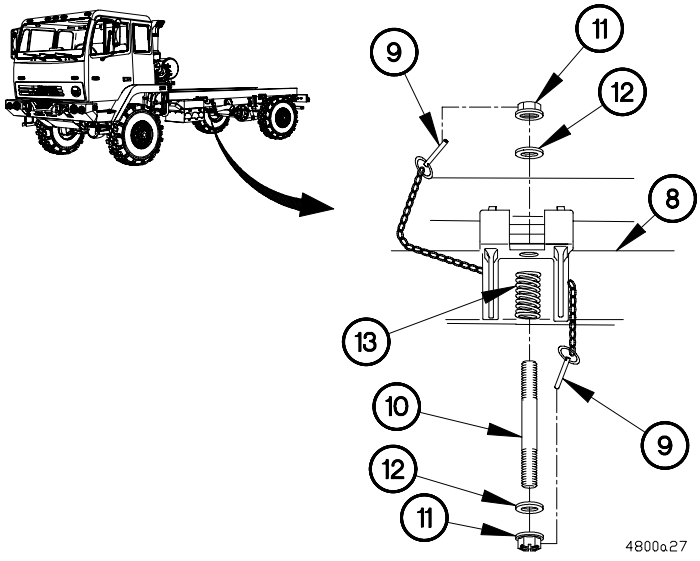


4800a26

9. Install spring (16), stud (17), and two washers (18) in subframe (8) with two slotted nuts (19).

10. Install two lynch pins (20) in stud (17).

11. Perform steps (9) and (10) on opposite side of subframe.



4800a27

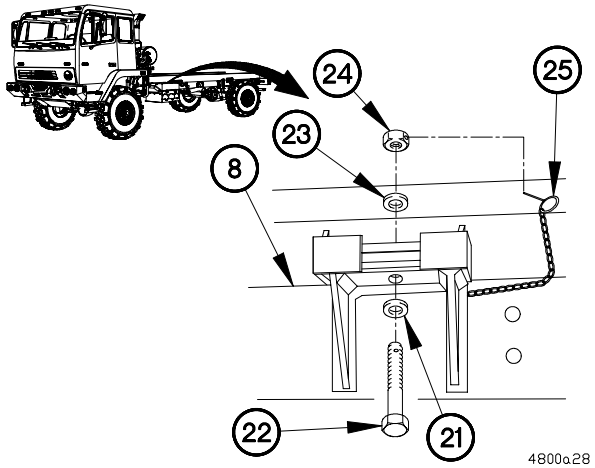
PREPARATION FOR INTERNAL AIR TRANSPORT, HIGHWAY, OR RAIL SHIPMENT Continued 0048 00

VAN BODY REMOVAL - Continued

12. Install washer (21), bolt (22), and washer (23) in subframe (8) with slotted nut (24).

13. Install lynch pin (25) in bolt (22).

14. Perform steps (12) and (13) on opposite side of subframe.

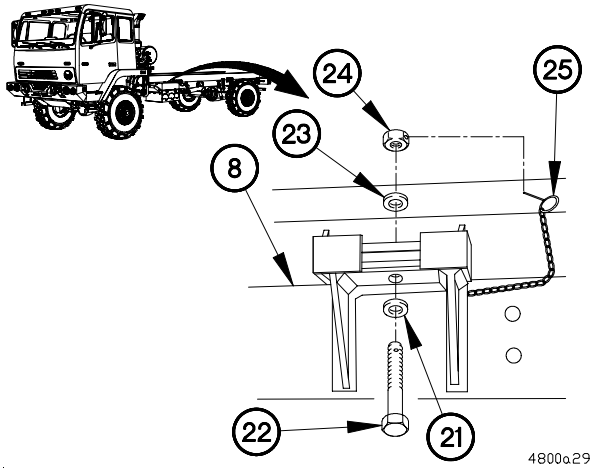


VAN BODY INSTALLATION

1. Remove lynch pin (25) from bolt (22).

2. Remove slotted pin (24), washer (23), and washer (21) from subframe (8).

3. Perform steps (1) and (2) on opposite side of subframe.



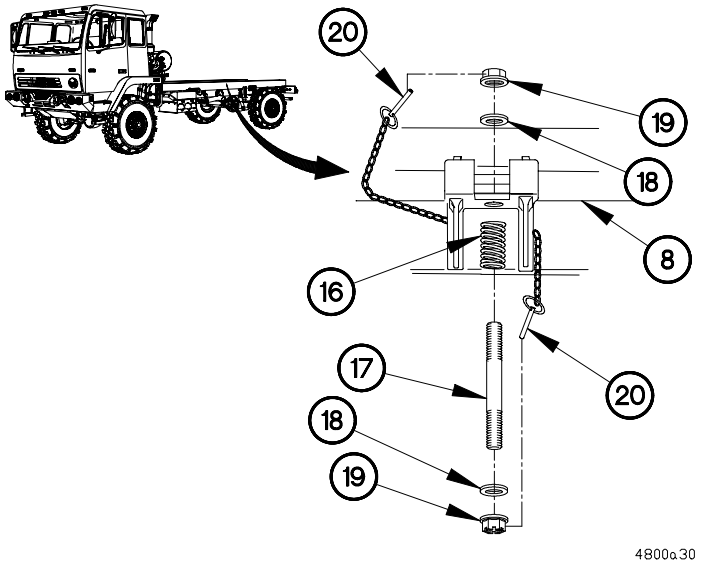
PREPARATION FOR INTERNAL AIR TRANSPORT, HIGHWAY, OR RAIL SHIPMENT Continued 0048 00

VAN BODY INSTALLATION - Continued

4. Remove two lynch pins (20) from stud (17).

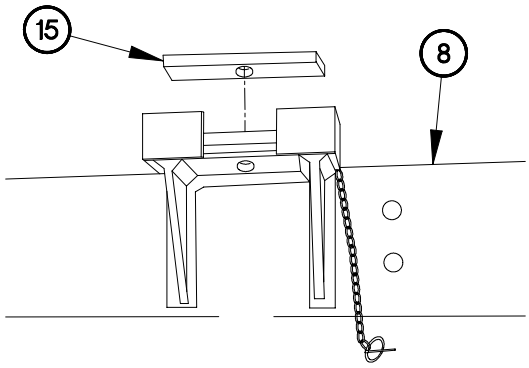
5. Remove two slotted nuts (19), washers (18), stud (17), and spring (16) from subframe (8).

6. Perform steps (4) and (5) on opposite side of subframe.



4800a30

7. Remove four cushioning pads (15) from tool box and place on subframe (8).



4800a31

PREPARATION FOR INTERNAL AIR TRANSPORT, HIGHWAY, OR RAIL SHIPMENT Continued 0048 00

VAN BODY INSTALLATION - Continued

WARNING

• Van body weighs approximately 3360 lbs (1525 kgs) empty. Attach a suitable lifting device prior to installation. Failure to comply may result in injury or death to personnel.

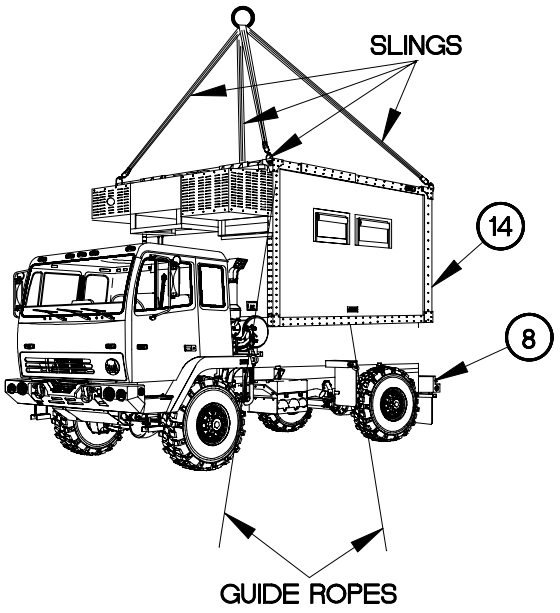
• Guide ropes must be attached at opposite corners of van body to aid in controlling van body during installation. Failure to comply may result in serious injury or death to personnel.

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

NOTE

Step (8) requires the aid of two assistants.

8. Position van body (14) on subframe (8).



4800a32

PREPARATION FOR INTERNAL AIR TRANSPORT, HIGHWAY, OR RAIL SHIPMENT Continued 0048 00

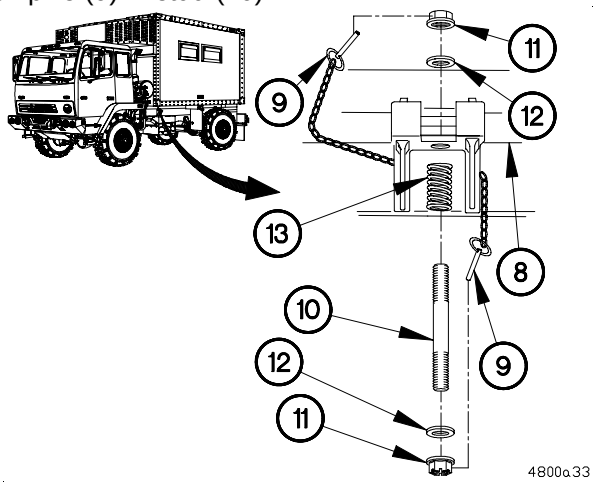
VAN BODY INSTALLATION - Continued

NOTE

Left and right van body mounting hardware is installed the same way. Left side shown.

9. Install spring (13), stud (10), two washers (12), and slotted nuts (11) in subframe (8).

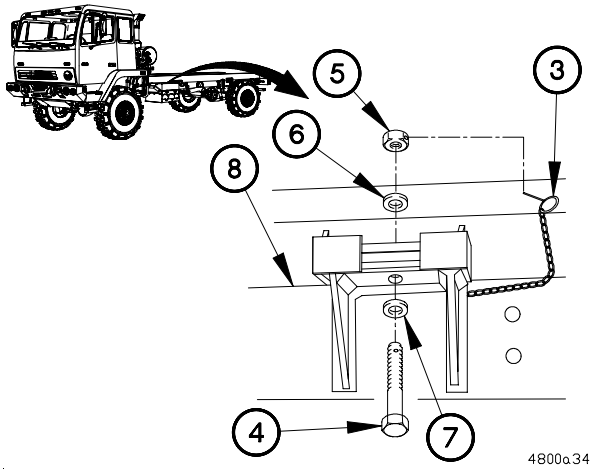
10. Install two lynch pins (9) in stud (10).



11. Install washer (7), bolt (4), washer (6), and slotted nut (5) in subframe (8).

12. Install lynch pin (3) in bolt (4).

13. Perform steps (9) through (12) on right side of van body.



PREPARATION FOR INTERNAL AIR TRANSPORT, HIGHWAY, OR RAIL SHIPMENT Continued 0048 00

FRONT TIRE DEFLATION

1. Depress emergency (EMER) on CTIS ECU (WP 0018 00).

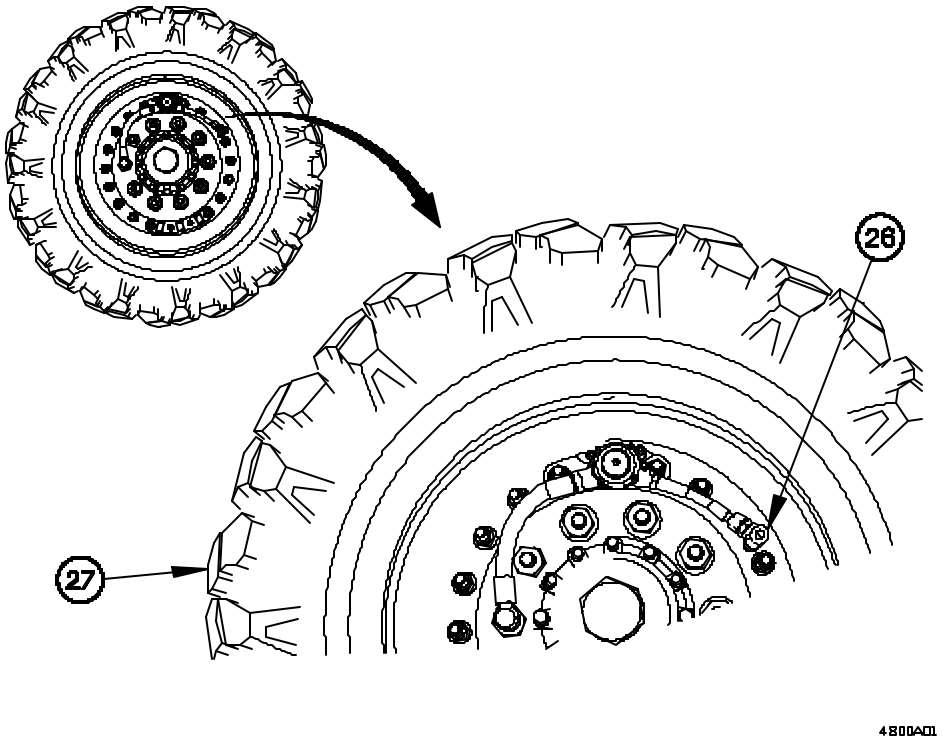
NOTE

Left and right front tires are deflated the same way. Left front tire shown.

Tires will deflate until approximately 10 psi (69 kPa) remains in tire.

Some resistance may be felt when turning kneeling valve. Valve will not operate properly if it is not turned 1/2 turn (180 degrees).

2. Turn kneeling valve (26) 1/2 turn to left (180 degrees) to release air from front tire (27).



PREPARATION FOR INTERNAL AIR TRANSPORT, HIGHWAY, OR RAIL SHIPMENT Continued 0048 00

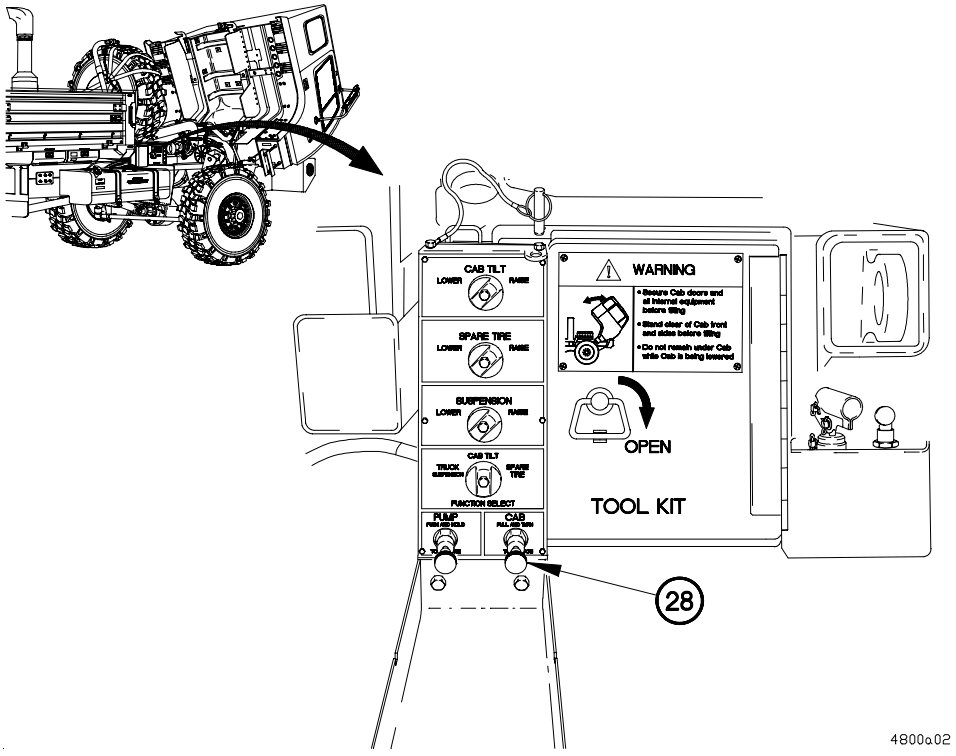
CAB AIR SPRING DEFLATION

1. Start engine and allow air pressure to reach 120 psi (827 kPa). (WP 0016 00)
2. Shut down engine. (WP 0016 00)

NOTE

Allow time for air spring to fully deflate. Approximately 30 seconds.

3. Turn cab knob (28) to left and pull out.
4. Raise cab. (WP 0017 00)



PREPARATION FOR INTERNAL AIR TRANSPORT, HIGHWAY, OR RAIL SHIPMENT Continued 0048 00

CAB AIR SPRING DEFLATION - Continued

5. Remove quick release pin (29) from bracket (30).

NOTE

Use socket wrench bar handle. P/N 619147, located in tool box, to aid in pinning air springs.

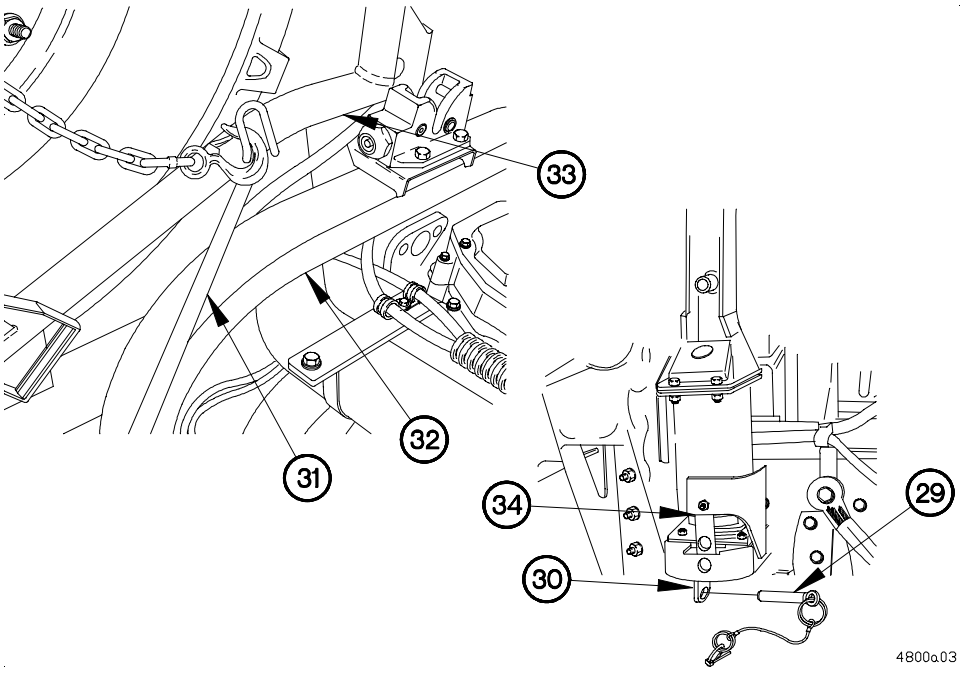
Socket wrench bar handle locations are shown for left and right side. Refer to following illustration for details.

Perform steps (6) through (8) on right side of vehicle.

8. Place socket wrench bar handle (31) on top of rear cab support (32) and under spare tire retainer (33) for leverage.

8. Push down on rear cab support (32) with socket wrench bar handle (31).

8. Install quick release pin (29) in cab air spring bracket (34).



PREPARATION FOR INTERNAL AIR TRANSPORT, HIGHWAY, OR RAIL SHIPMENT Continued 0048 00

CAB AIR SPRING DEFLATION - Continued

NOTE

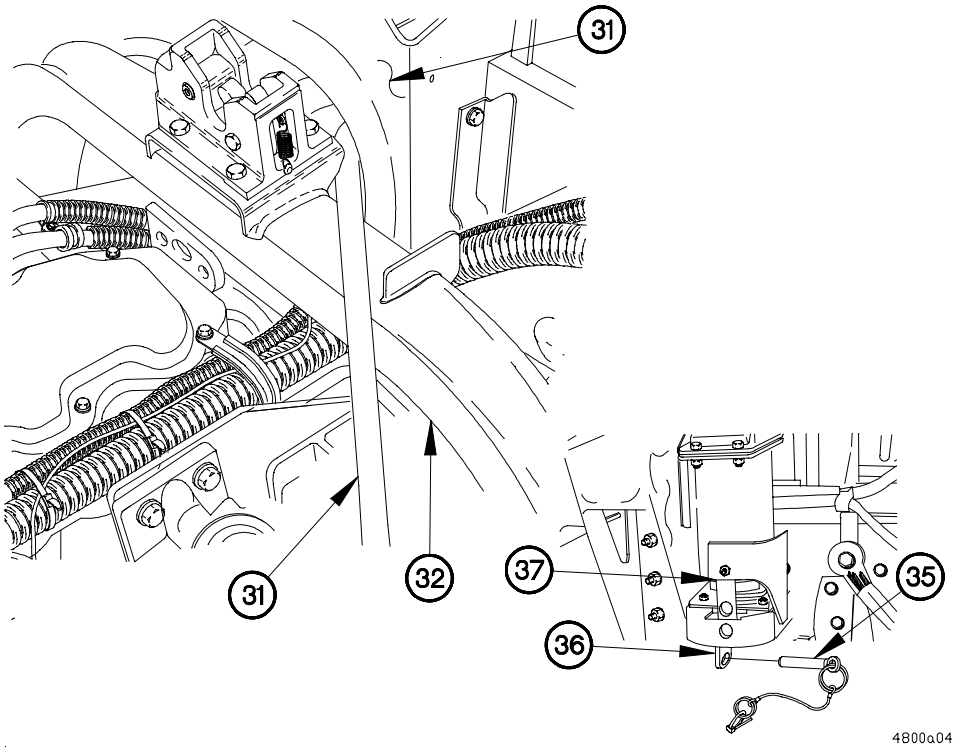
Perform steps (9) through (12) on left side air spring.

9. Remove quick release pin (35) from bracket (36).
10. Place socket wrench bar handle (31) on top of rear cab support (32) and under spare tire retainer (33) for leverage.
11. Push down on rear cab support (32) with socket wrench bar handle (31).
12. Install quick release pin (35) in cab air spring bracket (37).

NOTE

Perform step (13) if vehicle is being prepared for highway or rail shipment.

13. Lower cab. (WP 0017 00)

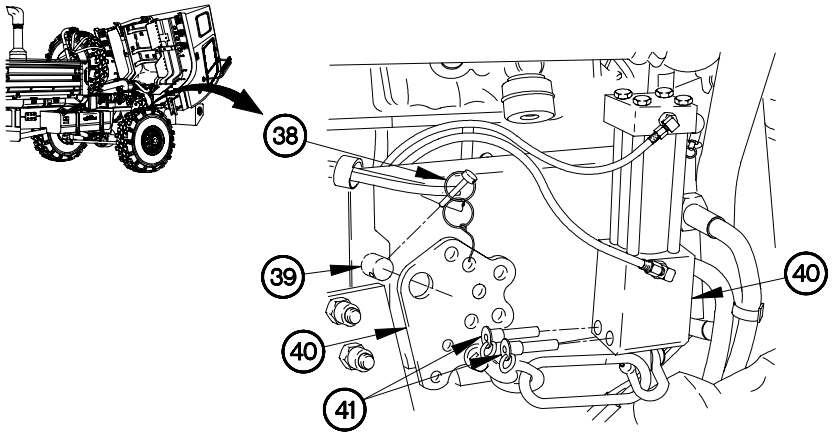


PREPARATION FOR INTERNAL AIR TRANSPORT, HIGHWAY, OR RAIL SHIPMENT Continued 0048 00

COMPRESSING SUSPENSION

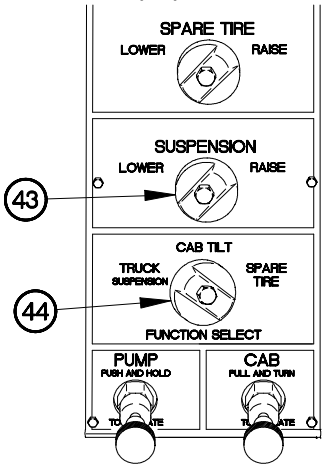
Left and right side suspension compression plates are removed the same way. Right side suspension compression plate shown.

1. Remove retaining pin (38) from stud (39).
2. Remove suspension compression plate (40) from stud (39).
3. Remove two safety pins (41) from compression cylinder (42).
4. Perform steps (1) through (3) on left side of vehicle.



4800a05

5. Position SUSPENSION knob (43) to RAISE.
6. Position FUNCTION SELECT knob (44) to TRUCK SUSPENSION.



4800a06

PREPARATION FOR INTERNAL AIR TRANSPORT, HIGHWAY, OR RAIL SHIPMENT Continued 0048 00

COMPRESSING SUSPENSION - Continued

NOTE

Use back-up hydraulic pump (WP 0035 00) if pressing PUMP knob does not accomplish step (7).

7. Press and hold PUMP knob (45) until suspension compression plate (40) can be installed on axle stud (46).

WARNING

Both suspension compression plates must be installed on axle studs. Failure to comply may result in serious injury or death to personnel.

NOTE

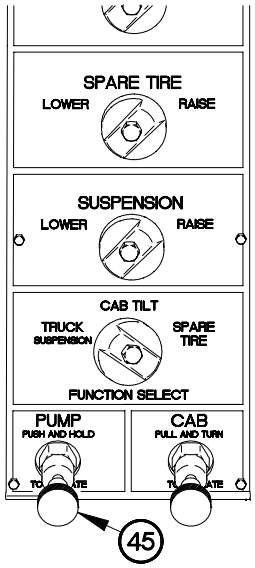
Left and right side suspension compression plates are installed on axle studs the same way. Right side suspension compression plate shown.

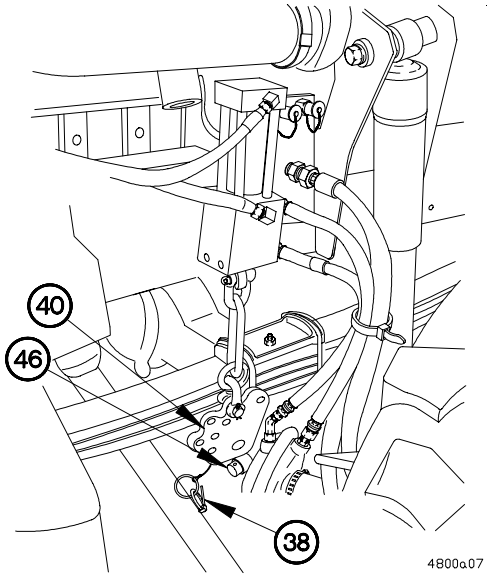
8. Install suspension compression plate (40) on axle stud (46).

9. Install retaining pin (38) in axle stud (46).

10. Turn wheels to the left.

11. Perform steps (8) and (9) on left side of vehicle.





PREPARATION FOR INTERNAL AIR TRANSPORT, HIGHWAY, OR RAIL SHIPMENT Continued 0048 00

COMPRESSING SUSPENSION – Continued

12. Position SUSPENSION knob (43) to LOWER.

NOTE

Suspension is fully compressed when cylinder rod is fully retracted and safety pins can be installed in compression cylinder.

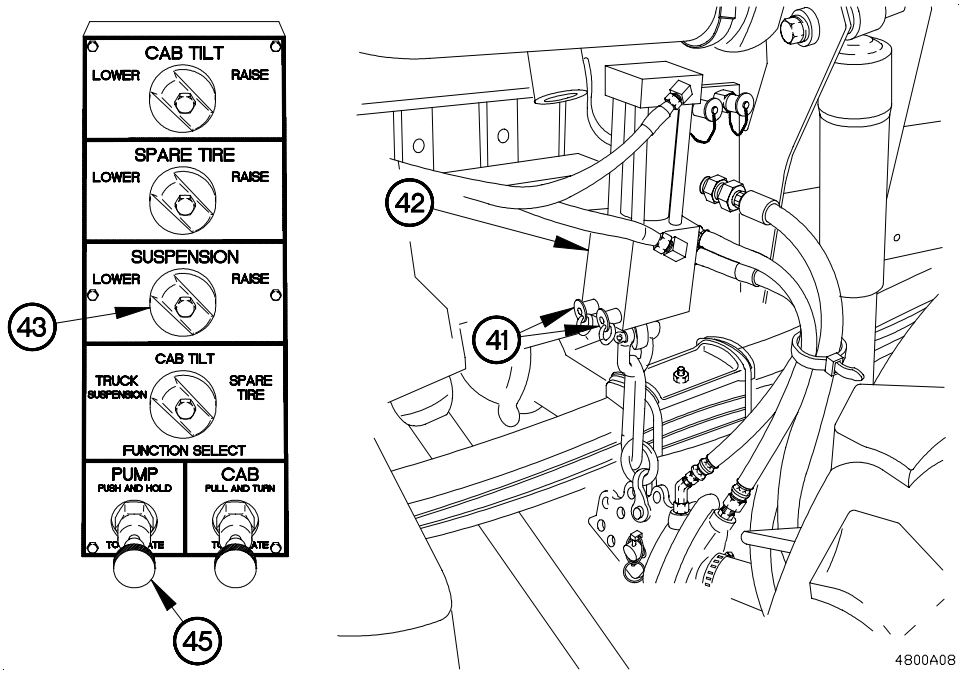
Use back-up hydraulic pump (WP 0035 00) if pressing PUMP knob does not accomplish step (12).

13. Press and hold PUMP knob (45) until suspension is fully compressed.

14. Install two safety pins (41) in compression cylinder (42).

15. Perform step (14) on left side of vehicle.

16. Lower cab (WP 0017 00).



PREPARATION FOR INTERNAL AIR TRANSPORT, HIGHWAY, OR RAIL SHIPMENT Continued 0048 00

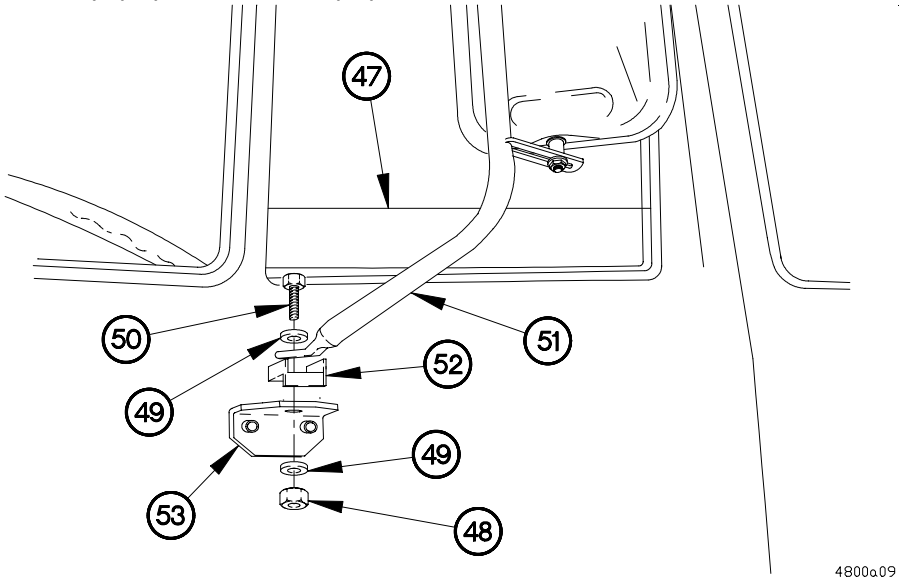
FOLDING MIRRORS

NOTE

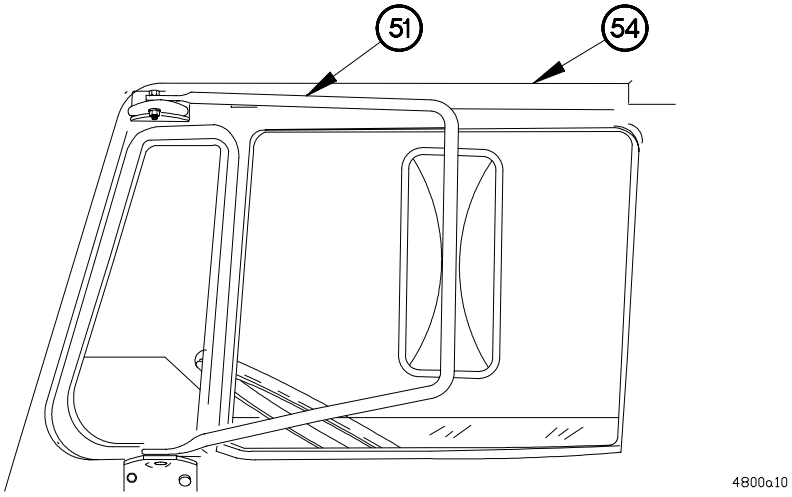
Perform steps (1) through (6) on vehicles S/N 15,675 or lower.

Left and right side mirrors are folded the same way. Left side mirror shown.

1. Roll window (47) down completely.
2. Remove nut (48), two washers (49), and screw (50) from mirror assembly (51).
3. Remove clip (52) from bracket (53).



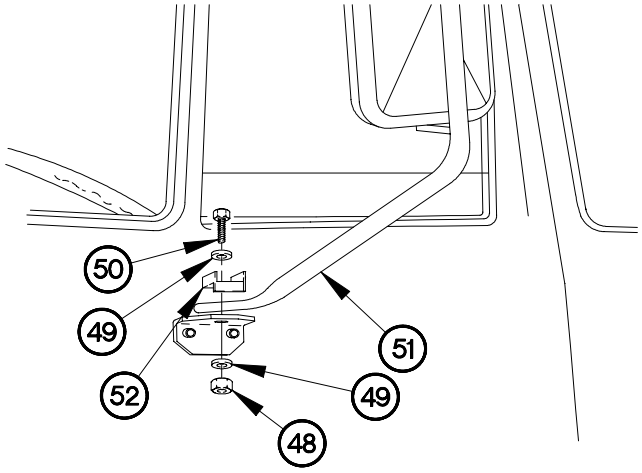
4. Fold mirror assembly (51) in toward door (54).



PREPARATION FOR INTERNAL AIR TRANSPORT, HIGHWAY, OR RAIL SHIPMENT Continued 0048 00

FOLDING MIRRORS - Continued

5. Install clip (52), two washers (49), screw (50), and nut (48) on mirror assembly (51).
6. Perform steps (1) through (5) on right side of vehicle.

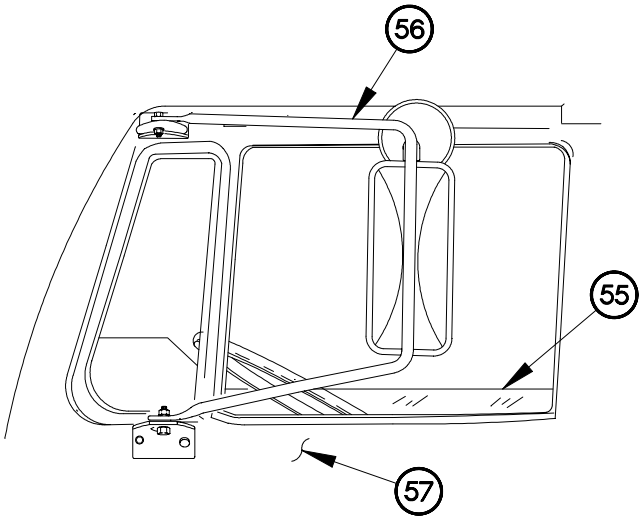


4800a11

NOTE

Perform steps (7) through (9) on vehicles S/N 15,676 or higher.

7. Roll window (55) down completely.
8. Fold mirror assembly (56) toward door (57).
9. Perform steps (7) and (8) on right side of vehicle.



4800A36

PREPARATION FOR INTERNAL AIR TRANSPORT, HIGHWAY, OR RAIL SHIPMENT Continued 0048 00

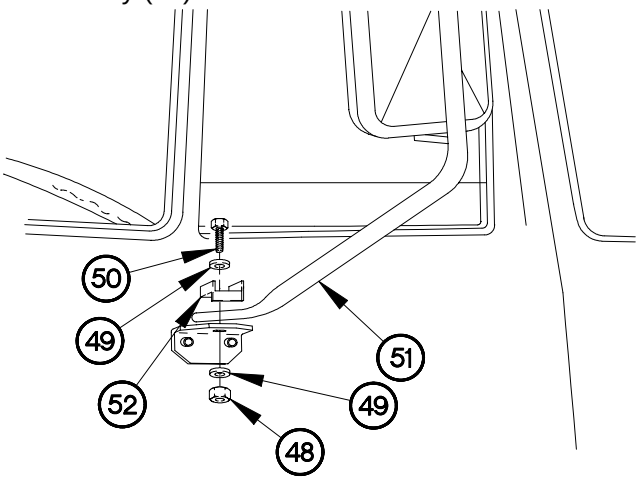
UNFOLDING MIRRORS

NOTE

Left and right side mirrors are unfolded the same way. Left side mirror shown.

Perform steps (1) through (5) on vehicles S/N 15,675 or lower.

1. Remove nut (48), screw (50), two washers (49), and clip (52) from mirror assembly (51).
2. Unfold mirror assembly (51).



3. Install clip (52) between mirror assembly (51) and bracket (53).

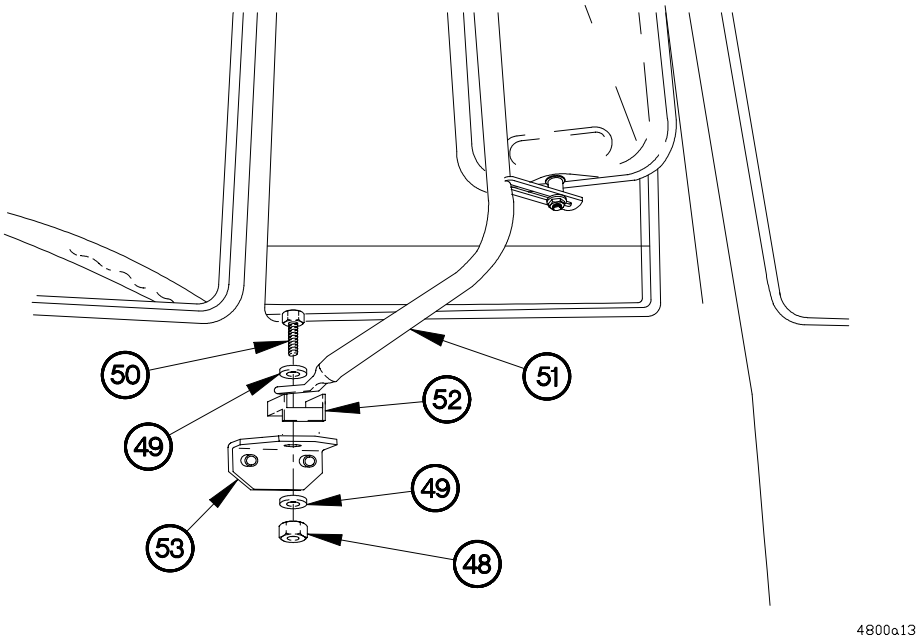
NOTE

Notify Unit Maintenance to tighten nuts to 21-27 lb-ft (29-37 N·m).

4. Install two washers (49), screw (50), and nut (48).
5. Perform steps (1) through (4) on right side of vehicle.

PREPARATION FOR INTERNAL AIR TRANSPORT, HIGHWAY, OR RAIL SHIPMENT Continued 0048 00

UNFOLDING MIRRORS Continued

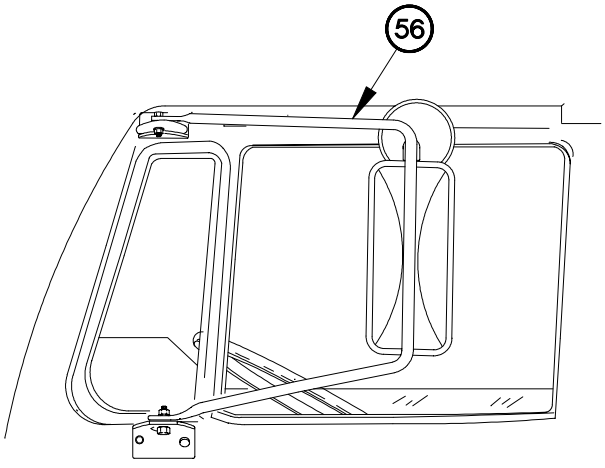


4800a13

NOTE

Perform step (6) on vehicles S/N 15,676 or higher.

6. Unfold mirror (56).



4800A37

PREPARATION FOR INTERNAL AIR TRANSPORT, HIGHWAY, OR RAIL SHIPMENT Continued 0048 00

DECOMPRESSING SUSPENSION

1. Start engine and allow air pressure to reach 120 psi (827 Kpa)(WP 0016 00).
2. Raise cab (WP 0017 00).

CAUTION

Ensure area above cab is adequate before raising suspension. Failure to comply may result in damage to equipment.

Do not operate vehicle off road without both air springs unpinned and deflated. Failure to comply may result in damage to equipment.

3. Position SUSPENSION knob (43) to LOWER.
4. Position FUNCTION SELECT knob (44) to TRUCK SUSPENSION.

NOTE

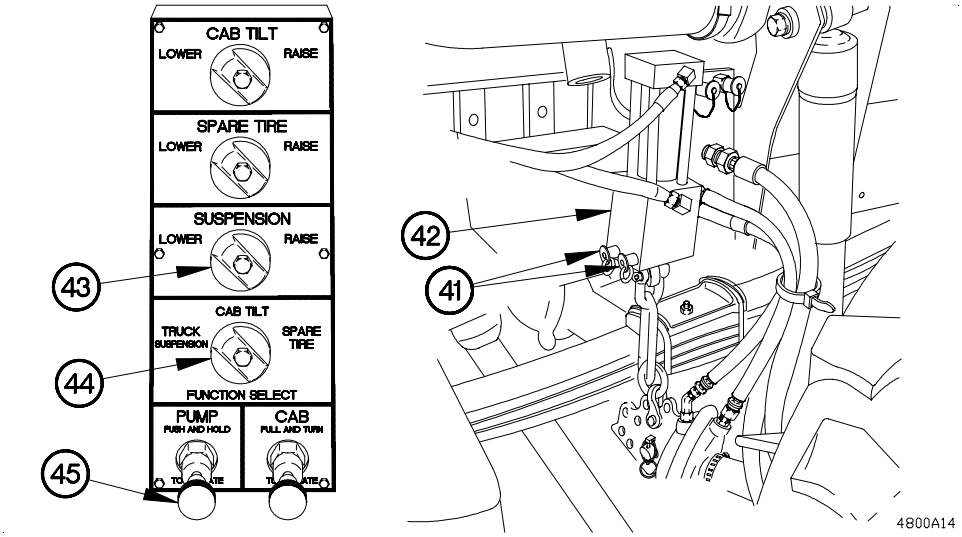
Use back-up hydraulic pump (WP 0035 00) if pressing PUMP knob does not accomplish step (5).

5. Press and hold PUMP knob (45) until two safety pins (41) can be removed from compression cylinder (42).

NOTE

Left and right side safety pins are removed from compression cylinders the same way. Right side safety pins shown.

6. Remove two safety pins (41) from compression cylinder (42).



PREPARATION FOR INTERNAL AIR TRANSPORT, HIGHWAY, OR RAIL SHIPMENT Continued 0048 00

DECOMPRESSING SUSPENSION - Continued

7. Position SUSPENSION knob (15) to RAISE.

NOTE

Use back-up hydraulic pump (WP 0035 00) if pressing PUMP knob does not accomplish step (8).

8. Press and hold PUMP knob (45) until vehicle returns to normal height and suspension compression plate (40) is loose.

WARNING

Both suspension compression plates must be removed from axle studs. Failure to comply may result in serious injury or death to personnel.

NOTE

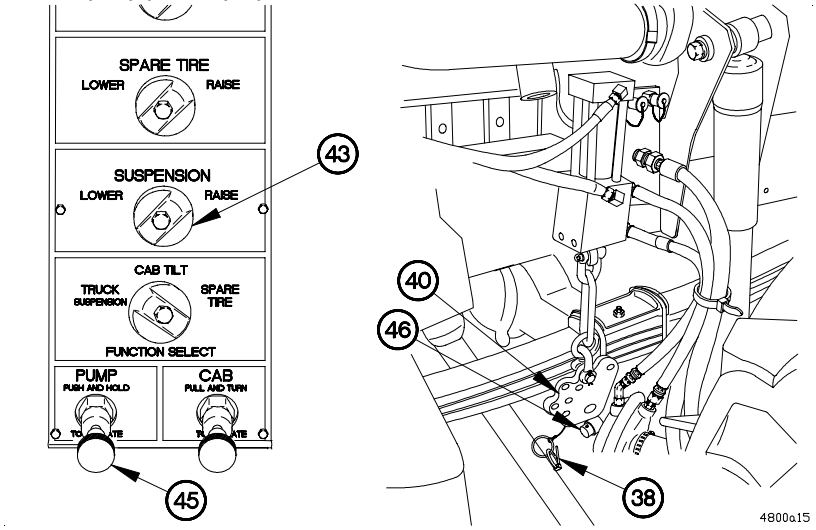
Left and right side suspension compression plates are removed the same way. Right side suspension compression plate shown.

9. Remove retaining pin (38) from axle stud (46).

10. Remove suspension compression plate (38) from axle stud (44).

11. Turn wheels to the left.

12. Perform steps (9) and (10) on left side of vehicle.



PREPARATION FOR INTERNAL AIR TRANSPORT, HIGHWAY, OR RAIL SHIPMENT Continued 0048 00

DECOMPRESSING SUSPENSION - Continued

13. Position SUSPENSION knob (43) to LOWER.

NOTE

Use back-up hydraulic pump (WP 0035 00) if pressing PUMP knob does not accomplish step (14).

14. Press PUMP knob (45) until cylinder rod (55) is fully retracted and two safety pins (41) can be inserted in compression cylinder (42).

NOTE

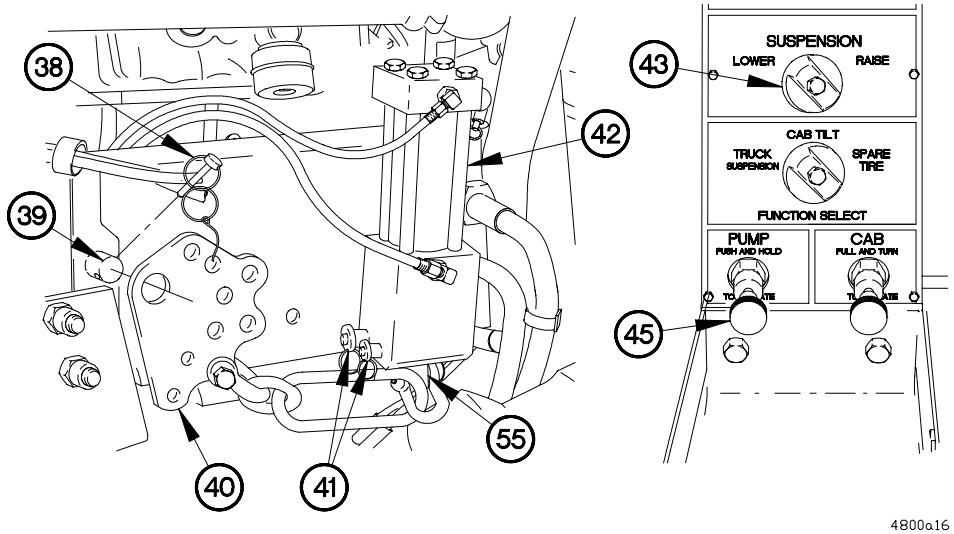
Left and right side suspension compression plates are installed the same way. Right side suspension compression plate shown.

15. Install two safety pins (41) in compression cylinder (42).

16. Install suspension compression plate (40) on stud (39).

17. Install retaining pin (38) in stud (39).

18. Lower cab (WP 0017 00).



PREPARATION FOR INTERNAL AIR TRANSPORT, HIGHWAY, OR RAIL SHIPMENT Continued 0048 00

CAB AIR SPRING INFLATION

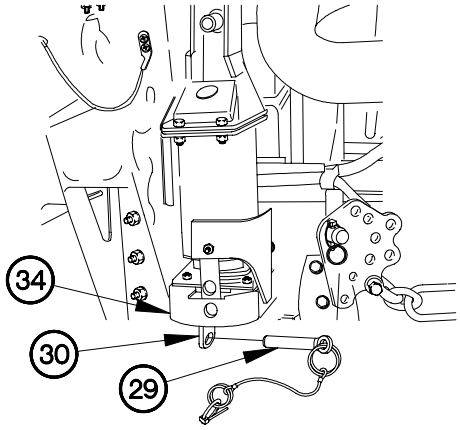
CAUTION

After vehicle is removed from aircraft, both cab air springs must be unpinned and inflated before vehicle is operated. Failure to comply may result in damage to equipment.

NOTE

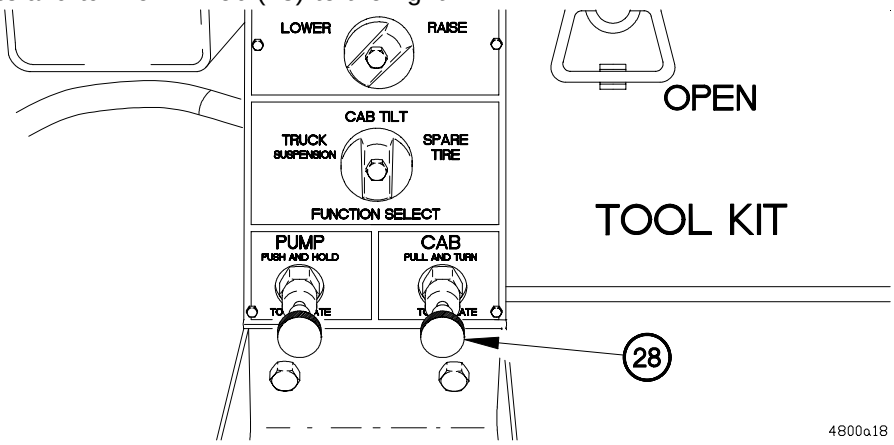
Left and right side cab air springs are inflated the same way. Right side cab air spring shown.

1. Remove quick release pin (29) from cab air spring bracket (34).
2. Install quick release pin (29) in bracket (30).
3. Perform steps (1) and (2) on left side of vehicle.



4800a17

4. Press and turn CAB knob (28) to the right.



4800a18

PREPARATION FOR INTERNAL AIR TRANSPORT, HIGHWAY, OR RAIL SHIPMENT Continued 0048 00

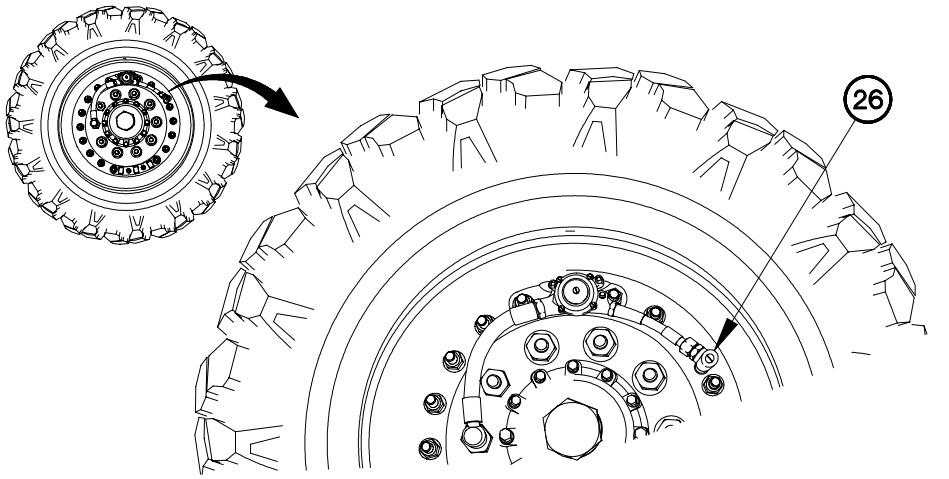
FRONT TIRE INFLATION

NOTE

Drive vehicle clear of aircraft before performing this procedure.

Left and right front tires are inflated the same way. Left front tire shown.

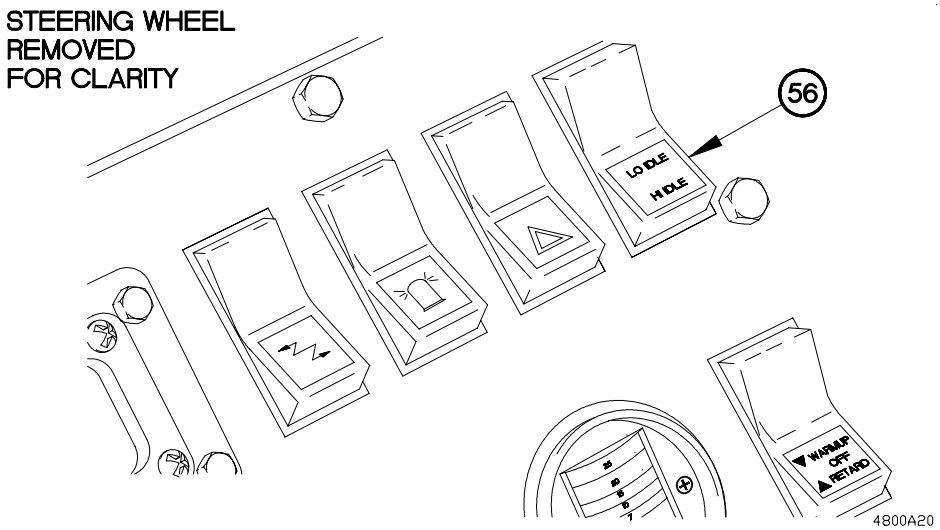
1. Turn kneeling valve (26) 1/2 turn to right to fully close valve.



4800a19

2. Start engine (WP 0016 00).

3. Press LO IDLE/HI IDLE switch (56) to engage HI IDLE.



4800A20

PREPARATION FOR INTERNAL AIR TRANSPORT, HIGHWAY, OR RAIL SHIPMENT Continued 0048 00

FRONT TIRE INFLATION - Continued

CAUTION

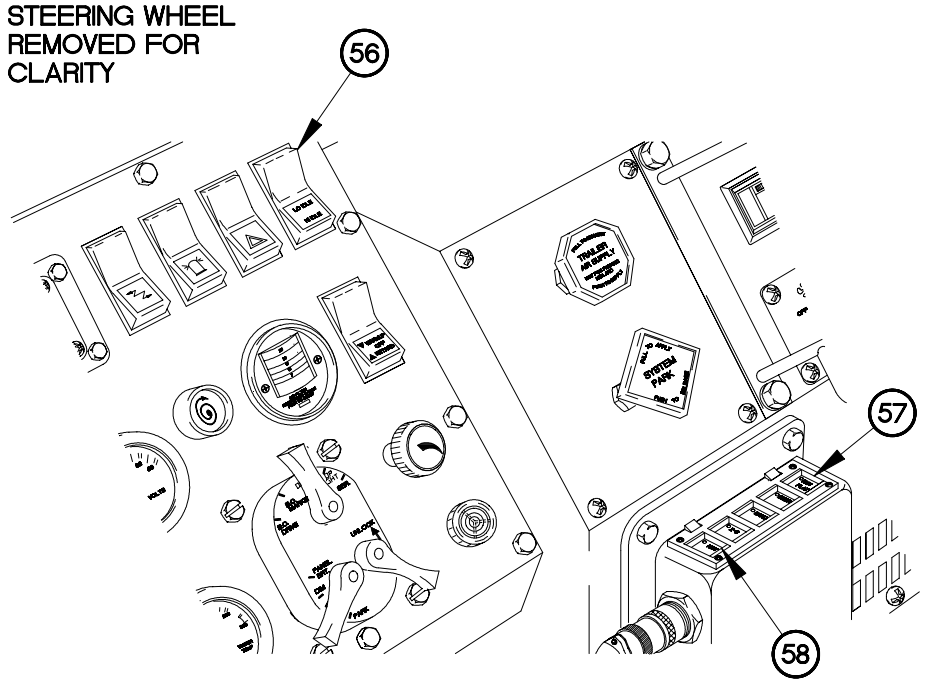
Vehicle may be driven while tires are inflating, but is restricted to first gear and on smooth surfaces. Failure to comply may result in damage to equipment.

NOTE

After one minute of inflation, any gear range/speed may be selected and no terrain restriction exists.

4. Press RUN FLAT (57) and HIGHWAY (58) modes at same time (WP 0018 00).

5. Press LO IDLE/HI IDLE switch (56) to engage LO IDLE.



4800A21

END OF WORK PACKAGE.

FIRE EXTINGUISHER OPERATION 0049 00

INITIAL SETUP:

Maintenance Level
Operator

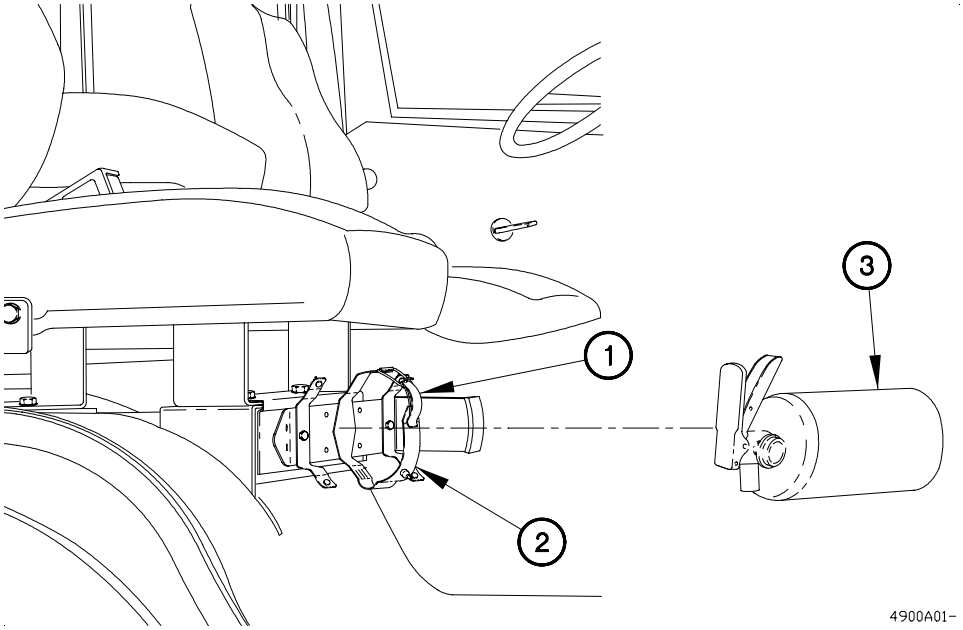
Tools/Special Tools
Extinguisher, Fire (Item 11, Table 2, WP 0094 00)

GENERAL

This work package provides the data and procedures for fire extinguisher operation. Items covered include Fire Extinguisher Removal, Fire Extinguisher Operation, and Fire Extinguisher Installation.

FIRE EXTINGUISHER REMOVAL

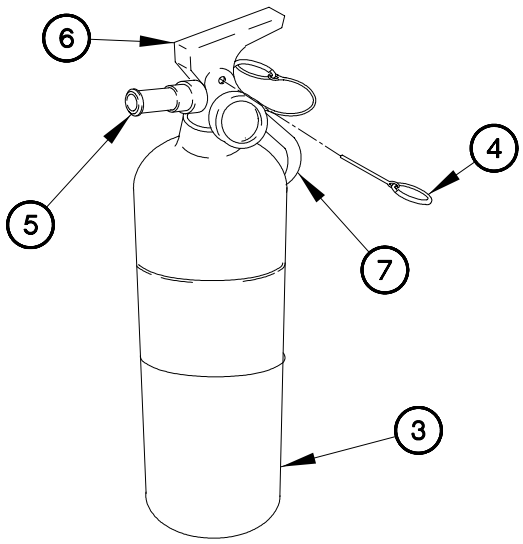
1. Pull up on latch (1) to open clamp (2).
2. Remove fire extinguisher (3) from clamp (2).



FIRE EXTINGUISHER OPERATION - Continued 0049 00

FIRE EXTINGUISHER OPERATION

1. Remove safety pin (4) from fire extinguisher (3).
2. Holding fire extinguisher (3) upright, point nozzle (5) at base of fire from approximately 8 ft (2.4 m).
3. Squeeze together handle (6) and lever (7).
4. Spray discharge in a side-to-side motion at base of fire.
5. Release handle (6) and lever (7) when fire is out.
6. Install safety pin (4) in fire extinguisher (3).
7. Notify Unit Maintenance to replace fire extinguisher (3).

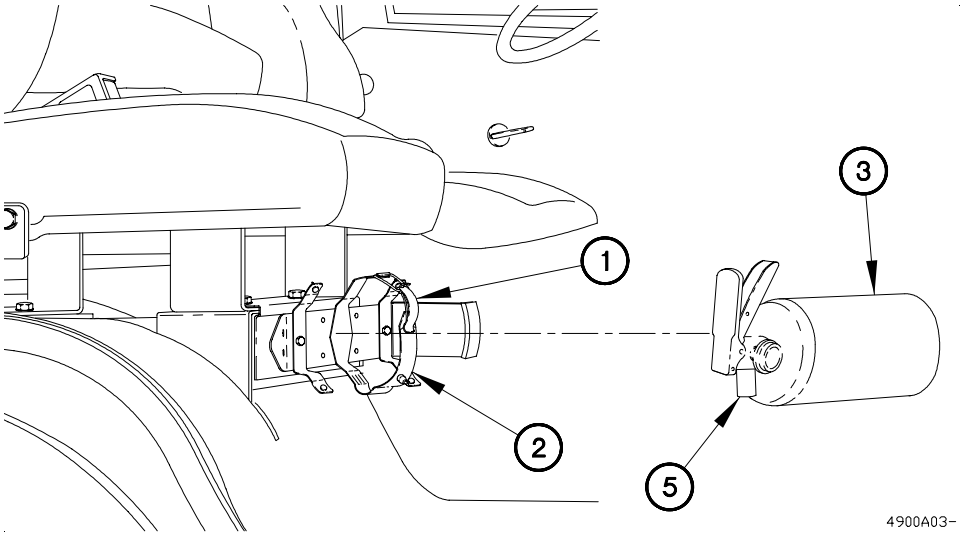


4900A02-

FIRE EXTINGUISHER OPERATION - Continued 0049 00

FIRE EXTINGUISHER INSTALLATION

1. Install fire extinguisher (3) in clamp (2) with nozzle (5) pointing down.
2. Push down on latch (1) to secure fire extinguisher (3) in clamp (2).



END OF OPERATING PROCEDURE

HIGHWAY EMERGENCY MARKER KIT SETUP 0050 00

INITIAL SETUP:

Maintenance Level
Operator

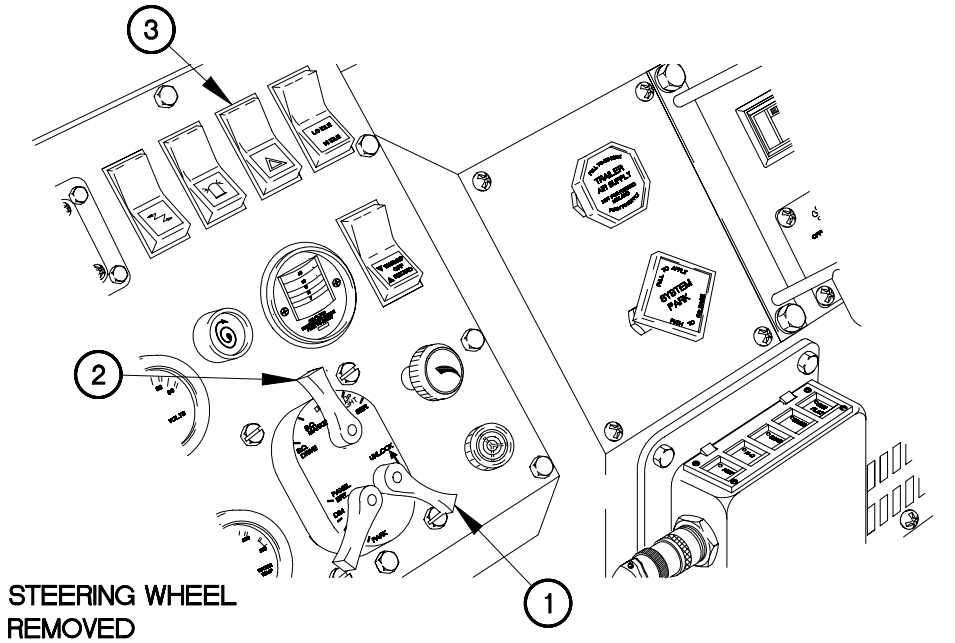
Tools/Special Tools
Warning Device Kit (Item 22, Table 2, WP 0094 00)

GENERAL

This work package provides the data and procedures for highway emergency marker kit setup. Items covered include Preparing Markers For Use; Placing Markers On Undivided, Straight Highway; Placing Markers On Undivided, Curved Highway; Placing Markers On Undivided Highway With Hills; Placing Markers On Divided Highway Or One Way Road; and Stowing Markers.

PREPARING MARKERS FOR USE

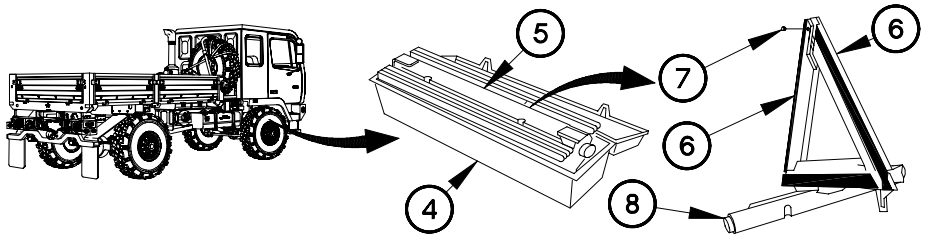
1. Lift up and hold UNLOCK lever (1).
2. Position main selector lever (2) to STOP LIGHT.
3. Position hazard lights switch (3) to on.



HIGHWAY EMERGENCY MARKER KIT SETUP - Continued 0050 00

PREPARING MARKERS FOR USE - Continued

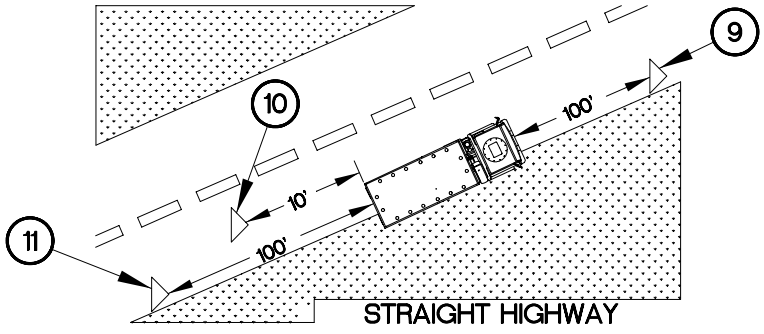
4. Remove emergency marker kit (4) from tool box.
5. Remove three markers (5) from emergency marker kit (4).
6. Attach two ends of marker arms (6) with pin (7).
7. Rotate marker arms (6) approximately 1/2 turn on base (8).
8. Perform steps 4 through 6 for second and third markers.



5000A02-

PLACING MARKERS ON UNDIVIDED, STRAIGHT HIGHWAY

1. Place one marker (9) approximately 100 ft (30 m) in front of vehicle with marker facing approaching traffic.
2. Place second marker (10) approximately 10 ft (3 m) behind vehicle and about 5 ft (1.5 m) out from side of vehicle with marker facing approaching traffic.
3. Place third marker (11) approximately 100 ft (30 m) behind vehicle with marker facing approaching traffic.



5000A03-

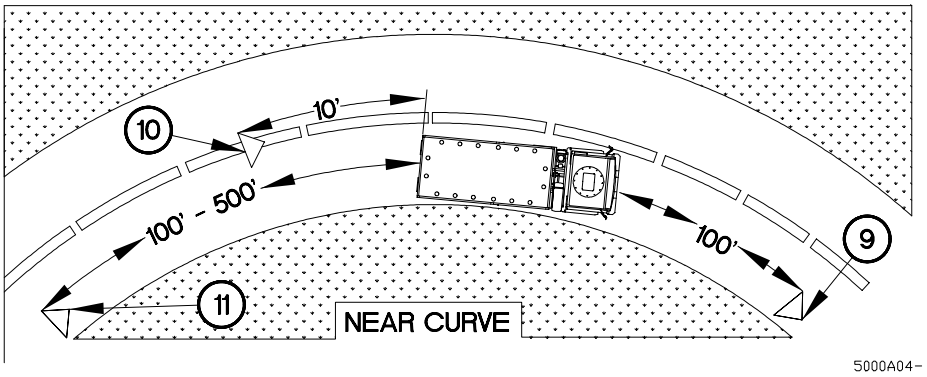
HIGHWAY EMERGENCY MARKER KIT SETUP - Continued 0050 00

PLACING MARKERS ON UNDIVIDED, CURVED HIGHWAY

1. Place one marker (9) approximately 100 ft (30 m) in front of vehicle with marker facing approaching traffic.

2. Place second marker (10) approximately 10 ft (3 m) behind vehicle and about 5 ft (1.5 m) out from side of vehicle with marker facing approaching traffic.

3. Place third marker (11) approximately 100 to 500 ft (30 to 150 m) behind vehicle with marker facing approaching traffic and visible before traffic reaches curve.



PLACING MARKERS ON UNDIVIDED HIGHWAY WITH HILLS

WARNING

Vehicle must be secure. Chock wheels when stopped on incline. Vehicle may roll downhill. Failure to comply may result in serious injury to death to personnel or damage to equipment.

1. Chock wheels (WP 0016 00).

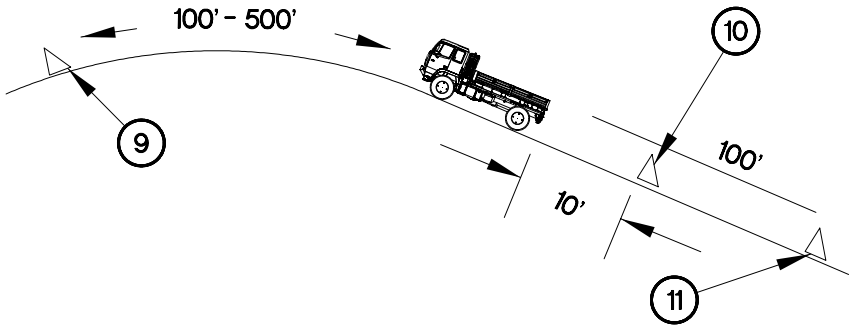
HIGHWAY EMERGENCY MARKER KIT SETUP - Continued 0050 00

PLACING MARKERS ON UNDIVIDED HIGHWAY WITH HILLS - Continued

2. Place one marker (9) approximately 100 to 500 ft (30 to 150 m) in front of vehicle with marker facing approaching traffic and visible before traffic reaches top of hill.

3. Place second marker (10) approximately 10 ft (3 m) behind vehicle and about 5 ft (1.5 m) out from side of vehicle with marker facing approaching traffic.

4. Place third marker (11) approximately 100 ft (30 m) behind vehicle with marker facing approaching traffic.



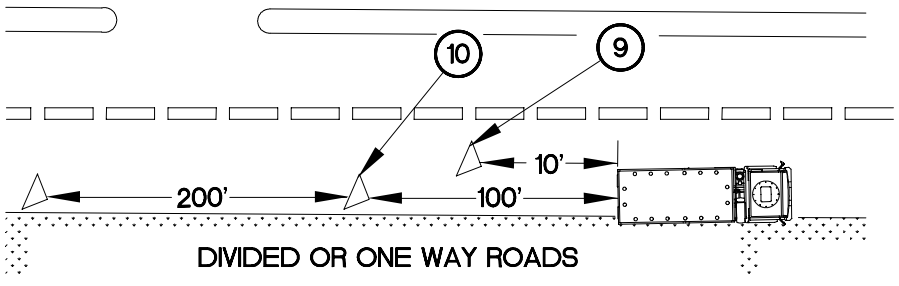
NEAR TOP OF HILL

5000A05-

PLACING MARKERS ON DIVIDED HIGHWAY OR ONE WAY ROAD

1. Place one marker (9) approximately 10 ft (3 m) behind vehicle and about 5 ft (1.5 m) out from one side of vehicle with marker facing approaching traffic.

2. Place second marker (10) approximately 100 ft (30 m) behind vehicle with marker facing approaching traffic.



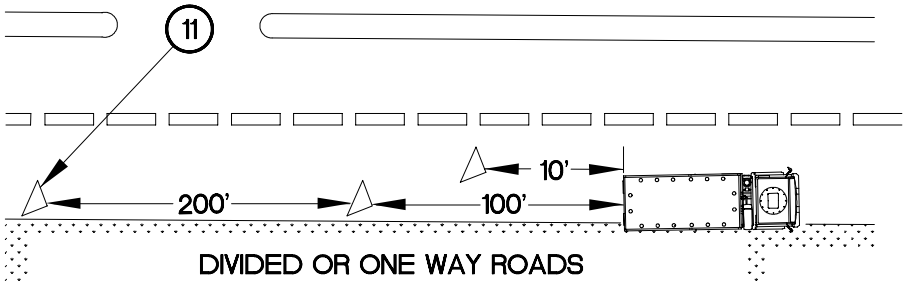
DIVIDED OR ONE WAY ROADS

5000A06-

HIGHWAY EMERGENCY MARKER KIT SETUP - Continued 0050 00

PLACING MARKERS ON DIVIDED HIGHWAY OR ONE WAY ROAD - Continued

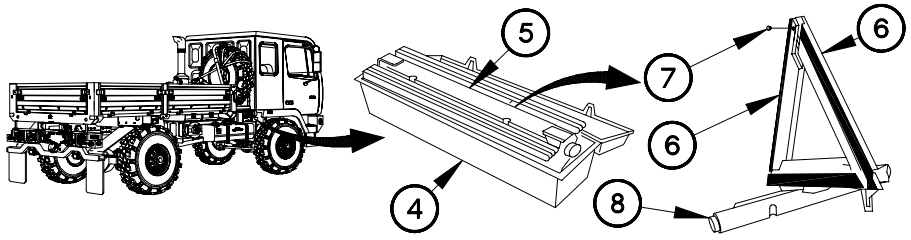
3. Place third marker (11) approximately 200 ft (60 m) behind second marker with marker facing approaching traffic.



5000A07-

STOWING MARKERS

1. Rotate marker arms (6) approximately 1/2 turn on base (8).
2. Separate marker arms (6) by removing pin (7).
3. Fold marker arms (6) down to base (8).
4. Perform steps 1 through 3 for second and third markers.
5. Stow three markers (5) in emergency marker kit (4).
6. Stow emergency marker kit (4) in tool box.

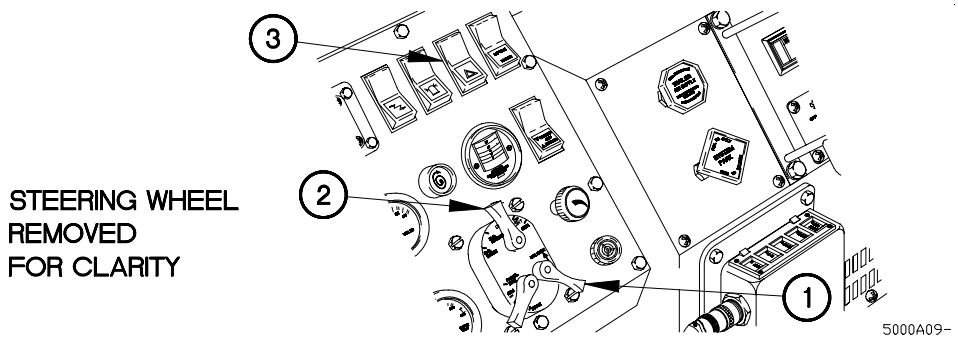


5000A08-

HIGHWAY EMERGENCY MARKER KIT SETUP - Continued 0050 00

STOWING MARKERS - Continued

7. Position hazard lights switch (3) to off.
8. Lift and hold UNLOCK lever (1).
9. Position main selector lever (2) to OFF.



END OF OPERATING PROCEDURE

TOWBAR CONNECTION/DISCONNECTION 0051 00

INITIAL SETUP:

Maintenance Level	Personnel Required
Operator	Three

GENERAL

This work package provides the data and procedures for Towbar Connection and Towbar Disconnection.

TOWBAR CONNECTION

WARNING

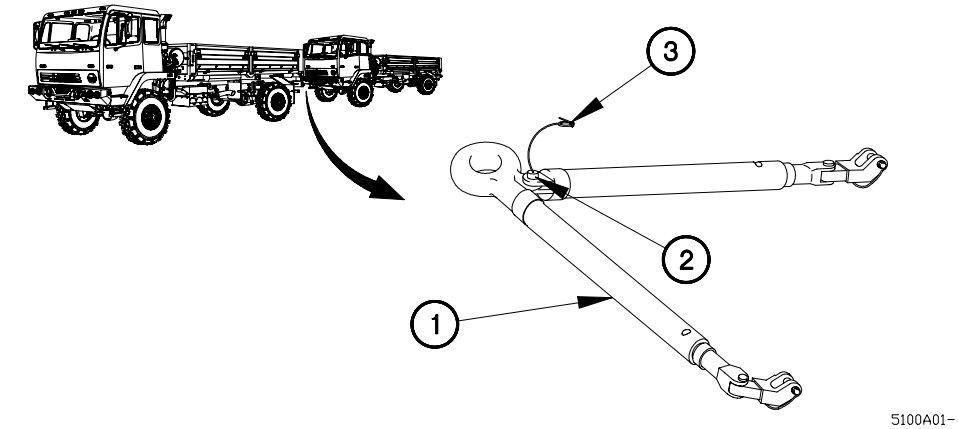
Towing vehicle and disabled vehicle must have parking brakes applied before connecting/disconnecting towbar. Vehicles may roll into each other. Failure to comply may result in serious injury or death to personnel.

Towbar weighs approximately 100 lbs (45 kgs) and requires two or more personnel to carry. Failure to comply may result in injury to personnel.

NOTE

Step 1 requires the aid of an assistant.

1. Position rear of towing vehicle near front of disabled vehicle.
2. Position towbar (1) between vehicles.
3. Remove linchpin (2) from pin (3).



5100A01-

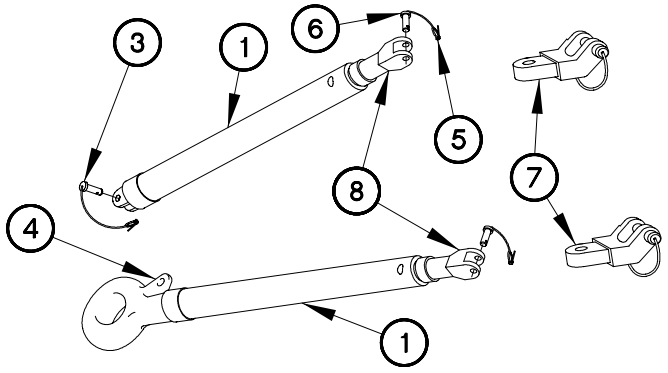
TOWBAR CONNECTION/DISCONNECTION - Continued 0051 00

TOWBAR CONNECTION - Continued

4. Remove pin (3) from towbar (1).

5. Separate towbar (1) at pivot point (4).

6. Remove two linchpins (5), pins (6), and towbar adapters (7) from towbar clevises (8).

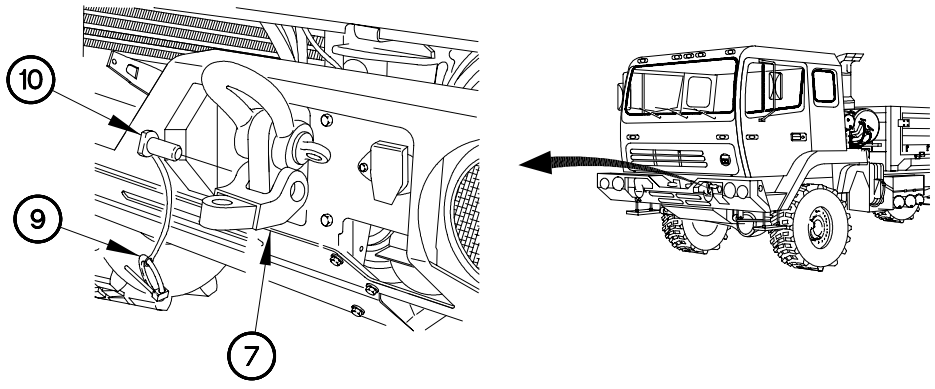


5100A02-

NOTE

Left and right side towbar adapters are installed on tow eyes the same way. Left side shown.

7. Remove two linchpins (9) and pins (10) from towbar adapters (7).



5100A03-

TOWBAR CONNECTION/DISCONNECTION - Continued 0051 00

TOWBAR CONNECTION - Continued

NOTE

It may be necessary to remove shackles on some vehicles.

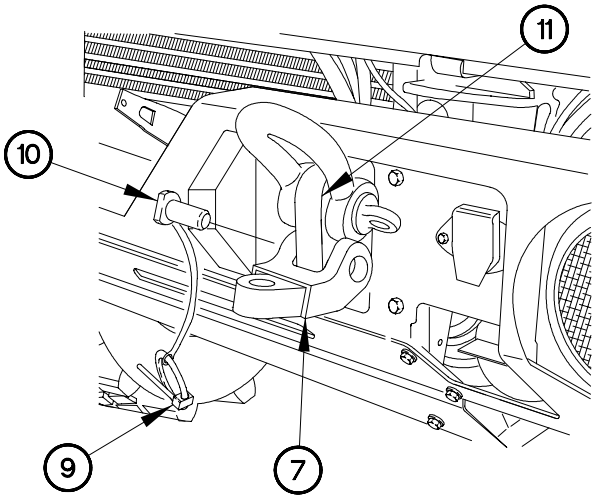
8. Install two towbar adapters (7) on tow eyes (11) of disabled vehicle.

CAUTION

Ensure pins are installed with linchpin holes down. Failure to comply may result in damage to equipment.

9. Position two pins (10) in towbar adapters (7).

10. Install two linchpins (9) in pins (10).



5100A04-

TOWBAR CONNECTION/DISCONNECTION - Continued 0051 00

TOWBAR CONNECTION - Continued

WARNING

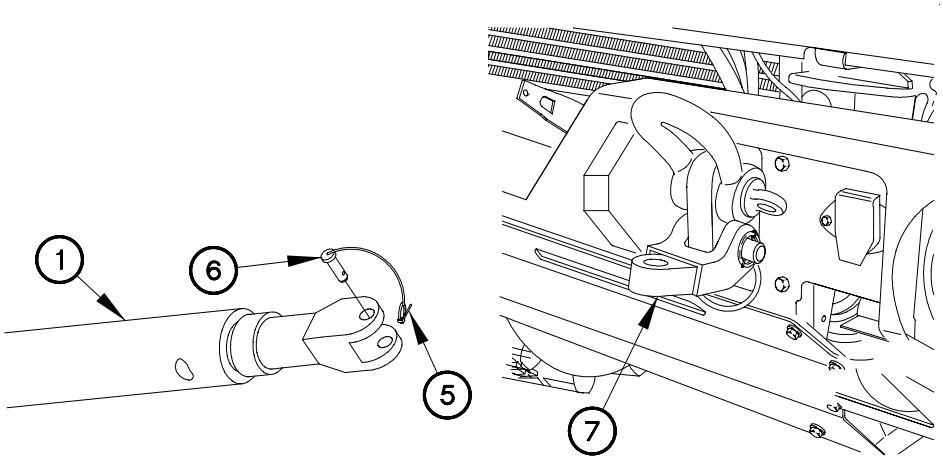
Towbar weighs approximately 100 lbs (45 kgs) and requires two or more personnel to carry. Failure to comply may result in injury to personnel.

NOTE

Left and right sides of towbar are installed on towbar adapters the same way. Left side shown.

Step 11 requires the aid of an assistant.

11. Position towbar (1) on two towbar adapters (7).
12. Install two pins (6) in towbar (1) and towbar adapters (7).
13. Install two linchpins (5) in pins (6).



5100A05-

TOWBAR CONNECTION/DISCONNECTION - Continued 0051 00

TOWBAR CONNECTION - Continued

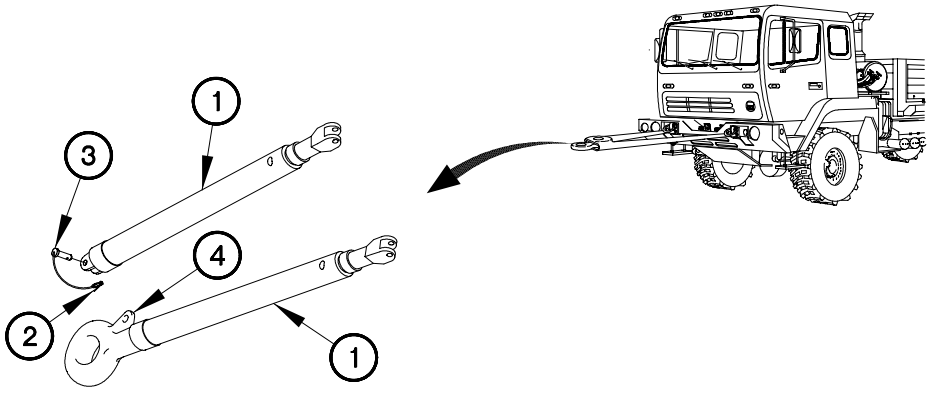
14. Align left and right sides of towbar (1) at pivot point (4).

CAUTION

Ensure pins are installed with linchpin hole down. Failure to comply may result in damage to equipment.

15. Install pin (3) in towbar (1).

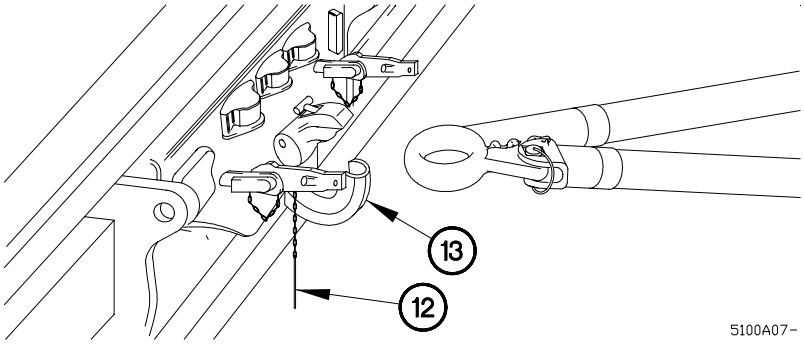
16. Install linchpin (2) in pin (3).



5100A06-

17. Remove cotter pin (12) from pintle towing hook (13).

18. Open pintle towing hook (13).



5100A07-

TOWBAR CONNECTION/DISCONNECTION - Continued 0051 00

TOWBAR CONNECTION - Continued

WARNING

Ground guide is required to guide vehicle backing up. Failure to comply may result in injury to personnel or damage to equipment.

Do not place hands near pintle hook when connecting/disconnecting towbar from pintle towing hook. Failure to comply may result in injury to personnel.

NOTE

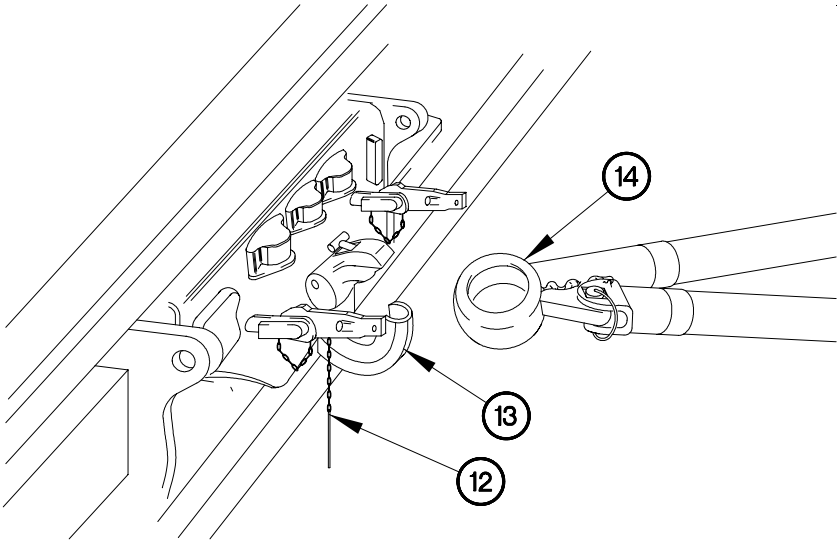
Steps 19 and 20 require the aid of an assistant.

19. Slowly back up towing vehicle until towbar eye (14) is aligned with pintle towing hook (13).

20. Connect towbar eye (14) to pintle towing hook (13).

21. Close pintle towing hook (13).

22. Install cotter pin (12) in pintle towing hook (13).



5100A08-

TOWBAR CONNECTION/DISCONNECTION - Continued 0051 00

TOWBAR CONNECTION - Continued

23. Release parking brakes of disabled vehicle (refer to disabled vehicle operator's manual).

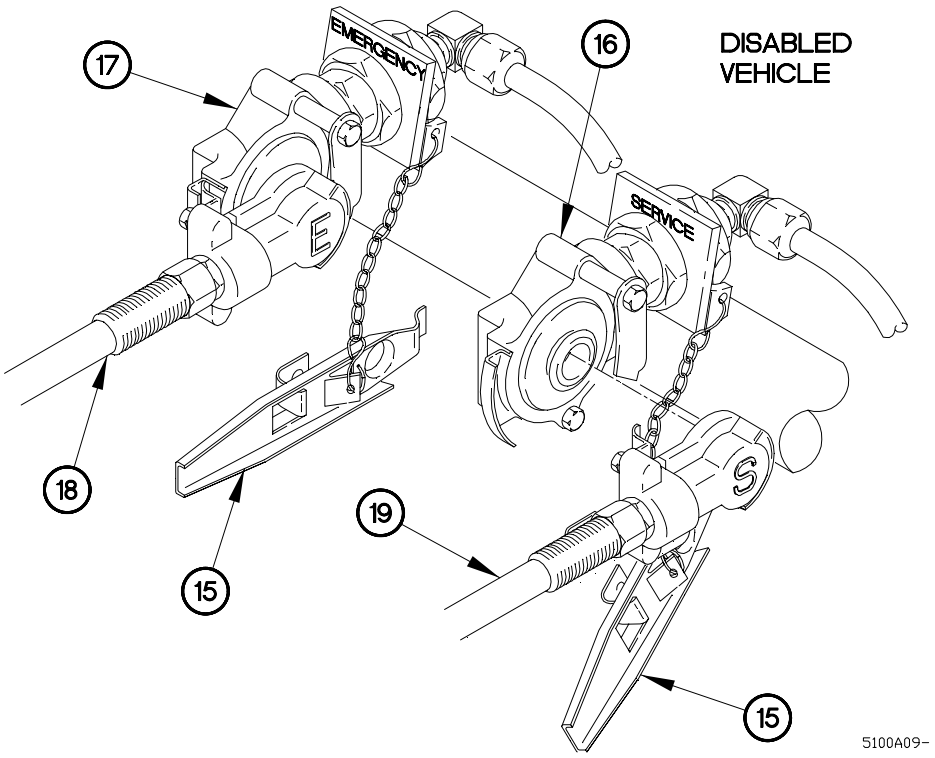
24. Remove two dummy couplings (15) from SERVICE gladhand (16) and EMERGENCY gladhand (17) on front of disabled vehicle.

WARNING

Listen for air leaks coming from the connections at the SERVICE and EMERGENCY gladhands. Failure to comply may result in serious injury or death to personnel or damage to equipment.

25. Connect intervehicular air hose (18) to EMERGENCY gladhand (17) of disabled vehicle.

26. Connect intervehicular air hose (19) to SERVICE gladhand (16) of disabled vehicle.



TOWBAR CONNECTION/DISCONNECTION - Continued 0051 00

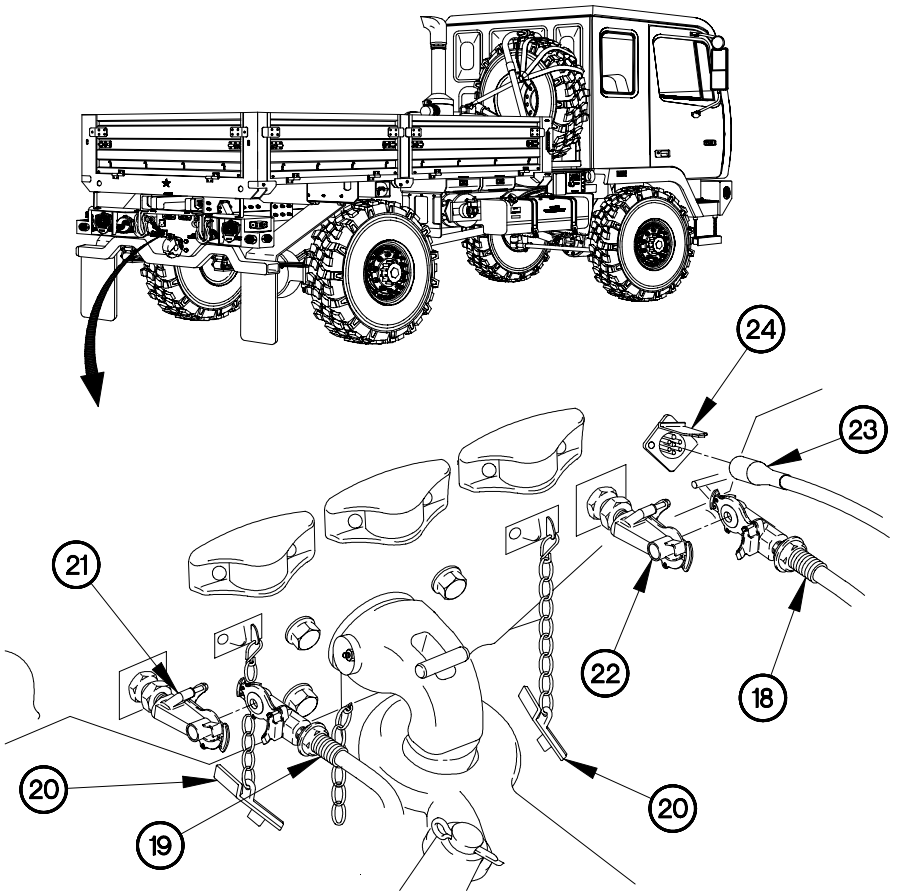
TOWBAR CONNECTION - Continued

27. Remove two dummy couplings (20) from SERVICE gladhand (21) and EMERGENCY gladhand (22) of towing vehicle.

28. Connect intervehicular air hose (18) to EMERGENCY gladhand (22).

29. Connect intervehicular air hose (19) to SERVICE gladhand (21).

30. Connect intervehicular cable (23) to rear receptacle (24) of towing vehicle.



TOWBAR CONNECTION/DISCONNECTION - Continued 0051 00

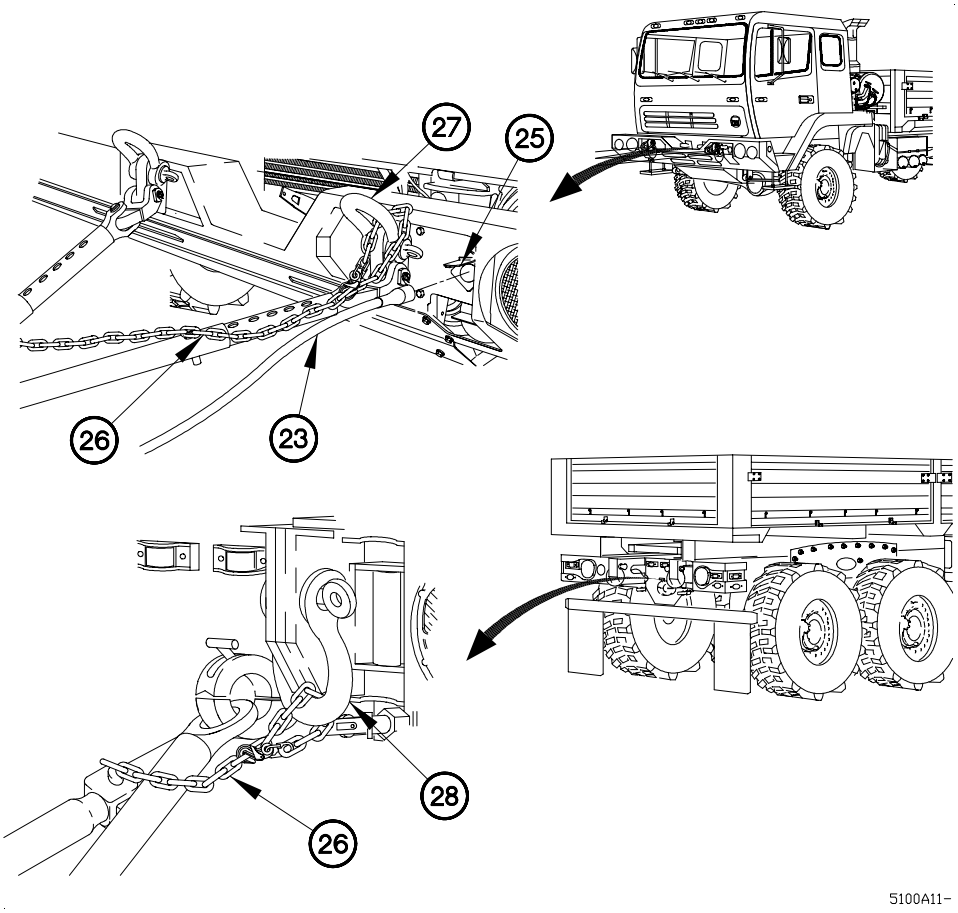
TOWBAR CONNECTION - Continued

31. Connect intervehicular electrical cable (23) to front receptacle (25) of disabled vehicle.

NOTE

Left and right side chains are installed the same way. Right side shown.

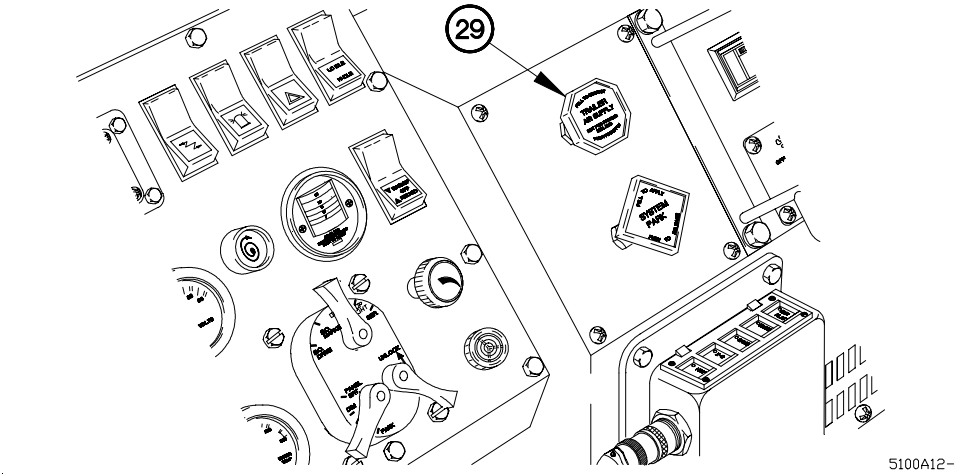
32. Attach two chains (26) to shackles (27) on disabled vehicle and to shackles (28) on towing vehicle.



TOWBAR CONNECTION/DISCONNECTION - Continued 0051 00

TOWBAR DISCONNECTION

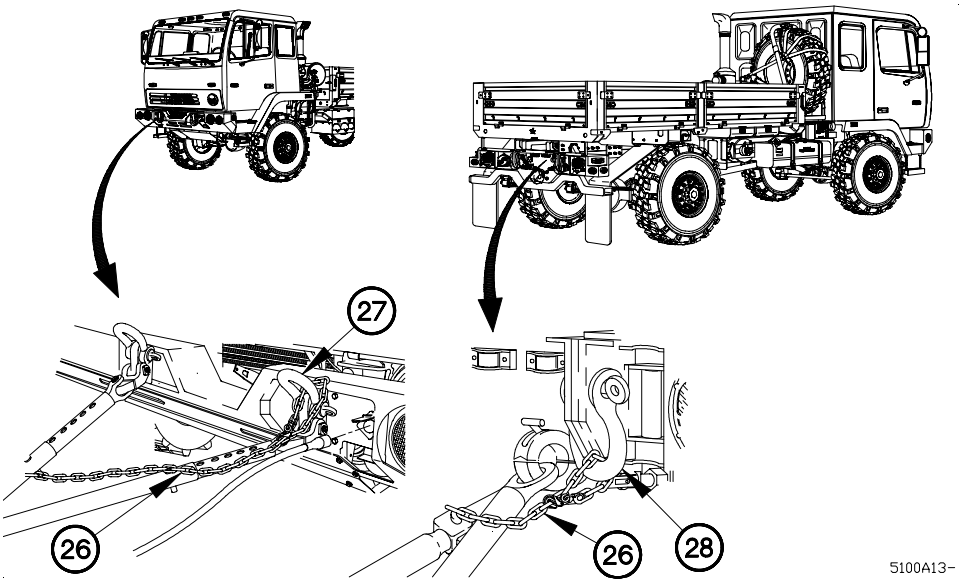
1. Pull out TRAILER AIR SUPPLY control (29) on towing vehicle.



NOTE

Left and right side chains are removed the same way. Right side shown.

2. Disconnect two chains (26) from shackles (28) of towing vehicle and from shackles (27) on disabled vehicle.

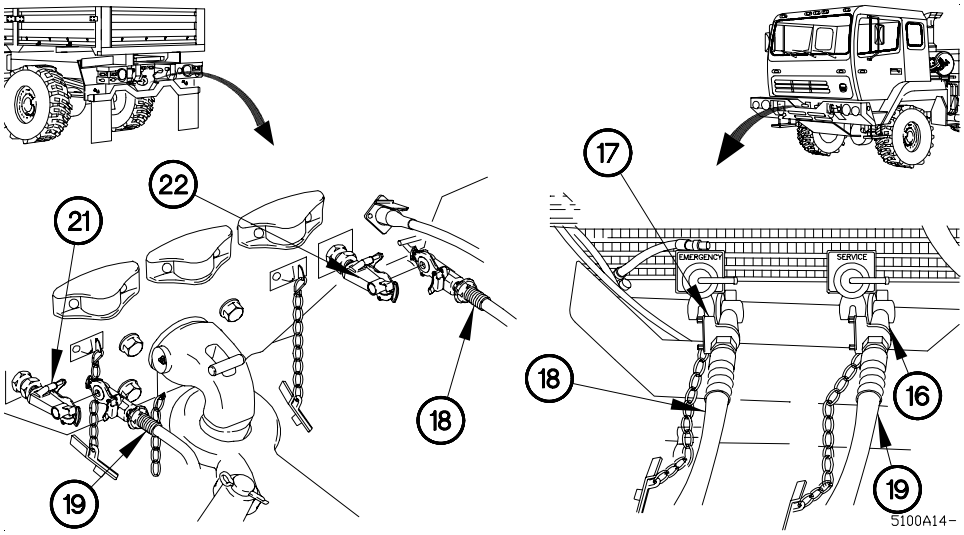


TOWBAR CONNECTION/DISCONNECTION - Continued 0051 00

TOWBAR DISCONNECTION - Continued

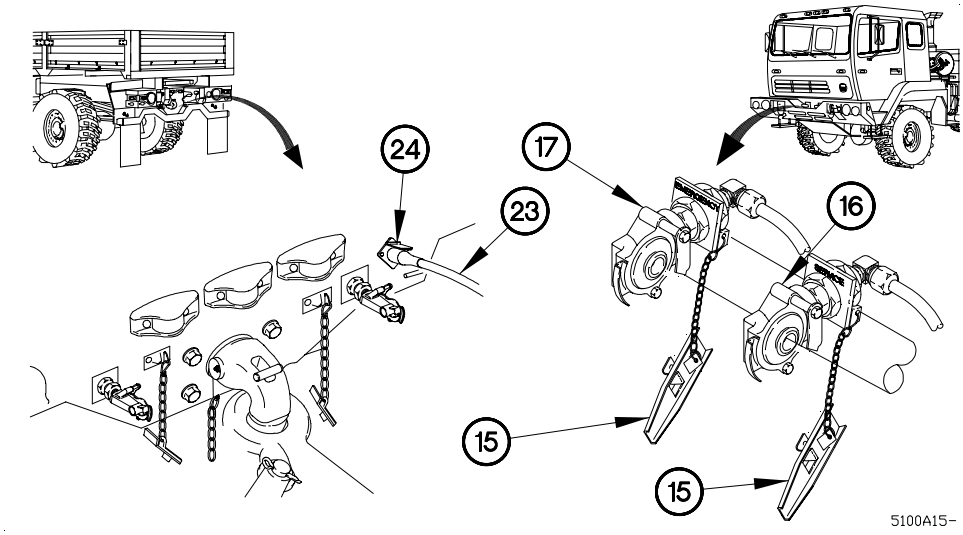
3. Disconnect intervehicular air hose (19) from SERVICE gladhand (21) of towing vehicle and SERVICE gladhand (16) on disabled vehicle.

4. Disconnect intervehicular air hose (18) from EMERGENCY gladhand (22) of towing vehicle and EMERGENCY gladhand (17) on disabled vehicle.



5. Install dummy couplings (15) on SERVICE and EMERENCY gladhands (16 and 17) of disabled vehicle.

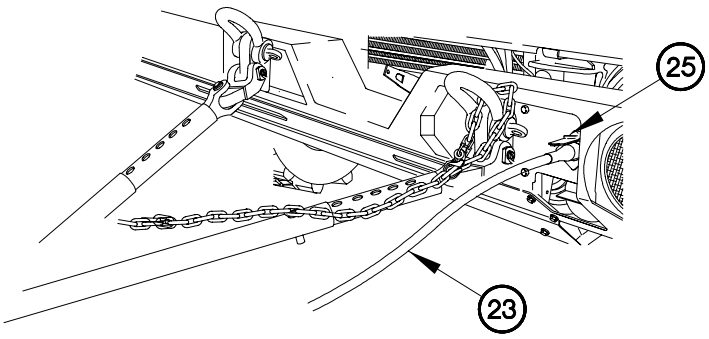
6. Disconnect intervehicular cable (23) from rear receptacle (24) on towing vehicle.



TOWBAR CONNECTION/DISCONNECTION - Continued 0051 00

TOWBAR DISCONNECTION - Continued

7. Disconnect intervehicular cable (23) from front receptacle (25) on disabled vehicle.

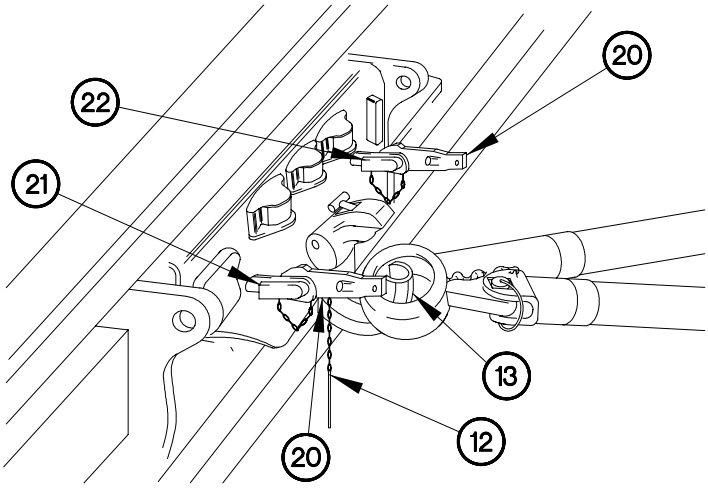


5100A16-

8. Install dummy couplings (20) on SERVICE and EMERGENCY gladhands (21 and 22) of towing vehicle.

9. Remove cotter pin (12) from pintle towing hook (13).

10. Open pintle towing hook (13).



5100A17-

TOWBAR CONNECTION/DISCONNECTION - Continued 0051 00

TOWBAR DISCONNECTION - Continued

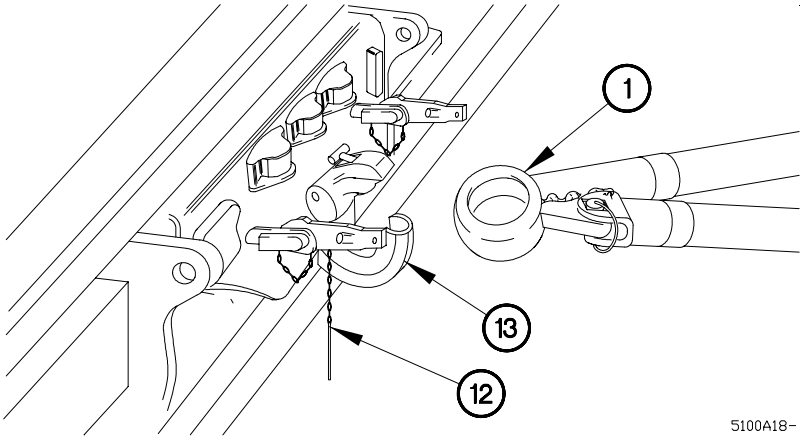
WARNING

Do not place hands near pintle hook when connecting/disconnecting towbar from pintle towing hook. Failure to comply may result in injury to personnel.

NOTE

Steps 11 and 12 require the aid of an assistant.

11. Remove towbar (1) from pintle towing hook (13).
12. Drive towing vehicle forward. When towing vehicle is clear, lower towbar (1) to ground.
13. Close pintle towing hook (13).
14. Install cotter pin (12) in pintle towing hook (13).

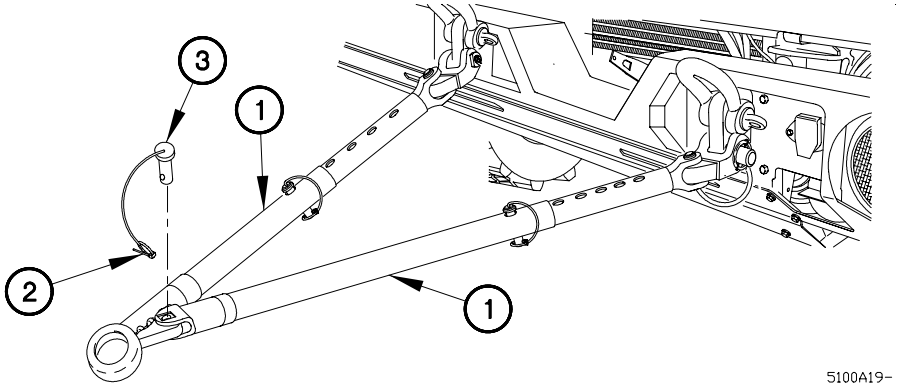


TOWBAR CONNECTION/DISCONNECTION - Continued 0051 00

TOWBAR DISCONNECTION - Continued

15. Remove linchpin (2) and pin (3) from towbar (1).

16. Separate left and right sides of towbar (1).



5100A19-

WARNING

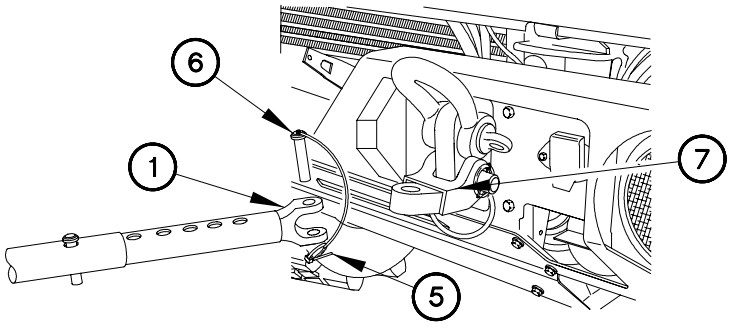
Towbar weighs approximately 100 lbs (45 kgs) and requires two or more personnel to carry. Failure to comply may result in injury to personnel.

NOTE

Left and right sides of towbar are removed the same way. Left side shown.

Step 17 requires the aid of an assistant.

17. Remove two linchpins (15), pins (6), and towbar (1) from two towbar adapters (7).



5100A20-

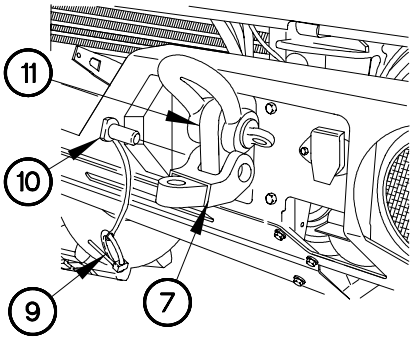
TOWBAR CONNECTION/DISCONNECTION - Continued 0051 00

TOWBAR DISCONNECTION - Continued

NOTE

Left and right side towbar adapters are removed the same way. Left side shown.

18. Remove two linchpins (9), pins (10), and towbar adapters (7) from tow eyes (11).



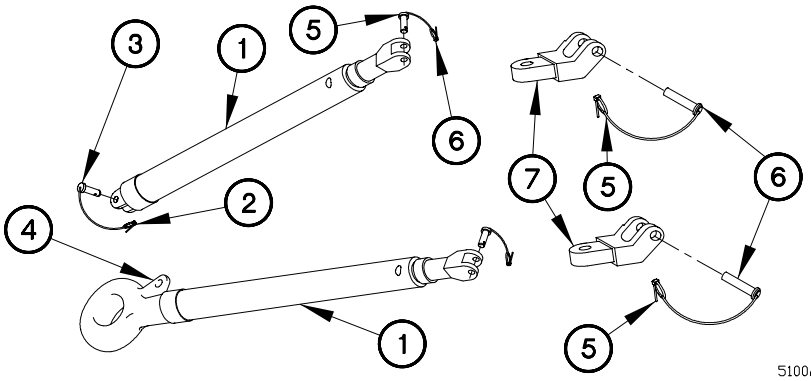
5100A21-

19. Align left and right sides of towbar (1) at pivot point (4).

20. Install two pins (6) and linchpins (5) in towbar adapters (7).

21. Install towbar adapters (7) on towbar (1) with two pins (6) and two linchpins (22).

22. Install pin (3) and linchpin (2) in towbar (1).



5100A22-

END OF OPERATING PROCEDURE

TOWING DISABLED VEHICLE 0052 00

INITIAL SETUP:

Maintenance Level
Operator

References
FM 20-22
FM 21-305
WP 0016 00
WP 0051 00

GENERAL

This work package provides the data and procedures for towing an M1078/M1078A1 series vehicle. Items covered include Towbar Connection, Preparation Of Disabled Vehicle (M1078/M1078A1 Series), and Preparation Of Towing Vehicle.

NOTE

Perform this work package if disabled vehicle is a M1078/M1078A1 series vehicle. If disabled vehicle is another series vehicle, refer to Operator's manual for that vehicle.

TOWBAR CONNECTION

WARNING

Do not flat tow a fully loaded LMTV and trailer combination. The FMTV Wrecker towbar can be damaged if wight capacity is exceeded. Failure to comply may result in serious injury or death to personnel or damage to equipment.

When towing a vehicle with nonfunctional brakes, use extreme caution and reduce/adjust speed accordingly. Failure to comply may result in serious injury or death to personnel or damage to equipment.

Connect towbar between towing vehicle and disabled vehicle (WP 0051 00).

PREPARATION OF DISABLED VEHICLE (M1078/M1078A1 SERIES)

CAUTION

Drive shafts must be disconnected if disabled M1078/M1078A1 series vehicle is flat towed (all wheels in contact with ground) over 100 miles (161 km) or if towing speed is over 35 MPH. Failure to comply may result in damage to towed vehicle.

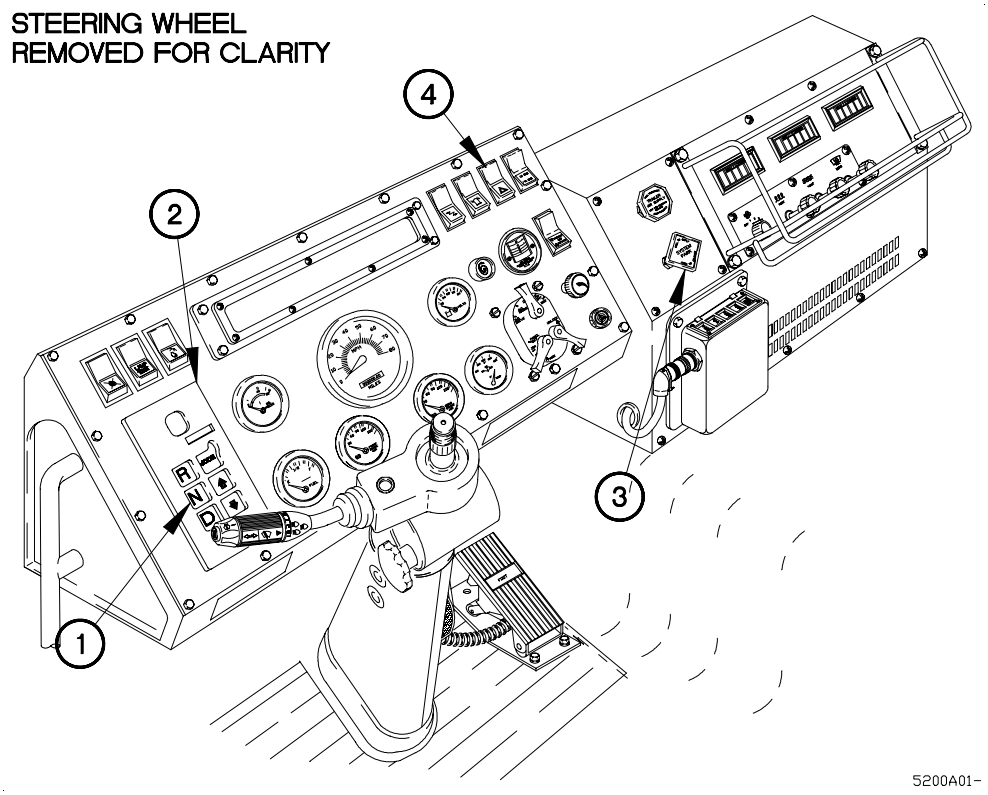
TOWING DISABLED VEHICLE - Continued 0052 00

PREPARATION OF DISABLED VEHICLE (M1078/M1078A1 SERIES) - Continued

NOTE

Disabled vehicles must be prepared and moved in accordance with FM 20-22 and FM 21-305.

1. Press N (Neutral) button (1) on WTEC III TPSS (2).
2. Push in SYSTEM PARK control (3).
3. Position hazard lights switch (4) to on.



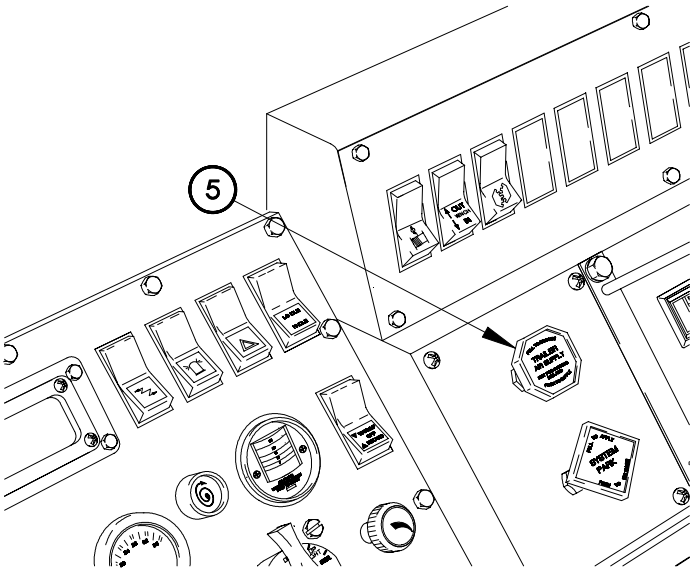
PREPARATION OF TOWING VEHICLE

1. Start engine (WP 0016 00).

TOWING DISABLED VEHICLE - Continued 0052 00

PREPARATION OF TOWING VEHICLE- Continued

2. Push in TRAILER AIR SUPPLY control (5).



WARNING

Personnel must not occupy towed vehicle during towing operation. Vehicle may become disconnected while being towed. Failure to comply may result in serious injury or death to personnel.

CAUTION

Maximum speed for flat tow of M1078/M1078A1 series vehicles is 30 mph (48 km/h). Failure to comply may result in damage to vehicle.

3. Transport disabled vehicle.

END OF OPERATING PROCEDURE

11K SELF-RECOVERY WINCH (SRW) OPERATION 0053 00

INITIAL SETUP:

Maintenance Level
Operator

References
WP 0016 00

Tool/Special Tool
Gloves, Leather
(NSN 8415-00-634-4658, WP 0095 00)

GENERAL

This work package provides the data and procedures for operating the 11K Self-Recovery Winch (SRW). Items covered include Spooling Cable To Front Of Vehicle, Spooling Cable To Rear Of Vehicle, and 11K SRW Operation.

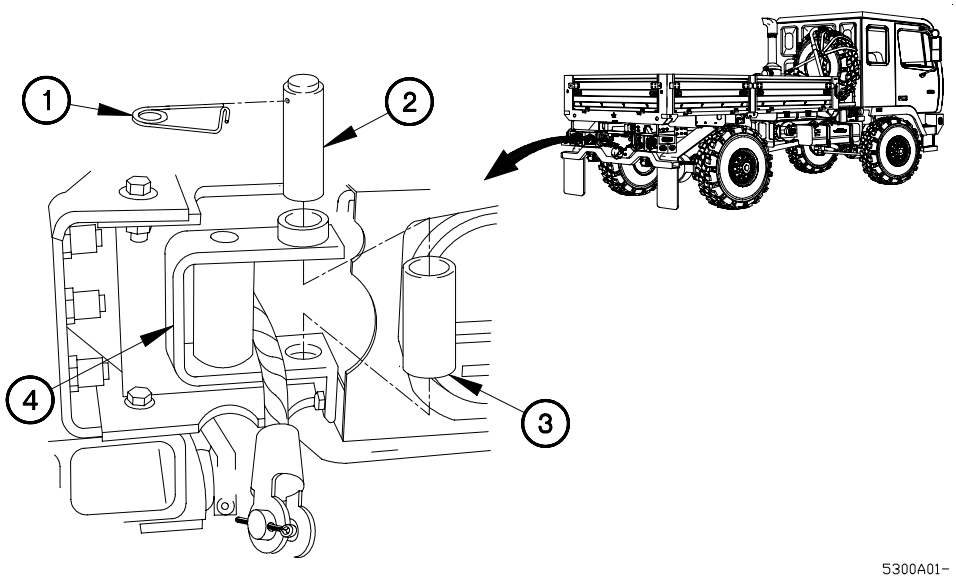
SPOOLING CABLE TO FRONT OF VEHICLE

WARNING

Wear heavy leather-palmed work gloves when handling cable. Cables can become frayed or contain broken wires. Never let moving cable slide through hands, even when wearing gloves. Failure to comply may result in serious injury to personnel.

1. Shut down engine (WP 0016 00).

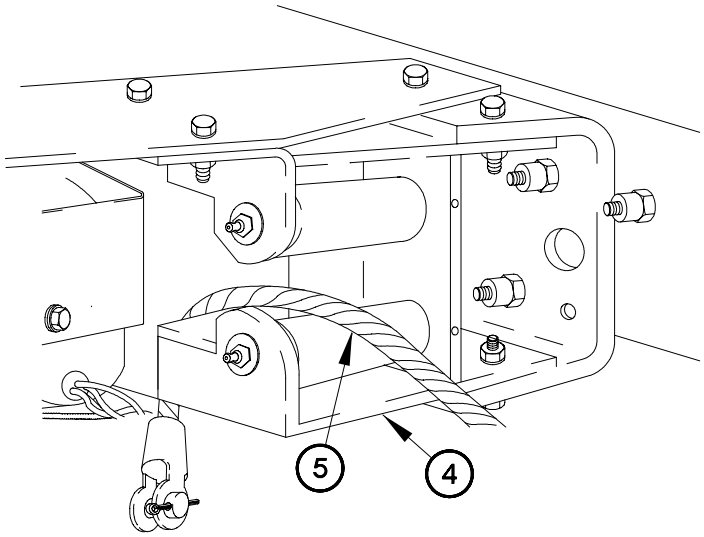
2. Remove retaining pin (1), pin (2), and roller (3) from rear roller support (4).



11K SELF-RECOVERY WINCH (SRW) OPERATION - Continued 0053 00

SPOOLING CABLE TO FRONT OF VEHICLE - Continued

3. Remove cable (5) from rear roller support (4).

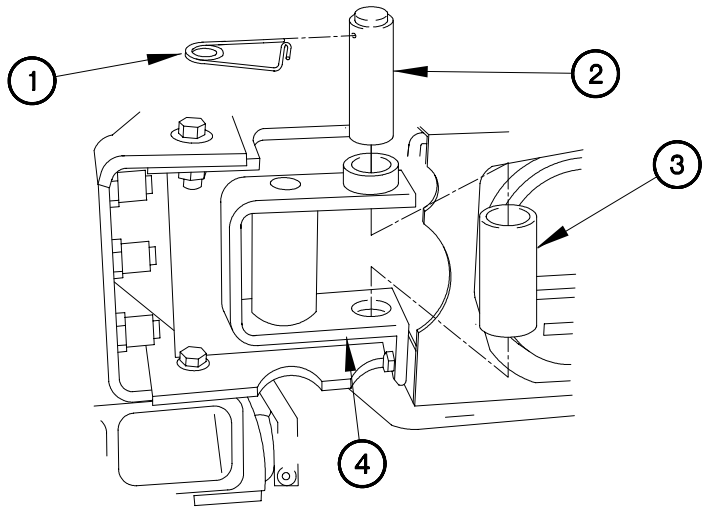


5300A02-

NOTE

Install retaining pin so that clasping end is toward curbside of vehicle.

4. Install roller (3) in rear roller support (4) with pin (2) and retaining pin (1).

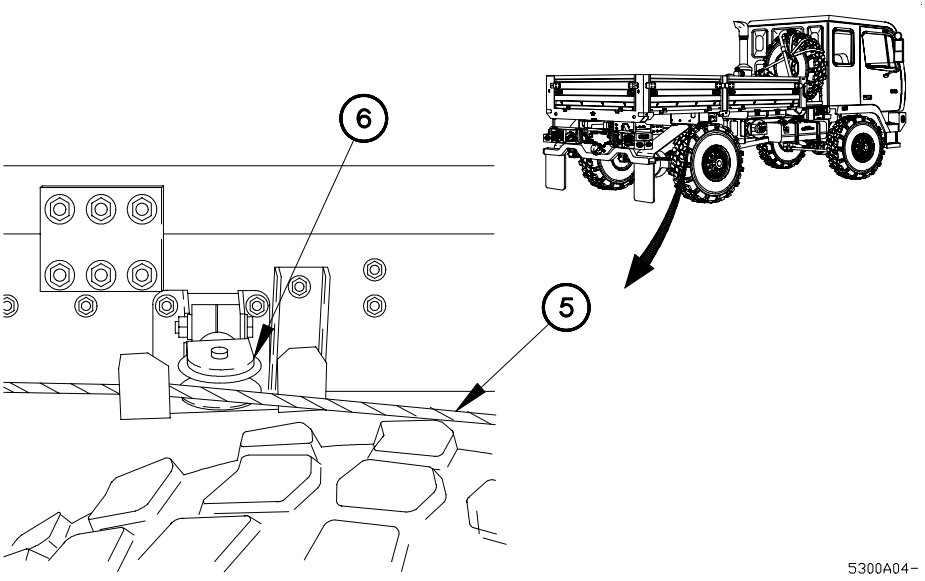


5300A03-

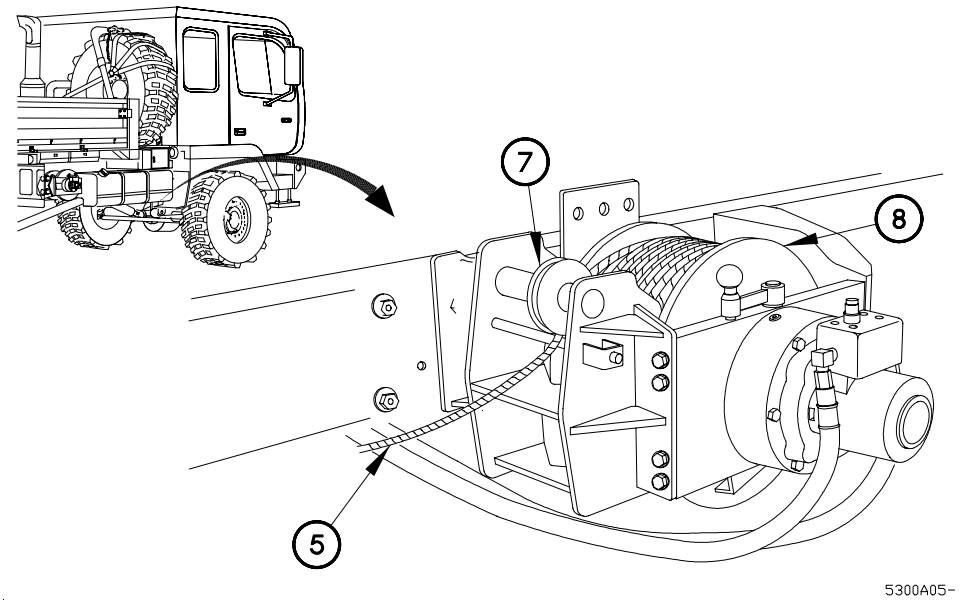
11K SELF-RECOVERY WINCH (SRW) OPERATION - Continued 0053 00

SPOOLING CABLE TO FRONT OF VEHICLE - Continued

5. Remove cable (5) from rear cable pulley (6).



6. Remove cable (5) from rear cable guide (7) on 11K SRW (8).

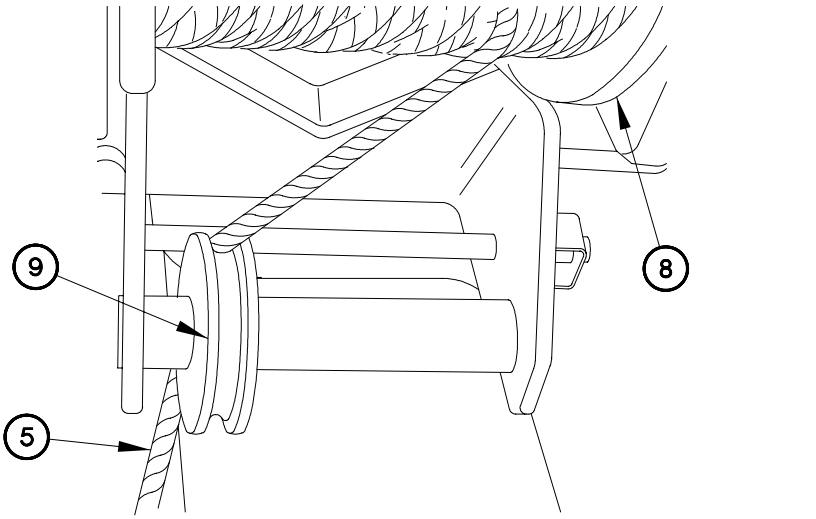


11K SELF-RECOVERY WINCH (SRW) OPERATION - Continued 0053 00

SPOOLING CABLE TO FRONT OF VEHICLE - Continued

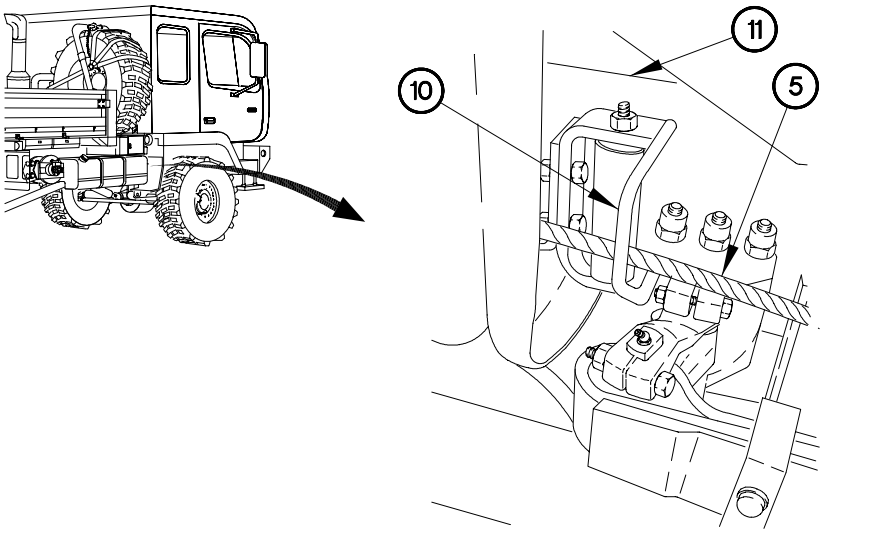
7. Position cable (5) toward front of vehicle.

8. Install cable (5) through front cable guide (9) on 11K SRW (8).



5300A06-

9. Install cable (5) through cable guide (10) behind fuel tank (11).

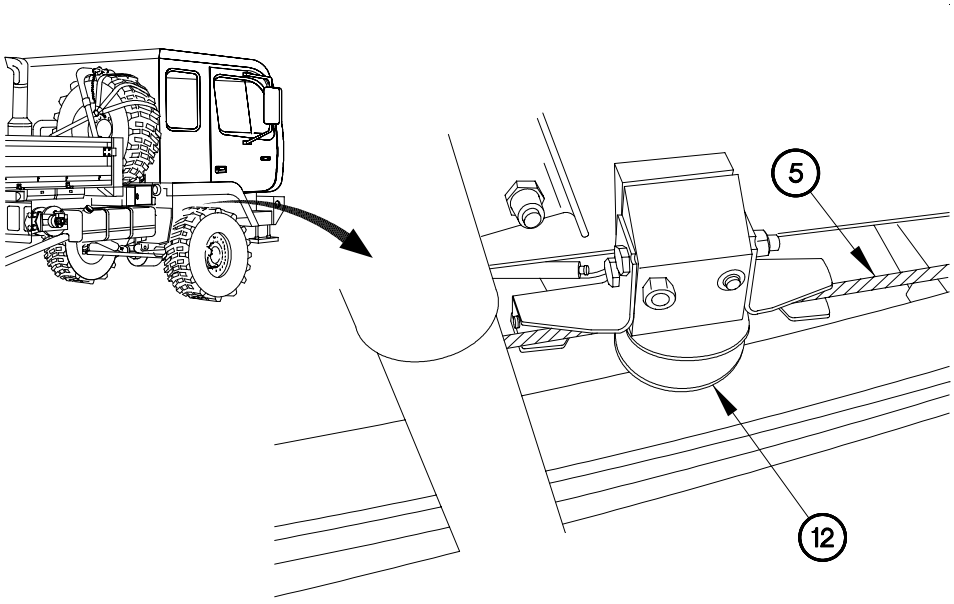


5300A07-

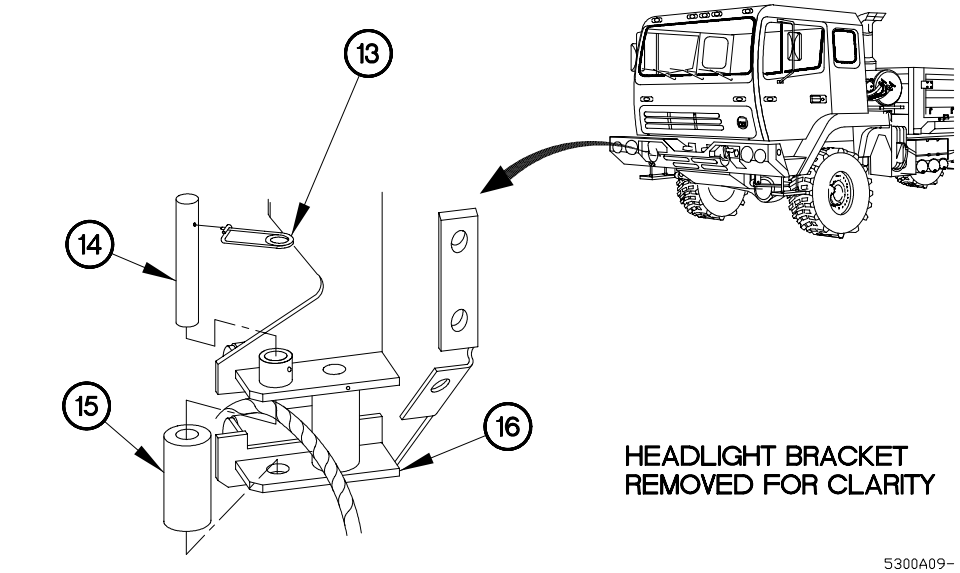
11K SELF-RECOVERY WINCH (SRW) OPERATION - Continued 0053 00

SPOOLING CABLE TO FRONT OF VEHICLE - Continued

10. Install cable (5) through front cable pulley (12).



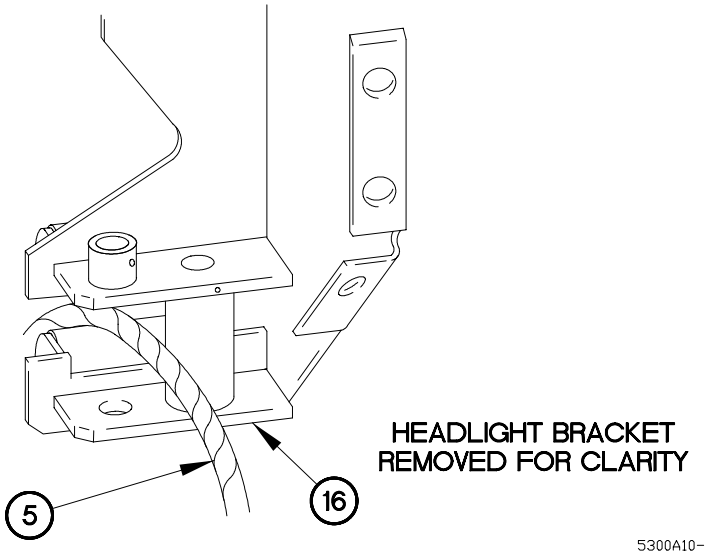
11. Remove retaining pin (13), pin (14), and roller (15) from front roller support (16).



11K SELF-RECOVERY WINCH (SRW) OPERATION - Continued 0053 00

SPOOLING CABLE TO FRONT OF VEHICLE - Continued

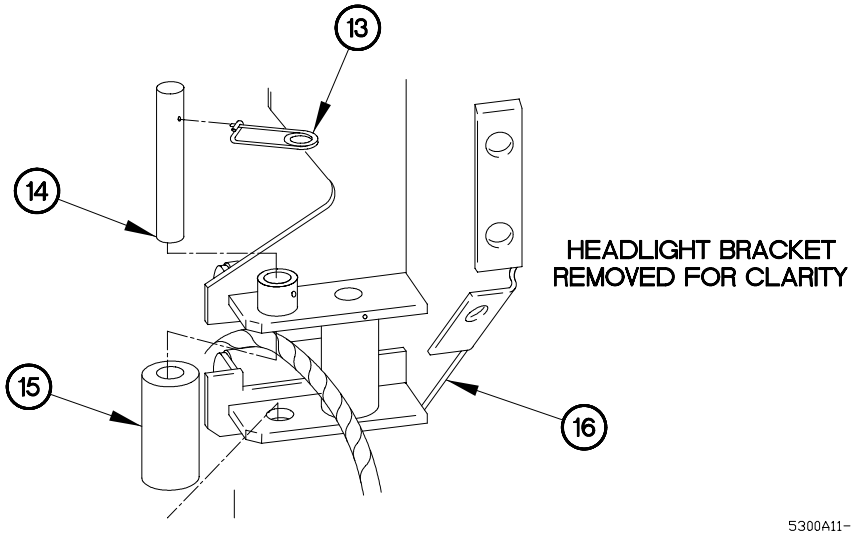
12. Install cable (5) through front roller support (16).



NOTE

Install retaining pin so that clasping end is toward curbside of vehicle.

13. Install roller (15) on front roller support (16) with pin (14) and retaining pin (13).

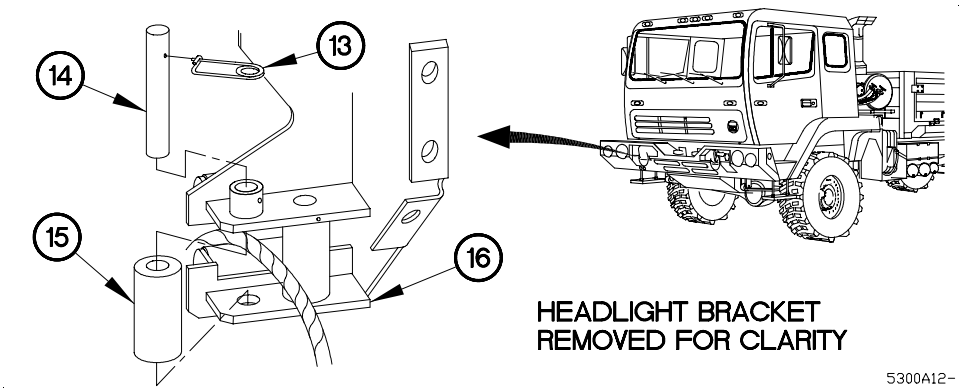


11K SELF-RECOVERY WINCH (SRW) OPERATION - Continued 0053 00

SPOOLING CABLE TO REAR OF VEHICLE

1. Shut down engine (WP 0016 00).

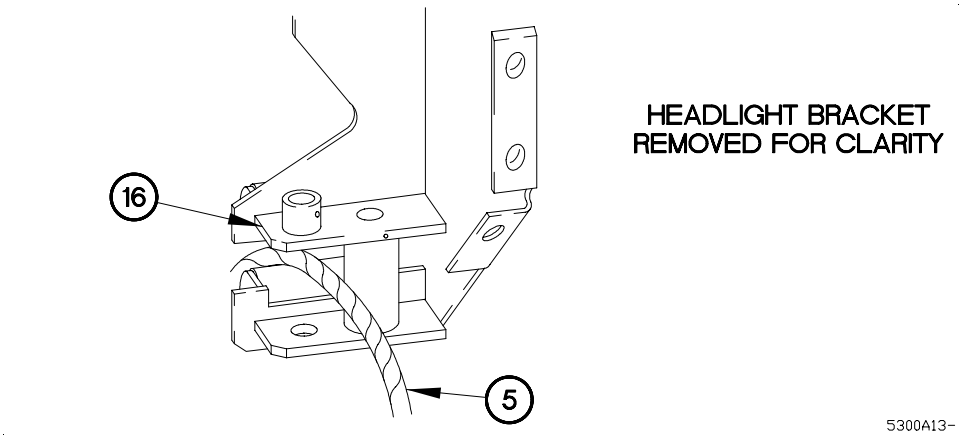
2. Remove retaining pin (13), pin (14), and roller (15) from front roller support (16).



WARNING

Wear heavy leather-palmed work gloves when handling cable. Cables can become frayed or contain broken wires. Never let moving cable slide through hands, even when wearing gloves. Failure to comply may result in injury to personnel.

