ARMY *TM 9-2320-272-23-4
AIR FORCE *TO 36A12-1C-1155-2-4

TECHNICAL MANUAL
FIELD MAINTENANCE MANUAL
FOR

TRUCK, 5-TON, 6X6, M939, M939A1, AND M939A2 SERIES TRUCKS (DIESEL)

TRUCK, CARGO: 5-TON, 6X6 DROPSIDE
M923
NSN 2320-01-050-2084 (EIC BRY)
M923A1
NSN 2320-01-206-4087 (EIC BSS)
M923A2
NSN 2320-01-230-0307 (EIC BS7)
M925
NSN 2320-01-047-8769 (EIC BRT)
M925A1
NSN 2320-01-206-4088 (EIC BST)
M925A2
NSN 2320-01-230-0308 (EIC BS8)

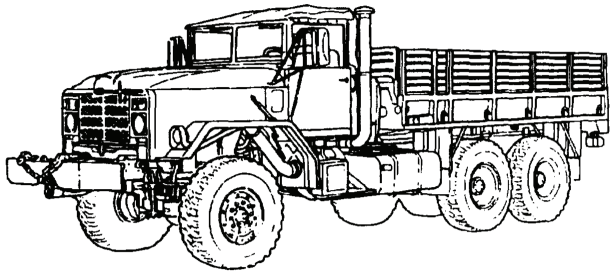
TRUCK, CARGO: 5-TON, 6X6 XLWB
M927
NSN 2320-01-047-8771 (EIC BRV)
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NSN 2320-01-206-4078 (EIC BS6)
M936A2
NSN 2320-01-230-0304 (EIC BTT)



***SUPERSEDURE NOTICE** - This manual supersedes TM 9-2320-272-24-1, TM 9-2320-272-24-2, TM 9-2320-272-24-3, TM 9-2320-272-24-4 and TO 36A12-1C-1155-2-1, TO 36A12-1C-1155-2-2, TO 36A12-1C-1155-2-3, & TO 36A12-1C-11 55-2-4, dated 30 June 1998, including all changes

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

HEADQUARTERS, DEPARTMENTS OF THE ARMY AND THE AIR FORCE
10 SEPTEMBER 2012

WARNING SUMMARY

This warning summary contains general safety warnings and hazardous materials warnings that must be understood and applied during operation and maintenance of the vehicle. Failure to observe these precautions or operating this vehicle without training or instruction may result in serious injury or death to personnel.

FIRST AID DATA

For information on first aid, refer to FM 4-25.11, First Aid.

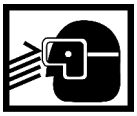
EXPLANATION OF SAFETY WARNING ICONS



EAR PROTECTION - Headphones over ears show that noise level will harm ears.



ELECTRICAL - Electrical wire to hand with electricity symbol running through hand shows that shock hazard is present.



EYE PROTECTION - Person with goggles shows that the material will injure the eyes.



FIRE - Flame shows that a material may ignite and cause burns.



HEAVY OBJECT - Human figure stooping over heavy object shows physical injury potential from improper lifting technique.



HEAVY PARTS - Hand with heavy object on top shows that heavy parts can crush and harm.



HEAVY PARTS - Foot with heavy object on top shows that heavy parts can crush and harm.



HEAVY PARTS - Heavy object pinning human figure against wall shows that heavy, moving parts present a danger to life or limb.

WARNING SUMMARY - Continued

EXPLANATION OF SAFETY WARNING ICONS - Continued



HEAVY PARTS - Heavy object on human figure shows that heavy parts present a danger to life or limb.



HOT AREA - Hand over object radiating heat shows that part is hot and can burn.



MOVING PARTS - Hand with fingers caught between gears shows that the moving parts of the equipment present a danger to life or limb.



RADIATION - Three circular wedges shows that the material emits radioactive energy and can injure human tissue.



SLICK FLOOR - Wavy line on floor with legs prone shows that slick floor presents a danger for falling.



VAPOR - Human figure in a cloud shows that material vapors present a danger to life or health.

WARNING SUMMARY - Continued

GENERAL SAFETY WARNINGS DESCRIPTION

WARNING



Ensure electrical power is off prior to working on all electrical connections. Prior to working on or around vehicle, remove all jewelry, such as rings, ID tags, bracelets, etc. Jewelry, and tools can catch on equipment, contact positive electrical circuits, and cause a direct short, severe burns, or electrical shock. Failure to comply may result in injury or death to personnel.

WARNING



Personnel hearing can be permanently damaged if exposed to constant high noise levels of 85 dB or greater. Failure to comply may reslult in injury to personnel.

WARNING

Unless otherwise specified, perform all maintenance procedures with all attachments lowered to the ground, pilot shutoff lever in the up position, and engine shut off. Failure to comply may result in injury or death to personnel.

WARNING SUMMARY - Continued

EXPLANATION OF HAZARDOUS MATERIALS ICONS



BIOLOGICAL - Abstract symbol bug shows that a material may contain bacteria or viruses that present a danger to life or health.



CHEMICAL - Drops of liquid on hand shows that the material will cause burns or irritation to human skin or tissue.



EXPLOSION - Rapidly expanding symbol shows that the material may explode if subjected to high temperatures, sources of ignition, or high pressure.

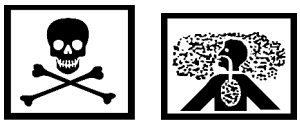


POISON - Skull and crossbones symbol shows that dangerous gases, sprays, vapors, liquids, or materials contain compounds that present a danger to life or health.

WARNING SUMMARY - Continued

HAZARDOUS MATERIALS DESCRIPTIONS

WARNING



CARBON MONOXIDE

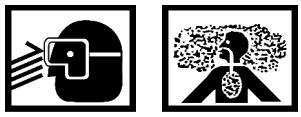
- Carbon monoxide is a colorless, odorless, deadly poison which, when breathed, deprives the body of oxygen and causes suffocation. Exposure to air containing carbon monoxide produces symptoms of headache, dizziness, loss of muscular control, apparent drowsiness, and coma. Permanent brain damage or death to personnel can result from severe exposure.
- Carbon monoxide occurs in exhaust fumes from internal combustion engines. It also occurs in exhaust fumes from engine coolant heater (arctic machine only). Carbon monoxide can become dangerously concentrated under conditions of inadequate ventilation. The following precautions must observed to ensure safety of personnel when engine of vehicle is operated.

1. DO NOT operate engine in enclosed area without adequate ventilation.
2. DO NOT idle engine without adequate ventilation.
3. DO NOT drive machine with inspection plates or cover plates removed.
4. BE ALERT for exhaust poisoning symptoms. They are:
    - Headache
    - Dizziness
    - Sleepiness
    - Loss of muscular control
5. If you see another person with exhaust poisoning symptoms:
    - Remove person from area
    - Expose to fresh air
    - Keep person warm
    - DO NOT permit physical exercise
    - Administer cardiopulmonary resuscitation (CPR) if necessary
    - Notify a Medic
6. BE AWARE. The field protective mask for Nuclear-Biological-Chemical (NBC) protection will not protect you from carbon monoxide poisoning.

WARNING SUMMARY - Continued

HAZARDOUS MATERIALS DESCRIPTIONS - Continued

WARNING



CHEMICAL AGENT RESISTANT COATING (CARC) PAINT

Chemical Agent Resistant Coating (CARC) paint contains isocyanate which is highly irritating to skin and respiratory system. High concentrations of isocyanate can produce symptoms of itching and reddening of skin, a burning sensation in the throat and nose, and watering of the eyes. In extreme concentrations, isocyanate can cause cough, shortness of breath, pain during respiration, increased sputum production, and chest tightness. First aid for ingestion: do not induce vomiting. Seek immediate medical attention. First aid fro skin contact: remove contaminated clothing. Wash skin thoroughly with soap and water. if symptoms persist, seek medical attention. First aid for inhalation: move to fresh air. If not breathing, provide artificial respiration. If symptoms persist, seek medical attention. Failure to comply may result in injury or death to personnel.

WARNING SUMMARY - Continued

HAZARDOUS MATERIALS DESCRIPTIONS - Continued

WARNING



SOLVENT CLEANING COMPOUND

Solvent cleaning compound MIL-PRF-680 type II and III may be irritating to the eyes and skin. Use protective gloves and goggles. Use in well ventilated areas. Use respirator as needed.

Accidental ingestion can cause irritation of digestive tract and repository tract, and may cause lung and central nervous system damage. Can be fatal if swallowed. First aid for ingestion: do not induce vomiting. Seek immediate medical attention.

First aid for skin contact: remove contaminated clothing, Wash skin thoroughly with soap and water. If symptoms persist, seek medical attention.

First aid for eye contact: flush with water for 15 minutes or until irritation subsides. If symptoms persist, seek medical attention.

Inhalation of high/massive concentrations can cause coma or be fatal. First aid for inhalation: move to fresh air. If not breathing, provide artificial respiration. If symptoms persist, seek medical attention.

Keep away from open flames and other sources of ignition. Failure to comply may result in injury or death to personnel. The flash point for type II solvent cleaning compound is 141°F to 198°F (61°C to 92°C) and type III is 200°F to 241°F (93°C to 116°C). Fire extinguishers should be placed nearby when using solvent cleaning compound.

Improper cleaning methods and use of unauthorized cleaning solvents may injure personnel and damage equipment.

Cloths or rags saturated with solvent cleaning compound must be disposed of using authorized facilities procedures.

Eye shields must be worn when cleaning with a wire brush. Flying rust and metal particles may cause injury.

WARNING SUMMARY - Continued

HAZARDOUS MATERIALS DESCRIPTIONS - Continued

WARNING



LUBRICATING OIL

Prolonged contact with lubricating oil may cause skin rash. Remove saturated clothing immediately and wash skin thoroughly that comes in contact with lubricating oil. Failure to comply may result in injury or death to personnel.

Spilled hydraulic oil is slippery and creates a hazardous condition. Clean up and properly dispose of hydraulic oil. Failure to comply may result in injury or death to personnel.

WARNING



NUCLEAR, BIOLOGICAL, OR CHEMICAL

If Nuclear, Biological, or Chemical (NBC) exposure is suspected, all filter media should be handled by personnel wearing protective equipment. Consult your unit NBC Officer or NBC NCO for appropriate handling or disposal instructions. Failure to comply may result in injury or death to personnel.

WARNING SUMMARY - Continued

HAZARDOUS MATERIALS DESCRIPTIONS - Continued

WARNING



LEAD-ACID BATTERIES

Avoid battery electrolyte contact with skin, eyes, and clothing. If battery electrolyte spills, take the following immediate action to stop burning effects:

External - If battery electrolyte contacts skin, immediately flush affected area with cold running water. Failure to comply may result in injury or death to personnel.

Eyes - If battery electrolyte contacts eyes, immediately flush eyes with cold water for 15 minutes and seek immediate medical attention. IMPORTANT - If only one eye is affected, ensure the affected eye is always kept lower then the unaffected eye, during both flushing and transport. This will keep the the affected eye from draining into and contaminating the unaffected eye. Failure to comply may result in injury or death to personnel.

Internal - If battery electrolyte is ingested, drink large amounts of water or milk. Follow with milk of magnesia, a beaten egg or vegetable oil and seek immediate medical attention. Failure to comply may result in injury or death to personnel.

Clothing or vehicle - immediately flush area with cold water and neutralize battery electrolyte with baking soda or household ammonia solution. Failure to comply may result in injury or death to personnel.

Batteries produce explosive gases. Do not smoke or use open flame near batteries. Do not allow hot, parking or glowing objects near batteries. If batteries are giving off gases, the presence of heat, flame, or spark may cause fire and/or explosion. Failure to comply may result in injury or death to personnel.

Wear proper eye protection, gloves, and an apron when working near batteries. Failure to comply may result in injury or death to personnel.

WARNING SUMMARY - Continued

HAZARDOUS MATERIALS DESCRIPTIONS - Continued

WARNING



DIESEL FUEL

- Diesel fuel is highly flammable and can be accidentally ignited. Do not smoke or allow open flame or sparks in the vicinity while working on any part of the fuel system. Keep fire extinguisher within easy reach when working with fuel. Failure to comply may result in injury or death to personnel.
- Spilled fuel is slippery and creates a hazardous condition. Clean up and properly disposed of spilled fuel as soon as possible. Failure to comply may result in injury or death to personnel.
- Do not work on fuel system when engine is hot. Failure to comply may result in injury or death to personnel.
- Safety glassed must be worn when working on pressurized systems. Failure to comply may result in injury or death to personnel.

WARNING



ADHESIVES AND SEALANTS

Adhesives and sealants are flammable, 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 or sealant contacts eye, flush with large amounts of water, and seek medical attention. If adhesive or sealant get on skin or clothing, flush with large amounts of water. If irritation persists, seek medical attention. Failure to comply may result in serious injury or death to personnel.

LIST OF EFFECTIVE PAGES/WORK PACKAGES

NOTE: * Supersedes TM 9-2320-272-24-1, TM 9-2320-272-24-2, TM 9-2320-272-24-3, TM 9-2320-272-24-4 and TO 36A12-1C-1155-2-1, TO 36A12-1C-1155-2-2, TO 36A12-1C-1155-2-3, & TO 36A12-1C-1155-2-4, dated 30 June 1998. Zero in the Change No. Column indicates an original page or work package.

Date of issue for the original manual is:

Original 10 September 2012

TOTAL NUMBER OF VOLUMES IS 5, TOTAL NUMBER OF PAGES FOR FRONT AND REAR MATTER IS 71 AND TOTAL NUMBER OF WORK PACKAGES IS 216 CONSISTING OF THE FOLLOWING:

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Chapter 9 Title Page	0	WP 0593 (4 pages)	0
WP 0554 (4 pages)	0	WP 0594 (8 pages)	0
WP 0555 (4 pages)	0	WP 0595 (8 pages)	0
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WP 0588 (10 pages)	0	WP 0628 (4 pages)	0

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WP 0750 (6 pages)	0	Inside Back Cover	0
WP 0751 (4 pages)	0	Back Cover	0
WP 0752 (6 pages)	0		

HEADQUARTERS
DEPARTMENTS OF THE ARMY AND THE AIR FORCE
WASHINGTON, D.C., 10 SEPTEMBER 2012

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FIELD MAINTENANCE MANUAL
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REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

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HOW TO USE THIS MANUAL

WARNINGS, CAUTIONS, AND NOTES

Read all WARNINGS, CAUTIONS, and NOTES before performing any procedure.

Warnings, cautions, notes, subject headings, and other essential information is printed in **BOLD** type, making them easier for the user to see.

GENERAL INFORMATION

This manual is divided into CHAPTERS and WORK PACKAGES. For a specific Chapter or Work Package, refer to the TABLE OF CONTENTS.

VOLUME 4

- The TABLE OF CONTENTS lists the titles of each Chapter and Work Package.
- CHAPTER 9 provides maintenance instructions.

The illustrations throughout this manual contain numerical callouts pointing to various components mentioned in the procedural steps. Mandatory replacement parts must be discarded after removal and replaced with a new part, which is listed in the Materials/Parts section located at the beginning of the task.

Prior to performing any maintenance functions on the 5-ton, 6x6, M939, M939A1, and M939A2 Diesel Truck series, ALWAYS do the following:

- Read and follow all WARNINGS in all work packages.
- Read the Safety Summary.
- Read the Equipment Description and Data located in Chapter 1.
- Read completely through the maintenance procedure to familiarize yourself with the procedure and the affected parts before beginning work.

Troubleshooting section is setup by either how a physical problem is occurring or how an active or stored trouble code is read from a diagnostic tool. By following a prescribed flow path through making decisions will lead you to a solution to remedy the problem. RPSTL manual, TM 9-2320-272-24P, is to be used in conjunction with this manual to help find needed parts for procurement. RPSTL manual lists and authorized spares and repair parts; special tools, special Test, Measurement, and Diagnostic Equipment (TMDE); and other special support equipment required for performance of Field Maintenance on the 5-ton, 6x6, M939, M939A1, and M939A2 Diesel Truck series. It authorizes the requisitioning, issue, and disposition of spares, repair parts, and special tools as indicated by the Source, Maintenance, and Recoverability (SMR) codes.

METRIC SYSTEM

The equipment described herein contains metric components and requires metric, common, and special tools. Therefore, metric units and English units will be used throughout this publication. An English-to-Metric conversion table is included as the last page of this manual inside the back cover.

CHAPTER 9

MAINTENANCE INSTRUCTIONS

FIELD MAINTENANCE
WINDOW BLACKOUT PANEL REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Van body fully expanded and secured (side door window only). (TM 9-2320-272-10)

REMOVAL

Remove 15 screws (Figure 1, Item 4), guide frame (Figure 1, Item 3), and blackout panel (Figure 1, Item 2) from van body side panel (Figure 1, Item 1).

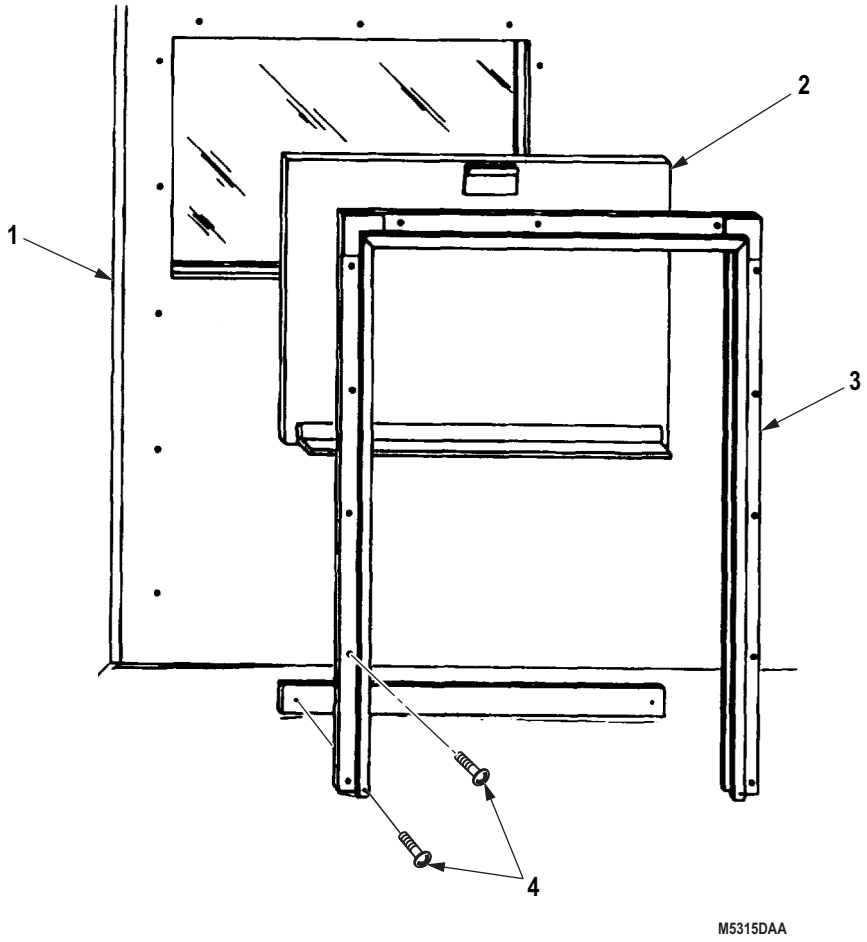


Figure 1. Window Blackout Panel Removal.

END OF TASK

INSTALLATION

Position blackout panel (Figure 1, Item 2) in guide frame (Figure 1, Item 3), and install on van body side panel (Figure 1, Item 1) with 15 screws (Figure 1, Item 4).

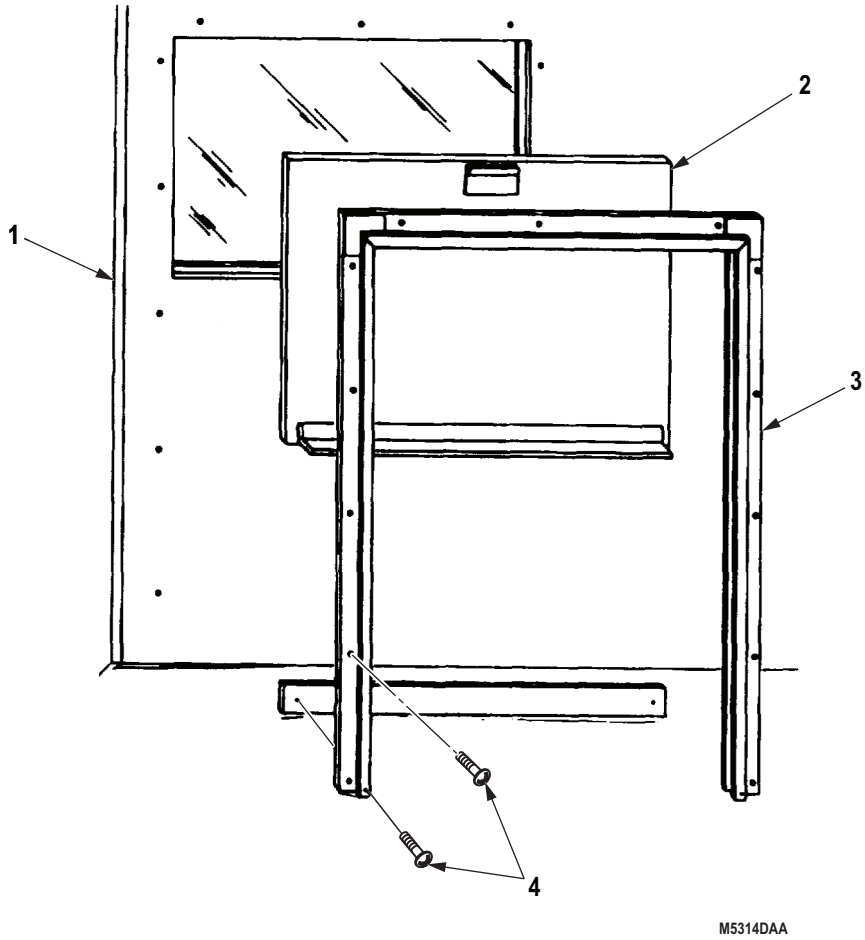


Figure 2. Window Blackout Panel Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

Retract and secure van body (side door window only). (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
CAB DOOR CHECK ROD REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Cotter Pin

Materials/Parts (cont.)
(Volume 5, WP 0827, Table 1, Item 329)
Qty: 1

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

REMOVAL

1. Remove cotter pin (Figure 1, Item 2) from check rod (Figure 1, Item 1) and cab door (Figure 1, Item 3). Discard cotter pin.
2. Open vent door (Figure 1, Item 4) and remove check rod (Figure 1, Item 1) and pad (Figure 1, Item 5).

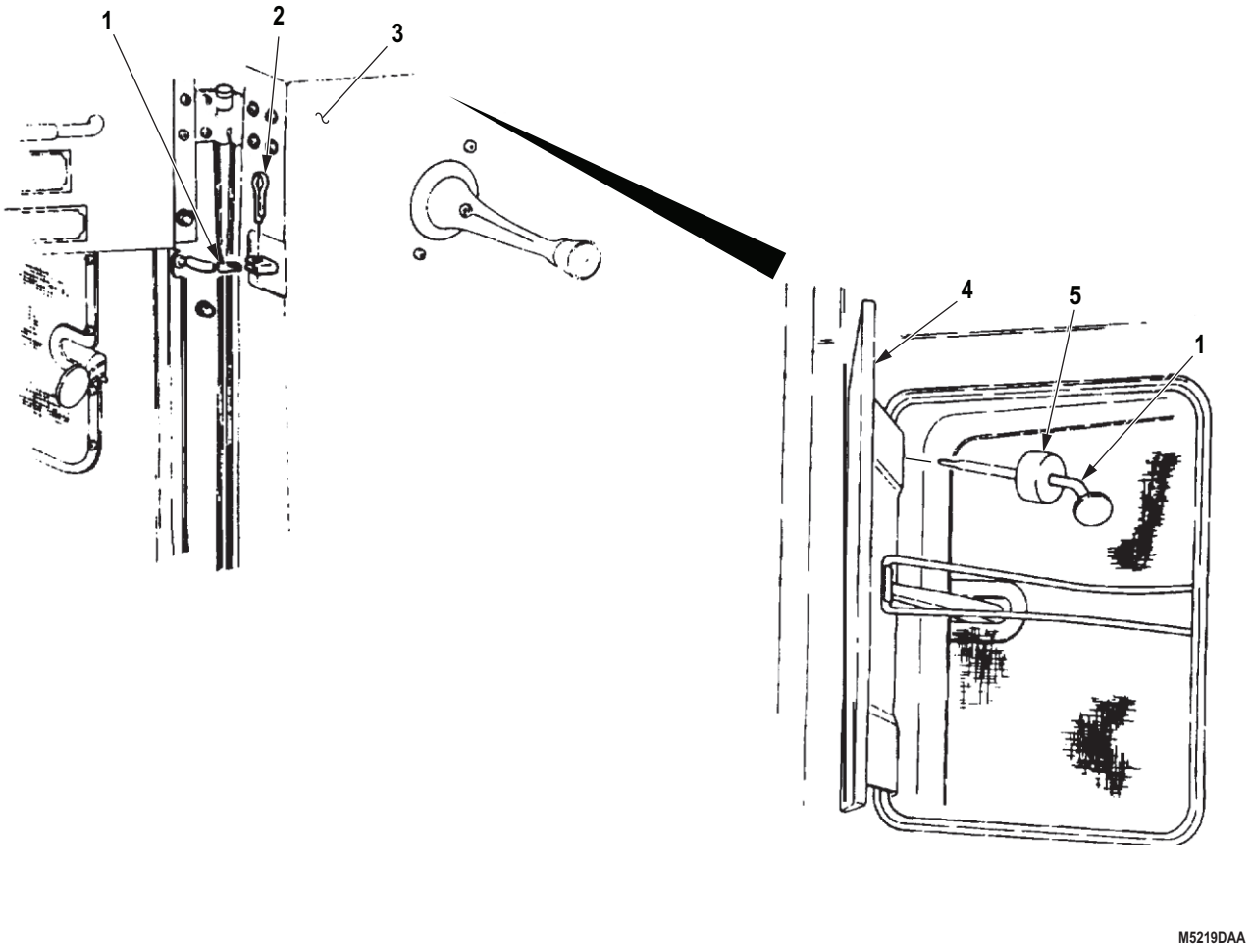


Figure 1. Cab Door Check Rod Removal.

END OF TASK

INSTALLATION

1. Install check rod (Figure 2, Item 1) and pad (Figure 2, Item 5) on vent door (Figure 2, Item 4).
2. Install check rod (Figure 2, Item 1) on cab door (Figure 2, Item 3) with cotter pin (Figure 2, Item 2).

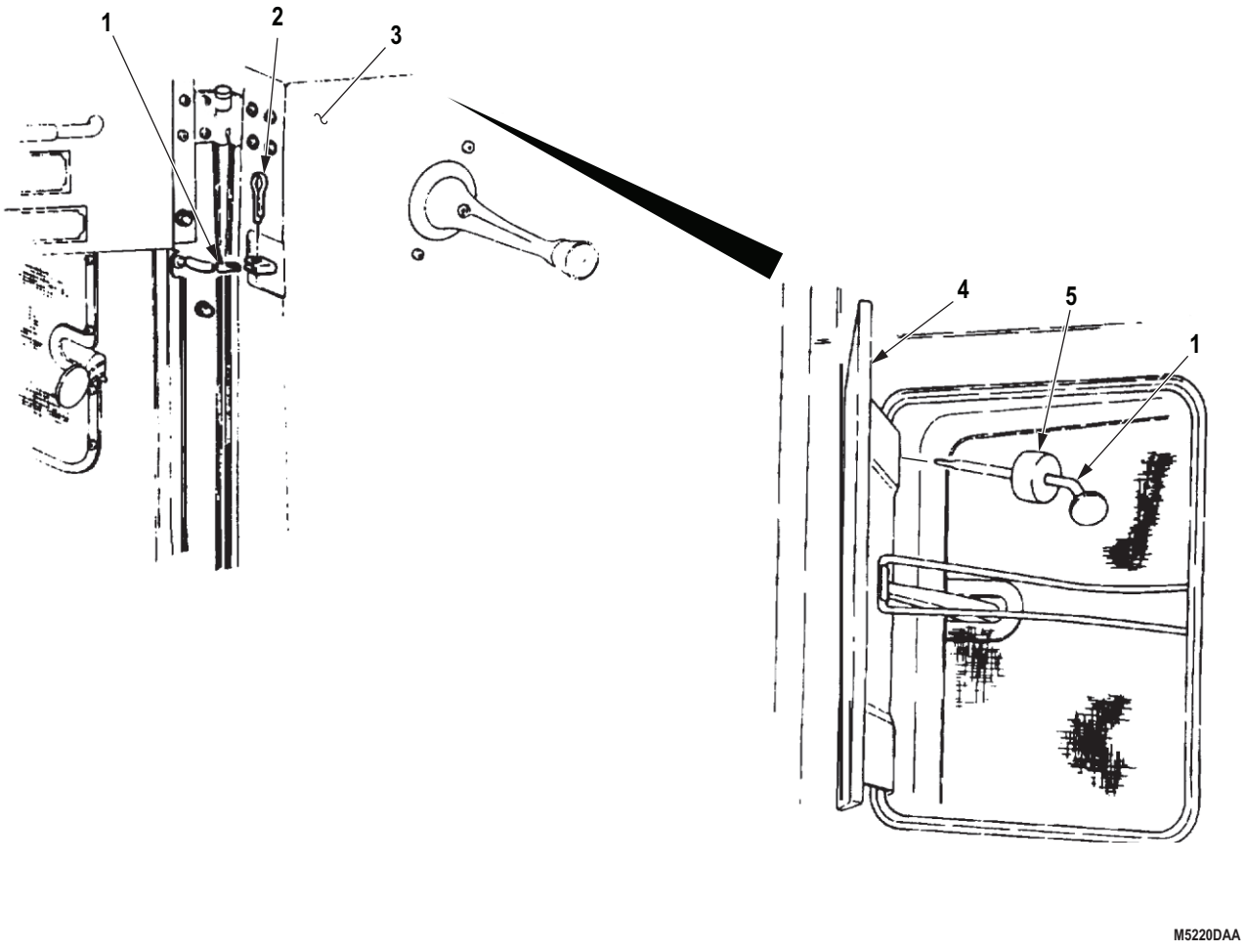


Figure 2. Cab Door Check Rod Installation.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
CAB DOOR HINGE REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Cab door removed. (Volume 3, WP 0545)

REMOVAL

NOTE

Upper and lower hinges are replaced the same way. Upper hinge shown.

Remove eight screws (Figure 1, Item 4) and hinges (Figure 1, Items 1 and 2) from cab door (Figure 1, Item 3) and cab body (Figure 1, Item 5).

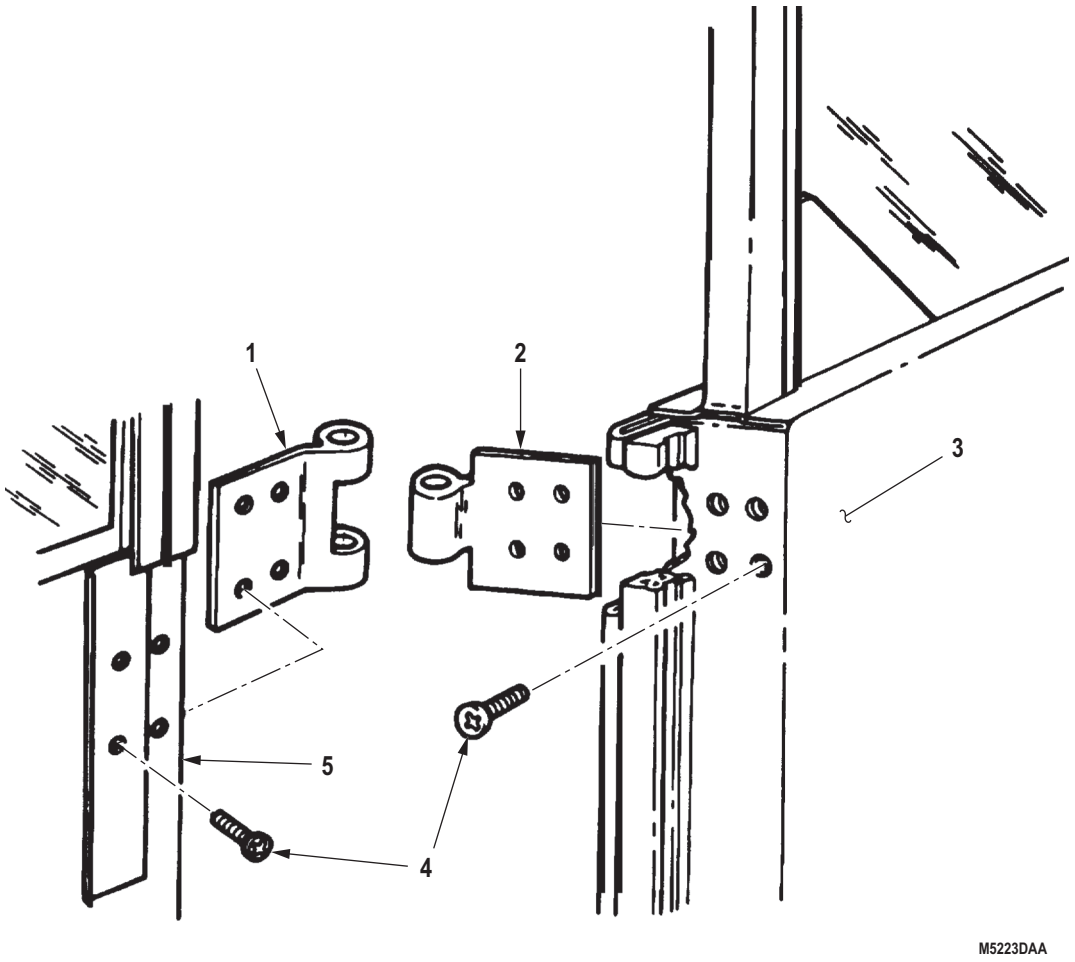


Figure 1. Cab Door Hinge Removal.

END OF TASK

INSTALLATION

Install hinges (Figure 2, Items 1 and 2) on cab body (Figure 2, Item 5) and cab door (Figure 2, Item 3) with eight screws (Figure 2, Item 4).

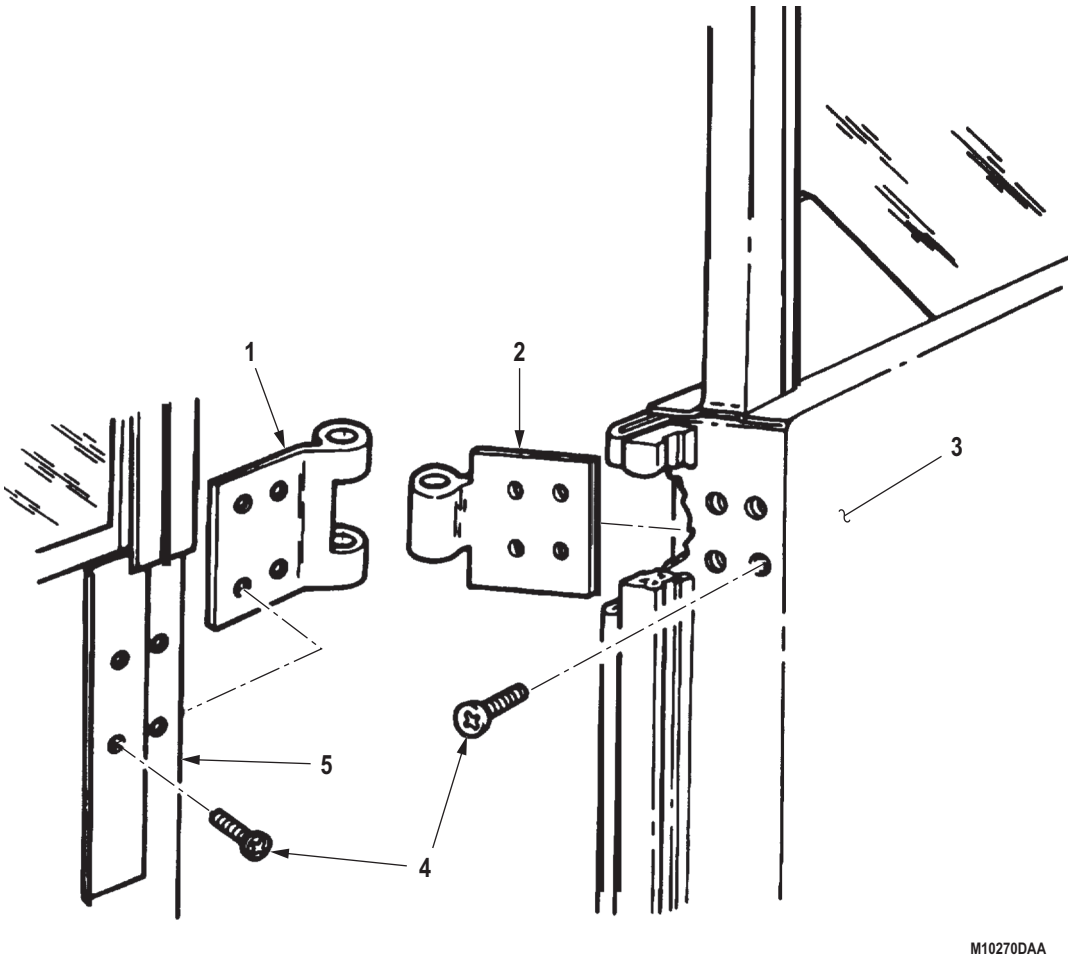


Figure 2. Cab Door Hinge Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

Install cab door. (Volume 3, WP 0545)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
CAB DOOR CATCH REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Screw Assembled Lockwasher

Materials/Parts (cont.)
(Volume 5, WP 0827, Table 1, Item 84)
Qty: 2

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

REMOVAL

Remove two screw assembled lockwashers (Figure 1, Item 3) and cab door catch (Figure 1, Item 2) from cab body (Figure 1, Item 1).

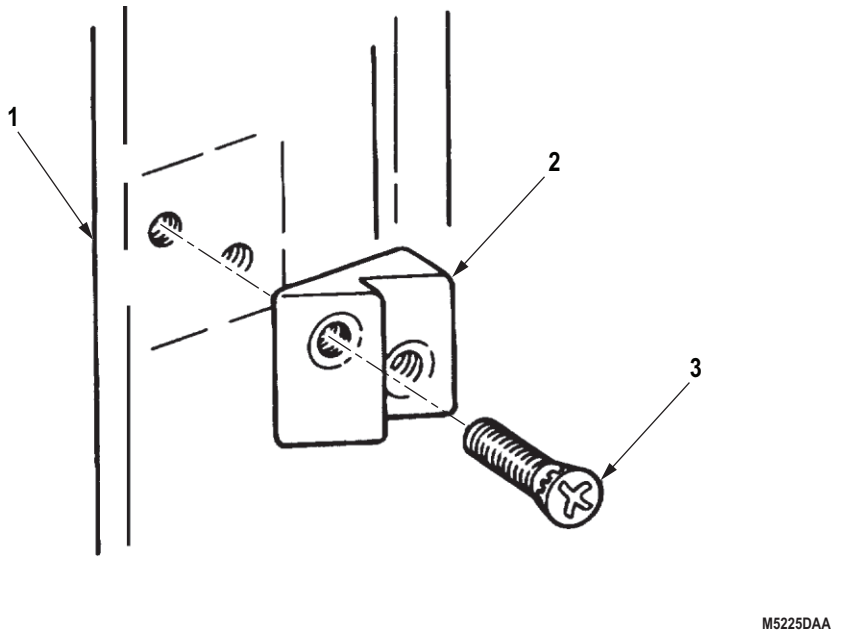


Figure 1. Cab Door Catch Removal.

END OF TASK

INSTALLATION

Install cab door catch (Figure 2, Item 2) on cab body (Figure 2, Item 1) with two screw assembled lockwashers (Figure 2, Item 3).

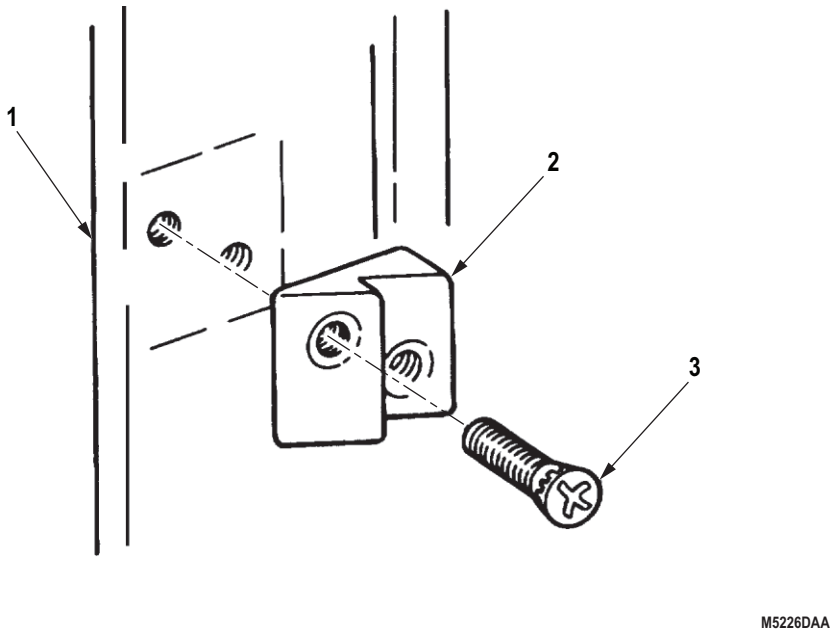


Figure 2. Cab Door Catch Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

Check cab door for proper operation. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
HOOD LATCH AND BRACKET REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Locknut (Volume 5, WP 0827, Table 1, Item 314)
Qty: 4

Personnel Required
(2)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

REMOVAL

1. Release hood latch (Figure 1, Item 4).

NOTE

Assistant will help with Step (2).

2. Remove three screws (Figure 1, Item 7), locknuts (Figure 1, Item 6), and hood latch (Figure 1, Item 4) from hood cowl (Figure 1, Item 5). Discard locknuts.
3. Remove three screws (Figure 1, Item 1) and upper latch retaining bracket (Figure 1, Item 2) from hood (Figure 1, Item 3).

REMOVAL - Continued

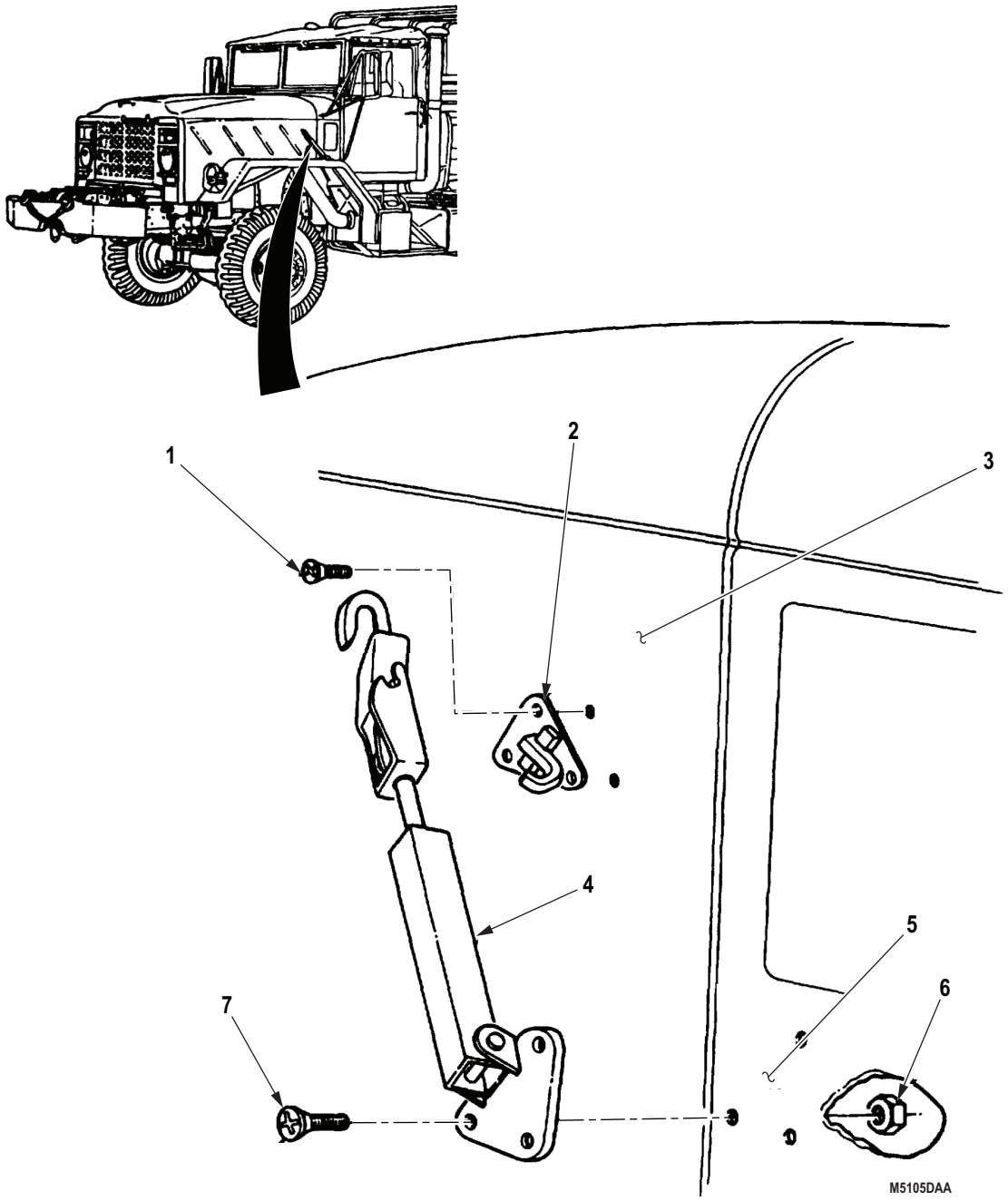


Figure 1. Hood Latch & Bracket Removal.

END OF TASK

INSTALLATION

1. Install upper latch retaining bracket (Figure 2, Item 2) on hood (Figure 2, Item 3) with three screws (Figure 2, Item 1).

NOTE

Assistant will help with Step (2).

2. Install hood latch (Figure 2, Item 4) on cab cowl (Figure 2, Item 5) with three screws (Figure 2, Item 7) and locknuts (Figure 2, Item 6).
3. Secure hood latch (Figure 2, Item 4).

INSTALLATION - Continued

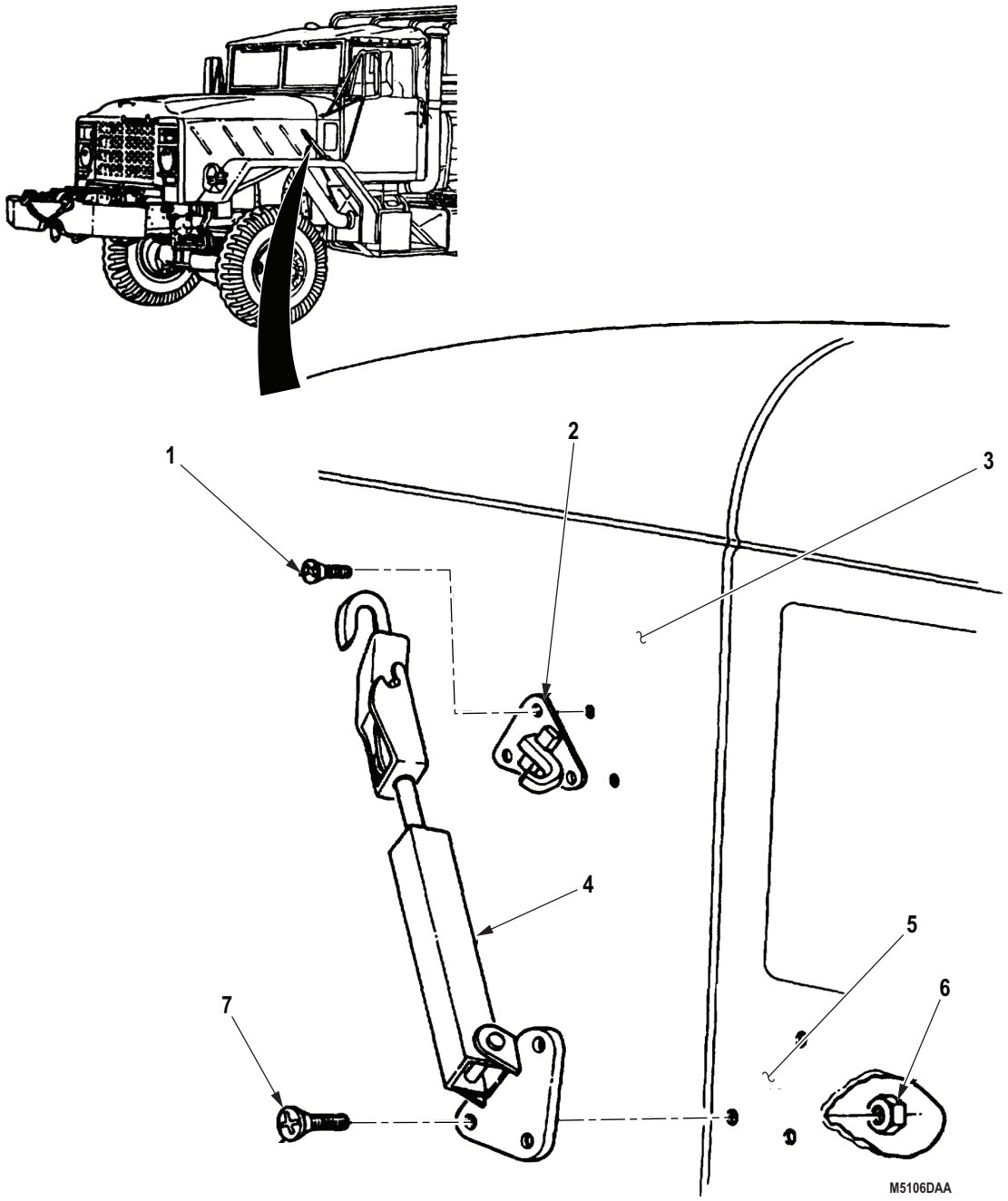


Figure 2. Hood Latch & Bracket Installation.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
HOOD SUPPORT BAR BRACKET, CROSSMEMBER, HINGES, AND TORSION BARS REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Grease, Automotive and Artillery
(Volume 5, WP 0825, Table 1, Item 28)
Rag, Wiping
(Volume 5, WP 0825, Table 1, Item 53)
Cotter Pin
(Volume 5, WP 0827, Table 1, Item 254)
Qty: 3
Cotter Pin
(Volume 5, WP 0827, Table 1, Item 330)
Qty: 1
Insulator (Volume 5, WP 0827, Table 1, Item 46)
Locknut (Volume 5, WP 0827, Table 1, Item 282)
Qty: 3
Locknut (Volume 5, WP 0827, Table 1, Item 285)
Qty: 4

Materials/Parts (cont.)
Locknut (Volume 5, WP 0827, Table 1, Item 289)
Qty: 1
Lockwasher
(Volume 5, WP 0827, Table 1, Item 405)
Qty: 2
Screw Assembled Lockwasher
(Volume 5, WP 0827, Table 1, Item 171)
Qty: 6

Personnel Required
(2)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

HOOD SUPPORT BAR AND BRACKET REMOVAL

WARNING



Hood must be supported during replacement of hood support bar mounting bracket. Failure to comply may result in injury or death to personnel.

1. Remove bar support pin (Figure 1, Item 10) from stowage bracket (Figure 1, Item 5).
2. Remove cotter pin (Figure 1, Item 14), washer (Figure 1, Item 13), pin (Figure 1, Item 7), and hood support bar (Figure 1, Item 11) from mounting bracket (Figure 1, Item 12). Discard cotter pin.
3. Remove locknut (Figure 1, Item 2), washer (Figure 1, Item 3), and spacer (Figure 1, Item 4) from screw (Figure 1, Item 6). Discard locknut.
4. Remove screw (Figure 1, Item 6), washer (Figure 1, Item 15), and mounting bracket (Figure 1, Item 12) from hood (Figure 1, Item 1).
5. Remove loop link (Figure 1, Item 9) and bar support pin (Figure 1, Item 10) from chain (Figure 1, Item 8).

HOOD SUPPORT BAR AND BRACKET REMOVAL - Continued

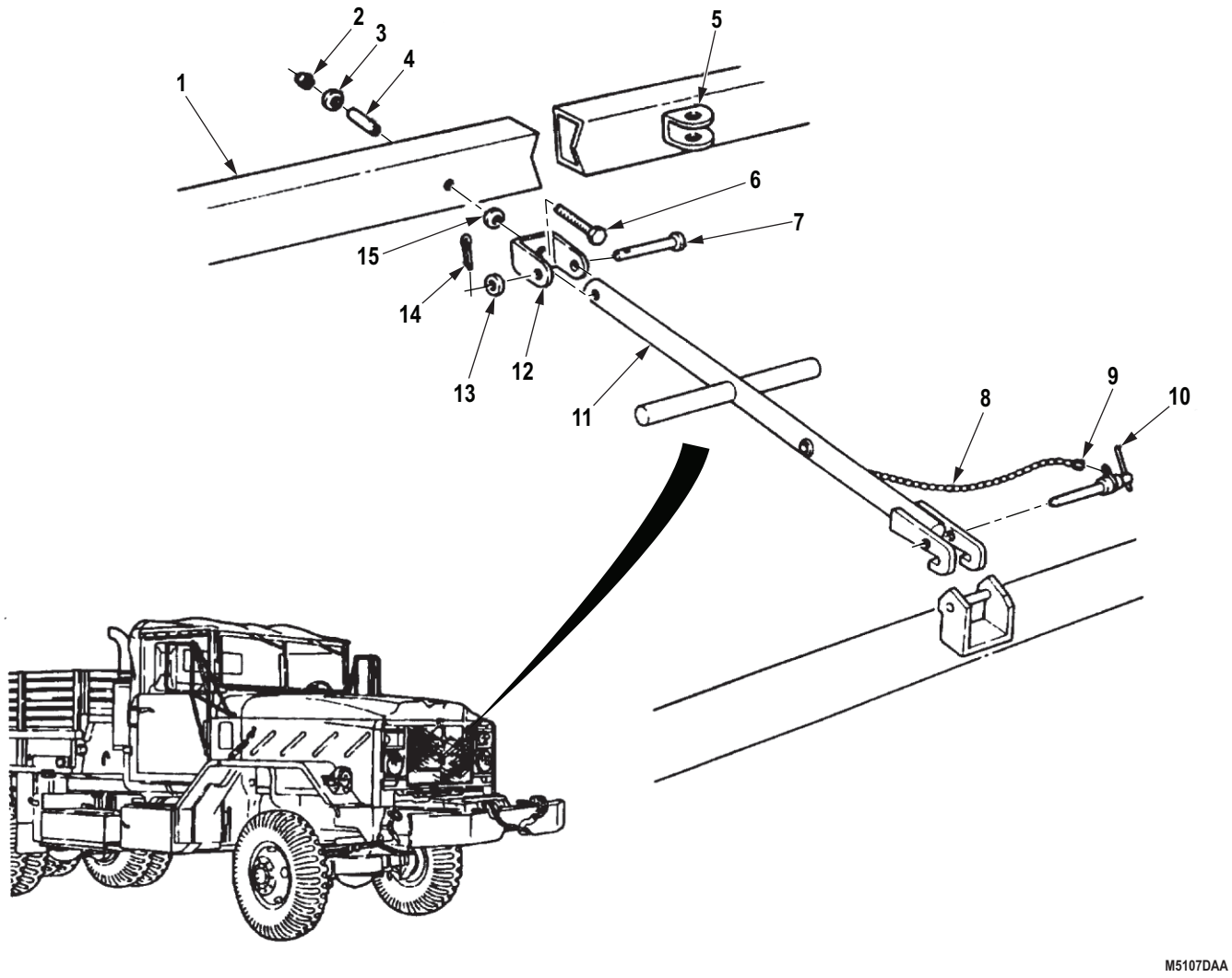


Figure 1. Hood Support Bar and Bracket Removal.

END OF TASK

HOOD SUPPORT BAR AND BRACKET INSTALLATION

1. Install loop link (Figure 2, Item 9) and bar support pin (Figure 2, Item 10) on chain (Figure 2, Item 8).
2. Install mounting bracket (Figure 2, Item 12) on hood (Figure 2, Item 1) with screw (Figure 2, Item 6), washer (Figure 2, Item 15), spacer (Figure 2, Item 4), washer (Figure 2, Item 3), and locknut (Figure 2, Item 2).
3. Install hood support bar (Figure 2, Item 11) on mounting bracket (Figure 2, Item 12) with pin (Figure 2, Item 7), washer (Figure 2, Item 13), and cotter pin (Figure 2, Item 14).
4. Install bar support pin (Figure 2, Item 10) on stowage bracket (Figure 2, Item 5).

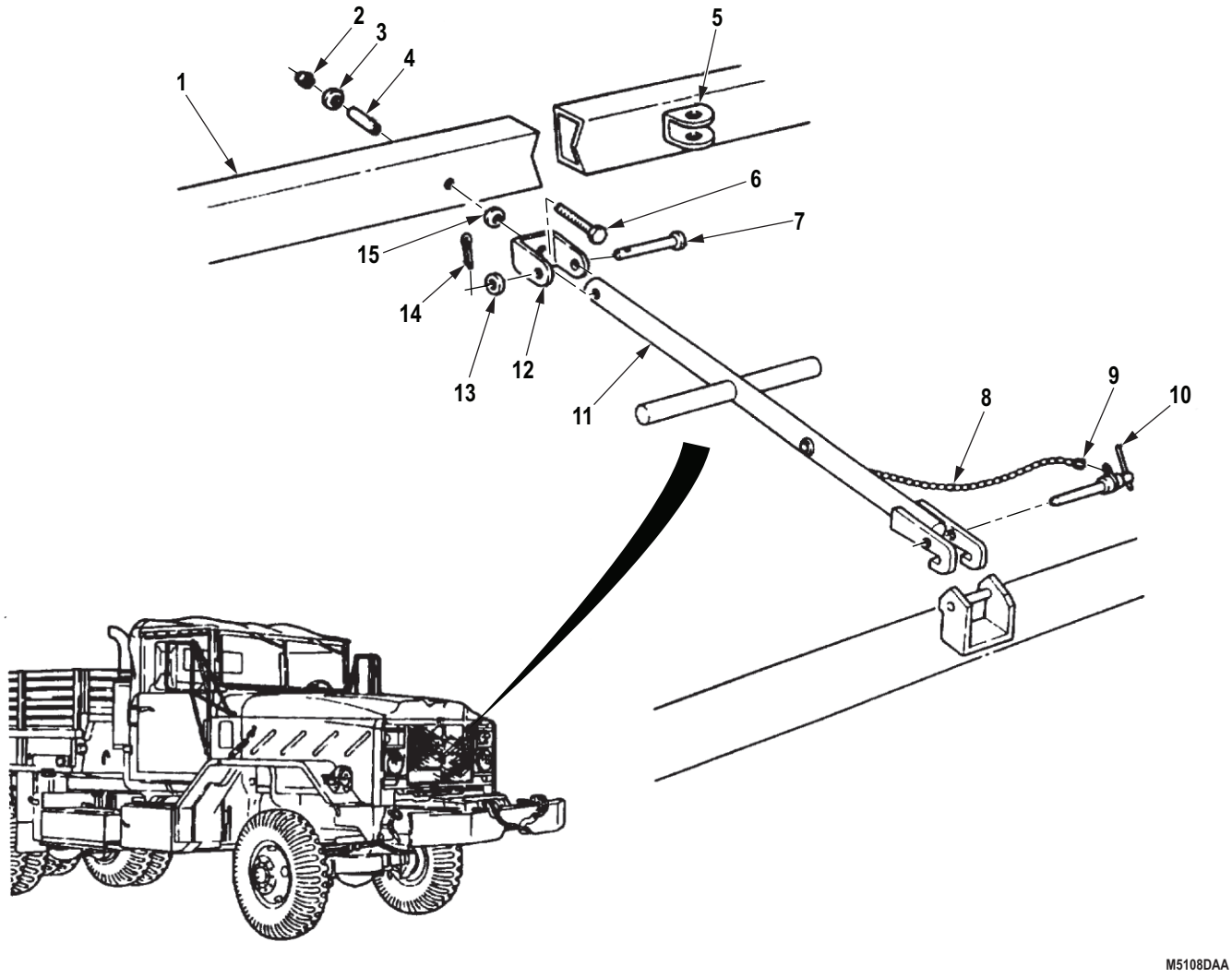


Figure 2. Hood Support Bar and Bracket Installation.

END OF TASK

HOOD RETAINING BRACKET REPLACEMENT

1. Remove two locknuts (Figure 3, Item 4), screws (Figure 3, Item 1), and retaining bracket (Figure 3, Item 2) from front bumper (Figure 3, Item 3). Discard locknuts.
2. Install retaining bracket (Figure 3, Item 2) on front bumper (Figure 3, Item 3) with two screws (Figure 3, Item 1) and locknuts (Figure 3, Item 4).

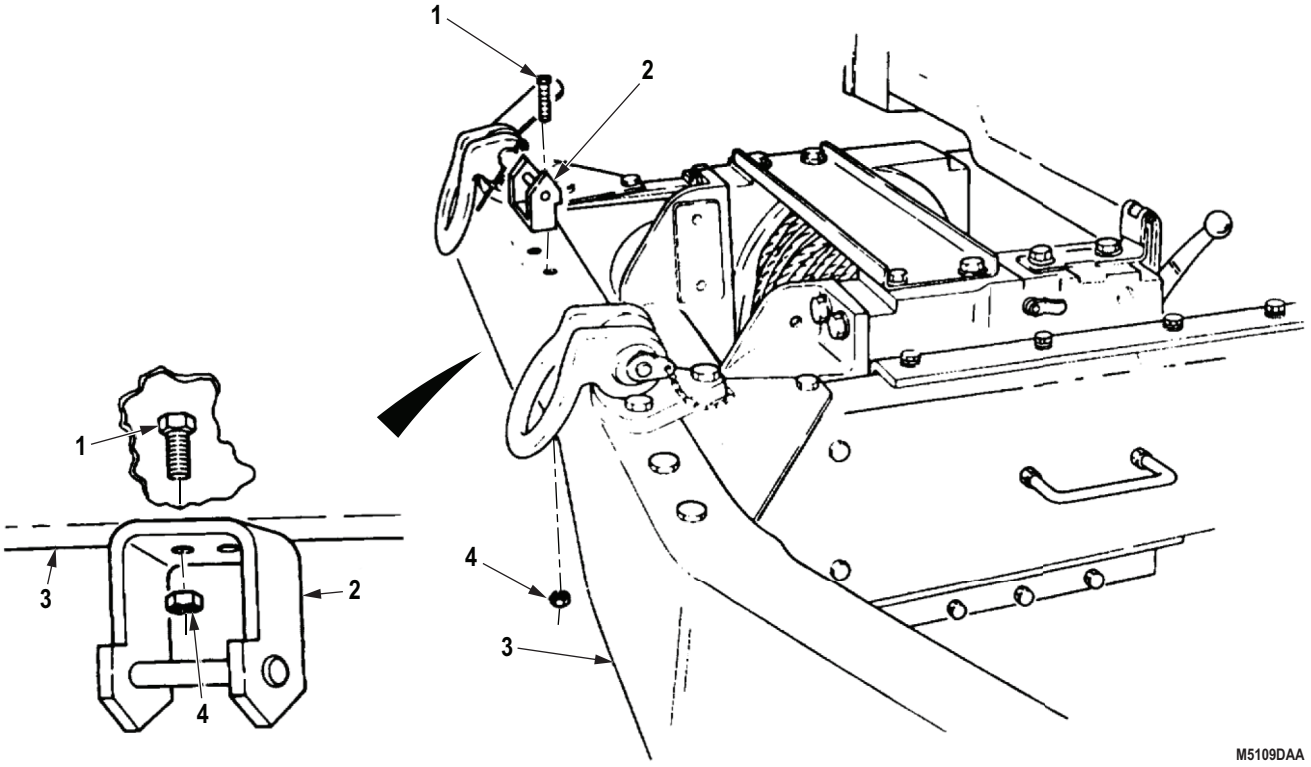


Figure 3. Hood Retaining Bracket Replacement.

END OF TASK

HOOD CROSSMEMBER BRACKET REMOVAL

1. Remove hood (WP 0565).
2. Remove two screws (Figure 4, Item 9), lockwashers (Figure 4, Item 1), and trunnion bracket (Figure 4, Item 2) from hood crossmember (Figure 4, Item 3). Discard lockwashers.
3. Remove locknut (Figure 4, Item 4), washer (Figure 4, Item 5), through bolt (Figure 4, Item 7), lower trunnion bracket (Figure 4, Item 6), and insulator (Figure 4, Item 8) from trunnion bracket (Figure 4, Item 2). Use soft-faced hammer to remove through bolt (Figure 4, Item 7) if necessary. Discard locknut and insulator.

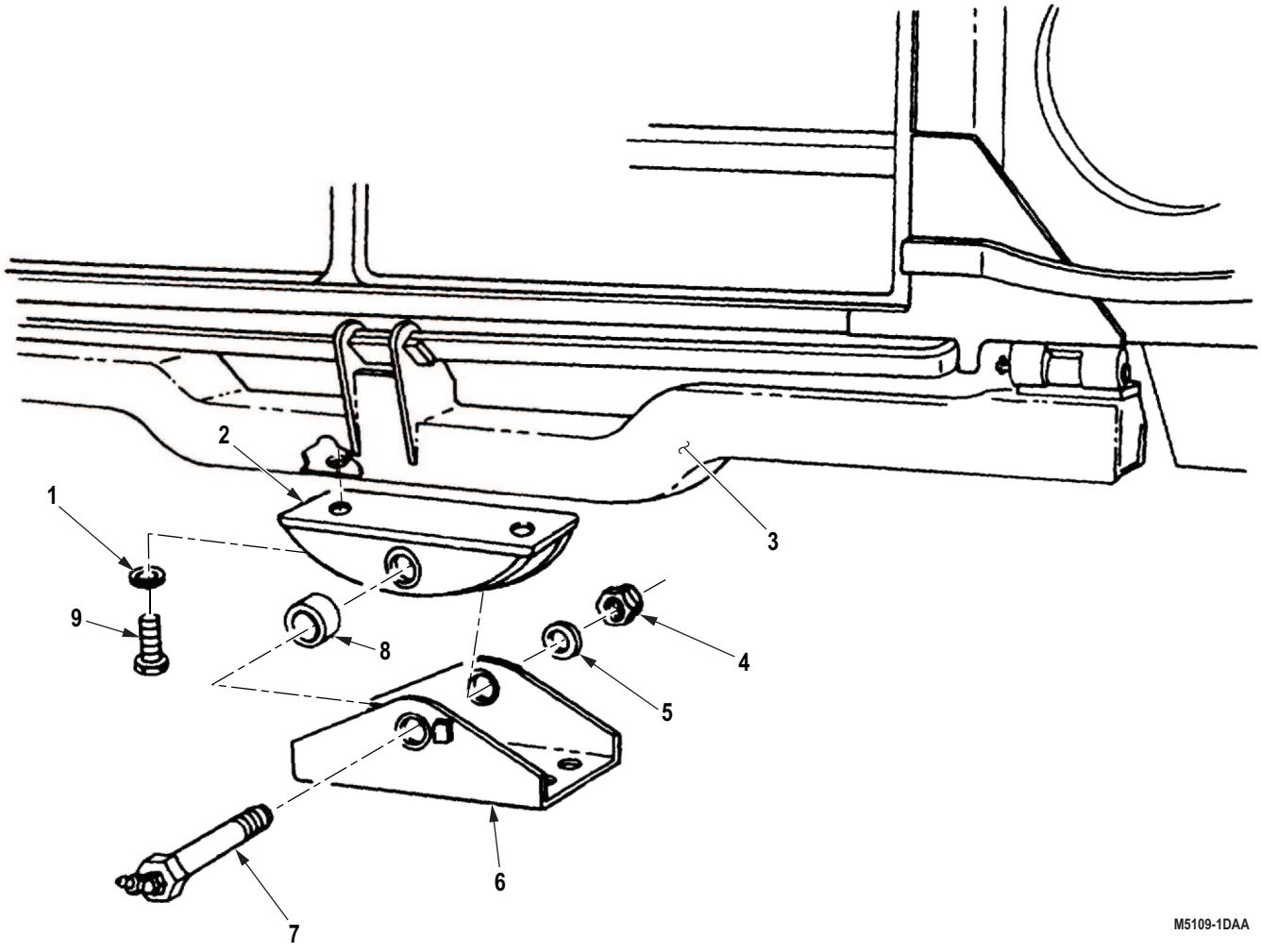


Figure 4. Hood Crossmember Bracket Removal.

END OF TASK

HOOD CROSSMEMBER BRACKET CLEANING AND INSPECTION

1. Wipe trunnion bushings (Figure 5, Item 10) of trunnion brackets (Figure 5, Items 2 and 6) with clean rag.
2. Inspect trunnion bushings (Figure 5, Item 10) for cracks, breaks, and chips. If cracked, broken, or chipped, replace bushings (Figure 5, Item 10).

NOTE

Perform Steps (3) and (4) if trunnion bushings are damaged.

3. Using steel drift and hammer, drive trunnion bushings (Figure 5, Item 10) from trunnion bracket (Figure 5, Item 6). Discard bushings.
4. Using steel drift and hammer, install trunnion bushings (Figure 5, Item 10) in trunnion bracket (Figure 5, Item 6).

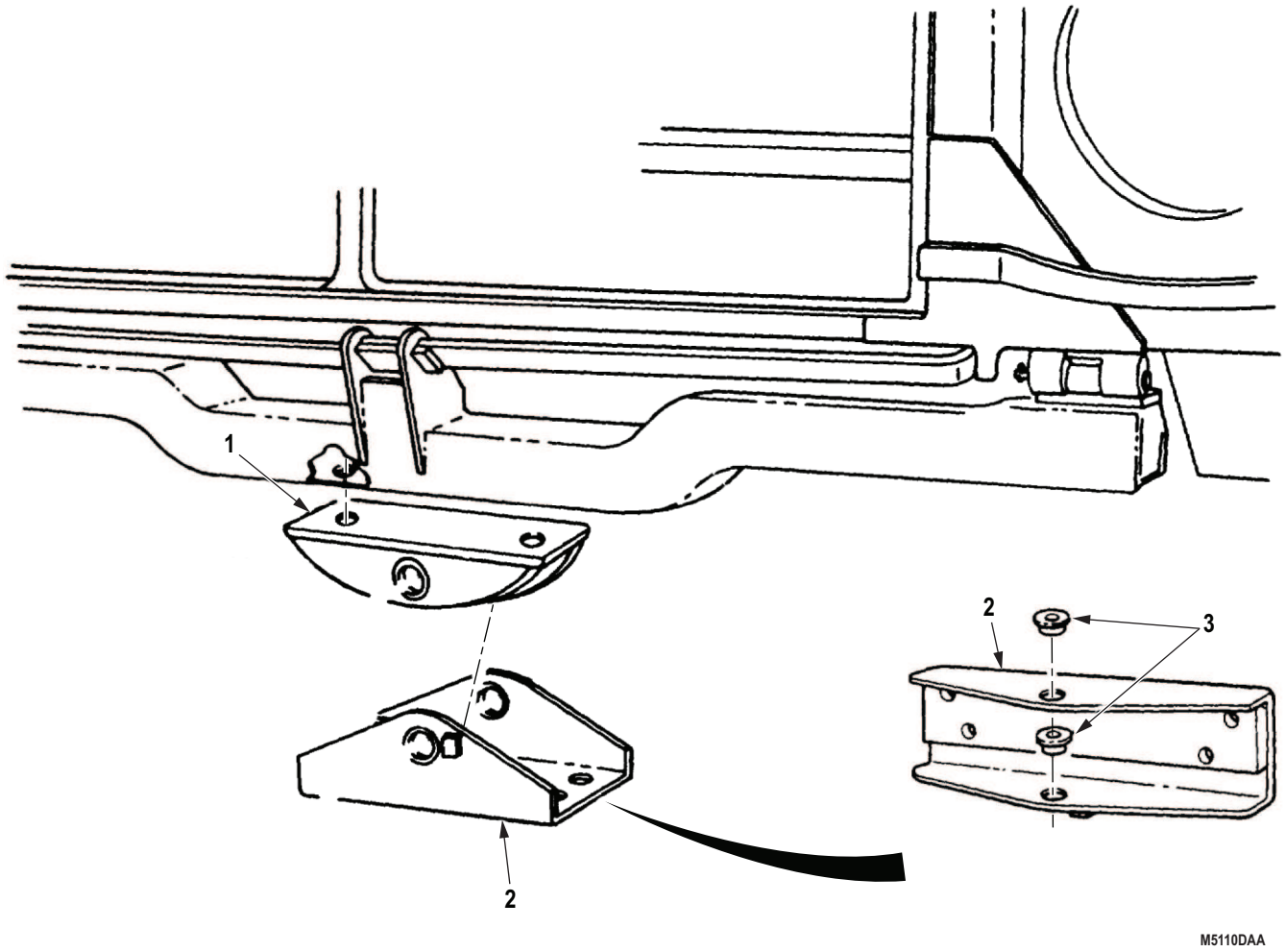


Figure 5. Hood Crossmember Bracket Cleaning and Inspection.

END OF TASK

HOOD CROSSMEMBER BRACKET INSTALLATION

1. Install insulator (Figure 6, Item 8) and lower trunnion bracket (Figure 6, Item 6) on trunnion bracket (Figure 6, Item 2) with through bolt (Figure 6, Item 7), washer (Figure 6, Item 5), and locknut (Figure 6, Item 4). Tighten locknut to 96 lb-ft (130 N·m).
2. Install trunnion bracket (Figure 6, Item 2) on hood crossmember (Figure 6, Item 3) with two lockwashers (Figure 6, Item 1) and screws (Figure 6, Item 9).
3. Install hood (WP 0565).

HOOD CROSSMEMBER BRACKET INSTALLATION - Continued

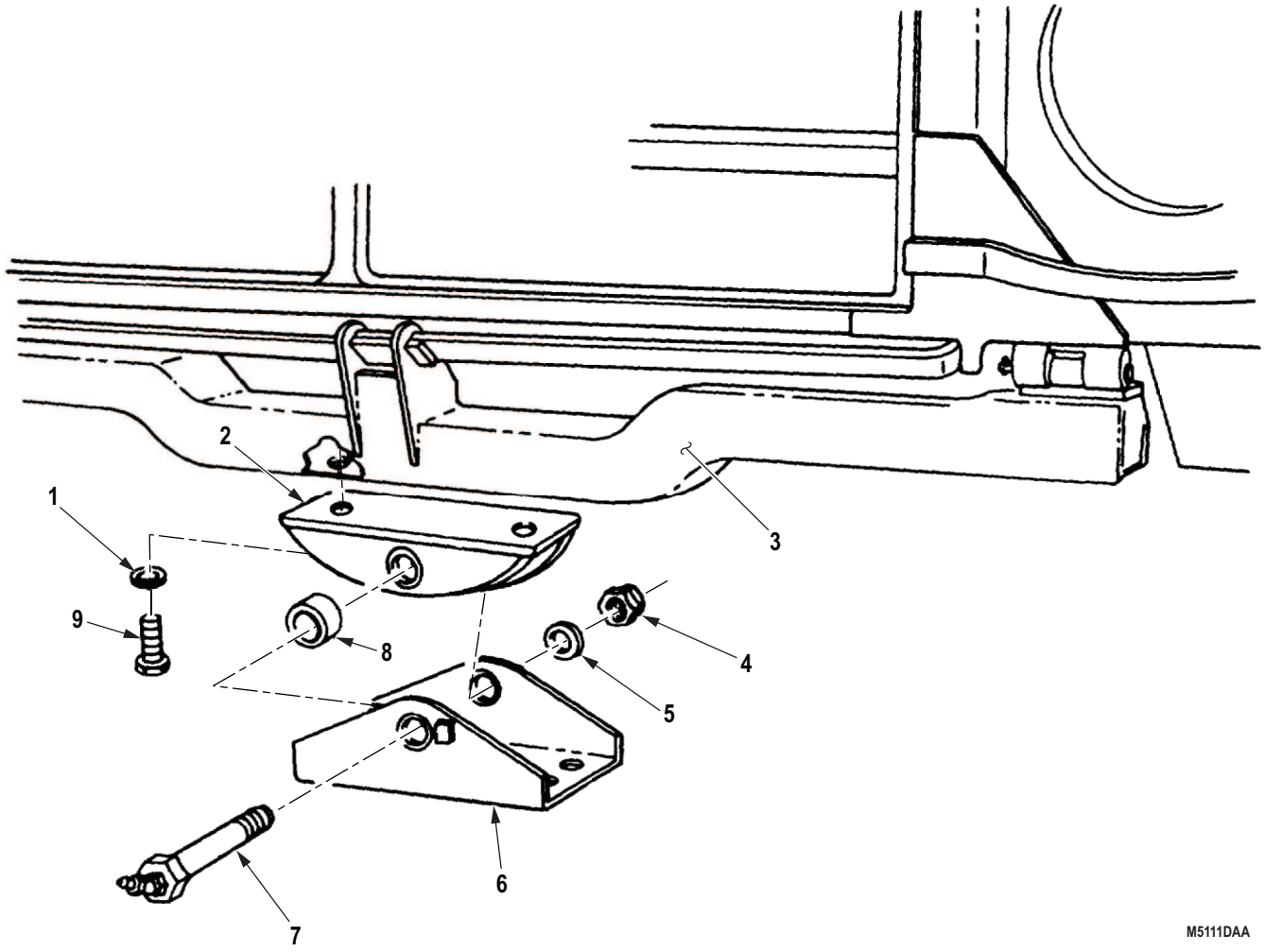


Figure 6. Hood Crossmember Bracket Installation.

END OF TASK

HOOD HINGE REMOVAL

NOTE

Left and right hood hinges are replaced the same. This procedure is for the left hood hinge.

1. Remove hood (WP 0565).
2. Remove cotter pin (Figure 7, Item 7) from hinge pin (Figure 7, Item 3). Discard cotter pin.

NOTE

Ensure hood is supported when hinge pins are removed.

3. Remove hinge pin (Figure 7, Item 3) from lower hinge (Figure 7, Item 6) and hood (Figure 7, Item 8).
4. Remove three screw assembled lockwashers (Figure 7, Item 2) and upper hinge half (Figure 7, Item 1) from hood (Figure 7, Item 8). Discard screw assembled lockwashers.
5. Remove three screw assembled lockwashers (Figure 7, Item 4) and lower hinge half (Figure 7, Item 6) from crossmember (Figure 7, Item 5). Discard screw assembled lockwashers.

HOOD HINGE REMOVAL - Continued

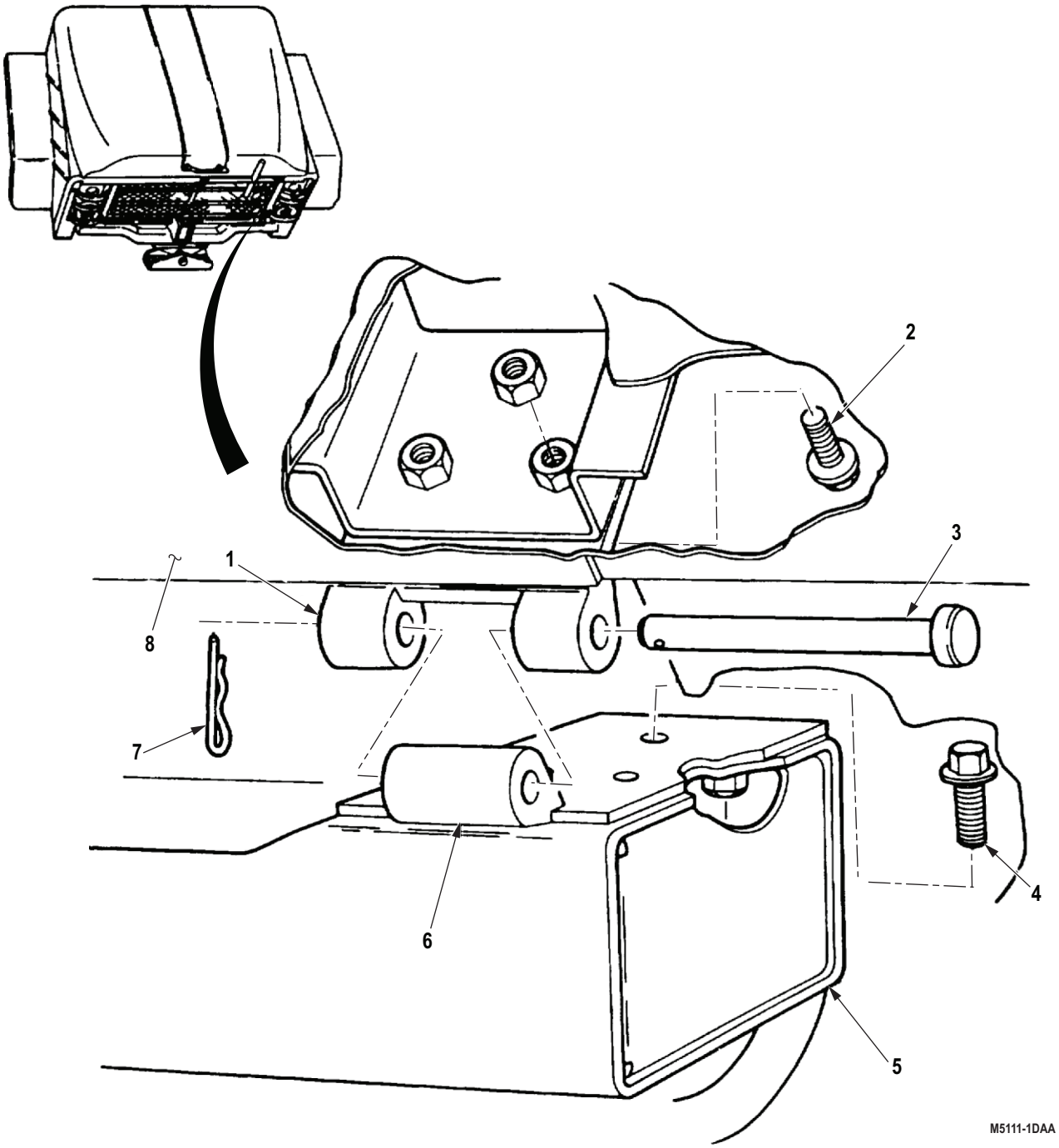


Figure 7. Hood Hinge Removal.

END OF TASK

HOOD HINGE INSTALLATION

NOTE

Coat hinges and hinge pins with GAA grease.

1. Install lower hinge half (Figure 8, Item 6) on crossmember (Figure 8, Item 5) with three screw assembled lockwashers (Figure 8, Item 4).
2. Install upper hinge half (Figure 8, Item 1) on hood (Figure 8, Item 8) with three screw assembled lockwashers (Figure 8, Item 2).
3. Install hood (Figure 8, Item 8) on lower hinge half (Figure 8, Item 6) with hinge pin (Figure 8, Item 3) and cotter pin (Figure 8, Item 7).
4. Install hood (WP 0565).

HOOD HINGE INSTALLATION - Continued

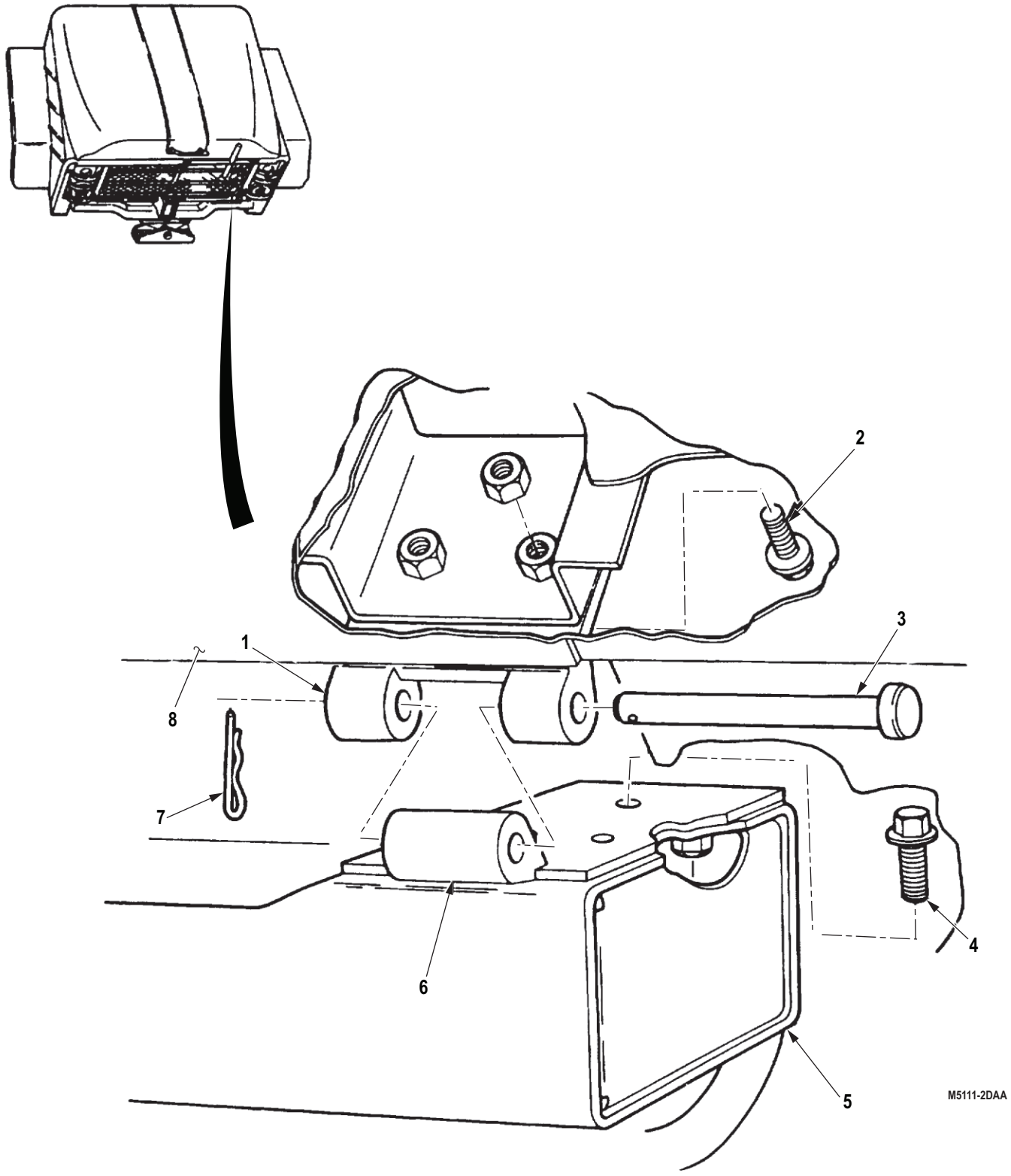


Figure 8. Hood Hinge Installation.

END OF TASK

TORSION BARS AND CROSSMEMBERS REMOVAL

1. Remove hood (WP 0565).
2. Remove two cotter pins (Figure 9, Item 3) from two hinge pins (Figure 9, Item 5). Discard cotter pins.
3. Remove four locknuts (Figure 9, Item 7) and screws (Figure 9, Item 2) from two torsion bars (Figure 9, Item 1) and mounting brackets (Figure 9, Items 8 and 10). Discard locknuts.

NOTE

Ensure hood and crossmember are supported when hinge pins are removed.

4. Remove two hinge pins (Figure 9, Item 5) and bracket (Figure 9, Item 9) from hood (Figure 9, Item 4).
5. Remove two torsion bars (Figure 9, Item 1) from mounting brackets (Figure 9, Items 8 and 10).

TORSION BARS AND CROSSMEMBERS REMOVAL - Continued

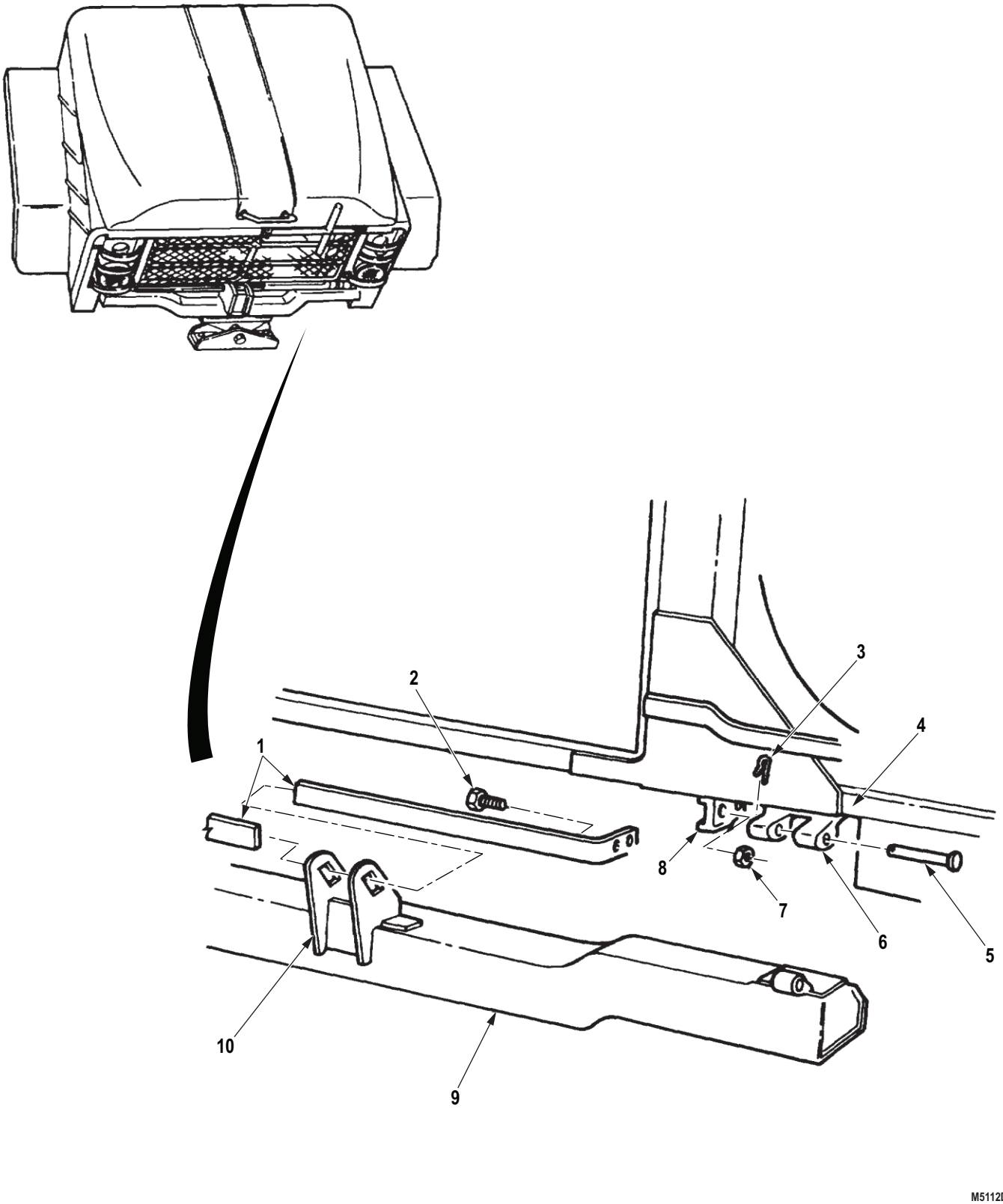


Figure 9. Torsion Bars and Crossmembers Removal.

END OF TASK

TORSION BARS AND CROSSMEMBERS INSTALLATION

NOTE

Coat hinges and hinge pins with GAA grease.

1. Position two torsion bars (Figure 10, Item 1) in mounting brackets (Figure 10, Items 8 and 10).
2. Install two torsion bars (Figure 10, Item 1) on mounting brackets (Figure 10, Items 8 and 10) with four screws (Figure 10, Item 2) and locknuts (Figure 10, Item 7).
3. Position hood (Figure 10, Item 4) with bracket (Figure 10, Item 9) and hinge (Figure 10, Item 6) and install hinge pin (Figure 10, Item 5) and cotter pin (Figure 10, Item 3).
4. Install hood (WP 0565).

TORSION BARS AND CROSSMEMBERS INSTALLATION - Continued

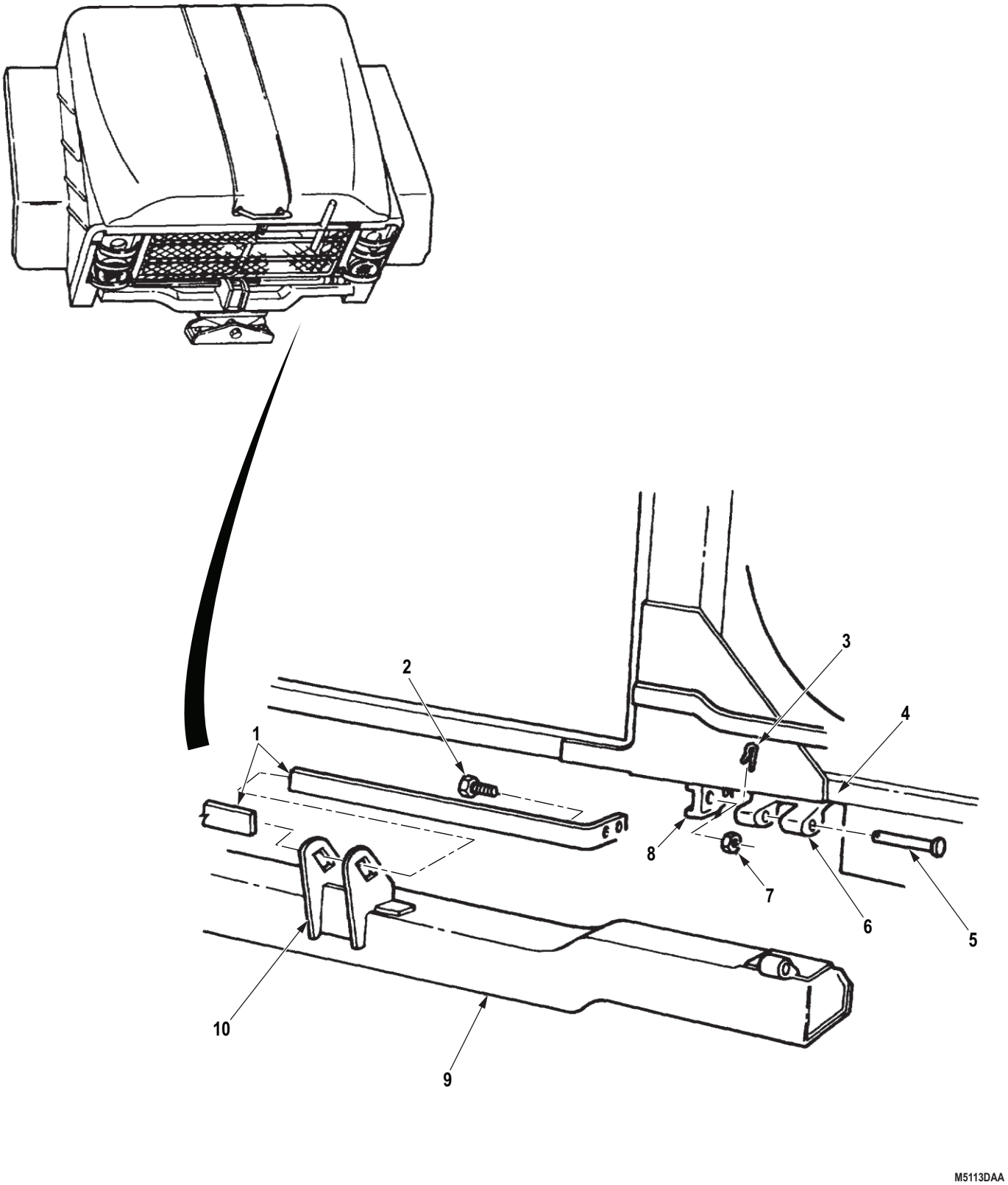


Figure 10. Torsion Bars and Crossmembers Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Check bracket placement with hood retaining latch.
2. Lubricate through bolt. (Volume 5, WP 0820)
3. Install hood. (WP 0565)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
HOOD STOP CABLES REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Locknut (Volume 5, WP 0827, Table 1, Item 285)
Qty: 2

Equipment Condition
Parking brake off. (TM 9-2320-272-10)
Hood raised and secured. (TM 9-2320-272-10)

REMOVAL

NOTE

Both hood stop cables are replaced the same way. This procedure covers one cable.

1. Remove locknut (Figure 1, Item 7), screw (Figure 1, Item 4), washer (Figure 1, Item 5), and hood stop cable (Figure 1, Item 3) from radiator support bracket (Figure 1, Item 6). Discard locknut.
2. Remove locknut (Figure 1, Item 2), screw (Figure 1, Item 8), washer (Figure 1, Item 9), and hood stop cable (Figure 1, Item 3) from hood bracket (Figure 1, Item 1). Discard locknut.

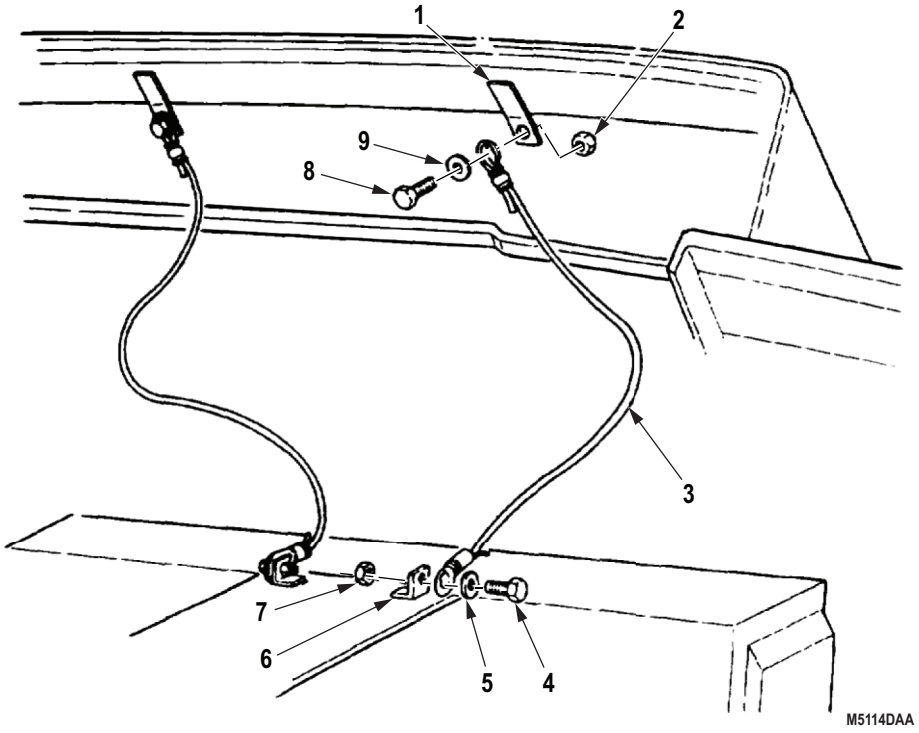


Figure 1. Hood Stop Cables Removal.

END OF TASK

INSTALLATION

1. Install hood stop cable (Figure 2, Item 3) on radiator support bracket (Figure 2, Item 6) with washer (Figure 2, Item 5), screw (Figure 2, Item 4), and locknut (Figure 2, Item 7).
2. Install hood stop cable (Figure 2, Item 3) on hood bracket (Figure 2, Item 1) with washer (Figure 2, Item 9), screw (Figure 2, Item 8), and locknut (Figure 2, Item 2).

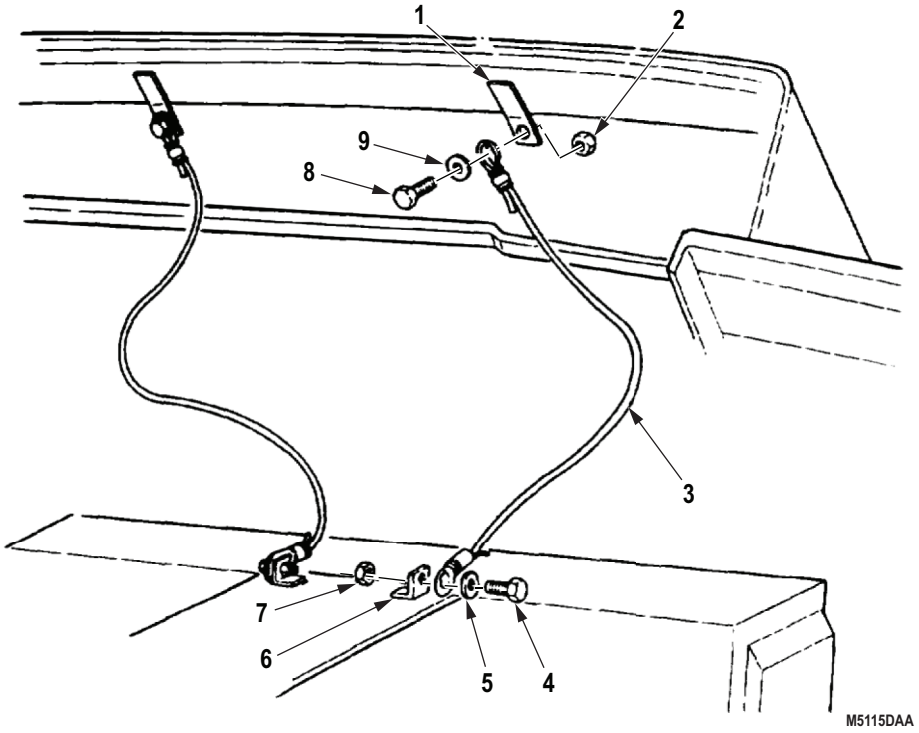


Figure 2. Hood Stop Cables Installation.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
HOOD GRAB HANDLE REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Hood raised and secured. (TM 9-2320-272-10)

Materials/Parts
Locknut (Volume 5, WP 0827, Table 1, Item 282)
Qty: 4

REMOVAL

Remove four screws (Figure 1, Item 5), locknuts (Figure 1, Item 3), two plates (Figure 1, Item 2), and hood grab handle (Figure 1, Item 1) from hood (Figure 1, Item 4). Discard locknuts.

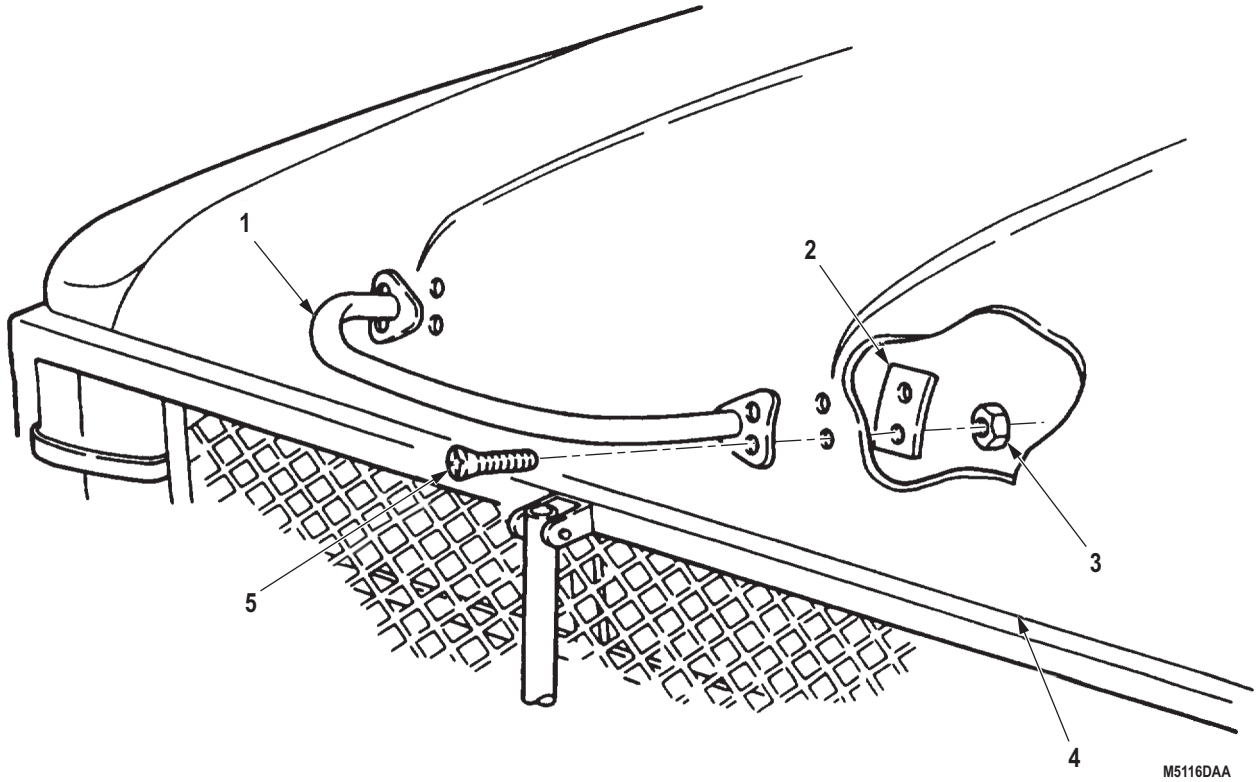


Figure 1. Hood Grab Handle Removal.

END OF TASK

INSTALLATION

Install hood grab handle (Figure 2, Item 1) on hood (Figure 2, Item 4) with four screws (Figure 2, Item 5), two plates (Figure 2, Item 2), and four locknuts (Figure 2, Item 3).

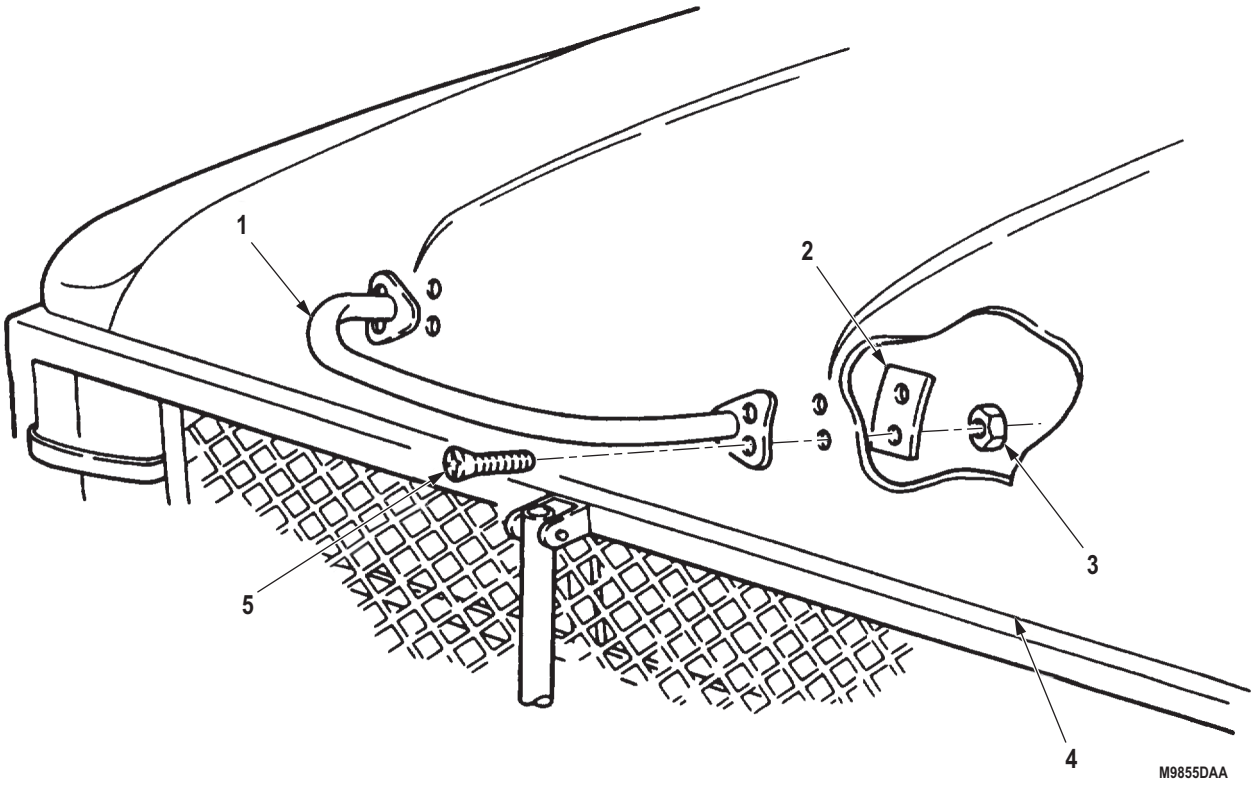


Figure 2. Hood Grab Handle Installation.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
RADIATOR BAFFLES, SEALS, AND PLATES REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Locknut (Volume 5, WP 0827, Table 1, Item 314)
Qty: 12
Lockwasher
(Volume 5, WP 0827, Table 1, Item 403)
Qty: 12

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Hood raised and secured. (TM 9-2320-272-10)

REMOVAL

NOTE

Upper baffle consists of a seal and plate as one unit. Side baffles consist of seals and plates as separate units.

1. Remove four screws (Figure 1, Item 10) and lockwashers (Figure 1, Item 9) from upper radiator baffle seal and plate (Figure 1, Item 1) and brush guard (Figure 1, Item 11). Discard lockwashers.
2. Remove two screws (Figure 1, Item 13), lockwashers (Figure 1, Item 12), and upper radiator baffle seal and plate (Figure 1, Item 1) from left and right baffle plates (Figure 1, Item 5). Discard lockwashers.

NOTE

Steps (3) and (4) apply to both left and right baffle seals and plates.

3. Remove six locknuts (Figure 1, Item 3), washers (Figure 1, Item 4), screws (Figure 1, Item 6), and baffle seal (Figure 1, Item 2) from radiator baffle plate (Figure 1, Item 5). Discard locknuts.
4. Remove three screws (Figure 1, Item 7), lockwashers (Figure 1, Item 8), and baffle plate (Figure 1, Item 5) from brush guard (Figure 1, Item 11). Discard lockwashers.

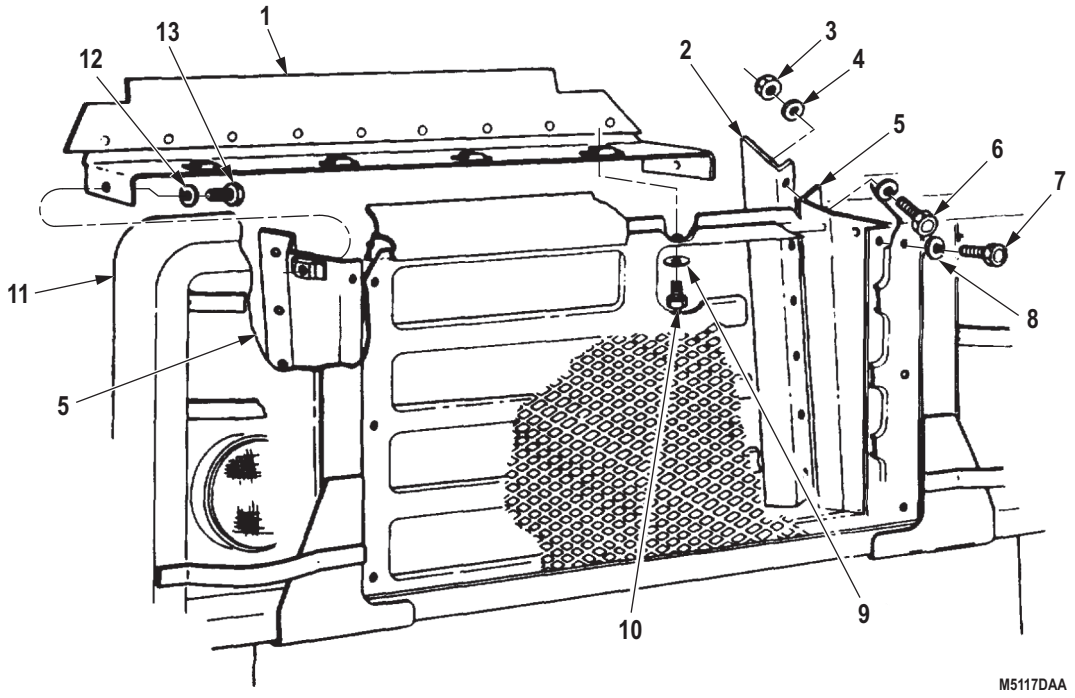


Figure 1. Radiator Baffles, Seals, and Plates Removal.

END OF TASK

INSTALLATION

NOTE

Steps (1) and (2) apply to both left and right baffle seals and plates.

1. Install radiator baffle plate (Figure 2, Item 5) on brush guard (Figure 2, Item 11) with three lockwashers (Figure 2, Item 8) and screws (Figure 2, Item 7).
2. Install baffle seal (Figure 2, Item 2) on baffle plate (Figure 2, Item 5) with six screws (Figure 2, Item 6), washers (Figure 2, Item 4), and locknuts (Figure 2, Item 3).
3. Install upper radiator baffle seal and plate (Figure 2, Item 1) on left and right baffle plates (Figure 2, Item 5) with two lockwashers (Figure 2, Item 12) and screws (Figure 2, Item 13).
4. Install upper radiator baffle seal and plate (Figure 2, Item 1) on brush guard (Figure 2, Item 11) with four lockwashers (Figure 2, Item 9) and screws (Figure 2, Item 10).

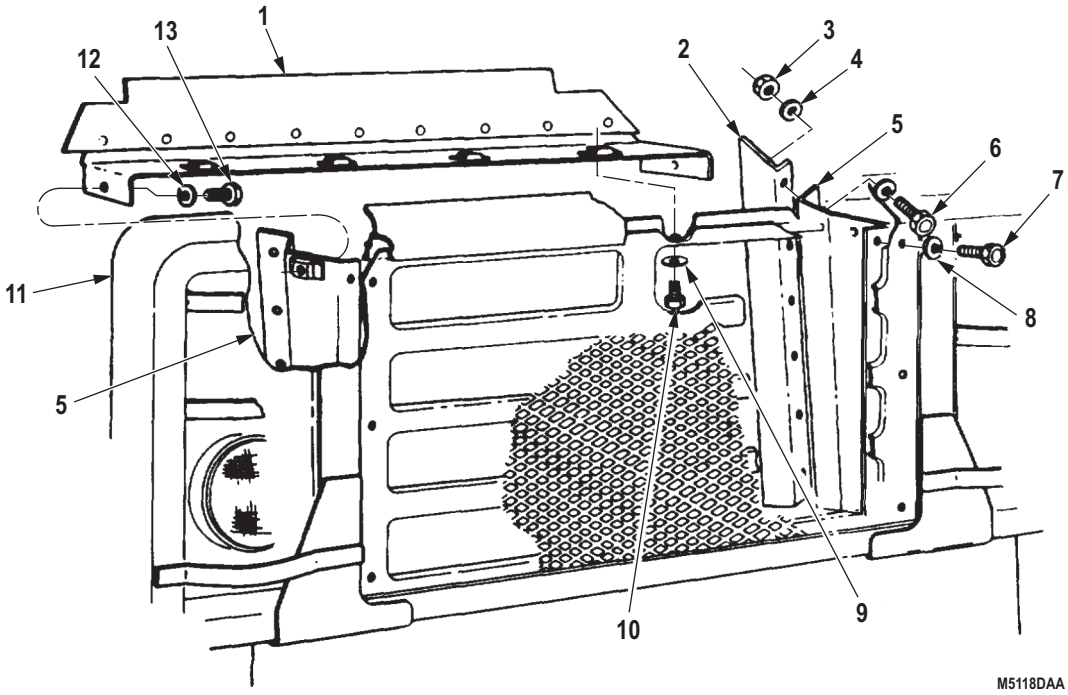


Figure 2. Radiator Baffles, Seals, and Plates Installation.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
CAB HOOD STOP BRACKET REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Hood raised and secured. (TM 9-2320-272-10)

Materials/Parts
Locknut (Volume 5, WP 0827, Table 1, Item 285)
Qty: 2
Shim (Volume 5, WP 0827, Table 1, Item 47)

REMOVAL

NOTE

This procedure applies to both left and right stop brackets.

Remove two locknuts (Figure 1, Item 4), stop bracket (Figure 1, Item 3), and shim (Figure 1, Item 2) from firewall (Figure 1, Item 1). Discard locknuts.

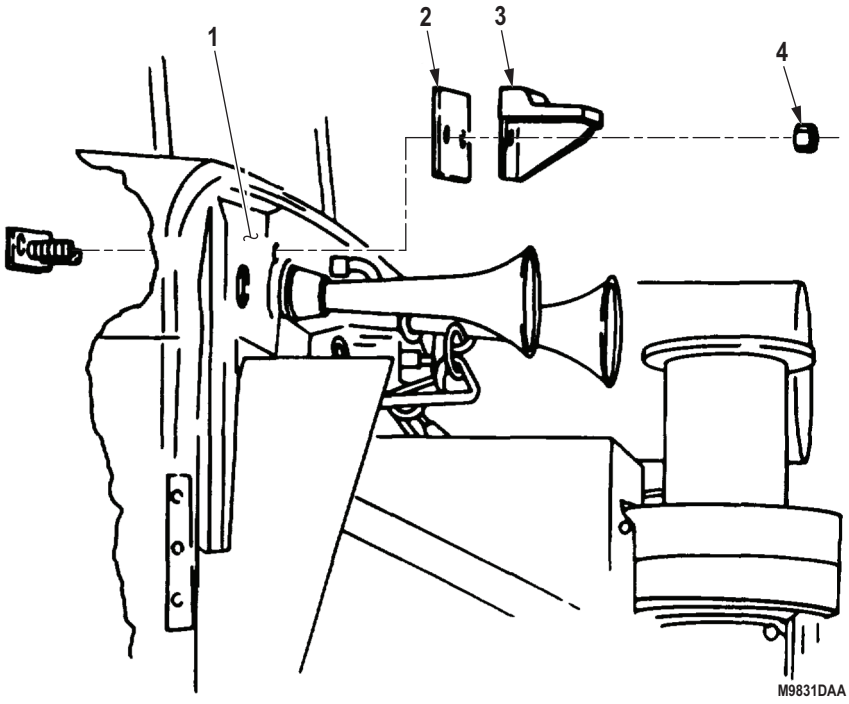


Figure 1. Cab Hood Stop Bracket Removal.

END OF TASK

INSTALLATION

NOTE

Install original shim or new shims as required to establish proper alignment between vehicle and stop bracket.

Install shim (Figure 2, Item 2) and stop bracket (Figure 2, Item 3) on firewall (Figure 2, Item 1) with two locknuts (Figure 2, Item 4).

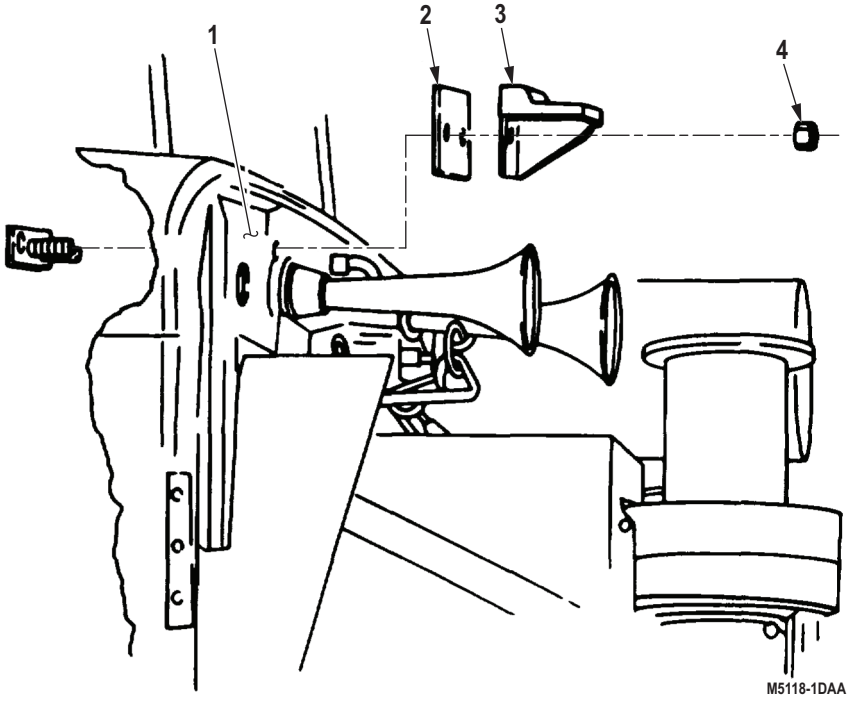


Figure 2. Cab Hood Stop Bracket Installation.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
HOOD BUMPER REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Hood raised and secured. (TM 9-2320-272-10)

Materials/Parts
Locknut (Volume 5, WP 0827, Table 1, Item 319)
Qty: 3

REMOVAL

NOTE

This procedure applies to both left and right hood bumpers.

Remove three locknuts (Figure 1, Item 3), screws (Figure 1, Item 4), washers (Figure 1, Item 5), and hood bumper (Figure 1, Item 1) from cab body (Figure 1, Item 2). Discard locknuts.

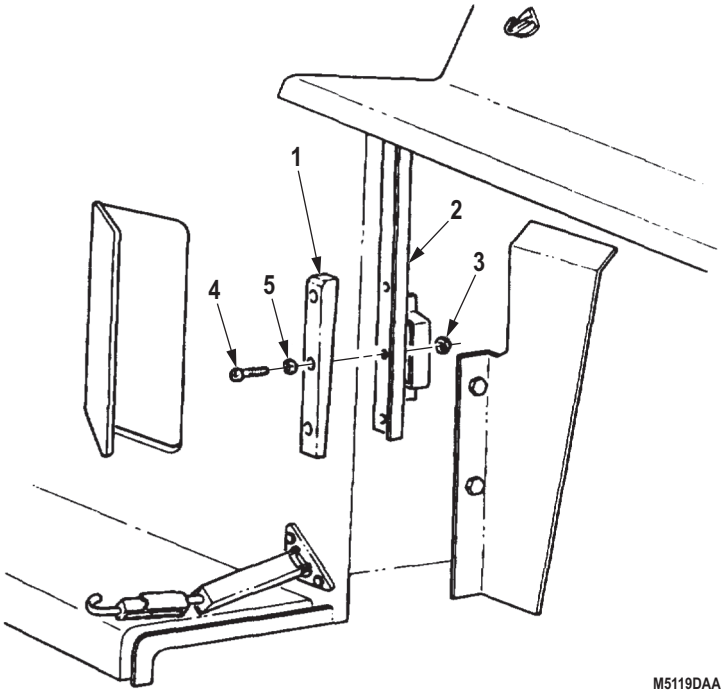


Figure 1. Hood Bumper Removal.

END OF TASK

INSTALLATION

Install hood bumper (Figure 2, Item 1) on cab body (Figure 2, Item 2) with three washers (Figure 2, Item 5), screws (Figure 2, Item 4), and locknuts (Figure 2, Item 3).

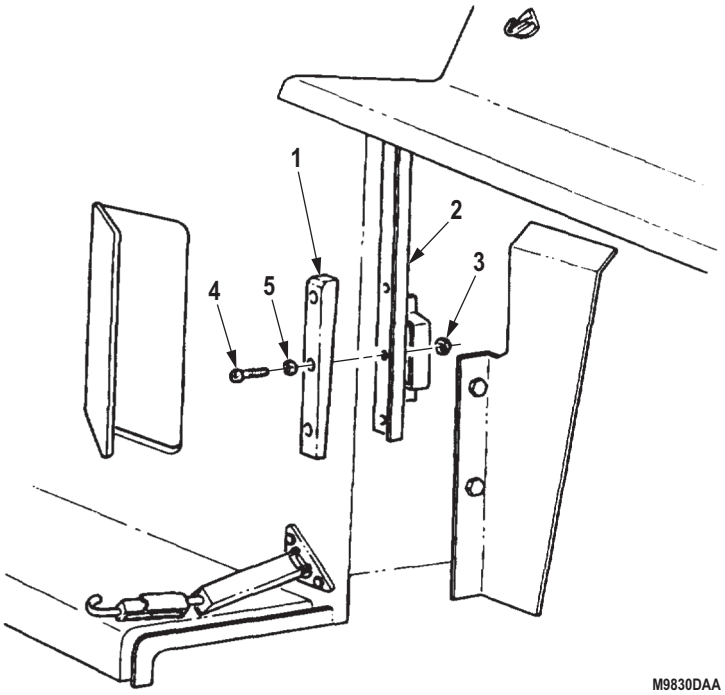


Figure 2. Hood Bumper Installation.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
ENGINE HOOD REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
- Tool Kit, General Mechanic's: Automotive (Volume 5, WP 0826, Table 1, Item 56)
- Hoist Assembly
- Wrench, Torque, Click, Ratcheting, 1/2" Drive, 250 Ft-Lb (Volume 5, WP 0826, Table 1, Item 63)

Materials/Parts
- Locknut (Volume 5, WP 0827, Table 1, Item 285) Qty: 2
- Locknut (Volume 5, WP 0827, Table 1, Item 289) Qty: 1

Materials/Parts (cont.)
- Lockwasher (Volume 5, WP 0827, Table 1, Item 394) Qty: 4
- Lockwasher (Volume 5, WP 0827, Table 1, Item 426) Qty: 1

Equipment Condition
- Parking brake set. (TM 9-2320-272-10)
- Hood raised and secured. (TM 9-2320-272-10)
- Left and right splash shields removed. (TM 9-2320-272-10)

REMOVAL

1. Remove two locknuts (Figure 1, Item 3), washers (Figure 1, Item 6), screws (Figure 1, Item 5), washers (Figure 1, Item 6), and hood stop cables (Figure 1, Item 4) from radiator support brackets (Figure 1, Item 7). Discard locknuts.
2. Disconnect wiring harness quick-disconnect (Figure 1, Item 2) from harness plug (Figure 1, Item 1).
3. Remove locknut (Figure 1, Item 8), washer (Figure 1, Item 9), screw (Figure 1, Item 12), washer (Figure 1, Item 9), ground strap (Figure 1, Item 11), and lockwasher (Figure 1, Item 10) from inside left fender (Figure 1, Item 13). Discard locknut and lockwasher.

REMOVAL - Continued

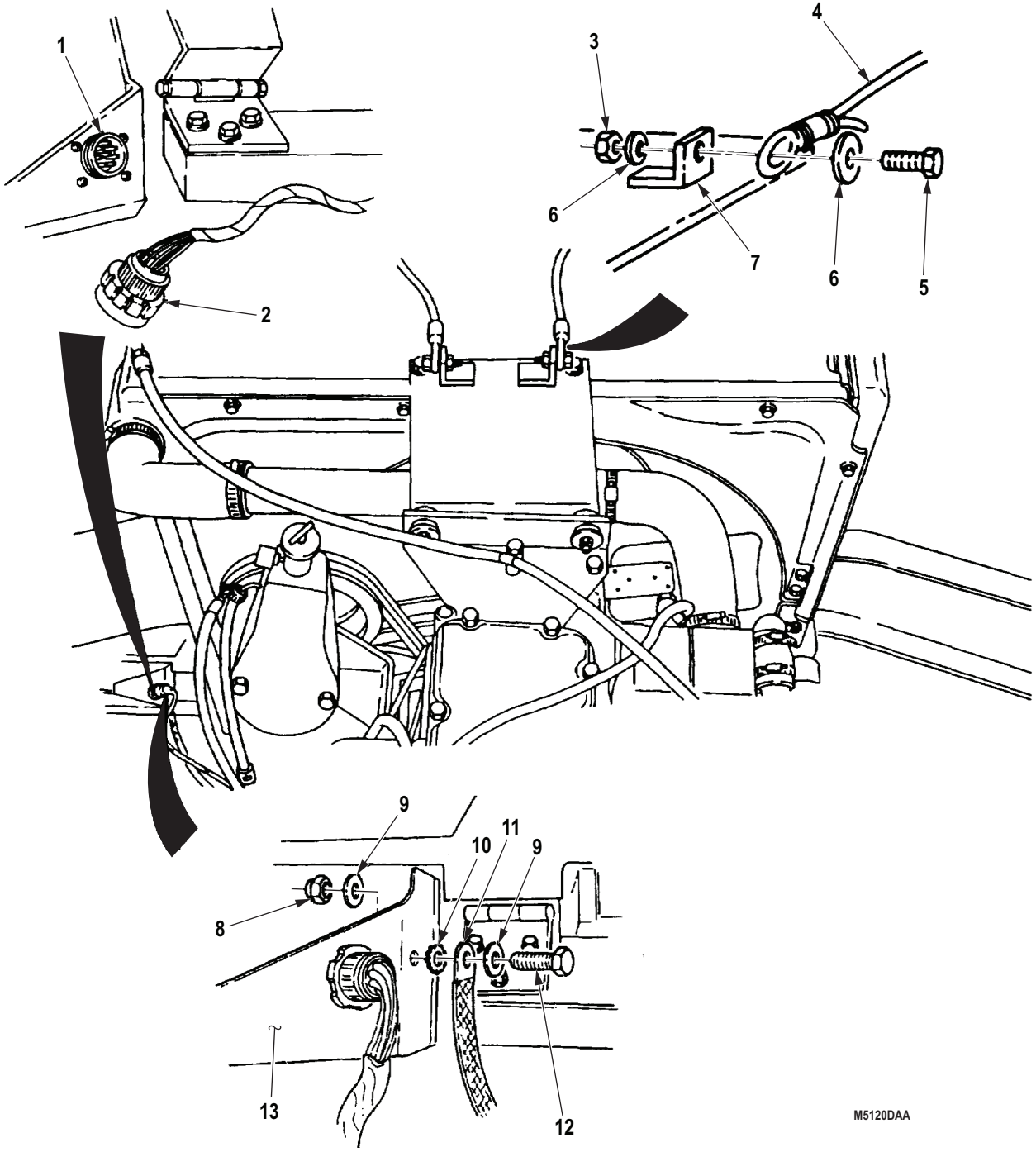


Figure 1. Engine Hood Removal.

REMOVAL - Continued

4. Attach chain to hood support brackets and lifting device and raise hood (Figure 2, Item 1) until slack is removed.
5. Remove hood retaining bar (Figure 2, Item 2) from bumper bracket (Figure 2, Item 6) and stow on hood stowage bracket (Figure 2, Item 6) (TM 9-2320-272-10).
6. Remove four screws (Figure 2, Item 8), lockwashers (Figure 2, Item 7), and mounting plate (Figure 2, Item 5) from front crossmember (Figure 2, Item 4). Discard lockwashers.

WARNING



All personnel must stand clear during lifting operations. A shifting or swinging load may cause injury to personnel. Failure to comply may result in injury or death to personnel.

7. Lift hood (Figure 2, Item 1) straight up and away from bumper (Figure 2, Item 9).
8. Lower and remove hood (Figure 2, Item 1) from lifting device.

REMOVAL - Continued

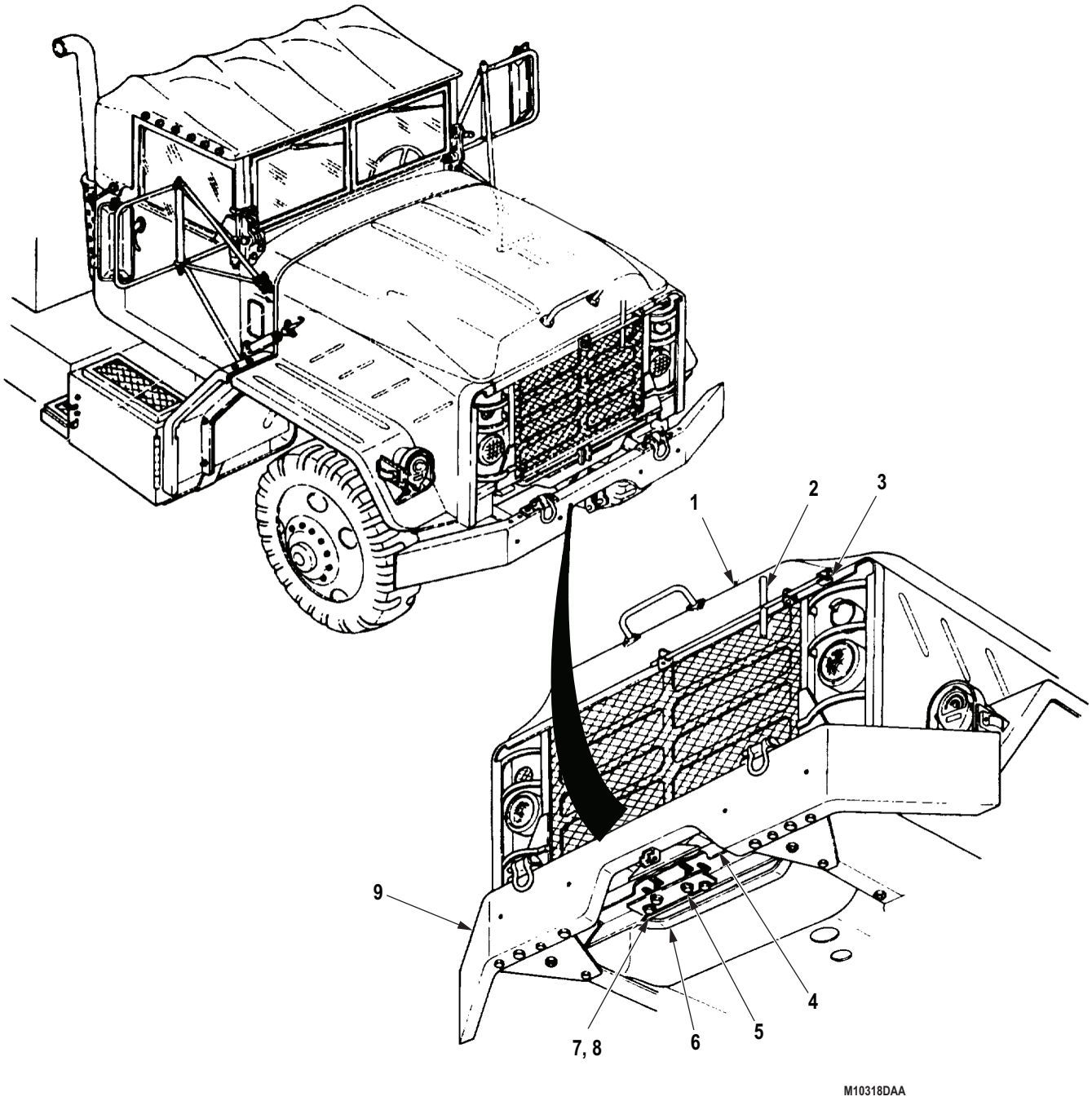


Figure 2. Engine Hood Removal.

END OF TASK

INSTALLATION

1. Attach chain to hood and lifting device and hoist onto front crossmember (Figure 3, Item 4).

WARNING



All personnel must stand clear during lifting operations. A shifting or swinging load may cause injury to personnel. Failure to comply may result in injury or death to personnel.

2. Install hood (Figure 3, Item 1) and mounting plate (Figure 3, Item 8) on front crossmember (Figure 3, Item 4) with four lockwashers (Figure 3, Item 7) and screws (Figure 3, Item 6).
3. Secure hood (Figure 3, Item 1) to bumper bracket (Figure 3, Item 5) with hood retaining bar (Figure 3, Item 3) (TM 9-2320-272-10).
4. Remove lifting device and chain from hood (Figure 3, Item 1).

INSTALLATION - Continued

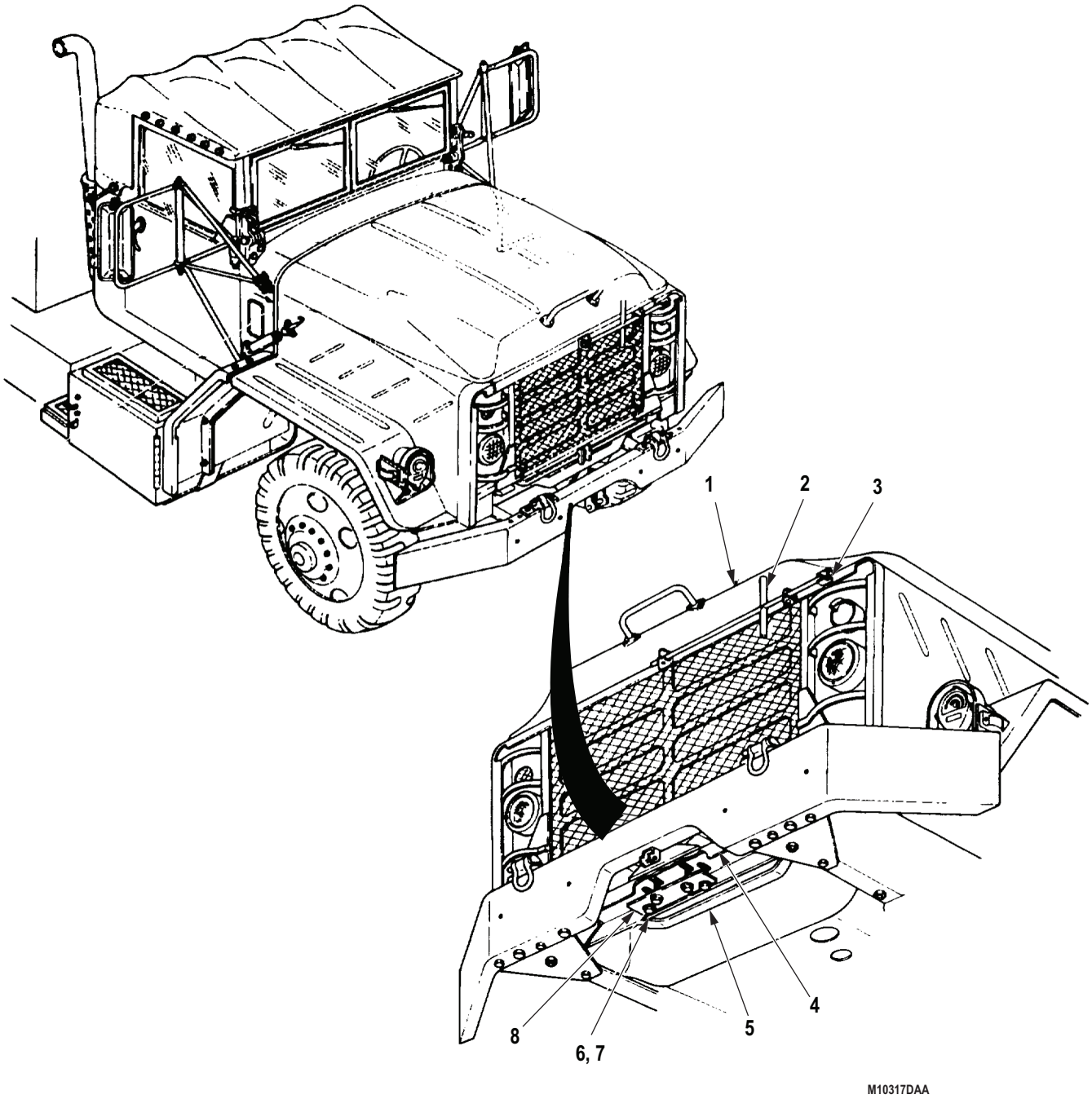


Figure 3. Engine Hood Installation.

INSTALLATION - Continued

5. Connect wiring harness quick-disconnect (Figure 4, Item 2) to harness plug (Figure 4, Item 1).

NOTE

Ensure ground strap is between washer and lockwasher.

6. Install lockwasher (Figure 4, Item 10) and ground strap (Figure 4, Item 11) on inside left fender (Figure 4, Item 13) with washer (Figure 4, Item 9), screw (Figure 4, Item 12), washer (Figure 4, Item 9), and locknut (Figure 4, Item 8).
7. Install two hood stop cables (Figure 4, Item 4) on radiator support brackets (Figure 4, Item 7) with two washers (Figure 4, Item 6), screws (Figure 4, Item 5), washers (Figure 4, Item 6), and locknut (Figure 4, Item 3).

INSTALLATION - Continued

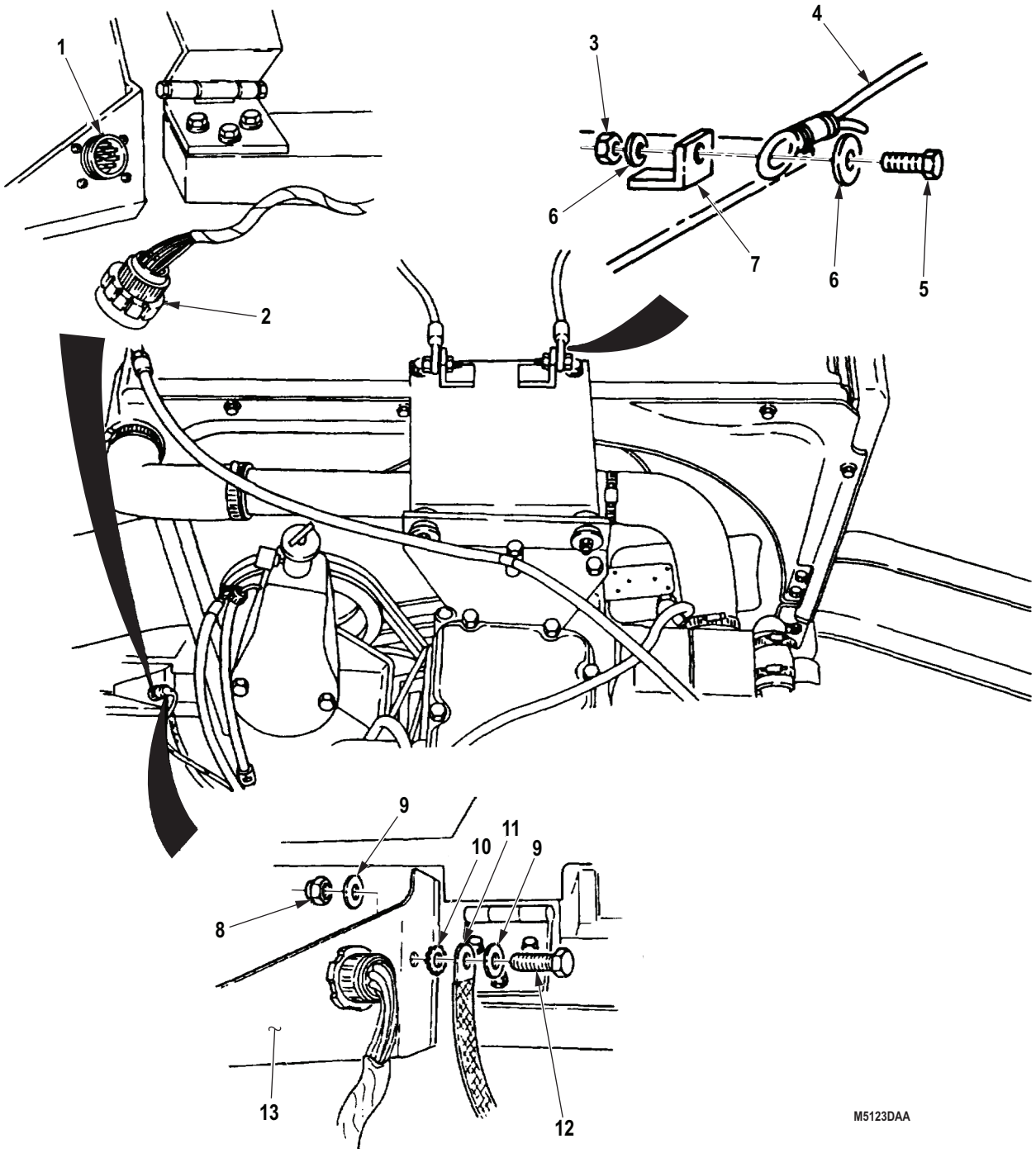


Figure 4. Engine Hood Installation.

END OF TASK

ADJUSTMENT

1. Close hood (Figure 5, Item 1) and check clearance at top and sides of hood and cowl (Figure 5, Item 2). Clearance should be 1/4 to 3/4 in. (0.64 to 1.9 cm) and equal at both top and bottom of hood.
2. Loosen four screws (Figure 5, Item 4) at frame crossmember (Figure 5, Item 3).
3. Position hood (Figure 5, Item 1) until proper clearance is obtained.
4. Tighten four screws (Figure 5, Item 4) 100 lb-ft (136 N·m).

ADJUSTMENT - Continued

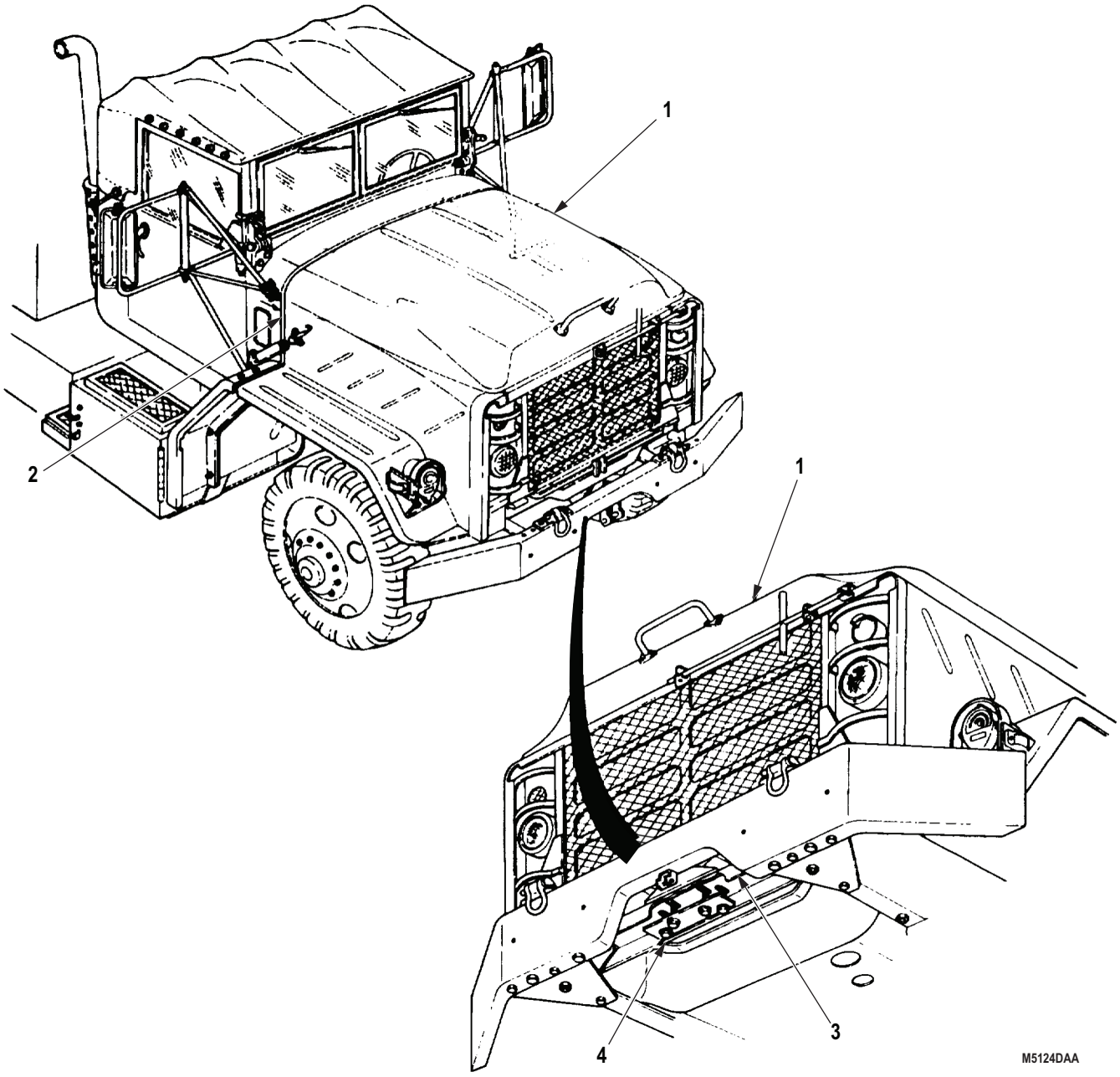


Figure 5. Engine Hood Adjustment.

END OF TASK

FOLLOW-ON MAINTENANCE

Install left and right splash shields. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
WINDSHIELD STOP BRACKET AND LATCH REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Locknut (Volume 5, WP 0827, Table 1, Item 282)
Qty: 4

Personnel Required
(2)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Hood raised and secured. (TM 9-2320-272-10)

REMOVAL

1. Remove two locknuts (Figure 1, Item 7), screws (Figure 1, Item 2), and windshield latch (Figure 1, Item 8) from hood (Figure 1, Item 1). Discard locknuts.

NOTE

Hood insulation must be pulled back to gain access to nuts and reinforcement plates.

2. Remove two locknuts (Figure 1, Item 6), screws (Figure 1, Item 3), reinforcement plate (Figure 1, Item 5), and windshield stop bracket (Figure 1, Item 4) from hood (Figure 1, Item 1). Discard locknuts.

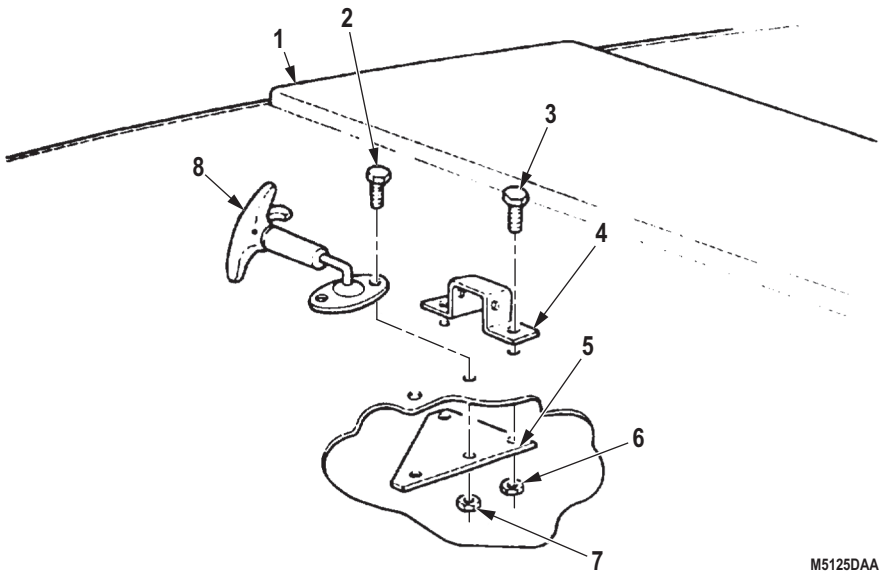


Figure 1. Windshield Stop Bracket and Latch Removal.

END OF TASK

INSTALLATION

1. Install windshield stop bracket (Figure 2, Item 4) and reinforcement plate (Figure 2, Item 5) on hood (Figure 2, Item 1) with two screws (Figure 2, Item 3) and locknuts (Figure 2, Item 6).
2. Install windshield latch (Figure 2, Item 8) on hood (Figure 2, Item 1) with two screws (Figure 2, Item 2) and locknuts (Figure 2, Item 7).

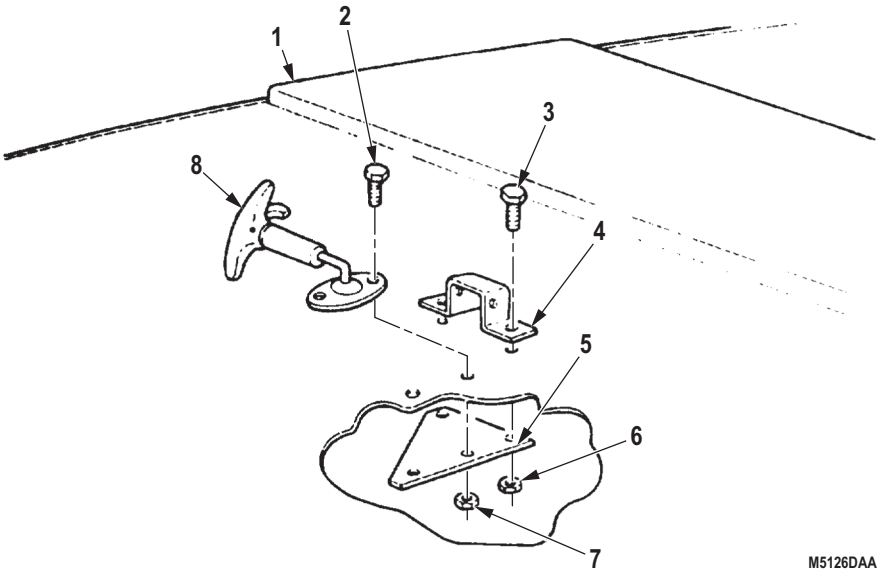


Figure 2. Windshield Stop Bracket and Latch Installation.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
ENGINE ACCESS COVER (IN-CAB) REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Adhesive, Silicone Rubber
(Volume 5, WP 0825, Table 1, Item 2)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

Equipment Condition (cont.)
Transmission console removed.
(Volume 3, WP 0370)
Winch console removed (if equipped).
(Volume 3, WP 0370)
Instrument cluster removed.
(Volume 2, WP 0310)

REMOVAL

1. Pull back cab floor insulation (Figure 1, Item 3), firewall insulation (Figure 1, Item 1), and access cover insulation (Figure 1, Item 6) to expose screw assembled washers (Figure 1, Item 7).
2. Remove 16 screw assembled washers (Figure 1, Item 7) and access cover (Figure 1, Item 2) from firewall (Figure 1, Item 5) and cab floor (Figure 1, Item 4).

REMOVAL - Continued

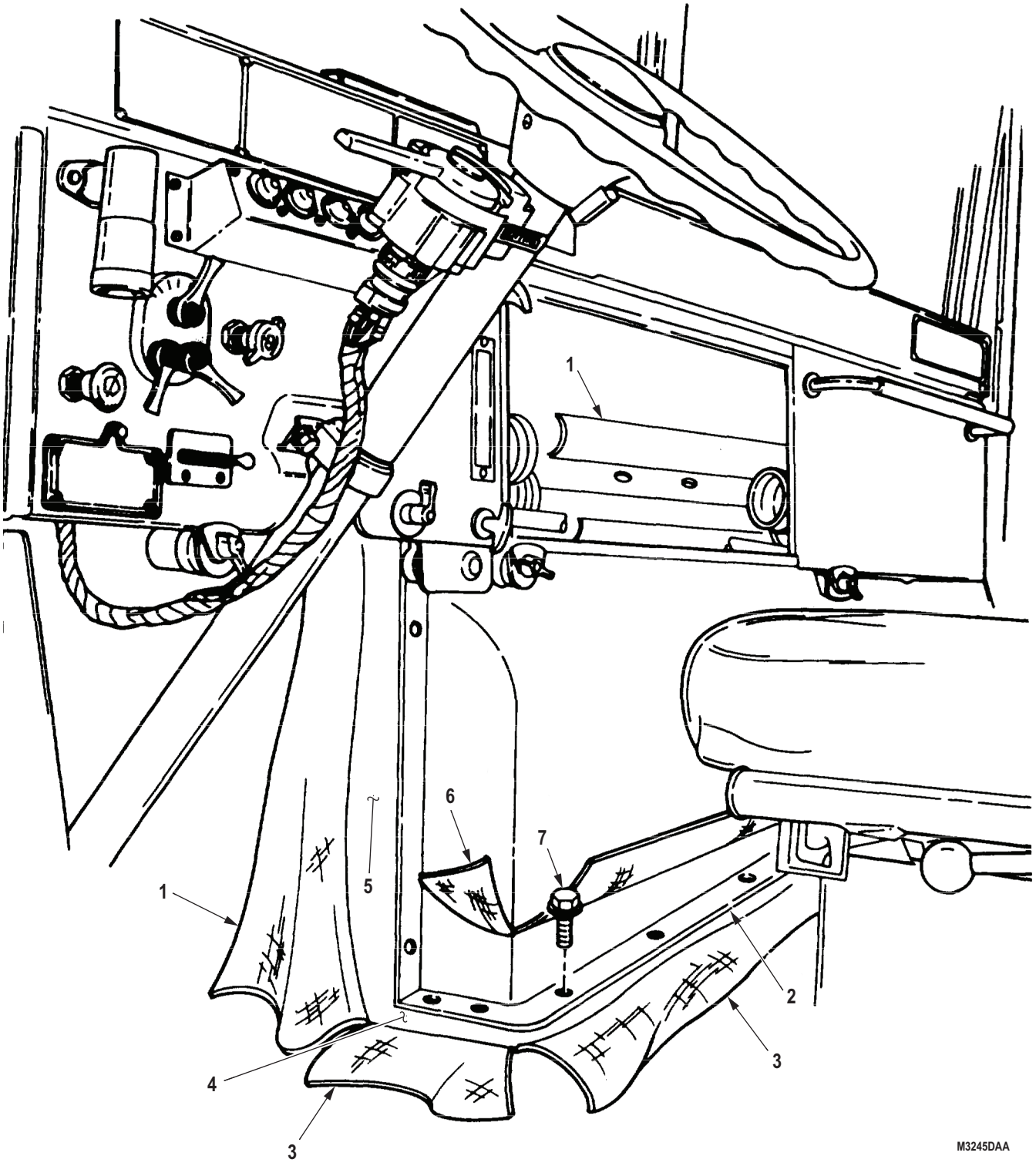


Figure 1. Engine Access Cover (In-Cab) Removal.

END OF TASK

INSTALLATION

1. Install access cover (Figure 2, Item 2) on firewall (Figure 2, Item 5) and cab floor (Figure 2, Item 4) with 16 screw assembled washers (Figure 2, Item 7).
2. Apply adhesive to back side of cab floor insulation (Figure 2, Item 3), firewall insulation (Figure 2, Item 1), and access cover insulation (Figure 2, Item 6) and press into place on access cover (Figure 2, Item 2), firewall (Figure 2, Item 5), and cab floor (Figure 2, Item 4).

INSTALLATION - Continued

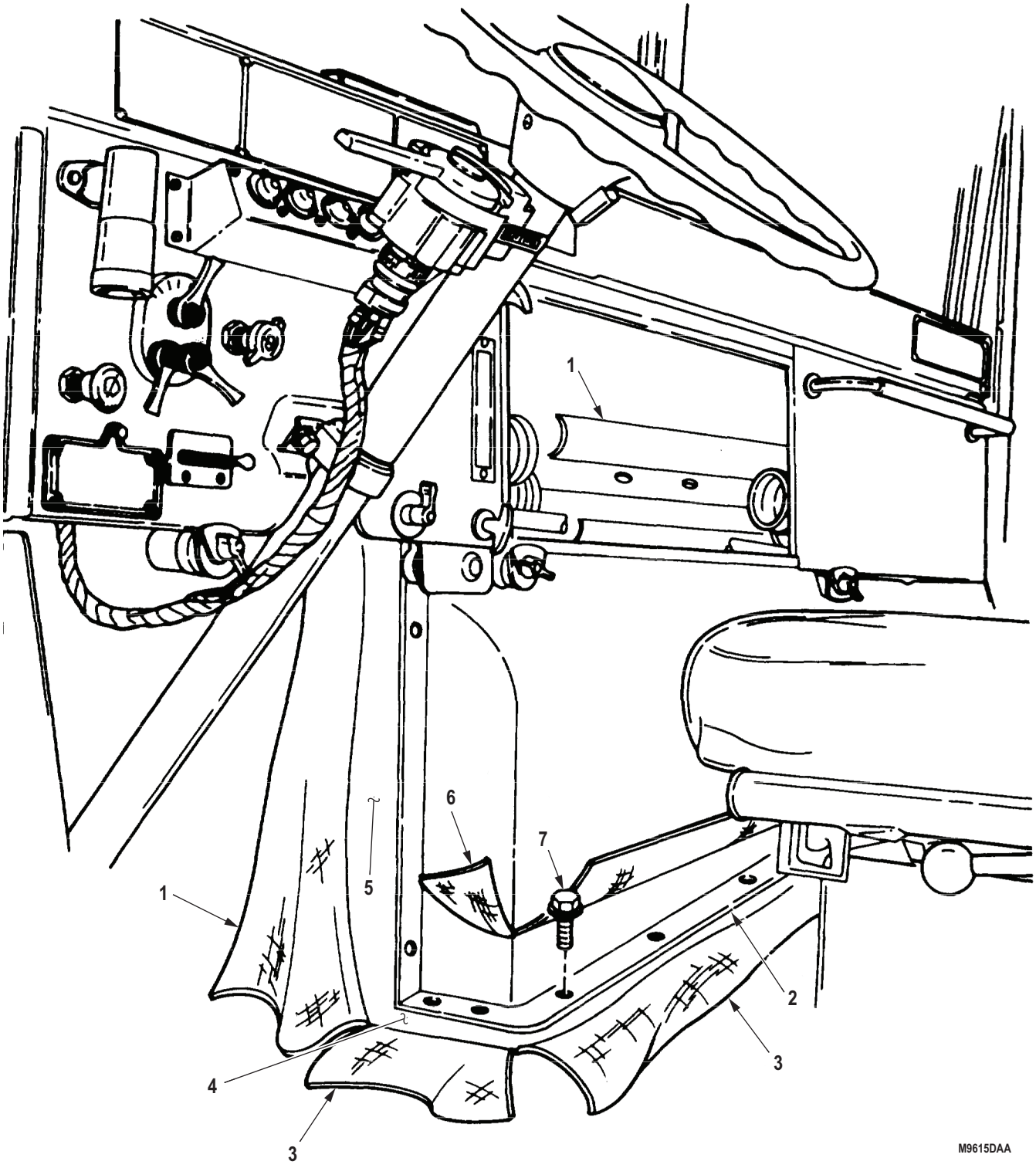


Figure 2. Engine Access Cover (In-Cab) Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install instrument cluster. (Volume 2, WP 0310)
2. Install winch console, if equipped. (Volume 3, WP 0370)
3. Install transmission console. (Volume 3, WP 0370)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
FRONT CAB MOUNT REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Insulator Inactive

Materials/Parts (cont.)
(Volume 5, WP 0827, Table 1, Item 266)
Qty: 2
Locknut (Volume 5, WP 0827, Table 1, Item 289)
Qty: 1

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

REMOVAL

NOTE

This procedure applies to both right and left front cab mounts.

1. Turn jacking screw (Figure 1, Item 9) until cab weight is supported.
2. Remove locknut (Figure 1, Item 7), washer (Figure 1, Item 6), and insulator lower half (Figure 1, Item 5) from cab bracket (Figure 1, Item 1). Discard locknut and insulator.
3. Remove screw (Figure 1, Item 2), washer (Figure 1, Item 3), and insulator upper half (Figure 1, Item 4). Discard insulator.

REMOVAL - Continued

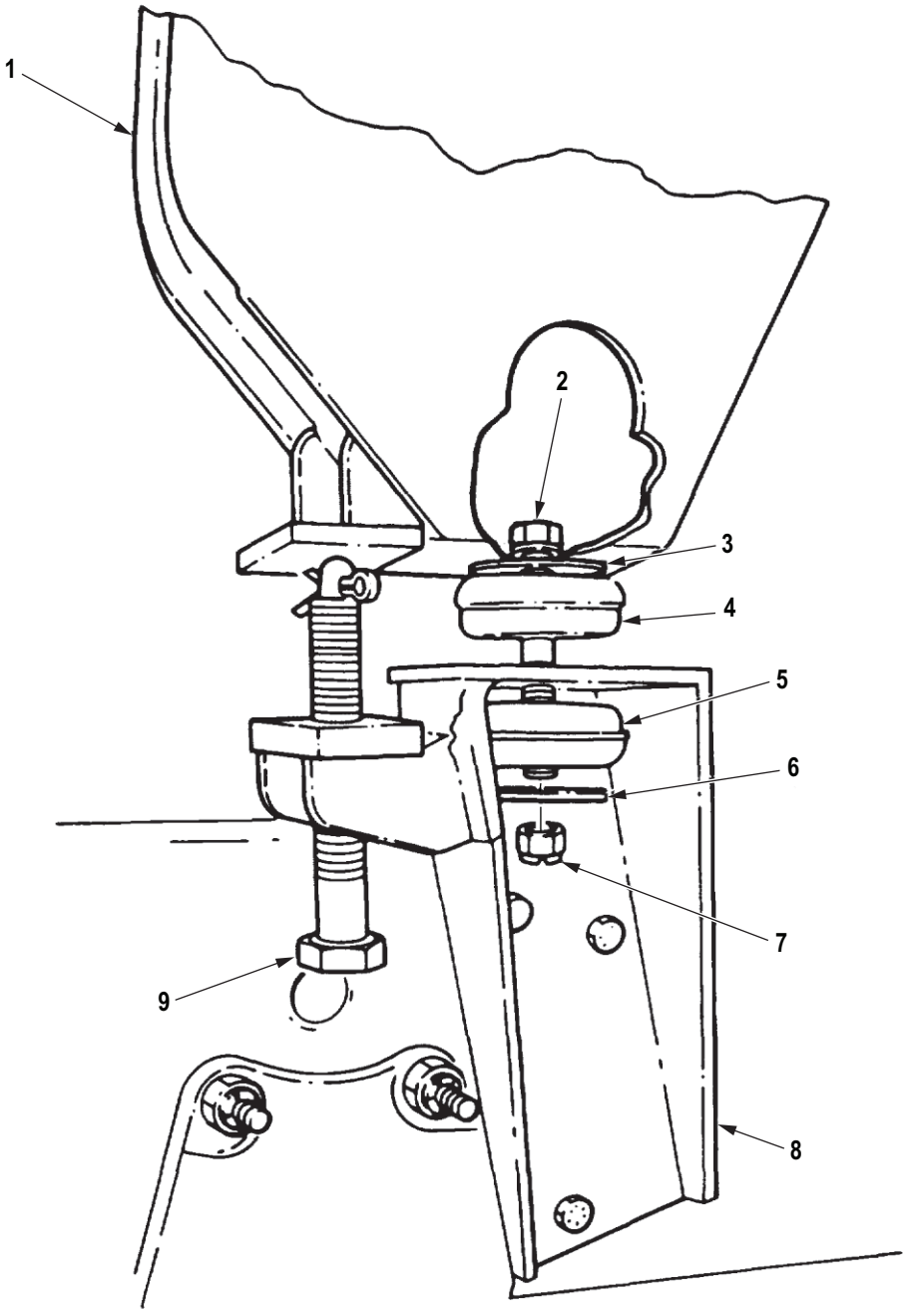


Figure 1. Front Cab Mount Removal.

END OF TASK

INSTALLATION

1. Place insulator upper half (Figure 2, Item 4) between cab bracket (Figure 2, Item 1) and frame bracket (Figure 2, Item 8).
2. Install washer (Figure 2, Item 3) and screw (Figure 2, Item 2) on insulator upper half (Figure 2, Item 4), cab bracket (Figure 2, Item 1), and frame bracket (Figure 2, Item 8).
3. Install insulator lower half (Figure 2, Item 5) on screw (Figure 2, Item 2) with washer (Figure 2, Item 6) and locknut (Figure 2, Item 7).
4. Turn out jacking screw (Figure 2, Item 9) until it is secured all the way down.

INSTALLATION - Continued

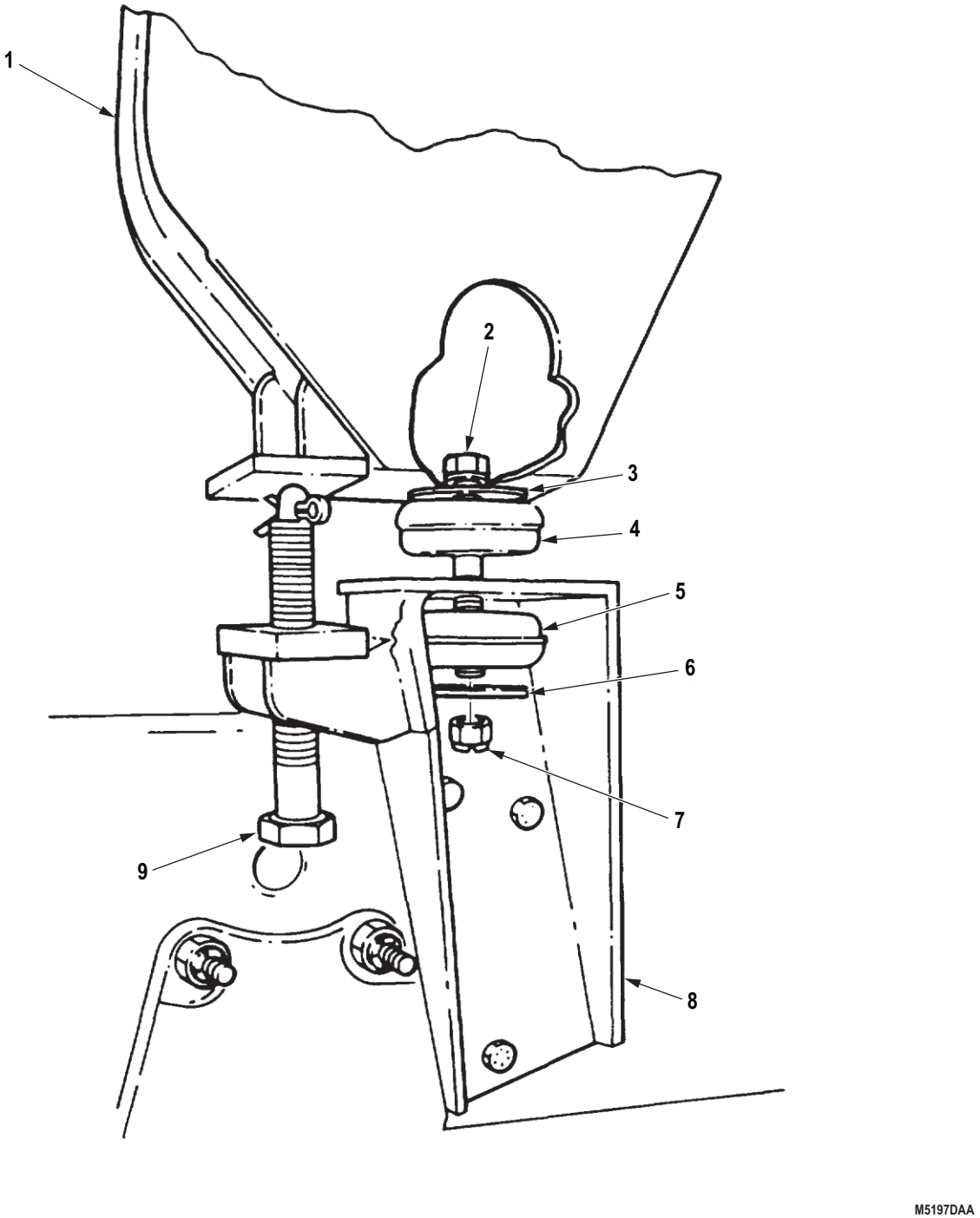


Figure 2. Front Cab Mount Installation.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
REAR CAB MOUNT REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)
Hoist Assembly
Lifting Device

Materials/Parts
Insulator Inactive
(Volume 5, WP 0827, Table 1, Item 266)
Qty: 2
Locknut (Volume 5, WP 0827, Table 1, Item 289)
Qty: 2

Personnel Required
(2)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

Equipment Condition (cont.)
Dump body raised (M929/A1/A2, M930/A1/A2). (TM 9-2320-272-10)
Cab top removed. (TM 9-2320-272-10)
Spare tire removed. (TM 9-2320-272-10)

REMOVAL

1. Pull back insulation and remove two locknuts (Figure 1, Item 7) and washers (Figure 1, Item 6) from cab (Figure 1, Item 1) and frame (Figure 1, Item 8). Discard locknuts.

CAUTION

Raise rear of cab enough to remove insulators. Damage to cab will result if raised too high.

2. Using overhead lifting device, raise cab (Figure 1, Item 1) until clear of insulators (Figure 1, Item 5).
3. Remove two screws (Figure 1, Item 4), washers (Figure 1, Item 3), and springs (Figure 1, Item 2) from inside cab (Figure 1, Item 1).
4. Remove two insulators (Figure 1, Item 5). Discard insulators.

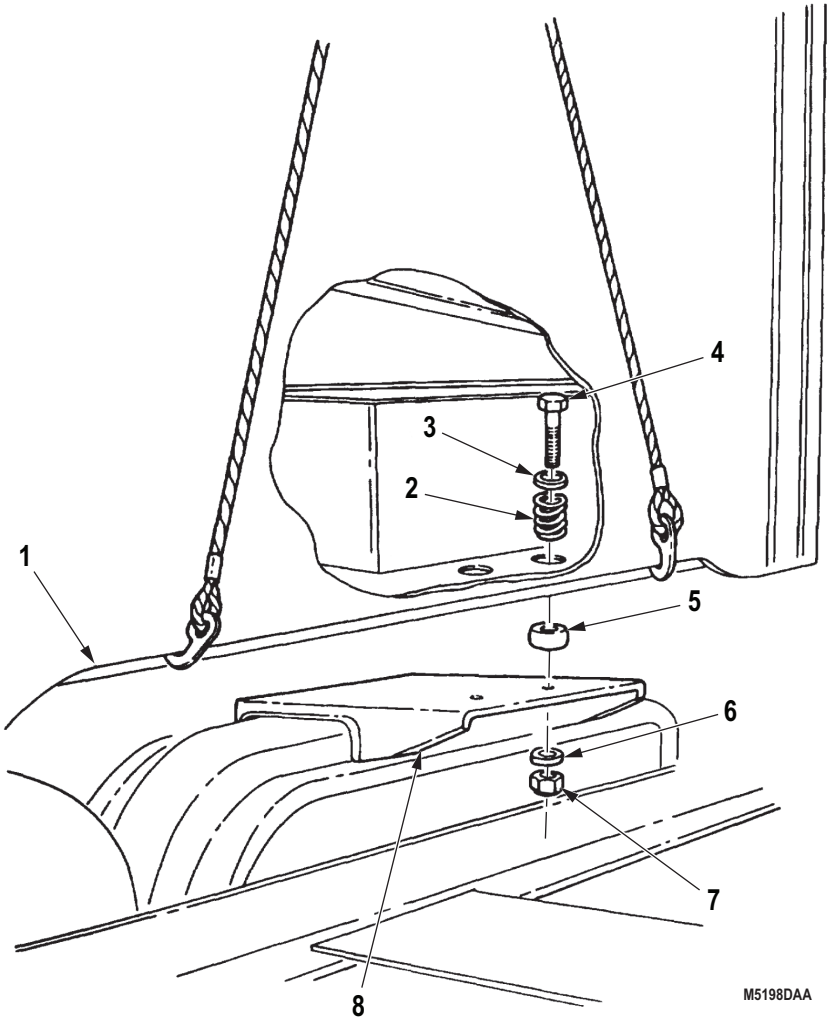


Figure 1. Rear Cab Mount Removal.

END OF TASK

INSTALLATION

1. Position two insulators (Figure 2, Item 5) between cab (Figure 2, Item 1) and frame (Figure 2, Item 8).
2. Install two washers (Figure 2, Item 3), springs (Figure 2, Item 2), and screws (Figure 2, Item 4) through insulators (Figure 2, Item 5).
3. Lower cab (Figure 2, Item 1) to frame (Figure 2, Item 7) and remove lifting device.
4. Install two washers (Figure 2, Item 6) and locknuts (Figure 2, Item 7) on screws (Figure 2, Item 4) and tighten until washers (Figure 2, Item 3) are even with cab (Figure 2, Item 1) floor.

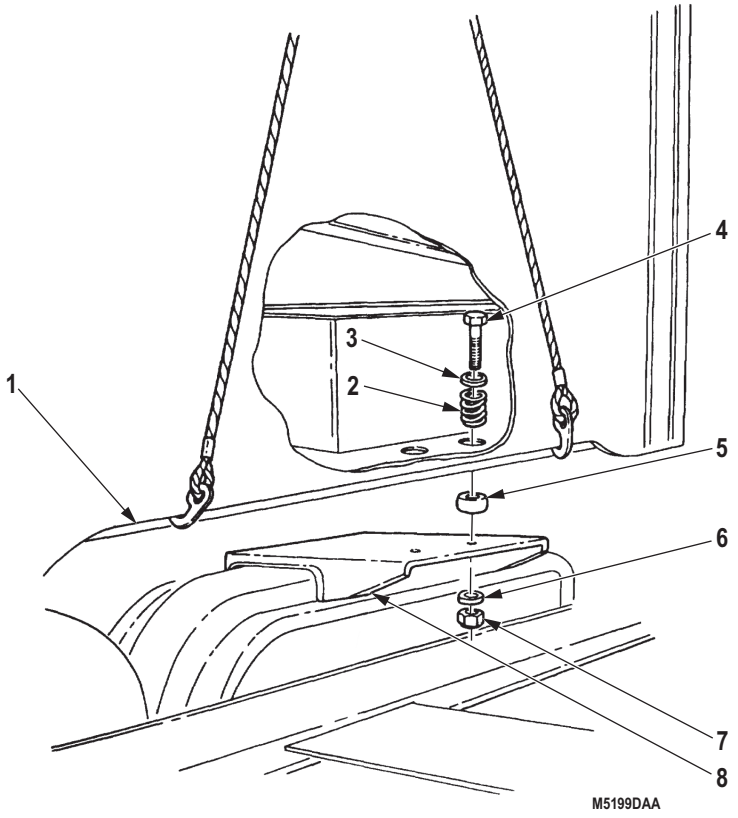


Figure 2. Rear Cab Mount Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install spare tire. (TM 9-2320-272-10)
2. Lower dump body (M929/A1/A2, M930/A1/A2). (TM 9-2320-272-10)
3. Install cab top. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
CAB GRAB HANDLE REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Adhesive, Silicone Rubber

Materials/Parts (cont.)
(Volume 5, WP 0825, Table 1, Item 2)
Locknut (Volume 5, WP 0827, Table 1, Item 282)
Qty: 4

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

REMOVAL

1. Lift insulation and cut two square patches to gain access to locknuts (Figure 1, Item 5) and reinforcing plates (Figure 1, Item 4). Save patches for installation.
2. Remove four locknuts (Figure 1, Item 5), screws (Figure 1, Item 1), two reinforcing plates (Figure 1, Item 4), and grab handle (Figure 1, Item 2) from cab (Figure 1, Item 3). Discard locknuts.

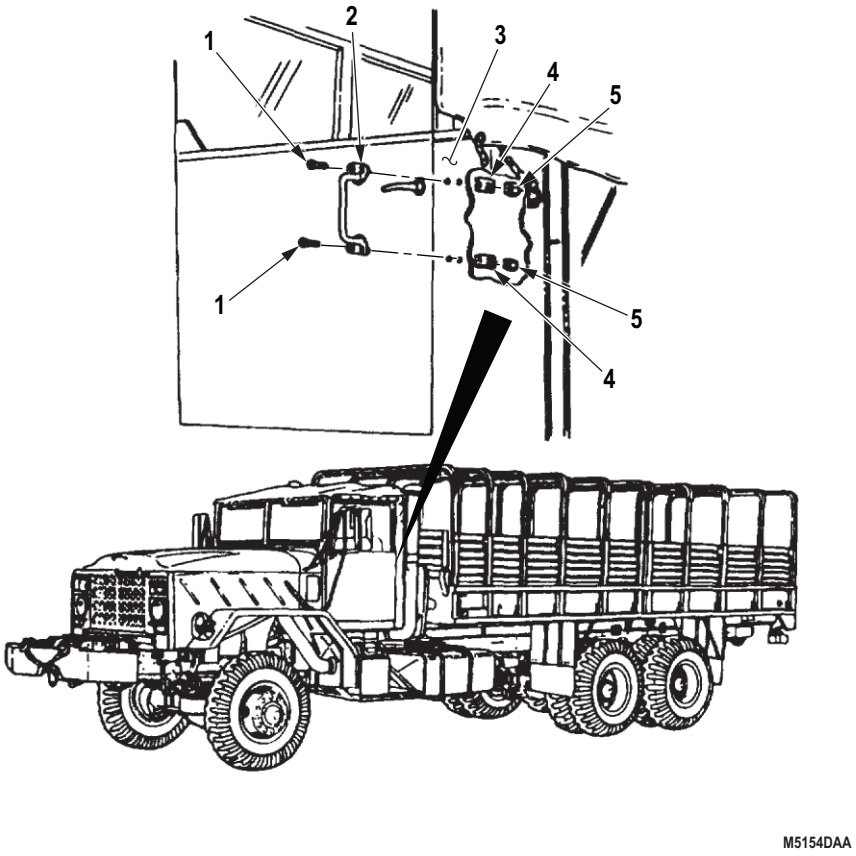


Figure 1. Cab Grab Handle Removal.

END OF TASK

INSTALLATION

1. Install grab handle (Figure 2, Item 2) on cab (Figure 2, Item 3) with four screws (Figure 2, Item 1), two reinforcing plates (Figure 2, Item 4), and four locknuts (Figure 2, Item 5).
2. Install insulation on cab (Figure 2, Item 3) with silicone rubber adhesive.

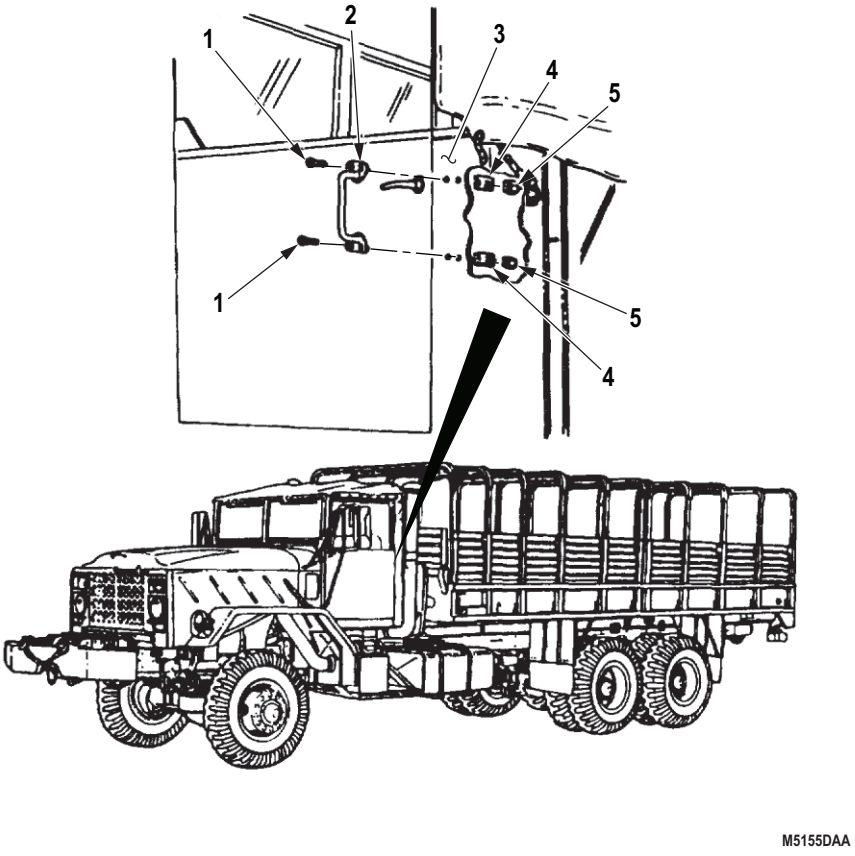


Figure 2. Cab Grab Handle Installation.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
VENT DOOR WEATHER SEAL REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Adhesive, Silicone Rubber
(Volume 5, WP 0825, Table 1, Item 2)
Vent Door Weather Seal

Materials/Parts (cont.)
(Volume 5, WP 0827, Table 1, Item 207)
Qty: 1

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

REMOVAL

1. Open vent door (Figure 1, Item 2).
2. Remove vent door weather seal (Figure 1, Item 3) from vent door (Figure 1, Item 2). Discard weather seal.

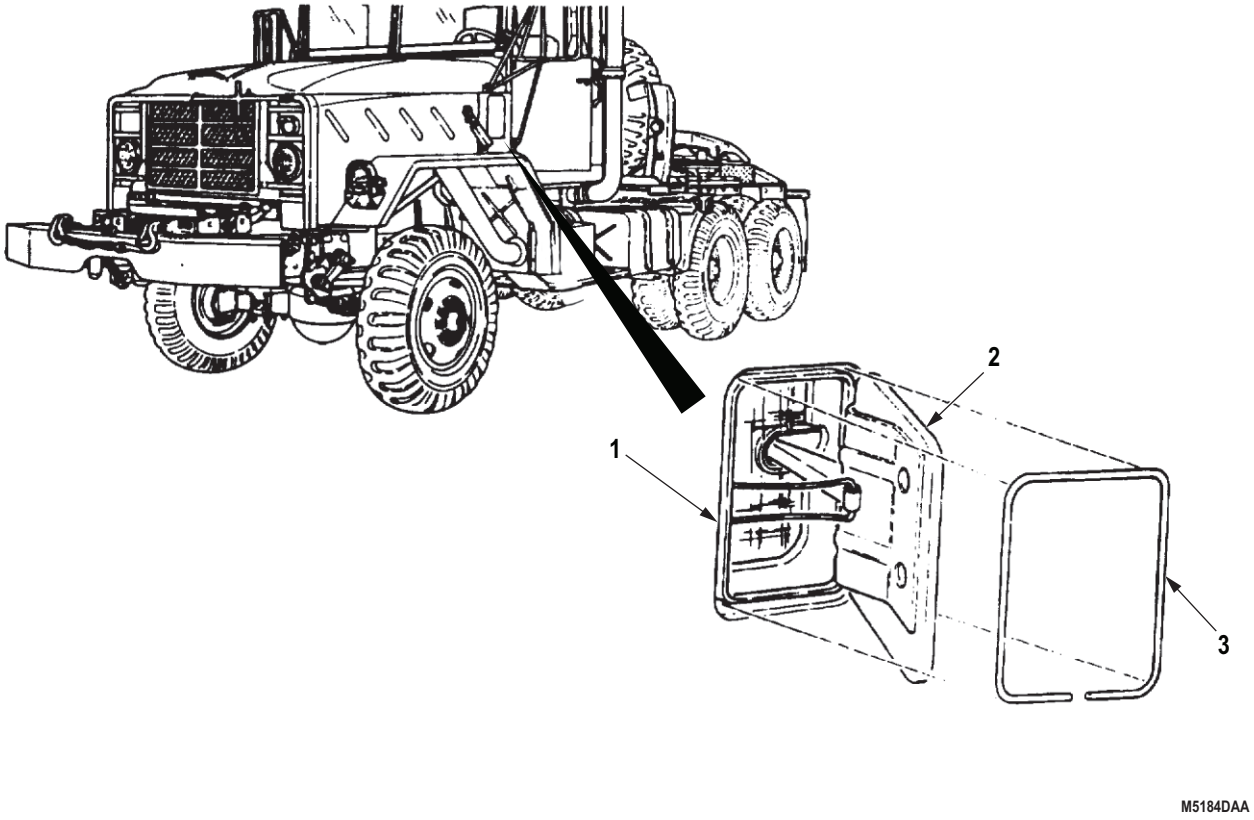


Figure 1. Vent Door Weather Seal Removal.

END OF TASK

INSTALLATION

NOTE

Surface of cowl vent door opening must be clean, dry, and free of oil and grease before seal is installed.

1. Apply thin coat of silicone rubber adhesive to mating surfaces of vent door (Figure 2, Item 2) and weather seal (Figure 2, Item 3) and allow to dry until tacky.
2. Position weather seal (Figure 2, Item 3) into channel (Figure 2, Item 1) of vent door (Figure 2, Item 2) and press firmly into place.

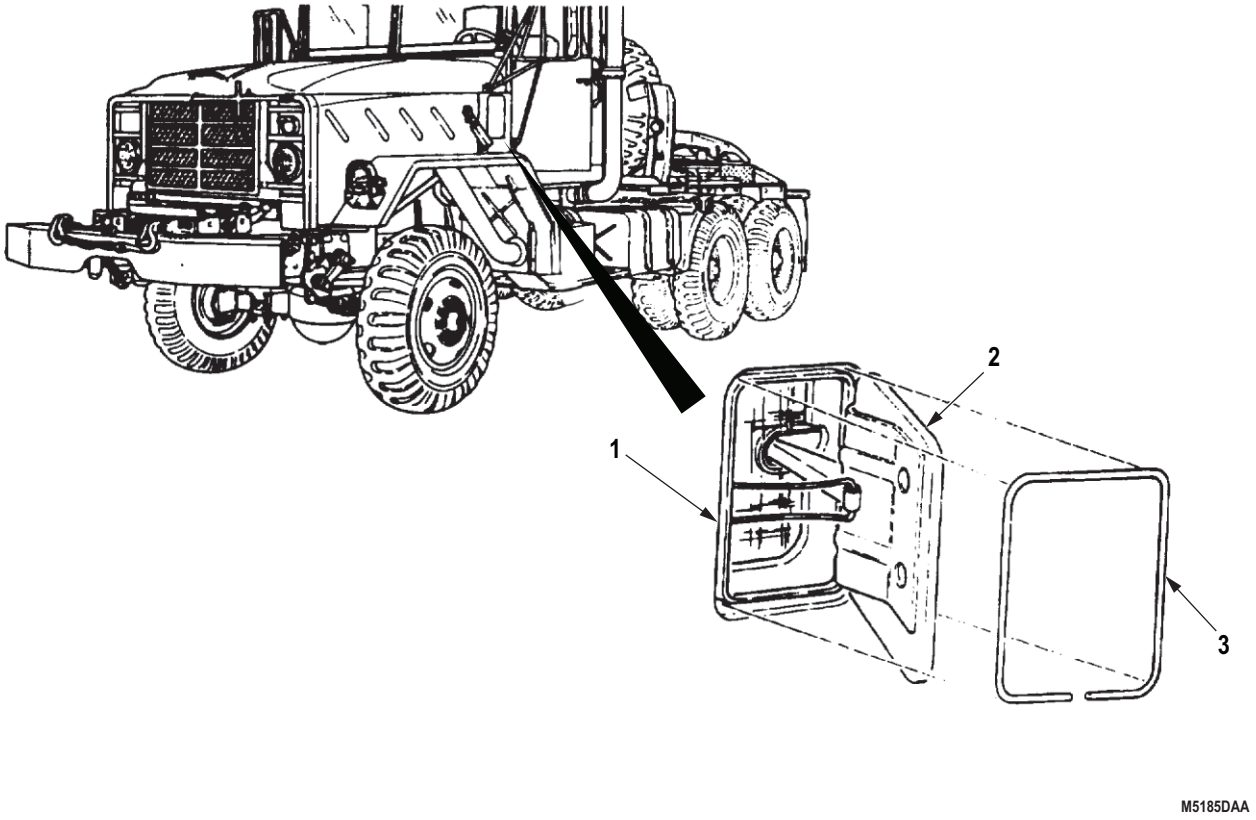


Figure 2. Vent Door Weather Seal Installation.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
CAB COWL VENT SCREEN AND DOOR REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Cotter Pin

Materials/Parts (cont.)
(Volume 5, WP 0827, Table 1, Item 332)
Qty: 1

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

REMOVAL

1. Remove nine screws (Figure 1, Item 1) and vent screen (Figure 1, Item 2) from cab cowl (Figure 1, Item 3).
2. Spread vent door spring (Figure 1, Item 9) apart and disconnect vent door bracket (Figure 1, Item 7).
3. Remove cotter pin (Figure 1, Item 8) from door pivot pin (Figure 1, Item 4). Discard cotter pin.
4. Remove door pivot pin (Figure 1, Item 4) and vent door (Figure 1, Item 6) from hinge (Figure 1, Item 5) and cab cowl (Figure 1, Item 3).

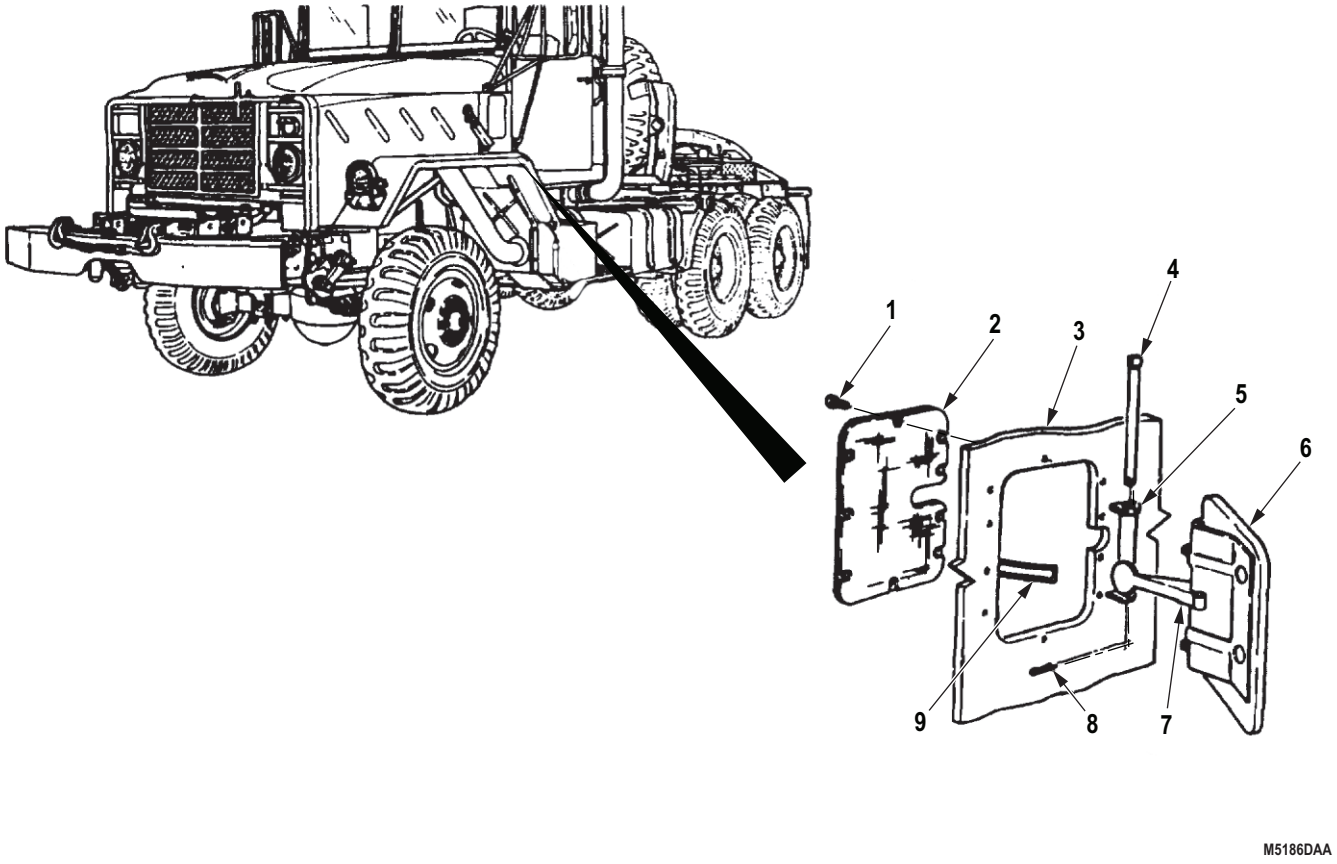


Figure 1. Cab Cowl Vent Screen & Door Removal.

END OF TASK

INSTALLATION

1. Install vent door (Figure 2, Item 6) on cab cowl (Figure 2, Item 3) and hinge (Figure 2, Item 5) with door pivot pin (Figure 2, Item 4) and cotter pin (Figure 2, Item 8).
2. Spread vent door spring (Figure 2, Item 9) apart and clamp to door hinge bracket (Figure 2, Item 7).
3. Install vent screen (Figure 2, Item 2) on cab cowl (Figure 2, Item 3) with nine screws (Figure 2, Item 1).

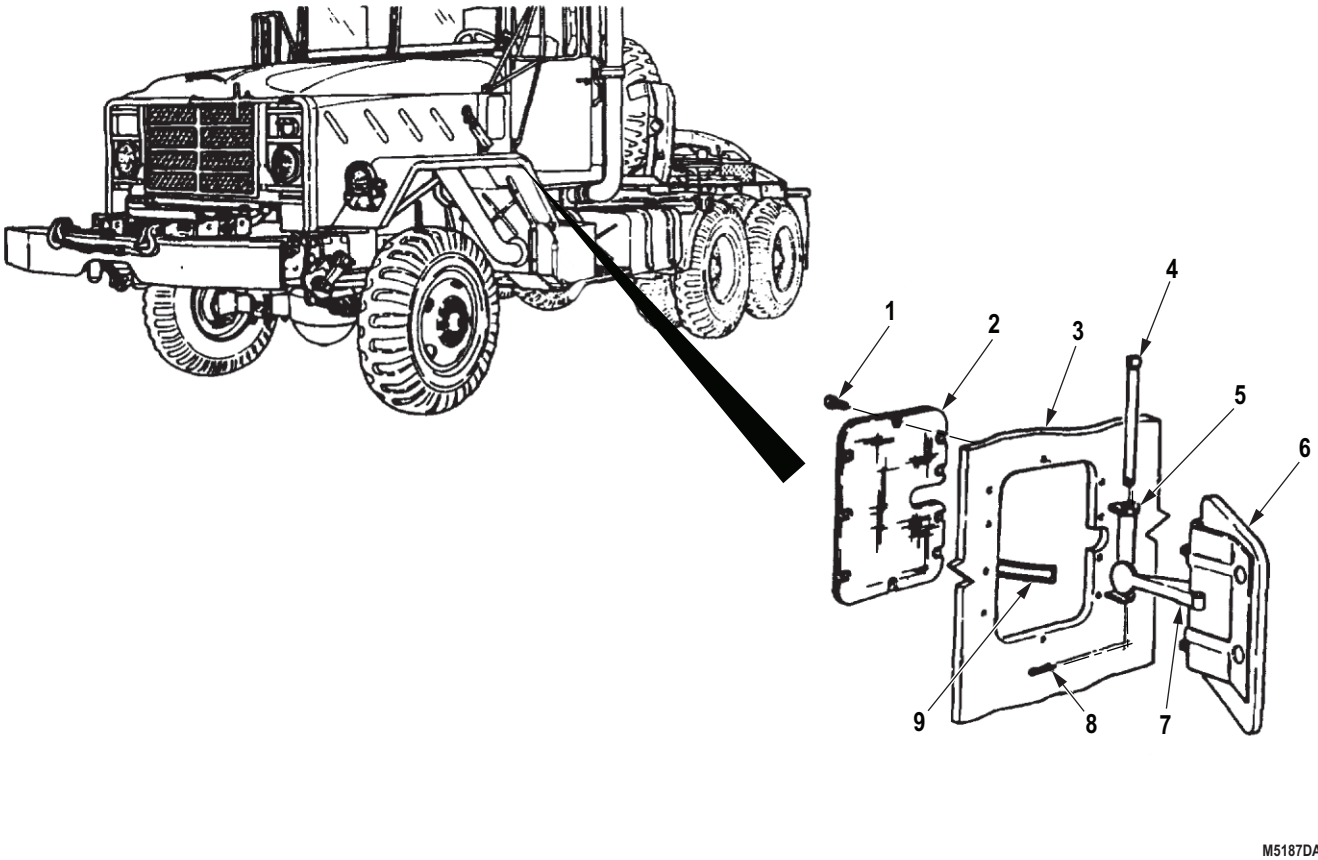


Figure 2. Cab Cowl Vent Screen & Door Installation.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
FRONT FENDERS REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Personnel Required
(2)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Front composite light removed.
(Volume 2, WP 0327)

REMOVAL

1. Remove three screw assembled washers (Figure 1, Item 2) from fender reinforcement (Figure 1, Item 3) and hood (Figure 1, Item 1).
2. Remove two screw assembled washers (Figure 1, Item 6) from fender (Figure 1, Item 4) and brushguard (Figure 1, Item 7).
3. Remove eight screw assembled washers (Figure 1, Item 5) and fender (Figure 1, Item 4) from hood (Figure 1, Item 1).

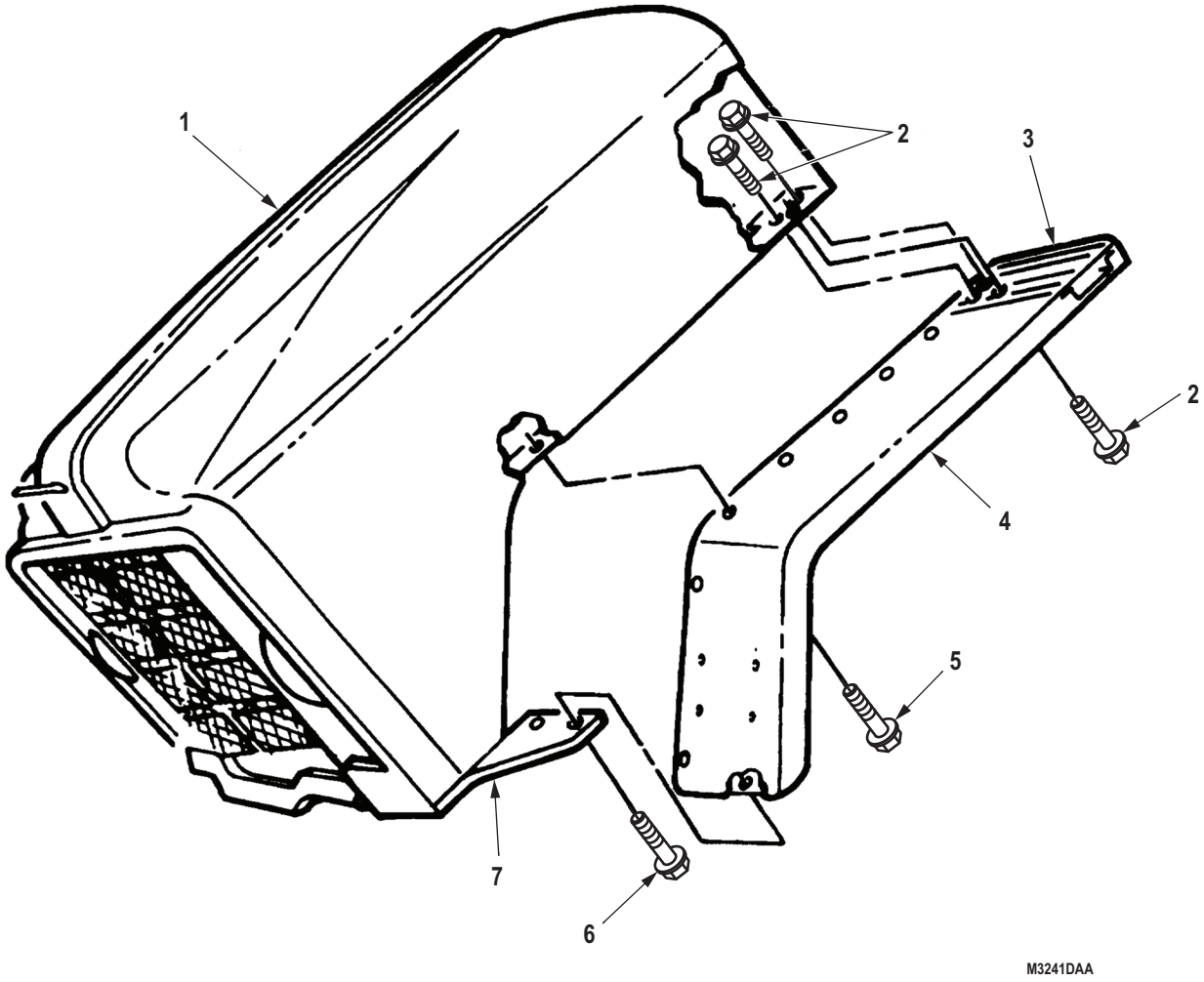


Figure 1. Front Fender Removal.

END OF TASK

INSTALLATION

1. Install fender (Figure 2, Item 4) on hood (Figure 2, Item 1) with eight screw assembled washers (Figure 2, Item 5).

INSTALLATION - Continued

2. Install fender (Figure 2, Item 4) on brushguard (Figure 2, Item 7) with two screw assembled washers (Figure 2, Item 6).
3. Install fender reinforcement (Figure 2, Item 3) on hood (Figure 2, Item 1) with three screw assembled washers (Figure 2, Item 2).

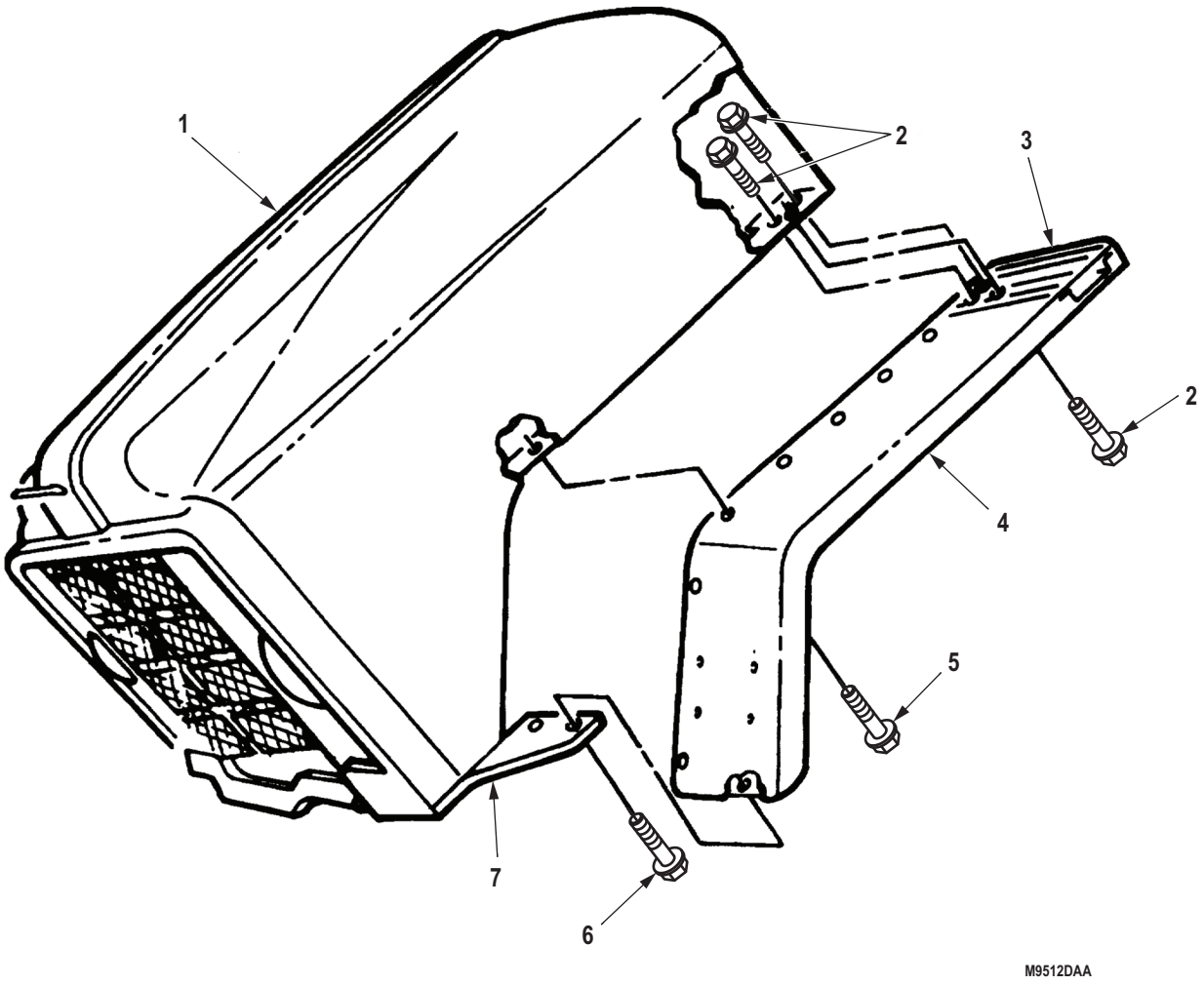


Figure 2. Front Fender Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

Install front composite light. (Volume 2, WP 0327)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
FRONT FENDER EXTENSION REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Locknut (Volume 5, WP 0827, Table 1, Item 285)
Qty: 2

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Hood raised and secured. (TM 9-2320-272-10)

REMOVAL

NOTE

Front extension replacement is the same for both left and front fender extensions. This procedure covers the right fender extension.

1. Remove five screw assembled washers (Figure 1, Item 5) from fender extension (Figure 1, Item 6) and splash shield (Figure 1, Item 4).
2. Remove two locknuts (Figure 1, Item 3), screws (Figure 1, Item 1), and fender extension (Figure 1, Item 6) from support bracket (Figure 1, Item 2). Discard locknuts.

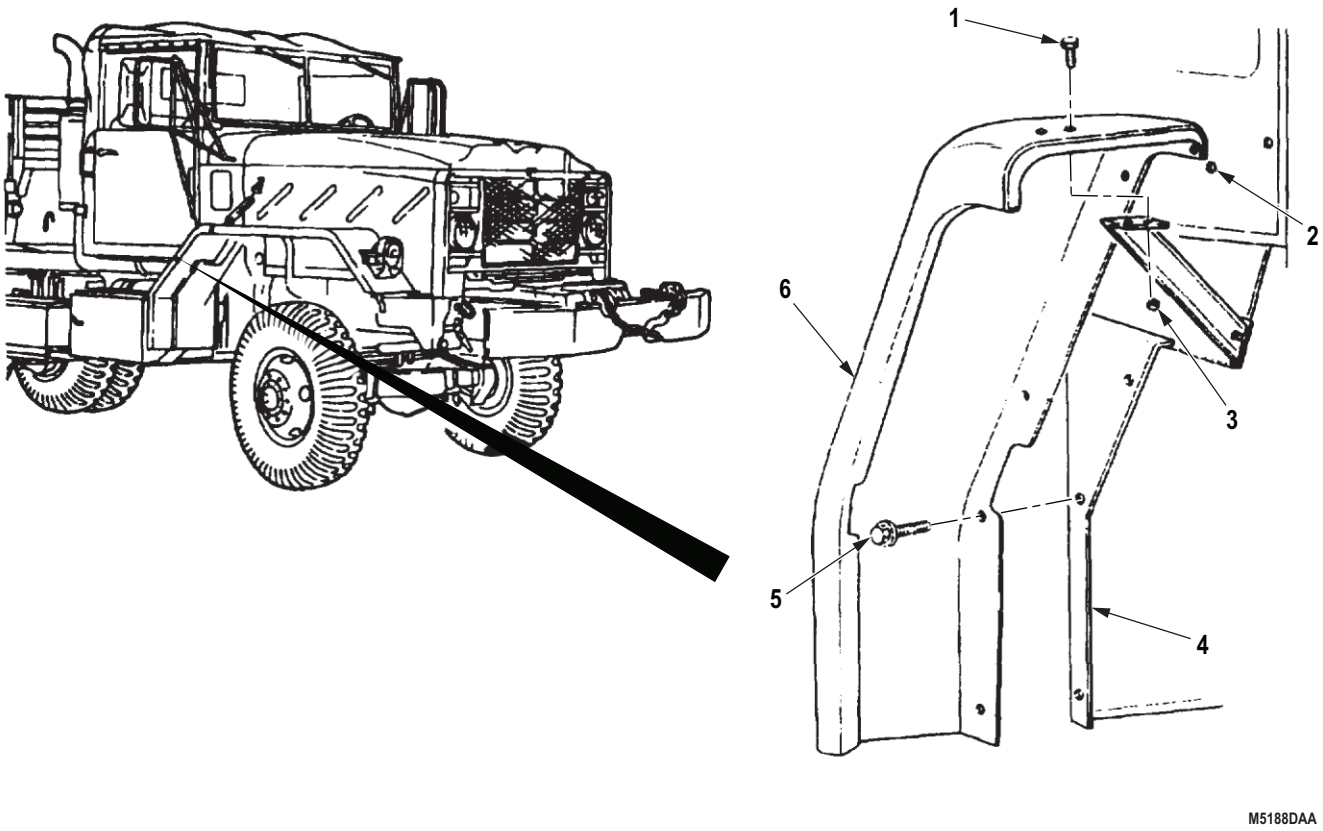


Figure 1. Front Fender Extension Removal.

END OF TASK

INSTALLATION

1. Install fender extension (Figure 2, Item 6) on support bracket (Figure 2, Item 2) with two screws (Figure 2, Item 1) and locknuts (Figure 2, Item 3).
2. Install fender extension (Figure 2, Item 6) on splash shield (Figure 2, Item 4) with five screw assembled washers (Figure 2, Item 5).

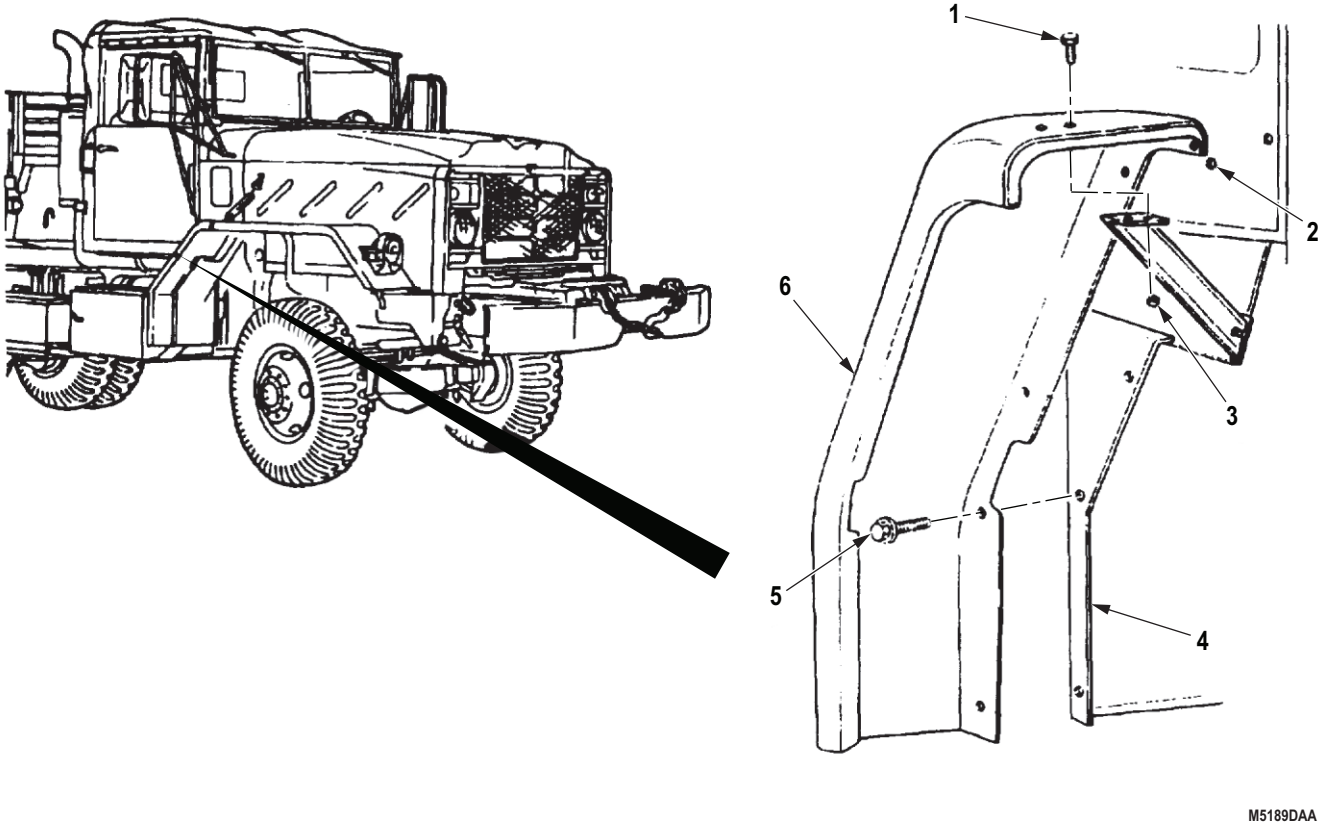


Figure 2. Front Fender Extension Installation.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
FENDER SPLASH SHIELD REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Locknut (Volume 5, WP 0827, Table 1, Item 285)
Qty: 4
Lockwasher
(Volume 5, WP 0827, Table 1, Item 356)
Qty: 3

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

Equipment Condition (cont.)
Fender extension removed. (WP 0574)
Air cleaner intake pipe hose removed.
(Volume 2, WP 0246)

REMOVAL

NOTE

Fender splash shield replacement is the same for both left and right side. This procedure covers the right fender splash shield.

1. Remove locknut (Figure 1, Item 8), screw (Figure 1, Item 6), and washer (Figure 1, Item 7) from splash shield (Figure 1, Item 5) and support brace (Figure 1, Item 11). Discard locknut.
2. Remove three screws (Figure 1, Item 9) and lockwashers (Figure 1, Item 10) from splash shield (Figure 1, Item 5) and cab extension (Figure 1, Item 12). Discard lockwashers.
3. Remove three locknuts (Figure 1, Item 4), washers (Figure 1, Item 3), and splash shield (Figure 1, Item 5) from screws (Figure 1, Item 2) and cab floor (Figure 1, Item 1). Discard locknuts.

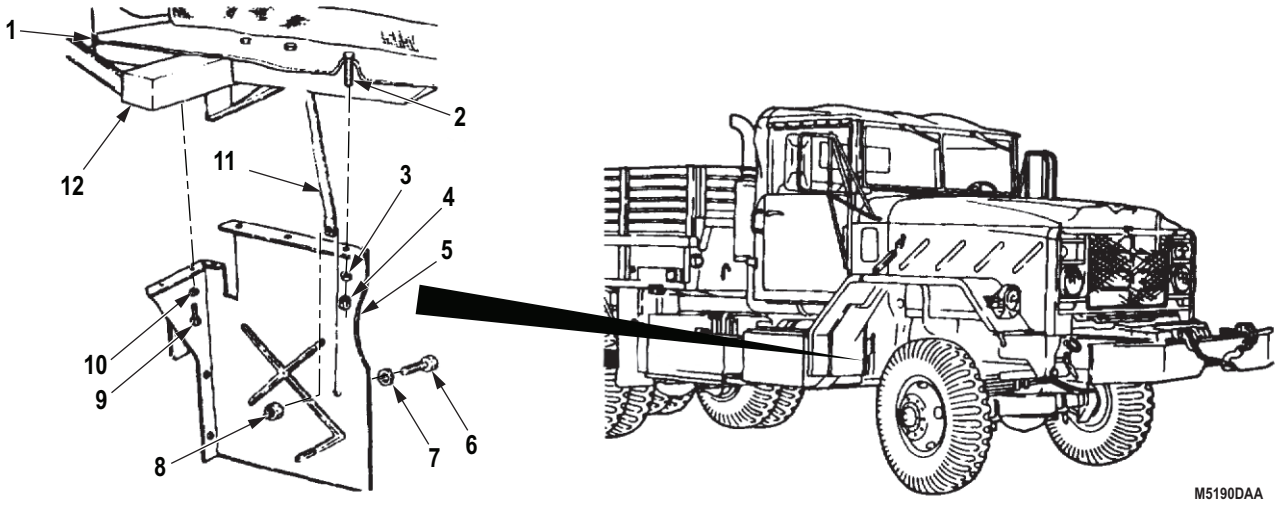


Figure 1. Fender Splash Shield Removal.

END OF TASK

INSTALLATION

1. Install splash shield (Figure 2, Item 5) on cab floor (Figure 2, Item 1) and three screws (Figure 2, Item 2) with three washers (Figure 2, Item 3) and locknuts (Figure 2, Item 4).
2. Install splash shield (Figure 2, Item 5) on cab extension (Figure 2, Item 12) with three lockwashers (Figure 2, Item 10) and screws (Figure 2, Item 9).
3. Install splash shield (Figure 2, Item 5) on support brace (Figure 2, Item 11) with washer (Figure 2, Item 7), screw (Figure 2, Item 6), and locknut (Figure 2, Item 8).

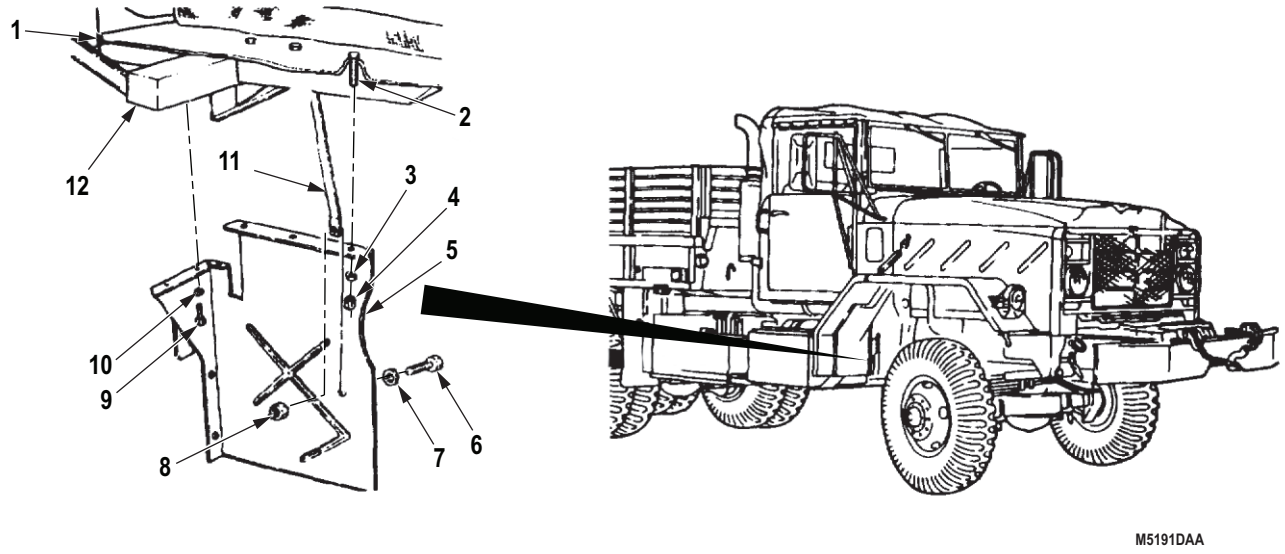


Figure 2. Fender Splash Shield Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install air cleaner intake pipe hose. (Volume 2, WP 0246)
2. Install fender extension. (WP 0574)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
RADIATOR BRUSHGUARD REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

References
TM 9-237

Equipment Condition
Hood removed. (WP 0565)
Blackout drive lamps removed.
(Volume 2, WP 0326)

Equipment Condition (cont.)
Service headlamps removed.
(Volume 2, WP 0325)
Radiator baffles, seals, and plates removed.
(Volume 2, WP 0282)
OR Radiator baffles, seals, and plates removed.
(Volume 2, WP 0283)
Torsion bars and crossmember removed.
(Volume 3, WP 0363)

REMOVAL

1. Remove three screw assembled washers (Figure 1, Item 9) from left fender (Figure 1, Item 10) and brushguard (Figure 1, Item 3).
2. Remove four nuts (Figure 1, Item 8), washers (Figure 1, Item 7), screws (Figure 1, Item 5), and wiring harness quick-disconnect (Figure 1, Item 6) from brushguard (Figure 1, Item 3).

NOTE

When performing Steps (3) through (7), note location of clamps for installation.

3. Remove 12 screw assembled washers (Figure 1, Item 4) and harness clamps (Figure 1, Item 1) from brushguard (Figure 1, Item 3) and hood (Figure 1, Item 2).
4. Remove six screw assembled washers (Figure 1, Item 12) and two upper hinge halves (Figure 1, Item 11) from brushguard (Figure 1, Item 3).

REMOVAL - Continued

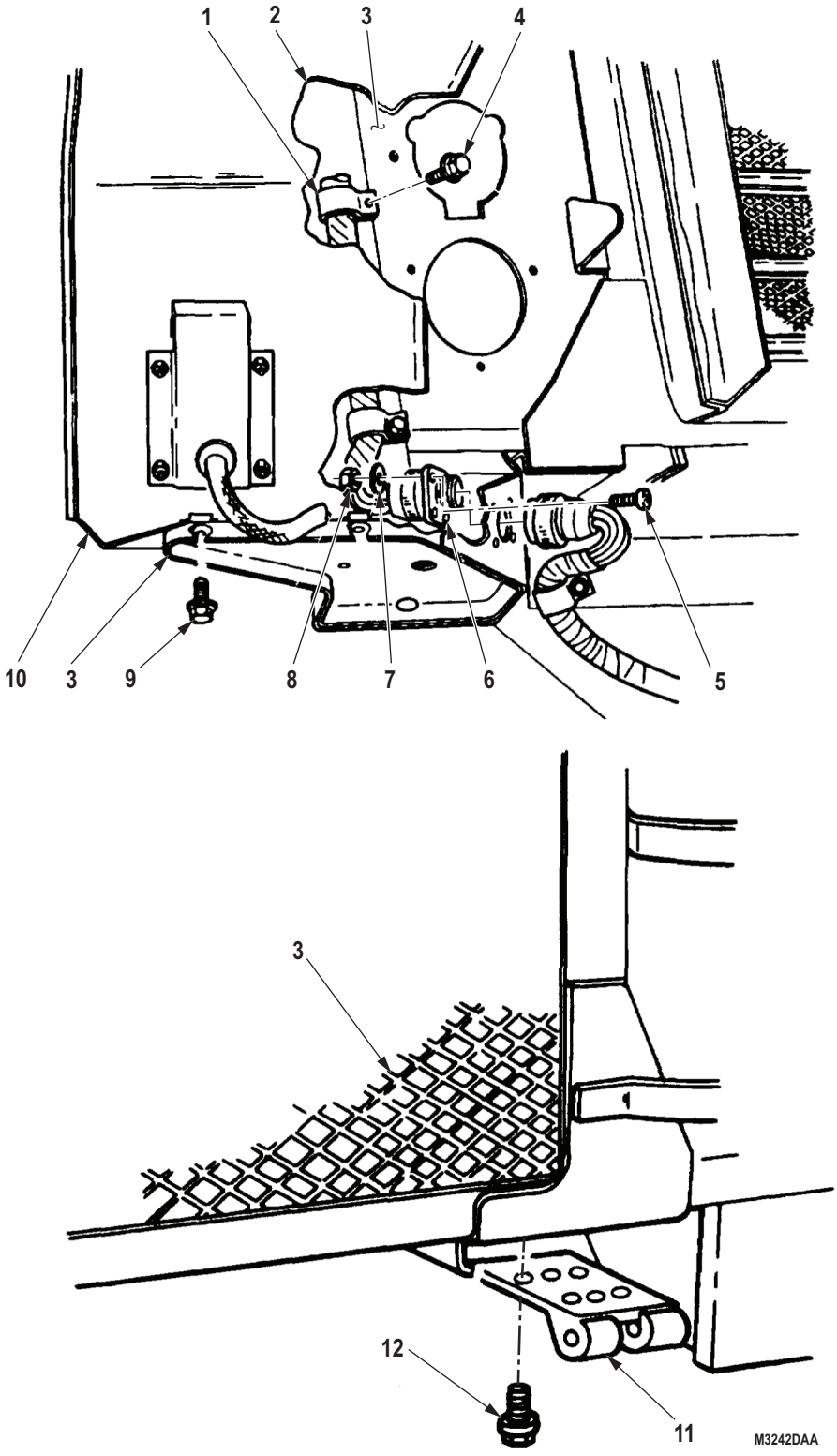


Figure 1. Radiator Brushguard Removal.

REMOVAL - Continued

5. Remove three screw assembled washers (Figure 2, Item 5) from right fender (Figure 2, Item 4) and brushguard (Figure 2, Item 6).
6. Remove clamp (Figure 2, Item 8) and air duct (Figure 2, Item 9) from elbow (Figure 2, Item 7).
7. Remove four nuts (Figure 2, Item 1), washers (Figure 2, Item 2), screws (Figure 2, Item 3), and elbow (Figure 2, Item 7) from brushguard (Figure 2, Item 6).

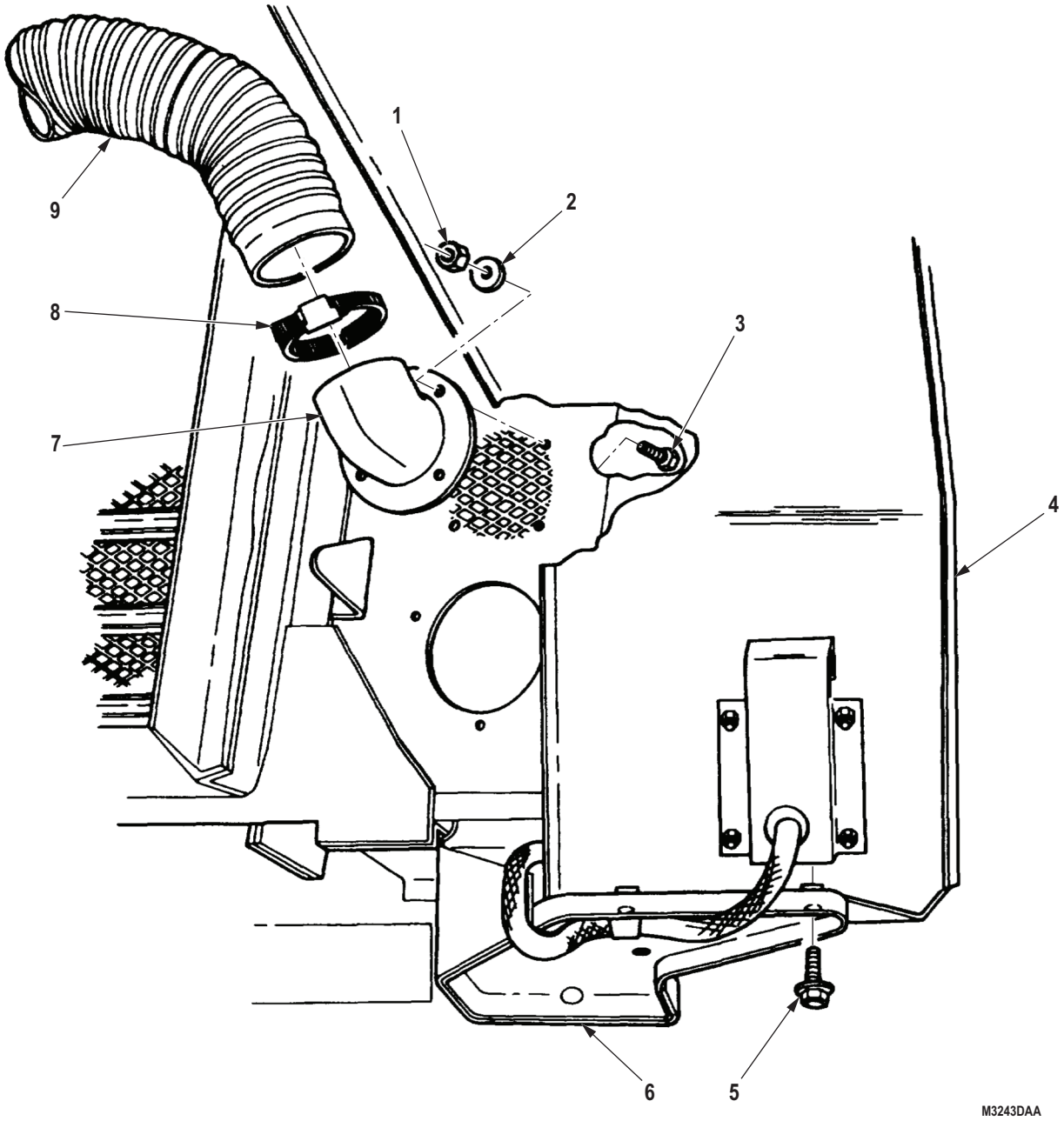


Figure 2. Radiator Brushguard Removal.

REMOVAL - Continued

8. Remove ten nuts (Figure 3, Item 2), screw assembled washers (Figure 3, Item 4), and brushguard (Figure 3, Item 3) from hood (Figure 3, Item 1).
9. Inspect brushguard (Figure 3, Item 3) for cracks and breaks. If cracked or broken, replace or repair brushguard (TM 9-237).

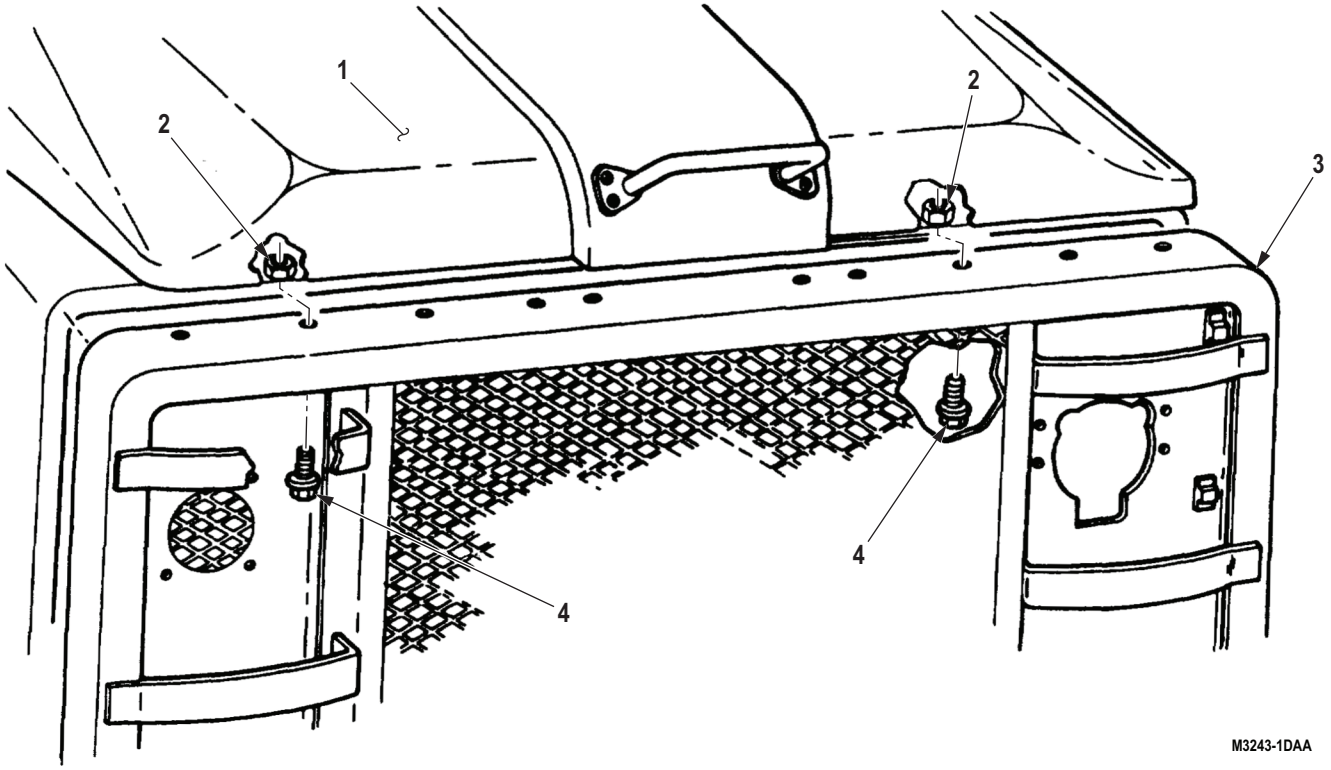


Figure 3. Radiator Brushguard Removal.

END OF TASK

INSTALLATION

1. Install brushguard (Figure 4, Item 5) on hood (Figure 4, Item 4), aligning clamps (Figure 4, Item 3) on wiring harness (Figure 4, Item 2) in proper position, with ten screw assembled washers (Figure 4, Item 6) and nuts (Figure 4, Item 1).

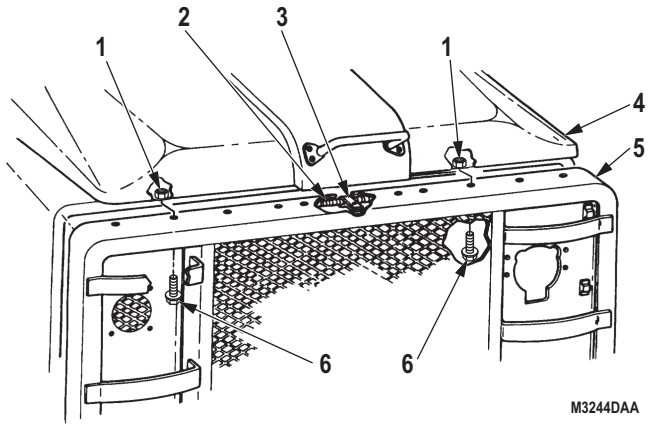


Figure 4. Radiator Brushguard Installation.

2. Install elbow (Figure 5, Item 7) on brushguard (Figure 5, Item 6) with four screws (Figure 5, Item 3), washers (Figure 5, Item 2), and nuts (Figure 5, Item 1).
3. Install air duct (Figure 5, Item 9) on elbow (Figure 5, Item 7) with clamp (Figure 5, Item 8).
4. Install brushguard (Figure 5, Item 6) on right fender (Figure 5, Item 4) with three screw assembled washers (Figure 5, Item 5).

INSTALLATION - Continued

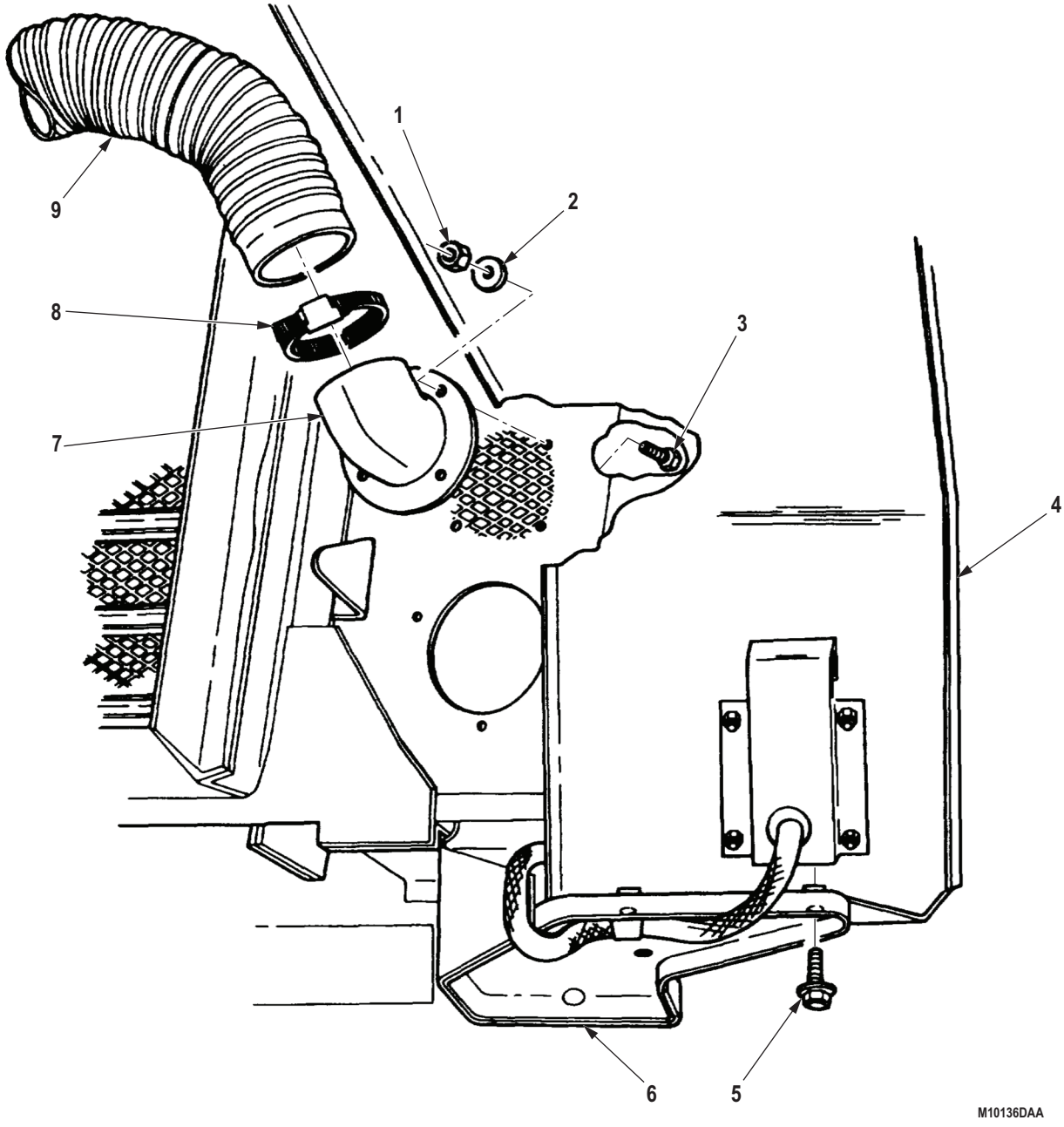


Figure 5. Radiator Brushguard Installation.

INSTALLATION - Continued

5. Install two upper hinge halves (Figure 6, Item 12) on brushguard (Figure 6, Item 3) with three screw assembled washers (Figure 6, Item 13).
6. Install harness (Figure 6, Item 11) and harness clamps (Figure 6, Item 1) on hood (Figure 6, Item 2) with 12 screw assembled washers (Figure 6, Item 4).
7. Install wiring harness quick-disconnect (Figure 6, Item 6) on brushguard (Figure 6, Item 3) with four screws (Figure 6, Item 5), washers (Figure 6, Item 7), and nuts (Figure 6, Item 8).
8. Install three screw assembled washers (Figure 6, Item 9) on left fender (Figure 6, Item 10) and brushguard (Figure 6, Item 3).

