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

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

HEADQUARTERS, DEPARTMENTS OF THE ARMY AND THE AIR FORCE

JUNE 1998
**WARNING SUMMARY**

**WARNING**

**EXHAUST GASES CAN KILL**

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

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

**WARNING**

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

**WARNING**

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

WARNING

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

WARNING

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

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

WARNING

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

WARNING

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

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

Do not work on fuel system when engine is hot; fuel can be ignited by a hot engine.
WARNING SUMMARY (CONT)

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

Never let moving wire rope slide through hands, even when wearing gloves. A broken wire could cut through gloves and cut hands.
WARNING SUMMARY (CONT)

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

Goggles and gloves must be worn when working with glass. Failure to comply may result in injury to personnel.
WARNING SUMMARY (CONT)

WARNING

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

WARNING

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

WARNING

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

WARNING

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

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

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

WARNING

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

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

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

WARNING

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

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

Official:

SANDRA R. RILEY
Administrative Assistant to the
Secretary of the Army
0601912

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) 380934, requirements for Family of Medium Tactical Vehicles (FMTV) TM 9-2320-365-20-5.
Place this change sheet in the front of the publication for reference purposes.
By Order of the Secretary of the Army:

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

Official:

SANDRA R. RILEY  
*Administrative Assistant to the*  
*Secretary of the Army*  
0501302

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*General, United States Air Force*  
*Commander, Air Force Materiel Command*

Distribution:

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TM 9-2320-365-20-5, 17 June 1998, is changed as follows:
1. Remove old pages and insert new pages as indicated below.
2. New or changed material is indicated by a vertical bar in the out margin of the page.
3. Added or revised illustrations are indicated by a vertical bar adjacent to the illustration.

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By Order of the Secretary of the Army:

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

Official:

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OVERVIEW

This technical manual (TM) is provided to help you maintain the LMTV at the Unit Maintenance level. Because of its size, it is divided into five volumes. Volume 5 contains the following major sections in order of appearance:

- **WARNING SUMMARY.** Provides a summary of the most important warnings that apply throughout the manual.

- **CHAPTER 20.** SPECIAL PURPOSE KITS MAINTENANCE

- **CHAPTER 21.** ARMAMENT/SIGHTING AND FIRE CONTROL MATERIEL MAINTENANCE

- **CHAPTER 22.** ELECTRICAL ILLUMINATING EQUIPMENT MAINTENANCE

- **CHAPTER 23.** AIR SYSTEM MAINTENANCE

- **CHAPTER 24.** GAGES (NON-ELECTRICAL) MAINTENANCE

- **APPENDIX A.** REFERENCES. Lists publications used with the LMTV.
OVERVIEW (CONT)

- **APPENDIX B, MAINTENANCE ALLOCATION CHART.** The maintenance allocation chart denotes the level of maintenance which performs specific maintenance tasks and the time required. It also lists tools and special tools required for each task.

- **APPENDIX C, TOOLS IDENTIFICATION LIST.** Lists equipment used in the performance of maintenance and references publications which contain information regarding the equipment.

- **APPENDIX D, EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST.** Lists expendable and durable items used in the performance of maintenance.

- **APPENDIX E, ILLUSTRATED LIST OF MANUFACTURED ITEMS.** Illustrates and describes items that must be fabricated from bulk materials for repair of the LMTV.

- **APPENDIX F, TORQUE LIMITS.** Lists the standard torque values for specific attaching hardware.

- **APPENDIX G, MANDATORY REPLACEMENT PARTS.**

- **APPENDIX H, LUBRICATION ORDER.**

- **APPENDIX J, ADDITIONAL AUTHORIZATION LIST (AAL).**

- **APPENDIX K, TRANSMISSION/TRANSMISSION CONTROLS ADAPTABILITY CHART.**

- **SUBJECT INDEX.** Lists important subjects contained in volume 5 in alphabetical order and gives the associated paragraph number.

FINDING INFORMATION

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

- **FRONT COVER INDEX.** The front cover index contains a list of the most important topics contained in each volume. It features a black box at the right edge of the cover which corresponds with a black box on the page containing the topic. The topics listed on the front cover are highlighted in the table of contents with a box.

- **TABLE OF CONTENTS.** Lists chapters, sections, appendixes, and indexes with page numbers in order of appearance.

- **CHAPTER INDEXES.** List paragraphs contained in the individual chapters with paragraph and page numbers in order of appearance.

- **SYMPTOM INDEX.** Lists malfunctions contained in the troubleshooting table with page numbers in order of appearance.

TROUBLESHOOTING

Troubleshooting is contained in chapter 2. When a malfunction occurs, look at the symptom index for the vehicle troubleshooting table in chapter 2. Find the malfunction in the index. Turn to the page number listed for the malfunction in the troubleshooting table. Perform the steps required to correct the malfunction. If you can't find the malfunction, or the malfunction is not corrected, notify your supervisor.
• **SCHEDULED MAINTENANCE.** Your scheduled maintenance is located in Volume 1, table 2-1, PMCS. These checks and services are mandatory at the intervals listed. Always follow the WARNINGS and CAUTIONS.

• **UNSCHEDULED MAINTENANCE.** Unscheduled maintenance is located in chapters 3 through 24. The PMCS and troubleshooting tables often reference you to these procedures. When you perform maintenance, look over the entire procedure before starting. Make sure you have the necessary tools and materials at hand. Always follow the WARNINGS and CAUTIONS.

**FOLLOW THESE GUIDELINES WHEN USING THIS MANUAL:**

- Become familiar with the entire maintenance procedure before beginning a maintenance task.
- Read all **WARNINGS** and **CAUTIONS** before performing any procedures.
CHAPTER 20
SPECIAL PURPOSE KITS MAINTENANCE

RESTRICTED MAINTENANCE NOTICE

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

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Section I. INTRODUCTION

20-1. INTRODUCTION

This chapter contains maintenance instructions for replacing, repairing, and installing special purpose kit components authorized by the Maintenance Allocation Chart (MAC) at the Unit Maintenance level.
20-41. M1079 HEATER KIT INSTALLATION/REMOVAL.

This task covers:

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

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-365-10).  
Spare tire lowered (TM 9-2320-365-10).  
Cab raised (TM 9-2320-365-10).  
AC power disconnected (TM 9-2320-365-10).  
LH and RH doors opened (115 degrees) (TM 9-2320-365-10).

Tools and Special Tools
Tool Kit, Genl Mech (Item 44, Appendix C)

Materials/Parts
Lockwasher (44) (Item 82, Appendix G)  
Lockwasher (18) (Item 84, Appendix G)  
Lockwasher (12) (Item 76, Appendix G)  
Sealant, Pipe, Teflon (Item 58, Appendix D)

Personnel Required
(2)

a. Installation.

(1) Remove 13 screws (1), lockwashers (2), washers (3), and curbside top front panel (4) from pod frame (5). Discard lockwashers.

(2) Remove 13 screws (6), lockwashers (7), washers (8), and curbside panel (9) from pod frame (5). Discard lockwashers.
(3) Remove 14 screws (10), lockwashers (11), washers (12), and curbside front panel (13) from pod frame (5). Discard lockwashers.

(4) Remove four screws (14), lockwashers (15), washers (16), and cover plate (17) from curbside front panel (13). Discard lockwashers.

(5) Retain cover plate (17) for future use.

(6) Remove 18 screws (18), lockwashers (19), washers (20), and cover (21) from inside front van body wall (22). Discard lockwashers.

(7) Retain cover (21) for future use.

(8) Route heater fuel pump cable (23) through hole (24) in pod panel (25).
(9) Unlatch screw (26) on door (27).

(10) Open door (27) on heater control unit (28).

(11) Unlatch two screws (29) on heater control unit (28).

(12) Remove heater control unit (28) from heater (30).

**NOTE**
Tag connectors and connection points prior to disconnecting.

(13) Disconnect connector P4 (31) from connector J4 (32).

(14) Remove two twist locks (33) from heater (30).
(15) Remove eight screws (34) from heater (30).
(16) Remove eight screws (35) from heater (30).
(17) Retain screws (34 and 35) for future use.

(18) Apply silicone rubber sponge tape (36) to mating surfaces of heater duct (37) and heater (30).
(19) Position heater (30) on pod panel (25).

(20) Position heater duct (37) on pod panel (25).

(21) Position bracket (38) on pod panel (25) with two washers (39), lockwashers (40), screws (41), and self-locking nuts (42).

**WARNING**

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

**CAUTION**

Use caution when installing heater. Heater fuel pump power cable installed. Failure to comply may cause damage to equipment.

**NOTE**

Steps (19) through (24) require the aid of an assistant.
(22) Install bracket (38) on heater (30) with four washers (43), lockwashers (44), and screws (45).

(23) Position bracket (46) on pod panel (25) with two washers (47), lockwashers (48), screws (49), and self-locking nuts (50).

(24) Install bracket (46) on heater (30) with four washers (51), lockwashers (52), and screws (53).

(25) Install heater duct (37) on heater (30) with four washers (54), lockwasher (55), and screws (56).
(26) Install heater duct (37) on heater (30) with four washers (57), lockwashers (58), and screws (59).

(27) Remove dust cap (60) from fuel overflow port (61).

(28) Remove dust cap (62) from fuel inlet port (63).

(29) Remove dust cap (64) from heater fuel pump power cable connector (65).

(30) Remove dust cap (66) from heater power connector (67).

(31) Connect connector J314 (68) to heater fuel pump power cable connector (65).

(32) Apply pressure sensitive tape (69) over seam between heater duct (37).
20-41. M1079 HEATER KIT INSTALLATION/REMOVAL (CONT)

NOTE

Steps (33) and (34) require the aid of an assistant.

(33) Tighten two self-locking nuts (42).

(34) Tighten two self-locking nuts (50).

(35) Route fuel tube (70) through hole (71) in pod panel (25).

(36) Install fuel tube (70) on fuel overflow port (58).
(37) Apply sealing compound to threads of fittings (72 and 73).

(38) Install fitting (72) in inlet port (74) of fuel regulator (75).

(39) Install fitting (73) in outlet port (76) of fuel regulator (75).

(40) Install fuel tube (77) on fuel inlet port (63).

(41) Route fuel tube (78) through hole (24) in pod panel (25).

(42) Install fuel tubes (77 and 78) on fittings (72 and 73).

**WARNING**

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.
20-41. M1079 HEATER KIT INSTALLATION/REMOVAL (CONT)

(43) Cut grommets (79) prior to installation.

(44) Install two grommets (79) in holes (24 and 71) on pod panel (25).

(45) Install two fittings (80) on pod frame (5) with two nuts (81).

(46) Install two adapters (82) on fittings (80).

(47) Install fuel tubes (78 and 70) on two adapters (82).

(48) Apply sealing compound to threads of fittings (83 and 84).

(49) Install fittings (83 and 84) on two fittings (80).

WARNING

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.
(50) Install two bushings (85) on bracket (86) with two lockwashers (87) and nuts (88).

(51) Install quick connect fittings (89 and 90) on two bushings (85).

(52) Apply sealing compound to threads of fittings (91 and 92).

**WARNING**

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

(53) Install fitting (91 and 92) in two bushings (85).
(54) Install bracket (86) on outside front van body wall (93) with two washers (94), lockwashers (95), and screws (96).

(55) Position two clamps (97) on hoses (98 and 99).

(56) Install hoses (98 and 99) on fitting (91 and 92) with two clamps (97).

(57) Position two clamps (100) on hoses (98 and 99).

(58) Install two hoses (98 and 99) on fittings (83 and 84) with two clamps (100).

(59) Position six clamps (101) on hoses (98 and 99).

(60) Install six clamps (101) on outside front van body wall (93) with three washers (102), lockwashers (103), and screws (104).
(61) Apply sealing compound to threads of fitting (105) and 90 degree fitting (106).

(62) Install fitting (105) and 90 degree fitting (106) in EMI shielded heater fuel pump couplings (107).

(63) Install EMI shielded fuel pump ground wire (108) to sub frame (109) with screw (110), washer (111), and locknut (112).

(64) Install EMI shielded fuel pump assembly (113) on sub frame (109) with two screws (114), washer (115), lockwasher (116), and nuts (117).

**WARNING**

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To prevent injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.
20-41. M1079 HEATER KIT INSTALLATION/REMOVAL (CONT)

WARNING

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

(65) Remove plug (118) from auxiliary supply port (119).

(66) Retain plug (118) for future use.

NOTE

Remove plastic cable ties as required.

(67) Disconnect fuel hose (120) from 90-degree return fitting (121).

(68) Remove 90-degree return fitting (121) from fuel tank (122).

WARNING

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

(69) Apply sealing compound to threads of run tee fitting (123), fitting (124), and plug (125).

(70) Install run tee fitting (123) in auxiliary supply port (126).

(71) Install fitting (124) and plug (125) on run tee fitting (123).
(72) Apply sealing compound to threads of 90-degree return fitting (127), 90-degree fitting (121), plug (128), and four-way fitting (129).

(73) Install 90-degree return fitting (127), 90-degree fitting (121), and plug (128) on four-way fitting (129).

**WARNING**

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

(74) Install four-way fitting (129) on fuel tank (122).

**NOTE**

Install plastic cable ties as required.

(75) Connect fuel hose (120) to 90-degree return fitting (121).
(76) Connect fitting (130 and 131) to quick connect fittings (90 and 89).

(77) Position two clamps (132) on hoses (133 and 134).

(78) Install hoses (133 and 134) on fittings (130 and 131) with two clamps (132).

(79) Position two clamps (135) on hoses (133 and 134).

(80) Install hoses (133 and 134) on fittings (105 and 127) with two clamps (135).

(81) Position two clamps (136) on hose (137).

(82) Install hose (137) on fittings (106 and 124) with two clamps (136).

(83) Connect connector P310 (138) to heater fuel pump connector (139).
(84) Install curbside front panel (13) on pod frame (5) with 14 washers (12), lockwashers (11), and screws (10).

(85) Install curbside panel (9) on pod frame (5) with 13 washers (8), lockwashers (7), and screws (6).

(86) Install curbside top front panel (4) on pod frame (5) with 13 washers (3), lockwashers (2), and screws (1).
20-41. M1079 HEATER KIT INSTALLATION/REMOVAL (CONT)

(87) Install coupler (140) on heater (27).

(88) Install exhaust pipe (141) on coupler (140).

(89) Install two twist locks (33) on bracket (142).

(90) Position heater control unit (28) on bracket (142).

(91) Latch two screws (29) on heater control unit (28).

(92) Connect connector J4A (143) to connector P4 (31).

(93) Close door (27) on heater control unit (28).

(94) Latch screw (26) on door (27).
(95) Route heater control cable (144) through hole (145) in heater cover (146).

(96) Install bracket (142) on heater cover (146) with four screws (147), washers (148), lockwashers (149), and nuts (150).

(97) Install hood (151) on heater cover (146) with six screws (152), washers (153), lockwashers (154), and nuts (155).

(98) Route heater power cable (156) through hole (145) in heater cover (146).

**NOTE**

Steps (99) and (100) require the aid of an assistant.

(99) Connect connector J244A (157) to heater power connector (67).

(100) Connect connector P4A (158) to connector J4 (32).
(101) Install heater cover (146) on inside front van body wall (22) with heater deflector (159), 18 washers (20), lockwashers (19), and screws (18).

(102) Remove nine screws (18), lockwashers (19), washers (20), and heater deflector (159) from heater cover (146).

(103) Apply half the width of the silicone rubber sponge tape (160) to the inside edge of the heater duct (37) fold tape over to cover outside edge of heater cover (146).
(104) Install heater deflector (159) with nine washers (20), lockwashers (19), and screws (18) on heater cover (146).

(105) Remove dust cap (161) from heater connector (162).
(106) Connect connector P244 (163) to heater connector (162).

(107) Remove dust cap (164) from thermostat connector (165).
(108) Remove dust cap (166) from heater control unit (28).
(109) Connect connector J245 (167) to thermostat connector (165).
(110) Connect connector P245A (168) to heater control unit (28).
(111) Remove 12 screws (169), lockwashers (170), washers (171), and cover (172) from raceway (173). Discard lockwashers.

(112) Disconnect connector J165 (174) from connector P165 (175).

(113) Remove wires 1499R (176), 3086C (177), and 401 (178) from raceway (173).

(114) Strip insulation from wire 1499R (176), wire 3086C (177), and wire 401 (178) the depth of terminal well (179).

(115) Slide insulator (180) over wires (176, 177, and 178).

(116) Insert wire (176, 177, and 178) in terminal well (179).

(117) Crimp terminal well (179) on wire (176, 177, and 178).

(118) Slide insulator (180) over crimped terminal well (179).
(119) Remove plug (181) from raceway (173).

(120) Retain plug (181) for future use.

(121) Route wire 1499R (176), wire 3086C (177), and wire 401 (178) through hole (182) in raceway (173).

(122) Position convoluted tubing (183) over wires (176, 177, and 178).

(123) Install convoluted tubing (183) in hole (182) in raceway (173).

(119) Remove screw (184) and cover (185) from thermostat (186).
NOTE

Steps (125) and (126) apply to initial installation.

(125) Position thermostat (186) centered and 1 1/2 in. (3.81 cm) below hole (182) in raceway (173).

(126) Match drill two holes in inside left van body wall (187).

(127) Route wire 1499R (176), wire 3086C (177), and wire 401 (178) through hole (188) in thermostat (186).

(128) Install thermostat (186) on inside left van body wall (187) with two screws (189).

(129) Loosen screws (190 and 191) on thermostat (186).

(130) Position wire 1499R (176) and wire 401 (178) on thermostat (186).

(131) Tighten screws (190 and 190) on thermostat (186).
(132) Loosen screw (192) on thermostat (186).

(133) Position wire 3086C (177) on thermostat (186).

(134) Tighten screw (192) on thermostat (186).

(135) Pull slack from wire 1499R (176), wire 3086C (177) and wire 401 (178) into raceway (173) and secure in place.

(136) Install cover (185) on thermostat (186) with screw (184).

(137) Connect connector J165 (174) to connector P165 (175).

(138) Install cover (172) on raceway (173) with 12 washers (171), lockwashers (170), and screws (169).

(139) Operate heater and check for proper operation (TM 9-2320-365-10).

NOTE

Install plastic cable ties as required.
b. Removal.

NOTE

Store all removed parts in kit package.

(1) Remove 12 screws (1), lockwashers (2), washers (3), and cover (4) from raceway (5). Discard lockwashers.

(2) Disconnect connector J165 (6) from connector P165 (7).

(3) Remove screw (8) and cover (9) from thermostat (10).

(4) Loosen screw (11) on thermostat (10).

(5) Remove wire 3086C (12) from thermostat (10).
(6) Loosen screws (13 and 14) on thermostat (10).

(7) Remove wire 1499R (15) and wire 401 (16) from thermostat (10).

(8) Remove two screws (17) and thermostat (10) from inside left van body wall (18), and convoluted tubing (19).

(9) Install cover (9) on thermostat (10) with screw (8).

(10) Pull wire 1499R (15), wire 3086C (12), and wire 401 (16) into raceway (5).

(11) Remove convoluted tubing (19) from raceway hole (20).

(12) Install plug (21) on raceway (5).

NOTE
Remove plastic cable ties as required.
(13) Connect connector J165 (6) to connector P165 (7).

(14) Install cover (4) on raceway (5) with 12 washers (3), lockwashers (2), and screws (1).

(15) Disconnect connector P245A (22) from heater control unit (23).

(16) Disconnect connector J245 (24) from thermostat connector (25).

(17) Install dust cap (26) on heater control unit (23).

(18) Install dust cap (27) on thermostat connector (25).

(19) Disconnect connect P244 (28) from heater connector (29).

(20) Install dust cap (30) on heater connector (29).
(21) Remove 18 screws (31), lockwashers (32), washers (33), heater deflector (34), and heater cover (35) from inside front van body wall (36). Discard lockwashers.

(22) Disconnect connect P4A (37) from connector J4 (38).

(23) Disconnect connector J244A (39) from heater power cable connector (40).

(24) Remove heater power cable (41) from heater cover (35).

(25) Remove six nuts (42), lockwashers (43), washers (44), screws (45), and hood (46) from heater cover (35).

NOTE

Tag connectors and connection points prior to disconnecting.

(22) Disconnect connect P4A (37) from connector J4 (38).

(23) Disconnect connector J244A (39) from heater power cable connector (40).

(24) Remove heater power cable (41) from heater cover (35).
(26) Remove four nuts (47), lockwashers (48), washers (49), screws (50), and bracket (51) from heater cover (35).

(27) Route heater control cable (52) through hole (53) in heater cover (35).

(28) Unlatch screw (54) on door (55).

(29) Open door (55) on heater control unit (23).

(30) Disconnect connector J4A (56) from connector P4 (57).

(31) Unlatch two screws (58) on heater control unit (23).

(32) Remove heater control unit (23) from bracket (51).

(33) Remove two twist locks (59) from bracket (51).
(34) Remove exhaust pipe (60) from coupler (61).

(35) Remove coupler (61) from heater (62).

(36) Remove 13 screws (63), lockwashers (64), washers (65), and curbside top front panel (66) from pod frame (67). Discard lockwashers.

(37) Remove 13 screws (68), lockwashers (69), washers (70), and curbside panel (71) from pod frame (67). Discard lockwashers.
(38) Remove 14 screws (72), lockwashers (73), washers (74), and curbside front panel (75) from pod frame (67). Discard lockwashers.

(39) Disconnect heater fuel pump connector (76) from connector P310 (77).

WARNING

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

(40) Loosen two clamps (78) on hose (79).

(41) Remove hose (79) and two clamps (78) from fittings (80 and 81).
(42) Loosen two clamps (82) on hoses (83 and 84).

(43) Remove hoses (83 and 84) and two clamps (82) from fitting (85 and 86).

(44) Loosen two clamps (87) on hoses (83 and 84).

(45) Remove hoses (83 and 84) and two clamps (87) from fittings (88 and 89).

(46) Disconnect fittings (88 and 89) from quick connect fittings (90 and 91).

(47) Disconnect fuel hose (92) from 90-degree return fitting (93).

(48) Remove four-way fitting (94) from fuel tank (95).

NOTE

Remove plastic cable ties as required.
(49) Remove 90-degree return fitting (93), 90-degree fitting (86), and plug (96) from four-way fitting (94).

(50) Remove fitting (81) and plug (97) from run tee fitting (98).

(51) Remove run tee fitting (98) from auxiliary supply port (99).

WARNING

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

(52) Apply sealing compound to threads of 90-degree return fitting (93) and plug (100).

(53) Install 90-degree return fitting (93) on fuel tank (95).

(54) Connect fuel hose (92) to 90-degree return fitting (93).

(55) Install plug (100) in auxiliary supply port (99).
NOTE

Step (56) requires the aid of an assistant.

(56) Remove two nuts (101), lockwashers (102), washers (103), screws (104), and EMI Shielded fuel pump assembly (105) from sub-frame (106). Discard lockwashers.

(57) Remove locknut (107), washer (108), screw (109), and EMI shielded fuel pump ground wire (110) from sub frame (106).
(58) Remove fittings (85) and 90-degree fitting (80) from EMI shielded fuel pump couplings (111).

(59) Remove three screws (112), lockwashers (113), washers (114), and six clamps (115) from outside front van body wall (116). Discard lockwashers.

(60) Remove six clamps (115) from hoses (117 and 118).
(61) Loosen two clamps (119) on hoses (117 and 118).

(62) Remove hoses (117 and 118) and clamps (119) from fittings (120 and 121).

(63) Loosen two clamps (122) on hoses (117 and 118).

(64) Remove hoses (117 and 118) and clamps (122) from fittings (123 and 124).

(65) Remove two screws (125), lockwashers (126), washers (127), and bracket (128) from outside front van body wall (116).

(66) Remove fittings (123 and 124) from two bushings (129).
(67) Remove quick connect fittings (130 and 131) from two bushings (129).

(68) Remove two nuts (132), lockwashers (133), and bushings (129) from bracket (128). Discard lockwashers.

(69) Remove fitting (120 and 121) from two fittings (134).

(70) Remove fuel tubes (135 and 136) from two adapters (137).

(71) Remove two adapters (137) from fittings (134).

(72) Remove two nuts (138) and fittings (134) from pod frame (67).
(73) Remove two grommets (139) from holes (140 and 141) pod panel (142).

(74) Remove fuel tube (135) from fitting (143).

(75) Remove fuel tube (144) from fitting (145).

(76) Remove fuel tube (135) from pod panel (142).

(77) Remove fuel tube (144) from fuel inlet port (146).

(78) Remove fitting (143) from outlet port (147) of fuel regulator (148).

(79) Remove fitting (144) from inlet port (149) of fuel regulator (148).

(80) Remove fuel tube (136) from fuel overflow port (150).

(81) Remove fuel tube (136) from hole (140) in pod panel (142).
(82) Disconnect connector J314 (151) from heater fuel pump power cable connector (152).

(83) Install dust cap (153) on heater fuel pump power cable connector (152).

(84) Install dust cap (154) on fuel inlet port (146).

(85) Install dust cap (155) on fuel overflow port (150).

(86) Install dust cap (156) on heater power cable connector (40).

(87) Remove four screws (157), lockwashers (158), and washers (159) from heater duct (160). Discard lockwashers.
NOTE

Steps (88) through (94) require the aid of an assistant.

(88) Remove four screws (161), lockwashers (162), and washers (163) from heater duct (160). Discard lockwashers.

(89) Remove four screws (164), lockwashers (165), and washers (166) from bracket (167).

(90) Remove two self-locking nuts (168), screws (169), lockwashers (170), washers (171), and bracket (167) from pod panel (142).

(91) Remove four screws (172), lockwashers (173), and washers (174) from bracket (175).
(92) Remove two self-locking nuts (176), screws (177), lockwashers (178), washers (179), and bracket (175) from pod panel (142).

(93) Remove heater duct (160) from pod panel (142).

**WARNING**

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

**CAUTION**

Use caution when installing heater. Heater fuel pump power cable installed. Failure to comply may cause damage to equipment.

(95) Install two twist locks (59) on heater (62).

(96) Position heater control unit (23) on heater (62).

(97) Latch two screws (58) on heater control unit (23).

(98) Connect connector P4 (57) to connector J4 (38).
(99) Close door (55) on heater control unit (23).

(100) Latch screw (54) on door (55).

(101) Install eight screws (180) in heater (62).

(102) Install eight screws (181) in heater (62).
(103) Remove heater fuel pump power cable (182) through hole (183) in pod panel (142).

(104) Install cover (184) on inside front van body wall (36) with 18 washers (33), lockwashers (32), and screws (31).
(105) Install cover plate (185) on curbside front panel (75) with four washers (186), lockwasher (187), and screws (188).

(106) Install curbside front panel (75) on pod frame (67) with 14 washers (74), lockwasher (73), and screws (72).

(107) Install curbside panel (71) on pod frame (67) with 13 washers (70), lockwashers (69), and screws (68).

(108) Install curbside top front panel (68) on pod frame (67) with 13 washers (65), lockwashers (64), and screws (63).
c. Follow-on Maintenance.

(1) Raise spare tire (TM 9-2320-365-10).

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

(3) Connect AC power (TM 9-2320-365-10).

(4) Close LH and RH doors (TM 9-2320-365-10).

End of Task.
This task covers:

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

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-365-10).
AC power disconnected (TM 9-2320-365-10).
LH and RH doors opened (115 degrees) (TM 9-2320-365-10).

Materials/Parts
Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)
Lockwasher (18) (Item 84, Appendix G)

Tools and Special Tools
Tool Kit, Genl Mech (Item 44, Appendix C)

a. Removal.

NOTE
Tag connectors and connection points prior to removal.

(1) Disconnect connector P244 (1) from heater connector (2).

(2) Disconnect connector P245A (3) from heater control unit (4).

(3) Remove 18 screws (5), lockwashers (6), washers (7), heater deflector (8), and heater cover (9) from van body wall (10). Discard lockwashers.
(4) Disconnect connector P4A (11) from connector J4 (12).

(5) Remove heater power cable (13) from heater cover (9).

(6) Disconnect connector J244A (14) from heater power connector (15).

b. Installation.

(1) Connect connector J244A (1) to heater power connector (2).
(2) Route heater power cable (3) through hole (4) in heater cover (5).

(3) Connect connector P4A (6) to connector J4 (7).

(4) Install heater cover (5) on van body wall (8) with heater deflector (9), 18 washers (10), lockwashers (11), and screws (12).

(5) Connect connector P245A (13) to heater control unit (14).

(6) Connect connector P24 (15) to heater connector (16).
c. Follow-on Maintenance.

(1) Connect AC power (TM 9-2320-365-10).

(2) Check heater for proper operation (TM 9-2320-365-10).

(3) Close LH and RH doors (TM 9-2320-365-10).

End of Task.
This task covers:

a. Removal
b. Installation

c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-365-10).
AC power disconnected (TM 9-2320-365-10).
LH and RH doors opened (115 degrees) (TM 9-2320-365-10).

Materials/Parts
Dispenser, Pressure Sensitive Adhesive Tape
(Item 21, Appendix D)
Lockwasher (18) (Item 92, Appendix G)

Personnel Required
(2)

a. Removal.

NOTE
Tag connectors and connection points prior to disconnecting.

(1) Disconnect connector P244 (1) from heater connector (2).

(2) Disconnect connector P245A (3) from heater control unit (4).

(3) Remove 18 screws (5), lockwashers (6), washers (7), heater deflector (8), and heater cover (9) from van body wall (10). Discard lockwashers.
(4) Disconnect connector P4A (11) from connector J4 (12).

(5) Remove heater power cable (13) from heater cover (9).

b. Installation.

(1) Connect connector J4A (1) to connector P4 (2).

(6) Disconnect connector J4A (14) from connector P4 (4).
(2) Route heater power cable (3) through hole (4) in heater cover (5).

(3) Connect connector P4A (6) to connector J4 (7).

(4) Install heater cover (5) on van body wall (8) with heater deflector (9), 18 washers (10), lockwasher (11), and screws (12).

(5) Connect connector P245A (13) to heater control unit (2).

(6) Connect connector P244 (15) to heater connector (16).
c. Follow-On Maintenance.

(1) Connect AC power (TM 9-2320-365-10).

(2) Check heater for proper operation (TM 9-2320-365-10).

(3) Close LH and RH van doors (TM 9-2320-365-10).

End of Task.
20-44. M1079 HEATER THERMOSTAT REPLACEMENT

This task covers:

a. Removal
b. Installation

c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-365-10).
AC power disconnected (TM 9-2320-365-10).
LH and RH doors opened (115 degrees) (TM 9-2320-365-10).

Tools and Special Tools
Tool Kit, Genl Mech (Item 44, Appendix C)

Materials/Parts
Dispenser, Pressure Sensitive Adhesive Tape
(Item 21, Appendix D)

References
TM 5-4520-253-23P

a. Removal.

NOTE
Tag wires and connection points prior to removal.

(1) Remove screw (1) and cover (2) from thermostat (3).

(2) Loosen screw (4) on thermostat (3).

(3) Remove wire 3086C (5) from thermostat (3).

(4) Loosen two screws (6) on thermostat (3).

(5) Remove wire 1499R (7) and wire 401 (8) from thermostat (3).
(6) Remove two screws (9) and thermostat (3) from van body wall (10).

b. Installation.

(1) Route wire 1499R (1), wire 401 (2), and wire 3086C (3) through hole (4) on thermostat (5).

(2) Install thermostat (5) on van body wall (6) with two screws (7).

(3) Loosen two screws (8) on thermostat (5).

(4) Position wire 401 (2) and wire 1499R (1) on thermostat (5).

(4) Tighten two screws (8) on thermostat (5).
(6) Loosen screw (9) on thermostat (5).

(7) Position wire 3086C (3) on thermostat (5).

(8) Tighten screw (9) on thermostat (5).

(9) Install cover (10) on thermostat (5) with screw (11).

c. Follow-On Maintenance.

(1) Connect AC power (TM 9-2320-365-10).

(2) Check thermostat for proper operation (TM 9-2320-365-10).

(3) Close LH and RH doors (TM 9-2320-365-10).

End of Task.
20-45. M1079 HEATER THERMOSTAT CABLE REPLACEMENT

This task covers:

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

INITIAL SETUP

Equipment Conditions
- Engine shut down (TM 9-2320-365-10).
- AC power disconnected (TM 9-2320-365-10).
- LH and RH doors opened (115 degrees) (TM 9-2320-365-10).

Materials/Parts
- Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)

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

a. Removal.

NOTE

Tag connectors and connection points prior to disconnecting.

(1) Disconnect connector J245 (1) from thermostat connector (2).

(2) Disconnect connector P245A (3) from heater control unit (4).

b. Installation

(1) Connect connector P245A (3) to heater control unit (4).

(2) Connect connector J245 (1) to thermostat connector (2).

c. Follow-On Maintenance.

(1) Connect AC power (TM 9-2320-365-10).

(2) Check thermostat for proper operation (TM 9-2320-365-10).

(3) Close LH and RH doors (TM 9-2320-365-10).

End of Task.
20-46. M1079 HEATER FUEL TUBES/HOSES REPLACEMENT

This task covers:

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

INITIAL SETUP

Equipment Conditions
- Engine shut down (TM 9-2320-365-10).
- AC power disconnected (TM 9-2320-365-10).
- LH and RH doors opened (115 degrees) (TM 9-2320-365-10).
- Spare tire lowered (TM 9-2320-365-10).

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

Materials/Parts
- Sealant, Pipe, Teflon (Item 58, Appendix D)
- Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)
- Lockwasher (18) (Item 84, Appendix G)
- Lockwasher (3) (Item 83, Appendix G)
- Ties, Cable, Plastic (Item 76, Appendix D)

a. Removal.

NOTE

Tag connector and connection points prior to disconnecting.

(1) Disconnect connector P244 (1) from heater connector (2).

(2) Disconnect connector P245A (3) from heater control unit (4).

(3) Remove 18 screws (5), lockwashers (6), washers (7), heater deflector (8), and heater cover (9) from van body wall (10). Discard lockwashers.
(4) Disconnect connector P4A (11) from connector J4 (12).

(5) Remove heater power cable (13) from heater cover (9).

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

(6) Remove fuel tube (14) from fuel inlet port (15).

(7) Remove fuel tube (14) from fitting (16).

NOTE
Note position of fuel regulator prior to removal.

(8) Remove fuel tube (17) from fitting (18).
(9) Remove fuel tubes (18 and 19) from adapters (20 and 21).

(10) Remove two grommets (22) from pod panel (23).

(11) Remove fuel tube (18) from pod panel (23).

(12) Remove fuel tube (19) from fuel overflow port (24).

(13) Remove fuel tube (19) from pod panel (23).
20-46. M1079 HEATER FUEL TUBES/HOSES REPLACEMENT (CONT)

NOTE

Remove plastic cable ties as required.

(14) Remove three screws (25), lockwashers (26), washers (27), and six clamps (28) from van body wall (10). Discard lockwashers.

(15) Remove six clamps (28) from hoses (29 and 30).

(16) Remove adapters (20 and 21) from two fittings (31).

NOTE

Tag hoses and connection point prior to disconnecting.

(17) Loosen two clamps (32) on hoses (29 and 30).

(18) Remove hoses (29 and 30) and two clamps (32) from fittings (33 and 34).

(19) Remove fittings (33 and 34) from two fittings (31).

(20) Remove two nuts (35) and fittings (31) from pod frame (36).
NOTE

Remove plastic cable ties as required.

(21) Loosen clamps (37) on hoses (29 and 30).

(22) Remove hoses (29 and 30) and two clamps (37) from fittings (38 and 39).

(23) Remove fittings (38 and 39) from two bushings (40).

(24) Loosen two clamps (41) on hoses (42 and 43).

(25) Remove hoses (42 and 43) and two clamps (41) from fittings (44 and 45).

(26) Disconnect fitting (44 and 45) from two quick connect fittings (46).

(27) Remove two quick disconnect fittings (46) from bushings (40).

(28) Remove two nuts (47), washers (48), and bushings (40) from bracket (49).
(29) Loosen clamp (50) on hose (43).

(30) Remove hose (43) and clamp (50) from fitting (51).

(31) Loosen clamp (52) on hose (42).

(32) Remove hose (42) and clamp (52) from 90-degree fitting (53).

(33) Loosen two clamps (54) on hose (55).

(34) Remove hose (55) and two clamps (54) from fittings (56 and 57).

(35) Remove fitting (56) and plug (58) from run tee fitting (59).
NOTE

Note position of fitting prior to removal.

(36) Remove run tee fitting (59) from auxiliary supply port (60).

(37) Disconnect fuel hose (61) from 90-degree fuel return fitting (62).

(38) Remove four-way fitting (63) from fuel tank (64).

(39) Remove plug (65), 90-degree fitting (53), and 90-degree fuel return fitting (62) from four way fitting (63).
b. Installation.

**WARNING**

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

1. Apply sealing compound to four-way fitting (1), 90-degree fuel return (2), 90-degree fitting (3), and plug (4).

2. Install 90-degree fuel return fitting (2), 90-degree fitting (3), and plug (4) on four-way fitting (1).

3. Apply sealing compound to run tee fitting (5).

4. Install four-way fitting (1) on fuel tank (6).

**NOTE**

Install plastic cable ties as required.

5. Connect fuel hose (7) to 90-degree return fitting (2).

6. Install run tee fitting (5) in auxiliary supply port (8).
(7) Apply sealing compound to threads of fitting (9) and plug (10).

(8) Install fitting (9) and plug (10) on run tee fitting (5).

(9) Position two clamps (11) on hose (12).

(10) Install hose (12) on 90 degree fitting (13) and fitting (9) with two clamps (11).

(11) Position clamp (14) on hose (15).

(12) Install hose (15) on fitting (16) with clamp (14).

(13) Position clamp (17) on hose (18).

(14) Install hose (18) on 90-degree fitting (3) with clamp (17).

**WARNING**

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. To avoid injury or death, keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.
20-46. M1079 HEATER FUEL TUBES/HOSES REPLACEMENT (CONT)

(15) Install two bushings (19) on bracket (20) with two washers (21) and nuts (22).

(16) Install two quick disconnect fittings (23) on bushings (19).

(17) Connect fittings (24 and 25) to two quick connect fittings (23).

(18) Position two clamps (26) on hoses (15 and 18).

(19) Install hoses (15 and 18) on fittings (24 and 25) with two clamps (26).
(20) Apply sealing compound to threads of fittings (27 and 28).

(21) Install fittings (27 and 28) on two bushings (19).

(22) Position two clamps (29) on hoses (30 and 31).

(23) Install hoses (30 and 31) on fittings (27 and 28) with two clamps (29).

(24) Install two fittings (32) on pod frame (33) with two nuts (34).

(25) Apply sealing compounds to threads of fittings (35 and 36).

(26) Install fittings (35 and 36) on two fittings (32).

(27) Position two clamps (37) on hoses (30 and 31).

(28) Install hoses (30 and 31) on fittings (35 and 36) with two clamps (37).

(29) Install adapters (38 and 39) on two fittings (32).

**WARNING**

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

(30) Position six clamps (40) on hoses (30 and 31).

(31) Install six clamps (40) on van body wall (41) with three washers (42), lockwashers (43), and screws (44).

(32) Position fuel tube (45) on pod panel (46).

(33) Install fuel tube (45) on fuel overflow port (47).

(34) Position fuel tube (48) in hole on pod panel (46).

(35) Install two grommets (49) in holes on pod panel (46).
(36) Install fuel tubes (45 and 48) on adapters (38 and 39).

(37) Install fuel tube (48) on fitting (50).

(38) Install fuel tube (51) on fitting (52).

(39) Install fuel tube (51) on fuel inlet port (53).

(40) Route heater power cable (54) through hole in heater cover (55).

(41) Connect connector P4A (56) to connector J4 (57).
(42) Install heater cover (55) and heater deflector (58) on van body wall (41) with 18 washers (59), lockwashers (60), and screws (61).

(43) Connect connector P245A (62) to heater control unit (63).

(44) Connect connector P244 (64) to heater connector (65).

c. Follow-On Maintenance.

(1) Connect AC power (TM 9-2320-365-10).

(2) Check heater for proper operation (TM 9-2320-365-10).

(3) Close LH and RH doors (TM 9-2320-365-10).

(4) Raise spare tire (TM 9-2320-365-10).

End of Task.
This task covers:

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

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-365-10).
AC power disconnected (TM 9-2320-365-10).
LH and RH doors opened (115 degrees) (TM 9-2320-365-10).

Tools and Special Tools
Tool Kit, Genl Mech (Item 44, Appendix C)

Materials/Parts
Sealant, Pipe, Teflon (Item 58, Appendix D)
Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)
Lockwasher (18) (Item 84, Appendix G)

a. Removal.

NOTE

Tag connectors and connection points prior to disconnecting.

(1) Disconnect connector P244 (1) from heater connector (2).

(2) Disconnect connector P245A (3) from heater control unit (4).

(3) Remove 18 screws (5), lockwashers (6), washers (7), heater deflector (8) and heater cover (9) from van body wall (10). Discard lockwashers.
(4) Disconnect connector P4A (11) from connector J4 (12).

(5) Remove heater power cable (13) from heater cover (9).

**WARNING**

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

**NOTE**

- Tag tubes and connection points prior to disconnecting.
- Note position of fittings and fuel regulator prior to removal.

(6) Disconnect fuel tubes (14 and 15) from fittings (16 and 17).
(7) Remove fittings (16 and 17) from fuel regulator (18).

b. Installation.

**WARNING**

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

1. Apply sealing compound to threads of fittings (1 and 2).

2. Install fittings (1 and 2) on fuel regulator (3).
(3) Connect fuel tubes (4 and 5) to fittings (1 and 2).

(4) Route heater power cable (6) through hole (7) in heater cover (8).

(5) Connect connector P4A (9) to connector J4 (10).

(6) Install heater cover (8) on van body wall (11) with heater deflector (12), washers (13), lockwashers (14), and screws (15).
(7) Connect connector P245A (16) to heater control unit (17).

(8) Connect connector P244 (18) to heater connector (19).

c. **Follow-On Maintenance.**

(1) Connect AC power (TM 9-2320-365-10).

(2) Check heater for proper operation (TM 9-2320-365-10).

(3) Close LH and RH doors (TM 9-2320-365-10).

**End of Task.**
20-48. M1079 HEATER EMI SHIELDED FUEL PUMP REPLACEMENT

This task covers:

- a. Removal
- b. Disassembly
- c. Cleaning/Inspection
- d. Assembly
- e. Installation

INITIAL SETUP

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

Tools and Special Tools
Tool Kit, Genl Mech (Item 44, Appendix C)

Materials/Parts
Sealant, Pipe, Teflon (Item 58, Appendix D)
Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)

Personnel Required
(2)

a. Removal.

NOTE
Tag hoses and connection points prior to removal.

(1) Loosen two clamps (1) on hoses (2).

(2) Remove two hoses (2) and clamps (1) from fitting (3) and 90 degree fitting (4).

(3) Disconnect connector P310 (5) from EMI shielded fuel pump connector (6).

NOTE
Steps (4) through (6) requires the aid of an assistant.

(4) Remove two nuts (7), lockwashers (8), washers (9), screws (10), and EMI shielded fuel pump assembly (11) from subframe (12). Discard lockwashers.
(5) Remove self-locking nut (13), washer (14), screw (15), and EMI shielded fuel pump ground wire (16) from sub-frame (12). Discard self-locking nut.

(6) Remove fitting (3) and 90-degree fitting (4) from two couplings (17).
b. Disassembly.

(1) Remove eight screws (1), washers (2), seal (3), and cover (4) from fuel pump box (5). Discard seal.

(2) Loosen four clamps (6) on two hoses (7).

(3) Remove two hoses (7) from four fittings (8).

(4) Disconnect connector P46 (9) from fuel pump connector (10).

(5) Remove screw (11), washer (12), terminal lug TL526 (13), and capacitor (14) from pump box (5).
(6) Remove two screws (15), washers (16), nuts (17), ground wire (18), and fuel pump (19) from pump box (5).

(7) Remove two fittings (8) from couplings (20).

(8) Remove two fittings (8) from couplers (21).

(9) Remove two couplers (21) from heater fuel pump (19).

(10) Cut condenser wire (22) leading to splice (23) on heater fuel pump (19).
(11) Remove four nuts (24), lockwashers (25), terminal lug TL526 (26), four washers (27), screws (28), cable assembly (29), and seal (30) from pump box (5). Discard lockwashers and seal.

(12) Remove two nuts (31), seals (32), coupling (20), and lockwasher (33) from pump box (5). Discard seals and lockwasher.
c. Cleaning/Inspection.

**WARNING**

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

- If personnel become dizzy while suing dry cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get immediate medical attention. Failure to comply may result in injury to personnel.

**NOTE**

Clean all metal parts with dry cleaning solvent and dry using compressed air prior to inspection and assembly.

d. Assembly.

**WARNING**

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

(1) Apply sealing compound around the edge of all exterior exposed surfaces.