3. Remove cable (5) from front roller support (16).



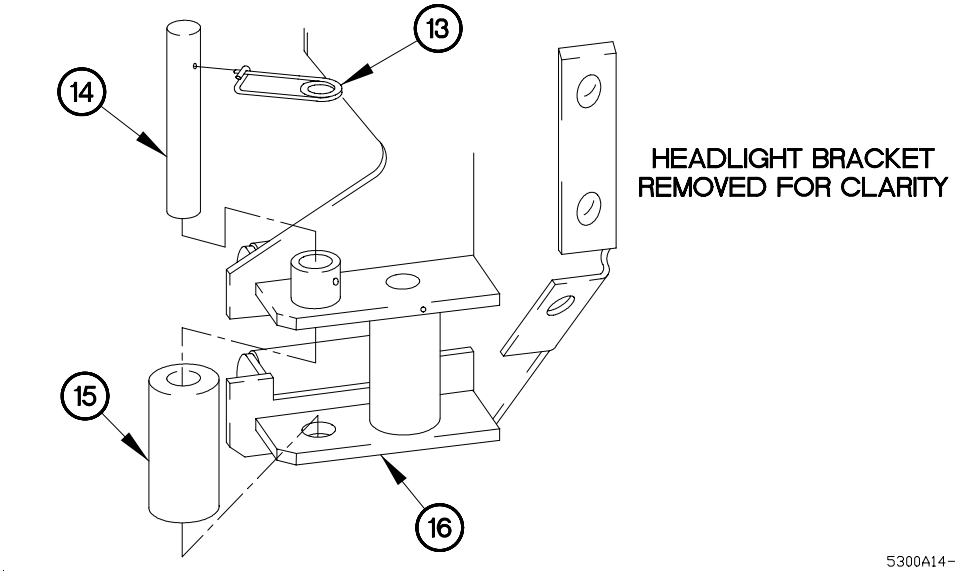
11K SELF-RECOVERY WINCH (SRW) OPERATION - Continued 0053 00

SPOOLING CABLE TO REAR OF VEHICLE - Continued

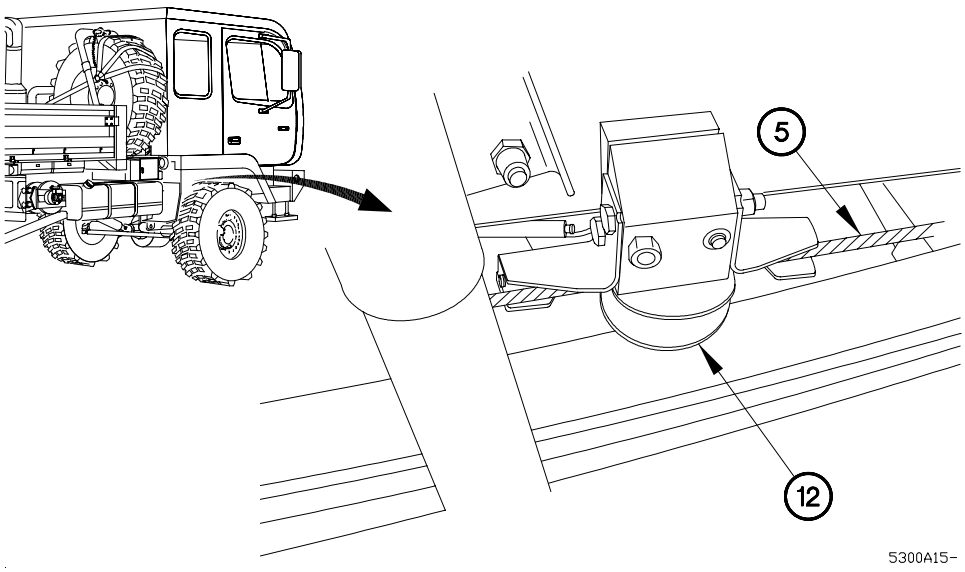
NOTE

Install retaining pin so that clasping end is toward curbside of vehicle.

4. Install roller (15) on front roller support (16) with pin (14) and retaining pin (13).



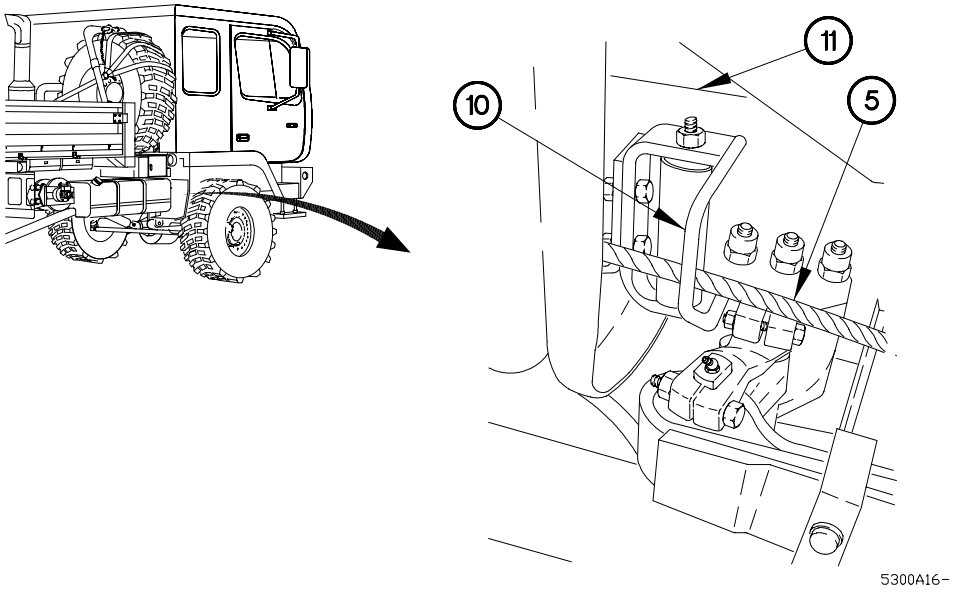
5. Remove cable (5) from front cable pulley (12).



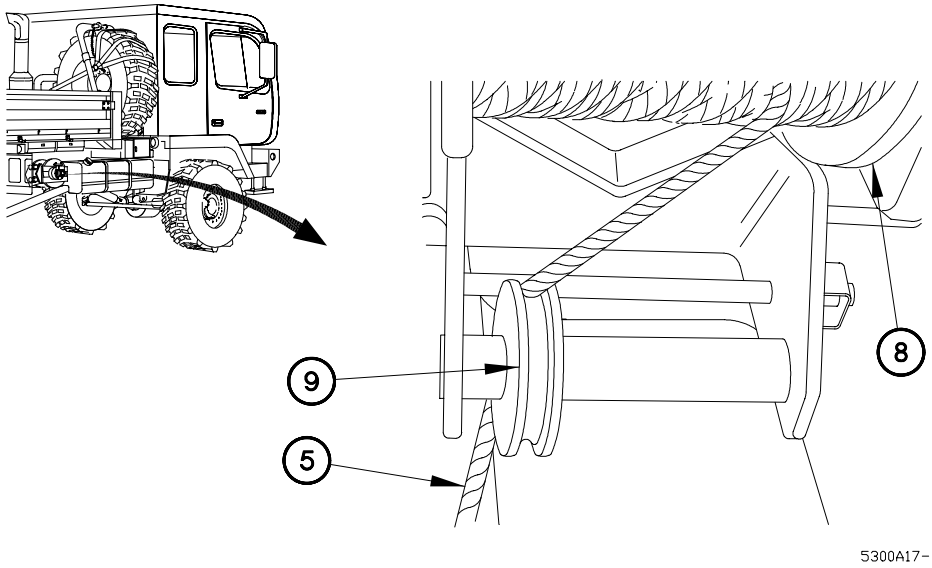
11K SELF-RECOVERY WINCH (SRW) OPERATION - Continued 0053 00

SPOOLING CABLE TO REAR OF VEHICLE - Continued

6. Remove cable (5) from cable guide (10) behind fuel tank (11).



7. Remove cable (5) from front cable guide (9) on 11K SRW (8).

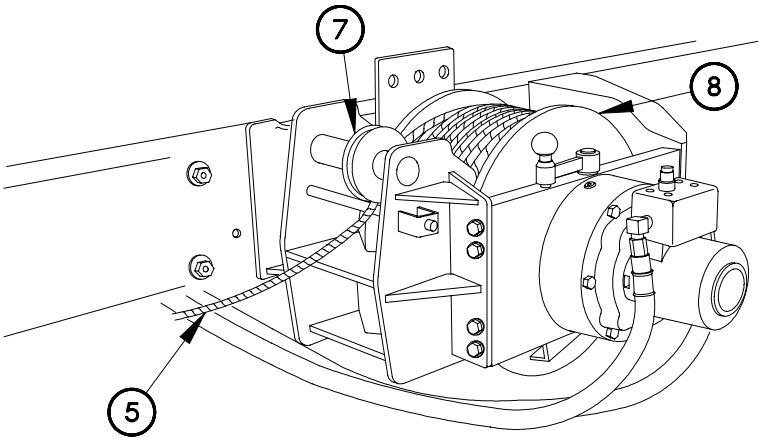


11K SELF-RECOVERY WINCH (SRW) OPERATION - Continued 0053 00

SPOOLING CABLE TO REAR OF VEHICLE - Continued

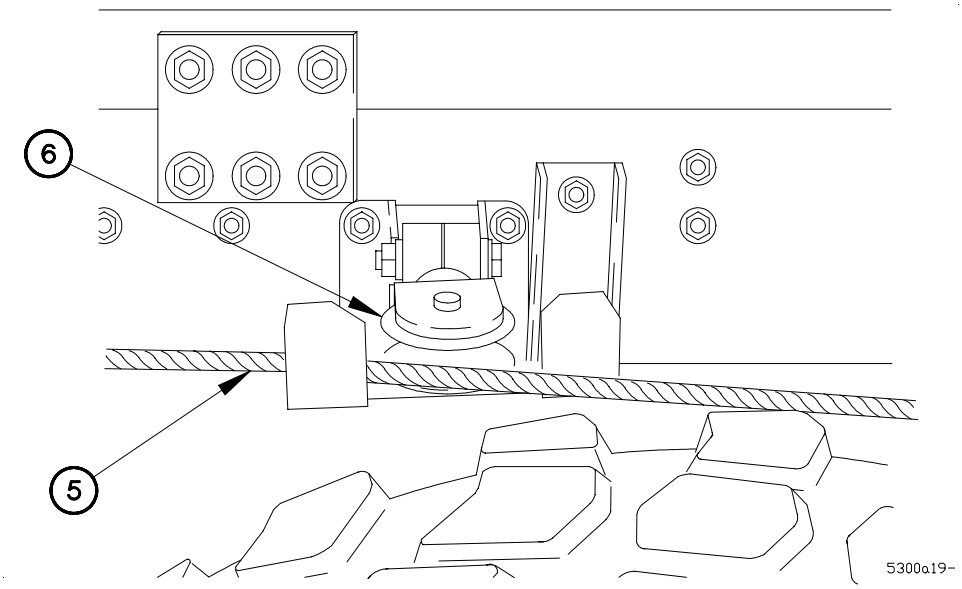
8. Position cable (5) toward rear of vehicle.

9. Install cable (5) through rear cable guide (7) on 11K SRW (8).



5300a18-

10. Install cable (5) through rear cable pulley (6).

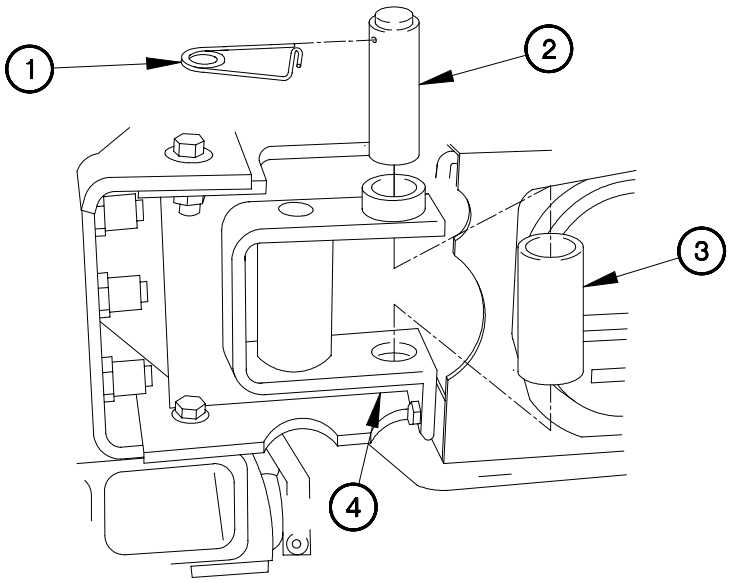


5300a19-

11K SELF-RECOVERY WINCH (SRW) OPERATION - Continued 0053 00

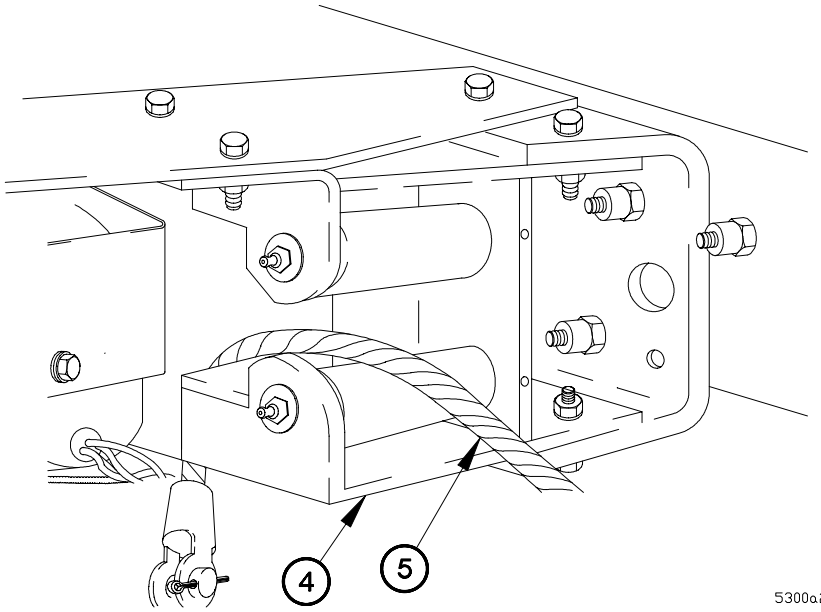
SPOOLING CABLE TO REAR OF VEHICLE - Continued

11. Remove retaining pin (1), pin (2), and roller (3) from rear roller support (4).



5300a20-

12. Install cable (5) through rear roller support (4).

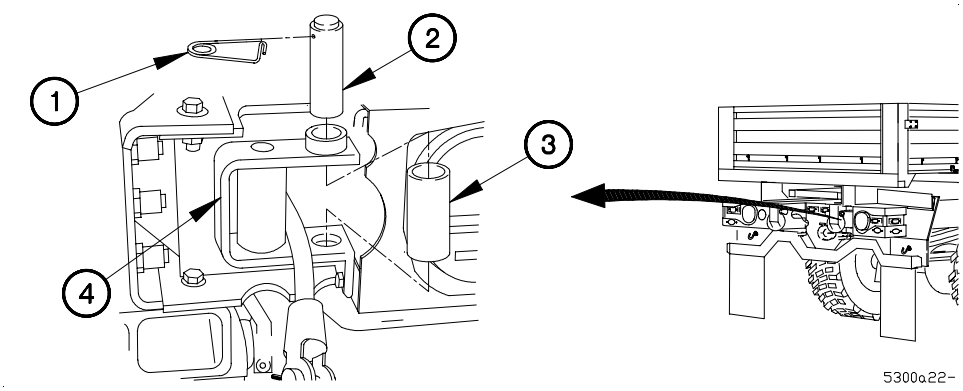


5300a21-

11K SELF-RECOVERY WINCH (SRW) OPERATION - Continued 0053 00

SPOOLING CABLE TO REAR OF VEHICLE - Continued

13. Install roller (3) in rear roller support (4) with pin (2) and retaining pin (1).



11K SRW OPERATION

WARNING

Ensure line pull does not exceed capacity of 11K Self-Recovery Winch (SRW). Failure to comply may result in serious injury or death to personnel.

Table 1. 11K SRW Pull Capacity.

Cable Layer	Maximum Line Pull
Bottom Layer (five wraps)	11,000 lbs (48,928 N)
2nd Layer	9,970 lbs (44,347 N)
3rd Layer	9,110 lbs (40,521 N)
4th Layer	8,390 lbs (37,319 N)
5th Layer	7,780 lbs (34,605 N)
6th Layer	7,250 lbs (32,248 N)
Top Layer	6,780 lbs (30,157 N)

11K SELF-RECOVERY WINCH (SRW) OPERATION - Continued 0053 00

11K SRW OPERATION - Continued

1. Shut down engine (WP 0016 00).

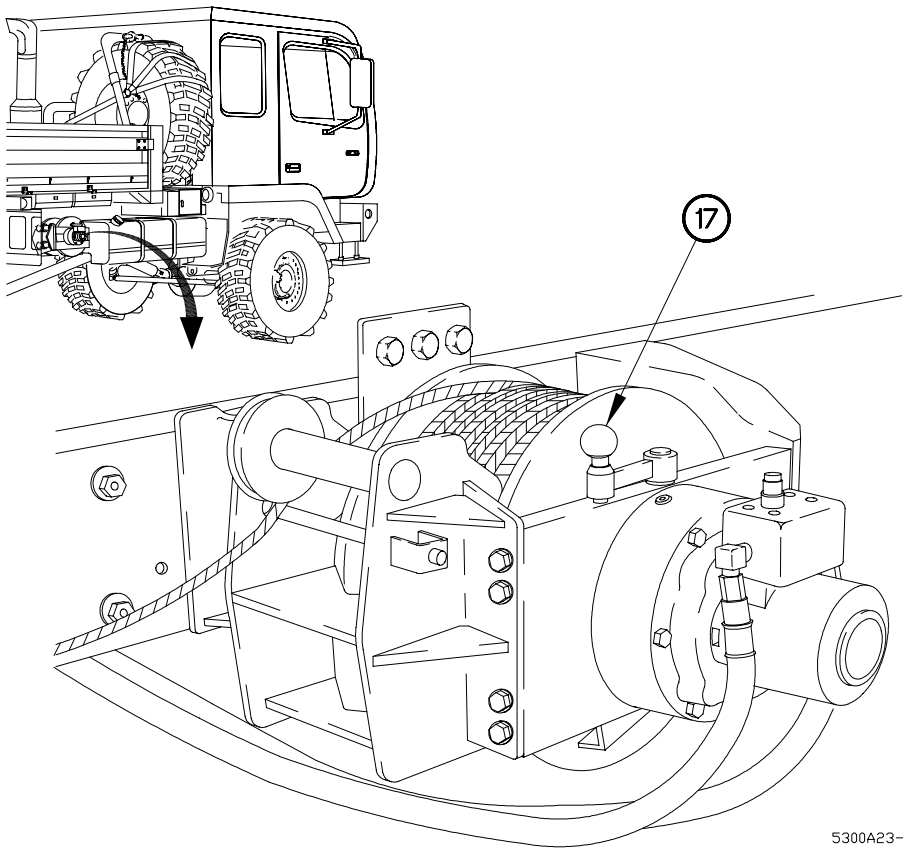
WARNING

There must always be at least five wraps of cable on 11K Self-Recovery Winch (SRW). If load is applied with less than five wraps of cable on 11K SRW, cable may come loose on drum. Failure to comply may result in serious injury or death to personnel.

CAUTION

Do not attempt to pull load over 11K SRW capacity. Failure to comply may result in damage to equipment.

2. Position 11K SRW clutch control lever (17) to DISENGAGED.



11K SELF-RECOVERY WINCH (SRW) OPERATION - Continued 0053 00

11K SRW OPERATION - Continued

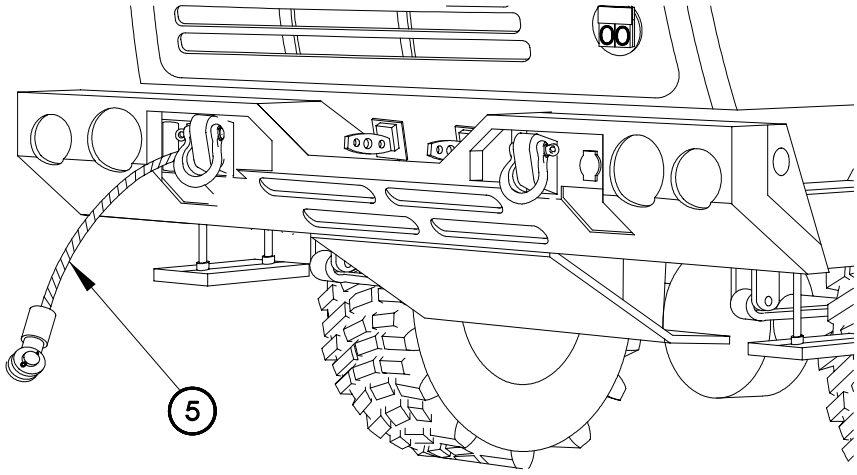
WARNING

Wear heavy leather-palmed work gloves when handling cable. Cables can become frayed or contain broken wires. Never let moving cable slide through hands, even when wearing gloves. Failure to comply may result in injury to personnel.

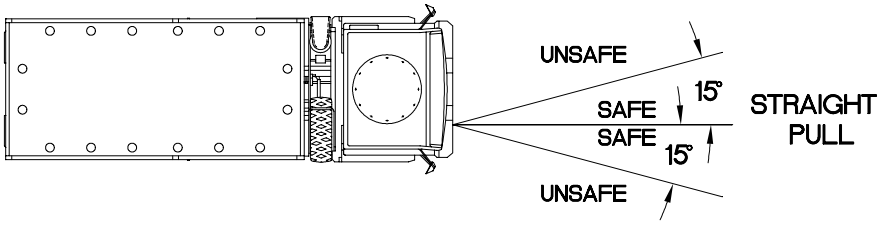
CAUTION

Do not attach cable to any object more than approximately 15 degrees away from a straight 11K SRW pull. Failure to comply may result in damage to equipment.

3. Pull out cable (5) and attach to secure object.



5300A24-



5300A25-

11K SELF-RECOVERY WINCH (SRW) OPERATION - Continued 0053 00

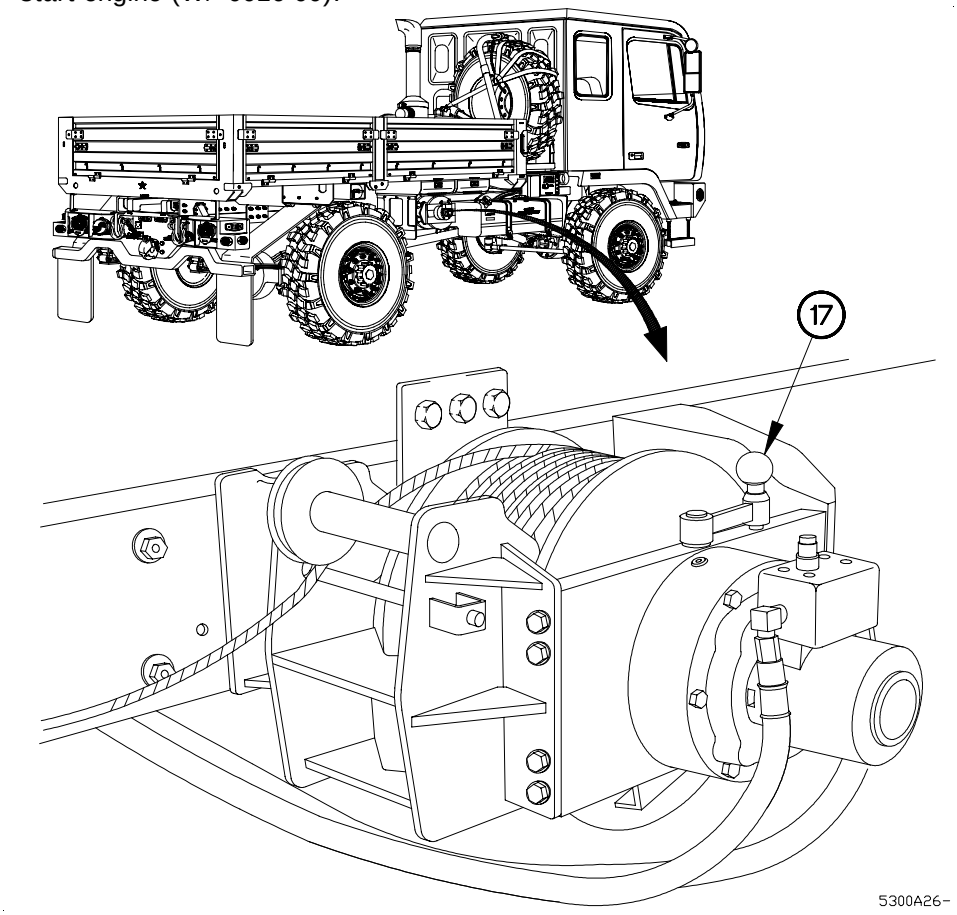
11K SRW OPERATION - Continued

WARNING

Keep all personnel clear of area when tension is on cable. Failure to comply may result in serious injury or death to personnel.

4. Position 11K SRW clutch control lever (17) to ENGAGED.

5. Start engine (WP 0016 00).



11K SELF-RECOVERY WINCH (SRW) OPERATION - Continued 0053 00

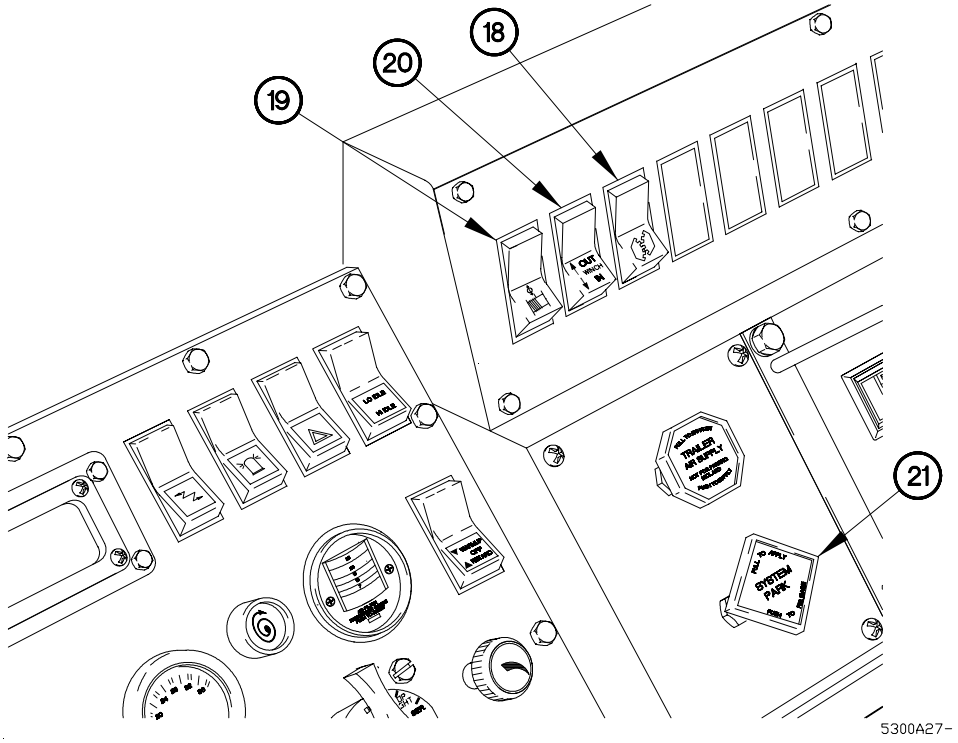
11K SRW OPERATION - Continued

6. Position PTO switch (18) to on.
7. Position winch switch (19) to on.

8. Hold WINCH IN/OUT switch (20) in the WINCH IN position until vehicle is recovered.

9. Release WINCH IN/OUT switch (20).

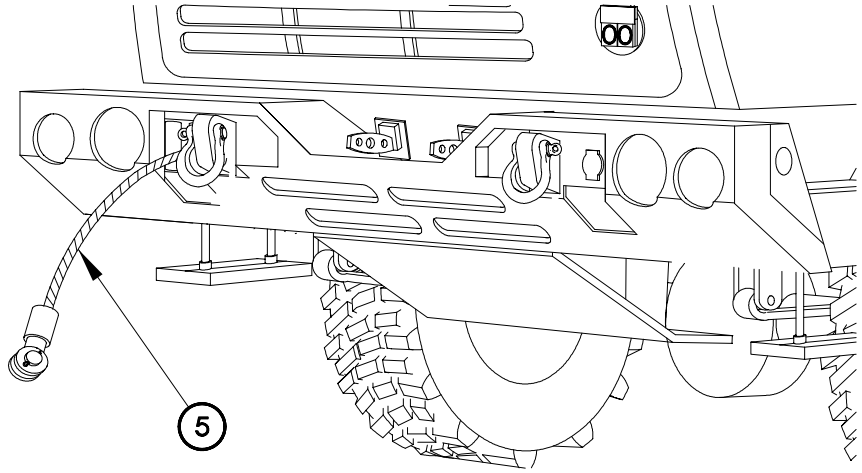
10. Pull out SYSTEM PARK control (21).



11K SELF-RECOVERY WINCH (SRW) OPERATION - Continued 0053 00

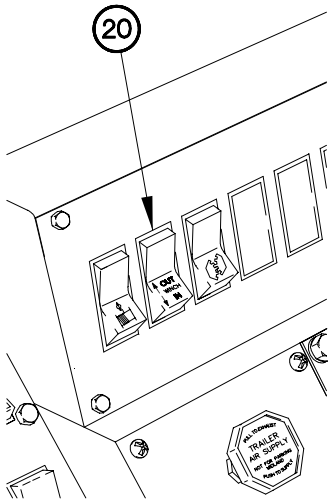
11K SRW OPERATION - Continued

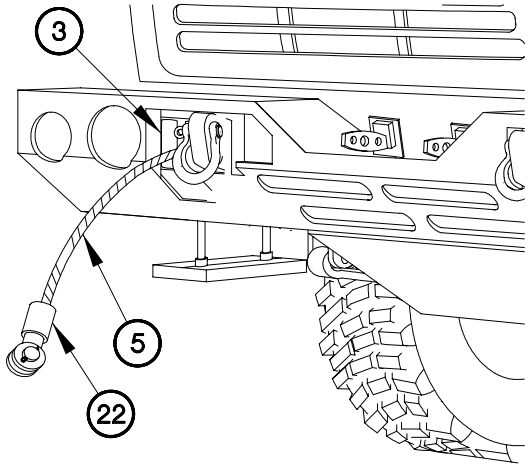
11. Remove cable (5) from secure object.



5300A28-

12. Hold WINCH IN/OUT switch (20) in the WINCH IN position to reel in cable (5) until cable socket (22) contacts rollers (3).





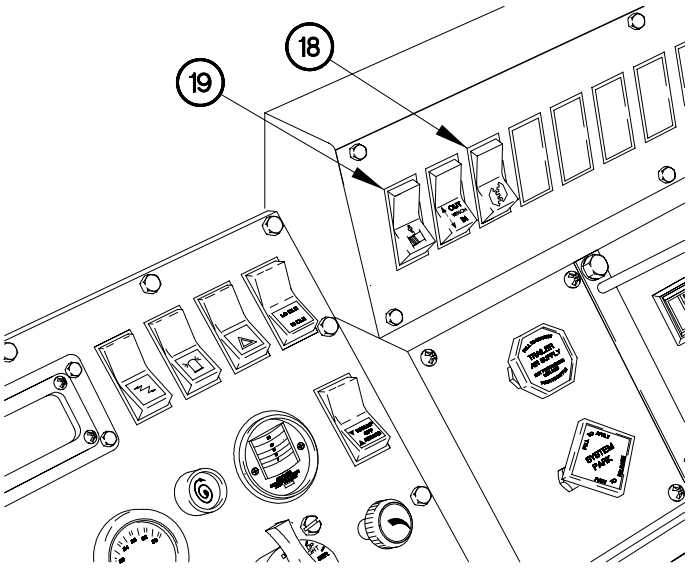
5300A29-

11K SELF-RECOVERY WINCH (SRW) OPERATION - Continued 0053 00

11K SRW OPERATION - Continued

13. Position winch switch (19) to off.

14. Position PTO switch (18) to off.



5300A30-

END OF OPERATING PROCEDURE

EMERGENCY PROCEDURES 0054 00

INITIAL SETUP:

Maintenance Level
Operator

References
FM 3-5
TB 700-4
WP 0016 00

GENERAL

This work package provides the data and procedures for an emergency situation. Items covered include Starting Disabled Vehicles; Loss In Air Pressure; and Nuclear, Biological, and Chemical (NBC) decontamination.

WARNING

Remove rings, bracelets, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry may catch on equipment, or may short across an electrical circuit or battery terminal. Failure to comply may result in serious injury or death to personnel.

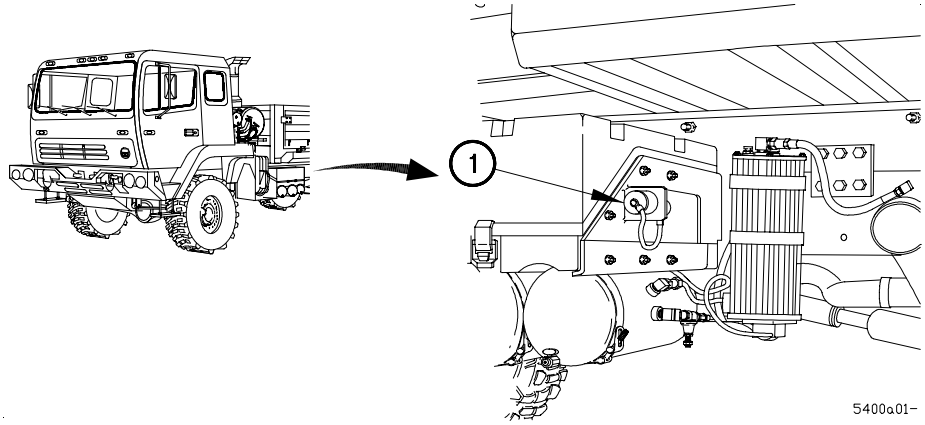
Do not smoke, have open flame, or make sparks near batteries when starting disabled vehicle. Batteries can explode. Failure to comply may result in serious injury or death to personnel.

STARTING DISABLED VEHICLE

NOTE

Notify Unit Maintenance if vehicle was started by another vehicle.

1. Position service vehicle next to disabled vehicle so NATO receptacles (1) are facing each other.



EMERGENCY PROCEDURES - Continued 0054 00

STARTING DISABLED VEHICLE - Continued

WARNING

Ensure master power switch on both vehicles is turned off before connecting NATO power cable. Vehicles must not touch each other. Failure to comply may result in electrical shock.

2. Shut down engine (WP 0016 00) on service vehicle.

CAUTION

Always connect NATO power cable to disabled vehicle before connecting it to service vehicle. Failure to comply may result in damage to batteries or cable.

3. Remove cap (2) from NATO receptacle (1) on disabled vehicle.

4. Install NATO power cable (3) on NATO receptacle (1) on disabled vehicle.

5. Remove cap (2) from NATO receptacle (1) on service vehicle.

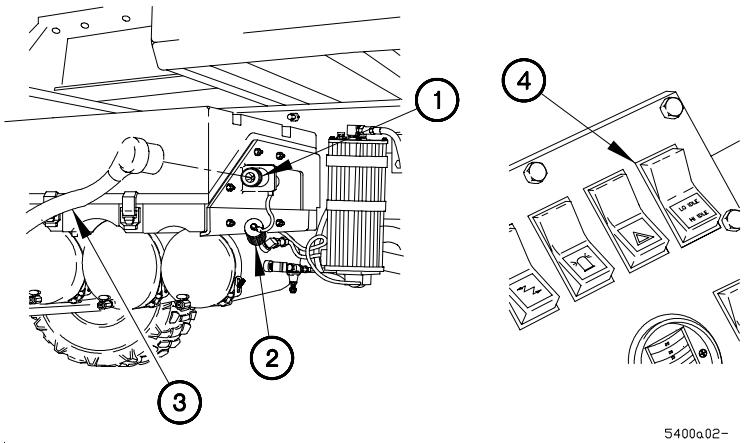
6. Install NATO power cable (3) on NATO receptacle (1) on service vehicle.

NOTE

Steps 7 through 9 require the aid of an assistant.

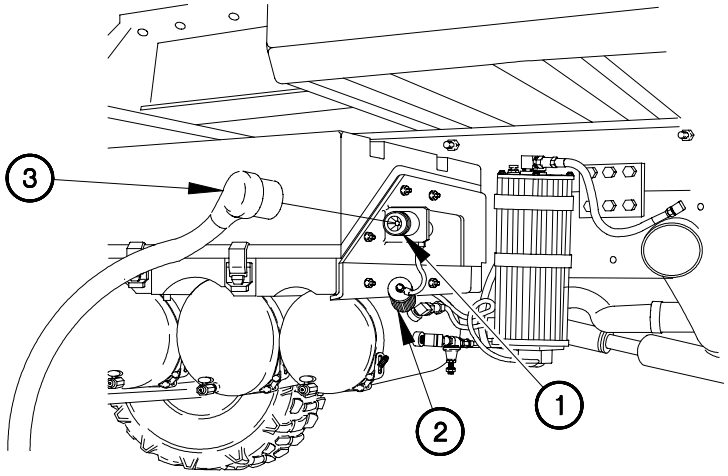
7. Start engine (WP 0016 00) on service vehicle.

8. Press LO IDLE/HI IDLE switch (4) to engage HI IDLE.



STARTING DISABLED VEHICLE - Continued

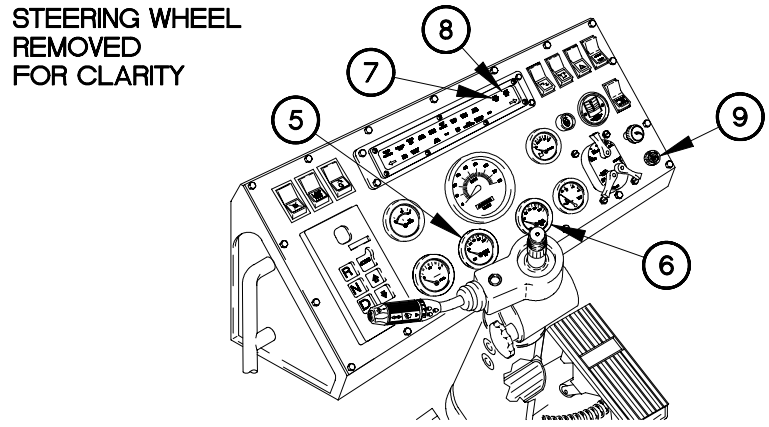
9. Start engine of disabled vehicle (WP 0016 00).
10. Remove NATO power cable (3) from NATO receptacle (1) on disabled vehicle.
11. Install cap (2) on NATO receptacle (1) on disabled vehicle.
12. Remove NATO power cable (3) from NATO receptacle (1) on service vehicle.
13. Install cap (2) on NATO receptacle (1) on service vehicle.



5400a03-

LOSS OF AIR PRESSURE

1. Check FRONT BRAKE AIR and REAR BRAKE AIR pressure gages (5 and 6) if LOW FRONT AIR or LOW REAR AIR indicator(s) (7 and 8) illuminate and audible alarm (9) sounds while driving vehicle.



5400A04-

LOSS OF AIR PRESSURE - Continued

WARNING

Rear axle service brakes will not operate if REAR BRAKE AIR pressure gage reads below 75 psi (517 kPa). Rear axle braking will be provided by rear spring brakes for a limited time. Allow greater stopping distance. Discontinue vehicle operation as soon as possible. Failure to comply may result in serious injury or death to personnel.

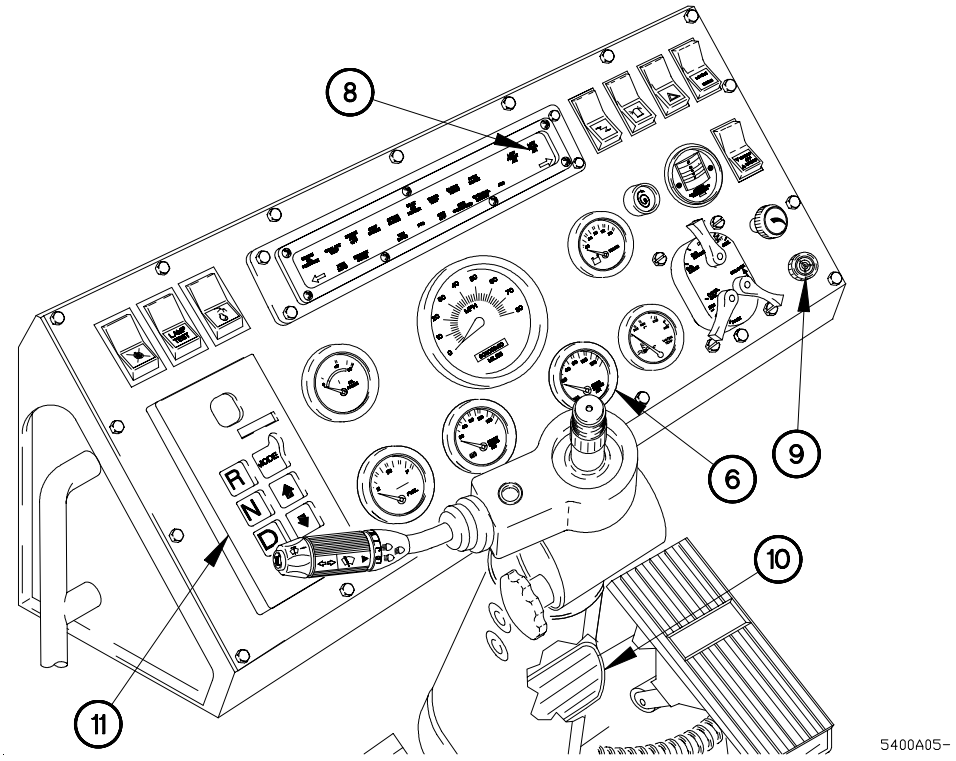
2. If REAR BRAKE AIR pressure gage (6) reads below 75 psi (517 kPa), LOW REAR AIR indicator (8) illuminates, and audible alarm (9) sounds:

   a. Leave additional distance between vehicles.

   b. Apply brake pedal (10) earlier than usual when slowing vehicle.

   c. Downshift to lower gear range using WTEC III TPSS (11).

   d. Notify Unit Maintenance as soon as possible.



LOSS OF AIR PRESSURE - Continued

WARNING

Front axle service brakes will not operate if FRONT BRAKE AIR pressure gage reads below 75 psi (517 kPa). Allow greater stopping distance. Discontinue vehicle operation as soon as possible. Failure to comply may result in serious injury or death to personnel.

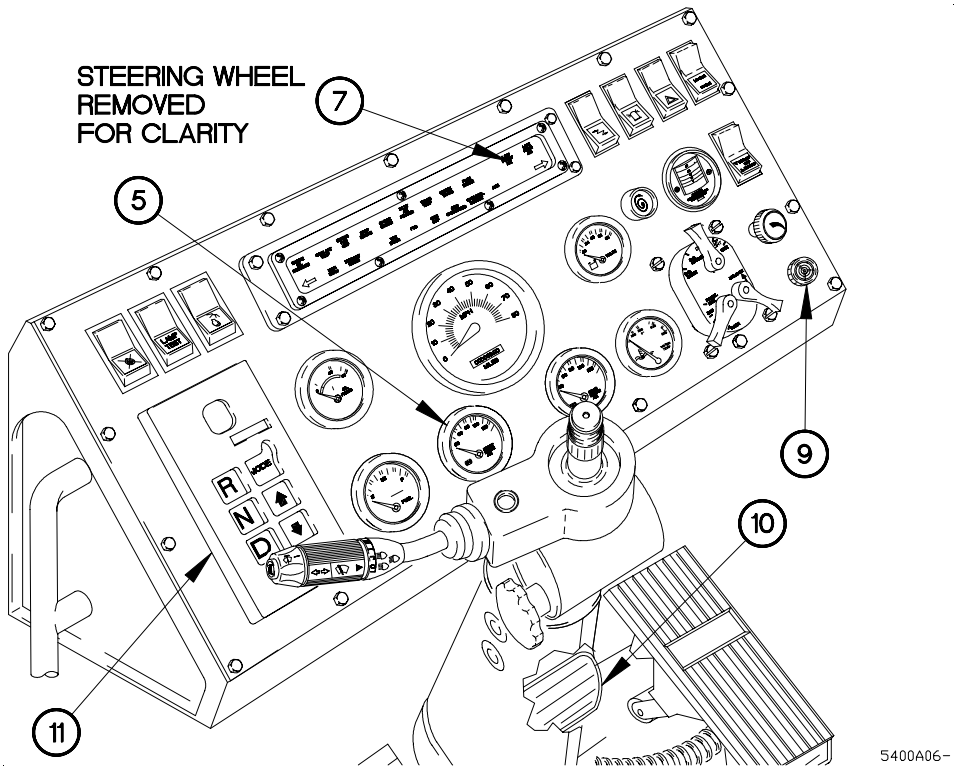
3. If FRONT BRAKE AIR pressure gage (5) reads below 75 psi (517 kPa), LOW FRONT AIR indicator (6) illuminates and audible alarm (9) sounds:

   a. Leave additional distance between vehicles.

   b. Apply brake pedal (10) earlier than usual when slowing vehicle.

   c. Downshift to lower gear range using WTEC III TPSS (11).

   d. Notify Unit Maintenance as soon as possible.



LOSS OF AIR PRESSURE - Continued

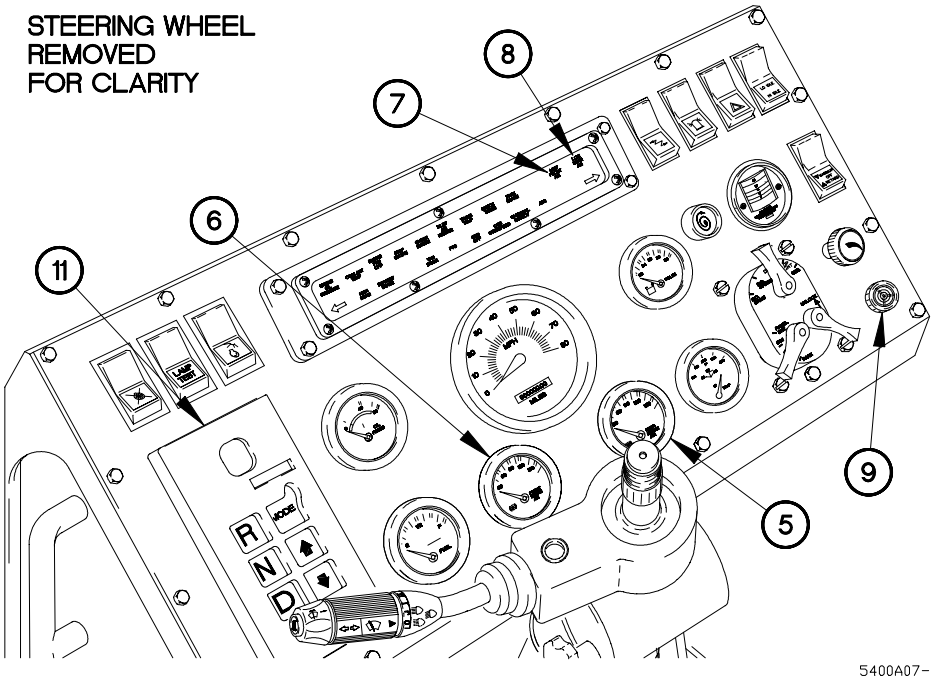
4. If FRONT BRAKE AIR and REAR BRAKE AIR pressure gages (5 and 6) read below 75 psi (517 kPa), LOW FRONT AIR and LOW REAR AIR indicators (7 and 8) illuminate, and audible alarm (9) sounds:

    a. Look for place to stop vehicle without blocking other traffic.

    b. Downshift to lower gear range using WTEC III TPSS (11) to control vehicle speed until place to stop is found.

    c. Stop vehicle.

    d. Notify Unit Maintenance.



NUCLEAR, BIOLOGICAL, AND CHEMICAL (NBC) DECONTAMINATION

Refer to FM 3-5 for Nuclear, Biological, and Chemical (NBC) defense procedures. Refer to TB 700-4 for Chemical, Biological, and Radiological (CBR) decontamination procedures.

END OF OPERATING PROCEDURE

PREPARATION FOR MACHINE GUN OPERATION 0055 00

INITIAL SETUP:

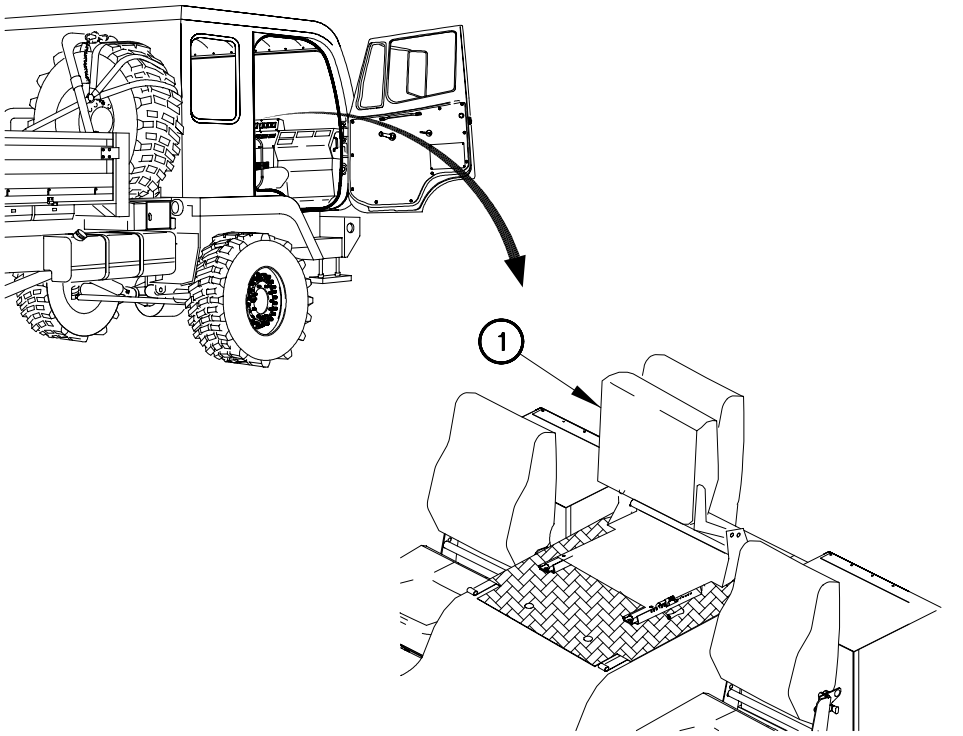
Maintenance Level
Operator

GENERAL

This work package provides the data and procedures to prepare for machine gun operation. Items covered include Raise Machine Gun Ring Lower Platform and Stow Machine Gun Ring Lower Platform.

RAISE MACHINE GUN RING LOWER PLATFORM

1. Fold center seat (1) up.



5500A01-

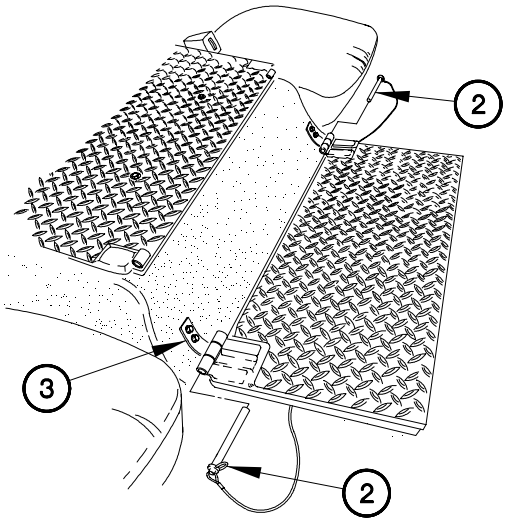
PREPARATION FOR MACHINE GUN OPERATION - Continued 0055 00

RAISE MACHINE GUN RING LOWER PLATFORM - Continued

CAUTION

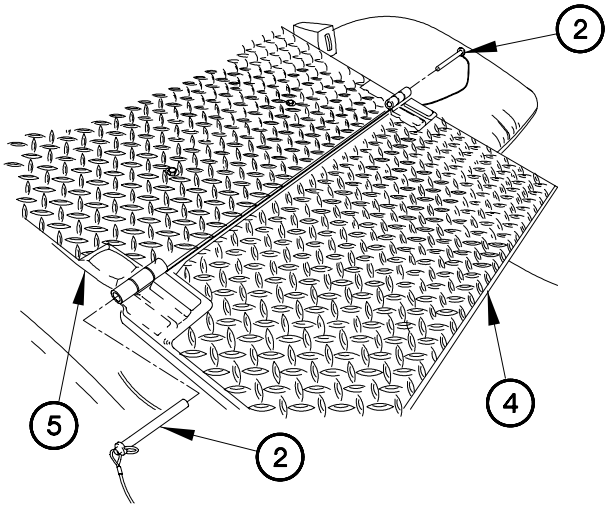
Lower platform must be securely pinned to stowage bracket or upper platform. Failure to comply may result in damage to equipment.

2. Disconnect two quick release pins (2) from storage brackets (3).



5500A02-

3. Connect lower platform (4) to upper platform (5) with two quick release pins (2).

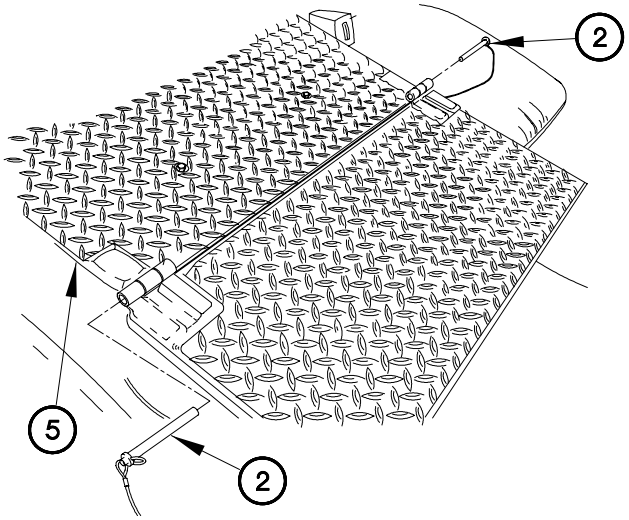


5500A03-

PREPARATION FOR MACHINE GUN OPERATION - Continued 0055 00

STOW MACHINE GUN RING LOWER PLATFORM

1. Disconnect two quick release pins (2) from upper platform (5).

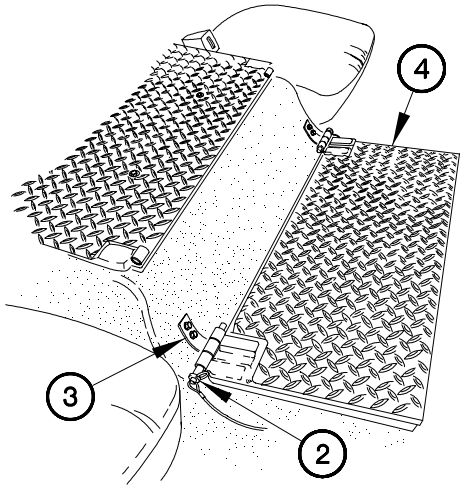


5500A04-

CAUTION

Ensure that quick release pins go completely through lower platform and stowage brackets. Failure to comply may result in damage to equipment.

2. Connect lower platform (4) to storage brackets (3) with two quick release pins (2).

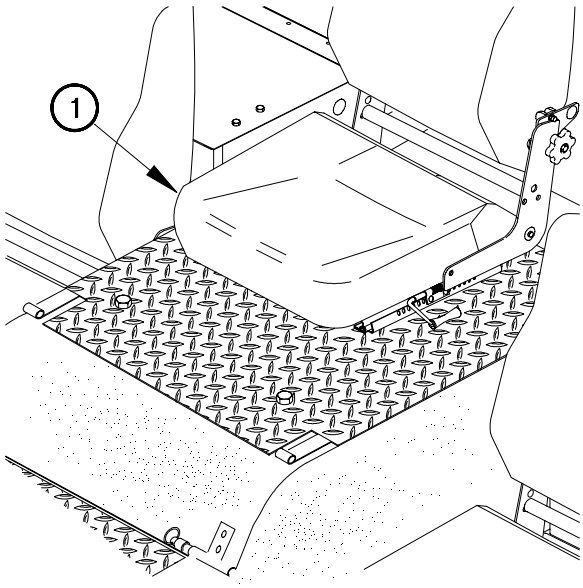


5500A05-

PREPARATION FOR MACHINE GUN OPERATION - Continued 0055 00

STOW MACHINE GUN RING LOWER PLATFORM - Continued

3. Unfold center seat (1).



6300c06-

END OF OPERATING PROCEDURE

AMBER WARNING LIGHT KIT INSTALLATION/REMOVAL

0056 00

INITIAL SETUP:

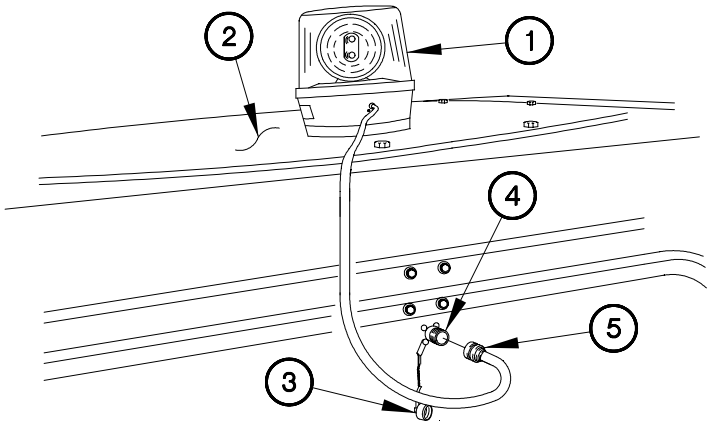
Maintenance Level
Operator

GENERAL

This work package provides the data and procedures for installing and removing the amber warning light kit.

INSTALL WARNING LIGHT

1. Position amber warning light (1) on cab (2).
2. Remove dustcap (3) from connector P65 (4).
3. Connect connector J65 (5) to connector P65 (4).



5600A01-

REMOVE WARNING LIGHT

1. Disconnect connector J65 (5) from connector P65 (4).
2. Remove warning light (1) from cab (2).
3. Install dustcap (3) on connector P65 (4).

END OF OPERATING PROCEDURE

STARTING ON HILL OPERATION 0057 00

INITIAL SETUP:

Maintenance Level	References
Operator	WP 0016 00

GENERAL

This work package provides the data and procedures for safely starting the M1078A1 series vehicles on a hill.

VEHICLE OPERATION

1. Start engine (WP 0016 00).
2. Apply service brakes (WP 0016 00).
3. Select the desired gear (WP 0016 00).
4. Increase engine speed and slowly release park brakes.

END OF OPERATING PROCEDURE

TIRE CHAINS INSTALLATION/REMOVAL 0058 00

INITIAL SETUP:

Maintenance Level
Operator

Personnel Required
Two

Tools/Special Tools
Chain, Pneumatic Tire, Truck, Single Tire Type (WP 0095 00)

Reference
WP 0016 00

GENERAL

This work package provides the data and procedures for installing and removing the tire chains on the M1078A1 series vehicles. Items covered include Rear Axle Tire Chain Installation and Rear Axle Tire Chain Removal.

REAR AXLE TIRE CHAIN INSTALLATION

CAUTION

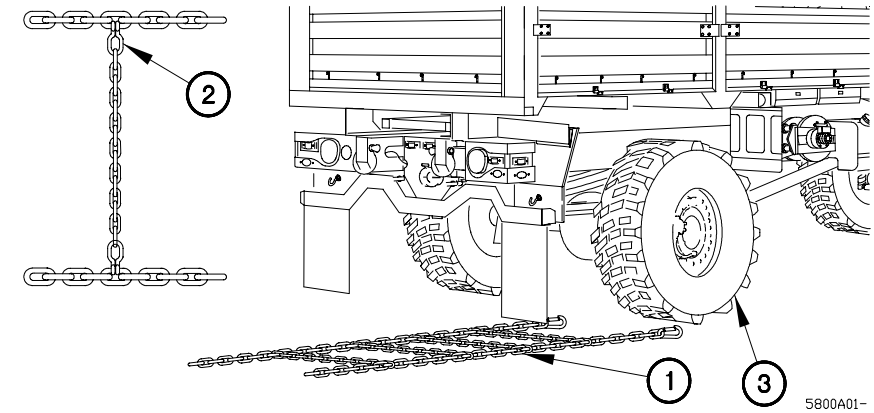
When installing tire chains on vehicle rear wheels, ensure CTIS is in HIGHWAY Mode at all times and max speed is 10 mph (16 Kmh). Failure to comply may result in damage to equipment.

Tire chains must not be used when driving on hard surfaces where there is no wheel slippage. Failure to comply may result in damage to equipment.

NOTE

Maximum speed limit for vehicles with tire chains on highways is 10 mph (16 km/h). Maximum speed limit for vehicles with tire chains off highway is 15 mph (24 km/h).

1. Place tire chain (1) on ground with cross chain connecting links (2) facing down.
2. Start engine (WP 0016 00).



TIRE CHAINS INSTALLATION/REMOVAL - Continued 0058 00

REAR AXLE TIRE CHAIN INSTALLATION - Continued

WARNING

Do not back up vehicle without an assistant. Operator has limited vision while backing vehicle. Failure to comply may result in serious injury or death to personnel or damage to equipment.

3. Back vehicle onto tire chain (1) so tire (3) is about one-third of the way upon tire chain.

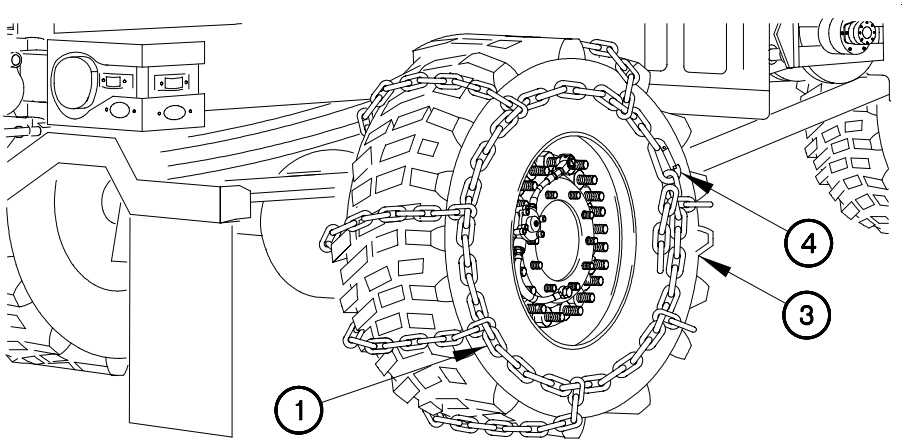
4. Shut down engine (WP 0016 00).

5. Wrap tire chain (1) around tire (3).

NOTE

Inside and outside clamps are connected the same way. Outside clamp shown.

6. Connect inside and outside clamps (4) so tire chain (1) is tight around tire (3).



5800A02-

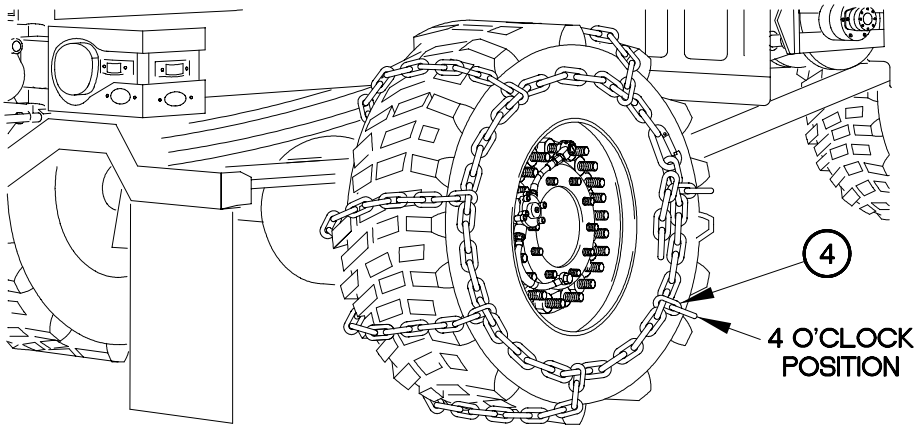
REAR AXLE TIRE CHAIN REMOVAL

1. Start engine (WP 0016 00).

TIRE CHAINS INSTALLATION/REMOVAL - Continued 0058 00

REAR AXLE TIRE CHAIN REMOVAL- Continued

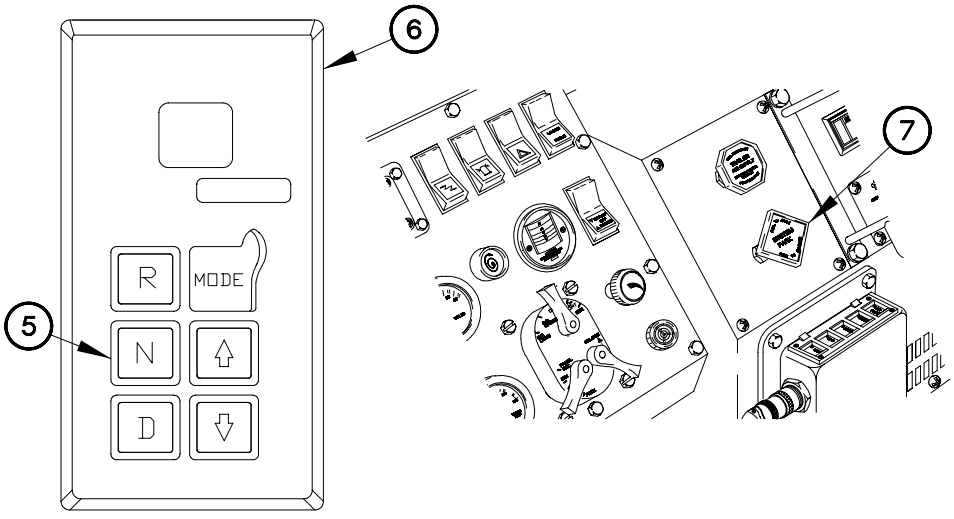
2. Move vehicle until tire chain clamps (4) to be removed are at the 4 o'clock position.



5800A03-

3. Press N (Neutral) button (5) on WTEC III TPSS (6).

4. Pull out SYSTEM PARK control (7).



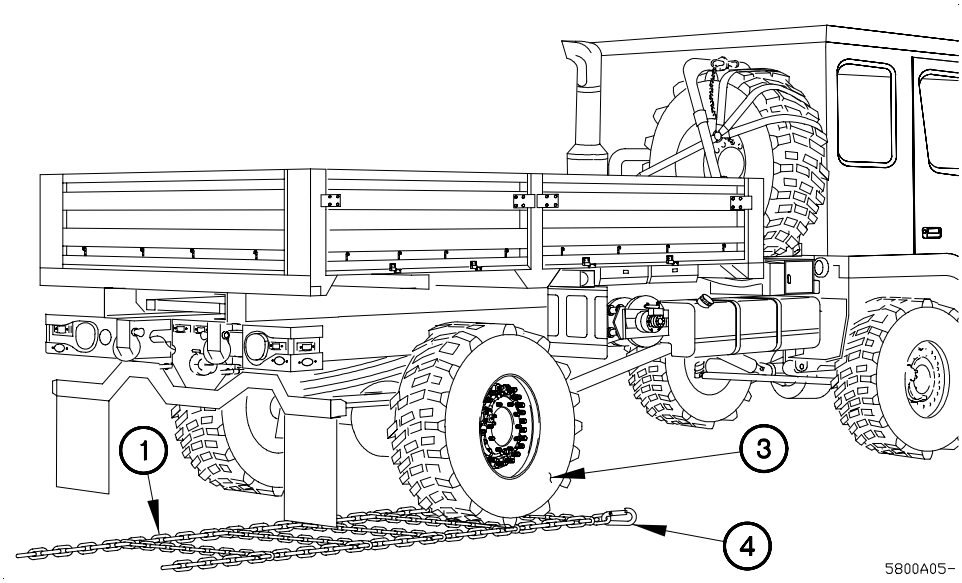
5800A04-

TIRE CHAINS INSTALLATION/REMOVAL - Continued 0058 00

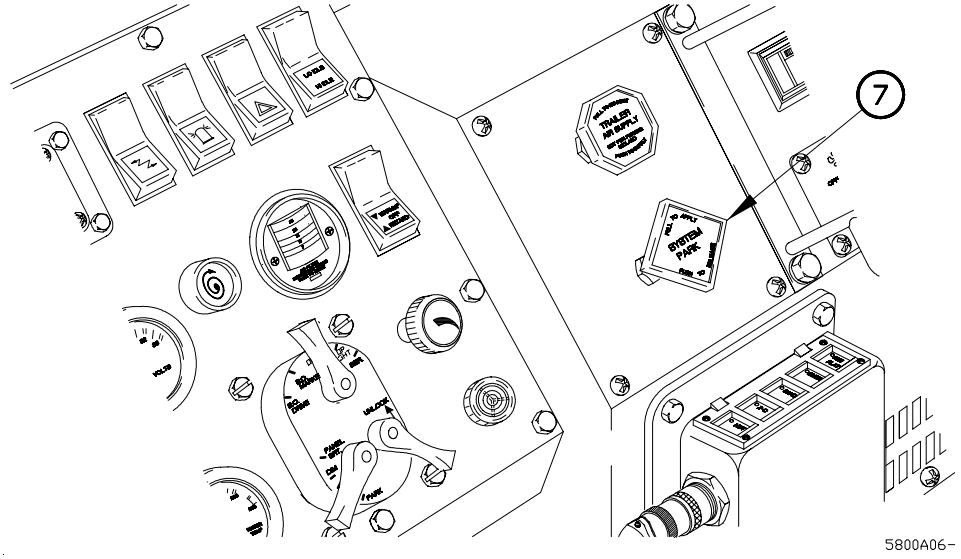
REAR AXLE TIRE CHAIN REMOVAL - Continued

5. Disconnect tire chain clamps (4) on tire chain (1).

6. Unwrap tire chain (1) from tire (3) and spread tire chain on ground.



7. Push in SYSTEM PARK control (7).

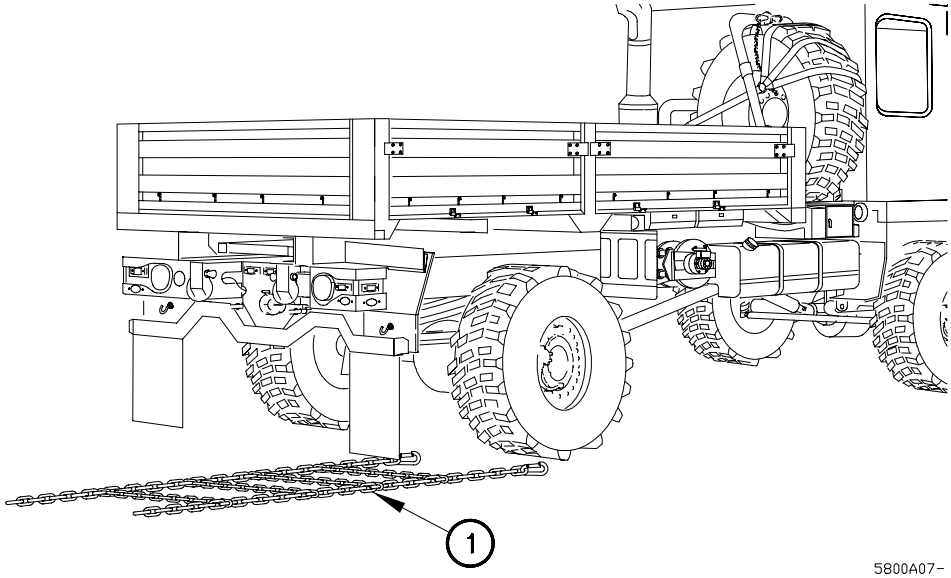


TIRE CHAINS INSTALLATION/REMOVAL - Continued 0058 00

REAR AXLE TIRE CHAIN REMOVAL - Continued

8. Drive vehicle forward off tire chain (1).

9. Shut down engine (WP 0016 00).



END OF OPERATING PROCEDURE

CHAPTER 3

TROUBLESHOOTING PROCEDURES FOR THE M1078A1 SERIES VEHICLES

TROUBLESHOOTING INTRODUCTION 0059 00

MALFUNCTION/SYMPTOM INDEX

The malfunction/symptom index (WP 0060 00) is a quick reference index for finding troubleshooting procedures. Associated with each symptom name is a work package sequence number representing the starting point in a troubleshooting sequence. Should any one symptom require more than one troubleshooting sequence to arrive at the most likely area of investigation, the additional starting point numbers are presented.

As the troubleshooting activity progresses through to the conclusion of a particular sequence, a reference is made to the next logical troubleshooting sequence by work package sequence number, or by referring to the malfunction/symptom index to locate the next failure symptom work package. This type of activity continues until successful fault isolation is achieved.

TROUBLESHOOTING PROCEDURES

The troubleshooting work packages contain tables listing the malfunctions, tests or inspections, and corrective action required to return the vehicle to normal operation. Perform the steps in the order they appear in the tables.

Each work package is headed by an initial setup. This setup outlines what is needed, as well as certain conditions which must be met before starting the task. DON'T START A TASK UNTIL:

You understand the task.

You understand what you are to do.

You understand what is needed to do the work.

You have the things you need.

This manual cannot list all malfunctions that may occur, or all tests or inspections and corrective actions. If a malfunction is not listed or is not corrected by listed corrective actions, notify Unit Maintenance.

MALFUNCTION/SYMPTOM INDEX 0060 00

Malfunction/Symptom	Troubleshooting Procedure
ENGINE SYSTEM	
1. Engine Does Not Crank	WP 0061 00
2. Engine Cranks But Does Not Start	WP 0061 00
3. Low Engine Oil Pressure	WP 0061 00
4. Engine Stalls At Low Rpm	WP 0061 00
5. Engine Overspeeds On Start	WP 0061 00
6. Too Much Engine Vibration	WP 0061 00
7. Coolant In Engine Lubrication Oil	WP 0061 00
8. Excessive Engine Oil Consumption	WP 0061 00
9. Engine Overheats	WP 0061 00
10. Excessive Black Or Gray Exhaust Smoke From Engine	WP 0061 00
11. White Exhaust Smoke From Engine	WP 0061 00
12. Engine Speed Is Not Stable	WP 0061 00
13. Engine Starts But Misfires, Runs Rough, Or Lacks Power	WP 0061 00
14. Blue Exhaust Smoke From Engine	WP 0061 00
15. CHECK ENGINE Indicator Remains Illuminated	WP 0061 00
16. STOP ENGINE Indicator Remains Illuminated	WP 0061 00
FUEL SYSTEM	
1. Engine Cranks But Does Not Start, Or Engine Stalls After Starting	WP 0062 00
2. Ether Starting Aid Does Not Operate	WP 0062 00
3. Fuel Consumption Too High	WP 0062 00
4. Accelerator Pedal Sticks	WP 0062 00

MALFUNCTION/SYMPTOM INDEX - CONTINUED 0060 00

Malfunction/Symptom	Troubleshooting Procedure
EXHAUST SYSTEM	
1. Exhaust System Unusually Noisy Or Vibrates Excessively During Engine Operation	WP 0063 00
2. Exhaust Fumes In Cab	WP 0063 00
COOLING SYSTEM	
1. Engine Overheats	WP 0064 00
2. Oil In Cooling System	WP 0064 00
3. Loss Of Coolant	WP 0064 00
ELECTRICAL SYSTEM	
1. Engine Does Not Crank	WP 0065 00
2. 24 VDC Circuits Do Not Operate	WP 0065 00
3. 12 VDC Circuits Do Not Operate (100 Amp Alternator)	WP 0065 00
4. 12 VDC Circuits Do Not Operate (200 Amp Alternator)	WP 0065 00
5. 12 VDC and 24 VDC Circuits Do Not Operate (Vehicle S/N 18,550 or Higher)	WP 0065 00
6. Engine Cranks But Does Not Start	WP 0065 00
7. FUEL Gage Does Not Operate Or Is Inaccurate	WP 0065 00
8. WATER TEMP Gage Does Not Operate Or Is Inaccurate	WP 0065 00
9. REAR BRAKE AIR Pressure Gage Does Not Operate Or Is Inaccurate	WP 0065 00
10. FRONT BRAKE AIR Pressure Gage Does Not Operate Or Is Inaccurate	WP 0065 00
11. OIL PRESS Gage Does Not Operate Or Is Inaccurate	WP 0065 00

MALFUNCTION/SYMPTOM INDEX - CONTINUED 0060 00

Malfunction/Symptom	Troubleshooting Procedure
ELECTRICAL SYSTEM - Continued	
12. Speedometer Does Not Operate Or Is Inaccurate	WP 0065 00
13. VOLTS Gage Does Not Operate Or Is Inaccurate	WP 0065 00
14. Audible Alarm Does Not Operate	WP 0065 00
15. Audible Alarm Does Not Operate When Troop Transport Alarm Switch Is Turned On	WP 0065 00
16. Audible Alarm Does Not Operate With Van Door Open	WP 0065 00
17. Instrument Panel Switch Does Not Illuminate	WP 0065 00
18. Instrument Panel Gage Does Not Illuminate	WP 0065 00
19. Auxiliary Panel, Personnel Heater, And Instrument Panel Do Not Illuminate	WP 0065 00
20. Auxiliary Panel Switch Does Not Illuminate	WP 0065 00
21. Auxiliary Panel Does Not Illuminate	WP 0065 00
22. COOLANT TEMP Indicator Does Not Illuminate	WP 0065 00
23. COOLANT TEMP Indicator Illuminates	WP 0065 00
24. CTIS OVERSPEED Indicator Does Not Illuminate	WP 0065 00
25. CHEMICAL DETECT Indicator Does Not Illuminate	WP 0065 00
26. Left Turn Signal Indicator Does Not Illuminate	WP 0065 00
27. Right Turn Signal Indicator Does Not Illuminate	WP 0065 00
28. HIGH BEAM Indicator Does Not Illuminate	WP 0065 00
29. PARK BRAKE Indicator Does Not Illuminate	WP 0065 00

MALFUNCTION/SYMPTOM INDEX - CONTINUED 0060 00

Malfunction/Symptom	Troubleshooting Procedure
ELECTRICAL SYSTEM - Continued	
30. PTO Indicator Does Not Illuminate	WP 0065 00
31. ENGINE FAN OFF Indicator Does Not Illuminate	WP 0065 00
32. TRANS TEMP Indicator Does Not Illuminate	WP 0065 00
33. LOW FRONT AIR Indicator Does Not Illuminate (Vehicle S/N 18,549 or Lower)	WP 0065 00
34. LOW REAR AIR Indicator Does Not Illuminate (Vehicle S/N 18,549 or Lower)	WP 0065 00
35. LOW AIR Indicator Does Not Illuminate (Vehicle S/N 18,550 or Higher)	WP 0065 00
36. ENGINE OIL PRESSURE Indicator Does Not Illuminate	WP 0065 00
37. ENGINE OIL PRESSURE Indicator Illuminates While Engine Is Running/Remains Illuminated 10 Seconds After Engine Starts	WP 006500
38. STOP ENGINE Indicator Does Not Illuminate	WP 0065 00
39. CHECK ENGINE Indicator Does Not Illuminate	WP 0065 00
40. EXHAUST BRAKE Indicator Does Not Illuminate	WP 0065 00
41. CHECK TRANS Indicator Does Not Illuminate	WP 0065 00
42. INLET AIR Indicator Does Not Illuminate	WP 0065 00
43. ABS Indicator Does Not Illuminate	WP 0065 00
44. CTIS OFF Indicator Does Not Illuminate	WP 0065 00
45. Lamp Test 24 VDC Does Not Operate	WP 0065 00
46. Lamp Test Ground Does Not Operate	WP 0065 00
47. Charging System Indicator Does Not Illuminate (Vehicles S/N 18,550 or Higher)	WP 0065 00

MALFUNCTION/SYMPTOM INDEX - CONTINUED 0060 00

Malfunction/Symptom	Troubleshooting Procedure
ELECTRICAL SYSTEM - Continued	
48. Battery Disconnect Does Not Illuminate (Vehicle S/N 18,550 or Higher)	WP 0065 00
49. One Or Both Headlights (High And Low Beams) Do Not Illuminate	WP 0065 00
50. One Or Both Headlight Low Beams Do Not Illuminate	WP 0065 00
51. One Or Both Headlight High Beams Do Not Illuminate	WP 0065 00
52. Parking Lights Do Not Illuminate	WP 0065 00
53. LH Door And/Or LH Front Marker Lights Do Not Illuminate	WP 0065 00
54. RH Door And/Or RH Front Marker Lights Do Not Illuminate	WP 0065 00
55. One Or More Cab Top Marker Lights Do Not Illuminate	WP 0065 00
56. Side And/Or Rear Marker Lights Do Not Illuminate	WP 0065 00
57. All Front And/Or Rear Marker Lights Do Not Illuminate In Normal Mode	WP 0065 00
58. One Or Both Composite Taillights Do Not Illuminate	WP 0065 00
59. One Or Both Front Blackout Marker Lights Do Not Illuminate	WP 0065 00
60. Blackout Drive Light Does Not Illuminate	WP 0065 00
61. One Or Both Rear Blackout Marker Lights Do Not Illuminate	WP 0065 00
62. All Blackout Marker Lights Do Not Illuminate	WP 0065 00
63. Amber Warning Light Does Not Illuminate	WP 0065 00

MALFUNCTION/SYMPTOM INDEX - CONTINUED 0060 00

Malfunction/Symptom	Troubleshooting Procedure
ELECTRICAL SYSTEM - Continued	
64. Backup Light Does Not Illuminate	WP 0065 00
65. Blackout Marker Lights Do Not Illuminate And/Or WTEC III Transmission Pushbutton Shift Selector (TPSS) Does Not Dim	WP 0065 00
66. Rear Hazard Lights Do Not Illuminate	WP 0065 00
67. Front And Rear Hazard Lights Do Not Illuminate	WP 0065 00
68. Front And Rear Turn Signals Do Not Illuminate	WP 0065 00
69. Left Or Right Front Turn Signal Does Not Illuminate	WP 0065 00
70. One Or Both Stoplights Do Not Illuminate	WP 0065 00
71. One Or Both Blackout Stoplights Do Not Illuminate	WP 0065 00
72. Stoplights And Blackout Stoplights Do Not Illuminate	WP 0065 00
73. Trailer Marker/Taillights Do Not Illuminate	WP 0065 00
74. Trailer Right Stop/Turn Light Does Not Illuminate	WP 0065 00
75. Trailer Left Stop/Turn Light Does Not Illuminate	WP 0065 00
76. Both Trailer Stop/Turn Lights Do Not Illuminate	WP 0065 00
77. Trailer Blackout Marker Lights Do Not Illuminate	WP 0065 00
78. Trailer Blackout Stoplights Do Not Illuminate	WP 0065 00
79. Intervehicular Clearance Lights Do Not Illuminate	WP 0065 00

MALFUNCTION/SYMPTOM INDEX - CONTINUED 0060 00

Malfunction/Symptom	Troubleshooting Procedure
ELECTRICAL SYSTEM - Continued	
80. Intervehicular Left Turn Signal Does Not Illuminate	WP 0065 00
81. Intervehicular Right Turn Signal Does Not Illuminate	WP 0065 00
82. Intervehicular Stoplights Do Not Illuminate	WP 0065 00
83. Intervehicular Taillights Do Not Illuminate	WP 0065 00
84. Personnel Heater Control Does Not Illuminate	WP 0065 00
85. Personnel Heater Fan Does Not Operate	WP 0065 00
86. Windshield Washer Does Not Operate	WP 0065 00
87. Windshield Wiper Does Not Operate On Low Speed	WP 0065 00
88. All Windshield Wiper Speeds Do Not Operate	WP 0065 00
89. Windshield Wiper Does Not Operate On Intermittent Speed	WP 0065 00
90. Windshield Wiper Does Not Operate On High Speed	WP 0065 00
91. Horn Does Not Operate	WP 0065 00
92. Horn, Windshield Wipers, And Windshield Washer Do Not Operate	WP 0065 00
93. Chemical Alarm Does Not Operate	WP 0065 00
94. Chemical Detector Does Not Operate	WP 0065 00
95. Central Tire Inflation System (CTIS) Does Not Operate	WP 0065 00
96. Central Tire Inflation System (CTIS) Does Not Inflate Tires	WP 0065 00

MALFUNCTION/SYMPTOM INDEX - CONTINUED 0060 00

Malfunction/Symptom	Troubleshooting Procedure
ELECTRICAL SYSTEM - Continued	
97. Central Tire Inflation System (CTIS) Does Not Deflate Tires	WP 0065 00
98. Central Tire Inflation System (CTIS) ECU Does Not Dim In Blackout Mode	WP 0065 00
99. 11K Self-Recovery Winch (SRW) Does Not Reel In Or Pay Out	WP 0065 00
100. 11K Self-Recovery Winch (SRW) Does Not Reel In	WP 0065 00
101. 11K Self-Recovery Winch (SRW) Does Not Pay Out	WP 0065 00
102. POWER TAKE-OFF (PTO) Does Not Engage	WP 0065 00
103. Electrical System Does Not Maintain A Charge In Batteries	WP 0065 00
104. Engine Fan Runs Constantly	WP 0065 00
105. Engine Fan Does Not Turn Off Using Engine Fan Off Switch	WP 0065 00
106. Ether Starting Aid Does Not Operate	WP 0065 00
107. Radio Does Not Operate	WP 0065 00
108. Battery Tester Does Not Operate	WP 0065 00
109. Exhaust Brake Does Not Operate	WP 0065 00
110. Inlet Air Heater Does Not Operate	WP 0065 00
111. M1079A1 Fan Does Not Operate	WP 0065 00
112. All M1079A1 Van Body Clearance And Marker Lights Do Not Illuminate	WP 0065 00
113. M1079A1 Van Body Clearance Or Marker Light Does Not Illuminate	WP 0065 00

MALFUNCTION/SYMPTOM INDEX - CONTINUED 0060 00

Malfunction/Symptom	Troubleshooting Procedure
ELECTRICAL SYSTEM - Continued	
114. All M1079A1 Fluorescent Lights Do Not Illuminate	WP 0065 00
115. M1079A1 Fluorescent Light(s) DS80 And/Or DS81 Do Not Illuminate	WP 0065 00
116. M1079A1 Fluorescent Light(S) DS82 And/Or DS83 Do Not Illuminate	WP 0065 00
117. M1079A1 110 VAC Outlet J233 Does Not Operate In Normal Mode	WP 0065 00
118. M1079A1 110 VAC Outlet J234 Does Not Operate In Normal Mode	WP 0065 00
119. M1079A1 110 VAC Outlet J235 Does Not Operate In Normal Mode	WP 0065 00
120. M1079A1 110 VAC Outlet J232 Does Not Operate In Normal Mode	WP 0065 00
121. M1079A1 110 VAC Outlets J232 And J233 Do Not Operate In Blackout Override Mode	WP 0065 00
122. M1079A1 110 VAC Outlet J231 Does Not Operate In Normal Mode	WP 0065 00
123. M1079A1 110 VAC Outlet J230 Does Not Operate In Normal Mode	WP 0065 00
124. M1079A1 Blackout Light(s) Does Not Illuminate	WP 0065 00
125. M1079A1 Emergency Light(s) Does Not Illuminate	WP 0065 00
126. M1079A1 Field Phone 1 And/Or 2 Binding Post Does Not Operate	WP 0065 00
127. M1079A1 Air Conditioner Does Not Operate	WP 0065 00
128. M1079A1 Heater Does Not Operate	WP 0065 00
129. M1079A1 24 VDC Binding Post(s) Does Not Operate	WP 0065 00

MALFUNCTION/SYMPTOM INDEX - CONTINUED 0060 00

Malfunction/Symptom	Troubleshooting Procedure
ELECTRICAL SYSTEM - Continued	
130. VAN DOOR Indicator Does Not Illuminate	WP 0065 00
131. 110 VAC Power Does Not Operate	WP 0065 00
132. Fluorescent Lights Do Not Illuminate In Blackout Override Mode	WP 0065 00
133. All Main Light Switch Functions Do Not Operate	WP 0065 00
134. All Electrical Gages Do Not Operate	WP 0065 00
135. Audible Alarm, Radio, Starter Pushbutton, And Electrical Gages Do Not Operate	WP 0065 00
136. LO IDLE/HI IDLE Switch Does Not Operate	WP 0065 00
137. Master Power Switch Does Not Shut Down Engine	WP 0065 00
138. Air Dryer Heater Does Not Operate	WP 0065 00
139. Stoplights and 12 VDC Indicator Panel Circuits Do Not Illuminate	WP 0065 00
140. Remote Start Does Not Operate (Vehicle S/N 18,550 or Higher)	WP 0065 00
TRANSMISSION SYSTEM	
1. WTEC III Transmission Pushbutton Shift Selector (TPSS) LED Flashes Selected Gear And/Or Transmission Does Not Shift Gears	WP 0066 00
2. Transmission Unusually Noisy When Operating	WP 0066 00
3. WTEC III Transmission Pushbutton Shift Selector (TPSS) Does Not Illuminate/Operate	WP 0066 00
4. CHECK TRANS Indicator Remains Illuminated	WP 0066 00
5. TRANS TEMP Indicator Remains Illuminated	WP 0066 00

MALFUNCTION/SYMPTOM INDEX - CONTINUED 0060 00

Malfunction/Symptom	Troubleshooting Procedure
DRIVE SHAFT	
Drive Shaft Or Universal Joints Unusually Noisy When Operating	WP 0067 00
POWER TAKE OFF (PTO)	
Power Take-Off (PTO) Does Not Engage	WP 0068 00
BRAKE SYSTEM	
1. Excessive Braking Distance	WP 0069 00
2. Rear Brakes Do Not Apply	WP 0069 00
3. Parking Brake Does Not Release	WP 0069 00
4. Front Brakes Overheat	WP 0069 00
5. Vehicle Brakes Unevenly, Or Brakes Pull To One Side Or Grab	WP 0069 00
6. Front Brakes Do Not Apply	WP 0069 00
7. Rear Brakes Overheat	WP 0069 00
8. Parking Brake Does Not Apply	WP 0069 00
9. Brake System Loses Air When Service Brakes Are Applied	WP 0069 00
10. ABS Indicator Remains Illuminated	WP 0069 00
AIR SYSTEM	
1. Air System Loses Pressure During Operation/Slow Air Pressure Buildup	WP 0070 00
2. Large Quantity Of Moisture Expelled From Air Reservoirs	WP 0070 00
3. Air Dryer Purges Constantly	WP 0070 00
4. No Air Pressure Or Low Air Pressure Present At Rear Gladhands	WP 0070 00

MALFUNCTION/SYMPTOM INDEX - CONTINUED 0060 00

Malfunction/Symptom	Troubleshooting Procedure
AIR SYSTEM - Continued	
5. Air System Pressure Builds Up More Than 120 Psi (827 kPa) (Compressor Fails To Unload)	WP 0070 00
6. Noisy Air Compressor Operation	WP 0070 00
WHEEL	
1. Tires Wear Unevenly Or Excessively	WP 0071 00
2. Wheel Wobbles Or Shimmies	WP 0071 00
HYDRAULIC SYSTEM	
Loss Of Hydraulic Pressure (Single Stage Pump)	WP 0072 00
CENTRAL TIRE INFLATION SYSTEM (CTIS)	
1. Two Steady Mode Lights Illuminate On Central Tire Inflation System (CTIS) ECU	WP 0073 00
2. Four Flashing Lights On Central Tire Inflation System (CTIS) ECU	WP 0073 00
3. Five Flashing Lights On Central Tire Inflation System (CTIS) ECU	WP 0073 00
4. Central Tire Inflation System (CTIS) Repeatedly Resumes Cycling 30 Seconds After Indicator Lights Stop Flashing	WP 0073 00
5. Central Tire Inflation System(CTIS) ECU Lights Operate, But CTIS Fails To Inflate Or Deflate Tires	WP 0073 00
6. CTIS Overspeed Pressure Change Does Not Operate	
7. Central Tire Inflation System (CTIS) ECU Does Not Illuminate	WP 0073 00
8. Central Tire Inflation System (CTIS) ECU Indicator Lights Sequentially Flashing	WP 0073 00
9. CTIS OVERSPEED Indicator Illuminates Solidly	WP 0073 00

MALFUNCTION/SYMPTOM INDEX - CONTINUED 0060 00

Malfunction/Symptom	Troubleshooting Procedure
CENTRAL TIRE INFLATION SYSTEM (CTIS) - Continued	
10. CTIS OVERSPEED Indicator Remains Illuminated	WP 0073 00
AXLE	
Axle Differential(s) Noisy	WP 0074 00
STEERING SYSTEM	
1. Hard To Steer	WP 0075 00
2. Wanders, Pulls To One Side, Or Shimmies	WP 0075 00
3. Excessive Play When Turning Steering Wheel	WP 0075 00
4. No Response When Turning Steering Wheel	WP 0075 00
SUSPENSION SYSTEM	
1. Wanders, Pulls To One Side, Or Shimmies	WP 0076 00
2. Leans To One Side, Or Rear Of Vehicle Sags	WP 0076 00
11K SELF-RECOVERY WINCH SYSTEM	
11K Self-Recovery Winch Does Not Operate	WP 0077 00
STEERING HYDRAULIC SYSTEM	
Steering Hard Or Does Not Operate	WP 0078 00
AIR TRANSPORT SYSTEM	
1. Cab Tilt, Spare Tire Retainer, And Suspension Compression Do Not Work	WP 0079 00
2. Suspension Does Not Compress Or Return To Normal Properly	WP 0079 00
3. Cab Leveling Air Springs Do Not Operate Properly	WP 0079 00
SPECIAL PURPOSE KITS	
1. Cargo Area Arctic Heater Does Not Operate	WP 0080 00

MALFUNCTION/SYMPTOM INDEX - CONTINUED 0060 00

Malfunction/Symptom		Troubleshooting Procedure
SPECIAL PURPOSE KITS - Continued		
2.	Cargo Area Arctic Heater Indicator Lamp Blinks Twice While Heater Is Running	WP 0080 00
3.	Cargo Area Arctic Heater Shuts Down Automatically	WP 0080 00
4.	Cargo Area Arctic Override Switch Does Not Operate	WP 0080 00
5.	Cab Arctic Heater Combustion Starts Immediately When Switched On	WP 0080 00
6.	Cab Arctic Heater Does Not Start	WP 0080 00
7.	Cab Arctic Heater Switches On And Off Repeatedly	WP 0080 00
8.	Cab Arctic Heater Hard To Start	WP 0080 00
9.	Cab Arctic Heater Turns Itself Off	WP 0080 00
10.	Cab Arctic Heater Emits Black Smoke	WP 0080 00
11.	Cab Arctic Heater Emits White Smoke More Than 20 Seconds After Start-Up	WP 0080 00
12.	Cab Arctic Heater Cannot Be Switched Off	WP 0080 00
13.	Light Material Handling Crane (LMHC) Does Not Operate	WP 0080 00
14.	Light Material Handling Crane (LMHC) Hoist In Does Not Operate	WP 0080 00
15.	Light Material Handling Crane (LMHC) Hoist Out Does Not Operate	WP 0080 00
16.	Cab Arctic Heater Does Not Ignite	WP 0080 00
17.	Swingfire Does Not Operate	WP 0080 00
18.	Arctic Engine Preheat Indicator Does Not Illuminate	WP 0080 00
19.	Arctic Engine Preheat Indicator Flashes Special Failure Code for 60 Seconds	WP 0080 00

MALFUNCTION/SYMPTOM INDEX 0060 00

Malfunction/Symptom	Troubleshooting Procedure
SPECIAL PURPOSE KITS - Continued	
20. Arctic Engine Preheat Indicator Flashes Slowly Indicating "Ready" When Ignition Is Switched On Although Water Temperature Is Below 77°F (25°C).	WP 0080 00
21. Arctic Engine Preheat Indicator Illuminates Continuously Although Water Temperature Is Above 77°F (25°C).	WP 0080 00
22. Arctic Engine Preheat Indicator Flashes Slowly Indicating "Ready" But Engine Will Not Start Or Is Hard To Start	WP 0080 00
23. Heavy White Smoke After Cold Start	WP 0080 00
24. Engine Block Arctic Heater Does Not Operate	WP 0080 00
25. No Power To Digitization Rack	WP 0080 00
26. No Power To Mobile Tracking System (MTS) Sense	WP 0080 00
27. No Power To Enhanced Position Location Reporting System (EPLRS)	WP 0080 00
28. No Power To Precision Lightweight Global Positioning System Receiver (PLGR)	WP 0080 00
29. No Power To Driver Visual Enhancement (DVE)	WP 0080 00
30. No Power To SINGGAR/Force XXI Battle Command Or Below (FBCB)	WP 0080 00
31. No Power To Mobile Tracking System (MTS)	WP 0080 00
CAB TILT AND SPARE TIRE RETAINER	
1. Cab Does Not Raise Or Lower Properly	WP 0081 00
2. Spare Tire Does Not Raise Or Lower Properly	WP 0081 00
FRAME TROUBLESHOOTING	
Tires Continue To Wear After Front End Alignment And/Or Vehicle Drives Sideways Down	WP 0082 00

ENGINE SYSTEM TROUBLESHOOTING 0061 00

THIS WORK PACKAGE COVERS:
Engine System

INITIAL SETUP:

Maintenance Level
Operator

References
WP 0016 00
WP 0017 00
WP 0062 00
WP 0064 00
WP 0065 00
WP 0083 00
WP 0088 00
WP 0089 00

ENGINE SYSTEM

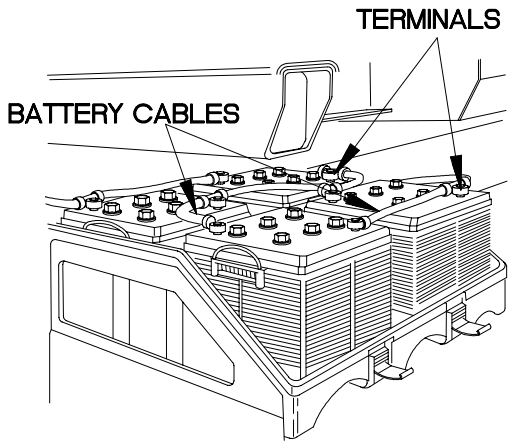
Table 1. Engine System Troubleshooting Procedures.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
1. ENGINE DOES NOT CRANK	1. Are batteries, battery cables, and terminal post free from damage and corrosion?	1. Remove battery box cover (WP 0088 00).

ENGINE SYSTEM - Continued

Table 1. Engine System Troubleshooting Procedures - Continued.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
1. ENGINE DOES NOT CRANK - Continued		2. Check batteries, battery cables, and terminal posts for apparent damage and corrosion.
		3. If damage or corrosion is present, notify Unit Maintenance.
		4. If no damage or corrosion is present, go to test 2 of this malfunction.
	2. Are batteries cells at appropriate fluid levels?	1. If batteries cells are not at appropriate level, notify Unit Maintenance.
		2. If batteries cells are at appropriate level, perform Electrical System Troubleshooting (WP 0065 00 Malfunction 1. Engine Does Not Crank).
2. ENGINE CRANKS BUT DOES NOT START	1. Check for restricted air cleaner (WP 0089 00).	1. If restricted, clean air filter element (WP 0089 00).



ENGINE SYSTEM - Continued

Table 1. Engine System Troubleshooting Procedures - Continued.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
2. ENGINE CRANKS BUT DOES NOT START - Continued		2. If air filter element will not clean, notify Unit Maintenance. 3. If engine cranks but still does not start, perform Fuel System Troubleshooting (WP 0062 00, Malfunction 1, Engine Cranks But Does Not Start or Engine Stalls After Starting).
3. LOW ENGINE OIL PRESSURE	1. Check for proper engine oil level.	1. Check engine oil level (WP 0083 00, Table 3, Item 6). 2. If engine oil level is low, add engine oil (WP 0083 00, Table 3, Item 6). 3. If engine oil level is high, notify Unit Maintenance.
	2. Check engine oil for contamination.	1. If engine oil is contaminated, notify Unit Maintenance. 2. If engine oil pressure is still low, notify Unit Maintenance.
4. ENGINE STALLS AT LOW RPM	1. Check for restricted air cleaner (WP 0089 00).	1. If restricted, clean air filter element (WP 0089 00). 2. If air filter element will not clean, notify Unit Maintenance.
	2. Check air cleaner hoses and pipe for kinks and damage.	1. Check air particle restriction hose for kinks and damage. 2. Raise cab (WP 0017 00).

ENGINE SYSTEM - Continued

Table 1. Engine System Troubleshooting Procedures - Continued.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
4. ENGINE STALLS AT LOW RPM – Continued		3. Check air cleaner to turbocharger pipe and hose for kinks or damage. 4. If pipe or hose(s) is damaged or kinked, notify Unit Maintenance. 5. Lower cab (WP 0017 00). 6. If engine stalls at low rpm, notify Unit Maintenance.
5. ENGINE OVERSPEEDS ON START		Notify Unit Maintenance.
6. TOO MUCH ENGINE VIBRATION	1. Check for restricted air cleaner (WP 0089 00).	1. If restricted, clean air cleaner element (WP 0089 00). 2. If air filter element will not clean, notify Unit Maintenance.
	2. Check for loose vibration damper and/or missing bolts and damage.	1. Raise cab (WP 0017 00). 2. Visually check vibration damper for loose and/or missing bolts and damage. 3. If vibration damper bolts are loose or missing or vibration damper is damaged, notify Unit Maintenance. 4. Lower cab (WP 0017 00).

ENGINE SYSTEM - Continued

Table 1. Engine System Troubleshooting Procedures - Continued.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
6. TOO MUCH ENGINE VIBRATION - Continued		5. If engine still vibrates too much, notify Unit Maintenance.
7. COOLANT IN ENGINE LUBRICATION OIL		Notify Unit Maintenance.
8. EXCESSIVE ENGINE OIL CONSUMPTION	1. Check for proper engine oil level.	1. Check engine oil level (WP 0083 00, Table 3, Item 6).
		2. If engine oil level is low, add engine oil (WP 0083 00, Table 3, Item 6).
		3. If engine oil level is high, notify Unit Maintenance.
	2. Check for Class II and Class III oil leaks.	1. Visually check oil tubes, engine block, and oil filter for Class II and Class III oil leaks.
		2. If Class II and/or Class III oil leaks are found, notify Unit Maintenance.
		3. If oil consumption is still excessive, notify Unit Maintenance.
9. ENGINE OVERHEATS		Perform Cooling System Troubleshooting (WP 0064 00, Malfunction 1, Engine Overheats).
10. EXCESSIVE BLACK OR GRAY EXHAUST SMOKE FROM ENGINE	1. Check for restricted air cleaner (WP 0089 00).	1. If restricted, clean air filter element (WP 0089 00).

ENGINE SYSTEM - Continued

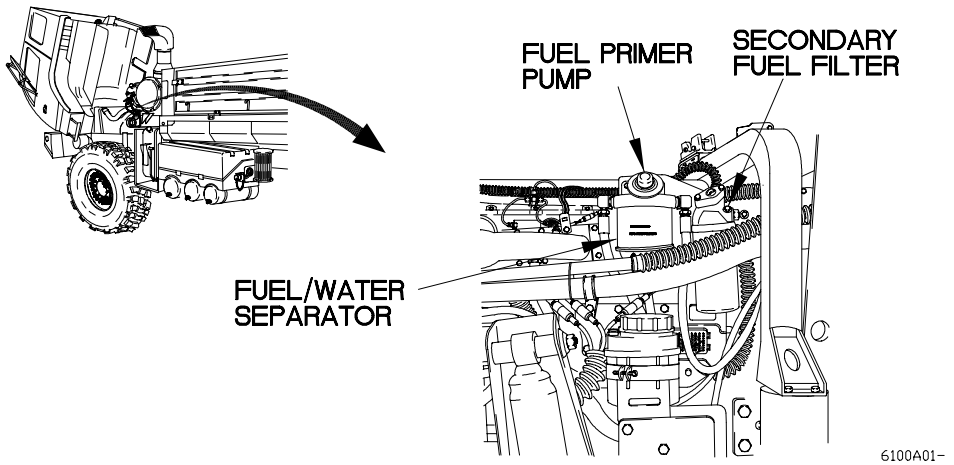
Table 1. Engine System Troubleshooting Procedures - Continued.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
10. EXCESSIVE BLACK OR GRAY EXHAUST SMOKE FROM ENGINE - Continued		2. If air filter element will not clean, notify Unit Maintenance.
	2. Check air cleaner hoses and pipe for kinks and damage.	1. Check air particle restriction hose for kinks and damage. 2. Raise cab (WP 0017 00). 3. Check air cleaner to turbocharger pipe and hose for kinks or damage. 4. If pipe or hose(s) is damaged or kinked, notify unit Maintenance. 5. Lower cab (WP 0017 00). 6. If excessive black or gray smoke is still seen from engine, notify Unit Maintenance.
11. WHITE EXHAUST SMOKE FROM ENGINE	Check for restricted air cleaner (WP 0089 00).	1. If restricted, clean air filter element (WP 0089 00). 2. If air filter element will not clean, notify Unit Maintenance. 3. If white exhaust smoke is still seem from engine, notify Unit Maintenance.
12. ENGINE SPEED IS NOT STABLE	1. Check for restricted air cleaner (WP 0089 00).	1. If restricted, clean air filter element (WP 0089 00).

ENGINE SYSTEM - Continued

Table 1. Engine System Troubleshooting Procedures - Continued.

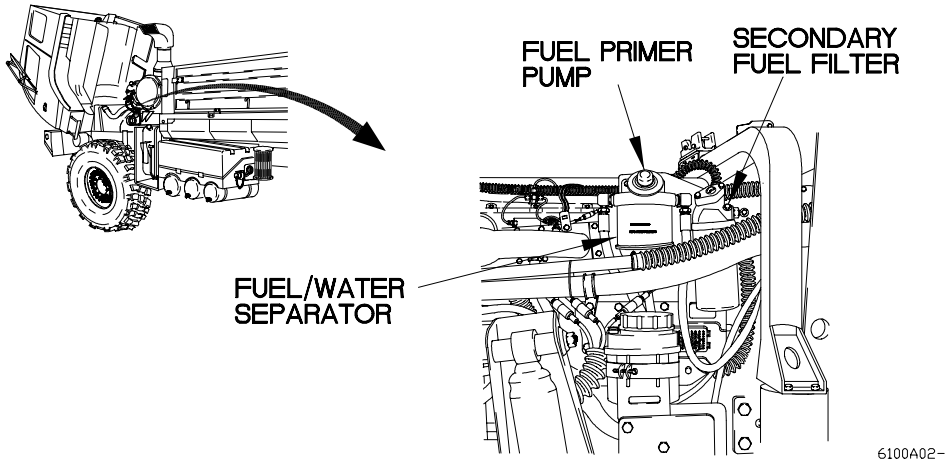
MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
12. ENGINE SPEED IS NOT STABLE – Continued		2. If air filter element will not clean, notify Unit Maintenance.
	2. Check for fuel leaks.	1. Raise cab (WP 0017 00).
		2. Check secondary fuel filter, fuel hoses, fuel fittings, draincocks, fuel tank hoses and tank, and other hoses that hold fuel for leaks.
		3. If any fuel leaks are found, notify Unit Maintenance.
		4. Lower cab (WP 0017 00).
		5. If engine speed is still not stable, notify Unit Maintenance.
13. ENGINE STARTS BUT MISFIRES, RUNS ROUGH, OR LACKS POWER	1. Check for restricted air cleaner (WP 0089 00).	1. If restricted, clean air filter element (WP 0089 00).



ENGINE SYSTEM - Continued

Table 1. Engine System Troubleshooting Procedures - Continued.

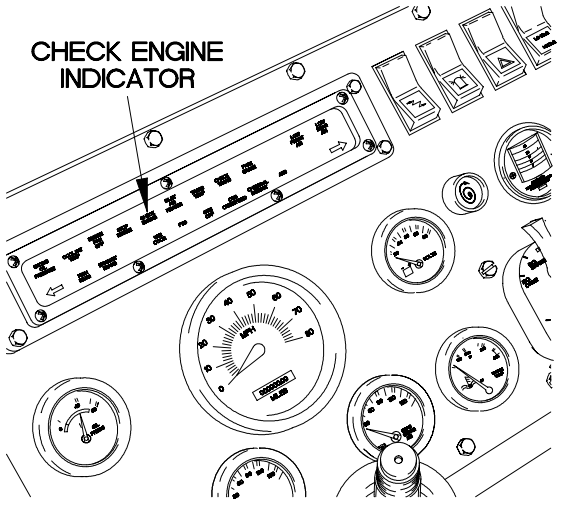
MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
13. ENGINE STARTS BUT MISFIRES, RUNS ROUGH, OR LACKS POWER - Continued		2. If air filter element will not clean, notify Unit Maintenance.
	2. Check for fuel leaks.	1. Raise cab (WP 0017 00). 2. Check secondary fuel filter, fuel hoses, fuel fittings, draincocks, fuel tank hoses and tank, and other hoses that hold fuel for leaks.
		3. If any fuel leaks are found, notify Unit Maintenance. 4. Lower cab (WP 0017 00). 5. If engine starts but misfires, runs rough, or lacks power, notify Unit Maintenance.
14. BLUE EXHAUST SMOKE FROM ENGINE	Check for proper engine oil level.	1. Check engine oil level (WP 0083 00, Table 3, Item 6).



ENGINE SYSTEM - Continued

Table 1. Engine System Troubleshooting Procedures - Continued.

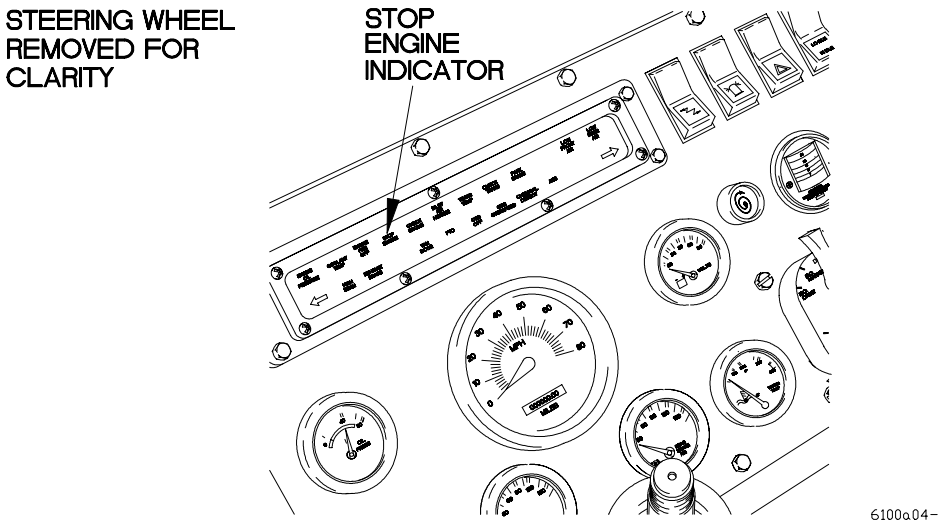
MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
14. BLUE EXHAUST SMOKE FROM ENGINE - Continued		2. If engine oil level is low, add engine oil (WP 0083 00, Table 3, Item 6). 3. If engine oil level is high, notify Unit Maintenance. 4. If blue exhaust smoke is still seen from engine, notify Unit Maintenance.
15. CHECK ENGINE INDICATOR REMAINS ILLUMINATED	1. Check to see if CHECK ENGINE indicator remains illuminated after test drive.	1. Start engine (WP 0016 00). 2. Test drive vehicle. 3. Check to see if CHECK ENGINE indicator remains illuminated.
		4. Shut down engine (WP 0018 00).



ENGINE SYSTEM - Continued

Table 1. Engine System Troubleshooting Procedures - Continued.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
15. CHECK ENGINE INDICATOR REMAINS ILLUMINATED - Continued		5. If CHECK ENGINE indicator remains illuminated, notify Unit Maintenance.
16. STOP ENGINE INDICATOR REMAINS ILLUMINATED	1. Check to see if STOP ENGINE indicator remains illuminated after test drive.	1. Start engine (WP 0016 00). 2. Test drive vehicle. 3. Check to see if STOP ENGINE indicator remains illuminated.
		4. Shut down engine (WP 0018 00). 5. If STOP ENGINE indicator remains illuminated, notify Unit Maintenance.



END OF TASK

FUEL SYSTEM TROUBLESHOOTING 0062 00

THIS WORK PACKAGE COVERS:
Fuel System

INITIAL SETUP:

Maintenance Level
Operator

References
WP 0015 00
WP 0016 00
WP 0017 00
WP 0061 00
WP 0065 00

FUEL SYSTEM

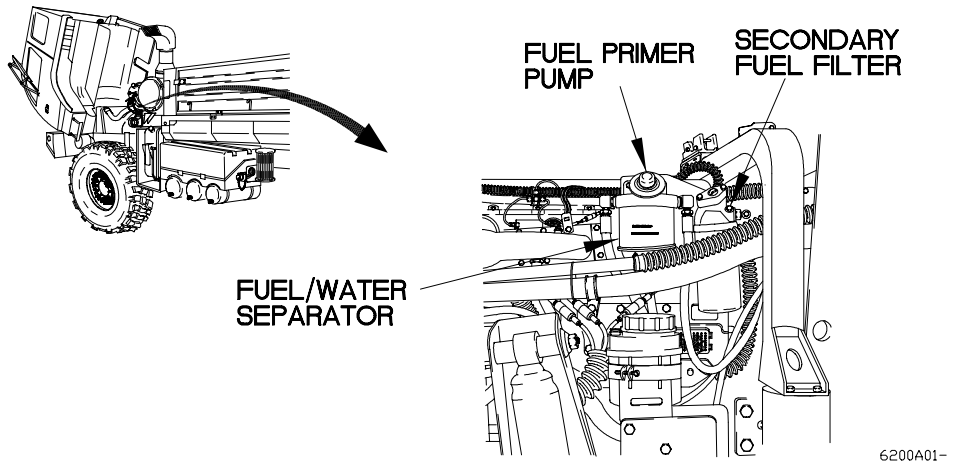
Table 1. Fuel System Troubleshooting Procedures.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
1. ENGINE CRANKS BUT DOES NOT START, OR ENGINE STALLS AFTER STARTING	1. Perform Engine System Troubleshooting.	Perform Engine System Troubleshooting (WP 0061 00, Malfunction 2, Engine Cranks But Does Not Start).
	2. Check to see if fuel tank is empty.	1. If fuel tank is empty, fill fuel tank (WP 0015 00).
		2. If engine still cranks but does not start, perform Electrical System (WP 0065 00, Malfunction 5, Engine Cranks But Does Not Start).
2. ETHER STARTING AID DOES NOT OPERATE	Check to see if engine starts using ether starting aid.	1. Attempt to start engine using ether starting aid (WP 0016 00).
		2. If ether starting aid does not operate, perform Electrical System Troubleshooting (WP 0065 00, malfunction 100, Ether Starting Aid Does Not Operate).

FUEL SYSTEM TROUBLESHOOTING - Continued 0062 00

FUEL SYSTEM - Continued

Table 1. Fuel System Troubleshooting Procedures - Continued.

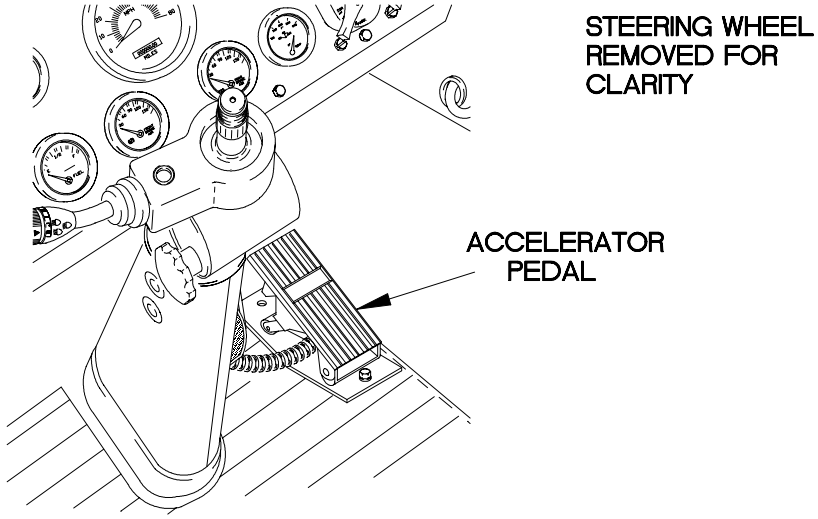
MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
3. FUEL CONSUMPTION TOO HIGH	Check for fuel leaks.	1. Raise cab (WP 0017 00). 2. Check secondary fuel filter, fuel hoses, fuel fittings, draincocks, fuel tank hoses and tank, and other hoses that hold fuel for leaks. 3. If any fuel leaks are found, notify Unit Maintenance.  4. If fuel consumption is still too high, notify Unit Maintenance. 5. Lower cab (WP 0017 00).

FUEL SYSTEM TROUBLESHOOTING - Continued 0062 00

FUEL SYSTEM - Continued

Table 1. Fuel System Troubleshooting Procedures - Continued.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
4. ACCELERATOR PEDAL STICKS	Check to see if accelerator pedal sticks.	If accelerator pedal sticks, notify Unit Maintenance.



END OF TASK

EXHAUST SYSTEM TROUBLESHOOTING 0063 00

THIS WORK PACKAGE COVERS:
Exhaust System

INITIAL SETUP:

Maintenance Level
Operator

Reference
FM 21-11

Condition
Engine Running (WP 0016 00).

EXHAUST SYSTEM

Table 1. Exhaust System Troubleshooting Procedures.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
1. EXHAUST SYSTEM UNUSUALLY NOISY OR VIBRATES EXCESSIVELY DURING ENGINE OPERATION	1. Listen to hear if exhaust system is unusually noisy.	If exhaust system is unusually noisy, notify Unit Maintenance.
	2. Check exhaust system for excessive vibration.	1. If exhaust system vibrates excessively, notify Unit Maintenance. 2. Shut down engine (WP 0016 00).
2. EXHAUST FUMES IN CAB	Check for exhaust fumes in cab.	1. Briefly roll up windows and check for exhaust fumes in cab. 2. If exhaust fumes continue to escape into cab, notify Unit Maintenance. 3. Shut down engine (WP 0016 00).

END OF TASK

COOLING SYSTEM TROUBLESHOOTING 0064 00

THIS WORK PACKAGE COVERS:
Cooling System

INITIAL SETUP:

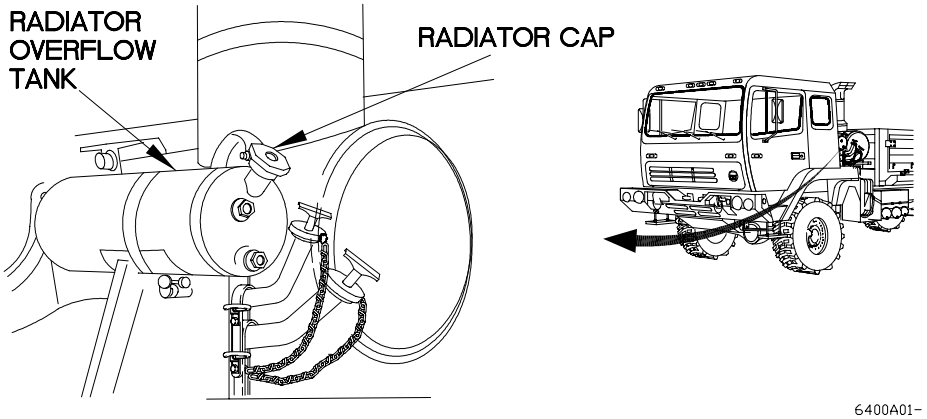
Maintenance Level
Operator

References
WP 0017 00
WP 0083 00

COOLING SYSTEM

Table 1. Cooling System Troubleshooting Procedures.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
WARNING **Extreme care should be taken when removing radiator cap if WATER TEMP gage reads above 180° F (82° C). Contact with steam or hot coolant under pressure may result. Failure to comply may result in injury to personnel.**		
1. ENGINE OVERHEATS	1. Check coolant level at radiator overflow tank.	If low, add coolant as required (WP 0083 00, Table 1, Item 3).
	2. Check radiator cap for leakage and damage.	If leaking or damaged, notify Unit Maintenance.



COOLING SYSTEM TROUBLESHOOTING - Continued 0064 00

COOLING SYSTEM - Continued

Table 1. Cooling System Troubleshooting Procedures - Continued.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
1. ENGINE OVERHEATS - Continued	3. Check radiator overflow tank and hoses for leaks and damage.	If leaking or damaged, notify Unit Maintenance.
	4. Check outside of radiator core for obstructions.	1. Raise cab (WP 0017 00).
		2. Check radiator fins for obstructions.
		3. If clogged, remove debris.
	5. Check for leakage from radiator hoses and hose connections.	1. If loose, tighten.
		2. If damaged, notify Unit Maintenance.
		3. Lower cab (WP 0017 00).
		4. If engine continues to overheat, notify Unit Maintenance.
2. OIL IN COOLING SYSTEM		Notify Unit Maintenance.
WARNING **Extreme care should be taken when removing radiator cap if WATER TEMP gage reads above 180° F (82° C). Contact with steam or hot coolant under pressure may result. Failure to comply may result in injury to personnel.**		
3. LOSS OF COOLANT	1. Check radiator cap for leakage and damage.	If leaking or damaged, notify Unit Maintenance.

COOLING SYSTEM TROUBLESHOOTING - Continued 0064 00

COOLING SYSTEM - Continued

Table 1. Cooling System Troubleshooting Procedures - Continued.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
3. LOSS OF COOLANT - Continued	2. Check radiator overflow tank and hoses for leaks and damage.	If leaking or damaged, notify Unit Maintenance.
	3. Check radiator fins for obstructions.	1. Raise cab (WP 0017 00).
		2. Check radiator fins for obstructions.
		3. If clogged, remove debris.
	4. Check all hoses and connections for visual signs of leakage.	1. If loose, tighten.
		2. If damaged, notify Unit Maintenance
		3. Lower cab (WP 0017 00).
		4. If coolant loss is still seen, notify Unit Maintenance.

END OF TASK

ELECTRICAL SYSTEM TROUBLESHOOTING 0065 00

THIS WORK PACKAGE COVERS:
Electrical System

INITIAL SETUP:

Maintenance Level
Operator

ELECTRICAL SYSTEM

Table 1 is used to identify circuit breakers for electrical system Troubleshooting for the Van Body. Refer to Printed Circuit Board Decal for Circuit Breaker Locations.

Table 1. Van Body Circuit Breaker Identification

REFERENCE DESIGNATOR	FUNCTION	CB AMPS	CIRCUIT VOLTAGE
CB1	Van VAC Power	200.0	110/206
CB2	Van Air Conditioner Power	30.0	206
CB3	VAN VAC Power	50.0	110/206
CB5	Van 110 VAC Outlets, Forward	20.0	110
CB6	Van AC Lighting	15.0	110
CB7	Van 110 VAC Outlets, Middle	20.0	110
CB8	Van Heater/Fan	15.0	110
CB9	Van 110 VAC Outlets, Rear	20.0	110
CB10	Van Blackout Lights	5.0	24
CB11	Van 24 VDC Outlets	20.	24

ELECTRICAL SYSTEM - Continued

Table 2 is used to identify circuit breakers for electrical system Troubleshooting. Refer to Printed Circuit Board Decal for Circuit Breaker Locations.

Table 2. Circuit Breaker Identification

REFERENCE DESIGNATOR	FUNCTION	CB AMPS	CIRCUIT VOLTAGE
CB20	Radio Power	25.0	24
CB21	Air Dryer Heater	15.0	24
CB22	Fan Off, Inlet Air Heater, and Ether Starting Aid	10.0	24
CB23	Heater Blower	15.0	24
CB30	Chemical Detector	10.0	24
CB37	Wiper/Washer/Horn	10.0	24
CB38	Amber Warning Light	15.0	12
CB39	Trailer Blackout Stop	10.0	24
CB40	CTIS Power	8.0	24
CB41	Trailer Taillight/Blackout Marker	15.0	24
CB42	Engine ECM	30.0	24
CB43	PTO Power	10.0	24
CB44	Trailer Taillight	15.0	24
CB45	Fuel Preheat Control/Ignition	15.0	24
CB48	Arctic Kit and Light Material Handling Crane	20.0	24
CB49	PTO Power	15.0	24
CB50	Van Door Open Light	15.0	24
CB54	Blackout Drive Light	8.0	12
CB65	Parking Lights	8.0	12

ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

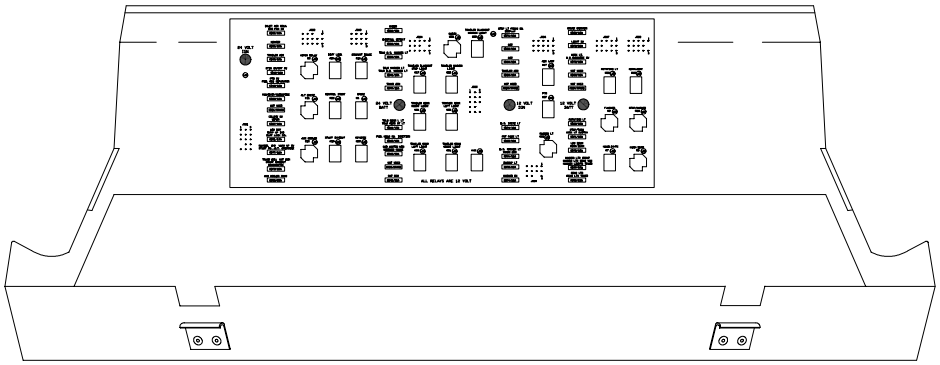
Table 2. Circuit Breaker Identification for Electrical System Troubleshooting - Continued.

REFERENCE DESIGNATOR	FUNCTION	CB AMPS	CIRCUIT VOLTAGE
CB66	Blackout Marker (front and rear)	10.0	12
CB67	Trailer Taillight/Marker Lights	25.0	12
CB70	Blackout Marker, Blackout Drive Light, Blackout Marker (front and rear), Marker Lights, Parking Lights, Accessory Power, Backup Light, Headlights, Auxiliary Panel, Instrument Panel, and Personnel Heater Illuminations	20.0	12
CB71	Rear Composite Trailer Taillight/Hazard Flasher, Stop Lights	15.0	12
CB72	Work Lights, Blackout Override	15.0	12
CB73	Backup Light	10.0	12
CB74	Turn Signals	10.0	12
CB76	Blackout Stop/Lighted Indicator Display	15.0	12
CB77	Engine Instruments	10.0	24
CB78	Headlights	15.0	12
CB79	PTO Power	15.0	24
CB80	INTERVEHICULAR Taillights	25.0	12
CB82	ABS Power, ABS Indicator	10.0	12
CB83	ABS Power	10.0	12
CB85	12V Power Outlet	20.0	12

ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 2. Circuit Breaker Identification for Electrical System Troubleshooting - Continued.

REFERENCE DESIGNATOR	FUNCTION	CB AMPS	CIRCUIT VOLTAGE
 6500a01-			

ELECTRICAL SYSTEM - Continued

Table 3 is used to identify relays for electrical system Troubleshooting for the van body. Refer to Printed Circuit Board Decal for Circuit Breaker Locations.

Table 3. Van Body Relay Identification.

REFERENCE DESIGNATOR	FUNCTION	VOLTAGE
K35	Power Control Relay	
K36	Blackout Override Relay	
K41	Van Light Relay	

Table 4 is used to identify relays for electrical system Troubleshooting. Refer to Printed Circuit Board Decal for Circuit Breaker Locations.

Table 4. Relay Identification.

REFERENCE DESIGNATOR	FUNCTION	CIRCUIT VOLTAGE
K1	24V Ignition Relay	24 VDC
K2	12V Ignition Relay	12 VDC
K4	Spare Relay	12 VDC
K5	Wiper Delay Relay	12 VDC
K7	Headlight Relay	12 VDC
K8	Low/High Beam Relay	12 VDC
K9	Hazard Flasher Relay	12 VDC
K10	Stop Light Relay	12 VDC
K11	Alternator Excitation Relay	12 VDC
K12	Work Light Relay	12 VDC
K13	Rotary Warning Relay	12 VDC
K15	Auxiliary Cooler Relay	12 VDC
K16	Exhaust Brake Relay	12 VDC
K17	ABS Lamp Relay	12 VDC

ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 4. Relay Identification. (Continued)

REFERENCE DESIGNATOR	FUNCTION	CIRCUIT VOLTAGE
K19	Start Inhibit Relay	12 VDC
K20	Marker Lamps Relay	12 VDC
K21	Rear Left Light Relay	12 VDC
K22	Rear Right Light Relay	12 VDC
K25	Reverse Warning Relay	12 VDC
K26	Neutral Start Relay	12 VDC
K27	Trailer B.O. Stop Light	12 VDC
K28	Trailer Marker Light Relay	12 VDC
K29	Trailer B.O. Marker Light	12 VDC
K30	Trailer Rear Left Light Relay	12 VDC
K31	Trailer Rear Right Light Relay	12 VDC
K34	Differential Lock Relay	12 VDC
K37	PTO Relay	12 VDC
K42	Engine PTO Relay	12 VDC
K52	Radio Power Relay	12 VDC

ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5 describes the malfunctions, tests or inspections, and the corrective actions for the Electrical System Troubleshooting procedures.

Table 5. Electrical System Troubleshooting Procedures.

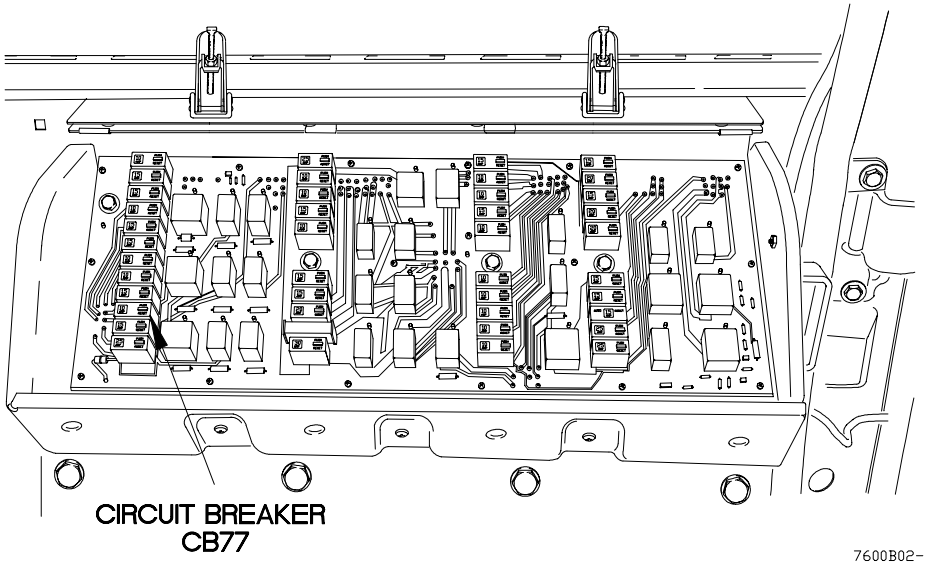
MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
NOTE Perform Engine System Troubleshooting (WP 0061 00, Malfunction 1, Engine Does Not Crank) before starting here.		
1. ENGINE DOES NOT CRANK	1. Has Preventative Maintenance Checks and Services (PMCS) Before checks been performed?	1. If PMCS Before checks have not been performed, perform M1078 A1 Series Preventative Maintenance Checks and Services (PMCS) (WP 0083 00) Before checks. 2. If PMCS Before checks have been performed, go to test 2 of this malfunction.
	2. Does WTEC III Transmission Pushbutton Shift Selector (TPSS) illuminate/operate?	1. Position master power switch to on (WP 0004 00). 2. Check to see if WTEC III TPSS displays “N” (WP 0004 00). 3. If WTEC III does not display “N”, perform Transmission System Troubleshooting (WP 0066 00, Malfunction 3. WTEC III Transmission Pushbutton Shift Selector (TPSS) Does Not Illuminate/Operate). 4. If WTEC III does display “N”, got to test 3 of this malfunction.

ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
1. ENGINE DOES NOT CRANK - Continued	3. Check to see if circuit breaker CB77 is tripped.	1. Remove Power Distribution Panel (PDP) cover (WP 0091 00). 2. If circuit breaker CB77 is tripped, push in to reset. 3. Attempt to start engine (WP 0016 00). 4. If circuit breaker CB77 trips again, notify Unit Maintenance.
		5. If vehicle still does not crank, notify Unit Maintenance. 6. Install PDP cover (WP 0091 00).

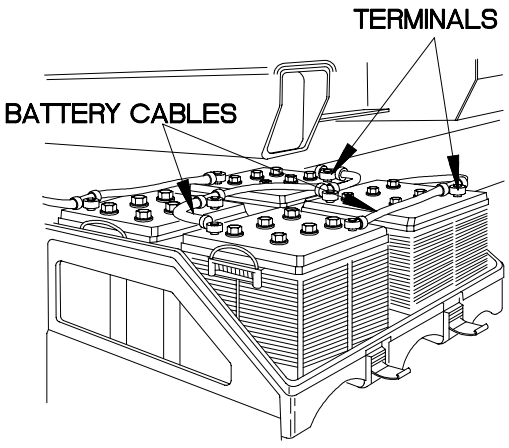


ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
2. 24 VDC CIRCUITS DO NOT OPERATE	1. Has Preventative Maintenance Checks and Services (PMCS) Before checks been performed?	1. If PMCS Before checks have not been performed, perform M1078 A1 Series Preventative Maintenance Checks and Services (PMCS) (WP 0083 00) Before checks. 2. If PMCS Before checks have been performed, go to test 2 of this malfunction.
	2. Are batteries, battery cables, and terminal post free from damage and corrosion?	1. Remove battery box cover (WP 0088 00). 2. Check batteries, battery cables, and terminal posts for apparent damage and corrosion.
		3. If damage or corrosion is present, notify Unit Maintenance.



ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

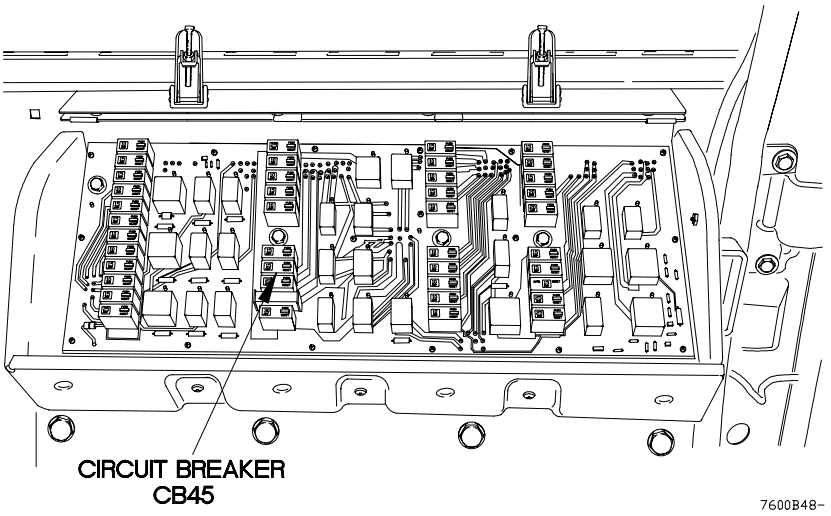
Table 5. Electrical System Troubleshooting Procedures – Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
2. 24 VDC CIRCUITS DO NOT OPERATE –Continued.		4. If not damage or corrosion is present, go to test 3 of this malfunction.
	3. Are batteries cells at appropriate fluid levels (WP 0088 00)?	1. If batteries cells are not at appropriate level, notify Unit Maintenance.
		2. If batteries cells are at appropriate level, go to test 4 of this malfunction.
	4. Is vehicle S/N 18,550 or higher?	1. If vehicle S/N is not 18, 550 or higher, go to test 6 of this malfunction.
		2. If vehicle S/N is 18,550 or higher, go to test 5 of this malfunction.
	5. Do service drive lights illuminate?	1. Position main light switch to SER DRIVE (WP 0004 00).
		2. Check to see SER DRIVE lights illuminate.
		3. If SER DRIVE lights do not illuminate, perform Electrical System Troubleshooting Malfunction 5, 12 and 24 VDC Circuits Do Not Operate (Vehicle S/N 18,550 or Higher).
		4. If SER DRIVE lights illuminate, go to test 6 of this malfunction.
	6. Check to see of circuit breaker CB45 is tripped.	1. Position main light switch to off (WP 0004 00).

ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
2. 24 VDC CIRCUITS DO NOT OPERATE –Continued.		2. Remove Power Distribution Panel (PDP) cover (WP 0091 00). 3. Check to see if circuit breaker CB45 is tripped.  4. If circuit breaker CB45 is tripped, push in to reset. 5. Position master power switch to on (WP 0004 00). 6. If circuit breaker CB45 trips again, notify Unit Maintenance. 7. Position master power switch to off (WP 0004 00). 8. If circuit breaker CB45 was not tripped or does not trip again, go to test 7 of this malfunction. 9. Install PDP cover (WP 0109 00).

ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

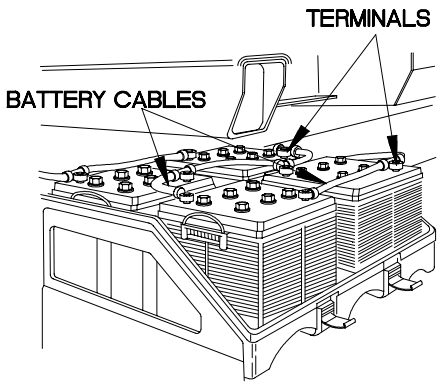
Table 5. Electrical System Troubleshooting Procedures – Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
2. 24 VDC CIRCUITS DO NOT OPERATE –Continued.	7. Do the windshield wipers operate?	1. Position master power switch to on (WP 0004 00). 2. Position windshield wiper switch to position “I” (WP 0007 00). 3. Check to see if windshield wipers operate on low speed. 4. If windshield wipers do not operate, notify Unit Maintenance. 5. If windshield wipers, operate, fault corrected. 6. Position windshield wiper switch to position “O” (WP 0007 00). 7. Position master power switch to off (WP 0004 00).
3. 12 VDC CIRCUITS DO NOT OPERATE (100 AMP Alternator)	1. Has Preventative Maintenance Checks and Services (PMCS) Before checks been performed?	1. If PMCS Before checks have not been performed, perform M1078 A1 Series Preventative Maintenance Checks and Services (PMCS) (WP 0083 00) Before checks. 2. If PMCS Before checks have been performed, go to test 2 of this malfunction.
	2. Are batteries, battery cables, and terminal post free from damage and corrosion?	1. Remove battery box cover (WP 0088 00).

ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

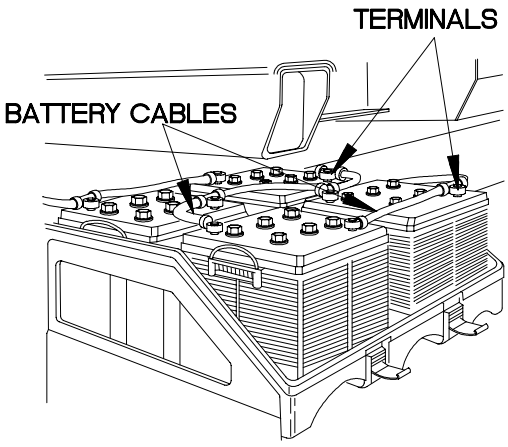
MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
3. 12 VDC CIRCUITS DO NOT OPERATE (100 AMP Alternator) - Continued		2. Check batteries, battery cables, and terminal posts for apparent damage and corrosion. 3. If damage or corrosion is present, notify Unit Maintenance. 4. If no damage or corrosion is present, go to test 3 of this malfunction.
		
	3. Are batteries cells at appropriate fluid levels (WP 0088 00)?	1. If batteries cells are not at appropriate level, notify Unit Maintenance. 2. If batteries cells are at appropriate level, notify Unit Maintenance..
4. 12 VDC CIRCUITS DO NOT OPERATE (200 AMP ALTERNATOR)		1. Notify Unit Maintenance.

ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
5. 12 VDC and 24 VDC CIRCUITS DO NOT OPERATE (VEHICLE S/N 18,550 OR HIGHER)	1. Has Preventative Maintenance Checks and Services (PMCS) Before checks been performed?	1. If PMCS Before checks have not been performed, perform M1078 A1 Series Preventative Maintenance Checks and Services (PMCS) (WP 0083 00) Before checksl 2. If PMCS Before checks have been performed, go to test 2 of this malfunction.
	2. Are batteries, battery cables, and terminal post free from damage and corrosion?	1. Remove battery box cover (WP 0088 00). 2. Check batteries, battery cables, and terminal posts for apparent damage and corrosion.
		3. If damage or corrosion is present, notify Unit Maintenance.

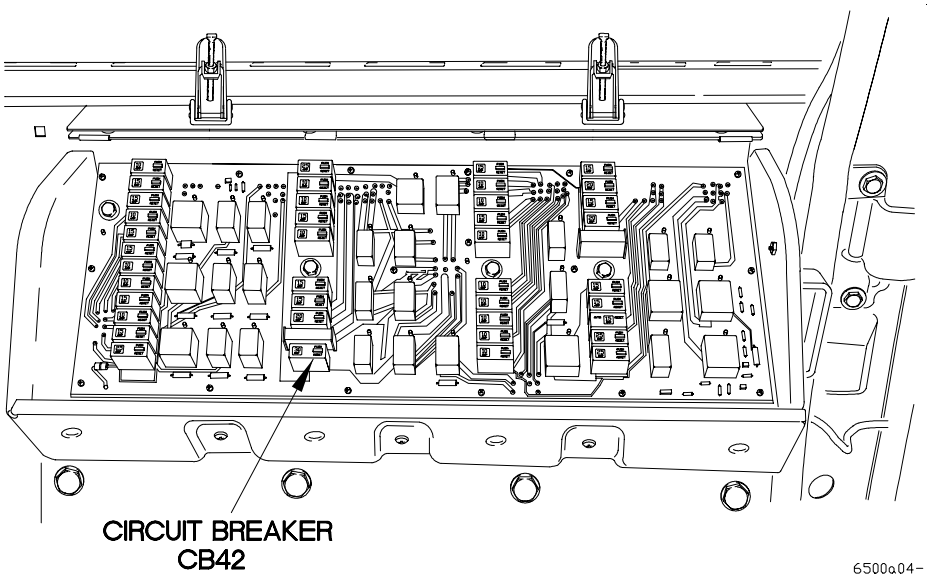


ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
5. 12 VDC and 24 VDC CIRCUITS DO NOT OPERATE (VEHICLE S/N 18,550 OR HIGHER) - Continued		4. If no damage or corrosion is present, go to test 3 of this malfunction.
	3. Are batteries cells at appropriate fluid levels (WP 0088 00)?	1. If batteries cells are not at appropriate level, notify Unit Maintenance.
		2. If batteries cells are at appropriate level, notify Unit Maintenance.
NOTE Perform Fuel System Troubleshooting (WP 0062 00, Malfunction 1, Engine Cranks But Does Not Start Or Engine Stalls After Starting) before starting here.		
6. ENGINE CRANKS BUT DOES NOT START	Check circuit breakers CB42 in PCB to see if it is tripped.	1. Remove PDP cover (WP 0091 00).



ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
6. ENGINE CRANKS BUT DOES NOT START - Continued		2. If circuit breaker is tripped, push in to reset. 3. Attempt to start engine (WP 0016 00). 4. If engine cranks but does not start, check circuit breakers to see if it is tripped again. If circuit breaker is tripped or trips again, notify Unit Maintenance. 5. Install PDP cover (WP 0091 00). 6. If engine cranks but still does not start, notify Unit Maintenance.
7. FUEL GAGE DOES NOT OPERATE OR IS INACCURATE	Check to see if any instrument panel gages operate.	1. Position master power switch to on (WP 0004 00). 2. If no instrument panel gages operate, perform Malfunction 134 (All Electrical Gages Do Not Operate). 3. If fuel gage does not operate or is inaccurate, notify Unit Maintenance. 4. Position master power switch to off (WP 0004 00).
8. WATER TEMP GAGE DOES NOT OPERATE OR IS INACCURATE	Check to see if any instrument panel gages operate.	1. Position master power switch to on (WP 0004 00).

ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
8. WATER TEMP GAGE DOES NOT OPERATE OR IS INACCURATE – Continued		2. If no instrument panel gages operate, perform Malfunction 134 (All Electrical Gages Do Not Operate).
		3. If WATER TEMP gage does not operate or is inaccurate, notify Unit Maintenance.
		4. Position master power switch to off (WP 0004 00).
9. REAR BRAKE AIR PRESSURE GAGE DOES NOT OPERATE OR IS INACCURATE	1. Check to see if any instrument panel gages operate.	1. Position master power switch to on (WP 0004 00).
		2. If no instrument panel gages operate, perform Malfunction 134 (All Electrical Gages Do Not Operate).
		3. Position master power switch to off (WP 0004 00).
	2. Check to see if REAR BRAKE AIR pressure gage operates and is accurate.	1. Start engine (WP 0016 00).
		2. If REAR BRAKE AIR pressure gage does not operate or is inaccurate notify Unit Maintenance.
		3. Shut down engine (WP 0016 00).
10. FRONT BRAKE AIR PRESSURE GAGE DOES NOT OPERATE OR IS INACCURATE	1. Check to see if any instrument panel gages operate.	1. Position master power switch to on (WP 0004 00).

ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
10. FRONT BRAKE AIR PRESSURE GAGE DOES NOT OPERATE OR IS INACCURATE - Continued		2. If no instrument panel gages operate, perform Malfunction 134 (All Electrical Gages Do Not Operate).
		3. Position master power switch to off (WP 0004 00).
	2. Check to see if FRONT BRAKE AIR pressure gage operates and is accurate.	1. Start engine (WP 0016 00).
		2. If FRONT BRAKE AIR pressure gage does not operate or is inaccurate notify Unit Maintenance.
		3. Shut down engine (WP 0016 00).
11. OIL PRESS GAGE DOES NOT OPERATE OR IS INACCURATE	1. Check to see if any instrument panel gages operate.	1. Position master power switch to on (WP 0004 00).
		2. If no instrument panel gages operate, perform Malfunction 134 (All Electrical Gages Do Not Operate).
		3. Position master power switch to off (WP 0004 00).
	2. Check to see if OIL PRESS gage operates and is accurate.	1. Start engine (WP 0016 00).
		2. If OIL PRESS gage does not operate or is inaccurate notify Unit Maintenance.

ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
11. OIL PRESS GAGE DOES NOT OPERATE OR IS INACCURATE - Continued		3. Shut down engine (WP 0016 00).
12. SPEEDOMETER DOES NOT OPERATE OR IS INACCURATE	1. Check to see if any instrument panel gages operate.	1. Position master power switch to on (WP 0004 00).
		2. If no instrument panel gages operate, perform Malfunction 134 (All Electrical Gages Do Not Operate).
		3. Position master power switch to off (WP 0004 00).
	2. Check to see if speedometer operates and is accurate.	If speedometer does not operate or is inaccurate, notify Unit Maintenance.
13. VOLTS GAGE DOES NOT OPERATE OR IS INACCURATE	1. Check to see if any instrument panel gages operate.	1. Position master power switch to on (WP 0004 00).
		2. If no instrument panel gages operate, perform Malfunction 134 (All Electrical Gages Do Not Operate).
		3. Position master power switch to off (WP 0004 00).
	2. Check to see if VOLTS gage operates and is accurate.	1. Start engine (WP 0016 00).
		2. If VOLTS gage does not operate or is inaccurate notify Unit Maintenance.

ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
13. VOLTS GAGE DOES NOT OPERATE OR IS INACCURATE - Continued		3. Shut down engine (WP 0016 00).
14. AUDIBLE ALARM DOES NOT OPERATE	1. Check to see if lamp test switch illuminates lighted indicator display (WP 0016 00).	If lamp test switch does not illuminate lighted indicator display, perform Malfunction 46 (Lamp Test Ground Does Not Operate).
	2. Check to see if electrical gages operate (WP 0016 00).	If electrical gages do not operate, perform Malfunction 135 (Audible Alarm, Radio, Electrical Gages, and Starter Pushbutton Do Not Operate Malfunction).
	3. Check to see if audible alarm operates (WP 0016 00).	If audible alarm does not operate notify Unit Maintenance.
15. AUDIBLE ALARM DOES NOT OPERATE WHEN TROOP TRANSPORT ALARM SWITCH IS TURNED ON	1. Check to see if lamp test switch illuminates lighted indicator display (WP 0016 00).	If lamp test switch does not illuminate lighted indicator display, perform Malfunction 46 (Lamp Test Ground Does Not Operate).
	2. Check to see if audible alarm sounds from low air pressure.	1. Drain air tanks (WP 0016 00).
		2. Position master power switch to on (WP 0004 00).

ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
15. AUDIBLE ALARM DOES NOT OPERATE WHEN TROOP TRANSPORT ALARM SWITCH IS TURNED ON - Continued		3. If audible alarm does not operate from low air pressure, perform Malfunction 14 (Audible Alarm Does Not Operate). 4. Position master power switch to off (WP 0004 00).
	3. Check to see if audible alarm operates when troop transport alarm switch is turned on.	1. Start engine (WP 0016 00). 2. Allow engine to run until air tanks are above 75 psi. 3. Check to see if troop transport alarm is audible (WP 0012 00). 4. If audible alarm does not operate when troop transport alarm switch is turned on, notify Unit Maintenance.
16. AUDIBLE ALARM DOES NOT OPERATE WITH VAN DOOR OPEN	1. Check to see if electrical gages operate (WP 0016 00).	If electrical gages do not operate, perform Malfunction 135 (Audible Alarm, Radio, Starter Pushbutton, and Electrical Gages Do Not Operate).
	2. Check to see if VAN DOOR indicator illuminates with van door open.	1. Position master power switch to on (WP 0004 00). 2. Open van door (WP 0026 00). 3. If van door indicator does not illuminate with van door open, perform Malfunction 130 (VAN DOOR Indicator Does Not Illuminate).

ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
16. AUDIBLE ALARM DOES NOT OPERATE WITH VAN DOOR OPEN - Continued		4. If VAN DOOR indicator illuminates and audible alarm does not sound, notify Unit Maintenance. 5. Position master power switch to off (WP 0004 00).
17. INSTRUMENT PANEL SWITCH DOES NOT ILLUMINATE		Notify Unit Maintenance.
18. INSTRUMENT PANEL GAGE DOES NOT ILLUMINATE	Check to see if any instrument panel gage illuminates (WP 0016 00).	1. If no instrument panel gage illuminates, perform Malfunction 19 (Auxiliary Panel, Personnel Heater, and Instrument Panel Assembly Do Not Illuminate). 2. If one instrument panel gage does not illuminate, notify Unit Maintenance.
19. AUXILIARY PANEL, PERSONNEL HEATER, AND INSTRUMENT PANEL DO NOT ILLUMINATE	1. Check to see if headlights illuminate (WP 0016 00).	If headlights do not illuminate, perform Malfunction 133 (All Main Light Switch Functions Do Not Operate).
	2. Check to see if Auxiliary panel, personnel heater, and instrument panel illuminate (WP 0016 00).	If Auxiliary panel, personnel heater, and instrument panel do not illuminate, notify Unit Maintenance.
	3. Check to see if headlights illuminate (WP 0016 00).	If headlights do illuminate, Notify Unit Maintenance.

ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
20. AUXILIARY PANEL SWITCH DOES NOT ILLUMINATE	1. Check to see if any auxiliary panel switch illuminates (WP 0016 00).	1. If other auxiliary panel switches do not illuminate, perform Malfunction 21 (Auxiliary Panel Does Not Illuminate). 2. If other auxiliary panel switches illuminate, notify Unit Maintenance.
21. AUXILIARY PANEL DOES NOT ILLUMINATE	1. Check to see if headlights illuminate (WP 0016 00). 2. Check to see if auxiliary panel illuminates (WP 0016 00).	If headlights do not illuminate, perform Malfunction 133 (All Main Light Switch Functions Do Not Operate). If auxiliary panel does not illuminate, notify Unit Maintenance.
22. COOLANT TEMP INDICATOR DOES NOT ILLUMINATE	Check to see if LAMP TEST switch illuminates COOLANT TEMP indicator (WP 0016 00).	1. If COOLANT TEMP indicator on lighted indicator display does not illuminate, perform Malfunction 46 (Lamp Test Ground Does Not Operate). 2. If LAMP TEST switch illuminates COOLANT TEMP indicator, notify Unit Maintenance.
23. COOLANT TEMP INDICATOR ILLUMINATES	Does WATER TEMP gage read below 216°F (102°C) when COOLANT TEMP indicator illuminates?	1. Start engine (WP 0016 00). 2. Check to see if WATER TEMP gage reads below 216°F (102°C) when COOLANT TEMP indicator illuminates.

ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

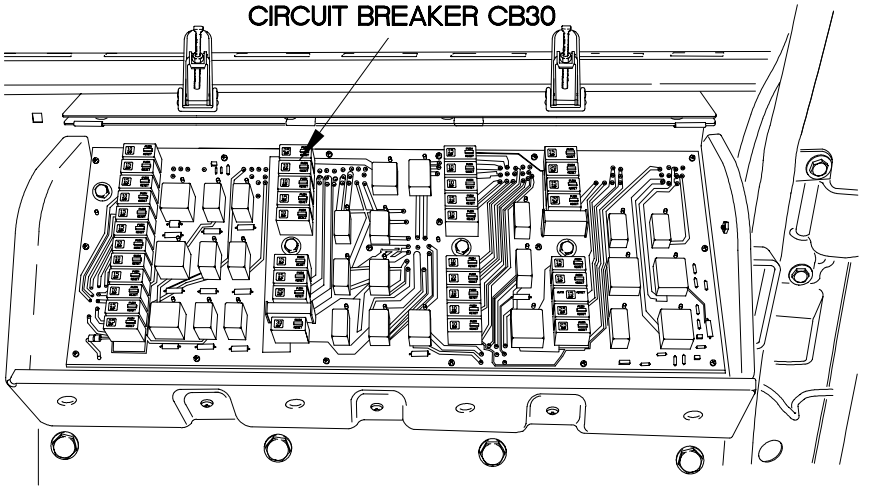
MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
23. COOLANT TEMP INDICATOR ILLUMINATES - Continued		3. If WATER TEMP gage reads above 216°F (102°C) when COOLANT TEMP indicator illuminates, perform Cooling System Troubleshooting (WP 0064 00, malfunction 1, Engine Overheats). 4. If WATER TEMP gage reads below 216°F (102°C) when COOLANT TEMP indicator illuminates, notify Unit Maintenance. 5. Shut down engine (WP 0016 00).
24. CTIS OVERSPEED INDICATOR DOES NOT ILLUMINATE	1. Check to see if LAMP TEST switch illuminates CTIS OVERSPEED indicator (WP 0016 00).	1. If LAMP TEST switch does not illuminate CTIS OVERSPEED indicator, perform Malfunction 45 (Lamp Test 24 VDC Does Not Operate). 2. If LAMP TEST switch illuminates CTIS OVERSPEED indicator, notify Unit Maintenance.
25. CHEMICAL DETECT INDICATOR DOES NOT ILLUMINATE	1. Check to see if LAMP TEST switch illuminates CHEMICAL DETECT indicator (WP 0016 00).	If LAMP TEST switch does not illuminates CHEMICAL DETECT indicator, perform Malfunction 45 (Lamp Test 24 VDC Does Not Operate).

ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
25. CHEMICAL DETECT INDICATOR DOES NOT ILLUMINATE - Continued	2. Check circuit breaker CB30 in PCB to see if it is tripped.	1. Remove PDP cover (WP 0091 00).
		2. If circuit breaker CB30 has tripped, push in to reset. 3. Position master power switch to on (WP 0004 00). 4. If circuit breaker CB30 has tripped again, notify Unit Maintenance.
	3. Check to see if CHEMICAL DETECT indicator illuminates (WP 0016 00).	If CHEMICAL DETECT indicator does not illuminate, notify Unit Maintenance.



ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
26. LEFT TURN SIGNAL INDICATOR DOES NOT ILLUMINATE	1. Check to see if LAMP TEST switch illuminates left turn signal indicator (WP 0016 00).	If LAMP TEST switch does not illuminate left turn signal indicator, perform Malfunction 45 (Lamp Test 24 VDC Does Not Operate).
	2. Check to see if left turn signal illuminate (WP 0007 00).	If left turn signal does not illuminate, perform Malfunction 68 (Front and Rear Turn Signals do Not Illuminate).
	3. Check to see if left turn signal indicator illuminates (WP 0007 00).	If left turn signal indicator still does not illuminate, notify Unit Maintenance.
27. RIGHT TURN SIGNAL INDICATOR DOES NOT ILLUMINATE	1. Check to see if LAMP TEST switch illuminates right turn signal indicator (WP 0016 00).	If LAMP TEST switch does not illuminates right turn signal indicator, perform Malfunction 45 (Lamp Test 24 VDC Does Not Operate).
	2. Check to see if right turn signal illuminates (WP 0007 00).	If right turn signal does not illuminate, perform Malfunction 68 (Front and Rear Turn Signals do Not Illuminate).
	3. Check to see if right turn signal indicator illuminates (WP 0007 00).	If right turn signal indicator still does not illuminate, notify Unit Maintenance.
28. HIGH BEAM INDICATOR DOES NOT ILLUMINATE	1. Check to see if LAMP TEST switch illuminates HIGH BEAM indicator (WP 0016 00).	If LAMP TEST switch does not illuminates HIGH BEAM indicator, perform Malfunction 45 (Lamp Test 24 VDC Does Not Operate).

ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
28. HIGH BEAM INDICATOR DOES NOT ILLUMINATE - Continued	2. Check to see if headlight high beams illuminate (WP 0016 00).	If headlight high beams do not illuminate, perform Malfunction 51 (One or Both Headlight High Beams Do Not Illuminate).
	3. Check to see if HIGH BEAM illuminate (WP 0007 00).	1. If HIGH BEAM indicator does not illuminate, notify Unit Maintenance. 2. If LAMP TEST switch illuminates PARK BRAKE indicator, notify Unit Maintenance.
29. PARK BRAKE INDICATOR DOES NOT ILLUMINATE	Check to see if LAMP TEST switch illuminates PARK BRAKE indicator (WP 0016 00).	If LAMP TEST switch does not illuminate PARK BRAKE indicator, perform Malfunction 46 (Lamp Test Ground Does Not Operate).
30. PTO INDICATOR DOES NOT ILLUMINATE	Check to see if LAMP TEST switch illuminates PTO indicator (WP 0016 00).	1. If LAMP TEST switch does not illuminates PTO indicator, perform Malfunction 46 (Lamp Test Ground Does Not Operate). 2. If LAMP TEST switch illuminates PTO indicator, notify Unit Maintenance.
31. ENGINE FAN OFF INDICATOR DOES NOT ILLUMINATE	Check to see if LAMP TEST switch illuminates FAN OFF indicator (WP 0016 00).	1. If LAMP TEST switch does not illuminates FAN OFF indicator, perform Malfunction 46 (Lamp Test Ground Does Not Operate). 2. If LAMP TEST switch illuminates FAN OFF indicator, notify Unit Maintenance.

ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
32. TRANS TEMP INDICATOR DOES NOT ILLUMINATE	1. Check to see if LAMP TEST switch illuminates TRANS TEMP indicator (WP 0016 00).	1. If LAMP TEST switch does not illuminate TRANS TEMP indicator, perform Malfunction 46 (Lamp Test Ground Does Not Operate). 2. If LAMP TEST switch illuminates TRANS TEMP indicator, notify Unit Maintenance.
33. LOW FRONT AIR INDICATOR DOES NOT ILLUMINATE (VEHICLE S/N 18,549 OR LOWER)	1. Check to see if LAMP TEST switch illuminates LOW FRONT AIR indicator (WP 0016 00).	If LAMP TEST switch does not illuminate LOW FRONT AIR indicator, perform Malfunction 46 (Lamp Test Ground Does Not Operate).
	2. Check to see if LOW FRONT AIR indicator illuminates (WP 0016 00).	1. Drain air tanks (WP 0016 00). 2. If LOW FRONT AIR indicator does not illuminate, notify Unit Maintenance.
34. LOW REAR AIR INDICATOR DOES NOT ILLUMINATE (VEHICLE S/N 18,549 OR LOWER)	1. Check to see if LAMP TEST switch illuminates LOW REAR AIR indicator(WP 0016 00).	If LAMP TEST switch does not illuminate LOW REAR AIR indicator, perform Malfunction 46 (Lamp Test Ground Does Not Operate).
	2. Check to see if LOW REAR AIR indicator illuminates (WP 0016 00)	1. Drain air tanks (WP 0016 00). 2. If LOW REAR AIR indicator does not illuminate, notify Unit Maintenance.

ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
35. LOW AIR INDICATOR DOES NOT ILLUMINATE (VEHICLE S/N 18,550 OR HIGHER)	Check to see if LAMP TEST switch illuminates LOW AIR indicator (WP 0016 00).	1. If LAMP TEST switch does not illuminate LOW AIR indicator, perform Malfunction 46 (Lamp Test Ground Does Not Operate). 2. If LAMP TEST does not illuminate LOW AIR indicator, notify Unit Maintenance.
36. ENGINE OIL PRESSURE INDICATOR DOES NOT ILLUMINATE	1. Check to see if LAMP TEST switch illuminates ENGINE OIL PRESSURE indicator (WP 0016 00).	If LAMP TEST switch does not illuminate ENGINE OIL PRESSURE indicator, perform Malfunction 46 (Lamp Test Ground Does Not Operate).
	2. Check to see if OIL PRESS gage operates (WP 0016 00).	If OIL PRESS gage does not operate, perform Malfunction 11 (Oil Press Gage Does Not Operate Or Is Inaccurate).
	3. Check to see if ENGINE OIL PRESSURE indicator illuminates (WP 0016 00).	If ENGINE OIL PRESSURE indicator does not illuminate, notify Unit Maintenance.
37. ENGINE OIL PRESSURE INDICATOR ILLUMINATES WHILE ENGINE IS RUNNING/REMAINS ILLUMINATED 10 SECONDS AFTER ENGINE STARTS	Does engine OIL PRESS gage read greater than 12 PSI while engine is running?	1. Start engine (WP 0016 00).. 2. Check to see if engine OIL PRESS gage reads greater than 12 PSI while engine is running (WP 0004 00).

ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
37. ENGINE OIL PRESSURE INDICATOR ILLUMINATES WHILE ENGINE IS RUNNING/REMAINS ILLUMINATED 10 SECONDS AFTER ENGINE STARTS - Continued		3. If engine OIL PRESS gage reads less than 12 PSI, perform Engine System Troubleshooting (WP 0061 00 Malfunction 3. Low Engine Oil Pressure). 4. If engine OIL PRESS gage reads greater than 12 PSI, notify Unit Maintenance. 5. Shut down engine (WP 0016 00).
38. STOP ENGINE INDICATOR DOES NOT ILLUMINATE	1. Check to see if LAMP TEST switch illuminates STOP ENGINE indicator (WP 0016 00).	If LAMP TEST switch does not illuminate STOP ENGINE indicator, perform Malfunction 46 (Lamp Test Ground Does Not Operate).
	2. Check to see if STOP ENGINE indicator illuminates.	If STOP ENGINE indicator does not illuminate, notify Unit Maintenance.
39. CHECK ENGINE INDICATOR DOES NOT ILLUMINATE	1. Check to see if LAMP TEST switch illuminates CHECK ENGINE indicator(WP 0016 00).	If LAMP TEST switch does not CHECK ENGINE indicator, perform Malfunction 46 (Lamp Test Ground Does Not Operate).
	2. Check to see if CHECK ENGINE indicator illuminates.	If CHECK ENGINE indicator does not illuminate, notify Unit Maintenance.
40. EXHAUST BRAKE INDICATOR DOES NOT ILLUMINATE	1. Check to see if exhaust brake operates (WP 0016 00).	If exhaust brake does not operate, perform Malfunction 109 (Exhaust Brake Does Not Operate).
	2. Check to see if LAMP TEST switch illuminates EXHAUST BRAKE indicator (WP 0016 00).	If LAMP TEST switch does not illuminate EXHAUST BRAKE indicator, perform Malfunction 45 (Lamp Test 24 VDC Does Not Operate).

ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

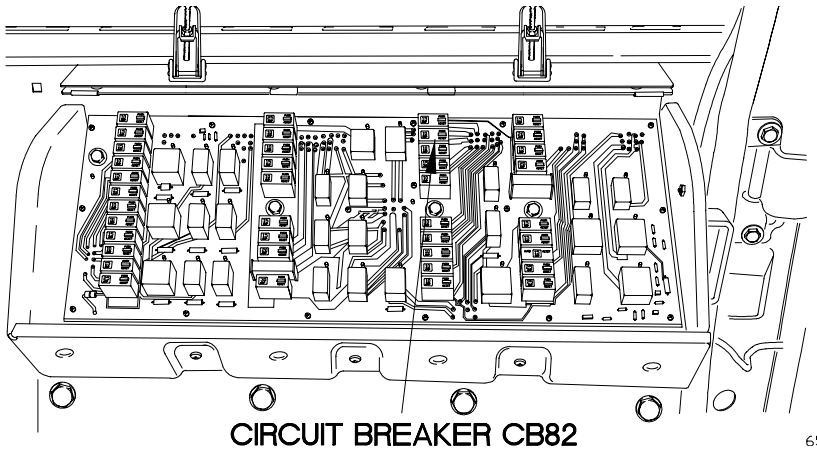
MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
40. EXHAUST BRAKE INDICATOR DOES NOT ILLUMINATE - Continued	3. Check to see if EXHAUST BRAKE indicator illuminates.	If EXHAUST BRAKE indicator does not illuminate, notify Unit Maintenance.
41. CHECK TRANS INDICATOR DOES NOT ILLUMINATE	1. Check to see if LAMP TEST switch illuminates CHECK TRANS indicator (WP 0016 00).	If LAMP TEST switch does not illuminate CHECK TRANS indicator, perform Malfunction 46 (Lamp Test Ground Does Not Operate).
	2. Check to see if CHECK TRANS indicator illuminates.	If CHECK TRANS indicator does not illuminate, notify Unit Maintenance.
42. INLET AIR INDICATOR DOES NOT ILLUMINATE	1. Check to see if LAMP TEST switch illuminates INLET AIR indicator (WP 0016 00).	If LAMP TEST switch does not illuminate INLET AIR indicator, perform Malfunction 45 (Lamp Test 24 VDC Does Not Operate).
	2. Check to see if INLET AIR indicator illuminates.	If INLET AIR indicator does not illuminate, notify Unit Maintenance.
43. ABS INDICATOR DOES NOT ILLUMINATE	1. Check to see if LAMP TEST switch illuminates ABS indicator (WP 0016 00).	If LAMP TEST switch does not illuminate ABS indicator, perform Malfunction 45 (Lamp Test 24 VDC Does Not Operate).

ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
43. ABS INDICATOR DOES NOT ILLUMINATE - Continued	2. Check circuit breaker CB82 in PCB to see if it is tripped.	1. Remove PDP cover (WP 0091 00).
		2. If circuit breaker is tripped, push in to reset.
		3. Position master power switch to on (WP 0004 00).
		4. Check circuit breaker to see if it is tripped. If circuit breaker is tripped or trips again, notify Unit Maintenance.
		5. Position master power switch to off (WP 0004 00).
		6. Install PDP cover (WP 0091 00).
	3. Check to see if ABS indicator illuminates.	If ABS indicator does not illuminate, notify Unit Maintenance.

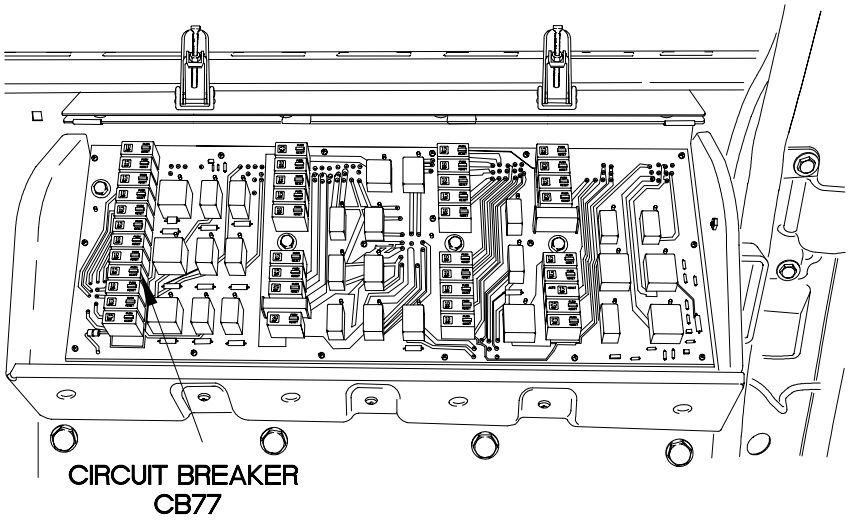


ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
44. CTIS OFF INDICATOR DOES NOT ILLUMINATE	1. Check to see if LAMP TEST switch illuminates CTIS OFF indicator (WP 0016 00).	If LAMP TEST switch does not illuminate CTIS OFF indicator, perform Malfunction 46 (Lamp Test Ground Does Not Operate).
	2. Check to see if CTIS OFF indicator illuminates.	If CTIS OFF indicator does not illuminate, notify Unit Maintenance.
45. LAMP TEST 24 VDC DOES NOT OPERATE	1. Check circuit breaker CB77 in PCB to see if it is tripped.	1. Remove PDP cover (WP 0091 00).
		2. If circuit breaker is tripped, push in to reset.
		3. Position main light switch to SER DRIVE (WP 0016 00).
		4. Check circuit breaker to see if it is tripped again. If circuit breaker is tripped or trips again, notify Unit Maintenance.

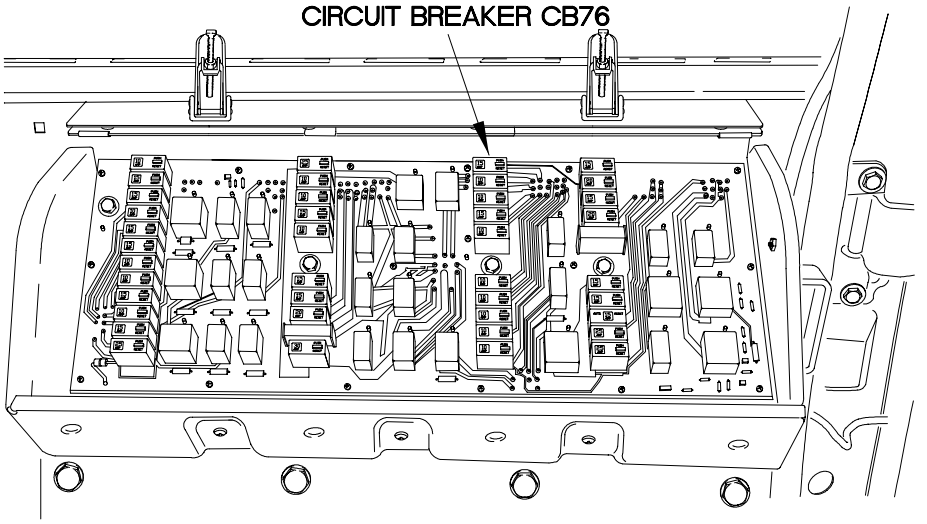


ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
45. LAMP TEST 24 VDC DOES NOT OPERATE Continued		5. Position main light switch to OFF (WP 0004 00). 6. Install PDP cover (WP 0091 00).
	2. Check to see if lamp test 24 VDC operates (WP 0016 00).	If lamp test 24 VDC does not operate, notify Unit Maintenance.
46. LAMP TEST GROUND DOES NOT OPERATE	1. Check circuit breaker CB76 in PCB to see if it is tripped.	1. Remove PDP cover (WP 0091 00).
		2. If circuit breaker is tripped, push in to reset. 3. Position main light switch to SER DRIVE (WP 0004 00).



ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
46. LAMP TEST GROUND DOES NOT OPERATE - Continued		4. Check circuit breaker to see if it is tripped again. If circuit breaker is tripped or trips again, notify Unit Maintenance. 5. Position main light switch to OFF (WP 0004 00). 6. Install PDP cover (WP 0091 00).
	2. Check to see if lamp test ground operates (WP 0016 00).	If lamp test ground does not operate, notify Unit Maintenance.
47. CHARGING SYSTEM INDICATOR DOES NOT ILLUMINATE (VEHICLE S/N 18,550 OR HIGHER)	Check to see if LAMP TEST switch illuminates CHARGING SYSTEM indicator.	1. If CHARGING SYSTEM indicator does not illuminate, perform Malfunction 46 (Lamp Test Ground Does Not Operate).
		2. If CHARGING SYSTEM indicator illuminates, notify Unit Maintenance.
48. BATTERY DISCONN INDICATOR DOES NOT ILLUMINATE (VEHICLE S/N 18,550 OR HIGHER)	Check to see if LAMP TEST switch illuminates BATTERY DISCONN indicator.	1. If BATTERY DISCONN indicator does not illuminate, perform Malfunction 46 (Lamp Test Ground Does Not Operate).
		2. If BATTERY DISCONN indicator illuminates, notify Unit Maintenance.
49. ONE OR BOTH HEADLIGHTS (HIGH AND LOW BEAMS) DO NOT ILLUMINATE		Notify Unit Maintenance

ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

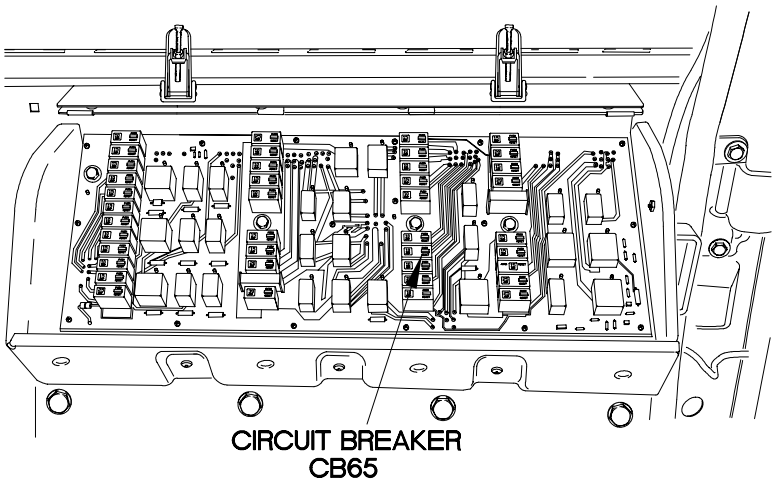
MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
50. ONE OR BOTH HEADLIGHT LOW BEAMS DO NOT ILLUMINATE	1. Check to see if headlight high beams illuminate (WP 0016 00).	If headlight high beams do not illuminate, perform Malfunction 49 (One Or Both Headlights (High And Low Beams) Do Not Illuminate).
	2. Check to see if one or both headlight low beams illuminate (WP 0016 00).	If headlight low beams do not illuminate, notify Unit Maintenance.
51. ONE OR BOTH HEADLIGHT HIGH BEAMS DO NOT ILLUMINATE	1. Check to see if one or both headlight low beams illuminate (WP 0016 00).	If headlight low beams do not illuminate, perform Malfunction 49 (One Or Both Headlights [High And Low Beams] Do Not Illuminate).
	2. Check to see if one or both headlight high beams illuminate (WP 0016 00).	If headlight high beams do not illuminate, notify Unit Maintenance.
52. PARKING LIGHTS DO NOT ILLUMINATE	1. Check to see if headlights illuminate (WP 0016 00).	If headlights do not illuminate, perform Malfunction 133 (All Main Light Switch Functions Do Not Operate).
	2. Check to see if turn signals illuminate (WP 0007 00).	If turn signals do not illuminate, perform Malfunction 58 (One Or Both Composite Taillights Do Not Illuminate).

ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
52. PARKING LIGHTS DO NOT ILLUMINATE - Continued	3. Check circuit breaker CB65 in PCB to see if it is tripped.	1. Remove PDP cover (WP 0091 00).
		2. If circuit breaker is tripped, push in to reset.
		3. Position main light switch to SER DRIVE (WP 0016 00).
		4. Check circuit breaker to see if it is tripped again. If circuit breaker is tripped or trips again, notify Unit Maintenance.
		5. Position main light switch to OFF (WP 0016 00).
		6. Install PDP cover (WP 0091 00).
	4. Check to see if parking lights illuminate (WP 0016 00).	If parking lights do not illuminate, notify Unit Maintenance.



ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

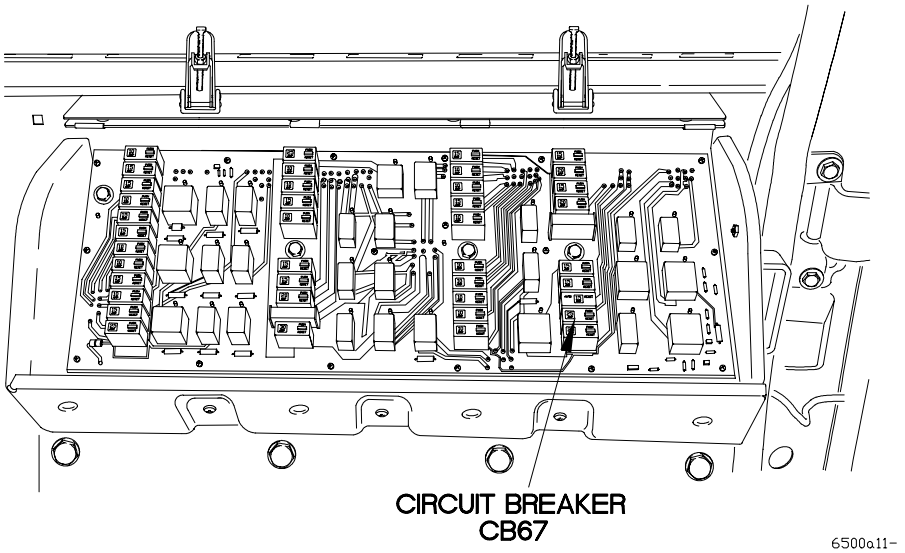
MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
53. LH DOOR AND/OR LH FRONT MARKER LIGHTS DO NOT ILLUMINATE	1. Check to see if other marker lights illuminate (WP 0016 00).	If other marker lights do not illuminate, perform Malfunction 57 (All Front and/or Rear Marker Lights Do Not Illuminate In Normal Mode).
	2. Check to see if LH door and/or LH front marker lights illuminate (WP 0016 00).	If LH door and/or LH front marker lights do not illuminate, notify Unit Maintenance.
54. RH DOOR AND/OR RH FRONT MARKER LIGHTS DO NOT ILLUMINATE	1. Check to see if other marker lights illuminate (WP 0016 00).	If other marker lights do not illuminate, perform Malfunction 57 (All Front and/or Rear Marker Lights Do Not Illuminate In Normal Mode).
	2. Check to see if RH door and/or RH front marker lights illuminate (WP 0016 00).	If RH door and/or RH front marker lights do not illuminate, notify Unit Maintenance.
55. ONE OR MORE CAB TOP MARKER LIGHTS DO NOT ILLUMINATE	1. Check to see if other marker lights illuminate (WP 0016 00).	If other marker lights do not illuminate, perform Malfunction 57 (All Front and/or Rear Marker Lights Do Not Illuminate In Normal Mode).
	2. Check to see if cab top marker lights illuminate (WP 0016 00).	1. If cab top marker lights do not illuminate, notify Unit Maintenance.
56. SIDE AND/OR REAR MARKER LIGHTS DO NOT ILLUMINATE	1. Check to see if other marker lights illuminate (WP 0016 00).	If other marker lights do not illuminate, perform Malfunction 57 (All Front and/or Rear Marker Lights Do Not Illuminate in Normal Mode).

ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
56. SIDE AND/OR REAR MARKER LIGHTS DO NOT ILLUMINATE - Continued	2. Check to see if side and/or rear marker lights illuminate (WP 0016 00).	If side and/or rear marker lights do not illuminate, notify Unit Maintenance.
57. ALL FRONT AND/OR REAR MARKER LIGHTS DO NOT ILLUMINATE IN NORMAL MODE	1. Check to see if headlights illuminate (WP 0016 00).	If headlights do not illuminate, perform Malfunction 133 (All Main Light Switch Functions Do Not Operate).
	2. Check to see if rear marker lights illuminate (WP 0016 00).	If rear marker lights illuminate, check to see if front marker lights illuminate.
	3. Check circuit breaker CB67 in PCB to see if it is tripped.	1. Remove PDP cover (WP 0091 00).



ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

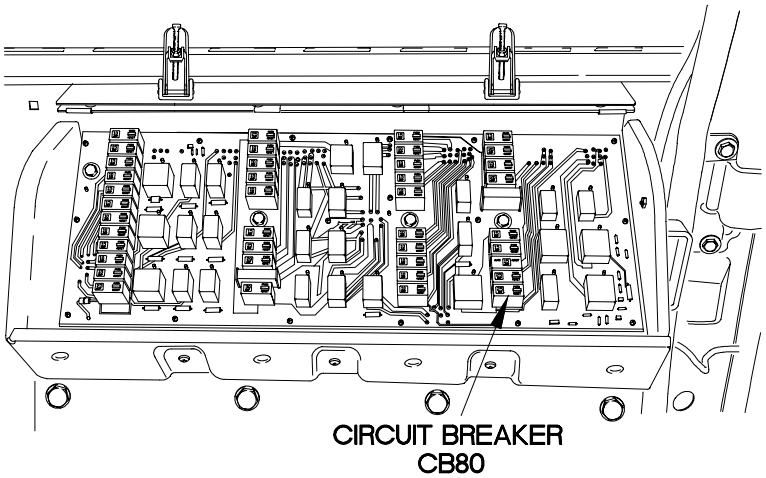
MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
57. ALL FRONT AND/OR REAR MARKER LIGHTS DO NOT ILLUMINATE IN NORMAL MODE - Continued		2. If circuit breaker is tripped, push in to reset. 3. Position main light switch to SER DRIVE (WP 0004 00). 4. Check circuit breaker to see if it is tripped again. If circuit breaker is tripped or trips again, notify Unit Maintenance. 5. Position main light switch to OFF (WP 0004 00). 6. Install PDP cover (WP 0091 00). 7. Perform step 6 of this malfunction (Check to see if marker lights illuminate).
	4. Check to see if front marker lights illuminate (WP 0016 00).	If rear marker lights illuminate, perform step 5 of this malfunction. If rear marker lights do not illuminate, perform step 6 of this malfunction.

ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
57. ALL FRONT AND/OR REAR MARKER LIGHTS DO NOT ILLUMINATE IN NORMAL MODE - Continued	5. Check circuit breaker CB80 in PCB to see if it is tripped.	1. Remove PDP cover (WP 0091 00).
		2. If circuit breaker is tripped, push in to reset. 3. Position main light switch to SER DRIVE (WP 0016 00). 4. Check circuit breaker to see if it is tripped again. If circuit breaker is tripped or trips again, notify Unit Maintenance. 5. Position main light switch to OFF (WP 0004 00). 6. Install PDP cover (WP 0091 00).



ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

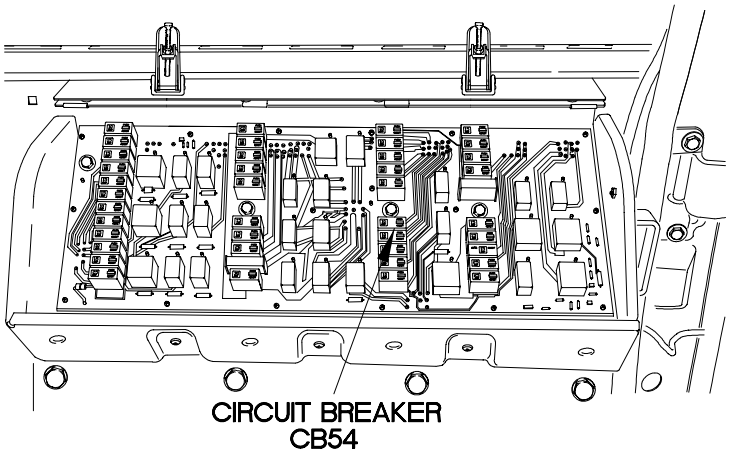
MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
57. ALL FRONT AND/OR REAR MARKER LIGHTS DO NOT ILLUMINATE IN NORMAL MODE - Continued	6. Check to see if marker lights illuminate (WP 0016 00).	If marker lights do not illuminate, notify Unit Maintenance.
58. ONE OR BOTH COMPOSITE TAILLIGHTS DO NOT ILLUMINATE	1. Check to see if front marker lights illuminate (WP 0016 00).	If front marker lights do not illuminate, perform Malfunction 57 (All Front and/or Rear Marker Lights Do Not Illuminate In Normal Mode).
	2. Check to see if left and right rear marker lights illuminate (WP 0016 00).	If left and right rear marker lights do not illuminate, perform Malfunction 56 (Side and/or Rear Marker Lights Do Not Illuminate).
	3. Check to see if one or both composite taillights illuminate (WP 0016 00).	If one or both composite taillights do not illuminate, notify Unit Maintenance.
59. ONE OR BOTH FRONT BLACKOUT MARKER LIGHTS DO NOT ILLUMINATE	1. Check to see if rear blackout marker lights illuminate (WP 0016 00).	If rear blackout marker lights do not illuminate, perform Malfunction 62 (All Blackout Marker Lights Do Not Illuminate).
	2. Check to see if front blackout marker lights illuminate (WP 0016 00).	If front blackout marker lights do not illuminate, notify Unit Maintenance.

ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
60. BLACKOUT DRIVE LIGHT DOES NOT ILLUMINATE	1. Check to see if blackout marker lights illuminate (WP 0016 00).	If blackout marker lights do not illuminate, perform Malfunction 133 (All Main Light Switch Functions Do Not Operate).
	2. Check circuit breaker CB54 in PCB to see if it is tripped.	1. Remove PDP cover (WP 0091 00).
		2. If circuit breaker is tripped, push in to reset.
		3. Position main light switch to BO DRIVE (WP 0018 00).
		4. Check circuit breaker to see if it is tripped again. If circuit breaker is tripped or trips again, notify Unit Maintenance.
		5. Position main light switch to OFF (WP 0018 00).
		6. Install PDP cover (WP 0091 00).



ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

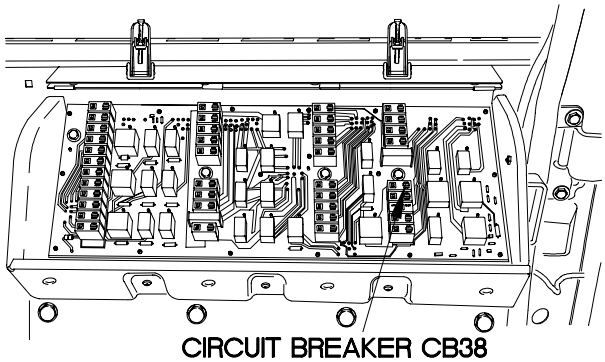
MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
60. BLACKOUT DRIVE LIGHT DOES NOT ILLUMINATE - Continued	3. Check to see if blackout drive light illuminates (WP 0016 00).	If blackout drive light does not illuminate, notify Unit Maintenance.
61. ONE OR BOTH REAR BLACKOUT MARKER LIGHTS DO NOT ILLUMINATE	1. Check to see if front blackout marker lights illuminate (WP 0016 00).	If front blackout marker lights do not illuminate, perform Malfunction 62 (All Blackout Marker Lights Do Not Illuminate).
	2. Check to see if rear blackout marker lights illuminate (WP 0016 00).	If rear blackout marker lights do not illuminate, notify Unit Maintenance.
62. ALL BLACKOUT MARKER LIGHTS DO NOT ILLUMINATE	1. Check to see if WTEC III TPSS dims in blackout mode (WP 0016 00).	If WTEC III TPSS does not dim in blackout mode, perform Malfunction 65 (Blackout Marker Lights Do Not Illuminate And/Or WTEC III Transmission Pushbutton Shift Selector [TPSS] Does Not Dim).
	2. Check to see if blackout marker lights illuminate (WP 0016 00).	If blackout marker lights do not illuminate, notify Unit Maintenance.
63. AMBER WARNING LIGHT DOES NOT ILLUMINATE	1. Check to see if headlights illuminate (WP 0016 00).	If headlights do not illuminate, perform Malfunction 133 (All Main Light Switch Functions Do Not Operate).

ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
63. AMBER WARNING LIGHT DOES NOT ILLUMINATE - Continued	2. Check circuit breaker CB38 in PCB to see if it is tripped.	1. Remove PDP cover (WP 0091 00).
		2. If circuit breaker is tripped, push in to reset.
		3. Position main light switch to SER DRIVE (WP 0016 00).
		4. Check circuit breaker to see if it is tripped again. If circuit breaker is tripped or trips again, notify Unit Maintenance.
		5. Position main light switch to OFF (WP 0016 00).
		6. Install PDP cover (WP 0091 00).
	3. Check to see if amber warning light illuminates.	1. Position main light switch to SER DRIVE (WP 0004 00).
		2. Position amber warning light switch to on (WP 0016 00).
		3. Check to see if amber warning light illuminates.



CIRCUIT BREAKER CB38

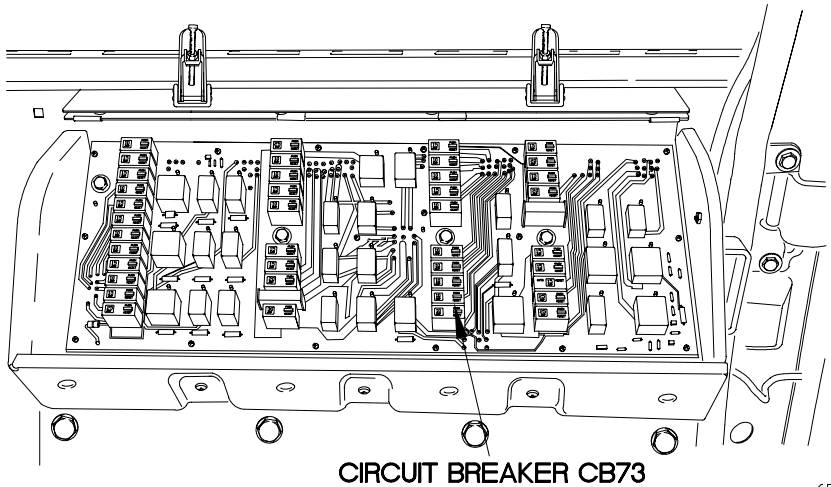
6500a14-

ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
63. AMBER WARNING LIGHT DOES NOT ILLUMINATE - Continued		4. Position warning light switch to off (WP 0016 00). 5. Position main light switch to OFF (WP 0016 00). 6. If amber warning light does not illuminate, notify Unit Maintenance.
64. BACKUP LIGHT DOES NOT ILLUMINATE	1. Check to see if headlights illuminate (WP 0016 00).	If headlights do not illuminate, perform Malfunction 133 (All Main Light Switch Functions Do Not Operate).
	2. Check circuit breaker CB73 in PCB to see if it is tripped.	1. Remove PDP cover (WP 0091 00).
		2. If circuit breaker is tripped, push in to reset.



ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

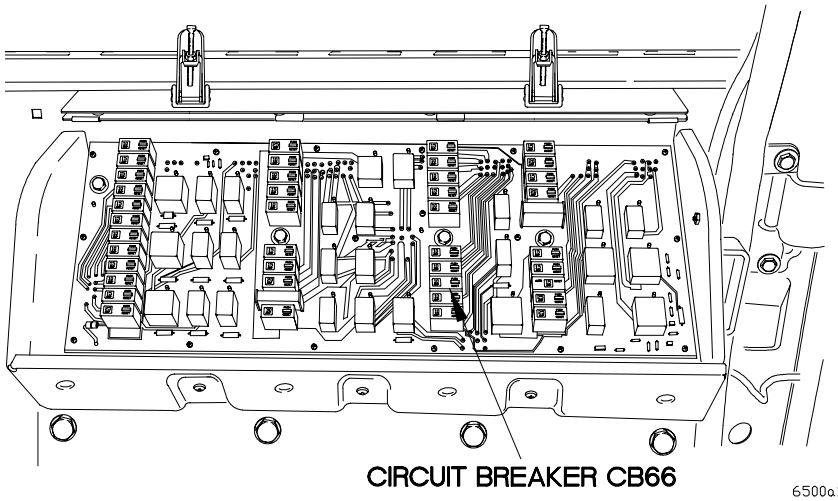
MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
64. BACKUP LIGHT DOES NOT ILLUMINATE - Continued		3. Position main light switch to SER DRIVE (WP 0016 00). 4. Check circuit breaker to see if it is tripped again. If circuit breaker is tripped or trips again, notify Unit Maintenance. 5. Position main light switch to OFF (WP 0016 00). 6. Install PDP cover (WP 0091 00).
	3. Check to see if backup light illuminates (WP 0016 00).	If backup light does not illuminate, notify Unit Maintenance.
65. BLACKOUT MARKER LIGHTS DO NOT ILLUMINATE AND/OR WTEC III TRANSMISSION PUSHBUTTON SHIFT SELECTOR (TPSS) DOES NOT DIM	1. Check to see if blackout drive light operates (WP 0016 00).	If blackout drive light does not illuminates, perform Malfunction 133 (All Main Light Switch Functions Do Not Operate).

ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
65. BLACKOUT MARKER LIGHTS DO NOT ILLUMINATE AND/OR WTEC III TRANSMISSION PUSHBUTTON SHIFT SELECTOR (TPSS) DOES NOT DIM - Continued	2. Check circuit breaker CB66 in PCB to see if it is tripped.	1. Remove PDP cover (WP 0091 00).
		2. If circuit breaker is tripped, push in to reset. 3. Position main light switch to SER DRIVE (WP 0004 00). 4. Check circuit breaker to see if it is tripped again. If circuit breaker is tripped or trips again, notify Unit Maintenance. 5. Position main light switch to OFF (WP 0004 00).



ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

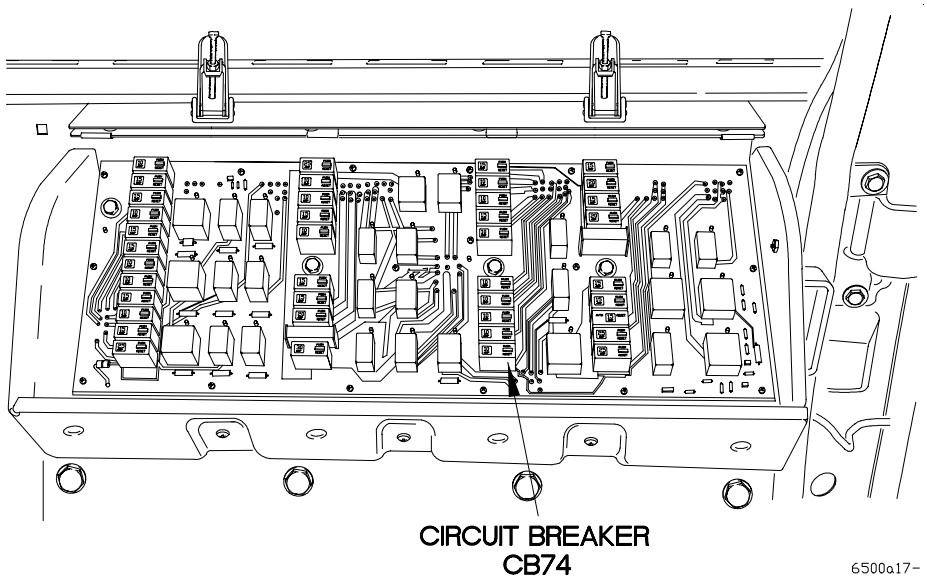
MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
65. BLACKOUT MARKER LIGHTS DO NOT ILLUMINATE AND/OR WTEC III TRANSMISSION PUSHBUTTON SHIFT SELECTOR (TPSS) DOES NOT DIM - Continued		6. Install PDP cover (WP 0091 00).
	3. Check to see if blackout marker lights illuminate and WTEC III TPSS dims (WP 0016 00).	If blackout marker lights do not illuminate or WTEC III TPSS does not dim, notify Unit Maintenance.
66. REAR HAZARD LIGHTS DO NOT ILLUMINATE	1. Check to see if front hazard lights illuminate (WP 0016 00).	If front hazard lights do not illuminate, perform Malfunction 67 (Front And Rear Hazard Lights Do Not Illuminate).
	2. Check to see if stoplights illuminate (WP 0016 00).	If stoplights do not operate, perform Malfunction 70 (One Or Both Stoplights Do Not Illuminate).
	3. Check to see if rear hazard lights illuminate (WP 0016 00).	If rear hazard lights do not illuminate, notify Unit Maintenance.
67. FRONT AND REAR HAZARD LIGHTS DO NOT ILLUMINATE	1. Check to see if headlights illuminate (WP 0016 00).	If headlights do not illuminate, perform Malfunction 133 (All Main Light Switch Functions Do Not Operate).
	2. Check to see if front turn signals illuminate (WP 0007 00).	If front turn signals do not illuminate, perform Malfunction 69 (Left Or Right Front Turn Signal Does Not Illuminate).

ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
67. FRONT AND REAR HAZARD LIGHTS DO NOT ILLUMINATE - Contined	3. Check to see if front and rear hazard lights illuminate (WP 0016 00).	If front and rear hazard lights do not illuminate, notify Unit Maintenance.
68. FRONT AND REAR TURN SIGNALS DO NOT ILLUMINATE	1. Check to see if headlights illuminate (WP 0016 00).	If headlights do not illuminate, perform Malfunction 133 (All Main Light Switch Functions Do Not Operate).
	2. Check to see if stoplights illuminate (WP 0016 00).	If stoplights do not operate, perform Malfunction 70 (One Or Both Stoplights Do Not Illuminate).
	3. Check circuit breaker CB74 in PCB to see if it is tripped.	1. Remove PDP cover (WP 0091 00).
		2. If circuit breaker is tripped, push in to reset.



ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

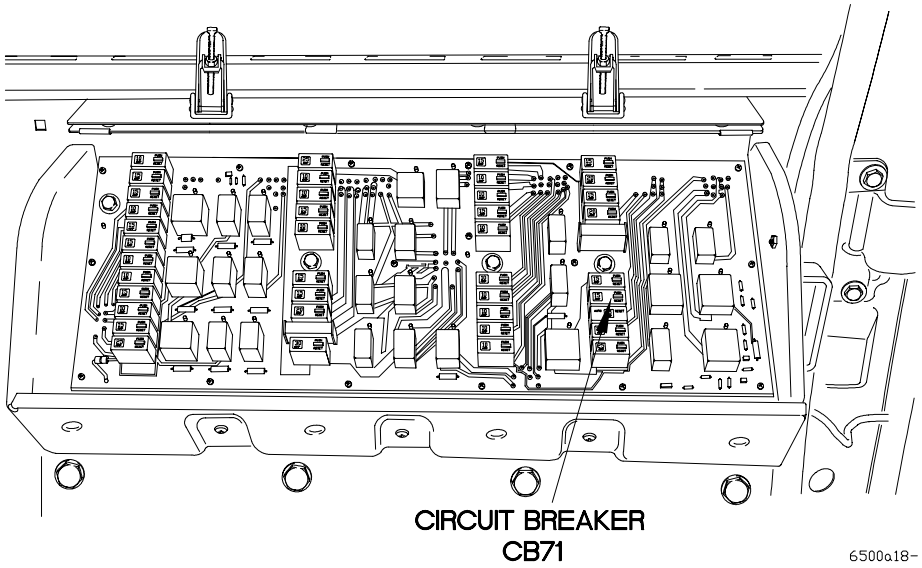
MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
68. FRONT AND REAR TURN SIGNALS DO NOT ILLUMINATE - Continued		3. Position main light switch to SER DRIVE (WP 0004 00).
		4. Check circuit breaker to see if it is tripped again. If circuit breaker is tripped or trips again, Notify Unit Maintenance.
		5. Position main light switch to OFF (WP 0004 00).
		6. Install PDP cover (WP 0091 00).
	4. Check to see if front and rear turn signals illuminate (WP 0007 00).	If front and rear turn signals do not illuminate, notify Unit Maintenance.
69. LEFT OR RIGHT FRONT TURN SIGNAL DOES NOT ILLUMINATE	1. Check to see if rear turn signals illuminate (WP 0007 00).	If rear turn signals do not illuminate, perform Malfunction 68 (Front And Rear Turn Signals Do Not Illuminate).
	2. Check to see if left and right front turn signals illuminate (WP 0007 00).	If left and right front turn signals do not illuminate, notify Unit Maintenance.
70. ONE OR BOTH STOPLIGHTS DO NOT ILLUMINATE	1. Check to see if blackout stoplights illuminate (WP 0016 00).	If blackout stoplights do not illuminate, perform Malfunction 72 (Stoplights And Blackout Stoplights Do Not Illuminate).
	2. Check to see if one stoplight illuminates (WP 0016 00).	If one stoplight illuminate, notify Unit Maintenance.

ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
70. ONE OR BOTH STOPLIGHTS DO NOT ILLUMINATE - Continued	3. Check circuit breaker CB71 in PCB to see if it is tripped	1. Remove PDP cover (WP 0091 00).
		2. If circuit breaker is tripped, push in to reset. 3. Position main light switch to SER DRIVE (WP 0004 00). 4. Check circuit breaker to see if it is tripped again. If circuit breaker is tripped or trips again, notify Unit Maintenance. 5. Position main light switch to OFF (WP 0004 00).



ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

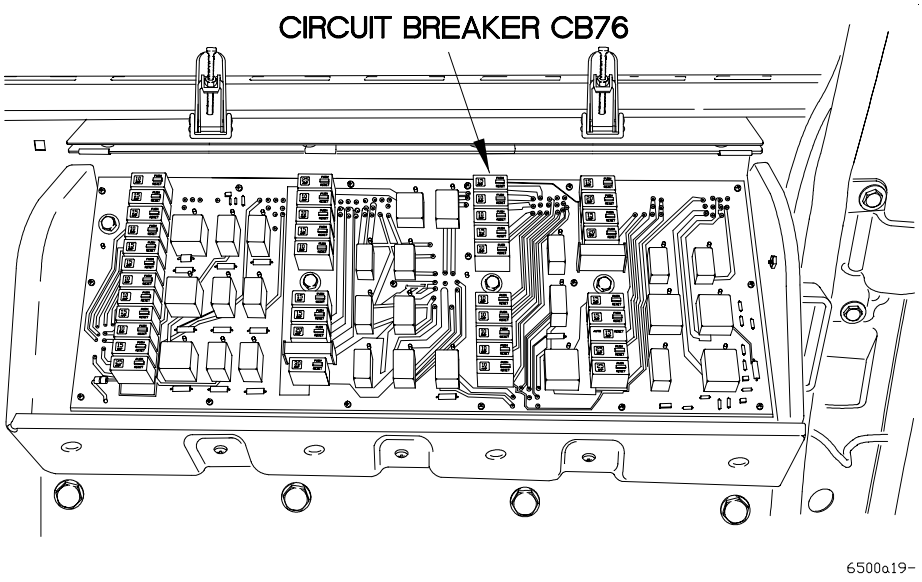
MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
70. ONE OR BOTH STOPLIGHTS DO NOT ILLUMINATE - Continued	4. Check to see if stoplights illuminate (WP 0016 00).	If one or both stoplights do not illuminate, notify Unit Maintenance.
71. ONE OR BOTH BLACKOUT STOPLIGHTS DO NOT ILLUMINATE	1. Check to see if stoplights illuminate in normal mode (WP 0016 00).	If stoplights do not illuminate in normal mode, perform Malfunction 72 (Stoplights And Blackout Stoplights Do Not Illuminate).
	2. Check to see if one or both blackout stoplights illuminate (WP 0016 00).	If one or both blackout stoplights do not illuminate, notify Unit Maintenance.
72. STOPLIGHTS AND BLACKOUT STOPLIGHTS DO NOT ILLUMINATE	1. Check to see if headlights illuminate (WP 0016 00).	If headlights do not illuminate, perform Malfunction 133 (All Main Light Switch Functions Do Not Operate).

ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
72. STOPLIGHTS AND BLACKOUT STOPLIGHTS DO NOT ILLUMINATE - Continued	2. Check circuit breaker CB76 in PCB to see if it is tripped.	1. Remove PDP cover (WP 0091 00).
		2. If circuit breaker is tripped, push in to reset. 3. Position main light switch to SER DRIVE (WP 0016 00). 4. Check circuit breaker to see if it is tripped again. If circuit breaker is tripped or trips again, notify Unit Maintenance. 5. Position main light switch to OFF (WP 0016 00). 6. Install PDP cover (WP 0091 00).

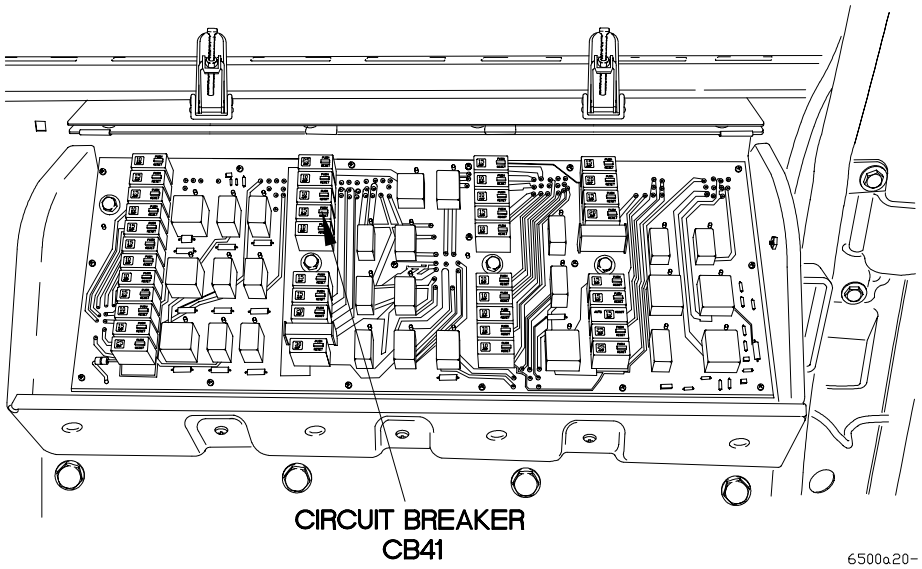


ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
72. STOPLIGHTS AND BLACKOUT STOPLIGHTS DO NOT ILLUMINATE - Continued	3. Check to see if stoplights and blackout stoplights illuminate (WP 0016 00).	If stoplights and blackout stoplights do not illuminate, notify Unit Maintenance.
73. TRAILER MARKER/ TAILLIGHTS DO NOT ILLUMINATE	1. Check to see if towing vehicle marker lights illuminate (WP 0016 00).	If towing vehicle marker lights do not illuminate, perform Malfunction 57 (All Front and/or Rear Marker Lights Do Not Illuminate In Normal Mode).
	2. Check circuit breaker CB41 in PCB to see if it is tripped	1. Remove PDP cover (WP 0091 00).
		2. If circuit breaker is tripped, push in to reset.
		3. Position master power switch to on (WP 0004 00).



ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

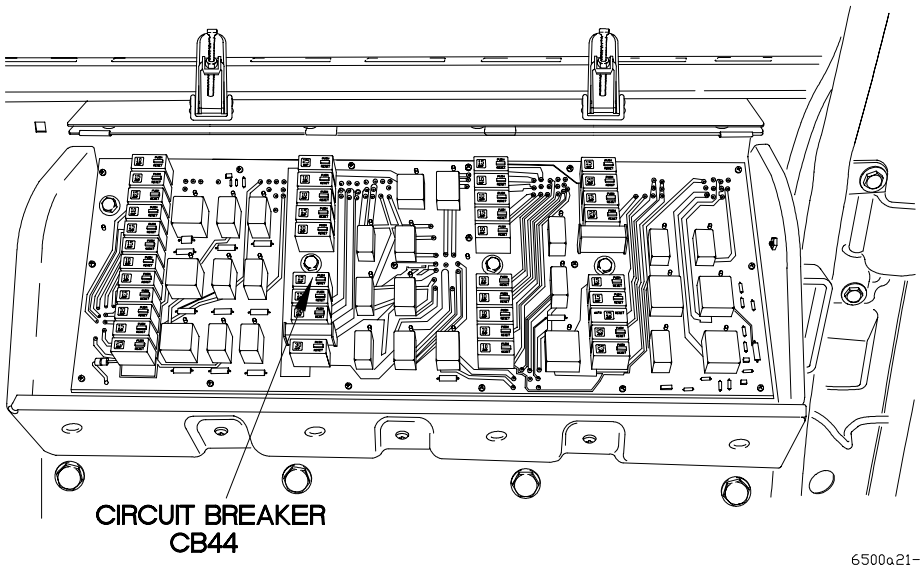
MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
73. TRAILER MARKER/ TAILLIGHTS DO NOT ILLUMINATE - Continued		4. Check circuit breaker to see if it is tripped again. If circuit breaker is tripped or trips again, Notify Unit Maintenance. 5. Position master power switch to off (WP 0004 00). 6. Install PDP cover (WP 0091 00).
	3. Check to see if trailer marker/taillights illuminate (WP 0016 00).	If trailer marker/taillights do not illuminate, notify Unit Maintenance.
74. TRAILER RIGHT STOP/TURN LIGHT DOES NOT ILLUMINATE	1. Check to see if towing vehicle right stoplight operates (WP 0016 00).	If towing vehicle right stoplight does not illuminate, perform Malfunction 70 (One Or Both Stoplights Do Not Illuminate).
	2. Check to see if trailer left stop/turn light operates (WP 0016 00).	If trailer left stop/turn light does not illuminate, perform Malfunction 76 (Both Trailer Stop/Turn Lights Do Not Illuminate).
	3. Check to see if trailer right stop/turn light illuminates (WP 0016 00).	If trailer right stop/turn light does not illuminate, notify Unit Maintenance.
75. TRAILER LEFT STOP/TURN LIGHT DOES NOT ILLUMINATE	1. Check to see if towing vehicle left stoplight operates (WP 0016 00).	If towing vehicle left stoplight does not illuminate, perform Malfunction 70 (One Or Both Stoplights Do Not Illuminate).

ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
75. TRAILER LEFT STOP/TURN LIGHT DOES NOT ILLUMINATE - Continued	2. Check to see if trailer right stop/turn light operates (WP 0016 00).	If trailer right stop/turn light does not illuminate, perform Malfunction 76 (Both Trailer Stop/Turn Lights Do Not Illuminate).
	3. Check to see if trailer left stop/turn light operates (WP 0016 00).	If trailer left stop/turn light does not illuminate, notify Unit Maintenance.
76. BOTH TRAILER STOP/TURN LIGHTS DO NOT ILLUMINATE	1. Check circuit breaker CB44 in PCB to see if it is tripped.	1. Remove PDP cover (WP 0091 00).
		2. If circuit breaker is tripped, push in to reset.
		3. Position main light switch to SER DRIVE (WP 0004 00).



ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

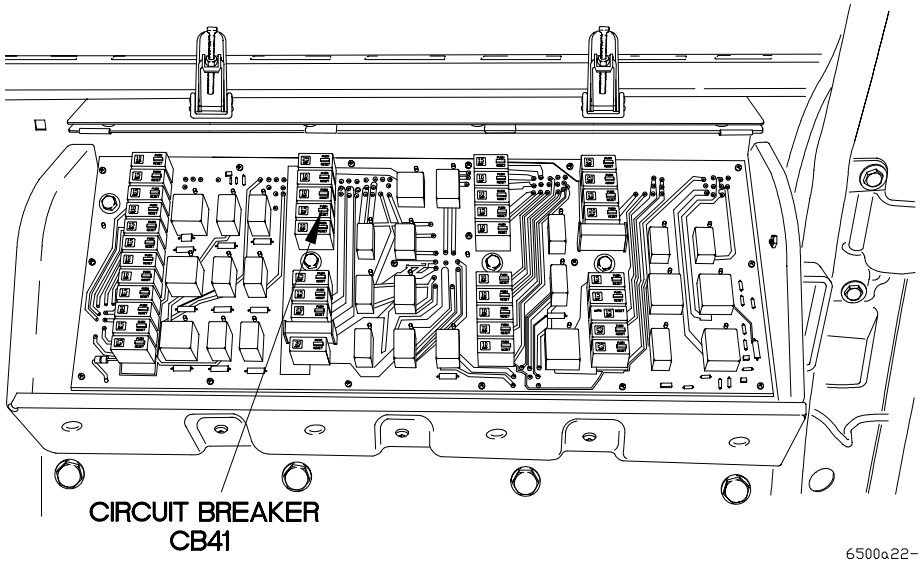
MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
76. BOTH TRAILER STOP/TURN LIGHTS DO NOT ILLUMINATE - Continued		4. Check circuit breaker to see if it is tripped again. If circuit breaker is tripped or trips again, notify Unit Maintenance. 5. Position main light switch to OFF (WP 0004 00). 6. Install PDP cover (WP 0091 00).
	2. Check to see if trailer stop/turn lights illuminate (WP 0016 00).	If trailer stop/turn lights do not illuminate, notify Unit Maintenance.
77. TRAILER BLACKOUT MARKER LIGHTS DO NOT ILLUMINATE	1. Check to see if towing vehicle blackout marker lights illuminate (WP 0016 00).	If towing vehicle blackout marker lights do not illuminate, perform Malfunction 62 (All Blackout Marker Lights Do Not Illuminate).

ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
77. TRAILER BLACKOUT MARKER LIGHTS DO NOT ILLUMINATE - Continued	2. Check circuit breaker CB41 in PCB to see if it is tripped	1. Remove PDP cover (WP 0091 00).
		2. If circuit breaker is tripped, push in to reset. 3. Position master power switch to on (WP 0004 00). 4. Check circuit breaker to see if it is tripped again. If circuit breaker is tripped or trips again, notify Unit Maintenance. 5. Position master power switch to off (WP 0004 00). 6. Install PDP cover (WP 0091 00).

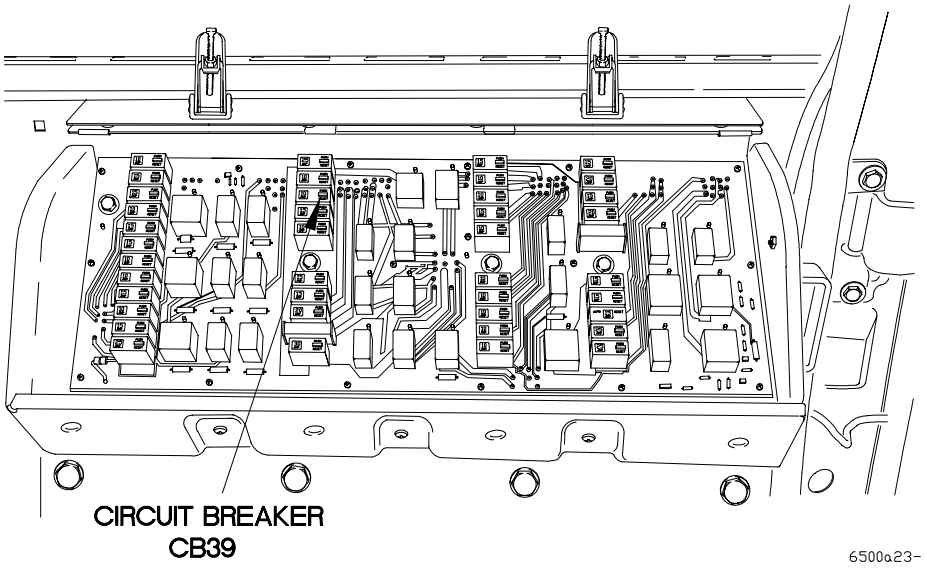


ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
77. TRAILER BLACKOUT MARKER LIGHTS DO NOT ILLUMINATE - Continued	3. Check to see if trailer blackout marker lights illuminate (WP 0016 00, Operating Vehicle Lights).	If trailer blackout marker lights do not illuminate, notify Unit Maintenance.
78. TRAILER BLACKOUT STOPLIGHTS DO NOT ILLUMINATE	1. Check to see if towing vehicle blackout stoplights illuminate (WP 0016 00, Operating Vehicle Lights).	If towing vehicle blackout stoplights do not illuminate, perform Malfunction 71 (One Or Both Blackout Stoplights Do Not Illuminate).
	2. Check circuit breaker CB39 in PCB to see if it is tripped	1. Remove PDP cover (WP 0091 00).
		2. If circuit breaker is tripped, push in to reset.
		3. Position master power switch to on (WP 0004 00).



ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
78. TRAILER BLACKOUT STOPLIGHTS DO NOT ILLUMINATE - Continued		4. Check circuit breaker to see if it is tripped again. If circuit breaker is tripped or trips again, Notify Unit Maintenance. 5. Position master power switch to off (WP 0004 00). 6. Install PDP cover (WP 0091 00).
	3. Check to see if trailer blackout stoplights illuminate (WP 0016 00).	If trailer blackout stoplights do not illuminate, notify Unit Maintenance.
79. INTERVEHICULAR CLEARANCE LIGHTS DO NOT ILLUMINATE	1. Check to see if towing vehicle clearance lights illuminate (WP 0016 00).	If towing vehicle clearance lights do not illuminate, perform Malfunction 56 (Side And/Or Rear Marker Lights Do Not Illuminate).
	2. Check to see if intervehicular clearance lights illuminate (WP 0016 00).	If intervehicular clearance lights do not illuminate, notify Unit Maintenance.
80. INTERVEHICULAR LEFT TURN SIGNAL DOES NOT ILLUMINATE	1. Check to see if towing vehicle left turn signal illuminates (WP 0007 00).	If towing vehicle left turn signal does not illuminate, perform Malfunction 68 (Front And Rear Turn Signals Do Not Illuminate).
	2. Check to see if intervehicular left turn signal illuminates (WP 0007 00).	If intervehicular left turn signal does not illuminate, notify Unit Maintenance.

ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

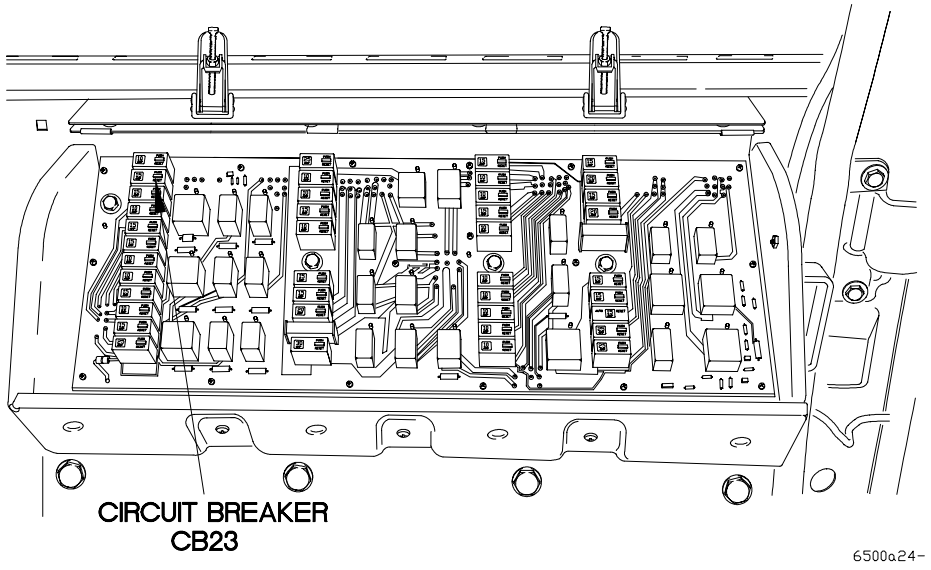
MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
81. INTERVEHICULAR RIGHT TURN SIGNAL DOES NOT ILLUMINATE	1. Check to see if towing vehicle right turn signal illuminates (WP 0007 00).	If towing vehicle right turn signal does not illuminate, perform Malfunction 68 (Front And Rear Turn Signals Do Not Illuminate).
	2. Check to see if intervehicular right turn signal illuminates (WP 0007 00).	If intervehicular right turn signal does not illuminate, notify Unit Maintenance.
82. INTERVEHICULAR STOPLIGHTS DO NOT ILLUMINATE	1. Check to see if towing vehicle stoplights illuminate (WP 0016 00).	If towing vehicle stoplights do not illuminate, perform Malfunction 70 (One Or Both Stoplights Do Not Illuminate).
	2. Check to see if intervehicular stoplights illuminate (WP 0016 00).	If intervehicular stoplights do not illuminate, notify Unit Maintenance.
83. INTERVEHICULAR TAILLIGHTS DO NOT ILLUMINATE	1. Check to see if towing vehicle taillights illuminate (WP 0016 00).	If towing vehicle taillights do not illuminate, perform Malfunction 58 (One Or Both Composite Taillights Do Not Illuminate).
	2. Check to see if intervehicular taillights illuminate (WP 0016 00).	If intervehicular taillights do not illuminate, notify Unit Maintenance.
84. PERSONNEL HEATER CONTROL DOES NOT ILLUMINATE	1. Check to see if headlights illuminate (WP 0016 00).	If headlights do not illuminate, perform Malfunction 133 (All Main Light Switch Functions Do Not Operate).
	2. Check to see if personnel heater control illuminates (WP 0016 00).	If personnel heater control does not illuminate, notify Unit Maintenance.

ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
85. PERSONNEL HEATER FAN DOES NOT OPERATE	1. Check circuit breaker CB23 in PCB to see if it is tripped.	1. Remove PDP cover (WP 0091 00).
		2. If circuit breaker is tripped, push in to reset.
		3. Position master power switch to on (WP 0004 00).
		4. Check circuit breaker to see if it is tripped again. If circuit breaker is tripped or trips again, notify Unit Maintenance.
		5. Position master power switch to off (WP 0004 00).
		6. Install PDP cover (WP 0091 00).



ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
85. PERSONNEL HEATER FAN DOES NOT OPERATE - Continued	2. Check to see if personnel heater fan operates (WP 0020 00).	If personnel heater fan does not operate, notify Unit Maintenance.
86. WINDSHIELD WASHER DOES NOT OPERATE	1. Check to see if horn operates (WP 0007 00).	If horn does not operate, perform Malfunction 92 (Horn, Windshield Wipers, And Windshield Washer Do Not Operate).
	2. Check to see if windshield washer operates (WP 0007 00).	If windshield washer does not operate, notify Unit Maintenance.
87. WINDSHIELD WIPER DOES NOT OPERATE ON LOW SPEED	1. Check to see if windshield wiper operates on high speed (WP 0007 00).	If windshield wiper does not operate on high speed, perform Malfunction 88 (All Windshield Wiper Speeds Do Not Operate).
	2. Check to see if windshield wiper operates on low speed (WP 0007 00).	If windshield wiper does not operate on low speed, notify Unit Maintenance.
88. ALL WINDSHIELD WIPER SPEEDS DO NOT OPERATE	1. Check to see if horn operates (WP 0007 00).	If horn does not operate, perform Malfunction 92 (Horn, Windshield Wipers, And Windshield Washer Do Not Operate).
	2. Check to see if all windshield wiper speeds operate (WP 0007 00).	If all windshield wiper speeds do not operate, notify Unit Maintenance.

ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

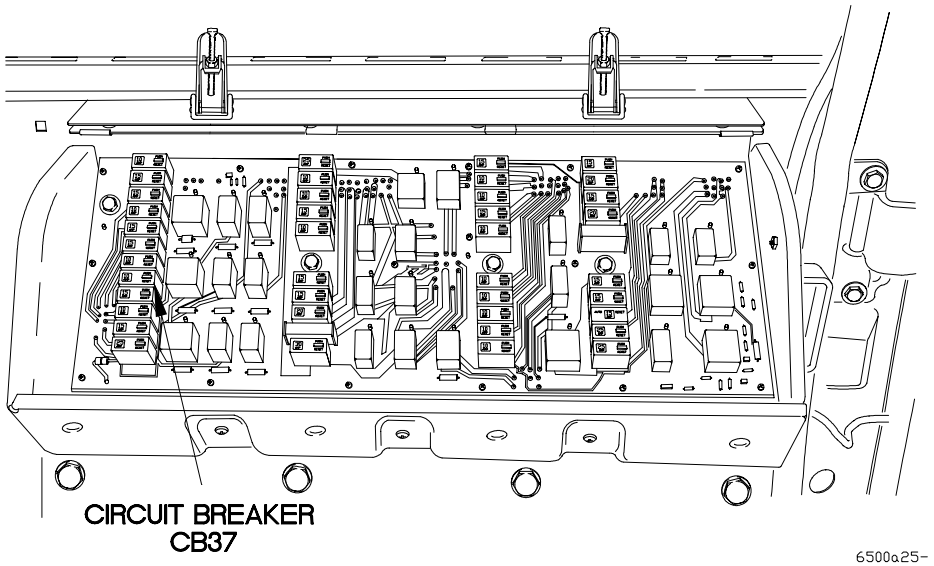
MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
89. WINDSHIELD WIPER DOES NOT OPERATE ON INTERMITTENT SPEED	1. Check to see if windshield wiper operates on low speed (WP 0007 00).	If windshield wiper does not operate on low speed, perform Malfunction 87 (Windshield Wiper Does Not Operate On Low Speed).
	2. Check to see if windshield wiper operates on intermittent speed (WP 0007 00).	If windshield wiper does not operate on intermittent speed, notify Unit Maintenance.
90. WINDSHIELD WIPER DOES NOT OPERATE ON HIGH SPEED	1. Check to see if windshield wiper operates on low speed (WP 0007 00).	If windshield wiper does not operate on low speed, perform Malfunction 88 (All Windshield Wiper Speeds Do Not Operate).
	2. Check to see if windshield wiper operates on high speed (WP 0007 00).	If windshield wiper does not operate on high speed, notify Unit Maintenance.
91. HORN DOES NOT OPERATE	1. Check to see if windshield washer operates (WP 0007 00).	If windshield washer does not operate, perform Malfunction 92 (Horn, Windshield Wipers, And Windshield Washer Do Not Operate).
	2. Check to see horn operates (WP 0007 00).	If horn does not operate, notify Unit Maintenance.

ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
92. HORN, WINDSHIELD WIPERS, AND WINDSHIELD WASHER DO NOT OPERATE	1. Check circuit breaker CB37 in PCB to see if it is tripped.	1. Remove PDP cover (WP 0091 00).
		2. If circuit breaker is tripped, push in to reset. 3. Position master power switch to on (WP 0004 00). 4. Check circuit breaker to see if it is tripped again. If circuit breaker is tripped or trips again, notify Unit Maintenance. 5. Position master power switch to off (WP 0004 00).



ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

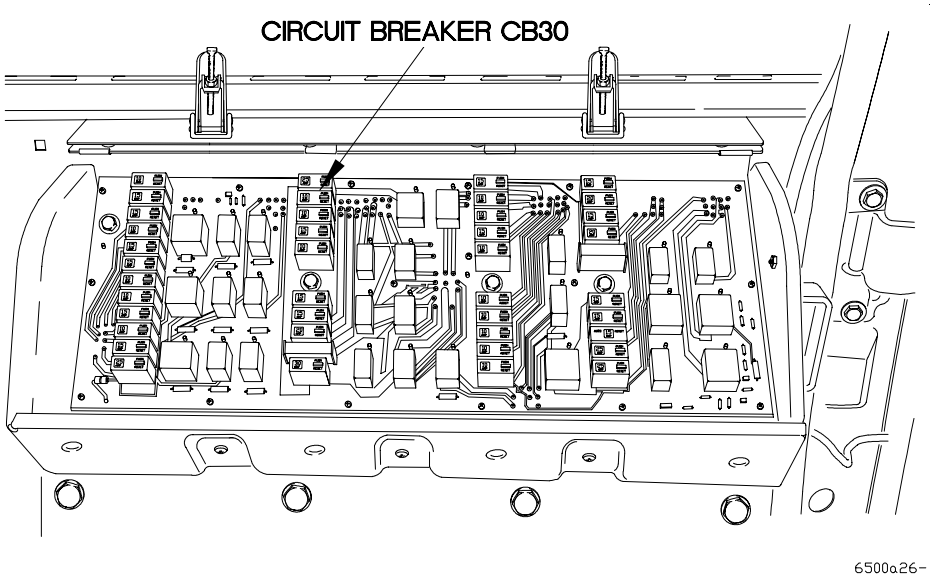
MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
92. HORN, WINDSHIELD WIPERS, AND WINDSHIELD WASHER DO NOT OPERATE - Continued		6. Install PDP cover (WP 0091 00).
	2. Check to see horn, windshield wipers, and windshield washer operate (WP 0007 00).	If horn, windshield wipers, and windshield washer do not operate, notify Unit Maintenance.
93. CHEMICAL ALARM DOES NOT OPERATE	1. Check to see if CHEMICAL DETECT indicator illuminates (WP 0016 00).	If CHEMICAL DETECT indicator does not illuminate, perform Malfunction 94 (Chemical Detector Does Not Operate).
	2. Check to see if chemical alarm operates.	If chemical alarm does not operate, notify Unit Maintenance.

ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
94. CHEMICAL DETECTOR DOES NOT OPERATE	1. Check circuit breaker CB30 in PCB to see if it is tripped.	1. Remove PDP cover (WP 0091 00).
		2. If circuit breaker is tripped, push in to reset.
		3. Position master power switch to on (WP 0004 00).
		4. Check circuit breaker to see if it is tripped again. If circuit breaker is tripped or trips again, notify Unit Maintenance.
		5. Position master power switch to off (WP 0004 00).
		6. Install PDP cover (WP 0091 00).
	2. Check to see if chemical detector operates.	If chemical detector does not operate, notify Unit Maintenance.

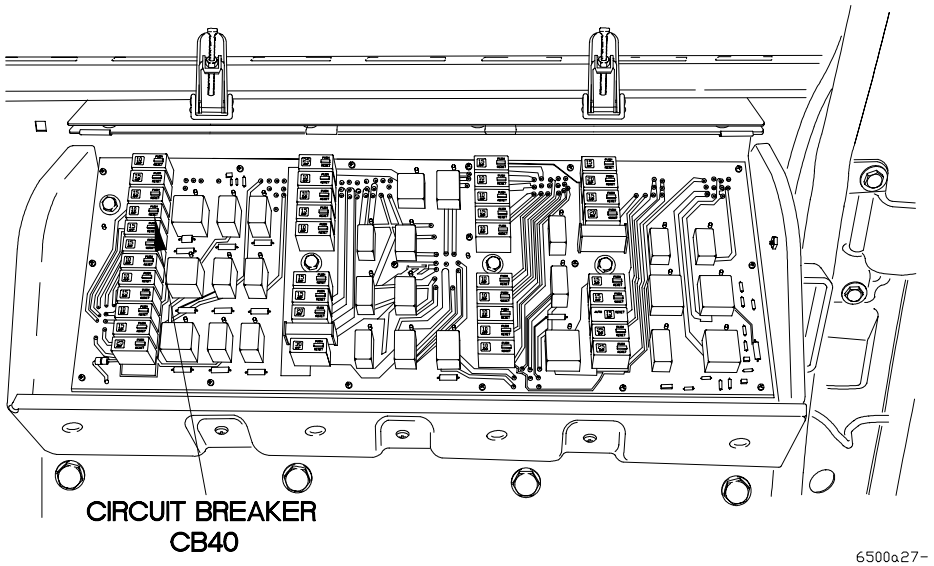


ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
95. CENTRAL TIRE INFLATION SYSTEM (CTIS) DOES NOT OPERATE	1. Check circuit breaker CB40 in PCB to see if it is tripped.	1. Remove PDP cover (WP 0091 00).
		2. If circuit breaker is tripped, push in to reset. 3. Position master power switch to on (WP 0004 00). 4. Check circuit breaker to see if it is tripped again. If circuit breaker is tripped or trips again, notify Unit Maintenance. 5. Position master power switch to off (WP 0004 00). 6. Install PDP cover (WP 0091 00).



ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

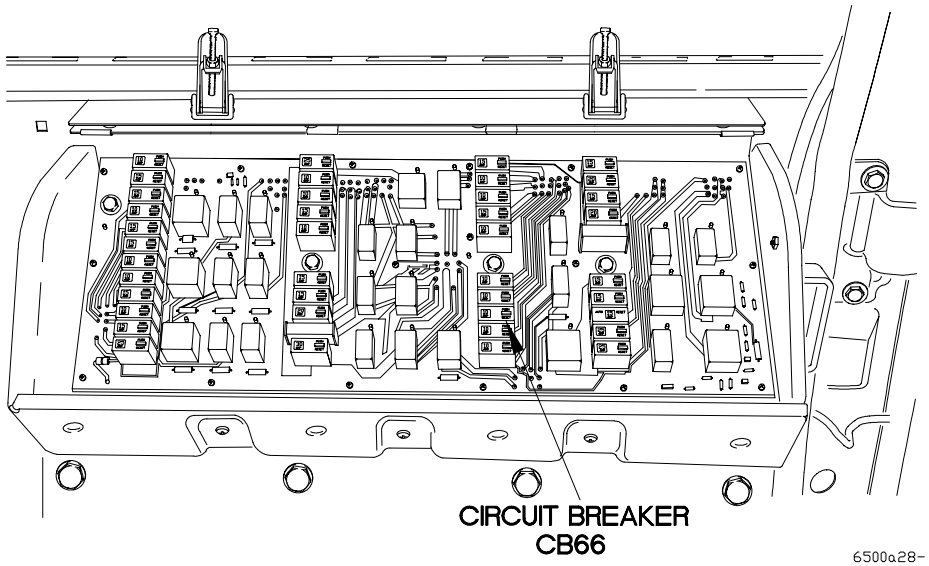
MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
95. CENTRAL TIRE INFLATION SYSTEM (CTIS) DOES NOT OPERATE - Continued	2. Check to see if CTIS operates (WP 0018 00).	If CTIS does not operate, notify Unit Maintenance.
96. CENTRAL TIRE INFLATION SYSTEM (CTIS) DOES NOT INFLATE TIRES	1. Check to see if CTIS deflates tires (WP 0018 00).	If CTIS does not deflate tires, perform Malfunction 95 (Central Tire Inflation System (CTIS) Does Not Operate).
	2. Check to see if CTIS inflates tires (WP 0018 00).	If CTIS does not inflate tires, notify Unit Maintenance.
97. CENTRAL TIRE INFLATION SYSTEM (CTIS) DOES NOT DEFLATE TIRES	1. Check to see if CTIS inflates tires (WP 0018 00).	If CTIS does not inflate tires, perform Malfunction 95 (Central Tire Inflation System (CTIS) Does Not Operate).
	2. Check to see if CTIS deflates tires (WP 0018 00).	If CTIS does not deflate tires, notify Unit Maintenance.

ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
98. CENTRAL TIRE INFLATION SYSTEM (CTIS) ECU DOES NOT DIM IN BLACKOUT MODE	1. Check circuit breaker CB66 in PCB to see if it is tripped.	1. Remove PDP cover (WP 0091 00).
		2. If circuit breaker is tripped, push in to reset. 3. Position master power switch to on (WP 0004 00). 4. Check circuit breaker to see if it is tripped again. If circuit breaker is tripped again, notify Unit Maintenance. 5. Position master power switch to off (WP 0004 00). 6. Install PDP cover (WP 0091 00).



ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

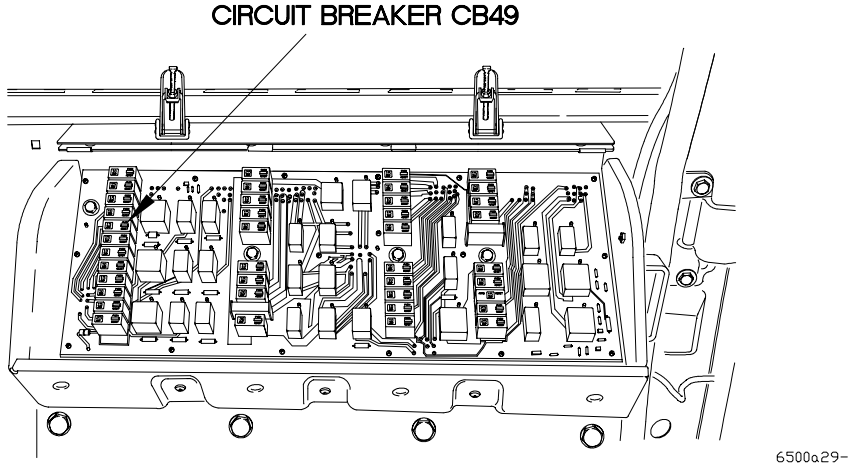
Table 5. Electrical System Troubleshooting Procedures – Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
98. CENTRAL TIRE INFLATION SYSTEM (CTIS) ECU DOES NOT DIM IN BLACKOUT MODE - Continued	2. Check to see if CTIS ECU mode light dims in blackout mode (WP 0016 00, Operating Vehicle Lights).	If CTIS ECU does not dim in blackout mode, notify Unit Maintenance.
99. 11K SELF-RECOVERY WINCH (SRW) DOES NOT REEL IN OR PAY OUT	1. Check to see if PTO operates (WP 0005 00).	If PTO does not operate, perform Malfunction 102 (Power Take-Off (PTO) Does Not Engage).
	2. Check to see if 11K SRW operates (WP 0053 00).	If 11K SRW does not operate, notify Unit Maintenance.
100. 11K SELF-RECOVERY WINCH (SRW) DOES NOT REEL IN	1. Check to see if 11K SRW pays out (WP 0053 00).	If 11K SRW does not pay out, perform Malfunction 99 (11K Self-Recovery Winch (SRW) Does Not Reel In Or Pay Out).
	2. Check to see if 11K SRW reels in (WP 0053 00).	If 11K SRW does not reel in, notify Unit Maintenance.
101. 11K SELF-RECOVERY WINCH (SRW) DOES NOT PAY OUT	1. Check to see if 11K SRW reels in (WP 0053 00).	If 11K SRW does not reel in, perform Malfunction 99 (11K Self-Recovery Winch (SRW) Does Not Reel In Or Pay Out).
	2. Check to see if 11K SRW pays out (WP 0053 00).	If 11K SRW does not pay out, notify Unit Maintenance.

ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

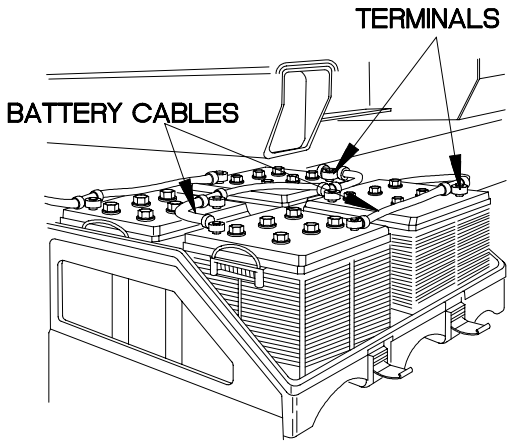
MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
	NOTE Perform PTO Troubleshooting (WP 0068 00, Malfunction 1, Power Take-Off (PTO) Does Not Engage) before starting here.	
102. POWER TAKE-OFF (PTO) DOES NOT ENGAGE	1. Check circuit breakers CB43 in PCB to see if it is tripped.	1. Remove PDP cover (WP 0091 00).
		
		2. If circuit breaker is tripped, push in to reset. 3. Position master power switch to on (WP 0004 00). 4. Check circuit breaker to see if it is tripped again. If circuit breaker is tripped or trips again, notify Unit Maintenance. 5. Position master power switch to off (WP 0004 00). 6. Install PDP cover (WP 0091 00).

ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
102. POWER TAKE-OFF (PTO) DOES NOT ENGAGE - Continued	2. Check to see if PTO engages (WP 0037 00).	If PTO does not engage, notify Unit Maintenance.
103. ELECTRICAL SYSTEM DOES NOT MAINTAIN A CHARGE IN BATTERIES	1. Has Preventative Maintenance Checks and Services (PMCS) Before checks been performed?	1. If PMCS Before checks have not been performed, perform M1078 A1 Series Preventative Maintenance Checks and Services (PMCS) (WP 0083 00) Before Checks. 2. If PMCS Before checks have been performed, go to test 2 of this malfunction.
	2. Are batteries, battery cables, and terminal post free from damage and corrosion?	1. Remove battery box cover (WP 0088 00).. 2 Check batteries, battery cables, and terminal posts for apparent damage and corrosion.



7600b03-

ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
103. ELECTRICAL SYSTEM DOES NOT MAINTAIN A CHARGE IN BATTERIES - Continued		3. If damage or corrosion is present, notify Unit Maintenance.
		4. If no damage or corrosion is present, go to test 3 of this malfunction.
	3. Are batteries cells at appropriate fluid levels (WP 0088 00)?	1. If batteries cells are not at appropriate level, notify Unit Maintenance.
		2. If batteries cells are at appropriate level, go to test 4 of this malfunction.
	4. Is vehicle S/N 18,550 or higher?	1. If vehicle is not S/N 18,550 or higher, notify Unit Maintenance.
		2. If vehicle is S/N 18,550 or higher, go to test 5 of this malfunction.
	5. Does BATTERY DISCONX indicator illuminate while vehicle engine is running?	1. Start engine (WP 0016 00).
		2. Allow engine to run for approximately two minutes.
		3. Check to see if BATTERY DISCONX indicator illuminates while engine is running (WP 0004 00).

ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

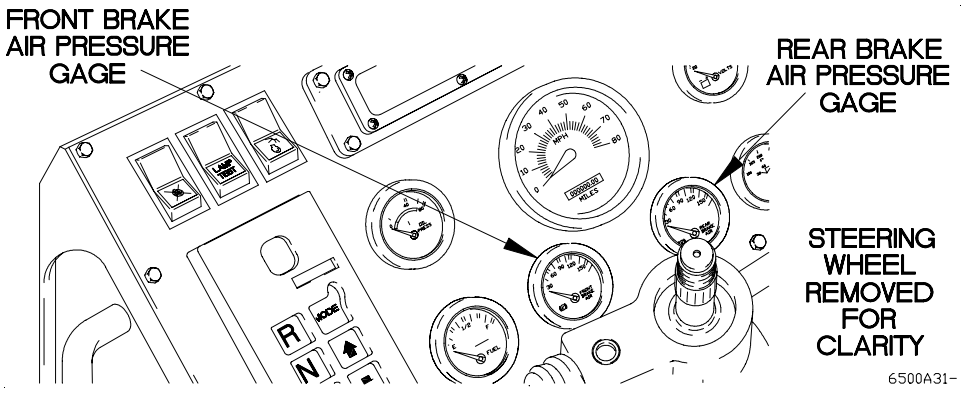
MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
103. ELECTRICAL SYSTEM DOES NOT MAINTAIN A CHARGE IN BATTERIES - Continued		4. If BATTERY DISCONX indicator does not illuminate, go to test 6 of this malfunction. 5. If BATTERY DISCONX indicator illuminates, notify Unit Maintenance. 6. Shut down engine (WP 0016 00).
	6. Does ENGINE OIL PRESSURE indicator remain illuminated after engine starts?	1. Start engine (WP 0016 00). 2. Check to see if ENGINE OIL PRESSURE indicator remains illuminated after engine starts (WP 0004 00). 3. If ENGINE OIL PRESSURE indicator does not remain illuminated after engine starts, notify Unit Maintenance. 4. If ENGINE OIL PRESSURE indicator remains illuminated after engine starts, perform Electrical System Troubleshooting Malfunction 37. ENGINE OIL PRESSURE Indicator Illuminates While Engine is Running/Remains Illuminated 10 Seconds After Engine Starts.

ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
103. ELECTRICAL SYSTEM DOES NOT MAINTAIN A CHARGE IN BATTERIES - Continued		5. Shut down engine (WP 0016 00).
104. ENGINE FAN RUNS CONSTANTLY	1. Check to see if engine fan turns off using engine fan off switch (WP 0016 00).	If engine fan does not turn off using engine fan off switch, perform Malfunction 105 (Engine Fan Does Not Turn Off Using Engine Fan Off Switch).
	2. Check to see if air tanks are pressurized.	1. Start engine (WP 0016 00). 2. Allow engine to idle until 120 psi is registered on FRONT BRAKE AIR and REAR BRAKE AIR pressure gages.
		3. Shut down engine (WP 0016 00).

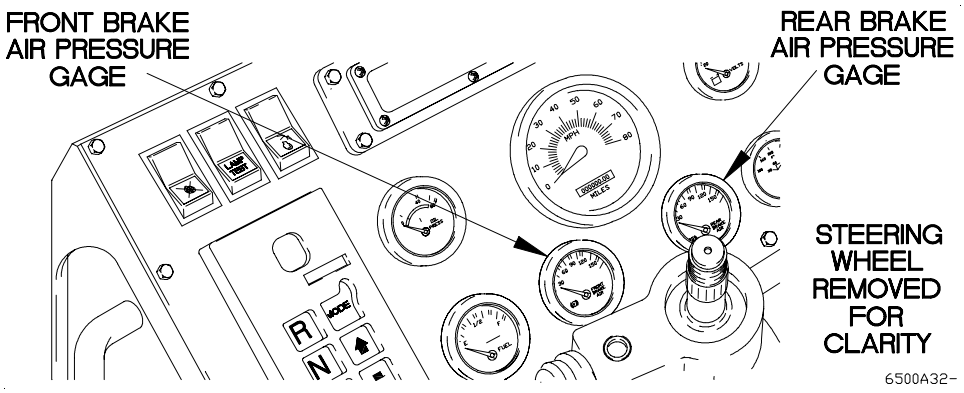


ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
104. ENGINE FAN RUNS CONSTANTLY - Continued		4. If FRONT BRAKE AIR or REAR BRAKE AIR pressure gage does not register 120 psi, perform WP 0081 00, Malfunction 1, Air System Loses Pressure During Operation/Slow Air Pressure Buildup).
	3. Check to see if engine fan runs constantly (WP 0003 00).	If engine fan runs constantly, notify Unit Maintenance.
105. ENGINE FAN DOES NOT TURN OFF USING ENGINE FAN OFF SWITCH	1. Check to see if air tanks are pressurized.	1. Start engine (WP 0016 00).
		2. Allow engine to idle until 120 psi is registered on FRONT BRAKE AIR and REAR BRAKE AIR pressure gages.
		3. Shut down engine (WP 0016 00).

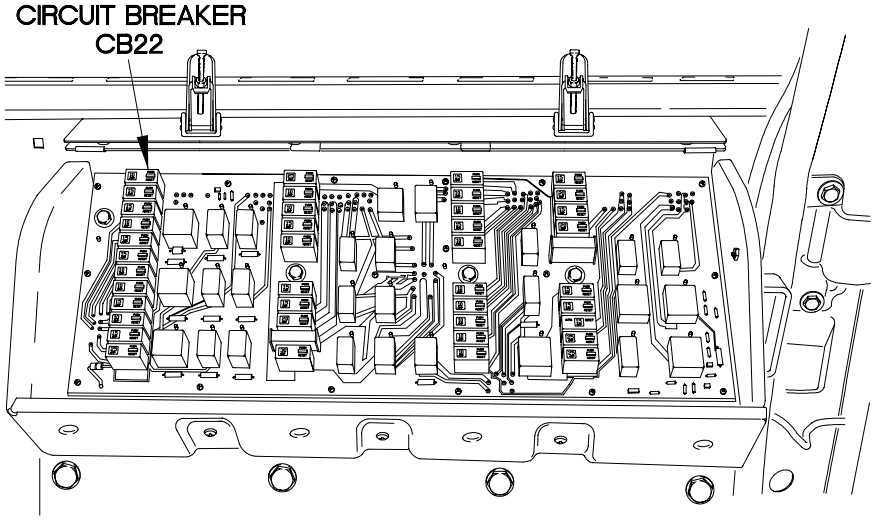


ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
105. ENGINE FAN DOES NOT TURN OFF USING ENGINE FAN OFF SWITCH - Continued		4. If FRONT BRAKE AIR or REAR BRAKE AIR pressure gage does not register 120 psi, perform Air System Troubleshooting (WP 0070 00, Malfunction 1, Air System Loses Pressure During Operation/Slow Air Pressure Buildup).
	2. Check circuit breaker CB22 in PCB to see if it is tripped.	1. Remove PDP cover (WP 0091 00).



6500a33-

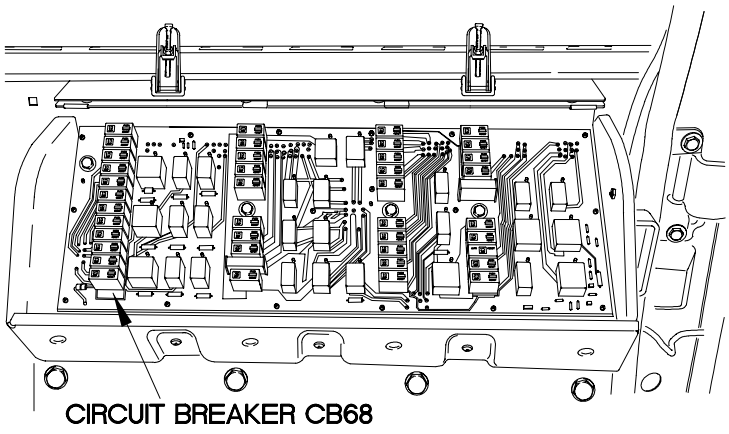
		2. If circuit breaker is tripped, push in to reset. 3. Start engine (WP 0016 00, Cold Engine Start).

ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
105. ENGINE FAN DOES NOT TURN OFF USING ENGINE FAN OFF SWITCH - Continued		4. Check circuit breaker to see if it is tripped again. If circuit breaker is tripped or trips again, notify Unit Maintenance. 5. Shut down engine (WP 0016 00). 6. Install PDP cover (WP 0091 00).
	3. Check to see if engine fan turns off using engine fan off switch (WP 0003 00).	If engine fan does not turn off using Engine Fan Off switch, notify Unit Maintenance.
106. ETHER STARTING AID DOES NOT OPERATE	1. Check circuit breaker CB68 in PCB to see if it is tripped.	1. Remove PDP cover (WP 0091 00).
		2. If circuit breaker is tripped, push in to reset. 3. Position master power switch to on (WP 0004 00).



ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

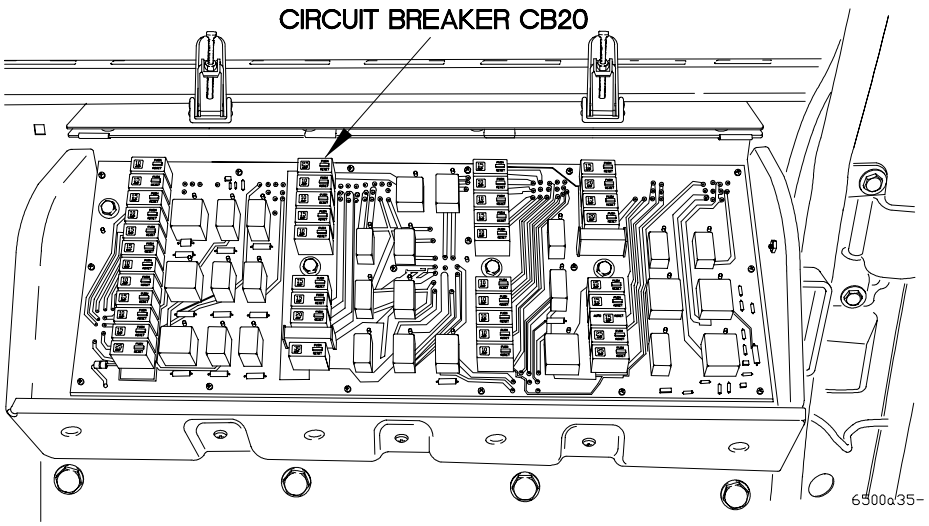
MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
106. ETHER STARTING AID DOES NOT OPERATE - Continued		4. Check circuit breaker to see if it is tripped again. If circuit breaker is tripped or trips again, notify Unit Maintenance. 5. Position master power switch to off (WP 0004 00). 6. Install PDP cover (WP 0091 00).
	2. Check to see if ether cylinder is damaged (WP 0083 00, Table 5, Item 2).	If ether cylinder is damaged, notify Unit Maintenance.
	3. Check to see if ether starting aid operates (WP 0044 00).	If ether starting aid does not operate, perform Fuel System Troubleshooting (WP 0062 00, malfunction 2, Ether Starting Aid Does Not Operate).

ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
107. RADIO DOES NOT OPERATE	1. Check circuit breaker CB20 in PCB to see if it is tripped.	1. Remove PDP cover (WP 0091 00).
		2. If circuit breaker is tripped, push in to reset.
		3. Position master power switch to on (WP 0004 00).
		4. Position radio to on.
		5. Position radio to off.
		6. Check circuit breaker to see if it is tripped again. If circuit breaker is tripped or trips again, notify Unit Maintenance.
		7. Position master power switch to off (WP 0004 00).
		8. Install PDP cover (WP 0091 00).

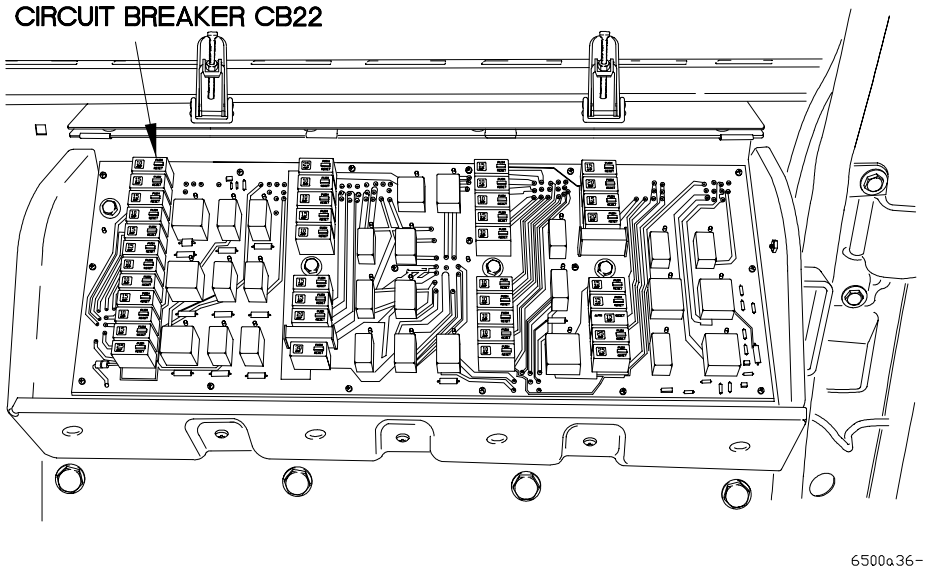


ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
107. RADIO DOES NOT OPERATE - Continued	2. Check to see if radio operates.	If radio does not operate, notify Unit Maintenance.
108. BATTERY TESTER DOES NOT OPERATE		Notify Unit Maintenance.
109. EXHAUST BRAKE DOES NOT OPERATE		Notify Unit Maintenance.
110. INLET AIR HEATER DOES NOT OPERATE	1. Check circuit breaker CB22 in PCB to see if it is tripped.	1. Remove PDP cover (WP 0091 00).
		2. If circuit breaker is tripped, push in to reset.
		3. Position master power switch to on (WP 0004 00).

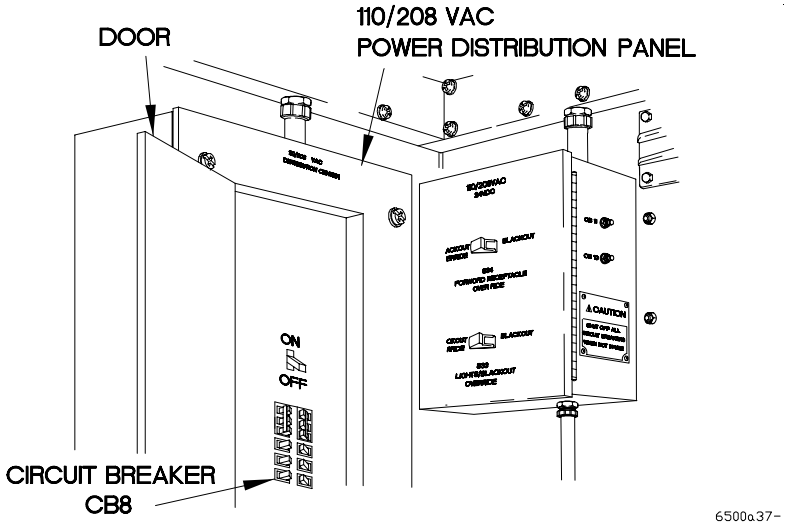


ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
110. INLET AIR HEATER DOES NOT OPERATE - Continued		4. Check circuit breaker to see if it is tripped. If circuit breaker is tripped or trips again, notify Unit Maintenance. 5. Position master power switch to off (WP 0004 00). 6. Install PDP cover (WP 0091 00).
	2. Check to see if inlet air heater operates (WP 0016 00).	If inlet air heater does not operate, notify Unit Maintenance.
111. M1079A1 FAN DOES NOT OPERATE	1. Check circuit breaker CB8 in 110/208 VAC POWER DISTRIBUTION PANEL to see if it has tripped.	1. Open door on 110/208 VAC POWER DISTRIBUTION PANEL (WP 0027 00).
		2. If circuit breaker CB8 is tripped, position to ON to reset.



ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

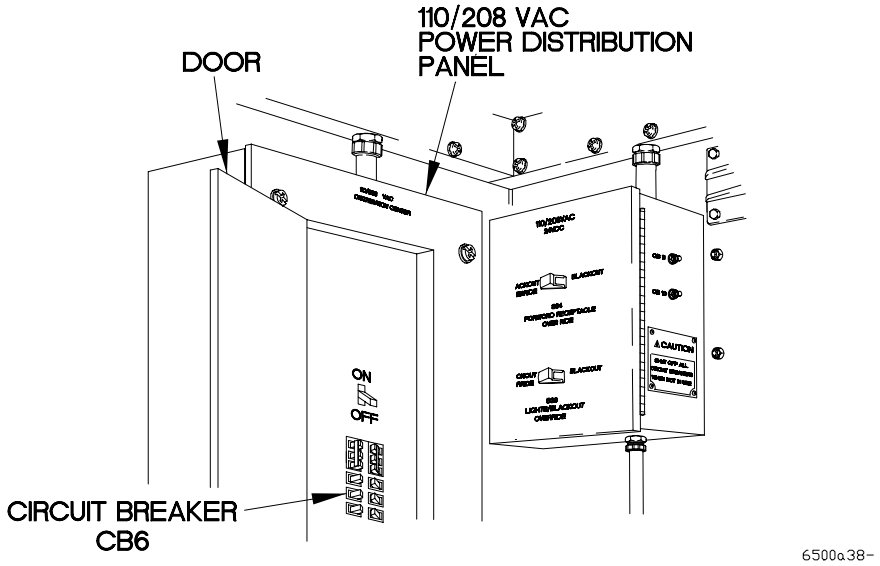
MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
111. M1079A1 FAN DOES NOT OPERATE - Continued		3. Check to see if fan operates (WP 0030 00).
		4. If circuit breaker trips again, notify Unit Maintenance.
		5. Close door on 110/208 VAC POWER DISTRIBUTION PANEL (WP 0027 00).
	2. Check to see if fluorescent lights illuminate (WP 0029 00).	If fluorescent lights do not illuminate, perform Electrical System Troubleshooting (WP 0065 00 Malfunction 131, 110 VAC Power Does Not Operate).
	3. Check to see if fan operates (WP 0030 00).	If fan does not operate, notify Unit Maintenance.
112. ALL M1079A1 VAN BODY CLEARANCE AND MARKER LIGHTS DO NOT ILLUMINATE	1. Check to see if cab top clearance and marker lights illuminate (WP 0016 00).	If cab top clearance and marker lights do not illuminate perform Malfunction 55 (One Or More Cab Top Marker Lights Do Not Illuminate).
	2. Check to see if van body clearance and marker lights illuminate (WP 0016 00).	If van body clearance and marker lights do not illuminate notify Unit Maintenance.
113. M1079A1 VAN BODY CLEARANCE OR MARKER LIGHT DOES NOT ILLUMINATE	Check to see if any van body clearance and marker lights illuminate (WP 0016 00).	1. If no van body clearance and marker lights illuminate, perform Malfunction 112 (All M1079A1 Van Body Clearance and Marker Lights Do Not Illuminate).

ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
113. M1079A1 VAN BODY CLEARANCE OR MARKER LIGHT DOES NOT ILLUMINATE - Continued		2. If other van body clearance or marker lights illuminate, notify Unit Maintenance.
114. ALL M1079A1 FLUORESCENT LIGHTS DO NOT ILLUMINATE	1. Check circuit breakers CB6 in 110/208 VAC POWER DISTRIBUTION PANEL to see if it has tripped.	1. Open door on 110/208 VAC POWER DISTRIBUTION PANEL (WP 0027 00).
		2. If circuit breaker CB6 is tripped, position to ON to reset. 3. Check to see if fluorescent lights illuminate (WP 0029 00).



ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
114. ALL M1079A1 FLUORESCENT LIGHTS DO NOT ILLUMINATE - Continued		4. If circuit breaker trips again, notify Unit Maintenance.
		5. Close door on 110/208 VAC POWER DISTRIBUTION PANEL.
	2. Check to see if 110 VAC outlets operate (WP 0013 00).	If 110 VAC outlets do not operate, perform Malfunction 131 (110 VAC Power Does Not Operate).
	3. Check to see if fluorescent lights illuminate (WP 0029 00).	If fluorescent lights do not illuminate, notify Unit Maintenance.
115. M1079A1 FLUORESCENT LIGHT(S) DS80 AND/OR DS81 DO NOT ILLUMINATE	Check to see if any fluorescent light illuminates (WP 0029 00).	1. If no fluorescent light illuminates, perform Malfunction 114 (All M1079A1 Fluorescent Lights Do Not Illuminate).
		2. If other fluorescent lights illuminates, notify Unit Maintenance.
116. M1079A1 FLUORESCENT LIGHT(S) DS82 AND/OR DS83 DO NOT ILLUMINATE	Check to see if any fluorescent light illuminate (WP 0029 00).	1. If no fluorescent light illuminates, perform Malfunction 114 (All M1079A1 Fluorescent Lights Do Not Illuminate).
		2. If other fluorescent lights illuminate, notify Unit Maintenance.
117. M1079A1 110 VAC OUTLET J233 DOES NOT OPERATE IN NORMAL MODE	1. Check 110 VAC outlet J232 for operation.	

ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
NOTE When either door or any blackout shield is open, van will not have AC power unless BLACKOUT OVERRIDE switches are activated. During blackout override only two forward AC outlets (J232 and J233) will have power.		
117. M1079A1 110 VAC OUTLET J233 DOES NOT OPERATE IN NORMAL MODE - Continued		1. Connect any known good 110 VAC appliance to 110 VAC outlet J232. 2. Check for 110 VAC appliance operation. 3. If 110 VAC outlet J232 does not operate, perform Malfunction 120 (M1079A1 110 VAC Outlet J232 Does Not Operate in Normal Mode). 4. Disconnect 110 VAC appliance from 110 VAC outlet J232.
	2. Check 110 VAC outlet J233 for operation.	1. Connect any known good 110 VAC appliance to 110 VAC outlet J233. 2. Check for 110 VAC appliance operation. 3. If 110 VAC outlet J233 does not operate, notify Unit Maintenance. 4. Disconnect 110 VAC appliance from 110 VAC outlet J233.

ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
118. M1079A1 110 VAC OUTLET J234 DOES NOT OPERATE IN NORMAL MODE	1. Check 110 VAC outlet J231 for operation.	1. Connect any known good 110 VAC appliance to 110 VAC outlet J231.
NOTE When either door or any blackout shield is open, van will not have AC power unless BLACKOUT OVERRIDE switches are activated. During blackout override only two forward AC outlets (J232 and J233) will have power.		
		2. Check for 110 VAC appliance operation. 3. If 110 VAC outlet J231 does not operate, perform Malfunction 122 (M1079A1 110 VDC Outlet J231 Does Not Operate In Normal Mode). 4. Disconnect 110 VAC appliance from 110 VAC outlet J231.
	2. Check 110 VAC outlet J234 for operation.	1. Connect any known good 110 VAC appliance to 110 VAC outlet J234. 2. Check for 110 VAC appliance operation. 3. If 110 VAC outlet J234 does not operate, notify Unit Maintenance. 4. Disconnect 110 VAC appliance from 110 VAC outlet J234.

ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
119. M1079A1 110 VAC OUTLET J235 DOES NOT OPERATE IN NORMAL MODE	1. Check 110 VAC outlet J230 for operation.	1. Connect any known good 110 VAC appliance to 110 VAC outlet J230.
NOTE When either door or any blackout shield is open, van will not have AC power unless BLACKOUT OVERRIDE switches are activated. During blackout override only two forward AC outlets (J232 and J233) will have power.		
		2. Check for 110 VAC appliance operation. 3. If 110 VAC outlet J230 does not operate, perform Malfunction 123 (M1079A1 110 VAC Outlet J230 Does Not Operate In Normal Mode). 4. Disconnect 110 VAC appliance from 110 VAC outlet J230.
	2. Check 110 VAC outlet J235 for operation.	1. Connect any known good 110 VAC appliance to 110 VAC outlet J235. 2. Check for 110 VAC appliance operation. 3. If 110 VAC outlet J235 does not operate, notify Unit Maintenance. 4. Disconnect 110 VAC appliance from 110 VAC outlet J235.

ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

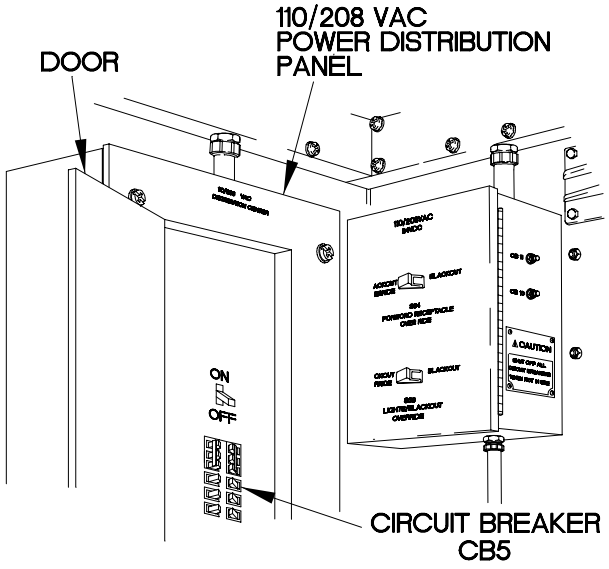
MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
120. M1079A1 110 VAC OUTLET J232 DOES NOT OPERATE IN NORMAL MODE	1. Check to see if fluorescent lights illuminate (WP 0029 00).	If fluorescent lights do not operate, perform Malfunction 131 (110 VAC Power Does Not Operate).
	2. Check 110 VAC outlet J233 for operation.	1. Connect any known good 110 VAC appliance to 110 VAC outlet J233.
NOTE When either door or any blackout shield is open, van will not have AC power unless BLACKOUT OVERRIDE switches are activated. During blackout override only two forward AC outlets (J232 and J233) will have power.		
		2. Check for 110 VAC appliance operation. 3. If 110 VAC outlet J233 does not operate, perform step 3 of this fault. If 110 VAC outlet J233 operates go to step 4 of this fault. 4. Disconnect 110 VAC appliance from 110 VAC outlet J233.

ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
120. M1079A1 110 VAC OUTLET J232 DOES NOT OPERATE IN NORMAL MODE - Continued	3. Check circuit breaker CB5 in 110/208 VAC POWER DISTRIBUTION PANEL to see if it has tripped.	1. Open door on 110/208 VAC POWER DISTRIBUTION PANEL (WP 0027 00).
		2. If circuit breaker CB5 is tripped, position to ON to reset. 3. Position master power switch to on (WP 0004 00). 4. If circuit breaker trips again, notify Unit Maintenance. 5. Position master power switch to off (WP 0004 00). 6. Close door on 110/208 VAC POWER DISTRIBUTION PANEL.



ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
120. M1079A1 110 VAC OUTLET J232 DOES NOT OPERATE IN NORMAL MODE - Continued	4. Check 110 VAC outlet J232 for operation.	1. Connect any known good 110 VAC appliance to 110 VAC outlet J234. 2. Check for 110 VAC appliance operation. 3. If 110 VAC outlet J232 does not operate, notify Unit Maintenance. 4. Disconnect 110 VAC appliance from 110 VAC outlet J232.
121. M1079A1 110 VAC OUTLETS J232 AND J233 DO NOT OPERATE IN BLACKOUT OVERRIDE MODE	1. Check to see if 110 VAC outlet J232 operates in normal mode.	1. Connect any known good 110 VAC appliance to 110 VAC outlet J232.
NOTE When either door or any blackout shield is open, van will not have AC power unless BLACKOUT OVERRIDE switches are activated. During blackout override only two forward AC outlets (J232 and J233) will have power.		
		2. Check for 110 VAC appliance operation. 3. If 110 VAC outlet J232 does not operate, perform Malfunction 120 (M1079A1 110 VAC Outlet J232 Does Not Operate in Normal Mode).

ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

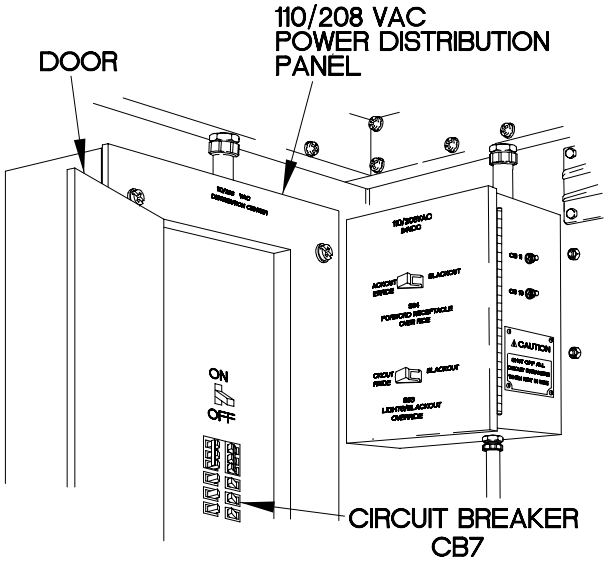
MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
121. M1079A1 110 VAC OUTLETS J232 AND J233 DO NOT OPERATE IN BLACKOUT OVERRIDE MODE - Continued	2. Check to see if 110 VAC outlets J232 and J233 operate in blackout override mode.	1. Position BLACKOUT OVERRIDE switch to ON (WP 0029 00). 2. Connect any known good 110 VAC appliance to 110 VAC outlet J232 or J233. 3. Check for 110 VAC appliance operation. 4. If 110 VAC outlet J232 or J233 does not operate in blackout override mode, notify Unit Maintenance. 5. Disconnect 110 VAC appliance from 110 VAC outlet.
122. M1079A1 110 VAC OUTLET J231 DOES NOT OPERATE IN NORMAL MODE	1. Check 110 VAC outlet J234 for operation.	1. Connect any known good 110 VAC appliance to 110 VAC outlet J234.
NOTE When either door or any blackout shield is open, van will not have AC power unless BLACKOUT OVERRIDE switches are activated. During blackout override only two forward AC outlets (J232 and J233) will have power.		
		2. Check for 110 VAC appliance operation.

ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
122. M1079A1 110 VAC OUTLET J231 DOES NOT OPERATE IN NORMAL MODE - Continued		3. If 110 VAC outlet J234 does not operate, perform step 2 of this fault. If 110 VAC outlet J233 operates go to step 3 of this fault.
		4. Disconnect 110 VAC appliance from 110 VAC outlet J234.
	2. Check circuit breakers CB7 in 110/208 VAC POWER DISTRIBUTION PANEL to see if it has tripped.	1. Open door on 110/208 VAC POWER DISTRIBUTION PANEL (WP 0027 00).
		2. If circuit breaker CB7 is tripped, position to ON to reset.



ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
122. M1079A1 110 VAC OUTLET J231 DOES NOT OPERATE IN NORMAL MODE - Continued		3. Position master power switch to on (WP 0004 00).
		4. If circuit breaker trips again, notify Unit Maintenance.
		5. Position master power switch to off (WP 0004 00).
		6. Close door on 110/208 VAC POWER DISTRIBUTION PANEL.
	3. Check 110 VAC outlet J231 for operation.	1. Connect any known good 110 VAC appliance to 110 VAC outlet J234.
		2. Check for 110 VAC appliance operation.
		3. If 110 VAC outlet J231 does not operate, notify Unit Maintenance.
		4. Disconnect 110 VAC appliance from 110 VAC outlet J231.
123. M1079A1 110 VAC OUTLET J230 DOES NOT OPERATE IN NORMAL MODE	1. Check 110 VAC outlet J235 for operation.	1. Connect any known good 110 VAC appliance to 110 VAC outlet J235.

ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

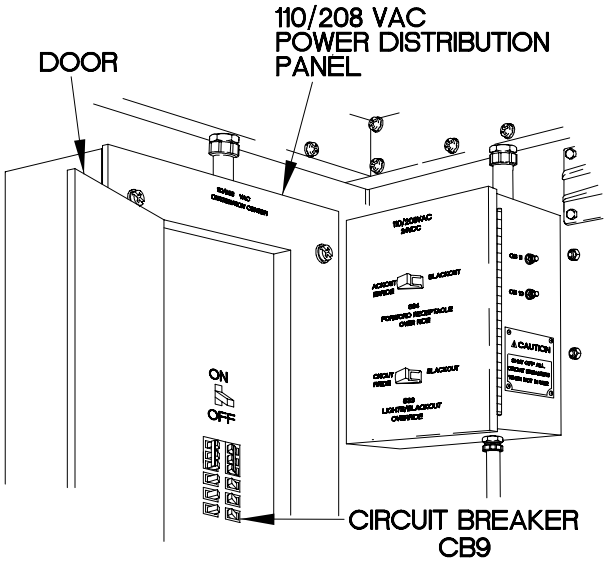
MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
NOTE When either door or any blackout shield is open, van will not have AC power unless BLACKOUT OVERRIDE switches are activated. During blackout override only two forward AC outlets (J232 and J233) will have power.		
123. M1079A1 110 VAC OUTLET J230 DOES NOT OPERATE IN NORMAL MODE - Continued		2. Check for 110 VAC appliance operation. 3. If 110 VAC outlet J235 does not operate, perform step 2 of this fault. If 110 VAC outlet J233 operates go to step 3 of this fault. 4. Disconnect 110 VAC appliance from 110 VAC outlet J235.

ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
123. M1079A1 110 VAC OUTLET J230 DOES NOT OPERATE IN NORMAL MODE - Continued	2. Check circuit breakers CB9 in 110/208 VAC POWER DISTRIBUTION PANEL to see if it has tripped.	1. Open door on 110/208 VAC POWER DISTRIBUTION PANEL (WP 0027 00).
		2. If circuit breaker CB9 is tripped, position to ON to reset. 3. Position master power switch to on (WP 0004 00). 4. If circuit breaker trips again, notify Unit Maintenance. 5. Position master power switch to off (WP 0004 00). 6. Close door on 110/208 VAC POWER DISTRIBUTION PANEL.



ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

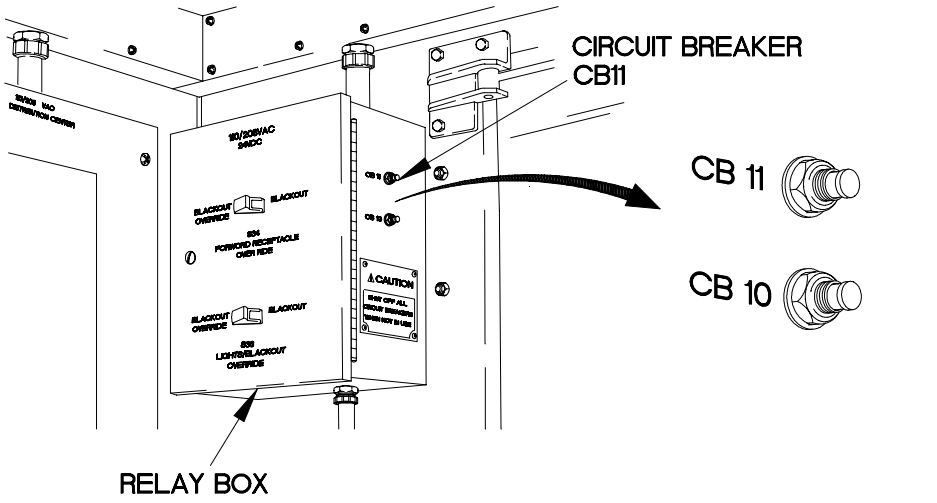
MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
123. M1079A1 110 VAC OUTLET J230 DOES NOT OPERATE IN NORMAL MODE - Continued	3. Check 110 VAC outlet J230 for operation.	1. Connect any known good 110 VAC appliance to 110 VAC outlet J230. 2. Check for 110 VAC appliance operation. 3. If 110 VAC outlet J230 does not operate, notify Unit Maintenance. 4. Disconnect 110 VAC appliance from 110 VAC outlet J230.
124. M1079A1 BLACKOUT LIGHT(S) DOES NOT ILLUMINATE	1. Check circuit breaker CB10 and CB11 on relay box to see if either is tripped.	1. If either circuit breaker is tripped, push in to reset and perform test 2 of this malfunction.

ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
124. M1079A1 BLACKOUT LIGHT(S) DOES NOT ILLUMINATE - Continued		2. If circuit breakers are not tripped, perform test 2 of this malfunction.
	2. Check to see if blackout lights illuminate (WP 0029 00).	1. If circuit breaker trips again, notify Unit Maintenance. 2. If blackout lights do not illuminate, perform test 3 of this malfunction..
	3. Check to see if emergency lights illuminate (WP 0029 00).	1. If emergency lights do not illuminate perform, Electrical System Troubleshooting malfunction 1239 M1079A 24 VDC Binding Posts Do Not Operate.

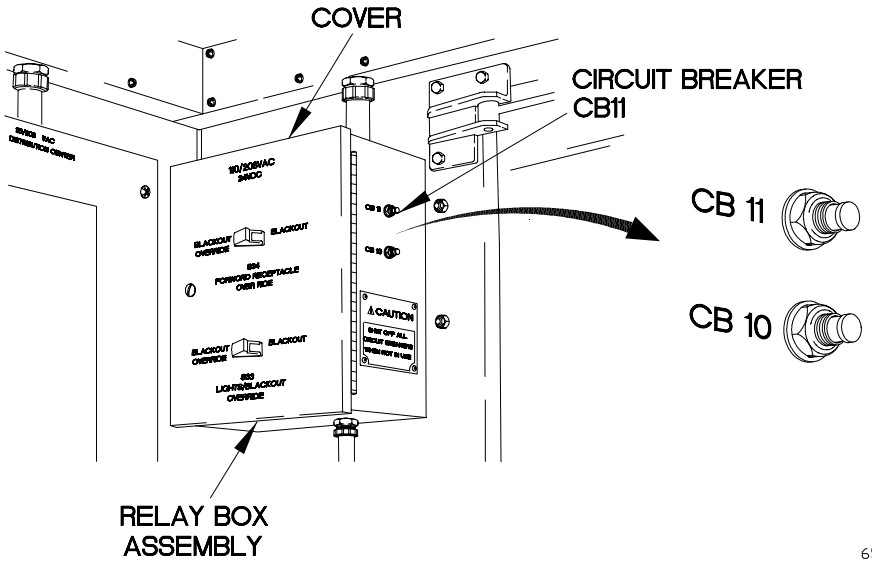


ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
124. M1079A1 BLACKOUT LIGHT(S) DOES NOT ILLUMINATE - Continued		2. If emergency lights do illuminate, notify Unit Maintenance.
125. M1079A1 EMERGENCY LIGHT(S) DOES NOT ILLUMINATE	1. Check circuit breakers CB10 and CB11 on relay box to see if it is tripped.	1. If either circuit breaker is tripped, push in to reset and perform test 2 of this malfunction. 2. If circuit breakers are not tripped, perform test 2 of this malfunction.
	2. Check to see if emergency lights illuminate (WP 0029 00).	1. If circuit breaker trips again, notify Unit Maintenance. 2. If emergency lights do not illuminate, perform test 3 of this malfunction.



ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

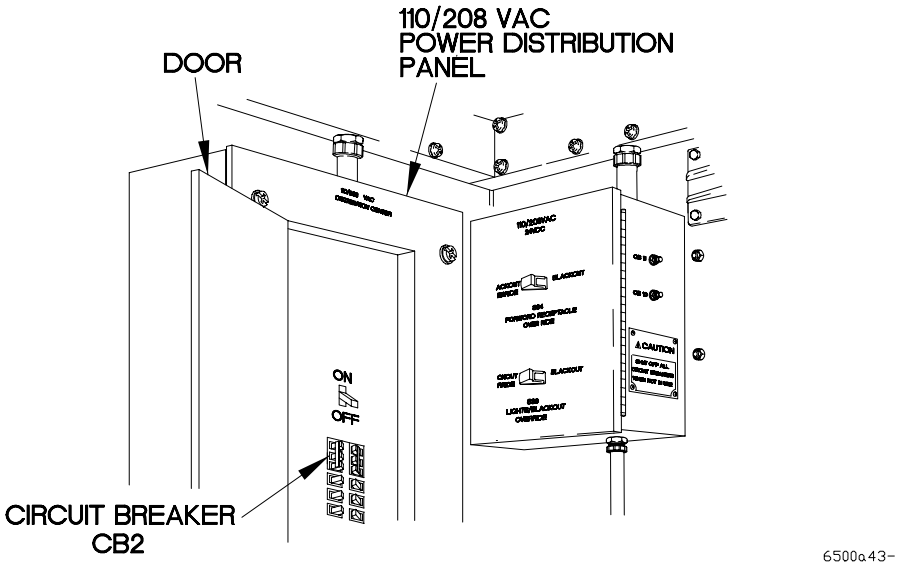
Table 5. Electrical System Troubleshooting Procedures – Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
125. M1079A1 EMERGENCY LIGHT(S) DOES NOT ILLUMINATE - Continued	3. Check to see if blackout lights illuminate (WP 0029 00).	1. If blackout lights do not illuminate, perform malfunction 129, M0179 A1 24 VDC Binding Posts Do Not Operate. 2. If blackout lights do illuminate, notify Unit Maintenance.
126. M1079A1 FIELD PHONE 1 AND/OR 2 BINDING POST DOES NOT OPERATE	1. Check to see if field telephone operates on PHONE 1 field telephone binding post.	1. Install field telephone on PHONE 1 field binding posts (WP 0032 00). 2. If field telephone does not operates on PHONE 1 field telephone binding post, notify Unit Maintenance. 3. Remove field telephone on PHONE 1 field binding posts (WP 0032 00).
	2. Check to see if field telephone operates on PHONE 2 field telephone binding post.	1. Install field telephone on PHONE 2 field binding posts (WP 0032 00). 2. If field telephone does not operates on PHONE 2 field telephone binding post, notify Unit Maintenance. 3. Remove field telephone on PHONE 2 field binding posts (WP 0032 00).
127. M1079A1 AIR CONDITIONER DOES NOT OPERATE	1. Check to see if fluorescent lights illuminate (WP 0029 00).	If fluorescent lights do not illuminate, perform Malfunction 131 (110 VAC Power Does Not Operate).

ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

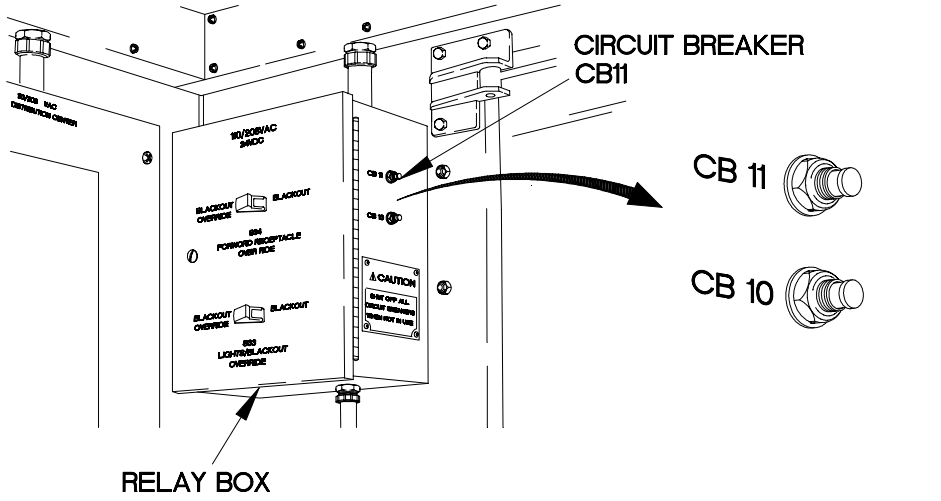
MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
127. M1079A1 AIR CONDITIONER DOES NOT OPERATE - Continued	2. Check circuit breaker CB2 in 110/208 VAC POWER DISTRIBUTION PANEL to see if it has tripped.	1. Open 110/208 VAC POWER DISTRIBUTION PANEL cover (WP 0027 00). 2. If circuit breaker CB2 is tripped, position to ON to reset.
		
	3. Check to see if air conditioner operates (WP 0034 00).	If air conditioner still does not operate, or circuit breaker trips again, notify Unit Maintenance.
128. M1079A1 HEATER DOES NOT OPERATE	1. Check heater operation to see if fan operates (WP 0034 00).	If fan does not operate, perform Malfunction 111 (M1079A1 Fan Does Not Operate).
	2. Check to see if heater operates (WP 0034 00).	If heater does not operate, notify Unit Maintenance.

ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
129. M1079A1 24 VDC BINDING POST(s) DOES NOT OPERATE	1. Check to see if circuit breaker CB11 is tripped.	1. If circuit breaker is tripped, push in to reset and perform test 2 of this malfunction. 2. If circuit breaker CB11 is not tripped, perform test 2 of this malfunction.
	2. Check to see if 24 VDC binding post operates (WP 0031 00).	If 24 VDC binding post do not operate, notify Unit Maintenance.
130. VAN DOOR INDICATOR DOES NOT ILLUMINATE	1. Check to see if LAMP TEST switch illuminates lighted indicator display (WP 0016 00).	If LAMP TEST switch does not illuminate lighted indicator display, perform Malfunction 46 (Lamp Test Ground Does Not Operate.).
	2. Check to see if VAN DOOR indicator illuminates with van door open.	1. Position master power switch to on (WP 0004 00).

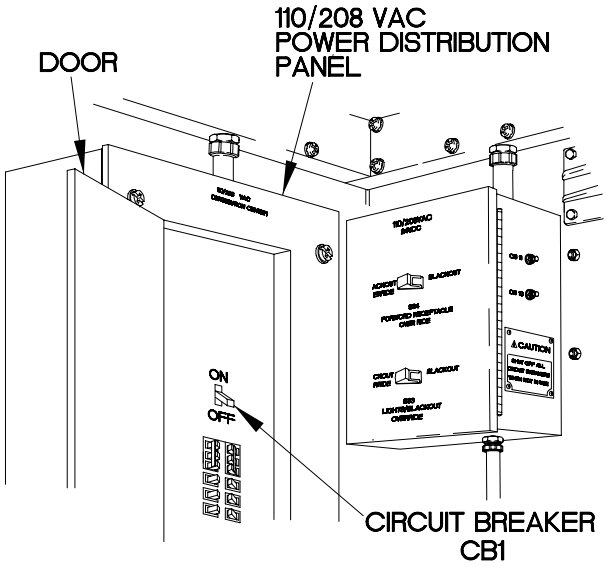


ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
130. VAN DOOR INDICATOR DOES NOT ILLUMINATE - Continued		2. Open van door (WP 0026 00). 3. If VAN DOOR indicator does not illuminate with van door open, notify Unit Maintenance. 4. Position master power switch to off (WP 0004 00).
131. 110 VAC POWER DOES NOT OPERATE	1. Check circuit breakers CB1 in 110/208 VAC POWER DISTRIBUTION PANEL to see if it has tripped.	1. Open door on 110/208 VAC POWER DISTRIBUTION PANEL (WP 0027 00).
		2. If circuit breaker CB1 is tripped, position to ON to reset.



ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

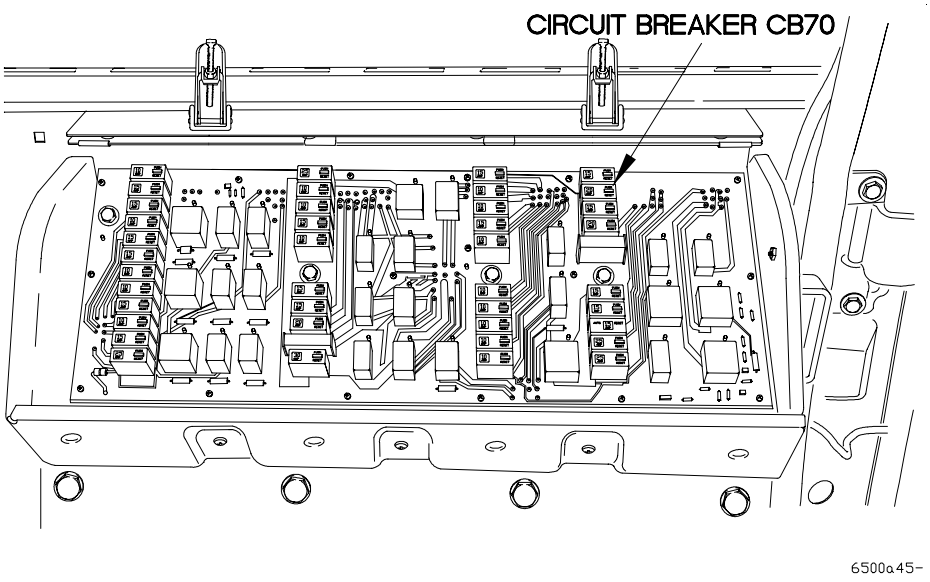
MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
131. 110 VAC POWER DOES NOT OPERATE - Continued	2. Check to see if 110 VAC power operates.	1. Connect any known good 110 VAC appliance to any 110 VAC outlet. 2. Check for 110 VAC appliance operation. 3. If 110 VAC outlet does not operate, notify Unit Maintenance. 4. Disconnect 110 VAC appliance from 110 VAC outlet.
132. FLUORESCENT LIGHTS DO NOT ILLUMINATE IN BLACKOUT OVERRIDE MODE		Notify Unit Maintenance.

ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
133. ALL MAIN LIGHT SWITCH FUNCTIONS DO NOT OPERATE	1. Check circuit breaker CB70 in PCB to see if it has tripped.	1. Remove PDP cover (WP 0091 00).
		2. If circuit breaker CB70 has tripped, push in to reset.
		3. Position main light switch to SER DRIVE (WP 0004 00).
		4. Check circuit breaker to see if it tripped. If circuit breaker is tripped, notify Unit Maintenance.
		5. Position main light switch to OFF (WP 0004 00).
		6. Install PDP cover (WP 0091 00).
	2. Check to see if main light switch functions operate.	1. Position main light switch to SER DRIVE (WP 0004 00).



ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

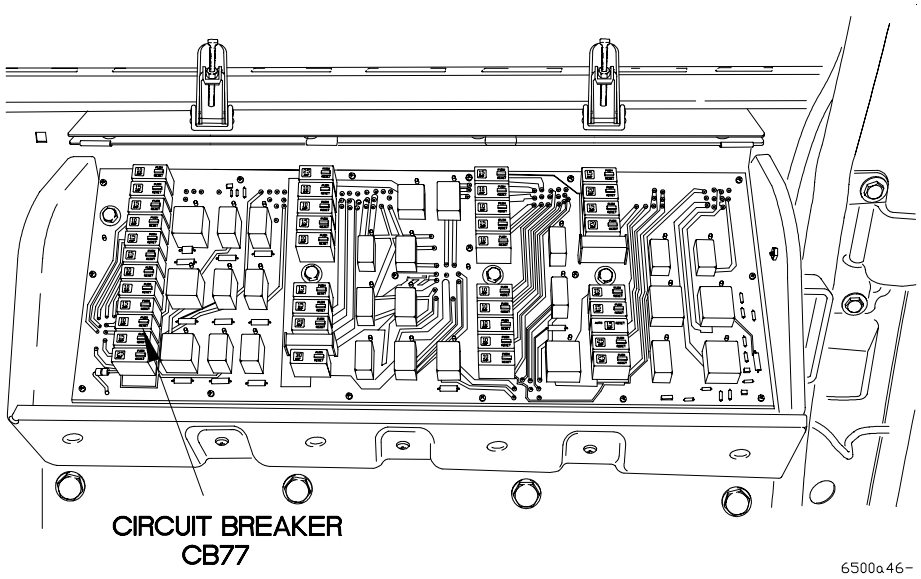
MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
133. ALL MAIN LIGHT SWITCH FUNCTIONS DO NOT OPERATE - Continued		2. Check to see if headlights illuminate. 3. Position main light switch to OFF (WP 0004 00). 4. If main light switch functions do not operate, notify Unit Maintenance.
134. ALL ELECTRICAL GAGES DO NOT OPERATE	1. Check to see if starter pushbutton operates (WP 0016 00). 2. Check to see if electrical gages operate (WP 0016 00).	If starter push button does not operate, perform Malfunction 135 (Audible Alarm, Radio, Starter Pushbutton, and Electrical Gages Do Not Operate). If electrical gages do not operate, notify Unit Maintenance.
135. AUDIBLE ALARM, RADIO, STARTER PUSHBUTTON, AND ELECTRICAL GAGES DO NOT OPERATE	1. Check circuit breaker CB77 in PCB to see if it has tripped.	1. Remove PDP cover (WP 0091 00).

ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
135. AUDIBLE ALARM, RADIO, STARTER PUSHBUTTON, AND ELECTRICAL GAGES DO NOT OPERATE - Continued		2. If circuit breaker CB77 has tripped, push in to reset.
		3. Position master power switch to on (WP 0004 00). 4. If circuit breaker CB77 has tripped again, notify Unit Maintenance. 5. Position master power switch to off (WP 0004 00). 6. Install PDP cover (WP 0091 00).



ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

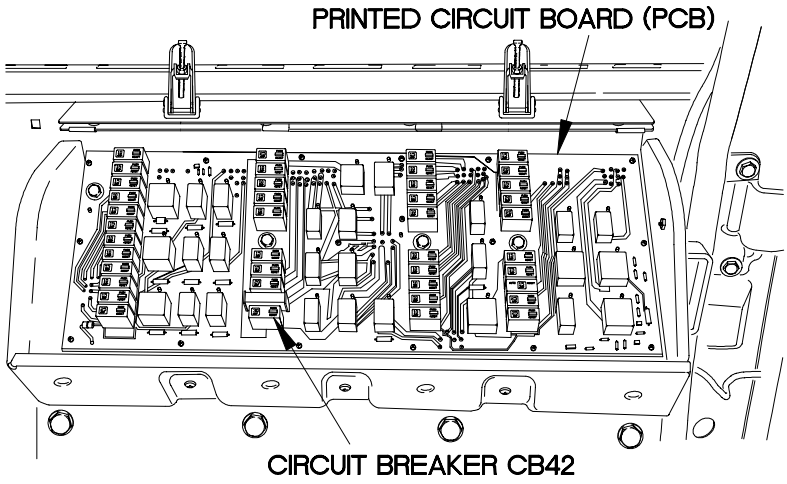
Table 5. Electrical System Troubleshooting Procedures – Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
135. AUDIBLE ALARM, RADIO, STARTER PUSHBUTTON, AND ELECTRICAL GAGES DO NOT OPERATE - Continued	2. Check to see if audible alarm, radio, starter pushbutton, and electrical gages operate (WP 0016 00).	If audible alarm, radio, starter pushbutton, and electrical gages do not operate, notify Unit Maintenance.
136. LO IDLE/HI IDLE SWITCH DOES NOT OPERATE	Check to see if LO IDLE/HI IDLE switch does not operate.	1. Position PTO switch to off (WP 0005 00). 2. Start engine (WP 0016 00). 3. Position LO IDLE/HI IDLE switch to HI IDLE (WP 0004 00). 4. Note if LO IDLE/HI IDLE switch operates. 5. Shut down engine (WP 0016 00). 6. If LO IDLE/HI IDLE switch does not operate, notify Unit Maintenance.
137. MASTER POWER SWITCH DOES NOT SHUT DOWN ENGINE	1. Is vehicle S/N 18,550 or higher?	1. If vehicle is not S/N 18,550 or higher, go to test 2 of this malfunction. 2. If vehicle is S/N 18,550 or higher, go to test 3 of this malfunction.
	2. Shut down engine by removing circuit breaker CB42.	1. Position master power switch to off (WP 0004 00).

ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

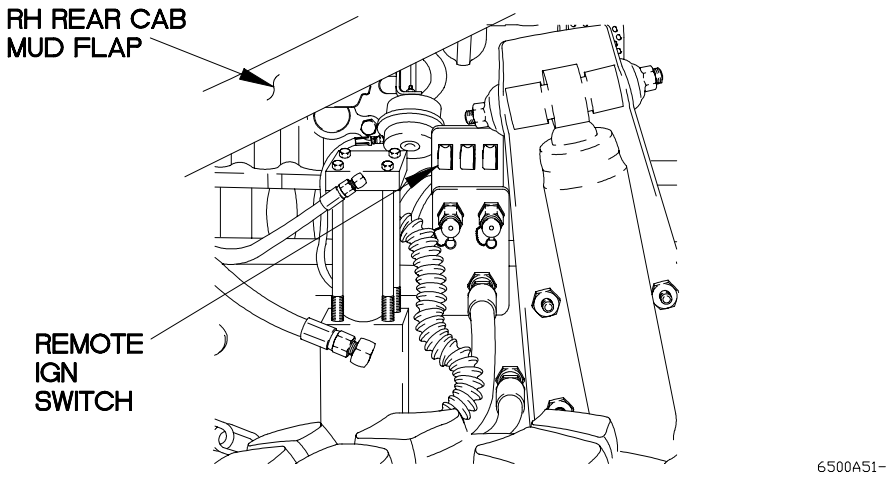
MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
	WARNING **Remove rings, bracelets, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry may catch on equipment or may short across an electrical circuit or battery terminal. Failure to comply may result serious injury or death to personnel.**	
137. MASTER POWER SWITCH DOES NOT SHUT DOWN ENGINE - Continued		2. Remove Power Distribution Panel (PDP) cover (WP 0091 00). 3. Remove circuit breaker CB42 from Printed Circuit Board (PCB). 
		4. After engine shuts down, install circuit breaker CB42 in PCB. 5. Install PDP cover (WP 0091 00). 6. Notify Unit Maintenance.

ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

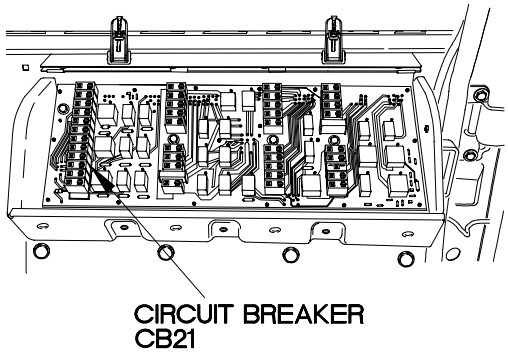
MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
137. MASTER POWER SWITCH DOES NOT SHUT DOWN ENGINE - Continued	3. Verify remote IGN switch is in the OFF position (WP 0011 00).	1. Position master power switch to off (WP 0004 00). 2. Lift RH rear cab mud flap. 3. Position remote IGN switch to OFF (WP 0011 00). 4. If engine does not shutdown, go to test 4 of this malfunction.
	4. Shut down engine by positioning Manual Battery Disconnect Switch (MBDS) to disconnect (OFF).	1. Position MBDS to disconnect (OFF) (WP 0011 00).



ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

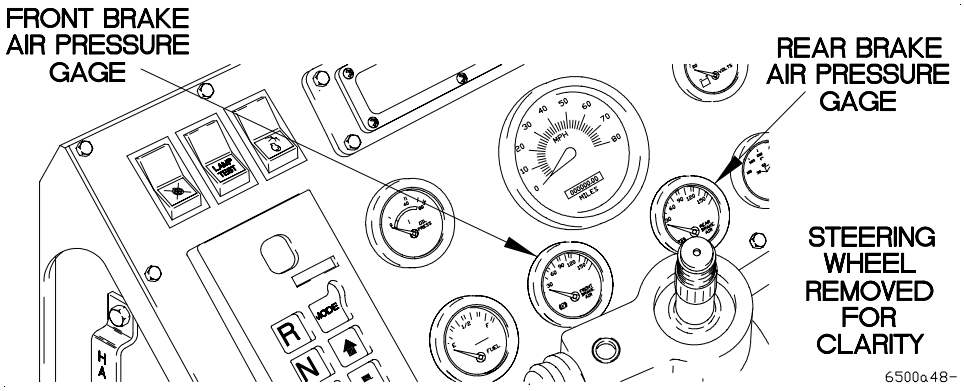
Table 5. Electrical System Troubleshooting Procedures – Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
137. MASTER POWER SWITCH DOES NOT SHUT DOWN ENGINE - Continued		2. After engine shuts down, position MBDS to connect (ON) (WP 0011 00). 3. Notify Unit Maintenance.
138. AIR DRYER HEATER DOES NOT OPERATE	1. Check circuit breaker CB21 in PCB to see if it is tripped.	1. Remove PDP cover (WP 0091 00).
	 6500a47-	
		2. If circuit breaker CB21 has tripped, push in to reset. 3. Position master power switch to on (WP 0004 00). 4. If circuit breaker CB21 has tripped again, notify Unit Maintenance.
	2. Check to see if air tanks are pressurized.	1. Start engine (WP 0016 00).

ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

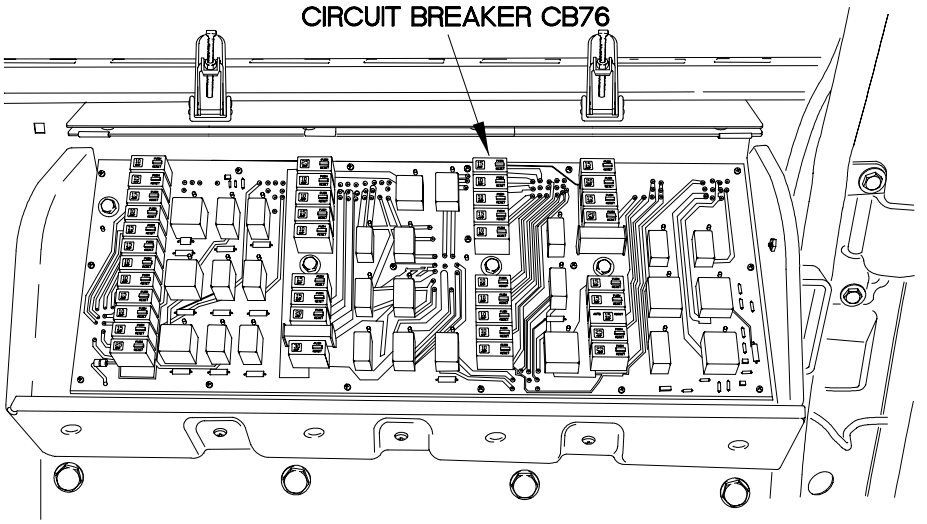
MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
138. AIR DRYER HEATER DOES NOT OPERATE - Continued		2. Allow engine to idle until 120 psi is registered on FRONT BRAKE AIR and REAR BRAKE AIR pressure gages.
		
		3. Shut down engine (WP 0016 00).
		4. If FRONT BRAKE AIR or REAR BRAKE AIR pressure gage does not register 120 psi, perform WP 0081 00, Malfunction 1, Air System Loses Pressure During Operation/Slow Air Pressure Buildup).
	3. Check to see if air hoses and fittings are free from leaks.	If air hoses and fittings are not free from leaks, notify Unit Maintenance to repair leaks.
	4. Check to see if air dryer heater operates.	If air dryer heater does not operate, notify Unit Maintenance.

ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
139. STOPLIGHTS AND 12 VDC INDICATOR PANEL CIRCUITS DO NOT OPERATE	1. Check circuit breaker CB76 in PCB to see if it is tripped.	1. Remove PDP cover (WP 0091 00).
		2. If circuit breaker CB76 has tripped, push in to reset. 3. Position master power switch to on (WP 0004 00). 4. If circuit breaker CB76 has tripped again, notify Unit Maintenance.
	2. Check to see if stoplights and 12 vdc indicator panel illuminate.	1. Position master power switch to on (WP 0004 00). 2. Position main light switch to STOPLIGHT (WP 0004 00).



ELECTRICAL SYSTEM TROUBLESHOOTING - Continued 0065 00

ELECTRICAL SYSTEM – Continued

Table 5. Electrical System Troubleshooting Procedures – Continued

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
139. STOPLIGHTS AND 12 VDC INDICATOR PANEL CIRCUITS DO NOT OPERATE - Continued		3. Depress brake pedal. 4. Check to see if stoplights illuminate. 5. Release brake pedal. 6. Position main light switch to OFF (WP 0004 00). 7. Hold LAMP TEST switch in on position (WP 0004 00). 8. Check to see if lighted indicator display illuminates. 9. Release LAMP TEST switch. 10. Position master power switch to off (WP 0004 00).
140. REMOTE START DOES NOT OPERATE (VEHICLE S/N 18,550 OR HIGHER)	1. Check to see if engine starts using instrument panel controls.	1. Position master power switch to on (WP 0004 00). 2. Attempt to start engine (WP 0016 00). 3. If engine starts, check to see if any instrument panel gages operate. If engine starts and any gages operate, Notify Unit Maintenance. 4. Position master power switch to off (WP 0004 00).

END OF TASK

TRANSMISSION SYSTEM TROUBLESHOOTING 0066 00

THIS WORK PACKAGE COVERS:
Transmission System

INITIAL SETUP:

Maintenance Level
Operator

References
WP 0083 00

TRANSMISSION SYSTEM

Table 1. Transmission System Troubleshooting Procedures.

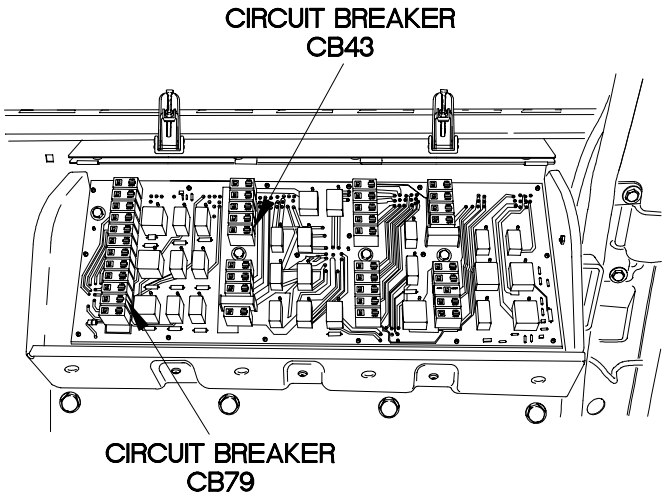
MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
1. WTEC III TRANSMISSION PUSHBUTTON SHIFT SELECTOR (TPSS) LED FLASHES SELECTED GEAR AND/OR TRANSMISSION DOES NOT SHIFT GEARS	1. Check transmission oil level (WP 0083 00, Table 3, Item 7).	1. If transmission oil level is low, add transmission oil (WP 0083 00, Table 3, Item 7).
		2. If transmission oil level is high, notify Unit Maintenance.
	2. Check transmission oil for contamination.	1. If transmission oil is contaminated, notify Unit Maintenance.
		2. If TPSS display window still flashes selected gear and/or transmission still does not shift gears, notify Unit Maintenance.
2. TRANSMISSION UNUSUALLY NOISY WHEN OPERATING	1. Check transmission oil level (WP 0083 00, Table 3, Item 7).	1. If transmission oil level is low, add transmission oil (WP 0083 00, Table 3, Item 7).

TRANSMISSION SYSTEM TROUBLESHOOTING - Continued 0066 00

TRANSMISSION SYSTEM - Continued

Table 1. Transmission System Troubleshooting Procedures - Continued.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
		2. If transmission oil level is high, notify Unit Maintenance.
	2. Check transmission oil for contamination.	1. If transmission oil is contaminated, notify Unit Maintenance.
		2. If transmission is still unusually noisy when operating, notify Unit Maintenance.
3. WTEC III TRANSMISSION PUSHBUTTON SHIFT SELECTOR (TPSS) DOES NOT ILLUMINATE/ OPERATE	1. Check to see if circuit breakers CB43 and CB79 are tripped.	1. Remove PDP cover (WP 0091 00).
		2. If circuit breaker(s) CB43 or CB79 is tripped, push button to reset.



TRANSMISSION SYSTEM TROUBLESHOOTING - Continued 0066 00

TRANSMISSION SYSTEM - Continued

Table 1. Transmission System Troubleshooting Procedures - Continued.

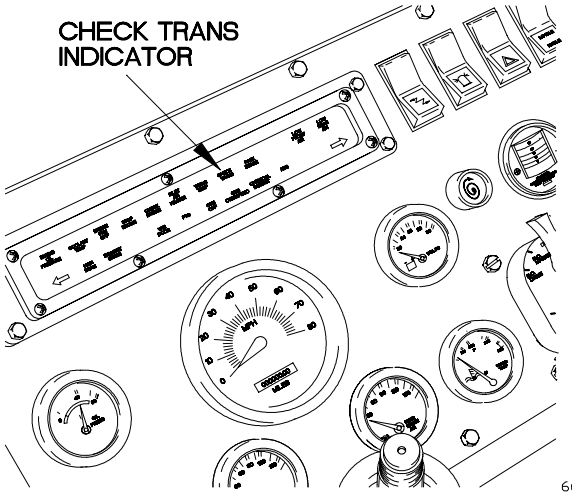
MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
3. WTEC III TRANSMISSION PUSHBUTTON SHIFT SELECTOR(TPSS) DOES NOT ILLUMINATE/ OPERATE - Continued		3. Position master power switch to on (WP 0004 00). 4. Check circuit breaker(s) to see if it is tripped again. 5. Position master power switch to off (WP 0004 00). 6. If circuit breaker(s) is tripped, notify Unit Maintenance. 7. Install PDP cover (WP 0091 00).
	2. Check to see if WTEC III TPSS illuminates and operates.	1. Position master power switch to on (WP 0004 00). 2. Position main light switch to SER DRIVE (WP 0004 00). 3. Position dimmer switch to maximum brightness (WP 0004 00). 4. Check to see if WTEC III TPSS illuminates. 5. Position main light switch to off (WP 0004 00).

TRANSMISSION SYSTEM TROUBLESHOOTING - Continued 0066 00

TRANSMISSION SYSTEM - Continued

Table 1. Transmission System Troubleshooting Procedures - Continued.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
3. WTEC III TRANSMISSION PUSHBUTTON SHIFT SELECTOR(TPSS) DOES NOT ILLUMINATE/ OPERATE - Continued		6. Position master power switch to off (WP 0004 00). 7. If WTEC III TPSS does not illuminate, notify Unit Maintenance.
4. CHECK TRANS INDICATOR REMAINS ILLUMINATED	1. Check to see if CHECK TRANS indicator remains illuminated after test drive.	1. Start engine (WP 0016 00). 2. Test drive vehicle. 3. Check to see if CHECK TRANS indicator remains illuminated.

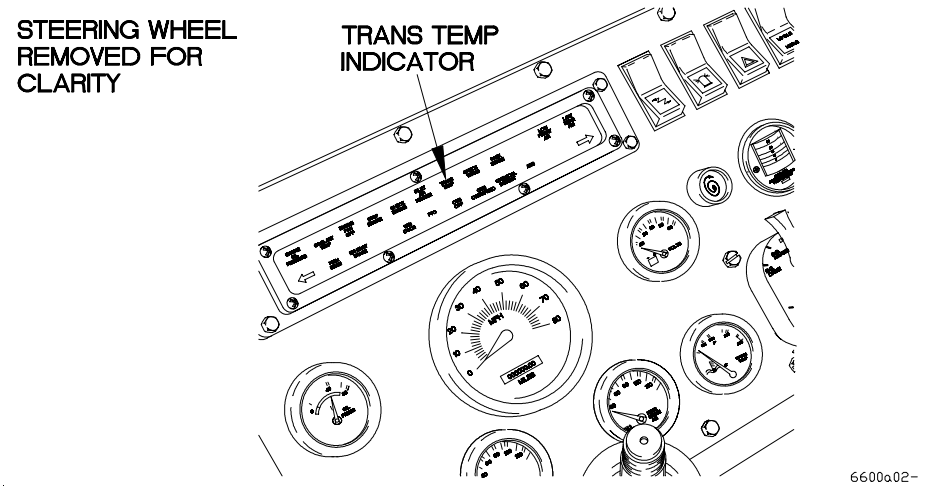


TRANSMISSION SYSTEM TROUBLESHOOTING - Continued 0066 00

TRANSMISSION SYSTEM - Continued

Table 1. Transmission System Troubleshooting Procedures - Continued.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
4. CHECK TRANS INDICATOR REMAINS ILLUMINATED - Continued		4. Shut down engine (WP 0016 00). 5. If CHECK TRANS indicator remains illuminated, notify Unit Maintenance.
5. TRANS TEMP INDICATOR REMAINS ILLUMINATED	1. Check to see if TRANS TEMP indicator remains illuminated after test drive.	1. Start engine (WP 0016 00). 2. Test drive vehicle. 3. Check to see if TRANS TEMP indicator remains illuminated.
		4. Shut down engine (WP 0016 00).



TRANSMISSION SYSTEM TROUBLESHOOTING - Continued 0066 00

TRANSMISSION SYSTEM - Continued

Table 1. Transmission System Troubleshooting Procedures - Continued.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
5. TRANS TEMP INDICATOR REMAINS ILLUMINATED - Continued		5. If TRANS TEMP indicator remains illuminated, notify Unit Maintenance.

END OF TASK

DRIVE SHAFT TROUBLESHOOTING 0067 00

THIS WORK PACKAGE COVERS:
Drive Shaft

INITIAL SETUP:

Maintenance Level
Operator

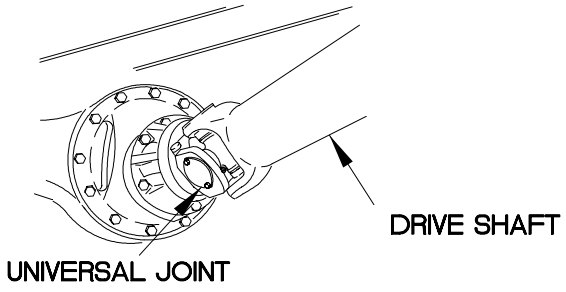
Personnel
Two

Equipment Conditions
Engine running (WP 0016 00).

DRIVE SHAFT

Table 1. Drive Shaft Troubleshooting Procedures.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
DRIVE SHAFT OR UNIVERSAL JOINTS UNUSUALLY NOISY WHEN OPERATING	Verify that drive shaft or universal joint is unusually noisy.	1. Road test vehicle. 2. Listen for unusually loud noise from drive shaft or universal joint. 3. If drive shaft or universal joint is unusually noisy, notify Unit Maintenance.



END OF TASK

POWER TAKE-OFF (PTO) TROUBLESHOOTING 0068 00

THIS WORK PACKAGE COVERS:
Power Take-Off (PTO)

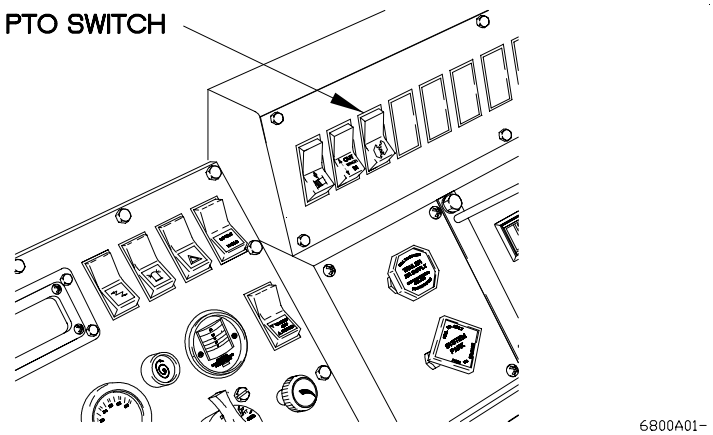
INITIAL SETUP:

Maintenance Level
Operator

Conditions
Engine running (WP 0016 00).
Engine at low idle (WP 0004 00).

POWER TAKE-OFF (PTO)

Table 1. Power Take-Off (PTO) Troubleshooting Procedures.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
1. POWER TAKE-OFF (PTO) DOES NOT ENGAGE	Check to see if PTO engages.	1. Position PTO switch to on. 2. Check to see if PTO engages.  3. Position PTO switch to off. 4. Shut down engine (WP 0016 00).

POWER TAKE-OFF (PTO) TROUBLESHOOTING - Continued 0068 00

Table 1. Power Take-Off (PTO) Troubleshooting Procedures - Continued.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
1. POWER TAKE-OFF (PTO) DOES NOT ENGAGE - Continued		5. If PTO does not engage, perform Electrical System Troubleshooting (WP 0065 00, Malfunction 96, Power Take-Off (PTO) Does Not Engage).

END OF TASK

BRAKE SYSTEM TROUBLESHOOTING 0069 00

THIS WORK PACKAGE COVERS:
Brake System

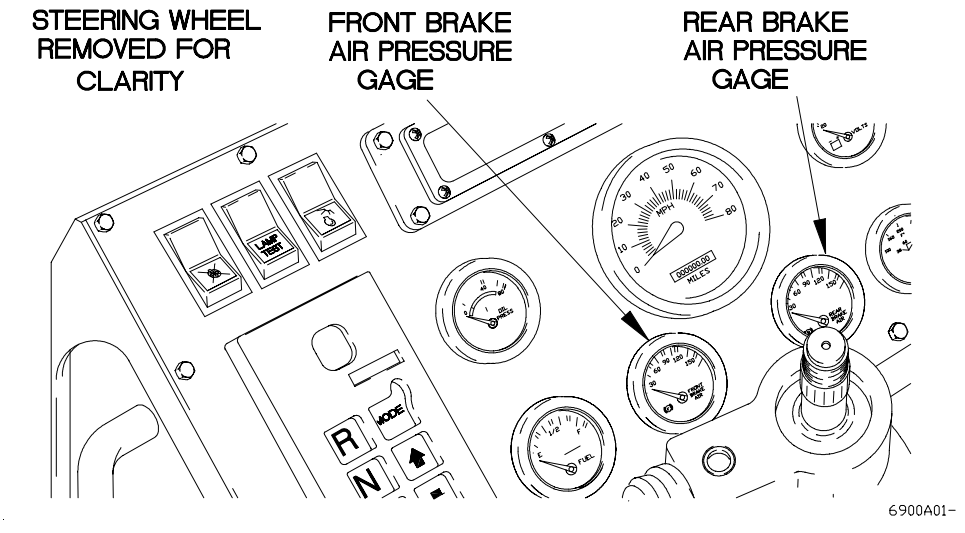
INITIAL SETUP:

Maintenance Level	Reference
Operator	WP 0016 00

BRAKE SYSTEM

Table 1. Brake System Troubleshooting Procedures.

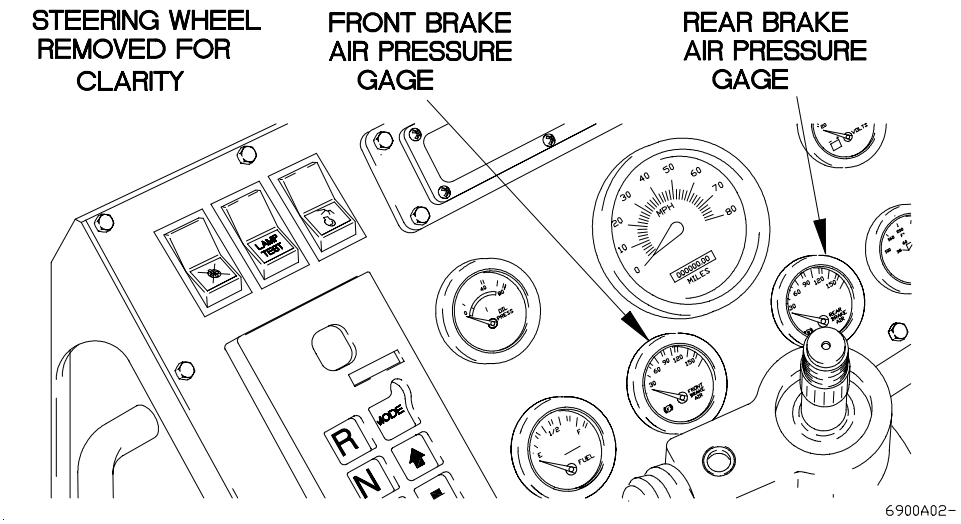
MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
1. EXCESSIVE BRAKING DISTANCE	1. Check to see if air tanks are pressurized.	1. Start engine (WP 0016 00). 2. Allow engine to idle until 120 psi is registered on FRONT BRAKE AIR and REAR BRAKE AIR pressure gages. 3. Shut down engine (WP 0016 00).



BRAKE SYSTEM TROUBLESHOOTING - Continued 0069 00

BRAKE SYSTEM - Continued

Table 1. Brake System Troubleshooting Procedures - Continued.

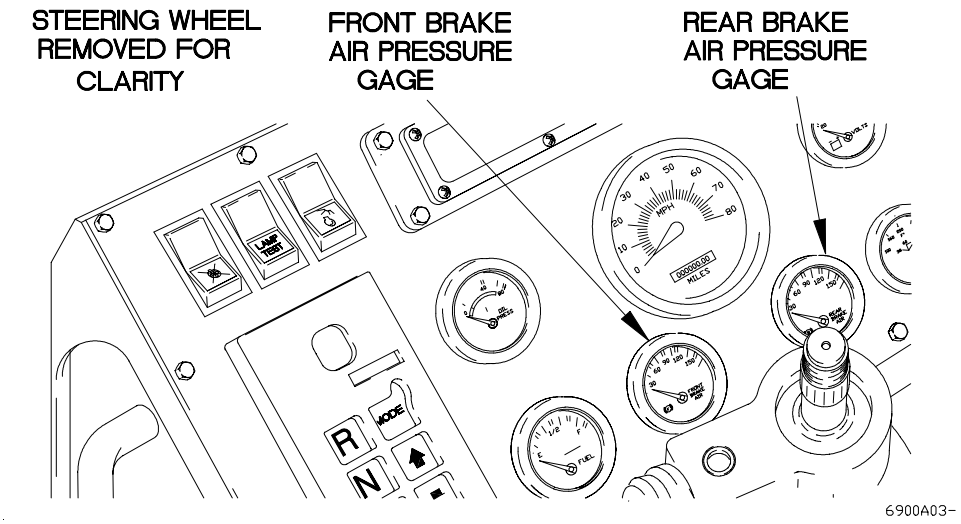
MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
1. EXCESSIVE BRAKING DISTANCE - Continued		4. If either FRONT BRAKE AIR or REAR BRAKE AIR pressure gages do not register 120 psi, notify Unit Maintenance.
		
	2. Check braking distance.	1. Start engine (WP 0016 00). 2. Road test vehicle. 3. If braking distance is still excessive, notify Unit Maintenance. 4. Shut down engine (WP 0016 00).
2. REAR BRAKES DO NOT APPLY	1. Check to see if front brakes apply.	1. Start engine (WP 0016 00).

BRAKE SYSTEM TROUBLESHOOTING - Continued 0069 00

BRAKE SYSTEM - Continued

Table 1. Brake System Troubleshooting Procedures - Continued.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
2. REAR BRAKES DO NOT APPLY - Continued		2. Allow engine to idle until 120 psi is registered on FRONT BRAKE AIR and REAR BRAKE AIR pressure gages.
		3. Shut down engine (WP 0016 00).
		4. Check to see if front brakes apply.
		5. If front brakes do not apply, perform Brake System troubleshooting (WP 0069 00, Malfunction 1, Excessive Braking Distance).
	2. Check to see if rear brakes apply.	If rear brakes still do not apply, notify Unit Maintenance.
3. PARKING BRAKE DOES NOT RELEASE	1. Check to see if air tanks are pressurized.	1. Start engine (WP 0016 00).

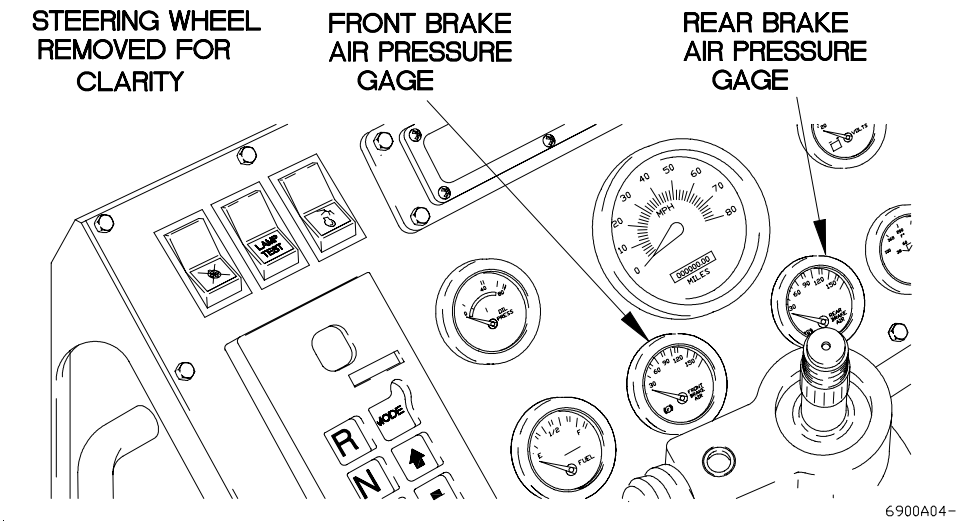


BRAKE SYSTEM TROUBLESHOOTING - Continued 0069 00

BRAKE SYSTEM - Continued

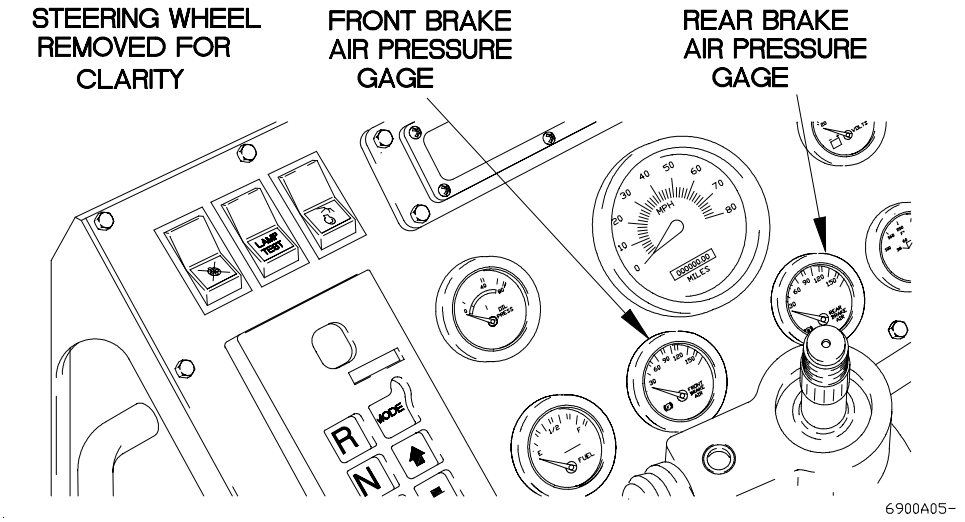
Table 1. Brake System Troubleshooting Procedures - Continued.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
3. PARKING BRAKE DOES NOT RELEASE - Continued		2. Allow engine to idle until 120 psi is registered on FRONT BRAKE AIR and REAR BRAKE AIR pressure gages. 3. Shut down engine (WP 0016 00).
		4. If either FRONT BRAKE AIR or REAR BRAKE AIR pressure gages do not register 120 psi, notify Unit Maintenance.
	2. Check to see if parking brake(s) release.	If parking brake(s) will not release, notify Unit Maintenance.
4. FRONT BRAKES OVERHEAT	1. Check to see if air tanks are pressurized.	1. Start engine (WP 0016 00).



BRAKE SYSTEM - Continued

Table 1. Brake System Troubleshooting Procedures - Continued.

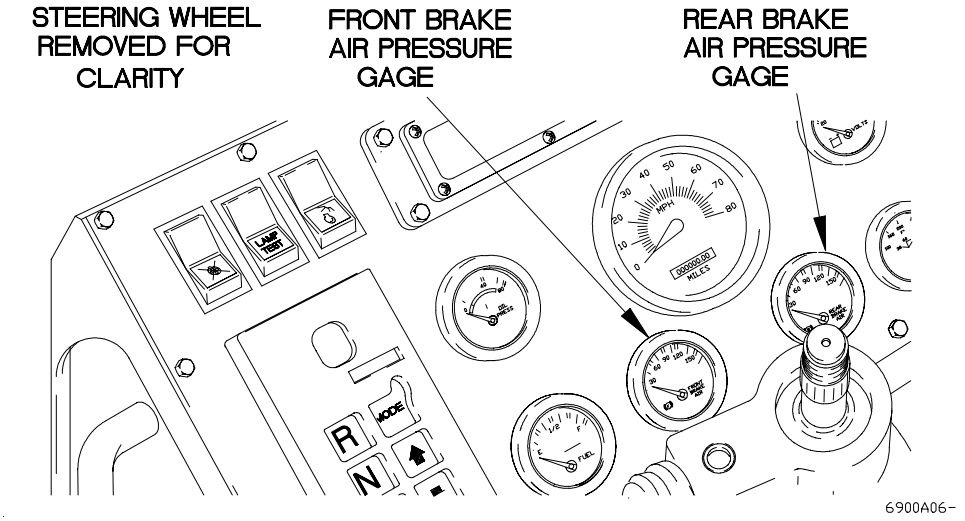
MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
4. FRONT BRAKES OVERHEAT - Continued		2. Allow engine to idle until 120 psi is registered on FRONT BRAKE AIR and REAR BRAKE AIR pressure gages. 3. Shut down engine (WP 0016 00). 4. If either FRONT BRAKE AIR or REAR BRAKE AIR pressure gages do not register 120 psi, notify Unit Maintenance.
		
	2. Check to see if front brakes overheat.	If front brakes overheat, notify Unit Maintenance.
5. VEHICLE BRAKES UNEVENLY, OR BRAKES PULL TO ONE SIDE OR GRAB	1. Check to see if air tanks are pressurized.	1. Start engine (WP 0016 00).

BRAKE SYSTEM TROUBLESHOOTING - Continued 0069 00

BRAKE SYSTEM - Continued

Table 1. Brake System Troubleshooting Procedures - Continued.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
5. VEHICLE BRAKES UNEVENLY, OR BRAKES PULL TO ONE SIDE OR GRAB - Continued		2. Allow engine to idle until 120 psi is registered on FRONT BRAKE AIR and REAR BRAKE AIR pressure gages. 3. Shut down engine (WP 0016 00) 4. If either FRONT BRAKE AIR or REAR BRAKE AIR pressure gages do not register 120 psi, notify Unit Maintenance.
	2. Check to see if vehicle brakes properly.	1. Start engine (WP 0016 00). 2. Road test vehicle.

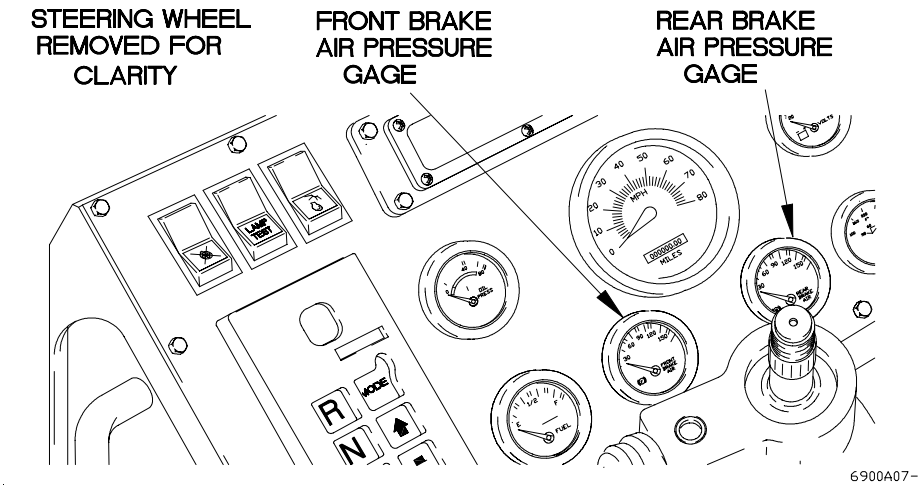


BRAKE SYSTEM TROUBLESHOOTING - Continued 0069 00

BRAKE SYSTEM - Continued

Table 1. Brake System Troubleshooting Procedures - Continued.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
5. VEHICLE BRAKES UNEVENLY, OR BRAKES PULL TO ONE SIDE OR GRAB - Continued		3. If vehicle brakes unevenly, brakes pull to one side, or grab, perform Steering System Troubleshooting (WP 0075 00, malfunction 2, Wanders, Pulls to One Side, or Shimmies). 4. Shut down engine (WP 0016 00).
6. FRONT BRAKES DO NOT APPLY	1. Check to see if rear breaks apply.	1. Start engine (WP 0016 00). 2. Allow engine to idle until 120 psi is registered on FRONT BRAKE AIR and REAR BRAKE AIR pressure gages.
		3. Shut down engine (WP 0016 00). 4. Check to see if rear brakes apply.

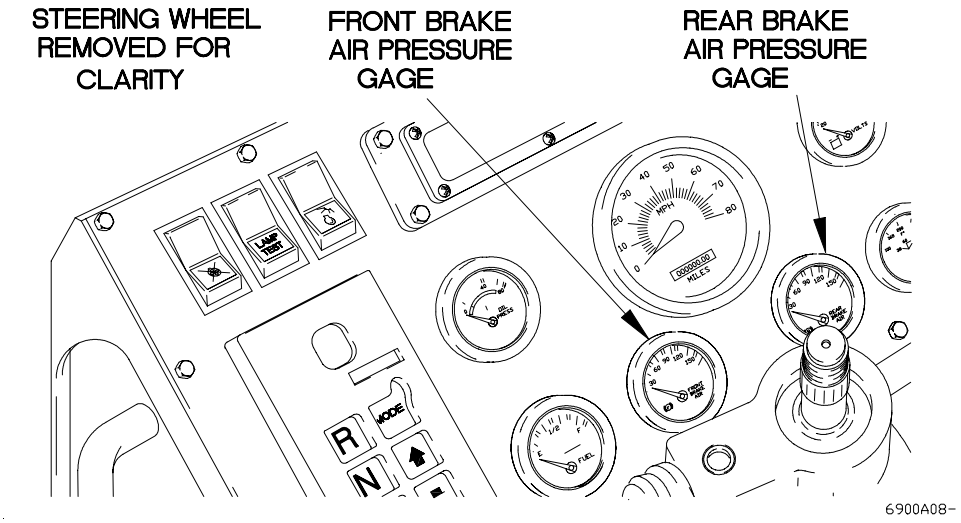


BRAKE SYSTEM TROUBLESHOOTING - Continued 0069 00

BRAKE SYSTEM - Continued

Table 1. Brake System Troubleshooting Procedures - Continued.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
6. FRONT BRAKES DO NOT APPLY - Continued		5. If rear brakes do not apply, perform Brake System troubleshooting (WP 0069 00, Malfunction 1, Excessive Braking Distance).
	2. Check to see if front brakes apply.	1. If front brakes do not apply, notify Unit Maintenance.
7. REAR BRAKES OVERHEAT	1. Check to see if air tanks are pressurized.	1. Start engine (WP 0016 00).
		2. Allow engine to idle until 120 psi is registered on FRONT BRAKE AIR and REAR BRAKE AIR pressure gages.
		3. Shut down engine (WP 0016 00).

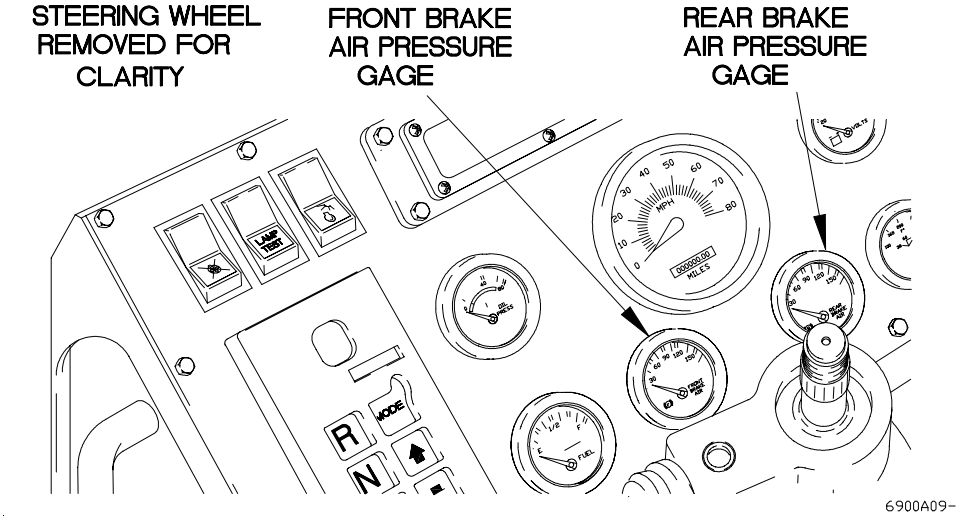


BRAKE SYSTEM TROUBLESHOOTING - Continued 0069 00

BRAKE SYSTEM - Continued

Table 1. Brake System Troubleshooting Procedures - Continued.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
7. REAR BRAKES OVERHEAT - Continued		4. If either FRONT BRAKE AIR or REAR BRAKE AIR pressure gages do not register 120 psi, notify Unit Maintenance.
	2. Check to see if rear brakes overheat.	1. If rear brakes overheat, notify Unit Maintenance.
8. PARKING BRAKE DOes NOT APPLY	1. Check to see if rear brakes apply.	Start engine (WP 0016 00).
		2. Allow engine to idle until 120 psi is registered on FRONT BRAKE AIR and REAR BRAKE AIR pressure gages.
		3. Shut down engine (WP 0016 00).
		4. Check to see if rear brakes apply.

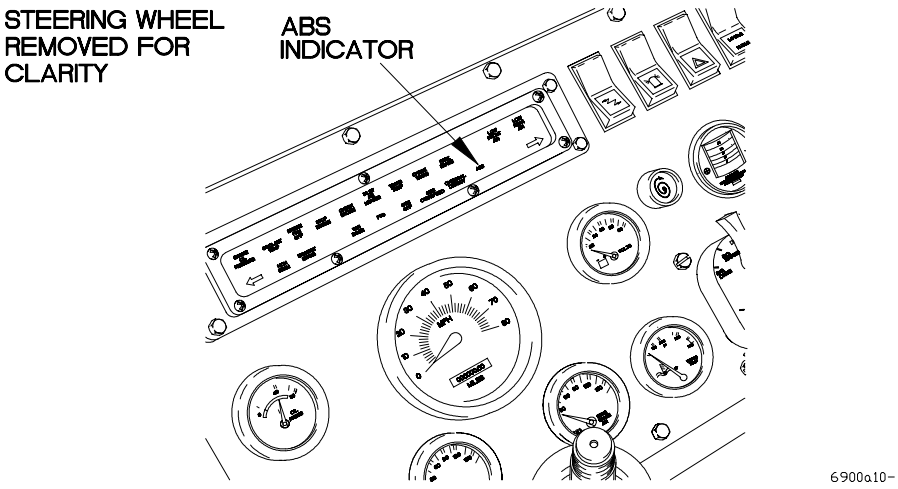


BRAKE SYSTEM TROUBLESHOOTING - Continued 0069 00

BRAKE SYSTEM - Continued

Table 1. Brake System Troubleshooting Procedures - Continued.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
8. PARKING BRAKE DOES NOT APPLY - Continued		5. If rear brakes do not apply, perform Brake System troubleshooting (WP 0069 00, Malfunction 2, Rear Brakes Do Not Apply).
	2. Check to see if parking brake applies.	If parking brake does not apply notify Unit Maintenance.
9. BRAKE SYSTEM LOSES AIR WHEN SERVICE BRAKES ARE APPLIED		Notify Unit Maintenance.
10. ABS INDICATOR REMAINS ILLUMINATED	1. Check to see if ABS indicator remains illuminated after test drive.	1. Start engine (WP 0016 00). 2. Test drive vehicle. 3. Check to see if ABS indicator remains illuminated.



BRAKE SYSTEM TROUBLESHOOTING - Continued 0069 00

BRAKE SYSTEM - Continued

Table 1. Brake System Troubleshooting Procedures - Continued.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
10. ABS INDICATOR REMAINS ILLUMINATED - Continued		4. Shut down engine (WP 0016 00). 5. If ABS indicator remains illuminated, notify Unit Maintenance.

END OF TASK

AIR SYSTEM TROUBLESHOOTING 0070 00

THIS WORK PACKAGE COVERS:
Air System

INITIAL SETUP:

Maintenance Level
Operator

References
WP 0016 00
WP 0017 00

AIR SYSTEM

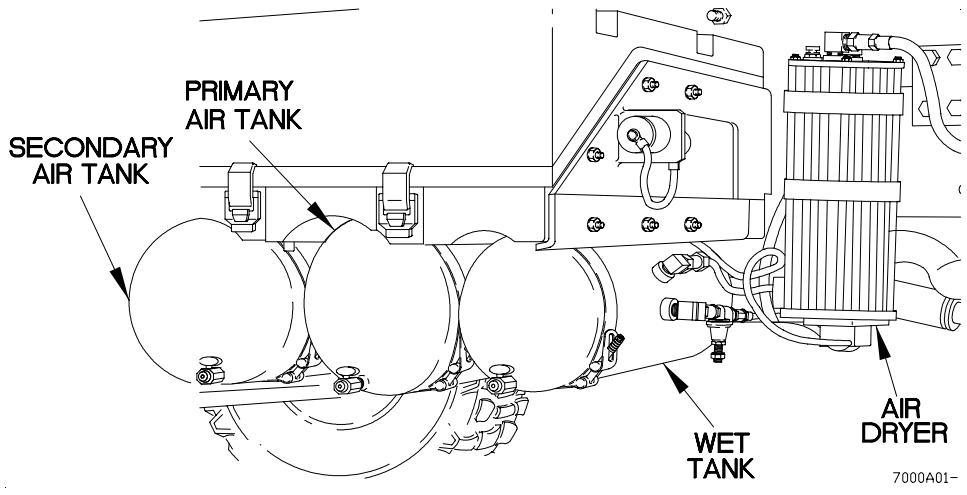
Table 1. Air System Troubleshooting Procedures.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
1. AIR SYSTEM LOSES PRESSURE DURING OPERATION/ SLOW AIR PRESSURE BUILDUP	Check to see if air system loses pressure during operation or has slow air pressure buildup.	1. Start engine (WP 0016 00). 2. Note readings on FRONT BRAKE AIR and REAR BRAKE AIR pressure gages (WP 0016 00). 3. If air system loses pressure during operation or has slow air pressure buildup, notify Unit Maintenance. 4. Shut down engine (WP 0016 00).
2. LARGE QUANTITY OF MOISTURE EXPELLED FROM AIR RESERVOIRS	Check to see if air tanks expel large quantity of moisture.	1. Start engine (WP 0016 00).

AIR SYSTEM - Continued

Table 1. Air System Troubleshooting Procedures - Continued.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
2. LARGE QUANTITY OF MOISTURE EXPELLED FROM AIR RESERVOIRS - Continued		2. Open drain cock on bottom of air tanks and check for large quantities of moisture being expelled from air tanks. 3. If air tanks expel large quantity of moisture, notify Unit Maintenance. 4. Shut down engine (WP 0016 00).
3. AIR DRYER PURGES CONSTANTLY	Check to see if air dryer purges constantly.	1. Start engine (WP 0016 00). 2. Check air dryer for continual purging. 3. If air dryer purges constantly, notify Unit Maintenance. 4. Shut down engine (WP 0016 00).

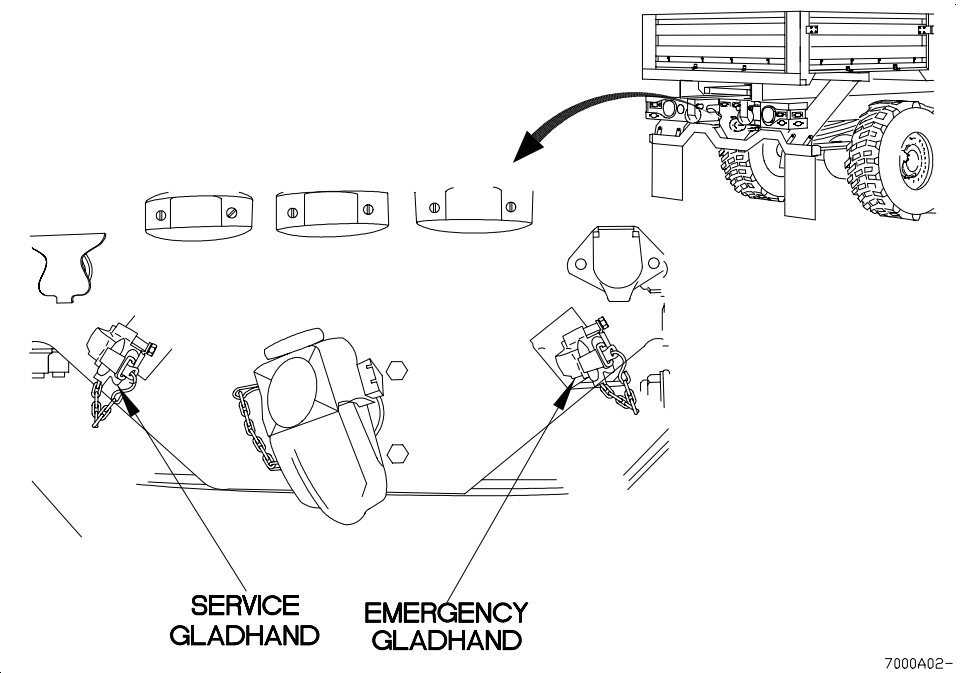


AIR SYSTEM TROUBLESHOOTING - Continued 0070 00

AIR SYSTEM - Continued

Table 1. Air System Troubleshooting Procedures - Continued.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
4. NO AIR PRESSURE OR LOW AIR PRESSURE PRESENT AT REAR GLADHANDS	Check to see if no air pressure or low air pressure is present at rear gladhands.	1. Start engine (WP 0016 00). 2. Check air pressure at rear gladhands. 3. If no air pressure or low air pressure is present at rear gladhands, notify Unit Maintenance. 4. Shut down engine (WP 0016 00).

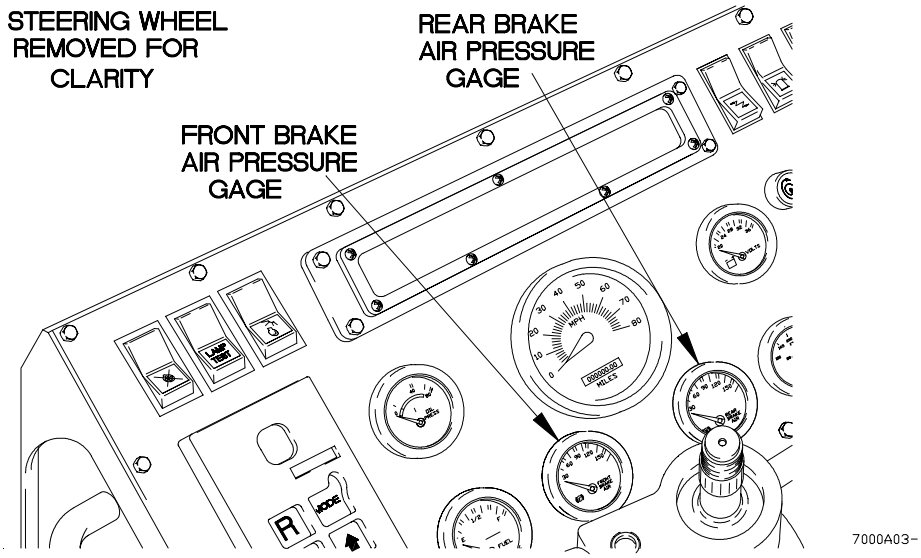


AIR SYSTEM TROUBLESHOOTING - Continued 0070 00

AIR SYSTEM - Continued

Table 1. Air System Troubleshooting Procedures - Continued.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
5. AIR SYSTEM PRESSURE BUILDS UP MORE THAN 120 PSI (827 kPa) (COMPRESSOR FAILS TO UNLOAD)	Check to see if air compressor fails to unload.	1. Start engine (WP 0016 00). 2. Allow engine to idle until 120 psi (827 kPa) or more is registered on FRONT BRAKE AIR and REAR BRAKE AIR pressure gages. 3. If air system pressure builds to more than 120 psi (827 kPa), notify Unit Maintenance. 4. Shut down engine (WP 0016 00).

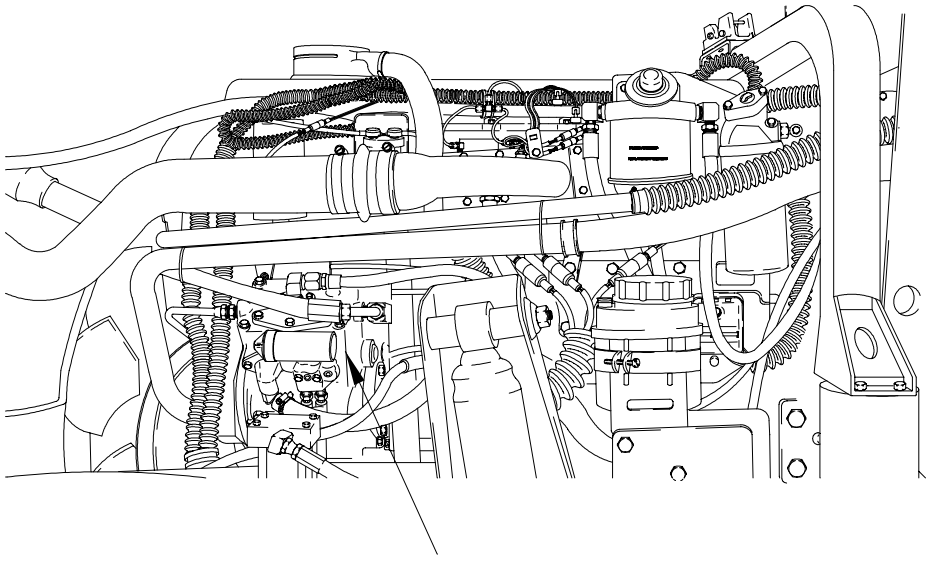


AIR SYSTEM TROUBLESHOOTING - Continued 0070 00

AIR SYSTEM - Continued

Table 1. Air System Troubleshooting Procedures - Continued.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
6. NOISY AIR COMPRESSOR OPERATION	Listen to see if air compressor operates noisily.	1. Start engine (WP 0016 00). 2. Raise cab (WP 0017 00). 3. Listen to see if air compressor operates noisily. 4. If air compressor operates noisily, notify Unit Maintenance. 5. Lower cab (WP 0016 00). 6. Shut down engine (WP 0016 00).



END OF TASK

WHEEL TROUBLESHOOTING 0071 00

THIS WORK PACKAGE COVERS:
Wheel

INITIAL SETUP:

Maintenance Level
Operator

Tools and Special Tools
Inflator-gage, Tire (Item 11, Table 2, WP 0094 00)

References
WP 0016 00
WP 0018 00
WP 0073 00
WP 0075 00

WHEEL

Table 1. Wheel Troubleshooting Procedures.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
1. TIRES WEAR UNEVENLY OR EXCESSIVELY	1. Check to see if steering operates properly.	1. Start engine (WP 0016 00). 2. Road test vehicle to check if steering operates properly. 3. If steering does not operate properly, perform steering system troubleshooting (WP 0075 00, Malfunction 1, Hard To Steer).
	1. Check if tire pressure is sufficient in CTIS HWY mode.	1. Set CTIS to HWY mode (WP 0018 00). 2. Check pressure of each tire with tire gage.

WHEEL TROUBLESHOOTING - Continued 0071 00

WHEEL - Continued

Table 1. Wheel Troubleshooting Procedures - Continued.

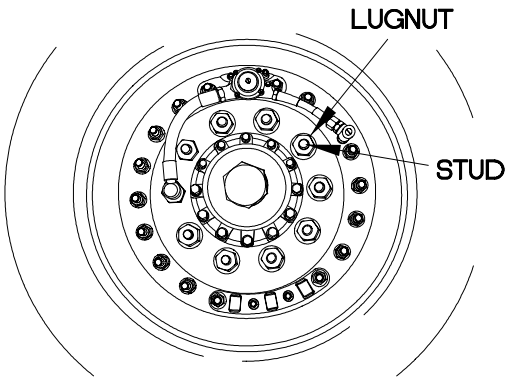
MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
1. TIRES WEAR UNEVENLY OR EXCESSIVELY - Continued		3. If tire pressures are greater or less than 55 psi, perform CTIS troubleshooting (WP 0073 00, Malfunction 5, Central Tire Inflation System (CTIS) ECU Lights Operate But CTIS Fails to Inflate or Deflate). 4. Shut down engine. 5. If tires still wear unevenly or excessively, notify Unit Maintenance.
2. WHEEL WOBBLES OR SHIMMIES		
	WARNING **Notify Unit Maintenance that lugnuts need to be tightened to 415-475 lb-ft (563-644 N·m) as soon as possible. Wheel may come loose if lugnuts are not tightened to proper torque. Failure to comply may result in serious injury or death to personnel.**	
	1. Check wheel studs and lugnuts for obvious looseness.	If loose, tighten.

WHEEL TROUBLESHOOTING - Continued 0071 00

WHEEL - Continued

Table 1. Wheel Troubleshooting Procedures - Continued.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
2. WHEEL WOBBLES OR SHIMMIES - Continued	2. Check for bent or broken studs and missing or loose lugnuts.	Notify Unit Maintenance if two or more lugnuts or studs on the same wheel are missing, broken, or bent. 2. If wheel still wobbles or shimmies, notify Unit Maintenance.



END OF TASK

HYDRAULIC SYSTEM TROUBLESHOOTING 0072 00

THIS WORK PACKAGE COVERS:
Hydraulic System

INITIAL SETUP:

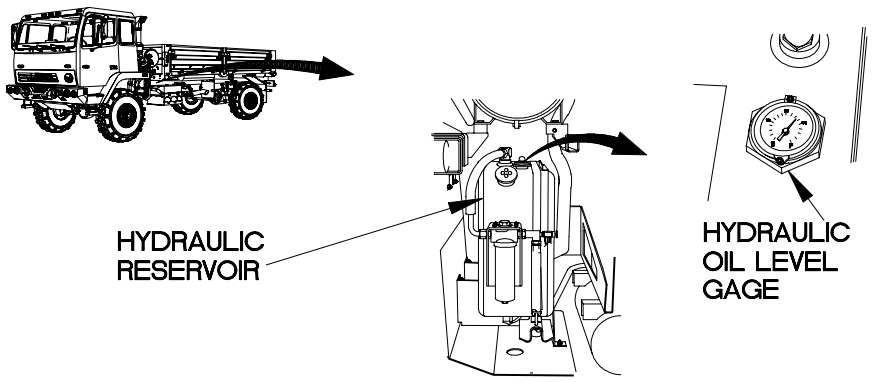
Maintenance Level
Operator

References
WP 0083 00

HYDRAULIC SYSTEM

Table 1. Hydraulic System Troubleshooting Procedures.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
NOTE Hydraulic reservoir is considered full when oil level gage reads about 3/4 mark.		
LOSS OF HYDRAULIC PRESSURE (SINGLE STAGE PUMP)	Check hydraulic oil level gage to determine hydraulic oil level (WP 0083 00, Table 3, Item 8).	1. If oil level is low, add hydraulic oil (WP 0083 00, Table 3, Item 8).



HYDRAULIC SYSTEM TROUBLESHOOTING - Continued 0072 00

HYDRAULIC SYSTEM - Continued

Table 1. Hydraulic System Troubleshooting Procedures - Continued.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
LOSS OF HYDRAULIC PRESSURE (SINGLE STAGE PUMP) - Continued		2. If loss of hydraulic pressure continues, notify unit maintenance.

END OF TASK

CENTRAL TIRE INFLATION SYSTEM (CTIS) TROUBLESHOOTING

0073 00

THIS WORK PACKAGE COVERS:
Central Tire Inflation System (CTIS)

INITIAL SETUP:

Maintenance Level
Operator

CENTRAL TIRE INFLATION SYSTEM (CTIS)

Table 1. Central Tire Inflation System (CTIS) Troubleshooting Procedures.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
1. TWO STEADY MODE LIGHTS ILLUMINATE ON CENTRAL TIRE INFLATION SYSTEM (CTIS) ECU		Notify Unit Maintenance.
2. FOUR FLASHING LIGHTS ON CENTRAL TIRE INFLATION SYSTEM (CTIS) ECU		Notify Unit Maintenance.
3. FIVE FLASHING LIGHTS ON CENTRAL TIRE INFLATION SYSTEM (CTIS) ECU		Notify Unit Maintenance.
4. CTIS REPEATEDLY RESUMES CYCLING 30 SECONDS AFTER INDICATOR LIGHTS STOP FLASHING		Notify Unit Maintenance.

CENTRAL TIRE INFLATION SYSTEM (CTIS) TROUBLESHOOTING - Continued

0073 00

CENTRAL TIRE INFLATION SYSTEM (CTIS) - Continued

Table 1. Central Tire Inflation System (CTIS) Troubleshooting Procedures - Continued.

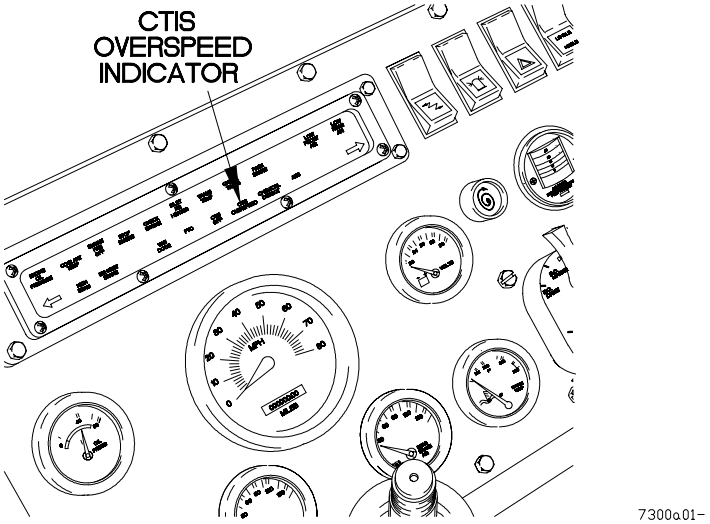
MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
5. CENTRAL TIRE INFLATION SYSTEM (CTIS) ECU LIGHTS OPERATE, BUT CTIS FAILS TO INFLATE OR DEFLATE TIRES		Notify Unit Maintenance.
6. CTIS OVERSPEED PRESSURE CHANGE DOES NOT OPERATE		Notify Unit Maintenance.
7. CENTRAL TIRE INFLATION SYSTEM (CTIS) ECU DOES NOT ILLUMINATE		Perform Electrical System Troubleshooting (WP 0065 00, malfunction 89, Central Tire Inflation System (CTIS) Does Not Operate).
8. CENTRAL TIRE INFLATION SYSTEM (CTIS) ECU INDICATOR LIGHTS SEQUENTIALLY FLASHING		Notify Unit Maintenance.
9. CTIS OVERSPEED INDICATOR ILLUMINATES SOLIDLY		Notify Unit Maintenance.

CENTRAL TIRE INFLATION SYSTEM (CTIS) TROUBLESHOOTING - Continued 0073 00

CENTRAL TIRE INFLATION SYSTEM (CTIS) - Continued

Table 1. Central Tire Inflation System (CTIS) Troubleshooting Procedures - Continued.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
10. CTIS OVERSPEED INDICATOR REMAINS ILLUMINATED	1. Check to see if CTIS OVERSPEED indicator remains illuminated after test drive.	1. Start engine (WP 0016 00). 2. Test drive vehicle. 3. Check to see if CTIS OVERSPEED indicator remains illuminated. 4. Shut down engine (WP 0018 00). 5. If CTIS OVERSPEED indicator remains illuminated, notify Unit Maintenance.



END OF TASK

AXLE TROUBLESHOOTING 0074 00

THIS WORK PACKAGE COVERS:
Axle

INITIAL SETUP:

Maintenance Level
Operator

AXLE

Table 1. Axle Troubleshooting Procedures.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
AXLE DIFFERENTIAL(S) NOISY		Notify Unit Maintenance.

END OF TASK

STEERING SYSTEM TROUBLESHOOTING 0075 00

THIS WORK PACKAGE COVERS:
Steering System

INITIAL SETUP:

Maintenance Level
Operator

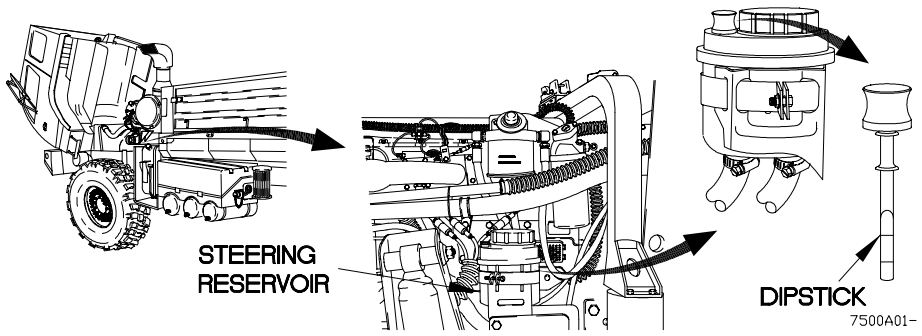
Tools/Special Tools
Inflator-Gage, Tire w/Hose
(Item 30, WP 0094 00)

References
WP 0016 00
WP 0017 00
WP 0018 00
WP 0073 00
WP 0076 00
WP 0083 00

STEERING SYSTEM

Table 1. Steering System Troubleshooting Procedure.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
1. HARD TO STEER	1. Check that steering reservoir is filled to proper level.	1. Raise cab (WP 0017 00).
	CAUTION Do not overfill power steering reservoir. Failure to comply may result in damage to equipment.	
		2. Oil should be level with full mark on dipstick. Add oil as required (WP 0083 00, Table 4, Item 23).



STEERING SYSTEM TROUBLESHOOTING - Continued 0075 00

STEERING SYSTEM - Continued

Table 1. Steering System Troubleshooting Procedure - Continued.

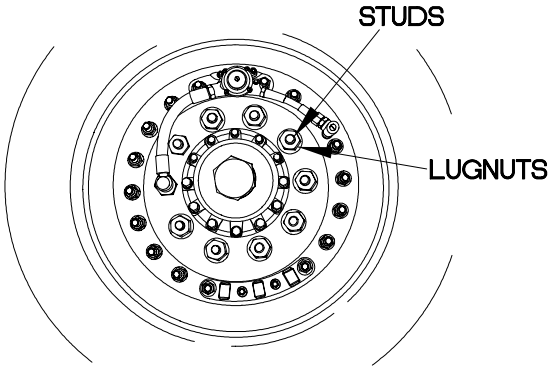
MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
1. HARD TO STEER - Continued		3. If oil level is over full mark, notify Unit Maintenance. 4. Lower cab (WP 0017 00).
	2. Check if tire pressures are sufficient in CTIS HWY mode.	1. Set CTIS to HWY mode (WP 0018 00). 2. Check pressure of each tire with tire inflator-gage. 3. If tire pressures are greater than or less than 55 psi (379 kPa), perform CTIS Troubleshooting (WP 0073 00, Malfunction 5, Central Tire Inflation System (CTIS) ECU Operate Work but CTIS Fails to Inflate or Deflate). 4. Shut down engine (WP 0016 00).
	3. Check to see if vehicle is hard to steer.	1. Start engine (WP 0016 00). 2. Road test vehicle. 3. If vehicle is still hard to steer, notify Unit Maintenance. 4. Shut down engine (WP 0016 00).

STEERING SYSTEM TROUBLESHOOTING - Continued 0075 00

STEERING SYSTEM - Continued

Table 1. Steering System Troubleshooting Procedure - Continued.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
	NOTE Perform Brake System Troubleshooting (WP 0069 00, Malfunction 5, Vehicle Brakes Unevenly, or Brakes Pull to One Side or Grab), before starting here.	
2. WANDERS, PULLS TO ONE SIDE, OR SHIMMIES		
	WARNING **Notify Unit Maintenance that lugnuts need to be tightened to 415-475 lb-ft (563-644 N·m) as soon as possible. Wheel may come loose if lugnuts are not tightened to proper torque. Failure to comply may result in serious injury or death to personnel.**	
	1. Check wheel studs and lugnuts for obvious looseness.	If loose, tighten.
	2. Check for bent or broken studs and missing or loose lugnuts.	Notify Unit Maintenance if two or more lugnuts or studs on the same wheel are missing, broken, or bent.



7500A02-

STEERING SYSTEM TROUBLESHOOTING - Continued 0075 00

STEERING SYSTEM - Continued

Table 1. Steering System Troubleshooting Procedure - Continued.

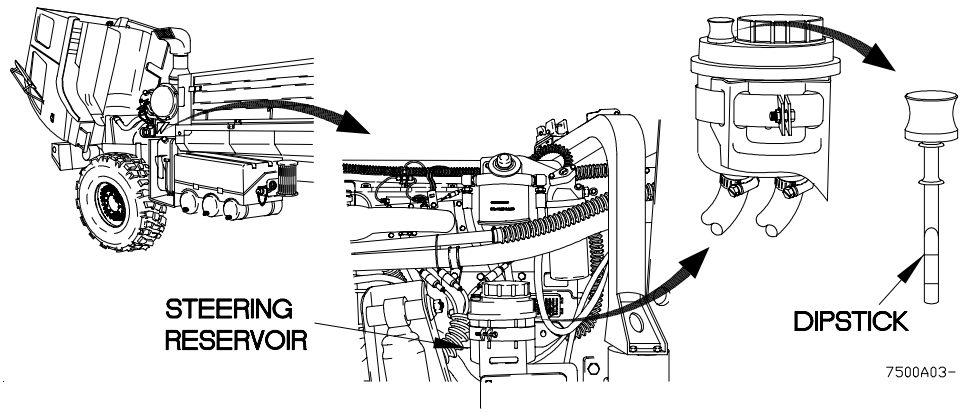
MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
2. WANDERS, PULLS TO ONE SIDE, OR SHIMMIES - Continued	3. Check if tire pressures are sufficient in CTIS HWY mode.	1. Set CTIS to HWY mode (WP 0018 00). 2. Check pressure of each tire with tire inflator-gage. 3. If tire pressures are greater than or less than 55 psi (379 kPa), perform CTIS troubleshooting (WP 0073 00, Malfunction 5, CTIS ECU Lights Work but CTIS Fails to Inflate or Deflate). 4. Shut down engine (WP 0016 00).
	4. Check if vehicle wanders, pulls to one side, or shimmies.	1. Start engine (WP 0016 00). 2. Road test vehicle. 3. If vehicle still wanders, pulls to one side, or shimmies, notify Unit Maintenance. 4. Shut down engine (WP 0016 00).
3. EXCESSIVE PLAY WHEN TURNING STEERING WHEEL	Check to see if vehicle has excessive play when turning steering wheel.	1. Start engine (WP 0016 00). 2. Road test vehicle. 3. If vehicle still has excessive play when turning steering wheel, notify Unit Maintenance.

STEERING SYSTEM TROUBLESHOOTING - Continued 0075 00

STEERING SYSTEM - Continued

Table 1. Steering System Troubleshooting Procedure - Continued.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
3. EXCESSIVE PLAY WHEN TURNING STEERING WHEEL - Continued		4. Shut down engine (WP 0016 00).
4. NO RESPONSE WHEN TURNING STEERING WHEEL	1. Check that steering reservoir is filled to proper level.	1. Raise cab (WP 0017 00).
	CAUTION Do not overfill power steering reservoir. Failure to comply may result in damage to equipment.	
		2. Oil should be level with full mark on dipstick. Add oil as required (WP 0083 00, Table 4, Item 23). 3. If oil level is over full mark, notify Unit Maintenance.
		4. Lower cab (WP 0017 00).
	2. Check to see if vehicle responds when turning steering wheel.	1. Start engine (WP 0016 00).



STEERING SYSTEM TROUBLESHOOTING - Continued 0075 00

STEERING SYSTEM - Continued

Table 1. Steering System Troubleshooting Procedure - Continued.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
4. NO RESPONSE WHEN TURNING STEERING WHEEL - Continued		2. Turn steering wheel all the way to left and right. 3. If vehicle does not respond when turning steering wheel, notify Unit Maintenance. 4. Shut down engine (WP 0016 00).

END OF TASK

SUSPENSION SYSTEM TROUBLESHOOTING 0076 00

THIS WORK PACKAGE COVERS:
Suspension system

INITIAL SETUP:

Maintenance Level
Operator

References
WP 0075 00
WP 0069 00

SUSPENSION SYSTEM

Table 1. Suspension System Troubleshooting Procedures.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
1. WANDERS, PULLS TO ONE SIDE, OR SHIMMIES		
NOTE Perform (WP 0075 00, Malfunction 2, Wanders, Pulls to One Side, or Shimmies), before starting here.		
		If vehicle wanders, pulls to one side, or shimmies, notify Unit Maintenance.
2. LEANS TO ONE SIDE, OR REAR OF VEHICLE SAGS	Check to see if vehicle leans to one side or rear of vehicle sags.	If vehicle leans to one side or rear of vehicle sags, notify Unit Maintenance.

END OF TASK

11K SELF-RECOVERY WINCH (SRW) SYSTEM TROUBLESHOOTING 0077 00

THIS WORK PACKAGE COVERS:
11K Self-Recovery Winch (SRW)

INITIAL SETUP:

Maintenance Level
Operator

References
WP 0053 00
WP 0068 00
WP 0083 00

11K SRW

Table 1. 11K Self-Recovery Winch (SRW) System Troubleshooting Procedures.

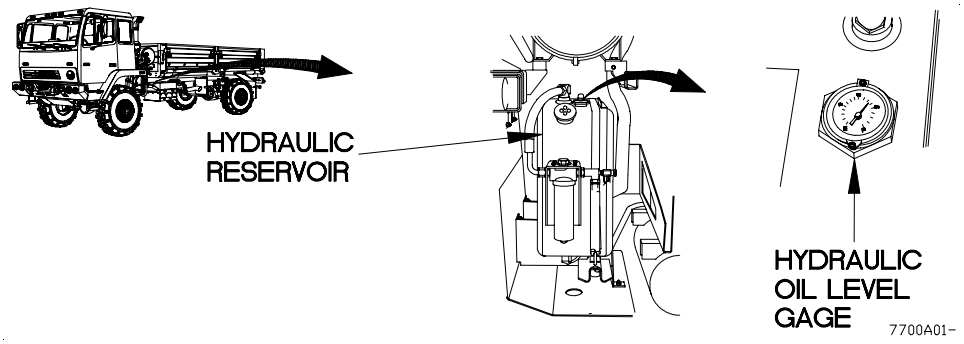
MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
11K SELF-RECOVERY WINCH (SRW) DOES NOT OPERATE	1. Check to see if PTO engages (WP 0053 00).	1. If PTO does not engage, perform PTO troubleshooting (WP 0068 00, Malfunction 1, Power Take-Off (PTO) Does Not Engage).

11K SELF-RECOVERY WINCH (SRW) SYSTEM TROUBLESHOOTING - Continued 0077 00

11K SRW - Continued

Table 1. 11K Self-Recovery Winch (SRW) System Troubleshooting Procedures - Continued.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
11K SELF-RECOVERY WINCH (SRW) DOES NOT OPERATE - Continued		
NOTE Hydraulic reservoir is considered full when oil level gage reads above 3/4 mark.		
	2. Check hydraulic fluid level (WP 0083 00, Table 3, Item 8).	If fluid level is low, add hydraulic fluid (WP 0083 00, Table 3, Item 8).



11K SELF-RECOVERY WINCH (SRW) SYSTEM TROUBLESHOOTING - Continued 0077 00

11K SRW - Continued

Table 1. 11K Self-Recovery Winch (SRW) System Troubleshooting Procedures - Continued.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
11K SELF-RECOVERY WINCH (SRW) DOES NOT OPERATE - Continued	3. Check hydraulic hoses and fittings for Class III leaks.	If Class III leaks are found, notify Unit Maintenance.
	4. Check to see if 11K SRW operates (WP 0053 00).	If 11K SRW does not operate, notify Unit Maintenance.

END OF TASK

STEERING HYDRAULIC SYSTEM TROUBLESHOOTING 0078 00

THIS WORK PACKAGE COVERS:
Steering Hydraulic System

INITIAL SETUP:

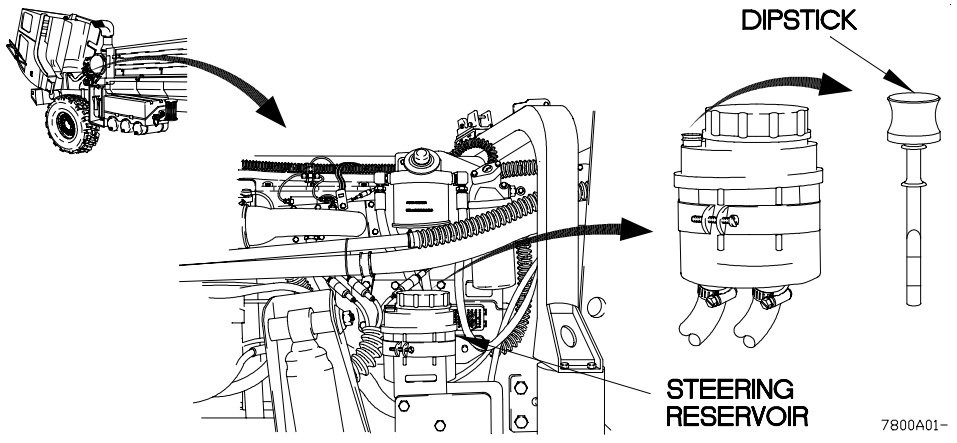
Maintenance Level
Operator

References
WP 0017 00
WP 0083 00

STEERING HYDRAULIC SYSTEM

Table 1. Steering Hydraulic System Troubleshooting Procedures.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
CAUTION Do not overfill power steering reservoir. Failure to comply may result in damage to equipment.		
STEERING HARD OR DOES NOT OPERATE	1. Check that steering reservoir is filled to proper level. Oil should be level with full mark on dipstick.	1. Raise cab (WP 0017 00). 2. Add oil as required (WP 0083 00, Table 4, Item 23).



STEERING HYDRAULIC SYSTEM TROUBLESHOOTING - 0078 00 Continued

STEERING HYDRAULIC SYSTEM - Continued

Table 1. Steering Hydraulic System Troubleshooting Procedures- Continued.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
STEERING HARD OR DOES NOT OPERATE- Continued		3. If oil is over full mark, notify Unit Maintenance.
	2. Check hydraulic hoses and fittings for Class III leaks.	1. If Class III leaks are found or steering is still hard or does not operate, notify Unit Maintenance. 2. Lower cab (WP 0017 00).

END OF TASK

AIR TRANSPORT SYSTEM TROUBLESHOOTING 0079 00

THIS WORK PACKAGE COVERS:
Air Transport System

INITIAL SETUP:

Equipment Conditions
Engine Shutdown (WP 0016 00)
PMCS Performed (WP 0083 00)

References
WP 0016 00
WP 0017 00
WP 0035 00
WP 0048 00
WP 0070 00
WP 0072 00
WP 0083 00

AIR TRANSPORT SYSTEM

Table 1. Air Transport System Troubleshooting Procedures.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
1. CAB TILT, SPARE TIRE RETAINER, AND SUSPENSION COMPRESSION DO NOT OPERATE	1. Check hydraulic hoses, air hoses, and fittings for Class III leaks.	If Class III leaks are found or cab tilt, spare tire retainer, and suspension compression still do not work, notify Unit Maintenance.

AIR TRANSPORT SYSTEM TROUBLESHOOTING - Continued 0079 00

AIR TRANSPORT SYSTEM - Continued

Table 1. Air Transport System Troubleshooting Procedures - Continued.

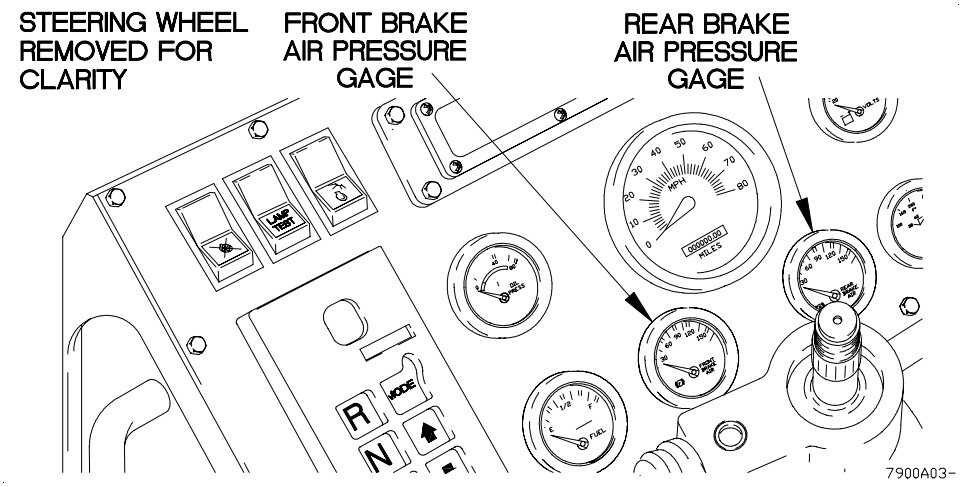
MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
2. SUSPENSION DOES NOT COMPRESS OR RETURN TO NORMAL PROPERLY	1. Check to see if cab tilt operates (WP 0017 00).	If cab tilt does not operate, perform Air Transport troubleshooting (WP 0079 00, Malfunction 1, Cab Tilt, Spare Tire Retainer, And Suspension Compression Do Not Operate).
	2. Check hydraulic hoses, air lines, and fittings for Class III leaks.	If Class III leaks are found, notify Unit Maintenance.
	3. Check to see if suspension compresses and returns to normal properly (WP 0048 00).	If suspension does not compress and returns to normal properly, notify Unit Maintenance.
3. CAB LEVELING AIR SPRINGS DO NOT OPERATE PROPERLY	1. Check to see if suspension compresses and returns to normal properly (WP 0048 00).	If suspension compression does not compress and return to normal properly, perform Air Transport Troubleshooting (WP 0079 00, Malfunction 1, Cab Tilt, Spare Tire Retainer, and Suspension Compression Do Not Operate).
	2. Check to see if air tanks are pressurized.	1. Start engine (WP 0016 00).

AIR TRANSPORT SYSTEM TROUBLESHOOTING - Continued 0079 00

AIR TRANSPORT SYSTEM - Continued

Table 1. Air Transport System Troubleshooting Procedures - Continued.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
3. CAB LEVELING AIR SPRINGS DO NOT OPERATE PROPERLY - Continued		2. Allow engine to idle until 120 psi registers on FRONT BRAKE AIR and REAR BRAKE AIR pressure gages. 3. Shut down engine (WP 0016 00). 4. Check FRONT BRAKE AIR and REAR BRAKE AIR pressure gages. 5. If FRONT BRAKE AIR and REAR BRAKE AIR do not register 120 psi, perform Air System Troubleshooting (WP 0070 00, Malfunction 1, Air System Loses Pressure During Operation/Slow Air Buildup).
	3. Check air lines and fittings for Class III leaks.	If Class III leaks are found, notify Unit Maintenance.



AIR TRANSPORT SYSTEM TROUBLESHOOTING - Continued 0079 00

AIR TRANSPORT SYSTEM - Continued

Table 1. Air Transport System Troubleshooting Procedures - Continued.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
3. CAB LEVELING AIR SPRINGS DO NOT OPERATE PROPERLY - Continued	4. Check to see if cab air springs deflate and inflate properly (WP 0048 00).	If cab air springs do not deflate and inflate properly, notify Unit Maintenance.

END OF TASK

SPECIAL PURPOSE KITS TROUBLESHOOTING 0080 00

THIS WORK PACKAGE COVERS:
Special Purpose Kits

INITIAL SETUP:

Maintenance Level
Operator

References
WP 0004 00
WP 0015 00
WP 0016 00
WP 0019 00
WP 0046 00
WP 0047 00
WP 0083 00
WP 0091 00

SPECIAL PURPOSE KITS

Table 1. Special Purpose Kits Troubleshooting Procedures.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
1. CARGO AREA ARCTIC HEATER DOES NOT OPERATE	1. Start engine (WP 0016 00).	
	2. Attempt to start cargo area arctic heater (WP 0047 00).	
	3. Shut down engine (WP 0016 00).	If cargo area arctic heater does not operate or control panel indicator light is flashing, notify Unit Maintenance.
2. CARGO AREA ARCTIC HEATER INDICATOR LAMP BLINKS TWICE WHILE HEATER IS RUNNING		Notify Unit Maintenance.

SPECIAL PURPOSE KITS TROUBLESHOOTING - Continued 0080 00

SPECIAL PURPOSE KITS - Continued

Table 1. Special Purpose Kits Troubleshooting Procedures - Continued.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
3. CARGO AREA ARCTIC HEATER SHUTS DOWN AUTOMATICALLY		Notify Unit Maintenance.
4. CARGO AREA ARCTIC OVERRIDE SWITCH DOES NOT OPERATE	1. Start engine (WP 001600 00)	
	2. Attempt to start cargo area arctic heater (WP 0047 00)	If cargo area arctic heater does not operate, Notify Unit Maintenance.
	3. Shut down engine (WP 0016 00)	If cargo area arctic heater does operate, Notify Unit Maintenance.
5. CAB ARCTIC HEATER COMBUSTION STARTS IMMEDIATELY WHEN SWITCHED ON		Notify Unit Maintenance.
6. CAB ARCTIC HEATER DOES NOT START	1. Check vehicle fuel level (WP 0015 00).	If fuel level is low, fill vehicle fuel tank.
	2. Check to see if cab arctic heater starts.	If cab arctic heater does not start, notify Unit Maintenance.
7. CAB ARCTIC HEATER SWITCHES ON AND OFF REPEATEDLY	1. Attempt to start cab arctic heater (WP 0046 00).	If cab arctic heater will not start, perform Special Purpose Kits Troubleshooting (WP 0080 00, Malfunction 3, Cab Arctic Heater Does Not Start).

SPECIAL PURPOSE KITS TROUBLESHOOTING - Continued 0080 00

SPECIAL PURPOSE KITS - Continued

Table 1. Special Purpose Kits Troubleshooting Procedures - Continued.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
7. CAB ARCTIC HEATER SWITCHES ON AND OFF REPEATEDLY - Continued	2. Check to see if cab arctic heater switches on and off repeatedly.	1. Start cab arctic heater (WP 0046 00). 2. Shut down cab arctic heater (WP 0046 00). 3. If cab arctic heater switches on and off repeatedly, notify Unit Maintenance.
8. CAB ARCTIC HEATER HARD TO START	1. Attempt to start cab arctic heater (WP 0046 00).	1. If cab arctic heater will not start, perform Special Purpose Kits Troubleshooting (WP 0080 00, Malfunction 3, Cab Arctic Heater Does Not Start). 2. Shut down cab arctic heater (WP 0046 00).
	2. Check to see if troopseat furnace fails to start without producing white smoke.	1. Attempt to start cab arctic heater (WP 0046 00). 2. Check for smoke at exhaust port. 3. Shut down cab arctic heater (WP 0046 00).

SPECIAL PURPOSE KITS TROUBLESHOOTING - Continued 0080 00

SPECIAL PURPOSE KITS - Continued

Table 1. Special Purpose Kits Troubleshooting Procedures - Continued.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
8. CAB ARCTIC HEATER HARD TO START - Continued		4. If heater fails to start and emits white smoke, perform Special Purpose Kits Troubleshooting (WP 0080 00, Malfunction 8, Cab Arctic Heater Emits White Smoke More Than 20 Seconds).
	3. Check to see if cab arctic heater is hard to start.	1. Start cab arctic heater (WP 0046 00).
		2. Shut down cab arctic heater (WP 0046 00).
		3. If cab arctic heater is hard to start, notify Unit Maintenance.
9. CAB ARCTIC HEATER TURNS ITSELF OFF	1. Attempt to start cab arctic heater (WP 0046 00).	1. If cab arctic heater will not start, perform Special Purpose Kits Troubleshooting (WP 0080 00, Malfunction 3, Cab Arctic Heater Does Not Start).
		2. Shut down cab arctic heater (WP 0046 00).
	2. Check vehicle fuel level.	If vehicle fuel level is low, fill vehicle fuel tank (WP 0015 00).
	3. Check to see if cab arctic heater turns itself off.	1. Start cab arctic heater (WP 0046 00).
		2. If cab arctic heater turns itself off, notify Unit Maintenance.

SPECIAL PURPOSE KITS TROUBLESHOOTING - Continued 0080 00

SPECIAL PURPOSE KITS - Continued

Table 1. Special Purpose Kits Troubleshooting Procedures - Continued.

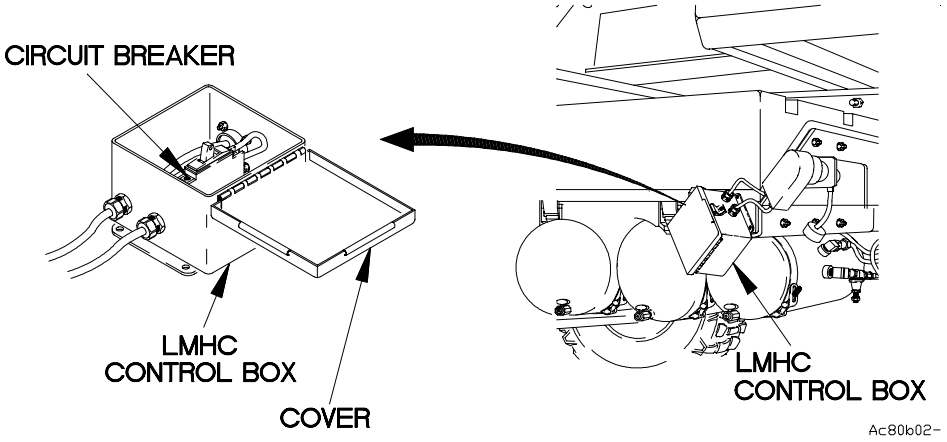
MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
9. CAB ARCTIC HEATER TURNS ITSELF OFF - Continued		3. Shut down cab arctic heater (WP 0046 00).
10. CAB ARCTIC HEATER EMITS BLACK SMOKE	1. Attempt to start cab arctic heater (WP 0046 00)	If cab arctic heater will not start, perform Special Purpose Kits Troubleshooting (WP 0080 00, Malfunction 3, Cab Arctic Heater Does Not Start).
	2. Check to see if cab arctic heater emits black smoke.	1. If cab arctic heater emits black smoke, notify Unit Maintenance. 2. Shut down cab arctic heater (WP 0046 00).
11. CAB ARCTIC HEATER EMITS WHITE SMOKE MORE THAN 20 SECONDS AFTER START-UP	1. Attempt to start cab arctic heater (WP 0046 00)	If cab arctic heater will not start, perform Special Purpose Kits Troubleshooting (WP 0080 00, Malfunction 3, Cab Arctic Heater Does Not Start).
	2. Check to see if cab arctic heater emits white smoke more than 20 seconds after starting.	1. If cab arctic heater emits white smoke more than 20 seconds after starting, notify Unit Maintenance. 2. Shut down cab arctic heater (WP 0046 00).
12. CAB ARCTIC HEATER CANNOT BE SWITCHED OFF		Notify Unit Maintenance.

SPECIAL PURPOSE KITS TROUBLESHOOTING - Continued 0080 00

SPECIAL PURPOSE KITS - Continued

Table 1. Special Purpose Kits Troubleshooting Procedures - Continued.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
13. LIGHT MATERIAL HANDLING CRANE (LMHC) DOES NOT OPERATE	1. Check to see if LMHC control box circuit breaker tripped.	1. Disconnect NATO cable. 2. Open cover on LMHC control box (WP 0019 00). 3. If LMHC control box circuit breaker is tripped, position LMHC control box circuit breaker to ON. 4. Connect NATO cable. 5. Check LMHC control box circuit breaker to see if it is tripped again. 6. Close cover on LMHC control box.
	2. Check to see if LMHC operates.	1. If LMHC does not operate, notify Unit Maintenance.



SPECIAL PURPOSE KITS TROUBLESHOOTING - Continued 0080 00

SPECIAL PURPOSE KITS - Continued

Table 1. Special Purpose Kits Troubleshooting Procedures - Continued.

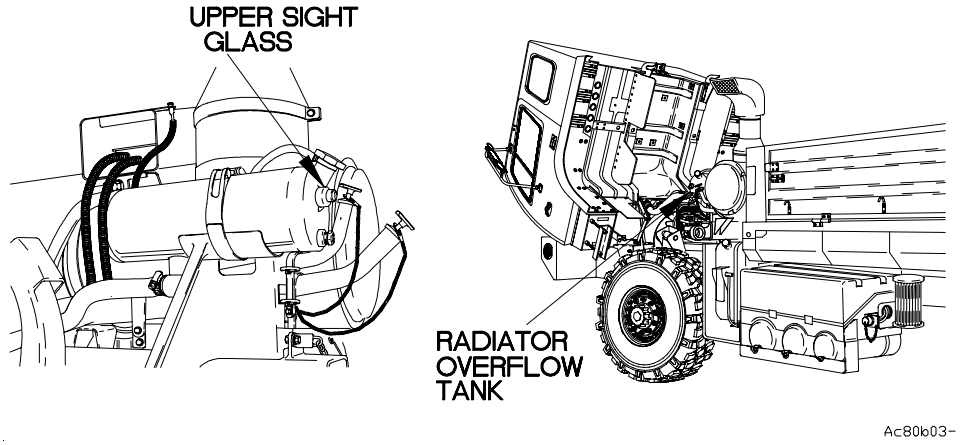
MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
14. LIGHT MATERIAL HANDLING CRANE (LMHC) HOIST IN DOES NOT OPERATE	1. Check to see if LMHC hoist in operates.	If LMHC hoist out does not operate, perform Special Purpose Kits Troubleshooting (WP 0080 00 Malfunction 10, Light Material Handling Crane [LMHC] Does Not Operate).
	2. Check to see if LMHC hoist in operates.	If LMHC hoist in does not operate, notify Unit Maintenance.
15. LIGHT MATERIAL HANDLING CRANE (LMHC) HOIST OUT DOES NOT OPERATE	1. Check to see if LMHC hoist in operates.	If LMHC hoist in does not operate, perform Special Purpose Kits Troubleshooting (WP 0080 00 Malfunction 10, Light Material Handling Crane [LMHC] Does Not Operate).
	2. Check to see if LMHC hoist out operates.	If LMHC hoist out does not operate, notify Unit Maintenance.
16. CAB ARCTIC HEATER DOES NOT IGNITE		Notify Unit Maintenance.

SPECIAL PURPOSE KITS TROUBLESHOOTING - Continued 0080 00

SPECIAL PURPOSE KITS - Continued

Table 1. Special Purpose Kits Troubleshooting Procedures - Continued.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
17. SWINGFIRE DOES NOT OPERATE	1. Check top radiator overflow tank sight glass for proper level of coolant.	If upper sight glass indicates low coolant level, fill radiator overflow tank with coolant (WP 0083 00, Table 1, Item 3).
	2. Check to see if circuit breaker CB50 is tripped.	1. Remove PDP cover (WP 0091 00).

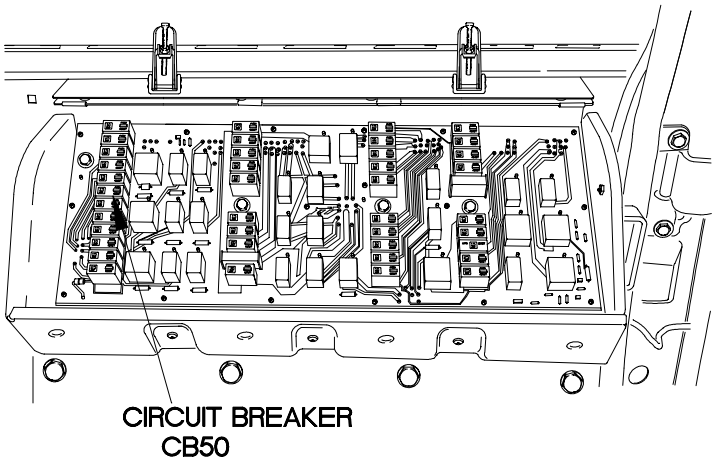


SPECIAL PURPOSE KITS TROUBLESHOOTING - Continued 0080 00

SPECIAL PURPOSE KITS - Continued

Table 1. Special Purpose Kits Troubleshooting Procedures - Continued.

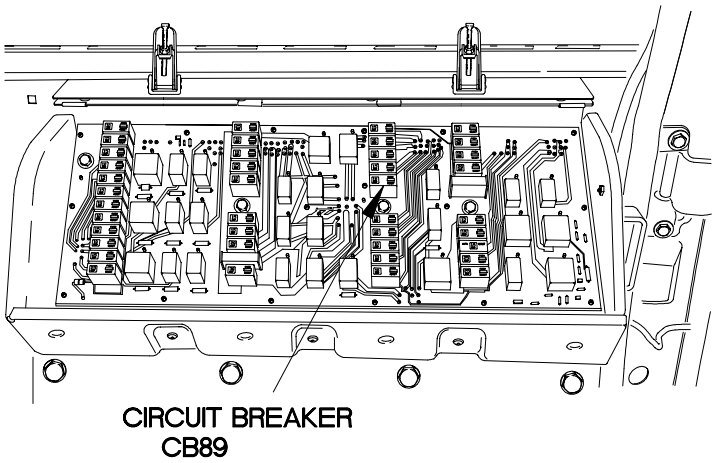
MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
17. SWINGFIRE DOES NOT OPERATE - Continued		2. If circuit breaker CB50 is tripped, push button to reset. 3. Position master power switch to on (WP 0004 00). 4. Check circuit breaker CB50 to see if it is tripped again.
		5. Position master power switch to off (WP 0004 00). 6. Install PDP cover (WP 0091 00).



SPECIAL PURPOSE KITS TROUBLESHOOTING - Continued 0080 00

SPECIAL PURPOSE KITS - Continued

Table 1. Special Purpose Kits Troubleshooting Procedures - Continued.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
18. ARCTIC ENGINE PREHEAT INDICATOR DOES NOT OPERATE	1. Check to see if circuit breaker CB89 is tripped	1. Remove PDP cover (WP 0091 00). 2. If circuit breaker CB89 is tripped, push button to reset. 3. Position master power switch to on (WP 0004 00). 4. If circuit breaker CB89 is tripped again, notify Unit Maintenance.  Ac80b05- 5. Position master power switch to off (WP 0004 00). 6. Install PDP cover (WP 0091 00).

SPECIAL PURPOSE KITS TROUBLESHOOTING - Continued 0080 00

SPECIAL PURPOSE KITS - Continued

Table 1. Special Purpose Kits Troubleshooting Procedures - Continued.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
18. ARCTIC ENGINE PREHEAT INDICATOR DOES NOT OPERATE - Continued	2. Visual inspection.	1. Position master power switch to on (WP 0004 00). 2. If arctic engine preheat indicator does not illuminate, notify Unit Maintenance. 3. Position master power switch to off (WP 0004 00).
19. ARCTIC ENGINE PREHEAT INDICATOR FLASHES SPECIAL FAILURE CODE FOR 60 SECONDS		Notify Unit Maintenance.
20. ARCTIC ENGINE PREHEAT INDICATOR FLASHES SLOWLY INDICATING “READY” WHEN IGNITION IS SWITCHED ON ALTHOUGH WATER TEMPERATURE IS BELOW 77°F (25°C).		Notify Unit Maintenance.

SPECIAL PURPOSE KITS TROUBLESHOOTING - Continued 0080 00

SPECIAL PURPOSE KITS - Continued

Table 1. Special Purpose Kits Troubleshooting Procedures - Continued.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
21. ARCTIC ENGINE PREHEAT INDICATOR ILLUMINATES CONTINUOUSLY ALTHOUGH WATER TEMPERATURE IS ABOVE 77°F (25°C).		Notify Unit Maintenance.
22. ARCTIC ENGINE PREHEAT INDICATOR FLASHES SLOWLY INDICATING “READY” BUT ENGINE WILL NOT START OR IS HARD TO START		Notify Unit Maintenance.
23. HEAVY WHITE SMOKE AFTER COLD START.		Notify Unit Maintenance.
24. ENGINE BLOCK ARCTIC HEATER DOES NOT OPERATE.		Notify Unit Maintenance.

END OF TASK

CAB TILT AND SPARE TIRE RETAINER TROUBLESHOOTING 0081 00

THIS WORK PACKAGE COVERS:
Cab Tilt and Spare Tire Retainer

INITIAL SETUP:

Maintenance Level	Reference
Operator	WP 0083 00

CAB TILT AND SPARE TIRE RETAINER

Table 1. Cab and Spare Tire Retainer Troubleshooting Procedures.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
1. CAB DOES NOT RAISE OR LOWER PROPERLY	1. Check hydraulic oil level in air/hydraulic power unit (WP 0083 00, Table 1, Item 7).	If hydraulic oil level is low, add hydraulic oil (WP 0083 00, Table 1, Item 7).
	2. Check hydraulic hoses, air lines, and fittings for Class III leaks.	If Class III leaks are found or cab tilt still does not raise or lower properly, notify Unit Maintenance.
2. SPARE TIRE RETAINER DOES NOT RAISE OR LOWER PROPERLY	1. Check hydraulic oil level in air/hydraulic power unit (WP 0083 00, Table 1, Item 7).	If hydraulic oil level is low, add hydraulic oil (WP 0083 00, Table 1, Item 7).
	2. Check hydraulic hoses, air lines, and fittings for Class III leaks.	If Class III leaks are found or spare tire retainer does not raise or lower properly, notify Unit Maintenance.

END OF TASK

FRAME TROUBLESHOOTING 0082 00

THIS WORK PACKAGE COVERS:
Frame

INITIAL SETUP:

Maintenance Level
Operator

FRAME

Table1. Frame Troubleshooting Procedures.

MALFUNCTION	TEST OR INSPECTION	CORRECTIVE ACTION
TIRES CONTINUE TO WEAR AFTER FRONT END ALIGNMENT AND/OR VEHICLE DRIVES SIDEWAYS DOWN ROAD		Notify Unit Maintenance.

END OF TASK

CHAPTER 4

PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) AND MAINTENANCE INSTRUCTIONS FOR THE M1078A1 SERIES VEHICLES

M1078A1 SERIES PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) 0083 00

THIS WORK PACKAGE COVERS:

Introduction, Leakage Definition, Inspection Lubrication Service Intervals - Normal Conditions, Lubrication Service Intervals - Unusual Conditions, Cleaning and Lubrication, PMCS Procedures

INITIAL SETUP:

Maintenance Level

Operator

Tools and Special Tools

Bar, Socket Wrench Handle (Item 3, Table 2, WP 0094 00)
Inflator-Gage, Tire W/Hose (Item 7, Table 2, WP 0094 00)
Jack, Hydraulic, Hand Operated (Item 8, Table 2, WP 0094 00)
Pliers, Slip Joint (Item 9, Table 2, WP 0094 00)
Screwdriver, Crosstip (Item 10, Table 2, WP 0094 00)
Screwdriver, Crosstip (Item 11, Table 2, WP 0094 00)
Screwdriver, Flattip (Item 12, Table 2, WP 0094 00)
Wrench, Adjustable, 8 In. (Item 15, Table 2, WP 0094 00)
Wrench, Adjustable, 12 In. (Item 16, Table 2, WP 0094 00)
Wrench, Socket (Item 17, Table 2, WP 0094 00)

Materials/Parts:

Antifreeze (MIL-A-11755) (Item 1, WP 0096 00)
Antifreeze (MIL-A-46153) (Item 2, WP 0096 00)
Cleaning Compound , Windshield (Item 3, WP 0096 00)
Damping Fluid (VV-D-1078) (Item 4, WP 0096 00)
Grease, Automotive and Artillery (GAA) (Item 10, WP 0096 00)

Materials/Parts - Continued

Oil, Lubricating, OE/HDO-10 (Item 14, WP 0096 00)
Oil, Lubricating, OE/HDO 15W-40 (Item 17, WP 0096 00)
Oil, Lubricating, OE/HDO 30 (SAE 30) (Item 18, WP 0096 00)
Hydraulic Fluid, OHA (Item 11, WP 0096 00)
Oil, Lubricating, OEA, Arctic (Item 20, WP 0096 00)
Solvent, Dry Cleaning (Item 25, WP 0096 00)

References

AR 385-557
DA PAM 738-750
FM 9-207

M1078A1 SERIES PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) - Continued

0083 00

INTRODUCTION

General

Preventive Maintenance Checks and Services (PMCS) are performed to keep the vehicle in operating condition. The checks are used to find, correct, or report problems. Crewmembers are to do the PMCS jobs as shown in the PMCS tables. PMCS is done every day the vehicle is operated using the PMCS tables. Pay attention to WARNING and CAUTION statements. A WARNING means someone could be hurt. A CAUTION means equipment could be damaged.

Explanation of Table Entries

Item Number Column. Numbers in this column are for reference. When completing DA Form 2404 (Equipment Inspection and Maintenance Worksheet), include the Item Number for the Check/Service indicating a fault. Item Numbers also appear in the order that you must perform Checks and Services for the intervals listed.

Interval Column. This column tells you when you must perform the procedure in the procedure column. BEFORE procedures must be performed before you operate or use the vehicle. DURING procedures must be performed during operation of the vehicle. AFTER procedures must be performed immediately after you have operated the vehicle. WEEKLY procedures must be performed every seven
days. MONTHLY procedures must be performed approximately every 30 days.

Man-hour Column. This column describes the number of man-hours required to complete all prescribed lubrication service. It is stated to the nearest tenth of an hour.

Item to Check/Service Column. This column provides the location and the Item(s) to be checked or serviced.

Procedure Column. This column provides the procedure to check or to service the item(s) listed in the check/service column.

Equipment Not Ready/Available If: Column. This column tells you what faults will keep your vehicle from being capable of performing the primary mission. If you perform check and service procedures that show faults listed in this column, do not operate the vehicle. Follow standard operating procedures for maintaining the vehicle or reporting equipment failure.

M1078A1 SERIES PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) - Continued 0083 00

LEAKAGE DEFINITION

CAUTION

Equipment operation is allowable with minor leakages (Class I or II) except for fuel leaks. Consideration must be given to the fluid capacity of the item or system being checked. When in doubt, ask your supervisor.

When operating with Class I or II leaks, continue to check fluid levels as required in your PMCS.

Class III leaks must be reported to Unit Maintenance. Failure to comply may result in damage to equipment.

It is necessary to know how fluid leakage affects the status of the vehicle. The following are definitions of the classes of leakage an operator or crewmember needs to know to be able to determine the condition of the leak. Learn and then be familiar with them, and REMEMBER - WHEN IN DOUBT, ASK YOUR SUPERVISOR.

Leakage Definitions for Crew/Operator PMCS

CLASS I - Seepage of fluid (as indicated by wetness or discoloration) not great enough to form drops.

CLASS II - Leakage of fluid great enough to form drops but not enough to cause drops to drip from item being checked.

CLASS III - Leakage of fluid great enough to form drops that fall from the item being checked.

INSPECTION

Look for signs of a problem or trouble. Senses help here. You can feel, smell, hear, or see many problems. Be alert when on the vehicle.

Inspect to see if items are in good condition. Are they correctly assembled, stowed, secured, excessively worn, leaking, corroded, or properly lubricated? Correct any problems found or notify Unit Maintenance.

There are some common items to check all over the vehicle. These include the following:

1. Bolts, clamps, nuts, and screws: Continuously check for looseness. Look for chipped paint, rust, or corrosion around bolt and screw heads and nuts. Tighten them when you find them loose. If tools are not available, notify Unit Maintenance.

M1078A1 SERIES PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) - Continued 0083 00

INSPECTION - Continued

2. Welds: Many items on the vehicle are welded. to check these welds, look for chipped paint, rust corrosion, or gaps. When these conditions exist, notify Unit Maintenance on DA Form 2404.

3. Electrical wires, connectors, and harnesses: Tighten loose connectors. Look for cracked or broken insulation, bare wires, and broken connectors. If any are found, notify Unit Maintenance.

4. Hoses and fluid lines: Look for wear, damage and leaks, and make sure clamps and fittings are tight. Wet spots mean a leak. A stain by a fitting or connector can also meant a leak. When you find a leak, notify Unit Maintenance.

LUBRICATION SERVICE INTERVALS - NORMAL CONDITIONS

General

For safer, more trouble free operations, make sure that your vehicle is serviced when it needs it. Proper lubrication and service intervals, which are the responsibility of the Operator/Crew, are found in this work package.

Adherence. Intervals (on-condition or hard time) 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 shall be applied unless changed by the Army Oil Analysis Programs (AOAP) laboratory. Change to the hard time interval if 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. Hard time intervals will be applied in the event AOAP laboratory support is not available. Hard time intervals must be applied during the warranty period.

Intervals shown in this work package are based on mileage/calendar times. The lubrication for the vehicle is to be performed at whichever interval occurs first.

M1078A1 SERIES PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) - Continued 0083 00

LUBRICATION SERVICE INTERVALS - NORMAL CONDITIONS - Continued

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 Dry Cleaning Solvent; the flashpoint for Type l Dry Cleaning Solvent is 100° F (38° C) and 138° F (50° C). Failure to comply may result in serious injury or death to personnel.

If personnel become dizzy while using Dry Cleaning Solvent (P-D-680), 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 medical attention. Failure to comply may result in serious injury or death to personnel.

Cleaning Fittings Before Lubrication. Clean parts with Dry Cleaning Solvent (SD ll, P-D-680) or equivalent. Dry before lubricating. Dashed arrows indicate lubrication on both sides of equipment.

Lubrication After Fording. If a fording operation occurs, lubricate all fittings below fording depth and check submerged gear boxes for presence of water.

Lubrication After High-Pressure Washing. After a through washing, lubricate all grease fittings and oil can points outside and underneath vehicle.

Lubrication Local Views. A reference to the appropriate localized view is given after most lubrication entries.

Corrosion Control

Refer to WP 0001 00 for appropriate corrosion control procedures.

AOAP Sampling Interval

Engine/transmission oil must be sampled every 90 days as prescribed by DA PAM 738-750. Hydraulic fluids must be sampled annually as prescribed by DA PAM 738-750.

M1078A1 SERIES PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) - Continued 0083 00

LUBRICATION SERVICE INTERVALS - NORMAL CONDITIONS - Continued

Hard Time Lubrication Intervals

For equipment under manufacturer's warranty, hard time oil service intervals shall be followed. Intervals shall be shortened if lubricants are known to be contaminated or if operation is under adverse conditions (e.g. longer than usual operating hours, extending idling periods, extreme dust, etc.).

Lubrication Intervals

INTERVALS

D ..... Daily
W .....Weekly
M .....Monthly

VEHICLES	Total Man-hours for Each Interval		
	D	W	M
Truck, Cargo, LMTV, M1078A1	0.3	N/A	0.2
Truck, Van, LMTV, M1079A1	0.3	N/A	0.2
Truck, Chassis, LMTV, M1080A1	0.3	N/A	0.2

Lubrication Key

LUBRICANTS	
Specification	**Type**
MIL-L-2104 (OE/HDO)	Lubricating Oil, Internal Combustion Engine, Combat/Tactical Service
MIL-L-46167 (OEA)	Lubricating Oil, Internal Combustion Engine, Arctic
MIL-PRF-5606H (OHA)	Hydraulic Fluid, Petroleum Base, Aircraft, Missile, and Ordnance
MIL-G-10924 (GAA)	Grease, Automotive and Artillery
VV-D-1078	Damping Fluid

M1078A1 SERIES PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) - Continued 0083 00

LUBRICATION SERVICE INTERVALS - NORMAL CONDITIONS - Continued

COOLANT	
Specification	**Type**
A-A-52624A	Antifreeze, Multi-Engine Type
MIL-A-11755	Antifreeze, Arctic Type[1]

[1] For Arctic Operation, refer to FM 9-207.

CLEANING AGENT	
Specification	**Type**
P-D-680	Dry Cleaning Solvent, SD II
O-C-1901	Cleaning Compound Window

LUBRICATION SERVICE INTERVALS - UNUSUAL CONDITIONS

Your vehicle will require extra service and care when you operate under unusual conditions. High or low temperatures, long periods of hard use, or continued use in sand, water, mud, or snow will break down the lubricant requiring you to add or change lubricant more often.

CLEANING AND LUBRICATION

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.

Cleanliness

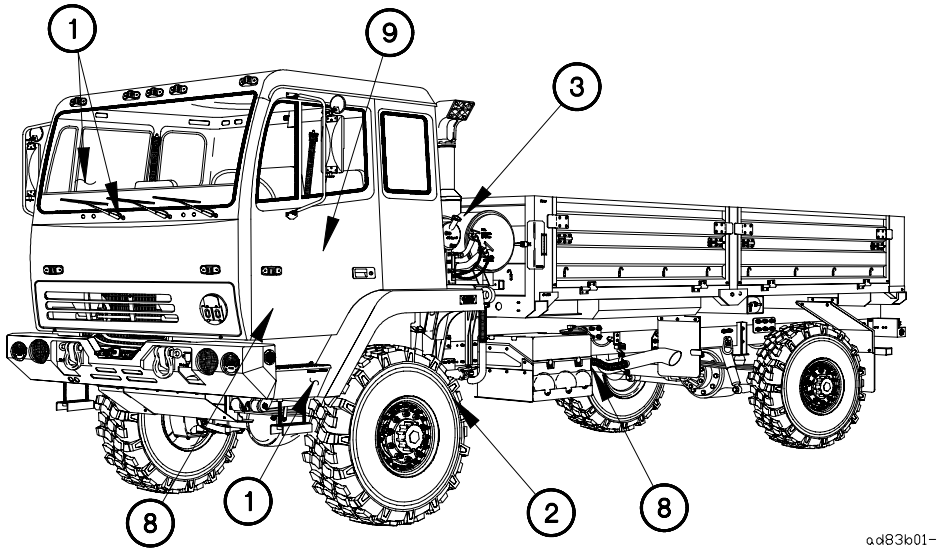
Dirt, grease, oil, and debris only get in the way and may cover up a serious problem. Use Dry Cleaning Solvent (Item 15, WP 0096 00) on metal surfaces where directed.

M1078A1 SERIES PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) - Continued

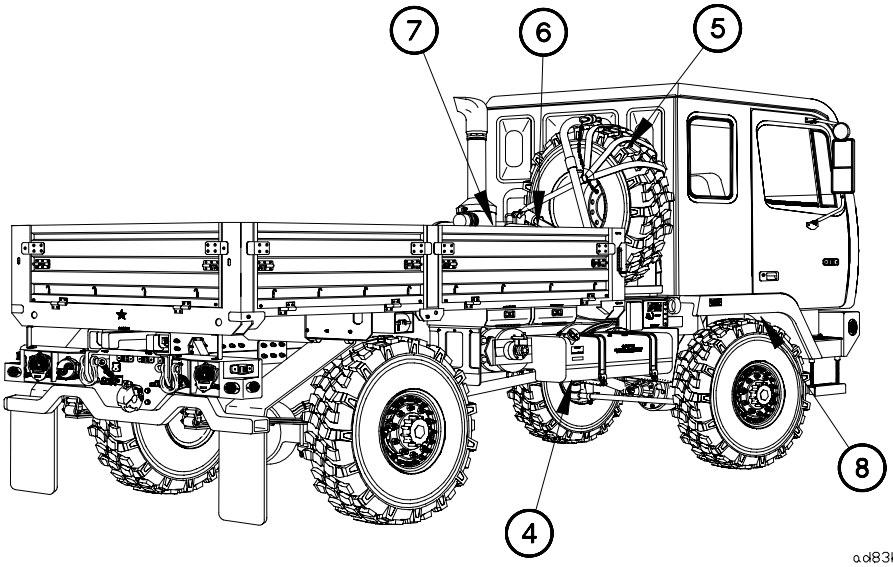
0083 00

Before PMCS Procedures for All Models

These illustrations will help you perform BEFORE vehicle PMCS. The callouts match PMCS item number/procedures.



ad83b01-



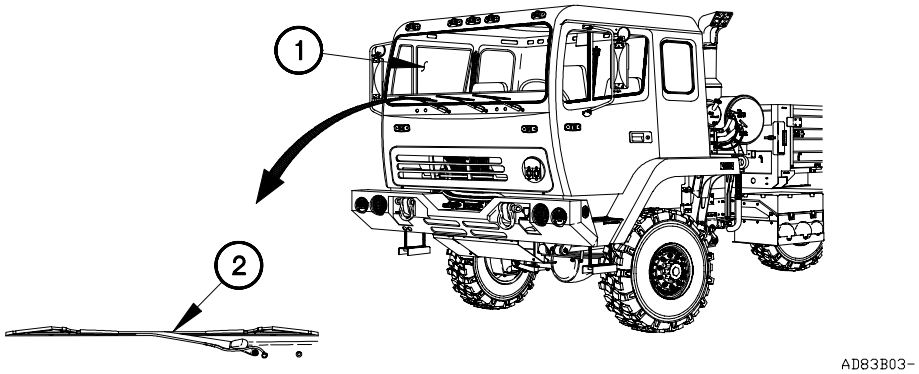
ad83b02-

M1078A1 SERIES PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) - Continued

0083 00

Table 1. Preventive Maintenance Checks and Services (PMCS) - Before - All Models.

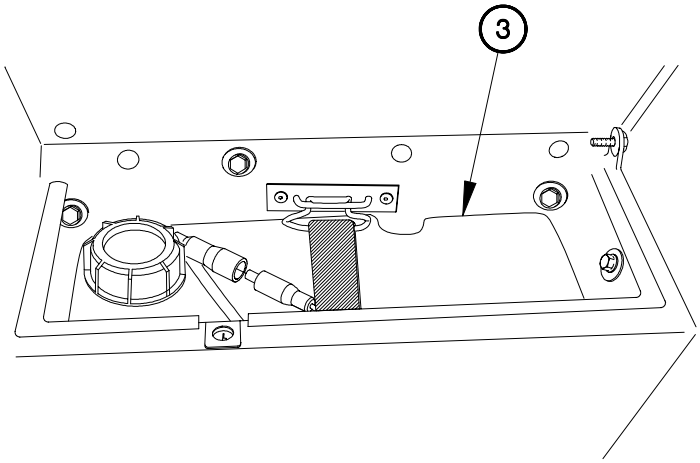
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
1	Before		Windshield, Windshield Wipers, and Washer Reservoir		
				NOTE Operating the vehicle with damaged windshield may violate AR 385-557.	
				1. Check windshield (1) for damage that would impair Operator's vision.	Windshield is cracked sufficiently to impair Operator's vision.
				2. Check for missing or damaged windshield wiper blade (2). Notify Unit Maintenance if windshield wiper blade is missing or unserviceable.	



AD83B03-

Table 1. Preventive Maintenance Checks and Services (PMCS) - Before - All Models - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
1	Before	0.1	Windshield, Windshield Wipers, and Washer Reservoir - Continued	3. Check windshield washer reservoir (3). Check windshield washer fluid level. Add windshield washer fluid as required.	



DESCRIPTION	CAPACITY	TYPE OF FLUID USED AT THESE EXPECTED TEMPERATURES		
		Above 40°F (Above 4°C)	40° to -15°F (4° to -26°C)	-15° to -50°F (-26° to -46°C)
Windshield Washer Reservoir	7.5 qt (7.1L)	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

M1078A1 SERIES PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) - Continued

Table 1. Preventive Maintenance Checks and Services (PMCS) - Before - All Models - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
2	Before		Exterior of Vehicle	1. Look under vehicle for signs of fluid leakage (fuel, oil, and coolant). 2. Check front and rear shackles are secure. 3. Verify cab air springs are unpinned and pin is stowed in stowage bracket.	Class III leak is evident.

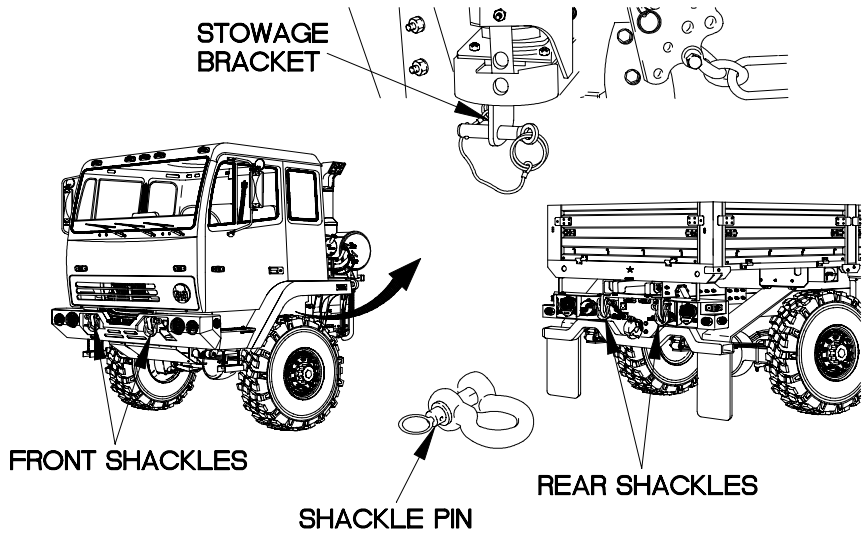


Table 1. Preventive Maintenance Checks and Services (PMCS) - Before - All Models - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
3	Before		Coolant		

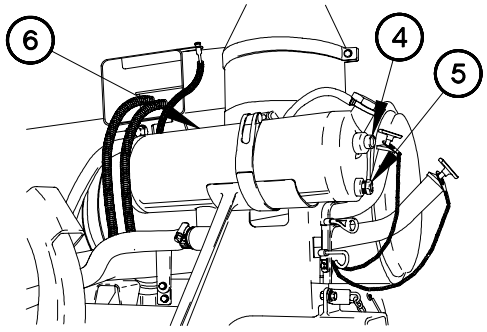
WARNING

Extreme care should be taken when removing radiator cap if WATER TEMP gage reads above 180° F (82° C). Contact with steam or hot coolant under pressure may result in injury to personnel.

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

Do not operate vehicle if radiator cap is damaged or missing. Failure to comply will result in injury to personnel or damage to equipment.

	0.1		1. Verify coolant level is between upper sight glass (4) and lower sight glass (5) on radiator overflow tank (6) with engine not running. Add coolant as required.	1. Coolant level below lower sight glass.



AD83B05-

Table 1. Preventive Maintenance Checks and Services (PMCS) - Before - All Models - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
3	Before		Coolant - Continued	2. Check for oil in coolant.	2. If engine oil present, notify Unit Maintenance.
				3. Check radiator cap	3. Radiator cap damaged or missing, notify Unit Maintenance.

DESCRIPTION	CAPACITY	TYPE OF FLUID USED AT THESE EXPECTED TEMPERATURES		
		Above 40°F (Above 4°C)	40° to -15°F (4° to -26°C)	-15° to -50°F (-26° to -46°C)
Cooling System (Engine Only)	14 qt (13 L)	A-A-52624A	A-A-52624A	N/A
Cooling System (Total System)	43.8 qt (41.5L)	A-A-52624A	A-A-52624A	N/A
Cooling System - Arctic (Total System)	58.3 qt (51.1 L)	N/A	N/A	MIL-A-11755

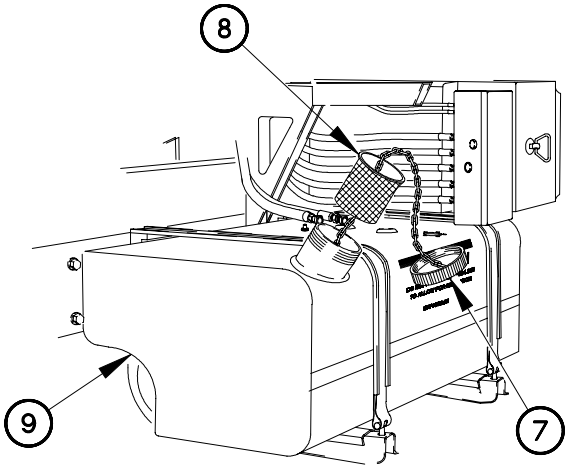
Table 1. Preventive Maintenance Checks and Services (PMCS) - Before - All Models - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
4	Before		Fuel Tank		

WARNING

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

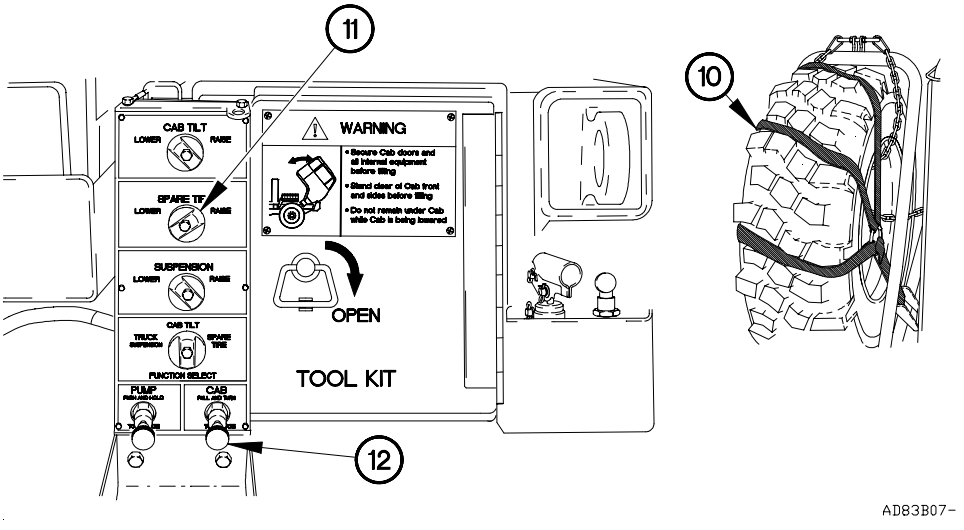
				1. Remove fuel cap (7) and fuel strainer (8). 2. Check for presence of fuel in fuel tank (9). 3. Install fuel strainer (8) and fuel cap (7).	



AD83B06-

Table 1. Preventive Maintenance Checks and Services (PMCS) - Before - All Models - Continued.

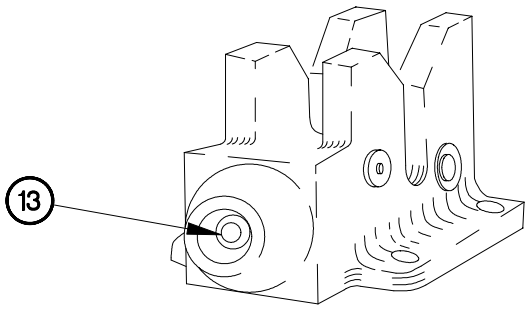
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
5	Before		Spare Tire Strap	1. Check that spare tire strap (10) is tight. 2. Check that spare tire strap (10) is not torn, frayed, or damaged. 3. Check that SPARE TIRE knob (11) is in RAISE position. 4. Check that CAB knob (12) is pushed in. If not, push knob in and turn to right.	



M1078A1 SERIES PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) - Continued

Table 1. Preventive Maintenance Checks and Services (PMCS) - Before - All Models - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
6	Before		Cab Hydraulic Latch	Check that cab latch indicator button is in the latched position (13).	If cab will not securely latch.



AD83B08-

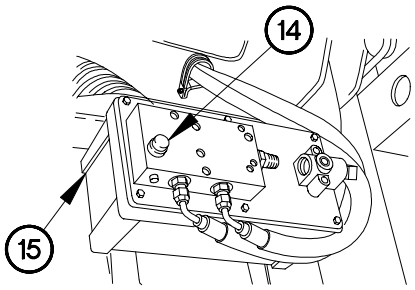
Table 1. Preventive Maintenance Checks and Services (PMCS) - Before - All Models - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
7	Before	0.1	Air/Hydraulic Power Unit		

WARNING

Hydraulic fluid (MIL-PRF-5606H) 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 fluid should be washed immediately. Saturated clothing should be removed immediately. Failure to comply may result in injury to personnel.

			Check oil level on dipstick (14). Add oil as required to air/hydraulic power unit (15).	

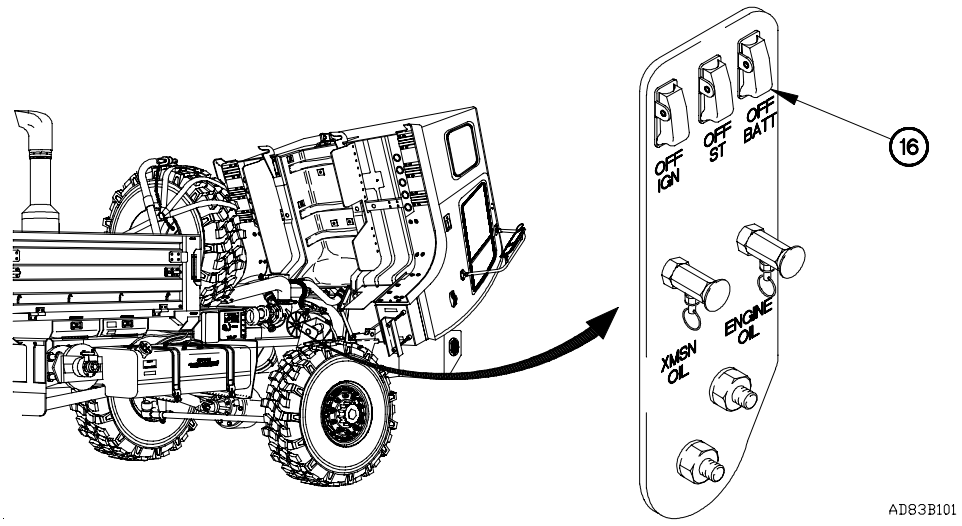


AD83B09-

DESCRIPTION	CAPACITY	TYPE OF FLUID USED AT THESE EXPECTED TEMPERATURES		
		Above 40°F (Above 4°C)	40° to -15°F (4° to -26°C)	-15° to -50°F (-26° to -46°C)
Air/Hydraulic Unit	3 qt (2.8L)	OHA	OHA	OHA

Table 1. Preventive Maintenance Checks and Services (PMCS) - Before - All Models - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
			NOTE CREWMEMBER PROCEDURE. Steps 1 through 4 apply to vehicle S/N 18,550 or higher.		
8	Before		Remote Battery Disconnect Switch, Manual Battery Disconnect Switch (MBDS), and Battery Disconnect Switch.	1. Lift RH cab mud flap. 2. Check that remote battery disconnect switch (16) is off (down and guarded) (WP 0016 00).	



M1078A1 SERIES PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) - Continued

Table 1. Preventive Maintenance Checks and Services (PMCS) - Before - All Models - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
8	Before		Remote Battery Disconnect Switch, Manual Battery Disconnect Switch (MBDS), and Battery Disconnect Switch. (Continued)	3. Check that Manual Battery Disconnect Switch (MBDS) (17) is on. (WP0016 00).	

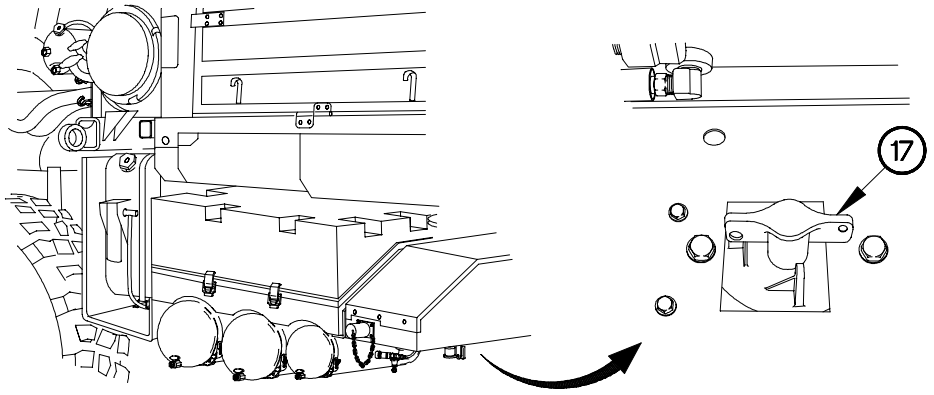


Table 1. Preventive Maintenance Checks and Services (PMCS) - Before - All Models - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
8	Before		Remote Battery Disconnect Switch, Manual Battery Disconnect Switch (MBDS), and Battery Disconnect Switch. (Continued)	4. Check that Battery Disconnect Switch (18) switch is off (down and guarded). (WP0016 00).	