INSTALLATION - Continued

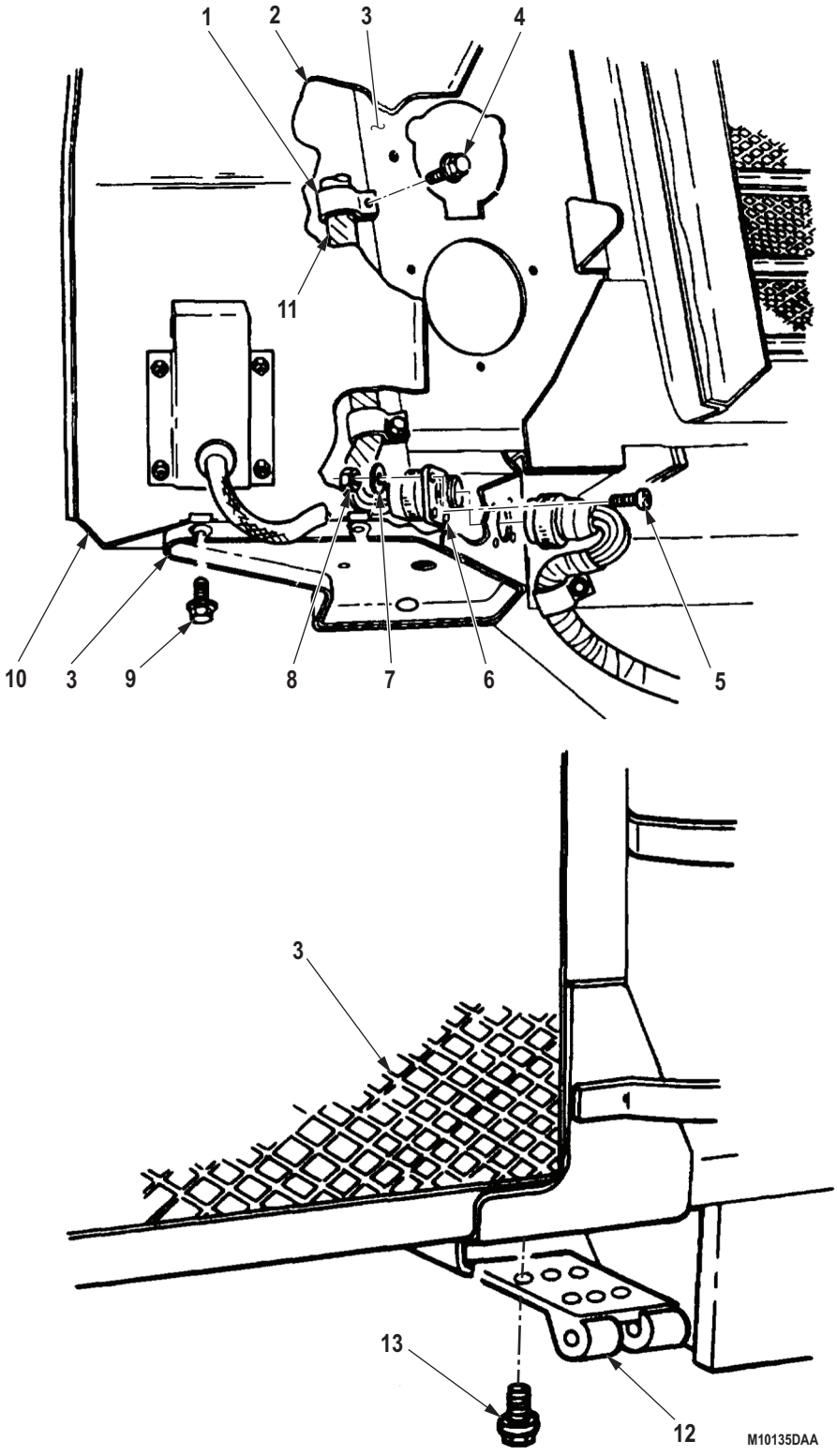


Figure 6. Radiator Brushguard Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install radiator baffles, seals, and plates. (Volume 2, WP 0282)
2. OR Install radiator baffles, seals, and plates. (Volume 2, WP 0283)
3. Install torsion bars and crossmember. (Volume 3, WP 0363)
4. Install service headlamps. (Volume 2, WP 0325)
5. Install blackout drive lamps. (Volume 2, WP 0326)
6. Install hood. (WP 0565)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
WINDSHIELD AND OUTER FRAME ASSEMBLY REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Lockwasher
(Volume 5, WP 0827, Table 1, Item 383)
Qty: 6
Lockwasher
(Volume 5, WP 0827, Table 1, Item 392)
Qty: 2

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

Equipment Condition (cont.)
Wiper blade, wiper motor, and wiper arm removed. (WP 0736)

REMOVAL

NOTE

Perform Steps (1) and (2) only on vehicles with hard top kit.

1. Remove two screws (Figure 1, Item 3) and lockwashers (Figure 1, Item 2) from roof (Figure 1, Item 7) and corner post (Figure 1, Item 5). Discard lockwashers.
2. Remove four nuts (Figure 1, Item 1) and hook bolts (Figure 1, Item 4) from roof (Figure 1, Item 7) and windshield frame (Figure 1, Item 6).
3. Remove hose clamp (Figure 1, Item 14) and wiper hose (Figure 1, Item 10) from copper air line (Figure 1, Item 13).
4. Remove six screws (Figure 1, Item 8) and lockwashers (Figure 1, Item 9) from two windshield hinges (Figure 1, Item 12) and windshield frame (Figure 1, Item 6). Discard lockwashers.
5. Open doors (Figure 1, Item 11) and remove windshield frame (Figure 1, Item 6) from two windshield hinges (Figure 1, Item 12).

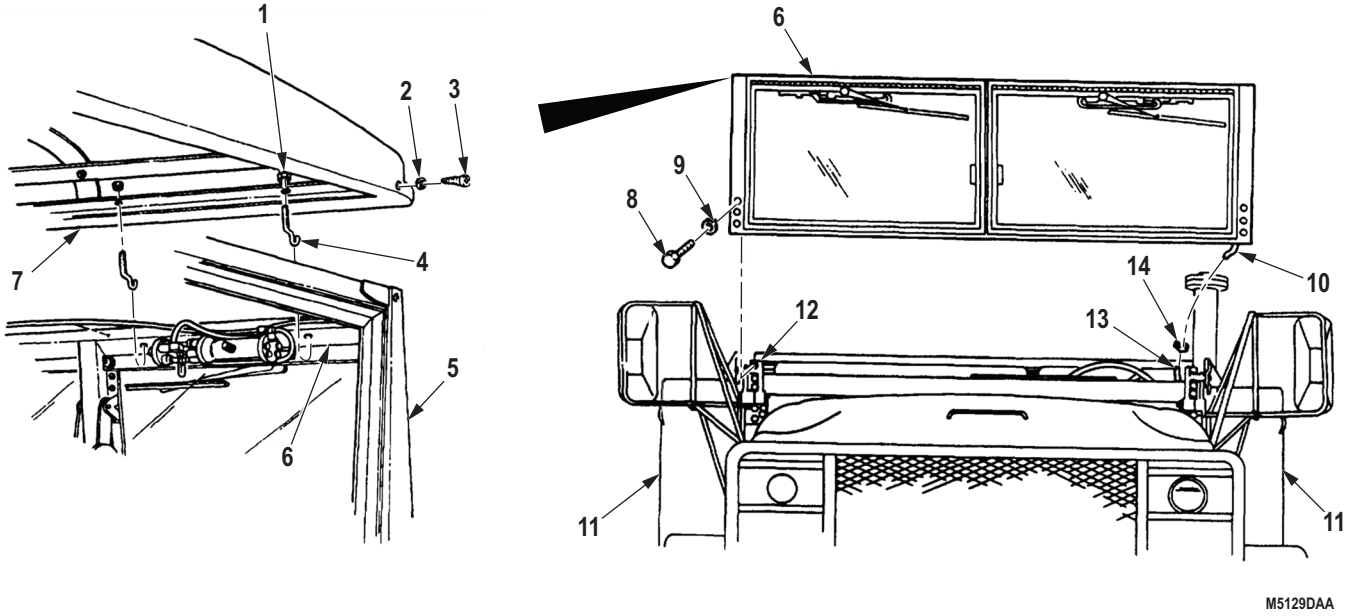


Figure 1. Windshield and Outer Frame Assembly Removal.

END OF TASK

INSTALLATION

1. With doors (Figure 2, Item 11) opened, align windshield frame (Figure 2, Item 6) on two windshield hinges (Figure 2, Item 12) and install with six lockwashers (Figure 2, Item 9) and screws (Figure 2, Item 8).
2. Install wiper hose (Figure 2, Item 10) on copper air line (Figure 2, Item 13) with hose clamp (Figure 2, Item 14).

NOTE

Perform Steps (3) and (4) on vehicles with hardtop kit.

3. Install roof (Figure 2, Item 7) on windshield frame (Figure 2, Item 6) with four hook bolts (Figure 2, Item 4) and nuts (Figure 2, Item 1).
4. Install roof (Figure 2, Item 7) on corner post (Figure 2, Item 5) with two lockwashers (Figure 2, Item 2) and screws (Figure 2, Item 3).

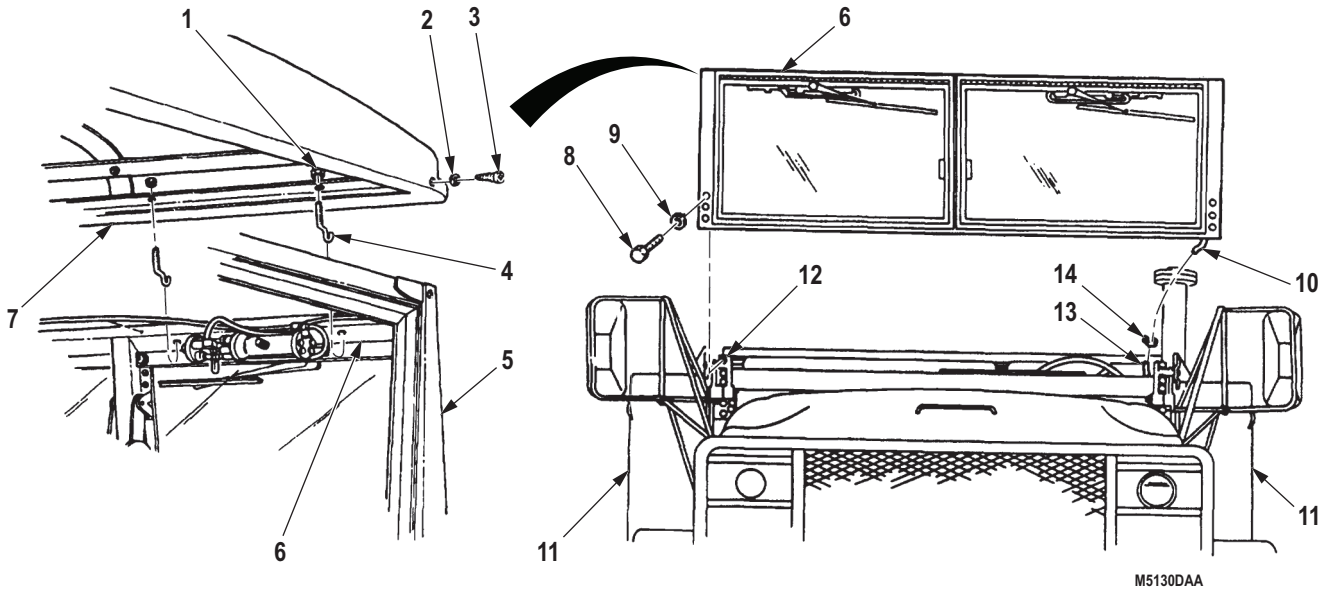


Figure 2. Windshield and Outer Frame Assembly Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install cab top on windshield. (TM 9-2320-272-10)
2. Install wiper blade, wiper motor, and wiper arm. (WP 0736)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
WINDSHIELD FRAME ASSEMBLY REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Sealing Compound
(Volume 5, WP 0825, Table 1, Item 57)
Lockwasher
(Volume 5, WP 0827, Table 1, Item 382)
Qty: 4
Lockwasher
(Volume 5, WP 0827, Table 1, Item 383)
Qty: 6

Materials/Parts (cont.)
Rubberstock Molding
(Volume 5, WP 0827, Table 1, Item 50)
Qty: 4
Screw Assembled Washer
(Volume 5, WP 0827, Table 1, Item 169)
Qty: 8

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Windshield wiper blade, wiper arm, and wiper motor removed. (WP 0736)
Windshield removed. (WP 0577)

REMOVAL

NOTE

Left and right windshield frame assemblies are replaced the same. This procedure covers right windshield frame assembly.

1. Secure windshield frame assembly (Figure 1, Item 6) in open position.
2. Remove eight screw assembled washers (Figure 1, Item 1) from windshield hinge (Figure 1, Item 5) and windshield frame (Figure 1, Item 2). Discard screw assembled washers.
3. Lower windshield frame assembly (Figure 1, Item 6).
4. Remove two screws (Figure 1, Item 12) and spring washers (Figure 1, Item 14) from two friction lockarms (Figure 1, Item 11).
5. Remove windshield frame assembly (Figure 1, Item 6) from windshield frame (Figure 1, Item 2).
6. Remove two capnuts (Figure 1, Item 8), lockwashers (Figure 1, Item 7), screws (Figure 1, Item 10), and lock handle (Figure 1, Item 9) from windshield frame assembly (Figure 1, Item 6). Discard lockwashers.
7. Remove seven screws (Figure 1, Item 4), windshield hinge (Figure 1, Item 5), and hinge seal (Figure 1, Item 3) from windshield frame assembly (Figure 1, Item 6).
8. Remove two screws (Figure 1, Item 13), spring washers (Figure 1, Item 15), and friction lockarms (Figure 1, Item 11) from windshield frame assembly (Figure 1, Item 6).

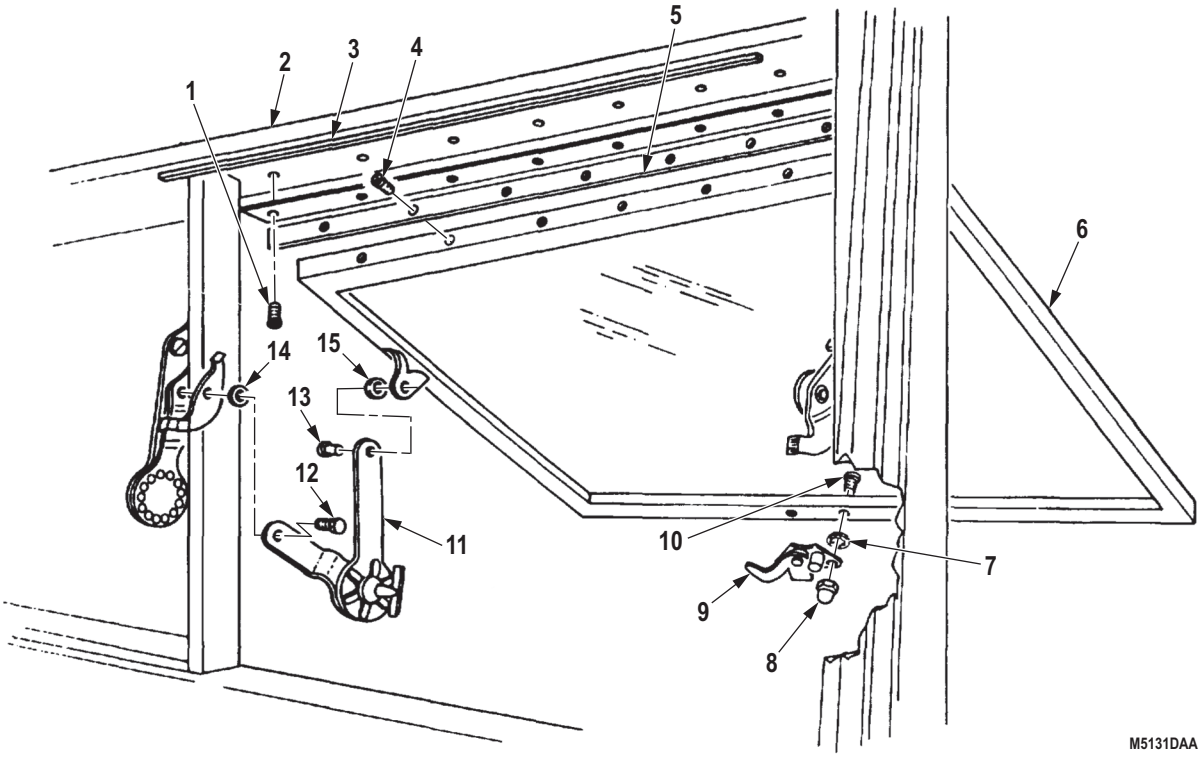
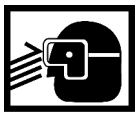


Figure 1. Windshield Frame Removal.

END OF TASK

DISASSEMBLY

WARNING



Use eyeshields when replacing glass. Glass could shatter. Failure to comply may result in injury or death to personnel.

1. Remove two capnuts (Figure 2, Item 3), lockwashers (Figure 2, Item 4), screws (Figure 2, Item 5), and crosspiece (Figure 2, Item 2) from frame (Figure 2, Item 8). Discard lockwashers.
2. Remove filler strip (Figure 2, Item 1) from crosspiece (Figure 2, Item 2). Discard filler strip.
3. Remove four screws (Figure 2, Item 7) and lockwashers (Figure 2, Item 6) from frame (Figure 2, Item 8). Discard lockwashers.
4. Remove two capnuts (Figure 2, Item 14), lockwashers (Figure 2, Item 13), screws (Figure 2, Item 11), and locking latch (Figure 2, Item 12) from frame (Figure 2, Item 8). Discard lockwashers.
5. Remove glass (Figure 2, Item 9) and three filler strips (Figure 2, Item 10) from frame (Figure 2, Item 8). Discard filler strips.

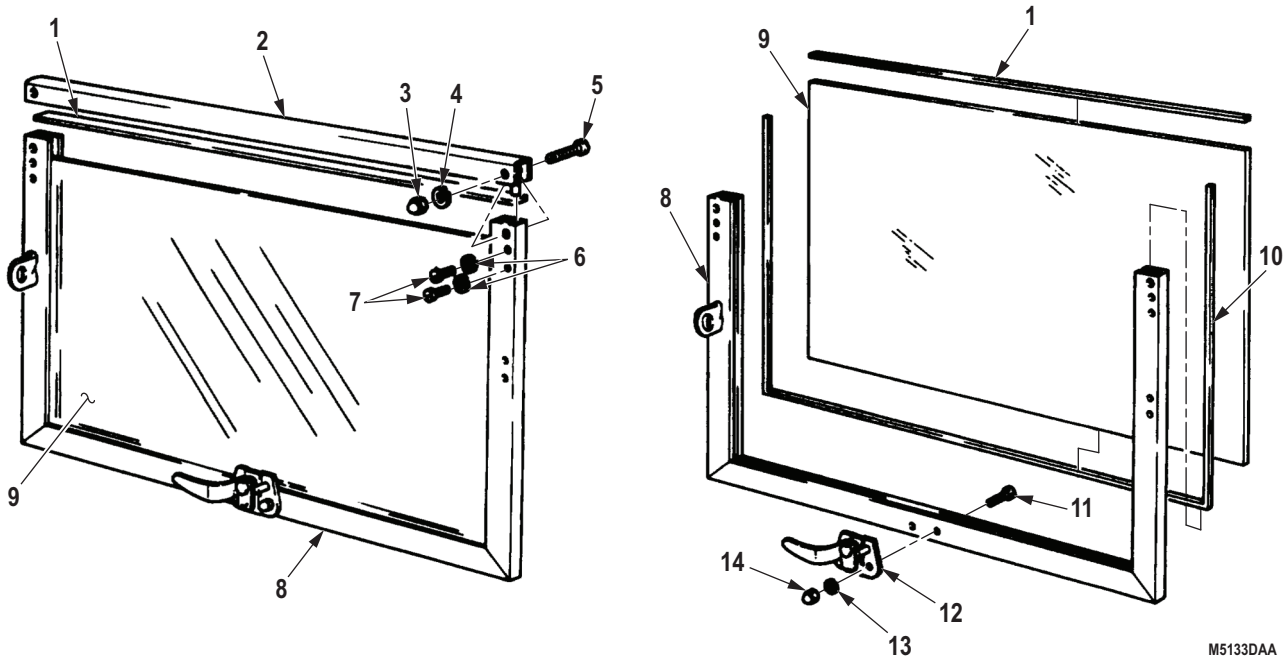


Figure 2. Cab Windshield Disassembly.

END OF TASK

ASSEMBLY

1. Position frame filler strip (Figure 3, Item 10) around glass (Figure 3, Item 9).
2. Install glass (Figure 3, Item 9) with frame filler strip (Figure 3, Item 10) in frame (Figure 3, Item 8).
3. Install crosspiece filler strip (Figure 3, Item 1) over glass (Figure 3, Item 9).
4. Install crosspiece (Figure 3, Item 2) on glass (Figure 3, Item 9) and tap into position until screw holes are aligned with holes in frame (Figure 3, Item 8).

CAUTION

Do not overtighten crosspiece or windshield frame screws. Glass could be damaged.

5. Secure crosspiece (Figure 3, Item 2) on frame (Figure 3, Item 8) with two screws (Figure 3, Item 5), lockwashers (Figure 3, Item 4), and capnuts (Figure 3, Item 3).
6. Install four lockwashers (Figure 3, Item 6) and screws (Figure 3, Item 7) on frame (Figure 3, Item 8).
7. Install locking latch (Figure 3, Item 12) on frame (Figure 3, Item 8) with two screws (Figure 3, Item 11), lockwashers (Figure 3, Item 13), and capnuts (Figure 3, Item 14).
8. Trim crosspiece filler strip (Figure 3, Item 1) and frame filler strip (Figure 3, Item 10) even with frame (Figure 3, Item 8) and crosspiece (Figure 3, Item 2) edges.

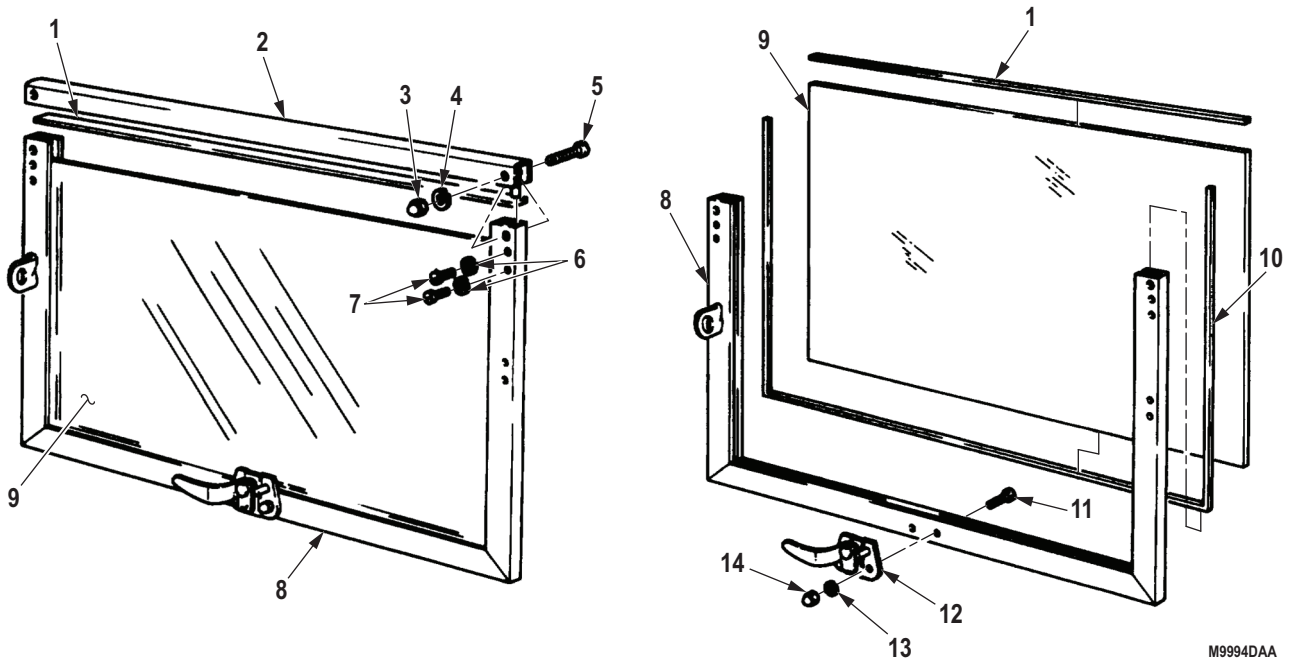


Figure 3. Cab Windshield Assembly.

END OF TASK

INSTALLATION

1. Install two friction lockarms (Figure 4, Item 11) on windshield frame assembly (Figure 4, Item 6) with two spring washers (Figure 4, Item 15) and screws (Figure 4, Item 13).
2. Apply sealing compound to hinge seal (Figure 4, Item 3) and install on hinge (Figure 4, Item 5).

INSTALLATION - Continued

3. Install windshield hinge (Figure 4, Item 5) on windshield frame assembly (Figure 4, Item 6) with seven screws (Figure 4, Item 4).
4. Install lock handle (Figure 4, Item 9) on windshield frame assembly (Figure 4, Item 6) with two screws (Figure 4, Item 10), lockwashers (Figure 4, Item 7), and capnuts (Figure 4, Item 8).
5. Install two friction lockarms (Figure 4, Item 11) on windshield outer frame (Figure 4, Item 6) with two spring washers (Figure 4, Item 14) and screws (Figure 4, Item 12).
6. Install windshield hinge (Figure 4, Item 5) on windshield frame (Figure 4, Item 2) with eight screw assembled washers (Figure 4, Item 1).
7. Close and lock windshield frame assembly (Figure 4, Item 6).

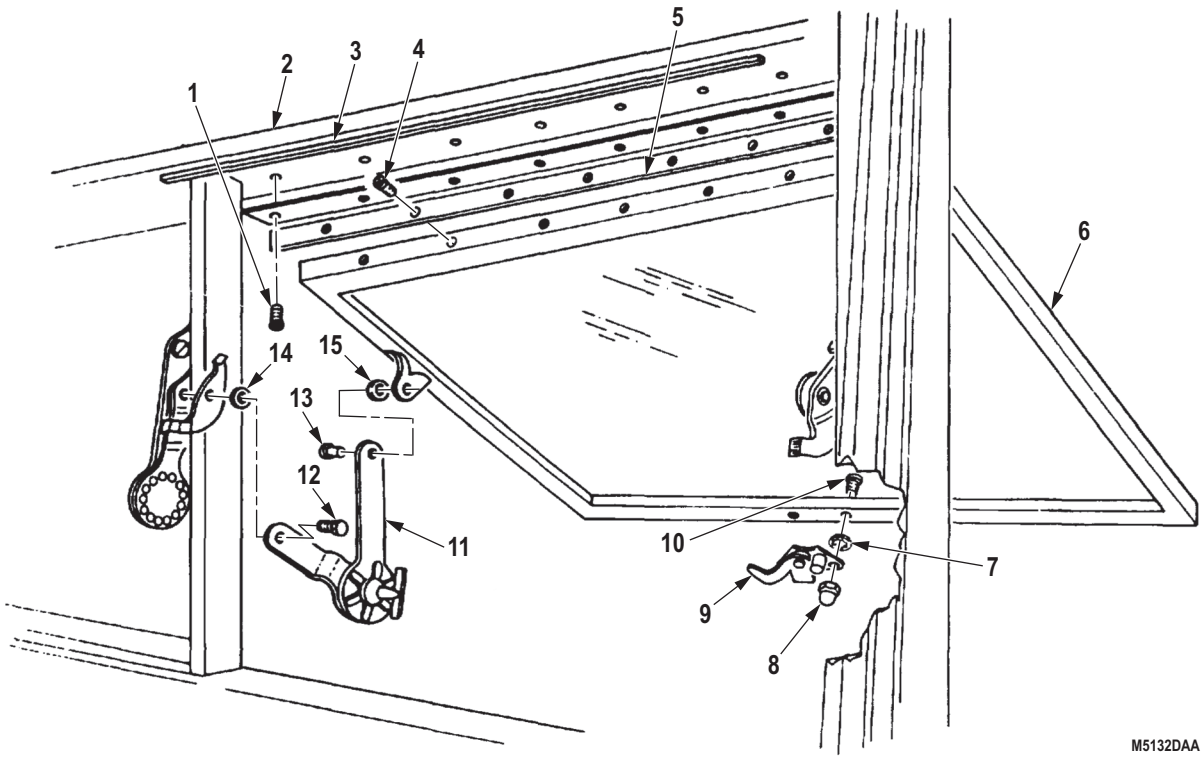


Figure 4. Windshield Frame Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install windshield. (WP 0577)
2. Install windshield wiper blade, wiper arm, and wiper motor. (WP 0736)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
CAB WINDSHIELD HINGE ASSEMBLY REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

REMOVAL

NOTE

Left and right hinge assemblies are replaced the same. This procedure covers right side.

1. Remove three screws (Figure 1, Item 1) from windshield hinge (Figure 1, Item 3) and windshield frame (Figure 1, Item 2).
2. Remove four screws (Figure 1, Item 5) and windshield hinge (Figure 1, Item 3) from cab (Figure 1, Item 4).

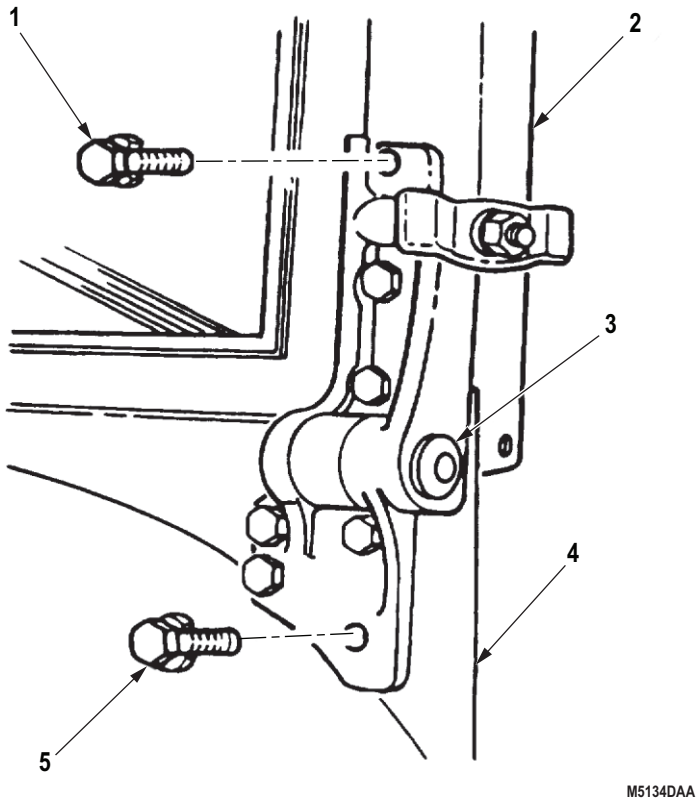


Figure 1. Cab Windshield Hinge Removal.

END OF TASK

INSTALLATION

1. Install windshield hinge (Figure 2, Item 3) on cab (Figure 2, Item 4) with four screws (Figure 2, Item 5).
2. Install windshield hinge (Figure 2, Item 3) on windshield frame (Figure 2, Item 2) with three screws (Figure 2, Item 1).

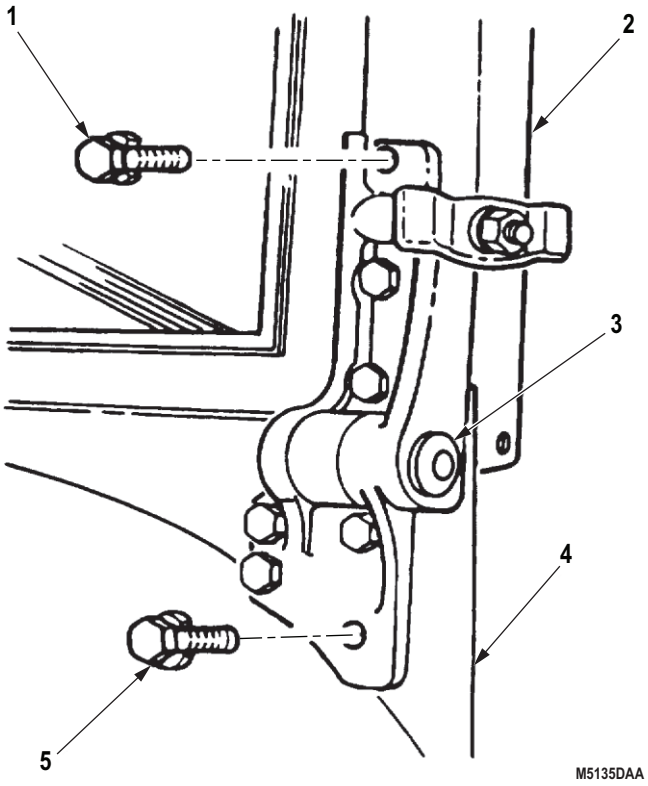


Figure 2. Cab Windshield Hinge Installation.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
CAB INSULATION REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Adhesive, Silicone Rubber
(Volume 5, WP 0825, Table 1, Item 1)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

Equipment Condition (cont.)
Driver's seat removed. (WP 0582)

REMOVAL

NOTE

- All insulation is removed the same way except where noted. This procedure covers replacement of left upper and engine access cover panels only.
- See Figure 1 for approximate locations of other cab installation.
- Clean all insulating material and adhesive from contact area.

1. Pull left rear upper panel insulation (Figure 1, Item 2) away from cab (Figure 1, Item 1) interior.
2. Remove four screws (Figure 1, Item 6) and washers (Figure 1, Item 5) from engine access cover (Figure 1, Item 4).
3. Pull engine access cover insulation (Figure 1, Item 3) away from engine access cover (Figure 1, Item 4).

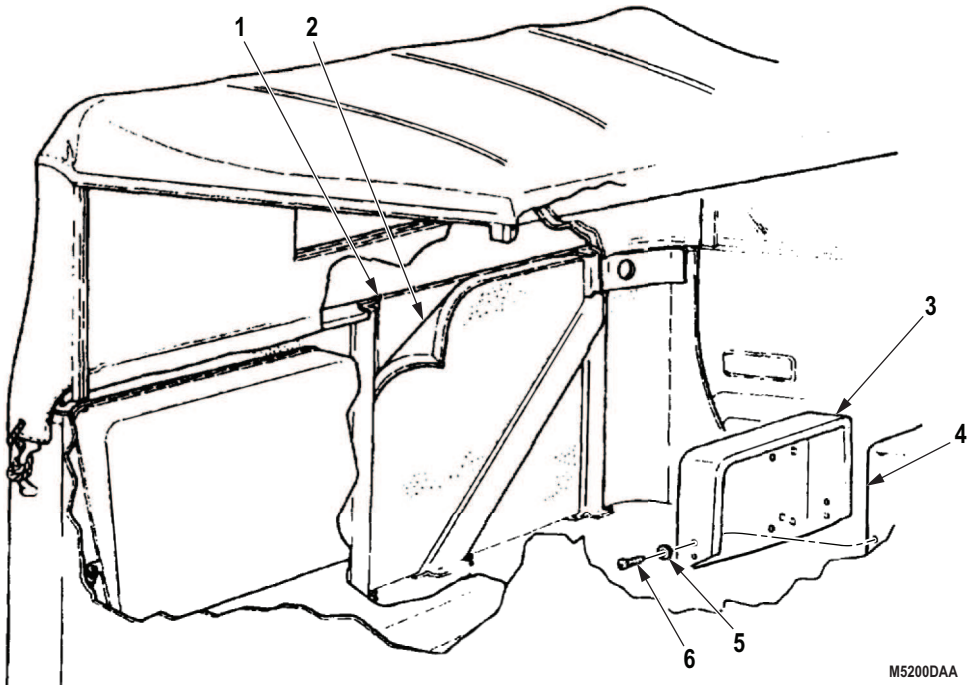


Figure 1. Cab Insulation Removal.

END OF TASK

INSTALLATION

1. Apply silicone rubber adhesive to foam side of insulation (Figure 2, Items 2 and 3) and install on cab (Figure 2, Item 1) interior and engine access cover (Figure 2, Item 4).
2. Install four washers (Figure 2, Item 5) and screws (Figure 2, Item 6) on engine access cover (Figure 2, Item 4).

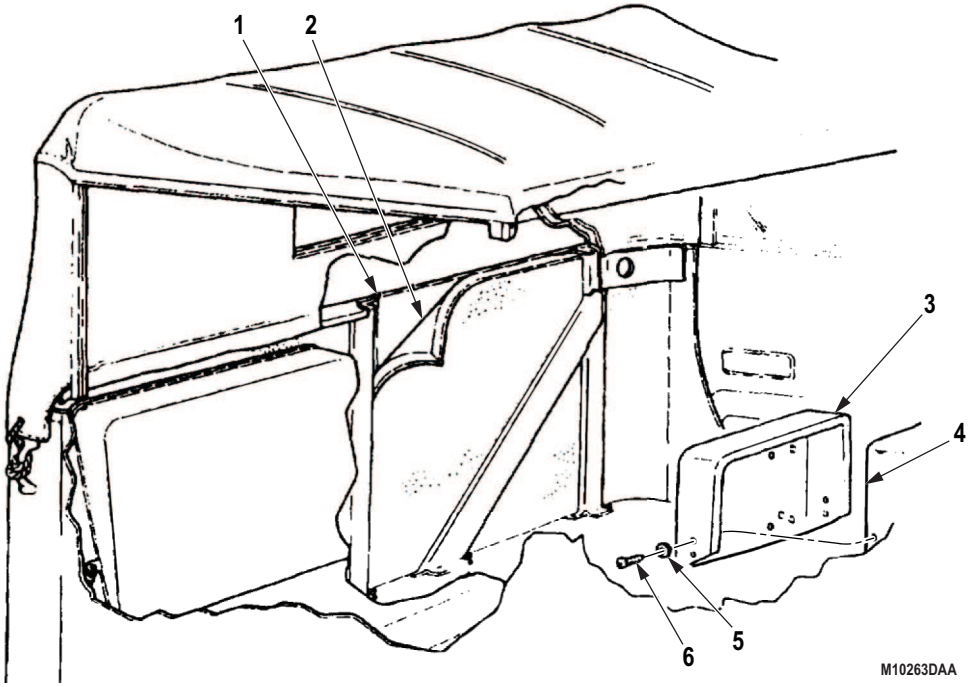


Figure 2. Cab Insulation Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

Install driver's seat, if removed. (WP 0582)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
COMPANION SEAT CUSHION, BACKREST CUSHION, AND FRAME REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Cotter Pin

Materials/Parts (cont.)
(Volume 5, WP 0827, Table 1, Item 337)
Qty: 2
Lockwasher
(Volume 5, WP 0827, Table 1, Item 403)
Qty: 14

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

REMOVAL

1. Fold down backrest cushion frame (Figure 1, Item 2).
2. Remove eight screws (Figure 1, Item 1), lockwashers (Figure 1, Item 5), washers (Figure 1, Item 4), and backrest cushion (Figure 1, Item 3) from backrest cushion frame (Figure 1, Item 2). Discard lockwashers.

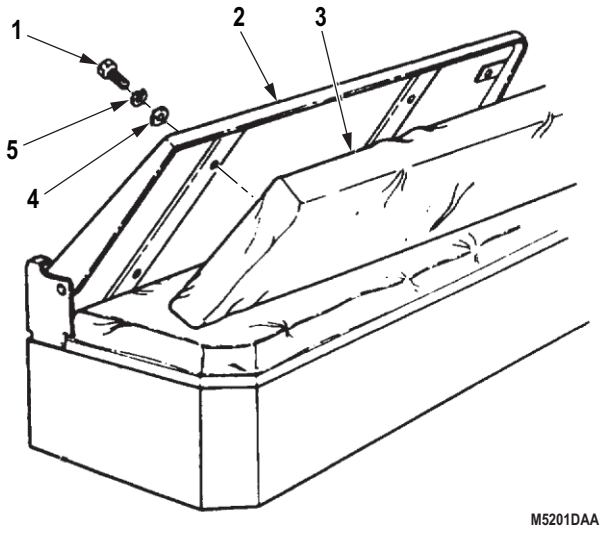


Figure 1. Companion Seat Cushion, Backrest Cushion, and Frame Removal.

REMOVAL - Continued

3. Remove six screws (Figure 2, Item 2), lockwashers (Figure 2, Item 3), washers (Figure 2, Item 4), and seat cushion (Figure 2, Item 1) from battery box cover (Figure 2, Item 5). Discard lockwashers.

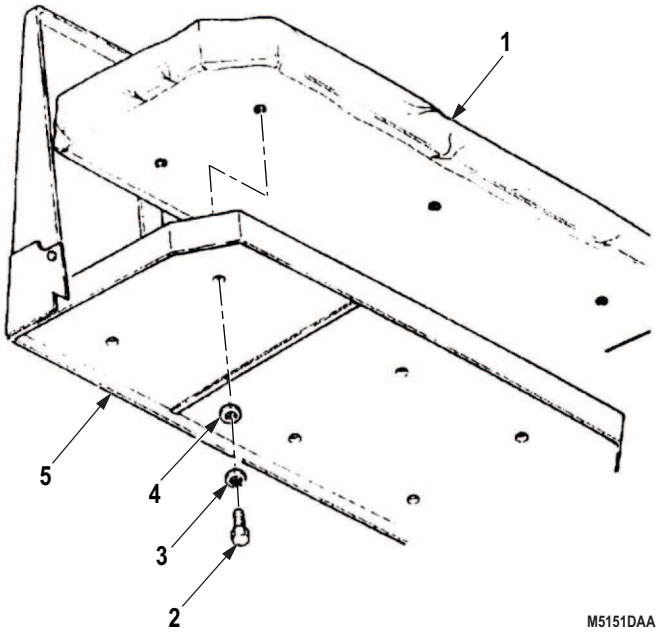


Figure 2. Companion Seat Cushion, Backrest Cushion, and Frame Removal.

REMOVAL - Continued

4. Remove two springs (Figure 3, Item 4) from two battery box cover extensions (Figure 3, Item 6) and backrest cushion frame (Figure 3, Item 1).
5. Remove two cotter pins (Figure 3, Item 2), four washers (Figure 3, Item 3), two pins (Figure 3, Item 5), and backrest cushion frame (Figure 3, Item 1) from two battery box cover extensions (Figure 3, Item 6). Discard cotter pins.

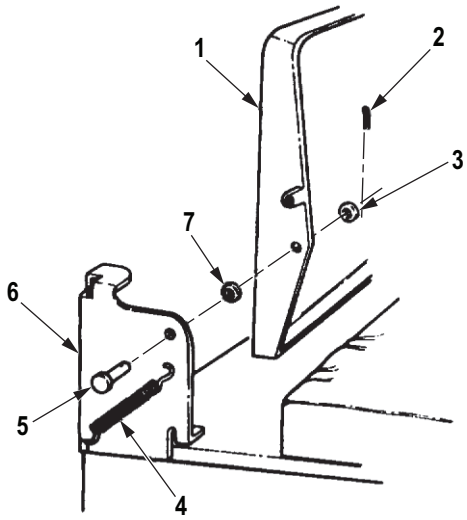


Figure 3. Companion Seat Cushion, Backrest Cushion, and Frame Removal.

END OF TASK

INSTALLATION

1. Install backrest cushion frame (Figure 4, Item 1) on battery box cover extensions (Figure 4, Item 5) with two pins (Figure 4, Item 6), four washers (Figure 4, Item 7), and two cotter pins (Figure 4, Item 2).
2. Install two springs (Figure 4, Item 4) on battery box cover extensions (Figure 4, Item 6) and backrest cushion frame (Figure 4, Item 1).

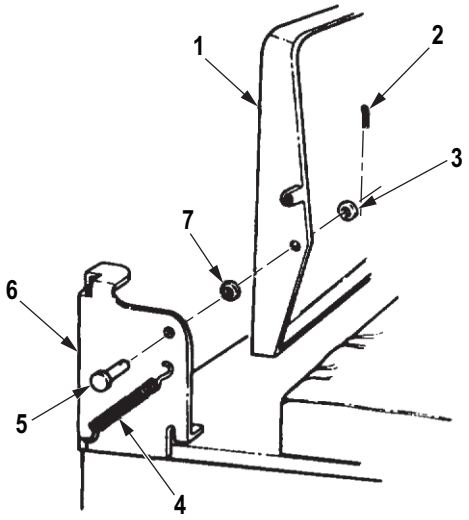


Figure 4. Companion Seat Cushion, Backrest Cushion, and Frame Installation.

INSTALLATION - Continued

3. Install seat cushion (Figure 5, Item 1) on battery box cover (Figure 5, Item 5) with six washers (Figure 5, Item 4), lockwashers (Figure 5, Item 4), and screws (Figure 5, Item 2).

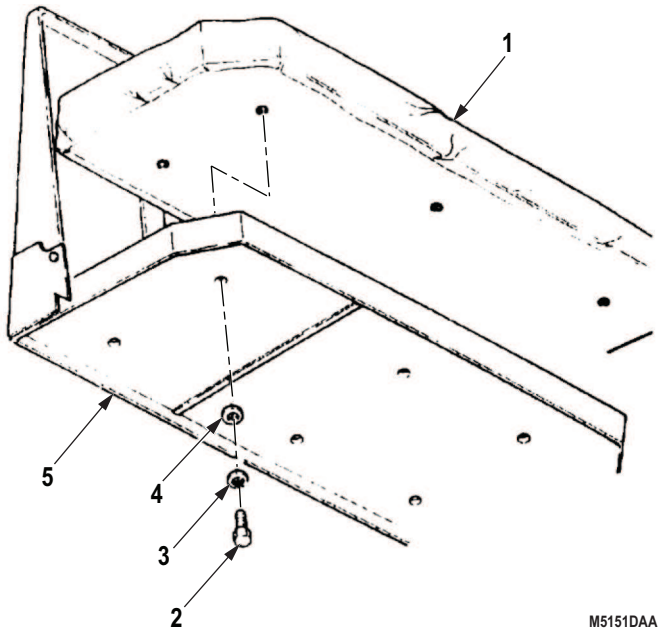


Figure 5. Companion Seat Cushion, Backrest Cushion, and Frame Installation.

INSTALLATION - Continued

4. Install backrest cushion (Figure 6, Item 2) on backrest cushion frame (Figure 6, Item 1) with eight washers (Figure 6, Item 3), lockwashers (Figure 6, Item 4), and screws (Figure 6, Item 5).

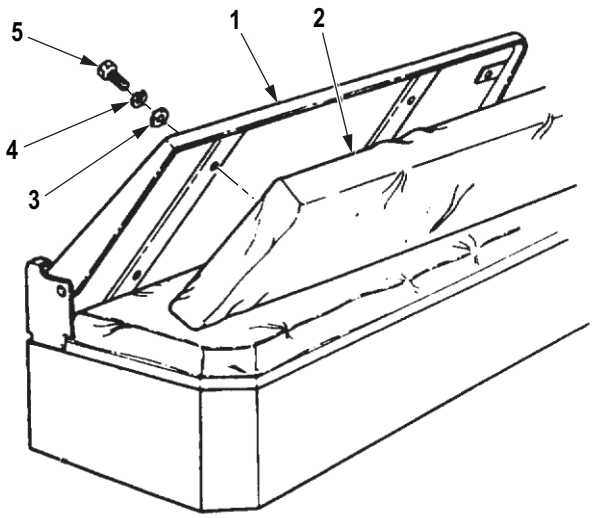


Figure 6. Companion Seat Cushion, Backrest Cushion, and Frame Installation.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
DRIVER'S SEAT, FRAME, AND BASE REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Grease, Automotive and Artillery
(Volume 5, WP 0825, Table 1, Item 28)
Locknut (Volume 5, WP 0827, Table 1, Item 274)
Qty: 8
Lockwasher
(Volume 5, WP 0827, Table 1, Item 384)
Qty: 4
Lockwasher
(Volume 5, WP 0827, Table 1, Item 405)
Qty: 8

Personnel Required
(2)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Driver's seatbelts removed. (Volume 5, WP 0790)
Driver's seat cushion and backrest cushion removed. (WP 0583)

DRIVER'S SEAT REMOVAL

1. Remove six screw assembled lockwashers (Figure 1, Item 1) from seat base (Figure 1, Item 3) and cab floor (Figure 1, Item 2). Discard screw assembled lockwashers.
2. Slide driver's seat (Figure 1, Item 4) close to door opening.

NOTE

Assistant will help with Step (3).

3. Tilt driver's seat (Figure 1, Item 4) carefully out of door opening and remove.

DRIVER'S SEAT REMOVAL - Continued

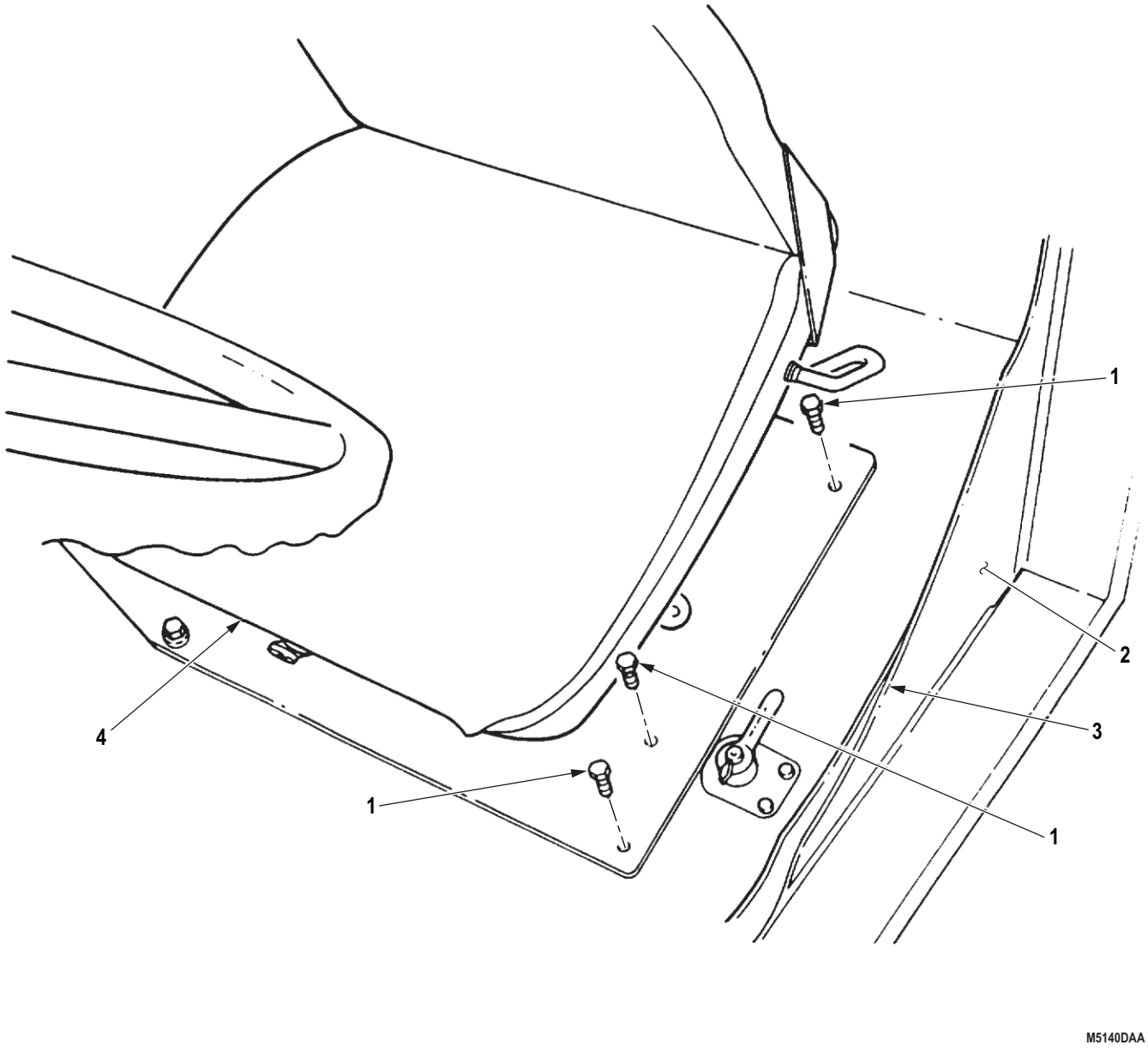


Figure 1. Driver's Seat Removal.

END OF TASK

DRIVER'S SEAT INSTALLATION

NOTE

Assistant will help with Step (1).

1. Position driver's seat (Figure 2, Item 4) so back faces rear of cab.
2. Install seat base (Figure 2, Item 3) on cab floor (Figure 2, Item 2) with six screw assembled lockwashers (Figure 2, Item 1).

DRIVER'S SEAT INSTALLATION - Continued

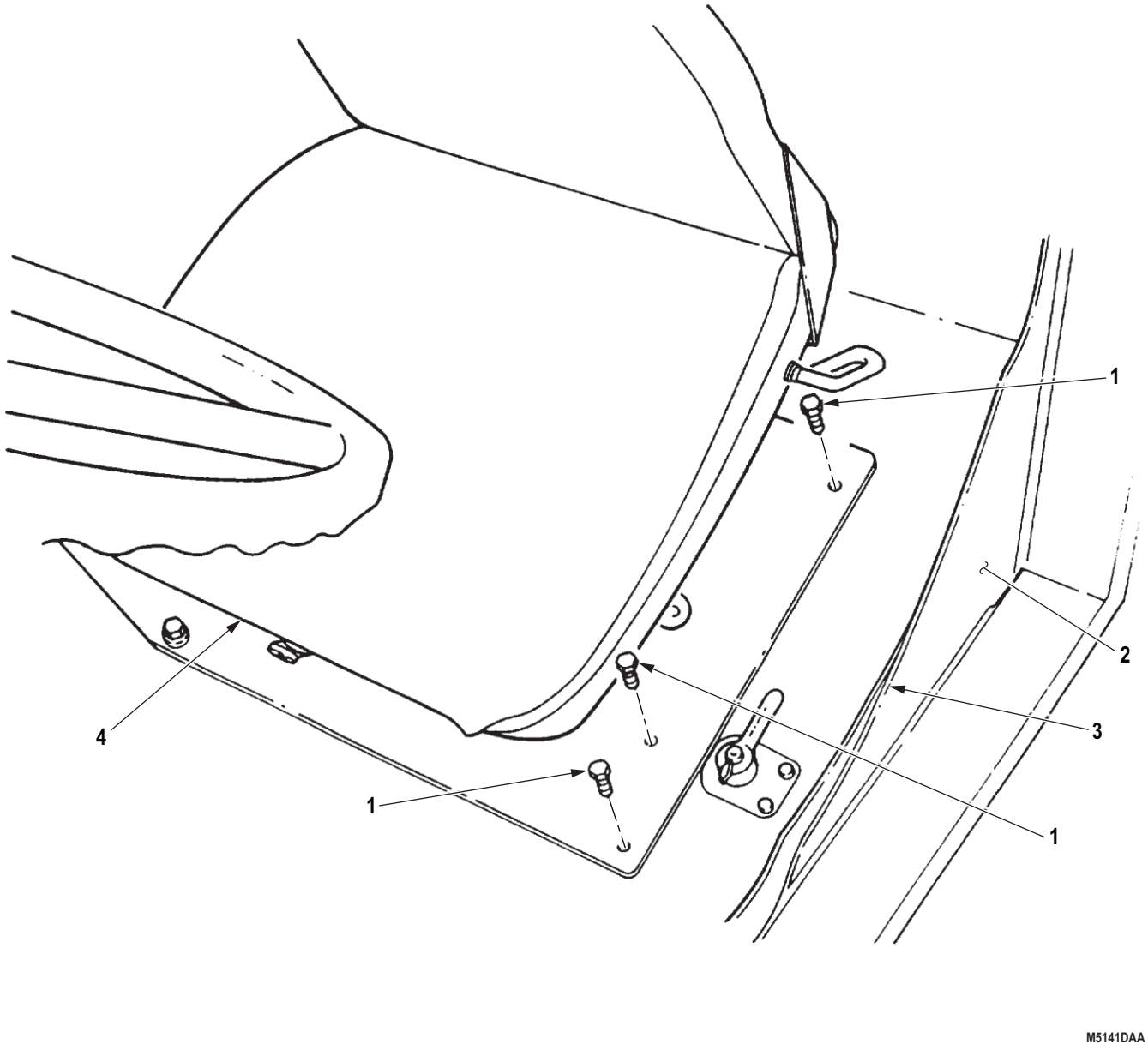


Figure 2. Driver's Seat Installation.

END OF TASK

FRAME REMOVAL

1. Remove four locknuts (Figure 3, Item 2) and seat frame (Figure 3, Item 1) from adjusters (Figure 3, Item 3). Discard locknuts.
2. Remove two screws (Figure 3, Item 17), four locknuts (Figure 3, Item 7), washers (Figure 3, Item 5), adjusters (Figure 3, Item 3), and washers (Figure 3, Item 15) from top frame (Figure 3, Item 14). Discard locknuts.
3. Remove two nuts (Figure 3, Item 16), screws (Figure 3, Item 4), and shock absorber (Figure 3, Item 6) from seat base (Figure 3, Item 13).
4. Remove four nuts (Figure 3, Item 19), lockwashers (Figure 3, Item 20), screws (Figure 3, Item 11), and two brackets (Figure 3, Item 21) from seat base (Figure 3, Item 13). Discard lockwashers.
5. Remove spring (Figure 3, Item 18) from seat base (Figure 3, Item 13).
6. Turn crank (Figure 3, Item 12) fully clockwise to remove tension from torque springs.
7. Remove four nuts (Figure 3, Item 8), lockwashers (Figure 3, Item 9), and screws (Figure 3, Item 10) from seat base (Figure 3, Item 13). Discard lockwashers.
8. Remove top frame (Figure 3, Item 14) from seat base (Figure 3, Item 13).

FRAME REMOVAL - Continued

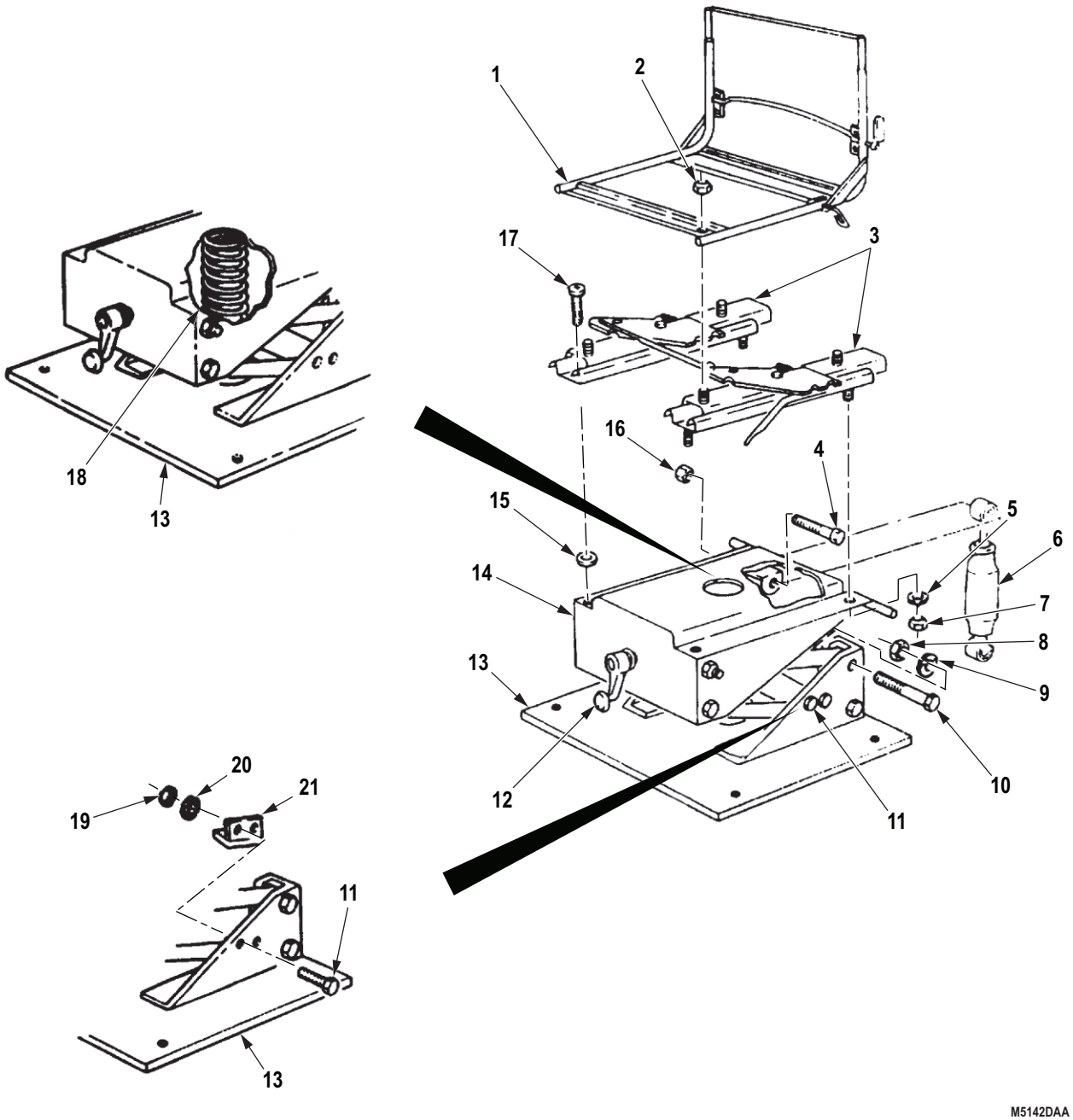


Figure 3. Driver's Seat Frame and Base Removal.

FRAME REMOVAL - Continued

NOTE

Tag strut for installation.

9. Remove two nuts (Figure 4, Item 10), lockwashers (Figure 4, Item 9), screws (Figure 4, Item 5), and lower strut (Figure 4, Item 4) from top frame (Figure 4, Item 11). Discard lockwashers.
10. Remove two nuts (Figure 4, Item 6), lockwashers (Figure 4, Item 7), torque rod (Figure 4, Item 8), sleeve (Figure 4, Item 12), two springs (Figure 4, Item 2), and upper strut (Figure 4, Item 1) from top frame (Figure 4, Item 11). Discard lockwashers.
11. Remove pin (Figure 4, Item 16) from crank (Figure 4, Item 14).
12. Remove crank (Figure 4, Item 14) and washer (Figure 4, Item 13) from swivel nut (Figure 4, Item 17) on bracket (Figure 4, Item 15).

END OF TASK

INSPECTION AND REPAIR

1. Inspect sheet metal parts, springs, brackets, struts, and pins for breaks, bends, and cracks. Replace if broken, bent, or cracked (TM 9-237).
2. Inspect crank (Figure 4, Item 14), crank adjuster swivel nut (Figure 4, Item 17), torque rod (Figure 4, Item 8), and screws (Figure 4, Item 5) for damaged threads. Replace if damaged.
3. Inspect shock absorber (Figure 4, Item 18) for damage. Replace if damaged.
4. Inspect adjusters (Figure 4, Item 19) and crank (Figure 4, Item 14) for breaks, bends, and cracks. Replace if broken, bent, or cracked (TM 9-237).

INSPECTION AND REPAIR - Continued

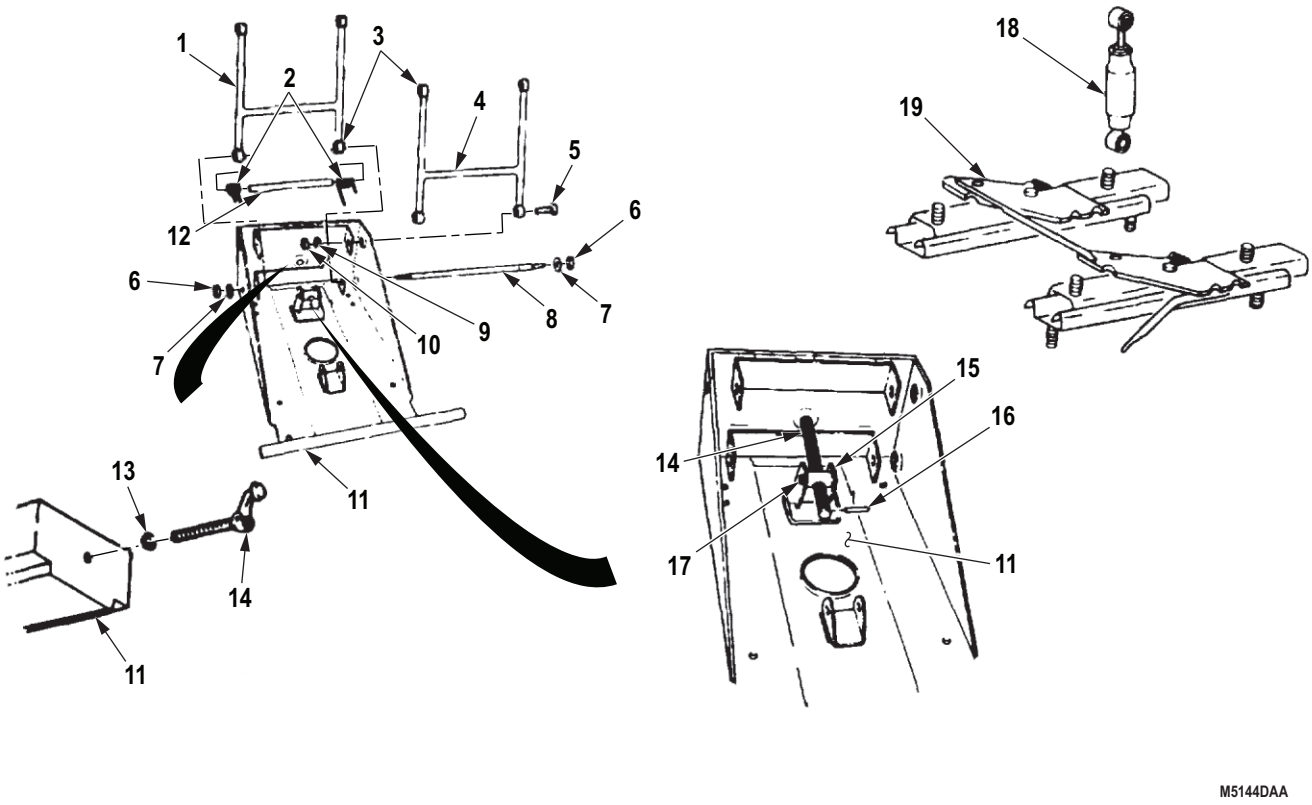


Figure 4. Driver's Seat Frame and Base.

END OF TASK

INSTALLATION

1. Install washer (Figure 5, Item 13) and crank (Figure 5, Item 14) on top frame (Figure 5, Item 11) and swivel nut (Figure 5, Item 16) with pin (Figure 5, Item 15).
2. Apply light coat of GAA grease to eight strut bushings (Figure 5, Item 3) and torque rod (Figure 5, Item 8).
3. Install lower strut (Figure 5, Item 4) on top frame (Figure 5, Item 11) with two screws (Figure 5, Item 5), lockwashers (Figure 5, Item 9), and nuts (Figure 5, Item 10).

NOTE

Torque rod can be installed through one side only.

4. Install sleeve (Figure 5, Item 12), two springs (Figure 5, Item 2), and upper strut (Figure 5, Item 1) on top frame (Figure 5, Item 11) with torque rod (Figure 5, Item 8), two lockwashers (Figure 5, Item 7), and nuts (Figure 5, Item 6).

INSTALLATION - Continued

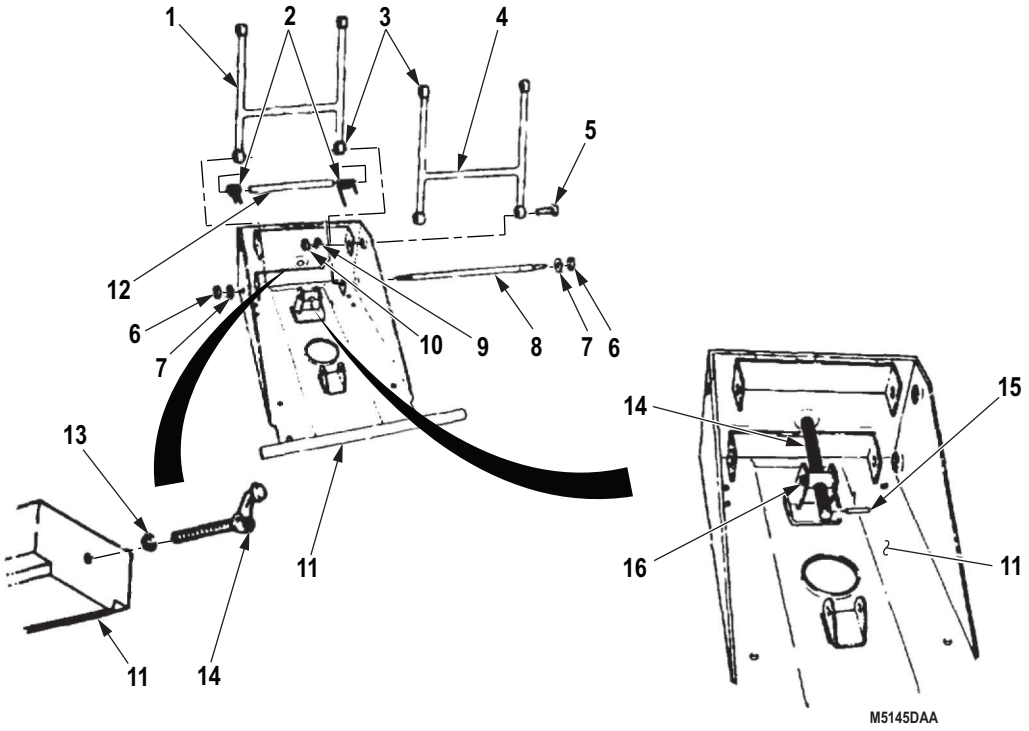


Figure 5. Driver's Seat and Frame Installation.

INSTALLATION - Continued

5. Install lower strut (Figure 6, Item 12) and upper strut (Figure 6, Item 11) on seat base (Figure 6, Item 13) with four screws (Figure 6, Item 10), lockwashers (Figure 6, Item 9), and nuts (Figure 6, Item 8).
6. Position spring (Figure 6, Item 22) on seat base (Figure 6, Item 13).
7. Install two brackets (Figure 6, Item 20) on seat base (Figure 6, Item 13) with four screws (Figure 6, Item 21), lockwashers (Figure 6, Item 19), and nuts (Figure 6, Item 18).
8. Install shock absorber Figure 6, Item 6) on top frame (Figure 6, Item 14) with screw (Figure 6, Item 4) and nut (Figure 6, Item 16).
9. Install fixed end of shock absorber (Figure 6, Item 6) on seat base (Figure 6, Item 13) with screw (Figure 6, Item 4) and nut (Figure 6, Item 16).
10. Install adjusters (Figure 6, Item 3) on top frame (Figure 6, Item 14) with two washers (Figure 6, Item 15), screws (Figure 6, Item 17), four washers (Figure 6, Item 5), and locknuts (Figure 6, Item 7).
11. Install seat frame (Figure 6, Item 1) on adjusters (Figure 6, Item 3) with four locknuts (Figure 6, Item 2).

INSTALLATION - Continued

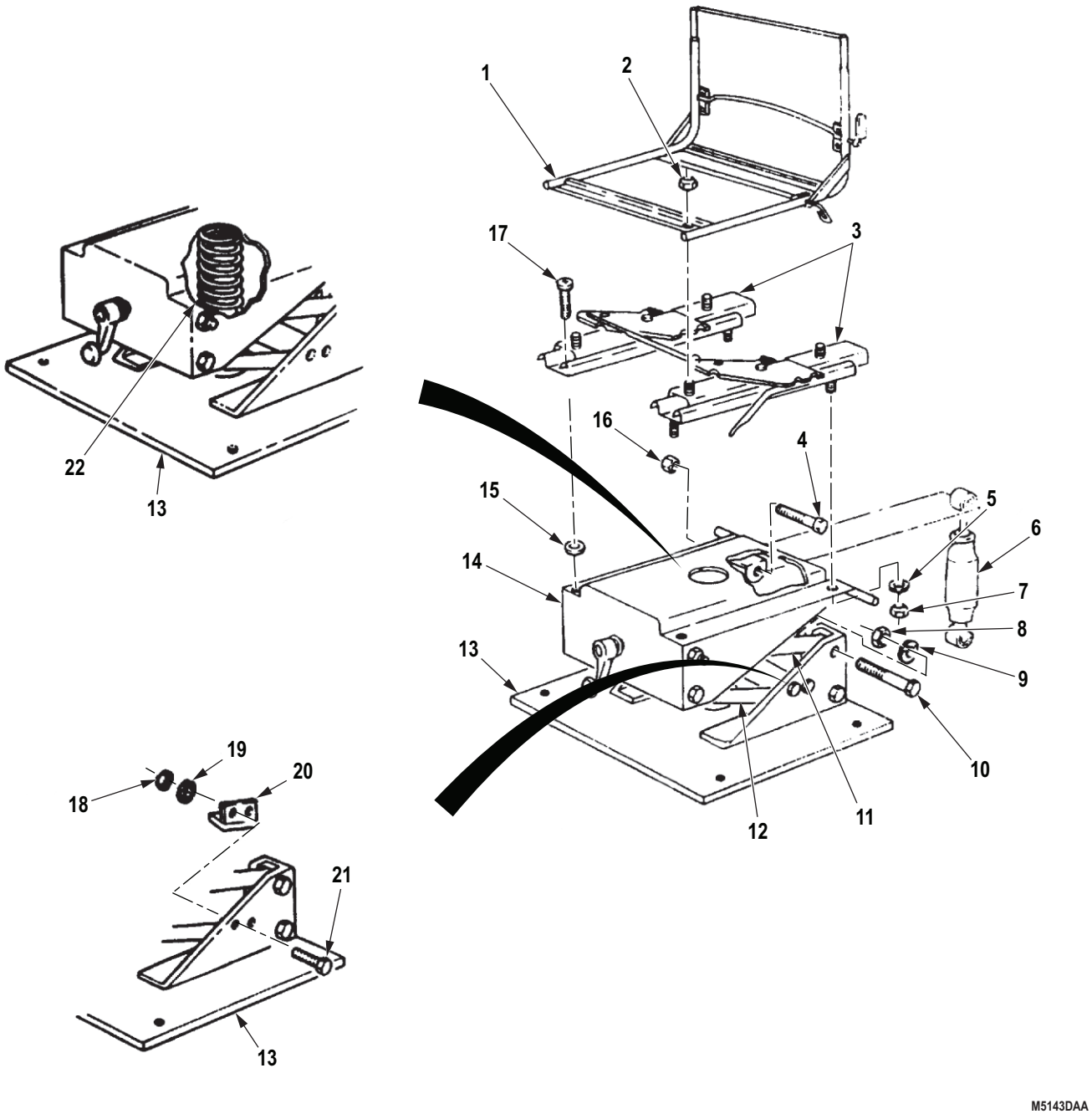


Figure 6. Driver's Seat Frame and Base Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install driver seat.
2. Install driver's seat cushion and backrest cushion. (WP 0583)
3. Install driver's seatbelts. (Volume 5, WP 0790)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
DRIVER'S SEAT CUSHION AND BACKREST CUSHION REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Lockwasher

Materials/Parts (cont.)
(Volume 5, WP 0827, Table 1, Item 384)
Qty: 4

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

REMOVAL

1. Remove four screws (Figure 1, Item 5) and lockwashers (Figure 1, Item 6) from two brackets (Figure 1, Item 7) and seat cushion (Figure 1, Item 1). Discard lockwashers.
2. Remove two seat brackets (Figure 1, Item 7) and washers (Figure 1, Item 2) from seat frame pins (Figure 1, Item 3).
3. Remove seat cushion (Figure 1, Item 1) from seat frame (Figure 1, Item 4).

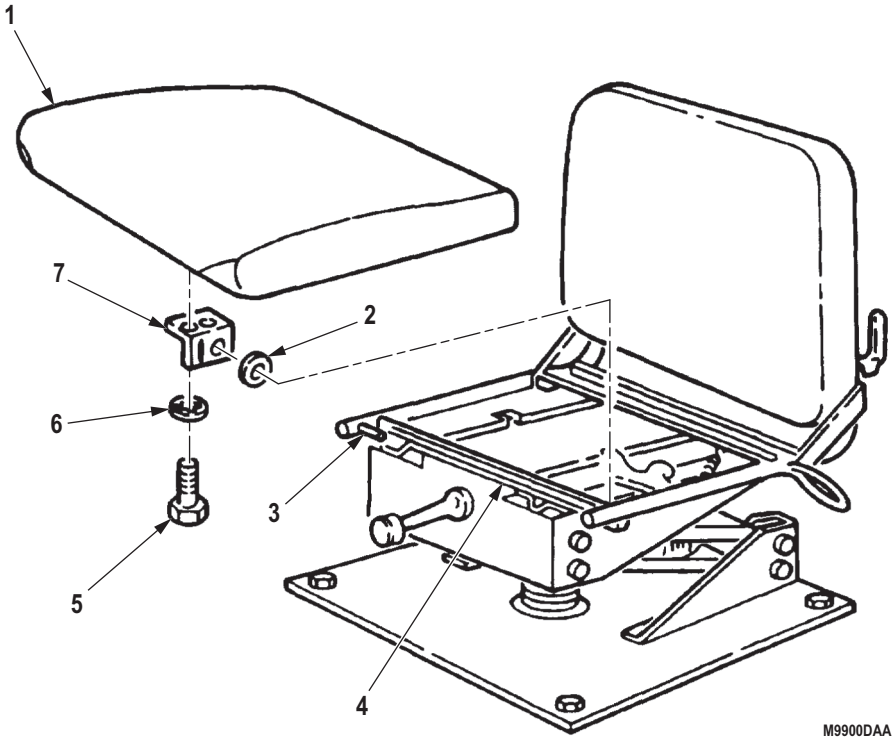


Figure 1. Driver's Seat Cushion and Backrest Cushion Removal.

REMOVAL - Continued

4. Remove two screws (Figure 2, Item 6) from adjuster rod brackets (Figure 2, Item 7) and remove adjuster rod brackets.
5. Remove two screws (Figure 2, Item 5) and upper mounting brackets (Figure 2, Item 4) from seat frame (Figure 2, Item 3).
6. Remove backrest cushion (Figure 2, Item 1) and wear plate (Figure 2, Item 2) from seat frame (Figure 2, Item 3).

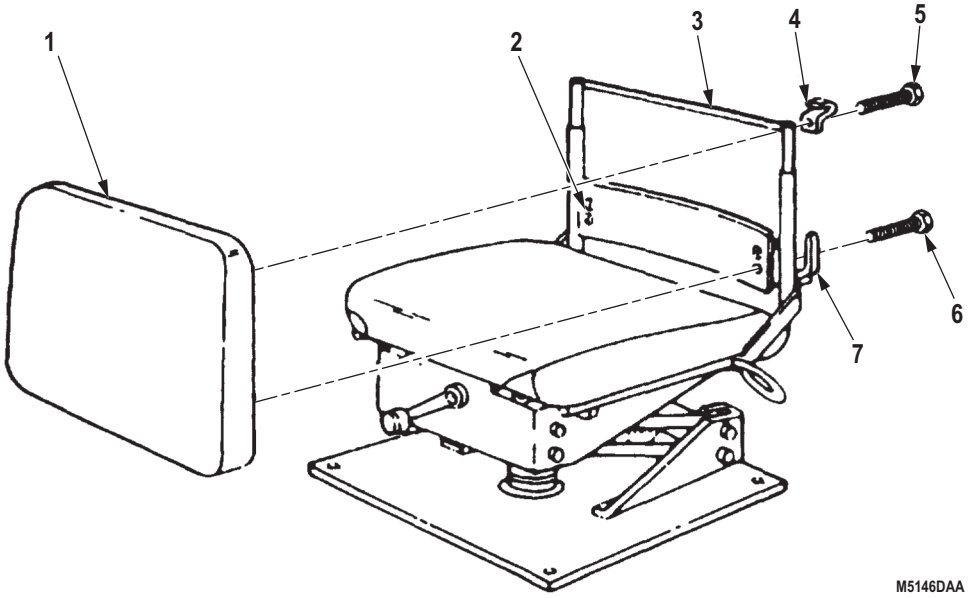


Figure 2. Driver's Seat Cushion and Backrest Cushion Removal.

END OF TASK

INSTALLATION

1. Install wear plate (Figure 3, Item 2), backrest cushion (Figure 3, Item 1), and two adjuster rod brackets (Figure 3, Item 7) on seat frame (Figure 3, Item 3) with two screws (Figure 3, Item 6).
2. Install two upper mounting brackets (Figure 3, Item 4) on seat frame (Figure 3, Item 3) and backrest cushion (Figure 3, Item 1) with two screws (Figure 3, Item 5).

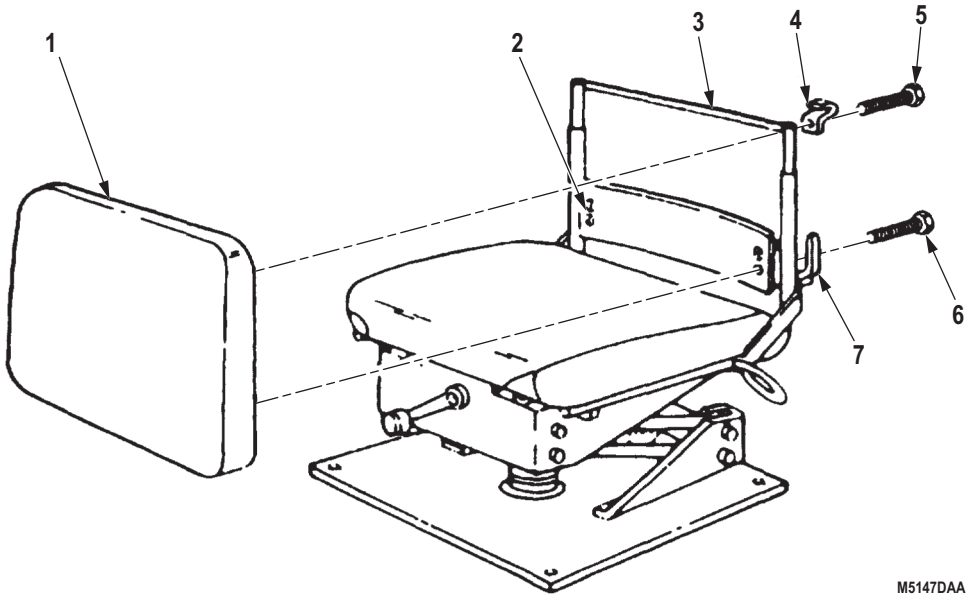


Figure 3. Driver's Seat Cushion and Backrest Cushion Installation.

INSTALLATION - Continued

3. Install two seat brackets (Figure 4, Item 7) on seat cushion (Figure 4, Item 1) with four lockwashers (Figure 4, Item 6) and screws (Figure 4, Item 5).
4. Position seat cushion (Figure 4, Item 1) on seat frame (Figure 4, Item 4).
5. Install two seat brackets (Figure 4, Item 7) and washers (Figure 4, Item 2) on seat frame pins (Figure 4, Item 3).

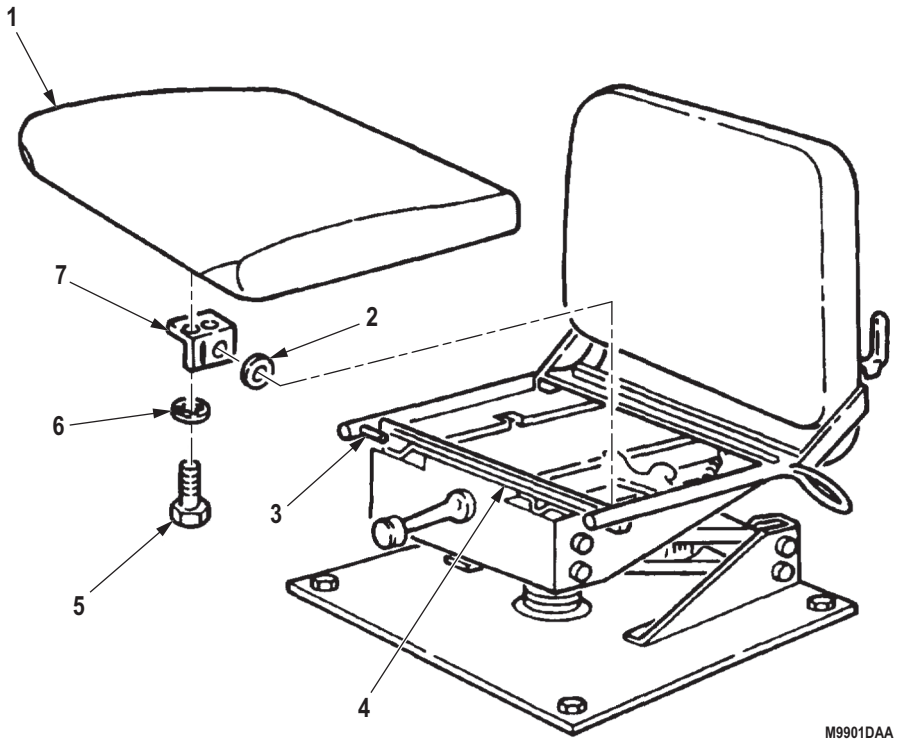


Figure 4. Driver's Seat Cushion and Backrest Cushion Installation.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
MAP COMPARTMENT REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

Materials/Parts
Locknut (Volume 5, WP 0827, Table 1, Item 285)
Qty: 4

REMOVAL

1. Fold companion seat backrest (Figure 1, Item 1) forward.
2. Release two latches (Figure 1, Item 9) on battery box (Figure 1, Item 8).
3. Raise battery box cover (Figure 1, Item 2) and secure with support rod (Figure 1, Item 10).
4. Remove four locknuts (Figure 1, Item 7), screws (Figure 1, Item 4), and washers (Figure 1, Item 3) from map compartment risers (Figure 1, Item 6) and battery box cover (Figure 1, Item 2). Discard locknuts.
5. Remove map compartment (Figure 1, Item 5) from battery box (Figure 1, Item 8).

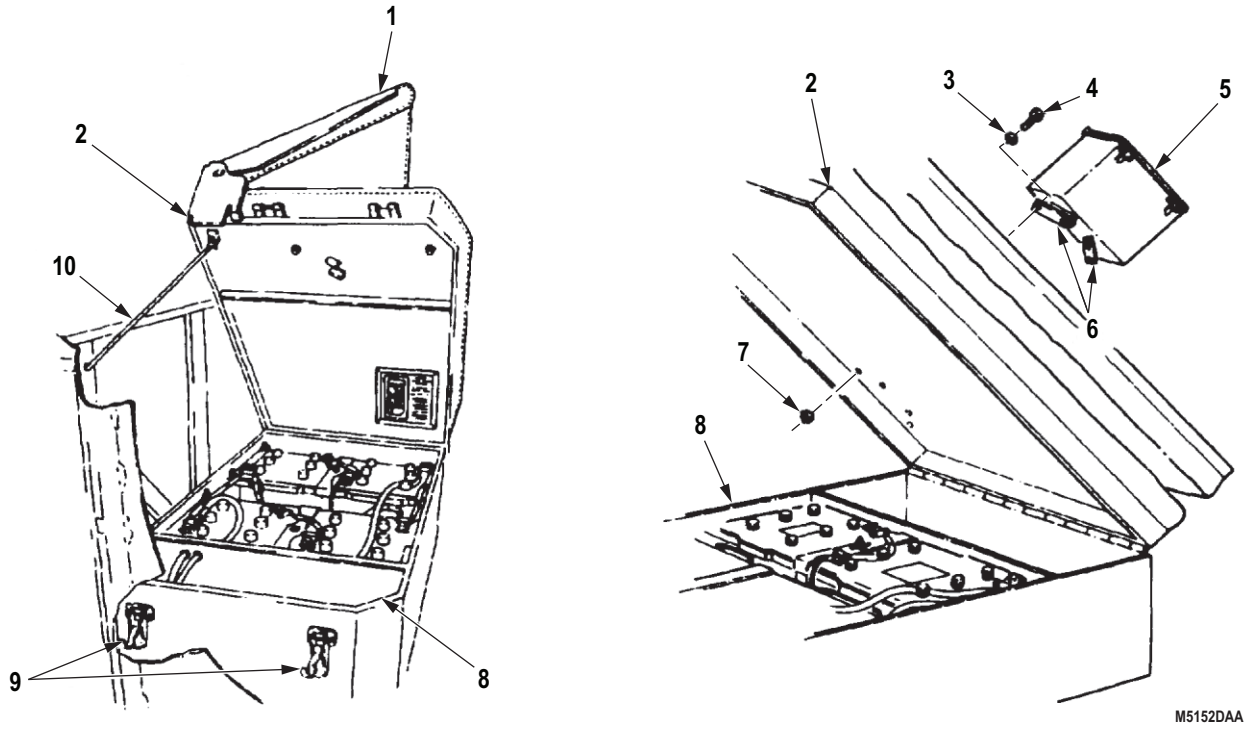


Figure 1. Map Compartment Removal.

END OF TASK

INSTALLATION

1. Install map compartment (Figure 2, Item 5) on battery box cover (Figure 2, Item 2) with four washers (Figure 2, Item 3), screws (Figure 2, Item 4), and four locknuts (Figure 2, Item 7).
2. Secure support rod (Figure 2, Item 10) in battery box (Figure 2, Item 8), lower battery box cover (Figure 2, Item 2), and secure with two latches (Figure 2, Item 9).
3. Lower companion seat backrest (Figure 2, Item 1).

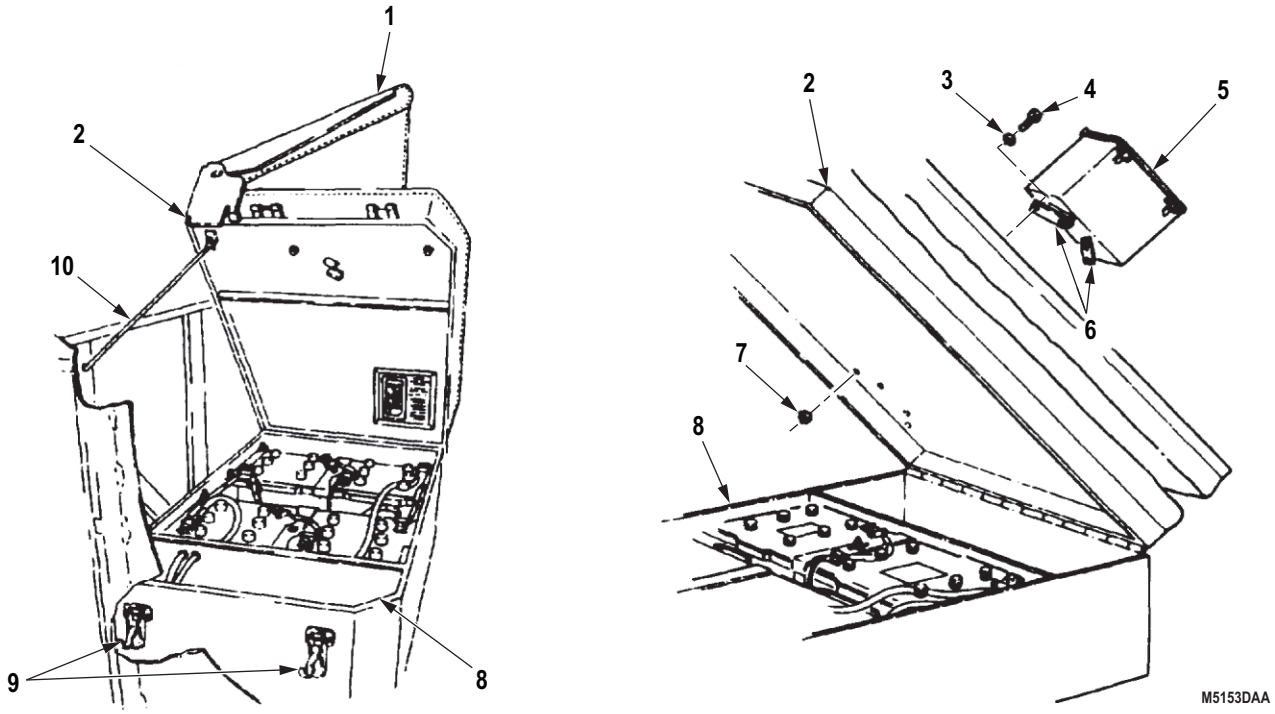


Figure 2. Map Compartment Installation.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
VAN POWER CABLE REEL REPLACEMENT (M934A1/A2)

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Locknut (Volume 5, WP 0827, Table 1, Item 285)
Qty: 4

Personnel Required
(2)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Power cable removed. (TM 9-2320-272-10)

REMOVAL

1. Remove retaining pin (Figure 1, Item 2) from power cable reel (Figure 1, Item 5).

NOTE

Assistant will help with Step (2).

2. Remove four locknuts (Figure 1, Item 1), screws (Figure 1, Item 4), and power cable reel (Figure 1, Item 5) from mud flap support brackets (Figure 1, Item 3).

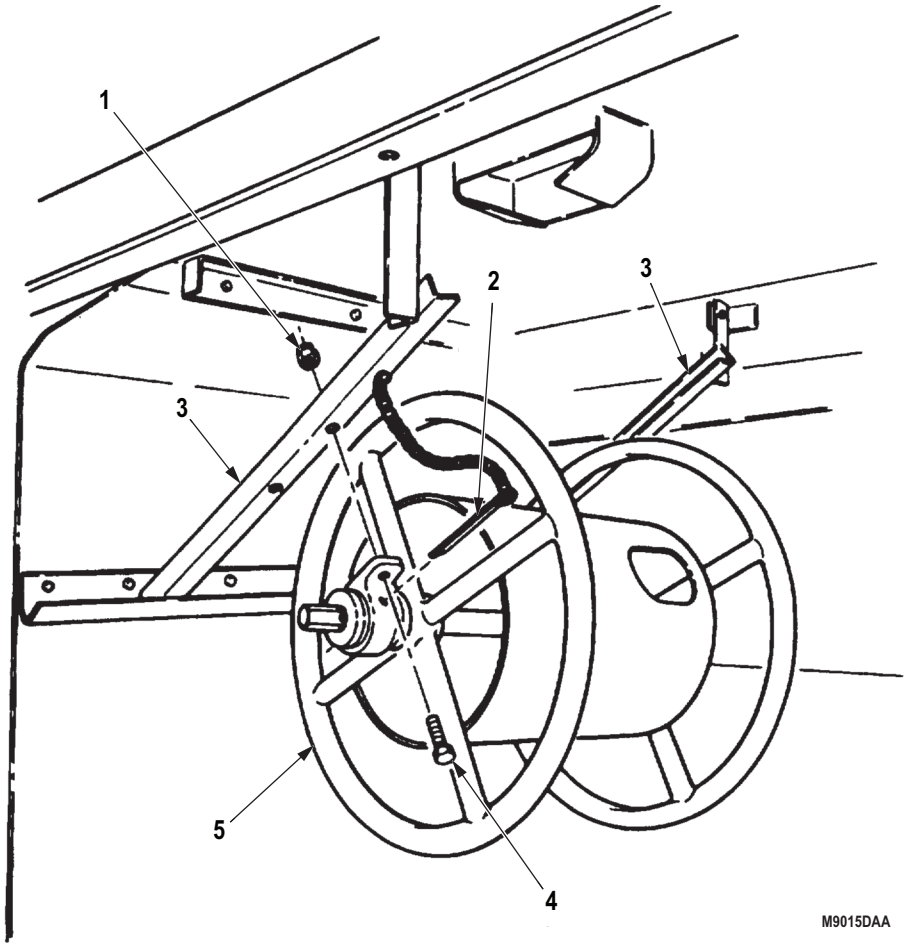


Figure 1. Van Power Cable Reel Removal.

END OF TASK

INSTALLATION

1. Install power cable reel (Figure 2, Item 5) on mud flap support brackets (Figure 2, Item 3) with four screws (Figure 2, Item 4) and locknuts (Figure 2, Item 1).
2. Install retaining pin (Figure 2, Item 2) on power cable reel (Figure 2, Item 5).

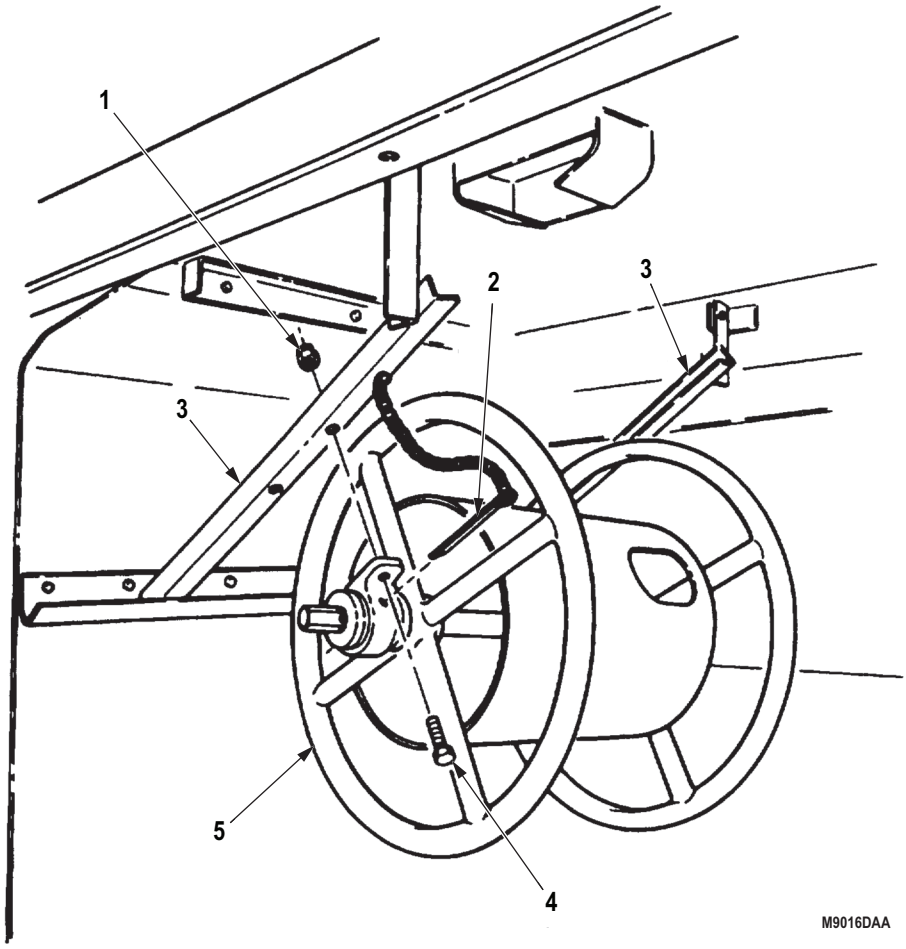


Figure 2. Van Power Cable Reel Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

Install power cable. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
TOOLBOX AND STEPS REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

Materials/Parts
Locknut (Volume 5, WP 0827, Table 1, Item 282)
Qty: 14
Locknut (Volume 5, WP 0827, Table 1, Item 285)
Qty: 2

REMOVAL

1. Remove two locknuts (Figure 1, Item 18), screws (Figure 1, Item 16), and drain valve bracket (Figure 1, Item 17) from toolbox with step (Figure 1, Item 6). Discard locknuts.
2. Remove two locknuts (Figure 1, Item 13), screws (Figure 1, Item 15), and toolbox support bracket (Figure 1, Item 14) from toolbox with step (Figure 1, Item 6). Discard locknuts.
3. Release latch (Figure 1, Item 7) and open toolbox door (Figure 1, Item 12).
4. Remove four locknuts (Figure 1, Item 10), screws (Figure 1, Item 8), washers (Figure 1, Item 9), toolbox (Figure 1, Item 4), and step (Figure 1, Item 6) from hangers (Figure 1, Item 11). Discard locknuts.
5. Remove two screws (Figure 1, Item 3) and washers (Figure 1, Item 2) from step (Figure 1, Item 6) and toolbox (Figure 1, Item 4).
6. Remove eight locknuts (Figure 1, Item 5), screws (Figure 1, Item 1), and step (Figure 1, Item 6) from toolbox (Figure 1, Item 4). Discard locknuts.

REMOVAL - Continued

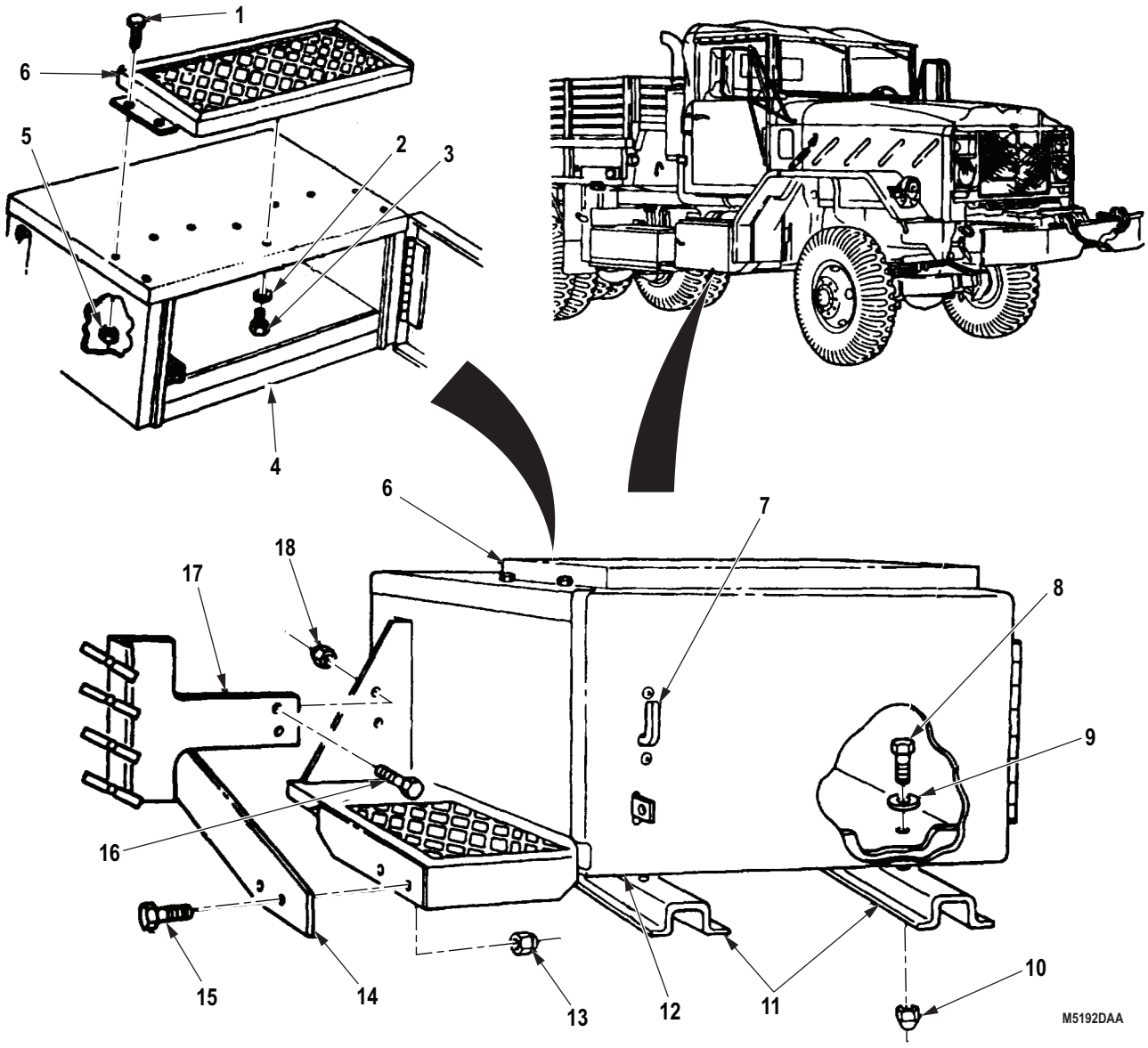


Figure 1. Toolbox and Steps Removal.

END OF TASK

INSTALLATION

1. Install step (Figure 2, Item 6) on toolbox (Figure 2, Item 4) with eight screws (Figure 2, Item 1) and locknuts (Figure 2, Item 5).
2. Install step (Figure 2, Item 6) on toolbox (Figure 2, Item 4) with two screws (Figure 2, Item 3) and washers (Figure 2, Item 2).
3. Install toolbox (Figure 2, Item 4) with step (Figure 2, Item 6) on top of hangars (Figure 2, Item 11) with four washers (Figure 2, Item 9), screws (Figure 2, Item 8), and locknuts (Figure 2, Item 10).
4. Install toolbox support bracket (Figure 2, Item 14) on toolbox (Figure 2, Item 4) with step (Figure 2, Item 6) with two screws (Figure 2, Item 15) and locknuts (Figure 2, Item 13).
5. Install drain valve bracket (Figure 2, Item 17) on toolbox (Figure 2, Item 4) with step (Figure 2, Item 6) with two screws (Figure 2, Item 16) and locknuts (Figure 2, Item 18).

INSTALLATION - Continued

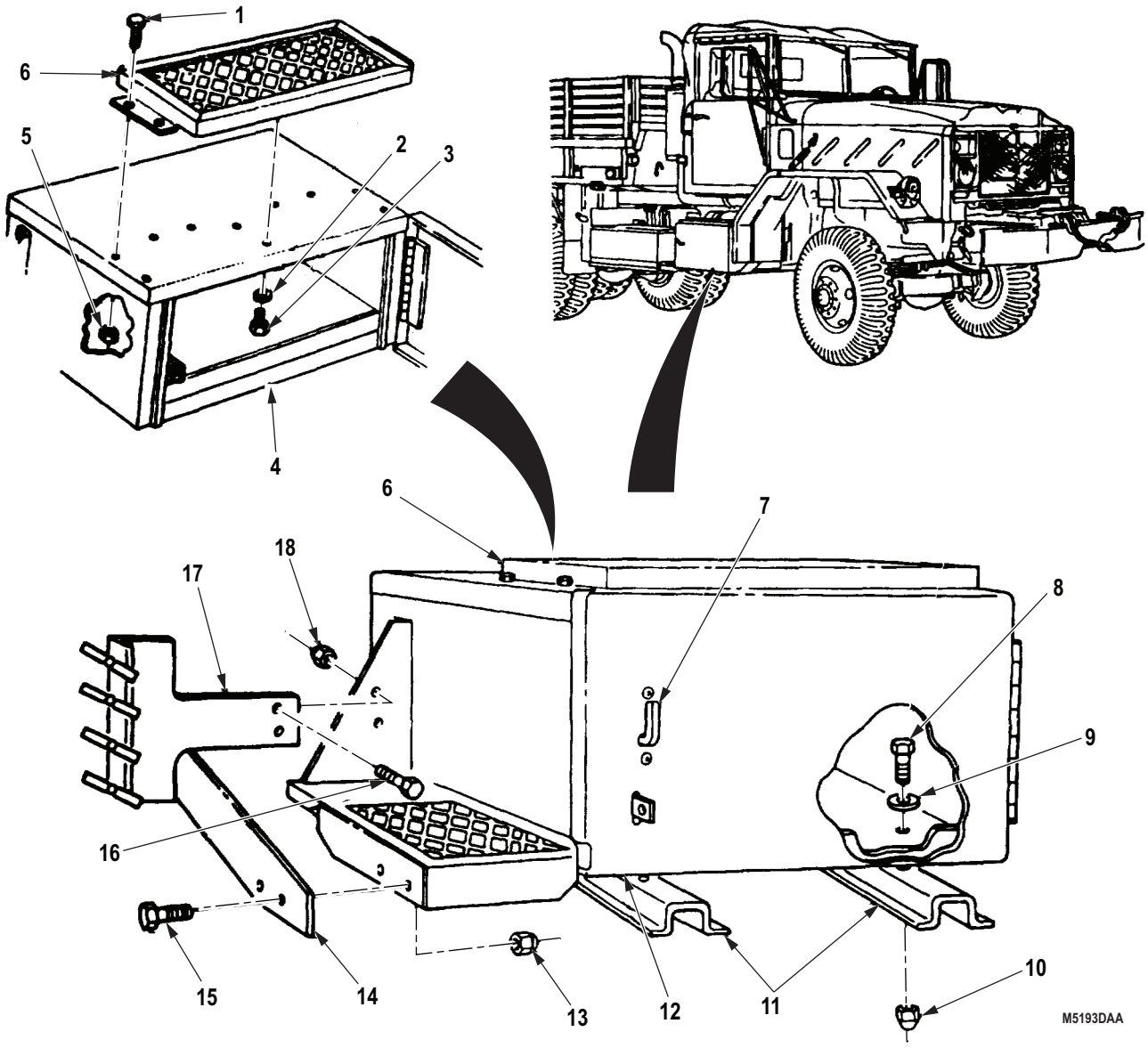


Figure 2. Toolbox and Steps Installation.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
CARGO STOWAGE BOX REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Locknut (Volume 5, WP 0827, Table 1, Item 289)
Qty: 4

Personnel Required
(2)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

REMOVAL

1. Release two latches (Figure 1, Item 7) and open storage box door (Figure 1, Item 6).
2. Remove four locknuts (Figure 1, Item 4), screws (Figure 1, Item 2), washers (Figure 1, Item 3), and stowage box (Figure 1, Item 1) from box hangers (Figure 1, Item 5). Discard locknuts.

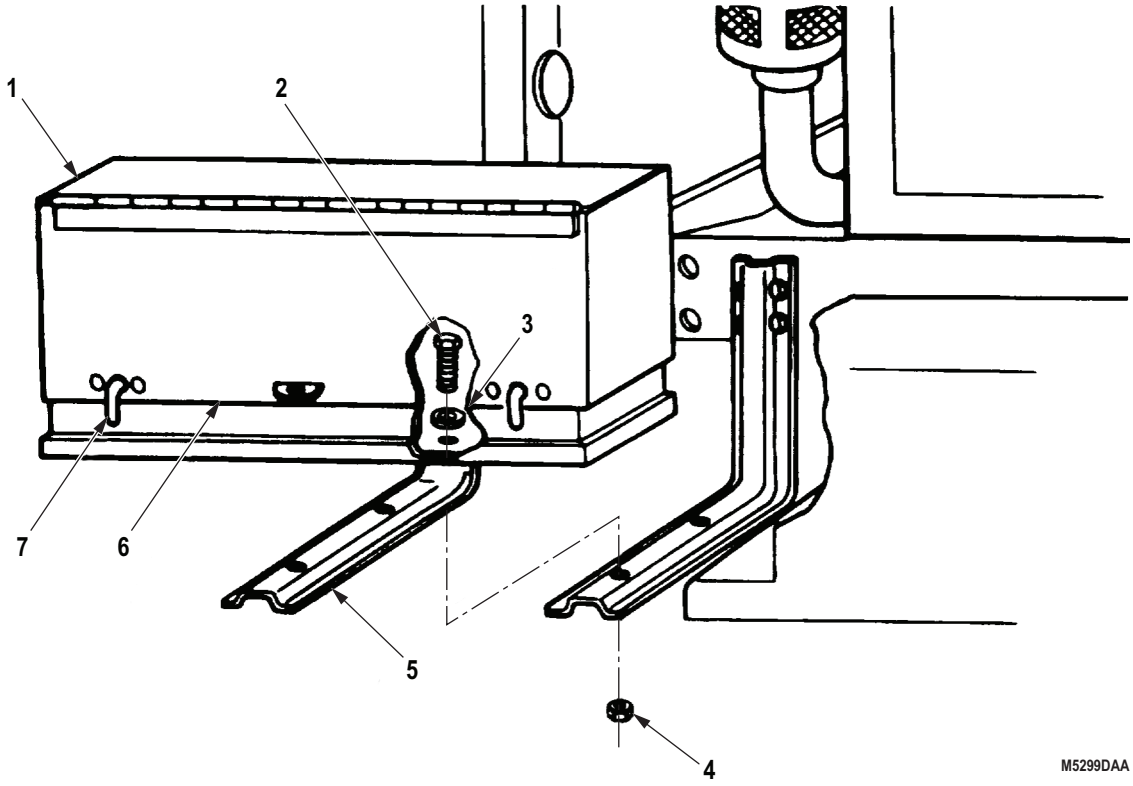


Figure 1. Cargo Stowage Removal.

END OF TASK

INSTALLATION

1. Install storage box (Figure 2, Item 1) on box hangers (Figure 2, Item 5) with four washers (Figure 2, Item 3), screws (Figure 2, Item 2), and locknuts (Figure 2, Item 4).
2. Close stowage box door (Figure 2, Item 6) and secure with two latches (Figure 2, Item 7).

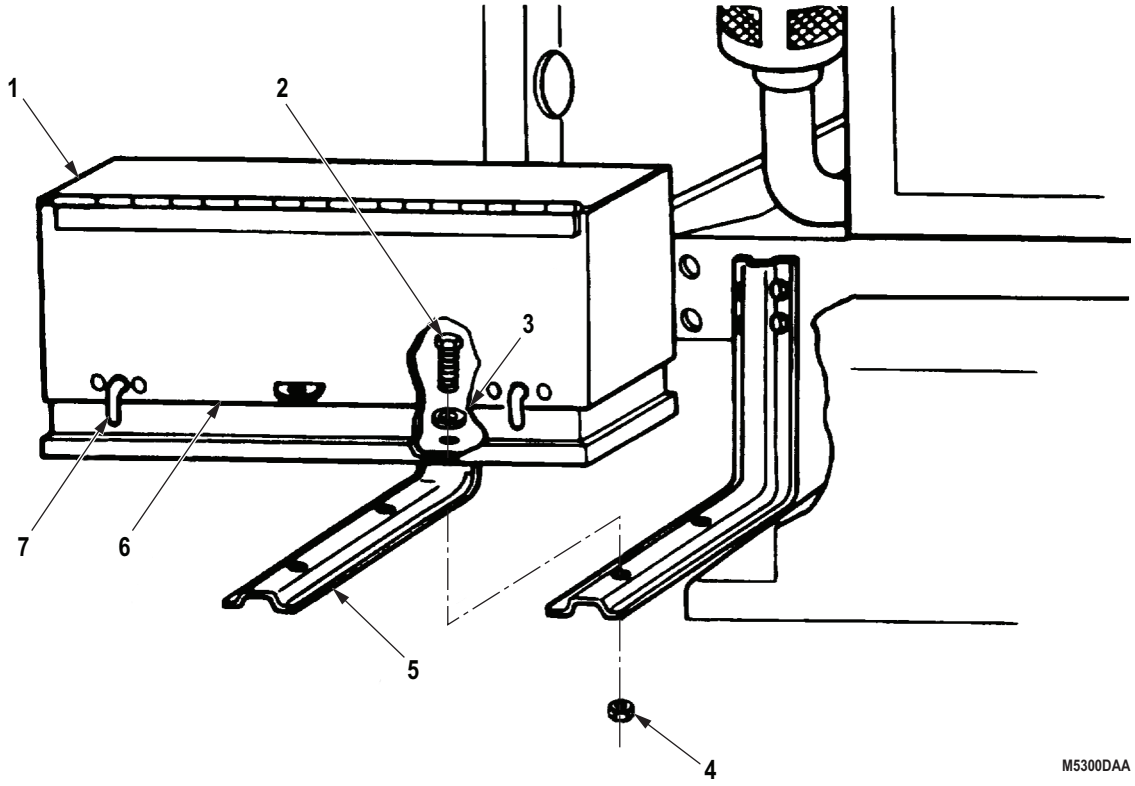


Figure 2. Cargo Stowage Installation.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
CARGO BODY ASSEMBLY REPAIR

INITIAL SETUP:

Tools and Special Tools
- Tool Kit, General Mechanic's: Automotive (Volume 5, WP 0826, Table 1, Item 56)
- Chain Assembly (2) (Volume 5, WP 0826, Table 1, Item 15)
- High Boy Jack Stands (4) (Volume 5, WP 0826, Table 1, Item 24)
- Hoist Assembly

Materials/Parts
- Locknut (Volume 5, WP 0827, Table 1, Item 279) Qty: 8
- Locknut (M923/A1/A2, M925/A1/A2) (Volume 5, WP 0827, Table 1, Item 275) Qty: 10
- Locknut (M927/A1/A2, M928/A1/A2) (Volume 5, WP 0827, Table 1, Item 275) Qty: 20
- Locknut (M923/A1/A2, M925/A1/A2) (Volume 5, WP 0827, Table 1, Item 279) Qty: 4
- Locknut (M927/A1/A2, M928/A1/A2) (Volume 5, WP 0827, Table 1, Item 279) Qty: 16
- Locknut (M923/A1/A2, M925/A1/A2) (Volume 5, WP 0827, Table 1, Item 280) Qty: 4
- Sill, Wood (M923/A1/A2, M925/A1/A2) (Volume 5, WP 0827, Table 1, Item 32) Qty: 2
- Sill, Wood (M927/A1/A2, M928/A1/A2) (Volume 5, WP 0827, Table 1, Item 35) Qty: 1

Materials/Parts (cont.)
- Sill, Wood (M927/A1/A2, M928/A1/A2) (Volume 5, WP 0827, Table 1, Item 36) Qty: 1
- Sill, Wood (M927/A1/A2, M928/A1/A2) (Volume 5, WP 0827, Table 1, Item 37) Qty: 1
- Sill, Wood (M927/A1/A2, M928/A1/A2) (Volume 5, WP 0827, Table 1, Item 38) Qty: 1

Personnel Required
(3)

References
- TM 43-0139
- TM 9-237
- TM 9-247

Equipment Condition
- Parking brake set. (TM 9-2320-272-10)
- Wheels chocked. (TM 9-2320-272-10)
- Front and side racks removed. (TM 9-2320-272-10)
- Cargo body cover bows removed. (WP 0731)
- Wheel splash guards and brackets removed. (WP 0596)

REMOVAL

1. Remove four locknuts (Figure 1, Item 5), washer (Figure 1, Item 6), outer support springs (Figure 1, Item 7), inner support springs (Figure 1, Item 4), and screws (Figure 1, Item 1) from two front upper holddown brackets (Figure 1, Item 2) and lower holddown brackets (Figure 1, Item 3). Discard locknuts.

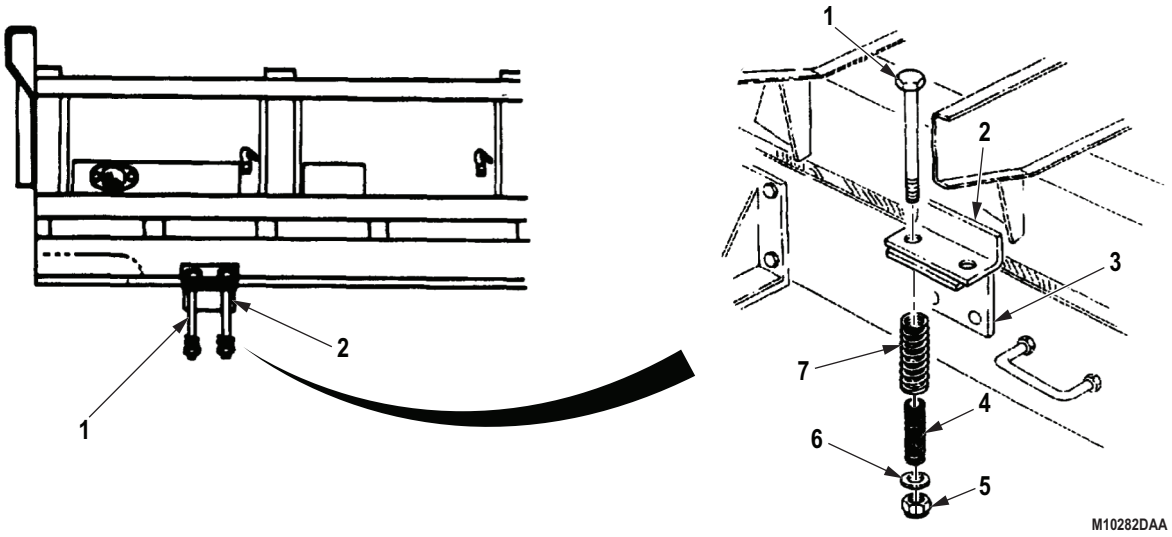


Figure 1. Front Holddown Brackets.

REMOVAL - Continued

NOTE

Extra-long wheelbase models (M927/A1/A2, M928/A1/A2) utilize six intermediate holddown brackets, 12 screws, and 12 locknuts.

2. Remove four locknuts (Figure 2, Item 4) and screws (Figure 2, Item 1) from four intermediate holddown brackets (Figure 2, Item 2) and lower holddown brackets (Figure 2, Item 3). Discard locknuts.

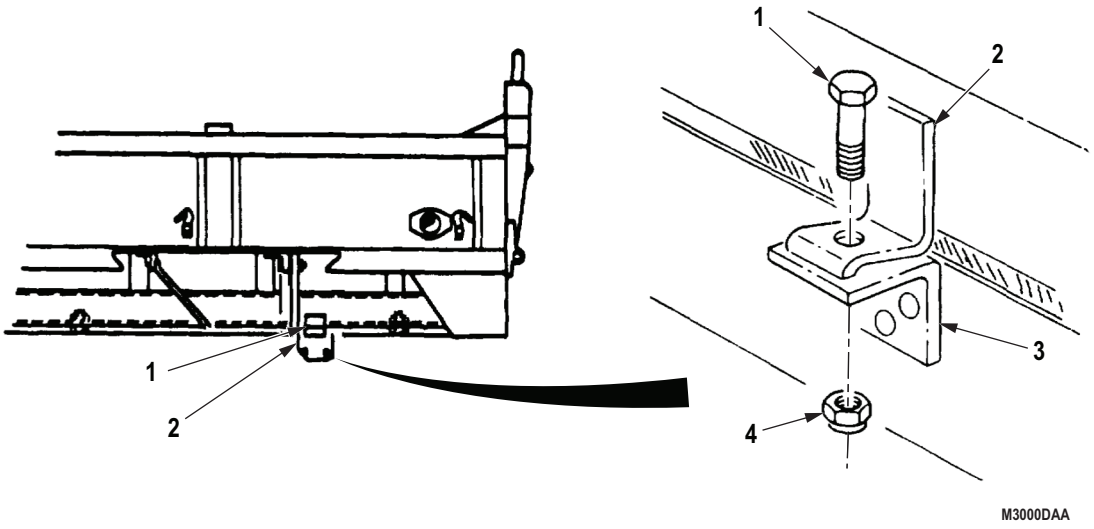


Figure 2. Intermediate Holddown Brackets.

REMOVAL - Continued

3. Disconnect four wires (Figure 3, Item 10) from each of two rear composite lights (Figure 3, Item 5). Tag wires (Figure 3, Item 10) for installation.
4. Remove eight locknuts (Figure 3, Item 7), screws (Figure 3, Item 9), and wire clamps (Figure 3, Item 8) from cargo body (Figure 3, Item 4). Discard locknuts.
5. Wrap two utility chains (Figure 3, Item 3) around subframe beam (Figure 3, Item 12) and fasten hooks (Figure 3, Item 18) over utility chains (Figure 3, Item 3).
6. Attach lifting device (Figure 3, Item 2) to center of utility chains (Figure 3, Item 3).

WARNING



- Lifting device must have a weight capacity greater than the weight of the truck bed. Failure to comply may result in damage to equipment, injury, or death to personnel.
- All personnel must stand clear during lifting operations. A snapped cable, or swinging or shifting load, may occur. Failure to comply may result in injury or death to personnel.

NOTE

Mechanic will handle one guide line and direct hoisting operation. Assistant will handle other guide line. Second assistant will operate lifting device.

7. Connect two guide lines (Figure 3, Item 17) to front and rear lashing hooks (Figure 3, Item 1).
8. Lift cargo body clear of frame (Figure 3, Item 6) and place on four shop stands (Figure 3, Item 16).
9. Disconnect lifting device (Figure 3, Item 2), two utility chains (Figure 3, Item 3), and guide lines (Figure 3, Item 17) from cargo body (Figure 3, Item 4).

NOTE

Extra-long wheelbase models (M927/A1/A2, M928/A1/A2) utilize four wood sills, 20 washers, and 20 screws.

10. Remove ten locknuts (Figure 3, Item 15), lockwashers (Figure 3, Item 14), screws (Figure 3, Item 13), and two wood sills (Figure 3, Item 11) from cargo bed (Figure 3, Item 12). Discard locknuts, lockwashers, and wood sills.

REMOVAL - Continued

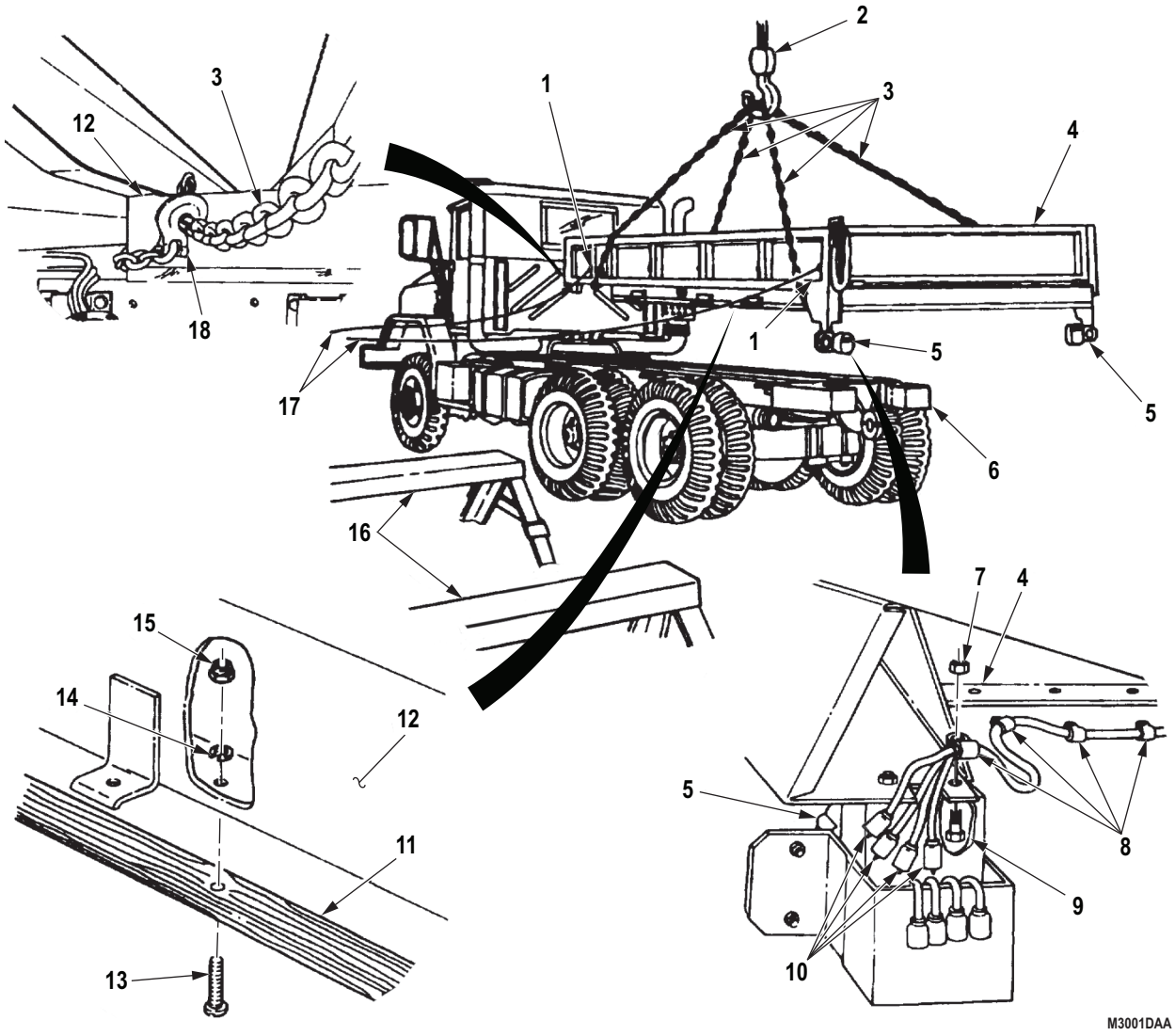


Figure 3. Cargo Body Removal.

END OF TASK

CLEANING AND INSPECTION

WARNING



Solvent cleaning compound is flammable and toxic. Do not use near an open flame and always have a fire extinguisher nearby when solvents are used. Use only in well-ventilated places, wear protective clothing, and dispose of cleaning rags in approved container. Failure to comply may result in damage to equipment, injury, or death to personnel.

1. Clean cargo body with steam or wire brush and approved cleaning solvent (TM 9-247).
2. Inspect cargo body for dents, cracks, breaks, and rust.

END OF TASK

REPAIR

1. Weld or straighten as necessary (TM 9-237).
2. Strip and paint as necessary (TM 43-0139).

END OF TASK

INSTALLATION

1. Wrap two utility chains (Figure 4, Item 3) around subframe beam (Figure 4, Item 12) and fasten hooks (Figure 4, Item 18) over utility chains (Figure 4, Item 3).
2. Connect two guide lines (Figure 4, Item 17) to front and rear lashing hooks (Figure 4, Item 1).
3. Attach lifting device (Figure 4, Item 2) to center of utility chains (Figure 4, Item 3).
4. Install two wood sills (Figure 4, Item 8) on cargo bed (Figure 4, Item 4) with ten screws (Figure 4, Item 9), lockwashers (Figure 4, Item 10), and locknuts (Figure 4, Item 11).

WARNING



- Lifting device must have a weight capacity greater than the weight of the truck bed. Failure to comply may result in damage to equipment, injury, or death to personnel.
- All personnel must stand clear during lifting operations. A snapped cable, or swinging or shifting load, may occur. Failure to comply may result in injury or death to personnel.

NOTE

Mechanic will handle one guide line and direct hoisting operation. Assistant will handle other guide line. Second assistant will operate lifting device.

5. Hoist cargo body (Figure 4, Item 4) clear of shop stands (Figure 4, Item 12).

INSTALLATION - Continued

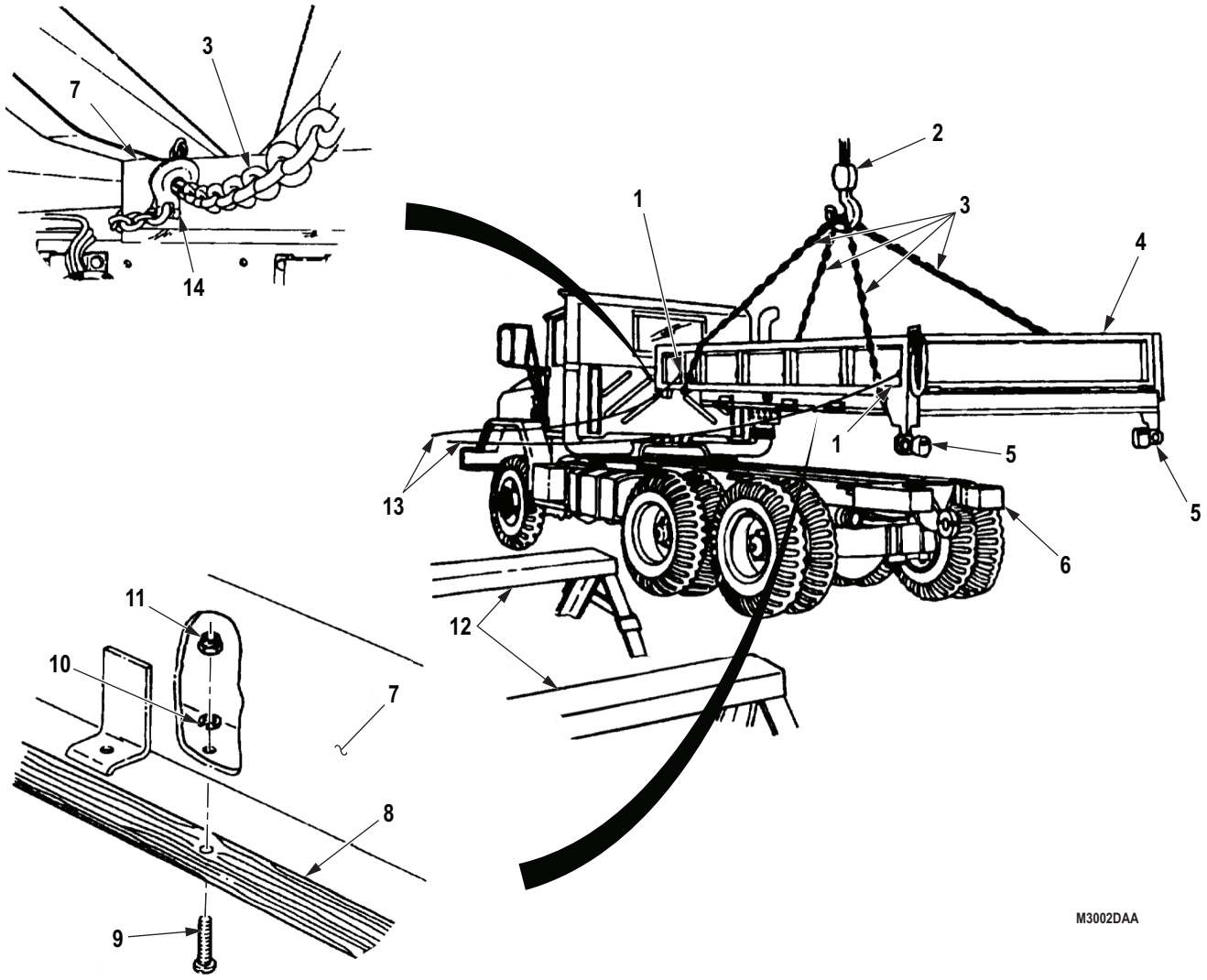


Figure 4. Cargo Body.

INSTALLATION - Continued

6. Lower cargo body (Figure 5, Item 3) onto frame (Figure 5, Item 11) while using a drift pin to align two front upper holddown brackets (Figure 5, Item 5) to lower holddown brackets (Figure 5, Item 6), and four intermediate holddown brackets (Figure 5, Item 13) to lower holddown brackets (Figure 5, Item 14).
7. Place four outer support springs (Figure 5, Item 10) over inner support springs (Figure 5, Item 7), and position under lower holddown brackets (Figure 5, Item 6), and install with four screws (Figure 5, Item 4), washers (Figure 5, Item 9), and locknuts (Figure 5, Item 8). Tighten locknuts (Figure 5, Item 8) until length of springs (Figure 5, Items 7 and 10) are 6.75 in. ± 0.06 in. (171.45 mm ± 1.5 mm).

NOTE

Extra-long wheelbase models (M927/A1/A2, M928/A1/A2) utilize six intermediate holddown brackets, 12 screws, and 12 locknuts.

8. Place four screws (Figure 5, Item 12) through intermediate holddown brackets (Figure 5, Item 13) and lower holddown brackets (Figure 5, Item 14), and install four locknuts (Figure 5, Item 15).
9. Disconnect lifting device (Figure 5, Item 1), utility chains (Figure 5, Item 2), and guide lines from cargo body (Figure 5, Item 3).
10. Connect four wires (Figure 5, Item 19) to connectors (Figure 5, Item 20) on each of two composite lights (Figure 5, Item 21).
11. Install eight wire clamps (Figure 5, Item 17) on cargo body (Figure 5, Item 3) with eight screws (Figure 5, Item 18) and locknuts (Figure 5, Item 16).

INSTALLATION - Continued

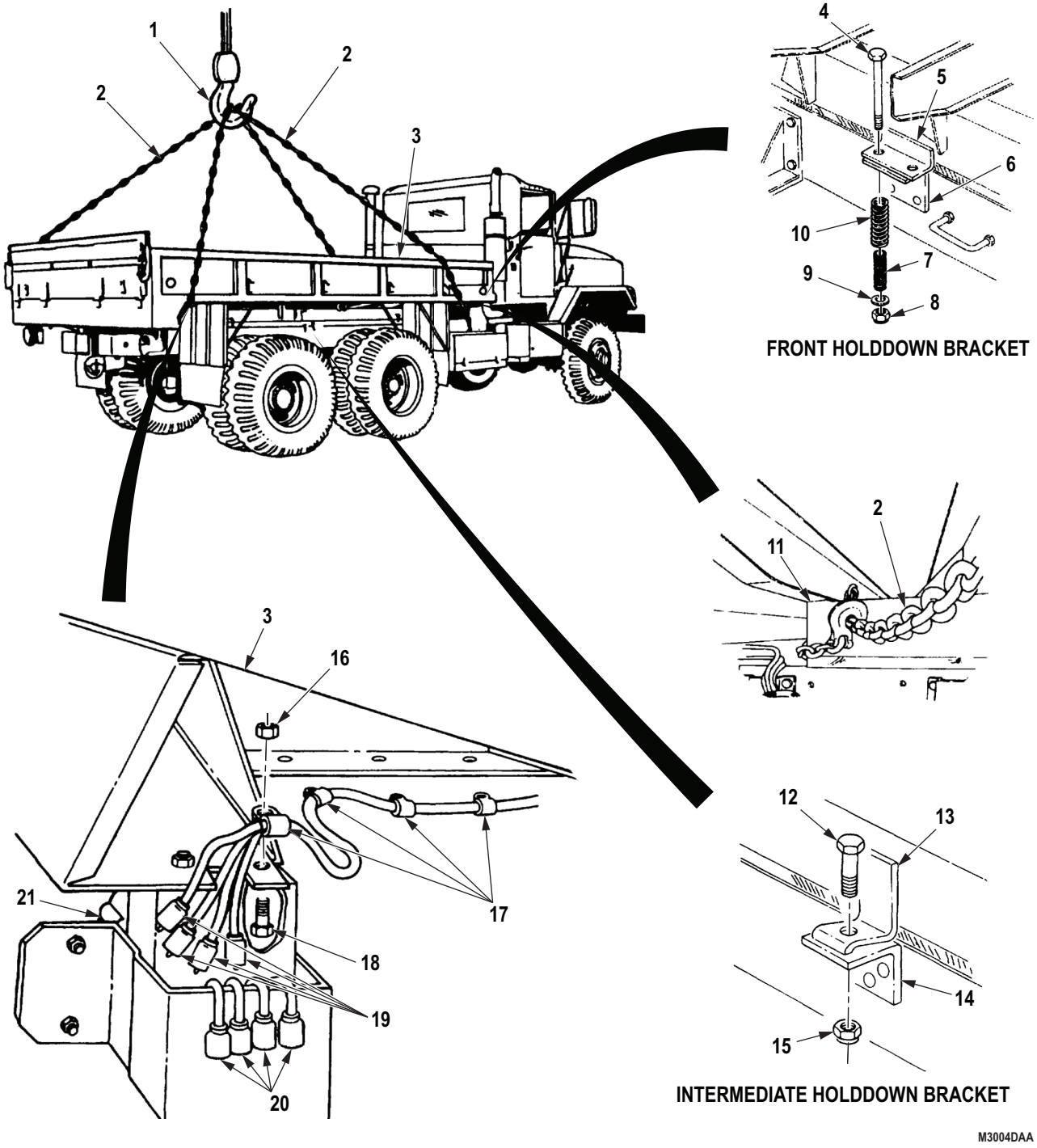


Figure 5. Cargo Body.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install wheel splash guards and brackets. (WP 0596)
2. Install cargo body cover bows. (WP 0731)
3. Install front and side racks. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
CARGO TROOP SEAT REPAIR

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Cotter Pin
(Volume 5, WP 0827, Table 1, Item 334)
Qty: 1
Cotter Pin
(Volume 5, WP 0827, Table 1, Item 337)
Qty: 5

Personnel Required
(2)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

REMOVAL

NOTE

M927/A1/A2 and M928/A1/A2 model trucks have six hinges per troop seat. The M923/A1/A2 and M925/A1/A2 have five hinges per troop seat as shown in this procedure.

1. Remove five cotter pins (Figure 1, Item 4) and hinge pins (Figure 1, Item 2) from hinges (Figure 1, Items 5 and 6). Discard cotter pins.
2. Remove cotter pin (Figure 1, Item 11), washer (Figure 1, Item 10), and stabilizer bar (Figure 1, Item 9) from side rack (Figure 1, Item 1) and cargo bed (Figure 1, Item 8). Discard cotter pin.
3. Remove two seat latches (Figure 1, Item 3), release, and lower troop seat (Figure 1, Item 7) from side rack (Figure 1, Item 1).

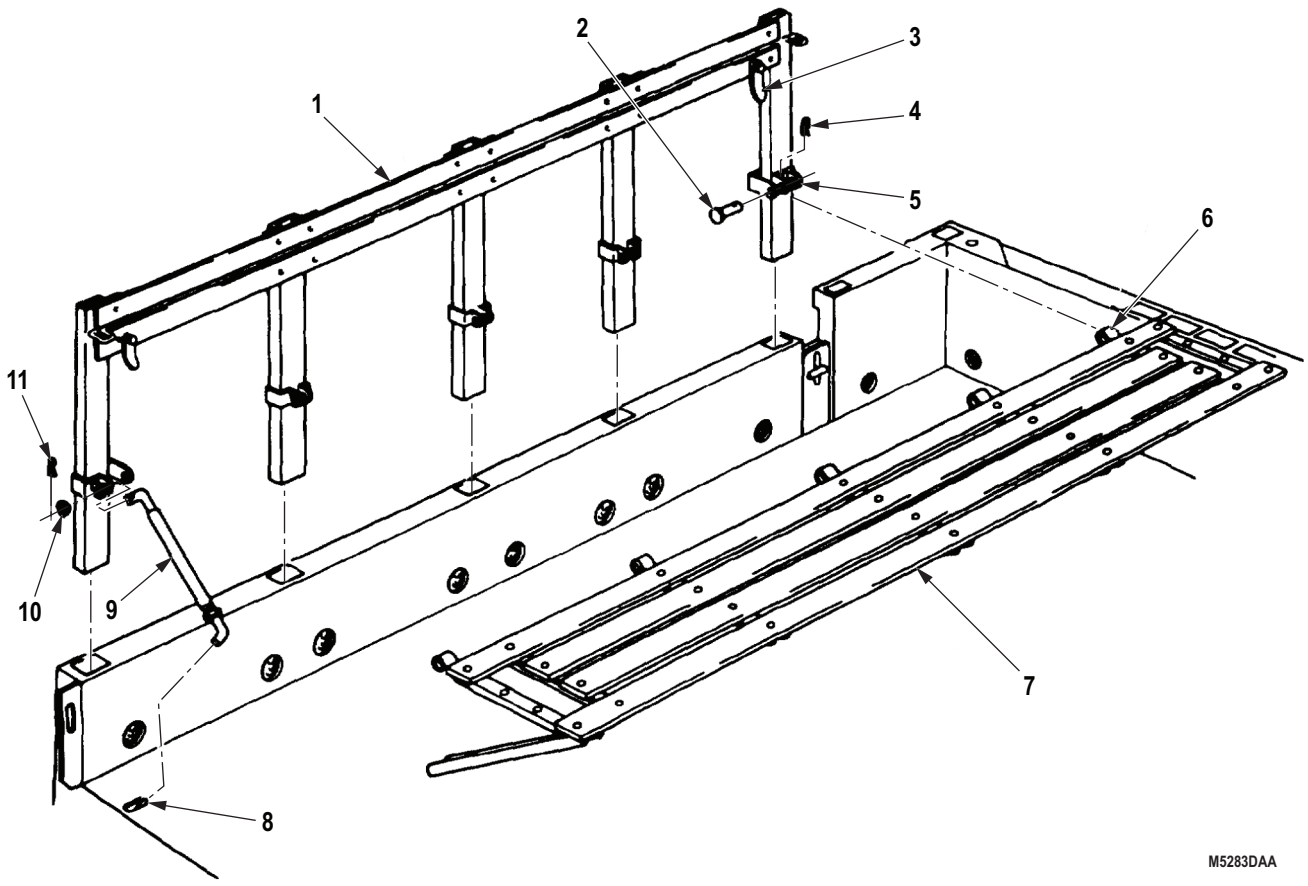


Figure 1. Cargo Troop Seat Removal.

END OF TASK

INSTALLATION

1. Align hinges (Figure 2, Item 6) of troop seat (Figure 2, Item 7) with hinges (Figure 2, Item 5) on side rack (Figure 2, Item 1) and install with five hinge pins (Figure 2, Item 2) and cotter pins (Figure 2, Item 4).
2. Install stabilizer bar (Figure 2, Item 9) on side rack (Figure 2, Item 1) and cargo bed (Figure 2, Item 8) with washer (Figure 2, Item 10) and cotter pin (Figure 2, Item 11).
3. Raise troop seat (Figure 2, Item 7) to stow position on side rack (Figure 2, Item 1) and install with two seat latches (Figure 2, Item 3).

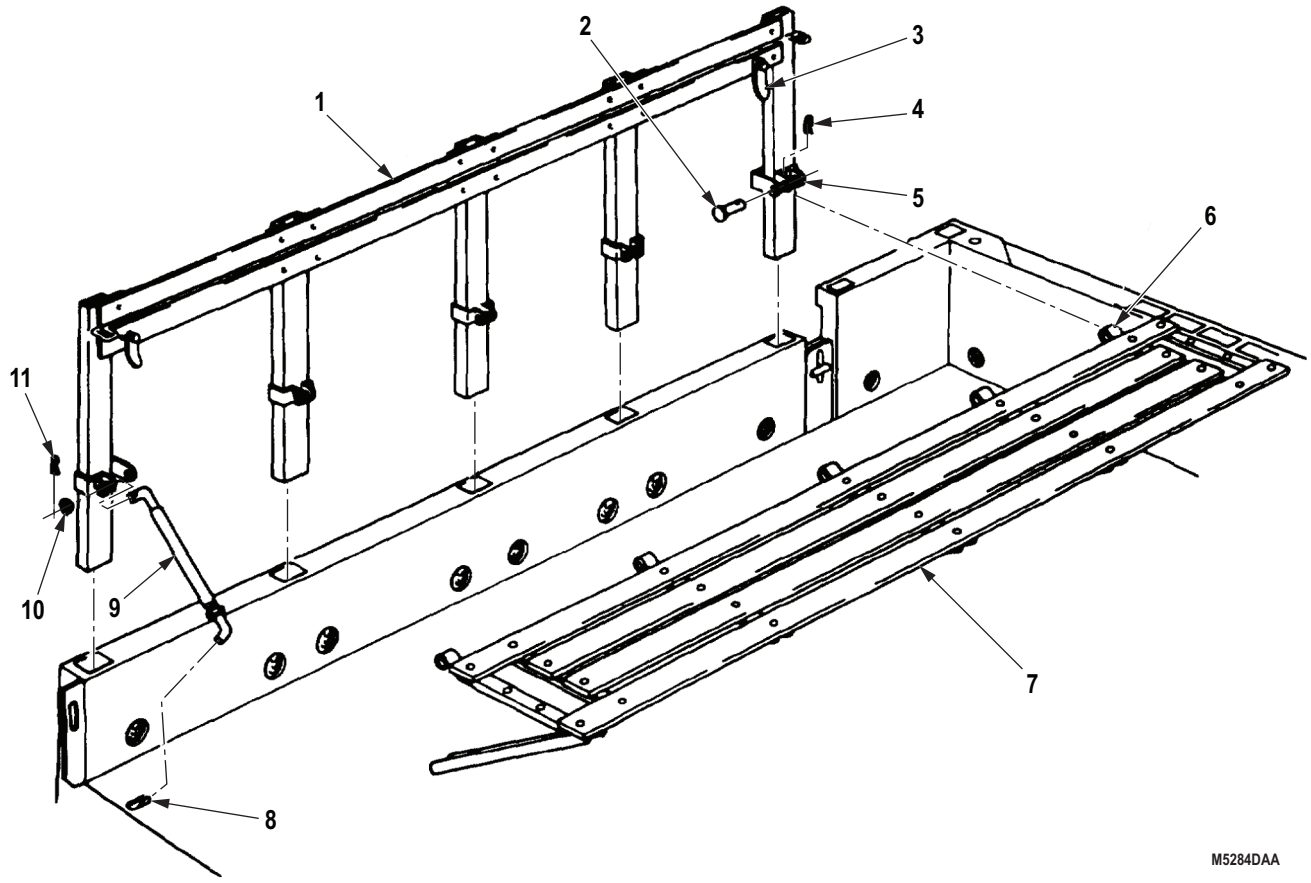


Figure 2. Cargo Troop Seat Installation.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
CARGO TAILGATE AND BUMPER REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)
Chain Assembly
(Volume 5, WP 0826, Table 1, Item 15)
Hoist Assembly

Materials/Parts
Grease, Automotive and Artillery
(Volume 5, WP 0825, Table 1, Item 28)
Cotter Pin

Materials/Parts (cont.)
(Volume 5, WP 0827, Table 1, Item 342)
Qty: 4
Locknut (Volume 5, WP 0827, Table 1, Item 277)
Qty: 1

Personnel Required
(2)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Tailgate closed and secured. (TM 9-2320-272-10)

REMOVAL

NOTE

All tailgate bumpers are removed the same way.

1. Remove locknut (Figure 1, Item 5) and bumper (Figure 1, Item 6) from tailgate (Figure 1, Item 1). Discard locknut.
2. Install chain (Figure 1, Item 4) on two steps (Figure 1, Item 2) and lifting device (Figure 1, Item 3).
3. Remove four cotter pins (Figure 1, Item 10), pins (Figure 1, Item 7), and eight washers (Figure 1, Item 8) from tailgate hinges (Figure 1, Item 9). Discard cotter pins.

WARNING



All personnel must stand clear during lifting operations. A shifting or swinging load may cause injury to personnel. Failure to comply may result in injury or death to personnel.

4. Remove two hooks (Figure 1, Item 12) from tailgate latches (Figure 1, Item 13) and raise tailgate (Figure 1, Item 1) away from cargo body (Figure 1, Item 11).
5. Lower tailgate (Figure 1, Item 1) onto supports and remove chain (Figure 1, Item 4) and lifting device (Figure 1, Item 3) from two steps (Figure 1, Item 2).

REMOVAL - Continued

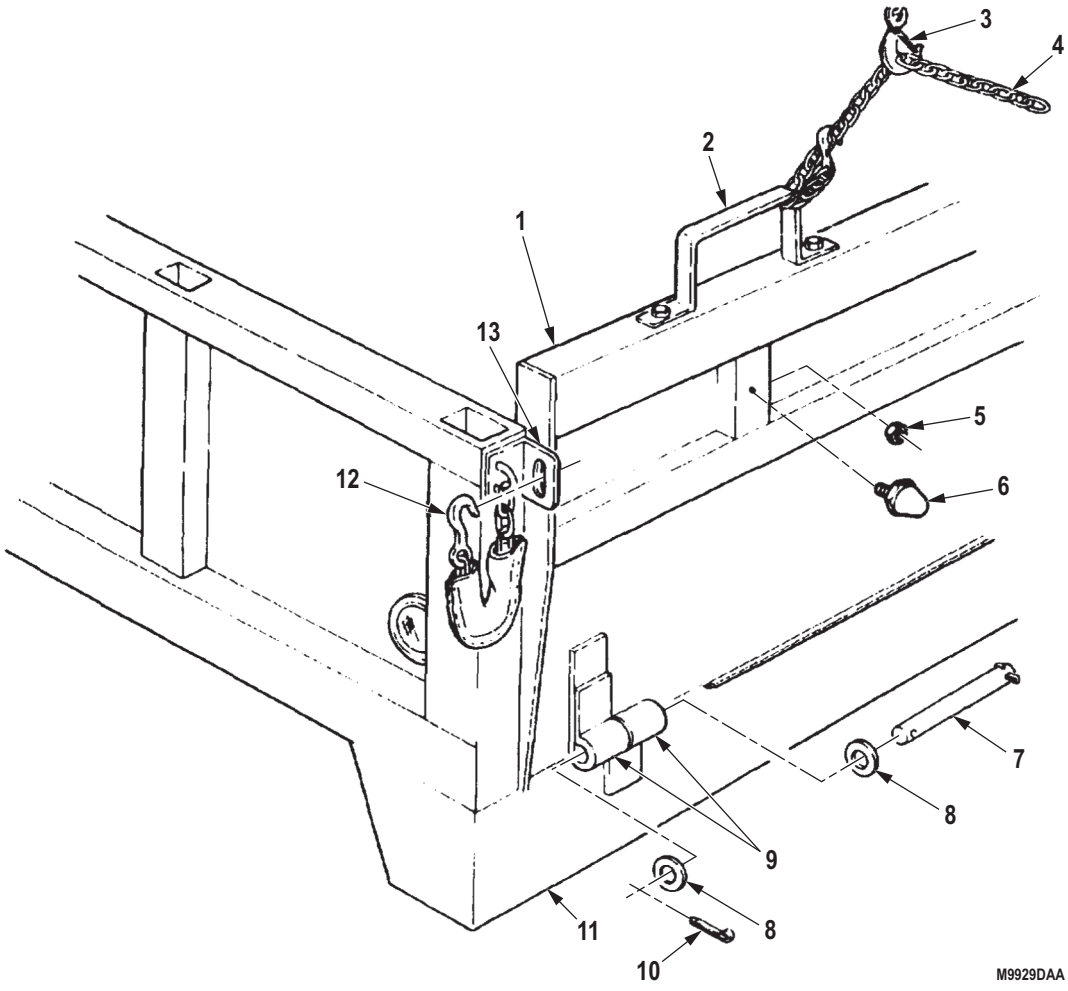


Figure 1. Cargo Tailgate and Bumper Removal.

END OF TASK

INSTALLATION

1. Install chain (Figure 2, Item 4) on two steps (Figure 2, Item 2) and lifting device (Figure 2, Item 3).

WARNING



All personnel must stand clear during lifting operations. A shifting or swinging load may cause injury to personnel. Failure to comply may result in injury or death to personnel.

2. Raise tailgate (Figure 2, Item 1) and position on cargo body (Figure 2, Item 11).
3. Install two hooks (Figure 2, Item 12) in tailgate latches (Figure 2, Item 13).
4. Install four pins (Figure 2, Item 7) on tailgate hinges (Figure 2, Item 9) with eight washers (Figure 2, Item 8) and four cotter pins (Figure 2, Item 10).
5. Remove chain (Figure 2, Item 4) and lifting device (Figure 2, Item 3) from two steps (Figure 2, Item 2).
6. Install bumper (Figure 2, Item 6) on tailgate (Figure 2, Item 1) with locknut (Figure 2, Item 5).

INSTALLATION - Continued

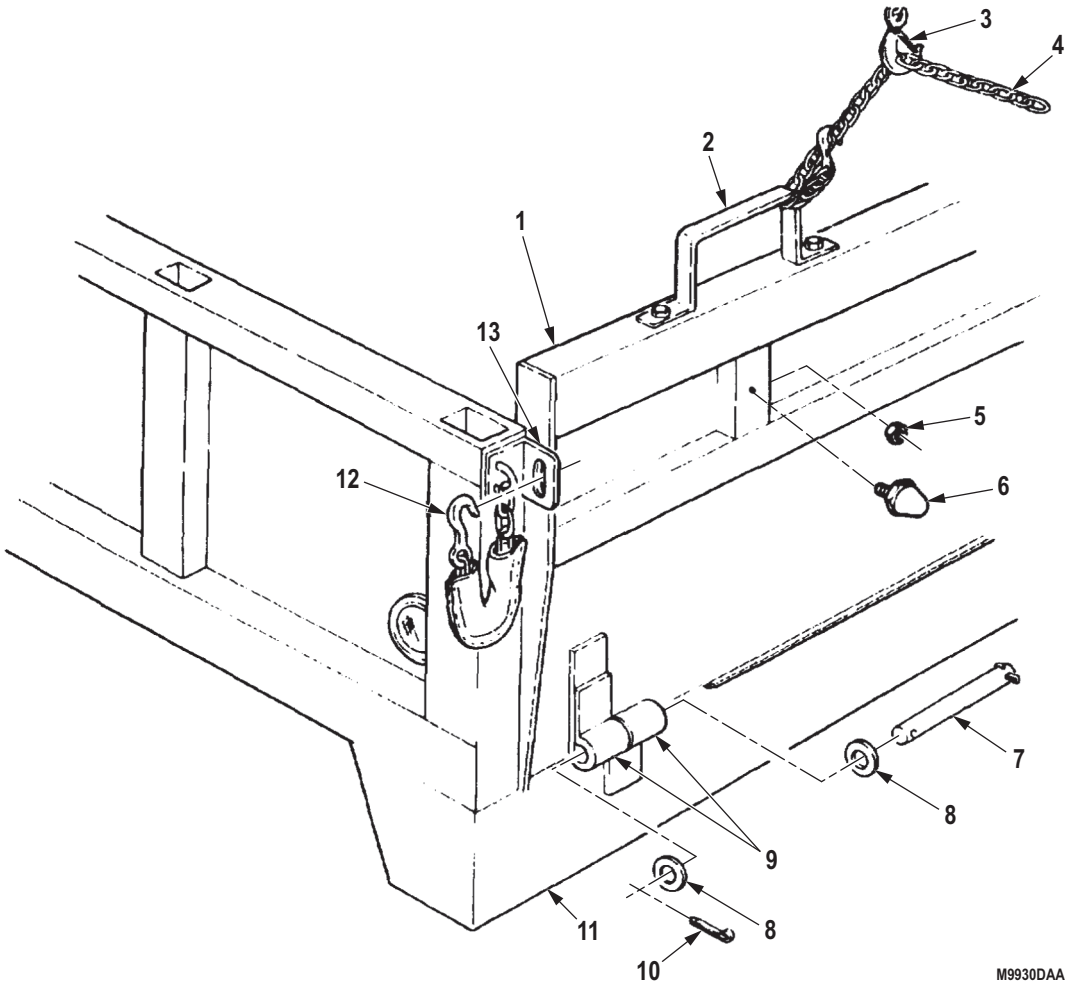


Figure 2. Cargo Tailgate and Bumper Installation.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
DUMP TAILGATE CONTROL LINKAGE REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Cotter Pin
(Volume 5, WP 0827, Table 1, Item 344)
Qty: 4
Locknut (Volume 5, WP 0827, Table 1, Item 269)
Qty: 2

Materials/Parts (cont.)
Locknut (Volume 5, WP 0827, Table 1, Item 313)
Qty: 14
Woodruff Key
(Volume 5, WP 0827, Table 1, Item 415)
Qty: 2

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Dump body in lowered position.
(TM 9-2320-272-10)

REMOVAL

1. Place tailgate control lever (Figure 1, Item 2) in OPEN position.
2. Remove adjusting nut (Figure 1, Item 18) from threaded end of control rod (Figure 1, Item 13).
3. Remove locknut (Figure 1, Item 20), screw (Figure 1, Item 21), clevis (Figure 1, Item 17), and washer (Figure 1, Item 19) from tailgate control lever (Figure 1, Item 2). Discard locknut.
4. Remove locknut (Figure 1, Item 16) and screw (Figure 1, Item 14) and slide tailgate control lever (Figure 1, Item 2) off control rod (Figure 1, Item 13). Discard locknut.
5. Remove woodruff key (Figure 1, Item 15) from control lever (Figure 1, Item 2). Discard woodruff key.

NOTE

Repeat Steps (2) through (5) for removal of control linkage at opposite side. Tailgate control linkage is identical on each side except for tailgate control lever. Tailgate control lever on left side has a hand control. Tailgate control lever on vehicle right side does not.

6. Remove six locknuts (Figure 1, Item 22), screws (Figure 1, Item 24), and three crossshaft bearings (Figure 1, Item 3) from bearing supports (Figure 1, Item 23). Discard locknuts.
7. Remove two cotter pins (Figure 1, Item 10), nuts (Figure 1, Item 11), link plate (Figure 1, Item 12), and link (Figure 1, Item 4) from control rod (Figure 1, Item 13), tailgate latch (Figure 1, Item 8), from dump body (Figure 1, Item 1). Discard cotter pins.
8. Slide control rod (Figure 1, Item 13) from front of dump body (Figure 1, Item 1).

NOTE

Repeat Steps (7) through (9) for removal of control linkage at opposite side of dump body.

9. Remove three locknuts (Figure 1, Item 5), washers (Figure 1, Item 6), screws (Figure 1, Item 9), and tailgate latch (Figure 1, Item 8) from hole (Figure 1, Item 7) in rear of dump body (Figure 1, Item 1). Discard locknuts.

REMOVAL - Continued

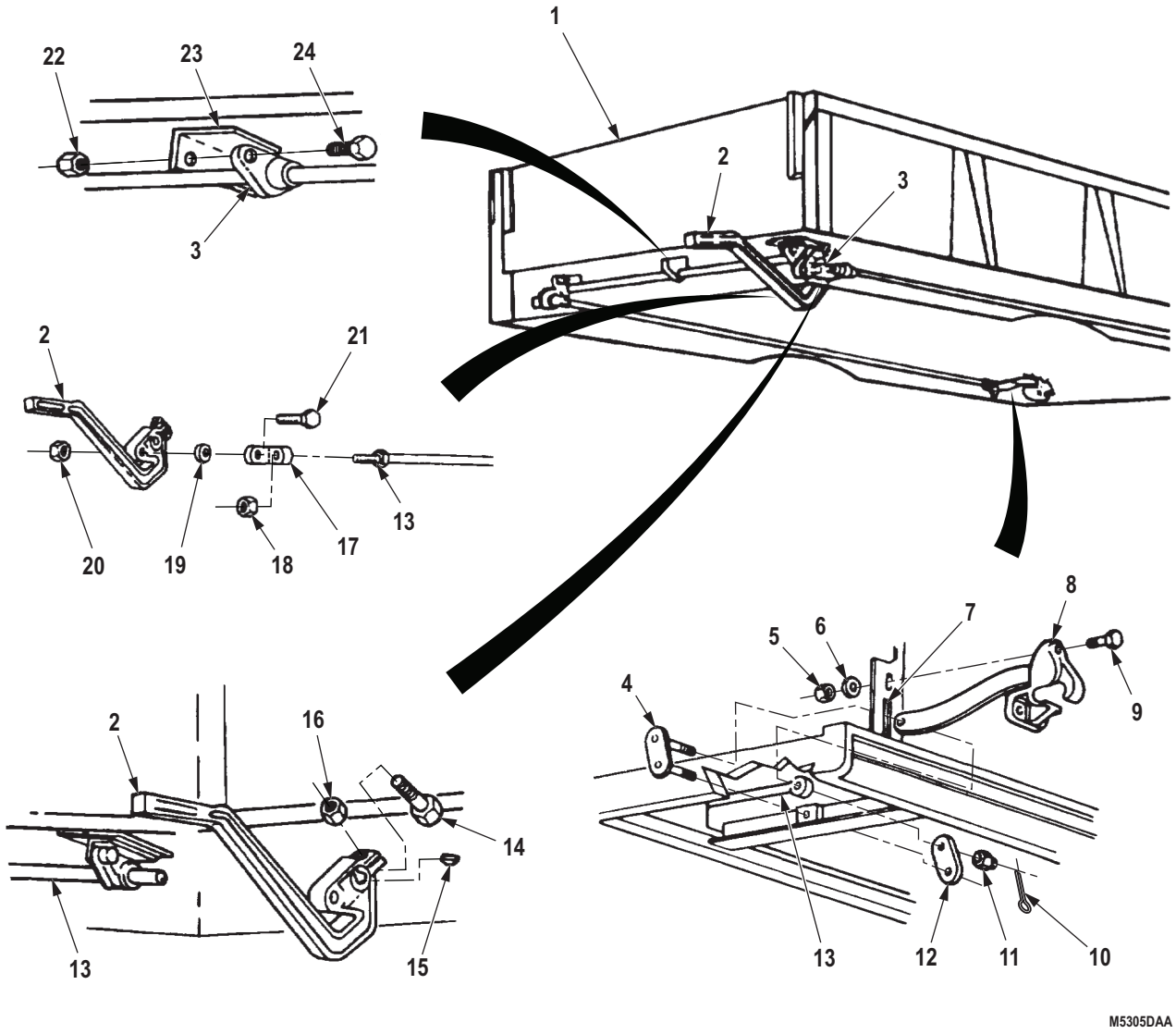


Figure 1. Dump Tailgate Control Linkage Removal.

END OF TASK

INSTALLATION

1. Insert bar end of tailgate latch (Figure 2, Item 8) through hole (Figure 2, Item 7) in dump body (Figure 2, Item 1) and install with three screws (Figure 2, Item 9), washers (Figure 2, Item 6), and locknuts (Figure 2, Item 5).
2. Insert yoke end of control rod (Figure 2, Item 13) to tailgate latch (Figure 2, Item 8).
3. Insert link (Figure 2, Item 4) through hole in tailgate latch (Figure 2, Item 8) and yoke side of control rod (Figure 2, Item 13).
4. Insert link (Figure 2, Item 4) into hole in dump body (Figure 2, Item 1).
5. Install link plate (Figure 2, Item 12) on link (Figure 2, Item 4) with two nuts (Figure 2, Item 11) and cotter pins (Figure 2, Item 10).
6. Install three crossshaft bearings (Figure 2, Item 3) on control rod (Figure 2, Item 13).
7. Position three crossshaft bearings (Figure 2, Item 3) against outer bearing brackets (Figure 2, Item 23) and install with six screws (Figure 2, Item 24) and locknuts (Figure 2, Item 22).
8. Place tailgate control lever (Figure 2, Item 2) in OPEN position.
9. Place woodruff key (Figure 2, Item 15) on tailgate control lever (Figure 2, Item 2).
10. Install tailgate control lever (Figure 2, Item 2) on control rod (Figure 2, Item 13) with screw (Figure 2, Item 14) and locknut (Figure 2, Item 16).
11. Place clevis (Figure 2, Item 17) on threaded end of control rod (Figure 2, Item 13) and install washer (Figure 2, Item 19) and clevis on tailgate control lever (Figure 2, Item 2) with screw (Figure 2, Item 21) and locknut (Figure 2, Item 20).

NOTE

Repeat Steps (8) through (12) for tailgate control linkage at opposite side.

12. Install adjusting nut (Figure 2, Item 18) on threaded end of control rod (Figure 2, Item 13).

INSTALLATION - Continued

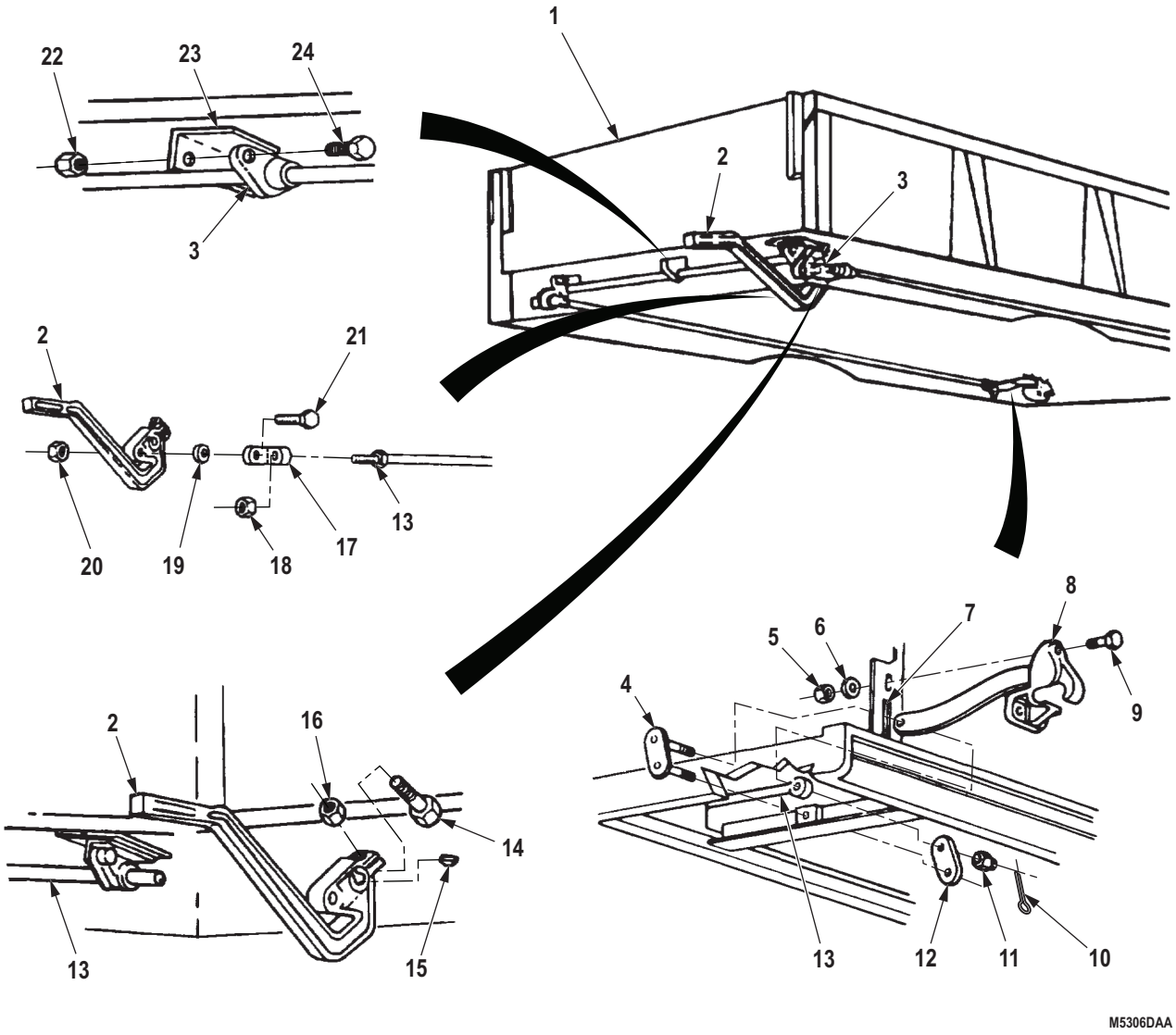


Figure 2. Dump Tailgate Control Linkage Installation.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
DUMP TAILGATE ASSEMBLY REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)
Chain Assembly
(Volume 5, WP 0826, Table 1, Item 15)
Lifting Device

Personnel Required
(2)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

REMOVAL

1. Install chain on two steps (Figure 1, Item 3) and attach chain to lifting device.
2. Place tailgate control lever in OPEN position (TM 9-2320-272-10).
3. Remove two retaining pins (Figure 1, Item 2) from dump body (Figure 1, Item 1).

WARNING



All personnel must stand clear during lifting operations. A snapped chain, or shifting or swinging load, may result in injury to personnel. Failure to comply may result in injury or death to personnel.

4. Remove tailgate (Figure 1, Item 4) from dump body (Figure 1, Item 1) and lower tailgate onto supports.
5. Remove lifting device and chain from steps (Figure 1, Item 3).

REMOVAL - Continued

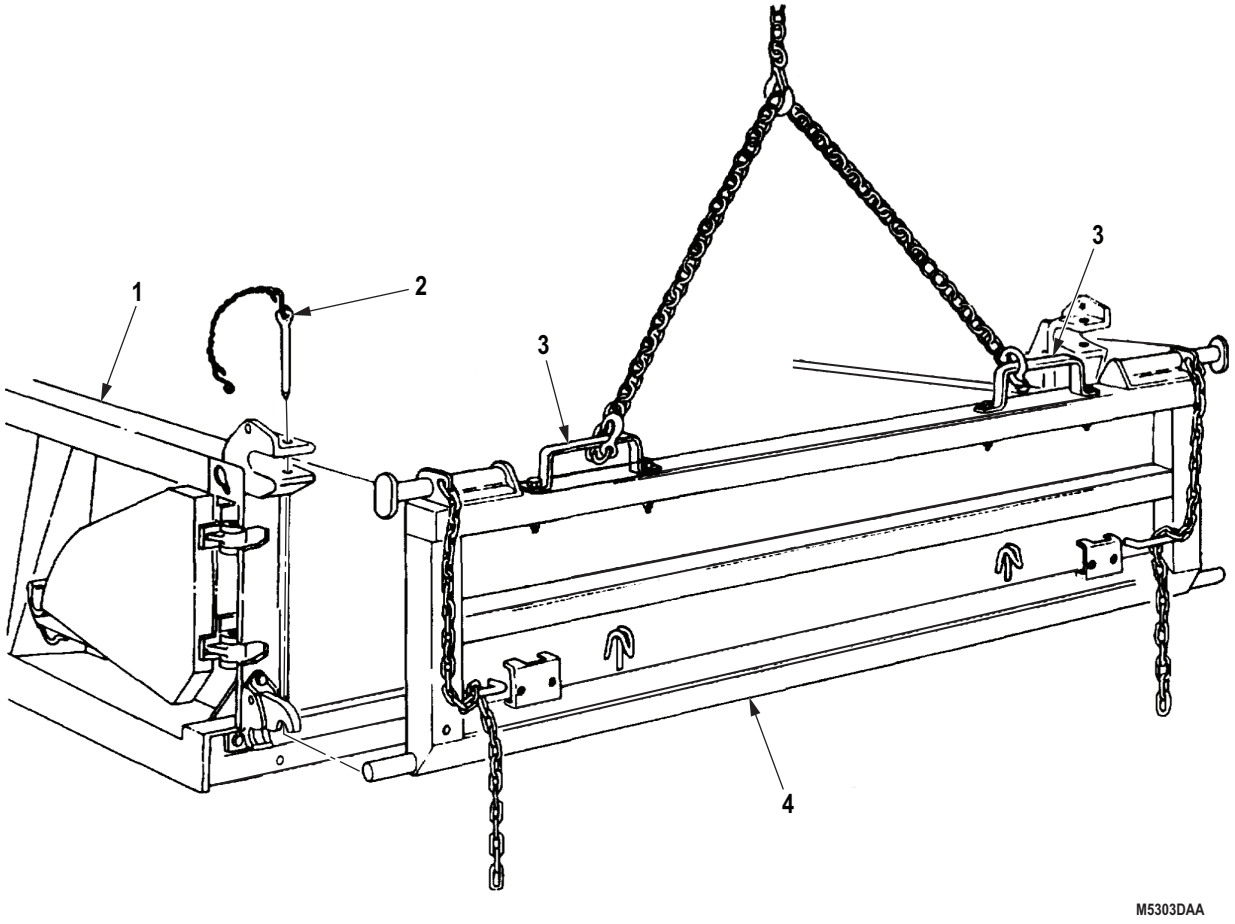


Figure 1. Dump Tailgate Assembly Removal.

END OF TASK

INSTALLATION

1. Install chain on two steps (Figure 2, Item 3) and attach chain to lifting device.

WARNING



All personnel must stand clear during lifting operations. A snapped chain, or shifting or swinging load, may result in injury to personnel. Failure to comply may result in injury or death to personnel.

2. Raise tailgate (Figure 2, Item 4) and position on dump body (Figure 2, Item 1).
3. Install two retaining pins (Figure 2, Item 2) on dump body (Figure 2, Item 1).
4. Place tailgate control lever to LOCKED position (TM 9-2320-272-10).
5. Remove lifting device and chain from steps (Figure 2, Item 3).

INSTALLATION - Continued

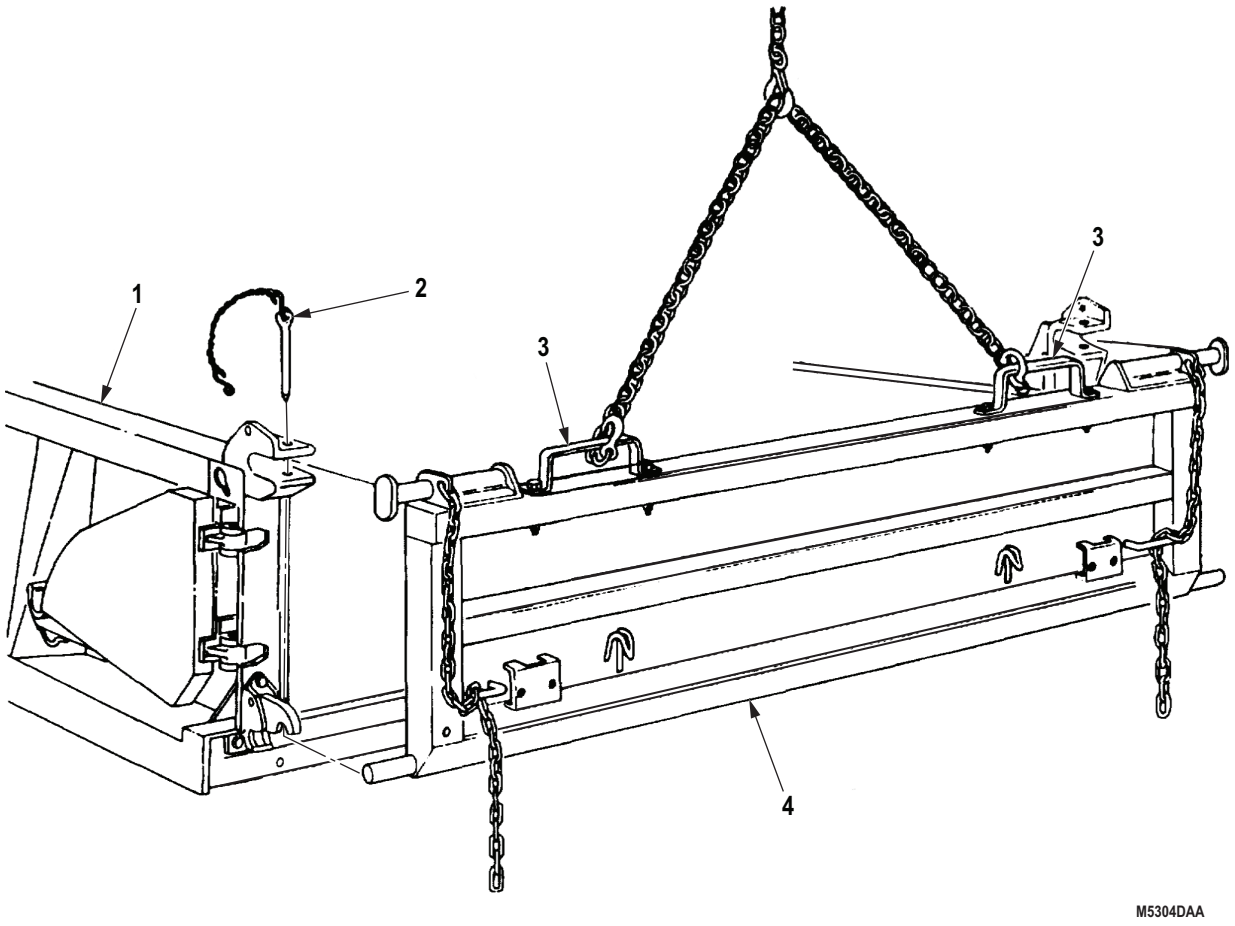


Figure 2. Dump Tailgate Assembly Installation.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
CARGO BODY FRAME RAIL SILL REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)
Wrench, Torque, Click, Ratcheting, 1/2" Drive, 250 Ft-Lb
(Volume 5, WP 0826, Table 1, Item 63)

Materials/Parts
Coating, Polyurethane, CARC Green 383
(Volume 5, WP 0825, Table 1, Item 20)

Materials/Parts (cont.)
Wood, Laminated, Decking: Red or White Oak
(Volume 5, WP 0825, Table 1, Item 72)
Wood Preservative
(Volume 5, WP 0825, Table 1, Item 71)

References
TM 43-0139

Equipment Condition
Cargo body assembly removed. (WP 0588)

REMOVAL

1. Remove ten nuts (Figure 1, Item 1), washers (Figure 1, Item 2), screws (Figure 1, Item 3), and frame rail sill (Figure 1, Item 4) from cargo body (Figure 1, Item 5).
2. Clean frame rail sill (Figure 1, Item 4).

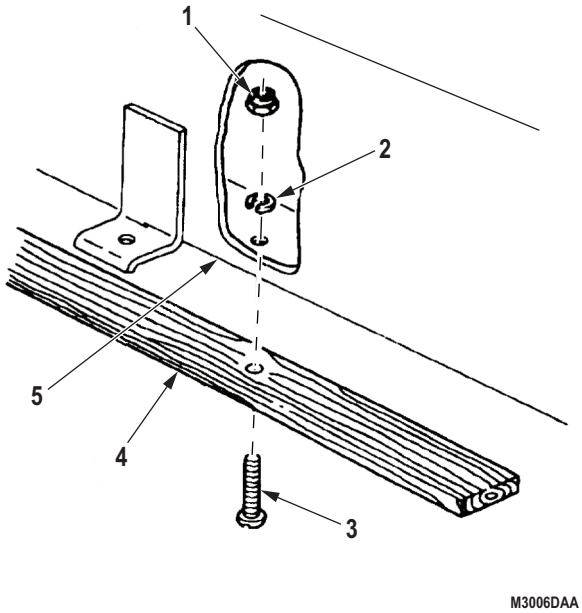


Figure 1. Frame Rail Sill Removal.

END OF TASK

INSPECTION

Inspect frame rail sill for rot, deterioration, cracks, or breaks. If defects are found, fabricate replacement.

END OF TASK

FABRICATION

NOTE

Steps (1) and (2) apply to M927/A1/A2 and M928/A1/A2 model vehicles. Steps (3) and (4) apply to M923/A1/A2 and M925/A1/A2 model vehicles.

1. Cut frame rail sill (Figure 2, Item 1) to dimensions and drill five counterbore holes (Figure 2, Item 2) and three frame rest holes (Figure 2, Item 3) as shown.
2. Seal and paint frame rail sill (Figure 2, Item 1) (TM 43-0139).

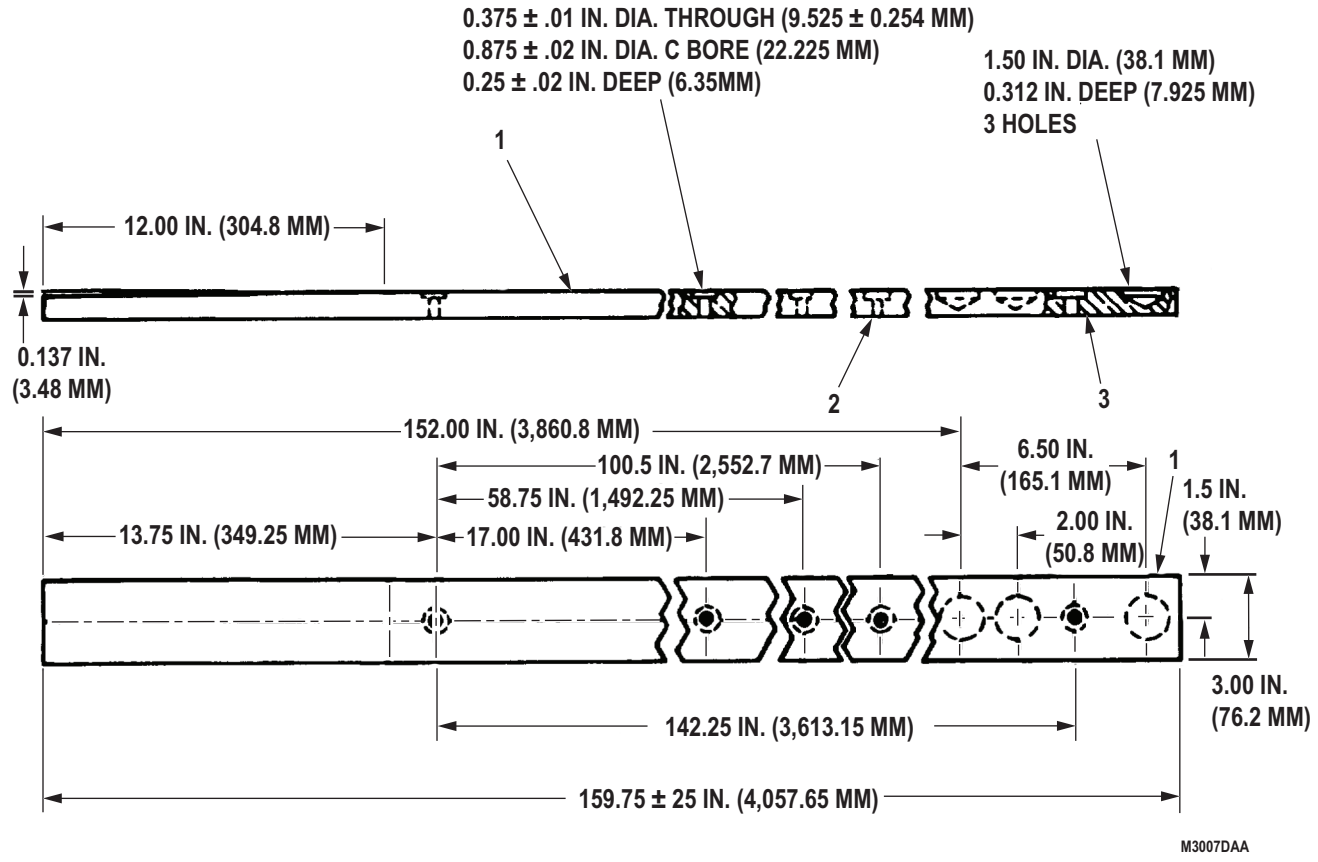


Figure 2. Cargo Frame Fabrication.

FABRICATION - Continued

3. Cut frame rail sill (Figure 3, Item 4) to dimensions and drill ten counterbore holes (Figure 3, Item 3) and three frame root holes (Figure 3, Item 1) as shown.
4. Seal and paint frame rail sill (Figure 3, Item 4) (Refer to TM 43-0139).

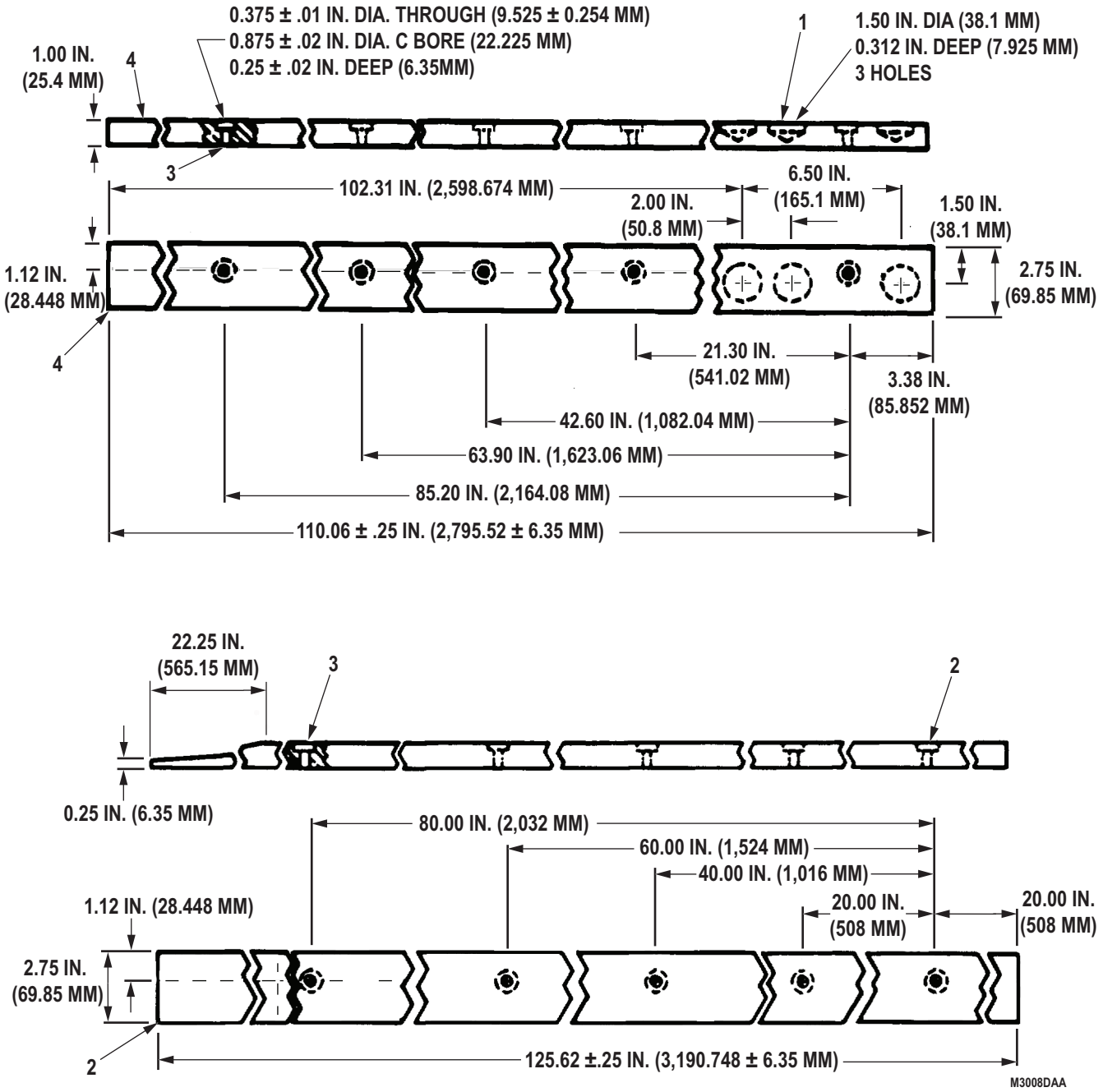


Figure 3. Cargo Frame Fabrication.

END OF TASK

INSTALLATION

1. Position frame rail sill (Figure 4, Item 4) on cargo body (Figure 4, Item 5).
2. Install frame rail sill (Figure 4, Item 4) on cargo body (Figure 4, Item 5) with ten screws (Figure 4, Item 3), lockwashers (Figure 4, Item 2), and nuts (Figure 4, Item 1), ensuring heads of screws rest in sill of counterbore. Tighten nuts 100 to 110 lb-ft. (11 to 12 N·m).

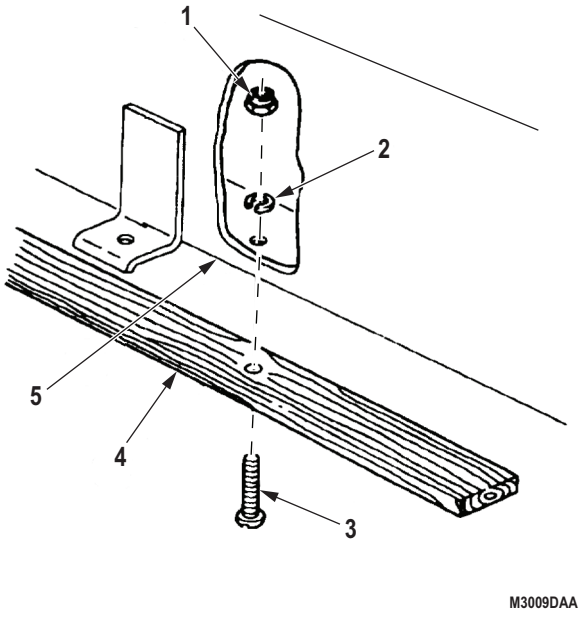


Figure 4. Frame Rail Sill Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

Install cargo body assembly. (WP 0588)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
DUMP BODY REPAIR

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)
Chain Assembly (2)
(Volume 5, WP 0826, Table 1, Item 15)
High Boy Jack Stands
(Volume 5, WP 0826, Table 1, Item 24)
Hoist Assembly
Wrench, Torque, Click, Ratcheting, 3/4" Drive, 600 Ft-Lb
(Volume 5, WP 0826, Table 1, Item 61)

Materials/Parts
Locknut (Volume 5, WP 0827, Table 1, Item 279)
Qty: 6

Materials/Parts (cont.)
Locknut (Volume 5, WP 0827, Table 1, Item 285)
Qty: 1
Locknut (Volume 5, WP 0827, Table 1, Item 313)
Qty: 1

Personnel Required
(3)

References
TM 43-0139
Volume 5, WP 0820

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Wheels chocked. (TM 9-2320-272-10)

REMOVAL

WARNING



- Lifting device must have a weight capacity greater than the combined weight of the dump body. Failure to comply may result in injury or death to personnel.
- All personnel must stand clear during lifting operations. A snapped cable, or swinging or shifting load, may occur. Failure to comply may result in injury or death to personnel.
- Never work under dump body until safety braces are properly positioned. Dump body may suddenly lower. Failure to comply may result in injury or death to personnel.

1. Place dump body (Figure 1, Item 1) in raised position (TM 9-2320-272-10).
2. Place safety braces (Figure 1, Item 14) in proper position (TM 9-2320-272-10).

NOTE

Step (3) applies to both left and right thrust plates.

3. Remove locknut (Figure 1, Item 3) and screw (Figure 1, Item 5) from thrust plate (Figure 1, Item 2) and thrust plate pin (Figure 1, Item 4). Discard locknut.
4. Remove safety braces (Figure 1, Item 14) and place dump body (Figure 1, Item 1) in lowest position (TM 9-2320-272-10).
5. Wrap two utility chains around subframe beam (Figure 1, Item 6) and fasten hooks over utility chains.
6. Attach lifting device to center of utility chains.
7. Raise lifting device until slack is removed from chains.

WARNING



Ensure dump control lever is in the NEUTRAL position and has not moved. Failure to comply may result in injury or death to personnel.

NOTE

Steps (8) through (11) apply to both left and right sides.

8. Remove thrust plate pin (Figure 1, Item 4) from thrust plate (Figure 1, Item 2) and roller arms (Figure 1, Item 15).
9. Remove six locknuts (Figure 1, Item 13) from hinge bracket (Figure 1, Item 9). Discard locknuts.
10. Remove locknut (Figure 1, Item 10), washer (Figure 1, Item 11), and screw (Figure 1, Item 12) from hinge bracket (Figure 1, Item 9). Discard locknut.
11. Connect two guide lines to front and rear of body (Figure 1, Item 1).

REMOVAL - Continued

WARNING



All personnel must stand clear during lifting operations. A snapped chain, or shifting or swinging load, may result in injury to personnel. Failure to comply may result in injury or death to personnel.

NOTE

Mechanic will handle one guide line and direct hoisting operation. Assistant will handle other guide line. Second assistant will operate lifting device.

12. Lift dump body (Figure 1, Item 1) clear of subframe (Figure 1, Item 7) and place on shop stands.
13. Remove six screws (Figure 1, Item 8) from dump body (Figure 1, Item 1).
14. Remove guide lines, lifting device, and utility chains from dump body (Figure 1, Item 1).

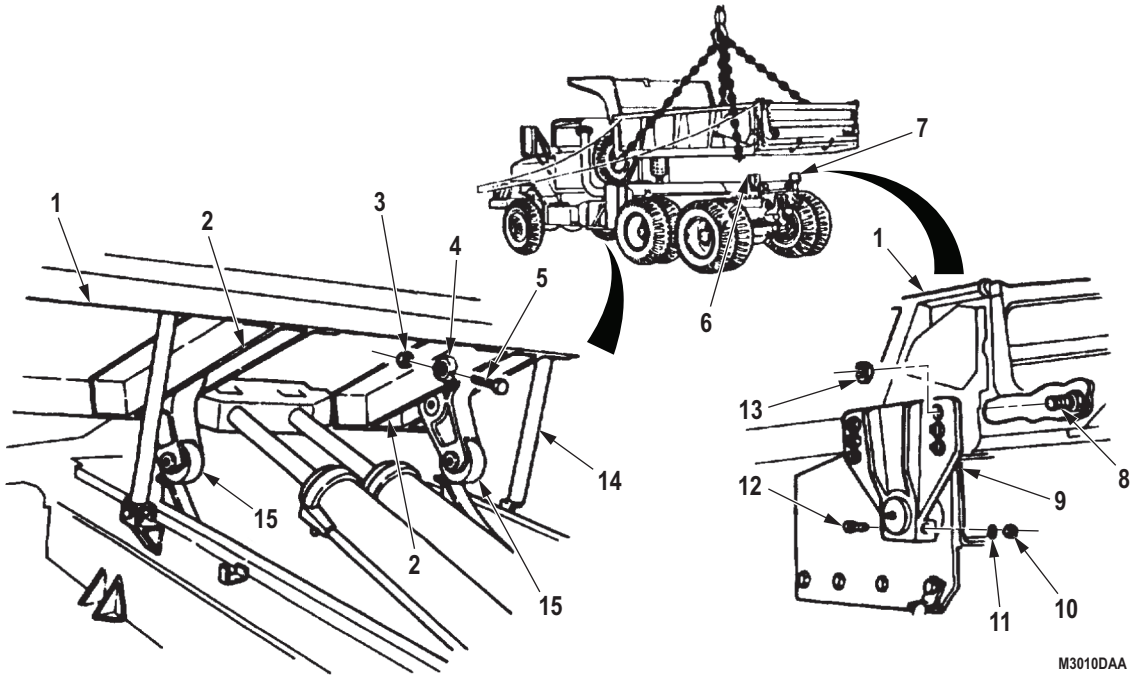


Figure 1. Dump Body Removal.

END OF TASK

INSPECTION AND REPAIR

1. Inspect dump body for breaks, dents, cracks, and rust. If breaks, dents, cracks, and rusted-through areas are found, repair (TM 43-0139).
2. Clean and paint dump body as necessary (TM 43-0139).

END OF TASK

INSTALLATION

WARNING



- Lifting device must have a weight capacity greater than the combined weight of the dump body. Failure to comply may result in damage to equipment, injury, or death to personnel.
- Ensure dump control lever is in the NEUTRAL position and has not moved. Failure to comply may result in injury or death to personnel.

1. Wrap two utility chains around dump body (Figure 2, Item 1) and fasten hooks over utility chains.
2. Attach lifting device to center of utility chains.
3. Connect two guide lines to front and rear of body (Figure 2, Item 1).

INSTALLATION - Continued

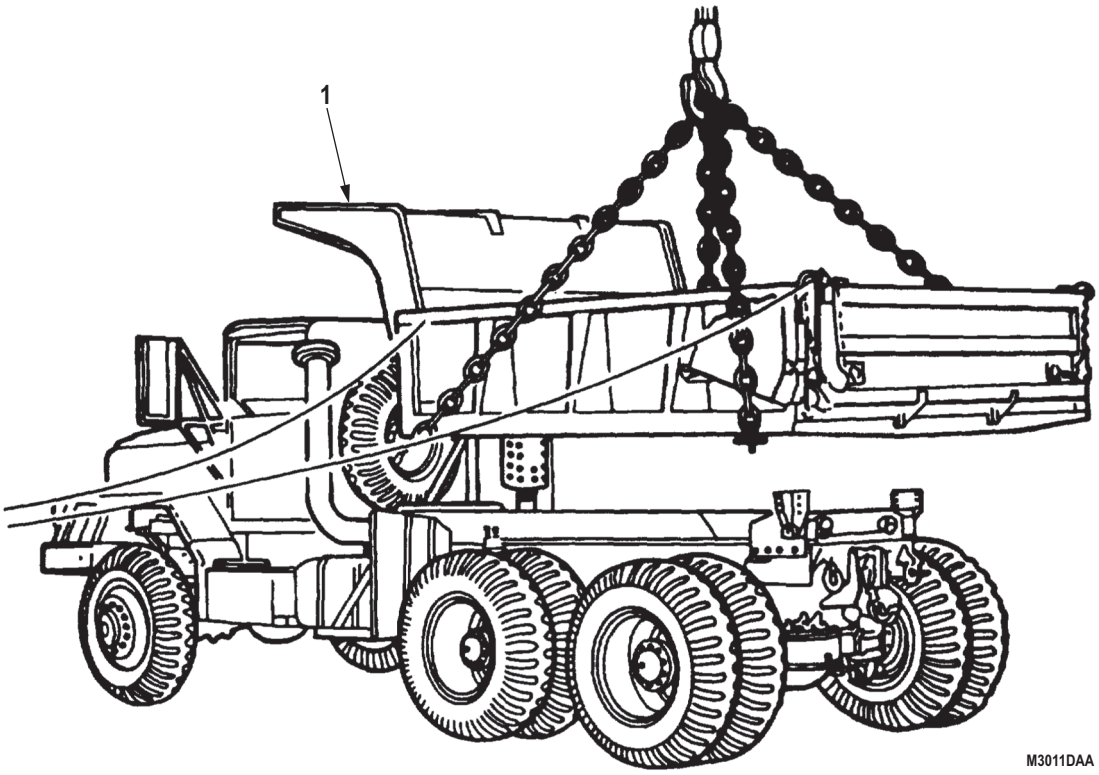


Figure 2. Dump Body Installation.

INSTALLATION - Continued

WARNING



All personnel must stand clear during lifting operations. A snapped chain, or shifting or swinging load, may result in injury to personnel. Failure to comply may result in injury or death to personnel.

NOTE

- Mechanic will handle one guide line and direct hoisting operation. Assistant will handle other guide line. Second assistant will operate lifting device.
- Steps (4) and (7) through (9) apply to both left and right sides.

4. Install six screws (Figure 3, Item 8) on left and right sides of dump body (Figure 3, Item 1).
5. Hoist dump body (Figure 3, Item 1) clear of shop stand.
6. Place dump body (Figure 3, Item 1) on subframe (Figure 3, Item 2).
7. Install two brackets (Figure 3, Item 9) on six screws (Figure 3, Item 8) with six locknuts (Figure 3, Item 13). Tighten locknuts to 240 lb-ft (325 N·m).
8. Install screw (Figure 3, Item 12), washer (Figure 3, Item 11), and locknut (Figure 3, Item 10) on each bracket (Figure 3, Item 9). Tighten locknut to 35 lb-ft (48 N·m).
9. Align roller arms (Figure 3, Item 15) and thrust plates (Figure 3, Item 2) and install thrust plate pin (Figure 3, Item 4).
10. Remove lifting device, utility chains, and guide lines from dump body (Figure 3, Item 7).

WARNING



Never work under dump body until safety braces are properly positioned. Dump body may suddenly lower. Failure to comply may result in injury or death to personnel.

11. Place dump body (Figure 3, Item 7) in raised position (TM 9-2320-272-10).
12. Place safety braces (Figure 3, Item 14) in proper position (TM 9-2320-272-10).

NOTE

Step (13) applies to both left and right thrust plates.

13. Install thrust plate pin (Figure 3, Item 4) on thrust plate (Figure 3, Item 2) with screw (Figure 3, Item 5) and locknut (Figure 3, Item 3). Tighten locknut to 35 lb-ft (48 N·m).

INSTALLATION - Continued

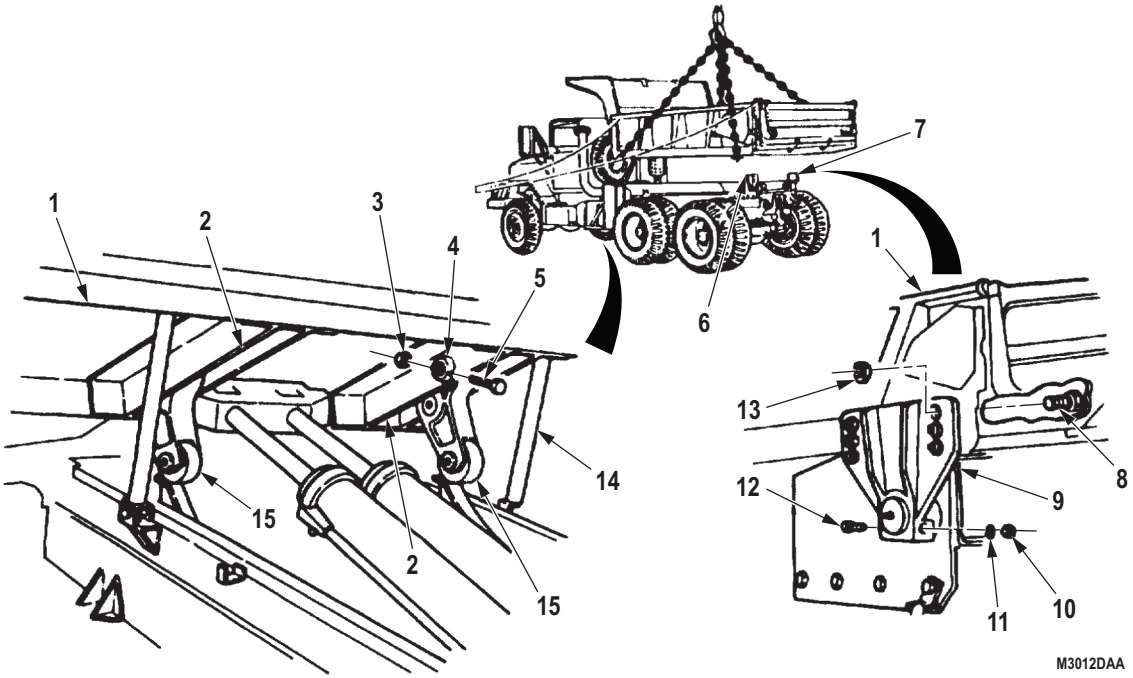


Figure 3. Dump Body Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

Lubricate dump body. (Volume 5, WP 0820)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
DUMP CAB PROTECTOR SHIELD REPAIR

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)
Chain Assembly
(Volume 5, WP 0826, Table 1, Item 15)
Hoist Assembly

Materials/Parts
Locknut (Volume 5, WP 0827, Table 1, Item 289)
Qty: 19

Personnel Required
(2)

References
TM 43-0139

References (cont.)
TM 9-237
Volume 5, WP 0819

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Wheels chocked. (TM 9-2320-272-10)

REMOVAL

1. Install two eyebolts (Figure 1, Item 6) into rear holes (Figure 1, Item 5) of cab protector (Figure 1, Item 2) with two washers (Figure 1, Item 4) and nuts (Figure 1, Item 3).
2. Attach two utility chains to eyebolts (Figure 1, Item 6) and opposite ends of cab protector front support channel (Figure 1, Item 1).

NOTE

Mechanic will direct hoisting operation while assistant operates lifting device.

3. Attach lifting device to center of two utility chains and remove slack from utility chains.

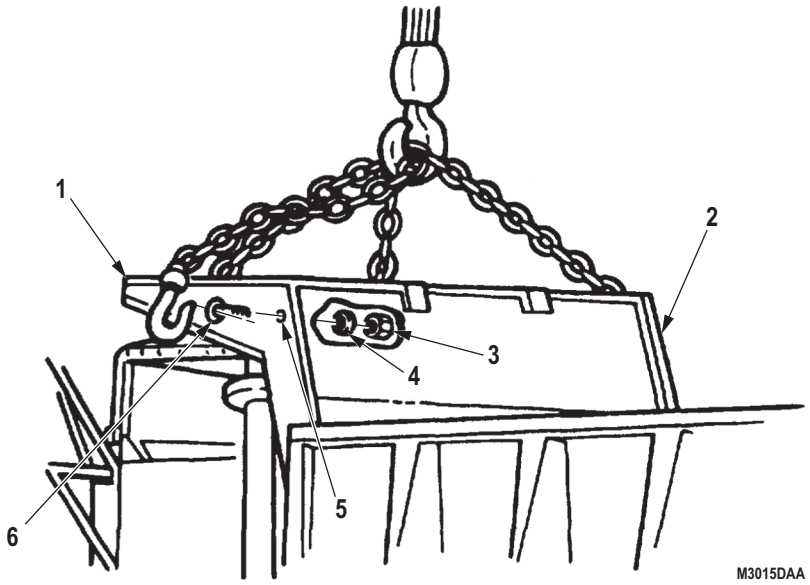


Figure 1. Dump Cab Protector Shield Removal.

4. Remove seven locknuts (Figure 2, Item 11), washers (Figure 2, Item 2), screws (Figure 2, Item 1), and washers (Figure 2, Item 2) from cab protector (Figure 2, Item 3) and dump body (Figure 2, Item 12). Discard locknuts.
5. Remove eight locknuts (Figure 2, Item 13), washers (Figure 2, Item 14), and screws (Figure 2, Item 9) from cab protector (Figure 2, Item 3) and two dump body extension brackets (Figure 2, Item 10). Discard locknuts.
6. Remove four locknuts (Figure 2, Item 4), washers (Figure 2, Item 5), and two screws (Figure 2, Items 7 and 8) from cab protector (Figure 2, Item 3) and dump body side support channel (Figure 2, Item 6). Discard locknuts.

REMOVAL - Continued

WARNING



All personnel must stand clear during lifting operations. A snapped chain, or shifting or swinging load, may result in injury to personnel. Failure to comply may result in injury or death to personnel.

7. Remove cab protector (Figure 2, Item 3) from two dump body extension brackets (Figure 2, Item 10) and position on four shop stands.
8. Remove lifting device and utility chains from cab protector (Figure 2, Item 3).

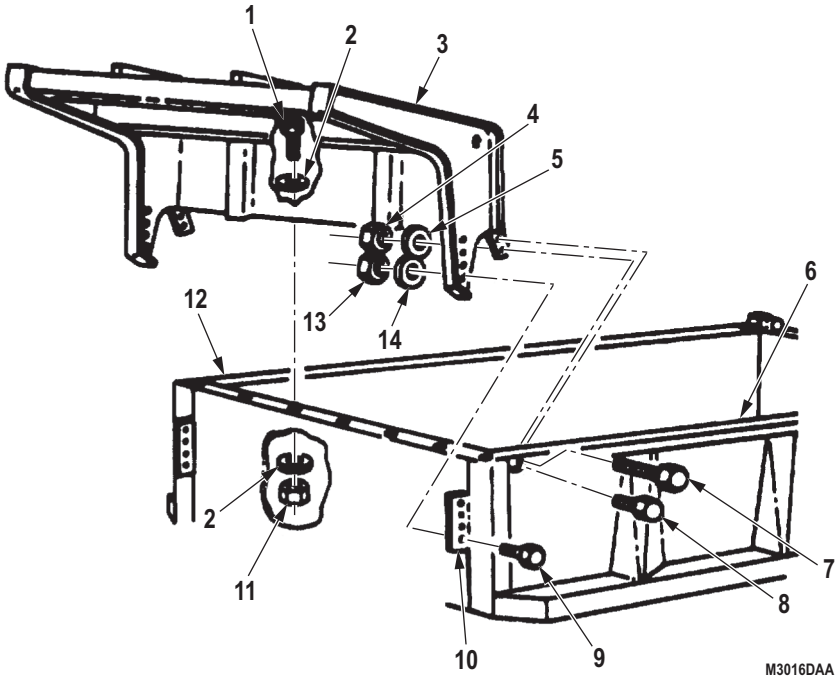


Figure 2. Dump Cab Protector Shield Removal.

REMOVAL - Continued

9. Remove two nuts (Figure 3, Item 2), washers (Figure 3, Item 3), and eyebolts (Figure 3, Item 5) from holes (Figure 3, Item 4) in cab protector (Figure 3, Item 1).

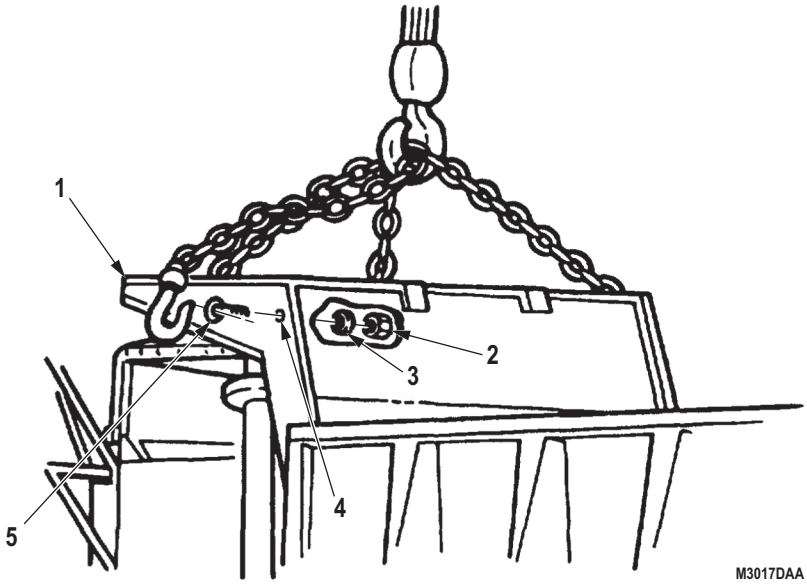


Figure 3. Dump Cab Protector Shield Removal.

END OF TASK

INSPECTION AND REPAIR

1. Insect cab protector for breaks, dents, and rust. (Volume 5, WP 0819) If breaks, dents, and rusted-through areas are found, repair (TM 9-237).
2. Clean and paint as necessary (TM 43-0139).

END OF TASK

INSTALLATION

1. Install two eyebolts (Figure 4, Item 6) into rear holes (Figure 4, Item 5) of cab protector (Figure 4, Item 2) with two washers (Figure 4, Item 4) and nuts (Figure 4, Item 3).
2. Attach two utility chains to eyebolts and opposite ends of cab protector front support channel (Figure 4, Item 1).

NOTE

Mechanic will direct hoisting operation while assistant operates lifting device.

3. Attach lifting device to center of two utility chains and remove slack from utility chains.

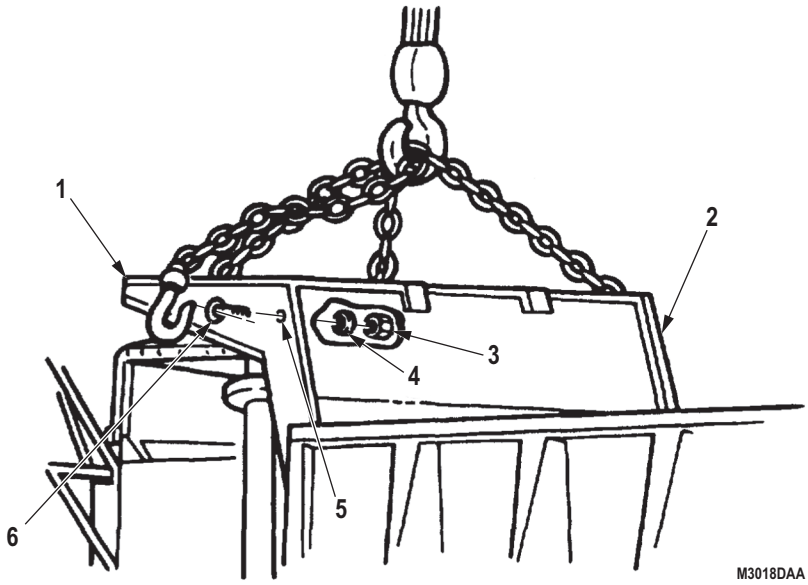


Figure 4. Dump Cab Protector Shield Installation.

INSTALLATION - Continued

WARNING



All personnel must stand clear during lifting operations. A snapped chain, or shifting or swinging load, may result in injury to personnel. Failure to comply may result in injury or death to personnel.

4. Remove cab protector (Figure 5, Item 3) from four shop stands and position on two dump body extension brackets (Figure 5, Item 10).
5. Using a drift pin, align mounting holes and install cab protector (Figure 5, Item 3) on two dump body extension brackets (Figure 5, Item 10) with eight screws (Figure 5, Item 9), washers (Figure 5, Item 14), and locknuts (Figure 5, Item 13).
6. Install cab protector (Figure 5, Item 3) on left and right dump body side support channel (Figure 5, Item 6) with two screws (Figure 5, Items 7 and 8), four washers (Figure 5, Item 5), and locknuts (Figure 5, Item 4).
7. Install cab protector (Figure 5, Item 3) on dump body (Figure 5, Item 12) with seven washers (Figure 5, Item 2), screws (Figure 5, Item 1), washers (Figure 5, Item 2), and locknuts (Figure 5, Item 11).
8. Remove lifting device and utility chains from cab protector (Figure 5, Item 3).

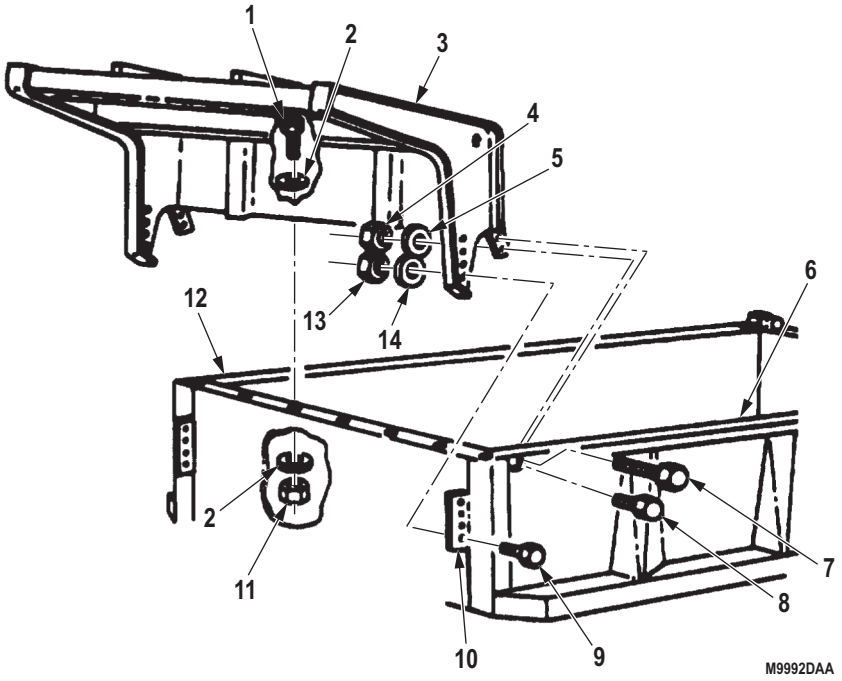


Figure 5. Dump Cab Protector Shield Installation.

INSTALLATION - Continued

9. Remove two nuts (Figure 6, Item 2), washers (Figure 6, Item 3), and eyebolts (Figure 6, Item 5) from holes (Figure 6, Item 4) in cab protector (Figure 6, Item 1).

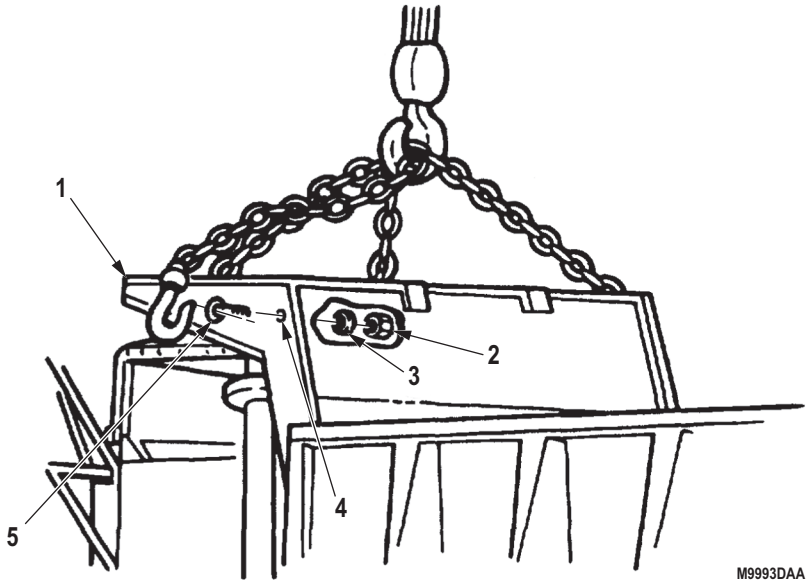


Figure 6. Dump Cab Protector Shield Installation.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
CARGO UPPER WHEEL SPLASH GUARD REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Lower splash guard removed.
(WP 0734)

Materials/Parts
Locknut (Volume 5, WP 0827, Table 1, Item 285)
Qty: 10

REMOVAL

1. Remove three locknuts (Figure 1, Item 1), screws (Figure 1, Item 4), and upper splash guard (Figure 1, Item 3) from weld bracket (Figure 1, Item 2). Discard locknuts.
2. Remove two locknuts (Figure 1, Item 7), screws (Figure 1, Item 6), and braces (Figure 1, Item 5) from weld bracket (Figure 1, Item 2). Discard locknuts.

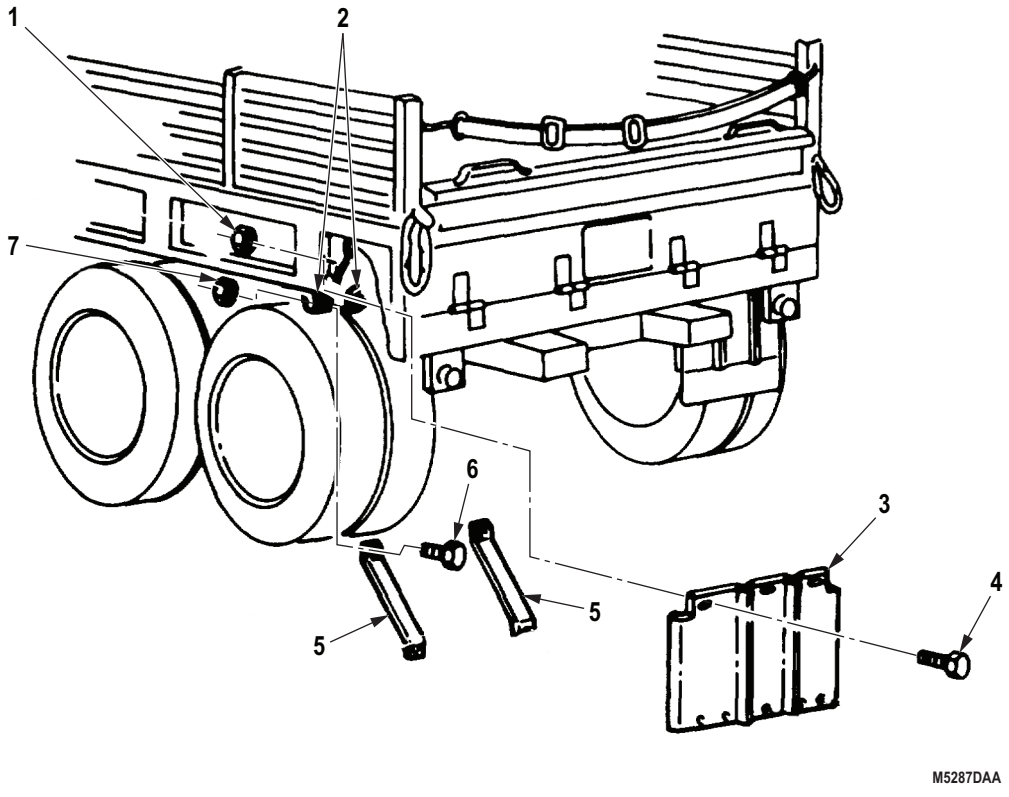


Figure 1. Upper Wheel Splash Guard Removal.

END OF TASK

INSTALLATION

1. Install two braces (Figure 2, Item 5) on weld bracket (Figure 2, Item 2) with two screws (Figure 2, Item 6) and locknuts (Figure 2, Item 7).
2. Install upper splash guard (Figure 2, Item 3) on weld bracket (Figure 2, Item 2) with three screws (Figure 2, Item 4) and locknuts (Figure 2, Item 1).

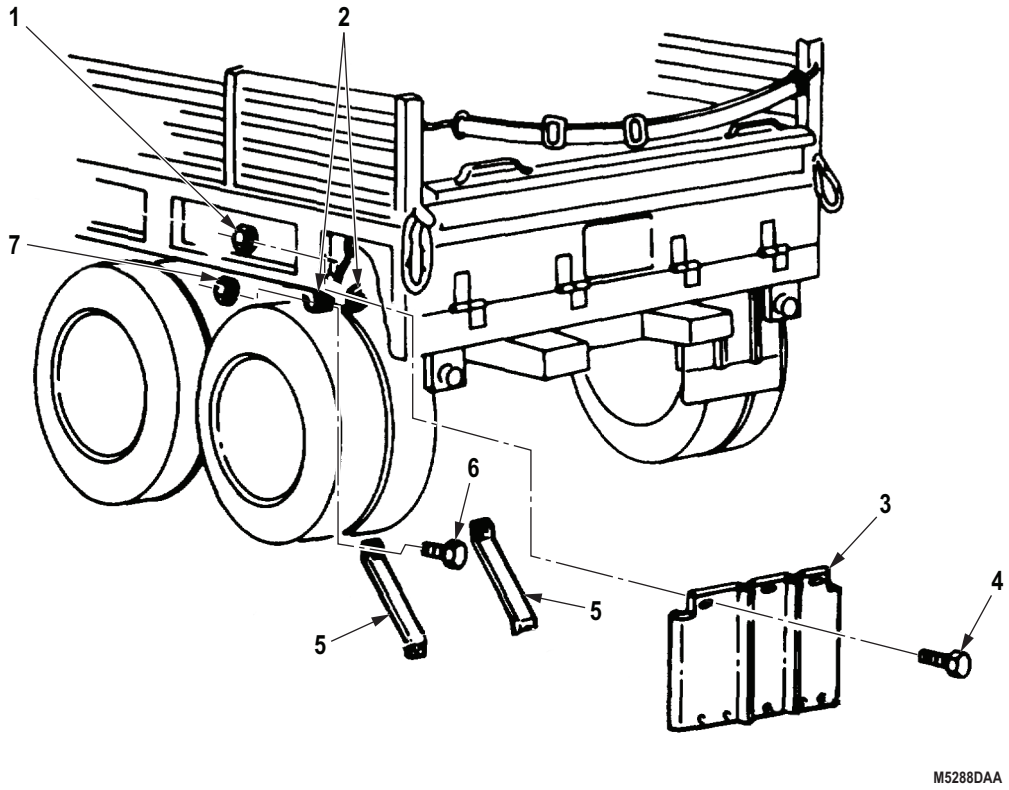


Figure 2. Upper Wheel Splash Guard Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

Install lower wheel splash guard. (WP 0734)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
SIDE LOCKING PIN RETAINING CLIP REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

Materials/Parts
Locknut (Volume 5, WP 0827, Table 1, Item 295)
Qty: 1

REMOVAL

Remove locknut (Figure 1, Item 5), screw (Figure 1, Item 3), and retaining clip (Figure 1, Item 2) from welded bracket (Figure 1, Item 4) on dropside (Figure 1, Item 1). Discard locknut.

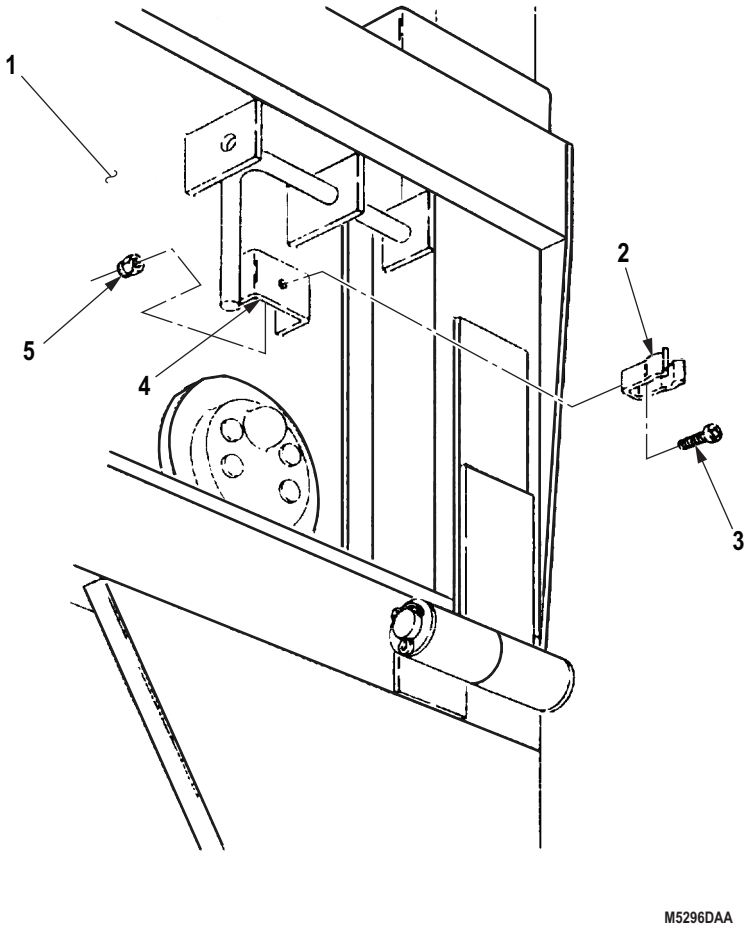


Figure 1. Side Locking Pin Retaining Clip Removal.

END OF TASK

INSTALLATION

Install retaining clip (Figure 2, Item 2) on welded bracket (Figure 2, Item 4) on dropside (Figure 2, Item 1) with screw (Figure 2, Item 3) and locknut (Figure 2, Item 5).

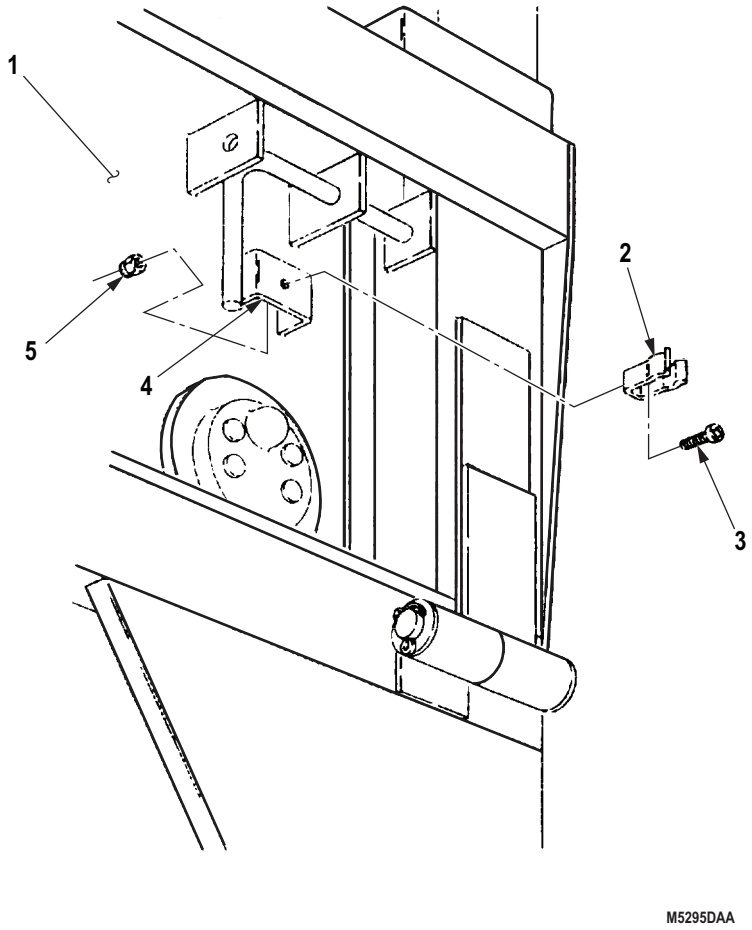


Figure 2. Side Locking Pin Retaining Clip Installation.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
TAILGATE PERSONNEL STEP REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Locknut (Volume 5, WP 0827, Table 1, Item 289)
Qty: 2

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Tailgate closed and secured. (TM 9-2320-272-10)

REMOVAL

NOTE

Left and right tailgate personnel steps are replaced the same. This procedure covers the left tailgate personnel step.

Remove two locknuts (Figure 1, Item 5), screws (Figure 1, Item 2), plate (Figure 1, Item 4), and personnel step (Figure 1, Item 3) from tailgate (Figure 1, Item 1). Discard locknuts.

END OF TASK

INSTALLATION

Install personnel step (Figure 1, Item 3) and plate (Figure 1, Item 4), on tailgate (Figure 1, Item 1) with two screws (Figure 1, Item 2) and locknuts (Figure 1, Item 5).

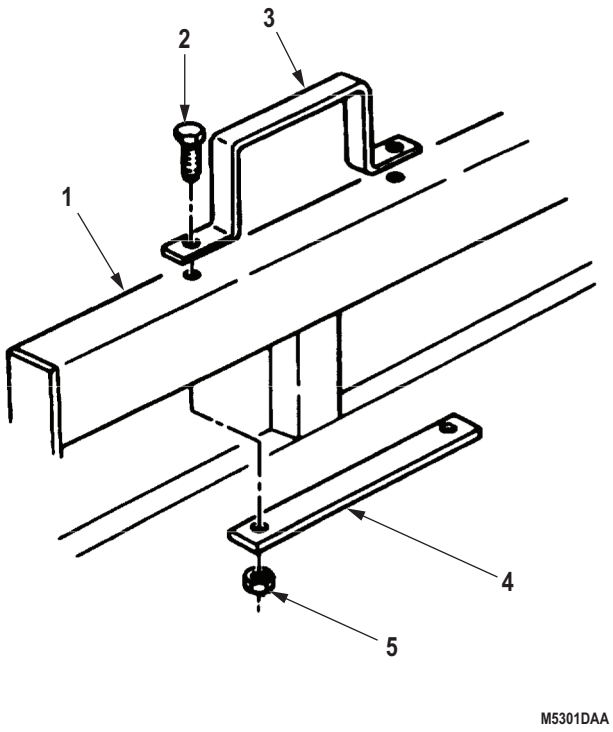


Figure 1. Tailgate Personnel Step Replacement.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
VAN REAR DOOR AND SIDE DOOR WINDOW REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Van body fully expanded and secured (side door window only). (TM 9-2320-272-10)

REMOVAL

Remove 21 screws (Figure 1, Item 3) and door window frame (Figure 1, Item 1) from door (Figure 1, Item 2).

END OF TASK

INSTALLATION

Install door window frame (Figure 1, Item 1) on door (Figure 1, Item 2) with 21 screws (Figure 1, Item 3).

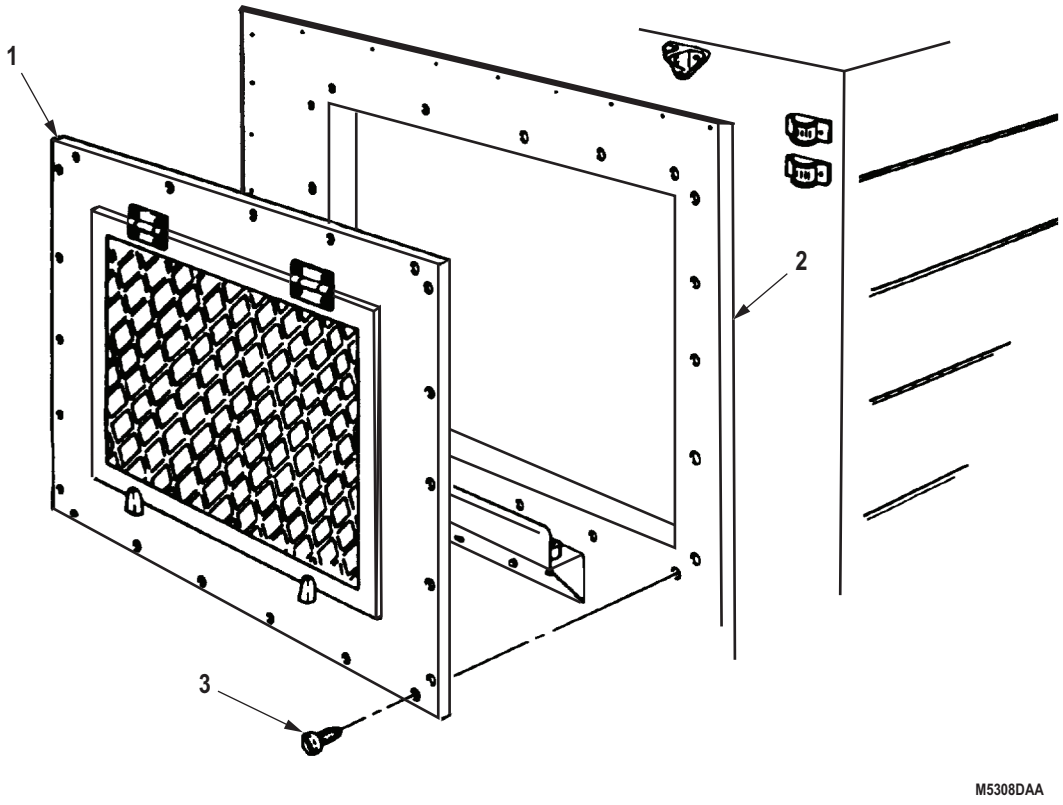


Figure 1. Van Rear Door and Side Door Window Replacement.

END OF TASK

FOLLOW-ON MAINTENANCE

Retract and secure van body (side door window only). (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
WINDOW BRUSH GUARD REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Van body fully expanded and secured (side door window only). (TM 9-2320-272-10)

REMOVAL

1. Release two latches (Figure 1, Item 4) and brush guard (Figure 1, Item 3) from window frame (Figure 1, Item 1).
2. Remove two setscrews (Figure 1, Item 6) and hinge pins (Figure 1, Item 5) from hinges (Figure 1, Item 2) and brush guard (Figure 1, Item 3) from window frame (Figure 1, Item 1).

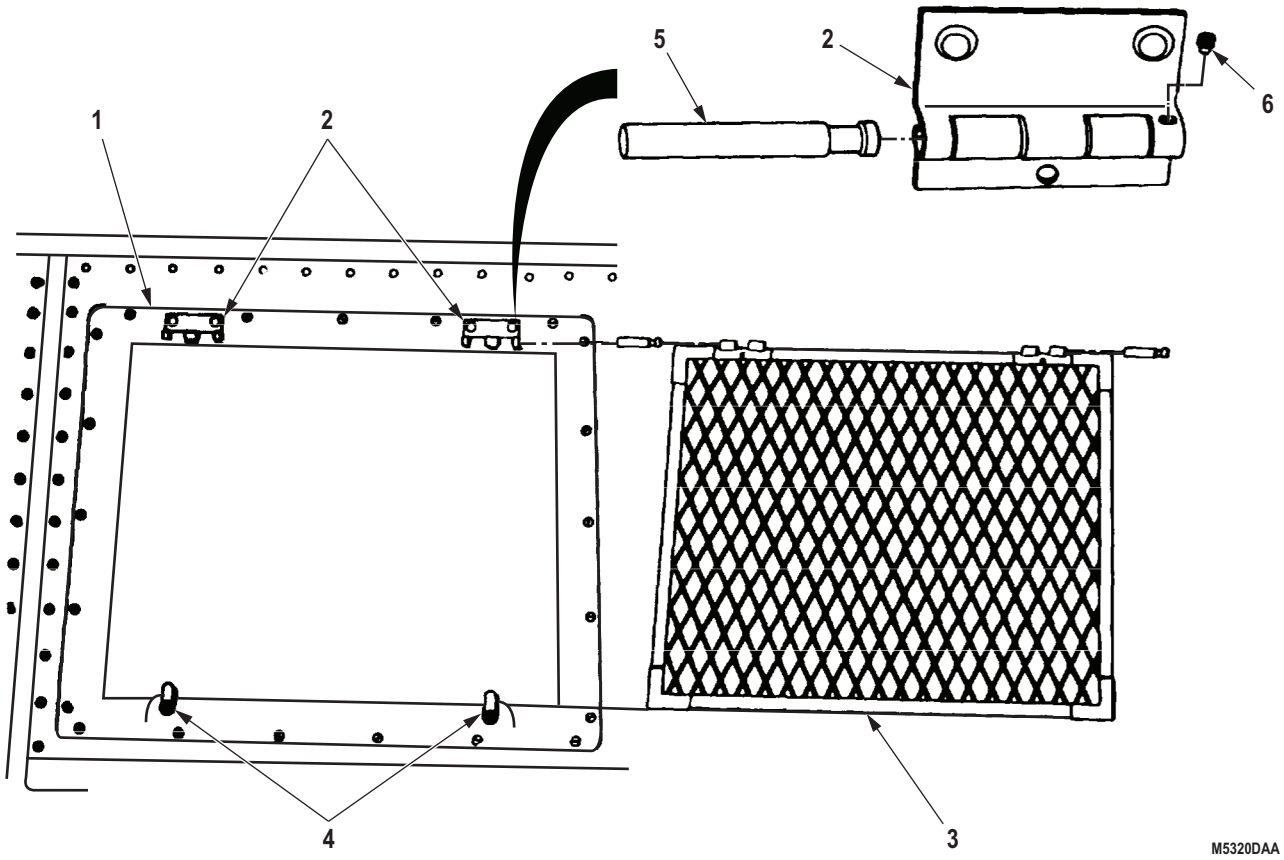


Figure 1. Window Brush Guard Removal.

END OF TASK

INSTALLATION

1. Position brush guard (Figure 2, Item 3) on window frame (Figure 2, Item 1) and two hinges (Figure 2, Item 2).
2. Insert two hinge pins (Figure 2, Item 5) through hinges (Figure 2, Item 2) and install with two setscrews (Figure 2, Item 6).
3. Secure brush guard (Figure 2, Item 3) on window frame (Figure 2, Item 1) with two latches (Figure 2, Item 4).

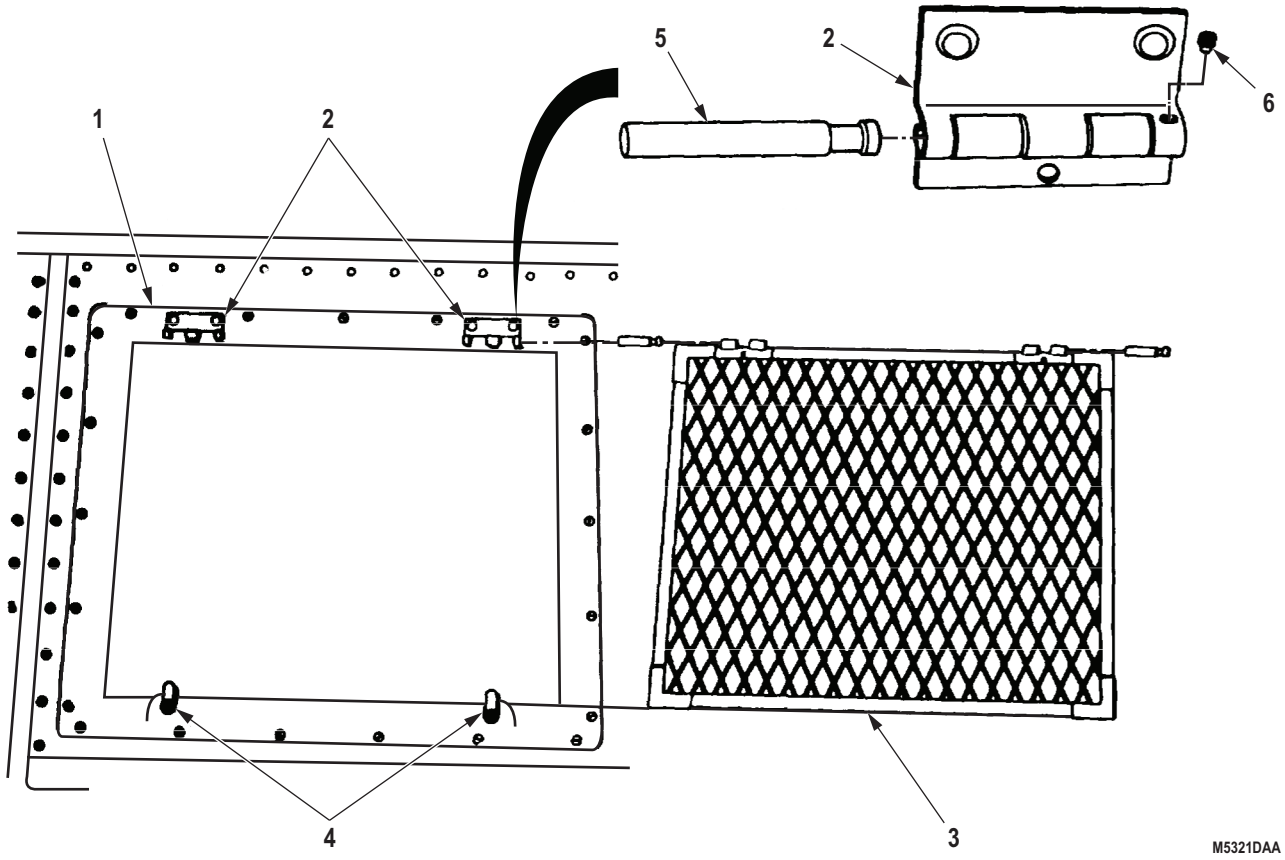


Figure 2. Window Brush Guard Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

Retract and secure van body (side door window only). (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
REAR DOOR REPAIR

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Adhesive, Silicone Rubber
(Volume 5, WP 0825, Table 1, Item 2)
Caulking Compound
(Volume 5, WP 0825, Table 1, Item 14)
Cotter Pin
(Volume 5, WP 0827, Table 1, Item 338)
Qty: 3
Gasket (Volume 5, WP 0827, Table 1, Item 23)
Qty: 1
Locknut (Volume 5, WP 0827, Table 1, Item 320)
Qty: 4
Lockwasher
(Volume 5, WP 0827, Table 1, Item 403)
Qty: 6
Rivet (Volume 5, WP 0827, Table 1, Item 309)
Qty: 7

Materials/Parts (cont.)
Rivet (Volume 5, WP 0827, Table 1, Item 310)
Qty: 3
Seal (Volume 5, WP 0827, Table 1, Item 24)
Qty: 1
Weather Seal
(Volume 5, WP 0827, Table 1, Item 58)
Qty: 1

Personnel Required
(2)

References
TM 43-0213
Volume 5, WP 0819

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Ladder removed. (TM 9-2320-272-10)
Rear door window removed. (WP 0599)

NOTE

Left and right doors are maintained basically the same way. This procedure covers the left door except where otherwise indicated.