(2) Install two lockwashers (1), coupling (2), seals (3), and nuts (4) on pump box (5).
(3) Install seal (6), cable assembly (7), four washers (8), screws (9), terminal lug TL526 (10), lockwashers (11), and nuts (12) on pump box (5).

(4) Apply sealing compound to threads of heater fuel pump (13) and two fittings (14).

(5) Install conductor splice (15) on condenser wire (16) and fuel pump wire splice (17).

(6) Install two couplers (18) on heater fuel pump (13).

(7) Install two fittings (14) in couplers (18).

**WARNING**

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

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

(8) Apply sealing compound to threads of two fittings (14).

(9) Install two fittings (14) in couplings (19).

(10) Install capacitor (24) on pump box (5) with terminal lug TL526 (25), washer (26), and screw (27).

(11) Connect fuel pump connector (28) to connector P46 (29).
(12) Position four clamps (30) on two hoses (31).

(13) Install two hoses (31) on four fittings (14) with clamps (30).

(14) Apply sealing compound around outer mating area of pump box cover (33).

WARNING

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

(15) Install seal (32) and pump box cover (33) on pump box (5) with eight washers (34) and screws (35).
d. Installation.

**WARNING**

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

1. Apply sealing compound to threads of fitting (1) and 90-degree (2).

2. Install fitting (1) and 90-degree fitting (2) in two couplings (3).

3. Install EMI shielded fuel pump ground wire (4) on subframe (5) with screw (6), washer (7), and locknut (8).

**NOTE**

Step (3) requires the aid of an assistant.

(3) Install EMI shielded fuel pump ground wire (4) on subframe (5) with screw (6), washer (7), and locknut (8).
(4) Install EMI shielded fuel pump assembly (9) on subframe (5) with two screws (10), washers (11), lockwashers (12), and nuts (13).

(5) Connect connector P310 (14) to heater fuel pump connector (15).

(6) Position two clamps (16) on hoses (17).

(7) Install two hoses (17) on fitting (1) and 90-degree fitting (2) with two clamps (16).

End of Task.
## 20-49. M1079 HEATER FUEL PUMP POWER CABLE REPLACEMENT

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### INITIAL SETUP

**Equipment Conditions**
- Engine shut down (TM 9-2320-365-10).
- AC power disconnected (TM 9-2320-365-10).
- LH and RH doors opened (115 degrees) (TM 9-2320-365-10).
- Heater removed [para 20-51](#)

**Tools and Special Tools**
- Tool Kit, Genl Mech (Item 44, Appendix C)

**Materials/Parts**
- Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)

### a. Removal.

#### NOTE

Tag connectors and connection points prior to disconnecting.

1. Disconnect connector P310 (1) from EMI shielded fuel pump connector (2).

2. Remove heater fuel pump power cable (3) through hole (4) in bottom pod panel (5).
b. Installation.

(1) Position heater fuel pump power cable (1) through hole (2) in bottom pod panel (3).

(2) Connect connector P310 (4) to EMI shielded fuel pump connector (5).

c. Follow-On Maintenance.

(1) Connect AC power (TM 9-2320-365-10).

(2) Check heater for proper operation (TM 9-2320-365-10).

(3) Close LH and RH doors (TM 9-2320-365-10).

End of Task.
20-50. M1079 HEATER DEFLECTOR/DUCT REPLACEMENT

This task covers:

a. Heater Deflector Removal  d. Heater Duct Installation
b. Heater Deflector Installation e. Follow-On Maintenance
c. Heater Duct Removal

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-365-10).
AC power disconnected (TM 9-2320-365-10).
Cab raised (TM 9-2320-365-10).
LH and RH doors opened (115-degrees) (TM 9-2320-365-10).
M1079 heater fuel pump power cable removed (for heater duct) [para 20-49].

Tools and Special Tools
Tool Kit, Genl Mech (Item 44, Appendix C)

Materials/Parts
Sealant, Pipe, Teflon (Item 58, Appendix D)
Lockwasher (9) (for heater deflector) (Item 84, Appendix G)
Lockwasher (40) (Item 82, Appendix G)
Lockwasher (19) (Item 83, Appendix G)
Nut, Self-Locking (4) (Item 126, Appendix G)

Personnel Required
(2)


Remove nine screws (1), lockwashers (2), washers (3), and heater deflector (4) from heater cover (5). Discard lockwashers.

b. Heater Deflector Installation.

Install heater deflector (4) on heater cover (5) with nine washers (3), lockwashers (2), and screws (1).
c. Heater Duct Removal.

(1) Remove 13 screws (1), lockwashers (2), washers (3), and curbside top front panel (4) from pod frame (5). Discard lockwashers.

(2) Remove 13 screws (6), lockwashers (7), washers (8), and curbside panel (9) from pod frame (5). Discard lockwashers.

(3) Remove exhaust pipe (10) from coupling (11).

(4) Remove coupling (11) from heater (12).

(5) Remove 14 screws (13), lockwashers (14), washers (15), and curbside front panel (16) from pod frame (5). Discard lockwashers.
(6) Remove fuel tubes (17 and 18) from adapters (19 and 20).

(7) Remove grommet (21) from pod panel (22).

**NOTE**

Note position of fuel regulator prior to removal.

(8) Remove fuel tubes (17 and 23) from fittings (24 and 25).

(9) Remove fuel tube (23) from fuel inlet port (26).

(10) Remove fuel tube (17) from pod panel (22).
(11) Remove fuel tube (18) from overflow port (27).
(12) Remove fuel tube (18) from pod panel (22).

(13) Remove four screws (28), lockwashers (29), and washers (30) from heater duct (31). Discard lockwashers.

NOTE
Steps (14) and (15) require the aid of an assistant.

(14) Remove four screws (32), lockwashers (33), and washers (34) from heater (12). Discard lockwashers.

(15) Remove two self-locking nuts (35), screws (36), lockwashers (37), washers (38), and bracket (39) from pod panel (22). Discard lockwashers and self-locking nuts.
(16) Remove four screws (40), lockwashers (41), and washers (42) from heater duct (31). Discard lockwashers.

(17) Remove three screws (43), lockwashers (44), washers (45), and bracket (46) from heater (12). Discard lockwashers.

(18) Remove two self-locking nuts (47), screws (48), lockwashers (49), washers (50), and bracket (46) from pod panel (22). Discard lockwashers and self-locking nuts.

**NOTE**

Steps (17) and (18) require the aid of an assistant.
NOTE

Step (19) requires the aid of an assistant.

(19) Position heater (12) to access heater duct (31).

(20) Remove heater duct (31) from pod panel (22).

d. Heater Duct Installation.

(1) Position heater duct (1) on pod panel (2).

NOTE

Steps (2) and (3) require the aid of an assistant.

(2) Position bracket (3) on pod panel (2) with two washers (4), lockwashers (5), screws (6), and self-locking nuts (7).
(3) Install bracket (3) on heater (8) with three washers (9), lockwashers (10), and screws (11).

(4) Install heater duct (1) on heater (8) with four washers (12), lockwashers (13), and screws (14).

**NOTE**

Steps (5) and (6) require the aid of an assistant.

(5) Position bracket (15) on pod panel (2) with two washers (16), lockwashers (17), screws (18), and self-locking nuts (19).

(6) Install bracket (15) on heater (8) with four washers (20), lockwashers (21), and screws (22).
(7) Install heater duct (1) on heater (8) with four washers (23), lockwashers (24), and screws (25).

(8) Tighten two self-locking nuts (7 and 19).

(9) Route fuel tube (26) through hole (27) in pod panel (2).

(10) Install fuel tube (26) on fuel overflow port (28).
(11) Install fuel tube (29) on fuel inlet port (30).

(12) Route fuel tube (31) through hole (32) on pod panel (2).

**WARNING**

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

(13) Apply sealing compound to threads of fittings (33 and 34).

(14) Install fuel tubes (31 and 29) on fittings (33 and 34).

(15) Install grommet (35) in hole (27) on pod panel (2).

(16) Install fuel tubes (26 and 31) on adapters (36 and 37).
(17) Install curbside front panel (38) on pod frame (39) with 14 washers (40), lockwashers (41), and screws (42).

(18) Install coupling (43) on heater (8).

(19) Install exhaust pipe (44) on coupling (43).

(20) Install curbside panel (45) on pod frame (39) with 13 washers (46), lockwashers (47), and screws (48).

(21) Install curbside top front panel (49) on pod frame (39) with 13 washers (50), lockwashers (51), and screws (52).
e. **Follow-On Maintenance.**

1. Lower cab (TM 9-2320-365-10).
2. Install M1079 heater fuel pump power cable (para 20-49).
3. Connect AC power (TM 9-2320-365-10).
4. Check heater for proper operation (TM 9-2320-365-10).

**End of Task.**
20-51. M1079 HEATER REPLACEMENT

This task covers:

a. Removal
b. Installation

c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions
M1079 heater duct removed [para 20-50].

Personnel Required
(2)

Tools and Special Tools
Tool Kit, Genl Mech (Item 44, Appendix C)

a. Removal.

(1) Disconnect connector J245 (1) from thermostat connector (2).

(2) Install dust cap (3) on heater fuel pump power connector (4).

(3) Install dust cap (5) on fuel inlet port (6).

(4) Install dust cap (7) on fuel overflow port (8).

(5) Install dust cap (9) on heater power connector (10).
WARNING

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

NOTE

Step (6) requires the aid of an assistant.

(6) Remove heater (11) from pod panel (12).

(7) Unlatch screw (13) on door (14).

(8) Open door (14) on heater control unit (15).

(9) Unlatch two screws (16) on heater control unit (15).

(10) Remove heater control unit (15) from bracket (17).

(11) Disconnect connector P4 (18) from connector J4A (19).

(12) Remove two twist locks (20) from bracket (17).
(13) Install two twist locks (20) on heater (11).

(14) Connect connector P4 (18) to connector J4 (21).

(15) Position heater control unit (15) on heater (11).

(16) Latch two screws (16) on heater control unit (15).

(17) Close door (14) on heater control unit (15).

(18) Latch screw (13) on door (14).

(19) Install eight screws (22) in heater (11).

(20) Install eight screws (23) in heater (11).
b. Installation.

(1) Remove eight screws (1) from heater (2).

(2) Remove eight screws (3) from heater (2).

(3) Retain eight screws (1 and 3) for future use.

(4) Unlatch screw (4) on door (5).

(5) Open door (5) on heater control unit (6).

(6) Unlatch two screws (7) on heater control unit (6).

(7) Remove heater control unit (6) from heater (2).

(8) Disconnect connector P4 (8) from connector J4 (9).

(9) Remove two twist locks (10) from heater (2).
10. Install two twist locks (10) on bracket (11).

11. Connect connector P4 (8) to connector J4A (12).

12. Position heater control unit (6) on bracket (11).

13. Latch two screws (7) on heater control unit (6).

14. Close door (5) on heater control unit (6).

15. Latch screw (4) on door (5).

**WARNING**

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

**NOTE**

Step (16) requires the aid of an assistant.

16. Install heater (2) on pod panel (13).
(17) Remove dust cap (14) from heater power connector (15).

(18) Remove dust cap (16) from fuel overflow port (17).

(19) Remove dust cap (18) from fuel inlet port (19).

(20) Remove dust cap (20) from heater fuel pump power connector (21).

(21) Connect connector J245 (22) to thermostat connector (23).

c. **Follow-On Maintenance.**

Install M1079 heater duct [para 20-50].

**End of Task.**
20-52. DELETED
20-54. 200 AMP ALTERNATOR KIT INSTALLATION

This task covers:

a. Installation  
b. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions
100 amp alternator removed (para 7-2).
100 amp reverse polarity relay removed (para 7-27).

Tools and Special Tools
Tool Kit, Genl Mech (Item 44, Appendix C)
Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)
Wrench, Torque, 0-200 lb-in. (Item 58, Appendix C)
Socket Set, Socket Wrench (Item 35, Appendix C)
Caps, Vise Jaw (Item 4, Appendix C)
Vise, Machinist (Item 46, Appendix C)

Materials/Parts
Ties, Cable, Plastic (Item 76, Appendix D)
Nut, Self-Locking (3) (Item 149, Appendix G)
Nut, Self-Locking (Item 137, Appendix G)
Nut, Self-Locking (M1081 only) (2) (Item 140, Appendix G)
Washer, Spring (M1081 only) (2) (Item 280, Appendix G)
Lockwasher (2) (Item 92, Appendix G)

Personnel Required
(2)

a. Installation.

NOTE
Retain belt adjusting arm for future installation.

(1) Remove two screws (1), lockwashers (2), and belt adjusting arm (3) from alternator bracket (4). Discard lockwashers.

(2) Position belt adjusting arm (5) on alternator bracket (4) with two lockwashers (2) and screws (1).

(3) Tighten two screws (1) to 25-32 lb-ft (35-43 N·m).
(4) Remove terminal lug TL6 (6) from dust boot (7).

(5) Remove three screws (8), washers (9), clamps (10), 24vdc cable (11), and 12vdc cable (12) from air inlet manifold (13).

(6) Remove three clamps (10) from 24 vdc cable (11) and 12 vdc cable (12).

(7) Remove self-locking nut (14) and washer (15) from alternator (16).

CAUTION

Ensure pulley does not contact wires, terminal lugs, or terminal screws on front of alternator. Failure to comply may result in damage to equipment.

(8) Position pulley (17) on alternator (16) with washer (15) and self-locking nut (14).

(9) Position pulley (17) in vise.

(10) Tighten self-locking nut (14) to 106-130 lb-ft (144-176 N·m).

(11) Remove pulley (17) from vise.
20-54. 200 AMP ALTERNATOR KIT INSTALLATION (CONT)

**WARNING**

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

**NOTE**

Step (12) requires the aid of an assistant.

(12) Position alternator (16) on alternator bracket (4) with washer (18), screw (19), and self-locking nut (20).

(13) Position washer (21), screw (22), washer (23), and self-locking nut (24) on alternator (16).

(14) Tighten self-locking nut (20) to 45-55 lb-ft (61-75 N·m).

(14.1) Tighten self-locking nut (24) to 25-32 lb-ft (35-43 N·m).

(15) Remove self-locking nut (25) and washer (26) from voltage regulator terminal (27).

(16) Position terminal lug TL110 (28) on voltage regulator terminal (27) with washer (26) and self-locking nut (25).

(17) Tighten self-locking nut (25) to 24 lb-in. (3 N·m).

(18) Position dust boot (29) on terminal lug TL110 (28).
(19) Remove self-locking nut (30), and washer (31) from voltage regulator terminal (32).

(20) Position terminal lug TL35 (33) on voltage regulator terminal (32) with washer (31), and self-locking nut (30).

(21) Tighten self-locking nut (30) to 24 lb-in. (3 N·m).

(22) Position dust boot (34) on terminal lug TL35 (33).

(23) Remove screw (35), lockwasher (36), and washer (37) from alternator (16).

(24) Position ground strap (38), washer (37), and terminal lug TL5 (39) on alternator (16) with lockwasher (36) and screw (35).

(25) Tighten screw (35) to 60-84 lb-in. (7-9 N·m).

(26) Position 12vdc cable (40) and 24vdc cable (41) in engine compartment with terminal lugs TL2 (42) and TL60 (43) located next to alternator (16).

(27) Install dust boot (44) on 12vdc cable (40).

(28) Install dust boot (45) on 24vdc cable (41).

(29) Remove terminal lug TL6 (46) from wire (47). Discard terminal lug.

(30) Position wire (47) in dust boot (45) with terminal lug TL2 (42).

(31) Install terminal lug TL6 (48) on wire (47).
(32) Remove nut (49), lockwasher (50), and washer (51) from alternator terminal (52).

(33) Position terminal lug TL60 (43) on alternator terminal (52) with washer (51), lockwasher (50), and nut (49).

(34) Tighten nut (49) to 156-180 lb-in. (17-21 N·m).

(35) Position dust boot (44) on terminal lug TL60 (43).

(36) Remove nut (53), lockwasher (54), insulation washer (55), and fuse link (56) from alternator terminal (57).

(37) Position fuse link (56), terminal lug TL2 (42) and TL6 (48), insulation washer (55), lockwasher (54), and nut (53) on alternator terminal (57).

(38) Tighten nut (53) to 156-180 lb-in. (17-21 N·m).

(39) Position dust boot (45) on terminal lugs TL2 (42) and TL6 (48).

(40) Position three clamps (10) on 12vdc cable (40) and 24vdc cable (41).

(41) Position three clamps (10) on air inlet manifold (13) three with washers (9) and screws (8).

(42) Tighten three screws (8) to 22-27 lb-ft (31-37 N·m).
CAUTION

Position both terminal blocks loosely on mounting bracket and align correctly before tightening nuts. Failure to comply may result in damage to equipment.

(43) Position identification plate (58) and two terminal blocks (59) on bracket (60) with eight screws (61), washers (62), and self-locking nuts (63).

(44) Tighten eight self-locking nuts (63) to 48 lb-in. (5 N·m).

NOTE

- Terminal blocks are not centered on bracket. Position bracket on spare tire retainer with exposed edge of identification plate toward cab.

- Step (45) requires the aid of an assistant.

(45) Position bracket (60) on spare tire retainer (64) with four washers (65) and screws (66).

(46) Tighten four screws (66) to 48 lb-in. (5 N·m).
(47) Remove eight nuts (67), lockwashers (68), and washers (69) from two terminal blocks (59).

(48) Position terminal lug TL44 (70) on terminal block terminal (71) with washer (69), lockwasher (68), and nut (67).

(49) Position terminal lug TL80 (72) on terminal block terminal (73) with washer (69), lockwasher (68), and nut (67).

(50) Position terminal lug TL47 (74) on terminal block terminal (75) with washer (69), lockwasher (68), and nut (67).

(51) Position terminal lugs TL36 (76) and TL37 (77) on terminal block terminal (78) with washer (69), lockwasher (68), and nut (67).
(52) Install 17.7 in. (45.0 cm) of convoluted tubing (79) on 12vdc cable (40).

(53) Install 19.6 in. (50.0 cm) of convoluted tubing (79) on 24vdc cable (41).

(54) Install three plastic cable ties (80) on convoluted tubing (79).

**NOTE**

24 vdc load cable terminates with terminal lugs TL167 and TL169. 24 vdc battery cable terminates with terminal lugs TL166 and TL168.

(55) Install 21.6 in. (55.5 cm) of convoluted tubing (79) on 24vdc load cable (81).

(56) Install 21.5 in. (55.0 cm) of convoluted tubing (79) on 24vdc battery cable (82).

(57) Install plastic cable ties (80) on convoluted tubing (79).
20-54. 200 AMP ALTERNATOR KIT INSTALLATION (CONT)

NOTE

- 12 vdc load cable terminates with terminal lugs TL172 and TL174. 12 vdc battery cable terminates with terminal lugs TL171 and TL173.

- Position terminal lugs TL171 and TL172 at the same end.

(58) Install 21.6 in. (55.0 cm) of convoluted tubing (83) on 12vdc load cable (84) and 12vdc battery cable (85).

(59) Install plastic cable ties (80) on convoluted tubing (83).

NOTE

Position 24vdc load cable, 24vdc battery cable, 12vdc load cable, and 12vdc battery cable with terminal lugs TL167, TL172, TL166, and TL171 at terminal block.

(60) Position 24vdc load cable (81) on rear side of front lifting beam (86).

(61) Position 24vdc battery cable (82) on rear side of front lifting beam (86).

(62) Position 12vdc load cable (84) and 12vdc battery cable (85) on rear side of front lifting beam (86).
(63) Position terminal lug TL167 (87) on terminal block terminal (88) with washer (69), lockwasher (68), and nut (67).

(64) Position terminal lug TL172 (89) on terminal block terminal (90) with washer (69), lockwasher (68), and nut (67).

(65) Position terminal lugs TL1 (91) and TL166 (92) on terminal block terminal (93) with washer (69), lockwasher (68), and nut (67).
(66) Position terminal lugs TL61 (94) and TL171 (95) on terminal block terminal (96) with washer (69), lockwasher (68), and nut (67).

(67) Remove dust cap (97) from connector J106 (98).

(68) Remove nut (99), dust cap lanyard (100), and connector J106 (98) from chemical detection unit mounting bracket (101).

(69) Disconnect air filter restriction gauge hose (102) from air flow sensor (103).

**NOTE**

Perform steps (70) through (104) on all models except M1081.

(70) Loosen clamp (104) on particle extraction hose (105).

(71) Remove particle extraction hose (105) from adapter (106).
(72) Remove screw (107) and washer (108) from resilient mount (109).

(73) Remove three self-locking nuts (110) and screws (111) from mounting brackets (112). Discard self-locking nuts.

(74) Remove intake air cleaner housing (113) from mounting brackets (112) and resilient mount (109).

(75) Cut grommet (114) to 8 1/4 in. (210 mm).

(76) Install grommet (114) in bracket (115).

**NOTE**

Position reverse polarity relay 24V terminals toward front of vehicle.

(77) Position reverse polarity relay (116) on brackets (115 and 117) with two screws (118) and self-locking nuts (119).
(78) Position reverse polarity relay (116) and brackets (115 and 117) on mounting brackets (112) and resilient mount (109) with bracket (115) toward rear of vehicle.

(79) Position intake air cleaner housing (113) on brackets (115 and 117).

(80) Position washer (108) and screw (107) in resilient mount (109).

(81) Position three screws (111) and self-locking nuts (110) in mounting brackets (112).

(82) Tighten screw (107) to 26-31 lb-ft (35-42 N·m).

(83) Tighten three self-locking nuts (110) to 35-51 lb-ft (47-69 N·m).

(84) Position particle extraction hose (105) through bracket (115).

(85) Install particle extraction hose (105) on adapter (106) with clamp (104).
(86) Connect air filter restriction gauge hose (102) to air flow sensor (103).

(87) Install connector J106 (98) and dust cap lanyard (100) on chemical detection unit mounting bracket (101) with nut (99).

(88) Install dust cap (97) on connector J106 (98).

(89) Tighten two self-locking nuts (119) to 25-31 lb-ft (35-43 N·m).

(90) Remove two nuts (120) and lockwashers (121) from reverse polarity relay 12V BAT terminal (122) and 12V LOAD terminal (123).

(91) Remove two nuts (124) and lockwashers (125) from reverse polarity relay 24V LOAD terminal (126) and 24V BAT terminal (127).
(92) Install dust boot (128) on 12vdc load cable (84).

(93) Install dust boot (129) on 12vdc battery cable (85).

(94) Install dust boot (130) on 24vdc load cable (81).

(95) Install dust boot (131) on 24vdc battery cable (82).

NOTE
Steps (96) through (101) require the aid of an assistant.

(96) Position terminal lug TL173 (132) on reverse polarity relay 12V BAT terminal (122) with lockwasher (121) and nut (120).

(97) Position terminal lug TL174 (133) on reverse polarity relay 12V LOAD terminal (123) with lockwasher (121) and nut (120).

(98) Tighten two nuts (120) to 108-132 lb-in. (13-15 N·m).

(99) Position dust boots (128 and 129) on terminal lugs TL173 (132) and TL174 (133).
(100) Position terminal lug TL169 (134) on reverse polarity relay 24V LOAD terminal (126) with lockwasher (125) and nut (124).

(101) Position terminal lug TL168 (135) on reverse polarity relay 24V BAT terminal (127) with lockwasher (125) and nut (124).

(102) Tighten two nuts (124) to 27-33 lb-ft (37-47 N·m).

(103) Install dust boots (130 and 131) on terminal lugs TL169 (134) and TL168 (135).

(104) Remove self-locking nut (136) and screw (137) from spare tire retainer (138). Discard self-locking nut.

(105) Remove screw (139) and spring washer (140) from front lifting beam (86). Discard spring washer.

(106) Position bracket (141) on spare tire retainer (138) with screw (137) and self-locking nut (136).

(107) Position bracket (141) on front lifting beam (86) with spring washer (140) and screw (139).

(108) Tighten self-locking nut (136) to 43-51 lb-ft (58-69 N·m).

(109) Tighten screw (139) to 43-51 lb-ft (58-69 N·m).

**NOTE**

Perform steps (104) through (131) on M1081 only.
(110) Remove self-locking nut (142) and screw (143) from spare tire retainer (138). Discard self-locking nut.

(111) Remove screw (144) and spring washer (145) from rear support brace (146). Discard spring washer.

(112) Position bracket (147) on spare tire retainer (138) with screw (143) and self-locking nut (142).

(113) Position bracket (147) on rear support brace (146) with spring washer (145) and screw (144).

(114) Tighten self-locking nut (142) to 43-51 lb-ft (58-69 N·m).

(115) Tighten screw (144) to 43-51 lb-ft (58-69 N·m).

Position reverse polarity relay 24V terminals toward front of vehicle.

(116) Position reverse polarity relay (116) on brackets (141 and 147) with two screws (118) and self-locking nuts (119).

(117) Tighten two self-locking nuts (119) to 25-31 lb-ft (35-43 N·m).

(118) Remove two nuts (120) and lockwashers (121) from reverse polarity relay 12V BAT terminal (122) and 12V LOAD terminal (123).
(119) Remove two nuts (124) and lockwashers (125) from reverse polarity relay 24V LOAD terminal (126) and 24V BAT terminal (127).

(120) Install dust boot (128) on 12vdc load cable (84).

(121) Install dust boot (129) on 12vdc battery cable (85).

(122) Install dust boot (130) on 24vdc load cable (81).

(123) Install dust boot (131) on 24vdc battery cable (82).

(124) Position terminal lug TL169 (134) on reverse polarity relay 24V LOAD terminal (126) with lockwasher (125) and nut (124).

(125) Position terminal lug TL168 (135) on reverse polarity relay 24V BAT terminal (127) with lockwasher (125) and nut (124).

(126) Tighten two nuts (124) to 30 lb-ft (41 N·m).

(127) Position dust boots (130 and 131) on terminal lugs TL169 (134) and TL168 (135).
(128) Position terminal lug TL173 (132) on reverse polarity relay 12V BAT terminal (122) with lockwasher (121) and nut (120).

(129) Position terminal lug TL174 (133) on reverse polarity relay 12V LOAD terminal (123) with lockwasher (121) and nut (120).

(130) Tighten two nuts (120) to 108-132 lb-in. (13-15 N·m).

(131) Position dust boots (128 and 129) on terminal lugs TL173 (132) and TL174 (133).

(132) Tighten eight nuts (67) to 15-19 lb-ft (21-25 N·m).

(133) Position dust boots (148 and 149) on terminal lugs TL44 (70) and TL80 (72).

(134) Position intake air cleaner boot (150) on intake air cleaner housing (113) with clamp (151).

(135) Position air compressor intake hose (152) on intake air cleaner boot (150) with clamp (153).

(136) Tighten clamps (151 and 153) to 36-48 lb-in. (4-5 N·m).
b. Follow-On Maintenance.

(1) Install alternator belts (para 7-3).

(2) Raise spare tire (TM 9-2320-365-10).

(3) Connect batteries (para 7-48).

(4) Start engine (TM 9-2320-365-10).

(5) Check alternator operation (TM 9-2320-365-10).

(6) Shut down engine (TM 9-2320-365-10).

End of Task.
20-55. 200 AMP ALTERNATOR KIT REMOVAL

This task covers:

a. Removal

b. Follow-On Maintenance

INITIAL SETUP

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

Tools and Special Tools
Tool Kit, Genl Mech (Item 44, Appendix C)
Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)
Vise, Machinist (Item 46, Appendix C)
Caps, Vise Jaw (Item 4, Appendix C)

Materials/Parts
Ties, Cable, Plastic (Item 76, Appendix D)
Lockwasher (2) (Item 66, Appendix G)
Lockwasher (2) (Item 65, Appendix G)
Nut, Self-Locking (2) (Item 139, Appendix G)
Nut, Self-Locking (M1081) (2) (Item 140, Appendix G)
Washer, Spring (M1081) (2) (Item 280, Appendix G)
Nut, Self-Locking (all models except M1081) (3) (Item 140, Appendix G)
Lockwasher (8) (Item 92, Appendix G)
Nut, Self-Locking (8) (Item 146, Appendix G)
Lockwasher (2) (Item 101, Appendix G)
Terminal, Lug (Item 265, Appendix G)
Terminal, Lug (Item 264, Appendix G)
Lockwasher (Item 98, Appendix G)
Nut, Self-Locking (Item 130, Appendix G)
Nut, Self-Locking (Item 131, Appendix G)
Nut, Self-Locking (Item 129, Appendix G)
Lockwasher (2) (Item 92, Appendix G)

Personnel Required
(2)

a. Removal.

(1) Loosen clamp (1) on air compressor intake hose (2).

(2) Remove air compressor intake hose (2) from intake air cleaner boot (3).

(3) Loosen clamp (4) on intake air cleaner boot (3).

(4) Remove intake air cleaner boot (3) from intake air cleaner housing (5).
NOTE

- Perform steps (5) through (27) on M1081.
- Remove plastic cable ties as required.

(5) Lift dust boot (6) on terminal lug TL173 (7).

(6) Remove nut (8), lockwasher (9), and terminal lug TL173 (7) from reverse polarity relay 12V BAT terminal (10). Discard lockwasher.

(7) Lift dust boot (11) on terminal lug TL174 (12).

(8) Remove nut (13), lockwasher (14), and terminal lug TL174 (12) from reverse polarity relay 12V LOAD terminal (15). Discard lockwasher.

(9) Position lockwashers (9 and 14) and nuts (8 and 13) on reverse polarity relay 12V BAT terminal (10) and 12V LOAD terminal (15).

(10) Lift dust boot (16) on terminal lug TL168 (17).

(11) Remove nut (18), lockwasher (19), and terminal lug TL168 (17) from reverse polarity relay 24V BAT terminal (20). Discard lockwasher.

(12) Lift dust boot (21) on terminal lug TL169 (22).

(13) Remove nut (23), lockwasher (24), and terminal lug TL169 (22) from reverse polarity relay 24V LOAD terminal (25). Discard lockwasher.

(14) Position lockwashers (19 and 24) and nuts (18 and 23) on reverse polarity relay 24V BAT terminal (20) and 24V LOAD terminal (25).
(15) Remove two self-locking nuts (26), screws (27), and reverse polarity relay (28) from brackets (29 and 30). Discard self-locking nuts.

(16) Remove screw (31) and lockwasher (32) from bracket (30). Discard lockwasher.

(17) Remove self-locking nut (33), screw (34), and bracket (30) from spare tire retainer (35). Discard self-locking nut.

(18) Position screw (34) and self-locking nut (33) in spare tire retainer (35).

(19) Tighten self-locking nut (33) to 43-51 lb-ft (58-69 N·m).

(20) Position lockwasher (32) and screw (31) in rear support brace (36).

(21) Tighten screw (31) to 43-51 lb-ft (58-69 N·m).
(22) Remove screw (37) and lockwasher (38) from bracket (29). Discard lockwasher.

(23) Remove self-locking nut (39), screw (40), and bracket (29) from spare tire retainer (35). Discard self-locking nut.

(24) Position screw (40) and self-locking nut (39) in spare tire retainer (35).

(25) Tighten self-locking nut (39) to 43-51 lb-ft (58-69 N·m).

(26) Position lockwasher (38) and screw (37) in front lifting beam (41).

(27) Tighten screw (37) to 43-51 lb-ft (58-69 N·m).

**NOTE**

- Perform steps (28) through (56) on all models except M1081.
- Remove plastic cable ties as required.

(28) Lift dust boot (6) on terminal lug TL173 (7).

(29) Remove nut (8), lockwasher (9), and terminal lug TL173 (7) from reverse polarity relay 12V BAT terminal (10). Discard lockwasher.

(30) Lift dust boot (11) on terminal lug TL174 (12).

(31) Remove nut (13), lockwasher (14), and terminal lug TL174 (12) from reverse polarity relay 12V LOAD terminal (15). Discard lockwasher.

(32) Position lockwashers (9 and 14) and nuts (8 and 13) on reverse polarity relay 12V BAT terminal (10) and 12V LOAD terminal (15).
(33) Lift dust boot (16) on terminal lug TL168 (17).

(34) Remove nut (18), lockwasher (19), and terminal lug TL168 (17) from reverse polarity relay 24V BAT terminal (20). Discard lockwasher.

(35) Lift dust boot (21) on terminal lug TL169 (22).

(36) Remove nut (23), lockwasher (24), and terminal lug TL169 (22) from reverse polarity relay 24V LOAD terminal (25). Discard lockwasher.

(37) Position lockwashers (19 and 24) and nuts (18 and 23) on reverse polarity relay 24V BAT terminal (20) and 24V LOAD terminal (25).

(38) Remove dust cap (41) from connector J106 (42).

(39) Remove nut (43), dust cap lanyard (44), and connector J106 (42) from chemical detection unit mounting bracket (45).

(40) Disconnect air filter restriction gauge hose (46) from air flow sensor (47).

(41) Loosen clamp (48) on particle extraction hose (49).

(42) Disconnect particle extraction hose (49) from adapter (50).

(43) Remove particle extraction hose (49) from bracket (51).
(44) Remove three self-locking nuts (52) and screws (53) from mounting brackets (54). Discard self-locking nuts.

(45) Remove screw (55) and washer (56) from resilient mount (57).

(46) Remove intake air cleaner housing (5) from brackets (51 and 58).

(47) Remove brackets (51 and 58) from three mounting brackets (54) and resilient mount (57).

(48) Remove two self-locking nuts (59), screws (60), and reverse polarity relay (28) from brackets (51 and 58). Discard self-locking nuts.
(49) Position intake air cleaner housing (5) on three mounting brackets (54) with three screws (53) and self-locking nuts (52).

(50) Position washer (56) and screw (55) in resilient mount (57).

(51) Tighten screw (55) to 26-31 lb-ft (35-42 N·m).

(52) Tighten three self-locking nuts (52) to 35-51 lb-ft (47-69 N·m).

(53) Install particle extraction hose (49) on adapter (50) with clamp (48).

(54) Connect air filter restriction gauge hose (46) to air flow sensor (47).

(55) Install connector J106 (42) and dust cap lanyard (44) on chemical detection unit mounting bracket (45) with nut (43).

(56) Install dust cap (41) on connector J106 (42).
(57) Remove nut (61), lockwasher (62), washer (63), and terminal lugs TL171 (64) and TL61 (65) from terminal block terminal (66). Discard lockwasher.

(58) Position washer (63), lockwasher (62), and nut (61) on terminal block terminal (66).

(59) Remove nut (67), lockwasher (68), washer (69), and terminal lugs TL1 (70) and TL166 (71) from terminal block terminal (72). Discard lockwasher.

(60) Position washer (69), lockwasher (68), and nut (67) on terminal block terminal (72).

(61) Remove nut (73), lockwasher (74), washer (75), and terminal lug TL172 (76) from terminal block terminal (77). Discard lockwasher.

(62) Position washer (75), lockwasher (74), and nut (73) on terminal block terminal (77).
(63) Remove nut (78), lockwasher (79), washer (80), and terminal lug TL167 (81) from terminal block terminal (82). Discard lockwasher.

(64) Position washer (80), lockwasher (79), and nut (78) on terminal block terminal (82).

(65) Remove nut (83), lockwasher (84), washer (85), and terminal lugs TL37 (86) and TL36 (87) from terminal block terminal (88). Discard lockwasher.

(66) Position washer (85), lockwasher (84), and nut (83) on terminal block terminal (88).

(67) Remove nut (89), lockwasher (90), washer (91), and terminal lug TL47 (92) from terminal block terminal (93). Discard lockwasher.

(68) Position washer (91), lockwasher (90), and nut (89) on terminal block terminal (93).
(69) Lift dust boot (94) on terminal lug TL80 (95).

(70) Remove nut (96), lockwasher (97), washer (98), and terminal lug TL80 (95) from terminal block terminal (99). Discard lockwasher.

(71) Position washer (98), lockwasher (97), and nut (96) on terminal block terminal (99).

(72) Lift dust boot (100) on terminal lug TL44 (101).

(73) Remove nut (102), lockwasher (103), washer (104), and terminal lug TL44 (101) from terminal block terminal (105). Discard lockwasher.

(74) Position washer (104), lockwasher (103), and nut (102) on terminal block terminal (105).

(75) Remove four screws (106), washers (107), and bracket (108) from spare tire retainer (35).
(76) Remove eight self-locking nuts (109), washers (110), screws (111), two terminal blocks (112) and identification plate (113) from bracket (108). Discard self-locking nuts.

(77) Remove three screws (114), washers (115), and clamps (116) from air inlet manifold (117).

(78) Remove three clamps (116) from 12vdc cable (118) and 24vdc cable (119).

(79) Lift dust boot (120) on terminal lug TL6 (121).

(80) Remove nut (122), lockwasher (123), washer (124), and terminal lugs TL6 (121), TL2 (125) and fuse link (126) from alternator terminal (127). Discard lockwasher.

(81) Position fuse link (126), washer (124), lockwasher (123), and nut (122) on alternator terminal (127).
(82) Lift dust boot (128) on terminal lug TL60 (129).

(83) Remove nut (130), lockwasher (131), washer (132), and terminal lug TL60 (129) from alternator terminal (133). Discard lockwasher.

(84) Position washer (132), lockwasher (131), and nut (130) on alternator terminal (133).

(85) Remove terminal lug TL6 (121) from wire (134). Discard terminal lug.

(86) Remove wire (134) from dust boot (120).

(87) Install terminal lug TL6 (135) on wire (134).

(88) Remove 12vdc cable (118) and 24vdc cable (119) from vehicle.

(89) Remove screw (136), lockwasher (137), terminal lug TL5 (138), washer (139), and ground strap (140) from alternator (141). Discard lockwasher.

(90) Position washer (139), lockwasher (137), and screw (136) in alternator (141).
20-55. 200 AMP ALTERNATOR KIT REMOVAL (CONT)

(91) Lift dust boot (142) on terminal lug TL35 (143).

(92) Remove self-locking nut (144), washer (145), and terminal lug TL35 (143) from voltage regulator terminal (146). Discard self-locking nut.

(93) Position washer (145) and self-locking nut (144) on voltage regulator terminal (146).

(94) Lift dust boot (147) on terminal lug TL110 (148).

(95) Remove self-locking nut (149), washer (150), and terminal lug TL110 (148) from voltage regulator terminal (151). Discard self-locking nut.

(96) Position washer (150) and self-locking nut (149) on voltage regulator terminal (151).

(97) Remove nut (152), washer (153), screw (154), and washer (155) from alternator (141).

**WARNING**

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

**NOTE**

Step (98) requires the aid of an assistant.

(98) Remove nut (156), screw (157), washer (158), and alternator (141) from alternator bracket (159).
CAUTION

Alternator pulley must be positioned in a vise equipped with vise jaw caps when loosening self-locking nut. Failure to comply may result in damage to equipment.

(99) Position pulley (160) in vise.

(100) Loosen self-locking nut (161).

(101) Remove pulley (160) from vise.

(102) Remove self-locking nut (161), washer (162), and pulley (160) from alternator (141). Discard self-locking nut.

(103) Position washer (162) and self-locking nut (161) on alternator (141).

(104) Position three clamps (116) on 12vdc cable (163) and 24vdc cable (164).

(105) Position three clamps (116) on air inlet manifold (117) with three washers (115) and screws (114).

(106) Tighten three screws (114) to 22-27 lb-ft (31-37 N·m).

(107) Position 12vdc cable (163) and 24 vdc cable (164) on vehicle.
(108) Remove two screws (165), lockwashers (166), and belt adjusting arm (167) from alternator bracket (159). Discard lockwasher.

(109) Position belt adjusting arm (168) on alternator bracket (159) with two lockwashers (166) and screws (165).

Tighten two screws (165) to 25-32 lb-ft (35-43 N·m).

(110) Follow-On Maintenance.

(1) Install 100 amp reverse polarity relay (para 7-27).
(2) Install 100 amp alternator (para 7-2).
(3) Raise spare tire (TM 9-2320-365-10).
(4) Lower cab (TM 9-2320-365-10).
(5) Connect batteries (para 7-48).
(6) Start engine (TM 9-2320-365-10).
(7) Check alternator operation (TM 9-2320-365-10).
(8) Shut down engine (TM 9-2320-365-10).

End of Task.
### 20-56. 200 AMP ALTERNATOR REPLACEMENT

This task covers:

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

#### INITIAL SETUP

**Equipment Conditions**

- Batteries disconnected (para 7-48).
- Alternator belts removed (para 7-3).

**Tools and Special Tools**

- Tool Kit, Genl Mech (Item 44, Appendix C)
- Sling, Cargo (Item 31, Appendix C)
- Vise, Machinist (Item 46, Appendix C)
- Caps, Vise Jaw (Item 4, Appendix C)
- Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)
- Wrench, Torque, 0-200 lb-in. (Item 58, Appendix C)

**Materials/Parts**

- Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)
- Nut, Self-Locking (Item 137, Appendix G)

**Personnel Required**

(2)

### a. Removal.

1. Lift dust boot (1) on terminal lug TL6 (2).

2. Remove nut (3), lockwasher (4), washer (5), terminal lugs TL6 (2) and TL2 (6), and fuse link (7) from alternator terminal (8).

3. Position fuse link (7), washer (5), lockwasher (4), and nut (3) on alternator terminal (8).

4. Lift dust boot (9) on terminal lug TL60 (10).

5. Remove nut (11), lockwasher (12), washer (13), and terminal lug TL60 (10) from alternator terminal (14).

6. Position washer (13), lockwasher (12) and nut (11) on alternator terminal (14).
(7) Remove screw (15), lockwasher (16), terminal lug TL5 (17), washer (18), and ground strap (19) from alternator (20).

(8) Position washer (18), lockwasher (16), and screw (15) on alternator (20).

(9) Lift dust boot (21) on terminal lug TL35 (22).

(10) Remove self-locking nut (23), washer (24), and terminal lug TL35 (22) from voltage regulator terminal (25).

(11) Position washer (24) and self-locking nut (23) on voltage regulator terminal (25).

(12) Lift dust boot (26) on terminal lug TL110 (27).

(13) Remove self-locking nut (28), washer (29), and terminal lug TL110 (27) from voltage regulator terminal (30).

(14) Position washer (29) and self-locking nut (28) on voltage regulator terminal (30).
(15) Remove nut (31), washer (32), screw (33), and washer (34) from alternator (20).

(16) Remove self-locking nut (35), screw (36), and washer (37) from alternator (20).

**WARNING**

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

**NOTE**

Step (17) requires the aid of an assistant.

(17) Remove alternator (20) from alternator support bracket (38).

**CAUTION**

Alternator pulley must be positioned in a vise equipped with vise jaw caps when loosening self-locking nut. Failure to comply may result in damage to equipment.

(18) Position pulley (39) in vise.

(19) Loosen self-locking nut (40).

(20) Remove pulley (39) from vise.

(21) Remove self-locking nut (40), washer (41), pulley (39), and key (42) from alternator (20).

(22) Position washer (41) and self-locking nut (40) on alternator (20).
20-56. 200 AMP ALTERNATOR REPLACEMENT (CONT)

b. Installation.

(1) Remove self-locking nut (1) and washer (2) from alternator (3).

**CAUTION**

Ensure pulley does not contact wires, terminal lugs, or terminal screws on front of alternator. Failure to comply will result in damage to equipment.

(2) Position key (4) and pulley (5) on alternator (3) with washer (2) and self-locking nut (1).

**CAUTION**

Alternator pulley must be positioned in a vise equipped with vise jaw caps when tightening self-locking nut. Failure to comply may result in damage to equipment.

(3) Position pulley (5) in vise.

(4) Tighten self-locking nut (1) to 106-130 lb-ft (144-176 N·m).

(5) Remove pulley (5) from vise.

**WARNING**

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

**NOTE**

Step (6) requires the aid of an assistant.

(6) Position alternator (3) on alternator support bracket (6) with washer (7), screw (8), and self-locking nut (9).

(7) Position washer (10), screw (11), washer (12), and nut (13) in alternator (3).

(8) Tighten nut (13) to 25-32 lb-ft (35-43 N·m).

(9) Tighten self-locking nut (9) to 45-55 lb-ft (61-75 N·m).
(10) Remove self-locking nut (14) and washer (15) from voltage regulator terminal (16).

(11) Position terminal lug TL110 (17) on voltage regulator terminal (16) with washer (15) and self-locking nut (14).

(12) Tighten self-locking nut (14) to 24 lb-in. (3 N·m).

(13) Position dust boot (18) on terminal lug TL110 (17).

(14) Remove self-locking nut (19) and washer (20) from voltage regulator terminal (21).

(15) Position terminal lug TL35 (22) on voltage regulator terminal (21) with washer (20) and self-locking nut (19).

(16) Tighten self-locking nut (19) to 24 lb-in. (3 N·m).

(17) Position dust boot (23) on terminal lug TL35 (22).

(18) Remove screw (24), lockwasher (25), and washer (26) from alternator (3).

(19) Position ground strap (27), washer (26), and terminal lug TL5 (28) on alternator (3) with washer (26), lockwasher (25), and screw (24).

(20) Tighten screw (24) to 60-84 lb-in. (7-9 N·m).
(21) Remove nut (29), lockwasher (30), and washer (31) from alternator terminal (32).