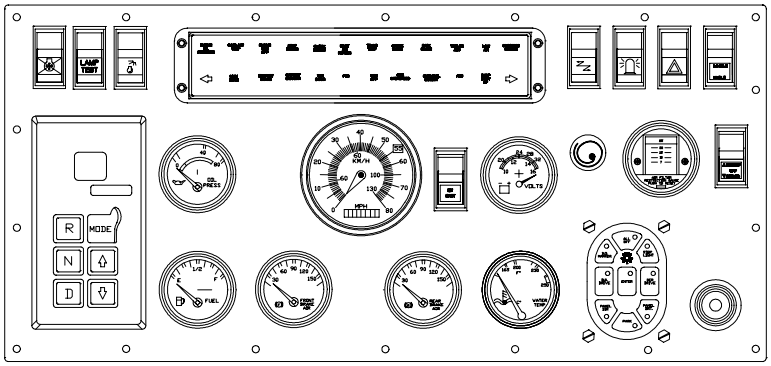


Table 1. Preventive Maintenance Checks and Services (PMCS) - Before - All Models - Continued.

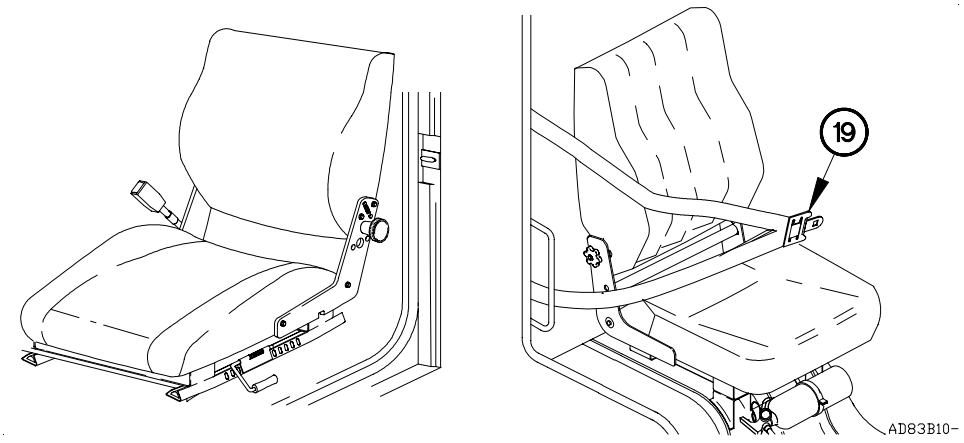
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
9	Before		Interior Cab Components		

NOTE

Operating vehicle with inoperative seat belts may violate AR 385-557.

If vehicle mission requires three personnel, all three seat belts are required to be in good working condition.

			1. Check all three seat belts (19) for security, damage, and proper operation.	Driver's seat belt and at least one other seat belt not in good working condition.
			2. Check forward/backward, adjustment control operation on driver's seat (WP 0015 00).	Forward/ backward adjustment control is broken or missing.

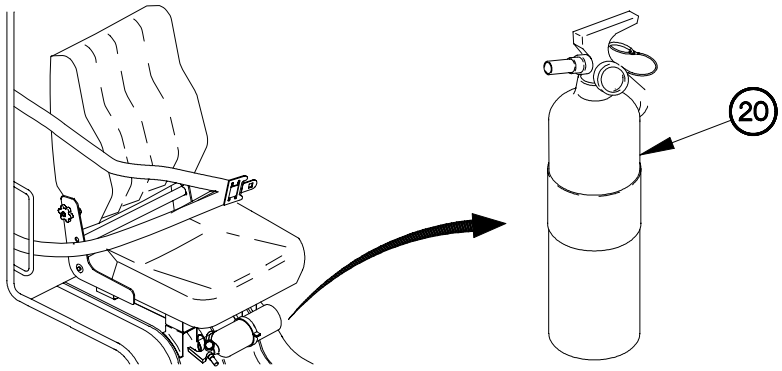


M1078A1 SERIES PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) - Continued

0083 00

Table 1. Preventive Maintenance Checks and Services (PMCS) - Before - All Models - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
9	Before		Interior Cab Components - Continued	3. Check for missing or damaged fire extinguisher (20).	Fire extinguisher is damaged or missing
				4. Check that fire extinguisher (20) pressure is approximately 150 psi (1,034 kPa).	Fire extinguisher pressure gage needle is within discharge band.
					Seal is missing.



AD83B11-

M1078A1 SERIES PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) - Continued

0083 00

Table 1. Preventive Maintenance Checks and Services (PMCS) - Before - All Models - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
9	Before		Interior Cab Components - Continued	5. Position Master Power switch (21) to On.	
				6. Check windshield washer switch (22) for proper operation (WP 0007 00) Notify Unit Maintenance.	Windshield washer switch is inoperative.
				7. Check windshield wiper switch (23) for proper operation (WP 0007 00) Notify Unit Maintenance.	Windshield wiper switch is inoperative.

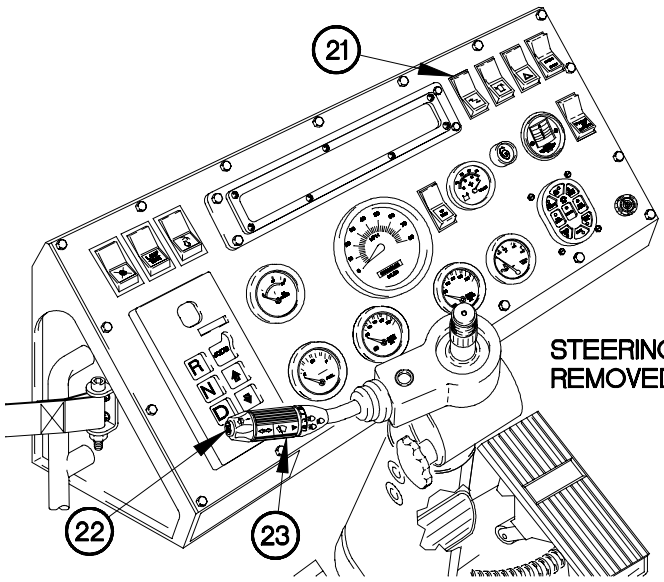


Table 1. Preventive Maintenance Checks and Services (PMCS) - Before - All Models - Continued.

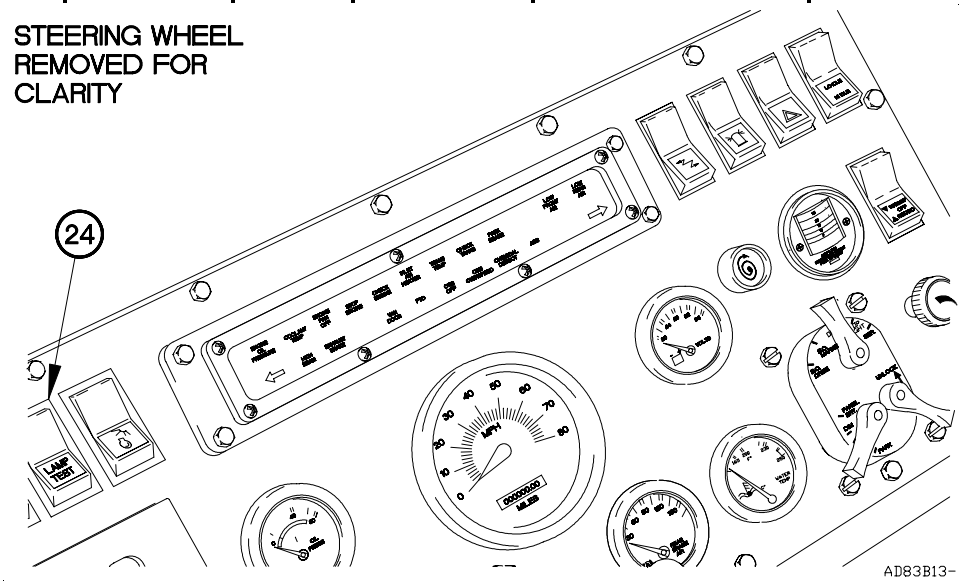
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
9	Before		Interior Cab Components - Continued		

NOTE

PARK BRAKE indicator will not illuminate if SYSTEM PARK control is not pulled out. LOW REAR AIR and LOW FRONT AIR indicators will not illuminate if air system pressure exceeds 75 psi (Vehicle S/N 18,549 or lower.

PARK BRAKE indicator will not illuminate is SYSTEM PARK control is not pulled out. LOW AIR indicator will not illuminate if air system pressure exceeds 75 psi (vehicle S/N 18,550 or higher).

				8. Position lamp test switch (24) to on.



M1078A1 SERIES PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) - Continued

0083 00

Table 1. Preventive Maintenance Checks and Services (PMCS) - Before - All Models - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
9	Before		Interior Cab Components - Continued	9. Check that the following indicator lights are illuminated: a. ENGINE OIL PRESSURE (25) b. CHECK ENGINE (26) c. INLET AIR HEATER (27) d. CHECK TRANS (28)	Any of the listed indicator lights are not illuminated.

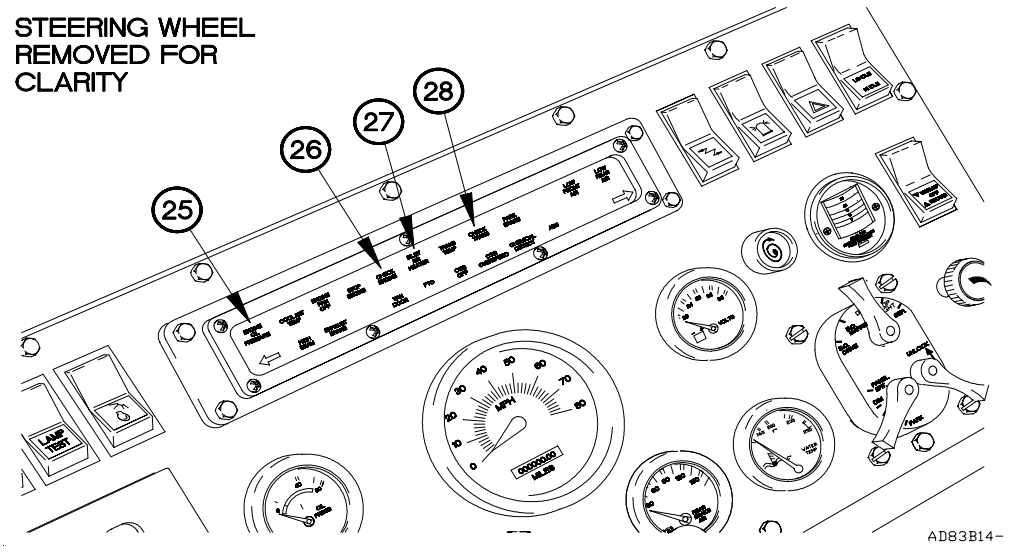
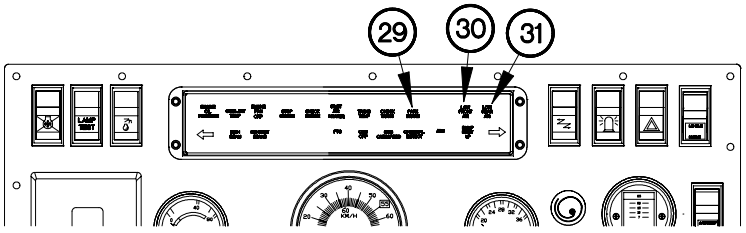
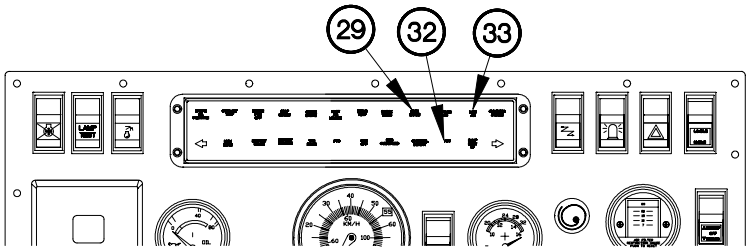


Table 1. Preventive Maintenance Checks and Services (PMCS) - Before - All Models - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
9	Before		Interior Cab Components - Continued	e. PARK BRAKE (29)	
				NOTE Perform steps f. and g. on vehicle S/N 18,549 or lower.	
				f. LOW FRONT AIR (30) g. LOW REAR AIR (31)	
				NOTE Perform step h. on vehicle S/N 18,550 or higher.	
				h. ABS (32) i. low air (33)	



VEHICLE S/N 18,549 OR LOWER



VEHICLE S/N 18,550 OR HIGHER

AD83B105

Table 1. Preventive Maintenance Checks and Services (PMCS) - Before - All Models - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
9	Before		Interior Cab Components - Continued		
				CAUTION If ENGINE OIL PRESSURE indicator does not illuminate momentarily, or illuminates and stays on, vehicle is not fully mission capable. Failure to comply may result in damage to equipment.	
				NOTE If OIL PRESS gage reads in red zone (0-7 psi) and ENGINE OIL PRESSURE indicator is not illuminated, shut down engine, then restart engine. Indicator should illuminate momentarily to indicate proper function. If ENGINE OIL PRESSURE indicator illuminates and then goes out, continue with the mission.	
				10. Start engine (WP 0016 00).	Engine will not start.

Table 1. Preventive Maintenance Checks and Services (PMCS) - Before - All Models - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
9	Before		Interior Cab Components - Continued		

NOTE

Oil pressure will increase when engine speed increases and will decrease when engine speed decreases.

Engine oil pressure will be lower when engine is at maximum operating temperature (WATER TEMP gage reads 250° F).

				11. Check that engine OIL PRESS gage (34) indicates between 15-80 psi.	Engine OIL PRESS gage (34) indicates in red zone and ENGINE OIL PRESSURE indicator (25) is illuminated. Engine OIL PRESS gage indicates less than 15 psi.

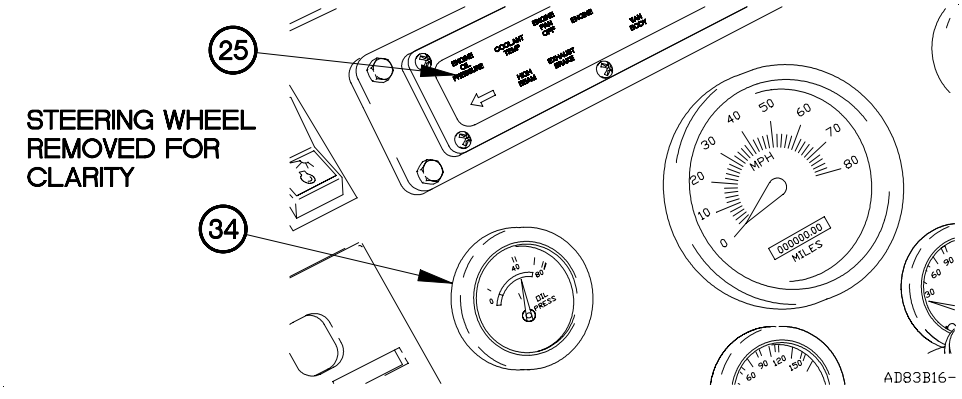


Table 1. Preventive Maintenance Checks and Services (PMCS) - Before - All Models - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
9	Before		Interior Cab Components - Continued		

NOTE

At idle, WATER TEMP gage may not reach 160° F (71° C).

If COOLANT TEMP indicator is illuminated and WATER TEMP gage reads 160° - 230° F (71° - 110° C) and engine fan is NOT running continuously, continue with the mission.

			12. Check that WATER TEMP gage (35) indicates between 160° - 230°F (71° - 110°C).	WATER TEMP gage indicates in red zone and COOLANT TEMP indicator (36) is illuminated

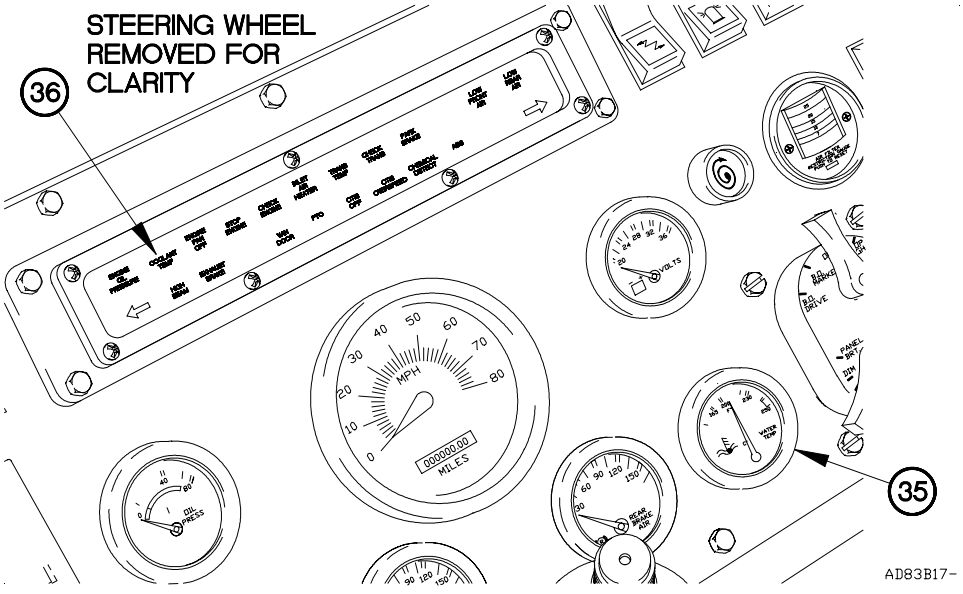


Table 1. Preventive Maintenance Checks and Services (PMCS) - Before - All Models - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
9	Before		Interior Cab Components - Continued	13. Check AIR FILTER RESTRICTION GAUGE (37). Press reset button (38) if gauge reads greater than 25 in. (in red area). If gauge still reads in red area after reset button is pressed, shut down engine (WP 0016 00) and service air cleaner (WP 0089 00). Start engine (WP 0016 00). Notify Unit Maintenance if gauge still reads in red area.	AIR FILTER RESTRICTION GAUGE (37) reads greater than 25 in. (in red area).

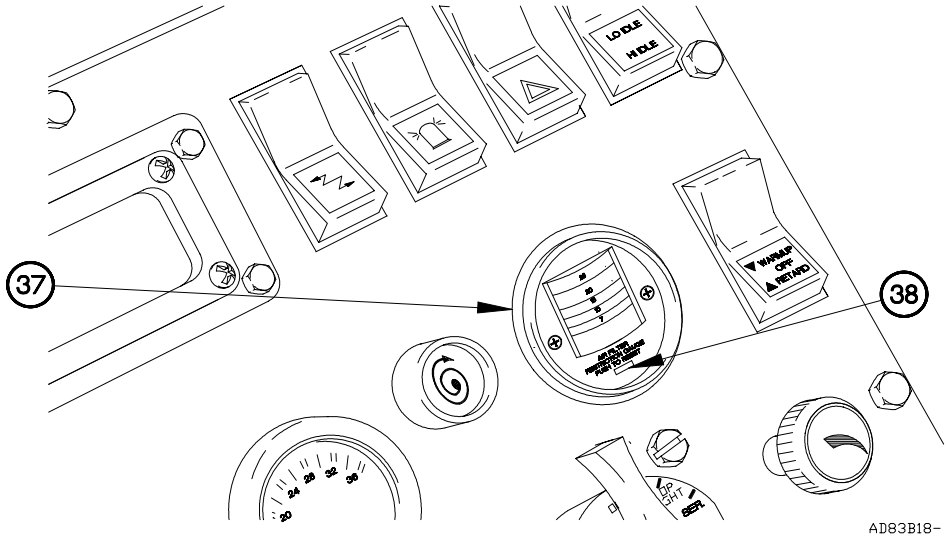


Table 1. Preventive Maintenance Checks and Services (PMCS) - Before - All Models - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
			NOTE CREWMEMBER PROCEDURE 14 applies to vehicle S/N 18,549 or lower.		
9	Before		Interior Cab Components - Continued	14. Check that FRONT BRAKE AIR (39) and REAR BRAKE AIR (40) gages read between 75-120 psi.	Either gage indicates less than 75 psi, LOW FRONT AIR (30) or LOW REAR AIR (31) indicators illuminate, or audible alarm sounds.

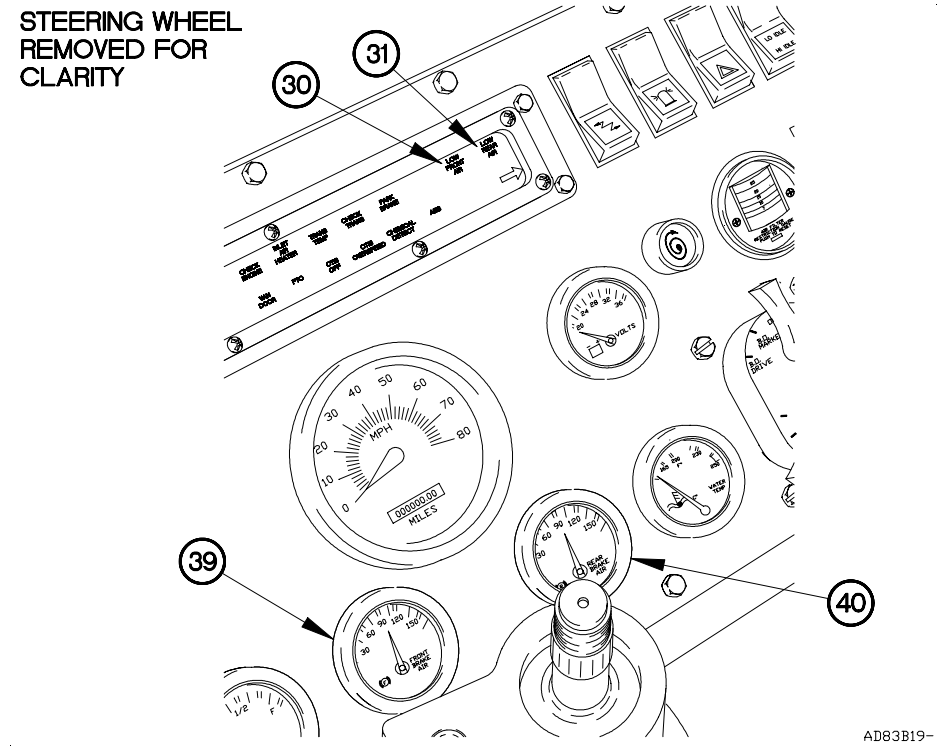
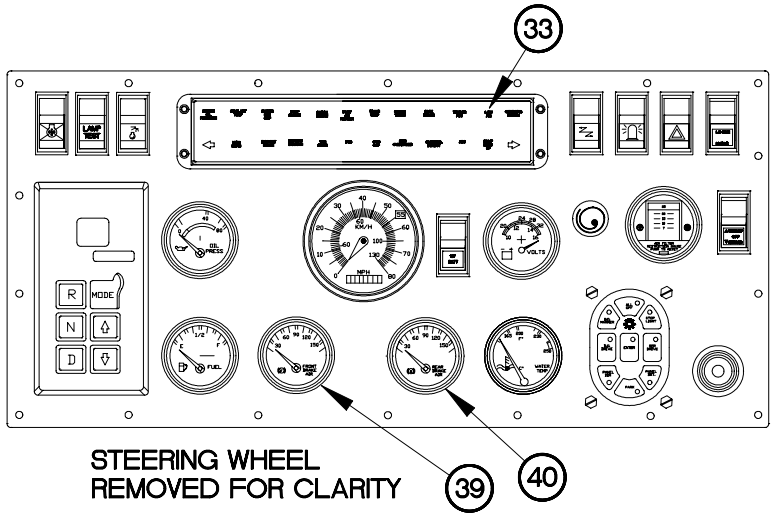


Table 1. Preventive Maintenance Checks and Services (PMCS) - Before - All Models - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
			NOTE		
	CREWMEMBER PROCEDURE 15 applies to vehicle S/N 18,550 or higher.				
9	Before		Interior Cab Components - Continued	15. Check that FRONT BRAKE AIR (39) and REAR BRAKE AIR (40) gages reads between 75-120 psi.	Either gage indicates less than 75 psi, LOW AIR (33) indicator illuminates, or audible alarm sounds.



M1078A1 SERIES PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) - Continued

Table 1. Preventive Maintenance Checks and Services (PMCS) - Before - All Models - Continued.

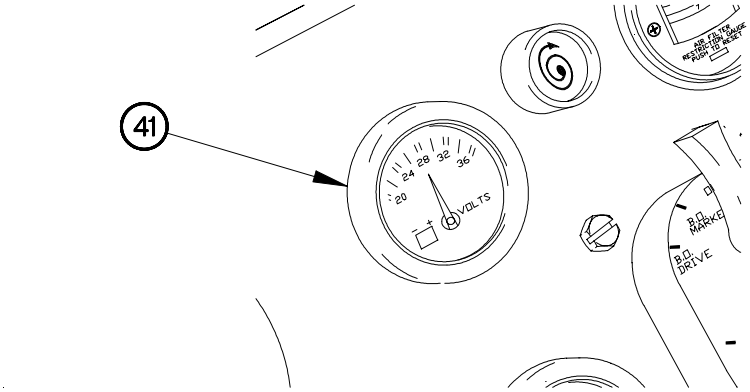
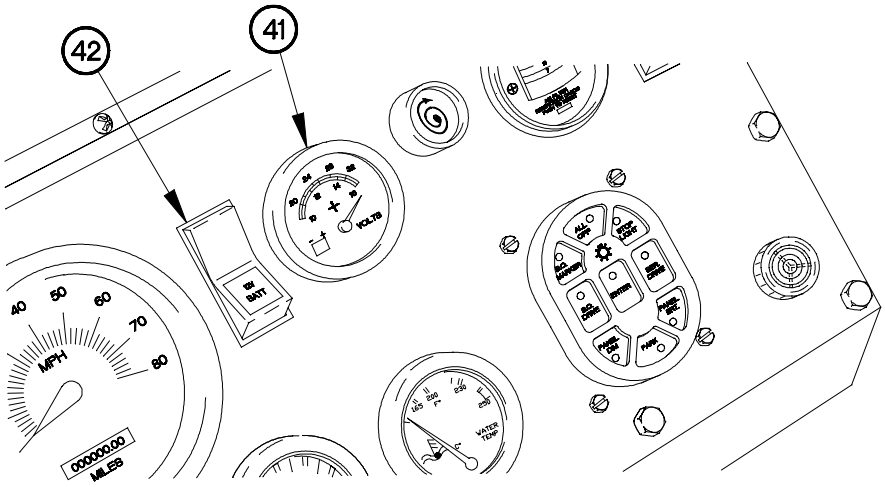
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
			NOTE		
			CREWMEMBER PROCEDURE 16 applies to vehicle S/N 18,549 or lower.		
9	Before		Interior Cab Components - Continued	16. Check that VOLTS gage (41) reads between 26 and 30 volts.	VOLTS gage indicates more than 30 volts or less than 26 volts.
					
			NOTE		
			CREWMEMBER PROCEDURE 17 applies to vehicle S/N 18,550 or higher.		
				17. Press 12 V BAT switch (42). Check that VOLTS gage (41) reads between 12 and 14 volts.	VOLTS gage indicates more than 14 volts or less than 12 volts.

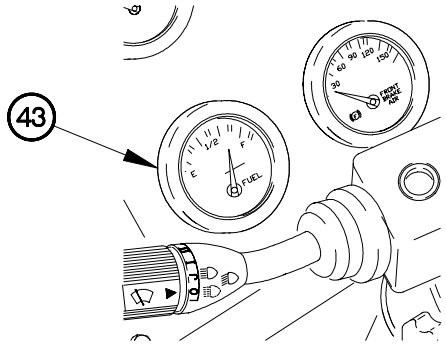
Table 1. Preventive Maintenance Checks and Services (PMCS) - Before - All Models - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
9	Before		Interior Cab Components - Continued		
				18. Check that FUEL gage (43) indicates Full (F).	



AD83B107

STEERING WHEEL REMOVED FOR CLARITY



AD83B21-

Table 1. Preventive Maintenance Checks and Services (PMCS) - Before - All Models - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
9	Before		Interior Cab Components - Continued		

CAUTION

Check SYSTEM PARK control while vehicle is stopped. Failure to comply may result in damage to equipment.

				19. Verify that SYSTEM PARK control (44) is pulled out.	
				20. Set WTEC III TPSS (45) to any forward gear (WP 0016 00) while engine is at idle speed (700 rpm). Vehicle should not move.	Vehicle moves with SYSTEM PARK control on.

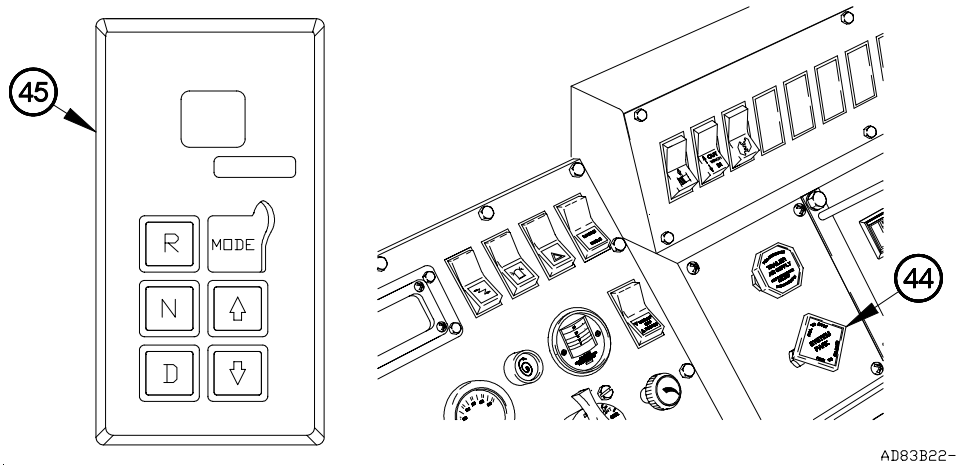


Table 1. Preventive Maintenance Checks and Services (PMCS) - Before - All Models - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
9	Before		Interior Cab Components - Continued	21. Check that WTEC III TPSS (45) operates properly in all gears (WP 0016 00) Notify Unit Maintenance.	One gear range does not operate properly or LED display window indicates service message which cannot be reset.
				NOTE Turn signal switch will not work unless the main shift selector lever on the main light switch is in the SER DRIVE position (WP 0018 00).	
				22. Check turn signal switch (46) and indicators for proper operation (WP 0007 00).	

STEERING WHEEL REMOVED FOR CLARITY

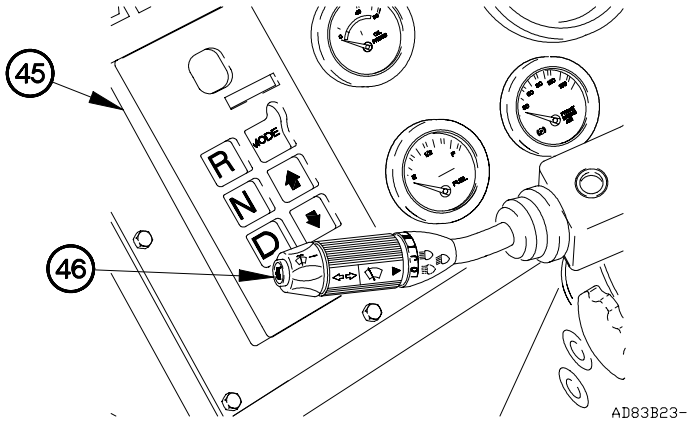
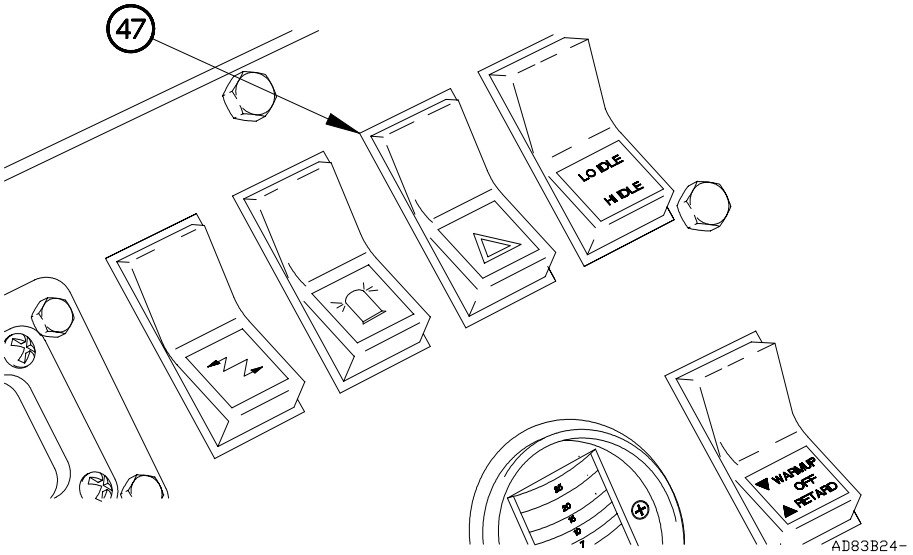


Table 1. Preventive Maintenance Checks and Services (PMCS) - Before - All Models - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
9	Before		Interior Cab Components - Continued	23. Check hazard lights switch (47) for proper operation (WP 0004 00).	

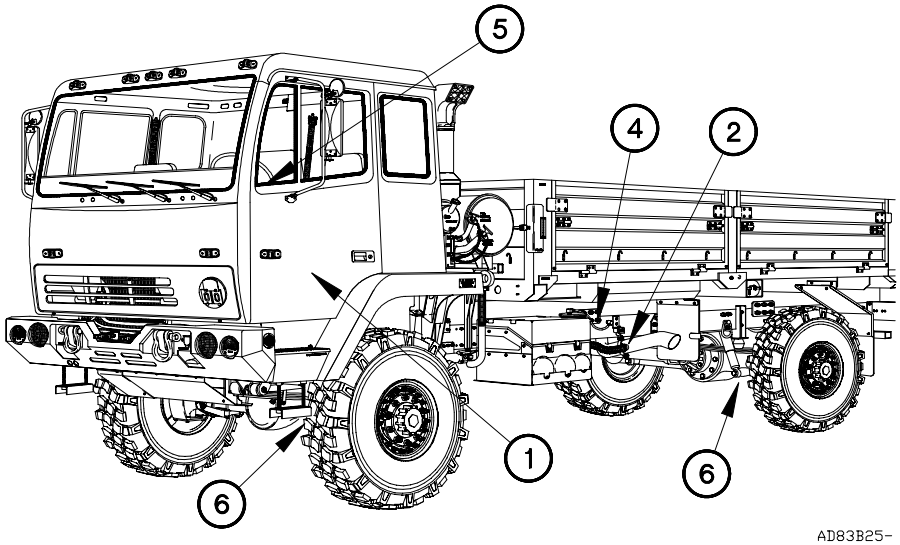


M1078A1 SERIES PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) - Continued

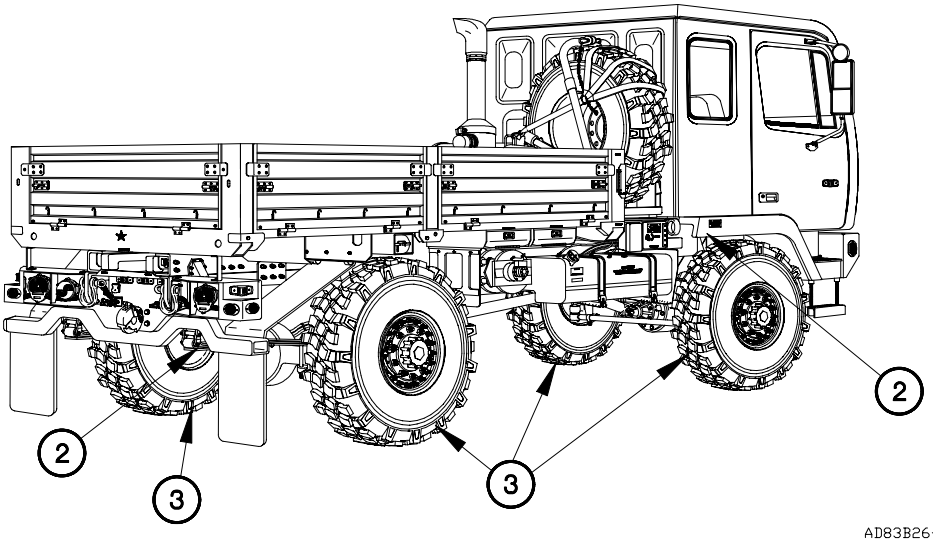
0083 00

During PMCS Procedures for All Models

These illustrations will help you perform DURING vehicle PMCS. The callouts match PMCS item number/procedures.



AD83B25-



AD83B26-

Table 2. Preventive Maintenance Checks and Services (PMCS) - During - All Models.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
1	During		Controls and Indicators		
			CAUTION All gages must maintain normal readings as listed in BEFORE checks during vehicle operation. Operating the vehicle for an extended period of time with any of the gages reading outside of normal limits may result in damage to equipment.		
				Monitor all gages, warning lights, and audible alarms during operation.	Warning lights or audible alarms indicate a malfunction and immediate corrective action by the Operator will not correct the problem.
2	During		Engine Operation	Check for excessive exhaust smoke, unusual engine noise, rough running, or misfiring engine.	Any of these conditions are found.
3	During		CTIS	Check operation of CTIS (WP 0018 00).	

Table 2. Preventive Maintenance Checks and Services (PMCS) - During - All Models - Continued.

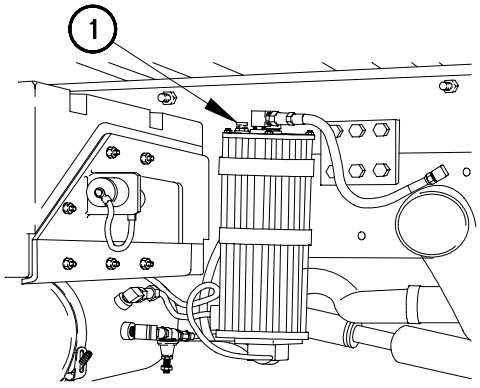
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
4	During		Air Dryer		
			NOTE Sound of air dryer discharging is normal.		
				Listen for air dryer (1) discharge when system air pressure reaches approximately 120 psi.	
			 AD83B27-		
5	During		Steering	Check for any unusual steering noise, binding, or difficulty in turning during operation.	Steering binds or is unresponsive.
6	During		Service Brakes	1. Check to see if service brakes stop vehicle	Service brakes do not stop vehicle.

Table 2. Preventive Maintenance Checks and Services (PMCS) - During - All Models - Continued.

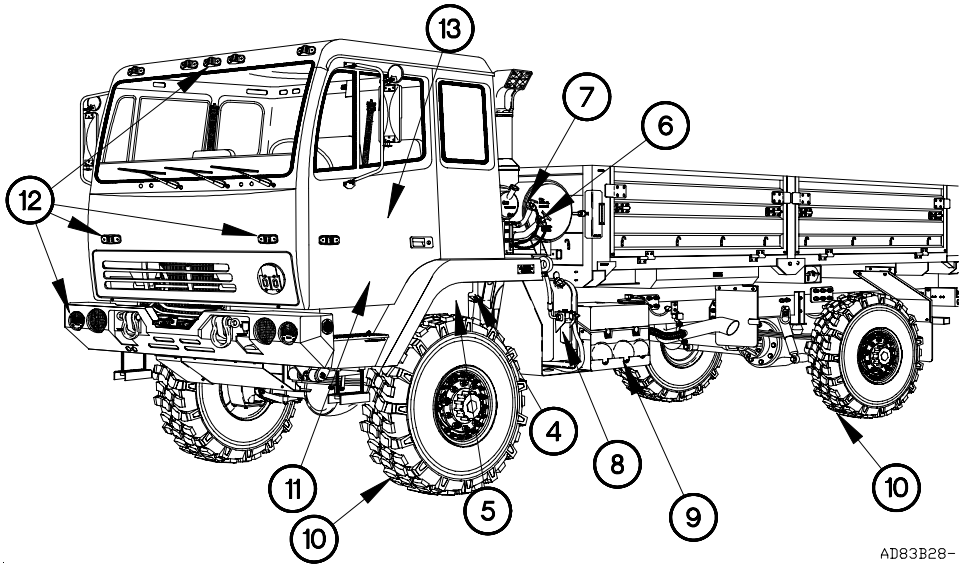
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
6	During		Service Brakes - Continued	2. Check if service brakes pull vehicle to one side when applied. 3. Listen for unusual noises (chattering, grinding, groaning, or excessive squealing) during braking. Notify Unit Maintenance if unusual noises are present.	Vehicle pulls to one side when service brakes are applied.

M1078A1 SERIES PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) - Continued

0083 00

After PMCS Procedures for All Models

These illustrations will help you perform AFTER vehicle PMCS. The callouts match PMCS item number/procedures.



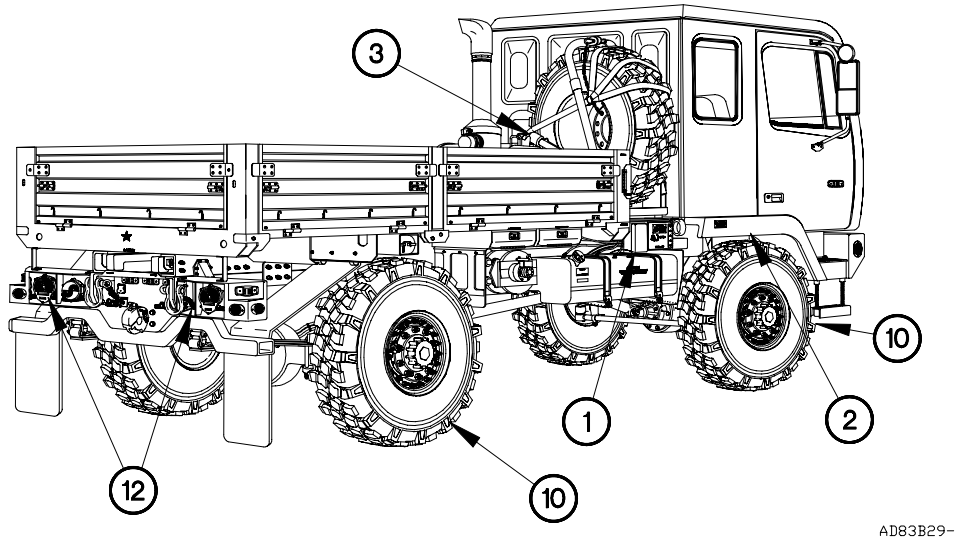
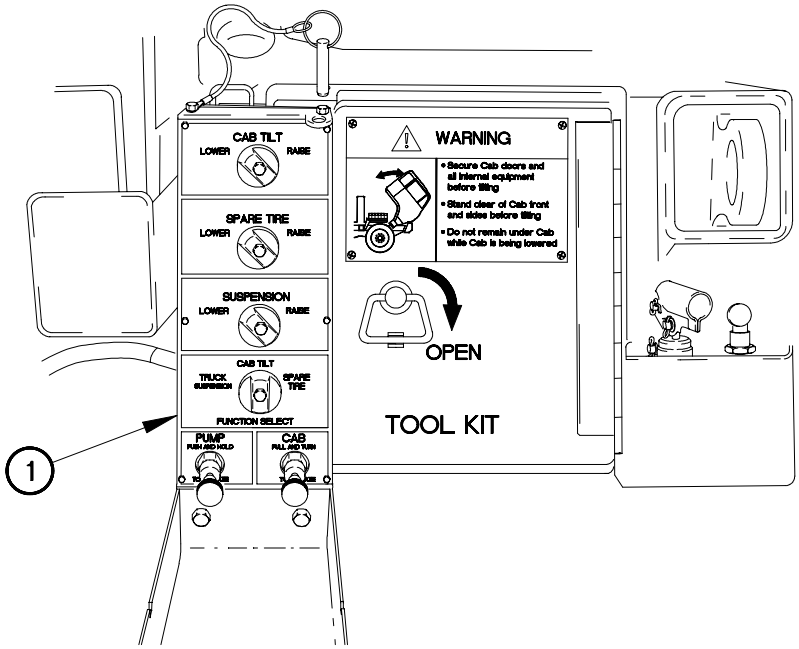


Table 3. Preventive Maintenance Checks and Services (PMCS) - After - All Models.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
1	After		Hydraulic Manifold	Inspect hydraulic manifold (1) for leakage.	Class III leak is evident.
					
2	After		Cab Hydraulic Cylinder	1. Raise cab (WP 0017 00).	

M1078A1 SERIES PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) - Continued

0083 00

Table 3. Preventive Maintenance Checks and Services (PMCS) - After - All Models - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
2	After		Cab Hydraulic Cylinder - Continued	2. Check cab hydraulic cylinder (2) for oil leaks or damage.	Class III leak is evident or cab will not raise or lower.
				3. Check linkage (3) for damage and missing hardware.	Linkage is damaged or missing hardware.
3	After		Cab Hydraulic Latch	Check cab hydraulic latch (4) for damage and hoses for oil leaks.	Class III leak is evident and cab will not latch.

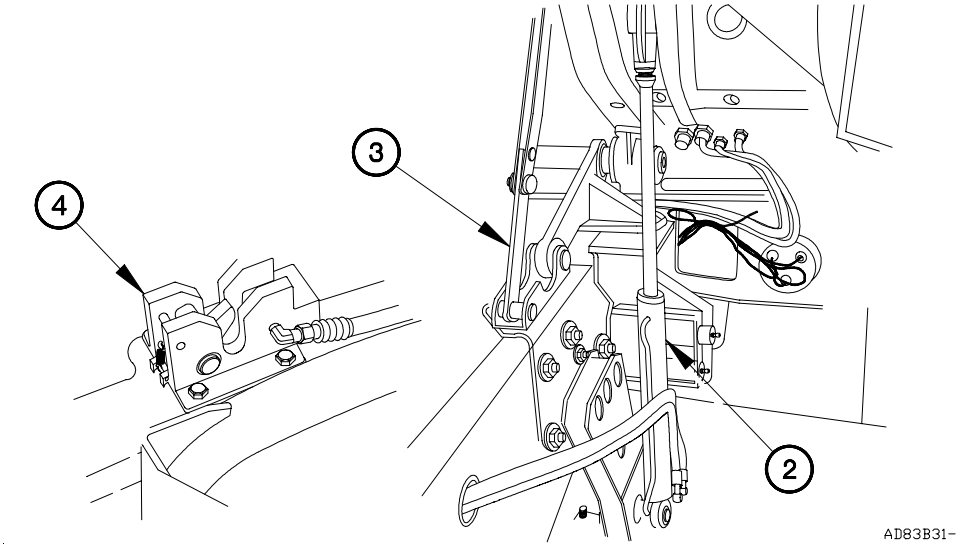


Table 3. Preventive Maintenance Checks and Services (PMCS) - After - All Models - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
4	After		Fuel/Water Separator		

WARNING

Do not perform fuel/water separator checks, inspections, or draining while smoking, or when near fire or sparks. Fuel could ignite. Failure to comply may result in serious injury or death to personnel.

NOTE

Operating the vehicle with damaged fuel/water separator may violate AR 385-557.

				1. Check fuel/water separator (5) for leaks or damage.	Class III leak is evident.

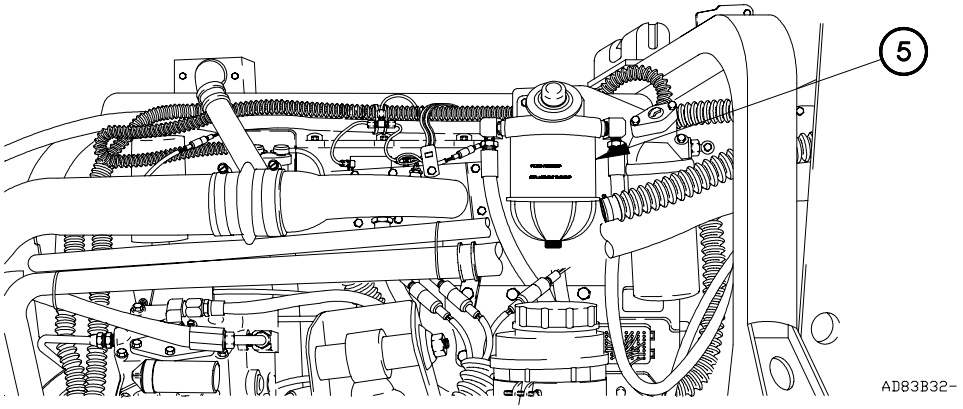


Table 3. Preventive Maintenance Checks and Services (PMCS) - After - All Models - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
4	After		Fuel/Water Separator - Continued	2. Check for presence of water in bowl (6) of fuel/water separator (5). If there is water in bowl, perform the following steps: a. Turn knurled nut (7) to the left to open drain valve.	
				b. Keep draining until pure fuel is coming out. c. Close drain valve by turning knurled nut to the right.	

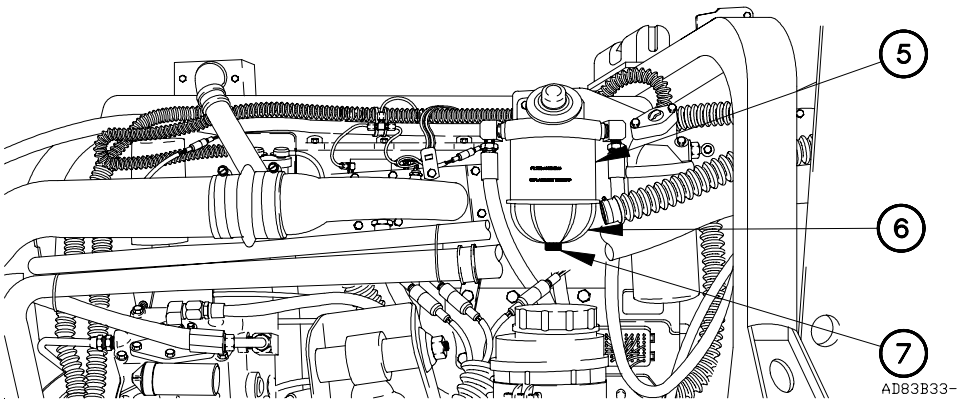


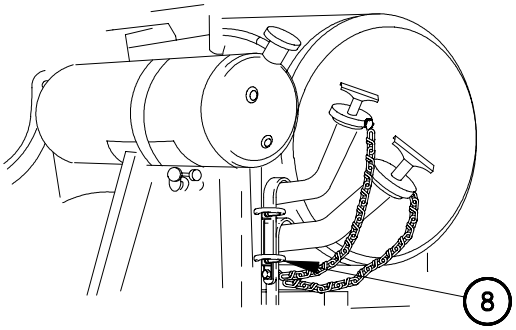
Table 3. Preventive Maintenance Checks and Services (PMCS) - After - All Models - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
5	After		Engine Compart-ment	Visually inspect engine compartment for obvious damage that would impair operation.	Class III leak is evident. Notify Unit Maintenance.
6	After		Engine Oil		

CAUTION

Do not overfill engine with oil. Failure to comply may result in damage to equipment.

	0.1		1. Check engine oil dipstick (8) for oil level. Level should be between ADD line and OPERATING RANGE line.	If engine oil is over OPERATING RANGE line, discolored, or milky, notify Unit Maintenance.





AD83B34-

Table 3. Preventive Maintenance Checks and Services (PMCS) - After - All Models - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
6	After		Engine Oil - Continued	2. Add oil as required.	

DESCRIPTION	CAPACITY	TYPE OF FLUID USED AT THESE EXPECTED TEMPERATURES	
		122° to 5° F (50° to -15° C)	50° to -50° F (10° to -46° C)
Engine Crank Case	25 qt (24 L)	15W40	0W20

7	After		Transmis-sion Oil	3. Lower cab (WP 0017 00). 1. Start engine (WP 0016 00).	

Table 3. Preventive Maintenance Checks and Services (PMCS) - After - All Models - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
7	After		Transmis-sion Oil - Continued		

NOTE

Perform transmission oil check when engine is at normal operating temperature (160° - 230° F [71° - 110° C]).

Perform transmission oil check with vehicle parked on level surface.

				2. Check TRANSMISSION OIL DIPSTICK (9) for transmission oil level. Level should be between HOT ADD line and HOT FULL line.

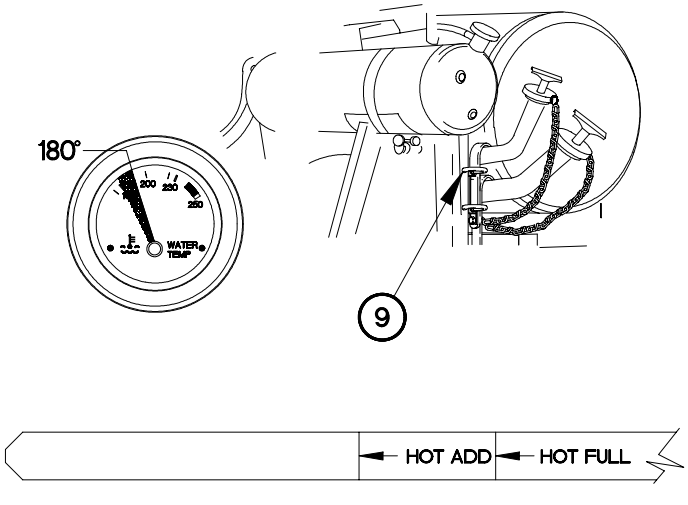


Table 3. Preventive Maintenance Checks and Services (PMCS) - After - All Models - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
7	After	0.1	Transmis-sion Oil - Continued	3. Add oil, 1 quart at a time, until transmission oil level is between HOT FULL and HOT ADD lines.	

DESCRIPTION	CAPACITY	TYPE OF FLUID USED AT THESE EXPECTED TEMPERATURES		
		Above 40°F (Above 4°C)	40° to -15°F (4° to -26°C)	-15° to -50°F (-26° to -46°C)
Transmission (total system)	43.3 qt (41 L)	OE/HDO-15/40	OE/HDO-10	OEA
Transmission (at oil change)	31.8 qt (30.0 L)	OE/HDO-15/40	OE/HDO-10	OEA

				4. Shut down engine (WP 0016 00).	

Table 3. Preventive Maintenance Checks and Services (PMCS) - After - All Models - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
8	After	0.1	Hydraulic Reservoir (if equipped)		

NOTE

Hydraulic reservoir is considered full when oil level gage reads above 3/4 mark.

				1. Check oil level gage (10) to determine oil level. 2. Remove hydraulic reservoir cap (11) to visually inspect oil level. Fluid level should be visible in fill port. Add oil as required. 3. Install hydraulic reservoir cap (11).	

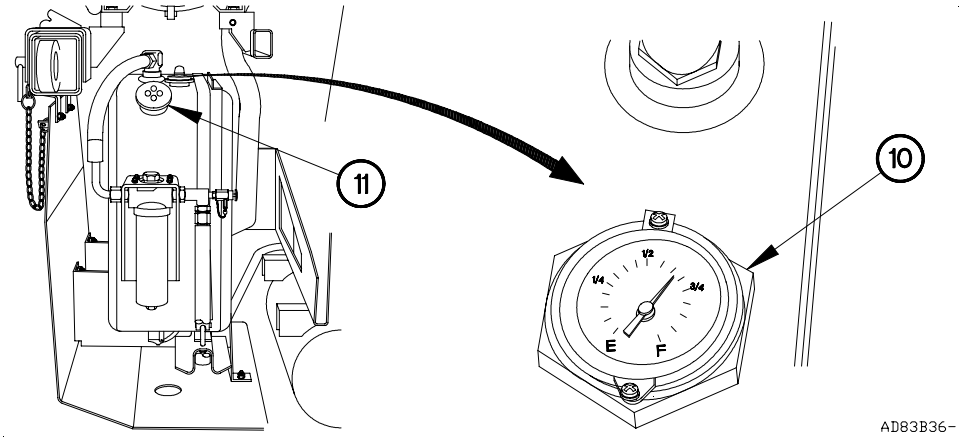
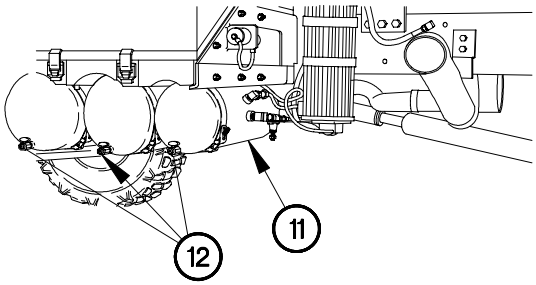


Table 3. Preventive Maintenance Checks and Services (PMCS) - After - All Models - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
8	After	0.1	Hydraulic Reservoir (If Equip-ped) - Continued		

DESCRIPTION	CAPACITY	TYPE OF FLUID USED AT THESE EXPECTED TEMPERATURES		
		Above 40°F (Above 4°C)	40° to -15°F (4° to -26°C)	-15° to -50°F (-26° to -46°C)
Hydraulic Reservoir	27 gal (102.2 L)	OE/HDO-10	OE/HDO-10	OEA

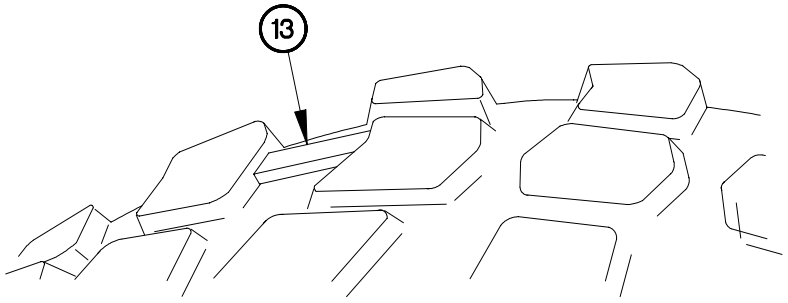
9	After		Air Tanks	1. With vehicle parked and engine shut down, listen for sound of air leaks around air tanks (11). 2. Open air tank drain valves (12) and drain moisture.	Air leak(s) heard around air tanks.



AD83B37-

Table 3. Preventive Maintenance Checks and Services (PMCS) - After - All Models - Continued.

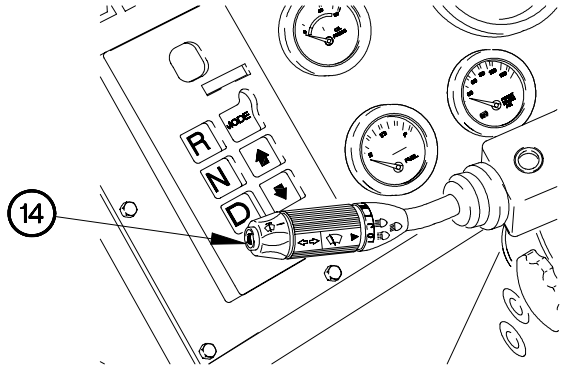
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
10	After		Tires	Check for missing or improperly inflated tires. Check tires for cuts, gouges, cracks, and unusual bulges. Remove any object that could penetrate tire(s).	Tire missing, deflated, or worn to wear bar (13).



AD83B38-

Table 3. Preventive Maintenance Checks and Services (PMCS) - After - All Models - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
11	After		Horn Button	Check horn button (14) for proper operation.	



AD83B39-

12	After		Lights		

NOTE

Operating vehicle with damaged or inoperable headlights may violate AR 385-557.

Checking lights is a safety task that would not be performed in a tactical mission. See AR 385-557.

				Check headlights, turn signals, taillights, stoplights, marker lights, blackout drive, and blackout marker lights for damage and proper operation (WP 0004 00).	

Table 3. Preventive Maintenance Checks and Services (PMCS) - After - All Models - Continued.

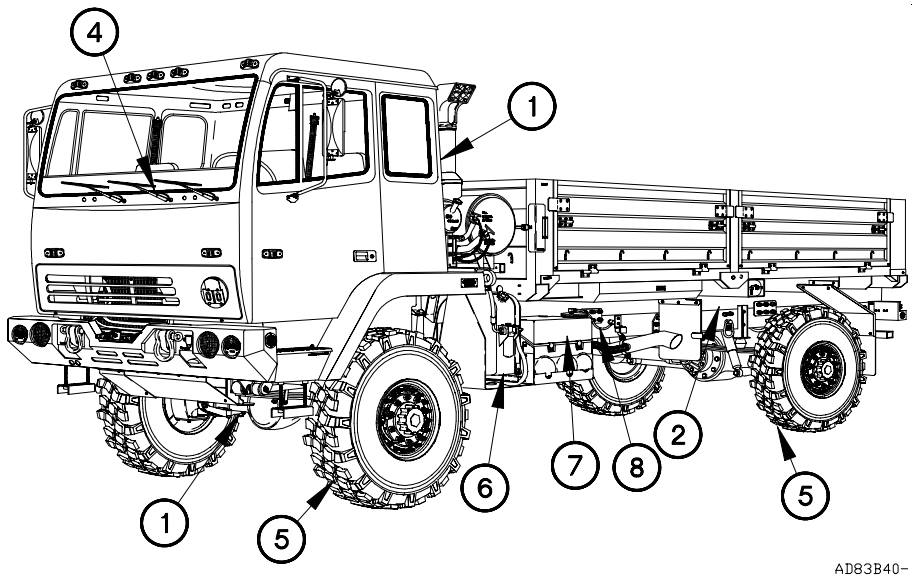
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
13	After		Light Switches		
				CAUTION Ensure all switches are placed in the OFF position. Batteries could discharge. Failure to comply may result in damage to equipment.	
				Position all light switches to off (WP 0004 00).	

M1078A1 SERIES PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) - Continued

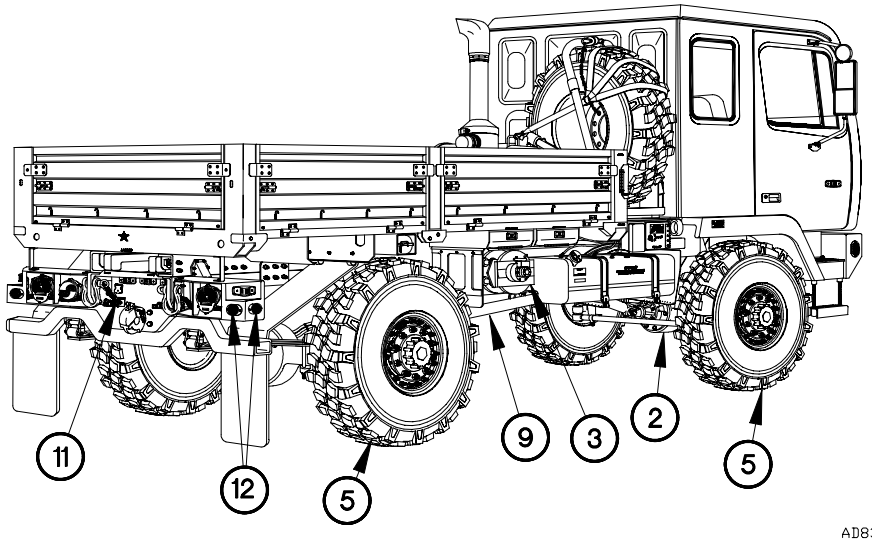
0083 00

Weekly PMCS Procedures for All Models

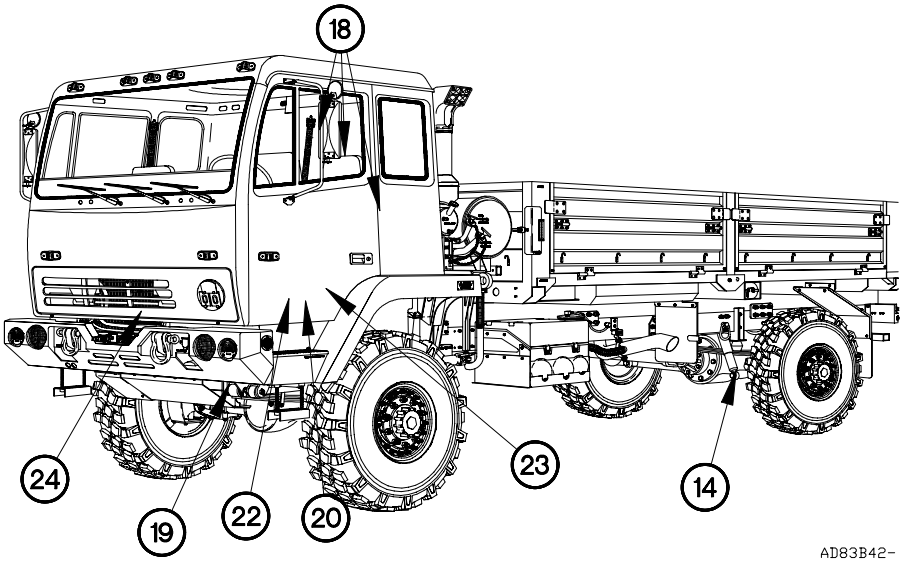
These illustrations will help you perform WEEKLY vehicle PMCS. The callouts match PMCS item number/procedures.



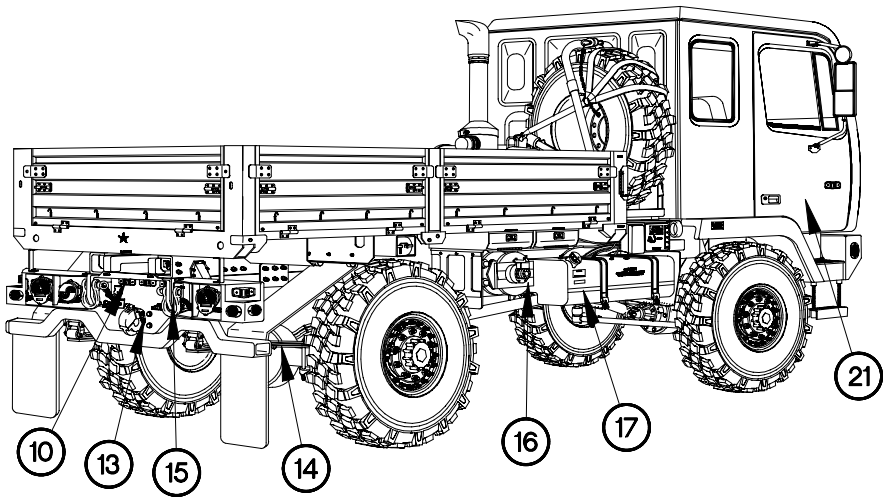
AD83B40-



AD83B41-



AD83B42-



AD83B43-

Table 4. Preventive Maintenance Checks and Services (PMCS) - Weekly - All Models.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
1	Weekly		Heater/ Defrost Controls	Check FAN switch (1), HEAT control (2), VENT control (3), and DEFR (defrost) control (4) for proper operation (WP 0006 00).	

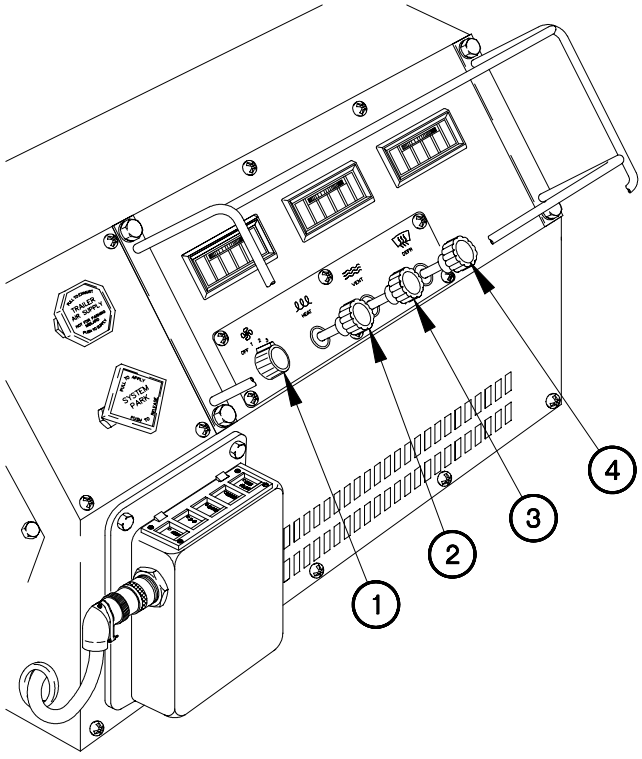


Table 4. Preventive Maintenance Checks and Services (PMCS) - Weekly - All Models - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
2	Weekly		Mounting/ Coupling Hardware and Hoses/ Tubes	Check bolts, nuts, clamps, hoses, and tubes for looseness and missing, broken, or leaking conditions. Tighten loose bolts, nuts, and clamps. If bolts, nuts, clamps, hoses, or tubes are missing, broken, cannot be tightened, or are damaged to the point of leaking, notify Unit Maintenance. The following items should be checked: 1. Coolant, including radiator overflow tank (5) and radiator (6).	Class III leak is evident.

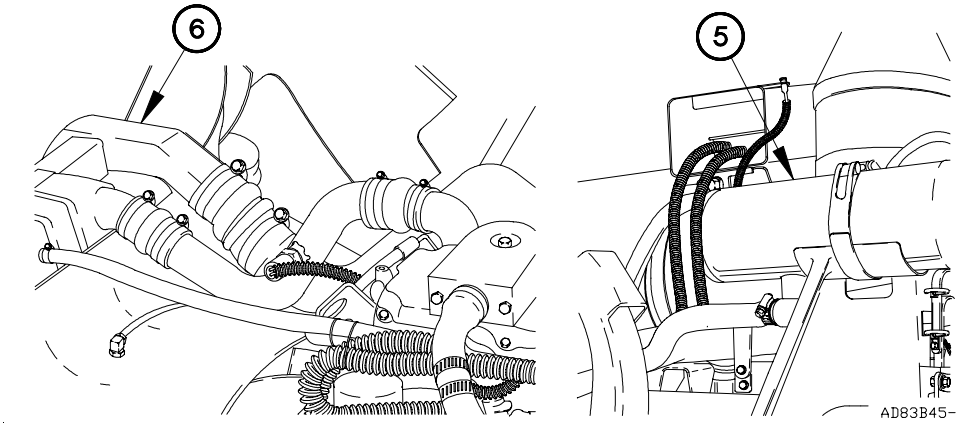


Table 4. Preventive Maintenance Checks and Services (PMCS) - Weekly - All Models - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
2	Weekly		Mounting/ Coupling Hardware and Hoses/ Tubes - Continued	2. Transmission cooling system (7).	

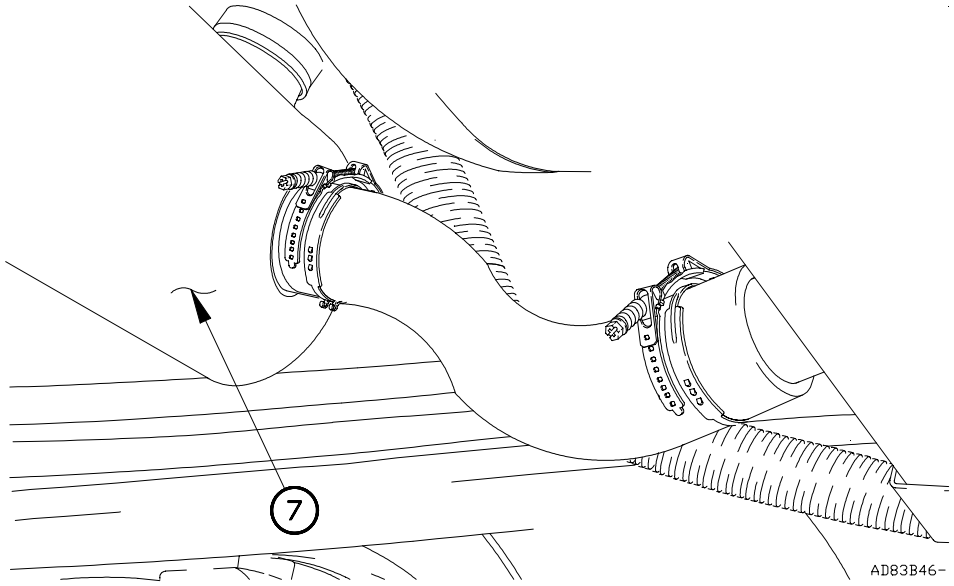
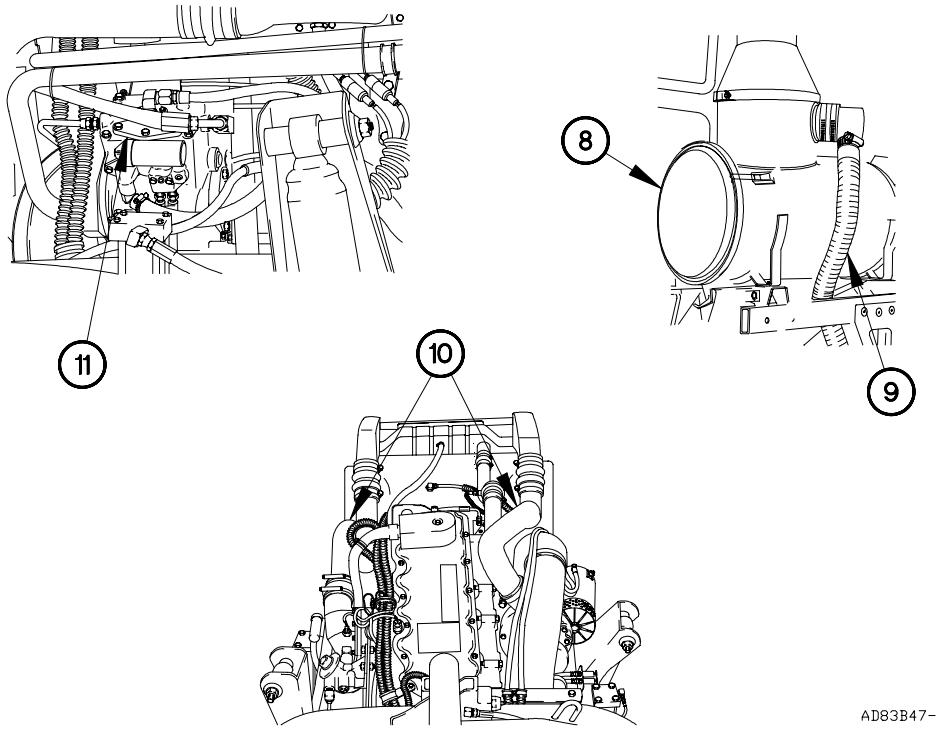


Table 4. Preventive Maintenance Checks and Services (PMCS) - Weekly - All Models - Continued.

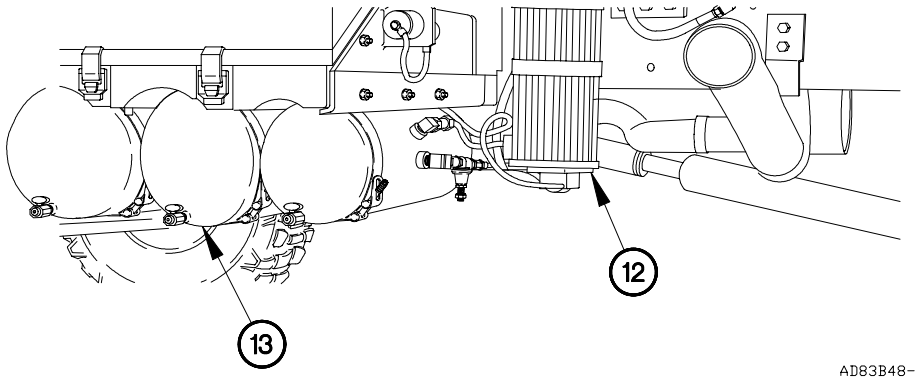
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
2	Weekly		Mounting/ Coupling Hardware and Hoses/ Tubes - Continued	3. Air intake system, including air cleaner (8), particle extraction hose (9), charge air cooler tubes/hoses (10), and air compressor (11).	



M1078A1 SERIES PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) - Continued

Table 4. Preventive Maintenance Checks and Services (PMCS) - Weekly - All Models - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
2	Weekly		Mounting/ Coupling Hardware and Hoses/ Tubes - Continued	4. Air system, including air dryer (12) and air tanks (13).	



				5. Fuel system including fuel return hose (14) and fuel/water separator drain hose (15).	

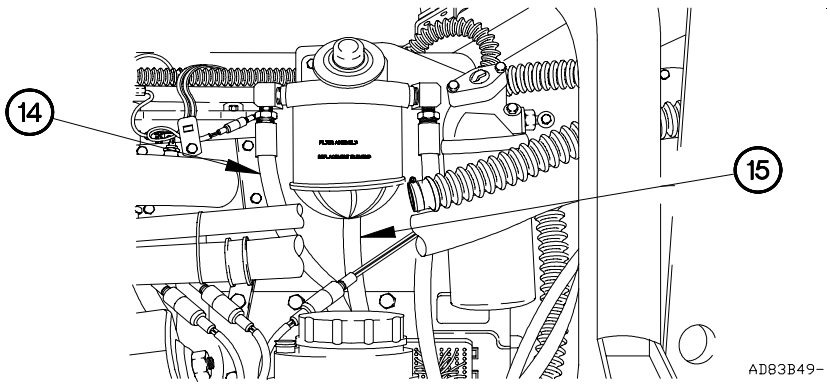


Table 4. Preventive Maintenance Checks and Services (PMCS) - Weekly - All Models - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
3	Weekly		Mounting/ Coupling Hardware and Hoses/ Tubes	Check nuts, bolts, clamps, hoses, and tubes for looseness and missing, broken, or leaking conditions. If damage is found, notify Unit Maintenance. The following should be checked: 1. Suspension, including springs, U-bolts (16).	

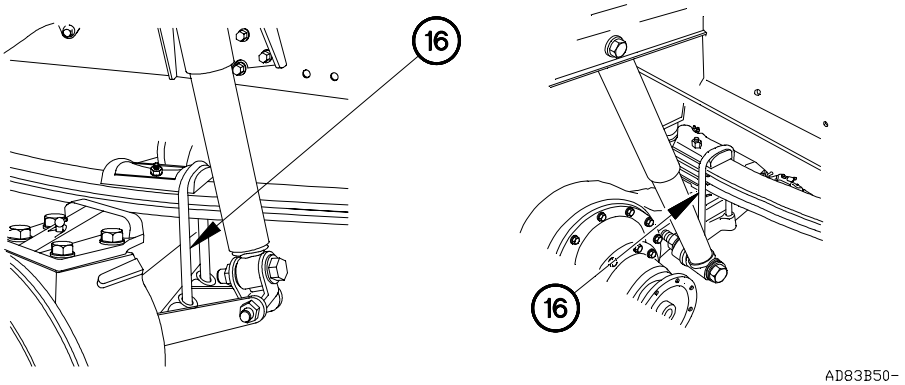
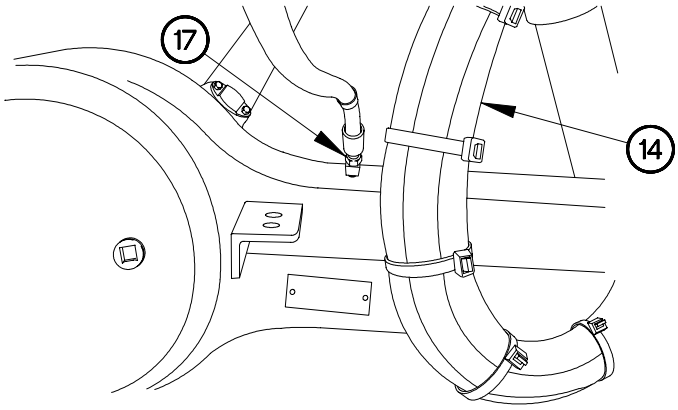


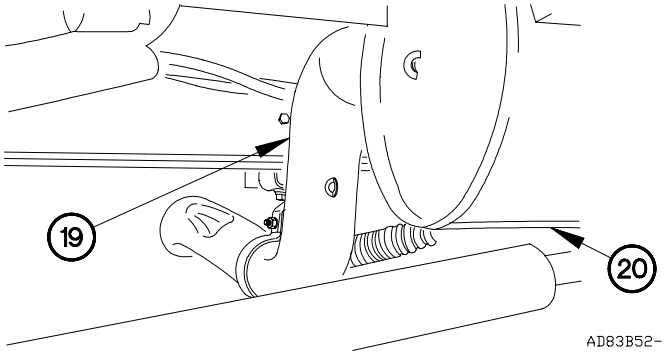
Table 4. Preventive Maintenance Checks and Services (PMCS) - Weekly - All Models - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
3	Weekly		Mounting/ Coupling Hardware and Hoses/ Tubes - Continued	2. Axles, including vent hoses (17), CTIS hoses (18), and clamps.	



AD83B51-

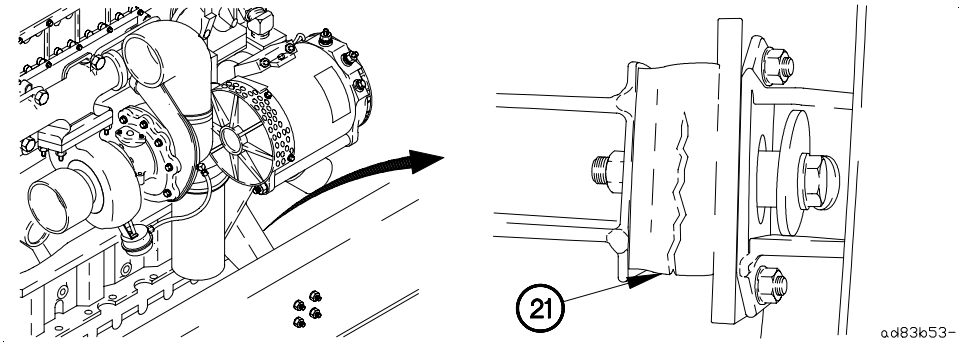
				3. Exhaust system, including muffler (19) and tailpipe (20).	



AD83B52-

Table 4. Preventive Maintenance Checks and Services (PMCS) - Weekly - All Models - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
3	Weekly		Mounting/ Coupling Hardware and Hoses/ Tubes - Continued	4. Check engine mounts (21) for loose or missing mounting bolts. Check center bolt is not rubbing bracket. Cracks greater than 50% or more on any side of rubber mount.	4. Engine mounts are loose or damaged. Missing bolts, cracks greater than 50% or more on any side of rubber mount.
				5. Engine/ Transmission supports (22).	



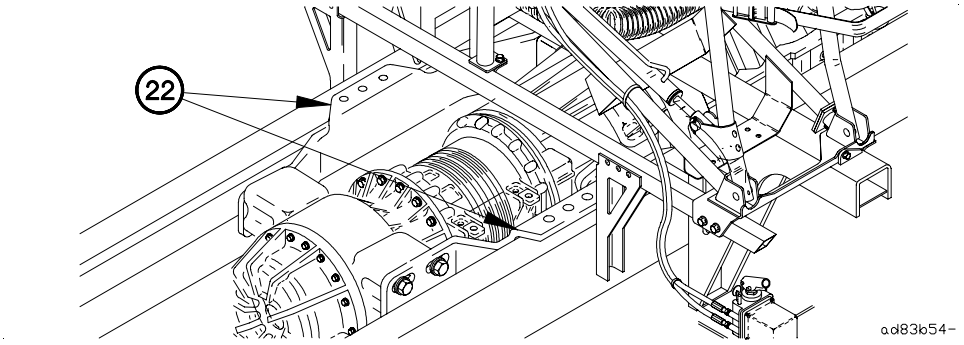


Table 4. Preventive Maintenance Checks and Services (PMCS) - Weekly - All Models - Continued.

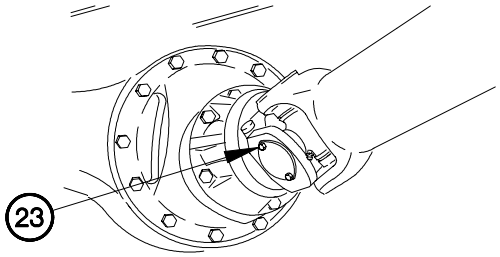
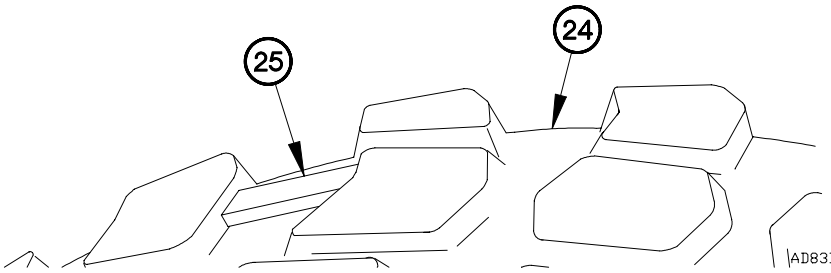
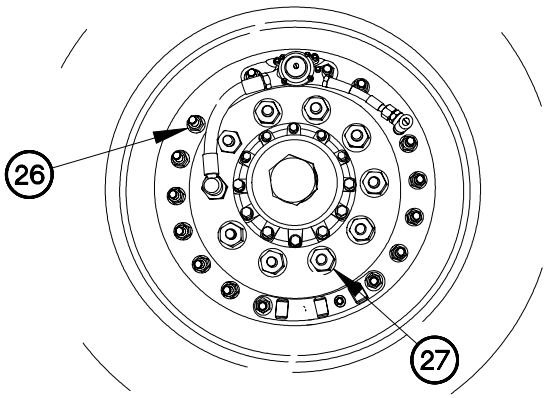
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
3	Weekly		Mounting/ Coupling Hardware and Hoses/ Tubes - Continued	6. Drive shaft U-joint bolts (23).	
				 AD83B55-	
4	Weekly		Wheels and Tires	1. Check tire tread depth (24). Tread depth should not be worn beyond level of wear bar (25).	Tire tread is worn even to height of tread bar (depth is 1/8 in. (0.8 mm) or less). Any cut, gouge, or crack that extends to cord body or any unusual bulges.
				 AD83B56-	

Table 4. Preventive Maintenance Checks and Services (PMCS) - Weekly - All Models - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
4	Weekly		Wheels and Tires - Continued	2. Check wheel assembly for damage. If damaged, remove wheel and check wheel for cracked, broken, or bent surfaces	Wheel is cracked, broken, or bent.
				3. Check wheel studs (26) and nuts (27) for obvious looseness. Check for bent or broken studs and missing or loose nuts. Notify Unit Maintenance if any nuts are loose or missing or if any studs are broken or bent.	Two or more nuts or studs on same wheel are missing, loose, or broken.



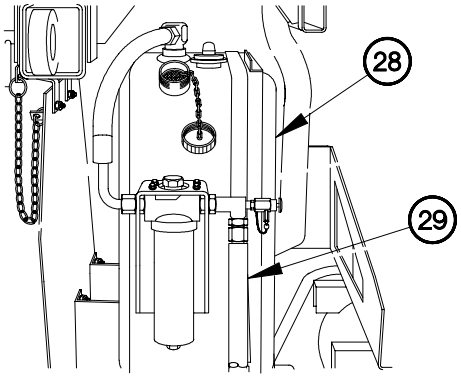
AD83B57-

Table 4. Preventive Maintenance Checks and Services (PMCS) - Weekly - All Models - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
4	Weekly		Wheels and Tires - Continued	4. Check tire pressures with tire gage for each CTIS setting. Notify Unit Maintenance if tire pressures do not match those values given:	

DESCRIPTION	TIRE PRESSURES FOR CTIS MODES			
	HWY	X-C	SAND	EMER
All Models	55 psi (379 kPa)	33 psi (228 kPa)	20 psi (138 kPa)	14 psi (97 kPa)

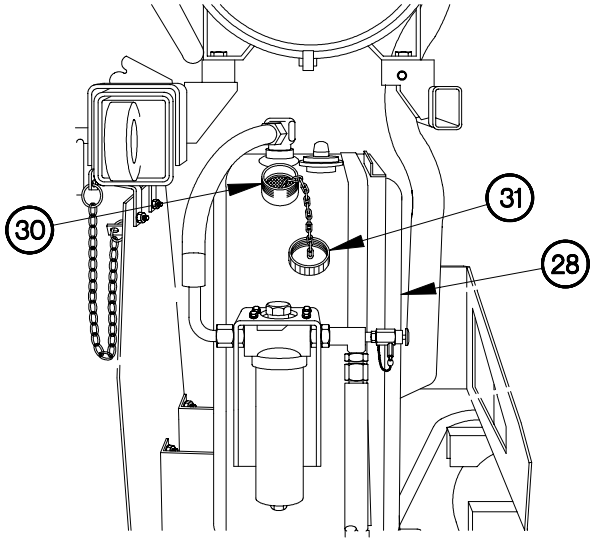
5	Weekly		Hydraulic Reservoir (If Equipped)	1. Check hydraulic reservoir (28), oil hose (29), and connections for leaks and/or damage.	Class III leak is evident.



AD83B58-

Table 4. Preventive Maintenance Checks and Services (PMCS) - Weekly - All Models - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
6	Weekly		Hydraulic Reservoir (If Equipped) - Continued	2. Check for clogged, damaged, or missing hydraulic reservoir strainer (30). a. Remove cap (31) from hydraulic reservoir (28). b. Wipe out inside of hydraulic reservoir strainer (30) with clean rag. c. Install cap (31) on hydraulic reservoir (28).	



AD83B59-

Table 4. Preventive Maintenance Checks and Services (PMCS) - Weekly - All Models - Continued.

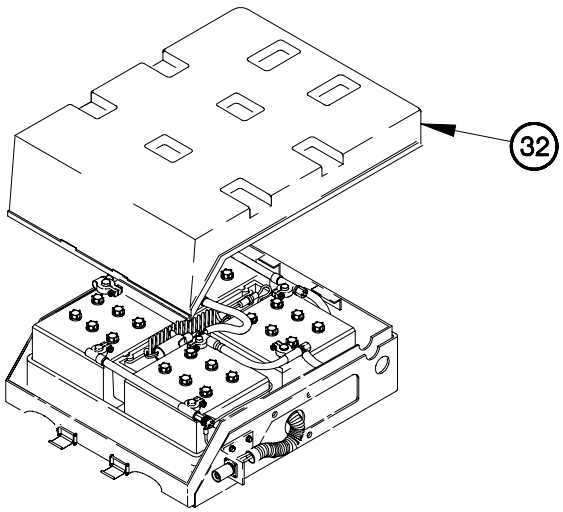
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
6	Weekly		Batteries		

WARNING

Lead-acid battery gases can explode. Do not smoke, have open flames, or make sparks around a battery, especially if caps are off. Battery may give off gas which can explode. Failure to comply may result in serious injury or death to personnel.

Remove rings, bracelets, wristwatches, neck chains, and any other jewelry before working around vehicle. Jewelry may catch on equipment or may short across an electrical circuit or battery terminal. Failure to comply may result in serious injury or death to personnel.

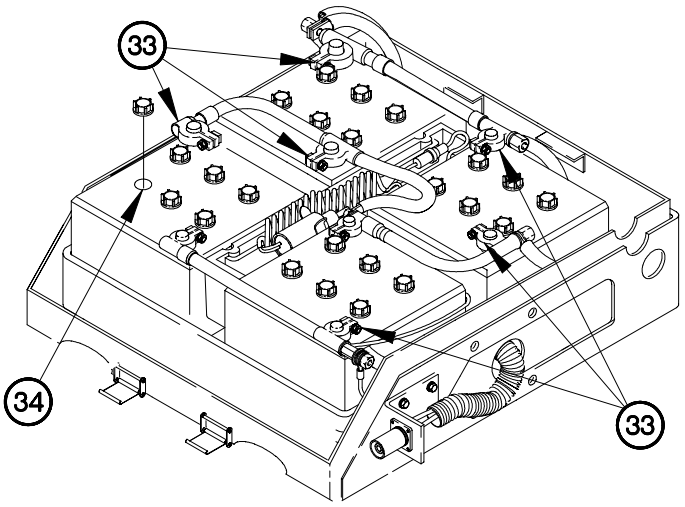
			1. Open battery cover (32) (WP 0088 00).	



AD83B60-

Table 4. Preventive Maintenance Checks and Services (PMCS) - Weekly - All Models - Continued.

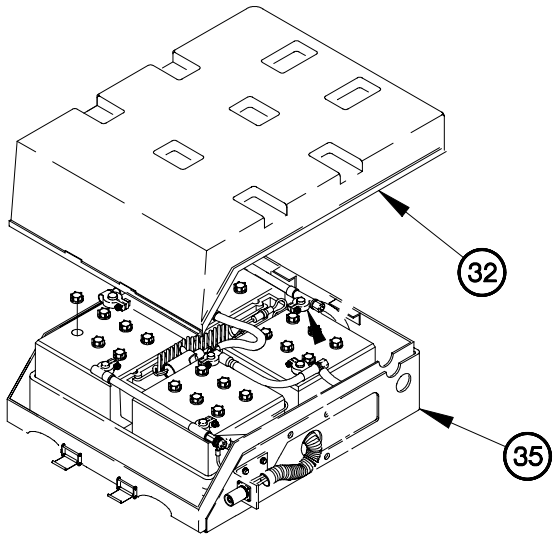
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
6	Weekly		Batteries - Continued	2. Check for damaged casing, terminal posts (33), and security of mounting. Check that cable clamps are secure. Notify Unit Maintenance if defects are found. 3. Check battery fluid level (34) (WP 0088 00). If fluid level is low, fill with distilled water. If fluid is gassing (to boiling), notify Unit Maintenance.	One or more batteries are missing, unserviceable, or leaking. Battery cable clamps are loose.



AD83B61-

Table 4. Preventive Maintenance Checks and Services (PMCS) - Weekly - All Models - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
7	Weekly		Batteries - Continued	4. Check battery box (35) for corrosion. Clean debris from battery box drain holes. 5. Close battery cover (32) (WP 0088 00).	



AD83B62-

Table 4. Preventive Maintenance Checks and Services (PMCS) - Weekly - All Models - Continued.

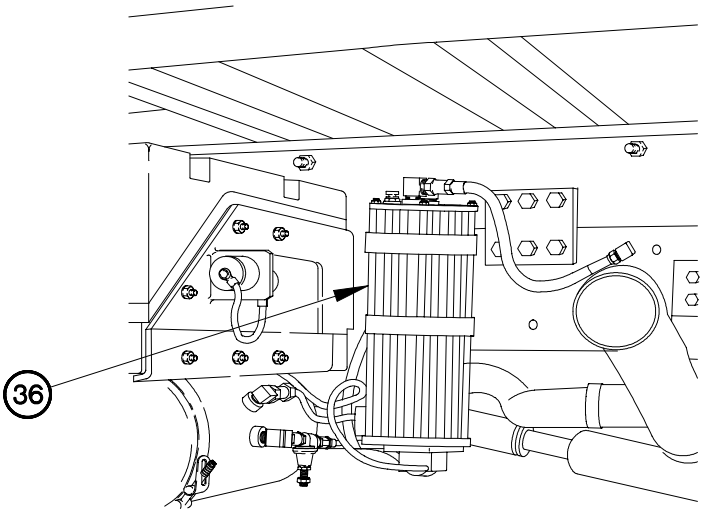
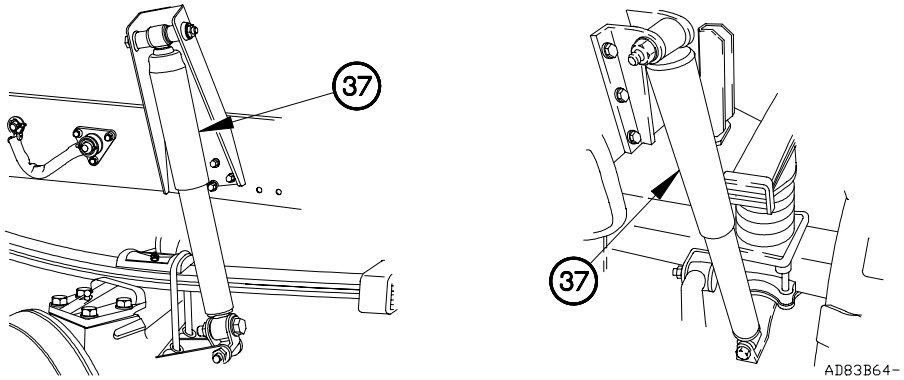
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
7	Weekly		Air Dryer	Check air dryer (36) for damage and loose mounting.	
				 AD83B63-	
8	Weekly		Underneath Vehicle	1. Check underneath vehicle for obvious damage to leaf springs, engine, transmission, frame rails, and crossmembers.	Any loose or broken frame rails, crossmembers, broken welds, or broken screws are found.
				2. Check air hoses and fittings underneath vehicle for obvious damage and leakage.	Any air leaks or damage to hoses or fittings are found.

Table 4. Preventive Maintenance Checks and Services (PMCS) - Weekly - All Models - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
8	Weekly		Underneath Vehicle - Continued	3. Check shock absorbers (37) for leaks, missing or loose hardware and loose shock absorber.	Shock absorber(s) have more than class I leak, missing or loose hardware, or loose shock absorbers are found.
				4. Check drive shafts (38) for loose hardware.	Any loose hardware is found.



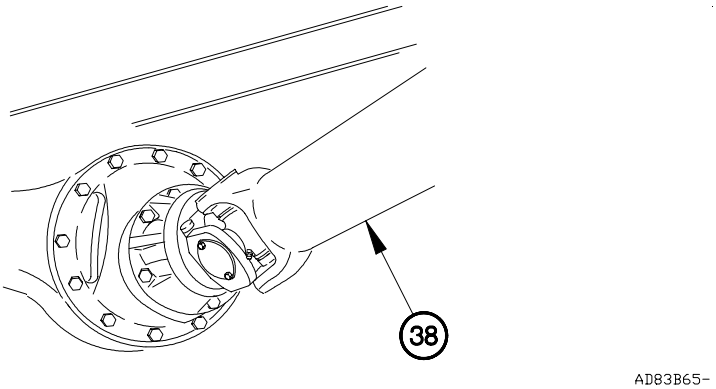


Table 4. Preventive Maintenance Checks and Services (PMCS) - Weekly - All Models - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
9	Weekly		Electrical Connectors	Check electrical connectors for damage.	
10	Weekly	0.1	Gladhands	1. Check gladhands (39) for damage and air leaks 2. Lubricate coupler seals	Air leaks are heard.

DESCRIPTION	CAPACITY	TYPE OF FLUID USED AT THESE EXPECTED TEMPERATURES		
		Above 40°F (Above 4°C)	40° to -15°F (4° to -26°C)	-15° to -50°F (-26° to -46°C)
Gladhand Coupler Seals	As Needed	VV-D-1078	VV-D-1078	VV-D-1078

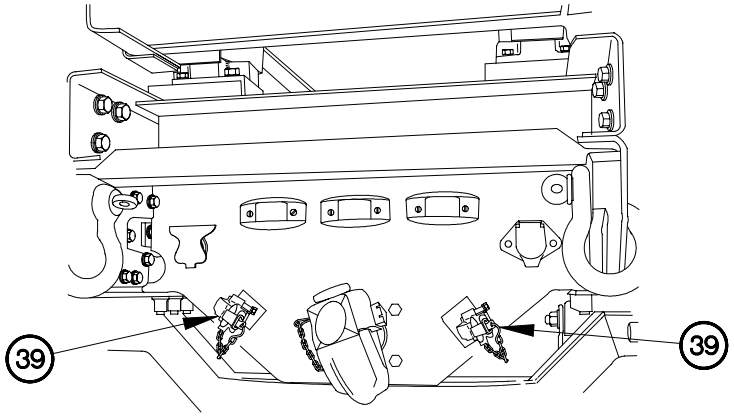


Table 4. Preventive Maintenance Checks and Services (PMCS) - Weekly - All Models - Continued.

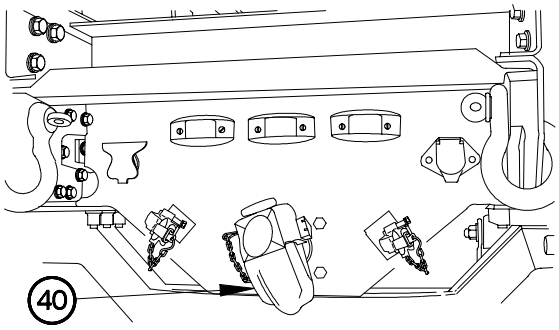
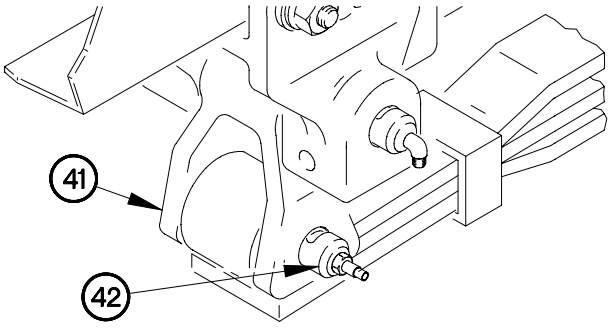
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
11	Weekly		Reflectors	Check for missing or damaged reflectors.	
12	Weekly		Pintle Towing Hook	Check pintle towing hook (40) for looseness and/or damaged locking mechanism.	
			 AD83B67-		
14	Weekly		Shackles	Check shackles (41) for damage. Check mounting pin (42) for damage.	
			 AD83B68-		

Table 4. Preventive Maintenance Checks and Services (PMCS) - Weekly - All Models - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
15	Weekly		11K SRW Rollers (If Equipped)	Check that cable guides (43) and roller fairleads (44) are mounted securely and rotate smoothly.	
16	Weekly		11K SRW (If Equipped)	Inspect 11K SRW (45) for loose parts, oil leaks, and obvious external damage.	

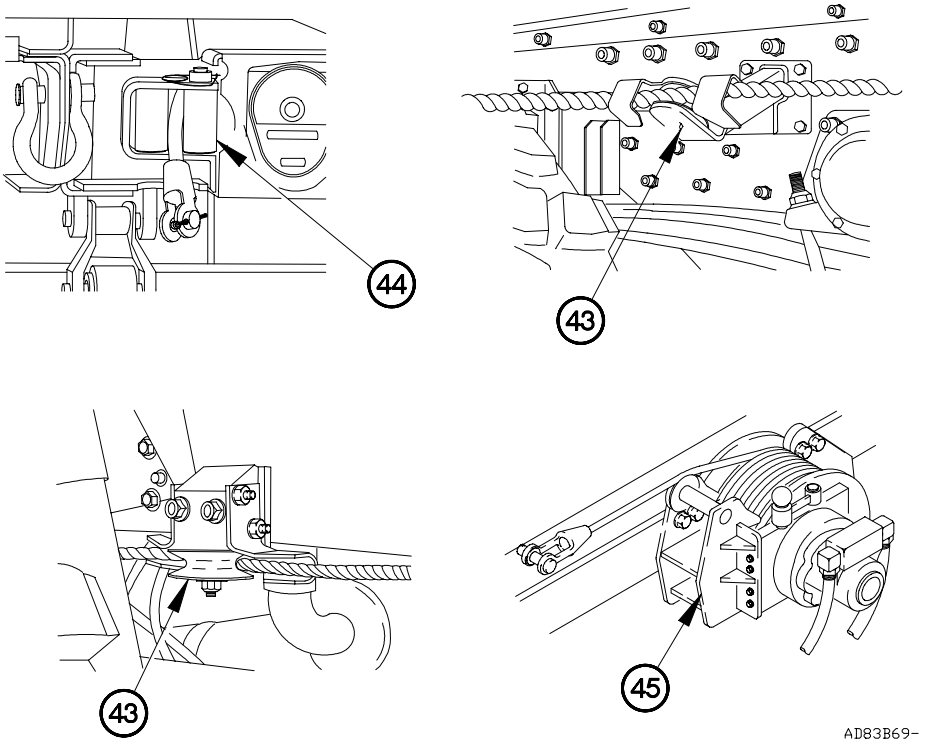


Table 4. Preventive Maintenance Checks and Services (PMCS) - Weekly - All Models - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
16	Weekly		11K SRW Operation (If Equipped)	1. Check 11K SRW (46) for proper operation in both directions (WP 0053 00). 2. Check cable (47) for kinks, frays, and breaks. 3. Check cable end for missing or damaged pin (48) or cotter pin (49).	

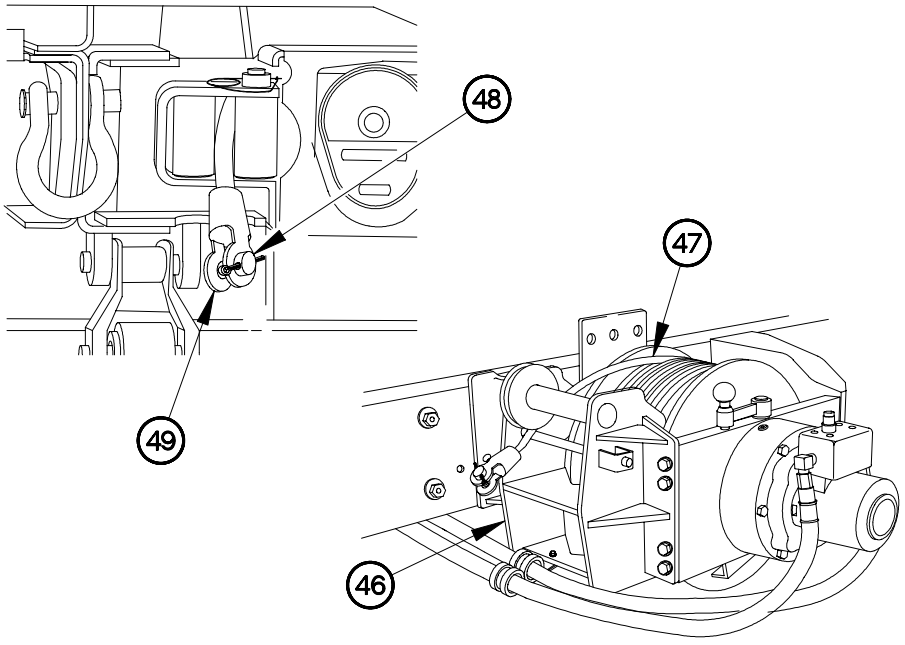


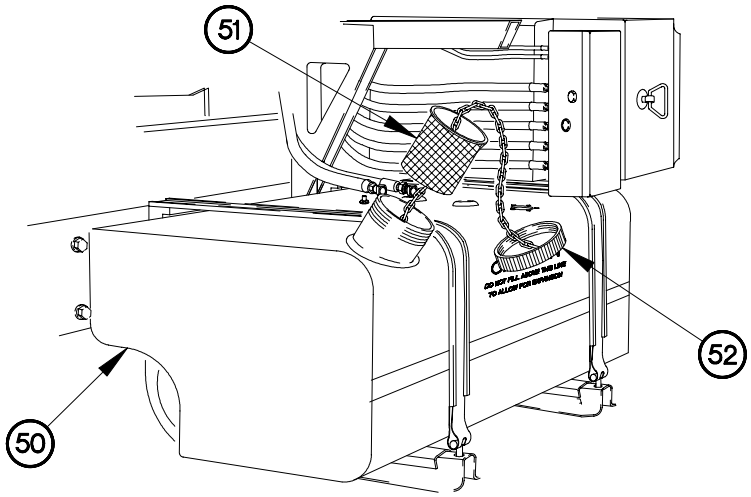
Table 4. Preventive Maintenance Checks and Services (PMCS) - Weekly - All Models - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
17	Weekly		Fuel Tank		

WARNING

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

				1. Check fuel tank (50) for clogged, damaged, or missing fuel strainer (51). 2. Check that fuel cap (52) is not loose or damaged.	



AD83B71-

Table 4. Preventive Maintenance Checks and Services (PMCS) - Weekly - All Models - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
17	Weekly		Fuel Tank - Continued	3. Check fuel tank (50), fuel hoses (53), and connections (54) for leaks and damage.	Class III leak is evident.

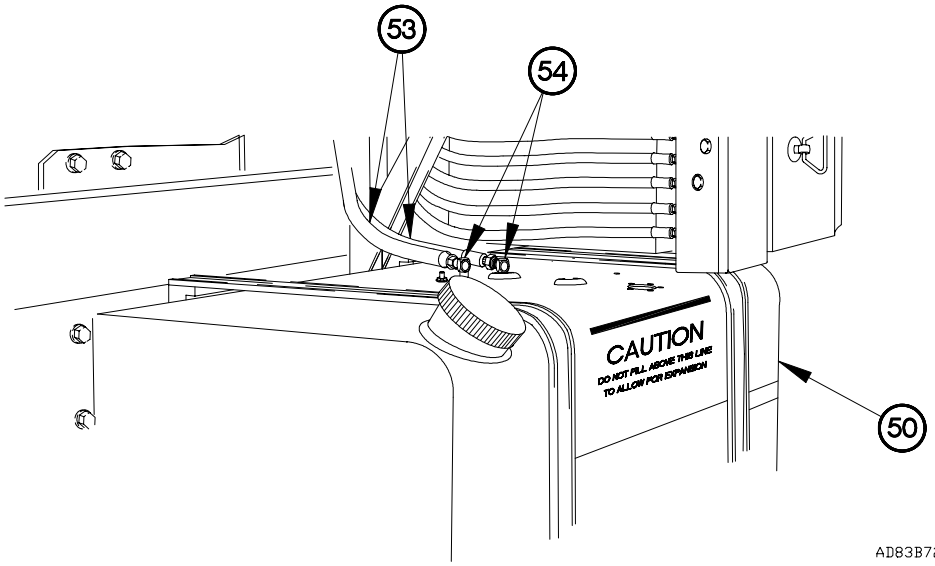
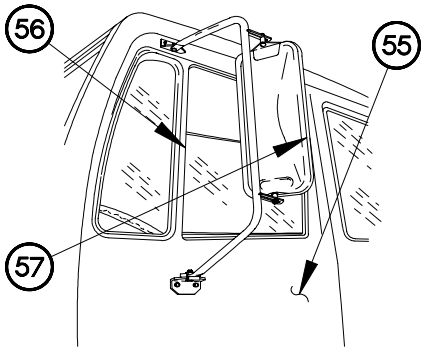


Table 4. Preventive Maintenance Checks and Services (PMCS) - Weekly - All Models - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
18	Weekly		Door, Window, and Mirror	Check condition and operation of doors (55), windows (56), and mirrors (57).	



AD83B73-

19	Weekly		Drive Belts, Fan, and Pulleys		

WARNING

Ensure engine oil is cool before performing any maintenance. Failure to comply may result in injury to personnel.

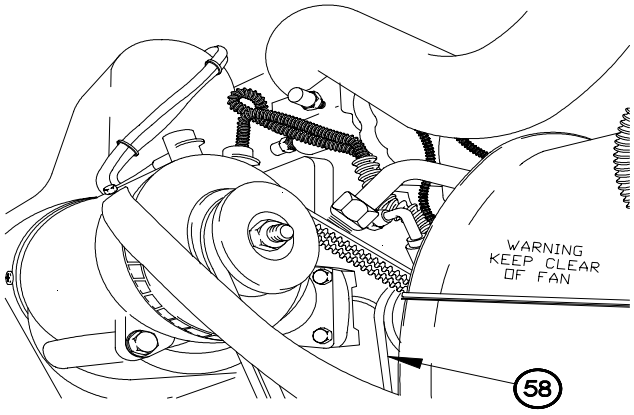
Engine compartment and accessories may be extremely hot when engine is running or has been running recently. Use caution around engine when cab is raised. Failure to comply may result in injury to personnel.

Engine compartment contains a partially exposed fan blade. Use extreme caution around front of engine. Failure to comply may result in injury to personnel.

				1. Raise cab (WP 0017 00).	

Table 4. Preventive Maintenance Checks and Services (PMCS) - Weekly - All Models - Continued.

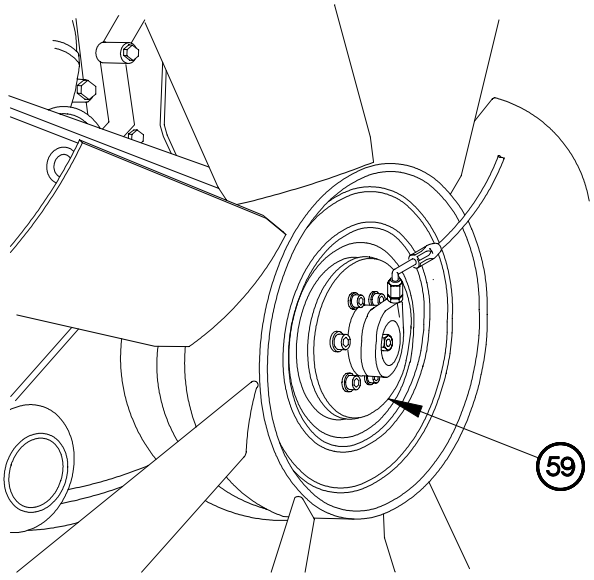
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
19	Weekly		Drive Belts, Fan, and Pulleys - Continued	2. Check drive belts (58) for cracking, fraying, and breaks.	Any of the follow conditions are present: Any drive belt has more than one crack 1/8 in. (0.3 cm) in depth or 50 percent of belt thickness. Notify Unit Maintenance. Any drive belt has frays more than 2 in. (5.1 cm) long. Notify Unit Maintenance.



AD83B74-

Table 4. Preventive Maintenance Checks and Services (PMCS) - Weekly - All Models - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
19	Weekly		Drive Belts, Fan, and Pulleys - Continued	3. Check tightness of drive belts. Play should be about 1/2 in. (1.3 cm). Notify Unit Maintenance to tighten drive belts.	Any drive belt has excessive play. Notify Unit Maintenance.
20	Weekly		Fan Clutch	Check fan clutch (59) for missing or loose mounting hardware.	Missing or loose mounting hardware is found. Notify Unit Maintenance.



AD83B75-

Table 4. Preventive Maintenance Checks and Services (PMCS) - Weekly - All Models - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
21	Weekly		Radiator Hoses	1. Check radiator hoses (60) for cracks and excessive wear which may cause leakage. Check radiator hoses for loose hose clamps.	Class III leak is evident. Notify Unit Maintenance.
				2. Check radiator (2) for leaks and damaged fins.	Class III leak is evident. Notify Unit Maintenance.

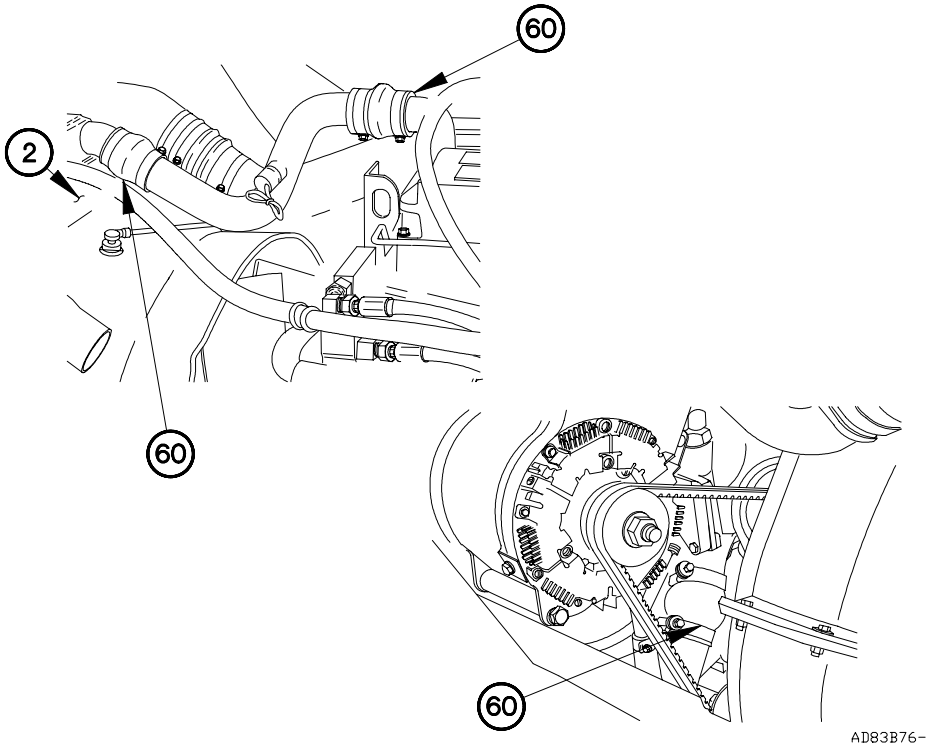


Table 4. Preventive Maintenance Checks and Services (PMCS) - Weekly - All Models - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
22	Weekly		Fuel Filter	Check fuel filter (61) for leaks or damage.	Class III leak is evident. Notify Unit Maintenance.
23	Weekly		Power Steering Reservoir		

CAUTION

Do not overfill power steering reservoir. Failure to comply may result in damage to equipment.

				1. Check power steering reservoir (62) for leaks or obvious damage.	Class III leak is evident. Notify Unit Maintenance.

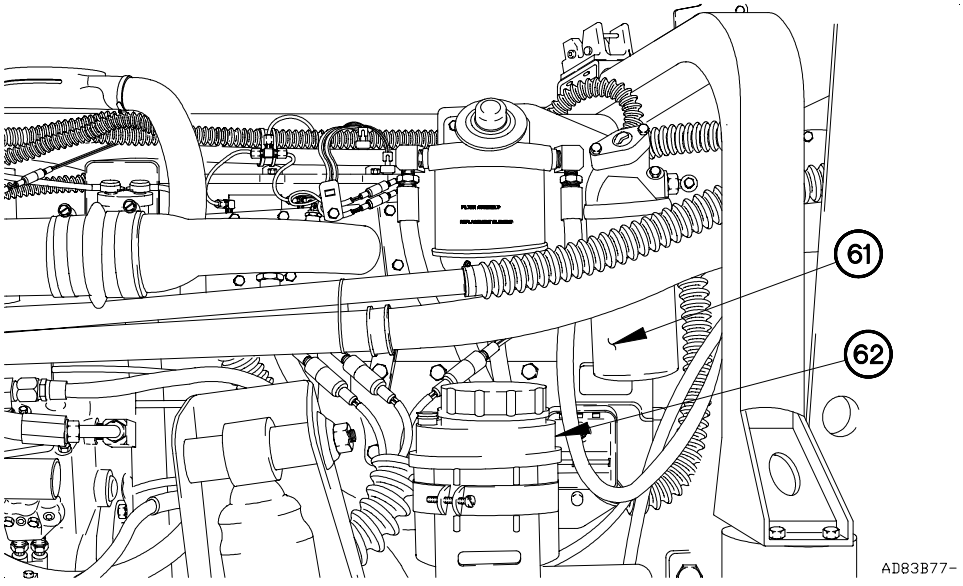
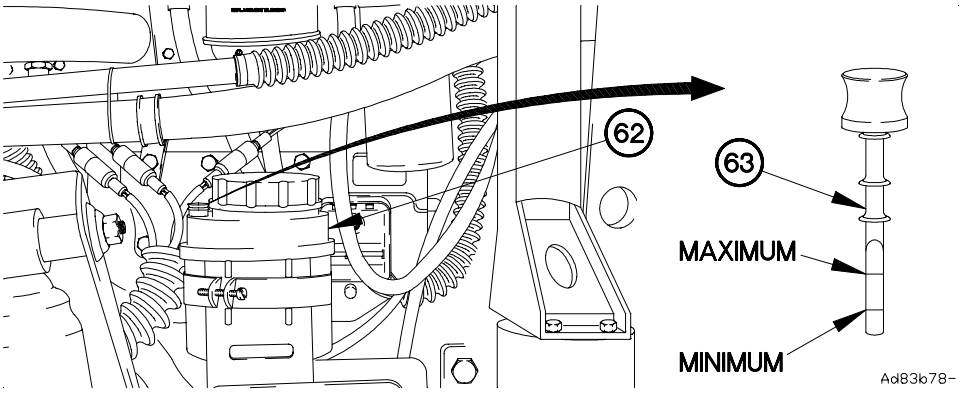


Table 4. Preventive Maintenance Checks and Services (PMCS) - Weekly - All Models - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
23	Weekly		Power Steering Reservoir - Continued	2. Check that power steering reservoir (62) is filled to proper level. Oil should be between maximum and minimum level as marked on dipstick (63). Add oil as required. If oil level is over full mark, notify Unit Maintenance.	



DESCRIPTION	CAPACITY	TYPE OF FLUID USED AT THESE EXPECTED TEMPERATURES		
		Above 40°F (Above 4°C)	40° to -15°F (4° to -26°C)	-15° to -50°F (-26° to -46°C)
Power Steering System	5 qt (4.8 L)	OE/HDO-10	OE/HDO-10	OEA

Table 4. Preventive Maintenance Checks and Services (PMCS) - Weekly - All Models - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
24	Weekly		Charge Air	1. Check for missing or loose clamps at: a. Intake air cleaner (4). b. Turbocharger inlet coupling (64).	Any clamp missing or unable to be tightened. Notify Unit Maintenance.

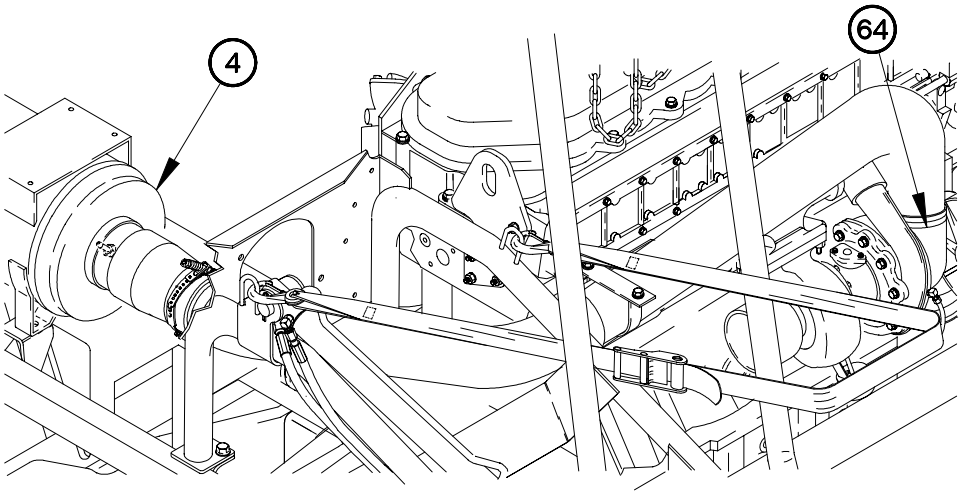
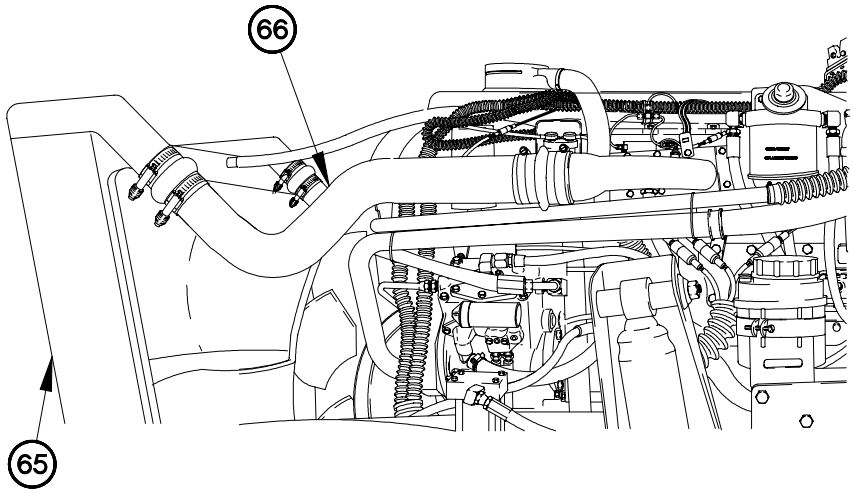


Table 4. Preventive Maintenance Checks and Services (PMCS) - Weekly - All Models - Continued.

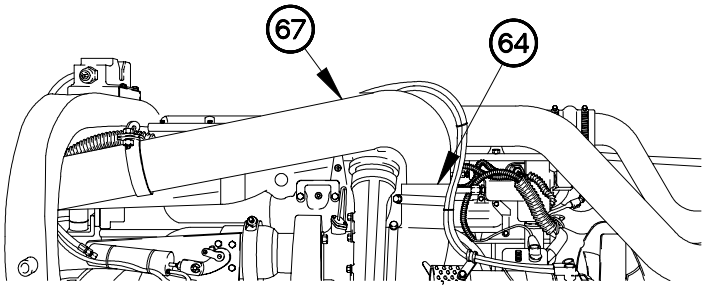
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
24	Weekly		Charge Air - Continued	c. Charge air cooler (65). d. Charge air cooler to air inlet elbow tubes (66).	



AD83B80-

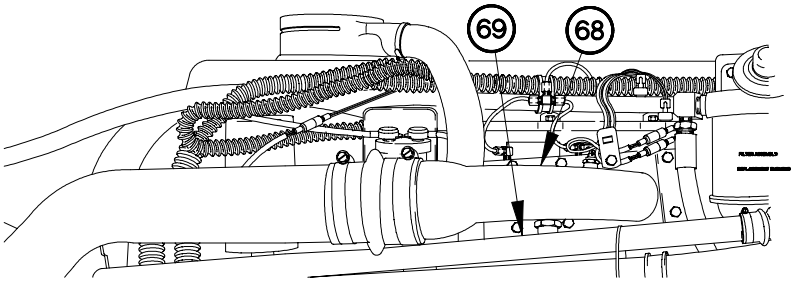
Table 4. Preventive Maintenance Checks and Services (PMCS) - Weekly - All Models - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
24	Weekly		Charge Air - Continued	2. Check intake air hoses at: a. Intake air cleaner to turbocharger inlet (64). b. Turbocharger to charge air cooler inlet (67).	



AD83B81-

				c. Charge air cooler to air inlet elbow (68). d. Air compressor to air inlet elbow (69).	

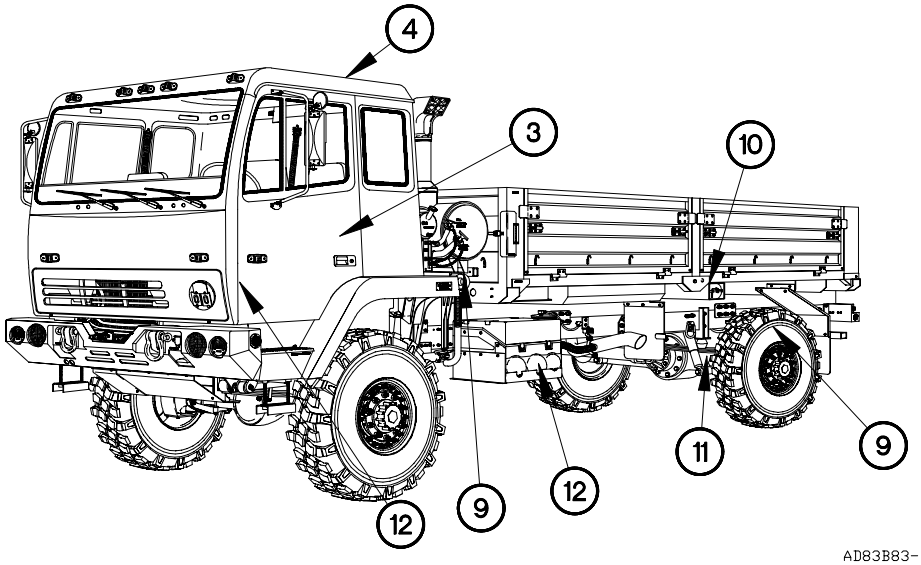


AD83B82-

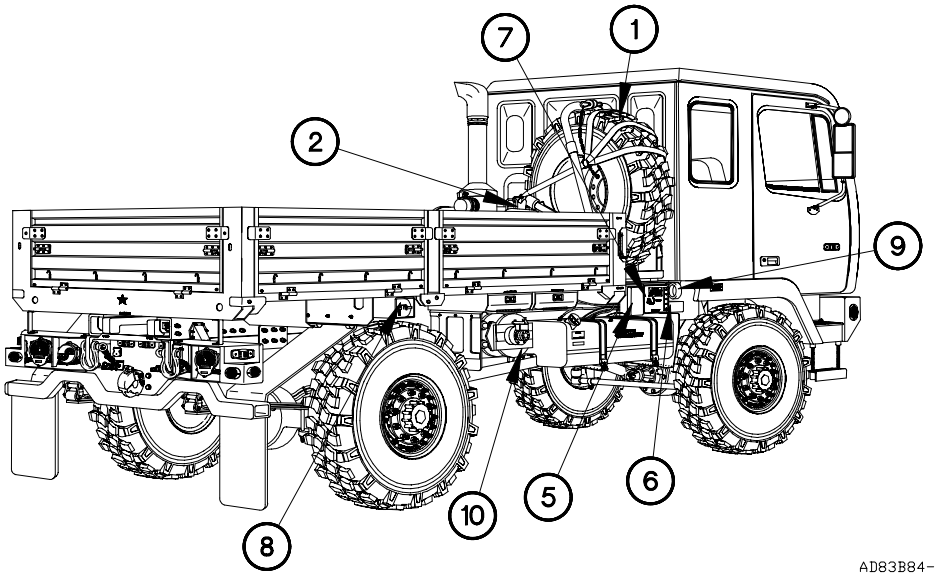
M1078A1 SERIES PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) - Continued 0083 00

Monthly PMCS Procedures for All Models

These illustrations will help you perform MONTHLY vehicle PMCS. The callouts match PMCS item number/procedures.



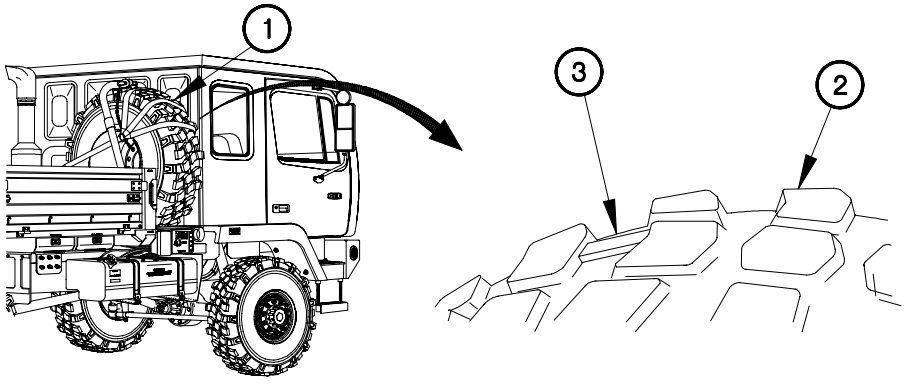
AD83B83-



AD83B84-

Table 5. Preventive Maintenance Checks and Services (PMCS) - Monthly - All Models.

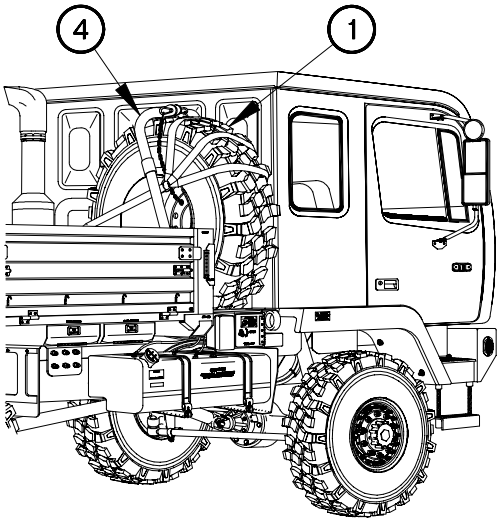
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
1	Monthly		Spare Tire	1. Check that spare tire (1) lowers properly (WP 0085 00). 2. Check spare tire (1) for cuts, gouges, and cracks. Remove any objects that could penetrate tire. 3. Check that spare tire (1) has not worn beyond wear bar (3). Replace spare tire (WP 0090 00).	Tire treads (2) is worn even to height of wear bar (3) (depth is 1/8 in. (3 mm) or less). Any cut, gouge, or crack that extends to cord body or any unusual bulges



AD83B85-

Table 5. Preventive Maintenance Checks and Services (PMCS) - Monthly - All Models - Continued.

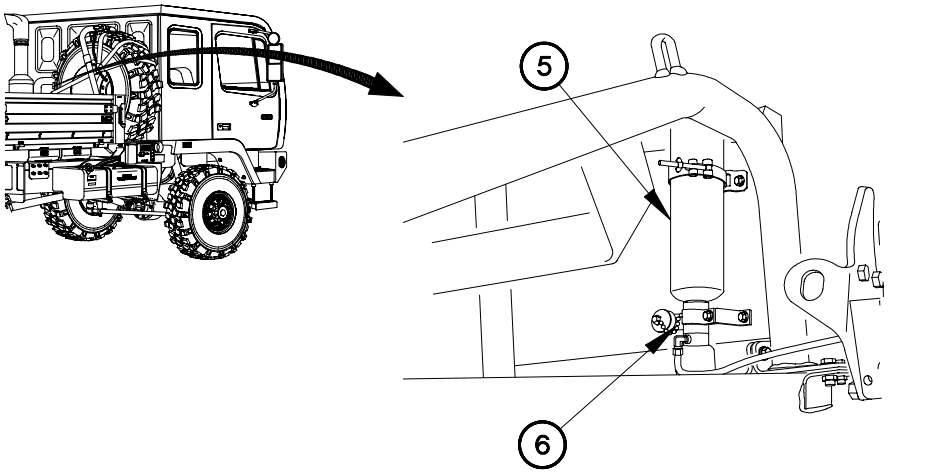
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
1	Monthly		Spare Tire - Continued	4. Check that spare tire (1) is properly secured to spare tire retainer (4). Ensure spare tire retainer is securely stowed in up position. 5. Check spare tire (1) for correct air pressure. Inflate tire to 60 psi (414 kPa) if air pressure is low.	Spare tire retainer cannot be secured in its up position.



AD83B86-

Table 5. Preventive Maintenance Checks and Services (PMCS) - Monthly - All Models - Continued.

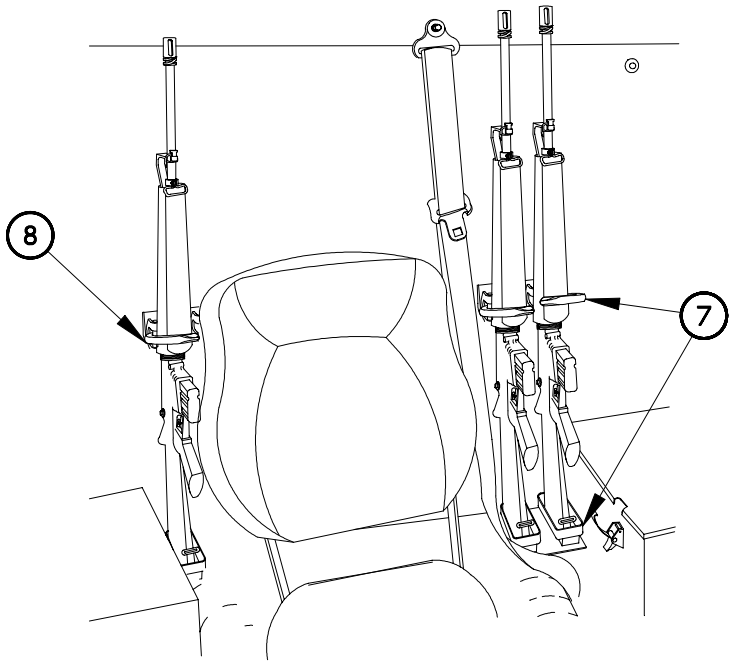
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
2	Monthly		Ether Starting Aid	Check ether cylinder (5) for loose or damaged mounts and hardware. Check ether cylinder and injection valve (6) for damage.	



AD83B87-

Table 5. Preventive Maintenance Checks and Services (PMCS) - Monthly - All Models - Continued.

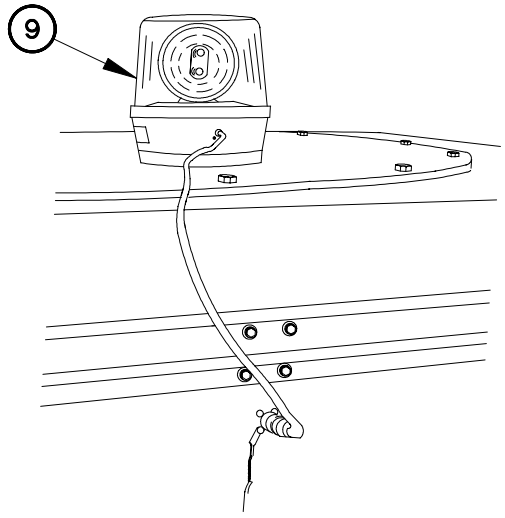
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
3	Monthly		Rifle Stowage Mount	1. Check that rifle stowage top mount and lower mount (7) bolts are not broken or missing. 2. Check rifle stowage mount latches (8) for excessive looseness or binding.	



AD83B88-

Table 5. Preventive Maintenance Checks and Services (PMCS) - Monthly - All Models - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
4	Monthly		Amber Warning Light (If Equipped)		
				NOTE Checking amber warning light is a safety task that would not be performed in a tactical mission. See AR 385-557.	
				Check vehicle amber warning light (9) for proper operation (WP 0016 00).	



AD83B89-

Table 5. Preventive Maintenance Checks and Services (PMCS) - Monthly - All Models - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
5	Monthly		Hydraulic Manifold	Inspect hydraulic manifold (10) for leakage.	Class III leak is evident.
6	Monthly		Back-up Hydraulic Pump	1. Remove handle (11) from tool box and install in hydraulic hand pump (12). 2. Pump hydraulic hand pump 5-8 cycles (to lubricate seals).	
7	Monthly		Tool Box	Check inside tool box for water in bottom of tool box or other obvious damage. Clean inside tool box with rag as necessary.	

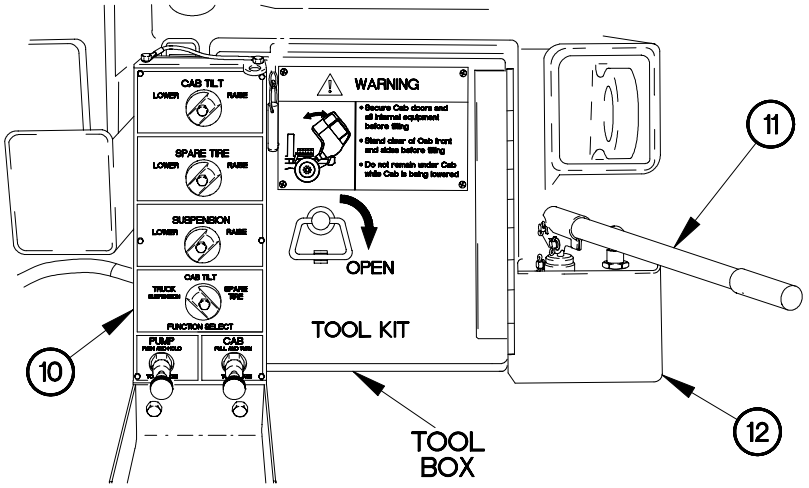


Table 5. Preventive Maintenance Checks and Services (PMCS) - Monthly - All Models - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
8	Monthly		Front Lifting Beams	1. Remove two retaining pins (13) from front lifting beam (14). 2. Pull front lifting beam (14) out as far as it will go.	

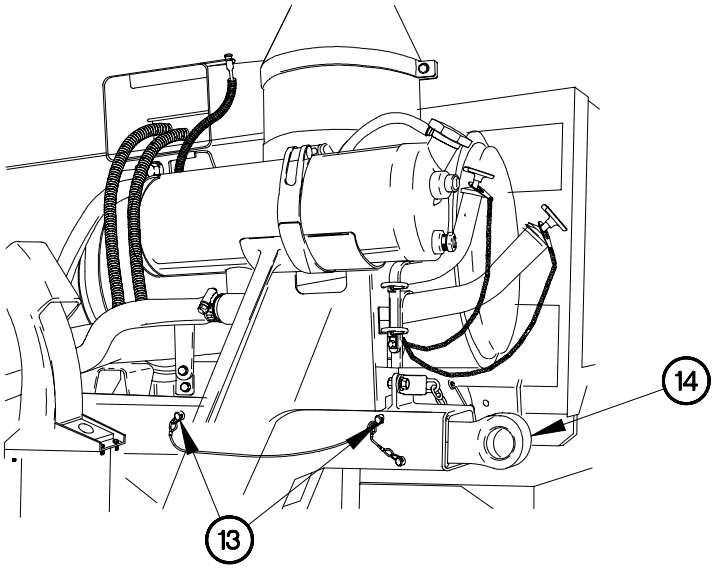


Table 5. Preventive Maintenance Checks and Services (PMCS) - Monthly - All Models - Continued.

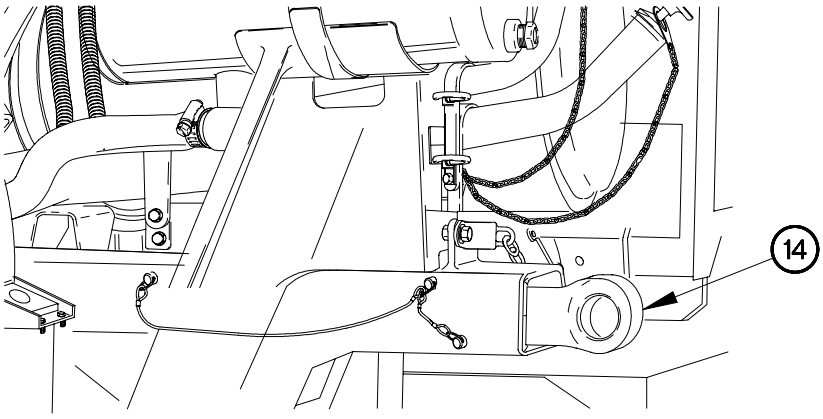
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
8	Monthly		Front Lifting Beams		

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 Dry Cleaning Solvent; the flashpoint for Type I Dry Cleaning Solvent is 100° F (38° C) and 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 Dry Cleaning Solvent (P-D-680), immediately get fresh air and medical help. If Dry Cleaning Solvent contacts skin or clothes, flush cold water. If Dry Cleaning Solvent contacts eyes, immediately flush eyes with water and get medical attention. Failure to comply may result in serious injury or death to personnel.