REMOVAL

1. Remove two screws (Figure 1, Item 7), lockwashers (Figure 1, Item 6), strike (Figure 1, Item 5), and door check (Figure 1, Item 1) from door (Figure 1, Item 4). Discard lockwashers.
2. Remove 15 screws (Figure 1, Item 3) and door (Figure 1, Item 4) from van body (Figure 1, Item 2).

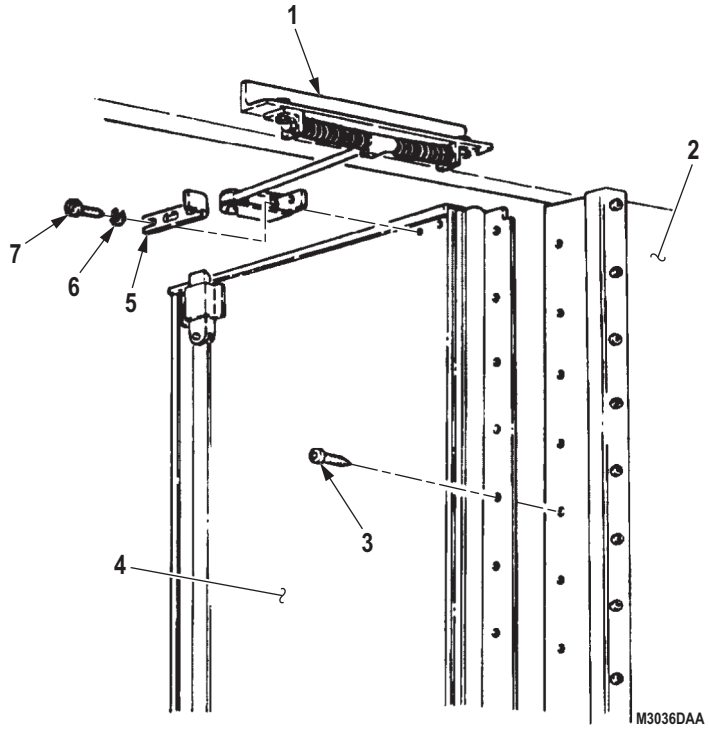


Figure 1. Rear Door Removal.

END OF TASK

DISASSEMBLY

1. Remove two screws (Figure 2, Item 5) and angle bracket (Figure 2, Item 4) from outer panel (Figure 2, Item 3).
2. Remove four screws (Figure 2, Item 6), lockwashers (Figure 2, Item 7), and clamp (Figure 2, Item 8) from outer panel (Figure 2, Item 3). Discard lockwashers.
3. Remove four screws (Figure 2, Item 9), two screws (Figure 2, Item 1), washers (Figure 2, Item 2), bushings (Figure 2, Item 11), locknuts (Figure 2, Item 12), and rack (Figure 2, Item 10) from outer panel (Figure 2, Item 3). Discard locknuts.

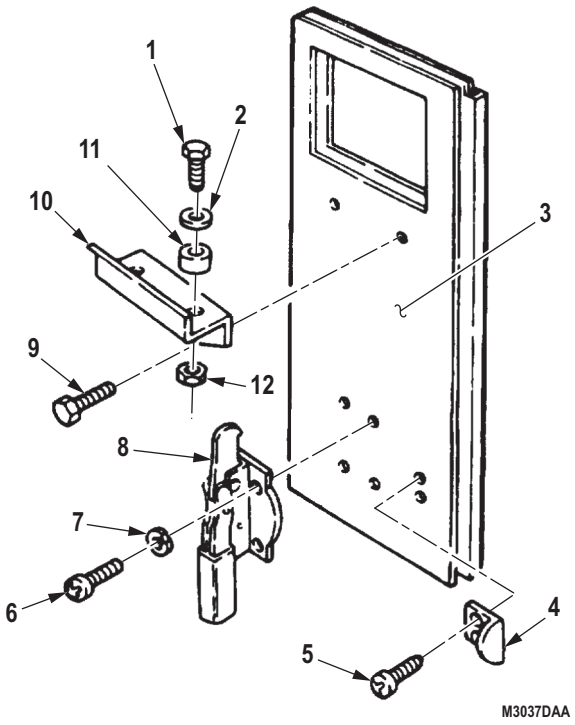


Figure 2. Rear Door Disassembly.

DISASSEMBLY - Continued

4. Remove seven rivets (Figure 3, Item 17) and seal (Figure 3, Item 16) from door frame (Figure 3, Item 26). Discard rivets.

NOTE

Step (5) applies to left rear door only.

5. Remove four screws (Figure 3, Item 27), clip (Figure 3, Item 29), six screws (Figure 3, Item 31), and bracket (Figure 3, Item 30) from inner panel (Figure 3, Item 25).

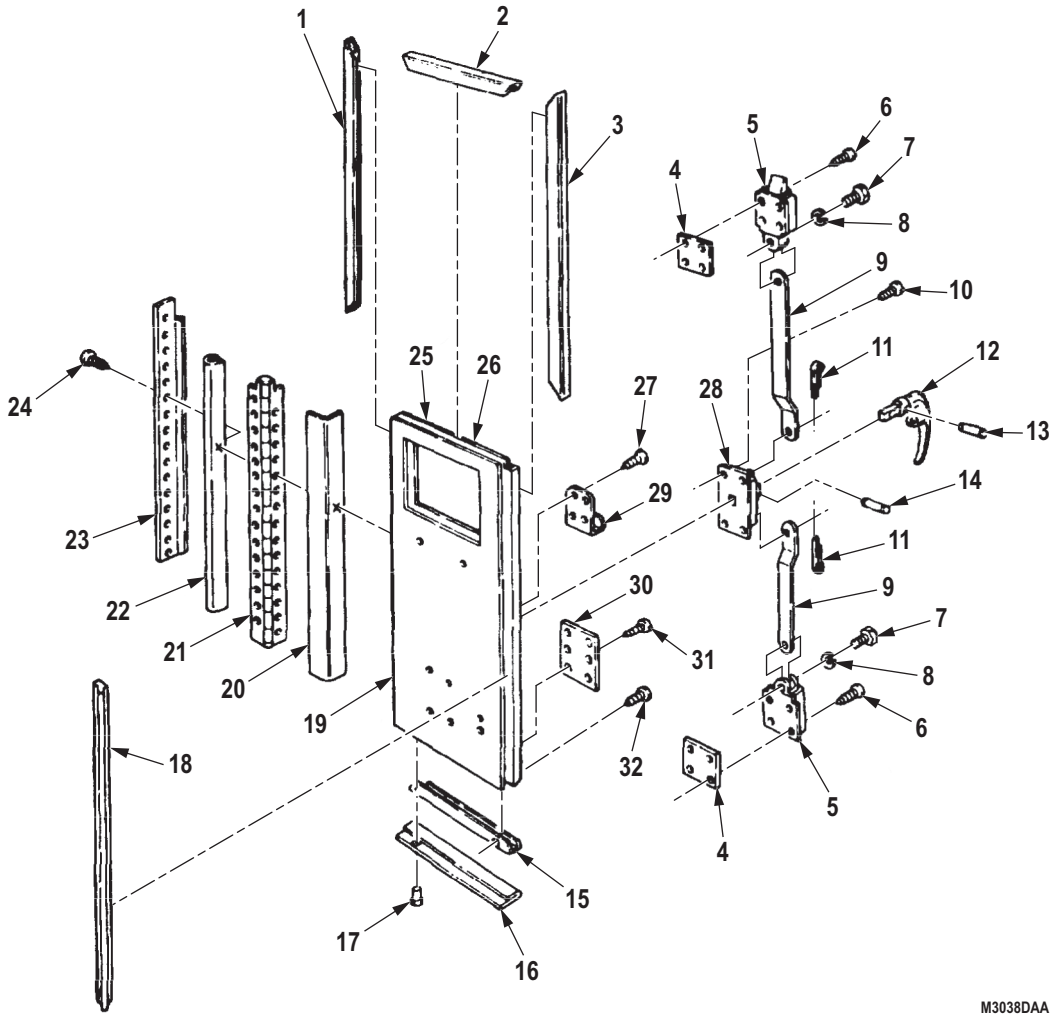


Figure 3. Rear Door Disassembly.

6. Remove two cotter pins (Figure 3, Item 11), screws (Figure 3, Item 7), lockwashers (Figure 3, Item 8), and rod (Figure 3, Item 9) from center case (Figure 3, Item 28) and two bolt and case assemblies (Figure 3, Item 5). Discard lockwashers and cotter pins.

7. Remove pins (Figure 3, Items 13 and 14) and handle (Figure 3, Item 12) from center case (Figure 3, Item 28).

8. Remove four screws (Figure 3, Item 10) and center case (Figure 3, Item 28) from inner panel (Figure 3, Item 25).

DISASSEMBLY - Continued

9. Remove eight screws (Figure 3, Item 6), two bolt and case assemblies (Figure 3, Item 5), and spacer plates (Figure 3, Item 4) from inner panel (Figure 3, Item 25).
10. Remove 16 screws (Figure 3, Item 24), retainer (Figure 3, Item 23), seal (Figure 3, Item 22), hinge (Figure 3, Item 21), and seal (Figure 3, Item 20) from door frame (Figure 3, Item 26). Discard seals.
11. Break adhesive seal and remove moldings (Figure 3, Items 1, 2, and 3) from inner panel (Figure 3, Item 25).

NOTE

Steps (12) and (13) apply to left rear door only.

12. Break adhesive seal and remove weather seal (Figure 3, Item 18) from door frame (Figure 3, Item 26). Discard weather seal.
13. Remove 35 screws (Figure 3, Item 32) and molding (Figure 3, Item 15) from door frame (Figure 3, Item 26).

NOTE

Steps (14) and (15) applies to right rear door only.

14. Remove 34 screws (Figure 3, Item 32) and molding (Figure 3, Item 15) from door frame (Figure 3, Item 26).
15. Remove three rivets (Figure 4, Item 3), handle (Figure 4, Item 2), and gasket (Figure 4, Item 1) from outer panel. Discard rivets.

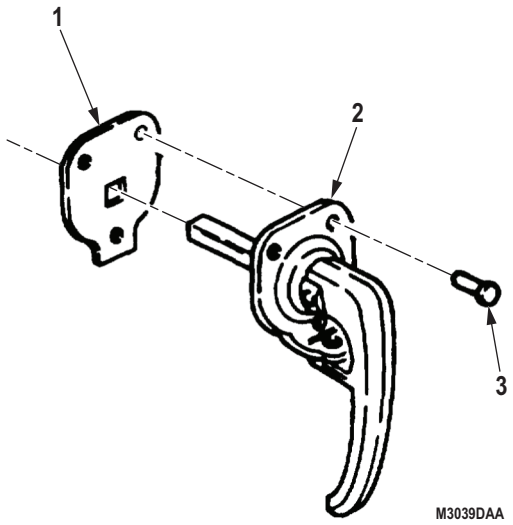


Figure 4. Rear Door Disassembly.

END OF TASK

CLEANING AND INSPECTION

1. For General Cleaning Instructions, refer to (Volume 5, WP 0819).
2. Inspect all center case movable parts for proper operation. Replace any parts if damaged.
3. Inspect rods for breaks and bends. Replace rods if damaged.
4. Inspect moldings for cracks and bends. Replace moldings if damaged.

END OF TASK

ASSEMBLY

1. Rustproof all inside surfaces and boxed-in areas (TB 43-0213).

NOTE

- Apply caulking compound between exterior joints.
- Apply adhesive to rubber and metal surfaces for installation.
- Step (2) applies to right rear door only.

2. Install molding (Figure 5, Item 15) on door frame (Figure 5, Item 26) with 34 screws (Figure 5, Item 32).

NOTE

Steps (3) and (4) apply to left rear door only.

3. Install molding (Figure 5, Item 15) on door frame (Figure 5, Item 26) with 35 screws (Figure 5, Item 32).
4. Install weather seal (Figure 5, Item 18) on door frame (Figure 5, Item 26) with adhesive.
5. Install moldings (Figure 5, Items 1, 2, and 3) on inner panel (Figure 5, Item 25) with adhesive.
6. Install seal (Figure 5, Item 20), hinge (Figure 5, Item 21), seal (Figure 5, Item 22), and retainer (Figure 5, Item 23) on door frame (Figure 5, Item 26) with 16 screws (Figure 5, Item 24).
7. Install two spacer plates (Figure 5, Item 4) and bolt and case assemblies (Figure 5, Item 5) on inner panel (Figure 5, Item 25) with eight screws (Figure 5, Item 6).
8. Install center case (Figure 5, Item 28) on inner panel (Figure 5, Item 25) with four screws (Figure 5, Item 10).
9. Install handle (Figure 5, Item 14) on center case (Figure 5, Item 28) with pins (Figure 5, Items 13 and 14).
10. Install two rods (Figure 5, Item 9) on center case (Figure 5, Item 28) and two bolt and case assemblies (Figure 5, Item 5) with two cotter pins (Figure 5, Item 11), lockwashers (Figure 5, Item 8), and screws (Figure 6, Item 7).
11. Install clip (Figure 5, Item 29) and bracket (Figure 5, Item 30) on outer panel (Figure 5, Item 19) with four screws (Figure 5, Item 27) and six screws (Figure 5, Item 31).
12. Install seal (Figure 5, Item 16) on door frame (Figure 5, Item 26) with seven rivets (Figure 5, Item 17).

ASSEMBLY - Continued

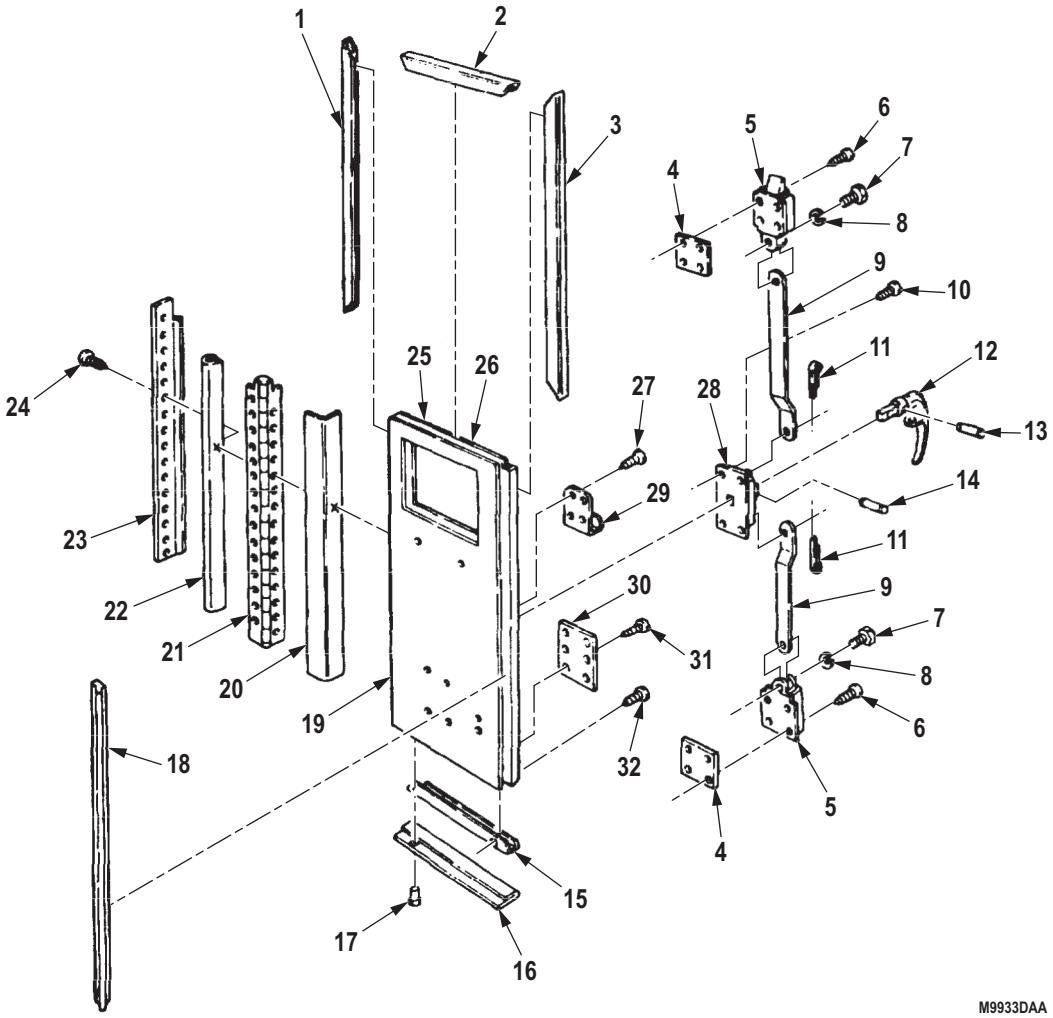


Figure 5. Rear Door Assembly.

ASSEMBLY - Continued

NOTE

Step (13) applies to right rear door only.

13. Install gasket (Figure 6, Item 1) and handle (Figure 6, Item 2) on outer panel with three rivets (Figure 6, Item 3).

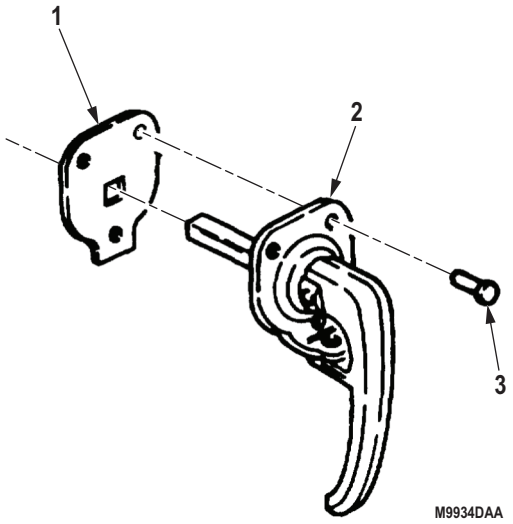


Figure 6. Rear Door Assembly.

14. Install rack (Figure 7, Item 10) on outer panel (Figure 7, Item 3) with four screws (Figure 7, Item 9), bushings (Figure 7, Item 11), washers (Figure 7, Item 2), two screws (Figure 7, Item 1), and locknuts (Figure 7, Item 12).

15. Install clamp (Figure 7, Item 8) on outer panel (Figure 7, Item 3) with four screws (Figure 7, Item 6) and lockwashers (Figure 7, Item 7).

16. Install two angle brackets (Figure 7, Item 4) on outer panel (Figure 7, Item 3) with two screws (Figure 7, Item 5).

ASSEMBLY - Continued

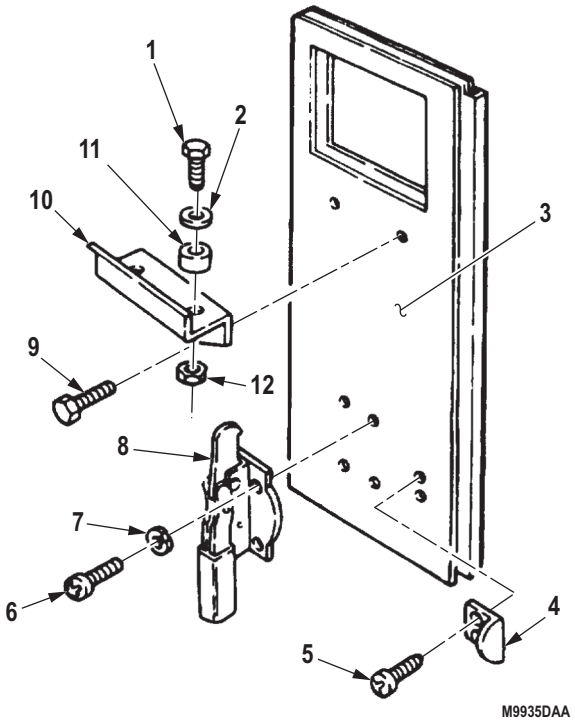


Figure 7. Rear Door Assembly.

END OF TASK

INSTALLATION

NOTE

- Align holes of door hinge with holes in van body for installation.
- Assistant will help with Step (1).

1. Install door (Figure 8, Item 4) on van body (Figure 8, Item 2) with 15 screws (Figure 8, Item 3).
2. Install door (Figure 8, Item 4) on door check (Figure 8, Item 1) with strike (Figure 8, Item 5), lockwasher (Figure 8, Item 6), and screw (Figure 8, Item 7).

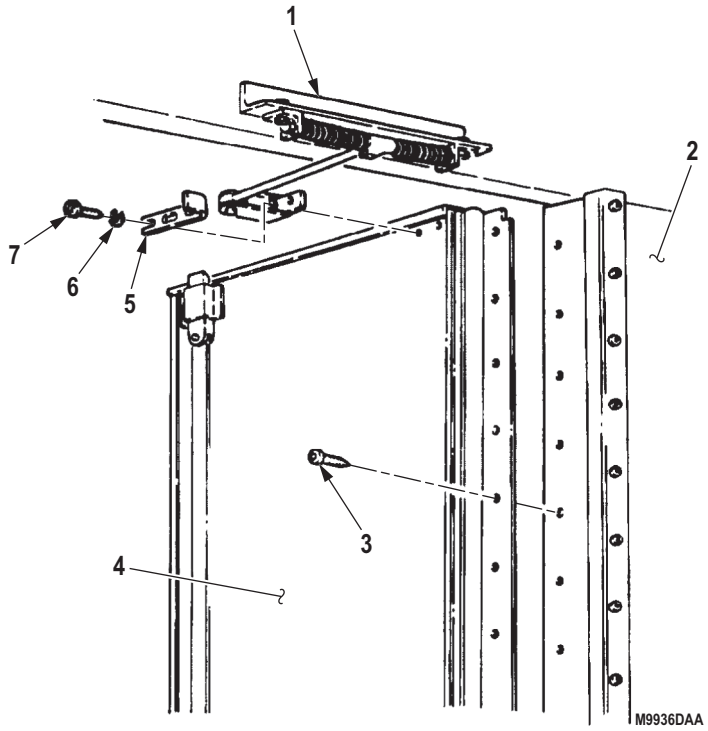


Figure 8. Rear Door Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install rear door window. (WP 0599)
2. Install ladder. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
VAN SIDE DOORS MAINTENANCE

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Lockwasher
(Volume 5, WP 0827, Table 1, Item 403)
Qty: 2

Personnel Required
(2)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Van body sides fully expanded and secured. (TM 9-2320-272-10)
Side door window removed. (WP 0599)

REMOVAL

NOTE

Left and right side doors are replaced the same way. This procedure is for the left side door.

1. Remove two screws (Figure 1, Item 1), lockwashers (Figure 1, Item 2), bracket (Figure 1, Item 3), and door check lever (Figure 1, Item 4) from door (Figure 1, Item 5). Discard lockwashers.

NOTE

Assistant will help with Step (2).

2. Remove 15 screws (Figure 1, Item 6) and door (Figure 1, Item 5) from side panel of van body (Figure 1, Item 7).

REMOVAL - Continued

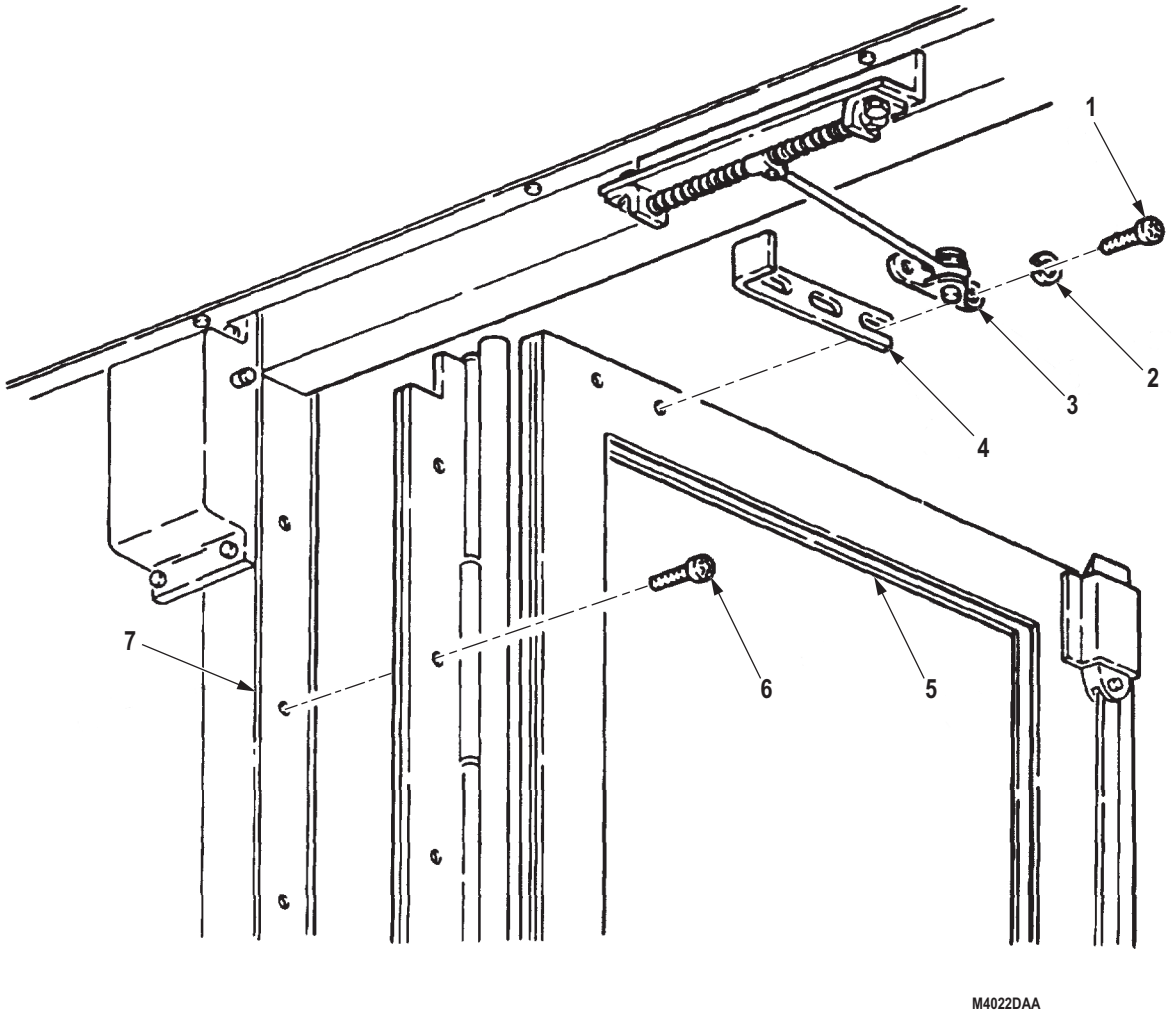


Figure 1. Side Doors Removal.

END OF TASK

INSTALLATION

NOTE

Assistant will help with Step (1).

1. Install door (Figure 2, Item 5) on side panel of van body (Figure 2, Item 7) with 15 screws (Figure 2, Item 6).
2. Install door check lever (Figure 2, Item 4) and bracket (Figure 2, Item 3) on door (Figure 2, Item 5) with two lockwashers (Figure 2, Item 2) and screws (Figure 2, Item 1).

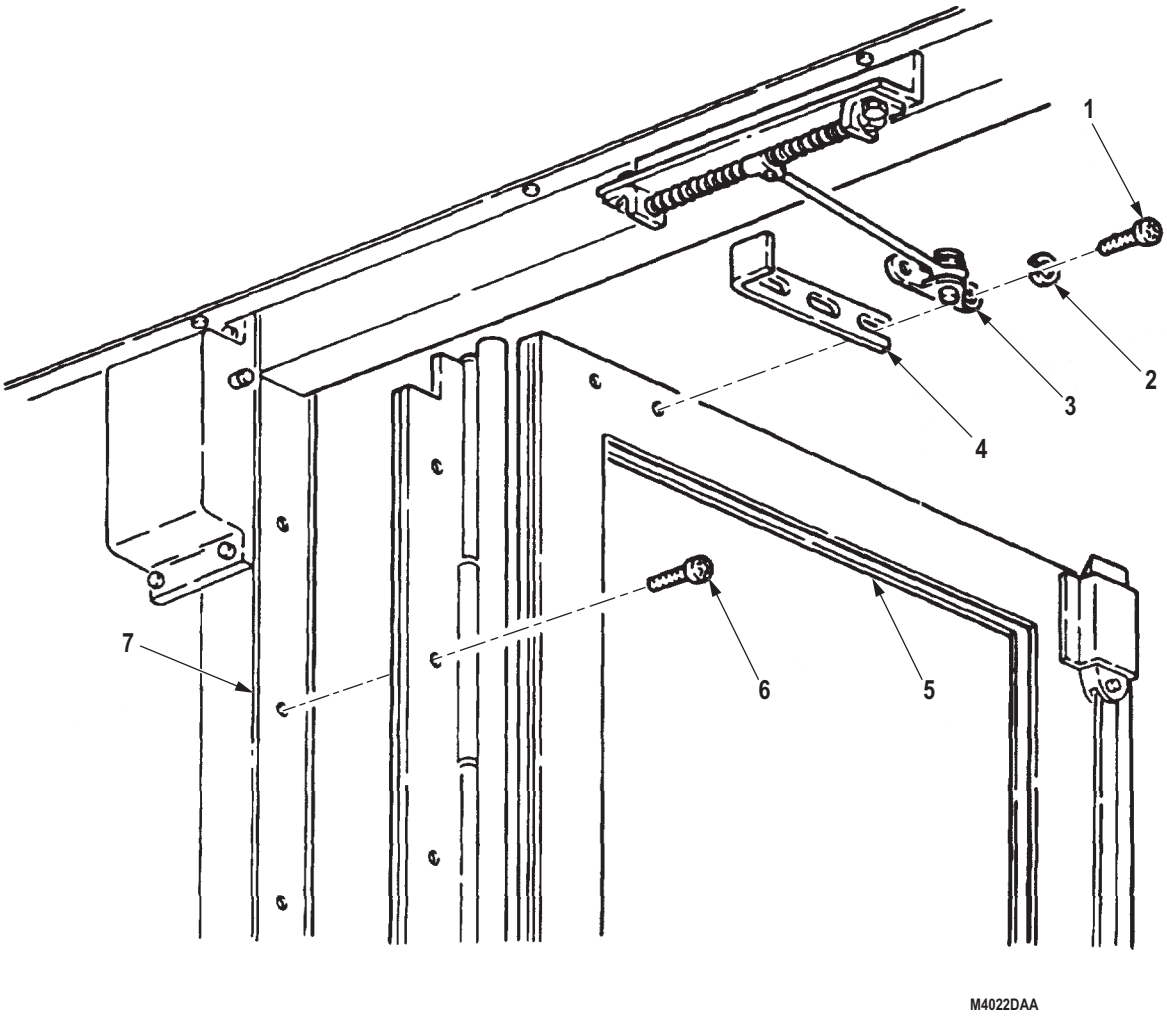


Figure 2. Side Doors Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install side door window. (WP 0599)
2. Retract van body sides. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
VAN HINGED END PANEL REPAIR

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Caulking Compound
(Volume 5, WP 0825, Table 1, Item 14)
Rivet (Volume 5, WP 0827, Table 1, Item 307)
Qty: 12
Rivet (Volume 5, WP 0827, Table 1, Item 308)
Qty: 18
Seal (Volume 5, WP 0827, Table 1, Item 17)
Qty: 1

Materials/Parts (cont.)
Seal (Volume 5, WP 0827, Table 1, Item 26)
Qty: 1
Seal (Volume 5, WP 0827, Table 1, Item 237)
Qty: 1

Personnel Required
(2)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Van body sides fully extended and secured.
(TM 9-2320-272-10)

NOTE

All hinged end panels are removed the same way. This procedure covers the left rear hinged end panel.

REMOVAL

1. Remove 16 screws (Figure 1, Item 4) from end panel hinge (Figure 1, Item 2) and side panel (Figure 1, Item 1).

NOTE

Assistant will help with Step (2).

2. Remove panel frame (Figure 1, Item 3) as an assembly from side panel (Figure 1, Item 1).

REMOVAL - Continued

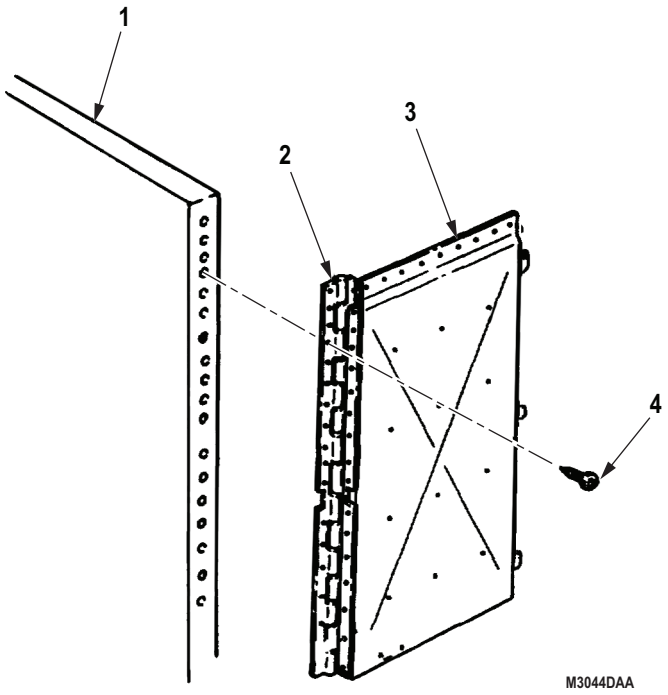


Figure 1. Hinged End Panel Removal.

END OF TASK

DISASSEMBLY

1. Remove 16 screws (Figure 2, Item 17), hinge (Figure 2, Item 19), and seal (Figure 2, Item 20) from panel frame (Figure 2, Item 24). Discard seal.
2. Remove 27 screws (Figure 2, Item 7), retainer (Figure 2, Item 9), and seal (Figure 2, Item 8) from panel frame (Figure 2, Item 24). Discard seal.
3. Remove ten screws (Figure 2, Item 1), retainers (Figure 2, Items 2 and 3), and seal (Figure 2, Item 4) from channel (Figure 2, Item 5). Discard seal.
4. Remove 18 rivets (Figure 2, Item 6), 20 screws (Figure 2, Item 16), and channels (Figure 2, Items 5 and 15) from outer skin (Figure 2, Item 11) and inner skin (Figure 2, Item 22). Discard rivets.
5. Remove two screws (Figure 2, Item 14), strap (Figure 2, Item 13), and spacer plate (Figure 2, Item 12) from outer skin (Figure 2, Item 11).

NOTE

- Perform Steps (6) and (7) only if skins are to be replaced. See CLEANING AND INSPECTION.
- Assistant will help with Steps (6) and (7).

6. Remove 12 rivets (Figure 2, Item 10) and outer skin (Figure 2, Item 11) from panel frame (Figure 2, Item 24). Discard rivets.
7. Remove 30 screws (Figure 2, Item 23), 18 screws (Figure 2, Item 21), and inner skin (Figure 2, Item 22) from panel frame (Figure 2, Item 24).

DISASSEMBLY - Continued

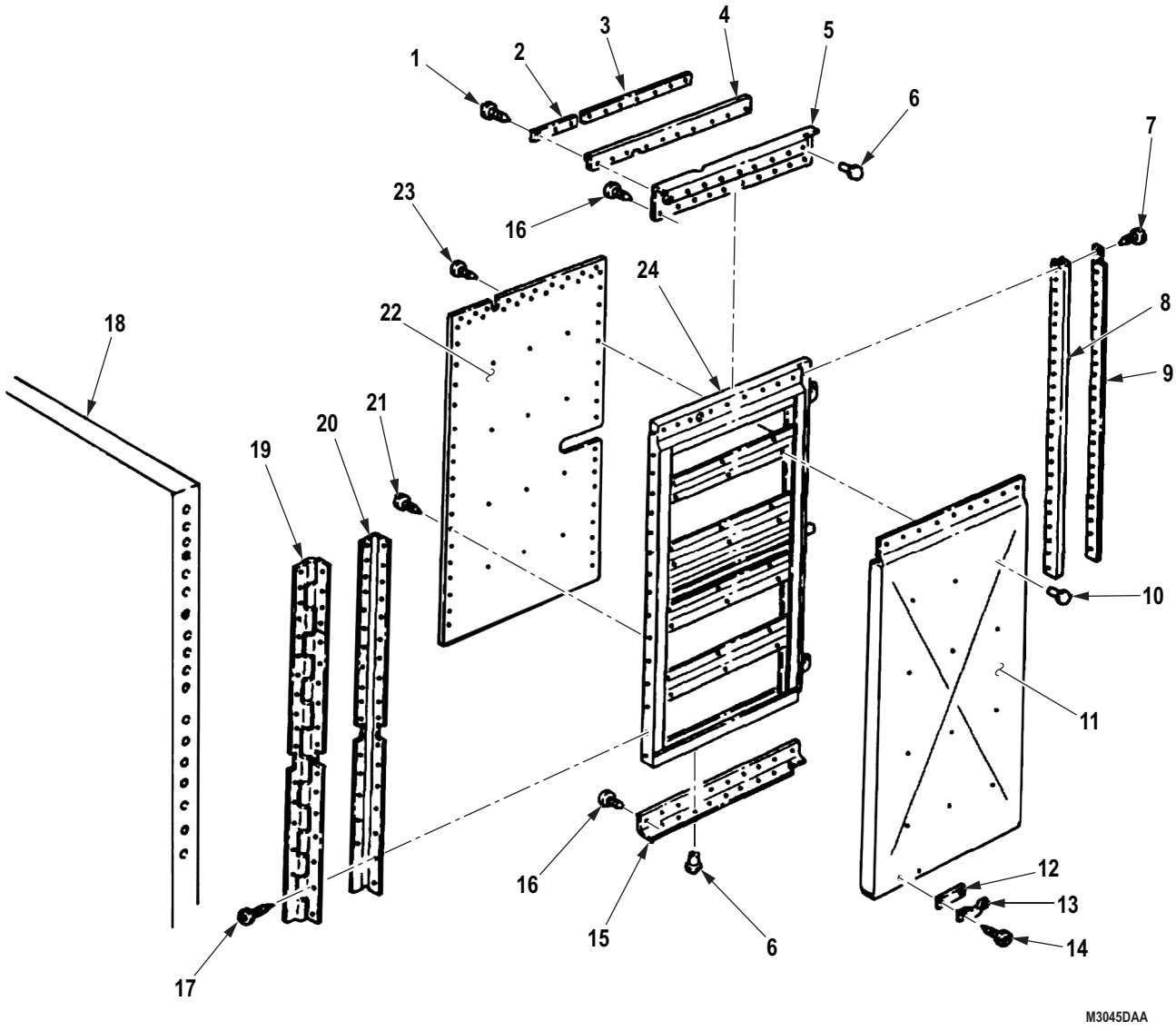


Figure 2. Hinged End Panel Disassembly.

END OF TASK

CLEANING AND INSPECTION

1. Clean all parts.
2. Inspect channels for cracks and bends. Replace channels if cracked or broken.
3. Inspect retainers, spacer plate, and strap for bends and breaks. Replace retainers, spacer plate, or strap if bent or broken.
4. Inspect hinge for cracks, breaks, corrosion, and proper operation.
5. Inspect inner skin and outer skin for tears and punctures. Replace inner skin or outer skin if torn and punctured.
6. Inspect panel frame for cracks and bends. Replace panel frame if cracked or broken.

END OF TASK

ASSEMBLY

NOTE

- Seal all exterior joints with caulking compound.
- Perform Steps (1) and (2) only if skins are to be replaced.
- Assistant will help with Steps (1) and (2).

1. Install inner skin (Figure 3, Item 22) on panel frame (Figure 3, Item 24) with 30 screws (Figure 3, Item 23) and 18 screws (Figure 3, Item 21).
2. Install outer skin (Figure 3, Item 11) on panel frame (Figure 3, Item 24) with 12 rivets (Figure 3, Item 10).
3. Install spacer plate (Figure 3, Item 12) and strap (Figure 3, Item 13) on outer skin (Figure 3, Item 11) with two screws (Figure 3, Item 14).
4. Install channels (Figure 3, Items 5 and 15) on outer skin (Figure 3, Item 11) and inner skin (Figure 3, Item 22) with 18 rivets (Figure 3, Item 6) and 20 screws (Figure 3, Item 16).
5. Install seal (Figure 3, Item 4) and retainers (Figure 3, Items 2 and 3) on channel (Figure 3, Item 5) with ten screws (Figure 3, Item 4).
6. Install seal (Figure 3, Item 8) and retainer (Figure 3, Item 9) on outer skin (Figure 3, Item 11) with 27 screws (Figure 3, Item 7).
7. Install seal (Figure 3, Item 20) and hinge (Figure 3, Item 19) on outer skin (Figure 3, Item 11) with 16 screws (Figure 3, Item 17).

ASSEMBLY - Continued

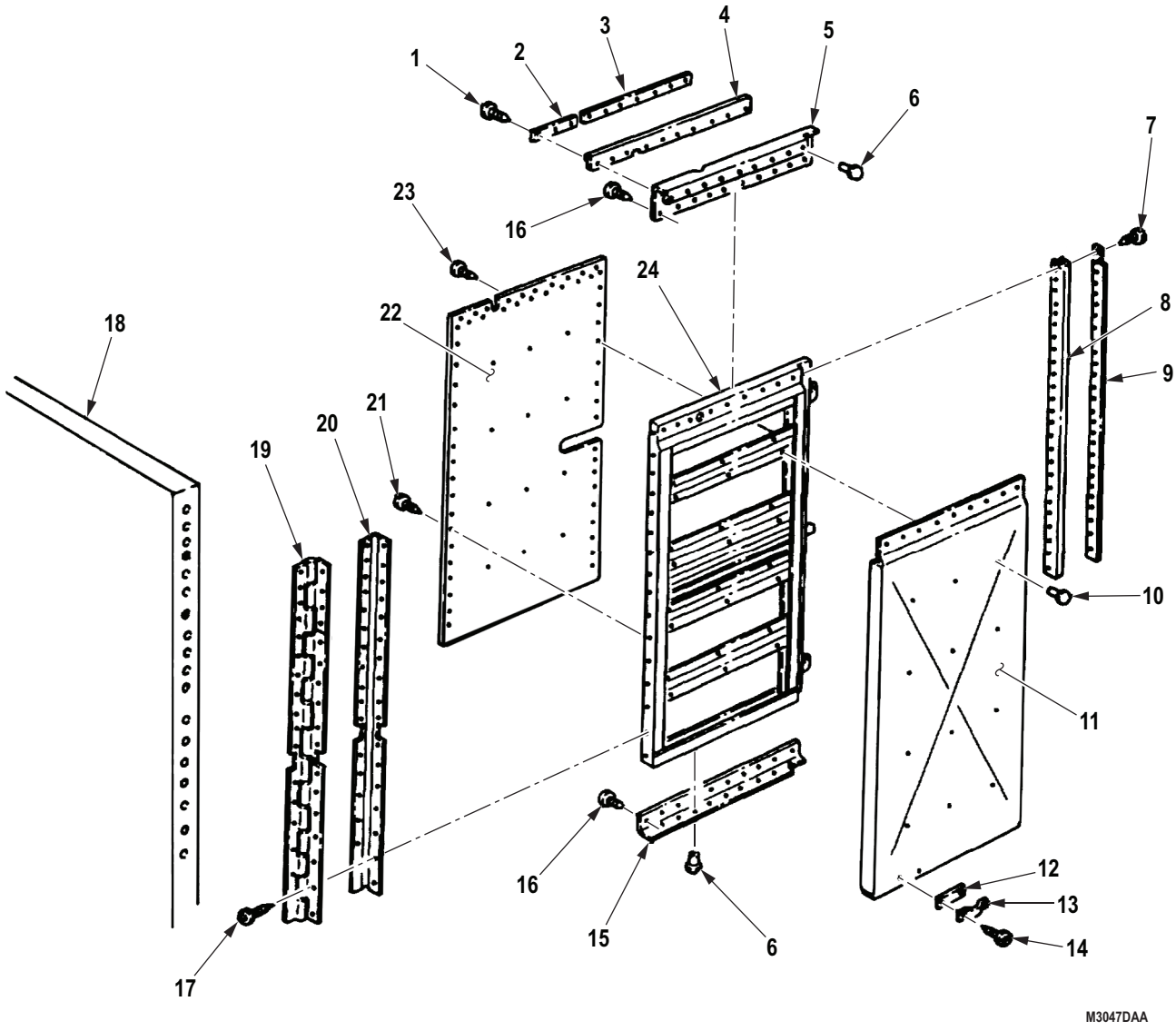


Figure 3. Hinged End Panel Assembly.

END OF TASK

INSTALLATION

NOTE

Assistant will help you with Step (1).

1. Position panel frame (Figure 4, Item 3) as an assembly on side panel (Figure 4, Item 1).
2. Install end panel hinge (Figure 4, Item 2) on side panel (Figure 4, Item 1) with 16 screws (Figure 4, Item 4).

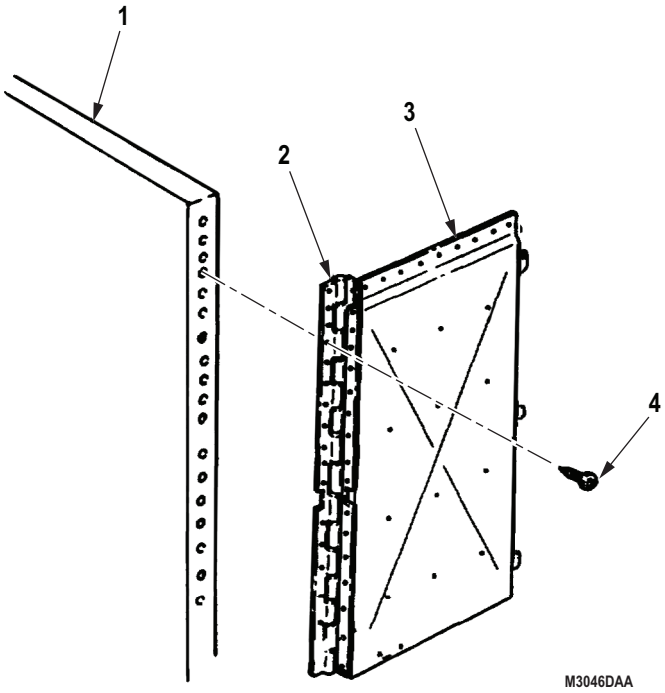


Figure 4. Hinged End Panel Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

Retract van body sides. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
VAN HINGED ROOF AND FLOOR COUNTERBALANCE CABLE REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Cotter Pin
(Volume 5, WP 0827, Table 1, Item 331)
Qty: 1

Materials/Parts (cont.)
Cotter Pin
(Volume 5, WP 0827, Table 1, Item 341)
Qty: 2
Wood Block

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Van body fully expanded and secured (side door window only). (TM 9-2320-272-10)

REMOVAL

WARNING



Wear hand protection when handling cable. Do not handle cable with bare hands. Broken wires may be sharp. Failure to comply may result in injury or death to personnel.

1. Place a 1 in. (2.54-cm) block of wood (Figure 1, Item 3) between end of swivel hook (Figure 1, Item 1) and hinged roof (Figure 1, Item 2).

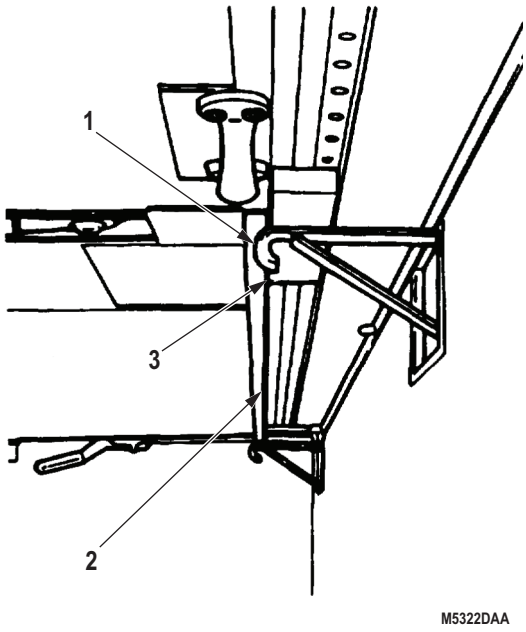


Figure 1. Hinge Roof and Floor Counterbalance Cable Removal.

2. Turn turnbuckle (Figure 2, Item 10) on hinged floor (Figure 2, Item 11) counterclockwise to decrease cable tension.
3. Remove cotter pin (Figure 2, Item 18), pin (Figure 2, Item 2), and cable clevis (Figure 2, Item 1) from drop arm (Figure 2, Item 3). Discard cotter pin.
4. Remove cotter pin (Figure 2, Item 4), pin (Figure 2, Item 5), and upper roller (Figure 2, Item 7) from mounting plate (Figure 2, Item 6). Discard cotter pin.
5. Remove cotter pin (Figure 2, Item 15), pin (Figure 2, Item 14), and lower roller (Figure 2, Item 16) from folding arm (Figure 2, Item 13). Discard cotter pin.
6. Disconnect lower cable end (Figure 2, Item 9) from turnbuckle (Figure 2, Item 10).
7. Pull cable (Figure 2, Item 8) upward through two cable guides (Figure 2, Item 17) and remove from vehicle.

REMOVAL - Continued

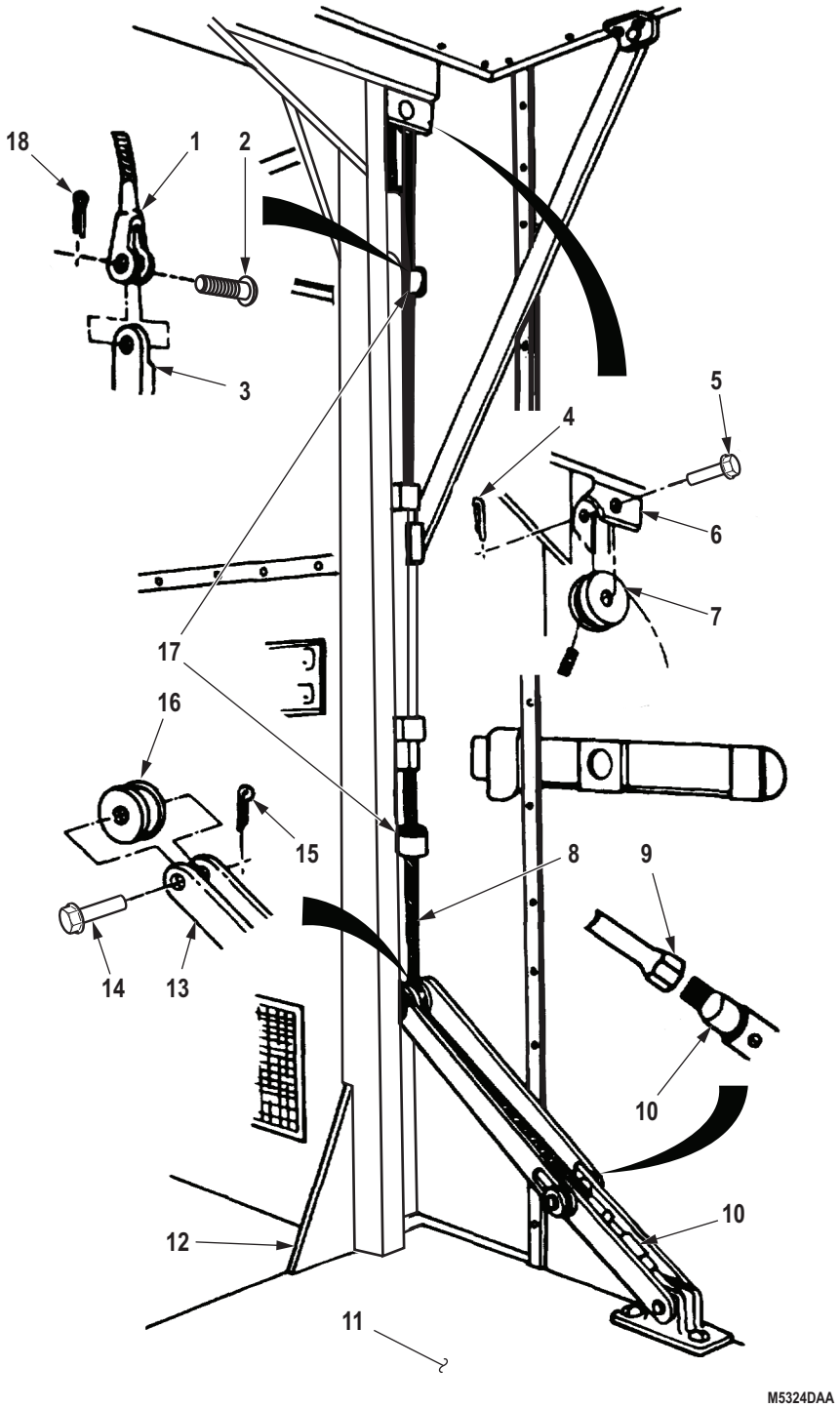


Figure 2. Hinge Roof and Floor Counterbalance Cable Removal.

END OF TASK

INSTALLATION

NOTE

Perform Step (1) if installing new counterbalance cable.

1. Remove eye of turnbuckle (Figure 3, Item 10) from replacement cable end (Figure 3, Item 9).
2. Thread cable (Figure 3, Item 8) through two cable guides (Figure 3, Item 16) and connect to turnbuckle (Figure 3, Item 10).
3. Align lower folding arm (Figure 3, Item 12) with holes in corner post (Figure 3, Item 11) and install lower roller (Figure 3, Item 15) on folding arm (Figure 3, Item 12) with pin (Figure 3, Item 13) and cotter pin (Figure 3, Item 14). Ensure cable (Figure 3, Item 8) is behind lower roller.
4. Install upper roller (Figure 3, Item 7) on mounting plate (Figure 3, Item 6) with pin (Figure 3, Item 5) and cotter pin (Figure 3, Item 4). Ensure cable (Figure 3, Item 8) is behind upper roller.
5. Install cable clevis (Figure 3, Item 1) on drop arm (Figure 3, Item 3) with pin (Figure 3, Item 2) and cotter pin (Figure 3, Item 17).

INSTALLATION - Continued

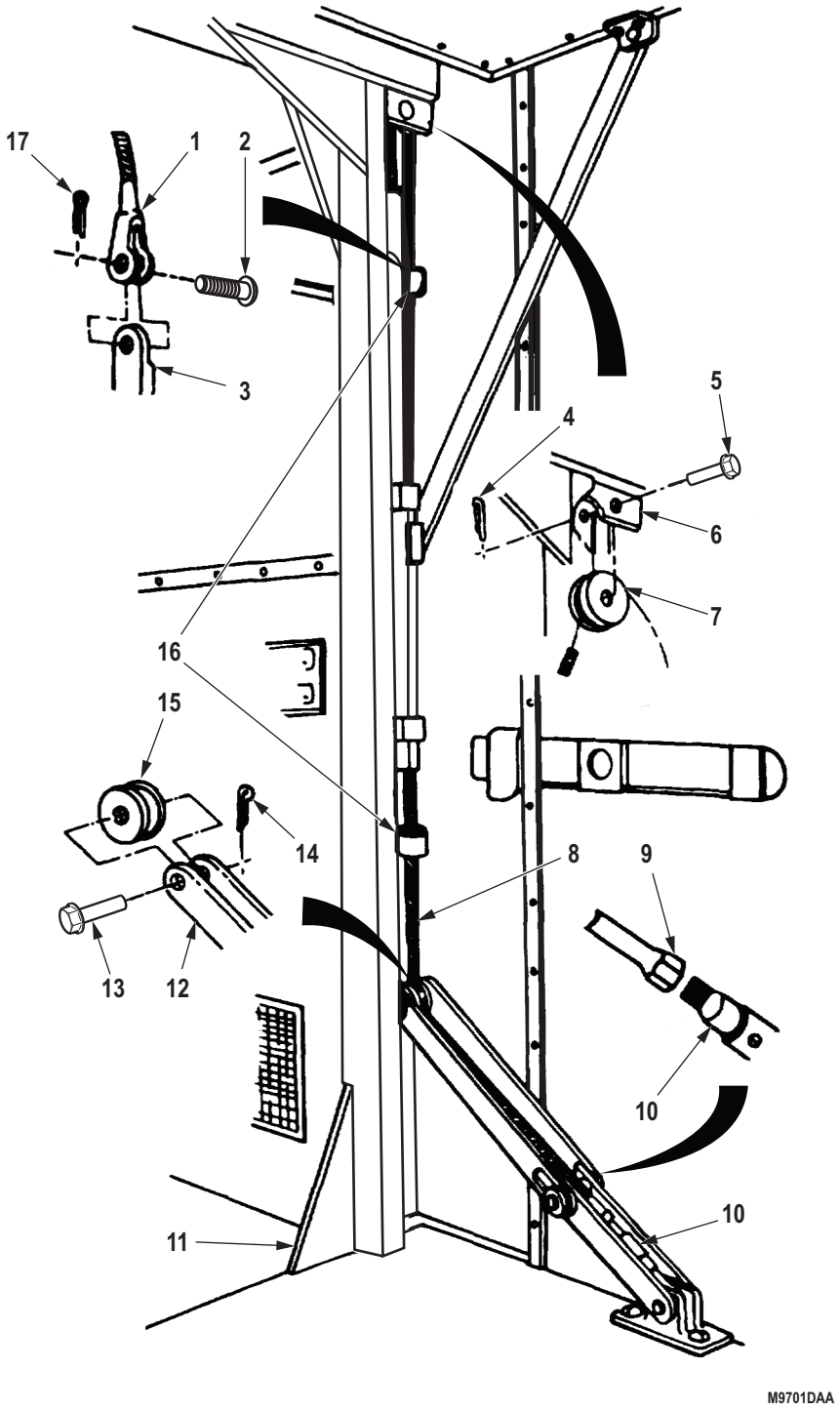


Figure 3. Hinge Roof and Floor Counterbalance Cable Installation.

INSTALLATION - Continued

6. Remove block of wood (Figure 4, Item 3) from swivel hook (Figure 4, Item 1) and hinged roof (Figure 4, Item 2).

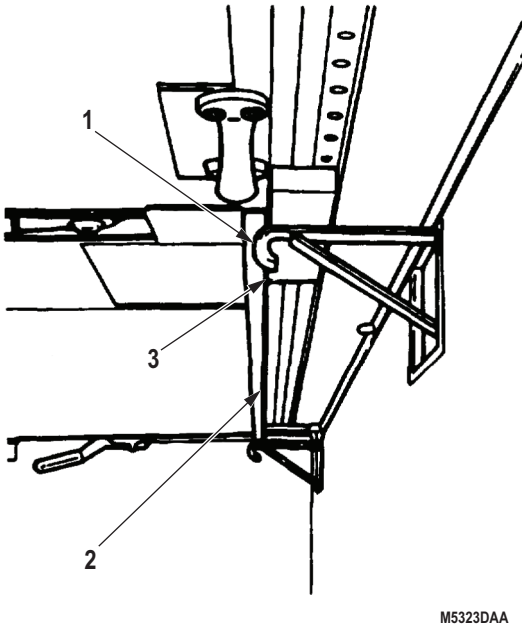


Figure 4. Hinge Roof and Floor Counterbalance Cable Installation.

7. Adjust cable tension; turn turnbuckle clockwise to increase tension and counterclockwise to decrease tension.

END OF TASK

FOLLOW-ON MAINTENANCE

Retract and secure van side panel (side door window only). (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
VAN RETRACTABLE WINDOW REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Cotter Pin
(Volume 5, WP 0827, Table 1, Item 341)
Qty: 1

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

Equipment Condition (cont.)
Van body fully expanded and secured (side door window only). (TM 9-2320-272-10)
Van rear door and side door window removed. (WP 0599)

RETRACTABLE WINDOW REMOVAL

1. Open retractable window (Figure 1, Item 7).
2. Remove cotter pin (Figure 1, Item 5) and regulator arm (Figure 1, Item 4) from frame bracket (Figure 1, Item 2). Discard cotter pin.
3. Remove five screws (Figure 1, Item 1) and retractable window (Figure 1, Item 7) from outer frame (Figure 1, Item 3) and van body side panel (Figure 1, Item 6).

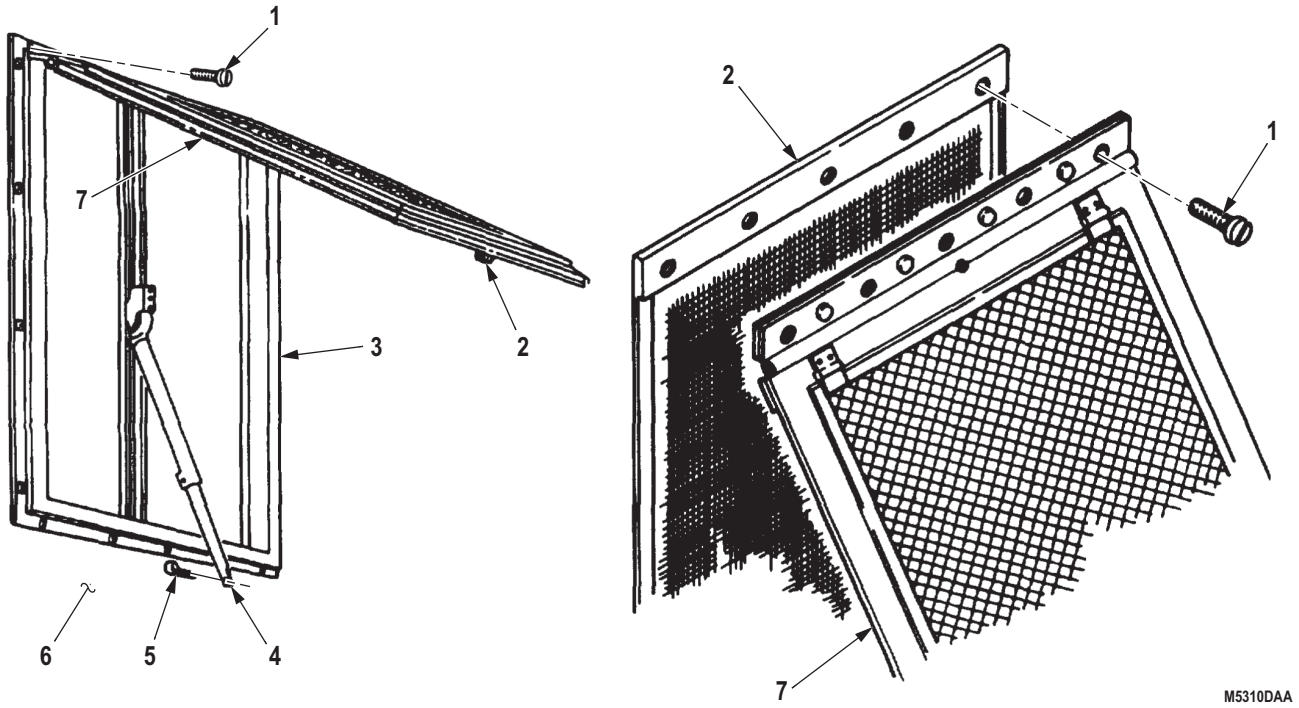


Figure 1. Retractable Window Removal.

END OF TASK

INSTALLATION

1. Install retractable window (Figure 2, Item 7) on outer frame (Figure 2, Item 3) and van body side panel (Figure 2, Item 6) with five screws (Figure 2, Item 1).
2. Install regulator arm (Figure 2, Item 4) on frame bracket (Figure 2, Item 2) with cotter pin (Figure 2, Item 5).
3. Close retractable window (Figure 2, Item 7).

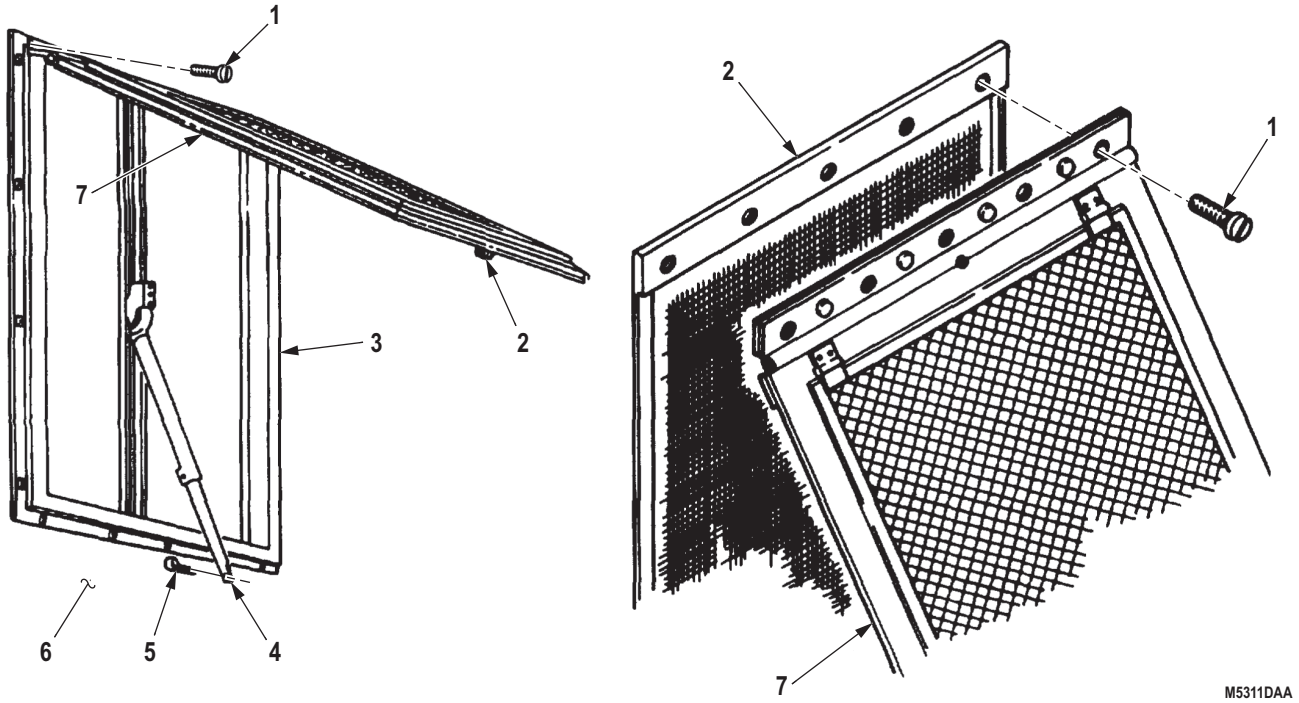


Figure 2. Retractable Window Installation.

END OF TASK

RETRACTABLE WINDOW GLASS AND VAN DOOR WINDOW GLASS REMOVAL

1. Remove 18 screws (Figure 3, Item 3) and glass retainer (Figure 3, Item 2) from window frame (Figure 3, Item 1).
2. Remove glass unit (Figure 3, Item 4) with seal (Figure 3, Item 5) from window frame (Figure 3, Item 1).
3. Remove seal (Figure 3, Item 5) from two glass panes (Figure 3, Item 6).

RETRACTABLE WINDOW GLASS AND VAN DOOR WINDOW GLASS REMOVAL - Continued

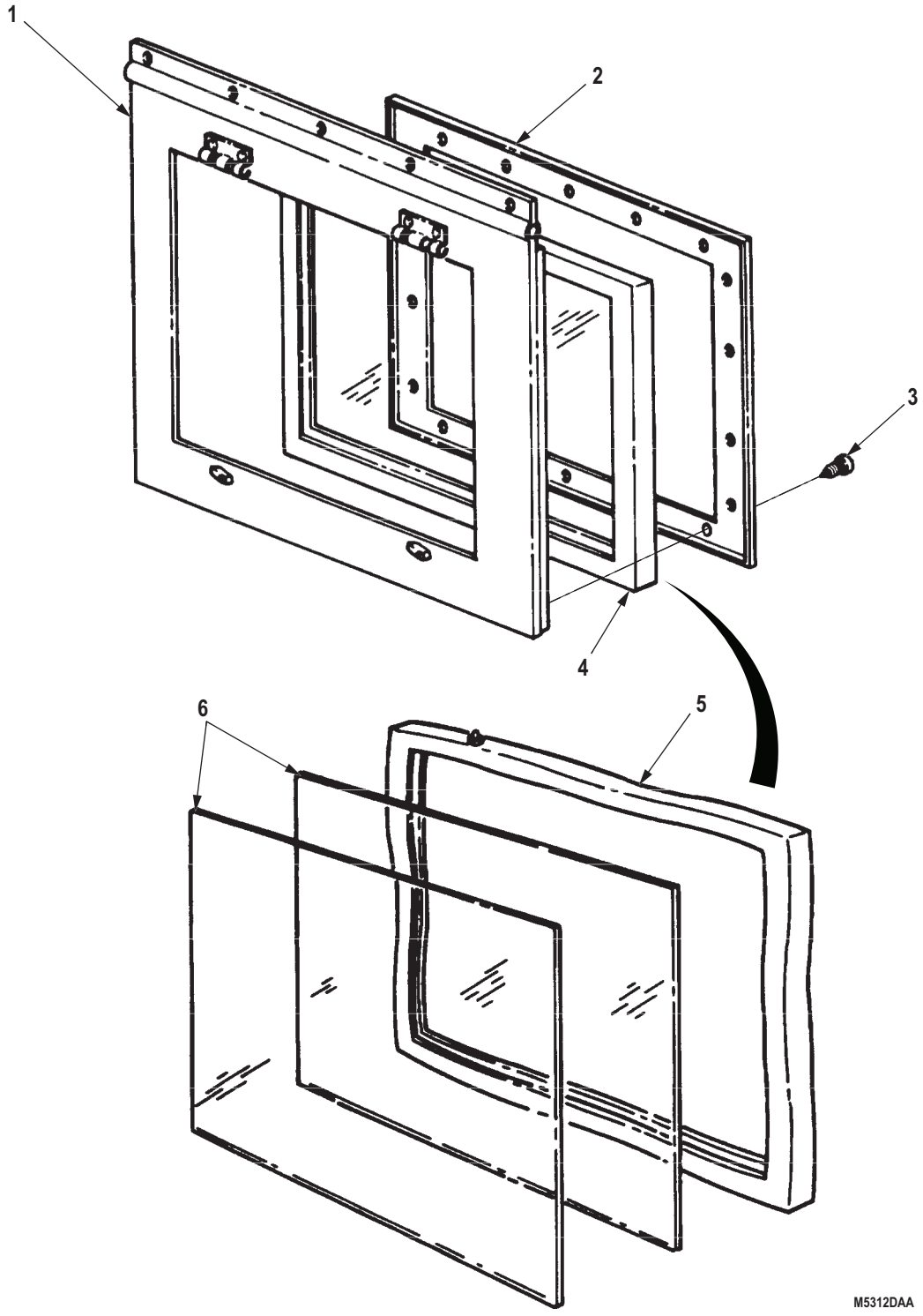


Figure 3. Window Glass Removal.

END OF TASK

RETRACTABLE WINDOW GLASS AND VAN DOOR WINDOW GLASS INSTALLATION

1. Install seal (Figure 4, Item 5) on two glass panes (Figure 4, Item 6).
2. Install glass unit (Figure 4, Item 4) with seal (Figure 4, Item 5) on window frame (Figure 4, Item 1).
3. Install glass retainer (Figure 4, Item 2) on window frame (Figure 4, Item 1) with 18 screws (Figure 4, Item 3).

RETRACTABLE WINDOW GLASS AND VAN DOOR WINDOW GLASS INSTALLATION - Continued

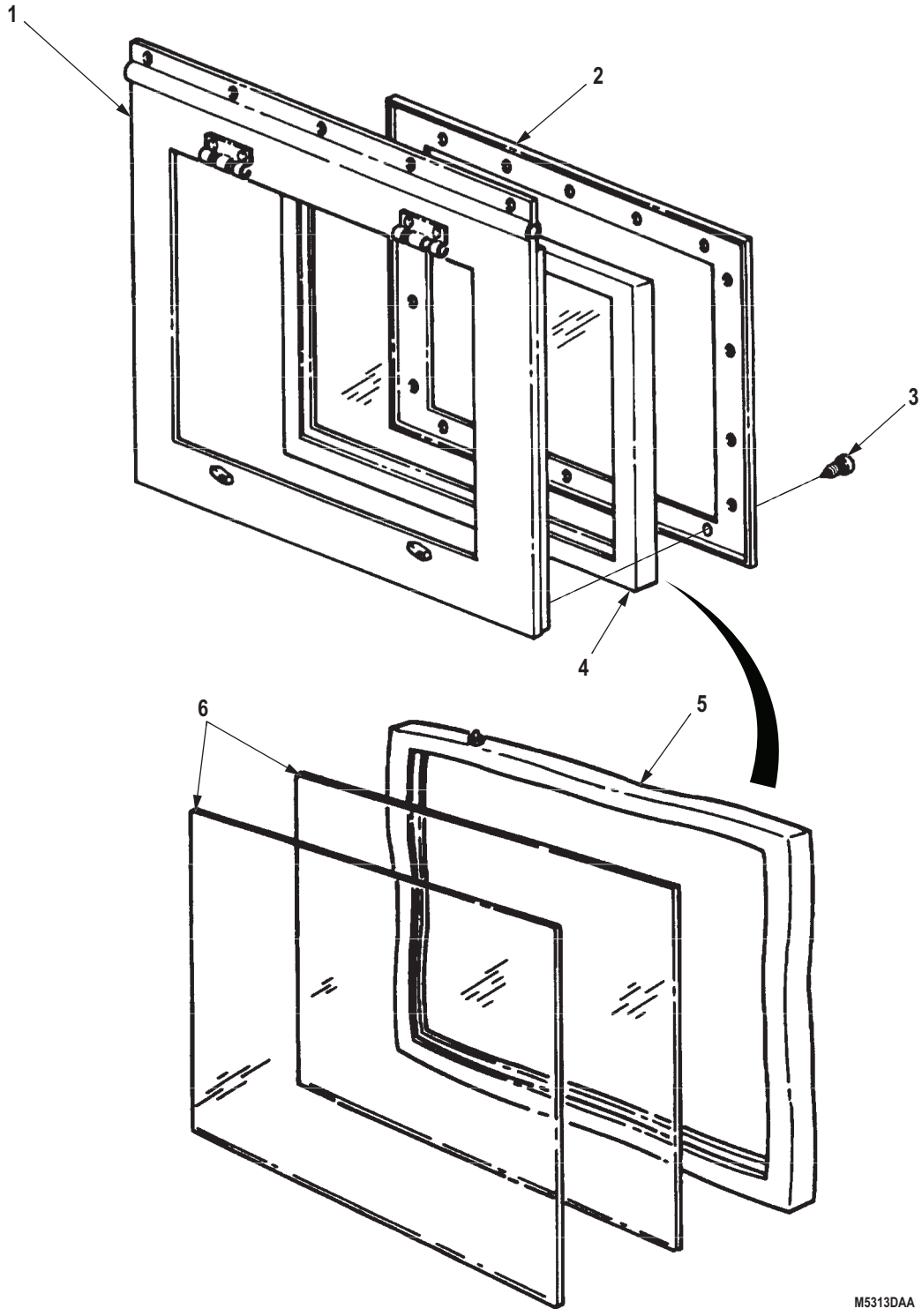


Figure 4. Window Glass Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Retract and secure van body (side door window only). (TM 9-2320-272-10)
2. Install van rear door and side door window. (WP 0599)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
VAN WINDOW SCREEN REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Volume 5, WP 0826, Table 1, Item 56)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Van body fully expanded and secured (side door window only). (TM 9-2320-272-10)

REMOVAL

Carefully remove screen retainer cord (Figure 1, Item 3) and screen (Figure 1, Item 2) from window frame (Figure 1, Item 1).

END OF TASK

INSTALLATION

Position screen (Figure 1, Item 2) to window frame (Figure 1, Item 1) and install with screen retainer cord (Figure 1, Item 3).

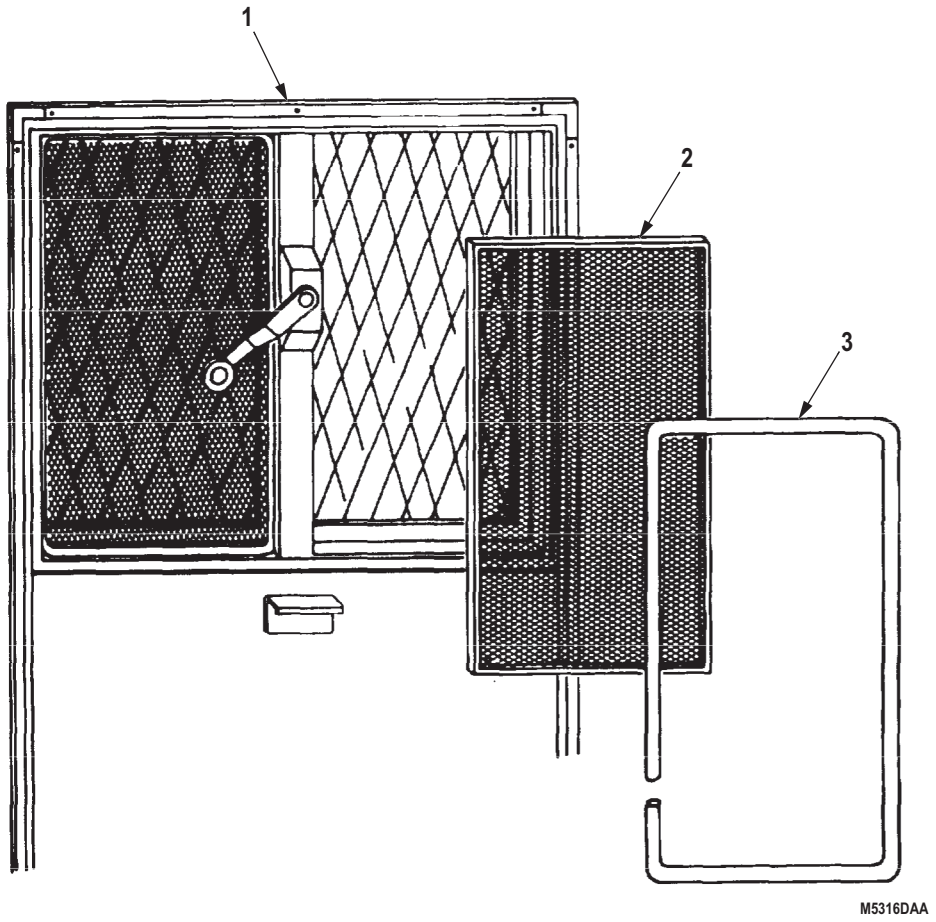


Figure 1. Window Screen Replacement.

END OF TASK

FOLLOW-ON MAINTENANCE

Retract and secure van body (side door window only). (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
VAN RETRACTABLE WINDOW REGULATOR REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Cotter Pin
(Volume 5, WP 0827, Table 1, Item 341)
Qty: 1

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

Equipment Condition (cont.)
Van body fully expanded and secured (side door window only). (TM 9-2320-272-10)

REMOVAL

1. Open retractable window (Figure 1, Item 2) and prop open.
2. Remove cotter pin (Figure 1, Item 6) and regulator arm (Figure 1, Item 5) from frame bracket (Figure 1, Item 3). Discard cotter pin.
3. Remove screw (Figure 1, Item 9) and crank handle (Figure 1, Item 8) from window regulator (Figure 1, Item 4).
4. Remove three screws (Figure 1, Item 7) and window regulator (Figure 1, Item 4) from window frame (Figure 1, Item 1).

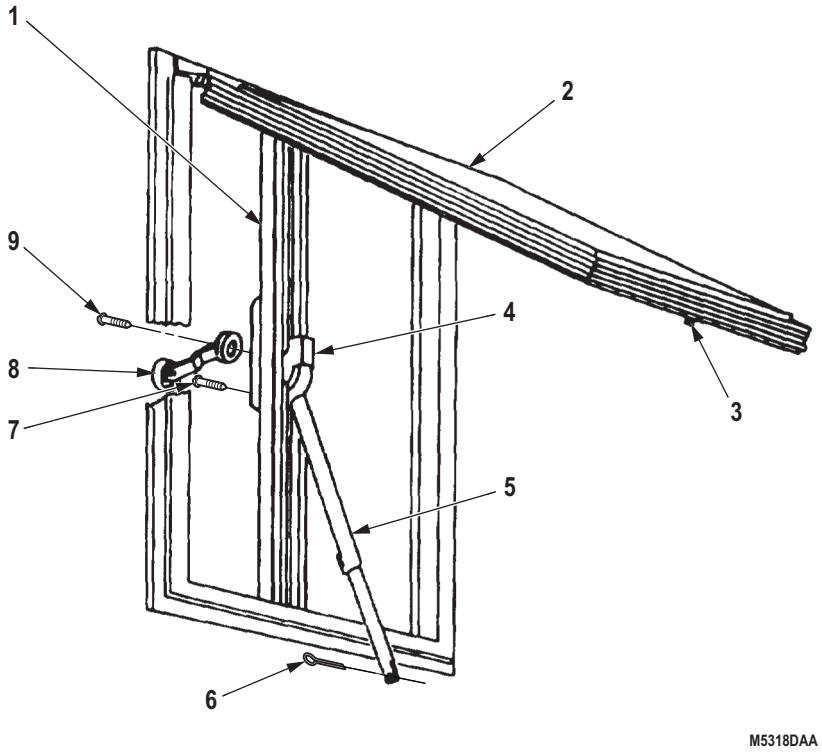


Figure 1. Retractable Window Regulator Removal.

END OF TASK

INSTALLATION

1. Install window regulator (Figure 2, Item 4) on window frame (Figure 2, Item 1) with three screws (Figure 2, Item 7).
2. Install crank handle (Figure 2, Item 8) on window regulator (Figure 2, Item 4) with screw (Figure 2, Item 9).
3. Install regulator arm (Figure 2, Item 5) on frame bracket (Figure 2, Item 3) with cotter pin (Figure 2, Item 6).
4. Close retractable window (Figure 2, Item 2).

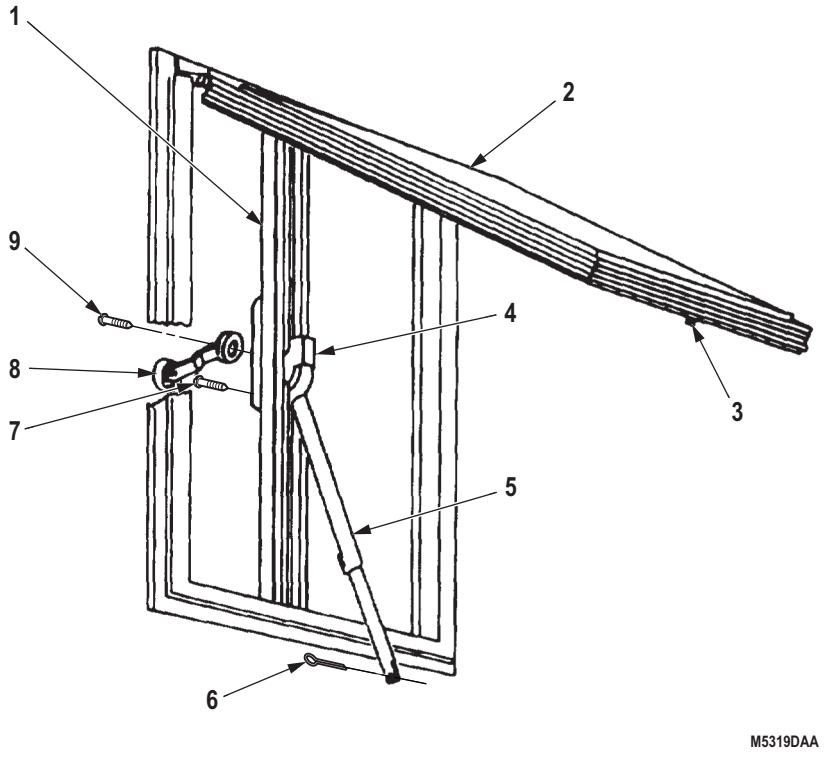


Figure 2. Retractable Window Regulator Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

Retract and secure van side panel (side door window only). (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
WINDOW REGULATOR AND INSIDE DOOR HANDLE REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Cab door glass removed. (Volume 3, WP 0552)

REMOVAL

1. Remove screw (Figure 1, Item 7), window handle (Figure 1, Item 8), and washer (Figure 1, Item 9) from shaft (Figure 1, Item 10).
2. Remove four screws (Figure 1, Item 1) and regulator (Figure 1, Item 6) from inner door panel (Figure 1, Item 2).
3. Allow regulator arm stud (Figure 1, Item 3) to slide out of stationary track (Figure 1, Item 4) and remove through door inspection hole (Figure 1, Item 5).

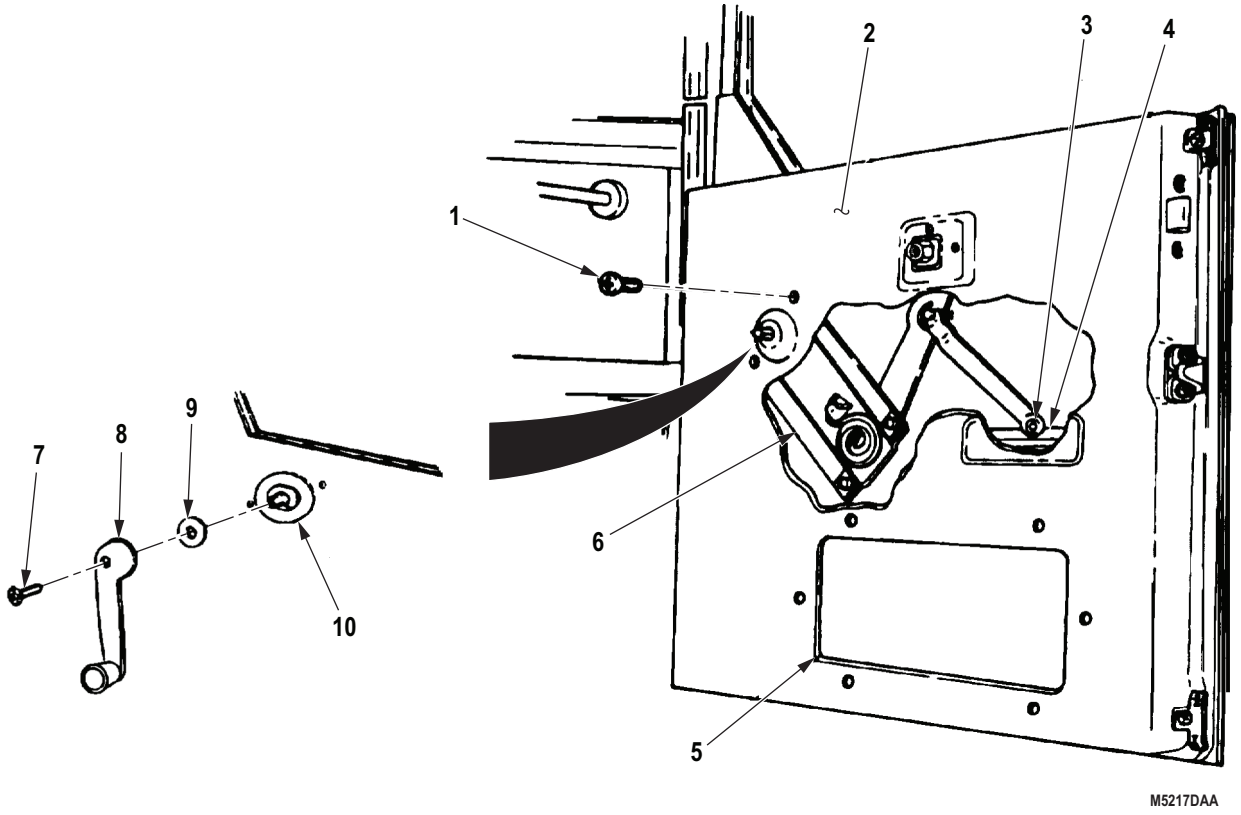


Figure 1. Window Removal.

END OF TASK

INSTALLATION

1. Slide regulator arm stud (Figure 2, Item 3) into stationary track (Figure 2, Item 4) on regulator (Figure 2, Item 6).
2. Install regulator (Figure 2, Item 6) on inner door (Figure 2, Item 2) with four screws (Figure 2, Item 1).
3. Install washer (Figure 2, Item 9) and window handle (Figure 2, Item 8) on shaft (Figure 2, Item 10) with screw (Figure 2, Item 7).

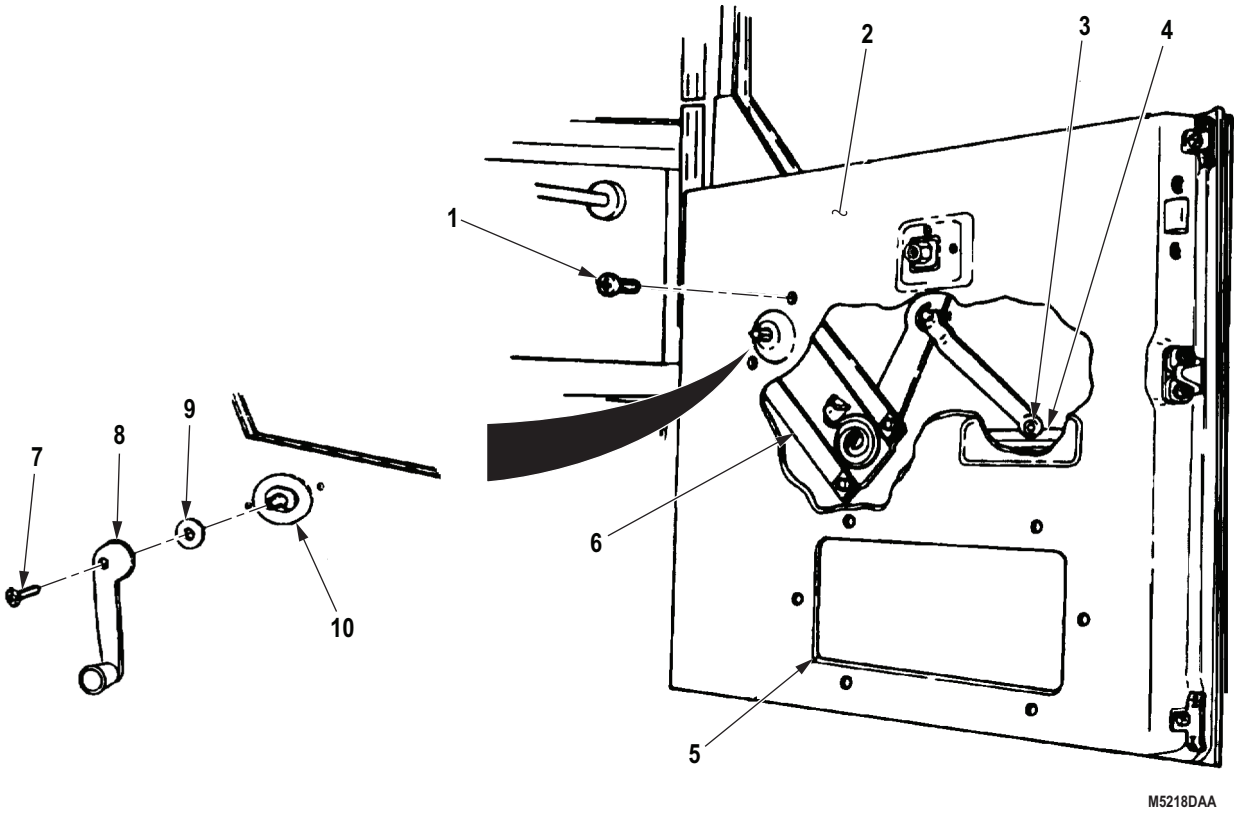


Figure 2. Window Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

Install cab door glass. (Volume 3, WP 0552)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
VAN SIDE PANEL-TO-ROOF TOGGLE CLAMP REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

REMOVAL

1. Release toggle clamp (Figure 1, Item 5) and remove eyebolt (Figure 1, Item 3) from swivel hook (Figure 1, Item 2).
2. Remove four screws (Figure 1, Item 4) and toggle clamp (Figure 1, Item 5) from hinged roof (Figure 1, Item 1).

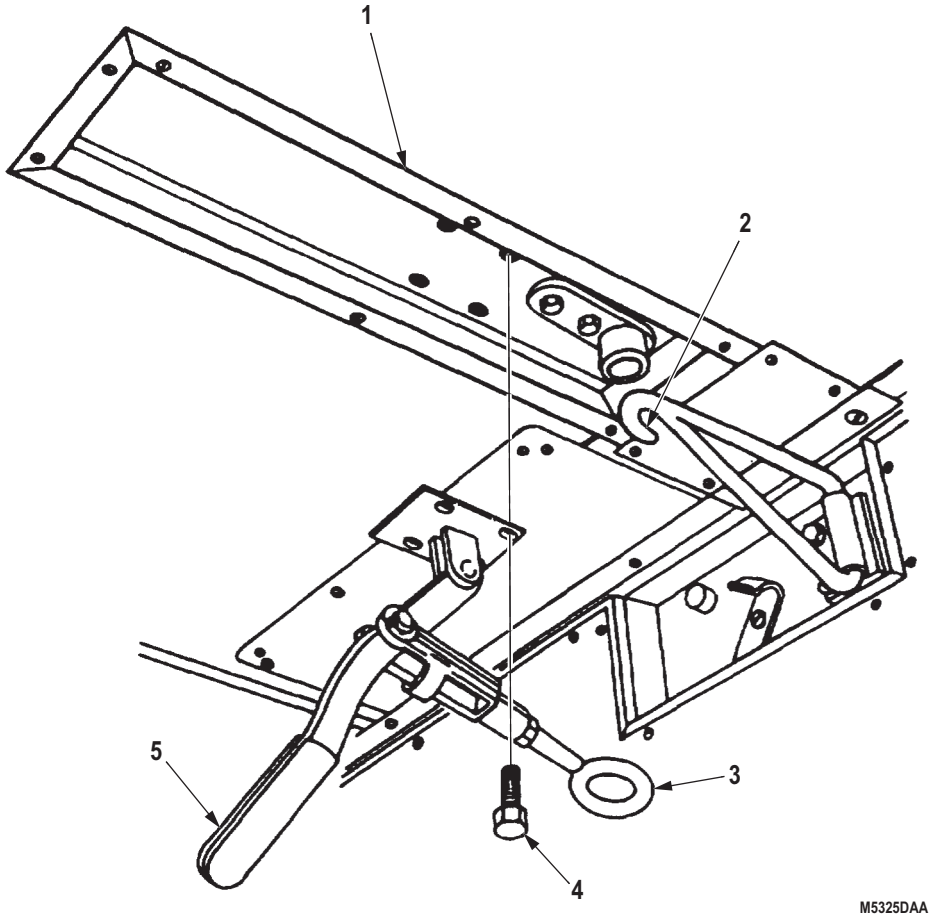


Figure 1. Side Panel-to-Roof Toggle Clamp Removal.

END OF TASK

INSTALLATION

1. Install toggle clamp (Figure 2, Item 5) on hinged roof (Figure 2, Item 1) with four screws (Figure 2, Item 4). Ensure eyebolt (Figure 2, Item 3) faces swivel hook (Figure 2, Item 2).
2. Attach eyebolt (Figure 2, Item 3) of toggle clamp (Figure 2, Item 5) on swivel hook (Figure 2, Item 2) and close toggle clamp.

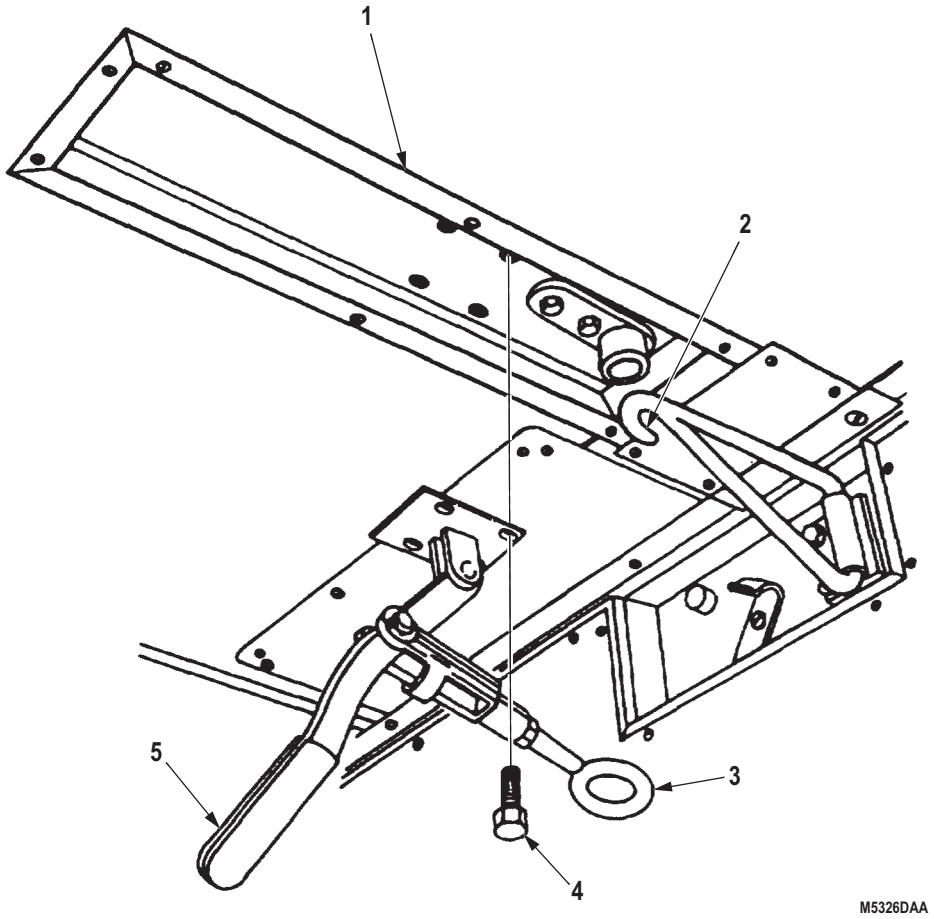


Figure 2. Side Panel-to-Roof Toggle Clamp Installation.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
VAN TOGGLE CLAMP ANCHOR POST REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

REMOVAL

Remove two screws (Figure 1, Item 3) and anchor post (Figure 1, Item 2) from hinged roof (Figure 1, Item 1).

END OF TASK

INSTALLATION

Install anchor post (Figure 1, Item 2) on hinged roof (Figure 1, Item 1) with two screws (Figure 1, Item 3).

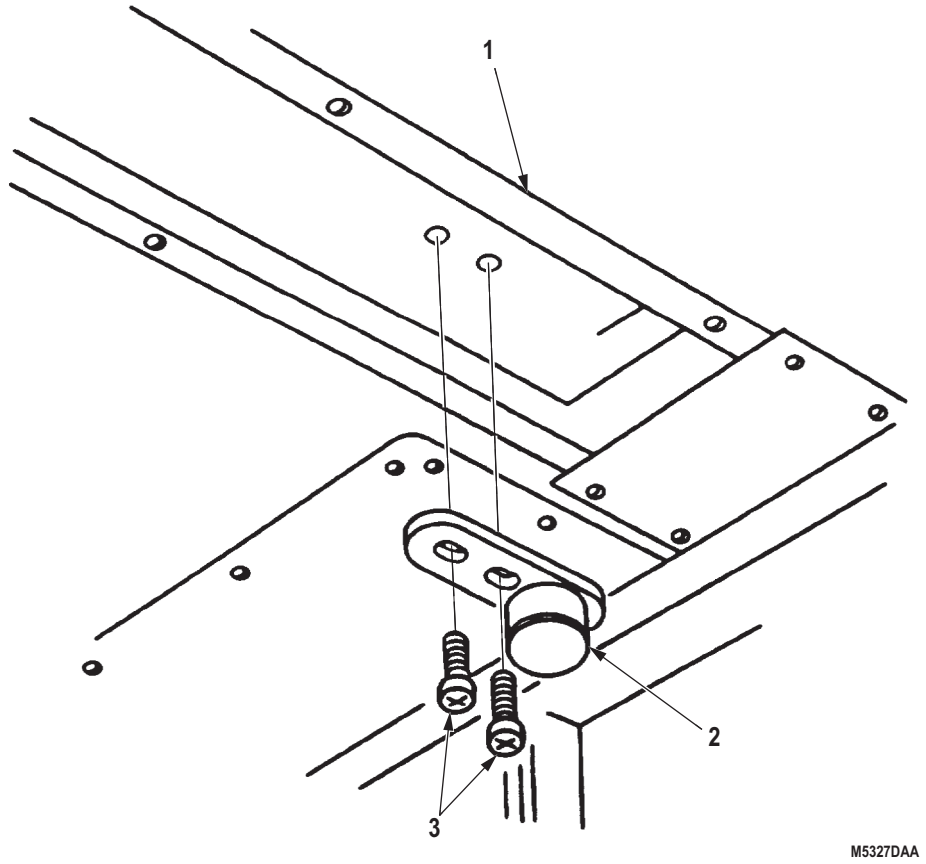


Figure 1. Toggle Clamp Anchor Post Replacement.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
VAN SIDE PANEL ROOF SWIVEL HOOK REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Van side panel fully expanded and secured
(side door window only). (TM 9-2320-272-10)

REMOVAL

1. Release toggle clamp (Figure 1, Item 5) and remove eyebolt (Figure 1, Item 4) from swivel hook (Figure 1, Item 2).
2. Remove two screws (Figure 1, Item 1) and swivel hook (Figure 1, Item 2) from side panel (Figure 1, Item 3).

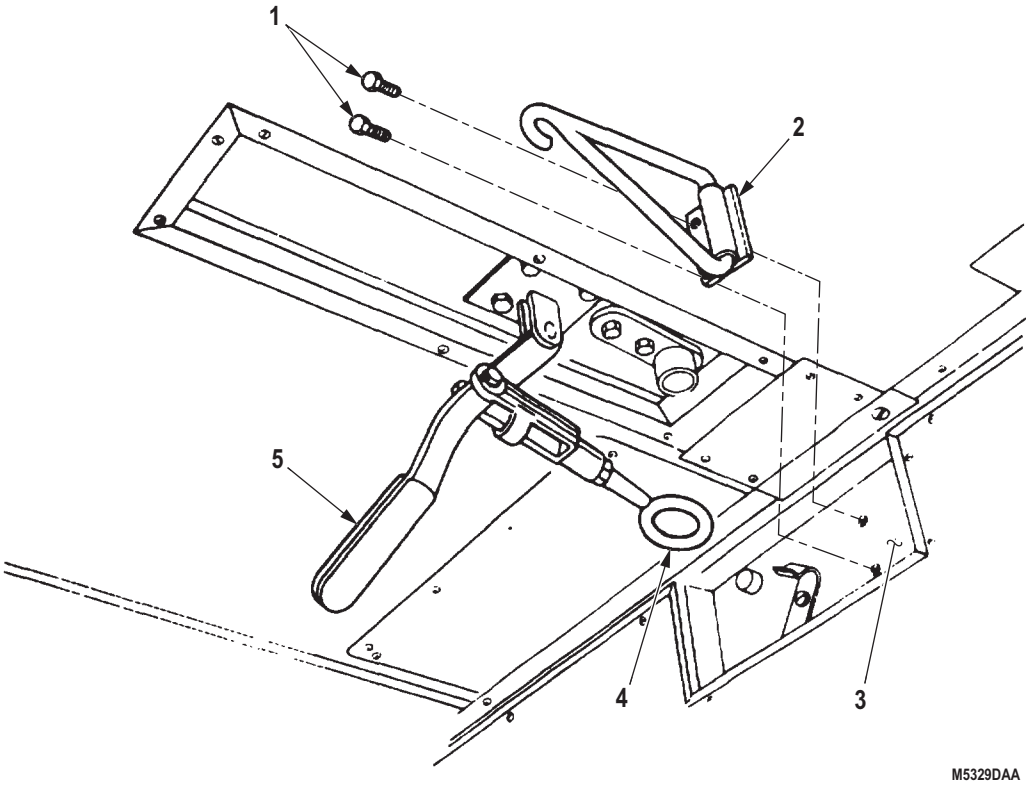


Figure 1. Side Panel Roof Swivel Hook Removal.

END OF TASK

INSTALLATION

1. Install swivel hook (Figure 2, Item 2) on side panel (Figure 2, Item 3) with two screws (Figure 2, Item 1).
2. Attach eyebolt (Figure 2, Item 4) of toggle clamp (Figure 2, Item 5) on swivel hook (Figure 2, Item 2) and close toggle clamp.

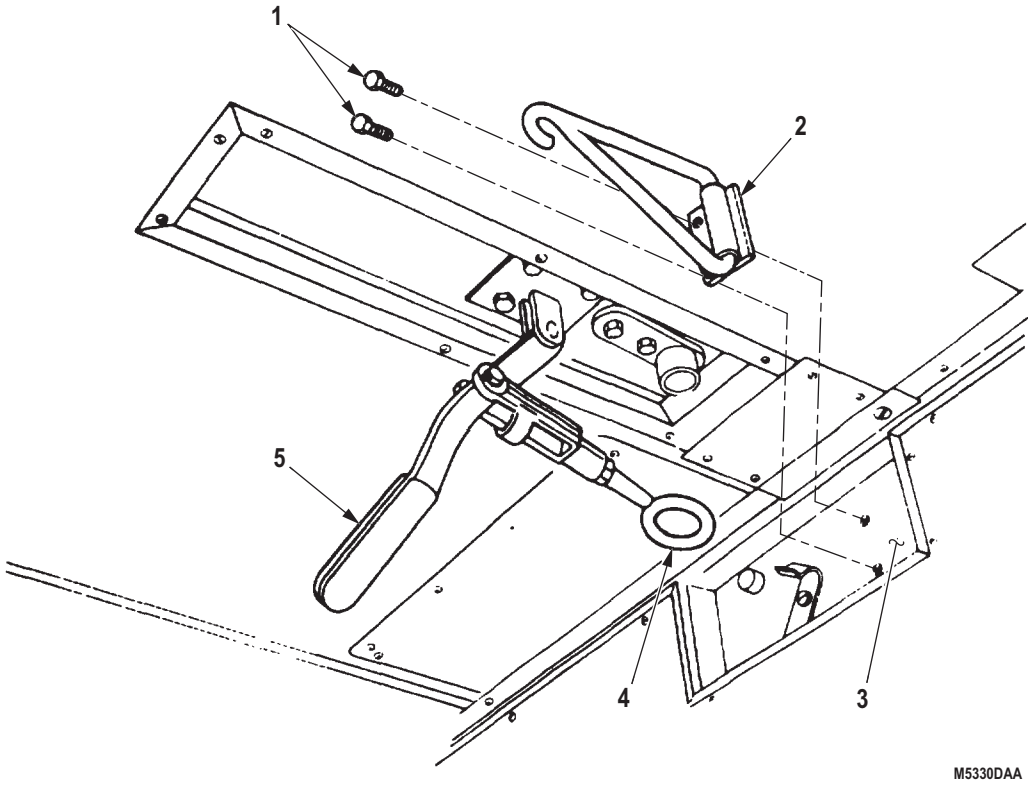


Figure 2. Side Panel Roof Swivel Hook Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

Retract and secure van side panel (side door window only). (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
VAN LADDER LOCKING CLAMP REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Ladders removed. (TM 9-2320-272-10)

REMOVAL

Remove four screws (Figure 1, Item 3) and locking clamp (Figure 1, Item 2) from door (Figure 1, Item 1).

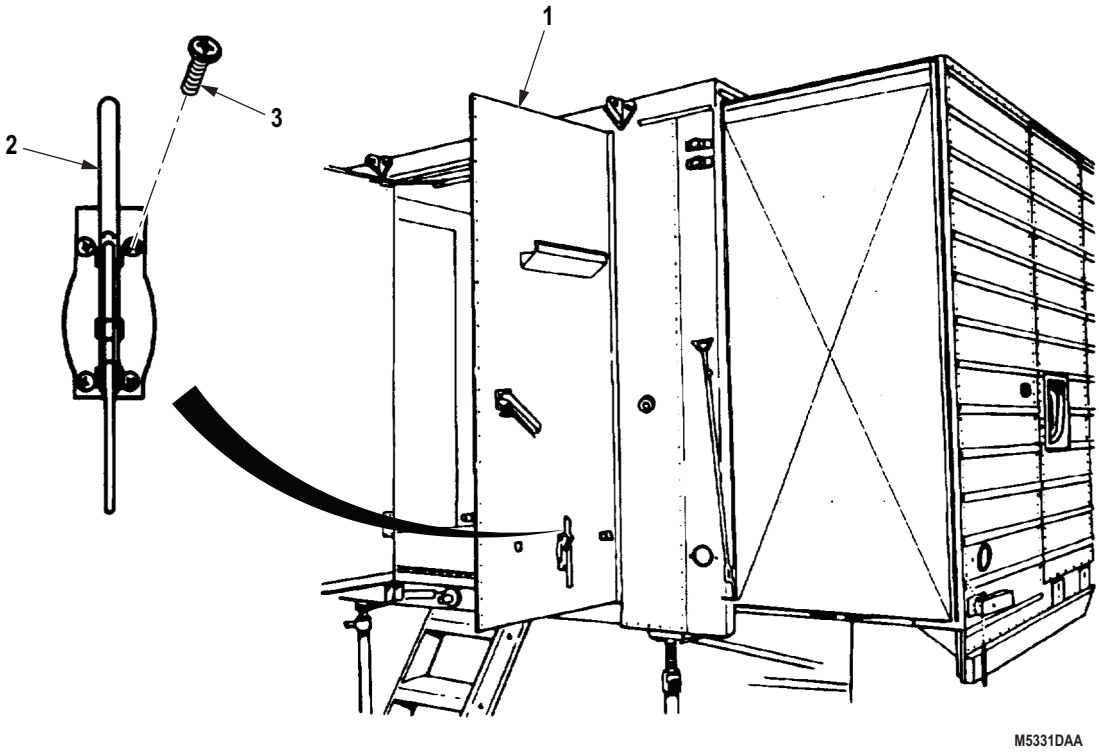


Figure 1. Ladder Locking Clamp Removal.

END OF TASK

INSTALLATION

Install locking clamp (Figure 2, Item 2) on door (Figure 2, Item 1) with four screws (Figure 2, Item 3).

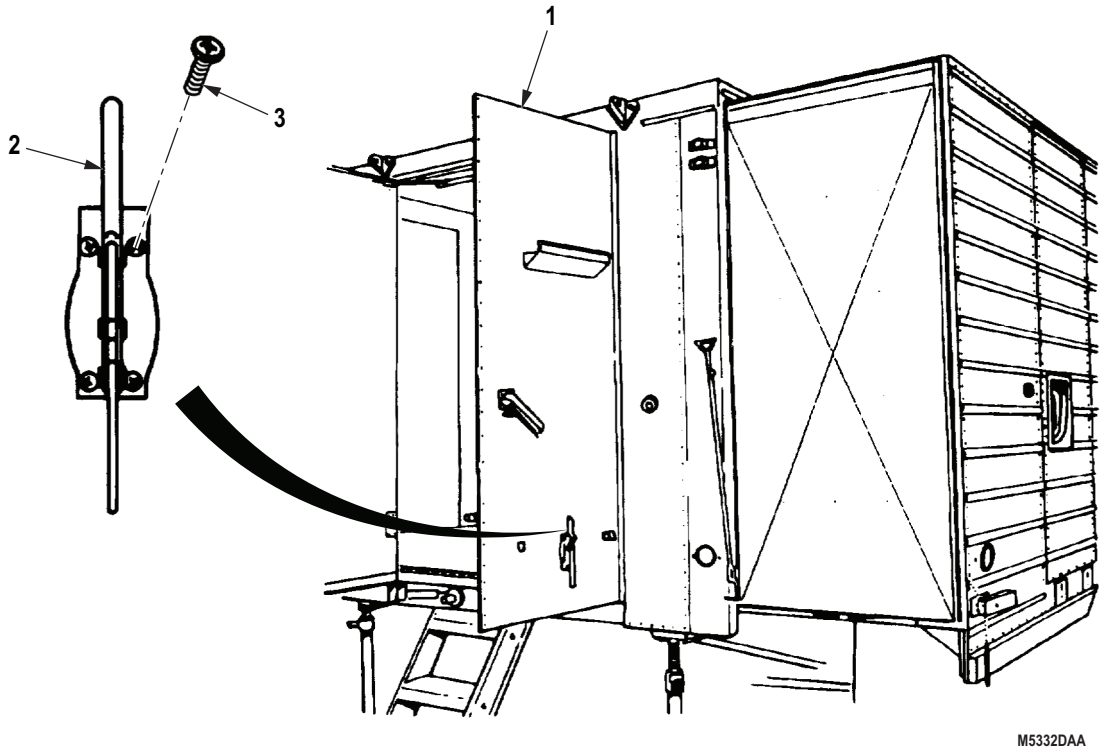


Figure 2. Ladder Locking Clamp Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

Install ladders. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
VAN BONNET HANDLE AND CONTROL ROD REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Cotter Pin
(Volume 5, WP 0827, Table 1, Item 341)
Qty: 2

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

Equipment Condition (cont.)
Bonnet front door open and braced.
(TM 9-2320-272-10)

REMOVAL

1. Remove two cotter pins (Figure 1, Item 3) and control rod (Figure 1, Item 2) from handle (Figure 1, Item 5) and door bracket (Figure 1, Item 1). Discard cotter pins.
2. Remove nut (Figure 1, Item 4), handle (Figure 1, Item 5), and spacer (Figure 1, Item 6) from handle mounting bracket (Figure 1, Item 7).

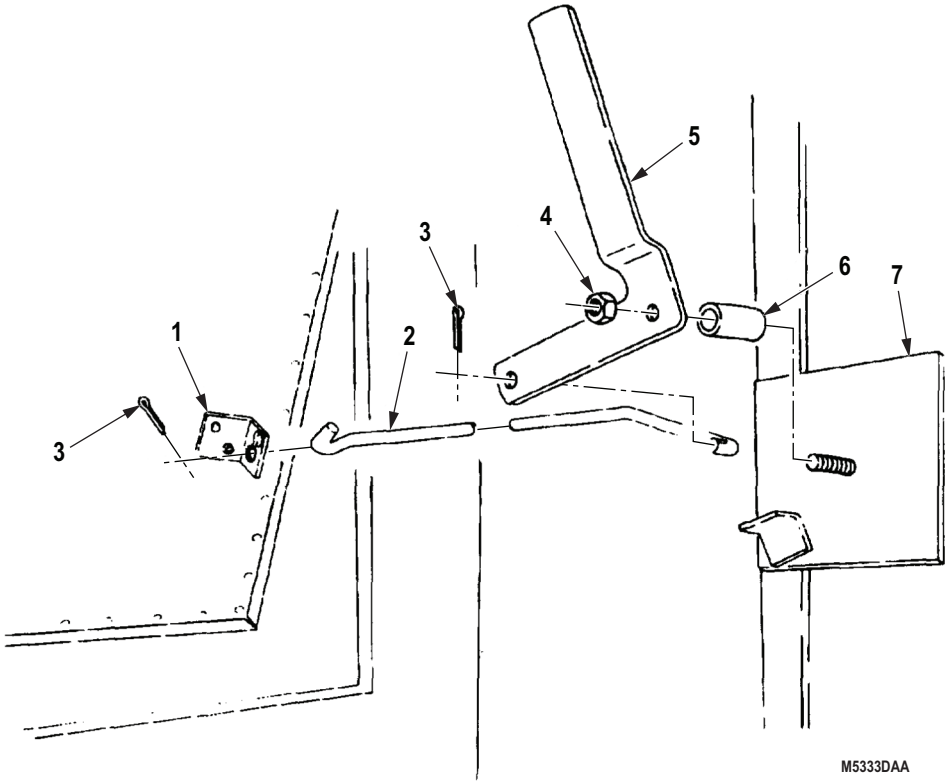


Figure 1. Bonnet Handle and Control Rod Removal.

END OF TASK

INSTALLATION

1. Install spacer (Figure 2, Item 6) and handle (Figure 2, Item 5) on mounting bracket (Figure 2, Item 7) with nut (Figure 2, Item 4).
2. Install control rod (Figure 2, Item 2) on door bracket (Figure 2, Item 1) and handle (Figure 2, Item 5) with two cotter pins (Figure 2, Item 3).

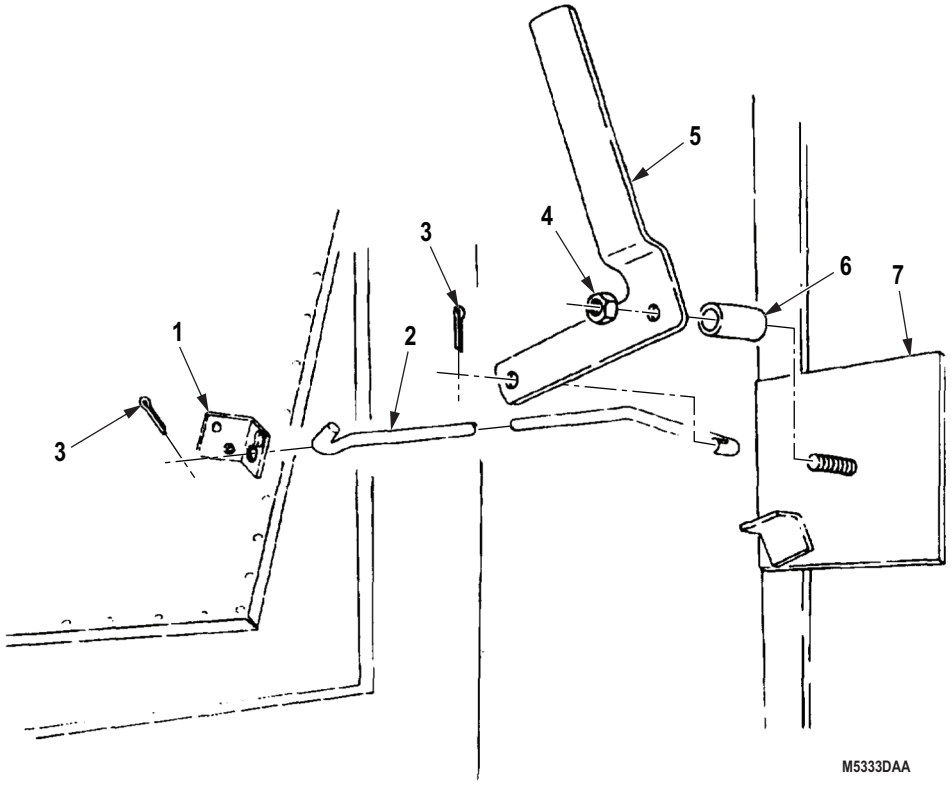


Figure 2. Bonnet Handle and Control Rod Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

Close bonnet front door. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
VAN DOOR HINGE AND SEAL REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Cotter Pin
(Volume 5, WP 0827, Table 1, Item 338)
Qty: 1

Personnel Required
(2)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

REMOVAL

1. Open door (Figure 1, Item 6).
2. Remove cotter pin (Figure 1, Item 4), pin (Figure 1, Item 2), and door check arm (Figure 1, Item 3) from bracket (Figure 1, Item 1). Discard cotter pin.

NOTE

Assistant will help with Step (3).

3. With the aid of an assistant, remove 15 screws (Figure 1, Item 5) and door (Figure 1, Item 6) from van body (Figure 1, Item 8).
4. Remove 16 screws (Figure 1, Item 12), hinge seal retainer (Figure 1, Item 11), weather stripping (Figure 1, Item 9), hinge (Figure 1, Item 7), and outer hinge seal (Figure 1, Item 10) from door (Figure 1, Item 6).

REMOVAL - Continued

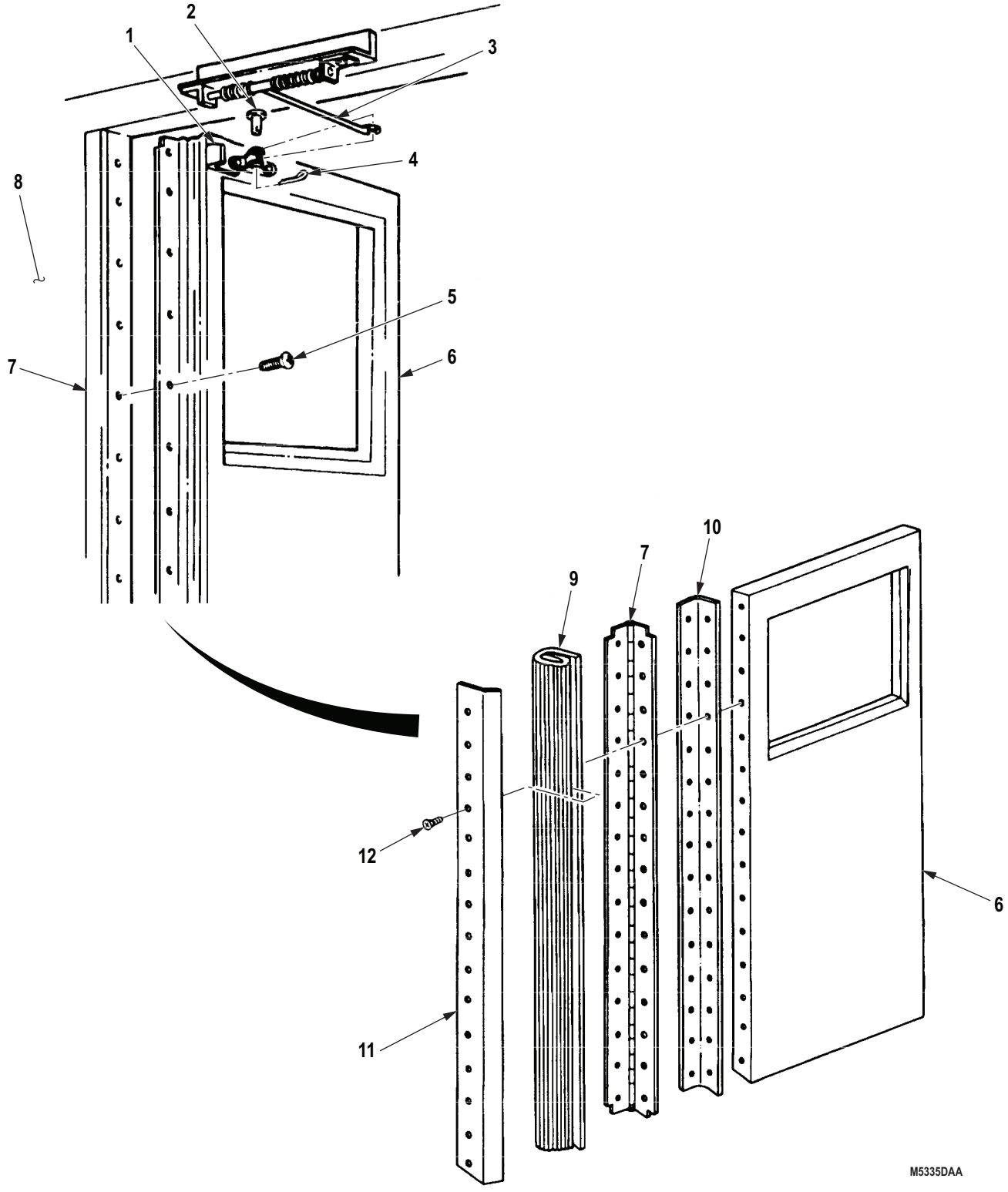


Figure 1. Door Hinge and Seal Removal.

END OF TASK

INSTALLATION

1. Install outer hinge seal (Figure 2, Item 10), hinge (Figure 2, Item 7), weather stripping (Figure 2, Item 9), and hinge seal retainer (Figure 2, Item 11) on door (Figure 2, Item 6) with 16 screws (Figure 2, Item 12).

NOTE

Assistant will help with Step (2).

2. With the aid of an assistant, install door (Figure 2, Item 6) on van body (Figure 2, Item 8) with 15 screws (Figure 2, Item 5).
3. Install door check arm (Figure 2, Item 3) on bracket (Figure 2, Item 1) with pin (Figure 2, Item 2) and cotter pin (Figure 2, Item 4).
4. Close door (Figure 2, Item 6).

INSTALLATION - Continued

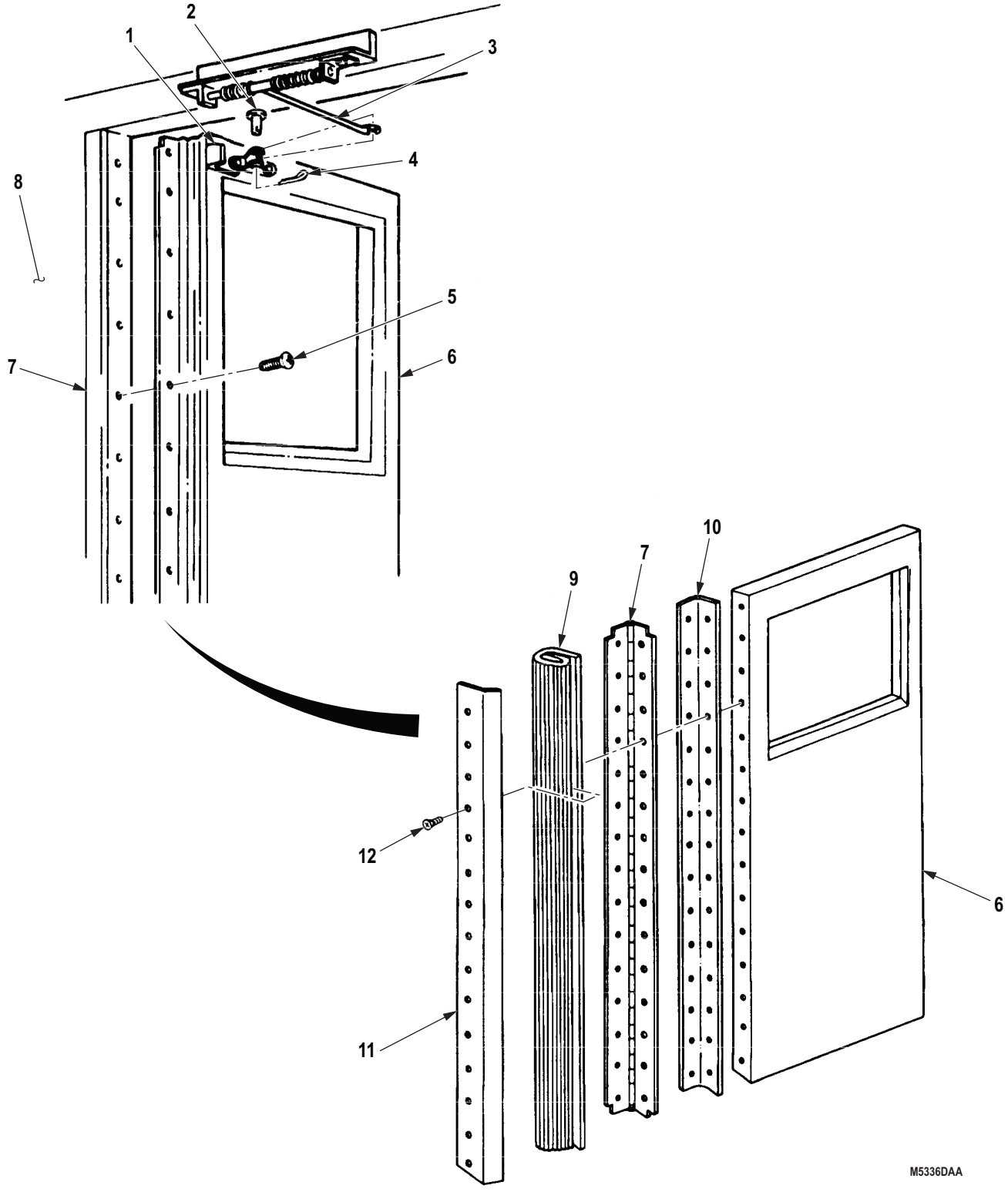


Figure 2. Door Hinge and Seal Installation.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
VAN PANEL SEALS REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

REMOVAL

NOTE

All panel seals are installed by retainers with either screws or screws and nuts. This procedure shows screws only. The quantity of screws may also differ.

1. Raise panel seal (Figure 1, Item 4) to expose screws (Figure 1, Item 2).
2. Remove screws (Figure 1, Item 2), as required, retainer (Figure 1, Item 3), and panel seal (Figure 1, Item 4) from van body (Figure 1, Item 1).

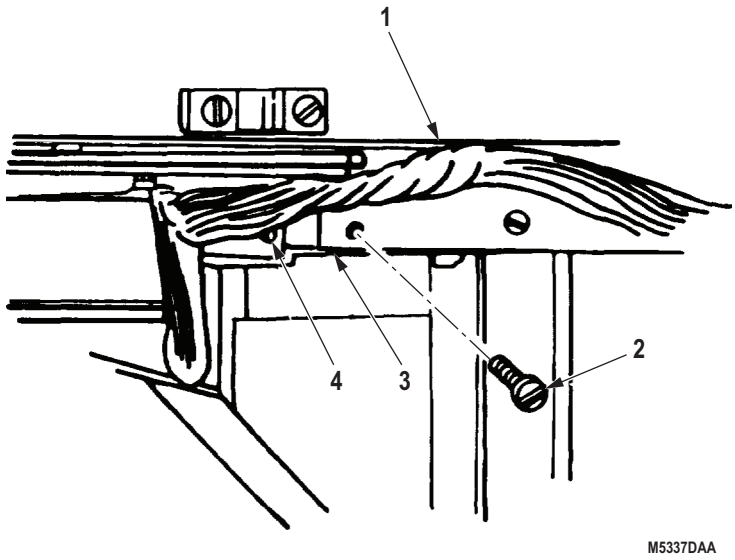


Figure 1. Panel Seals Removal.

END OF TASK

INSTALLATION

1. Position retainer (Figure 2, Item 3) in flap of panel seal (Figure 2, Item 4) and align holes.
2. Install panel seal (Figure 2, Item 4) and retainer (Figure 2, Item 3) on van body (Figure 2, Item 1) with screws (Figure 2, Item 2), as required.

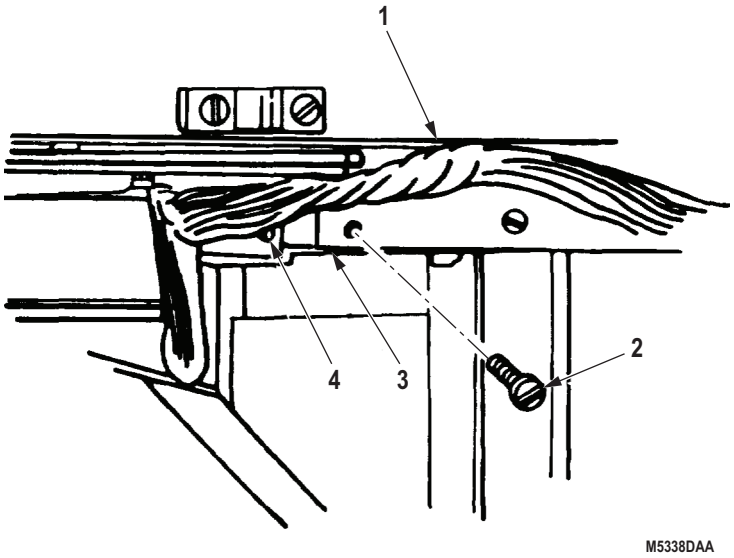


Figure 2. Panel Seals Installation.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
VAN DOOR HANDLE AND LOCK REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Cotter Pin
(Volume 5, WP 0827, Table 1, Item 338)
Qty: 2

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

Equipment Condition (cont.)
Rear doors open (rear door handle and lock replacement only). (TM 9-2320-272-10)

REMOVAL

NOTE

This procedure applies to van side and rear doors.

1. Remove pin (Figure 1, Item 10) and inner handle (Figure 1, Item 8) from handle shank (Figure 1, Item 9).
2. Remove two cotter pins (Figure 1, Item 1), vertical bars (Figure 1, Item 2), and washers (Figure 1, Item 3) from lockpins (Figure 1, Item 4). Discard cotter pins.
3. Remove four screws (Figure 1, Item 7) and door lock (Figure 1, Item 6) from door (Figure 1, Item 5).

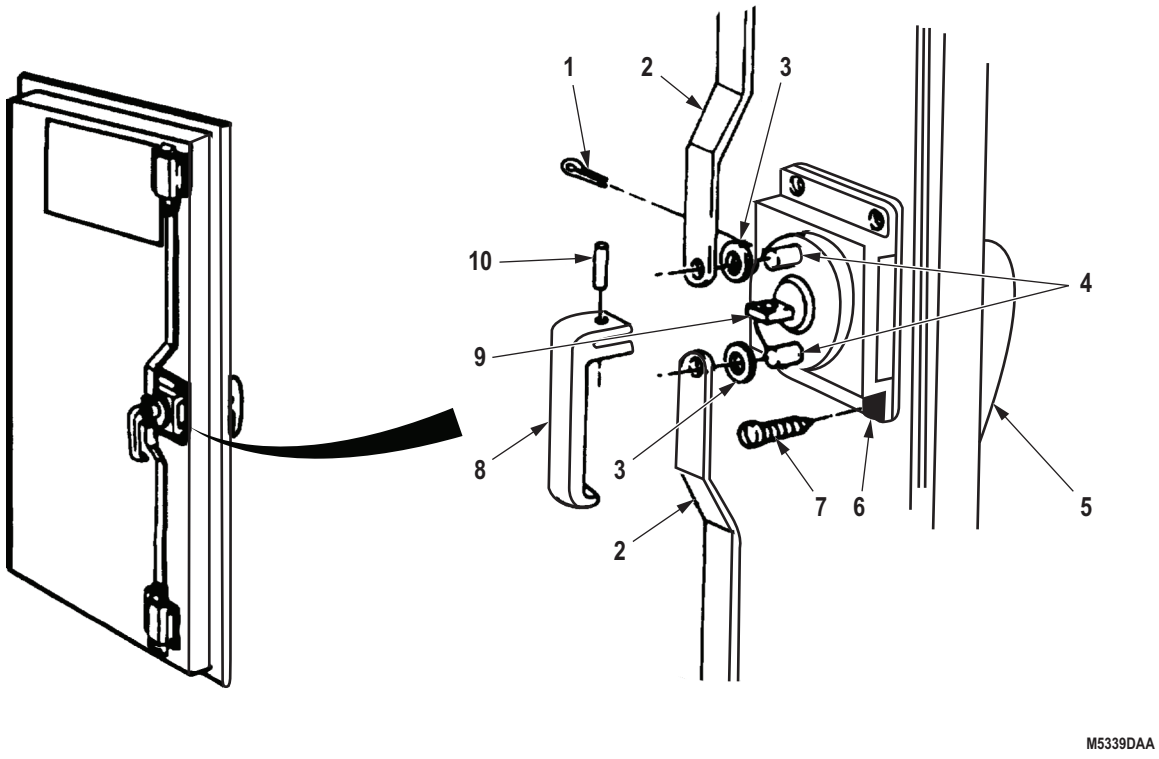


Figure 1. Door Handle and Lock Removal.

END OF TASK

INSTALLATION

1. Install door lock (Figure 2, Item 6) on door (Figure 2, Item 5) with four screws (Figure 2, Item 7).
2. Install two vertical bars (Figure 2, Item 2) on lockpins (Figure 2, Item 4) with two washers (Figure 2, Item 3) and cotter pins (Figure 2, Item 1).
3. Install inner handle (Figure 2, Item 8) on handle shank (Figure 2, Item 9) with pin (Figure 2, Item 10).

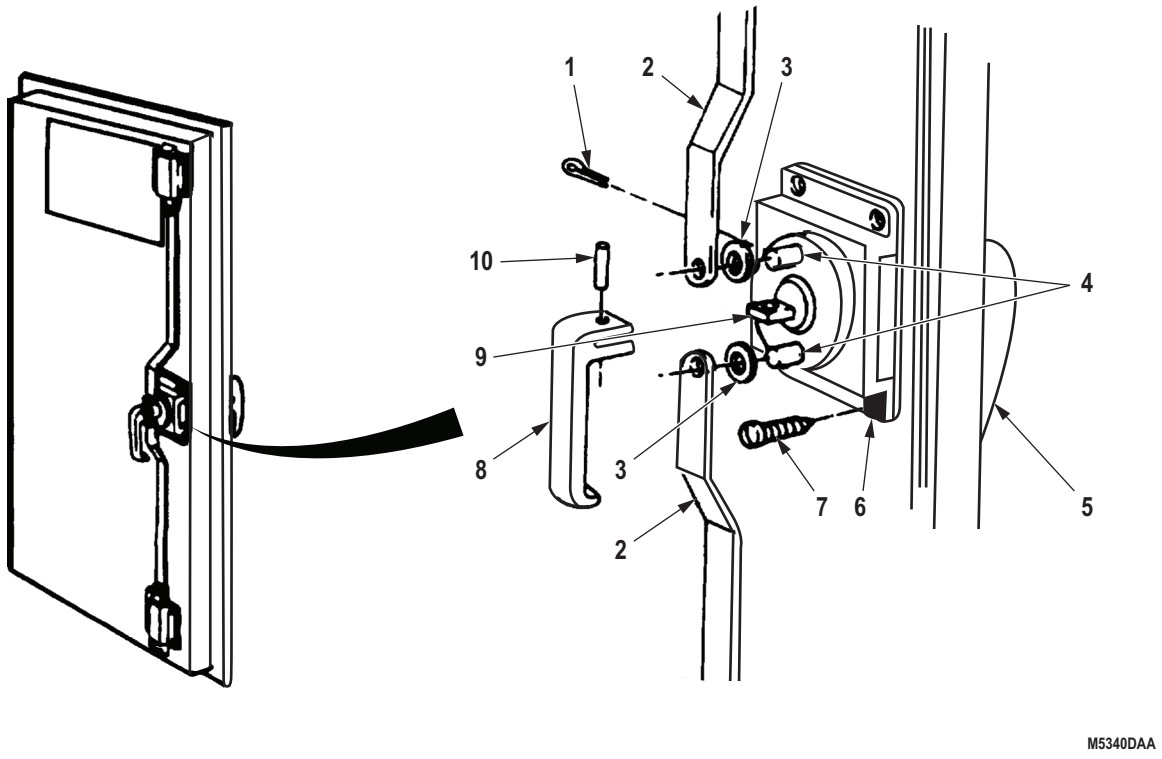


Figure 2. Door Handle and Lock Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

Close rear doors (rear door handle and lock replacement only). (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
VAN DOOR CHECKS REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Lockwasher
(Volume 5, WP 0827, Table 1, Item 403)
Qty: 4

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

Equipment Condition (cont.)
Rear doors open. (TM 9-2320-272-10)

REMOVAL

NOTE

Blackout switch striker is removed with door check arm bracket on all doors except left rear.

1. Remove two screws (Figure 1, Item 9), lockwashers (Figure 1, Item 8), door check arm bracket (Figure 1, Item 12), and two washers (Figure 1, Item 2) from edge of door (Figure 1, Item 1) and blackout switch striker (Figure 1, Item 13). Discard lockwashers.
2. Remove screw (Figure 1, Item 10), washer (Figure 1, Item 11), and blackout switch striker (Figure 1, Item 13) from edge of door (Figure 1, Item 1).
3. Remove two nuts (Figure 1, Item 5), lockwashers (Figure 1, Item 6), screws (Figure 1, Item 3), and door check (Figure 1, Item 7) from bracket (Figure 1, Item 4). Discard lockwashers.

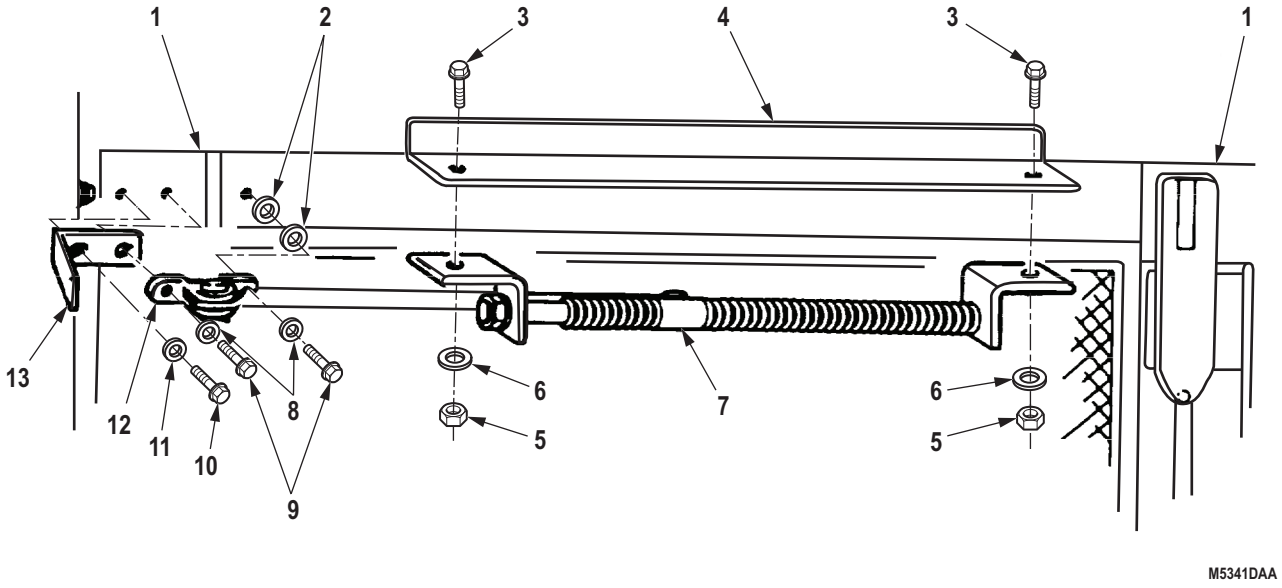


Figure 1. Door Checks Removal.

END OF TASK

INSTALLATION

1. Install door check (Figure 2, Item 7) on bracket (Figure 2, Item 4) with two screws (Figure 2, Item 3), lockwashers (Figure 2, Item 6), and nuts (Figure 2, Item 5).
2. Install blackout switch striker (Figure 2, Item 13) on edge of door (Figure 2, Item 1) with washer (Figure 2, Item 11) and screw (Figure 2, Item 10).
3. Install two washers (Figure 2, Item 2) and door check arm bracket (Figure 2, Item 12) on edge of door (Figure 2, Item 1) with two lockwashers (Figure 2, Item 8) and screws (Figure 2, Item 9).

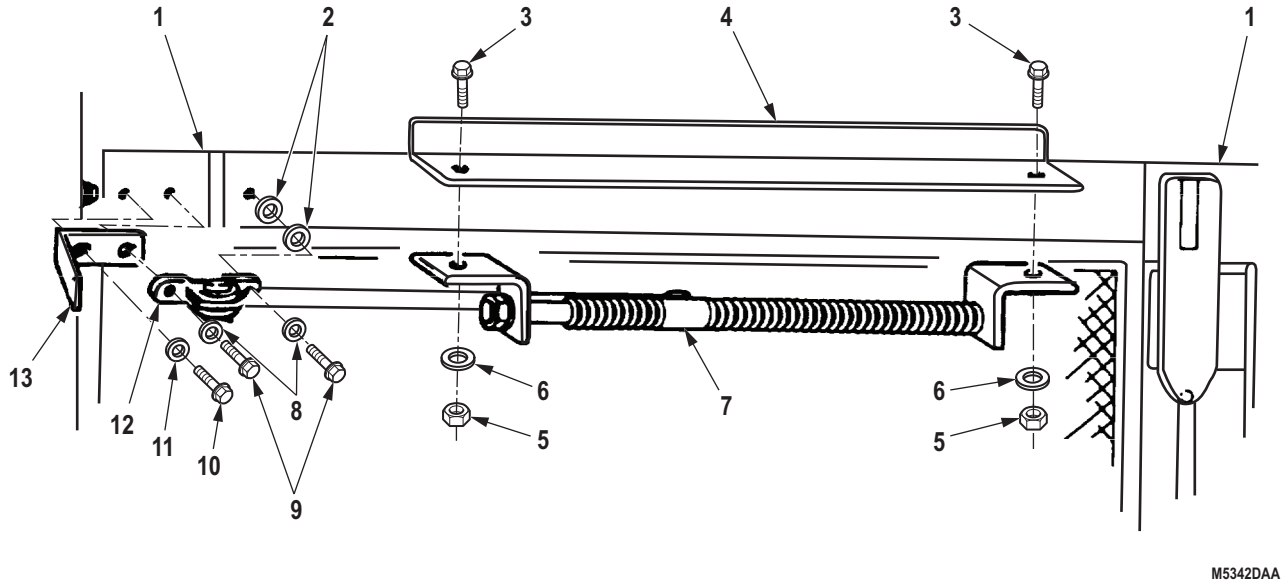


Figure 2. Door Checks Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

Close rear doors. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
VAN LADDER RACK BUMPERS REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Ladders removed. (TM 9-2320-272-10)

REMOVAL

Remove two nuts (Figure 1, Item 3), screws (Figure 1, Item 1), washers (Figure 1, Item 4), and bumpers (Figure 1, Item 2) from ladder rack (Figure 1, Item 5).

END OF TASK

INSTALLATION

Install two bumpers (Figure 1, Item 2) on ladder rack (Figure 1, Item 5) with two washers (Figure 1, Item 4), screws (Figure 1, Item 1), and nuts (Figure 1, Item 3).

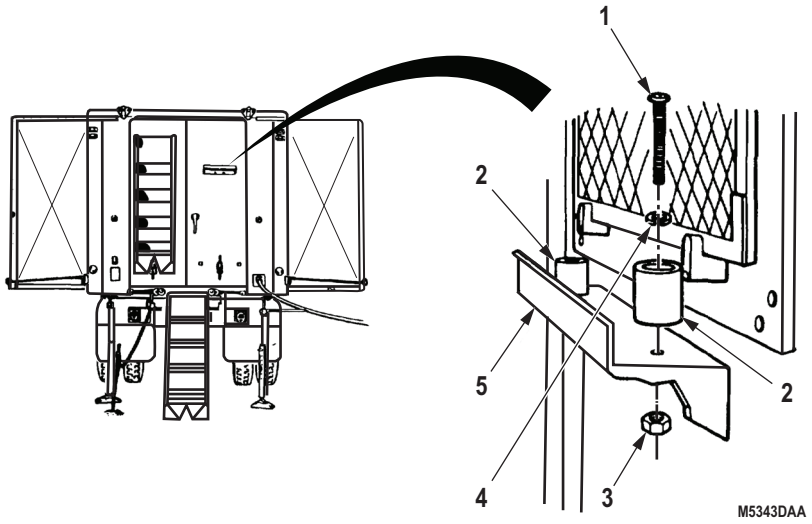


Figure 1. Ladder Rack Bumpers Replacement.

END OF TASK

FOLLOW-ON MAINTENANCE

Install ladders. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
VAN SIDE PANEL RUBBER BUMPERS REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Van side panel fully expanded and secured.
(TM 9-2320-272-10)

REMOVAL

NOTE

Removal procedures for side panel bumpers, rubber bumpers (rear interior wall), and swivel hood rubber bumpers are the same.

Remove screw (Figure 1, Item 2), washer (Figure 1, Item 3), and bumper (Figure 1, Item 4) from side panel (Figure 1, Item 1).

END OF TASK

INSTALLATION

Install bumper (Figure 1, Item 4) on side panel (Figure 1, Item 1) with washer (Figure 1, Item 3) and screw (Figure 1, Item 2).

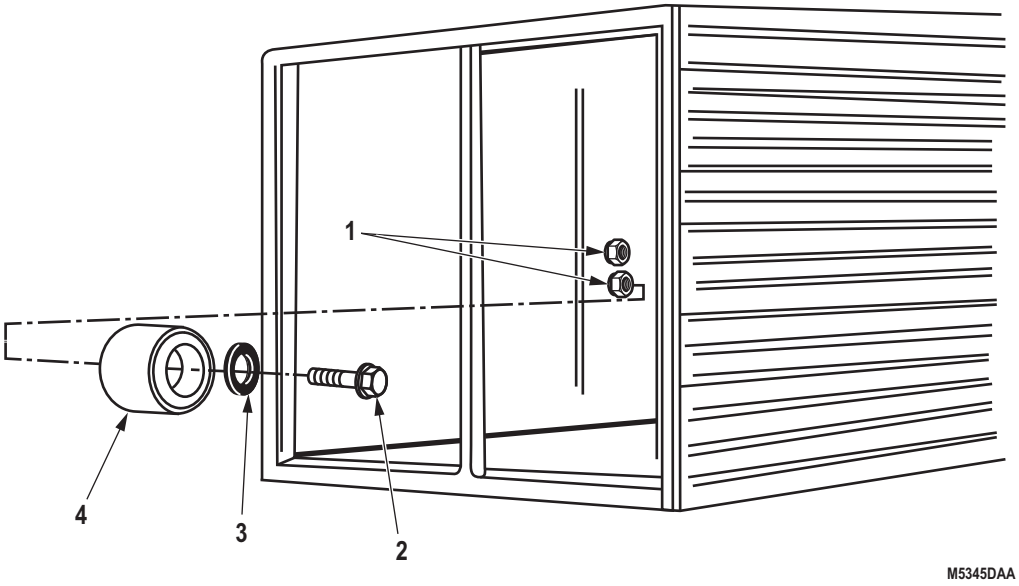


Figure 1. Side Panel Rubber Bumper Replacement.

END OF TASK

FOLLOW-ON MAINTENANCE

Retract and secure van side panel. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
VAN SIDE PANEL REAR LOCK REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Cotter Pin
(Volume 5, WP 0827, Table 1, Item 338)
Qty: 2
Lockwasher
(Volume 5, WP 0827, Table 1, Item 215)
Qty: 4

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

Equipment Condition (cont.)
Van side panel fully expanded and secured.
(TM 9-2320-272-10)

REMOVAL

1. Remove eight screws (Figure 1, Item 5) and lock cover plate with insulation (Figure 1, Item 6) from side panel (Figure 1, Item 13).
2. Remove two screws (Figure 1, Item 17) from lock bolt retainer (Figure 1, Item 16) and door frame (Figure 1, Item 18).
3. Remove two cotter pins (Figure 1, Item 1), pins (Figure 1, Item 4), and clevises (Figure 1, Item 2) from locking arms (Figure 1, Item 3). Discard cotter pins.
4. Remove nut (Figure 1, Item 7) and washer (Figure 1, Item 8) from lock (Figure 1, Item 11), and lock handle shank (Figure 1, Item 14).
5. Remove four nuts (Figure 1, Item 9), lockwashers (Figure 1, Item 10), lock (Figure 1, Item 11), lockbolt (Figure 1, Item 12), and lock bolt retainer (Figure 1, Item 16) from side panel (Figure 1, Item 13), studs (Figure 1, Item 15), and door frame (Figure 1, Item 18). Discard lockwashers.

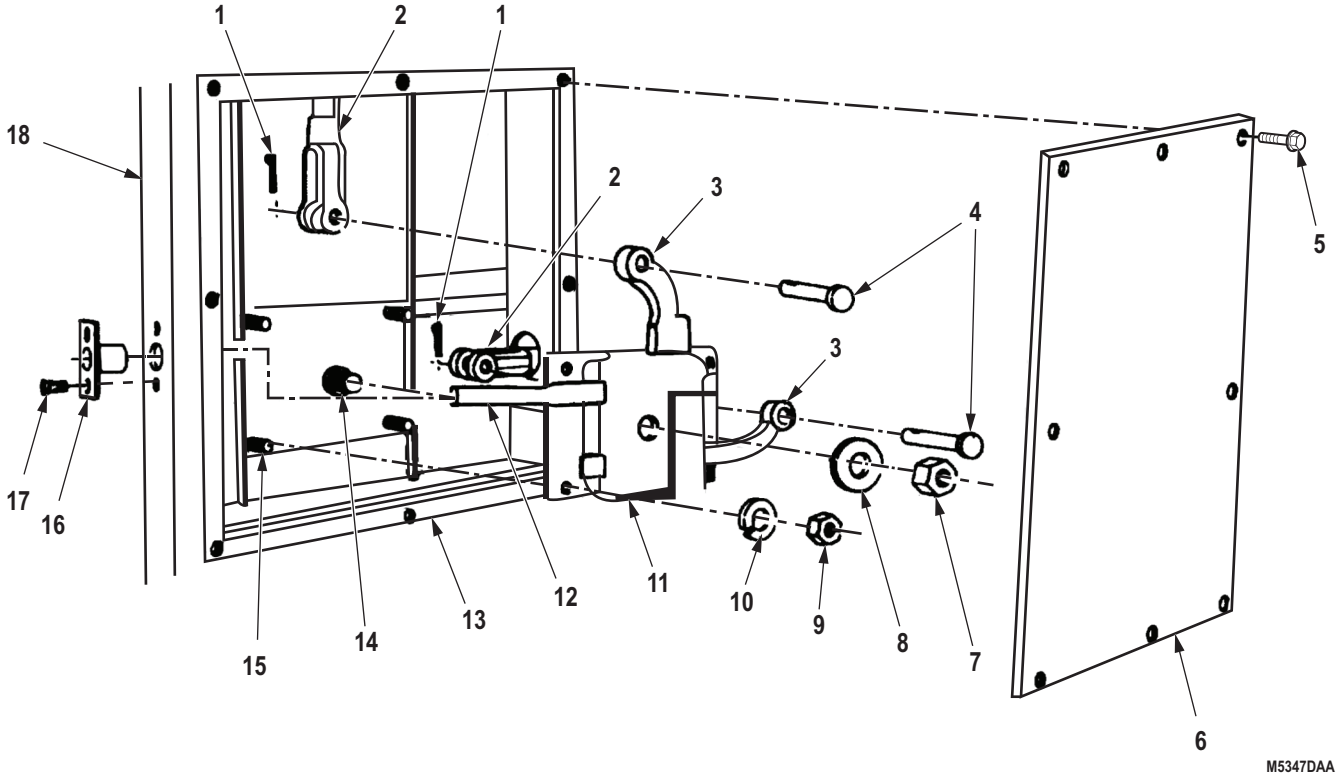


Figure 1. Side Panel Rear Lock Removal.

END OF TASK

INSTALLATION

1. Position lock (Figure 2, Item 11) over lock handle shank (Figure 2, Item 14) and studs (Figure 2, Item 15).
2. Slide lock bolt retainer (Figure 2, Item 16) over lockbolt (Figure 2, Item 12) and install on door frame (Figure 2, Item 18) with two screws (Figure 2, Item 17).
3. Install lock (Figure 2, Item 11) on side panel (Figure 2, Item 13) and studs (Figure 2, Item 15) with four lockwashers (Figure 2, Item 10) and nuts (Figure 2, Item 9).

INSTALLATION - Continued

4. Install washer (Figure 2, Item 8) and nut (Figure 2, Item 7) on lock (Figure 2, Item 11) and lock handle shank (Figure 2, Item 14).
5. Install two clevises (Figure 2, Item 2) on locking arms (Figure 2, Item 3) with two pins (Figure 2, Item 4) and cotter pins (Figure 2, Item 1).
6. Install lock cover plate with insulation (Figure 2, Item 6) on side panel (Figure 2, Item 13) with eight screws (Figure 2, Item 5).

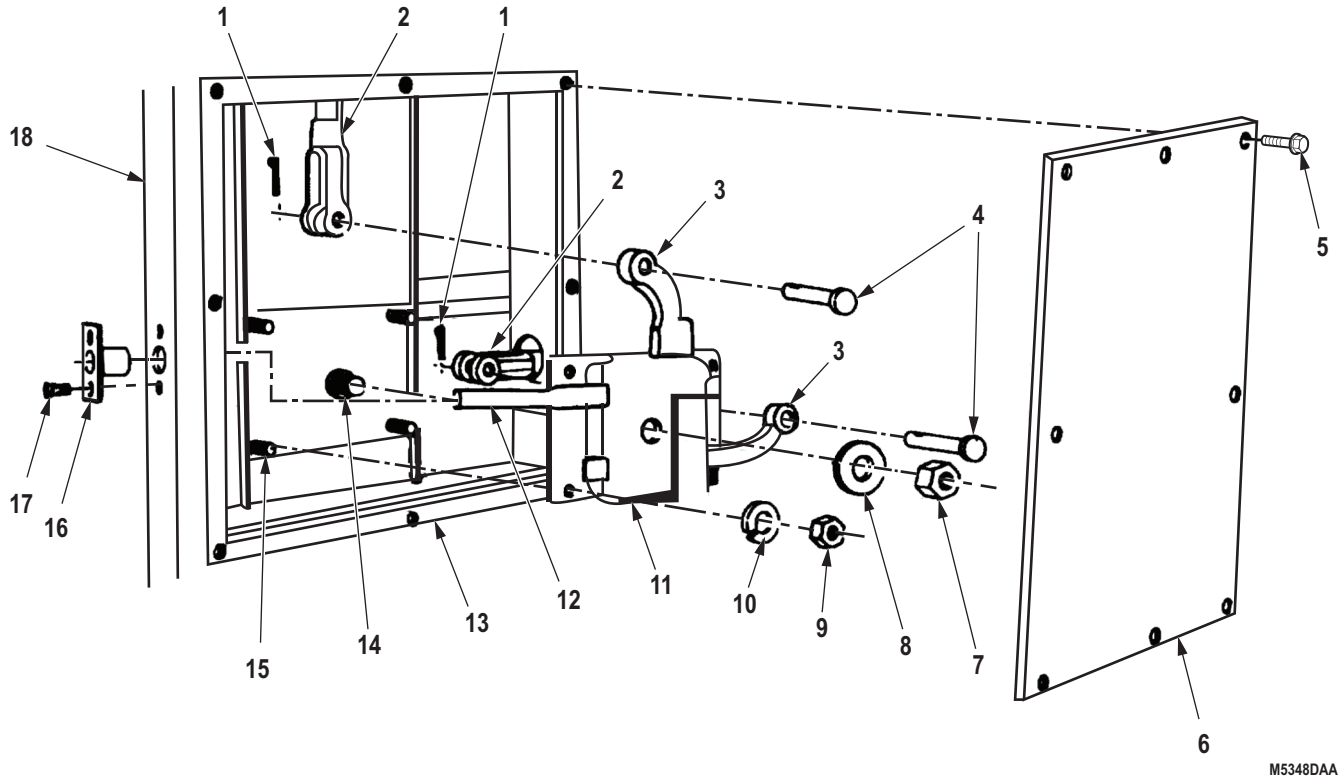


Figure 2. Side Panel Rear Lock Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

Retract and secure van side panel. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
VAN SIDE PANEL FRONT LOCK AND HINGED-TYPE ROOF LOCK REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Grease, Automotive and Artillery
(Volume 5, WP 0825, Table 1, Item 28)
Cotter Pin

Materials/Parts (cont.)
(Volume 5, WP 0827, Table 1, Item 338)
Qty: 2
Lockwasher
(Volume 5, WP 0827, Table 1, Item 215)
Qty: 4

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

REMOVAL

1. Remove eight screws (Figure 1, Item 11) and access plate (Figure 1, Item 12) from side panel (Figure 1, Item 2).
2. Remove two cotter pins (Figure 1, Item 3), pins (Figure 1, Item 5), and clevises (Figure 1, Item 4) from lock arms (Figure 1, Item 6). Discard cotter pins.
3. Remove nut (Figure 1, Item 8) and washer (Figure 1, Item 7) from lock (Figure 1, Item 6) and lock handle shank (Figure 1, Item 1).
4. Remove four nuts (Figure 1, Item 9), lockwashers (Figure 1, Item 10), and lock (Figure 1, Item 6) from side panel (Figure 1, Item 2). Discard lockwashers.

REMOVAL - Continued

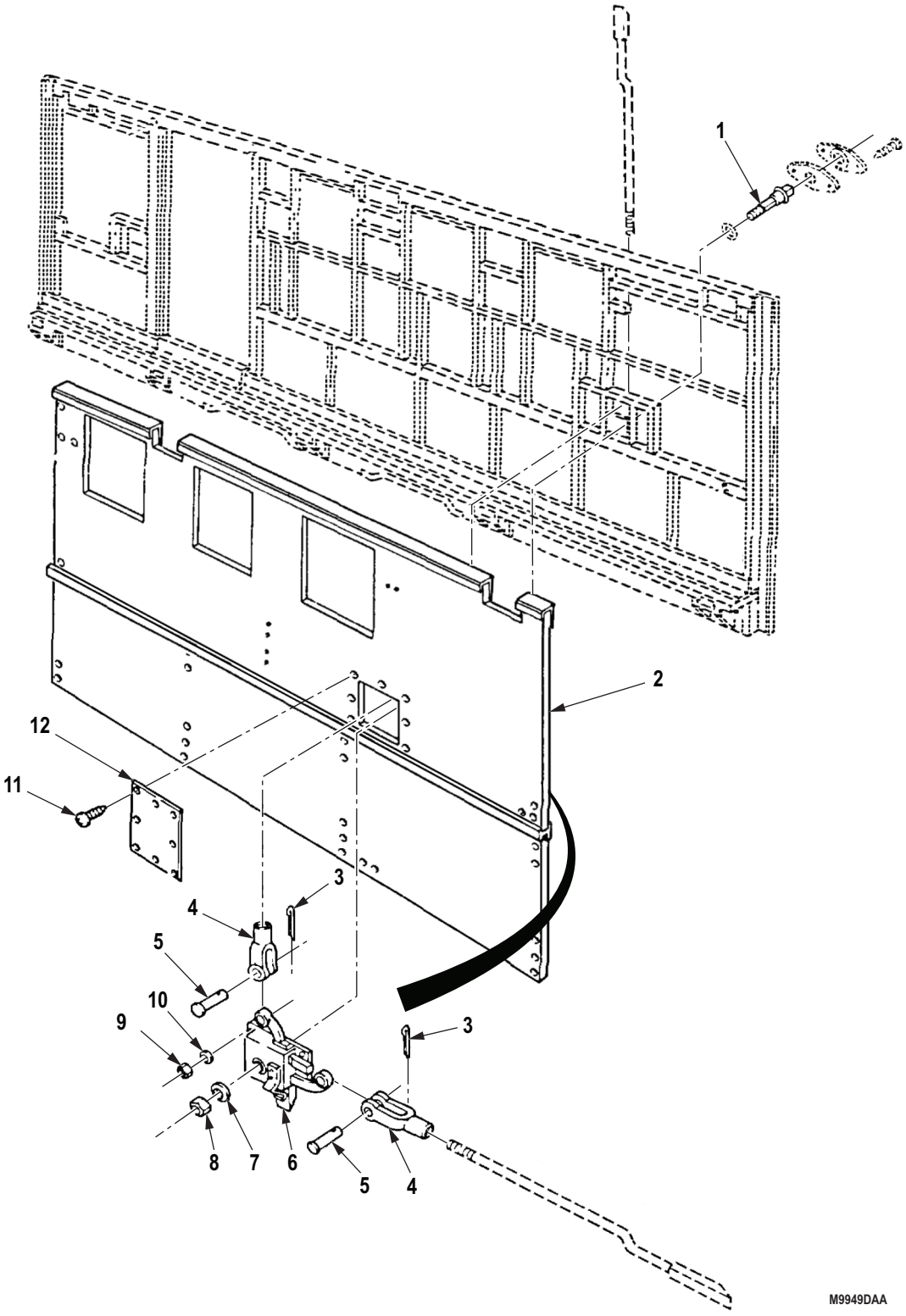


Figure 1. Latch Assembly Removal.

END OF TASK

INSTALLATION

1. Position lock (Figure 2, Item 6) on side panel (Figure 2, Item 2) and lock handle shank (Figure 2, Item 1) and install washer (Figure 2, Item 7) and nut (Figure 2, Item 8).
2. Install four lockwashers (Figure 2, Item 10) and nuts (Figure 2, Item 9) on lock (Figure 2, Item 6).
3. Install two clevises (Figure 2, Item 4) on lock arms (Figure 2, Item 6) with two pins (Figure 2, Item 5) and cotter pins (Figure 2, Item 3).
4. Install cover plate (Figure 2, Item 12) on side panel (Figure 2, Item 2) with eight screws (Figure 2, Item 11).

INSTALLATION - Continued

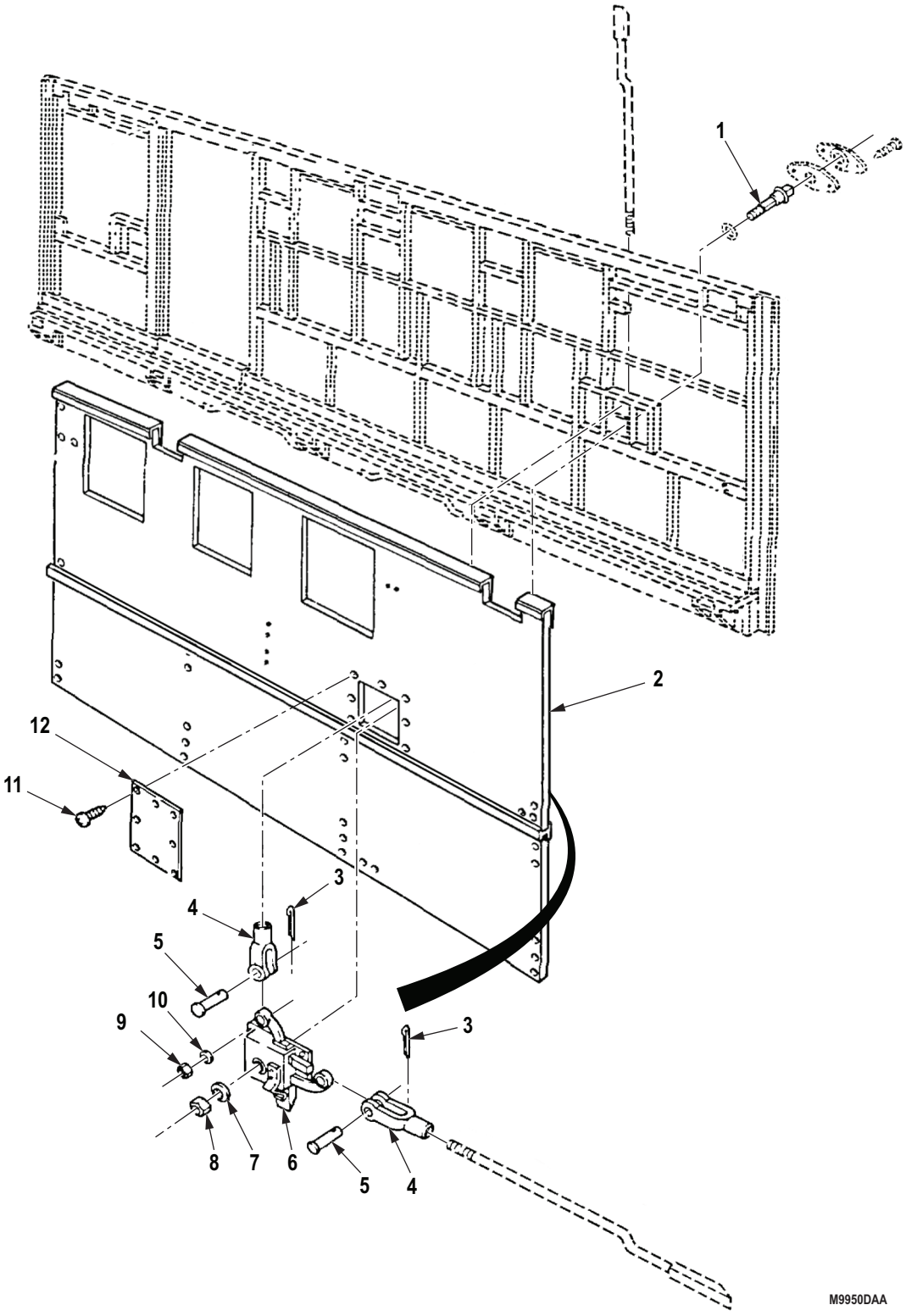


Figure 2. Latch Assembly Installation.

END OF TASK

FIELD MAINTENANCE
VAN SIDE PANEL EXTERIOR LOCK REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

REMOVAL

1. Remove locking pin (Figure 1, Item 4) and release lock handle (Figure 1, Item 1).
2. Remove four screws (Figure 1, Item 2) and lock (Figure 1, Item 3) from side panel (Figure 1, Item 5).

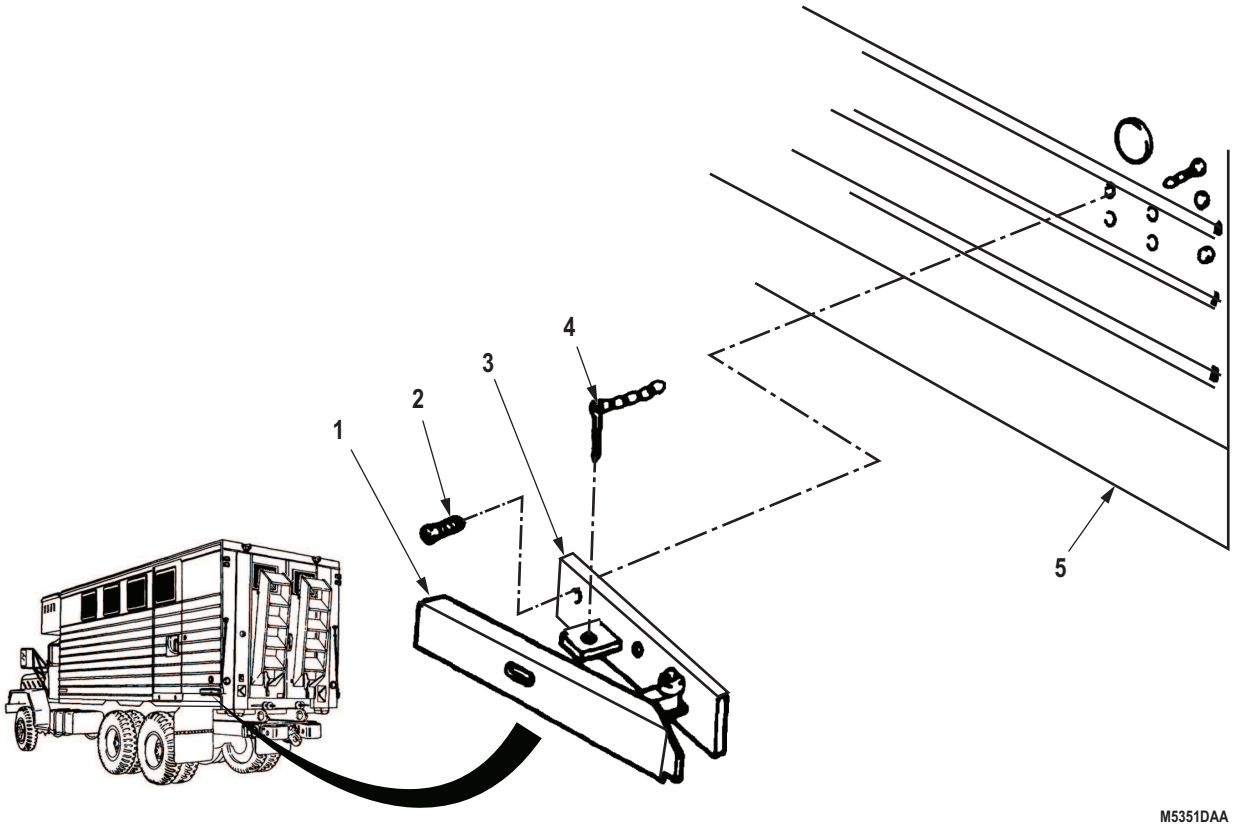


Figure 1. Side Panel Exterior Lock Removal.

END OF TASK

INSTALLATION

1. Install lock (Figure 2, Item 3) on side panel (Figure 2, Item 5) with four screws (Figure 2, Item 2).
2. Close lock handle (Figure 2, Item 1) and insert locking pin (Figure 2, Item 4).

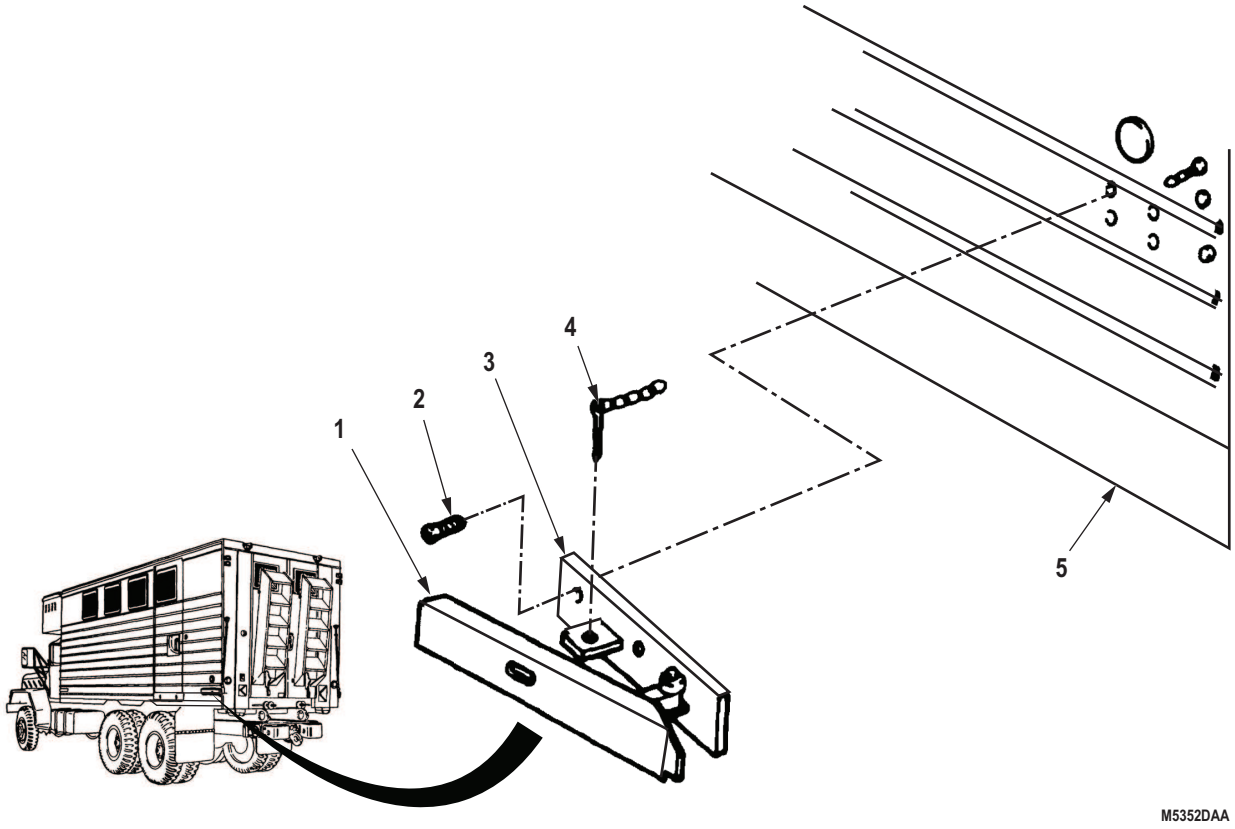


Figure 2. Side Panel Exterior Lock Installation.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
VAN FLUORESCENT LIGHT TUBE REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Fluorescent ceiling light switch off.
(TM 9-2320-272-10)

REMOVAL

1. Remove two screws (Figure 1, Item 2) and lower mesh guard (Figure 1, Item 4) from light fixture (Figure 1, Item 1).
2. Remove three fluorescent tubes (Figure 1, Item 3) from light fixture (Figure 1, Item 1).

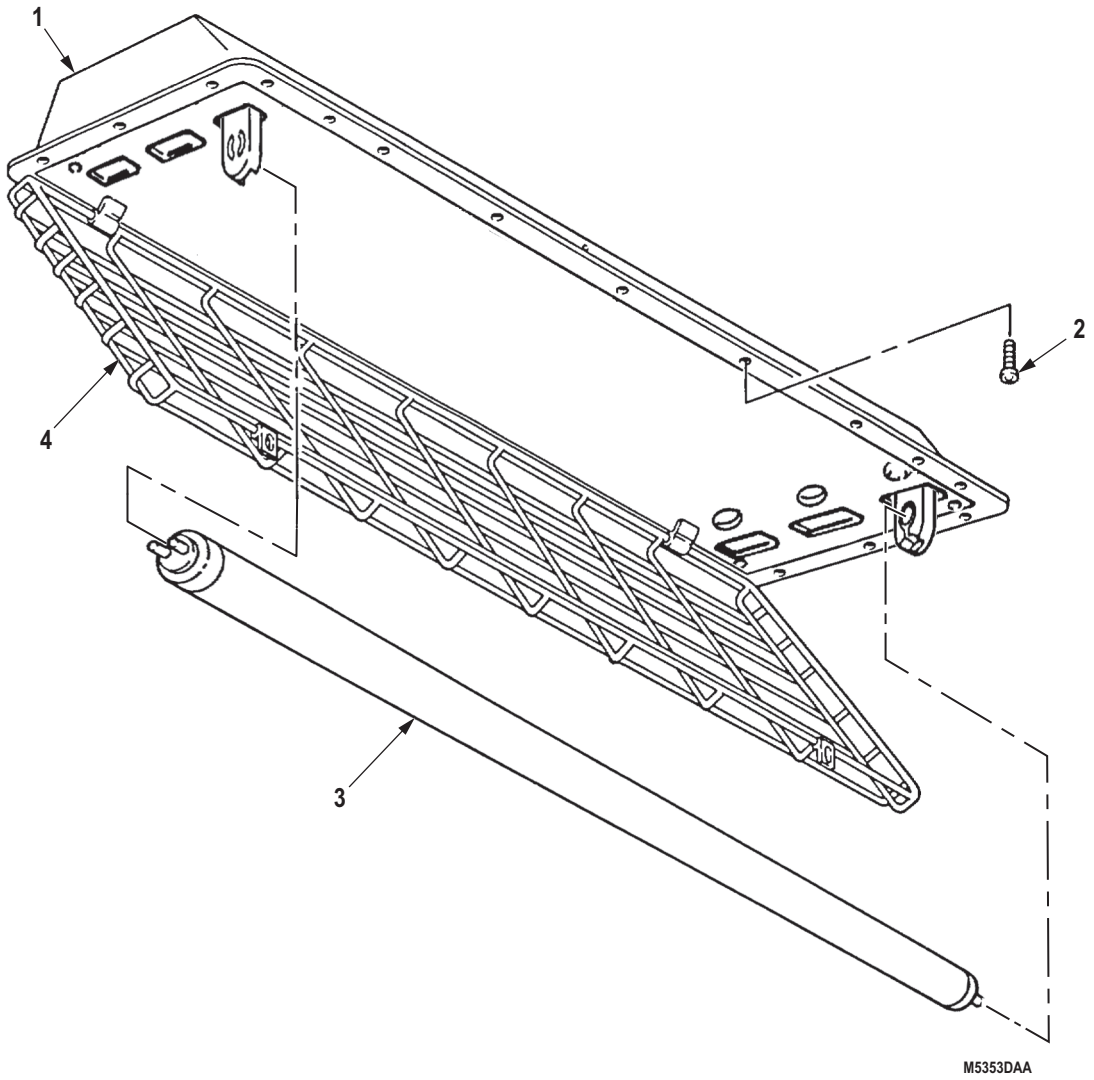


Figure 1. Fluorescent Light Tube Removal.

END OF TASK

INSTALLATION

1. Install three fluorescent tubes (Figure 2, Item 3) on light fixture (Figure 2, Item 1).
2. Position mesh guard (Figure 2, Item 4) on light fixture (Figure 2, Item 1) and install with two screws (Figure 2, Item 2).

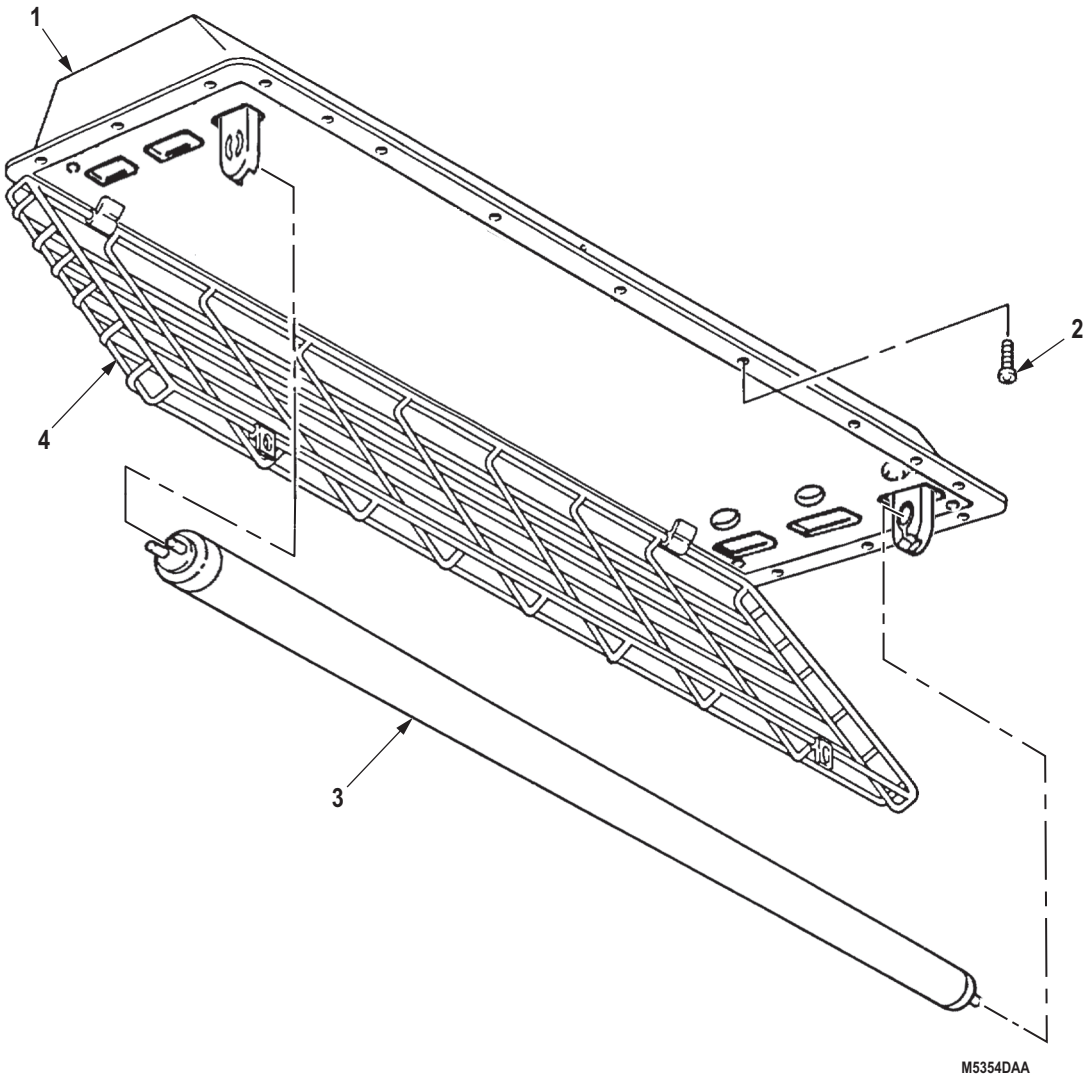


Figure 2. Fluorescent Light Tube Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

Check operation of fluorescent lights. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
VAN EMERGENCY/BLACKOUT LIGHT LAMP AND LENS REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

Equipment Condition (cont.)
Emergency light switch off. (TM 9-2320-272-10)
Blackout light switch off. (TM 9-2320-272-10)

REMOVAL

NOTE

Emergency light and blackout light lamps and lenses are replaced the same. This procedure is for the emergency light lamps and lenses.

1. Loosen lockscrew (Figure 1, Item 2) and open light door (Figure 1, Item 1).
2. Remove lamp (Figure 1, Item 4) from lamp socket (Figure 1, Item 3).
3. Turn lens retaining clip (Figure 1, Item 5) and remove lens (Figure 1, Item 6) from light door (Figure 1, Item 1).

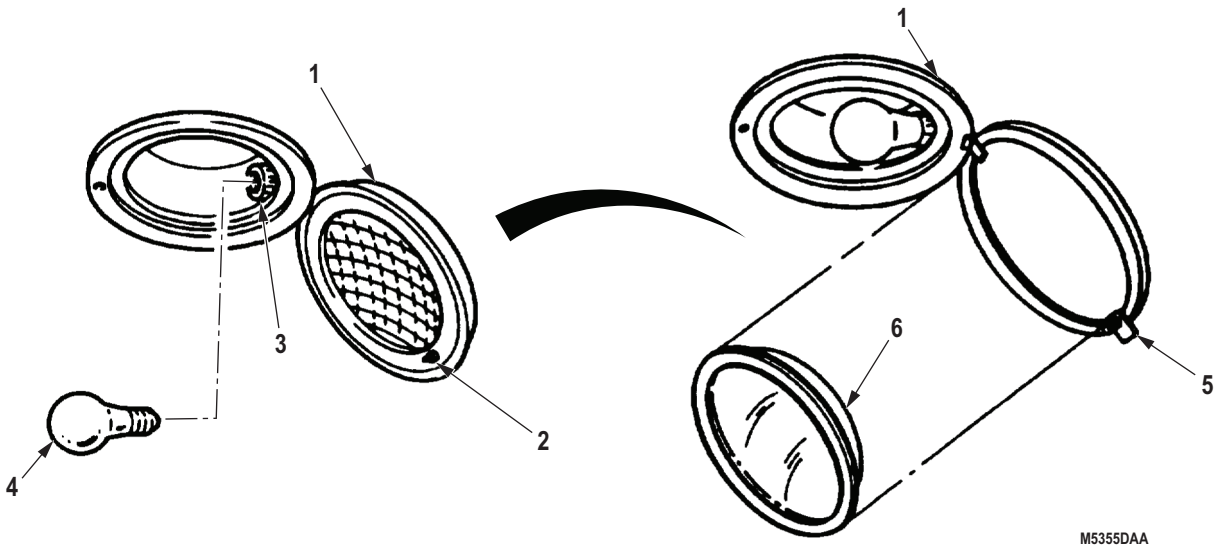


Figure 1. Emergency/Blackout Light Lamp and Lens Removal.

END OF TASK

INSTALLATION

NOTE

White lens is installed in emergency light door and blue lens is installed in blackout light door.

1. Position lens (Figure 2, Item 6) in light door (Figure 2, Item 1) and install with lens retaining clip (Figure 2, Item 5).
2. Install lamp (Figure 2, Item 4) in lamp socket (Figure 2, Item 3).
3. Close light door (Figure 2, Item 1) and tighten lockscrew (Figure 2, Item 2).

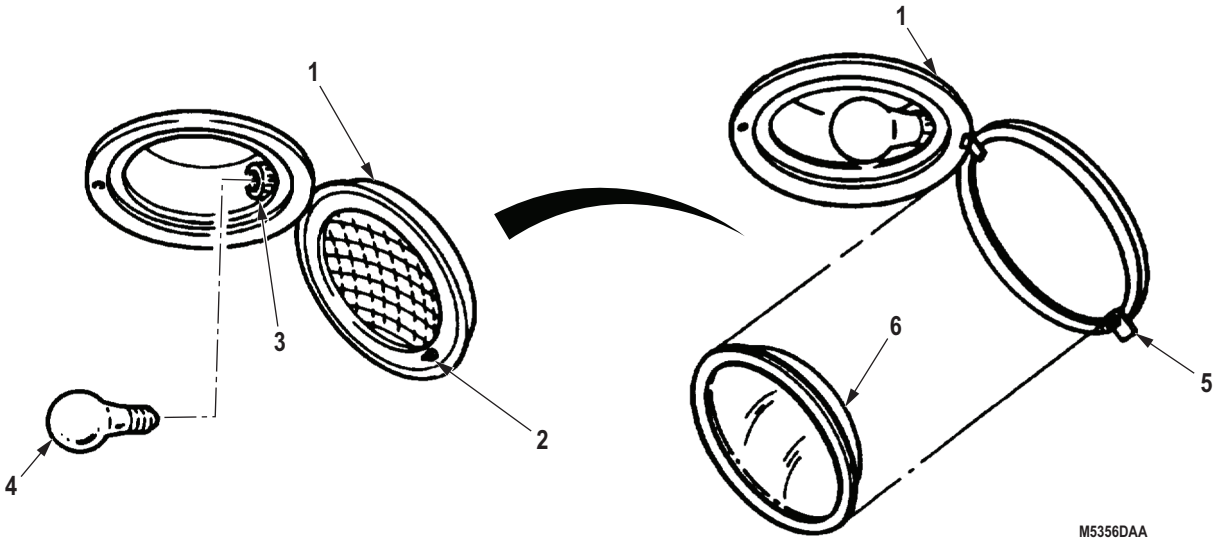


Figure 2. Emergency/Blackout Light Lamp and Lens Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

Check operation of emergency/blackout light. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
VAN BLACKOUT LIGHT SWITCH AND 110-VOLT RECEPTACLE REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Auxiliary A/C power source disconnected.
(TM 9-2320-272-10)

REMOVAL

1. Remove three screws (Figure 1, Item 8) and cover plate (Figure 1, Item 7) from box (Figure 1, Item 2).
2. Remove two screws (Figure 1, Item 9) and pull switch (Figure 1, Item 1) away from box (Figure 1, Item 2).
3. Remove two screws (Figure 1, Item 6) and pull receptacle (Figure 1, Item 5) away from box (Figure 1, Item 2).

NOTE

Tag all leads for installation.

4. Remove five screws (Figure 1, Item 4) and leads (Figure 1, Item 3) from pull switch (Figure 1, Item 1).
5. Remove five screws (Figure 1, Item 4) and leads (Figure 1, Item 3) from receptacle (Figure 1, Item 5).

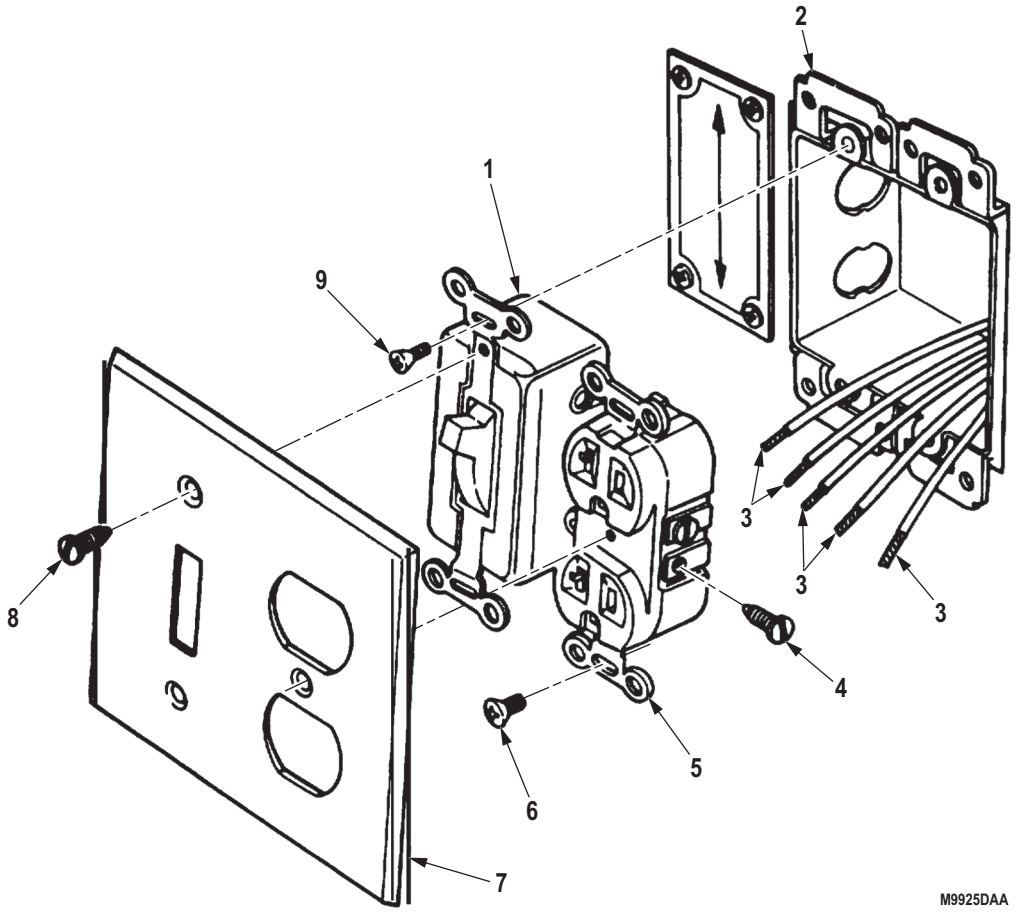


Figure 1. Blackout Light Switch and 110-Volt Receptacle Removal.

END OF TASK

INSTALLATION

1. Install five leads (Figure 2, Item 3) on receptacle (Figure 2, Item 5) with five screws (Figure 2, Item 4).
2. Install five leads (Figure 2, Item 3) on pull switch (Figure 2, Item 1) with five screws (Figure 2, Item 4).
3. Install receptacle (Figure 2, Item 5) on box (Figure 2, Item 2) with two screws (Figure 2, Item 6).

INSTALLATION - Continued

4. Install pull switch (Figure 2, Item 1) on box (Figure 2, Item 2) with two screws (Figure 2, Item 9).
5. Install cover plate (Figure 2, Item 7) on box (Figure 2, Item 2) with three screws (Figure 2, Item 8).

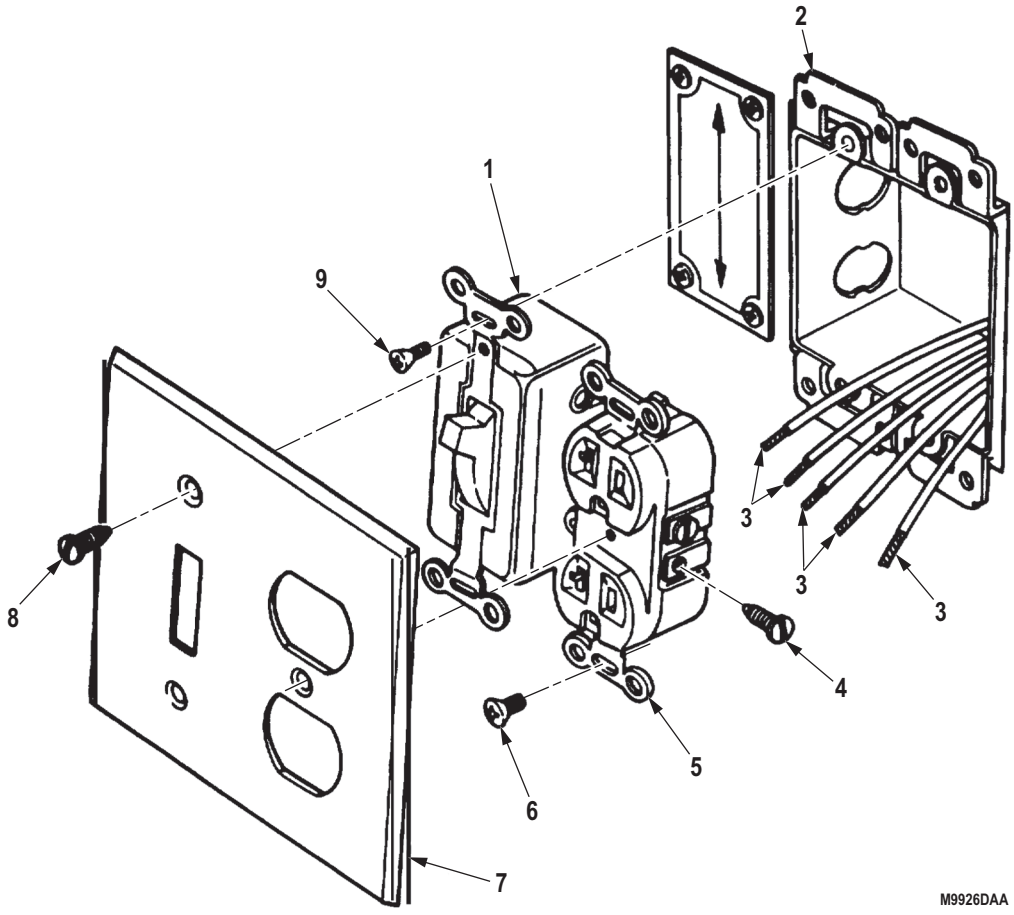


Figure 2. Blackout Light Switch and 110-Volt Receptacle Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

Connect auxiliary A/C power source and check operation of light switch and 110-volt receptacle. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
VAN INSIDE TELEPHONE JACK POST REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

REMOVAL

NOTE

Inside telephone jack posts are located on van ceiling next to emergency light and on left rear panel below fire extinguisher. Both telephone jack posts are replaced the same. This procedure is for rear panel telephone jack post.

1. Remove four screws (Figure 1, Item 6) and pull junction box (Figure 1, Item 4) away from panel (Figure 1, Item 7).

NOTE

- Ceiling telephone jack posts are connected with one wire.
- Tag all leads for installation.

2. Remove screw (Figure 1, Item 1), two leads (Figure 1, Item 2), nut (Figure 1, Item 8), and telephone jack post (Figure 1, Item 5) from grommet (Figure 1, Item 3) and junction box (Figure 1, Item 4).
3. Remove grommet (Figure 1, Item 3) from junction box (Figure 1, Item 4).

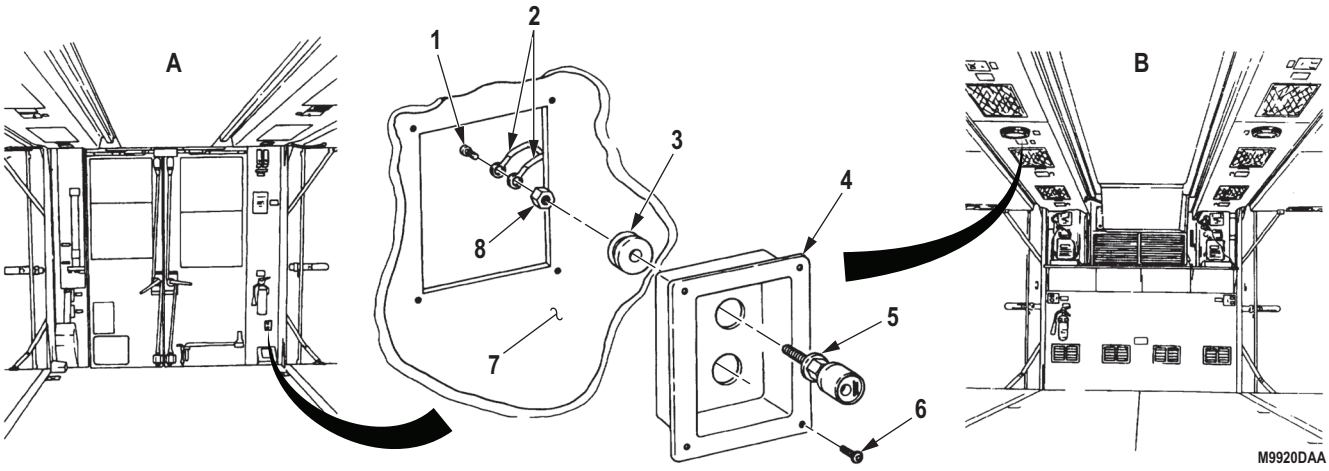


Figure 1. Inside Telephone Jack Post Removal.

END OF TASK

INSTALLATION

1. Install grommet (Figure 2, Item 3) on junction box (Figure 2, Item 4).
2. Install telephone jack post (Figure 2, Item 5) on grommet (Figure 2, Item 3) and junction box (Figure 2, Item 4) with nut (Figure 2, Item 8).
3. Install two leads (Figure 2, Item 2) on telephone jack post (Figure 2, Item 5) with screw (Figure 2, Item 1).
4. Install junction box (Figure 2, Item 4) on panel (Figure 2, Item 7) with four screws (Figure 2, Item 6).

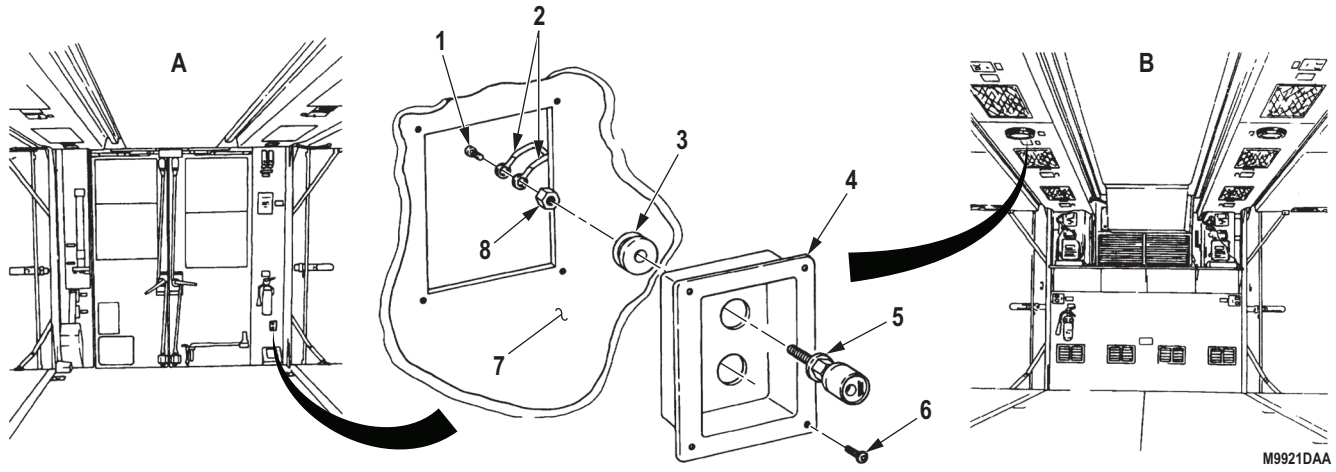


Figure 2. Inside Telephone Jack Post Installation.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
VAN OUTSIDE TELEPHONE JACK POST REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Gasket (Volume 5, WP 0827, Table 1, Item 202)
Qty: 1

Personnel Required
(2)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

Equipment Condition (cont.)
Fire extinguisher removed. (TM 9-2320-272-10)
Inside telephone jack posts removed. (WP 0626)
Expand van. (TM 9-2320-272-10)

REMOVAL

1. Remove four screws (Figure 1, Item 16), cover (Figure 1, Item 17), and gasket (Figure 1, Item 15) from van body (Figure 1, Item 18). Discard gasket.
2. Remove two screws (Figure 1, Item 5) and thermostat cover (Figure 1, Item 4) from two thermostats (Figure 1, Item 2) and inside panel (Figure 1, Item 19).
3. Remove eight screws (Figure 1, Item 3) and two thermostats (Figure 1, Item 2) from inside panel (Figure 1, Item 19). Thermostats remain connected to wires.
4. Remove 23 screws (Figure 1, Item 8) and panel retainer (Figure 1, Item 7) from inside panel (Figure 1, Item 19).
5. Pry inside panel (Figure 1, Item 19) away from frame (Figure 1, Item 1) enough to clear studs (Figure 1, Item 6) and gain access to rear of junction box (Figure 1, Item 13).

NOTE

- Tag all leads for installation.
- Assistant will help with Step (6).

6. Remove screws (Figure 1, Item 9), lead (Figure 1, Item 10), nut (Figure 1, Item 11), and telephone jack post (Figure 1, Item 14) from grommet (Figure 1, Item 12) and junction box (Figure 1, Item 13).
7. Remove grommet (Figure 1, Item 12) from junction box (Figure 1, Item 13).

REMOVAL - Continued

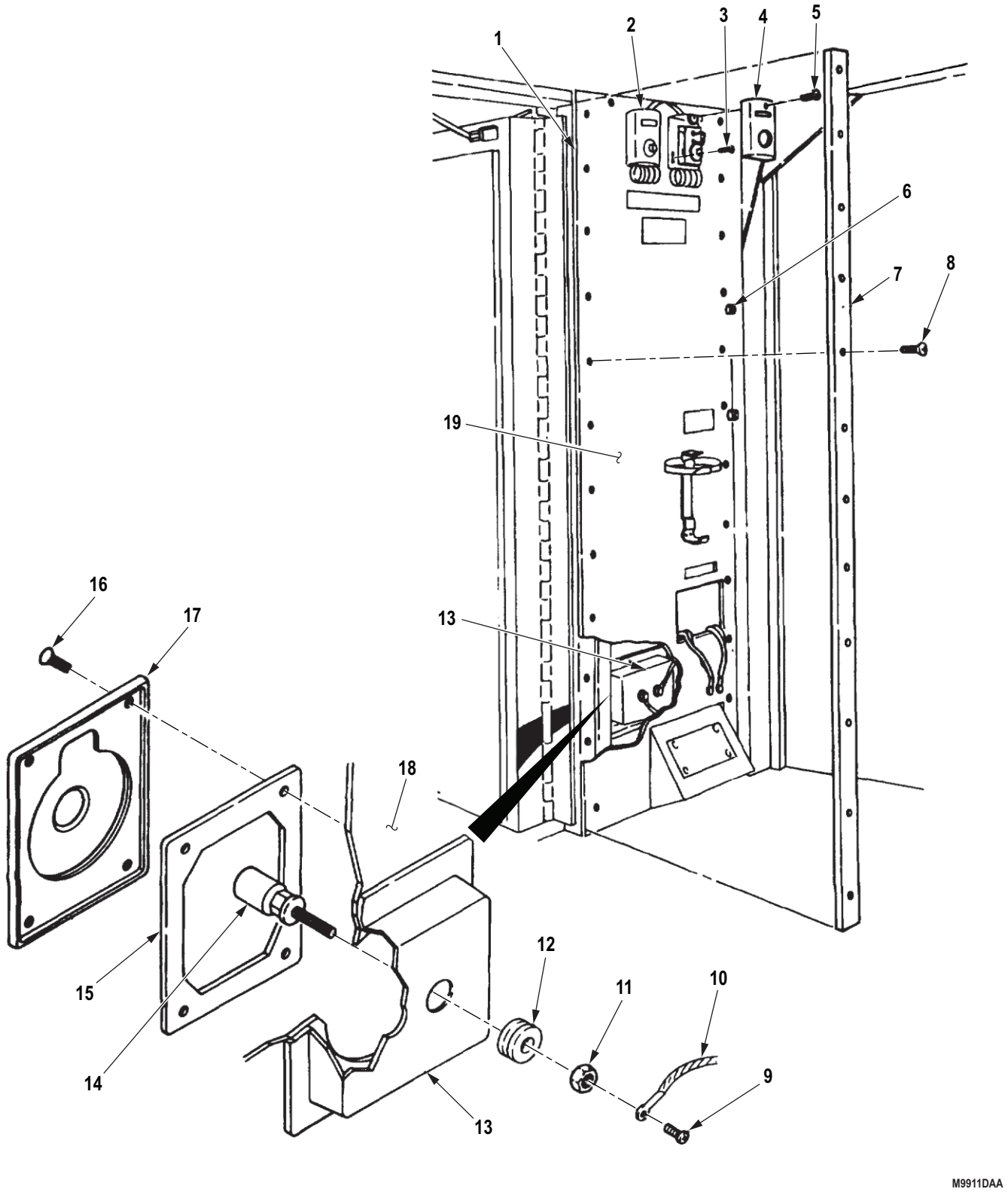


Figure 1. Outside Telephone Jack Post Removal.

END OF TASK

INSTALLATION

1. Install grommet (Figure 2, Item 12) on junction box (Figure 2, Item 13).

NOTE

Assistant will help with Step (2).

2. Install telephone jack post (Figure 2, Item 14) on grommet (Figure 2, Item 12) and junction box (Figure 2, Item 13).
3. Install lead (Figure 2, Item 10) on telephone jack post (Figure 2, Item 14) with nut (Figure 2, Item 11) and screw (Figure 2, Item 9).
4. Pry inside panel (Figure 2, Item 19) over studs (Figure 2, Item 6) and onto frame (Figure 2, Item 1).
5. Install panel retainer (Figure 2, Item 7) on inside panel (Figure 2, Item 19) with 23 screws (Figure 2, Item 8).
6. Install two thermostats (Figure 2, Item 2) on inside panel (Figure 2, Item 19) with eight screws (Figure 2, Item 3).
7. Install thermostat cover (Figure 2, Item 4) on two thermostats (Figure 2, Item 2) and inside panel (Figure 2, Item 19) with two screws (Figure 2, Item 5).
8. Install gasket (Figure 2, Item 15) and cover (Figure 2, Item 17) on van body (Figure 2, Item 18) with four screws (Figure 2, Item 16).

INSTALLATION - Continued

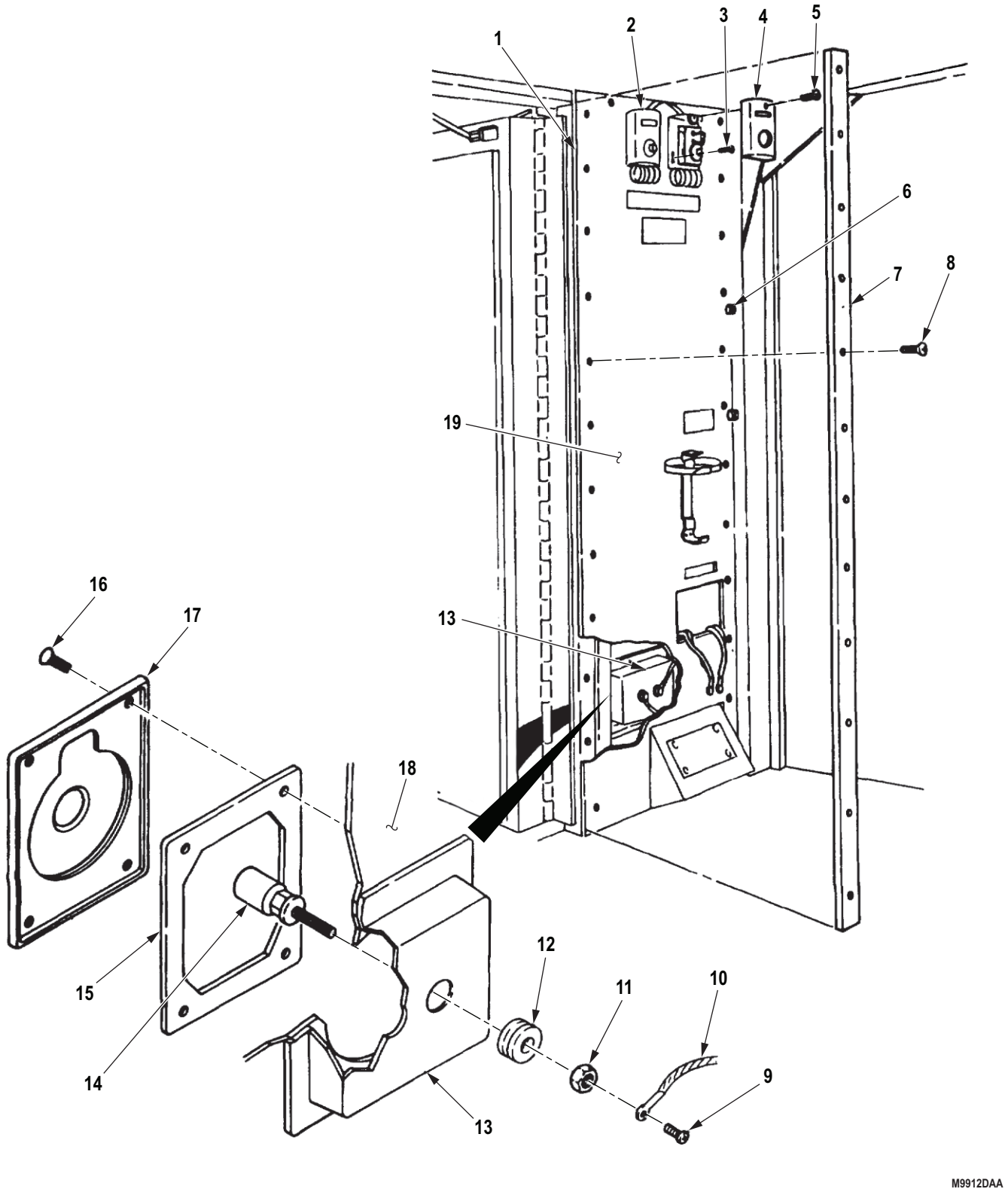


Figure 2. Outside Telephone Jack Post Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install inside panel telephone jack posts. (WP 0626)
2. Install fire extinguisher. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
VAN SIDE AND REAR DOOR BLACKOUT LIGHT SWITCH REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Solder, Tin Alloy
(Volume 5, WP 0825, Table 1, Item 64)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

Equipment Condition (cont.)
Main power switch OFF. (TM 9-2320-272-10)
Van side panel fully expanded and secured.
(TM 9-2320-272-10)

REMOVAL

1. Remove two screws (Figure 1, Item 3) and blackout light switch (Figure 1, Item 2) from electrical panel (Figure 1, Item 7) or switch box (Figure 1, Item 1).
2. Remove solder from terminals of blackout light switch (Figure 1, Item 2) and disconnect two wires (Figure 1, Item 6).
3. Remove nut (Figure 1, Item 4) and plate (Figure 1, Item 5) from blackout light switch (Figure 1, Item 2).

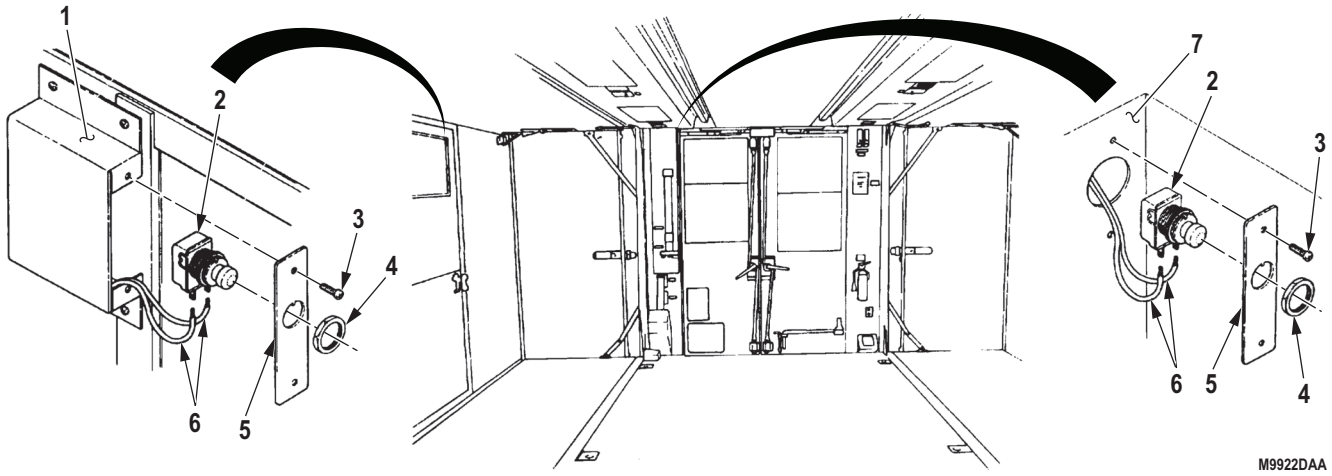


Figure 1. Side and Rear Door Blackout Light Switch Removal.

END OF TASK

INSTALLATION

1. Connect two wires (Figure 2, Item 6) to terminals of blackout light switch (Figure 2, Item 2) and install with solder.
2. Install door blackout light switch (Figure 2, Item 2) on electrical panel (Figure 2, Item 7) or switch box (Figure 2, Item 1) with two screws (Figure 2, Item 3).
3. Install plate (Figure 2, Item 5) on blackout light switch (Figure 2, Item 2) with nut (Figure 3, Item 4).

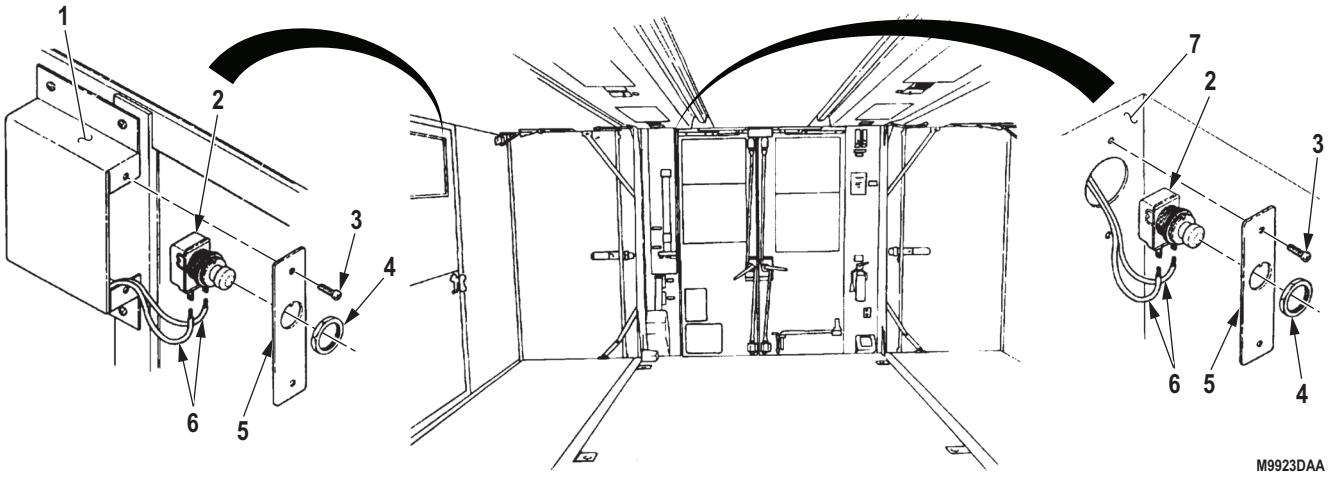


Figure 2. Side and Rear Door Blackout Light Switch Installation.

END OF TASK

ADJUSTMENT

NOTE

With main power switch, interior lights, and blackout light circuit on, interior lights must turn off when door starts to open, and turns on when door is closed.

1. Remove blackout light switch. See REMOVAL.
2. Rotate ring (Figure 3, Item 2) down farther on threaded shaft of blackout light switch (Figure 3, Item 1).
3. Install blackout light switch. See INSTALLATION.

ADJUSTMENT - Continued

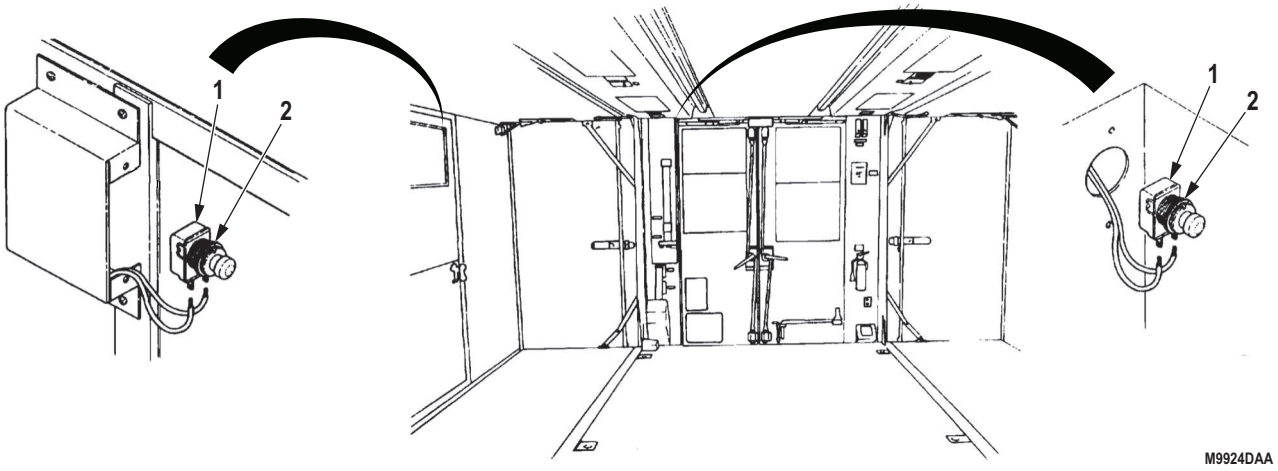


Figure 3. Side and Rear Door Blackout Light Adjustment.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Turn on main power switch and check operation of side and rear door blackout switches. (TM 9-2320-272-10)
2. Retract and secure van body side panel. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
VAN HINGED ROOF-OPERATED BLACKOUT CIRCUIT PLUNGERS REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

Equipment Condition (cont.)
Main power switch off. (TM 9-2320-272-10)
Van body side panel fully expanded and secured. (TM 9-2320-272-10)

REMOVAL

1. Remove four screws (Figure 1, Item 3) and pull plunger plate (Figure 1, Item 4) from hinged roof (Figure 1, Item 5).

NOTE

Tag all leads for installation.

2. Remove two screws (Figure 1, Item 1) and leads (Figure 1, Item 2) from plunger plate (Figure 1, Item 4).

REMOVAL - Continued

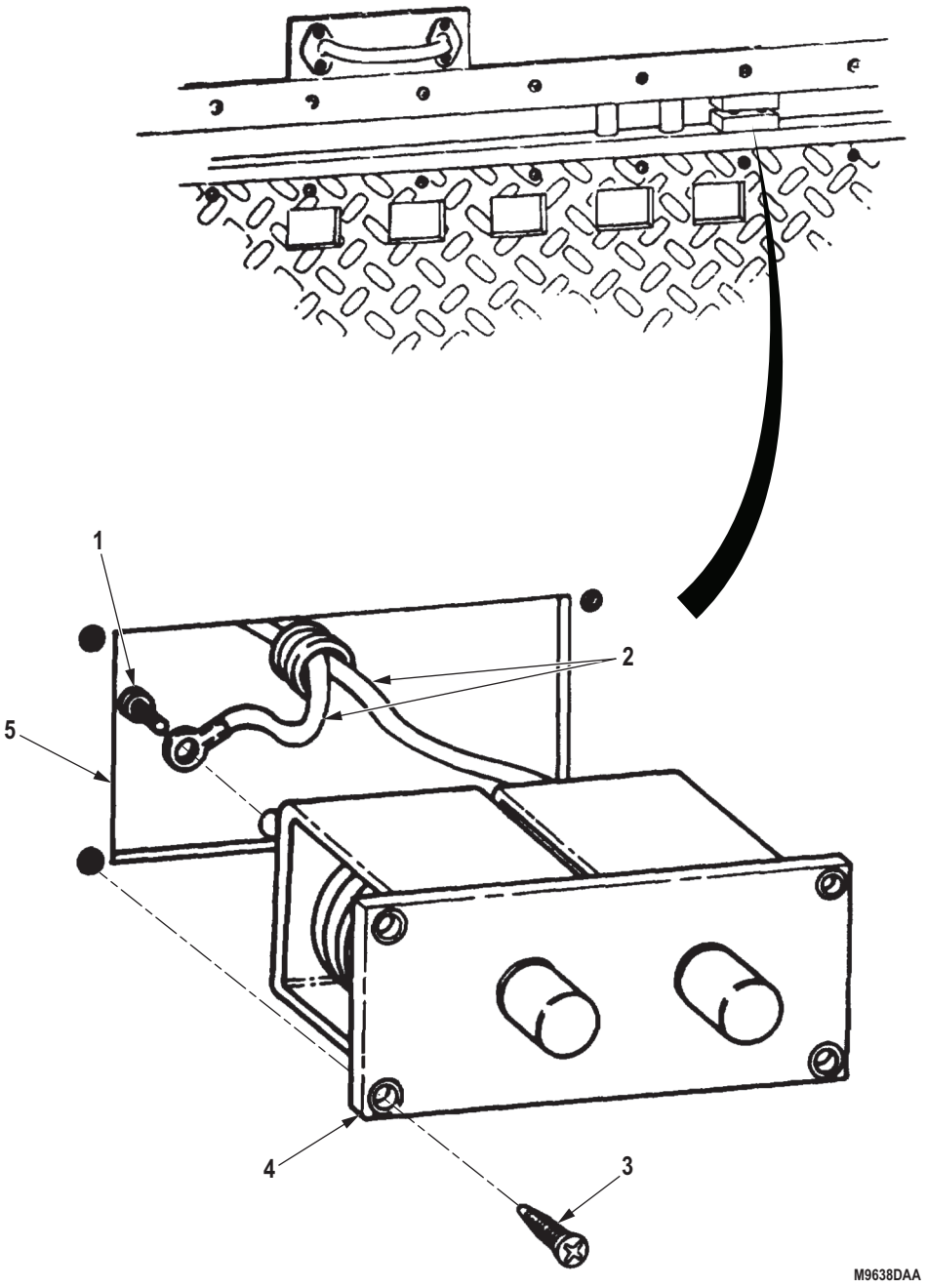


Figure 1. Hinged Roof-Operated Blackout Circuit Plungers Removal.

END OF TASK

INSTALLATION

1. Install two leads (Figure 2, Item 2) on plunger plate (Figure 2, Item 4) with two screws (Figure 2, Item 1).
2. Install plunger plate (Figure 2, Item 4) on hinged roof (Figure 2, Item 5) with four screws (Figure 2, Item 3).

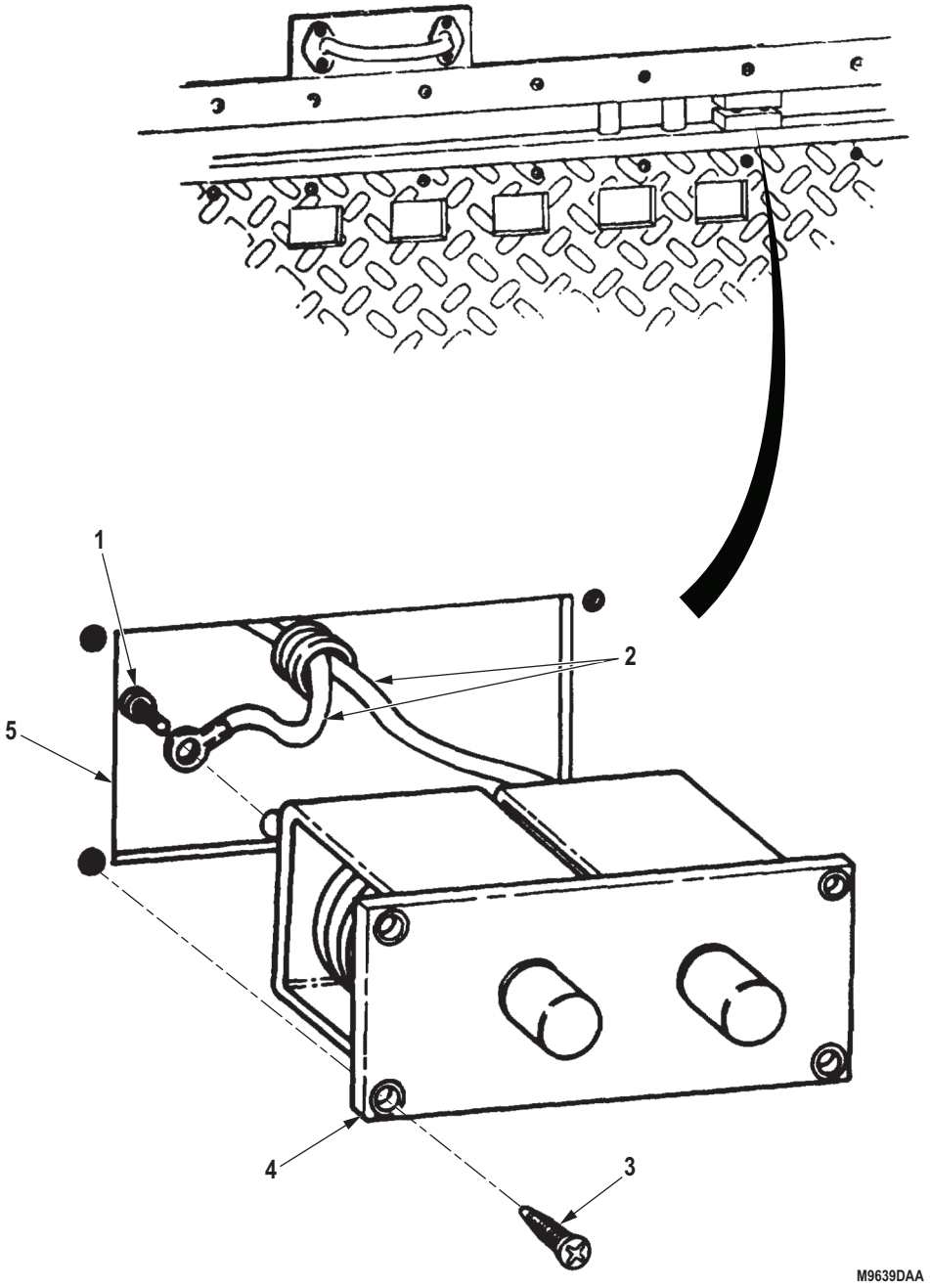


Figure 2. Hinged Roof-Operated Blackout Circuit Plungers Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Turn on main power switch and check operation of side and rear door blackout switches. (TM 9-2320-272-10)
2. Retract and secure van body side panel. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
VAN RETRACTABLE BEAM ASSEMBLY REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Grease, Automotive and Artillery
(Volume 5, WP 0825, Table 1, Item 29, 30, 31, 32, 33)
Cotter Pin
(Volume 5, WP 0827, Table 1, Item 350)
Qty: 4
Gasket (Volume 5, WP 0827, Table 1, Item 239)
Qty: 1
Gasket (Volume 5, WP 0827, Table 1, Item 241)
Qty: 1
Key (Volume 5, WP 0827, Table 1, Item 227)
Qty: 5
Locknut (Volume 5, WP 0827, Table 1, Item 269)
Qty: 1

Materials/Parts (cont.)
Locknut (Volume 5, WP 0827, Table 1, Item 319)
Qty: 2
Seal (Volume 5, WP 0827, Table 1, Item 240)
Qty: 1

Personnel Required
(2)

References
TM 9-237
Volume 5, WP 0819

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Van body sides fully expanded and secured. (TM 9-2320-272-10)

REMOVAL

NOTE

All support rollers are removed basically the same way. This procedure is for left-rear support rollers.

1. Remove seven screws (Figure 1, Item 2), clamps (Figure 1, Item 3), and cover (Figure 1, Item 4) from underframe (Figure 1, Item 1).
2. Remove two cotter pins (Figure 1, Item 5), support roller shaft (Figure 1, Item 7), and support roller (Figure 1, Item 6) from underframe (Figure 1, Item 1). Discard cotter pins.

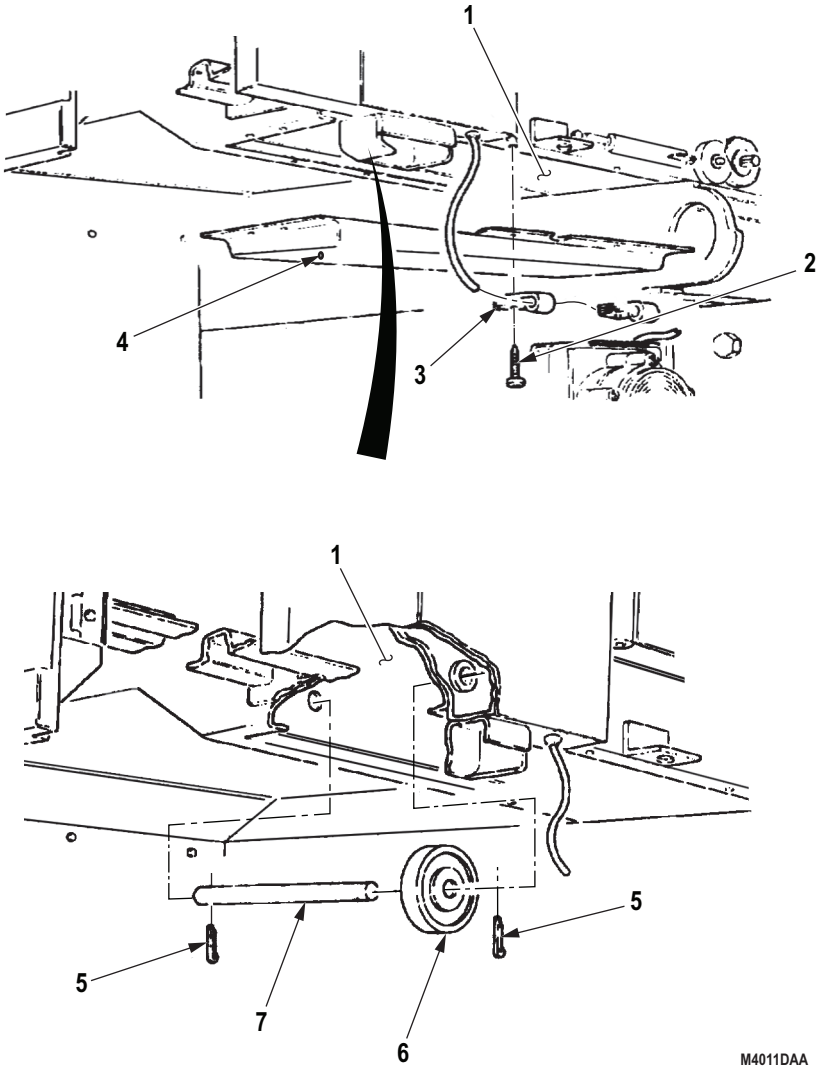


Figure 1. Retractable Beam Assembly Removal.

REMOVAL - Continued

3. Remove two cotter pins (Figure 2, Item 2), end roller shaft (Figure 2, Item 3), and end roller (Figure 2, Item 4) from underframe (Figure 2, Item 1). Discard cotter pins.

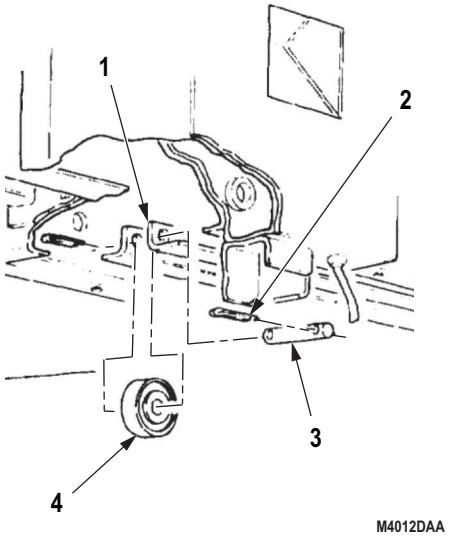


Figure 2. Retractable Beam Assembly Removal.

REMOVAL - Continued

NOTE

Left and right retractable beam drive shafts and locks are replaced the same. This procedure is for the left retractable beam drive shaft and lock.

4. Remove locknut (Figure 3, Item 1) and lock (Figure 3, Item 2) from underframe stud (Figure 3, Item 8). Discard locknut.
5. Remove screw (Figure 3, Item 4), pawl (Figure 3, Item 3), and lock (Figure 3, Item 2) from underframe (Figure 3, Item 5).
6. Remove 30 screws (Figure 3, Item 7) and five covers (Figure 3, Item 6) from underframe (Figure 3, Item 5).
7. Remove four setscrews (Figure 3, Item 15) from bushings (Figure 3, Item 14).

CAUTION

Do not bend or strain ratchet shaft during removal. Doing so may result in damage to equipment.

NOTE

- Remove all nicks, burrs, and corrosion from ratchet shaft and lubricate before removal.
- Direct assistant to catch ratchet shaft components under van body during removal.

8. Slowly pull ratchet shaft (Figure 3, Item 9) and remove four bushings (Figure 3, Item 14), nine bushings (Figure 3, Item 13), spacers (Figure 3, Item 12), sprockets (Figure 3, Item 11), and five spacers (Figure 3, Item 10) from underframe (Figure 3, Item 5).

REMOVAL - Continued

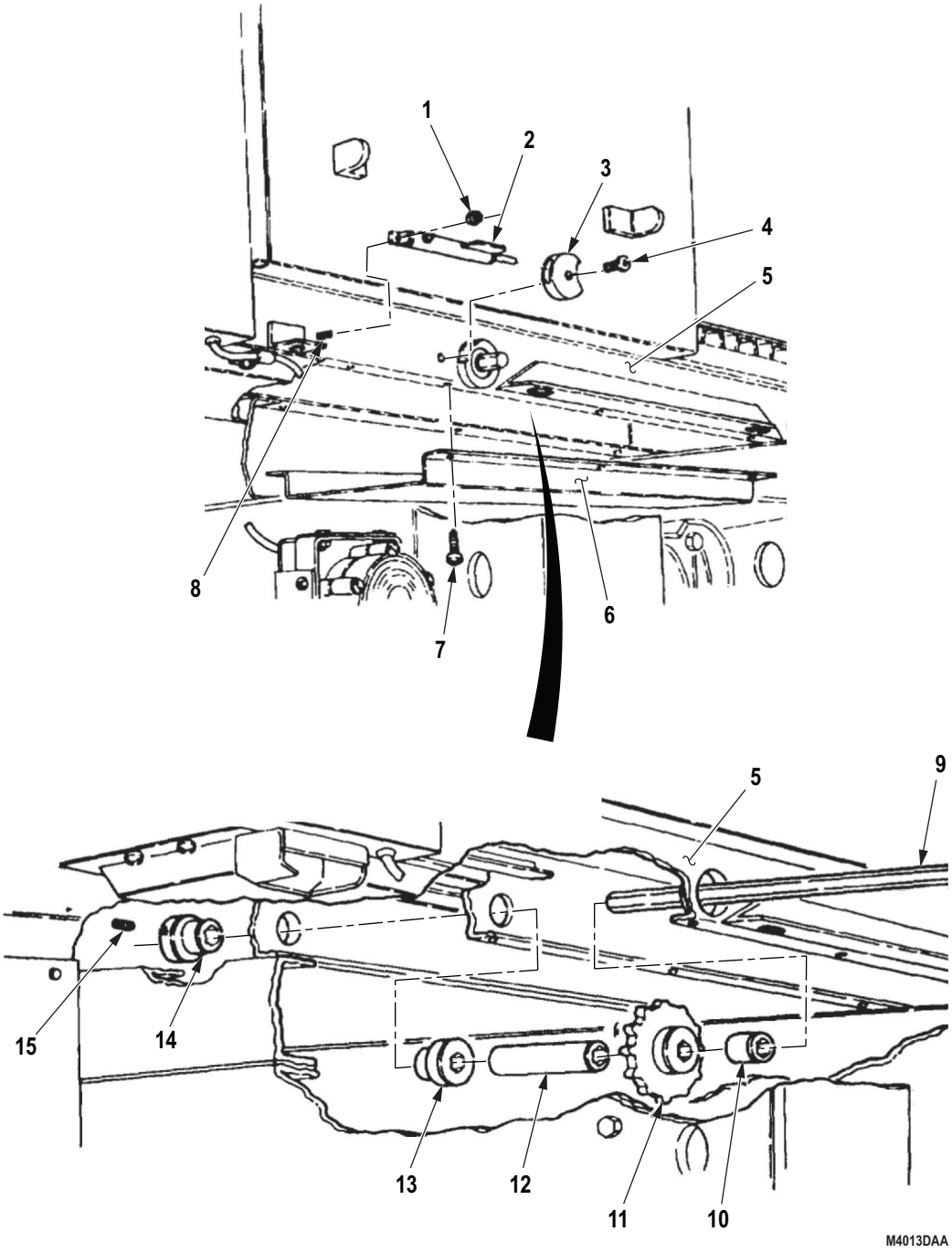


Figure 3. Retractable Beam Assembly Removal.

REMOVAL - Continued

NOTE

All ten retractable beams are replaced the same way. This procedure is for the left-rear retractable beam.

9. Break welds between side panel (Figure 4, Item 1) and side panel support (Figure 4, Item 8) and remove retractable beam (Figure 4, Item 7) (TM 9-237).

CAUTION

Remove retractable beam slowly from underframe. Failure to do so may result in damage to equipment.

10. Slide retractable beam (Figure 4, Item 7) under side panel (Figure 4, Item 1) and remove from underframe (Figure 4, Item 4) and channel (Figure 4, Item 5).

11. Remove two locknuts (Figure 4, Item 13), washers (Figure 4, Item 12), screws (Figure 4, Item 9), seven screws (Figure 4, Item 10), retainer (Figure 4, Item 11), seal (Figure 4, Item 6), and gaskets (Figure 4, Items 2 and 3) from underframe (Figure 4, Item 4). Discard locknuts and seals.

REMOVAL - Continued

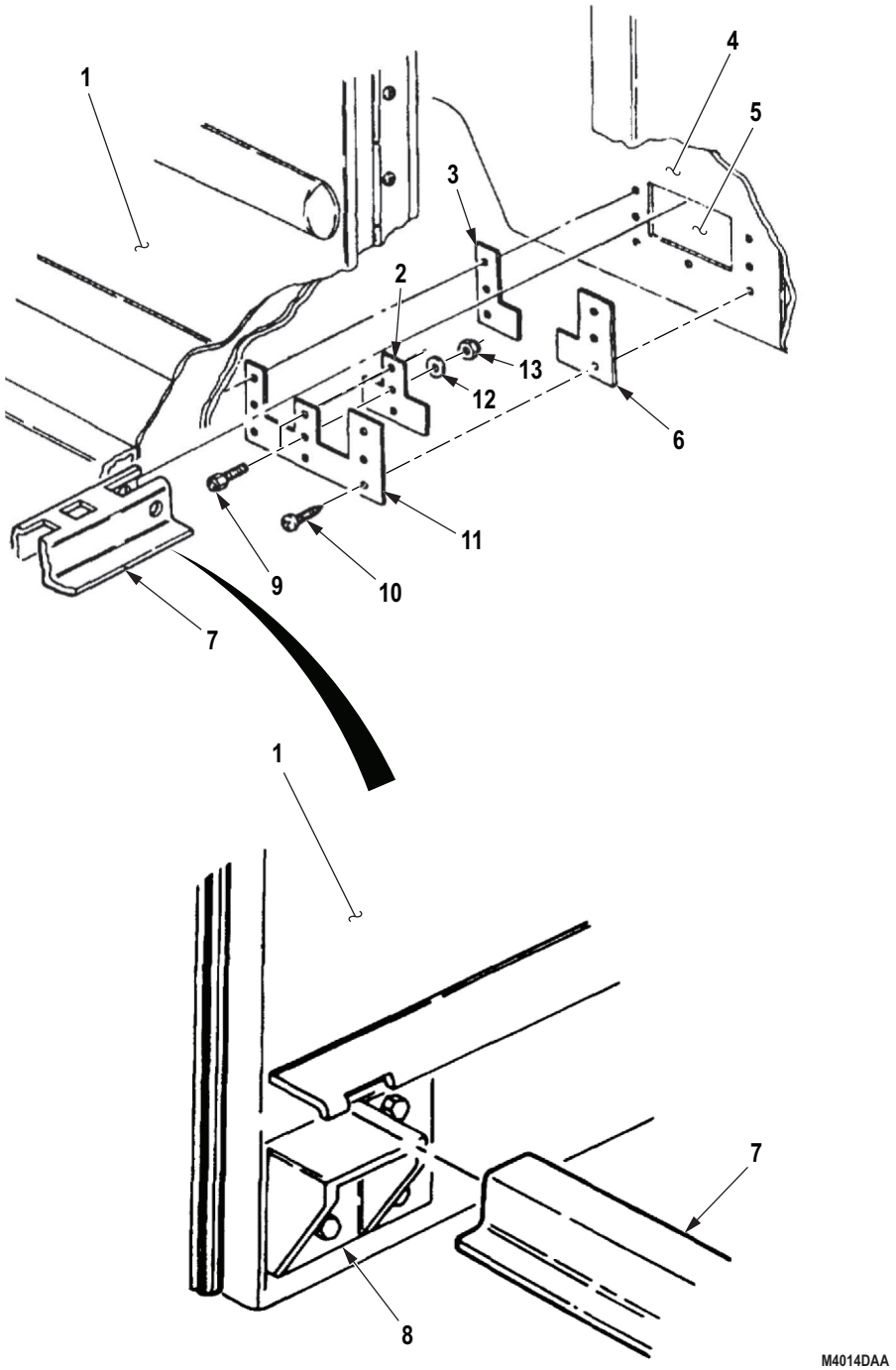


Figure 4. Retractable Beam Assembly Removal.