(22) Position terminal lug TL60 (33) on alternator terminal (32) with washer (31), lockwasher (30), and nut (29).

(23) Tighten nut (29) to 156-180 lb-in. (17-21 N·m).

(24) Position dust boot (34) on terminal lug TL60 (33).

(25) Remove nut (35), lockwasher (36), washer (37), and fuse link (38) from alternator terminal (39).

(26) Position fuse link (38), terminal lugs TL2 (40) and TL6 (41) on alternator terminal (39) with washer (37), lockwasher (36), and nut (35).

(27) Tighten nut (35) to 156-180 lb-in. (17-21 N·m).

(28) Position dust boot (42) on terminal lug TL6 (41).

c. Follow-On Maintenance

(1) Install alternator belts (para 7-3).

(2) Connect batteries (para 7-48).

(3) Start engine (TM 9-2320-365-10).

(4) Check alternator operation (TM 9-2320-365-10).

(5) Shut down engine (TM 9-2320-365-10).

End of Task.
20-57. 200 AMP VOLTAGE REGULATOR REPLACEMENT

This task covers:

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

INITIAL SETUP

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

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

Materials/Parts
Lockwasher (2) (Item 100, Appendix G)
Nut, Self-Locking (Item 130, Appendix G)
Nut, Self-Locking (Item 131, Appendix G)
Sealing Compound (Item 64, Appendix D)

a. Removal.

NOTE

Tag terminal lugs and connection points prior to removal.

(1) Lift dust boot (1) on terminal lug TL110 (2).

(2) Remove self-locking nut (3), washer (4), and terminal lug TL110 (2) from voltage regulator terminal (5). Discard self-locking nut.

(3) Lift dust boot (6) on terminal lug TL35 (7).

(4) Remove self-locking nut (8), washer (9), and terminal lug TL35 (7) from voltage regulator terminal (10). Discard self-locking nut.
(5) Disconnect voltage regulator connector (11) from alternator (12).

(6) Remove two screws (13), lockwashers (14), washers (15) and voltage regulator (16) from alternator (12). Discard lockwashers.

b. Installation

**WARNING**

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

(1) Apply sealing compound to threads of two screws (1).

(2) Position voltage regulator (2) on alternator (3) with two washers (4), lockwashers (5), and screws (1).

(3) Tighten two screws (1) to 75 lb-in. (8 N·m).

(4) Connect voltage regulator connector (6) to alternator (3).
(5) Position terminal lug TL35 (7) on voltage regulator terminal (8) with washer (9) and self-locking nut (10).

(6) Tighten self-locking nut (10) to 25 lb-in. (3 N-m).

(7) Position dust boot (11) on terminal lug TL35 (7).

(8) Position terminal lug TL110 (12) on voltage regulator terminal (13) with washer (14) and self-locking nut (15).

(9) Tighten self-locking nut (15) to 25 lb-in. (3 N-m).

(10) Position dust boot (16) on terminal lug TL110 (12).

c. Follow-On Maintenance

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

(2) Connect batteries (para 7-48).

(3) Start engine (TM 9-2320-365-10).

(4) Check VOLTS gage for charge indication (TM 9-2320-365-10).

(5) Shut down engine (TM 9-2320-365-10).

End of Task.
20-58. 200 AMP REVERSE POLARITY RELAY REPLACEMENT

This task covers:

- a. Removal (All Models Except M1081)
- b. Installation (All Models Except M1081)
- c. Removal (M1081)
- d. Installation (M1081)
- e. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

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

Tools and Special Tools

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

Material/Parts

Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)
Ties, Cable, Plastic (Item 76, Appendix D)
Lockwasher (2) (Item 65, Appendix G)
Lockwasher (2) (Item 66, Appendix G)
Nut, Self-Locking (2) (Item 135, Appendix G)

a. Removal (All Models Except M1081).

NOTE

- Tag cables and connection points prior to disconnecting.
- Remove plastic cable ties as required.

(1) Lift dust boot (1) on terminal lug TL174 (2).

(2) Remove nut (3), lockwasher (4), and terminal lug TL174 (2) from reverse polarity relay 12V LOAD terminal (5). Discard lockwasher.

(3) Lift dust boot (6) on terminal lug TL173 (7).

(4) Remove nut (8), lockwasher (9), and terminal lug TL173 (7) from reverse polarity relay 12V BAT terminal (10). Discard lockwasher.
(5) Lift dust boot (11) on terminal lug TL169 (12).

(6) Remove nut (13), lockwasher (14), and terminal lug TL169 (12) from reverse polarity relay 24V LOAD terminal (15). Discard lockwasher.

(7) Lift dust boot (16) on terminal lug TL168 (17).

(8) Remove nut (18), lockwasher (19), and terminal lug TL168 (17) from reverse polarity relay 24V BAT terminal (20). Discard lockwasher.

**NOTE**

Note orientation of reverse polarity relay prior to removal.

(9) Remove two self-locking nuts (21), screws (22), and reverse polarity relay (23) from brackets (24 and 25). Discard self-locking nuts.

b. **Installation (All Models Except M1081).**

(1) Position reverse polarity relay (1) on brackets (2 and 3) with two screws (4) and self-locking nuts (5).

(2) Tighten two self-locking nuts (5) to 22-27 lb-ft (31-37 N·m).
NOTE

Install plastic cable ties as required.

(3) Position terminal lug TL168 (6) on reverse polarity relay 24V BAT terminal (7) with lockwasher (8) and nut (9).

(4) Position terminal lug TL169 (10) on reverse polarity relay 24V LOAD terminal (11) with lockwasher (12) and nut (13).

(5) Tighten nuts (9 and 13) to 27-33 lb-ft (37-45 N·m).

(6) Position dust boots (14 and 15) on terminal lugs TL168 (6) and TL169 (10).

(7) Position terminal lug TL173 (16) on reverse polarity relay 12V BAT terminal (17) with lockwasher (18) and nut (19).

(8) Position terminal lug TL174 (20) on reverse polarity relay 12V LOAD terminal (21) with lockwasher (22) and nut (23).

(9) Tighten nuts (19 and 23) to 108-132 lb-in. (12-15 N·m).

(10) Position dust boots (24 and 25) on terminal lugs TL173 (16) and TL174 (20).
c. Removal (M1081).

1. Loosen clamp (1) on air compressor intake hose (2).

2. Remove air compressor intake hose (2) from intake air cleaner boot (3).

3. Loosen clamp (4) on intake air cleaner boot (3).

4. Remove intake air cleaner boot (4) from intake air cleaner housing (5).

**NOTE**

- Tag cables and connection points prior to disconnecting.
- Remove plastic cable ties as required.

5. Lift dust boot (6) on terminal lug TL173 (7).

6. Remove nut (8), lockwasher (9), and terminal lug TL173 (7) from reverse polarity relay 12V BAT terminal (10). Discard lockwasher.

7. Lift dust boot (11) on terminal lug TL174 (12).

8. Remove nut (13), lockwasher (14), and terminal lug TL174 (12) from reverse polarity relay 12V LOAD terminal (15). Discard lockwasher.
(9) Lift dust boot (16) on terminal lug TL168 (17).

(10) Remove nut (18), lockwasher (19), and terminal lug TL168 (17) from reverse polarity relay 24V BAT terminal (20). Discard lockwasher.

(11) Lift dust boot (21) on terminal lug TL169 (22).

(12) Remove nut (23), lockwasher (24), and terminal lug TL169 (22) from reverse polarity relay 24V LOAD terminal (25). Discard lockwasher.

**NOTE**

Note orientation of reverse polarity relay prior to removal.

(13) Remove two self-locking nuts (26), screws (27), and reverse polarity relay (28) from brackets (29 and 30). Discard self-locking nuts.

d. Installation (M1081).

(1) Position reverse polarity relay (1) on brackets (2 and 3) with two screws (4) and self-locking nuts (5).

(2) Tighten two self-locking nuts (5) to 22-27 lb-ft (31-37 N·m).
NOTE

Install plastic cable ties as required.

(3) Position terminal lug TL169 (6) on reverse polarity relay 24V LOAD terminal (7) with lockwasher (8) and nut (9).

(4) Position terminal lug TL168 (10) on reverse polarity relay 24V BAT terminal (11) with lockwasher (12) and nut (13).

(5) Tighten nuts (9 and 13) to 27-33 lb-ft (37-45 N·m).

(6) Position dust boots (14 and 15) on terminal lugs TL169 (6) and TL168 (10).

(7) Position terminal lug TL174 (16) on reverse polarity relay 12V LOAD terminal (17) with lockwasher (18) and nut (19).

(8) Position terminal lug TL173 (20) on reverse polarity relay 12V BAT terminal (21) with lockwasher (22) and nut (23).

(9) Tighten nuts (19 and 23) to 108-132 lb-in. (12-15 N·m).

(10) Position dust boots (24 and 25) on terminal lugs TL174 (16) and TL173 (20).

(11) Position intake air cleaner boot (26) on intake air cleaner housing (27) with clamp (28).

(12) Position air compressor intake hose (29) on intake air cleaner boot (26) with clamp (30).

(13) Tighten clamps (28 and 30) to 36-48 lb-in. (4-5 N·m).
e. Follow-On Maintenance.

(1) Connect batteries (para 7-48).

(2) Raise spare tire (TM 9-2320-365-10).

(3) Start engine (TM 9-2320-365-10).

(4) Check VOLTS gage for charge indication (TM 9-2320-365-10).

(5) Shut down engine (TM 9-2320-365-10).

End of Task.
20-59. 200 AMP ALTERNATOR TO TERMINAL BLOCK 12 VDC CABLE REPLACEMENT

This task covers:

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

INITIAL SETUP

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

Materials/Parts
Ties, Cable, Plastic (Item 76, Appendix D)
Lockwasher (Item 96, Appendix G)
Lockwasher (Item 89, Appendix G)

Tools and Special Tools
Tool Kit, Genl Mech (Item 44, Appendix C)
Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)
Wrench, Torque, 0-200 lb-in. (Item 58, Appendix C)
Socket Set, Socket Wrench (Item 34, Appendix C)

a. Removal.

NOTE
Remove plastic cable ties as required.

(1) Lift dust boot (1) on terminal lug TL60 (2).

(2) Remove nut (3), lockwasher (4), washer (5), and terminal lug TL60 (2) from alternator terminal (6). Discard lockwasher.

(3) Remove dust boot (1) from terminal lug TL60 (2).

(4) Loosen clamp (7) on turbocharger intake hose (8).

(5) Remove turbocharger intake hose (8) from intake air cleaner boot (9).
(6) Remove nut (10), lockwasher (11), washer (12), and terminal lugs TL61 (13) and TL171 (14) from terminal block terminal (15). Discard lockwasher.

(7) Remove three screws (16), washers (17), clamps (18), and 200 amp alternator to terminal block 12 vdc cable (19) from engine (20).

(8) Remove convoluted tubing (21) from 200 amp alternator to terminal block 12 vdc cable (19).

b. Installation.

**NOTE**

Install plastic cable ties as required.

(1) Install convoluted tubing (1) on 200 amp alternator to terminal block 12 vdc cable (2).

(2) Position 200 amp alternator to terminal block 12 vdc cable (2) on engine (3) with three clamps (4), washers (5), and screws (6).

(3) Tighten three screws (6) to 22-27 lb-ft (31-37 N·m).
(4) Position terminal lugs TL171 (7) and TL61 (8) on terminal block terminal (9) with washer (10), lockwasher (11), and nut (12).

(5) Tighten nut (12) to 15-19 lb-ft (21-25 N·m).

(6) Position turbocharger intake hose (13) on intake air cleaner boot (14) with clamp (15).

(7) Tighten clamp (15) to 36-48 lb-in. (4-5 N·m).

(8) Install dust boot (16) on terminal lug TL60 (17).

(9) Position terminal lug TL60 (17) on alternator terminal (18) with washer (19), lockwasher (20), and nut (21).

(10) Tighten nut (21) to 144-192 lb-in. (17-21 N·m).

(11) Position dust boot (16) on terminal lug TL60 (17).
c. Follow-On Maintenance.

(1) Connect batteries (para 7-48).

(2) Raise spare tire (TM 9-2320-365-10).

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

(4) Start engine (TM 9-2320-365-10).

(5) Check VOLTS gage for charge indication (TM 9-2320-365-10).

(6) Shut down engine (TM 9-2320-365-10).

End of Task.
20-60. 200 AMP TERMINAL BLOCK TO REVERSE POLARITY RELAY 12 VDC LOAD CABLE REPLACEMENT

This task covers:

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

INITIAL SETUP

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

Materials/Parts
Ties, Cable, Plastic (Item 76, Appendix D)
Lockwasher (Item 65, Appendix G)
Lockwasher (Item 89, Appendix G)

Tools and Special Tools
Tool Kit, Genl Mech (Item 44, Appendix C)
Socket Set, Socket Wrench (Item 34, Appendix C)
Wrench, Torque, 0-200 lb-in. (Item 58, Appendix C)
Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)

a. Removal.

(1) Loosen clamp (1) on turbocharger intake hose (2).

(2) Remove turbocharger intake hose (2) from intake air cleaner boot (3).

SPARE TIRE RETAINER REMOVED FOR CLARITY

1 2 3
NOTE

Remove plastic cable ties as required.

(3) Lift dust boot (4) on terminal lug TL174 (5).

(4) Remove nut (6), lockwasher (7), and terminal lug TL174 (5) from reverse polarity relay (8). Discard lockwasher.

(5) Remove dust boot (4) from 200 amp terminal block to reverse polarity relay 12 vdc load cable (9).

(6) Remove convoluted tubing (10) from 200 amp terminal block to reverse polarity relay 12 vdc load cable (9) and 200 amp terminal block to reverse polarity relay 12 vdc battery cable (11).

(7) Remove nut (12), lockwasher (13), washer (14), and terminal lug TL172 (15) from terminal block terminal (16). Discard lockwasher.

(8) Remove 200 amp terminal block to reverse polarity relay 12 vdc load cable (9) from rear side of front lifting beam (17).
b. Installation.

(1) Position 200 amp terminal block to reverse polarity relay 12 vdc load cable (1) on rear side of front lifting beam (2).

(2) Position terminal lug TL172 (3) on terminal block terminal (4) with washer (5), lockwasher (6), and nut (7).

(3) Tighten nut (7) to 15-19 lb-ft (21-25 N·m).

NOTE

Install plastic cable ties as required.

(4) Install convoluted tubing (8) on 200 amp terminal block to reverse polarity relay 12 vdc load cable (1) and 200 amp terminal block to reverse polarity relay 12 vdc battery cable (9).

(5) Install dust boot (10) on 200 amp terminal block to reverse polarity relay 12 vdc load cable (1).

(6) Position terminal lug TL174 (11) on reverse polarity relay (12) with lockwasher (13), and nut (14).

(7) Tighten nut (14) to 108-132 lb-in. (12-15 N·m).

(8) Position dust boot (10) on terminal lug TL174 (11).
(9) Position turbocharger intake hose (15) on intake air cleaner boot (16) with clamp (17).

(10) Tighten clamp (17) to 36-48 lb-in. (4-5 N·m).

c. Follow-On Maintenance

(1) Connect batteries (para 7-48).

(2) Raise spare tire (TM 9-2320-365-10).

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

(4) Start engine (TM 9-2320-365-10).

(5) Check VOLTS gage for charge indication (TM 9-2320-365-10).

(6) Shut down engine (TM 9-2320-365-10).

End of Task.
This task covers:

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

**INITIAL SETUP**

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

**Tools and Special Tools**
- Tool Kit, Genl Mech (Item 44, Appendix C)
- Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)
- Wrench, Torque, 0-200 lb-in. (Item 58, Appendix C)
- Socket Set, Socket Wrench (Item 34, Appendix C)

**Materials/Parts**
- Ties, Cable, Plastic (Item 76, Appendix D)
- Lockwasher (Item 96, Appendix G)
- Lockwasher (Item 89, Appendix G)

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**a. Removal.**

1. Lift dust boot (1) on terminal lug TL2 (2).

   **NOTE**

   Remove plastic cable ties as required.

2. Remove nut (3), lockwasher (4), washer (5), fuse (6), and terminal lugs TL2 (2) and TL8 (7) from alternator terminal (8). Discard lockwasher.

3. Remove alternator to terminal block 24 vdc cable (9) from dust boot (1).

4. Loosen clamp (10) on turbocharger intake hose (11).

5. Remove turbocharger intake hose (11) from intake air cleaner boot (12).
(6) Remove nut (13), lockwasher (14), washer (15), and terminal lugs TL1 (16) and TL166 (17) from terminal block terminal (18). Discard lockwasher.

(7) Remove three screws (19), washers (20), clamps (21), and 200 amp alternator to terminal block 24 vdc cable (9) from engine (22).

(8) Remove convoluted tubing (23) from 200 amp alternator to terminal block 24 vdc cable (9).

b. Installation.

**NOTE**
Install plastic cable ties as required.

(1) Install convoluted tubing (1) on 200 amp alternator to terminal block 24 vdc cable (2).

(2) Position 200 amp alternator to terminal block 24 vdc cable (2) on engine (3) with three clamps (4), washers (5), and screws (6).

(3) Tighten three screws (6) to 22-27 lb-ft (31-37 N·m).
(4) Position terminal lugs TL166 (7) and TL1 (8) on terminal block terminal (9) with washer (10), lockwasher (11), and nut (12).

(5) Tighten nut (12) to 15-19 lb-ft (21-25 N·m).

(6) Position turbocharger intake hose (13) on intake air cleaner boot (14) with clamp (15).

(7) Tighten clamp (15) to 36-48 lb-in. (4-5 N·m).

(8) Install 200 amp alternator to terminal block 24 vdc cable (2) in dust boot (16).

(9) Position terminal lugs TL8 (17) and TL2 (18) on alternator terminal (19) with fuse (20), washer (21), lockwasher (22), and nut (23).

(10) Tighten nut (23) to 144-192 lb-in. (17-21 N·m).

(11) Install dust boot (16) on terminal lug TL2 (18).
c. Follow-On Maintenance.

(1) Connect batteries (para 7-48).

(2) Raise spare tire (TM 9-2320-365-10).

(3) Start engine (TM 9-2320-365-10).

(4) Check VOLTS gage for charge indication (TM 9-2320-365-10).

(5) Shut down engine (TM 9-2320-365-10).

End of Task.
20-62. 200 AMP TERMINAL BLOCK TO REVERSE POLARITY RELAY 24 VDC LOAD CABLE REPLACEMENT

This task covers:

a. Removal
b. Installation

c. Follow-On Maintenance

INITIAL SETUP

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

Materials/Parts
Ties, Cable, Plastic (Item 76, Appendix D)
Lockwasher (Item 89, Appendix G)
Lockwasher (Item 66, Appendix G)

Tools and Special Tools
Tool Kit, Genl Mech (Item 44, Appendix C)
Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)
Wrench, Torque, 0-200 lb-in. (Item 58, Appendix C)
Socket Set, Socket Wrench (Item 34, Appendix C)

a. Removal.

(1) Loosen clamp (1) on turbocharger intake hose (2).

(2) Remove turbocharger intake hose (2) from intake air cleaner boot (3).

NOTE
Remove plastic cable ties as required.

(3) Lift dust boot (4) on terminal lug TL168 (5).

Remove nut (6), lockwasher (7), and terminal lug TL168 (5) from reverse polarity relay 24 VDC LOAD terminal (8). Discard lockwasher.

(5) Remove dust boot (4) from 200 amp terminal block to reverse polarity relay 24 vdc load cable (9).
(6) Remove nut (10), lockwasher (11), washer (12), and terminal lug TL167 (13) from terminal block terminal (14). Discard lockwasher.

(7) Remove 200 amp terminal block to reverse polarity relay 24 vdc load cable (9) from rear side of front lifting beam (15).

(8) Remove convoluted tubing (16) from 200 amp terminal block to reverse polarity relay 24 vdc load cable (9).

b. Installation.

**NOTE**
Install plastic cable ties as required.

(1) Install convoluted tubing (1) on 200 amp terminal block to reverse polarity relay 24 vdc load cable (2).

(2) Route 200 amp terminal block to reverse polarity relay 24 vdc load cable (2) on rear side of front lifting beam (3).
(3) Position terminal lug TL167 (4) on terminal block terminal (5) with washer (6) lockwasher (7) and nut (8).

(4) Tighten nut (8) to 15-19 lb-ft (21-25 N·m).

(5) Install dust boot (9) on 200 amp terminal block to reverse polarity relay 24 vdc load cable (2).

(6) Position terminal lug TL168 (10) on reverse polarity relay 24 VDC LOAD terminal (11) with lockwasher (12) and nut (13).

(7) Tighten nut (13) to 27-33 lb-ft (37-45 N·m).

(8) Position dust boot (9) on terminal lug TL168 (10).

(9) Position turbocharger intake hose (14) on intake air cleaner boot (15) with clamp (16).

(10) Tighten clamp (16) to 36-48 lb-in. (4-5 N·m).
c. Follow-On Maintenance.

(1) Connect batteries (para 7-48).

(2) Raise spare tire (TM 9-2320-365-10).

(3) Start engine (TM 9-2320-365-10).

(4) Check VOLTS gage for charge indication (TM 9-2320-365-10).

(5) Shut down engine (TM 9-2320-365-10).

End of Task.
20-63. BATTERY TO 200 AMP TERMINAL BLOCK 12 VDC CABLE ASSEMBLY REPLACEMENT

This task covers:

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

INITIAL SETUP

Equipment Conditions

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

Tools and Special Tools

Tool Kit, Genl Mech (Item 44, Appendix C)
Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)
Wrench, Torque, 0-200 lb-in. (Item 58, Appendix C)
Socket Set, Socket Wrench (Item 34, Appendix C)

Materials/Parts

Ties, Cable, Plastic (Item 76, Appendix D)
Lockwasher (Item 89, Appendix G)

a. Removal.

(1) Loosen clamp (1) on turbocharger intake hose (2).

(2) Remove turbocharger intake hose (2) from intake air cleaner boot (3).

(3) Remove nut (4), lockwasher (5), washer (6), and terminal lug TL47 (7) from terminal block (8). Discard lockwasher.

NOTE

• Note routing of battery to 200 amp terminal block 12 vdc cable prior to removal.

• Remove plastic cable ties as required.

(4) Remove battery to 200 amp terminal block 12 vdc cable (9) from vehicle.
b. Installation.

NOTE
Install plastic cable ties as required.

(1) Position battery to 200 amp terminal block 12 vdc cable (1) on vehicle.

(2) Position terminal lug TL47 (2) on terminal block (3) with washer (4), lockwasher (5), and nut (6).

(3) Tighten nut (6) to 15-19 lb-ft (21-25 N·m).

(4) Position turbocharger intake hose (7) on intake air cleaner boot (8) with clamp (9).

(5) Tighten clamp (9) to 36-48 lb-in. (4-5 N·m).

c. Follow-On Maintenance.

(1) Connect batteries (para 7-48).

(2) Raise spare tire (TM 9-2320-365-10).

(3) Start engine (TM 9-2320-365-10).

(4) Check VOLTS gage for charge indication (TM 9-2320-365-10).

(5) Shut down engine (TM 9-2320-365-10).

End of Task.
## 20-64. BATTERY TO 200 AMP TERMINAL BLOCK 24 VDC CABLE ASSEMBLY REPLACEMENT

### This task covers:

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

### INITIAL SETUP

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

#### Tools and Special Tools
- Tool Kit, Genl Mech (Item 44, Appendix C)
- Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)
- Wrench, Torque, 0-200 lb-in. (Item 58, Appendix C)
- Socket Set, Socket Wrench (Item 34, Appendix C)

#### Materials/Parts
- Ties, Cable, Plastic (Item 76, Appendix D)
- Lockwasher (Item 89, Appendix G)

### a. Removal.

#### WARNING

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

(1) Remove nut (1) and terminal lugs TL10 (2) and TL39 (3) from battery cable BT1 E1 (4).
(2) Loosen clamp (5) on turbocharger intake hose (6).

(3) Remove turbocharger intake hose (6) from intake air cleaner boot (7).

(4) Remove nut (8), lockwasher (9), washer (10), and two terminal lugs TL37 (11) and TL36 (12) from terminal block (13). Discard lockwasher.

**NOTE**
Remove plastic cable ties as required.

(5) Remove battery to 200 amp terminal block 24 vdc cable (14) from vehicle.

**b. Installation.**

**NOTE**
Install plastic cable ties as required.

(1) Position battery to 200 amp terminal block 24 vdc cable assembly (1) on vehicle.

(2) Position terminal lugs TL36 (2) and TL37 (3) on terminal block (4) with washer (5), lockwasher (6), and nut (7).

(3) Tighten nut (7) to 15-19 lb-ft (21-25 N·m).
(4) Position turbocharger intake hose (8) on intake air cleaner boot (9) with clamp (10).

(5) Tighten clamp (10) to 36-48 lb-in. (4-5 N·m).

(6) Install terminal lugs TL39 (11) and TL10 (12) on battery cable BT1 E1 (13) with nut (14).

c. Follow-On Maintenance.

(1) Connect batteries (para 7-48).

(2) Raise spare tire (TM 9-2320-365-10).

(3) Start engine (TM 9-2320-365-10).

(4) Check VOLTS gage for 24 vdc (TM 9-2320-365-10).

(5) Shut down engine (TM 9-2320-365-10).

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

INITIAL SETUP

Equipment Conditions
   Batteries disconnected (para 7-48).
   PDP cover removed (para 16-2).
   Spare tire lowered (TM 9-2320-365-10).
   Lower radiator fan shroud removed (para 6-4).

Materials/Parts
   Ties, Cable, Plastic (Item 76, Appendix D)
   Nut, Self-Locking (2) (Item 137, Appendix G)
   Lockwasher (Item 92, Appendix G)
   Lockwasher (Item 74, Appendix G)

Tools and Special Tools
   Tool Kit, Genl Mech (Item 44, Appendix C)
   Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)
   Wrench, Torque, 0-200 lb-in. (Item 58, Appendix C)
   Socket Set, Socket Wrench (Item 34, Appendix C)

a. Removal.

   (1) Remove three screws (1) and washers (2) from PDP (3).

   (2) Remove three screws (4) from PDP (3).

   (3) Lift PDP (3) outward to gain access.

   (4) Remove screw (5), lockwasher (6), terminal lug TL41 (7), and four terminal lugs (8) from PDP (3). Discard lockwasher.

   (5) Position four terminal lugs (8) on PDP (3) with screw (5).
(6) Loosen clamp (9) on air compressor intake hose (10).

(7) Remove air compressor intake hose (10) from intake air cleaner boot (11).

(8) Loosen clamp (12) on intake air cleaner boot (11).

(9) Remove intake air cleaner boot (11) from intake air cleaner housing (13).

(10) Lift dust boot (14) on terminal lug TL80 (15).

(11) Remove nut (16), lockwasher (17), washer (18) and terminal lug TL80 (15) from terminal block terminal (19). Discard lockwasher.

(12) Remove dust boot (14) from 200 amp terminal block to PDP 12 vdc cable (20).

(13) Remove spring pin (21) and suspension compression plate (22) from suspension compression plate stud (23).
(14) Loosen two screws (24) in heat shield assembly (25).

(15) Remove 200 amp terminal block to PDP 12 vdc cable (20) from heat shield assembly (25).

(16) Remove self-locking nut (26), screw (27), clamp (28), and 200 amp terminal block to PDP 12 vdc cable (20) from frame rail (29). Discard self-locking nut.

(17) Remove 200 amp terminal block to PDP 12 vdc cable (20) from clamp (28).

(18) Remove self-locking nut (30) and screw (31) from clamps (32 and 33). Discard self-locking nut.

(19) Remove 200 amp terminal block to PDP 12 vdc cable (20) from clamp (32).

(20) Remove 200 amp terminal block to PDP 12 vdc cable (20) from cab (34).

(20) Remove 200 amp terminal block to PDP 12 vdc cable (20) from cab (34).
b. Installation.

**NOTE**

Install plastic cable ties as required.

1. Route 200 amp terminal block to PDP 12 vdc cable (1) through bottom of cab (2).

(2) Position 200 amp terminal block to PDP 12 vdc cable (1) in clamp (3).

3. Install clamps (3 and 4) on frame rail (5) with screw (6) and self-locking nut (7).

4. Position 200 amp terminal block to PDP 12 vdc cable (1) in clamp (8).

5. Position clamp (8) on frame rail (5) with screw (9), and self-locking nut (10).

6. Tighten self-locking nut (10) to 84-108 lb-in. (10-12 N·m).

7. Tighten two screws (11) in heat shield assembly (12).
(8) Install suspension compression plate (13) on suspension compression plate stud (14) with spring pin (15).

(9) Install dust boot (16) on 200 amp terminal block to PDP 12 vdc cable (1).

(10) Position terminal lug TL80 (17) on terminal block terminal (18) with washer (19), lockwasher (20), and nut (21).

(11) Tighten nut (21) to 15-19 lb-ft (21-25 N·m).

(12) Position dust boot (16) on terminal lug TL80 (17).
(13) Position intake air cleaner boot (22) on intake air cleaner housing (23) with clamp (24).

(14) Position air compressor intake hose (25) on intake air cleaner boot (22) with clamp (26).

(15) Tighten clamps (24 and 26) to 36-48 lb-in. (4-5 N·m).

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

(17) Remove screw (27) from PDP (28).

(18) Position four terminal lugs (29) and terminal lug TL41 (30) on PDP (28) with lockwasher (31) and screw (27).

(19) Tighten screw (27) to 35-45 lb-in. (4-5 N·m).

(20) Install PDP (28) on dashboard (32) with three screws (33).

(21) Install three washers (34) and screws (35) in PDP (28).
c. Follow-On Maintenance.

(1) Install PDP cover (para 16-2).

(2) Install lower radiator fan shroud (para 6-4).

(3) Connect batteries (para 7-48).

(4) Raise spare tire (TM 9-2320-365-10).

(5) Start engine (TM 9-2320-365-10).

(6) Check VOLTS gage for charge indication (TM 9-2320-365-10).

(7) Shut down engine (TM 9-2320-365-10).

End of Task.
## 20-66. 200 AMP TERMINAL BLOCK TO REVERSE POLARITY RELAY 12 VDC BATTERY CABLE REPLACEMENT

This task covers:

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

### INITIAL SETUP

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

**Materials/Parts**
- Ties, Cable, Plastic (Item 76, Appendix D)
- Lockwasher (Item 92, Appendix G)
- Lockwasher (Item 65, Appendix G)

**Tools and Special Tools**
- Tool Kit, Genl Mech (Item 44, Appendix C)
- Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)
- Wrench, Torque, 0-200 lb-in. (Item 58, Appendix C)
- Socket Set, Socket Wrench (Item 34, Appendix C)

### a. Removal

1. Loosen clamp (1) on turbocharger intake hose (2).
2. Remove turbocharger intake hose (2) from intake air cleaner boot (3).
(3) Lift dust boot (4) on terminal lug TL173 (5).

**NOTE**

Remove plastic cable ties as required.

(4) Remove nut (6), lockwasher (7), and terminal lug TL173 (5) from reverse polarity relay 12 VDC BAT terminal (8). Discard lockwasher.

(5) Remove dust boot (4) from 200 amp terminal block to reverse polarity relay 12 vdc battery cable (9).

(6) Remove convoluted tubing (10) from 200 amp terminal block to reverse polarity relay 12 vdc battery cable (9) and 200 amp terminal block to reverse polarity relay 12 vdc load cable (11).

(7) Remove nut (12), lockwasher (13), washer (14), and terminal lug TL171 (15) from terminal block terminal (16). Discard lockwasher.

(8) Remove 200 amp terminal block to reverse polarity relay 12 vdc battery cable (9) from rear side of front lifting beam (17).
b. Installation.

(1) Route 200 amp terminal block to reverse polarity relay 12 vdc battery cable (1) to rear side of front lifting beam (2).

(2) Position terminal lug TL171 (3) on terminal block terminal (4) with washer (5), lockwasher (6), and nut (7).

(3) Tighten nut (7) to 15-19 lb-ft (21-25 N·m).

(4) Position terminal lug TL173 (11) on reverse polarity relay 12 VDC BAT terminal (12) with lockwasher (13), and nut (14).

(5) Install dust boot (10) on 200 amp terminal block to reverse polarity relay 12 vdc battery cable (1).

(6) Position terminal lug TL173 (11) on reverse polarity relay 12 VDC BAT terminal (12) with lockwasher (13), and nut (14).

(7) Tighten nut (14) to 120 lb-in. (14 N·m).

(8) Position dust boot (10) on terminal lug TL173 (11).

NOTE

Install plastic cable ties as required.
(9) Position turbocharger intake hose (15) on intake air cleaner boot (16) with clamp (17).

(10) Tighten clamp (17) to 36-48 lb-in. (4-5 N-m).

c. Follow-On Maintenance.

(1) Connect batteries (para 7-48).

(2) Raise spare tire (TM 9-2320-365-10).

(3) Start engine (TM 9-2320-365-10).

(4) Check VOLTS gage for charge indication (TM 9-2320-365-10).

(5) Shut down engine (TM 9-2320-365-10).

End of Task.
20-67. **200 AMP TERMINAL BLOCK TO REVERSE POLARITY RELAY 24 VDC BATTERY CABLE REPLACEMENT**

This task covers:

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

### INITIAL SETUP

#### Equipment Conditions

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

#### Materials/Parts

- Ties, Cable, Plastic (Item 76, Appendix D)
- Lockwasher (Item 92, Appendix G)
- Lockwasher (Item 66, Appendix G)

#### Tools and Special Tools

- Tool Kit, Genl Mech (Item 44, Appendix C)
- Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)
- Wrench, Torque, 0-200 lb-in. (Item 58, Appendix C)
- Socket Set, Socket Wrench (Item 34, Appendix C)

### a. Removal.

1. Loosen clamp (1) on turbocharger intake hose (2).

2. Remove turbocharger intake hose (2) from intake air cleaner boot (3).

3. Lift dust boot (4) on terminal lug TL169 (5).

   **NOTE**

   Remove plastic cable ties as required.

4. Remove nut (6), lockwasher (7), and terminal lug TL169 (5) from reverse polarity relay 24 VDC BAT terminal (8). Discard lockwasher.

5. Remove dust boot (4) from 200 amp terminal block to reverse polarity relay 24 vdc battery cable (9).
(6) Remove nut (10), lockwasher (11), washer (12), and terminal lugs TL1 (13) and TL166 (14) from terminal block terminal (15). Discard lockwasher.

(7) Remove 200 amp terminal block to reverse polarity relay 24 vdc battery cable (9) from rear side of front lifting beam (16).

(8) Remove convoluted tubing (17) from 200 amp terminal block to reverse polarity relay 24 vdc battery cable (9).

b. Installation.

**NOTE**

Install plastic cable ties as required.

(1) Install convoluted tubing (1) on 200 amp terminal block to reverse polarity relay 24 vdc battery cable (2).

(2) Position 200 amp terminal block to reverse polarity relay 24 vdc battery cable (2) on rear side of front lifting beam (3).
(3) Position terminal lugs TL166 (4) and TL1 (5) on terminal block terminal (6) with washer (7), lockwasher (8), and nut (9).

(4) Tighten nut (9) to 15-19 lb-ft (21-25 N·m).

(5) Install dust boot (10) on 200 amp terminal block to reverse polarity relay 24 vdc battery cable (2).

(6) Position terminal lug TL169 (11) on reverse polarity relay 24 VDC BAT terminal (12) with lockwasher (13) and nut (14).

(7) Tighten nut (14) to 30 lb-ft (41 N·m).

(8) Position dust boot (10) on terminal lug TL169 (11).

(9) Position turbocharger intake hose (15) on intake air cleaner boot (16) with clamp (17).

(10) Tighten clamp (17) to 36-48 lb-in. (4-5 N·m).
c. Follow-On Maintenance.

(1) Connect batteries (para 7-48).

(2) Raise spare tire (TM 9-2320-365-10).

(3) Start engine (TM 9-2320-365-10).

(4) Check VOLTS gage for charge indication (TM 9-2320-365-10).

(5) Shut down engine (TM 9-2320-365-10).

End of Task.
This task covers:

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

INITIAL SETUP

Equipment Conditions

- Batteries disconnected (para 7-48).
- PDP cover removed (para 16-2).
- Spare tire lowered (TM 9-2320-365-10).
- Bottom radiator fan shroud removed (para 6-4).
- Cab lowered (TM 9-2320-365-10).

Tools and Special Tools

- Tool Kit, Genl Mech (Item 44, Appendix C)
- Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)
- Wrench, Torque, 0-200 lb-in. (Item 58, Appendix C)
- Socket Set, Socket Wrench (Item 34, Appendix C)

Materials/Parts

- Ties, Cable, Plastic (Item 76, Appendix D)
- Nut, Self-Locking (2) (Item 133, Appendix G)
- Lockwasher (Item 89, Appendix G)
- Lockwasher (Item 70, Appendix G)

a. Removal.

(1) Remove three screws (1) and washers (2) from PDP (3).

(2) Remove three screws (4) from PDP (3).

(3) Lift PDP (3) outward to gain access.

NOTE

Remove plastic cable ties as required.

(4) Remove screw (5), lockwasher (6), terminal lug TL42 (7), and four terminal lugs (8) from PDP (3). Discard lockwasher.

(5) Position four terminal lugs (8) on PDP (3) with screw (5).
(6) Loosen clamp (9) on air compressor intake hose (10).

(7) Remove air compressor intake hose (10) from intake air cleaner boot (11).

(8) Loosen clamp (12) on intake air cleaner boot (11).

(9) Remove intake air cleaner boot (11) from intake air cleaner housing (13).

(10) Lift dust boot (14) on terminal lug TL44 (15).

(11) Remove nut (16), lockwasher (17), washer (18), and terminal lug TL44 (15) from terminal block terminal (19). Discard lockwasher.

NOTE

Perform step (12) on M1079.

(12) Remove terminal lug TL100 (20) from terminal block terminal (19).

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

(14) Remove spring pin (21) and suspension compression plate (22) from suspension compression plate stud (23).
(15) Remove self-locking nut (24), screw (25), clamp (26), and 200 amp terminal block to PDP 24 vdc cable (27) from frame rail (28).

(16) Remove 200 amp terminal block to PDP 24 vdc cable (27) from clamp (26).

(17) Remove self-locking nut (29), washer (30), screw (31), and washer (32) from clamps (33 and 34). Discard self-locking nut.

(18) Remove 200 amp terminal block to PDP 24 vdc cable (27) from clamp (33).

(19) Remove 200 amp terminal block to PDP 24 vdc cable (27) from cab (35).
b. Installation.

**NOTE**
Install plastic cable ties as required.

1. Route 200 amp terminal block to PDP 24 vdc cable (1) through bottom of cab (2).
2. Position 200 amp terminal block to PDP 24 vdc cable (1) in clamp (3).
3. Position clamps (3 and 4) on frame rail (5) with washer (6), screw (7), washer (8), and self-locking nut (9).
4. Tighten self-locking nut (9) to 97-120 lb-in. (11-14 N·m).
5. Position 200 amp terminal block to PDP 24 vdc cable (1) in clamp (10).
6. Position clamp (10) on frame rail (5) with screw (11) and self-locking nut (12).
7. Tighten self-locking nut (12) to 97-120 lb-in. (11-14 N·m).
(8) Install suspension compression plate (13) on suspension compression plate stud (14) with spring pin (15).

NOTE

Perform step (9) on M1089.

(9) Position terminal lug TL100 (16) on terminal block terminal (17).

(10) Position terminal lug TL44 (18) on terminal block terminal (17) with washer (19), lockwasher (20) and nut (21).

(11) Tighten nut (21) to 15-19 lb-ft (21-25 N·m).

(12) Position dust boot (22) on terminal lug TL44 (18).

(13) Position intake air cleaner boot (23) on intake air cleaner housing (24) with clamp (25).

(14) Position air compressor intake hose (26) on intake air cleaner boot (23) with clamp (27).

(15) Tighten clamps (25 and 27) to 36-48 lb-in. (4-5 N·m).

(16) Lower cab (TM 9-2320-365-10).
(17) Remove screw (28) from PDP (29).

(18) Position four terminal lugs (30) and terminal lug TL42 (31) on PDP (29) with lockwasher (32) and screw (28).

(19) Tighten screw (28) to 35-45 lb-in. (4-5 N·m).

(20) Install PDP (29) on dashboard (33) with three screws (34).

(21) Install three washers (35) and screws (36) in PDP (29).

C. Follow-On Maintenance.

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

(2) Install bottom radiator fan shroud (para 6-4).

(3) Raise spare tire (TM 9-2320-365-10).

(4) Install PDP cover (para 16-2).

(5) Connect batteries (para 7-48).

(6) Start engine (TM 9-2320-365-10).

(7) Check VOLTS gage for charge indication (TM 9-2320-365-10).

(8) Shut down engine (TM 9-2320-365-10).

End of Task.
20-69. 200 AMP TERMINAL BLOCK REPLACEMENT

This task covers:

a. Removal
b. Installation

c. Follow-On Maintenance

INITIAL SETUP

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

Tools and Special Tools
Tool Kit, Genl Mech (Item 44, Appendix C)
Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)
Wrench, Torque, 0-200 lb-in. (Item 58, Appendix C)
Socket Set, Socket Wrench (Item 34, Appendix C)

Materials/Parts
Ties, Cable, Plastic (Item 76, Appendix D)
Lockwasher (8) (Item 89, Appendix G)
Nut, Self-Locking (8) (Item 143, Appendix G)

a. Removal.

NOTE

- Tag wires and connection points prior to disconnecting.
- Remove plastic cable ties as required.

(1) Remove nut (1), lockwasher (2), washer (3), and terminal lugs TL171 (4) and TL61 (5) from terminal block terminal (6). Discard lockwasher.

(2) Remove nut (1), lockwasher (2), washer (3), and terminal lugs TL166 (7) and TL1 (8) from terminal block terminal (9). Discard lockwasher.
(3) Remove nut (1), lockwasher (2), washer (3), and terminal lug TL172 (10) from terminal block terminal (11). Discard lockwasher.

(4) Remove nut (1), lockwasher (2), washer (3), and terminal lug TL167 (12) from terminal block terminal (13). Discard lockwasher.

(5) Remove nut (1), lockwasher (2), washer (3), and terminal lugs TL37 (14) and TL36 (15) from terminal block terminal (16). Discard lockwasher.
(6) Lift dust boot (17) on terminal lug TL80 (18).

(7) Remove nut (1), lockwasher (2), washer (3), and terminal lug TL80 (18) from terminal block terminal (19). Discard lockwasher.

(8) Remove nut (1), lockwasher (2), washer (3), and terminal lug TL47 (20) from terminal block terminal (21). Discard lockwasher.

(9) Lift dust boot (22) on terminal lug TL44 (23).

(10) Remove nut (1), lockwasher (2), washer (3), and terminal lug TL44 (23) from terminal block terminal (24). Discard lockwasher.

**NOTE**

Perform step (11) on M1079.

(11) Remove terminal lug TL100 (25) from terminal block terminal (24).

(12) Remove four screws (26), washers (27), and bracket (28) from spare tire retainer (29).
(13) Remove eight self-locking nuts (30), washers (31), screws (32), two terminal blocks (33), and identification plate (34) from bracket (28). Discard self-locking nuts.

b. Installation.

CAUTION
Both terminal blocks must be positioned loosely to align correctly on mounting bracket before tightening hardware. Failure to comply may result in damage to equipment.

(1) Position identification plate (1) and two terminal blocks (2) on bracket (3) with eight screws (4), washers (5), and self-locking nuts (6).

(2) Tighten eight self-locking nuts (6) to 48 lb-in. (5 N·m).
(3) Install bracket (3) on spare tire retainer (7) with four washers (8) and screws (9).

**NOTE**

Perform step (4) on M1079.

(4) Position terminal lug TL100 (10) on terminal block terminal (11).

(5) Position terminal lug TL44 (12) on terminal block terminal (11) with washer (13), lockwasher (14), and nut (15).

(6) Position terminal lug TL47 (16) on terminal block terminal (17) with washer (13), lockwasher (14), and nut (15).

(7) Position terminal lug TL80 (18) on terminal block terminal (19) with washer (13), lockwasher (14), and nut (15).
(8) Position terminal lugs TL37 (20) and TL36 (21) on terminal block terminal (22) with washer (13), lockwasher (14), and nut (15).

(9) Position terminal lug TL167 (23) on terminal block terminal (24) with washer (13), lockwasher (14), and nut (15).

(10) Position terminal lug TL172 (25) on terminal block terminal (26) with washer (13), lockwasher (14), and nut (15).
(11) Position terminal lugs TL166 (27) and TL1 (28) on terminal block terminal (29) with washer (13), lockwasher (14), and nut (15).

(12) Position terminal lugs TL171 (30) and TL61 (31) on terminal block terminal (32) with washer (13), lockwasher (14) and nut (15).

(13) Tighten eight nuts (15) to 15-19 lb-ft (21-25 N·m).

(14) Position dust boot (33) on terminal lug TL44 (12).