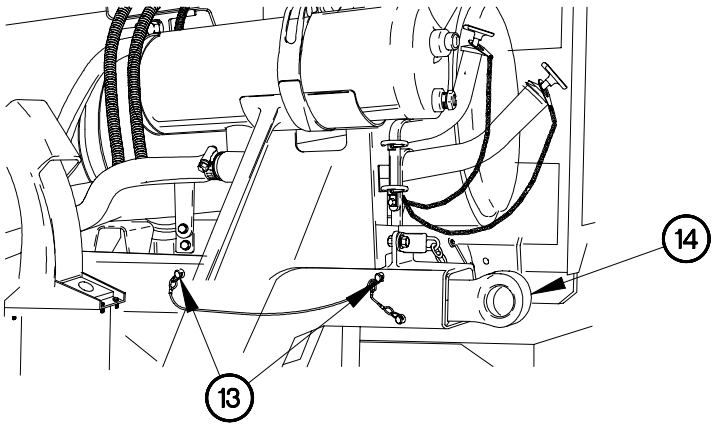
3. Clean front lifting beam (14) with dry cleaning solvent.



AD83B92-

Table 5. Preventive Maintenance Checks and Services (PMCS) - Monthly - All Models - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
8	Monthly		Front Lifting Beams - Continued	4. Lubricate top, bottom, and sides of front lifting beam (14). 5. Push front lifting beam (14) back into place. 6. Install two retaining pins (13) on front lifting beam (14).	



AD83B93-

DESCRIPTION	CAPACITY	TYPE OF FLUID USED AT THESE EXPECTED TEMPERATURES		
		Above 40°F (Above 4°C)	40° to -15°F (4° to -26°C)	-15° to -50°F (-26° to -46°C)
Front Lifting Beam	As required	GAA	GAA	GAA

Table 5. Preventive Maintenance Checks and Services (PMCS) - Monthly - All Models - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
9	Monthly		Spreader Bar	1. Remove retaining pin (15) and hitch pin (16) from spreader bar (17). 2. Pull spreader bar (17) out as far as it will go.	

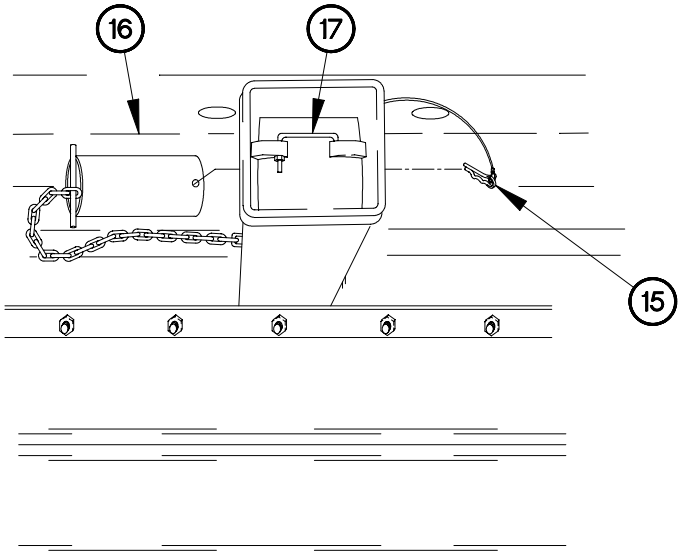


Table 5 . Preventive Maintenance Checks and Services (PMCS) - Monthly - All Models - Continued.

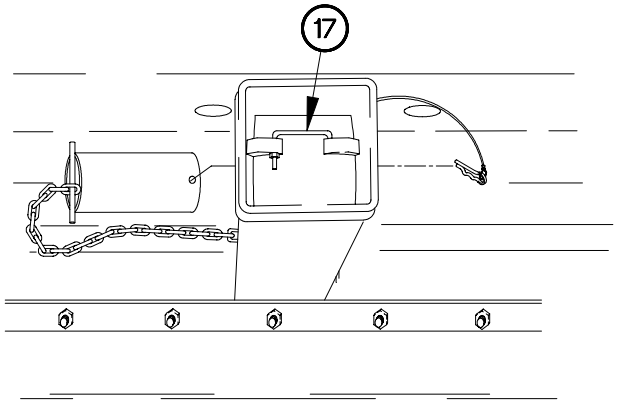
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
9	Monthly		Spreader Bar - Continued		

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 Dry Cleaning Solvent; the flashpoint for Type l Dry Cleaning Solvent is 100° F (38° C) and Type ll is 138° F (50° C). Failure to comply may result in serious injury or death to personnel.

If personnel become dizzy while using Dry Cleaning Solvent (P-D-680), immediately get fresh air and medical help. If Dry Cleaning Solvent contacts skin or clothes, flush cold water. If Dry Cleaning Solvent contacts eyes, immediately flush eyes with water and get medical attention. Failure to comply may result in serious injury or death to personnel.

			3. Clean spreader bar (17) with dry cleaning solvent.	



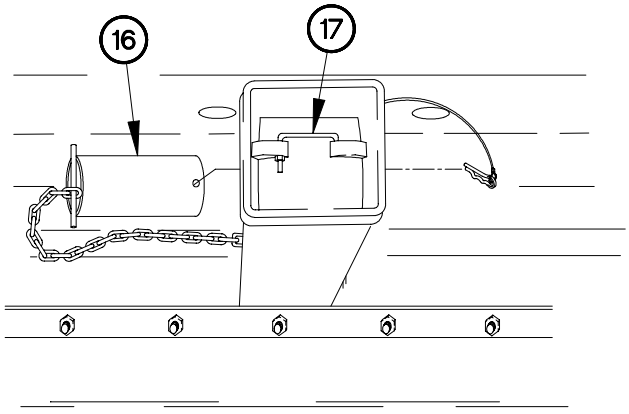
AD83B95-

Table 5 . Preventive Maintenance Checks and Services (PMCS) - Monthly - All Models - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
9	Monthly		Spreader Bar - Continued	4. Lubricate top, bottom, and sides of spreader bar (16).	

DESCRIPTION	CAPACITY	TYPE OF FLUID USED AT THESE EXPECTED TEMPERATURES		
		Above 40°F (Above 4°C)	40° to -15°F (4° to -26°C)	-15° to -50°F (-26° to -46°C)
Spreader Bar	As required	GAA	GAA	GAA

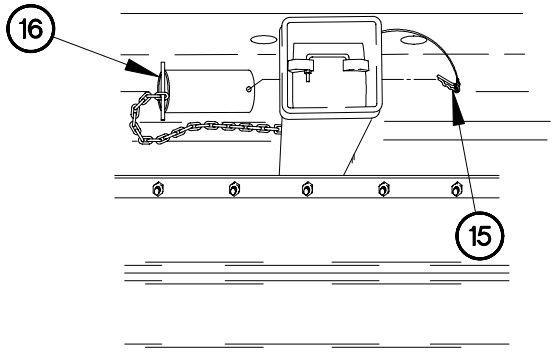
				5. Push spreader bar (17) into place. 6. Install hitch pin (16) on spreader bar (17).



AD83B96-

Table 5. Preventive Maintenance Checks and Services (PMCS) - Monthly - All Models - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
9	Monthly		Spreader Bar - Continued	7. Install retaining pin (15) on hitch pin (16).	



AD83B97-

Table 5. Preventive Maintenance Checks and Services (PMCS) - Monthly - All Models - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
10	Monthly		11K Self-Recovery Winch (SRW) Cable (If Equipped)		

WARNING

Wear heavy leather-palmed work gloves when handling cable. Cables can become frayed or contain broken wires. Never let moving cable slide through hands, even when wearing gloves. Failure to comply may result in serious injury to personnel.

			1. Pay out winch cable (18) completely and inspect for kinks, sharp bends, abrasion, and broken wires.	Six randomly distributed broken wires in any six-inch section of cable or three broken wires in one bundle (breaks 3, 4, 5) in a six-inch section.

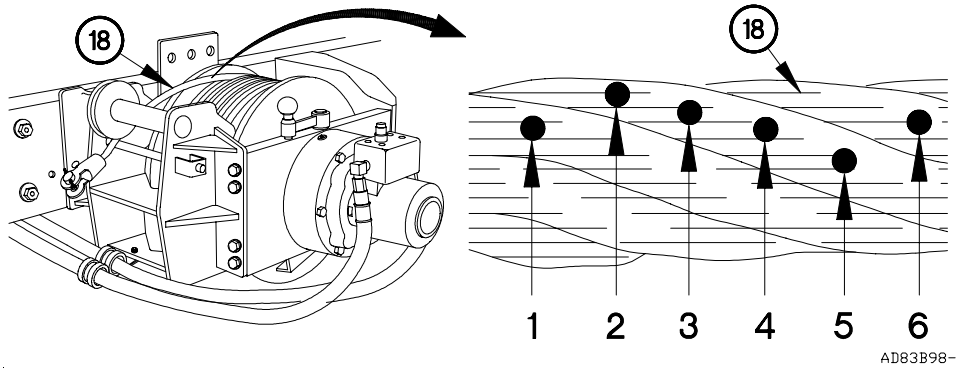


Table 5. Preventive Maintenance Checks and Services (PMCS) - Monthly - All Models - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
10	Monthly		11K Self-Recovery Winch (SRW) Cable (If Equipped) - Continued	2. Inspect for kinking, crushing, or any other damage resulting in distortion of cable structure. 3. Check security of 11K winch mounting hardware.	
11	Monthly		Springs	After initial 1000 mi., notify Unit Maintenance to tighten U-bolts (19) to 390-510 lb-ft (529-692 n•m).	

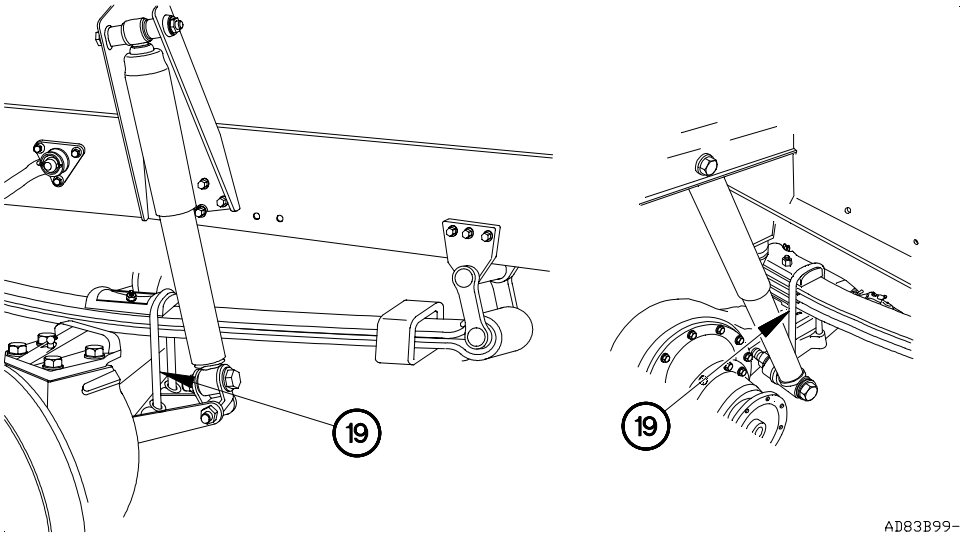


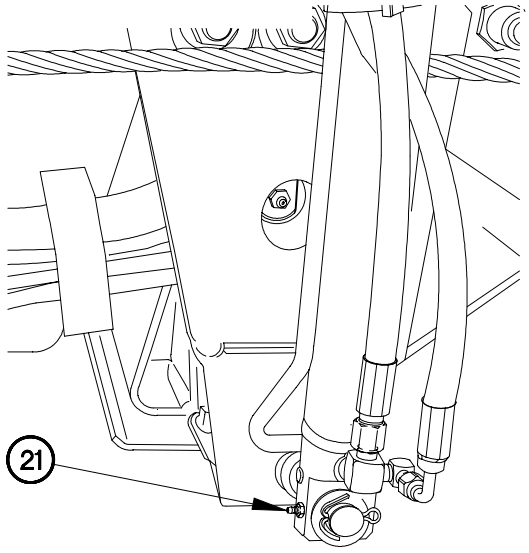
Table 5. Preventive Maintenance Checks and Services (PMCS) - Monthly - All Models - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
12	Monthly	0.1	Oil Can Points	Lubricate all oil can points with OE/HDO specified below for ambient temperature. The operator/crew is responsible for lubricating the following points: 1. Door latches and hinges 2. Battery box cover latches. 3. Cab hydraulic lift cylinder	

DESCRIPTION	CAPACITY	TYPE OF FLUID USED AT THESE EXPECTED TEMPERATURES		
		Above 40°F (Above 4°C)	40° to -15°F (4° to -26°C)	-15° to -50°F (-26° to -46°C)
Oil Can Points	As required	OE/HDO-10	OE/HDO-10	OEA

Table 5. Preventive Maintenance Checks and Services (PMCS) - Monthly - All Models - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
13	Monthly	0.1	Cab Hydraulic Lift Cylinder (If Equipped)	Lubricate cab hydraulic lift cylinder grease fitting (21) with GAA using low-pressure lubricating gun	



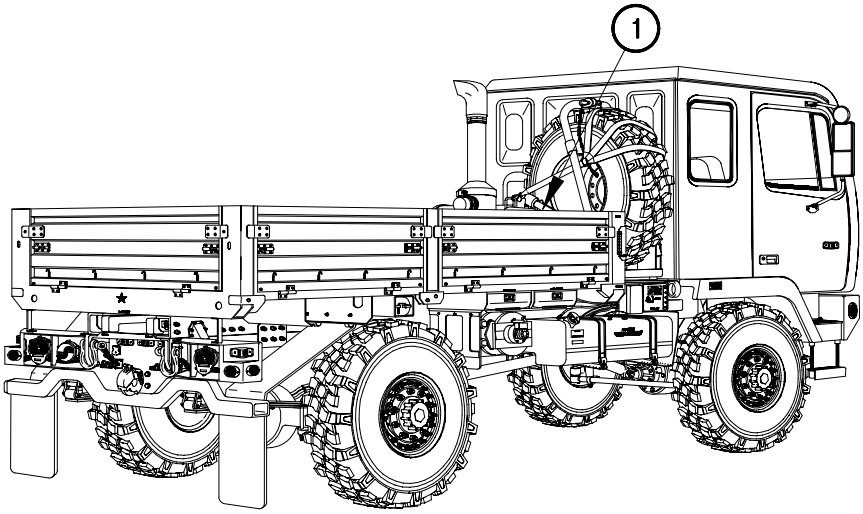
AD83BP7-

M1078A1 SERIES PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) - Continued

0083 00

Before PMCS Procedures for Model M1078A1

This illustration will help you perform BEFORE vehicle PMCS. The callout matches PMCS item number/procedures.



AD83BK0-

Table 6. Preventive Maintenance Checks and Services (PMCS) - Before - Model M1078A1.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
1	Before		Troop Transport Alarm Switch (If Equipped)	1. Check that attaching knobs (1) are tight. 2. Position master power switch to on (WP 0004 00). 3. Position troop transport alarm switch (2) to ON (WP 0012 00). 4. Verify that audible alarm (3) sounds in cab.	

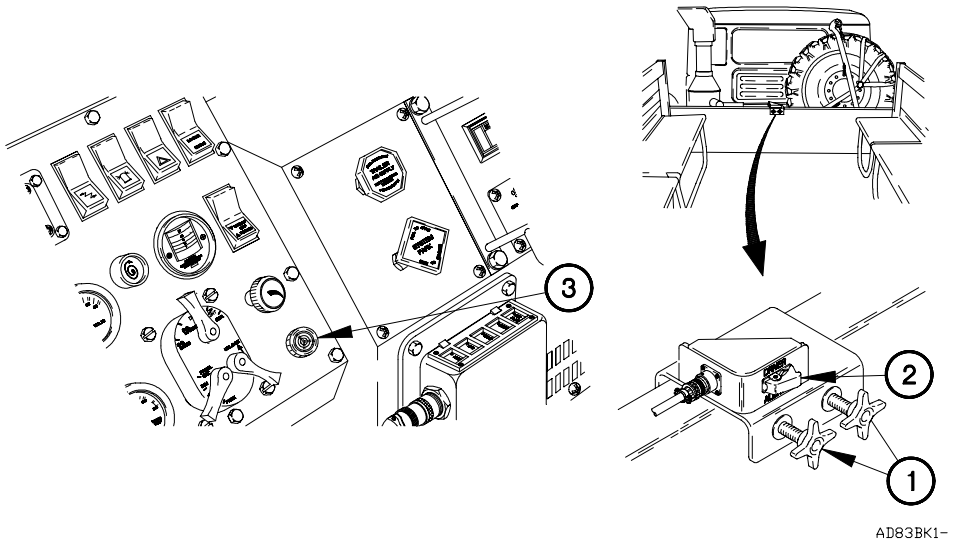


Table 6. Preventive Maintenance Checks and Services (PMCS) - Before - Model M1078A1 - Continued.

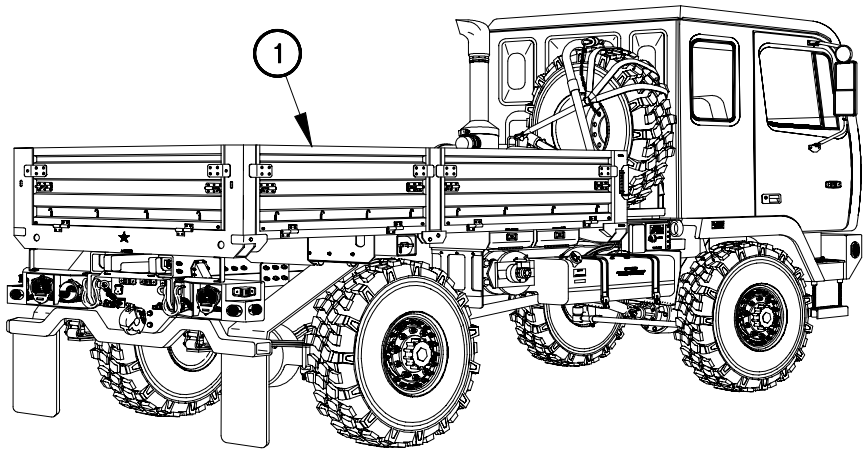
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
1	Before		Troop Transport Alarm Switch (If Equipped) - Continued	5. Position troop transport alarm switch to OFF (WP 0012 00). 6. Position master power switch to off (WP 0004 00).	

M1078A1 SERIES PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) - Continued

0083 00

During PMCS Procedures for Model M1078A1

This illustration will help you perform DURING vehicle PMCS. The callout matches PMCS item number/procedures.



AD83BK2-

Table 7. Preventive Maintenance Checks and Services (PMCS) - During - Model M1078A1.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
1	During		Light Material Handling Crane (LMHC) (If Equipped		
				NOTE LMHC is checked during operation when required as part of vehicle mission.	
				1. Check for loose, missing, or damaged drive motor (1) mounting bolts. Tighten loose bolts. If bolts are missing, damaged, or can not be tightened, notify Unit Maintenance.	

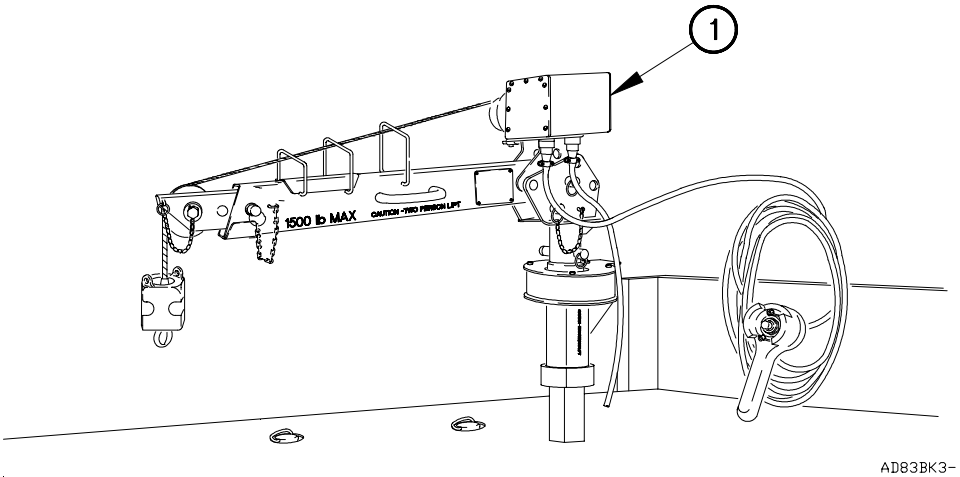


Table 7. Preventive Maintenance Checks and Services (PMCS) - During - Model M1078A1 - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
1	During		Light Material Handling Crane (LMHC) (If Equipped - Continued	2. Using LMHC remote control (2), check that LMHC cable (3) pays out and reels in properly (WP 0019 00). 3. Rotate LMHC to right and to left, checking for binding or any restriction to movement of all LMHC components (WP 0019 00).	

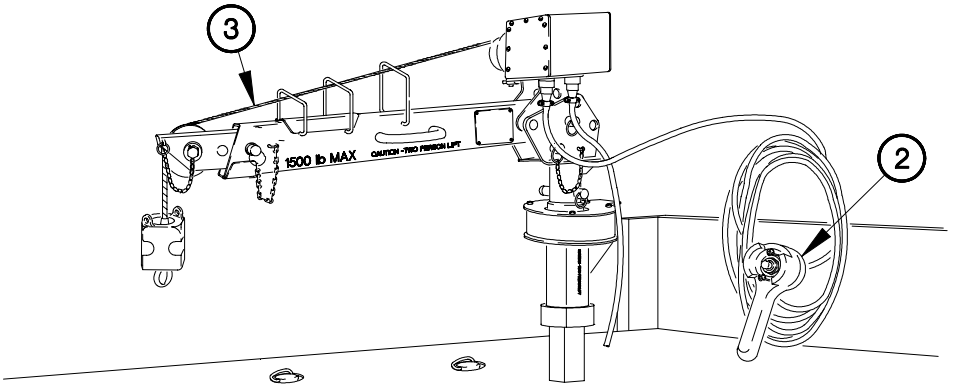


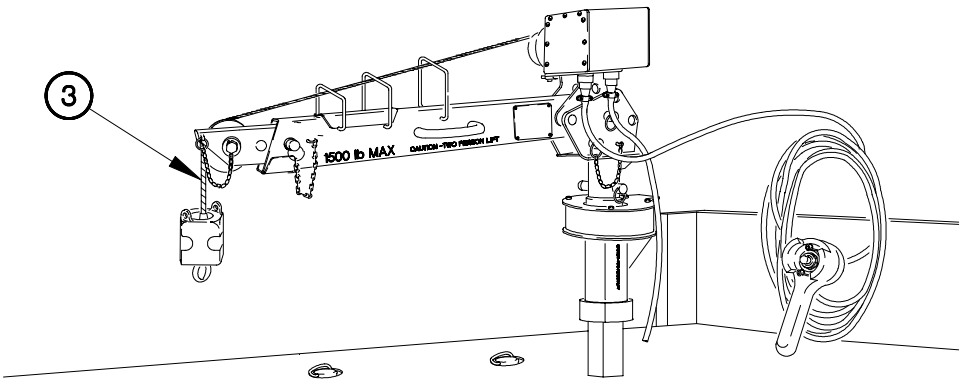
Table 7. Preventive Maintenance Checks and Services (PMCS) - During - Model M1078A1 - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
1	During		Light Material Handling Crane (LMHC) (If Equipped - Continued		

WARNING

Wear heavy leather-palmed work gloves when handling wire rope. Never let moving wire rope slide through hands, even when wearing gloves. Failure to comply may result in serious injury to personnel.

			4. Check cable (3) for kinks, frays, and breaks.	Evidence of kinks, frays, or breaks.



AD83BK5-

M1078A1 SERIES PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) - Continued

AFTER PMCS Procedures for Model M1078A1

This illustration will help you perform AFTER vehicle PMCS. The callout matches PMCS item number/procedures.

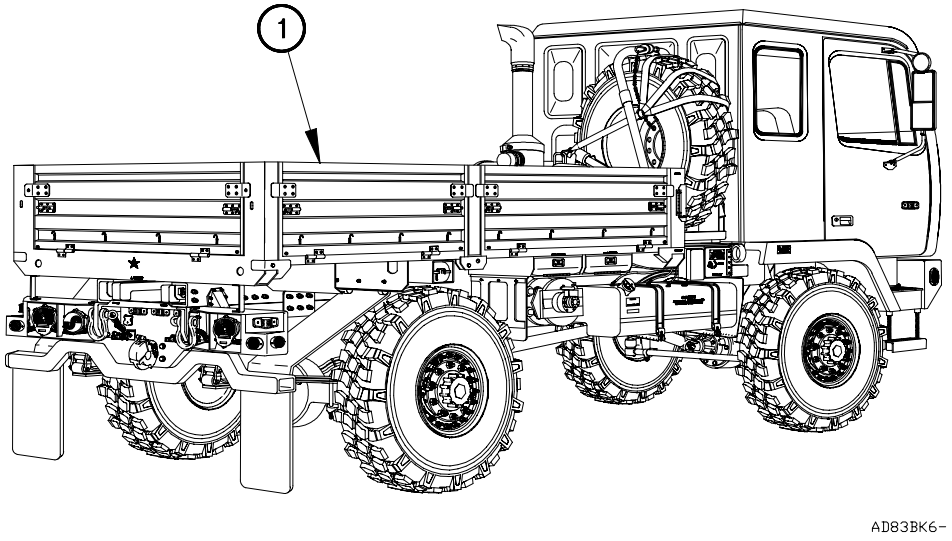
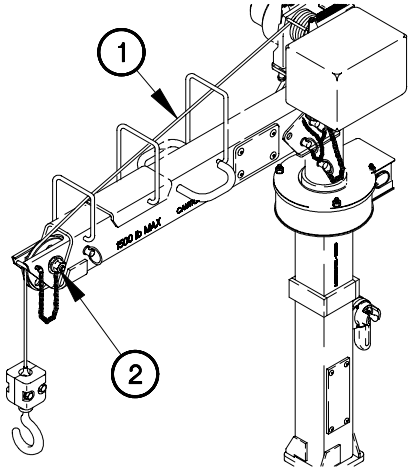


Table 8. Preventive Maintenance Checks and Services (PMCS) - After - Model M1078A1.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
1	After		Light Material Handling Crane (LMHC) (If Equipped)	1. Lubricate cable (1). 2. Lubricate boom sheave (2).	

DESCRIPTION	CAPACITY	TYPE OF FLUID USED AT THESE EXPECTED TEMPERATURES		
		Above 40°F (Above 4°C)	40° to -15°F (4° to -26°C)	-15° to -50°F (-26° to -46°C)
LMHC Cable	As required	OE/HDO-10	OE/HDO-10	OEA
LMHC Boom Sheave	As required	GAA	GAA	GAA



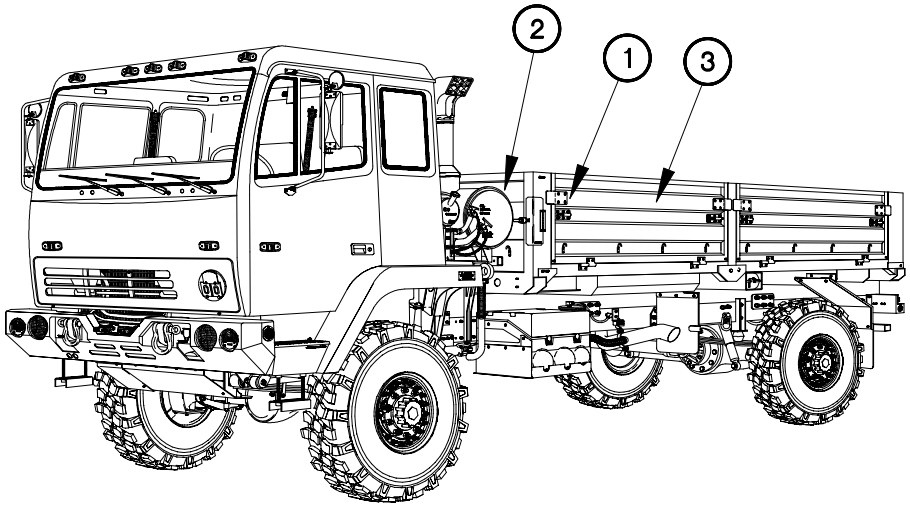
AD83BK7-

M1078A1 SERIES PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) - Continued

0083 00

Weekly PMCS Procedures for Model M1078A1

These illustrations will help you perform WEEKLY vehicle PMCS. The callouts match PMCS item number/procedures.



AD83BK8-

Table 9. Preventive Maintenance Checks and Services (PMCS) - Weekly - Model M1078A1.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
1	Weekly		Light Material Handling Crane (LMHC) (If Equipped)		
				NOTE LMHC is checked before vehicle operation when required as part of mission.	
				1. Check boom assembly (1), turret (2), winch assembly (3), and mast assembly (4) for damage or broken welds.	Boom assembly, turret, winch assembly, or mast assembly are damaged or broken welds are found.
				2. Check LMHC power cord (5) for damage or cracks in insulation.	Any damage or cracks in insulation which expose bare wire.

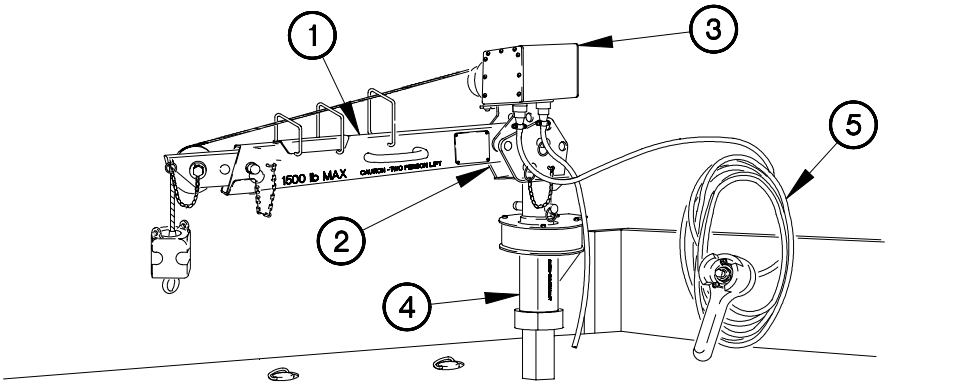


Table 9. Preventive Maintenance Checks and Services (PMCS) - Weekly - Model M1078A1.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
1	Weekly		Light Material Handling Crane (LMHC) (If Equipped) - Continued	3. Check that the following pins are present and not damaged: a. Pin securing mast (4) to cargo bed. b. Pin securing boom (1) in raised and lowered positions. c. Pin securing boom (1) in extended and retracted positions.	One or more pins are missing or damaged.

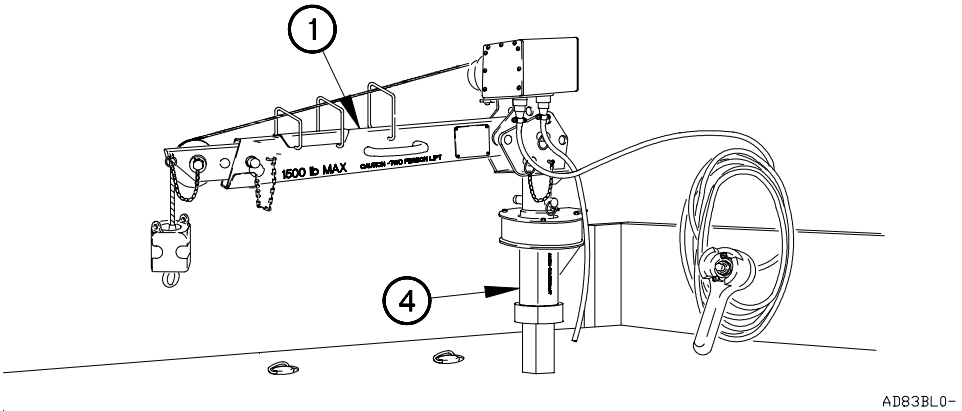


Table 9. Preventive Maintenance Checks and Services (PMCS) - Weekly - Model M1078A1 - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
2	Weekly		Cargo Area Arctic Heater (If Equipped)		

NOTE

Cargo area arctic heater is checked before vehicle operation only if it will be operated as part of vehicle mission.

				1. Check cargo area arctic heater START/OFF/RUN switch (6), LO/HI switch (7) and override switch (8) for proper operation (WP 0047 00). 2. Remove four pins (9) and cover (10) from heater bracket (11).	Cargo area arctic heater is inoperable.

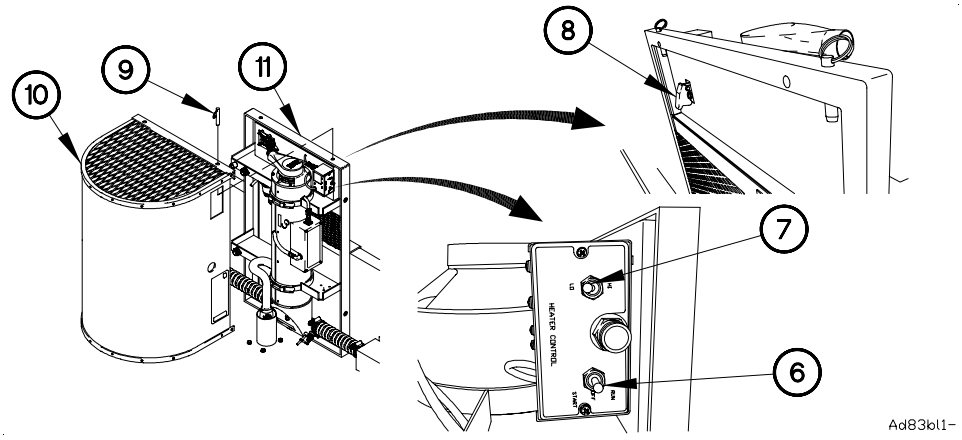


Table 9. Preventive Maintenance Checks and Services (PMCS) - Weekly - Model M1078A1 - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
2	Weekly		Cargo Area Arctic Heater (If Equipped) - Continued	3. Check fuel lines and fittings for leaks	Any fuel leakage is evident.
				4. Check electrical cables for secure connections and for frayed or broken wires	Cable connections cannot be secured, or bare or broken wires are found.
				5. Cargo area arctic heater header (12) for exhaust leaks, security of mounting, and missing components.	Cargo area arctic heater header leaks or mounting hardware cannot be secured.

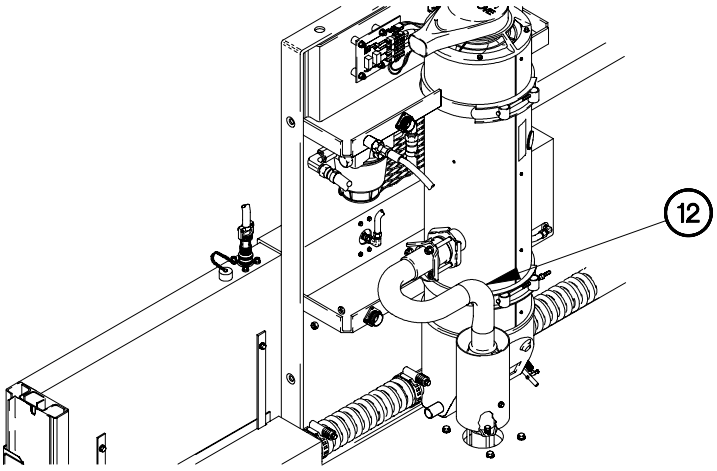
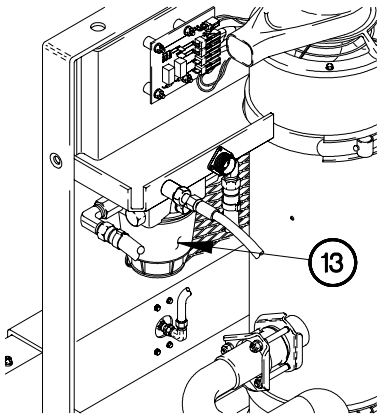
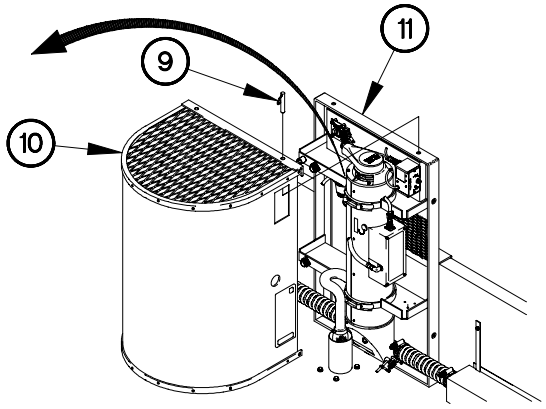


Table 9. Preventive Maintenance Checks and Services (PMCS) - Weekly - Model M1078A1 - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
2	Weekly		Cargo Area Arctic Heater (If Equipped) - Continued	6. Check cargo area arctic heater fuel filter (13) for leaks or damage. 7. Install cover (10) on heater bracket (11) with four pins (9).	Any fuel leak is evident.

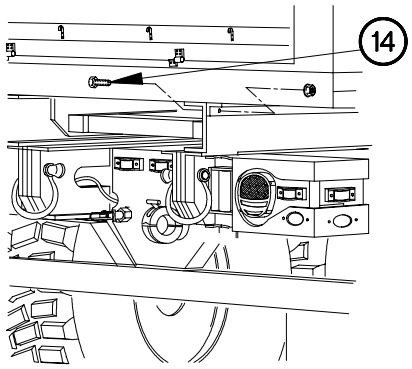




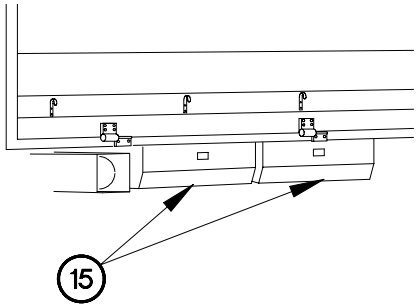
AD83lol3-

Table 9. Preventive Maintenance Checks and Services (PMCS) - Weekly - Model M1078A1 - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
3	Weekly		Cargo Bed	1. Check that cargo bed mounting screws (14) on both sides of vehicle are not broken or missing.	One or more cargo bed mounting screws are broken or missing.
				2. Check inside panel stowage compartments (15) underneath cargo bed for obvious damage.	



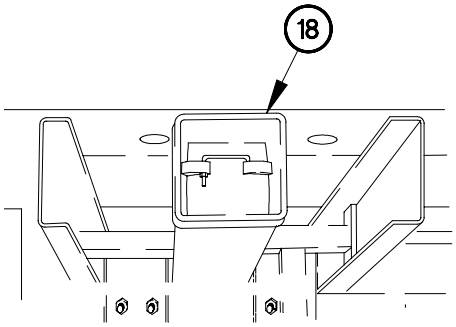
AD83BL4-

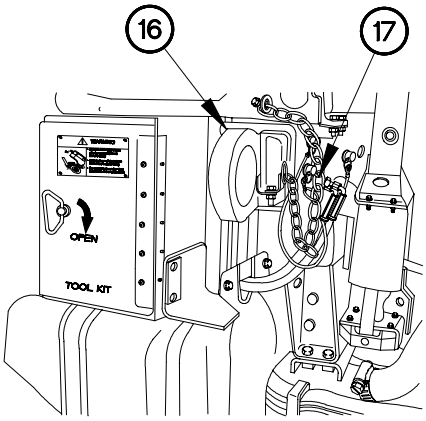


AD83BL5-

Table 9. Preventive Maintenance Checks and Services (PMCS) - Weekly - Model M1078A1 - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
3	Weekly		Cargo Bed - Continued	3. Check lift beam (16) on both sides of vehicle for damage. Check that lift beam lock pin (17) is not missing or damaged. 4. Check spreader bar (18) on both sides for damage.	Lift beam is damaged or lock pin is missing or damaged and lift beam is required for vehicle mission.

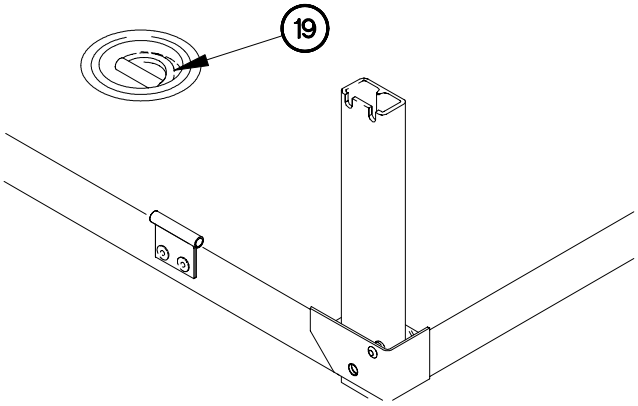




AD83BL6-

Table 9. Preventive Maintenance Checks and Services (PMCS) - Weekly - Model M1078A1 - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
3	Weekly		Cargo Bed - Continued	5. Check for missing or damaged cargo bed tiedown rings (19).	



M1078A1 SERIES PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) - Continued

0083 00

Monthly PMCS Procedures for Model M1078A1

These illustrations will help you perform MONTHLY vehicle PMCS. The callouts match PMCS item number/procedures.

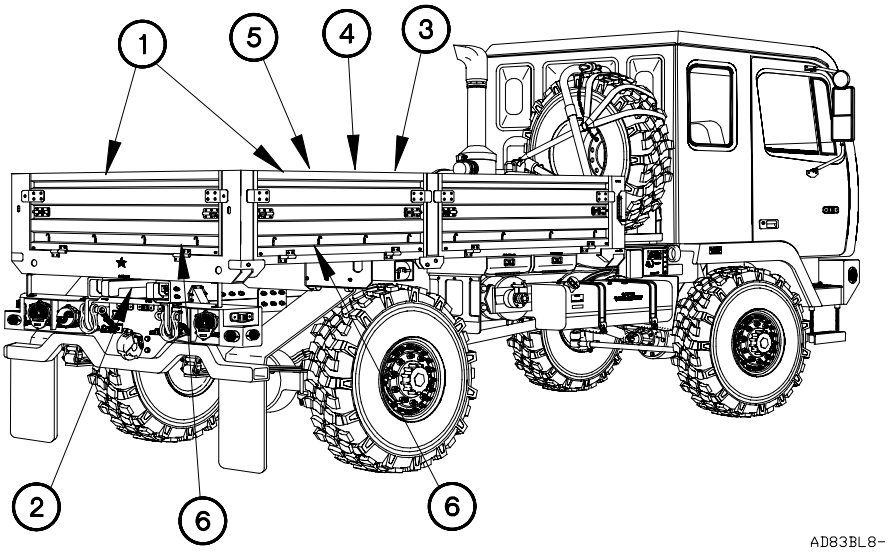


Table 10. Preventive Maintenance Checks and Services (PMCS) - Monthly - Model M1078A1.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
1	Monthly		Cargo Bed Side Panels and Tailgate	1. Check that cargo bed side panels (1) and tailgate (2) are not bent or damaged.	
				NOTE Hinges and latches on cargo bed sides and tailgate are the same.	
				2. Check cargo bed side panel and tailgate hinges (3) for damage and broken welds.	Cargo bed side panel or tailgate hinge is damaged or weld is broken.

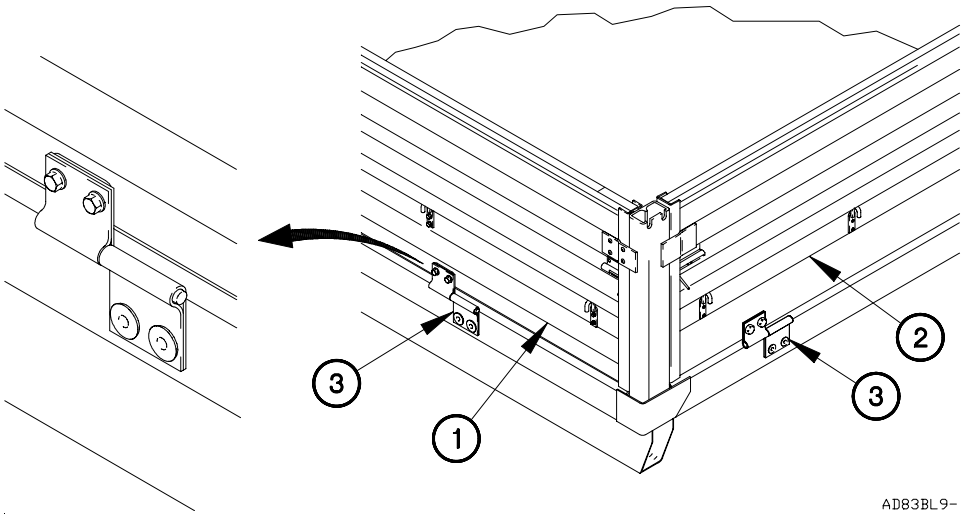


Table 10. Preventive Maintenance Checks and Services (PMCS) - Monthly - Model M1078A1 - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
1	Monthly		Cargo Bed Side Panels and Tailgate - Continued	3. Check cargo bed side panels (1) and tailgate (2) for missing or damaged latches (4). Ensure that latches securely lock cargo bed side panels and tailgate in raised position.	Latch is missing, damaged, or does not securely lock cargo bed side panels or tailgate in raised position.

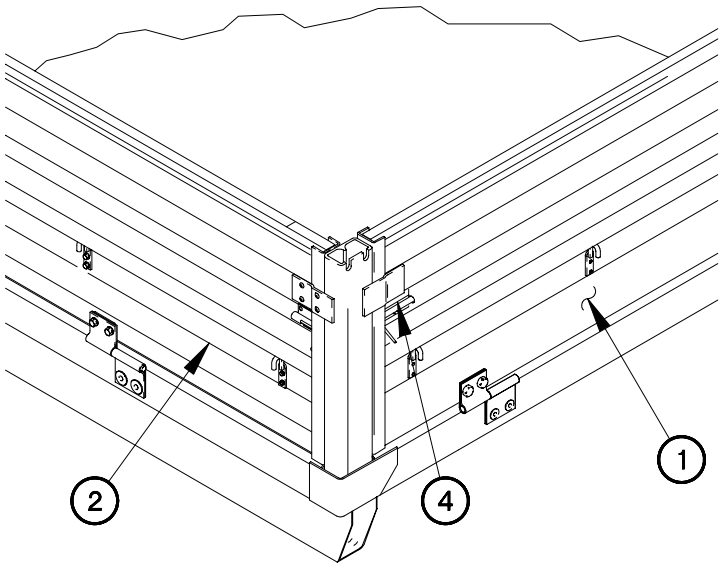
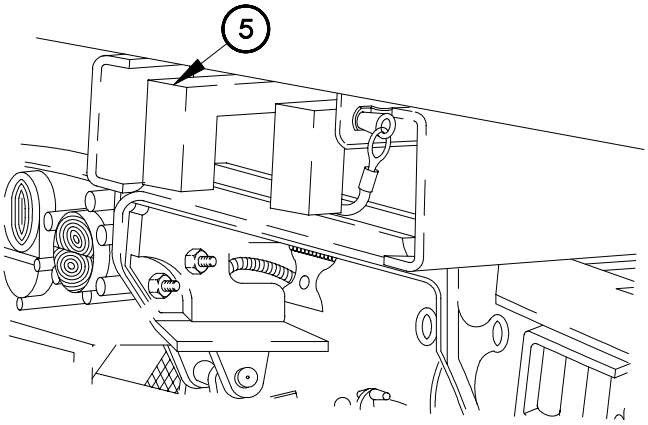


Table 10. Preventive Maintenance Checks and Services (PMCS) - Monthly - Model M1078A1 - Continued.

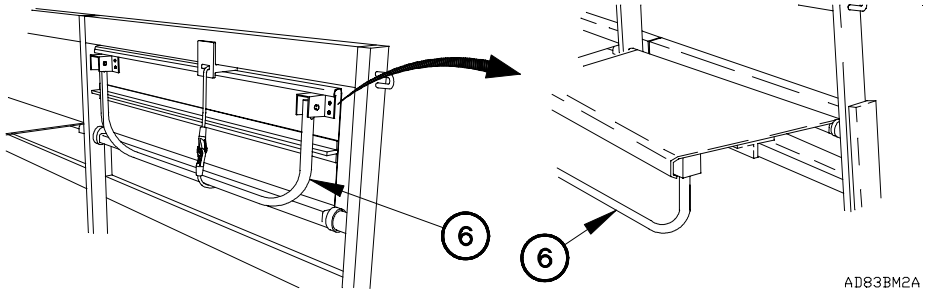
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
2	Monthly		Ladder	1. Remove ladder (5) from stowage compartment (WP 0021 00).	
				2. Check ladder for cracked or broken welds.	
				3. Stow ladder in stowage compartment (WP 0021 00).	



AD83BM1-

Table 10. Preventive Maintenance Checks and Services (PMCS) - Monthly - Model M1078A1 - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
3	Monthly		Troopseats (If Equipped)		
				NOTE Troopseats are checked before vehicle operation only as required to perform mission.	
				1. Check that troopseat drop legs (6) are not bent or damaged.	Drop leg(s) is bent or damaged.
				2. Check that drop leg hinge pins (7) are not missing or damaged.	One or more drop leg hinge pins are missing.



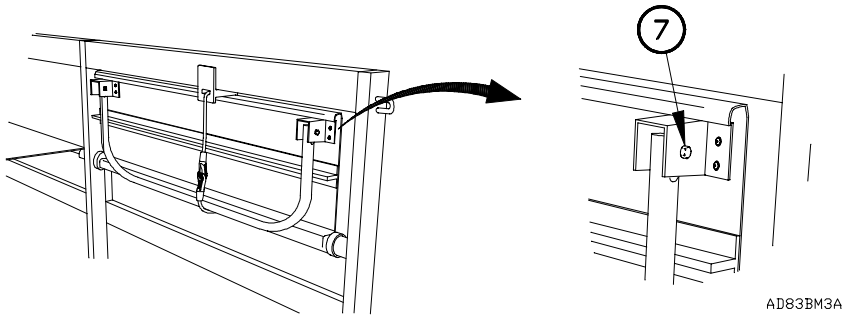


Table 10. Preventive Maintenance Checks and Services (PMCS) - Monthly - Model M1078A1 - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
3	Monthly		Troopseats (If Equipped) - Continued	3. Check that seat assembly (8) and/or backrest (9) are not damaged. 4. Check that belts (10) are not missing or damaged. 5. Check that belt (10) keeps seat assembly (8) secure in raised and lowered positions.	Seat assembly and/or backrest are damaged.

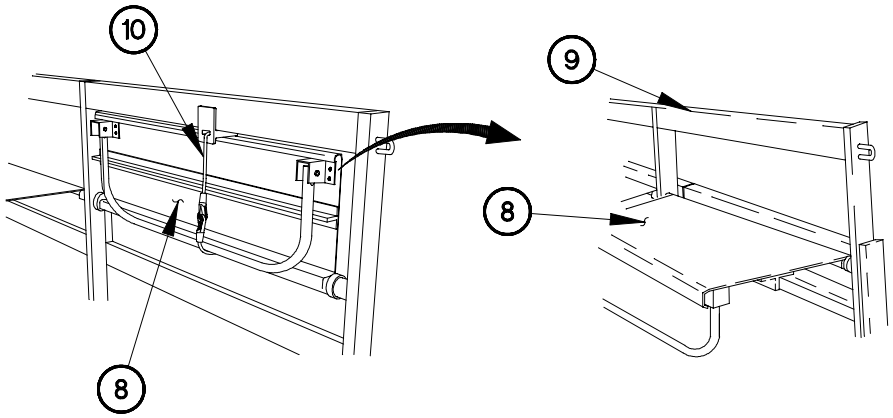


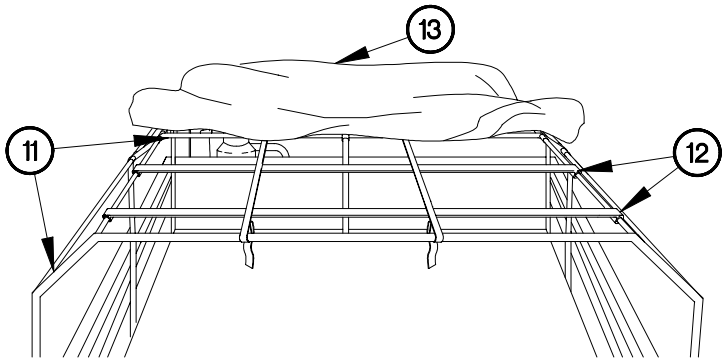
Table 10. Preventive Maintenance Checks and Services (PMCS) - Monthly - Model M1078A1 - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
4	Monthly		Cargo Cover		

NOTE

Cargo cover is checked before vehicle operation only if required to perform vehicle mission.

				1. Check for missing, damaged, or bent bows (11). 2. Check for missing, damaged, or bent braces (12). 3. Check cargo cover (13) for tears, punctures, and ripped seams that would interfere with proper operation.	



AD83BM5-

Table 10. Preventive Maintenance Checks and Services (PMCS) - Monthly - Model M1078A1 - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
4	Monthly		Cargo Cover - Continued	4. Check that hook (14) used to secure cargo cover shock cords (15) are secure and not damaged.	
				5. Check that safety straps (16) are not missing or damaged.	Any strap is missing or damaged.

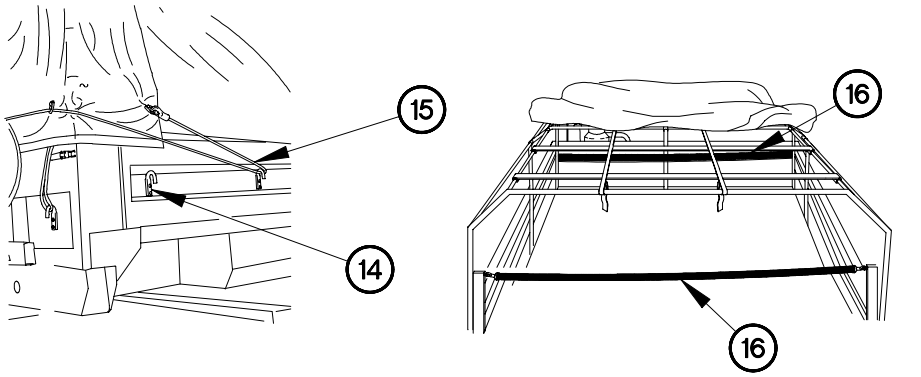


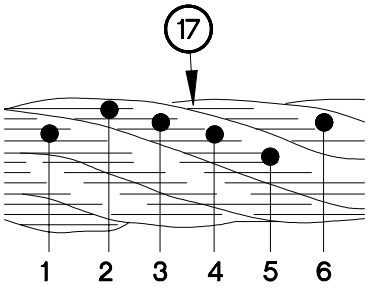
Table 10. Preventive Maintenance Checks and Services (PMCS) - Monthly - Model M1078A1 - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
5	Monthly		Light Material Handling Crane (LMHC) (If Equipped)	1. Check LMHC for corrosion, cracks, and security of mounting hardware.	LMHC is damaged or not securely mounted.

WARNING

Wear heavy leather-palmed work gloves when handling cable. Cables can become frayed or contain broken wires. Never let moving cable slide through hands, even when wearing gloves. Failure to comply may result in serious injury to personnel.

			2. Pay out cable (17) completely and inspect for kinks, sharp bends, and broken wires.	Cable is damaged or excessively worn. Six, randomly-distributed, broken wires in any 6 in. (15 cm) section or three broken wires on bundle (breaks, 3,4,5) in a 6 in. (15 cm) section.



AD83BM7-

Table 10. Preventive Maintenance Checks and Services (PMCS) - Monthly - Model M1078A1 - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
5	Monthly		Light Material Handling Crane (LMHC) (If Equipped)	3. Check for kinking, crushing, or any other damage resulting in distortion of the cable structure. 4. Check security of electrical connectors on overload shutdown box. 5. Inspect electrical cable for cracking, fraying, and chaffing.	Wiring is frayed, cracked, or excessively worn.
6	Monthly	0.1	Oil Can Points	Lubricate all oil can points with OE/HDO specified for ambient temperature. The operator/crew is responsible for lubricating the following points: 1. Tailgate hinge pins 2. Intermediate hinge pins 3. Side hinge pins	

Table 10. Preventive Maintenance Checks and Services (PMCS) - Monthly - Model M1078A1 - Continued.

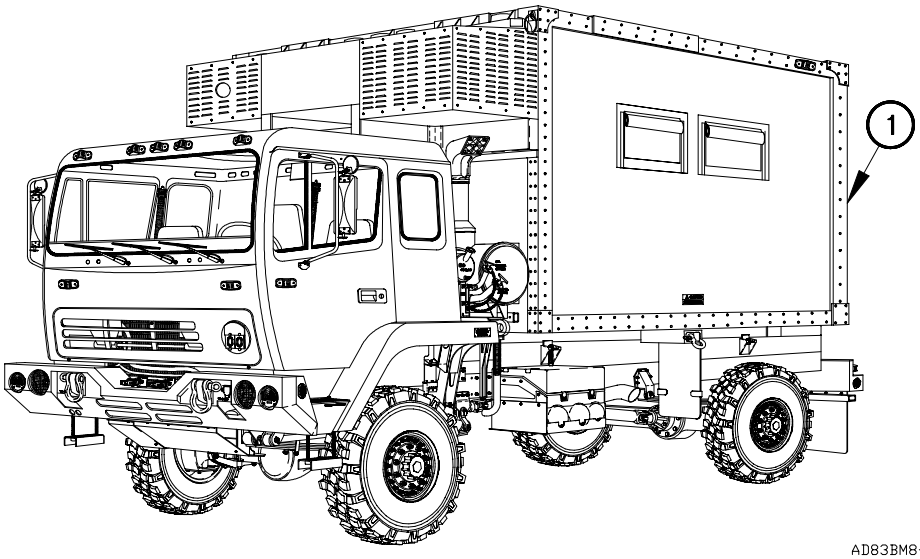
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
6	Monthly	0.1	Oil Can Points-Continued	4. Cargo bed tiedown rings.	

DESCRIPTION	CAPACITY	TYPE OF FLUID USED AT THESE EXPECTED TEMPERATURES		
		Above 40°F (Above 4°C)	40° to -15°F (4° to -26°C)	-15° to -50°F (-26° to -46°C)
Oil Can Points	As required	OE/HDO-10	OE/HDO-10	OEA

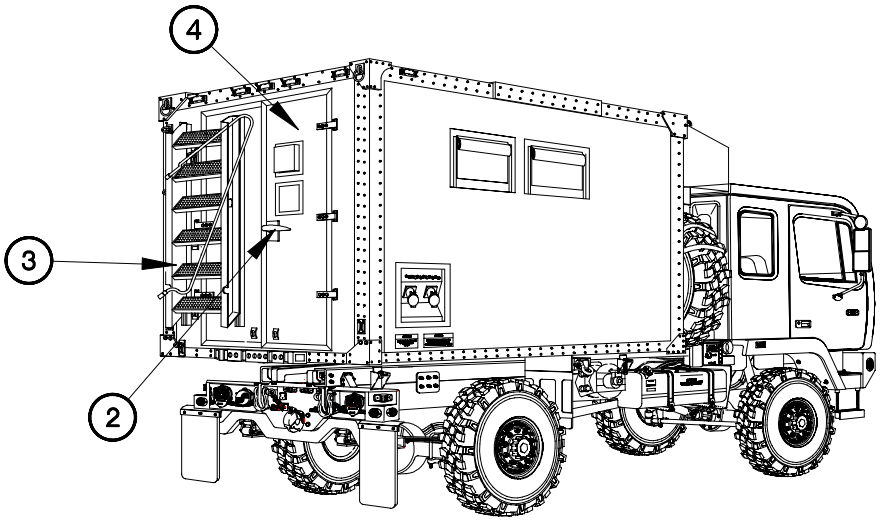
M1078A1 SERIES PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) - Continued 0083 00

Before PMCS Procedures for Model M1079A1

These illustrations will help you perform BEFORE vehicle PMCS. The callouts match PMCS item number/procedures.



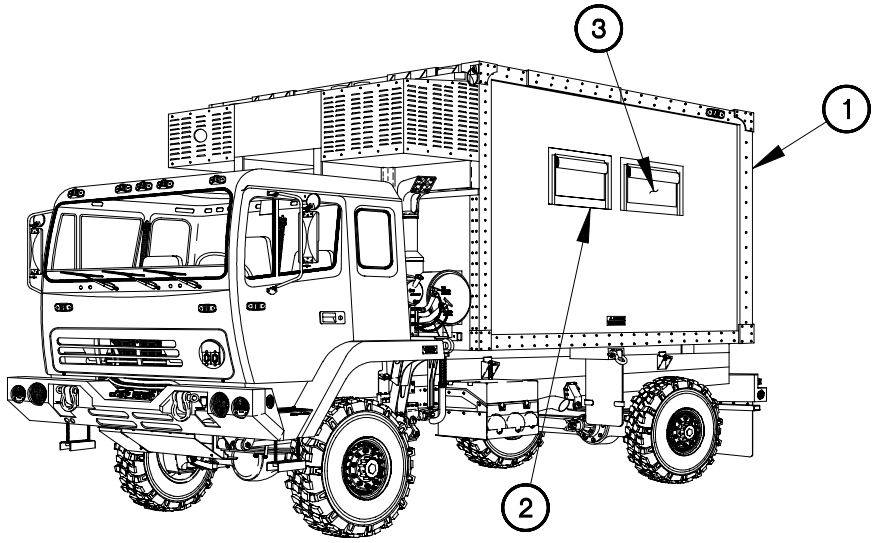
AD83BM8-



AD83BM9-

Table 11. Preventive Maintenance Checks and Services (PMCS) - Before - Model M1079A1.

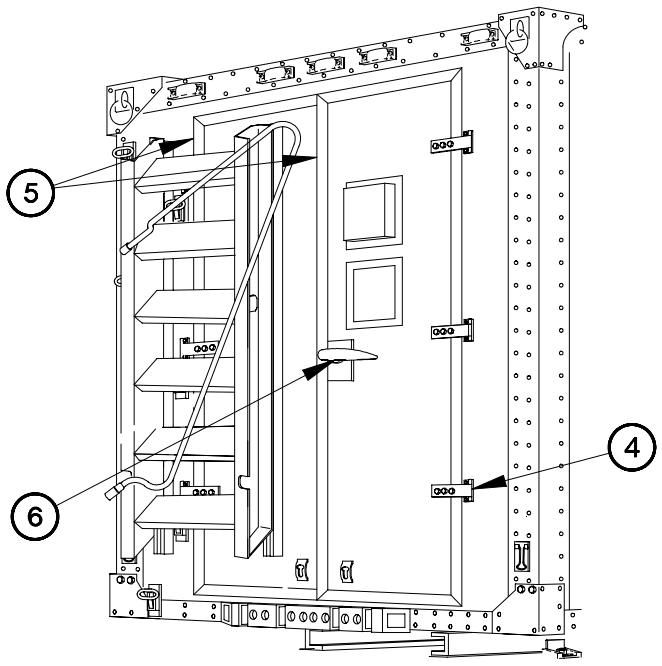
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
1	Before		Van Body	Inspect van body (1), windows (2), and blackout screens (3) for obvious signs of damage.	



AD83BN0-

Table 11. Preventive Maintenance Checks and Services (PMCS) - Before - Model M1079A1 - Continued.

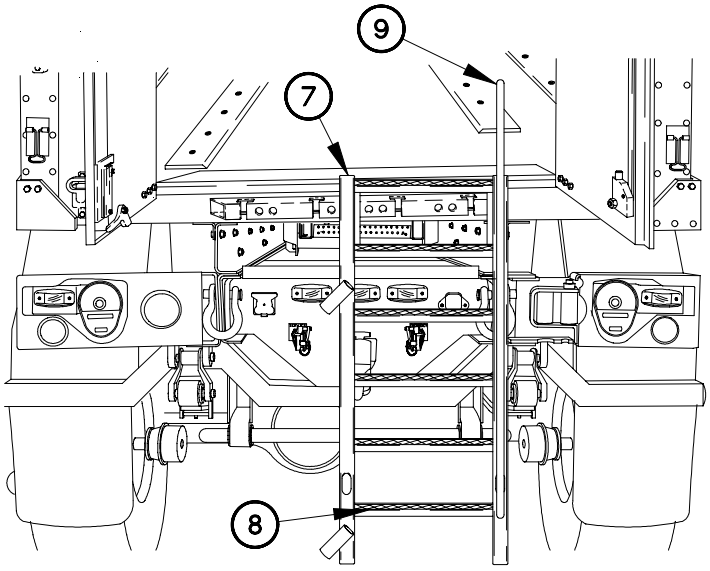
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
2	Before		Van Doors	1. Check door hinges (4) for damage and broken welds. 2. Check van doors (5) for missing or damaged latches (6). Check that latches lock securely when doors are closed.	More than one door hinge is damaged or weld is broken.



AD83BN1-

Table 11. Preventive Maintenance Checks and Services (PMCS) - Before - Model M1079A1 - Continued.

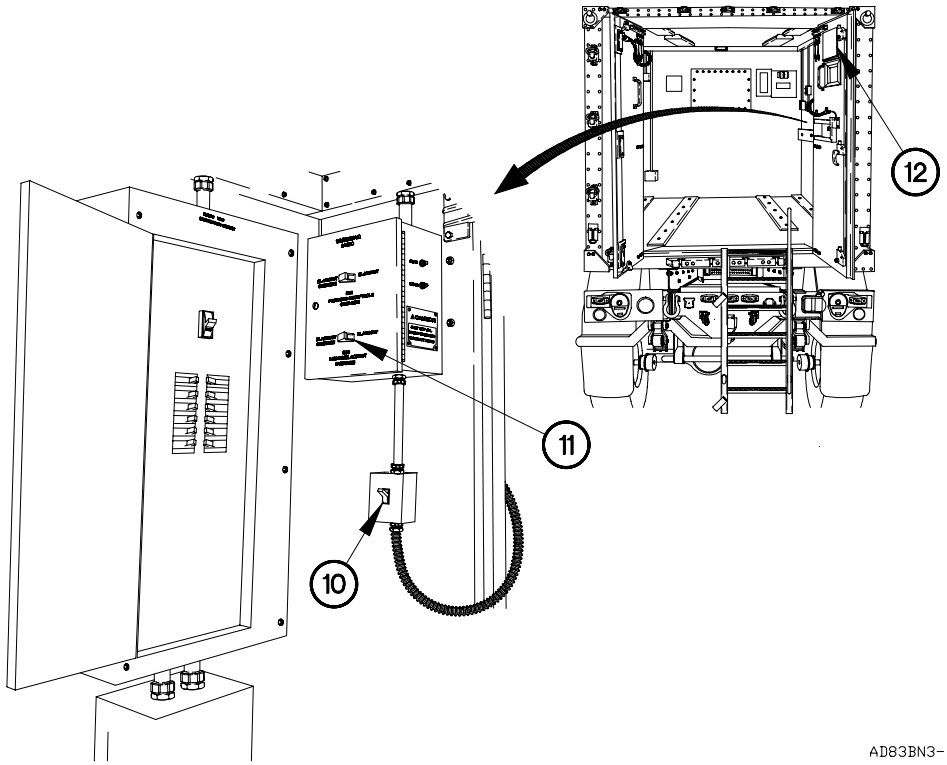
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
3	Before		Ladder	1. Lower ladder (WP 0021 00). 2. Check ladder mount (7) for damaged or broken welds. 3. Check ladder for damaged rungs (8), damaged handle (9), and broken welds.	



AD83BN2-

Table 11. Preventive Maintenance Checks and Services (PMCS) - Before - Model M1079A1 - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
4	Before		Van Body Interior	1. Check INTERIOR LIGHT switch (10), blackout override switch (11), and blackout panels (12) for obvious signs of damage.	



Size AD83BN3-

Table 11. Preventive Maintenance Checks and Services (PMCS) - Before - Model M1079A1 - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
4	Before		Van Body Interior - Continued	2. Check 110/208 VAC POWER DISTRIBUTION PANEL (13) and electrical receptacles (14) for signs of obvious damage.	

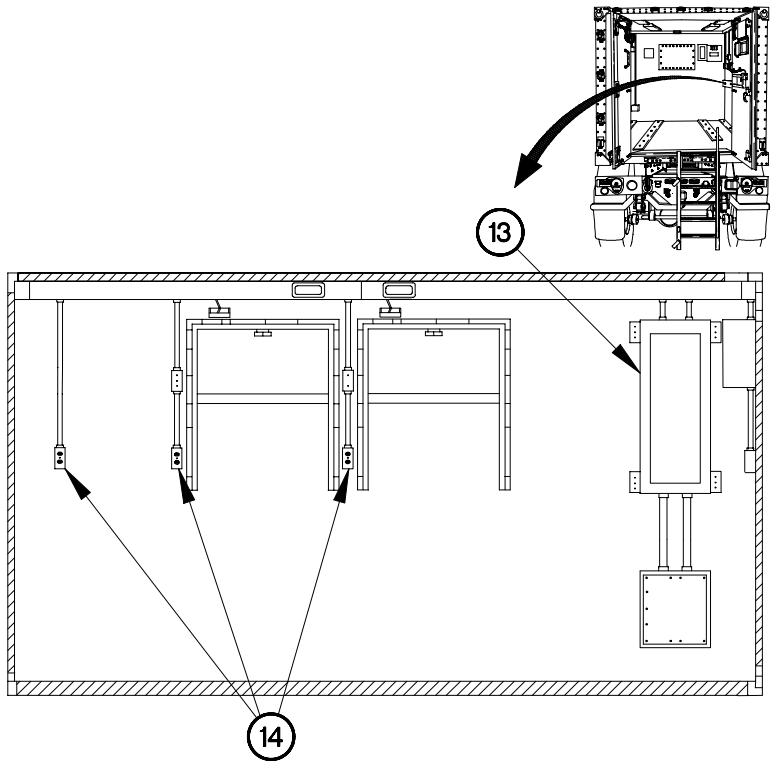
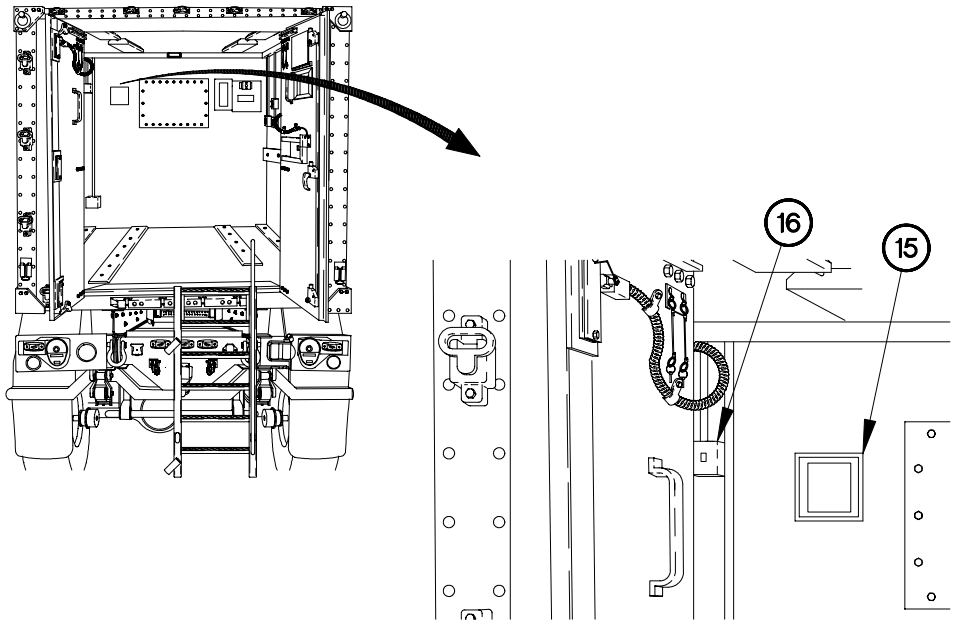


Table 11. Preventive Maintenance Checks and Services (PMCS) - Before - Model M1079A1 - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
4	Before		Van Body Interior	3. Check ventilation fan (15) and fan switch (16) for signs of obvious damage. 4. Stow ladder (WP 0004 00)	



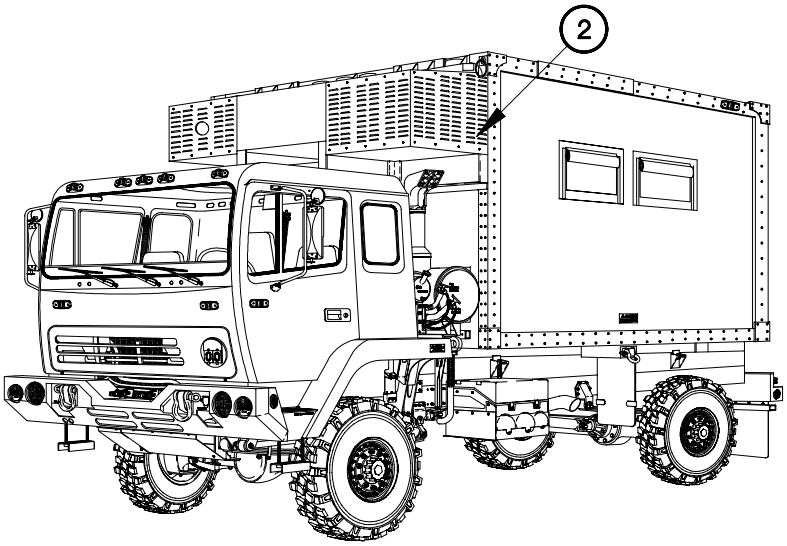
AD83BN5-

M1078A1 SERIES PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) - Continued

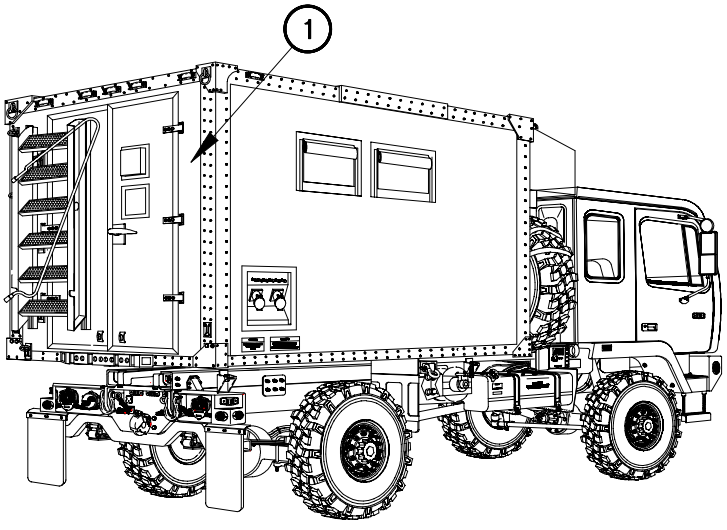
0083 00

During PMCS Procedures for Model M1079A1

These illustrations will help you perform DURING vehicle PMCS. The callouts match PMCS item number/procedures.



AD83BN6-



AD83BN7-

M1078A1 SERIES PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) - Continued

0083 00

Table 12. Preventive Maintenance Checks and Services (PMCS) - During - Model M1079A1.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
1	During		Interior Lights	1. Position main light switch to SER DRIVE or STOP LIGHT (WP 0016 00). 2. Position INTERIOR LIGHTS switch (1) to ON and check that four interior lights (2) illuminate.	

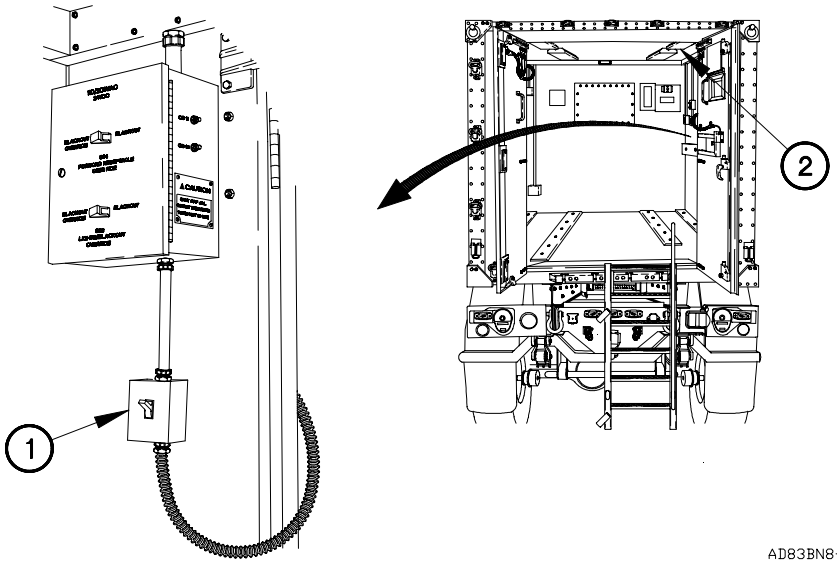


Table 12. Preventive Maintenance Checks and Services (PMCS) - During - Model M1079A1.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
1	During		Interior Lights - Continued	3. Position main light switch to BO DRIVE or BO MARKER (WP 0016 00). 4. Position INTERIOR LIGHTS switch (1) to ON and check that two blackout lights (3) and two emergency lights (4) illuminate.	

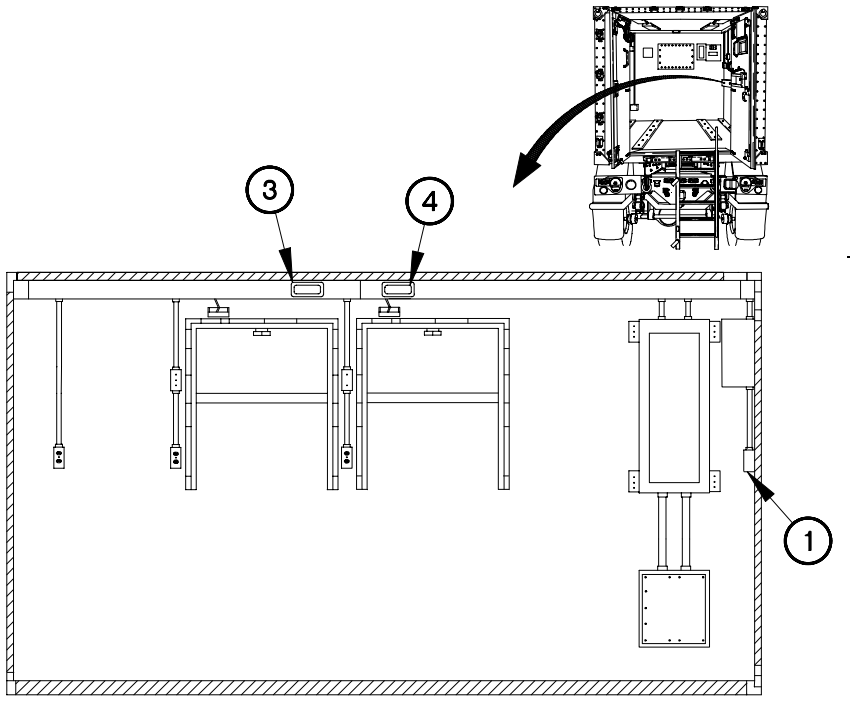
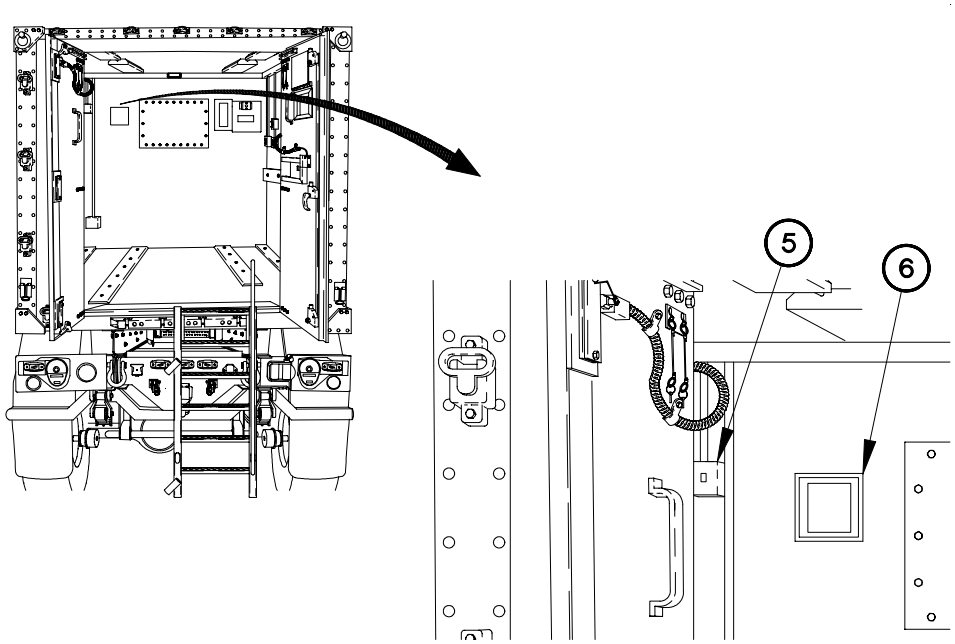


Table 12. Preventive Maintenance Checks and Services (PMCS) - During - Model M1079A1 - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
2	During		Ventilation Fan	1. Turn on ventilation fan switch (5) and check that fan (6) operates properly. 2. Position main light switch to OFF (WP 0016 00).	



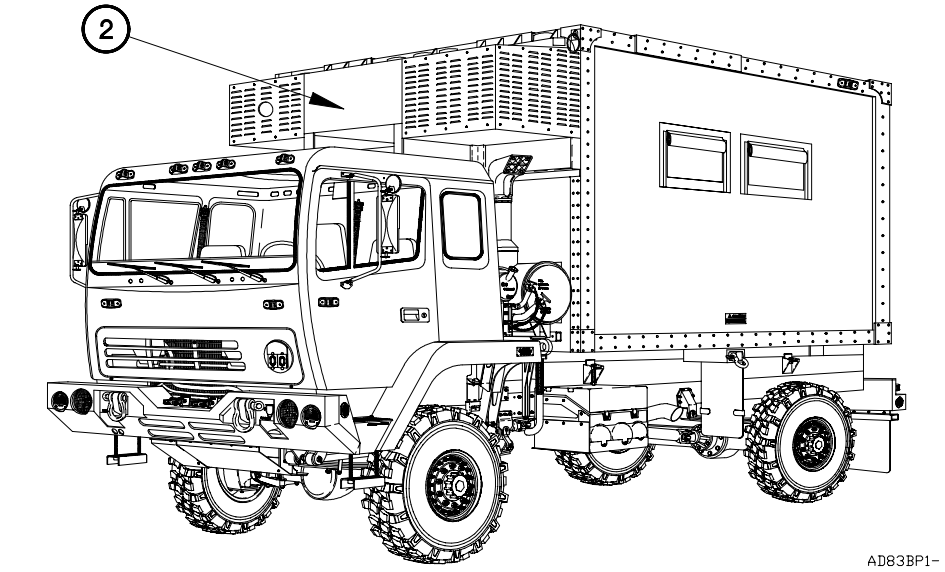
AD83BP0-

M1078A1 SERIES PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) - Continued

0083 00

Weekly PMCS Procedures for Model M1079A1

These illustrations will help you perform WEEKLY vehicle PMCS. The callouts match PMCS item number/procedures.



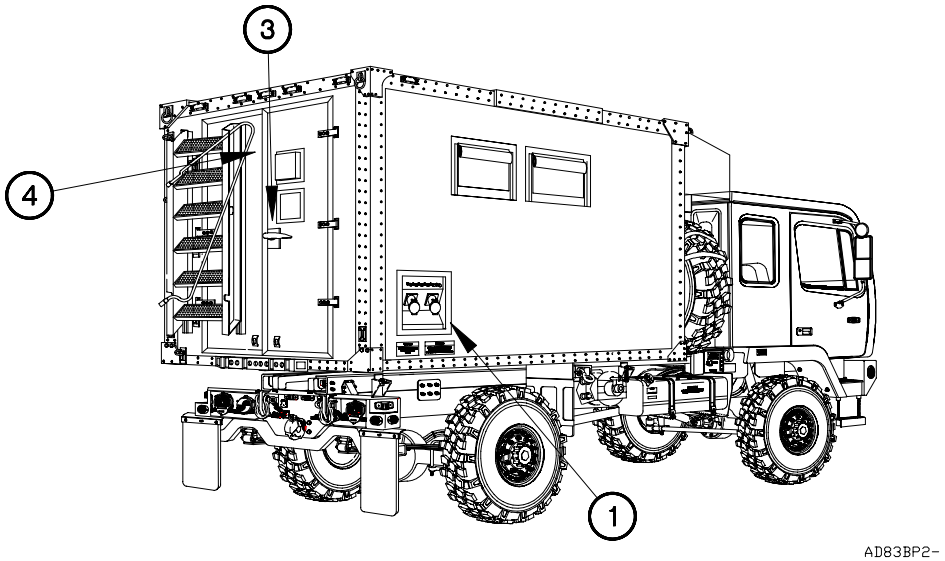
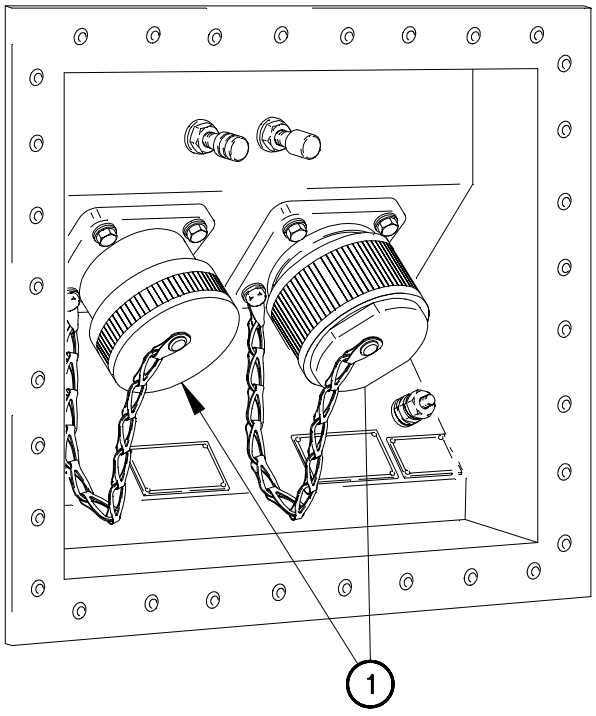


Table 13. Preventive Maintenance Checks and Services (PMCS) - Weekly - Model M1079A1.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
1	Weekly		Power Panel Receptacles	Check 110/208 VAC power panel receptacles (1) for damage.	Power panel receptacle(s) is damaged.



AD83BP3-

Table 13. Preventive Maintenance Checks and Services (PMCS) - Weekly - Model M1079A1.

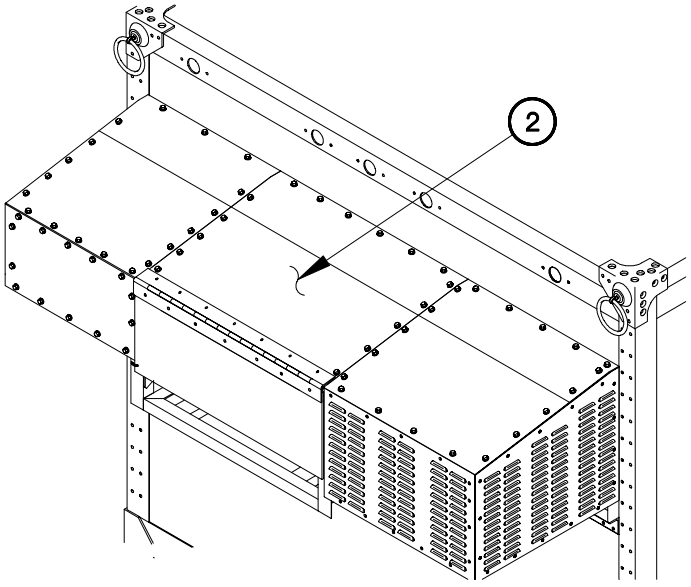
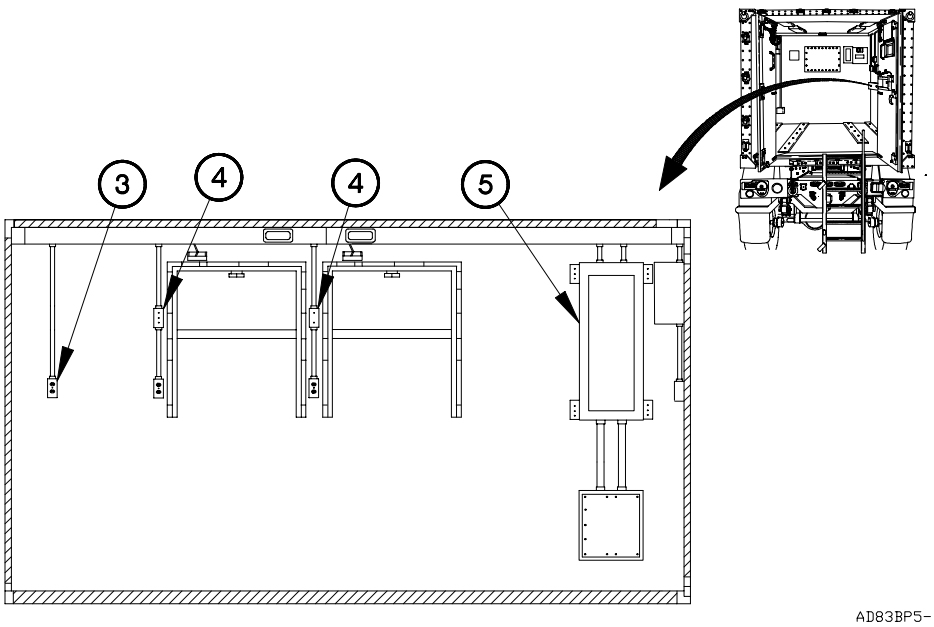
ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
2	Weekly		Van Pod	Check van pod (2) for obvious signs of damage.	Van pod is damaged.
					
3	Weekly		Electrical Receptacles and Binding Posts	1. Lower ladder (WP 0021 00).	

Table 13. Preventive Maintenance Checks and Services (PMCS) - Weekly - Model M1079A1 - Continued.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
3	Weekly		Electrical Receptacles and Binding Posts - Continued	2. Check six electrical receptacles (3) and binding posts (4) for obvious signs of damage.	Three or more electrical receptacles or one or more binding post(s) are damaged.
4	Weekly		Power Distribution Panel	1. Check 100/208 VAC POWER DISTRIBUTION PANEL (5) for obvious signs of damage. 2. Stow ladder (WP 0021 00).	100/208 VAC POWER DISTRIBUTION PANEL is damaged to the extent that a shock hazard is present.

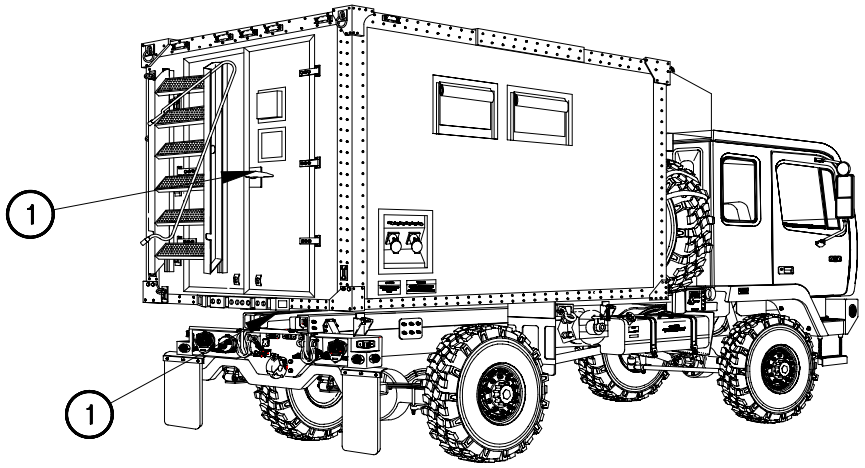


M1078A1 SERIES PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) - Continued

0083 00

Monthly PMCS Procedures for Model M1079A1

These illustrations will help you perform MONTHLY vehicle PMCS. The callouts match PMCS item number/procedures.



AD83BP6-

Table 14. Preventive Maintenance Checks and Services (PMCS) - Monthly - Model M1079A1.

ITEM NO.	INTERVAL	MAN-HOUR	ITEM TO BE CHECKED OR SERVICED	CREWMEMBER PROCEDURE	EQUIPMENT NOT READY/ AVAILABLE IF:
1	Monthly	0.1	Oil Can Points	Lubricate all oil can points with OE/HDO specified for ambient temperature. The operator/crew is responsible for lubricating the following points: 1. Van door latch and pins 2. Ladder pin locks	

DESCRIPTION	CAPACITY	TYPE OF FLUID USED AT THESE EXPECTED TEMPERATURES		
		Above 40°F (Above 4°C)	40° to -15°F (4° to -26°C)	-15° to -50°F (-26° to -46°C)
Oil Can Points	As required	OE/HDO-10	OE/HDO-10	OEA

MAINTENANCE INTRODUCTION 0084 00

The following work packages (WP 0085 00 through WP 0091 00) contain instructions for servicing, installing, and removing components at the operator maintenance level.

CHANGING TIRE 0085 00

THIS WORK PACKAGE COVERS:

Lower Spare Tire, Tire Removal, Tire Installation, Tire Stowage, and Operational Check

INITIAL SETUP:

Maintenance Level
Operator

Equipment Conditions
Vehicle parked on level ground.
Engine shut down (WP 0016 00).
Wheels chocked (WP 0016 00).
Cab raised (WP 0017 00).

Tools/Special Tools
Jack, Hydraulic (Item 14, Table 2, WP 0094 00)
Wrench, Adjustable (Item 23, Table 2, WP 0094 00)
Wrench, Socket (Item 25, Table 2, WP 0095 00)

Personnel Required
Two

References
WP 0035 00

GENERAL

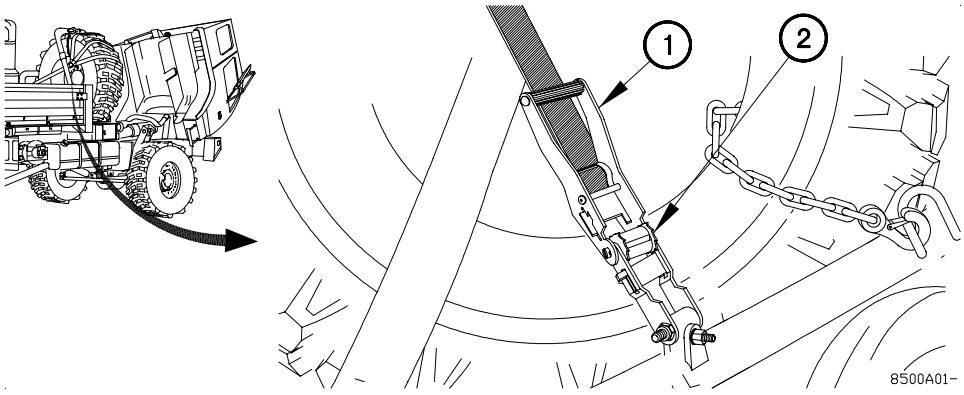
This work package contains information and instructions to change the tire on the M1078A1 series vehicle.

LOWER SPARE TIRE

WARNING

Ensure vehicle is parked on level ground before changing flat tire. Vehicle may roll. Failure to comply may result in serious injury or death to personnel.

1. Release latch (1) on ratchet (2).

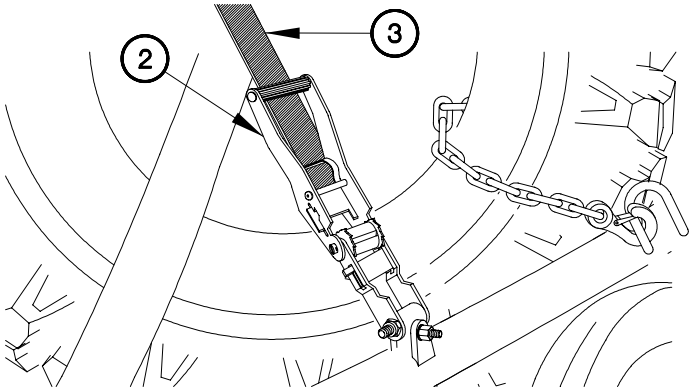


CHANGING TIRE - Continued 0085 00

LOWER SPARE TIRE - Continued

2. Lift ratchet (2) and release strap (3).

3. Remove strap (3) from ratchet (2).

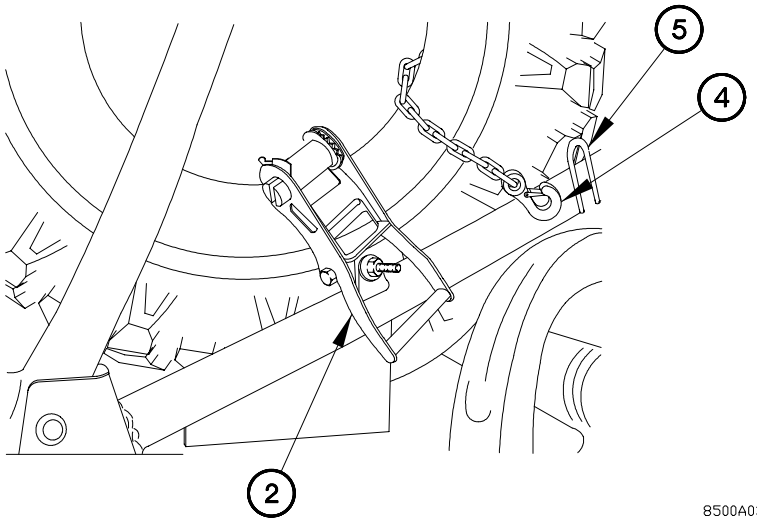


4. Disconnect safety chain (4) from spare tire retainer (5).

CAUTION

Ratchet must be in the closed position before cab is lowered. Failure to comply may result in damage to equipment.

5. Place ratchet (2) in closed position.

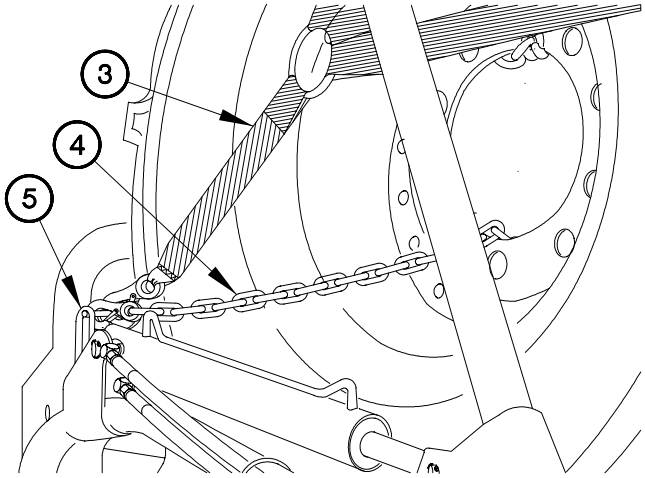


CHANGING TIRE - Continued 0085 00

LOWER SPARE TIRE - Continued

6. Remove strap (3) and safety chain (4) from spare tire retainer (5).

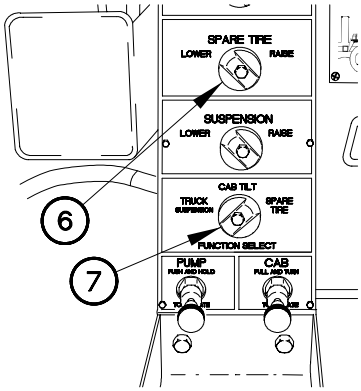
7. Lower cab (WP 0017 00).



8500A04-

8. Position SPARE TIRE knob (6) to LOWER.

9. Position FUNCTION SELECT knob (7) to SPARE TIRE.



8500A05-

CHANGING TIRE - Continued 0085 00

LOWER SPARE TIRE - Continued

WARNING

Tire weighs approximately 350 lbs (159 kgs). If treads of tire catch on tool box during lowering, raise tire and pull tire away from tool box and continue lowering. Use extreme care when lowering or handling tire. Failure to comply may result in injury to personnel.

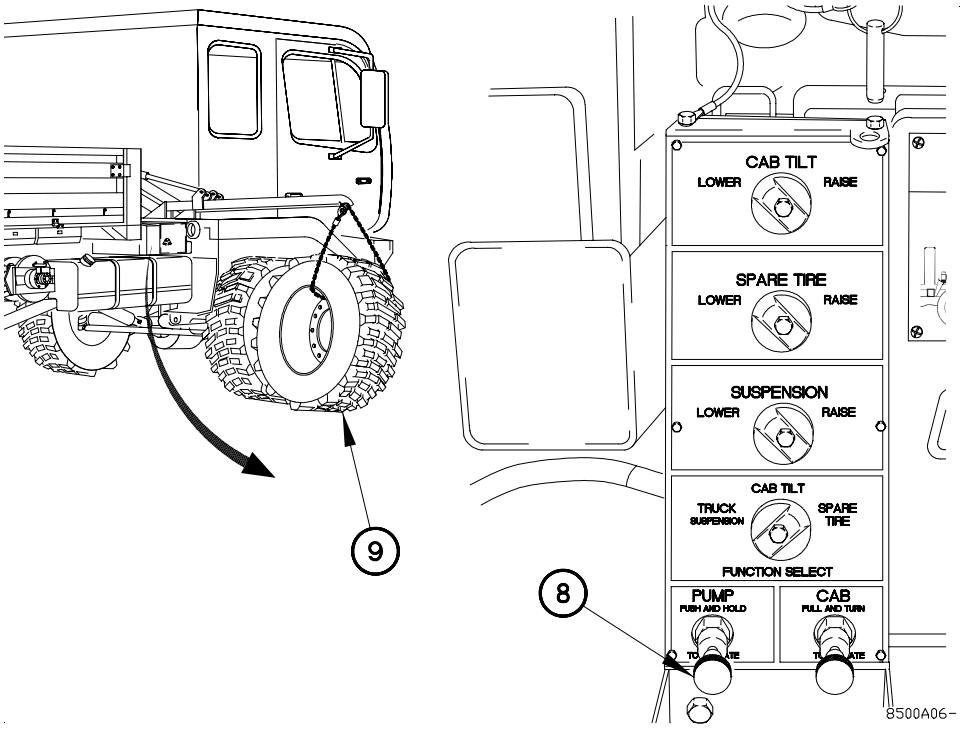
CAUTION

Use caution when lowering tire to prevent damage to Central Tire Inflation System (CTIS) wheel valve. Failure to comply may result in damage to equipment.

NOTE

Use back-up hydraulic pump (WP 0035 00) if temperature is below -25° F (-32° C) or if pressing PUMP knob does not accomplish step 10.

10. Press and hold PUMP knob (8) to lower spare tire (9) to ground.



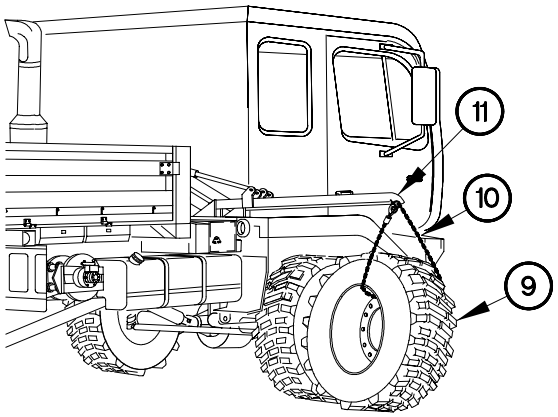
CHANGING TIRE - Continued 0085 00

LOWER SPARE TIRE - Continued

11. Disconnect one end of chain (10) from spare tire retainer lift arm (11).

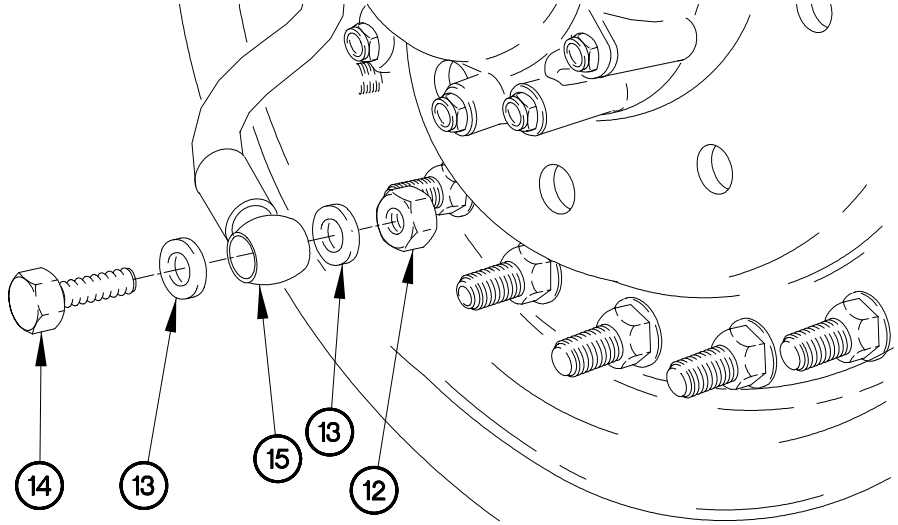
12. Pull chain (10) through hole in spare tire (9).

13. Hook chain (10) to spare tire retainer lift arm (11).



8500A07-

14. Remove nut (12), two washers (13), and bolt (14) from CTIS hose (15).



8500A08-

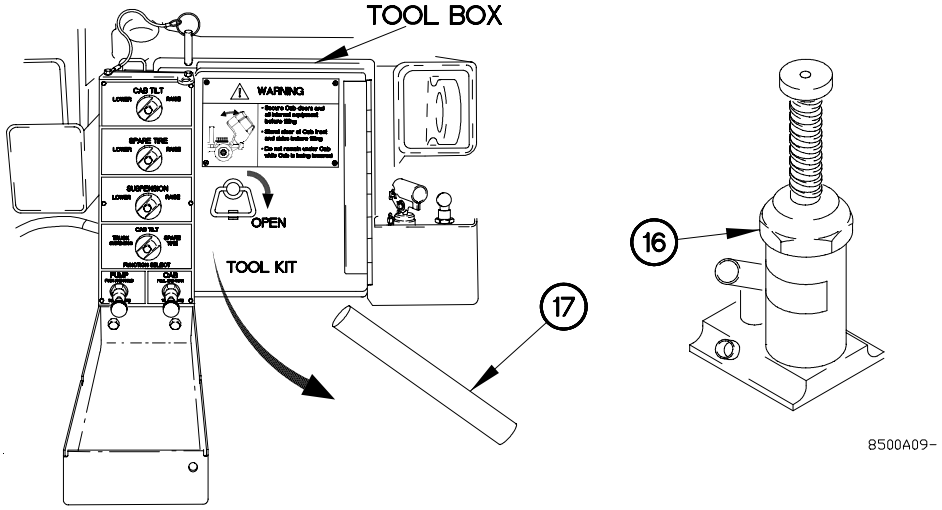
CHANGING TIRE - Continued 0085 00

TIRE REMOVAL

WARNING

Place hydraulic jack on flat surface. Do not allow personnel under vehicle when jacking. Failure to comply may result in serious injury or death to personnel.

1. Remove hydraulic jack (16) and handle (17) from tool box.

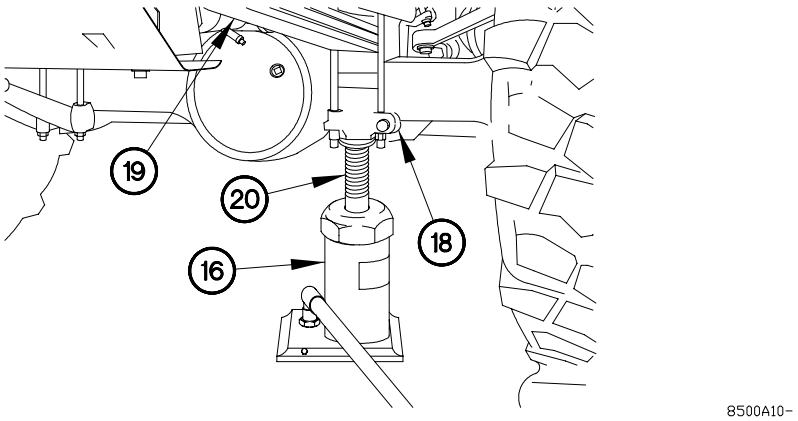


NOTE

Perform steps 2 and 3 when removing front tire.

2. Position hydraulic jack (16) under saddle (18) of leaf spring (19).

3. Unscrew jack ram (20) until it touches saddle (18).



CHANGING TIRE - Continued 0085 00

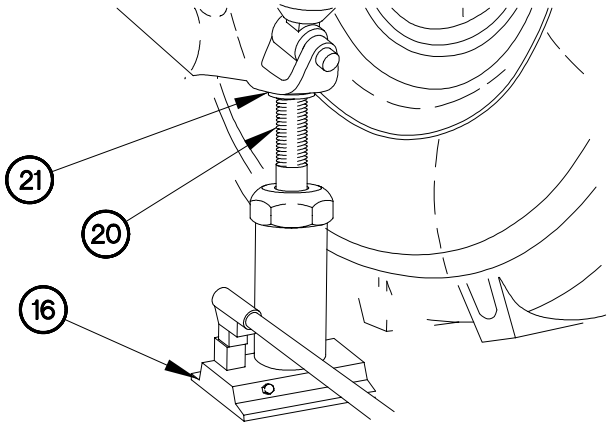
TIRE REMOVAL - Continued

NOTE

Perform steps 4 and 5 when removing rear tire.

4. Position hydraulic jack (16) under inside bolt head on shock mount (21).

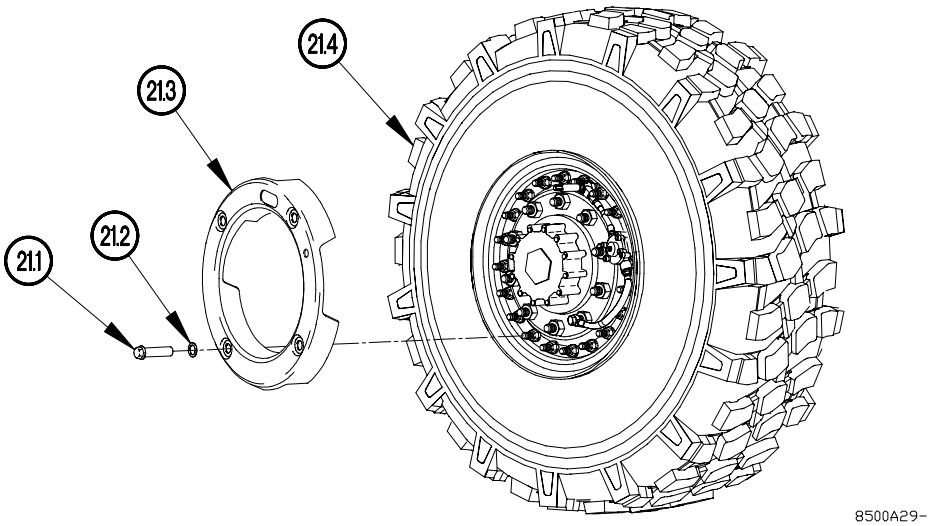
5. Unscrew jack ram (20) until it touches shock mount (21).



NOTE

Perform the following step on vehicles equipped with rim covers.

5.1 Remove four bolts (21.1), washers (21.2), and rim cover (21.3) from wheel (21.4).



CHANGING TIRE - Continued 0085 00

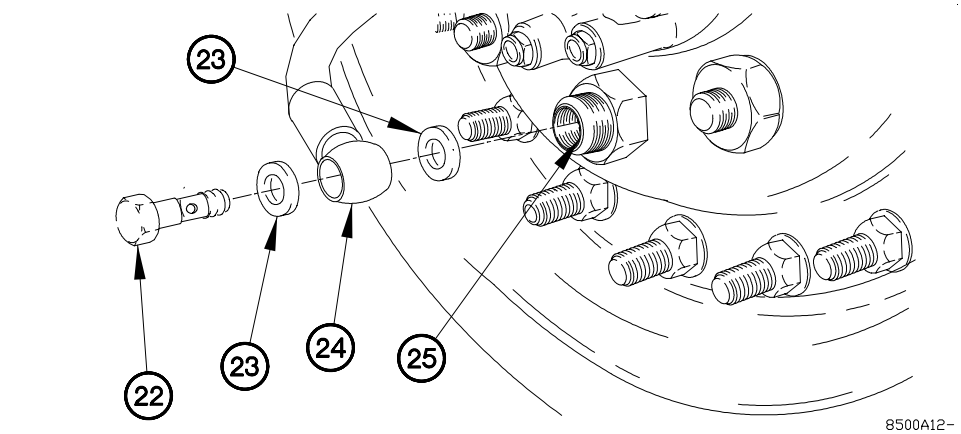
TIRE REMOVAL - CONTINUED

NOTE

Both front and rear tires are removed the same way. Rear tire shown.

Air will not escape when CTIS hose is removed from hollow wheel stud.

6. Remove banjo bolt (22), two washers (23), and CTIS hose (24) from hollow wheel stud (25).



CHANGING TIRE - Continued 0085 00

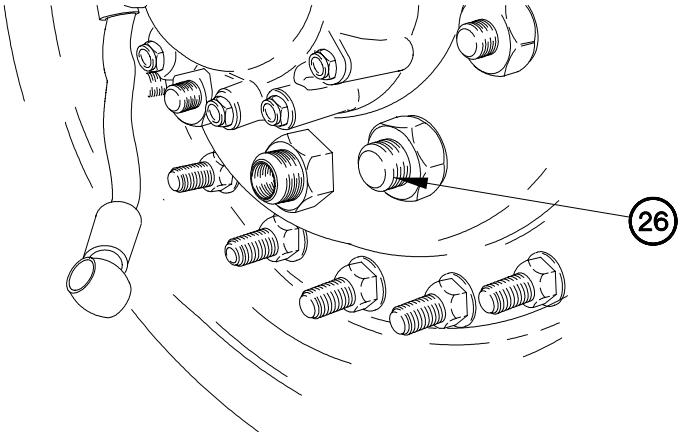
TIRE REMOVAL - Continued

NOTE

Studs and lugnuts on left side of vehicle have left-hand threads. Turn lugnuts to right to loosen, and to left to tighten.

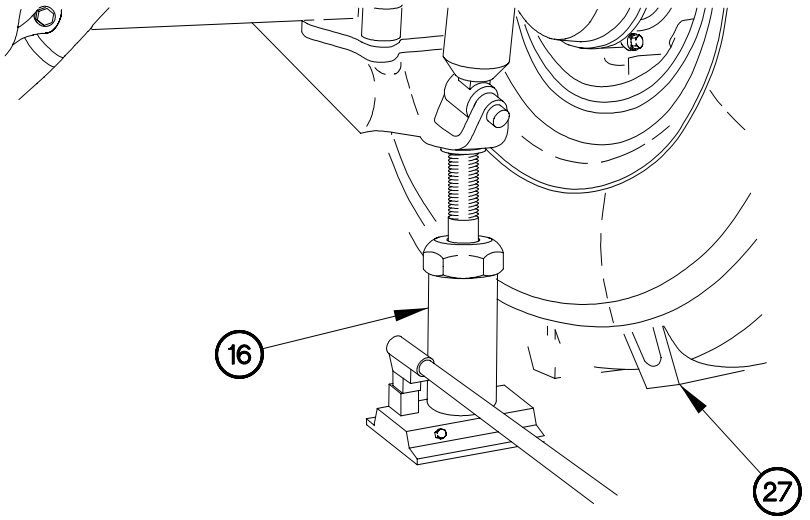
Studs and lugnuts on right side of vehicle have right-hand threads. Turn lugnuts to left to loosen, and to right to tighten.

7. Loosen ten lugnuts (26).



8500A13-

8. Raise hydraulic jack (16) until tire (27) is off ground.



8500A14-

CHANGING TIRE - Continued 0085 00

TIRE REMOVAL - Continued

WARNING

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

9. Remove ten lugnuts (26) from studs (28).

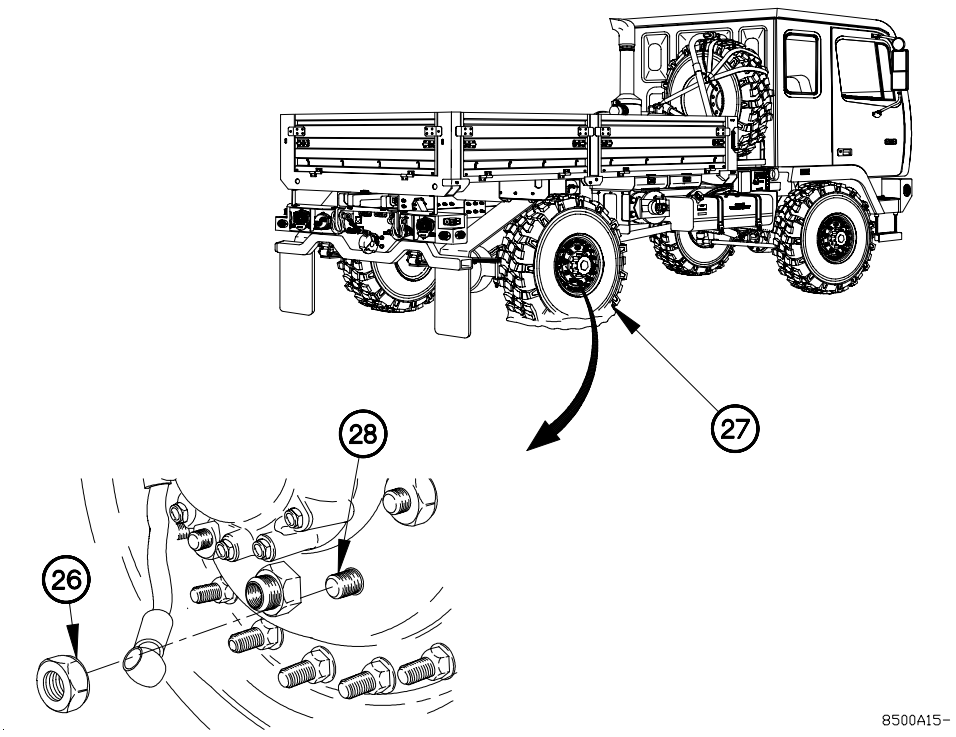
CAUTION

Do not drag tire across studs during removal. Failure to comply may result in damage to equipment.

NOTE

Step 10 requires the aid of an assistant.

10. Remove tire (27) from studs (28).



CHANGING TIRE - Continued 0085 00

TIRE INSTALLATION

WARNING

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

NOTE

Steps 1 through 5 require the aid of an assistant.

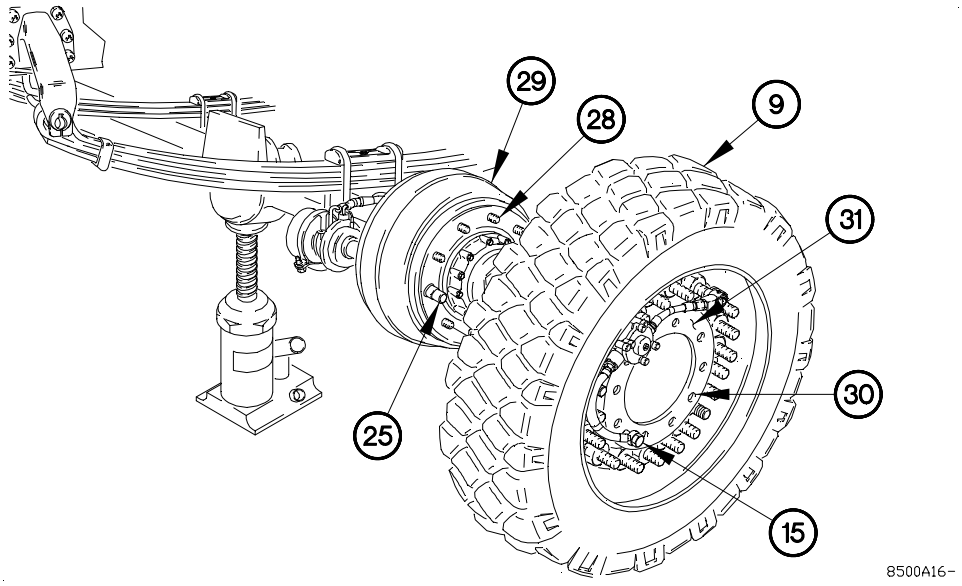
Front and rear tires are installed the same way. Rear tire installation shown.

1. Roll tire (9) up to hub (29).
2. Align CTIS hose (15) with hollow wheel stud (25).
3. Align ten holes (30) in wheel (31) with studs (28).

CAUTION

Do not drag tire across studs or crossthread lugnuts. Failure to comply may result in damage to equipment.

4. Install wheel (31) on studs (28).



CHANGING TIRE - Continued 0085 00

TIRE INSTALLATION - Continued

WARNING

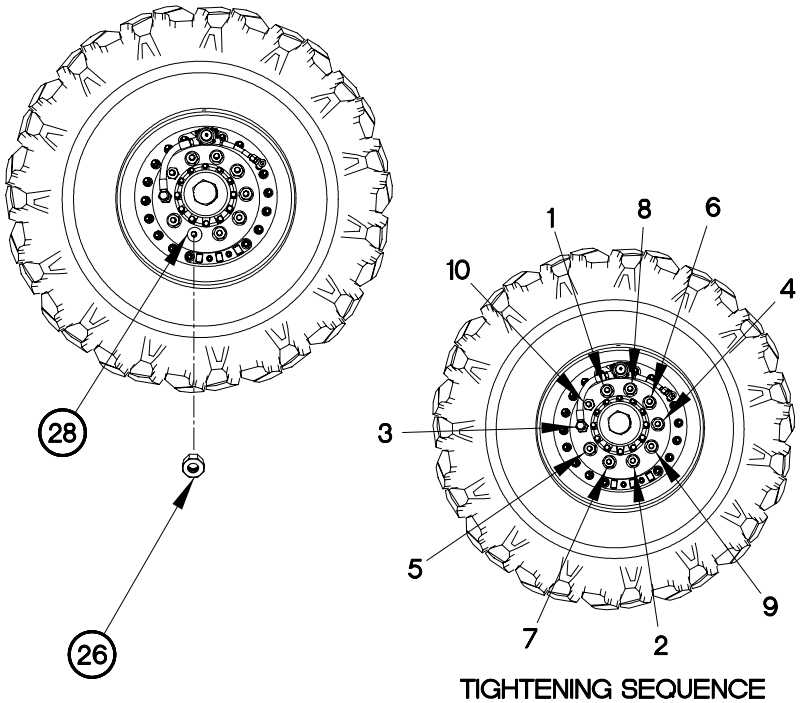
Notify Unit Maintenance that lugnuts must be tightened to 415-475 lb-ft (563-644 N·m) as soon as possible. Wheel may come loose if lugnuts are not tightened to proper torque. Failure to comply may result in serious injury or death to personnel.

NOTE

Studs and lugnuts on left side of vehicle have left-hand threads. Turn lugnuts to right to loosen, and to left to tighten.

Studs and lugnuts on right side of vehicle have right-hand threads. Turn lugnuts to left to loosen, and to right to tighten.

5. Install ten lugnuts (26) on studs (28) in sequence shown.



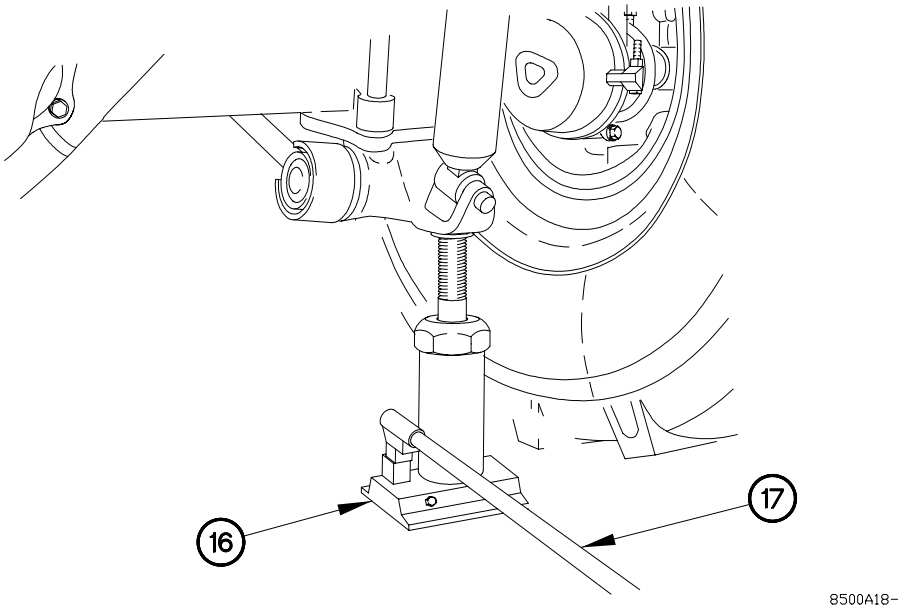
TIGHTENING SEQUENCE

8500A17-

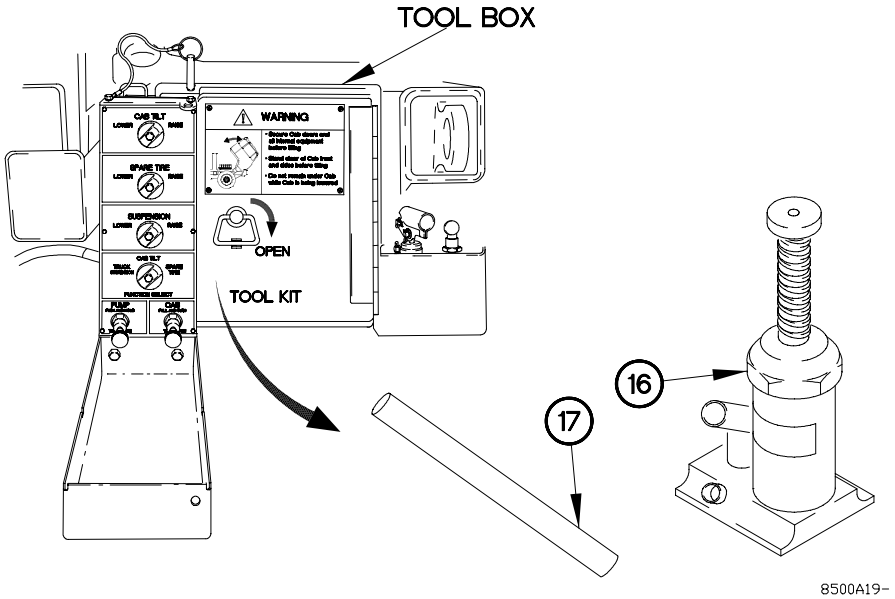
TIRE INSTALLATION - Continued

6. Lower vehicle to ground with hydraulic jack (16).

7. Remove hydraulic jack (16) and handle (17) from vehicle.



8. Stow hydraulic jack (16) and handle (17) in tool box.



CHANGING TIRE - Continued 0085 00

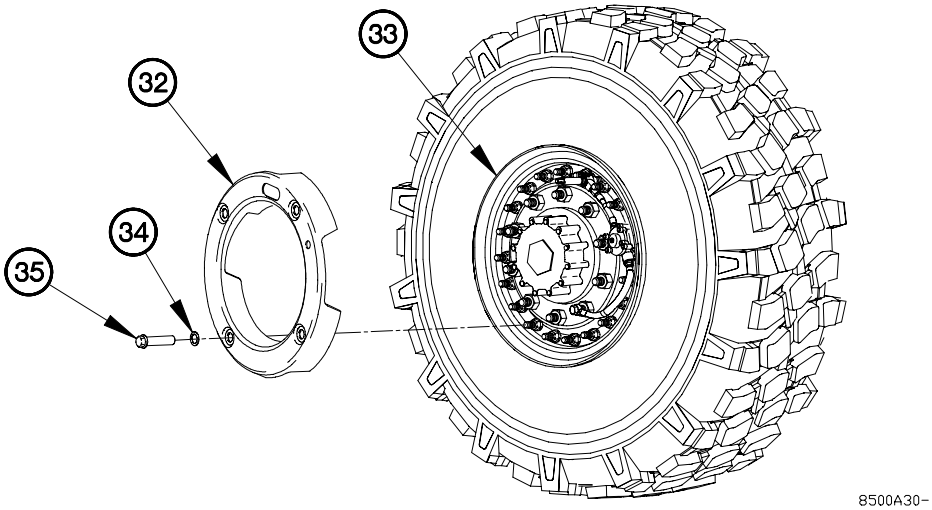
TIRE INSTALLATION – Continued

NOTE

Slotted hole in rim cover is aligned with pressure valve extension.

8.1 Position rim cover (32) on wheel (33) with four washers (34) and bolts (35).

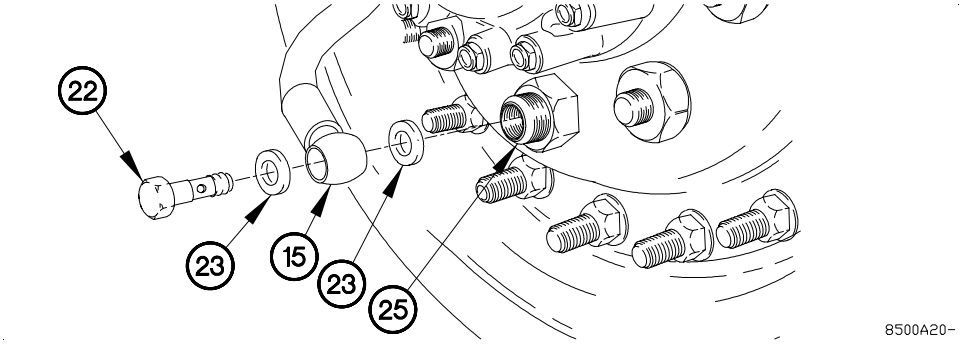
8.2 Notify Unit Maintenance to torque four rim cover bolts to 71-95 lb-ft (96-128 N•m).



CAUTION

Do not overtighten bolt when installing CTIS hose on hollow wheel stud. Failure to comply may result in damage to equipment.

9. Install CTIS hose (15) on hollow wheel stud (25) with two washers (23) and banjo bolt (12).



CHANGING TIRE - Continued 0085 00

TIRE STOWAGE - Continued

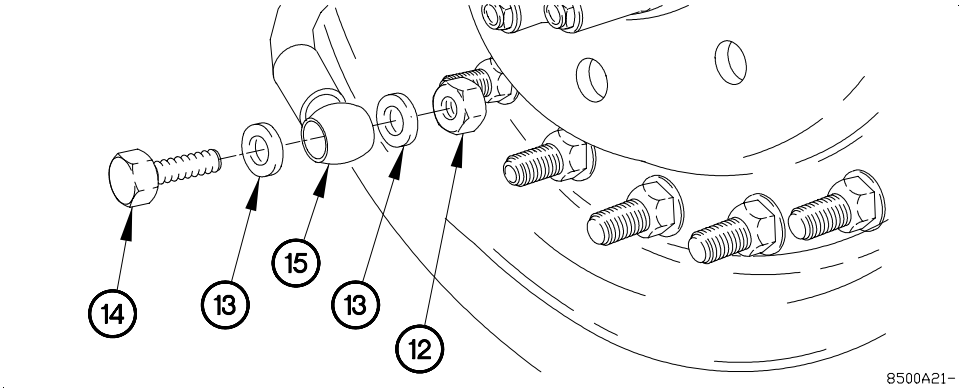
TIRE STOWAGE

WARNING

Handle tire with care. Tire may have exposed broken metal cords or sharp debris in it. Failure to comply may result in injury to personnel.

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

1. Install bolt (14), two washers (13) and nut (12) in CTIS hose (15).



CHANGING TIRE - Continued 0085 00

TIRE STOWAGE - Continued

2. Roll flat tire (27) under center of spare tire retainer life arm (11).

3. Disconnect one end of chain (10) from spare retainer life arm (11).

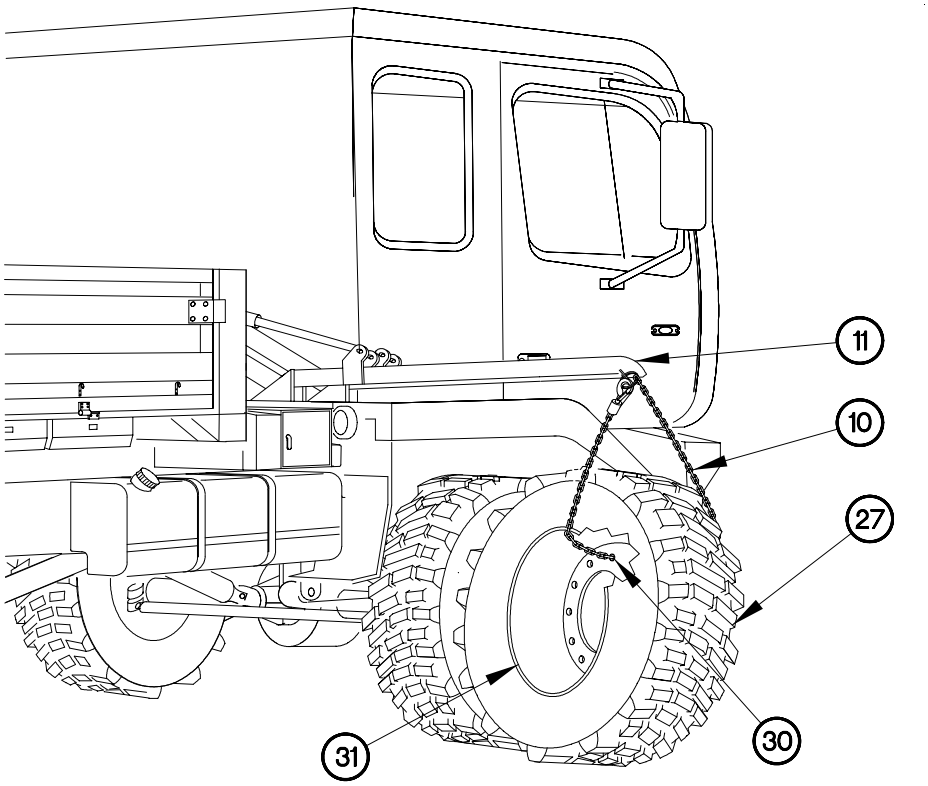
NOTE

CTIS valve on tire must be positioned to the front of vehicle and at the six o'clock position.

Tire should be straight up and down when installing chain through lug hole.

4. Route chain (10) through uppermost lug hole (30) in wheel (31).

5. Connect chain (10) to spare tire retainer lift arm (11).



CHANGING TIRE - Continued 0085 00

TIRE STOWAGE - Continued

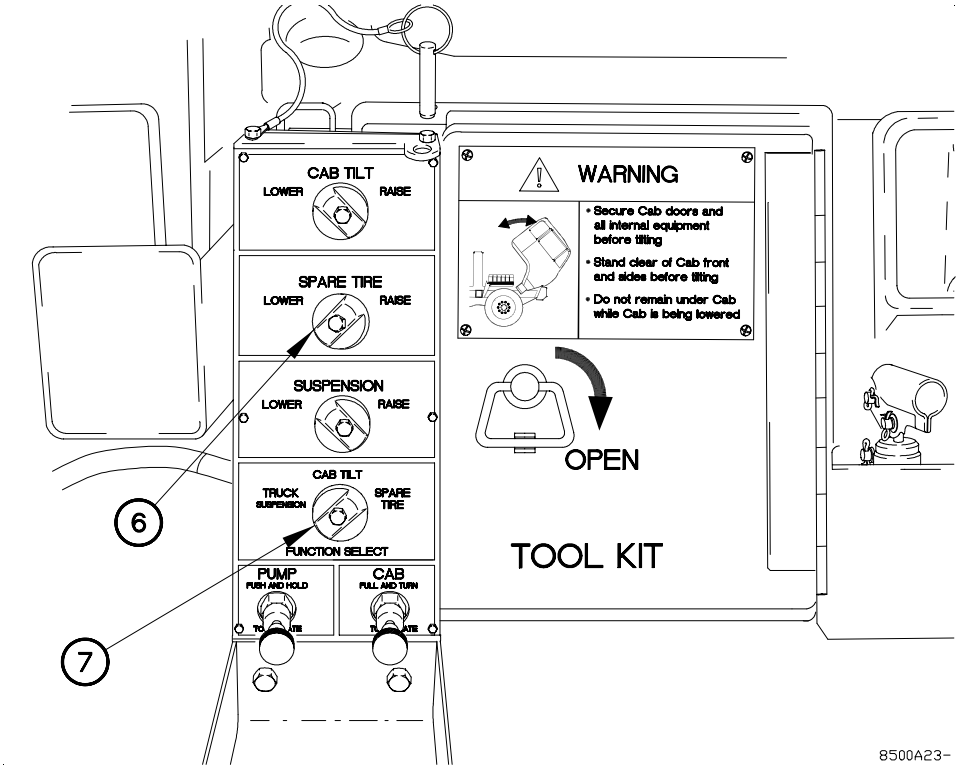
CAUTION

Use caution when raising tire to prevent damage to CTIS valve. Failure to comply may result in damage to equipment.

6. Raise cab (WP 0017 00).

7. Position SPARE TIRE knob (6) to RAISE.

8. Position FUNCTION SELECT knob (7) to SPARE TIRE.



CHANGING TIRE - Continued 0085 00

TIRE STOWAGE - Continued

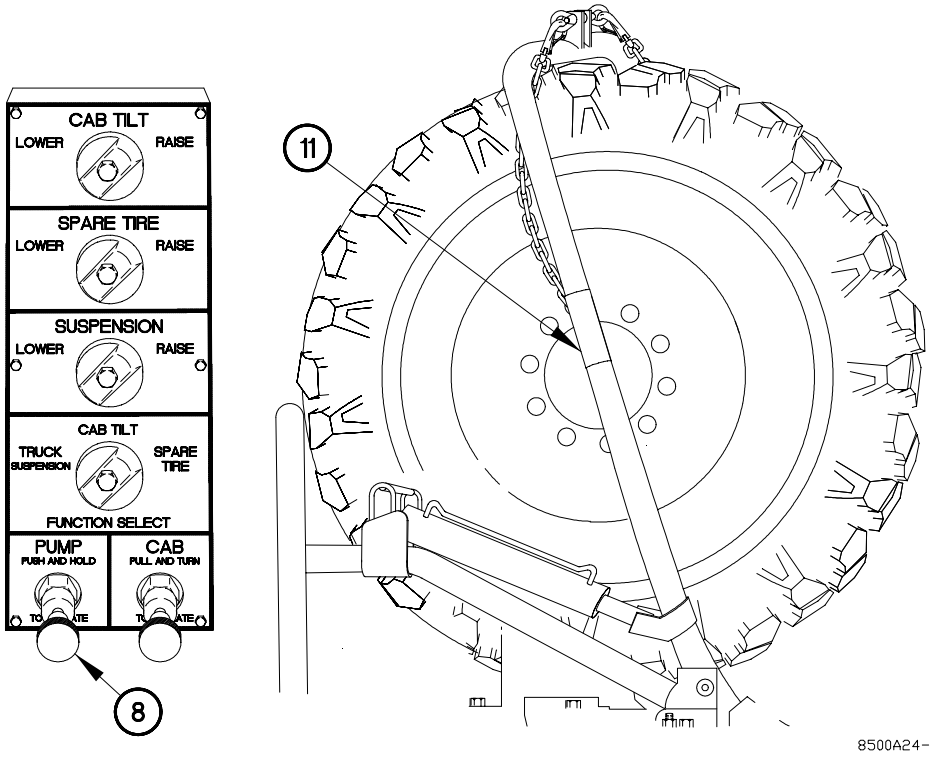
CAUTION

Tire must be stowed against back frame of spare tire retainer. Failure to comply may result in damage to equipment.

NOTE

Use back-up hydraulic pump (WP 0035 00) if temperature is below -25° F (-32° C) or if pressing PUMP knob does not accomplish step 9.

9. Press and hold PUMP knob (8) to raise spare tire retainer lift arm (11) to the stowed position.



CHANGING TIRE - Continued 0085 00

TIRE STOWAGE - Continued

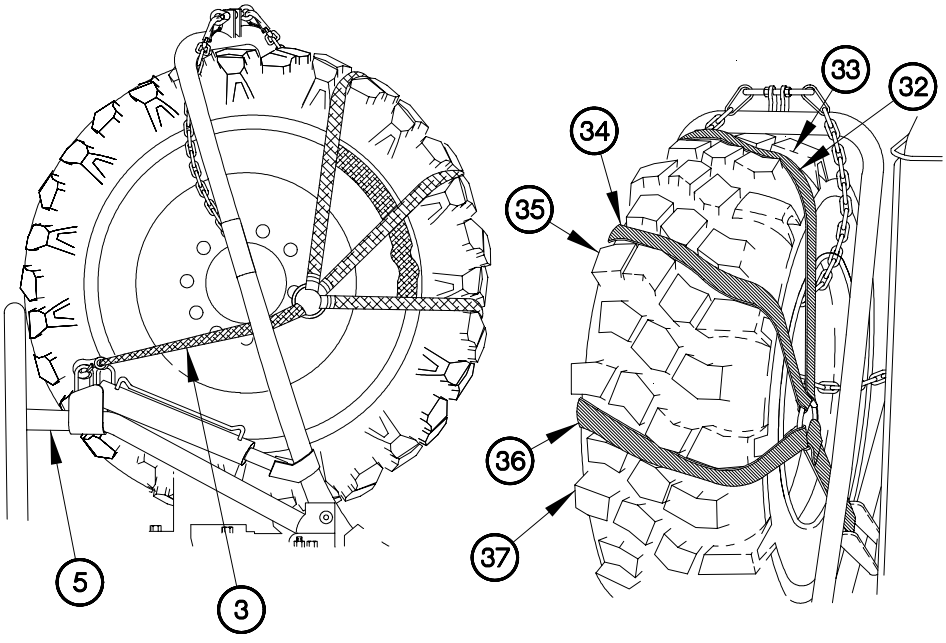
CAUTION

Tread engagers must be in slots of tire treads. A loose strap will allow tire to move causing chafing of strap and possible loss of tire. Failure to comply may result in damage to equipment.

Tread engagers must not be snug at installation for proper fit, but strap must have a tight fit. Failure to comply may result in damage to equipment.

10. Position tread engager (32) in third tread (33), tread engager (34) in sixth tread (35), and tread engager (36) in ninth tread (37).