END OF TASK

CLEANING, INSPECTION, AND REPAIR

1. For General Cleaning Instructions, refer to (Volume 5, WP 0819).
2. For General Inspection Instructions, refer to (Volume 5, WP 0819).
3. Remove five keys (Figure 5, Item 2) and bushings (Figure 5, Item 1) from sprockets (Figure 5, Item 3). Discard keys.
4. Inspect bushings (Figure 5, Items 1, 6, and 7) for wear and damage. If worn or damaged, replace bushings.
5. Inspect ratchet shaft (Figure 5, Item 4) for burrs, nicks, and corrosion. If damaged, repair with file or emery cloth. If damage is excessive, replace.
6. Test spring action of lock plunger (Figure 5, Item 5). If spring action is weak, replace lock.
7. Install five keys (Figure 5, Item 2) and bushings (Figure 5, Item 1) on sprockets (Figure 5, Item 3).

CLEANING, INSPECTION, AND REPAIR - Continued

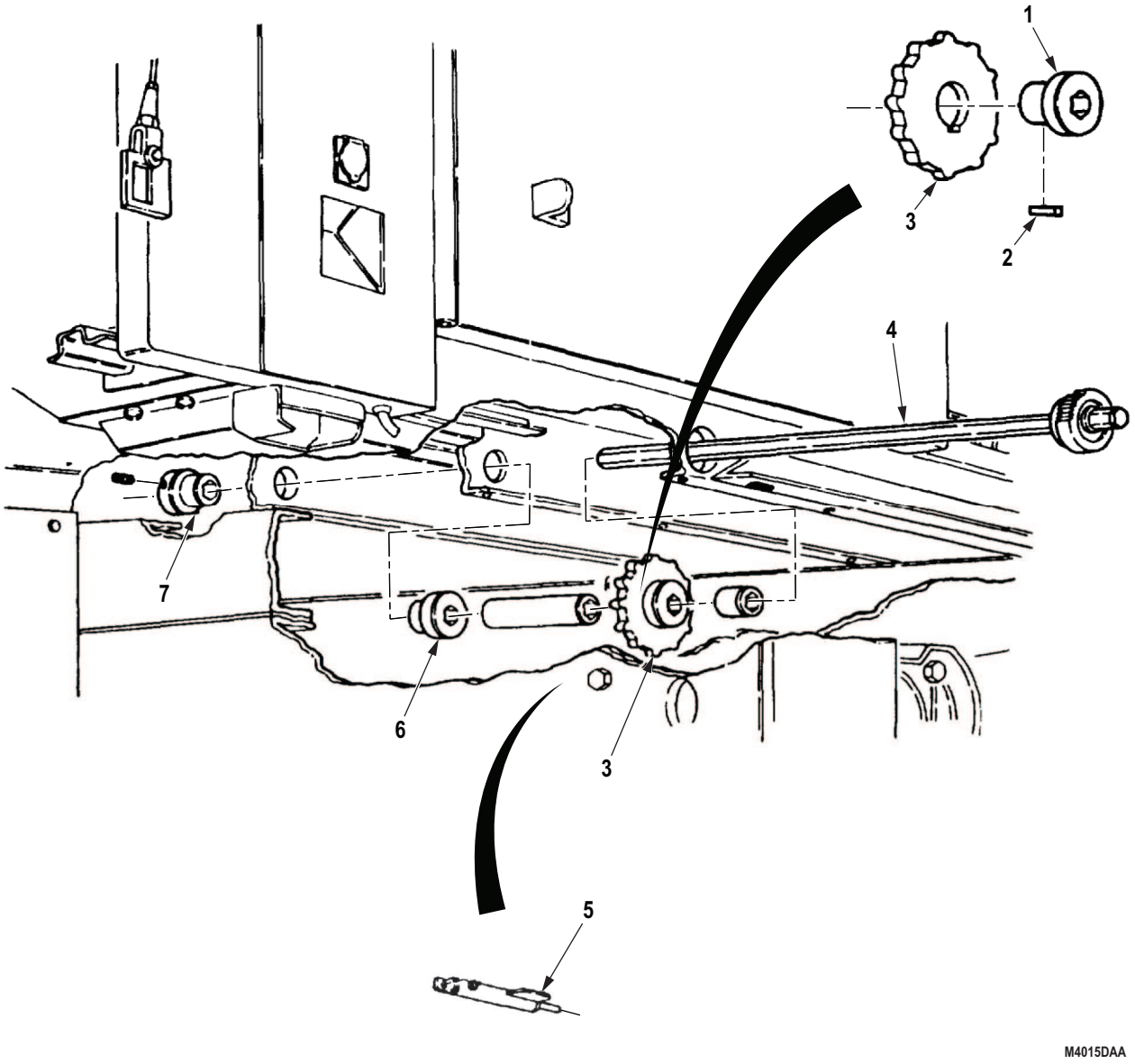


Figure 5. Retractable Beam Assembly Cleaning, Inspection, and Repair.

END OF TASK

INSTALLATION

1. Install seal (Figure 6, Item 6), gaskets (Figure 6, Items 2 and 3), and retainer (Figure 6, Item 11) on underframe (Figure 6, Item 4) with seven screws (Figure 6, Item 10), two screws (Figure 6, Item 9), washers (Figure 6, Item 12), and locknuts (Figure 6, Item 13).

CAUTION

Install retractable beam slowly into underframe. Failure to do so may result in damage to equipment.

2. Slide retractable beam (Figure 6, Item 7) under side panel (Figure 6, Item 1) and install in underframe (Figure 6, Item 4) at channel (Figure 6, Item 5).
3. Install retractable beam (Figure 6, Item 7) by welding retractable beam (Figure 6, Item 7) to side panel (Figure 6, Item 1) and side panel support (Figure 6, Item 8) (TM 9-237).

INSTALLATION - Continued

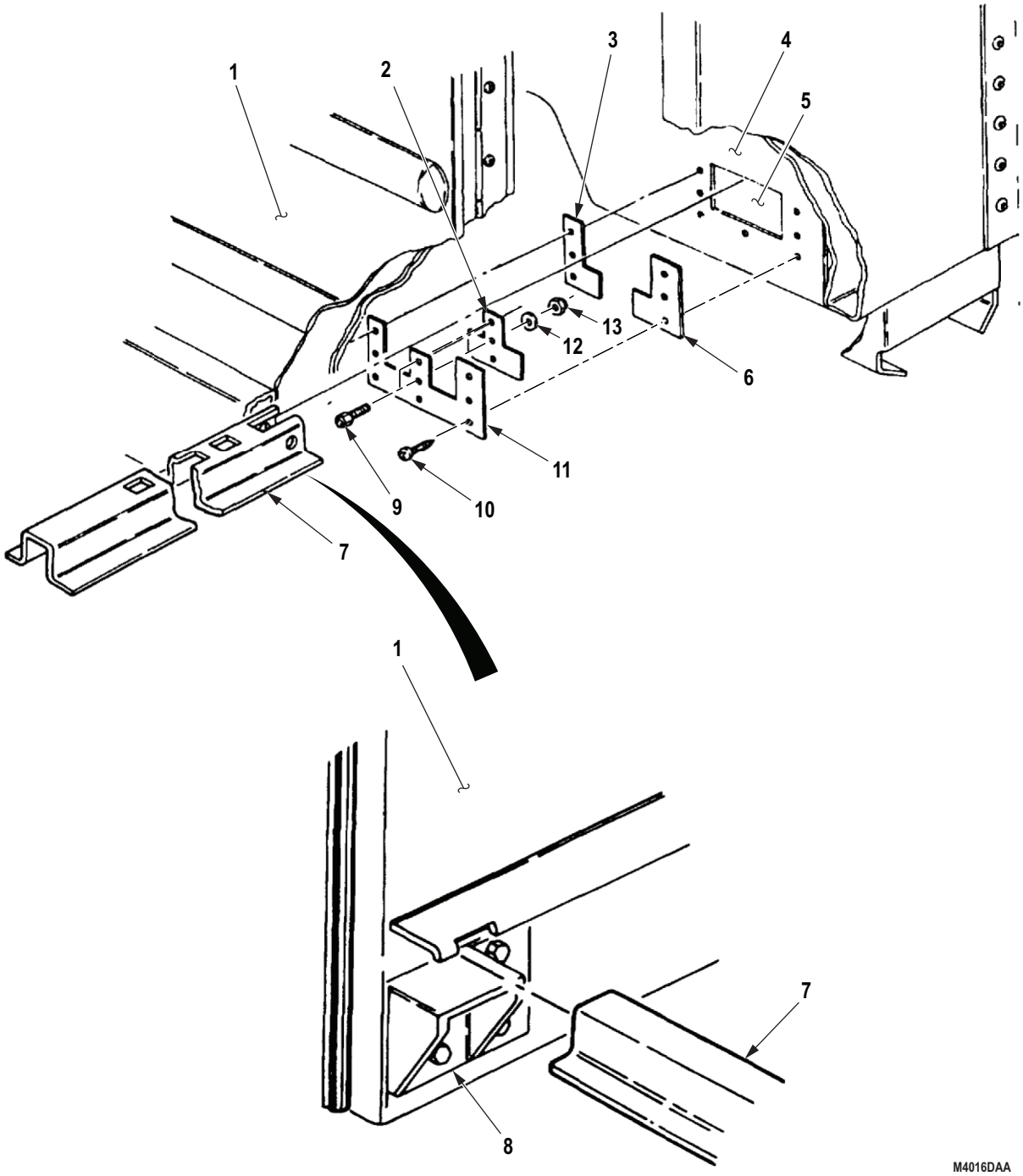


Figure 6. Retractable Beam Assembly Installation.

INSTALLATION - Continued

CAUTION

Do not bend or strain ratchet shaft during installation. Doing so may result in damage to equipment.

NOTE

- Bevel forward end of ratchet shaft for installation.
- Apply GAA grease on two feet (61 cm) of forward end of ratchet shaft for installation.
- Direct assistant to install ratchet shaft components under van body when installing ratchet shaft.

4. Slowly insert ratchet shaft (Figure 7, Item 2) into underframe (Figure 7, Item 1) and install five spacers (Figure 7, Item 3), sprockets (Figure 7, Item 11), spacers (Figure 7, Item 12), nine bushings (Figure 7, Item 13), and four bushings (Figure 7, Item 15).
5. Install four setscrews (Figure 7, Item 16) in bushings (Figure 7, Item 15) in underframe channels (Figure 7, Item 14).
6. Lubricate ratchet shaft (Figure 7, Item 2) with GAA grease (TM 9-2320-272-10).
7. Install five covers (Figure 7, Item 7) on underframe (Figure 7, Item 1) with 30 screws (Figure 7, Item 8).
8. Install lock (Figure 7, Item 4) and pawl (Figure 7, Item 5) on underframe stud (Figure 7, Item 9) and underframe (Figure 7, Item 1) with locknut (Figure 7, Item 10) and screw (Figure 7, Item 6).

INSTALLATION - Continued

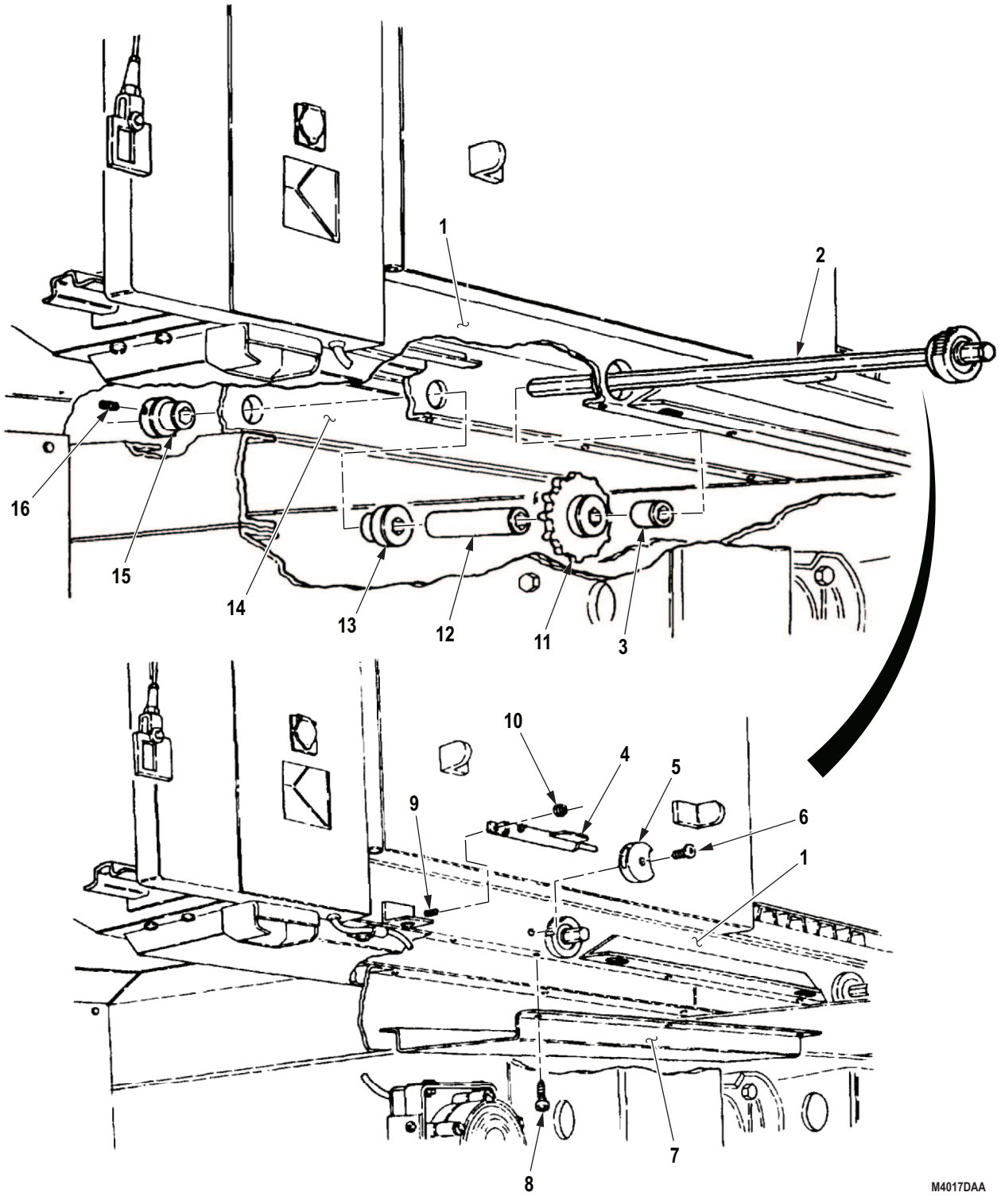


Figure 7. Retractable Beam Assembly Installation.

INSTALLATION - Continued

9. Install end roller (Figure 8, Item 4) on underframe (Figure 8, Item 1) with end roller shaft (Figure 8, Item 3) and two cotter pins (Figure 8, Item 2).

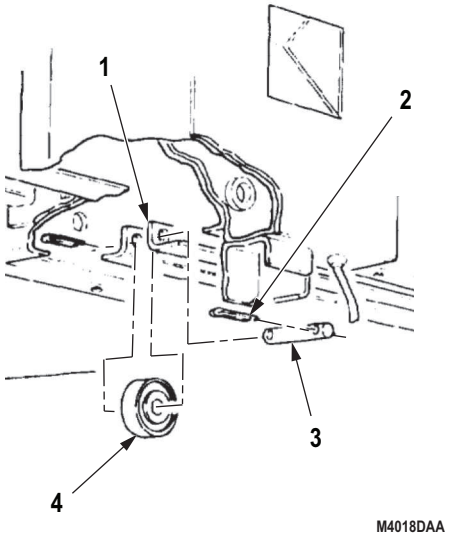


Figure 8. Retractable Beam Assembly Installation.

NOTE

All support rollers are installed basically the same way. This procedure is for left-rear support rollers.

10. Install support roller (Figure 9, Item 5) on underframe (Figure 9, Item 1) with support roller shaft (Figure 9, Item 6) and two cotter pins (Figure 9, Item 4).

11. Install cover (Figure 9, Item 7) on underframe (Figure 9, Item 1) with seven clamps (Figure 9, Item 3) and screws (Figure 9, Item 2).

INSTALLATION - Continued

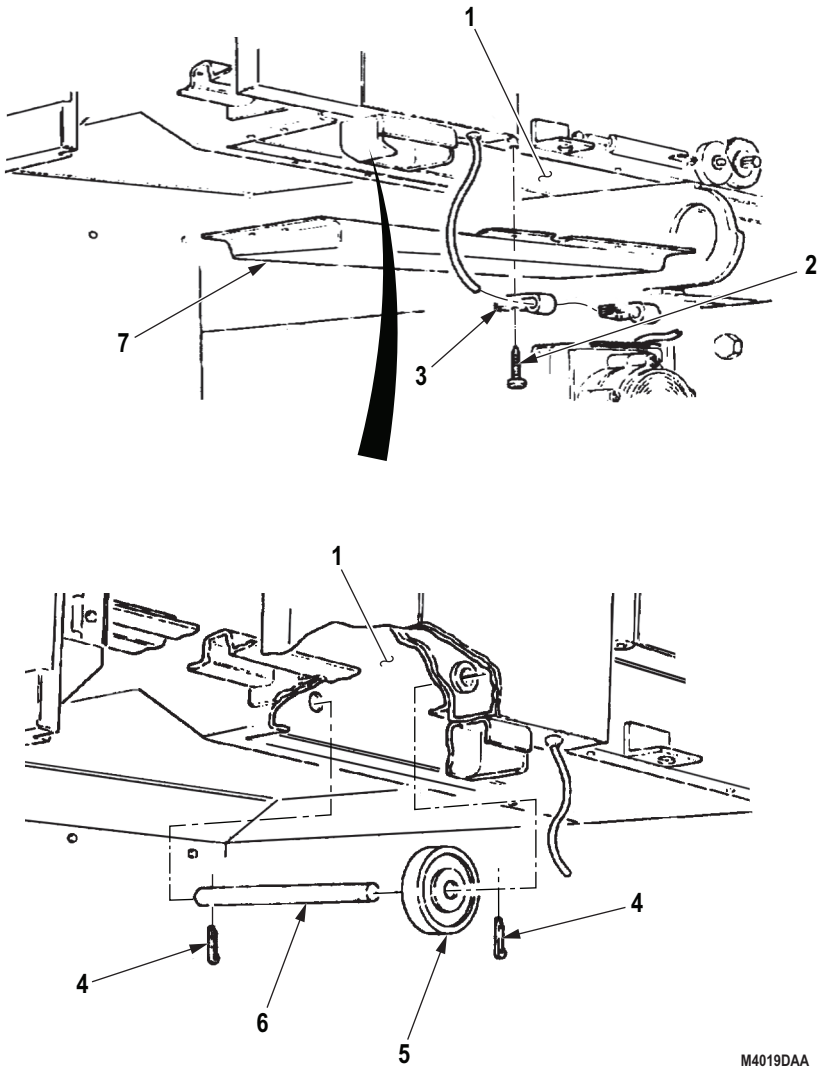


Figure 9. Retractable Beam Assembly Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

Retract van body sides. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
VAN HEATER AND EXHAUST REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Tape, Antiseizing
(Volume 5, WP 0825, Table 1, Item 65)
Lockwasher
(Volume 5, WP 0827, Table 1, Item 301)
Qty: 4
Lockwasher
(Volume 5, WP 0827, Table 1, Item 403)
Qty: 7
Lockwasher
(Volume 5, WP 0827, Table 1, Item 424)
Qty: 1

Personnel Required
(2)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Battery ground cables disconnected.
(Volume 2, WP 0350)

REMOVAL

1. Remove eight screws (Figure 1, Item 25), exhaust pipe (Figure 1, Item 26), and two clamps (Figure 1, Item 22) from van body (Figure 1, Item 1) and heater exhaust pipe (Figure 1, Item 19).
2. Remove two screws (Figure 1, Item 21), lockwashers (Figure 1, Item 23), nuts (Figure 1, Item 24), and clamps (Figure 1, Item 22) from exhaust pipe (Figure 1, Item 26). Discard lockwashers.

NOTE

Tag all leads and lines for installation.

3. Remove nut (Figure 1, Item 8) and fuel overflow line (Figure 1, Item 12) from fitting (Figure 1, Item 7).
4. Remove nut (Figure 1, Item 13) and fuel receptacle line (Figure 1, Item 14) from heater fuel valve (Figure 1, Item 6).
5. Disconnect power receptacle connector (Figure 1, Item 17) from heater (Figure 1, Item 2).
6. Disconnect external fuel pump receptacle connector (Figure 1, Item 15) from heater (Figure 1, Item 2).
7. Disconnect room thermostat connector (Figure 1, Item 16) from heater (Figure 1, Item 2).
8. Remove four screws (Figure 1, Item 3) and lockwashers (Figure 1, Item 4) from heater bracket (Figure 1, Item 5). Discard lockwashers.
9. Remove screw (Figure 1, Item 11), ground strap (Figure 1, Item 10), and lockwasher (Figure 1, Item 9) from bracket (Figure 1, Item 5) and heater (Figure 1, Item 2). Discard lockwasher.

NOTE

Assistant will help with Step (10).

10. Remove heater (Figure 1, Item 2) from van body (Figure 1, Item 1).
11. Remove five screws (Figure 1, Item 11) and lockwashers (Figure 1, Item 9) from two brackets (Figure 1, Item 5) and heater (Figure 1, Item 2). Discard lockwashers.
12. Remove heater exhaust pipe (Figure 1, Item 19) from heater (Figure 1, Item 2).
13. Remove four screws (Figure 1, Items 27 and 20) and two seals (Figure 1, Item 18) from van body (Figure 1, Item 1).

REMOVAL - Continued

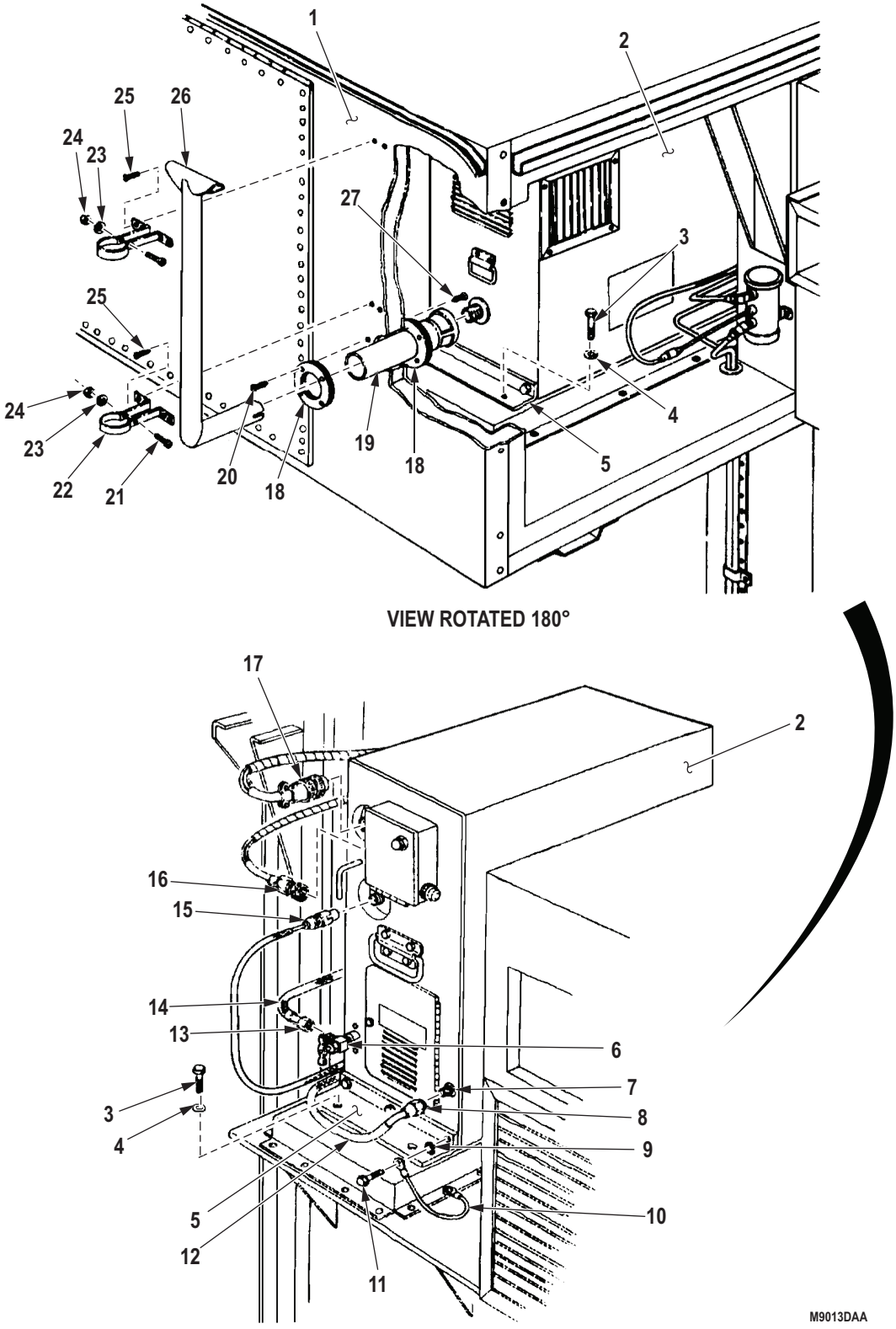


Figure 1. Van Heater and Exhaust Removal.

END OF TASK

INSTALLATION

1. Apply antiseizing tape to male threads of heater fuel valve (Figure 2, Item 6) and heater nipple (Figure 2, Item 7).
2. Install two seals (Figure 2, Item18) on van body (Figure 2, Item 1) with eight screws (Figure 2, Item 5).
3. Install two brackets (Figure 2, Item 5) on heater (Figure 2, Item 2) with five screws (Figure 2, Item 11) and lockwashers (Figure 2, Item 9).
4. Install heater exhaust pipe (Figure 2, Item 19) on heater (Figure 2, Item 2).

NOTE

Assistant will help with Step (5).

5. Place heater (Figure 2, Item 2) in van body (Figure 2, Item 1).
6. Install bracket (Figure 2, Item 5) on van body (Figure 2, Item 1) with four screws (Figure 2, Item 3) and lockwashers (Figure 2, Item 4).
7. Install ground strap (Figure 2, Item 10) on bracket (Figure 2, Item 5) and heater (Figure 2, Item 2) with screws (Figure 2, Item 11) and lockwasher (Figure 2, Item 9).
8. Install fuel overflow line (Figure 2, Item 12) on fitting (Figure 2, Item 7) with nut (Figure 2, Item 8).
9. Install fuel receptacle line (Figure 2, Item 14) on heater fuel valve (Figure 2, Item 6) with nut (Figure 2, Item 13).
10. Connect external fuel pump receptacle connector (Figure 2, Item 15) to heater (Figure 2, Item 2).
11. Connect power receptacle connector (Figure 2, Item 17) to heater (Figure 2, Item 2).
12. Connect room thermostat connector (Figure 2, Item 16) to heater (Figure 2, Item 2).
13. Install exhaust pipe (Figure 2, Item 26) on heater exhaust pipe (Figure 2, Item 19) with two clamps (Figure 2, Item 22), eight screws (Figure 2, Item 25), two screws (Figure 2, Item 21), lockwashers (Figure 2, Item 23), and nuts (Figure 2, Item 24).

INSTALLATION - Continued

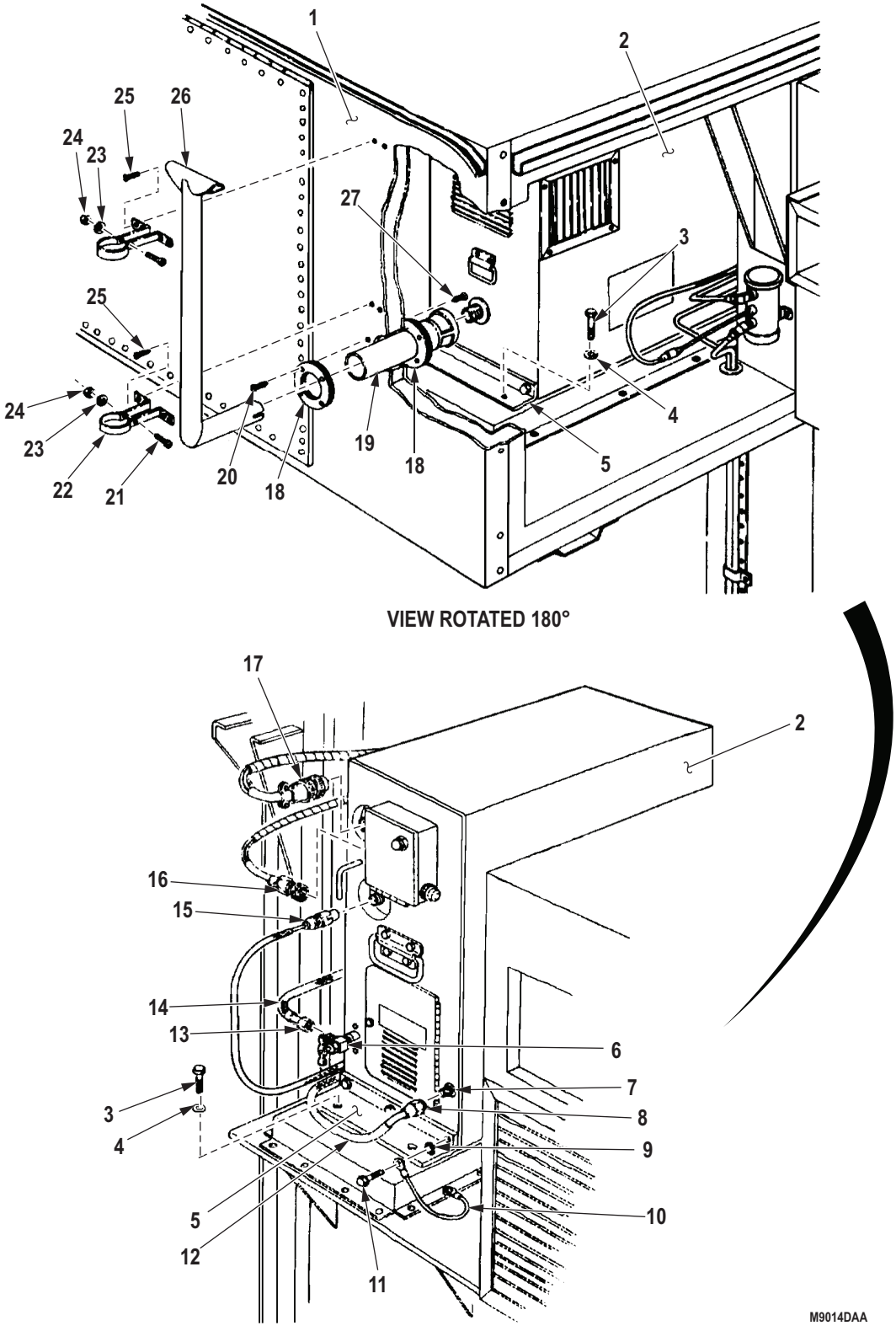


Figure 2. Van Heater and Exhaust Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

Connect battery ground cables. (Volume 2, WP 0350)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
VAN HEATER FUEL PUMP REPLACEMENT (M934/A1/A2)

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Tape, Antiseizing
(Volume 5, WP 0825, Table 1, Item 65)
Locknut (Volume 5, WP 0827, Table 1, Item 285)
Qty: 2

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

Equipment Condition (cont.)
Battery ground cables disconnected.
(Volume 2, WP 0350)

REMOVAL (M934A1/A2)

1. Loosen two locking studs (Figure 1, Item 8) from turnbuckles (Figure 1, Item 3) and open access door (Figure 1, Item 9).
2. Disconnect fuel pump lead (Figure 1, Item 10) from harness lead (Figure 1, Item 11).
3. Disconnect output line (Figure 1, Item 4) from elbow (Figure 1, Item 5).
4. Disconnect input line (Figure 1, Item 1) from elbow (Figure 1, Item 2).
5. Remove two locknuts (Figure 1, Item 12), screws (Figure 1, Item 6), clamp (Figure 1, Item 7) with fuel pump lead (Figure 1, Item 10), and fuel pump (Figure 1, Item 14) from hinge plate (Figure 1, Item 13). Discard locknuts.
6. Remove elbows (Figure 1, Item 2) and (Figure 1, Item 5) from fuel pump (Figure 1, Item 14).

REMOVAL (M934A1/A2) - Continued

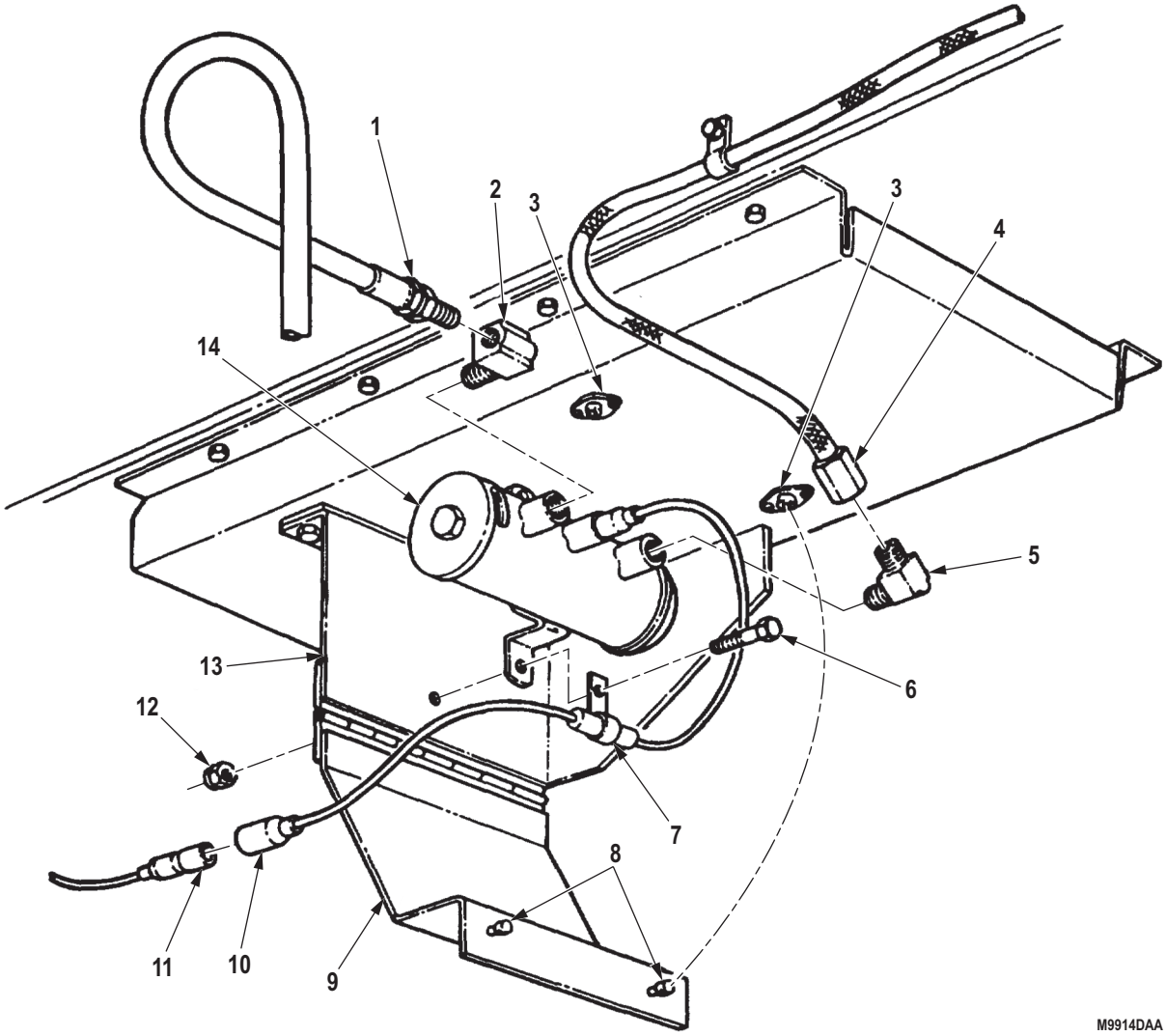


Figure 1. Van Heater Fuel Pump Removal (M934A1/A2).

END OF TASK

INSTALLATION (M934A1/A2)

NOTE

Wrap male threads with antiseize tape prior to installation.

1. Install elbows (Figure 2, Item 2) and (Figure 2, Item 5) on fuel pump (Figure 2, Item 14).
2. Install fuel pump (Figure 2, Item 14) and clamp (Figure 2, Item 7) with fuel pump lead (Figure 2, Item 10) on hinge plate (Figure 2, Item 13) with two screws (Figure 2, Item 6) and locknuts (Figure 2, Item 12).
3. Connect input line (Figure 2, Item 1) to elbow (Figure 2, Item 2).
4. Connect output line (Figure 2, Item 4) to elbow (Figure 2, Item 5).
5. Connect fuel pump lead (Figure 2, Item 10) to harness lead (Figure 2, Item 11).
6. Close access door (Figure 2, Item 9) and tighten two locking studs (Figure 2, Item 8) in turnbuckles (Figure 2, Item 3).

INSTALLATION (M934A1/A2) - Continued

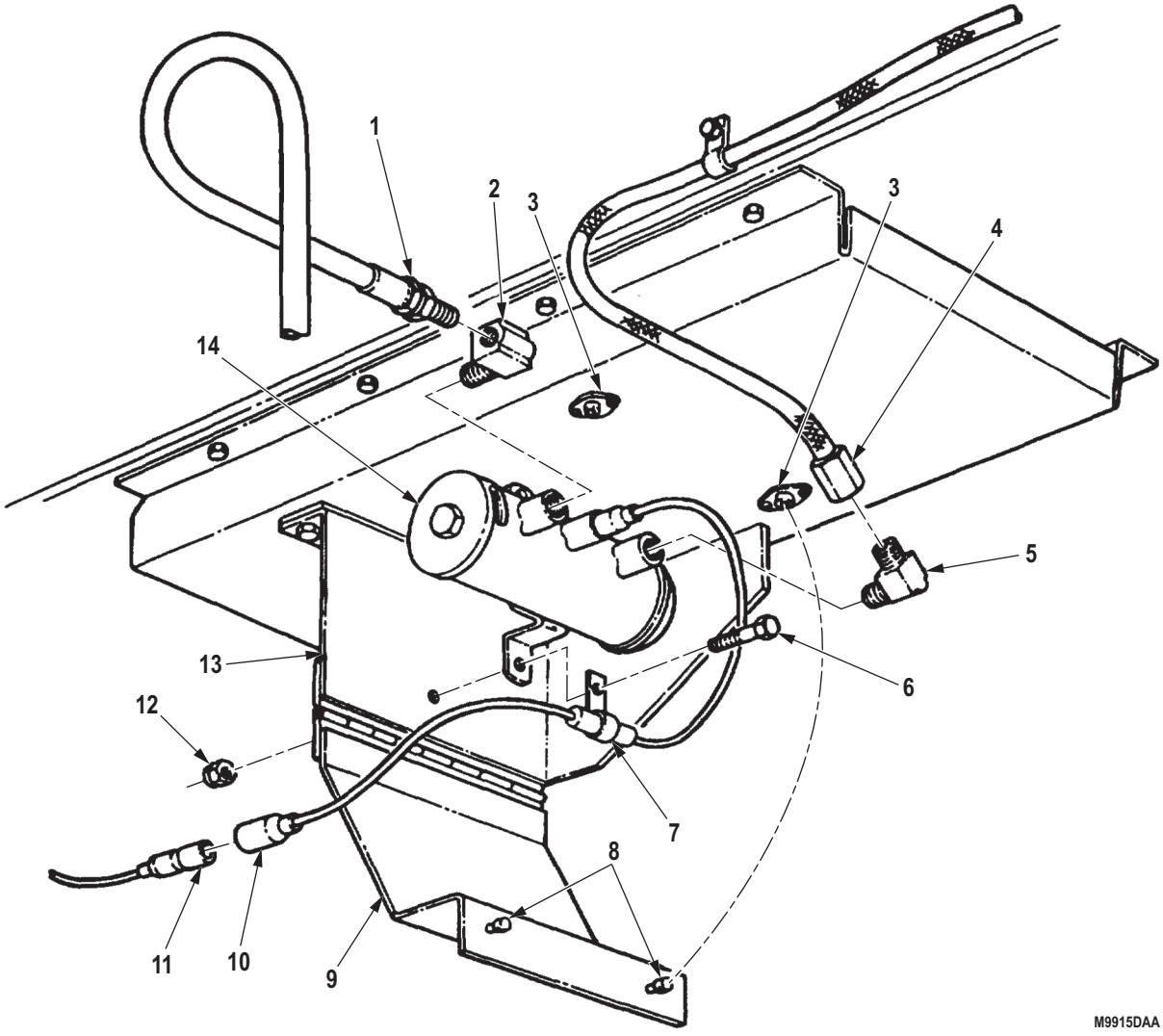


Figure 2. Van Heater Fuel Pump Installation (M934A1/A2).

END OF TASK

REMOVAL (M934)

WARNING



Diesel fuel is highly flammable. Do not perform fuel system procedures near open flame. Failure to comply may result in injury or death to personnel.

1. Remove seven screws (Figure 3, Item 13) and cover (Figure 3, Item 12) from van body (Figure 3, Item 5).
2. Disconnect fuel pump lead (Figure 3, Item 11) from harness lead (Figure 3, Item 10).
3. Remove outlet line (Figure 3, Item 3) and bushing (Figure 3, Item 2) from elbow (Figure 3, Item 1).
4. Disconnect inlet line (Figure 3, Item 9) from adapter (Figure 3, Item 8).
5. Remove two screws (Figure 3, Item 7), clamp (Figure 3, Item 14), and fuel pump (Figure 3, Item 4) from van body (Figure 3, Item 5).
6. Remove elbow (Figure 3, Item 1), adapter (Figure 3, Item 8), and elbow (Figure 3, Item 6) from fuel pump (Figure 3, Item 4).

REMOVAL (M934) - Continued

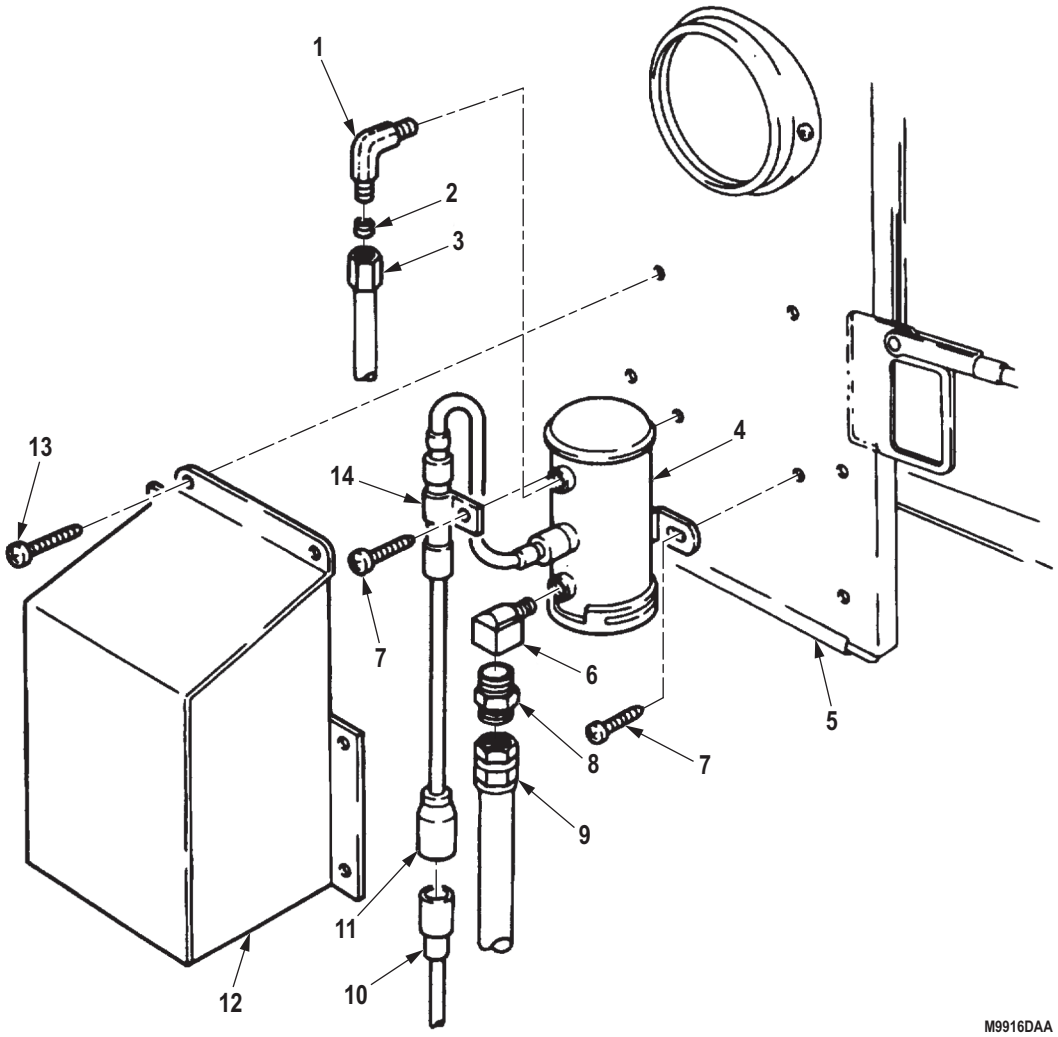


Figure 3. Van Heater Fuel Pump Removal (M934).

END OF TASK

INSTALLATION (M934)

NOTE

Wrap male threads with antiseize tape prior to installation.

1. Install elbow (Figure 4, Item 6), adapter (Figure 4, Item 8), and elbow (Figure 4, Item 1) on fuel pump (Figure 4, Item 4).
2. Install fuel pump (Figure 4, Item 4) and clamp (Figure 4, Item 14) on van body (Figure 4, Item 5) with two screws (Figure 4, Item 7).
3. Connect inlet line (Figure 4, Item 9) on adapter (Figure 4, Item 8).
4. Install bushing (Figure 4, Item 2) and outlet line (Figure 4, Item 3) on elbow (Figure 4, Item 1).
5. Connect fuel pump lead (Figure 4, Item 11) to harness lead (Figure 4, Item 10).
6. Install cover (Figure 4, Item 12) on van body (Figure 4, Item 5) with seven screws (Figure 4, Item 13).

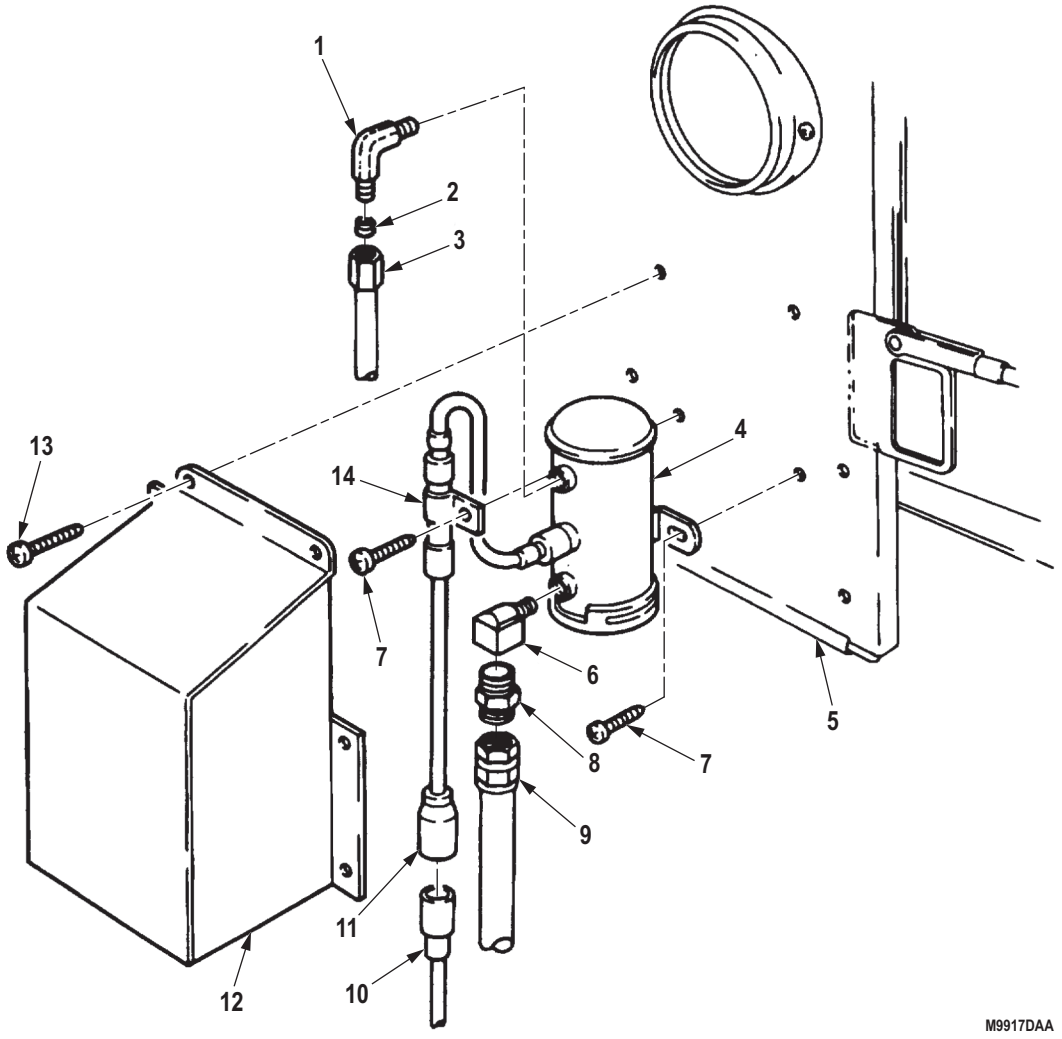


Figure 4. Van Heater Fuel Pump Installation (M934).

END OF TASK

FOLLOW-ON MAINTENANCE

Connect battery ground cables. (Volume 2, WP 0350)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
AIR CONDITIONER DRAIN TUBE REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Adhesive, Silicone Rubber
(Volume 5, WP 0825, Table 1, Item 3)
Tape, Antiseizing
(Volume 5, WP 0825, Table 1, Item 65)
Cotter Pin

Materials/Parts (cont.)
(Volume 5, WP 0827, Table 1, Item 341)
Qty: 1
Sleeve (Volume 5, WP 0827, Table 1, Item 259)
Qty: 1

References
TM 9-243

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

REMOVAL

1. Open bonnet door (Figure 1, Item 5) and support with support rod (Figure 1, Item 6).
2. Remove cotter pin (Figure 1, Item 13) and door rod (Figure 1, Item 2) from bonnet (Figure 1, Item 1). Discard cotter pin.
3. Remove drain tube (Figure 1, Item 7) and sleeve (Figure 1, Item 4) from elbow (Figure 1, Item 3). Discard sleeve.
4. Remove four screws (Figure 1, Item 11), clamps (Figure 1, Item 12), and drain tube (Figure 1, Item 7) from van body (Figure 1, Item 10).
5. Remove drain tube (Figure 1, Item 7) from two grommets (Figure 1, Item 8) and bonnet (Figure 1, Item 1).
6. Remove two grommets (Figure 1, Item 8) from bonnet holes (Figure 1, Item 9).
7. Remove elbow (Figure 1, Item 3) from air conditioner (Figure 1, Item 14).

REMOVAL - Continued

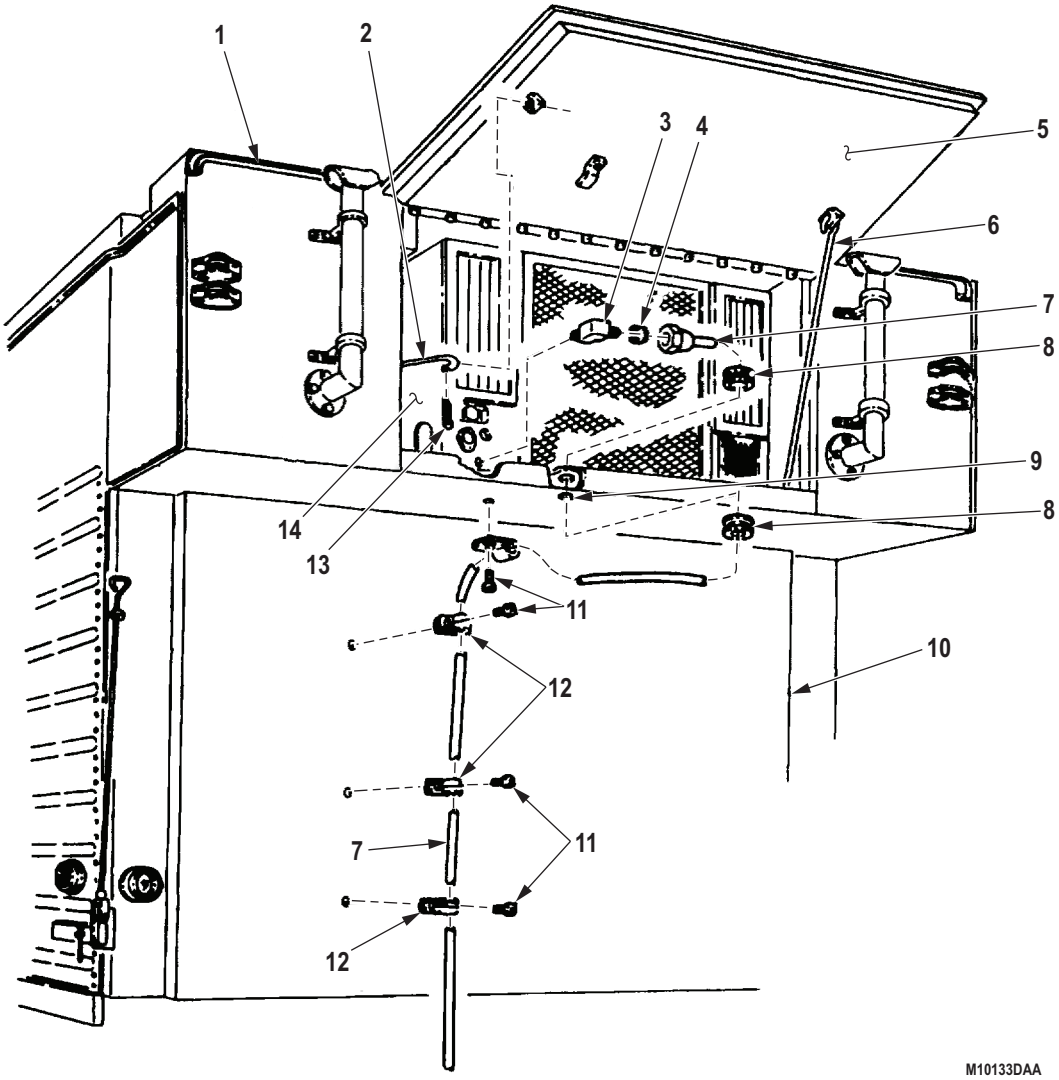


Figure 1. Air Conditioner Drain Tube Removal.

END OF TASK

INSTALLATION

NOTE

Wrap male threads with antiseize tape prior to installation.

1. Install elbow (Figure 2, Item 3) on air conditioner (Figure 2, Item 14).
2. Install two grommets (Figure 2, Item 8) in bonnet holes (Figure 2, Item 9).

CAUTION

Do not crimp drain tube when routing through bonnet holes; drainage will stop.

NOTE

If tube was damaged, refer to TM 9-243 for tube fabrication.

3. Insert drain tube (Figure 2, Item 7) through grommets (Figure 2, Item 8).
4. Install sleeve (Figure 2, Item 4) and drain tube (Figure 2, Item 7) on elbow (Figure 2, Item 3).
5. Install drain tube (Figure 2, Item 7) on van body (Figure 2, Item 10) with four clamps (Figure 2, Item 12) and screws (Figure 2, Item 11).
6. Release bonnet (Figure 2, Item 1) door (Figure 2, Item 5) support rod (Figure 2, Item 6).
7. Install door rod (Figure 2, Item 2) on bonnet door (Figure 2, Item 5) with cotter pin (Figure 2, Item 13).

INSTALLATION - Continued

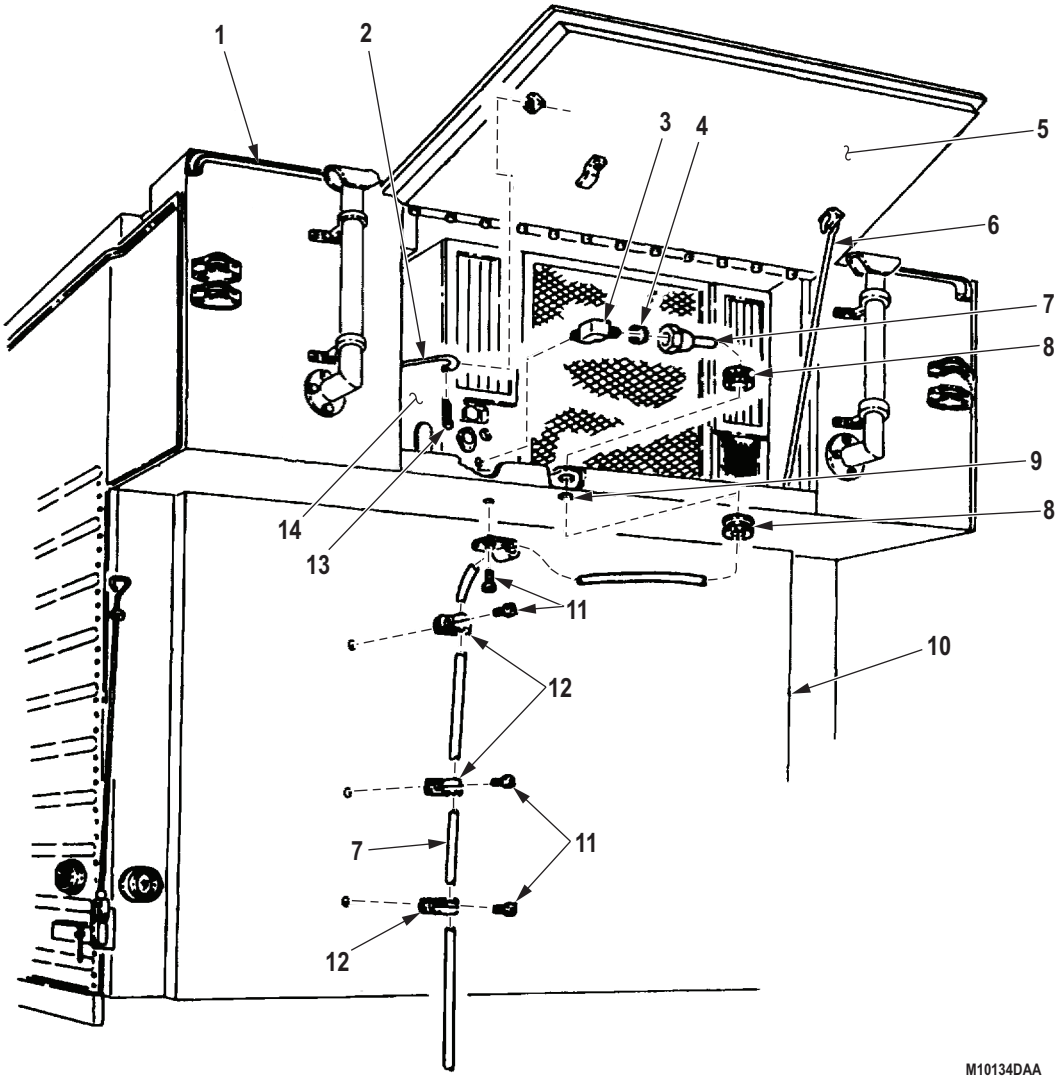


Figure 2. Air Conditioner Drain Tube Installation.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
HEATER FUEL PUMP WIRING HARNESS REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Battery ground cables disconnected.
(Volume 2, WP 0350)

REMOVAL

NOTE

- Perform Step (1) on M934 vehicles only.
- Tag wires for installation.

1. Remove screw (Figure 1, Item 1) and clamp (Figure 1, Item 4) from fuel pump wiring harness (Figure 1, Item 3).
2. Disconnect wiring harness (Figure 1, Item 3) from fuel pump connector plug (Figure 1, Item 2).

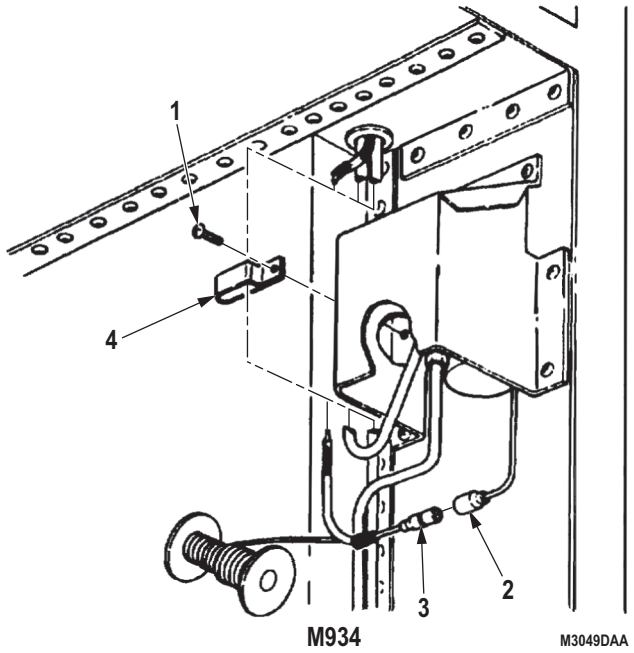


Figure 1. Heater Fuel Pump Wiring Harness Removal.

REMOVAL - Continued

3. Disconnect wiring harness (Figure 2, Item 1) from heater (Figure 2, Item 2).
4. Remove wiring harness (Figure 2, Item 1) from van body (Figure 2, Item 3).

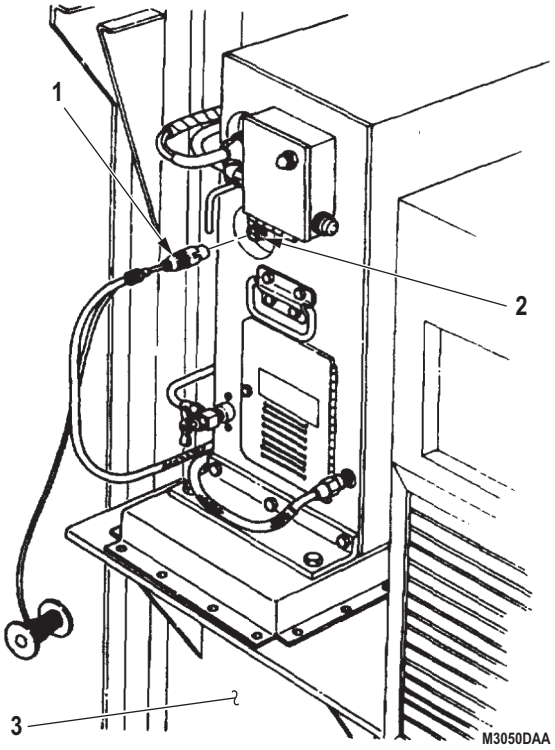


Figure 2. Heater Fuel Pump Wiring Harness Removal.

END OF TASK

INSTALLATION

1. Position wiring harness (Figure 3, Item 1) on van body (Figure 3, Item 3).
2. Connect wiring harness (Figure 3, Item 1) to heater (Figure 3, Item 2).

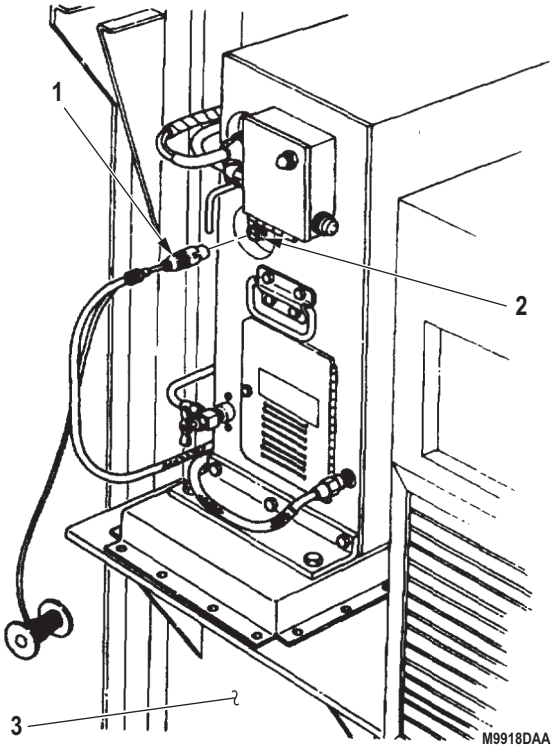


Figure 3. Heater Fuel Pump Wiring Harness Installation.

INSTALLATION - Continued

3. Connect wiring harness (Figure 4, Item 3) to fuel pump connector plug (Figure 4, Item 2).

NOTE

Perform Step (4) on M934 vehicles only.

4. Install clamp (Figure 4, Item 4) on wiring harness (Figure 4, Item 3) with screw (Figure 4, Item 1).

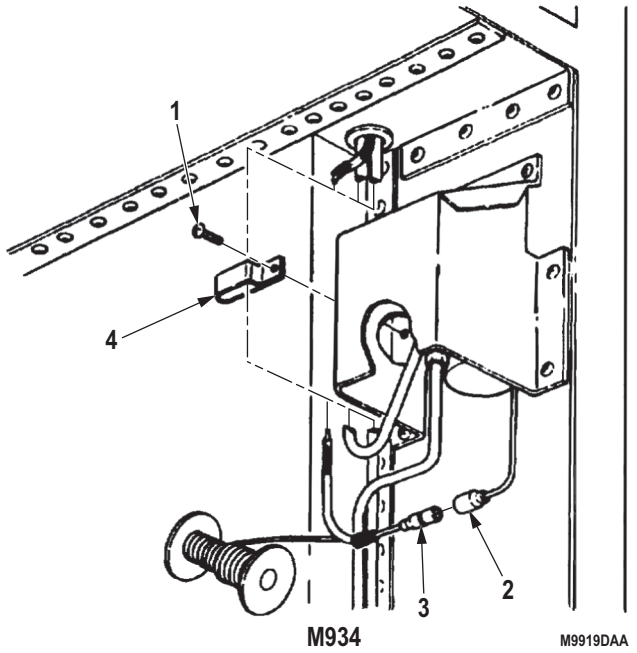


Figure 4. Heater Fuel Pump Wiring Harness Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

Connect battery ground cables. (Volume 2, WP 0350)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
RIGHT AND LEFT SIDE BLACKOUT HARNESS REPAIR

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Volume 5, WP 0826, Table 1, Item 56)

References
TM 9-2320-272-24P
Volume 3, WP 0352

Equipment Condition
Parking brake set. (TM 9-2320-273-10)

Equipment Condition (cont.)
Van body sides fully extended and secured. (TM 9-2320-272-10)
Hinged roof-operated blackout circuit plungers removed. (WP 0629)

REMOVAL

NOTE

Tag wires for installation.

1. Remove six screws (Figure 1, Item 21) and cover (Figure 1, Item 20) from load center (Figure 1, Item 15).
2. Remove screw (Figure 1, Item 14) and wire (Figure 1, Item 13) from neutral buss bar (Figure 1, Item 16).
3. Remove screw (Figure 1, Item 10) and wire (Figure 1, Item 11) from relay (Figure 1, Item 12).
4. Remove two screws (Figure 1, Items 5 and 9) and wires (Figure 1, Item 7 and 8) from rear door blackout switch (Figure 1, Item 6).

NOTE

Perform Steps (5) through (8) for left and right side of van body.

5. Remove six screws (Figure 1, Item 24) and cover (Figure 1, Item 22) from van body (Figure 1, Item 26).
6. Remove grommet (Figure 1, Item 4) from van body (Figure 1, Item 26).
7. Remove grommet (Figure 1, Item 19), two screws (Figure 1, Item 17), and connector halves (Figure 1, Item 18) from harness (Figure 1, Item 23) and cover (Figure 1, Item 22).
8. Remove grommet (Figure 1, Item 3), two screws (Figure 1, Item 25), and connector halves (Figure 1, Item 1) from harness (Figure 1, Item 23) and ceiling truss (Figure 1, Item 2).
9. Pull harness (Figure 1, Item 23) through hole in ceiling truss (Figure 1, Item 2) and remove harness (Figure 1, Item 23) from load center (Figure 1, Item 15).

REMOVAL - Continued

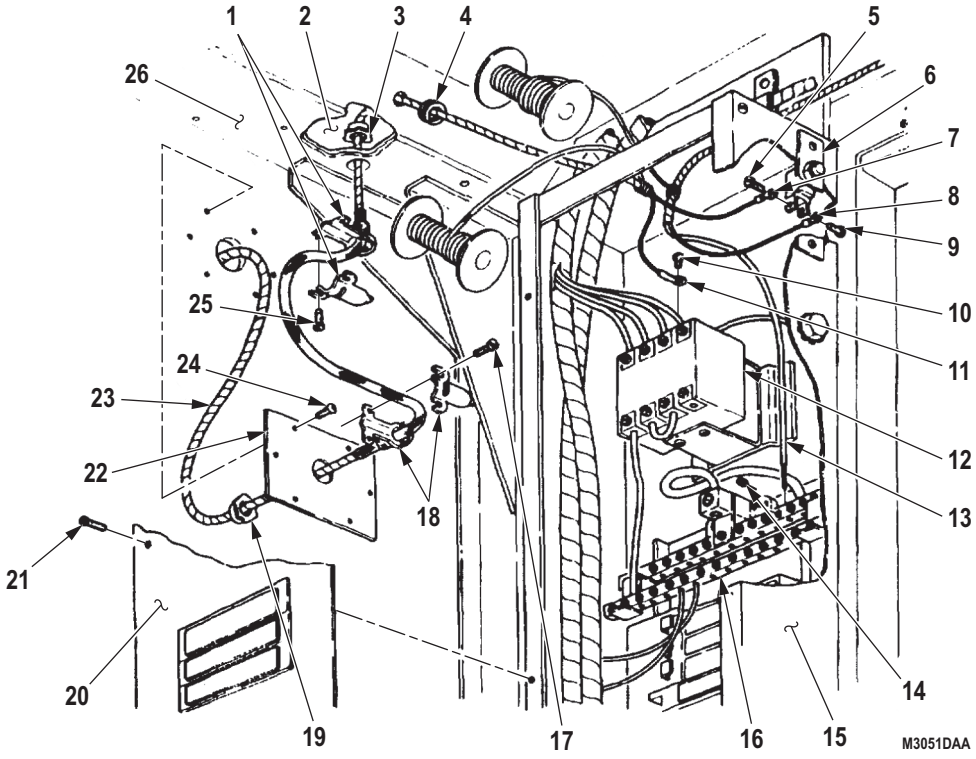


Figure 1. Blackout Harness.

END OF TASK

REPAIR

For van wiring harness repair (Volume 3, WP 0352).

END OF TASK

INSTALLATION

1. Push harness (Figure 2, Item 23) through hole in ceiling truss (Figure 2, Item 2) and position harness (Figure 2, Item 23) on load center (Figure 2, Item 15).

NOTE

Perform Steps (2) through (5) for left and right side of van body.

2. Install two connector halves (Figure 2, Item 1) on harness (Figure 2, Item 23) and ceiling truss (Figure 2, Item 2) with two screws (Figure 2, Item 25) and grommet (Figure 2, Item 3).
3. Install cover (Figure 2, Item 22) on van body (Figure 2, Item 26) with six screws (Figure 2, Item 24).
4. Install two connector halves (Figure 2, Item 18) on harness (Figure 2, Item 23) and cover (Figure 2, Item 22) with two screws (Figure 2, Item 17) and grommet (Figure 2, Item 19).
5. Install grommet (Figure 2, Item 4) on van body (Figure 2, Item 26).
6. Install wires (Figure 2, Item 7 and 8) on rear door blackout switch (Figure 2, Item 6) with screws (Figure 2, Items 5 and 9).
7. Install wire (Figure 2, Item 11) on relay (Figure 2, Item 12) with screw (Figure 2, Item 10).
8. Install wire (Figure 2, Item 13) on neutral buss bar (Figure 2, Item 16) with screw (Figure 2, Item 14).
9. Install cover (Figure 2, Item 20) on load center (Figure 2, Item 15) with six screws (Figure 2, Item 21).

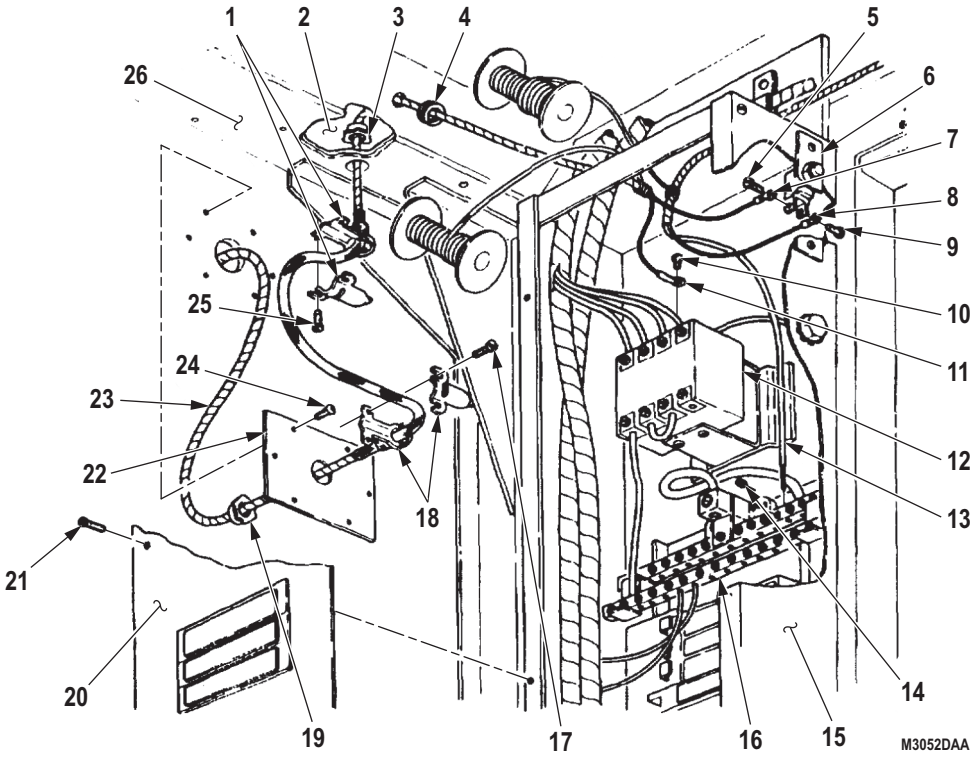


Figure 2. Blackout Harness.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install hinged roof-operated blackout circuit plungers. (WP 0629)
2. Retract van body sides. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
CIRCUIT BREAKER HARNESS AND CIRCUIT BREAKER REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Locknut
(Volume 5, WP 0827, Table 1, Item 285)
Qty: 2
Lockwasher
(Volume 5, WP 0827, Table 1, Item 407)
Qty: 1

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

Equipment Condition (cont.)
Battery ground cables disconnected.
(Volume 2, WP 0350)

REMOVAL

NOTE

Tag wires for installation.

1. Disconnect wire (Figure 1, Item 3) from circuit breaker (Figure 1, Item 2).
2. Remove two screws (Figure 1, Item 4) and clamps (Figure 1, Item 1) from wiring harness (Figure 1, Item 15) and van body (Figure 1, Item 16).
3. Remove locknut (Figure 1, Item 10), screw (Figure 1, Item 13), and clamp (Figure 1, Item 14) from spare tire carrier mounting bracket (Figure 1, Item 5). Discard locknut.
4. Remove locknut (Figure 1, Item 6), screw (Figure 1, Item 12), washer (Figure 1, Item 11), wires (Figure 1, Items 8 and 9), and lockwasher (Figure 1, Item 7) from spare tire carrier mounting bracket (Figure 1, Item 5). Discard locknut and lockwasher.
5. Remove wiring harness (Figure 1, Item 15) from van body (Figure 1, Item 16).
6. Disconnect emergency lamp wiring harness (Figure 1, Item 18) from circuit breaker (Figure 1, Item 2).
7. Remove two screws (Figure 1, Item 17) and circuit breaker (Figure 1, Item 2) from van body (Figure 1, Item 16).

REMOVAL - Continued

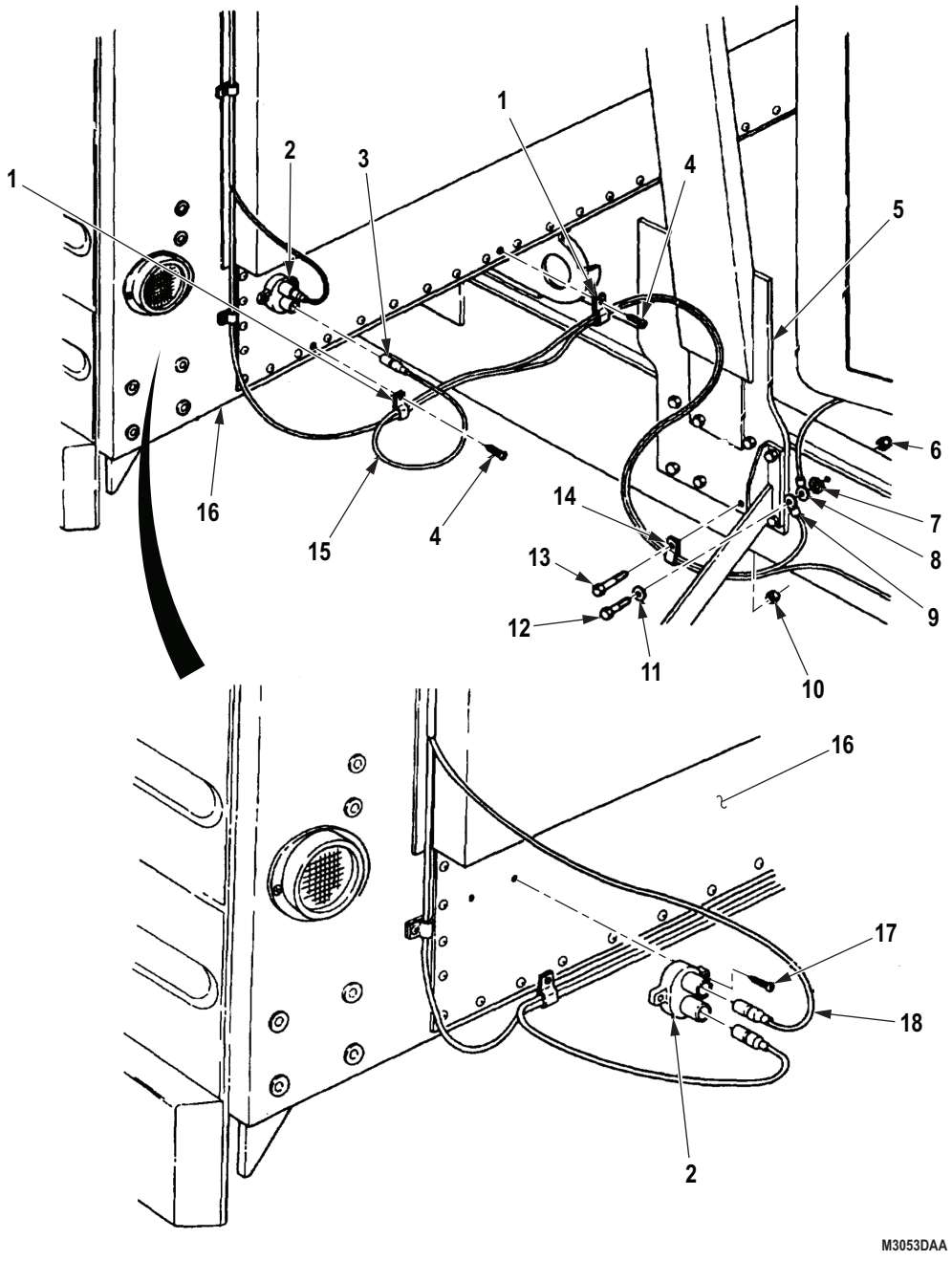


Figure 1. Circuit Breaker Harness and Circuit Breaker Removal.

END OF TASK

INSTALLATION

1. Install circuit breaker (Figure 2, Item 2) on van body (Figure 2, Item 16) with two screws (Figure 2, Item 17).
2. Connect emergency lamp wiring harness (Figure 2, Item 18) to circuit breaker (Figure 2, Item 2).
3. Install lockwasher (Figure 2, Item 7) and wires (Figure 2, Items 8 and 9) on spare tire carrier mounting bracket (Figure 2, Item 5) with washer (Figure 2, Item 11), screw (Figure 2, Item 12), and locknut (Figure 2, Item 6).
4. Install wiring harness (Figure 2, Item 15) on spare tire carrier mounting bracket (Figure 2, Item 5) with screw (Figure 2, Item 8), clamp (Figure 2, Item 14), and locknut (Figure 2, Item 10).
5. Install two clamps (Figure 2, Item 1) and wiring harness (Figure 2, Item 15) and van body (Figure 2, Item 16) with two screws (Figure 2, Item 4).
6. Connect wire (Figure 2, Item 3) to circuit breaker (Figure 2, Item 2).

INSTALLATION - Continued

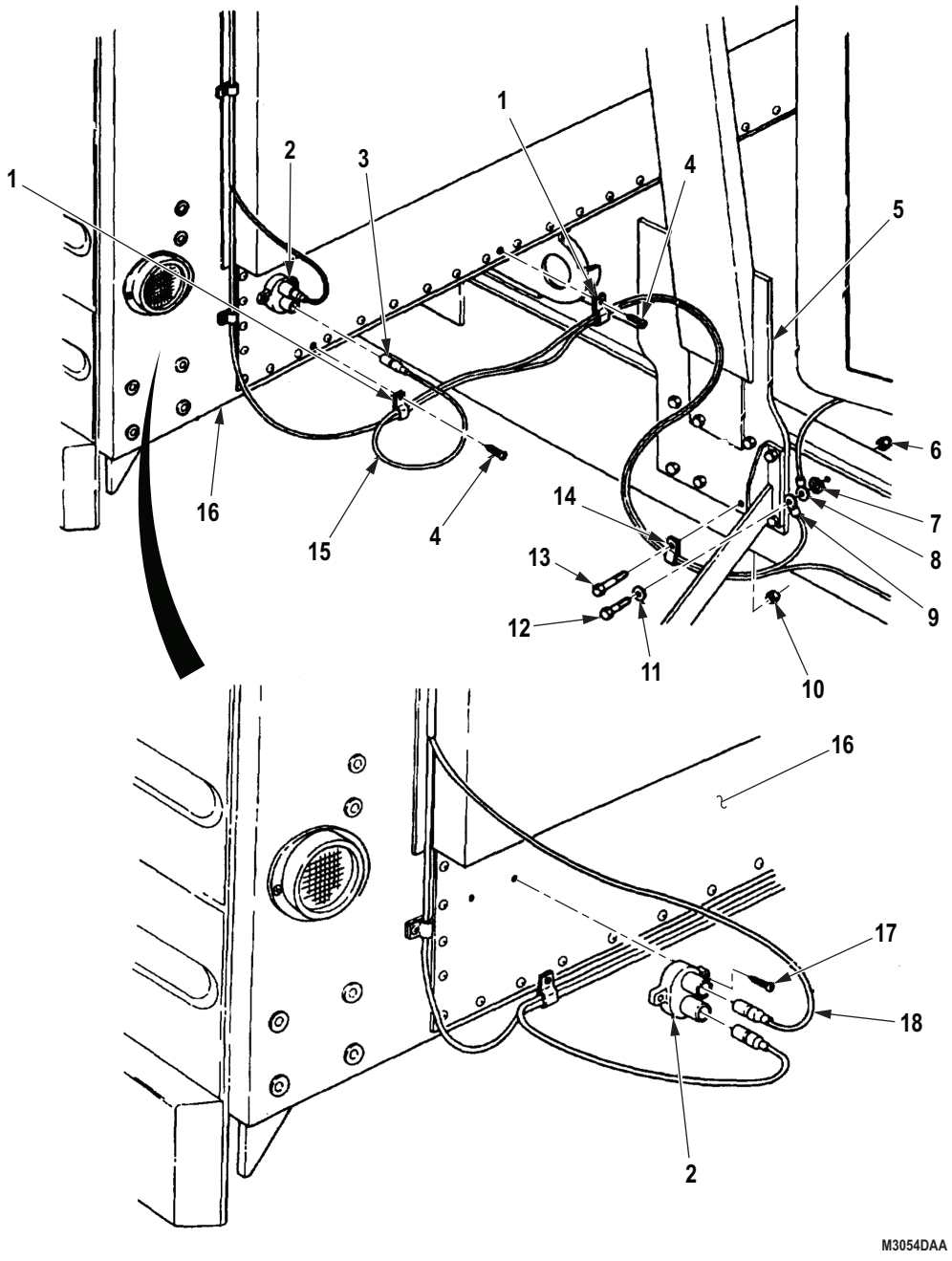


Figure 2. Circuit Breaker Harness and Circuit Breaker Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

Connect battery ground cables. (Volume 2, WP 0350)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
ENTRANCE RECEPTACLE 220V 3-PHASE WIRING HARNESS REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Wire, Nonelectrical
(Volume 5, WP 0825, Table 1, Item 70)
Locknut (Volume 5, WP 0827, Table 1, Item 314)
Qty: 4

Personnel Required
(2)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
External power source removed.
(TM 9-2320-272-10)
Battery ground cables disconnected.
(Volume 2, WP 0350)

REMOVAL

NOTE

Tag wires for installation.

1. Remove six screws (Figure 1, Item 14) and cover (Figure 1, Item 17) from load center (Figure 1, Item 4).
2. Remove three screws (Figure 1, Item 15) and wires (Figure 1, Item 16) from circuit breakers (Figure 1, Item 5).
3. Remove setscrew (Figure 1, Item 2) and wire (Figure 1, Item 1) from neutral buss bar (Figure 1, Item 3).
4. Remove three screws (Figure 1, Item 7) and plate (Figure 1, Item 6) from electrical box (Figure 1, Item 12).
5. Remove four locknuts (Figure 1, Item 13), screws (Figure 1, Item 8), and receptacle (Figure 1, Item 9) from van body (Figure 1, Item 11). Discard locknuts.
6. Disconnect connector (Figure 1, Item 10) from receptacle (Figure 1, Item 9).

NOTE

Safety wire will be used to route wires through van body.

7. Remove wires (Figure 1, Items 1 and 16) from electrical box (Figure 1, Item 12), load center (Figure 1, Item 4), and van body (Figure 1, Item 11).

REMOVAL - Continued

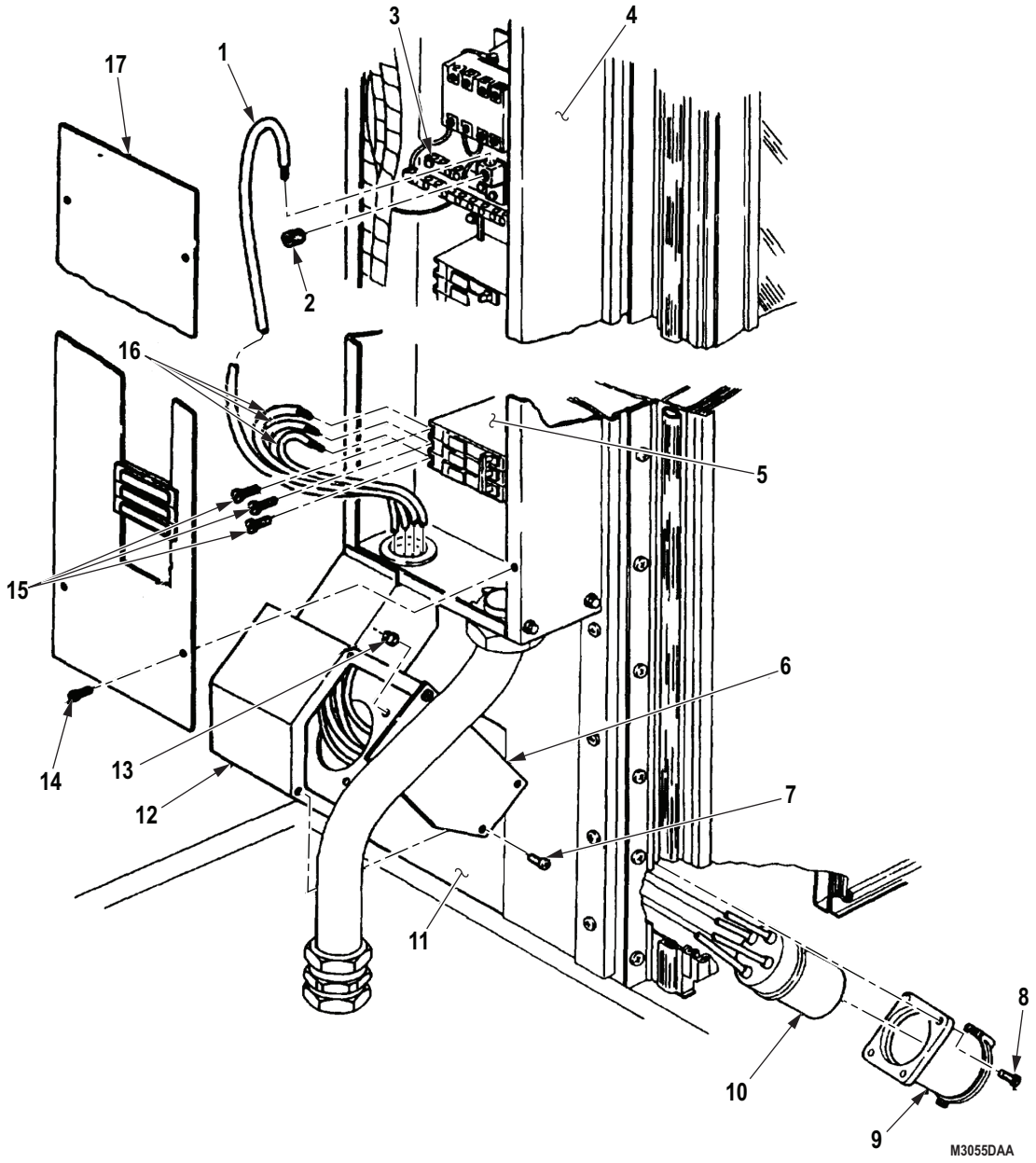


Figure 1. Entrance Receptacle Removal.

END OF TASK

INSTALLATION

NOTE

Safety wire will be used to route wires through van body.

1. Feed wires (Figure 2, Items 1 and 16) through electrical box (Figure 2, Item 12), load center (Figure 2, Item 4), and van body (Figure 2, Item 11).
2. Connect connector (Figure 2, Item 10) to receptacle (Figure 2, Item 9).
3. Install receptacle (Figure 2, Item 9) on van body (Figure 2, Item 11) with four screws (Figure 2, Item 8) and locknuts (Figure 2, Item 13).
4. Install plate (Figure 2, Item 6) on electrical box (Figure 2, Item 12) with three screws (Figure 2, Item 7).
5. Install wire (Figure 2, Item 1) on neutral buss bar (Figure 2, Item 3) with setscrew (Figure 2, Item 2).
6. Install three wires (Figure 2, Item 16) on circuit breakers (Figure 2, Item 5) with three screws (Figure 2, Item 15).
7. Install cover (Figure 2, Item 17) on load center (Figure 2, Item 4) with six screws (Figure 2, Item 14).

INSTALLATION - Continued

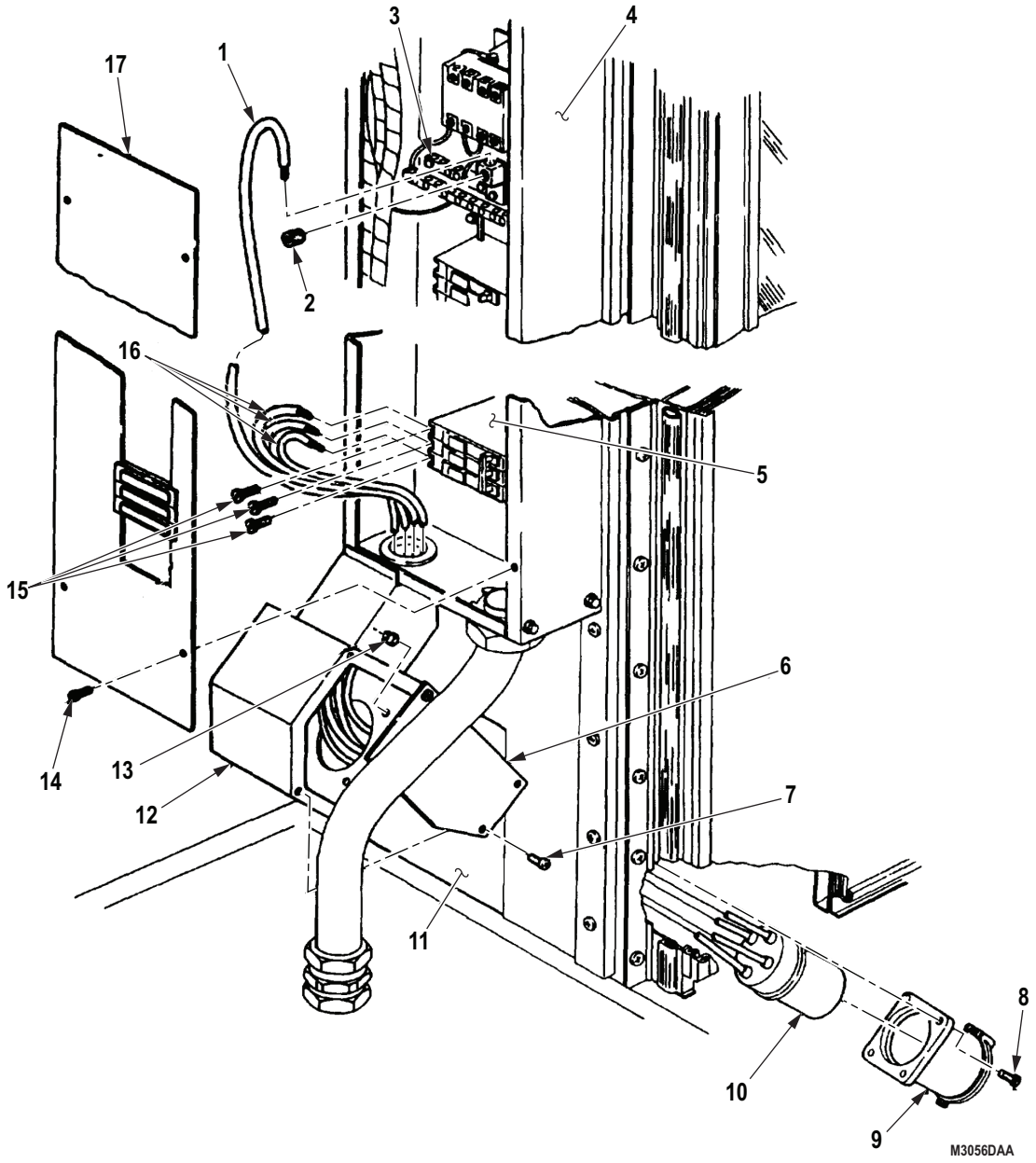


Figure 2. Entrance Receptacle Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Connect battery ground cables. (Volume 2, WP 0350)
2. Install external power source. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
FLEXIBLE CONVERTER WIRING HARNESS REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

Materials/Parts
Gasket (Volume 5, WP 0827, Table 1, Item 30)
Qty: 1
Lockwasher
(Volume 5, WP 0827, Table 1, Item 255)
Qty: 1

REMOVAL

NOTE

Tag wires for installation.

1. Remove connector (Figure 1, Item 8) from junction box (Figure 1, Item 9).
2. Remove four screws (Figure 1, Item 10), cover (Figure 1, Item 11), and gasket (Figure 1, Item 1) from converter (Figure 1, Item 3).
3. Remove three nuts (Figure 1, Item 5), wires (Figure 1, Item 6), and lockwasher (Figure 1, Item 4) from converter (Figure 1, Item 3).
4. Remove wiring harness (Figure 1, Item 7) from van body (Figure 1, Item 2).

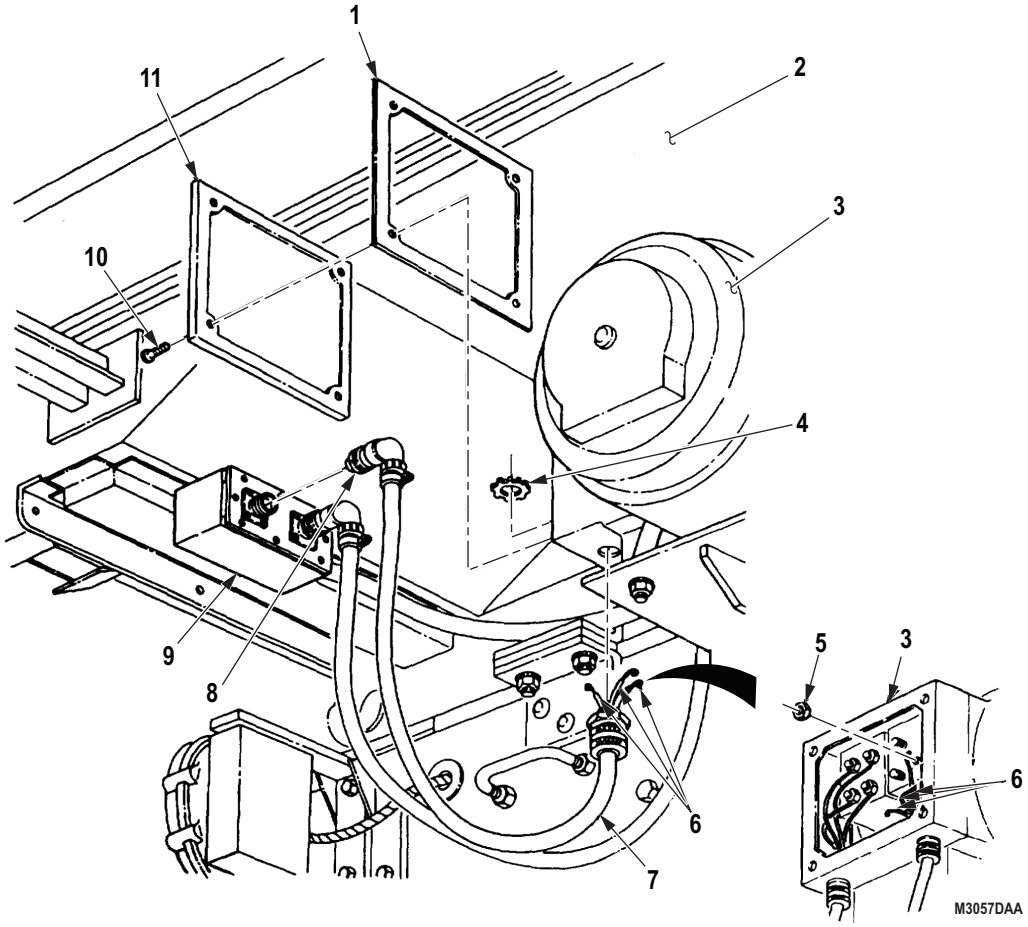


Figure 1. Flexible Converter Wiring Harness Removal.

END OF TASK

INSTALLATION

1. Install wiring harness (Figure 2, Item 7) on van body (Figure 2, Item 2).
2. Install three wires (Figure 2, Item 6) and lockwasher (Figure 2, Item 4) on converter (Figure 2, Item 3) with three nuts (Figure 2, Item 5).
3. Install gasket (Figure 2, Item 1) and cover (Figure 2, Item 11) on converter (Figure 2, Item 3) with four screws (Figure 2, Item 10).
4. Install connector (Figure 2, Item 8) on junction box (Figure 2, Item 9).

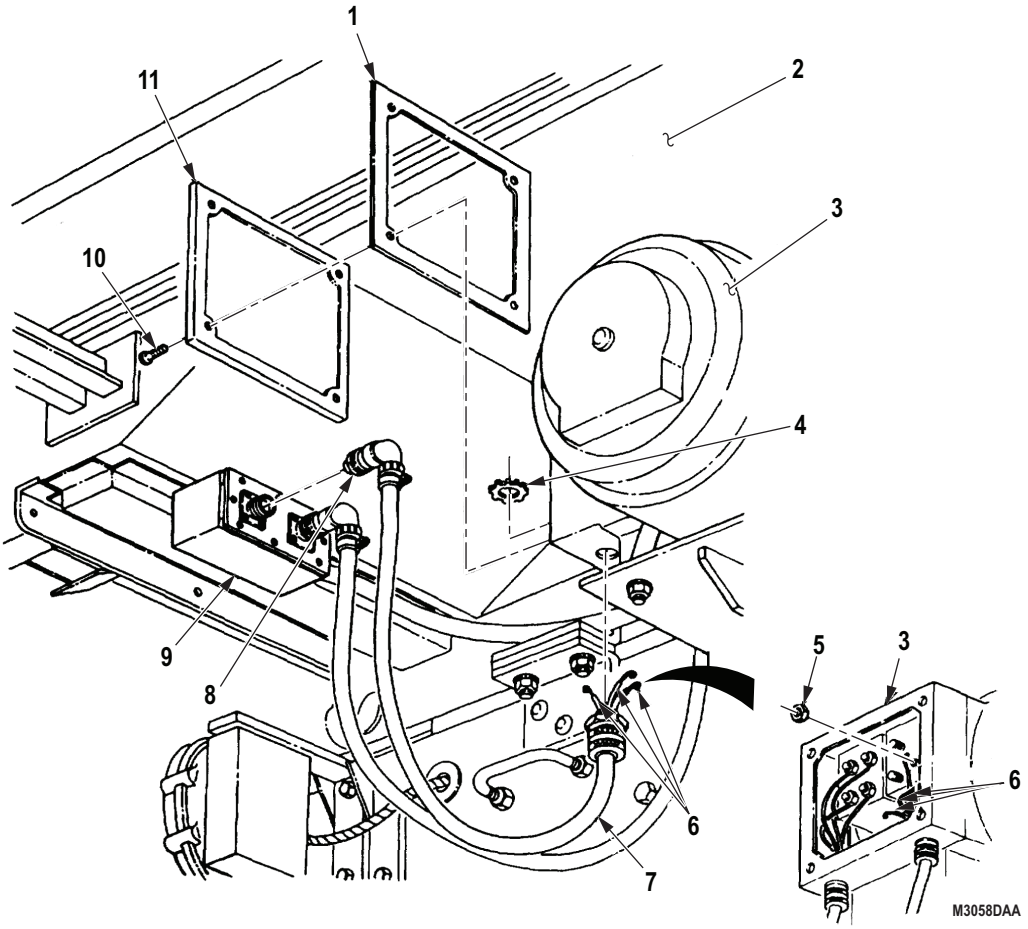


Figure 2. Flexible Converter Wiring Harness Installation.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
ELECTRICAL LOAD CENTER BOX REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Sealing Compound
(Volume 5, WP 0825, Table 1, Item 57)
Lockwasher
(Volume 5, WP 0827, Table 1, Item 382)
Qty: 3

References
TM 9-237

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Battery ground cables disconnected.
(Volume 2, WP 0350)
External power source disconnected.
(TM 9-2320-272-10)

REMOVAL

NOTE

Tag wires for installation.

1. Remove six screws (Figure 1, Item 19) and cover (Figure 1, Item 20) from load center (Figure 1, Item 4).
2. Remove three screws (Figure 1, Item 17) and wires (Figure 1, Item 21) from relay (Figure 1, Item 3).
3. Remove screw (Figure 1, Item 11) and wire (Figure 1, Item 16) from neutral buss bar (Figure 1, Item 5).
4. Remove screws (Figure 1, Items 10 and 11) and two wires (Figure 1, Items 13 and 14) from circuit breakers (Figure 1, Items 6 and 7).
5. Remove screw (Figure , Item 9) and wire (Figure 1, Item 12) from circuit breaker (Figure 1, Item 8).
6. Remove screw (Figure 1, Item 1), clamp (Figure 1, Item 2), and right main wiring harness (Figure 1, Item 18) from load center (Figure 1, Item 4).

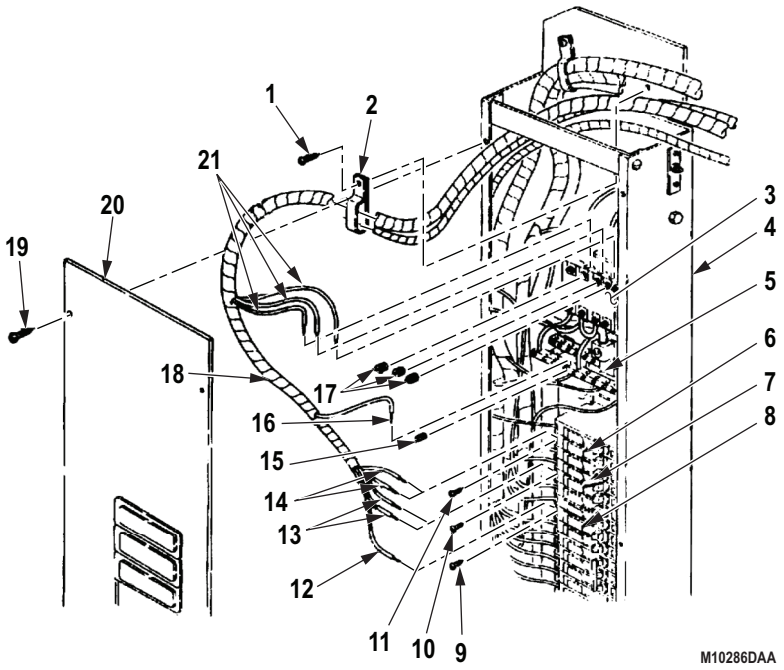


Figure 1. Load Center Box.

REMOVAL - Continued

7. Remove three screws (Figure 2, Item 16) and wires (Figure 2, Item 1) from relay (Figure 2, Item 2).
8. Remove screw (Figure 2, Item 14) and wire (Figure 2, Item 15) from neutral buss bar (Figure 2, Item 4).
9. Remove screw (Figure 2, Item 10) and wires (Figure 2, Item 13) from circuit breaker (Figure 2, Item 5).
10. Remove screw (Figure 2, Item 9) and wires (Figure 2, Item 12) from circuit breaker (Figure 2, Item 6).
11. Remove screw (Figure 2, Item 8) and wire (Figure 2, Item 11) from circuit breaker (Figure 2, Item 7).
12. Remove left main wiring harness (Figure 2, Item 17) from load center (Figure 2, Item 3).

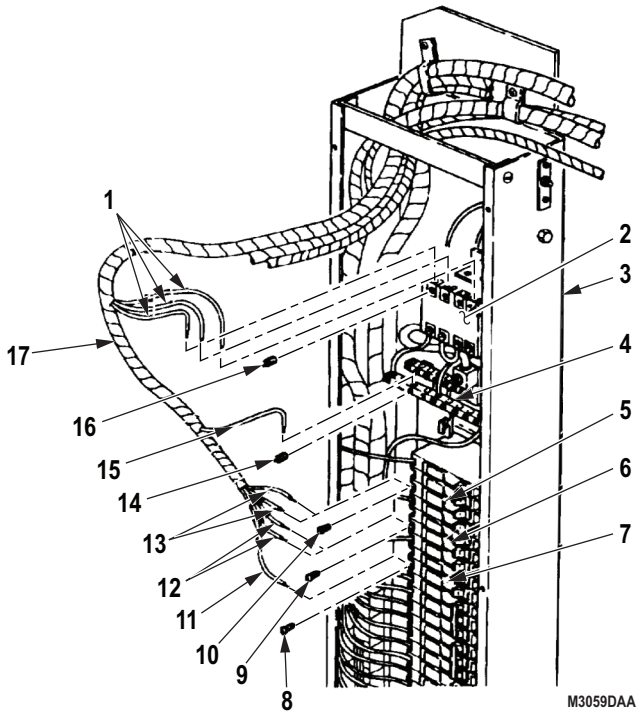


Figure 2. Load Center Box.

REMOVAL - Continued

13. Remove screw (Figure 3, Item 8) and wires (Figure 3, Item 7 and 9) from relay (Figure 3, Item 2).
14. Remove screw (Figure 3, Item 5) and wire (Figure 3, Item 6) from circuit breaker (Figure 3, Item 4).
15. Remove blackout bypass wiring harness (Figure 3, Item 1) from load center (Figure 3, Item 3).

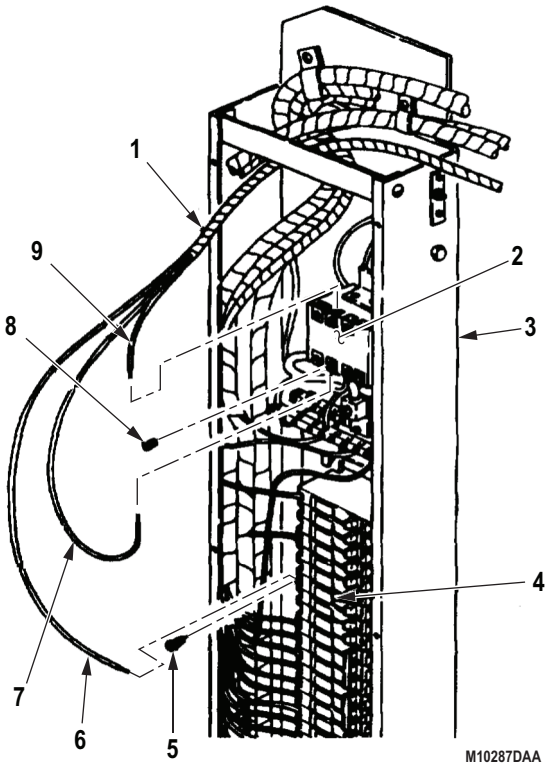


Figure 3. Load Center Box.

REMOVAL - Continued

16. Remove nut (Figure 4, Item 1), screw (Figure 4, Item 5), two washers (Figure 4, Items 4 and 12), cable assembly (Figure 4, Item 3), ground cable (Figure 4, Item 2), and cable (Figure 4, Item 11) from load center (Figure 4, Item 6).
17. Remove three screws (Figure 4, Item 8) and wires (Figure 4, Item 9) from three circuit breakers (Figure 4, Item 7).
18. Remove air conditioner wiring harness (Figure 4, Item 10) from load center (Figure 4, Item 6).

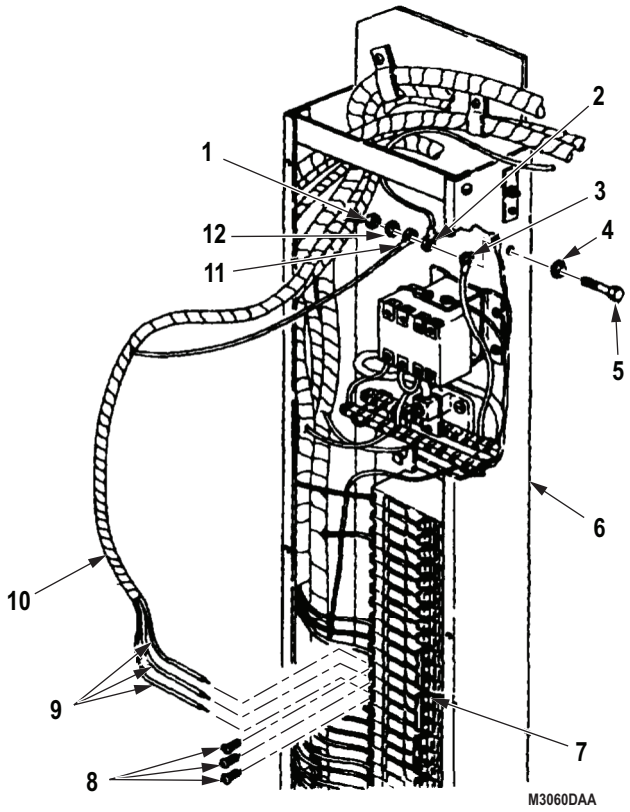


Figure 4. Load Center Box.

REMOVAL - Continued

19. Remove screw (Figure 5, Item 8) and wire (Figure 5, Item 7) from neutral buss bar (Figure 5, Item 3).
20. Remove three screws (Figure 5, Item 5) and wires (Figure 5, Item 6) from three circuit breakers (Figure 5, Item 4).
21. Remove right 10 kW electric heater wiring harness (Figure 5, Item 1) from load center (Figure 5, Item 2).

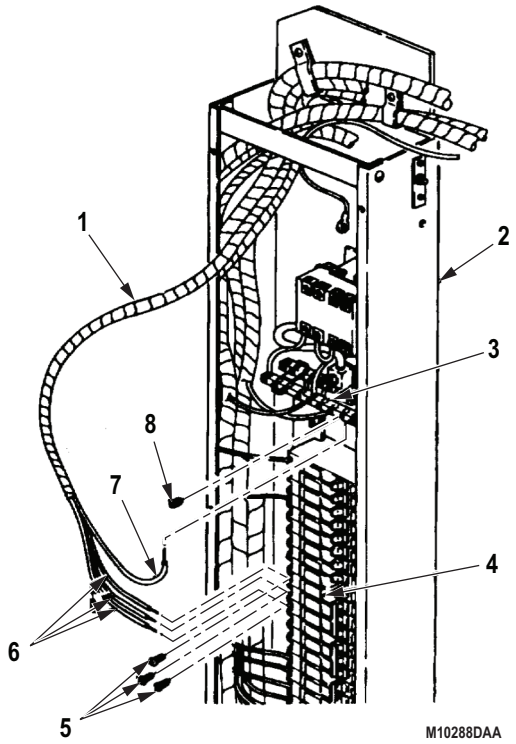


Figure 5. Load Center Box.

REMOVAL - Continued

22. Remove screw (Figure 6, Item 8) and wire (Figure 6, Item 7) from neutral buss bar (Figure 6, Item 3).
23. Remove screw (Figure 6, Item 5) and wire (Figure 6, Item 6) from circuit breaker (Figure 6, Item 4).
24. Remove right electric heater wiring harness (Figure 6, Item 1) from load center (Figure 6, Item 2).

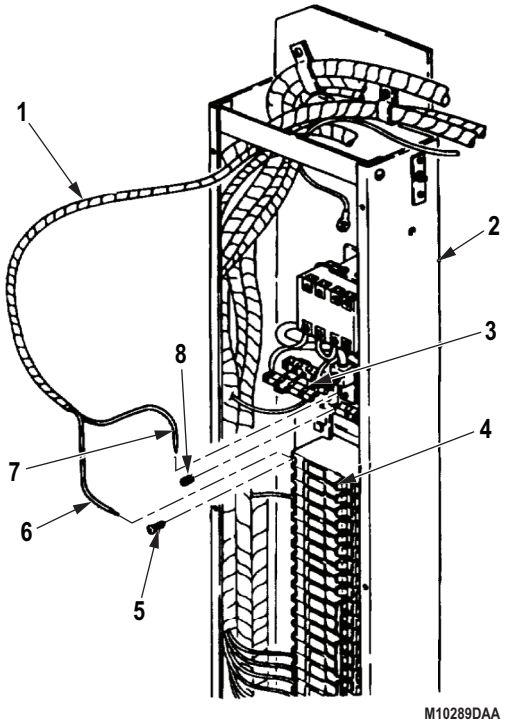


Figure 6. Load Center Box.

REMOVAL - Continued

25. Disconnect cables (Figure 7, Items 3 and 4) from connectors (Figure 7, Item 2 and 6).
26. Remove eight screws (Figure 7, Item 5) and cover (Figure 7, Item 7) from junction box (Figure 7, Item 8).
27. Remove wires (Figure 7, Items 1 and 9) from connectors (Figure 7, Items 2 and 6).

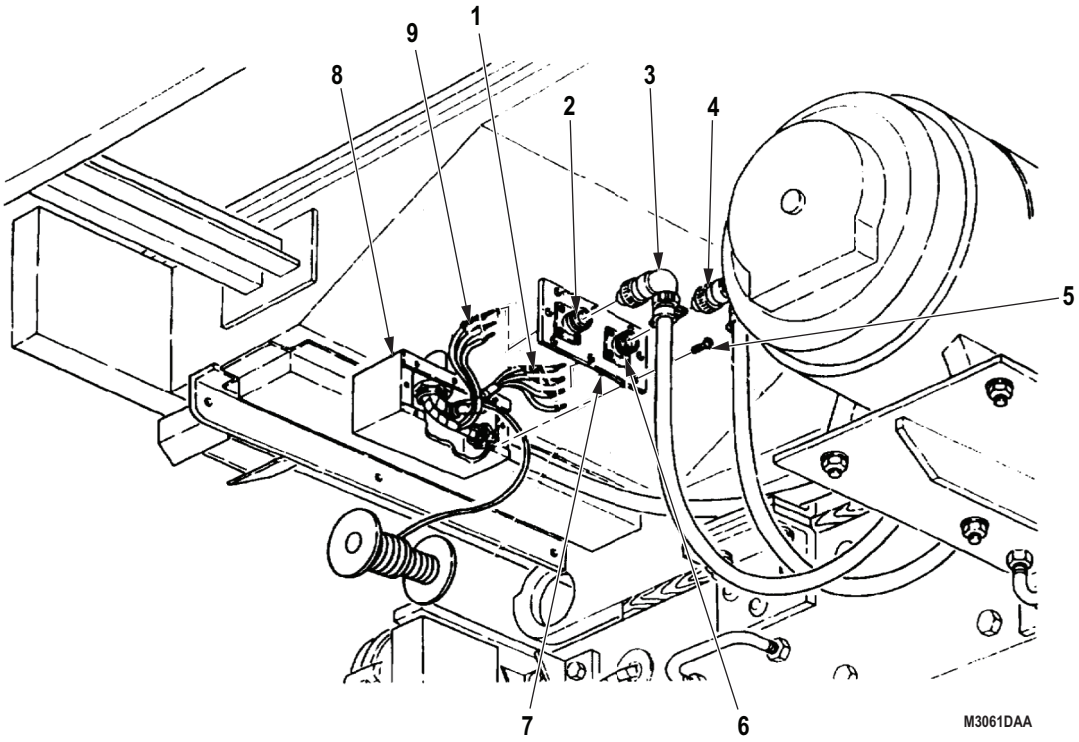


Figure 7. Load Center Box.

REMOVAL - Continued

28. Remove five screws (Figure 8, Item 4) and wires (Figure 8, Item 5) from five circuit breakers (Figure 8, Item 3).
29. Remove converter wiring harness (Figure 8, Item 1) from load center (Figure 8, Item 2).

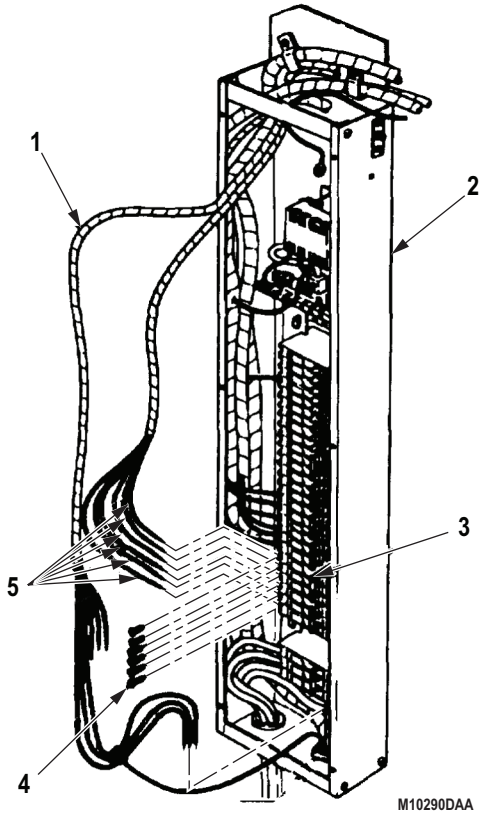


Figure 8. Load Center Box.

REMOVAL - Continued

30. Remove screw (Figure 9, Item 7) and wire (Figure 9, Item 1) from neutral buss bar (Figure 9, Item 2).
31. Remove three screws (Figure 9, Item 5) and wires (Figure 9, Item 6) from three circuit breakers (Figure 9, Item 4).
32. Remove wire (Figure 9, Item 8) and entrance receptacle wiring harness (Figure 9, Item 1) from load center (Figure 9, Item 3).

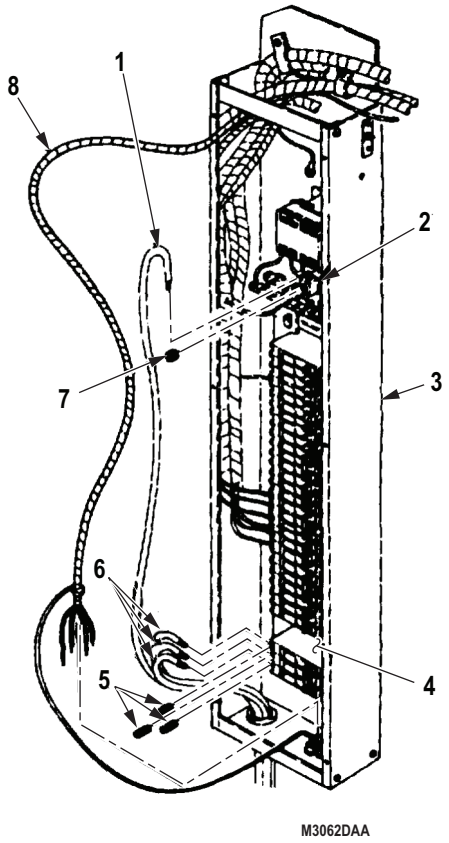


Figure 9. Load Center Box.

REMOVAL - Continued

33. Remove screw (Figure 10, Item 13) and wire (Figure 10, Item 12) from relay (Figure 10, Item 11).
34. Remove two screws (Figure 10, Item 4) and wires (Figure 10, Item 5 and 7) from switch (Figure 10, Item 6).
35. Remove screw (Figure 10, Item 10) and wire (Figure 10, Item 8) from neutral buss bar (Figure 10, Item 9).
36. Remove right and left blackout wiring harnesses (Figure 10, Item 1 and 2) from load center (Figure 10, Item 3).

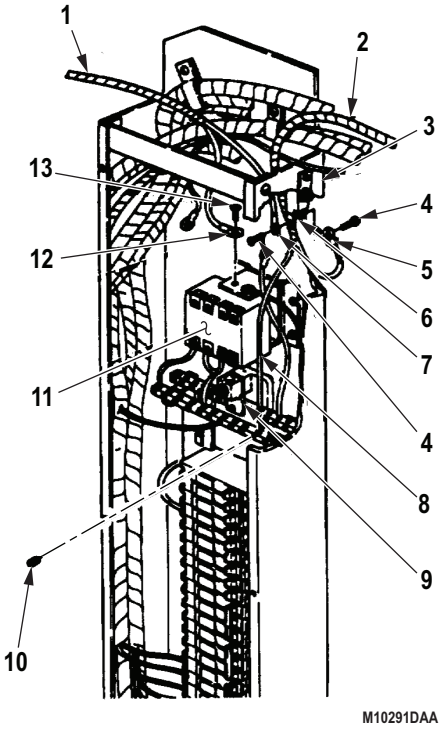


Figure 10. Load Center Box.

REMOVAL - Continued

37. Remove screw (Figure 11, Item 8) and wire (Figure 11, Item 2) from neutral buss bar (Figure 11, Item 3).
38. Remove three screws (Figure 11, Item 6) and wires (Figure 11, Item 7) from three circuit breakers (Figure 11, Item 5).
39. Remove right 3-phase receptacle wiring harness (Figure 11, Item 1) from load center (Figure 11, Item 4).

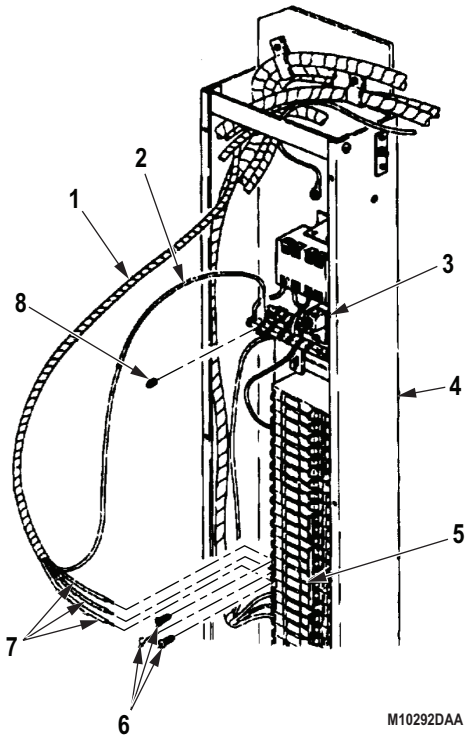


Figure 11. Load Center Box.

REMOVAL - Continued

40. Remove screw (Figure 12, Item 7) and wire (Figure 12, Item 1) from neutral buss bar (Figure 12, Item 2).
41. Remove three screws (Figure 12, Item 5) and wires (Figure 12, Item 6) from three circuit breakers (Figure 12, Item 4).
42. Remove left 3-phase receptacle wiring harness (Figure 12, Item 8) from load center (Figure 12, Item 3).

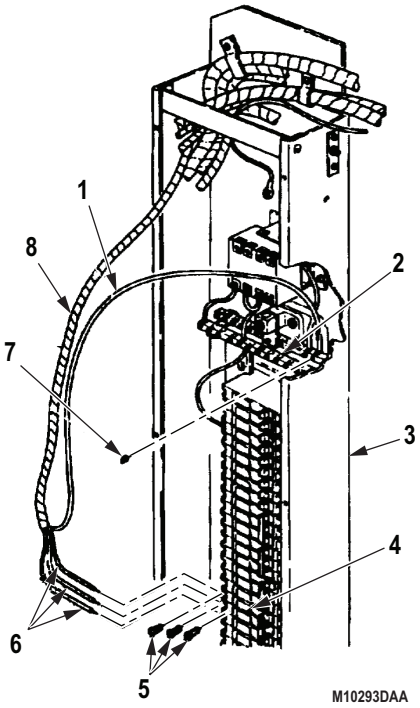


Figure 12. Load Center Box.

REMOVAL - Continued

43. Remove four screws (Figure 13, Item 6) and washers (Figure 13, Item 1) from load center (Figure 13, Item 2).
44. Remove special nut (Figure 13, Item 5) from conduit nut (Figure 13, Item 4).
45. Remove load center (Figure 13, Item 2) from van body (Figure 13, Item 3).

REMOVAL - Continued

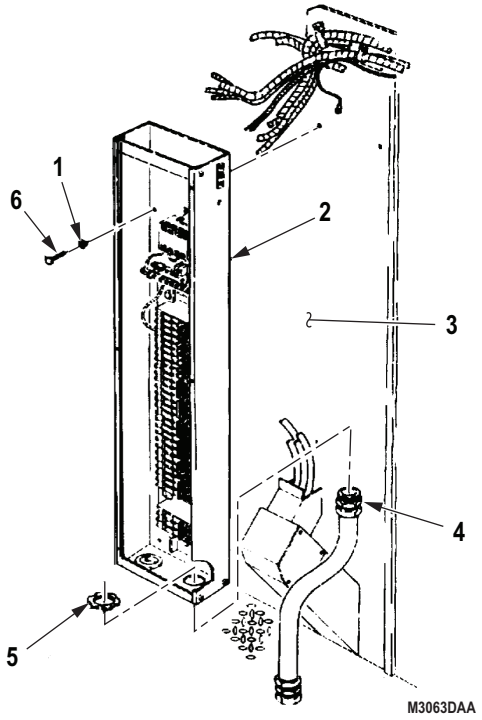


Figure 13. Load Center Box.

END OF TASK

DISASSEMBLY

1. Remove six plates (Figure 14, Item 33) from load center cover (Figure 14, Item 34).
2. Remove two screws (Figure 14, Item 29), jumper wire (Figure 14, Item 30), and ground B cable (Figure 14, Item 32) from relay (Figure 14, Item 2).
3. Remove screws (Figure 14, Items 25 and 28) and ground N cable (Figure 14, Item 31) from relay (Figure 14, Item 2) and neutral buss bar (Figure 14, Item 9).
4. Remove screw (Figure 14, Item 26) and ground B cable (Figure 14, Item 32) from neutral buss bar (Figure 14, Item 9).
5. Remove screws (Figure 14, Items 3 and 23) and relay cable (Figure 14, Item 1) from 20-amp circuit breaker (Figure 14, Item 24) and relay (Figure 14, Item 2).
6. Remove three screws (Figure 14, Item 4), lockwashers (Figure 14, Item 5), and relay (Figure 14, Item 2) from load center box (Figure 14, Item 10). Discard lockwashers.
7. Remove screw (Figure 14, Item 19) and cable (Figure 14, Item 6) from neutral buss bar (Figure 14, Item 9).
8. Remove six screws (Figure 14, Item 25) and insulators (Figure 14, Item 13) from load center (Figure 14, Item 10).
9. Remove nine screws (Figure 14, Item 22) and nine 20-amp circuit breakers (Figure 14, Item 24) from load center (Figure 14, Item 10).
10. Remove three screws (Figure 14, Item 20) and 30-amp circuit breaker (Figure 14, Item 21) from load center (Figure 14, Item 10).
11. Remove three screws (Figure 14, Item 18) and 40-amp circuit breaker (Figure 14, Item 19) from load center (Figure 14, Item 10).
12. Remove 12 screws (Figure 14, Item 17) and four 20-amp circuit breakers (Figure 14, Item 12) from load center (Figure 14, Item 10).
13. Remove three screws (Figure 14, Item 16) and 100-amp circuit breaker (Figure 14, Item 15) from load center (Figure 14, Item 10).
14. Remove grommet (Figure 14, Item 11) from load center (Figure 14, Item 10).
15. Remove two screws (Figure 14, Item 8) and blackout door switch (Figure 14, Item 7) from load center (Figure 14, Item 10).

DISASSEMBLY - Continued

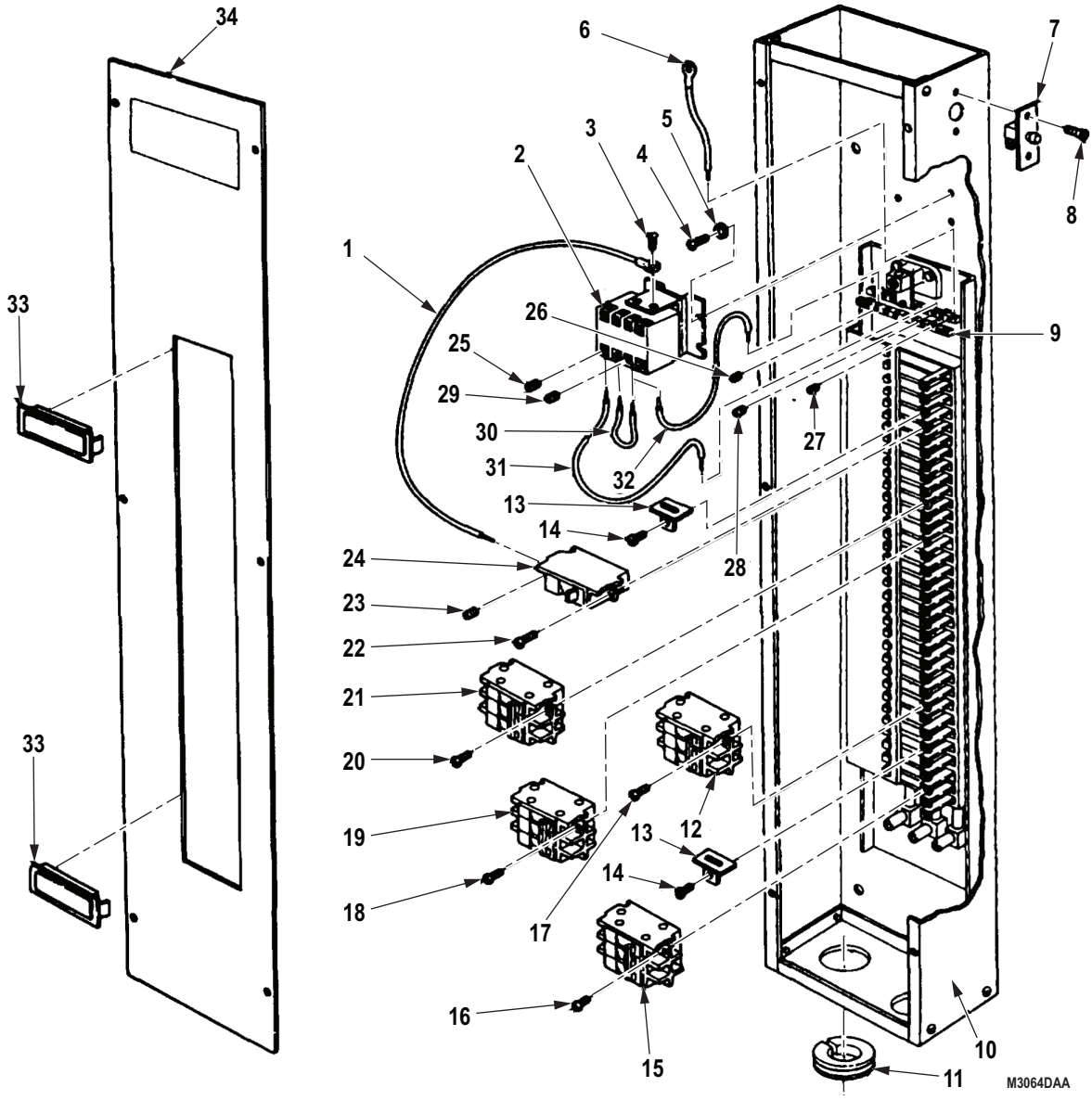


Figure 14. Load Center Box.

END OF TASK

ASSEMBLY

1. Install 100-amp circuit breaker (Figure 15, Item 15) on load center (Figure 15, Item 10) with three screws (Figure 15, Item 16).
2. Install four 20-amp circuit breakers (Figure 15, Item 12) on load center (Figure 15, Item 10) with 12 screws (Figure 15, Item 17).
3. Install 40-amp circuit breaker (Figure 15, Item 19) on load center (Figure 15, Item 10) with three screws (Figure 15, Item 18).
4. Install 30-amp circuit breaker (Figure 15, Item 21) on load center (Figure 15, Item 10) with three screws (Figure 15, Item 20).
5. Install nine 20-amp circuit breakers (Figure 15, Item 24) on load center (Figure 15, Item 10) with nine screws (Figure 15, Item 22).
6. Install six insulators (Figure 15, Item 13) on load center (Figure 15, Item 10) with six screws (Figure 7, Item 8).
7. Install relay (Figure 15, Item 2) on load center (Figure 15, Item 10) with three lockwashers (Figure 15, Item 5) and screws (Figure 15, Item 4).
8. Install cable (Figure 15, Item 6) on neutral buss bar (Figure 15, Item 9) with screw (Figure 15, Item 26).
9. Install relay cable (Figure 15, Item 1) on 20-amp circuit breaker (Figure 15, Item 24) and relay (Figure 15, Item 2) with two screws (Figure 15, Items 11 and 33).
10. Install ground B cable (Figure 15, Item 32) on neutral buss bar (Figure 15, Item 9) with screw (Figure 15, Item 26).
11. Install ground N cable (Figure 15, Item 31) on relay (Figure 15, Item 2) and neutral buss bar (Figure 15, Item 9) with two screws (Figure 15, Items 25 and 28).
12. Install jumper wire (Figure 15, Item 30) and ground B cable (Figure 15, Item 32) on relay (Figure 15, Item 2) with two screws (Figure 15, Item 29).
13. Install six plates (Figure 15, Item 33) on load center cover (Figure 15, Item 34).
14. Install blackout door switch (Figure 15, Item 7) on load center (Figure 15, Item 10) with two screws (Figure 15, Item 8).
15. Install grommet (Figure 15, Item 11) on load center (Figure 15, Item 10).

ASSEMBLY - Continued

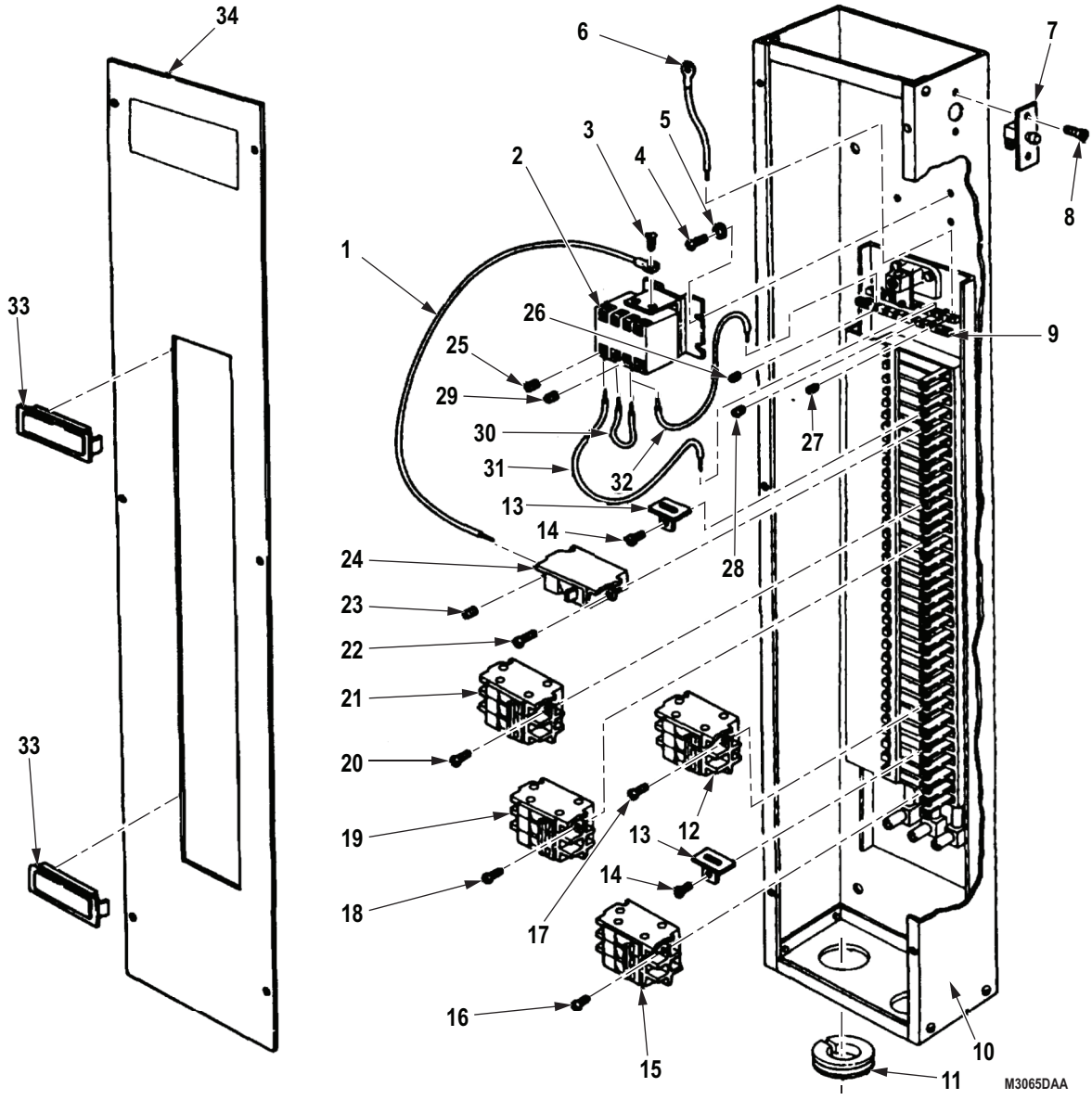


Figure 15. Load Center Box.

END OF TASK

INSTALLATION

1. Install load center (Figure 16, Item 2) on van body (Figure 16, Item 3) and conduit (Figure 16, Item 4) with four washers (Figure 16, Item 1), screws (Figure 16, Item 6), and special nut (Figure 16, Item 5).

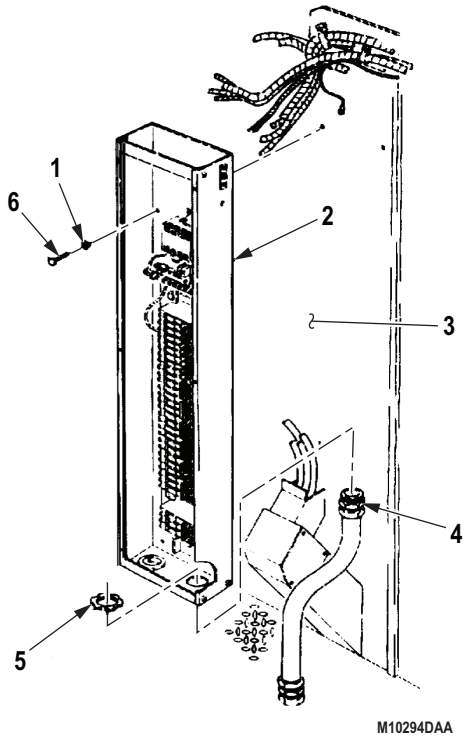


Figure 16. Load Center Box.

INSTALLATION - Continued

2. Install left 3-phase receptacle wiring harness (Figure 17, Item 8) and three wires (Figure 17, Item 6) in load center (Figure 17, Item 3) and on triple circuit breaker (Figure 17, Item 4) with three screws (Figure 17, Item 5).
3. Install wire (Figure 17, Item 1) on neutral buss bar (Figure 17, Item 2) with screw (Figure 17, Item 7).

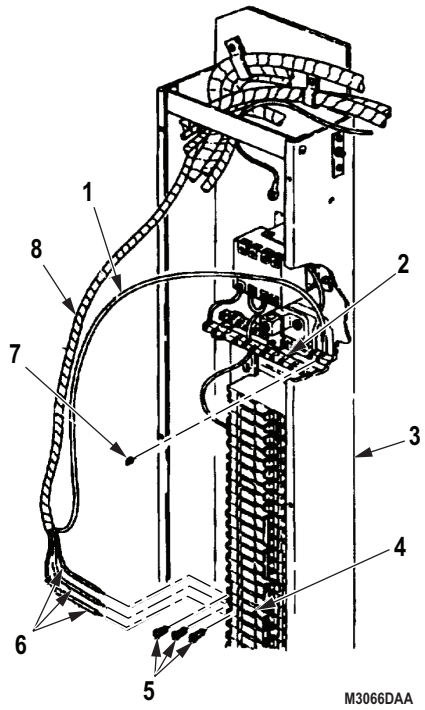


Figure 17. Load Center Box.

INSTALLATION - Continued

4. Install right 3-phase receptacle wiring harness (Figure 18, Item 8) and three wires (Figure 18, Item 6) in load center (Figure 18, Item 3) and on three circuit breakers (Figure 18, Item 4) with three screws (Figure 18, Item 5).
5. Install wire (Figure 18, Item 1) on neutral buss bar (Figure 18, Item 2) with screw (Figure 18, Item 7).

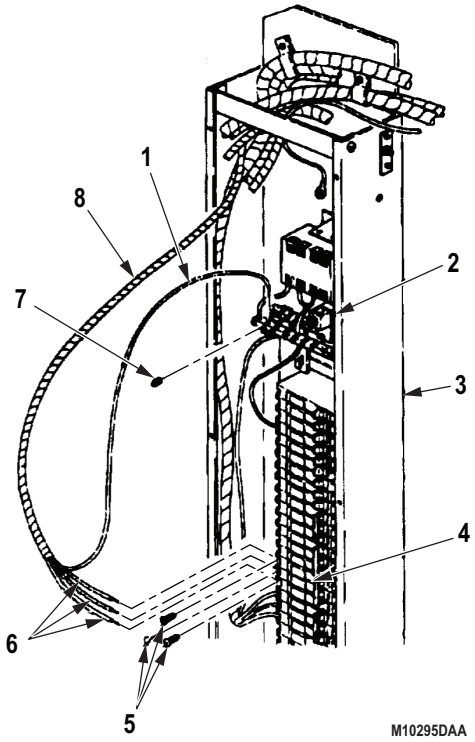


Figure 18. Load Center Box.

INSTALLATION - Continued

6. Install right and left wiring harnesses (Figure 19, Items 1 and 2) and wire (Figure 19, Item 19) in load center (Figure 19, Item 3) and on neutral buss bar (Figure 19, Item 10) with screw (Figure 19, Item 11).
7. Install two wires (Figure 19, Items 5 and 7) on switch (Figure 19, Item 6) with screws (Figure 19, Items 4 and 8).
8. Install wire (Figure 19, Item 13) on relay (Figure 19, Item 12) with screw (Figure 19, Item 14).

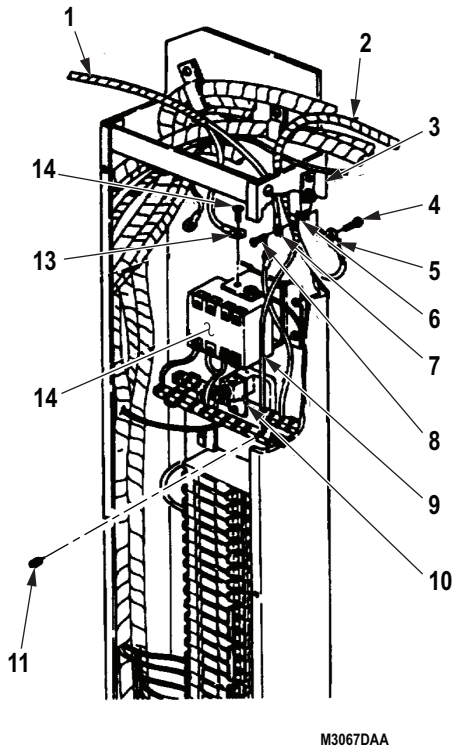


Figure 19. Load Center Box.

INSTALLATION - Continued

9. Install three wires (Figure 20, Item 6) and entrance receptacle harness (Figure 20, Item 8) on circuit breakers (Figure 20, Item 4) in load center (Figure 20, Item 3) with three screws (Figure 20, Item 5).
10. Install wire (Figure 20, Item 1) on neutral buss bar (Figure 20, Item 2) with screw (Figure 20, Item 7).

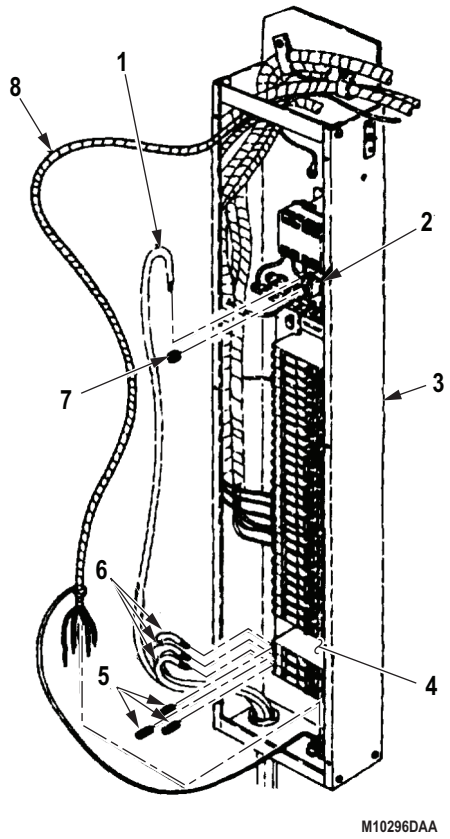


Figure 20. Load Center Box.

INSTALLATION - Continued

11. Install five wires (Figure 21, Item 6) and converter wiring harness (Figure 21, Item 7) on circuit breakers (Figure 21, Item 3) in load center (Figure 21, Item 2) with five screws (Figure 21, Item 5). Route auxiliary pump wiring harness (Figure 21, Item 1) through coupling (Figure 21, Item 4).

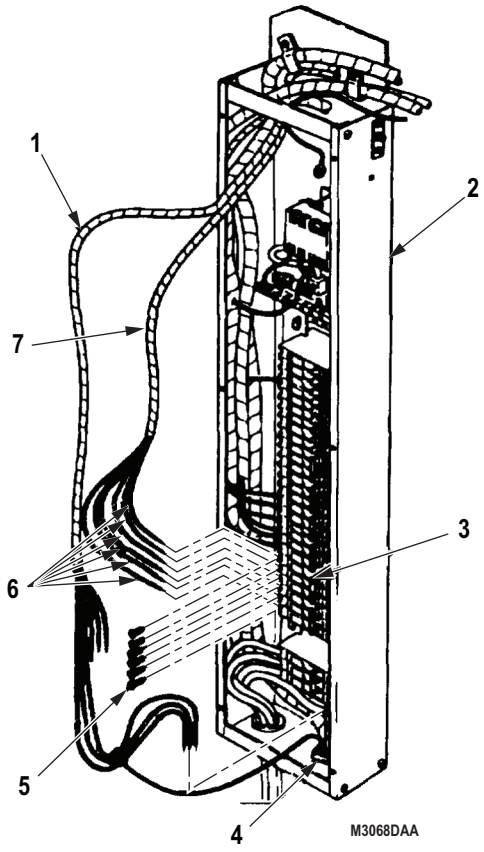


Figure 21. Load Center Box.

INSTALLATION - Continued

12. Install wires (Figure 22, Items 1 and 9) on connectors (Figure 22, Items 2 and 6) (TM 9-237).

NOTE

Apply sealing compound before performing Step (13).

13. Install cover (Figure 22, Item 7) on junction box (Figure 22, Item 8) with eight screws (Figure 22, Item 5).
14. Connect cables (Figure 22, Items 3 and 4) to connectors (Figure 22, Items 2 and 6).

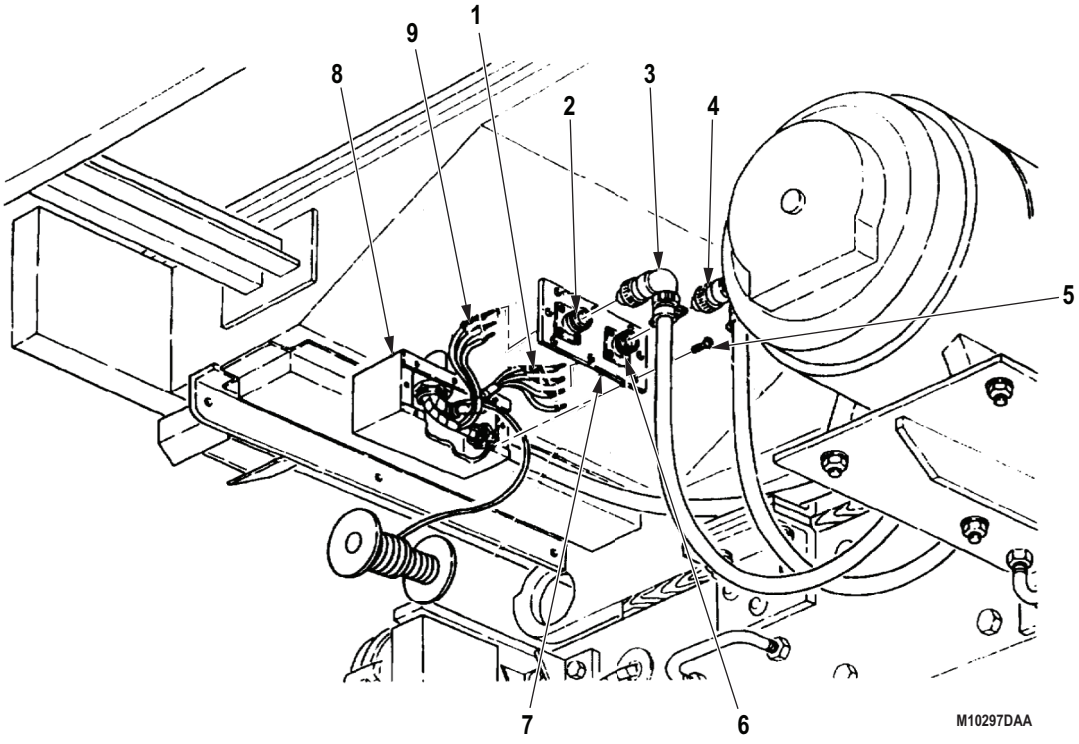


Figure 22. Load Center Box.

INSTALLATION - Continued

15. Install wires (Figure 23, Items 6 and 7) and right 10 kW electric heater wiring harness (Figure 23, Item 1) on circuit breaker (Figure 23, Item 3) in load center (Figure 23, Item 4) and neutral buss bar (Figure 23, Item 2) with screws (Figure 23, Items 5 and 8).

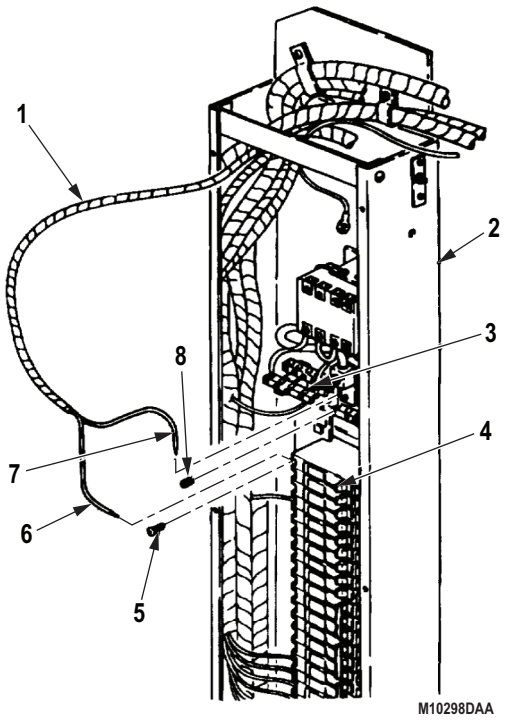


Figure 23. Load Center Box.

INSTALLATION - Continued

16. Install wire (Figure 24, Item 6), three wires (Figure 24, Item 5), and left electric heater wiring harness (Figure 24, Item 1) on neutral buss bar (Figure 24, Item 2) and circuit breakers (Figure 24, Item 3) with screw (Figure 24, Item 7) and three screws (Figure 24, Item 4).

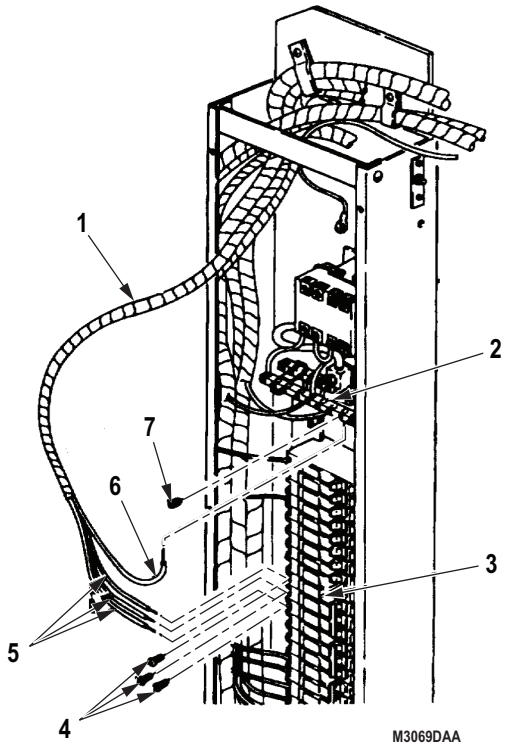


Figure 24. Load Center Box.

INSTALLATION - Continued

17. Install three wires (Figure 25, Item 9) and air conditioner wiring harness (Figure 25, Item 10) in load center (Figure 25, Item 6) and on circuit breaker (Figure 25, Item 7) with three screws (Figure 25, Item 8).
18. Install cable assembly (Figure 25, Item 3), ground cable (Figure 25, Item 2), and cable (Figure 25, Item 9) on load center (Figure 25, Item 6) with screw (Figure 25, Item 5), washers (Figure 25, Items 4 and 12), and nut (Figure 25, Item 1).

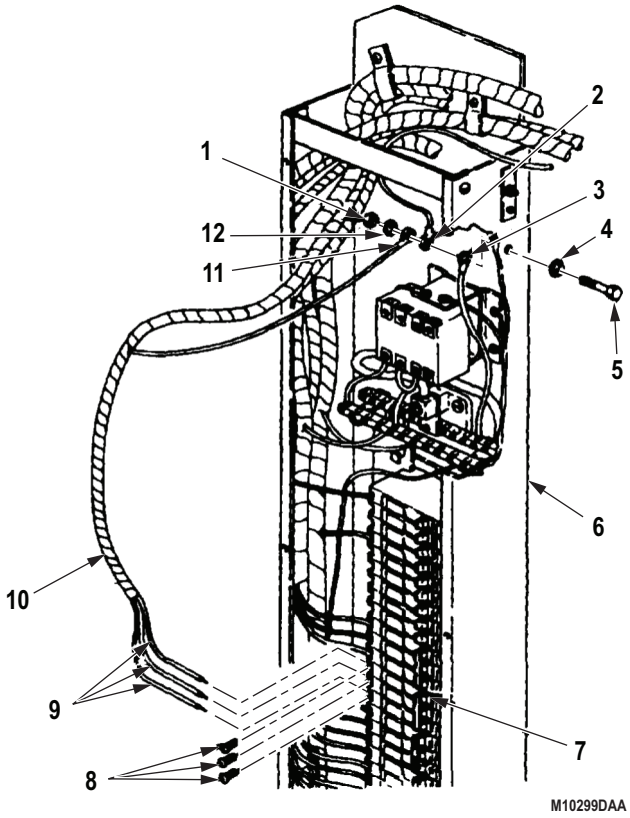


Figure 25. Load Center Box.

INSTALLATION - Continued

19. Install wires (Figure 26, Items 6, 7, and 9), and blackout bypass wiring harness (Figure 26, Item 1) in load center (Figure 26, Item 3) and on relay (Figure 26, Item 2) and circuit breaker (Figure 26, Item 4) with two screws (Figure 26, Item 8) and screw (Figure 26, Item 5).

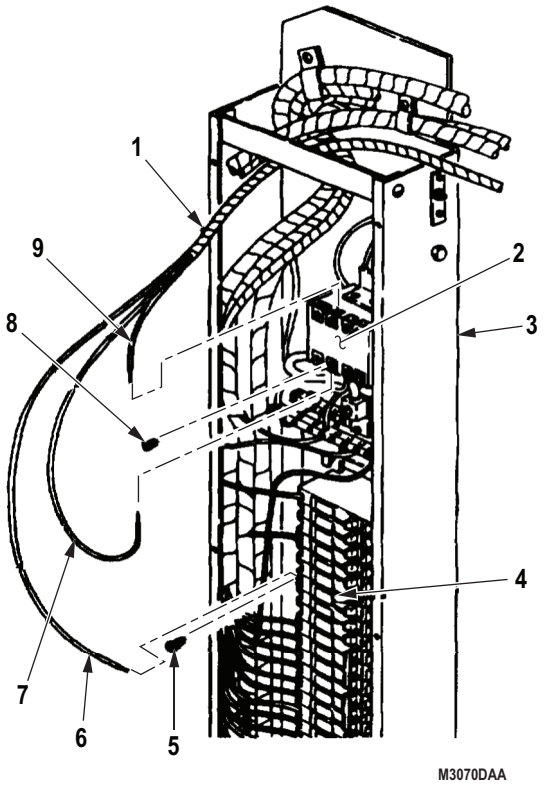


Figure 26. Load Center Box.

INSTALLATION - Continued

20. Position left main wiring harness (Figure 27, Item 1) on load center (Figure 27, Item 3).
21. Install two wires (Figure 27, Item 13) on circuit breaker (Figure 27, Item 5) with screw (Figure 27, Item 10).
22. Install two wires (Figure 27, Item 12) on circuit breaker (Figure 27, Item 6) with screw (Figure 27, Item 9).
23. Install wire (Figure 27, Item 11) on circuit breaker (Figure 27, Item 7) with screw (Figure 27, Item 8).
24. Install wire (Figure 27, Item 15) on neutral buss bar (Figure 27, Item 4) with screw (Figure 27, Item 14).
25. Install three wires (Figure 27, Item 17) on relay (Figure 27, Item 2) with three screws (Figure 27, Item 16).

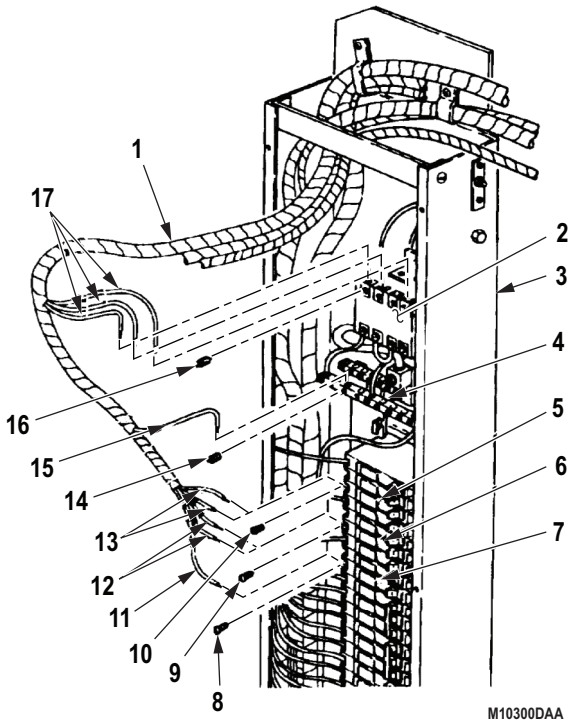


Figure 27. Load Center Box.

INSTALLATION - Continued

26. Install two wires (Figure 28, Items 13 and 14), wire (Figure 28, Item 12), right main wiring harness (Figure 28, Item 18), clamp (Figure 28, Item 2), and screw (Figure 28, Item 1) in load center (Figure 28, Item 4) and on three circuit breakers (Figure 28, Items 6, 7, and 8) with three screws (Figure 28, Items 9, 10, and 11).
27. Install wire (Figure 28, Item 16) on neutral buss bar (Figure 28, Item 5) with screw (Figure 28, Item 15).
28. Install three wires (Figure 28, Item 21) on relay (Figure 28, Item 3) with three screws (Figure 28, Item 17).
29. Install cover (Figure 28, Item 20) on load center (Figure 28, Item 4) with six screws (Figure 28, Item 19).

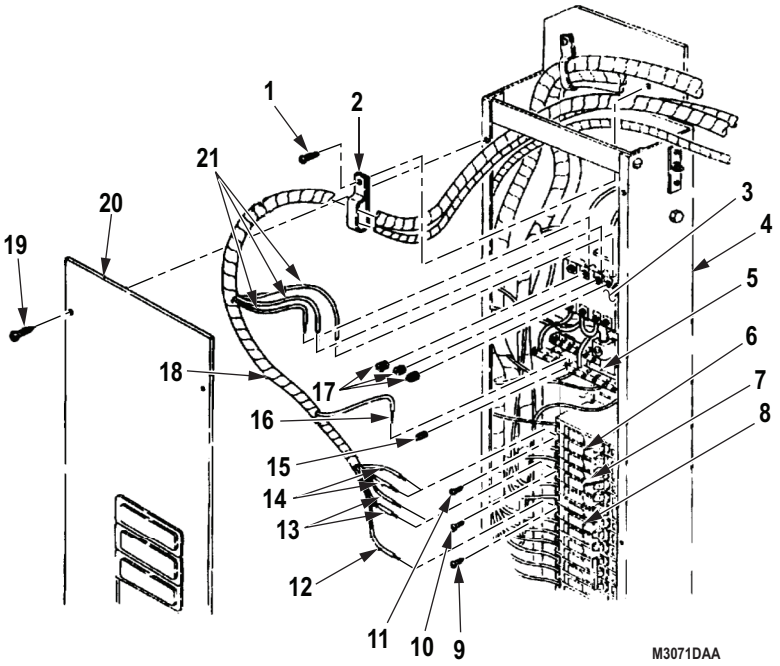


Figure 28. Load Center Box.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Connect battery ground cables. (Volume 2, WP 0350)
2. Connect external power source. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
ELECTRICAL BOX REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Volume 5, WP 0826, Table 1, Item 56)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

Equipment Condition (cont.)
Battery ground cables disconnected. (Volume 2, WP 0350)
Entrance receptacle 220V 3-phase harness removed. (WP 0637)

REMOVAL

1. Remove electrical box (Figure 1, Item 5) from van body end panel (Figure 1, Item 2).
2. Remove six screws (Figure 1, Item 7) and bracket (Figure 1, Item 1) from electrical box (Figure 1, Item 5).
3. Remove grommet (Figure 1, Item 6) from electrical box (Figure 1, Item 5).
4. Remove screw (Figure 1, Item 3) and plate (Figure 1, Item 4) from electrical box (Figure 1, Item 5).

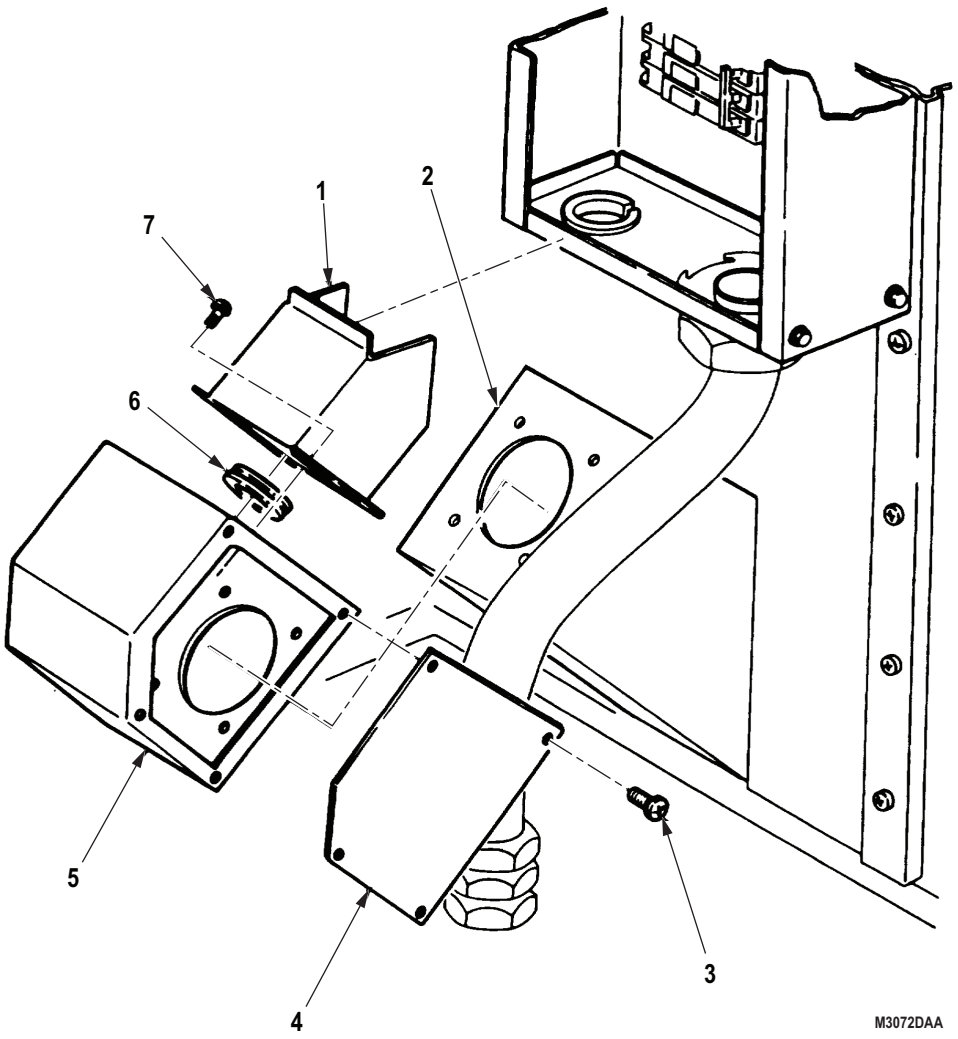


Figure 1. Electrical Box Removal.

END OF TASK

INSPECTION

Inspect all parts for damage. Replace damaged parts.

END OF TASK

INSTALLATION

1. Install plate (Figure 2, Item 4) on electrical box (Figure 2, Item 5) with screw (Figure 2, Item 3).
2. Install grommet (Figure 2, Item 6) on electrical box (Figure 2, Item 5).
3. Install bracket (Figure 2, Item 1) on electrical box (Figure 2, Item 5) with six screws (Figure 2, Item 7).
4. Position electrical box (Figure 2, Item 5) on van body end panel (Figure 2, Item 2).

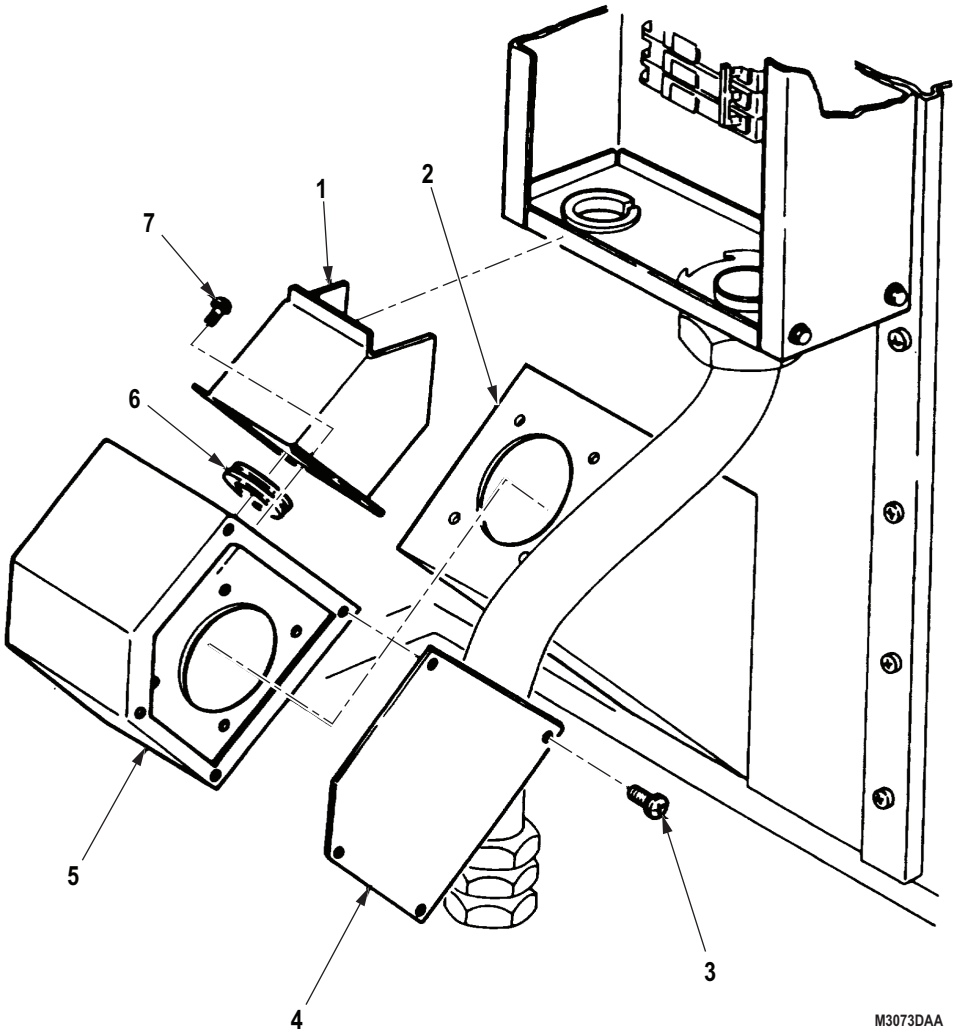


Figure 2. Electrical Box Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install entrance receptacle 220V 3-phase harness. (WP 0637)
2. Connect battery ground cables. (Volume 2, WP 0350)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
ELECTRICAL JUNCTION BOX REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Sealing Compound
(Volume 5, WP 0825, Table 1, Item 60)
Locknut (Volume 5, WP 0827, Table 1, Item 321)
Qty: 8

References
TM 9-237

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Battery ground cables disconnected.
(Volume 2, WP 0350)

REMOVAL

1. Remove two cables (Figure 1, Item 5) from connectors (Figure 1, Item 3).
2. Remove eight screws (Figure 1, Item 6) and cover (Figure 1, Item 7) from junction box (Figure 1, Item 9).

NOTE

Tag wires for installation.

3. Remove harness leads (Figure 1, Items 1 and 8) from two connectors (Figure 1, Item 3) (TM 9-237).
4. Remove eight locknuts (Figure 1, Item 2), screws (Figure 1, Item 4), and two connectors (Figure 1, Item 3) from cover (Figure 1, Item 7). Discard locknuts.

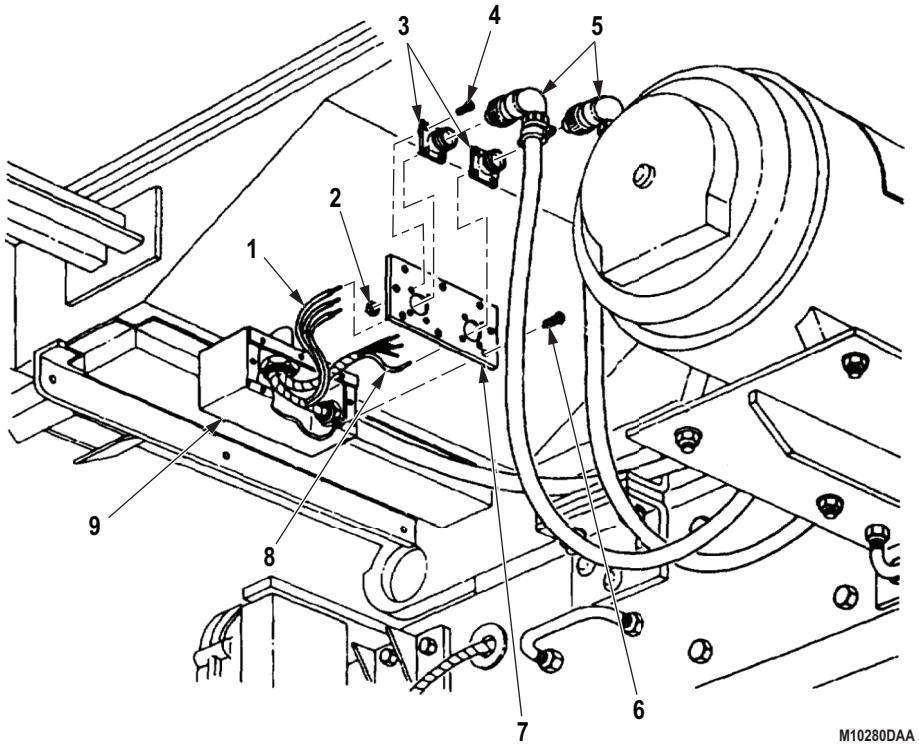


Figure 1. Electrical Junction Box Removal.

REMOVAL - Continued

5. Remove special nut (Figure 2, Item 7), nut (Figure 2, Item 9), adapter (Figure 2, Item 6), and nut (Figure 2, Item 5) from junction box (Figure 2, Item 8).
6. Remove junction box (Figure 2, Item 8) from conduits (Figure 2, Items 2 and 4) and slide off wires (Figure 2, Items 1 and 3).

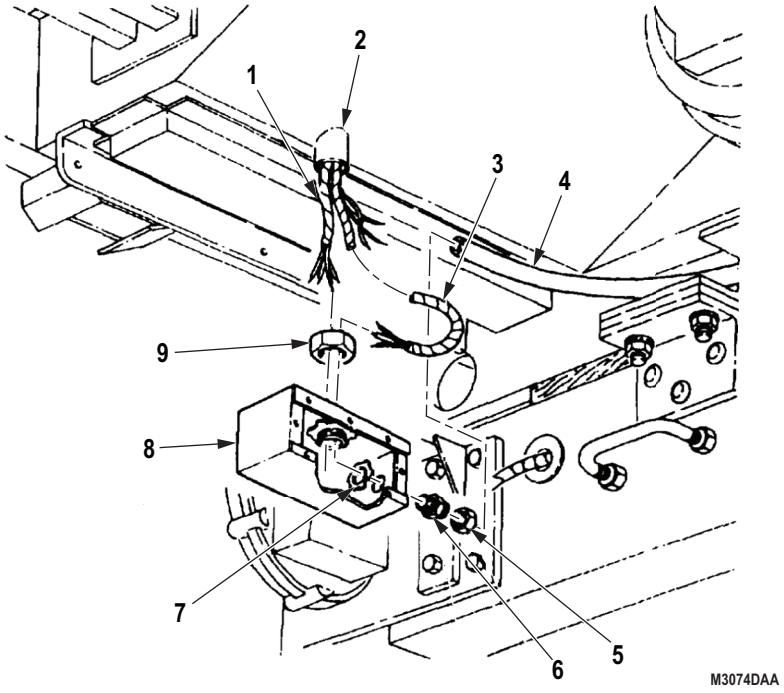


Figure 2. Electrical Junction Box Removal.

END OF TASK

INSTALLATION

1. Place nut (Figure 3, Item 9) on conduit (Figure 3, Item 2).
2. Feed harness leads (Figure 3, Items 1 and 3) through holes in junction box (Figure 3, Item 8).
3. Position junction box (Figure 3, Item 8) on conduits (Figure 3, Items 2 and 4).
4. Install nut (Figure 3, Item 9) on junction box (Figure 3, Item 8).
5. Feed conduit (Figure 3, Item 4) through nut (Figure 3, Item 5), adapter (Figure 3, Item 6), junction box (Figure 3, Item 8), and special nut (Figure 3, Item 7).
6. Install special nut (Figure 3, Item 7) on junction box (Figure 3, Item 8).

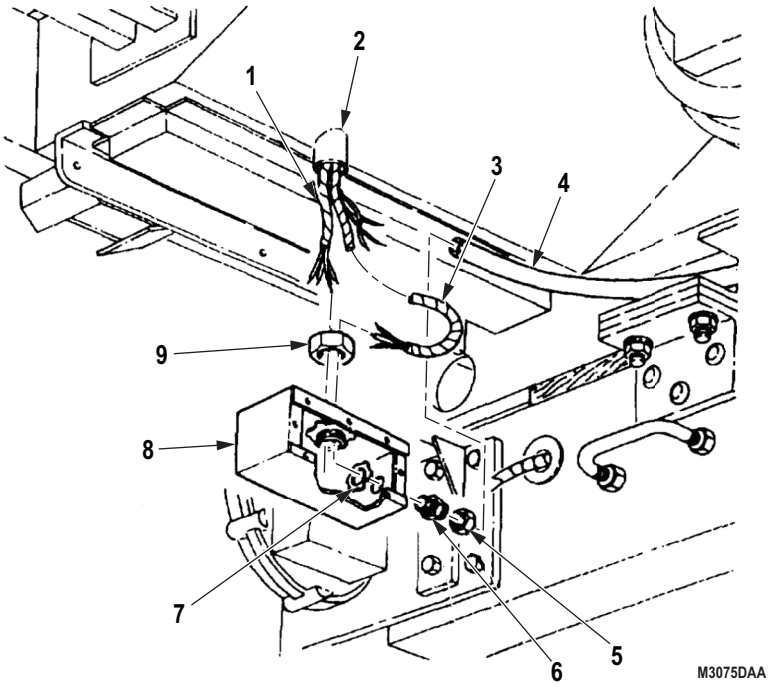


Figure 3. Electrical Junction Box Installation.

INSTALLATION - Continued

7. Install two connectors (Figure 4, Item 3) on cover (Figure 4, Item 7) with eight screws (Figure 4, Item 4) and locknuts (Figure 4, Item 2).
8. Connect harness leads (Figure 4, Items 1 and 8) to two connectors (Figure 4, Item 3) (TM 9-237).
9. Coat edge of cover (Figure 4, Item 7) with sealing compound and install cover (Figure 4, Item 7) on junction box (Figure 4, Item 9) with eight screws (Figure 4, Item 6).
10. Connect two cables (Figure 4, Item 5) to connectors (Figure 4, Item 3).

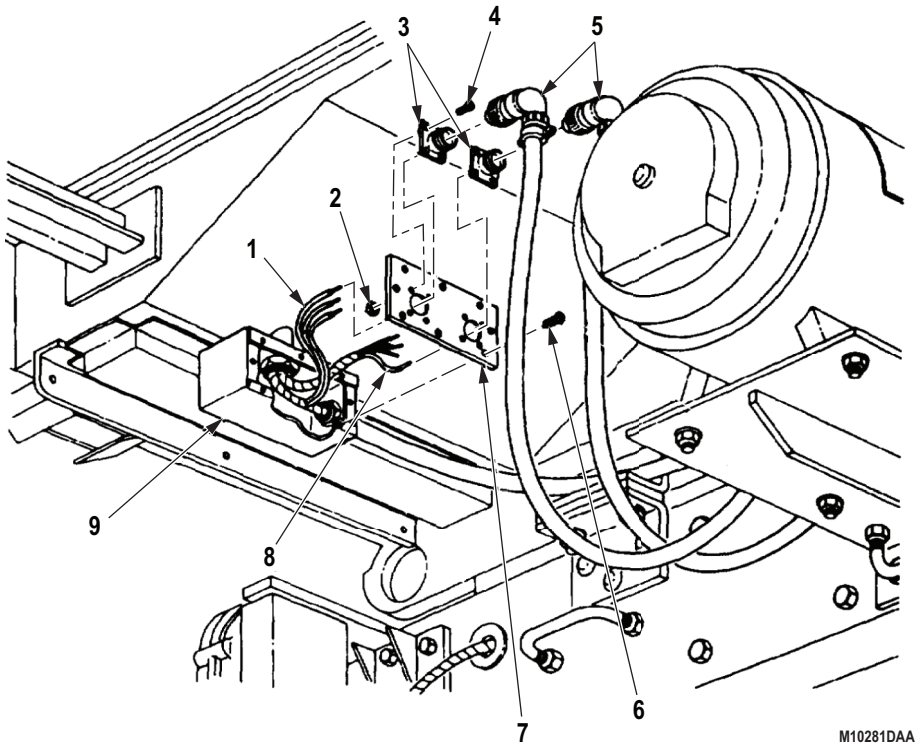


Figure 4. Electrical Junction Box Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

Connect battery ground cables. (Volume 2, WP 0350)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
400 HZ CONVERTER HARNESS CONDUIT REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

Equipment Condition (cont.)
Battery ground cables disconnected.
(Volume 2, WP 0350)
Electrical junction box removed. (WP 0641)

REMOVAL

1. Remove six screws (Figure 1, Item 2) and clamps (Figure 1, Item 3) from conduits (Figure 1, Items 4 and 7).
2. Remove nuts (Figure 1, Items 5 and 8) and coupling (Figure 1, Item 1) from conduits (Figure 1, Items 4 and 7).
3. Remove conduits (Figure 1, Items 4 and 7) from van body (Figure 1, Item 6).

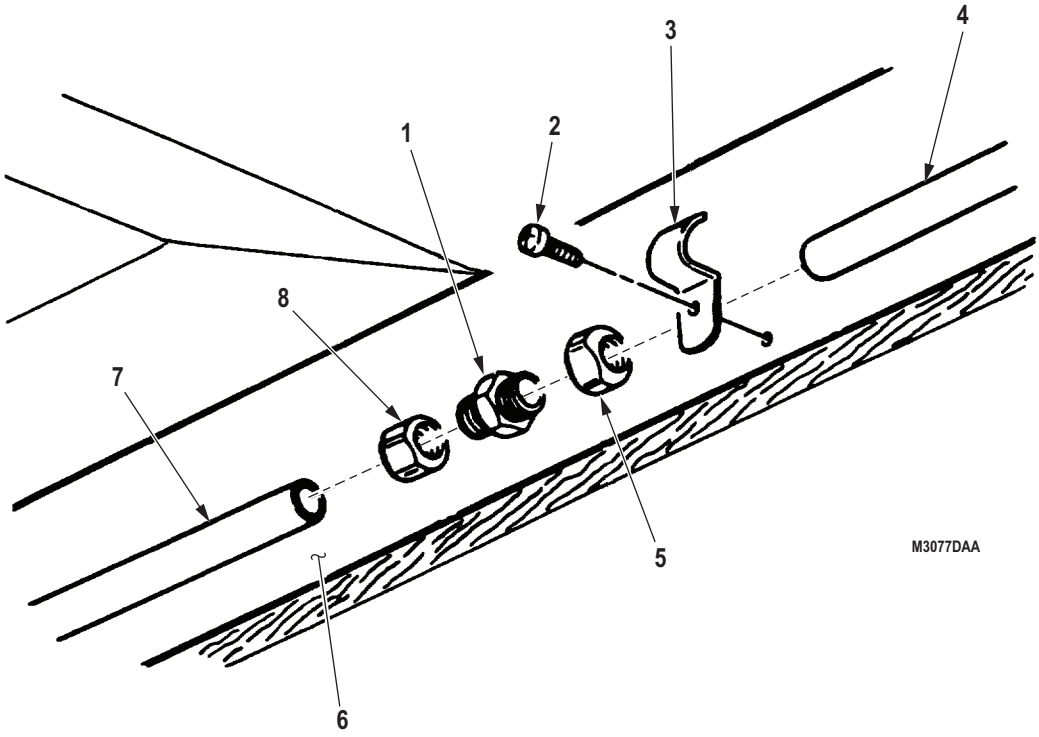


Figure 1. Converter Harness Conduit Removal.

END OF TASK

INSTALLATION

1. Install nuts (Figure 2, Items 5 and 8) and coupling (Figure 2, Item 1) on conduits (Figure 2, Items 4 and 7).
2. Install conduits (Figure 2, Items 4 and 7) on van body (Figure 2, Item 6) with six clamps (Figure 2, Item 3) and screws (Figure 2, Item 2).

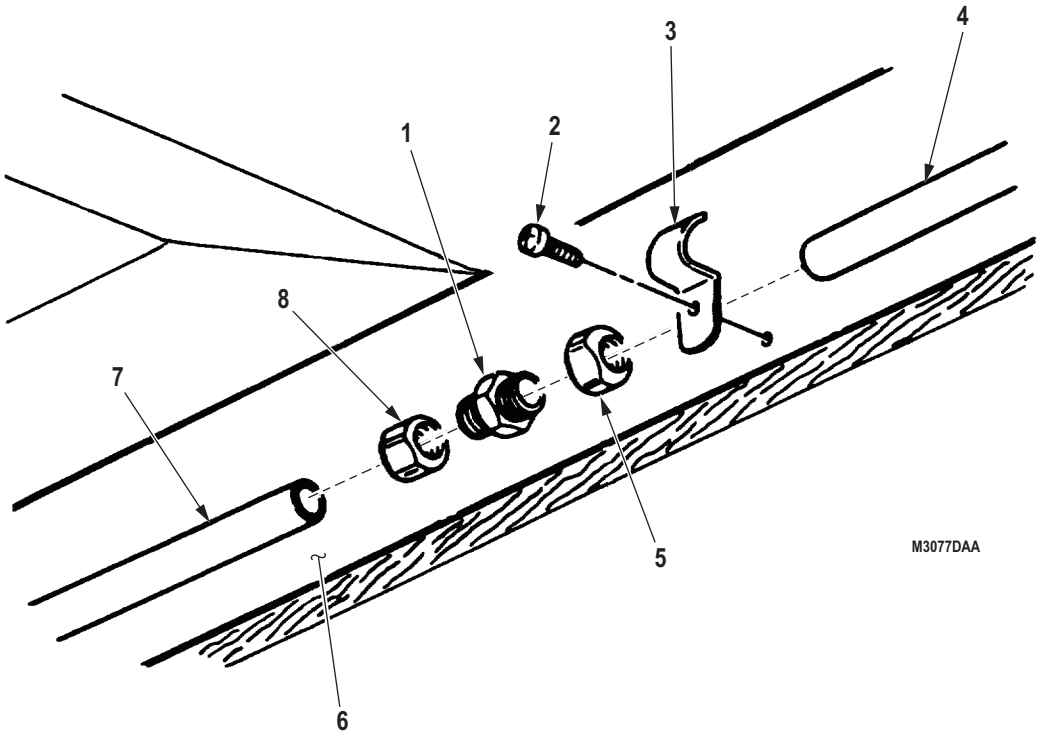


Figure 2. Converter Harness Conduit Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install electrical junction box. (WP 0641)
2. Connect battery ground cables. (Volume 2, WP 0350)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
HEATER THERMOSTAT AND 10 KW HEATER THERMOSTAT REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)
Tool Kit, Electrical Contact
(Volume 5, WP 0826, Table 1, Item 55)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Battery ground cables disconnected.
(Volume 2, WP 0350)

HEATER THERMOSTAT REMOVAL

1. Remove cover (Figure 1, Item 3) from thermostat (Figure 1, Item 5).
2. Remove two screws (Figure 1, Item 4) and thermostat (Figure 1, Item 5) from control center box cover (Figure 1, Item 1).
3. Remove two screws (Figure 1, Item 6) and wires (Figure 1, Item 2) from thermostat (Figure 1, Item 5).
4. Remove thermostat (Figure 1, Item 5) from control center box cover (Figure 1, Item 1).

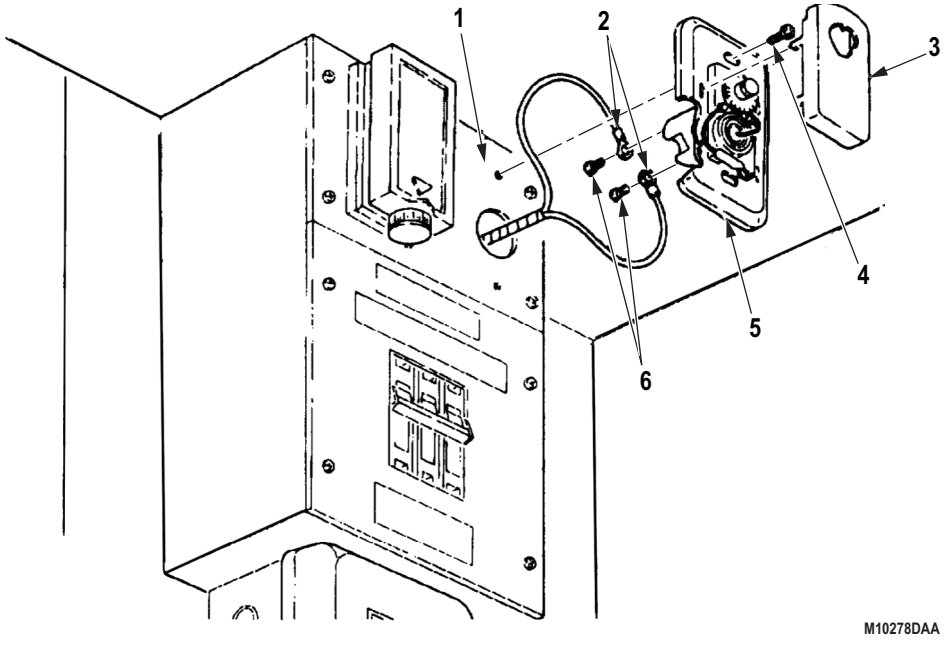


Figure 1. Heater Thermostat and 10 KW Heater Thermostat and 10 KW Heater Thermostat Removal.

END OF TASK

10 KW HEATER THERMOSTAT REMOVAL

1. Remove cover (Figure 2, Item 5) from thermostat (Figure 2, Item 3).
2. Remove two screws (Figure 2, Item 4) and thermostat (Figure 2, Item 3) from control center box cover (Figure 2, Item 7).
3. Disconnect three insulated wire splices (Figure 2, Item 6) from three wires (Figure 2, Items 2 and 1). Discard insulated wire splices.
4. Remove thermostat (Figure 2, Item 3) from control center box cover (Figure 2, Item 7).

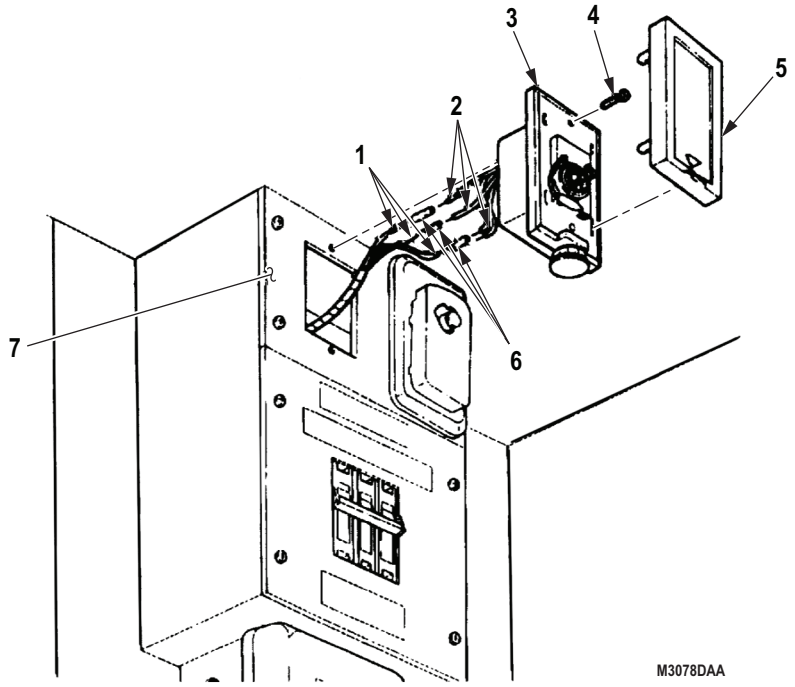


Figure 2. Heater Thermostat and 10 KW Heater Thermostat and 10 KW Heater Thermostat Removal.

END OF TASK

10 KW HEATER THERMOSTAT INSTALLATION

1. Connect three wires (Figure 3, Items 1 and 2) with three insulated wire splices (Figure 3, Item 6).
2. Position thermostat (Figure 3, Item 3) on control center box cover (Figure 3, Item 7) and install two screws (Figure 3, Item 4).
3. Install cover (Figure 3, Item 5) on thermostat (Figure 3, Item 3).

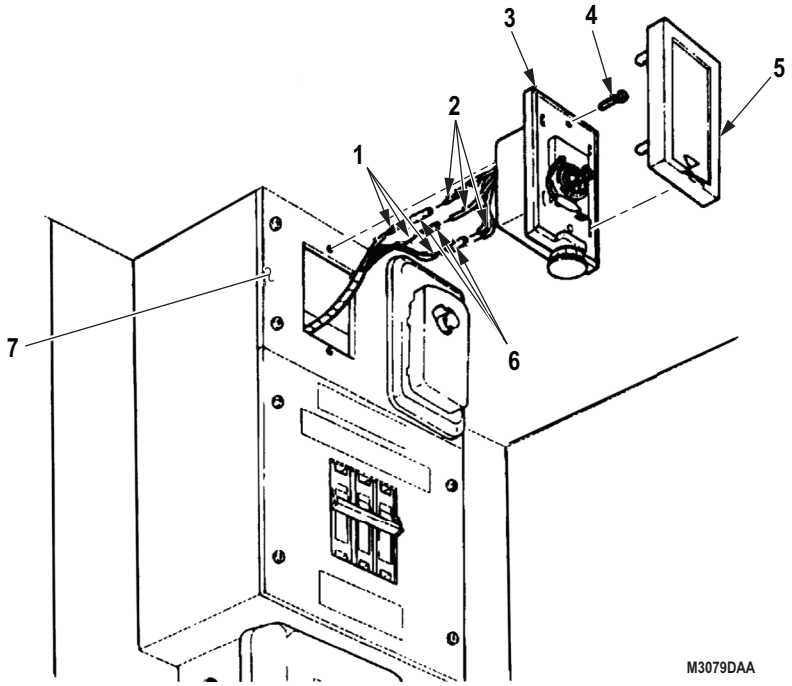


Figure 3. Heater Thermostat and 10 KW Heater Thermostat.

END OF TASK

HEATER THERMOSTAT INSTALLATION

1. Install two wires (Figure 4, Item 2) on thermostat (Figure 4, Item 5) with two screws (Figure 4, Item 6).
2. Position thermostat (Figure 4, Item 5) on control center box cover (Figure 4, Item 1) and install two screws (Figure 4, Item 4).
3. Install cover (Figure 4, Item 3) on thermostat (Figure 4, Item 5).

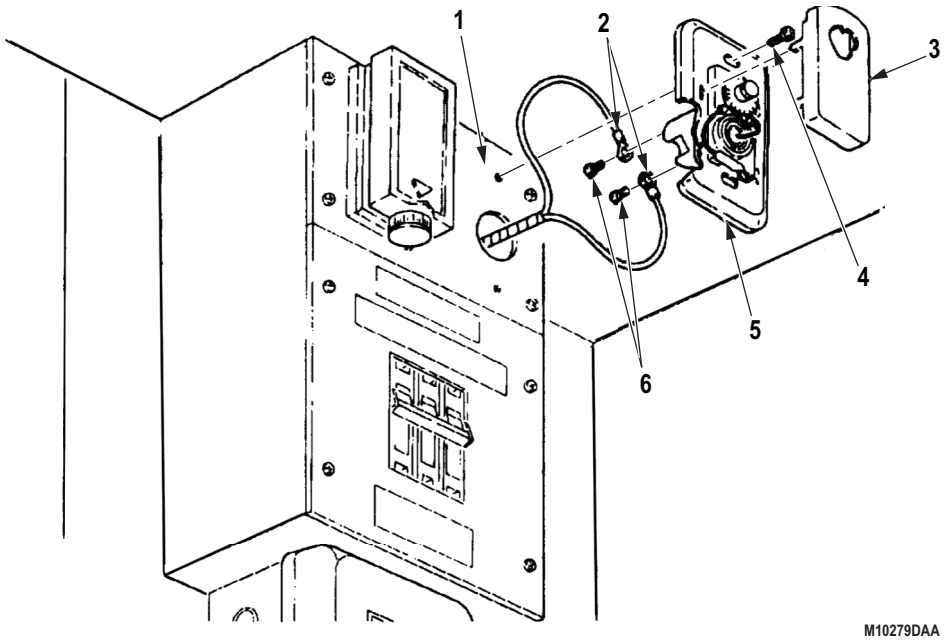


Figure 4. Heater Thermostat and 10 KW Heater Thermostat Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

Connect battery ground cables. (Volume 2, WP 0350)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
BLACKOUT AND EMERGENCY LIGHT FIXTURES REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

Equipment Condition (cont.)
Battery ground cables disconnected.
(Volume 2, WP 0350)
Emergency and blackout lamps removed.
(WP 0624)

REMOVAL

1. Remove four screws (Figure 1, Item 5) and housing (Figure 1, Item 4) from van ceiling (Figure 1, Item 6).
2. Remove four screws (Figure 1, Item 2), two jumper cables (Figure 1, Item 3), and wiring harness (Figure 1, Item 1) from housing (Figure 1, Item 4).

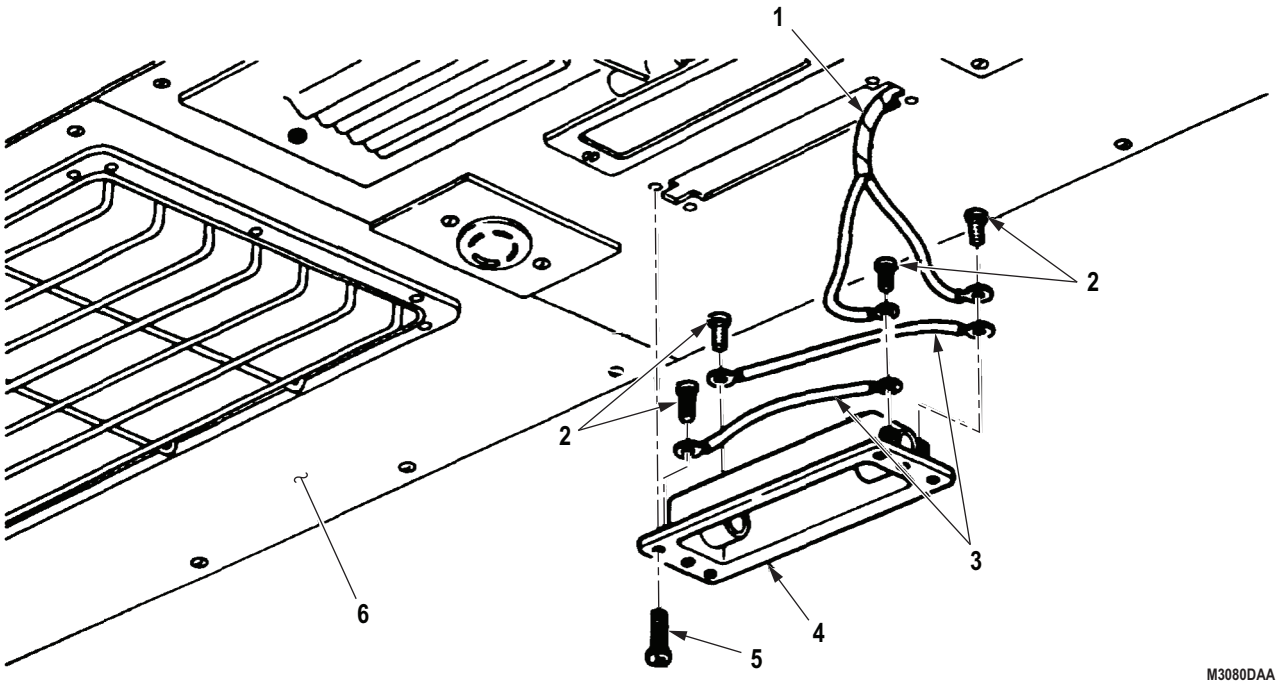


Figure 1. Blackout and Emergency Light Fixtures Removal.

END OF TASK

INSTALLATION

1. Install two jumper cables (Figure 2, Item 3) and wiring harness (Figure 2, Item 1) on housing (Figure 2, Item 4) with four screws (Figure 2, Item 2).
2. Install housing (Figure 2, Item 4) on van ceiling (Figure 2, Item 6) with four screws (Figure 2, Item 5).

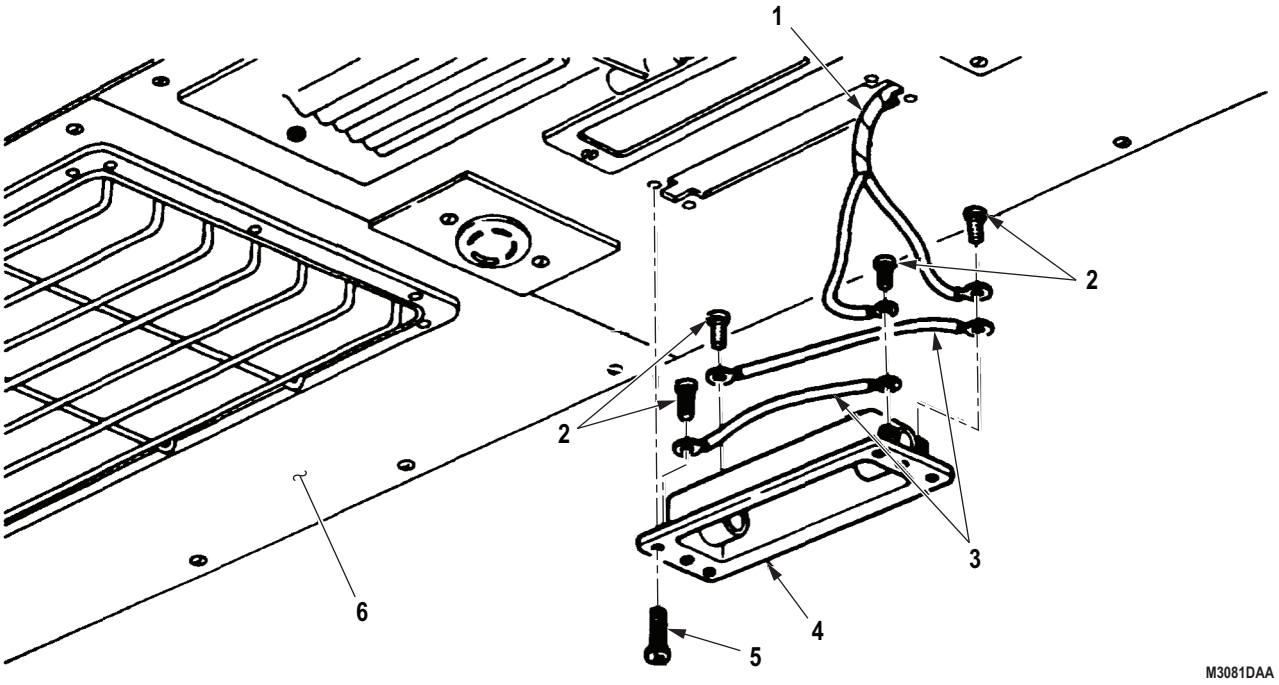


Figure 2. Blackout and Emergency Light Fixtures Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install emergency and blackout lamps. (WP 0624)
2. Connect battery ground cables. (Volume 2, WP 0350)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
AIR CONDITIONER MANUAL STARTER SWITCHES REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)
Tool Kit, Electrical Contact
(Volume 5, WP 0826, Table 1, Item 55)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Battery ground cables disconnected.
(Volume 2, WP 0350)

REMOVAL

NOTE

Tag wires for installation.

1. Remove covers (Figure 1, Items 4 and 6) from air conditioner starter switch boxes (Figure 1, Items 7 and 8).
2. Remove six wires (Figure 1, Item 2) from six insulated wire splices (Figure 1, Item 1). Discard insulated wire splices.
3. Remove six wires (Figure 1, Item 3) from six insulated wire splices (Figure 1, Item 5). Discard insulated wire splices.

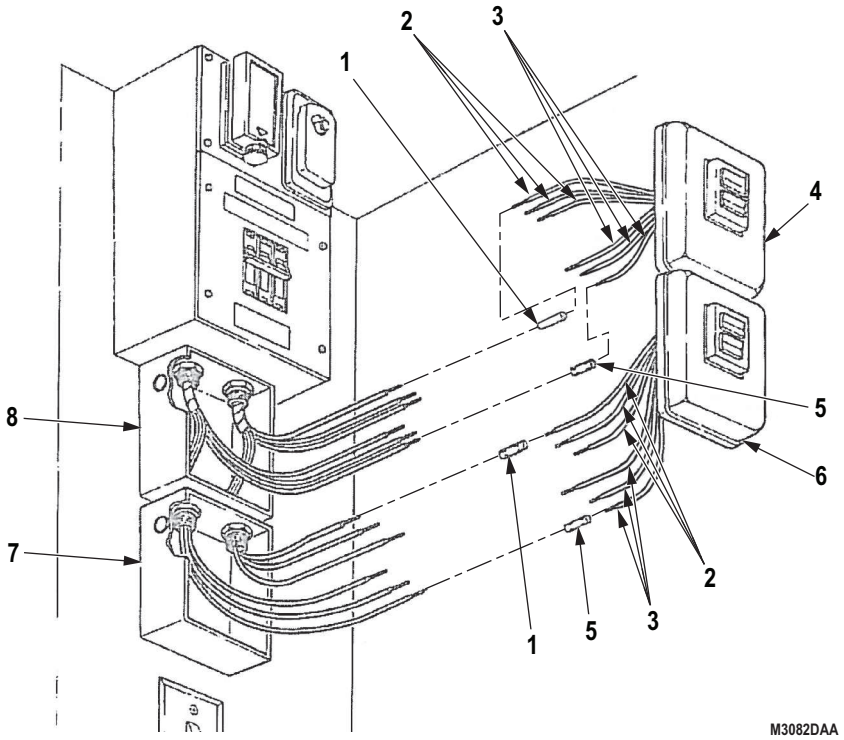


Figure 1. Air Conditioner Replacement.

REMOVAL - Continued

4. Remove two nuts (Figure 2, Item 2) from two connectors (Figure 2, Item 10).
5. Remove two nuts (Figure 2, Item 3) from two connectors (Figure 2, Item 5).
6. Remove two nuts (Figure 2, Item 6) from two connectors (Figure 2, Item 5).
7. Remove four screws (Figure 2, Item 8), manual starter switch box (Figure 2, Item 7), and two connectors (Figure 2, Item 5) from van body (Figure 2, Item 9).
8. Remove four screws (Figure 2, Item 1) and manual starter switch box (Figure 2, Item 4) from van body (Figure 2, Item 9).

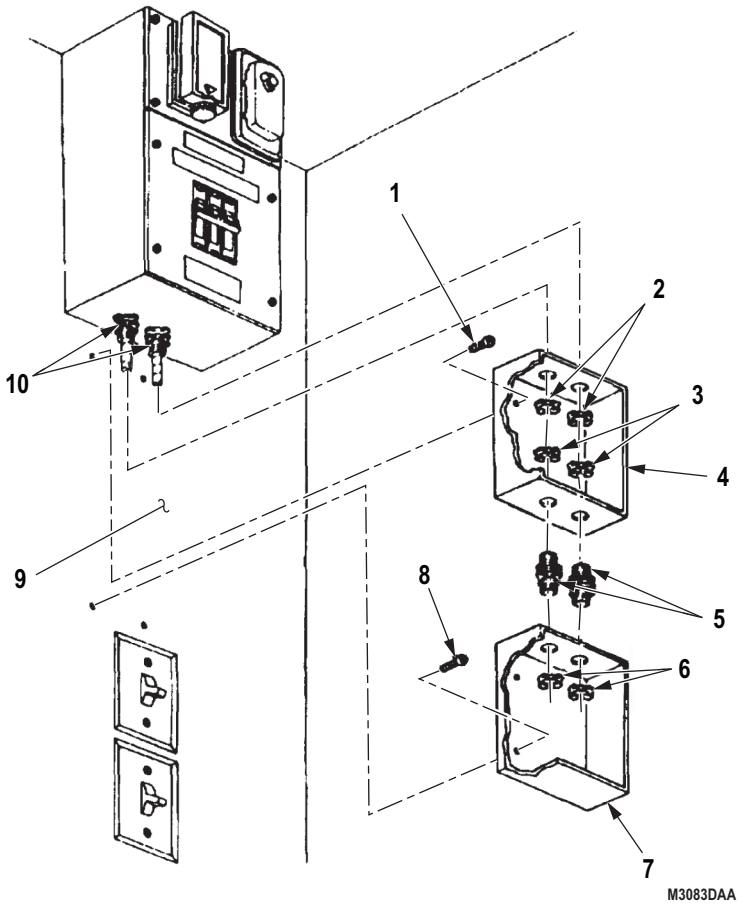


Figure 2. Air Conditioner Switch.

END OF TASK

INSTALLATION

1. Feed three wires (Figure 4, Items 1, 10, 11, and 12) into manual starter switch box (Figure 4, Item 14).
2. Install manual starter switch box (Figure 3, Item 4) on two connectors (Figure 3, Item 10) and van body (Figure 3, Item 9) with four screws (Figure 3, Item 1) and two nuts (Figure 3, Item 2).
3. Install two connectors (Figure 3, Item 5) and manual starter switch box (Figure 3, Item 7) on van body (Figure 3, Item 9) and manual starter switch box (Figure 3, Item 4) with four screws (Figure 3, Item 8) and two nuts (Figure 3, Items 3 and 6).
4. Feed three wires (Figure 4, Items 11 and 12) through two connectors (Figure 3, Item 5) and manual starter switch box (Figure 3, Item 7).

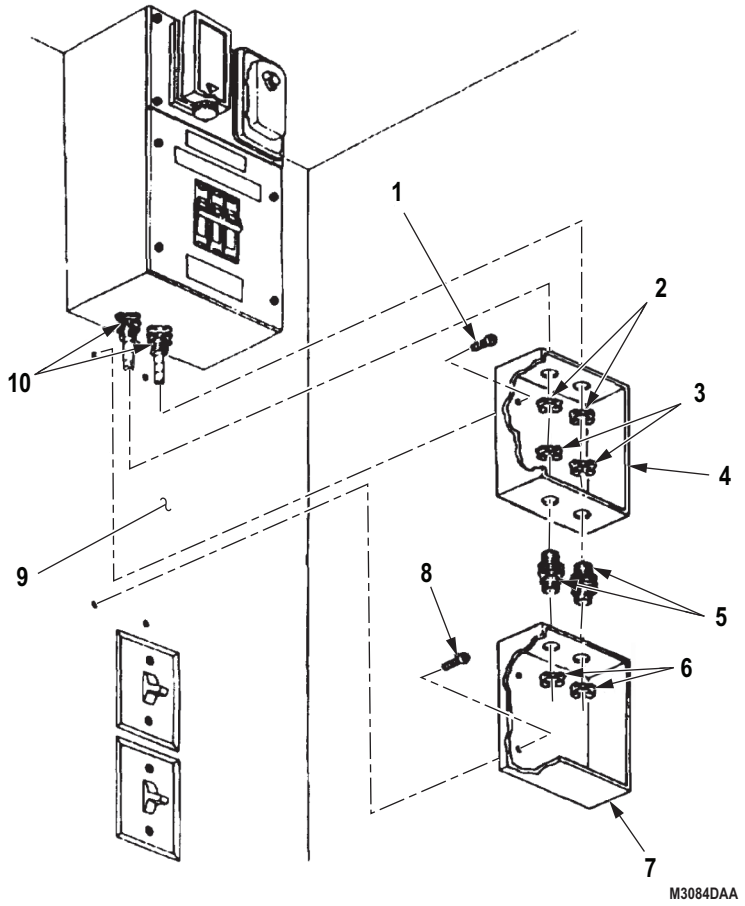


Figure 3. Air Conditioner Switch.

INSTALLATION - Continued

5. Connect six wires (Figure 4, Items 1 and 10) to six switch leads (Figure 4, Items 2 and 3) with six insulated wire splices (Figure 4, Item 5).
6. Connect six wires (Figure 4, Items 11 and 12) to six switch leads (Figure 4, Items 7 and 8) with six insulated wire splices (Figure 4, Item 9).
7. Install covers (Figure 4, Items 4 and 6) on air conditioner starter switch boxes (Figure 4, Items 13 and 14).

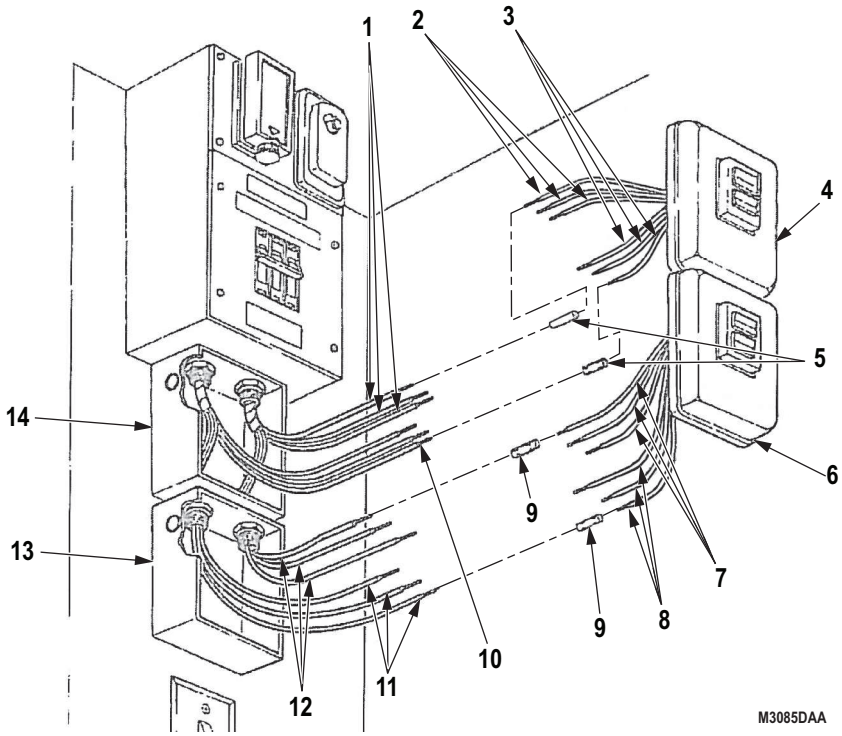


Figure 4. Air Conditioner Switch.

END OF TASK

FOLLOW-ON MAINTENANCE

Connect battery ground cables. (Volume 2, WP 0350)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
FLUORESCENT LIGHT FIXTURES REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)
Tool Kit, Electrical Contact
(Volume 5, WP 0826, Table 1, Item 55)

Materials/Parts
Lockwasher
(Volume 5, WP 0827, Table 1, Item 407)
Qty: 1

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

Equipment Condition (cont.)
Battery ground cables disconnected.
(Volume 2, WP 0350)
Fluorescent light tubes removed.
(WP 0623)

REMOVAL

NOTE

All eight fluorescent light fixtures are removed and installed the same way. This procedure covers one fluorescent light fixture.

1. Remove 20 screws (Figure 1, Item 8) and light fixture body (Figure 1, Item 9) from van ceiling (Figure 1, Item 10).
2. Remove nut (Figure 1, Item 7), lockwasher (Figure 1, Item 6), screw (Figure 1, Item 1), and wire (Figure 1, Item 5) from light fixture body (Figure 1, Item 9). Discard lockwasher.
3. Remove two wires (Figure 1, Items 2 and 4) and insulated wire splices (Figure 1, Item 3) from light fixture body (Figure 1, Item 9). Discard insulated wire splices.

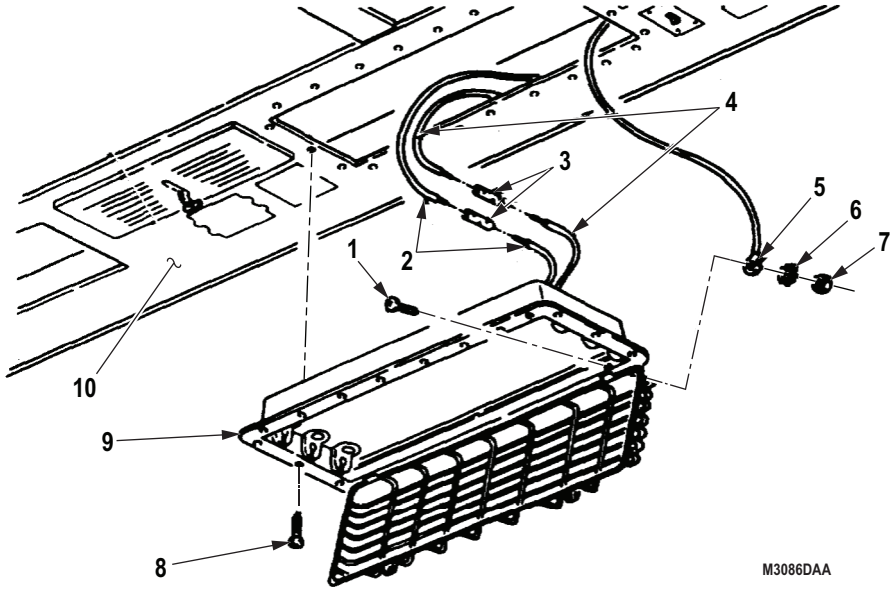


Figure 1. Fluorescent Light.

END OF TASK

INSTALLATION

1. Install wire (Figure 2, Item 5) on light fixture body (Figure 2, Item 9) with nut (Figure 2, Item 7), lockwasher (Figure 2, Item 6), and screw (Figure 2, Item 1).
2. Install two wires (Figure 2, Items 2 and 4) with insulated wire splices (Figure 2, Item 3).
3. Install light fixture body (Figure 2, Item 9) on van ceiling (Figure 2, Item 10) with 20 screws (Figure 2, Item 8).

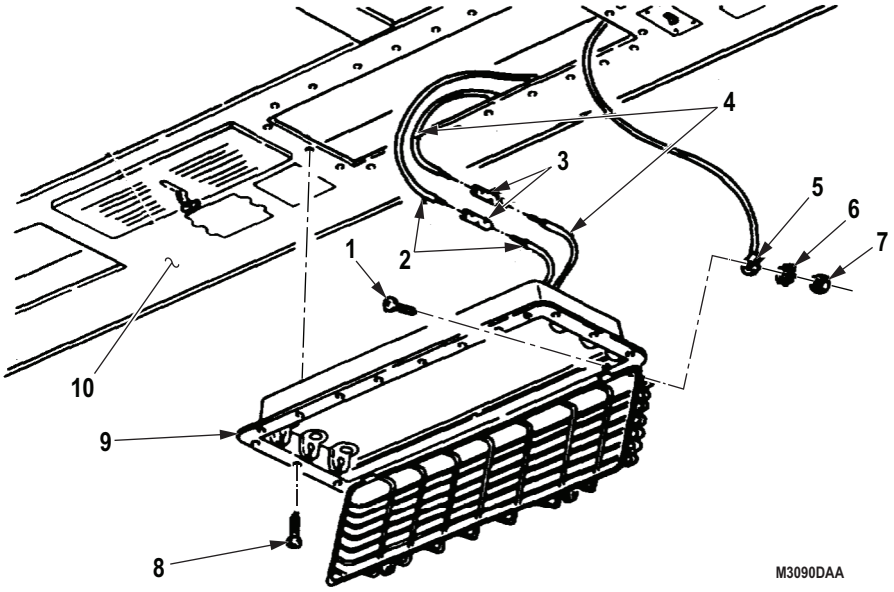


Figure 2. Fluorescent Light.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Connect battery ground cables. (Volume 2, WP 0350)
2. Install fluorescent light tubes. (WP 0623)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
400 HZ CONVERTER REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Gasket
(Volume 5, WP 0827, Table 1, Item 263)
Qty: 1
Locknut (Volume 5, WP 0827, Table 1, Item 276)
Qty: 2
Lockwasher
(Volume 5, WP 0827, Table 1, Item 255)
Qty: 2

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

Equipment Condition (cont.)
Battery ground cables disconnected.
(Volume 2, WP 0350)

REMOVAL

1. Remove four screws (Figure 1, Item 17), cover (Figure 1, Item 18), and gasket (Figure 1, Item 19) from converter (Figure 1, Item 3). Discard gasket.
2. Remove six nuts (Figure 1, Item 1) and wires (Figure 1, Item 2) from converter (Figure 1, Item 3).
3. Remove two lockwashers (Figure 1, Item 16) and wiring harnesses (Figure 1, Items 14 and 15) from converter (Figure 1, Item 3).
4. Remove four nuts (Figure 1, Item 10), washers (Figure 1, Item 11), and screws (Figure 1, Item 4) from support bracket (Figure 1, Item 12).
5. Remove converter (Figure 1, Item 3) from support bracket (Figure 1, Item 12).
6. Remove two locknuts (Figure 1, Item 13), U-bolt (Figure 1, Item 8), and nuts (Figure 1, Item 9) from support bracket (Figure 1, Item 12). Discard locknuts.
7. Remove four nuts (Figure 1, Item 6), screws (Figure 1, Item 7), and support bracket (Figure 1, Item 12) from van body (Figure 1, Item 5).

REMOVAL - Continued

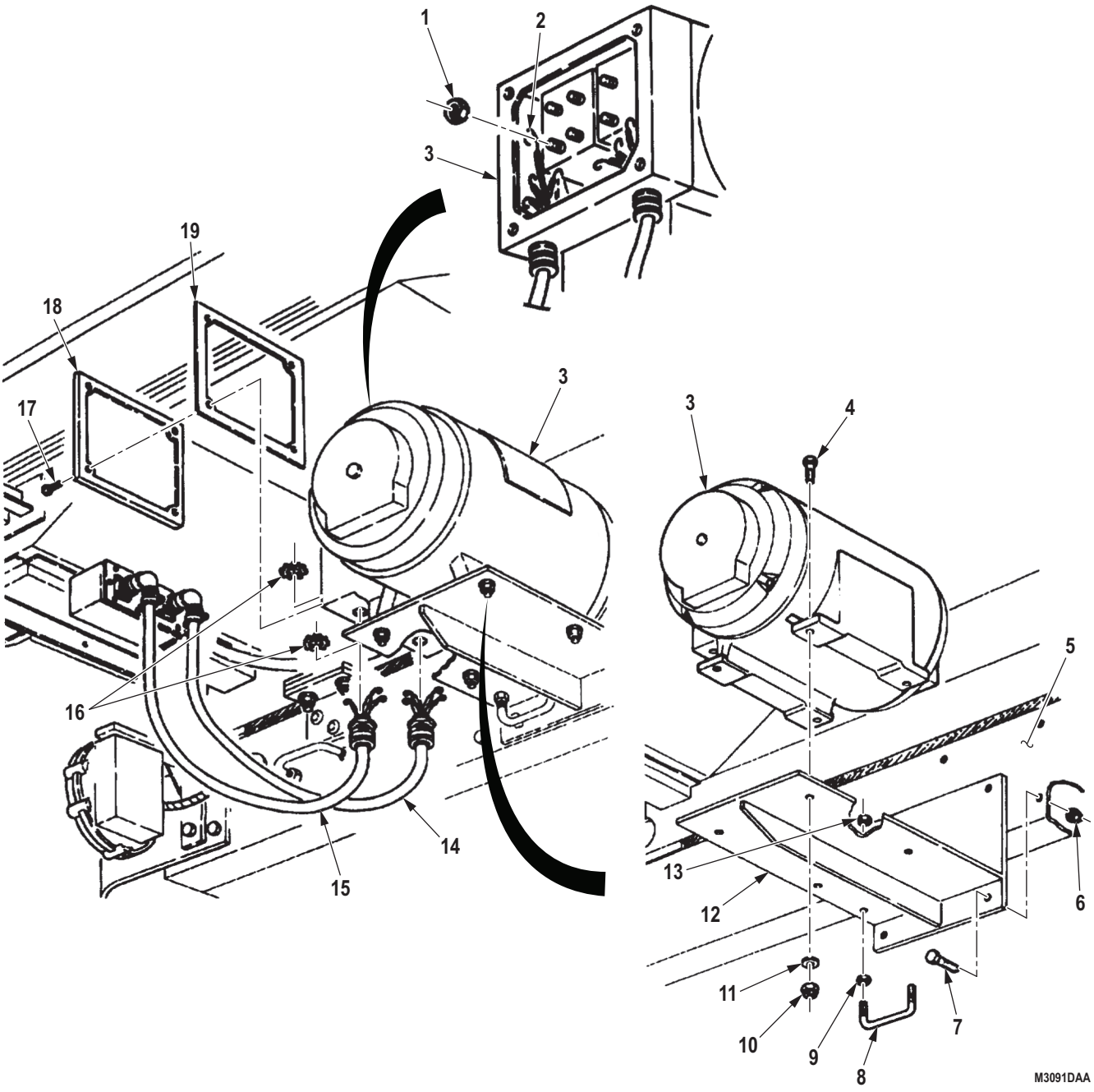


Figure 1. 400 Hz Converter Removal.

END OF TASK

INSTALLATION

1. Install support bracket (Figure 2, Item 12) on van body (Figure 2, Item 5) with four screws (Figure 2, Item 7) and nuts (Figure 2, Item 6).
2. Install two nuts (Figure 2, Item 9) and U-bolt (Figure 2, Item 8) on support bracket (Figure 2, Item 12) with locknuts (Figure 2, Item 13).
3. Install converter (Figure 2, Item 3) on support bracket (Figure 2, Item 12) with four screws (Figure 2, Item 4), washers (Figure 2, Item 11), and nuts (Figure 2, Item 10).
4. Install two wiring harnesses (Figure 2, Items 14 and 15) on converter (Figure 2, Item 3) with two lockwashers (Figure 2, Item 16).
5. Install six wires (Figure 2, Item 2) on converter (Figure 2, Item 3) with six nuts (Figure 2, Item 1).
6. Install gasket (Figure 2, Item 19) and cover (Figure 2, Item 18) on converter (Figure 2, Item 3) with four screws (Figure 2, Item 17).

INSTALLATION - Continued

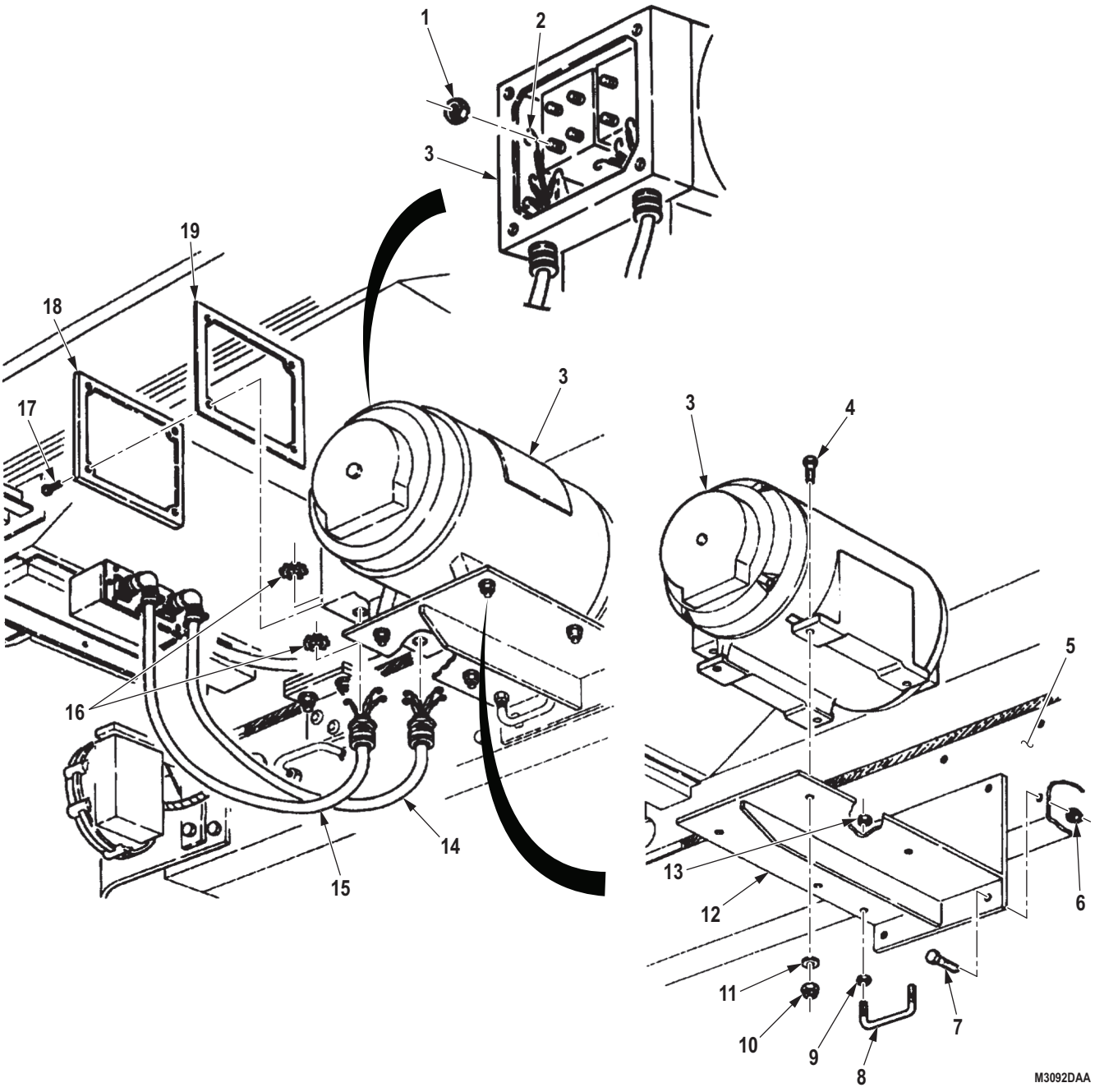


Figure 2. 400 Hz Converter Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

Connect battery ground cables. (Volume 2, WP 0350)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
ELECTRICAL LOAD CENTER CONDUIT REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Sealing Compound
(Volume 5, WP 0825, Table 1, Item 55)

Personnel Required
(2)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

REMOVAL

1. Remove cables (Figure 1, Items 4 and 5) from connectors (Figure 1, Items 3 and 7).
2. Remove eight screws (Figure 1, Item 6) and cover (Figure 1, Item 8) from junction box (Figure 1, Item 9).
3. Disconnect wiring harness (Figure 1, Items 1 and 2) from connectors (Figure 1, Items 3 and 7).

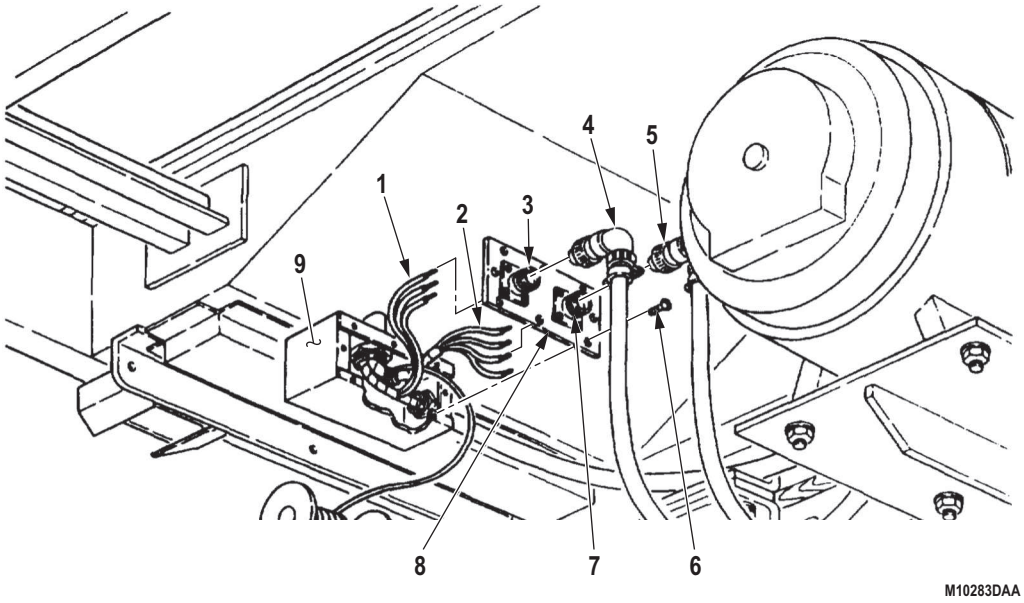


Figure 1. Electrical Load Center Conduit Removal.

REMOVAL - Continued

4. Remove six screws (Figure 2, Item 12) and cover (Figure 2, Item 13) from load center (Figure 2, Item 3).
5. Pull wiring harnesses (Figure 2, Items 1 and 2) from conduit (Figure 2, Item 9) and load center (Figure 2, Item 3).
6. Remove nut (Figure 2, Item 6), coupling (Figure 2, Item 11), and nut (Figure 2, Item 10) from conduit (Figure 2, Item 9) and load center (Figure 2, Item 3).

NOTE

Assistant will help with Step (7).

7. Remove two nuts (Figure 2, Item 7) and coupling (Figure 2, Item 8) from conduits (Figure 2, Items 4 and 9). Remove conduit (Figure 2, Item 9) from van body (Figure 2, Item 5).

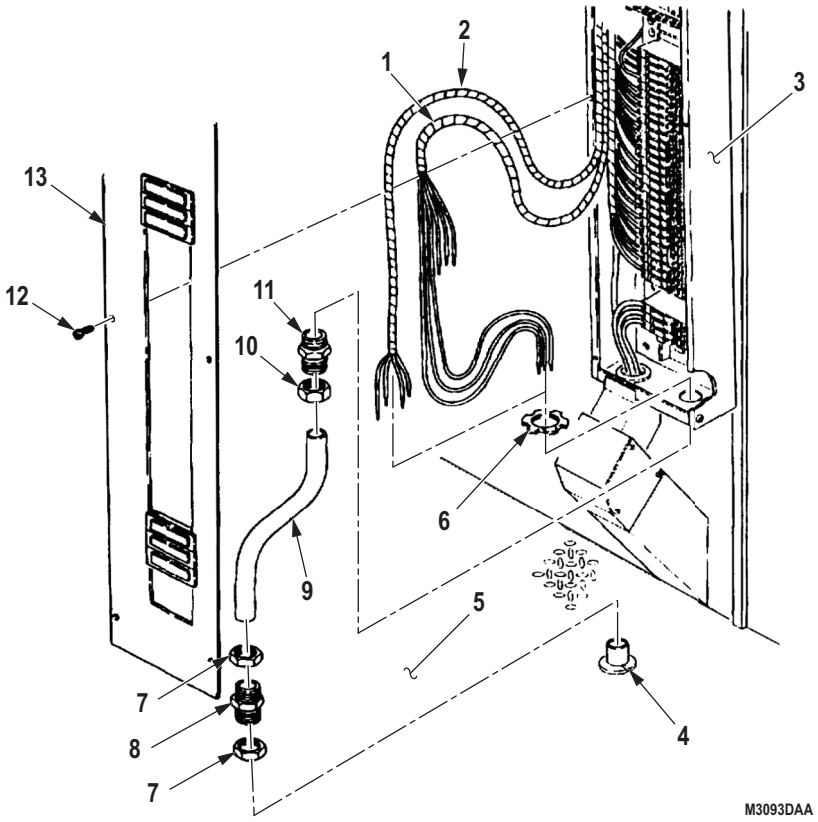


Figure 2. Electrical Load Center Conduit Removal.

END OF TASK

INSTALLATION

1. Position conduit (Figure 3, Item 9) on van body (Figure 3, Item 5).
2. Install coupling (Figure 3, Item 8) on conduits (Figure 3, Items 4 and 9) with two nuts (Figure 3, Item 7).
3. Install coupling (Figure 3, Item 11) on conduit (Figure 3, Item 9) and load center (Figure 3, Item 3) with nut (Figure 3, Items 6 and 10).
4. Route wiring harnesses (Figure 3, Items 1 and 2) through conduit (Figure 3, Item 9) and load center (Figure 3, Item 3).
5. Install cover (Figure 3, Item 13) on load center (Figure 3, Item 3) with six screws (Figure 3, Item 12).

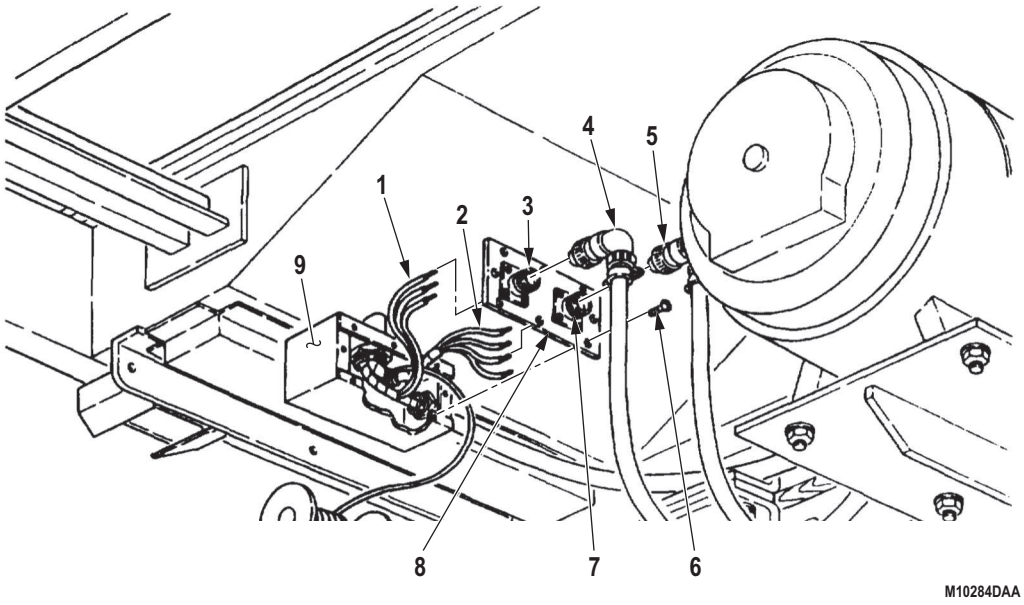


Figure 3. Electrical Load Center Conduit Installation.

INSTALLATION - Continued

6. Connect wiring harnesses (Figure 4, Items 1 and 2) to connectors (Figure 4, Items 3 and 7).

NOTE

Apply sealing compound before performing Step (7).

7. Install cover (Figure 4, Item 8) on junction box (Figure 4, Item 9) with eight screws (Figure 4, Item 6).
8. Install cables (Figure 4, Items 4 and 5) on connectors (Figure 4, Items 3 and 7).

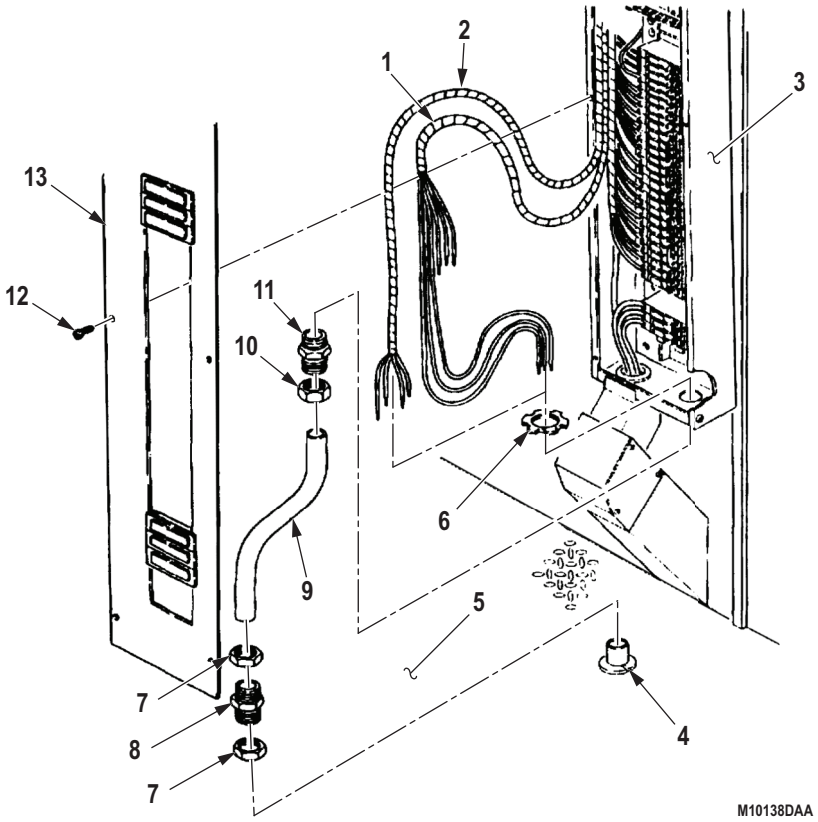


Figure 4. Electrical Load Center Conduit Installation.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
FRONT WALL REGISTERS REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

REMOVAL

NOTE

All four front wall registers are replaced the same way. This procedure covers one register.

Remove four screws (Figure 1, Item 2) and register (Figure 1, Item 3) from front wall (Figure 1, Item 1).