(15) Position dust boot (34) on terminal lug TL80 (18).
c. Follow-On Maintenance.

(1) Raise spare tire (TM 9-2320-365-10).

(2) Connect batteries (7-48).

(3) Start engine (TM 9-2320-365-10).

(4) Check alternator operation (TM 9-2320-365-10).

(5) Shut down engine (TM 9-2320-365-10).

End of Task.
## 20-70. LIGHT MATERIAL HANDLING CRANE (LMHC) ASSEMBLY/DISASSEMBLY

This task covers:

| a. Assembly | b. Disassembly |

### INITIAL SETUP

#### Equipment Conditions

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

#### Tools and Special Tools

- Tool Kit, Genl Mech (Item 44, Appendix C)
- Sling, Cargo (Item 31, Appendix C)

#### Materials/Parts

- Lockwasher (2) (Item 104, Appendix G)

#### Personnel Required

(2)

### a. Assembly.

#### NOTE

LMHC may be installed in any of the four cargo bed pockets. Left front cargo bed pocket shown.

1. Remove quick release pin (1) and plug (2) from cargo bed pocket (3).

#### WARNING

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

#### NOTE

- Step (2) requires the aid of an assistant.
- Position mast in cargo bed so handle does not extend over front or rear edge of cargo bed.

2. Install mast (4) in cargo bed pocket (3).
(3) Install plug (2) on cargo bed frame (5) with quick release pin (1).

(4) Position turret (6) on mast (4).

(5) Install quick release pin (7) in turret (6).

WARNING

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

NOTE

Step (6) requires the aid of an assistant.

(6) Position boom (8) in turret (6).

(7) Install two quick release pins (9) in turret (6).
(8) Position winch (10) on boom (8).

(9) Slide winch (10) to front of boom (8).

(10) Tighten four screws (11) on winch (10).

(11) Connect power and remote control cables (TM 9-2320-365-10).

(12) Extend winch cable (12) approximately 6 feet (1.8 m).

(13) Remove quick release pin (13) from boom (8).

(14) Position winch cable (12) on boom sheave (14).

(15) Install quick release pin (13) in boom (8).

(16) Remove two nuts (15), lockwashers (16), and screws (17) from weight blocks (18). Discard lockwashers.

(17) Install two weight blocks (18) on winch cable (12) with two screws (17), lockwashers (16), and nuts (15).

(18) Position boom in stowed position (TM 9-2320-365-10).
b. Disassembly.

(1) Position boom in the 0-degree position (TM 9-2320-365-10).

(2) Remove two nuts (1), screws (2), lockwashers (5), and weight blocks (3) from winch cable (4). Discard lockwashers.

**NOTE**

Perform step (3) for stowage of weight block.

(3) Install two screws (2) in weight blocks (3) with lockwashers (5) and nuts (1).

(4) Remove quick release pin (6) from boom (7).

(5) Remove winch cable (5) from boom sheave (8).

(6) Install quick release pin (6) in boom (7).

(7) Retract winch cable approximately 6 feet (1.8 m).

(8) Disconnect remote control and power cables (TM 9-2320-365-10).

(9) Loosen four screws (9) on winch (10).

(10) Slide winch (10) to rear of boom (7).

(11) Remove winch (10) from boom (7).
WARNING

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

NOTE

Steps (12) and (13) require the aid of an assistant.

(12) Remove two quick release pins (11) from turret (12).

(13) Remove boom (7) from turret (12).

(14) Remove quick release pin (13) from turret (12).

(15) Remove turret (12) from mast (14).

NOTE

LMHC may be installed in any of the four cargo bed pockets. Left front cargo bed pocket shown.

(16) Remove quick release pin (15) and plug (16) from cargo bed frame (17).
WARNING

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

NOTE

Step (17) requires the aid of an assistant.

(17) Remove mast (14) from cargo bed pocket (18).

(18) Install plug (16) in cargo bed pocket (18) with quick release pin (15).

End of Task.
20-71. LIGHT MATERIAL HANDLING CRANE (LMHC) REPLACEMENT

This task covers:

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

INITIAL SETUP

**Equipment Conditions**
Engine shut down (TM 9-2320-365-10).
LMHC power cable removed (TM 9-2320-365-10).
LMHC remote control cable removed (TM 9-2320-365-10).

**Tools and Special Tools**
Sling, Cargo (2) (Item 31, Appendix C)

**Personnel Required**
(2)

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**a. Removal.**

**NOTE**

LMHC may be installed in any of the four cargo bed pockets. Left front cargo bed pocket shown.

1. Remove quick release pin (1) and plug (2) from cargo bed frame (3).

**WARNING**

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

**NOTE**

Step (2) requires the aid of an assistant.

2. Remove LMHC (4) from cargo bed pocket (5).
(3) Install plug (2) in cargo bed pocket (5).

(4) Install quick release pin (1) in cargo bed pocket (5).

b. Installation.

**WARNING**

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

**NOTE**

Step (3) requires the aid of an assistant.

(3) Position LMHC (4) in cargo bed pocket (2).
(4) Install plug (3) on cargo bed frame (5) with quick release pin (1).

c. Follow-On Maintenance.

Operate LMHC and check for proper operation (TM 9-2320-365-10).

End of Task.
20-72. LIGHT MATERIAL HANDLING CRANE (LMHC) WEIGHT BLOCK AND WIRE ROPE REPLACEMENT/REPAIR

This task covers:

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

INITIAL SETUP

Equipment Conditions
- Engine shut down (TM 9-2320-365-10).
- LMHC circuit breaker positioned to ON (TM 9-2320-365-10).
- LMHC power cable installed (TM 9-2320-365-10).
- LMHC remote control cable installed (TM 9-2320-365-10).
- LMHC wire rope assembly fully extended (TM 9-2320-365-10).

Tools and Special Tools
- Tool Kit, Genl Mech (Item 44, Appendix C)
- Gloves, Welders (Item 14, Appendix C)

Materials/Parts
- Lockwasher (2) (Item 104, Appendix G)

Personnel Required
- (2)

a. Removal.

NOTE

Perform step (1) if replacing weight block.

(1) Remove two nuts (1), screws (2), lockwashers (3), and weight blocks (4) from wire rope (5). Discard lockwashers.

(2) Remove quick release pin (6) from boom (7).

(3) Remove wire rope (5) from sheave (8).
WARNING

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

(4) Remove two springs (9) from winch assembly (10).

(5) Position tensioner (11) for access.

(6) Loosen two set screws (12) on drum (13).

WARNING

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

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

(7) Remove wire rope (5) from drum (13).

b. Installation.

(1) Position wire rope (1) in drum (2).

(2) Tighten two set screws (3) on drum (2).

(3) Position tensioner (4) on drum (2).

WARNING

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

(4) Install two springs (5) on winch assembly (6).
20-72. LIGHT MATERIAL HANDLING CRANE (LMHC) WEIGHT BLOCK AND WIRE ROPE REPLACEMENT/REPAIR.

NOTE

Perform step (5) if weight block was replaced.

(5) Install two weight blocks (7) on wire rope (1) with two screws (8), lockwashers (9), and nuts (10).

(6) Position wire rope (1) in sheave (11).

(7) Install quick release pin (12) in boom (13).

c. Follow-On Maintenance.

(1) Retract LMHC wire rope assembly (TM 9-2320-365-10).

(2) Extend and retract LMHC wire rope assembly to check for proper function (TM 9-2320-365-10).

(3) Remove LMHC remote control cable (TM 9-2320-365-10).

(4) Remove LMHC power cable (TM 9-2320-365-10).

(5) Notify DS maintenance to perform LMHC load test.

End of Task.
This task covers:

a. Removal
b. Base Plate Disassembly
c. Winch Disassembly
d. Cleaning/Inspection
e. Winch Assembly
f. Base Plate Assembly
g. Installation
h. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions
LMHC weight block and wire rope removed (para 20-72).
LMHC power cable removed (TM 9-2320-365-10).
LMHC remote control cable removed (TM 9-2320-365-10).

Materials/Parts
Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)
Gasket (3) (Item 30, Appendix G)
Grease, Molybdenum Disulfide (Item 25, Appendix D)
Rag, Wiping (Item 51, Appendix D)
Solvent, Dry Cleaning (Item 71, Appendix D)

Personnel Required
(2)

a. Removal.

(1) Loosen four screws (1) on winch (2).

NOTE

Step (2) and (3) require the aid of an assistant.

(2) Slide winch (2) to rear of boom (3).

(3) Remove winch (2) from boom (3).
b. Base Plate Disassembly.

(1) Remove 18 screws (1) and cover (2) from base plate (3).

**NOTE**

- Tag wires and connection points prior to disconnecting.
- Note position of wires prior to removal.

(2) Remove rubber boot (4) from negative terminal (5).

(3) Remove nut (6) and terminal lug (7) from negative terminal (5).

(4) Remove rubber boot (8) from positive terminal (9).

(5) Remove nut (10) and terminal lug (11) from positive terminal (9).
(6) Remove two screws (12) from winch assembly (13).

(7) Remove four screws (14), mounting feet (15), nuts (16), and winch assembly (13) from base plate (3).

(8) Remove two nuts (17) and terminal lugs (18 and 19) from solenoids (20 and 21).

(9) Remove strap (22) from solenoids (20 and 21).

(10) Remove nut (23) and terminal lug (24) from solenoid (20).

(11) Remove nut (25) and terminal lug (26) from solenoid (20).

(12) Remove nut (27) and two terminal lugs (28 and 29) from solenoid (20).

(13) Remove nut (30) and terminal lug (31) from solenoid (20).
(14) Remove two screws (32), washers (33), and solenoid (20) from base plate (3).

(15) Remove nut (34) and strap (35) from solenoid (20).

(16) Remove two clip nuts (36) from base plate (3).

(17) Remove nut (37) and terminal lug (38) from solenoid (21).

(18) Remove nut (39) and terminal lug (40) from solenoid (21).

(19) Remove nut (41) and two terminal lugs (42 and 43) from solenoid (21).

(20) Remove nut (44) and terminal lug (45) from solenoid (21).
(21) Remove two screws (46), washers (47), and solenoid (21) from base plate (3).

(22) Remove nut (48) and strap (49) from solenoid (21).

(23) Remove two clip nuts (50) from base plate (3).

(24) Remove dust caps (51 and 52) from power connector (53) and remote control connector (54).

(25) Remove screw (55) and dust cap (51) from power connector (53).

(26) Remove three screws (56) and power connector (53) from base plate (3).

(27) Remove screw (57) and dust cap (52) from remote control connector (54).

(28) Remove three screws (58) and remote control connector (54) from base plate (3).
c. Winch Disassembly.

(1) Remove two screws (1) and brackets (2) from winch assembly (3).

(2) Remove tie rods (4 and 5) from winch assembly (3).

(3) Remove tensioner (6) from tie rod (5).

(4) Remove housing assembly (7) from drum assembly (8).

(5) Remove drum assembly (8) from 24 vdc motor assembly (9).

(6) Remove hex shaft (10) from drum assembly (8).

(7) Remove brake (11) from drum assembly (8).

(8) Remove two screws (12) from drum assembly (8).

**NOTE**

Note position of break in drum assembly prior to removal.
(9) Remove circlip (13) and gear (14) from 24 vdc motor assembly (9).

(10) Match mark drum support (15) and 24 vdc motor assembly (9).

(11) Remove 10 screws (16) and drum support (15) from 24 vdc motor assembly (9).

(12) Remove gasket (17) from drum support (15). Discard gasket.

(13) Remove sleeve bushing (18) from drum support (15).

(14) Match mark drum support (19) spur gear (20) and housing assembly (7).

(15) Remove 10 screws (21) and drum support (19) from spur gear (20).
(16) Remove gasket (22) from drum support (19). Discard gasket.

(17) Remove sleeve bushing (23) from drum support (19).

\[\text{NOTE}\]
Note position of stage 3 carrier in housing assembly prior to removal.

(18) Remove stage 3 carrier (24) from housing assembly (7).

(19) Remove washer (25) from stage 3 carrier (24).

(20) Remove spur gear (20) from housing assembly (7).

(21) Remove gasket (26) from spur gear (20). Discard gasket.
(22) Remove stage 2 carrier (27) from housing assembly (7).

(23) Remove WI carrier (28) from housing assembly (7).

(24) Remove spur gear (29) from housing assembly (7).

(25) Remove internal gear (30) from housing assembly (7).
d. Cleaning/Inspection.

**WARNING**

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

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

1. Clean all metal parts thoroughly with dry cleaning solvent.

**NOTE**

Replace any part that fails visual inspection.

2. Inspect all parts for visible cracks or damage.

e. Winch Assembly.

(1) Position internal gear (1) in housing assembly (2).
(2) Apply grease to spur gear (3).
(3) Install spur gear (3) in housing assembly (2).
(4) Apply grease to WI carrier (4).

**NOTE**

Hex shaft may be used to align WI carrier with spur gear.

(5) Install WI carrier (4) in housing assembly (2).
(6) Apply grease to stage 2 carrier (5).
(7) Install stage 2 carrier (5) in housing assembly (2).

(8) Position gasket (6) and spur gear (7) on housing assembly (2).

(9) Apply grease to washer (8) and stage 3 carrier (9).
(10) Position washer (8) and stage 3 carrier (9) in spur gear (7).
(11) Install sleeve bushing (10) in drum support (11).

(12) Install gasket (12) and drum support (11) on housing assembly (2) with matchmarks aligned.

(13) Install 10 screws (13) in housing assembly (2).

(14) Install sleeve bushing (14) in drum support (15).

(15) Install gasket (16) and drum support (15) on 24 vdc motor assembly (17) with matchmarks aligned.

(16) Install 10 screws (18) in 24 vdc motor assembly (17).

(17) Apply grease to gear (19).

(18) Install gear (19) on 24 vdc motor assembly (17) with circlip (20).
(19) Position two screws (21) in drum assembly (22).

(20) Apply grease to brake (23).

(21) Install brake (23) in drum assembly (22).

(22) Apply grease to hex shaft (24).

(23) Install hex shaft (24) in drum assembly (22).

(24) Position drum assembly (22) on 24 vdc motor assembly (17).

(25) Position housing assembly (2) on drum assembly (22).

(26) Position tensioner (25) on tie rod (26).

(27) Position tie rods (26 and 27) in winch assembly (28).

(28) Install two brackets (29) on winch assembly (28) with two screws (30).
f. Base Plate Assembly.

(1) Install remote control connector (1) on base plate (2) with three screws (3).

(2) Install dust cap (4) on remote control connector (1) with screw (5).

(3) Install power connector (6) on base plate (2) with three screws (7).

(4) Install dust cap (8) on power connector (6) with screw (9).

(5) Install dust caps (4 and 8) on remote control connector (1) and remote control connector (6).

(6) Install two clip nuts (10) on base plate (2).

(7) Install strap (11) on solenoid (12) with nut (13).

(8) Install solenoid (12) on base plate (2) with two washers (14) and screws (15).
(9) Install terminal lug (16) on solenoid (12) with nut (17).

(10) Install terminal lugs (18 and 19) on solenoid (12) with nut (20).

(11) Install terminal lug (21) on solenoid (12) with nut (22).

(12) Install terminal lug (23) on solenoid (12) with nut (24).

(13) Install two clip nuts (25) on base plate (2).

(14) Install strap (26) on solenoid (27) with nut (28).

(15) Install solenoid (27) on base plate (2) with two washers (29) and screws (30).
(16) Install terminal lug (31) on solenoid (27) with nut (32).

(17) Install terminal lugs (33 and 34) on solenoid (27) with nut (35).

(18) Install terminal lug (36) on solenoid (27) with nut (37).

(19) Install terminal lug (38) on solenoid (27) with nut (39).

(20) Install strap (40) on solenoids (12 and 27).

(21) Install terminal lugs (41 and 42) on solenoids (12 and 27) with nuts (43).

(22) Install winch assembly (44) on base plate (2) with four nuts (45), mounting feet (46), and screws (47).

(23) Install two screws (48) in winch assembly (44).
(24) Install terminal lug (49) on positive terminal (50) with nut (51).

(25) Install rubber boot (52) on positive terminal (50).

(26) Install terminal lug (53) on negative terminal (54) with nut (55).

(27) Install rubber boot (56) on negative terminal (54).

(28) Install cover (57) on base plate (2) with 18 screws (58).

**g. Installation.**

**NOTE**

Steps (1) and (2) require the aid of an assistant.

(1) Position winch (1) on boom (2).

(2) Slide winch (1) toward front of boom (2).

(3) Tighten four screws (3).
20-73. LIGHT MATERIAL HANDLING CRANE WINCH (LMHC) REPLACEMENT/REPAIR (CONT)

h. Follow-On Maintenance.

(1) Install LMHC remote control cable (TM 9-2320-365-10).

(2) Install LMHC power cable (TM 9-2320-365-10).

(3) Install LMHC weight block and wire rope [para 20-72].

End of Task.
This task covers:

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

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-365-10).
LMHC winch removed (para 20-73).

Materials/Parts
Nut, Self-Locking (Item 151, Appendix G)
Bushing, Sleeve (Item 5, Appendix G)

Tools and Special Tools
Tool Kit, Genl Mech (Item 44, Appendix C)
Gloves, Welders (Item 14, Appendix C)

a. Removal.

(1) Remove self-locking nut (1), chain assembly (2), screw (3), and washer (4) from fly section (5). Discard self-locking nut.

(2) Remove sheave (6), two detent plates (7), and washers (8) from fly section (5).

(3) Remove bushing (9) from sheave (6). Discard bushing.
(4) Remove quick release pin (10) from base weld (11) and fly section (5).

(5) Remove fly section (5) from base weld (11).

(6) Remove quick release pin (12) and base weld (11) from turret (13).

b. Installation.

(1) Install base weld (1) in turret (2) with quick release pin (3).

(2) Position fly section (4) in base weld (1).

(3) Install quick release pin (5) through base weld (1) and fly section (4).

(4) Install bushing (6) in sheave (7).

(5) Position two washers (8), detent plates (9), and sheave (7) in fly section (4).
(6) Install washer (10), screw (11), chain assembly (12), and self-locking nut (13) in fly section (4).

c. Follow-On Maintenance.

Install LMHC winch [para 20-73].

End of Task.
a. Removal.

(1) Remove quick release pin (1) from fly section (2).

**WARNING**

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

(2) Remove wire rope (3) from sheave (4).

(3) Remove self-locking nut (5), chain assembly (6), screw (7), and washer (8) from fly section (2). Discard self-locking nut.
(4) Remove sheave (4), two detent plates (9), and washers (10) from fly section (2).

(5) Remove bushing (11) from sheave (4). Discard bushing.

(6) Remove fitting (12) from sheave (4).

b. Installation.

(1) Install fitting (1) in sheave (2).

(2) Install bushing (3) in sheave (2).

(3) Position sheave (2), two washers (4), and detent plates (5) in fly section (6).

(4) Install washer (7), screw (8), chain assembly (9), and self-locking nut (10) in fly section (6).

**WARNING**

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

(5) Install wire rope (11) in sheave (2).

(6) Install quick release pin (12) in fly section (6).
20-75. LIGHT MATERIAL HANDLING CRANE (LMHC) BOOM SHEAVE REPLACEMENT (CONT)

c. Follow-On Maintenance.

(1) Install LMHC power cable (TM 9-2320-365-10).

(2) Extend and retract LMHC wire rope assembly to check for proper function (TM 9-2320-365-10).

End of Task.
# 20-76. LIGHT MATERIAL HANDLING CRANE (LMHC) TURRET REPLACEMENT

**This task covers:**

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

## INITIAL SETUP

### Equipment Conditions

- Engine shut down (TM 9-2320-365-10).
- LMHC power cable removed (TM 9-2320-365-10).
- LMHC remote control cable removed (TM 9-2320-365-10).

### Personnel Required

(2) 

## a. Removal

**WARNING**

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

**NOTE**

Steps (1) and (2) require the aid of an assistant.

1. Remove quick release pin (1) from turret (2).
2. Remove boom assembly (3) from turret (2).
3. Remove quick release pin (4) from turret (2).
4. Remove turret (2) from mast (5).
b. Installation.

(1) Position turret (1) on mast (2).

(2) Install quick release pin (3) in turret (1).

**WARNING**

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

**NOTE**

Steps (3) and (4) require the aid of an assistant.

(3) Install boom assembly (4) on turret (1).

(4) Install quick release pin (5) in boom assembly (4).

c. Follow-On Maintenance.

(1) Install LMHC remote control unit cable (TM 9-2320-365-10).

(2) Install LMHC power cable (TM 9-2320-365-10).

(3) Operate LMHC and check for proper operation (TM 9-2320-365-10).

End of Task.
This task covers:

a. Disassembly
b. Assembly
c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions
LMHC control box power cable removed (TM 9-2320-365-10).
LMHC control box removed (TM 9-2320-365-10).

Tools and Special Tools
Tool Kit, Genl Mech (Item 44, Appendix C)
Tool Kit, Auto Fuel and Electrical Systems Repair (Item 43, Appendix C)

Materials/Parts
Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)
Lockwasher (2) (Item 85, Appendix G)
Lockwasher (2) (Item 96, Appendix G)
Lockwasher (4) (Item 95, Appendix G)
Gasket (Item 26, Appendix G)
Terminal, Lug (2) (Item 267, Appendix G)

a. Disassembly.

(1) Remove eight screws (1), cover (2), and retainer (3) from NATO plug (4).

NOTE
Tag wires and connection points prior to disconnecting.

(2) Remove two screws (5), lockwashers (6), and terminal lugs (7 and 8) from NATO plug (4). Discard lockwashers.

(3) Remove terminal lugs (7 and 8) from wires (9 and 10). Discard terminal lugs.

(4) Remove two grommets (11) from wires (9 and 10).

(5) Remove sleeve (12) from wires (9 and 10).
(6) Open cover (13) on control box (14).

(7) Loosen two screws (15) on circuit breaker (16).

(8) Disconnect wires (17 and 9) from circuit breaker (16).

(9) Loosen nut (18) on box connector (19).

(10) Remove wire (9) from control box (14).

(11) Remove four nuts (20), lockwashers (21), screws (22), and cap (23) from receptacle (24). Discard lockwashers.

(12) Loosen nut (25) on box connector (26).

(13) Remove receptacle (24), wires (17 and 10), and gasket (27) from control box (14). Discard gasket.

(14) Remove wires (17 and 10) from receptacle (24).

(15) Remove two nuts (28) and box connectors (19 and 26) from control box (14).
(16) Remove four screws (29) and plate (30) from control box (14).

(17) Remove two nuts (31), lockwashers (32), washers (33), screws (34), and circuit breaker (16) from plate (30). Discard lockwashers.

b. Assembly.

(1) Install circuit breaker (1) on plate (2) with two screws (3), washers (4), lockwashers (5), and nuts (6).

(2) Install plate (2) in control box (7) with four screws (8).

(3) Install box connectors (9 and 10) in control box (7) with nuts (11).

(4) Install wires (12 and 13) in receptacle (14).
(5) Install wires (12 and 13), gasket (15), and receptacle (14) in control box (7).

(6) Position wire (12) through box connector (9).

(7) Install cap (16), four screws (17), lockwashers (18), and nuts (19) in receptacle (14).

(8) Position wire (20) through box connector (10).

(9) Install wires (13 and 20) in circuit breaker (1) with two screws (21).

(10) Tighten two nuts (22) on box connectors (9 and 10).

(11) Close cover (23) on control box (7).

(12) Install sleeve (24) on wires (12 and 20).

(13) Install two grommets (25) on wires (12 and 20).

(14) Install terminal lugs (26 and 27) on wires (12 and 20).

(15) Install wires (12 and 20) on NATO plug (28) with two lockwashers (29) and screws (30).

(16) Install cover (31) and retainer (32) on NATO plug (28) with eight screws (33).
c. Follow-On Maintenance.

Operate LMHC and check for proper operation (TM 9-2320-365-10).

End of Task.
This task covers:

- a. Disassembly
- b. Cleaning
- c. Assembly
- d. Follow-on Maintenance

**INITIAL SETUP**

**Equipment Condition**

LMHC disassembled (para 20-70).

**Tools and Special Tools**

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

**Materials/Parts**

- Solvent, Dry Cleaning (Item 71, Appendix D)
- Rag, Wiping (Item 51, Appendix D)
- Lockwasher (3) (Item 90, Appendix G)
- Lockwasher (2) (Item 91, Appendix G)

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**Disassembly.**

1. Remove seven screws (1) and washers (2) from top plate (3).
2. Remove top plate (3) from housing (4).
3. Remove rotator (5) from housing (4).
WARNING

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

(4) Remove retaining ring (6) from rotator (5).

(5) Remove bearing (7) from rotator (5).

(6) Remove retaining ring (8) from rotator (5).

(7) Remove six screws (9), washers (10), and gear (11) from rotator (5).

(8) Remove two screws (12), washers (13), lockwashers (14), and plate (15) from housing (4). Discard lockwashers.

(9) Remove retaining ring (16) and handle (17) from shaft (18).

(10) Remove two retaining rings (19), washers (20), and washers (21) from shaft (18).
(11) Remove shaft (18), worm gear (22), two washers (23), and washer (24) from housing (4).

(12) Remove woodruff key (25) from shaft (18).

(13) Remove two bearings (26) from housing (4).

(14) Remove quick release pin (27) from housing (4).

(15) Remove housing (4) from mast (28).

(16) Remove screw (29), washer (30), lockwasher (31), and quick release pin (27) from housing (4). Discard lockwasher.

(17) Remove two screws (32), washers (33), lockwashers (34), and clamp (35) from mast (28). Discard lockwashers.
b. Cleaning.

**WARNING**

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

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

Clean all metal parts with dry cleaning solvent.

c. Assembly.

(1) Install clamp (1) on mast (2) with two lockwashers (3), washers (4), and screws (5).

(2) Install quick release pin (6) on housing (7) with lockwasher (8), washer (9), and screw (10).

(3) Position housing (7) on mast (2).

(4) Install quick release pin (6) in housing (7).
(5) Install two bearings (11) in housing (7).

(6) Install woodruff key (12) on shaft (13).

(7) Install worm gear (14), two washers (15), washer (16), and shaft (13) in housing (7).

**WARNING**

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

(8) Install two washers (17), washers (18), and retaining rings (19) on shaft (13).

(9) Install handle (20) on shaft (13) with retaining ring (21).
(10) Install plate (22) on housing (7) with two lockwashers (23), washers (24), and screws (25).

(11) Install gear (26) on rotator (27) with six washers (28) and screws (29).

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

(12) Install retaining ring (30) on rotator (27).

(13) Install bearing (31) on rotator (27).

(14) Install retaining ring (32) on rotator (27).
(15) Install rotator (27) in housing (7).

(16) Install top plate (33) on housing (7) with seven washers (34) and screws (35).

d. Follow-On Maintenance.

Assemble LMHC (para 20-70).

End of Task.
20-79. TROOP TRANSPORT ALARM CABLE ASSEMBLY REPLACEMENT

This task covers:

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

INITIAL SETUP

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

Materials/Parts
Ties, Cable, Plastic (Item 76, Appendix D)

Tools and Special Tools
Tool Kit, Genl Mech (Item 44, Appendix C)

a. Removal.

NOTE

Remove plastic cable ties as required.

(1) Disconnect connector clamp (1) from connector J39 (2).

(2) Disconnect connector J39 (2) from connector P39 (3).

(3) Remove connector clamp (1) from troop transport alarm cable (4).

(4) Disconnect connector P921 (5) from connector J921 (6).

NOTE

Note routing of cable assembly prior to removal.

(5) Remove troop transport alarm cable (4) from vehicle.
b. Installation.

(1) Position troop transport alarm cable (1) on vehicle.

(2) Connect connector P921 (2) to connector J921 (3).

NOTE

Install plastic cable ties as required.

(3) Install connector clamp (4) on troop transport alarm cable (1).

(4) Connect connector J39 (5) to connector P39 (6).

(5) Connect connector clamp (4) to connector J39 (5).

c. Follow-On Maintenance.

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

(2) Operate troop transport alarm and check for proper operation (TM 9-2320-365-10).

End of Task.
20-80. TROOP TRANSPORT ALARM SWITCH, CONNECTOR, AND BRACKET REPLACEMENT

This task covers:

<table>
<thead>
<tr>
<th>a. Removal</th>
<th>b. Installation</th>
<th>c. Follow-On Maintenance</th>
</tr>
</thead>
</table>

INITIAL SETUP

**Equipment Conditions**

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

**Tools and Special Tools**

- Tool Kit, Genl Mech (Item 44, Appendix C)
- Vise, Machinist (Item 46, Appendix C)

**Materials/Parts**

- Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)
- Adhesive (Item 8, Appendix D)
- Sealing Compound (Item 64, Appendix D)
- Nut, Self-Locking (4) (Item 120, Appendix C)

---

**a. Removal.**

1. Disconnect connector P921 (1) from connector J921 (2).

2. Loosen two knobs (3) on bracket (4).

3. Remove bracket (4) from cargo bed (5).

---

(4) Position bracket (4) in vise.

5. Remove two mounts (6) from knobs (3).

6. Remove two knobs (3) from bracket (4).
NOTE

Tag wires and connection points prior to disconnecting.

(7) Remove two screws (7), lockwashers (8), and terminal lugs TL164 (9) and TL165 (10) from switch (11).

(8) Lift switch cover (12) on switch (11).

(9) Remove nut (13), lockwasher (14), switch cover (12), locking ring (15), and switch (11) from bracket (4).

(10) Remove four self-locking nuts (16), screws (17), and connector J921 (2) from bracket (4). Discard self-locking nuts.

(11) Remove bracket (4) from vise.
b. Installation.

    (1) Position bracket (1) in vise.

    **WARNING**

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

    (2) Apply sealing compound to threads of four screws (2).

    (3) Install connector J921 (3) on bracket (1) with four screws (2) and self-locking nuts (4).

    (4) Install switch (5) on bracket (1) with locking ring (6), switch cover (7), lockwasher (8) and nut (9).

    (5) Close switch cover (7) on switch (5).

    (6) Install terminal lugs TL164 (10) and TL165 (11) on switch (5) with two lockwashers (12) and screws (13).

    (7) Apply adhesive to two screws (13), lockwashers (12), and terminal lugs TL164 (10) and TL165 (11).
WARNING

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

(8) Apply sealing compound to threads of two knobs (14).

(9) Install two knobs (14) on bracket (1).

(10) Install two mounts (15) on knobs (14).

(11) Remove bracket (1) from vise.

(12) Install bracket (1) on cargo bed (16) with two knobs (11).

(13) Connect connector P921 (17) to connector J921 (3).

c. Follow-On Maintenance.

Operate troop transport alarm and check for proper operation (TM 9-2320-365-10).

End of Task.
20-81. M1079 AIR CONDITIONER KIT INSTALLATION/REMOVAL

This task covers:

- Installation
- Removal
- Follow-On Maintenance

**INITIAL SETUP**

**Equipment Conditions**
- Engine shut down (TM 9-2320-365-10).
- AC power disconnected (TM 9-2320-365-10).
- Batteries disconnected (para 7-48).
- Cab raised (TM 9-2320-365-10).
- Spare tire lowered (TM 9-2320-365-10).
- LH and RH doors opened (115 degrees) (TM 9-2320-365-10).

**Materials/Parts**
- Lockwasher (30) (Item 84, Appendix G)
- Lockwasher (8) (Item 82, Appendix G)
- Seal, Nonmetallic (2) (Item 254, Appendix G)

**Personnel Required**
- (4)

**Tools and Special Tools**
- Tool Kit, Genl Mech (Item 44, Appendix C)
- Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)
- Sling, Endless (Item 32, Appendix C)

**a. Installation.**

**NOTE**

Retain cover and hardware for future use.

1. Remove 30 screws (1), lockwashers (2), washers (3), and cover (4) from van wall (5). Discard lockwashers.

2. Install seal (6) on left and right side of opening (7).

3. Install seal (8) on top and bottom of opening (7).
(4) Release two latches (9) on pod (10).

(5) Remove eight screws (11), lockwashers (12), washers (13), and center top front cover (14) from pod (10). Discard lockwashers.

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

CAUTION
Use care when positioning air conditioner in van pod. Failure to comply may result in damage to air conditioner, pod panel, or seals.

NOTE
Step (6) requires the aid of three assistants.

(6) Position air conditioner (15) in pod (10) with four washers (16) and screws (17).

(7) Tighten four screws (17) to 27-29 lb-ft (N·m).
(8) Install center top front cover (14) on pod (10) with eight washers (13), lockwashers (12), and screws (11).

(9) Latch two latches (9) on pod (10).

(10) Remove dust cap (18) from connector J242 (19).

(11) Connect connector P242 (20) to connector J242 (19).

(12) Remove dust cap (21) from power input connector (22).

(13) Connect connector J242A (23) to power input connector (22).

b. Removal.

(1) Disconnect connector J242A (1) from power input connector (2).

(2) Install dust cap (3) on power input connector (2).

**NOTE**

Retain air conditioner power cable for future use.

(3) Disconnect connector P242 (4) from connector J242 (5).

(4) Install dust cap (6) on connector J242 (5).
(5) Release two latches (7) on pod (8).

(6) Remove eight screws (9), lockwashers (10), washers (11), and center top front cover (12) from pod (8). Discard lockwashers.

(7) Remove four screws (13) and washers (14) from pod (8).

**WARNING**

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

**CAUTION**

Use care when removing air conditioner from van pod. Failure to comply may result in damage to equipment.

**NOTE**

- Step (8) requires the aid of three assistants.
- Retain air conditioner and hardware for future use.

(8) Remove air conditioner (15) from pod (8).
(9) Install center top front cover (12) on pod (8) with eight washers (11), lockwashers (10), and screws (9).

(10) Latch two latches (7) on pod (8).

(11) Remove seals (16) from top and bottom of opening (17). Discard seals.

(12) Remove seals (18) from left and right side of opening (17). Discard seals.

(13) Install cover (19) on van wall (20) with 30 washers (21), lockwashers (22), and screws (23).
c. Follow-On Maintenance.

(1) Raise spare tire (TM 9-2320-365-10).

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

(3) Connect batteries (para 7-48).

(4) Connect AC power (TM 9-2320-365-10).

(5) Operate air conditioner and check for proper operation (TM 9-2320-365-10).

(6) Close LH and RH doors (TM 9-2320-365-10).

End of Task.
20-82. M1079 A/C POWER CABLE REPLACEMENT

This task covers:

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

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-365-10).
AC power disconnected (TM 9-2320-365-10).
LH and RH doors opened (115 degrees) (TM 9-2320-365-10).

Materials/Parts
Dispenser, Pressure Sensitive Adhesive Tape
(Item 21, Appendix D)

Tools and Special Tools
Tool Kit, Genl Mech (Item 44, Appendix C)

a. Removal.

(1) Disconnect connector P242 (1) from connector J242 (2).

(2) Disconnect connector J242A (3) from A/C power connector (4).

b. Installation

(1) Connect connector J242A (3) to A/C power connector (4).

(2) Connect connector P242 (1) to connector J242 (2).

c. Follow-On Maintenance.

(1) Connect AC power (TM 9-2320-365-10).

(2) Close LH and RH doors (TM 9-2320-365-10).

End of Task.
20-83. AMBER WARNING LIGHT ASSEMBLY REPAIR

This task covers:

a. Disassembly  
b. Assembly  
c. Follow-On Maintenance

INITIAL SETUP

Tools and Special Tools  
Tool Kit, Genl Mech (Item 44, Appendix C)

Materials/Parts  
Lockwasher (4) (Item 68, Appendix G)

a. Disassembly.

(1) Loosen screw (1) on clamp (2).

(2) Remove lens (3) from lamp housing (4).

(3) Remove clamp (2) from lamp housing (4).
NOTE

Perform step (4) on amber warning lights equipped with nuts containing a captive lockwasher.

(4) Remove four self-locking nuts (5) and lamp mounting plate (6) from mounting studs (7). Discard self-locking nuts.

NOTE

Perform step (5) on amber warning lights equipped with nuts and lockwashers.

(5) Remove four nuts (5), lockwashers (8), and lamp mounting plate (6) from mounting studs (7). Discard lockwashers.

(6) Loosen four screws (9) on two lamps (10).

(7) Remove four terminal lugs (11) from two lamps (10).

(8) Remove seal (12) from lamp housing (4).

b. Assembly.

(1) Install seal (1) on lamp housing (2).

(2) Install four terminal lugs (3) on two lamps (4) with four screws (5).

(3) Install lamp mounting plate (6) on four mounting studs (7) with lockwashers (8) and nuts (9).
(4) Position clamp (10) on lamp housing (2).

(5) Install lens (11) on lamp housing (2).

(6) Tighten screw (12) in clamp (10).

c. Follow-On Maintenance.

Operate amber warning light and check for proper operation (TM 9-2320-365-10).

End of Task.
This task covers:

a. Installation
b. Removal

c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-365-10).
Cargo bed side panels and stakes removed (TM 9-2320-365-10).

Tools and Special Tools
Drill Set, Twist (Item 8, Appendix C)
Drill, Portable, Electric (Item 7, Appendix C)
Tap, thread, cutting (Item 40.3, Appendix C)
Tap and Die Set, (Item 40.2, Appendix C)

Tools and Special Tools (Cont)
Tool Kit, Genl Mech (Item 44, Appendix C)
Sling, Cargo (2) (Item 31, Appendix C)

Materials/Parts
Lockwasher (8) (Item 66.2, Appendix G)
Nut, Self-Locking (4) (Item 143, Appendix G)

Personnel Required
(2)

NOTE

This paragraph applies to shelter models A, B, or C with an overall height of 83 1/2 to 89 in. (214 to 226 cm). If shelter height is below 83 1/2 in. (214 cm), shorten cable for proper removal of slack in turnbuckle assembly.

a. Installation.

NOTE

- Perform steps (1) through (6) on tiedowns not originally modified.
- All tiedowns are modified the same way. RH front tiedown shown.
- Measurements will be taken from upper LH corner on LH tiedown bracket.

(1) Measure and mark a line (1) 1.25 in. (32 mm) down from upper RH corner of tiedown bracket (2).

(2) Measure and mark a line (3) 4.4 in. (109 mm) from RH side of line (1).

(3) Measure and mark a line (4) 4.72 in. (120 mm) from RH side of line (3).
(4) Drill two 27/64 in. holes (5) in tiedown bracket (2).

(5) Tap two holes (5).

(6) Perform steps (1) through (5) on remaining tiedowns.

(7) Position slider (6) and stop (7) on tiedown bracket (2) with two lockwashers (8), washers (9), and screws (10).

(8) Install threaded block (11) in tiedown bracket (2) with eyebolt (12).

(9) Perform steps (7) and (8) on remaining tiedown brackets.

**WARNING**

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

(10) Remove four quick release pins (13) and plugs (14) from crane pockets (15).

(11) Lower ladder (TM 9-2320-355-10).

**NOTE**

All tiedowns are assembled the same way. RH front tiedown bracket shown.
NOTE

Tiedowns are positioned with eyebolts toward four corners of cargo bed.

(12) Install two tiedowns (16 and 17) in four crane pockets (15).

CAUTION

Ensure quick release pins are installed through both sides of crane pockets. Failure to comply may result in change to equipment.

(13) Install four plugs (14) in cargo bed frame (18) with four quick release pins (13).

NOTE

• Left and right clamps are installed the same way. Left clamp shown.

Perform steps (14) and (15) on M1078.

(14) Install clamp (19) on frame rail (18) and subframe rail (20) with spacer (21), tie-rod (22), and two self-locking nuts (23).

(15) Perform step (14) on right clamp.
WARNING

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

NOTE

Steps (16) through (19) require the aid of an assistant.

(16) Position S-280 shelter (24) on cargo bed (25).

All tiedowns are adjusted the same way. RH front tiedown shown.

(17) Adjust tiedown (16) until slider (6) and stop (7) are flush with side and end of S-280 shelter (24).

(18) Tighten two screws (10)

(19) Perform steps (17) and (18) on remaining tiedowns.
**NOTE**

- Four tiedown cables are installed the same way. One tiedown cable shown.
- Large end of S-280 shelter tiedown ring points toward cargo bed.

(20) Install hook (26) on upper S-280 shelter tiedown ring (27).

(21) Install hook (28) on eyebolt (12).

(22) Perform steps (20) and (21) on remaining tiedown cables.

(23) Remove slack from four turnbuckles (29).

(24) Tighten four turnbuckles (29) 1/2 turn in sequence shown.

(25) Perform step (24) four more times.

(26) Raise ladder (TM 9-2320-365-10).
b. Removal.

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

(2) Loosen four turnbuckles (1).

**NOTE**

Four tiedown cables are removed the same way. One tiedown cable shown.

(3) Remove hook (2) from eyebolt (3).

(4) Remove hook (4) from upper S-280 shelter tiedown ring (5).

(5) Perform steps (3) and (4) on remaining tiedown cables.
(6) Loosen six screws (6).

(7) Adjust tiedown (7) until slider (8) and stop (9) are removed from side and end of S-280 shelter (10).

(8) Perform steps (6) and (7) on remaining tiedowns.

**NOTE**

All tiedowns are loosened the same way. RH front tiedown shown.

**WARNING**

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

**NOTE**

Step (9) requires the aid of an assistant.

(9) Remove S-280 shelter (10) from cargo bed (11).
(10) Remove two self-locking nuts (12), tie-rod (13), spacer (14), and clamp (15) from subframe rail (16) and frame rail (17).

(11) Perform step (10) on right clamp.

(12) Remove four quick release pins (18) and plugs (19) from cargo bed frame (17).

NOTE

- Left and right clamps are removed the same way. Left clamp shown.
- Perform steps (10) and (11) on M1078.
(13) Remove two tiedowns (7 and 20) from four crane pockets (21).

(14) Install four plugs (19) in crane pockets (21) with quick release pins (18).

(15) Raise ladder (Tm 9-2320-365-10).

NOTE

All tiedowns are disassembled the same way. RH front tiedown shown.

(16) Remove eyebolt (3) and threaded block (22) from tiedowns.

(17) Remove two screws (6), washers (24), lockwashers (25), stop (9), and slider (8) from tiedown bracket (23). Discard lockwashers.

(18) Perform steps (16) and (17) on remaining tiedowns.

c. Follow-On Maintenance.

Install cargo bed side panels and stakes (TM 9-2320-365-10).

End of Task.
20-85. DIGITIZATION KIT REMOVAL

This task covers:

a. Removal
b. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions
- Engine shut down (TM 9-2320-365-10-1)
- Batteries discounted (Para 7-48)
- Kick panel removed (Para 16-3)
- Power distribution panel removed (Para 7-10 WTEC II, Para 7-11 WTEC III)
- RH seat removed (Para 16-14)

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

Materials/Parts
- Lockwasher (2) (Item 103.1 Appendix G)
- Washer, Spring (6) (Item 283 Appendix G)
- Nut Self-Locking (6) (Item 132.1 Appendix G)

Personnel Required
(2)

NOTE
Retain digitization kit parts for future use.

a. Removal.

NOTE
Other terminal lugs are present at this location.

(1) Remove nut (1), lockwasher (2), washer (3), and terminal lug TL21 (4) from ground stud (5). Discard lockwasher.

(2) Install washer (3) and lockwasher (2) on ground stud (5) with nut (1).
20-85. DIGITIZATION KIT REMOVAL (CONT)

(3) Disconnect terminal lug TL14 (6) from terminal block TB2 connector 5 (7).

(4) Remove screw (8), lockwasher (9), and terminal lug TL20 (10) from 24 VDC connector X1 (11). Discard lockwasher.

NOTE

Other terminal lugs are present at this location.

(5) Install lockwasher (9) on 24 VDC connector X1 (11) with screw (8).
(6) Remove two nuts (12), lockwashers (13), washers (14), cover (15), and two washers (14) from terminal block TB1 (16). Discard lockwasher.

**NOTE**

Perform step (7) on vehicles equipped with WTEC II transmission controllers.

(7) Remove terminal lug TL22 (17) from terminal block TB1 connector 58 (18).

**NOTE**

Perform step (8) on vehicles equipped with WTEC III transmission controllers.

(8) Remove terminal lug TL22 (19) from terminal block TB1 connector 58 (18).

(9) Remove terminal lug (19) from existing wire J117 and digitization power cable. Discard terminal lug.

(10) Strip insulation 5/16 (8 mm) on existing wire J119.

(11) Install terminal lug (17) on existing wire J119.

**NOTE**

Perform steps (9) through (11) on vehicle serial numbers 00001 through 11347 equipped with WTEC III controls.
(12) Install terminal lug TL22 (17) on terminal block TB1 connector 58 (18).

(13) Install two washers (14) and cover (15) on terminal block TB1 (16) with two washers (14), lockwashers (13), and nuts (12).

(14) Remove screw (20) and terminal lug TL25 (21) from dashboard (22).

(15) Remove screw (23) and terminal lug TL19 (24) from dashboard (22).

(16) Remove dust boot (25), nut (26), washer (27), and terminal lug TL23 (28) from stud (29).
(17) Remove dust boot (30), nut (31), washer (32), and terminal lug TL24 (33) from stud (34).