11. Connect strap (3) to spare tire retainer (5).



8500A25-

CHANGING TIRE - Continued 0085 00

TIRE STOWAGE - Continued

12. Feed other end of strap (3) through ratchet (2).

CAUTION

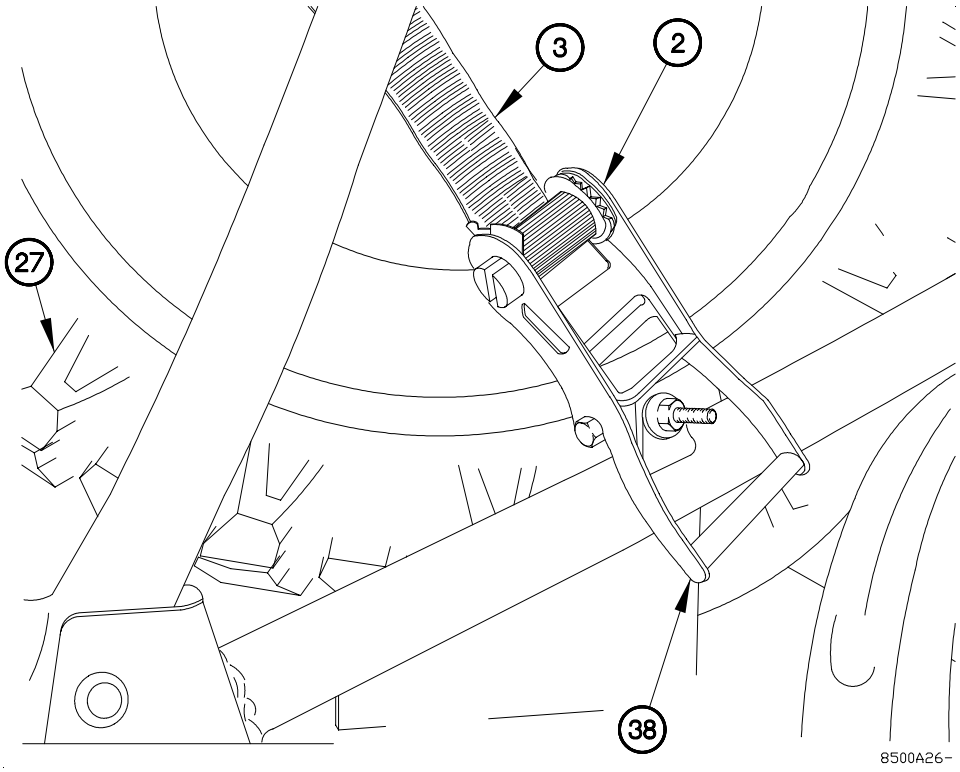
Ensure that strap is wrapped around ratchet at least three complete wraps after tightening. Failure to comply may result in damage to equipment.

13. Tighten strap (3) around flat tire (27) with ratchet (2).

CAUTION

Ratchet must be in the closed position before cab is lowered. Failure to comply may result in damage to equipment.

14. Place ratchet handle (38) in down position.



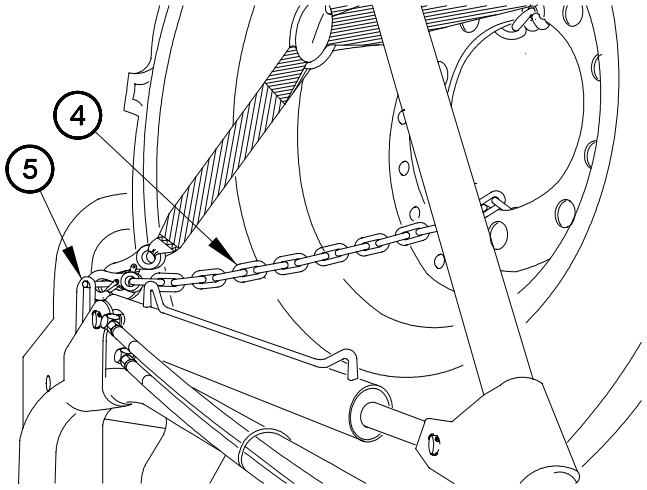
CHANGING TIRE - Continued 0085 00

TIRE STOWAGE - Continued

CAUTION

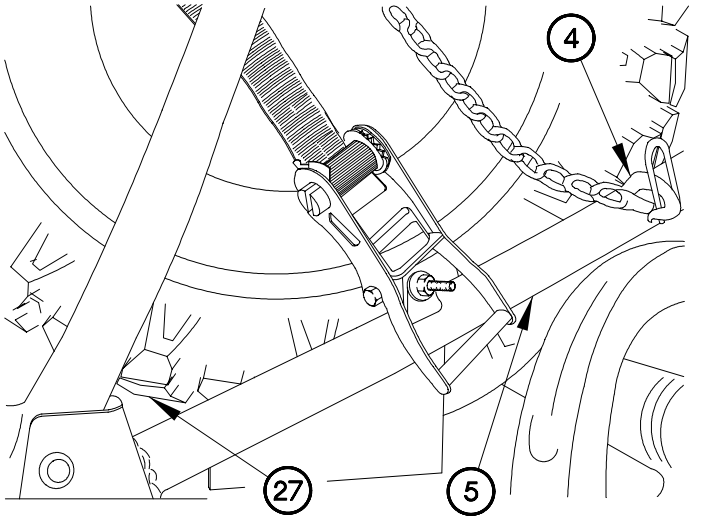
Ensure that safety chain is loose. If safety chain is tight then strap is not tight enough. Failure to comply may result in damage to equipment.

15. Connect safety chain (4) to spare tire retainer (5).



16. Route other end of safety chain (4) through flat tire (27) and connect to spare tire retainer (5).

17. Lower cab (WP 0017 00).



CHANGING TIRE - Continued 0085 00

OPERATIONAL CHECK

1. Remove wheel chocks (WP 0016 00).
2. Notify Unit Maintenance that lugnuts need to be tightened to 415-475 lb-ft (563-644 N·m).
3. Notify Unit Maintenance that flat tire needs to be repaired/replaced.
4. Notify Unit Maintenance if flat tire was replaced on front of vehicle that kneeling valve must be installed.
5. Notify Unit Maintenance that banjo bolts need to be tightened to 22-28 lb-ft (30-52 N·m).

END OF TASK

SERVICING TIRES 0086 00

THIS WORK PACKAGE COVERS:
Checking Tire Pressures, Manually Inflating Tires

INITIAL SETUP:

Maintenance Level
Operator

Equipment Conditions
Engine shut down (WP 0016 00).

Tool/Special Tool
Inflator-Gage, Tire w/Hose (Item 13, Table 2, WP 0094 00)

Personnel Required
Two

GENERAL

This work package contains information and instructions to service the tires for the M1078A1 series vehicle.

WARNING

Ensure tires have correct tire pressure (within ± 3 psi (21 kPa)) for terrain conditions and driving speed(refer to Table 1). Failure to comply may result in serious injury or death to personnel.

CHECKING TIRE PRESSURES

Check tire pressures with tire inflator-gage (refer to table 1).

Table 1. Cold Tire Inflation Pressures and Restrictions.

Operating Mode	Maximum Vehicle Speed	Operating Time Restriction	Tire Pressure
Highway	55 mph (88 km/h)	NONE	55 psi (379 kPa)
Cross-Country	40 mph (64 km/h)	NONE	33 psi (228 kPa)
Sand	12 mph (19 km/h)	NONE	20 psi (138 kPa)
Emergency	5 mph (8 km/h)	10 MINUTES	14 psi (97 kPa)

MANUALLY INFLATING TIRES

WARNING

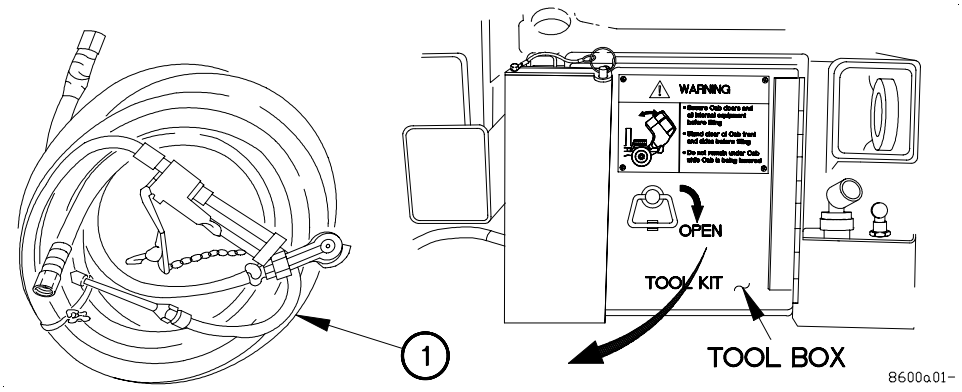
Use caution when inflating tire. Overinflation may cause tire to blow apart. Failure to comply may result in serious injury or death to personnel or damage to equipment.

NOTE

If CTIS is not operating, tires may be inflated manually. Tires should be inflated when they are cool. Inflate to proper pressure for terrain conditions and driving speed. Refer to Table 1.

SERVICE or EMERGENCY gladhands at rear of vehicle are used to manually inflate tires.

1. Remove tire inflator-gage and hose (1) from tool box.

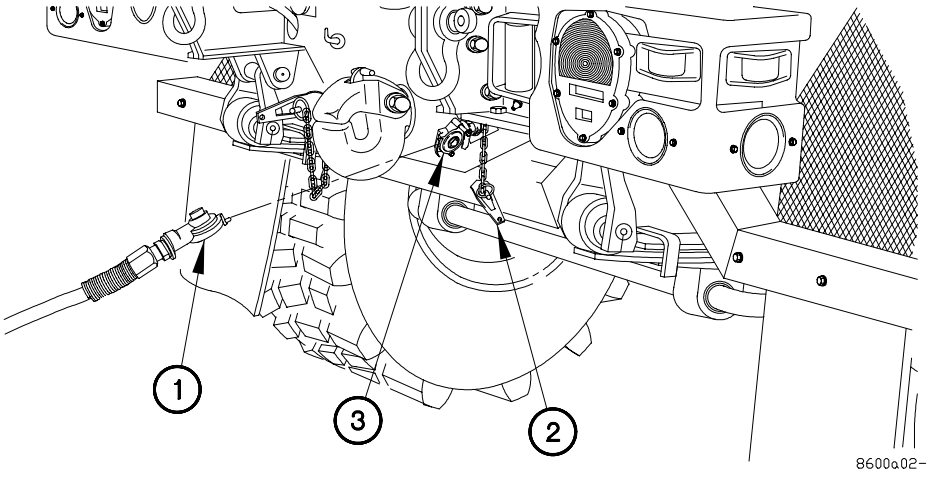


MANUALLY INFLATING TIRES - Continued

2. Remove dummy coupling (2) from SERVICE or EMERGENCY gladhand (3) at rear of vehicle.

3. Connect tire inflator-gage and hose (1) to SERVICE or EMERGENCY gladhand (3).

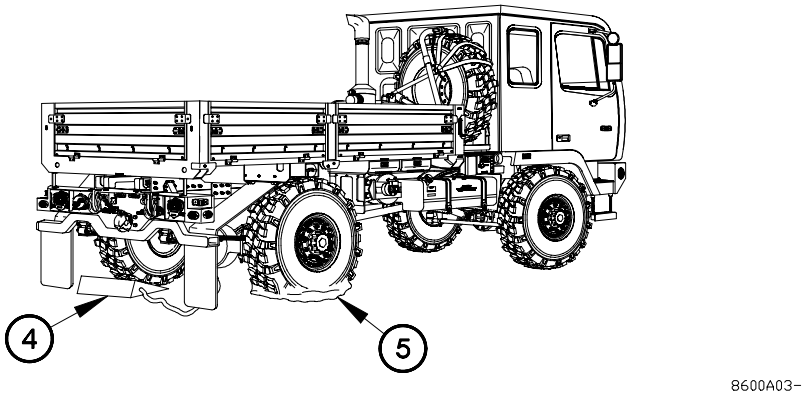
4. Start engine (WP 0016 00).



WARNING

Wheels must be chocked and service brakes applied before parking brake is released. Vehicle may roll if wheels are not chocked. Failure to comply may result in serious injury or death to personnel.

5. Install two wheel chocks (4) against tire across from tire (5) that is to be inflated.



SERVICING TIRES - Continued 0086 00

MANUALLY INFLATING TIRES - Continued

NOTE

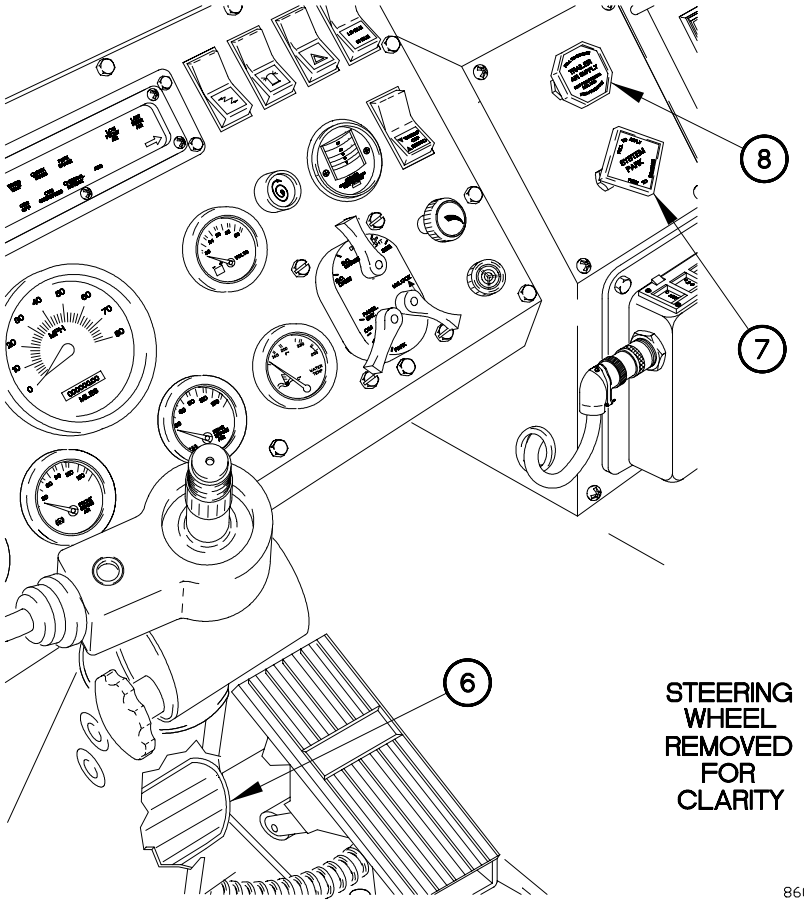
Air is available at service gladhand as long as brake pedal is applied. Air is available at emergency gladhand once SYSTEM PARK and TRAILER AIR SUPPLY valves are depressed.

Steps 6 through 14 require the aid of an assistant.

6. Depress brake pedal (6).

7. Push in SYSTEM PARK control (7).

8. Push in TRAILER AIR SUPPLY control (8).



MANUALLY INFLATING TIRES - Continued

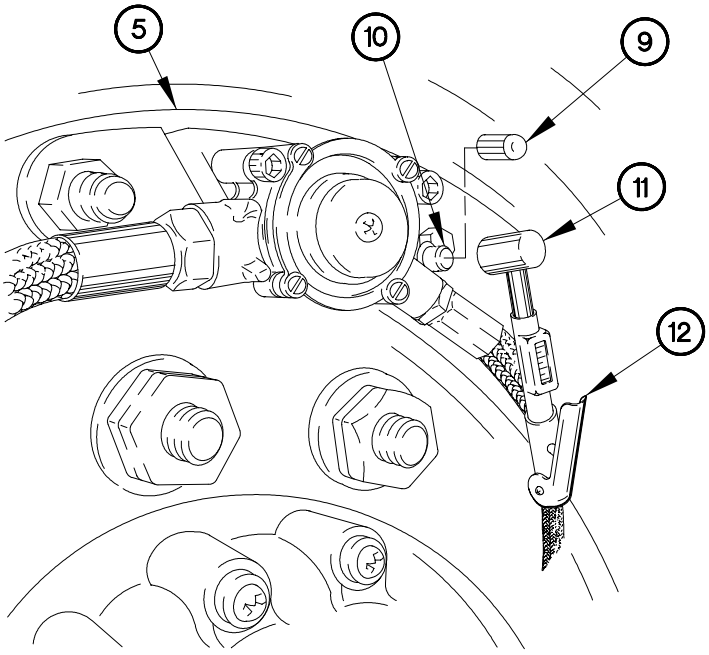
9. Remove cap (9) from valve stem (10).

10. Press chuck of tire inflator-gage (11) over valve stem (10) and squeeze handle (12).

11. Add air to tire (5) as required by Table 1, Cold Tire Inflation Pressures and Restrictions.

12. Remove chuck of tire inflator-gage (11) from valve stem (10).

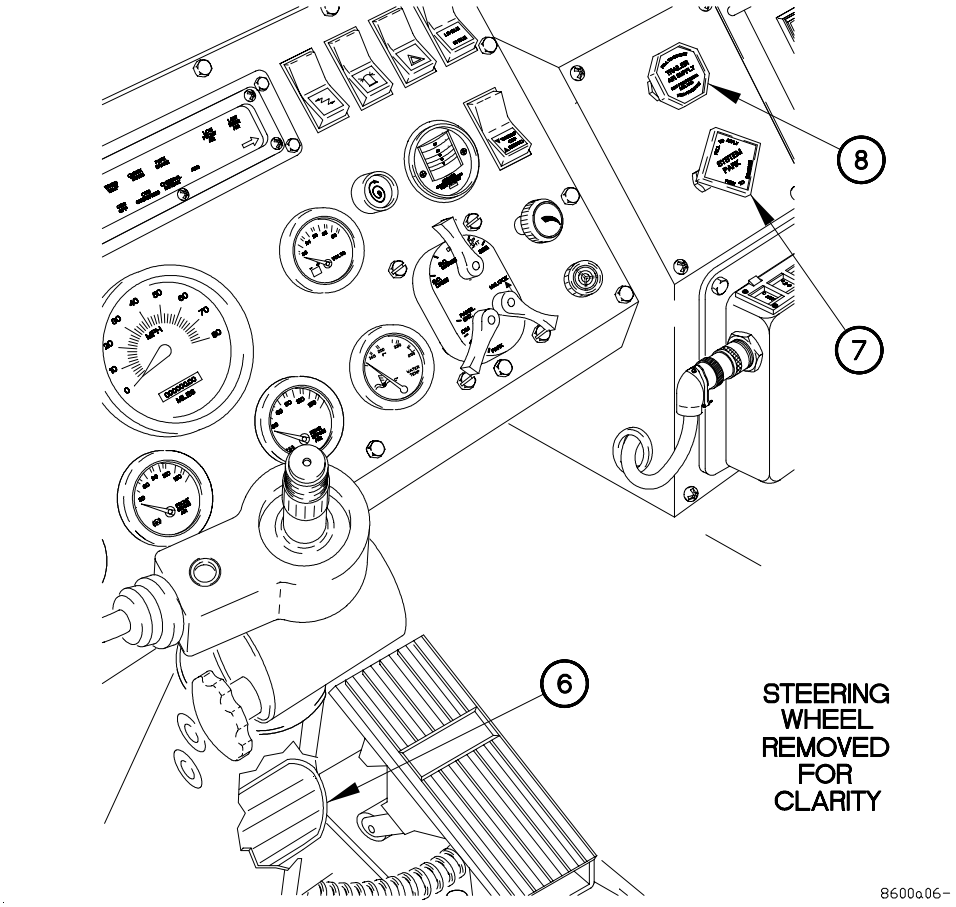
13. Install cap (9) on valve stem (10).



8600a05-

MANUALLY INFLATING TIRES - Continued

14. Pull out SYSTEM PARK control (7).
15. Pull out TRAILER AIR SUPPLY control (8).
16. Release brake pedal (6).
17. Shut down engine (WP 0016 00).



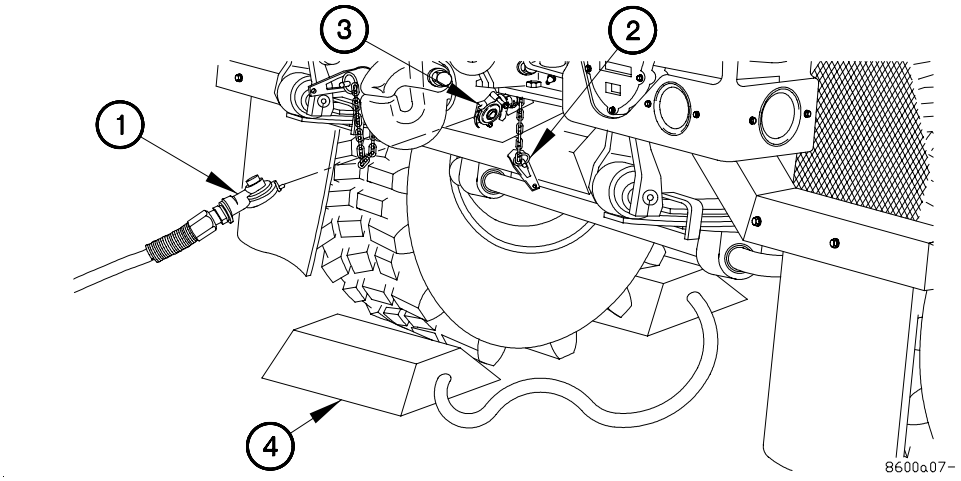
SERVICING TIRES - Continued 0086 00

MANUALLY INFLATING TIRES - Continued

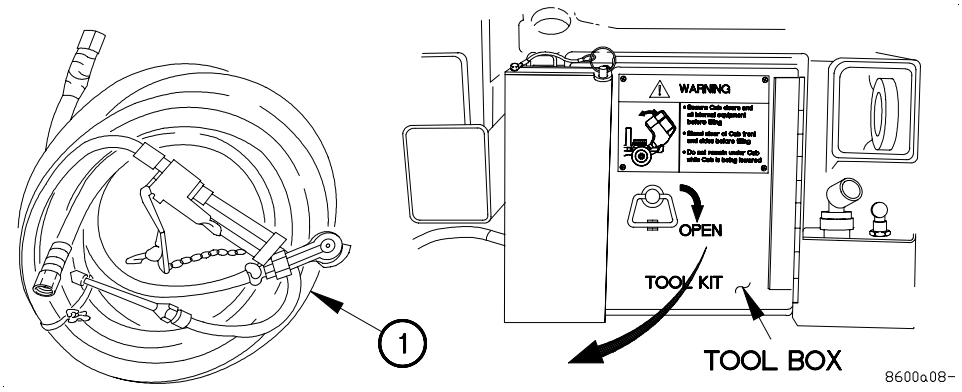
18. Remove tire inflator-gage and hose (1) from SERVICE or EMERGENCY gladhand (3).

19. Install dummy coupling (2) on SERVICE or EMERGENCY gladhand (3).

20. Remove two wheel chocks (4).



21. Stow tire inflator-gage and hose (1) in tool box.



END OF TASK

CLEANING VEHICLE 0087 00

THIS WORK PACKAGE COVERS:
Cleaning Exterior, Cleaning Interior

INITIAL SETUP:

Maintenance Level
Operator

Equipment Condition
Wheels chocked (WP 0016 00).

Materials/Parts
Gloves, Rubber (Item 8, WP 0096 00)
Goggles, Industrial (Item 9, WP 0096 00)
Oil, Lubricating (Item 15, WP 0096 00)

Materials/Parts - Continued
Rags, Wiping (Item 23, WP 0096 00)
Soap, Laundry (Item 24, WP 0096 00)
Solvent, Dry Cleaning (Item 25, WP 0096 00)

Reference
TM 9-247

GENERAL

This work package contains information and instructions to clean the M1078A1 series vehicle.

WARNING

All cleaning procedures must be accomplished in well-ventilated areas. Failure to comply may result in injury to personnel or damage to equipment.

Protective gloves, clothing, and/or respiratory equipment must be worn whenever caustic, toxic, or flammable cleaning solutions are used. Failure to comply may result in injury to personnel or damage to equipment.

Diesel fuel or gasoline must never be used for cleaning. Failure to comply may result in injury to personnel or damage to equipment.

A fire extinguisher must be available and ready during all cleaning operations involving solvents. Failure to comply may result in injury to personnel or damage to equipment.

CLEANING VEHICLE - Continued 0087 00

GENERAL - Continued

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 Dry Cleaning 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 Dry Cleaning Solvent (P-D-680), 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 medical attention. Failure to comply may result in serious injury or death to personnel.

CAUTION

Do not wipe dirt off vehicle when it is dry. Dirt, stones, or debris may scratch and damage vehicle. Failure to comply may result in damage to equipment.

Use caution when washing around the engine compartment to prevent damage to sensors and inadvertent removal of grease in bearing surfaces. Failure to comply may result in damage to equipment.

Periodically wash the engine side of the fan clutch in the engine compartment. Fine particles of road debris may accumulate in the fan clutch housing causing the fan clutch to drag and not fully release. Failure to comply may result in damage to equipment.

Do not allow water to enter air cleaner inlet while washing vehicle. Air cleaner becomes restricted when wet and may cause a loss in engine power. Failure to comply may result in damage to equipment.

Do not use high pressure water or steam on starting motor. When cleaning engine/transmission, starting motor must be protected from any high pressure water or steam. Failure to comply may result in damage to equipment.

CLEANING VEHICLE - Continued 0087 00

GENERAL - Continued

CAUTION

Do not direct high-pressure water stream at glass surfaces, seals, air intake, exhaust outlet, or any other component of vehicle that could be easily damaged by high-pressure water stream. Failure to comply may result in damage to equipment.

Do not use high pressure water or steam to clean interior of vehicle. Failure to comply may result in damage to equipment.

Do not use strong detergent or abrasive. Failure to comply may result in damage to equipment.

Do not allow cleaning compounds to come into contact with rubber, vinyl, or canvas materials. Failure to comply may result in damage to equipment.

Do not allow corrosion-removing cleaning compounds to contact painted surfaces. Failure to comply may result in damage to equipment.

Do not use compressed air in cleaning cab interior. Failure to comply may result in damage to equipment.

Do not steam clean any part of vehicle that has been rustproofed. Failure to comply may result in damage to equipment.

Mildew must be removed with a bristle brush before canvas can be properly cleaned and aired. Failure to comply may result in damage to equipment.

The radiator is always cleaned first from behind with low pressure water or air in order to blow debris, insects, or other obstructions out and away from the radiator core. Failure to comply may result in damage to equipment.

NOTE

Detailed description of specific cleaning compounds, cleaning solvents, dry cleaning solutions, and corrosion-removing compounds are found in TM 9-247.

Table 1, General Cleaning Instructions, provides a general guideline to cleaning materials used in removing contaminants from various vehicle surfaces.

CLEANING VEHICLE - Continued 0087 00

GENERAL - Continued

Table 1. General Cleaning Instructions.

Cleaning Materials Used to Remove			
Surface	**Oil/Grease**	**Salt/Mud/ Dust/Debris**	**Surface Rust/ Corrosion**
Body	Grease cleaning compound, running water, and damp or dry rags.	High pressure water, soapy warm water, soft brush, and damp or dry rags.	Corrosion-removing compound, bristle brush, dry rags, and lubricating oil.*
Cab Interior (Metals)	Grease cleaning compound and damp or dry rags.	Damp and dry rags.	Corrosion-removing compound, bristle brush, dry rags, and lubricating oil.*
Cab Interior (Material)	Saddle soap, warm water, soft brush, and dry rags.	Soft brush, soapy warm water, and damp or dry rags.	Not applicable.
Frame	Grease cleaning compound rinsed with running water and rags.	High pressure water, soapy warm water, wire brush, and damp or dry rags.	Corrosion-removing compound, bristle brush, dry rags, and lubricating oil.*
Starting Motor	Mixed solution, 1 part grease-cleaning compound, 4 parts dry cleaning solvent, and rags.	Soapy warm water, soft wire brush, and damp or dry rags.	Bristle brush, warm soapy water, and dry rags.
Engine/Transmission	Mixed solution, 1 part grease-cleaning compound, 4 parts dry cleaning solvent, and rags.	High pressure water, soapy warm water, soft wire brush, and damp or dry rags.	Bristle brush, warm soapy water, and dry rags.
Glass	Glass cleaning solution and clean dry rags.	Glass cleaning solution and clean, dry rags.	Not applicable.
Radiator	Not applicable.	Low pressure water, air, soapy warm water, and damp or dry rags.	Not applicable.

CLEANING VEHICLE - Continued 0087 00

GENERAL - Continued

Table 1. General Cleaning Instructions - Continued.

Cleaning Materials Used to Remove			
Surface	**Oil/Grease**	**Salt/Mud/ Dust/Debris**	**Surface Rust/ Corrosion**
Tires	Soapy water and bristle brush.	High pressure water and bristle brush.	Not applicable.
Cable	Cleaning compound and wire brush.	Wire brush.	Wire brush and lubricating oil.*
*After cleaning, apply light grade of lubricating oil to all unprotected surfaces to prevent continued rust.			

CLEANING EXTERIOR

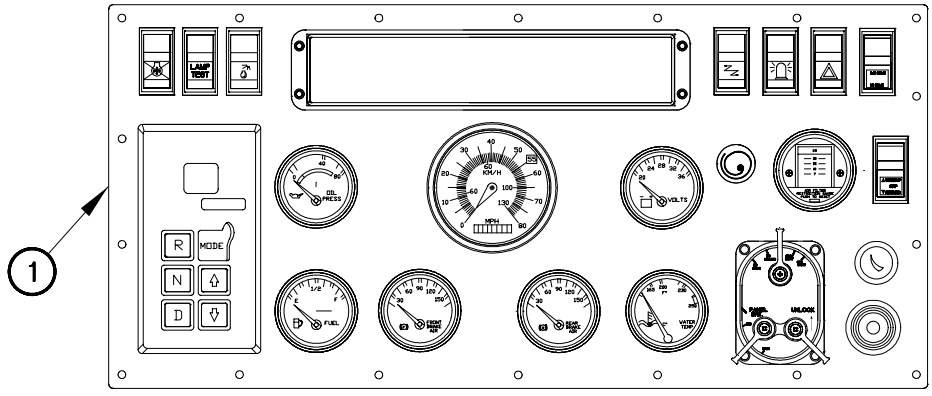
Wash vehicle as instructed in Table 1.

CLEANING INTERIOR

CAUTION

Do not allow water to contact electrical controls, gages, or indicators. Failure to comply may result in damage to equipment.

1. Remove loose dirt and dust from instrument panel assembly (1) with damp wiping rag.



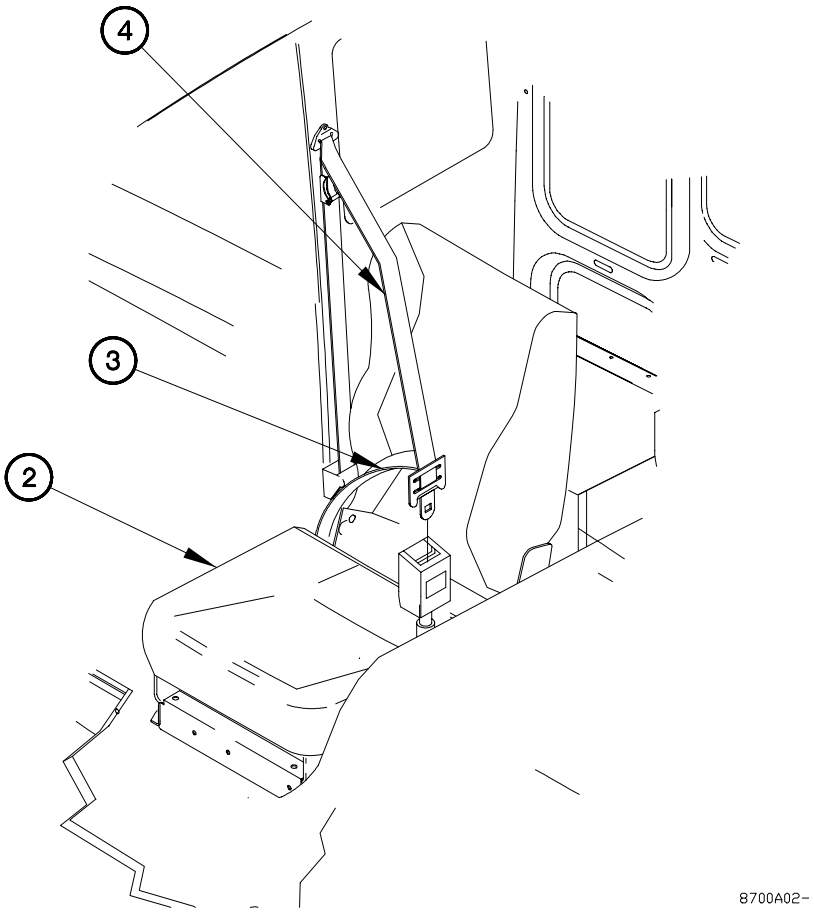
8700A01-

CLEANING VEHICLE - Continued 0087 00

CLEANING INTERIOR - Continued

2. Clean seat cushions (2), seat belts (3), and shoulder harnesses (4) with warm soapy water.

3. Wipe seat cushions (2), seat belts (3), and shoulder harnesses (4) dry with wiping rags.



CLEANING VEHICLE - Continued 0087 00

CLEANING INTERIOR - Continued

NOTE

Both left and right side drain plugs are removed/installed the same. Left side shown.

Vehicles with serial numbers of 18,548 and up are equipped with two free flowing drain plugs. Removal of drain plugs in these Vehicles is not required.

4. Remove four drain plugs (5) from floor (6).

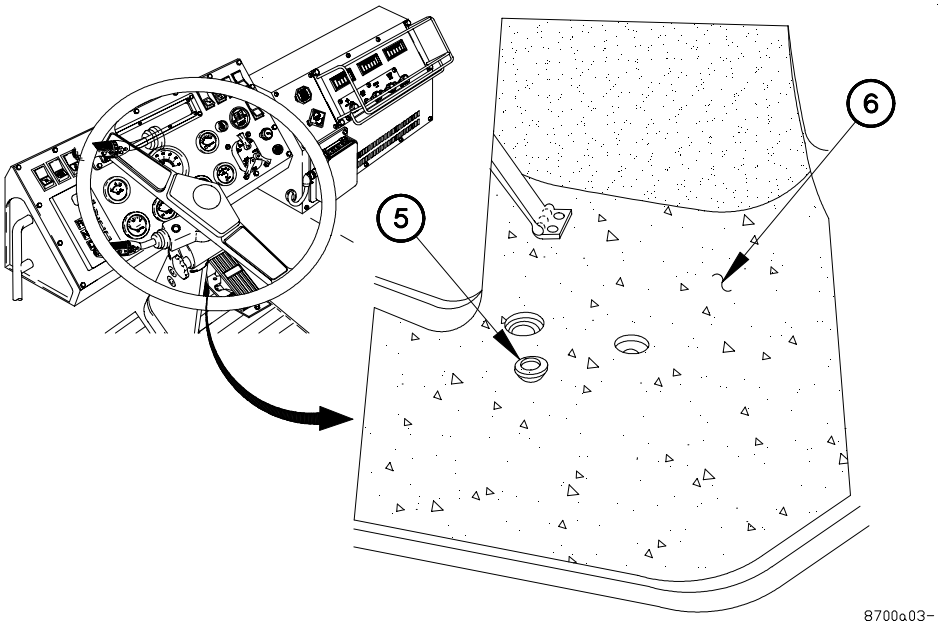
CAUTION

Do not use water to clean instrument panel area, especially under instrument panel. Failure to comply may result in damage to equipment.

5. Using a low pressure hose, wash mud, sand, or dirt from floor (6).

6. Wipe excess water from floor (6) with wiping rags.

7. Install four drain plugs (5) in floor (6).



END OF TASK

OPENING BATTERY BOX/TESTING BATTERIES 0088 00

THIS WORK PACKAGE COVERS:

Opening Battery Box, Testing Batteries, Closing Battery Box

INITIAL SETUP:

Maintenance Level
Operator

Materials/Parts
Rags, Wiping (Item 23, WP 0096 00)

Equipment Conditions
Engine shut down (WP 0016 00).

GENERAL

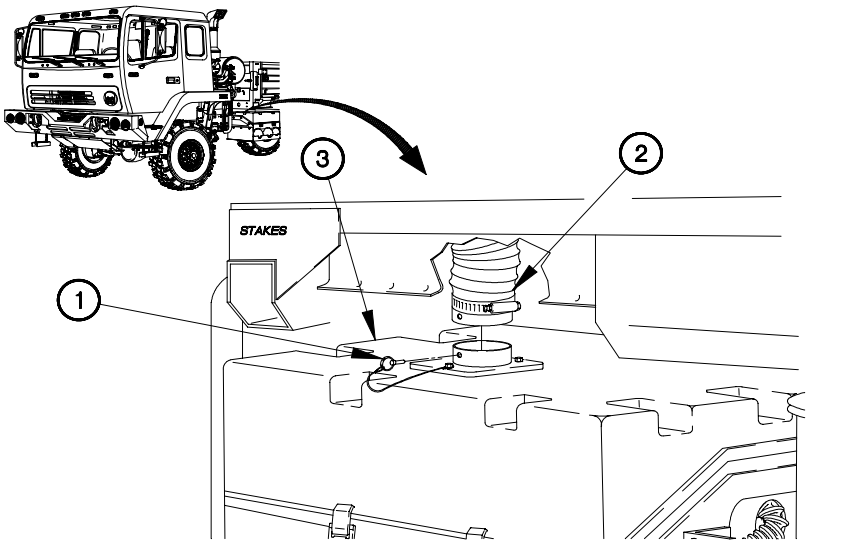
This work package contains information and instructions to open the battery box and test the batteries on the M1078A1 Series vehicle.

OPENING BATTERY BOX

NOTE

Perform steps (1) and (2) on cargo vehicles equipped with cargo arctic heaters.

1. Remove pin (1) from hose (2).
2. Disconnect hose (2) from battery box cover (3).

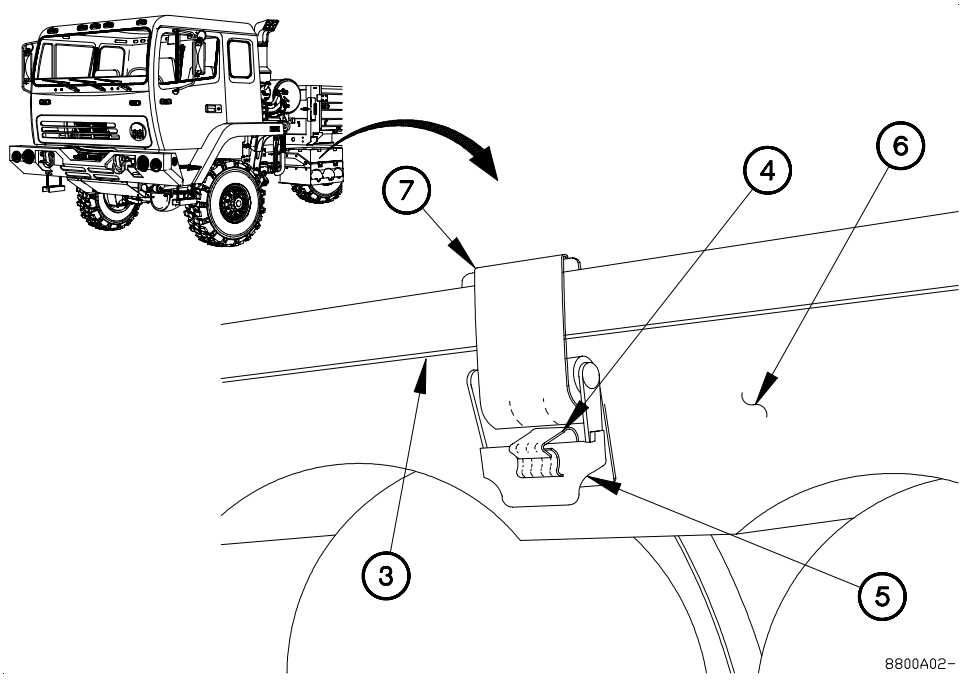


8800A01-

OPENING BATTERY BOX/TESTING BATTERIES - Continued 0088 00

OPENING BATTERY BOX-Continued

3. Lift two spring catches (4) and latch levers (5) from battery box (6).
4. Release latches (7) from battery box cover (3).
5. Remove battery box cover (3) from battery box (6).



OPENING BATTERY BOX/TESTING BATTERIES - Continued 0088 00

TESTING BATTERIES

1. Start engine (WP 0016 00).

2. Shut down engine after idling for approximately 4 minutes (WP 0016 00).

WARNING

Lead-acid battery gases can explode. Do not smoke, have open flames, or make sparks around a battery, especially if caps are off. Battery may give off gas which can explode. Failure to comply may result in serious injury or death to personnel.

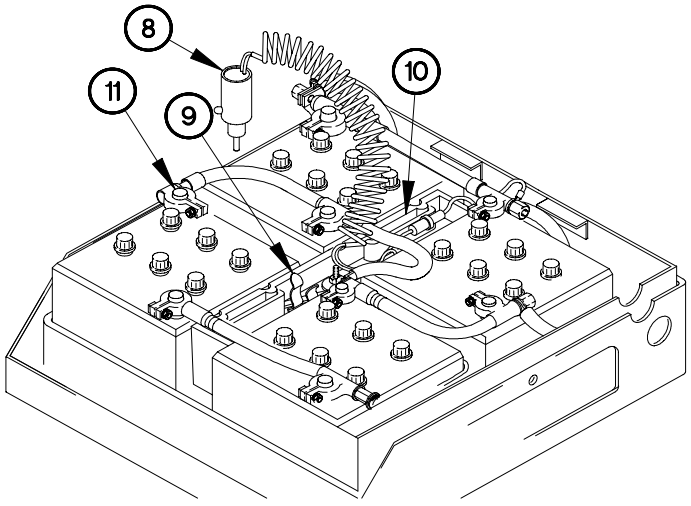
Remove rings, bracelets, neck chains, and any other jewelry before working around vehicle. Jewelry may catch on equipment or may short across an electrical circuit or battery terminal. Failure to comply may result in serious injury or death to personnel.

3. Remove battery tester (8) from clamp (9) on battery tray (10).

NOTE

If battery tester red light illuminates then battery tester is operational. If red light does not illuminate notify Unit Maintenance.

4. Check operation of battery tester (8) by touching tip of battery tester to positive battery post (11).



8800A03-

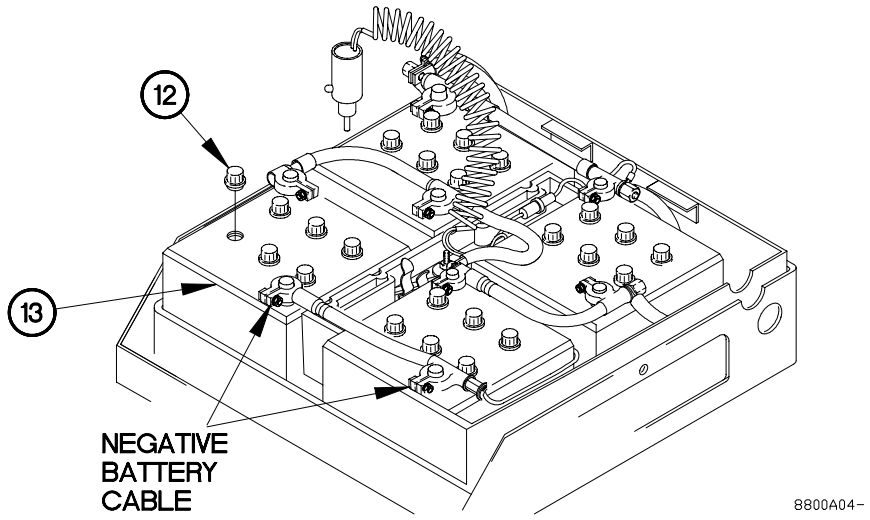
OPENING BATTERY BOX/TESTING BATTERIES - Continued 0088 00

TESTING BATTERIES - Continued

NOTE

All four batteries can be checked the same way. Check inside cells of inside batteries first, outside cells of outside batteries last. Left front battery shown.

5. Remove battery fill caps (12) from battery (13).



OPENING BATTERY BOX/TESTING BATTERIES - Continued 0088 00

TESTING BATTERIES - Continued

NOTE

If red light illuminates before inserting battery tester all the way in fill hole, battery may be overfilled.

Red light may flash intermittently as battery tester is inserted in fill hole.

With battery tester inserted fully into the fill hole adjacent to the negative battery posts of the outside batteries, the red light may illuminate briefly and then go out if the electrolyte is at proper level.

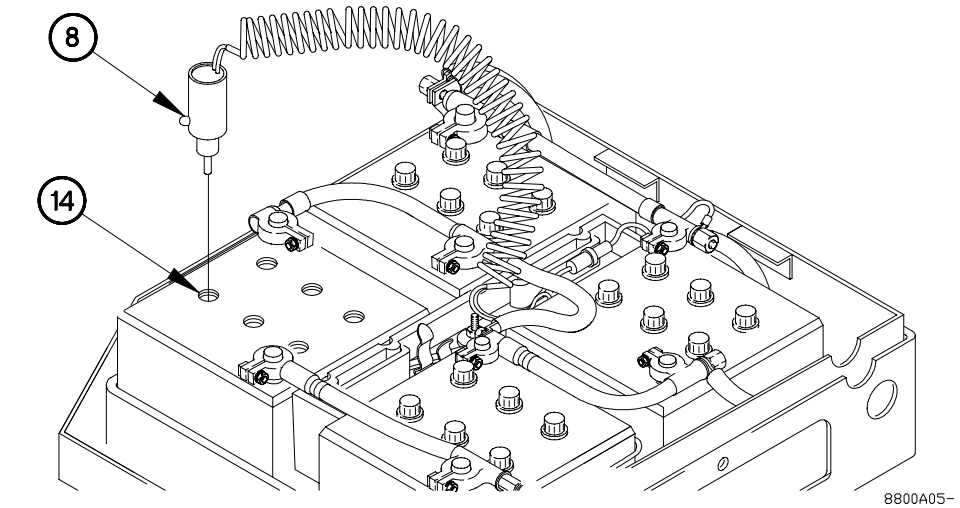
With battery tester inserted fully in fill hole, red light will illuminate if electrolyte is at its proper level.

If red light does not illuminate, or if cell is overfilled, notify Unit Maintenance that battery requires servicing.

6. Place battery tester (8) in fill hole (14).

7. Check battery tester (8) for red light.

8. Remove battery tester (8) from fill hole (14).



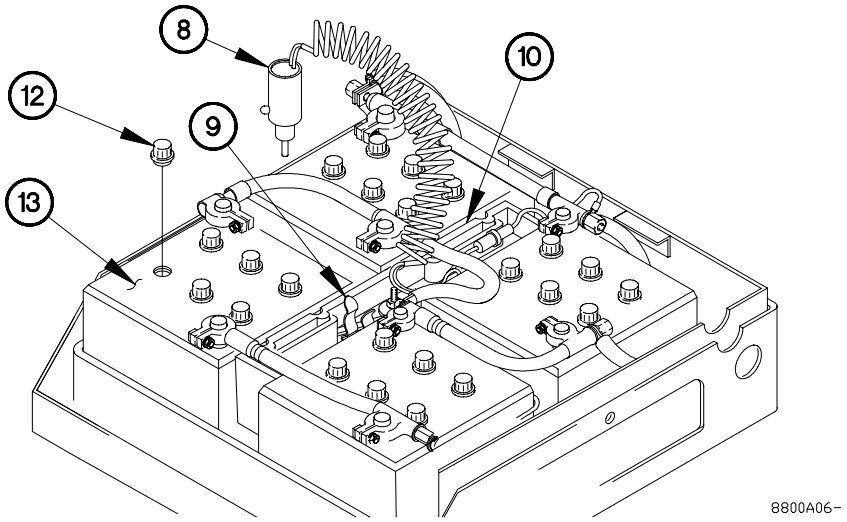
OPENING BATTERY BOX/TESTING BATTERIES - Continued 0088 00

TESTING BATTERIES - Continued

9. Install battery fill caps (12) on battery (13).

10. Wipe tip of battery tester (8) clean of any fluid with wiping rag.

11. Install battery tester (8) in clamp (9) on battery tray (10).

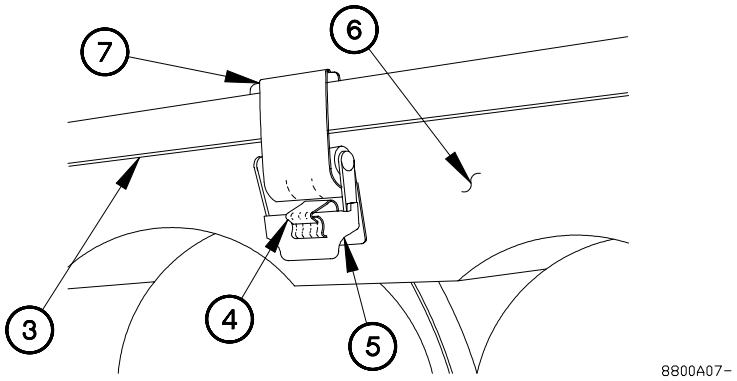


CLOSING BATTERY BOX

1. Position battery box cover (3) on battery box (6).

2. Fasten two latches (7) on battery box cover (3).

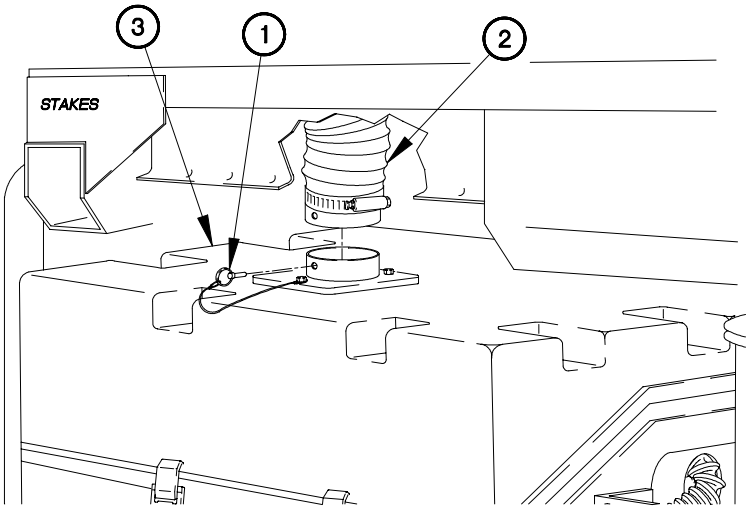
3. Push down on two latch levers (5) until spring catches (4) are engaged.



OPENING BATTERY BOX/TESTING BATTERIES - Continued 0088 00

CLOSING BATTERY BOX-Continued

4. Position hose (2) on battery box cover (3).
5. Install pin (1) in hose (2).



8800A08-

END OF TASK

SERVICING AIR FILTER (EMERGENCY PROCEDURE) 0089 00

THIS WORK PACKAGE COVERS:
Servicing, Operational Check

INITIAL SETUP:

Maintenance Level
Operator

Materials/Parts
Rags, Wiping (Item 23, WP 0096 00)

Equipment Conditions
Engine shut down (WP 0016 00).
Wheels chocked (WP 0016 00).

References
FM 3-4
FM 3-5
TB 700-4

GENERAL

This work package contains information and instructions to service the air filter in an emergency.

SERVICING

WARNING

Nuclear, Biological, or Chemical (NBC) contaminated air filters must be handled and disposed of only by authorized and trained personnel. The unit commander or senior officer in charge of maintenance personnel must ensure that prescribed protective clothing (FM 3-4) is used, and prescribed safety measures and decontamination procedures (FM 3-5 and TB 700-4) are followed. The unit standard operating procedures describe what personnel are responsible for final disposal of contaminated air filters. Failure to comply may result in serious injury or death to personnel.

CAUTION

Do not operate engine without air filter installed. Failure to comply may result in damage to equipment.

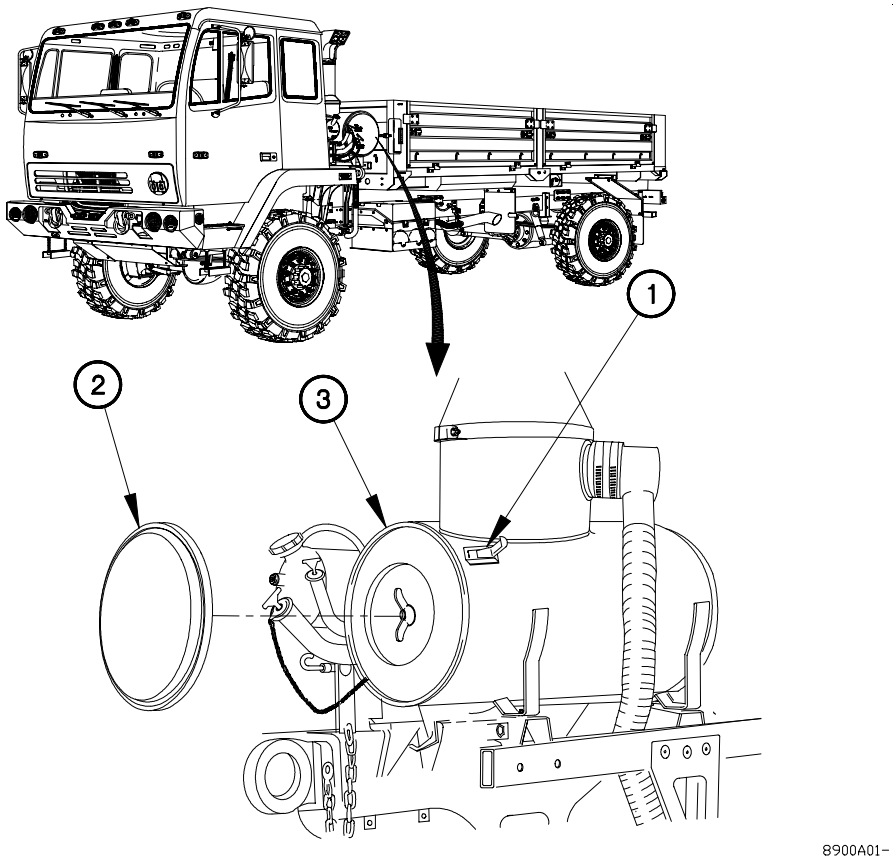
NOTE

This is an emergency procedure and is only to be performed when AIR FILTER RESTRICTION GAUGE reads greater than 25 (in red area) while vehicle is on mission.

SERVICING AIR FILTER (EMERGENCY PROCEDURE) - 0089 00 Continued

SERVICING - Continued

1. Unlatch three clasps (1) on cover (2).
2. Remove cover (2) from intake air cleaner housing (3).



SERVICING AIR FILTER (EMERGENCY PROCEDURE) - 0089 00 Continued

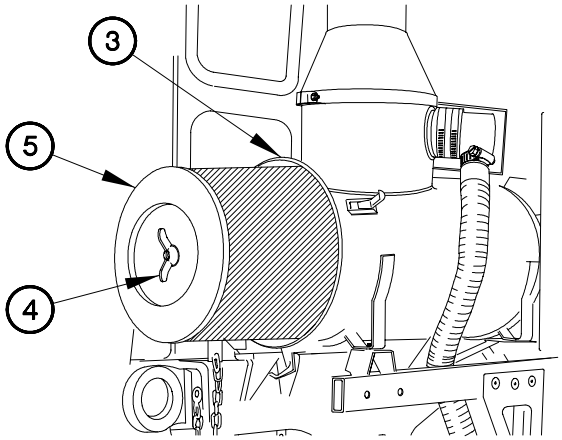
SERVICING - Continued

3. Loosen wingnut (4) and remove filter element (5) from intake air cleaner housing (3).

CAUTION

Use extreme care when cleaning air filter element. Failure to comply may result in damage to equipment.

4. Gently tap filter element (5) on a flat hard surface to loosen dirt.

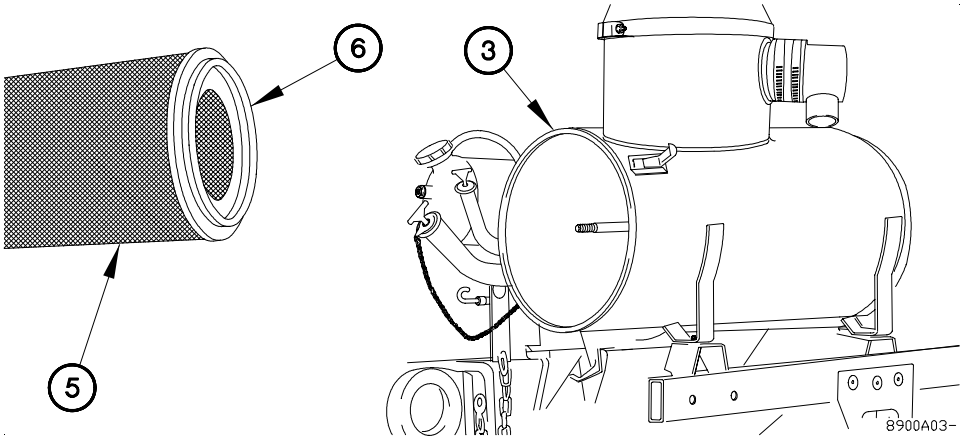


8900A02-

5. Clean filter element (5) with clean rag to free trapped dirt.

6. Clean filter element gasket (6) with clean rag.

7. Clean inside intake air housing (3) with clean rag.



8900A03-

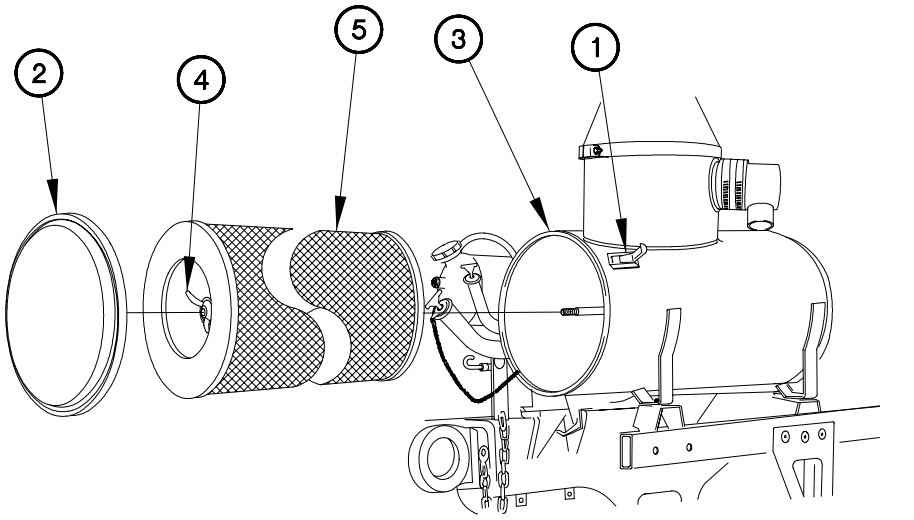
SERVICING AIR FILTER (EMERGENCY PROCEDURE) - 0089 00 Continued

SERVICING - Continued

NOTE

Filter element is installed in intake air cleaner housing with gasket end first.

8. Position filter element (5) in intake air cleaner housing (3).
9. Tighten wingnut (4) on filter element (5).
10. Position cover (2) on intake air cleaner housing (3).
11. Latch three clasps (1).



OPERATIONAL CHECK

Start engine (WP 0016 00) and check AIR FILTER RESTRICTION GAUGE. Notify Unit Maintenance if AIR FILTER RESTRICTION GAUGE still reads greater than 25 in. (in red area).

END OF TASK

M1078A1 TROOPSEAT KIT INSTALLATION/REMOVAL 0090 00

THIS WORK PACKAGE COVERS:
Installation, Removal

INITIAL SETUP:

Maintenance Level
Operator

Equipment Conditions
Engine shut down (WP 0016 00).

Tools and Special Tools
Screwdriver, Flattip (Item 20, Table 2, WP 0094 00)
Wrench, Adjustable (Item 23, Table 2, WP 0094 00)

Personnel Required
Two

GENERAL

This work package contains information and instructions to install and remove the M1078A1 Troopseat Kit.

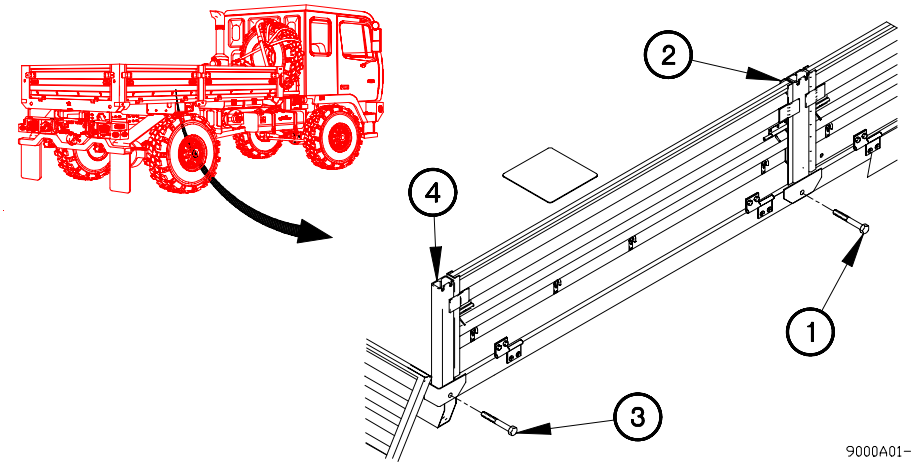
INSTALLATION

NOTE

Left and right side bolts are installed in cargo bed stakes the same way. Right side shown.

1. Position bolt (1) in center cargo bed stake (2).

2. Position bolt (3) in rear cargo bed stake (4).



M1078A1 TROOPSEAT KIT INSTALLATION/REMOVAL - 0090 00 Continued

INSTALLATION - Continued

CAUTION

Ensure seat post is flush with cargo bed floor prior to tightening bolts. Failure to comply may result in damage to equipment.

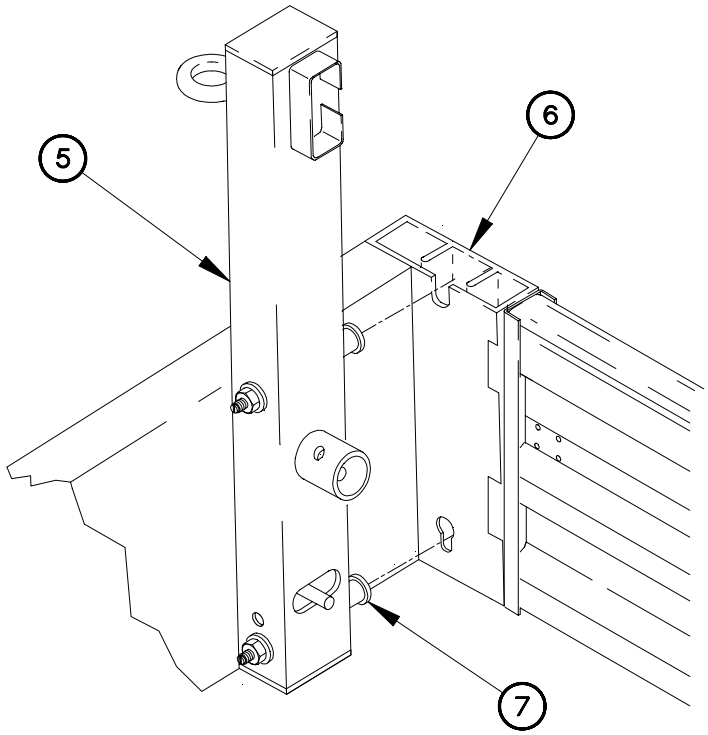
NOTE

Left and right troopseats are installed the same way. Right side shown.

Steps 3 through 22 require the aid of an assistant.

3. Attach front seat post (5) to front cargo bed stake (6) with two bolts (7).

4. Hold bolts (7).

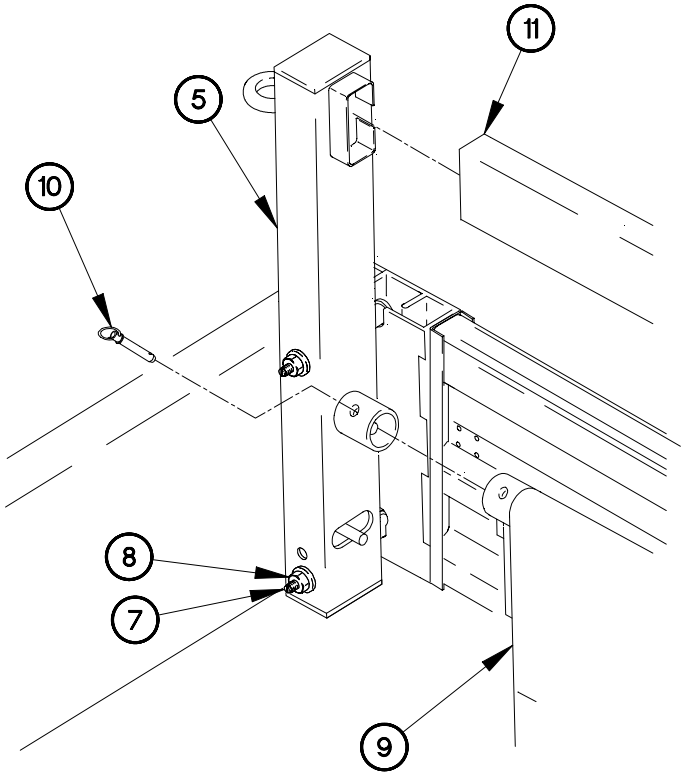


9000A02-

M1078A1 TROOPSEAT KIT INSTALLATION/REMOVAL - 0090 00 Continued

INSTALLATION - Continued

5. Tighten two nuts (8) on bolts (7).
6. Install front seats (9) on front seat post (5).
7. Insert quick release pin (10) in front seats (9).
8. Install backrest (11) on front seat post (5).

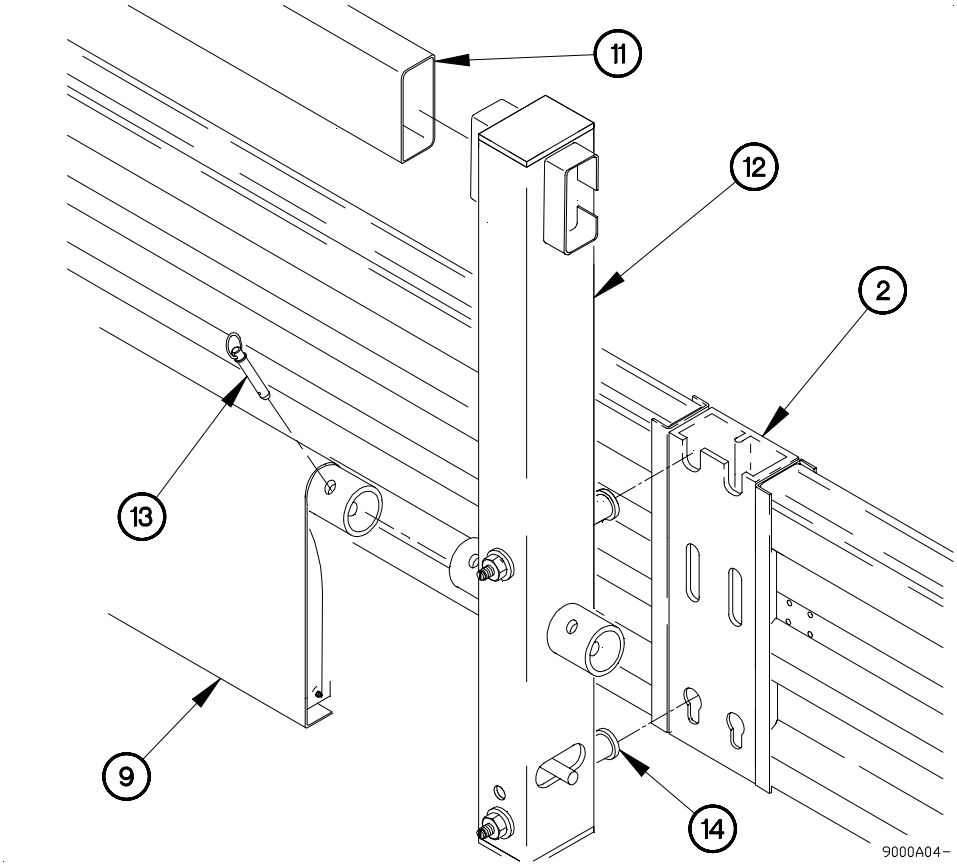


9000A03-

M1078A1 TROOPSEAT KIT INSTALLATION/REMOVAL - 0090 00 Continued

INSTALLATION - Continued

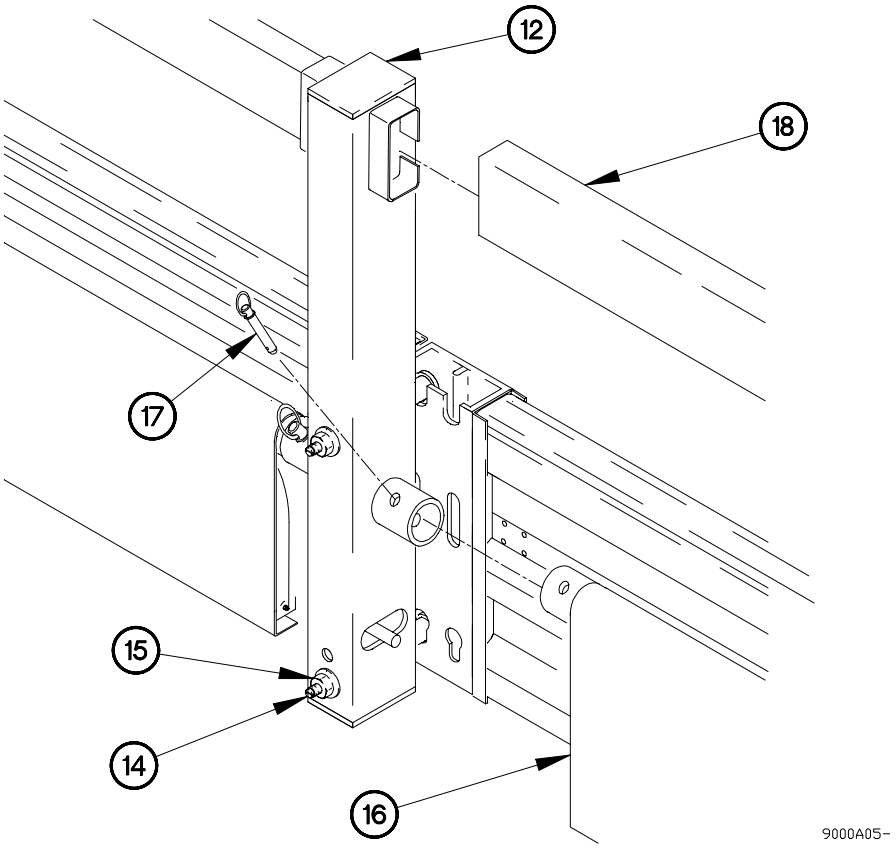
9. Install center seat post (12) on backrest (11) and front seats (9).
10. Insert quick release pin (13) in front seats (9).
11. Attach center seat post (12) to center cargo bed stake (2) with two bolts (14).



M1078A1 TROOPSEAT KIT INSTALLATION/REMOVAL - 0090 00 Continued

INSTALLATION - Continued

12. Hold bolts (14).
13. Tighten two nuts (15) on bolts (14).
14. Install rear seats (16) on center seat post (12).
15. Insert quick release pin (17) in rear seats (16).
16. Install backrest (18) on center seat post (12).



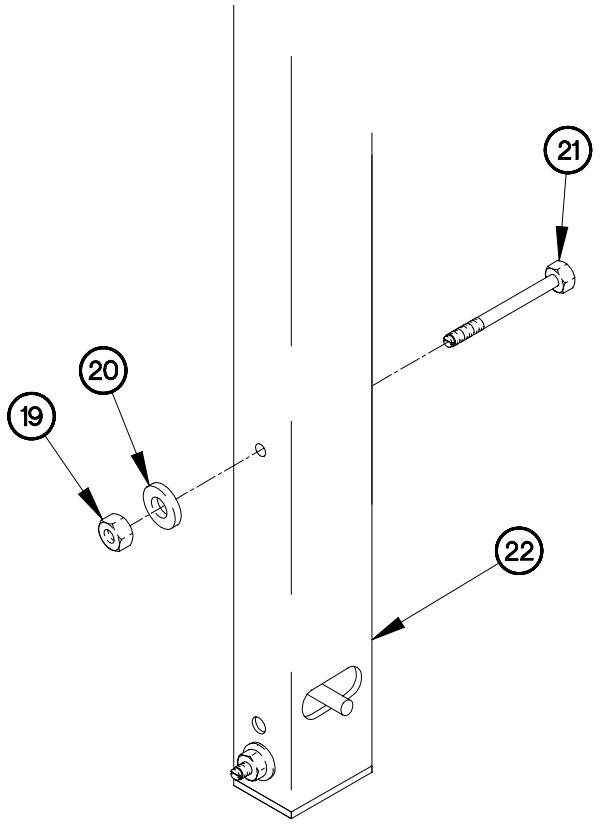
M1078A1 TROOPSEAT KIT INSTALLATION/REMOVAL - 0090 00 Continued

INSTALLATION - Continued

NOTE

Perform the following two steps when installing rear seat post with boarding handle for the first time.

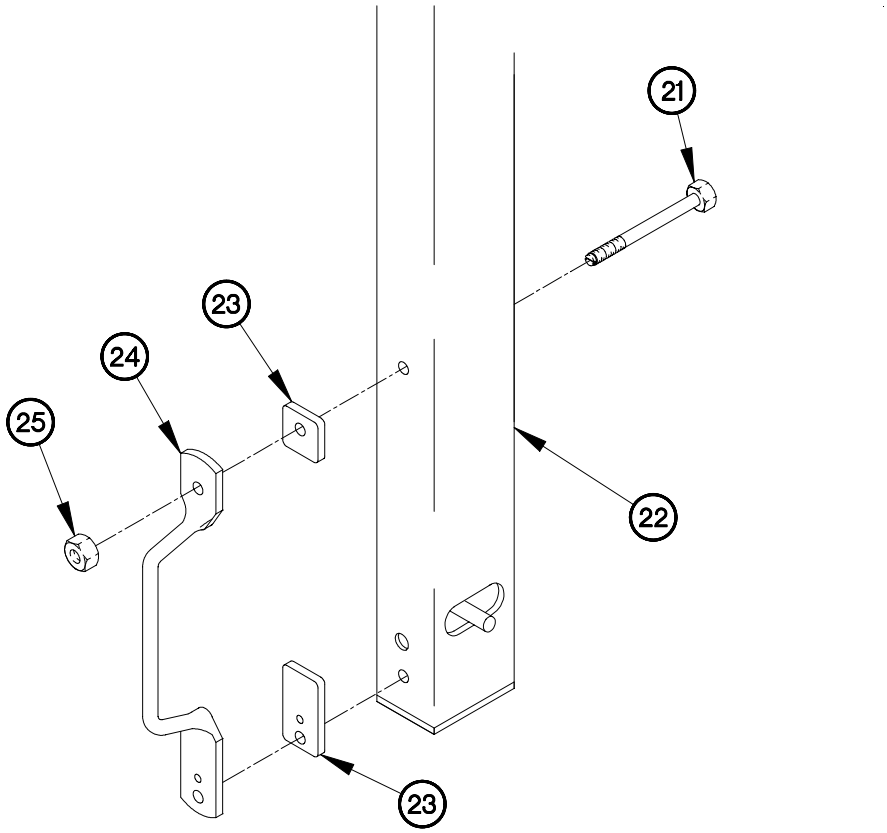
17. Remove two nuts (19), washers (20) and bolts (21) from rear seat post (22). Discard nuts and washers.



M1078A1 TROOPSEAT KIT INSTALLATION/REMOVAL - 0090 00 Continued

INSTALLATION - Continued

18. Position two bolts (21), gaskets (23), handle (24), and two knerled nuts (25) on rear seat post (22).



M1078A1 TROOPSEAT KIT INSTALLATION/REMOVAL - 0090 00 Continued

INSTALLATION - Continued

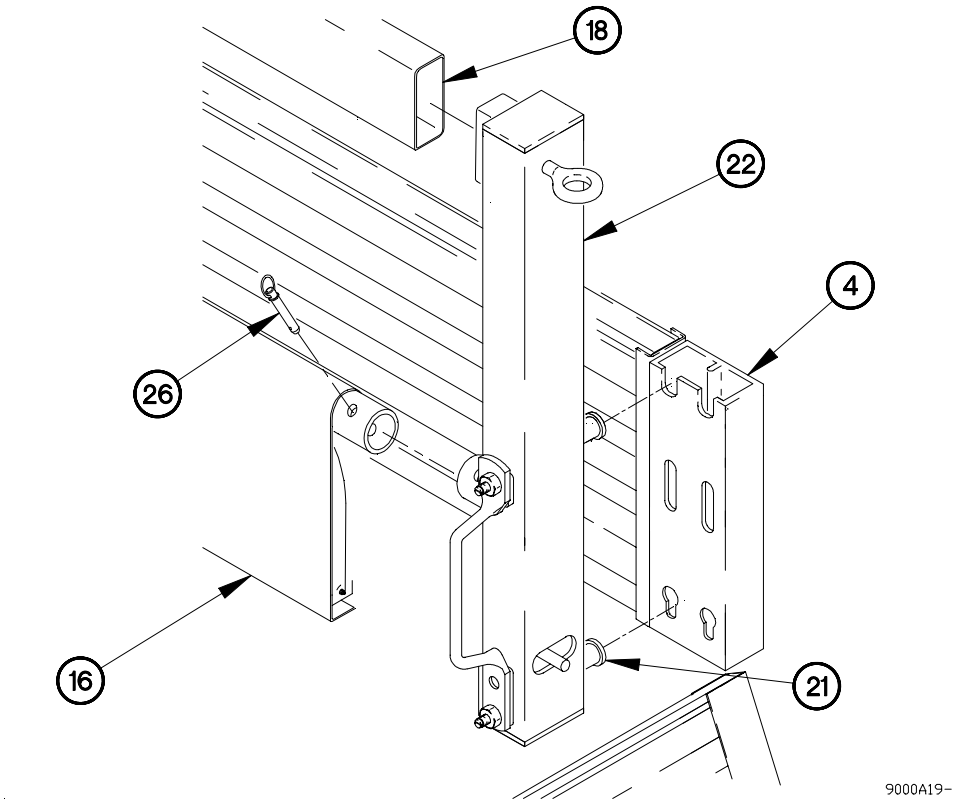
NOTE

Perform the following five steps on troop seat kit with boarding handles.

19. Install rear seat post (22) on backrest (18) and rear seats (16).

20. Insert quick release pin (26) in rear seats (16).

21. Attach rear seat post (22) to rear cargo bed stake (4) with two bolts (21).



M1078A1 TROOPSEAT KIT INSTALLATION/REMOVAL - 0090 00 Continued

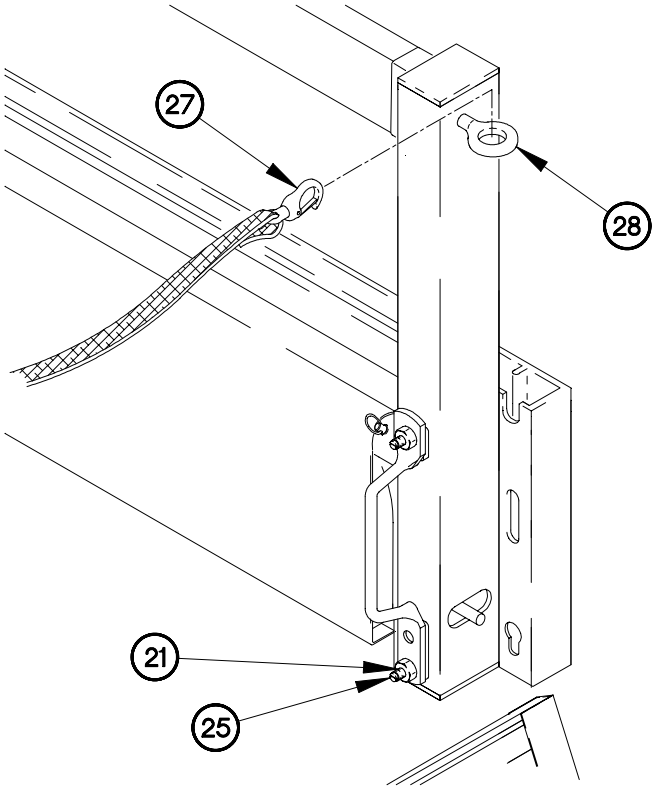
INSTALLATION - Continued

22. Tighten two nuts (25) on bolts (21).

NOTE

All four safety strap hooks are installed the same way. Right rear safety hook shown.

23. Install safety strap hook (27) in eyebolt (28).



9000A20-

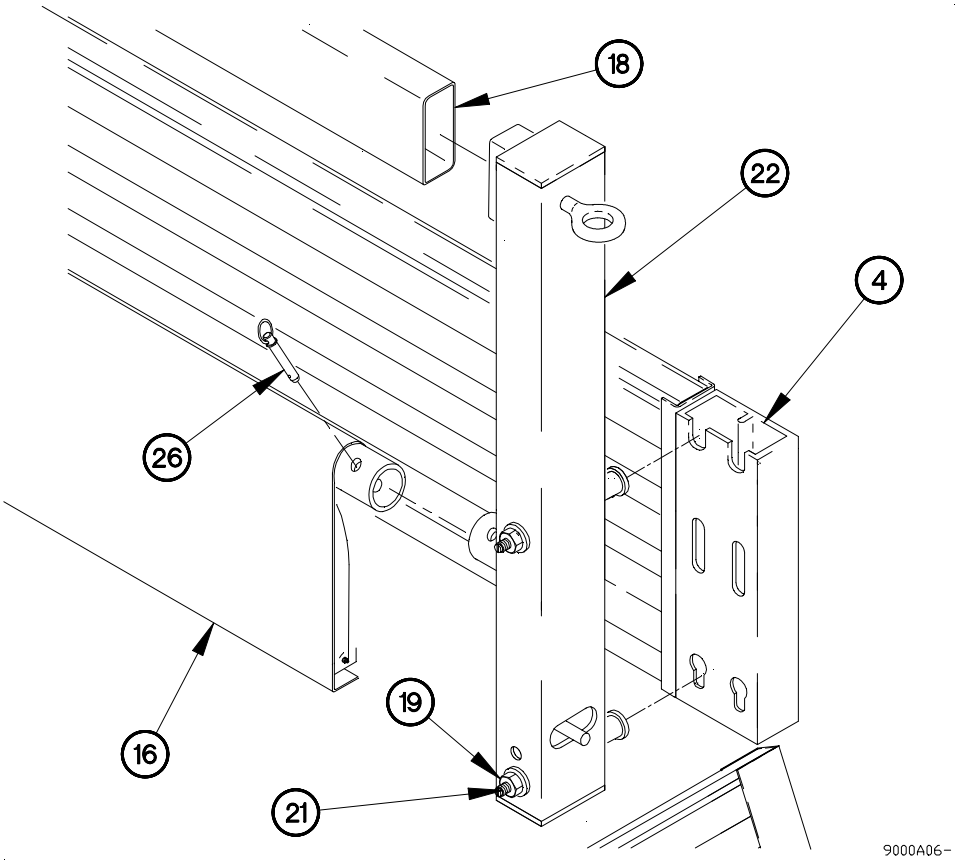
M1078A1 TROOPSEAT KIT INSTALLATION/REMOVAL - 0090 00 Continued

INSTALLATION - Continued

NOTE

Perform the following five steps on troopseat kit without boarding handle.

24. Install rear seat post (22) on backrest (18) and rear seats (16).
25. Insert quick release pin (26) in rear seats (16).
26. Attach rear seat post (22) to rear cargo bed stake (4) with two bolts (21).
27. Hold bolts (21).
28. Tighten two nuts (19) on bolts (21).



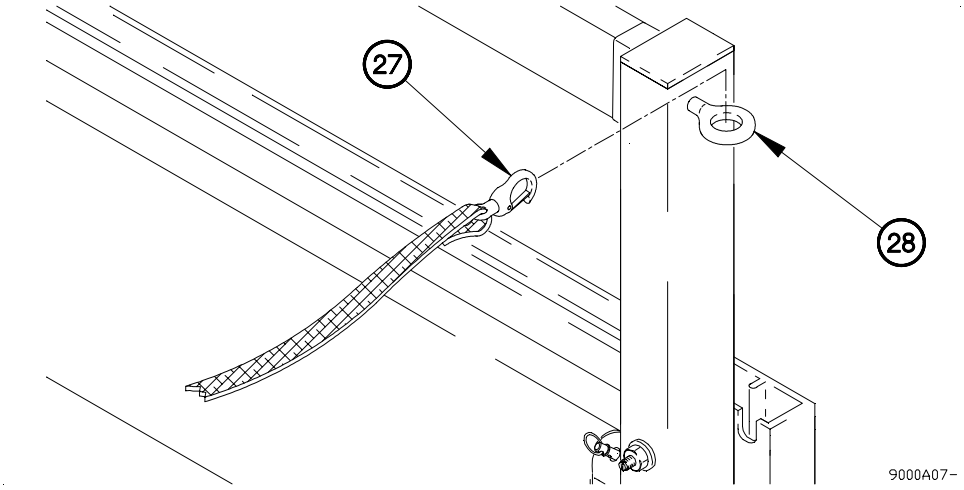
M1078A1 TROOPSEAT KIT INSTALLATION/REMOVAL - 0090 00 Continued

INSTALLATION - Continued

NOTE

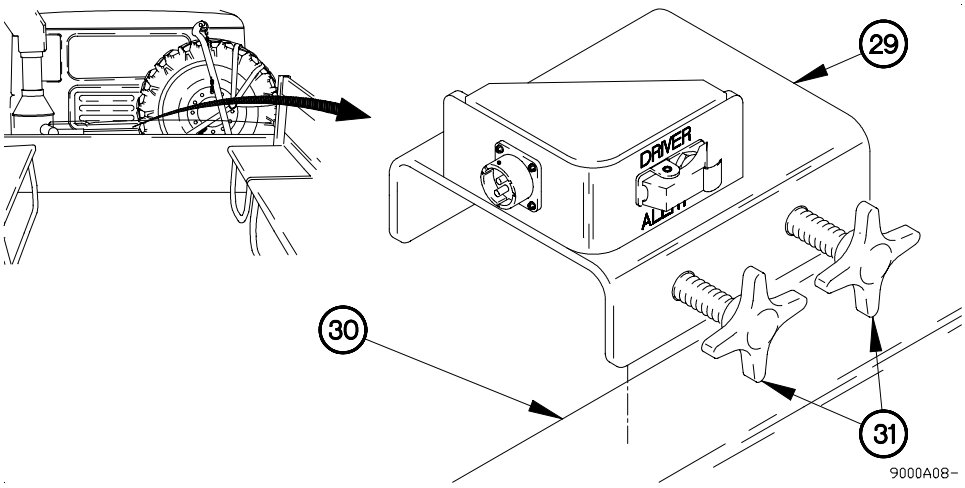
All four safety strap hooks are installed the same way. Right rear safety strap hook shown.

29. Install safety strap hook (27) in eyebolt (28).



30. Install alarm bracket (29) on cargo bed (30) with two knobs (31).

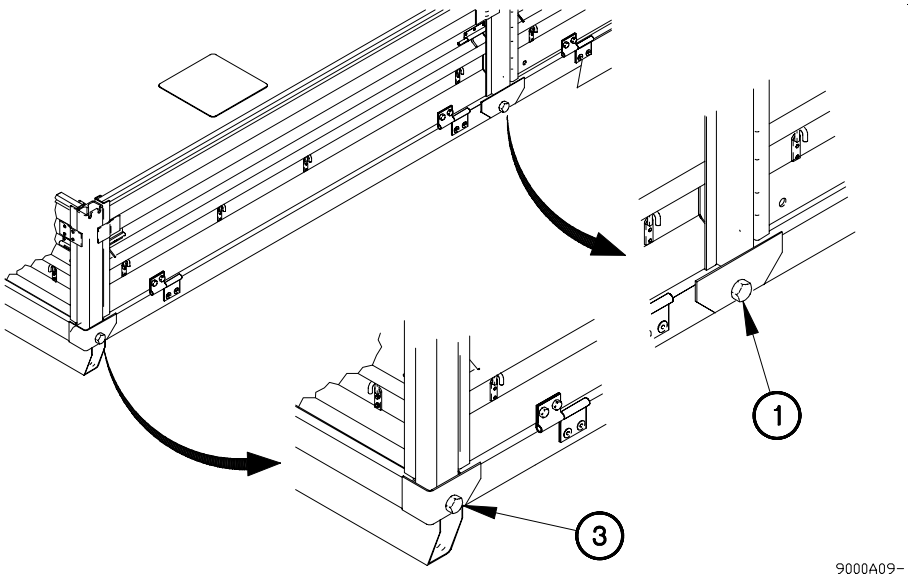
31. Notify Unit Maintenance to install troop transport alarm cable assembly.



M1078A1 TROOPSEAT KIT INSTALLATION/REMOVAL - 0090 00 Continued

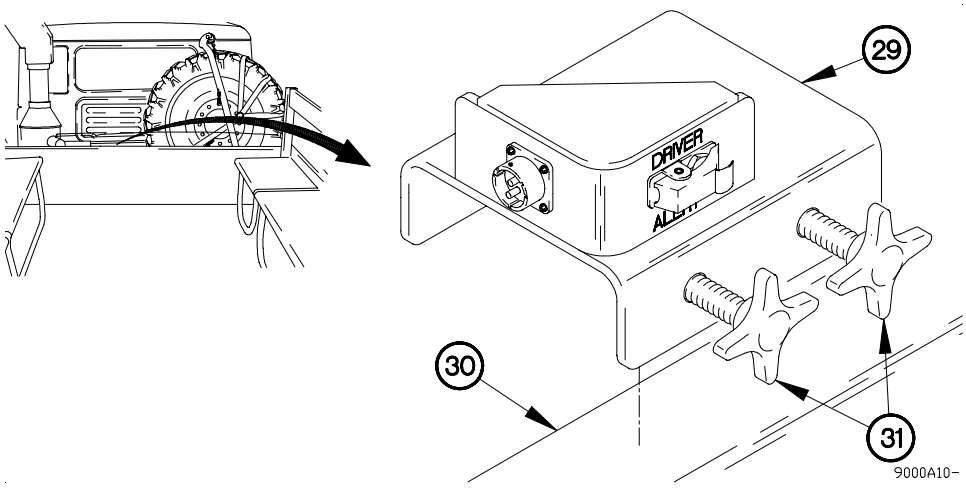
INSTALLATION - Continued

32. Notify Unit Maintenance to tighten bolt (1) and bolt (3) to 46-57 lb-ft (62-77 N•m).



REMOVAL

1. Notify Unit Maintenance to remove troop transport alarm cable assembly.
2. Loosen two knobs (31) on alarm bracket (29).
3. Remove alarm bracket (29) from cargo bed (30).



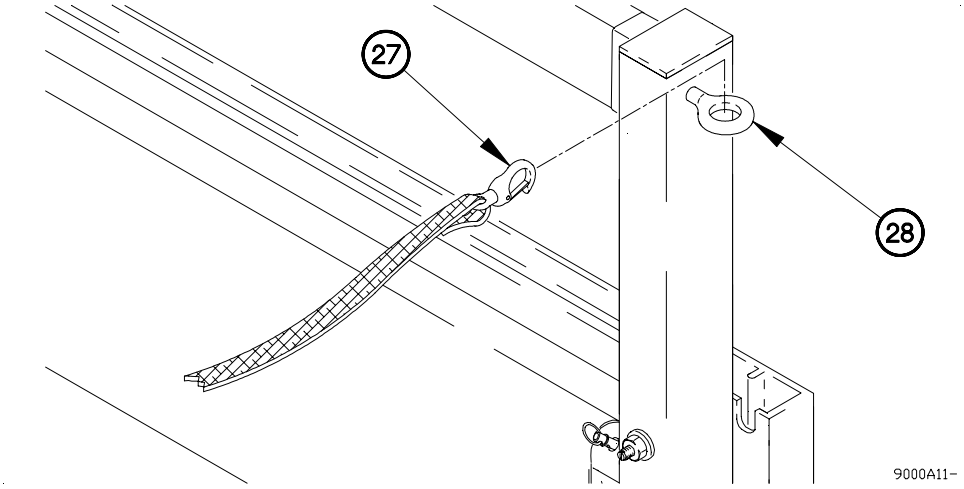
M1078A1 TROOPSEAT KIT INSTALLATION/REMOVAL - 0090 00 Continued

REMOVAL - Continued

NOTE

All four safety strap hooks are removed the same way. Right rear safety strap hook shown.

4. Remove safety strap hook (27) from eyebolt (28).



M1078A1 TROOPSEAT KIT INSTALLATION/REMOVAL - 0090 00 Continued

REMOVAL - Continued

NOTE

Left and right troopseats are removed the same way. Right side shown.

If seat post is equipped with spring locking pin, spring locking pin must be pulled back to release seat post from cargo bed stake.

All spring locking pins are released the same way. Right rear spring locking pin shown.

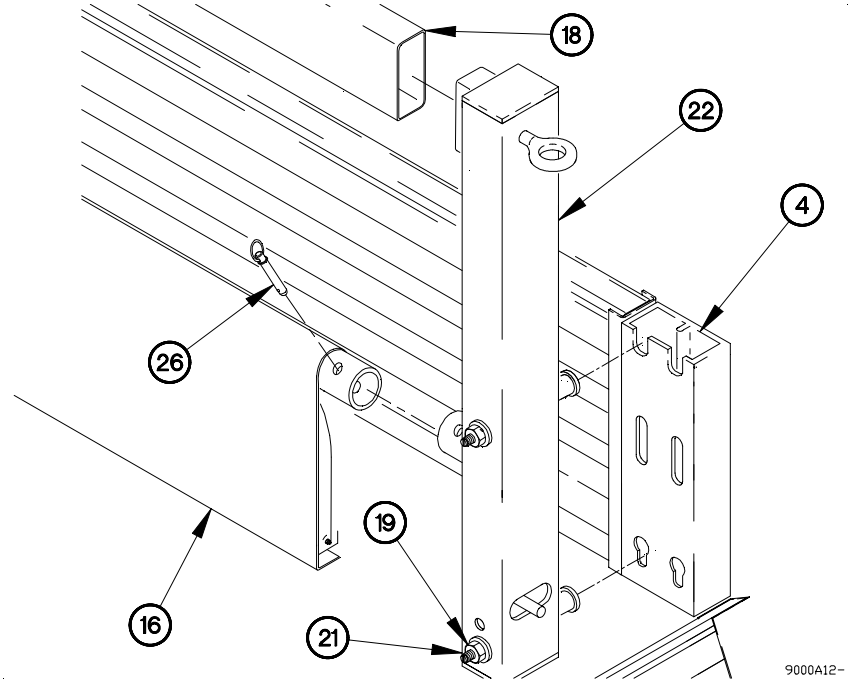
Steps 5 through 24 require the aid of an assistant.

5. Remove quick release pin (26) from rear seats (16).

NOTE

Loosen nuts enough to remove seat post from stake.

6. Hold two bolts (21) and loosen two nuts (19).
7. Pull back on spring locking pins (32).
8. Remove rear seat post (22) from rear cargo bed stake (4), backrest (18), and rear seats (16).



M1078A1 TROOPSEAT KIT INSTALLATION/REMOVAL - 0090 00 Continued

REMOVAL - Continued

NOTE

Perform the following four steps if rear seat post is equipped with boarding handle.

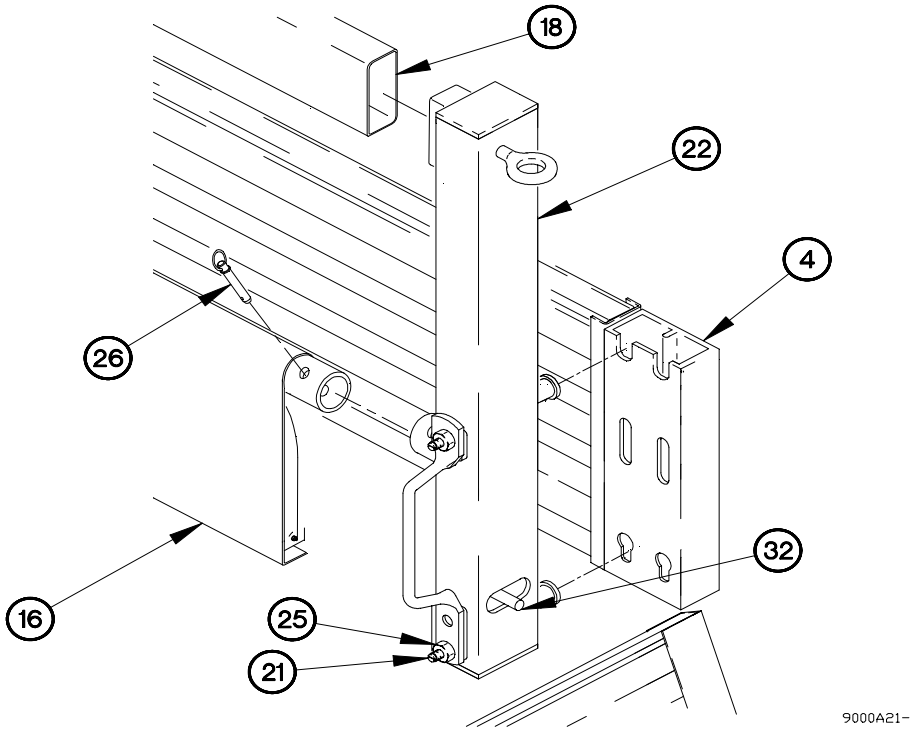
Left and right troopseats are removed the same way. Right side shown.

9. Remove quick release pin (26) from rear seats (16).

NOTE

Loosen nuts enough to remove seat post from cargo bed stake.

10. Hold two bolts (21) and loosen two nuts (25).
11. Pull back on spring pin (32).
12. Remove rear seat post (22) from rear cargo bed stake (4), backrest (18), and rear seats (16).



M1078A1 TROOPSEAT KIT INSTALLATION/REMOVAL - 0090 00 Continued

REMOVAL - Continued

NOTE

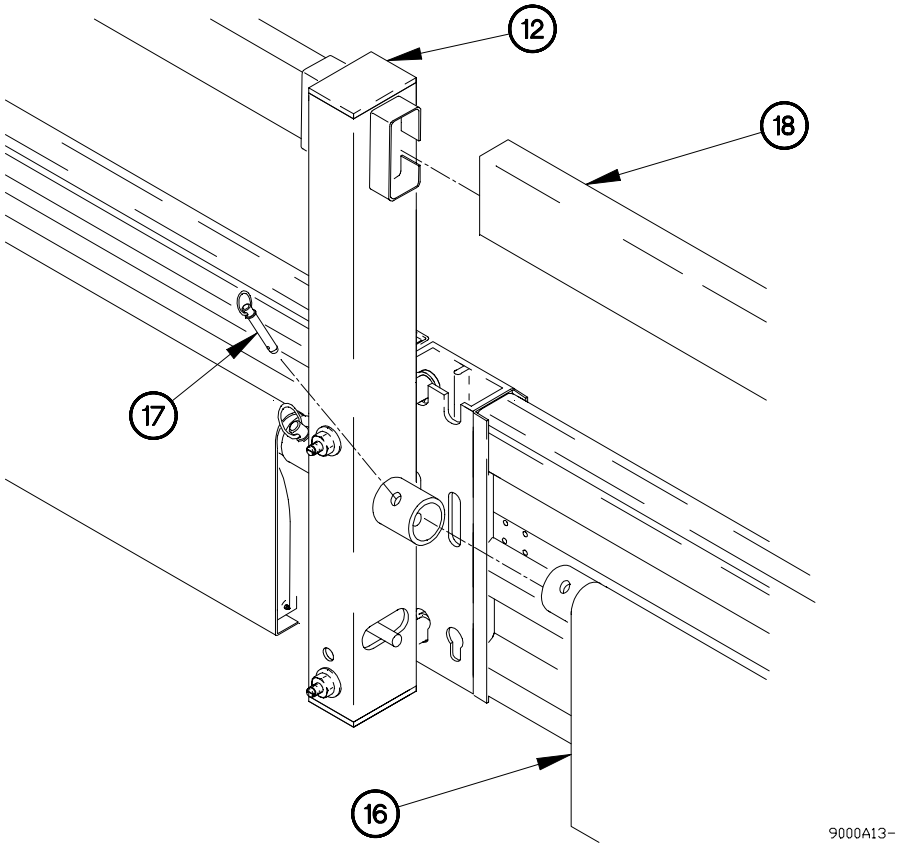
If seat post is equipped with spring locking pin, spring locking pin must be pulled back to release seat post from cargo bed stake.

All spring locking pins are released the same way. Right rear spring locking pin shown.

13. Remove backrest (18) from center seat post (12).

14. Remove quick release pin (17) from rear seats (16).

15. Remove rear seats (16) from center seat post (12).



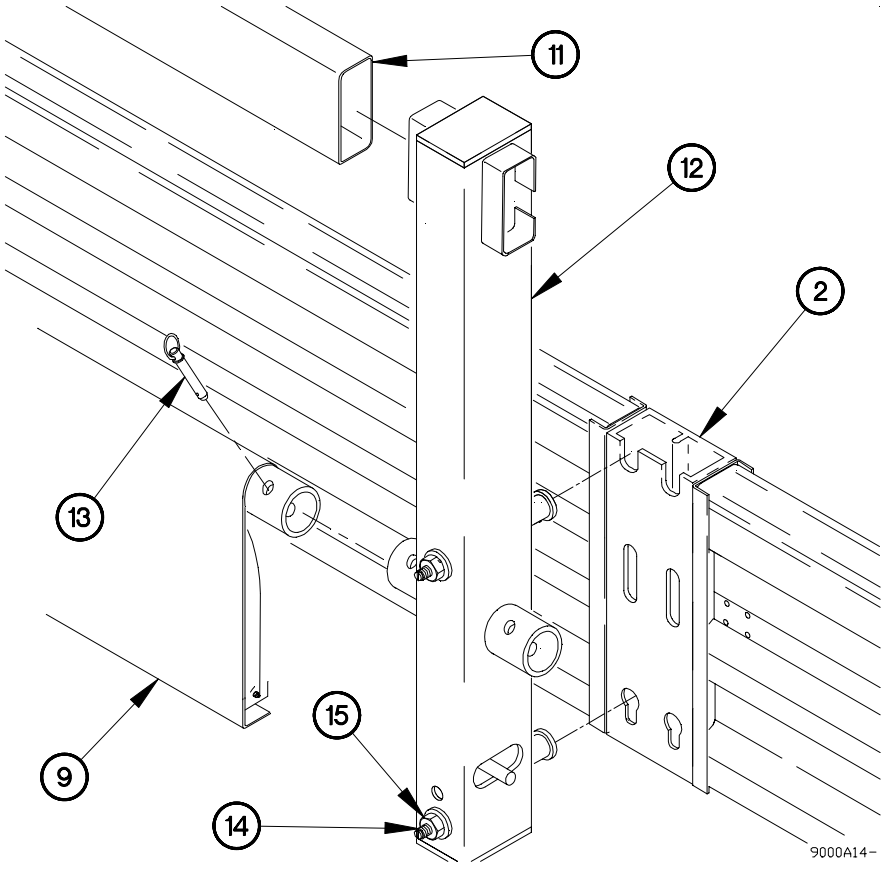
M1078A1 TROOPSEAT KIT INSTALLATION/REMOVAL - 0090 00 Continued

REMOVAL - Continued

NOTE

Loosen nuts enough to remove seat post from stake.

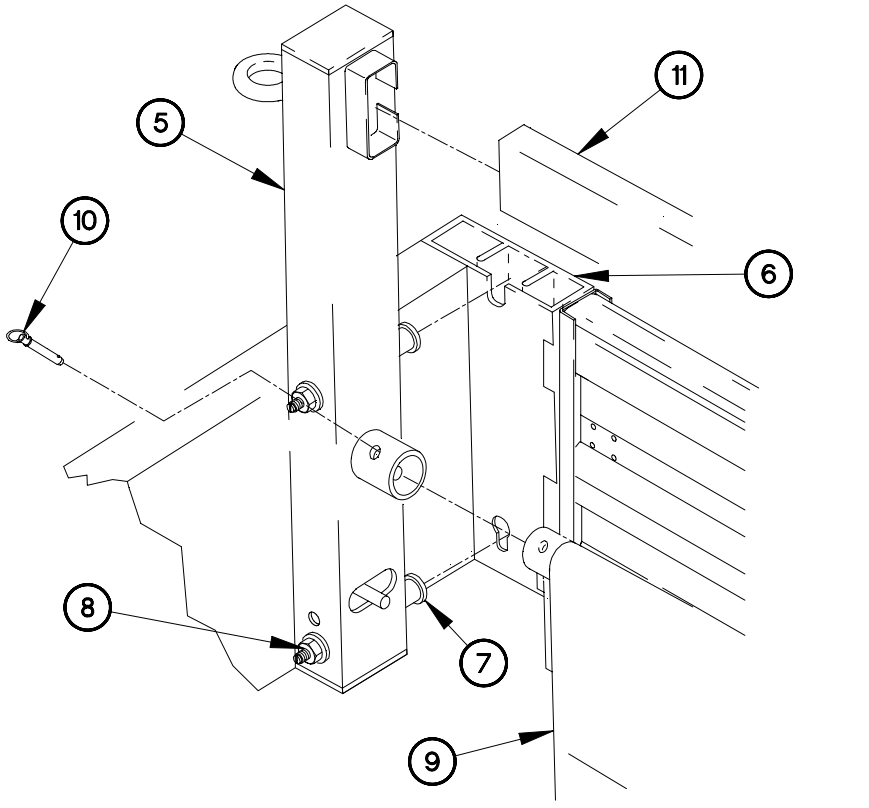
16. Hold two bolts (14).
17. Loosen two nuts (15) on bolts (14).
18. Remove center seat post (12) from center cargo bed stake (2).
19. Remove quick release pin (13) from front seats (9).
20. Remove center seat post (12) from backrest (11) and front seats (9).



M1078A1 TROOPSEAT KIT INSTALLATION/REMOVAL - 0090 00 Continued

REMOVAL - Continued

21. Remove backrest (11) from front seat post (5).
22. Remove quick release pin (10) from front seats (9).
23. Remove front seats (9) from front seat post (5).
24. Hold two bolts (7) with screwdriver.
25. Loosen two nuts (8) on bolts (73).
26. Remove front seat post (5) from front cargo bed stake (6).



M1078A1 TROOPSEAT KIT INSTALLATION/REMOVAL - 0090 00 Continued

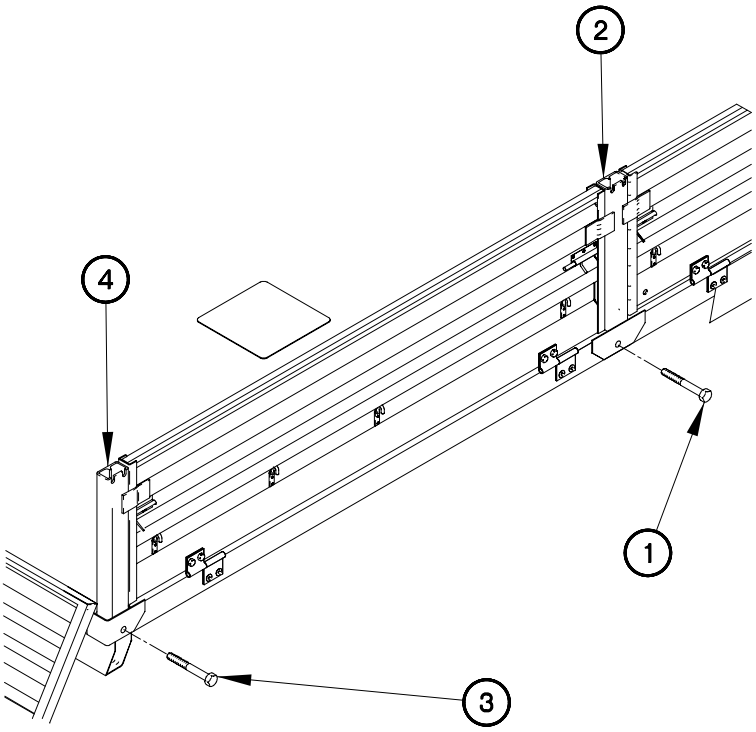
REMOVAL - Continued

NOTE

Left and right side bolts are removed from cargo bed stakes the same way. Right side shown.

27. Remove bolt (3) from rear cargo bed stake (4).

28. Remove bolt (1) from center cargo bed stake (2).



9000A16-

END OF TASK

POWER DISTRIBUTION PANEL (PDP) COVER REMOVAL/ INSTALLATION

0091 00

THIS WORK PACKAGE COVERS:

Removal, Installation

INITIAL SETUP:

Maintenance Level
Operator

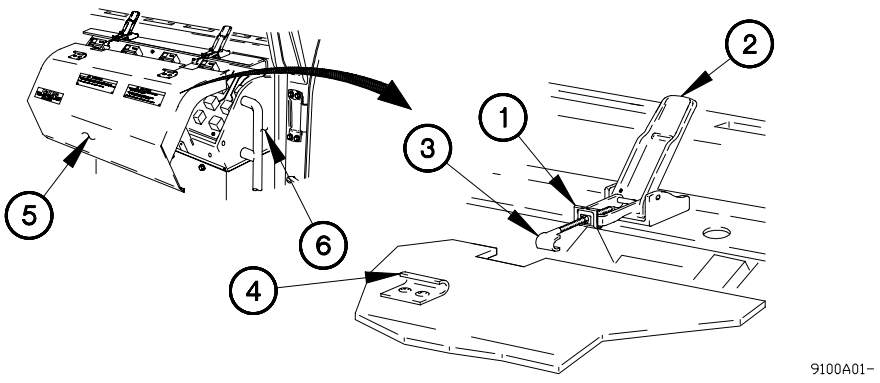
Equipment Conditions
Engine shut down (WP 0016 00).

GENERAL

This work package contains information and instructions to remove the PDP cover for the M1078A1 series vehicles.

REMOVAL

1. Pull two spring catches (1) and lift two latch levers (2).
2. Release two latch hooks (3) from two strike plates (4).
3. Remove PDP cover (5) from dashboard (6).



INSTALLATION

1. Position PDP cover (5) on dashboard (6).
2. Fasten two latch hooks (3) on two strike plates (4).
3. Push down on two latch levers (2) until spring catches (1) are engaged.

END OF TASK

BUMPERETTE KIT INSTALLATION/REMOVAL 0091 01

THIS WORK PACKAGE COVERS:
Installation, Removal

INITIAL SETUP:

Maintenance Level
Operator

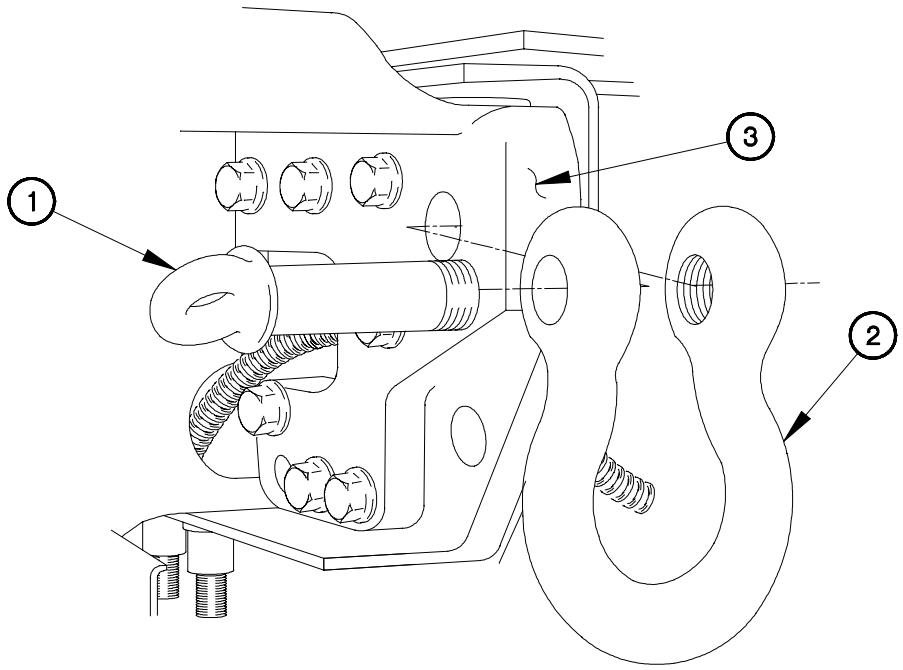
Equipment Conditions
Engine shut down (WP 0016 00).

INSTALLATION.

NOTE

LH and RH side are installed the same way. RH side shown.

1. Remove shackle pin (1) and shackle (2) from frame rail (3).

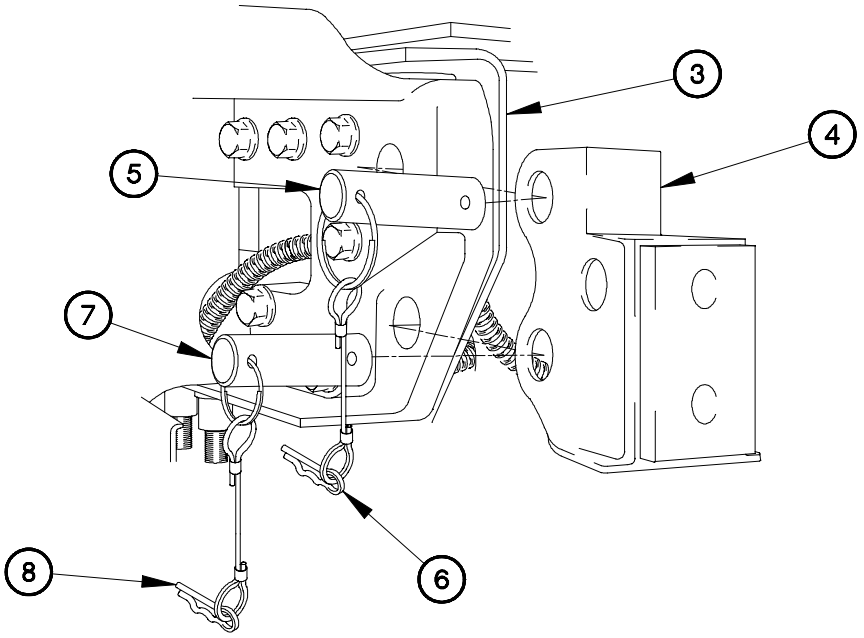


9100a02-

BUMPERETTE KIT INSTALLATION/REMOVAL (CONT) 0091 01

INSTALLATION - Continued

2. Install bumperette (4) on frame rail (3) with pin (5).
3. Install linchpin (6) in pin (5).
4. Install pin (7) in bumperette (4).
5. Install linchpin (8) in pin (7).

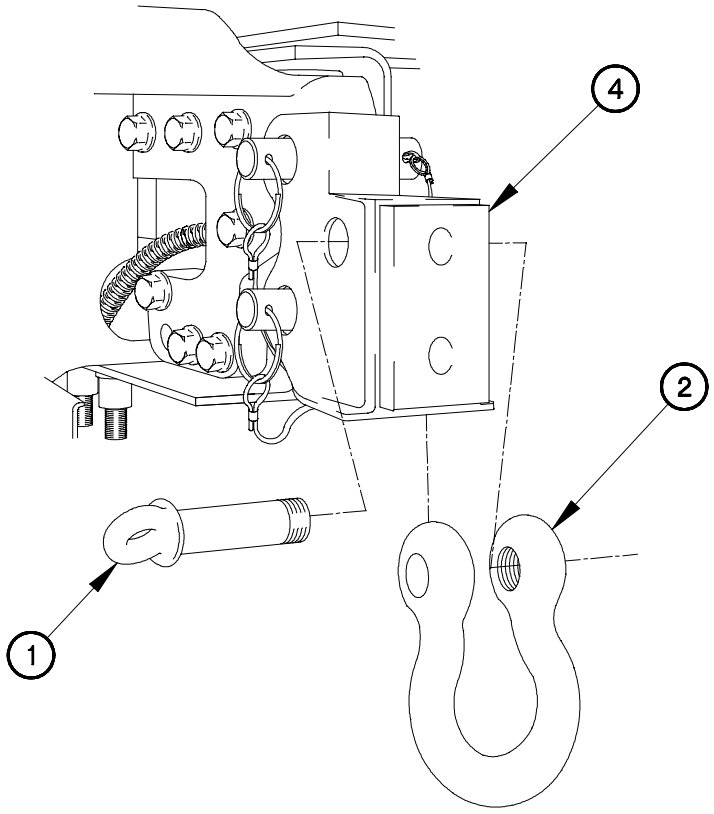


9100a03-

6. Install shackle (2) on bumperette (4) with shackle pin (1).
7. Perform steps (1) through (6) on RH side.

BUMPERETTE KIT INSTALLATION/REMOVAL (CONT) 0091 01

INSTALLATION - Continued



9100a04-

REMOVAL.

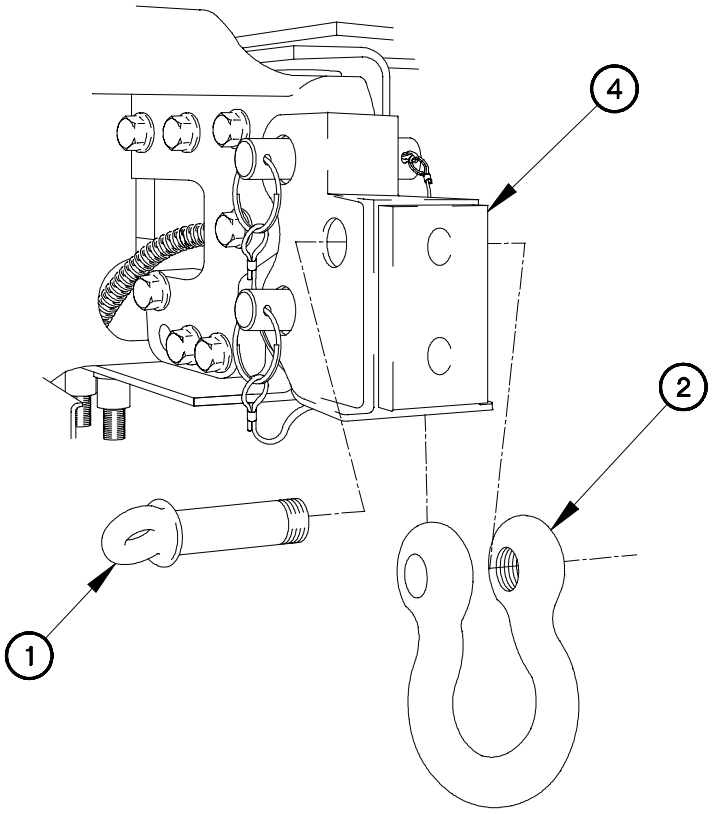
NOTE

LH and RH side are installed the same way. RH side shown.

1. Remove shackle pin (1) and shackle (2) from bumperette (4).

BUMPERETTE KIT INSTALLATION/REMOVAL (CONT) 0091 01

REMOVAL - Continued

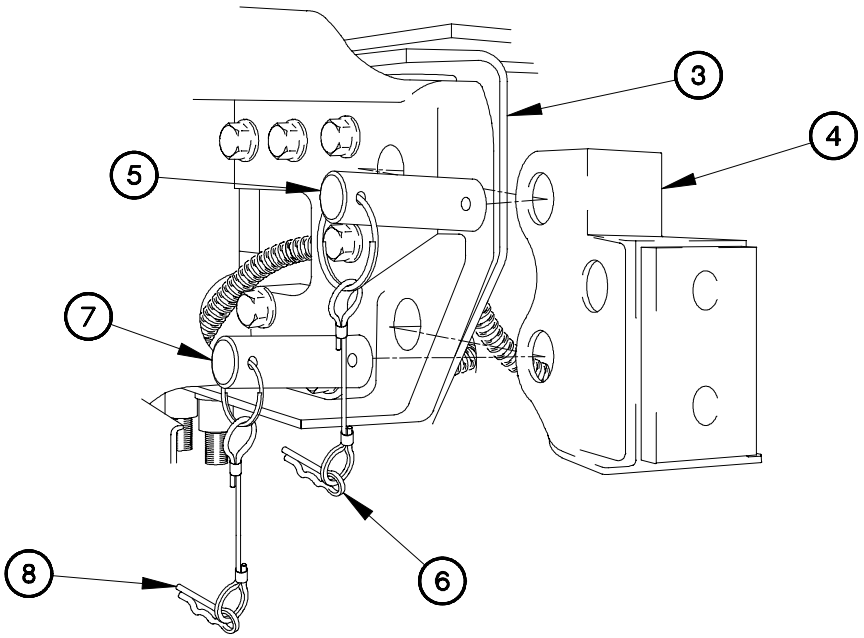


9100a04-

2. Remove linch pin (8) from pin (7).
3. Remove pin (7) from bumperette (4).
4. Remove linch pin (6) from pin (5).
5. Remove pin (5) and bumperette (4) from frame rail (3).

BUMPERETTE KIT INSTALLATION/REMOVAL (CONT) 0091 01

REMOVAL - Continued



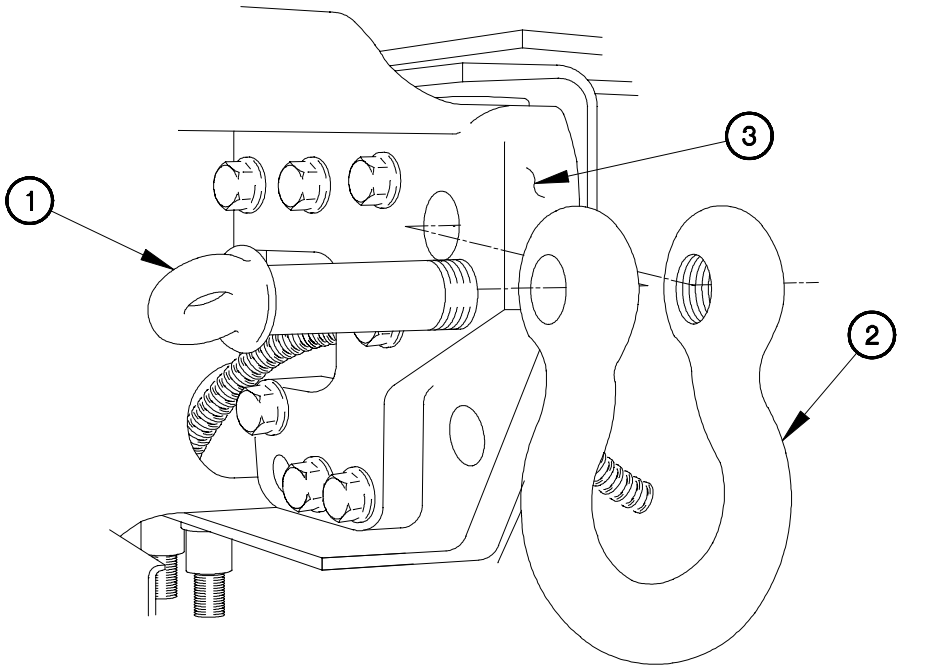
9100a03-

6. Install shackle (2) on frame rail (3) with shackle pin (1).

7. Perform steps (1) through (6) on RH side.

BUMPERETTE KIT INSTALLATION/REMOVAL (CONT) 0091 01

REMOVAL - Continued



9100a02-

END OF TASK.

REAR SPRING BRAKE CAGING 0092 00

THIS WORK PACKAGE COVERS:
Rear brake caging and uncaging.

INITIAL SETUP:

Maintenance Level
Operator

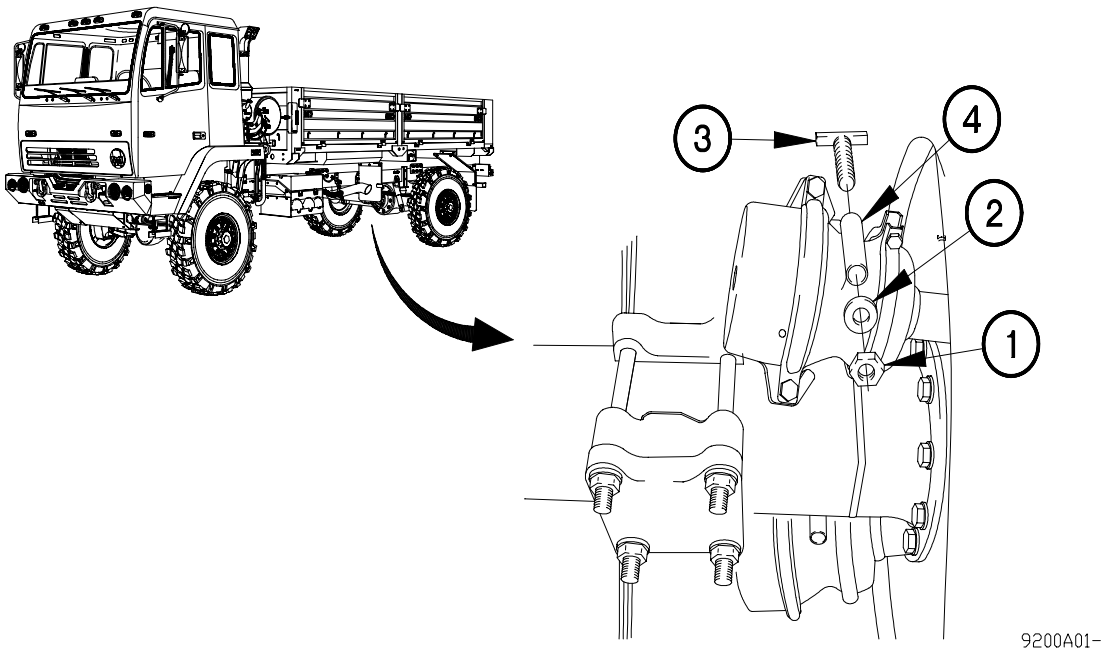
Equipment Conditions
Engine shut down (WP 0018 00).

CAGING

NOTE

To cage brakes, apply caging procedure to both top and bottom spring brake chambers.

1. Remove nut (1) and washer (2) from caging bolt (3).
2. Remove caging bolt (3) from caging bolt holder (4).



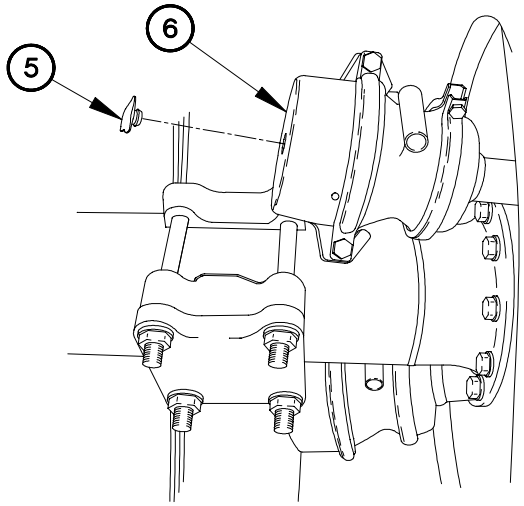
REAR SPRING BRAKE CAGING - Continued 0092 00

CAGING - Continued

NOTE

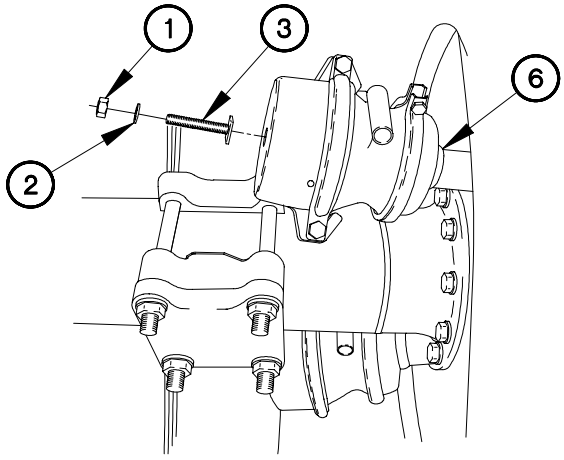
Save rubber cap for use after uncaging operation to seal spring brake chamber.

3. Remove rubber cap (5) from spring brake chamber (6).



9200A02-

4. Insert T-end of caging bolt (3) in back of spring brake chamber (6).
5. Lock caging bolt (3) in place by turning caging bolt to the right 1/4 turn.
6. Install washer (2) and nut (1) on caging bolt (3).

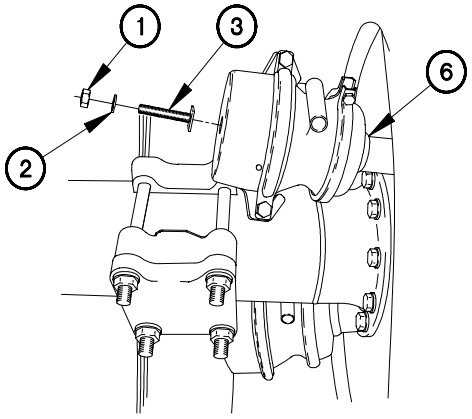


9200A03-

REAR SPRING BRAKE CAGING - Continued 0092 00

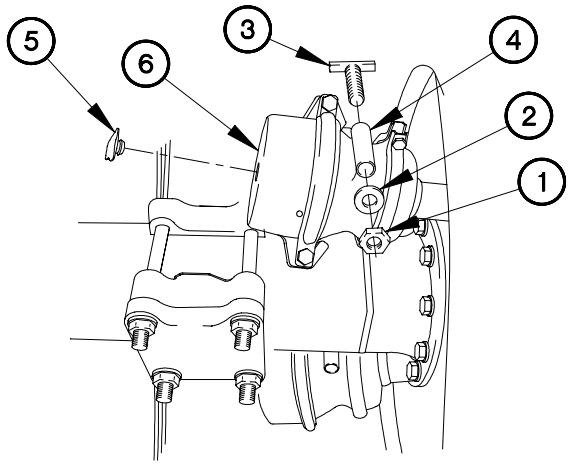
UNCAGING

1. Remove nut (1) and washer (2) from caging bolt (3).
2. Remove caging bolt (3) by turning to the left 1/4 turn.
3. Remove caging bolt (3) from spring brake chamber (6).



9200A03-

4. Install caging bolt (3) in caging bolt holder (4).
5. Position washer (2) and nut (1) on caging bolt (3).
6. Notify Unit Maintenance to tighten nut (1) to 50 lb-ft (68 N•m).



9200A04-

END OF TASK

CHAPTER 5

SUPPORTING INFORMATION FOR THE M1078A1 SERIES VEHICLES

REFERENCES 0093 00

SCOPE

This work package lists all forms, field manuals, technical manuals, and miscellaneous publications referenced in this manual. Those publications that should be consulted for additional information about vehicle operations are also listed.

FIELD MANUALS

Multiservice Helicopter External Air Transport: Basic Army Motor Transport Units and Operations	FM 55-30
Basic Cold Weather Manual	FM 31-70
Desert Operations (How to Fight)	FM 90-3
Field Hygiene and Sanitation	FM 21-10
First Aid for Soldiers	FM 21-11
Jungle Operations (How to Fight)	FM 90-5
Manual for the Wheeled Vehicle Driver	FM 21-305
Mountain Operations	FM 90-6
NBC Protection	FM 3-4
NBC Decontamination	FM 3-5
Northern Operations	FM 31-71
Operation and Maintenance of Ordnance Materiel in Cold Weather (0 to -65 °F)	FM 9-207
Route Reconnaissance and Classification	FM 5-36
Operations and Equipment Multiservice Helicopter External Air Transport: Dual-Point	FM 55-450-3
Multiservice Helicopter External Air Transport: 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 Vehicle Recovery Operations	FM 20-22

FORMS

Recommended Changes to DA Publications and Blank Forms	DA FORM 2028-2
Product Quality Deficiency Report	SF 368

REFERENCES - Continued 0093 00

TECHNICAL BULLETINS

Army Oil Analysis Program	TB 43-0211
Decontamination Operations Facilities & Equipment	TB 700-4
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 M1078A1, M1080A1, M1083A1, M1086A1, M1088A1-M1092A1 and M1096A1 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 M1078A1, M1080A1, M1083A1-M1086A1, M1088A1-M1092A1 and M1096A1 Family of Medium Tactical Vehicles	TB 11-5820-890-20-92
Standard Characteristics (Dimensions, weight, and cube) for Transportability of Military Vehicles and Other Outsize/Overweight Equipment (in TOE Line Sequence)	TB 55-46-1
Security of Tactical Wheeled Vehicles	TB 9-2300-422-20
Warranty Program for M1078A1 Series, 2-1/2 Ton, 4x4, Light Medium Tactical Vehicle (LMTV)	TB 9-2300-391-15

TECHNICAL MANUALS

Cooling Systems: Tactical Vehicles	TM 750-254
Hand Receipt Covering Contents of Components of End Item (COEI), Basic Issue Items (BII), and Additional Authorization List (AAL), for M1078A1 Series, 2-1/2 Ton, 4x4, Light Medium Tactical Vehicles (LMTV)	TM 9-2320-391-10-HR
Materials Used for Cleaning, Preserving, Abrading, and Cementing Ordnance Materiel and Related Materials Including Chemicals	TM 9-247
Operator's, Unit, Direct Support, and Intermediate General Support Maintenance Manual for Lead-Acid Storage Batteries	TM 9-6140-200-14
Operator's and Organizational Maintenance Manual for Radio Sets	TM 11-5820-498-12
Operator's Manual, Radio Set, AN/VRC-46	TM 11-5820-401-10-1

REFERENCES - Continued 0093 00

TECHNICAL MANUALS - Continued

Operator's Manual, Radio Set, AN/VRC-90A	TM 11-5820-890-10-1
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
Operator's, Organizational, Direct Support and General Support Maintenance Manual, Air Conditioner, Horizontal Compact, 18,000 BTU/HR, 208 Volts, 3 Phase, 50/60 Hertz, Model F18H-3S (4120-01-165-1125)	TM 5-4120-384-14
Operator's, Unit, and Intermediate Maintenance Manual, Heater, Space, Multi-fuel with Blower, 60,000 BTU/HR, 120V, UH-68G (4520-01-203-4410)	TM 5-4520-253-13
Principles of Automotive Vehicles	TM 9-8000
Procedures for Destruction of Tank-Automotive Equipment to Prevent Enemy Use (US Army Tank-Automotive Command)	TM 750-244-6
Rigging	TM 5-575
Use and Care of Hand Tools and Measuring Tools	TM 9-243

MISCELLANEOUS PUBLICATIONS

The Army Maintenance Management System (TAMMS)	DA PAM 738-750
Consolidated Index of Army Publications and Blank Forms	DA PAM 25-30
Index Of Blank Forms	DA PAM 25-30
Marine Terminal Lifting Guidance	MTMCTEA PAM 56-1
Safety Prevention of Motor Vehicle Accidents	AR 385-557
Tiedown Handbook for Rail Movements	MTMCTEA PAM 55-19
Tiedown Handbook for Truck Movements	MTMCTEA REF 92-55-20

COMPONENTS OF END ITEM (COEI) AND BASIC ISSUE ITEMS (BII) LISTS

0094 00

SCOPE

This work package lists COEI and BII for the LMTV to help you inventory the items for safe and efficient operation of the equipment.

GENERAL

The COEI and BII information is divided into the following lists:

Components of End Item (COEI). This list is for information purposes only and is not authority to requisition replacements. These items are part of the LMTV. As part of the end item, these items must be with the end item whenever it is issued or transferred between property accounts. Items of COEI are removed and separately packaged for transportation or shipment only when necessary. Illustrations are furnished to help you find and identify the items.

Basic Issue Items (BII). These essential items are required to place the LMTV in operation, operate it, and to do emergency repairs. Although shipped separately packaged, BII must be with the LMTV during operation and when it is transferred between property accounts. Listing these items is your authority to request/requisition them for replacement based on authorization of the end item by the TOE/MTOE. Illustrations are furnished to help you find and identify the items.

Explanation of Columns in the COEI List And BII List

Column (1), Illus Number, gives you the number of the item illustrated.

Column (2), National Stock Number, identifies the stock number of the item to be used for requisitioning purposes.

Column (3), Description, CAGEC, and Part Number, identifies the Federal item name (in all capital letters) followed by a minimum description when needed. The stowage location of COEI and BII is also included in this column. The last line below the description is the CAGEC (Commercial and Government Entity Code (in parentheses) and the part number.

Column (4), Usable on Code, gives you a code if the item you need is not the same for different models of the equipment. These codes are identified below:

CODE	USED ON
LBB	M1078A1
LXB	M1078A1 w/11K Self-Recovery Winch
LBD	M1079A1
LXD	M1079A1 w/11K Self-Recovery Winch
LBA	M1080A1

COMPONENTS OF END ITEM (COEI) AND BASIC ISSUE ITEMS (BII) LISTS - Continued 0094 00

GENERAL - Continued

Column (5), U/M (unit of measure), indicates how the item is issued for the National Stock Number shown in column two.

Column (6), Qty Reqd, indicates the quantity required.

COMPONENTS OF END ITEM (COEI) LIST

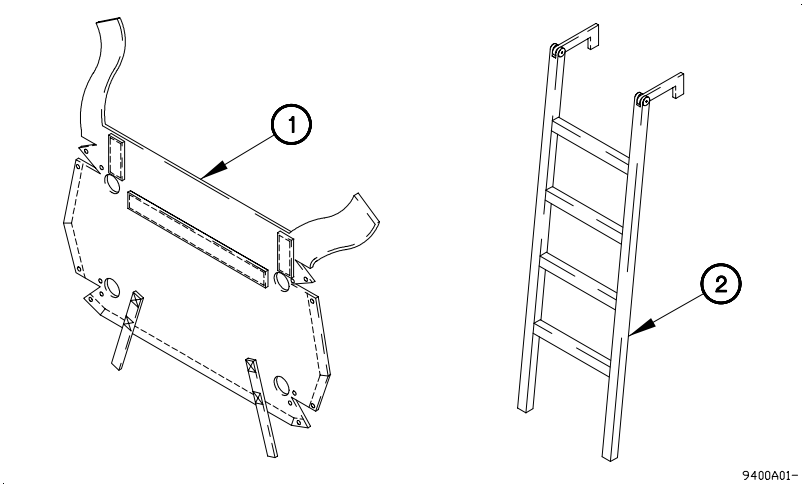


Table 1. Components of End Item List.

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION, CAGEC, AND PART NUMBER	(4) USABLE ON CODE	(5) U/M	(6) QTY REQD
1	2540-01-783-9681	COVER, RADIATOR, COLD WEATHER (19207) 12421395		EA	1
2	2540-01-394-9681	LADDER, BOARDING (19207) 12418950	LBB, LXB	EA	1

COMPONENTS OF END ITEM (COEI) AND BASIC ISSUE ITEMS (BII) LISTS - Continued

GENERAL - Continued

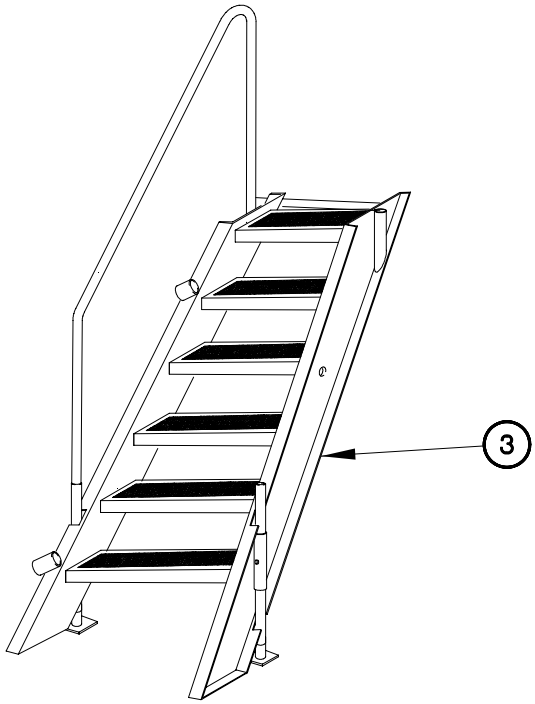


Table 1. Components of End Item List (Continued).

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION, CAGEC, AND PART NUMBER	(4) USABLE ON CODE	(5) U/M	(6) QTY REQD
3	2540-01-479-7911	LADDER, BOARDING (19207) 12421355	LBD, LXD	EA	1

COMPONENTS OF END ITEM (COEI) AND BASIC ISSUE ITEMS (BII) LISTS - Continued

BASIC ISSUE ITEMS LIST

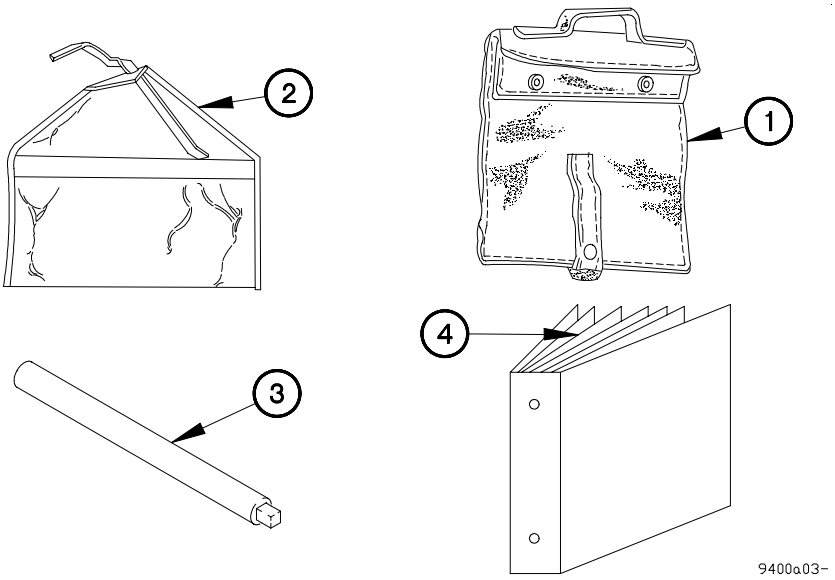


Table 2. Basic Issue Items List.

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION, CAGEC, AND PART NUMBER	(4) USABLE ON CODE	(5) U/M	(6) QTY REQD
1	2540-00-670-2459	BAG ASSEMBLY, PAMPHLET (19207) 7961712		EA	1
2	5140-00-772-4142	BAG, TOOL (19207) 7724142		EA	1
3	5120-00-243-2419	BAR, SOCKET WRENCH HANDLE (19207) 6196147		EA	1
4	7510-00-889-3494	BINDER, LOOSE-LEAF (19207) 11677003		EA	1

COMPONENTS OF END ITEM (COEI) AND BASIC ISSUE ITEMS (BII) LISTS - Continued

0094 00

BASIC ISSUE ITEMS LIST - Continued

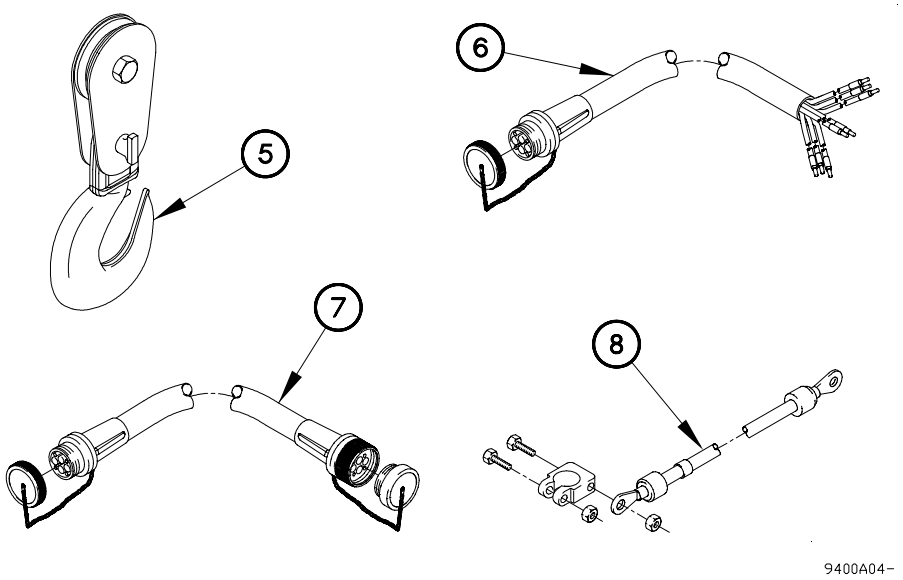


Table 2. Basic Issue Items List - Continued.