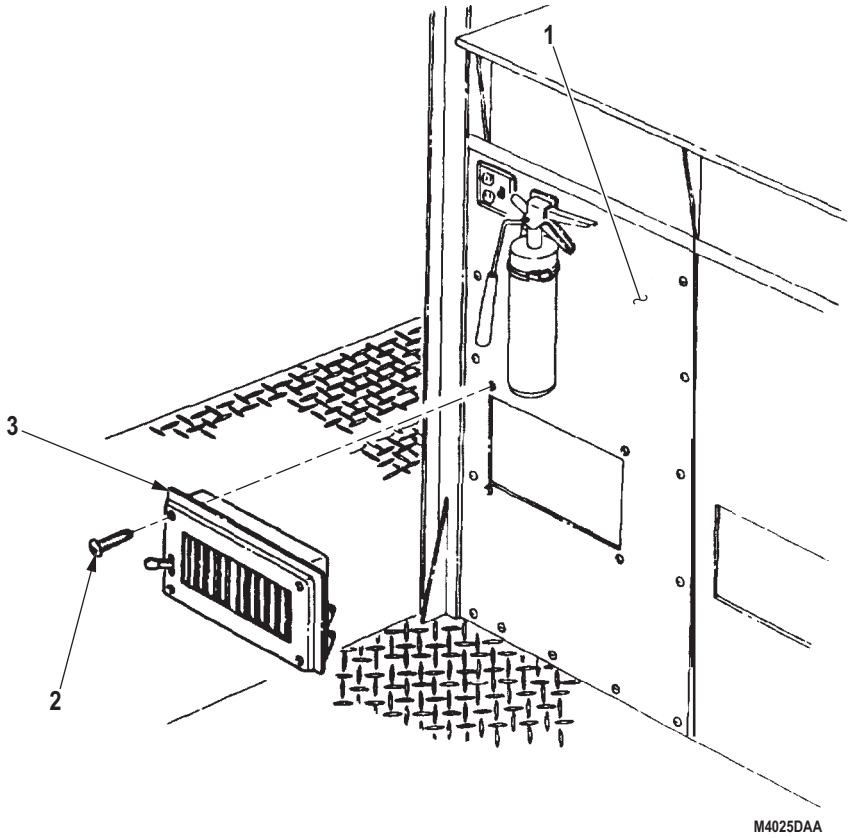


Figure 1. Front Wall Registers Removal.

END OF TASK

INSTALLATION

Install register (Figure 2, Item 3) on front wall (Figure 2, Item 1) with four screws (Figure 2, Item 2).

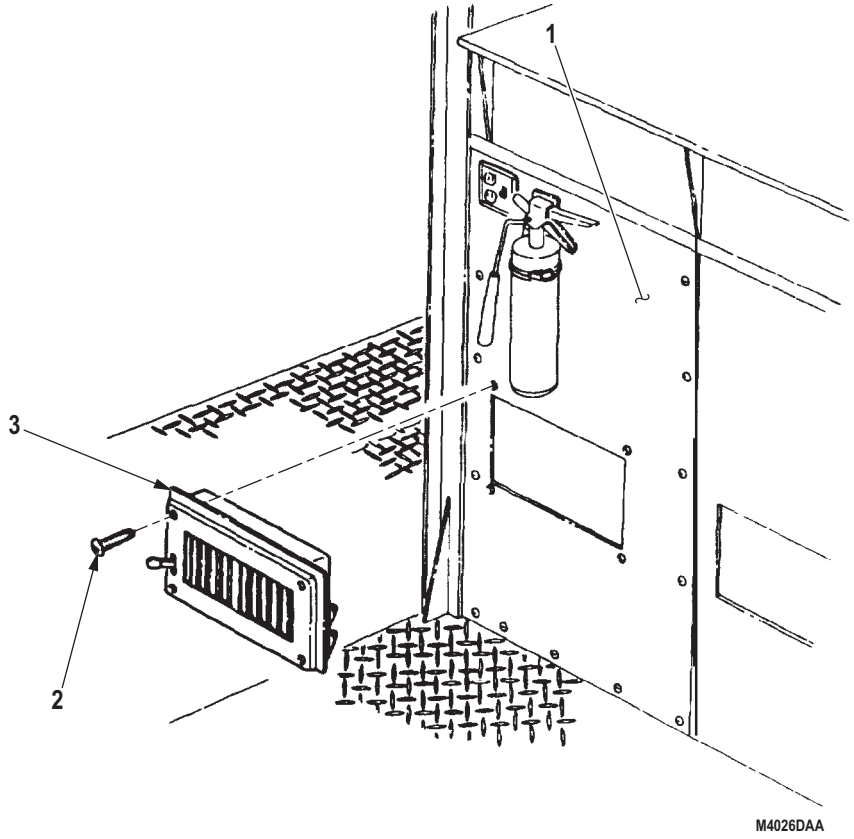


Figure 2. Front Wall Registers Installation.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
BONNET ACCESS DOOR MAINTENANCE

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)
Tool Kit, Blind, Fastener
(Volume 5, WP 0826, Table 1, Item 54)

Materials/Parts
Primer Coating
(Volume 5, WP 0825, Table 1, Item 52)
Sealing Compound
(Volume 5, WP 0825, Table 1, Item 61)
Rivet (Volume 5, WP 0827, Table 1, Item 441)
Qty: 66

Materials/Parts (cont.)
Seal (Volume 5, WP 0827, Table 1, Item 54)
Qty: 1
Seal (Volume 5, WP 0827, Table 1, Item 236)
Qty: 1

Personnel Required
(2)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Bonnet control rod removed.
(WP 0613)

REMOVAL

NOTE

Assistant will help with Step.

Remove 12 screws (Figure 1, Item 1) and access door assembly (Figure 1, Item 2) from bonnet frame (Figure 1, Item 3).

REMOVAL - Continued

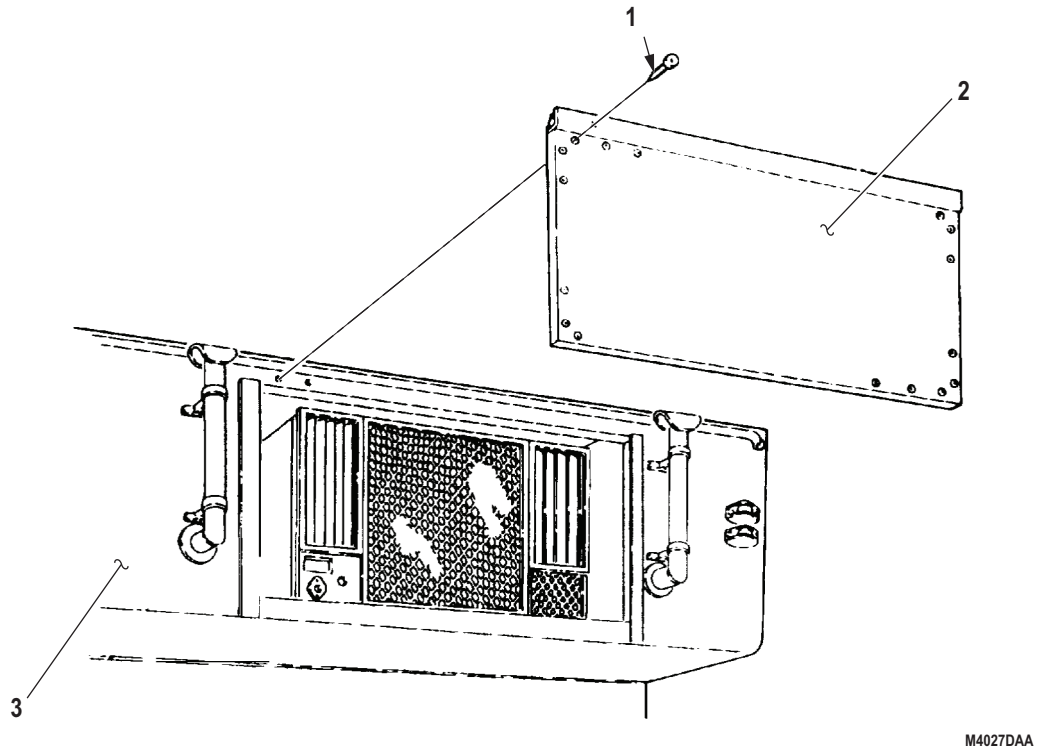


Figure 1. Bonnet Access Door Removal.

END OF TASK

DISASSEMBLY

1. Remove 12 screws (Figure 2, Item 1), hinge (Figure 2, Item 2), and seal (Figure 2, Item 21) from door frame (Figure 2, Item 17). Discard seal.
2. Remove four screws (Figure 2, Item 5) and two angle brackets (Figure 2, Item 4) from inner panel (Figure 2, Item 3).
3. Remove four screws (Figure 2, Item 7), rod (Figure 2, Item 8), and holder bracket (Figure 2, Item 6) from inner panel (Figure 2, Item 3).
4. Remove screw (Figure 2, Item 11), two nuts (Figure 2, Item 9), screws (Figure 2, Item 12), and bracket (Figure 2, Item 10) from inner panel (Figure 2, Item 3).

NOTE

Assistant will help with Step (5).

5. Remove 33 nuts (Figure 2, Item 13), screws (Figure 2, Item 18), 74 rivets (Figure 2, Item 19), outer panel (Figure 2, Item 20), three retainers (Figure 2, Item 14), and seal (Figure 2, Item 16) from door frame (Figure 2, Item 17). Discard seal and rivets.

NOTE

Perform Step (6) if inner panel is to be replaced.

6. Remove 74 rivets (Figure 2, Item 15) and inner panel (Figure 2, Item 3) from door frame (Figure 2, Item 17). Discard rivets.

DISASSEMBLY - Continued

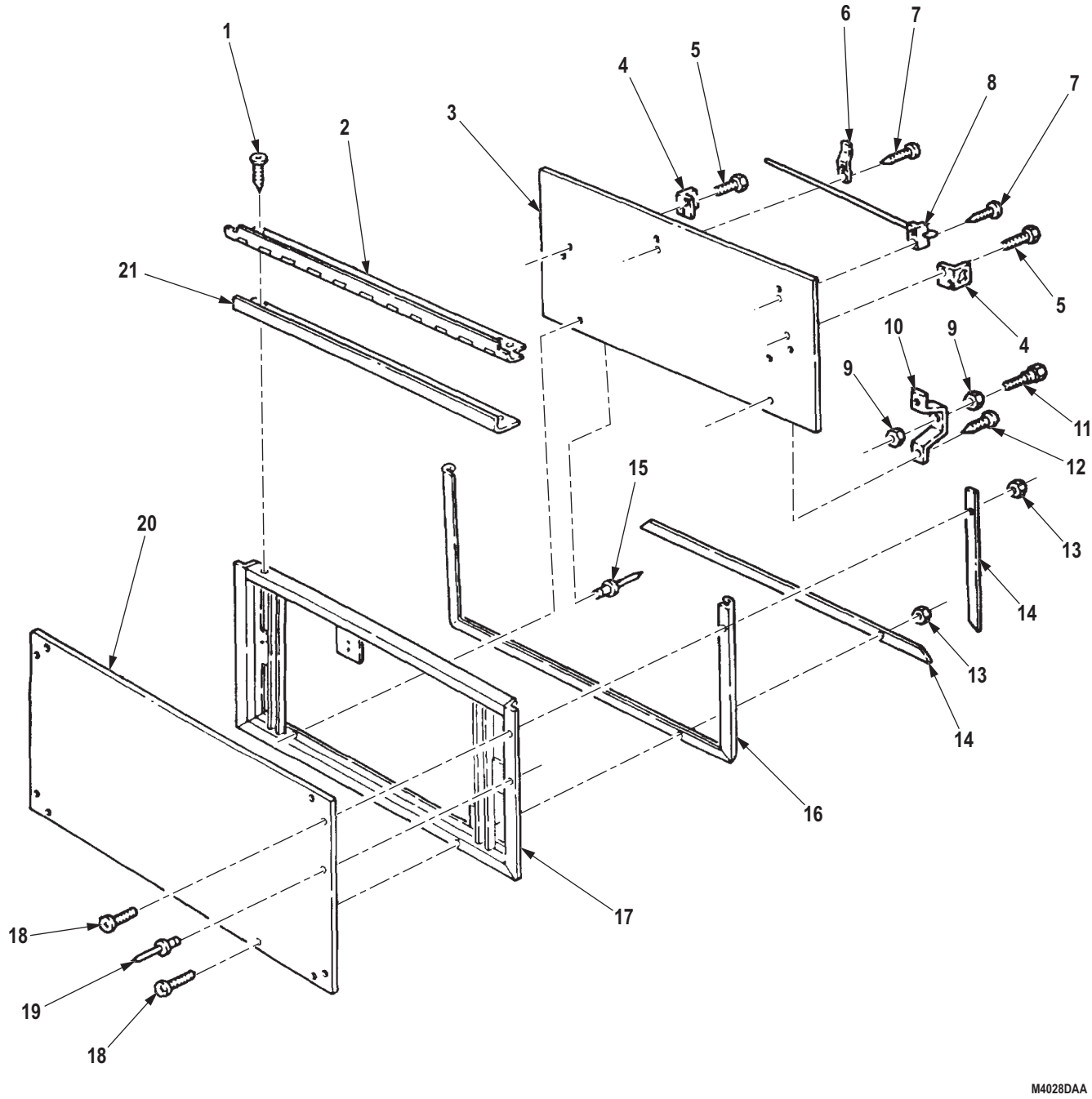


Figure 2. Bonnet Access Door Disassembly.

END OF TASK

CLEANING AND INSPECTION

1. For General Cleaning Instructions, refer to (Volume 5, WP 0817).
2. Inspect hinge (Figure 3, Item 1) for breaks and proper operation. Replace hinge if damaged.
3. Inspect three retainers (Figure 3, Item 6) for bends and breaks. Replace if bent or broken.
4. Inspect angle brackets (Figure 3, Item 3), holder bracket (Figure 3, Item 4), and rod (Figure 3, Item 5) for cracks and breaks. Replace if cracked or broken.
5. Inspect outer panel (Figure 3, Item 8) for tears and punctures. Replace outer panel if torn or punctured.
6. Inspect inner panel (Figure 3, Item 2) for tears and punctures. Replace inner panel if torn or punctured.
7. Inspect door frame (Figure 3, Item 7) for bend, cracks, and breaks. Replace door frame if bent, cracked, or broken.

CLEANING AND INSPECTION - Continued

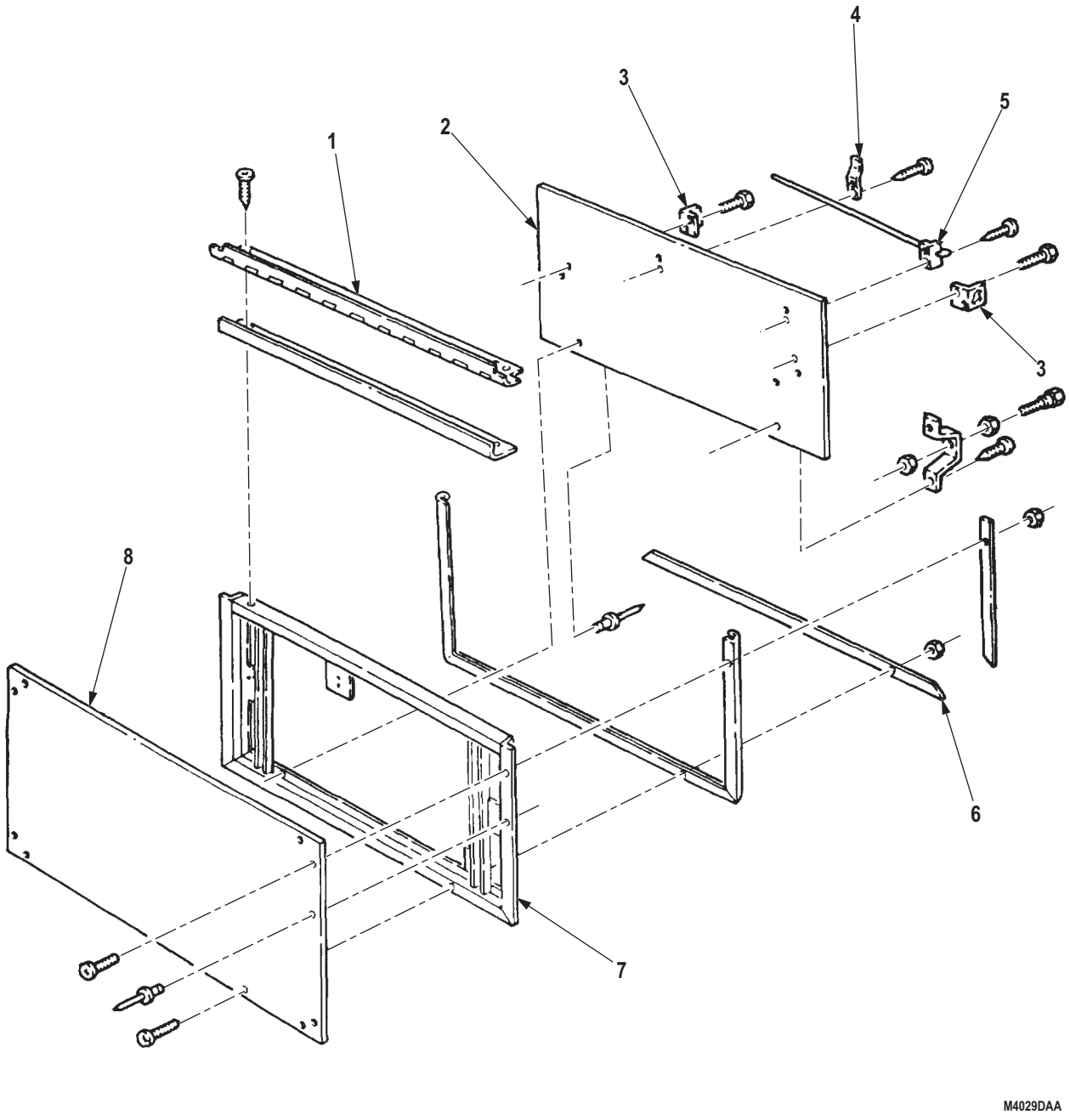


Figure 3. Bonnet Access Door Cleaning and Inspection.

END OF TASK

ASSEMBLY

NOTE

- Insulate areas of dissimilar metal-to-metal contact with zinc chromate primer.
- Apply sealing compound to exterior joints prior to installation.
- Insulate all enclosed structure with fibrous glass felt insulation.
- Perform Step (1) only if inner panel was removed.
- Assistant will help with Steps (1) and (2).

1. Install inner panel (Figure 4, Item 3) on door frame (Figure 4, Item 17) with 74 rivets (Figure 4, Item 15).
2. Install seal (Figure 4, Item 16), three retainers (Figure 4, Item 14), and outer panel (Figure 4, Item 20) on door frame (Figure 4, Item 17) with 33 screws (Figure 4, Item 18), nuts (Figure 4, Item 13), and 74 rivets (Figure 4, Item 19).
3. Install holder bracket (Figure 4, Item 6) and rod (Figure 4, Item 8) on inner panel (Figure 4, Item 3) with four screws (Figure 4, Item 7).
4. Install screw (Figure 4, Item 11) and two nuts (Figure 4, Item 9) on bracket (Figure 4, Item 10).

NOTE

Angle bracket can be installed on either side of door.

5. Install bracket (Figure 4, Item 10) on inner panel (Figure 4, Item 3) with two screws (Figure 4, Item 12).
6. Install two angle brackets (Figure 4, Item 4) on inner panel (Figure 4, Item 3) with four screws (Figure 4, Item 5).
7. Install seal (Figure 4, Item 21) and hinge (Figure 4, Item 2) on door frame (Figure 4, Item 17) with 12 screws (Figure 4, Item 1).

ASSEMBLY - Continued

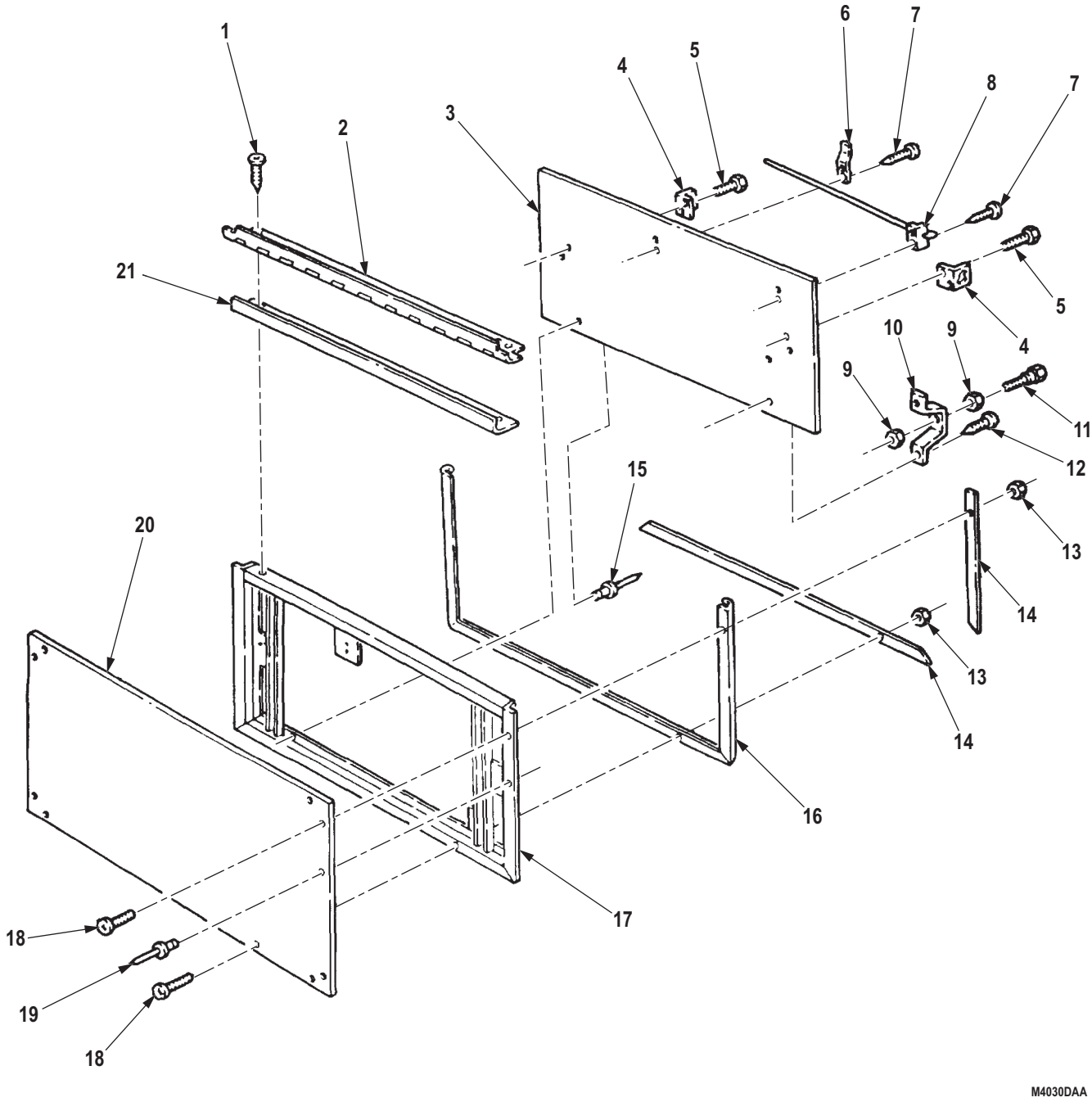


Figure 4. Bonnet Access Door Assembly.

END OF TASK

INSTALLATION

NOTE

Assistant will help with Step.

Install access door assembly (Figure 5, Item 2) on bonnet frame (Figure 5, Item 3) with 12 screws (Figure 5, Item 1).

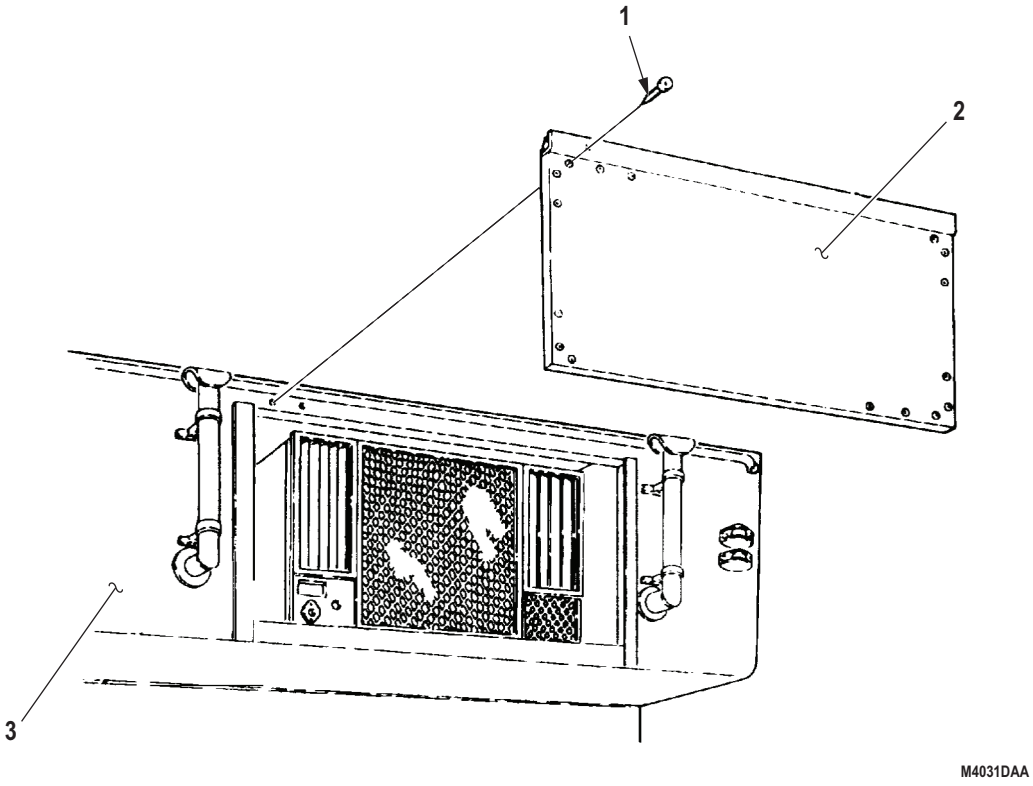


Figure 5. Bonnet Access Door Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

Install bonnet control rod. (WP 0613)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
BONNET DOOR MAINTENANCE

INITIAL SETUP:

Tools and Special Tools
- Tool Kit, General Mechanic's: Automotive
  (Volume 5, WP 0826, Table 1, Item 56)
- Tool Kit, Blind, Fastener
  (Volume 5, WP 0826, Table 1, Item 54)

Materials/Parts
- Primer Coating
  (Volume 5, WP 0825, Table 1, Item 52)
- Sealing Compound
  (Volume 5, WP 0825, Table 1, Item 61)
- Rivet (Volume 5, WP 0827, Table 1, Item 308)
  Qty: 48
- Rivet (Volume 5, WP 0827, Table 1, Item 441)
  Qty: 52
- Seal (Volume 5, WP 0827, Table 1, Item 25)
  Qty: 1

Materials/Parts (cont.)
- Seal, 24 in.
  (Volume 5, WP 0827, Table 1, Item 24)
  Qty: 1
- Seal, 27 in.
  (Volume 5, WP 0827, Table 1, Item 236)
  Qty: 1
- Seal, 78 in.
  (Volume 5, WP 0827, Table 1, Item 24)
  Qty: 1

Personnel Required
(2)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

REMOVAL

NOTE

Left and right bonnet doors are replaced the same way. This procedure covers the left side.

1. Remove two screws (Figure 1, Item 4) and washers (Figure 1, Item 5) from bonnet door (Figure 1, Item 3) and bonnet (Figure 1, Item 1).

NOTE

Assistant will help with Step (2).

2. Remove seven screws (Figure 1, Item 2) and bonnet door (Figure 1, Item 3) from bonnet (Figure 1, Item 1).
3. Position bonnet door (Figure 1, Item 3) squarely on four jack stands with outer panel facing upwards.

REMOVAL - Continued

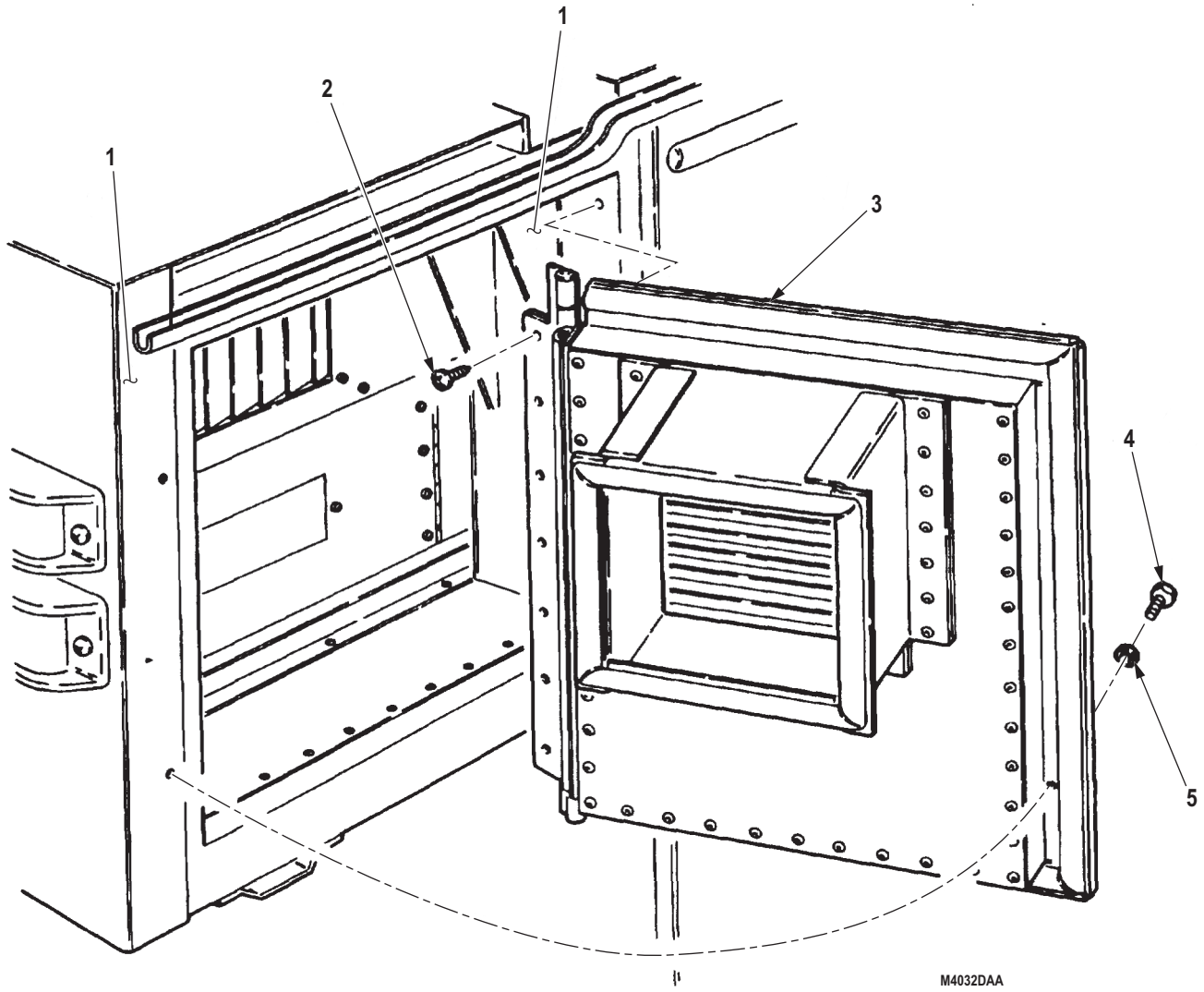


Figure 1. Bonnet Door Removal.

END OF TASK

DISASSEMBLY

1. Remove six screws (Figure 2, Item 16), spacer plate (Figure 2, Item 15), seal (Figure 2, Item 14), hinge (Figure 2, Item 13), and seal (Figure 2, Item 12) from frame (Figure 2, Item 7). Discard seals.
2. Remove 18 nuts (Figure 2, Item 28), screws (Figure 2, Item 11), and two retainers (Figure 2, Item 4) from outer panel (Figure 2, Item 10), frame (Figure 2, Item 7), and seal (Figure 2, Item 3).

NOTE

Assistant will help with Step (3).

3. Remove 17 rivets (Figure 2, Item 9) and outer panel (Figure 2, Item 10) from frame (Figure 2, Item 7). Discard rivets.
4. Remove 24 rivets (Figure 2, Item 27), intake assembly (Figure 2, Item 17), intake panel (Figure 2, Item 26) (if present), and preformed cork (Figure 2, Item 1) from inner panel (Figure 2, Item 2). Discard rivets and cork.
5. Remove 14 rivets (Figure 2, Item 21), two channels (Figure 2, Item 20), channel seals (Figure 2, Item 19), and channels (Figure 2, Item 18) from intake assembly (Figure 2, Item 17). Discard rivets and channel seals.
6. Remove ten rivets (Figure 2, Item 22), two channels (Figure 2, Item 23), channel seals (Figure 2, Item 24), and channels (Figure 2, Item 25) from intake assembly (Figure 2, Item 17). Discard rivets and channel seals.
7. Remove seven nuts (Figure 2, Item 5), screws (Figure 2, Item 8), retainer (Figure 2, Item 6), and seal (Figure 2, Item 3) from frame (Figure 2, Item 7). Discard seal.

NOTE

Assistant will help with Step (8).

8. Remove 33 rivets (Figure 2, Item 29), two rivets (Figure 2, Item 30), and inner panel (Figure 2, Item 2) from frame (Figure 2, Item 7). Discard rivets.

DISASSEMBLY - Continued

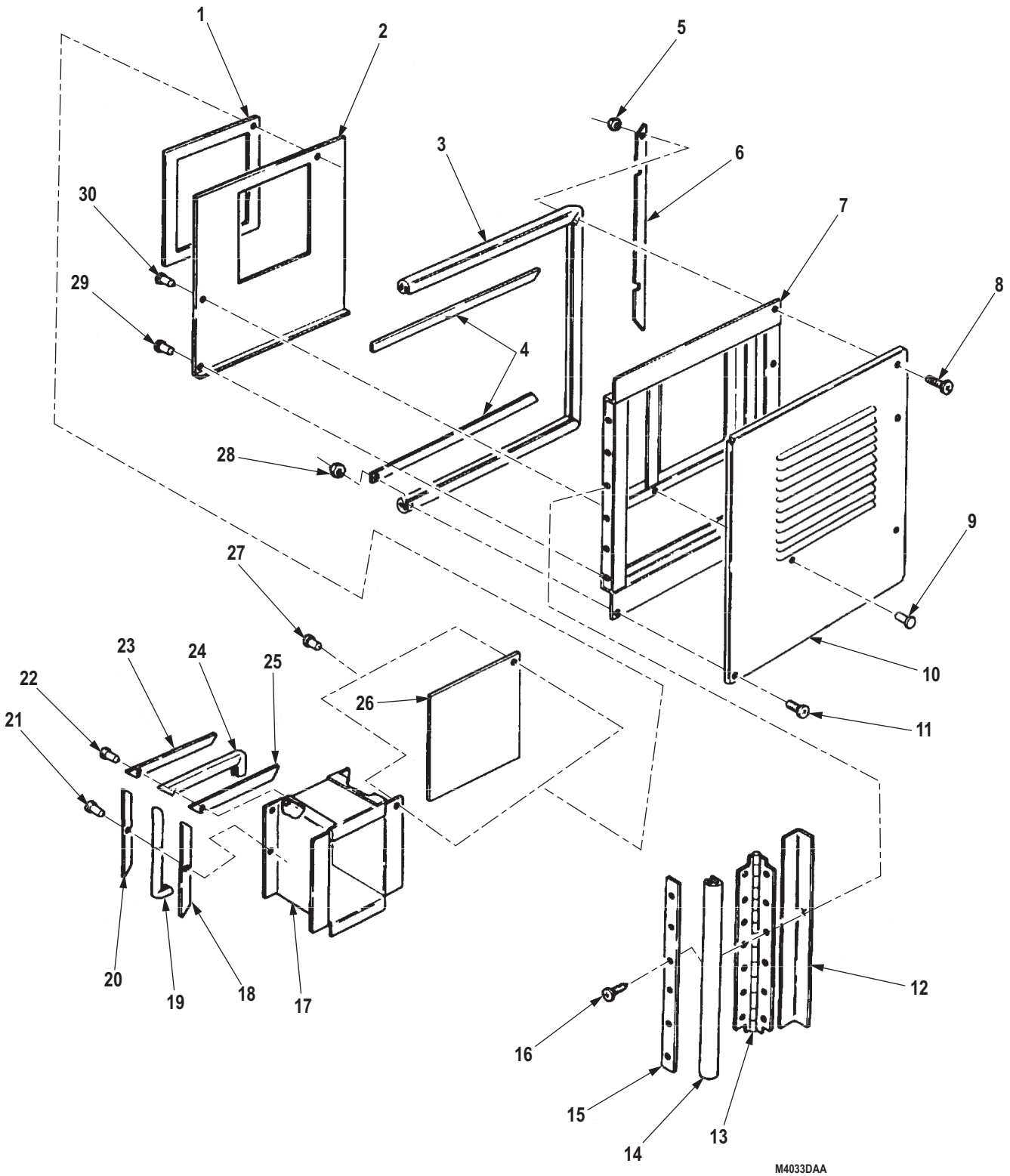


Figure 2. Bonnet Door Disassembly.

END OF TASK

CLEANING AND INSPECTION

1. For General Cleaning Instructions, refer to (Volume 5, WP 0817).
2. Inspect hinge (Figure 3, Item 9) for breaks, corrosion, and proper operation. Replace hinge if damaged.
3. Inspect retainers (Figure 3, Item 8) and (Figure 3, Item 5) and spacer plate (Figure 3, Item 10) for bends and breaks. Replace retainers and and space plate if bent or broken.
4. Inspect outer panel (Figure 3, Item 4) and inner panel (Figure 3, Item 7) for tears, cracks, and punctures. Replace outer panel and inner panel if torn, cracked, or punctured.
5. Inspect intake assembly (Figure 3, Item 11) for cracks and bends. Replace intake assembly if cracked or bent.
6. Inspect intake panel (Figure 3, Item 3) for bends and breaks. Replace intake panel if bent or broken.
7. Inspect channels (Figure 3, Items 1, 2, 12, and 13) for bends and breaks. Replace if bent or broken.
8. Inspect frame (Figure 3, Item 6) for bends, breaks, cracks, and warpage. Replace entire bonnet door assembly if frame is damaged.

CLEANING AND INSPECTION - Continued

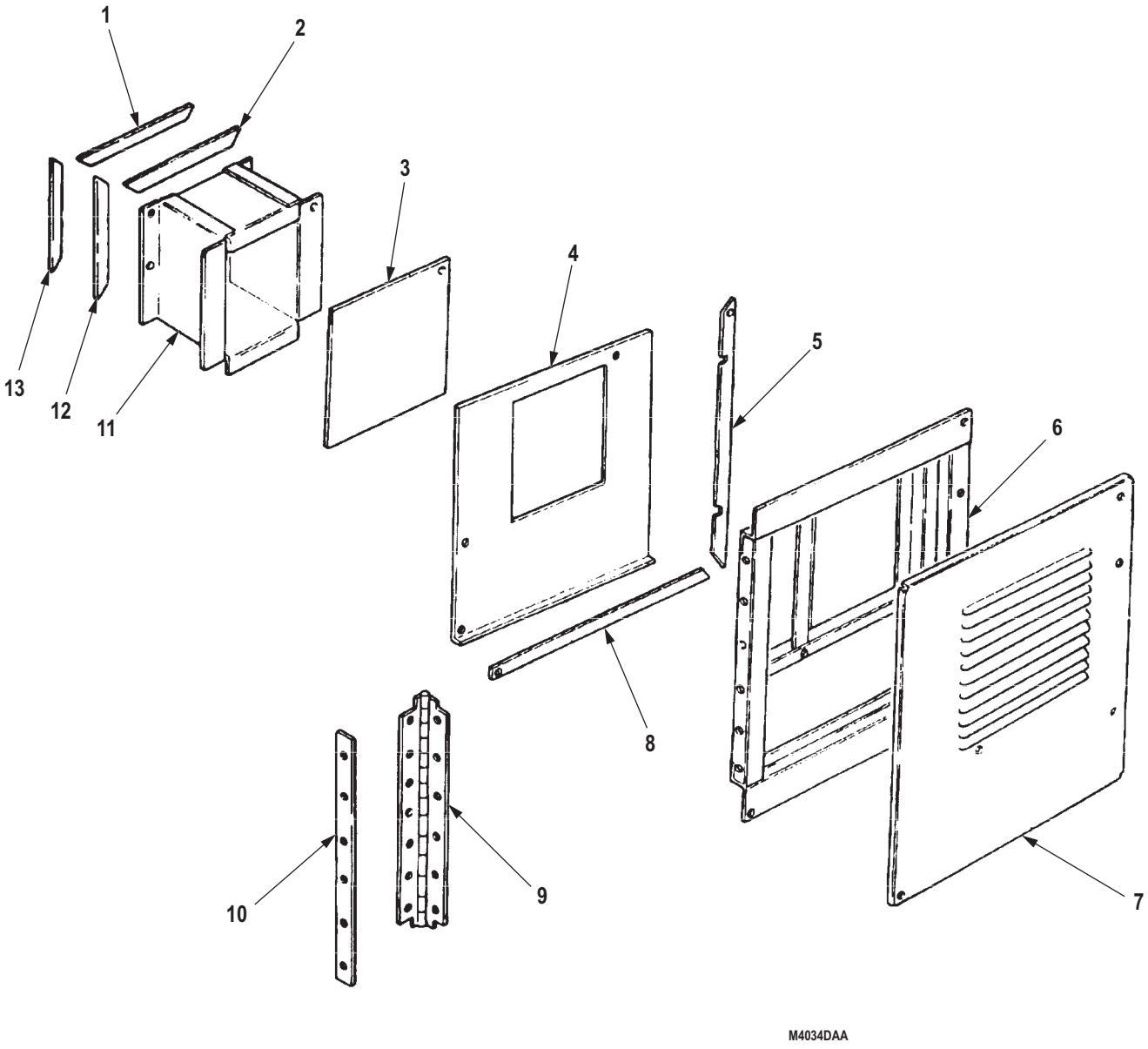


Figure 3. Bonnet Door Cleaning and Inspection.

END OF TASK

ASSEMBLY

NOTE

- Insulate areas of dissimilar metal-to-metal contact with zinc chromate primer.
- Apply sealing compound to exterior joints prior to installation.
- Insulate all enclosed structure with fibrous glass felt insulation.
- Assistant will help with Step (1).

1. Install inner panel (Figure 4, Item 2) on frame (Figure 4, Item 7) with 33 rivets (Figure 4, Item 29) and two rivets (Figure 4, Item 30).
2. Install seal (Figure 4, Item 3) and retainer (Figure 4, Item 6) on frame (Figure 4, Item 7) with seven screws (Figure 4, Item 8) and nuts (Figure 4, Item 5).
3. Install two channel seals (Figure 4, Item 24), channels (Figure 4, Item 23), and channels (Figure 4, Item 25) on intake assembly (Figure 4, Item 17) with ten rivets (Figure 4, Item 22).
4. Install two channel seals (Figure 4, Item 19), channels (Figure 4, Item 18), and channels (Figure 4, Item 20) on intake assembly (Figure 4, Item 17) with 14 rivets (Figure 4, Item 21).

NOTE

Assistant will help with Steps (6) and (7).

5. Install preformed cork (Figure 4, Item 1), intake panel (Figure 4, Item 26) (if present), and intake assembly (Figure 4, Item 17) on inner panel (Figure 4, Item 2) with 24 rivets (Figure 4, Item 27).
6. Install outer panel (Figure 4, Item 10) on frame (Figure 4, Item 7) with 17 rivets (Figure 4, Item 9).
7. Install two retainers (Figure 4, Item 4) in seal (Figure 4, Item 3) with 18 screws (Figure 4, Item 11) and nuts (Figure 4, Item 28).
8. Install seal (Figure 4, Item 12), hinge (Figure 4, Item 13), spacer plate (Figure 4, Item 15), and seal (Figure 4, Item 14) on frame (Figure 4, Item 7) with six screws (Figure 4, Item 16). Ensure hinge is flush with top of door.

ASSEMBLY - Continued

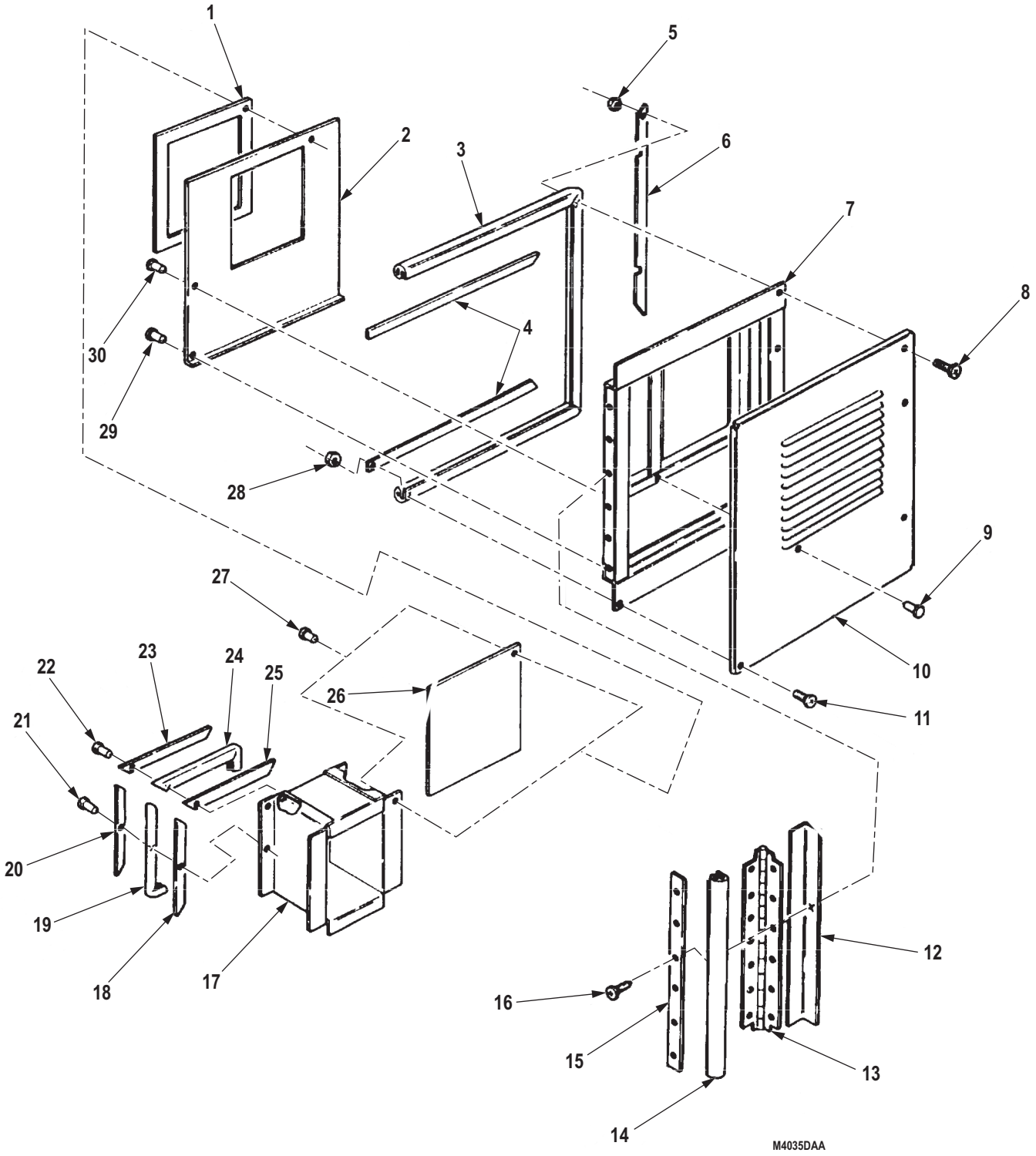


Figure 4. Bonnet Door Assembly.

END OF TASK

INSTALLATION

NOTE

Assistant will help with Step.

Install bonnet door (Figure 5, Item 3) on bonnet (Figure 5, Item 1) with seven screws (Figure 5, Item 2), two screws (Figure 5, Item 4), and washers (Figure 5, Item 5).

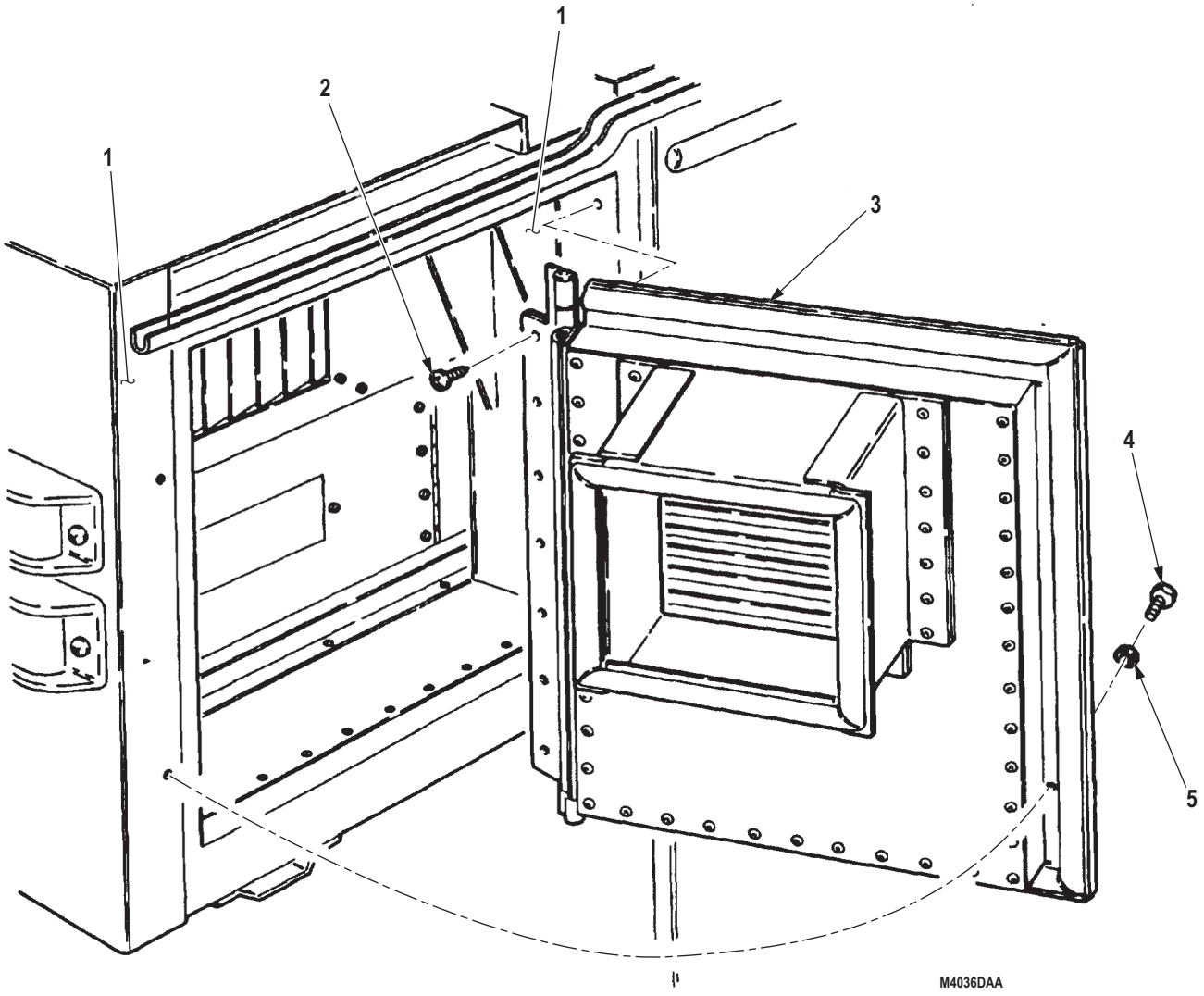


Figure 5. Bonnet Door Installation.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
AIR CONDITIONER REPAIR

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)
Chain Assembly
(Volume 5, WP 0826, Table 1, Item 15)
Lifting Device

Materials/Parts
Cotter Pin
(Volume 5, WP 0827, Table 1, Item 341)
Qty: 1
Lockwasher
(Volume 5, WP 0827, Table 1, Item 424)
Qty: 2

Personnel Required
(3)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

Equipment Condition (cont.)
Cab tarpaulin and bows removed.
(TM 9-2320-272-10)
Windshield lowered. (TM 9-2320-272-10)
Companion seat lowered. (TM 9-2320-272-10)
External power source disconnected.
(TM 9-2320-272-10)
Battery ground cables disconnected.
(Volume 2, WP 0350)
Air conditioner drain tube removed.
(WP 0633)
Bonnet door removed. (WP 0651)

REMOVAL

NOTE

Screw quantity for Steps (1), (2), and (4) may differ from vehicle to vehicle. Record quantity removed for installation.

1. Remove 16 screws (Figure 1, Item 6) and lower angle bracket (Figure 1, Item 5) from lower panel mounting angle (Figure 1, Item 7).
2. Remove 12 screws (Figure 1, Item 9) and lower panel mounting angle (Figure 1, Item 7) from bonnet (Figure 1, Item 11).
3. Remove four screws (Figure 1, Item 8) and two mounting angles (Figure 1, Item 4) from bonnet (Figure 1, Item 11).
4. Remove 14 screws (Figure 1, Item 3), snap (Figure 1, Item 2), and condenser guard (Figure 1, Item 1) from air conditioner (Figure 1, Item 10).

REMOVAL - Continued

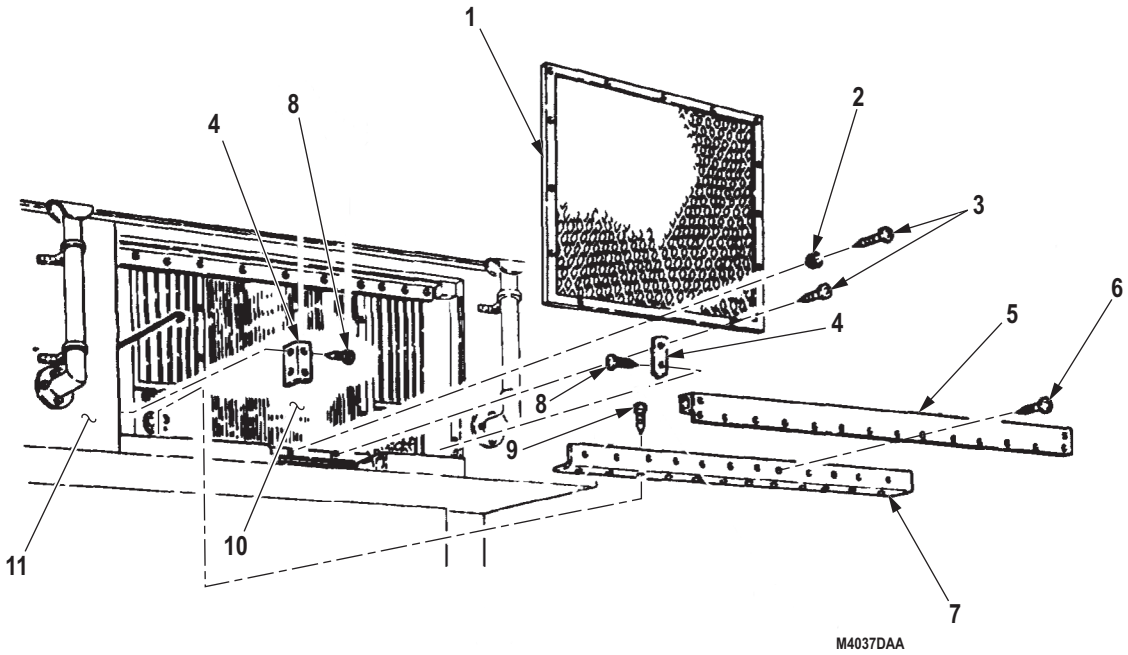


Figure 1. Air Conditioner Removal.

REMOVAL - Continued

5. Remove 16 screws (Figure 2, Item 2) and top enclosure (Figure 2, Item 7) from bonnet (Figure 2, Item 13) and air conditioner (Figure 2, Item 12).
6. Remove 12 screws (Figure 2, Item 9) and right enclosure (Figure 2, Item 8) from bonnet (Figure 2, Item 13) and air conditioner (Figure 2, Item 12).
7. Remove four screws (Figure 2, Item 6), plate (Figure 2, Item 5), and bellows (Figure 2, Item 3) from left enclosure (Figure 2, Item 1).
8. Remove ten screws (Figure 2, Item 4) and left enclosure (Figure 2, Item 1) from bonnet (Figure 2, Item 13) and air conditioner (Figure 2, Item 12).
9. Remove cotter pin (Figure 2, Item 16) and door rod (Figure 2, Item 14) from swing arm (Figure 2, Item 15). Discard cotter pin.
10. Remove seven screws (Figure 2, Item 11) and bottom enclosure (Figure 2, Item 10) from bonnet (Figure 2, Item 13) and air conditioner (Figure 2, Item 12).
11. Disconnect power cable (Figure 2, Item 26) from air conditioner (Figure 2, Item 12).
12. Remove screw (Figure 2, Item 28), ground cable (Figure 2, Item 29), and lockwasher (Figure 2, Item 27) from air conditioner (Figure 2, Item 12). Discard lockwasher.
13. Remove screw (Figure 2, Item 25), ground cable (Figure 2, Item 29), and lockwasher (Figure 2, Item 30) from mounting plate (Figure 2, Item 20) and bonnet floor (Figure 2, Item 31). Discard lockwasher.
14. Remove five screws (Figure 2, Item 24) from mounting plate (Figure 2, Item 20) and bonnet floor (Figure 2, Item 31).
15. Remove six screws (Figure 2, Item 23) from mounting plate (Figure 2, Item 19) and bonnet floor (Figure 2, Item 31).

WARNING



All personnel must stand clear during lifting operations. A shifting or swinging load may cause injury to personnel. Failure to comply may result in injury or death to personnel.

NOTE

Two assistants will help with Step (16).

16. Attach chains (Figure 2, Item 18) to lifting device (Figure 2, Item 17) and four lifting brackets (Figure 2, Item 22) on air conditioner (Figure 2, Item 12) and remove air conditioner from bonnet (Figure 2, Item 13). Position air conditioner for access to bottom of unit.
17. Remove six screws (Figure 2, Item 21) and mounting plates (Figure 2, Items 19 and 20) from air conditioner (Figure 2, Item 12).

REMOVAL - Continued

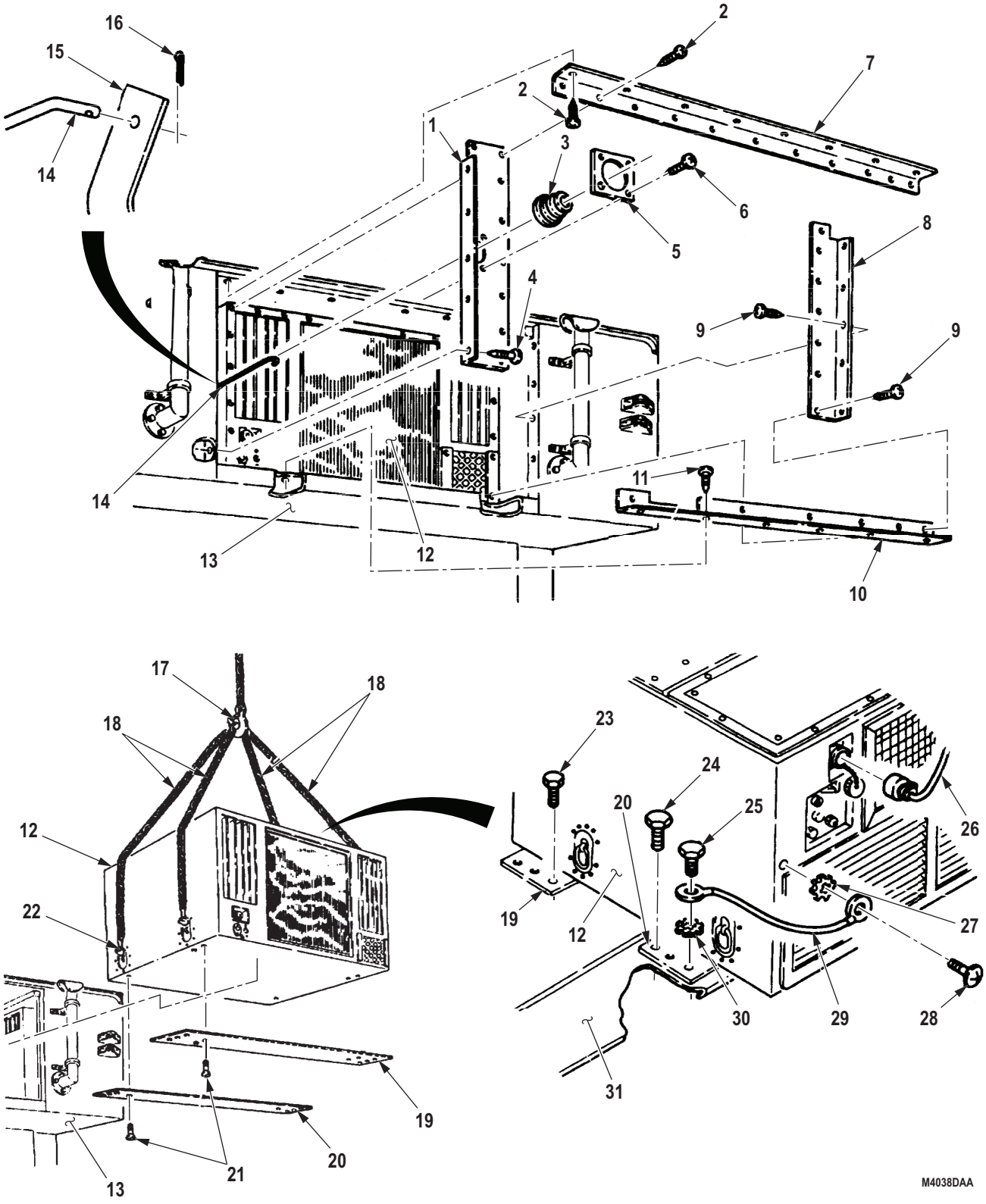


Figure 2. Air Conditioner Removal.

END OF TASK

INSTALLATION

1. Install mounting plates (Figure 3, Items 3 and 4) on air conditioner (Figure 3, Item 8) with six screws (Figure 3, Item 5).

WARNING



All personnel must stand clear during lifting operations. A shifting or swinging load may cause injury to personnel. Failure to comply may result in injury or death to personnel.

NOTE

Two assistants will help with Step (2).

2. Attach chains (Figure 3, Item 2) to lifting device (Figure 3, Item 1) and four lifting brackets (Figure 3, Item 7).
3. Position air conditioner (Figure 3, Item 8) in bonnet (Figure 3, Item 6).
4. Install mounting plate (Figure 3, Item 3) on bonnet floor (Figure 3, Item 17) with six screws (Figure 3, Item 9).
5. Install ground cable (Figure 3, Item 15) on mounting plate (Figure 3, Item 4) and bonnet floor (Figure 3, Item 17) with lockwasher (Figure 3, Item 16), and screw (Figure 3, Item 11).
6. Install ground cable (Figure 3, Item 15) on air conditioner (Figure 3, Item 8) with lockwasher (Figure 3, Item 13), and screw (Figure 3, Item 14).
7. Install mounting plate (Figure 3, Item 4) on bonnet floor (Figure 3, Item 17) with five screws (Figure 3, Item 10).
8. Connect power cable (Figure 3, Item 12) to air conditioner (Figure 3, Item 8).
9. Remove lifting device (Figure 3, Item 1) and chains (Figure 3, Item 2) from air conditioner (Figure 3, Item 8).

INSTALLATION - Continued

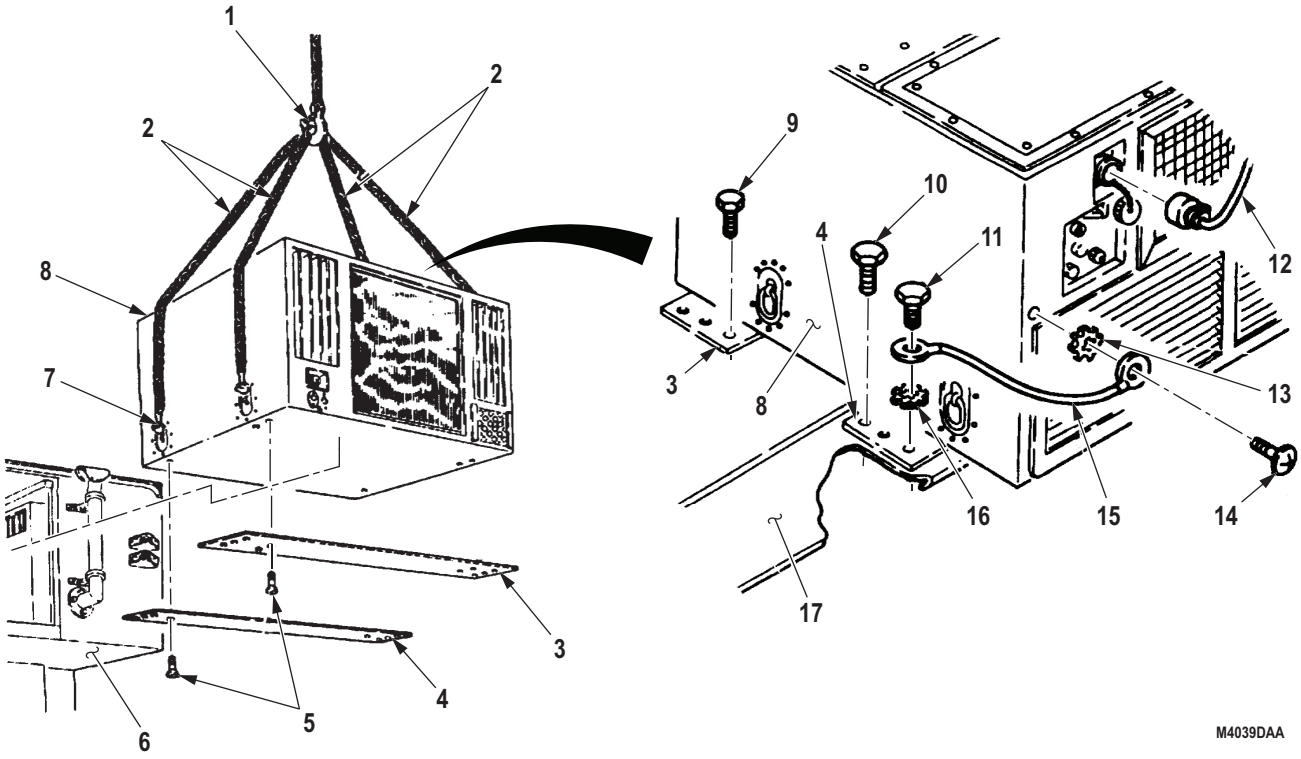


Figure 3. Air Conditioner Installation.

INSTALLATION - Continued

10. Install bottom enclosure (Figure 4, Item 5) on bonnet (Figure 4, Item 7) and air conditioner (Figure 4, Item 6) with seven screws (Figure 4, Item 6).
11. Install door rod (Figure 4, Item 9) on swing arm (Figure 4, Item 15) with cotter pin (Figure 4, Item 16).
12. Install left enclosure (Figure 4, Item 10) on bonnet (Figure 4, Item 7) and air conditioner (Figure 4, Item 8) with ten screws (Figure 4, Item 11). Ensure door rod (Figure 4, Item 9) is positioned through bellows (Figure 4, Item 12).
13. Install bellows (Figure 4, Item 12) on left enclosure (Figure 4, Item 10) with plate (Figure 4, Item 13) and four screws (Figure 4, Item 14).
14. Install right enclosure (Figure 4, Item 3) on bonnet (Figure 4, Item 7) and air conditioner (Figure 4, Item 8) with 12 screws (Figure 4, Item 4).
15. Install top enclosure (Figure 4, Item 2) on bonnet (Figure 4, Item 7) and air conditioner (Figure 4, Item 8) with 16 screws (Figure 4, Item 1).

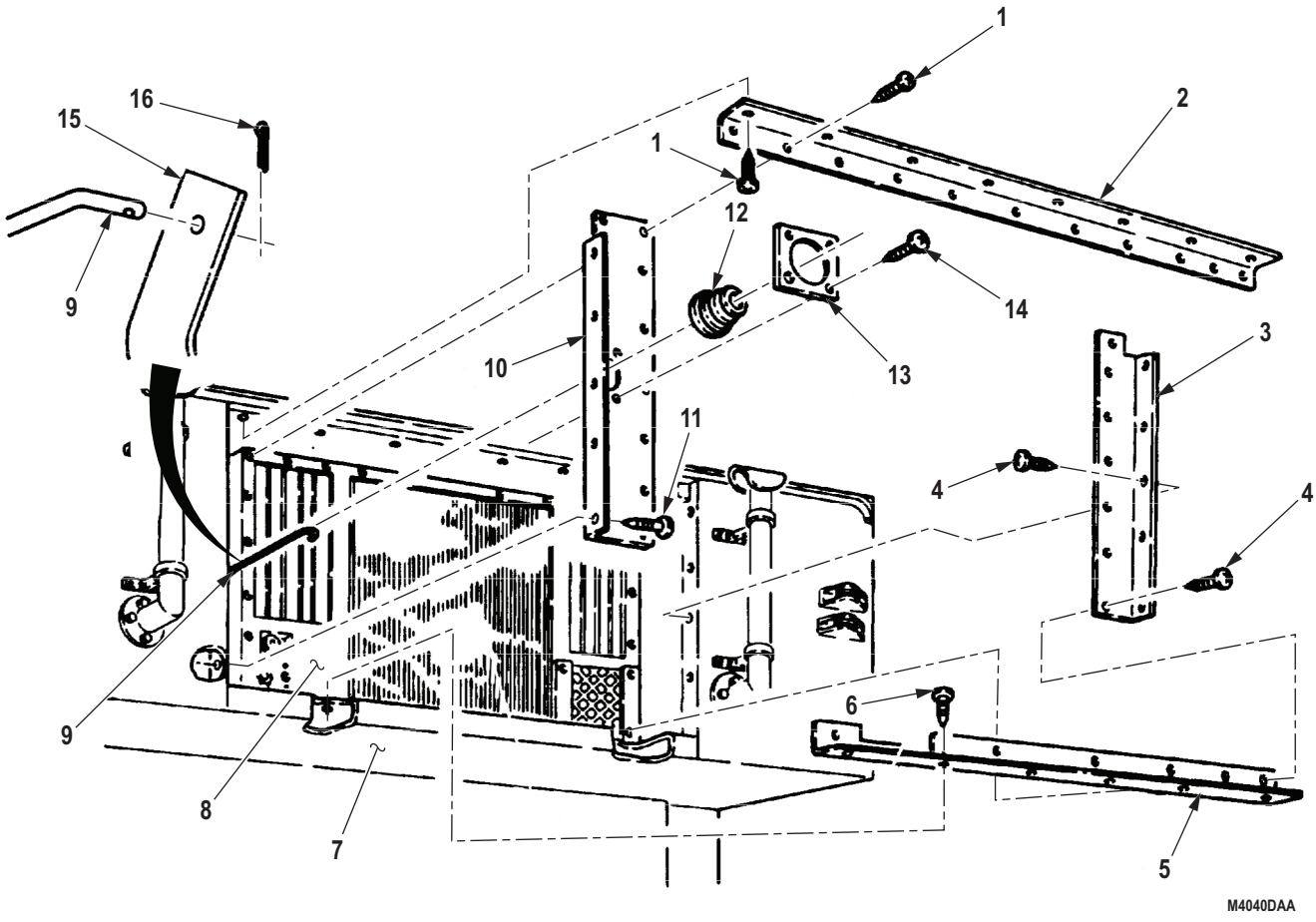


Figure 4. Air Conditioner Installation.

INSTALLATION - Continued

NOTE

Screw quantity for Steps (16), (18), and (19) may differ from vehicle to vehicle. Install screws as recorded.

16. Install condenser guard (Figure 5, Item 1) on air conditioner (Figure 5, Item 10) with snap (Figure 5, Item 2) and 14 screws (Figure 5, Item 3).
17. Install two mounting angles (Figure 5, Item 4) on bonnet (Figure 5, Item 11) with four screws (Figure 5, Item 8).
18. Install lower panel mounting angle (Figure 5, Item 7) on bonnet (Figure 5, Item 11) with 12 screws (Figure 5, Item 9).
19. Install lower angle bracket (Figure 5, Item 5) on bonnet (Figure 5, Item 11) and two mounting angles (Figure 5, Item 4) with 16 screws (Figure 5, Item 6).

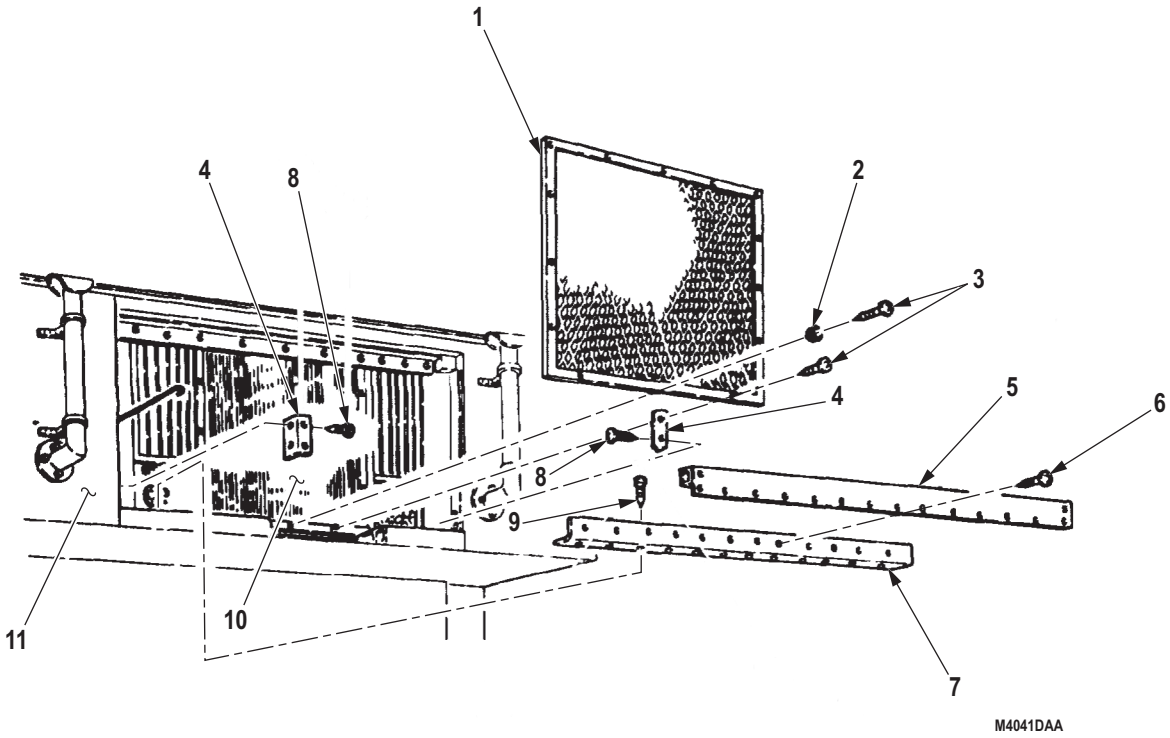


Figure 5. Air Conditioner Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install bonnet door. (WP 0651)
2. Install air conditioner drain tube. (WP 0633)
3. Connect battery ground cables. (Volume 2, WP 0350)
4. Connect external power source. (TM 9-2320-272-10)
5. Raise companion seat. (TM 9-2320-272-10)
6. Raise windshield. (TM 9-2320-272-10)
7. Install cab tarpaulin and bows. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
MAIN WIRING HARNESS REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Volume 5, WP 0826, Table 1, Item 56)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Battery ground cables disconnected. (Volume 2, WP 0350)
Fluorescent light tubes removed. (WP 0623)

Equipment Condition (cont.)
Emergency/blackout lamp and light removed. (WP 0624)
Blackout light switch and 110-volt receptacle removed. (WP 0625)

REMOVAL

NOTE

- The left and right main wiring harnesses are replaced the same way. This procedure covers the right main wiring harness.
- Tag wires for installation.

1. Remove six screws (Figure 1, Item 23) and cover (Figure 1, Item 24) from load center (Figure 1, Item 5).
2. Remove three setscrews (Figure 1, Item 6) and wires (Figure 1, Item 25) from relay (Figure 1, Item 7).
3. Remove setscrew (Figure 1, Item 21) and wire (Figure 1, Item 22) from neutral bus (Figure 1, Item 8).
4. Remove three screws (Figure 1, Item 19) and five wires (Figure 1, Item 20) from 20 amp circuit breakers (Figure 1, Item 9).
5. Remove screw (Figure 1, Item 1) and clamp (Figure 1, Item 2) from plate (Figure 1, Item 4) and wiring harnesses (Figure 1, Item 3).
6. Remove 12 screws (Figure 1, Item 12) and clamps (Figure 1, Item 11) from van ceiling (Figure 1, Item 17) and main wiring harness (Figure 1, Item 10).
7. Remove grommet (Figure 1, Item 13) from van side panel (Figure 1, Item 16).
8. Remove three screws (Figure 1, Item 15) and wire clip (Figure 1, Item 14) from van side panel (Figure 1, Item 16).
9. Remove main wiring harness (Figure 1, Item 10) from van body (Figure 1, Item 18).

REMOVAL - Continued

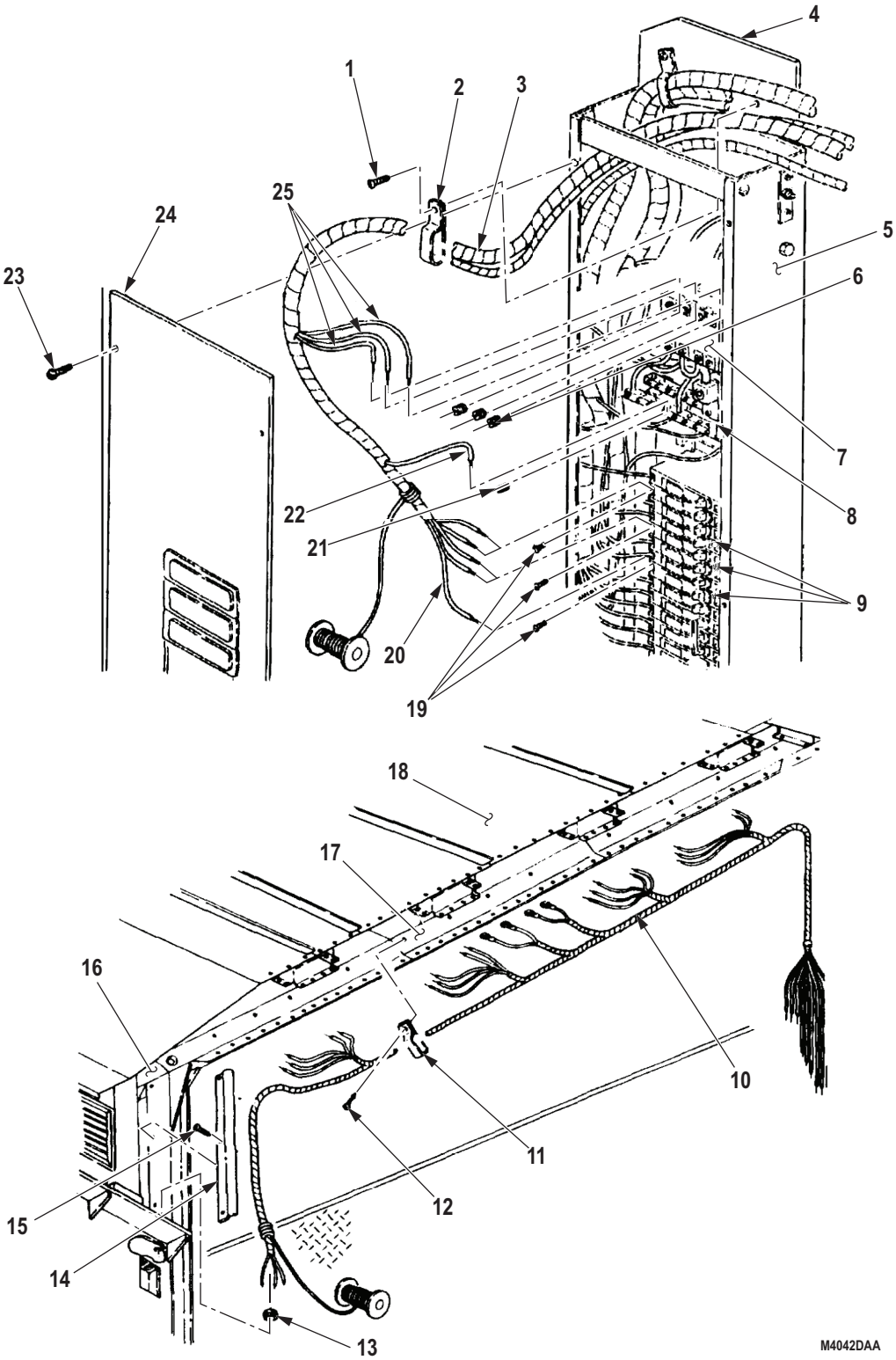


Figure 1. Main Wiring Harness Removal.

END OF TASK

INSTALLATION

1. Position main wiring harness (Figure 2, Item 10) on van body (Figure 2, Item 18).
2. Install wire clip (Figure 2, Item 14) on side panel (Figure 2, Item 16) of van body (Figure 2, Item 18) with three screws (Figure 2, Item 15).
3. Install grommet (Figure 2, Item 13) on side panel (Figure 2, Item 16).
4. Install 12 clamps (Figure 2, Item 11) on main wiring harness (Figure 2, Item 10) and van ceiling (Figure 2, Item 17) with 12 screws (Figure 2, Item 12).
5. Install clamp (Figure 2, Item 2) on harnesses (Figure 2, Item 3) and plate (Figure 2, Item 4) with screw (Figure 2, Item 1).
6. Install five wires (Figure 2, Item 20) on 20 amp circuit breakers (Figure 2, Item 9) with three screws (Figure 2, Item 19).
7. Install wire (Figure 2, Item 22) on neutral bus (Figure 2, Item 8) with setscrew (Figure 2, Item 21).
8. Install three wires (Figure 2, Item 25) on relay (Figure 2, Item 7) with three setscrews (Figure 2, Item 6).
9. Install cover (Figure 2, Item 24) on load center (Figure 2, Item 5) with six screws (Figure 2, Item 23).

INSTALLATION - Continued

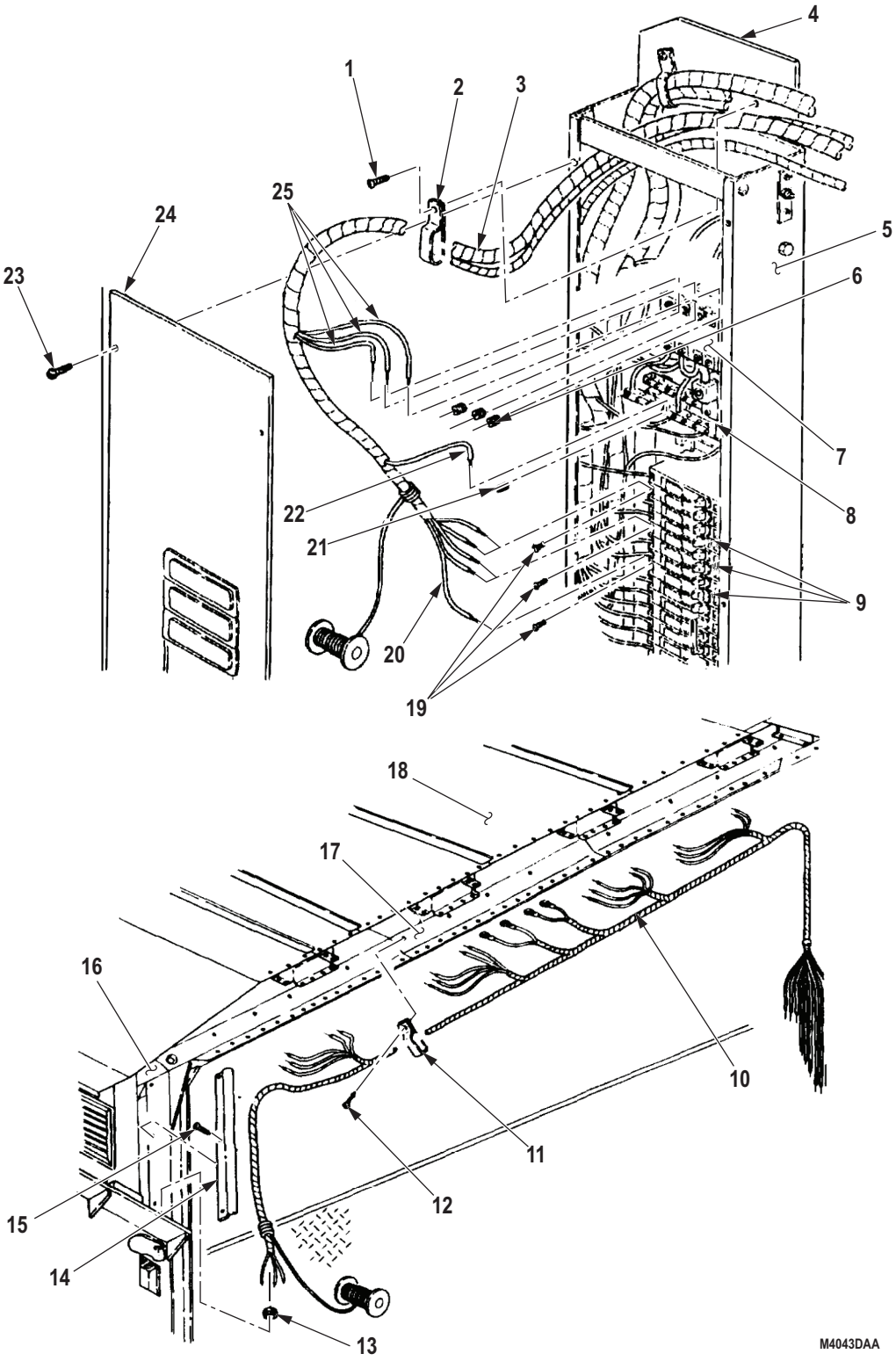


Figure 2. Main Wiring Harness Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install blackout light switch and 110-volt receptacle. (WP 0625)
2. Install emergency/blackout lamp and light. (WP 0624)
3. Install fluorescent light tubes. (WP 0623)
4. Connect battery ground cables. (Volume 2, WP 0350)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
VAN AIR CONDITIONER WIRING HARNESS REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

Equipment Condition (cont.)
Battery ground cables disconnected.
(Volume 2, WP 0350)
Ceiling filler and side panels removed.

REMOVAL

NOTE

Tag cables for installation.

1. Remove 12 screws (Figure 1, Item 21) and clamps (Figure 1, Item 22) from wiring harness (Figure 1, Item 23) and van ceiling (Figure 1, Item 1).
2. Disconnect plug (Figure 1, Item 2) from air conditioner (Figure 1, Item 3).
3. Remove six screws (Figure 1, Item 15) and cover (Figure 1, Item 14) from load center (Figure 1, Item 9).
4. Remove screw (Figure 1, Item 17) and clamp (Figure 1, Item 18) from wiring harnesses (Figure 1, Items 13 and 16) and plate (Figure 1, Item 4).
5. Remove nut (Figure 1, Item 19), screw (Figure 1, Item 7), two washers (Figure 1, Item 8), cable assembly (Figure 1, Item 6), ground cable (Figure 1, Item 5), and wiring harness cable (Figure 1, Item 20) from load center (Figure 1, Item 9).
6. Remove three screws (Figure 1, Item 11) and wiring harness cables (Figure 1, Item 12) from 30 amp circuit breaker (Figure 1, Item 10).
7. Remove wiring harness (Figure 1, Item 13) from load center (Figure 1, Item 9).

REMOVAL - Continued

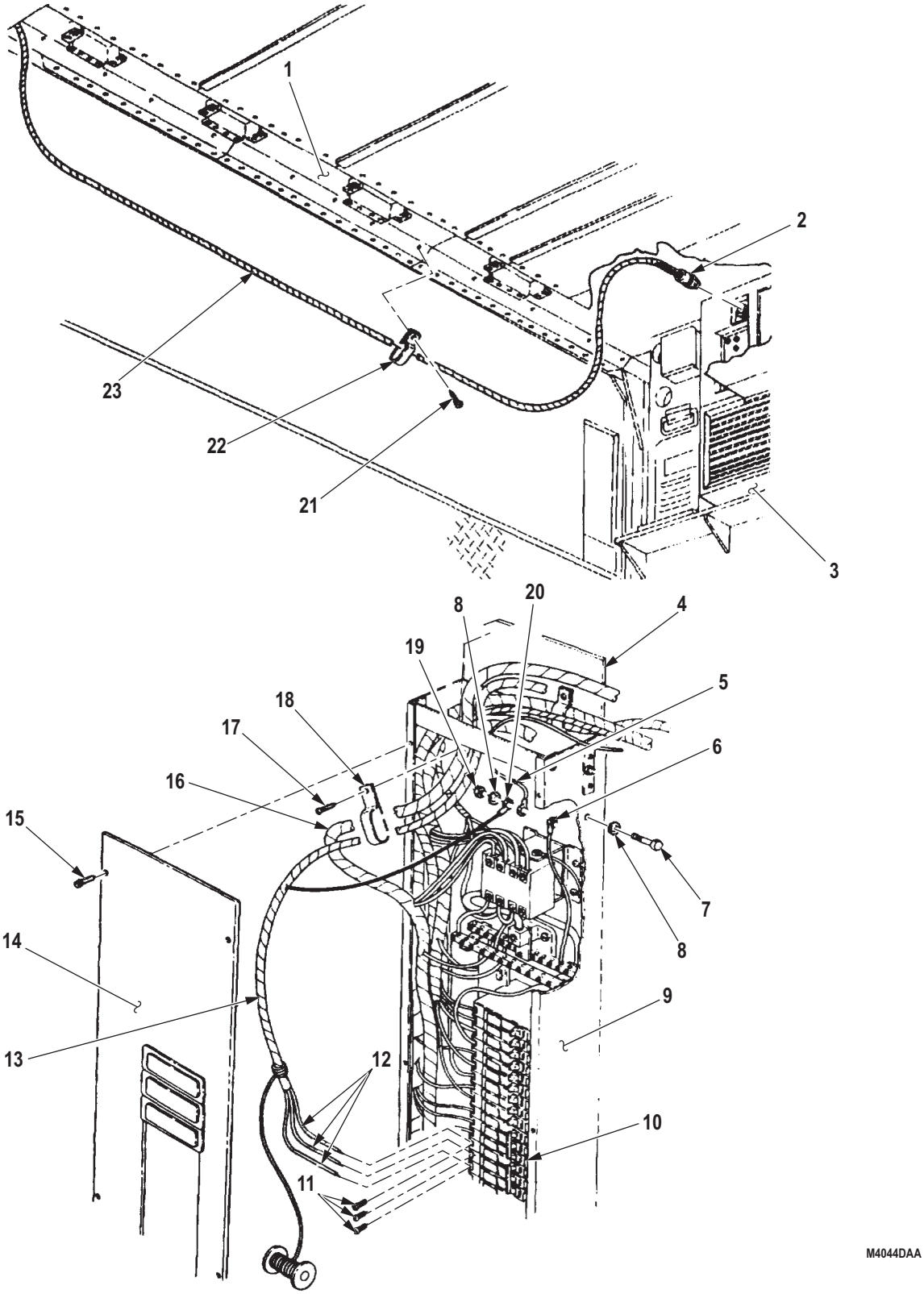


Figure 1. Van Air Conditioner Wiring Harness Removal.

END OF TASK

INSTALLATION

1. Position wiring harness (Figure 2, Item 13) on load center (Figure 2, Item 9).
2. Install three wiring harness cables (Figure 2, Item 12) on 30 amp circuit breaker (Figure 2, Item 10) with three screws (Figure 2, Item 11).
3. Install wiring harness cable (Figure 2, Item 20), ground cable (Figure 2, Item 5), and cable assembly (Figure 2, Item 6) on load center (Figure 2, Item 9) with screw (Figure 2, Item 7), two washers (Figure 2, Item 8), and nut (Figure 2, Item 19).
4. Install clamp (Figure 2, Item 18) on wiring harnesses (Figure 2, Items 13 and 16) and plate (Figure 2, Item 4) with screw (Figure 2, Item 17).
5. Install cover (Figure 2, Item 14) on load center (Figure 2, Item 9) with six screws (Figure 2, Item 15).
6. Connect plug (Figure 2, Item 2) to air conditioner (Figure 2, Item 3).
7. Install 12 clamps (Figure 2, Item 22) on wiring harness (Figure 2, Item 23) and van ceiling (Figure 2, Item 1) with 12 screws (Figure 2, Item 21).

INSTALLATION - Continued

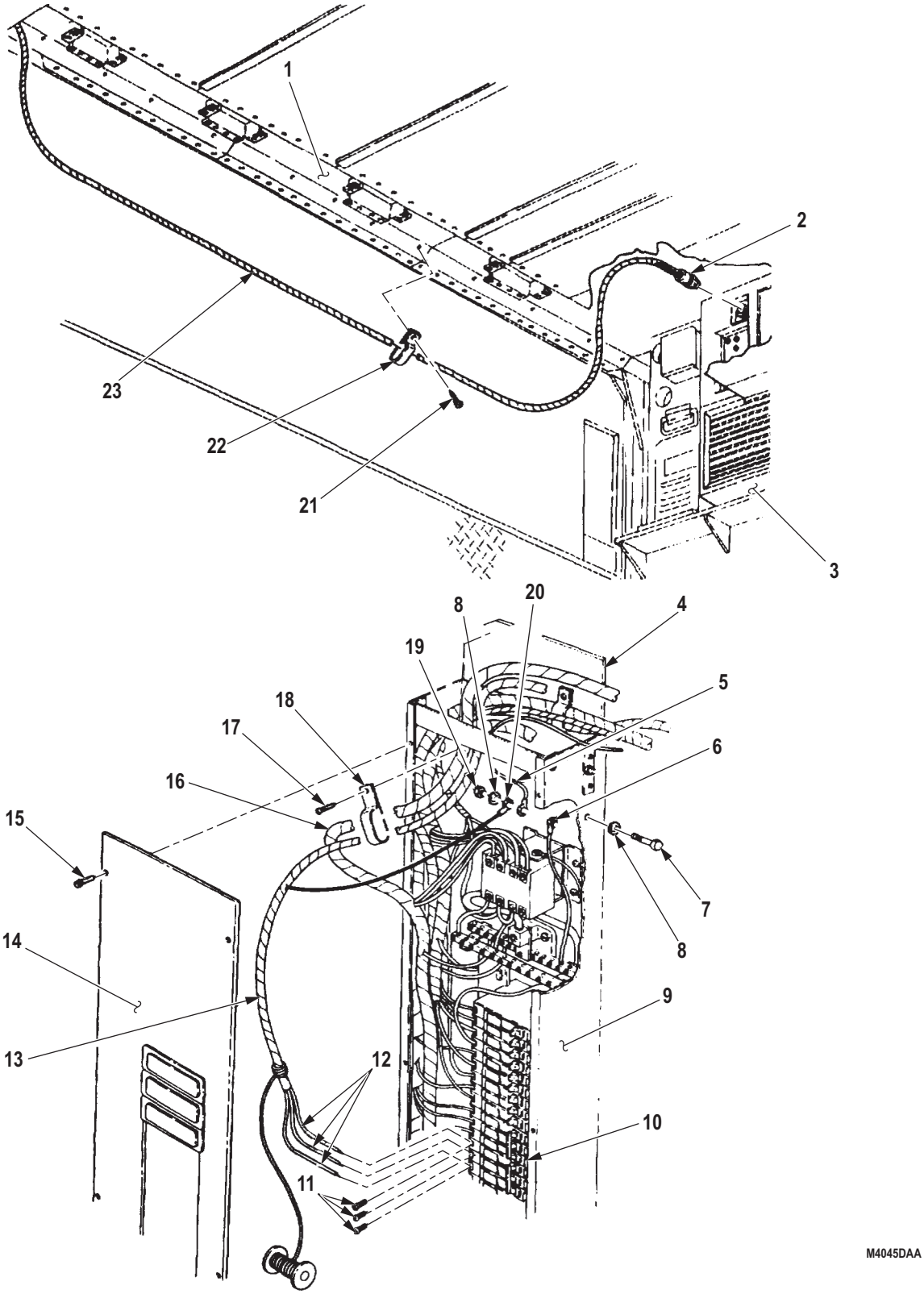


Figure 2. Van Air Conditioner Wiring Harness Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install ceiling filler and side panels.
2. Connect battery ground cables. (Volume 2, WP 0350)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
VAN HEATER WIRING HARNESS REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

Equipment Condition (cont.)
Battery ground cables disconnected.
(Volume 2, WP 0350)
Ceiling filler and side panels removed.

REMOVAL

NOTE

Tag wires for installation.

1. Remove 12 screws (Figure 1, Item 6) and clamps (Figure 1, Item 7) from van ceiling (Figure 1, Item 1) and wiring harness (Figure 1, Item 5).
2. Remove two grommets (Figure 1, Item 3) from van ceiling (Figure 1, Item 1) and wiring harness (Figure 1, Item 5).
3. Disconnect two plugs (Figure 1, Item 2) from heater (Figure 1, Item 4).

REMOVAL - Continued

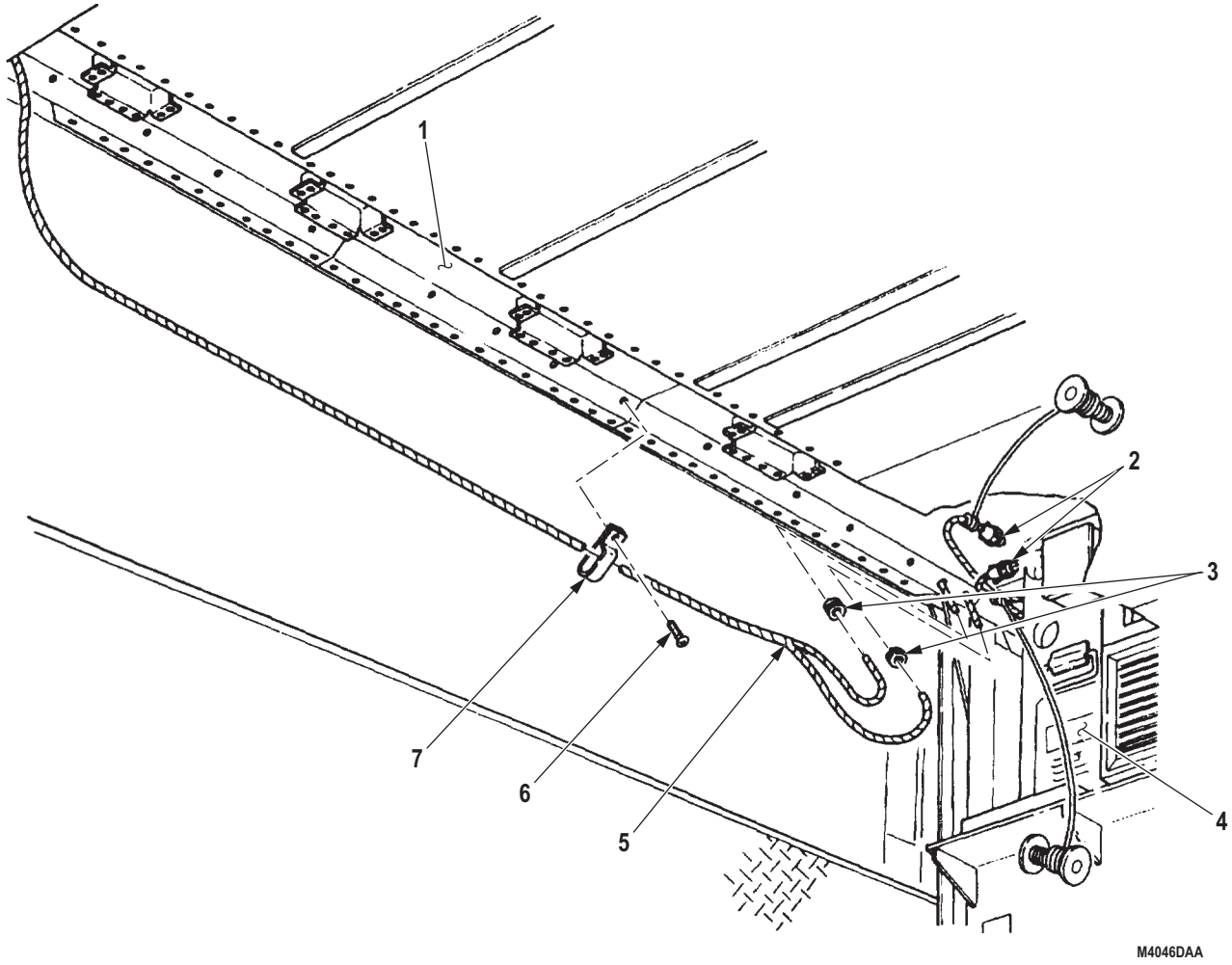


Figure 1. Van Heater Wiring Harness Removal.

REMOVAL - Continued

4. Remove thermostat cover (Figure 2, Item 5) from thermostat (Figure 2, Item 6).
5. Remove four screws (Figure 2, Item 4) and thermostat (Figure 2, Item 6) from control center box (Figure 2, Item 18).
6. Remove two screws (Figure 2, Item 2) and wires (Figure 2, Item 3) from control center box (Figure 2, Item 18).
7. Remove four screws (Figure 2, Item 7) and upper cover (Figure 2, Item 1) from control center box (Figure 2, Item 18).
8. Remove six screws (Figure 2, Item 14) and cover (Figure 2, Item 13) from load center (Figure 2, Item 9).
9. Remove screw (Figure 2, Item 16) and clamp (Figure 2, Item 17) from wiring harnesses (Figure 2, Item 15).
10. Remove setscrew (Figure 2, Item 11), screw (Figure 2, Item 10), and two wires (Figure 2, Item 12) from load center (Figure 2, Item 9).
11. Remove wiring harnesses (Figure 2, Item 15) from van body (Figure 2, Item 8).

REMOVAL - Continued

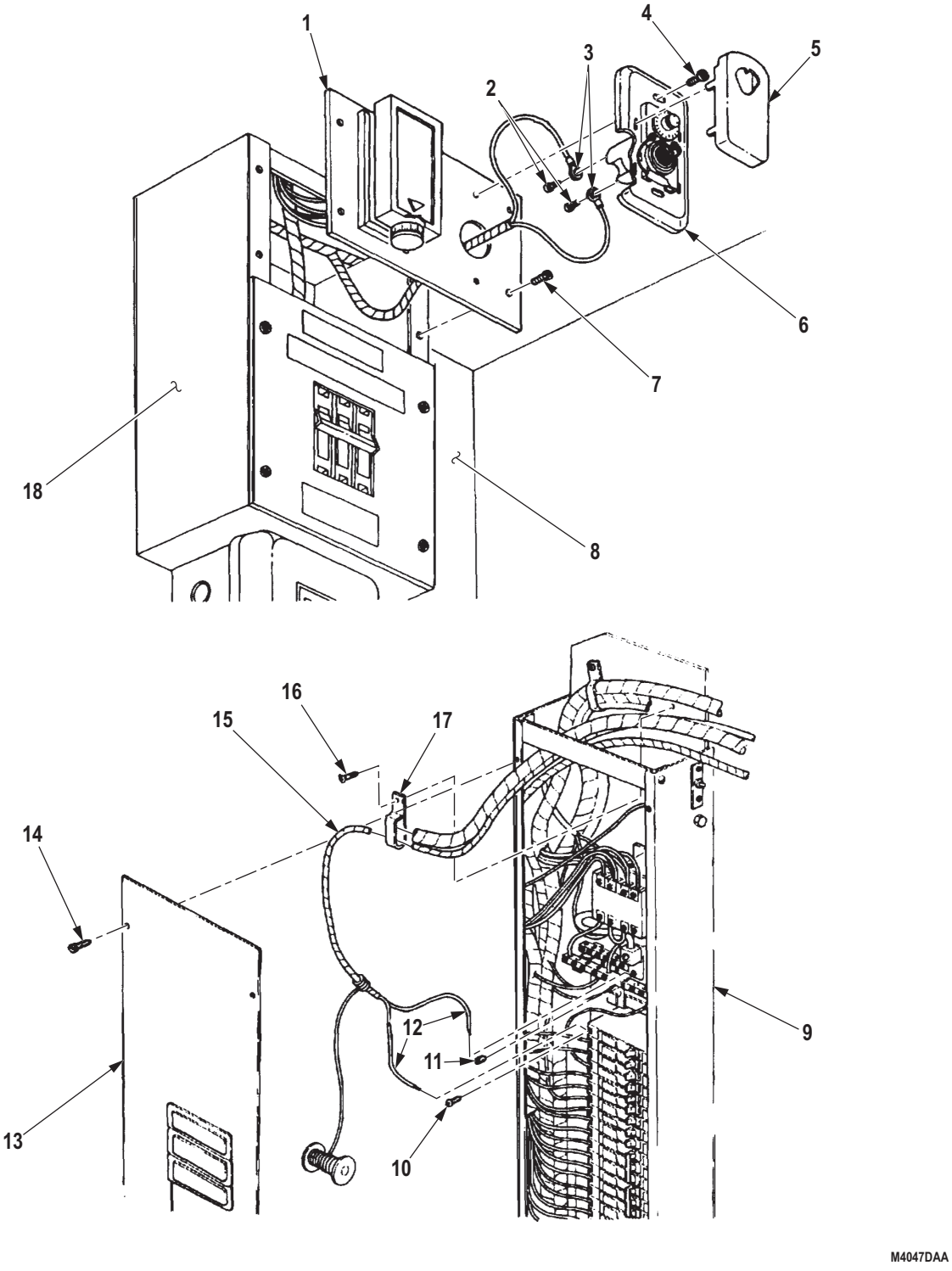


Figure 2. Van Heater Wiring Harness Removal.

END OF TASK

INSTALLATION

1. Position wiring harness (Figure 3, Item 15) on van body (Figure 3, Item 8) and install two wires (Figure 3, Item 12) on load center (Figure 3, Item 9) with screw (Figure 3, Item 10) and setscrew (Figure 3, Item 11).
2. Place clamp (Figure 3, Item 17) on wiring harnesses (Figure 3, Item 15) and install on load center (Figure 3, Item 9) with screw (Figure 3, Item 16).
3. Install cover (Figure 3, Item 13) on load center (Figure 3, Item 9) with six screws (Figure 3, Item 14).
4. Install upper cover (Figure 3, Item 1) on center control box (Figure 3, Item 18) with four screws (Figure 3, Item 7).
5. Install two wires (Figure 3, Item 3) on thermostat (Figure 3, Item 6) with two screws (Figure 3, Item 2).
6. Install thermostat (Figure 3, Item 6) on upper cover (Figure 3, Item 1) with two screws (Figure 3, Item 4).
7. Install thermostat cover (Figure 3, Item 5) on thermostat (Figure 3, Item 6).

INSTALLATION - Continued

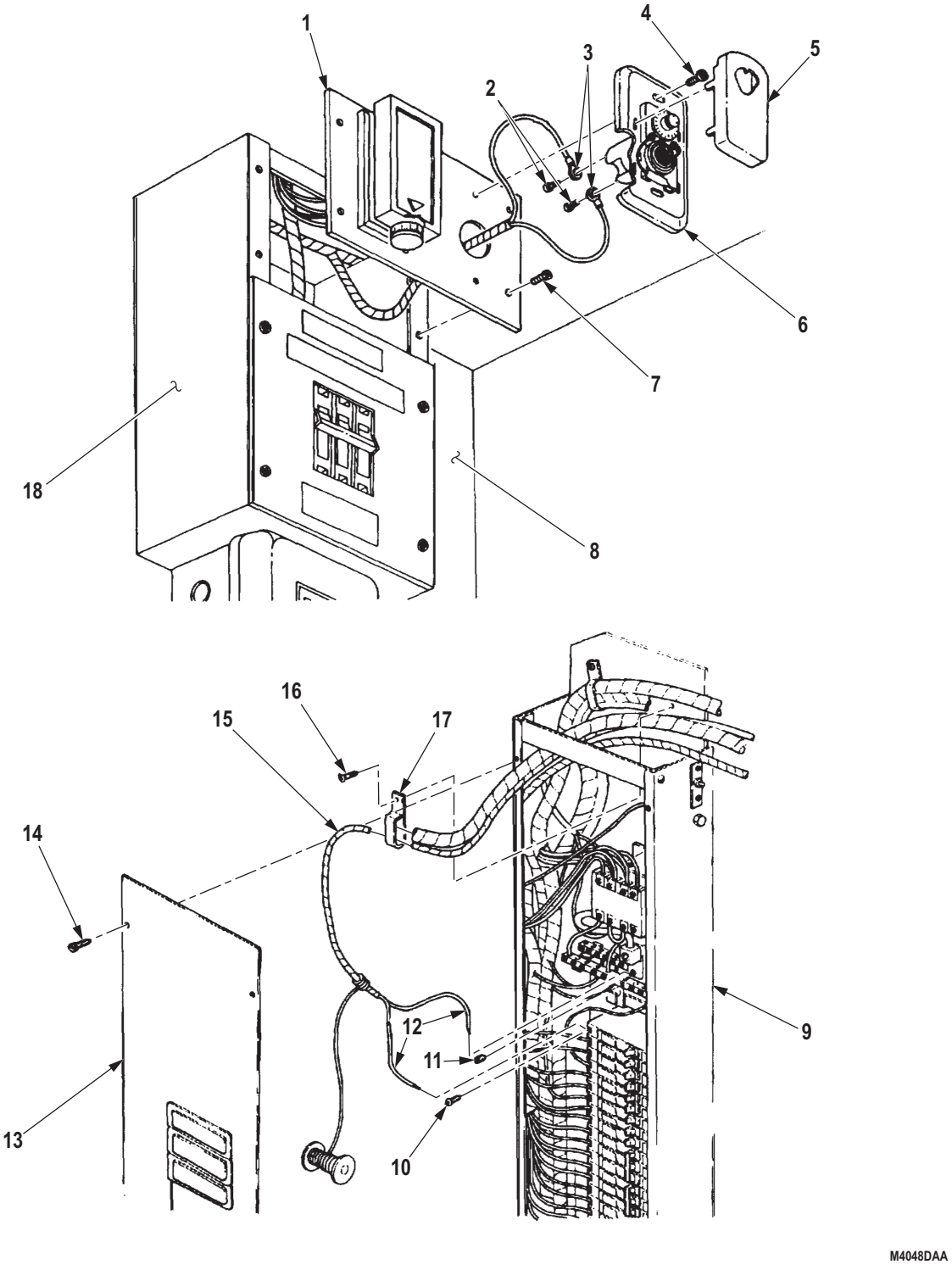


Figure 3. Van Heater Wiring Harness Installation.

INSTALLATION - Continued

8. Connect two plugs (Figure 4, Item 2) to heater (Figure 4, Item 4).
9. Install two grommets (Figure 4, Item 3) on wiring harness (Figure 4, Item 5) and van ceiling (Figure 4, Item 1).
10. Install 12 clamps (Figure 4, Item 7) on wiring harness (Figure 4, Item 5) and van ceiling (Figure 4, Item 1) with 12 screws (Figure 4, Item 6).

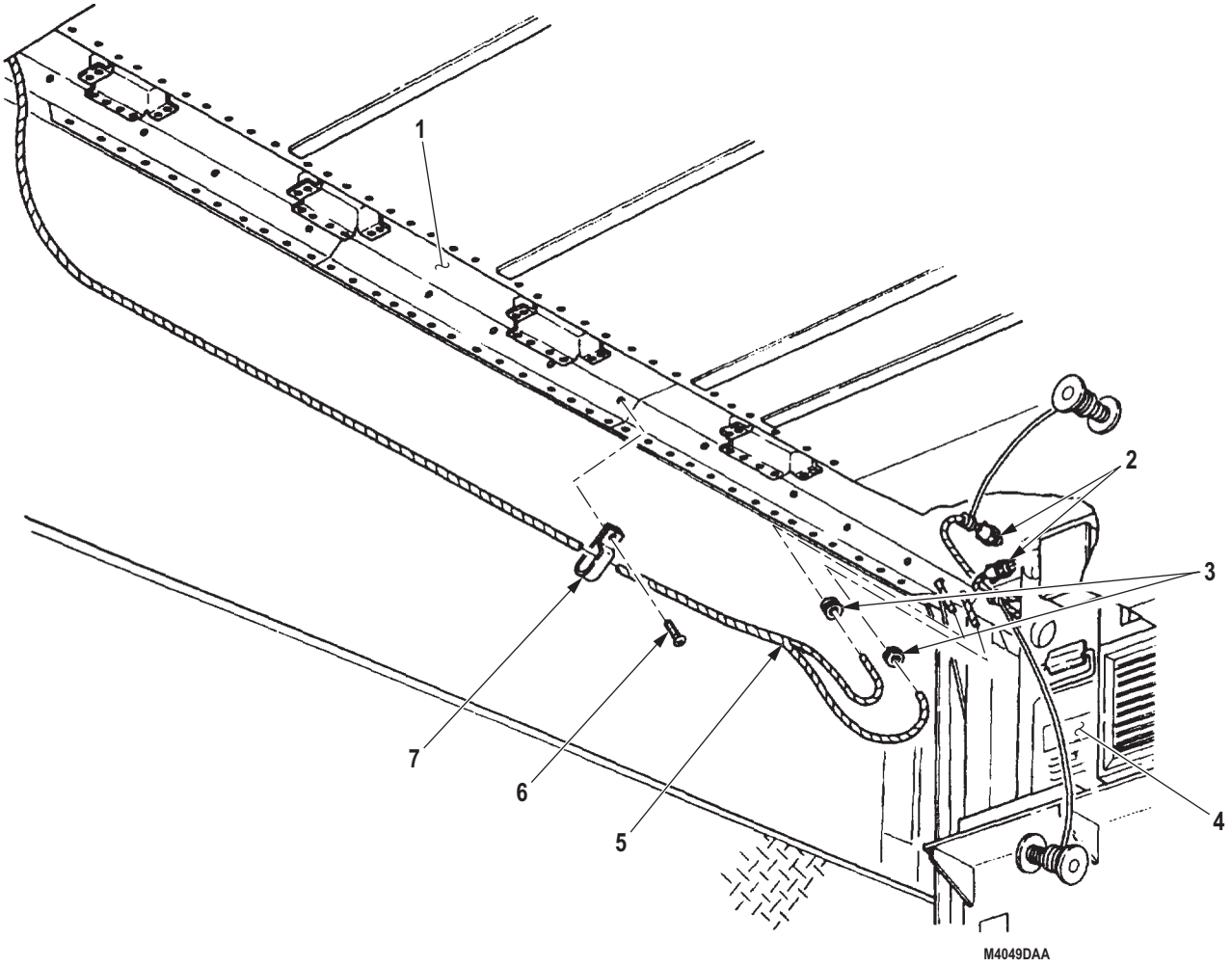


Figure 4. Van Heater Wiring Harness Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install ceiling filler and side panels.
2. Connect battery ground cables. (Volume 2, WP 0350)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
ELECTRIC HEATER (10 KW) WIRING HARNESS REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)
Tool Kit, Electrical Contact
(Volume 5, WP 0826, Table 1, Item 55)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

Equipment Condition (cont.)
Battery ground cables disconnected.
(Volume 2, WP 0350)
Ceiling filler and side panels removed.

REMOVAL

NOTE

Tag wires for installation.

1. Remove 12 screws (Figure 1, Item 12) and clamps (Figure 1, Item 11) from van ceiling (Figure 1, Item 26) and wiring harness (Figure 1, Item 10).
2. Remove grommet (Figure 1, Item 15) from van ceiling (Figure 1, Item 26) and wiring harness (Figure 1, Item 10).
3. Remove wires (Figure 1, Item 15) and (Figure 1, Item 16) from heater (Figure 1, Item 14).
4. Remove thermostat cover (Figure 1, Item 4) from thermostat (Figure 1, Item 19).
5. Remove two screws (Figure 1, Item 3) and thermostat (Figure 1, Item 19) from upper cover (Figure 1, Item 28).
6. Remove three insulated wire splicers (Figure 1, Item 18) from wiring harness (Figure 1, Item 20) and thermostat leads (Figure 1, Item 2). Discard insulated wire splicers.
7. Remove four screws (Figure 1, Item 1) and upper cover (Figure 1, Item 28) from control center box (Figure 1, Item 17).
8. Remove six screws (Figure 1, Item 29) and cover (Figure 1, Item 30) from load center (Figure 1, Item 18).
9. Remove screw (Figure 1, Item 5), clamp (Figure 1, Item 6), and wiring harnesses (Figure 1, Item 21) and (Figure 1, Item 20) from load center (Figure 1, Item 8).
10. Remove screw (Figure 1, Item 22) and wire (Figure 1, Item 23) from neutral bus (Figure 1, Item 7).
11. Remove three screws (Figure 1, Item 25) and wires (Figure 1, Item 24) from 20 amp circuit breakers (Figure 1, Item 9).
12. Remove wiring harness (Figure 1, Item 20) from van body (Figure 1, Item 27).

REMOVAL - Continued

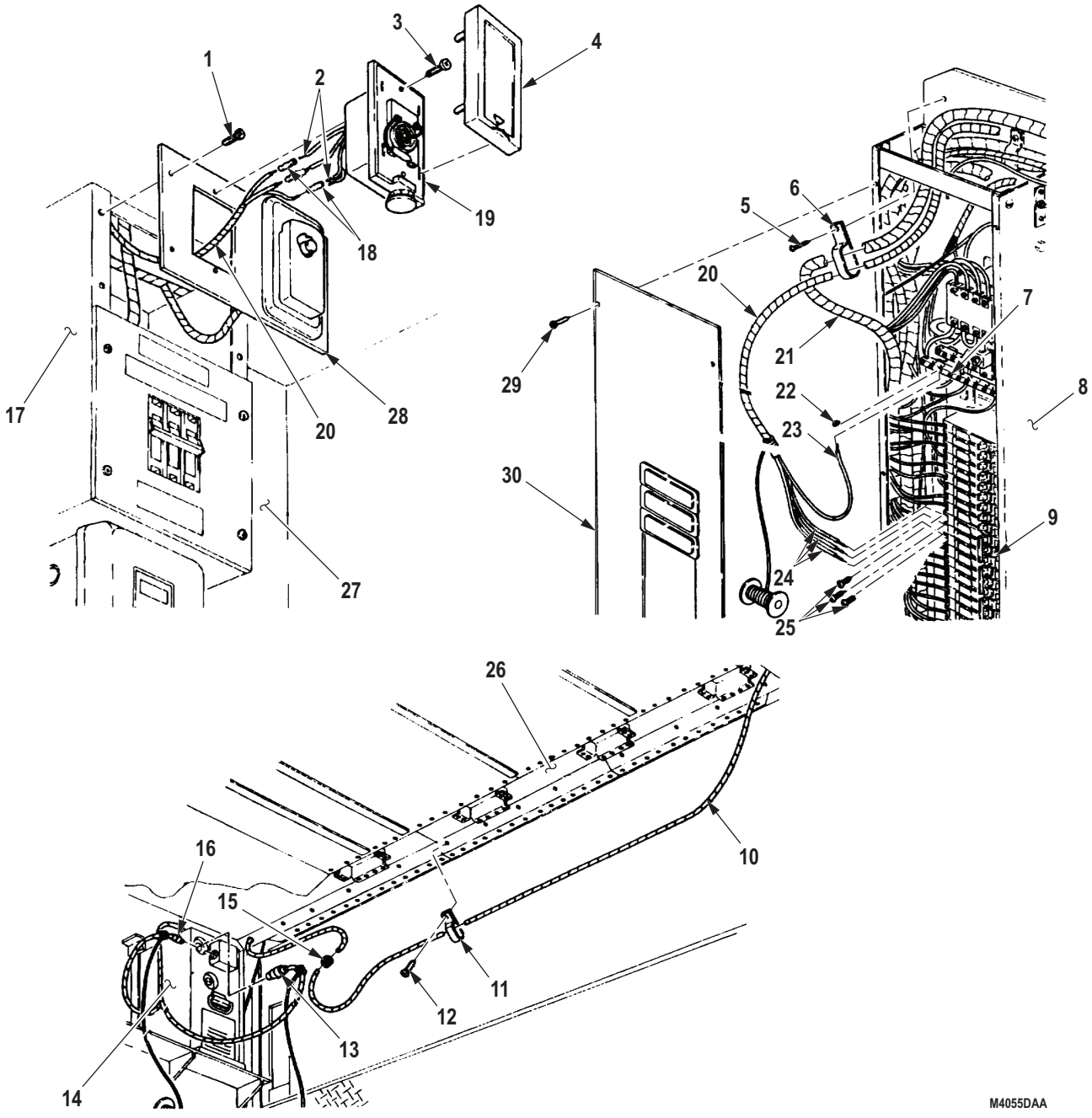


Figure 1. Electric Heater (10 Kw) Wiring Harness Removal.

END OF TASK

INSTALLATION

1. Position wiring harness (Figure 2, Item 20) on van body (Figure 2, Item 27).
2. Install three wires (Figure 2, Item 24) on 20 amp circuit breakers (Figure 2, Item 9) with three screws (Figure 2, Item 25).
3. Install wire (Figure 2, Item 23) on neutral bus (Figure 2, Item 7) with screw (Figure 2, Item 22).
4. Install clamp (Figure 2, Item 6) on wiring harnesses (Figure 2, Item 20) and (Figure 2, Item 21) and load center (Figure 2, Item 8) with screw (Figure 2, Item 5).
5. Install cover (Figure 2, Item 30) on load center (Figure 2, Item 3) with six screws (Figure 2, Item 29).
6. Install upper cover (Figure 2, Item 28) on control center box (Figure 2, Item 17) with four screws (Figure 2, Item 1).
7. Connect thermostat leads (Figure 2, Item 2) to wiring harness (Figure 2, Item 20) with three insulated wire splicers (Figure 2, Item 18).
8. Install thermostat (Figure 2, Item 19) on upper cover (Figure 2, Item 28) with two screws (Figure 2, Item 3).
9. Install thermostat cover (Figure 2, Item 4) on thermostat (Figure 2, Item 19).
10. Install wires (Figure 2, Item 19) and (Figure 2, Item 13) on heater (Figure 2, Item 14).
11. Install grommet (Figure 2, Item 15) on wiring harness (Figure 2, Item 10) and van ceiling (Figure 2, Item 26).
12. Install 12 clamps (Figure 2, Item 11) on wiring harness (Figure 2, Item 10) and van ceiling (Figure 2, Item 26) with 12 screws (Figure 2, Item 12).

INSTALLATION - Continued

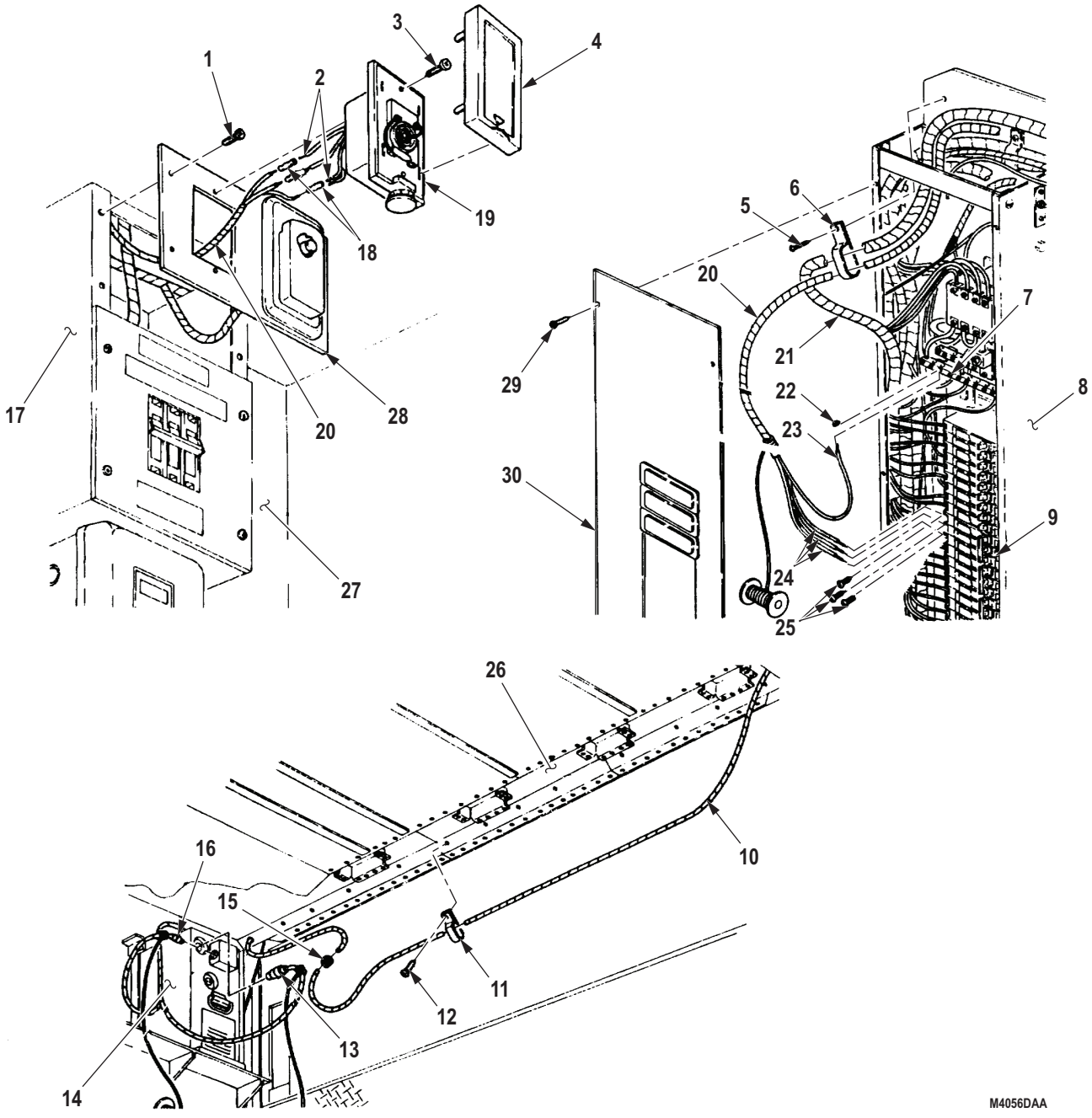


Figure 2. Electric Heater (10 Kw) Wiring Harness Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install ceiling filler and side panels.
2. Connect battery ground cables. (Volume 2, WP 0350)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
BLACKOUT BYPASS WIRING HARNESS REPAIR

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Battery ground cables disconnected.
(Volume 2, WP 0350)

REMOVAL

NOTE

Tag wires for installation.

1. Remove six screws (Figure 1, Item 1) and cover (Figure 1, Item 2) from load center (Figure 1, Item 6).
2. Remove two setscrews (Figure 1, Item 16) and wires (Figure 1, Item 3) from 3-pole circuit breaker (Figure 1, Item 5).
3. Remove screw (Figure 1, Item 15) and wire (Figure 1, Item 11) from 30 amp circuit breaker (Figure 1, Item 7).
4. Remove two screws (Figure 1, Item 8) and cover (Figure 1, Item 9) from switch (Figure 1, Item 13).
5. Remove two screws (Figure 1, Item 14) and switch (Figure 1, Item 13) from van body (Figure 1, Item 12).
6. Loosen three screws (Figure 1, Item 10) and remove wires (Figure 1, Item 3) from switch (Figure 1, Item 13).
7. Remove wiring harness (Figure 1, Item 4) from van body (Figure 1, Item 12).

REMOVAL - Continued

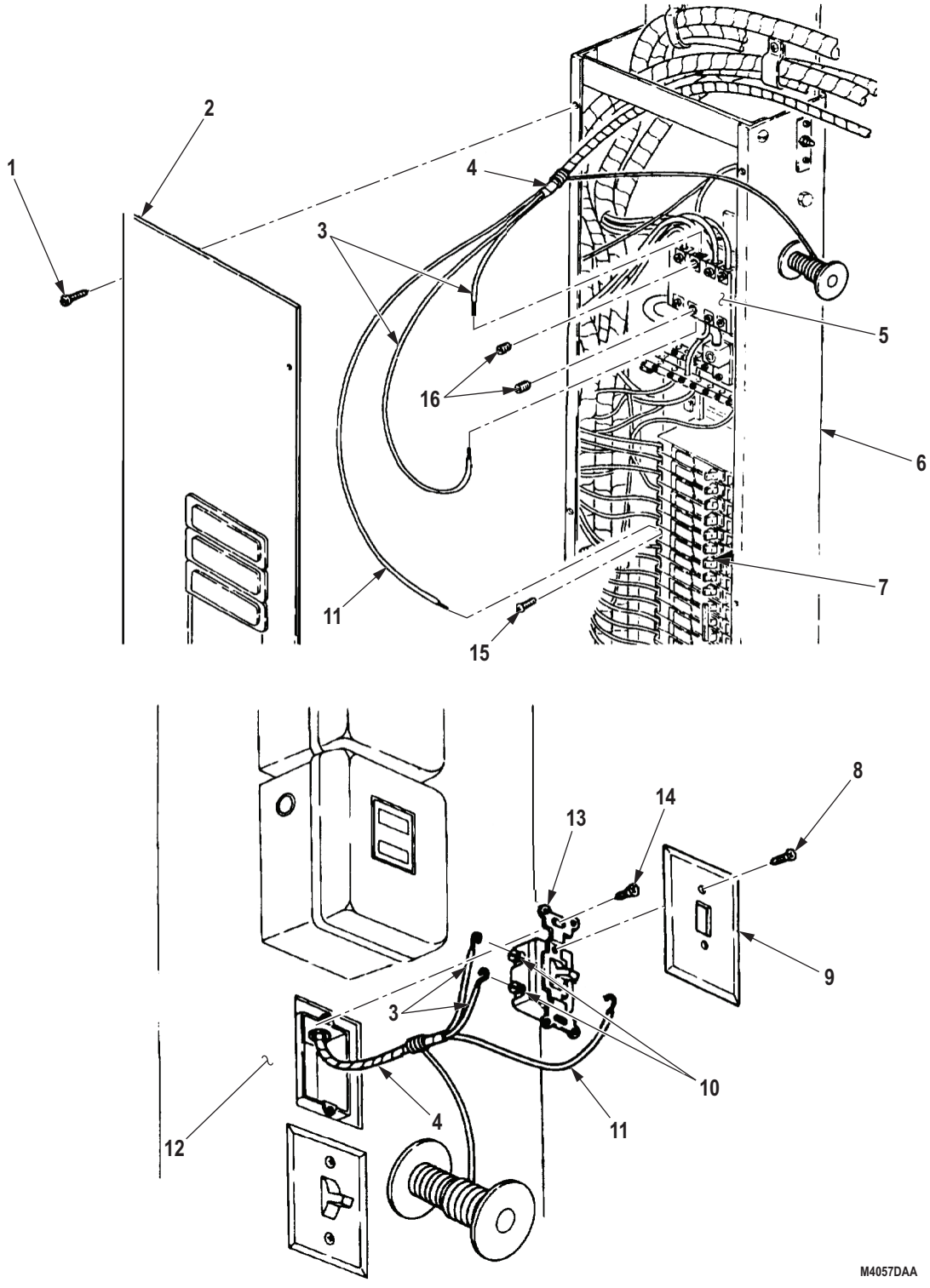


Figure 1. Blackout Bypass Wiring Harness Removal.

END OF TASK

REPAIR

For wiring harness repair, refer to (Volume 3, WP 0352).

END OF TASK

INSTALLATION

1. Position wiring harness (Figure 2, Item 4) on van body (Figure 2, Item 12).
2. Install three wires (Figure 2, Item 3) on switch (Figure 2, Item 13) and tighten three screws (Figure 2, Item 10).
3. Install switch (Figure 2, Item 15) on van body (Figure 2, Item 12) with two screws (Figure 2, Item 14).
4. Install cover (Figure 2, Item 9) on switch (Figure 2, Item 13) with two screws (Figure 2, Item 8).
5. Install wire (Figure 2, Item 11) on 30 amp circuit breaker (Figure 2, Item 7) with screw (Figure 2, Item 15).
6. Install two wires (Figure 2, Item 3) on 3-pole circuit breaker (Figure 2, Item 5) with two setscrews (Figure 2, Item 16).
7. Install cover (Figure 2, Item 2) on load center (Figure 2, Item 6) with six screws (Figure 2, Item 1).

INSTALLATION - Continued

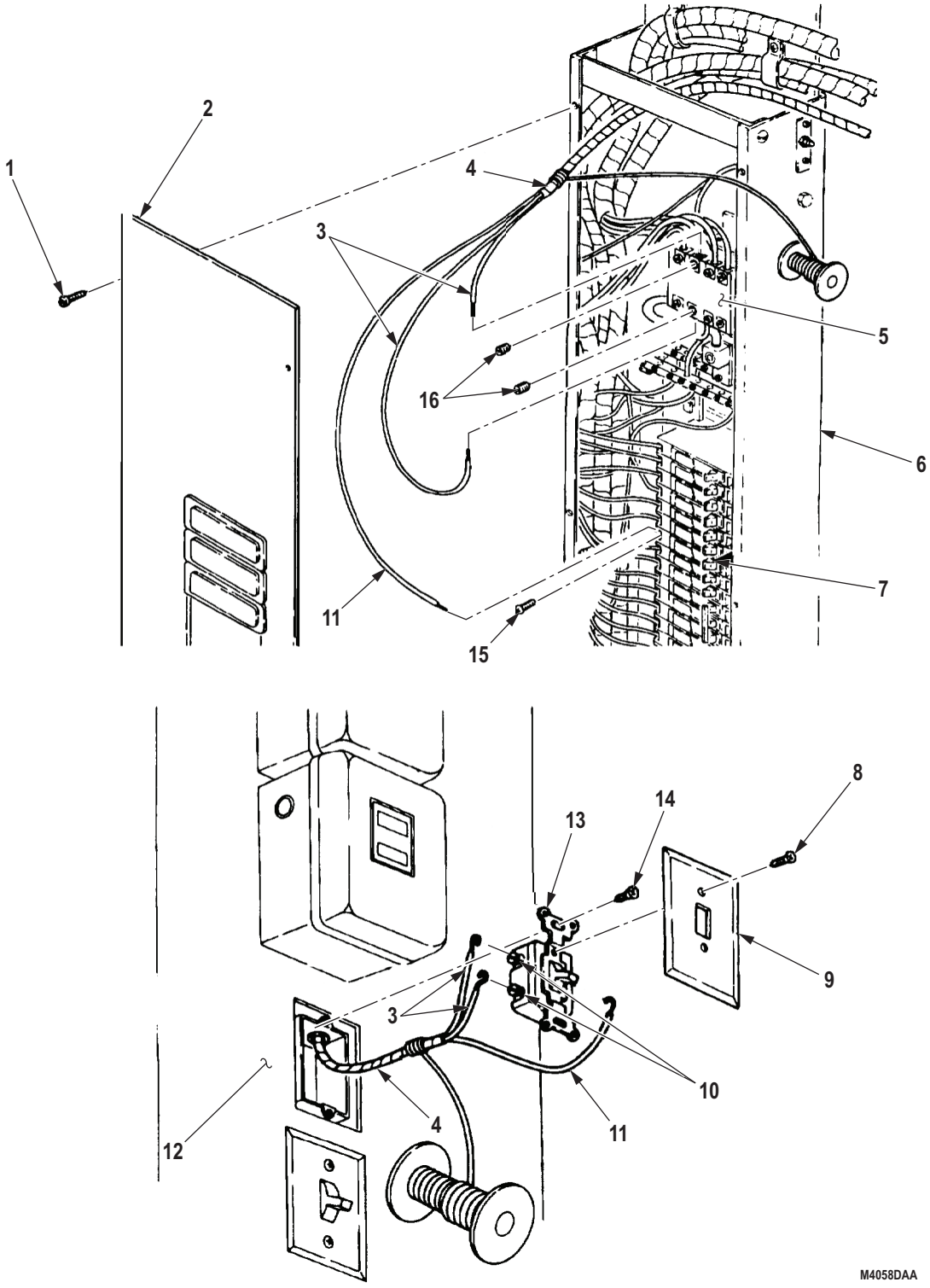


Figure 2. Blackout Bypass Wiring Harness Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

Connect battery ground cables. (Volume 2, WP 0350)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
EMERGENCY LAMP WIRING HARNESS REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Locknut (Volume 5, WP 0827, Table 1, Item 289)
Qty: 1

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

Equipment Condition (cont.)
Battery ground cables disconnected.
(Volume 2, WP 0350)
Ceiling filter and side panels removed.

REMOVAL

NOTE

Tag wires for installation.

1. Remove 12 screws (Figure 1, Item 6) and clamps (Figure 1, Item 5) from van ceiling (Figure 1, Item 3) and wiring harness (Figure 1, Item 4).
2. Remove two screws (Figure 1, Item 13) and cover (Figure 1, Item 12) from switch (Figure 1, Item 15).
3. Remove two screws (Figure 1, Item 14) and switch (Figure 1, Item 15) from switch box (Figure 1, Item 17).
4. Disconnect two wires (Figure 1, Item 11) and wire (Figure 1, Item 16) from switch (Figure 1, Item 15).
5. Remove four screws (Figure 1, Item 10) and box (Figure 1, Item 17) from van wall (Figure 1, Item 12).
6. Remove grommet (Figure 1, Item 1) from switch box (Figure 1, Item 17).
7. Disconnect emergency lamp wiring harness lead (Figure 1, Item 18) from emergency lamp wiring harness lead (Figure 1, Item 9).
8. Remove 12 screws (Figure 1, Item 6) and clamps (Figure 1, Item 5) from wiring harness (Figure 1, Item 8) in van ceiling (Figure 1, Item 3).
9. Remove grommet (Figure 1, Item 7) and wiring harness (Figure 1, Item 8) from van ceiling (Figure 1, Item 3).

REMOVAL - Continued

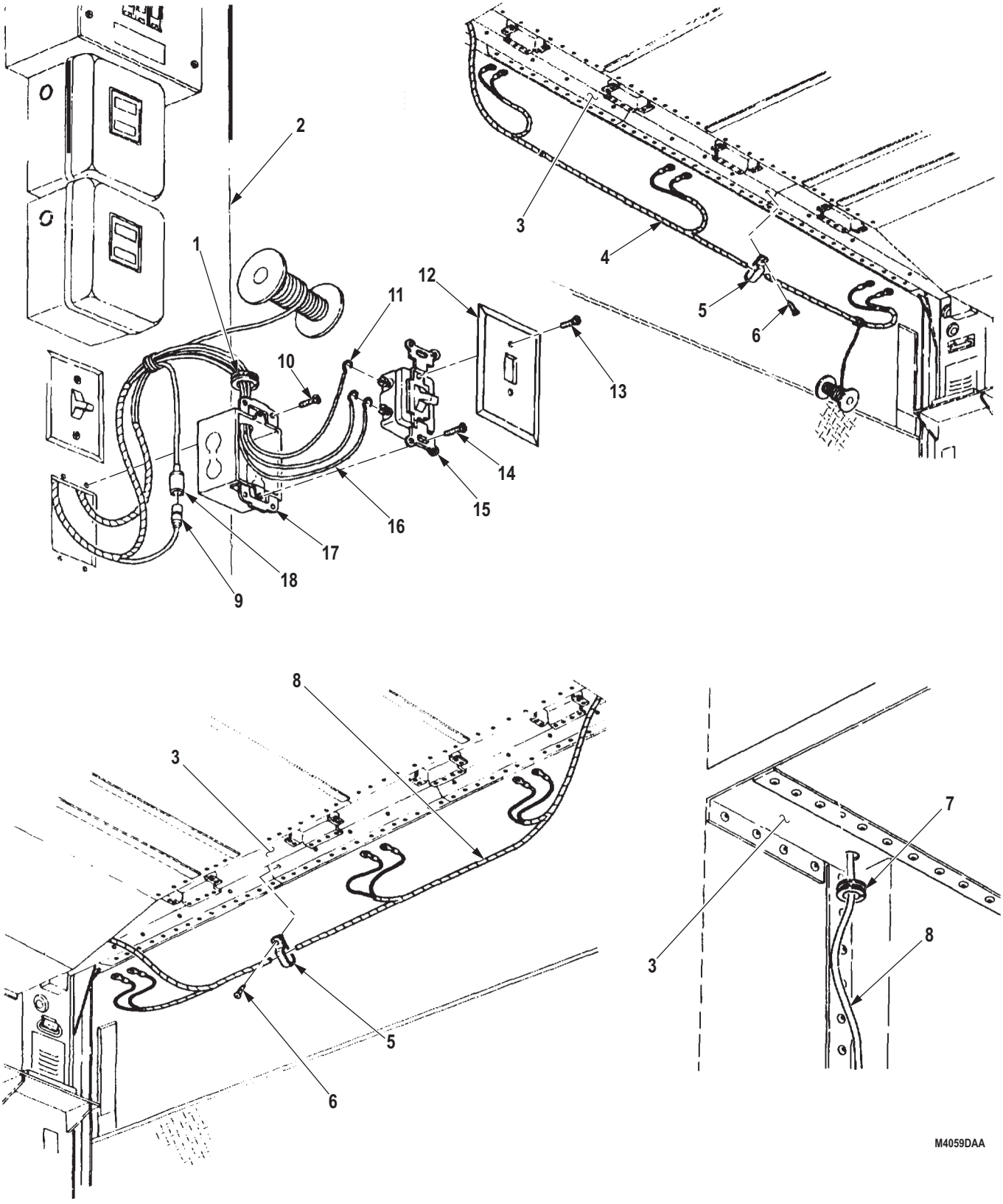


Figure 1. Emergency Lamp Wiring Harness Removal.

REMOVAL - Continued

10. Disconnect lead (Figure 2, Item 2) from circuit breaker (Figure 2, Item 1).
11. Remove two screws (Figure 2, Item 5) and clamps (Figure 2, Item 4) from wiring harness (Figure 2, Item 3) and van body (Figure 2, Item 12).
12. Remove two screws (Figure 2, Item 3) and clamps (Figure 2, Item 6) from wiring harness (Figure 2, Item 3) and van body (Figure 2, Item 12).
13. Remove locknut (Figure 2, Item 8), screw (Figure 2, Item 15), clamp (Figure 2, Item 14), and wiring harness (Figure 2, Item 3) from spare tire carrier bracket (Figure 2, Item 7). Discard locknut.
14. Remove nut (Figure 2, Item 11) and wire (Figure 2, Item 10) from positive battery terminal (Figure 2, Item 9).

REMOVAL - Continued

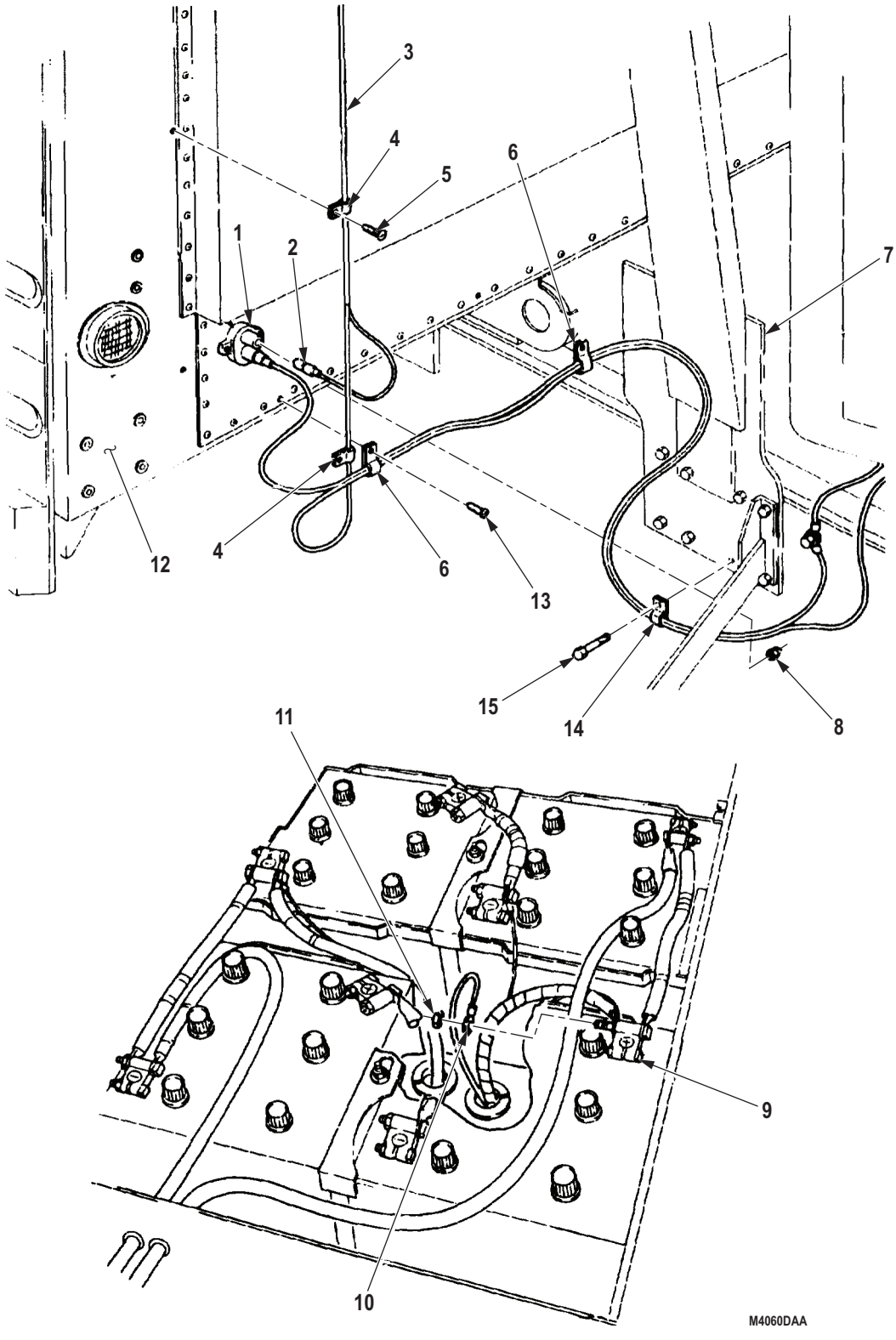


Figure 2. Emergency Wiring Harness Removal.

END OF TASK

INSTALLATION

1. Install wire (Figure 3, Item 10) on positive battery terminal (Figure 3, Item 9) with nut (Figure 3, Item 11).
2. Install wiring harness (Figure 3, Item 3) on spare tire carrier bracket (Figure 3, Item 7) with clamp (Figure 3, Item 14), screw (Figure 3, Item 15), and locknut (Figure 3, Item 8).
3. Install two clamps (Figure 3, Item 6) on wiring harness (Figure 3, Item 3) and van body (Figure 3, Item 12) with two screws (Figure 3, Item 13).
4. Install two clamps (Figure 3, Item 14) on wiring harness (Figure 3, Item 3) and van body (Figure 3, Item 12) with two screws (Figure 3, Item 5).
5. Connect lead (Figure 3, Item 2) to circuit breaker (Figure 3, Item 1).

INSTALLATION - Continued

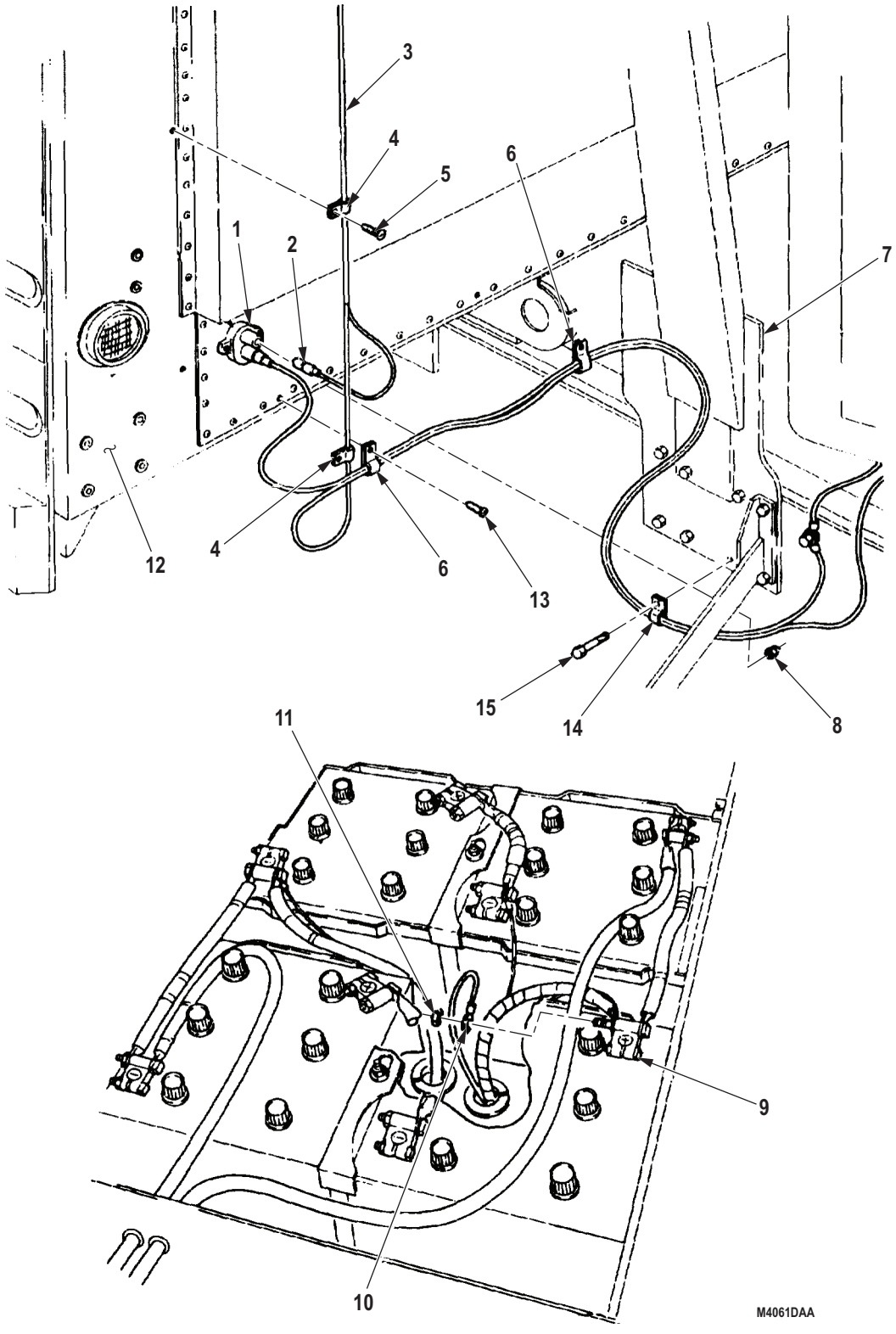


Figure 3. Emergency Lamp Wiring Harness Installation.

INSTALLATION - Continued

6. Install grommet (Figure 4, Item 3) on van ceiling (Figure 4, Item 1) and wiring harness (Figure 4, Item 2).
7. Install 12 clamps (Figure 4, Item 5) on van ceiling (Figure 4, Item 1) and wiring harness (Figure 4, Item 2) with 12 screws (Figure 4, Item 4).

INSTALLATION - Continued

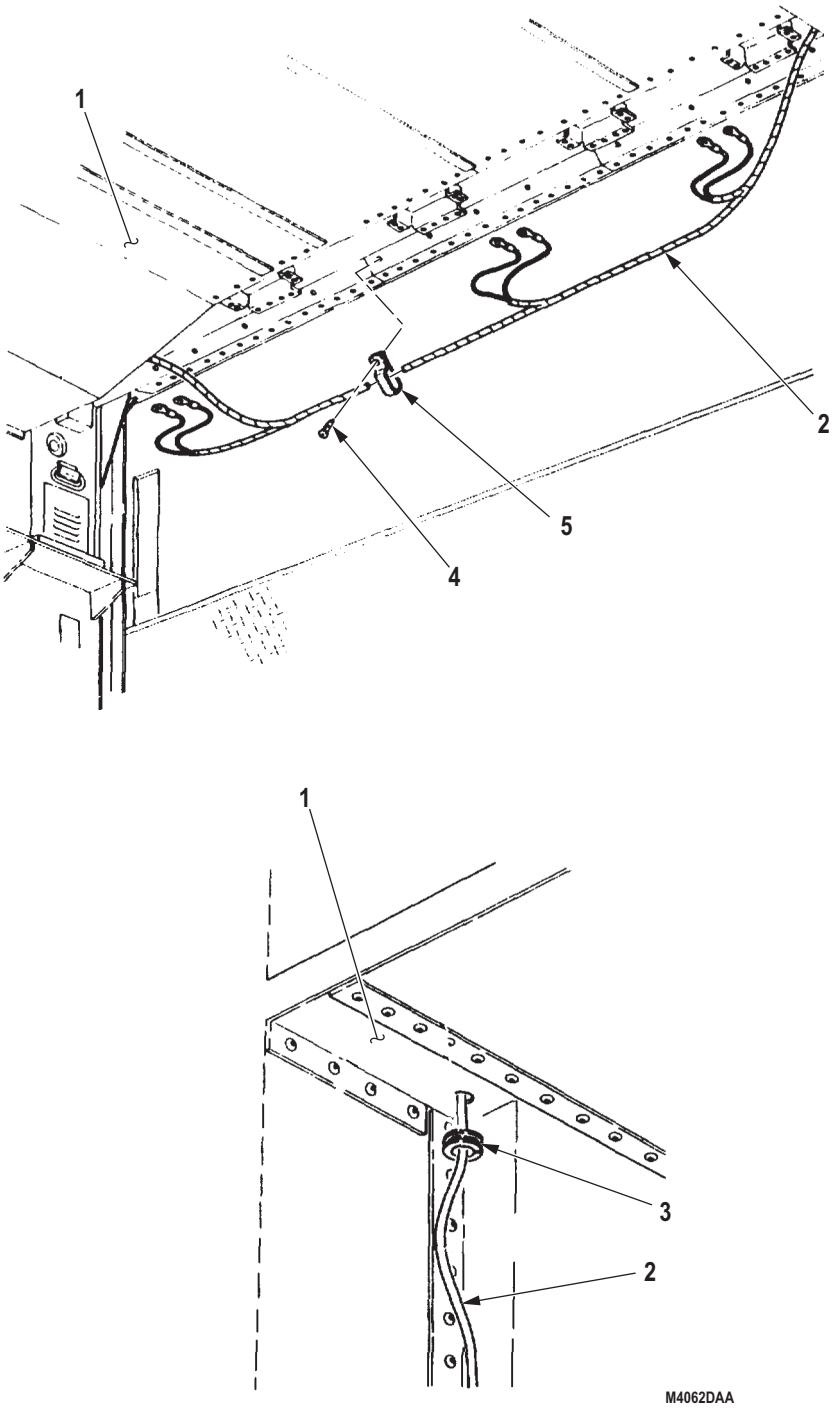


Figure 4. Emergency Lamp Wiring Harness Installation.

INSTALLATION - Continued

8. Connect emergency lamp wiring harness (Figure 5, Item 14) to emergency lamp wiring harness lead.
9. Install grommet (Figure 5, Item 1) on switch box (Figure 5, Item 13).
10. Install two cables (Figure 5, Item 11) and cable (Figure 5, Item 12) on switch (Figure 5, Item 6).
11. Install switch box (Figure 5, Item 13) on van wall (Figure 5, Item 2) with four screws (Figure 5, Item 10).
12. Install switch (Figure 5, Item 6) on switch box (Figure 5, Item 13) with two screws (Figure 5, Item 5).
13. Install cover (Figure 5, Item 4) on switch (Figure 5, Item 6) with two screws (Figure 5, Item 3).
14. Install emergency lamp wiring harness (Figure 5, Item 9) on van ceiling (Figure 5, Item 16) with 12 clamps (Figure 5, Item 7) and screws (Figure 5, Item 8).

INSTALLATION - Continued

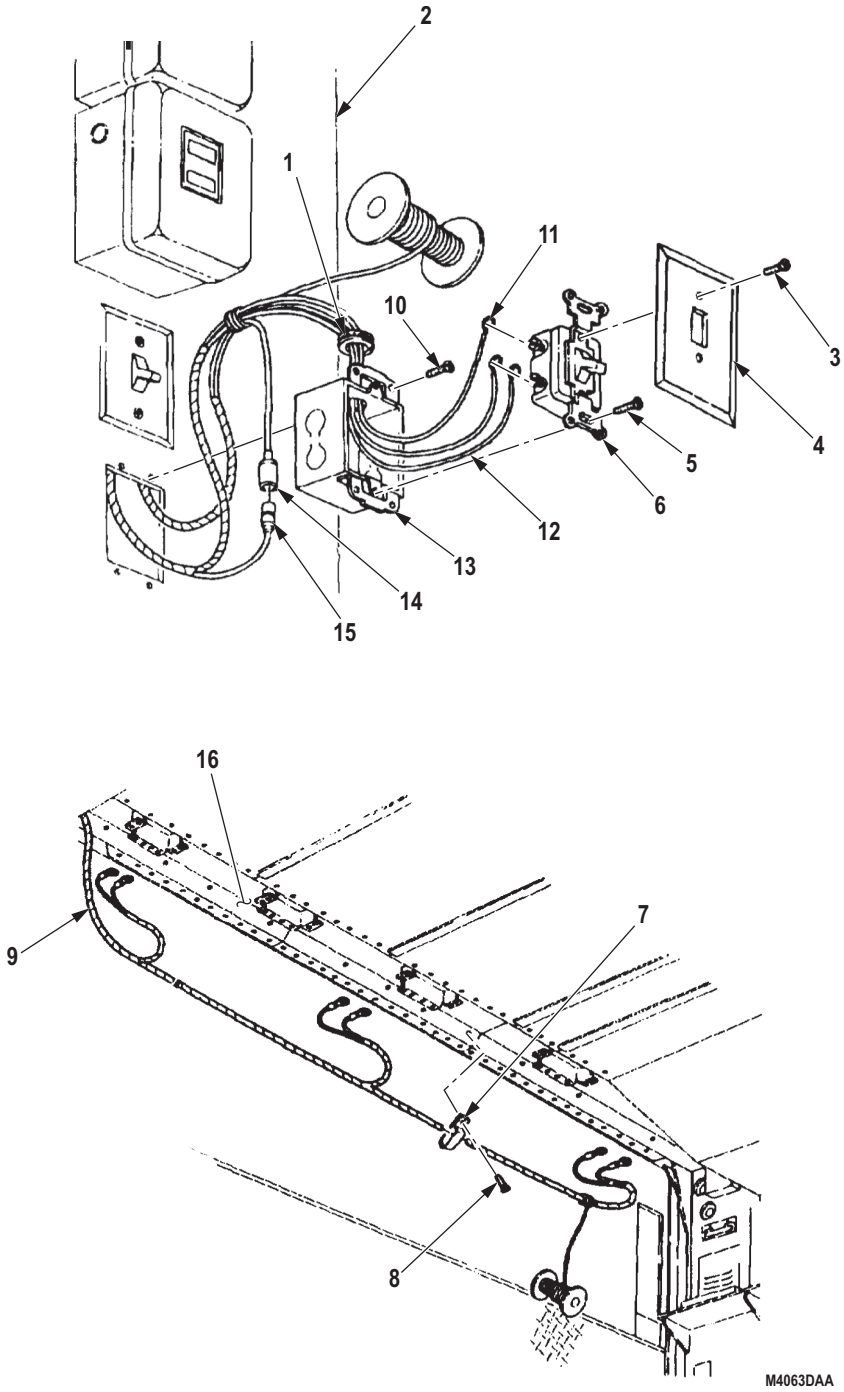


Figure 5. Emergency Lamp Wiring Harness Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install ceiling filler and side panels.
2. Connect battery ground cables. (Volume 2, WP 0350)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
BLACKOUT AND CLEARANCE LIGHTS WIRING HARNESS REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Main power switch off. (TM 9-2320-272-10)
Clearance and blackout marker lights removed.
(WP 0644)

Equipment Condition (cont.)
Rear wall interior panels removed.
Ceiling filler and side panels removed.
Ceiling air ducts removed.
Battery ground cables disconnected.
(Volume 2, WP 0350)

REMOVAL

NOTE

Tag wires for installation.

1. Remove grommet (Figure 1, Item 2) from van body (Figure 1, Item 3) and wiring harness (Figure 1, Item 1).
2. Remove two screws (Figure 1, Item 13) and clamps (Figure 1, Item 14) from van body (Figure 1, Item 3) and wiring harness (Figure 1, Item 1).
3. Disconnect two wiring harness connectors (Figure 1, Item 4) from rear wiring harness connectors (Figure 1, Item 5).
4. Remove 12 screws (Figure 1, Item 10) and clamps (Figure 1, Item 11) from van ceiling (Figure 1, Item 12) and wiring harness (Figure 1, Item 1).
5. Remove five screws (Figure 1, Item 8) and clamps (Figure 1, Item 9) from van ceiling (Figure 1, Item 12) and wiring harness (Figure 1, Item 1).
6. Remove four grommets (Figure 1, Item 6) from van ceiling (Figure 1, Item 12) and wiring harness (Figure 1, Item 1).
7. Remove wiring harness (Figure 1, Item 1) from van body (Figure 1, Item 7).

REMOVAL - Continued

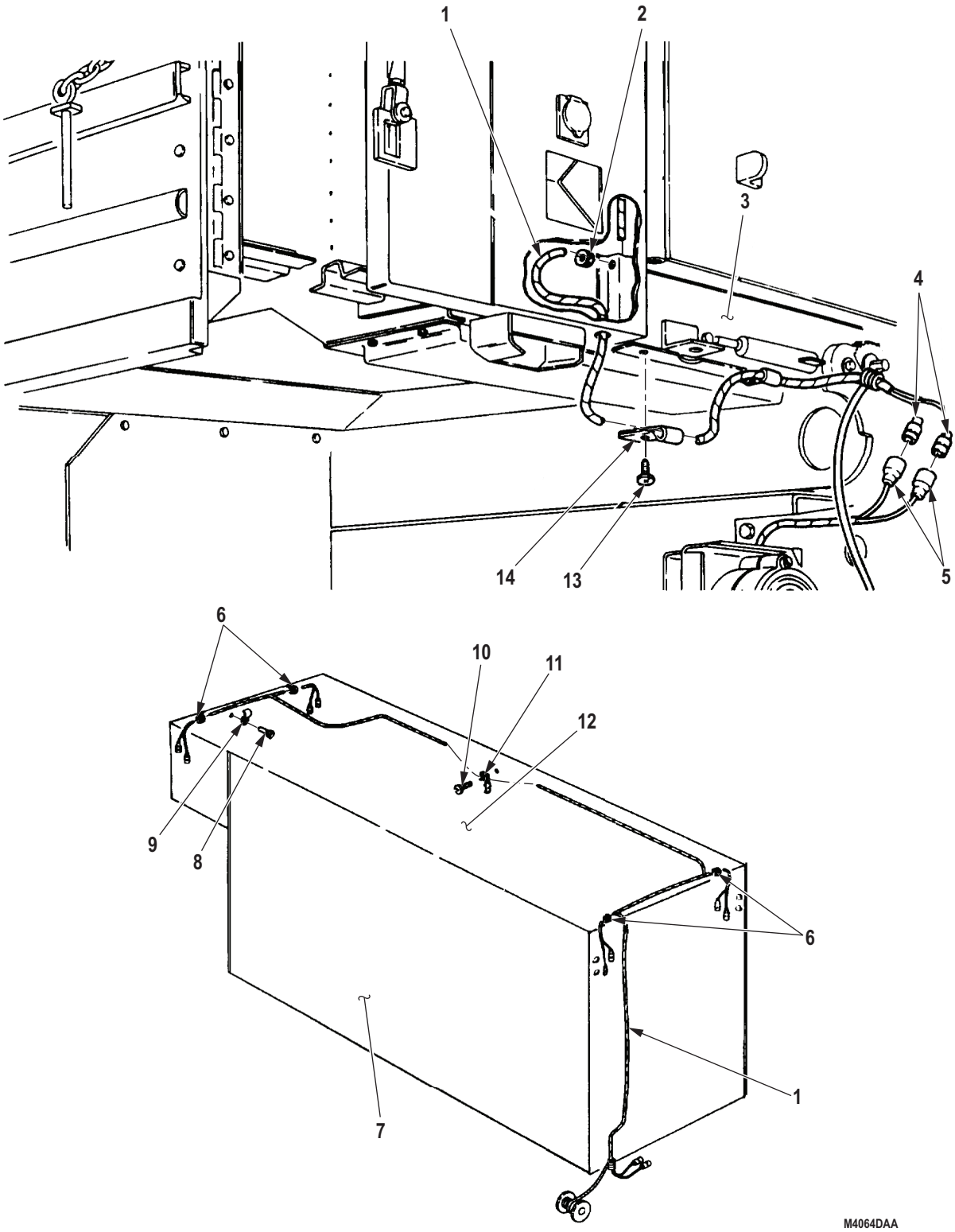


Figure 1. Blackout and Clearance Lights Wiring Harness Removal.

END OF TASK

INSTALLATION

1. Position wiring harness (Figure 2, Item 1) on van body (Figure 2, Item 7) and install four grommets (Figure 2, Item 6) on van ceiling (Figure 2, Item 12) and wiring harness (Figure 2, Item 1).
2. Install five clamps (Figure 2, Item 9) on van ceiling (Figure 2, Item 12) and wiring harness (Figure 2, Item 1) with five screws (Figure 2, Item 8).
3. Install 12 clamps (Figure 2, Item 11) on van ceiling (Figure 2, Item 12) and wiring harness (Figure 2, Item 1) with 12 screws (Figure 2, Item 10).
4. Connect two wiring harness connectors (Figure 2, Item 4) to rear wiring harness connectors (Figure 2, Item 5).
5. Install two clamps (Figure 2, Item 14) on wiring harness (Figure 2, Item 1) and van body (Figure 2, Item 3) with two screws (Figure 2, Item 13).
6. Install grommet (Figure 2, Item 2) on wiring harness (Figure 2, Item 1) and van body (Figure 2, Item 3).

INSTALLATION - Continued

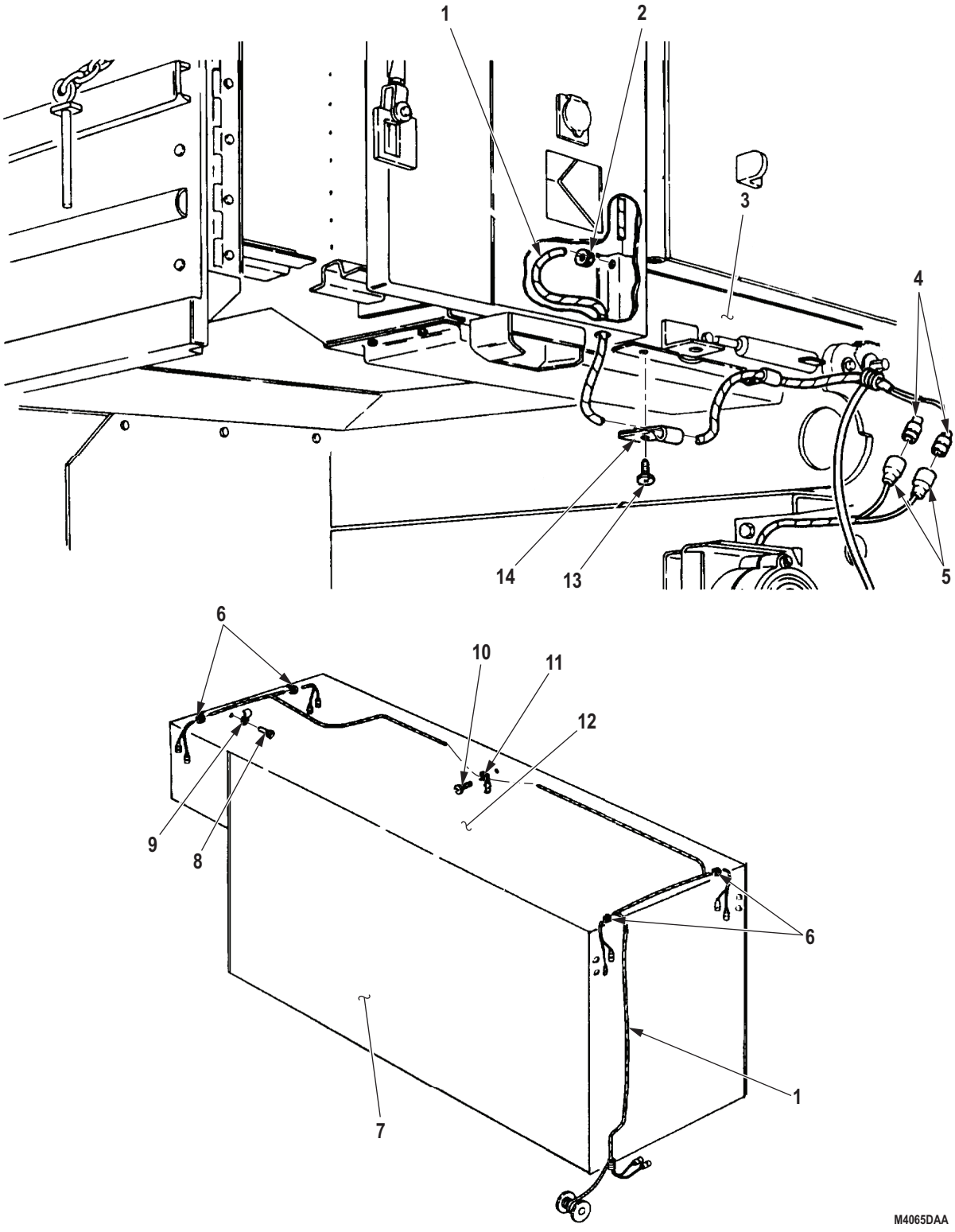


Figure 2. Blackout and Clearance Lights Wiring Harness Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install ceiling air ducts.
2. Install ceiling filler and side panels.
3. Install clearance and blackout marker lights. (WP 0644)
4. Install rear wall interior panels.
5. Connect battery ground cables. (Volume 2, WP 0350)
6. Main power switch on. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
400 HZ SUPPLY WIRING HARNESS REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Sealing Compound
(Volume 5, WP 0825, Table 1, Item 57)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

Equipment Condition (cont.)
Battery ground cables disconnected.
(Volume 2, WP 0350)
Ceiling filler and side panels removed.

REMOVAL

NOTE

Tag wires for installation.

1. Remove four screws (Figure 1, Item 1) and upper cover (Figure 1, Item 2) from control center box (Figure 1, Item 10).
2. Remove four screws (Figure 1, Item 5) and lower cover (Figure 1, Item 4) from control center box (Figure 1, Item 10).
3. Remove screw (Figure 1, Item 11) and wire (Figure 1, Item 8) from terminal (Figure 1, Item 9).
4. Remove three screws (Figure 1, Item 3) and wires (Figure 1, Item 7) from circuit breaker (Figure 1, Item 6).

REMOVAL - Continued

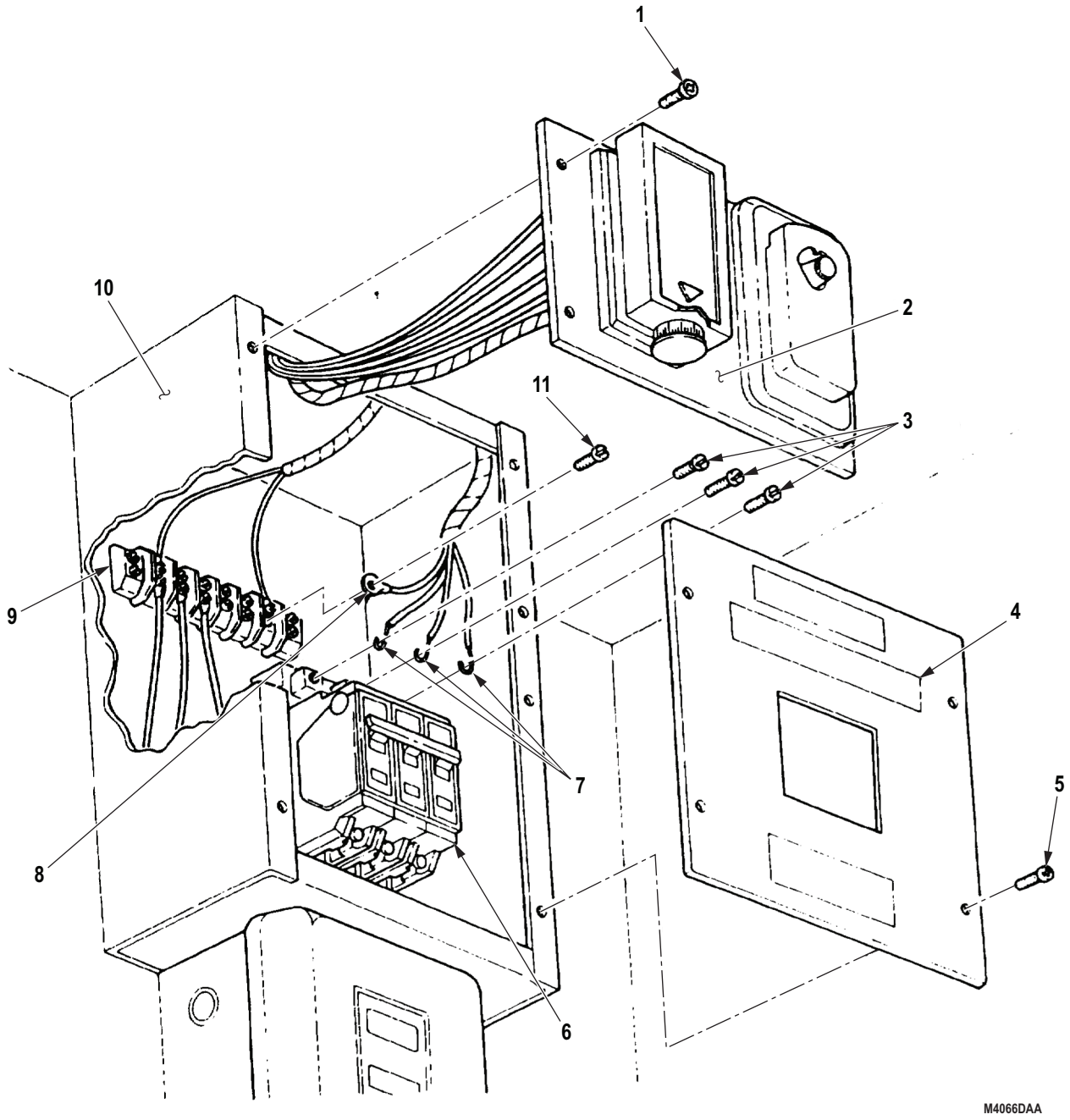


Figure 1. 400 Hz Supply Wiring Harness Removal.

REMOVAL - Continued

5. Disconnect cables (Figure 2, Items 12 and 13) from connectors (Figure 2, Items 6 and 10).
6. Remove eight screws (Figure 2, Item 11) and electrical connector box cover (Figure 2, Item 7) from electrical connector box (Figure 2, Item 9).
7. Disconnect four wires (Figure 2, Item 8) from connector (Figure 2, Item 6).
8. Remove six screws (Figure 2, Item 15) and cover (Figure 2, Item 16) from load center (Figure 2, Item 4).
9. Remove screw (Figure 2, Item 1) and clamp (Figure 2, Item 2) from harness (Figure 2, Item 3), harness (Figure 2, Item 14), and load center (Figure 2, Item 4).
10. Pull wiring harness (Figure 2, Item 14) out of coupling (Figure 2, Item 5) and remove from load center (Figure 2, Item 4) and electrical connector box (Figure 2, Item 9).

REMOVAL - Continued

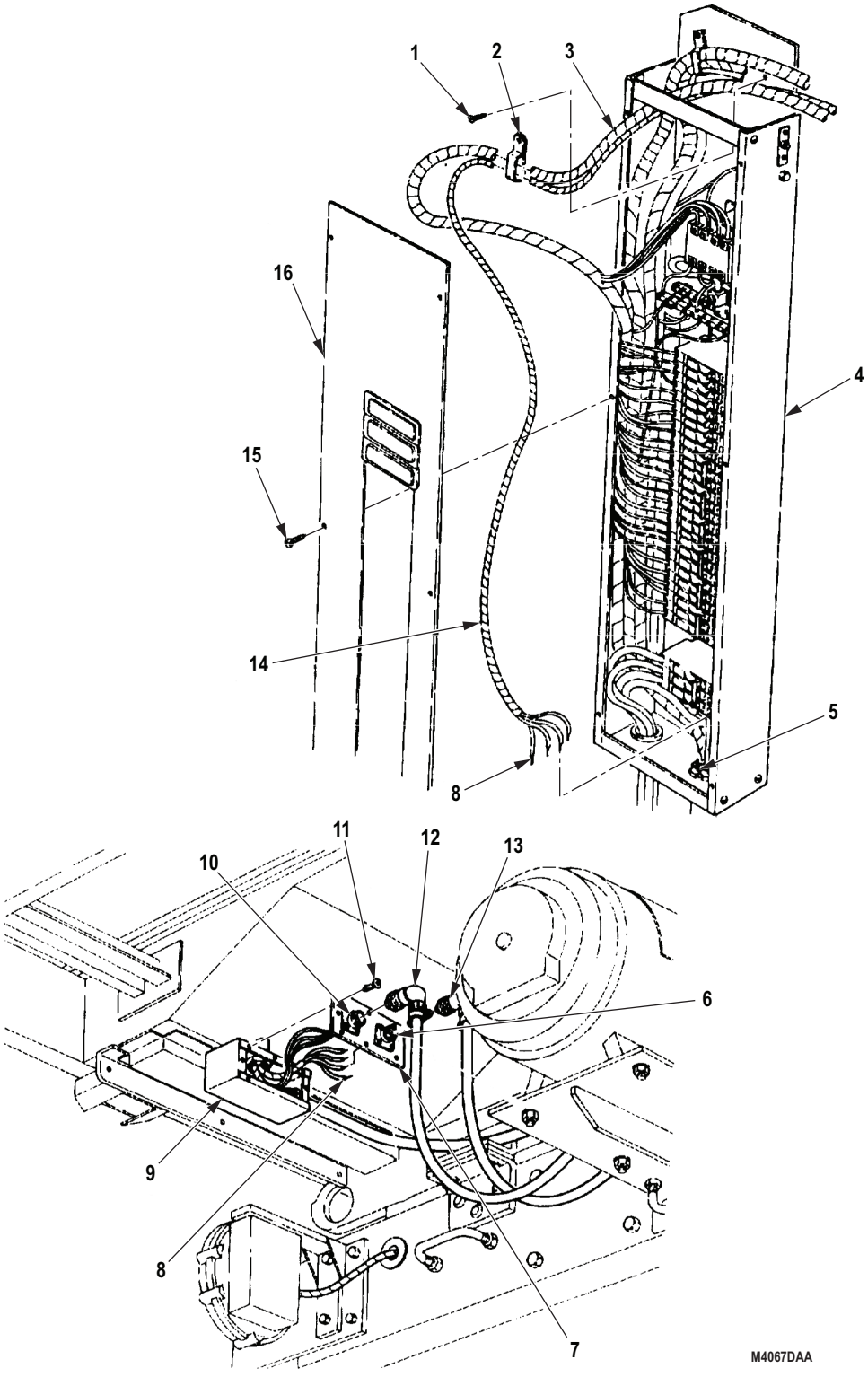


Figure 2. 400 Hz Wiring Harness Removal.

END OF TASK

INSTALLATION

1. Push wiring harness (Figure 3, Item 14) through coupling (Figure 3, Item 5), electrical connector box (Figure 3, Item 9), and load center (Figure 3, Item 4).
2. Connect four wires (Figure 3, Item 8) to connector (Figure 3, Item 6).
3. Install clamp (Figure 3, Item 2) on harness (Figure 3, Item 3), harness (Figure 3, Item 14), and load center (Figure 3, Item 4) with screw (Figure 3, Item 1).
4. Install cover (Figure 3, Item 16) on load center (Figure 3, Item 4) with six screws (Figure 3, Item 15).
5. Apply sealing compound to screws (Figure 3, Item 11) and install electrical connector box cover (Figure 3, Item 7) on electrical connector box (Figure 3, Item 9) with eight screws (Figure 3, Item 11).
6. Connect cables (Figure 3, Items 12 and 13) to connectors (Figure 3, Items 6 and 10).

INSTALLATION - Continued

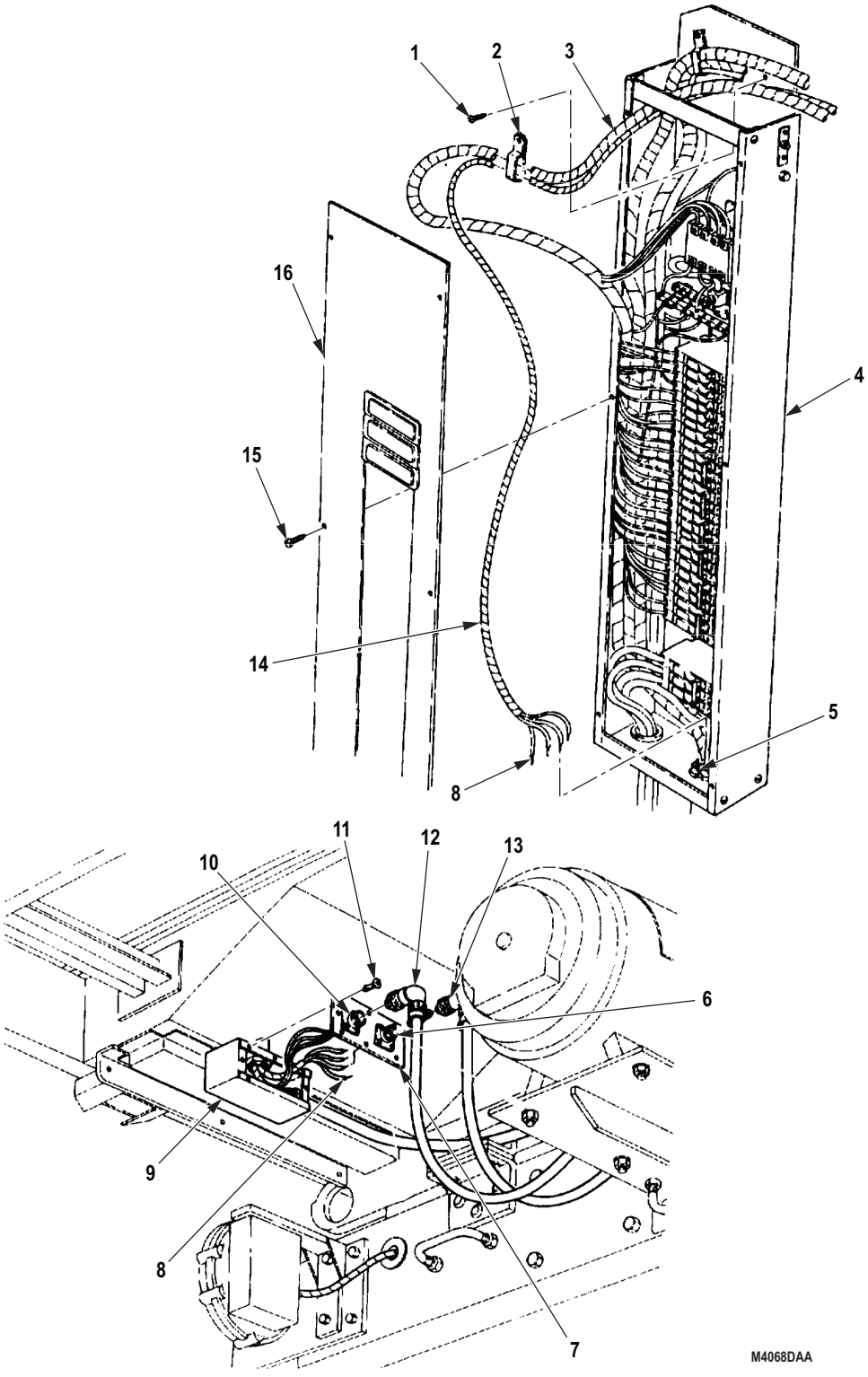


Figure 3. 400 Hz Supply Wiring Harness Installation.

INSTALLATION - Continued

7. Install three wires (Figure 4, Item 7) on circuit breaker (Figure 4, Item 6) with three screws (Figure 4, Item 3).
8. Install wire (Figure 4, Item 8) on terminal (Figure 4, Item 9) with screw (Figure 4, Item 11).
9. Install lower cover (Figure 4, Item 4) on control center box (Figure 4, Item 10) with four screws (Figure 4, Item 5).
10. Install upper cover (Figure 4, Item 2) on control center box (Figure 4, Item 10) with four screws (Figure 4, Item 1).

INSTALLATION - Continued

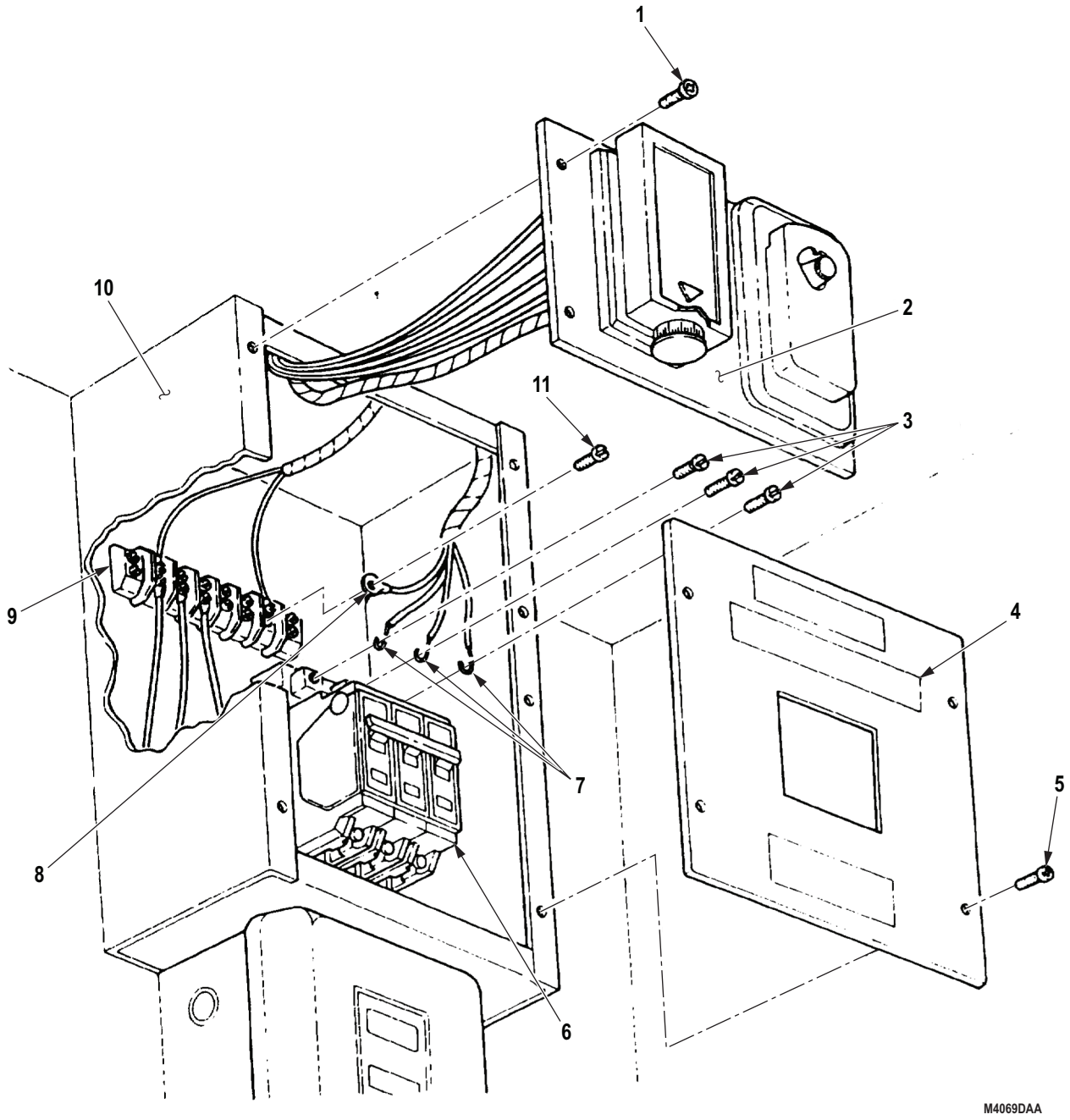


Figure 4. 400 Hz Supply Wiring Harness Removal.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install ceiling filler and side panels.
2. Connect battery ground cables. (Volume 2, WP 0350)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
BRANCHED 400 HZ RECEPTACLE WIRING HARNESS REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

Equipment Condition (cont.)
Battery ground cables disconnected.
(Volume 2, WP 0350)
Ceiling filler and side panels removed.

REMOVAL

NOTE

Tag wires for installation.

1. Remove four screws (Figure 1, Item 1) and upper cover (Figure 1, Item 2) from control center box (Figure 1, Item 6).
2. Remove two screws (Figure 1, Item 3) and wires (Figure 1, Item 4) from terminal (Figure 1, Item 5).

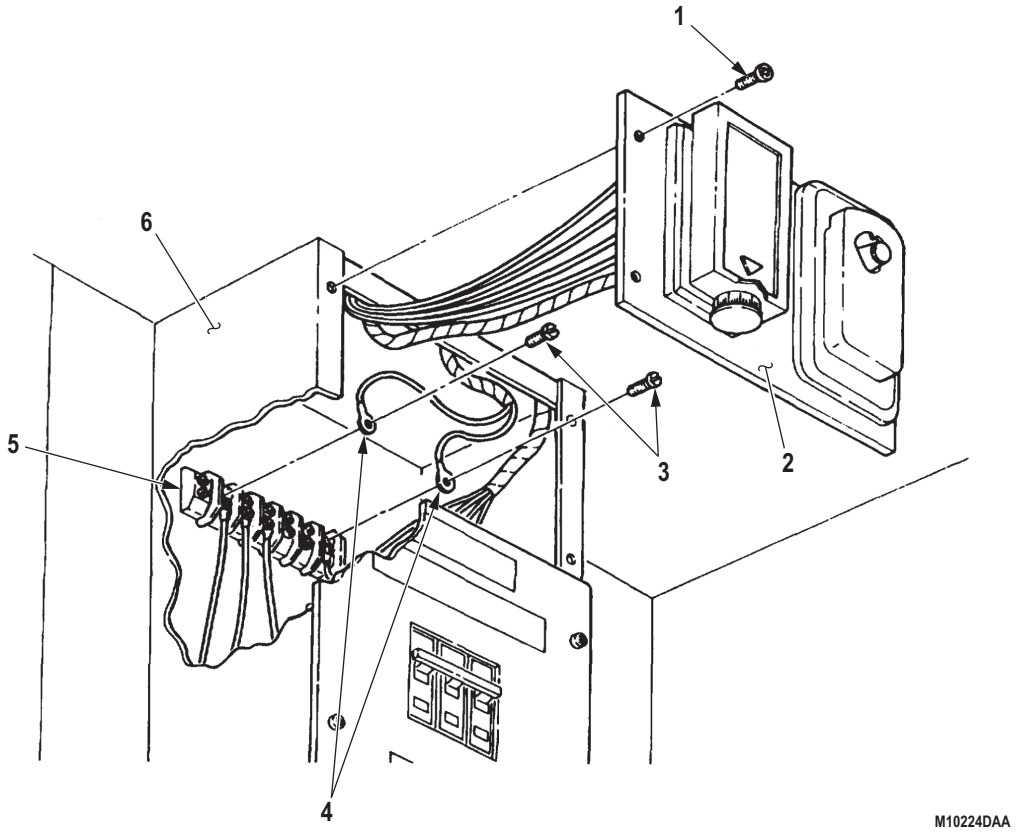


Figure 1. Branched 400 Hz Receptacle Wiring Harness Removal.

REMOVAL - Continued

3. Remove six screws (Figure 2, Item 4) and clamps (Figure 2, Item 3) from branched 400 Hz receptacle harness (Figure 2, Item 2) and van ceiling (Figure 2, Item 1).

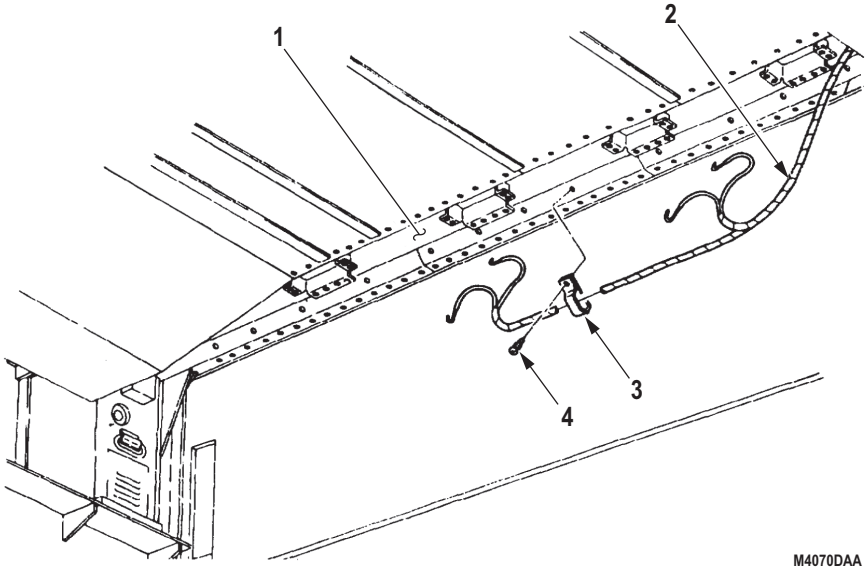


Figure 2. Branched 400 Hz Receptacle Wiring Harness Removal.

END OF TASK

INSTALLATION

1. Install 400 Hz branched receptacle harness (Figure 3, Item 2) on van ceiling (Figure 3, Item 1) with six clamps (Figure 3, Item 3) and screws (Figure 3, Item 4).

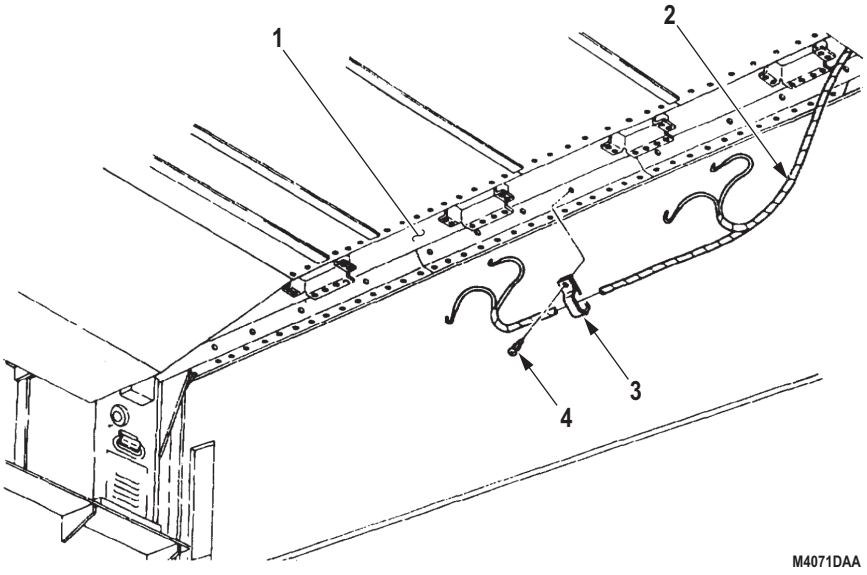


Figure 3. Branched 400 Hz Receptacle Wiring Harness Installation.

INSTALLATION - Continued

2. Install two wires (Figure 4, Item 4) on terminal (Figure 4, Item 5) with two screws (Figure 4, Item 3).
3. Install upper cover (Figure 4, Item 2) on control center box (Figure 4, Item 6) with four screws (Figure 4, Item 1).

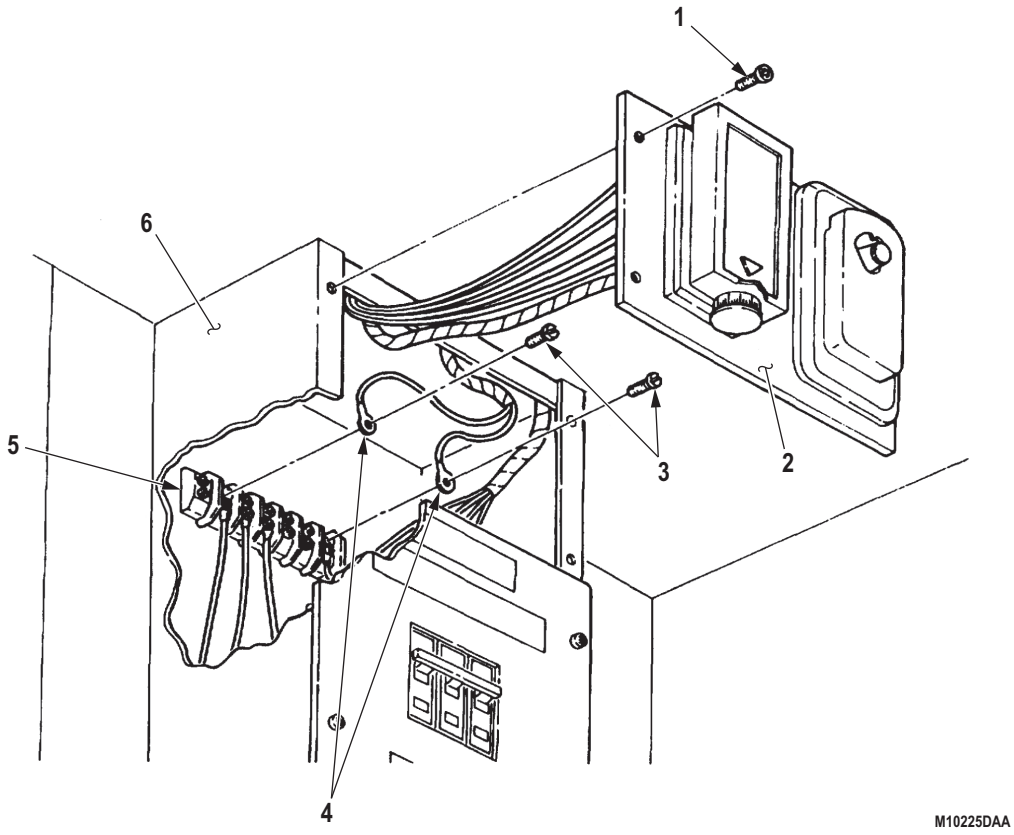


Figure 4. Branched 400 Hz Receptacle Wiring Harness Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install ceiling filler and side panels.
2. Connect battery ground cables. (Volume 2, WP 0350)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
TELEPHONE POST WIRING HARNESS REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Inside telephone jacks removed.
(WP 0626)

REMOVAL

NOTE

Tag wires for installation.

1. Remove six screws (Figure 1, Item 4) and clamps (Figure 1, Item 3) from wiring harness (Figure 1, Item 2) and van ceiling (Figure 1, Item 1).
2. Remove wiring harness (Figure 1, Item 2) from van body (Figure 1, Item 5).

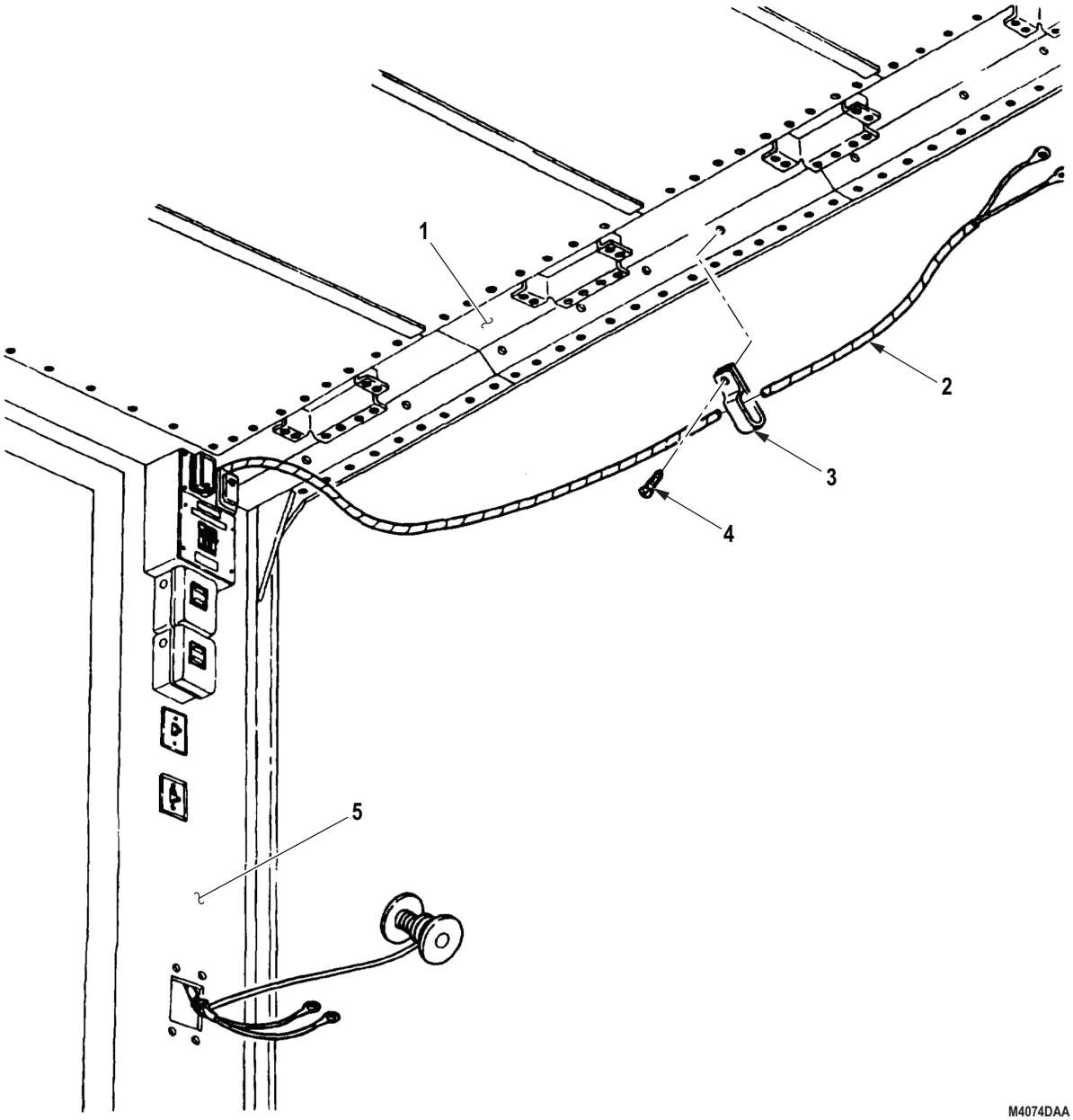


Figure 1. Telephone Post Wiring Harness Removal.

END OF TASK

INSTALLATION

1. Install wiring harness (Figure 2, Item 2) on van body (Figure 2, Item 5).
2. Install wiring harness (Figure 2, Item 2) on van ceiling (Figure 2, Item 1) with six clamps (Figure 2, Item 3) and screws (Figure 2, Item 4).

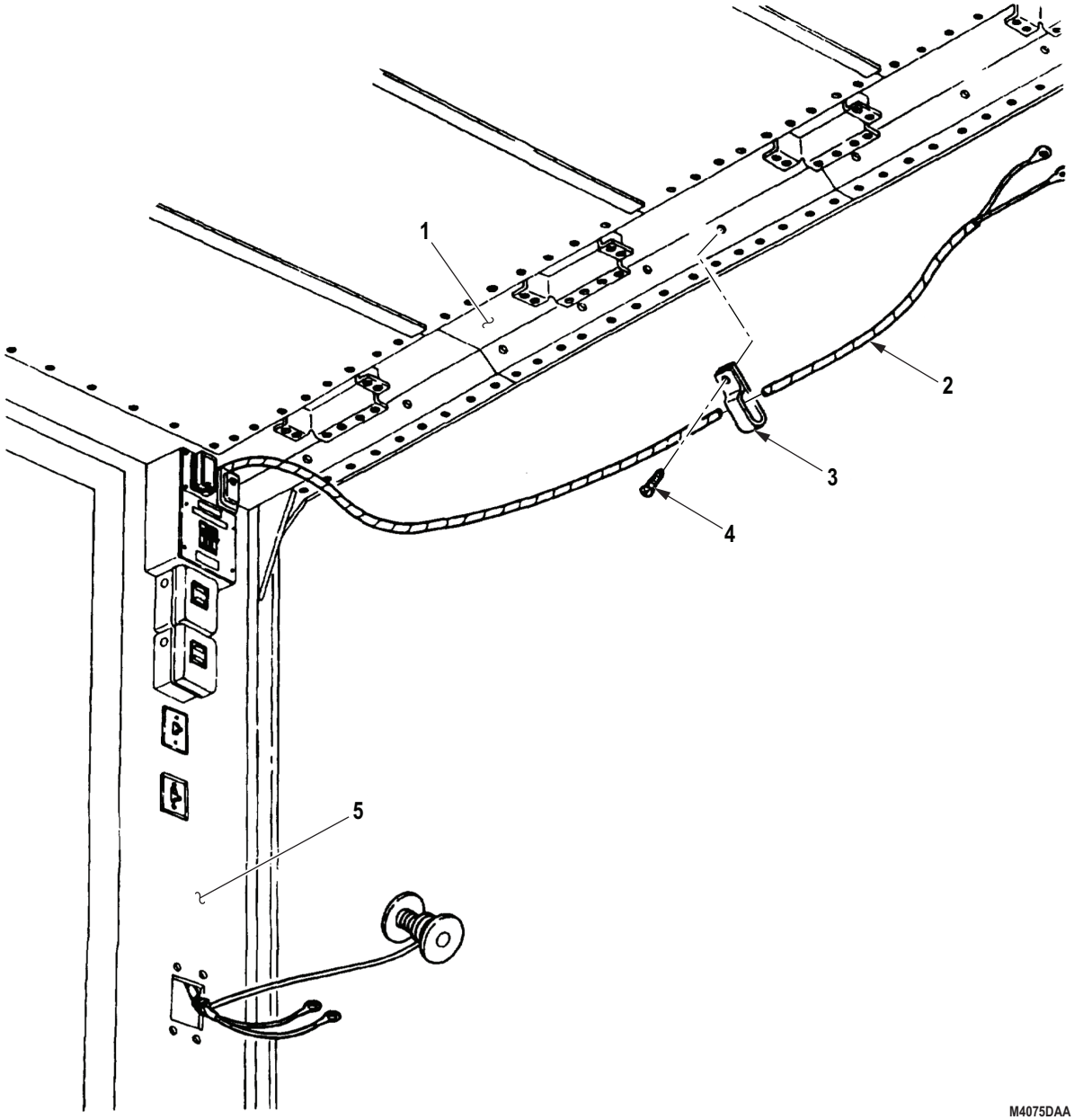


Figure 2. Telephone Post Wiring Harness Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

Install inside telephone jacks. (WP 0626)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
3 PHASE RECEPTACLE WIRING HARNESS REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

Equipment Condition (cont.)
Battery ground cables disconnected.
(Volume 2, WP 0350)
Ceiling filler and side panels removed.

REMOVAL

NOTE

Tag wires for installation.

1. Remove six screws (Figure 1, Item 1) and cover (Figure 1, Item 12) from load center (Figure 1, Item 5).
2. Remove screw (Figure 1, Item 3) and clamp (Figure 1, Item 13) from wiring harness (Figure 1, Item 2) and van body (Figure 1, Item 4).
3. Remove screw (Figure 1, Item 8) and wire (Figure 1, Item 6) from neutral bus (Figure 1, Item 7).
4. Remove three screws (Figure 1, Item 10) and wires (Figure 1, Item 11) from circuit breakers (Figure 1, Item 9).
5. Remove 12 screws (Figure 1, Item 16) and clamps (Figure 1, Item 15) from van ceiling (Figure 1, Item 14) and wiring harness (Figure 1, Item 2).
6. Remove wiring harness (Figure 1, Item 2) from van body (Figure 1, Item 4).

REMOVAL - Continued

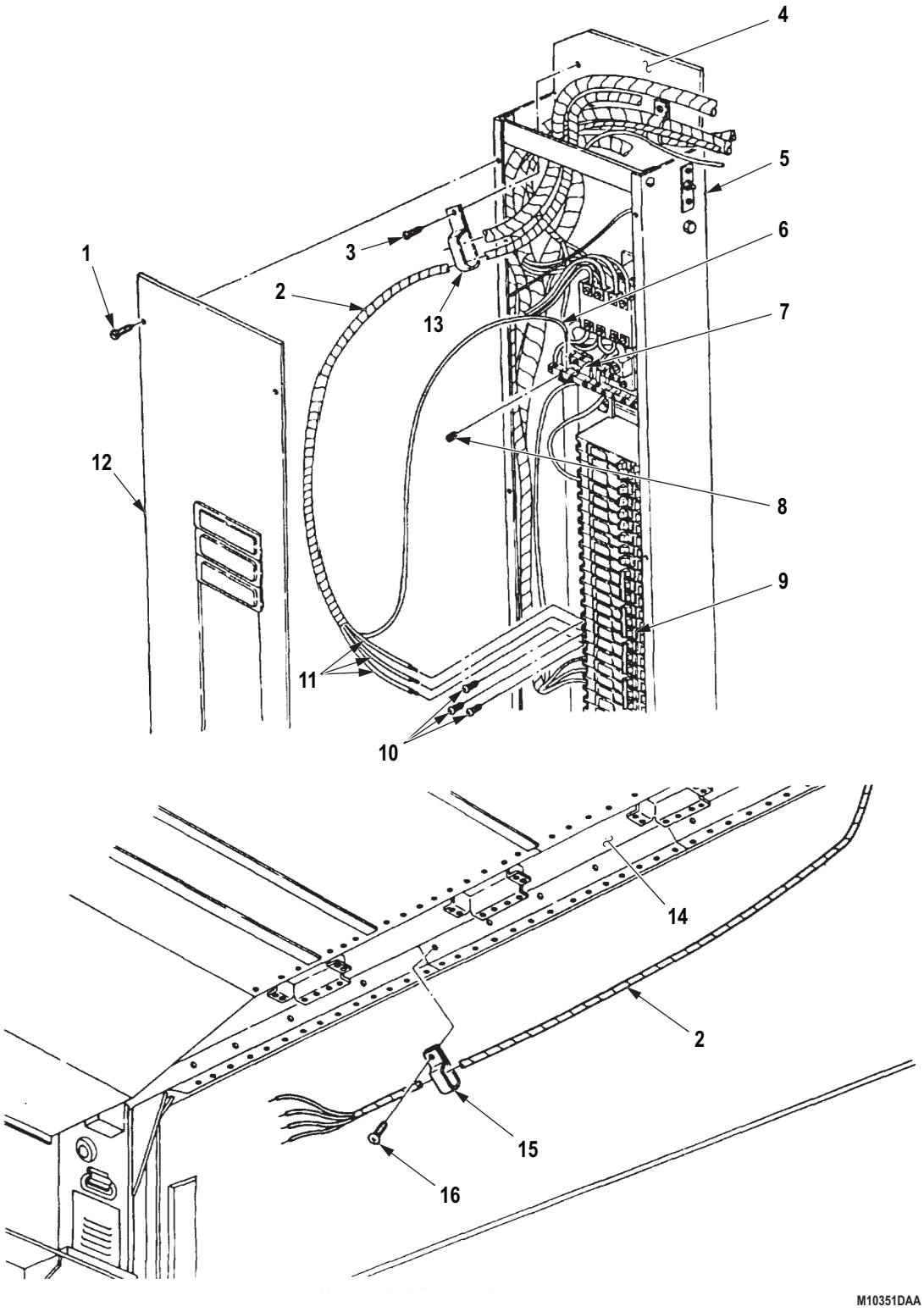


Figure 1. 3 Phase Receptacle Wiring Harness Removal.

END OF TASK

INSTALLATION

1. Position wiring harness (Figure 2, Item 2) on van body (Figure 2, Item 4).
2. Install wiring harness (Figure 2, Item 2) on van ceiling (Figure 2, Item 14) with 12 clamps (Figure 2, Item 15) and screws (Figure 2, Item 16).
3. Install three wires (Figure 2, Item 11) on circuit breakers (Figure 2, Item 9) with three screws (Figure 2, Item 10).
4. Install wire (Figure 2, Item 6) on neutral bus (Figure 2, Item 7) with screw (Figure 2, Item 8).
5. Install clamp (Figure 2, Item 13) on wiring harness (Figure 2, Item 2) and van body (Figure 2, Item 4) with screw (Figure 2, Item 3).
6. Install cover (Figure 2, Item 12) on load center (Figure 2, Item 5) with six screws (Figure 2, Item 1).

INSTALLATION - Continued

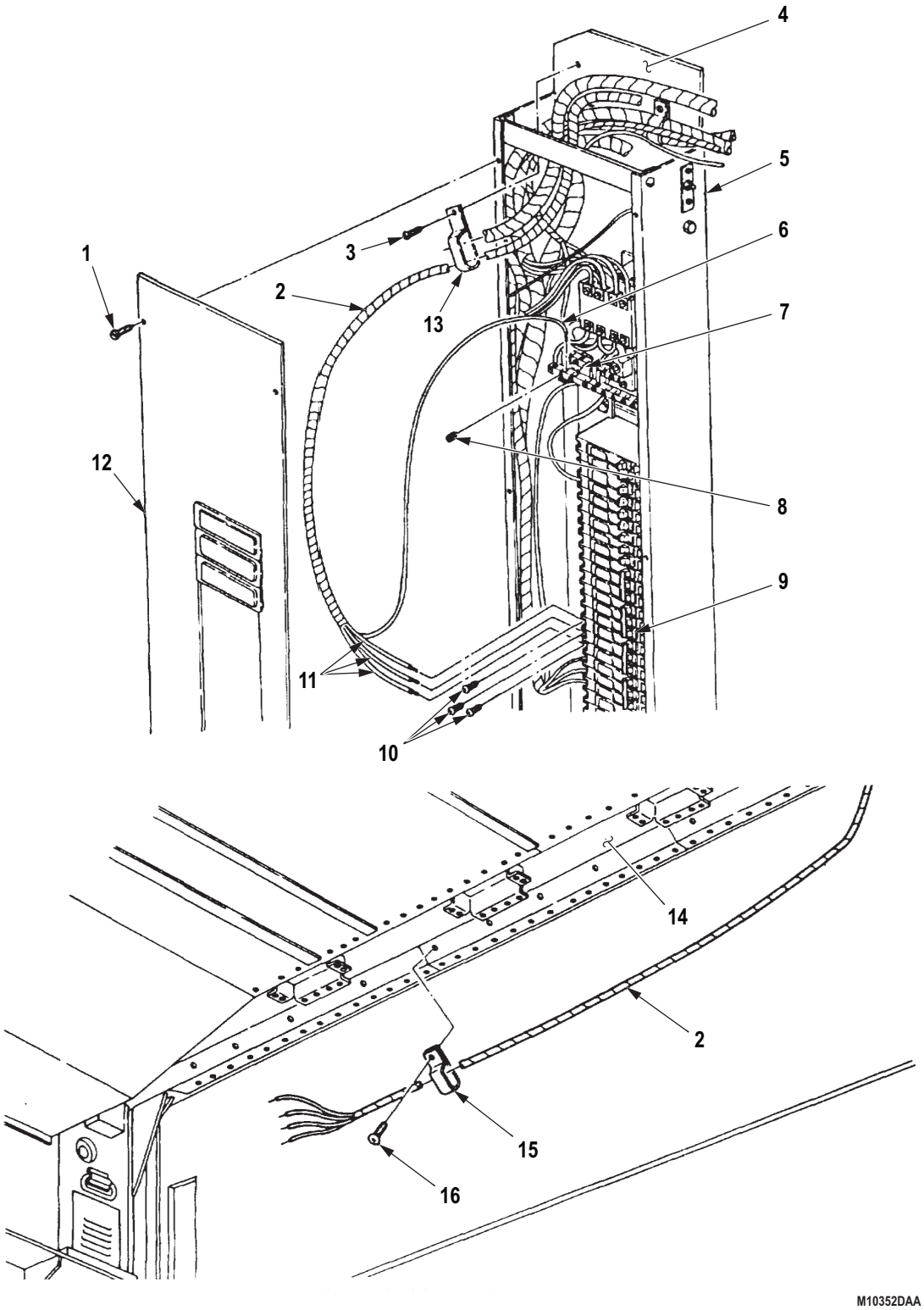


Figure 2. 3 Phase Receptacle Wiring Harness Removal.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install ceiling filler and side panels.
2. Connect battery ground cables. (Volume 2, WP 0350)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
FORWARD DECK PLATE REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Lockwasher
(Volume 5, WP 0827, Table 1, Item 62)
Qty: 6

Personnel Required
(2)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

REMOVAL

Remove six screws (Figure 1, Item 2), lockwashers (Figure 1, Item 3), washers (Figure 1, Item 4), and deck plate (Figure 1, Item 1) from wrecker body (Figure 1, Item 5). Discard lockwashers.

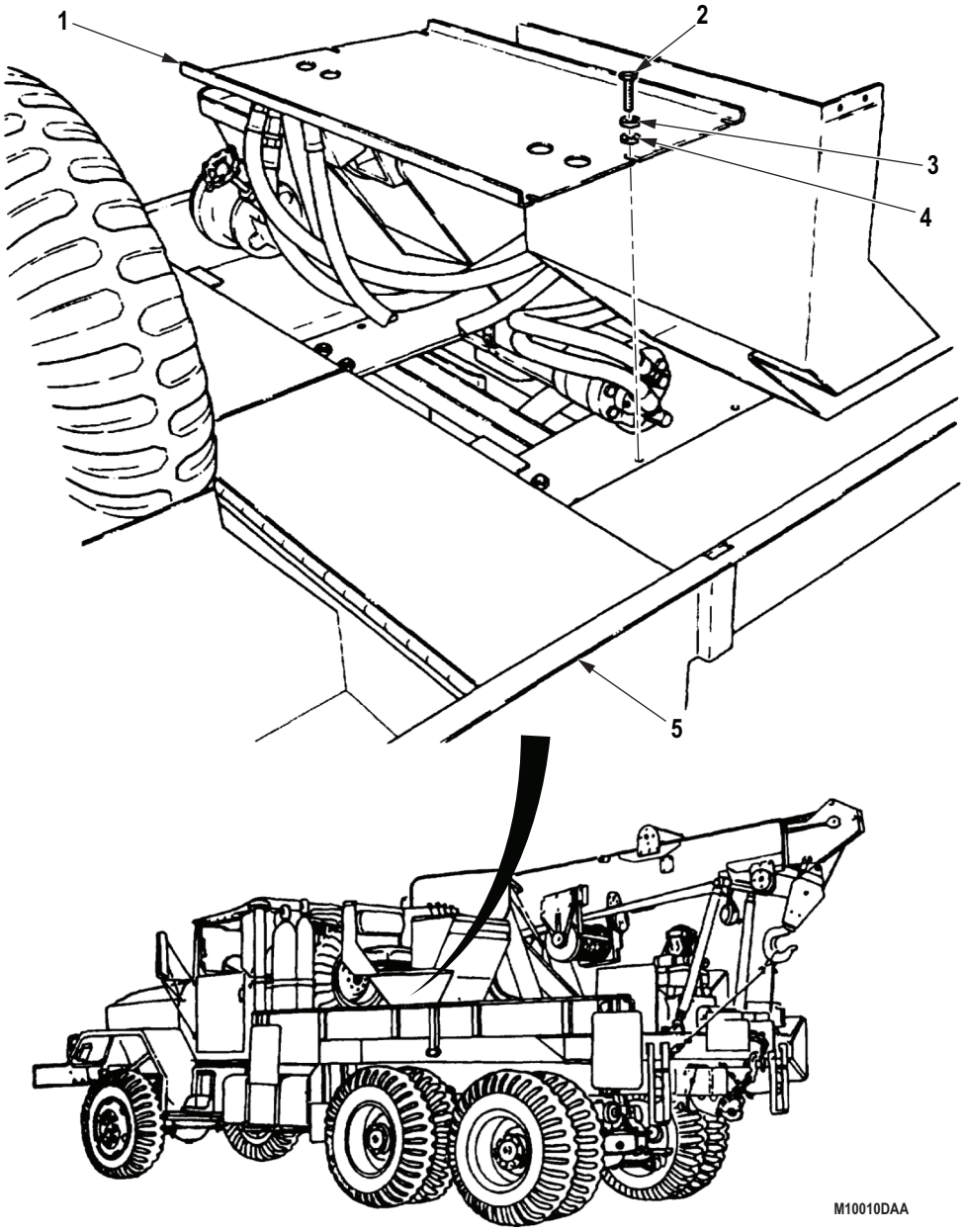


Figure 1. Forward Deck Plate Removal.

END OF TASK

INSTALLATION

Install deck plate (Figure 2, Item 1) on wrecker body (Figure 2, Item 5) with six washers (Figure 2, Item 4), lockwashers (Figure 2, Item 3), and screws (Figure 2, Item 2).

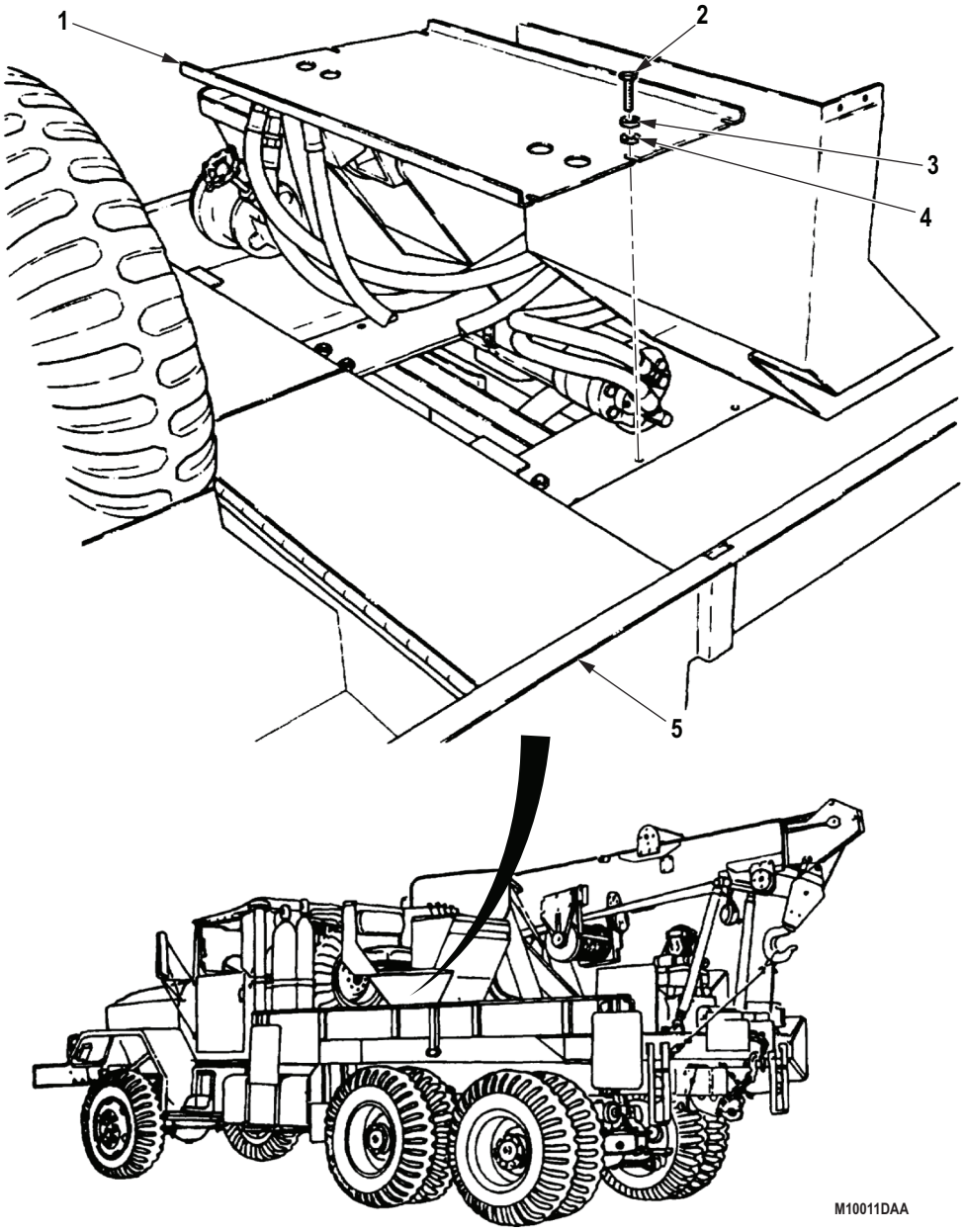


Figure 2. Forward Deck Plate Installation.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
CRANE BODY HOUSING ASSEMBLY COVER REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Lockwasher

Materials/Parts (cont.)
(Volume 5, WP 0827, Table 1, Item 186)
Qty: 9

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

REMOVAL

1. Remove nine screws (Figure 1, Item 1), lockwashers (Figure 1, Item 3), washers (Figure 1, Item 4), and bracket (Figure 1, Item 5), from crane body housing assembly cover (Figure 1, Item 2). Discard lockwashers.
2. Remove crane body housing assembly cover (Figure 1, Item 2) from crane body (Figure 1, Item 6).

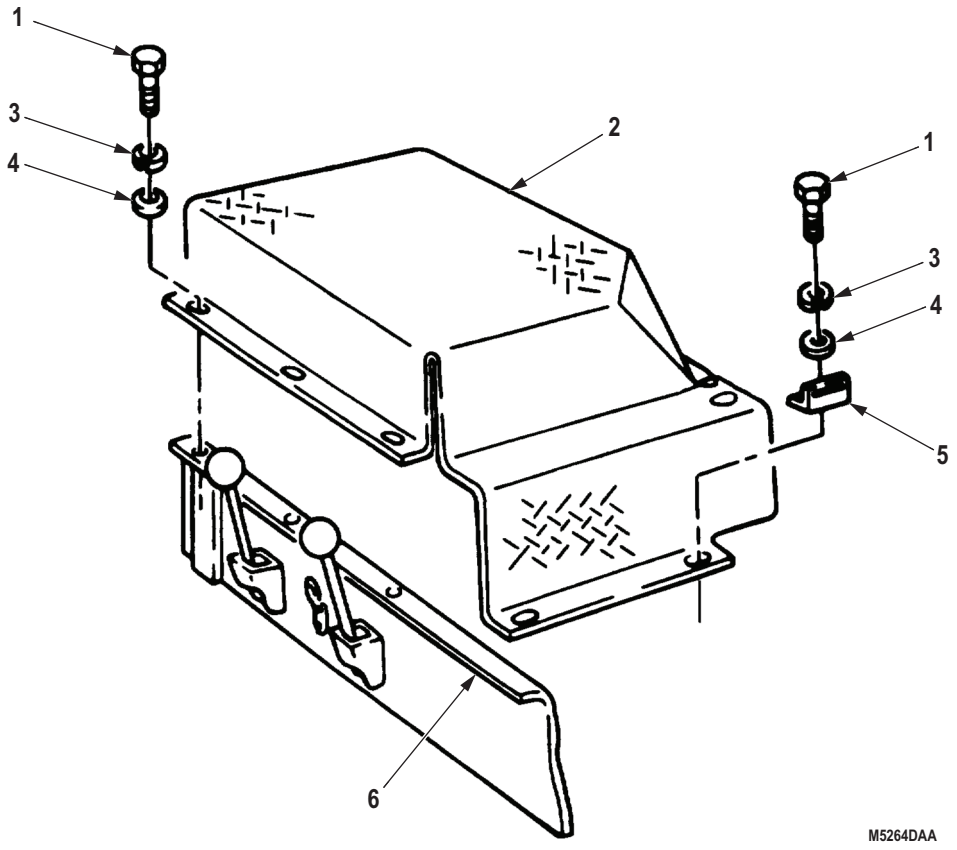


Figure 1. Crane Body Housing Assembly Cover Removal.

END OF TASK

INSTALLATION

1. Place crane body housing assembly cover (Figure 2, Item 2) on crane body (Figure 2, Item 6).
2. Install crane body housing assembly cover (Figure 2, Item 2) to crane body (Figure 2, Item 6) with nine screws (Figure 2, Item 1), lockwashers (Figure 2, Item 3), washers (Figure 2, Item 4), and bracket (Figure 2, Item 5).

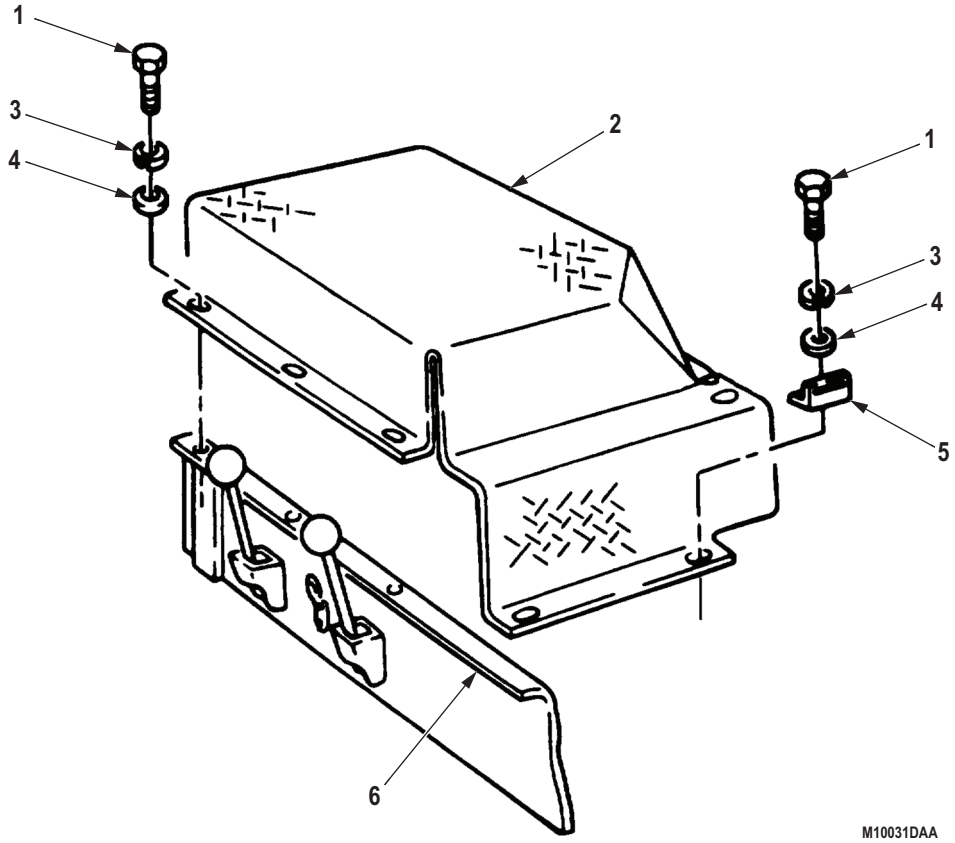


Figure 2. Crane Body Housing Assembly Cover Installation.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
WRECKER BODY REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)
Chain Assembly (2)
(Volume 5, WP 0826, Table 1, Item 15)
Guide Lines (2)
Hoist Assembly
Lifting Device

Materials/Parts
Locknut (Volume 5, WP 0827, Table 1, Item 315)
Qty: 16
Locknut (Volume 5, WP 0827, Table 1, Item 438)
Qty: 16

Personnel Required
(3)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Crane turntable removed. (WP 0692)

REMOVAL

WARNING



- Lifting device must have a weight capacity greater than the combined weight of the truck bed. Failure to comply may result in damage to equipment, injury, or death to personnel.
- All personnel must stand clear during lifting operations. A snapped cable, or swinging or shifting load, may occur. Failure to comply may result in injury or death to personnel.
- Solvent cleaning compound is flammable and toxic. Do not use near open flame and always have a fire extinguisher nearby when solvents are used. Use only in well-ventilated places, wear protective clothing, and dispose of cleaning rags in approved container. Failure to comply may result in damage to equipment, injury, or death to personnel.

NOTE

The left and right side body mounts are replaced the same. This procedure covers the left side body mounts.

1. Remove four locknuts (Figure 1, Item 12), two U-bolts (Figure 1, Item 11), and wood blocks (Figure 1, Item 3) from frame rail (Figure 1, Item 4) and wrecker body (Figure 1, Item 1). Discard locknuts.
2. Remove four locknuts (Figure 1, Item 14) and two U-bolts (Figure 1, Item 13) from frame rail (Figure 1, Item 4) and wrecker body (Figure 1, Item 1). Discard locknuts.
3. Remove four locknuts (Figure 1, Item 16), two U-bolts (Figure 1, Item 15), and four wood blocks (Figure 1, Item 3) from frame rail (Figure 1, Item 4) and wrecker body (Figure 1, Item 1). Discard locknuts.
4. Remove four locknuts (Figure 1, Item 2), four mounting screws (Figure 1, Item 17), two plates (Figure 1, Item 18), and four wood blocks (Figure 1, Item 3) from frame rail (Figure 1, Item 4) and wrecker body (Figure 1, Item 1). Discard locknuts.
5. Remove 16 locknuts (Figure 1, Item 8), screws (Figure 1, Item 9), and two brackets (Figure 1, Item 10) from frame rail (Figure 1, Item 4). Discard locknuts.
6. Attach two guide lines (Figure 1, Item 5) and utility chains (Figure 1, Item 7) to wrecker body (Figure 1, Item 1) and lifting device (Figure 1, Item 6) to utility chains.

NOTE

Two assistants will help with Steps (7) and (8).

7. Remove wrecker body (Figure 1, Item 1) from frame rail (Figure 1, Item 4) and lower onto support stands.
8. Remove lifting device (Figure 1, Item 6), two chains (Figure 1, Item 7), and guide lines (Figure 1, Item 5) from wrecker body (Figure 1, Item 1).

REMOVAL - Continued

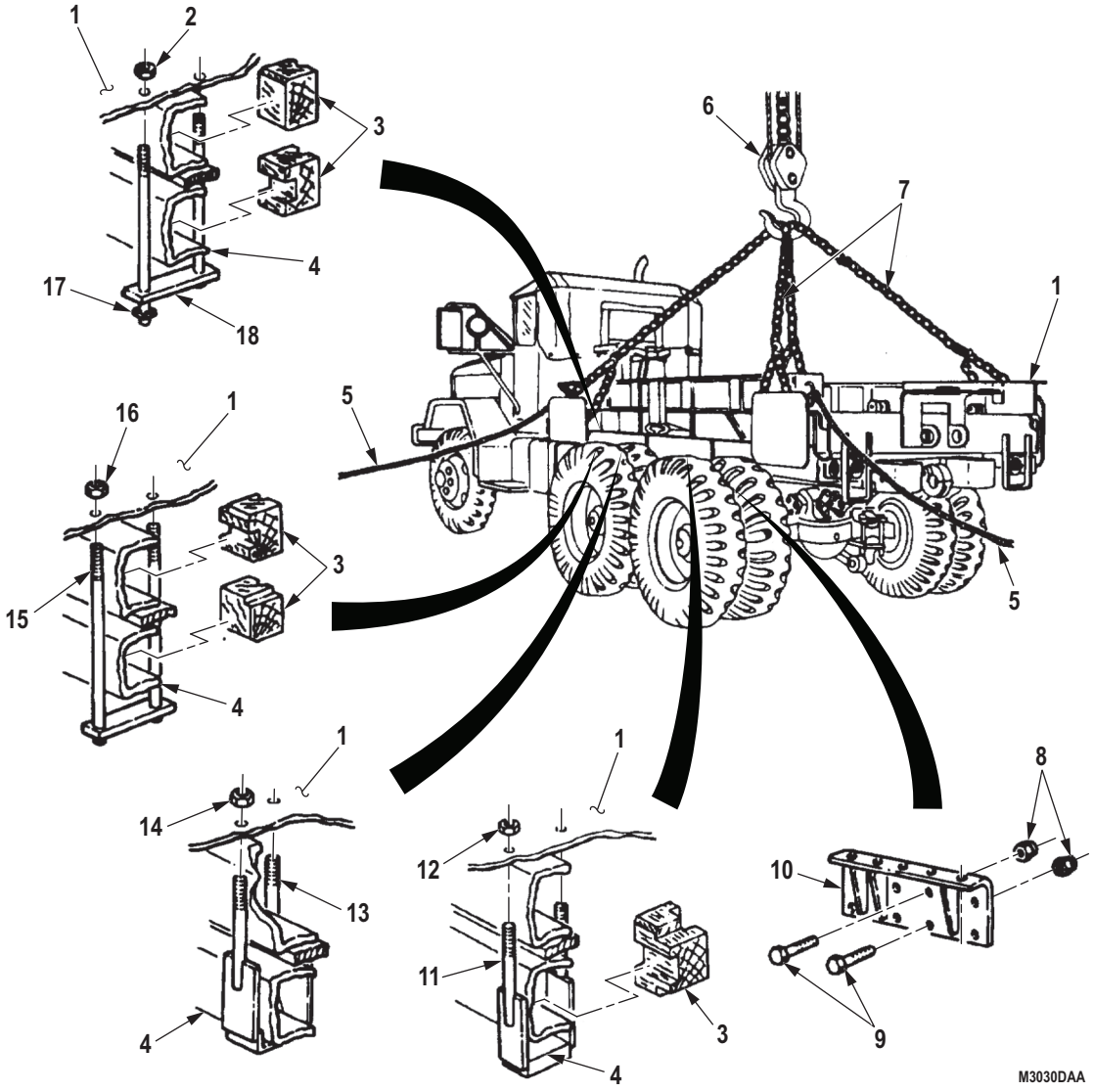


Figure 1. Wrecker Body Removal.

END OF TASK

INSTALLATION

1. Attach two guide lines (Figure 2, Item 5) and utility chains (Figure 2, Item 7) to wrecker body (Figure 2, Item 1) and lifting device (Figure 2, Item 6) to utility chains.
2. Raise wrecker body (Figure 2, Item 1) from support stands and position on frame rail (Figure 2, Item 4). Ensure mounting holes of frame rail and wrecker body are aligned.
3. Install two wood blocks (Figure 2, Item 3) on frame rail (Figure 2, Item 4) and wrecker body (Figure 2, Item 1) with two U-bolts (Figure 2, Item 11) and four locknuts (Figure 2, Item 12).
4. Install two U-bolts (Figure 2, Item 13) on frame rail (Figure 2, Item 4) and wrecker body (Figure 2, Item 1) with four locknuts (Figure 2, Item 14).
5. Install four wood blocks (Figure 2, Item 3) on frame rail (Figure 2, Item 4) and wrecker body (Figure 2, Item 1) with two U-bolts (Figure 2, Item 15) and four locknuts (Figure 2, Item 16).
6. Install two plates (Figure 2, Item 18) and four wood blocks (Figure 2, Item 3) on frame rail (Figure 2, Item 4) and wrecker body (Figure 2, Item 1) with four mounting screws (Figure 2, Item 17) and locknuts (Figure 2, Item 2).
7. Install two brackets (Figure 2, Item 10) on frame rail (Figure 2, Item 4) with 16 screws (Figure 2, Item 9) and locknuts (Figure 2, Item 8).
8. Remove lifting device (Figure 2, Item 6), two chains (Figure 2, Item 7), and guide lines (Figure 2, Item 5) from wrecker body (Figure 2, Item 1).

INSTALLATION - Continued

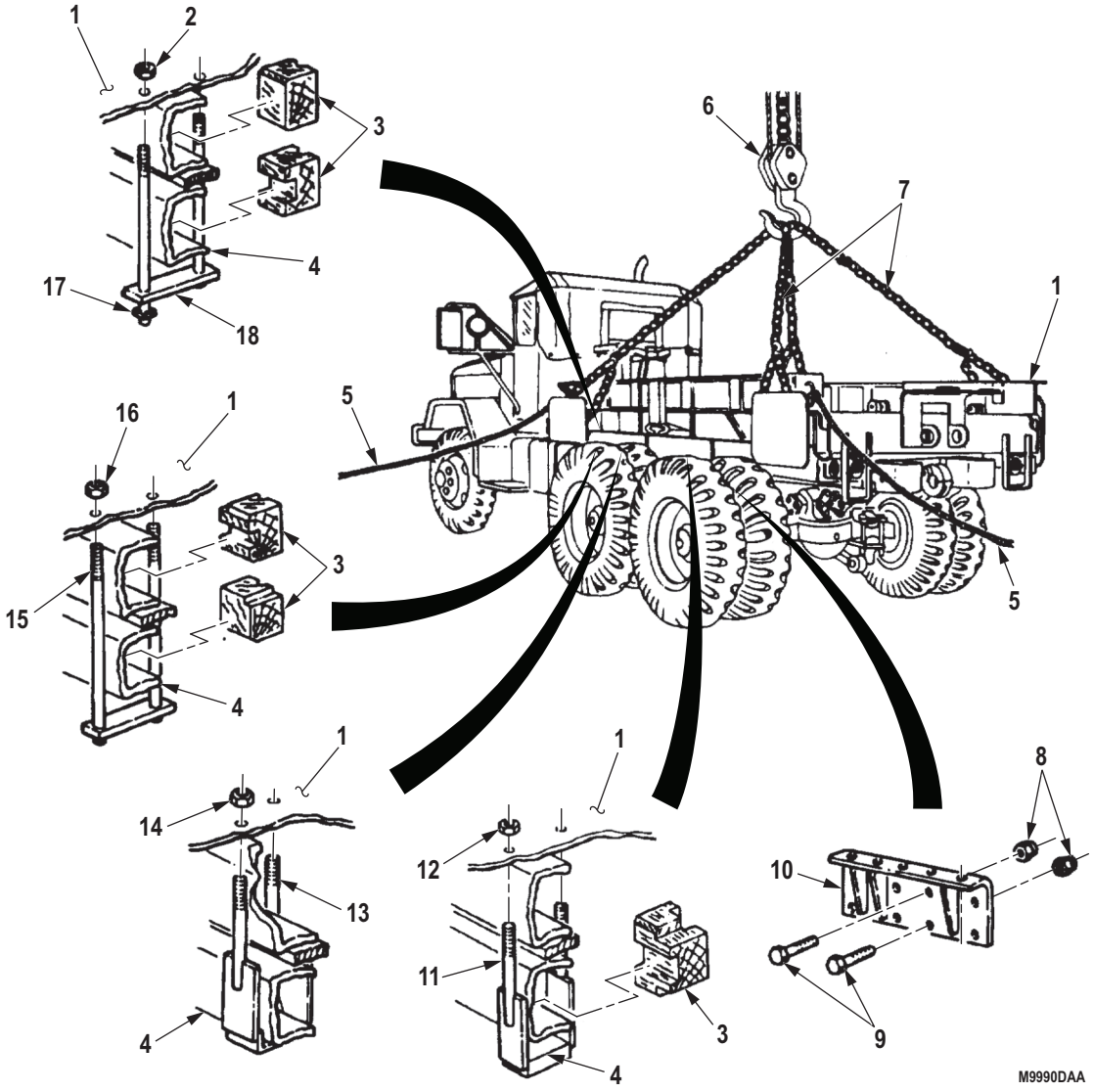


Figure 2. Wrecker Body Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

Install crane turntable. (WP 0692)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
FUEL CAN BRACKET REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Locknut (Volume 5, WP 0827, Table 1, Item 283)
Qty: 7

Materials/Parts (cont.)
Locknut (Volume 5, WP 0827, Table 1, Item 285)
Qty: 4
Lockwasher
(Volume 5, WP 0827, Table 1, Item 186)
Qty: 1

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

REMOVAL

1. Remove four screws (Figure 1, Item 1), locknuts (Figure 1, Item 7), and fuel can holder (Figure 1, Item 2) from upper bracket (Figure 1, Item 6). Discard locknuts.
2. Remove two screws (Figure 1, Item 3), washers (Figure 1, Item 5), lockwashers (Figure 1, Item 4), and lower bracket (Figure 1, Item 8) from hydraulic oil filter housing (Figure 1, Item 10). Discard lockwashers.
3. Remove seven locknuts (Figure 1, Item 11) and screws (Figure 1, Item 12) from upper bracket (Figure 1, Item 6) and hydraulic oil reservoir (Figure 1, Item 9). Discard locknuts.
4. Remove brackets (Figure 1, Items 6 and 8) from oil reservoir (Figure 1, Item 9).