(18) Remove two screws (35) and circuit breaker CB11 (36) from dashboard (22).

(19) Remove wing screw (37) from electrical distribution block cover (38).

(20) Loosen wing screw (39) on electrical distribution block cover (38).

(21) Remove electrical distribution block cover (38) from power distribution shelf (40).

(22) Position wing screw (37) in power distribution shelf (40).

(23) Remove dust boot (41), nut (42), washer (43), and terminal lug TL16 (44) from stud (45).

(24) Position washer (43) on stud (45) with nut (42).
(25) Remove nut (46), washer (47), terminal lug TL17 (48), and terminal lug TL18 (49) from stud (50).

(26) Position washer (47) on stud (50) with nut (46).

(27) Remove dust boot (51), nut (52), washer (53), and terminal lug TL15 (54) from stud (55).

(28) Position washer (53) on stud (55) with nut (52).
NOTE

- Terminal lugs are disconnected the same way. One terminal lug shown.

- Refer to Table 1 Terminal Lug Locations and Connectors for details.

(29) Disconnect terminal lug TL1 (56) from distribution panel PD1 CB10 connector (57).

(30) Perform step (29) on remaining terminal lugs.

Table 1 – Terminal Lug Locations and Connectors

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>FUNCTION</th>
<th>PD</th>
<th>CONNECTOR</th>
<th>AMP</th>
</tr>
</thead>
<tbody>
<tr>
<td>CB1</td>
<td>MTS SENSE</td>
<td>PD2</td>
<td>TL6</td>
<td>7.5A</td>
</tr>
<tr>
<td>CB2</td>
<td>Spare</td>
<td>PD2</td>
<td>Spare</td>
<td></td>
</tr>
<tr>
<td>CB3</td>
<td>Spare</td>
<td>PD2</td>
<td>Spare</td>
<td></td>
</tr>
<tr>
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<td>Spare</td>
<td>PD2</td>
<td>Spare</td>
<td></td>
</tr>
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<td>CB5</td>
<td>EPLRS</td>
<td>PD1</td>
<td>TL8</td>
<td>10 A</td>
</tr>
<tr>
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<td>DVE</td>
<td>PD1</td>
<td>TL3</td>
<td>7.5 A</td>
</tr>
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<td>PLGR</td>
<td>PD1</td>
<td>TL9</td>
<td>7.5 A</td>
</tr>
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<td>SINCGRAR/FBC2</td>
<td>PD1</td>
<td>TL2</td>
<td>15 A</td>
</tr>
<tr>
<td>CB9</td>
<td>Spare</td>
<td>PD1</td>
<td>Spare</td>
<td></td>
</tr>
<tr>
<td>CB10</td>
<td>MTS PWR</td>
<td>PD1</td>
<td>TL1</td>
<td>20 A</td>
</tr>
</tbody>
</table>
(31) Remove circuit breakers from distribution panels PD1 and PD2 [Para 20-87].

(32) Remove four nuts (58), lockwashers (59), screws (60), and distribution panel PD1 (61) from power distribution shelf (40). Discard lockwashers.

(33) Remove two nuts (62), lockwashers (63), screws (64), and distribution panel PD2 (65) from power distribution shelf (40). Discard lockwashers.

**NOTE**

Note routing of digitization power cable before removing from vehicle.

(34) Remove digitization power cable (66) from vehicle.

(35) Position four screws (60) in distribution panel PD1 (61).

(36) Position two screws (64) in distribution panel PD2 (65) with nuts (62).

(37) Remove six screws (67) and washers (68) from top support (69).

(38) Remove eight screws (70), washers (71), and top support (69) from rack assembly (72).
Spacers may be used with vehicles equipped with rear panels. Use caution when removing screws so washers do not fall behind panel or disassembly may be required to recover washers.

(39) Remove two screws (73) and washers (74) from rear upper support (75).

(40) Remove two screws (76) and washers (77) from rear mid support (78).

(41) Remove three screws (79) and washers (80) from side mid support (81).
(42) Remove eight screws (82) and washers (83) from bottom support (84).

(43) Remove six screws (85), washers (86), and MTS mounting bracket (87) from bottom support (84).

(44) Remove rack assembly (72) and bottom support (84) from cab.

(45) Unsnap webbing (88).

(46) Remove three nuts (89), webbing (88), washers (90), and screws (91) from angle (92).

(47) Remove nut (93), washer (94), and screw (95) from angle (92).

(48) Remove screw (96), washer (97), and angle (92) from vehicle.

(49) Remove two screws (98) and washers (99) from Co-Driver’s Storage Box (100).
CAUTION

Spacers may be used with vehicles equipped with rear panels. Use caution when removing screws so washers do not fall behind panel or disassembly may be required to recover washers.

(50) Remove three screws (101) and washers (102) from Co-Driver’s Storage Box (100).

(51) Remove three screws (103), washers (104), and Co-Driver’s Storage Box (100) from vehicle.

(52) Unsnap webbing (105).

(53) Remove six screws (106) and washers (107) from Driver’s Storage Box (108).

(54) Remove Driver’s Storage Box (108) from cab.

b. Follow-on Maintenance

(1) Install RH Seat (Para 16-14).

(2) Install power distribution panel (Para 7-10 WTEC II, Para 7-11 WTEC III).

(3) Install kick panel (Para 16-3).

(4) Connect batteries (Para 7-48).

(5) Install driver and co-driver storage boxes (Para 16-17).

End of Task
20-86. DIGITIZATION KIT INSTALLATION

This task covers:

a. Installation
b. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions
- Engine shut down (TM 9-2320-365-10)
- Batteries discounted (para 7-48)
- Power distribution panel removed (para 7-10 WTEC II, para 7-11 WTEC III)
- Kick panel removed (para 16-3)
- RH seat removed (para 16-14)

Tools and Special Tools
- Tool Kit, Genl Mech (Item 44, Appendix C)
- Wrench, Torque (0-200 Lb-in) (Item 58, Appendix C)
- Wrench Set, Socket (Item 49, Appendix C)

Materials/Parts
- Plastic Cable Ties (Item 76, Appendix D)
- Sealant (Item 68, Appendix D)

Personnel Required
- (2)

a. Installation.

(1) Position drivers storage box (1) in cab.

**WARNING**

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

(2) Apply sealant to threads of six screws (2).

(3) Position six washers (3) and screws (2) in drivers storage box (1).

(4) Tighten six screws (2) to 70-85 lb-in. (8-10 N•m).

(5) Snap webbing (4).
(6) Apply sealant to threads of six screws (6).

**WARNING**

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

(7) Position co-drivers storage box (7) in cab with three washers (8) and screws (6).

(8) Position three washers (9) and screws (6) in co-drivers storage box (7).

(9) Tighten six screws (6) to 70-85 lb-in. (8-10 N•m).

**CAUTION**

Add spacers behind supports on vehicles equipped with rear panels. Failure to comply may result in damage to equipment.
(10) Apply sealant to threads of screws (10 and 11).

(11) Position washer (12) and screw (10) in co-drivers storage box (7).

(12) Position angle (13) on cab with washer (14) and screw (11).

(13) Position washer (15) and screw (16) in co-drivers storage box (7) with self-locking nut (17).

(14) Tighten screws (10 and 11) to 70-85 lb-in. (8-10 N•m).

(15) Tighten self-locking nut (17) to 100-120 lb-in. (12-13 N•m).

(16) Position webbing (18) on angle (13) with three washers (19), screws (20), and self-locking nuts (21).

(17) Tighten three self-locking nuts (21) to 110-120 lb-in (12-13 N•m).

(18) Snap webbing (18).

**WARNING**

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.
(19) Position rack assembly (22) and bottom support (23) in cab.

**WARNING**

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

(20) Apply sealant to threads of eight screws (24).

(21) Position eight washers (25) and screws (24) in bottom support (23).

(22) Tighten eight screws (24) to 110-120 lb-in. (12-13 N•m).

(23) Apply sealant to threads of six screws (26).

(24) Position MTS mounting bracket (27) on bottom support (23) with six washers (28) and screws (26).

(25) Tighten six screws (26) to 70-85 lb-in (8-10 N•m).

(26) Apply sealant to threads of three screws (29).

(27) Position three washers (30) and screws (29) in outer side support (31).
20-86 DIGITIZATION KIT INSTALLATION (CONT)

WARNING

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

(28) Apply sealant to threads of two screws (32 and 33).

(29) Position two washers (34) and screws (32) on lower rear support (35).

(30) Position two washers (36) and screws (33) on upper rear support (37).

(31) Apply sealant to threads of six screws (38) and eight screws (39).

(32) Position top support (40) in cab with six washers (41) and screws (38).

(33) Position eight washers (42) and screws (39) in top support (40).

(34) Tighten eight screws (39) to 110-120 lb-in. (12-13 N•m).

(35) Tighten six screws (26), three screws (29), two screws (32), two screws (33), and six screws (38) to 70-85 lb-in. (8-10 N•m).
(36) Position digitization power cable (43) in vehicle.

(37) Install distribution panel PD2 (44) on power distribution shelf (45) with two screws (46), lockwashers (47), and nuts (48).

(38) Install distribution panel PD1 (49) on power distribution shelf (45) with four screws (50), lockwashers (51), and nuts (52).

(39) Install circuit breakers in distribution panels PD2 and PD1 [para 20-87].

(40) Connect terminal lug TL1 (53) to distribution panel PD1 CB10 (54).

NOTE

- Terminal lugs are connected the same way. One terminal lug shown.
- Refer to Table 1 Terminal Lug Locations and Connectors for details.

(41) Perform step (40) on remaining terminal lugs.

Table 1 – Terminal Lug Locations and Connectors

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>FUNCTION</th>
<th>PD</th>
<th>CONNECTOR</th>
<th>AMP</th>
</tr>
</thead>
<tbody>
<tr>
<td>CB1</td>
<td>MTS SENSE</td>
<td>PD2</td>
<td>TL6</td>
<td>7.5A</td>
</tr>
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<td>CB2</td>
<td>Spare</td>
<td>PD2</td>
<td></td>
<td>Spare</td>
</tr>
<tr>
<td>CB3</td>
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<td>Spare</td>
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<td>Spare</td>
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<tr>
<td>CB5</td>
<td>EPLRS</td>
<td>PD1</td>
<td>TL8</td>
<td>10 A</td>
</tr>
<tr>
<td>CB6</td>
<td>DVE</td>
<td>PD1</td>
<td>TL3</td>
<td>7.5 A</td>
</tr>
<tr>
<td>CB7</td>
<td>PLGR</td>
<td>PD1</td>
<td>TL9</td>
<td>7.5 A</td>
</tr>
<tr>
<td>CB8</td>
<td>SINCGAR/FBC2</td>
<td>PD1</td>
<td>TL2</td>
<td>15 A</td>
</tr>
<tr>
<td>CB9</td>
<td>Spare</td>
<td>PD1</td>
<td></td>
<td>Spare</td>
</tr>
<tr>
<td>CB10</td>
<td>MTS PWR</td>
<td>PD1</td>
<td>TL1</td>
<td>20 A</td>
</tr>
</tbody>
</table>
(42) Install terminal lug TL15 (55) on stud (56) with washer (57) and nut (58).

(43) Install dust boot (59) on stud (56).

(44) Install terminal lug TL18 (60) and terminal lug TL17 (61) on stud (62) with washer (63) and nut (64).
(45) Install terminal lug TL16 (65) on stud (66) with washer (67) and nut (68).

(46) Install dust boot (69) on stud (66).

(47) Position electrical distribution block cover (70) on power distribution shelf (45).

(48) Tighten wing screw (71) on electrical distribution block cover (70).

(49) Install wing screw (72) in electrical distribution block cover (70).

(50) Install circuit breaker CB11 (73) on dashboard (74) with two screws (75).

(51) Install terminal lug TL24 (76) on stud (77) with washer (78) and nut (79).

(52) Install dust boot (80) on stud (77).
(53) Install terminal lug TL23 (81) on stud (82) with washer (83) and nut (84).

(54) Install dust boot (85) on stud (82).

(55) Install terminal lug TL25 (86) on dashboard (74) with screw (87).

(56) Install terminal lug TL19 (88) on dashboard (74) with screw (89).
(57) Remove terminal lug TL22 ring terminal (90) from NEW digitization power cable and strip insulation 5/16 in (8 mm).

(58) Install terminal lug TL22 spade terminal (91) on NEW digitization power cable.

**NOTE**

Perform steps (57) through (60) if a new digitization power cable is being installed.

Perform steps (57) and (58) if replacing the digitization power cable on vehicle serial numbers 00001 through 11347 equipped with WTEC II controller.

Perform steps (59) and (60) if replacing the digitization power cable on vehicle serial numbers 00001 through 11347 equipped with WTEC III controller.

(59) Remove terminal lug TL22, ring terminal (90) from NEW digitization power cable and strip insulation 5/16 in (8 mm).

(60) Install terminal lug TL22, spade terminal (91) on NEW digitization power cable and wire 146.
20-86. DIGITIZATION KIT INSTALLATION (CONT)

NOTE

- Perform steps (61) through (68) on vehicle serial numbers 00001 through 11437.
- Perform step (61) on vehicles equipped with WTEC II transmission controllers.

(61) Install terminal lug TL22 (91) on terminal block TB1 connector 58 (92).

NOTE

Perform step (62) on vehicles equipped with WTEC III transmission controllers.

(62) Install terminal lug TL22 (91) on terminal block TB1 connector 58 (92).

(63) Install two washers (93) and cover (94) on terminal block TB1 (95) with two washers (93), lockwashers (96), and nuts (97).

(64) Remove screw (98) and lockwasher (99) from 24 VDC connector X1 (100).

NOTE

Other terminal lugs are present at this location.

(65) Install terminal lug TL20 (101) on 24 VDC connector X1 (100) with lockwasher (99) and screw (98).
(66) Connect terminal lug TL14 (102) to terminal block TB2 connector 43 (103).

(67) Remove nut (104), lockwasher (105), and washer (106) from ground stud (107).

(68) Install terminal lug TL21 (108) on ground stud (107) with washer (106), lockwasher (105), and nut (104).

b. Follow-on Maintenance

(1) Install power distribution panel (para 7-11 WTEC II, Para 7-13 WTEC III).

(2) Install kick panel (para 16-3).

(3) Connect batteries (para 7-57).

(4) Install RH seat (para 7-57)

(5) Operate equipment, check for proper operation.

End of Task

NOTE

Other terminal lugs are present at this location.
This task covers:

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

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-365-10)
Batteries discounted (para 7-48)

Tools and Special Tools
Tool Kit, Genl Mech (Item 44, Appendix C)

Personnel Required
(2)

a. Removal.

(1) Removal wing screw (1) from power distribution shelf (2).

(2) Loosen wing screw (3) on electrical distribution block cover (4).

(3) Remove electrical distribution block cover (4) from power distribution shelf (2).

NOTE
All circuit breakers in digitization power distribution panels PD1 and PD2 are replaced the same way. One circuit breaker shown.

(4) Locate circuit breaker to be replaced.

NOTE
Refer to Figure 3-1 Power Distribution Circuit Breaker Locations and Table 3-1 Power Distribution Circuit Breakers for details.

(5) Remove circuit breaker (5) from power distribution panel PD1 (6).
Table 3-1. Power Distribution Panel Circuit Breakers.

<table>
<thead>
<tr>
<th>CB</th>
<th>Amp</th>
<th>Function</th>
<th>Reset</th>
<th>P/N</th>
</tr>
</thead>
<tbody>
<tr>
<td>CB1</td>
<td>7.5 AMP</td>
<td>MTS SENSE</td>
<td>Manual</td>
<td>223-7.5-400</td>
</tr>
<tr>
<td>CB2</td>
<td>Blank</td>
<td></td>
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<td>CB4</td>
<td>Blank</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CB5</td>
<td>10 AMP</td>
<td>DPLARS</td>
<td>Manual</td>
<td>223-10-400</td>
</tr>
<tr>
<td>CB6</td>
<td>7.5 AMP</td>
<td>DVE</td>
<td>Manual</td>
<td>223-7.5-400</td>
</tr>
<tr>
<td>CB7</td>
<td>7.5 AMP</td>
<td>PLGR</td>
<td>Manual</td>
<td>223-7.5-400</td>
</tr>
<tr>
<td>CB8</td>
<td>15 AMP</td>
<td>SINCgars/FBCB2</td>
<td>Manual</td>
<td>223-15-400</td>
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<tr>
<td>CB9</td>
<td>Blank</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CB10</td>
<td>20 AMP</td>
<td>MTS POWER</td>
<td>Manual</td>
<td>2223-20-400</td>
</tr>
</tbody>
</table>
20-87. DIGITIZATION KIT CIRCUIT BREAKER REPLACEMENT/INSTALLATION (CONT)

b. Installation

NOTE
Refer to Figure 3-1 Power distribution Circuit Breaker Locations and Table 3-1 Power Distribution Circuit Breakers for details.

(1) Install circuit breaker (1) on power distribution panel PD1 (2).

(2) Position electrical distribution block cover (3) on power distribution shelf (4).

(3) Tighten wing screw (5) on electrical distribution block cover (3).

(4) Install wing screw (6) in power distribution shelf (4).

c. Follow-on Maintenance.

Connect batteries (para 7-48)

End of Task
20-88. DIGITIZATION KIT POWER CABLE REMOVAL/INSTALLATION

This task covers:

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

INITIAL SETUP

**Equipment Conditions**
- Engine shut down (TM 9-2320-365-10-1)
- Batteries discounted (TM 9-2320-365-20-3)
- Kick panel removed (TM 9-2320-365-20-4)
- Power Distribution Panel removed for access (TM 9-2320-365-20-3)

**Tools and Special Tools**
- Tool Kit, Genl Mech (Item 44, Appendix C)
- Tool Kit Electrical Contact Repair (Item 44.1, Appendix C)

**Materials/Parts**
- Lockwasher (2) (Item 103, Appendix G)
- Ties, Cable, Plastic (Item 76, Appendix D)
- Washer, Spring (6) (Item 283, Appendix G)
- Dispenser Pressure Sensitive Adhesive Tape (Item 21, Appendix D)
- Terminal Lug (Item 269.01, Appendix G)
- Nut, Self-Locking (Item 132.1, Appendix G)

**Personnel Required**
- (2)

---

**a. Removal.**

**NOTE**
- Perform steps (1) through (4) on vehicle serial numbers 00001 through 11437.
- Tag connectors and connection points prior to disconnecting.

1. Remove nut (1), lockwasher (2), washer (3), and terminal lug TL21 (4) from ground stud (5). Discard lockwasher.

2. Disconnect terminal lug TL14 (6) from terminal block TB2 connector 5 (7).

---
(3) Remove screw (8), lockwasher (9), and terminal lug TL20 (10) from 24 VDC connector X1 (11). Discard lockwasher.

(4) Remove two nuts (12), lockwashers (13), washers (14), cover (15), and two washers (14) from terminal block TB1 (16). Discard lockwasher.

**NOTE**
Perform step (5) on vehicles equipped with WTEC II transmission controllers.

(5) Remove terminal lug TL 22 (17) from terminal block TB1 connector 58 (18).

**NOTE**
Perform step (6) on vehicles equipped with WTEC III transmission controllers.

(6) Remove terminal lug TL22 (19) from terminal block TB1 connector 58 (18).
(11) Remove screw (20) and terminal lug TL25 (21) from dashboard (22).

(12) Remove screw (23) and terminal lug TL19 (24) from dashboard (22).

(13) Remove dust boot (25), nut (26), washer (27), and terminal lug TL23 (28) from stud (29).

(14) Remove dust boot (30), nut (31), washer (32), and terminal lug TL24 (33) from stud (34).

(15) Remove two screws (35) and circuit breaker CB11 (36) from dashboard (22).
(16) Remove wing screw (37) from electrical distribution block cover (38).

(17) Loosen wing screw (39) on electrical distribution block cover (38).

(18) Remove electrical distribution block cover (38) from power distribution shelf (40).

(19) Remove dust boot (41), nut (42), washer (43), and terminal lug TL16 (44) from stud (45).

(20) Remove nut (46), washer (47), terminal lug TL17 (48), and terminal lug TL18 (49) from stud (50).
(21) Remove dust boot (51), nut (52), washer (53), and terminal lug TL15 (54) from stud (55).

(22) Disconnect terminal lug TL1 (56) from distribution panel PD1 CB10 connector (57).

(23) Perform step 13 on remaining terminal lugs.

Table 1 – Terminal Lug Locations and Connectors

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>FUNCTION</th>
<th>PD</th>
<th>CONNECTOR</th>
<th>AMP</th>
</tr>
</thead>
<tbody>
<tr>
<td>CB1</td>
<td>MTS SENSE</td>
<td>PD2</td>
<td>TL6</td>
<td>7.5A</td>
</tr>
<tr>
<td>CB2</td>
<td>Spare</td>
<td>PD2</td>
<td>Spare</td>
<td></td>
</tr>
<tr>
<td>CB3</td>
<td>Spare</td>
<td>PD2</td>
<td>Spare</td>
<td></td>
</tr>
<tr>
<td>CB4</td>
<td>Spare</td>
<td>PD2</td>
<td>Spare</td>
<td></td>
</tr>
<tr>
<td>CB5</td>
<td>EPLRS</td>
<td>PD1</td>
<td>TL8</td>
<td>10 A</td>
</tr>
<tr>
<td>CB6</td>
<td>DVE</td>
<td>PD1</td>
<td>TL3</td>
<td>7.5 A</td>
</tr>
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<td>CB7</td>
<td>PLGR</td>
<td>PD1</td>
<td>TL9</td>
<td>7.5 A</td>
</tr>
<tr>
<td>CB8</td>
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<td>TL2</td>
<td>15 A</td>
</tr>
<tr>
<td>CB9</td>
<td>Spare</td>
<td>PD1</td>
<td>Spare</td>
<td></td>
</tr>
<tr>
<td>CB10</td>
<td>MTS PWR</td>
<td>PD1</td>
<td>TL1</td>
<td>20 A</td>
</tr>
</tbody>
</table>
(24) Remove circuit breakers from distribution panels PD1 and PD2 (WP 03).

(25) Remove four nuts (58), lockwashers (59), screws (60), and distribution panel PD1 (61) from power distribution shelf (40). Discard lockwashers.

(26) Remove two nuts (62), lockwashers (63), screws (64), and distribution panel PD2 (65) from power distribution shelf (40). Discard lockwashers.

**NOTE**

Note routing of digitization power cable prior to removal.

(27) Remove digitization power cable (66) from vehicle.

**b. Installation**

(1) Position digitization power cable (66) in vehicle.

(2) Install distribution panel PD2 (65) on power distribution shelf (40) with two screws (64), lockwashers (63), and nuts (62).

(3) Install distribution panel PD1 (61) on power distribution shelf (40) with four screws (60), lockwashers (59), and nuts (58).

(4) Install circuit breakers in distribution panels PD2 and PD1 (WP 03).
NOTE

- Terminal lugs are connected the same way. One terminal lug shown.
- Refer to Table 1 Terminal Lug Locations and Connectors for details.

(5) Connect terminal lug TL1 (56) to distribution panel PD1 CB10 (57).

(6) Perform step 5 on remaining terminal lugs.

Table 1 – Terminal Lug Locations and Connectors

<table>
<thead>
<tr>
<th>LOCATION</th>
<th>FUNCTION</th>
<th>PD</th>
<th>CONNECTOR</th>
<th>AMP</th>
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<tbody>
<tr>
<td>CB1</td>
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<td>PD2</td>
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<td>CB4</td>
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</tr>
<tr>
<td>CB10</td>
<td>MTS PWR</td>
<td>PD1</td>
<td>TL1</td>
<td>20 A</td>
</tr>
</tbody>
</table>
(7) Install terminal lug TL15 (54) on stud (55) with washer (53) and nut (52).

(8) Install dust boot (51) on stud (55).

(9) Install terminal lug TL18 (49) and terminal lug TL17 (48) on stud (50) with washer (47) and nut (46).

(10) Install terminal lug TL16 (44) on stud (45) with washer (43) and nut (42).

(11) Install Dust boot (41) on stud (45).
(12) Position electrical distribution block cover (38) on power distribution shelf (40).

(13) Tighten wing screw (39) on electrical distribution block cover (38).

(14) Install wing screw (37) in electrical distribution block cover (38).

(15) Install circuit breaker CB11 (36) on dashboard (22) with two screws (35).

(16) Install terminal lug TL24 (33) on stud (34) with washer (32) and nut (31).

(17) Install dust boot (30) on stud (34).

(18) Install terminal lug TL23 (28) on stud (29) with washer (27) and nut (26).

(19) Install dust boot (25) on stud (29).
(20) Install terminal lug TL25 (24) on dashboard (22) with screw (23).

(21) Install terminal lug TL19 (21) on dashboard (22) with screw (20).

(22) Remove terminal lug TL22 ring terminal (17) from NEW digitization power cable and strip insulation 5/16 in (8 mm).

(23) Install terminal lug TL22 spade terminal (17) on NEW digitization power cable.

**NOTE**

Perform steps (22) and (23) if replacing the digitization power cable on vehicle serial numbers 0001 through 11347 equipped with WTEC II controller.

(24) Remove terminal lug TL22, ring terminal (19) from NEW digitization power cable and strip insulation 5/16 in (8 mm).

(25) Install terminal lug TL22, spade terminal (19) on NEW digitization power cable and existing wire J117.

**NOTE**

Perform steps (24) and (25) if replacing the digitization power cable on vehicle serial numbers 00001 through 11347 equipped with WTEC III controller.
NOTE
Perform step (26) on vehicles equipped with WTEC II transmission controllers.

(26) Install terminal lug TL22 (17) on terminal block TB1 connector 58 (18).

NOTE
Perform step (27) on vehicles equipped with WTEC III transmission controllers.

(27) Install terminal lug TL22 (19) on terminal block TB1 connector 58 (18).

(28) Install two washers (14) and cover (15) on terminal block TB1 (16) with two washers (14), lockwashers (13), and nuts (12).

(29) Install terminal lug TL20 (10) on +24 VDC connector X1 (11) with lockwasher (9) and screw (8).
(30) Connect terminal lug TL14 (6) to terminal block TB2 connector 43 (7).

(31) Install terminal lug TL21 (4) on ground stud (5) with washer (3), lockwasher (2), and nut (1).

c. Follow-on Maintenance

(1) Install power distribution panel (TM 9-2320-365-20-3).

(2) Install kick panel (TM 9-2320-365-20-4).

(3) Connect batteries (TM 9-2320-365-20-3).

(4) Operate equipment, check for proper operation.

End of Task
This task covers:

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

**INITIAL SETUP**

**Equipment Conditions**
- Engine shut down (TM 9-2320-365-10)
- Batteries discounted (para 7-48)
- Equipment and mounting base(s) removed.
- Digitization power cable, removed (para 20-88)
- RH seat removed, (para 16-14)

**Tools and Special Tools**
- Tool Kit, Genl Mech (Item 44, Appendix C)
- Wrench, Torque, 0-150lb-in. (Item 58 Appendix C)
- Socket Wrench Set (Item 49 Appendix C)

**Materials/Parts**
- Ties, Cable, Plastic (Item 76 Appendix D)
- Sealant (Item 68.2 Appendix D)

**Personnel Required**
- (2)

**a. Removal.**

1. Remove six screws (1) and washers (2) from top support (3).
2. Remove eight screws (4), washers (5), and top support (3) from rack assembly (6).
CAUTION

Spacers may be used with vehicles equipped with rear panels. Use caution when removing screws so that washers do not fall behind panel or disassembly may be required to recover washers.

(3) Remove two screws (7) and washers (8) from rear upper support (9).

(4) Remove two screws (10) and washers (11) from rear mid support (12).

(5) Remove three self-locking nuts (13), washers (14), and screws (15) from outer side support (16). Discard self-locking nuts.
(6) Remove two screws (17) and washers (18) from bottom support (19).

(7) Remove four screws (17), washers (18), and MTS plate (20) from bottom support (19).

(8) Remove eight screws (21) and washers (22) from bottom support (19).

(9) Remove rack assembly (6) from bottom support (19).

(10) Remove rack assembly (6) and bottom support (19) from cab.

b. Disassembly.

(1) Remove four screws (1), washers (2), and head pad (3) from head pad base (4).
NOTE

Note shelf and brace locations prior to removal.

(2) Remove four screws (5), washers (6), and SINGGAR shelf (7) from support legs (8).

(3) Remove four screws (5), washers (10), and head pad brace (9) from four support legs (8).

(4) Remove four screws (5), washers (11), and top rear wall brace (12) from support legs (8).

(5) Remove four self-locking nuts (13), PLGR/M42 alarm plate (14), four washers (15), and screws (16) from support legs (8). Discard self-locking nuts.

(6) Remove four screws (17), washers (18), and power distribution panel (19) from support legs (8).
(7) Remove four self-locking nuts (19), washers (20), and screws (21) from support legs (8). Discard self-locking nuts.

(8) Remove three self-locking nuts (22), rear M10 support (23), three washers (24), and screws (25) from EPLRS shelf (26). Discard self-locking nuts.

(9) Remove four screws (27), washers (25), and EPLRS shelf (26) from support legs (8).

(10) Remove three self-locking nuts (29), outer side support (30), three washers (31), and screws (32) from inter side support (33). Discard self-locking nuts.

(11) Remove two self-locking nuts (34), inter side support (33), two washers (35), and screws (36) from support legs (8).
20-89. DIGITIZATION KIT RADIO RACK ASSEMBLY REPLACEMENT/REPAIR (CONT)

(12) Remove four screws (37), washers (35), and stiffening plate (39) from four support legs (8).

(13) Remove four screws (40), washers (41), and support legs (8) from FBCB2 shelf (42).

c. Assembly.

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

(1) Apply sealant to threads of four screws (1 and 2).

(2) Install FBCB2 (3) on four support legs (4) with washers (5) and screws (1).

(3) Install stiffening plate (6) on support legs (4) with four washers (7) and screws (2).
(4) Position two washers (8) and screws (9) in inter side support (10) with two self locking nuts (11).

(5) Tighten two self-locking nuts (11) to 110-120 lb-in. (12-14 N•m).

(6) Apply sealant to threads of four screws (12).

(7) Install EPLRS shelf (13) and inter side support (10) on support legs (4) with four washers (14) and screws (12).

(8) Position outside support (15) on inter side support (10) with three washers (16), screws (17), and self-locking nuts (18).

(9) Position mid rear support (19) on EPLRS shelf (13) with three washers (20), screws (21), and self locking nuts (22).

(10) Position four washers (23) and screws (24) in support legs (4) with self-locking nuts (25).

(11) Tighten three self-locking nuts (22) and four self-locking nuts (25) to 110-120 lb-in. (12-13 N•m).

**WARNING**

Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.
20-89. DIGITIZATION KIT RADIO RACK ASSEMBLY REPLACEMENT/REPAIR (CONT)

**WARNING**

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

(12) Apply sealant to threads of four screws (26).

(13) Install power distribution shelf (27) in support legs (4) with four washers (28) and screws (26).

(14) Position PLGR/M42 alarm plate (29) on support legs (4) with four washers (30), screws (31), and self-locking nuts (32).

(15) Tighten four self-locking nuts (32) to 110-120 lb-in. (12-13 N•m).

(16) Apply sealant to threads of 12 screws (33).

(17) Install top rear wall bracket (34) and front head pad bracket (35) on support legs (4) with four washers (36 and 37) and screws (33).

(18) Install SINGGAR shelf (38) on support legs (4) with four washers (39) and screws (33).
d. Installation.

1. Position bottom support (1) and rack assembly (2) in cab.

2. Apply sealant to threads of eight screws (3) and six screws (4).

3. Position rack assembly (2) on bottom support (1) with eight washers (5) and screws (3).

4. Tighten eight screws (3) to 110-120 lb-in. (12-14 N·m).

5. Position MTS plate (6) on bottom support (1) with four washers (7) and screws (4).

6. Position two washers (7) and screws (4) in bottom support (1).

WARNING

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

(19) Apply sealant to threads of four screws (40).

(20) Install head pad (41) on front head pad brace (35) with four washers (42) and screws (39).
(7) Position three washers (8) and screws (9) in outer side support (10) with three self-locking nuts (11).

(8) Apply sealant to threads of two screws (12 and 13).

**WARNING**

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

(9) Position two washers (14) and screws (12) in lower rear support (15).

**CAUTION**

Add spacers behind support to vehicles equipped with rear panels. Failure to comply may result in damage to equipment.

(10) Position two washers (16) and screws (13) in upper rear support (17).
Adhesives, solvents, and sealing compounds can burn easily, can give off harmful vapors, and are harmful to skin and clothing. Keep away from open fire and use in a well-ventilated area. If adhesive, solvent, or sealing compound gets on skin or clothing, wash immediately with soap and water. Failure to comply may result in injury to personnel.

(11) Apply sealant to threads of six screws (18) and eight screws (19).

(12) Position top support (20) on rack assembly (2) with six washers (21) and screws (18).

(13) Position eight washers (22) and screws (19) in top support (20).

(14) Tighten two screws (12 and 13) to 70-85 lb-in. (8-10 N•m).

(15) Tighten three self-locking nuts (11) to 110-120 lb-in. (12-13 N•m).

(16) Tighten six screws (18) to 70-85 lb-in. (8-10 N•m).

(17) Tighten eight screws (19) to 110-120 lb-in. (12-13 N•m).

e. Follow-on Maintenance

(1) Install RH seat (Para 16-15)

(2) Install digitization power cable  [Para 20-81]

(3) Install mounting base(s) and equipment.

(4) Connect batteries (Para 7-57)

End of Task
20-90. DIGITIZATION KIT AFT STOWAGE BOX REPLACEMENT/REPAIR

This task covers:

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

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-365-10)  
Remove contents from AFT Storage Box

Tools and Special Tools
Drill, electric (Item 7, Appendix C)  
Drill set, twist (Item 8, Appendix C)  
Tool Kit, Blind Rivet (Item 43, Appendix C)  
Tool Kit, Genl Mech (Item 44, Appendix C)  
Wrench Set, Socket (Item 49, Appendix C)  
Wrench, Torque, 0-200 lb-in. (Item 59, Appendix C)

Materials/Parts
Nut, self-locking (13) (Item 146.1, Appendix G)  
Rivet (4) (Item 259, Appendix G)  
Washer, Spring (3) (Item 283, Appendix G)  
Sealant (Item 55.1, Appendix D)

Personnel Required
(2)

a. Removal.

(1) Unwrap webbing (1).

(2) Remove three nuts (2), webbing (1), washers (3), and screws (4) from angle (5).
(3) Remove nut (6), washer (7), and screw (8) from angle (5).

(4) Remove screw (9), washer (10), and angle (5) from cab.

(5) Remove two screws (11) and washers (12) from AFT Storage Box (13).

(6) Remove three screws (14) and washers (15) from AFT Storage Box (13).

(7) Remove three screws (16), washers (17), and AFT Storage Box (13) from cab.
b. Disassembly.

(1) Remove six self-locking nuts (18), side panel (19), six washers (20), and screws (21) from AFT Storage Box (13). Discard self-locking nuts.

(2) Remove three self-locking nuts (22), bracket (23), three washers (24), and screws (25) from AFT Storage Box (13). Discard three self-locking nuts.

(3) Remove three nuts (26), lockwashers (27), and snap screws (28) from AFT Storage Box (13).
(4) Remove four screws (29), washers (30), and headrest (31) from AFT Storage Box (13).

**WARNING**

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

(5) Remove four rivets (32) and data plate (33) from AFT Storage Box (13).

c. Assembly.

(1) Install data plate (1) on AFT Storage Box (2) with four rivets (3).

(2) Position headrest (4) on AFT Storage Box (2) with four washers (5) and screws (6).

(3) Tighten four screws (6) to 70-85 lb-in. (8-10 N•m).
20-90. DIGITIZATION KIT AFT STOWAGE BOX REPLACEMENT/REPAIR (CONT)

WARNING

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

(4) Apply sealant to threads of three snap screws (7).

(5) Install three snap screws (7) on AFT Storage Box (2) with three lockwashers (8) and nuts (9).

(6) Position bracket (10) on AFT Storage Box (2) with three washers (11) screws (12) and self-locking nuts (13).

(7) Tighten three self-locking nuts (13) to 95-110 lb-in. (11-12 N•m).

(8) Position side panel (14) on AFT Storage Box (2) with six washers (15), screws (16), and self-locking nuts (17).

(9) Tighten six self-locking nuts (17) to 95-110 lb-in. (11-12 N•m).
d. Installation.

**WARNING**

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

1. Apply sealant on threads of three screws (1 and 2).
2. Position AFT Storage Box (3) in cab with three washers (4) and screws (1).
3. Position three washers (5) and screws (2) in AFT Storage Box (3).
4. Tighten three screws (1 and 2) to 70-85 lb-in. (8-10 N•m).
5. Apply sealant to threads of screws (6 and 7).
6. Position washer (8) and screw (7) in AFT Storage Box (3).
7. Position angle (9) on cab with washer (10) and screw (6).
8. Position angle (9) on AFT Storage Box (3) with washer (11), screw (12), and self-locking nut (13).
9. Tighten two screws (6 and 7) to 70-85 lb-in. (8-10 N•m).
10. Tighten self-locking nut (13) to 95-110 lb-in. (11-12 N•m).
(11) Position webbing (1) on angle (5) with three washers (3), screws (4), and self-locking nuts (2).

(12) Tighten three self-locking nuts (2) to 95-110 lb-in. (11-12 N•m).

(13) Snap webbing (1).

End of Task
20-91. DIGITIZATION KIT DRIVER’S STORAGE BOX REPLACEMENT/REPAIR

This task covers:

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

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-365-10)  
Co-Driver’s Storage Box, removed (TM 9-2320-365-20-5)

Tools and Special Tools
Tool Kit, Genl Mech (Item 44, Appendix C)  
Wrench, Torque, 0-200 lb in (Item 58, Appendix-C)  
Wrench Set, Socket (Item 49, Appendix C)

Materials/Parts
Lockwasher (9) (Item 89, Appendix G)

a. Removal.

(1) Unsnap webbing (1).

(2) Remove six screws (2) and washers (3) from Driver’s Storage Box (4).

(3) Remove Driver’s Storage Box (4) from cab floor (5).
b. Disassembly.

(1) Remove four nuts (6), washers (7), screws (8), and webbing (1) from Driver’s Storage Box (4).

(2) Remove nine nuts (9), lockwashers (10), and snap screws (11) from Driver’s Storage Box (4). Discard lockwashers.

c. Assembly.

(1) Install nine snap screws (11) on Driver’s Storage Box (4) with nine lockwashers (10) and nuts (9).

(2) Install webbing (1) on Driver’s Storage Box (4) with four washers (7), screws (8), and nuts (6).
d. Installation.

1. Position Driver’s Storage Box (4) in mounting location on cab floor (5).
2. Position six washers (3) and screws (2) in Driver’s Storage Box (4).
3. Tighten six screws (2) to 70-85 lb-in. (8-10 N•m).
4. Snap webbing (1).

e. Follow-On Maintenance.

Install Co-Driver’s Storage Box (TM 9-2320-365-20)

End of Task.
20-92. DIGITIZATION KIT CO-DRIVER’S SEAT REPLACEMENT/REPAIR

This task covers:

a. Removal  c. Assembly
b. Disassembly  d. Installation

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-365-10-1)

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

a. Removal.

(1) Remove fire extinguisher (1) from bracket (2).

(2) Slide seat (3) toward back of vehicle.

(3) Remove two screws (4) and washers (5) from front seat mount (6).

(4) Slide seat (3) toward front of vehicle.

(5) Remove two screws (7) and washers (8) from rear seat mount (9).

(6) Remove seat (3) and bracket (2) from seat mounts (6 and 9).
b. Disassembly.

(1) Remove four bolts (10) and washers (11) from two seat hinges (12).

(2) Remove seat bottom (13) from two seat hinges (12).

(3) Remove two bolts (14), washers (15), and two seat hinges (12) from seat back (16).

(4) Remove two bolts (17), washers (18), and seat adjuster (19) from seat bottom (13).

(5) Remove 10 hog rings (20) from seat bottom cover (21).

(6) Remove seat bottom cover (21) from seat bottom (13).

(7) Remove five hog rings (22) from seat back cover (23).

(8) Remove seat back cover (23) from seat back (16).

WARNING

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

**NOTE**

Plastic film is provided in replacement seat cover kit.

(1) Position plastic film (24) over seat back (16).

(2) Position seat back cover (23) over plastic film (24) and seat back (16).

**WARNING**

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

**CAUTION**

Ensure hog rings are crimped over support wires on bottom of seat back. Failure to comply may result in damage to equipment.

(3) Pull seat back cover (23) tight over seat back (16) and install five hog rings (22) equally spaced on seat back cover (23).

(4) Position seat bottom cover (21) on seat bottom (13).

(5) Pull seat bottom cover (21) tight over seat bottom (13) and install 10 hog rings (20) on seat bottom cover (21).
(6) Install seat adjuster (19) on seat bottom (13) with two washers (18) and bolts (17).

(7) Install two seat hinges (12) on seat back (16) with two washers (15) and bolts (14).

(8) Install seat bottom (13) on two seat hinges (12) with four washers (11) and bolts (10).

d. Installation.

(1) Position bracket (2) and seat (3) on seat mounts (6 and 9).

(2) Slide seat (3) toward front of vehicle.

(3) Install two washers (8) and screws (7) on rear seat mount (9).

(4) Slide seat (3) toward rear of vehicle.

(5) Install two washers (5) and screws (4) on front seat mount (6) and bracket (2).

(6) Install fire extinguisher (1) on bracket (2).

End of Task.
20-93. RH CONVEX MIRROR INITIAL INSTALLATION

This task covers:

a. Installation

INITIAL SETUP

<table>
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<th>Tools and Special Tools</th>
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<td>Tool Kit, Genl Mech (Item 44, Appendix C)</td>
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<table>
<thead>
<tr>
<th>Personnel Required</th>
</tr>
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</table>

a. Removal.

(1) Remove nut (1) and washer (2) from Mirror (3).

(2) Position mirror (3) on bracket arm (4) with washer (2) and nut (1).

(3) Remove nut (5), washer (6), and screw (7) from mirror arm (8).

(4) Position bracket arm (9) on mirror arm (8) with clamp (10), screw (11), and nut (12).

(5) Position bracket arm (4) on mirror arm (8) with screw (7), washer (6), and nut (5).
(6) Tighten nut (5) to 156-204 lb-in. (17-23 N•m).

(7) Tighten (2) to 36-60 lb-in. (4-6 N•m).

(8) Tighten nut (12) to 84-108 lb-in. (9-12 N•m).

(9) Tighten two set screws (14) to 36-60 lb-in. (4-6 N•m).

End of Task.
20-94. CONVEX MIRROR INITIAL INSTALLATION

This task covers:

a. Installation

INITIAL SETUP

<table>
<thead>
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<th>Tools and Special Tools</th>
</tr>
</thead>
<tbody>
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<td>Tool Kit, Genl Mech (Item 46, Appendix C)</td>
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<td></td>
<td>Wrench, Torque 0-200 lb-in (Item 59, Appendix C)</td>
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<td></td>
<td>Lockwashers (3) (Item 105.3, Appendix G)</td>
</tr>
</tbody>
</table>

a. Installation.

NOTE

Perform step (1) on convex mirror mounted with bracket.

(1) Remove bolt (1), washer (2), and lockwasher (3) from convex mirror (4).

NOTE

Perform step (2) on convex mirror mounted with clamp.

(2) Position convex mirror (4) on bracket (5) with lockwasher (3), washer (2), and bolt (1).
NOTES
Perform steps (3) and (4) on convex mirror with clamp.

(3) Position clamp (6) on mirror arm (7).

(4) Install washer (8) and convex mirror (9) on clamp (6) with lockwasher (10) and bolt (11).

(5) Tighten bolts (1 and 11) to 56-68 lb-in. (6-7 N•m).

End of Task.
20-95. RIM COVER INITIAL INSTALLATION

This task covers:

a. Installation

INITIAL SETUP

<table>
<thead>
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<th>Equipment Conditions</th>
<th>Tools and Special Tools</th>
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<td>Tool Kit, Genl Mech (Item 46, Appendix C)</td>
</tr>
<tr>
<td></td>
<td>Wrench, Torque 1-175 lb-in (Item 58, Appendix C)</td>
</tr>
</tbody>
</table>

a. Installation.

NOTE

Slotted hole in rim cover is aligned with pressure valve extension.