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION, CAGEC, AND PART NUMBER	(4) USABLE ON CODE	(5) U/M	(6) QTY REQD
5	3940-01-447-4095	BLOCK SNATCH (75535) M8011971	LXB, LXD	EA	1
6	5995-01-190-5573	CABLE ASSEMBLY, 10 FT (80063) SC-D-883964GRP9-1	LBD, LXD	EA	1
7	5995-01-134-3159	CABLE ASSEMBLY, POWER ELECTRICAL (80063) SC-D-883963-G9-3	LBD, LXD	EA	1
8	6150-01-460-9581	CABLE, GROUND (19207) 12421527	LBD, LXD	EA	1

COMPONENTS OF END ITEM (COEI) AND BASIC ISSUE ITEMS (BII) LISTS - Continued

BASIC ISSUE ITEMS LIST - Continued

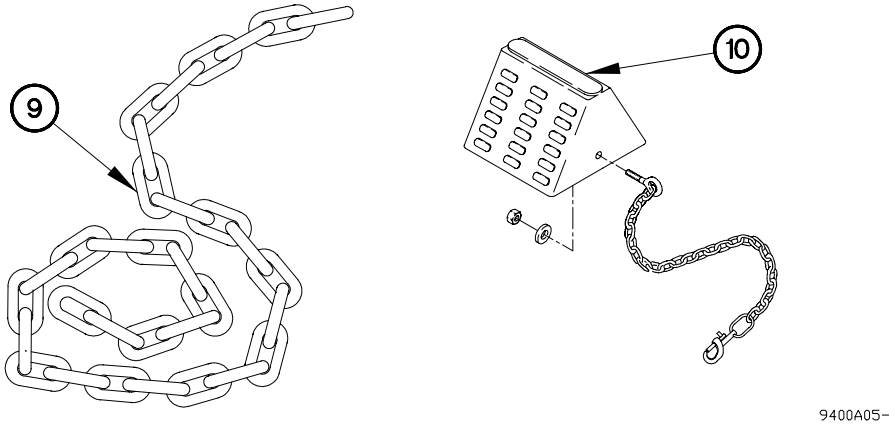


Table 2. Basic Issue Items List - Continued.

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION, CAGEC, AND PART NUMBER	(4) USABLE ON CODE	(5) U/M	(6) QTY REQD
9	4010-01-389-1657	CHAIN, WELDED (19207) 12418052		EA	1
10	2540-00-678-3469	CHOCK, WHEEL (58536) A-A-52475		EA	2
	5310-00-087-7493	BOLT (96906) MS35751-65		EA	2
	5310-00-087-7493	WASHER (96906) MS27183-13		EA	2
	5310-00-880-7744	NUT (96906) MS51967-5		EA	2
	5340-01-243-9656	SNAP HOOK (81349) M43770/6-MIZE1		EA	2

COMPONENTS OF END ITEM (COEI) AND BASIC ISSUE ITEMS (BII) LISTS - Continued

0094 00

BASIC ISSUE ITEMS LIST - Continued

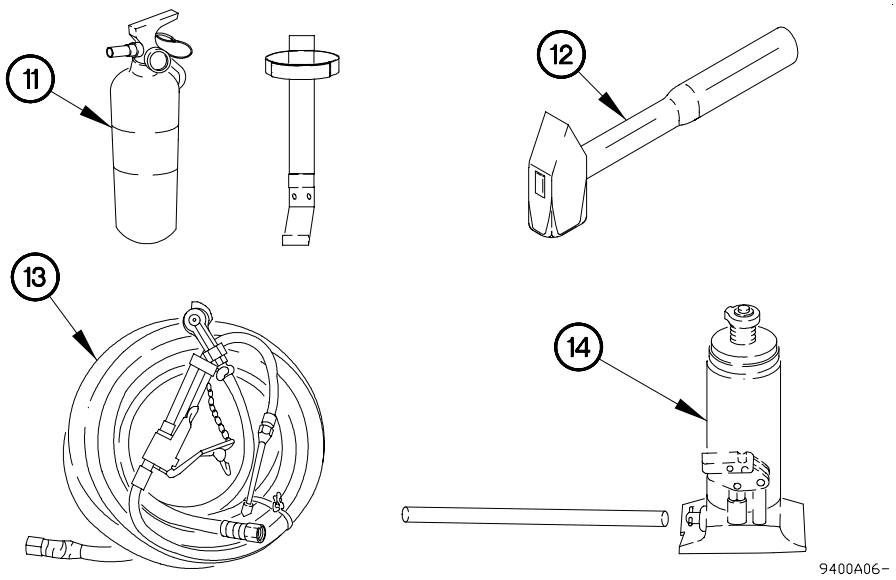


Table 2. Basic Issue Items List - Continued.

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION, CAGEC, AND PART NUMBER	(4) USABLE ON CODE	(5) U/M	(6) QTY REQD
11	4210-01-149-1356	EXTINGUISHER, FIRE (19207) 12255633-1		EA	1
12	5120-00-900-6103	HAMMER, HAND (58536) (A-A-1292)	LBD, LXD	EA	1
13	4910-01-038-2820	INFLATOR-GAGE, TIRE W/HOSE (19207) 11677140-5		EA	1
14	5120-01-480-0700	JACK, HYDRAULIC, HAND OPERATED (0E3L5) D-51013-2		EA	1

BASIC ISSUE ITEMS LIST - Continued

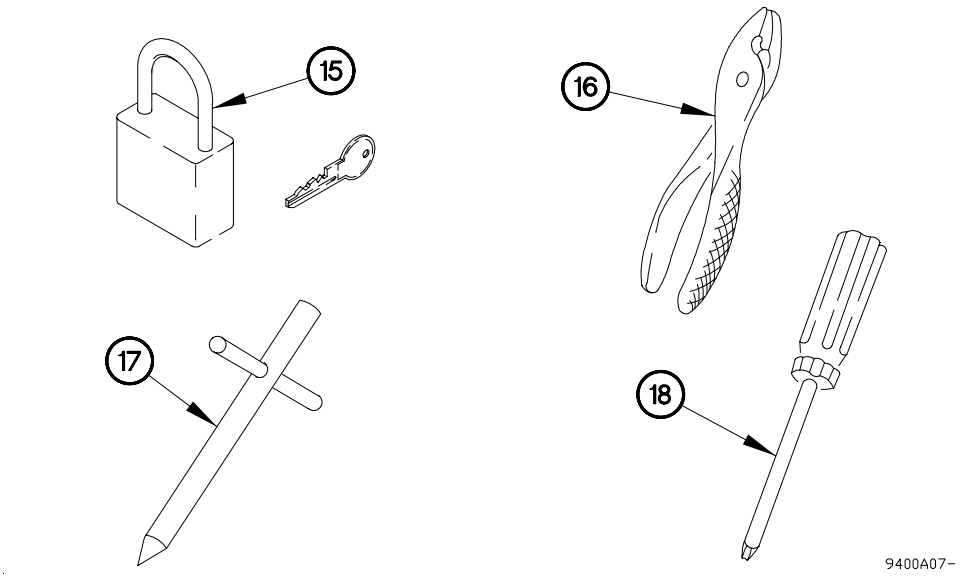


Table 2. Basic Issue Items List - Continued.

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION, CAGEC, AND PART NUMBER	(4) USABLE ON CODE	(5) U/M	(6) QTY REQD
15	5340-00-158-3805	PADLOCK (96906) 12422368		EA	2
16	5120-00-223-7397	PLIERS, SLIP JOINT (19207) 11655775-3		EA	1
17	2510-00-790-2296	ROD, GROUND, 3/4 IN. DIAMETER (19207) 8380403	LBD, LXD	EA	1
18	5120-00-234-8912	SCREWDRIVER, CROSSTIP (19207) 11655777-9		EA	1

COMPONENTS OF END ITEM (COEI) AND BASIC ISSUE ITEMS (BII) LISTS - Continued

BASIC ISSUE ITEMS LIST - Continued

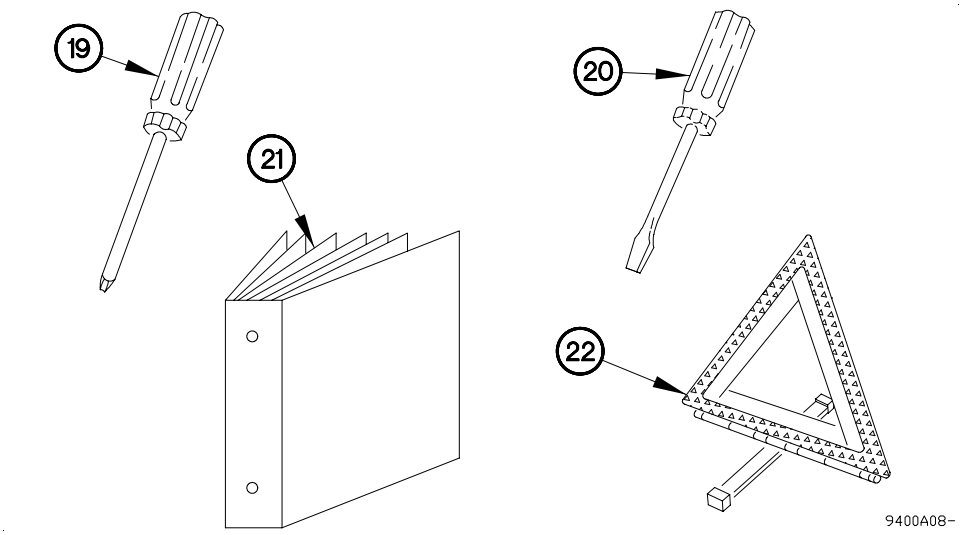


Table 2. Basic Issue Items List - Continued.

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION, CAGEC, AND PART NUMBER	(4) USABLE ON CODE	(5) U/M	(6) QTY REQD
19	5120-00-234-8913	SCREWDRIVER, CROSSTIP (19207) 11655777-12		EA	1
20	5120-00-237-6985	SCREWDRIVER, FLATTIP (19207) 11655777-10		EA	1
21		TECHNICAL MANUAL, OPERATOR'S INSTRUCTIONS, M1078A1 SERIES, 2 1/2 TON		EA	1
22	9905-00-148-9546	WARNING DEVICE KIT (58536) 11669000		EA	1

COMPONENTS OF END ITEM (COEI) AND BASIC ISSUE ITEMS (BII) LISTS - Continued 0094 00

BASIC ISSUE ITEMS LIST - Continued

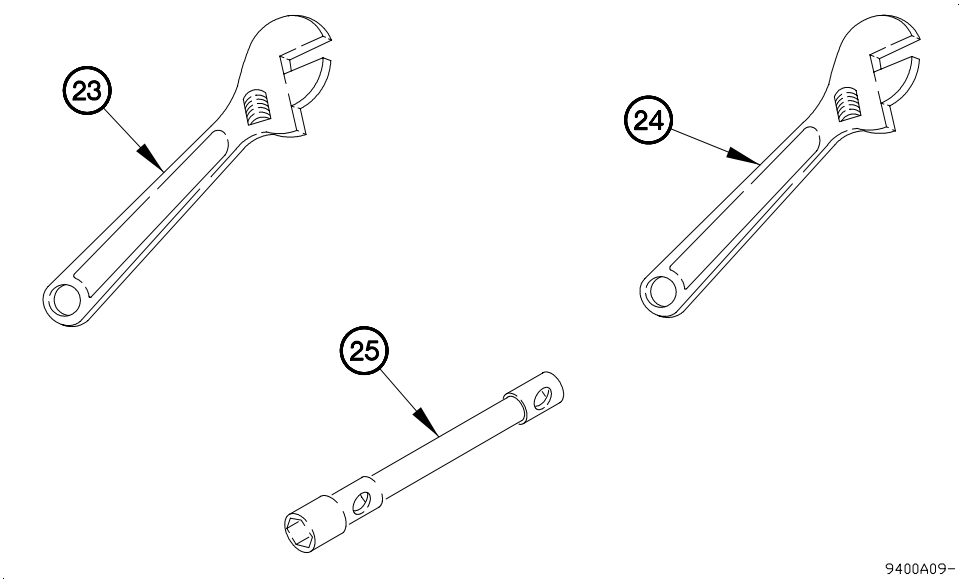


Table 2. Basic Issue Items List - Continued.

(1) ILLUS NUMBER	(2) NATIONAL STOCK NUMBER	(3) DESCRIPTION, CAGEC, AND PART NUMBER	(4) USABLE ON CODE	(5) U/M	(6) QTY REQD
23	5120-00-240-5328	WRENCH, ADJUSTABLE, 8 In. (19207) 11655778-3		EA	1
24	5120-00-264-3796	WRENCH, ADJUSTABLE, 12 In. (19207) 11655778-5		EA	1
25	5120-00-316-9217	WRENCH, SOCKET (19207) 11677000-3		EA	1

END OF LIST

ADDITIONAL AUTHORIZATION LIST (AAL) 0095 00

SCOPE

This work package lists additional items you are authorized for support of the vehicle.

GENERAL

This list identifies items that do not have to accompany the LMTV and that do not have to be turned in with it. These items are all authorized to you by Common Tables of Allowance (CTA), Modification Table of Organization and Equipment (MTOE), Tables of Distribution and Allowances (TDA), or Joint Table of Allowance (JTA).

EXPLANATIONS OF COLUMNS IN THE AAL

Column (1), National Stock Number, identifies the stock number of the item to be used for requisitioning purposes.

Column (2), Description, CAGEC, and Part Number, identifies Federal item name (in all capital letters) followed by a minimum description when needed. The last line below the description is the CAGEC (Commercial and Government Entity Code) (in parentheses) and the part number.

Column (3), Usable On Code, when applicable, gives you a code if the item you need is not the same for different models of equipment.

Codes used are:

USABLE ON CODE	MODEL
LBB	M1078A1
LXB	M1078A1 w/11K Self-Recovery Winch
LBD	M1079A1
LXD	M1079A1 w/11K Self-Recovery Winch
LBA	M1080A1

Column (4), U/M (unit of measure), indicates how the item is issued for the National Stock Number shown in column (1).

Column (5), QTY AUTH, indicates the quantity authorized.

ADDITIONAL AUTHORIZATION LIST (AAL) - Continued 0095 00

ADDITIONAL AUTHORIZED LIST ITEMS

Table 1. Additional Authorization List.

(1) NATIONAL STOCK NUMBER	(2) DESCRIPTION, CAGEC, AND PART NUMBER	(3) USABLE ON CODE	(4) U/M	(5) QTY AUTH
6665-00-859-2215	ALARM UNIT, CHEMICAL AGENT, AUTOMATIC ALARM (M42) (81361) D5-15-4826		EA	1
5110-00-293-2336	AX, SINGLE BIT (19207) 6150925		EA	1
3940-01-449-2385	NET, DRAFT COVER (098P0) B9154-090-168-2R-14C	LBB, LXB, LBD,LXD	EA	1
4030-01-477-0524	CLAMP, LINE, SLIDING (098P0) NEI PR054-001-B	LBB, LXB, LBD, LXD	EA	1
4030-01-477-0508	SNAP LINK, CARGO (098P0) NEI 40WGB	LBB, LXB, LBD,LXD	EA	1
5340-01-477-3850	SNAP HOOK (098P0) NEI 66C1705HUMJ	LBB, LXB, LBD,LXD	EA	1
4010-00-473-6166	CHAIN, 16 FT (19207) 7077063		EA	1
2540-01-483-2930	CHAIN, PNEUMATIC TIRE, TRUCK, SINGLE TIRE TYPE (4N506) A08SV (OPTIONAL NSN 2540-01-492-2989 P/N CL07S)		EA	2
5120-01-416-8568	COMBINATION TOOL, HAND		EA	1
6665-00-859-2201	DETECTOR UNIT, CHEMICAL AGENT, AUTOMATIC ALARM (M43) (81361) D5-15-4400		EA	1
6545-00-922-1200	FIRST AID KIT (19207) 11677011		EA	1
8415-00-634-4658	GLOVES, LEATHER (90142) 37G2940		EA	1
5120-00-288-6574	HANDLE, MATTOCK PICK (19207) 11677021		EA	1
4910-01-396-5044	JACK, DOLLY TYPE, HYDRAULIC (1X747) TTJ3		EA	1

ADDITIONAL AUTHORIZATION LIST (AAL) - Continued 0095 00

ADDITIONAL AUTHORIZED LIST ITEMS – Continued.

Table 1. Additional Authorization List – Continued

(1)	(2)	(3)	(4)	(5)
NATIONAL STOCK NUMBER	DESCRIPTION, CAGEC, AND PART NUMBER	USABLE ON CODE	U/M	QTY AUTH
5120-00-243-2395	MATTOCK PICK (19207) 11677022		EA	1
5120-00-293-3336	SHOVEL (19207) 11655784		EA	1
	SPECIAL PURPOSE KITS			
	ARCTIC KITS			
2540-01-381-1626	SWINGFIRE HEATER ADAPTER (19207) 57K1973	LBB,LXB	EA	1
2990-01-479-7713	ARCTIC ENGINE PREHEAT KIT (19207) 57K4366		KT	1
2540-01-383-5411	CAB HEATER (19207) 57K1971		EA	1
2540-01-479-8835	CARGO AREA ARCTIC KIT (19207) 57K4364	LBB,LXB	KT	1
4130-01-456-0718	AIR CONDITIONER KIT 57K1947	LBD,LXD	KT	1
	HEATER KIT 57K1984	LBD,LXD	KT	1
2540-01-385-9462	CARGO COVER KIT (GREEN) (19207) 57K1898	LBB,LXB	KT	1
2540-01-437-1463	CARGO COVER KIT (TAN) (19207) 57K1925	LBB,LXB	KT	1
2540-01-498-5929	KIT, BUMPERETTE (19207) 57K3398	LBB,LXB,LBDLXD,LBA	KT	1
	KIT, CONVEX MIRROR (19207) 57K1995		KT	1
2540-01-493-9101	KIT, RH CONVEX MIRROR (19207) 57K2008		KT	1
	KIT, RESILIENT MOUNT 57K2003		KT	1

ADDITIONAL AUTHORIZATION LIST (AAL) - Continued 0095 00

ADDITIONAL AUTHORIZED LIST ITEMS – Continued.

Table 1. Additional Authorization List – Continued

(1)	(2)	(3)	(4)	(5)
NATIONAL STOCK NUMBER	DESCRIPTION, CAGEC, AND PART NUMBER	USABLE ON CODE	U/M	QTY AUTH
	S280 SHELTER			
3990-01-449-8358	KIT, TIEDOWN, S280 SHELTER (19207) 57K1952	LBB, LXB	KT	1
3990-01-494-2285	KIT, MODIFICATION, S280 SHELTER TIEDOWN KIT – LMTV CARGO OR LWB CARGO (19207) 57K4448	LBB, LXB	KT	1
3990-01-494-6071	KIT, TIEDOWN, S280 SHELTER (MODIFIED) (19207) 57K4449	LBB, LXB	KT	1
3810-01-384-9668	LIGHT MATERIAL HANDLING CRANE KIT 57K1215	LBB,LXB	EA	1
1005-01-381-5431	MACHINE GUN RING MOUNT KIT (19207) 57K1224		EA	1
2540-01-470-3842	PINTLE HOOK EXTENSION KIT (19207) 57K1985		EA	1
6220-01-423-2337	ROTATING WARNING LIGHT KIT (19207) 57K1220		EA	1
2540-01-381-5860	TROOPSEAT KIT (19207) 57K1893	LBB,LXB	EA	1
6115-01-432-2684	200 AMP ALTERNATOR KIT (19207) 57K1912	LBB,LXB	EA	1

EXPENDABLE AND DURABLE ITEMS LIST 0096 00

INTRODUCTION

Scope

This work package lists all expendable and durable items that you will need to operate and maintain the LMTV. This list 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.

Explanations of Columns in the Expendable/Durable Items List

Column (1) - Item Number. This number is assigned to the entry in the list and is referenced in the narrative instructions to identify the item, e.g., "Use hydraulic fluid (Item 5, WP 0095 00)".

Column (2) - Level. This column includes the lowest level of maintenance that requires the listed item (C = Operator/Crew).

Column (3) - National Stock Number. This is the NSN assigned to the item which you can use to requisition it.

Column (4) - Item Name, Description, Commercial and Government Entity Code (CAGEC), and Part Number (P/N). This column provides the other information you need to identify the item.

Column (5) - Unit of Measure (U/M). This code shows the physical measurement or count of an item, such as gallon, dozen, gross, etc.

EXPENDABLE AND DURABLE ITEMS LIST

Table 1. Expendable and Durable Items List.

(1) Item Number	(2) Level	(3) National Stock Number	(4) Item Name, Description, CAGEC, Part Number	(5) U/M
1	C	6850-00-174-1806	Antifreeze, (MIL-A-11755) (81349) 55 gal drum	DR
2	C		Antifreeze, Multi-Engine (A-A-52624) (81349)	
		6850-01-441-3221	5 gal	CO
		6850-01-441-3223	55 gal	DR

EXPENDABLE AND DURABLE ITEMS LIST - Continued

Table 1. Expendable and Durable Items List - Continued.

(1) Item Number	(2) Level	(3) National Stock Number	(4) Item Name, Description, CAGEC, Part Number	(5) U/M
3	C	6850-00-926-2275	Cleaning Compound, Windshield (O-C-1901) (81348) 1 pt can	PT
4	C	9150-00-664-0047	Damping Fluid (VV-D-1078) (81348) 1 lb can	LB
5	C		Diesel Fuel, VV-F-800, grade DF-2 (NATO code no F-54)	
		9140-00-286-5294	1 gal can	GAL
		9140-00-286-5295	can	CN
		9140-00-286-5297	55 gal drum	DR
6	C		Diesel Fuel, VV-F-800, grade DF-1 (NATO code no F-54)	
		9140-00-286-5286	1 gal can	GAL
		9140-00-286-5288	55 gal drum	DR
		9140-00-286-5287	5 gal can	GAL
7	C		Diesel Fuel, VV-F-800, grade DF-A (NATO code no F-54)	
		9140-00-286-5283	1 gal can	GAL
		9140-00-286-5282	5 gal can	GAL
		9140-00-286-5284	55 gal drum	DR
8	C	8415-00-641-4601	Gloves, Rubber (22-G-381) (81348)	PR
9	C	4240-00-052-3776	Goggles, Industrial (A-A-1110) (58536)	PR
10	C		Grease, Automotive and Artillery (GAA) (MIL-G-10924) (81349)	
		9150-01-197-7688	2.25 oz tube	TU
		9150-01-197-7693	14 oz cartridge	CA
		9150-01-197-7692	35 lb can	CN

EXPENDABLE AND DURABLE ITEMS LIST - Continued

Table 1. Expendable and Durable Items List - Continued.

(1) Item Number	(2) Level	(3) National Stock Number	(4) Item Name, Description, CAGEC, Part Number	(5) U/M
11	C		Hydraulic Fluid, Petroleum Base (MIL-PRF-5606H) (81349)	
		9150-00-252-6383	1 qt can	QT
		9150-00-223-4134	1 gal can	GAL
		9150-00-082-7524	10 gal drum	DR
		9150-00-265-9408	55 gal drum	DR
12	C		Kerosene, ASTM D3699	
13	C		Oil, Lubricating, Gear, GO 75W (MIL-L-2105C)	
		9150-01-035-5390	1 qt can	QT
		9150-01-035-5391	5 gal drum	GAL
14	C		Oil, Lubricating, Gear, GO 80W-90 (MIL-L-2105C)	
		9150-01-035-5392	1 qt can	QT
		9150-01-035-5393	5 gal can	CN
		9150-01-035-5394	55 gal drum	DR
15	C		Oil, Lubricating, OE/HDO 10 (MIL-L-2104)	
		9150-00-183-7807	bulk	GAL
		9150-00-186-6668	5 gal can	CN
		9150-00-191-2772	55 gal drum, 16 gage	DR
16	C		Oil, Lubricating, OE/HDO 10W (MIL-L-2104)	
		9150-00-189-6727	1 qt can	QT
17	C		Oil, Lubricating, OE/HDO 15W-40 (MIL-M-2104)	
		9150-01-152-4117	1 qt can	QT
		9150-01-152-4118	5 gal can	CN
		9150-01-152-4119	55 gal drum	DR

EXPENDABLE AND DURABLE ITEMS LIST - Continued

Table 1. Expendable and Durable Items List - Continued.

(1) Item Number	(2) Level	(3) National Stock Number	(4) Item Name, Description, CAGEC, Part Number	(5) U/M
18	C		Oil, Lubricating, OE/HDO 30 (SAE 30) (MIL-L-2104)	
		9150-00-183-7808	bulk	GAL
		9150-00-186-6681	1 qt can	QT
		9150-00-188-9858	5 gal can	CN
		9150-00-189-6729	55 gal drum, 18 gage	DR
19	C		Oil, Lubricating, OE/HDO 40 (MIL-L-2104)	
		9150-00-405-2987	bulk	GAL
		9150-00-189-6730	1 qt can	QT
		9150-00-188-9862	5 gal can	CN
20	C		Oil, Lubricating, OEA (MIL-L-46167), Arctic	
		9150-00-402-4478	1 qt can	QT
		9150-00-402-2372	5 gal can	CN
		9150-00-491-7197	55 gal drum	DR
21	C	9140-00-247-4364	Oil, Commercial burner fuel (ASTM D396), grade FO-1	DR
22	C	9140-00-247-4362	Oil, Commercial burner fuel (ASTM D396), grade FO-2	DR
23	C	7920-00-205-1711	Rag, Wiping, Cotton and Cotton-Synthetic	LB
24	C	7930-00-634-3935	Soap, Laundry (54748) 539-200LBCHIPS 200 lb drum	DR
25	C		Solvent, Dry Cleaning SD (P-D-680)	
		6850-00-281-1985	1 gal can	GAL
		6850-00-664-5685	1 qt can	QT

EXPENDABLE AND DURABLE ITEMS LIST - Continued

Table 1. Expendable and Durable Items List - Continued.

(1) Item Number	(2) Level	(3) National Stock Number	(4) Item Name, Description, CAGEC, Part Number	(5) U/M
26	C		Turbine fuel, aviation, kerosene type, MIL-T-83133,	
		9140-00-286-5283	grade JP-8	GAL
		9140-00-286-5284	Bulk	DR
		9140-00-286-5285	55 gal drum, 16 gage	DR
			55 gal drum, 18 gage	
27	C		Turbine fuel, aviation, kerosene type, MIL-T-83133,	
		9140-00-286-5286	grade JP-8	GAL
		9140-00-286-5288	Bulk	DR
		9140-00-286-5289	55 gal drum, 16 gage	DR
			55 gal drum, 18 gage	
28	C		Turbine fuel, aviation, kerosene type, MIL-T-83133,	
		9140-00-286-5294	grade JP-8	GAL
		9140-00-286-5296	Bulk	DR
		9140-00-286-5297	55 gal drum, 16 gage	DR
			55 gal drum, 18 gage	
29	C		Turbine fuel, MIL-T-5624, grade JP-5 (NATO code no. F-44)	
		9130-01-305-5596	bulk	DR
		9130-01-250-6353	55 gal drum, 16 gage	DR
30	C		Turbine fuel, MIL-F-16884, (NATO code no. F-75 OR f-76)	
			1 gal can	
		9140-00-273-2377	5 gal can	GAL
		9140-00-255-7764	55 gal drum	GAL
		9140-00-255-2378		DR

EXPENDABLE AND DURABLE ITEMS LIST - Continued 0096 00

EXPENDABLE AND DURABLE ITEMS LIST - Continued

Table 1. Expendable and Durable Items List - Continued.

(1) Item Number	(2) Level	(3) National Stock Number	(4) Item Name, Description, CAGEC, Part Number	(5) U/M
31	C	9130-01-429-4563	Turbine fuel, aviation, kerosene type, MIL-T-83133, grade JP-8 (NATO code no. F-34)	GL
32	C		Turbine fuel, MIL-F-5624, grade JP-4 (NATO code no. F-40)	
		9130-00-273-2380	54 gal drum, 16 gage	DR

STOWAGE LOCATION/DECAL/STENCIL GUIDE 0097 00

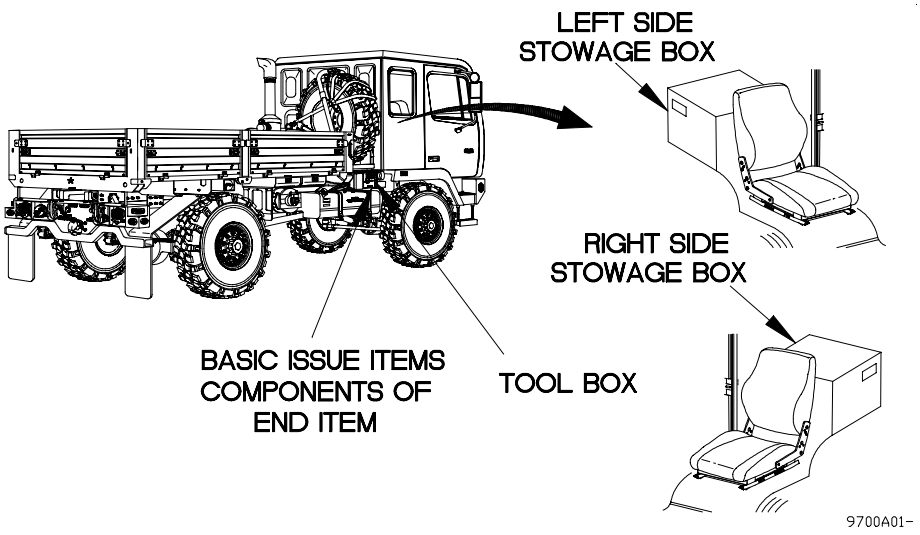
SCOPE

This work package shows stowage location for equipment, metal signs, and stencils that must be in place on M1078A1 series vehicles. The illustrations on the following pages show stowage locations for Basic Issue Items (BII), tire chains, and personnel gear. Also shown are locations for metal signs and stencils that contain cautions or information required to operate the vehicle safely.

STOWAGE LOCATIONS, ALL VEHICLES

NOTE

On Vehicle S/N 18,549 or lower.

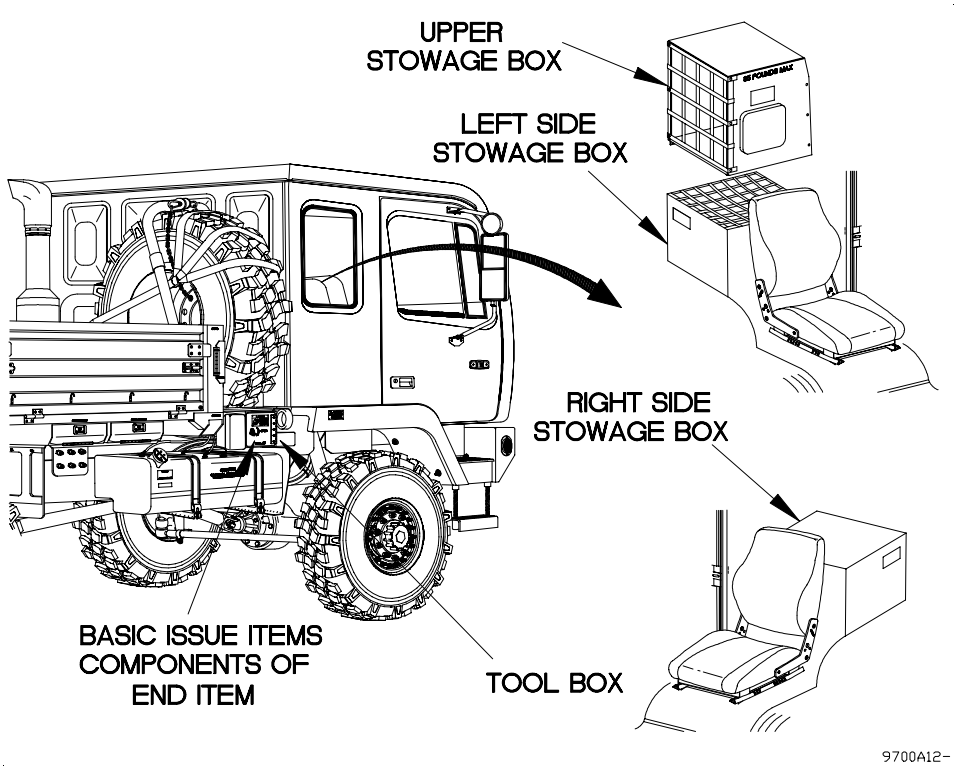


STOWAGE LOCATION/DECAL/STENCIL GUIDE 0097 00

SCOPE - Continued

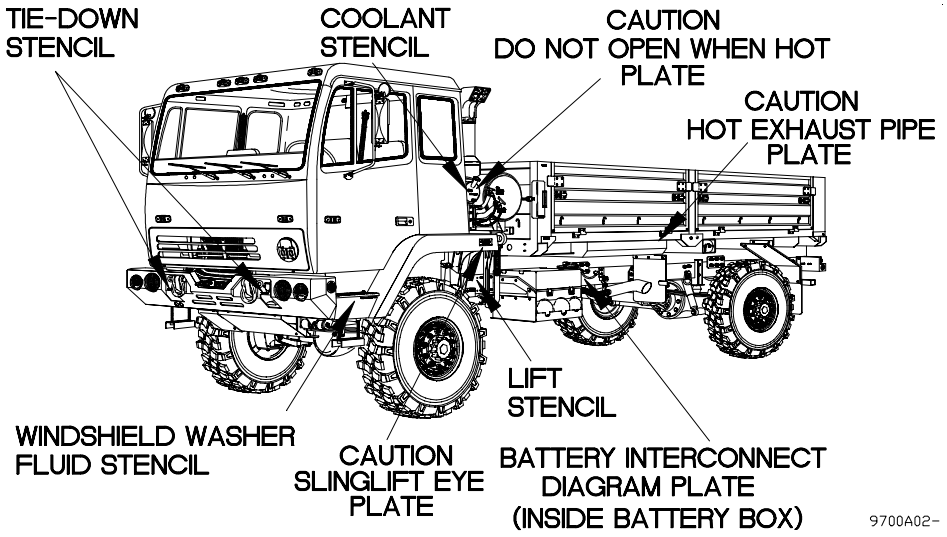
NOTE

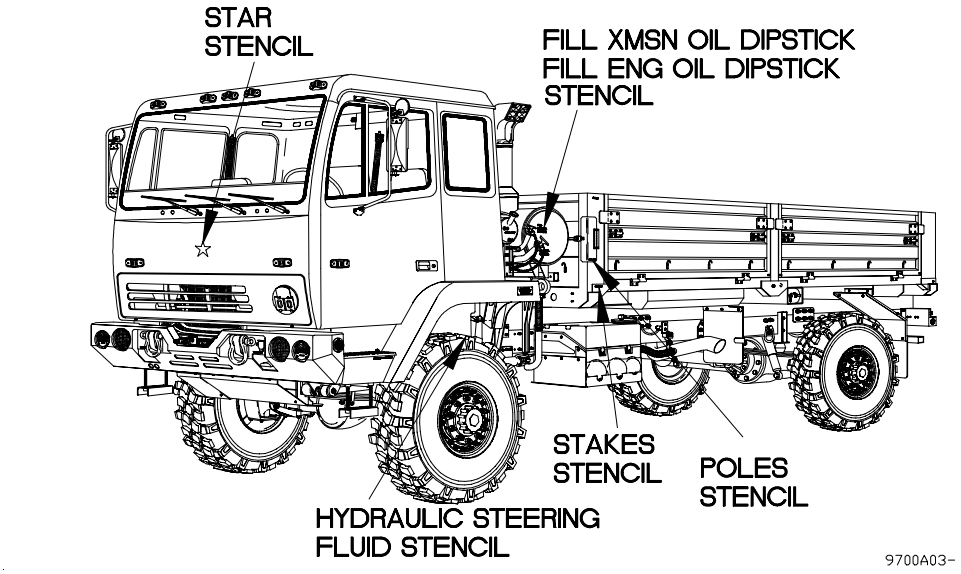
On Vehicle S/N 18,550 or higher.



STOWAGE LOCATION/DECAL/STENCIL GUIDE - Continued 0097 00

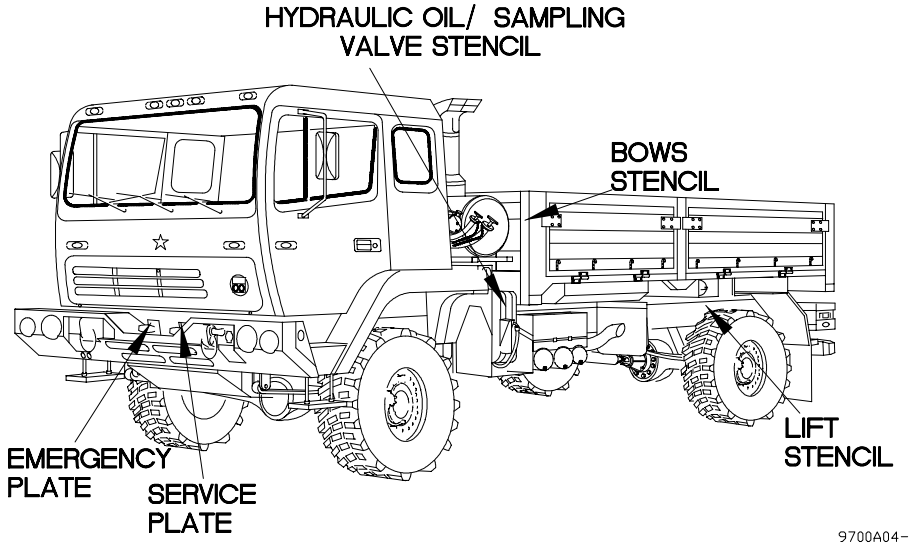
DECALS/STENCILS, ALL VEHICLES

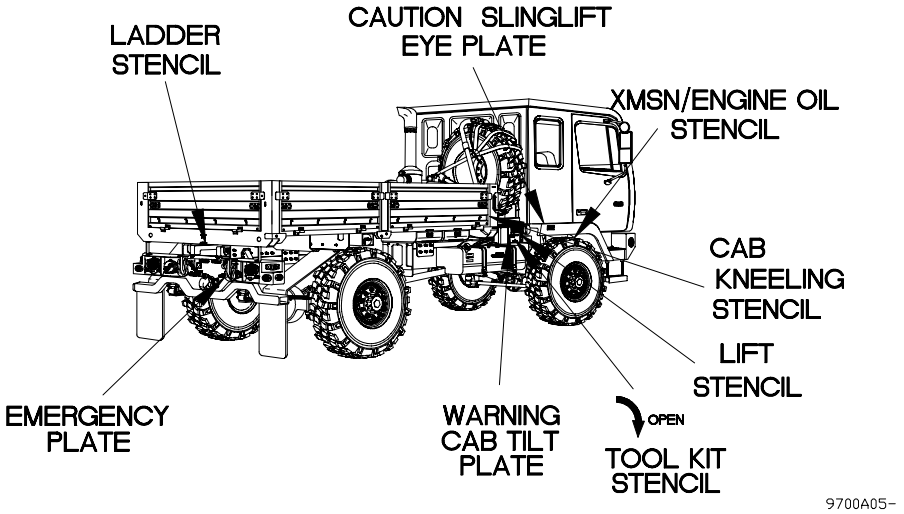




STOWAGE LOCATION/DECAL/STENCIL GUIDE - Continued 0097 00

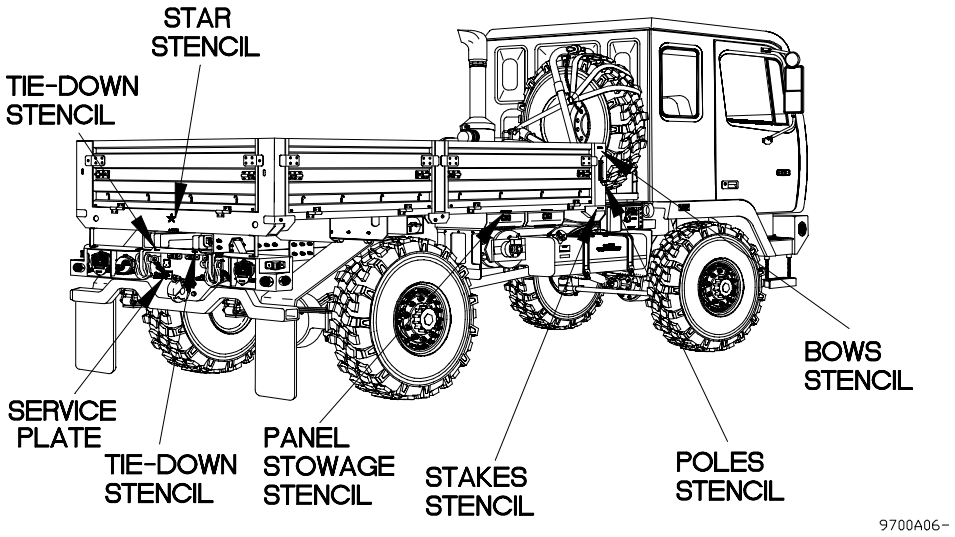
Decals/Stencils, All Vehicles – Continued





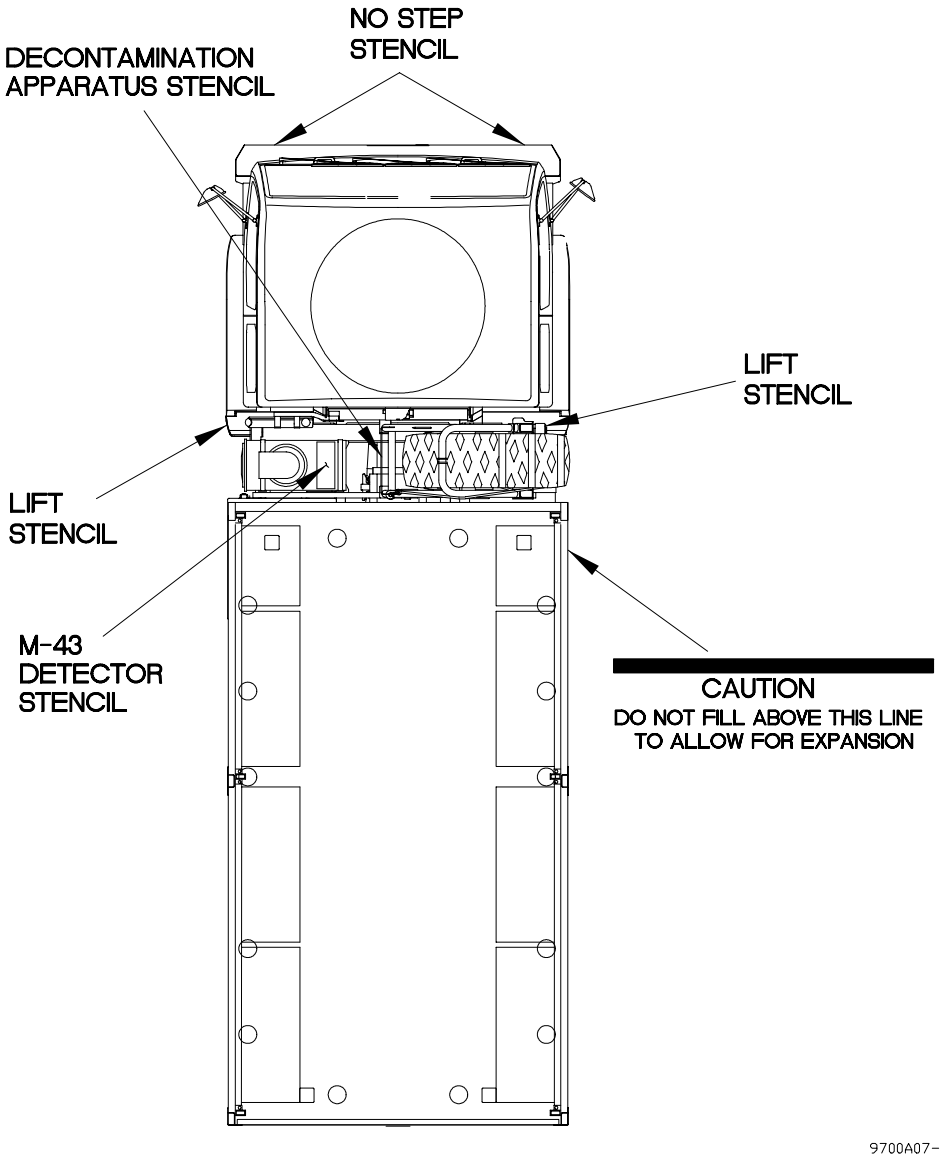
STOWAGE LOCATION/DECAL/STENCIL GUIDE - Continued 0097 00

DECALS/STENCILS, ALL VEHICLES - Continued



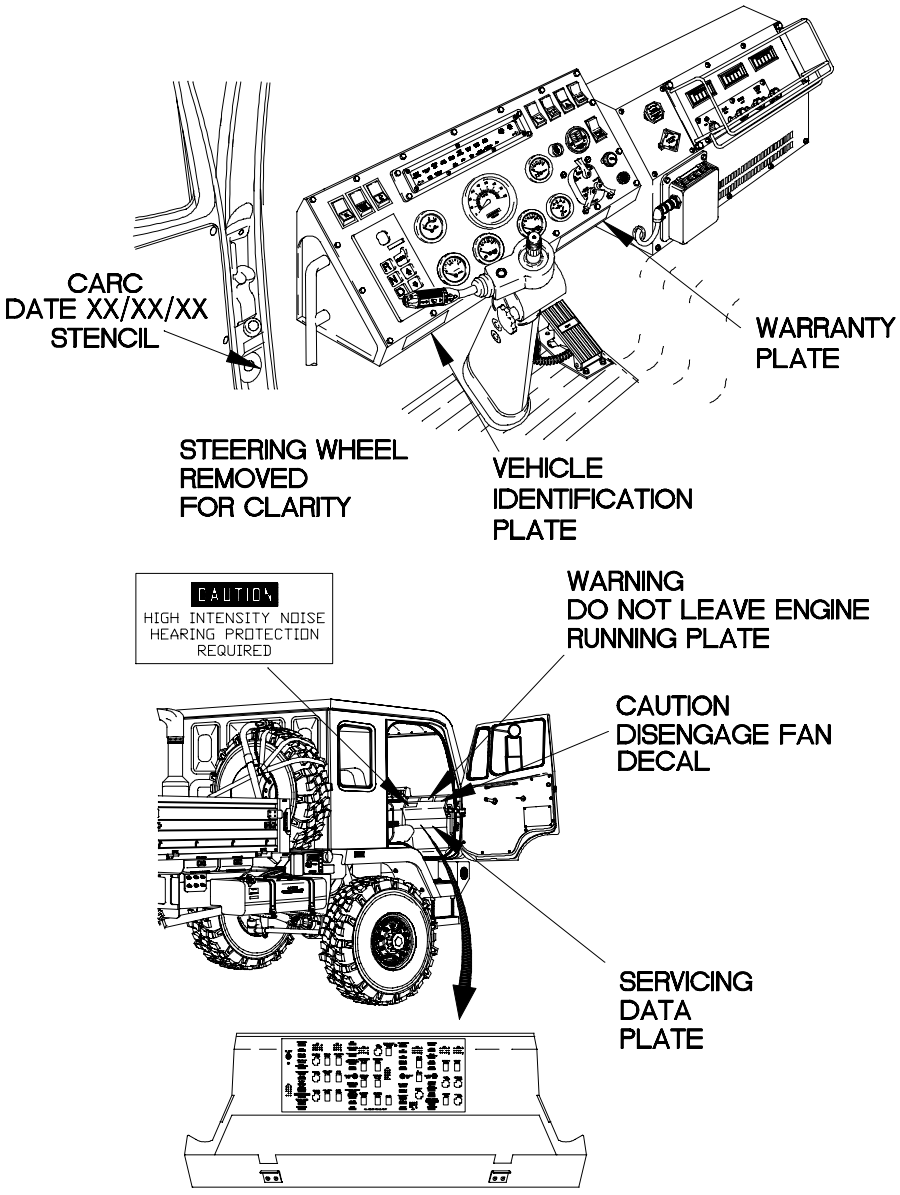
STOWAGE LOCATION/DECAL/STENCIL GUIDE - Continued 0097 00

DECALS/STENCILS, ALL VEHICLES - Continued



STOWAGE LOCATION/DECAL/STENCIL GUIDE - Continued 0097 00

DECALS/STENCILS, ALL VEHICLES - Continued



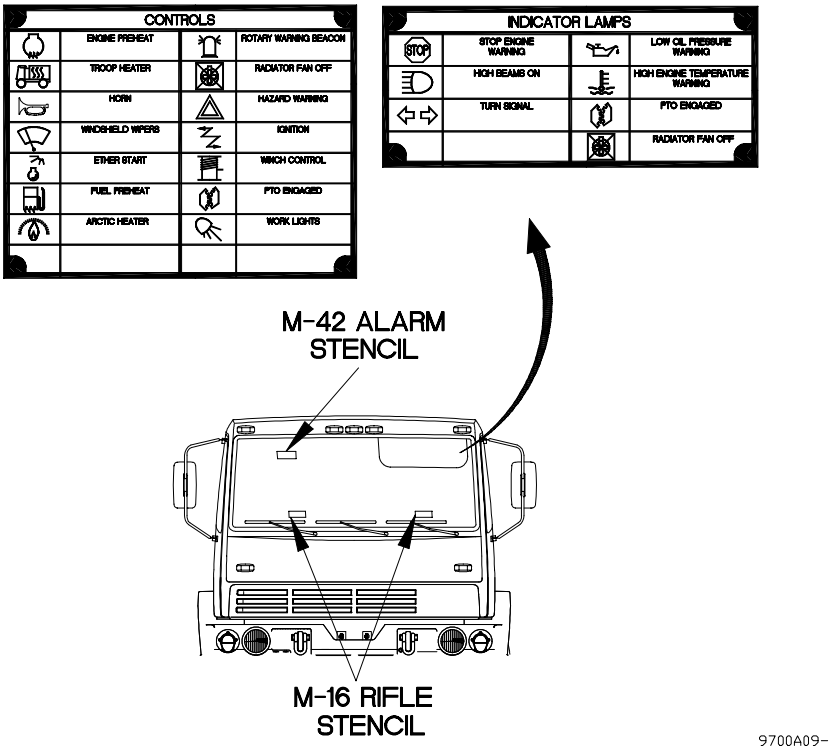
9700A08-

STOWAGE LOCATION/DECAL/STENCIL GUIDE - Continued 0097 00

DECALS/STENCILS, ALL VEHICLES – Continued

NOTE

On vehicles S/N 18,549 or lower.

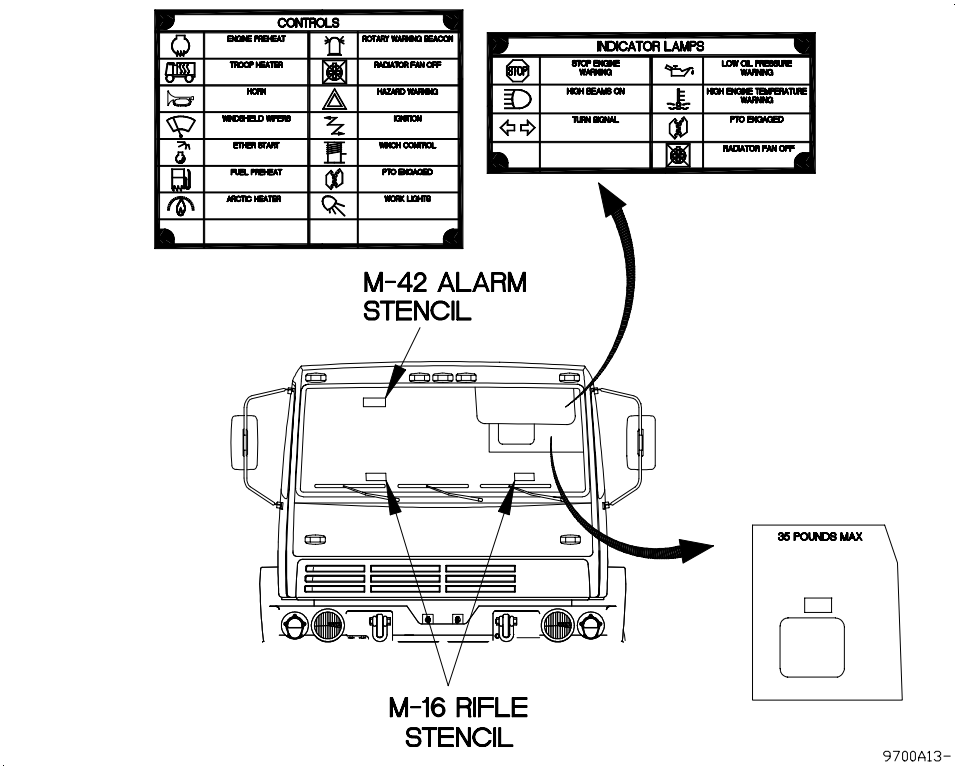


STOWAGE LOCATION/DECAL/STENCIL GUIDE - Continued 0097 00

DECALS/STENCILS, ALL VEHICLES – Continued

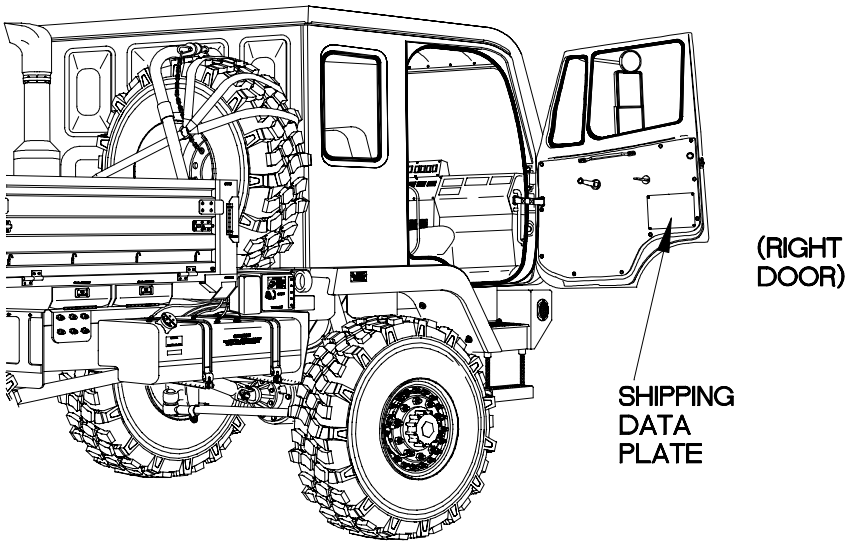
NOTE

On vehicles S/N 18,550 or higher.

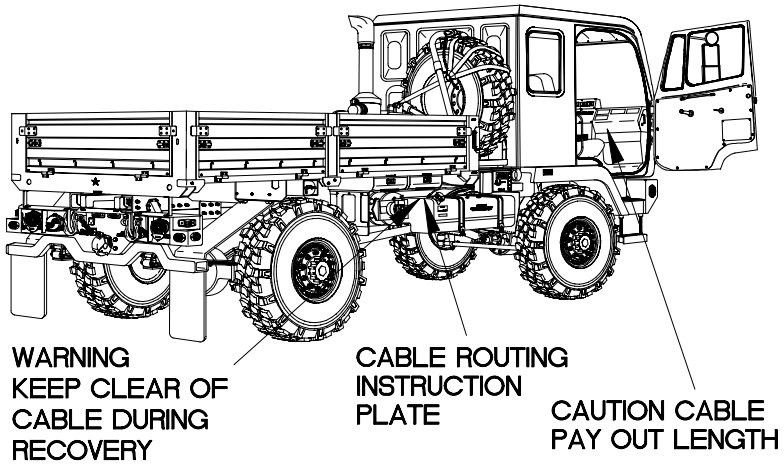


STOWAGE LOCATION/DECAL/STENCIL GUIDE - Continued 0097 00

DECALS/STENCILS, ALL VEHICLES – Continued

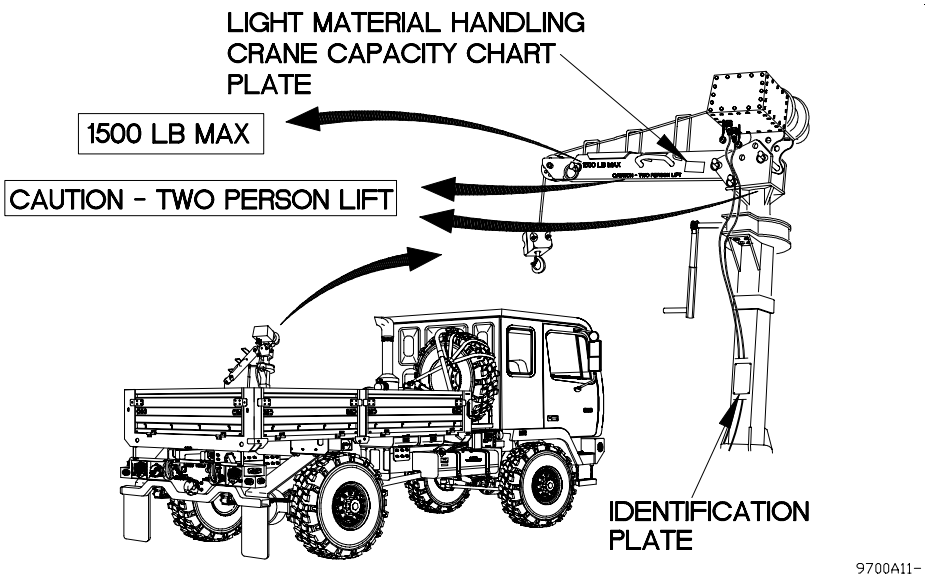


DECAL/DATA PLATE GUIDE, VEHICLES WITH 11K SELF-RECOVERY WINCHES (SRW)



STOWAGE LOCATION/DECAL/STENCIL GUIDE - Continued 0097 00

DECAL/DATA PLATE GUIDE, VEHICLES WITH LIGHT MATERIAL HANDLING CRANE (LMHC)



INDEX

Subject — WP Sequence No.

A

Abbreviations
List of Abbreviations 0001 00
ABS Indicator Does Not Illuminate 0065 00
ABS Indicator Remains Illuminated 0069 00
Accelerator Pedal Sticks 0062 00
Additional Authorization List (AAL) 0096 00
Adjusting
Driver's Seat 0015 00
Mirrors 0015 00
Passenger Seat 0015 00
After
Cab Arctic Heater Switches On and Off Repeatedly 0080 00
Air
M1079A1 Air Conditioner Does Not Operate 0065 00
Cab Air Spring Deflation 0048 00
Cab Air Spring Inflation 0048 00
Cab Leveling Air Springs Do Not Operate Properly 0079 00
Conditioner Operation 0034 00
Draining Air Tanks 0016 00
Dryer Purges Continually 0070 00
Engine Air Intake System 0003 00
FRONT BRAKE AIR Pressure Gage Does Not Operate or Is Inaccurate 0065 00
Inlet Air Heater Does Not Operate 0065 00
INLET AIR Indicator Does Not Illuminate 0065 00
Large Quantity of Moisture Expelled From Air Reservoirs 0070 00
Loss in Air Pressure 0054 00
LOW AIR Indicator Does Not Illuminate (vehicle S/N 18,550 or Higher) 0065 00
LOW FRONT AIR Indicator Does Not Illuminate (vehicle S/N 18,549 Or Lower) 0065 00
LOW REAR AIR Indicator Does Not Illuminate (vehicle S/N 18,549 or Lower) 0065 00
No Air Pressure or Low Air Pressure Present at Rear Gladhands 0070 00
Noisy Air Compressor Operation 0070 00
Preparation for Internal Air Transport 0048 00
REAR BRAKE AIR Pressure Gage Does Not Operate or Is Inaccurate 0065 00
Servicing Air Filter (Emergency Procedure) 0089 00

INDEX - Continued

Subject	WP Sequence No.
A - Continued	
Air (Continued)	
System (Troubleshooting)	0070 00
System (M1078A1 Series Theory of Operation)	0003 00
System Controls	0006 00
System Loses Pressure During Operation/Slow Air Pressure Buildup	0070 00
System Pressure Builds Up More Than 120 psi (827 kPa) (Compressor Fails To Unload)	0070 00
System Troubleshooting	0070 00
Transport System	0079 00
Transport System Troubleshooting	0079 00
Alarm	
M42 Alarm Mounting Location	0037 00
Audible Alarm Does Not Operate	0065 00
Audible Alarm Does Not Operate When Troop Transport Alarm Switch Is Turned On	0065 00
Audible Alarm Does Not Operate With Van Door Open	0065 00
Audible Alarm, Radio, Starter Pushbutton, and Electrical Gages Do Not Operate	0065 00
Chemical Alarm Does Not Operate	0065 00
Operate M42 Chemical Alarm	0037 00
Troop Transport Alarm Does Not Operate	0080 00
Alignment	
Tires Continue To Wear After Front End Alignment and/or Vehicle Drives Sideways Down Road	0082 00
All	
Windshield Wiper Speeds Do Not Operate	0065 00
Alternator	
12 VDC Circuits Do Not Operate (100 Amp Alternator)	0065 00
12 VDC Circuits Do Not Operate (200 Amp Alternator)	0065 00
Amp	
12 VDC Circuits Do Not Operate (100 Amp Alternator)	0065 00
12 VDC Circuits Do Not Operate (200 Amp Alternator)	0065 00

INDEX - Continued

Subject — WP Sequence No.

A - Continued

Arctic
- After Cab Arctic Heater Switches On and Off Repeatedly 0080 00
- Arctic Engine Preheat Indicator Does Not Illuminate 0080 00
- Arctic Engine Preheat Indicator Flashes Special Failure code for 60 seconds 0080 00
- Arctic Engine Preheat Indicator Flashes Slowly Indicating “Ready” When Ignition Is Switched On Although Water Temperature Is Below 77° F (25° C) 0080 00
- Arctic Engine Preheat Indicator Illuminates Continuously Although Water Temperature Is Above 77° F (25° C) 0080 00
- Arctic Engine Preheat Indicator Flashes Slowly Indicating “Ready” Engine Will Not Start Or Is Hard To Start 0080 00
- Heavy White Smoke After Cold Start 0080 00
- Cab Arctic Heater Cannot Be Switched Off 0080 00
- Cab Arctic Heater Combustion Starts Immediately When Switched On 0080 00
- Cab Arctic Heater Does Not Start 0080 00
- Cab Arctic Heater Emits Black Smoke 0080 00
- Cab Arctic Heater Emits White Smoke More Than 20 Seconds After Start-Up 0080 00
- Cab Arctic Heater Hard to Start 0080 00
- Cab Arctic Heater Operation 0046 00
- Cab Arctic Heater Turns Itself Off 0080 00
- Cargo Area Arctic Heater Does Not Operate 0080 00
- Cargo Area Arctic Heater Indicator Lamp Blinks Twice While Heater Is Running 0080 00
- Cargo Area Arctic Heater Operation 0047 00
- Cargo Area Arctic Heater Shuts Down Automatically 0080 00
- Cargo Area Arctic Override Switch Does Not Operate 0080 00
- Operate Cab Arctic Heater 0046 00
- Shut Down Cab Arctic Heater 0046 00
- Start Engine (Arctic) 0044 00
- Start from -26° F to -50° F (-32° C to -46° C) Operation 0044 00

INDEX - Continued

Subject	WP Sequence No.

A - Continued

Area
- Cargo Area Arctic Heater Does Not Operate 0080 00
- Cargo Area Arctic Heater Indicator Lamp Blinks Twice While Heater Is Running 0080 00
- Cargo Area Arctic Heater Operation 0047 00
- Cargo Area Arctic Heater Shuts Down Automatically 0080 00
- Cargo Area Arctic Override Switch Does Not Operate 0080 00

Army
- Destruction of Army Materiel to Prevent Enemy Use 0001 00

Audible
- Alarm Does Not Operate 0065 00
- Alarm Does Not Operate When Troop Transport Alarm Switch Is Turned On 0065 00
- Alarm Does Not Operate With Van Door Open 0065 00

Auxiliary
- Equipment Operation 0037 00
- Panel Does Not Illuminate 0065 00
- Panel, Personnel Heater, and Instrument Panel Do Not Illuminate 0065 00
- Panel Switch Does Not Illuminate 0065 00
- Panel Controls and Indicators 0005 00

Axle
- Differential Noisy 0074 00
- Rear Axle Tire Chain Installation 0058 00
- Rear Axle Tire Chain Removal 0058 00
- Troubleshooting 0074 00

B

Back-up
- Hydraulic Pump Operation 0035 00

Basic Issue Items List 0095 00

Batteries
- Opening Battery Box/Testing Batteries 0088 00
- Testing Batteries 0088 00

Battery
- Closing Battery Box 0088 00
- Opening Battery Box 0088 00
- Tester Does Not Operate 0065 00

INDEX - Continued

Subject	WP Sequence No.
B - Continued	
Beam	
HIGH BEAM Indicator Does Not Illuminate	0065 00
One Or Both Headlights (High and Low Beam) Do Not Illuminate	0065 00
Beams	
One or Both Headlight High Beams Do Not Illuminate	0065 00
One or Both Headlight Low Beams Do Not Illuminate	0065 00
Belt	
Operating Seat Belt	0015 00
Blackout	
M1079A1 110 VAC Outlets J232 and J233 Does Not Operate In Blackout Override Mode	0065 00
Drive Light Does Not Illuminate	0065 00
Fluorescent Lights Do Not Illuminate In Blackout Override Mode	0065 00
Marker Lights Do Not Illuminate and/or WTEC III Transmission Pushbutton Shift Selector (WTEC III TPSS) Does Not Dim	0065 00
One or Both Blackout Stoplights Do Not Illuminate	0065 00
One Or Both Front Blackout Marker Lights Do Not Illuminate	0065 00
One Or Both Rear Blackout Marker Lights Do Not Illuminate	0065 00
Override	0029 00
Stoplights and Blackout Stoplights Do Not Illuminate	0065 00
M1079A1 Blackout Light(s) Does Not Illuminate	0065 00
Blue Exhaust Smoke from Engine	0061 00
Boom	
Raise Boom	0019 00
Swing Boom	0019 00
Telescope Boom	0019 00

INDEX - Continued

Subject	WP Sequence No.

B - Continued

Brake
- Exhaust Brake Does Not Operate 0065 00
- FRONT BRAKE AIR Pressure Gage Does Not Operate or Is Inaccurate 0065 00
- Park Brake Indicator Does Not Illuminate 0065 00
- Parking Brake(s) Will Not Release 0069 00
- REAR BRAKE AIR Pressure Gage Does Not Operate or Is Inaccurate 0065 00
- System (M1078A1 Series Theory of Operation) 0003 00
- System (Troubleshooting) 0069 00
- System Troubleshooting 0069 00

Brakes
- Front Brakes Do Not Apply 0069 00
- Front Brakes Overheat 0069 00
- Operate Service Brakes 0016 00
- Parking Brakes Do Not Apply 0069 00
- Rear Brakes Do Not Apply 0069 00
- Rear Brakes Overheat 0069 00
- Vehicle Brakes Unevenly, Brakes Pull To One Side or Grab 0069 00

Braking
- Excessive Braking Distance 0069 00

Breaker
- Reset Circuit Breaker 0019 00

C

Cab
- After Cab Arctic Heater Switches On and Off Repeatedly 0080 00
- Air Spring Deflation 0048 00
- Air Spring Inflation 0048 00
- Arctic Heater Cannot Be Switched Off 0080 00
- Arctic Heater Combustion Starts Immediately When Switched On 0080 00
- Arctic Heater Does Not Start 0080 00
- Arctic Heater Emits Black Smoke 0080 00
- Arctic Heater Emits White Smoke More Than 20 Seconds After Start-Up 0080 00
- Arctic Heater Hard to Start 0080 00
- Arctic Heater Operation 0046 00
- Arctic Heater Turns Itself Off 0080 00

INDEX - Continued

Subject	WP Sequence No.
C - Continued	
Cab (Continued)	
Does Not Raise or Lower Properly	0081 00
Exhaust Fumes in Cab	0063 00
Leveling Air Springs Do Not Operate Properly	0079 00
Lowering Cab	0017 00
One or More Cab Top Marker Lights Do Not Illuminate	0065 00
Operate Cab Arctic Heater	0046 00
Operate Cab Heat	0020 00
Raising Cab	0017 00
Raising/Lowering Cab	0017 00
Shut Down Cab Arctic Heater	0046 00
Tilt and Spare Tire Retainer	0081 00
Tilt and Spare Tire Retainer Troubleshooting	0081 00
Tilt, Spare Tire Retainer, and Suspension Compression Do Not Operate	0079 00
Caging, Rear Spring Brake	0090 00
Cable	
Spooling Cable To Front of Vehicle	0053 00
Spooling Cable To Rear of Vehicle	0053 00
Cargo	
Area Arctic Heater Does Not Operate	0080 00
Area Arctic Heater Indicator Lamp Blinks Twice While Heater Is Running	0080 00
Area Arctic Heater Operation	0047 00
Area Arctic Heater Shuts Down Automatically	0080 00
Area Arctic Override Switch Does Not Operate	0080 00
Bed Stake Installation	0021 00
Bed Stake Removal	0021 00
Cover Flap Operation	0023 00
Cover Kit Installation/Removal	0022 00
Install Cargo Bed Side Panels	0021 00
Ladder, Side Panels, and Stakes Operation	0021 00
Lower Cargo Bed Side Panels	0021 00
Raise Cargo Bed Side Panels	0021 00
Remove Cargo Bed Side Panels	0021 00
Stow Cargo Bed Side Panels	0021 00
Center Console Controls and Indicators	0006 00

INDEX - Continued

Subject	WP Sequence No.
C - Continued	
Central Tire Inflation System (CTIS)	0073 00
Operation	0018 00
Troubleshooting	0073 00
Chain	
Rear Axle Tire Chain Installation	0058 00
Rear Axle Tire Chain Removal	0058 00
Chains	
Tire Chains Installation/Removal	0058 00
Changing	
Bridge Classification Numbers	0015 00
Tire	0085 00
LMHC Location	0019 00
Chemical	
M43 Chemical Detector Mounting Location	0037 00
Alarm Does Not Operate	0065 00
DETECT Indicator Does Not Illuminate	0065 00
Detector Does Not Operate	0065 00
Nuclear, Biological, and Chemical (NBC) Decontamination	0054 00
Operate M42 Chemical Alarm	0037 00
Circuit	
Reset Circuit Breaker	0019 00
Circuits	
12 VDC and 24 VDC Circuits Do Not Operate	0065 00
12 VDC Circuits Do Not Operate (100 Amp Alternator)	0065 00
12 VDC Circuits Do Not Operate (200 Amp Alternator)	0065 00
Classification	
Changing Bridge Classification Numbers	0015 00
Cleaning	
Exterior	0087 00
Interior	0087 00
Vehicle	0087 00
Clearance	
Intervehicular Clearance Lights Do Not Illuminate	0065 00
Cold	
CTIS Cold Weather Operation	0043 00
Engine Start	0016 00
Environment Operations	0043 00

INDEX - Continued

Subject	WP Sequence No.
C - Continued	
Cold (Continued)	
Vehicle Operation in Cold Environment, 32° F to -25° F (0° C to -32° C)	0043 00
Vehicle Operation in Extreme Cold Environment, -26° F to -65° F (-32° C to-54° C)	0045 00
Column	
Steering Column Controls	0007 00
Components of End Item (COEI)	
and Basic Issue Items (BII) Lists	0095 00
List	0095 00
Composite	
One or Both Composite Taillights Do Not Illuminate	0065 00
Compressing Suspension	0048 00
Compressor	
Air System Pressure Builds Up More Than 120 psi (827 kPa) (Compressor Fails To Unload)	0070 00
Noisy Air Compressor Operation	0070 00
Connect AC Power	0027 00
Connecting	
12/24 VDC Power	0033 00
24 VDC Binding Posts	0031 00
Field Phone Binding Posts	0032 00
Connection	
Towbar Connection (Towbar Connection/Disconnection)	0051 00
Towbar Connection (Towing Disabled Vehicle)	0052 00
Towbar Connection/Disconnection	0051 00
Console	
Center Console Controls and Indicators	0006 00
Control	
Central Tire Inflation System (CTIS)	
Electronic Control Unit (ECU)	0006 00
Personnel Heater Control Illumination Does Not Operate	0065 00
Controls	
Air System Controls	0006 00
Auxiliary Panel Controls and Indicators	0005 00
Center Console Controls and Indicators	0006 00
Door-Mounted Controls	0009 00

INDEX - Continued

Subject	WP Sequence No.
C - Continued	
Controls (Continued)	
Driver's Seat Controls	0010 00
Driver's Side Exterior Controls and Indicators	0011 00
Exterior Controls	0013 00
Exterior Controls and Indicators	0011 00
Floor-Mounted Controls	0008 00
Heater/Defrost Controls	0006 00
Hydraulic Manifold Controls	0011 00
Instrument Panel Controls and Indicators	0004 00
Interior Controls	0013 00
M1079A1 Van Controls	0013 00
Passenger Side Exterior Controls and Indicators	0011 00
Seat Controls	0010 00
Special Purpose Kit Controls and Indicators	0012 00
Steering Column Controls	0007 00
Coolant	
In Engine Lubrication Oil	0061 00
Loss of Coolant	0064 00
TEMP Indicator Does Not Illuminate	0065 00
TEMP Indicator Illuminates	0065 00
Cooling	
Oil In Cooling System	0064 00
System	0003 00
System Troubleshooting	0064 00
Corrosion Prevention and Control (CPC)	0001 00
Cover	
Cargo Cover Flap Operation	0023 00
Cargo Cover Kit Installation/Removal	0022 00
Power Distribution Panel (PDP) Cover Removal/Installation	0091 00
Crane	
Determine Required Light Material Handling Crane (LMHC) Settings	0019 00
Light Material Handling Crane (LMHC) Does Not Operate	0080 00
Light Material Handling Crane (LMHC) Operation	0019 00
Light Material Handling Crane (LMHC) Hoist In Does Not Operate	0080 00
Light Material Handling Crane (LMHC) Hoist Out Does Not Operate	0080 00

INDEX - Continued

Subject — WP Sequence No.

C - Continued

Cross-Reference
  Nomenclature Cross-Reference List 0001 00
CTIS
  Central Tire Inflation System (CTIS) 0073 00
  Central Tire Inflation System (CTIS)
    Operation....0018 00
  Central Tire Inflation system (CTIS)
    Troubleshooting 0073 00
  Does Not Deflate Tires....0065 00
  Does Not Inflate Tires....0065 00
  Does Not Operate....0065 00
  Central Tire Inflation System (CTIS)
    ECU Does Not Illuminate....0073 00
  Central Tire Inflation System (CTIS)
  ECU Illuminates Solid Warning Light....0073 00
  Central Tire Inflation System (CTIS)
    ECU Indicator Lights Sequentially
    Flashing 0073 00
  Central Tire Inflation System (CTIS) ECU
    Lights Illuminate But CTIS Fails To
    Inflate or Deflate 0073 00
  Electronic Control Unit (ECU)....0006 00
  Five Central Tire Inflation System (CTIS)
    ECU Indicator Lights Flashing....0073 00
  Four Central Tire Inflation System (CTIS)
    ECU Indicator Lights Flashing....0073 00
  Normal CTIS Operation....0018 00
  OFF Indicator Does Not Illuminate....0065 00
  Operation With Four CTIS ECU Mode Lights
    Flashing 0018 00
  OVERSPEED Indicator Does Not Illuminate 0065 00
  Central Tire Inflation System (CTIS) Repeatedly
    Resumes Cycling 30 Seconds
    After Indicator Lights Stop Flashing 0073 00
  Two Steady Mode Lights Illuminate On
    Central Tire Inflation System (CTIS)
    ECU 0073 00

D

Data and Instruction Plates 0036 00
Decal/Data Plate Guide, Vehicles with 11K
  Self-Recovery Winches (SRW) 0098 00

INDEX - Continued

Subject	WP Sequence No.
D - Continued	
Decals/Stencils, All Vehicles	0098 00
Decompressing Suspension	0048 00
Decontamination	
Apparatus Mounting Location	0037 00
Operate Decontamination Apparatus	0037 00
Defrost	
Heater/Defrost Operation	0020 00
Operate Windshield Defrost	0020 00
Description	
Location and Description of Major Components	0002 00
Desert	
Operation in Desert Environment	0042 00
Destruction of Army Materiel to Prevent Enemy Use	0001 00
Detector	
Chemical Detector Does Not Operate	0065 00
Differences Between Models	0002 00
Differential	
Axle Differential Noisy	0074 00
Digitization	
No Power To Digitization Rack	0080 00
No Power To Mobile Tracking System (MTS) Sense	0080 00
No Power To Enhanced Position Location Reporting System (EPLRS)	0080 00
No Power To Precision Lightweight Global Positioning System (PLGR)	0080 00
No Power To Driver Visual Enhancement (DVE)	0080 00
No Power To SINGGAR/Force XXI Battle Command Or Below (FBCB)	0080 00
No Power To Mobile Tracking System (MTS)	0080 00
Disabled	
Preparation of Disabled Vehicle (M1078/M1078A1 Series)	0052 00
Starting Disable Vehicle	0054 00
Towing Disabled Vehicle	0052 00
Disconnect AC Power Cable	0027 00
Disconnecting	
12/24 VDC Power	0033 00
24 VDC Binding Posts	0031 00
Field Phone Binding Posts	0032 00
Disconnection	
Towbar Connection/Disconnection	0051 00
Towbar Disconnection	0051 00

INDEX - Continued

Subject — WP Sequence No.

D – Continued

Door
- LH Door and/or LH Front Marker Lights
- Do Not Illuminate 0065 00
- -Mounted Controls 0009 00
- RH Door and/or RH Front Marker Lights
- Do Not Illuminate 0065 00
- M1079A1 Van Door Opening/Closing 0026 00

Doors
- Closing Van Doors From 115 Degree
  - Position 0026 00
- Closing Van Doors From 180 Degree
  - Position 0026 00
- Securing Van Doors Open at 115 Degree
  - Position 0026 00
- Securing Van Doors Open at 180 Degree
  - Position 0026 00

Draining Air Tanks 0016 00

Drive
- Blackout Drive Light Does Not Illuminate 0065 00
- Shaft 0067 00
- Shaft Troubleshooting 0067 00
- Shafts or Iniversal Joints Unusually Noisy
  - When Operating 0067 00

Driver's
- Adjusting Driver's Seat 0015 00
- Seat Controls 0010 00
- Side Exterior Controls and Indicators 0011 00

Dust
- Operation in Extreme Dust 0039 00

E

ECU
- Central Tire Inflation System (CTIS) ECU
  - Lights Illuminate But CTIS Fails
  - To Inflate or Deflate 0073 00
- CTIS Electronic Control Unit (ECU) 0006 00
- Five Central Tire Inflation System (CTIS)
  - ECU Indicator Lights Flashing 0073 00
- Four Central Tire Inflation System (CTIS)
  - ECU Indicator Lights Flashing 0073 00
- Central Tire Inflation System (CTIS)
- ECU Does Not Dim in Blackout Mode 0065 00
- Operation With Four CTIS ECU Mode Lights
  - Flashing 0018 00

INDEX - Continued

Subject — WP Sequence No.

E – Continued

ECU (Continued)
- Two Steady Mode Lights Illuminate on Central Tire Inflation System (CTIS) ECU 0073 00

Electrical
- All Electrical Gages Do Not Operate 0065 00
- Audible Alarm, Radio, Starter Pushbutton, and Electrical Gages Do Not Operate 0065 00
- System 0003 00
- System Does Not Maintain a Charge 0065 00
- System Troubleshooting 0065 00

Emergency
- M1079A1 Emergency Light(s) Does Not Illuminate 0065 00
- Highway Emergency Marker Kit Setup 0050 00
- Operation In Emergency (EMER) Mode 0018 00
- Procedures 0054 00
- Servicing Air Filter (Emergency Procedure) 0089 00

Engine
- Air Intake System 0003 00
- Blue Exhaust Smoke from Engine 0061 00
- CHECK ENGINE Indicator Does Not Illuminate 0065 00
- CHECK ENGINE Indicator Remains Illuminated 0061 00
- Coolant in Engine Lubrication Oil 0061 00
- Cranks But Does Not Start 0061 00
- Cranks But Does Not Start 0065 00
- Cranks But Does Not Start or Engine Stalls After Starting 0062 00
- Does Not Crank/24 VDC Circuits Do Not Operate 0061 00
- Does Not Start 0065 00
- Excessive Engine Oil Consumption 0061 00
- Exhaust System Unusually Noisy or Vibrates Excessively During Engine Operation 0063 00
- Fan Does Not Turn Off Using Engine Fan Off Switch 0065 00
- Fan Runs Constantly 0065 00
- Low Engine Oil Pressure 0061 00
- OIL PRESSURE Indicator Does Not Illuminate 0065 00
- Overheats 0061 00

INDEX - Continued

Subject	WP Sequence No.
E - Continued	
Engine (Continued)	
Overspeeds On Start	0061 00
Shut Down Engine	0016 00
Speed Is Not Stable	0061 00
Stalls at Low RPM	0061 00
Start	0016 00
Start Engine (Arctic)	0044 00
Starts But Misfires, Runs Rough, or Lacks Power	0061 00
STOP ENGINE Indicator Does Not Illuminate	0065 00
STOP ENGINE Indicator Remains Illuminated	0061 00
System	0061 00
System Troubleshooting	0061 00
Too Much Vibration In Engine	0061 00
Environment	
Operation in Desert Environment	0042 00
Vehicle Operation in Cold Environment, 32° F to -25° F (0° C to -32° C)	0043 00
Vehicle Operation in Extreme Cold Environment, -26° F to -65° F (-32°C to -54° C)	0045 00
Equipment	
M1078A1 Series Equipment Description and Data	0002 00
Auxiliary Equipment Operation	0037 00
Characteristics, Capabilities, and Features	0002 00
Data	0002 00
Reporting Equipment Improvement Recommendations (EIR)	0001 00
Ether	
Start Does Not Operate	0065 00
Starting Aid Does Not Operate	0062 00
Excessive	
Black or Gray Exhaust Smoke	0061 00
Braking Distance	0069 00
Engine Oil Consumption	0061 00
Play When Turning Steering Wheel	0075 00
Exhaust	
Blue Exhaust Smoke from Engine	0061 00
Brake Does Not Operate	0065 00
BRAKE Indicator Does Not Illuminate	0065 00
Excessive Black or Gray Exhaust Smoke	0061 00

INDEX - Continued

Subject — WP Sequence No.

E - Continued

Exhaust (Continued)
- Fumes in Cab 0063 00
- System 0063 00
- System Troubleshooting 0063 00
- System Unusually Noisy or Vibrates Excessively During Engine Operation 0063 00
- White Exhaust Smoke 0061 00

Expendable and Durable Items List 0097 00

Exterior
- M1079A1 Exterior 0036 00
- Controls and Indicators 0011 00

Extreme
- Operation in Extreme Dust 0039 00
- Operation in Extreme Heat 0038 00
- Vehicle Operation in Extreme Cold Environment, -26° F to -65° F (-32° C to -54° C) 0045 00

F

Fan
- M1079A1 Fan Does Not Operate 0065 00
- Engine Fan Does Not Turn Off Using Engine Fan Off Switch 0065 00
- Engine Fan Runs Constantly 0065 00
- ENGINE FAN OFF Indicator Does Not Illuminate 0065 00
- Personnel Heater Fan Does Not Operate 0065 00
- Turning Vent Fan Off 0030 00
- Turning Vent Fan On 0030 00

Filter
- Servicing Air Filter (Emergency Procedure) 0089 00

Fire Extinguisher
- Installation 0049 00
- Operation 0049 00
- Operation 0049 00
- Removal 0049 00

Five Central Tire Inflation System (CTIS) ECU
- Indicator Lights Flashing 0073 00

Flap
- Cargo Cover Flap Operation 0023 00
- Lowering Rear Flap 0023 00
- Raising Rear Flap 0023 00

INDEX - Continued

Subject	WP Sequence No.
F - Continued	
Flaps	
Lowering Side Flaps	0023 00
Raising Side Flaps	0023 00
Floor-Mounted Controls	0008 00
Folding Mirrors	0048 00
Forest	
Operation in Forest or on Rocky Terrain	0040 00
Forms	
Maintenance Forms and Procedures	0001 00
Four Central Tire Inflation System (CTIS) ECU	
Indicator Lights Flashing	0073 00
Frame Troubleshooting	0082 00
Front	
And Rear Hazard Lights Do Not Illuminate	0065 00
And Rear Turn Signals Do Not Illuminate	0065 00
BRAKE AIR Pressure Gage Does Not Operate or Is Inaccurate	0065 00
Brakes Do Not Apply	0069 00
Front Brakes Overheat	0069 00
Left or Right Front Turn Signal Does Not Illuminate	0065 00
LH Door and/or LH Front Marker Lights Do Not Illuminate	0065 00
LOW FRONT AIR Indicator Does Not Illuminate	0065 00
One or Both Front Blackout Marker Lights Do Not Illuminate	0065 00
RH Door and/or RH Front Marker Lights Do Not Illuminate	0065 00
Tire Deflation	0048 00
Tire Inflation	0048 00
Tires Continue to Wear After Front End Alignment and/or Vehicle Drives Sideways Down Road	0082 00
Fuel	
Consumption too High	0062 00
Gage Does Not Operate or Is Inaccurate	0065 00
System	0003 00
System	0062 00
System Troubleshooting	0062 00
Fueling Vehicle	0015 00

INDEX - Continued

Subject	WP Sequence No.
F - Continued	
Fumes	
Exhaust Fumes in Cab	0063 00
G	
Gage	
Oil Press Gage Does Not Operate or Is Inaccurate	0065 00
FRONT BRAKE AIR Pressure Gage Does Not Operate or Is Inaccurate	0065 00
FUEL Gage Does Not Operate or Is Inaccurate	0065 00
Instrument Panel Gage(s) Does Not Illuminate	0065 00
REAR BRAKE AIR Pressure Gage Does Not Operate or Is Inaccurate	0065 00
VOLTS Gage Does Not Operate or Is Inaccurate	0065 00
WATER TEMP Gage Does Not Operate or Is Inaccurate	0065 00
Gladhands	
No Air Pressure or Low Air Pressure Present at Rear Gladhands	0070 00
Gun	
Preparation for Machine Gun Operation	0055 00
Raise Machine Gun Ring Lower Platform	0055 00
Stow Machine Gun Ring Lower Platform	0055 00
H	
Hand Receipt	0001 00
Hard to Steer	0075 00
Hazard	
Rear Hazard Lights Do Not Illuminate	0065 00
Front and Rear Hazard Lights Do Not Illuminate	0065 00
Headlight	
One or Both Headlight High Beams Do Not Illuminate	0065 00
One or Both Headlight Low Beams Do Not Illuminate	0065 00

INDEX - Continued

Subject	WP Sequence No.
H - Continued	
Headlights	
One Or Both Headlights (High and Low Beam) Do Not Illuminate	0065 00
Heat	
Operation in Extreme Heat	0038 00
Operate Cab Heat	0020 00
Heater	
M1079A1 Heater Does Not Operate	0065 00
After Cab Arctic Heater Switches On and Off Repeatedly	0080 00
Auxiliary Panel, Personnel Heater, and Instrument Panel Do Not Illuminate	0065 00
Cab Arctic Heater Cannot Be Switched Off	0080 00
Cab Arctic Heater Combustion Starts Immediately When Switched On	0080 00
Cab Arctic Heater Does Not Start	0080 00
Cab Arctic Heater Emits Black Smoke	0080 00
Cab Arctic Heater Emits White Smoke More Than 20 Seconds After Start-Up	0080 00
Cab Arctic Heater Hard to Start	0080 00
Cab Arctic Heater Operation	0046 00
Cab Arctic Heater Turns Itself Off	0080 00
/Defrost Controls	0006 00
Cargo Area Arctic Heater Does Not Operate	0080 00
Cargo Area Arctic Heater Indicator Lamp Blinks Twice While Heater Is Running	0080 00
Cargo Area Arctic Heater Operation	0047 00
Cargo Area Arctic Heater Shuts Down Automatically	0080 00
Inlet Air Area Arctic Heater Does Not Operate	0065 00
Operate Cab Arctic Heater	0046 00
Remove Swingfire Heater	0044 00
Shut Down Cab Arctic Heater	0046 00
Swingfire Heater Operation	0044 00
High	
BEAM Indicator Does Not Illuminate	0065 00
Low or High Engine Oil Pressure	0061 00
One or Both Headlight High Beams Do Not Illuminate	0065 00
Highway	
Emergency Marker Kit Setup	0050 00

INDEX - Continued

Subject	WP Sequence No.

H - Continued

Highway (Continued)
- Placing Markers on Divided Highway or One Way Road 0050 00
- Placing Markers on Undivided, Curved Highway 0050 00
- Placing Markers on Undivided Highway With Hills 0050 00
- Placing Markers on Undivided, Straight Highway 0050 00
- Preparation for Internal Air Transport, Highway or Rail Shipment 0044 00

Hill
- Starting on Hill Operation 0057 00

Horn
- Does Not Operate 0065 00
- Windshield Wipers, and Windshield Washer Do Not Operate 0065 00

Hydraulic
- Back-up Hydraulic Pump Operation 0035 00
- Loss of Hydraulic Pressure (Single Stage Pump) 0072 00
- Manifold Controls 0011 00
- System 0072 00
- System Troubleshooting 0072 00

I

Illuminate
- M1079A1 Blackout Light(s) Does Not Illuminate 0065 00
- M1079A1 Emergency Light(s) Does Not Illuminate 0065 00
- M1079A1 Fluorescent Light(s) DS80 and/or DS81 Do Not Illuminate 0065 00
- M1079A1 Fluorescent Light(s) DS82 and/or DS83 Do Not Illuminate 0065 00
- M1079A1 Van Body Clearance/Marker Light Does Not Illuminate 0065 00
- ABS Indicator Does Not Illuminate 0065 00
- ABS Indicator Remains Illuminated 0069 00
- All M1079A1 Fluorescent Lights Do Not Illuminate 0065 00
- All M1079A1 Van Body Clearance and Marker Lights Do Not Illuminate 0065 00

INDEX - Continued

Subject	WP Sequence No.
I - Continued	
Illuminate (Continued)	
All Blackout Marker Lights Do Not Illuminate	0065 00
Amber Warning Light Does Not Illuminate	0065 00
Auxiliary Panel Does Not Illuminate	0065 00
Auxiliary Panel Switch Does Not Illuminate	0065 00
Auxiliary Panel, Personnel Heater, and Instrument Panel Do Not Illuminate	0065 00
Backup Light Does Not Illuminate	0065 00
Blackout Drive Light Does Not Illuminate	0065 00
Both Trailer Stop/Turn Lights Do Not Illuminate	0065 00
CHECK ENGINE Indicator Does Not Illuminate	0065 00
CHECK ENGINE Indicator Remains Illuminated	0061 00
CHECK TRANS Indicator Does Not Illuminate	0065 00
CHECK TRANS Indicator Remains Illuminated	0066 00
CHEMICAL DETECT Indicator Does Not Illuminate	0065 00
CTIS OFF Indicator Does Not Illuminate	0065 00
CTIS Overspeed Indicator Does Not Illuminate	0065 00
CTIS Overspeed Indicator Remains Illuminated	0073 00
ENGINE FAN OFF Indicator Does Not Illuminate	0065 00
ENGINE OIL PRESSURE Indicator Does Not Illuminate	0065 00
EXHAUST BRAKE Indicator Does Not Illuminate	0065 00
Front and Rear Hazard Lights Do Not Illuminate	0065 00
Front and Rear Turn Signals Do Not Illuminate	0065 00
High Beam Indicator Does Not Illuminate	0065 00
INLET AIR Indicator Does Not Illuminate	0065 00
Instrument Panel Gage Does Not Illuminate	0065 00
Instrument Panel Switch Does Not Illuminate	0065 00

INDEX - Continued

Subject — WP Sequence No.

I - Continued

Illuminate (Continued)
- Intervehicular Clearance Lights Do Not Illuminate 0065 00
- Intervehicular Left Turn Signal Does Not Illuminate 0065 00
- Intervehicular Right Turn Signal Does Not Illuminate 0065 00
- Intervehicular Stoplights Do Not Illuminate 0065 00
- Intervehicular Taillights Do Not Illuminate 0065 00
- Left and Right Front Turn Signal Does Not Illuminate 0065 00
- Left Turn Signal Indicator Does Not Illuminate 0065 00
- LH Door and/or LH Front Marker Lights Do Not Illuminate 0065 00
- LOW AIR Indicator Does Not Illuminate (vehicle S/N 18,550 or Higher) 0065 00
- LOW FRONT AIR Indicator Does Not Illuminate (vehicle S/N 18,549 or Lower) 0065 00
- LOW REAR AIR Indicator Does Not Illuminate (vehicle S/N 18,549 or Lower) 0065 00
- One or Both Blackout Stoplights Do Not Illuminate 0065 00
- One or Both Composite Taillights Do Not Illuminate 0065 00
- One or Both Front Blackout Marker Lights Do Not Illuminate 0065 00
- One or Both Headlight High Beams Do Not Illuminate 0065 00
- One or Both Headlight Low Beams Do Not Illuminate 0065 00
- One Or Both Headlights (High and Low Beam) Do Not Illuminate 0065 00
- One Or Both Rear Blackout Marker Lights Do Not Illuminate 0065 00
- One or Both Stoplights Do Not Illuminate 0065 00
- One or More Cab Top Marker Lights Do Not Illuminate 0065 00
- PARK BRAKE Indicator Does Not Illuminate 0065 00
- Parking Lights Do Not Illuminate 0065 00
- PTO Indicator Does Not Illuminate 0065 00
- Rear Hazard Lights Do Not Illuminate 0065 00
- RH Door and/or RH Front Marker Lights Do Not Illuminate 0065 00

INDEX - Continued

Subject — WP Sequence No.

I - Continued

Illuminate (Continued)
- Right Turn Signal Indicator Does Not Illuminate....0065 00
- Side and/or Rear Marker Lights Do Not Illuminate....0065 00
- STOP ENGINE Indicator Does Not Illuminate....0065 00
- STOP ENGINE Indicator Remains Illuminated....0061 00
- Stoplights and Blackout Stoplights Do Not Illuminate....0065 00
- Trailer Blackout Marker Lights Do Not Illuminate....0065 00
- Trailer Blackout Stoplights Do Not Illuminate....0065 00
- Trailer Left Stop/Turn Light Does Not Illuminate....0065 00
- Trailer Marker/Taillights Do Not Illuminate....0065 00
- Trailer Right Stop/Turn Light Does Not Illuminate....0065 00
- TRANS TEMP Indicator Does Not Illuminate....0065 00
- TRANS TEMP Indicator Remains Illuminated....0066 00
- Two Steady Mode Lights Illuminate On Central Tire Inflation System (CTIS) ECU....0073 00
- VAN DOOR Indicator Does Not Illuminate....0065 00

Illumination
- Personnel Heater Control Illumination Does Not Operate....0065 00

Indicator
- ABS Indicator Does Not Illuminate....0065 00
- ABS Indicator Remains Illuminated....0069 00
- Cargo Area Arctic Heater Indicator Lamp Blinks Twice While Heater Is Running....0080 00
- CHECK ENGINE Indicator Does Not Illuminate....0065 00
- CHECK ENGINE Indicator Remains Illuminated....0061 00
- CHECK TRANS Indicator Does Not Illuminate....0065 00

INDEX - Continued

Subject	WP Sequence No.
I - Continued	
Indicator (Continued)	
CHECK TRANS Indicator Remains Illuminated	0066 00
CHEMICAL DETECT Indicator Does Not Illuminate	0065 00
COOLANT TEMP Indicator Does Not Operate	0065 00
CTIS OFF Indicator Does Not Illuminate	0065 00
CTIS Overspeed Indicator Does Not Illuminate	0065 00
CTIS Overspeed Indicator Remains Illuminated	0073 00
ENGINE OIL PRESSURE Indicator Does Not Illuminate	0065 00
ENGINE FAN OFF Indicator Does Not Illuminate	0065 00
EXHAUST BRAKE Indicator Does Not Illuminate	0065 00
Five Central Tire Inflation System (CTIS) ECU Indicator Lights Flashing	0073 00
Four Central Tire Inflation System (CTIS) ECU Indicator Lights Flashing	0073 00
HIGH BEAMS Indicator Does Not Illuminate	0065 00
INLET AIR Indicator Does Not Illuminate	0065 00
Left Turn Signal Indicator Does Not Illuminate	0065 00
Lighted Indicator Display	0004 00
LOW AIR Indicator Does Not Illuminate (vehicle S/N 18,550 or Higher)	0065 00
LOW FRONT AIR Indicator Does Not Illuminate (vehicle S/N 18,549 or Lower)	0065 00
LOW REAR AIR Indicator Does Not Illuminate (vehicle S/N 18,549 or Lower)	0065 00
Right Turn Signal Indicator Does Not Illuminate	0065 00
STOP ENGINE Indicator Does Not Illuminate	0065 00
STOP ENGINE Indicator Remains Illuminated	0061 00
TRANS TEMP Indicator Does Not Illuminate	0065 00

INDEX - Continued

Subject	WP Sequence No.
I - Continued	
Indicator (Continued)	
TRANS TEMP Indicator Remains Illuminated	0066 00
VAN DOOR Indicator Does Not Illuminate	0065 00
Indicators	
Auxiliary Panel Controls and Indicators	0005 00
Center Console Controls and Indicators	0006 00
Central Tire Inflation System (CTIS) Repeatedly Resumes Cycling 30 Seconds After Indicator Lights Stop Flashing	0073 00
Driver's Side Exterior Controls and Indicators	0011 00
Exterior Controls and Indicators	0011 00
Instrument Panel Controls and Indicators	0004 00
Passenger Side Exterior Controls and Indicators	0011 00
Special Purpose Kit Controls and Indicators	0012 00
Information	
M1078A1 Series General Information	0001 00
Warranty Information	0001 00
INLET AIR Indicator Does Not Illuminate	0065 00
Inspection	0083 00
Install Warning Light	0056 00
Installation	
Cargo Cover Kit Installation/Removal	0022 00
Soft Top Kit (Steel Bows) Installation	0022 00
Soft Top (Steel Bows) Installation	0022 00
Tire Installation	0085 00
Installing	
Short Handle	0019 00
Long Handle (if required)	0019 00
Instrument	
Panel Controls and Indicators	0004 00
Panel Gage Does Not Illuminate	0065 00
Panel Switch Does Not Illuminate	0065 00
Intake	
Engine Air Intake System	0003 00
Interior	
M1079A1 Interior	0036 00
All Vehicles, Interior	0036 00

INDEX - Continued

Subject	WP Sequence No.

I - Continued

Interior (Continued)
- Lighting 0029 00

Intervehicular
- Clearance Lights Do Not Illuminate 0065 00
- Left Turn Signal Does Not Illuminate 0065 00
- Right Turn Signal Does Not Illuminate 0065 00
- Stoplights Do Not Illuminate 0065 00
- Taillights Do Not Illuminate 0065 00

Introduction
- Maintenance Introduction 0084 00
- PMCS Introduction 0083 00
- Troubleshooting Introduction 0059 00

J

Joints
- Drive Shafts or Universal Joints
  - Unusually Noisy When Operating 0067 00

K

Kit
- M1078A1 Troopseat Kit
  - Installation/Removal 0090 00
- Amber Warning Light Kit
  - Installation/Removal 0056 00
- Cargo Cover Kit Installation/Removal 0022 00
- Highway Emergency Marker Kit Setup 0050 00
- Soft Top Kit (Steel Bows) Installation 0022 00
- Soft Top Kit (Steel Bows Removal) 0022 00
- Special Purpose Kit Controls and
  - Indicators 0012 00
- Troopseat Kit Lowering/Raising 0024 00

L

Ladder
- Lower Ladder 0021 00
- Mounting 0025 00
- Stowing 0025 00
- Stow Ladder 0021 00
- Side Panel, and Stakes Operation 0021 00

Lamp
- Cargo Area Arctic Heater Indicator Lamp
  - Blinks Twice While Heater Is Running 0080 00

INDEX - Continued

Subject	WP Sequence No.
L – Continued	
Lamp Test	
24 VDC Does Not Operate	0065 00
Ground Does Not Operate	0065 00
Large Quantity of Moisture Expelled From Air Reservoirs	0070 00
Leakage Definition	0083 00
Leans to One Side or Rear of Vehicle Sags	0076 00
Left	
Or Right Front Turn Signal Does Not Illuminate	0065 00
Turn Signal Indicator Does Not Illuminate	0065 00
LH	
Door and/or LH Front Marker Lights Do Not Illuminate	0065 00
Light	
M1079A1 Fluorescent Light(s) DS80 and/or DS81 Do Not Illuminate	0065 00
M1079A1 Fluorescent Light(s) DS82 and/or DS83 Do Not Illuminate	0065 00
M1079A1 Van Body Clearance/Marker Light Does Not Illuminate	0065 00
All Main Light Switch Functions Do Not Operate	0065 00
Amber Warning Light Kit Installation/Removal	0056 00
Backout Light Does Not Illuminate	0065 00
Blackout Drive Light Does Not Illuminate	0065 00
Determine Required Light Material Handling Crane (LMHC) Settings	0019 00
Install Warning Light	0056 00
Main Light Switch	0004 00
Material Handling Crane (LMHC)Does Not Operate	0080 00
Material Handling Crane (LMHC) Hoist In Does Not Operate	0080 00
Material Handling Crane (LMHC) Hoist Out Does Not Operate	0080 00
Material Handling Crane (LMHC) Operation	0019 00
Remove Amber Warning Light	0056 00
Trailer Left Stop/Turn Light Does Not Illuminate	0065 00

INDEX - Continued

Subject — WP Sequence No.

L - Continued

Light (Continued)
Trailer Right Stop/Turn Light Does Not Illuminate....0065 00
Lighted Indicator Display....0004 00
Lights
All M1079A1 Fluorescent Lights Do Not Illuminate....0065 00
All M1079A1 Van Body Clearance and Marker Lights Do Not Illuminate....0065 00
All Blackout Marker Lights Do Not Illuminate....0065 00
All Marker Lights Do Not Illuminate In Normal Mode....0065 00
Both Trailer Stop/Turn Lights Do Not Illuminate....0065 00
Central Tire Inflation System (CTIS) ECU Lights Illuminate But CTIS Fails To Inflate or Deflate....0073 00
Central Tire Inflation System (CTIS) Repeatedly Resumes Cycling 30 Seconds After Indicator Lights Stop Flashing....0073 00
Five Central Tire Inflation System (CTIS) ECU Indicator Lights Flashing....0073 00
Fluorescent Lights Do Not Operate In Blackout Override Mode....0065 00
Four Central Tire Inflation System (CTIS) ECU Indicator Lights Flashing....0073 00
Front and Rear Hazard Lights Do Not Illuminate....0065 00
Intervehicle Clearance Lights Do Not Illuminate....0065 00
LH Door and/or LH Front Marker Lights Do Not Illuminate....0065 00
One or Both Front Blackout Marker Lights Do Not Illuminate....0065 00
One or Both Rear Blackout Marker Lights Do Not Illuminate....0065 00
One or More Cab Top Marker Lights Do Not Illuminate....0065 00
Parking Lights Do Not Illuminate....0065 00
Rear Hazard Lights Do Not Illuminate....0065 00
RH Door and/or RH Front Marker Lights Do Not Illuminate....0065 00

INDEX - Continued

Subject	WP Sequence No.
L - Continued	
Lights (Continued)	
Side and/or Rear Marker Lights Do Not Illuminate	0065 00
Trailer Blackout Marker Lights Do Not Illuminate	0065 00
Two Steady Mode Lights Illuminate on Central Tire Inflation System (CTIS) ECU	0073 00
List of Abbreviations	0001 00
LMHC	0012 00
Location and Description of Major Components	0002 00
Loss	
in Air Pressure	0054 00
Of Coolant	0064 00
Of Hydraulic Pressure (Single Stage Pump)	0072 00
Low	
FRONT AIR Indicator Does Not Illuminate	0065 00
REAR AIR Indicator Does Not Illuminate	0065 00
No Air Pressure or Low Air Pressure Present at Rear Gladhands	0070 00
Or High Engine Oil Pressure	0061 00
Lower	
Cab Does Not Raise or Lower Properly	0081 00
Cargo Bed Side Panels	0021 00
Ladder	0021 00
Raise and Lower Load	0019 00
Raise Machine Gun Ring Lower Platform	0055 00
Spare Tire	0085 00
Spare Tire Does Not Raise or Lower Properly	0081 00
Stow Machine Gun Ring Lower Platform	0055 00
Cab	0017 00
Raising/Lowering Cab	0017 00
Rear Flap	0023 00
Side Flaps	0023 00
Troopseat	0024 00
Troopseat Kit Lowering/Raising	0024 00
Lubrication	
Coolant in Engine Lubrication Oil	0061 00

INDEX - Continued

Subject — WP Sequence No.

M

M1078A1
- Preparation of Disabled Vehicle (M1078/M1078A1 Series) 0052 00
- Series Preventive Maintenance Checks and Services (PMCS) 0083 00
- Series Equipment Description and Data 0002 00
- Series General Information 0001 00
- Series Theory of Operation 0003 00
- Troopseat Kit Installation/Removal 0090 00

M1079A1
- 24 VDC Binding Post(s) Does Not Operate 0065 00
- 110 VAC Outlet J230 Does Not Operate In Normal Mode 0065 00
- 110 VAC Outlet J231 Does Not Operate In Normal Mode 0065 00
- 110 VAC Outlet J232 Does Not Operate In Normal Mode 0065 00
- 110 VAC Outlet J233 Does Not Operate 0065 00
- 110 VAC Outlet J234 Does Not Operate 0065 00
- 110 VAC Outlet J235 Does Not Operate 0065 00
- 110 VAC Outlets J232 and J233 Does Not Operate In Blackout Override Mode 0065 00
- Air Conditioner Does Not Operate 0065 00
- All M1079A1 Fluorescent Lights Do Not Illuminate 0065 00
- All M1079A1 Van Body Clearance and Marker Lights Do Not Illuminate 0065 00
- Blackout Light(s) Does Not Illuminate 0065 00
- Emergency Light(s) Does Not Illuminate 0065 00
- Heater Does Not Operate 0065 00
- Fan Does Not Operate 0065 00
- Field Phone 1 and/or 2 Binding Post Does Not Operate 0065 00
- Fluorescent Light(s) DS80 and/or DS81 Do Not Illuminate 0065 00
- Fluorescent Light(s) DS82 and/or DS83 Do Not Illuminate 0065 00
- Preparation for Movement 0014 00
- Van 12/24 VDC Power Connection/ Disconnection 0033 00
- Van 24 VDC Binding Post Operation 0031 00
- Van AC Power Connecting/Disconnecting 0027 00
- Van Air Conditioner/Heater Operation 0034 00

INDEX - Continued

Subject — WP Sequence No.

M - Continued

M1079A1 (Continued)
- Van Body Clearance/Marker Light Does Not Illuminate 0065 00
- Van Controls 0013 00
- Van Doors Opening/Closing 0026 00
- Van Field Phone Binding Post Operation 0032 00
- Van Ladder Mounting/Stowing 0025 00
- Van Lighting 0029 00
- Van Vent Fan Operation 0030 00
- Van Window Operation 0028 00

M43 Chemical Detector Mounting Location 0037 00

Machine
- Preparation for Machine Gun Operation 0055 00
- Raise Machine Gun Ring Lower Platform 0055 00
- Stow Machine Gun Ring Lower Platform 0055 00

Main Light Switch 0004 00

Maintenance
- Forms and Procedures 0001 00
- Introduction 0084 00
- M1078A1 Series Preventive Maintenance Checks and Services (PMCS) 0083 00

Malfunction/Symptom Index 0060 00

Marker
- All Blackout Marker Lights Do Not Illuminate 0065 00
- All Marker Lights Do Not Illuminate In Normal Mode 0065 00
- LH Door and/or LH Front Marker Lights Do Not Illuminate 0065 00
- Highway Emergency Marker Kit Setup 0050 00
- One or Both Front Blackout Marker Lights Do Not Illuminate 0065 00
- One Or Both Rear Blackout Marker Lights Do Not Illuminate 0065 00
- One or More Cab Top Marker Lights Do Not Illuminate 0065 00
- RH Door and/or RH Front Marker Lights Do Not Illuminate 0065 00
- Side and/or Rear Marker Lights Do Not Illuminate 0065 00
- Trailer Marker/Taillights Do Not Illuminate 0065 00

INDEX - Continued

Subject	WP Sequence No.
M - Continued	
Markers	
Placing Markers On Divided Highway or One Way Road	0050 00
Placing Markers On Undivided, Curved Highway	0050 00
Placing Markers On Undivided, Highway With Hills	0050 00
Placing Markers On Undivided, Straight Highway	0050 00
Preparing Markers For Use	0050 00
Stowing Markers	0050 00
Mirrors	
Adjusting Mirrors	0015 00
Folding Mirrors	0048 00
Unfolding Mirrors	0048 00
Mode	
Operate In Run Flat Mode	0018 00
Operation In Emergency (EMER) Mode	0018 00
Operation With Four Central Tire Inflation System (CTIS) ECU Mode Lights Flashing	0018 00
Two Steady Mode Lights Illuminate on Central Tire Inflation System (CTIS) ECU	0073 00
Mount	
Remove Rifle From Mount	0037 00
Stow Rifle In Mount	0037 00
Mounting	
M42 Alarm Mounting Location	0037 00
M43 Chemical Detector Mounting Location	0037 00
Decontamination Apparatus Mounting Location	0037 00
Ladder Mounting	0025 00
Movement	
Preparation for Movement	0014 00
Mud	
Operation in Sand or Mud	0041 00
N	
No	
Air Pressure or Low Air Pressure Present at Rear Gladhands	0070 00

INDEX - Continued

Subject	WP Sequence No.
N - Continued	
No (Continued)	
Response When Turning Steering Wheel	0075 00
Noisy Air Compressor Operation	0070 00
Nomenclature Cross-Reference List	0001 00
Nuclear, Biological, and Chemical (NBC)	
Decontamination	0054 00
O	
Off-Road	
Operation In Off-Road Condition	0015 00
Oil	
Coolant in Engine Lubrication Oil	0061 00
Press Gage Does Not Operate or Is Inaccurate	0065 00
ENGINE OIL PRESSURE Indicator Does Not Illuminate	0065 00
Excessive Engine Oil Consumption	0061 00
In Cooling System	0064 00
Low Engine Oil Pressure	0061 00
One	
Or Both Blackout Stoplights Do Not Illuminate	0065 00
Or Both Composite Taillights Do Not Illuminate	0065 00
Or Both Front Blackout Marker Lights Do Not Illuminate	0065 00
Or Both Headlight High Beams Do Not Illuminate	0065 00
Or Both Headlight Low Beams Do Not Illuminate	0065 00
Or Both Headlights (High and Low Beam) Do Not Illuminate	0065 00
Or Both Rear Blackout Marker Lights Do Not Illuminate	0065 00
Or Both Stoplights Do Not Illuminate	0065 00
Or More Cab Top Marker Lights Do Not Illuminate	0065 00
Opening Battery Box/Testing Batteries	0088 00
Operate	
12 VDC and 24 VDC Circuits Do Not Operate	0065 00

INDEX - Continued

Subject	WP Sequence No.
O - Continued	
Operate (Continued)	
12 VDC Circuits Do Not Operate (100 Amp Alternator)	0065 00
12 VDC Circuits Do Not Operate (200 Amp Alternator)	0065 00
110 VAC Power Does Not Operate	0065 00
M1079A1 24 VDC Binding Post(s) Does Not Operate	0065 00
M1079A1 110 VAC Outlet J233 Does Not Operate	0065 00
M1079A1 110 VAC Outlet J234 Does Not Operate	0065 00
M1079A1 110 VAC Outlet J235 Does Not Operate	0065 00
M1079A1 Air Conditioner Does Not Operate	0065 00
M1079A1 Fan Does Not Operate	0065 00
M1079A1 Field Phone 1 and/or 2 Binding Post Does Not Operate	0065 00
M1079A1 Heater Does Not Operate	0065 00
All Electrical Gages Do Not Operate	0065 00
All Main Light Switch Functions Do Not Operate	0065 00
All Windshield Wiper Speeds Do Not Operate	0065 00
Audible Alarm Does Not Operate	0065 00
Audible Alarm, Radio, Starter Pushbutton, and Electrical Gages Do Not Operate	0065 00
Battery Tester Does Not Operate	0065 00
Cab Arctic Heater	0046 00
Cab Heat	0020 00
Cargo Area Arctic Heater Does Not Operate	0080 00
Cargo Area Arctic Override Switch Does Not Operate	0080 00
Chemical Alarm Does Not Operate	0065 00
M42 Chemical Alarm	0037 00
Chemical Detector Does Not Operate	0065 00
Central Tire Inflation System (CTIS) Does Not Operate	0065 00
Decontamination Apparatus	0037 00
Oil Press Gage Does Not Operate or Is Inaccurate	0065 00
Ether Start Does Not Operate	0065 00

INDEX - Continued

Subject	WP Sequence No.
O - Continued	
Operate (Continued)	
Ether Starting Aid Does Not Operate	0062 00
Exhaust Brake Does Not Operate	0065 00
FRONT BRAKE AIR Pressure Gage Does Not Operate or Is Inaccurate	0065 00
FUEL Gage Does Not Operate or Is Inaccurate	0065 00
Horn Does Not Operate	0065 00
Horn, Windshield Wipers, and Windshield Washer Do Not Operate	0065 00
Inlet Air Heater Does Not Operate	0065 00
In Run Flat Mode	0018 00
Lamp Test 24 VDC Does Not Operate	0065 00
Lamp Test Ground Does Not Operate	0065 00
Personnel Heater Control Illumination Does Not Operate	0065 00
Personnel Heater Fan Does Not Operate	0065 00
Power Take-Off (PTO) Does Not Operate	0065 00
Radio	0037 00
Radio Does Not Operate	0065 00
REAR BRAKE AIR Pressure Gage Does Not Operate or Is Inaccurate	0065 00
Service Brakes	0016 00
Speedometer Does Not Operate or Is Inaccurate	0065 00
VOLTS Gage Does Not Operate or Is Inaccurate	0065 00
Windshield Defrost	0020 00
WATER TEMP Gage Does Not Operate or Is Inaccurate	0065 00
Windshield Washer Does Not Operate	0065 00
Windshield Wiper Does Not Operate On High Speed	0065 00
Windshield Wiper Does Not Operate On Intermittent Speed	0065 00
Windshield Wiper Does Not Operate On Low Speed	0065 00
Operating	
Propeller Shafts or Universal Joints Unusually Noisy When Operating	0067 00
Seat Belt	0015 00
Selecting Transmission Operating Range	0016 00

INDEX - Continued

Subject	WP Sequence No.
O - Continued	
Operating (Continued)	
Transmission Unusually Noisy When Operating	0066 00
Vehicle Lights	0016 00
Operation	
11K SRW Operation	0053 00
Air Conditioner Operation	0034 00
Air System Loses Pressure During Operation/Slow Air Pressure Buildup	0070 00
Arctic Start from -26° F to -50° F (-32° C to -46° C) Operation	0044 00
Auxiliary Equipment Operation	0037 00
Back-up Hydraulic Pump Operation	0035 00
Cab Arctic Heater Operation	0046 00
Cargo Area Arctic Heater Operation	0047 00
Cargo Cover Flap Operation	0023 00
Central Tire Inflation System (CTIS) Operation	0018 00
CTIS Cold Weather Operation	0043 00
Exhaust System Unusually Noisy or Vibrates Excessively During Engine Operation	0063 00
Fire Extinguisher Operation	0049 00
Heater Operation	0034 00
Heater/Defrost Operation	0020 00
In Desert Environment	0042 00
In Emergency (EMER) Mode	0018 00
In Extreme Dust	0039 00
In Extreme Heat	0038 00
In Forest or on Rocky Terrain	0040 00
In Off-Road Condition	0015 00
In Sand or Mud	0041 00
Ladder, Side Panel, and Stakes Operation	0021 00
Light Material Handling Crane (LMHC) Operation	0019 00
Noisy Air Compressor Operation	0070 00
Normal CTIS Operation	0018 00
Preparation for Machine Gun Operation	0055 00
11K Self-Recovery Winch (SRW) Operation	0053 00
Starting on Hill Operation	0057 00
Swingfire Heater Operation	0044 00
Vehicle Operation	0016 00

INDEX - Continued

Subject — WP Sequence No.

O - Continued

Operation (Continued)
- Vehicle Operation (Extreme Heat) 0038 00
- Vehicle Operation (Extreme Dust) 0039 00
- Vehicle Operation (Forest or On Rocky Terrain)....0040 00
- Vehicle Operation (Sand or Mud)....0041 00
- Vehicle Operation (Desert Environment) 0042 00
- Vehicle Operation (Extreme Cold Environment) 0045 00
- Vehicle Operation (Starting On Hill) 0057 00
- Vehicle Operation in Cold Environment, 32° F to -25° F (0° C to -32° C) 0043 00
- Vehicle Operation in Extreme Cold Environment -26° F to -65° F, (-32° C to -54° C)....0045 00
- With Four CTIS ECU Mode Lights Flashing 0018 00

Overheat
- Front Brakes Overheat....0069 00
- Rear Brakes Overheat....0069 00

Overheats
- Engine Overheats 0064 00

Override
- Cargo Area Arctic Override Switch Does Not Operate 0080 00

Overspeed
- CTIS Overspeed Indicator Does Not Illuminate....0065 00
- CTIS Overspeed Indicator Remains Illuminated....0073 00
- Engine Overspeeds On Start 0061 00

P

Panel
- Auxiliary Panel Controls and Indicators 0005 00
- Auxiliary Panel Does Not Illuminate 0065 00
- Auxiliary Panel Switch Does Not Illuminate....0065 00
- Auxiliary Panel, Personnel Heater, and Instrument Panel Do Not Illuminate....0065 00
- Instrument Panel Controls and Indicators 0004 00
- Instrument Panel Gage Does Not Illuminate....0065 00

INDEX - Continued

Subject	WP Sequence No.
P - Continued	
Panel (Continued)	
Instrument Panel Switch Does Not Illuminate	0065 00
Power Distribution Panel (PDP) Cover Removal/Installation	0091 00
Panels	
Install Cargo Bed Side Panels	0021 00
Lower Cargo Bed Side Panels	0021 00
Raise Cargo Bed Side Panels	0021 00
Remove Cargo Bed Side Panels	0021 00
Stow Cargo Bed Side Panels	0021 00
PARK BRAKE Indicator Does Not Illuminate	0065 00
Parking	
Brake(s) Will Not Release	0069 00
Brakes Do Not Apply	0069 00
Lights Do Not Illuminate	0065 00
Vehicle	0016 00
Passenger	
Adjusting Passenger Seat	0015 00
Side Exterior Controls and Indicators	0011 00
Pay Out	
11K Self-Recovery Winch (SRW) Does Not Pay Out	0065 00
11K Self-Recovery Winch (SRW) Does Not Reel In or Pay Out	0065 00
Pedal	
Accelerator Pedal Sticks	0062 00
Personnel	
Heater Control Illumination Does Not Operate	0065 00
Heater Fan Does Not Operate	0065 00
Plates	
Data and Instruction Plates	0036 00
PMCS	
Introduction	0083 00
Procedures	0083 00
Power	
110 VAC Power Does Not Operate	0065 00
Connect AC Power	0027 00
Connecting 12/24 VDC Power	0033 00
Disconnect AC Power Cable	0027 00
Disconnecting 12/24 VDC Power	0033 00

INDEX - Continued

Subject — WP Sequence No.

P - Continued

Power (Continued)
- Distribution Panel Cover (PDP) Removal/ Installation 0091 00
- Take-Off (PTO) 0068 00
- Take Off (PTO) Troubleshooting 0068 00

Power Take-Off (PTO)
- Does Not Engage 0068 00
- Does Not Operate 0065 00
- Indicator Does Not Illuminate 0065 00
- Power Take-Off (PTO) 0068 00

Powertrain 0003 00

Preparation
- M1079A1 Van Preparation for Movement 0014 00
- for Internal Air Transport, Highway or Rail Shipment 0048 00
- for Machine Gun Operation 0055 00
- for Movement 0014 00
- for Shipment 0001 00
- for Use 0015 00
- of Disabled Vehicle (M1078/M1078A1 Series) 0052 00
- of Towing Vehicle 0052 00

Prepare LMHC for Use 0019 003

Preparing Markers For Use 0050 00

Preventive
- M1078A1 Series Preventive Maintenance Checks and Services (PMCS) 0083 00

Procedures
- Emergency Procedures 0054 00
- Maintenance Forms and Procedures 0001 00
- PMCS Procedures 0083 00
- Servicing Air Filter (Emergency Procedure) 0089 00
- Troubleshooting Procedures 0059 00

Pump
- Back-up Hydraulic Pump Operation 0035 00
- Loss of Hydraulic Pressure (Single Stage Pump) 0072 00

Pushbutton
- WTEC III Transmission Pushbutton Shift Selector (WTEC III TPSS) Displays "--" and/or Transmission Does Not Shift Gears 0066 00

INDEX - Continued

Subject	WP Sequence No.
R	
Rail Radio Does Not Operate	0065 00
Preparation For Internal Air Transport, Highway or Rail Shipment	0065 00
Raise	
and Lower Load	0019 00
Cab Does Not Raise or Lower Properly	0081 00
Cargo Bed Side Panels	0021 00
Boom	0019 00
Machine Gun Ring Lower Platform	0055 00
Spare Tire Does Not Raise or Lower Properly	0081 00
Raising	
Cab	0017 00
/Lowering Cab	0017 00
Rear Flap	0023 00
Side Flaps	0023 00
Troopseat Kit Lowering/Raising	0024 00
Troopseats	0024 00
Rear	
Axle Tire Chain Installation	0058 00
Axle Tire Chain Removal	0058 00
LOW REAR Air Indicator Does Not Illuminate (vehicle S/N 18,549 or Lower)	0065 00
BRAKE AIR Pressure Gage Does Not Operate or Is Inaccurate	0065 00
Brakes Do Not Apply	0069 00
Brakes Overheat	0069 00
Front and Rear Hazard Lights Do Not Illuminate	0065 00
Front And Rear Turn Signals Do Not Illuminate	0065 00
Hazard Lights Do Not Illuminate	0065 00
Leans to One Side or Rear of Vehicle Sags	0076 00
LOW AIR Indicator Does Not Illuminate (vehicle S/N 18,550 or Higher)	0065 00
LOW REAR AIR Indicator Does Not Illuminate (vehicle S/N 18,549 or Lower)	0065 00
No Air Pressure or Low Air Pressure Present at Rear Gladhands	0070 00
One Or Both Rear Blackout Marker Lights Do Not Illuminate	0065 00

INDEX - Continued

Subject — WP Sequence No.

R – Continued

Rear (Continued)
Side and/or Rear Marker Lights Do Not Illuminate....0065 00
Spring Brake Caging....0092 00
Reel
11K Self-Recovery Winch (SRW) Does Not Reel In....0065 00
11K Self-Recovery Winch (SRW) Does Not Reel In or Pay Out....0065 00
References....0093 00
Removal
Soft Top Kit (Steel Bows Removal)....0022 00
Soft Top (Steel Bows) Removal....0022 00
Tire Removal....0085 00
Remove
Rifle From Mount....0037 00
Swingfire Heater....0044 00
Warning Light....0056 00
Reporting Equipment Improvement Recommendations (EIR)....0001 00
Reservoirs
Large Quantity of Moisture Expelled From Air Reservoirs....0070 00
Retainer
Cab Tilt, Spare Tire Retainer, and Suspension Compression Do Not Operate....0079 00
RH Door and/or RH Front Marker Lights Do Not Illuminate....0065 00
Right
Turn Signal Indicator Does Not Illuminate....0065 00
Rocky
Operation in Forest or on Rocky Terrain....0040 00

S

Sags
Leans to One Side or Rear of Vehicle Sags....0076 00
Sand
Operation in Sand or Mud....0041 00
Scope....0001 00
Seat
Adjusting Driver's Seat....0015 00
Adjusting Passenger Seat....0015 00

INDEX - Continued

Subject	WP Sequence No.
S - Continued	
Seat (Continued)	
Controls	0010 00
Driver's Seat Controls	0010 00
Operating Seat Belt	0015 00
Securing	
Van Doors Open at 115 Degree Position	0026 00
Van Doors Open at 180 Degree Position	0026 00
Vehicle	0016 00
Selecting Transmission Operating Range	0016 00
Self-Recovery (11K)	
Winch	0003 00
Winch (SRW) Does Not Pay Out	0065 00
Winch (SRW) Does Not Reel In	0065 00
Winch (SRW) Does Not Reel In or Pay Out	0065 00
Winch Operation	0053 00
Winch Does Not Operate	0077 00
Winch (SRW) System Troubleshooting	0077 00
Servicing	
Air Filter (Emergency Procedure)	0089 00
Tires	0086 00
Shaft	
Propeller Shaft	0067 00
Shafts	
Propeller Shafts or Universal Joints Unusually Noisy When Operating	0067 00
Shipment	
Preparation for Shipment	0001 00
Shut Down	
Engine	0016 00
Side	
All Vehicles, Left Side	0036 00
All Vehicles, Right Side	0036 00
Ladder, Side Panels, and Stakes Operation	0021 00
Signal	
Intervehicle Left Turn Signal Does Not Illuminate	0065 00
Intervehicle Right Turn Signal Does Not Illuminate	0065 00
Left or Right Front Turn Signal Does Not Illuminate	0065 00
Left Turn Signal Indicator Does Not Illuminate	0065 00
Right Turn Signal Indicator Does Not Illuminate	0065 00

INDEX - Continued

Subject	WP Sequence No.
S - Continued	
Signals	
Front And Rear Turn Signals Do Not Illuminate	0065 00
Single	
Loss of Hydraulic Pressure (Single Stage Pump)	0072 00
Soft Top	
Kit (Steel Bows) Installation	0022 00
Kit (Steel Bows Removal)	0022 00
(Steel Bows) Installation	0022 00
(Steel Bows) Removal	0022 00
Spare	
Cab Tilt, Spare Tire Retainer, and Suspension Compression Do Not Operate	0079 00
Tire Does Not Raise or Lower Properly	0081 00
Special Purpose Kit	
Controls and Indicators	0012 00
Troubleshooting	0080 00
Special Purpose Kits	0080 00
Speed	
Engine Speed Is Not Stable	0061 00
Windshield Wiper Does Not Operate On High Speed	0065 00
Windshield Wiper Does Not Operate On Intermittent Speed	0065 00
Windshield Wiper Does Not Operate On Low Speed	0065 00
Speedometer Does Not Operate or Is Inaccurate	0065 00
Spooling	
Cable To Front of Vehicle	0053 00
Cable To Rear of Vehicle	0053 00
Springs	
Cab Leveling Air Springs Do Not Operate Properly	0079 00
Stage	
Loss of Hydraulic Pressure (Single Stage Pump)	0072 00
Stalls	
Engine Stalls at Low rpm	0061 00
Start	
Arctic Start from -26° F to -50° F (-32° C to -46° C) Operation	0044 00

INDEX - Continued

Subject	WP Sequence No.
S - Continued	
Start (Continued)	
Cab Arctic Heater Does Not Start	0080 00
Cab Arctic Heater Hard to Start	0080 00
Cold Engine Start	0016 00
Engine (Arctic)	0044 00
Engine Cranks But Does Not Start	0065 00
Engine Cranks But Does Not Start or Engine Stalls After Starting	0062 00
Engine Does Not Crank	0065 00
Engine Overspeeds On Start	0061 00
Ether Start Does Not Operate	0065 00
Warm Engine Start	0016 00
Starts	
Cab Arctic Heater Combustion Starts Immediately When Switched On	0080 00
Engine Starts But Misfires, Runs Rough, or Lacks Power	0061 00
Starting	
Disable Vehicle	0054 00
Engine Cranks But Does Not Start or Engine Stalls After Starting	0062 00
Ether Starting Aid Does Not Operate	0062 00
On Hill Operation	0057 00
Steer	
Hard to Steer	0075 00
Steering	
Column Controls	0007 00
Excessive Play When Turning Steering Wheel	0075 00
Hard or Does Not Operate	0078 00
Hydraulic System	0078 00
Hydraulic System Troubleshooting	0078 00
No Response When Turning Steering Wheel	0075 00
System	0075 00
System Troubleshooting	0075 00
Stoplights	
And Blackout Stoplights Do Not Illuminate	0065 00
Intervehicle Stoplights Do Not Illuminate	0065 00
One or Both Blackout Stoplights Do Not Illuminate	0065 00
One Or Both Stoplights Do Not Illuminate	0065 00

INDEX - Continued

Subject	WP Sequence No.
S - Continued	
Stoplights (Continued)	
Trailer Blackout Stoplights Do Not Illuminate	0065 00
Stow	
Cargo Bed Side Panels	0021 00
Ladder	0021 00
LMHC	0019 00
Rifle In Mount	0037 00
Stow Machine Gun Ring Lower Platform	0055 00
Stowage	
Location/Decal/Stencil Guide	0098 00
Locations, All Vehicles	0098 00
Stowing	
Ladder Stowing	0025 00
Markers	0050 00
Suspension	
Cab Tilt, Spare Tire Retainer, and Suspension Compression Do Not Operate	0079 00
Decompressing Suspension	0048 00
Does Not Compress or Return to Normal Properly	0079 00
System	0076 00
System Troubleshooting	0076 00
Swing Boom	0019 00
Swingfire	
Heater Operation	0044 00
Remove Swingfire Heater	0044 00
Switch	
All Main Light Switch Functions Do Not Operate	0065 00
Auxiliary Panel Switch Does Not Illuminate	0065 00
Cargo Area Arctic Override Switch Does Not Operate	0080 00
Engine Fan Does Not Turn Off Using Engine Fan Off Switch	0065 00
Instrument Panel Switch Does Not Illuminate	0065 00
Troop Transport Alarm Switch	0012 00
System	
Air System	0003 00
Air System	0070 00
Air System Controls	0006 00

INDEX - Continued

Subject — WP Sequence No.

S - Continued

System (Continued)
- Air System Loses Pressure During Operation/Slow Air Pressure Buildup....0070 00
- Air System Pressure Builds Up More Than 120 psi (827 kPa) (Compressor Fails To Unload)....0070 00
- Air Transport System....0079 00
- Brake System....0003 00
- Brake System....0069 00
- Central Tire Inflation System (CTIS) Operation....0018 00
- Cooling System....0003 00
- Electrical System....0003 00
- Electrical System Does Not Maintain a Charge....0065 00
- Engine Air Intake System....0003 00
- Engine System....0061 00
- Exhaust System....0063 00
- Exhaust System Unusually Noisy or Vibrates Excessively During Engine Operation....0063 00
- Fuel System....0003 00
- Fuel System....0062 00
- Hydraulic System....0072 00
- Oil In Cooling System....0064 00
- Steering Hydraulic System....0078 00
- Steering System....0075 00
- Suspension System....0076 00
- Transmission System....0066 00

T

Taillights
- Intervehicle Taillights Do Not Illuminate....0065 00
- One or Both Composite Taillights Do Not Illuminate....0065 00
- Trailer Marker/Taillights Do Not Illuminate....0065 00

Tanks
- Draining Air Tanks....0016 00

Telescope Boom....0019 00

INDEX - Continued

Subject	WP Sequence No.
T - Continued	
Temp	
TRANS TEMP Indicator Does Not Illuminate	0065 00
TRANS TEMP Indicator Remains Illuminated	0066 00
WATER TEMP Gage Does Not Operate or Is Inaccurate	0065 00
Testing	
Opening Battery Box/Testing Batteries	0088 00
Tire	
Cab Tilt and Spare Tire Retainer	0081 00
Cab Tilt, Spare Tire Retainer, and Suspension Compression Do Not Operate	0079 00
Central Tire Inflation System (CTIS)	0073 00
Central Tire Inflation System (CTIS) Operation	0018 00
Chains Installation/Removal	0058 00
Changing Tire	0085 00
Checking Tire Pressures	0086 00
Front Tire Deflation	0048 00
Front Tire Inflation	0048 00
Installation	0085 00
Lower Spare Tire	0085 00
Rear Axle Tire Chain Installation	0058 00
Rear Axle Tire Chain Removal	0058 00
Removal	0085 00
Spare Tire Does Not Raise or Lower Properly	0081 00
Stowage	0085 00
Tires	
Continue To Wear After Front End Alignment and/or Vehicle Drives Sideways Down Road	0082 00
Central Tire Inflation System (CTIS) Does Not Deflate Tires	0065 00
Central Tire Inflation System (CTIS) Does Not Inflate Tires	0065 00
Manually Inflating Tires	0086 00
Servicing Tires	0086 00
Wear Unevenly or Excessively	0071 00
Too Much Vibration In Engine	0061 00

INDEX - Continued

Subject	WP Sequence No.
T - Continued	
Towbar	
Connection	0051 00
Connection	0052 00
Connection/Disconnection	0051 00
Disconnection	0051 00
Towing	
Disabled Vehicle	0052 00
Preparation of Towing Vehicle	0052 00
Trailer	
Blackout Marker Lights Do Not Illuminate	0065 00
Blackout Stoplights Do Not Illuminate	0065 00
Both Trailer Stop/Turn Lights Do Not Illuminate	0065 00
Left Stop/Turn Light Does Not Illuminate	0065 00
Right Stop/Turn Light Does Not Illuminate	0065 00
Blackout Marker Lights Do Not Illuminate and/or WTEC III Transmission Pushbutton Shift Selector (WTEC III TPSS) Does Not Dim	0065 00
WTEC III Transmission Pushbutton Shift Selector (WTEC III TPSS) Displays “--” and/or Transmission Does Not Shift Gears	0066 00
WTEC III Transmission Pushbutton Shift Selector (WTEC III TPSS)	0004 00
Selecting Transmission Operating Range	0016 00
System	0066 00
System Troubleshooting	0066 00
TRANS TEMP Indicator Does Not Illuminate	0065 00
TRANS TEMP Indicator Remains Illuminated	0066 00
Unusually Noisy When Operating	0066 00
Troop Transport Alarm Switch	0012 00
Troopseat	
M1078A1 Troopseat Kit Installation/ Removal	0090 00
Kit Lowering/Raising	0024 00
Troopseats	
Lowering Troopseats	0024 00
Raising Troopseats	0024 00

INDEX - Continued

Subject	WP Sequence No.
T - Continued	
Troubleshooting	
11K Self-Recovery Winch (SRW) System Troubleshooting	0077 00
Air System Troubleshooting	0070 00
Air Transport System Troubleshooting	0079 00
Axle Troubleshooting	0074 00
Brake System Troubleshooting	0069 00
Cab Tilt and Spare Tire Retainer Troubleshooting	0081 00
Central Tire Inflation System (CTIS) Troubleshooting	0073 00
Cooling System Troubleshooting	0064 00
Electrical System Troubleshooting	0065 00
Engine System Troubleshooting	0061 00
Exhaust System Troubleshooting	0063 00
Frame Troubleshooting	0082 00
Fuel System Troubleshooting	0062 00
Hydraulic System Troubleshooting	0072 00
Introduction	0059 00
Procedures	0059 00
Propeller Shaft Troubleshooting	0067 00
Power Take-Off (PTO) Troubleshooting	0068 00
Special Purpose Kit Troubleshooting	0080 00
Steering Hydraulic System Troubleshooting	0078 00
Steering System Troubleshooting	0075 00
Suspension System Troubleshooting	0076 00
Transmission System Troubleshooting	0066 00
Wheel Troubleshooting	0071 00
Two Steady Mode Lights Illuminate On Central Tire Inflation System (CTIS) ECU	0073 00
Turn	
Front And Rear Turn Signals Do Not Illuminate	0065 00
Intervehicle Left Turn Signal Does Not Illuminate	0065 00
Intervehicle Right Turn Signal Does Not Illuminate	0065 00
Left or Right Front Turn Signal Does Not Illuminate	0065 00
Left Turn Signal Indicator Does Not Illuminate	0065 00

INDEX - Continued

Subject	WP Sequence No.
U	
Unfolding Mirrors	0048 00
Universal	
Propeller Shafts or Universal Joints Unusually Noisy When Operating	0067 00
V	
Van	
M1079A1 Van 12/24 VDC Power Connection/Disconnection	0033 00
M1079A1 Van 24 VDC Binding Post Operation	0031 00
M1079A1 Van AC Power Connecting/ Disconnecting	0027 00
M1079A1 Van Air Conditioner/Heater Operation	0034 00
M1079A1 Van Controls	0013 00
M1079A1 Van Doors Opening/Closing	0026 00
M1079A1 Van Field Phone Binding Post Operation	0032 00
M1079A1 Van Ladder Mounting/Stowing	0025 00
M1079A1 Van Lighting	0029 00
M1079A1 Van Preparation for Movement	0014 00
M1079A1 Van Vent Fan Operation	0030 00
M1079A1 Van Window Operation	0028 00
Closing Van Doors From 115 Degree Position	0026 00
Closing Van Doors From 180 Degree Position	0026 00
Door Indicator Does Not Illuminate	0065 00
Securing Van Doors Open at 115 Degree Position	0026 00
Securing Van Doors Open at 180 Degree Position	0026 00
Vehicle	
Brakes Unevenly, Brakes Pull To One Side or Grab	0069 00
Cleaning Vehicle	0087 00
Fueling Vehicle	0015 00
Operating Vehicle Lights	0016 00
Operation	0016 00
Operation (Extreme Heat)	0038 00

INDEX - Continued

Subject	WP Sequence No.

V - Continued

Vehicle (Continued)
- Operation (Extreme Dust) 0039 00
- Operation (Forest or On Rocky Terrain) 0040 00
- Operation (Sand or Mud) 0041 00
- Operation (Desert Environment) 0042 00
- Operation (Extreme Cold Environment) 0045 00
- Operation (Starting on Hill) 0057 00
- Operation in Cold Environment, 32° F to -25° F (0° C to -32° C) 0043 00
- Operation in Extreme Cold Environment, -26° F to -65° F (-32° C to -54° C) 0045 00
- Parking Vehicle 0016 00
- Securing Vehicle 0016 00
- Starting Disabled Vehicle 0054 00
- With LMHC 0036 00

Vehicles
- All Vehicles, Interior 0036 00
- All Vehicles, Left Side 0036 00
- All Vehicles, Right Side 0036 00
- With 11K SRW 0036 00

Vent
- Turing Vent Fan Off 0030 00
- Turing Vent Fan On 0030 00

VOLTS Gage Does Not Operate or Is Inaccurate 0065 00

W

Wanders
- Pulls To One Side, or Shimmies 0075 00
- Pulls To One Side, or Shimmies 0076 00

Warm Engine Start 0016 00

Warning
- Amber Warning Light Kit Installation/ Removal 0056 00
- Install Warning Light 0056 00
- Amber Warning Light Does Not Illuminate 0065 00
- Remove Warning Light 0056 00

Warranty Information 0001 00

Washer
- Horn, Windshield Wipers, and Windshield Washer Do Not Operate 0065 00
- Windshield Washer Does Not Operate 0065 00

INDEX - Continued

Subject	WP Sequence No.
W - Continued	
Wheel	0071 00
Excessive Play When Turning Steering Wheel	0075 00
No Response When Turning Steering Wheel	0075 00
Troubleshooting	0071 00
Wobbles or Shimmies	0071 00
White Exhaust Smoke	0061 00
Winch	
11K Self-Recovery Winch (SRW)	0003 00
11K Self-Recovery Winch (SRW) Does Not Pay Out	0065 00
11K Self-Recovery Winch (SRW) Does Not Reel In	0065 00
11K Self-Recovery Winch (SRW) Does Not Reel In or Pay Out	0065 00
11K Self-Recovery Winch (SRW) Operation	0053 00
11K Self-Recovery Winch (SRW) Does Not Operate	0077 00
Window	
Closing Window	0028 00
Opening Window	0028 00
Windshield	
All Windshield Wiper Speeds Do Not Operate	0065 00
Horn, Windshield Wipers, and Windshield Washer Do Not Operate	0065 00
Operate Windshield Defrost	0020 00
Washer Does Not Operate	0065 00
Wiper Does Not Operate On High Speed	0065 00
Wiper Does Not Operate On Intermittent Speed	0065 00
Wiper Does Not Operate On Low Speed	0065 00
Wiper	
All Windshield Wiper Speeds Do Not Operate	0065 00
Wiper	
Windshield Wiper Does Not Operate On High Speed	0065 00
Windshield Wiper Does Not Operate On Intermittent Speed	0065 00

INDEX - Continued

Subject — WP Sequence No.

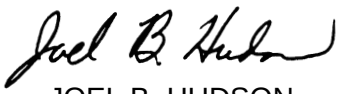
W - Continued

Wiper (Continued)
Windshield Wiper Does Not Operate On
Low Speed 0065 00
WTEC III Transmission Pushbutton Shift
Selector (WTEC III TPSS) 0004 00

By Order of the Secretary of the Army:

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

Official:



JOEL B. HUDSON
Administrative Assistant to the
Secretary of the Army
0411007

By Order of the Secretary of the Air Force:

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

Official:

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

Distribution:

To be distributed in accordance with the initial distribution number (IDN) 381087, requirements for TB 9-2320-391-10.

METRIC CONVERSION CHART

APPROXIMATE CONVERSION FACTORS

TO CHANGE	TO	MULTIPLY BY
Inches	Centimeters	2.540
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	29.573
Pints	Liters	0.473
Quarts	Liters	0.946
Gallons	Liters	3.785
Ounces	Grams	28.35
Pounds	Kilograms	0.454
Short Tons	Metric Tons	0.907
Pound-Feet	Newton-Meters	1.356
Pounds per Square 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
Meters	Feet	3.280
Meters	Yards	1.094
Kilometers	Miles	0.621
Square Centimeters	Square Inches	0.155
Square Meters	Square Feet	10.764
Square Meters	Square Yards	1.196
Square Kilometers	Square Miles	0.386
Square Hectometers	Acres	2.471
Cubic Centimeters	Cubic Inch	0.060
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
Metric Tons	Short Tons	1.102
Newton-Meters	Pound-Feet	0.738
Kilopascals	Pounds per Square Inch	0.145
Kilometers per Liter	Miles per Gallon	2.354
Kilometers per Hour	Miles per Hour	0.621

TEMPERATURE CONVERSIONS

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°