REMOVAL - Continued

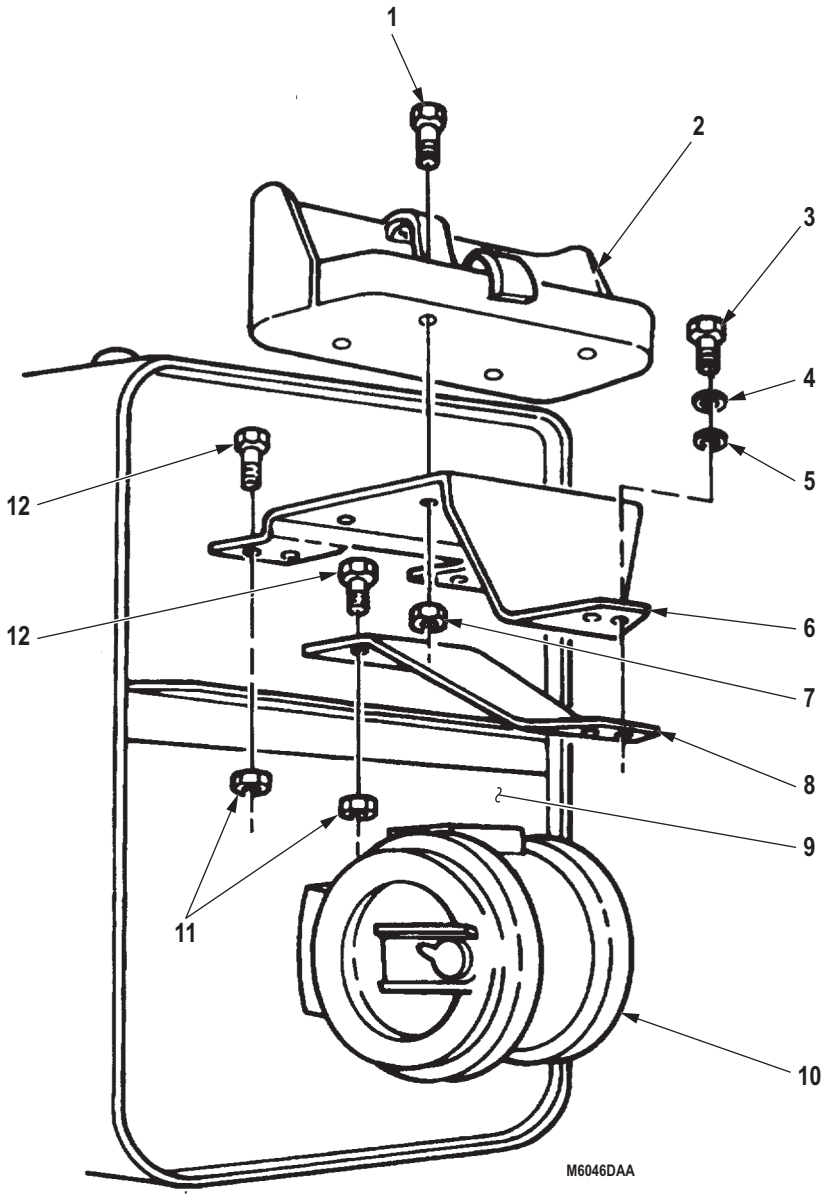


Figure 1. Fuel Can Bracket Removal.

END OF TASK

INSTALLATION

1. Position lower bracket (Figure 2, Item 8) and upper bracket (Figure 2, Item 6) on hydraulic oil filter housing (Figure 2, Item 10) and install with two lockwashers (Figure 2, Item 4), washers (Figure 2, Item 5), and screws (Figure 2, Item 3).
2. Install bracket (Figure 2, Item 6) on oil reservoir (Figure 2, Item 9) with seven screws (Figure 2, Item 12) and locknuts (Figure 2, Item 11).
3. Install fuel can holder (Figure 2, Item 2) on upper bracket (Figure 2, Item 6) with four screws (Figure 2, Item 1) and locknuts (Figure 2, Item 7).

INSTALLATION - Continued

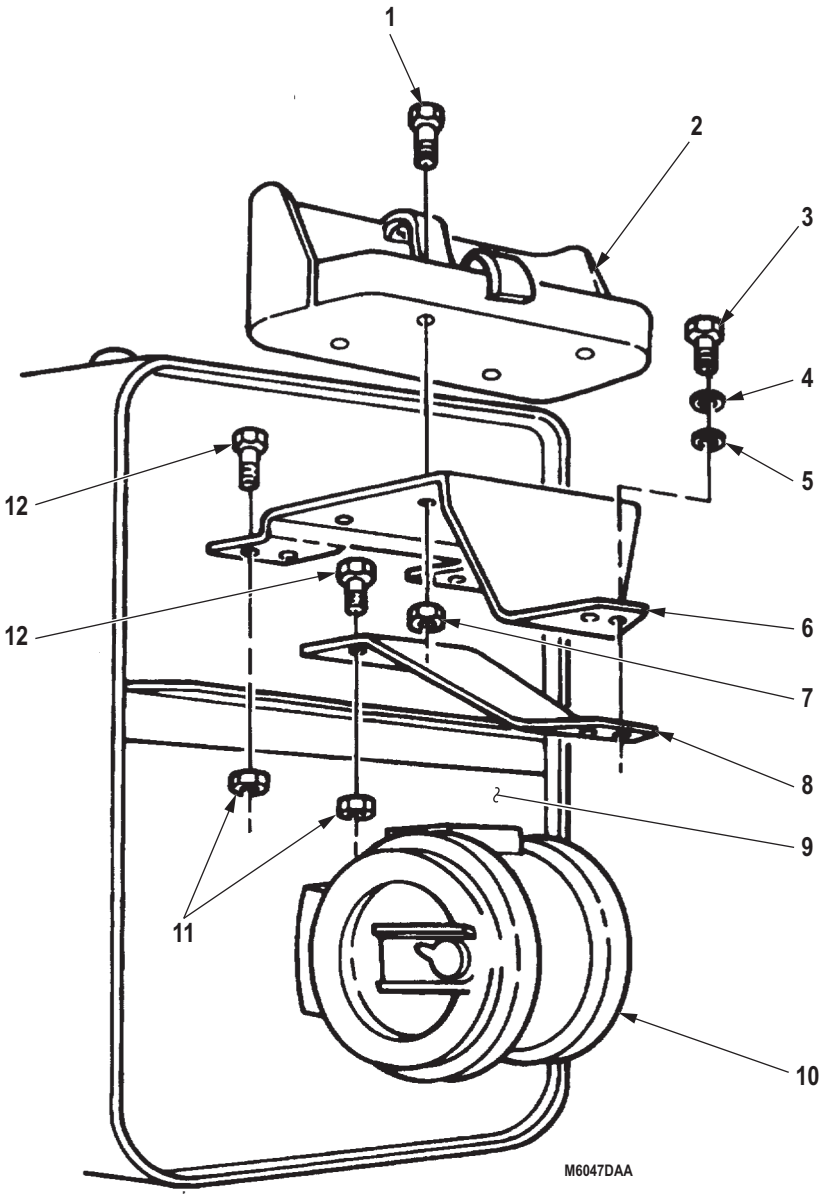


Figure 2. Fuel Can Bracket Installation.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
FRONT WINCH REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)
Chain Assembly
(Volume 5, WP 0826, Table 1, Item 15)
Lifting Device

Materials/Parts
Cap Set, Protective, Dust and Moisture Seal
(Volume 5, WP 0825, Table 1, Item 13)
Tape, Antiseizing
(Volume 5, WP 0825, Table 1, Item 65)

Materials/Parts (cont.)
Locknut (Volume 5, WP 0827, Table 1, Item 289)
Qty: 6
Lockwasher
(Volume 5, WP 0827, Table 1, Item 405)
Qty: 8

Personnel Required
(2)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Front winch oil drained. (Volume 5, WP 0820)
Front bumper removed. (Volume 3, WP 0516)
Front winch cable removed. (WP 0684)

REMOVAL

CAUTION

When disconnecting hydraulic lines and hoses, plug all openings to prevent dirt from entering and causing damage to internal parts.

NOTE

- Have drainage container ready to catch oil.
- Use drain pans to retain leaking/draining fluids. Refer to local procedures and plans for preventing and responding to fluid spills or leaks. Comply with local regulations when disposing of clean up material and leaked and spilled fluids.
- Tag all hydraulic lines for installation.

1. Disconnect oil supply hose (Figure 1, Item 26) from rear elbow (Figure 1, Item 27) on winch motor (Figure 1, Item 28).
2. Disconnect oil return hose (Figure 1, Item 25) from front elbow (Figure 1, Item 24) on winch motor (Figure 1, Item 28).
3. Remove four screws (Figure 1, Item 2), lockwashers (Figure 1, Item 3), and washers (Figure 1, Item 4) from left mounting support plate (Figure 1, Item 5) and left frame rail extension (Figure 1, Item 11). Discard lockwashers.
4. Remove three locknuts (Figure 1, Item 12), screws (Figure 1, Item 8), and washers (Figure 1, Item 9) from left inner support plate bracket (Figure 1, Item 10) and left mounting support plate (Figure 1, Item 5). Discard locknuts.
5. Remove four screws (Figure 1, Item 1), lockwashers (Figure 1, Item 23), and washers (Figure 1, Item 22) from right mounting support plate (Figure 1, Item 21) and right frame rail extension (Figure 1, Item 15). Discard lockwashers.
6. Remove three locknuts (Figure 1, Item 13), screws (Figure 1, Item 17), and washers (Figure 1, Item 16) from right inner support plate bracket (Figure 1, Item 14) and right mounting support plate (Figure 1, Item 21). Discard locknuts.
7. Position chains on front winch (Figure 1, Item 18) and attach to lifting device.

WARNING



All personnel must stand clear during lifting operations. A snapped chain, or shifting or swinging load, may result in injury to personnel. Failure to comply may result in injury or death to personnel.

8. With the aid of an assistant, remove front winch (Figure 1, Item 18) from frame rail extensions (Figure 1, Items 11 and 15).
9. Remove four screws (Figure 1, Item 7), washers (Figure 1, Item 6), and left mounting support plate (Figure 1, Item 5) from front winch (Figure 1, Item 18).
10. Remove four screws (Figure 1, Item 20), washers (Figure 1, Item 19), and right mounting support plate (Figure 1, Item 21) from front winch (Figure 1, Item 18).

REMOVAL - Continued

NOTE

Perform Step (11) if replacing front winch.

11. Install four washers (Figure 1, Items 6 and 19) and screws (Figure 1, Items 7 and 20) on front winch (Figure 1, Item 18).
12. Lower front winch (Figure 1, Item 18) and remove chains and lifting device.

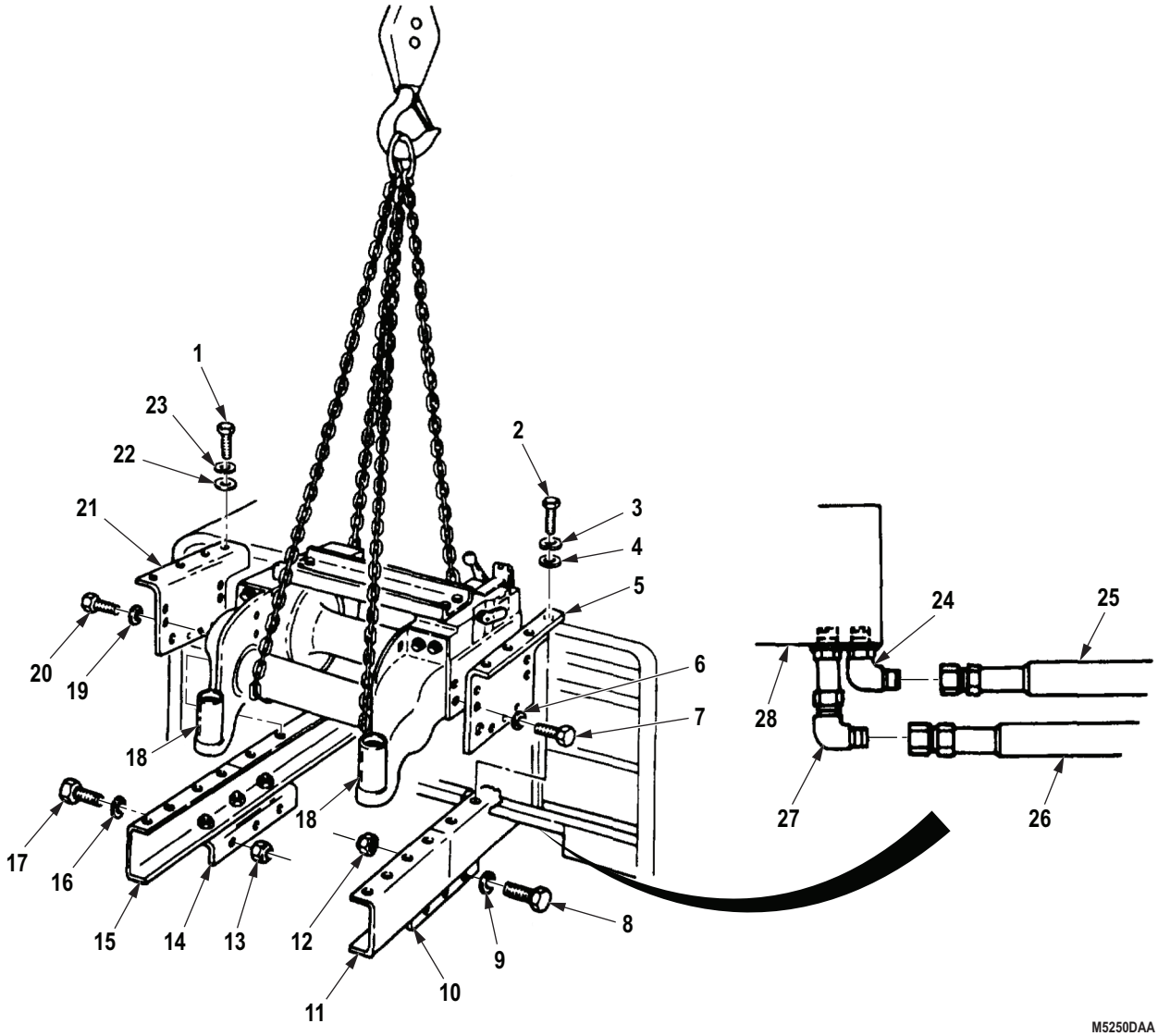


Figure 1. Front Winch Removal.

END OF TASK

INSTALLATION

NOTE

Perform Step (1) if installing new front winch.

1. Remove four screws (Figure 2, Items 7 and 20) and washers (Figure 2, Items 6 and 19) from front winch (Figure 2, Item 18).
2. Install right mounting support plate (Figure 2, Item 21) on front winch (Figure 2, Item 18) with four washers (Figure 2, Item 19) and screws (Figure 2, Item 20).
3. Install left mounting support plate (Figure 2, Item 5) on front winch (Figure 2, Item 18) with four washers (Figure 2, Item 6) and screws (Figure 2, Item 7).
4. Position chains on front winch (Figure 2, Item 18) and attach to lifting device.

WARNING



All personnel must stand clear during lifting operations. A snapped chain, or shifting or swinging load, may result in injury to personnel. Failure to comply may result in injury or death to personnel.

5. With the aid of assistant, position front winch (Figure 2, Item 18) on frame rails extensions (Figure 2, Items 11 and 15). Do not remove chains or lifting device until front winch is secured.
6. Install right mounting support plate (Figure 2, Item 21) on right inner support plate (Figure 2, Item 14) with three washers (Figure 2, Item 16), screws (Figure 2, Item 17), and locknuts (Figure 2, Item 13).
7. Install right mounting support plate (Figure 2, Item 21) on right frame rail extension (Figure 2, Item 15) with four washers (Figure 2, Item 22), lockwashers (Figure 2, Item 23), and screws (Figure 2, Item 1).
8. Install left mounting support plate (Figure 2, Item 5) on left inner support plate (Figure 2, Item 10) with three washers (Figure 2, Item 9), screws (Figure 2, Item 8), and locknuts (Figure 2, Item 12).
9. Install left mounting support plate (Figure 2, Item 5) on left frame rail extension (Figure 2, Item 11) with four washers (Figure 2, Item 4), lockwashers (Figure 2, Item 3), and screws (Figure 2, Item 2).
10. Remove lifting device and chains from front winch (Figure 2, Item 18).

NOTE

Wrap all male threads with antiseize tape before installation.

11. Connect oil supply hose (Figure 2, Item 26) to rear elbow (Figure 2, Item 27) on winch motor (Figure 2, Item 28).
12. Connect oil return hose (Figure 2, Item 25) to front elbow (Figure 2, Item 24) on winch motor (Figure 2, Item 28).

INSTALLATION - Continued

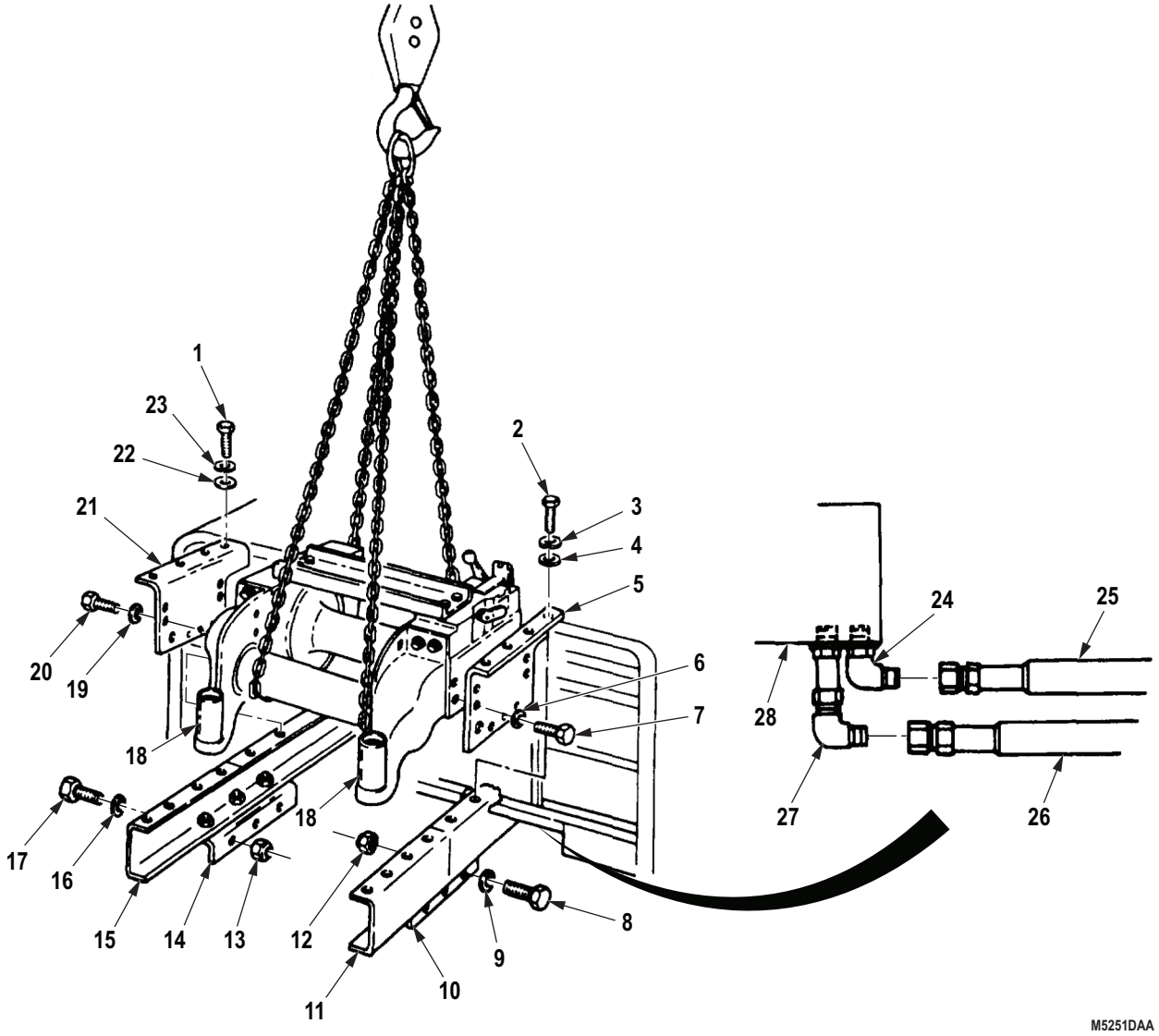


Figure 2. Front Winch Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Fill hydraulic reservoir to proper fluid level. (Volume 5, WP 0820)
2. Fill front winch to proper fluid level. (Volume 5, WP 0820)
3. Install front winch cable. (WP 0684)
4. Operate front winch and check for leaks. (TM 9-2320-272-10)
5. Install front bumper. (Volume 3, WP 0516)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
REAR WINCH ADJUSTMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)
Test Rod, 5/8" Diameter

Equipment Condition
Rear winch cable removed. (WP 0710)

References
TM 9-2320-272-10

CABLE TENSIONER CHECK

1. Start engine (TM 9-2320-272-10) and allow air system to build to normal operating pressure.
2. Place cable tensioner control valve lever (Figure 1, Item 1) in ON position.
3. Place test rod (Figure 1, Item 3) between sheaves (Figure 1, Item 2). If rod (Figure 1, Item 3) cannot be inserted or fits loosely, see CABLE TENSIONER ADJUSTMENT.
4. Stop engine (TM 9-2320-272-10) and remove test rod (Figure 1, Item 3) if adjustment is not required.

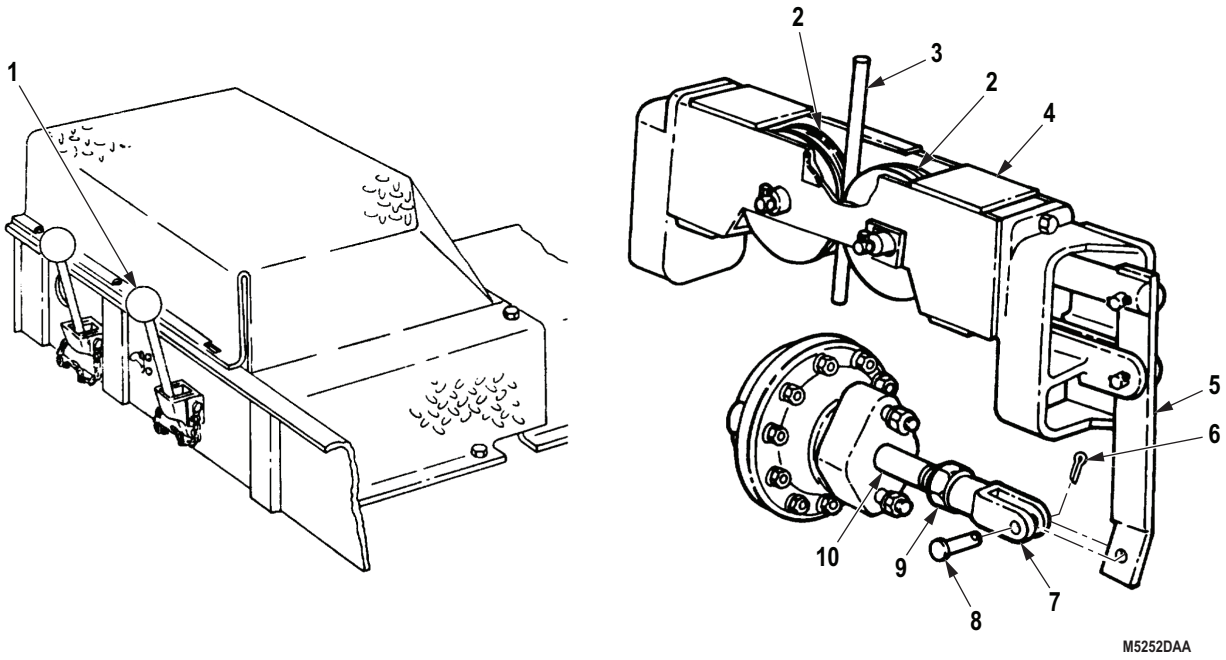


Figure 1. Cable Tensioner Check.

END OF TASK

CABLE TENSIONER ADJUSTMENT

1. Remove cotter pin (Figure 2, Item 6), pin (Figure 2, Item 8), and pushrod yoke (Figure 2, Item 7) from pivot arm (Figure 2, Item 5).
2. Place test rod (Figure 2, Item 3) between sheaves (Figure 2, Item 2) on cable tensioner (Figure 2, Item 4).
3. Loosen jamnut (Figure 2, Item 9) on pushrod (Figure 2, Item 10).
4. Position pivot arm (Figure 2, Item 5) so sheaves (Figure 2, Item 2) are against test rod (Figure 2, Item 3).
5. Turn pushrod yoke (Figure 2, Item 7) until holes in pushrod (Figure 2, Item 10) and pivot arm (Figure 2, Item 5) align.
6. Install pushrod yoke (Figure 2, Item 7) on pivot arm (Figure 2, Item 5) with pin (Figure 2, Item 8) and pin (Figure 2, Item 6). Tighten jamnut (Figure 2, Item 9).
7. Place tensioner control valve lever (Figure 2, Item 1) in OFF position and remove test rod (Figure 2, Item 3) from sheaves (Figure 2, Item 2).

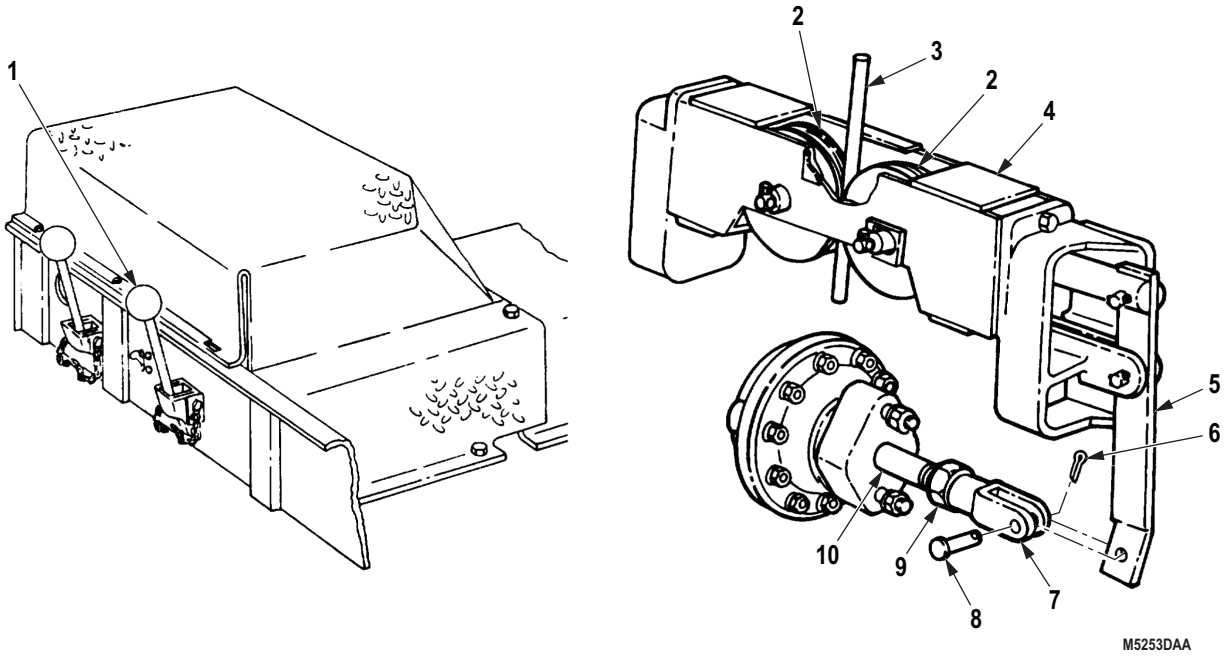


Figure 2. Cable Tensioner Adjustment.

8. Stop engine (TM 9-2320-272-10).

END OF TASK

FOLLOW-ON MAINTENANCE

Install rear winch cable. (WP 0710)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
REAR WINCH REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)
Chain Assembly
(Volume 5, WP 0826, Table 1, Item 15)

Materials/Parts
Lockwasher
(Volume 5, WP 0827, Table 1, Item 186)
Qty: 7

Personnel Required
(2)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Boom jack base plates removed.
(TM 9-2320-272-10)
Rear winch oil drained. (Volume 5, WP 0820)
Rear winch cable removed. (WP 0710)
Housing assembly cover removed. (WP 0665)

REMOVAL

1. Remove cotter pin (Figure 1, Item 1), pin (Figure 1, Item 4), and pushrod yoke (Figure 1, Item 3) from pivot arm (Figure 1, Item 2).

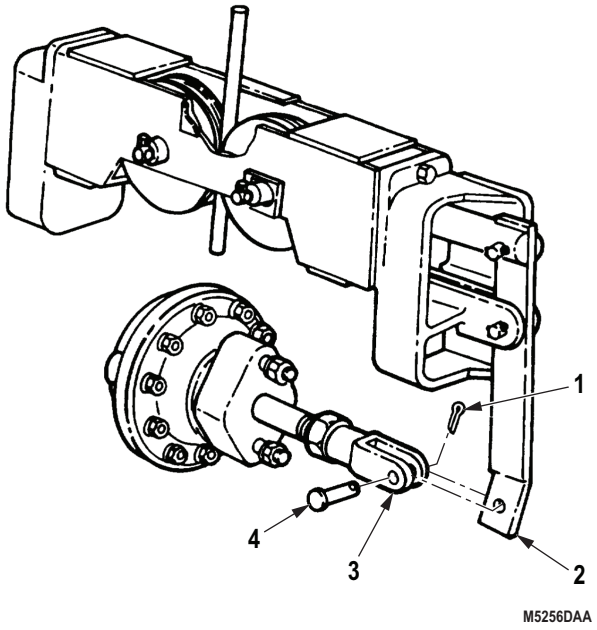


Figure 1. Rear Winch Removal.

REMOVAL - Continued

2. Remove seven screws (Figure 2, Item 3), lockwashers (Figure 2, Item 4), washers (Figure 2, Item 5), cover (Figure 2, Item 2), and plate (Figure 2, Item 1) from crane body (Figure 2, Item 6). Discard lockwashers.

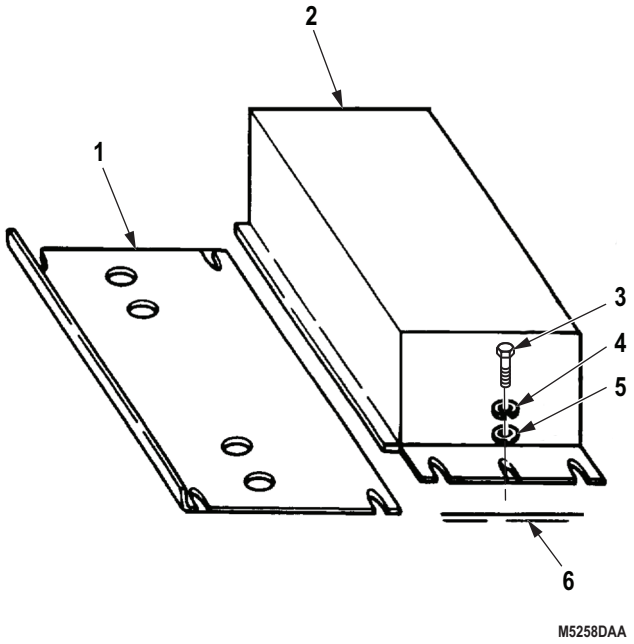


Figure 2. Rear Winch Removal.

REMOVAL - Continued

3. Rotate drive coupling (Figure 3, Item 9) to access cotter pin (Figure 3, Item 4). Remove pin and shear pin (Figure 3, Item 2) from drive coupling.
4. Remove two nuts (Figure 3, Item 10), screws (Figure 3, Item 14), and washers (Figure 3, Item 13) from front motor bracket (Figure 3, Item 12) and crane body (Figure 3, Item 11).
5. Remove two nuts (Figure 3, Item 5), washers (Figure 3, Item 6), screws (Figure 3, Item 8), and washers (Figure 3, Item 6) from rear motor bracket (Figure 3, Item 7) and crane body (Figure 3, Item 11).
6. Slide winch motor (Figure 3, Item 1) forward until clear of winch drive shaft (Figure 3, Item 3).

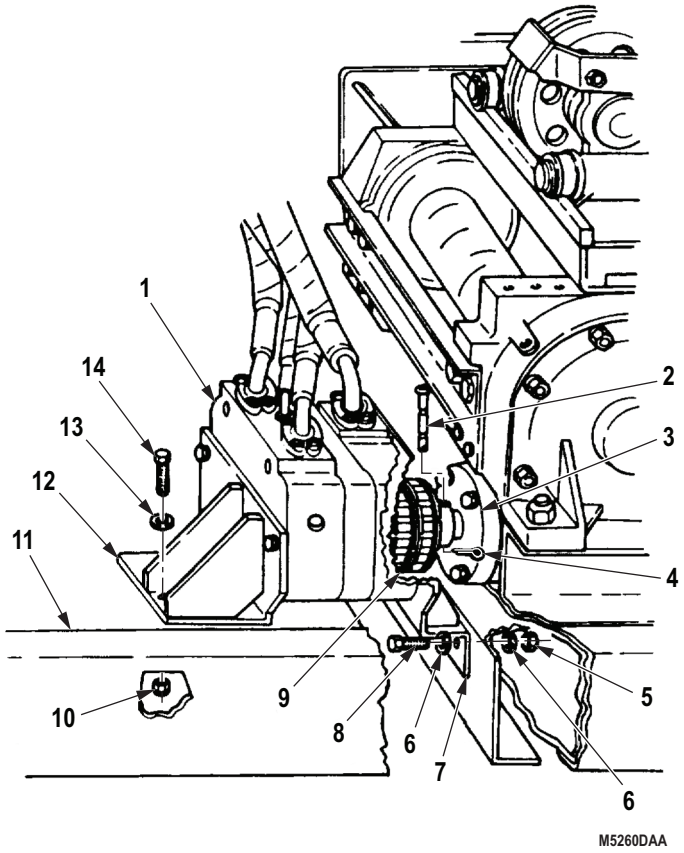


Figure 3. Rear Winch Removal.

REMOVAL - Continued

7. Secure chain (Figure 4, Item 2) around rear winch (Figure 4, Item 3) and attach to hoist hook (Figure 4, Item 1). Raise hoist until slack is removed from chain.

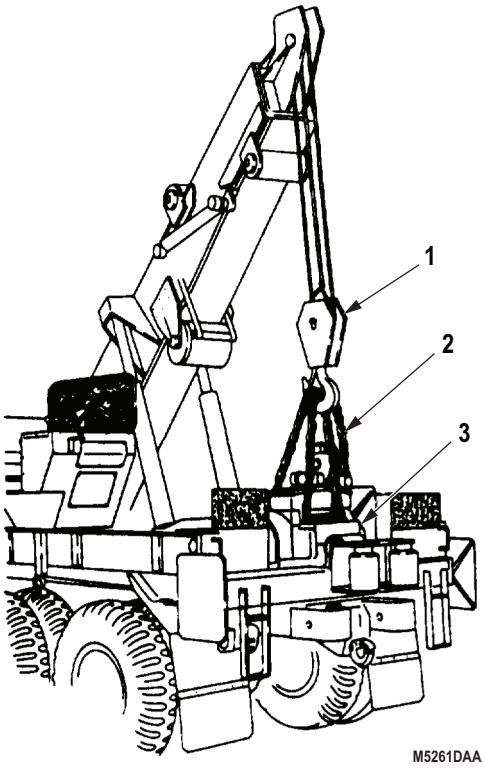


Figure 4. Rear Winch Removal.

REMOVAL - Continued

WARNING



All personnel must stand clear during lifting operations. A snapped chain, or shifting or swinging load, may result in injury to personnel. Failure to comply may result in injury or death to personnel.

NOTE

Mechanic will direct hoisting operation. Assistant will operate hoist. Refer to (TM 9-2320-272-10) for crane operating instructions.

8. Remove four nuts (Figure 5, Item 2), screws (Figure 5, Item 5), and washers (Figure 5, Item 4) from winch frame mounts (Figure 5, Item 3) and crane body (Figure 5, Item 6).
9. Remove rear winch (Figure 5, Item 1) from vehicle.
10. Remove chains from hoist hook and rear winch (Figure 5, Item 1).

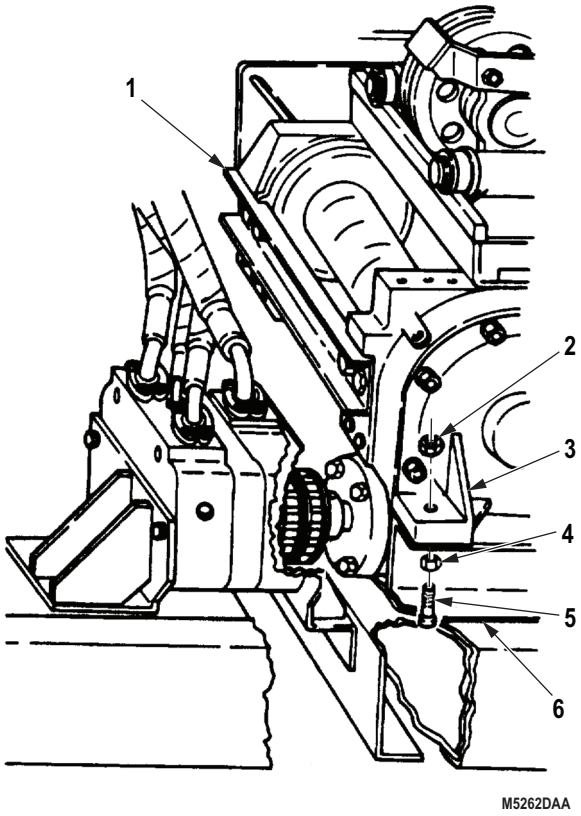


Figure 5. Rear Winch Removal.

END OF TASK

INSTALLATION

1. Secure chain (Figure 6, Item 2) around rear winch (Figure 6, Item 3) and attach to hoist hook (Figure 6, Item 1). Raise hoist until slack is removed from chain.

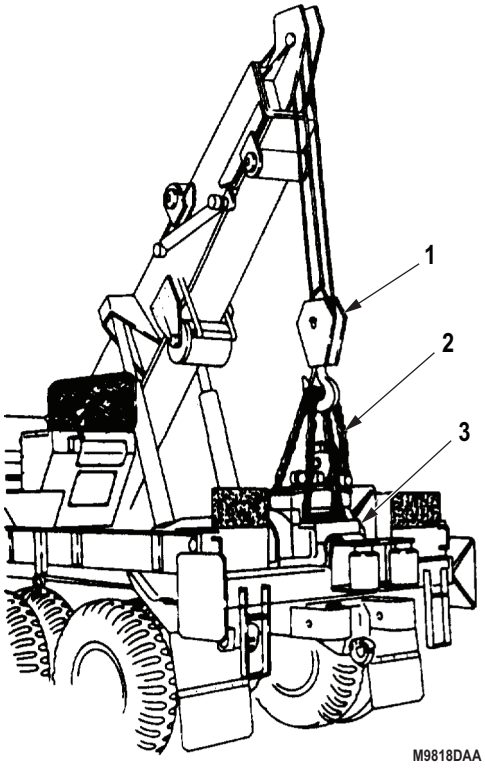


Figure 6. Rear Winch Installation.

INSTALLATION - Continued

WARNING



All personnel must stand clear during lifting operations. A snapped chain, or shifting or swinging load, may result in injury to personnel. Failure to comply may result in injury or death to personnel.

NOTE

Mechanic will direct hoisting operation. Assistant will operate hoist. Refer to (TM 9-2320-272-10) for crane operating instructions.

2. Lift rear winch (Figure 7, Item 1) into position on crane body (Figure 7, Item 6) and align winch drive shaft (Figure 7, Item 7) and winch frame mounts (Figure 7, Item 3).
3. Remove chain (Figure 6, Item 2) from hoist hook (Figure 6, Item 1) and rear winch (Figure 6, Item 3).
4. Install four washers (Figure 7, Item 4), screws (Figure 7, Item 5), and nuts (Figure 7, Item 2) on winch frame mounts (Figure 7, Item 3) and crane body (Figure 7, Item 6).

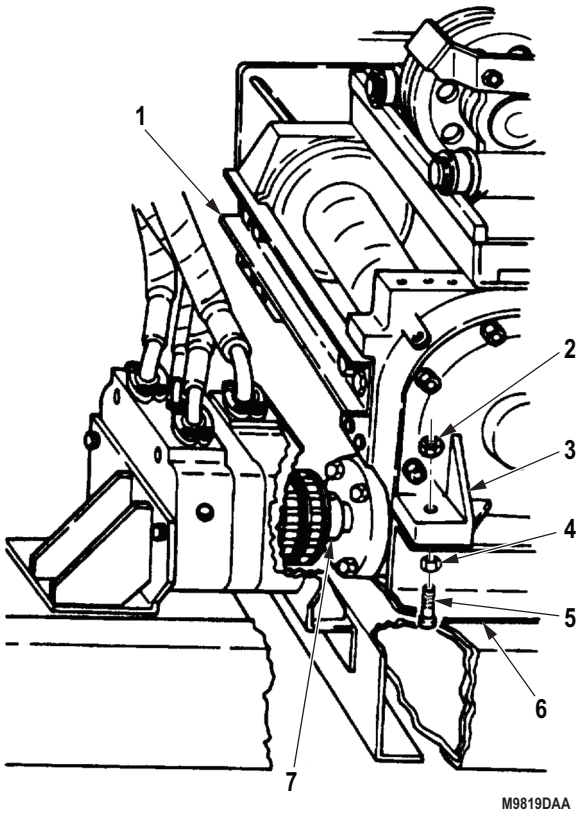


Figure 7. Rear Winch Installation.

INSTALLATION - Continued

5. Slide winch motor (Figure 8, Item 16) backward to position at rear winch (Figure 8, Item 1), align holes in drive coupling (Figure 8, Item 10) and winch drive shaft (Figure 8, Item 3) and install shear pin (Figure 8, Item 2) and cotter pin (Figure 8, Item 4).
6. Install front mounting bracket (Figure 8, Item 13) on crane body (Figure 8, Item 12) with two washers (Figure 8, Item 14), screws (Figure 8, Item 15), and nuts (Figure 8, Item 11).
7. Install rear mounting bracket (Figure 8, Item 7) on crane body (Figure 8, Item 12) with two washers (Figure 8, Item 8), screws (Figure 8, Item 9), washers (Figure 8, Item 6), and nuts (Figure 8, Item 5).

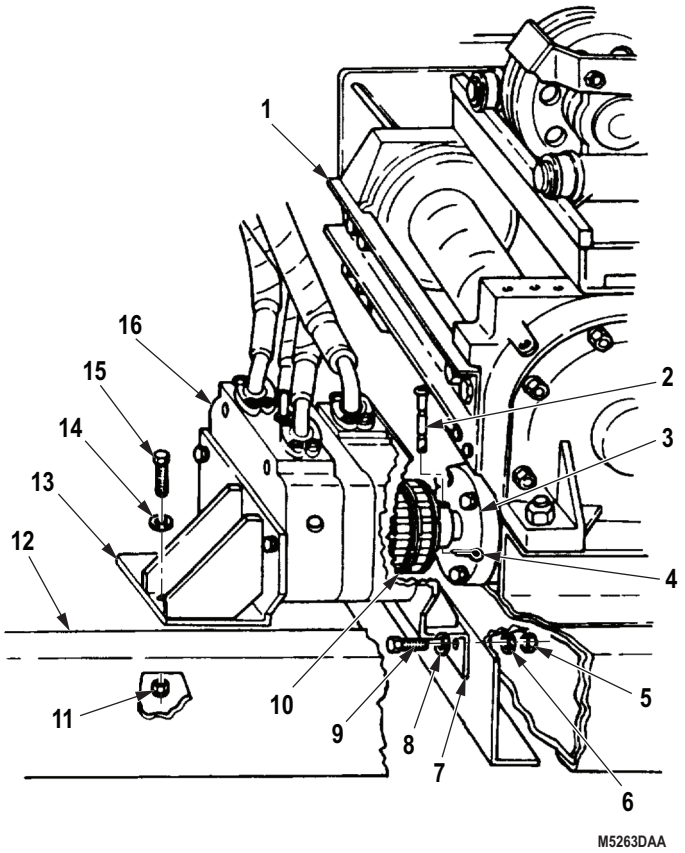


Figure 8. Rear Winch Installation.

INSTALLATION - Continued

8. Position plate (Figure 9, Item 1) and cover (Figure 9, Item 2) over winch motor (Figure 8, Item 16) and install on crane body (Figure 9, Item 6) with seven washers (Figure 9, Item 5), lockwashers (Figure 9, Item 4), and screws (Figure 9, Item 3).

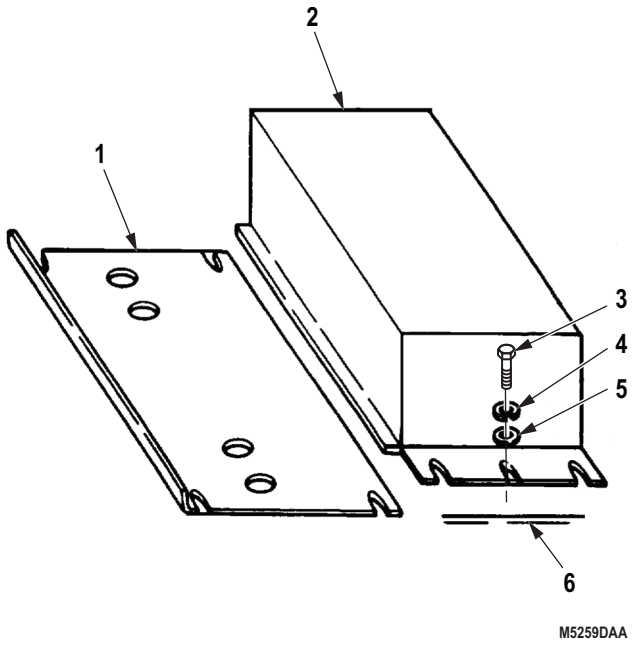


Figure 9. Rear Winch Installation.

INSTALLATION - Continued

9. Install pushrod yoke (Figure 10, Item 3) on pivot arm (Figure 10, Item 2) with pin (Figure 10, Item 4) and cotter pin (Figure 10, Item 1).

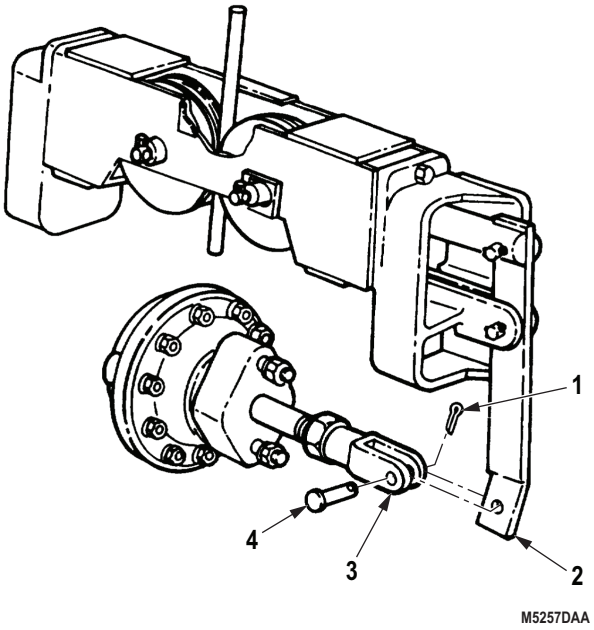


Figure 10. Rear Winch Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Fill rear winch to proper fluid level. (Volume 5, WP 0820)
2. Adjust rear winch cable tensioner. (WP 0669)
3. Install rear winch cable. (WP 0710)
4. Operate rear winch and check for leaks. (TM 9-2320-272-10)
5. Install boom jack base plates. (TM 9-2320-272-10)
6. Install housing assembly cover. (WP 0665)
7. Lubricate winch. (Volume 5, WP 0820)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
WINCH FRAME EXTENSION REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
- Tool Kit, General Mechanic's: Automotive (Volume 5, WP 0826, Table 1, Item 56)
- Wrench, Torque, Click, Ratcheting, 1/2" Drive, 250 Ft-Lb (Volume 5, WP 0826, Table 1, Item 63)

Materials/Parts
- Locknut (Volume 5, WP 0827, Table 1, Item 288) Qty: 24

Materials/Parts (cont.)
- Locknut (Volume 5, WP 0827, Table 1, Item 313) Qty: 4
- Lockwasher (Volume 5, WP 0827, Table 1, Item 405) Qty: 6

Equipment Condition
- Front bumper and plates removed. (Volume 3, WP 0515)
- Front winch removed. (WP 0668)
- Hood removed. (WP 0565)

REMOVAL

1. Remove six screws (Figure 1, Item 9), lockwashers (Figure 1, Item 8), washers (Figure 1, Item 7), and two brackets (Figure 1, Item 22) from frame extensions (Figure 1, Item 1). Discard lockwashers.
2. Remove four locknuts (Figure 1, Item 24), screws (Figure 1, Item 5), washers (Figure 1, Item 4), and two loop tiedowns (Figure 1, Item 3) from frame extensions (Figure 1, Item 1). Discard locknuts.
3. Remove eight locknuts (Figure 1, Item 23), screws (Figure 1, Item 6), and two frame extensions (Figure 1, Item 1) from channel reinforcements (Figure 1, Item 2). Discard locknuts.
4. Remove four locknuts (Figure 1, Item 17), screws (Figure 1, Item 21), and washers (Figure 1, Item 10) from two end supports (Figure 1, Item 19) and crossmember (Figure 1, Item 20). Discard locknuts.
5. Remove four locknuts (Figure 1, Item 18), screws (Figure 1, Item 13), and two end supports (Figure 1, Item 19) from channel reinforcements (Figure 1, Item 2). Discard locknuts.
6. Remove eight locknuts (Figure 1, Item 11), screws (Figure 1, Item 12), two screws (Figure 1, Item 16), washers (Figure 1, Item 15), and two channel reinforcements (Figure 1, Item 2) from frame rails (Figure 1, Item 14). Discard locknuts.

REMOVAL - Continued

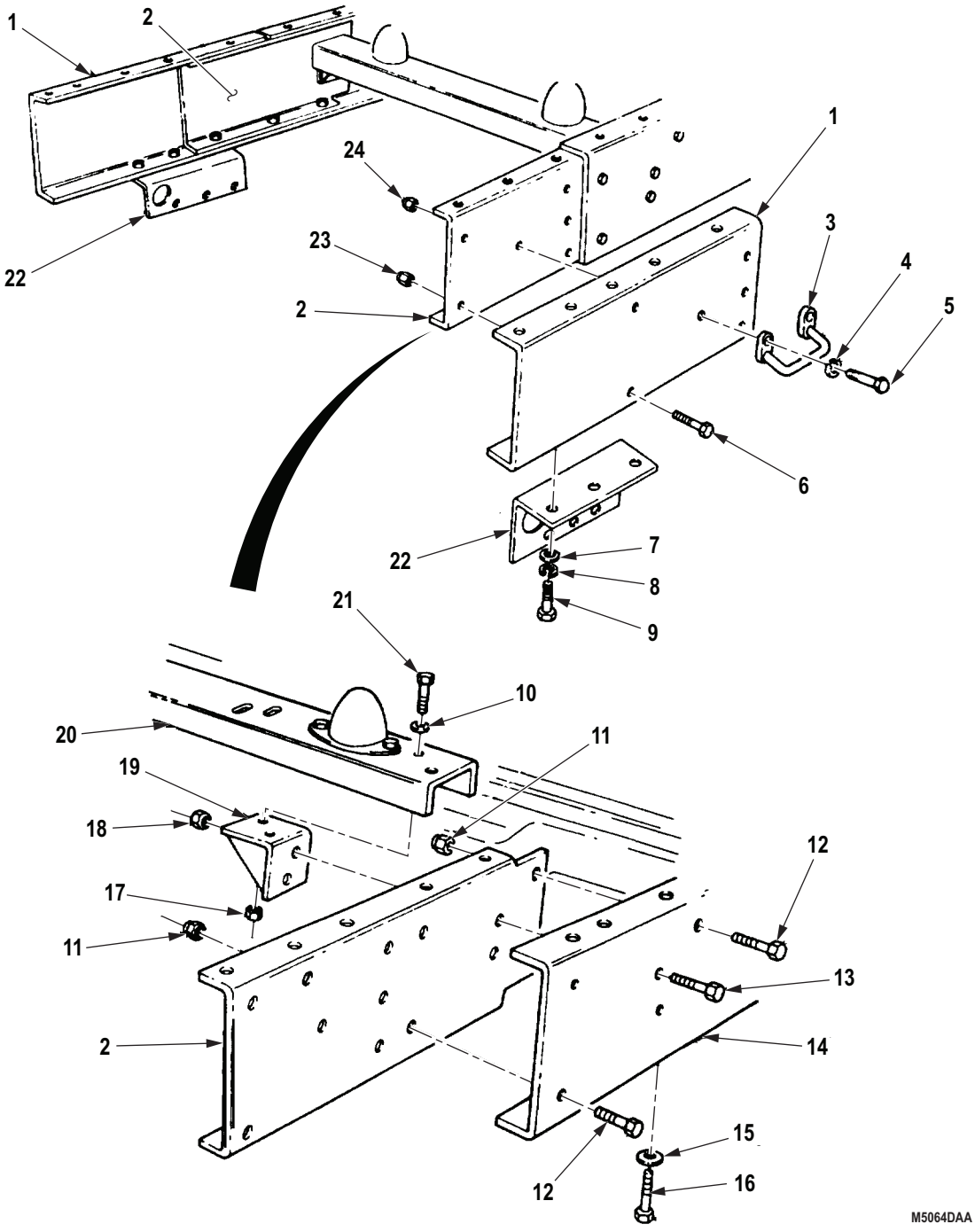


Figure 1. Winch Frame Extension Removal.

END OF TASK

INSTALLATION

1. Install two channel reinforcements (Figure 2, Item 2) on frame rails (Figure 2, Item 4) with eight screws (Figure 2, Item 12), locknuts (Figure 2, Item 11), two washers (Figure 2, Item 15) and screws (Figure 2, Item 16). Tighten locknuts and screws to 85 lb-ft (115 N·m).
2. Install two end supports (Figure 2, Item 19) on channel reinforcements (Figure 2, Item 2) with four screws (Figure 2, Item 13) and locknuts (Figure 2, Item 18). Tighten locknuts to 120 lb-ft (163 N·m).
3. Install two end supports (Figure 2, Item 19) on crossmember (Figure 2, Item 20) with four washers (Figure 2, Item 10), screws (Figure 2, Item 21), and locknuts (Figure 2, Item 17). Tighten locknuts to 120 lb - ft (163 N·m).
4. Install two frame extensions (Figure 2, Item 1) on channel reinforcements (Figure 2, Item 2) with eight screws (Figure 2, Item 6) and locknuts (Figure 2, Item 23). Tighten locknuts to 85 lb-ft (115 N·m).
5. Install two loop tiedowns (Figure 2, Item 3) on frame extensions (Figure 2, Item 1) with four washers (Figure 2, Item 4), screws (Figure 2, Item 5), and locknuts (Figure 2, Item 24).
6. Install two brackets (Figure 2, Item 22) on frame extensions (Figure 2, Item 1) with six washers (Figure 2, Item 7), lockwashers (Figure 2, Item 8), and screws (Figure 2, Item 9).

INSTALLATION - Continued

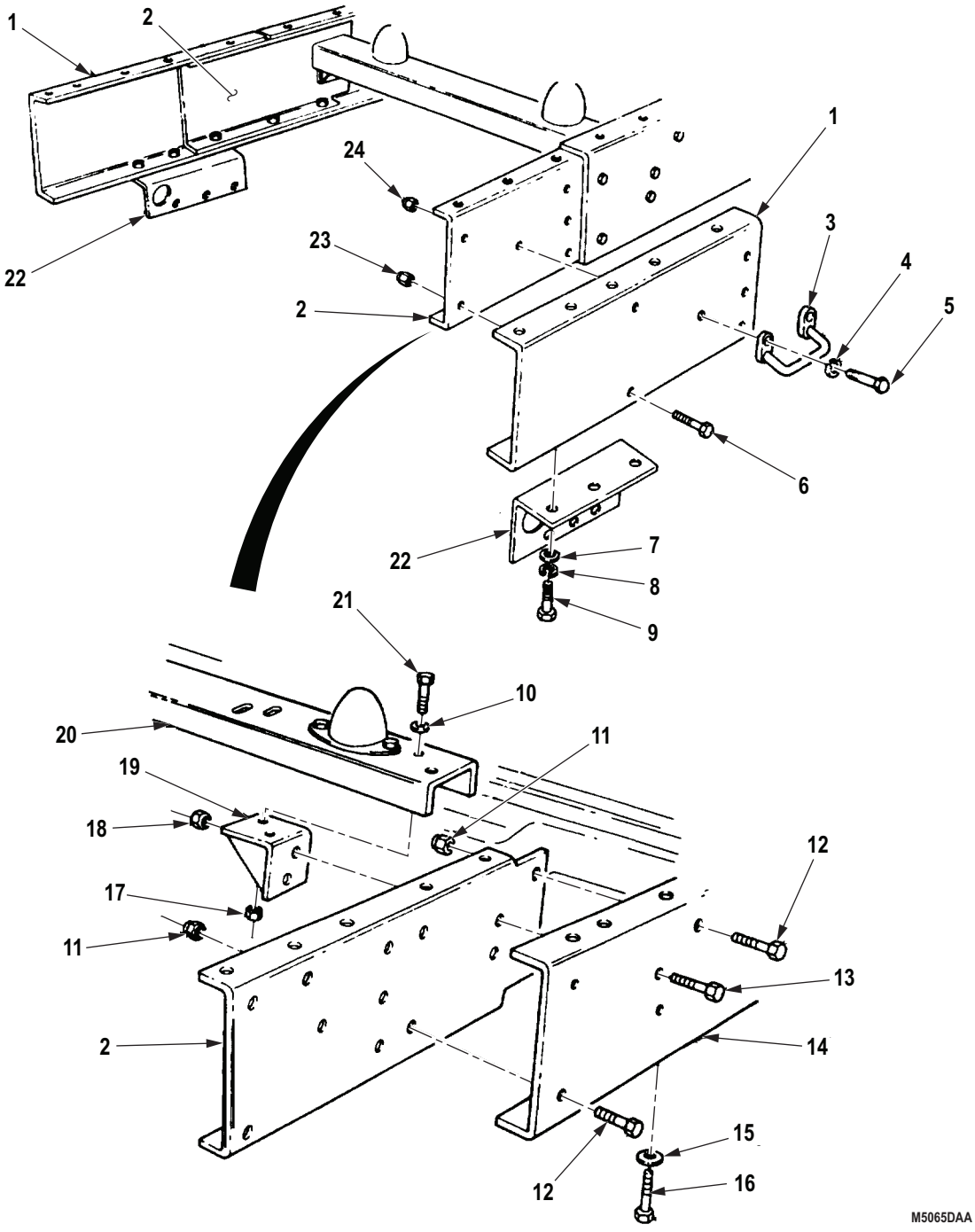


Figure 2. Winch Frame Extension Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install hood. (WP 0565)
2. Install front winch. (WP 0668)
3. Install bumper and plates. (Volume 3, WP 0515)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
FRONT WINCH AUTOMATIC BRAKE ADJUSTMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

Personnel Required
(2)

TESTING

CAUTION

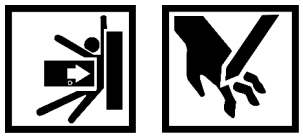
Selection of grade used in this procedure should be within the tolerance capabilities of the second vehicle. Failure to comply may result in damage to equipment.

NOTE

The procedures for testing and adjustment of front and rear winch automatic brakes are the same. This procedure covers the front winch automatic brake. Refer to TM 9-2320-272-10 for winch operation.

1. Position test vehicle (Figure 1, Item 1) at top of steep grade, facing downhill, with engine running (TM 9-2320-272-10).
2. Position second vehicle (Figure 1, Item 4) at bottom of steep grade, facing uphill, with engine running. Refer to operator's manual for second vehicle.

WARNING



- Never stand between vehicles during test. Assistant must remain in second vehicle to engage service brakes if cable snaps or winch automatic brake fails while towing vehicle. Failure to comply may result in injury or death to personnel.
- Wear hand protection when handling winch cable. Broken wires may be sharp. Failure to comply may result in injury or death to personnel.
- A minimum of four turns of cable must remain on winch drum at all times. Failure to comply may result in damage to equipment, injury, or death to personnel.

3. Release winch cable (Figure 1, Item 3) (TM 9-2320-272-10) from test vehicle (Figure 1, Item 1) and rig to second vehicle (Figure 1, Item 4).
4. Refer to Operator's Manual for second vehicle (Figure 1, Item 4) and prepare vehicle (Figure 1, Item 1) as follows:
   a. Place transmission lever (Figure 1, Item 5) in NEUTRAL position.
   b. Disengage parking brake (TM 9-2320-272-10).
   c. Disengage front wheel drive lever if engaged (TM 9-2320-272-10).
5. Prepare front winch (Figure 1, Item 2) of vehicle (Figure 1, Item 1) for winding (TM 9-2320-272-10).
6. Pull back winch control lever (Figure 1, Item 6) to WIND position, pull second vehicle (Figure 1, Item 4) part way up grade, and observe movement of second vehicle.
   a. If second vehicle (Figure 1, Item 4) rolls backward, go to ADJUSTMENT and adjust automatic winch brake of vehicle (Figure 1, Item 1).
   b. If second vehicle (Figure 1, Item 4) holds steady on the incline, no adjustment is required.
7. Push winch control lever (Figure 1, Item 6) forward to WINCH position and unwind winch cable (Figure 1, Item 3) until second vehicle (Figure 1, Item 4) is on level ground.
8. Remove winch cable (Figure 1, Item 3) from second vehicle (Figure 1, Item 4) if no adjustment is required.

TESTING - Continued

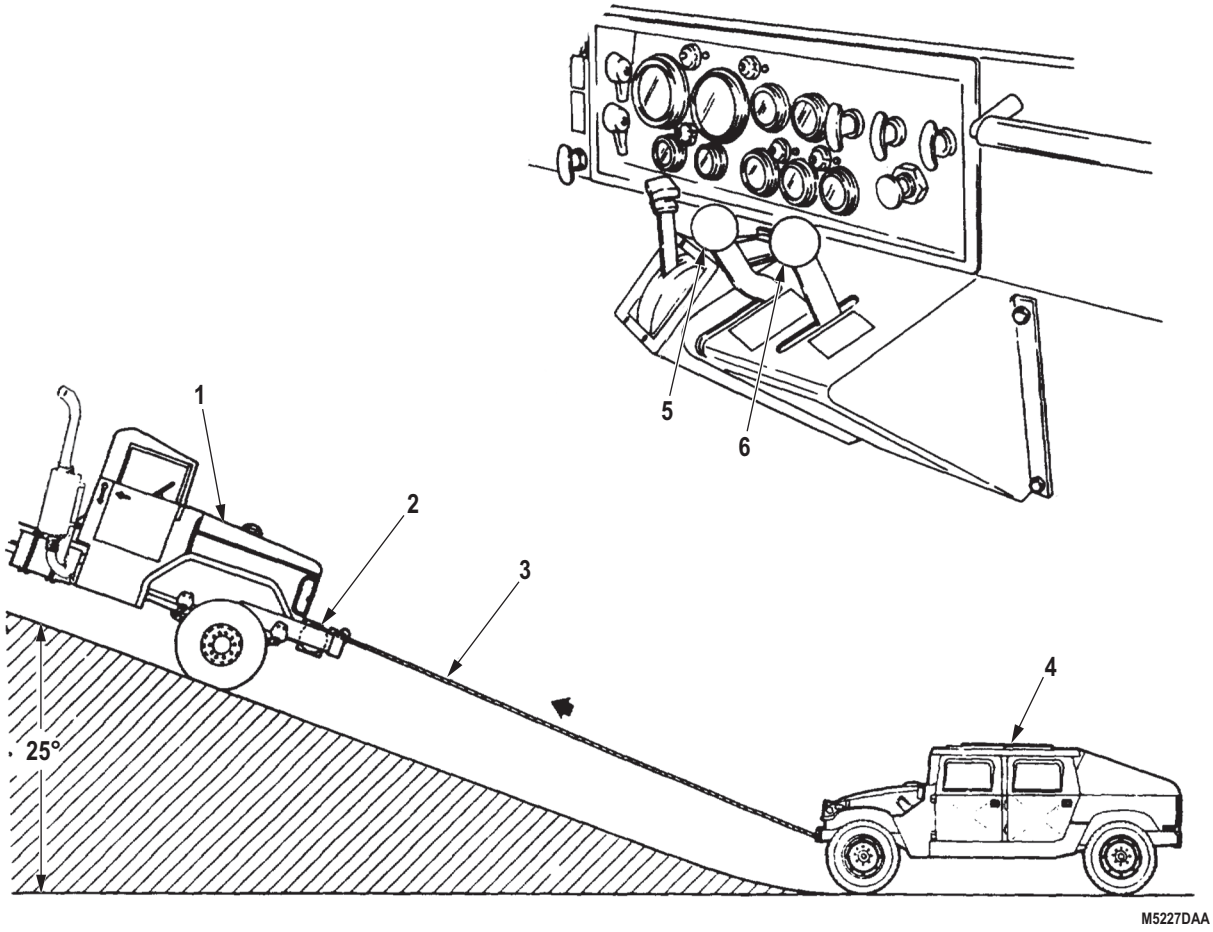


Figure 1. Front Winch Automatic Brake Testing.

END OF TASK

ADJUSTMENT

1. Adjust brake band by turning adjustment screw (Figure 2, Item 1) clockwise in one-half turn increments to increase brake action enough to hold second vehicle (Figure 1, Item 4) steady on incline.
2. Repeat TESTING, Steps (4) through (8) until adjustment is correct.

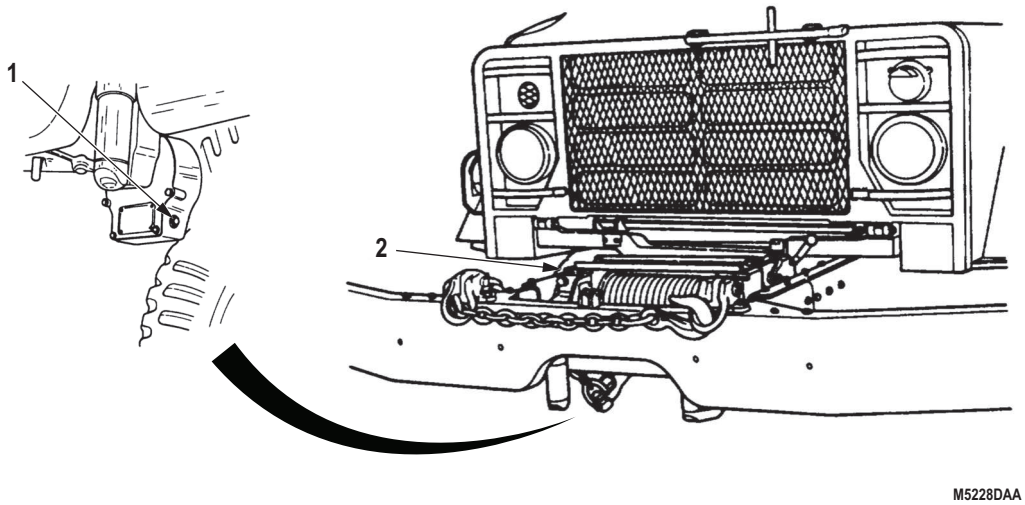


Figure 2. Front Winch Automatic Brake Adjustment.

END OF TASK

FOLLOW-ON MAINTENANCE

Rewind winch cable. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
FRONT WINCH DRAG BRAKE ADJUSTMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

TESTING

WARNING



Wear hand protection when handling winch cable. Do not handle cable with bare hands. Broken wires may be sharp. Failure to comply may result in injury or death to personnel.

1. Pull out drum lock knob (Figure 1, Item 2) on left side of front winch (Figure 1, Item 1), rotate 90 degrees, and release.

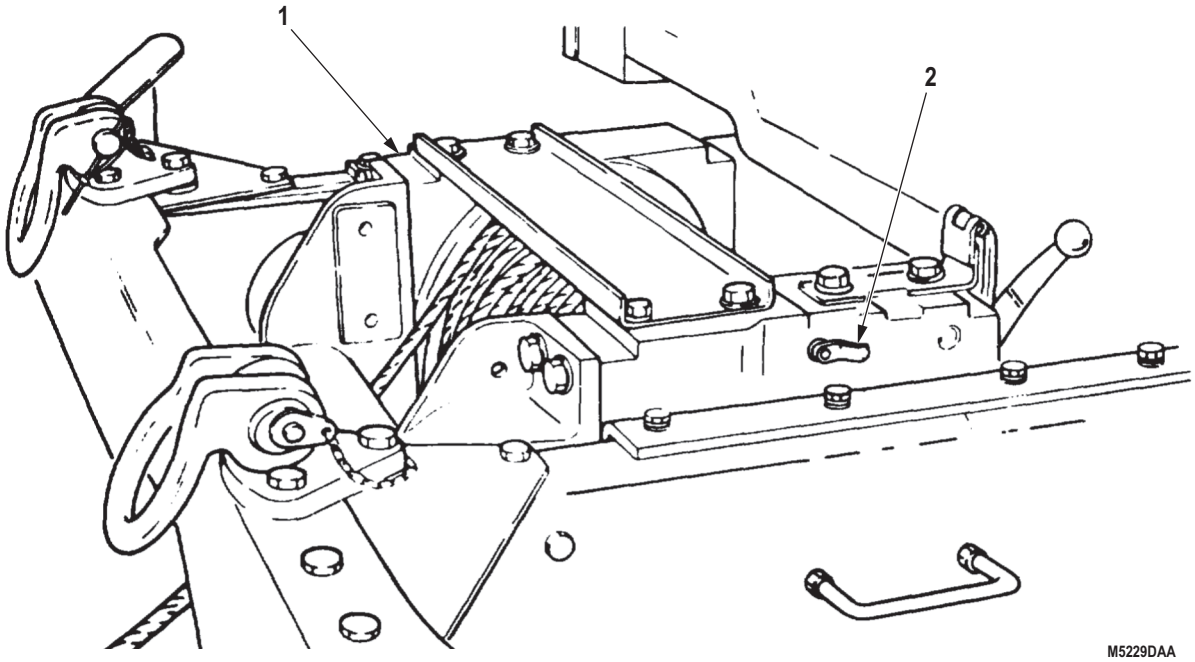


Figure 1. Front Winch Drag Brake Testing.

TESTING - Continued

NOTE

Perform Steps (2) and (3) for M936/A1 model vehicles equipped with level wind. M936A2 models do not have a level wind.

2. Pull out level wind lock knob (Figure 2, Item 2) on level wind frame (Figure 2, Item 1), rotate one-quarter turn, and release.
3. Pull out cable tensioner lock knob (Figure 2, Item 6) and release tensioner lever (Figure 2, Item 5).
4. Push clutch lever (Figure 2, Item 3) toward front of vehicle to disengage clutch.
5. Pull winch cable (Figure 2, Item 7) 3 to 4 ft (0.9 to 1.2 m) off drum. Drum will stop turning as soon as pulling has stopped if drag brake is properly adjusted. If drum continues to turn after pulling has stopped, perform ADJUSTMENT to adjust drag brake.

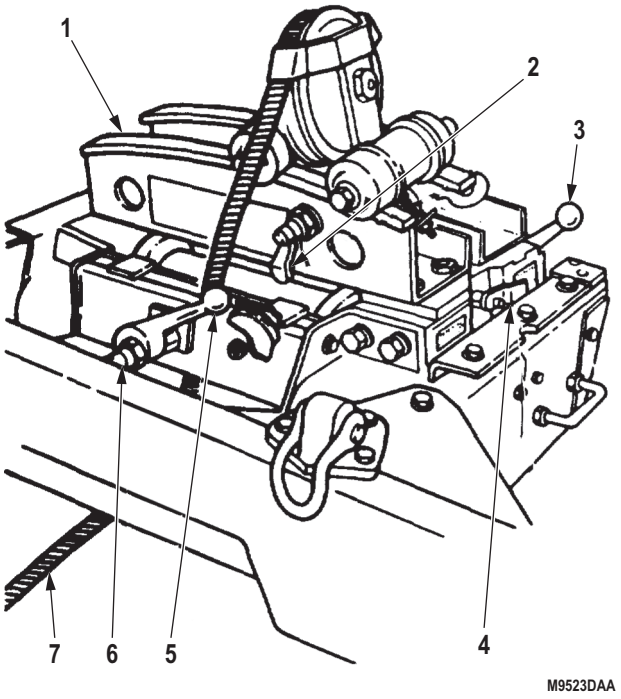


Figure 2. Front Winch Drag Brake Testing.

END OF TASK

ADJUSTMENT

1. Turn drag brake adjusting screw (Figure 3, Item 2), located under front winch (Figure 3, Item 1), one-quarter turn clockwise to increase drag; counterclockwise to decrease drag.

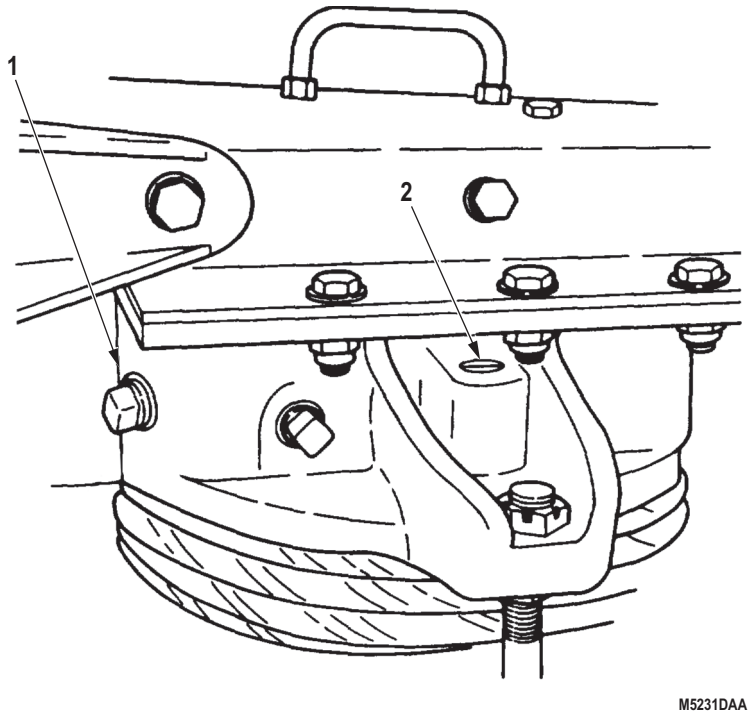


Figure 3. Front Winch Drag Brake Adjustment.

2. Repeat Step (1) until drag brake is properly adjusted.

END OF TASK

FOLLOW-ON MAINTENANCE

Rewind winch cable. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
FRONT WINCH CABLE CHAIN AND HOOK REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

REMOVAL

1. Remove cable chain and hook (Figure 1, Item 1) from front bumper lifting shackle (Figure 1, Item 2).
2. Remove nut (Figure 1, Item 5), clevis pin (Figure 1, Item 3), and clevis (Figure 1, Item 4) from cable chain and hook (Figure 1, Item 1).

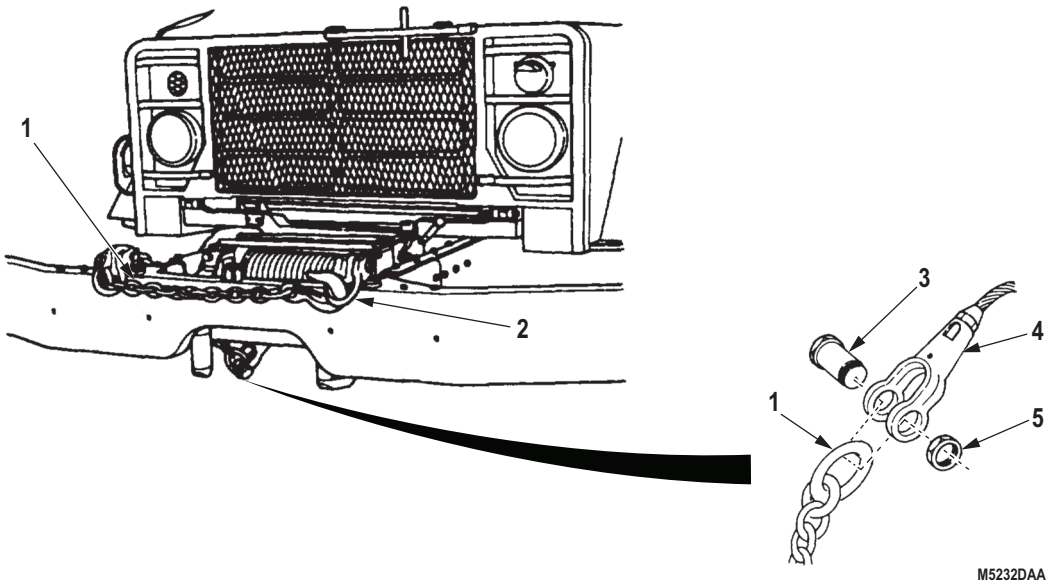


Figure 1. Front Winch Cable Chain and Hook Removal.

END OF TASK

INSTALLATION

1. Install cable chain and hook (Figure 2, Item 1) on clevis (Figure 2, Item 4) with clevis pin (Figure 2, Item 3) and nut (Figure 2, Item 5).
2. Store cable chain and hook (Figure 2, Item 1) on front bumper lifting shackle (Figure 2, Item 2) for travel.

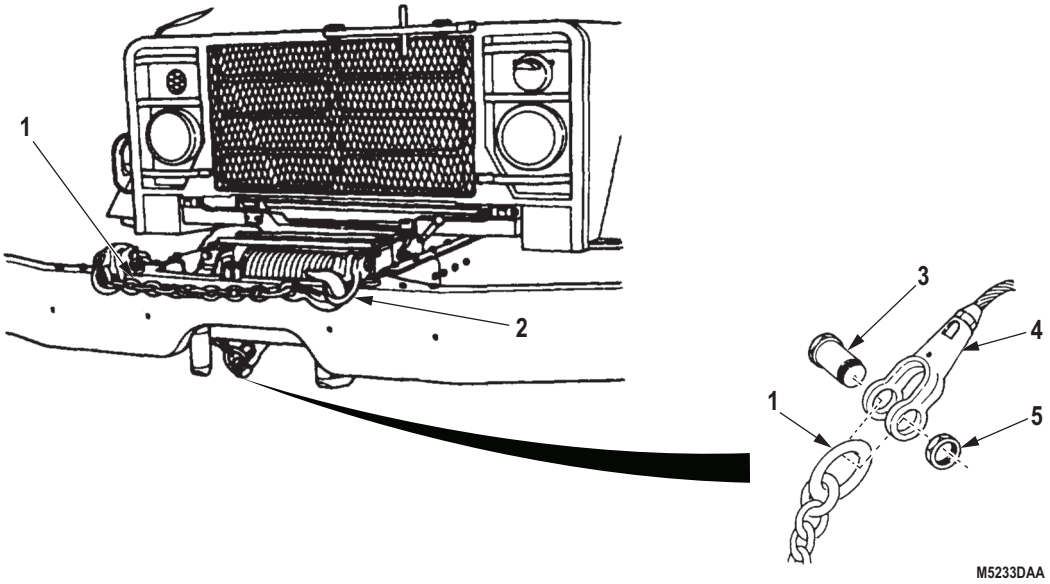


Figure 2. Front Winch Cable Chain and Hook Installation.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
FRONT WINCH CABLE CLEVIS REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)
Vise, Machinist's
(Volume 5, WP 0826, Table 1, Item 59)

References
TB 43-0142

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

Equipment Condition (cont.)
Front winch cable unwound. (TM 9-2320-272-10)
Cable chain and hook removed. (WP 0674)

REMOVAL

WARNING



Wear hand protection when handling winch cable. Do not handle cable with bare hands. Broken wires may be sharp. Failure to comply may result in injury or death to personnel.

1. Place threaded sleeve (Figure 1, Item 2) in vise (Figure 1, Item 3).
2. Remove clevis socket (Figure 1, Item 1) from threaded sleeve (Figure 1, Item 2).
3. Remove threaded sleeve (Figure 1, Item 2) from vise (Figure 1, Item 3).

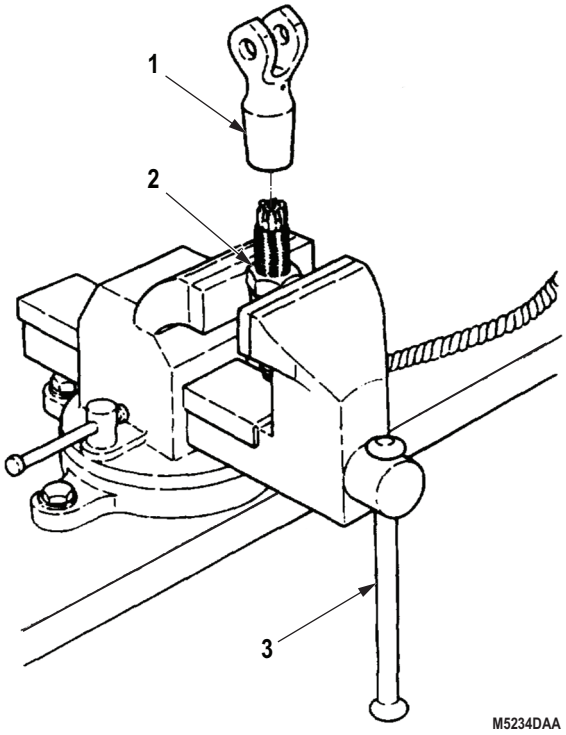


Figure 1. Front Winch Cable Clevis Removal.

REMOVAL - Continued

4. Clamp cable (Figure 2, Item 3) in vise (Figure 2, Item 4) below seizing wire (Figure 2, Item 1), if present.
5. Remove plug (Figure 2, Item 2), threaded sleeve (Figure 2, Item 5), and seizing wire (Figure 2, Item 1), if present, from cable (Figure 2, Item 3).
6. Remove cable (Figure 2, Item 3) from vise (Figure 2, Item 4) and trim to provide new end.

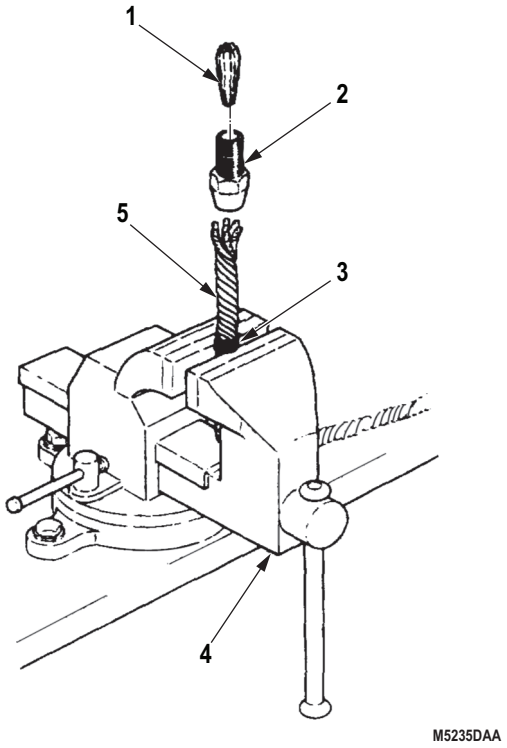


Figure 2. Front Winch Cable Clevis Removal.

END OF TASK

INSTALLATION

WARNING

Top seizing must not be less than 5.0 in. (12.7 cm) from end of cable. Faulty installation will cause cable failure. Failure to comply may result in injury or death to personnel.

1. Place cable (Figure 3, Item 1) in vise with 5 1/2 in. (14.0 cm) of cable (Figure 3, Item 1) above jaws of vise.
2. Measure 5.0 in. (12.7 cm) below end of cable (Figure 3, Item 1). Beginning at this point, wrap 1/2 in. (12.7 mm) of mechanic's wire (Figure 3, Item 2) around cable toward vise. Twist ends of mechanic's wire together and bend flat in a groove of cable.

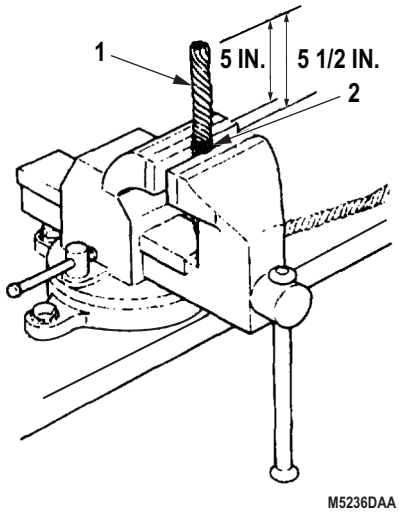


Figure 3. Front Winch Cable Clevis Installation.

NOTE

If cable is wire-core type, proceed to Step (5).

3. Unravel six strands (Figure 4, Item 2 and 4) of cable (Figure 4, Item 3) above vise.
4. Cut off hemp core (Figure 4, Item 1) as close to vise as possible.

INSTALLATION - Continued

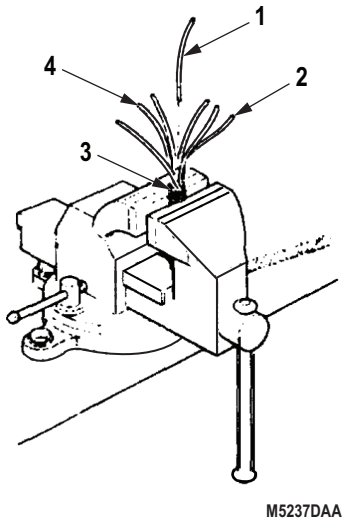


Figure 4. Front Winch Cable Clevis Installation.

5. Wrap upper ends of strands (Figure 5, Item 2) with mechanic's wire (Figure 5, Item 3).

NOTE

Approximately 1-3/8 in. (3.5 cm) of cable should extend above threaded sleeve.

6. Slide threaded sleeve (Figure 5, Item 1) over end of cable (Figure 5, Item 5) and seat against mechanic's wire (Figure 5, Item 4).
7. Remove cable (Figure 5, Item 5) from vise and reclamp on the hex-flats of threaded sleeve (Figure 5, Item 1).
8. Remove upper wire (Figure 5, Item 3) from cable (Figure 5, Item 5).

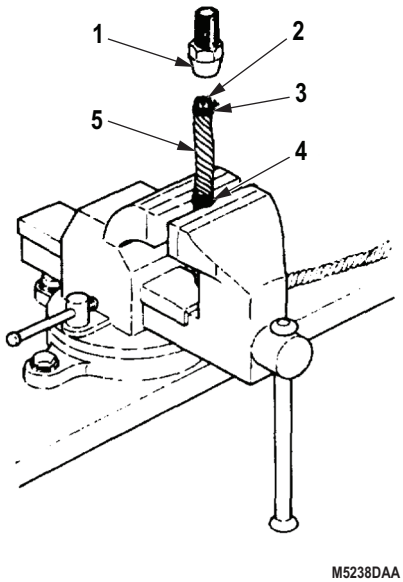


Figure 5. Front Winch Cable Clevis Installation.

INSTALLATION - Continued

NOTE

- Use P/N 7071906 plug for hemp core cable. Use P/N 7071871 plug for wire core cable.
- Perform Step (10) for wire-core type cable.

9. Drive plug (Figure 6, Item 1) into center of cable (Figure 6, Item 4) and into threaded sleeve (Figure 6, Item 3). Align strands (Figure 6, Item 2) with grooves in plug.

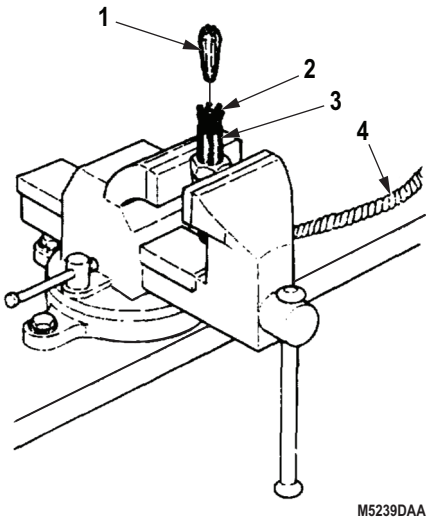


Figure 6. Front Winch Cable Clevis Installation.

10. Slide plug (Figure 7, Item 1) over core wire (Figure 7, Item 3) and down onto cable (Figure 7, Item 4), align strands (Figure 7, Item 2) with grooves of plug, and drive plug into cable and threaded sleeve (Figure 7, Item 5).

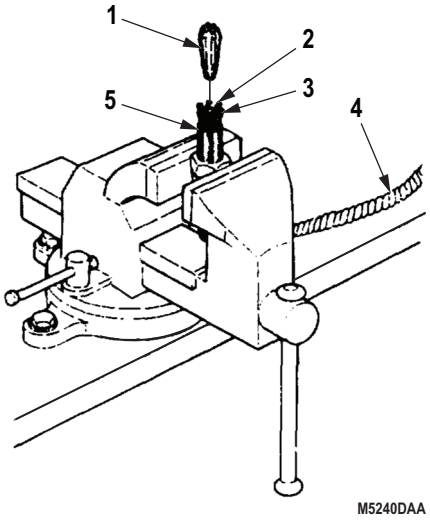


Figure 7. Front Winch Cable Clevis Installation.

INSTALLATION - Continued

NOTE

Refer to TB 43-0142 for cable and clevis assemblies that must be proof-load tested.

11. Place clevis socket (Figure 8, Item 1) over end of cable (Figure 8, Item 3) and install on threaded sleeve (Figure 8, Item 4). Tighten clevis socket on threaded sleeve until only 3 to 5 threads are exposed. Ensure cable is visible through inspection hole (Figure 8, Item 2) of clevis socket (Figure 8, Item 1).

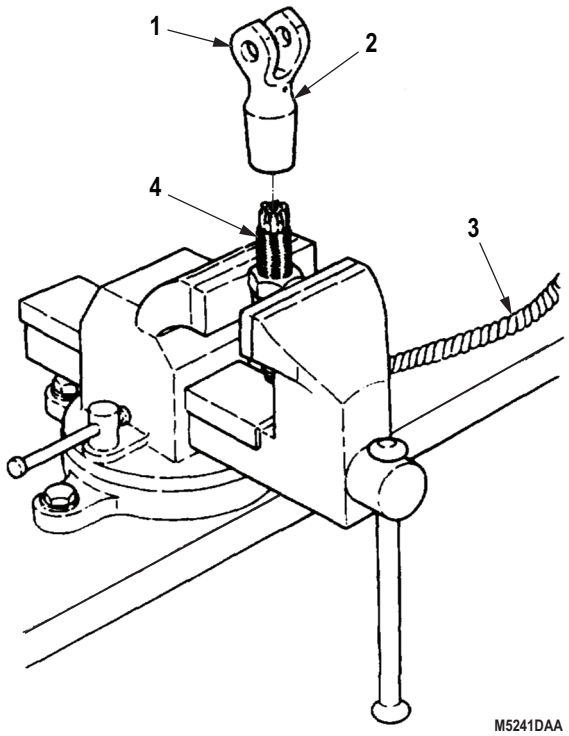


Figure 8. Front Winch Cable Clevis Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install cable chain and hook. (WP 0674)
2. Wind front winch cable. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
REAR WINCH ROLLER REPAIR

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Cleaning Compound, Solvent
(Volume 5, WP 0825, Table 1, Item 16, 17)
Grease, Automotive and Artillery
(Volume 5, WP 0825, Table 1, Item 28)
Lubricating Oil, Engine
(Volume 5, WP 0825, Table 1, Item 39, 40, 41, 42)
Felt Washer
(Volume 5, WP 0827, Table 1, Item 213)
Qty: 4
Lockwasher

Materials/Parts (cont.)
(Volume 5, WP 0827, Table 1, Item 62)
Qty: 4
Lockwasher
(Volume 5, WP 0827, Table 1, Item 408)
Qty: 2

Personnel Required
(2)

References
TM 9-214
Volume 5, WP 0820

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

SIDE ROLLER DISASSEMBLY

NOTE

Repair procedures for both side rollers are the same. This procedure covers the left side roller.

1. Remove two screws (Figure 1, Item 6), lockwashers (Figure 1, Item 7), and lockplate (Figure 1, Item 8) from bracket (Figure 1, Item 3). Discard lockwashers.

NOTE

Assistant will help with Steps (2) and (3).

2. Remove shaft (Figure 1, Item 5) from bracket (Figure 1, Item 3).
3. Remove roller (Figure 1, Item 12), two thrust washers (Figure 1, Item 9), and felt washers (Figure 1, Item 10) from bracket (Figure 1, Item 3). Discard felt washers.
4. Remove two bearings (Figure 1, Item 11) from roller (Figure 1, Item 12).
5. Remove two screws (Figure 1, Item 1), lockwashers (Figure 1, Item 14), plate (Figure 1, Item 2), and spacer (Figure 1, Item 13) from bracket (Figure 1, Item 3). Discard lockwashers.
6. Remove two grease fittings (Figure 1, Item 4) from shaft (Figure 1, Item 5).

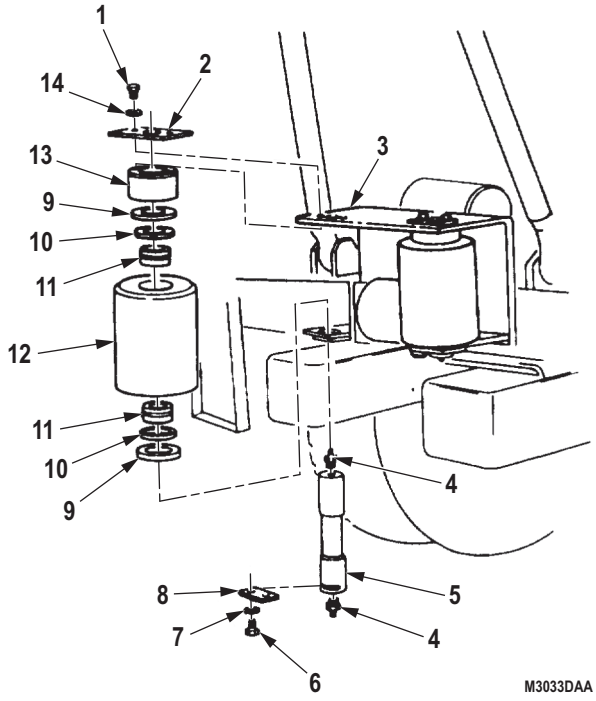


Figure 1. Rear Winch Roller Repair - Side Roller Disassembly.

END OF TASK

TOP AND BOTTOM ROLLER DISASSEMBLY

NOTE

Perform left side roller removal if bottom roller is to be repaired.

1. Remove two grease fittings (Figure 2, Item 6) from shaft (Figure 2, Item 7).
2. Remove two screws (Figure 2, Item 9), lockwashers (Figure 2, Item 10), and lockplate (Figure 2, Item 8) from bracket (Figure 2, Item 11). Discard lockwashers.

NOTE

Thrust washers may fall out.

3. Remove shaft (Figure 2, Item 7) from roller (Figure 2, Item 5).
4. Remove two grease fittings (Figure 2, Item 1) from tensioner sheave shaft (Figure 2, Item 12).

NOTE

Assistant will help with Step (5).

5. Remove roller (Figure 2, Item 5) and two thrust washers (Figure 2, Item 2) from bracket (Figure 2, Item 11).
6. Remove two felt washers (Figure 2, Item 3) and bearings (Figure 2, Item 4) from roller (Figure 2, Item 5). Discard felt washers.

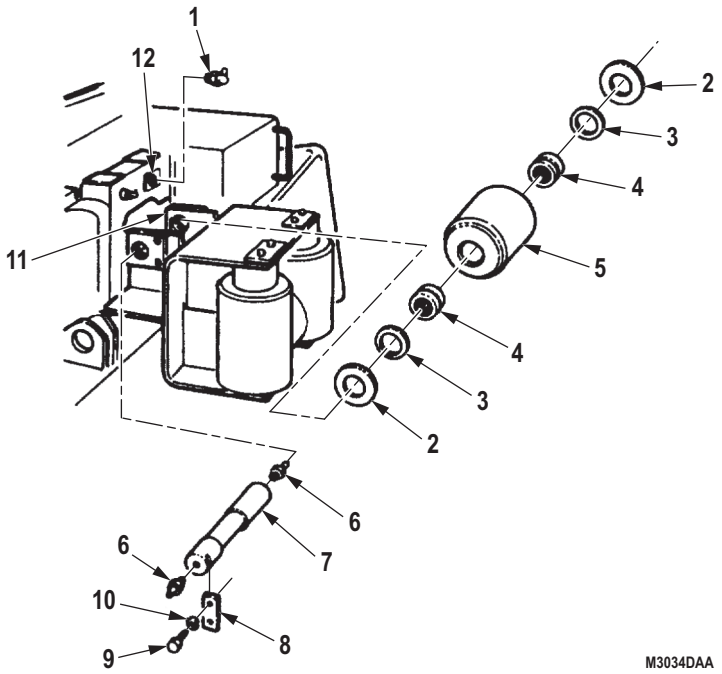


Figure 2. Rear Winch Roller Repair - Top and Bottom Roller Disassembly.

END OF TASK

CLEANING AND INSPECTION

WARNING



Solvent cleaning compound is flammable and toxic. Do not use near an open flame and always have a fire extinguisher nearby when solvents are used. Use only in well-ventilated places, wear protective clothing, and dispose of cleaning rags in approved container. Failure to comply may result in damage to equipment, injury, or death to personnel.

1. Clean roller (Figure 3, Item 3) and shafts (Figure 3, Items 4 and 5) assemblies with solvent cleaning compound and allow to air-dry.
2. Inspect shafts (Figure 3, Items 4 and 5) for cracks. Replace shafts, if cracked.
3. Measure bearing surfaces of shafts (Figure 3, Items 4 and 5). If outer diameter of bearing surfaces of shafts is less than 2.245 in. (57.02 mm), replace.
4. Inspect four thrust washers (Figure 3, Items 1 and 6) for cracks. Replace thrust washers if cracked.
5. Measure thickness of thrust washers (Figure 3, Items 1 and 6). If thickness of thrust washers is less than 0.055 in. (1.40 mm), replace.
6. Inspect four bearings (Figure 3, Items 2 and 7) for damage (TM 9-214). If bearings are damaged, replace.

CLEANING AND INSPECTION - Continued

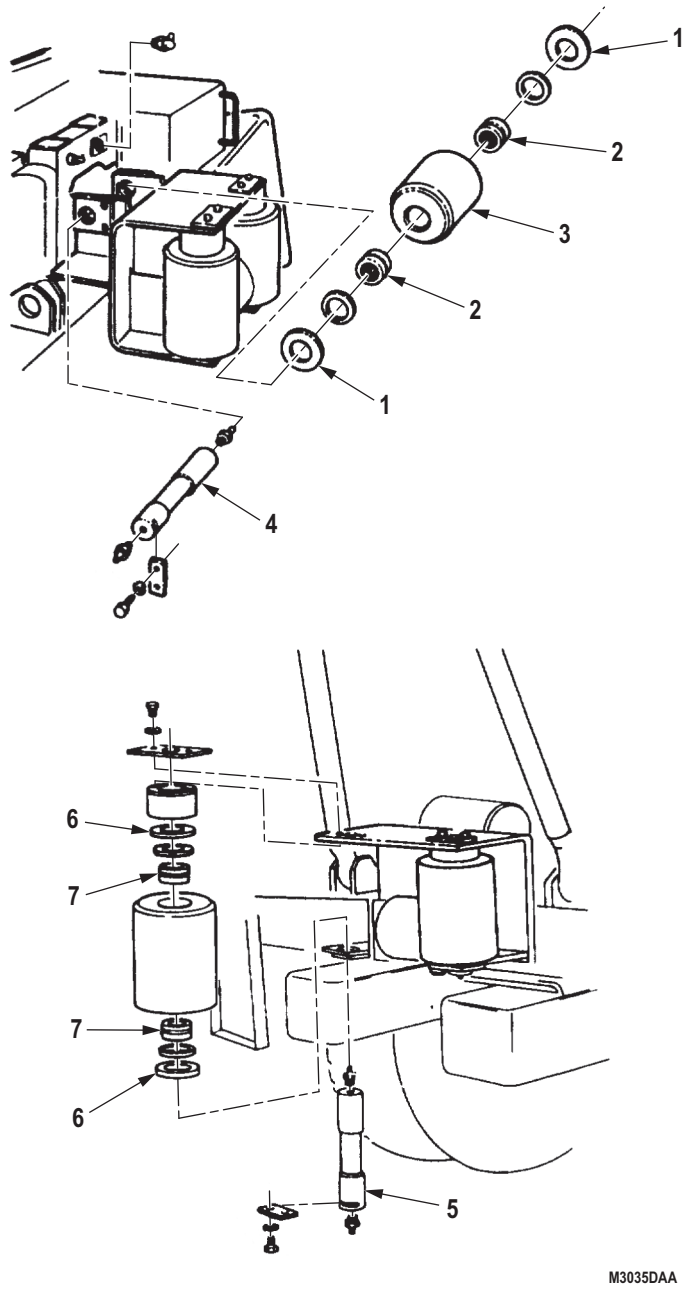


Figure 3. Rear Winch Roller Cleaning and Inspection.

END OF TASK

TOP AND BOTTOM ROLLER ASSEMBLY

1. Pack two bearings (Figure 4, Item 4) with grease and install in roller (Figure 4, Item 5).
2. Soak two felt washers (Figure 4, Item 3) in lubricating oil prior to installation. Position two felt washers and thrust washers (Figure 4, Item 2) on each end of roller (Figure 4, Item 5).

NOTE

Assistant will help with Steps (3) and (4).

3. Slide roller (Figure 4, Item 5), bearing (Figure 4, Item 4), felt washers (Figure 4, Item 3), and thrust washer (Figure 4, Item 2) between brackets (Figure 4, Item 11).
4. Install shaft (Figure 4, Item 7) through brackets (Figure 4, Item 11) and roller (Figure 4, Item 5).
5. Align lockplate (Figure 4, Item 8) with shaft (Figure 4, Item 7) and install with two lockwashers (Figure 4, Item 10) and screws (Figure 4, Item 9).
6. Install two grease fittings (Figure 4, Item 6) on shaft (Figure 4, Item 7).

NOTE

Install left side roller if removed (Refer to SIDE ROLLER ASSEMBLY).

7. Install two grease fittings (Figure 4, Item 1) on tensioner sheave shaft (Figure 4, Item 12).

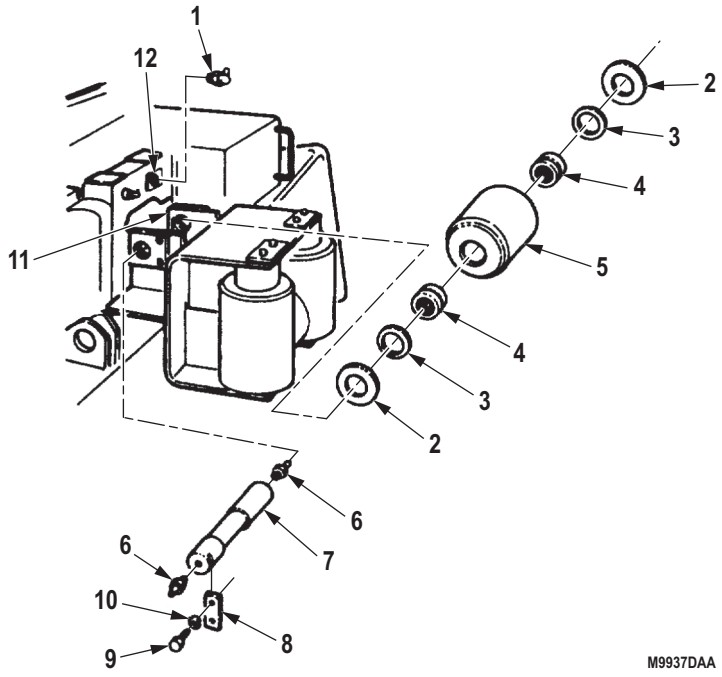


Figure 4. Rear Winch Roller Repair - Top and Bottom Roller Assembly.

END OF TASK

SIDE ROLLER ASSEMBLY

1. Install two grease fittings (Figure 5, Item 4) on shaft (Figure 5, Item 5).
2. Install spacer (Figure 5, Item 13) on bracket (Figure 5, Item 3) with plate (Figure 5, Item 2), two lockwashers (Figure 5, Item 14), and screws (Figure 5, Item 1).
3. Pack two bearings (Figure 5, Item 11) with grease and install in roller (Figure 5, Item 12).
4. Soak two felt washers (Figure 5, Item 10) in lubricating oil prior to installation. Position two felt washers and thrust washers (Figure 5, Item 9) on each end of roller (Figure 5, Item 12).

NOTE

Assistant will help with Steps (5) and (6).

5. Slide roller (Figure 5, Item 12), bearing (Figure 5, Item 11), felt washers (Figure 5, Item 10), and thrust washers (Figure 5, Item 9) into bracket (Figure 5, Item 3).
6. Install shaft (Figure 5, Item 5) through bracket (Figure 5, Item 3) and roller (Figure 5, Item 12). Make sure locking slot is at bottom.
7. Align lockplate (Figure 5, Item 8) with shaft (Figure 5, Item 5) and install with two lockwashers (Figure 5, Item 7) and screws (Figure 5, Item 6).

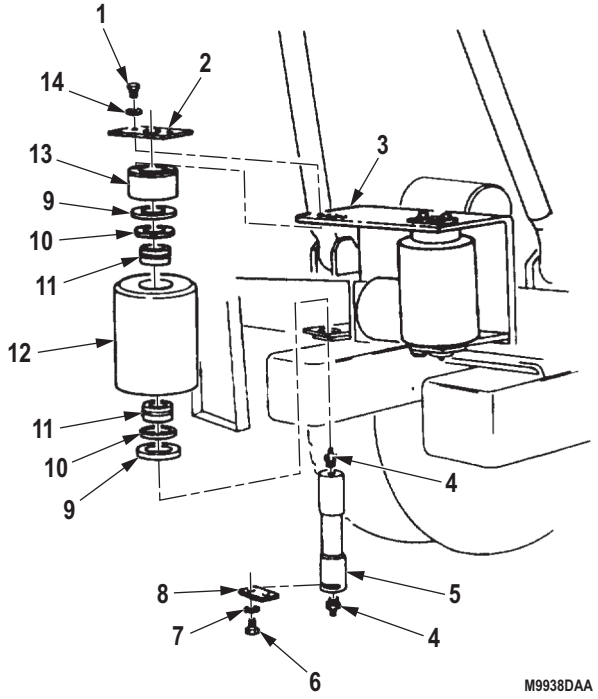


Figure 5. Rear Winch Roller Repair - Side Roller Assembly.

END OF TASK

FOLLOW-ON MAINTENANCE

Lubricate roller assembly. (Volume 5, WP 0820)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
FRONT WINCH CABLE TENSIONER REPAIR

INITIAL SETUP:

Tools and Special Tools
- Tool Kit, General Mechanic's: Automotive
  (Volume 5, WP 0826, Table 1, Item 56)
- Hammer, Soft Face
  (Volume 5, WP 0826, Table 1, Item 22)
- Press, Arbor, Hand Operated
  (Volume 5, WP 0826, Table 1, Item 39)

Materials/Parts
- Cloth, Cleaning
  (Volume 5, WP 0825, Table 1, Item 19)
- Grease, Automotive and Artillery
  (Volume 5, WP 0825, Table 1, Item 28)
- Lockwasher
  (Volume 5, WP 0827, Table 1, Item 186)
  Qty: 4
- Lockwasher
  (Volume 5, WP 0827, Table 1, Item 405)
  Qty: 4

Materials/Parts (cont.)
- Packing Assembly
  (Volume 5, WP 0827, Table 1, Item 221)
  Qty: 4
- Woodruff Key
  (Volume 5, WP 0827, Table 1, Item 414)
  Qty: 1

Equipment Condition
- Parking brake set. (TM 9-2320-272-10)
- Winch cable removed. (WP 0674)

REMOVAL

1. Remove four nuts (Figure 1, Item 2), lockwashers (Figure 1, Item 3), screws (Figure 1, Item 4), and cable tensioner (Figure 1, Item 8) from brackets of roller assembly (Figure 1, Item 1). Discard lockwashers.
2. Remove two grease fittings (Figure 1, Item 9) from cable tensioner (Figure 1, Item 8).
3. Remove setscrew (Figure 1, Item 6), lever (Figure 1, Item 5), and poppet assembly (Figure 1, Item 7) from tensioner (Figure 1, Item 8).
4. Remove latch nut (Figure 1, Item 14), latch (Figure 1, Item 10), and winch poppet nut (Figure 1, Item 13) from poppet (Figure 1, Item 12).
5. Remove spring (Figure 1, Item 11) and poppet (Figure 1, Item 12) from poppet nut (Figure 1, Item 13).

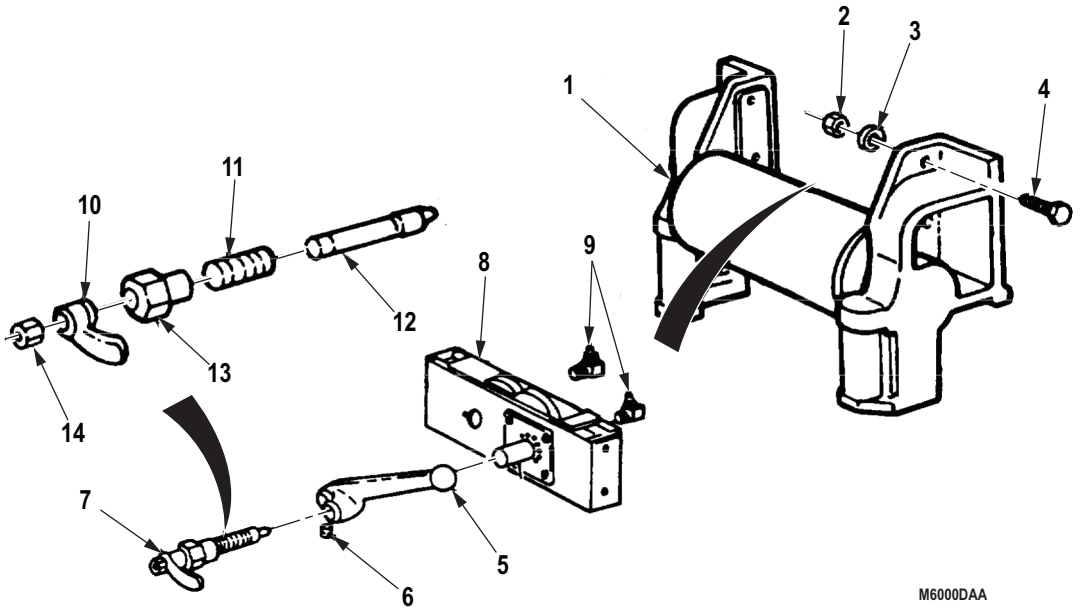


Figure 1. Cable Tensioner Removal.

6. Remove four screws (Figure 2, Item 12), lockwashers (Figure 2, Item 13), and block assembly (Figure 2, Item 10) from frame (Figure 2, Item 14). Discard lockwashers.
7. Remove shaft (Figure 2, Item 8) from frame (Figure 2, Item 14).
8. Remove bushing (Figure 2, Item 11), woodruff key (Figure 2, Item 9), and bushing (Figure 2, Item 7) from shaft (Figure 2, Item 8). Discard woodruff key and tag parts for installation.
9. Remove sheave (Figure 2, Item 4), two packing assemblies (Figure 2, Items 2 and 5), and thrust washers (Figure 2, Items 1 and 6) from frame (Figure 2, Item 14). Discard packing assemblies.
10. Remove bearing (Figure 2, Item 3) from sheave (Figure 2, Item 4).
11. Remove two snaprings (Figure 2, Item 19) from tensioner sheave pin (Figure 1, Item 20).
12. Remove tensioner sheave pin (Figure 1, Item 20) and pin (Figure 1, Item 21) from frame (Figure 2, Item 14).
13. Remove sheave (Figure 2, Item 18), two packing assemblies (Figure 2, Item 16), and thrust washers (Figure 2, Item 15) from frame (Figure 2, Item 14). Discard packing assemblies.
14. Remove bearing (Figure 2, Item 17) from sheave (Figure 2, Item 18).

REMOVAL - Continued

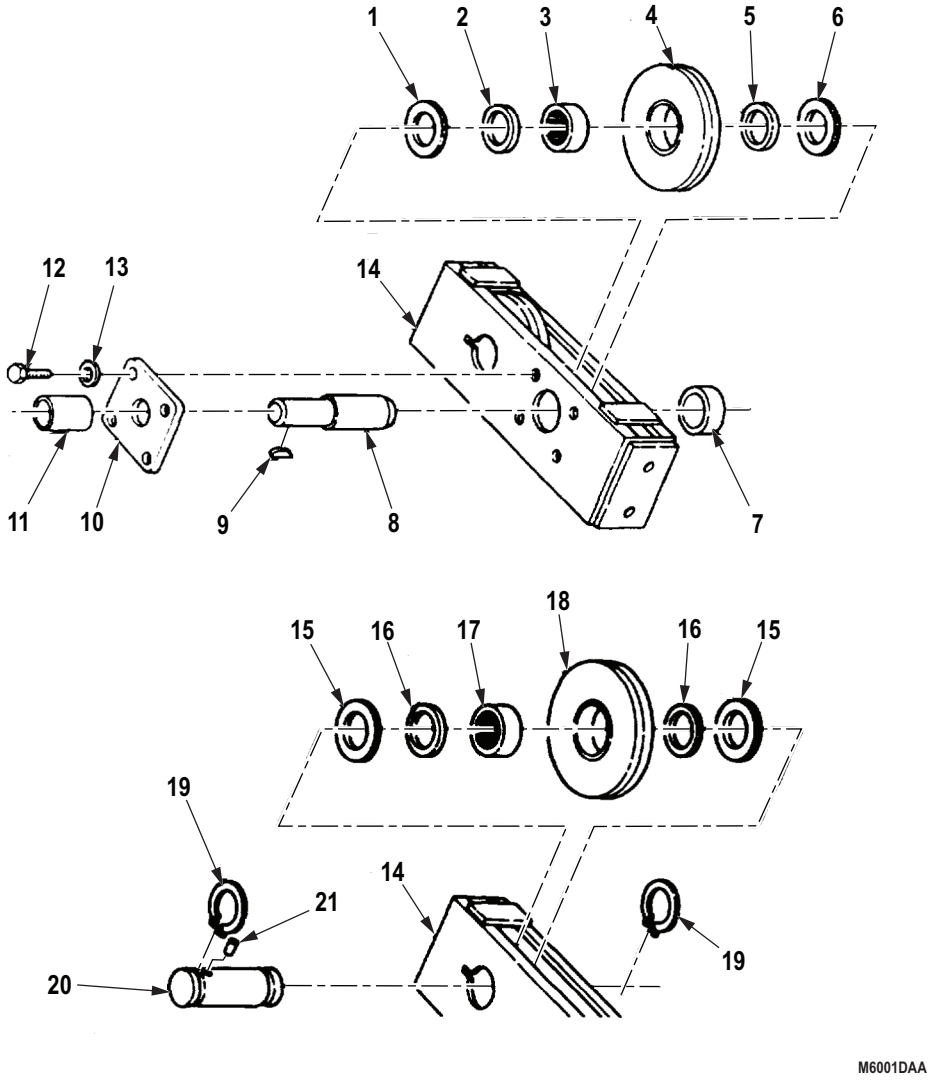


Figure 2. Cable Tensioner Disassembly.

END OF TASK

CLEANING AND INSPECTION

1. Inspect frame (Figure 3, Item 1) for breaks and cracks. Replace if broken or cracked.
2. Clean tensioner sheave pin (Figure 3, Item 14) and inspect for pits, scoring, and wear. Replace if scored, pitted, or if outside diameter is less than 0.9995 in. (25.39 mm).
3. Clean sheave (Figure 3, Item 12) and inspect for breaks and cracks. Replace if broken or cracked.
4. Clean bearing (Figure 3, Item 11) and inspect for cracks, chips, and broken cage. Replace if cracked, chipped, broken, or if inner diameter exceeds 1.000 in. (25.4 mm).
5. Clean two thrust washers (Figure 3, Item 9) and inspect for cracks, chips, and wear. Replace if cracked, chipped, or if thickness is less than 0.0615 in. (1.56 mm).
6. Clean block (Figure 3, Item 4) and inspect for cracks and elongated holes. Replace if cracked or holes are elongated.
7. Clean shaft (Figure 3, Item 3) and inspect for cracks. Replace if cracked.
8. Measure outer cam diameter of shaft (Figure 3, Item 3). Replace if cam outer diameter is less than 0.995 in. (25.35 mm).
9. Measure outer diameter of bearing (Figure 3, Item 11). Replace if outer diameter is less than 0.748 in. (18.99 mm).
10. Clean sheave (Figure 3, Item 12) and inspect for cracks and wear. Replace if cracked or broken.
11. Clean two thrust washers (Figure 3, Item 9) and inspect for cracks and wear. Replace if cracked or if thickness is less than 0.062 in. (1.56 mm).
12. Clean bearing (Figure 3, Item 11) and inspect for cracks, chips, and broken cage. Replace if cracked, chipped, or broken.
13. Measure inner diameter of bearing (Figure 3, Item 11) and replace if inner diameter is greater than 1.000 in. (25.4 mm).
14. Clean two bushings (Figure 3, Item 2) and inspect for cracks, chips, and wear. Replace if cracked, chipped, or if inner diameter exceeds 0.754 in. (19.15 mm).
15. Clean frame (Figure 3, Item 1) and replace if damaged.
16. Clean latch (Figure 3, Item 8) and lever (Figure 3, Item 7) and inspect for breaks and cracks. Replace if broken or cracked.
17. Clean poppet (Figure 3, Item 5) and inspect for bends and breaks. Replace if bent or broken.
18. Clean spring (Figure 3, Item 6) and inspect for broken and collapsed coils. Replace if coils are broken or collapsed.

CLEANING AND INSPECTION - Continued

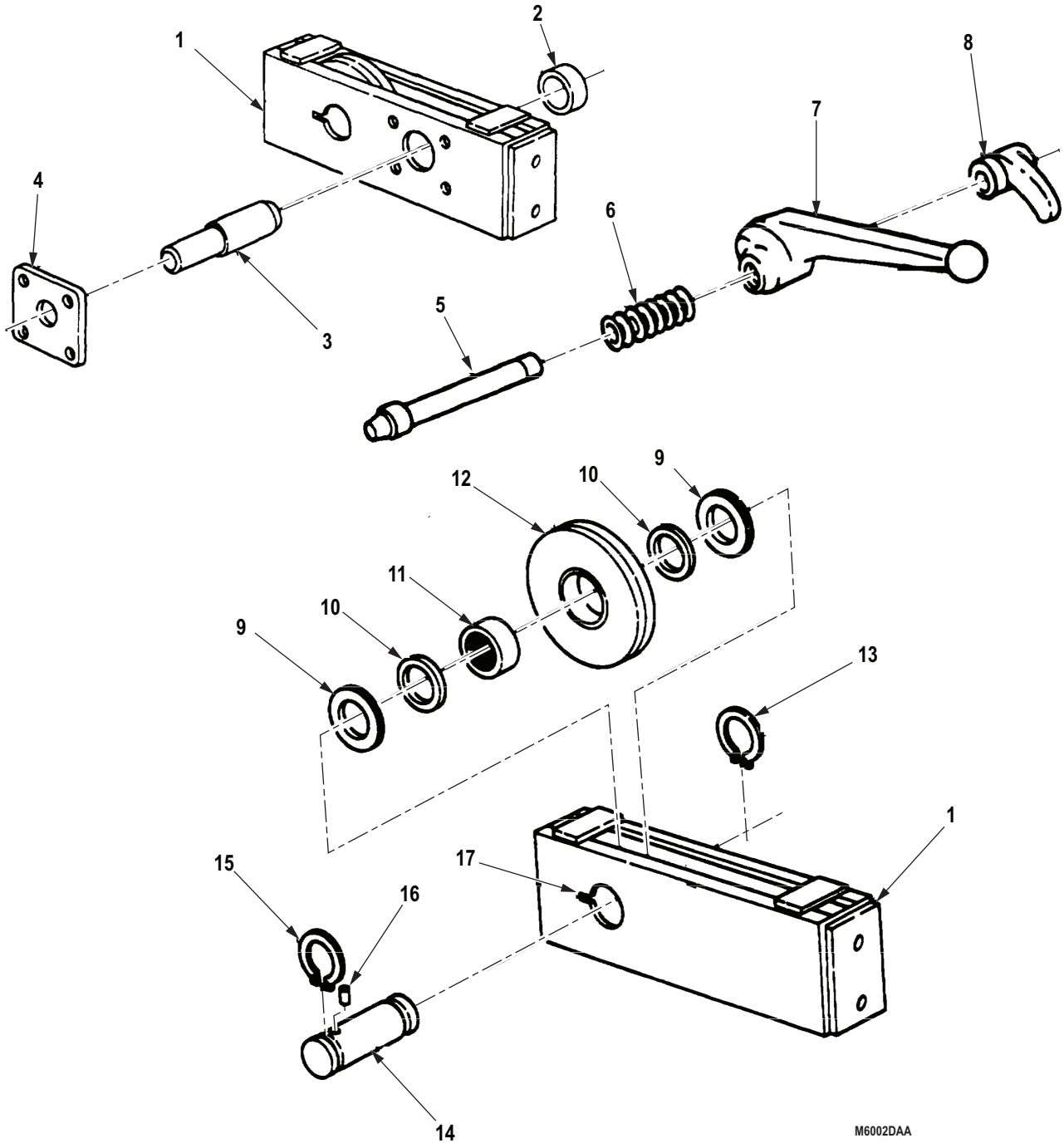


Figure 3. Cable Tensioner Cleaning and Inspection.

END OF TASK

INSTALLATION

NOTE

Ensure all bearings are packed with GAA grease before installation.

1. Using arbor press, install bearing (Figure 4, Item 10) in sheave (Figure 4, Item 1).
2. Using soft-faced hammer, drive pin (Figure 4, Item 8) into tensioner sheave pin (Figure 4, Item 6) until seated.
3. Install snapring (Figure 4, Item 7) on pin (Figure 4, Item 6).
4. Position felt side of two packing assemblies (Figure 4, Item 2) against bearing (Figure 4, Item 10).
5. Position sheave (Figure 4, Item 1) and two thrust washers (Figure 4, Item 3) in frame (Figure 4, Item 5) and install with tensioner sheave pin (Figure 4, Item 6).
6. Secure tensioner sheave pin (Figure 4, Item 6) on frame (Figure 4, Item 5) with snapring (Figure 4, Item 4). Ensure tensioner sheave pin engages slot (Figure 4, Item 9) in frame.

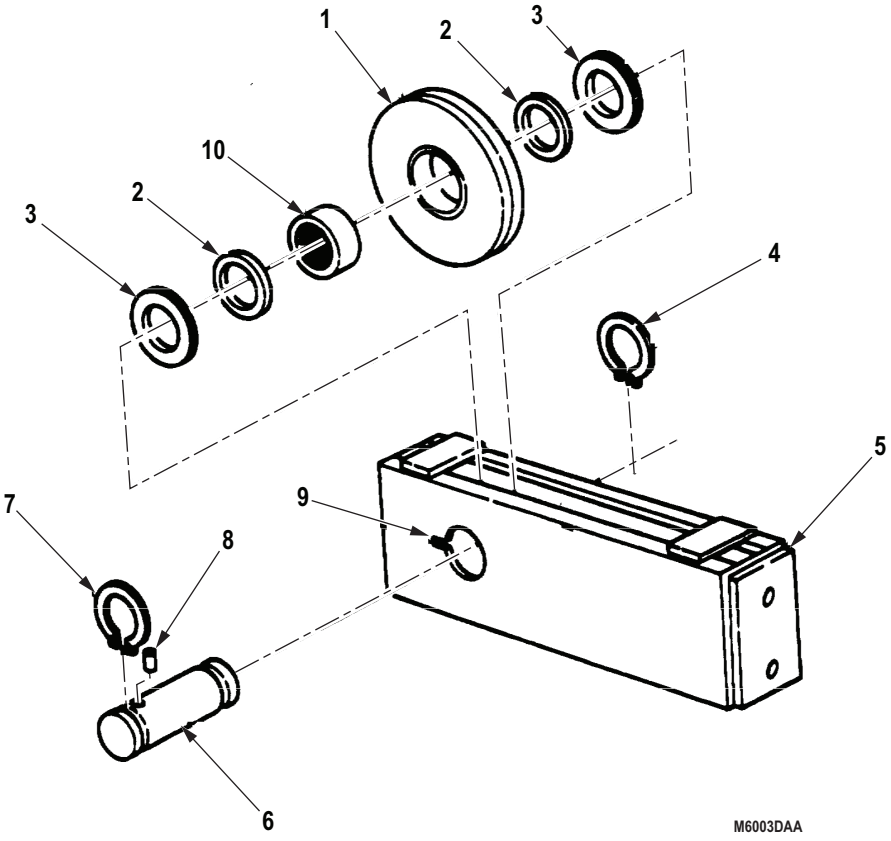


Figure 4. Cable Tensioner Assembly.

INSTALLATION - Continued

7. Using arbor press, install two bushings (Figure 5, Items 4 and 8) in tensioner (Figure 5, Item 11).
8. Using arbor press, install bearing (Figure 5, Item 12) in sheave (Figure 5, Item 1).
9. Position two packing assemblies (Figure 5, Item 2), with felt sides against ends of bearing (Figure 5, Item 12), in sheave (Figure 5, Item 1).
10. Install woodruff key (Figure 5, Item 6) in shaft (Figure 5, Item 5).
11. Position sheave (Figure 5, Item 1) and two thrust washers (Figure 5, Item 3) in tensioner (Figure 5, Item 11) and install shaft (Figure 5, Item 5).
12. Install block (Figure 5, Item 7) on shaft (Figure 5, Item 5) with four lockwashers (Figure 5, Item 10) and screws (Figure 5, Item 9).

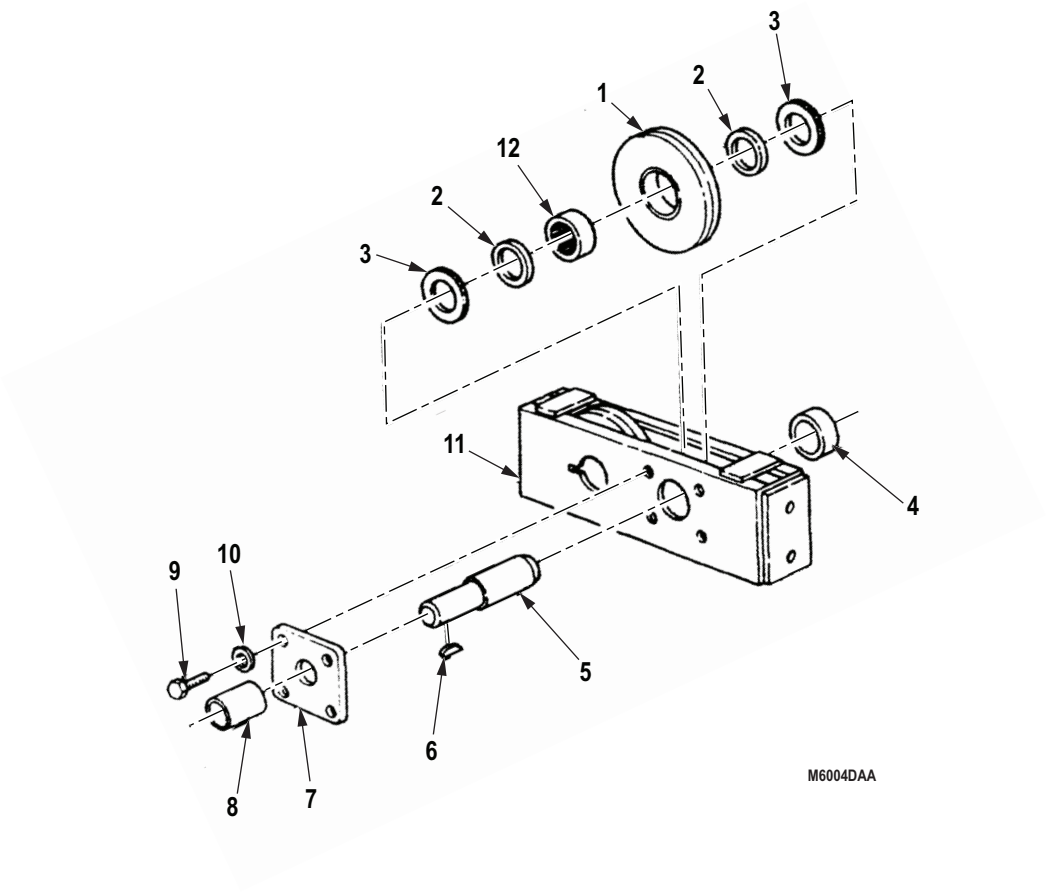


Figure 5. Cable Tensioner Assembly.

INSTALLATION - Continued

13. Install lever (Figure 6, Item 6) on shaft (Figure 6, Item 5) with setscrew (Figure 6, Item 7).
14. Install spring (Figure 6, Item 12) and poppet (Figure 6, Item 13) in poppet nut (Figure 6, Item 14).
15. Install latch (Figure 6, Item 11) on poppet (Figure 6, Item 13) with latch nut (Figure 6, Item 15).
16. Install poppet assembly (Figure 6, Item 8) in lever (Figure 6, Item 5) and install with poppet nut (Figure 6, Item 14).
17. Install two grease fittings (Figure 6, Item 10) on cable tensioner (Figure 6, Item 9).
18. Install cable tensioner (Figure 6, Item 9) on roller assembly (Figure 6, Item 1) with four screws (Figure 6, Item 4), lockwashers (Figure 6, Item 3), and nuts (Figure 6, Item 2).

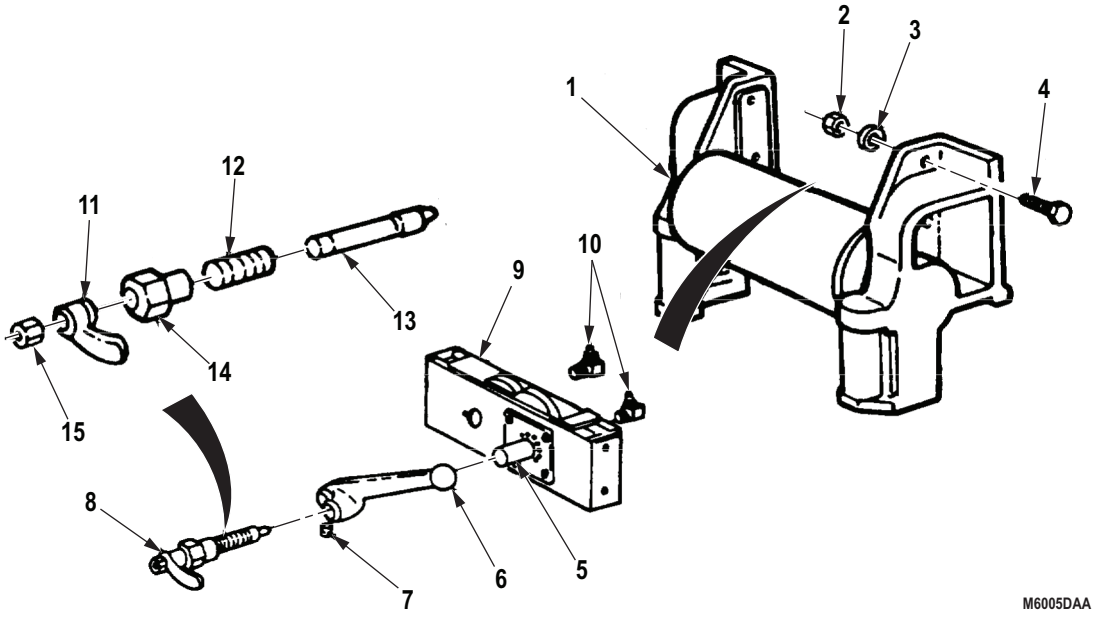


Figure 6. Cable Tensioner.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install winch cable. (WP 0674)
2. Lubricate tensioner assembly. (Volume 5, WP 0820)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
FRONT AND REAR WINCH LEVEL WIND REPAIR

INITIAL SETUP:

Tools and Special Tools

Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)
Press, Arbor, Hand Operated
(Volume 5, WP 0826, Table 1, Item 39)

Materials/Parts

Grease, Automotive and Artillery
(Volume 5, WP 0825, Table 1, Item 28)
Lubricating Oil, Gear, Multipurpose
(Volume 5, WP 0825, Table 1, Item 44, 45, 46, 47)
Bushing (Volume 5, WP 0827, Table 1, Item 216)
Qty: 1
Cotter Pin
(Volume 5, WP 0827, Table 1, Item 347)
Qty: 1
Felt Seal
(Volume 5, WP 0827, Table 1, Item 218)
Qty: 1
Felt Washer
(Volume 5, WP 0827, Table 1, Item 66)
Qty: 2
Felt Washer
(Volume 5, WP 0827, Table 1, Item 209)
Qty: 2

Materials/Parts (cont.)

Felt Washer
(Volume 5, WP 0827, Table 1, Item 217)
Qty: 1
Locknut
(Volume 5, WP 0827, Table 1, Item 326)
Qty: 2
Lockwasher
(Volume 5, WP 0827, Table 1, Item 186)
Qty: 8
Lockwasher
(Volume 5, WP 0827, Table 1, Item 408)
Qty: 5

References

Volume 5, WP 0819

Equipment Condition

Parking brake set. (TM 9-2320-272-10)
Winch cable removed. (WP 0668)

REMOVAL

NOTE

Front and rear wench level wind are maintained the same way. This procedure covers front level wind.

1. Remove four screws (Figure 1, Item 6) and lockwashers (Figure 1, Item 7) from winch track (Figure 1, Item 1). Discard lockwashers.
2. Remove winch track (Figure 1, Item 1) and level wind (Figure 1, Item 2) from winch (Figure 1, Item 8).

NOTE

Rectangular holes are provided for removing screws. Slide the level wind backward and forward until screws are visible.

3. Remove four screws (Figure 1, Item 13), lockwashers (Figure 1, Item 14), and level wind (Figure 1, Item 2) from winch track (Figure 1, Item 1). Discard lockwashers.
4. Remove two nuts (Figure 1, Item 12), drum lock latch (Figure 1, Item 11), nut (Figure 1, Item 10), spring (Figure 1, Item 9), and poppet (Figure 1, Item 5) from track (Figure 1, Item 1).
5. Remove two outer nuts (Figure 1, Item 4), screws (Figure 1, Item 3), and inner nuts (Figure 1, Item 4) from track (Figure 1, Item 1).

NOTE

Both sets of trolley wheels are removed the same.

6. Remove grease fitting (Figure 1, Item 24) from axle (Figure 1, Item 16).
7. Remove screw (Figure 1, Item 23) and lockwasher (Figure 1, Item 22) from axle (Figure 1, Item 16). Discard lockwasher.
8. Remove three washers (Figure 1, Item 18), two felt washers (Figure 1, Item 19), wheel (Figure 1, Item 21), and thrust washer (Figure 1, Item 17) from axle (Figure 1, Item 16). Discard felt washers.
9. Using arbor press, remove axle (Figure 1, Item 16) from level wind (Figure 1, Item 15).
10. Using arbor press, remove bearing (Figure 1, Item 20) from wheel (Figure 1, Item 21).

REMOVAL - Continued

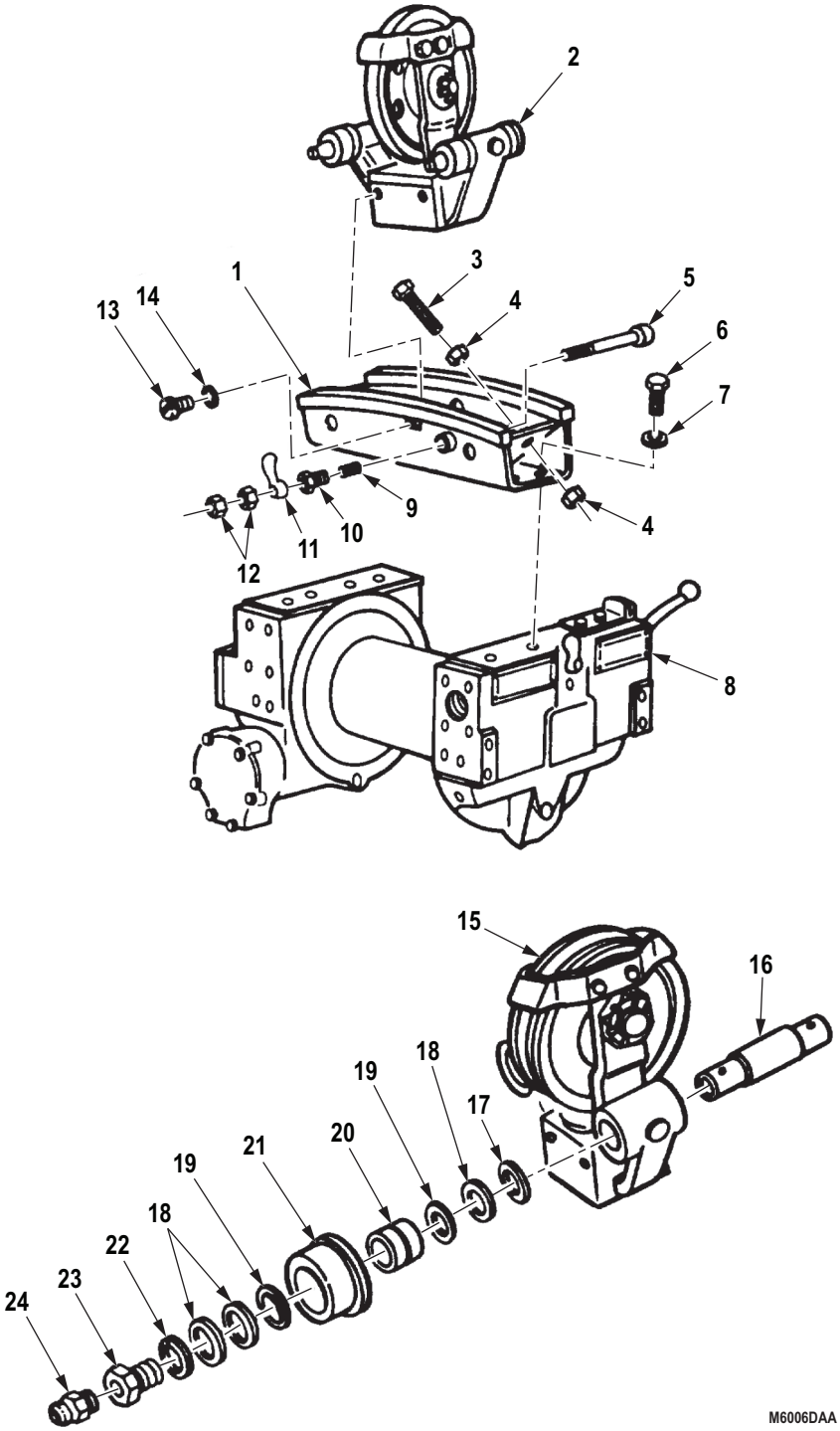


Figure 1. Level Wind Disassembly.

REMOVAL - Continued

11. Remove four screws (Figure 2, Item 3), lockwashers (Figure 2, Item 2), and sheave guard (Figure 2, Item 1) from frame (Figure 2, Item 11). Discard lockwashers.
12. Remove grease fitting (Figure 2, Item 13), cotter pin (Figure 2, Item 8), slotted nut (Figure 2, Item 9), and washer (Figure 2, Item 10) from screw (Figure 2, Item 12). Discard cotter pin.
13. Remove screw (Figure 2, Item 12) and sheave (Figure 2, Item 14) from frame (Figure 2, Item 11). Thrust washers (Figure 2, Item 7) will fall out.
14. Remove two felt washers (Figure 2, Item 6), sleeve (Figure 2, Item 5), and bearing (Figure 2, Item 4) from sheave (Figure 2, Item 14). Discard felt washers.

REMOVAL - Continued

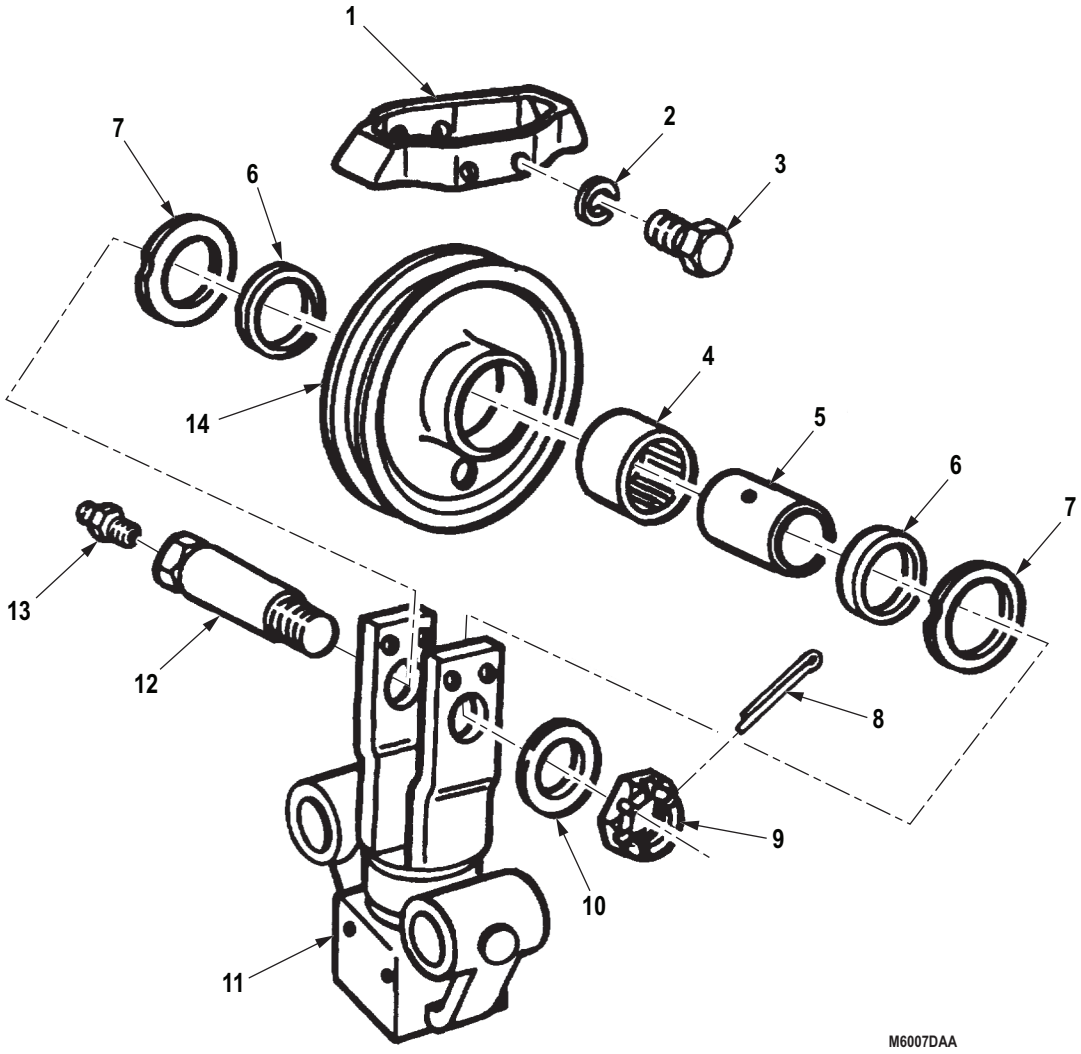


Figure 2. Level Wind Disassembly.

REMOVAL - Continued

15. Remove grease fitting (Figure 3, Item 1), locknut (Figure 3, Item 2), washer (Figure 3, Item 3), and felt washer (Figure 3, Item 4) from end of swivel (Figure 3, Item 5) in frame (Figure 3, Item 6). Discard locknut and felt washer.
16. Using arbor press, remove swivel (Figure 3, Item 5) from frame (Figure 3, Item 6).
17. Remove bushing (Figure 3, Item 9), felt seal (Figure 3, Item 12), inner race (Figure 3, Item 13), 45 ball bearings (Figure 3, Item 8), outer race (Figure 3, Item 15), and bearing (Figure 3, Item 7) from frame (Figure 3, Item 6). Discard felt seal and bushing.

NOTE

An arbor press may be required to perform Step (16).

18. Remove locknut (Figure 3, Item 11) and extension (Figure 3, Item 10) from swivel (Figure 3, Item 5). Discard locknut.

REMOVAL - Continued

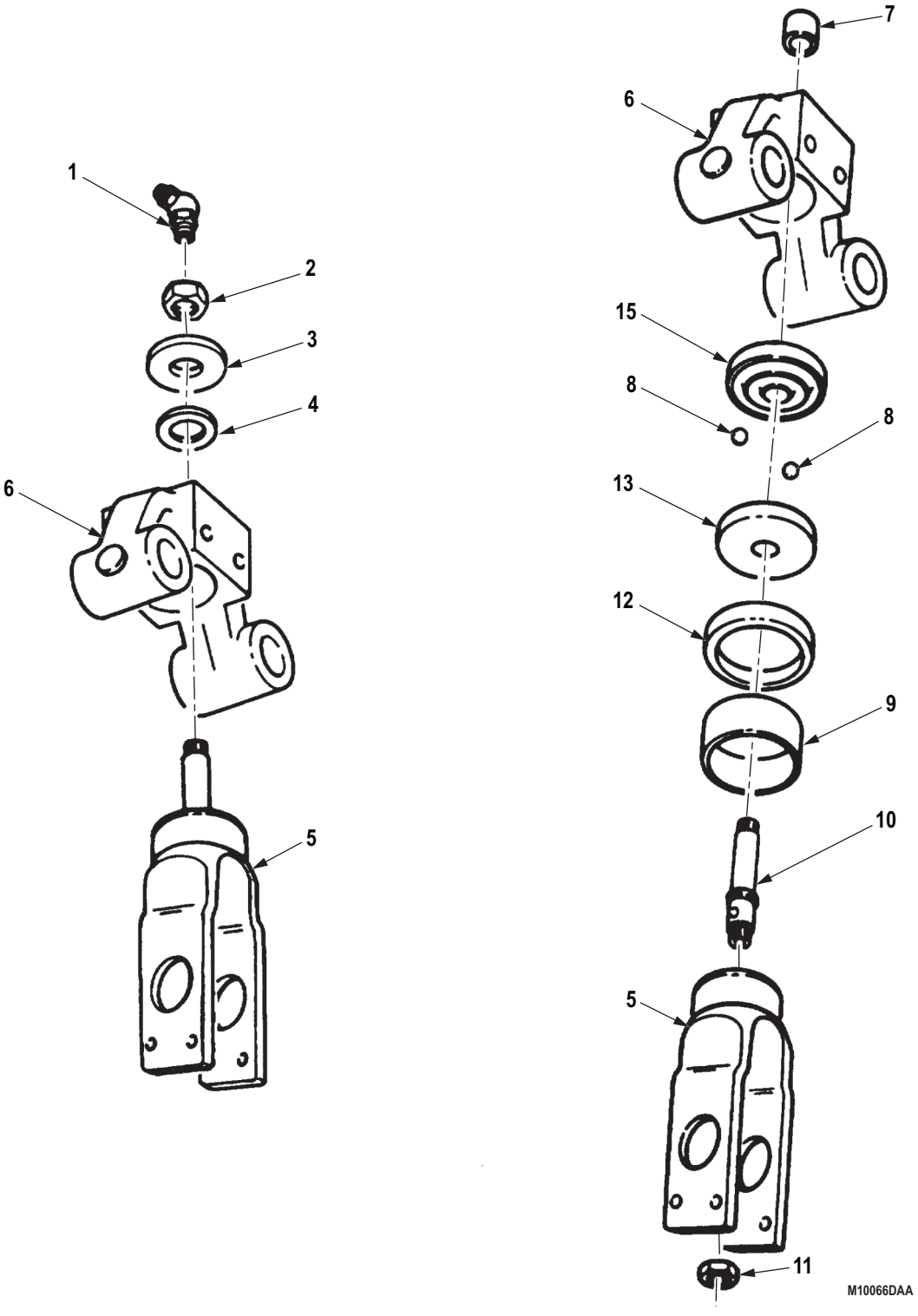


Figure 3. Level Wind Disassembly.

END OF TASK

CLEANING, INSPECTION, AND REPAIR

1. Clean track (Figure 4, Item 1) and inspect for cracks and chipped or nicked wheel surface. Discard if cracked. Use file to smooth wheel surface if chipped or nicked.
2. Clean poppet (Figure 4, Item 8) and inspect for cracks, bends, and damaged threads. Discard if cracked, bent, or threads are damaged.
3. Clean spring (Figure 4, Item 7) and inspect for broken or collapsed coils. Discard if coils are broken or collapsed.
4. Clean nut (Figure 4, Item 9) and inspect for damaged threads. Discard if threads are damaged.
5. Clean latch (Figure 4, Item 6) and inspect for cracks. Discard if cracked.
6. Clean nuts (Figure 4, Item 5) and inspect for damaged threads. Discard if threads are damaged.
7. Clean stopscrews (Figure 4, Item 2) and nuts (Figure 4, Items 3 and 4) and inspect for bends, cracks, or damaged threads. Discard if bent, cracked, or threads are damaged.
8. Clean wheel (Figure 4, Item 10) and inspect for cracks and damaged roller surface. Discard if cracked or roller surface is damaged.
9. Inspect bearing (Figure 4, Item 11) for chips, cracks, and damaged cage. Discard if chipped, cracked, or cage is damaged.
10. Clean thrust washer (Figure 4, Item 12) and inspect for cracks and wear. Measure thickness. Discard if cracked or thickness is less than 0.058 in. (1.47 mm).
11. Clean axle (Figure 4, Item 13) and inspect for cracks and scoring. Discard if cracked or scored.
12. Clean screw (Figure 4, Item 18) and inspect for cracks, scoring, and damaged threads. Discard if cracked, scored, or threads are damaged.
13. Clean two thrust washers (Figure 4, Item 14) and inspect for cracks and wear. Measure thickness. Discard if cracked or thickness is less than 0.058 in. (1.47 mm).
14. Clean sheave (Figure 4, Item 17) and inspect for cracks. Discard if cracked.
15. Clean sleeve (Figure 4, Item 16) and inspect for cracks and scoring. Discard if cracked or scored.
16. Inspect bearing (Figure 4, Item 15) for chips, cracks, and damaged cage. Discard if chipped, cracked, or cage is damaged.

CLEANING, INSPECTION, AND REPAIR - Continued

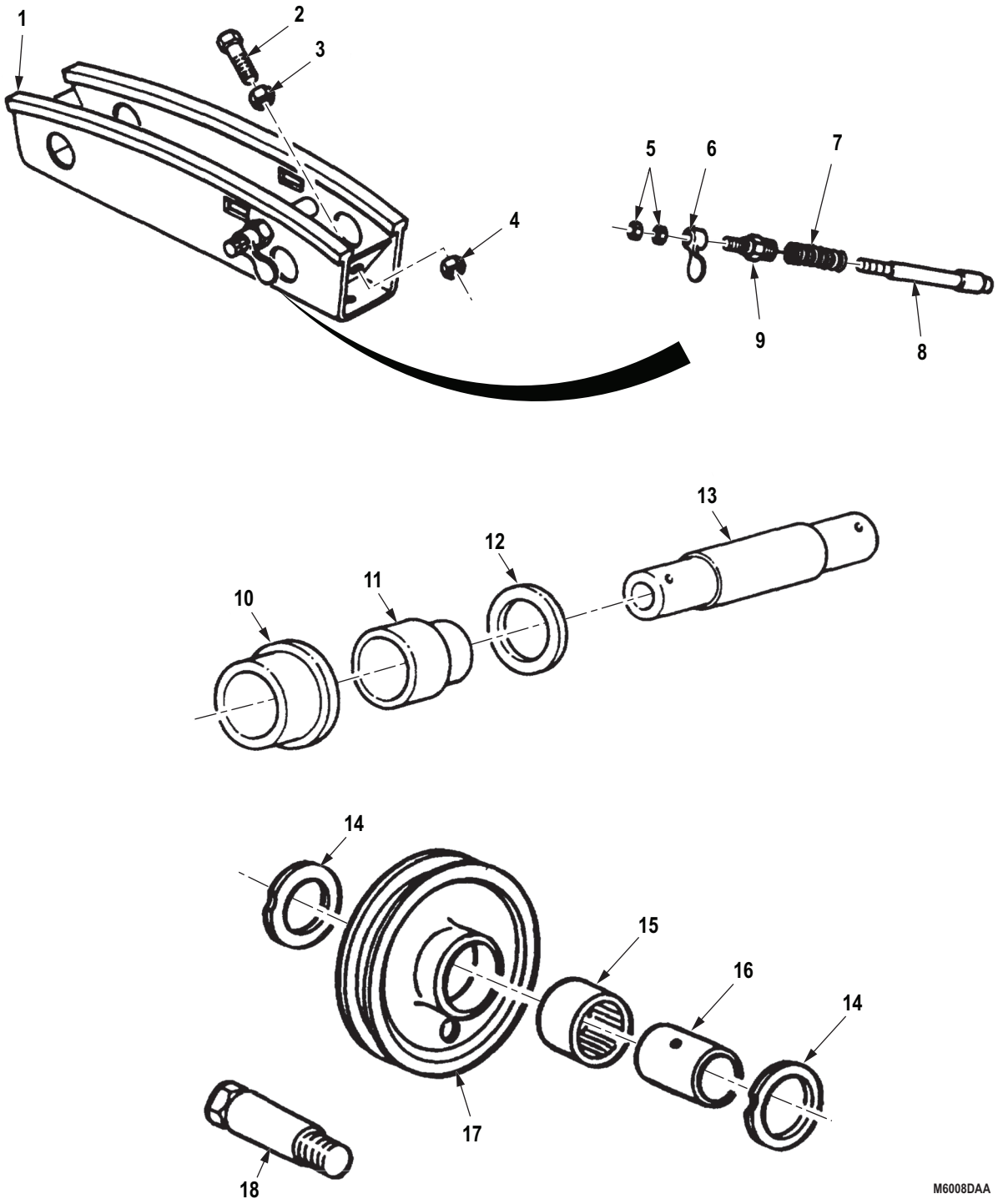


Figure 4. Level Wind Cleaning and Inspection.

CLEANING, INSPECTION, AND REPAIR - Continued

17. Inspect bearing (Figure 5, Item 5) for chips, cracks, and damaged cage. Discard if chipped, cracked, or cage is damaged.
18. Clean inner race (Figure 5, Item 1) and outer race (Figure 5, Item 3) and inspect for pits, chips, and cracks. Discard if pitted, chipped, or cracked.
19. Inspect 45 bearing balls (Figure 5, Item 2) for cracks, chips, and out-of-round condition. Discard any bearing balls that are cracked, chipped, or out-of-round.
20. Clean frame (Figure 5, Item 4) and inspect for cracks and damaged threads. Discard if cracked or threads are damaged.

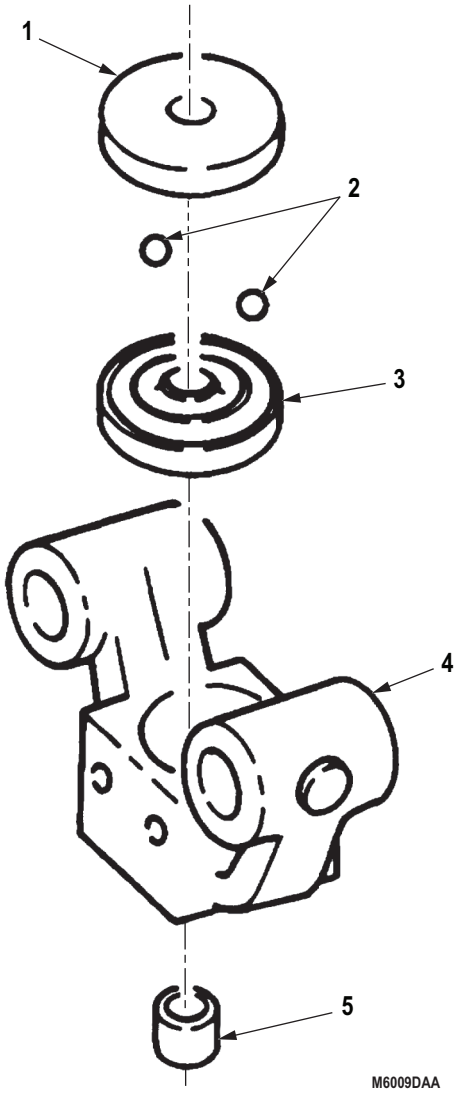


Figure 5. Level Wind Cleaning and Inspection.

END OF TASK

ASSEMBLY

NOTE

- Ensure all felt seals are soaked in lubricating oil before installation.
- Ensure all bearings are packed with GAA grease before installation.

1. Using arbor press, install extension (Figure 6, Item 8) in swivel (Figure 6, Item 10) with locknut (Figure 6, Item 9).
2. Using arbor press, install outer race (Figure 6, Item 3) into frame (Figure 6, Item 5).
3. Position 45 ball bearings (Figure 6, Item 6) on outer race (Figure 6, Item 3).
4. Using arbor press, install inner race (Figure 6, Item 2) in frame (Figure 6, Item 5).
5. Install felt seal (Figure 6, Item 7) over inner race (Figure 6, Item 2).
6. Using arbor press, install bushing (Figure 6, Item 1) in frame (Figure 6, Item 5).
7. Install bearing (Figure 6, Item 4) in bottom of frame (Figure 6, Item 5).

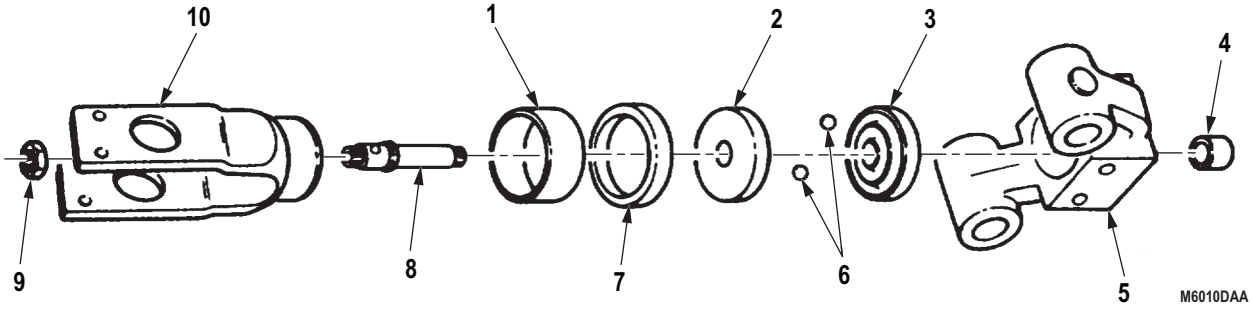


Figure 6. Level Wind Assembly.

ASSEMBLY - Continued

8. Using arbor press, install swivel (Figure 7, Item 1) with extension (Figure 7, Item 2) in frame (Figure 7, Item 7).
9. With swivel (Figure 7, Item 1) and extension (Figure 7, Item 2) seated in frame (Figure 7, Item 7), install felt washer (Figure 7, Item 3), washer (Figure 7, Item 6), and locknut (Figure 7, Item 4) on end of extension.
10. Install grease fitting (Figure 7, Item 5) on end of extension (Figure 7, Item 2).
11. Install bearing (Figure 7, Item 14), sleeve (Figure 7, Item 15), and two felt washers (Figure 7, Item 9) in sheave (Figure 7, Item 13).
12. Coat one side of each of two thrust washers (Figure 7, Item 8) with grease and install on sheave (Figure 7, Item 13) with grease side next to bearing (Figure 7, Item 14).
13. Carefully place sheave (Figure 7, Item 13) and thrust washers (Figure 7, Item 8) in swivel (Figure 7, Item 1) and install with screw (Figure 7, Item 19), washer (Figure 7, Item 18), and slotted nut (Figure 7, Item 17). Ensure that slots in nut align with hole in screw.
14. Install cotter pin (Figure 7, Item 16) in slots of nut (Figure 7, Item 17) and hole in screw (Figure 7, Item 19).
15. Install grease fitting (Figure 7, Item 20) in head end of screw (Figure 7, Item 19).
16. Position sheave guard (Figure 7, Item 10) over sheave (Figure 7, Item 13) and install on swivel (Figure 7, Item 1) with four lockwashers (Figure 7, Item 11) and screws (Figure 7, Item 12).

ASSEMBLY - Continued

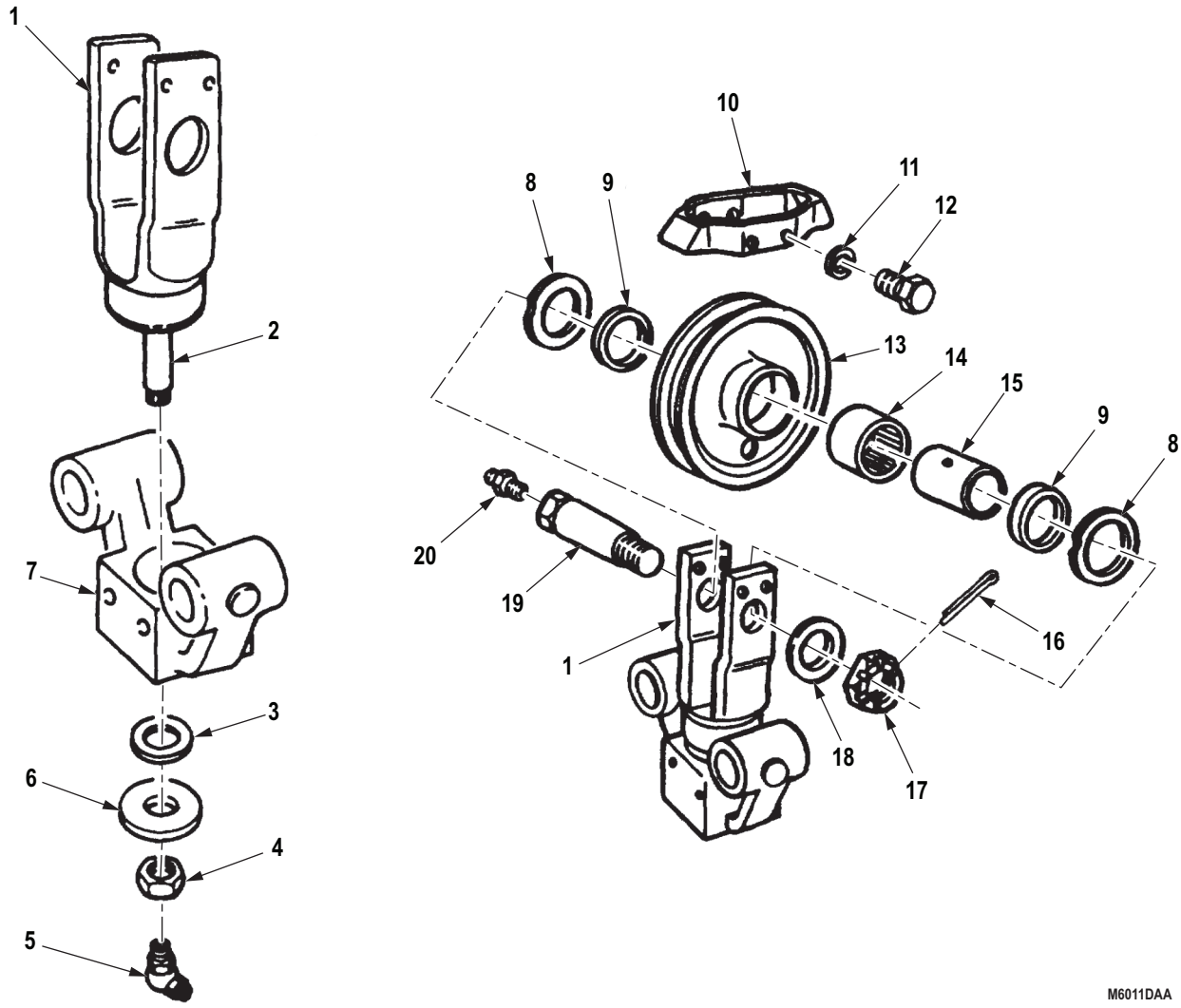


Figure 7. Level Wind Assembly.

ASSEMBLY - Continued

NOTE

- Both sets of trolley wheels are installed the same.
- An arbor press may be required to perform Step (17).

17. Install axle (Figure 8, Item 9) in frame (Figure 8, Item 10).
18. Install thrust washer (Figure 8, Item 8) on axle (Figure 8, Item 9).
19. Install bearing (Figure 8, Item 7) in wheel (Figure 8, Item 6).
20. Install two washers (Figure 8, Item 4), felt washer (Figure 8, Item 5), wheel (Figure 8, Item 6), felt washer (Figure 8, Item 5), two washers (Figure 8, Item 4), lockwasher (Figure 8, Item 3), and screw (Figure 8, Item 2) on axle (Figure 8, Item 9).
21. Install grease fitting (Figure 8, Item 1) on screw (Figure 8, Item 2).
22. Place spring (Figure 8, Item 18) over poppet (Figure 8, Item 14) and install with nut (Figure 8, Item 19).
23. Install poppet (Figure 8, Item 14) and latch (Figure 8, Item 20) in track (Figure 8, Item 11) with two nuts (Figure 8, Item 21).
24. Place level wind assembly (Figure 8, Item 10) on track (Figure 8, Item 11) and install with four lockwashers (Figure 8, Item 23) and screws (Figure 8, Item 22).
25. Install two stopscrews (Figure 8, Item 12) on track (Figure 8, Item 11) with each screw positioned with two nuts (Figure 8, Item 13). Level wind (Figure 8, Item 10) receives final adjustment when winch (Figure 8, Item 17) is mounted on vehicle.

END OF TASK

INSTALLATION

Install level wind assembly (Figure 8, Item 10) and track (Figure 8, Item 11) on winch (Figure 8, Item 17) with four lockwashers (Figure 8, Item 16) and screws (Figure 8, Item 15).

INSTALLATION - Continued

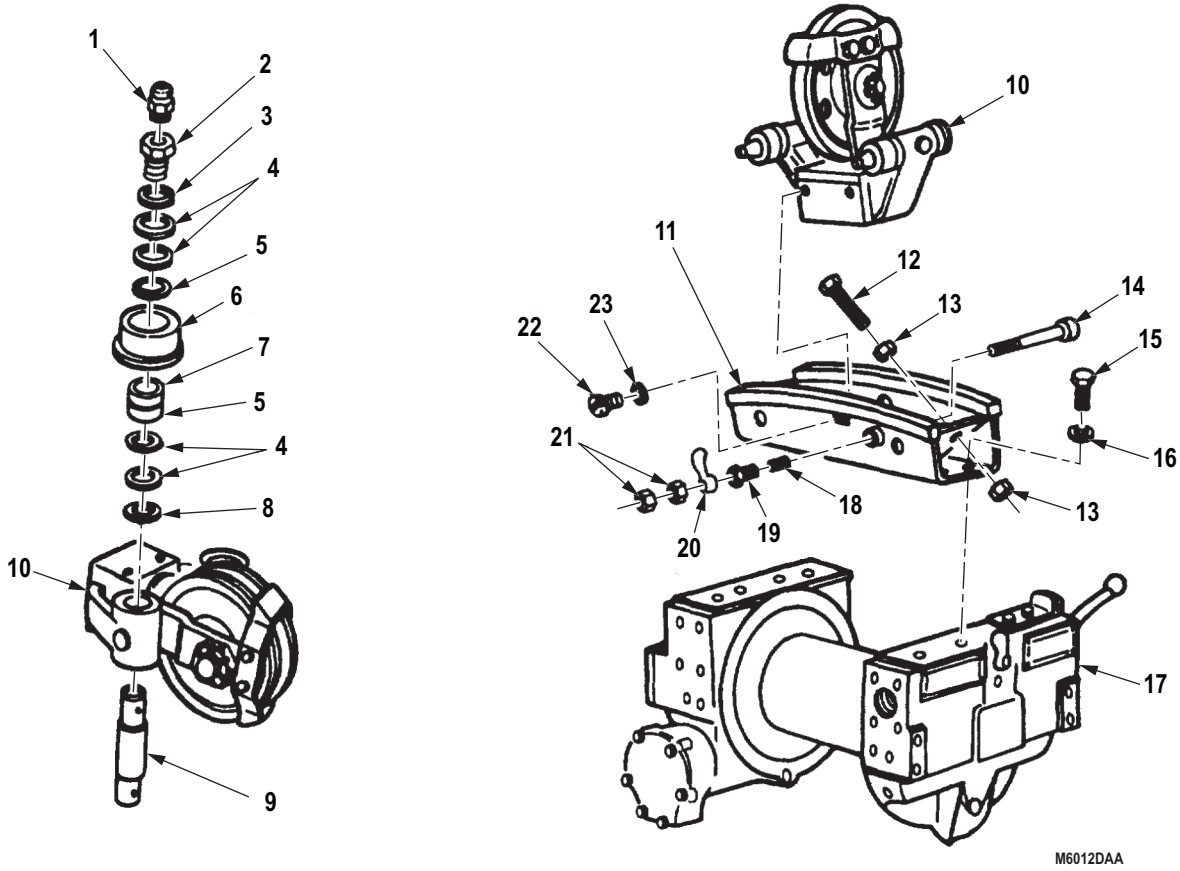


Figure 8. Level Wind Assembly.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Lubricate level wind. (Volume 5, WP 0819)
2. Install winch cable. (WP 0668)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
FRONT WINCH ROLLER ASSEMBLY REPAIR

INITIAL SETUP:

Tools and Special Tools
- Tool Kit, General Mechanic's: Automotive (Volume 5, WP 0826, Table 1, Item 56)
- Press, Arbor, Hand Operated (Volume 5, WP 0826, Table 1, Item 39)
- Punch Set, Cutting (Volume 5, WP 0826, Table 1, Item 44)

Materials/Parts
- Cleaning Compound, Solvent (Volume 5, WP 0825, Table 1, Item 16, 17)
- Grease, Automotive and Artillery (Volume 5, WP 0825, Table 1, Item 28)
- Lubricating Oil, Gear, Multipurpose (Volume 5, WP 0825, Table 1, Item 44, 45, 46, 47)
- Lockwasher (Volume 5, WP 0827, Table 1, Item 398) Qty: 2
- Lockwasher (Volume 5, WP 0827, Table 1, Item 405) Qty: 2

Materials/Parts (cont.)
- Lockwasher (Volume 5, WP 0827, Table 1, Item 408) Qty: 8
- Lockwasher (Volume 5, WP 0827, Table 1, Item 437) Qty: 4
- Packing Assembly (Volume 5, WP 0827, Table 1, Item 222) Qty: 2

References
Volume 5, WP 0819

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Front winch removed. (WP 0668)

REMOVAL

1. Remove eight screws (Figure 1, Item 4) and lockwashers (Figure 1, Item 2) from winch roller assembly (Figure 1, Item 5). Discard lockwashers.
2. Remove four screws (Figure 1, Item 3), lockwashers (Figure 1, Item 2), and roller assembly (Figure 1, Item 5) from winch (Figure 1, Item 1). Discard lockwashers.
3. Remove two grease fittings (Figure 1, Item 6), right roller bracket (Figure 1, Item 7), and thrust washer (Figure 1, Item 8) from roller shaft (Figure 1, Item 9).

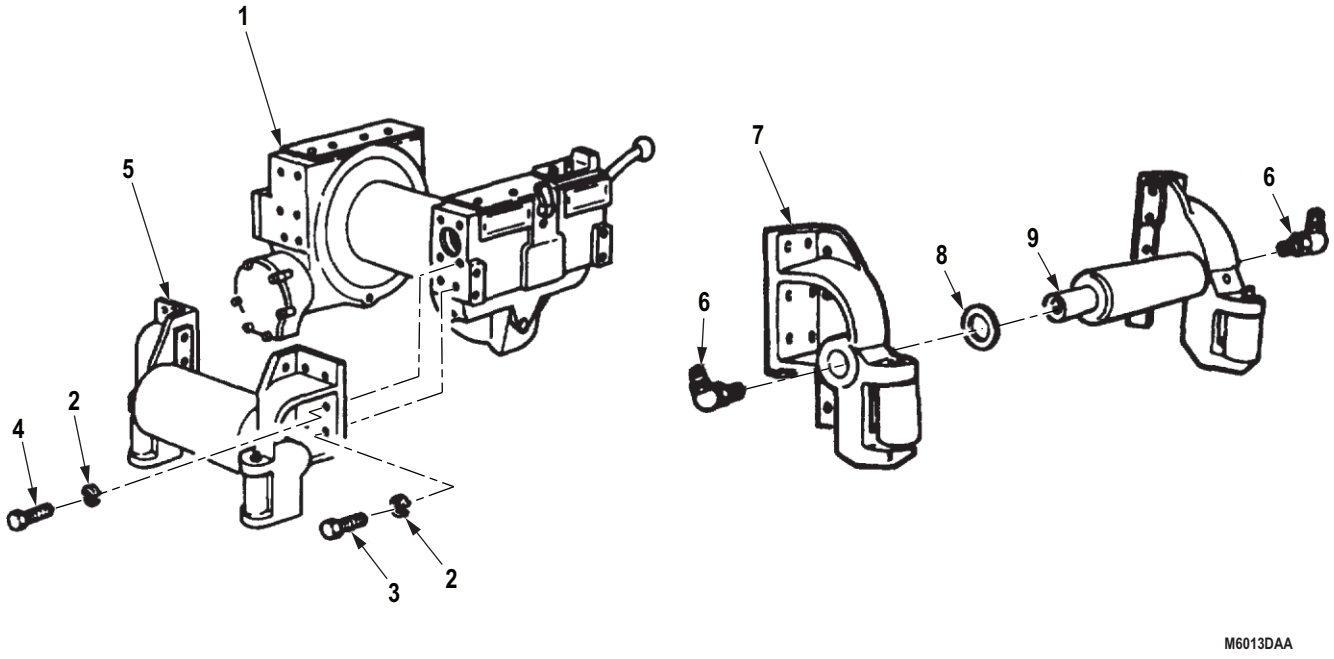


Figure 1. Front Winch Roller Assembly Removal.

END OF TASK

DISASSEMBLY

1. Remove two felt washers (Figure 2, Item 5), bearings (Figure 2, Item 6), and roller (Figure 2, Item 7) from shaft (Figure 2, Item 2). Discard felt washers.
2. Remove thrust washer (Figure 2, Item 1) from shaft (Figure 2, Item 2).

NOTE

Both setscrews are in the same hole.

3. Remove two setscrews (Figure 2, Item 4) from left roller bracket (Figure 2, Item 3).
4. Remove shaft (Figure 2, Item 2) from bracket (Figure 2, Item 3).

DISASSEMBLY - Continued

NOTE

Both side rollers are disassembled the same.

5. Remove grease fitting (Figure 2, Item 14) from side roller shaft (Figure 2, Item 15).
6. Remove pin (Figure 2, Item 18) from roller bracket (Figure 2, Item 3) and shaft (Figure 2, Item 15).
7. Remove two thrust washers (Figure 2, Item 16) and roller (Figure 2, Item 17) from bracket (Figure 2, Item 3).
8. Remove two screws (Figure 2, Item 8), lockwashers (Figure 2, Item 9), and small side bracket (Figure 2, Item 19) from large bracket (Figure 2, Item 12). Discard lockwashers.
9. Remove two screws (Figure 2, Item 13), nuts (Figure 2, Item 10), lockwashers (Figure 2, Item 11), and large bracket (Figure 2, Item 12) from roller bracket (Figure 2, Item 3). Discard lockwashers.

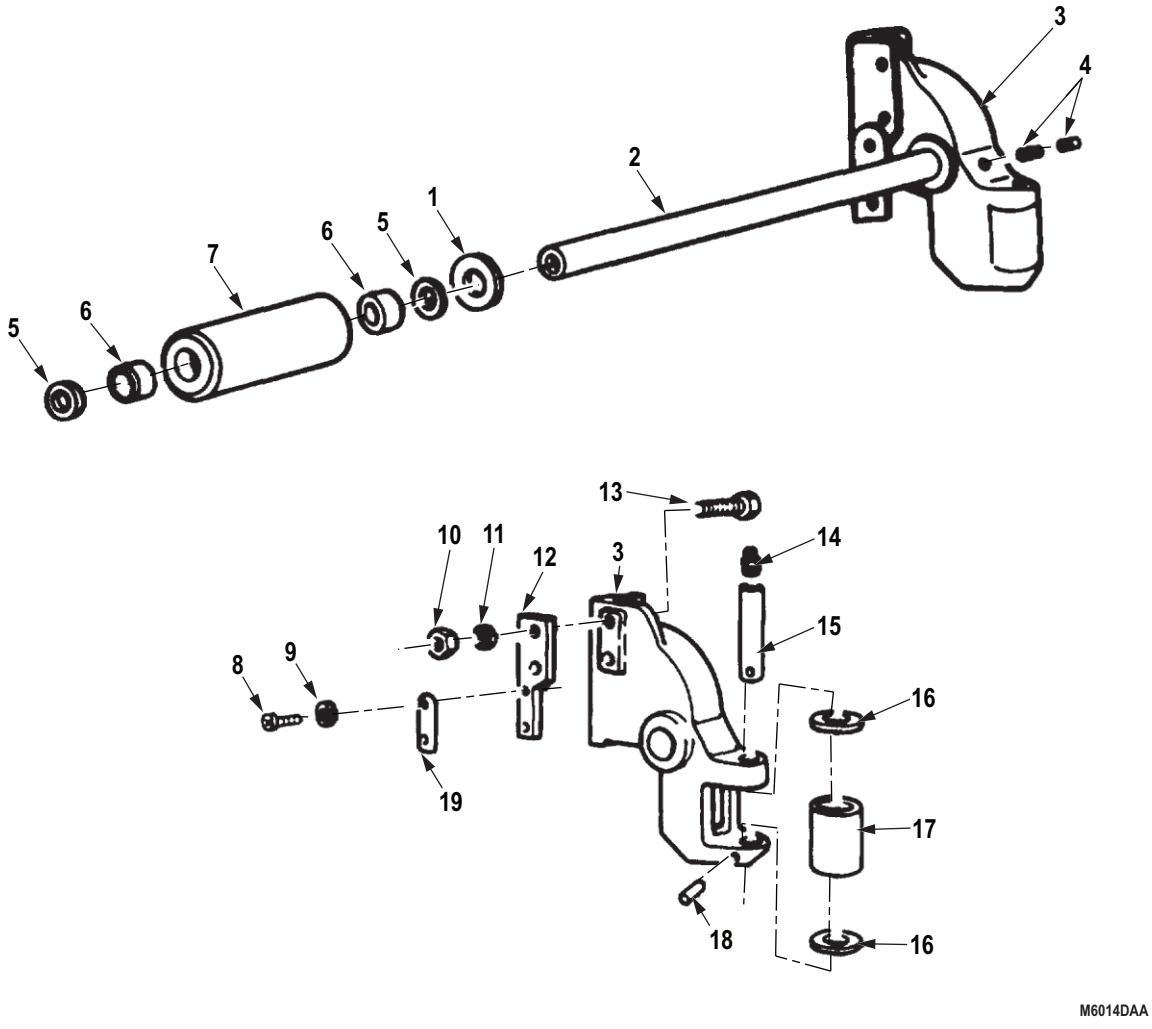


Figure 2. Roller Assembly Disassembly.

END OF TASK

CLEANING, INSPECTION, AND REPAIR

WARNING



Solvent cleaning compound is flammable and toxic. Do not use near an open flame and always have a fire extinguisher nearby when solvents are used. Use only in well-ventilated places, wear protective clothing, and dispose of cleaning rags in approved container. Failure to comply may result in damage to equipment, injury, or death to personnel.

1. Clean all items with solvent cleaning compound before inspection (Volume 5, WP 0819).
2. Inspect side roller shaft (Figure 3, Item 4) for cracks and wear. Measure outer diameter of shaft at bushing (Figure 3, Item 6) contact points. Discard if cracked or if any outer diameter is less than 0.994 in. (25.25 mm).
3. Inspect bushings (Figure 3, Item 6) for scoring and wear. Measure inner diameter of bushings. Discard if scored or inner diameter is more than 1.010 in. (25.65 mm).

NOTE

Perform Steps (4) and (5) only if bushings are to be replaced.

4. Using arbor press and mandrel, remove two bushings (Figure 3, Item 6) from roller (Figure 3, Item 7). Discard bushings.
5. Install two bushings (Figure 3, Item 6) on roller (Figure 3, Item 7).
6. Inspect thrust washers (Figure 3, Item 5) for cracks and wear. Measure thickness of thrust washers. Discard if cracked or if thickness is less than 0.040 in. (1.02 mm).
7. Inspect roller shaft (Figure 3, Item 1) for cracks, scoring, and wear. Measure diameter where bearings (Figure 3, Item 2) contact shaft. Discard if cracked, scored, or any measured diameter is less than 1.495 in. (37.97 mm).
8. Inspect thrust washers (Figure 3, Item 3) for chips, cracks, scoring, and wear. Measure thickness of thrust washers. Discard if chipped, cracked, scored, or thickness is less than 0.052 in. (1.32 mm).
9. Inspect two bearings (Figure 3, Item 2) for chips, pitting, cracks, and damaged cage. Discard if chipped, pitted, cracked, or cage is damaged.

CLEANING, INSPECTION, AND REPAIR - Continued

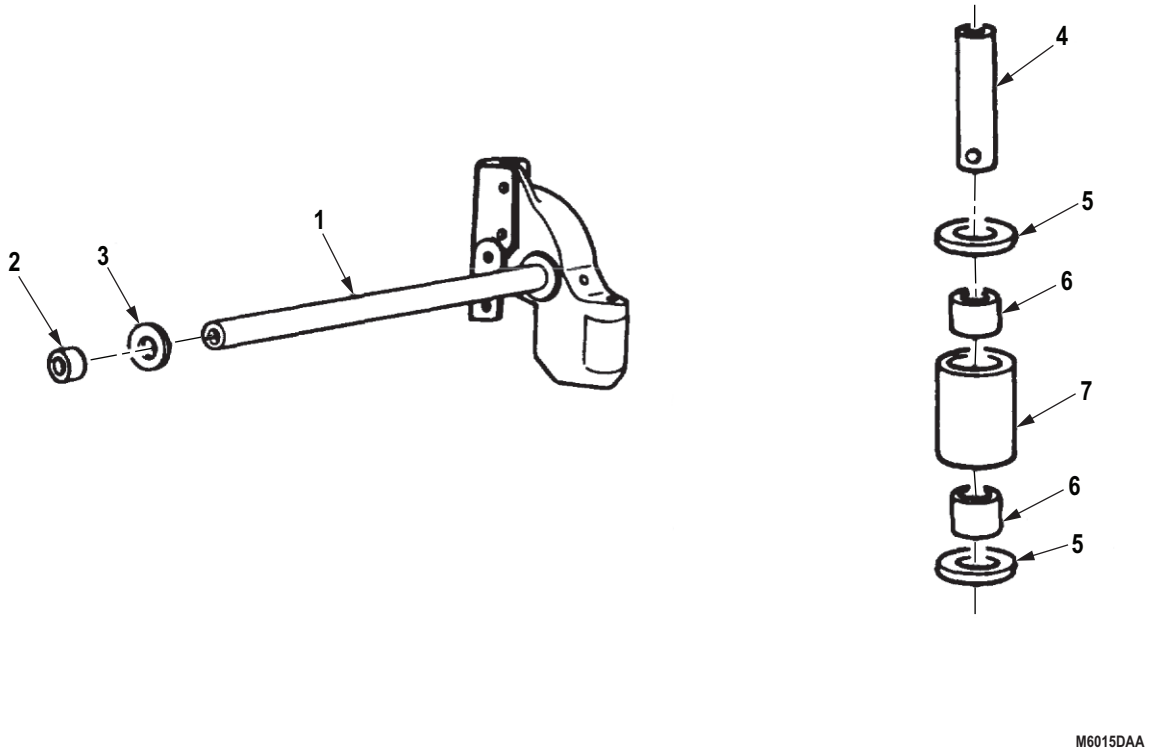


Figure 3. Roller Assembly Cleaning and Inspection.

END OF TASK

ASSEMBLY

1. Install large side bracket (Figure 4, Item 1) on roller bracket (Figure 4, Item 8) with two screws (Figure 4, Item 2), lockwashers (Figure 4, Item 13), and nuts (Figure 4, Item 12).
2. Install small side bracket (Figure 4, Item 9) on large bracket (Figure 4, Item 8) with two lockwashers (Figure 4, Item 10) and screws (Figure 4, Item 11).
3. Lightly coat two thrust washers (Figure 4, Item 5) with grease and position on ends of roller (Figure 4, Item 6).
4. Install roller (Figure 4, Item 6) and thrust washers (Figure 4, Item 5) on roller bracket (Figure 4, Item 8). Align holes in washers and roller with holes in bracket.
5. Align pin (Figure 4, Item 7) holes in shaft (Figure 4, Item 4) and bracket (Figure 4, Item 8), and install shaft on bracket and through roller (Figure 4, Item 6).
6. Install pin (Figure 4, Item 7) in bracket (Figure 4, Item 8) and shaft (Figure 4, Item 4).
7. Install grease fitting (Figure 4, Item 3) in shaft (Figure 4, Item 4).

ASSEMBLY - Continued

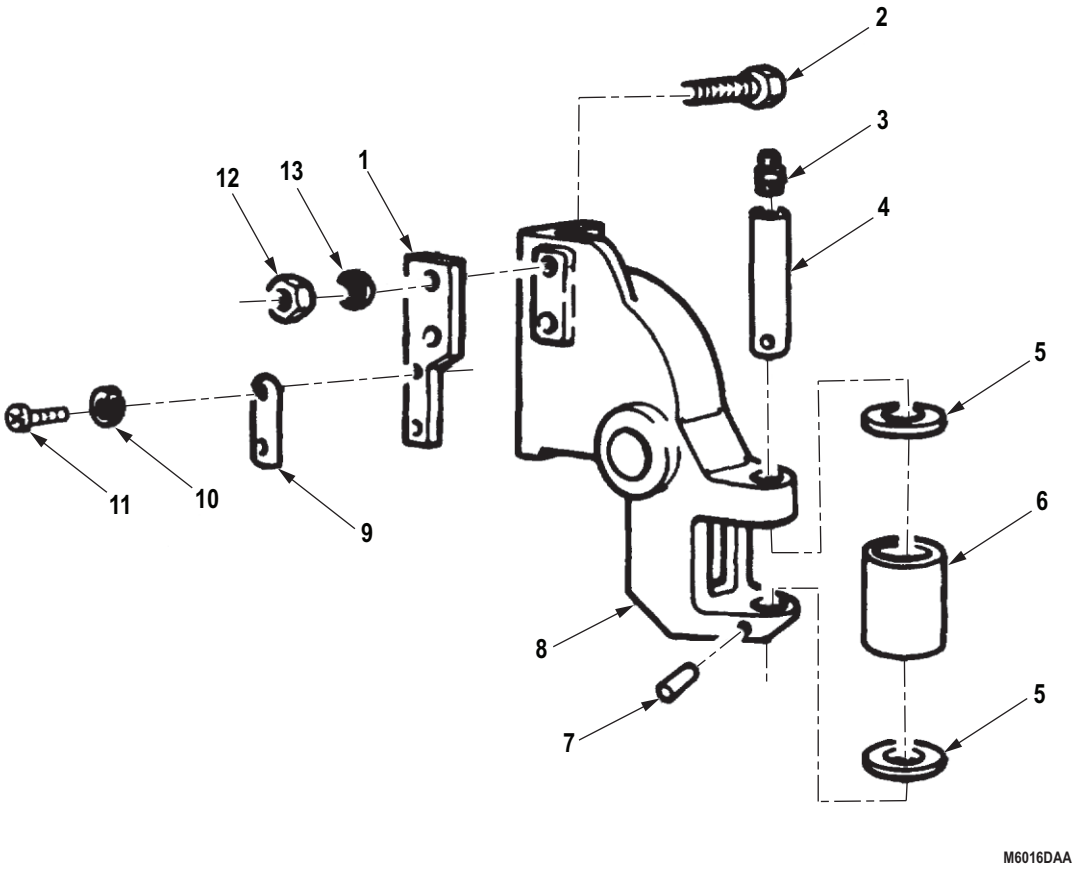


Figure 4. Roller Assembly.

ASSEMBLY - Continued

8. Align screw holes in roller shaft (Figure 5, Item 3) and roller bracket (Figure 5, Item 4), and install roller shaft in roller bracket.
9. Install two setscrews (Figure 5, Item 5) in roller bracket (Figure 5, Item 4) and shaft (Figure 5, Item 3).

NOTE

- Soak felt washers in oil and coat bearings with GAA grease before installation.
- Steel side of felt washers must be on bearing side on shaft.

10. Install bearings (Figure 5, Item 6) and (Figure 5, Item 8) in roller (Figure 5, Item 7).
11. Install thrust washer (Figure 5, Item 2), felt washer (Figure 5, Item 1), roller (Figure 5, Item 7), and felt washer (Figure 5, Item 1) on roller shaft (Figure 5, Item 3).
12. Install thrust washer (Figure 5, Item 10) and right roller bracket (Figure 5, Item 4) on shaft (Figure 5, Item 11).
13. Install two grease fittings (Figure 5, Item 9) on ends of shaft (Figure 5, Item 11).

ASSEMBLY - Continued

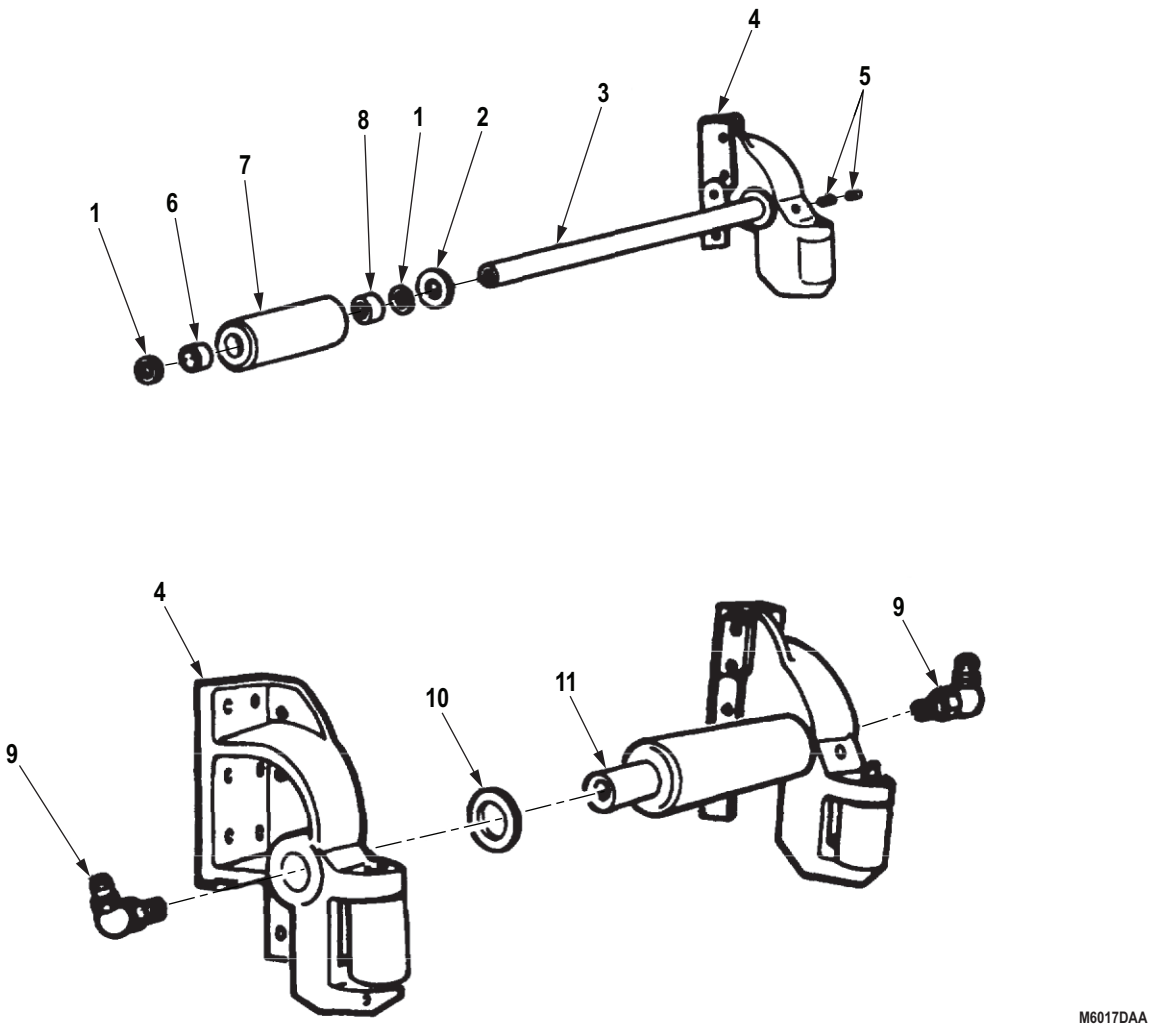


Figure 5. Roller Assembly.

END OF TASK

INSTALLATION

Install winch roller assembly (Figure 6, Item 5) on winch (Figure 6, Item 1) with 12 lockwashers (Figure 6, Item 2), eight screws (Figure 6, Item 4), and four screws (Figure 6, Item 3).

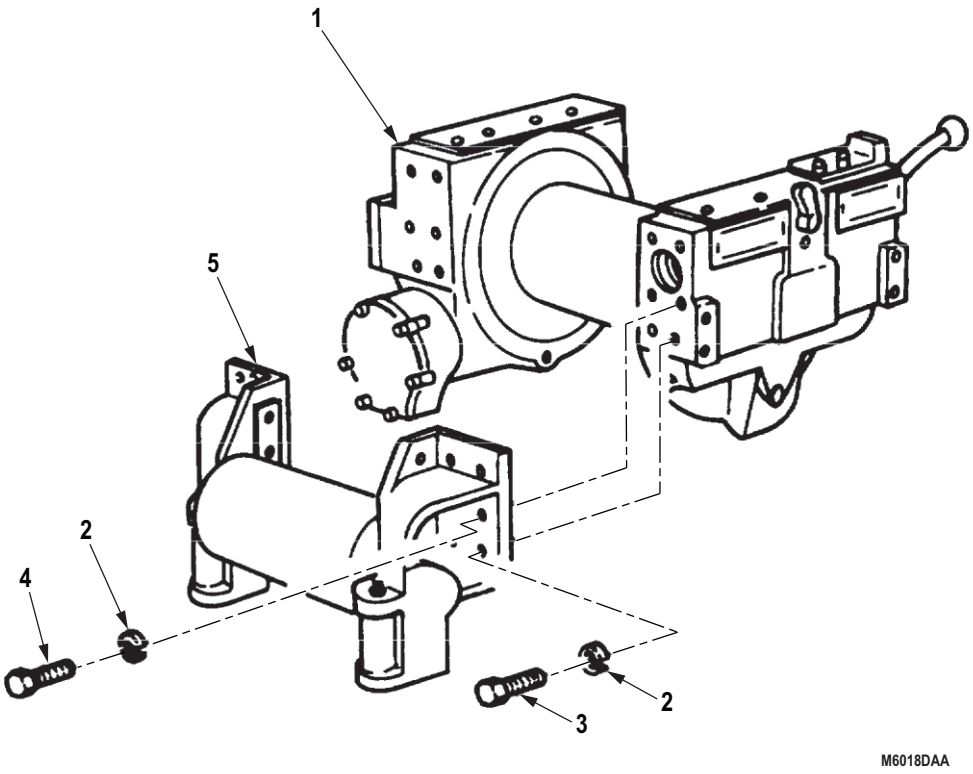


Figure 6. Roller Assembly Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Lubricate roller assembly. (Volume 5, WP 0820)
2. Install front winch. (WP 0668)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
FRONT WINCH CONTROL VALVE CABLE REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Cotter Pin
(Volume 5, WP 0827, Table 1, Item 9)
Qty: 1
Cotter Pin
(Volume 5, WP 0827, Table 1, Item 333)
Qty: 1

Materials/Parts (cont.)
Cotter Pin
(Volume 5, WP 0827, Table 1, Item 340)
Qty: 1
Tiedown Strap
(Volume 5, WP 0827, Table 1, Item 375)
Qty: 1

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

REMOVAL

NOTE

Remove tiedown straps as needed.

1. Remove cotter pin (Figure 1, Item 4), washer (Figure 1, Item 3), and clevis pin (Figure 1, Item 2) from clevis (Figure 1, Item 1). Discard cotter pin.
2. Remove clevis (Figure 1, Item 1) and nut (Figure 1, Item 5) from cable (Figure 1, Item 9).
3. Remove nut (Figure 1, Item 6), washer (Figure 1, Item 7), and cable (Figure 1, Item 9) from bracket (Figure 1, Item 8).
4. Remove washer (Figure 1, Item 11) and nut (Figure 1, Item 10) from cable (Figure 1, Item 9).

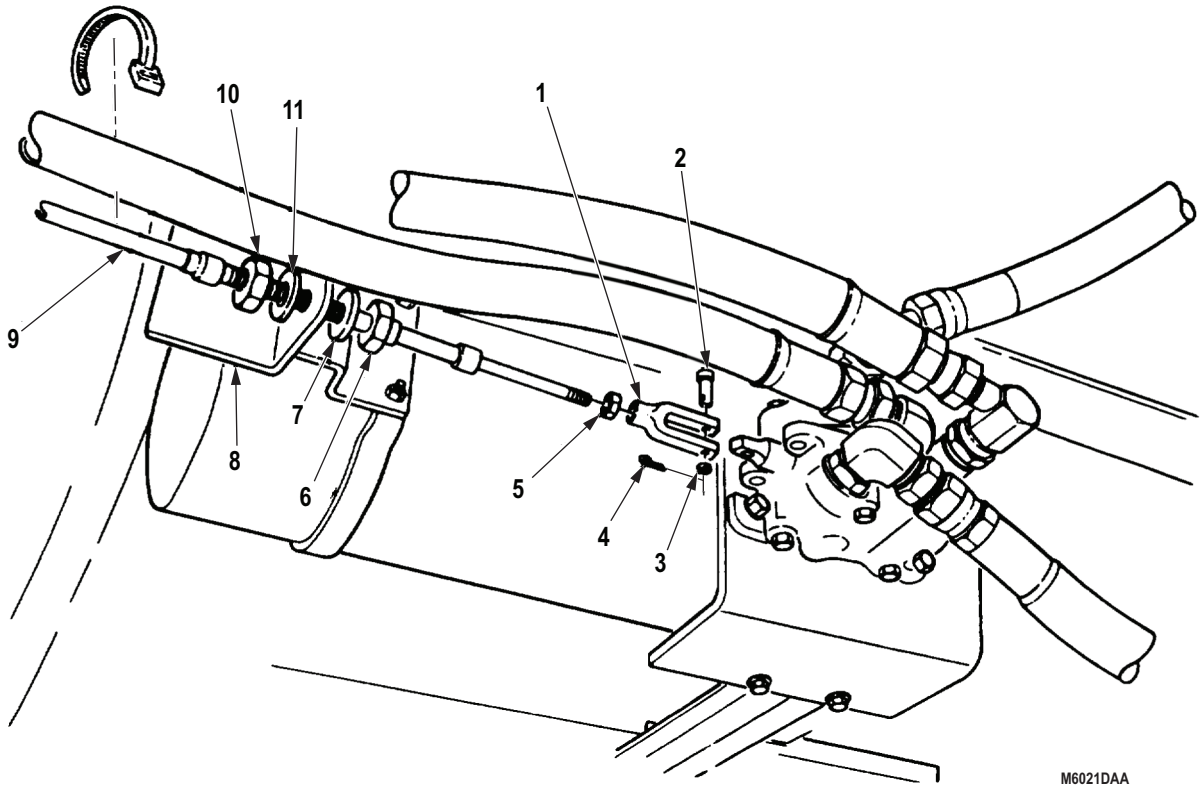


Figure 1. Front Winch Control Valve Cable Removal.

REMOVAL - Continued

5. Remove six screws (Figure 2, Item 11) and shift panel cover (Figure 2, Item 12) from shift panel (Figure 2, Item 3).
6. Remove cotter pin (Figure 2, Item 16), clevis pin (Figure 2, Item 13), washer (Figure 2, Item 14), and cable clevis (Figure 2, Item 15) from lever (Figure 2, Item 2). Discard cotter pin.
7. Remove cotter pin (Figure 2, Item 4), pin (Figure 2, Item 1), washer (Figure 2, Item 17), and lever (Figure 2, Item 2) from shift panel (Figure 2, Item 3). Discard cotter pin.

NOTE

Grommet may remain on cable during removal. Transfer grommet to cable.

8. Remove two nuts (Figure 2, Item 5), screws (Figure 2, Item 10), clamp (Figure 2, Item 9), shim (Figure 2, Item 8), and cable (Figure 2, Item 7) from vehicle.

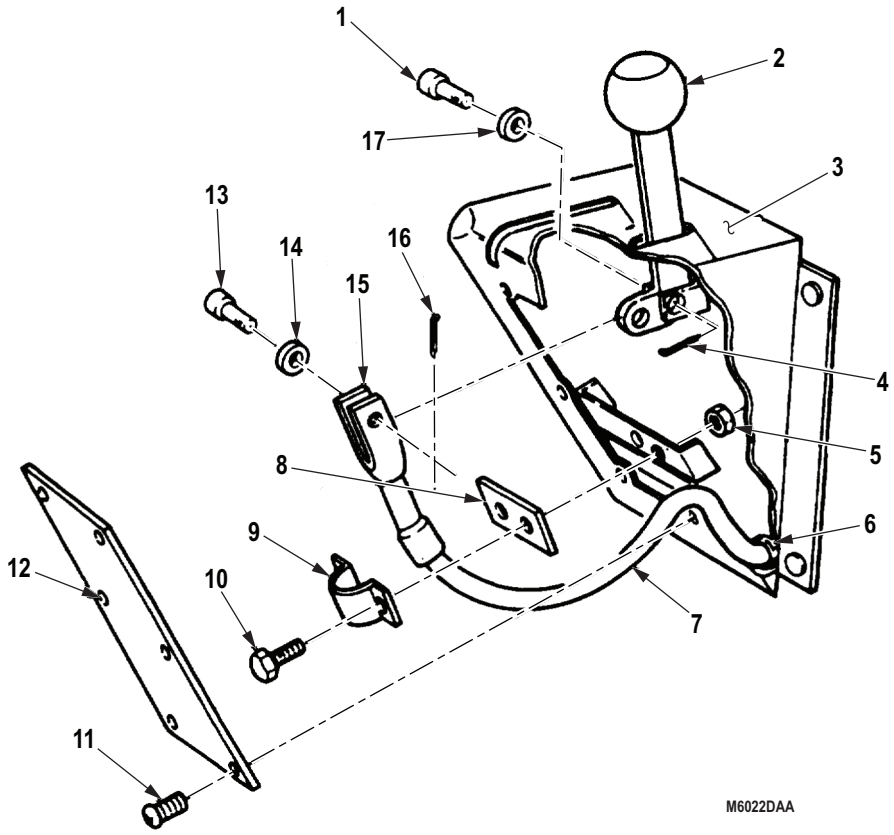


Figure 2. Winch Control Valve Cable.

END OF TASK

INSTALLATION

NOTE

Install tiedown straps as required.

1. Install lever (Figure 3, Item 2) in shift panel (Figure 3, Item 3) with washer (Figure 3, Item 17), pin (Figure 3, Item 1), and cotter pin (Figure 3, Item 4). Bend ends of cotter pin.
2. Ensure grommet (Figure 3, Item 6) is positioned in firewall, and install cable clevis (Figure 3, Item 15) on lever (Figure 3, Item 3) with washer (Figure 3, Item 14), clevis pin, and cotter pin (Figure 3, Item 16). Bend ends of cotter pin.
3. Install shim (Figure 3, Item 8) and cable (Figure 3, Item 7) on shift panel (Figure 3, Item 3) with two screws (Figure 3, Item 10) and two locknuts (Figure 3, Item 5).
4. Install shift panel cover (Figure 3, Item 12) on shift panel (Figure 3, Item 3) with six screws (Figure 3, Item 11).

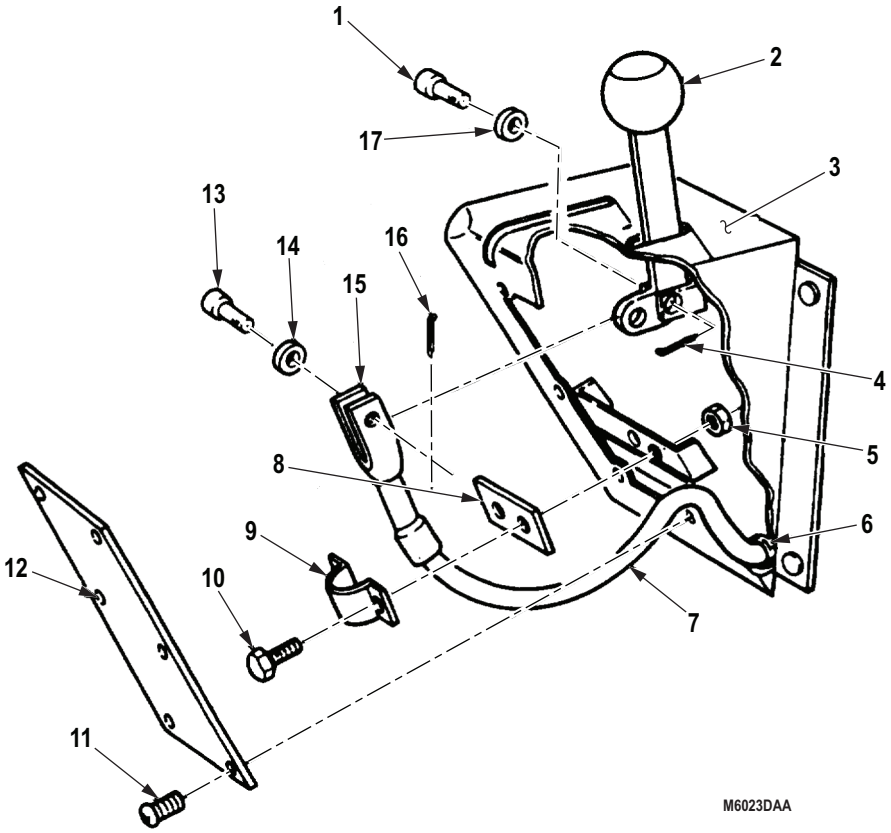


Figure 3. Winch Control Valve Cable.

INSTALLATION - Continued

NOTE

Place shift lever in NEUTRAL position.

5. Install nut (Figure 4, Item 11) and washer (Figure 4, Item 12) on cable (Figure 4, Item 10) and feed end of cable through bracket (Figure 4, Item 9).
6. Install washer (Figure 4, Item 8), nuts (Figure 4, Items 6 and 7), and clevis (Figure 4, Item 1) on end of cable (Figure 4, Item 10).
7. Position clevis (Figure 4, Item 1) on valve shaft (Figure 4, Item 3) and adjust nuts (Figure 4, Items 6 and 7) until holes in end of cable (Figure 4, Item 10) and shaft align.
8. Install clevis pin (Figure 4, Item 2), washer (Figure 4, Item 4), and cotter pin (Figure 4, Item 5) in clevis (Figure 4, Item 1) and shaft (Figure 4, Item 3). Bend ends of cotter pin.
9. Tighten nuts (Figure 4, Items 6, 7, and 9).

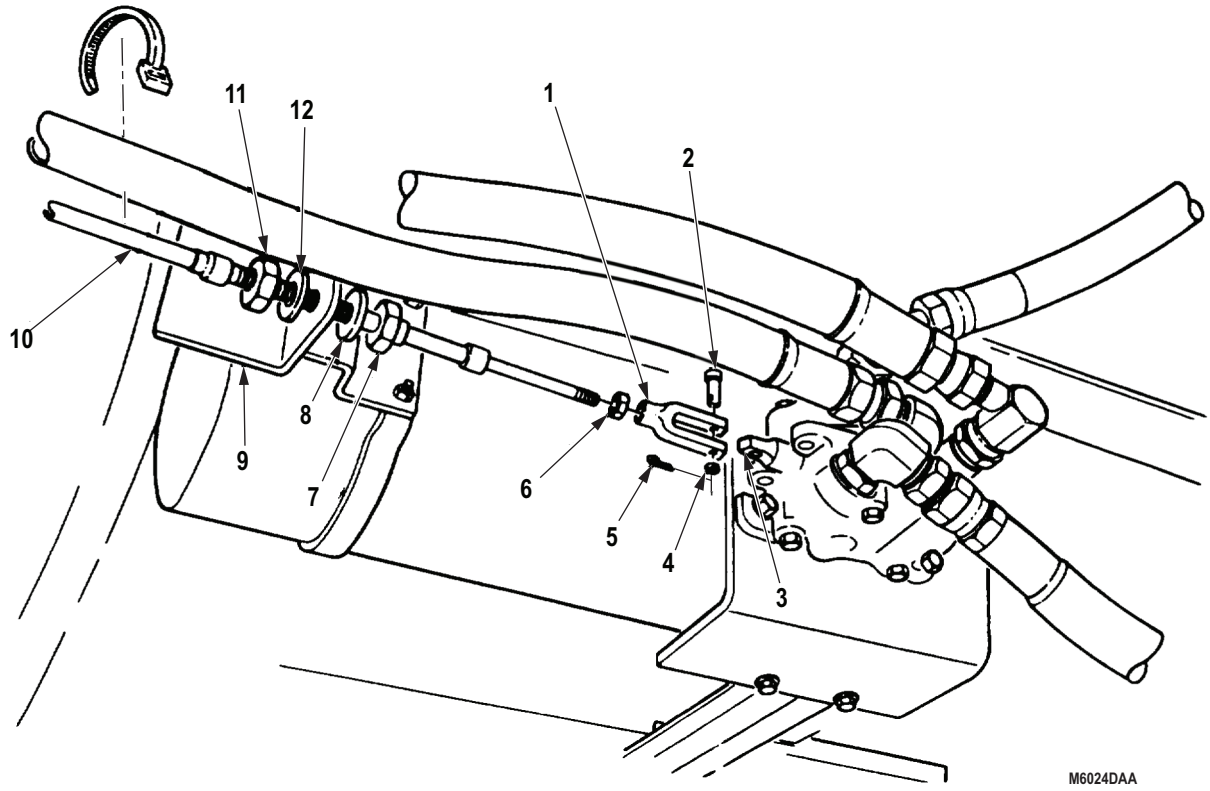


Figure 4. Winch Control Valve Cable Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

Start engine and check winch control valve operation. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
FRONT AND REAR WINCH CONTROL VALVE REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Cap Set, Protective, Dust and Moisture Seal
(Volume 5, WP 0825, Table 1, Item 13)
Cotter Pin
(Volume 5, WP 0827, Table 1, Item 340)
Qty: 1
Locknut (Volume 5, WP 0827, Table 1, Item 285)
Qty: 3
Locknut (Volume 5, WP 0827, Table 1, Item 297)
Qty: 4
O-ring (Volume 5, WP 0827, Table 1, Item 80)
Qty: 2

Materials/Parts (cont.)
O-ring (Volume 5, WP 0827, Table 1, Item 164)
Qty: 1
O-ring (Volume 5, WP 0827, Table 1, Item 364)
Qty: 2

References
Volume 5, WP 0820

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Hydraulic oil reservoir drained. (WP 0703)

REMOVAL

CAUTION

Plug hydraulic hoses to prevent dirt from entering.

NOTE

All hoses and fittings must be tagged for installation.

1. Disconnect hoses (Figure 1, Items 1, 4, 5, and 6) from control valve (Figure 1, Item 7). Tag for installation.
2. Remove cotter pin (Figure 1, Item 14), washer (Figure 1, Item 15), and clevis pin (Figure 1, Item 3) from cable clevis (Figure 1, Item 2). Discard cotter pin.
3. Remove three locknuts (Figure 1, Item 13), screws (Figure 1, Item 10), and control valve (Figure 1, Item 7) from bracket (Figure 1, Item 12). Discard locknuts.
4. Remove four locknuts (Figure 1, Item 8), screws (Figure 1, Item 11), and bracket (Figure 1, Item 12) from frame (Figure 1, Item 9). Discard locknuts.
5. Remove elbow (Figure 1, Item 20) and adapter (Figure 1, Item 25) from fitting (Figure 1, Item 19) and elbow (Figure 1, Item 26).
6. Remove fittings (Figure 1, Items 16 and 19) and elbows (Figure 1, Items 18 and 26) from control valve (Figure 1, Item 7).
7. Remove four o-rings (Figure 1, Item 17) from fittings (Figure 1, Items 16 and 19) and elbows (Figure 1, Items 18 and 26). Discard o-rings.
8. Remove plug (Figure 1, Item 21), spring (Figure 1, Item 23), and relief valve (Figure 1, Item 24) from control valve (Figure 1, Item 7).
9. Remove o-ring (Figure 1, Item 22) from plug (Figure 1, Item 21). Discard o-ring.

REMOVAL - Continued

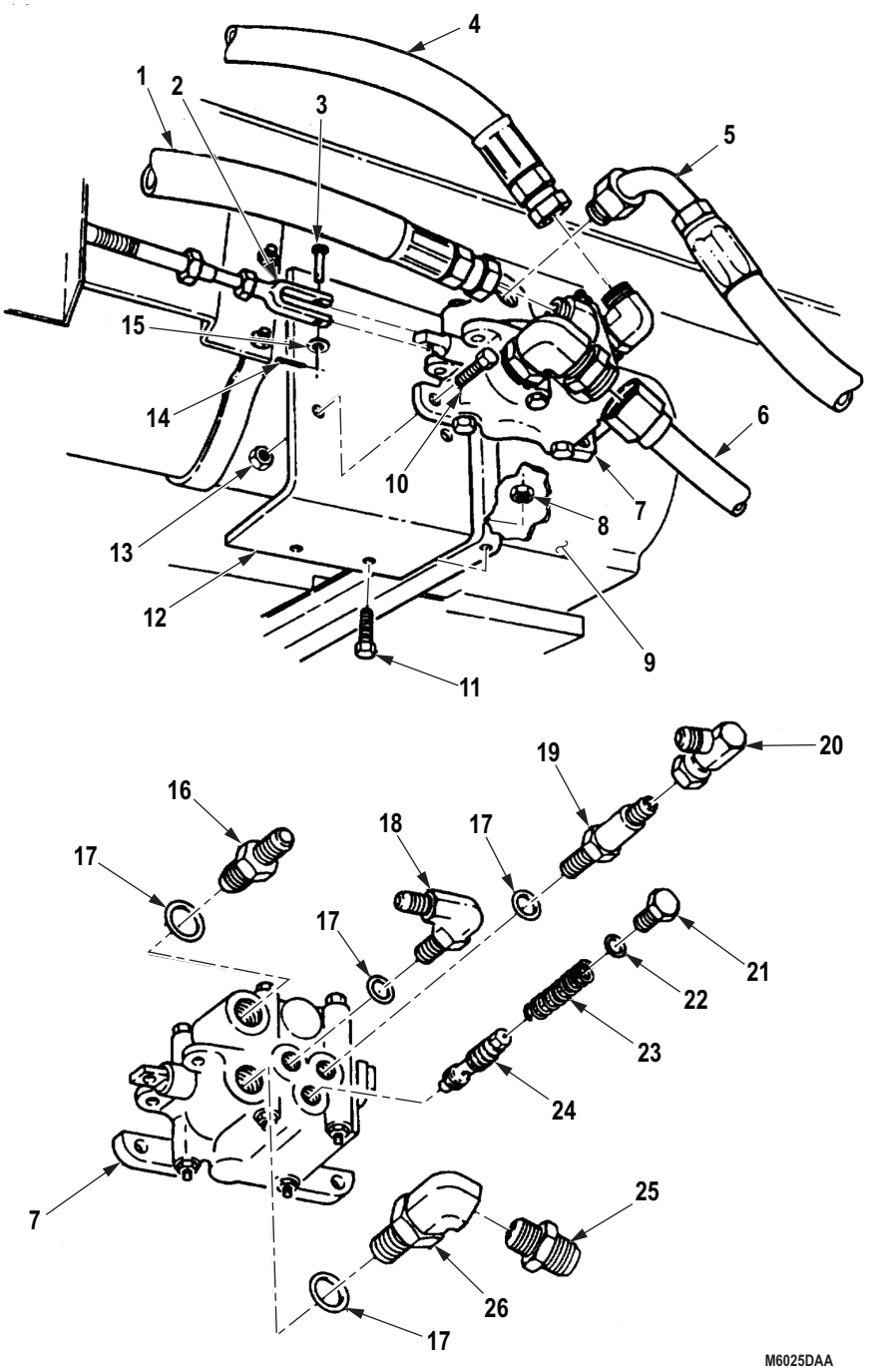


Figure 1. Front and Rear Winch Control Valve Removal.

END OF TASK

INSTALLATION

1. Install o-ring (Figure 2, Item 22) on plug (Figure 2, Item 21) and install relief valve (Figure 2, Item 24), spring (Figure 2, Item 23), and plug (Figure 2, Item 21) in control valve (Figure 2, Item 7).
2. Install four o-rings (Figure 2, Item 17) and fittings (Figure 2, Items 16, 18, 19, and 26) on control valve (Figure 2, Item 7).
3. Install fittings (Figure 2, Items 20 and 25) on fittings (Figure 2, Items 19 and 26).
4. Install bracket (Figure 2, Item 12) on frame (Figure 2, Item 9) with four screws (Figure 2, Item 11) and locknuts (Figure 2, Item 8).
5. Install control valve (Figure 2, Item 7) on bracket (Figure 2, Item 12) with three screws (Figure 2, Item 10) and locknuts (Figure 2, Item 13).

WARNING

Do not cross hoses during installation. Failure to comply may result in injury or death to personnel.

6. Install hoses (Figure 2, Items 1, 4, 5, and 6) on control valve (Figure 2, Item 7).
7. Install cable clevis (Figure 2, Item 2) on control valve (Figure 2, Item 7) with clevis pin (Figure 2, Item 3), washer (Figure 2, Item 15), and cotter pin (Figure 2, Item 14). Bend ends of cotter pin.

INSTALLATION - Continued

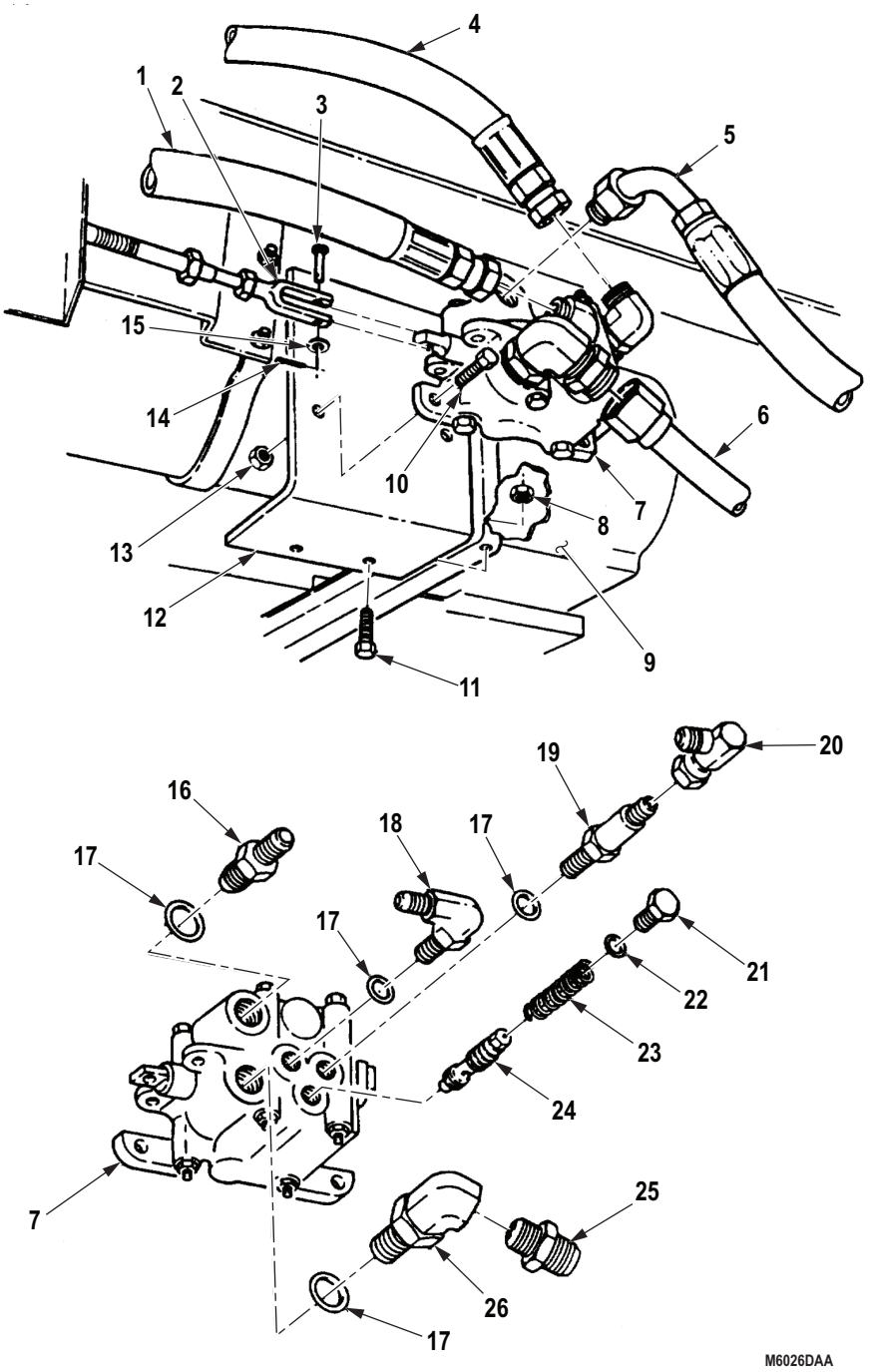


Figure 2. Front and Rear Winch Control Valve Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Fill hydraulic oil reservoir. (Volume 5, WP 0820)
2. Start engine and check hydraulic pump operation. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
REAR WINCH HYDRAULIC MOTOR REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
- Tool Kit, General Mechanic's: Automotive (Volume 5, WP 0826, Table 1, Item 56)
- Wrench, Torque, Click, Ratcheting, 1/2" Drive, 250 Ft-Lb (Volume 5, WP 0826, Table 1, Item 63)

Materials/Parts
- Sealing Compound (Volume 5, WP 0825, Table 1, Item 56)
- Tape, Antiseizing (Volume 5, WP 0825, Table 1, Item 65)
- Cotter Pin (Volume 5, WP 0827, Table 1, Item 352) Qty: 1
- Locknut (Volume 5, WP 0827, Table 1, Item 289) Qty: 4
- Lockwasher (Volume 5, WP 0827, Table 1, Item 2) Qty: 6
- Lockwasher (Volume 5, WP 0827, Table 1, Item 186) Qty: 5
- Rod Seal (Volume 5, WP 0827, Table 1, Item 63) Qty: 2

Materials/Parts (cont.)
- O-ring (Volume 5, WP 0827, Table 1, Item 368) Qty: 1
- O-ring (Volume 5, WP 0827, Table 1, Item 361) Qty: 1

Personnel Required
(2)

References
Volume 5, WP 0820

Equipment Condition
- Parking brake set. (TM 9-2320-272-10)
- Hydraulic oil reservoir drained. (WP 0703)

REMOVAL

1. Remove five screws (Figure 1, Item 4), lockwashers (Figure 1, Item 5), washers (Figure 1, Item 6), and cover (Figure 1, Item 3) from floor plate (Figure 1, Item 15). Discard lockwashers.
2. Remove four screws (Figure 1, Item 2), washers (Figure 1, Item 1), and floor plate (Figure 1, Item 15) from frame (Figure 1, Item 7).
3. Remove two locknuts (Figure 1, Item 8), screws (Figure 1, Item 11), and washers (Figure 1, Item 10) from front bracket (Figure 1, Item 9) and frame (Figure 1, Item 7). Discard locknuts.

NOTE

- Have drainage container ready to catch oil.
- Use drain pans to retain leaking/draining fluids. Refer to local procedures and plans for preventing and responding to fluid spills or leaks. Comply with local regulations when disposing of clean up material and leaked and spilled fluids.

4. Disconnect hose connector (Figure 1, Item 16) from elbow (Figure 1, Item 21).
5. Remove elbow (Figure 1, Item 21), adapter (Figure 1, Item 20), and valve (Figure 1, Item 19) from elbow (Figure 1, Item 18). Tag adapter and valve for installation.
6. Rotate elbow (Figure 1, Item 18) upward on pipe nipple (Figure 1, Item 17) to allow removal of front bracket (Figure 1, Item 9).
7. Remove three screws (Figure 1, Item 12), lockwashers (Figure 1, Item 13), and front bracket (Figure 1, Item 9) from winch motor (Figure 1, Item 14).

REMOVAL - Continued

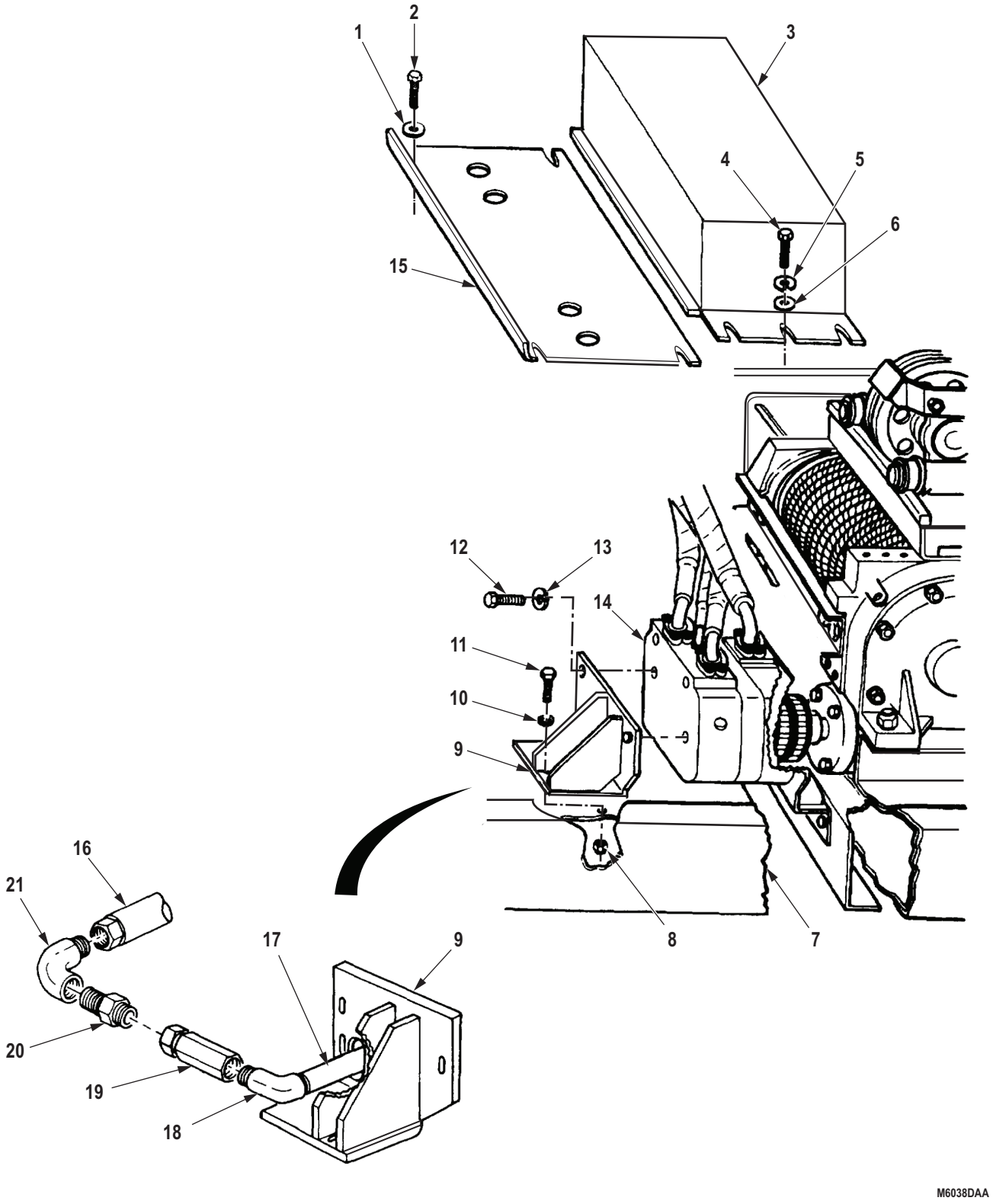


Figure 1. Rear Winch Hydraulic Motor Removal.

REMOVAL - Continued

8. Remove elbow (Figure 2, Item 7) and pipe nipple (Figure 2, Item 6) from winch motor (Figure 2, Item 8).
9. Remove 12 screws (Figure 2, Item 2), washers (Figure 2, Item 3), and six clamps (Figure 2, Item 4) from hydraulic motor (Figure 2, Item 8).

NOTE

Tag hydraulic hoses for installation.

10. Remove three hydraulic hoses (Figure 2, Item 1) and o-rings (Figure 2, Item 5) from hydraulic motor (Figure 2, Item 8). Discard o-rings.
11. Disconnect hydraulic hose (Figure 2, Item 11) from elbow (Figure 2, Item 10) on winch motor o(Figure 2, Item 8).
12. Remove elbow (Figure 2, Item 10) and o-ring (Figure 2, Item 9) from winch motor (Figure 2, Item 8). Discard o-ring.
13. Disconnect two hose connectors (Figure 2, Items 31 and 32) from tee (Figure 2, Item 33).
14. Loosen setscrew (Figure 2, Item 14) until flush with front coupling hub (Figure 2, Item 18).
15. Remove tee (Figure 2, Item 33), adapter (Figure 2, Item 30), valve (Figure 2, Item 29), and elbow (Figure 2, Item 7) from pipe nipple (Figure 2, Item 6). Tag valve for installation.
16. Remove two locknuts (Figure 2, Item 27), screws (Figure 2, Item 25), and washers (Figure 2, Item 26) from frame crossmember (Figure 2, Item 24) and rear bracket (Figure 2, Item 28). Discard locknuts.

NOTE

Assistant will help with Step (17).

17. Remove winch motor (Figure 2, Item 8) and rear bracket (Figure 2, Item 28) from frame crossmember (Figure 2, Item 24).
18. Remove key (Figure 2, Item 13) from winch motor shaft (Figure 2, Item 12).
19. Remove six screws (Figure 2, Item 16), lockwashers (Figure 2, Item 15), and rear bracket (Figure 2, Item 28) from winch motor (Figure 2, Item 8). Discard lockwashers.
20. Remove pipe nipple (Figure 2, Item 6) from winch motor (Figure 2, Item 8). Tag pipe nipple for installation.
21. Remove cotter pin (Figure 2, Item 22) and shear pin (Figure 2, Item 23) from rear coupling hub (Figure 2, Item 20). Discard cotter pin.
22. Remove coupling (Figure 2, Item 19) from winch driveshaft (Figure 2, Item 21).

REMOVAL - Continued

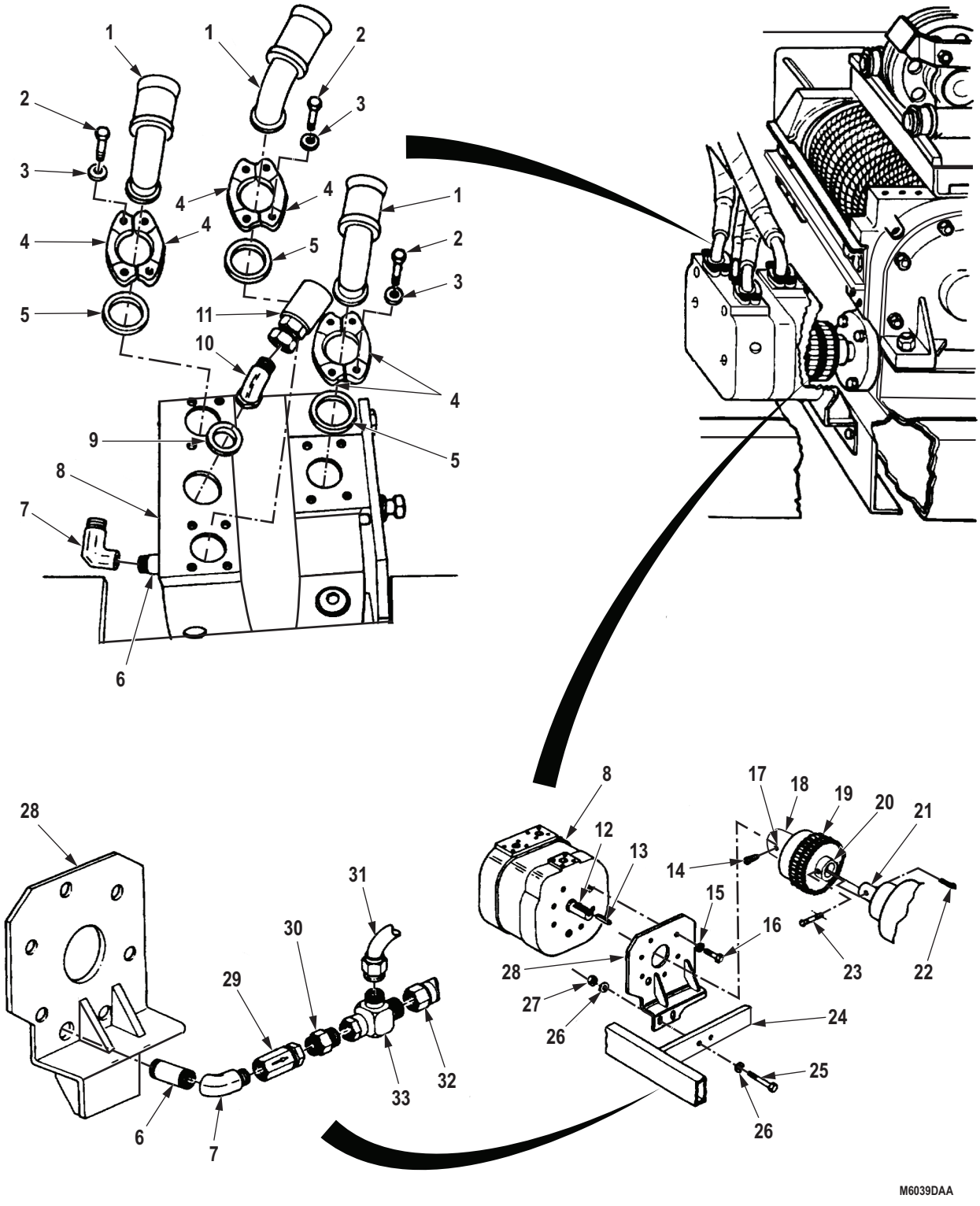


Figure 2. Rear Winch Hydraulic Motor Hoses and Fittings Removal.

END OF TASK

INSTALLATION

1. Align holes in rear coupling hub (Figure 3, Item 20) and driveshaft (Figure 3, Item 21) and install coupling (Figure 3, Item 19) on winch driveshaft with shear pin (Figure 3, Item 23) and cotter pin (Figure 3, Item 22).

NOTE

Wrap all male pipe threads with antiseize tape before installation.

2. Install rear bracket (Figure 3, Item 28) on winch motor (Figure 3, Item 8) with six lockwashers (Figure 3, Item 15) and screws (Figure 3, Item 16). Tighten screws 60 to 70 lb-ft (81 to 95 N·m).

NOTE

Assistant will help with Step (3).

3. Place key (Figure 3, Item 13) in slot of winch motor shaft (Figure 3, Item 12) and install winch motor (Figure 3, Item 8) on coupling (Figure 3, Item 19). Ensure key is visible in setscrew hole (Figure 3, Item 17).
4. Install rear bracket (Figure 3, Item 28) on frame crossmember (Figure 3, Item 24) with four washers (Figure 3, Item 26), two screws (Figure 3, Item 25), and two locknuts (Figure 3, Item 27). Tighten locknuts 60 to 70 lb-ft (81 to 95 N·m).
5. Install pipe nipple (Figure 3, Item 6), elbow (Figure 3, Item 7), valve (Figure 3, Item 29), adapter (Figure 3, Item 30), and tee (Figure 3, Item 33) on winch motor (Figure 3, Item 8).
6. Connect two hose connectors (Figure 3, Items 31 and 32) to tee (Figure 3, Item 33).
7. Apply sealing compound to threads of setscrew (Figure 3, Item 14) and install in hole (Figure 3, Item 17) in front coupling hub (Figure 3, Item 18).
8. Install elbow (Figure 3, Item 10) on winch motor (Figure 3, Item 8) with o-ring (Figure 3, Item 9).
9. Connect hydraulic hose (Figure 3, Item 11) on elbow (Figure 3, Item 10).
10. Connect three hydraulic hoses (Figure 3, Item 1) to winch motor (Figure 3, Item 8) with o-rings (Figure 3, Item 5), six clamps (Figure 3, Item 4), 12 washers (Figure 3, Item 3), and screws (Figure 3, Item 2).
11. Install pipe nipple (Figure 3, Item 21) and elbow (Figure 3, Item 22) on winch motor (Figure 3, Item 18) with elbow pointed up.

INSTALLATION - Continued

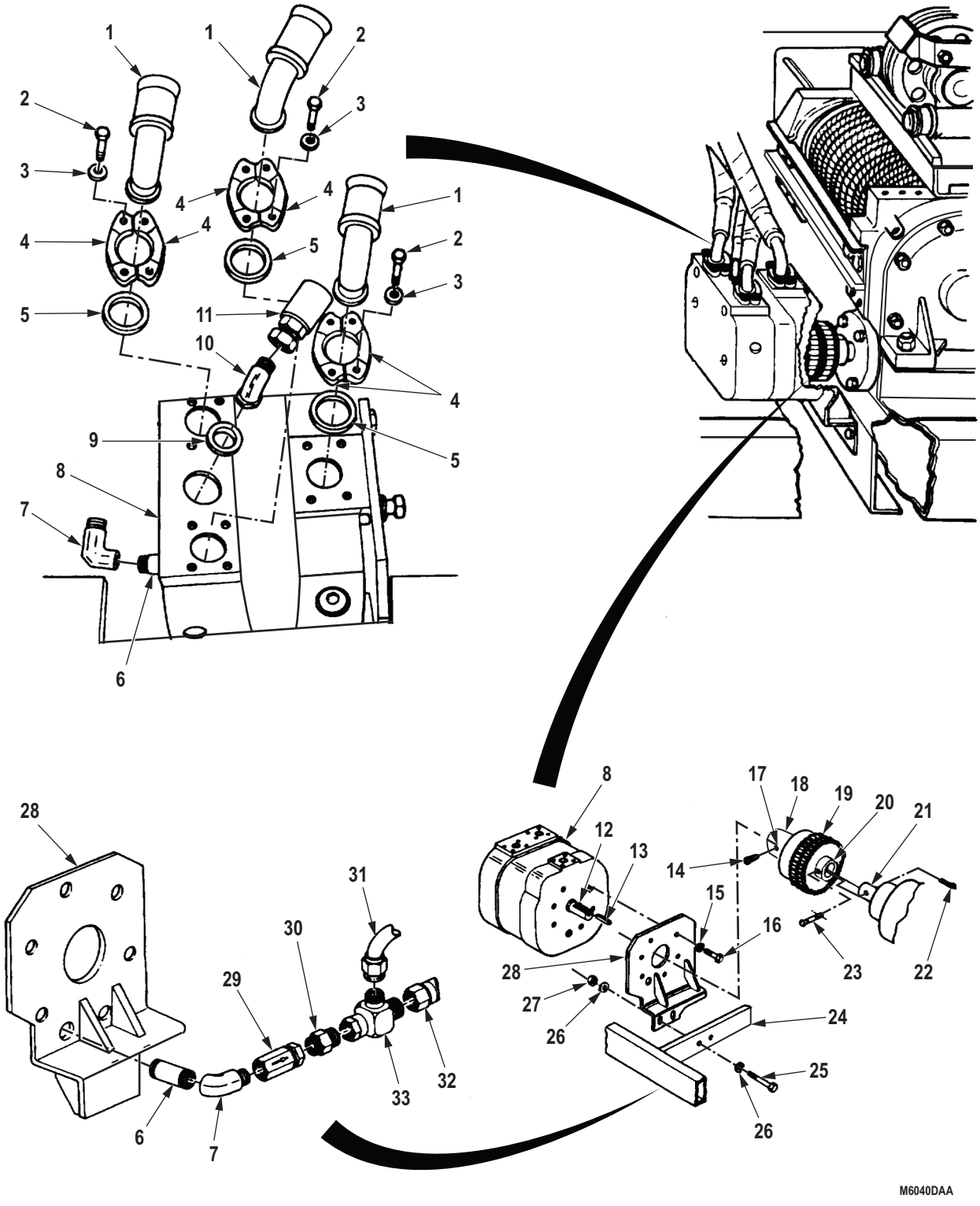


Figure 3. Rear Winch Hydraulic Motor Hoses and Fittings Installation.