1. Position rim cover (1) on wheel (2) with four washers (3) and bolts (4).

2. Tighten four bolts (1) to 71-95 lb-ft (96-128 N•m).

End of Task.
CHAPTER 21
ARMAMENT/SIGHTING AND FIRE CONTROL MATERIEL MAINTENANCE

RESTRICTED MAINTENANCE NOTICE

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

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Section I. INTRODUCTION

21-1. INTRODUCTION

This chapter contains maintenance instructions for replacing armament/sighting and fire control materiel components authorized by the Maintenance Allocation Chart (MAC) at the Unit Maintenance level.
Section II. MAINTENANCE PROCEDURES

21-2. MACHINE GUN RING REPLACEMENT

This task covers:

a. Removal 

b. Installation

INITIAL SETUP

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

Tools and Special Tools
- Tool Kit, Genl Mech (Item 44, Appendix C)
- Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)
- Crowfoot Attachment, Socket Wrench (Item 10, Appendix B)

Personnel Required
(2)

a. Removal.

(1) Remove 12 screws (1) and washers (2) from machine gun ring (3).

(2) Position three wooden blocks on cab roof (4).

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

NOTE
Steps (3) through (7) require the aid of an assistant.

(3) Position machine gun ring (3) on three wooden blocks.

(4) Re-position lifting device on machine gun ring (3).
(5) Remove machine gun ring (3) from cab roof (4).

(6) Remove three wooden blocks from cab roof (4).

(7) Remove 12 washers (5) and ring spacer (6) from cab roof (4).

b. Installation.

![Diagram of installation process]

**WARNING**

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

**NOTE**

Steps (2) through (6) require the aid of an assistant.

(2) Position three wooden blocks on cab roof (3).

(3) Position machine gun ring (4) on cab roof on three wooden blocks.

(1) Position ring spacer (1) and 12 washers (2) on cab roof (3).

**NOTE**

- Align ring spacer and washers with threaded holes in cab roof.
- Ring spacer should have 1/4 in. (0.635 cm) clearance from inner lip of cab roof to allow free rotation of machine gun ring.
(4) Re-position lifting device on machine gun ring (4).

(5) Remove three wooden blocks from cab roof (3).

(6) Position machine gun ring (4) on cab roof (3).

(7) Position 12 mounting washers (5) and screws (6) in machine gun ring (4).

(8) Tighten mounting screws (6) to 49-61 lb-ft (66-82 N·m).

End of Task.
21-3. MACHINE GUN RING LOWER PLATFORM REPLACEMENT

This task covers:

a. Removal  
b. Installation

INITIAL SETUP

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

Materials/Parts
Pin, Cotter (2) (Item 204, Appendix G)

Tools and Special Tools
Tool Kit, Genl Mech (Item 44, Appendix C)

a. Removal.

(1) Remove four cotter pins (1) and straight pins (2) from two legs (3). Discard cotter pins.

(2) Remove two quick-release pins (4) from lower platform (5).

(3) Remove lower platform (5) from cab.

(4) Remove four screws (6), washers (7), and two lanyards (8) from two brackets (9).

(5) Remove two brackets (9) from cab floor.

(6) Remove four screws (10), washers (11), and two brackets (12) from cab floor.
b. Installation.

(1) Install two brackets (1) with four washers (2) and screws (3).

(2) Install two brackets (4) and lanyards (5) with four washers (6) and screws (7).

(3) Position lower platform (8) on two brackets (1).

(4) Install two straight pins (9) in legs (10).

(5) Install four cotter pins (11) in two straight pins (9).

(6) Place lower platform (8) in storage position.

(7) Install two quick-release pins (12) in lower platform (8) and two brackets (4).

End of Task.
21-4. MACHINE GUN RING TOP PLATFORM REPLACEMENT

This task covers:

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

INITIAL SETUP

Equipment Conditions
Machine gun ring, center seat removed (para 21-5).

Tools and Special Tools
Tool Kit, Genl Mech (Item 44, Appendix C)

a. Removal.

(1) Remove two screws (1) and washers (2), from top platform (3).

(2) Remove top platform (3) from vehicle.

b. Installation.

(1) Position top platform (3) in vehicle with two washers (2) and screws (1).

(2) Tighten two screws (1) to 71-89 lb-in. (8-10 N·m).

c. Follow-On Maintenance.

Install machine gun ring center seat (para 21-5).

End of Task.
21-5. MACHINE GUN RING CENTER SEAT REPLACEMENT

This task covers:

a. Removal  
b. Installation

INITIAL SETUP

<table>
<thead>
<tr>
<th>Equipment Conditions</th>
<th>Materials/Parts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine shut down (TM 9-2320-365-10).</td>
<td>Sealing Compound (Item 65, Appendix D)</td>
</tr>
<tr>
<td></td>
<td>Spacer (4) (Item 259.1, Appendix G)</td>
</tr>
</tbody>
</table>

Tools and Special Tools

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

a. Removal.

(1) Fold back of center seat (1) down and slide fully forward.

**NOTE**

Perform step (2) on vehicles with cabs S/N 12075G or lower. Cab S/N located on B pillar.

(2) Remove two screws (2) and washers (3) from seat mount (4).

**NOTE**

Perform step (3) on vehicles with cab S/N 12076G or higher.

(3) Remove two screws (2), washers (3), and spacers (4.1) from seat mount (4). Discard spacers.
(4) Slide center seat (1) fully rearward.

**NOTE**

Perform step (5) on vehicles with cabs S/N 12075G or lower.

(5) Remove two screws (5), washers (6), and center seat (1) from vehicle.

**NOTE**

Perform step (6) on vehicles with cab S/N 12076G or higher.

(6) Remove two screws (5), washers (6), spacers (6.1), and center seat (1) from vehicle. Discard spacers.
b. Installation.

**WARNING**

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

(1) Apply sealing compound to threads of two screws (1).

**NOTE**

- Perform step (2) on vehicles with cabs S/N 12075G or lower. Cab S/N located on B pillar.
- Install center seat in folded and raised position with seat rails in the forward position.

(2) Position center seat (2) on platform (3).

**NOTE**

- Flat sides of screw will be in line with seat tracks.
- Perform step (3) on vehicles with cabs S/N 12075G or lower.

(3) Position two washers (4) and screws (1) in seat mount (5).

**NOTE**

Perform step (4) on vehicles with cabs S/N 12076G or higher.

(4) Position two spacers (5.1), washers (4), and screws (1) in seat mounts (5).

(5) Slide center seat (2) fully forward.

(6) Fold center seat (2) down.
b. Installation.

**WARNING**

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

**NOTE**

Install center seat in folded and raised position with seat rails in the forward position.

1. Apply sealing compound to threads of two screws (1).
2. Position center seat (2) on platform (3).

**NOTE**

Flat sides of screw will be in line with seat tracks.

3. Position two washers (4) and screws (1) in seat mount (5).
4. Slide center seat (2) fully forward.
5. Fold center seat (2) down.

6. Position two washers (6) and screws (7) in seat mount (5).

**NOTE**

When tightening screws, flat sides of screws are to be in line with track sides.

7. Tighten two screws (1 and 7) to 14-18 lb-ft (19-24 N·m).

End of Task.
21-6. MACHINE GUN RING ROOF SUPPORT REPLACEMENT

This task covers:

a. Removal
b. Installation

INITIAL SETUP

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

Tools and Special Tools

Tools and Special Tools (Cont)
Wrench, Torque 0-200 lb-in. (Item 58, Appendix C)

Tools and Special Tools

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

a. Removal.

(1) Remove six screws (1), washers (2), LH defrost cover (3), and RH defrost cover (4) from vehicle.

(2) Remove two screws (5) and washers (6) from roof support (7).

(3) Remove two screws (8) and washers (9) from roof support (7).

(4) Remove roof support (7) from cab roof (10).
b. Installation.

(1) Position roof support (1) on cab roof (2) with two washers (3) and screws (4).

(2) Position two washers (5) and screws (6) in roof support (1).

(3) Tighten two screws (4 and 6) to 21-27 lb-ft (29-37 N·m).

(4) Position LH defrost cover (7) and RH defrost cover (8) in vehicle with six washers (9) and screws (10).

(5) Tighten six screws (10) to 22-27 lb-in. (2-3 N·m).

End of Task.
21-7. SMALL ARMS MOUNT REPLACEMENT

This task covers:

a. Removal  
b. Installation

INITIAL SETUP

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

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

a. Removal.

NOTE
All three small arms mounts are removed the same way. Driver's side shown.

(1) Remove two screws (1), washers (2), and storage rack (3) from back wall of cab (4).

(2) Remove two screws (5), washers (6), and weapon support (7) from support (8).
b. Installation.

**NOTE**

All three small arms mounts are installed the same way. Driver’s side shown.

1. Position weapon support (1) on support (2) with two washers (3) and screws (4).

2. Tighten two screws (4) to 36-44 lb-in. (4-5 N·m).

3. Position storage rack (5) on back wall of cab (6) with two washers (7) and screws (8).

4. Tighten two screws (8) to 36-44 lb-in. (4-5 N·m).

**End of Task.**
CHAPTER 22
ELECTRICAL ILLUMINATING EQUIPMENT MAINTENANCE

RESTRICTED MAINTENANCE NOTICE

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

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  22-1. INTRODUCTION .................................................................... 22-1

Section II. MAINTENANCE PROCEDURES ............................................... 22-2
  22-2. WARNING LIGHT CABLE ASSEMBLY REPLACEMENT ...................... 22-2

Section I. INTRODUCTION

22-1. INTRODUCTION

This chapter contains maintenance instructions for replacing electrical illuminating equipment authorized by the Maintenance Allocation Chart (MAC) at the Unit Maintenance level.
Section II. MAINTENANCE PROCEDURES

22-2. WARNING LIGHT CABLE ASSEMBLY REPLACEMENT

This task covers:

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

INITIAL SETUP

Equipment Conditions
- Batteries disconnected (para 7-48).
- Rear cab liner removed (para 16-13).
- Kick panel removed (para 16-3).

Material/Parts
- Ties, Cable, Plastic (Item 76, Appendix D)

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

a. Removal.

(1) Remove dustcap (1) from connector J62 (2).

(2) Remove screw (3) and dustcap (1) from cab (4).

(3) Remove three screws (5) and connector J62 (2) from cab (4).

(4) Remove three screws (6) and washers (7) from PDP (8).

(5) Remove three screws (9) from PDP (8).

(6) Lift PDP (8) outward to gain access.
NOTE

Remove plastic cable ties as required.

(7) Disconnect terminal lug TL14 (10) from terminal board TB2 (11) position 12.

(8) Disconnect connector J65 (12) from connector P65 (13).

NOTE

Note routing of warning light cable assembly prior to removal.

(9) Remove warning light cable assembly (14) from cab (4).

b. Installation.

(1) Position warning light cable assembly (1) in cab (2).

(2) Connect connector P65 (3) to connector J65 (4).
NOTE

Install plastic cable ties as required.

(3) Connect terminal lug TL14 (5) to terminal board TB2 (6) position 12.

(4) Position PDP (7) on dashboard (8).
(5) Install three screws (9) in PDP (7).
(6) Install three washers (10) and screws (11) in PDP (7).

(7) Install connector J62 (12) in cab (2) with three screws (13).

(8) Install dustcap (14) on cab (2) with screw (15).
(9) Install dustcap (14) on connector J62 (12).
c. Follow-On Maintenance.

(1) Install rear cab liner (para 16-13).

(2) Install kick panel (para 16-3).

(3) Connect batteries (para 7-48).

(4) Operate warning lights and check for proper operation (TM 9-2320-365-10).

End of Task.
CHAPTER 23
AIR SYSTEM MAINTENANCE

RESTRICTED MAINTENANCE NOTICE

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

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23-3 AIR TRANSPORTABILITY AIR HOSES REPLACEMENT ....................... 23-8
23-4 INVERSION VALVE REPLACEMENT .............................................. 23-11
23-5 SHUTTLE VALVE REPLACEMENT ............................................... 23-13
23-6 AIR DRYER REPLACEMENT/REPAIR ........................................... 23-15
23-7 WET TANK REPLACEMENT .................................................... 23-31
23-8 PRESSURE SWITCH REPLACEMENT ........................................... 23-35

Section I. INTRODUCTION

23-1. INTRODUCTION

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

23-2. PRIMARY AND CENTRAL TIRE INFLATION SYSTEM (CTIS) AIR HOSES REPLACEMENT

This task covers:

a. Hose Locations  
b. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-365-10).  
Air tanks drained (TM 9-2320-365-10).

Materials/Parts
Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)
Cap and Plug Set (Item 15, Appendix D)
Ties, Cable, Plastic (Item 76, Appendix D)

Tools and Special Tools
Tool Kit, Gnl Mech (Item 44, Appendix C)  
Goggles, Industrial (Item 15, Appendix C)

a. Hose Locations.

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

CAUTION
Cap or plug hose connections to prevent contamination. Failure to comply may result in damage to equipment.

NOTE

• This task shows locations of primary air supply and CTIS air hoses on the vehicle. It may not be necessary to remove all hoses at one time.
• Tag hoses and connection points prior to removal.
• Note location of plastic cable ties prior to removal.
• Remove plastic cable ties as required.
• Inspect air hoses and fittings for cracks, kinks, nicks, stripped threads, and cuts. Replace damaged parts.
### Figure 23-1. Primary Air Supply Hose Locations

#### Table 23-1. Primary Air Supply Hose Locations

<table>
<thead>
<tr>
<th>HOSE NAME</th>
<th>FROM</th>
<th>TO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary supply</td>
<td>Air compressor output fitting (1)</td>
<td>Bulkhead fitting (2)</td>
</tr>
<tr>
<td>Primary supply tie</td>
<td>Bulkhead fitting (2)</td>
<td>Air dryer input fitting (3)</td>
</tr>
<tr>
<td>Wet tank supply</td>
<td>Air dryer output fitting (4)</td>
<td>Wet tank supply fitting (5)</td>
</tr>
<tr>
<td>Primary tank supply</td>
<td>Wet tank supply fitting (5)</td>
<td>Primary tank supply fitting (6)</td>
</tr>
<tr>
<td>Secondary tank supply</td>
<td>Primary tank supply fitting (6)</td>
<td>Secondary tank supply fitting (7)</td>
</tr>
<tr>
<td>Air dryer pressure</td>
<td>Air dryer bottom fitting (8)</td>
<td>Hose fitting (9)</td>
</tr>
<tr>
<td>Air compressor intake hose</td>
<td>Intake air cleaner (10)</td>
<td>Air compressor (11)</td>
</tr>
</tbody>
</table>
## PRIMARY AND CENTRAL TIRE INFLATION SYSTEM (CTIS) AIR HOSES REPLACEMENT (CONT)

### Figure 23-1. Primary Air Supply Hose Locations (Cont)

### Table 23-1. Primary Air Supply Hose Locations (Cont)

<table>
<thead>
<tr>
<th>HOSE NAME</th>
<th>FROM</th>
<th>TO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Governor input #1</td>
<td>Hose fitting (12)</td>
<td>Governor input #1 fitting (13)</td>
</tr>
<tr>
<td>Emergency supply</td>
<td>Emergency supply fitting (14)</td>
<td>Hose fitting (15)</td>
</tr>
<tr>
<td>Emergency supply tie #1</td>
<td>Gladhand check valve fitting (16)</td>
<td>Hose fitting (17)</td>
</tr>
<tr>
<td>Governor input #2</td>
<td>Hose fitting (17)</td>
<td>Governor input #2 fitting (18)</td>
</tr>
<tr>
<td>Emergency supply tie #2</td>
<td>Hose fitting (19)</td>
<td>Wet tank fitting (20)</td>
</tr>
</tbody>
</table>
Figure 23-2. Central Tire Inflation System (CTIS) Air Hose Locations

Table 23-2. Central Tire Inflation System (CTIS) Air Hose Locations

<table>
<thead>
<tr>
<th>HOSE NAME</th>
<th>FROM</th>
<th>TO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main air supply</td>
<td>Tank pressure valve fitting (1)</td>
<td>Cab bulkhead fitting (2)</td>
</tr>
<tr>
<td>CTIS manifold input</td>
<td>Cab bulkhead fitting (2)</td>
<td>CTIS manifold valve input fitting (3)</td>
</tr>
<tr>
<td>CTIS manifold output</td>
<td>CTIS manifold output fitting (4)</td>
<td>Cab bulkhead fitting (5)</td>
</tr>
<tr>
<td>CTIS air supply</td>
<td>Cab bulkhead fitting (5)</td>
<td>Two way splitter (6)</td>
</tr>
<tr>
<td>Supply tie</td>
<td>Two way splitter fitting (6)</td>
<td>Front quick release valve fitting (7)</td>
</tr>
<tr>
<td>Left front supply hose</td>
<td>Front quick release valve fitting (7)</td>
<td>Left front bulkhead fitting (8)</td>
</tr>
<tr>
<td>Left front drum supply</td>
<td>Left front bulkhead fitting (8)</td>
<td>Left front drum fitting (9)</td>
</tr>
<tr>
<td>Right front supply hose</td>
<td>Front quick release valve fitting (7)</td>
<td>Right front bulkhead fitting (10)</td>
</tr>
</tbody>
</table>
23-2. PRIMARY AND CENTRAL TIRE INFLATION SYSTEM (CTIS) AIR HOSES REPLACEMENT (CONT)

Figure 23-2. Central Tire Inflation System (CTIS) Air Hose Locations (Cont)

Table 23-2. Central Tire Inflation System (CTIS) Air Hose Locations (Cont)

<table>
<thead>
<tr>
<th>HOSE NAME</th>
<th>FROM</th>
<th>TO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Right front drum supply</td>
<td>Right front bulkhead fitting (10)</td>
<td>Left front drum fitting (11)</td>
</tr>
<tr>
<td>Rear main supply</td>
<td>Two way splitter fitting (6)</td>
<td>Rear quick release valve (12)</td>
</tr>
<tr>
<td>Left rear drum supply</td>
<td>Rear quick release valve fitting (12)</td>
<td>Left rear drum fitting (13)</td>
</tr>
<tr>
<td>Right rear drum supply</td>
<td>Rear quick release valve fitting (12)</td>
<td>Right rear drum fitting (14)</td>
</tr>
<tr>
<td>Left front drum vent</td>
<td>Left front drum fitting (15)</td>
<td>Bulkhead fitting (16)</td>
</tr>
<tr>
<td>Vent tie</td>
<td>Bulkhead fitting (16)</td>
<td>Bulkhead fitting (17)</td>
</tr>
<tr>
<td>Right front drum vent</td>
<td>Bulkhead fitting (17)</td>
<td>Right front brake fitting (18)</td>
</tr>
</tbody>
</table>
Table 23-2. Central Tire Inflation System (CTIS) Air Hose Locations (Cont)

<table>
<thead>
<tr>
<th>HOSE NAME</th>
<th>FROM</th>
<th>TO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Axle vent</td>
<td>Axle vent fitting (19)</td>
<td>Vent fitting (20)</td>
</tr>
<tr>
<td>Fan supply</td>
<td>Bulkhead fitting (2)</td>
<td>Solenoid valve fitting (21)</td>
</tr>
<tr>
<td>Fan supply tie #1</td>
<td>Solenoid valve fitting (22)</td>
<td>Bulkhead fitting (23)</td>
</tr>
<tr>
<td>Fan supply tie #2</td>
<td>Bulkhead fitting (23)</td>
<td>Fan input fitting (24)</td>
</tr>
<tr>
<td>Manifold vent</td>
<td>Manifold fitting (25)</td>
<td>Bulkhead fitting (26)</td>
</tr>
</tbody>
</table>

b. Follow-On Maintenance.

(1) Start engine (TM 9-2320-365-10).

(2) Check around air hoses and fittings for air leaks.

(3) Shut down engine (TM 9-2320-365-10).

End of Task.
23-3. AIR TRANSPORTABILITY AIR HOSES REPLACEMENT

This task covers:

a. Hose Locations                      b. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-365-10).
Air tanks drained (TM 9-2320-365-10).

Materials/Parts
Dispenser, Pressure Sensitive Adhesive Tape
(Item 21, Appendix D)
Cap and Plug Set (Item 15, Appendix D)
Ties, Cable, Plastic (Item 76, Appendix D)

Tools and Special Tools
Tool Kit, Genl Mech (Item 44, Appendix C)
Goggles, Industrial (Item 15, Appendix C)

a. Hose Locations.

WARNING

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

CAUTION

Cap or plug hose connections to prevent contamination. Failure to comply may result in damage to equipment.

NOTE

• This task shows locations of air transportability air hoses on the vehicle. It may not be necessary to remove all hoses at one time.

• Tag hoses and connection points prior to removal.

• Note location of plastic cable ties prior to removal.

• Remove plastic cable ties as required.

• Inspect air hoses and fittings for cracks, kinks, nicks, stripped threads and cuts. Replace damaged parts.
Figure 23-3. Air Transportability Air Hose Locations

Table 23-3. Air Transportability Air Hose Locations

<table>
<thead>
<tr>
<th>HOSE NAME (NUMBER)</th>
<th>FROM</th>
<th>TO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wet tank supply (501)</td>
<td>Wet tank pressure valve fitting (1)</td>
<td>Manifold input (2)</td>
</tr>
<tr>
<td>Cab leveling valve tee supply (506)</td>
<td>Manifold output (3)</td>
<td>Cab leveling valve tee fitting (4)</td>
</tr>
<tr>
<td>Cab leveling valve supply (522)</td>
<td>Cab leveling valve tee fitting (4.1)</td>
<td>Cab leveling valve input fitting (4.2)</td>
</tr>
<tr>
<td>Check valve tie (503)</td>
<td>Cab leveling valve tee fitting (5)</td>
<td>Check valve output fitting (6)</td>
</tr>
<tr>
<td>Passenger cylinder (504)</td>
<td>Cab leveling valve fitting (7)</td>
<td>Passenger cylinder fitting (8)</td>
</tr>
</tbody>
</table>
Table 23-3. Air Transportability Air Hose Locations (Cont)

<table>
<thead>
<tr>
<th>HOSE NAME (NUMBER)</th>
<th>FROM</th>
<th>TO</th>
</tr>
</thead>
<tbody>
<tr>
<td>Driver cylinder (505)</td>
<td>Cab leveling valve fitting (9)</td>
<td>Driver cylinder fitting (10)</td>
</tr>
<tr>
<td>Inversion valve supply (502)</td>
<td>Inversion valve fitting (11)</td>
<td>Manifold input (12)</td>
</tr>
<tr>
<td>Air/hydraulic supply (507)</td>
<td>Manifold output fitting (13)</td>
<td>Air/hyd power unit fitting (14)</td>
</tr>
</tbody>
</table>

b. Follow-On Maintenance.

(1) Start engine (TM 9-2320-365-10).

(2) Check around air hoses and fittings for air leaks.

(3) Shut down engine (TM 9-2320-365-10).

End of Task.
23-4. INVERSION VALVE REPLACEMENT

This task covers:

a. Removal
b. Installation

c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions
Engine shut down (TM 9-2320-365-10).
Cab raised (TM 9-2320-365-10).
Air tanks drained (TM 9-2320-365-10).

Tools and Special Tools
Tool Kit, Genl Mech (Item 44, Appendix C)
Goggles, Industrial (Item 15, Appendix C)

Materials/Parts
Antiseize Compound (Item 63, Appendix D)

a. Removal.

WARNING

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

(1) Disconnect two air hoses (1) from 90-degree fittings (2).

(2) Remove inversion valve (3) from fitting (4).

(3) Remove two 90-degree fittings (2) from inversion valve (3).
b. Installation.

**WARNING**

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

1. Apply anti-seize compound to threads of two 90-degree fittings (1).
2. Install two 90-degree fittings (1) on inversion valve (2).
3. Install inversion valve (2) on fitting (3).
4. Connect two air hoses (4) to 90-degree fittings (1).

c. Follow-On Maintenance.

2. Check for air leaks around inversion valve.

End of Task.
23-5. SHUTTLE VALVE REPLACEMENT

This task covers:

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

INITIAL SETUP

Equipment Conditions
Inversion valve removed (para 23-4).

Tools and Special Tools
Goggles, Industrial (Item 15, Appendix C)
Tool Kit, Genl Mech (Item 44, Appendix C)

Materials/Parts
Antiseize Compound (Item 63, Appendix D)

WARNING

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

a. Removal.

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

(2) Remove 90-degree fitting (2) from shuttle valve (3).

(3) Remove shuttle valve (3) from adapter (4).

(4) Remove adapter (5) from shuttle valve (3).
23-5. SHUTTLE VALVE REPLACEMENT (CONT)

b. Installation.

**WARNING**

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

(1) Apply antiseize compound to threads of adapter (1) and adapter (2).

(2) Install shuttle valve (3) on adapter (1).

(3) Install adapter (2) in shuttle valve (3).

(4) Apply antiseize compound to threads of 90-degree fitting (4).

(5) Install 90-degree fitting (4) on shuttle valve (3).

(6) Connect air hose (5) to 90-degree fitting (4).

c. Follow-On Maintenance.

(1) Install inversion valve [para 23-4].

(2) Start engine (TM 9-2320-365-10).

(3) Check for air leaks around shuttle valve and inversion valve.

(4) Shut down engine (TM 9-2320-365-10).

End of Task.
## 23-6. AIR DRYER REPLACEMENT/REPAIR

This task covers:

<table>
<thead>
<tr>
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<th>d. Installation</th>
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<td>e. Follow-On Maintenance</td>
</tr>
<tr>
<td>c. Assembly</td>
<td></td>
</tr>
</tbody>
</table>

### INITIAL SETUP

**Equipment Conditions**
- Air tanks drained (TM 9-2320-365-10).
- Batteries disconnected (para 7-48).

**Tools and Special Tools**
- Goggles, Industrial (Item 15, Appendix C)
- Tool Kit, Genl Mech (Item 44, Appendix C)
- Wrench, Torque, 0-175 lb-ft (Item 57, Appendix C)
- Wrench, Torque, 0-200 lb-in. (Item 58, Appendix C)
- Wrench Set, Socket (Item 48, Appendix C)
- Purge Valve Tool (Item E-22, Appendix E)
- Hammer, Hand (Item 18, Appendix C)

**Materials/Parts**
- Nut, Plain, Hex (Item 36, Appendix D)
- Ties, Cable, Plastic (Item 76, Appendix D)
- Parts Kit, Dehydrator (Item 196, Appendix G)
- Nut, Self-Locking (4) (Item 149, Appendix G)
- Boot Kit, Exhaust (Item 3, Appendix G)
- Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)

**Personnel Required**
- (2)

### a. Removal.

**WARNING**

- Air dryer may contain air pressure. Loosen input air hose connector slowly to vent off air pressure. Failure to comply may cause injury to personnel.
- Wear appropriate eye protection when working under vehicle due to the possibility of falling debris. Failure to comply may result in injury to personnel.

1. Loosen input air hose nut (1).
2. Disconnect input air hose (2) from 90-degree fitting (3).
3. Disconnect outlet air hose (4) from 90-degree fitting (5).
23-6. AIR DRYER REPLACEMENT/REPAIR (CONT)

NOTE

Remove plastic cable ties as required.

(4) Disconnect air dryer electrical connector (6) from connector P80 (7).

(5) Disconnect air hose (8) from 90-degree fitting (9).

NOTE

Note the position of retaining bands on air dryer prior to removal.

Step (6) requires the aid of an assistant.

(6) Remove four self-locking nuts (10), screws (11), eight washers (12), and air dryer (13) from frame (14). Discard self-locking nuts.

NOTE

Tag fittings and connection points prior to removal.

(7) Remove 90-degree fittings (3 and 5) from top cover (15).
(8) Remove 90-degree fitting (9) from lower cover (16).

b. Disassembly.

(1) Match mark lower cover (1) to air dryer housing (2).

(2) Remove six flange nuts (3) from lower cover (1).

(3) Remove lower cover (1) from air dryer housing (2).

(4) Remove preformed packing (4) from lower cover (1). Discard preformed packing.

(5) Remove three screws (5), purge exhaust fitting (6), and exhaust boot (7) from lower cover (1). Discard exhaust boot.
(6) Deleted.

(7) Turn purge valve (8) to the left until removed from lower cover (1).

(8) Deleted.

(9) Remove screw (9), purge valve seat (10), spring (11), and purge piston (12) from purge valve (8). Discard purge valve seat.

(10) Remove preformed packing (13) from purge valve (8). Discard preformed packing.

(11) Remove preformed packing (14) from purge piston (12). Discard preformed packing.
(12) Match mark top cover (15) to air dryer housing (2).

(13) Remove six flange nuts (16) from top cover (15).

**NOTE**

It may be necessary to tap on top cover to loosen.

(14) Remove top cover (15) and spring (17) from air dryer housing (2).

(15) Remove preformed packings (18, 19 and 20) from top cover (15). Discard preformed packings.
23-6. AIR DRYER REPLACEMENT/REPAIR (CONT)

NOTE

Note orientation of valve disc prior to removal.

(16) Remove check valve end cap (21), spring (22), and valve disc (23) from top cover (15).

(17) Remove preformed packing (24) from check valve end cap (21). Discard preformed packing.

(18) Remove relief valve (25) from top cover (15).
(19) Remove desiccant canister (26) and inner aluminum shell (27) from air dryer housing (2).

(20) Remove desiccant canister (26) from inner aluminum shell (27).

NOTE
Desiccant canister and inner aluminum shell can be removed as one unit.

(1) Remove desiccant follower (28) and desiccant cartridge (29) from desiccant canister (26). Discard desiccant cartridge.

(22) Remove preformed packing (30) from desiccant canister (26). Discard preformed packing.

NOTE
Desiccant follower will come out with desiccant. Retrieve for reuse.
(23) Remove screw (31) and filter retainer (32) from filter element (33).

(24) Remove filter element (33) from desiccant canister (26). Discard filter element.

c. Assembly.

(1) Install preformed packing (1) on lower cover (2).

(2) Install preformed packing (3) on purge valve (4).

(3) Install preformed packing (5) on purge piston (6).
(4) Position spring (7), purge piston (6), purge valve seat (8), and screw (9) on purge valve (4).

(5) Tighten screw (9) to 50-80 lb-in. (6-9 N·m).

(6) Position purge valve (4) in lower cover (2).

(7) Install nut in purge valve (4).

(8) Tighten purge valve (4) to 35-50 lb-in. (4-6 N·m).

(9) Remove nut from purge valve (4).

(10) Position exhaust boot (10) and purge exhaust fitting (11) on lower cover (2) with three screws (12).

(11) Tighten three screws (12) to 50-70 lb-in. (6-8 N·m).
(12) Install preformed packing (13) on desiccant canister (14).

(13) Position filter element (15) on desiccant canister (14).

(14) Position filter retainer (16) and screw (17) in desiccant canister (14).

(15) Tighten screw (17) to 60-90 lb-in. (7-10 N·m).

(16) Slide desiccant cartridge (18) in desiccant canister (14).

(17) Install desiccant follower (19) in desiccant canister (14).
CAUTION

Use caution when installing desiccant canister in inner aluminum shell. Preformed packing can easily be damaged. Failure to comply may result in damage to equipment.

(18) Install desiccant canister (14) in inner aluminum shell (20).

(19) Install preformed packings (21, 22 and 23) on top cover (24).

(20) Position spring (25) and top cover (24) on air dryer housing (26) with matchmarks aligned.

(21) Position six flange nuts (27) on top cover (24).

(22) Tighten six flange nuts (27) to 150-200 lb-in. (17-23 N·m).
(23) Install relief valve (28) in top cover (24).

**NOTE**
Install valve disc with rubber side down.

(24) Install valve disc (29) in top cover (24).

**NOTE**
Install spring with small end toward valve disc.

(25) Install spring (30) in top cover (24).

(26) Install preformed packing (31) on check valve end cap (32).

(27) Position check valve end cap (32) on top cover (24).

(28) Tighten check valve end cap (32) to 35-50 lb-ft (47-68 N·m).
(29) Install desiccant canister (14) and inner aluminum shell (21) in air dryer housing (26).

(30) Position lower cover (2) on air dryer housing (26) with matchmarks aligned.

(31) Position six flange nuts (33) on lower cover (2).

(32) Tighten six flange nuts (33) to 150-200 lb-in. (17-23 N·m).

d. Installation.

(1) Install 90-degree fittings (1 and 2) in top cover (3).
(2) Install 90-degree fitting (4) in lower cover (5).

**CAUTION**
When installing a new air dryer, it is necessary to change the orientation of the retaining bands. Failure to comply may result in damage to equipment.

**NOTE**
Perform steps (3) through (5) if installing a new air dryer.

(3) Loosen two nuts (6) on retaining bands (7).

**NOTE**
Position retaining bands on air dryer as noted in removal.

(4) Rotate two retaining bands (7) 90-degrees clockwise as viewed from top of air dryer (8).

(5) Tighten two nuts (6) on retaining bands (7).
(6) Position air dryer (8) on frame (9) with eight washers (10), four screws (11), and self-locking nuts (12).

(7) Tighten four self-locking nuts (12) to 34-42 lb-ft (47-57 N·m).

(8) Connect output air hose (13) to 90-degree fitting (1).

(9) Connect input air hose (14) to 90-degree fitting (2).

(10) Connect air hose (15) to 90-degree fitting (4).

(11) Connect air dryer electrical connector (16) to connector P80 (17).
23-6. AIR DRYER REPLACEMENT/REPAIR (CONT)

e. Follow-On Maintenance.

(1) Connect batteries (para 7-48).

(2) Start engine (TM 9-2320-365-10) and allow air pressure to build up to normal pressure.

(3) Check air dryer and air hoses for air leaks.

(4) Shut down engine (TM 9-2320-365-10).

End of Task.
## 23-7. WET TANK REPLACEMENT

This task covers:

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<td>c. Follow-On Maintenance</td>
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### INITIAL SETUP

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<td>Tool Kit, Genl Mech (Item 44, Appendix C)</td>
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<th>Materials/Parts</th>
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<tr>
<td>Antiseize Compound (Item 63, Appendix D)</td>
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<tr>
<td>Nut, Self-Locking (2) (Item 122.1, Appendix G)</td>
</tr>
</tbody>
</table>

### WARNING

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

a. **Removal.**

**NOTE**

Tag hoses and connectors prior to removal.

1. Disconnect three air hoses (1) from wet tank (2).

2. Disconnect connector P84 (3) from pressure switch (4).
23-7. WET TANK REPLACEMENT (CONT)

NOTE

- Vehicles may be equipped with either corrosive enhanced clamps or non-corrosive enhanced clamps. Corrosive enhanced clamps have a self-locking nut and cork lining. When removing a non-corrosive enhanced clamp, replace it with a corrosive enhanced clamp.

- Perform steps (3) through (5) on vehicles not equipped with corrosive enhanced clamps.

(3) Remove two screws (5) from clamps (6).

NOTE

Note the orientation of wet tank prior to removal.

(4) Remove wet tank (2) from two clamps (6).

(5) Remove two clamps (6) from battery box (7). Discard clamps.

(7) Remove wet tank (2) from two clamps (6).

(8) Remove pressure switch (4) from wet tank (2).

(9) Remove 45-degree fitting (9) from wet tank (2).

(10) Remove street tee fitting (10) from wet tank (2).

(11) Remove drain valve (11) from wet tank (2).
(12) Remove two 90-degree fittings (12) from street tee fitting (10).

b. Installation.

**WARNING**

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

(1) Apply antiseize compound to threads of drain valve (1).

(2) Install drain valve (1) in wet tank (2).
**WARNING**

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

(3) Apply antiseize compound to threads of two 90-degree fitting (3).

(4) Install two 90-degree fittings (3) on street tee fitting (4).

(5) Apply antiseize compound to threads of street tee fitting (4).

(6) Install street tee fitting (4) in wet tank (2).

(7) Apply antiseize compound to threads of 45-degree fitting (5).

(8) Install 45-degree fitting (5) in wet tank (2).

(9) Apply antiseize compound to threads of pressure switch (6).

(10) Install pressure switch (6) in wet tank (2).
23-7. WET TANK REPLACEMENT (CONT)

NOTE

Perform step (11) on vehicles not previously equipped with corrosive enhanced clamps.

(11) Position two clamps (7) on battery box (8).

(12) Position wet tank (2) in two clamps (7) with self-locking nuts (9).

(13) Tighten two self-locking nuts (9) to 4-5 lb-ft (5-7 N·m).

(14) Connect connector P84 (10) to pressure switch (6).

(15) Connect three air hoses (11) to wet tank (2).

c. Follow-on Maintenance.

(1) Install pressure protection valve (para 11-29).

(2) Start engine (TM 9-2320-365-10).

(3) Check air hoses and wet tank fittings for air leaks.

(4) Shut down engine (TM 9-2320-365-10).

End of Task.
23-8. PRESSURE SWITCH REPLACEMENT

This task covers:

a. Removal
b. Installation

c. Follow-On Maintenance

INITIAL SETUP

Equipment Conditions

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

Tools and Special Tools

- Tool Kit, Genl Mech (Item 44, Appendix C)
- Goggles, Industrial (Item 15, Appendix C)

Materials/Parts

- Dispenser, Pressure Sensitive Adhesive Tape (Item 21, Appendix D)
- Antiseize Compound (Item 14, Appendix D)

WARNING

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

a. Removal.

NOTE

Tag connectors prior to removal.

(1) Disconnect connector P84 (1) from pressure switch (2).

(2) Remove pressure switch (2) from 90-degree fitting (3).
b. Installation

**WARNING**

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

(1) Apply antiseize compound to threads of pressure switch (1).

(2) Install pressure switch (1) in 90-degree fitting (2).

(3) Connect connector P84 (3) to pressure switch (1).

c. Follow-On Maintenance.

(1) Start engine (TM 9-2320-365-10).

(2) Check air pressure switch fitting for air leaks.

(3) Shut down engine (TM 9-2320-365-10).

End of Task.
CHAPTER 24
GAGES (NON-ELECTRICAL) MAINTENANCE

RESTRICTED MAINTENANCE NOTICE

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

Section I. INTRODUCTION

24-1. INTRODUCTION

This chapter contains maintenance instructions for replacing non-electrical gages authorized by the Maintenance Allocation Chart (MAC) at the Unit Maintenance level.
Section II. MAINTENANCE PROCEDURES

24-2. AIR FILTER RESTRICTION GAUGE REPLACEMENT

This task covers:

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

INITIAL SETUP

Equipment Conditions
- Batteries disconnected (para 7-48).
- Instrument panel assembly removed for access (para 7-15).

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

a. Removal.

1. Disconnect vacuum hose (1) from AIR FILTER RESTRICTION GAUGE (2).

2. Remove two screws (3) and AIR FILTER RESTRICTION GAUGE faceplate (4) from instrument panel assembly (5).

3. Remove AIR FILTER RESTRICTION GAUGE (2) from instrument panel assembly (5).

b. Installation.

1. Position AIR FILTER RESTRICTION GAUGE (2) in instrument panel assembly (5).

2. Install AIR FILTER RESTRICTION GAUGE faceplate (4) on instrument panel assembly (5) with two screws (3).

3. Connect vacuum hose (1) to AIR FILTER RESTRICTION GAUGE (2).

c. Follow-On Maintenance.

1. Install instrument panel assembly (para 7-15).

2. Connect batteries (para 7-48).


4. Check operation of AIR FILTER RESTRICTION GAUGE.

5. Shut down engine (TM 9-2320-365-10).

End of Task.
APPENDIX A
REFERENCES

A-1. SCOPE

This appendix lists all forms, field manuals, technical manuals, and other publications referenced in this manual. Those publications that should be consulted for additional information about vehicle operations are also listed.

A-2. PUBLICATIONS INDEX

The following index should be consulted frequently for latest changes or revisions and for new publications relating to material covered in this technical manual.

Consolidated Index of Army Publications and Blank Forms ........................................... DA Pam 25-30

A-3. FORMS

The following forms pertain to this manual. See DA Pam 25-30 for index of blank forms. See DA Pam 738-750, The Army Maintenance Management System (TAMMS), for instructions on the use of maintenance forms pertaining to this material.

Equipment Control Record ................................................................................................. DA Form 2408-9
Equipment Inspection and Maintenance Worksheet .......................................................... DA Form 2404
Maintenance Request ........................................................................................................ DA Form 2407
Packaging Improvement Report ......................................................................................... DD Form 6
Processing and Deprocessing Record of Shipping, Storage, and Issue of Vehicles and
Spare Engines ....................................................................................................................... DD Form 1397
Product Quality Deficiency Report ..................................................................................... SF 368
Recommended Changes to Publications and Blank Forms .............................................. DA Form 2028
Report of Item Discrepancy (ROID) .................................................................................. SF 364

A-4. OTHER PUBLICATIONS

The following publications contain information pertinent to the LMTV and associated equipment.

a. Safety.

First Aid ............................................................................................................................... FM 4-25.11
Security of Tactical Wheeled Vehicles .............................................................................. TB 9-2300-422-20
Safety Inspection and Testing of Lifting Devices ............................................................... TB 43-0142
A-4. OTHER PUBLICATIONS (CONT)

b. LMTV.

Direct Support and General Support Maintenance Manual for M1078 Series, 2 1/2-Ton, 4x4, Light Medium Tactical Vehicle (LMTV) ................................................. TM 9-2320-365-34
Hand Receipt Covering Contents of Components of End Item (COEI), Basic Issue Items (BII), and Additional Authorization List (AAL), for M1078 Series, 2 1/2-Ton, 4x4, Light Medium Tactical Vehicles (LMTV) ................................................. TM 9-2320-365-10-HR
Operator’s Manual for M1078 Series, 2 1/2-Ton, 4x4, Light Medium Tactical Vehicle (LMTV) .............................................................. TM 9-2320-365-10
Unit, Direct Support, and General Support Repair Parts and Special Tools List for M1078 Series, 2 1/2-Ton, 4x4, Light Medium Tactical Vehicle (LMTV) .................................................. TB 9-2300-365-15

Warranty Program for M1078 Series, 2 1/2-Ton, 4x4, Light Medium Tactical Vehicle (LMTV) .............................................................. TB 9-2300-365-15

b. LMTV.

Direct Support and General Support Maintenance Manual for M1078 Series, 2 1/2-Ton, 4x4, Light Medium Tactical Vehicle (LMTV) ................................................. TM 9-2320-365-34
Hand Receipt Covering Contents of Components of End Item (COEI), Basic Issue Items (BII), and Additional Authorization List (AAL), for M1078 Series, 2 1/2-Ton, 4x4, Light Medium Tactical Vehicles (LMTV) ................................................. TM 9-2320-365-10-HR
Operator’s Manual for M1078 Series, 2 1/2-Ton, 4x4, Light Medium Tactical Vehicle (LMTV) .............................................................. TM 9-2320-365-10
Unit, Direct Support, and General Support Repair Parts and Special Tools List for M1078 Series, 2 1/2-Ton, 4x4, Light Medium Tactical Vehicle (LMTV) .................................................. TB 9-2300-365-15

Warranty Program for M1078 Series, 2 1/2-Ton, 4x4, Light Medium Tactical Vehicle (LMTV) .............................................................. TB 9-2300-365-15

C. General Vehicle Operation.

Army Motor Transport Units and Operations .................................................. FM 55-30
Deleted
Manual for the Wheeled Vehicle Driver ........................................................ FM 21-305
Safety Prevention of Motor Vehicle Accidents ................................................ AR 385-55
Vehicle Recovery Operations ............................................................................ FM 20-22

d. General Maintenance and Repair.

Army Oil Analysis Program ............................................................................. TB 43-0211
Camouflage Pattern Painting ......................................................................... FM 5-20
Charging System Troubleshooting ................................................................ DA Pam 750-33
Color, Marking, and Camouflage Painting of Military Vehicles ....................... TB 43-0209
Cooling Systems: Tactical Vehicles ................................................................ TM 750-254
Corrosion Prevention and Control Including Rustproofing Procedures for Tactical Vehicles and Trailers .......................................................... TB 43-0213

Description, Use, Bonding Techniques, and Properties of Adhesives ............... TB ORD 1032
Equipment Improvement Report and Maintenance Digest: TACOM Equipment .............................................................. TB 43-0001-39-1
Equipment Improvement Report and Maintenance Summary ............................. TM 43-0143
Installation Instructions for Installation Kit, Electronic Equipment, MK-2700/VRC (NSN 5895-01-421-0814) (EIC: N/A) to Permit Installation of Radio Set AN/VRC-87/88/90 Series into M1078, M1080, M1081, M1083-M1086, M1088-M1094 and M1096 Family of Medium Tactical Vehicles ................................................................ TB 11-5820-890-20-101

Installation Instructions for Installation Kit, Electronic Equipment, MK-2715/VRC (NSN 5895-01-421-0812) (EIC: N/A) to Permit Installation of Radio Set AN/VRC-89/91/92 Series into M1078, M1080, M1081, M1083-M1086, M1088-M1094 and M1096 Family of Medium Tactical Vehicles ................................................................ TB 11-5820-890-20-92

Metal Body Repair and Related Operations ..................................................... FM 43-2
Operator’s and Organizational Maintenance Manual for Radio Sets ................. TM 11-5820-498-12
Operator’s and Organizational Maintenance Manual Including Repair Parts and Special Tools List Simplified Test Equipment for Internal Combustion Engines Reprogrammable (STE/ICE-R) (NSN 4910-01-222-6589) .................................................................. TM 9-4910-571-12&P
Operator’s Manual, Radio Set, AN/VRC-46 ..................................................... TM 11-5820-401-10-1
e. Cold Weather Operation.