INSTALLATION - Continued

12. Install front bracket (Figure 4, Item 9) on winch motor (Figure 4, Item 14) with three lockwashers (Figure 4, Item 13) and screws (Figure 4, Item 12). Tighten screws 60 to 70 lb-ft (81 to 95 N·m). Turn elbow (Figure 4, Item 18) to point left.
13. Install valve (Figure 4, Item 19), adapter (Figure 4, Item 20), and elbow (Figure 4, Item 21) on elbow (Figure 4, Item 18).
14. Connect hose connector (Figure 4, Item 16) to elbow (Figure 4, Item 21).
15. Install front bracket (Figure 4, Item 9) on frame (Figure 4, Item 7) with two washers (Figure 4, Item 10), screws (Figure 4, Item 11), and locknuts (Figure 4, Item 8). Tighten locknuts 60 to 70 lb-ft (81 to 95 N·m).
16. Install floor plate (Figure 4, Item 15) on frame (Figure 4, Item 7) with four washers (Figure 4, Item 1) and screws (Figure 4, Item 2). Tighten screws 60 to 70 lb-ft (81 to 95 N·m).
17. Install cover (Figure 4, Item 3) on frame (Figure 4, Item 7) with five washers (Figure 4, Item 6), lockwashers (Figure 4, Item 5), and screws (Figure 4, Item 4). Tighten screws 60 to 70 lb-ft (81 to 95 N·m).

INSTALLATION - Continued

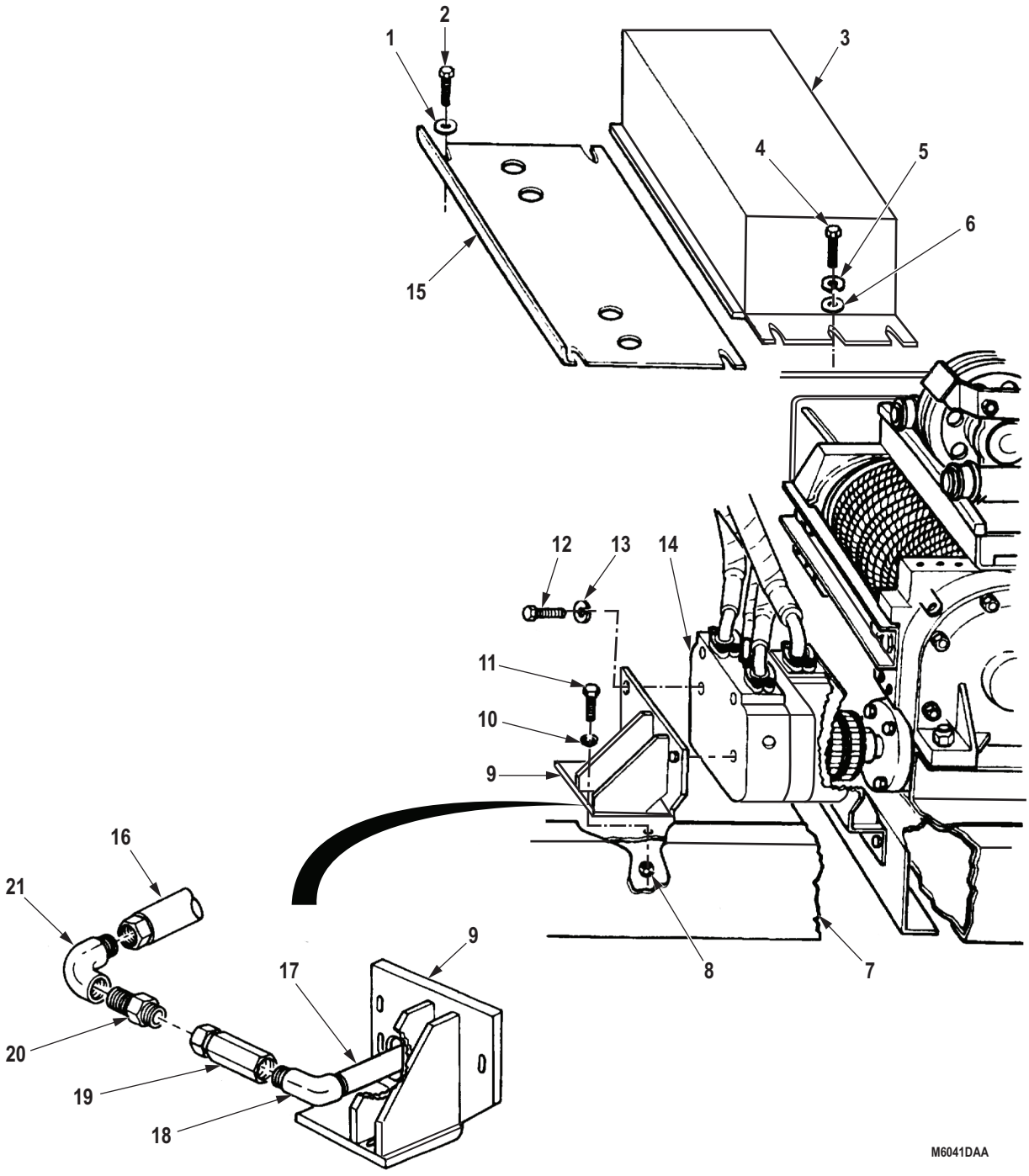


Figure 4. Rear Winch Hydraulic Motor Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Fill hydraulic oil reservoir to proper level. (Volume 5, WP 0820)
2. Check rear winch hydraulic motor for proper operation. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
FRONT WINCH HYDRAULIC PUMP REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Locknut (Volume 5, WP 0827, Table 1, Item 289)
Qty: 2
Lockwasher
(Volume 5, WP 0827, Table 1, Item 186)
Qty: 4
Lockwasher
(Volume 5, WP 0827, Table 1, Item 405)
Qty: 4

Materials/Parts (cont.)
O-ring (Volume 5, WP 0827, Table 1, Item 360)
Qty: 1
O-ring (Volume 5, WP 0827, Table 1, Item 361)
Qty: 1

References
Volume 5, WP 0820

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Hydraulic oil reservoir drained.
(TM 9-2320-272-10)

REMOVAL

1. Remove setscrew (Figure 1, Item 1) and driveshaft (Figure 1, Item 14) from pump shaft (Figure 1, Item 13).
2. Remove four screws (Figure 1, Item 7), lockwashers (Figure 1, Item 16), two pipe flange swivels (Figure 1, Item 5), tube (Figure 1, Item 6), and o-ring (Figure 1, Item 15) from hydraulic pump (Figure 1, Item 4). Discard o-ring and lockwashers.
3. Remove four screws (Figure 1, Item 9), lockwashers (Figure 1, Item 10), two pipe flange swivels (Figure 1, Item 11), tube (Figure 1, Item 8), and o-ring (Figure 1, Item 17) from hydraulic pump (Figure 1, Item 4). Discard o-ring and lockwashers.
4. Remove two screws (Figure 1, Item 2), locknuts (Figure 1, Item 3), and hydraulic pump (Figure 1, Item 4) from pump bracket (Figure 1, Item 12). Discard locknuts.

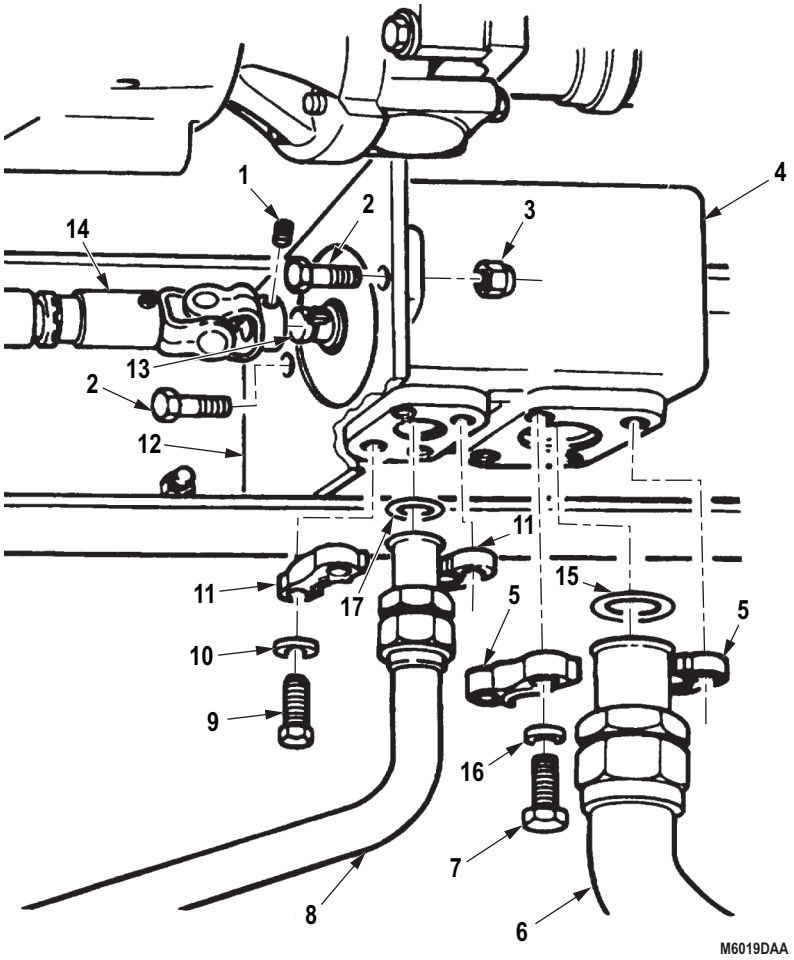


Figure 1. Front Winch Hydraulic Motor Removal.

END OF TASK

INSTALLATION

1. Install pump (Figure 2, Item 4) on bracket (Figure 2, Item 12) with two screws (Figure 2, Item 2) and locknuts (Figure 2, Item 3).
2. Install o-ring (Figure 2, Item 15), two pipe flange swivels (Figure 2, Item 5), and tube (Figure 2, Item 6) on pump (Figure 2, Item 4) with four lockwashers (Figure 2, Item 16) and screws (Figure 2, Item 7).
3. Install o-ring (Figure 2, Item 17), two pipe flange swivels (Figure 2, Item 11), and tube (Figure 2, Item 8) on pump (Figure 2, Item 4) with four lockwashers (Figure 2, Item 10) and screws (Figure 2, Item 9).
4. Ensure key is in keyway and connect driveshaft (Figure 2, Item 14) to pump shaft (Figure 2, Item 13).
5. Install setscrew (Figure 2, Item 1) in driveshaft (Figure 2, Item 14) and tighten.

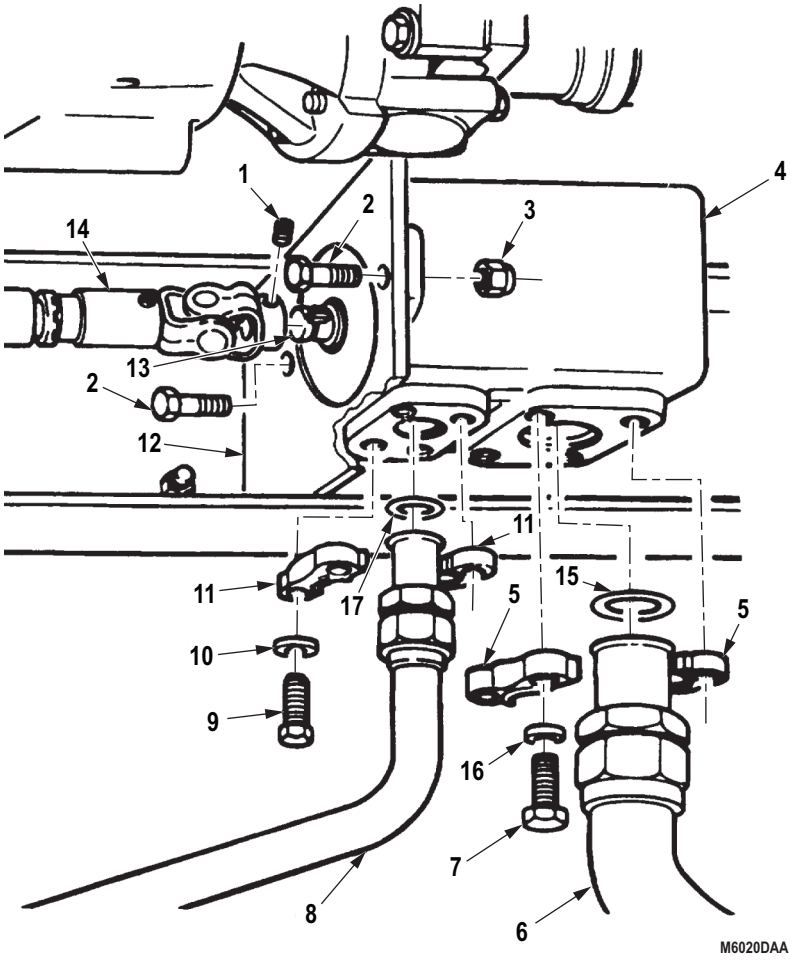


Figure 2. Front Winch Hydraulic Motor Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Fill hydraulic tank. (TM 9-2320-272-10)
2. Operate winch system and check for leaks. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
FRONT WINCH CABLE REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

Equipment Condition (cont.)
Front winch cable unwound. (TM 9-2320-272-10)
Cable chain and hook removed. (WP 0674)

REMOVAL

WARNING



Wear hand protection when handling winch cable. Do not handle cable with bare hands. Broken wires may be sharp. Failure to comply may result in injury or death to personnel.

1. Remove setscrew (Figure 1, Item 1) and winch cable (Figure 1, Item 4) from hole (Figure 1, Item 3) in winch drum (Figure 1, Item 2).

NOTE

Perform Step (2) if front winch is equipped with level wind and tensioner.

2. Pull winch cable (Figure 1, Item 4) out at side roller (Figure 1, Item 9), over level wind pulley (Figure 1, Item 6), down through tensioner sheaves (Figure 1, Item 7), and out of rollers (Figure 1, Items 8 and 9).

REMOVAL - Continued

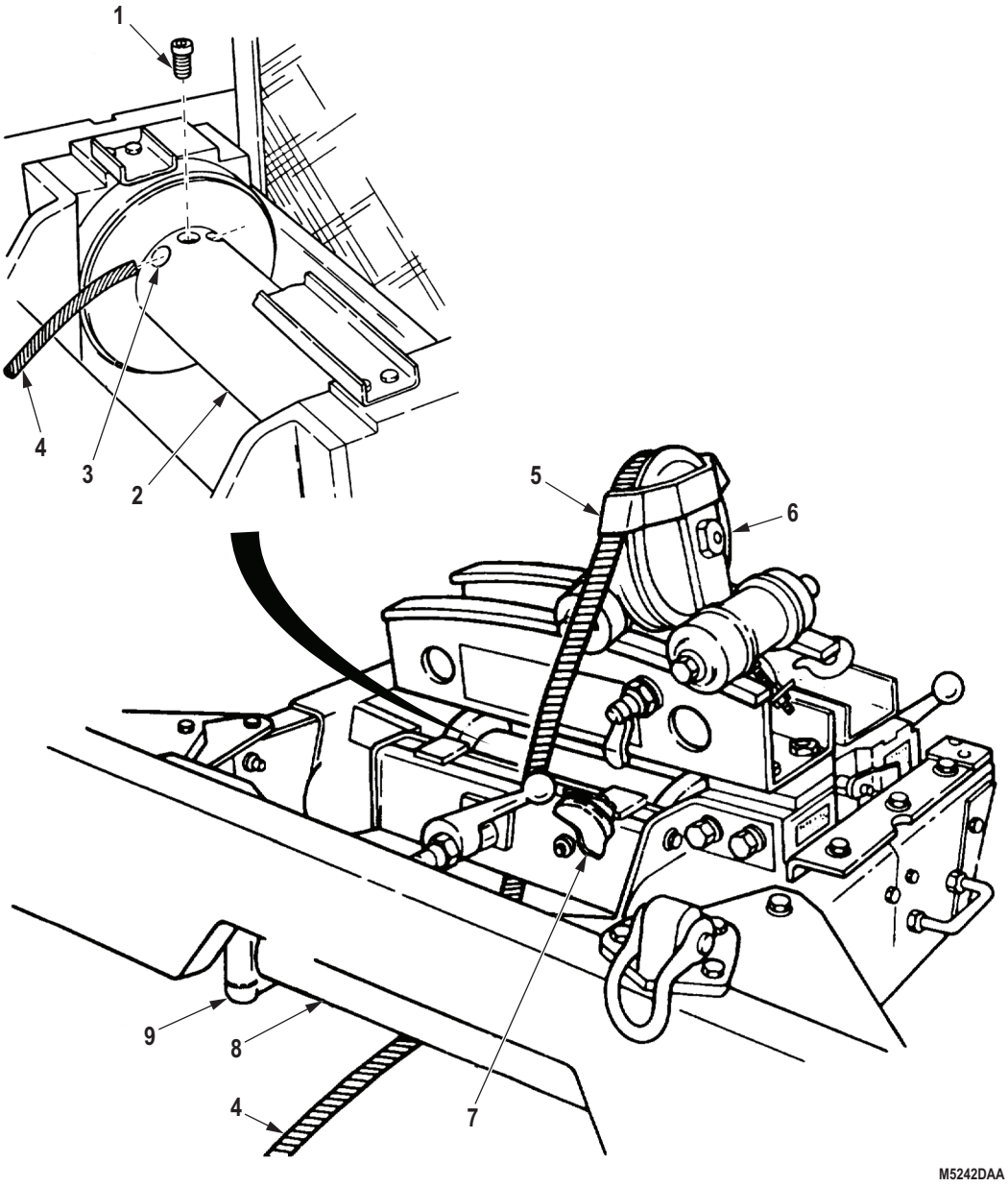


Figure 1. Front Winch Cable Removal.

END OF TASK

INSTALLATION

NOTE

Perform Step (1) if front winch is equipped with level wind and tensioner.

1. Thread winch cable (Figure 2, Item 4) into center of rollers (Figure 2, Items 8 and 9), tensioner sheaves (Figure 2, Item 7), under level wind pulley plate (Figure 2, Item 5), and over level wind pulley (Figure 2, Item 6).
2. Insert winch cable (Figure 2, Item 4) in hole (Figure 2, Item 3) of winch drum (Figure 2, Item 2) and install setscrew (Figure 2, Item 1).

INSTALLATION - Continued

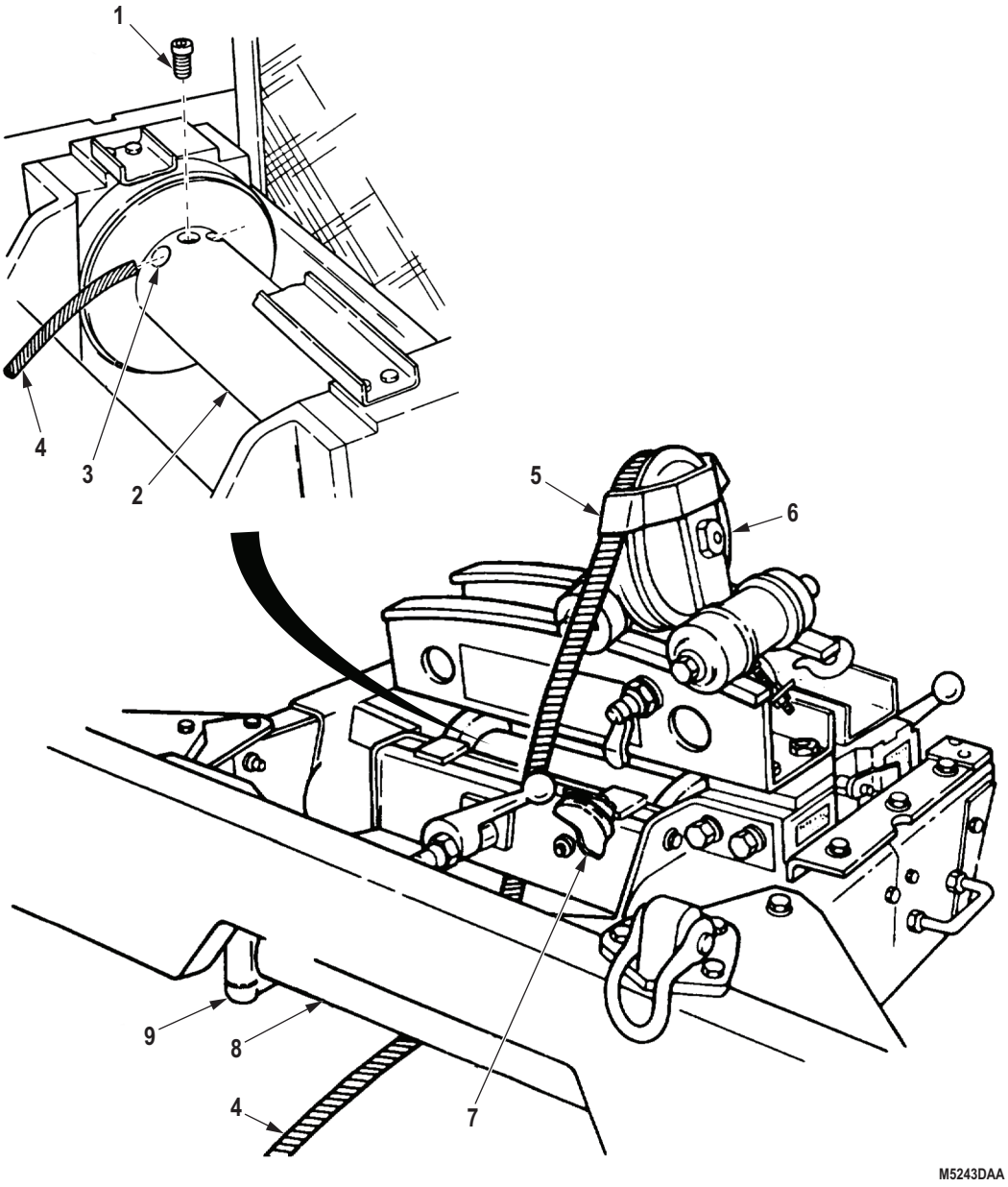


Figure 2. Front Winch Cable Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Wind cable on drum. (TM 9-2320-272-10)
2. Install cable chain and hook. (WP 0674)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
FRONT WINCH HYDRAULIC HOSE AND TUBE REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Cap Set, Protective, Dust and Moisture Seal
(Volume 5, WP 0825, Table 1, Item 13)
Locknut (Volume 5, WP 0827, Table 1, Item 430)
Qty: 2
Tiedown Straps
(Volume 5, WP 0827, Table 1, Item 379)
Qty: 5

References
Volume 5, WP 0820

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Hydraulic oil reservoir drained. (WP 0703)

REMOVAL

CAUTION

Plug all openings to prevent dirt from entering and damaging components.

NOTE

- Remove and discard tiedown straps holding hoses to vehicle.
- Have drainage container ready to catch oil.
- Use drain pans to retain leaking/draining fluids. Refer to local procedures and plans for preventing and responding to fluid spills or leaks. Comply with local regulations when disposing of clean up material and leaked and spilled fluids.
- Perform Steps (1) through (4) for all vehicles except M936/A1/A2.

1. Holding filter adapter (Figure 1, Item 13), loosen hose nut (Figure 1, Item 15) and disconnect hose (Figure 1, Item 12) from hydraulic oil reservoir (Figure 1, Item 1).
2. Remove nut (Figure 1, Item 14), screw (Figure 1, Item 4), and clamp (Figure 1, Item 5) from mounting bracket (Figure 1, Item 11).
3. Loosen hose nut (Figure 1, Item 3) and disconnect hose (Figure 1, Item 7) from reservoir elbow (Figure 1, Item 2).
4. Remove hose (Figure 1, Item 7) from reservoir (Figure 1, Item 1).

NOTE

Clamp brackets remain attached to frame rail.

5. Remove two locknuts (Figure 1, Item 8), screws (Figure 1, Item 6), and two pairs of hose clamps (Figure 1, Item 7) from right frame rail (Figure 1, Item 10) and two hydraulic hoses (Figure 1, Item 9). Discard locknuts.

REMOVAL - Continued

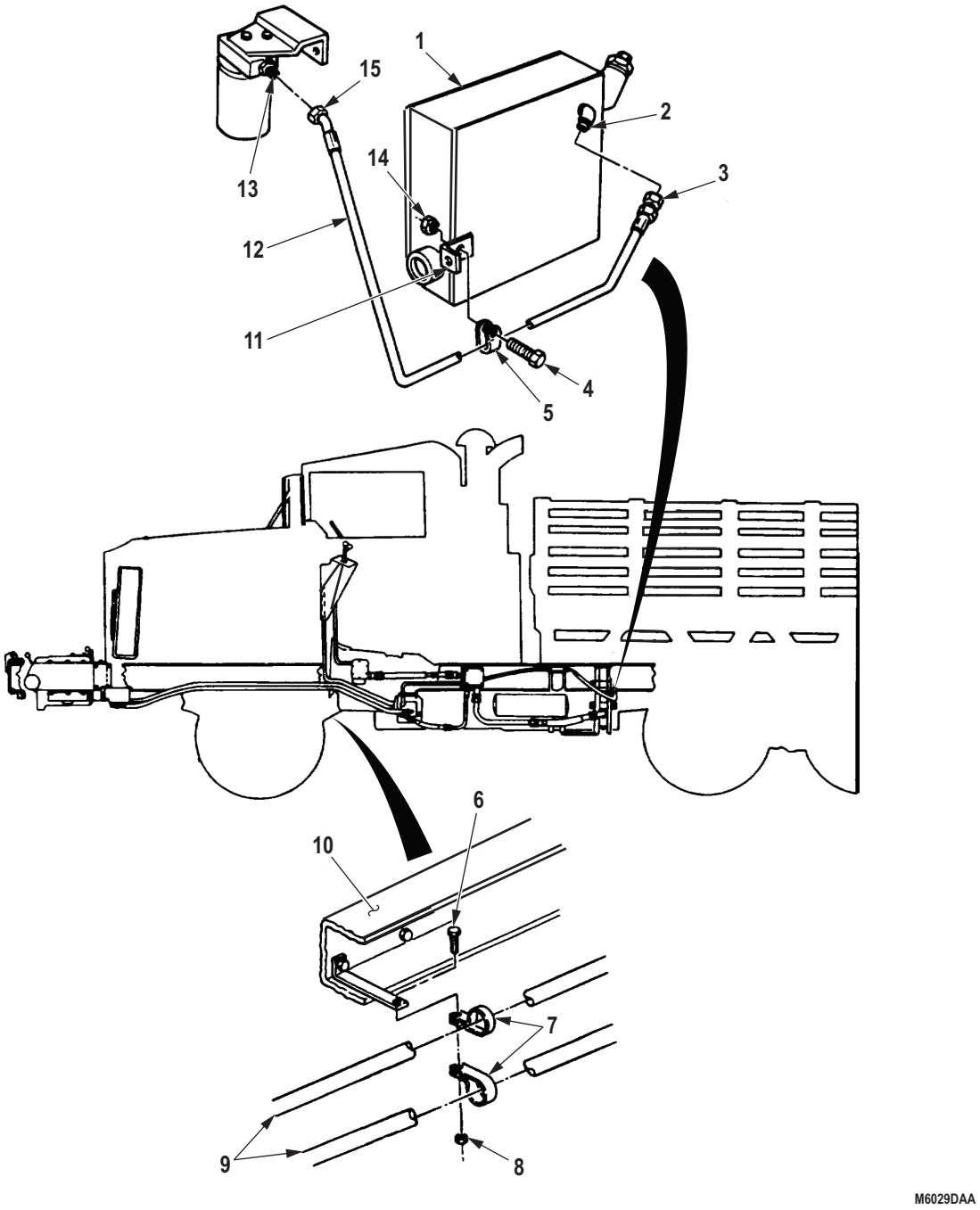


Figure 1. Hydraulic Oil Reservoir Hoses Removal.

REMOVAL - Continued

NOTE

Tag hoses for installation.

6. Using two wrenches (Figure 2, Item 2), disconnect swivel flare nut (Figure 2, Item 1) and hose end (Figure 2, Item 3) and remove four hoses (Figure 2, Item 4) and two tubes (Figure 2, Items 5 and 6).

REMOVAL - Continued

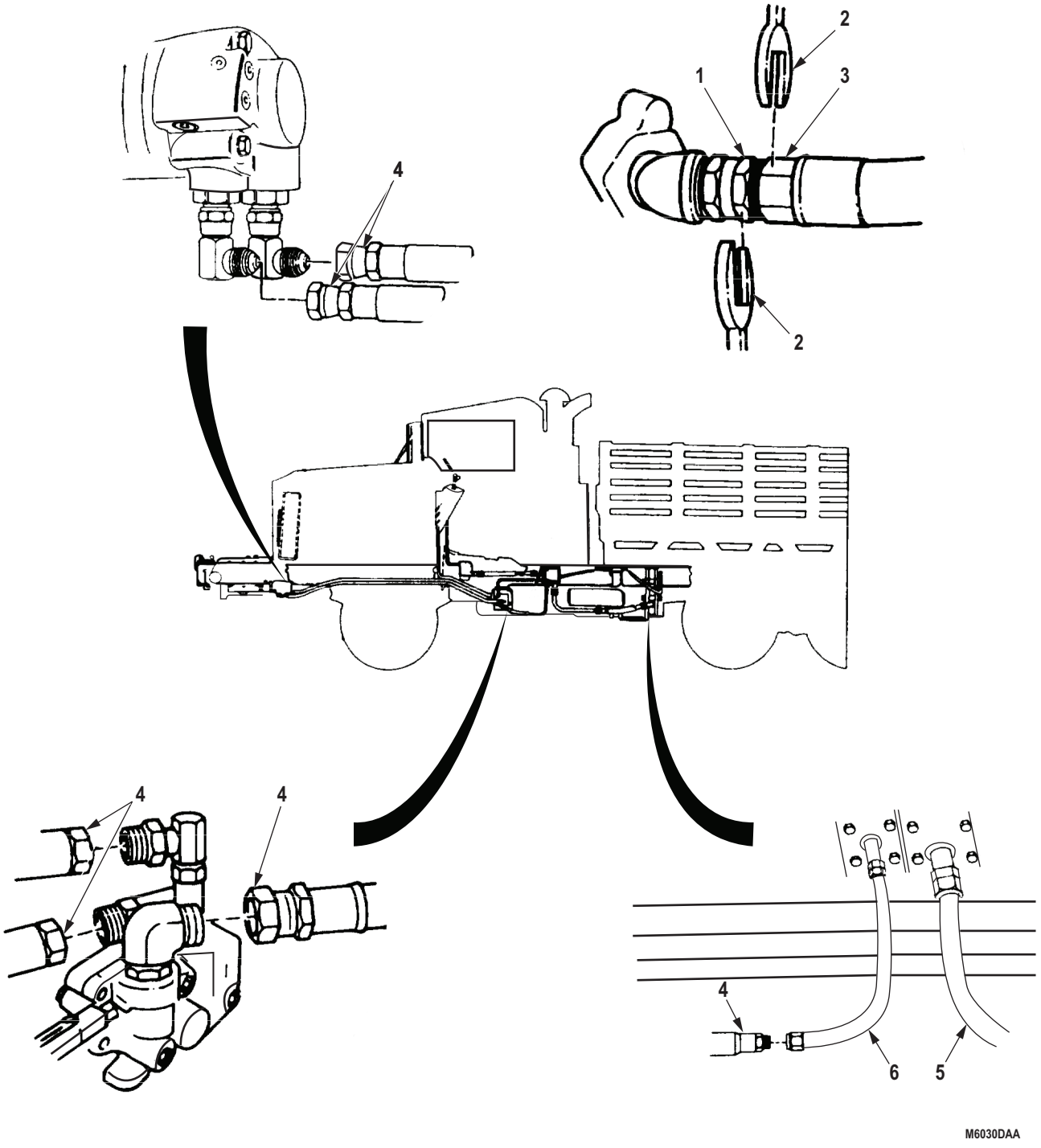


Figure 2. Front Winch Hydraulic Hoses and Tubes Removal.

REMOVAL - Continued

NOTE

Perform Steps (7) and (8) for all vehicles except M936/A1/A2.

7. Using wrench to prevent adapter (Figure 3, Item 2) from turning, disconnect hose (Figure 3, Item 1) from adapter on filter (Figure 3, Item 3) and from control valve (Figure 3, Item 4).

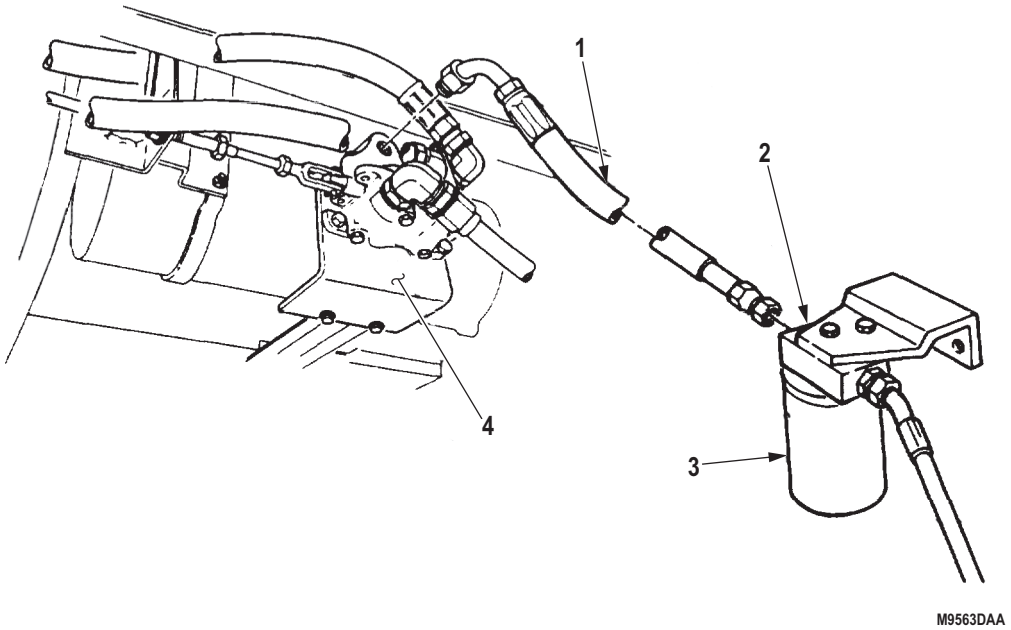


Figure 3. Hydraulic Oil Reservoir Hoses Removal.

REMOVAL - Continued

8. Disconnect two tubes (Figure 4, Items 3 and 4) from adapters (Figure 4, Items 2 and 5) on hydraulic pump (Figure 4, Item 1).

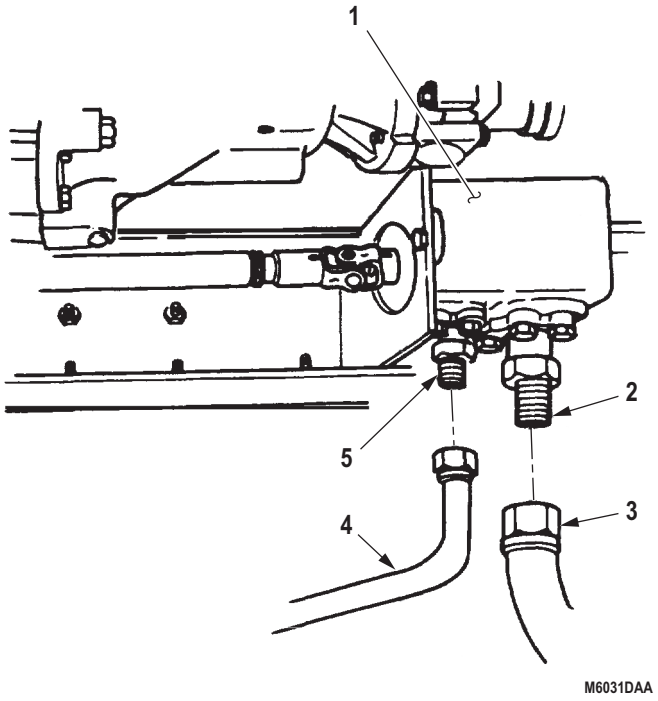


Figure 4. Hydraulic Oil Reservoir Hoses Removal.

END OF TASK

INSTALLATION

1. Connect tubes (Figure 5, Items 3 and 4) to adapters (Figure 5, Items 2 and 5) on hydraulic pump (Figure 5, Item 1).

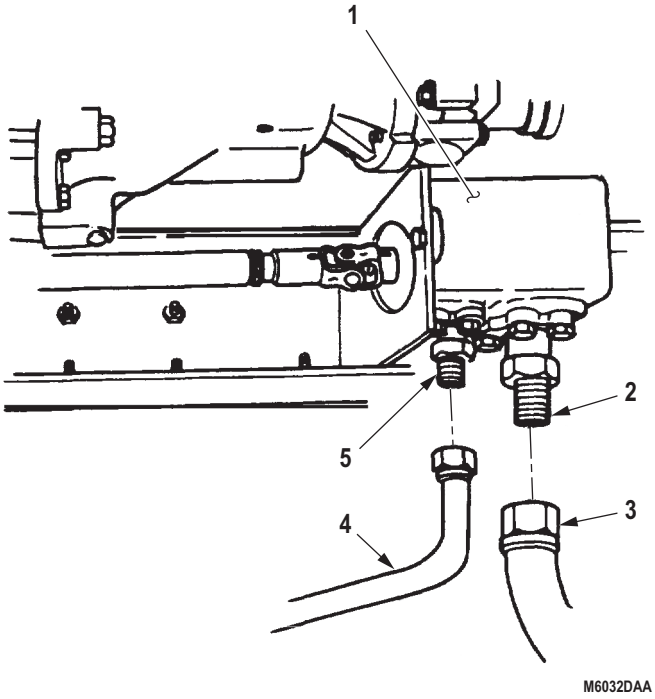


Figure 5. Hydraulic Oil Reservoir Hoses Installation.

INSTALLATION - Continued

NOTE

Perform Step (2) for all vehicles except M936/A1/A2.

2. Connect hose (Figure 6, Item 1) to control valve (Figure 6, Item 4) and adapter (Figure 6, Item 2) on filter (Figure 6, Item 3).

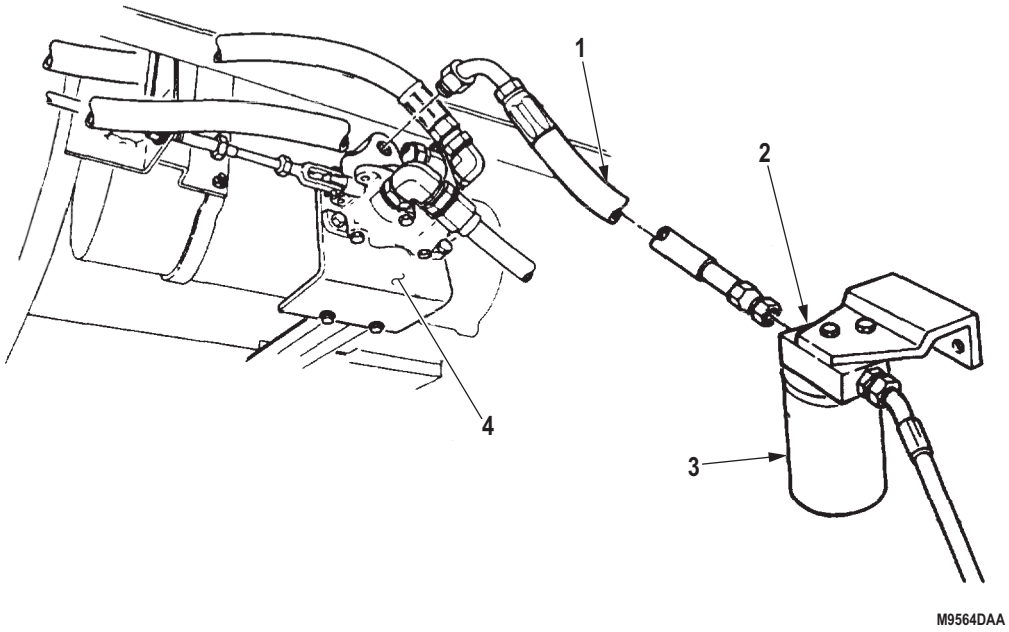


Figure 6. Hydraulic Oil Reservoir Hoses Installation.

INSTALLATION - Continued

NOTE

Perform Steps (3) and (4) for all vehicles except M936/A1/A2.

3. Connect hydraulic hose (Figure 7, Item 6) to elbow (Figure 7, Item 2) and adapter (Figure 7, Item 1).
4. Install hose (Figure 7, Item 6) on mounting bracket (Figure 7, Item 5) with clamp (Figure 7, Item 4), screw (Figure 7, Item 3), and nut (Figure 7, Item 7).

INSTALLATION - Continued

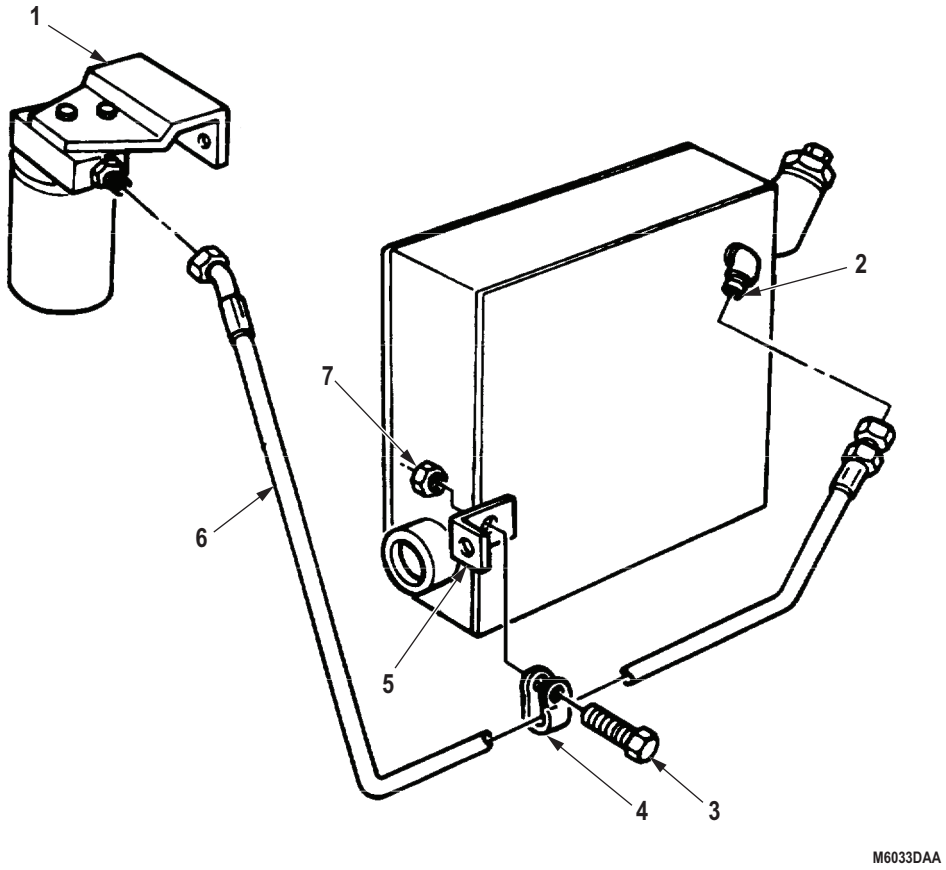


Figure 7. Front Winch Hydraulic Hoses and Tubes Installation.

INSTALLATION - Continued

5. Using care not to bend tube (Figure 8, Item 3), connect hose (Figure 8, Item 4) to elbow (Figure 8, Item 5) and tube (Figure 8, Item 2).
6. Using care not to bend tube (Figure 8, Item 2), connect hose (Figure 8, Item 1) to tube and control valve elbow (Figure 8, Item 15).
7. Connect two hose ends (Figure 8, Item 16) as tagged to two control valve elbows (Figure 8, Item 14).

WARNING

Do not cross hoses during installation. Failure to comply may result in injury or death to personnel.

8. Connect two hose ends (Figure 8, Item 6) to two elbows (Figure 8, Item 7).
9. Position two pairs of clamps (Figure 8, Item 9) on hoses (Figure 8, Item 12) and install clamps on two brackets (Figure 8, Item 13) with two screws (Figure 8, Item 8) and locknuts (Figure 8, Item 10).
10. Install six tiedown straps (Figure 8, Item 11) as necessary over two hoses (Figure 8, Item 12).

INSTALLATION - Continued

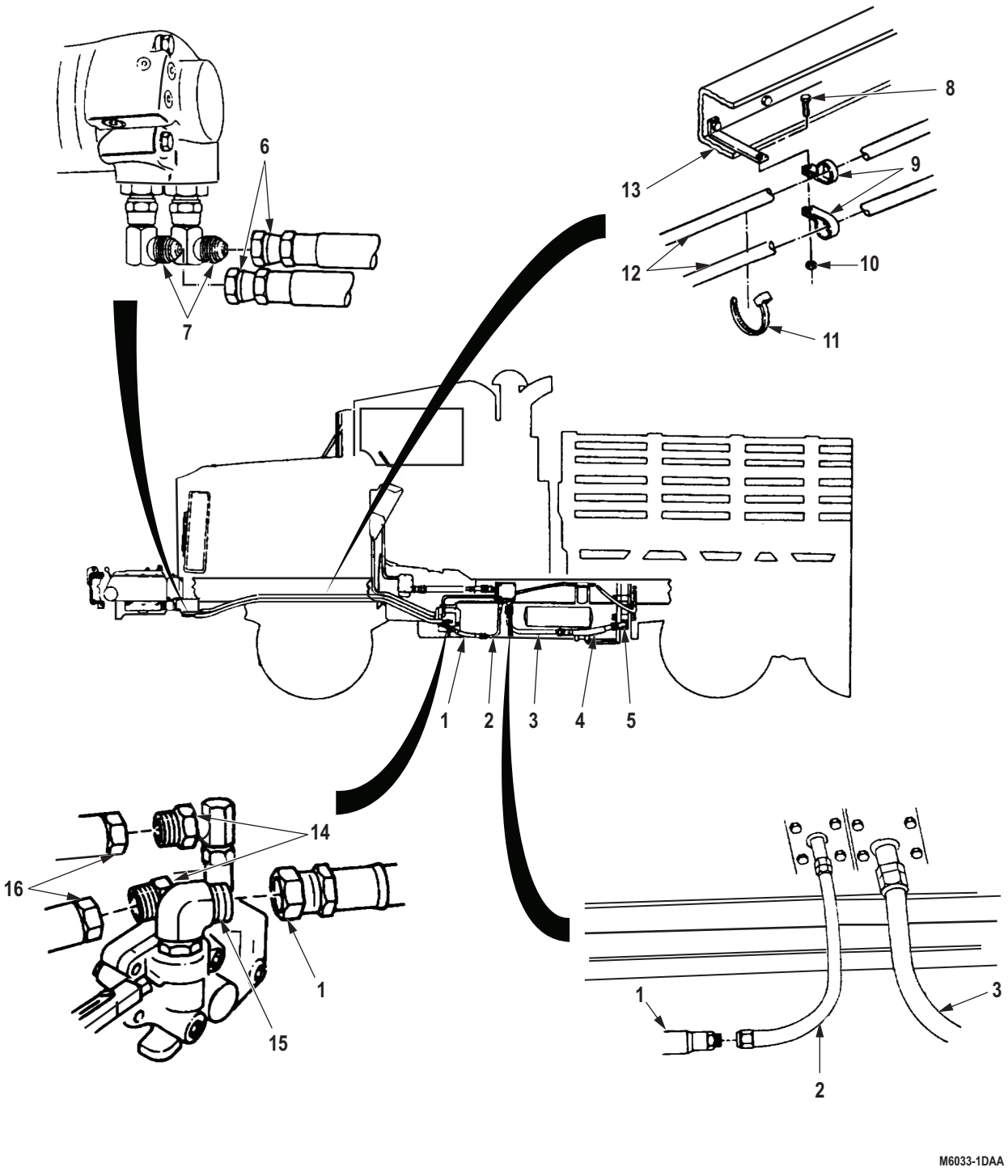


Figure 8. Hydraulic Tubes and Hoses Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Fill hydraulic oil reservoir. (Volume 5, WP 0820)
2. Start engine. Operate winch and check for leaks and proper operation. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
BOOM REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
- Tool Kit, General Mechanic's: Automotive (Volume 5, WP 0826, Table 1, Item 56)
- Chain Assembly (Volume 5, WP 0826, Table 1, Item 15)
- Lifting Device
- Multiplier, Torque (Volume 5, WP 0826, Table 1, Item 35)
- Wrench, Torque, Click, Ratcheting, 1/2" Drive, 250 Ft-Lb (Volume 5, WP 0826, Table 1, Item 63)
- Wrench, Torque, Click, Ratcheting, 3/8" Drive, 75 Ft-Lb (Volume 5, WP 0826, Table 1, Item 62)

Materials/Parts
- Cap Set, Protective, Dust and Moisture Seal (Volume 5, WP 0825, Table 1, Item 13)

Materials/Parts (cont.)
- Locknut (Volume 5, WP 0827, Table 1, Item 324) Qty: 1
- Lockwasher (Volume 5, WP 0827, Table 1, Item 405) Qty: 2

Personnel Required
(2)

References
Volume 5, WP 0820

Equipment Condition
- Parking brake set. (TM 9-2320-272-10)
- Boom floodlight wire removed. (Volume 2, WP 0331)
- Hydraulic oil reservoir drained. (WP 0703)
- Hoist winch removed. (WP 0696)

REMOVAL

WARNING



All personnel must stand clear during lifting operations. A snapped chain, or shifting or swinging load, may result in injury to personnel. Failure to comply may result in injury or death to personnel.

CAUTION

When disconnecting hydraulic lines and hoses, plug all openings to prevent dirt from entering and causing internal damage to parts.

NOTE

- Have drainage container ready to catch oil.
- Use drain pans to retain leaking/draining fluids. Refer to local procedures and plans for preventing and responding to fluid spills or leaks. Comply with local regulations when disposing of clean up material and leaked and spilled fluids.
- Tag hoses for installation.

1. Disconnect cylinder extension hose (Figure 1, Item 6) and retracting hose (Figure 1, Item 5) from two boom adapter elbows (Figure 1, Item 4).
2. Secure inner boom (Figure 1, Item 18) to outer boom (Figure 1, Item 3) with utility chain (Figure 1, Item 2) to prevent inner boom movement during hoisting operation.
3. Attach two utility chains (Figure 1, Item 2) to outer boom (Figure 1, Item 3).
4. Raise outer boom (Figure 1, Item 3) until weight of boom is fully supported and elevating cylinder retaining pins (Figure 1, Item 17) are free.
5. Remove two screws (Figure 1, Item 15), lockwashers (Figure 1, Item 16), and retaining pins (Figure 1, Item 17) from outer boom (Figure 1, Item 3) and two elevating cylinders (Figure 1, Item 14). Discard lockwashers.

WARNING



Before hoisting outer boom away from wrecker, ensure inner boom is properly secured to outer boom as outlined in Step (2). Failure to comply may result in injury or death to personnel.

6. Remove grease fittings (Figure 1, Items 7 and 13) from pivot pin (Figure 1, Item 8).
7. Remove locknut (Figure 1, Item 12), pivot pin (Figure 1, Item 8), two sleeve bearings (Figure 1, Item 10), and crane sheave (Figure 1, Item 11) from turntable (Figure 1, Item 9). Discard locknut.
8. Using lifting device (Figure 1, Item 1) and utility chains (Figure 1, Item 2), with assistant guiding movement, move outer boom (Figure 1, Item 3) off vehicle and onto jack stands.
9. Remove utility chains from outer boom (Figure 1, Item 3).

REMOVAL - Continued

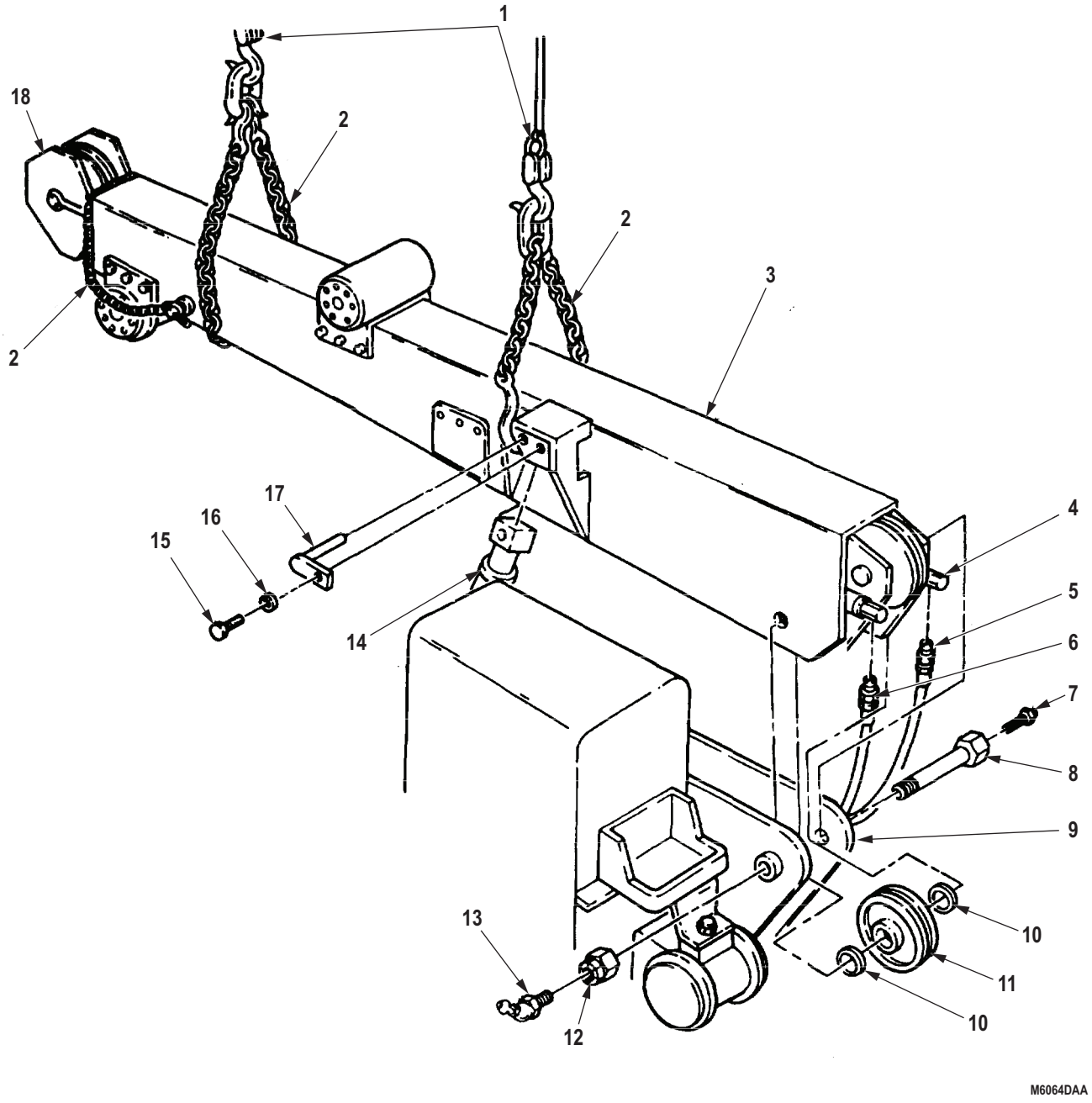


Figure 1. Boom Removal.

END OF TASK

INSTALLATION

WARNING



Before hoisting outer boom away from wrecker, ensure inner boom is properly secured to outer boom as outlined in Step (2). Failure to comply may result in injury or death to personnel.

NOTE

If installing boom assembly, use hardware from old boom.

1. Install utility chain (Figure 2, Item 2) to secure inner boom (Figure 2, Item 18) to outer boom (Figure 2, Item 3).
2. Attach two utility chains (Figure 2, Item 2) on outer boom (Figure 2, Item 3).
3. Hoist outer boom (Figure 2, Item 3) over wrecker and position on turntable (Figure 2, Item 9).
4. Assemble two sleeve bearings (Figure 2, Item 10) and sheave (Figure 2, Item 11), align sheave with holes in turntable (Figure 2, Item 9) and outer boom (Figure 2, Item 3), and install boom on turntable with pivot pin (Figure 2, Item 8) and locknut (Figure 2, Item 12). Tighten locknut 800 to 1,000 lb-ft (1,185 to 1,356 N·m).
5. Install grease fittings (Figure 2, Items 7 and 13) on pivot pin (Figure 2, Item 8).
6. Connect two elevating cylinders (Figure 2, Item 14) to boom (Figure 2, Item 3) with two retaining pins (Figure 2, Item 17), lockwashers (Figure 2, Item 16), and screws (Figure 2, Item 15). Tighten screws 44 to 61 lb-ft (60 to 83 N·m).
7. Using lifting device and utility chains, lift outer boom (Figure 2, Item 3) and disconnect shipper braces from boom.
8. Connect cylinder extension hose (Figure 2, Item 6) and retracting hose (Figure 2, Item 5) to two boom adapter elbows (Figure 2, Item 4).
9. Remove utility chains from outer boom (Figure 2, Item 3).

INSTALLATION - Continued

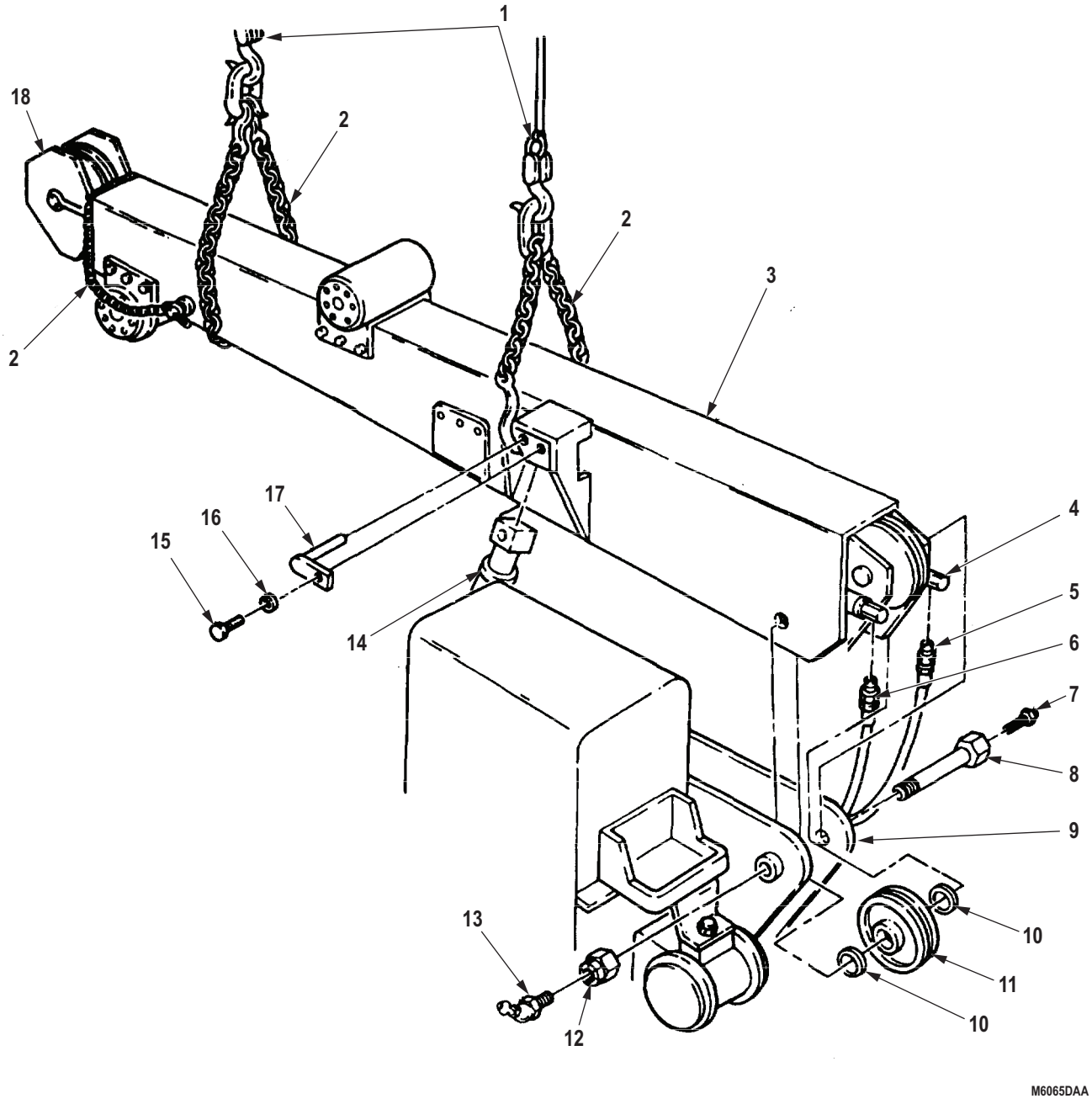


Figure 2. Boom Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install boom floodlight wire. (Volume 2, WP 0331)
2. Fill hydraulic oil reservoir to proper level. (Volume 5, WP 0820)
3. Lubricate boom. (Volume 5, WP 0820)
4. Install hoist winch. (WP 0696)
5. Operate boom through full range of motion and check for leaks and proper movement. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
INNER BOOM REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)
Chain Assembly
(Volume 5, WP 0826, Table 1, Item 15)
Lifting Device

Materials/Parts
Cotter Pin
(Volume 5, WP 0827, Table 1, Item 380)
Qty: 1
Lockwasher
(Volume 5, WP 0827, Table 1, Item 405)
Qty: 8

Personnel Required
(2)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Boom removed. (WP 0686)

REMOVAL

WARNING



- Assistant must remain at crane controls until removal operation is completed. Injury to personnel may result if boom control lever is accidentally engaged while work is being done between raised boom and swivel base. Failure to comply may result in injury or death to personnel.
- All personnel must stand clear during hoisting operations. A snapped cable, or swinging or shifting load, may occur. Failure to comply may result in injury or death to personnel.

NOTE

Extension cylinder will be removed and installed with the inner boom during this procedure.

1. Remove cotter pin (Figure 1, Item 3) and pin (Figure 1, Item 2) from extension cylinder (Figure 1, Item 4) and outer boom (Figure 1, Item 1). Discard cotter pin.
2. Remove eight screws (Figure 1, Item 6), lockwashers (Figure 1, Item 7), and two boom stops (Figure 1, Item 8) from outer boom (Figure 1, Item 1). Discard lockwashers.

WARNING



Inner boom must be supported at sheave to prevent tilting until hoist chain can be properly positioned around inner boom. Failure to comply may result in injury or death to personnel.

3. Attach lifting device (Figure 1, Item 10) to sheave (Figure 1, Item 9) of inner boom (Figure 1, Item 13).
4. While assistant monitors and adjusts lifting device (Figure 1, Item 10), slowly pull inner boom (Figure 1, Item 13) out of outer boom (Figure 1, Item 1) until utility chain (Figure 1, Item 12) can be positioned around inner boom.

NOTE

If only one lifting device is available, support must be provided under sheave end of inner boom while transferring lifting hook to utility chain on inner boom.

5. Attach lifting device (Figure 1, Item 10) to utility chain (Figure 1, Item 12) on inner boom (Figure 1, Item 13) and remove inner boom from outerboom (Figure 1, Item 1).
6. Place inner boom (Figure 1, Item 13) on jack stands (Figure 1, Item 5) and remove lifting device (Figure 1, Item 10) and utility chain (Figure 1, Item 12) from inner boom.

REMOVAL - Continued

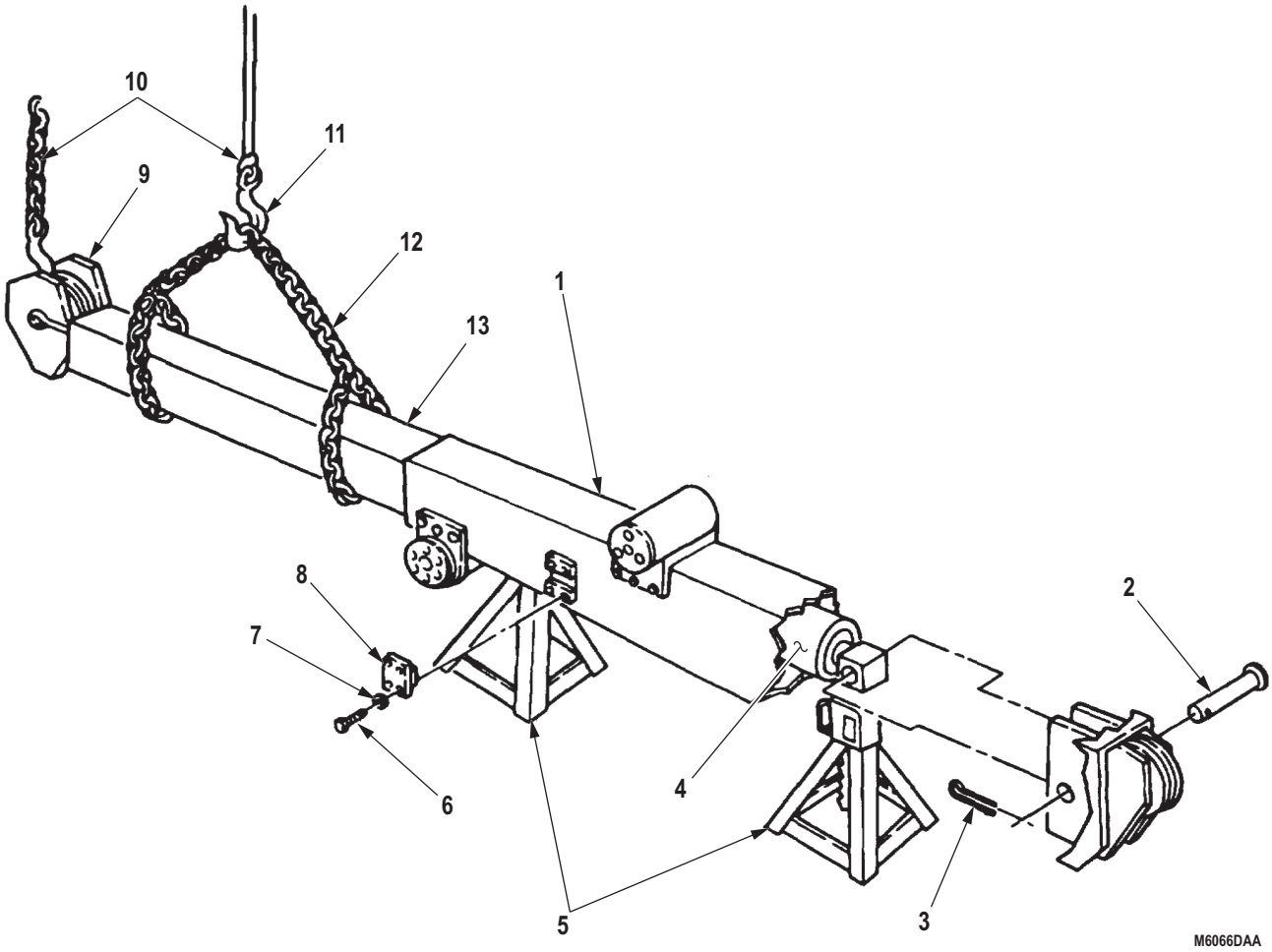


Figure 1. Inner Boom Removal.

END OF TASK

INSTALLATION

1. Attach utility chain (Figure 2, Item 12) to straddle balance point of inner boom (Figure 2, Item 13).

NOTE

- Assistant will help with Steps (2) through (5).
- Ensure pin hole in extension cylinder is parallel to top surface of inner boom.

2. Attach lifting device (Figure 2, Item 10) to chain (Figure 2, Item 12), align inner boom (Figure 2, Item 13) with outer boom (Figure 2, Item 1) and start inner boom into outer boom.

NOTE

If a second lifting device is not available, use sheave end of inner boom to permit transfer of chain and lifting device.

3. Remove chain (Figure 2, Item 12) from inner boom (Figure 2, Item 13).
4. Attach utility chain (Figure 2, Item 12) and lifting device (Figure 2, Item 10) to sheave (Figure 2, Item 9) of inner boom (Figure 2, Item 13).
5. While adjusting position of sheave (Figure 2, Item 9) end of inner boom (Figure 2, Item 13), slide inner boom into outer boom (Figure 2, Item 1) until holes in front of outer boom and extension cylinder (Figure 2, Item 4) align.
6. Install extension cylinder (Figure 2, Item 4) on outer boom (Figure 2, Item 1) with pin (Figure 2, Item 2) and cotter pin (Figure 2, Item 3).
7. Remove lifting device (Figure 2, Item 10) and chain (Figure 2, Item 12) from sheave (Figure 2, Item 9).
8. Install two boom stops (Figure 2, Item 8) on outer boom (Figure 2, Item 1) with eight lockwashers (Figure 2, Item 7) and screws (Figure 2, Item 6).

INSTALLATION - Continued

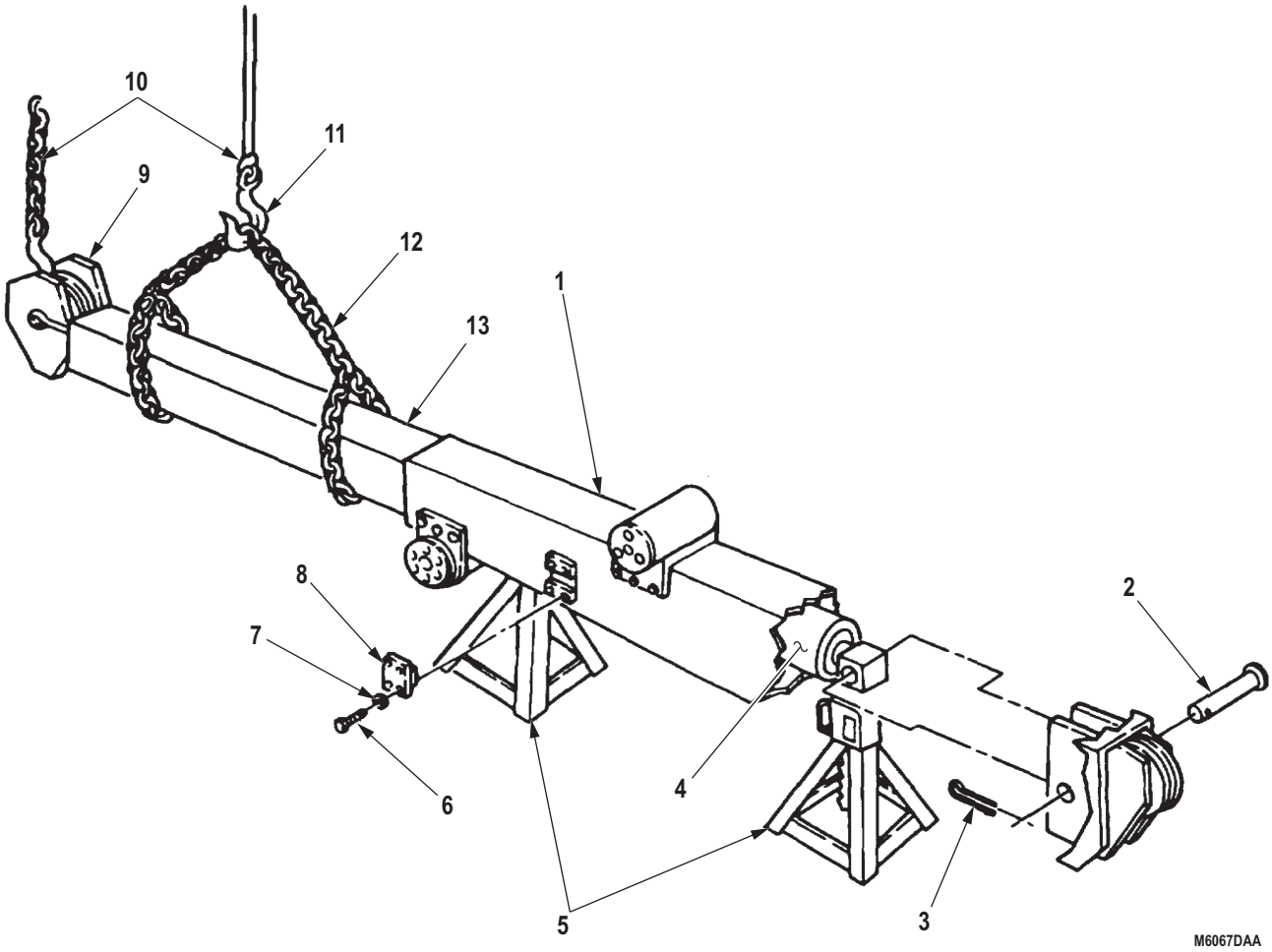


Figure 2. Inner Boom Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install boom. (WP 0686)
2. Check boom roller lateral and vertical adjustment. (WP 0688)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
BOOM ROLLER REPAIR

INITIAL SETUP:

Tools and Special Tools
- Tool Kit, General Mechanic's: Automotive
  (Volume 5, WP 0826, Table 1, Item 56)
- Press, Arbor, Hand Operated
  (Volume 5, WP 0826, Table 1, Item 39)

Materials/Parts
- Cleaning Compound, Solvent
  (Volume 5, WP 0825, Table 1, Item 16, 17)
- Lockwasher
  (Volume 5, WP 0827, Table 1, Item 405)
  Qty: 8
- Lockwasher
  (Volume 5, WP 0827, Table 1, Item 408)
  Qty: 6
- Woodruff Key
  (Volume 5, WP 0827, Table 1, Item 416)
  Qty: 2

References
- Volume 5, WP 0819

Equipment Condition
- Parking brake set. (TM 9-2320-272-10)
- Inner boom removed. (WP 0687)

REMOVAL

NOTE

Both boom rollers are removed in the same way with boom on or off the vehicle. This procedure applies to the bottom boom roller with inner boom removed.

1. Remove six screws (Figure 1, Item 2), lockwashers (Figure 1, Item 3), and roller (Figure 1, Item 4) from outer boom (Figure 1, Item 1). Discard lockwashers.
2. Thoroughly clean exterior of boom roller (Figure 1, Item 4).
3. Remove eight screws (Figure 1, Item 5), lockwashers (Figure 1, Item 6), left and right mounting caps (Figure 1, Item 7), and four shims (Figure 1, Item 8) from boom roller frame (Figure 1, Item 9). Discard lockwashers.
4. Remove two rollers (Figure 1, Item 10) and roller shaft (Figure 1, Item 13) from frame (Figure 1, Item 9).
5. Remove two rollers (Figure 1, Item 10) from roller shaft (Figure 1, Item 13).
6. Using an arbor press, remove roller bearings (Figure 1, Item 11) from two rollers (Figure 1, Item 10).
7. Remove two woodruff keys (Figure 1, Item 12) from roller shaft (Figure 1, Item 13). Discard woodruff keys.

REMOVAL - Continued

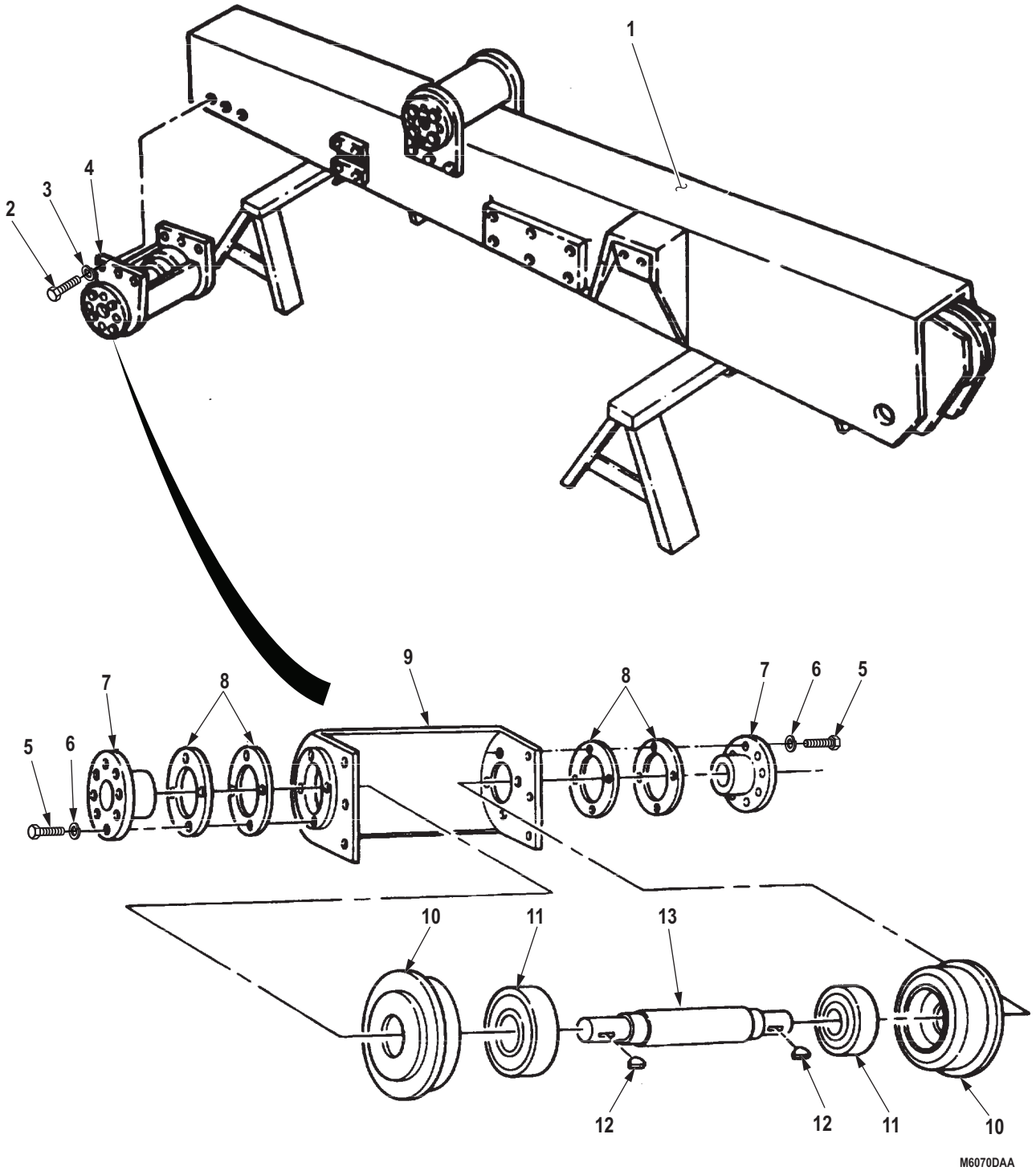


Figure 1. Boom Roller Removal.

END OF TASK

INSTALLATION

WARNING



Solvent cleaning compound is flammable and toxic. Do not use near an open flame and always have a fire extinguisher nearby when solvents are used. Use only in well-ventilated places, wear protective clothing, and dispose of cleaning rags in approved container. Failure to comply may result in damage to equipment, injury, or death to personnel.

1. Clean all boom roller parts with solvent cleaning compound (Volume 5, WP 0819).
2. Inspect roller bearings (Figure 2, Item 7) and rollers (Figure 2, Item 6) for pitting and scoring. Replace bearings or rollers (Figure 2, Item 6) if pitted or scored.
3. Inspect boom roller frame (Figure 2, Item 1) and mounting caps (Figure 2, Item 3) for cracks or damaged threads. Replace roller frame or mounting caps if cracked or threads are damaged.
4. Inspect roller shaft (Figure 2, Item 9) for scoring and breaks. Replace roller shaft if scored or broken.
5. Using arbor press, install two roller bearings (Figure 2, Item 7) on rollers (Figure 2, Item 6).
6. Install two woodruff keys (Figure 2, Item 8) in roller shaft (Figure 2, Item 9).
7. Install two rollers (Figure 2, Item 6) with bearings (Figure 2, Item 7) on roller shaft (Figure 2, Item 9).
8. Position rollers (Figure 2, Item 6) and shaft (Figure 2, Item 9) as an assembly in frame (Figure 2, Item 1).
9. Position left and right mounting caps (Figure 2, Item 3) over shims (Figure 2, Item 2) on frame (Figure 2, Item 1).
10. Measure clearance between mounting caps (Figure 2, Item 3) and rollers (Figure 2, Item 6). Clearance should be 0.062 to 0.125 in. (1.6 to 3.2 mm). If clearance is more than above, remove one or more shims (Figure 2, Item 2). If clearance is less than allowable, add one or more shims.
11. Install left and right mounting caps (Figure 2, Item 3) on frame (Figure 2, Item 1) with eight lockwashers (Figure 2, Item 4) and screws (Figure 2, Item 5).
12. Install boom roller (Figure 2, Item 11) on outer boom (Figure 2, Item 10) with six lockwashers (Figure 2, Item 12) and screws (Figure 2, Item 13).

INSTALLATION - Continued

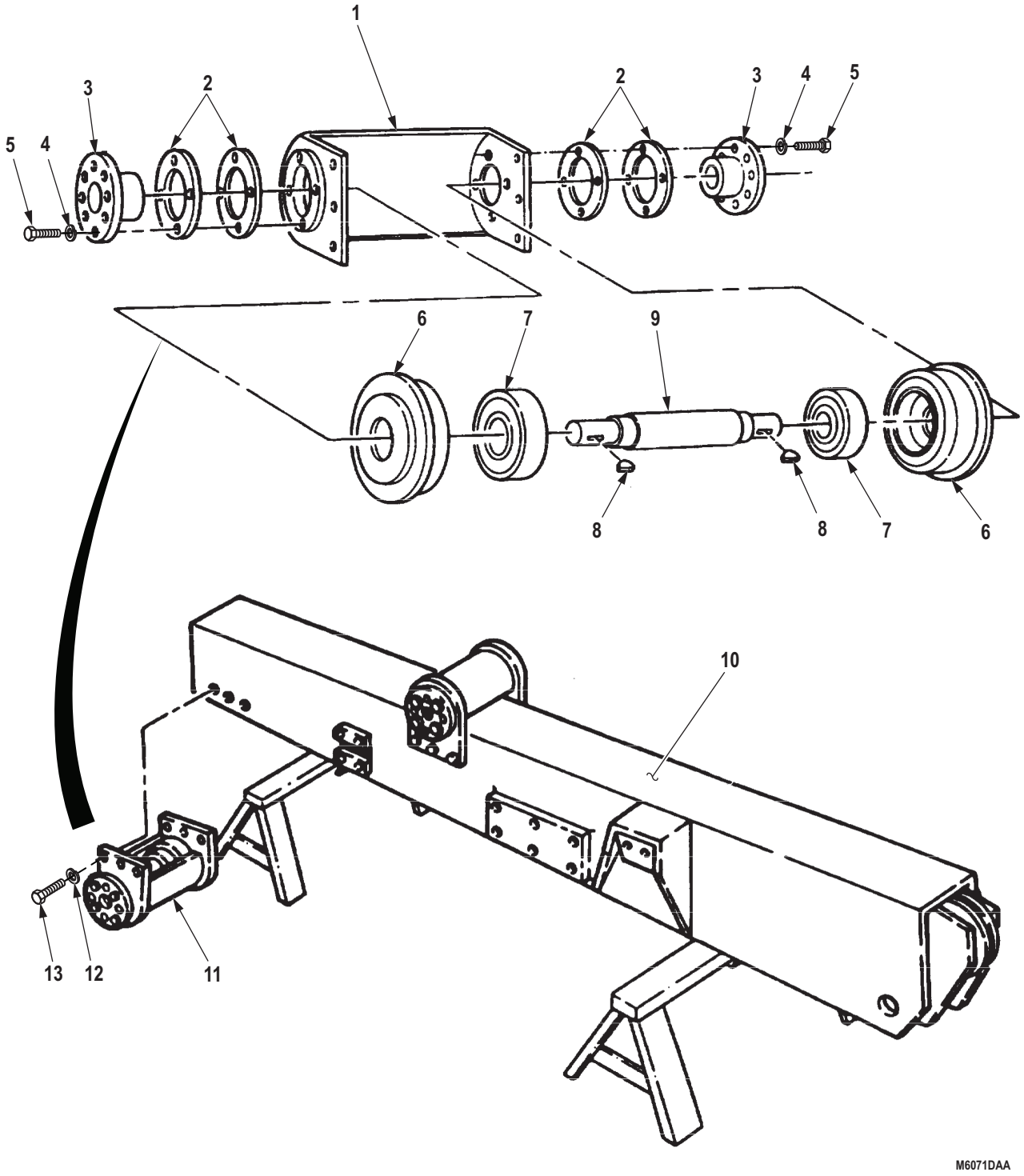


Figure 2. Boom Roller Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

Install inner boom. (WP 0687)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
CRANE SWIVEL VALVE REPAIR

INITIAL SETUP:

Tools and Special Tools

Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)
Wrench, Torque, Click, Ratcheting, 1/2" Drive, 250 Ft-Lb
(Volume 5, WP 0826, Table 1, Item 63)

Materials/Parts

Cap Set, Protective, Dust and Moisture Seal
(Volume 5, WP 0825, Table 1, Item 13)
Lockwasher
(Volume 5, WP 0827, Table 1, Item 186)
Qty: 6
Lockwasher
(Volume 5, WP 0827, Table 1, Item 405)
Qty: 1
Lockwasher
(Volume 5, WP 0827, Table 1, Item 425)
Qty: 1

Personnel Required

(2)

Equipment Condition

Parking brake set. (TM 9-2320-272-10)
Boom removed. (WP 0686)
Battery ground cables disconnected.
(Volume 2, WP 0350)

REMOVAL

NOTE

Tag all parts for installation.

1. Disconnect wires (Figure 1, Items 4 and 5) of electrical swivel harness (Figure 1, Item 3) from crane wiring harness (Figure 1, Item 6).
2. Remove nut (Figure 1, Item 7), ground wire (Figure 1, Item 8), nut (Figure 1, Item 7), and lockwasher (Figure 1, Item 9) from frame (Figure 1, Item 10) through underside of vehicle. Discard lockwasher.
3. Disconnect swivel wire harness (Figure 1, Item 12), wires (Figure 1, Items 13 and 16), and ground wire (Figure 1, Item 14) from floodlight harness (Figure 1, Item 15).
4. Remove screw (Figure 1, Item 1), lockwasher (Figure 1, Item 2), and washer (Figure 1, Item 17) from electrical swivel (Figure 1, Item 11). Discard lockwasher.

REMOVAL - Continued

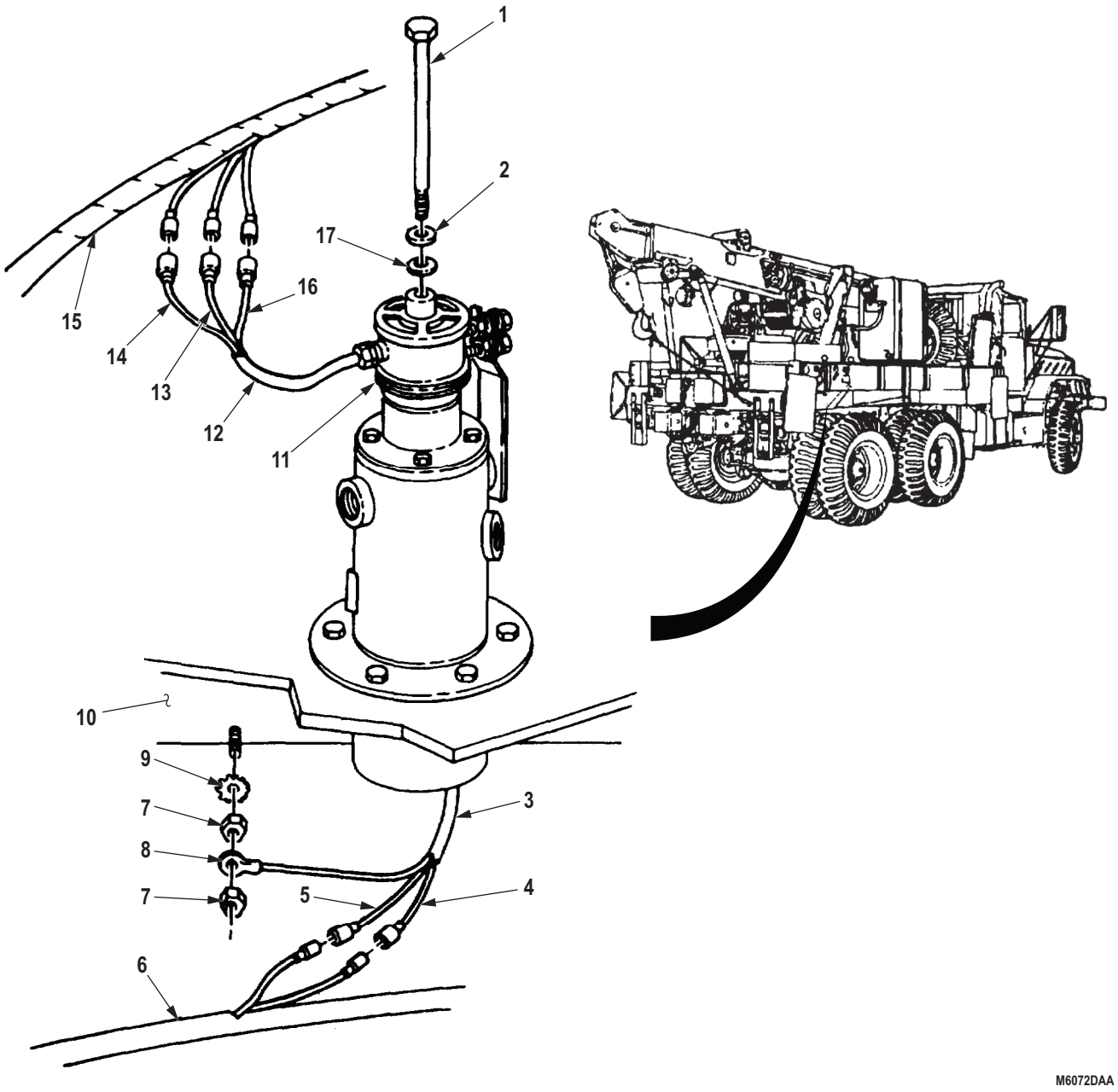


Figure 1. Wiring Harness Removal.

REMOVAL - Continued

WARNING



All personnel must stand clear during lifting operations. A snapped chain, or shifting or swinging load, may result in injury to personnel. Failure to comply may result in injury or death to personnel.

CAUTION

When disconnecting hydraulic lines and hoses, plug all openings to prevent dirt from entering and causing internal damage to parts.

NOTE

- Have drainage container ready to catch oil.
- Use drain pans to retain leaking/draining fluids. Refer to local procedures and plans for preventing and responding to fluid spills or leaks. Comply with local regulations when disposing of clean up material and leaked and spilled fluids.
- Tag all hydraulic lines and fittings for installation.

5. Disconnect hydraulic lines (Figure 2, Items 7, 10, 13, and 15) from lower end of hydraulic swivel valve (Figure 2, Item 3).
6. Remove adapter fittings (Figure 2, Items 6, 8, 9, 11, 12, 14, 16, and 17) from lower end of hydraulic swivel valve (Figure 2, Item 3).
7. Disconnect hydraulic lines (Figure 2, Items 1 and 18) from hydraulic swivel valve (Figure 2, Item 3).
8. Disconnect hydraulic tube (Figure 2, Item 5) from elevating cylinder tee (Figure 2, Item 4) and swivel valve (Figure 2, Item 3).
9. Remove adapter fittings (Figure 2, Items 2 and 19) from hydraulic swivel valve (Figure 2, Item 3).

REMOVAL - Continued

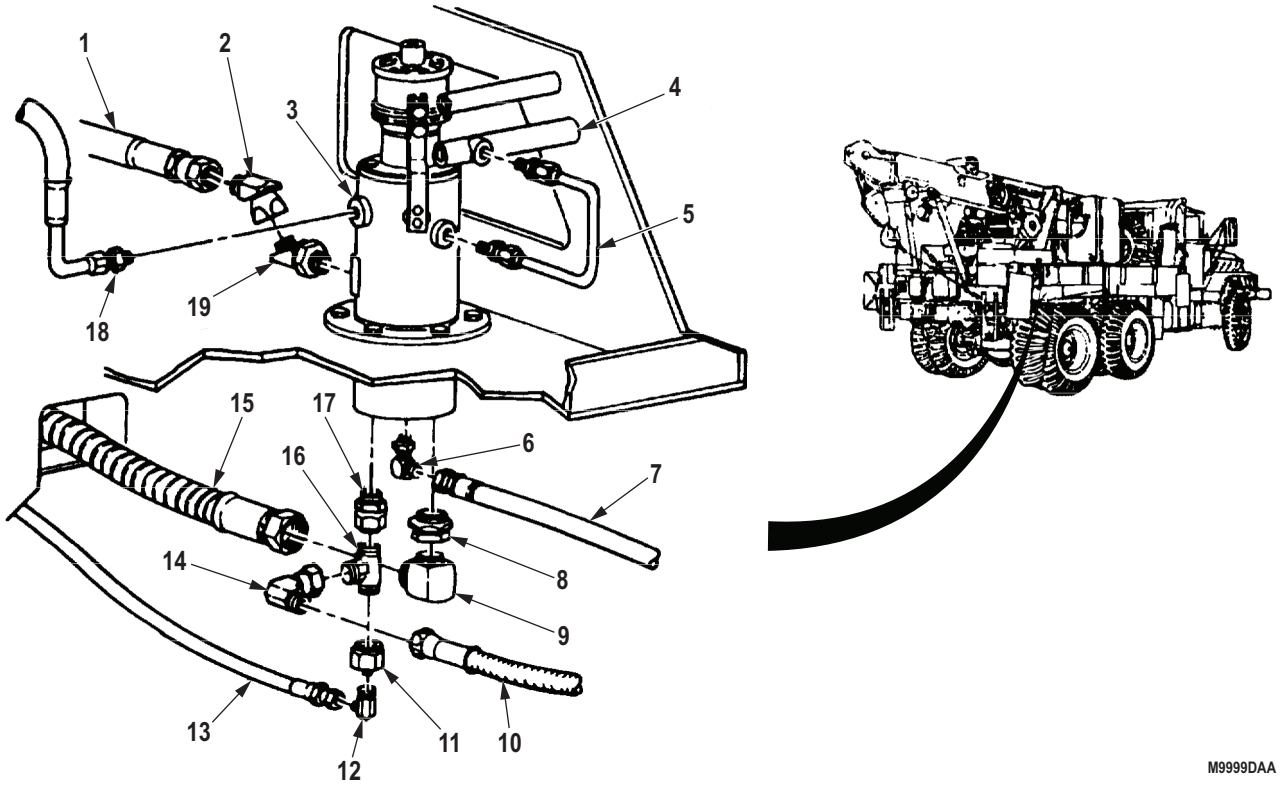


Figure 2. Crane Swivel Valve Removal.

REMOVAL - Continued

10. Remove six screws (Figure 3, Item 3) and lockwashers (Figure 3, Item 4) from hydraulic swivel valve (Figure 3, Item 6) and turntable (Figure 3, Item 5). Discard lockwashers.
11. Install utility chain (Figure 3, Item 2) on hydraulic swivel valve (Figure 3, Item 6).

NOTE

Assistant will assist with Step (8).

12. Attach hoist hook (Figure 3, Item 1) to chain (Figure 3, Item 2) and lift valve (Figure 3, Item 6) from turntable (Figure 3, Item 5).
13. Remove utility chain (Figure 3, Item 2) and hoist hook (Figure 3, Item 1) from hydraulic swivel valve (Figure 3, Item 6).

REMOVAL - Continued

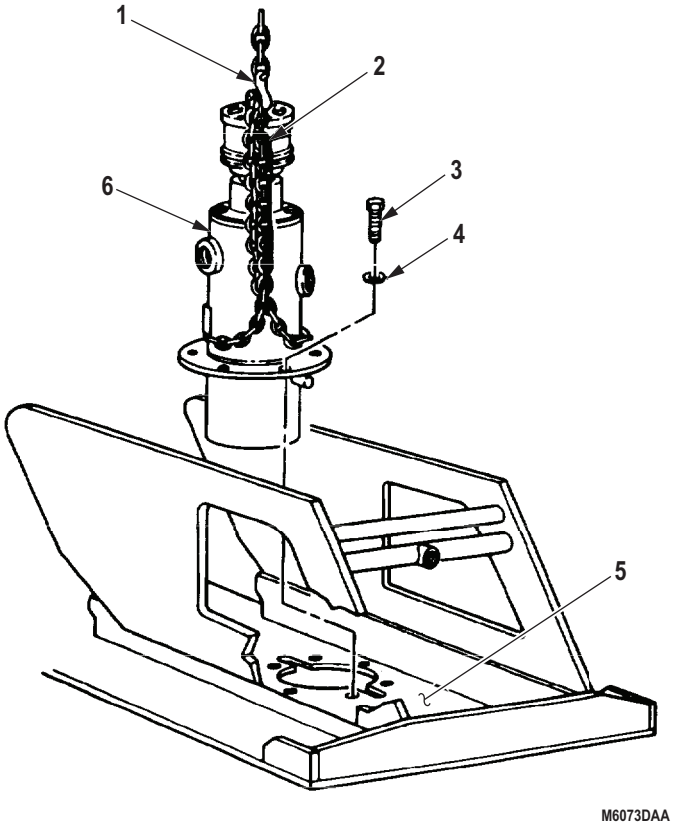


Figure 3. Crane Swivel Valve Removal.

END OF TASK

INSTALLATION

1. Install utility chain (Figure 4, Item 2) and hoist hook (Figure 4, Item 1) on hydraulic swivel valve (Figure 4, Item 8).

WARNING



All personnel must stand clear during lifting operations. A snapped chain, or shifting or swinging load, may result in injury to personnel. Failure to comply may result in injury or death to personnel.

NOTE

Assistant will help with Step (2).

2. Align valve guide pins (Figure 4, Item 5) on swivel valve (Figure 4, Item 8) with slots (Figure 4, Item 7) in turntable (Figure 4, Item 6) and install with six lockwashers (Figure 4, Item 4) and screws (Figure 4, Item 3). Tighten screws 44 to 61 lb-ft (60 to 83 N·m).
3. Remove hoist (Figure 4, Item 1) hook and utility chain (Figure 4, Item 2) from hydraulic swivel valve (Figure 4, Item 8).

INSTALLATION - Continued

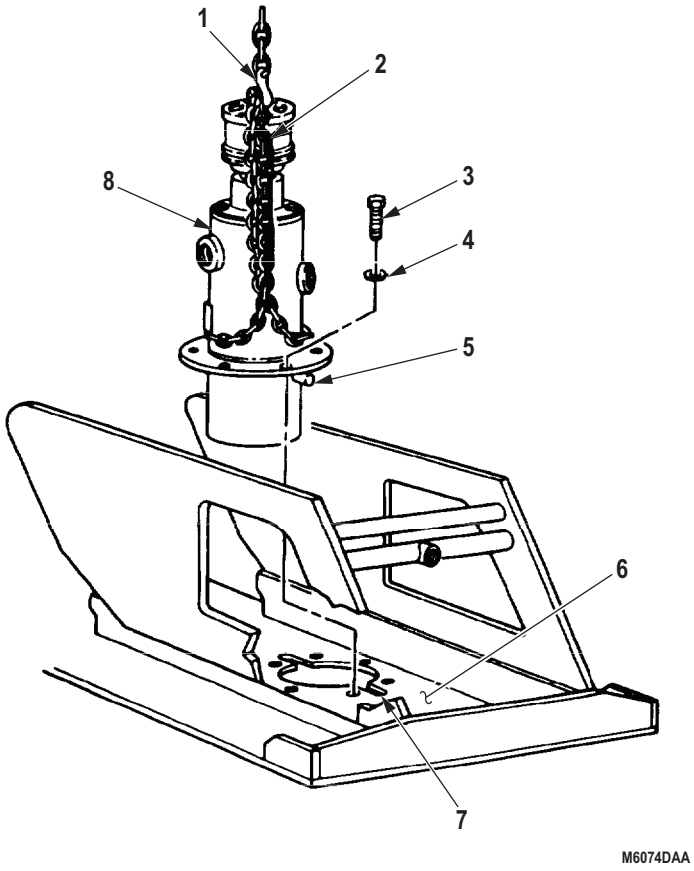


Figure 4. Crane Swivel Valve Installation.

INSTALLATION - Continued

4. Install adapter fitting (Figure 5, Item 17) on swivel valve (Figure 5, Item 1) and adapter fitting (Figure 5, Item 19) on adapter fitting.
5. Connect hydraulic tube (Figure 5, Item 3) to swivel valve (Figure 5, Item 1) and elevating cylinder tee (Figure 5, Item 2).
6. Connect hydraulic lines (Figure 5, Items 16 and 18) to hydraulic swivel valve (Figure 5, Item 1).
7. Install adapter fittings (Figure 5, Items 4, 6, 7, 9, 10, 12, 14, and 15) on lower end of hydraulic swivel valve (Figure 5, Item 1).
8. Connect hydraulic lines (Figure 5, Items 5, 8, 11, and 13) to fittings on lower end of hydraulic swivel valve (Figure 5, Item 1).

INSTALLATION - Continued

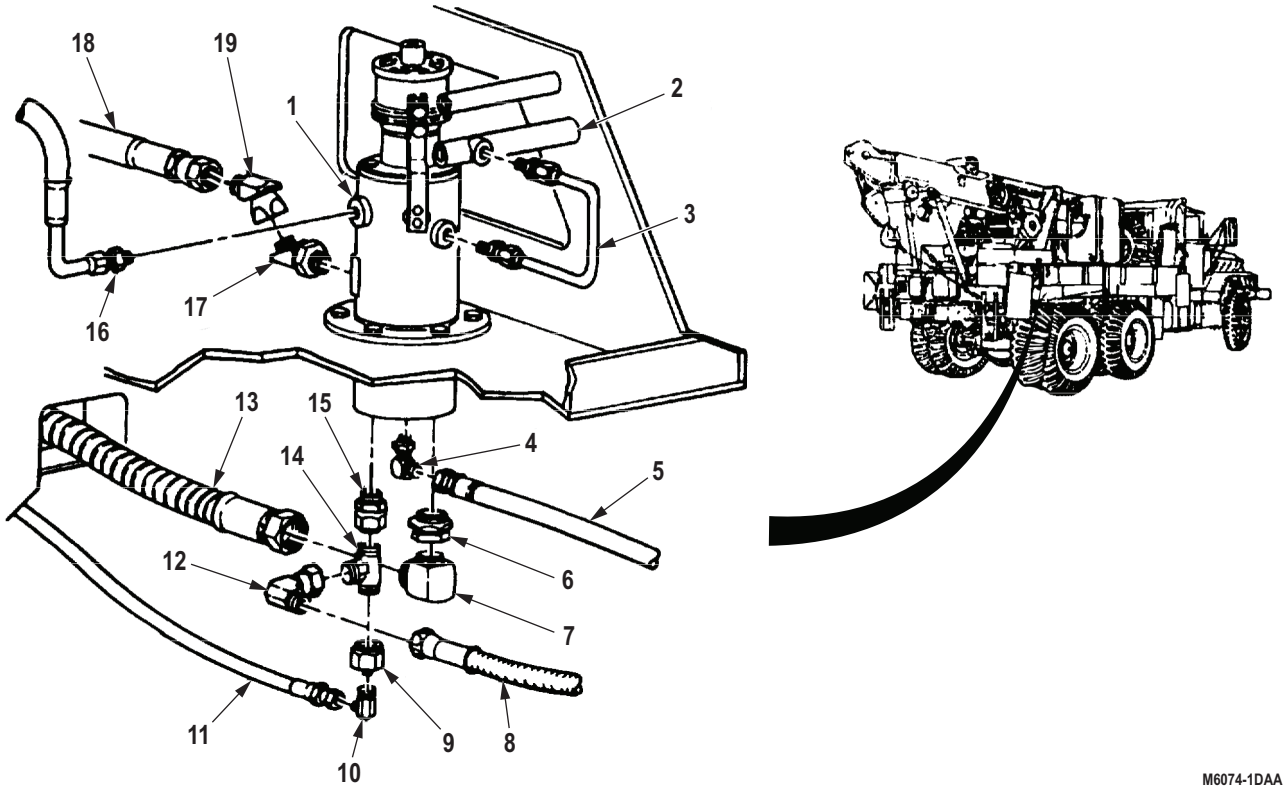


Figure 5. Crane Swivel Valve Installation.

END OF TASK

WIRING HARNESS CONNECTION

1. Install washer (Figure 6, Item 17), lockwasher (Figure 6, Item 2), and screw (Figure 6, Item 1) on electrical swivel (Figure 6, Item 11).
2. Connect wires (Figure 6, Items 13 and 16), ground wire (Figure 6, Item 14), and swivel wire harness (Figure 6, Item 12) to floodlight harness (Figure 6, Item 15).
3. Connect wires (Figure 6, Items 4 and 5) of swivel harness (Figure 6, Item 3) to crane wiring harness (Figure 6, Item 6) at underside of vehicle.
4. At underside of vehicle, install lockwasher (Figure 6, Item 9), nut (Figure 6, Item 7), ground wire (Figure 6, Item 8), and nut (Figure 6, Item 7) on frame (Figure 6, Item 10).

WIRING HARNESS CONNECTION - Continued

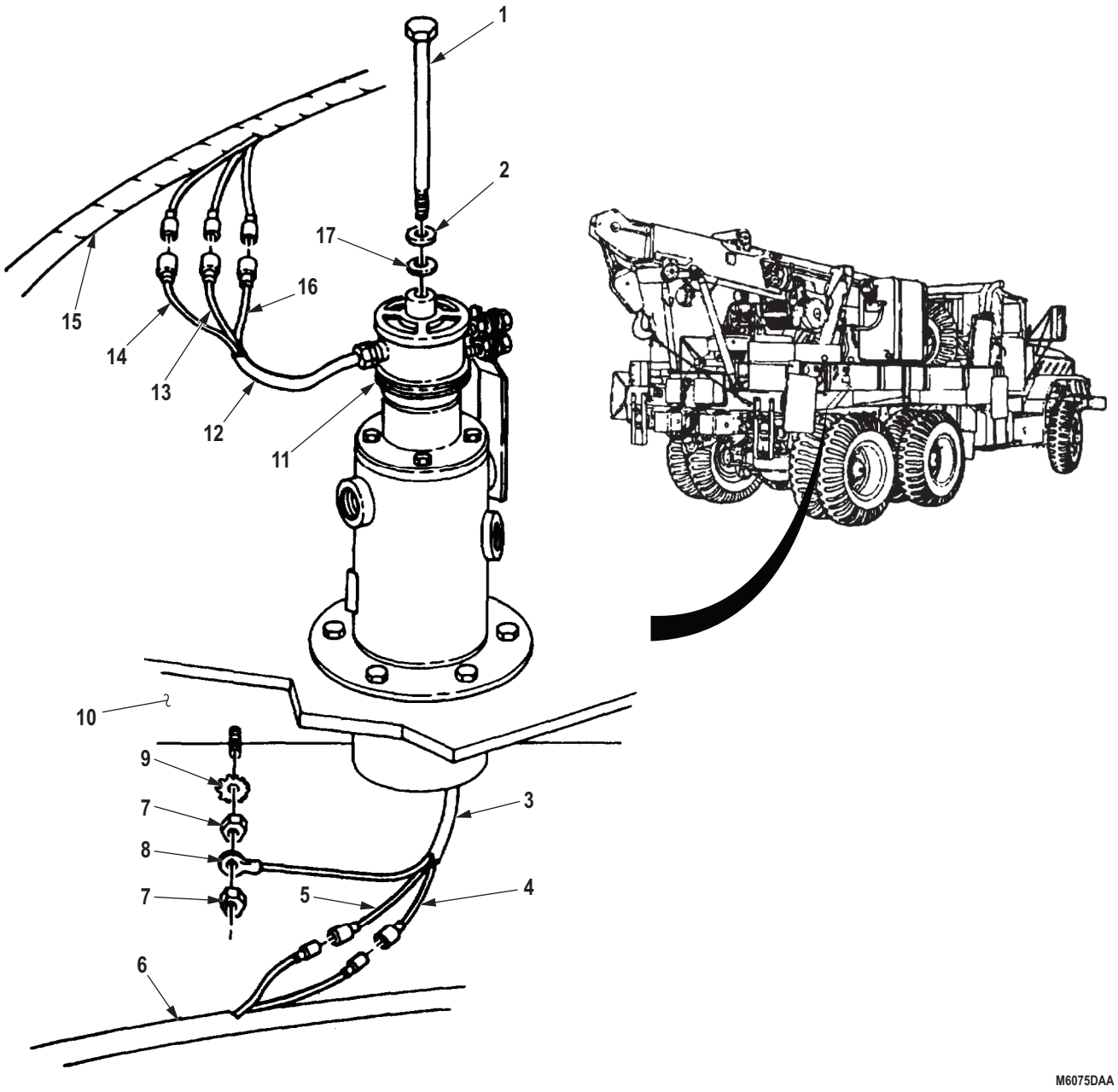


Figure 6. Wiring Harness Connections.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install boom and check for leaks. (WP 0686)
2. Connect battery ground cables. (Volume 2, WP 0350)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
CRANE HYDRAULIC SWING MOTOR REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)
Wrench, Torque, Click, Ratcheting, 1/2" Drive, 250 Ft-Lb
(Volume 5, WP 0826, Table 1, Item 63)

Materials/Parts
Cap Set, Protective, Dust and Moisture Seal
(Volume 5, WP 0825, Table 1, Item 13)
Lockwasher
(Volume 5, WP 0827, Table 1, Item 408)
Qty: 4

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

REMOVAL

CAUTION

When disconnecting hydraulic lines, plug all openings to prevent dirt from entering and causing internal damage to parts.

NOTE

- Have drainage container ready to catch oil.
- Use drain pans to retain leaking/draining fluids. Refer to local procedures and plans for preventing and responding to fluid spills or leaks. Comply with local regulations when disposing of clean up material and leaked and spilled fluids.
- Tag all hydraulic flex lines and adapter elbows for installation.

1. Disconnect hydraulic flex lines (Figure 1, Items 1 and 2) from elbows (Figure 1, Items 3 and 4).
2. Remove four screws (Figure 1, Item 7) and lockwashers (Figure 1, Item 6) from swing motor (Figure 1, Item 5) and gearcase (Figure 1, Item 8). Discard lockwashers.
3. Remove swing motor (Figure 1, Item 5) from gearcase (Figure 1, Item 8).
4. Remove elbows (Figure 1, Items 3 and 4) from swing motor (Figure 1, Item 5).

REMOVAL - Continued

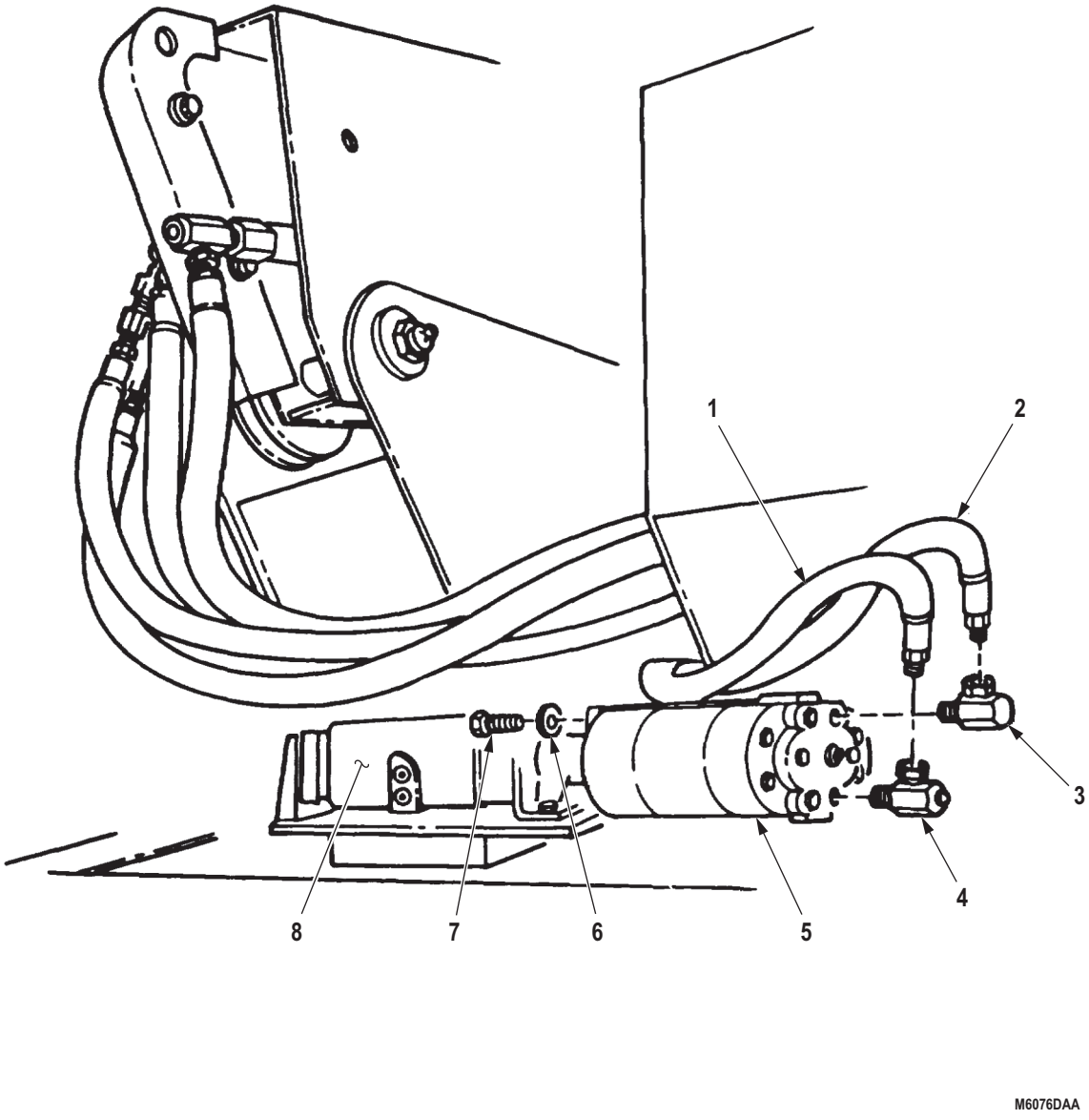


Figure 1. Crane Hydraulic Swing Motor Removal.

END OF TASK

INSTALLATION

1. Install adapter elbows (Figure 2, Items 3 and 4) on swing motor (Figure 2, Item 5).
2. Install swing motor (Figure 2, Item 5) on gearcase (Figure 2, Item 8) with four lockwashers (Figure 2, Item 6) and screws (Figure 2, Item 7). Tighten screws 44 to 61 lb-ft (60 to 83 N·m).
3. Connect hydraulic flex lines (Figure 2, Items 1 and 2) to elbows (Figure 2, Items 3 and 4).

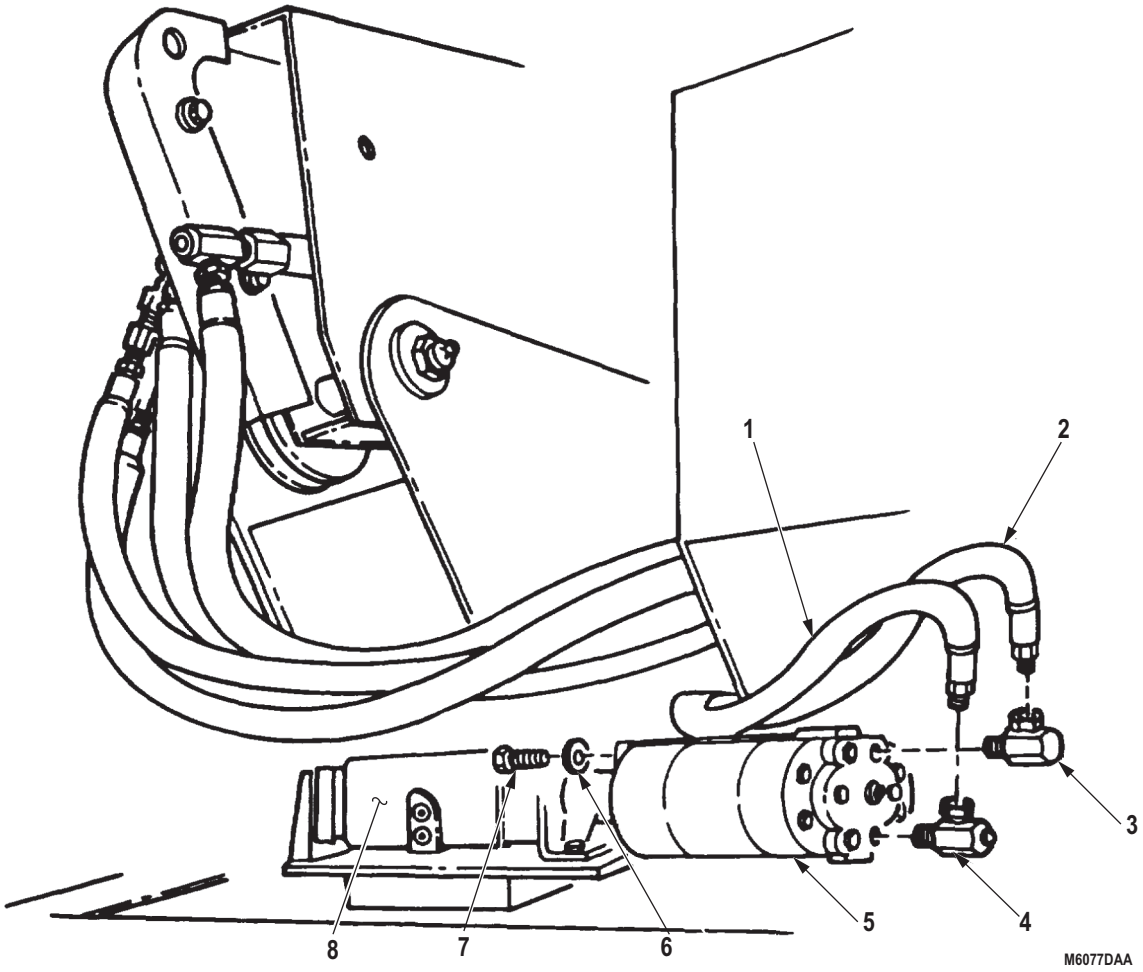


Figure 2. Crane Hydraulic Swing Motor Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Fill hydraulic oil reservoir to proper oil level. (TM 9-2320-272-10)
2. Operate swing control lever to check swing motor for proper operation. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
CRANE SWING GEARCASE REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Lockwasher
(Volume 5, WP 0827, Table 1, Item 408)
Qty: 6

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

Equipment Condition (cont.)
Crane hydraulic swing motor removed.
(WP 0690)

REMOVAL

1. Remove six screws (Figure 1, Item 4) and lockwashers (Figure 1, Item 3) from crane swing gearcase (Figure 1, Item 1) and turntable (Figure 1, Item 2). Discard lockwashers.
2. Remove gearcase (Figure 1, Item 1) from turntable (Figure 1, Item 2).

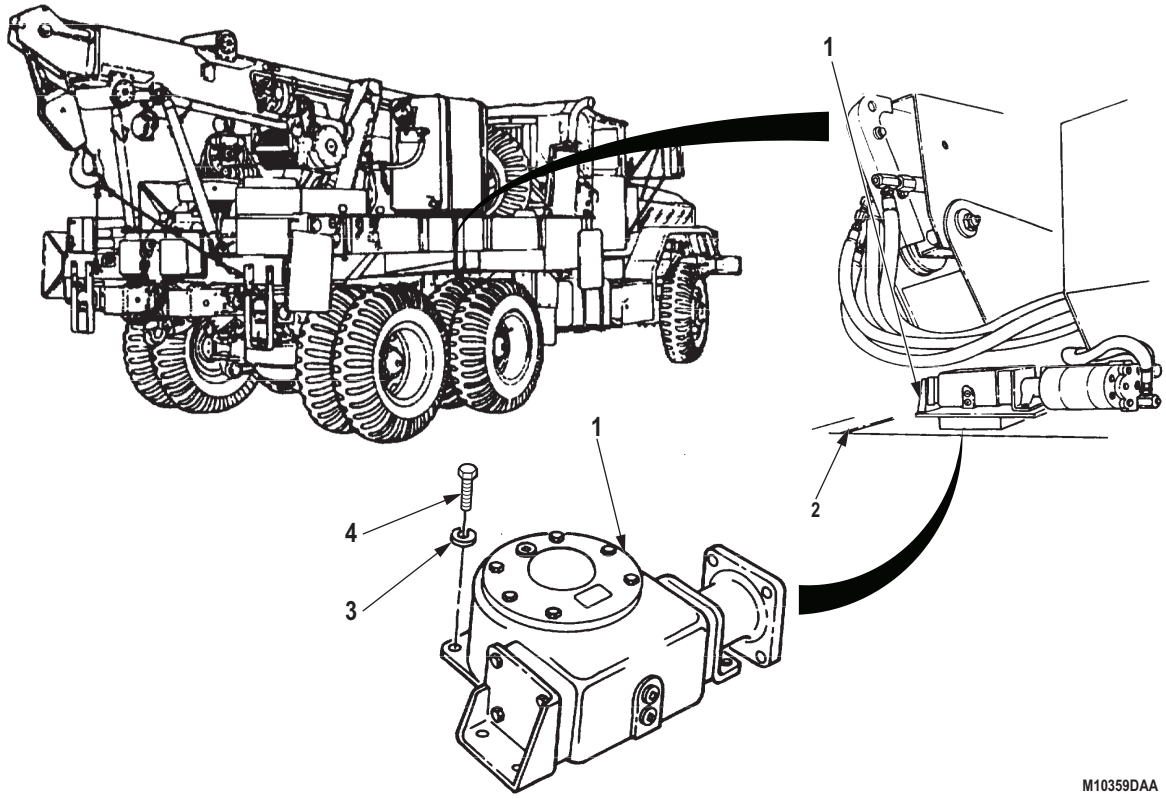


Figure 1. Crane Swing Gearcase Removal.

END OF TASK

INSTALLATION

Install gearcase (Figure 2, Item 1) on turntable (Figure 2, Item 2) with six lockwashers (Figure 2, Item 3) and screws (Figure 2, Item 4).

INSTALLATION - Continued

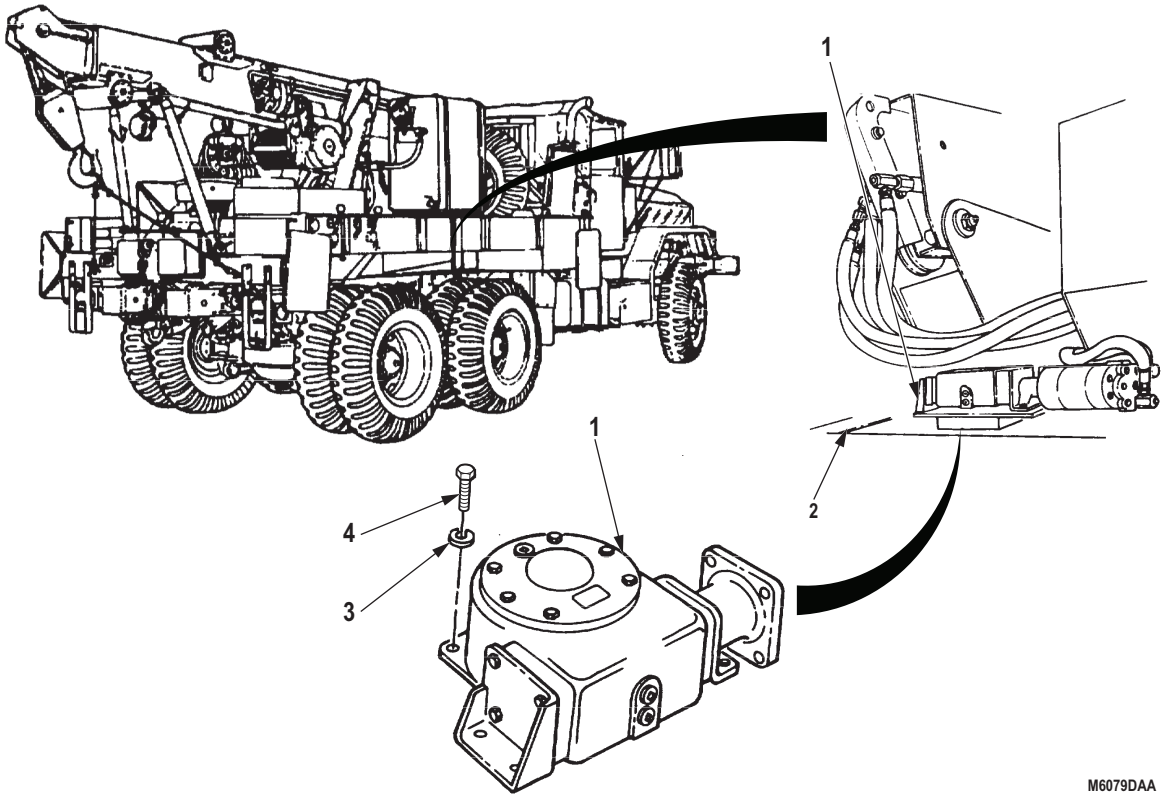


Figure 2. Crane Swing Gearcase Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

Install crane hydraulic swing motor. (WP 0690)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
TURNTABLE REPAIR

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)
Chain Assembly
(Volume 5, WP 0826, Table 1, Item 15)
Hoist Assembly
Wrench, Torque, Click, Ratcheting, 3/4" Drive, 600 Ft-Lb
(Volume 5, WP 0826, Table 1, Item 61)

Materials/Parts
Cleaning Compound, Solvent
(Volume 5, WP 0825, Table 1, Item 16, 17)
Locknut (Volume 5, WP 0827, Table 1, Item 317)
Qty: 18

Personnel Required
(2)

References
TM 9-237
Volume 5, WP 0820

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Hydraulic oil reservoir removed. (WP 0703)
Boom elevating cylinders removed. (WP 0693)
Hydraulic swivel valve removed. (WP 0689)
Crane swing gearcase removed. (WP 0691)
Gondola removed. (WP 0699)

REMOVAL

WARNING



All personnel must stand clear during lifting operations. A snapped chain, or shifting or swinging load, may result in injury to personnel. Failure to comply may result in injury or death to personnel.

1. Remove 18 locknuts (Figure 1, Item 3), screws (Figure 1, Item 5), two turntable side plates (Figure 1, Item 1), and crossover tubes (Figure 1, Item 2) from turntable base plate (Figure 1, Item 4). Discard locknuts.
2. Remove 18 screws (Figure 1, Item 8) from turntable gear and bearing (Figure 1, Item 9) and crane body (Figure 1, Item 10) by rotating turntable base plate (Figure 1, Item 4) so access hole exposes each screw.

NOTE

Assistant will help with Steps (3) and (4).

3. Attach two utility chains (Figure 1, Item 6) to turntable base plate (Figure 1, Item 4).
4. Attach lifting device (Figure 1, Item 7) to chains and lift turntable base plate (Figure 1, Item 4) away from crane body (Figure 1, Item 10).
5. Remove two utility chains (Figure 1, Item 6) and lifting device (Figure 1, Item 7) from turntable base plate (Figure 1, Item 4).

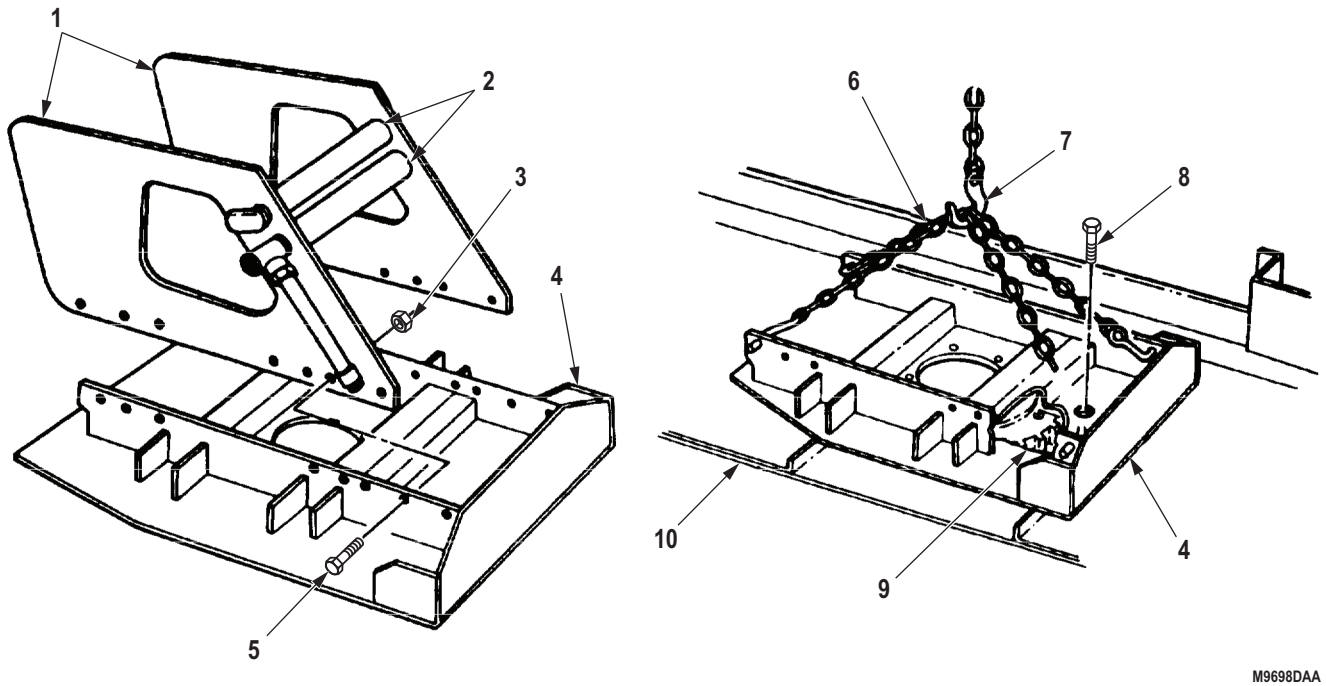


Figure 1. Turntable Removal.

REMOVAL - Continued

6. Remove 18 screws (Figure 2, Item 2) and turntable gear and bearing assembly (Figure 2, Item 1) from underside of turntable base plate (Figure 2, Item 3).

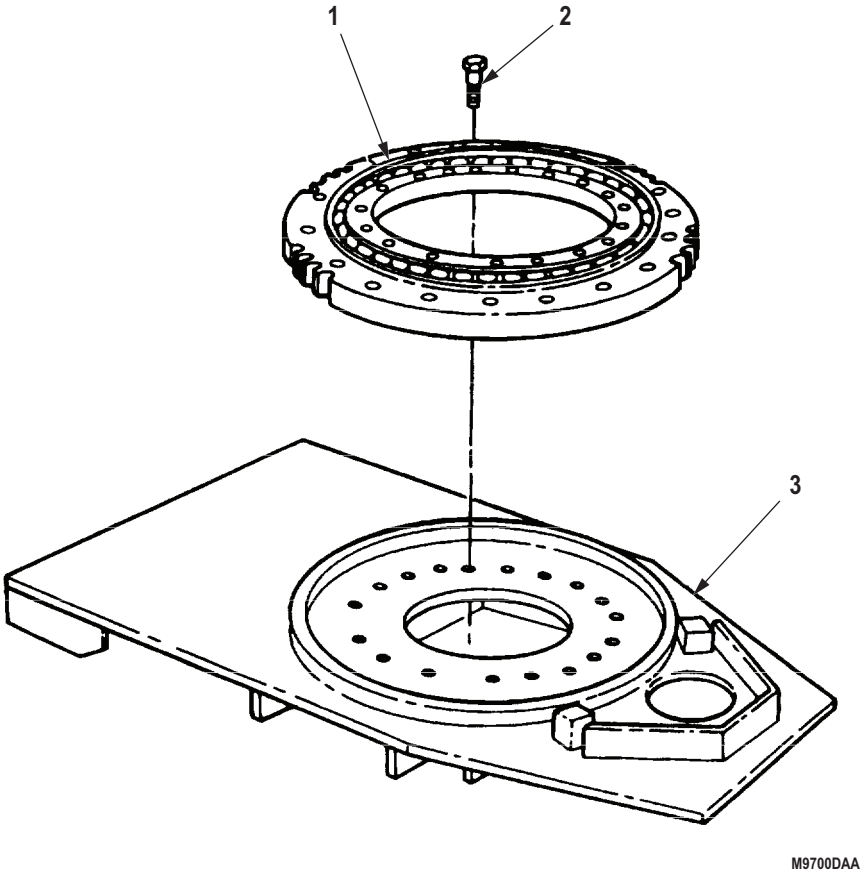


Figure 2. Turntable Gear and Bearing Removal.

END OF TASK

CLEANING AND INSPECTION

WARNING



Solvent cleaning compound is flammable and toxic. Do not use near an open flame and always have a fire extinguisher nearby when solvents are used. Use only in well-ventilated places, wear protective clothing, and dispose of cleaning rags in approved container. Failure to comply may result in damage to equipment, injury, or death to personnel.

1. Clean turntable base plate and gear and bearing assembly with solvent cleaning compound.
2. Inspect turntable base plate for cracks and breaks. If cracked or broken, refer to TM 9-237.
3. Inspect turntable gear and bearing assembly for cracks, pits, scores, and broken teeth. If cracked, pitted, scored, or broken teeth are evident, replace turntable gear and bearing assembly.

END OF TASK

INSTALLATION

1. Install turntable gear and bearing assembly (Figure 3, Item 1) on underside of turntable base plate (Figure 3, Item 3) with 18 screws (Figure 3, Item 2). Tighten screws 170 to 200 lb-ft (231 to 271 N·m).

INSTALLATION - Continued

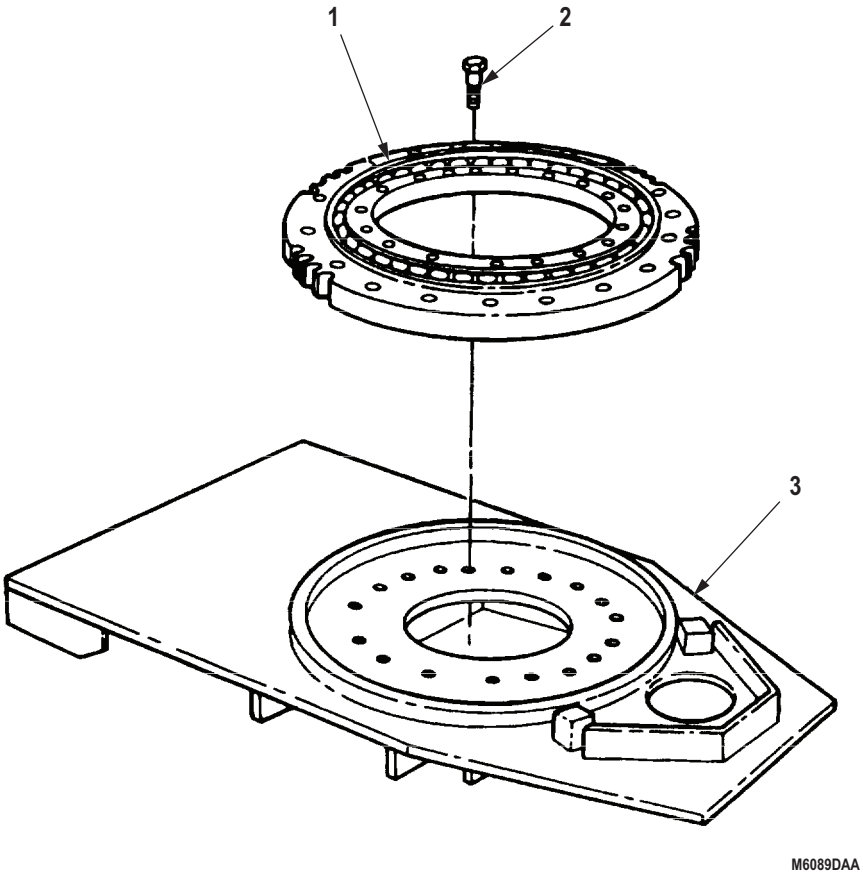


Figure 3. Turntable Gear and Bearing Installation.

INSTALLATION - Continued

WARNING



All personnel must stand clear during lifting operations. A snapped chain, or shifting or swinging load, may result in injury to personnel. Failure to comply may result in injury or death to personnel.

NOTE

Assistant will help with Steps (1) and (2).

2. Attach two utility chains (Figure 4, Item 6) to turntable base plate (Figure 4, Item 4).
3. Attach lifting device (Figure 4, Item 7) to two utility chains (Figure 4, Item 6) and lift turntable base plate (Figure 4, Item 4) onto crane body (Figure 3, Item 10).
4. Remove two utility chains and hoist hook from turntable base plate (Figure 4, Item 4).
5. Rotate turntable base plate (Figure 4, Item 4) on gear bearing assembly (Figure 4, Item 9) to expose each screw hole in turntable base plate and install on crane body (Figure 4, Item 10) with 18 screws (Figure 4, Item 5). Tighten screws 170 to 200 lb-ft (231 to 271 N·m).
6. Install turntable side plates (Figure 4, Item 1) and crossover tubes (Figure 4, Item 2) on turntable base plate (Figure 4, Item 4) with 18 screws (Figure 4, Item 5) and locknuts (Figure 4, Item 3). Tighten screws 170 to 200 lb-ft (231 to 271 N·m).

INSTALLATION - Continued

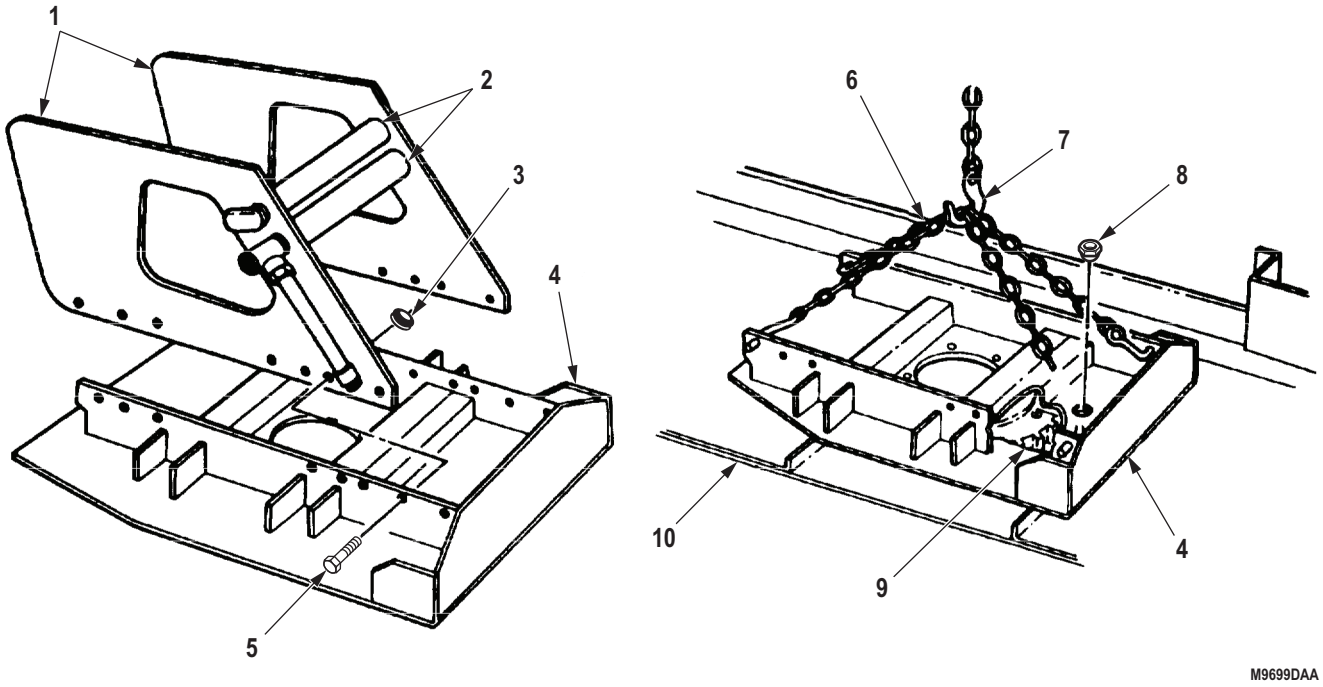


Figure 4. Turntable Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install gondola. (WP 0699)
2. Install crane swing gearcase. (WP 0691)
3. Install hydraulic swivel valve. (WP 0689)
4. Install boom elevating cylinders. (WP 0693)
5. Lubricate gear bearing. (Volume 5, WP 0820)
6. Install hydraulic oil reservoir. (WP 0703)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
BOOM ELEVATING CYLINDER REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)
Chain Assembly
(Volume 5, WP 0826, Table 1, Item 15)
Lifting Device
Wrench, Torque, Click, Ratcheting, 1/2" Drive, 250 Ft-Lb
(Volume 5, WP 0826, Table 1, Item 63)

Materials/Parts
Cap Set, Protective, Dust and Moisture Seal
(Volume 5, WP 0825, Table 1, Item 13)
Cotter Pin
(Volume 5, WP 0827, Table 1, Item 351)
Qty: 1
Lockwasher
(Volume 5, WP 0827, Table 1, Item 405)
Qty: 1

Personnel Required
(2)

References
Volume 5, WP 0820

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Boom lowered. (TM 9-2320-272-10)
Hydraulic oil reservoir drained. (WP 0703)

REMOVAL

CAUTION

When disconnecting hydraulic lines and hoses, plug all openings to prevent dirt from entering and causing internal parts damage.

NOTE

- Left and right elevating cylinders are removed and installed in the same way. Right elevating cylinder is shown.
- Have drainage container ready to catch oil.
- Use drain pans to retain leaking/draining fluids. Refer to local procedures and plans for preventing and responding to fluid spills or leaks. Comply with local regulations when disposing of clean up material and leaked and spilled fluids.
- Tag lines for installation.

1. Disconnect cylinder oil supply line (Figure 1, Item 6) and oil return line (Figure 1, Item 5) from cylinder adapter fitting (Figure 1, Item 11) and snubber valve (Figure 1, Item 10) at bottom of elevating cylinder (Figure 1, Item 12).

WARNING



- Assistant must remain at crane controls until removal operation is completed. Injury to personnel may result if boom control lever is accidentally engaged while work is being done between raised boom and swivel base. Failure to comply may result in injury or death to personnel.
- All personnel must stand clear during hoisting operations. A snapped cable, or swinging or shifting load, may occur. Failure to comply may result in injury or death to personnel.

2. Using chain (Figure 1, Item 13) and lifting device (Figure 1, Item 14), lift boom (Figure 1, Item 1) until boom weight is fully supported and upper retaining pin (Figure 1, Item 2) is free.
3. Remove screw (Figure 1, Item 4), lockwasher (Figure 1, Item 3), and upper retaining pin (Figure 1, Item 2) from elevating cylinder (Figure 1, Item 12) and boom (Figure 1, Item 1). Discard lockwasher.

WARNING



Elevating cylinder is heavy. Remove with the aid of assistant and a lifting device. Failure to comply may result in injury or death to personnel.

4. Remove cotter pin (Figure 1, Item 7), lower retaining pin (Figure 1, Item 8), and elevating cylinder (Figure 1, Item 12) from turntable (Figure 1, Item 9). Discard cotter pin.
5. Using chain (Figure 1, Item 13) and lifting device (Figure 1, Item 14), raise boom (Figure 1, Item 1) and install crane shipper braces (TM 9-2320-272-10).

REMOVAL - Continued

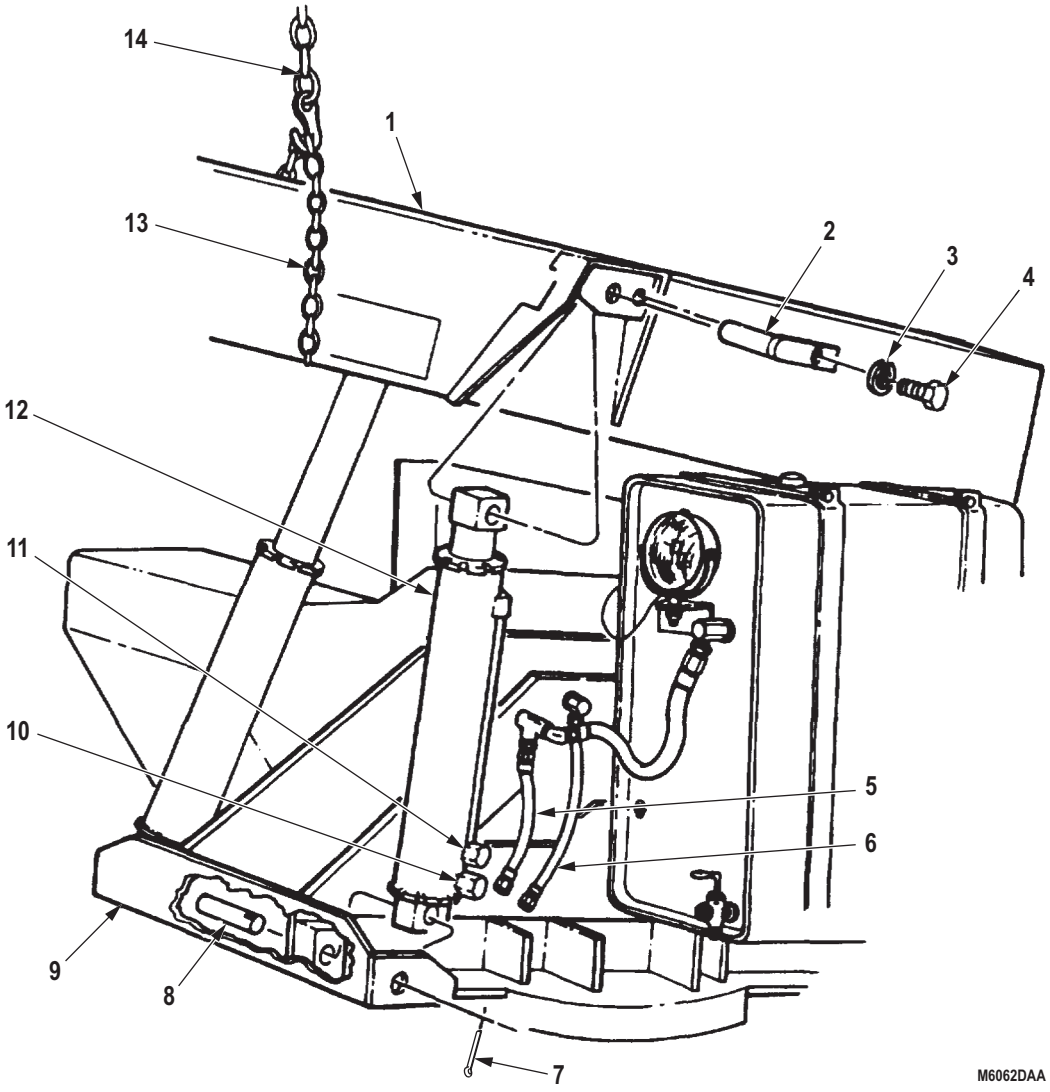


Figure 1. Boom Elevating Cylinder Removal.

END OF TASK

INSTALLATION

1. Using utility chain (Figure 2, Item 13) and lifting device (Figure 2, Item 14), raise boom (Figure 2, Item 1) and remove shipper braces (TM 9-2320-272-10).
2. Install elevating cylinder (Figure 2, Item 12) on turntable (Figure 2, Item 9) with lower retaining pin (Figure 2, Item 8) and cotter pin (Figure 2, Item 7).
3. Install elevating cylinder (Figure 2, Item 12) on boom (Figure 2, Item 1) with upper retaining pin (Figure 2, Item 2), lockwasher (Figure 2, Item 3), and screw (Figure 2, Item 4). Tighten screw 44 to 61 lb-ft (60 to 83 N·m).
4. Connect cylinder oil supply line (Figure 2, Item 6) to snubber valve (Figure 2, Item 10).
5. Connect oil return (Figure 2, Item 5) line to cylinder adapter fitting (Figure 2, Item 11).
6. Remove lifting device and chain from boom (Figure 2, Item 1).

INSTALLATION - Continued

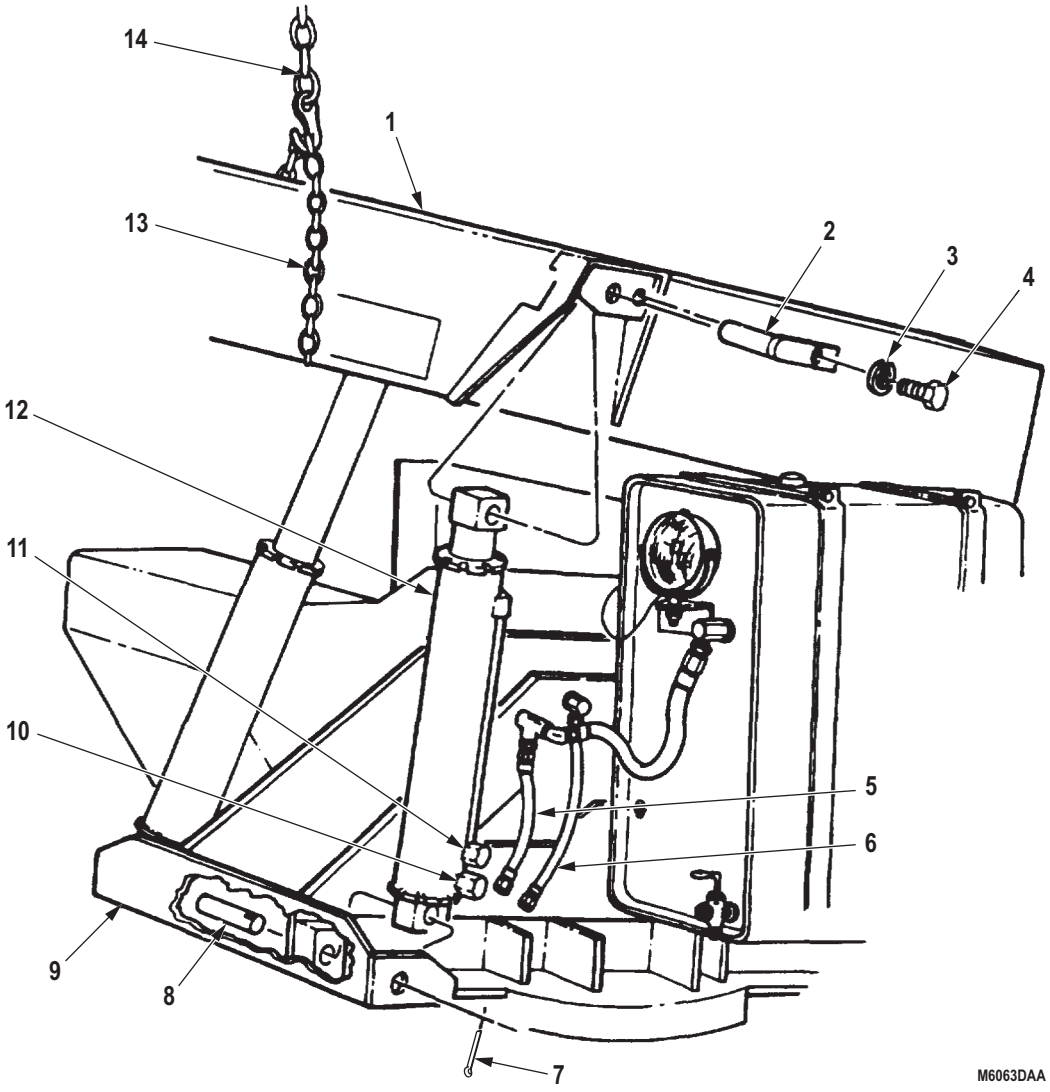


Figure 2. Boom Elevating Cylinder Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Fill hydraulic oil reservoir to proper level. (TM 9-2320-272-10)
2. Operate crane through full elevating range and check for leaks at oil lines and cylinder. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
FRONT WINCH MOTOR REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
- Tool Kit, General Mechanic's: Automotive (Volume 5, WP 0826, Table 1, Item 56)
- Chain Assembly (Volume 5, WP 0826, Table 1, Item 15)
- Lifting Device

Materials/Parts
- Cap Set, Protective, Dust and Moisture Seal (Volume 5, WP 0825, Table 1, Item 13)
- Tape, Antiseizing (Volume 5, WP 0825, Table 1, Item 65)
- Gasket (Volume 5, WP 0827, Table 1, Item 48) Qty: 1

Materials/Parts (cont.)
- Locknut (Volume 5, WP 0827, Table 1, Item 289) Qty: 6
- Lockwasher (Volume 5, WP 0827, Table 1, Item 405) Qty: 10

References
- Volume 5, WP 0820

Equipment Condition
- Parking brake set. (TM 9-2320-272-10)
- Hydraulic oil reservoir drained. (Volume 5, WP 0820)

REMOVAL

1. Wrap chain around front of winch (Figure 1, Item 11) and install on lifting device.
2. Remove six screws (Figure 1, Item 1), lockwashers (Figure 1, Item 2), and washers (Figure 1, Item 3) from left and right support plates (Figure 1, Item 5) and frame rails (Figure 1, Item 10). Discard lockwashers.
3. Loosen two screws (Figure 1, Item 4) on left and right support plates (Figure 1, Item 5).
4. Remove six locknuts (Figure 1, Item 8), screws (Figure 1, Item 6), and washers (Figure 1, Item 7) from left and right support plates (Figure 1, Item 5) and support plate brackets (Figure 1, Item 9). Discard locknuts.

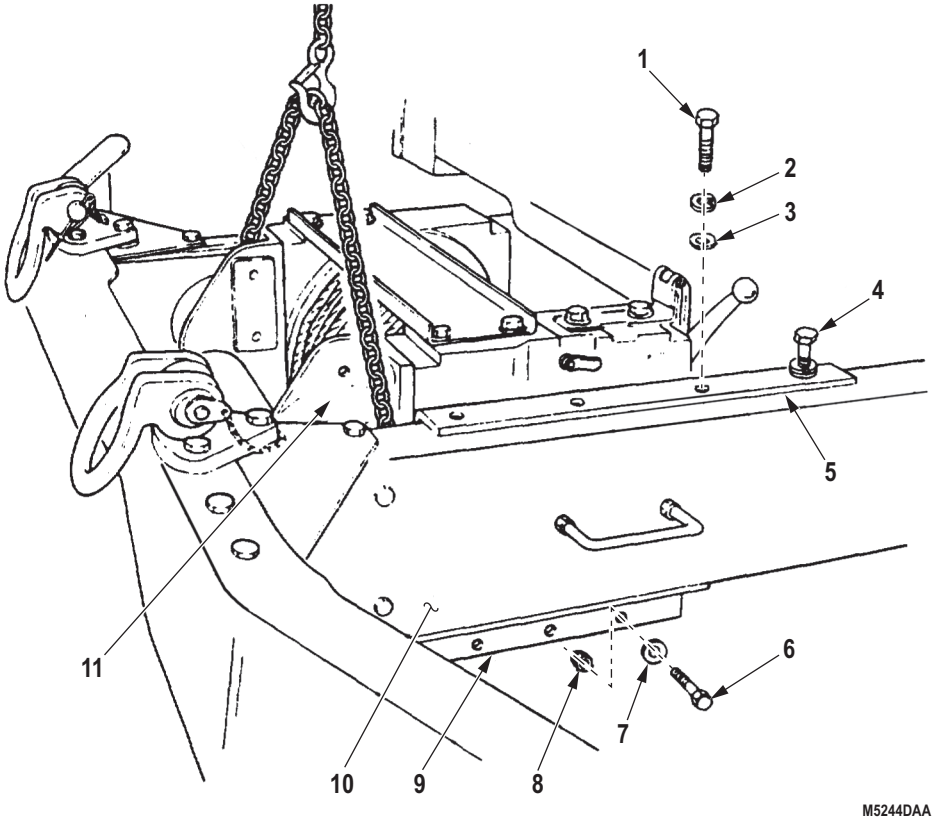


Figure 1. Front Winch Motor Removal.

REMOVAL - Continued

5. Lift and tilt front winch (Figure 2, Item 1) until winch motor (Figure 2, Item 6) clears crossmember (Figure 2, Item 2).

CAUTION

When disconnecting hydraulic lines and hoses, plug all openings to prevent dirt from entering and causing damage to internal parts.

NOTE

- Have drainage container ready to catch oil.
- Use drain pans to retain leaking/draining fluids. Refer to local procedures and plans for preventing and responding to fluid spills or leaks. Comply with local regulations when disposing of clean up material and leaked and spilled fluids.
- Tag all hydraulic lines for installation.

6. Disconnect hydraulic return hose (Figure 2, Item 4) and supply hose (Figure 2, Item 5) from elbows (Figure 2, Item 3) on winch motor (Figure 2, Item 6).

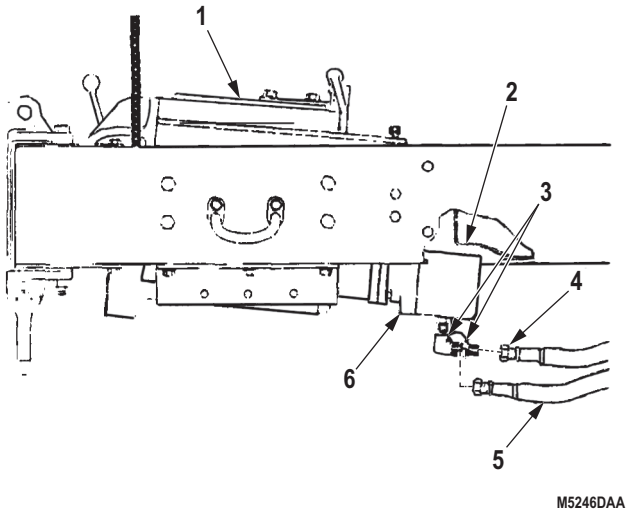


Figure 2. Front Winch Motor Removal.

REMOVAL - Continued

7. Remove four screws (Figure 3, Item 2), lockwashers (Figure 3, Item 3), front winch motor (Figure 3, Item 4), and gasket (Figure 3, Item 1) from winch motor adapter (Figure 3, Item 5). Discard lockwashers and gasket.

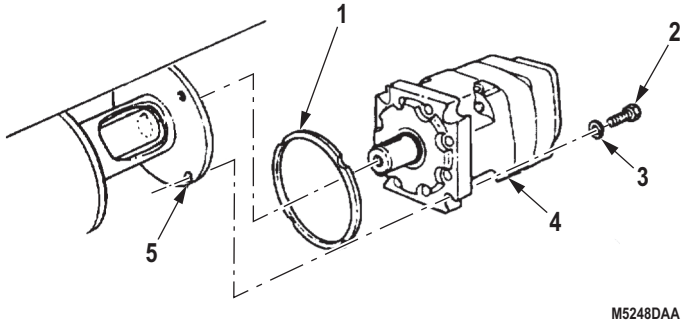


Figure 3. Front Winch Motor Removal.

END OF TASK

INSTALLATION

NOTE

- If new winch motor is being installed, transfer fittings from old winch motor. Fittings must be clean and free of defects.
- Wrap all male threads with antiseize tape before installation.

1. Align winch motor shaft key (Figure 4, Item 3) with keyway of winch gear shaft (Figure 4, Item 1) and install gasket (Figure 4, Item 2) and winch motor (Figure 4, Item 6) on winch motor adapter (Figure 4, Item 7) with four lockwashers (Figure 4, Item 5) and screws (Figure 4, Item 4).

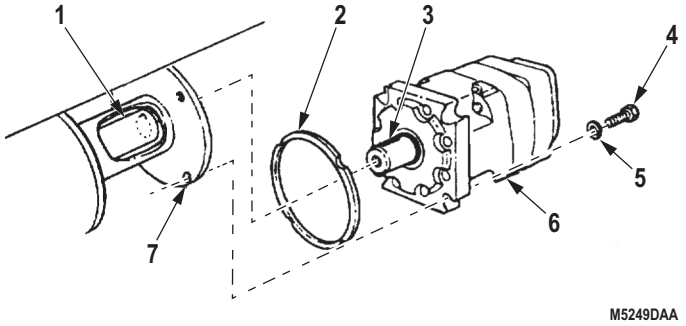


Figure 4. Front Winch Motor Installation.

2. Connect hydraulic return hose (Figure 5, Item 2) and supply hose (Figure 5, Item 3) to elbows (Figure 5, Item 1) on winch motor (Figure 5, Item 4).

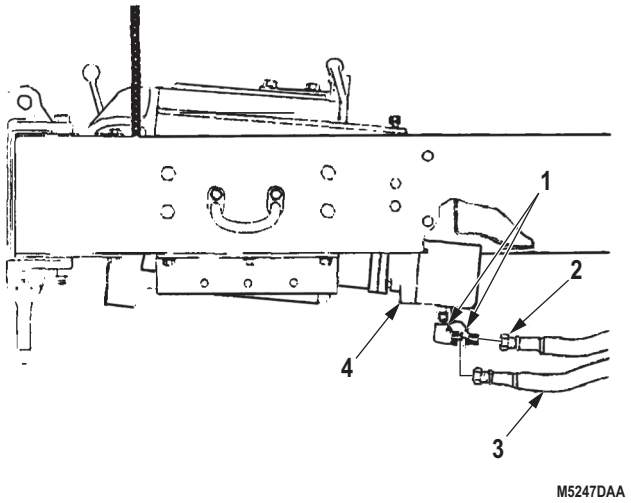


Figure 5. Front Winch Motor Installation.

INSTALLATION - Continued

3. Lower front of winch (Figure 6, Item 11) and align holes of left and right support plates (Figure 6, Item 5) with holes of frame rails (Figure 6, Item 10) and support plate brackets (Figure 6, Item 9).
4. Install six washers (Figure 6, Item 3), lockwashers (Figure 6, Item 2), and screws (Figure 6, Item 1) on left and right support plates (Figure 6, Item 5) and frame rails (Figure 6, Item 10). Finger tighten screws.
5. Install six washers (Figure 6, Item 7), screws (Figure 6, Item 6), and locknuts (Figure 6, Item 8) on left and right support plates (Figure 6, Item 5) and support plate brackets (Figure 6, Item 9).
6. Tighten screws (Figure 6, Items 1, 4, and 6).
7. Remove lifting device and chain from front winch (Figure 6, Item 11).

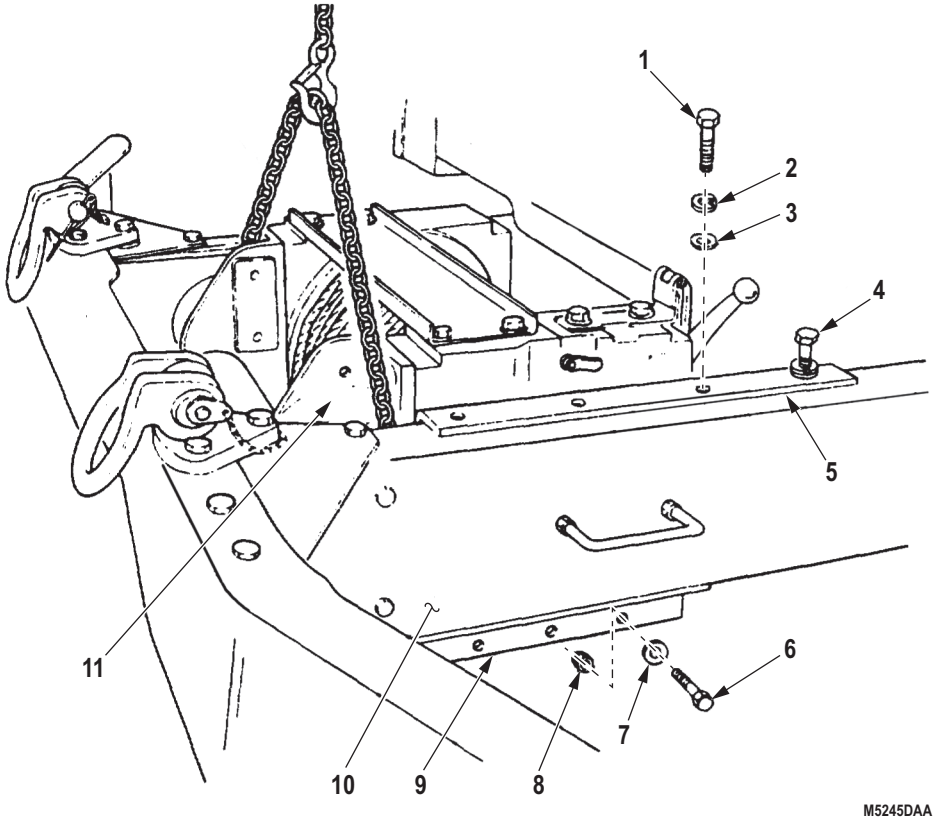


Figure 6. Front Winch Motor Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Fill hydraulic oil reservoir to proper fluid level. (Volume 5, WP 0820)
2. Start engine and check winch for oil leaks and proper operation. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
BOOM EXTENSION CYLINDER REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)
Chain Assembly
(Volume 5, WP 0826, Table 1, Item 15)
Lifting Device

Materials/Parts
Cotter Pin
(Volume 5, WP 0827, Table 1, Item 349)
Qty: 1

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Inner boom removed. (WP 0687)

REMOVAL

1. Remove cotter pin (Figure 1, Item 6) from retaining pin (Figure 1, Item 7). Drive out retaining pin (Figure 1, Item 7) from inner boom (Figure 1, Item 4) and extension cylinder (Figure 1, Item 1). Discard cotter pin.
2. Attach chains (Figure 1, Item 2) around extension cylinder (Figure 1, Item 1) and attach to lifting device (Figure 1, Item 3).

WARNING



All personnel must stand clear during lifting operations. A snapped chain, or shifting or swinging load, may result in injury to personnel. Failure to comply may result in injury or death to personnel.

3. Slowly pull extension cylinder (Figure 1, Item 1) out of inner boom (Figure 1, Item 4) until chains (Figure 1, Item 2) can be positioned. Place extension cylinder on shop horses or jack stands (Figure 1, Item 5).
4. Remove chains (Figure 1, Item 2) and lifting device (Figure 1, Item 3) from extension cylinder (Figure 1, Item 1).

REMOVAL - Continued

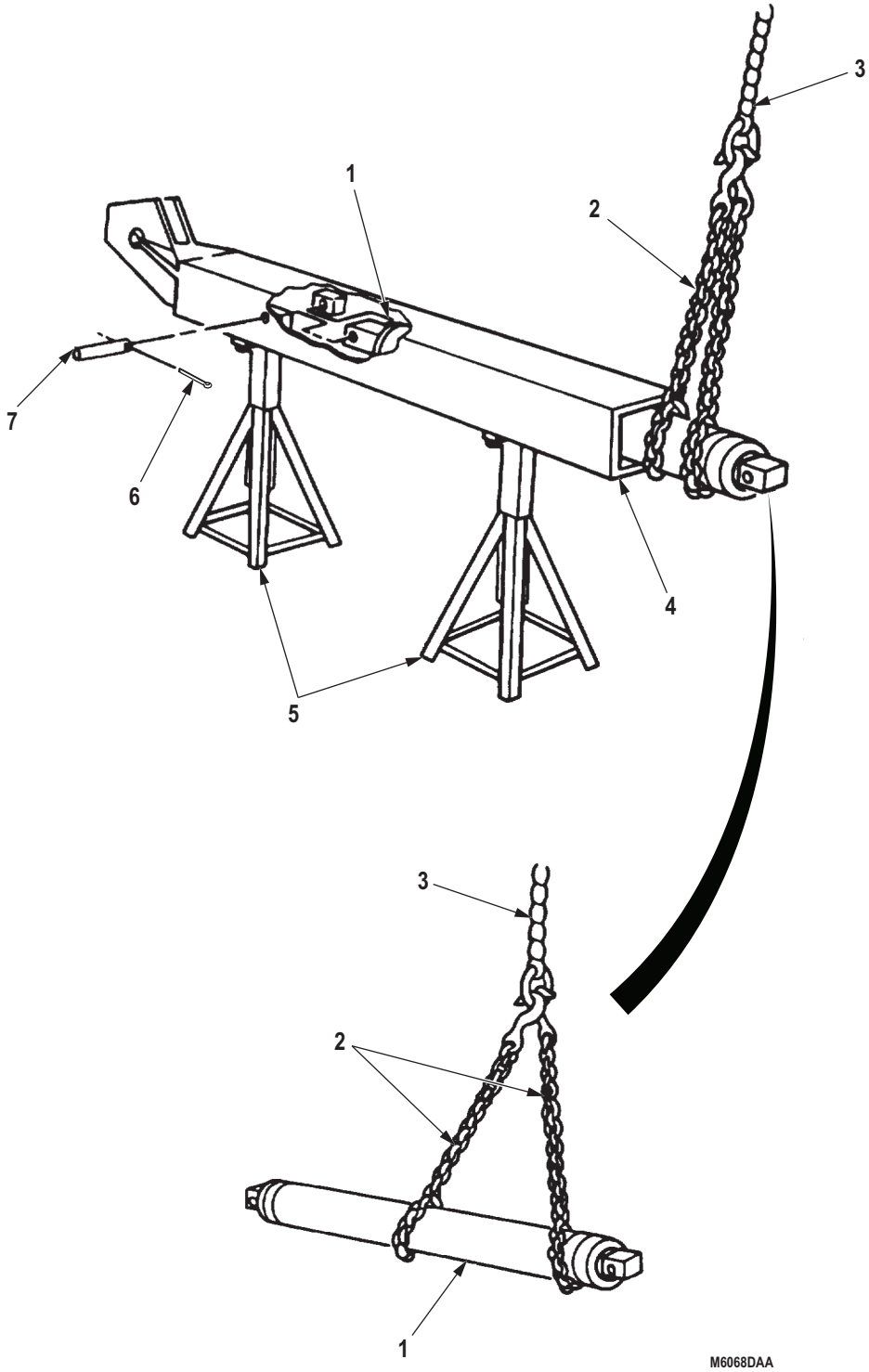


Figure 1. Boom Extension Cylinder Removal.

END OF TASK

INSTALLATION

1. Attach chains (Figure 2, Item 2) around extension cylinder (Figure 2, Item 1) and attach to lifting device (Figure 2, Item 3).
2. Lift extension cylinder (Figure 2, Item 1) to inner boom (Figure 2, Item 4) and slide into inner boom.
3. Install extension cylinder (Figure 2, Item 1) on inner boom (Figure 2, Item 4) with retaining pin (Figure 2, Item 7) and cotter pin (Figure 2, Item 6).
4. Remove chains (Figure 2, Item 2) from extension cylinder (Figure 2, Item 1).

INSTALLATION - Continued

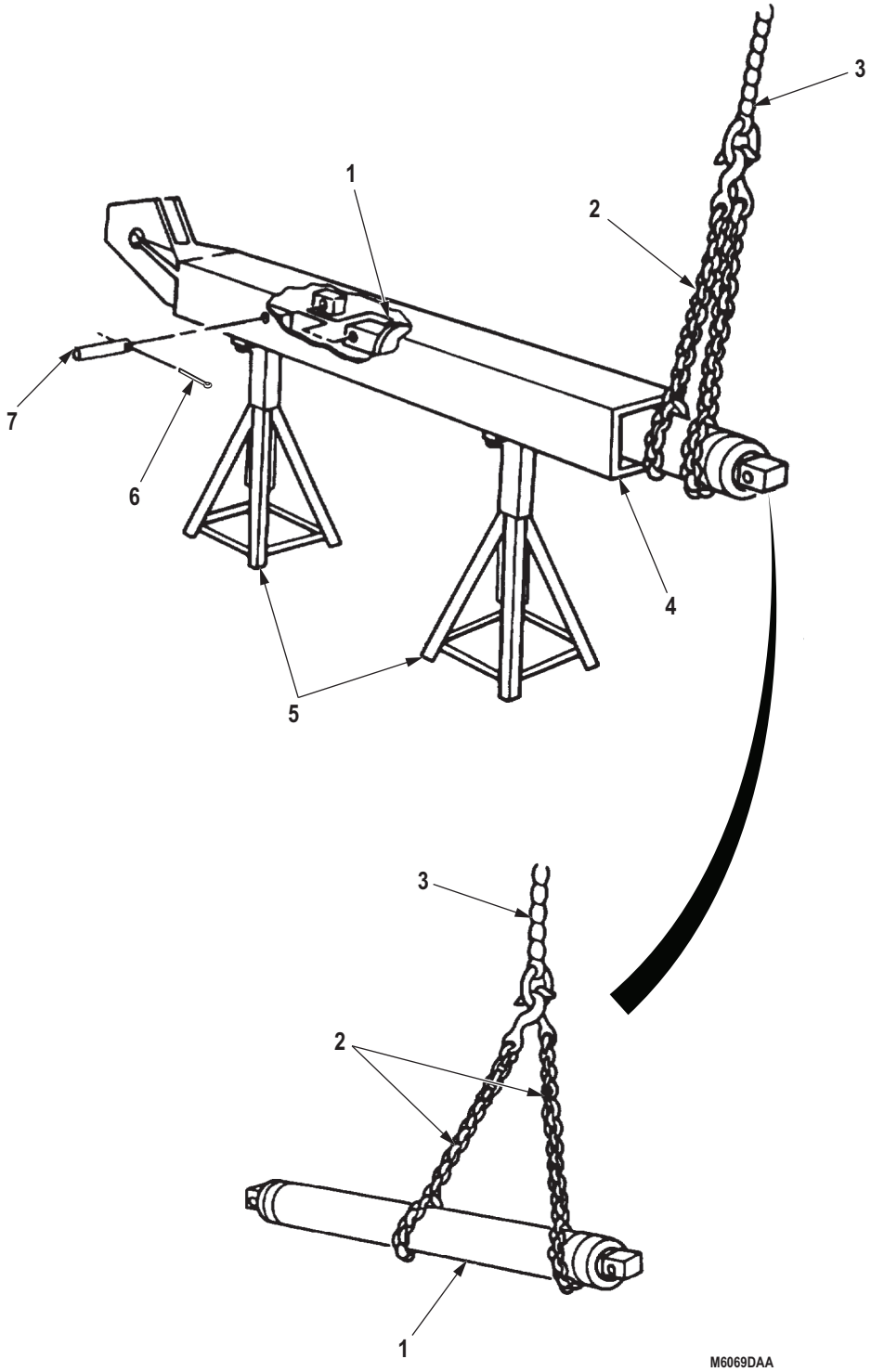


Figure 2. Boom Extension Cylinder Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

Install inner boom. (WP 0687)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
HOIST WINCH REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
- Tool Kit, General Mechanic's: Automotive (Volume 5, WP 0826, Table 1, Item 56)
- Caliper, Micrometer, Inside (Volume 5, WP 0826, Table 1, Item 13)
- Caliper Set, Micrometer Outside (Volume 5, WP 0826, Table 1, Item 11)
- Chain Assembly (Volume 5, WP 0826, Table 1, Item 15)
- Hammer, Soft Face (Volume 5, WP 0826, Table 1, Item 22)
- Hoist Assembly
- Indicator, Dial (Volume 5, WP 0826, Table 1, Item 25)
- Puller Kit, Mechanical (Volume 5, WP 0826, Table 1, Item 41)

Materials/Parts
- Grease, Automotive and Artillery (Volume 5, WP 0825, Table 1, Item 28)
- Lubricating Oil, Gear, Multipurpose (Volume 5, WP 0825, Table 1, Item 44, 45, 46, 47)
- Assembled Bolt with Washer (Volume 5, WP 0827, Table 1, Item 83) Qty: 6
- Gasket (Volume 5, WP 0827, Table 1, Item 12) Qty: 1
- Gasket (Volume 5, WP 0827, Table 1, Item 15) Qty: 1
- Gasket (Volume 5, WP 0827, Table 1, Item 19) Qty: 1
- Gasket (Volume 5, WP 0827, Table 1, Item 212) Qty: 1
- Gasket (Volume 5, WP 0827, Table 1, Item 231) Qty: 1
- Key (Volume 5, WP 0827, Table 1, Item 235) Qty: 4
- Key, Machine (Volume 5, WP 0827, Table 1, Item 305) Qty: 1
- Lockwasher (Volume 5, WP 0827, Table 1, Item 215) Qty: 10
- Lockwasher (Volume 5, WP 0827, Table 1, Item 405) Qty: 15
- Lockwasher (Volume 5, WP 0827, Table 1, Item 437) Qty: 12
- Seal (Volume 5, WP 0827, Table 1, Item 41) Qty: 2
- Seal (Volume 5, WP 0827, Table 1, Item 253) Qty: 1
- Shim (Volume 5, WP 0827, Table 1, Item 16) Qty: 1
- Woodruff Key (Volume 5, WP 0827, Table 1, Item 417) Qty: 1
- Woodruff Key, Machine (Volume 5, WP 0827, Table 1, Item 306) Qty: 1

Personnel Required
(2)

References
- Volume 5, WP 0817
- Volume 5, WP 0818

Equipment Condition
- Hoist gear reducer and hoist gearcase oil drained. (Volume 5, WP 0820)
- Hoist winch cable removed. (WP 0709)
- Floodlight wiring harness removed. (Volume 2, WP 0329)
- Hoist winch motor removed. (WP 0700)

REMOVAL

1. Position chain around hoist winch (Figure 1, Item 6) and attach to lifting device. Take up tension in chain.

WARNING



- All personnel must stand clear during lifting operations. A swinging or shifting load may occur. Failure to comply may result in injury or death to personnel.
- Ensure lifting capacity is greater than weight (400 lb (182 kg)) of hoist winch. Failure to comply may result in damage to equipment, injury, or death to personnel.

NOTE

Assistant will help with Steps (2) and (3).

2. Remove 12 screws (Figure 1, Item 5), lockwashers (Figure 1, Item 4), and hoist winch (Figure 1, Item 6) from boom (Figure 1, Item 1). Discard lockwashers.
3. Lower hoist winch (Figure 1, Item 6) from boom (Figure 1, Item 1) and remove hoist winch from vehicle.
4. Remove lifting device (Figure 1, Item 2) and chain (Figure 1, Item 3) from hoist winch (Figure 1, Item 6).

REMOVAL - Continued

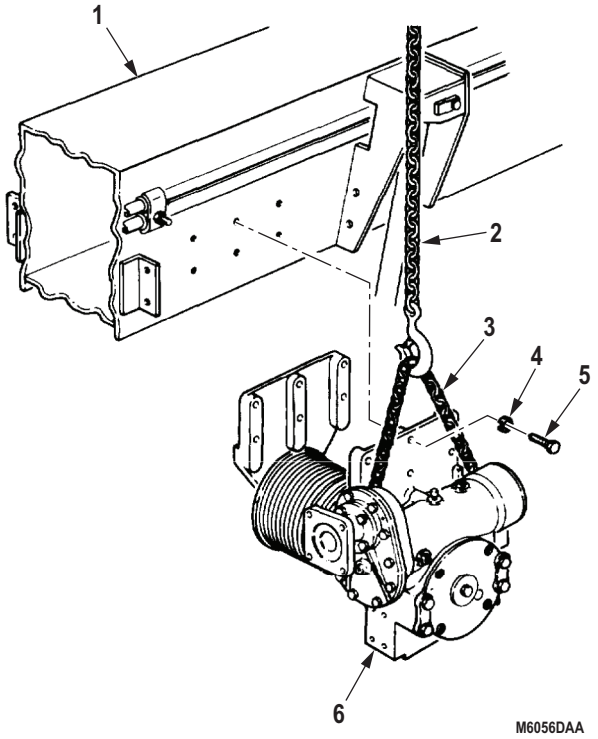


Figure 1. Hoist Winch Removal.

END OF TASK

DISASSEMBLY

1. Remove four screws (Figure 2, Item 1) and lockwashers (Figure 2, Item 2), adapter (Figure 2, Item 23), and gasket (Figure 2, Item 3) from cover (Figure 2, Item 22). Discard lockwashers and gasket.
2. Remove woodruff key (Figure 2, Item 5) from input shaft (Figure 2, Item 6). Discard woodruff key.
3. Remove ten screws (Figure 2, Item 20), lockwashers (Figure 2, Item 21), cover (Figure 2, Item 22), and gasket (Figure 2, Item 7) from housing (Figure 2, Item 12). Discard lockwashers and gasket.
4. Remove bearing (Figure 2, Item 8) from cover (Figure 2, Item 22).
5. Remove input shaft gear (Figure 2, Item 4) and input shaft (Figure 2, Item 6) from housing (Figure 2, Item 12).
6. Remove input shaft gear (Figure 2, Item 4) from input shaft (Figure 2, Item 6).
7. Remove snapring (Figure 2, Item 15) from worm shaft (Figure 2, Item 19).
8. Using puller, remove drive gear (Figure 2, Item 16) from worm shaft (Figure 2, Item 19).
9. Remove woodruff key (Figure 2, Item 9) from worm shaft (Figure 2, Item 19). Discard woodruff key.
10. Remove four screws (Figure 2, Item 14), lockwashers (Figure 2, Item 13), housing (Figure 2, Item 12), and gasket (Figure 2, Item 11) from gearcase (Figure 2, Item 10). Discard lockwashers and gasket.
11. Remove bearing (Figure 2, Item 17) and seal (Figure 2, Item 18) from housing (Figure 2, Item 12). Discard seal.

DISASSEMBLY - Continued

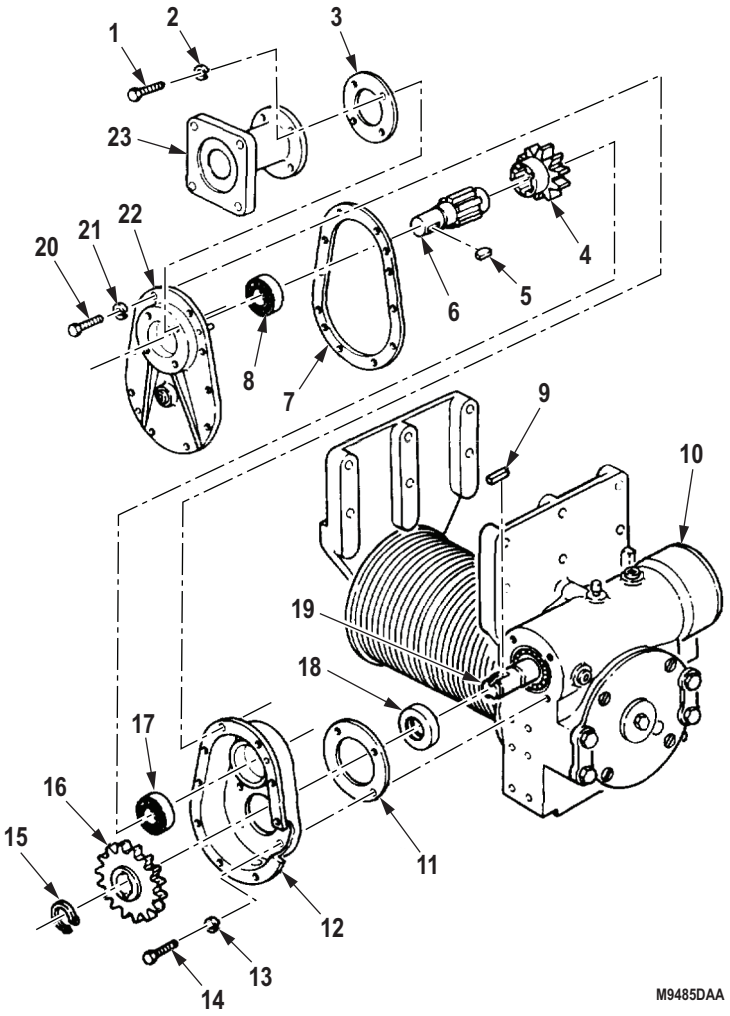


Figure 2. Hoist Winch Disassembly.

DISASSEMBLY - Continued

NOTE

Record thickness of shim(s) for assembly.

12. Remove screw (Figure 3, Item 6), lockwasher (Figure 3, Item 7), washer (Figure 3, Item 5), shim(s) (Figure 3, Item 8), and bracket (Figure 3, Item 9) from drum shaft (Figure 3, Item 2). Discard shim(s) and lockwasher.
13. Remove thrust washer (Figure 3, Item 10) and drum (Figure 3, Item 11) from drum shaft (Figure 3, Item 2).
14. Remove two woodruff keys (Figure 3, Item 4) and thrust washer (Figure 3, Item 12) from drum shaft (Figure 3, Item 2). Discard woodruff keys.
15. Remove screw (Figure 3, Item 13), plate (Figure 3, Item 14), and gasket (Figure 3, Item 3) from drum shaft (Figure 3, Item 2) and gearcase (Figure 3, Item 1). Discard gasket.

DISASSEMBLY - Continued

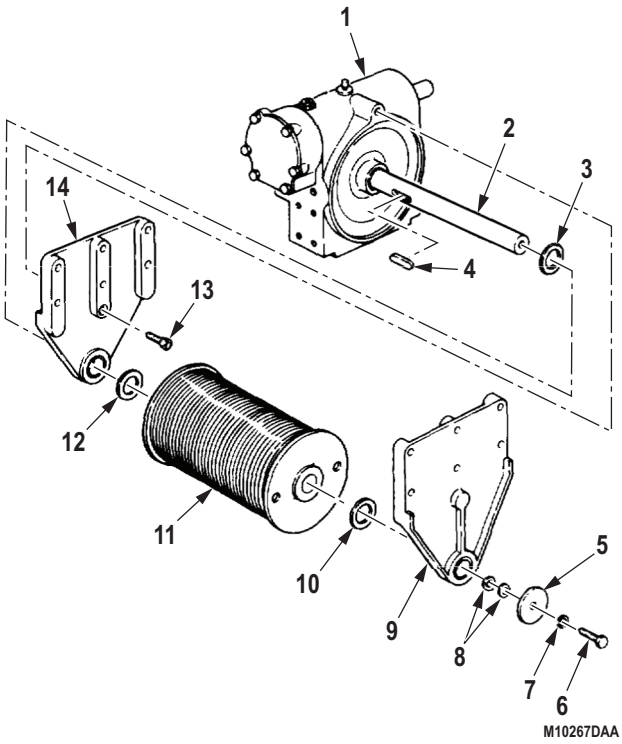


Figure 3. Hoist Winch Disassembly.

DISASSEMBLY - Continued

16. Remove six screw assembled lockwashers (Figure 4, Item 14), cover (Figure 4, Item 15), and gasket (Figure 4, Item 16) from brake housing (Figure 4, Item 13). Discard screw assembled lockwashers and gasket.
17. Remove screw (Figure 4, Item 19), washer (Figure 4, Item 20), seal (Figure 4, Item 21), spring (Figure 4, Item 18), and brake band (Figure 4, Item 17) from brake drum (Figure 4, Item 4) and brake housing (Figure 4, Item 13). Discard seal.
18. Remove screw (Figure 4, Item 1), lockwasher (Figure 4, Item 2), and washer (Figure 4, Item 3) from brake drum (Figure 4, Item 4) and worm shaft (Figure 4, Item 8).
19. Using puller, remove brake drum (Figure 4, Item 4) from worm shaft (Figure 4, Item 8) and brake housing (Figure 4, Item 13).
20. Remove woodruff key (Figure 4, Item 11) from worm shaft (Figure 4, Item 8). Discard woodruff key.

NOTE

Mark brake housing and gearcase for assembly.

21. Remove four screws (Figure 4, Item 5) and lockwashers (Figure 4, Item 6), brake housing (Figure 4, Item 13), and gasket (Figure 4, Item 7) from gearcase (Figure 4, Item 9). Discard lockwashers and gasket.
22. Remove seal (Figure 4, Item 12) from brake housing (Figure 4, Item 13). Discard seal.

DISASSEMBLY - Continued

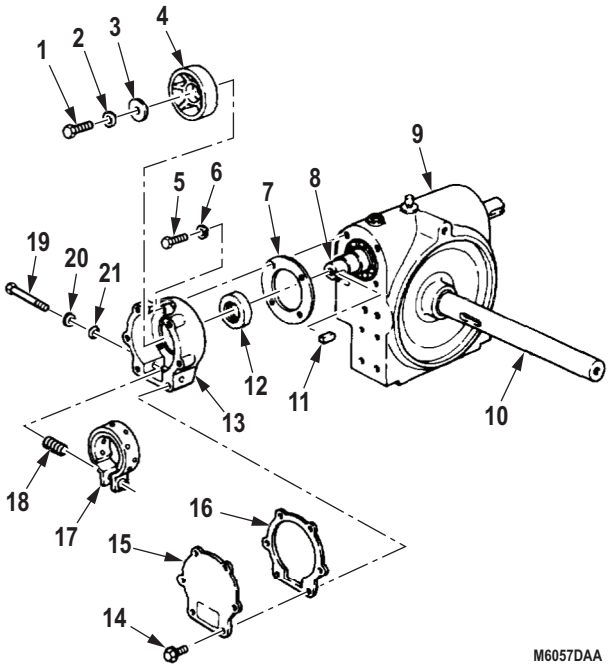


Figure 4. Hoist Winch Disassembly.

DISASSEMBLY - Continued

23. Using soft-head hammer, tap on end of worm shaft (Figure 5, Item 16) to drive bearing (Figure 5, Item 2) from bore of gearcase (Figure 5, Item 1).
24. Using puller, remove bearing (Figure 5, Item 2) from worm shaft (Figure 5, Item 16).
25. Align bearing (Figure 5, Item 15) with bore of gearcase (Figure 5, Item 1). Using softhead hammer, tap opposite end of worm shaft (Figure 5, Item 16) and remove worm shaft (Figure 5, Item 16) with bearing from gearcase.
26. Use puller or arbor press to remove bearing (Figure 5, Item 15) from worm shaft (Figure 5, Item 16).
27. Remove screw (Figure 5, Item 11), lockwasher (Figure 5, Item 10), and washer (Figure 5, Item 9) from drum shaft (Figure 5, Item 14) and cover (Figure 5, Item 4). Discard lockwasher.
28. Remove four screws (Figure 5, Item 6) and lockwashers (Figure 5, Item 7), screws (Figure 5, Item 5), cover (Figure 5, Item 4), and gasket (Figure 5, Item 3) from gearcase (Figure 5, Item 1). Discard lockwashers and gasket.
29. Remove seal (Figure 5, Item 8) from cover (Figure 5, Item 4). Discard seal.
30. Using softhead hammer, tap on drum end of drum shaft (Figure 5, Item 14) to remove drum shaft and worm gear (Figure 5, Item 12) from gearcase (Figure 5, Item 1).
31. Using arbor press, remove worm gear (Figure 5, Item 12) from drum shaft (Figure 5, Item 14).
32. Remove two woodruff keys (Figure 5, Item 13) from drum shaft (Figure 5, Item 14). Discard woodruff keys.

DISASSEMBLY - Continued

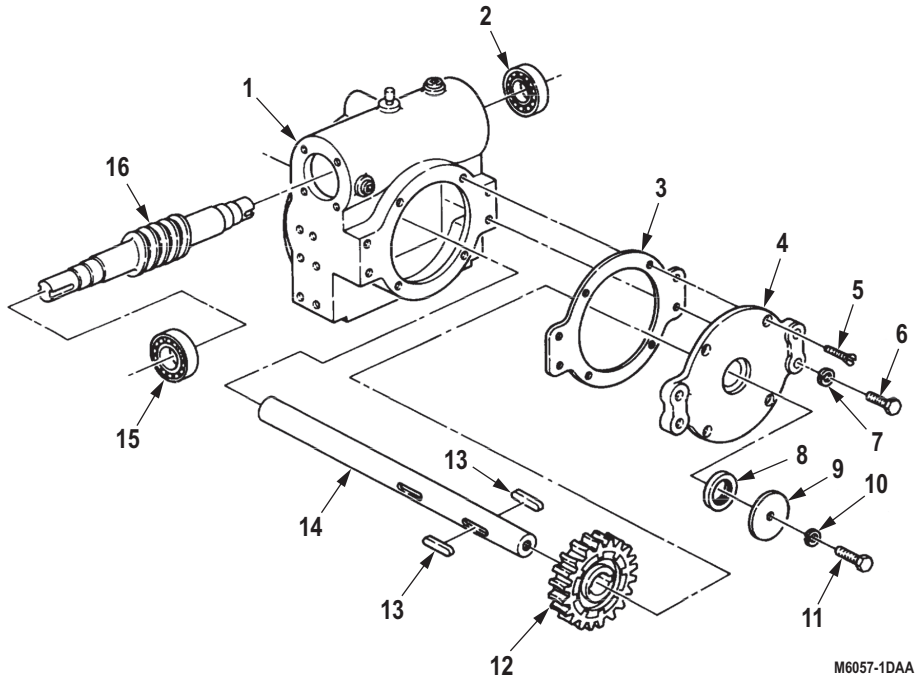


Figure 5. Hoist Winch Disassembly.

END OF TASK

CLEANING AND INSPECTION

1. For General Cleaning Instructions, refer to (Volume 5, WP 0817).
2. For General Inspection Instructions, refer to (Volume 5, WP 0818).
3. Inspect drum shaft, input shaft(s), and worm shafts for bends, cracks, breaks, chips, and wear. Refer to Table 1, Hoist Winch Wear Limits, for measurements. Replace drum shaft, input shaft, and worm shaft if damaged or worn.
4. Inspect drum, cover, gearcase, bracket, and plate for cracks, bends, damaged threads, and wear. Refer to Table 1, Hoist Winch Wear Limits, for measurements. Replace drum, cover, gearcase, bracket, and plate, if damaged or worn.
5. Inspect gearcase bearings and thrust washers for wear. Refer to Table 1, Hoist Winch Wear Limits, for measurements. Replace gearcase bearings and thrust washers if worn.
6. Inspect worm gear and input shaft gear for cracks, nicks, burrs, ridged, chipped, broken teeth, or particles in teeth of worm gear. Refer to Table 1, Hoist Winch Wear Limits, for measurements. Replace worm gear and input shaft gear, if damaged or worn.

CLEANING AND INSPECTION - Continued

Table 1. Hoist Winch Wear Limits.

ITEM NO.	ITEM/POINT OF MEASUREMENT	WEAR LIMITS/TOLERANCES	
		INCHES	MILLIMETERS
1, 2	Shaft support (2) Inner diameter - bushing - maximum	2.130	54.10
3	Drum shaft Outer diameter - four places - minimum	2.123	53.92
4	Worm shaft Outer diameter - bearing journal - minimum Outer diameter - sealing surface - minimum	1.771 1.765	44.98 44.83
5	Input shaft - outer diameter minimum	1.746	43.35
6	Gearcase Inner diameter - bushing - maximum Width - cover edge to hub Inner diameter - bearing bores (2) - maximum	2.130 4.469 3.937	54.10 113.51 100.00
7	Cover Inner diameter - bushing - maximum Width - bushing hub - minimum	2.130 2.000	54.10 50.8
8	Bearings (2) Inner diameter - inner race - maximum Outer diameter - outer race - minimum	1.771 3.936	44.98 99.97
9	Drum - outer diameter - minimum	4.992	126.80
10	Thrust washers (2) - thickness - minimum	0.062	1.57
11	Worm gear - width - hub - minimum	2.492	63.30
12	Input shaft gear	1.88	47.75

END OF TASK

ASSEMBLY

NOTE

- Coat all internal hoist winch parts with lubrication oil before installation.
- Coat inside lips of seals with GAA grease before installation.

1. Install two woodruff keys (Figure 6, Item 13) on drum shaft (Figure 6, Item 14).
2. Using arbor press, install drum shaft (Figure 6, Item 14) in worm gear (Figure 6, Item 12) until drum shaft extends 2.50 in. (63.5 mm) from face of hub.
3. Insert drum shaft (Figure 6, Item 14) through gearcase (Figure 6, Item 1) until hub is seated.
4. Using arbor press, install bearing (Figure 6, Item 15) on worm shaft (Figure 6, Item 16). Ensure bearing seats on shoulder of worm shaft.
5. Insert worm shaft (Figure 6, Item 16) into gearcase (Figure 6, Item 1).
6. Using arbor press, install bearing (Figure 6, Item 2) into bore of gearcase (Figure 6, Item 1) until seated on shoulder of worm shaft (Figure 6, Item 16), flush with face of gearcase.
7. Install dial indicator on gearcase (Figure 6, Item 1), and measure backlash of worm gear (Figure 6, Item 12) and worm shaft (Figure 6, Item 16). Backlash should be 0.006 to 0.010 in. (0.15 to 0.25 mm). Replace worm gear if backlash is not within limits.
8. Using arbor press, install seal (Figure 6, Item 8) in cover (Figure 6, Item 4).
9. Install gasket (Figure 6, Item 3) and cover (Figure 6, Item 4) on gearcase (Figure 6, Item 1) with four screws (Figure 6, Item 5), lockwashers (Figure 6, Item 7), and screws (Figure 6, Item 6).
10. Install washer (Figure 6, Item 9) and lockwasher (Figure 6, Item 11) on cover (Figure 6, Item 4) and drum shaft (Figure 6, Item 14) with screw (Figure 6, Item 10).
11. Install dial indicator on gearcase (Figure 6, Item 1).
12. Check end play of drum shaft (Figure 6, Item 14).
    a. End play should be 0.005 to 0.015 in. (0.13 to 0.38 mm).
    b. If end play is less than 0.005 in. (0.13 mm), remove cover (Figure 6, Item 4) and remove gasket(s) (Figure 6, Item 3). Recheck end play.
    c. If end play is more than 0.015 in. (0.38 mm), remove cover (Figure 6, Item 4) and add gasket(s) (Figure 6, Item 3). Install cover (Figure 6, Item 4) on drum shaft (Figure 6, Item 14) and recheck end play.

ASSEMBLY - Continued

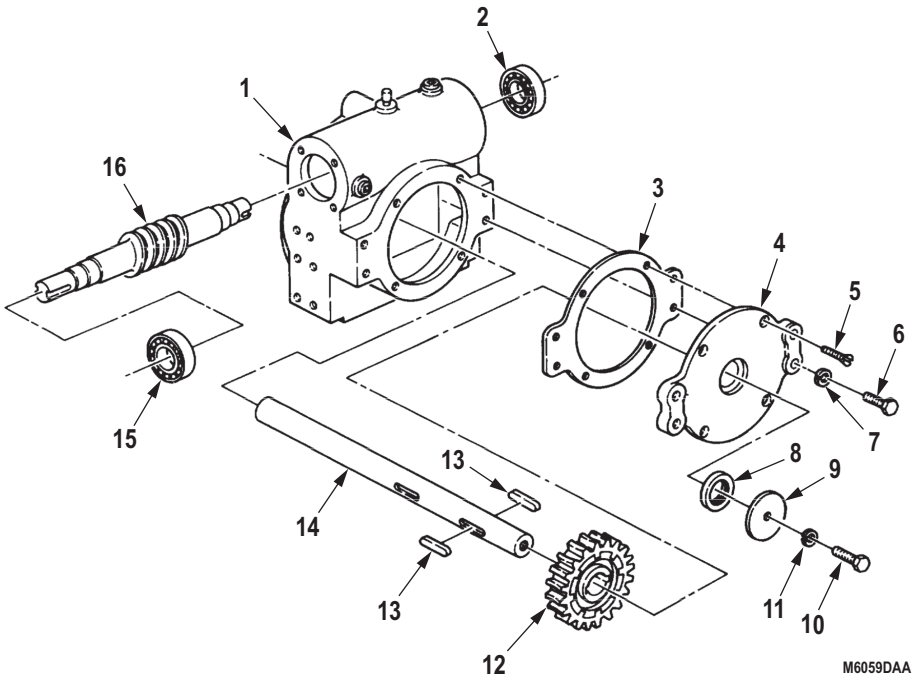


Figure 6. Hoist Winch Assembly.

ASSEMBLY - Continued

13. Install seal (Figure 7, Item 5) in brake housing (Figure 7, Item 6).
14. Install gasket (Figure 7, Item 17) and brake housing (Figure 7, Item 6) on gearcase (Figure 7, Item 2) with four lockwashers (Figure 7, Item 16) and screws (Figure 7, Item 15).
15. Install woodruff key (Figure 7, Item 4) on worm shaft (Figure 7, Item 1).
16. Install brake drum (Figure 7, Item 21) on worm shaft (Figure 7, Item 1) with washer (Figure 7, Item 20), lockwashers (Figure 7, Item 19), and screw (Figure 7, Item 18).
17. Install brake band (Figure 7, Item 10) and spring (Figure 7, Item 11) on brake housing (Figure 7, Item 6) and brake drum (Figure 7, Item 21) with seal (Figure 7, Item 14), washer (Figure 7, Item 13), and screw (Figure 7, Item 12).
18. Install gasket (Figure 7, Item 7) and cover (Figure 7, Item 8) on brake housing (Figure 7, Item 6) with six screw assembled lockwashers (Figure 7, Item 9).
19. Install gasket (Figure 7, Item 22) and plate (Figure 7, Item 33) on gearcase (Figure 7, Item 2) and drum shaft (Figure 7, Item 3) with screw (Figure 7, Item 32).
20. Install two woodruff keys (Figure 7, Item 23) on drum shaft (Figure 7, Item 3).
21. Install thrust washer (Figure 7, Item 31) and drum (Figure 7, Item 30) on drum shaft (Figure 7, Item 3). Tap with soft-head hammer to seat drum (Figure 7, Item 30) against thrust washer (Figure 7, Item 31) on plate (Figure 7, Item 33).

NOTE

Ensure shims are installed to prerecorded thickness.

22. Install thrust washer (Figure 7, Item 29), bracket (Figure 7, Item 28), and shim(s) (Figure 7, Item 27) on drum shaft (Figure 7, Item 30) with washer (Figure 7, Item 24), lockwashers (Figure 7, Item 26), and screw (Figure 7, Item 25).

ASSEMBLY - Continued

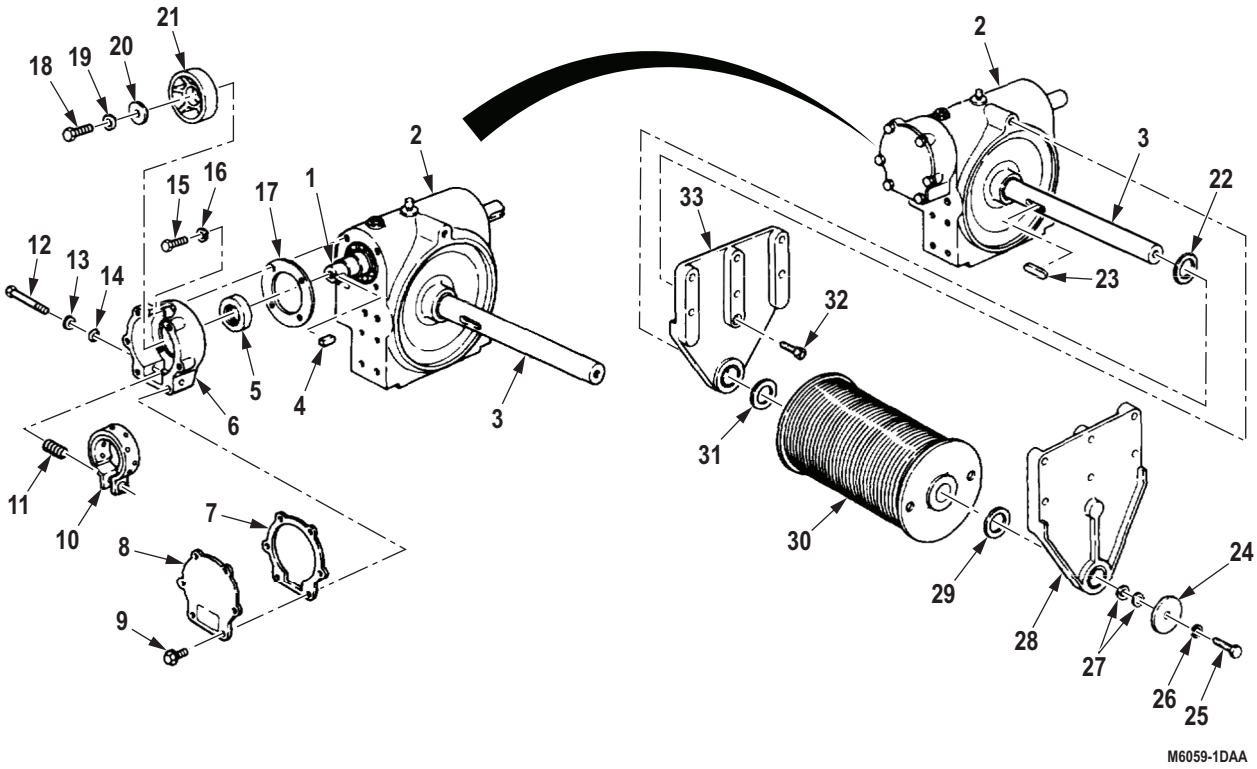


Figure 7. Hoist Winch Assembly.

ASSEMBLY - Continued

23. Install seal (Figure 8, Item 18) and bearing (Figure 8, Item 17) on housing (Figure 8, Item 12).
24. Install gasket (Figure 8, Item 11) and housing (Figure 8, Item 12) on gearcase (Figure 8, Item 10) with four lockwashers (Figure 8, Item 13) and screws (Figure 8, Item 14).
25. Install woodruff key (Figure 8, Item 9) in worm shaft (Figure 8, Item 19).
26. Using puller, install drive gear (Figure 8, Item 16) on worm shaft (Figure 8, Item 19).
27. Install snapring (Figure 8, Item 15) on worm shaft (Figure 8, Item 19).
28. Install input shaft gear (Figure 8, Item 4) on input shaft (Figure 8, Item 6).
29. Install input shaft (Figure 8, Item 6) and input shaft gear (Figure 8, Item 4) on housing (Figure 8, Item 12).
30. Install bearing (Figure 8, Item 8) on cover (Figure 8, Item 20).
31. Install gasket (Figure 8, Item 7) and cover (Figure 8, Item 20) on housing (Figure 8, Item 12) with ten lockwashers (Figure 8, Item 22) and screws (Figure 8, Item 21).
32. Install woodruff key (Figure 8, Item 5) in input shaft (Figure 8, Item 6).
33. Install gasket (Figure 8, Item 3) and adapter (Figure 8, Item 23) on cover (Figure 8, Item 20) with four lockwashers (Figure 8, Item 2) and screws (Figure 8, Item 1).

ASSEMBLY - Continued

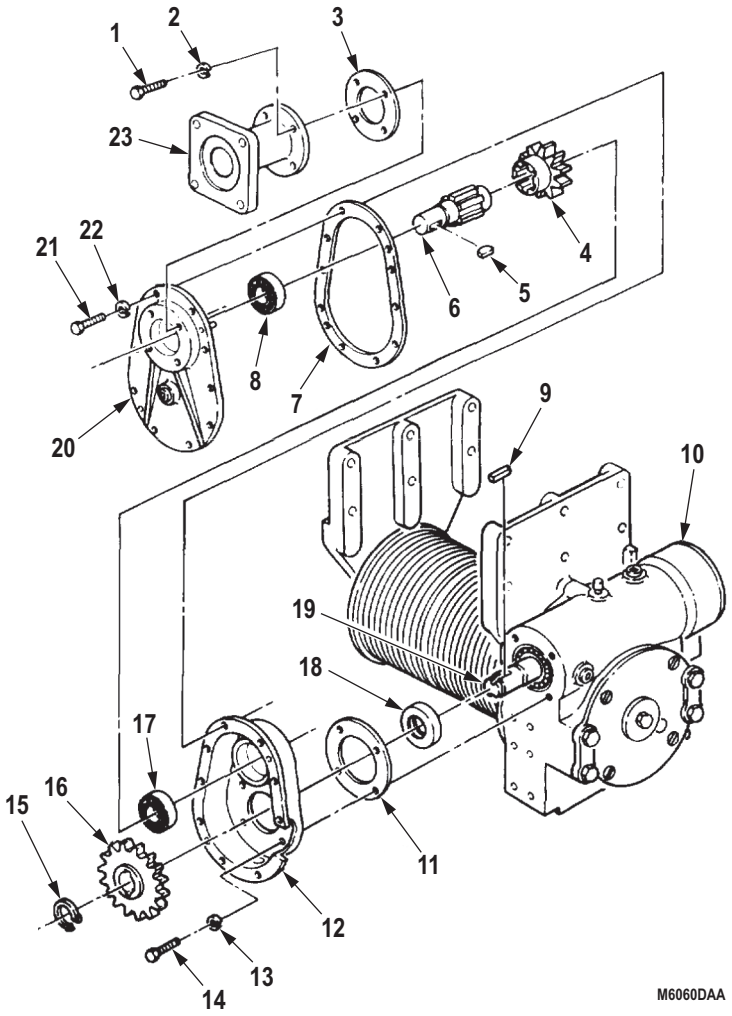


Figure 8. Hoist Winch Assembly.

END OF TASK

INSTALLATION

1. Install chain (Figure 9, Item 3) on hoist winch (Figure 9, Item 6) and attach to lifting device (Figure 9, Item 2).

WARNING



- All personnel must stand clear during lifting operations. A swinging or shifting load may occur. Failure to comply may result in injury or death to personnel.
- Ensure lifting capacity is greater than weight of hoist winch (400 lb) (182 kg). Failure to comply may result in damage to equipment, injury, or death to personnel.

NOTE

Assistant will help with Steps (2) and (3).

2. Raise hoist winch (Figure 9, Item 6) and position on boom (Figure 9, Item 1).
3. Install hoist winch (Figure 9, Item 6) on boom (Figure 9, Item 1) with 12 lockwashers (Figure 9, Item 4) and screws (Figure 9, Item 5).

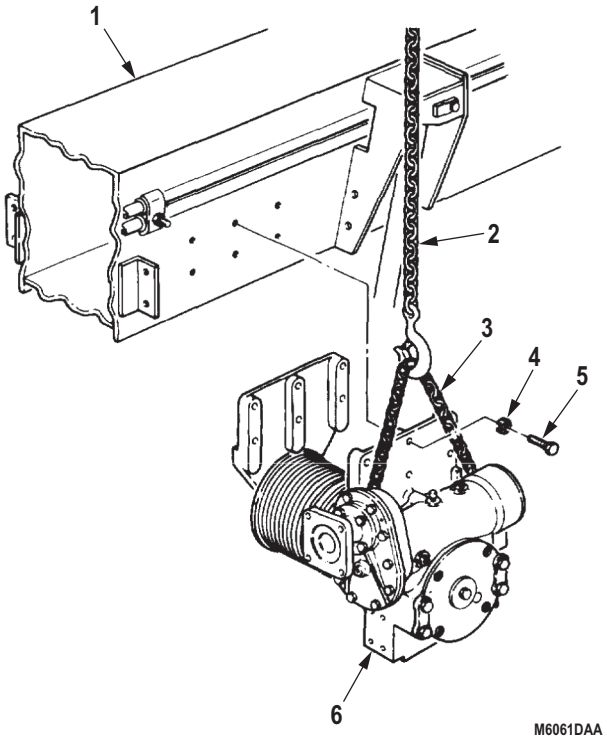


Figure 9. Hoist Winch Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install hoist level wind. (WP 0697)
2. Install hoist winch motor. (WP 0700)
3. Install floodlight wiring harness. (TM 9-2320-260-20)
4. Fill gear reducer and hoist winch gearcase with gear oil. (Volume 5, WP 0820)
5. Start engine and check hoist winch operation. (TM 9-2320-260-10)
6. Install hoist winch cable. (WP 0709)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
HOIST LEVEL WIND REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Cotter Pin

Materials/Parts (cont.)
(Volume 5, WP 0827, Table 1, Item 345)
Qty: 1
Locknut
(Volume 5, WP 0827, Table 1, Item 324)
Qty: 8

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

REMOVAL

NOTE

Front and rear roller braces are replaced the same way.

1. Remove four locknuts (Figure 1, Item 9), screws (Figure 1, Item 2), and two front roller braces (Figure 1, Item 4) from boom (Figure 1, Item 1). Discard locknuts.
2. Remove two cotter pins (Figure 1, Item 3) from shaft (Figure 1, Item 7). Discard cotter pins.
3. Remove shaft (Figure 1, Item 7) and level wind roller (Figure 1, Item 6) from two roller braces (Figure 1, Item 4).
4. Remove shaft (Figure 1, Item 7) from roller (Figure 1, Item 6).
5. Remove two bearings (Figure 1, Item 5) from roller (Figure 1, Item 6).
6. Remove grease fitting (Figure 1, Item 8) from shaft (Figure 1, Item 7).

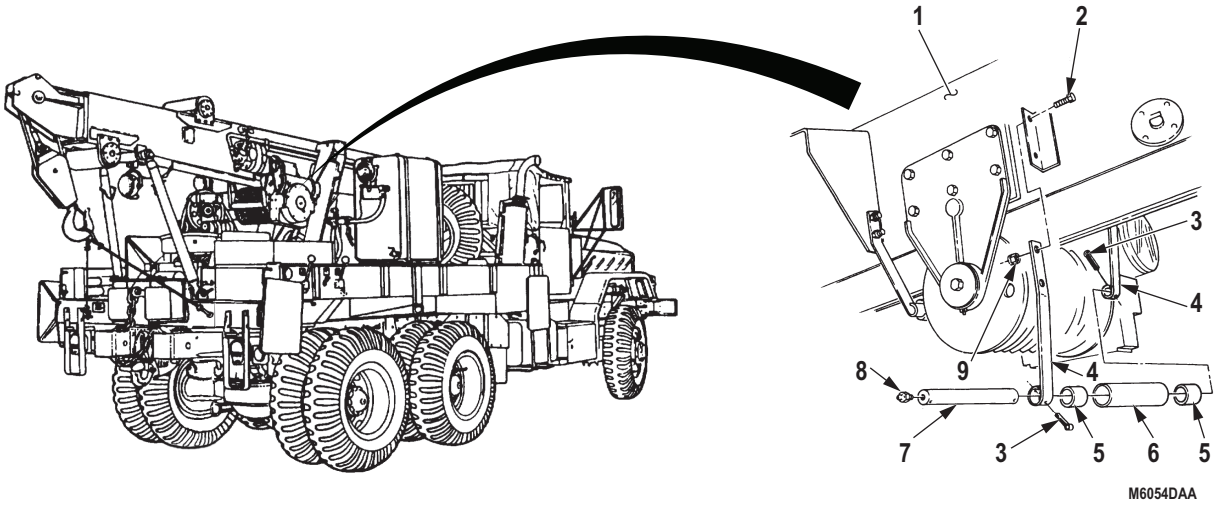


Figure 1. Hoist Level Wind Removal.

END OF TASK

INSTALLATION

1. Install two bearings (Figure 2, Item 5) in roller (Figure 2, Item 6).
2. Install grease fitting (Figure 2, Item 8) in shaft (Figure 2, Item 7).
3. Install shaft (Figure 2, Item 7) in roller (Figure 2, Item 6).
4. Install two braces (Figure 2, Item 4) on shaft (Figure 2, Item 7) with two cotter pins (Figure 2, Item 3).
5. Install two roller braces (Figure 2, Item 4) on boom (Figure 2, Item 1) with four screws (Figure 2, Item 2) and locknuts (Figure 2, Item 9).

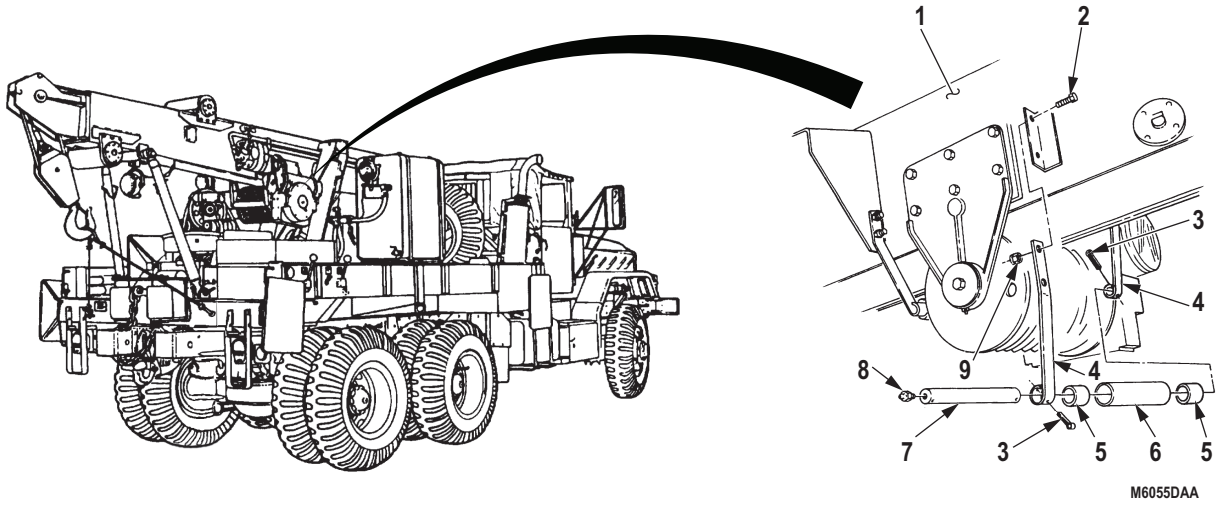


Figure 2. Hoist Level Wind Installation.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
CRANE GONDOLA CONTROL VALVE REPAIR

INITIAL SETUP:

Tools and Special Tools
- Tool Kit, General Mechanic's: Automotive (Volume 5, WP 0826, Table 1, Item 56)
- Remover, Seal Retainer (Volume 5, WP 0826, Table 1, Item 49)
- Vise, Machinist's (Volume 5, WP 0826, Table 1, Item 59)
- Wrench, Torque, Click, Ratcheting, 1/2" Drive, 250 Ft-Lb (Volume 5, WP 0826, Table 1, Item 63)

Materials/Parts
- Cap Set, Protective, Dust and Moisture Seal (Volume 5, WP 0825, Table 1, Item 13)
- Cleaning Compound, Solvent (Volume 5, WP 0825, Table 1, Item 16, 17)
- Cloth, Cleaning (Volume 5, WP 0825, Table 1, Item 19)
- Load Check Valve Kit (Volume 5, WP 0827, Table 1, Item 181) Qty: 4
- Locknut (Volume 5, WP 0827, Table 1, Item 324) Qty: 4
- Lockwasher (Volume 5, WP 0827, Table 1, Item 405) Qty: 4

Materials/Parts (cont.)
- O-ring (Volume 5, WP 0827, Table 1, Item 358) Qty: 1
- O-ring (Volume 5, WP 0827, Table 1, Item 365) Qty: 4
- O-ring (Volume 5, WP 0827, Table 1, Item 366) Qty: 1
- Parts Kit, Winch (Volume 5, WP 0827, Table 1, Item 182)
- Snapring (Volume 5, WP 0827, Table 1, Item 433) Qty: 8

References
- Volume 5, WP 0820

Equipment Condition
- Parking brake set. (TM 9-2320-272-10)
- Hydraulic oil reservoir drained. (TM 9-2320-272-10)

REMOVE

1. Remove five screws (Figure 1, Item 1) and control valve cover (Figure 1, Item 2) from gondola (Figure 1, Item 3).

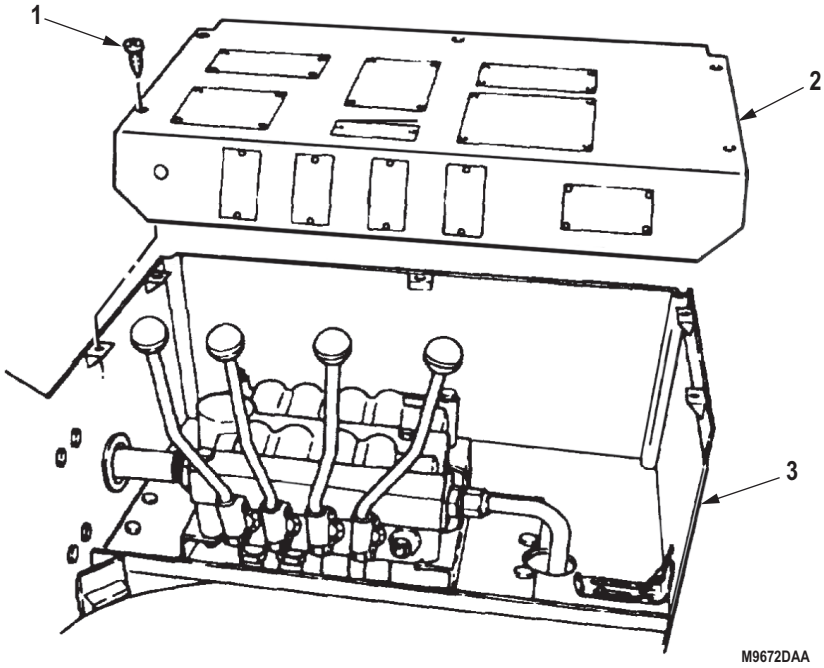


Figure 1. Control Valve Cover Removal.

REMOVE - Continued

CAUTION

When disconnecting hydraulic lines, plug all openings to prevent dirt from entering and causing internal damage to parts.

NOTE

- Have drainage container ready to catch oil.
- Use drain pans to retain leaking/draining fluids. Refer to local procedures and plans for preventing and responding to fluid spills or leaks. Comply with local regulations when disposing of clean up material and leaked and spilled fluids.
- Tag hydraulic lines for installation.

2. Disconnect hydraulic oil reservoir crossover tube (Figure 2, Item 6) from control valve elbow (Figure 2, Item 7).
3. Remove control valve elbow (Figure 2, Item 7) from control valve adapter (Figure 2, Item 8).
4. Disconnect hydraulic elevating cylinder crossover tube (Figure 2, Item 5) from control valve adapter fitting (Figure 2, Item 1).
5. Remove control valve tube (Figure 2, Item 3) from hydraulic swivel valve flex line (Figure 2, Item 4) and hydraulic control valve adapter (Figure 2, Item 2).

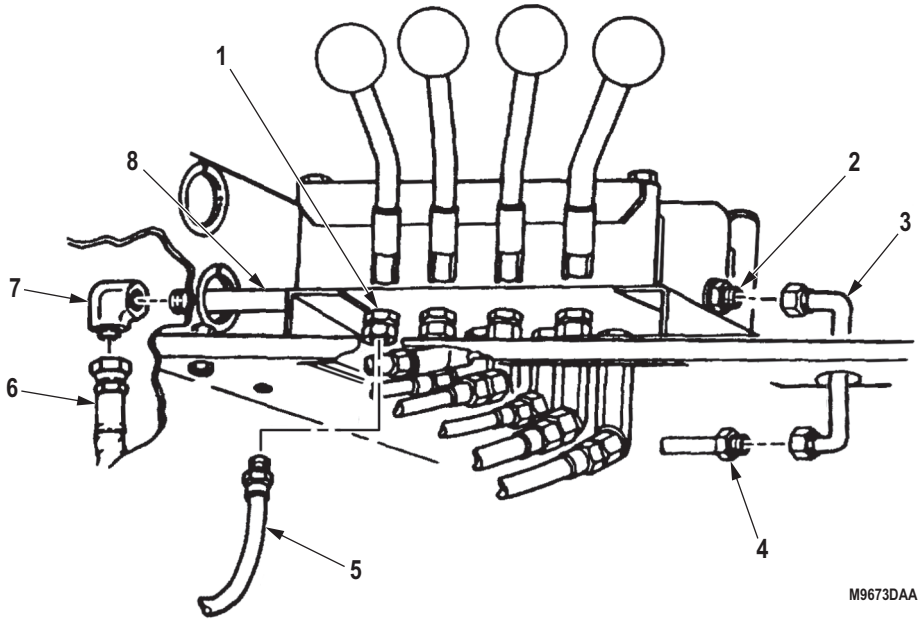


Figure 2. Hose Removal.

REMOVE - Continued

6. Disconnect two hydraulic swing motor flex lines (Figure 3, Item 5) from control valve adapter fittings (Figure 3, Item 4).
7. Disconnect two hydraulic crowd cylinder flex lines (Figure 3, Item 6) from control valve adapter fittings (Figure 3, Item 3).
8. Disconnect two hydraulic hoist motor flex lines (Figure 3, Item 7) from control valve adapter fittings (Figure 3, Item 2).
9. Remove four locknuts (Figure 3, Item 8), screws (Figure 3, Item 10), and control valve (Figure 3, Item 1) from gondola (Figure 3, Item 9). Discard locknuts.

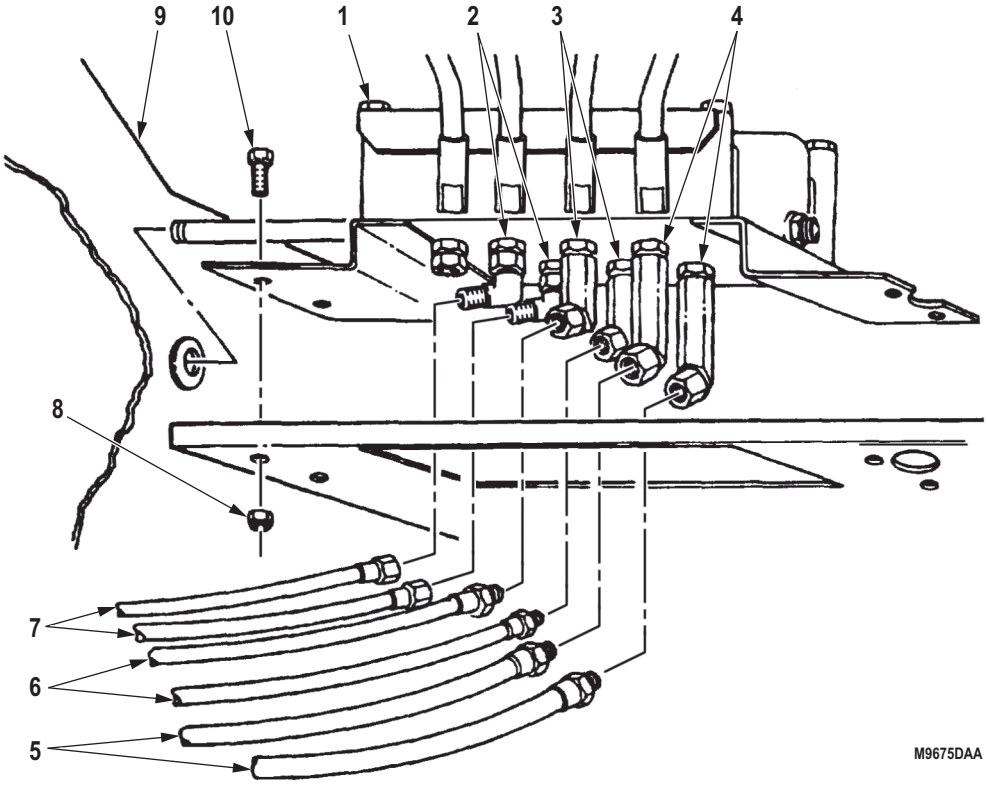


Figure 3. Crane Gondola Control Valve Disassembly.

END OF TASK

DISASSEMBLY

WARNING



Solvent cleaning compound is flammable and toxic. Do not use near an open flame and always have a fire extinguisher nearby when solvents are used. Use only in well-ventilated places, wear protective clothing, and dispose of cleaning rags in approved container. Failure to comply may result in damage to equipment, injury, or death to personnel.

1. Thoroughly clean exterior of crane control valve (Figure 4, Item 3) with solvent cleaning compound (Volume 5, WP 0817).
2. Remove eight snaprings (Figure 4, Item 5), pins (Figure 4, Item 2), and four handles (Figure 4, Item 1) from base (Figure 4, Item 4) and crane control valve (Figure 4, Item 3). Discard snaprings.

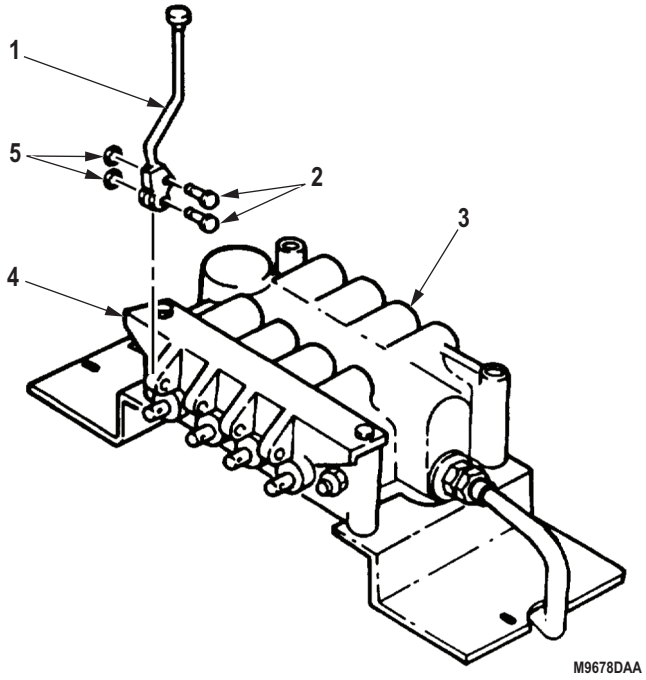


Figure 4. Crane Gondola Control Valve Disassembly.

DISASSEMBLY - Continued

3. Remove four nuts (Figure 5, Item 13), lockwashers (Figure 5, Item 14), screws (Figure 5, Item 1), brackets (Figure 5, Items 7 and 15), and base (Figure 5, Item 2) from crane control valve (Figure 3, Item 3). Discard lockwashers.
4. Remove nipple adapter (Figure 5, Item 17) and o-ring (Figure5, Item 16) from crane control valve (Figure 5, Item 3). Discard o-ring.
5. Remove nipple (Figure 5, Item 18) from nipple adapter (Figure 5, Item 17).

NOTE

Mark position and angle of tube and all elbows for assembly.

6. Remove tube (Figure 5, Item 6), connector (Figure 5, Item 5), and o-ring (Figure 5, Item 4) from crane control valve (Figure 5, Item 3). Discard o-ring.
7. Remove two elbows (Figure 5, Item 10), three adapters (Figure 5, Item 11), and two o-rings (Figure 5, Item 12) from crane control valve (Figure 5, Item 3). Discard o-rings.
8. Remove four elbows (Figure 5, Item 9) and o-rings (Figure 5, Item 8) from crane control valve (Figure 5, Item 3). Discard o-rings.

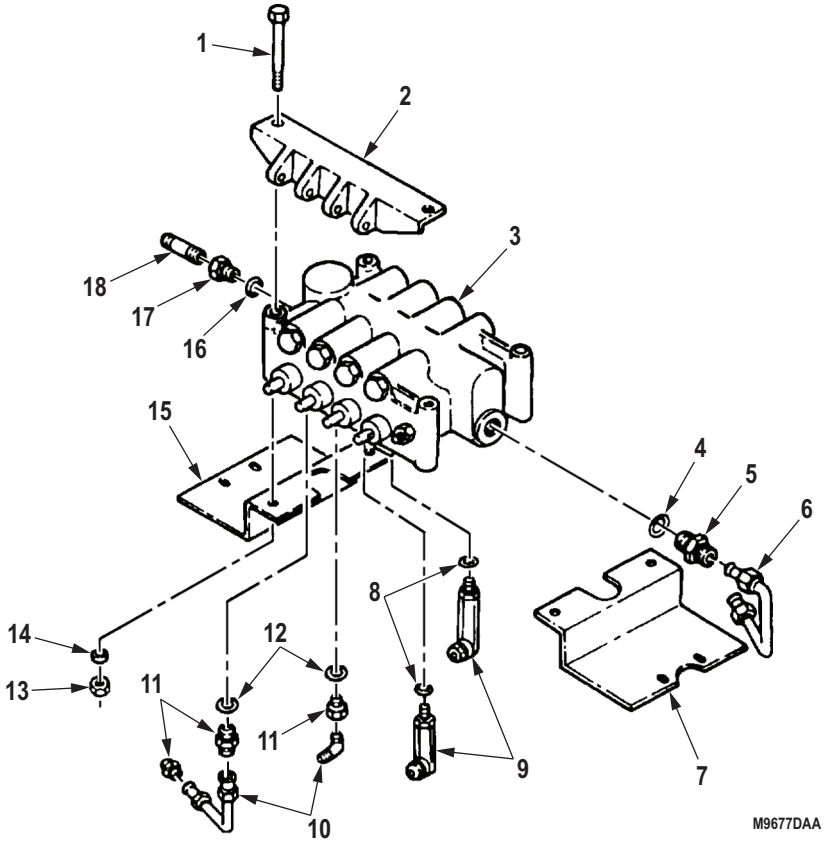


Figure 5. Crane Gondola Control Valve Disassembly.

DISASSEMBLY - Continued

NOTE

All spring-centered spool valves in the control valve are removed and disassembled the same way. Three spool valves are stamped with a D (double action) on the shank of the spool valve. The fourth is stamped with an S (single action) and is located next to the oil outlet port in the control valve. Steps (9) through (12) will cover a double-action valve only.

9. Remove spool valve cap (Figure 6, Item 2) and spool valve (Figure 6, Item 1) from crane control valve (Figure 6, Item 8).

10. Clamp spool valve (Figure 6, Item 1) in soft-jawed vise.

11. Using improvised compression tool, compress spring (Figure 6, Item 5) and remove snapring (Figure 6, Item 3), outer spacer (Figure 6, Item 4), spring, travel limit washer (Figure 6, Item 6), and inner spacer (Figure 6, Item 7) from spool valve (Figure 6, Item 1).

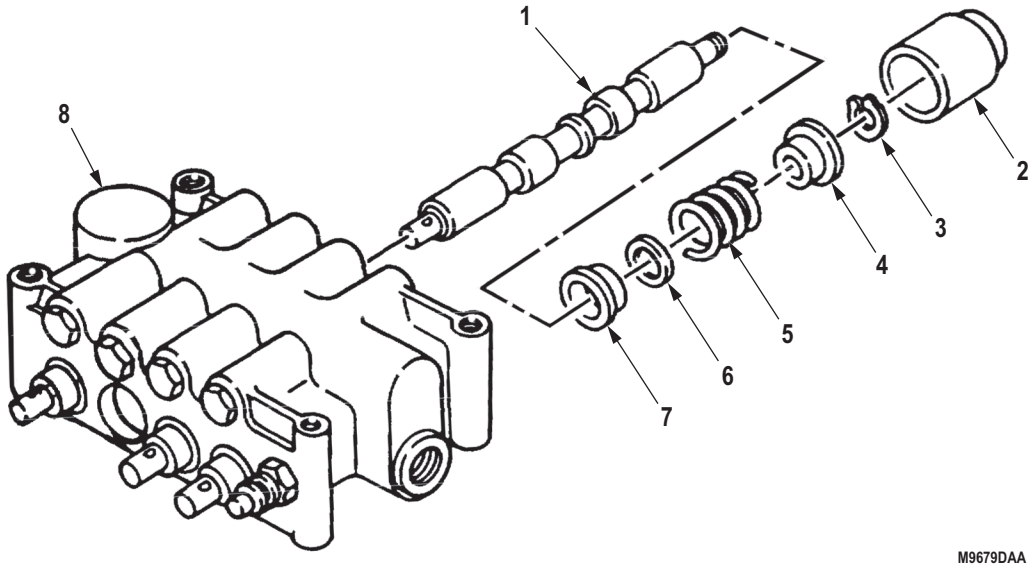


Figure 6. Crane Gondola Control Valve Disassembly.

DISASSEMBLY - Continued

12. Using seal retainer remover and replacer (Figure 7, Item 22), remove retainer (Figure 7, Item 19), seal (Figure 7, Item 20), and o-ring (Figure 7, Item 21) from crane control valve (Figure 7, Item 3). Discard seal and o-ring.
13. Remove two check valve caps (Figure 7, Item 8), springs (Figure 7, Item 11), and poppets (Figure 7, Item 12) from crane control valve (Figure 7, Item 3).
14. Remove backup ring (Figure 7, Item 10), o-ring (Figure 7, Item 9), backup ring (Figure 7, Items 1 and 4), backup ring (Figure 7, Item 5), o-ring (Figure 7, Item 6), and o-ring (Figure 7, Item 7) from each check valve cap (Figure 7, Item 8). Discard backup rings and o-rings.
15. Remove relief valve (Figure 7, Item 18) from crane control valve (Figure 7, Item 3). Discard relief valve.
16. Remove seat retainer plug (Figure 7, Item 13), drain sleeve (Figure 7, Item 5), and seat retainer (Figure 7, Item 15) from crane control valve (Figure 7, Item 3). Discard seat retainer.
17. Remove poppet spring (Figure 7, Item 17) and poppet assembly (Figure 7, Item 16) from crane control valve (Figure 7, Item 3). Discard poppet assembly and poppet spring.

DISASSEMBLY - Continued

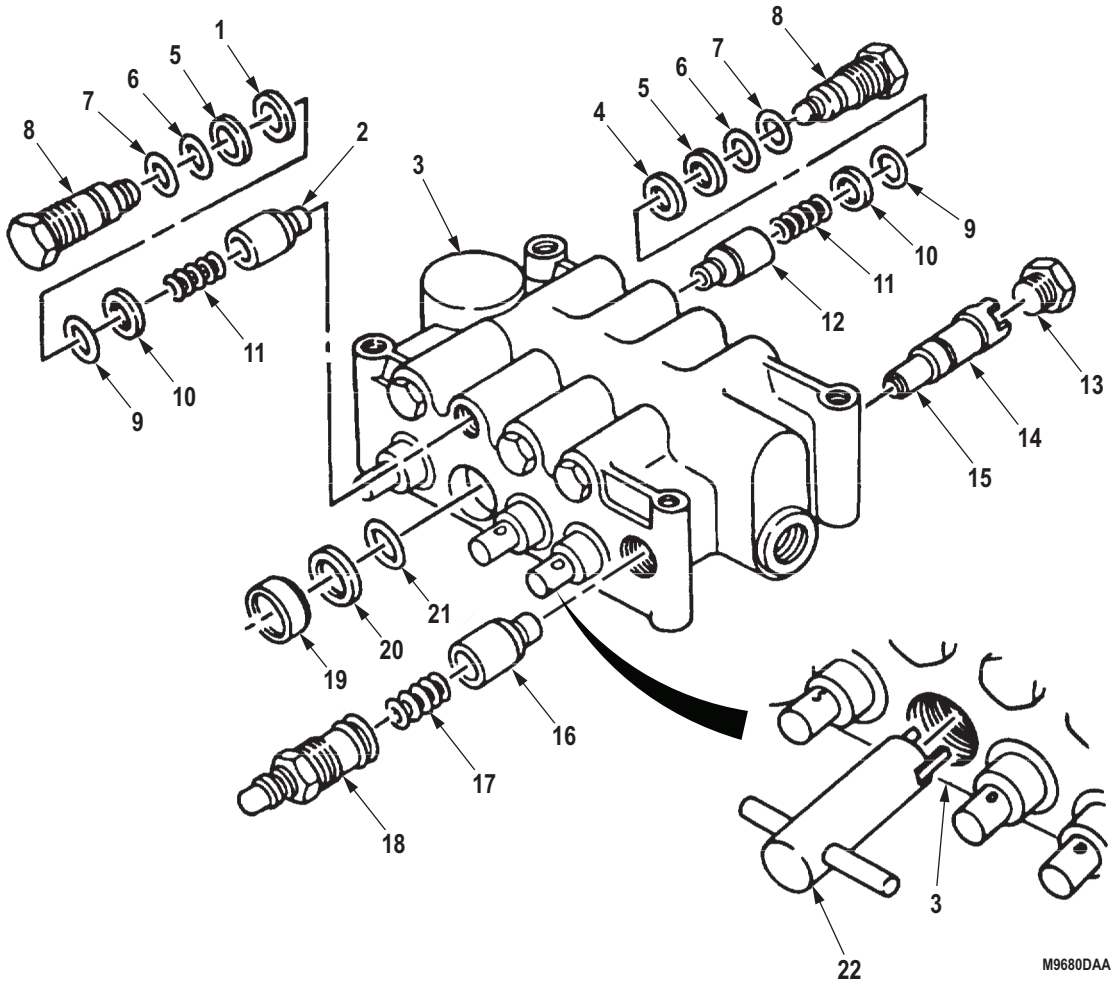


Figure 7. Crane Control Valve Disassembly.

END OF TASK

CLEANING AND INSPECTION

WARNING



Solvent cleaning compound is flammable and toxic. Do not use near an open flame and always have a fire extinguisher nearby when solvents are used. Use only in well-ventilated places, wear protective clothing, and dispose of cleaning rags in approved container. Failure to comply may result in damage to equipment, injury, or death to personnel.

1. Clean all control valve components with solvent cleaning compound and dry with lint-free cloth (Volume 5, WP 0817).
2. Inspect spool valve and crane control valve. Replace crane control valve if grooved, scratched, cracked, or broken.

END OF TASK

ASSEMBLY

NOTE

Drain sleeve should go into control valve far enough to leave to or three full threads exposed. Installing seat retainer plug at this point sets the seat retainer to the proper depth.

1. Install seat retainer (Figure 8, Item 12) and drain sleeve (Figure 8, Item 13) in crane control valve (Figure 8, Item 1).
2. Install seat retainer plug (Figure 8, Item 11) in crane control valve (Figure 8, Item 1).
3. Install poppet assembly (Figure 8, Item 16) and poppet spring (Figure 8, Item 15) in crane control valve (Figure 8, Item 1) so poppet assembly points toward seat retainer (Figure 8, Item 12).
4. Install relief valve (Figure 8, Item 14) on crane control valve (Figure 8, Item 1).
5. Install o-rings (Figure 8, Items 4 and 5), backup rings (Figure 8, Items 2 and 3), o-ring (Figure 8, Item 7), and backup ring (Figure 8, Item 8) on each check valve cap (Figure 8, Item 6).
6. Install two poppets (Figure 8, Item 10), springs (Figure 8, Item 9), and check valve caps (Figure 8, Item 6) into crane control valve (Figure 8, Item 1).

ASSEMBLY - Continued

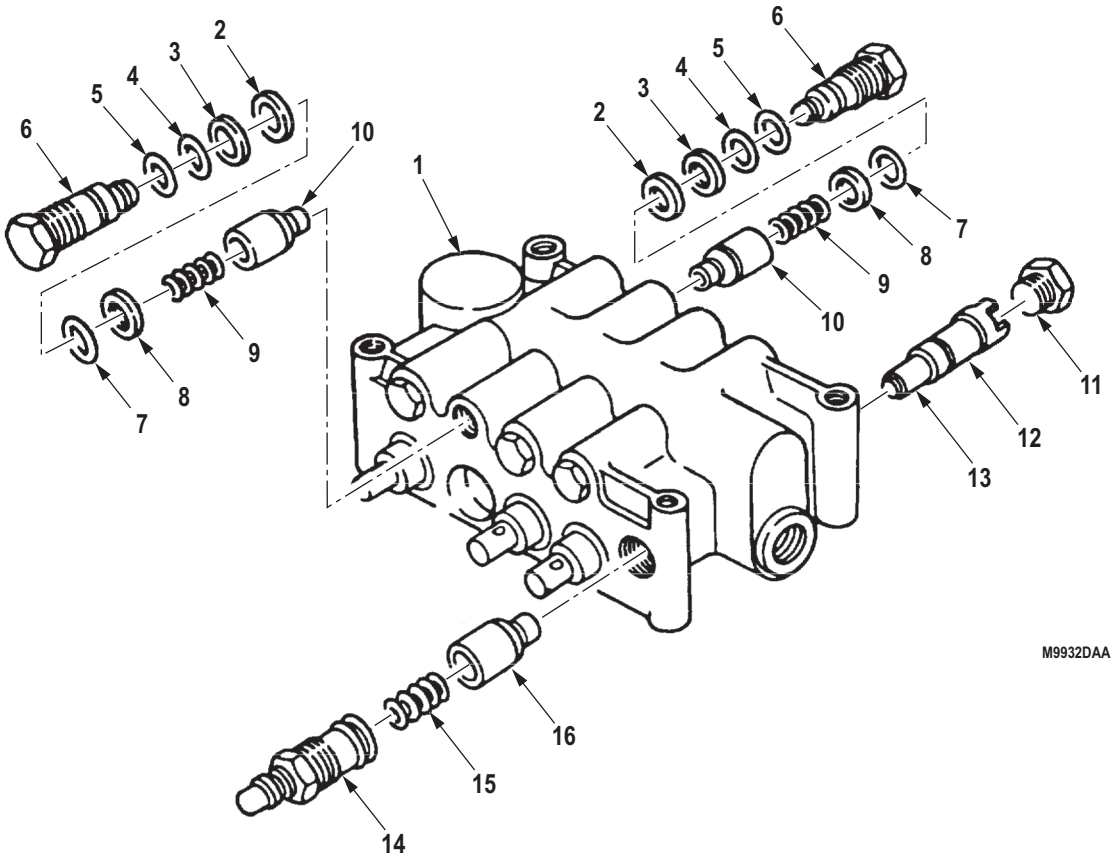


Figure 8. Crane Gondola Control Valve Assembly.