Basic Cold Weather Manual .......................................................... FM 31-70
Northern Operations ..................................................................... FM 31-71
Operation and Maintenance of Ordnance Materiel in Cold Weather (0° to -65°F) ....... FM 9-207

f. Decontamination.

Decontamination Operations Facilities & Equipment ................................. TB 700-4
NBC Protection .............................................................................. FM 3-4
NBC Decontamination .................................................................... FM 3-5

g. Maintenance of Special Purpose Kits.

Operator and Organizational Maintenance Manual for Chemical Alarm ............... TM 3-6665-225-12
Operator’s and Unit Maintenance Manual Including Repair Parts and Special Tools
 List for Decontaminating Apparatus: M13 ......................................... TM 3-4230-214-12&P
Operator’s, Organizational, Direct Support, and General Support Maintenance Manual
 Including Repair Parts and Special Tools List for Various Machine Gun Mounts ....... TM 9-1005-245-14
Operator’s, Organizational, Direct Support, and General Support Maintenance
 Manual, Air Conditioner, Horizontal Compact, 18,000 BTU/HR, 208 Volt, 3 Phase,
 50/60 Hertz, Model F18H-3S ......................................................... TM 5-4120-384-14
Unit and Direct Support Maintenance, Repair Parts and Special Tools List for
  Heater, Space, Multifuel with Blower, 60,000 BTU/HR, 120V, Model UH-68G,
  NSN 4520-01-203-4410, and Model UH-68GI, NSN 4520-01-297-6803 ............... TM 5-4520-253-23P

h. General.

Operator’s Manual (M998 Series) ....................................................... TM 9-2320-280-10
Operator’s Manual (M1008 Series) ..................................................... TM 9-2320-289-10
Operator’s Manual (M35 Series) ........................................................ TM 9-2320-361-10
Operator’s Manual (M939 Series) ....................................................... TM 9-2320-272-10
Principles of Automotive Vehicles ..................................................... TM 9-8000
Procedures for Destruction of Tank-Automotive Equipment to Prevent Enemy Use
 (US Army Tank-automotive and Armaments Command) .......................... TM 750-244-6
Route Reconnaissance and Classification ............................................. FM 5-36
Soldier’s Manual MOS 88M Motor Transport Operator, Skill Levels 1/2 ............... STP 55-88-M12-SM
A-4. OTHER PUBLICATIONS (CONT)

i. Land, Sea, and Air Shipment.

- Airdrop of Supplies and Equipment: Rigging 2 1/2-Ton Trucks ........................................... FM 10-520
- Containerization of Military Vehicles .......................................................... MTMCTEA Ref 95-55-23
- Lifting and Tiedown of U.S. Military Helicopters .................................................. MTMCTEA Ref 95-55-21
- Marine Lifting and Lashing Handbook ................................................................. MTMCTEA Ref 95-55-22
- Marine Terminal Lifting Guidance ................................................................. MTMCTEA Pam 56-1
- Multiservice Helicopter External Air Transport: Dual-Point Load Rigging Procedures ........... FM 55-450-5
- Multiservice Helicopter External Air Transport: Single-Point Load Rigging Procedures ........ FM 55-450-4
- Standard Characteristics (Dimensions, Weight, and Cube) for Transportability of Military Vehicles and Other Outsize/Overweight Equipment (in TOE Line Sequence) ........ TB 55-46-1
- Tiedown Handbook for Rail Movements ............................................................. MTMCTEA Pam 55-19
- Tiedown Handbook for Truck Movements ......................................................... MTMCTEA Ref 92-55-20
APPENDIX B
MAINTENANCE ALLOCATION CHART (MAC)

SECTION I
INTRODUCTION

B-1. The Army Maintenance System MAC.

a. This introduction (Section I) provides a general explanation of all maintenance and repair functions authorized at various maintenance levels under the standard Army Maintenance System concept.

b. The Maintenance Allocation Chart (MAC) in Section II designates overall authority and responsibility for the performance of maintenance functions on the identified end item or component. The application of the maintenance functions to the end item or component will be consistent with the capacities and capabilities of the designated maintenance levels, which are shown on the MAC in column (4) as:

- **Unit/Field** - includes two subcolumns, C (Operator/Crew) and O (Unit) maintenance.
- **Direct Support/Field** - includes an F subcolumn.
- **General Support/Sustainment** - includes an H subcolumn.
- **Depot/Sustainment** - includes a D subcolumn.

c. Section III lists the tools and test equipment (both special tools and common tool sets) required for each maintenance function as referenced from Section II.

d. Section IV contains supplemental instructions and explanatory notes for a particular maintenance function.

B-2. Maintenance Functions. Maintenance functions are limited to and defined as follows:

a. **Inspect.** To determine the serviceability of an item by comparing its physical, mechanical, and/or electrical characteristics with established standards through examination (e.g. by sight, sound, or feel).

b. **Test.** To verify serviceability by measuring the mechanical, pneumatic, hydraulic, or electrical characteristics of an item and comparing those characteristics with prescribed standards.

c. **Service.** Operations required periodically to keep an item in proper operating condition; e.g. to clean (includes decontaminate, when required), to preserve, to drain, to paint, or to replenish fuel, lubricants, chemicals fluids, or gases.

d. **Adjust.** To maintain or regulate, within prescribed limits, by bringing into proper position, or by setting the operating characteristics to specified parameters.

e. **Align.** To adjust specified variable elements of an item to bring about optimum or desired performance.

f. **Calibrate.** To determine and cause corrections to be made or to be adjusted on instruments or Test, Measurement, and Diagnostic Equipment (TMDE) used in precision measurement. Consists of comparison of two instruments, one of which is a certified standard of known accuracy, to detect and adjust any discrepancy in the accuracy of the instrument being compared.
g. **Remove/Install.** To remove and install the same item when required to perform service or other maintenance functions. Install may be the act of emplacing, seating, or fixing into position a spare, repair part, or module (component or assembly) in a manner to allow the proper functioning of an equipment or system.

h. **Replace.** To remove an unserviceable item and install a serviceable counterpart in its place. "Replace" is authorized by the MAC and assigned maintenance level is shown as the 3d position code of the SMR code.

i. **Repair.** The application of maintenance services including fault location/troubleshooting, removal/installation, and disassembly/assembly procedures, and maintenance actions to identify troubles and restore serviceability to an item by correcting specific damage, fault, malfunction, or failure in a part, subassembly, module (component or assembly), end item, or system.

j. **Overhaul.** That maintenance effort (service/action) prescribed to restore an item to a completely serviceable/operational condition as required by maintenance standards in appropriate technical publications (i.e., DMWR). Overhaul is normally the highest degree of maintenance performed by the Army. Overhaul does not normally return an item to like new condition.

k. **Rebuild.** Consists of those services/actions necessary for the restoration of unserviceable equipment to a like new condition in accordance with original manufacturing standards. Rebuild is the highest degree of material maintenance applied to Army equipment. The rebuild operation includes the act of returning to zero those age measurements (e.g., hours/miles) considered in classifying Army equipment/components.

B-3. **Explanation of Columns in the MAC, Section II.**

a. **Column 1, Group Number.** Column 1 lists functional group code numbers, the purpose of which is to identify maintenance significant components, assemblies, subassemblies, and modules with the next higher assembly.

b. **Column 2, Component/Assembly.** Column 2 contains the item names of components, assemblies, subassemblies, and modules for which maintenance is authorized.

c. **Column 3, Maintenance Function.** Column 3 lists the functions to be performed on the items listed in Column 2. (For detailed explanation of these functions, see Paragraph B-2.)

d. **Column 4, Maintenance Level.** Column 4 specifies each level of maintenance authorized to perform each function listed in Column 3, by indicating work time required (expressed in man-hours in whole hours or decimals) in the appropriate subcolumn. This work-time figure represents the active time required to perform that maintenance function at the indicated level of maintenance. If the number or complexity of the tasks within the listed maintenance function vary at different maintenance levels, appropriate work-time figures are to be shown for each level. The work-time figure represents the average time required to restore an item (assembly, subassembly, component, module, end item, or system) to a serviceable condition under typical field operating conditions.

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1 Services - Inspect, test, service, adjust, align, calibrate, and/or replace.

2 Fault location/troubleshooting - The process of investigating and detecting the cause of equipment malfunction; the act of isolating a fault within a system or Unit Under Test (UUT).

3 Disassembly/assembly - The step-by-step breakdown (taking apart) of a spare/functional group coded item, to the level of its least component, that is assigned an SMR code for the level of maintenance under consideration (i.e., identified as maintenance significant).

4 Actions - Welding, grinding, riveting, straightening, facing, machining, and/or resurfacing.
This time includes preparation time (including any necessary disassembly/assembly time), troubleshooting/fault location time, and quality assurance time in addition to the time required to perform the specific tasks identified for the maintenance functions authorized in the maintenance allocation chart. The symbol designations for the various maintenance levels are as follows:

- C ........................................... Operator or crew maintenance
- O .......................................... Unit/Field maintenance
- F ....................................... Direct Support/Field maintenance
- L .......................................... Specialized Repair Activity (SRA)5
- H .......................................... General Support/Sustainment maintenance
- D .......................................... Depot/Sustainment maintenance

**e. Column 5, Tools and Test Equipment Reference Code.** Column 5 specifies, by code, those common tools sets (not individual tools), common TMDE, and special tools, special TMDE, and special support equipment required to perform the designated functions. Codes are keyed to tools and test equipment in Section III.

**f. Column 6, Remarks.** When applicable, this column contains a letter code, in alphabetical order, which is keyed to the remarks contained in Section IV.

**B-4. Explanation of Columns in Tool and Test Equipment Requirements, Section III.**

- **a. Column 1, Reference Code.** The tool and test equipment reference code correlates with a code used in the MAC, Section II column 5.

- **b. Column 2, Maintenance Level.** The lowest level of maintenance authorized to use the tool or test equipment.

- **c. Column 3, Nomenclature.** Name or identification of the tool or test equipment.

- **d. Column 4, National Stock Number.** The National Stock Number of tool or test equipment.

- **e. Column 5, Tool Number.** The manufacturer's part number, model number, or type number.

**B-5. Explanation of Columns in Remarks, Section IV.**

- **a. Column 1, Remarks Code.** The code recorded in column 6, Section II.

- **b. Column 2, Remarks.** This column lists information pertinent to the maintenance function being performed as indicated in the MAC, Section II.

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5This maintenance level is not included in Section II, Column (4) of the Maintenance Allocation Chart. Functions to this level of maintenance are identified by a work-time figure in the "H" column of Section II, Column (4), and an associated reference code is used in the Remarks column (6). This code is keyed to Section IV, Remarks, and the SRA complete repair application is explained there.
### Section II. MAINTENANCE ALLOCATION CHART FOR THE LMTV VEHICLE

<table>
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<tr>
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<th>Maintenance Function</th>
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### Section II. MAINTENANCE ALLOCATION CHART FOR THE LMTV VEHICLE (CONT)

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## Section II. MAINTENANCE ALLOCATION CHART FOR THE LMTV VEHICLE (CONT)

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| 3307 | COVER KIT, CARGO SOFT TOP | Inspect 0.1 | Replace 1.0 | Repair 0.5 | Remove/Install 1.5 | |
|      |                           | Inspect 0.1 | Replace 2.0 | Repair 0.5 |  |
| 3307 | AIR CONDITIONER KIT, M1079 | Inspect 0.1 | Remove/Install 1.5 |  |
| 3307 | WARNING LIGHT ASSEMBLY, AMBER | Inspect 0.1 | Repair 0.4 | Test 0.2 | |
| 3401 | MACHINE GUN RING KIT       | Inspect 0.1 | Remove/Install 4.0 |  |
| 3402 | MOUNT, SMALL ARMS          | Inspect 0.1 | Replace 0.3 |  |
| 3909 | CABLE ASSEMBLY, WARNING LIGHT | Inspect 0.1 | Replace 0.5 |  |
| 4316 | AIR HOSE, CTIS             | Inspect 0.1 | Replace 0.4 |  |
| 4317 | VALVE, INVERSION           | Replace 0.5 |  |
| 4321 | AIR DRYER                  | Inspect 0.1 | Replace 1.0 | Repair 0.6 |  |
| 4702 | GAUGE, AIR FILTER RESTRICTION | Replace 0.5 |  |
## Section III. TOOLS AND TEST EQUIPMENT FOR LMTV VEHICLES

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### Section III. TOOLS AND TEST EQUIPMENT FOR LMTV VEHICLES (Cont)

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### Section III. TOOLS AND TEST EQUIPMENT FOR LMTV VEHICLES (Cont)

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### Section IV. REMARKS FOR THE LMTV VEHICLE

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<tr>
<td>B</td>
<td>Repair of tires will be in accordance with TM 9-2610-200-14.</td>
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Section I. INTRODUCTION

C-1. INTRODUCTION

This appendix lists common tools, supplements, and special tools/fixtures that are suggested for maintenance tasks performed at the Unit Maintenance level.

C-2. EXPLANATION OF COLUMNS

a. **Column (1) - Item Number.** This number is assigned to the entry in the listing and is referenced in the narrative instructions to identify the item, e.g., "Bar, Pry (Item 1, Appendix C)."

b. **Column (2) - Item Name.** This column contains the nomenclature for the item.

c. **Column (3) - National Stock Number.** This is the national stock number assigned to the item which you can use to requisition it.

d. **Column (4) - Part Number.** This provides the Government, manufacturer, or vendor part number for the item.

e. **Column (5) - Reference.** This column contains the shop catalog (SC), technical manual, or other publication which provides an illustration and description of the item, or lists whether the item is fabricated.

---

**APPENDIX C**

**Section II. TOOLS IDENTIFICATION LIST**

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<thead>
<tr>
<th>(1) ITEM NUMBER</th>
<th>(2) ITEM NAME</th>
<th>(3) NATIONAL STOCK NUMBER</th>
<th>(4) PART NUMBER</th>
<th>(5) REFERENCE</th>
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<tr>
<td>57</td>
<td>WRENCH, TORQUE, 0-175 lb-ft</td>
<td>5120-00-640-6364</td>
<td>1753LDF</td>
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<td>58</td>
<td>WRENCH, TORQUE, 0-200 lb-in.</td>
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<td>58.1</td>
<td>WRENCH, TORQUE, 0-300 lb-in.</td>
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<td>WRENCH, TORQUE, 0-600 lb-ft</td>
<td>5120-00-221-7983</td>
<td>SW130-301</td>
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APPENDIX D
EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST

Section I. INTRODUCTION

D-1. SCOPE

This appendix lists expendable and durable items that you will need to operate and maintain the LMTV vehicle. This listing is for information only and is not authority to requisition the listed items. These items are authorized to you by CTA 50-970, Expendable/Durable Items (except medical, class V repair parts, and heraldic items), or CTA 8-100, Army Medical Department Expendable/Durable Items.

D-2. EXPLANATION OF COLUMNS

a. Column (1) - Item Number. This number is assigned to the entry in the listing and is referenced in the narrative instructions to identify the item, e.g., "Oil, Lubricating (Item 25, Appendix D).

b. Column (2) - Level. This column identifies the lowest level of maintenance that requires the item.

c. Column (3) - National Stock Number. This is the national stock number assigned to the item which you can use to requisition it.

d. Column (4) - Item Name, Description, Commercial and Government Entity Code (CAGEC), and Part Number. This provides the other information you need to identify the item.

e. Column (5) - Unit of Measure. This code shows the physical measurement or count of an item, such as gallon, dozen, gross, etc.

Section II. EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST

<table>
<thead>
<tr>
<th>(1) Item Number</th>
<th>(2) Level</th>
<th>(3) National Stock Number</th>
<th>(4) Description</th>
<th>(5) U/M</th>
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<tbody>
<tr>
<td>1 O 4730-00-248-9340</td>
<td>Adapter, Pipe to Tube (81343) 4-4 010103B</td>
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<td>1.1 O 4730-01-453-9651</td>
<td>Adapter, Straight, Pipe to Boss (19207) 12421890-001</td>
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<td>1.2 O 4730-01-457-4025</td>
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<td>2 O 8040-00-273-8717</td>
<td>Adhesive (81348) MMM-A-121</td>
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<td>3 O 8040-00-152-0063</td>
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<td>5 O 8040-01-117-7872</td>
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<td>Adhesive (71984) 3145 RTV Clear</td>
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<td>7 O 8040-00-776-9602</td>
<td>Adhesive (73168) 80055-31</td>
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<td>8 O 8040-00-118-2695</td>
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<td>11.1</td>
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<td>8040-00-728-3088</td>
<td>Adhesive (78500) 1199-T-3842 6 oz</td>
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<td>6850-00-174-1806</td>
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<td>13</td>
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<td>6850-01-441-3218</td>
<td>Antifreeze, Multi-Engine Type (58536) (A-A-52624A)</td>
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<td>6850-01-441-3221</td>
<td>Type I (Green) – 1 gal</td>
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<td>6850-01-441-3257</td>
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<td>6850-00-597-5367</td>
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<td>Cleaning Compound, Windshield (81349) O-C-1901 16 oz bottle</td>
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<td>8030-00-903-0931</td>
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<td>1 gal can</td>
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<td>Ink, Marking Stencil (MIL-I-43553)</td>
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<td>Insulating Compound, Electrical</td>
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### Section II. EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST (CONT)

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### Section II. EXPENDABLE/DURABLE SUPPLIES AND MATERIALS LIST (CONT)

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# APPENDIX E
## ILLUSTRATED LIST OF MANUFACTURED ITEMS

### Section I. INTRODUCTION

**E-1. INTRODUCTION**

This appendix includes complete instructions for manufacturing or fabricating authorized items locally. All bulk materials needed to manufacture an item are listed by part number or specification number. Figures are provided as needed. See standards and specifications DoD-Std-00100D(AR) and ANSI Y14.5M1982 for required details.

### Section II. MANUFACTURED ITEMS INDEX

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<td>Transmission Oil Cooler Hose</td>
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<td>12418460-002</td>
<td>Transmission Oil Cooler Hose</td>
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<td>12420489</td>
<td>Block Seal</td>
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<tr>
<td>3256-H-1048</td>
<td>CTIS Seal Driver</td>
<td>E-18</td>
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<tr>
<td>3256-K-1051</td>
<td>Wheel Hub Grease Seal Driver</td>
<td>E-19</td>
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<tr>
<td>Dimmer Switch Test Wire</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Purge Valve Tool</td>
<td></td>
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</tr>
</tbody>
</table>
Section III. MANUFACTURED ITEMS

E-2. BRAKE ADJUSTING TOOL SUPPORT

Make the brake adjusting tool support from 0.134 in. (3.4 mm) flat steel stock according to the following instructions. Refer to the parts list and Figure E-1. Brake Adjusting Tool Support for details.

<table>
<thead>
<tr>
<th>Item</th>
<th>Part Number</th>
<th>Material Description</th>
<th>Size</th>
<th>Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>N/A</td>
<td>Steel, ASTM A569 Sheet, Hot Rolled</td>
<td>6.0 in. (152.4 mm) x 6.0 in. (152.4 mm) x 0.134 in. (3.4 cm)</td>
<td>2</td>
</tr>
</tbody>
</table>

Figure E-1. Brake Adjusting Tool Support

- All dimensions are in inches (millimeters).
- Cut steel sheet as shown by dimensions on Figure E-1. Brake Adjusting Tool Support.
- De-burr and remove sharp edges.
E-3. BRAKE PLUNGER SEAL DRIVER

Figure E-2. Brake Plunger Seal Driver

- All dimensions are in inches (millimeters).
- Manufacture from round steel stock.
- De-burr and remove sharp edges.
Make the cab support tool from .38 inch (.96 cm) flat steel stock and angle iron stock according to the following instructions. Refer to the parts list and Figure E-3. Cab Support Tool Strut and Cab Rest for details.

<table>
<thead>
<tr>
<th>Item</th>
<th>Part Number</th>
<th>Material Description</th>
<th>Size</th>
<th>Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>N/A</td>
<td>Steel, Flat Bar</td>
<td>4.0 in. (10.2 cm) X 33.38 in. X (84.8 cm) X 0.38 in. (0.96 cm)</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>N/A</td>
<td>Steel, Flat Bar</td>
<td>4.0 in. (10.2 cm) X 12.0 in. (30.5 cm) X 0.38 in. (0.96 cm)</td>
<td>1</td>
</tr>
<tr>
<td>3</td>
<td>N/A</td>
<td>Angle Iron</td>
<td>2.0 in. (5.1 cm) X 2.0 in. (5.1 cm) X 3.5 in. (8.9 cm)</td>
<td>2</td>
</tr>
<tr>
<td>4</td>
<td>H.S.105VW-1</td>
<td>Insulgrip, CSA 105 C</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

- All dimensions are in inches (centimeters).
- Cut cab support tool strut (1) from steel flat bar and bend to shape as shown in Figure E-3. Cab Support Tool Strut and Cab Rest.
- Cut cab support tool cab rest (2) from steel flat bar.
- De-burr and remove sharp edges.

Figure E-3. Cab Support Tool Strut and Cab Rest
e. Remove flange side of cab support tool seats (3) as shown in Figure E-4. Cab Support Tool Seat.
f. Cut cab support tool seats (3) L and (3) R according to dimensions and left/right orientation shown on Figure E-4.

g. De-burr and remove sharp edges.
h. Position and clamp cab support tool seats (3) L and (3) R together as shown by dimensions on **Figure E-5. Cab Support Tool Seat Layout**.

i. Weld cab support tool seat (3) L to cab support tool seat (3) R as identified on assembly table and **Figure E-5. Cab Support Tool Seat Layout**.

j. Position and clamp cab support tool seats (3) L and (3) R to cab support tool strut (1) as shown by dimensions on **Figure E-5. Cab Support Tool Seat Layout**.

k. Weld items clamped in step (f) as shown in **Figure E-5. Cab Support Tool Seat Layout**.

l. De-burr and remove sharp edges.
m. Position and clamp cab support tool strut (1) to cab support tool cab rest (2) as shown by dimensions on Figure E-6. Cab Support Tool Assembly, before insulgrip (4) is applied.

n. Weld cab support tool strut (1) to cab support tool cab rest (2).

o. Apply Insulgrip (4) to cab support tool cab rest (2) as described on material container.
The headlight adjustment screen may be drawn on any vertical surface at least 50 in. (127 cm) high and 100 in. (254 cm) wide.

a. Draw two vertical lines (1) 50 in. (127 cm) high and 90.6 in. (230 cm) apart (centered on headlight adjustment screen).

b. Locate two points 40 in. (101.6 cm) from floor and 13 in. (33 cm) toward the center from each vertical line (1).

c. Draw vertical line (2) about 3-5 in. (8-13 cm) centered on each of the two points.

d. Draw horizontal line (3) about 3-5 in. (8-13 cm) centered on each of the two points.

e. Measure out 4 in. (10 cm) along each vertical line (2) and horizontal line (3) from each of the two points to make 8 in. (20 cm) squares (4).

Figure E-7. Headlight Adjustment Screen
E-6. M1079 BLACKOUT SHIELD SEALS

Fabricate the M1079 blackout shield seals according to the following steps. Refer to the following parts list for materials.

<table>
<thead>
<tr>
<th>Description</th>
<th>Material Part Number</th>
<th>CAGE Code</th>
<th>Cut Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blackout Shield Header Seal</td>
<td>942P00001</td>
<td>0SHR6</td>
<td>28-3/4 in. (730 mm)</td>
</tr>
<tr>
<td>Blackout Shield Jamb Seal (van body serial numbers 001 through 190)</td>
<td>942P00001</td>
<td>0SHR6</td>
<td>63-3/8 in. (1610 mm)</td>
</tr>
<tr>
<td>Blackout Shield Jamb Seal (van body serial number 191 and higher)</td>
<td>942P00001</td>
<td>0SHR6</td>
<td>33 in. (838 mm)</td>
</tr>
</tbody>
</table>

a. Dimensions are in inches (millimeters).
b. Cut seal material to the specified length using a fine-toothed hacksaw or other suitable cutting tool.

e-7. M1079 DOOR GASKETS

Fabricate the M1079 door gaskets according to the following steps. Refer to the following parts list for materials.

<table>
<thead>
<tr>
<th>Description</th>
<th>Material Part Number</th>
<th>CAGE Code</th>
<th>Cut Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>LH Door Gasket</td>
<td>12416417</td>
<td>19207</td>
<td>214 in. (5435 mm)</td>
</tr>
<tr>
<td>RH Door Gasket</td>
<td>12416417</td>
<td>19207</td>
<td>197 in. (5004 mm)</td>
</tr>
</tbody>
</table>

a. Dimensions are in inches (millimeters).
b. Cut seal material to the specified length using a fine-toothed hacksaw or other suitable cutting tool.
c. Glue ends of gasket to each other using adhesive MIL-A-46106 GP1TY1 (Item 11, Appendix D).
E-8. M1079 WINDOW SASH GLAZING SEALS

Fabricate the M1079 window sash glazing seals according to the following steps. Refer to the following parts list for materials.

<table>
<thead>
<tr>
<th>Description</th>
<th>Material Part Number</th>
<th>CAGE Code</th>
<th>Cut Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>Window Sash Top/Bottom Seal</td>
<td>941P00001</td>
<td>0SHR6</td>
<td>26-13/16 in. (681 mm)</td>
</tr>
<tr>
<td>Window Sash Side Seal (van body serial numbers 001 through 190)</td>
<td>941P00001</td>
<td>0SHR6</td>
<td>28-1/2 in. (724 mm)</td>
</tr>
<tr>
<td>Window Sash Side Seal (van body serial number 191 and higher)</td>
<td>941P00001</td>
<td>0SHR6</td>
<td>12-11/16 in. (322 mm)</td>
</tr>
</tbody>
</table>

a. Dimensions are in inches (millimeters).
b. Cut seal material to the specified length using a fine-toothed hacksaw or other suitable cutting tool.

**NOTE**

Cut miters so that short side of seal faces toward glass.

c. Cut 45-degree miters on ends of window sash seals.

E-9. RELAY TEST WIRE

Fabricate the relay test wire according to the following steps. Refer to the following parts list for materials.

<table>
<thead>
<tr>
<th>Material Description</th>
<th>National Stock Number</th>
<th>Cut Length</th>
</tr>
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<tbody>
<tr>
<td>Wire, Electrical (MIL-W-16878)</td>
<td>6145-00-330-3318</td>
<td>6 in. (152 mm)</td>
</tr>
</tbody>
</table>

a. Dimensions are in inches (millimeters).
b. Cut a length of wire six inches (152 mm) long.
c. Remove approximately 3/4 in. (19 mm) of electrical insulation from each end of wire.

E-10. WHEEL BEARING SHIM TOOL REST

Fabricate the wheel bearing shim tool rest according to the following steps. Refer to the following parts list for materials.

<table>
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<th>Part Number</th>
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<tr>
<td>QQ-T-570</td>
<td>9510-00-866-1037</td>
<td>Bar, Metal</td>
</tr>
</tbody>
</table>

a. Dimensions are in inches (millimeters).
b. Cut metal bar to 9.0 inches (228.6 mm) long.
c. De-burr and remove sharp edges from ends of metal bar.
Cut pneumatic tubes from bulk tubing stock listed Table E-1. Pneumatic Tube Lengths. Use a fine-toothed hacksaw or suitable cutting device and cut tubing to required length.

### Table E-1. Pneumatic Tube Lengths

<table>
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<tr>
<th>Tube Part Number</th>
<th>Bulk Tubing Part Number</th>
<th>Cut Length</th>
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<tbody>
<tr>
<td>12414690-001</td>
<td>NT-100-4 (79470)</td>
<td>18.1</td>
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<td>12414690-002</td>
<td>NT-100-4 (79470)</td>
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<tr>
<td>12414690-004</td>
<td>NT-100-4 (79470)</td>
<td>74.8</td>
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<tr>
<td>12414690-005</td>
<td>NT-100-4 (79470)</td>
<td>69.7</td>
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<tr>
<td>12414690-010</td>
<td>NT-100-4 (79470)</td>
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<td>J844TYBSIZE 3/8 (81343)</td>
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Table E-1. Pneumatic Tube Lengths (Cont)

<table>
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<tr>
<th>Tube Part Number</th>
<th>Bulk Tubing Part Number</th>
<th>Cut Length</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>inches</td>
</tr>
<tr>
<td>12414690-201</td>
<td>C608-100BLK (13174)</td>
<td>14.8</td>
</tr>
<tr>
<td>12414690-202</td>
<td>C608-100BLK (13174)</td>
<td>14.0</td>
</tr>
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</tr>
<tr>
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<td>C608-100BLK (13174)</td>
<td>14.9</td>
</tr>
<tr>
<td>12414690-207</td>
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<td>15.5</td>
</tr>
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<td>C608-100BLK (13174)</td>
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</tr>
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<td>12414690-209</td>
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<td>C608-100BLK (13174)</td>
<td>15.5</td>
</tr>
<tr>
<td>12414690-211</td>
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</tr>
<tr>
<td>12414690-212</td>
<td>C608-100BLK (13174)</td>
<td>16.9</td>
</tr>
<tr>
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<td>C608-100BLK (13174)</td>
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</tr>
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<tr>
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</tr>
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<td>C608-100BLK (13174)</td>
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</tr>
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<td>12414690-218</td>
<td>C608-100BLK (13174)</td>
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<td>C608-100BLK (13174)</td>
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</tr>
<tr>
<td>12414690-224</td>
<td>C608-100BLK (13174)</td>
<td>170.0</td>
</tr>
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<td>12414690-225</td>
<td>C608-100BLK (13174)</td>
<td>174.0</td>
</tr>
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<td>12414690-226</td>
<td>C608-100BLK (13174)</td>
<td>103.5</td>
</tr>
<tr>
<td>12414690-227</td>
<td>C608-100BLK (13174)</td>
<td>32.8</td>
</tr>
<tr>
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<td>C608-100BLK (13174)</td>
<td>3.5</td>
</tr>
<tr>
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<td>C608-100BLK (13174)</td>
<td>62.2</td>
</tr>
<tr>
<td>12414690-230</td>
<td>C608-100BLK (13174)</td>
<td>14.6</td>
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<tr>
<td>12414690-231</td>
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</tr>
<tr>
<td>12414690-301</td>
<td>PFT-10B-BLK-100 (61424)</td>
<td>19.0</td>
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<tr>
<td>12414690-302</td>
<td>PFT-10B-BLK-100 (61424)</td>
<td>56.0</td>
</tr>
<tr>
<td>12414690-303</td>
<td>PFT-10B-BLK-100 (61424)</td>
<td>118.1</td>
</tr>
</tbody>
</table>
E-12. NON-METALLIC ELECTRICAL CABLE CONDUIT FABRICATION

Make conduit to cover electrical cables described on 1241638 from bulk tube stock listed in Table E-2, Non-Metallic Electrical Cable Conduit Lengths. Use a fine-toothed hacksaw or suitable cutting device and cut hose/tube to required length.

Table E-2. Non-Metallic Electrical Cable Conduit Lengths

<table>
<thead>
<tr>
<th>Tube Part Number</th>
<th>Bulk Tube Part Number</th>
<th>Cut Length</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>inch</td>
</tr>
<tr>
<td>12416381P1</td>
<td>49008</td>
<td>8.9</td>
</tr>
<tr>
<td>12416381P10</td>
<td>49008</td>
<td>17.8</td>
</tr>
<tr>
<td>12416381P11</td>
<td>49008</td>
<td>29.9</td>
</tr>
<tr>
<td>12416381P12</td>
<td>49008</td>
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<td>13.9</td>
</tr>
<tr>
<td>12416381P14</td>
<td>49008</td>
<td>4.0</td>
</tr>
<tr>
<td>12416381P15</td>
<td>49008</td>
<td>17.4</td>
</tr>
<tr>
<td>12416381P16</td>
<td>49008</td>
<td>3.2</td>
</tr>
<tr>
<td>12416381P17</td>
<td>49008</td>
<td>4.5</td>
</tr>
<tr>
<td>12416381P2</td>
<td>49008</td>
<td>16.2</td>
</tr>
<tr>
<td>12416381P20</td>
<td>27413</td>
<td>32.8</td>
</tr>
<tr>
<td>12416381P21</td>
<td>27413</td>
<td>9.2</td>
</tr>
<tr>
<td>12416381P22</td>
<td>27413</td>
<td>8.0</td>
</tr>
<tr>
<td>12416381P23</td>
<td>27413</td>
<td>23.3</td>
</tr>
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<td>12416381P26</td>
<td>49008</td>
<td>2.5</td>
</tr>
<tr>
<td>12416381P3</td>
<td>27413</td>
<td>7.3</td>
</tr>
<tr>
<td>12416381P30</td>
<td>49007</td>
<td>17.0</td>
</tr>
<tr>
<td>12416381P32</td>
<td>49005</td>
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<td>12416381P34</td>
<td>49005</td>
<td>20.7</td>
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<td>21.8</td>
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<td>12416381P36</td>
<td>49005</td>
<td>5.5</td>
</tr>
<tr>
<td>12416381P37</td>
<td>49005</td>
<td>8.0</td>
</tr>
<tr>
<td>12416381P38</td>
<td>49008</td>
<td>3.7</td>
</tr>
<tr>
<td>12416381P4</td>
<td>49008</td>
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<td>26.0</td>
</tr>
<tr>
<td>12416381P6</td>
<td>49008</td>
<td>7.7</td>
</tr>
<tr>
<td>12416381P7</td>
<td>49008</td>
<td>26.7</td>
</tr>
<tr>
<td>12416381P8</td>
<td>49008</td>
<td>5.2</td>
</tr>
<tr>
<td>12416381P9</td>
<td>49008</td>
<td>16.8</td>
</tr>
</tbody>
</table>
E-13. STEERING GEAR RETURN HOSE AND TRANSMISSION OIL COOLER HOSES FABRICATION

Cut the following hoses from bulk hose using a fine-toothed hacksaw or suitable cutting device.

<table>
<thead>
<tr>
<th>Hose Part Number</th>
<th>Bulk Hose Part Number</th>
<th>Cut Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>12418037</td>
<td>A110 (30327)</td>
<td>75.5</td>
</tr>
<tr>
<td>12418460-001</td>
<td>MS521302B110360 (96906)</td>
<td>17.5</td>
</tr>
<tr>
<td>12418460-002</td>
<td>MS521301A206R (96906)</td>
<td>16.0</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Hose Part Number</th>
<th>Bulk Hose Part Number</th>
<th>Cut Length</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>191.7</td>
</tr>
<tr>
<td></td>
<td></td>
<td>44.4</td>
</tr>
<tr>
<td></td>
<td></td>
<td>40.6</td>
</tr>
</tbody>
</table>

E-14. LANYARD ASSEMBLIES P/N 12418763 AND 12420196 FABRICATION

Make the following lanyard assemblies from bulk cable material, sleeves, and tab material and assemble according to Figure E-8 Lanyard Assembly. The following parts list identifies part numbers and lengths of cut pieces.

<table>
<thead>
<tr>
<th>Item</th>
<th>Part Number</th>
<th>Material Description</th>
<th>Size</th>
<th>Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>MIL-W-83420 Type 1, Comp B</td>
<td>1/16 in. stranded wire cable</td>
<td>4 in. (102 mm)</td>
<td>1</td>
</tr>
<tr>
<td>2</td>
<td>MS51844-22</td>
<td>Sleeve</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>3</td>
<td>N/A</td>
<td>Tab, Stainless Steel ASTM A617</td>
<td>.06 in. (16 cm) X .37 in. (9.5 mm) X 1.25 in. (32 mm)</td>
<td>1</td>
</tr>
</tbody>
</table>
a. All dimensions are in inches (millimeters).
b. Make from bulk cable and flat steel material as identified in parts list.
c. Drill two 0.19 in. (4.8 mm) diameter holes through tab material as shown on Figure E-14. Lanyard Assembly.
d. De-burr and remove sharp edges.
e. Bend tab as shown on Figure E-14. Lanyard Assembly.
f. Form loops on cable ends and insert sleeve material over cable on one end of cable and over cable and through sleeve at other end of cable as shown in Figure E-14. Lanyard Assembly.
g. Crimp two sleeves over cable ends.
E-15. NON-METALLIC VENT AIR HOSES FABRICATION

Cut the following vent air hoses from bulk hose using a fine-toothed hacksaw or suitable cutting device.

<table>
<thead>
<tr>
<th>Hose Part Number</th>
<th>Bulk Hose Part Number</th>
<th>Cut Length</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>inches</td>
</tr>
<tr>
<td>12420197-001</td>
<td>483666 (02280)</td>
<td>180.0</td>
</tr>
<tr>
<td>12420197-002</td>
<td>483666 (02280)</td>
<td>120.0</td>
</tr>
<tr>
<td>12420197-003</td>
<td>483666 (02280)</td>
<td>96.0</td>
</tr>
<tr>
<td>12420197-004</td>
<td>483666 (02280)</td>
<td>36.0</td>
</tr>
<tr>
<td>12420197-005</td>
<td>483666 (02280)</td>
<td>156.0</td>
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<td>12420197-006</td>
<td>483666 (02280)</td>
<td>72.0</td>
</tr>
<tr>
<td>12420198-001</td>
<td>881-16 (98441)</td>
<td>120.0</td>
</tr>
<tr>
<td>12420198-002</td>
<td>11657469</td>
<td>36.0</td>
</tr>
</tbody>
</table>

E-16. PERSONNEL HEATER AIR DUCT HOSE FABRICATION

Cut the following hoses from bulk hose using a fine-toothed hacksaw or suitable cutting device.

<table>
<thead>
<tr>
<th>Hose Part Number</th>
<th>Bulk Hose Part Number</th>
<th>Cut Length</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>inches</td>
</tr>
<tr>
<td>12420308-457</td>
<td>8711054 (19207)</td>
<td>18.3</td>
</tr>
<tr>
<td>12420308-760</td>
<td>8711054 (19207)</td>
<td>30.4</td>
</tr>
</tbody>
</table>

E-17. BLOCK SEAL 12420489 FABRICATION

Make block seal from P/N (0VXY8) STN2.38X.5. Use a suitable cutting tool to cut seal to 0.52 inch (1.3 cm) long.
E-18. CTIS SEAL DRIVER 3256-H-1048

Used on Front and Rear Axle CTIS Seals.

NOTES ON USE OF DRIVER

1) SEAL END OF DRIVER TO BE CLEAN OF DEBRIS, DIRT, NICKS AND BURRS

2) DO NOT USE A METAL HAMMER ON DRIVER
   A RUBBER, PLASTIC, WOOD OR SOME OTHER DEAD BLOW TYPE MALLET IS TO BE USED

3) SLIGHTLY GREASE SEAL END OF DRIVER PRIOR TO INSTALLING SEAL

Figure E-9. CTIS Seal Driver

a. All dimensions are in inches (millimeters).
b. Manufacture from round steel stock.
c. De-burr and remove sharp edges.
E-19. WHEEL HUB GREASE SEAL DRIVER 3256-K-1051

NOTES ON USE OF DRIVER

1) SEAL END OF DRIVER TO BE CLEAN OF DEBRIS, DIRT, NICKS AND BURRS
2) DO NOT USE A METAL HAMMER ON DRIVER.
A RUBBER, PLASTIC, WOOD OR SOME OTHER DEAD BLOW TYPE MALLET IS TO BE USED
3) SLIGHTLY GREASE SEAL END OF DRIVER PRIOR TO INSTALLING SEAL

Figure E-10. Wheel Hub Grease Seal Driver

a. All dimensions are in inches (millimeters).
b. Manufacture from round steel stock.
c. De-burr and remove sharp edges.
E-20. DIMMER SWITCH TEST WIRE

Fabricate the dimmer switch test wire according to the following steps. Refer to the following parts list for materials.

<table>
<thead>
<tr>
<th>Material Description</th>
<th>National Stock Number</th>
<th>Quantity</th>
<th>Cut Length</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wire, Electrical (M168678/14BKE9)</td>
<td>6145-01-229-4134</td>
<td>1</td>
<td>12 in (305 mm)</td>
</tr>
<tr>
<td>Pin, Grooved, Headless (12258939-1)</td>
<td>5315-01-156-6314</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>Contact, Electrical (12258939-2)</td>
<td>5999-01-150-8808</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

a. Dimensions are in inches (millimeters).
b. Cut a length of electrical wire approximately 12 in. (305 mm) long.
c. Remove approximately 1/4 in. (6 mm) of insulation from each end of electrical wire.
d. Crimp headless grooved pin on one end of electrical wire.
e. Crimp electrical contact on opposite end of electrical wire.
Fabricate Purge Valve Tool according to the following instructions. Refer to Figure E-11 Purge Valve Tool for details.

<table>
<thead>
<tr>
<th>Item</th>
<th>Part Number</th>
<th>Material Description</th>
<th>Size</th>
<th>Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>N/A</td>
<td>Steel, ASTM A 108 or A576 Grade 1015-1025, BAR (Ref UNS G10150-G10250). Finish Black Oxide Coat, Class I, IAW MIL-C-13924.</td>
<td>14.0 in. (356 mm)</td>
<td>1</td>
</tr>
</tbody>
</table>

Figure E-11. Purge Valve Tool

a. All dimensions are in inches (cm).
b. Cut steel bar (1) and bend to shape as shown in Figure E-11.
c. Dimensional limits apply after coating.
d. All edges shall be broken and free from burrs.
e. Metal Stamp, electro etch, or engrave with the following marking IAW MIL-STD-130: 19207-12379968 MFR-19207.
APPENDIX F
TORQUE LIMITS

F-1. GENERAL

This appendix provides general torque limits for screws and nuts used on the vehicle. Special torque limits are shown in the maintenance procedures for applicable components. Use the general torque limit given in this appendix when specific torque limits are not given in the maintenance procedure. These general torque limits can not be applied to screws that retain rubber components. The rubber components will be damaged before the torque limit is reached.

If a special torque limit is not given in the maintenance instructions for a fastener which retains a rubber component, tighten the screw or nut until it touches metal, then tighten one more turn. Whenever possible, the tightening force (torque) should be applied to the nut side of the fastener group.

F-2. TORQUE LIMITS

Refer to Table F-1, Torque Limits for SAE and ANSI Fasteners for torque limits on standard (SAE and ANSI) screws and free spinning nuts. Refer to Table F-2, Torque Limits for SAE and ANSI Prevailing Torque Nuts for torque limits on standard (SAE and ANSI) self-locking nuts. Refer to Table F-3, Torque Limits for Metric Screws and Free Spinning Nuts for torque limits on metric screws and free spinning nuts. Refer to Table F-4, Torque Limits for Metric Prevailing Torque Nuts for torque limits on metric self-locking nuts.

F-3. USE OF TORQUE TABLES

1. Measure the diameter of the screw to be installed.

2. Count the number of threads per inch.

3. Under the heading DIAMETER look down the column until the diameter of the screw is found. (There are usually two lines beginning with the same diameter.)

4. Under the heading THREADS PER INCH (SAE and ANSI) or THREAD PITCH (metric), find the number of threads per inch that matches the number counted in step (2).

5. To find the grade of the screw, match the markings on the head to the correct picture under CAPSCREW HEAD MARKINGS on the torque table.

6. Look down the column under the picture found in step (5) until the torque limit (lb-ft or N-m) for the diameter and threads per inch (or thread pitch, in the case of metric fasteners) of the screw are located.
## APPENDIX F
### TORQUE LIMITS

**Table F-1. Dry Torque Limits for SAE and ANSI Screws and Free Spinning Nuts**

<table>
<thead>
<tr>
<th>Diameter</th>
<th>Threads per inch</th>
<th>SAE Grade 2</th>
<th>SAE Grade 5</th>
<th>SAE Grade 8</th>
</tr>
</thead>
<tbody>
<tr>
<td>inch</td>
<td>lb-ft</td>
<td>N-m</td>
<td>lb-ft</td>
<td>N-m</td>
</tr>
<tr>
<td>1/4</td>
<td>20</td>
<td>3-5</td>
<td>5-7</td>
<td>8-10</td>
</tr>
<tr>
<td>1/4</td>
<td>28</td>
<td>4-6</td>
<td>5-7</td>
<td>6-8</td>
</tr>
<tr>
<td>1/4</td>
<td>32</td>
<td>4-6</td>
<td>5-7</td>
<td>7-9</td>
</tr>
<tr>
<td>5/16</td>
<td>18</td>
<td>7-9</td>
<td>9-13</td>
<td>11-15</td>
</tr>
<tr>
<td>5/16</td>
<td>24</td>
<td>8-10</td>
<td>11-15</td>
<td>12-16</td>
</tr>
<tr>
<td>5/16</td>
<td>32</td>
<td>9-11</td>
<td>12-16</td>
<td>14-18</td>
</tr>
<tr>
<td>3/8</td>
<td>16</td>
<td>13-17</td>
<td>17-23</td>
<td>20-26</td>
</tr>
<tr>
<td>3/8</td>
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<td>15-19</td>
<td>20-26</td>
<td>22-30</td>
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<td>7/16</td>
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<td>20-28</td>
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<td>32-42</td>
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<td>1/2</td>
<td>28</td>
<td>38-50</td>
<td>51-67</td>
<td>58-78</td>
</tr>
<tr>
<td>9/16</td>
<td>12</td>
<td>55-61</td>
<td>62-82</td>
<td>70-94</td>
</tr>
<tr>
<td>9/16</td>
<td>18</td>
<td>50-68</td>
<td>69-91</td>
<td>78-104</td>
</tr>
<tr>
<td>9/16</td>
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<td>53-71</td>
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<td>5/8</td>
<td>11</td>
<td>62-84</td>
<td>85-113</td>
<td>95-129</td>
</tr>
<tr>
<td>5/8</td>
<td>18</td>
<td>70-94</td>
<td>96-128</td>
<td>108-146</td>
</tr>
<tr>
<td>5/8</td>
<td>24</td>
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**NOTE**
Manufacturer's marks may vary. These are all SAE Grade 5.
Table F-1. Dry Torque Limits for SAE and ANSI Screws and Free Spinning Nuts (Cont)

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## APPENDIX F
### TORQUE LIMITS

Table F-2. Dry Torque Limits for SAE and ANSI Prevailing Torque Nuts

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Table F-3. Dry Torque Limits for Metric Screws and Free Spinning Nuts

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# APPENDIX F
## TORQUE LIMITS

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# APPENDIX G
MANDATORY REPLACEMENT PARTS

## Section I. INTRODUCTION

### G-1. SCOPE

This appendix lists mandatory replacement parts you will need to maintain the LMTV vehicle.

### G-2. EXPLANATION OF COLUMNS

- **a.** Column (1) - Item Number. This number is assigned to each entry in the listing and is referenced in the Initial Setup of the applicable task under Materials/Parts.
- **b.** Column (2) - Nomenclature. Name or identification of the part.
- **c.** Column (3) - Part Number. The manufacturer's part number.
- **d.** Column (4) - National Stock Number. The National stock number of the part.

## Section II. MANDATORY REPLACEMENT PARTS LIST

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APPENDIX H
LUBRICATION ORDER AND SERVICES

SECTION I. INTRODUCTION

H-1. GENERAL

The information contained in this appendix provides the lubrication/services requirements for the LMTV vehicle.

a. Adherence. Intervals (on-condition or hardtime) and the related man-hour times are based on normal operation. The man-hour time specified is the time needed to do all the services prescribed for a particular interval. On-condition (OC) oil sample intervals will be applied unless changed by the Army Oil Analysis Program (AOAP) laboratory. Change the hardtime interval if the lubricants are contaminated or if operating the equipment under adverse operating conditions, including longer-than-usual operating hours. The calendar interval may be extended during periods of low activity. If extended, adequate preservation precautions must be taken. Hardtime intervals will be applied in the event AOAP laboratory support is not available. Hardtime intervals must be applied during the warranty period.

Intervals shown in this lubrication order and services are based on mileage/calendar, and in some cases mileage alone. An example of a mileage/calendar interval is: Q, which means every 3,000 miles (4,827 km) or quarterly (every three months). The lubrication is to be performed at whichever interval occurs first for the vehicle. An example of a mileage alone interval is: 6K, which stands for every 6,000 miles (9,654 km). The lubrication/services is to be performed at the mileage indicated regardless of the calendar interval.

• Dry Cleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles and gloves; use only in well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breath vapors. Keep away from heat or flame. Never smoke when using solvent; the flashpoint for Type I Dry Cleaning Solvent is 100°F (38°C) and for Type II is 138°F (50°C). Failure to comply may result in serious injury or death to personnel.

• If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get medical attention. Failure to comply may result in injury to personnel.

b. Cleaning fittings before lubricating. Clean parts with dry cleaning solvent (SD P-D-680) (Item 71 Appendix D) or equivalent. Dry before lubricating. Dashed arrows indicate lubrication on both sides of the equipment.

c. Lubricating after fording. If fording occurs, lubricate all fittings below fording depth and check submerged gearboxes for presence of water.

d. Lubricating after high-pressure washing. After a thorough washing, lubricate all grease fittings and oil can points outside and underneath vehicle.

e. Level of Maintenance. The lowest level of maintenance authorized to lubricate a point is Operator/Unit Maintenance (O). Operator/crew (C) may lubricate points authorized for Unit Maintenance (O) when authorized by Unit Maintenance (O).

f. Localized views. A reference to the appropriate localized view is given after most lubrication entries. Localized views begin on page H-9.
H-1. GENERAL (CONT)

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<td>A-annually/12,000 mi (19,308 km) (whichever occurs first)</td>
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<td>B-biennially/24,000 mi (38,616 km) (whichever occurs first)</td>
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H-2. OIL FILTERS

Oil filters shall be serviced/changed as applicable, when:

a. They are known to be contaminated, or clogged;
b. Service is recommended by AOAP laboratory analysis; or
c. At prescribed hardtime intervals while vehicle is under warranty, or if AOAP is not available/used as required.

H-3. AOAP SAMPLING INTERVAL

**WARNING**

- Engine oil is hot and under pressure. The oil sampling valve releases oil proportionally to the amount of pressure applied to valve. Activate oil sampling valve by pressing in slowly to prevent injury to personnel. Failure to comply may result in injury to personnel.

- Wear safety goggles when taking oil sample. Oil is under pressure and could cause injury to personnel. Failure to comply may result in injury to personnel.

Units participating in AOAP will sample engine oil every 3,000 miles (4,827 km) or 6 months, whichever occurs first and change engine oil as directed by AOAP. Units participating in AOAP will sample transmission oil every 6,000 miles (9,654 km) or 12 months, whichever occurs first and change transmission oil as directed by AOAP. Units participating in AOAP will sample hydraulic system oil initially after 6 weeks or 10 hours of operation, whichever occurs first. After initial oil change samples should be taken every 12 months or 50 hours of operation, whichever occurs first and change hydraulic oil as directed by AOAP.

H-4. WARRANTY HARDTIME STATEMENT

"For equipment under manufacturer's warranty, hardtime oil service intervals shall be followed. Intervals shall be shortened if lubricants are known to be contaminated or if operation is under adverse conditions (such as longer than usual operating hours, extended idling periods, extreme dust)."
## H-5. LUBRICATION/SERVICE KEY

### LUBRICANTS

<table>
<thead>
<tr>
<th>Specification</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>MIL-L-2104 (OE/HDO)</td>
<td>Lubricating Oil, Internal Combustion Engine, Combat/Tactical Service</td>
</tr>
<tr>
<td>MIL-L-46167 (OEA)</td>
<td>Lubricating Oil, Internal Combustion Engine, Arctic</td>
</tr>
<tr>
<td>MIL-L-2105 (GO)</td>
<td>Lubricating Oil, Gear, Multipurpose</td>
</tr>
<tr>
<td>MIL-G-10924 (GAA)</td>
<td>Grease, Automotive and Artillery</td>
</tr>
<tr>
<td>MIL-G-18458 (GW)</td>
<td>Grease, Wire-Rope and Exposed Gear</td>
</tr>
<tr>
<td>MIL-H-5606 (OHA)</td>
<td>Hydraulic Fluid, Petroleum Base, Aircraft, Missile, and Ordnance</td>
</tr>
</tbody>
</table>

### DESCRIPTION | CAPACITY | EXPECTED TEMPERATURES

<table>
<thead>
<tr>
<th>Description</th>
<th>Capacity</th>
<th>Above +40°F (Above +4°C)</th>
<th>+4°F to -15°F (+4°C to -26°C)</th>
<th>-15°F to -50°F (-26°C to -46°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine crankcase</td>
<td>25 qt (24 L)</td>
<td>OE/HDO-15/40</td>
<td>OE/HDO-15/40</td>
<td>OEA</td>
</tr>
<tr>
<td>Transmission (total system)</td>
<td>43.3 qt (41 L)</td>
<td>OE/HDO-15/40</td>
<td>OE/HDO-10</td>
<td>OEA</td>
</tr>
<tr>
<td>Transmission (at oil change)</td>
<td>31.8 qt (30.0 L)</td>
<td>OE/HDO-15/40</td>
<td>OE/HDO-10</td>
<td>OEA</td>
</tr>
<tr>
<td>Transmission (after overhaul)</td>
<td>39.0 qt (37.0 L)</td>
<td>OE/HDO-15/40</td>
<td>OE/HDO-10</td>
<td>OEA</td>
</tr>
<tr>
<td>Steering system</td>
<td>5 qt (4.8 L)</td>
<td>OE/HDO-10</td>
<td>OE/HDO-10</td>
<td>OEA</td>
</tr>
<tr>
<td>Hydraulic reservoir</td>
<td>27 gal (102.2 L)</td>
<td>OE/HDO-10</td>
<td>OE/HDO-10</td>
<td>OEA</td>
</tr>
<tr>
<td>Front axle differential (maximum capacity)</td>
<td>9.5 qt (9.0 L)</td>
<td>GO-80/90</td>
<td>GO-80/90</td>
<td>SAE 75W90 OR GO-75</td>
</tr>
<tr>
<td>Rear axle differential (maximum capacity)</td>
<td>18.05 qt (17.1 L)</td>
<td>GO-80/90</td>
<td>GO-80/90</td>
<td>SAE 75W90 OR GO-75</td>
</tr>
<tr>
<td>Front axle planetary hubs</td>
<td>11-13 oz (0.33-0.38 L)</td>
<td>GO-80/90</td>
<td>GO-80/90</td>
<td>SAE 75W90 OR GO-75</td>
</tr>
<tr>
<td>11K Self-Recovery Winch (SRW)</td>
<td>As Required</td>
<td>GO-85/140</td>
<td>GO-80/90</td>
<td>GO-75</td>
</tr>
<tr>
<td>Propeller shaft universal and slip joints</td>
<td>As Required</td>
<td>GAA</td>
<td>GAA</td>
<td>GAA</td>
</tr>
<tr>
<td>Tie rod ends</td>
<td>As Required</td>
<td>GAA</td>
<td>GAA</td>
<td>GAA</td>
</tr>
<tr>
<td>Towing pintle assembly</td>
<td>As Required</td>
<td>GAA</td>
<td>GAA</td>
<td>GAA</td>
</tr>
<tr>
<td>Spring bolts and spring shackles</td>
<td>As Required</td>
<td>GAA</td>
<td>GAA</td>
<td>GAA</td>
</tr>
<tr>
<td>Front axle shaft U-joints and steering knuckles</td>
<td>As Required</td>
<td>GAA</td>
<td>GAA</td>
<td>GAA</td>
</tr>
</tbody>
</table>
### H-5. LUBRICATION/SERVICE KEY (CONT)

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>CAPACITY</th>
<th>EXPECTED TEMPERATURES</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Above 40°F</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Above +4°C)</td>
</tr>
<tr>
<td>Front axle inner wheel bearing</td>
<td>As Required</td>
<td>GAA</td>
</tr>
<tr>
<td>Rear axle inner wheel bearing</td>
<td>As Required</td>
<td>GAA</td>
</tr>
<tr>
<td>Front lifting beam</td>
<td>As Required</td>
<td>GAA</td>
</tr>
<tr>
<td>11K Self-Recovery Winch (SRW) cable</td>
<td>As Required</td>
<td>GW</td>
</tr>
<tr>
<td>Air/hydraulic power unit</td>
<td>3 pt (1.4 L)</td>
<td>OHA</td>
</tr>
<tr>
<td>Backup hydraulic pump</td>
<td>19 oz (562 ml)</td>
<td>OHA</td>
</tr>
</tbody>
</table>

### COOLANT

<table>
<thead>
<tr>
<th>Specification</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>A-A-52624A</td>
<td>Antifreeze, Multi-Engine Type</td>
</tr>
<tr>
<td>MIL-A-11755</td>
<td>Antifreeze, Arctic-Type</td>
</tr>
</tbody>
</table>

### COOLANT (CONT)

<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>CAPACITY</th>
<th>EXPECTED TEMPERATURES</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Above 40°F</td>
</tr>
<tr>
<td></td>
<td></td>
<td>(Above +4°C)</td>
</tr>
<tr>
<td>Cooling system (engine only)</td>
<td>14 qt (13 L)</td>
<td>A-A-52624A</td>
</tr>
<tr>
<td>Cooling system (total system)</td>
<td>43.8 qt (41.5 L)</td>
<td>A-A-52624A</td>
</tr>
<tr>
<td>Cooling system, Arctic (total system)</td>
<td>58.3 qt (55.2 L)</td>
<td>N/A</td>
</tr>
</tbody>
</table>

### CLEANING AGENT

<table>
<thead>
<tr>
<th>Specification</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>P-D-680</td>
<td>Dry Cleaning Solvent, SD-II</td>
</tr>
<tr>
<td>O-C-1901</td>
<td>Cleaning Compound, Windshield</td>
</tr>
</tbody>
</table>
### Description

<table>
<thead>
<tr>
<th>Description</th>
<th>Capacity</th>
<th>Expected Temperatures</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Above +15 °F (Above -9 °C)</td>
</tr>
<tr>
<td>All metal parts as required</td>
<td>N/A</td>
<td>SD-II (all temperatures)</td>
</tr>
<tr>
<td>Windshield washer reservoir</td>
<td>7.5 qt (7.1 L)</td>
<td>2/3 water to 1/3 O-C-1901</td>
</tr>
</tbody>
</table>

For arctic operation refer to FM 9-207.

### H-6. LUBRICATION/SERVICE INTERVALS

<table>
<thead>
<tr>
<th>Intervals</th>
<th>Total Man-Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quarterly (Q)</td>
<td>Lubrication performed once every three months or 3,000 mi (4,827 km).*</td>
</tr>
<tr>
<td>Semi-annually (S)</td>
<td>Lubrication performed once every six months or 6,000 mi (9,654 km).*</td>
</tr>
<tr>
<td>Annually (A)</td>
<td>Lubrication performed once every year or every 12,000 mi (19,308 km).*</td>
</tr>
<tr>
<td>Biennially (B)</td>
<td>Lubrication performed once every two years or every 24,000 mi (38,616 km).*</td>
</tr>
<tr>
<td>3K</td>
<td>Lubrication performed once every 3,000 mi (4,827 km).**</td>
</tr>
<tr>
<td>6K</td>
<td>Lubrication performed once every 6,000 mi (9,654 km).**</td>
</tr>
<tr>
<td>12K</td>
<td>Lubrication performed once every 12,000 mi (19,308 km).**</td>
</tr>
<tr>
<td>24K</td>
<td>Lubrication performed once every 24,000 mi (38,616 km).**</td>
</tr>
</tbody>
</table>

* Whichever occurs first.
** No calendar interval.
H-7. LOCATOR VIEWS

LUBRICANT INTERVAL

Engine Crankcase Breather (O)
(See note 17 and view A)

Fuel Filter (O)
(See note 6 and view A)

Fuel/Water Separator (O)
(See note 5 and view B)

Cooling System (O)
(See note 7)

Transmission Filter (O)
(See note 3 and view F)

Transmission Drain and Fill (O)
(See note 3 and views D, E, and F)

Towing Pintle Fill (O)
(See note 16 and views J and K)

INTERVAL LUBRICANT

Engine Oil Filter (O)
(See note 2 and view C)

Crankcase Drain and Fill (O)
(See note 1 and views C and D)

Front Axle Inner Wheel Bearing Repack (O)
(See note 22)

Power Steering Reservoir Drain and Fill (O)
(See note 4 and view G)

Power Steering Filter (O)
(See note 4 and view G)

Spring Bolt Fill (O)
(See note 18 and view H)

Spring Shackle Fill (O)
(See note 18 and view AE)

CHASSIS

NOTE: Dashed arrows indicate lubrication on both sides of vehicle.
LUBRICANT INTERVAL

Spring Bolt
Fill (O)
(See note 18 and view H)

Spring Shackle
Fill (O)
(See note 18 and view I)

Tie Rod Ends
Fill (O)
(See note 13 and view N)

Universal and Slip Joints
Fill (O)
(See note 9 and view P)

Battery Posts (O)
(See note 19 and view Q)

Air Dryer (O)
(See note 25 and view AF)

Universal and Slip Joints
Fill (O)
(See note 9 and view P)

11K Self-Recovery Winch
(SRW) Cable Front Roller Fairlead
Fill (O)
(See note 23 and views Z and AA)

Brake Wedge and Air Chamber (O)
(See note 21 and view L)

Backup Hydraulic Pump Drain and Fill (O)
(See note 10 and view R)

Air/Hydraulic Power Unit Drain and Fill (O)
(See note 10 and view S)

Brake Wedge and Air Chamber (O)
(See note 21 and view M)

11K Self-Recovery Winch
(SRW) Cable Rear Roller Fairlead
Fill (O)
(See note 23 and views AB and AC)

CHASSIS

NOTE: Dashed arrows indicate lubrication on both sides of vehicle.
NOTE: Dashed arrows indicate lubrication on both sides of vehicle.
H-8. LOCAL VIEWS (CONT)

AD

AE

AF

FRONT LIFTING BEAM

SPRING SHACKLE

AIR DRYER
H-9. LUBRICATION/SERVICES NOTES

1. ENGINE CRANKCASE. Check engine oil level daily. Change engine oil at initial 5,000 miles (8,045 km). During the remainder of the 12,000 mile (19,308 km)/18 month warranty period, Units participating in AOAP will sample engine oil every 3,000 miles (4,827 km) or 6 months, whichever occurs first and change engine oil as directed by AOAP. Units not participating in AOAP, will change engine oil every 6,000 miles (9,654 km) or every six months, whichever occurs first. After expiration of engine warranty period, Units participating in AOAP will perform engine oil change as directed by AOAP. Units not participating in AOAP will change engine oil every 6,000 miles (9,654 km) or every six months, whichever occurs first. Drain engine oil when engine is warm. Refill engine crankcase with OE/HDO specified for the ambient temperature. Engine oil is full when level is within crosshatch marks on the dipstick. Do not overfill.

2. ENGINE OIL FILTER. Filter is replaced each time the crankcase is drained. If water or metal particles are detected during filter replacement, notify Direct Support Maintenance personnel before refilling crankcase (para 3-4).

3. TRANSMISSION. Check transmission oil level daily. Change transmission oil at initial 5,000 miles (8,045 km). During the remainder of the 24 month/unlimited mileage warranty, Units participating in AOAP will sample transmission oil every 6,000 miles (9,654 km) or 12 months, whichever occurs first and change transmission oil as directed by AOAP. Units not participating in AOAP will perform transmission oil change every 24,000 miles (38,616 km) or once every two years, whichever occurs first. Drain transmission oil when engine is warm. Refill with OE/HDO specified for ambient temperature. Add oil until the proper level is reached (TM 9-2320-365-10). Do not overfill. Replace oil filters each time transmission oil is changed (para 8-9).

4. POWER STEERING. Check power steering oil level weekly. Change the oil every 24,000 miles (38,616 km). Disconnect upper and lower hoses from steering gear and drain oil. Refill power steering pump reservoir with OE/HDO specified for the ambient temperature. Reservoir is full when oil is between the two marks on the dipstick. Do not overfill. Remove dipstick, wipe clean and install dipstick fully into reservoir. Remove dipstick and read oil level. Replace oil filter each time power steering oil is changed (para 13-8).

5. FUEL/WATER SEPARATOR. Replace filter element every 6,000 miles (9,654 km) or once every six months, whichever occurs first (para 4-13).

6. FUEL FILTER. The fuel particle filter is replaced when a new fuel/water separator filter element is installed. The normal replacement interval is every 6,000 miles (9,654 km) or once every six months, whichever occurs first (para 4-14).

7. ENGINE COOLANT. Check engine coolant level daily. Change the coolant and flush the cooling system every 24,000 miles (38,616 km) or once every two years, whichever occurs first. Fill radiator overflow tank with an Ethylene Glycol/water mixture as specified in 0-A-548D. Service the cooling system before the specified interval if:
   - Coolant is heavily contaminated.
   - Engine overheats.
   - Oil cooler has failed allowing oil and coolant to mix.

8. HYDRAULIC RESERVOIR and FILTER. Check oil level weekly and make sure oil level gage reads F (full). Units participating in AOAP will sample oil annually and change oil and filter as directed by AOAP. Units not participating in AOAP will change oil and filter every two years. Drain oil and refill hydraulic reservoir with OE/HDO specified for ambient operating temperature. Fill hydraulic reservoir until oil level gage reads F (full). Do not overfill. Replace oil filter each time oil is changed (para 9-12).
H-18 Change 2

H-9. LUBRICATION/SERVICE NOTES (CONT)

9. DRIVE SHAFT UNIVERSAL and SLIP YOKE.
Lubricate drive shafts with GAA every 3,000 miles (4,827 km) or once every three months, whichever occurs first, using a low pressure lubrication gun. If operating conditions are severe or abnormal, service at 1,000 miles (1,609 km) or once every month, whichever occurs first. Perform drive shaft hinging inspection every time drive shafts are serviced (para 9-3).

- UNIVERSAL JOINT:
  A. Apply grease to both grease fittings until new grease purges from all four bearing caps.
  B. If grease does not purge from all four bearing caps, perform the following steps:
     (1) Loosen two screws on bearing cap that does not purge, approximately 1/4 in.
     (2) Apply grease to grease fitting for bearing cap that does not purge until bearing cap purges.
     (3) Remove and discard the two screws loosened in step (1).
     (4) Position two replacement screws in bearing cap and tighten down evenly.
     (5) Tighten two screws to 26-35 lb-ft (35-47 N m).

- SLIP JOINT:
  A. Apply grease until grease appears at the vent in the welch plug.
  B. Place your finger over the welch plug vent and add grease until grease purges from the dust seal.
  C. If grease does not purge from the dust seal, inspect drive shaft slip yoke (para 9-2).

10. AIR/HYDRAULIC POWER UNIT and BACKUP HYDRAULIC PUMP. Change OHA oil every 24,000 miles (38,616 km) or once every two years, whichever occurs first. To service air/hydraulic power unit and backup hydraulic pump refer to vehicle para 19-7, Air Transportability Hydraulic System Service.

11. ALL AXLE DIFFERENTIALS. Check oil level in differentials every 3,000 miles (4,827 km). Check oil level with vehicle parked on level surface and axle differential at ambient temperature, allowing at least one hour to cool down after vehicle operation. If oil is checked when axle differential is hot, it is normal for oil to spill out of the port due to expansion from the heat. Oil level is considered full if it is within one inch of the bottom of the fill port. If oil spills from the fill port when the axle differential is cool, it is overfull. Allow oil to drain until no more drains out. If the oil level is more than one inch below the bottom of the fill port, refill axle differential with GO specified for the ambient temperature until level with bottom of fill port. Change the oil every 24,000 miles (38,616 km) or once every two years, whichever occurs first. Drain oil when hot after operation.

12. FRONT AXLE WHEEL END PLANETARY HUBS. There are two lube intervals for the front axle wheel end planetary hubs.

a. Check and fill front axle wheel end planetary hubs every 3,000 miles (4,827 km) or once every three months, whichever occurs first, as follows:
   (1) Position vehicle on a level surface. Allow 15 minutes for vehicle to cool before checking oil levels.
   (2) Position fill port at 4 o'clock position. If oil flows from fill port when plug is loosened, let oil drain to correct level. If oil level is below fill port, fill hub with GO specified for the ambient temperature until oil is level with fill port.

b. Drain and fill front axle wheel end planetary hubs every 24,000 miles (38,616 km) or once every two years, whichever occurs first, following the repacking of the inner wheel bearings or whenever wheel end assemblies are taken apart for other maintenance as follows:
   (1) Position vehicle on a level surface.
   (2) Position fill port at the 6 o'clock (down) position.
   (3) Drain hub oil (allow a minimum of 15 minutes for oil to drain down from vent tubes).
   (4) Refill hubs with 11-13 ounces of GO specified for the ambient temperature.
13. TIE ROD ENDS. Lubricate tie rod ends with GAA every 6,000 miles (9,654 km) or once every six months, whichever occurs first, using a low pressure lubrication gun, until new grease is seen purging from the boot area. If operating conditions are severe or abnormal, service at 1,000 miles (1,609 km) or once every month, whichever occurs first.

14. 11K SELF-RECOVERY WINCH (SRW) CABLE:

CAUTION

Do not use dry cleaning solvent to clean 11K Self-Recovery Winch (SRW) cables. Use of dry cleaning solvent will remove lubricant from inner strands of 11K SRW cables. Failure to comply may result in damage to equipment.

a. After winch operation:
   Refer to FM 5-125.

b. Care of wire rope:
   Refer to FM 5-125.

c. Inspection of wire rope:
   Refer to FM 5-125.

d. Every six months:
   (1) Unwind entire length of 11K SRW cable (TM 9-2320-365-10).
   (2) Soak and clean 11K SRW cable with new OE/HDO 30.
   (3) Wipe off excess OE/HDO 30.
   (4) Coat 11K SRW cable with GW.

15. 11K SRW. Check 11K SRW gear oil level every 6,000 miles (9,654 km) or once every six months, whichever occurs first. Refill 11K SRW with GO specified for ambient temperature. Change oil every 12,000 miles (19,308 km) or once every year, whichever occurs first. Use procedure (a) to check and fill oil level; use procedure (b) to change oil.

a. Check and fill oil level as follows:
   (1) Shift the freespool mechanism to the disengage position so the drum can be freely rotated.
   (2) Rotate the drum to where either plug is near the top of the 11K SRW. Remove the plug.
   (3) Rotate the drum 90 degrees in the direction that allows the other plug to be near the top of the 11K SRW. Remove the plug.
   (4) Add oil until a small amount of oil runs out of lower plug hole.
   (5) Apply adhesive (Item 2 [Appendix D]) to plug and position plug in top hole.
   (6) Rotate drum until open hole is at top.
   (7) Apply adhesive (Item 2 [Appendix D]) to plug and position plug in top hole.
   (8) Tighten plugs to 13-15 lb-ft (18-20 N·m).
H-9. LUBRICATION/SERVICE NOTES (CONT)

b. Change oil as follows:

1. Shift the freewheel to the disengage position so the drum can be freely rotated.
2. Rotate the drum to where either plug is near the top of the 11K SRW. Remove the plug.
3. Rotate the drum 90 degrees in the direction that allows the other plug to be near the top of the 11K SRW. Remove the plug.
4. Position drain pan (Item 17, Appendix C) under 11K SRW.
5. Rotate the drum until either hole is straight down to the bottom of the 11K SRW. Allow the oil to drain completely.
6. Rotate the drum until either hole is at top.

**NOTE**

Oil level is full if a small amount of oil runs out of lower plug.

7. Add oil until a small amount of oil runs out of lower plug hole.
8. Apply adhesive (Item 2, Appendix D) to plug and position plug in top hole.
9. Rotate drum until open hole is at top.
10. Apply adhesive (Item 2, Appendix D) to plug and position plug in top hole.
11. Tighten plugs to 13-15 lb-ft (18-20 N•m).

16. TOWING PINTLE. Lubricate towing pintle with GAA every 6,000 miles (9,654 km) or once every six months, whichever occurs first, using a low pressure lubrication gun until new grease is seen purging.

**WARNING**

- Dry Cleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles and gloves; use only in well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breath vapors. Keep away from heat or flame. Never smoke when using solvent; the flashpoint for Type I Dry Cleaning Solvent is 100°F (38°C) and for Type II is 138°F (50°C). Failure to comply may result in serious injury or death to personnel.
- If personnel become dizzy while using cleaning solvent, immediately get fresh air and medical help. If solvent contacts skin or clothes, flush with cold water. If solvent contacts eyes, immediately flush eyes with water and get medical attention. Failure to comply may result in injury to personnel.

17. ENGINE CRANKCASE BREATHER. Remove crankcase breather and clean with Dry Cleaning Solvent (SD P-D-680) (Item 71, Appendix D) or equivalent, and replace o-ring seal every 6,000 miles (9,654 km) or once every six months, whichever occurs first (para 3-5).

18. FRONT and REAR AXLE SPRING BOLT and SPRING SHACKLE. Lubricate front and rear axle spring bolts and spring shackles with GAA every 3,000 miles (4,827 km) or once every three months, whichever occurs first, using a low pressure lubrication gun until grease appears between pins and bushings at both ends of spring bolt and spring shackle. If pins do not accept grease, notify Direct Support to remove pins. Clean and inspect pins and bushings, replace if necessary. If operating conditions are severe or abnormal, service at 1,000 miles (1,609 km) or once every month, whichever occurs first.

19. BATTERY POSTS. Service batteries in accordance with TM 9-6140-200-14, every 6,000 miles (9,654 km) or once every six months, whichever occurs first.
20. **FRONT AXLE SHAFT UNIVERSAL JOINTS and STEERING KNUCKLES.** Lubricate universal joints every 3,000 miles (4,827 km) or once every three months, whichever occurs first. Lubricate steering knuckles with GAA every 6,000 miles (9,654 km) or once every six months, whichever occurs first, using a low pressure lubrication gun. If operating conditions are severe or abnormal, service at 1,000 miles (1,609 km) or once every month, whichever occurs first.

21. **BRAKE WEDGE and AIR CHAMBER: BRAKE SPIDER, SELF-ADJUSTER MECHANISM, AND WEDGE ASSEMBLY.** Clean and lubricate (with GAA) areas of spider and hardware that contact the brake shoes. Disassemble, clean and lubricate the self-adjuster mechanism. Clean and lubricate the wedge head, rollers and ramps in the plungers. Clean and lubricate every 6,000 miles (9,654 km). If operating conditions are severe or abnormal, service at 3,000 miles (4,827 km) or once every three months, whichever occurs first, or when any of the following occur: Refer to para 11-4 and 11-5.

- Seals are replaced
- Plungers are removed
- Brakes are relined
- Grease becomes contaminated or hardened

22. **FRONT and REAR AXLE INNER WHEEL BEARINGS.** Repack inner wheel bearings with GAA every 12,000 miles (19,308 km), when semiannual PMCS inspection of service brakes reveals oil leak from inner hub, or whenever wheel end assemblies are taken apart for other maintenance (para 10-2).

23. **11K SRW CABLE ROLLER FAIRLEADS.** Lubricate with GAA every 6,000 miles (9,654 km) or once every six months, whichever occurs first, using a low pressure lubrication gun. If operating conditions are severe or abnormal, service at 1,000 miles (1,609 km) or once every month, whichever occurs first.

**WARNING**

- Dry Cleaning Solvent (P-D-680) is TOXIC and flammable. Wear protective goggles and gloves; use only in well-ventilated area; avoid contact with skin, eyes, and clothes, and do not breath vapors. Keep away from heat or flame. Never smoke when using solvent; the flashpoint for Type I Dry Cleaning Solvent is 100 °F (38 °C) and for Type II is 138 °F (50 °C). Failure to comply may result in serious injury or death to personnel.

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

24. **FRONT LIFTING BEAM.** Remove left and right lifting beams and clean with Dry Cleaning Solvent (SD P-D-680) (Item 71, [Appendix D]) or equivalent, every 6,000 miles (9,654 km) or once every six months, whichever occurs first. Apply a light coat of GAA to lifting beams. If operating conditions are severe or abnormal, service at 1,000 miles (1,609 km) or once every month, whichever occurs first.

25. **AIR DRYER.** Service air dryer (para 23-6) every 12,000 miles (19,308 km) or annually, whichever occurs first.

26. **FRONT AND REAR LEAF SPRING.** At initial 1000 miles (1609 km) of vehicle operation, tighten U-bolts to 390-510 lb-ft (529-692 N●m).
APPENDIX J
ADDITIONAL AUTHORIZATION LIST (AAL)

Section I. INTRODUCTION

J-1. SCOPE
This appendix lists additional items you are authorized for the support of the LMTV.

J-2. GENERAL
This list identifies items that do not have to accompany the LMTV and that do not have to be turned in with it. These items are all authorized to you by Common Tables of Allowance (CTA), Modification Table of Organization and Equipment (MTOE), Tables of Distribution and Allowances (TDA), or Joint Table of Allowance (JTA).

J-3. EXPLANATION OF LISTING
National Stock Numbers, description, and quantities are provided to help you identify and request the additional items you require to support this equipment.

Section II. ADDITIONAL AUTHORIZATION LIST

<table>
<thead>
<tr>
<th>(1) National Stock Number</th>
<th>(2) Description (CAGE) Part Number</th>
<th>(3) U/M</th>
<th>(4) Qty Auth</th>
</tr>
</thead>
<tbody>
<tr>
<td>6685-01-193-1733</td>
<td>10,000 PSI Transducer: (19207) 12258956</td>
<td>EA</td>
<td>1</td>
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</table>
APPENDIX K
TRANSMISSION/TRANSMISSION CONTROLS ADAPTABILITY CHART

Section I. INTRODUCTION

K-1. INTRODUCTION

This appendix lists the various transmission controls and configuration modifications that may be required to permit the transmission to function correctly. This appendix will guide the mechanic through the hardware selection process by identifying compatibility issues between the transmission controls (WTEC II/WTEC III) and the numerous revisions of the Allison MD3070PT transmission (PRE-ID w/ 24-pin connector, PRE-ID w/ 31-pin connector, TID 1, TID 2, and TID 3). Refer to Figure 1. After replacing any component of the transmission controls or the transmission assembly, perform calibration procedures in TM 9-2320-365-20-3 paragraph 8-2 or 8-3.

K-2. EXPLANATION OF COLUMNS

a. Column (1) - Installed Controls or Controls Being Installed. This column lists all of the variables concerning which version of transmission controls are installed in the vehicle, or may need to be installed, to communicate correctly with the transmission.

b. Column (2) - Installed Transmission or Transmission Being Installed. This column lists all of the various revisions of the Allison MD3070PT transmissions that may be installed in the vehicle.

c. Column (3) - Required Modification. This column lists the various electrical interface (hardware) modifications that may be required to allow the transmission controls to communicate with the transmission.

K-3. HOW TO USE THIS CHART

a. Determine which controls and transmission are installed in the vehicle.

b. Determine which component requires replacement.

c. Read across the row to column (3) to determine the required modification.

Section II.

TRANSMISSION/TRANSMISSION CONTROLS ADAPTABILITY CHART

<table>
<thead>
<tr>
<th>(1) Installed Controls or Controls Being Installed</th>
<th>(2) Installed Transmission or Transmission Being Installed</th>
<th>(3) Required Modification (Refer to Section III)</th>
</tr>
</thead>
<tbody>
<tr>
<td>WTEC II (with 24-pin connector)</td>
<td>PRE-ID w/ 24-pin connector (transmission serial number prior to 6510032369)</td>
<td>No modification required.</td>
</tr>
<tr>
<td>WTEC II (with 24-pin connector)</td>
<td>PRE-ID w/ 31-pin connector (transmission serial number 6510032369 to 6510090785)</td>
<td>Install 31-pin connector.</td>
</tr>
<tr>
<td>WTEC II (with 24-pin connector)</td>
<td>TID 1 (transmission serial number 6510090786 to 6510142171)</td>
<td>Install 31-pin connector.</td>
</tr>
<tr>
<td>WTEC II (with 24-pin connector)</td>
<td>TID 2 (transmission serial number 6510142172 to 6510262116)</td>
<td>Install 31-pin connector and replace transmission internal wiring harness.</td>
</tr>
<tr>
<td>(1) Installed Controls or Controls Being Installed</td>
<td>(2) Installed Transmission or Transmission Being Installed</td>
<td>(3) Required Modification (Refer to Section III)</td>
</tr>
<tr>
<td>---------------------------------------------------</td>
<td>-------------------------------------------------</td>
<td>-------------------------------------------------</td>
</tr>
<tr>
<td>WTEC II (with 24-pin connector)</td>
<td>TID 3 (transmission serial number 6510262117 and subsequent)</td>
<td>Install 31-pin connector, replace transmission internal wiring harness, and reprogram WTEC II TEPSS. ¹</td>
</tr>
<tr>
<td>WTEC II (with 31-pin connector)</td>
<td>PRE-ID w/ 24-pin connector (transmission serial number prior to 6510032369)</td>
<td>Install adapter cable assembly.</td>
</tr>
<tr>
<td>WTEC II (with 31-pin connector)</td>
<td>PRE-ID w/ 31-pin connector (transmission serial number 6510032369 to 6510090785)</td>
<td>No modification required.</td>
</tr>
<tr>
<td>WTEC II (with 31-pin connector)</td>
<td>TID 1 (transmission serial number 6510090786 to 6510142171)</td>
<td>No modification required.</td>
</tr>
<tr>
<td>WTEC II (with 31-pin connector)</td>
<td>TID 2 (transmission serial number 6510142172 to 6510262116)</td>
<td>Replace transmission internal wiring harness.</td>
</tr>
<tr>
<td>WTEC II (with 31-pin connector)</td>
<td>TID 3 (transmission serial number 6510262117 and subsequent)</td>
<td>Replace transmission internal wiring harness and reprogram WTEC II TEPSS. ¹</td>
</tr>
<tr>
<td>WTEC III (with ECU manufactured prior to October 1999) ²</td>
<td>PRE-ID w/ 24-pin connector (transmission serial number prior to 6510032369)</td>
<td>Install adapter cable assembly and ID harness.</td>
</tr>
<tr>
<td>WTEC III (with ECU manufactured prior to October 1999) ²</td>
<td>PRE-ID w/ 31-pin connector (transmission serial number 6510032369 to 6510090785)</td>
<td>Install ID harness.</td>
</tr>
<tr>
<td>WTEC III (with ECU manufactured prior to October 1999) ²</td>
<td>TID 1 (transmission serial number 6510090786 to 6510142171)</td>
<td>No modification required.</td>
</tr>
<tr>
<td>WTEC III (with ECU manufactured prior to October 1999) ²</td>
<td>TID 2 (transmission serial number 6510142172 to 6510262116)</td>
<td>No modification required.</td>
</tr>
<tr>
<td>WTEC III (with ECU manufactured prior to October 1999) ²</td>
<td>TID 3 (transmission serial number 6510262117 and subsequent)</td>
<td>Reprogram WTEC III ECU ¹ or install new WTEC III ECU (P/N 12421787-002).</td>
</tr>
<tr>
<td>WTEC III (with ECU manufactured after October 1999) ³</td>
<td>PRE-ID w/ 24-pin connector (transmission serial number prior to 6510032369)</td>
<td>Install adapter cable assembly and ID harness.</td>
</tr>
<tr>
<td>WTEC III (with ECU manufactured after October 1999) ³</td>
<td>PRE-ID w/ 31-pin connector (transmission serial number 6510032369 to 6510090785)</td>
<td>Install ID harness.</td>
</tr>
<tr>
<td>WTEC III (with ECU manufactured after October 1999) ³</td>
<td>TID 1 (transmission serial number 6510090786 to 6510142171)</td>
<td>No modification required.</td>
</tr>
</tbody>
</table>

¹ Reprogramming can only be accomplished by an authorized Allison Transmission distributor. You must provide the transmission serial number of the transmission being installed to ensure correct reprogramming. If at a later time, an earlier version transmission is installed in a WTEC II equipped vehicle, WTEC II TEPSS will require reprogramming again.

² Vehicle serial number 012477 and lower. Refer to Figure 1.

³ Vehicle serial number 012478 and higher. Refer to Figure 1.
### Section III.

#### MODIFICATION PARTS IDENTIFICATION

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<tr>
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<th>Description</th>
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<tbody>
<tr>
<td>31-pin connector</td>
<td>300130 5935-21-921-1813</td>
<td>Converts a transmission external wiring harness from a 24-pin (&quot;D&quot; type) connector to a 31-pin (round type) connector.</td>
</tr>
<tr>
<td>Transmission internal wiring harness</td>
<td>29529474 6150-01-481-8088</td>
<td>Converts a TID 2 transmission to a TID 1 configuration to allow WTEC II controls to communicate with the transmission.</td>
</tr>
<tr>
<td>Gasket</td>
<td>29503283 5330-01-360-9035</td>
<td>Required when replacing transmission internal wiring harness.</td>
</tr>
<tr>
<td>ID harness</td>
<td>200100 6150-21-921-1191</td>
<td>Allows WTEC III controls to communicate with a PRE-ID transmission.</td>
</tr>
<tr>
<td>Adapter cable assembly</td>
<td>29519210 6150-01-420-5987</td>
<td>Adapts a PRE-ID transmission with 24-pin (&quot;D&quot; type) connector to a transmission external wiring harness with a 31-pin (round) connector.</td>
</tr>
</tbody>
</table>
MODIFICATION PARTS IDENTIFICATION (CONT)

FIGURE 1

24 PIN CONNECTOR

MANUFACTURE DATE

31 PIN CONNECTOR

WTEC III PUSHBUTTON SHIFT SELECTOR

WTEC II PUSHBUTTON SHIFT SELECTOR
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<td>Polarity Relay 24 VDC Load Cable</td>
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<td>200 Amp Terminal Block to Reverse Polarity Relay 12 VDC Battery Cable Replacement</td>
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<td>Primary and Central Tire Inflation System (CTIS) Air Hoses Replacement</td>
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## GLOSSARY

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<tr>
<td>A/C</td>
<td>Air Conditioner</td>
</tr>
<tr>
<td>AC</td>
<td>Alternating Current</td>
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<tr>
<td>ANSI</td>
<td>American National Standards Institute</td>
</tr>
<tr>
<td>CCW</td>
<td>Counterclockwise</td>
</tr>
<tr>
<td>CTIS</td>
<td>Central Tire Inflation System</td>
</tr>
<tr>
<td>CW</td>
<td>Clockwise</td>
</tr>
<tr>
<td>ECU</td>
<td>Electronic Control Unit</td>
</tr>
<tr>
<td>EMI</td>
<td>Electromagnetic Interference</td>
</tr>
<tr>
<td>LED</td>
<td>Light Emitting Diode</td>
</tr>
<tr>
<td>LH</td>
<td>Left Hand</td>
</tr>
<tr>
<td>LMHC</td>
<td>Light Material Handling Crane</td>
</tr>
<tr>
<td>MAC</td>
<td>Maintenance Allocation Chart</td>
</tr>
<tr>
<td>NATO</td>
<td>North Atlantic Treaty Organization</td>
</tr>
<tr>
<td>NBC</td>
<td>Nuclear, Biological, or Chemical</td>
</tr>
<tr>
<td>NO/NC</td>
<td>Normally Open/Normally Closed</td>
</tr>
<tr>
<td>PDP</td>
<td>Power Distribution Panel</td>
</tr>
<tr>
<td>PMCS</td>
<td>Preventive Maintenance Checks and Services</td>
</tr>
<tr>
<td>PTO</td>
<td>Power Takeoff</td>
</tr>
<tr>
<td>RH</td>
<td>Right Hand</td>
</tr>
<tr>
<td>SAE</td>
<td>Society of Automotive Engineers</td>
</tr>
<tr>
<td>SRW</td>
<td>Self-Recovery Winch</td>
</tr>
<tr>
<td>STE/ICE-R</td>
<td>Simplified Test Equipment/Internal Combustion Engine-Reprogrammable</td>
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<tr>
<td>TEPSS</td>
<td>Transmission ECU Pushbutton Shift Selector</td>
</tr>
<tr>
<td>TM</td>
<td>Technical Manual</td>
</tr>
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<td>TPS</td>
<td>Throttle Position Sensor</td>
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TPSS ................................................................. Transmission Pushbutton Shift Selector
VAC .................................................................... Volts Alternating Current
VDC ..................................................................... Volts Direct Current
VIM ................................................................. Vehicle Interface Module
WTEC II ......................................................... World Transmission Electronic Controls (version 2)
WTEC III ......................................................... World Transmission Electronic Controls (version 3)
By Order of the Secretary of the Army:

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General, United States Army
Chief of Staff

Official:
JOEL B. HUDSON
Administrative Assistant to the
Secretary of the Army
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**Figure F0-3 hydraulic system schematic**
### THE METRIC SYSTEM AND EQUIVALENTS

#### LINEAR MEASURE
1 Centimeter = 10 Millimeters = 0.01 Meters = 0.3937 Inches  
1 Meter = 100 Centimeters = 1000 Millimeters = 39.37 Inches  
1 Kilometer = 1000 Meters = 0.621 Miles  

#### SQUARE MEASURE
1 Sq Centimeter = 100 Sq Millimeters = 0.155 Sq Inches  
1 Sq Meter = 10,000 Sq Centimeters = 10.76 Sq Feet  
1 Sq Kilometer = 1,000,000 Sq Meters = 0.386 Sq Miles  

#### WEIGHTS
1 Gram = 0.001 Kilograms = 1000 Milligrams = 0.035 Ounces  
1 Kilogram = 1000 Grams = 2.2 Lb  
1 Metric Ton = 1000 Kilograms = 1 Megagram = 1.1 Short Tons  

#### CUBIC MEASURE
1 Cu Centimeter = 1000 Cu Millimeters = 0.06 Cu Inches  
1 Cu Meter = 1,000,000 Cu Centimeters = 35.31 Cu Feet  
1 Metric Ton = 1000 Kilograms = 1 Megagram = 1.1 Short Tons  

#### LIQUID MEASURE
1 Milliliter = 0.001 Liters = 0.0338 Fluid Ounces  
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°  

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<td>Miles per Hour</td>
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