ASSEMBLY - Continued

NOTE

The remaining check valve caps are assembled the same way.

7. Clamp spool valve (Figure 9, Item 1) in soft-jawed vise.
8. Using improvised compression tool, compress spring (Figure 9, Item 5) and install inner spacer (Figure 9, Item 7), travel limit washer (Figure 9, Item 6), spring, and outer spacer (Figure 9, Item 4) on spool valve (Figure 9, Item 1) with snapring (Figure 9, Item 3).
9. Install spool valve (Figure 9, Item 1) and spool valve cap (Figure 9, Item 2) in crane control valve (Figure 9, Item 11).
10. Using seal retainer remover and replacer (Figure 9, Item 12), install o-ring (Figure 9, Item 10), seal (Figure 9, Item 9), and retainer (Figure 9, Item 8) on crane control valve (Figure 9, Item 11).

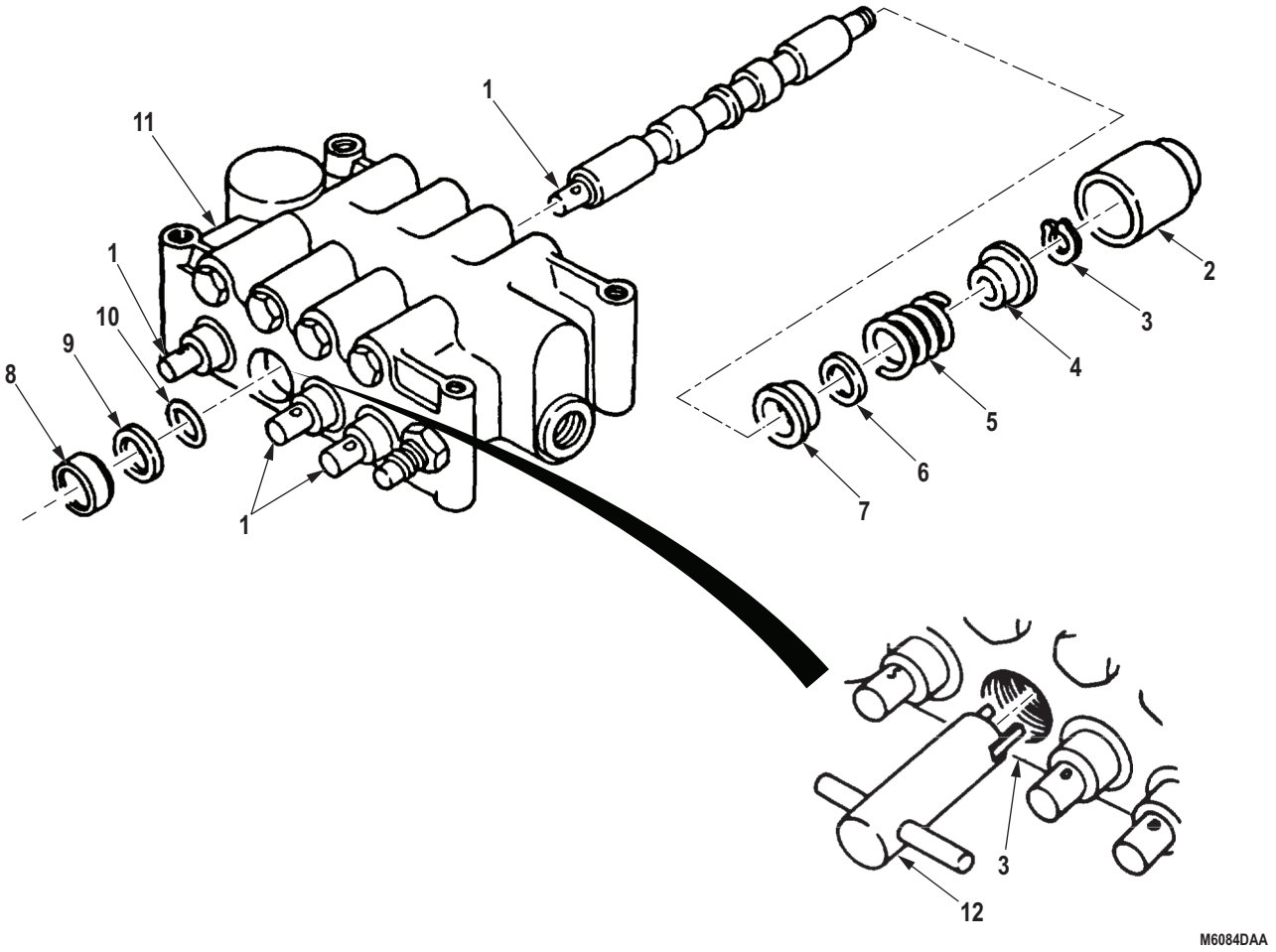


Figure 9. Crane Gondola Control Valve Assembly.

ASSEMBLY - Continued

NOTE

- Install all parts in Steps (11) through (13) in their marked location and angle on control valve.
- The three remaining spool valves are assembled into the control valve in the same way.

11. Install four o-rings (Figure 10, Item 8), elbows (Figure 10, Item 9), two o-rings (Figure 10, Item 12), three adapters (Figure 10, Item 11), two elbows (Figure 10, Item 10), o-ring (Figure 10, Item 4), connector (Figure 10, Item 5), and tube (Figure 10, Item 6) on crane control valve.
12. Install nipple adapter (Figure 10, Item 17) on nipple (Figure 10, Item 18).
13. Install o-ring (Figure 10, Item 16) and nipple adapter (Figure 10, Item 17) on crane control valve (Figure 10, Item 3).
14. Install right control bracket (Figure 10, Item 7), left control bracket (Figure 10, Item 15), and base (Figure 10, Item 2) on crane control valve (Figure 10, Item 3) with four screws (Figure 10, Item 1), lockwashers (Figure 10, Item 4), and nuts (Figure 10, Item 13).

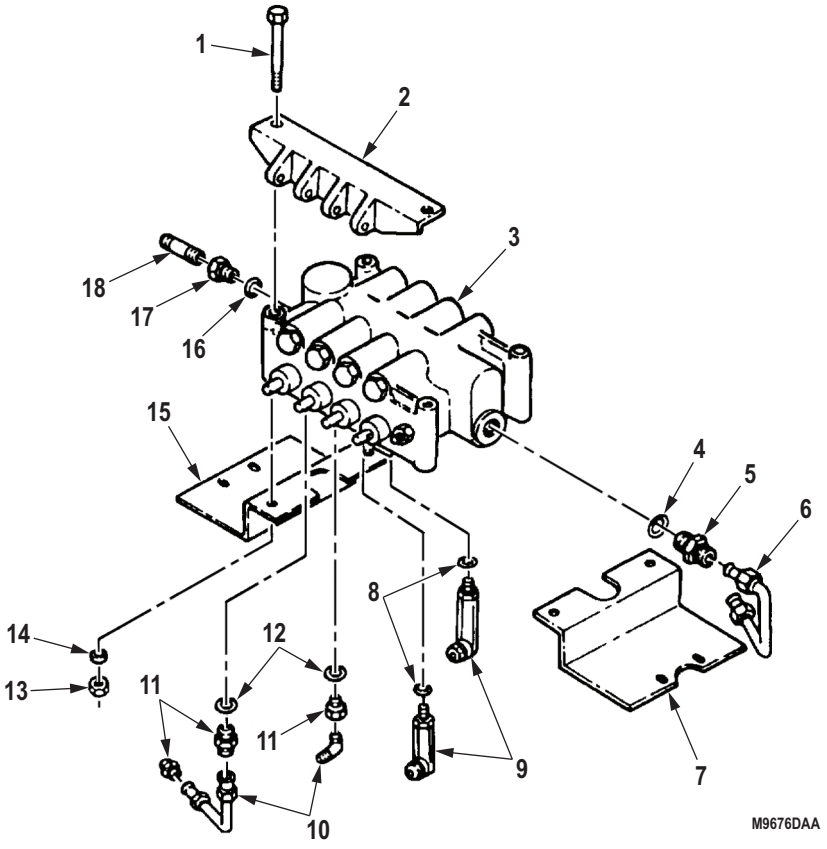


Figure 10. Crane Gondola Control Valve Assembly.

ASSEMBLY - Continued

15. Align four operating handles (Figure 11, Item 1) with holes in base (Figure 11, Item 4) and control spool valves (Figure 11, Item 3), and install four operating handles with eight pins (Figure 11, Item 2) and snaprings (Figure 11, Item 5).

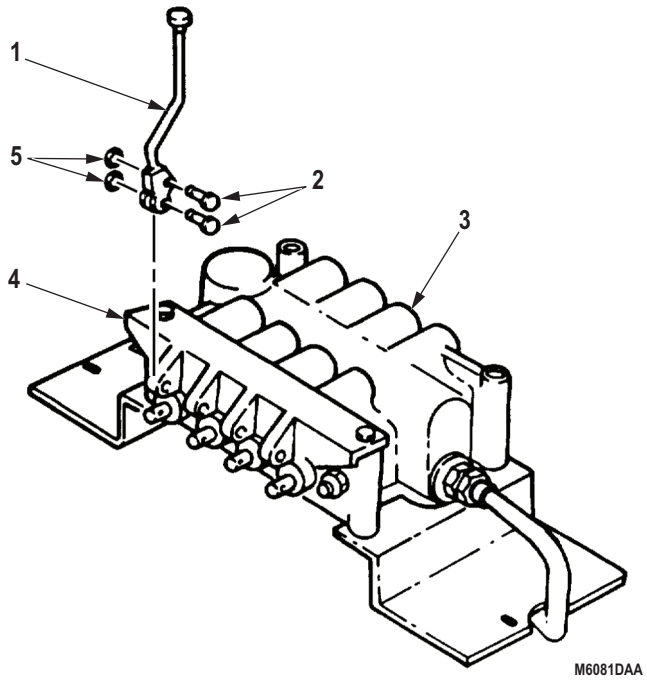


Figure 11. Crane Gondola Control Valve Assembly.

END OF TASK

INSTALLATION

NOTE

- If new crane control valve is being installed, fittings from old crane control valve may be used. Two side control plates and base may be used. Fittings must be cleaned and inspected for cracks and stripped threads.
- During installation, make sure all hydraulic lines are connected at their marked locations.

1. Install control valve (Figure 12, Item 1) on gondola (Figure 12, Item 9) with four screws (Figure 12, Item 10) and locknuts (Figure 12, Item 8). Tighten screws 44 to 61 lb-ft (60 to 83 N·m).
2. Install two hydraulic hoist motor flex lines (Figure 12, Item 7) on control valve adapter fittings (Figure 12, Item 2).
3. Install two hydraulic crowd cylinder flex lines (Figure 12, Item 6) on control valve adapter fittings (Figure 12, Item 3).
4. Install two hydraulic swing motor flex lines (Figure 12, Item 5) on control valve adapter fittings (Figure 12, Item 4).

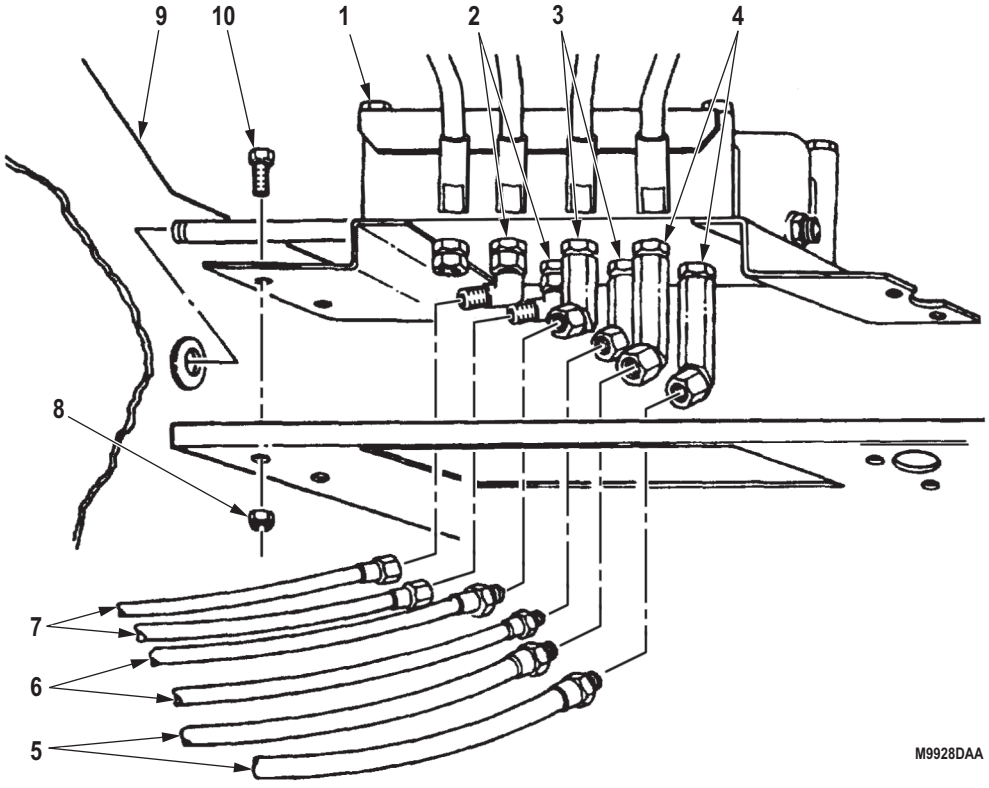


Figure 12. Crane Gondola Control Valve Installation.

INSTALLATION - Continued

5. Install control valve tube (Figure 13, Item 3) on hydraulic swivel valve flex line (Figure 13, Item 4) and hydraulic control valve adapter (Figure 13, Item 2).
6. Install hydraulic elevating cylinder crossover tube (Figure 13, Item 5) on control valve adapter (Figure 13, Item 1).
7. Install control valve elbow (Figure 13, Item 7) on hydraulic control valve adapter (Figure 13, Item 8).
8. Install hydraulic oil reservoir crossover tube (Figure 13, Item 6) on control valve elbow (Figure 13, Item 7).

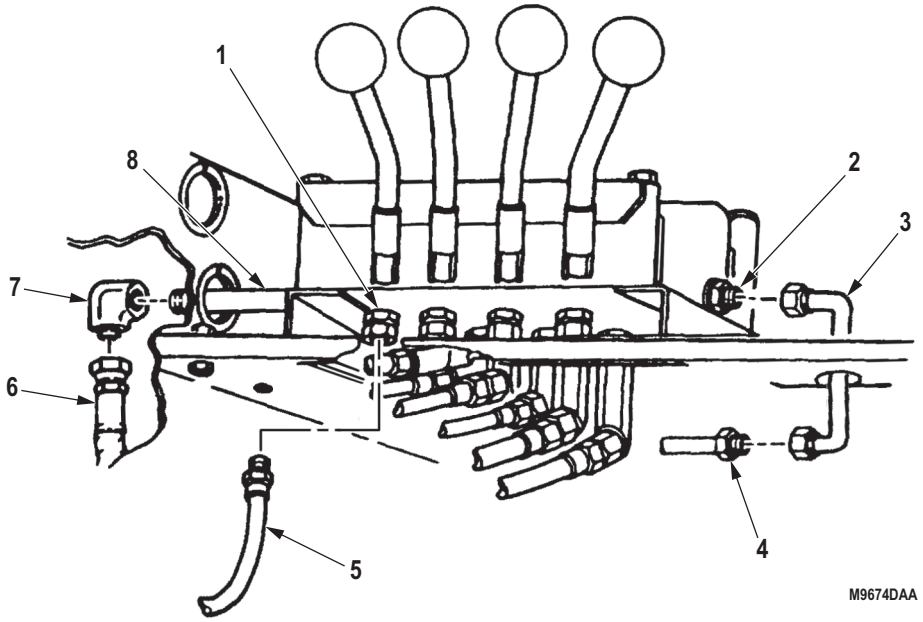


Figure 13. Crane Gondola Control Valve Installation.

INSTALLATION - Continued

9. Install control valve cover (Figure 14, Item 2) on gondola (Figure 14, Item 3) with five screws (Figure 14, Item 1).

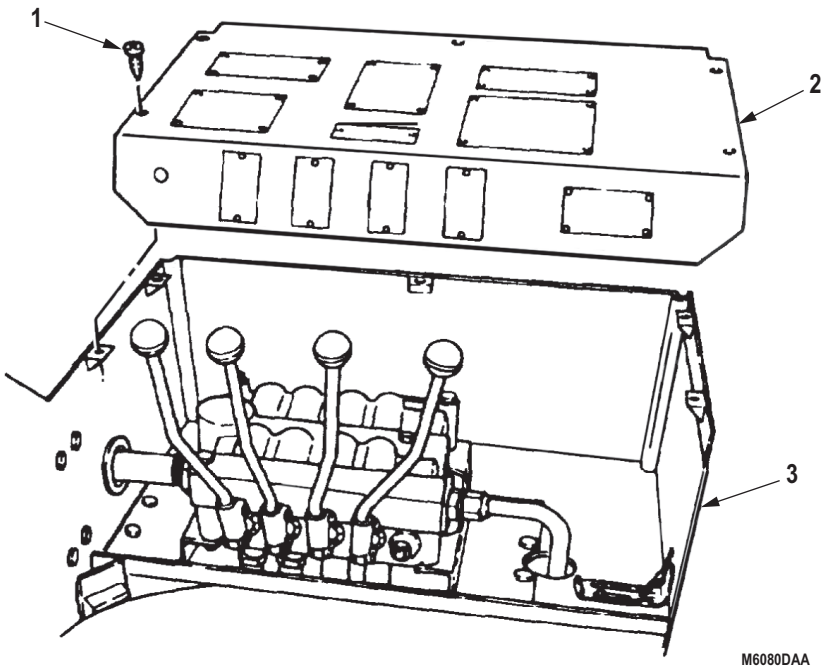


Figure 14. Crane Gondola Control Valve Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Fill hydraulic oil reservoir to proper oil level. (Volume 5, WP 0820)
2. Check pressure relief valve adjustment. (WP 0705)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
GONDOLA REPAIR

INITIAL SETUP:

Tools and Special Tools

Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)
Chain Assembly
(Volume 5, WP 0826, Table 1, Item 15)
Hoist Assembly
Wrench, Torque, Click, Ratcheting, 1/2" Drive, 250 Ft-Lb
(Volume 5, WP 0826, Table 1, Item 63)

Materials/Parts

Locknut (Volume 5, WP 0827, Table 1, Item 285)
Qty: 3
Locknut (Volume 5, WP 0827, Table 1, Item 324)
Qty: 12

Personnel Required

(2)

Equipment Condition

Parking brake set. (TM 9-2320-272-10)
Crane control valve removed. (WP 0698)
Floodlight assembly removed.
(Volume 2, WP 0329)

REMOVAL

WARNING



All personnel must stand clear during lifting operations. A snapped chain, or shifting or swinging load, may result in injury to personnel. Failure to comply may result in injury or death to personnel.

1. Remove hydraulic tube (Figure 1, Item 2) from elevating cylinder crossover tee (Figure 1, Item 8) and control valve flex line (Figure 1, Item 3).

NOTE

Tag all lines for installation.

2. Remove three locknuts (Figure 1, Item 6), clamps (Figure 1, Item 5), and six hydraulic flex lines (Figure 1, Item 7) from gondola (Figure 1, Item 1). Discard locknuts.
3. Remove hydraulic swivel valve flex line (Figure 1, Item 4) from gondola (Figure 1, Item 1).

REMOVAL - Continued

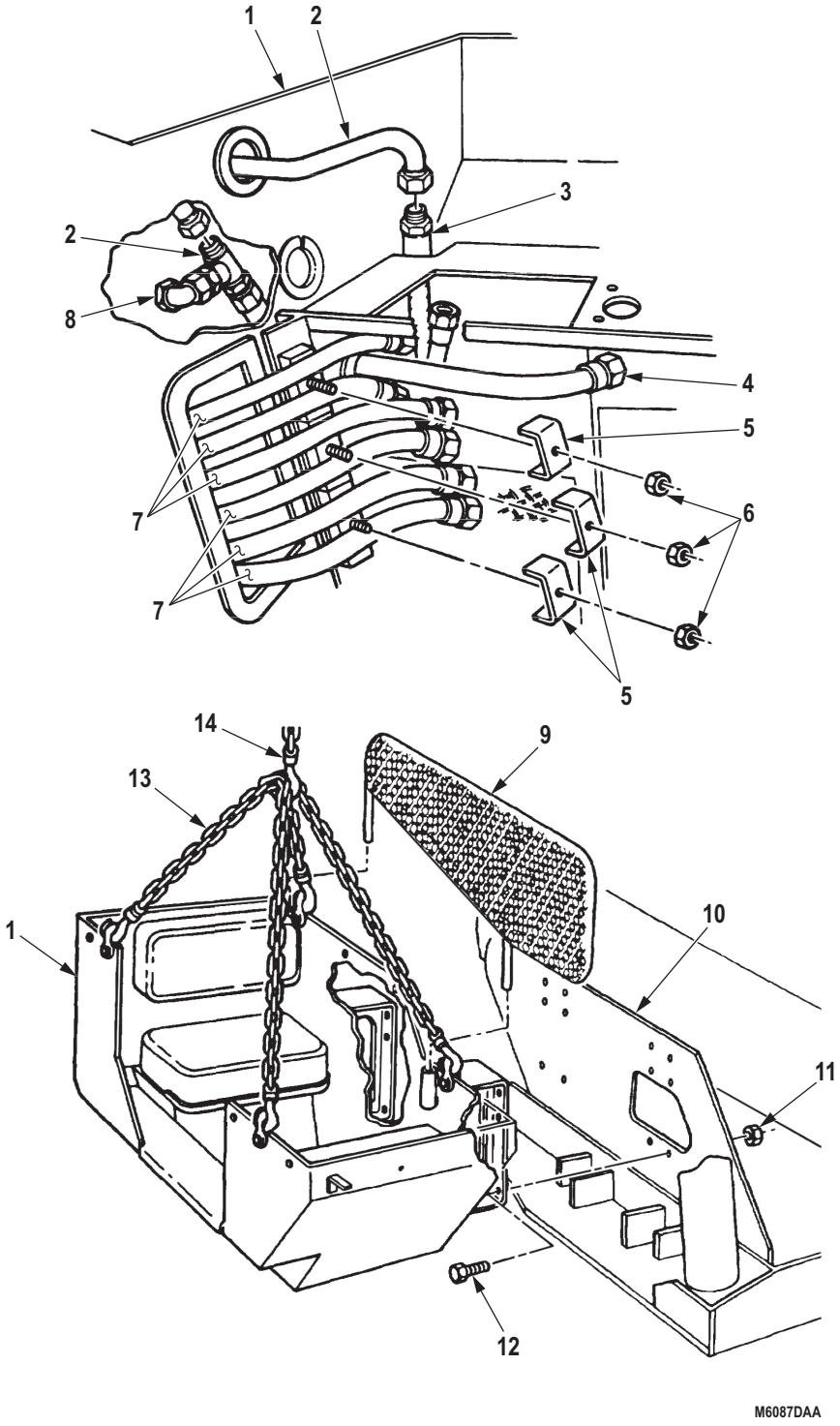


Figure 1. Gondola Removal.

REMOVAL - Continued

4. Remove gondola guard (Figure 2, Item 9) from gondola (Figure 2, Item 1).
5. Attach two utility chains (Figure 2, Item 13) to gondola (Figure 2, Item 1).
6. Attach hoist hook (Figure 2, Item 14) to utility chains and remove slack.

CAUTION

Ensure all hydraulic lines and wires are fastened clear of gondola to avoid snagging during removal.

NOTE

Assistant will help with Step (7).

7. Remove 12 locknuts (Figure 2, Item 11) and screws (Figure 2, Item 12) from turntable side plate (Figure 2, Item 10) and lift gondola (Figure 2, Item 1) away from side plate (Figure 2, Item 10). Discard locknuts.
8. Remove lifting device (Figure 2, Item 14) and two utility chains (Figure 2, Item 13) from gondola (Figure 2, Item 1).

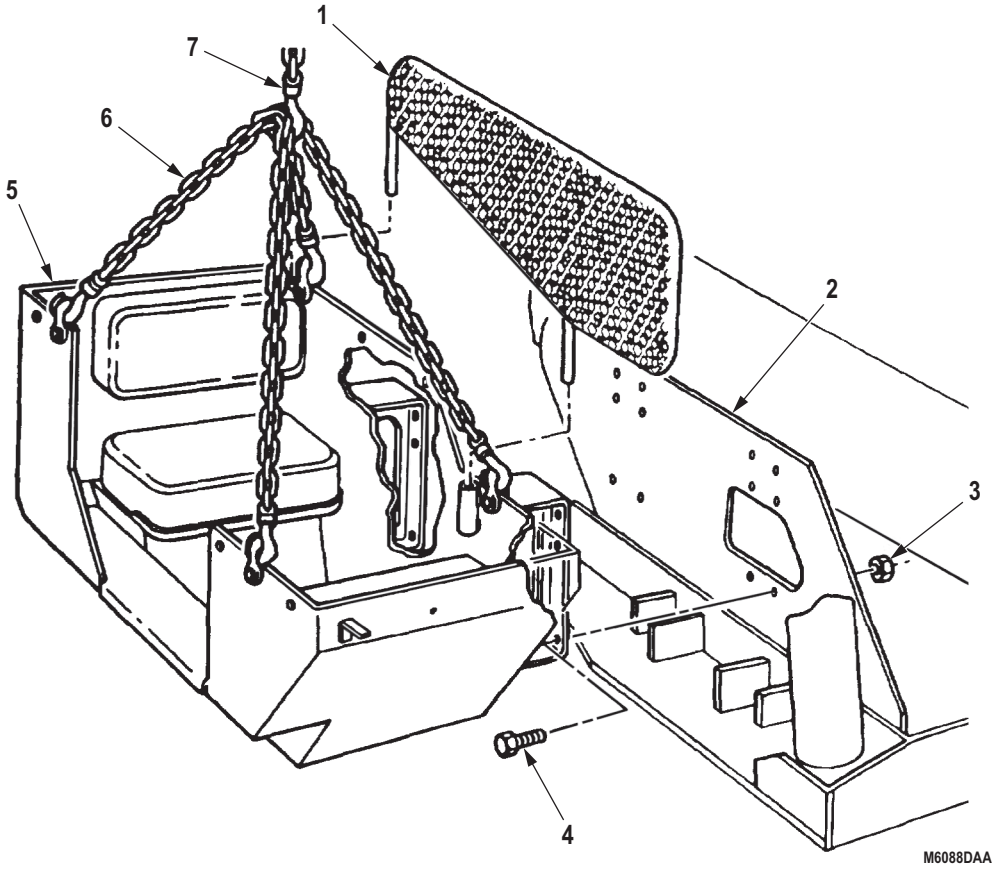


Figure 2. Gondola Removal.

END OF TASK

INSTALLATION

1. Attach two utility chains to gondola (Figure 3, Item 5).
2. Attach lifting device to two utility chains.

NOTE

- Assistant will help with Step (3).
- When positioning gondola, guide all hydraulic lines through opening.

3. Lift gondola (Figure 3, Item 5) to turntable side plate (Figure 3, Item 2) and install with 12 screws (Figure 3, Item 4) and locknuts (Figure 3, Item 3). Tighten screws 44 to 61 lb-ft (60 to 83 N·m).
4. Remove two utility chains and hoist hook from gondola (Figure 3, Item 5).
5. Install gondola guard (Figure 3, Item 1) on gondola (Figure 3, Item 5).

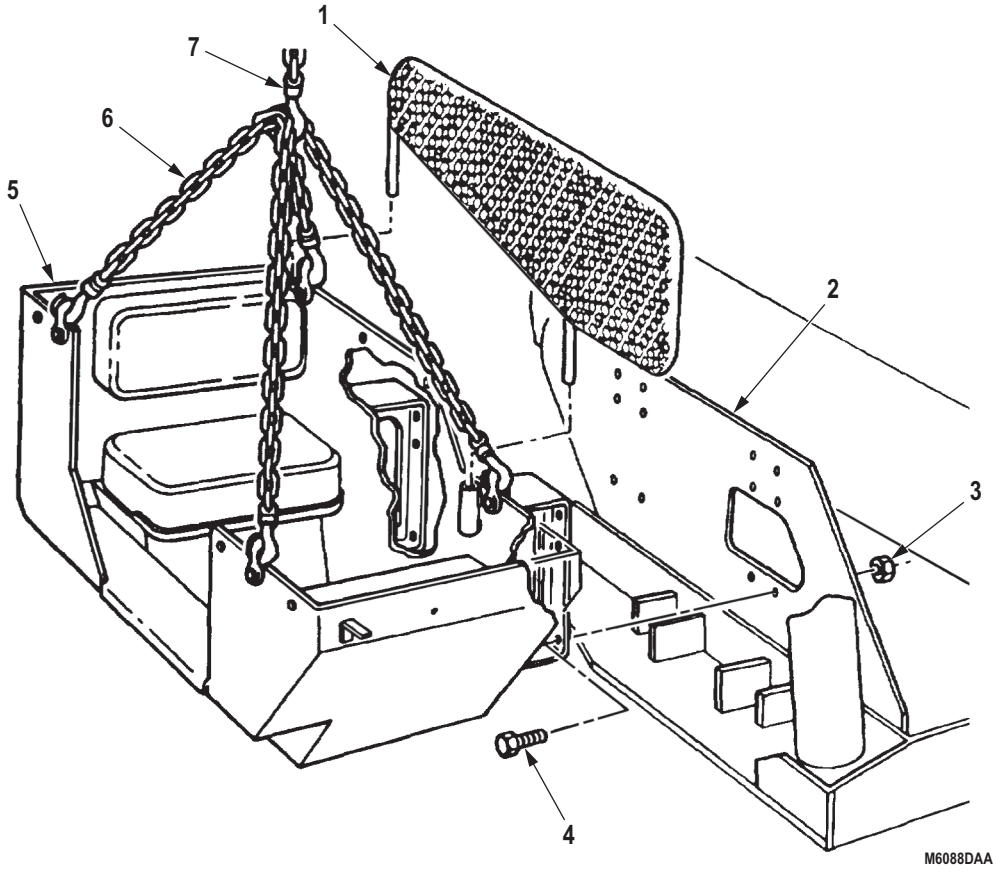


Figure 3. Gondola Installation.

INSTALLATION - Continued

6. Guide hydraulic swivel valve flex line (Figure 4, Item 4) through hole in gondola (Figure 4, Item 1).
7. Install six hydraulic flex lines (Figure 4, Item 7) on gondola (Figure 4, Item 1) with three clamps (Figure 4, Item 5) and locknuts (Figure 4, Item 6).
8. Install hydraulic tube (Figure 4, Item 2) on elevating cylinder crossover tee (Figure 4, Item 9) and control valve flex line (Figure 4, Item 3).

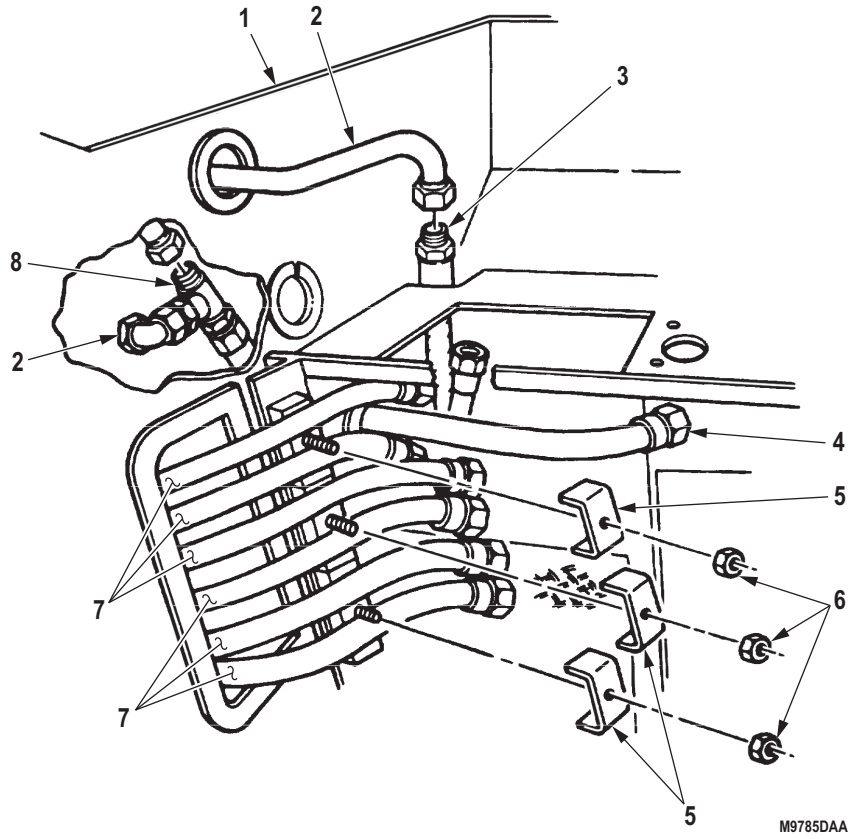


Figure 4. Gondola Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install crane control valve. (WP 0698)
2. Install floodlight assembly. (Volume 2, WP 0329)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
HYDRAULIC HOIST WINCH MOTOR AND LINES REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)
Wrench, Torque, Click, Ratcheting, 1/2" Drive, 250 Ft-Lb
(Volume 5, WP 0826, Table 1, Item 63)

Materials/Parts
Cap Set, Protective, Dust and Moisture Seal
(Volume 5, WP 0825, Table 1, Item 13)
Gasket (Volume 5, WP 0827, Table 1, Item 14)
Qty: 1
Locknut (Volume 5, WP 0827, Table 1, Item 275)
Qty: 4
Lockwasher
(Volume 5, WP 0827, Table 1, Item 408)
Qty: 4
Woodruff Key
(Volume 5, WP 0827, Table 1, Item 417)
Qty: 1

References
Volume 5, WP 0820

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Hydraulic oil reservoir drained. (WP 0703)

REMOVAL

CAUTION

When disconnecting hydraulic lines and hoses, plug all openings to prevent dirt from entering and causing internal damage to parts.

NOTE

- Have drainage container ready to catch oil.
- Use drain pans to retain leaking/draining fluids. Refer to local procedures and plans for preventing and responding to fluid spills or leaks. Comply with local regulations when disposing of clean up material and leaked and spilled fluids.
- Tag lines and hoses for installation.

1. Disconnect two steel hydraulic lines (Figure 1, Item 4) from elbows (Figure 1, Item 9).
2. Disconnect two hydraulic flex hoses (Figure 1, Item 5) from steel hydraulic lines (Figure 1, Item 4).
3. Remove four locknuts (Figure 1, Item 3), washers (Figure 1, Item 2), clamps (Figure 1, Item 1), and two steel hydraulic lines (Figure 1, Item 4) from boom (Figure 1, Item 12). Discard locknuts.
4. Remove four screws (Figure 1, Item 7), lockwashers (Figure 1, Item 6), hoist motor (Figure 1, Item 10), and gasket (Figure 1, Item 11) from winch gearbox adapter (Figure 1, Item 8). Discard lockwashers and gasket. Clean gasket remains from mating surface.
5. Remove woodruff key (Figure 1, Item 13) from gear shaft (Figure 1, Item 14).

REMOVAL - Continued

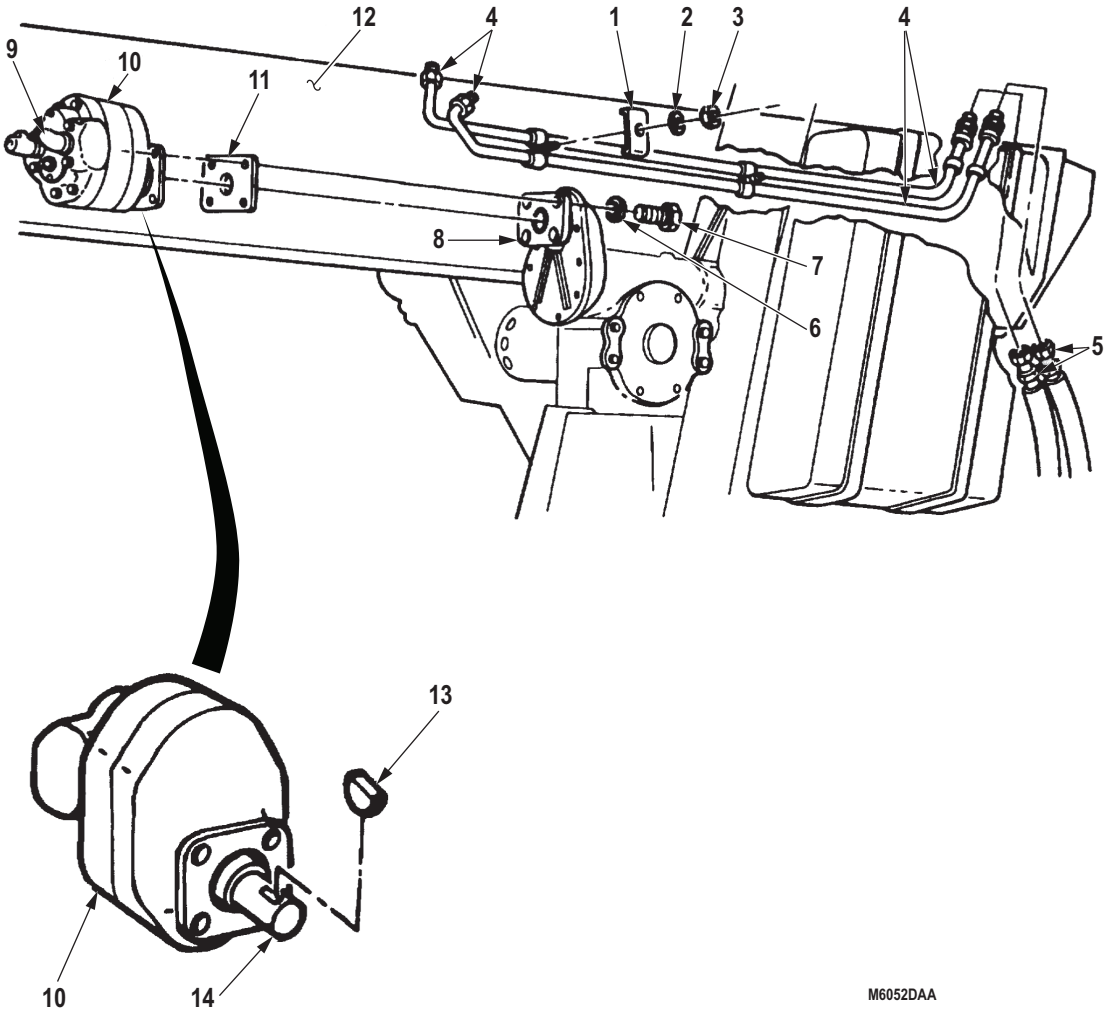


Figure 1. Hydraulic Hoist Winch Motor and Lines Removal.

END OF TASK

INSTALLATION

1. Install woodruff key (Figure 2, Item 13) in slot of gear shaft (Figure 2, Item 14) on hoist motor (Figure 2, Item 10).
2. Install hoist motor (Figure 2, Item 10) on winch gearbox adapter (Figure 2, Item 8) with gasket (Figure 2, Item 11), four lockwashers (Figure 2, Item 6) and screws (Figure 2, Item 7). Tighten screws 60 to 70 lb-ft (81 to 95 N·m).
3. Install two steel hydraulic lines (Figure 2, Item 4) on boom (Figure 2, Item 12) with four clamps (Figure 2, Item 1), washers (Figure 2, Item 2), and locknuts (Figure 2, Item 3).
4. Connect two steel hydraulic lines (Figure 2, Item 4) to elbows (Figure 2, Item 9).
5. Connect two hydraulic flex hoses (Figure 2, Item 5) to steel hydraulic lines (Figure 2, Item 4).

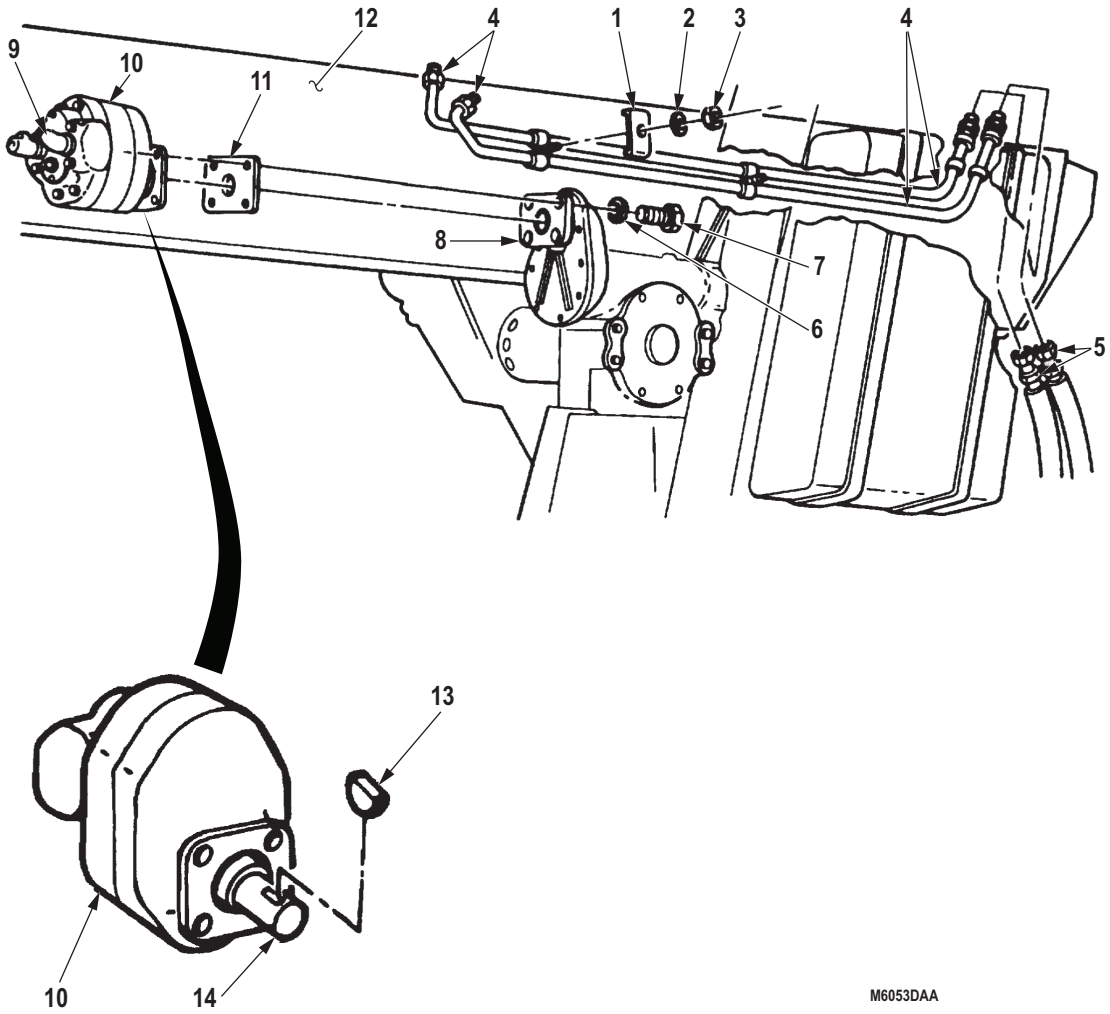


Figure 2. Hydraulic Hoist Winch Motor and Lines Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Fill hydraulic oil reservoir to proper level. (Volume 5, WP 0820)
2. Check hoist motor for proper operation. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
WINCH HYDRAULIC OIL RESERVOIR REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Cap Set, Protective, Dust and Moisture Seal
(Volume 5, WP 0825, Table 1, Item 13)
Tape, Antiseizing
(Volume 5, WP 0825, Table 1, Item 65)

Materials/Parts (cont.)
Locknut (Volume 5, WP 0827, Table 1, Item 285)
Qty: 8
Tiedown Strap
(Volume 5, WP 0827, Table 1, Item 328)
Qty: 1

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Hydraulic oil reservoir drained. (Volume 5, WP 0820)

REMOVAL

WARNING



Accidental or intentional introduction of liquid contaminants into the environment is in violation of state, federal, and military regulations. Refer to local Unit SOP for information concerning storage, use, and disposal of these liquids. Failure to comply may result in injury or death to personnel.

CAUTION

When disconnecting hydraulic lines and hoses, plug all openings to prevent dirt from entering and causing damage to internal parts.

NOTE

- Have drainage container ready to catch oil.
- Use drain pans to retain leaking/draining fluids. Refer to local procedures and plans for preventing and responding to fluid spills or leaks. Comply with local regulations when disposing of clean up material and leaked and spilled fluids.
- Tag all hydraulic lines for installation.

1. Remove tiedown straps from oil supply hose (Figure 1, Item 6) as required. Discard tiedown straps.
2. While holding nut (Figure 1, Item 5), loosen nut (Figure 1, Item 4) and remove oil supply hose (Figure 1, Item 6) from elbow (Figure 1, Item 1).
3. Remove elbow (Figure 1, Item 1) and nipple (Figure 1, Item 2) from reservoir (Figure 1, Item 3).

REMOVAL - Continued

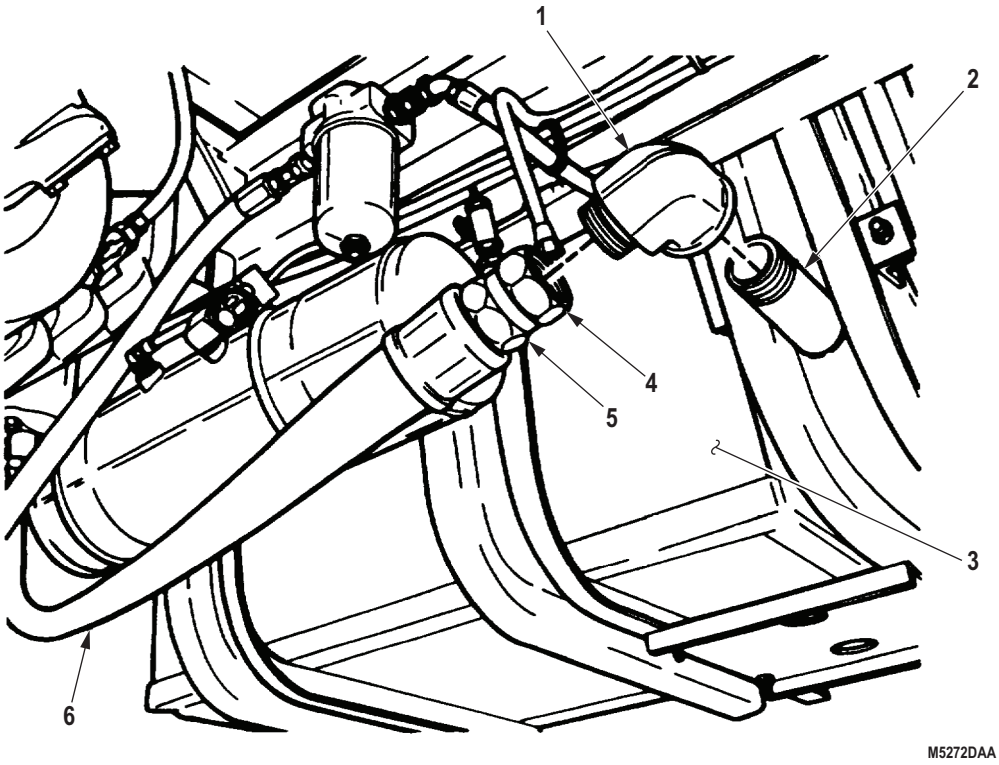


Figure 1. Winch Hydraulic Oil Reservoir Removal.

REMOVAL - Continued

4. Loosen nut (Figure 2, Item 4) and remove oil return hose (Figure 2, Item 3) from elbow (Figure 2, Item 5).
5. Remove nut (Figure 2, Item 13), screw (Figure 2, Item 2), clamp (Figure 2, Item 1), and oil return hose (Figure 2, Item 3) from reservoir (Figure 2, Item 10).
6. Remove eight locknuts (Figure 2, Item 12) and screws (Figure 2, Item 11) from frame bracket (Figure 2, Item 14) and reservoir (Figure 2, Item 10). Discard locknuts.
7. Remove and pull reservoir (Figure 2, Item 10) out about 2 in. (5 cm) from frame bracket (Figure 2, Item 14).
8. Remove reservoir (Figure 2, Item 10) from frame bracket (Figure 2, Item 14).
9. Remove elbow (Figure 2, Item 5) from reservoir (Figure 2, Item 10).
10. Remove filler cap (Figure 2, Item 9), dipstick (Figure 2, Item 8), spacer (Figure 2, Item 7), and strainer (Figure 2, Item 6) from reservoir (Figure 2, Item 10).

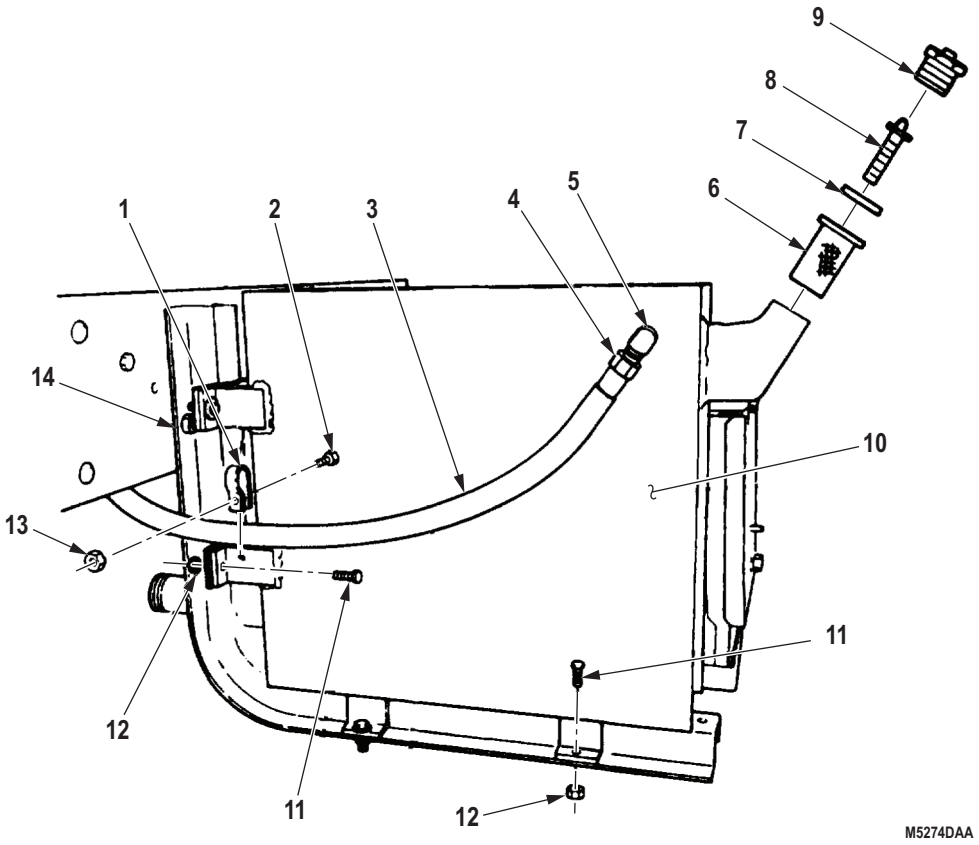


Figure 2. Winch Hydraulic Oil Reservoir Removal.

END OF TASK

INSTALLATION

NOTE

- When new hydraulic oil reservoir is installed, use attaching parts and fittings from old hydraulic oil reservoir.
- Wrap all male pipe threads with antiseize tape before installation.

1. Install strainer (Figure 3, Item 6), spacer (Figure 3, Item 7), dipstick (Figure 3, Item 8), and filler cap (Figure 3, Item 9) on reservoir (Figure 3, Item 10).
2. Install elbow (Figure 3, Item 5) on reservoir (Figure 3, Item 10).
3. Position reservoir (Figure 3, Item 10) on frame bracket (Figure 3, Item 14).
4. Install reservoir (Figure 3, Item 10) on frame bracket (Figure 3, Item 14) with eight screws (Figure 3, Item 11) and locknuts (Figure 3, Item 12).
5. Install oil return hose (Figure 3, Item 3) on elbow (Figure 3, Item 5) and tighten nut (Figure 3, Item 4).
6. Install oil return hose (Figure 3, Item 3) on reservoir (Figure 3, Item 10) with clamp (Figure 3, Item 1), screw (Figure 3, Item 2), and nut (Figure 3, Item 13).

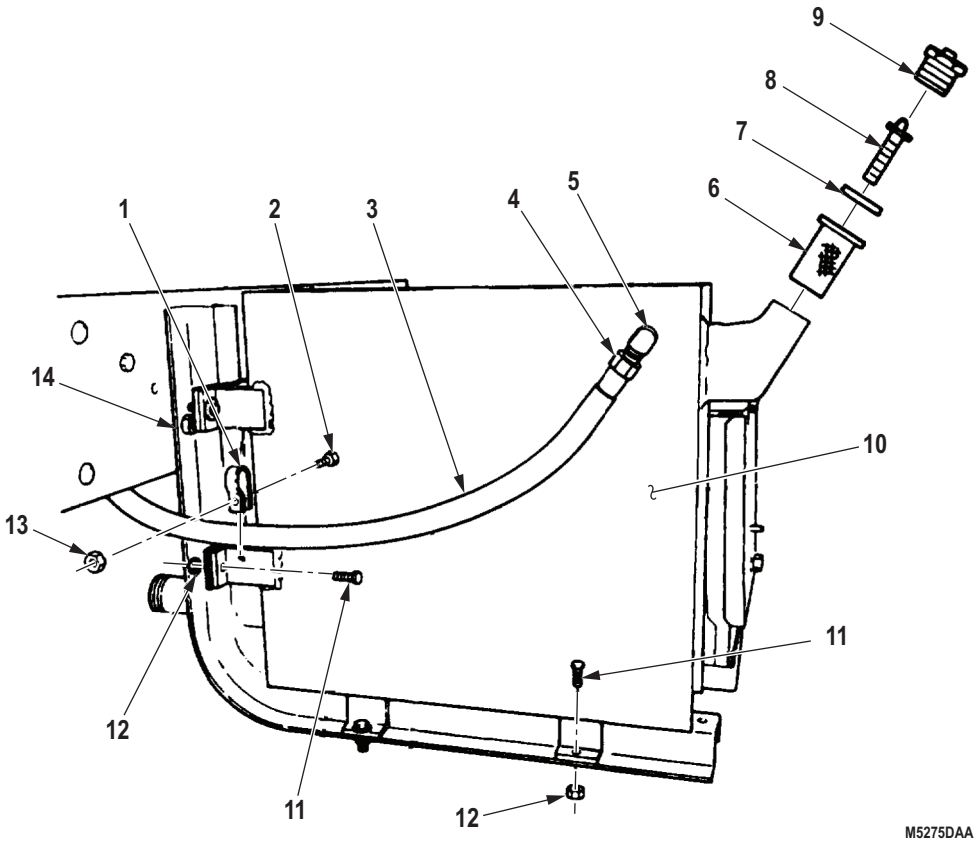


Figure 3. Winch Hydraulic Oil Reservoir Installation.

INSTALLATION - Continued

7. Install nipple (Figure 4, Item 2) and elbow (Figure 4, Item 1) on reservoir (Figure 4, Item 3).
8. Install oil supply hose (Figure 4, Item 6) on elbow (Figure 4, Item 1), and while holding nut (Figure 4, Item 5), tighten nut (Figure 4, Item 4).
9. Install tiedown straps on oil supply hose (Figure 4, Item 6) as required.

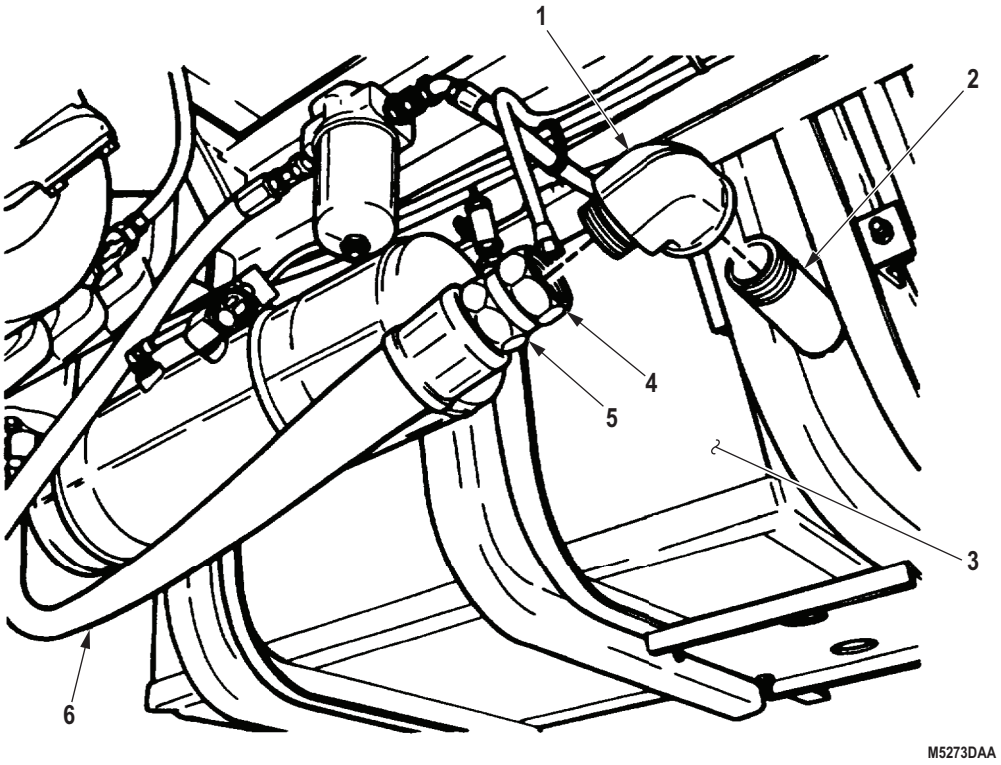


Figure 4. Winch Hydraulic Oil Reservoir Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Fill hydraulic oil reservoir to proper fluid level. (Volume 5, WP 0820)
2. Operate hydraulic system and check for leaks. (TM 9-2320-2720-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
TRACTOR WINCH HYDRAULIC OIL RESERVOIR REPLACEMENT (M932/A1/A2)

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Cap Set, Protective, Dust and Moisture Seal
(Volume 5, WP 0825, Table 1, Item 13)
Tape, Antiseizing
(Volume 5, WP 0825, Table 1, Item 65)
Locknut (Volume 5, WP 0827, Table 1, Item 271)
Qty: 2
Locknut (Volume 5, WP 0827, Table 1, Item 287)
Qty: 4
Locknut (Volume 5, WP 0827, Table 1, Item 289)
Qty: 6
Locknut (Volume 5, WP 0827, Table 1, Item 319)
Qty: 1

Materials/Parts (cont.)
Lockwasher
(Volume 5, WP 0827, Table 1, Item 186)
Qty: 4
O-ring (Volume 5, WP 0827, Table 1, Item 360)
Qty: 1

Personnel Required
(2)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Spare tire removed. (TM 9-2320-272-10)
Hydraulic oil reservoir drained. (Volume 5, WP 0820)

REMOVAL

WARNING



Accidental or intentional introduction of liquid contaminants into the environment is in violation of state, federal, and military regulations. Refer to local Unit SOP for information concerning storage, use, and disposal of these liquids. Failure to comply may result in injury or death to personnel.

CAUTION

When disconnecting hydraulic lines and hoses, plug all openings to prevent dirt from entering and causing damage to internal parts.

NOTE

- Have drainage container ready to catch oil.
- Use drain pans to retain leaking/draining fluids. Refer to local procedures and plans for preventing and responding to fluid spills or leaks. Comply with local regulations when disposing of clean up material and leaked and spilled fluids.
- Tag all hydraulic lines for installation.

1. Remove two locknuts (Figure 1, Item 4), screws (Figure 1, Item 2), and brace (Figure 1, Item 5) from muffler support (Figure 1, Item 1) and reservoir base (Figure 1, Item 3). Discard locknuts.

REMOVAL - Continued

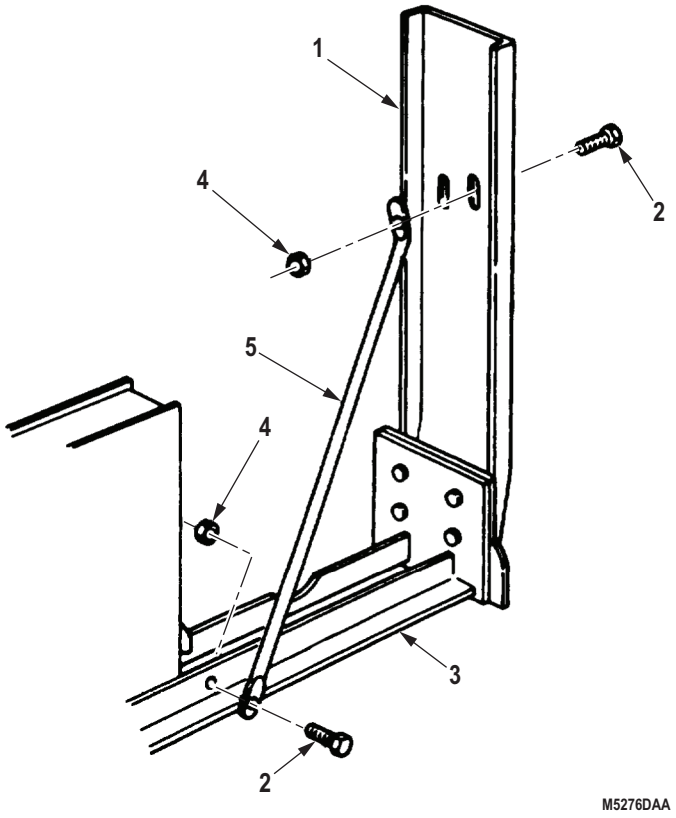


Figure 1. Tractor Winch Hydraulic Oil Reservoir Removal.

REMOVAL - Continued

2. While holding nut (Figure 2, Item 15), disconnect oil supply line (Figure 2, Item 14) from elbow (Figure 2, Item 8).
3. Remove four screws (Figure 2, Item 13), lockwashers (Figure 2, Item 12), two split flanges (Figure 2, Item 11), oil supply hose (Figure 2, Item 14), and o-ring (Figure 2, Item 10) from hydraulic oil pump (Figure 2, Item 9). Discard lockwashers and o-ring.
4. Remove two locknuts (Figure 2, Item 4), washers (Figure 2, Item 3), and U-bolt (Figure 2, Item 18) from nipple support (Figure 2, Item 2). Discard locknuts.
5. Remove elbow (Figure 2, Item 8) and nipple (Figure 2, Item 7) from reservoir (Figure 2, Item 1).
6. Remove two locknuts (Figure 2, Item 16), screws (Figure 2, Item 5), washers (Figure 2, Item 6), and nipple support (Figure 2, Item 2) from reservoir base (Figure 2, Item 17). Discard locknuts.

REMOVAL - Continued

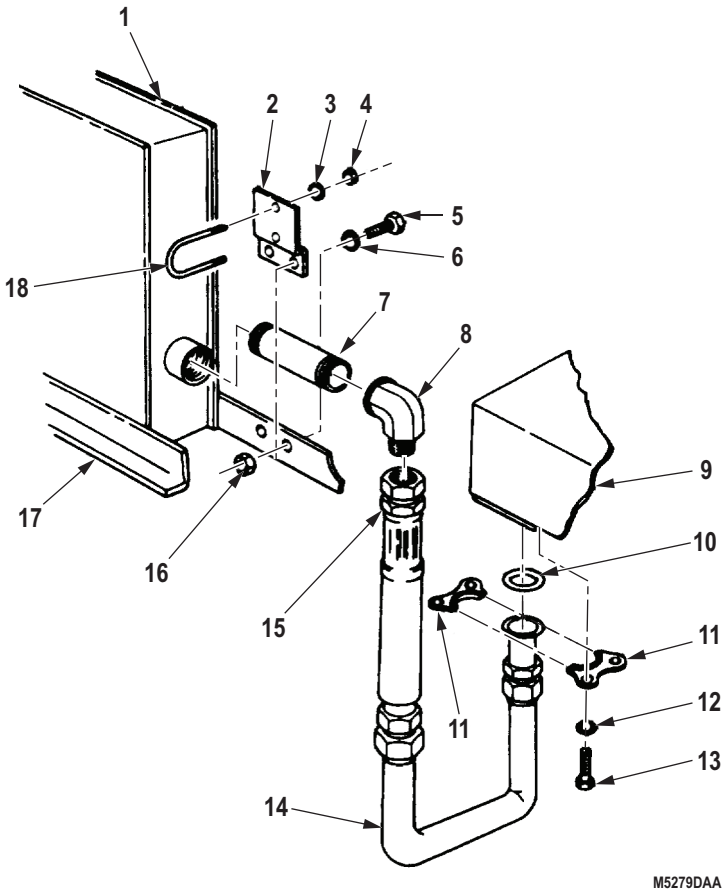


Figure 2. Tractor Winch Hydraulic Oil Reservoir Removal.

REMOVAL - Continued

7. While holding nut (Figure 3, Item 16), disconnect oil return line (Figure 3, Item 6) from elbow (Figure 3, Item 15).
8. Remove locknut (Figure 3, Item 19), screw (Figure 3, Item 17), clamp (Figure 3, Item 18), and oil return hose (Figure 3, Item 6) from reservoir base (Figure 3, Item 5). Discard locknut.
9. Remove four locknuts (Figure 3, Item 3), screws (Figure 3, Item 4), and muffler support (Figure 3, Item 2) from reservoir base (Figure 3, Item 5). Discard locknuts.
10. Remove two locknuts (Figure 3, Item 8), washers (Figure 3, Item 9), screws (Figure 3, Item 10), washers (Figure 3, Item 9), and reservoir (Figure 3, Item 1) from reservoir base (Figure 3, Item 5) and frame bracket (Figure 3, Item 7). Discard locknuts.
11. Remove elbow (Figure 3, Item 15) from reservoir (Figure 3, Item 1).
12. Remove filler cap (Figure 3, Item 11), dipstick (Figure 3, Item 12), spacer (Figure 3, Item 13), and strainer (Figure 3, Item 14) from reservoir (Figure 3, Item 1).

REMOVAL - Continued

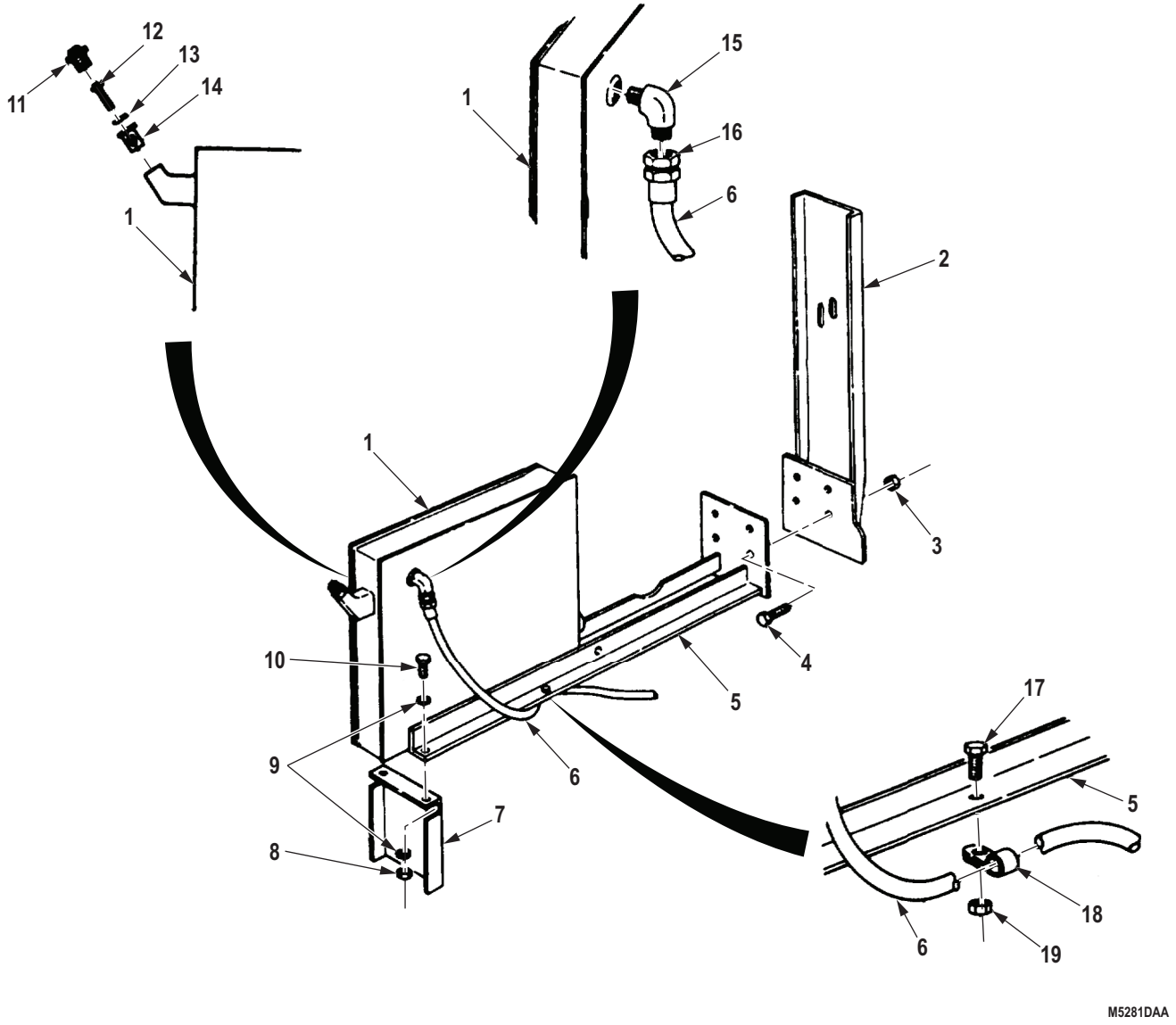


Figure 3. Tractor Winch Hydraulic Oil Reservoir Removal.

END OF TASK

INSTALLATION

NOTE

- When hydraulic oil reservoir is installed, use attaching parts and fittings from old hydraulic oil reservoir.
- Wrap all male threads with antiseize tape before installation.

1. Install strainer (Figure 4, Item 14), spacer (Figure 4, Item 13), dipstick (Figure 4, Item 12), and filler cap (Figure 4, Item 11) on reservoir (Figure 4, Item 1).
2. Install elbow (Figure 4, Item 15) on reservoir (Figure 4, Item 1).
3. Position reservoir (Figure 4, Item 1) on reservoir base (Figure 4, Item 5) and frame bracket (Figure 4, Item 7).
4. Install reservoir (Figure 4, Item 1) on frame bracket (Figure 4, Item 7) with two washers (Figure 4, Item 9), screws (Figure 4, Item 10), washers (Figure 4, Item 9), and locknuts (Figure 4, Item 8).
5. Install muffler support (Figure 4, Item 2) on reservoir base (Figure 4, Item 5) with four screws (Figure 4, Item 4) and locknuts (Figure 4, Item 3).
6. Install oil return hose (Figure 4, Item 6) on elbow (Figure 4, Item 15), holding nut (Figure 4, Item 16) to prevent turning.
7. Install oil return hose (Figure 4, Item 6) on reservoir base (Figure 4, Item 5) with clamp (Figure 4, Item 18), screw (Figure 4, Item 17), and locknut (Figure 4, Item 19).

INSTALLATION - Continued

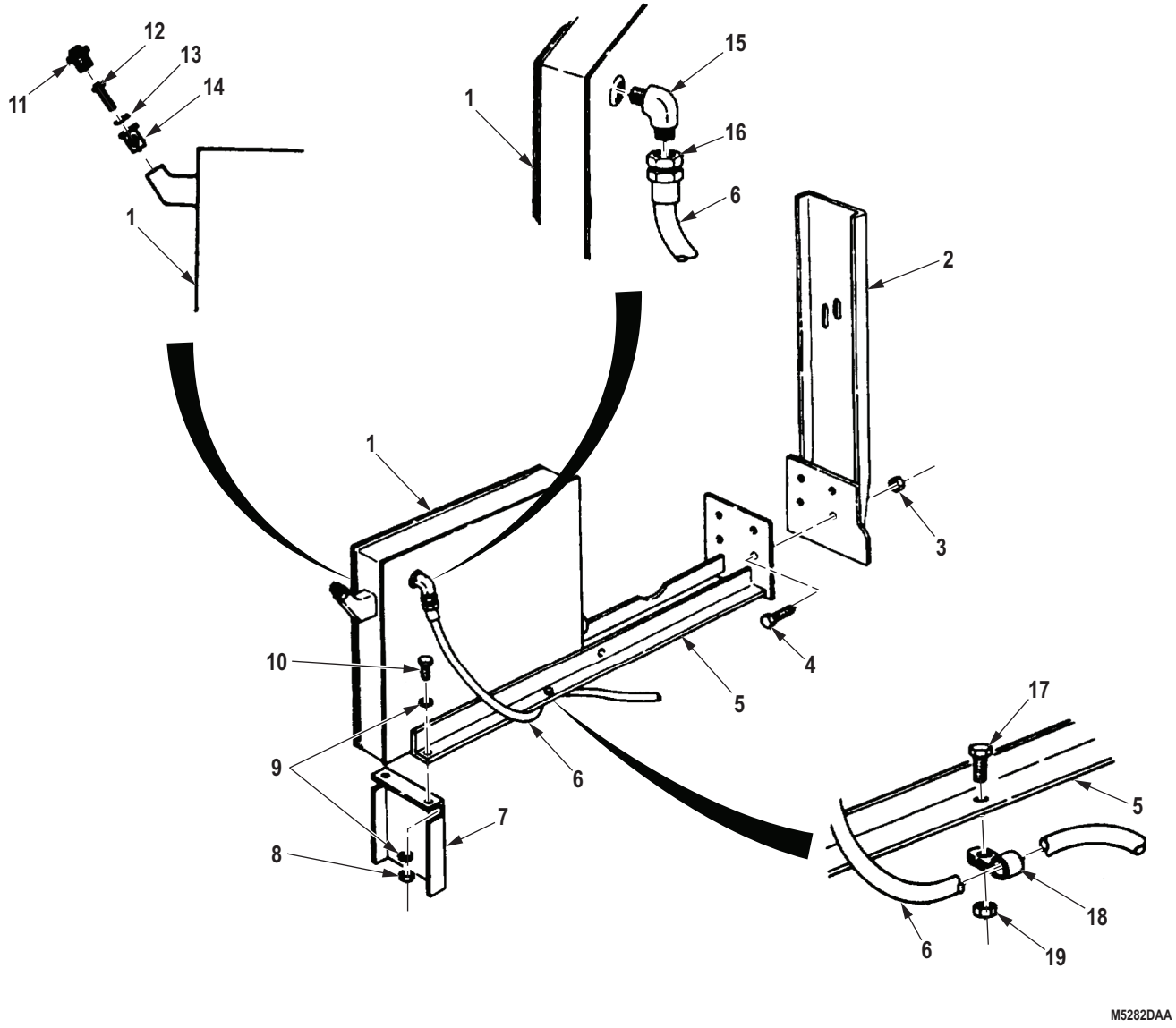


Figure 4. Tractor Winch Hydraulic Oil Reservoir Installation.

INSTALLATION - Continued

8. Install nipple support (Figure 5, Item 2) on reservoir base (Figure 5, Item 17) with two washers (Figure 5, Item 6), screws (Figure 5, Item 5), and locknuts (Figure 5, Item 16).
9. Install nipple (Figure 5, Item 7) and elbow (Figure 5, Item 8) on reservoir (Figure 5, Item 1).
10. Install U-bolt (Figure 5, Item 18) on nipple support (Figure 5, Item 2) with two washers (Figure 5, Item 3) and locknuts (Figure 5, Item 4).
11. Install o-ring (Figure 5, Item 10) and oil supply hose (Figure 5, Item 14) on hydraulic oil pump (Figure 5, Item 9) with two split flanges (Figure 5, Item 11), four lockwashers (Figure 5, Item 12), and screws (Figure 5, Item 13).
12. Install oil supply hose (Figure 5, Item 14) on elbow (Figure 5, Item 8), holding nut (Figure 5, Item 15) to prevent turning.

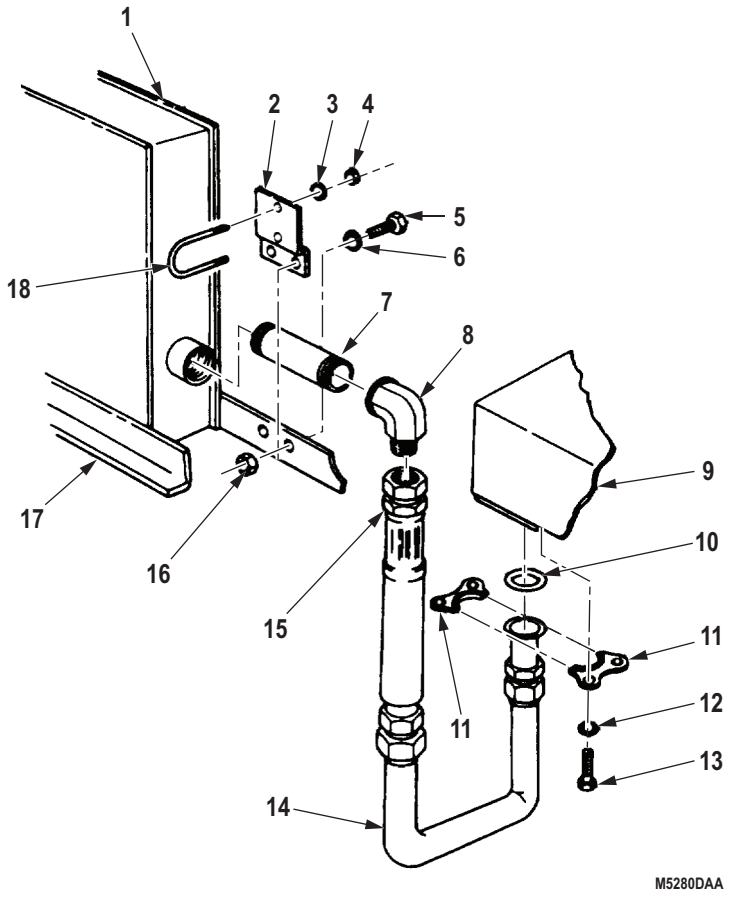


Figure 5. Tractor Winch Hydraulic Oil Reservoir Installation.

INSTALLATION - Continued

13. Install brace (Figure 6, Item 5) on muffler support (Figure 6, Item 1) and reservoir base (Figure 6, Item 3) with two screws (Figure 6, Item 2) and locknuts (Figure 6, Item 4).

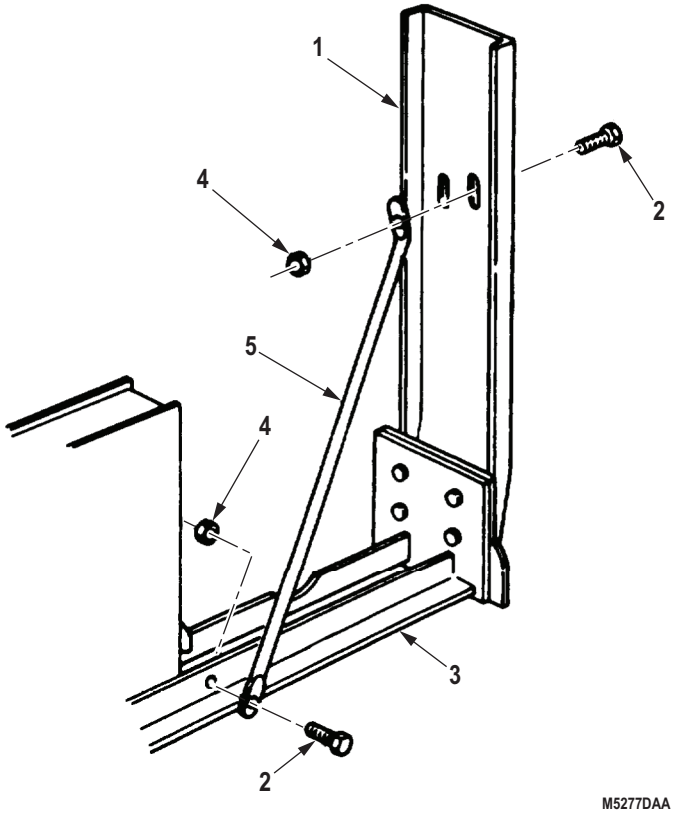


Figure 6. Tractor Winch Hydraulic Oil Reservoir Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install spare tire. (TM 9-2320-272-10)
2. Fill hydraulic oil reservoir to proper fluid level. (Volume 5, WP 0820)
3. Operate hydraulic system and check for leaks. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
WRECKER HYDRAULIC OIL RESERVOIR, BRACKETS AND STRAPS REPAIR

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Cap Set, Protective, Dust and Moisture Seal
(Volume 5, WP 0825, Table 1, Item 13)
Qty: 3
Cleaning Compound, Solvent
(Volume 5, WP 0825, Table 1, Item 16, 17)
Sealing Compound
(Volume 5, WP 0825, Table 1, Item 56)
Tape, Antiseizing
(Volume 5, WP 0825, Table 1, Item 65)

Materials/Parts (cont.)
Locknut (Volume 5, WP 0827, Table 1, Item 285)
Qty: 6
Lockwasher
(Volume 5, WP 0827, Table 1, Item 405)
Qty: 8

Personnel Required
(2)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Floodlight assembly removed.
(Volume 2, WP 0329)
Fuel can bracket removed. (WP 0667)
Hydraulic filter housing removed. (WP 0707)
Hydraulic oil reservoir drained. (Volume 5, WP 0820)

REMOVAL

CAUTION

When disconnecting hydraulic lines and hoses, plug all openings to prevent dirt from entering and causing damage to parts.

NOTE

- Have drainage container ready to catch oil.
- Use drain pans to retain leaking/draining fluids. Refer to local procedures and plans for preventing and responding to fluid spills or leaks. Comply with local regulations when disposing of clean up material and leaked and spilled fluids.

1. Disconnect hydraulic oil return hose (Figure 1, Item 6) from adapter elbow (Figure 1, Item 7).
2. Remove two locknuts (Figure 1, Item 1) and screws (Figure 1, Item 2) from two oil reservoir retaining straps (Figure 1, Item 4). Discard locknuts and separate straps from hydraulic oil reservoir (Figure 1, Item 3).

NOTE

Assistant will help with Step (3).

3. Remove hydraulic oil reservoir (Figure 1, Item 3) from two oil reservoir brackets (Figure 1, Item 5).

REMOVAL - Continued

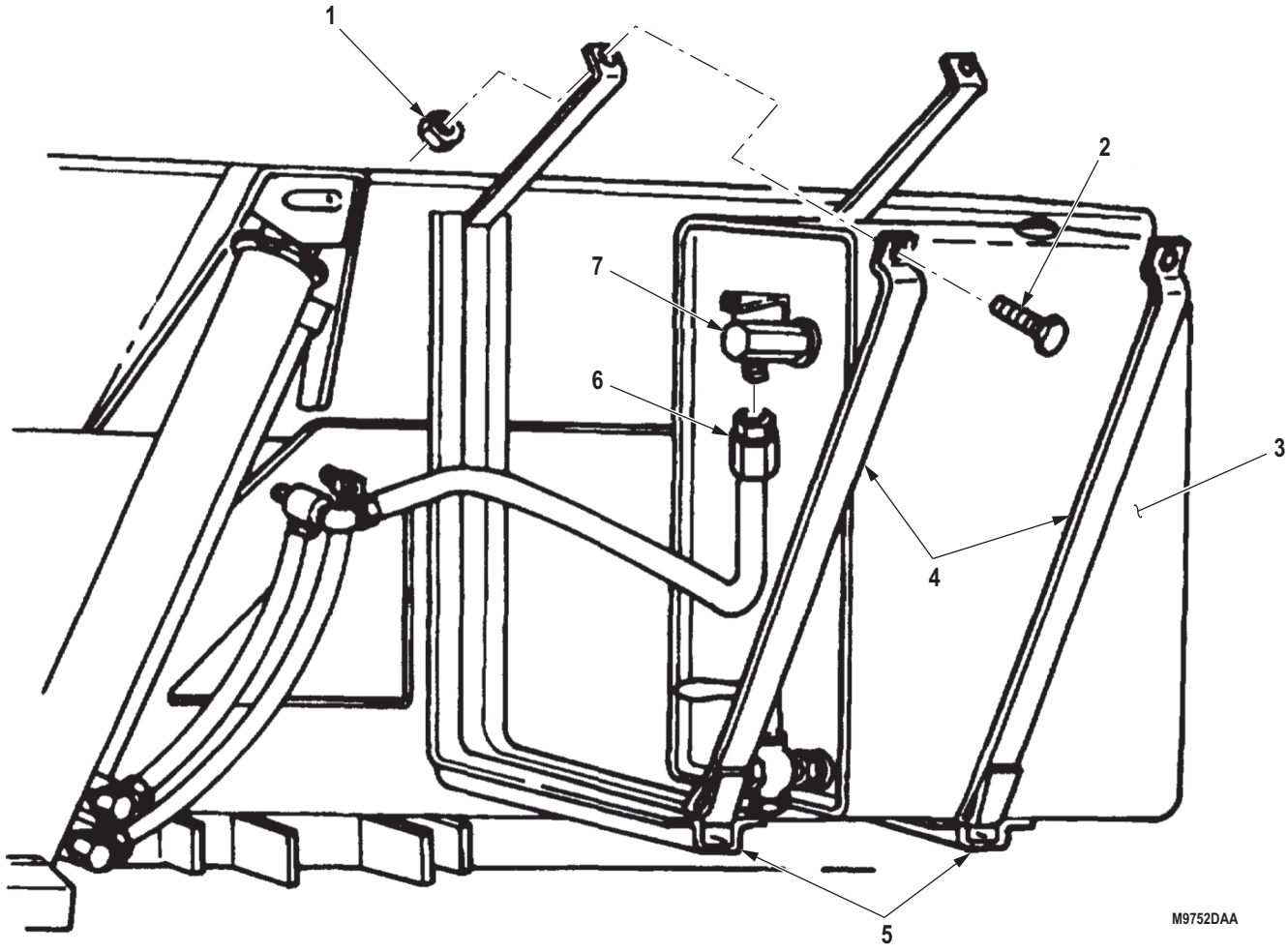


Figure 1. Hydraulic Oil Reservoir Removal.

REMOVAL - Continued

NOTE

Both hydraulic oil reservoir brackets are replaced the same way.

4. Remove two locknuts (Figure 2, Item 2), screws (Figure 2, Item 9), straps (Figure 2, Items 3 and 4), and insulator strips (Figure 2, Item 5) from reservoir bracket (Figure 2, Item 1). Discard locknuts.
5. Remove two insulator strips (Figure 2, Item 6) from bracket (Figure 2, Item 1).
6. Remove four screws (Figure 2, Item 7), lockwashers (Figure 2, Item 8), and bracket (Figure 2, Item 1) from vehicle. Discard lockwashers.

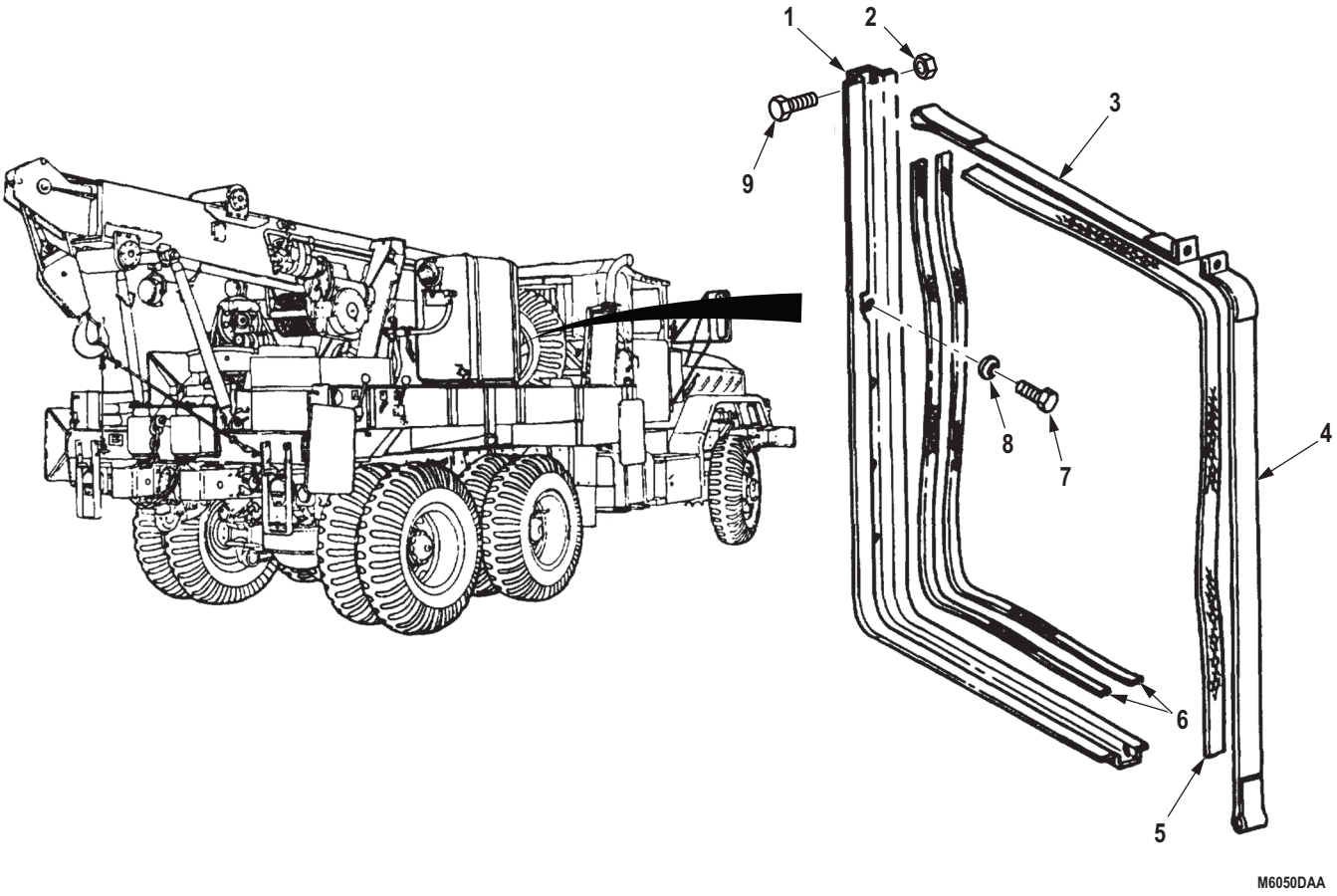


Figure 2. Hydraulic Oil Reservoir Brackets and Straps Removal.

END OF TASK

DISASSEMBLY

1. Remove oil gauge (Figure 3, Item 1) and filter screen (Figure 3, Item 2) from top of oil reservoir (Figure 3, Item 3).
2. Remove adapter elbow (Figure 3, Item 8), drain valve (Figure 3, Item 5), and pipe plugs (Figure 3, Items 4 and 7) from oil reservoir (Figure 3, Item 3).
3. Remove pipe plug (Figure 3, Item 6) from drain valve (Figure 3, Item 5).

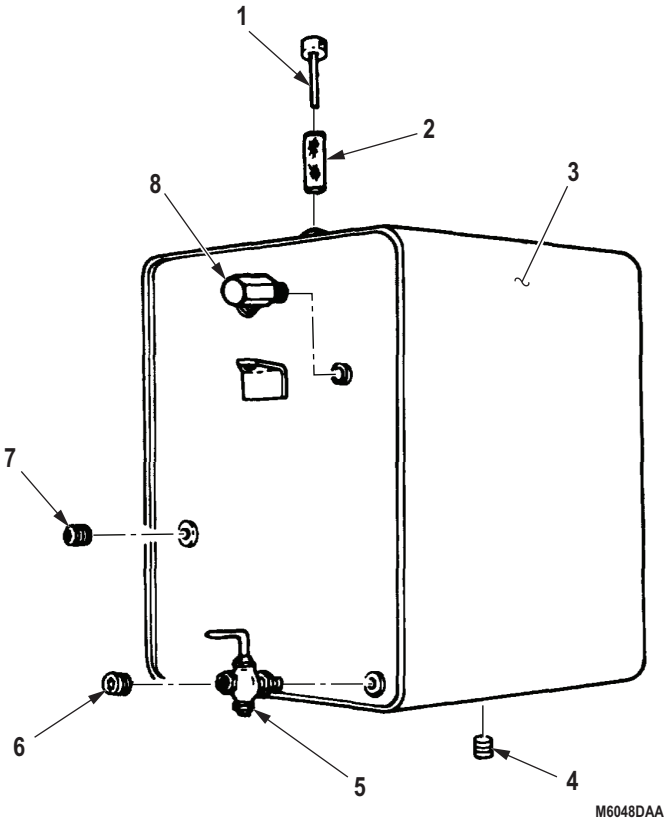


Figure 3. Hydraulic Oil Reservoir Disassembly.

END OF TASK

CLEANING AND INSPECTION

WARNING



Solvent cleaning compound is flammable and toxic. Do not use near an open flame and always have a fire extinguisher nearby when solvents are used. Use only in well-ventilated places, wear protective clothing, and dispose of cleaning rags in approved container. Failure to comply may result in damage to equipment, injury, or death to personnel.

1. Steam clean exterior of reservoir.
2. Flush interior of reservoir with solvent cleaning compound.
3. Inspect reservoir for leaks:
   a. Plug all openings in reservoir except for oil gauge and filter screen opening.
   b. Insert air hose in filter inlet and cover opening around air hose.
   c. Coat exterior of reservoir with soapy water.
   d. Apply 6 psi (41 kPa) air pressure for a minimum of two minutes and check for air bubbles indicating leaks.
   e. Repair defective reservoir if any leaks are found (TM 9-237). Replace reservoir if leaks cannot be repaired.

END OF TASK

ASSEMBLY

1. Install two pipe plugs (Figure 4, Items 4 and 7) on reservoir (Figure 4, Item 3).
2. Install adapter elbow (Figure 4, Item 8) on reservoir (Figure 4, Item 3).
3. Install drain valve (Figure 4, Item 5) on reservoir (Figure 4, Item 3).
4. Install pipe plug (Figure 4, Item 6) in drain valve (Figure 4, Item 5).
5. Install filter screen (Figure 4, Item 2) and oil gauge (Figure 4, Item 1) in reservoir (Figure 4, Item 3).

NOTE

- If installing a new hydraulic oil reservoir, perform Step (6).
- Wrap all male pipe threads with antiseize tape before installation.

6. Install drain valve (Figure 4, Item 5) with pipe plug (Figure 4, Item 6), two pipe plugs (Figure 4, Items 4 and 7), adapter elbow (Figure 4, Item 8), reservoir oil filter (Figure 4, Item 2), and oil gauge (Figure 4, Item 1) on hydraulic oil reservoir (Figure 4, Item 3).

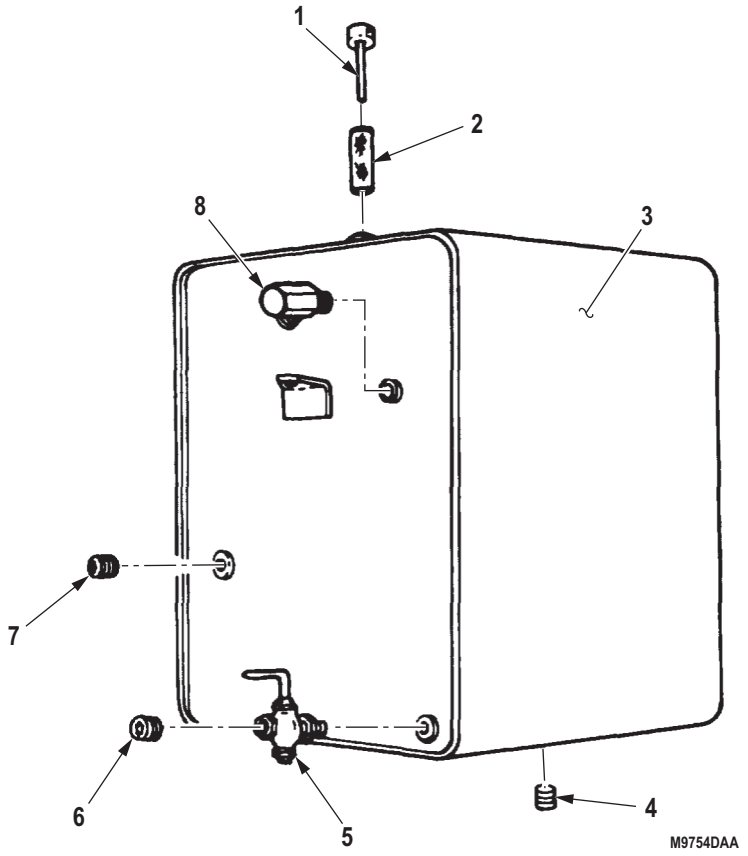


Figure 4. Hydraulic Oil Reservoir, Brackets and Straps Assembly.

END OF TASK

INSTALLATION

1. Install bracket (Figure 5, Item 1) on vehicle with four lockwashers (Figure 5, Item 8) and screws (Figure 5, Item 7).
2. Install two insulator strips (Figure 5, Item 6) on bracket (Figure 5, Item 1).
3. Install two straps (Figure 5, Item 3 and 4) on bracket (Figure 5, Item 1) with two locknuts (Figure 5, Item 2) and screws (Figure 5, Item 9).

NOTE

Use adhesive sealant to install old or new insulator strips to brackets and/or straps.

4. Install two insulator strips (Figure 5, Item 5) under straps (Figure 5, Items 3 and 4).

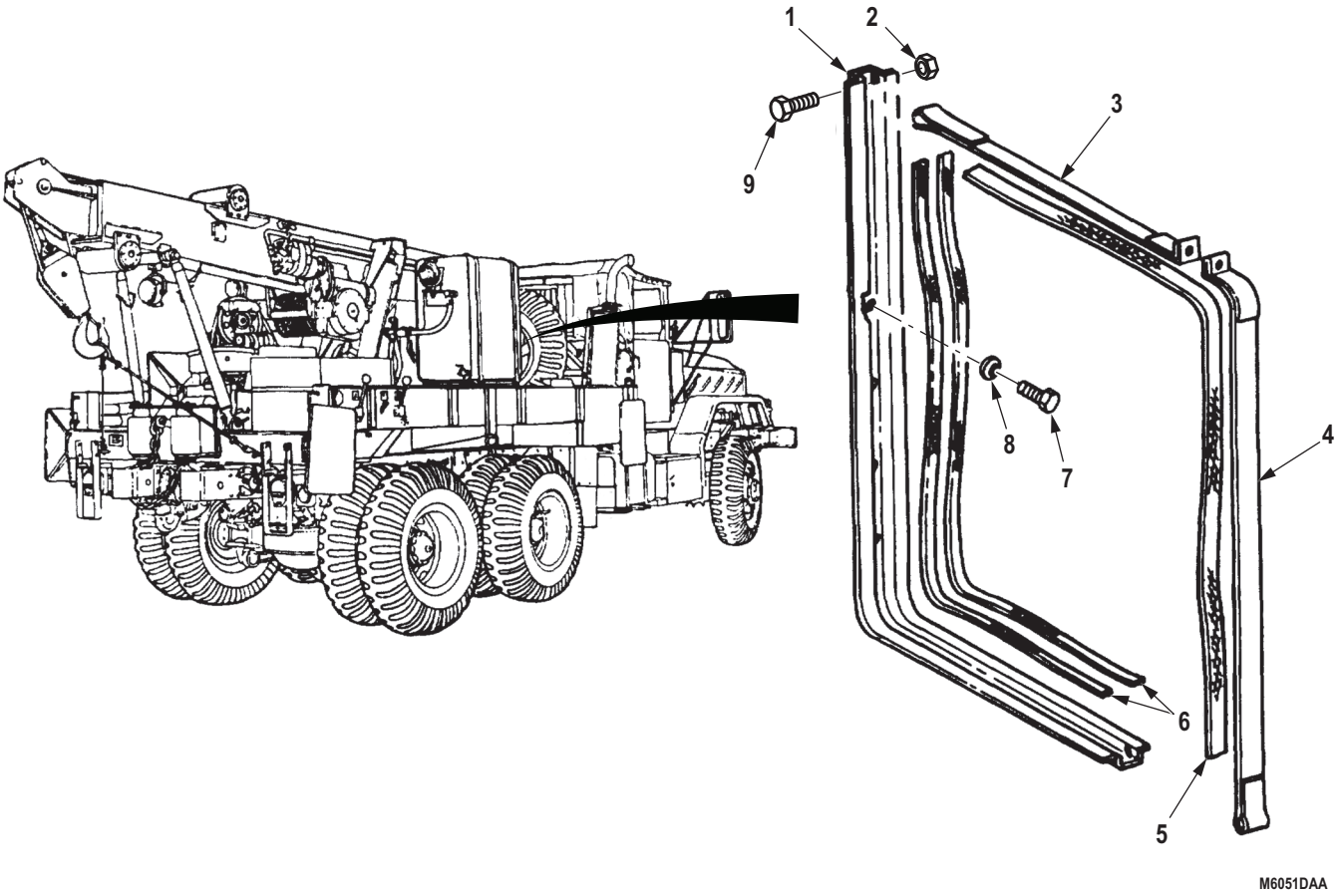


Figure 5. Hydraulic Oil Reservoir Brackets and Straps Installation.

INSTALLATION - Continued

NOTE

Assistant will help with Step (5).

5. Position hydraulic oil reservoir (Figure 6, Item 3) on two reservoir brackets (Figure 6, Item 5).
6. Position two retaining straps (Figure 6, Item 4) around hydraulic oil reservoir (Figure 6, Item 3) and install with two screws (Figure 6, Item 2) and locknuts (Figure 6, Item 1).
7. Connect hydraulic oil return hose (Figure 6, Item 6) to adapter elbow (Figure 6, Item 7).

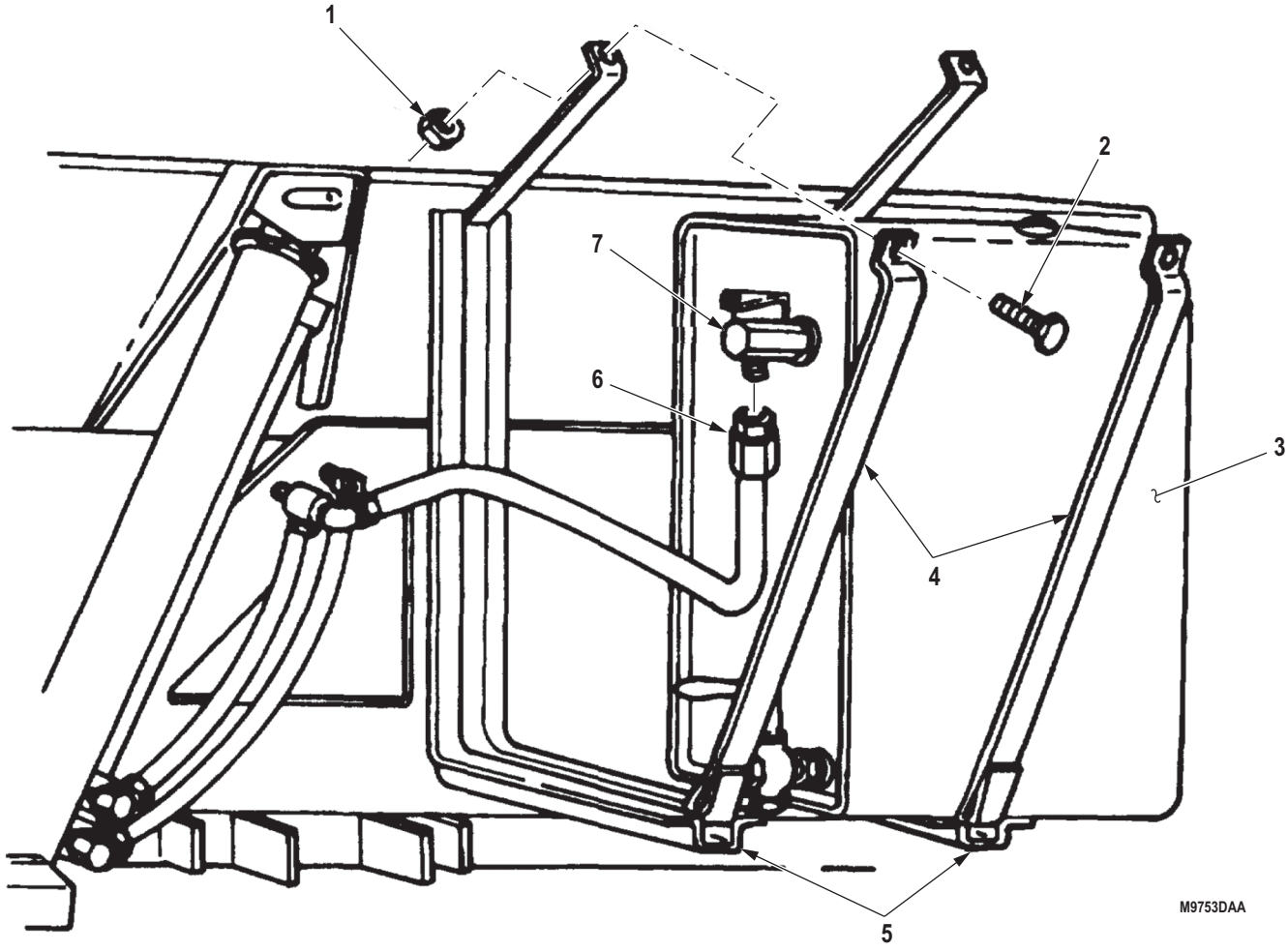


Figure 6. Hydraulic Oil Reservoir Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install hydraulic oil filter housing. (WP 0707)
2. Install fuel can bracket. (WP 0667)
3. Install floodlight assembly. (Volume 2, WP 0329)
4. Fill hydraulic oil reservoir. (Volume 5, WP 0820)
5. Start engine. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
WINCH HYDRAULIC OIL RESERVOIR FILTER REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)
Wrench, Torque, Click, Ratcheting, 3/8" Drive, 75 Ft-Lb
(Volume 5, WP 0826, Table 1, Item 62)

Materials/Parts
Oil Filter Element
(Volume 5, WP 0827, Table 1, Item 439)
Qty: 1

References
Volume 5, WP 0820

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

REMOVAL

NOTE

- The oil filter is located on the right frame rail above the wet tank air reservoir.
- Have drainage container ready to catch oil.
- Use drain pans to retain leaking/draining fluids. Refer to local procedures and plans for preventing and responding to fluid spills or leaks. Comply with local regulations when disposing of clean up material and leaked and spilled fluids.

1. Loosen center bolt (Figure 1, Item 6) and remove filter housing (Figure 1, Item 7), spring (Figure 1, Item 3), and gasket (Figure 1, Item 2) from filter base (Figure 1, Item 1). Discard gasket.
2. Remove center bolt (Figure 1, Item 6), washer (Figure 1, Item 5), and oil filter (Figure 1, Item 4) from filter housing (Figure 1, Item 7). Discard oil filter.

REMOVAL - Continued

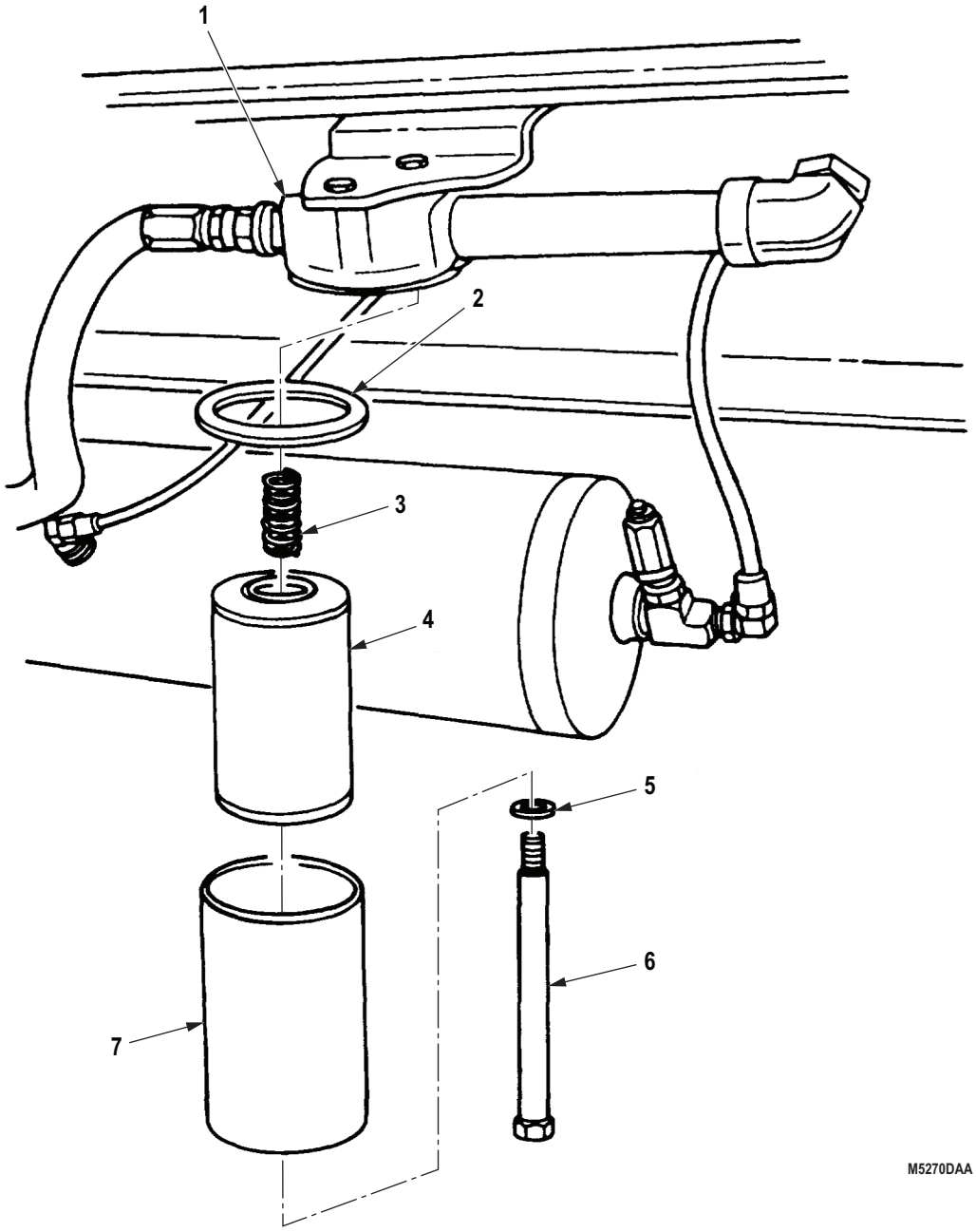


Figure 1. Winch Hydraulic Oil Reservoir Filter Removal.

END OF TASK

INSTALLATION

1. Install washer (Figure 2, Item 5), center bolt (Figure 2, Item 6), oil filter (Figure 2, Item 4), and spring (Figure 2, Item 3) in filter housing (Figure 2, Item 7).
2. Position gasket (Figure 2, Item 2) on filter base (Figure 2, Item 1).
3. Install filter housing (Figure 2, Item 7) on gasket (Figure 2, Item 2) and filter base (Figure 2, Item 1) with center bolt (Figure 2, Item 6). Tighten center bolt 30 to 35 lb-ft (41 to 47 N·m).

INSTALLATION - Continued

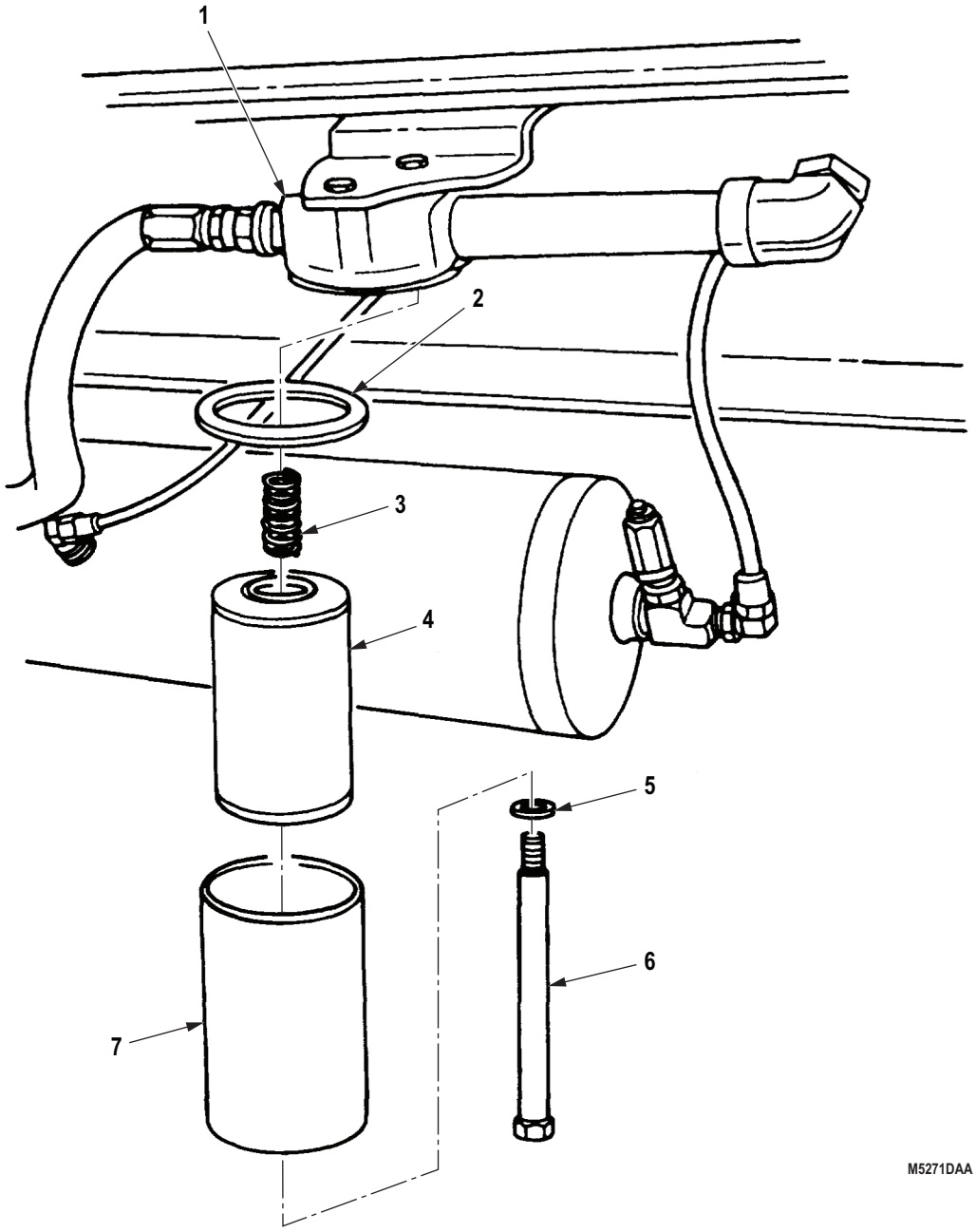


Figure 2. Winch Hydraulic Oil Reservoir Filter Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Fill hydraulic oil reservoir to proper fluid level. (Volume 5, WP 0820)
2. Operate hydraulic system and check for leaks. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
PRESSURE RELIEF VALVE ADJUSTMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)
Pressure Checking K
(Volume 5, WP 0826, Table 1, Item 40)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Boom secured in travel position.
(TM 9-2320-272-10)

TESTING

1. Remove five screws (Figure 1, Item 1) and cover (Figure 1, Item 2) from gondola (Figure 1, Item 6).
2. Remove valve plug (Figure 1, Item 3) from valve bank (Figure 1, Item 5) and install hydraulic pressure gauge (Figure 1, Item 4).
3. Start engine and engage crane hydraulic system (TM 9-2320-272-10).
4. Raise engine idle to 1,250 rpm and observe hydraulic pressure gauge reading. Hydraulic pressure gauge should read 1,350 psi ± 25 psi (9,308 kPa ± 172 kPa).
5. If reading is within limits, go to Step (7).
6. If reading is not within limits, perform Adjustment.
7. Remove hydraulic pressure gauge (Figure 1, Item 4) from valve bank (Figure 1, Item 5) and install plug (Figure 1, Item 3).
8. Install cover (Figure 1, Item 2) on gondola (Figure 1, Item 6) with five screws (Figure 1, Item 1).

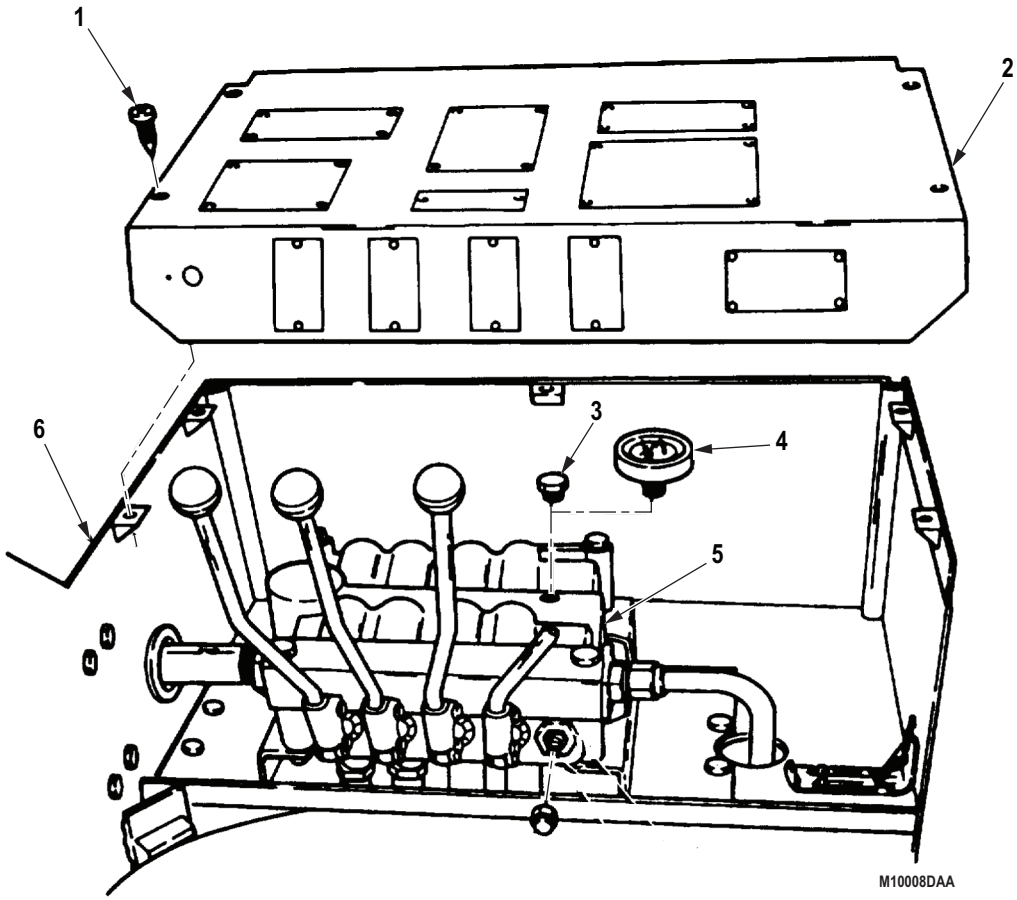


Figure 1. Pressure Relief Valve Testing.

END OF TASK

ADJUSTMENT

1. Remove acorn nut (Figure 2, Item 5) from valve bank (Figure 2, Item 2).
2. While holding adjusting screw (Figure 2, Item 4), loosen jamnut (Figure 2, Item 3).
3. Turn adjusting screw (Figure 2, Item 4) until hydraulic pressure gauge (Figure 2, Item 1) reads 1,350 psi ± 25 psi (9,308 kPa ± 172 kPa).
4. While holding adjusting screw (Figure 2, Item 4), tighten jamnut (Figure 2, Item 3).
5. If correct pressure cannot be achieved, notify maintenance.

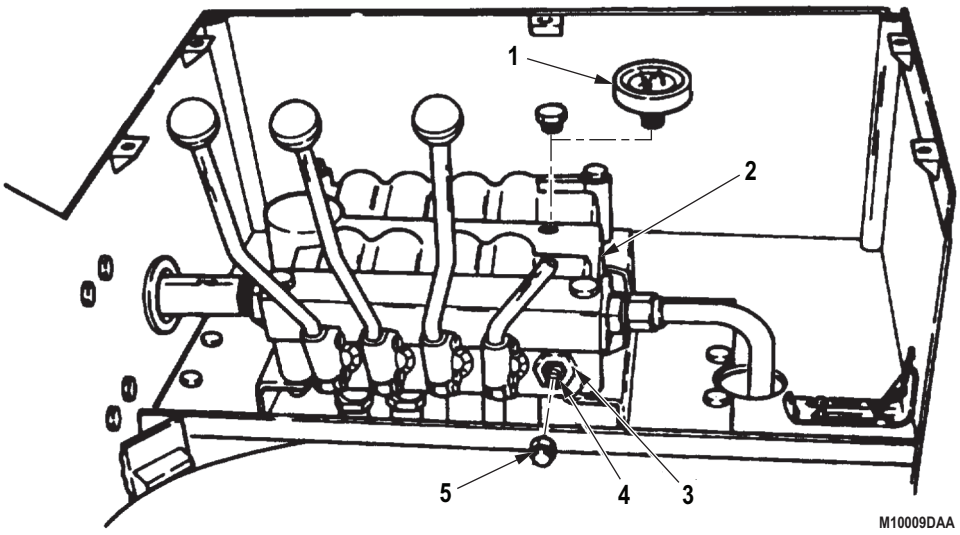


Figure 2. Pressure Relief Valve Adjustment.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
SNUBBER VALVE ASSEMBLY REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Volume 5, WP 0826, Table 1, Item 56)

References
Volume 5, WP 0820

Equipment Condition
Boom in down position. (TM 9-2320-272-10)

Equipment Condition (cont.)
Shipper braces in travel position. (TM 9-2320-272-10)
Hydraulic tank reservoir drained. (Volume 5, WP 0820)

REMOVAL

WARNING



Replace snubber valve and lift cylinder adapter cap as an assembly. Do not disconnect adapter cap from snubber valve. Valve and cap are locked against spring tension. Failure to comply may result in injury or death to personnel.

CAUTION

When disconnecting hydraulic hoses and lines, plug all openings to prevent dirt from entering and causing internal parts damage.

NOTE

- Tag all lines for installation.
- Have drainage container ready to catch oil.
- Use drain pans to retain leaking/draining fluids. Refer to local procedures and plans for preventing and responding to fluid spills or leaks. Comply with local regulations when disposing of clean up material and leaked and spilled fluids.

1. Disconnect hose (Figure 1, Item 1) from snubber valve (Figure 1, Item 2).
2. Remove snubber valve (Figure 1, Item 2) from lift cylinder fitting (Figure 1, Item 3) and install plug (Figure 1, Item 4) to prevent excessive oil loss.

REMOVAL - Continued

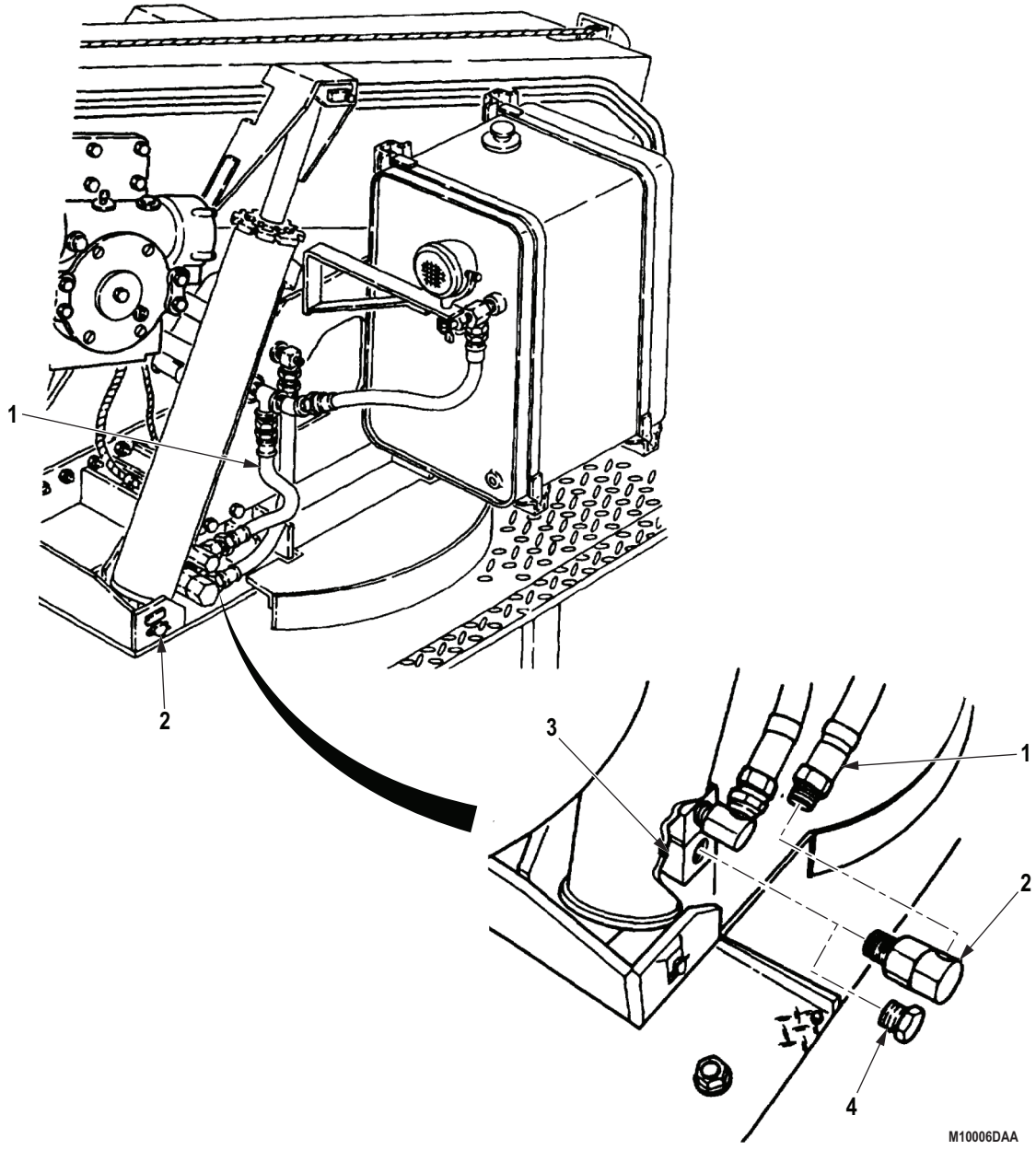


Figure 1. Snubber Valve Assembly Removal.

END OF TASK

INSTALLATION

CAUTION

- Ensure no particles of plugging become trapped in crane hydraulic system during installation of hosing or tubes. Failure to comply may result in damage to equipment.
- Ensure plug is removed from lift cylinder fitting before installation.

NOTE

- Do not twist hose or attempt to install hose with one wrench.
- Hose fitting ends connected by a single hexagonal nut cannot be installed until the hexagonal nut end is connected at the opposite end. The entire hose must be free to turn whenever installing hose connected by a single hexagonal nut.

1. Remove plug (Figure 2, Item 4) from lift cylinder fitting (Figure 2, Item 3) and install snubber valve (Figure 2, Item 2).
2. Connect hose (Figure 2, Item 1) to snubber valve (Figure 2, Item 2).

INSTALLATION - Continued

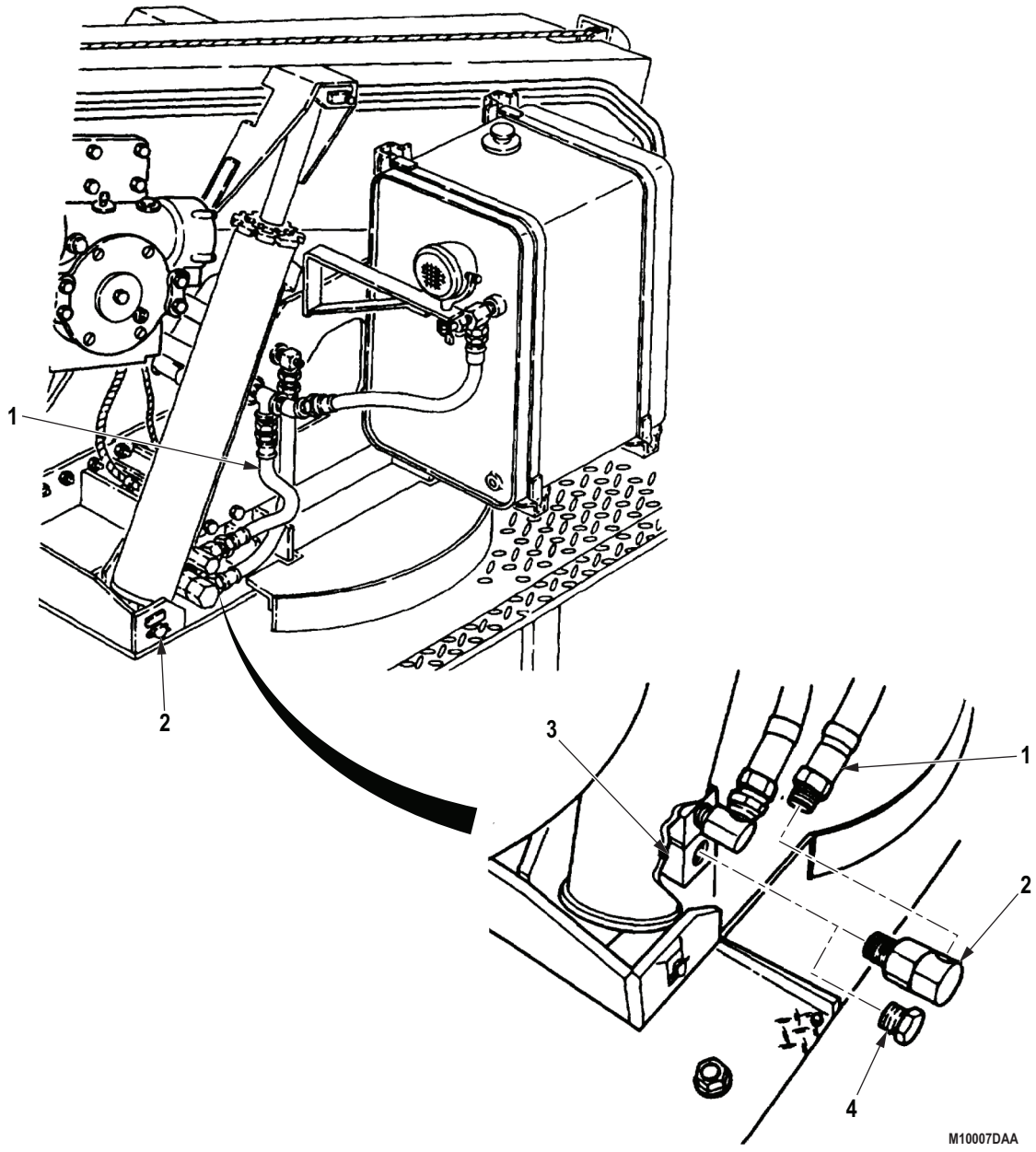


Figure 2. Snubber Valve Assembly Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

Fill hydraulic oil reservoir to proper fluid level. (Volume 5, WP 0820)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
CRANE HYDRAULIC FILTER AND HOUSING REPAIR

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

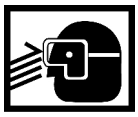
Materials/Parts
Cap Set, Protective, Dust and Moisture Seal
(Volume 5, WP 0825, Table 1, Item 13)
Qty: 1
Cleaning Compound, Solvent
(Volume 5, WP 0825, Table 1, Item 16, 17)
Tape, Antiseizing
(Volume 5, WP 0825, Table 1, Item 65)
O-ring (Volume 5, WP 0827, Table 1, Item 262)
Qty: 1
O-ring (Volume 5, WP 0827, Table 1, Item 435)
Qty: 1
Packing, Preformed
(Volume 5, WP 0827, Table 1, Item 436)
Qty: 1
Ring Seal
(Volume 5, WP 0827, Table 1, Item 242)
Qty: 1

Personnel Required
(2)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Hydraulic oil reservoir drained. (Volume 5, WP 0820)
Fuel can bracket removed. (WP 0667)

REMOVAL

WARNING



Hydraulic filter assembly is under great pressure and oil will spurt out from housing during removal. Wear eyeshields during removal of assembly. Failure to comply may result in injury or death to personnel.

CAUTION

After disconnecting hydraulic lines and hoses, plug all openings to prevent dirt from entering and causing internal parts damage.

NOTE

- Have drainage container ready to catch oil.
- Use drain pans to retain leaking/draining fluids. Refer to local procedures and plans for preventing and responding to fluid spills or leaks. Comply with local regulations when disposing of clean up material and leaked and spilled fluids.

1. Disconnect flex hose (Figure 1, Item 5) from hydraulic oil filter elbow (Figure 1, Item 4).
2. Remove hydraulic oil filter elbow (Figure 1, Item 4) from filter housing (Figure 1, Item 3).
3. Remove four screws (Figure 1, Item 7) and washers (Figure 1, Item 6) from filter housing (Figure 1, Item 3) and mounting flange (Figure 1, Item 1).
4. Remove filter housing (Figure 1, Item 3) and o-ring (Figure 1, Item 2) from mounting flange (Figure 1, Item 1). Discard o-ring and clean o-ring remains from mating surfaces.

REMOVAL - Continued

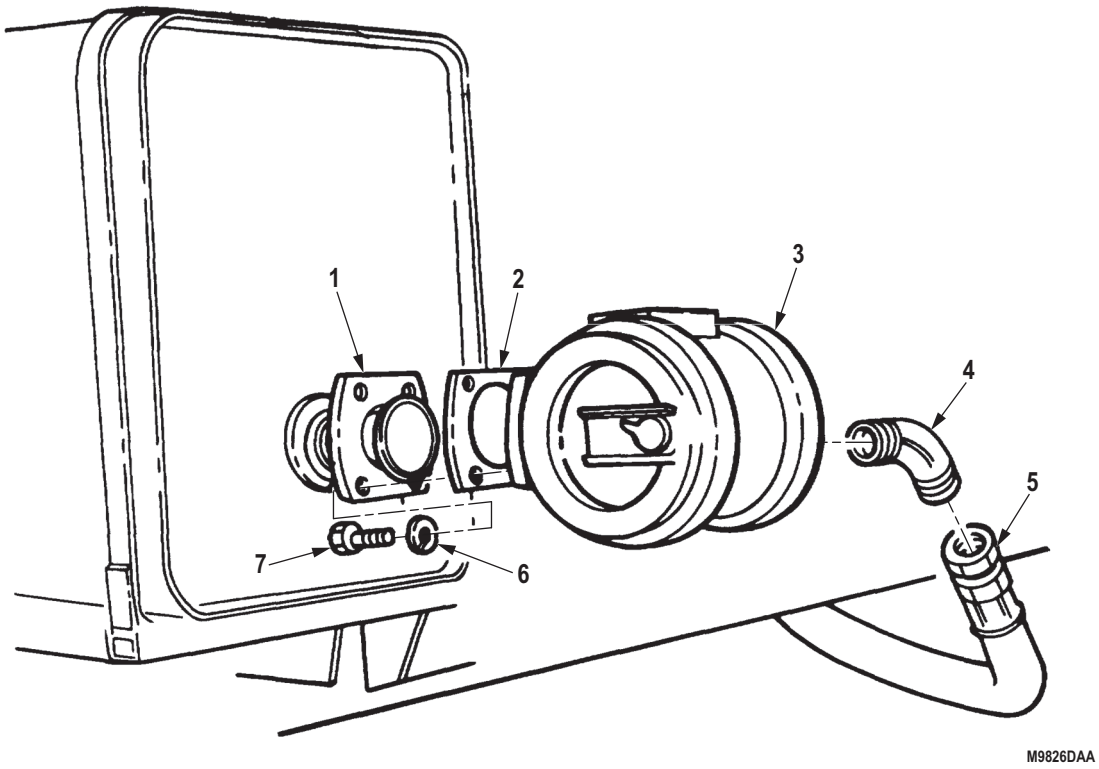


Figure 1. Hydraulic Oil Filter Housing.

REMOVAL - Continued

NOTE

Perform Steps (4) and (5) if filter cover needs to be removed.

5. While holding filter cover (Figure 2, Item 2) in place, direct assistant to remove four screws (Figure 2, Item 1) from filter cover.
6. Pull filter cover (Figure 2, Item 2) with filter assembly (Figure 2, Item 4) quickly from housing (Figure 2, Item 3).
7. Remove o-ring (Figure 2, Item 5) from rear of filter housing (Figure 2, Item 3). Discard o-ring.

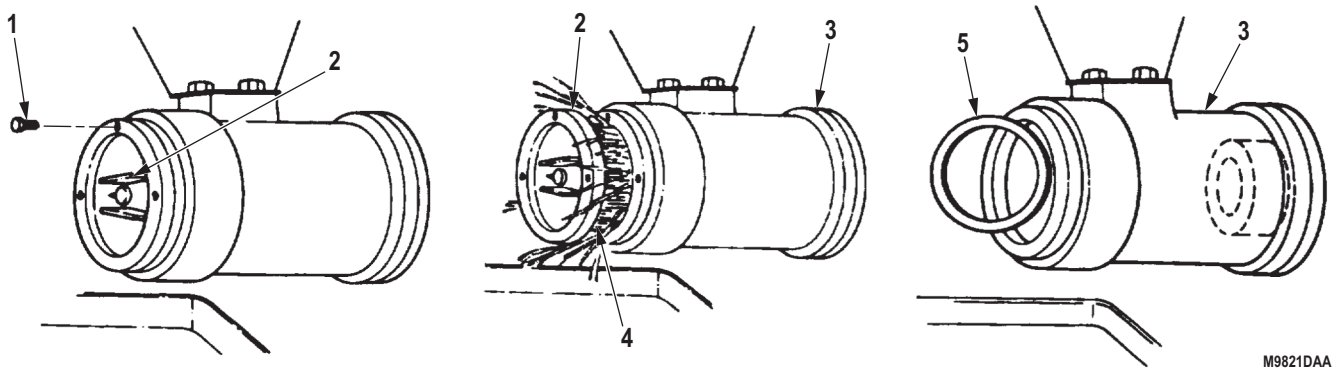


Figure 2. Hydraulic Crane Filter.

END OF TASK

DISASSEMBLY

NOTE

Perform Steps (1) through (5) if filter cover assembly needs to be repaired.

1. Place filter cover (Figure 3, Item 7) with filter assembly (Figure 3, Item 9) on flat surface.
2. Pull filter assembly (Figure 3, Item 9) straight up to separate from filter cover (Figure 3, Item 7).
3. Remove preformed packing (Figure 3, Item 8) from filter cover (Figure 3, Item 7). Discard preformed packing.
4. Remove three screws (Figure 3, Item 1), rear cap (Figure 3, Item 2), front cap (Figure 3, Item 5), and ring seal (Figure 3, Item 6) from filter element (Figure 3, Item 9).
5. Remove filter element (Figure 3, Item 3) from shroud (Figure 3, Item 4).

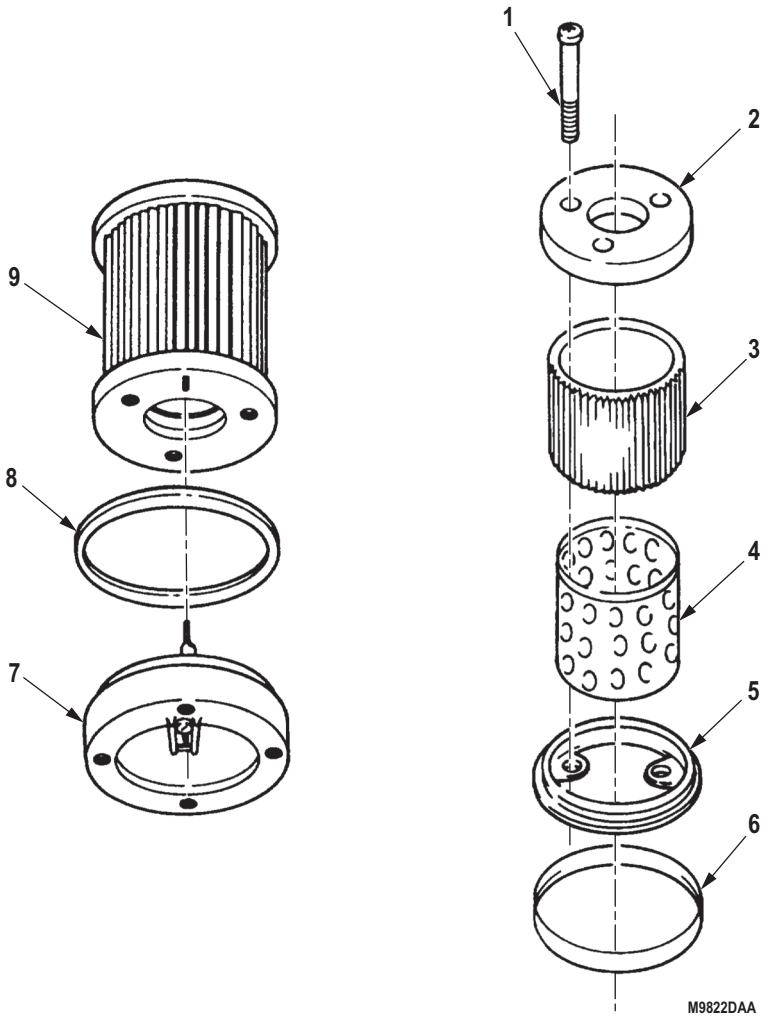


Figure 3. Hydraulic Crane Filter.

END OF TASK

CLEANING AND INSPECTION

WARNING



- Solvent cleaning compound is flammable and toxic. Do not use near an open flame and always have a fire extinguisher nearby when solvents are used. Use only in well-ventilated places, wear protective clothing, and dispose of cleaning rags in approved container. Failure to comply may result in damage to equipment, injury, or death to personnel.
- Eyeshields must be worn when cleaning with compressed air. Compressed air source will not exceed 30 psi (207 kPa). Failure to comply may result in injury or death to personnel.

1. Using solvent cleaning compound, clean filter cover, rear cap, front cap, filter element, and shroud and dry with compressed air.
2. Inspect filter cover, rear cap, front cap, filter element, and shroud for cracks, holes, and excessive wear. Replaced damaged or worn parts.

END OF TASK

ASSEMBLY

NOTE

Perform Steps (1) through (6) if filter cover assembly was disassembled.

1. Install filter element (Figure 4, Item 12) over shroud (Figure 4, Item 10).
2. Position ring seal (Figure 4, Item 7) on front cap (Figure 4, Item 9) and install front cap on filter element (Figure 4, Item 12).
3. Position rear cap (Figure 4, Item 11) on opposite end of filter element (Figure 4, Item 12), align holes (Figure 4, Items 1 and 6), and install with three screws (Figure 4, Item 13).
4. Install preformed packing (Figure 4, Item 3).
5. Place filter cover (Figure 4, Item 6) on flat surface.
6. Align key (Figure 4, Item 5) of filter cover (Figure 4, Item 6) with slot (Figure 4, Item 4) of filter assembly (Figure 4, Item 2) and install filter assembly on filter cover.

ASSEMBLY - Continued

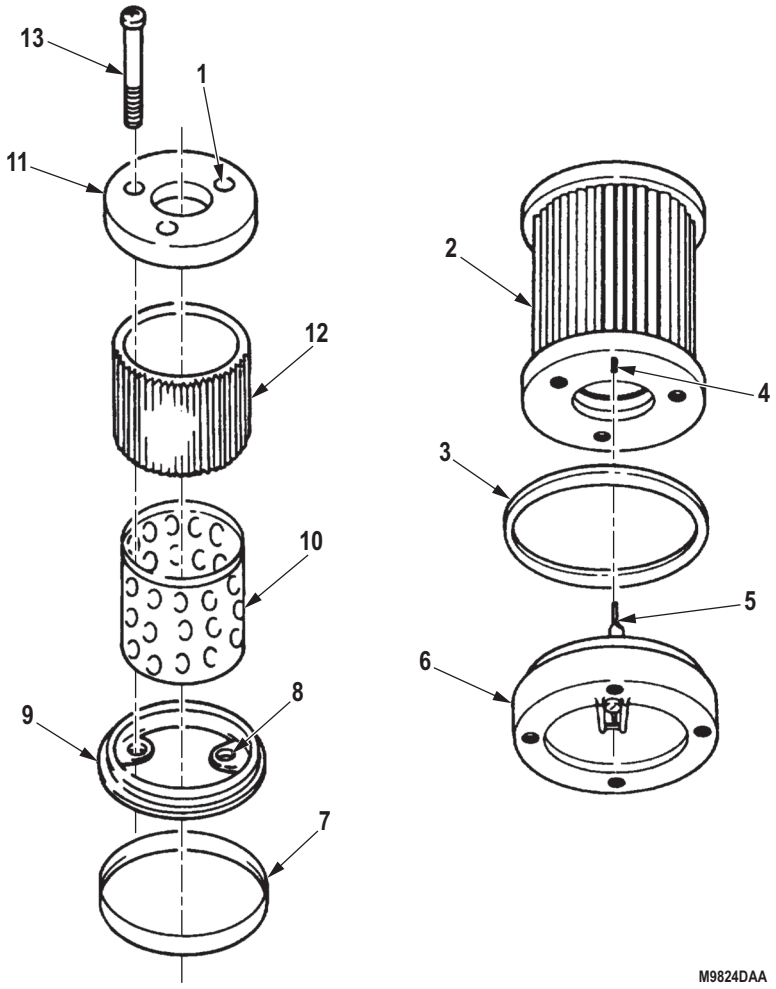


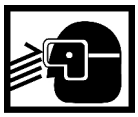
Figure 4. Crane Hydraulic Filter.

END OF TASK

INSTALLATION

1. Install o-ring (Figure 5, Item 5) sideways in filter housing (Figure 5, Item 4). Rotate and seat into position when o-ring contacts rear of filter housing.

WARNING



Hydraulic filter assembly is under great pressure and oil will spurt out from housing during installation. Wear eyeshields during installation of assembly. Failure to comply may result in injury or death to personnel.

CAUTION

- Indicator must be level and on right side of housing during installation. Assembly will not seat if indicator is improperly positioned.
- Do not reuse hydraulic oil from drainage container. Damage to equipment may result if drain oil is used.

NOTE

- Mechanic must seat filter assembly quickly and hold in place while assistant installs screws.
- Have drainage container ready to catch oil.
- Use drain pans to retain leaking/draining fluids. Refer to local procedures and plans for preventing and responding to fluid spills or leaks. Comply with local regulations when disposing of clean up material and leaked and spilled fluids.

2. Position filter cover (Figure 5, Item 1) with filter assembly (Figure 5, Item 2) just inside filter housing (Figure 5, Item 4).
3. Push filter cover (Figure 5, Item 1) quickly into filter housing (Figure 5, Item 4) and install with four screws (Figure 5, Item 3).

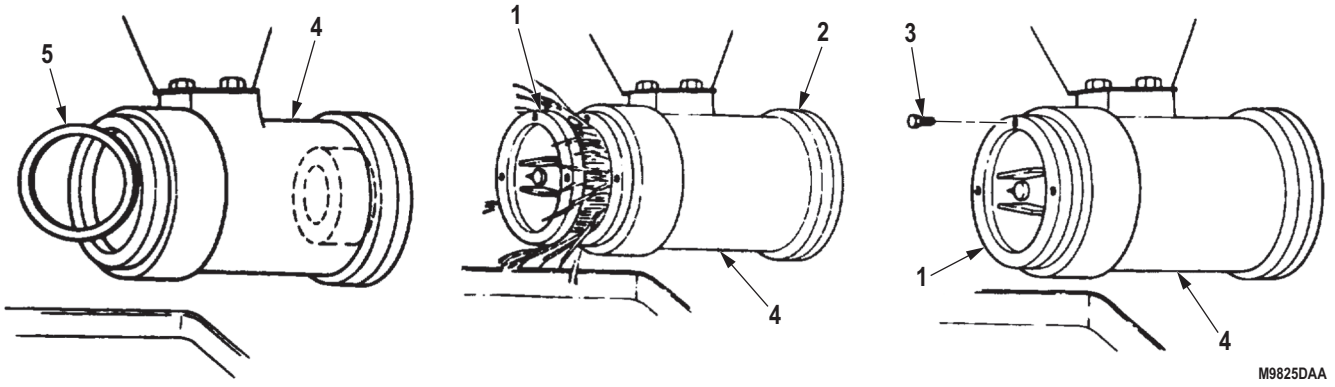


Figure 5. Crane Hydraulic Filter.

INSTALLATION - Continued

4. Install o-ring (Figure 6, Item 2) and filter housing (Figure 6, Item 3) on mounting flange (Figure 6, Item 1) with four washers (Figure 6, Item 6) and screws (Figure 6, Item 7).
5. Wrap hydraulic oil filter elbow (Figure 6, Item 4) with antiseize tape and install on hydraulic oil filter housing (Figure 6, Item 3).
6. Connect flex hose (Figure 6, Item 5) on hydraulic oil filter elbow (Figure 6, Item 4).

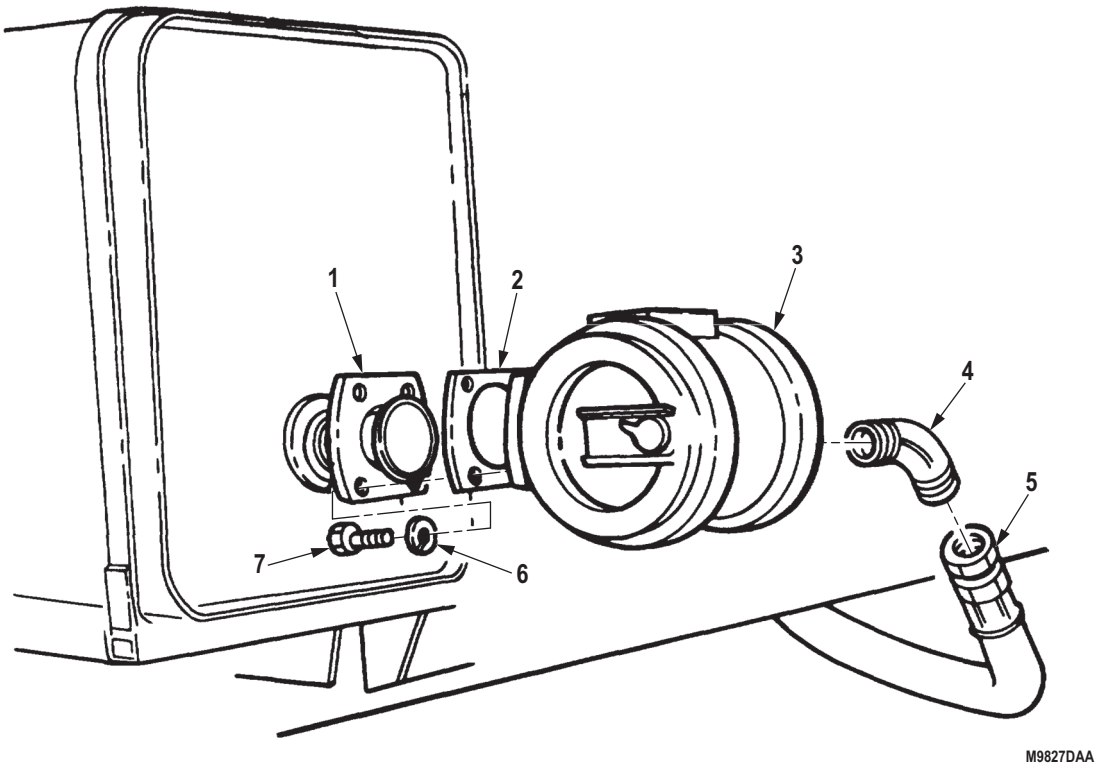


Figure 6. Hydraulic Oil Filter Housing.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install fuel can bracket. (WP 0667)
2. Fill hydraulic oil reservoir to proper level. (Volume 5, WP 0820)
3. Check hydraulic oil filter for proper operation. (Volume 5, WP 0822)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
AUTOMATIC BRAKE (HOIST WINCH) SERVICING

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Grease, Automotive and Artillery
(Volume 5, WP 0825, Table 1, Item 28)
Gasket (Volume 5, WP 0827, Table 1, Item 14)
Qty: 1
Lockwasher
(Volume 5, WP 0827, Table 1, Item 408)
Qty: 6

References
Volume 5, WP 0822

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

ADJUSTMENT

1. Remove six screws (Figure 1, Item 4), lockwashers (Figure 1, Item 3), automatic brake cover (Figure 1, Item 5), and gasket (Figure 1, Item 6) from brake case (Figure 1, Item 1). Discard lockwashers and gasket.
2. Measure distance between two ears (Figure 1, Item 7) of brake band (Figure 1, Item 8). Distance should be 1-7/32 in. ± 1/32 in. (31 mm ± 1 mm).
3. Turn adjusting screw (Figure 1, Item 6) clockwise to tighten and counterclockwise to loosen until proper distance between band ears (Figure 1, Item 7) is reached.
4. Position gasket (Figure 1, Item 2) on brake case (Figure 1, Item 1). Apply a light coat of grease on brake case to hold gasket in place.
5. Position cover (Figure 1, Item 5) over gasket (Figure 1, Item 2) and brake case (Figure 1, Item 1) and install with six lockwashers (Figure 1, Item 3) and screws (Figure 1, Item 4).

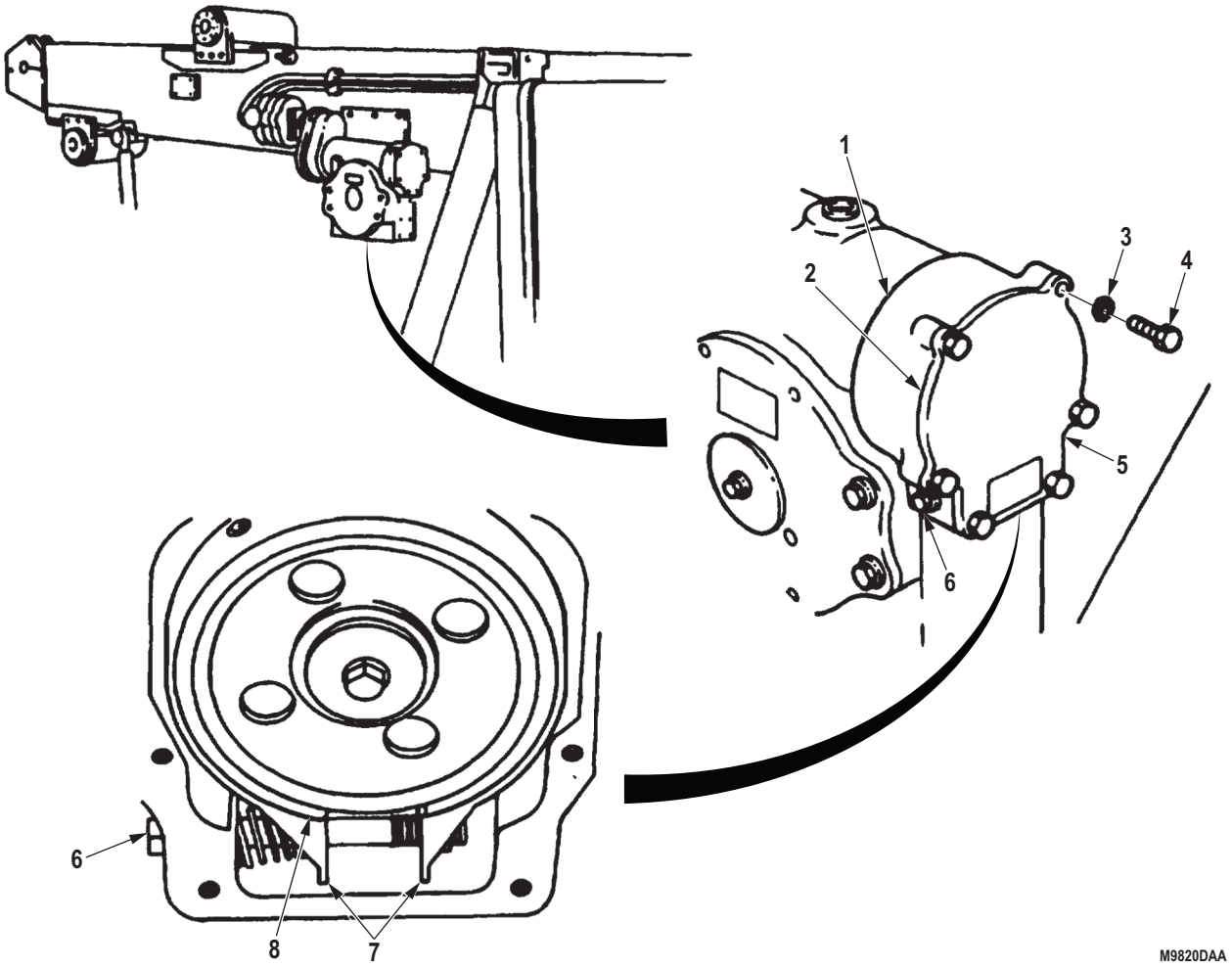


Figure 1. Automatic Brake (Hoist Winch) Adjustment.

END OF TASK

FOLLOW-ON MAINTENANCE

Lift a heavy load with crane and check adjustment by observing slippage when trying to sustain load. If crane does not hold load, notify below depot maintenance. (Volume 5, WP 0822)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
HOIST WINCH CABLE REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Locknut (Volume 5, WP 0827, Table 1, Item 186)
Qty: 2
Lockwasher
(Volume 5, WP 0827, Table 1, Item 316)
Qty: 4

Personnel Required
(2)

References
TB 9-352

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

REMOVAL

1. Remove four screws (Figure 1, Item 12), lockwashers (Figure 1, Item 13), washers (Figure 1, Item 14), and rear cable guard (Figure 1, Item 2) from boom (Figure 1, Item 1). Discard lockwashers.
2. Remove two locknuts (Figure 1, Item 4), screws (Figure 1, Item 6), and spacers (Figure 1, Item 3) from inner boom (Figure 1, Item 5). Discard locknuts.

WARNING



Wear hand protection when handling winch cable. Do not handle cable with bare hands. Broken wires may be sharp. Failure to comply may result in injury or death to personnel.

NOTE

Maintain manual tension on hoist cable when removing block from cable clevis.

3. Unwind hoist cable (Figure 1, Item 7) (TM 9-2320-272-10) until snatch block (Figure 1, Item 8) touches ground. Place hoist control in NEUTRAL position.
4. Remove nut (Figure 1, Item 9), anchor bolt (Figure 1, Item 10), and cable clevis (Figure 1, Item 11) from snatch block (Figure 1, Item 8).
5. Install anchor bolt (Figure 1, Item 10) and nut (Figure 1, Item 9) on snatch block (Figure 1, Item 8) for storage.

REMOVAL - Continued

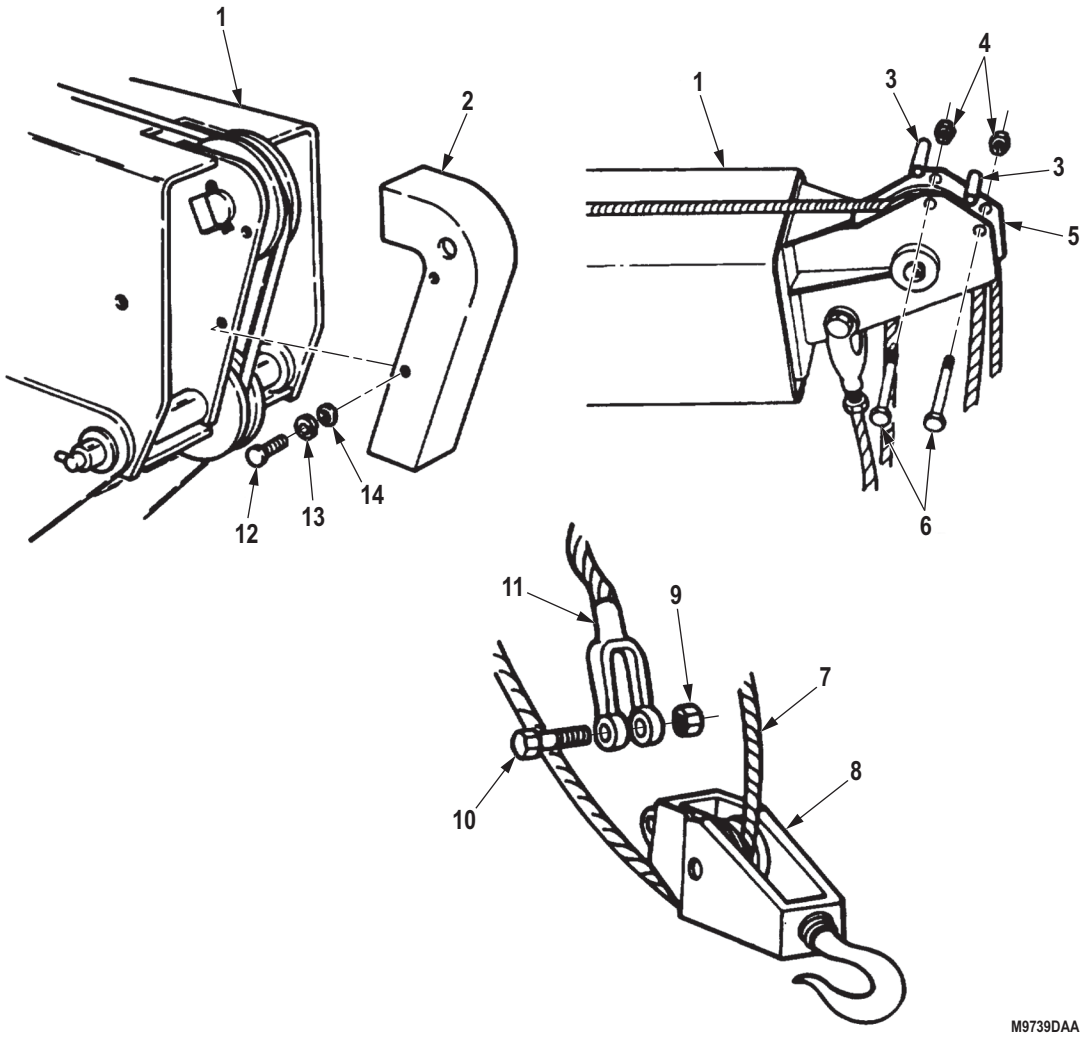


Figure 1. Hoist Winch Cable Removal.

REMOVAL - Continued

6. Thread cable clevis (Figure 2, Item 3) through forward boom sheaves (Figure 2, Item 2) until only one part of cable (Figure 2, Item 5) extends from forward boom sheaves.

NOTE

Direct assistant to maintain tension on cable while crane hoist is in operation.

7. Continue to unwind cable (Figure 2, Item 5) until screw (Figure 2, Item 4) on hoist winch drum (Figure 2, Item 6) is visible. Place hoist control in NEUTRAL position and shut down hoist winch operation (TM 9-2320-272-10).
8. Remove screw (Figure 2, Item 4) and cable (Figure 2, Item 5) from hole (Figure 2, Item 7) in hoist winch drum (Figure 2, Item 6).
9. Install screw (Figure 2, Item 4) in hoist winch drum (Figure 2, Item 6) for storage.
10. Pull cable (Figure 2, Item 5) from boom (Figure 2, Item 1).

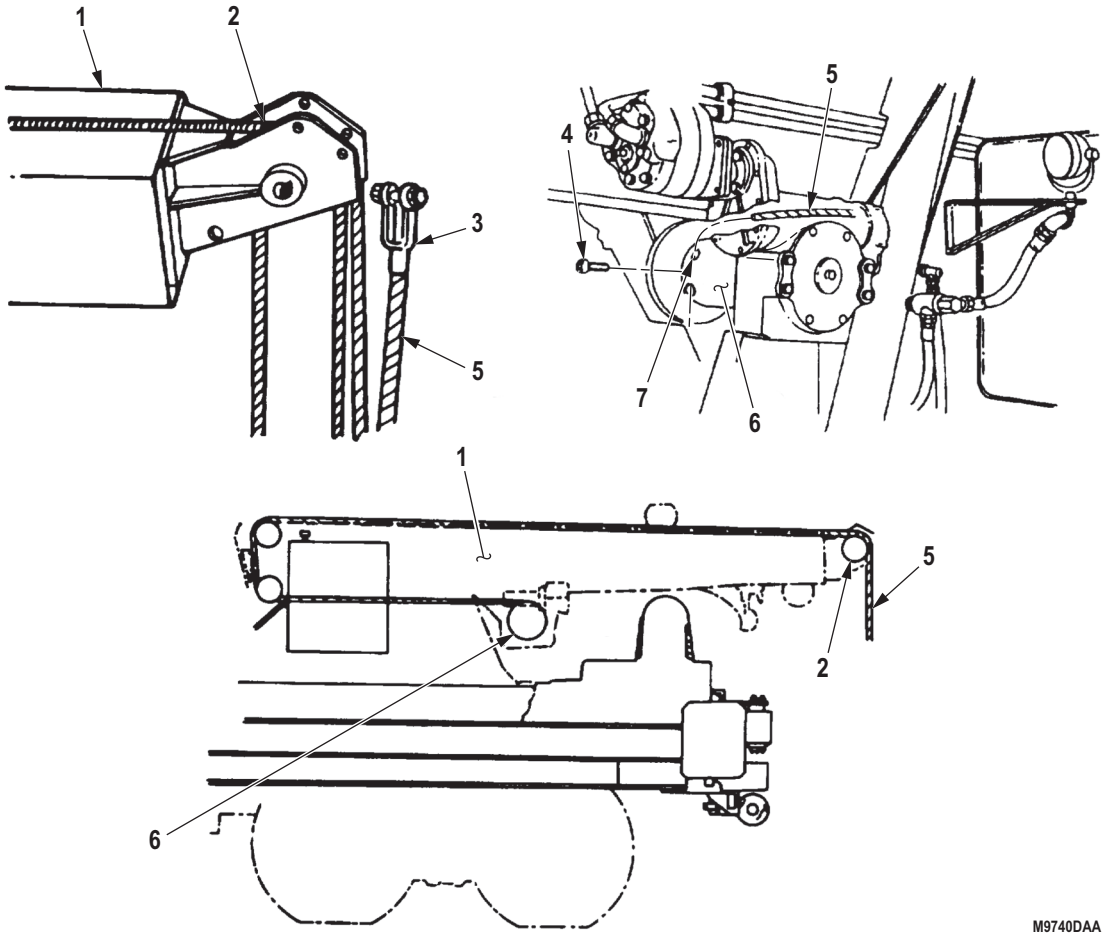


Figure 2. Hoist Winch Cable Removal.

END OF TASK

INSTALLATION

1. Thread cable end of cable (Figure 3, Item 4) over forward boom sheaves (Figure 3, Item 2) and through upper boom roller (Figure 3, Item 7).
2. Thread cable (Figure 3, Item 4) around upper rear sheaves (Figure 3, Item 9) and lower rear sheaves (Figure 3, Item 8).
3. Feed cable (Figure 3, Item 4) under boom (Figure 3, Item 1) to hoist winch drum (Figure 3, Item 5).
4. Remove screw (Figure 3, Item 3), insert cable (Figure 3, Item 4) through hole (Figure 3, Item 6) in hoist winch drum (Figure 3, Item 5), and install screw.

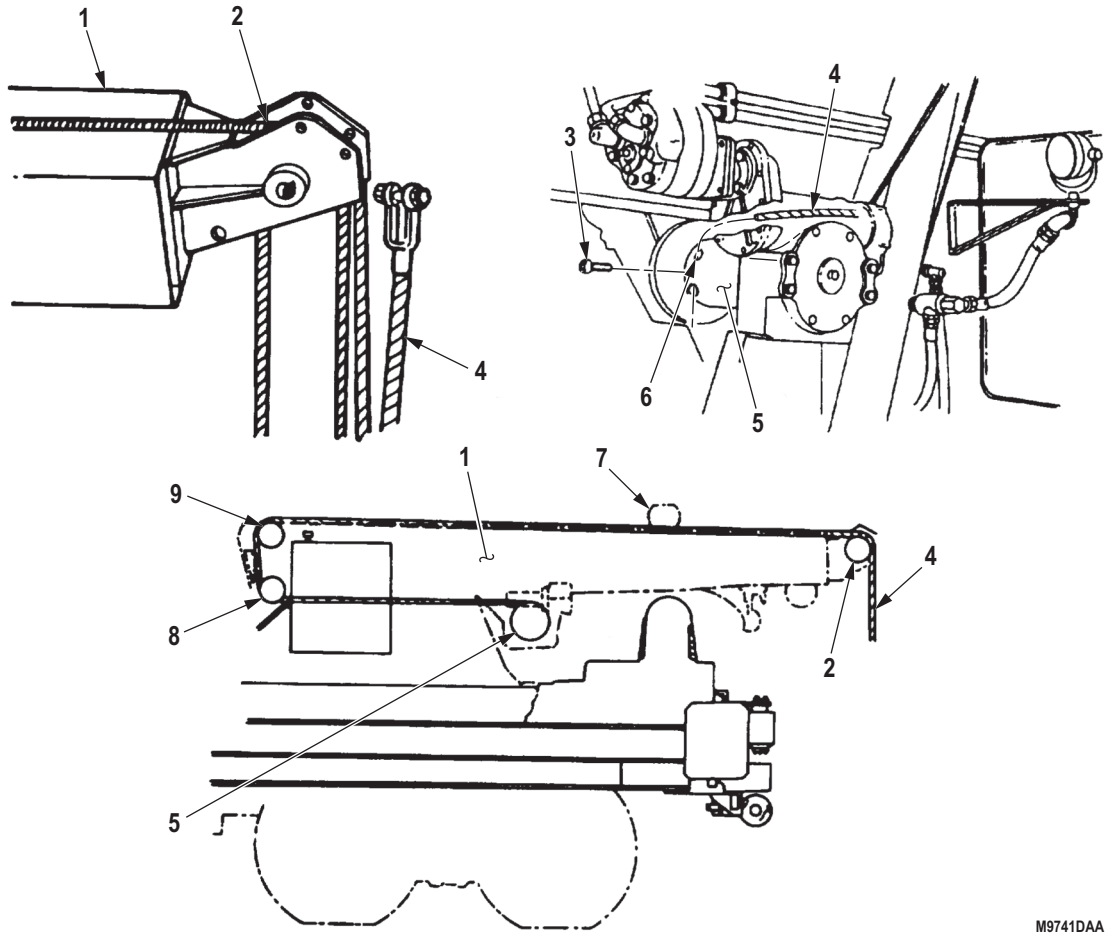


Figure 3. Hoist Winch Cable Installation.

INSTALLATION - Continued

NOTE

Direct assistant to maintain tension on hoist cable and observe that cable is winding properly.

5. Wind cable (Figure 4, Item 2) on hoist winch drum (Figure 4, Item 1) until clevis (Figure 4, Item 3) end of cable (Figure 4, Item 2) leaves ground.
6. Thread cable clevis (Figure 4, Item 3) through snatch block (Figure 4, Item 15), over forward boom sheave (Figure 4, Item 4), and back to snatch block.
7. Remove nut (Figure 4, Item 14) and anchor bolt (Figure 4, Item 13) from snatch block (Figure 4, Item 15) and install cable clevis (Figure 4, Item 3) with anchor bolt and nut.
8. Install two spacers (Figure 4, Item 16) on forward boom (Figure 4, Item 12) with two screws (Figure 4, Item 11) and locknuts (Figure 4, Item 8).
9. Install rear cable guard (Figure 4, Item 7) over rear sheaves (Figure 4, Item 6) on boom (Figure 4, Item 5) with four washers (Figure 4, Item 8), lockwashers (Figure 4, Item 9), and screws (Figure 4, Item 10).
10. Raise snatch block (Figure 4, Item 15) and place in stowage position (TM 9-2320-272-10).
11. Place hoist control in NEUTRAL position and stop vehicle (TM 9-2320-272-10).

INSTALLATION - Continued

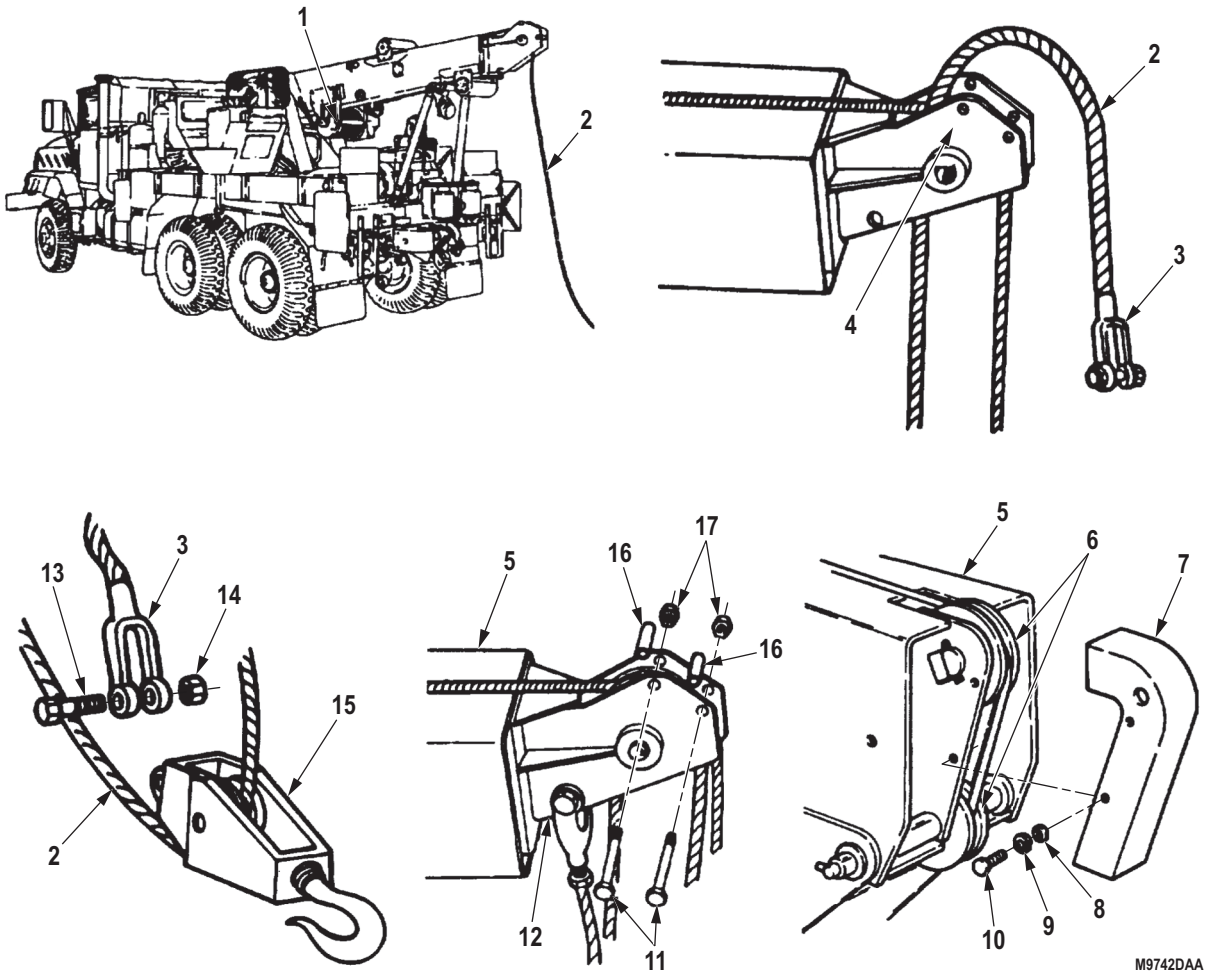


Figure 4. Hoist Winch Cable Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

Load test winch cable. (TB 9-352)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
REAR WINCH CABLE REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Rear winch cable unwound. (TM 9-2320-272-10)

REMOVAL

WARNING



Wear hand protection when handling winch cable. Do not handle cable with bare hands. Broken wires may be sharp. Failure to comply may result in injury or death to personnel.

1. Remove setscrew (Figure 1, Item 4) and cable (Figure 1, Item 2) from hole (Figure 1, Item 3) in winch drum (Figure 1, Item 1).

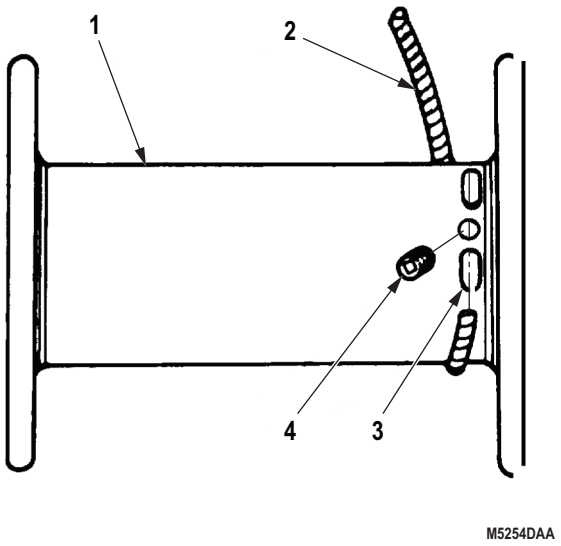


Figure 1. Rear Winch Cable Removal.

REMOVAL - Continued

2. Pull cable (Figure 2, Item 4) out over level wind pulley (Figure 2, Item 1), down through tensioner sheaves (Figure 2, Item 2), and out of rollers (Figure 2, Item 5), and side of rollers (Figure 2, Item 3).

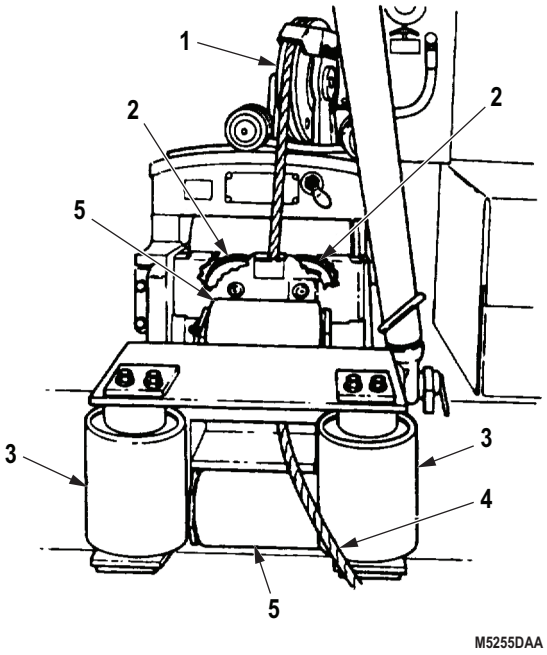


Figure 2. Rear Winch Cable Removal.

END OF TASK

INSTALLATION

1. Thread cable (Figure 3, Item 4) into center of side rollers (Figure 3, Item 3), rollers (Figure 3, Item 5), tensioner sheaves (Figure 3, Item 2), under level wind pulley plate (Figure 3, Item 1), and over level wind pulley (Figure 3, Item 6).

INSTALLATION - Continued

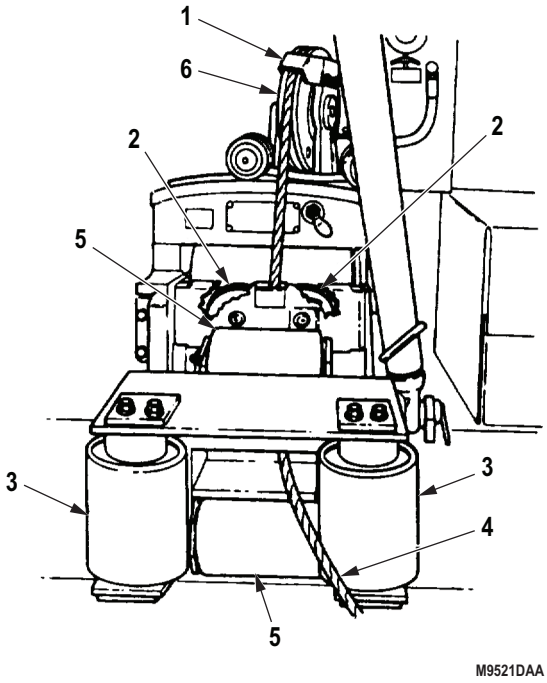


Figure 3. Rear Winch Cable Installation.

2. Insert cable (Figure 4, Item 2) in hole (Figure 4, Item 3) of winch drum (Figure 4, Item 1) and install setscrew (Figure 4, Item 4).

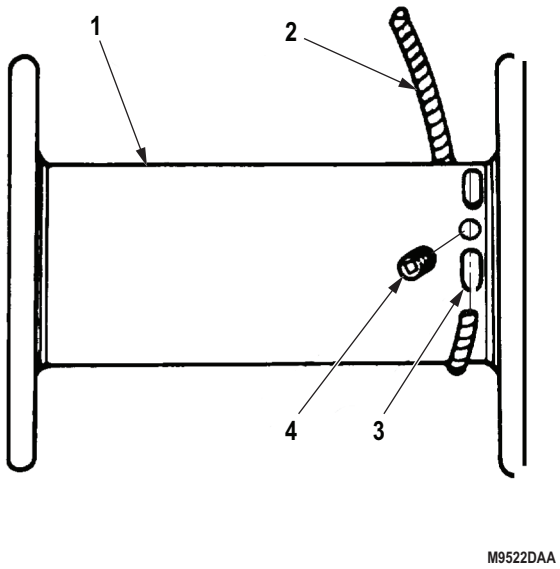


Figure 4. Rear Winch Cable Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

Wind winch cable on drum. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
WRECKER CRANE HYDRAULIC HOSE AND TUBE REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Cap Set, Protective, Dust and Moisture Seal (Volume 5, WP 0825, Table 1, Item 13)
Locknut (Volume 5, WP 0827, Table 1, Item 285)
Qty: 6

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

Equipment Condition (cont.)
Shipper brace in travel position. (TM 9-2320-272-10)
Hydraulic oil reservoir drained. (Volume 5, WP 0820)

REMOVAL

CAUTION

When disconnecting hydraulic hoses and tubes, plug all openings to prevent dirt from entering and causing internal parts damage.

NOTE

- Do not twist hose during removal or attempt to remove hose with one wrench.
- Hose fitting ends connected by a single hexagonal nut cannot be disconnected until the flare nut connected at the opposite end is removed. The entire hose must be free to turn whenever removing hose connected by a single hexagonal nut.
- Tag all hoses and lines for installation.
- Have drainage container ready to catch oil.
- Use drain pans to retain leaking/draining fluids. Refer to local procedures and plans for preventing and responding to fluid spills or leaks. Comply with local regulations when disposing of clean up material and leaked and spilled fluids.

1. Remove locknut (Figure 1, Item 8), clamp (Figure 1, Item 2), hose (Figure 1, Item 7), and/or tube (Figure 1, Item 1) from bracket (Figure 1, Item 3) and wrecker body (Figure 1, Item 4). Discard locknut.
2. Position wrenches on hexagonal fitting (Figure 1, Item 6) and flare nut (Figure 1, Item 5).
3. Holding hexagonal fitting (Figure 1, Item 6) in place, loosen flare nut (Figure 1, Item 5), and disconnect hose (Figure 1, Item 7) and/or tube (Figure 1, Item 1) from hexagonal fitting.
4. Repeat Steps (1) through (3) for remaining hoses (Figure 1, Item 7) and/or tubes (Figure 1, Item 1).

REMOVAL - Continued

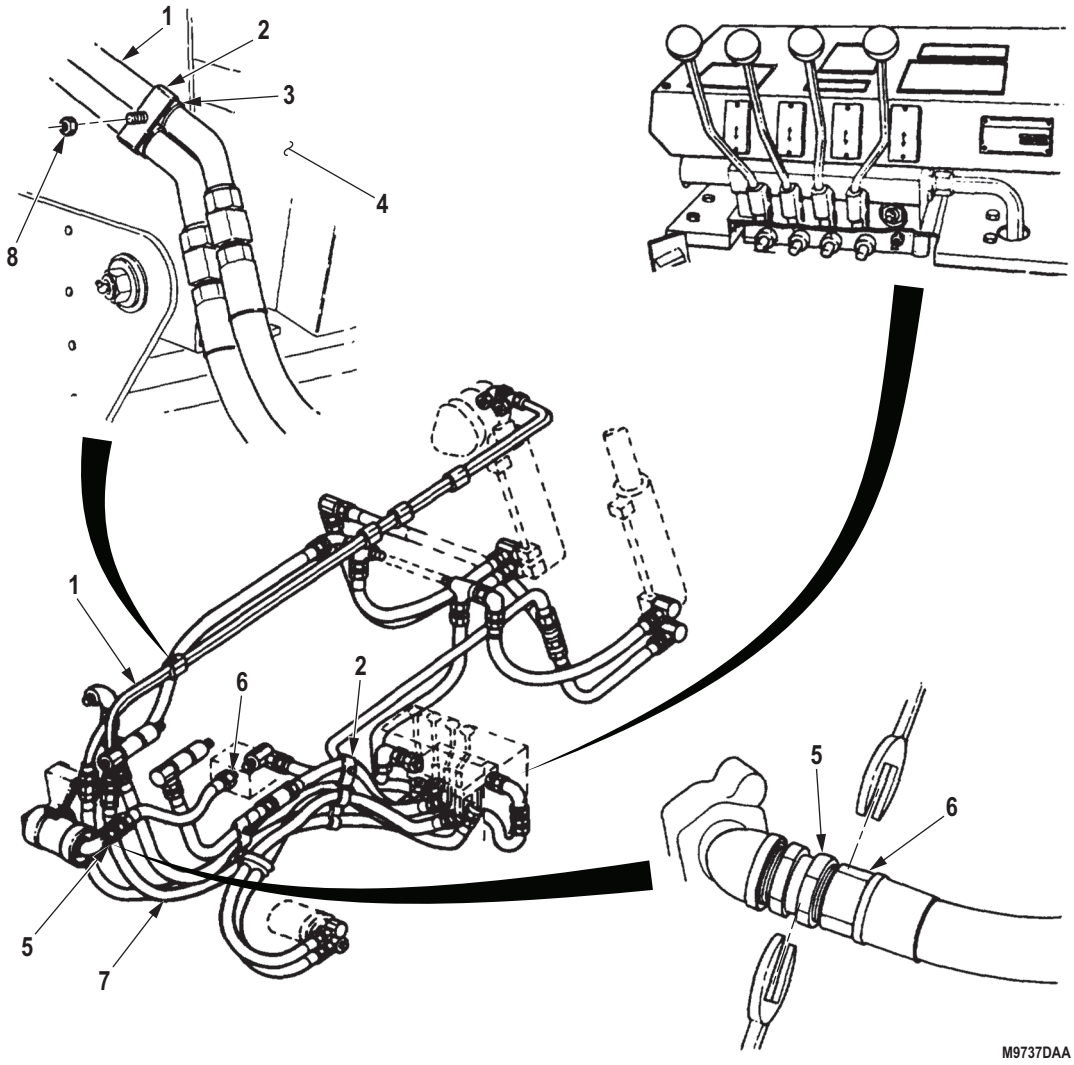


Figure 1. Wrecker Crane Hydraulic Hose and Tube Removal.

END OF TASK

INSTALLATION

CAUTION

Ensure no particles of plugging become trapped in crane hydraulic system during installation of hoses or tubes. Failure to comply may result in damage to equipment.

NOTE

- Do not twist hose or attempt to install hose with one wrench.
- Hose fitting ends connected by a single hexagonal nut cannot be connected until the hexagonal nut end is connected at the opposite end. The entire hose must be free to turn whenever installing hose connected by a single hexagonal nut.

1. Install hose (Figure 2, Item 7) and/or tube (Figure 2, Item 1) on wrecker body (Figure 2, Item 4) and bracket (Figure 2, Item 3) with clamp (Figure 2, Item 2) and locknut (Figure 2, Item 8).
2. Position wrenches on hexagonal fitting (Figure 2, Item 6) and flare nut (Figure 2, Item 5).
3. Holding hexagonal fitting (Figure 2, Item 6) in place, tighten flare nut (Figure 2, Item 5).
4. Repeat Steps (1) through (3) for remaining hoses (Figure 2, Item 7) and/or tubes (Figure 2, Item 1).

INSTALLATION - Continued

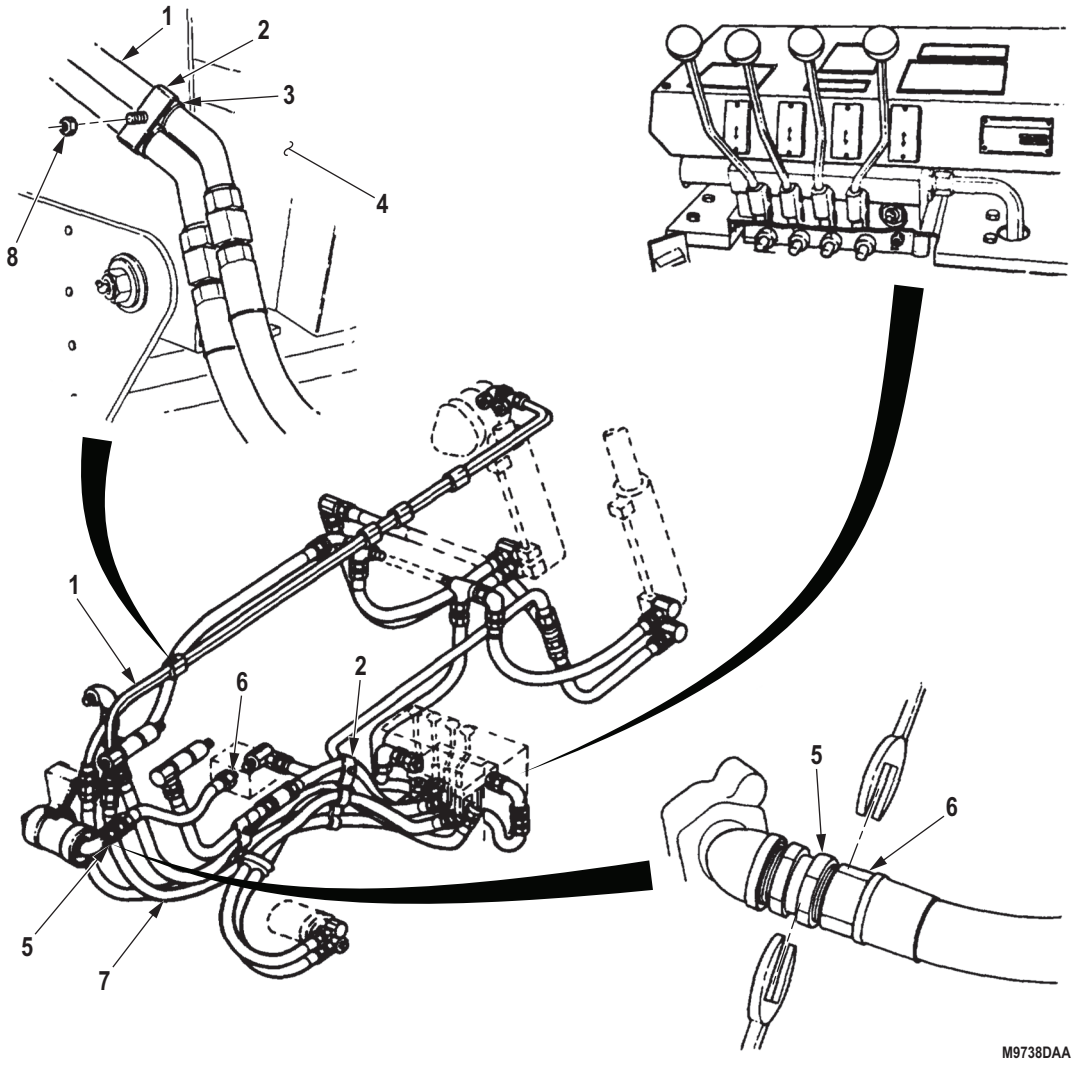


Figure 2. Wrecker Crane Hydraulic Hose and Tube Installation.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
WRECKER CRANE HYDRAULIC PUMP REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
- Tool Kit, General Mechanic's: Automotive (Volume 5, WP 0826, Table 1, Item 56)
- Wrench, Torque, Click, Ratcheting, 1/2" Drive, 250 Ft-Lb (Volume 5, WP 0826, Table 1, Item 63)

Materials/Parts
- Cap Set, Protective, Dust and Moisture Seal (Volume 5, WP 0825, Table 1, Item 13)
- Lockwasher (Volume 5, WP 0827, Table 1, Item 405) Qty: 16

Materials/Parts (cont.)
- O-ring (Volume 5, WP 0827, Table 1, Item 361) Qty: 1
- O-ring (Volume 5, WP 0827, Table 1, Item 362) Qty: 1

Personnel Required
(2)

Equipment Condition
- Parking brake set. (TM 9-2320-272-10)
- Hydraulic oil reservoir drained. (Volume 5, WP 0820)

REMOVAL

CAUTION

When disconnecting hydraulic hoses and lines, plug all openings to prevent dirt from entering and causing internal parts damage.

NOTE

- Tag all hoses and lines for installation.
- Have drainage container ready to catch oil.
- Use drain pans to retain leaking/draining fluids. Refer to local procedures and plans for preventing and responding to fluid spills or leaks. Comply with local regulations when disposing of clean up material and leaked and spilled fluids.

1. Disconnect hose (Figure 1, Item 16) from hose (Figure 1, Item 15).
2. Disconnect hoses (Figure 1, Item 13) and (Figure 1, Item 15) from inlet tee (Figure 1, Item 14).
3. Disconnect hose (Figure 1, Item 7) from outlet elbow (Figure 1, Item 6).
4. Remove four screws (Figure 1, Item 21), lockwashers (Figure 1, Item 22), and mount (Figure 1, Item 19) with crane pump (Figure 1, Item 10) from bracket (Figure 1, Item 1). Lower crane pump, and slide from driveshaft hub (Figure 1, Item 20). Discard lockwashers.
5. Remove four screws (Figure 1, Item 17), lockwashers (Figure 1, Item 18), two split flanges (Figure 1, Item 12), inlet tee (Figure 1, Item 14), and o-ring (Figure 1, Item 11) from crane pump (Figure 1, Item 10). Discard lockwashers and o-ring.
6. Remove four screws (Figure 1, Item 4), lockwashers (Figure 1, Item 3), two split flanges (Figure 1, Item 5), outlet elbow (Figure 1, Item 6), and o-ring (Figure 1, Item 8) from crane pump (Figure 1, Item 10). Discard lockwashers and o-ring.
7. Remove four screws (Figure 1, Item 9), lockwashers (Figure 1, Item 2), and mount (Figure 1, Item 19) from crane pump (Figure 1, Item 10). Discard lockwashers.

REMOVAL - Continued

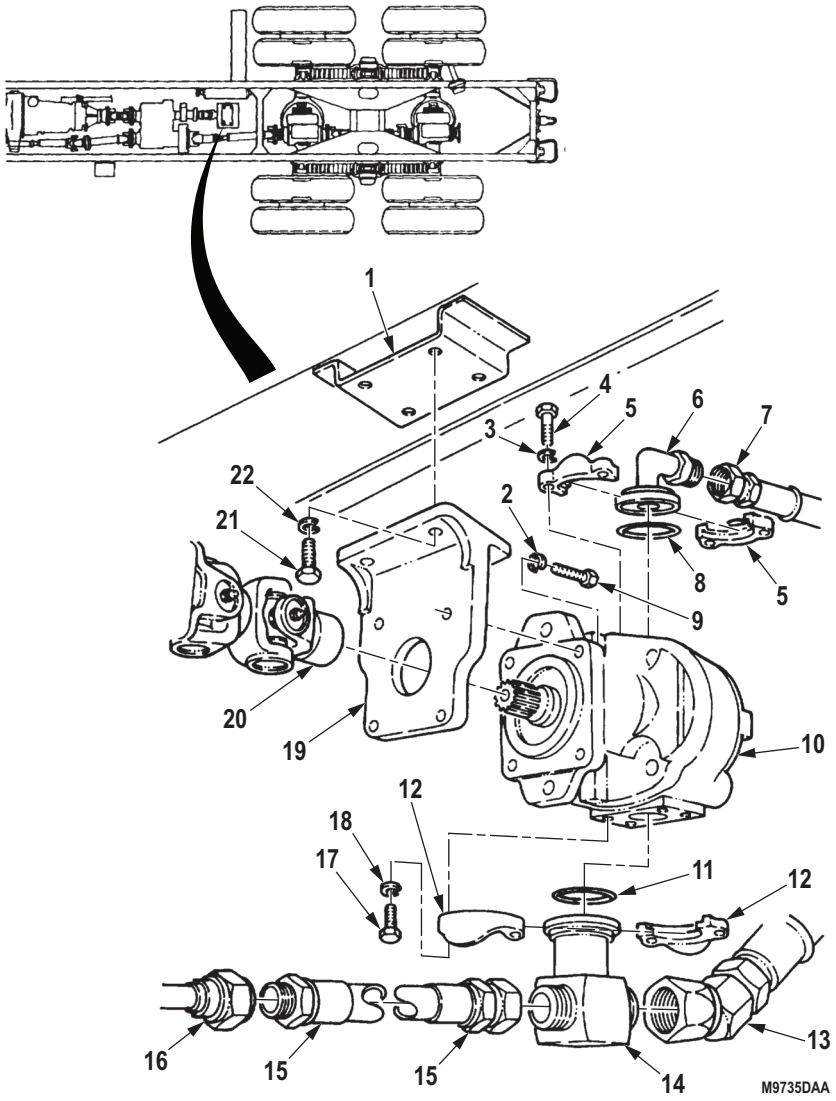


Figure 1. Wrecker Crane Hydraulic Pump Removal.

END OF TASK

INSTALLATION

1. Install mount (Figure 2, Item 19) on crane pump (Figure 2, Item 10) with four lockwashers (Figure 2, Item 2) and screws (Figure 2, Item 9).
2. Install o-ring (Figure 2, Item 8) and outlet elbow (Figure 2, Item 6) on crane pump (Figure 2, Item 10) with two split flanges (Figure 2, Item 5), four lockwashers (Figure 2, Item 3), and screws (Figure 2, Item 4). Tighten screws 50 to 60 lb-ft (68 to 81 N·m).
3. Install o-ring (Figure 2, Item 11) and inlet tee (Figure 2, Item 14) on crane pump (Figure 2, Item 10) with two split flanges (Figure 2, Item 12), four lockwashers (Figure 2, Item 18), and screws (Figure 2, Item 17). Tighten screws 50 to 60 lb-ft (68 to 81 N·m).
4. Position shaft of crane pump (Figure 2, Item 10) on driveshaft hub (Figure 2, Item 20).
5. Position mount (Figure 2, Item 19) with crane pump (Figure 2, Item 10) on bracket (Figure 2, Item 1) and install with four lockwashers (Figure 2, Item 22) and screws (Figure 2, Item 21).
6. Connect hose (Figure 2, Item 7) to outlet elbow (Figure 2, Item 6).
7. Connect hoses (Figure 2, Items 13 and 15) to inlet tee (Figure 2, Item 14).
8. Connect hose (Figure 2, Item 16) to hose (Figure 2, Item 15).

INSTALLATION - Continued

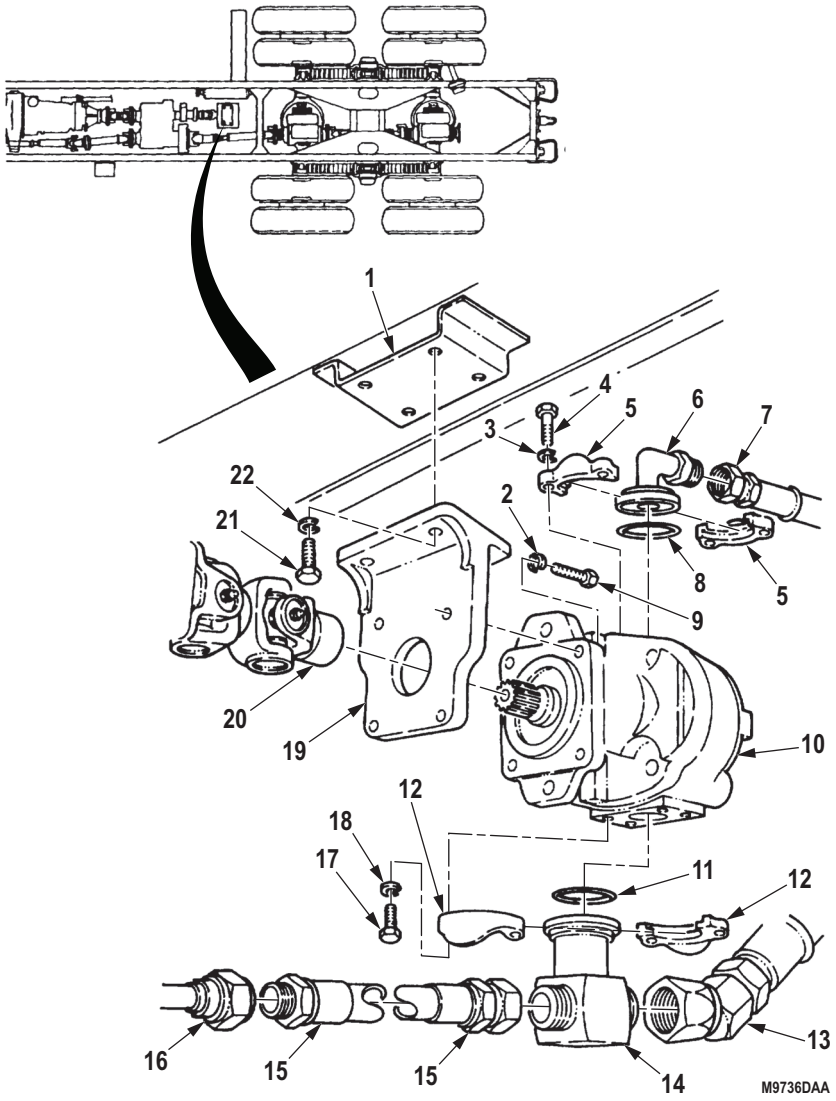


Figure 2. Wrecker Crane Hydraulic Pump Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Fill hydraulic oil reservoir to proper fluid level. (Volume 5, WP 0820)
2. Check crane hydraulic pump for proper operation. (TM 9-2320-270-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
TRANSMISSION PTO-TO-HYDRAULIC PUMP PROPELLER SHAFT REPAIR

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

REMOVAL

1. Remove setscrews (Figure 1, Items 3 and 5) and propeller shaft (Figure 1, Item 2) from PTO shaft (Figure 1, Item 1) and hydraulic pump shaft (Figure 1, Item 4).

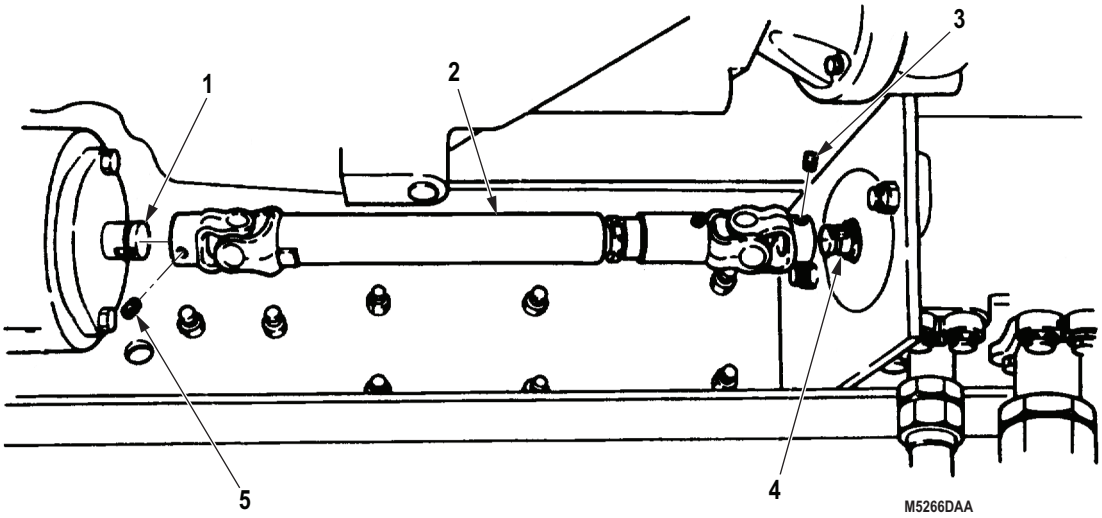


Figure 1. Transmission PTO-To-Hydraulic Pump Propeller Shaft Removal.

REMOVAL - Continued

NOTE

This procedure covers maintenance for both universal joints.

2. Position propeller shaft (Figure 2, Item 1) in soft-jawed vise (Figure 2, Item 3) so end yoke (Figure 2, Item 2) moves freely.

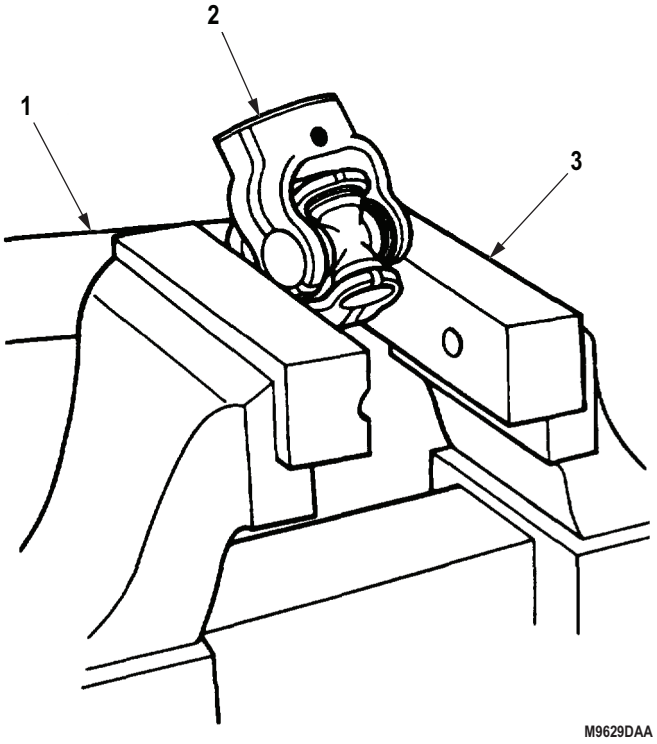


Figure 2. Transmission PTO-To-Hydraulic Pump Propeller Shaft Removal.

3. Position four lockrings (Figure 3, Item 4) from universal joint (Figure 3, Item 3).

NOTE

Do not drop bearing cups. Needle bearings inside are very small and can easily be lost.

4. Remove two bearing cups (Figure 3, Item 2) and end yoke (Figure 3, Item 7) from propeller shaft yoke (Figure 3, Item 1).
5. Remove two bearing cups (Figure 3, Item 5) and universal joint (Figure 3, Item 3) from propeller shaft yoke (Figure 3, Item 1).
6. Remove grease fitting (Figure 3, Item 6) from universal joint (Figure 3, Item 3).

REMOVAL - Continued

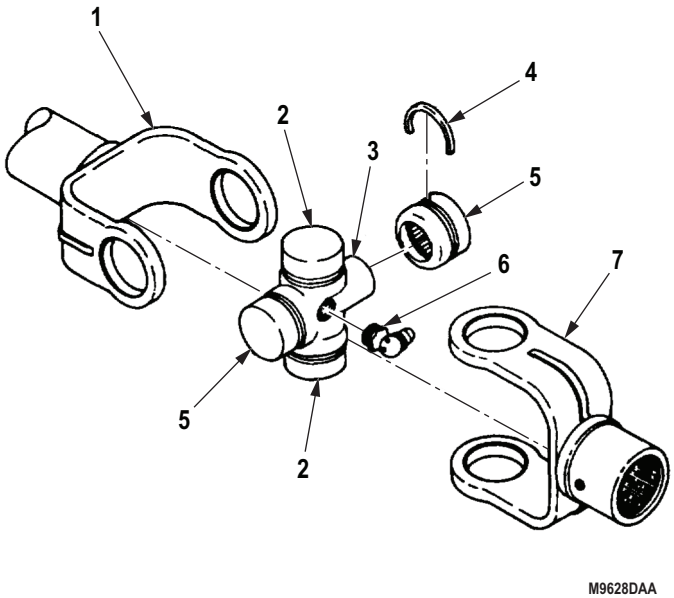


Figure 3. Transmission PTO-To-Hydraulic Pump Propeller Shaft Removal.

7. Remove dust cap (Figure 4, Item 2) and slip yoke (Figure 4, Item 5) from propeller shaft splines (Figure 4, Item 1).
8. Remove dust cap (Figure 4, Item 2), nylon washer (Figure 4, Item 3), and felt washer (Figure 4, Item 4) from slip yoke (Figure 4, Item 5). Discard felt washer, nylon washer, and dust cap.
9. Remove grease fitting (Figure 4, Item 6) from slip yoke (Figure 4, Item 5).

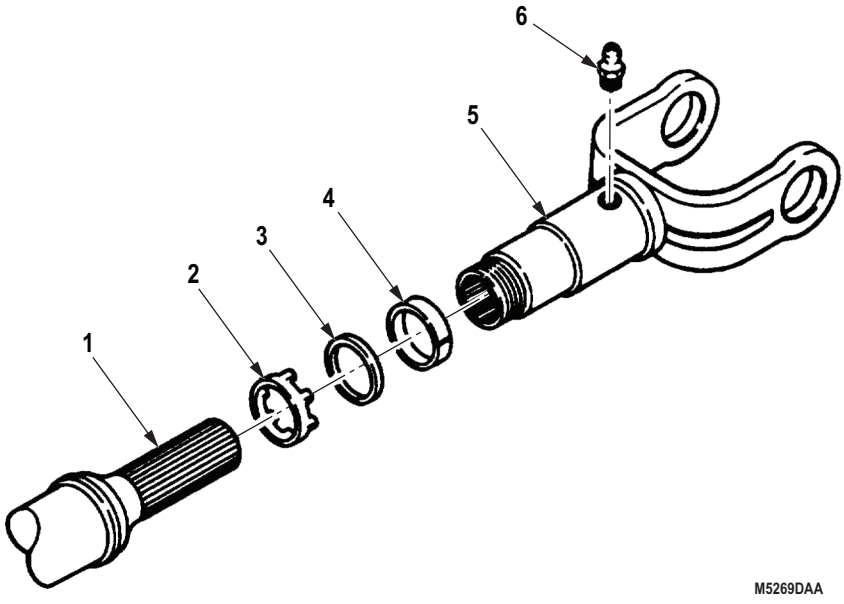


Figure 4. Transmission PTO-To-Hydraulic Pump Propeller Shaft Removal.

END OF TASK

INSPECTION

1. Inspect bearing cups for worn or missing needle bearings. Replace needle bearings if worn or missing.
2. Apply a few drops of lubricating oil in bearing cups. Using finger, roll needle bearings around to check for free movement. Replace bearing cup(s) if needle bearing movement is rough or uneven.
3. Inspect end yoke, propeller shaft yoke, slip yoke, and universal joint for scoring, burrs, cracks, and bends. Replace part(s) if defective.

END OF TASK

ASSEMBLY

1. Install grease fitting (Figure 5, Item 6) on slip yoke (Figure 5, Item 5).

NOTE

Soak felt washer in lubricating oil prior to installation.

2. Slide dust cap (Figure 5, Item 2), nylon washer (Figure 5, Item 3), felt washer (Figure 5, Item 4), and slip yoke (Figure 5, Item 5) over propeller shaft splines (Figure 5, Item 1).
3. Install nylon washer (Figure 5, Item 3) and felt washer (Figure 5, Item 4) in dust cap (Figure 5, Item 2).
4. Install dust cap (Figure 5, Item 2) on slip yoke (Figure 5, Item 5).

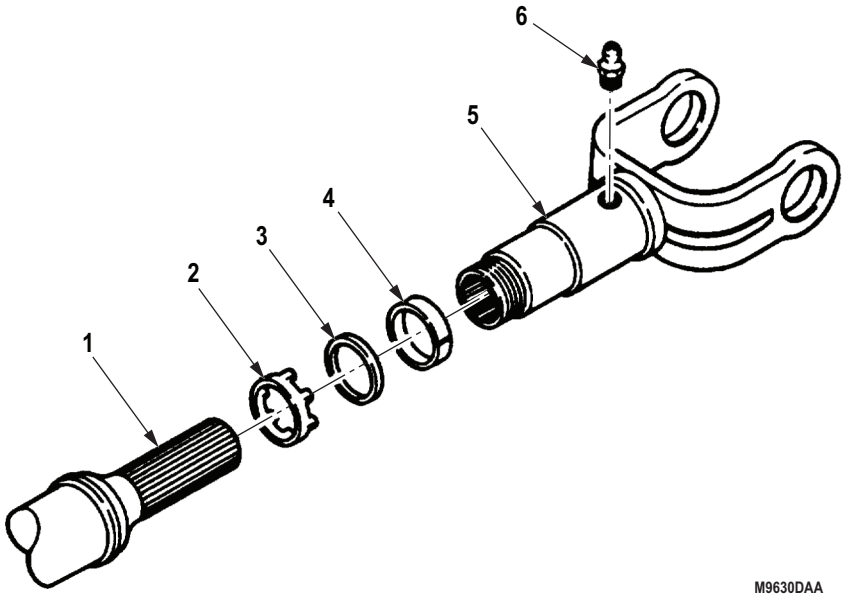


Figure 5. Transmission PTO-To-Hydraulic Pump Propeller Shaft Assembly.

ASSEMBLY - Continued

5. Place propeller shaft (Figure 6, Item 1) in soft-jawed vise (Figure 6, Item 3) so end yoke (Figure 6, Item 2) moves freely.

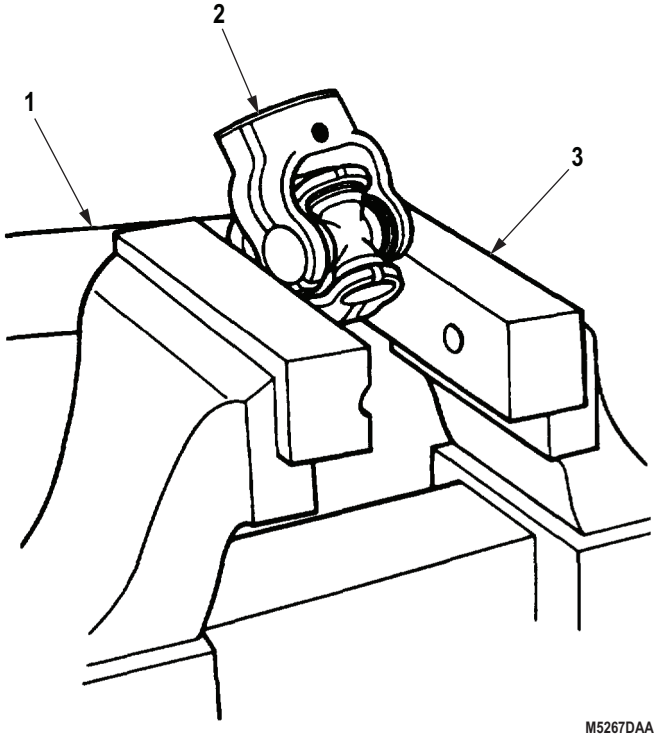


Figure 6. Transmission PTO-To-Hydraulic Pump Propeller Shaft Assembly.

ASSEMBLY - Continued

6. Install grease fitting (Figure 7, Item 6) on universal joint (Figure 7, Item 3).

NOTE

- Lubricate new or used universal joint before assembly.
- Press bearing cups into yoke far enough to install lockrings.

7. Place universal joint (Figure 7, Item 3) in propeller shaft yoke (Figure 7, Item 1).
8. Install two bearing cups (Figure 7, Item 2) on universal joint (Figure 7, Item 3) and end yoke (Figure 7, Item 7) with two lockrings (Figure 7, Item 4).
9. Install two bearing cups (Figure 7, Item 5) on universal joint (Figure 7, Item 3) and propeller shaft yoke (Figure 7, Item 1) with two lockrings (Figure 7, Item 4).

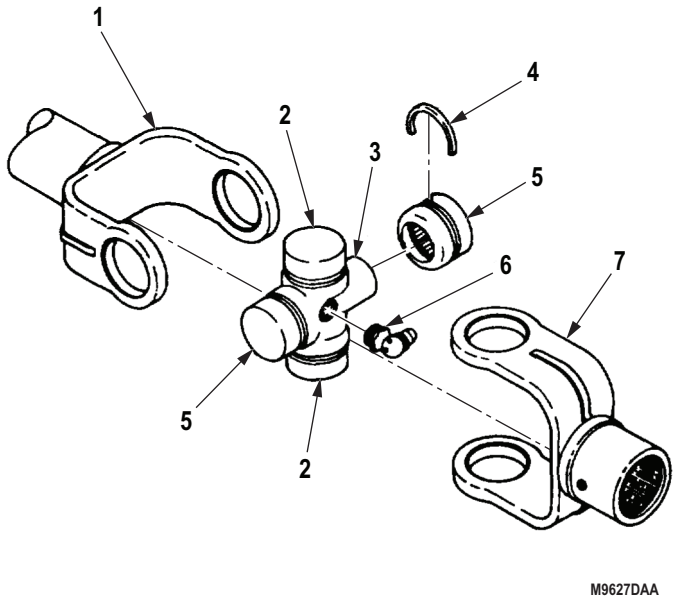


Figure 7. Transmission PTO-To-Hydraulic Pump Propeller Shaft Assembly.

ASSEMBLY - Continued

10. Remove propeller shaft (Figure 8, Item 1) from soft-jawed vise (Figure 8, Item 3).

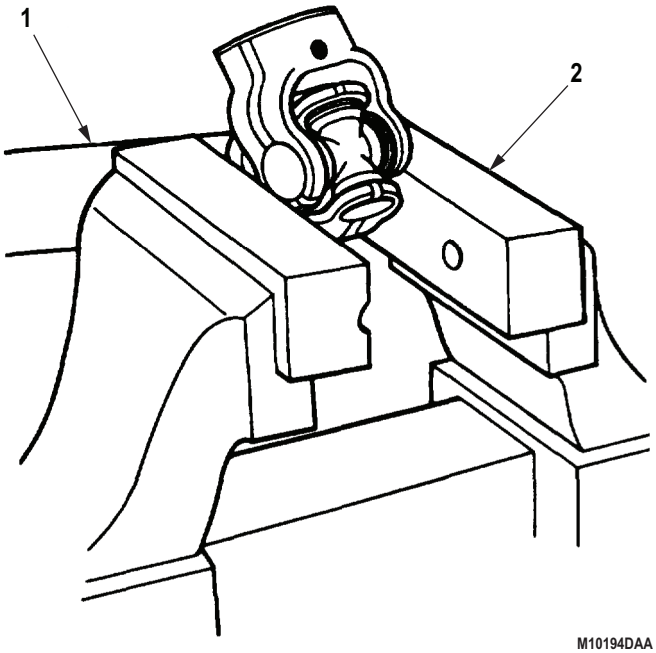


Figure 8. Transmission PTO-To-Hydraulic Pump Propeller Shaft Assembly.

END OF TASK

INSTALLATION

1. Position universal joint ends (Figure 9, Item 3) of propeller shaft (Figure 9, Item 4) over PTO shaft (Figure 9, Item 2) and hydraulic pump shaft (Figure 9, Item 8). Ensure universal joint ends are seated properly over woodruff keys (Figure 9, Item 6) of PTO shaft and hydraulic pump shaft.
2. Install propeller shaft (Figure 9, Item 4) on PTO shaft (Figure 9, Item 2) and hydraulic pump shaft (Figure 9, Item 8) with setscrews (Figure 9, Items 5 and 9). Ensure setscrews seat properly in shaft channels (Figure 9, Items 1 and 7).

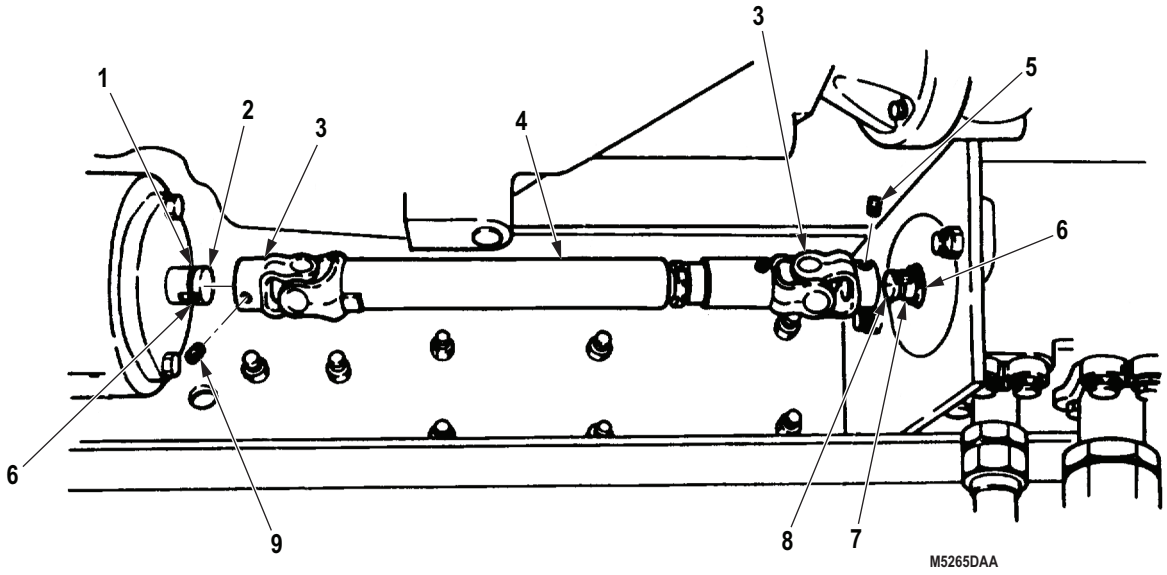


Figure 9. Transmission PTO-To-Hydraulic Pump Propeller Shaft Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

Start engine (TM 9-2320-272-10) and operate any accessory driven by the transmission PTO-to-hydraulic pump propeller shaft. Stop engine (TM 9-2320-272-10) and check for looseness.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
TRANSFER PTO-TO-HYDRAULIC PUMP PROPELLER SHAFT REPAIR

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)
Jack Dolly Type Hydraulic
(Volume 5, WP 0826, Table 1, Item 32)

Materials/Parts
Lockwasher

Materials/Parts (cont.)
(Volume 5, WP 0827, Table 1, Item 405)
Qty: 4
Lockwasher
(Volume 5, WP 0827, Table 1, Item 444)
Qty: 4

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

REMOVAL

NOTE

Transfer PTO-to-crane hydraulic pump propeller shaft and adapter come assembled as one unit but adapter must be replaced separately.

1. Remove four nuts (Figure 1, Item 3), lockwashers (Figure 1, Item 4), and screws (Figure 1, Item 5) from propeller shaft (Figure 1, Item 14) and driveshaft flange (Figure 1, Item 17). Discard lockwashers.
2. Rotate propeller shaft (Figure 1, Item 14) to position lubrication fitting (Figure 1, Item 6) at top.
3. Support weight of pump (Figure 1, Item 9) with hydraulic jack.
4. Remove four screws (Figure 1, Item 8) and lockwashers (Figure 1, Item 7) from pump (Figure 1, Item 9) and mount (Figure 1, Item 12). Discard lockwashers.
5. Separate pump (Figure 1, Item 9) from mount (Figure 1, Item 12) and slide toward rear of vehicle until pump boss (Figure 1, Item 10) clears mount.
6. Lower hydraulic jack enough to allow separation and removal of propeller shaft (Figure 1, Item 14) from pump shaft (Figure 1, Item 11).
7. Remove nut (Figure 1, Item 15) and washer (Figure 1, Item 16) from transfer PTO shaft (Figure 1, Item 2) and slide driveshaft flange (Figure 1, Item 17) off transfer PTO shaft (Figure 1, Item 1).

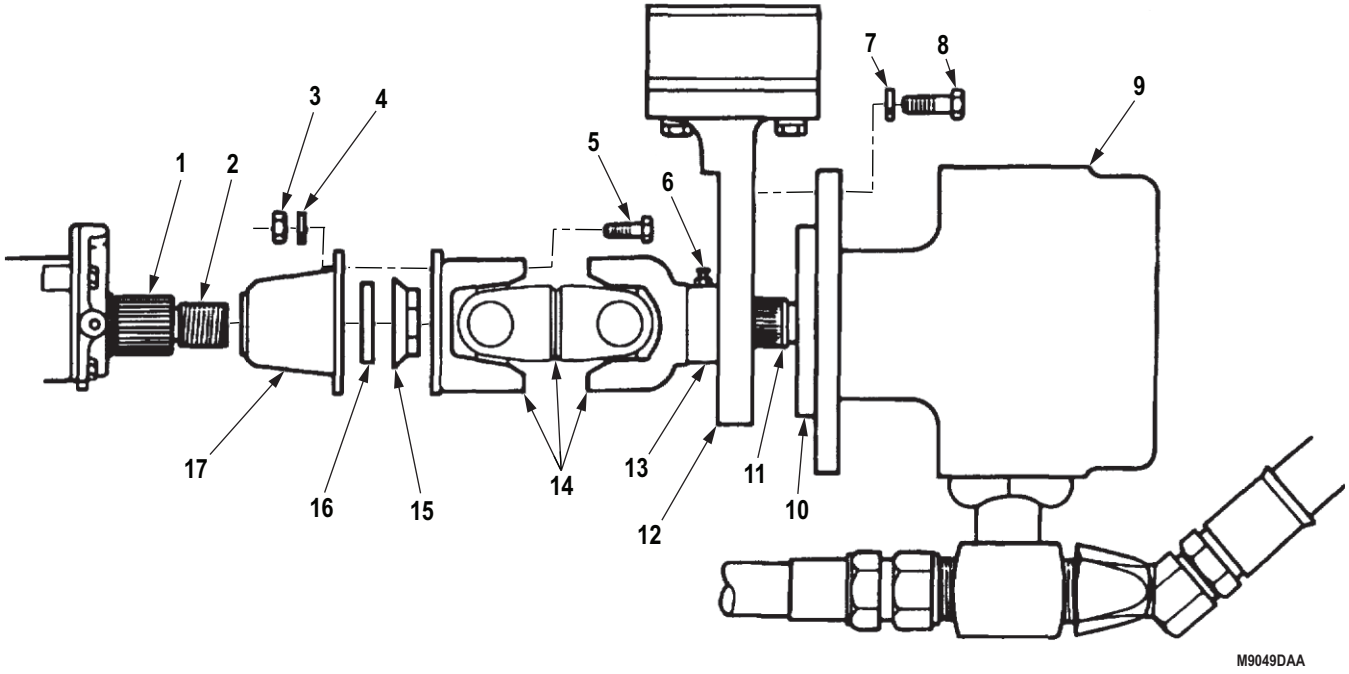


Figure 1. Transfer PTO-to-Hydraulic Pump Propeller Shaft Removal.

END OF TASK

INSTALLATION

1. Install driveshaft flange (Figure 2, Item 17) on transfer PTO shaft (Figure 2, Item 2) with washer (Figure 2, Item 16) and nut (Figure 2, Item 15).
2. Raise hydraulic jack enough to position pump shaft (Figure 2, Item 11) and boss (Figure 2, Item 10) of pump (Figure 2, Item 9) through mount (Figure 2, Item 12). Ensure rear hub of propeller shaft (Figure 2, Item 14) slides on pump shaft.
3. Position propeller shaft (Figure 2, Item 14) on PTO shaft (Figure 2, Item 1) with lubrication fitting (Figure 2, Item 6) positioned at top.
4. Install propeller shaft (Figure 2, Item 14) on driveshaft flange (Figure 2, Item 17) with four screws (Figure 2, Item 5), lockwashers (Figure 2, Item 4), and nuts (Figure 2, Item 3).
5. Install pump (Figure 2, Item 9) on mount (Figure 2, Item 12) with four lockwashers (Figure 2, Item 7) and screws (Figure 2, Item 8). Tighten screws 32 to 40 lb-ft (43 to 54 N·m).

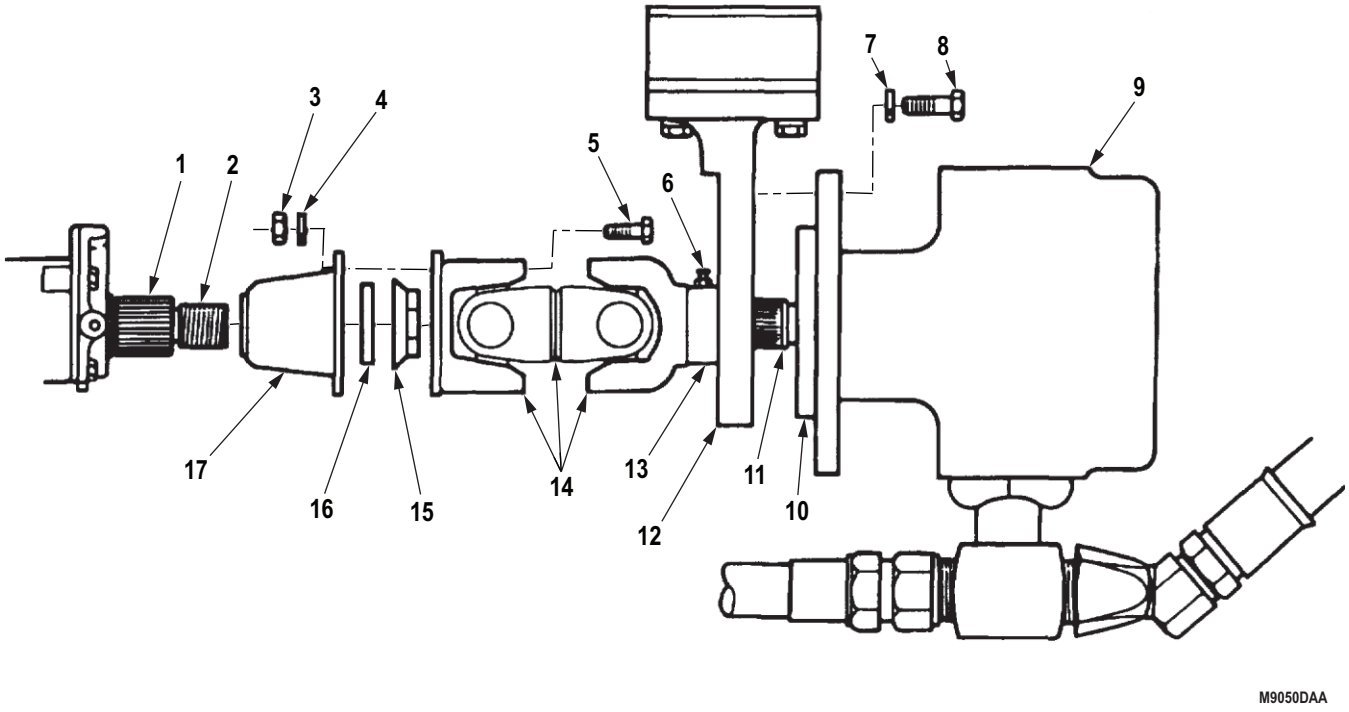


Figure 2. Transfer PTO-to-Hydraulic Pump Propeller Shaft Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

Check operation of crane hydraulic system. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
DUMP BODY HYDRAULIC HOSE REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive (Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Cap Set, Protective, Dust and Moisture Seal (Volume 5, WP 0825, Table 1, Item 13)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

Equipment Condition (cont.)
Dump body in lowered position. (TM 9-2320-272-10)
Hydraulic oil reservoir drained. (Volume 5, WP 0820)

REMOVAL

WARNING



- Never work under dump body until safety braces are properly positioned. Dump body may suddenly lower. Failure to comply may result in injury or death to personnel.
- Ensure dump control lever is in the NEUTRAL position and has not moved. Failure to comply may result in injury or death to personnel.
- Accidental or intentional introduction of liquid contaminants into the environment is in violation of state, federal, and military regulations. Refer to local Unit SOP for information concerning storage, use, and disposal of these liquids. Failure to comply may result in injury or death to personnel.
- Do not remove hoses with engine running or start engine with hoses removed. High-pressure fluids may cause hoses to whip violently and spray randomly. Failure to comply may result in injury or death to personnel.

NOTE

All hydraulic hoses are removed the same way. This procedure covers dump hoist cylinder and safety lock hoses only.

1. Place dump body in raised position (TM 9-2320-272-10).
2. Place safety braces in proper position (TM 9-2320-272-10).

CAUTION

Plug all hydraulic lines or openings to prevent dirt from entering and damaging components.

NOTE

- Cross fittings to hoist cylinder hoses must be disconnected from the cross fittings first. Then hoses can be removed from hoist cylinders.
- Have drainage container ready to catch oil.
- Use drain pans to retain leaking/draining fluids. Refer to local procedures and plans for preventing and responding to fluid spills or leaks. Comply with local regulations when disposing of clean up material and leaked and spilled fluids.
- Drain hoses before plugging.
- Tag hoses for installation.

3. Disconnect four hydraulic hoses (Figure 1, Items 5, 9, 11, and 13) from right cross fitting (Figure 1, Item 10).
4. Disconnect four hydraulic hoses (Figure 1, Items 4, 6, 8, and 12) from left cross fitting (Figure 1, Item 7).
5. Disconnect two hydraulic hoses (Figure 1, Items 5 and 11) from right and left cylinder ports (Figure 1, Items 1 and 15).
6. Disconnect two hydraulic hoses (Figure 1, Items 6 and 12) from right and left cylinder ports (Figure 1, Items 3 and 14).
7. Disconnect two hydraulic hoses (Figure 1, Items 4 and 13) from safety lock cylinder (Figure 1, Item 2).

REMOVAL - Continued

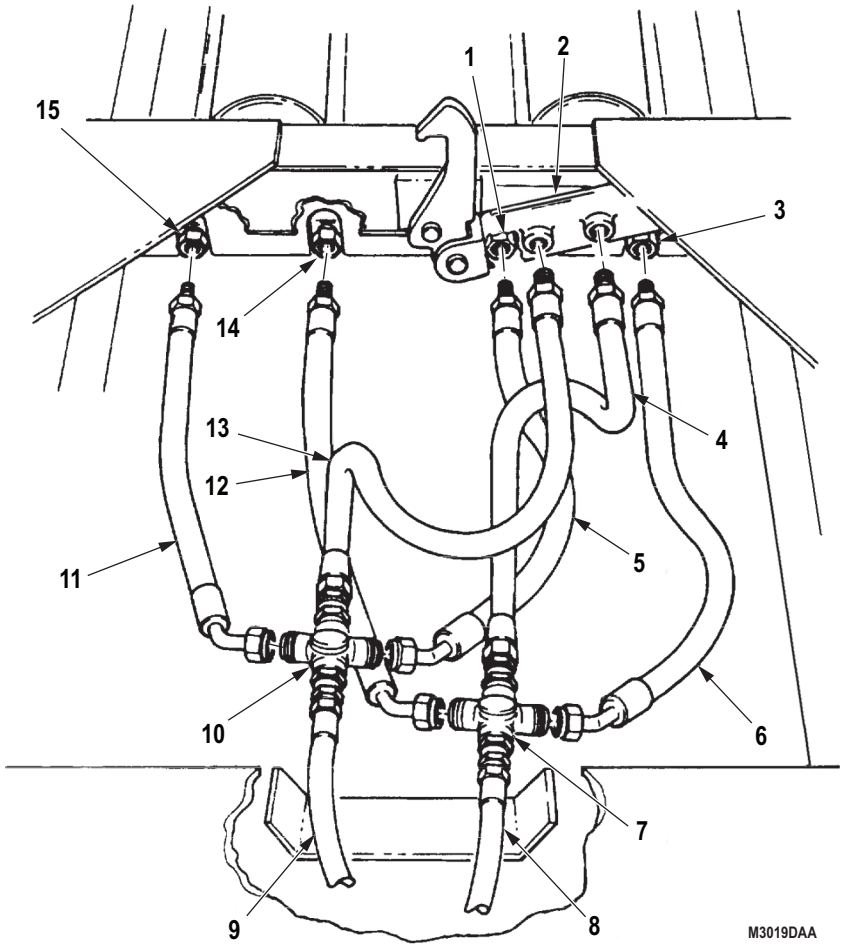


Figure 1. Hydraulic Hoses.

REMOVAL - Continued

NOTE

- All dump body hoses are removed the same, two of nine hoses shown.
- Refer to Figure 3 for removal and routing of remaining dump body hydraulic hoses.

8. Disconnect two hydraulic hoses (Figure 2, Items 3 and 4) from fittings (Figure 2, Items 1 and 2).
9. Disconnect two hydraulic hoses (Figure 2, Items 3 and 4) from control valve (Figure 2, Item 7) and fittings (Figure 2, Items 5 and 6).

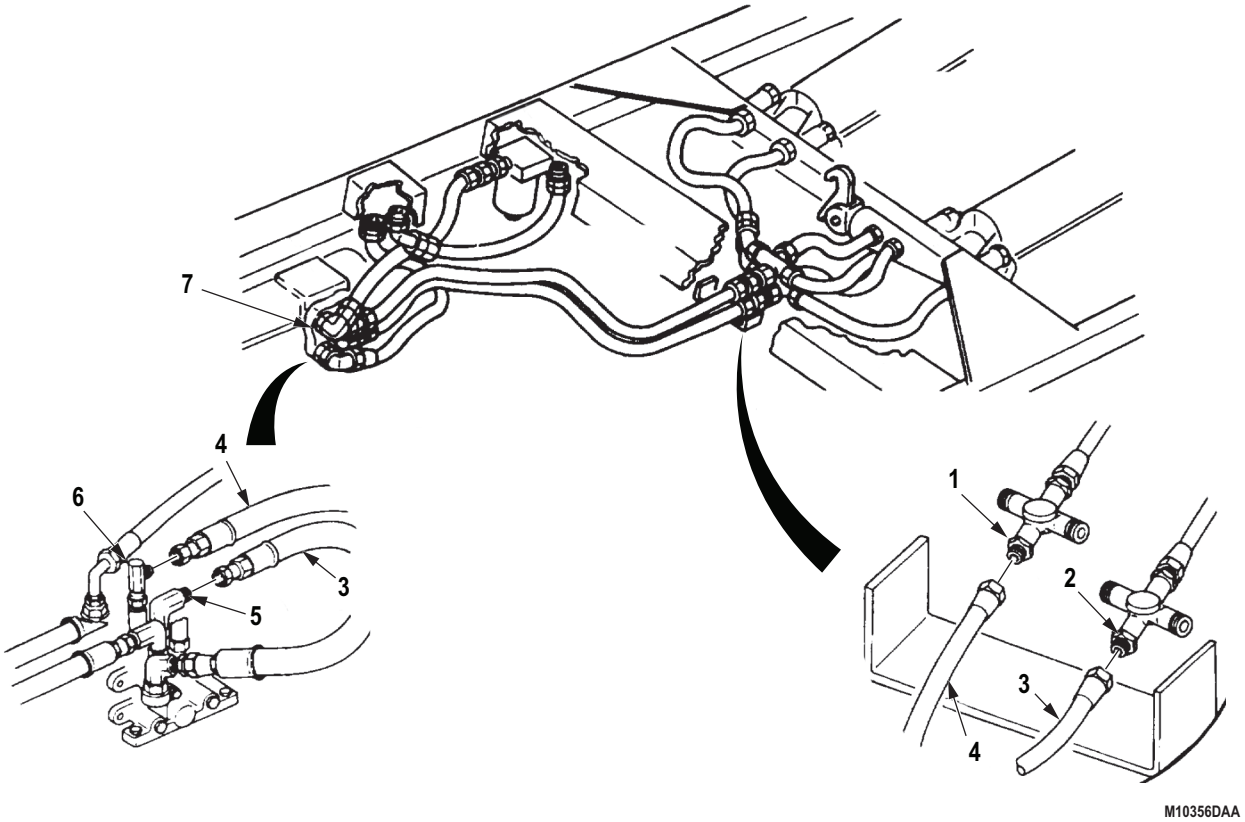


Figure 2. Hydraulic Hoses.

REMOVAL - Continued

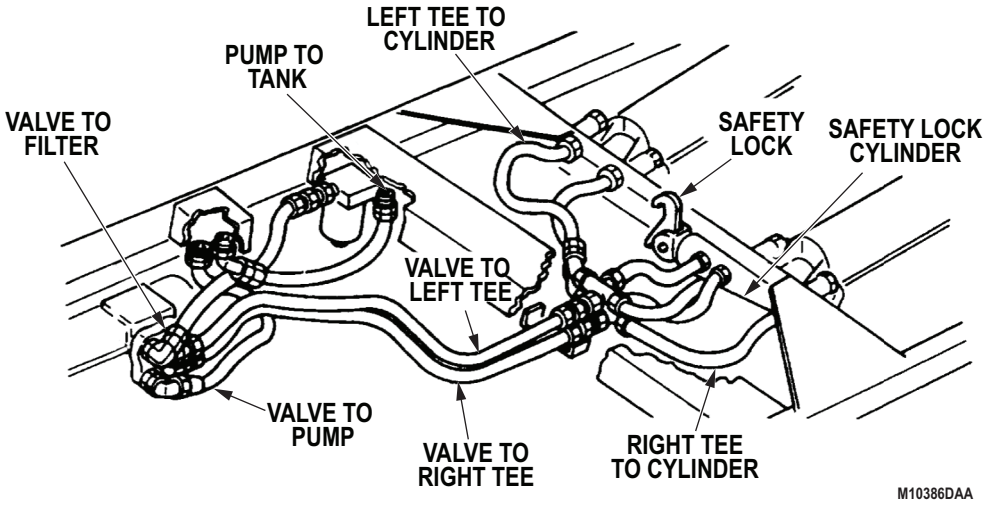


Figure 3. Hydraulic Hoses.

END OF TASK

INSTALLATION

NOTE

- Ensure plugs are removed from all fittings before installation. Ensure no particles of plugging become trapped in dump body hydraulic system during installation of hoses and tubing.
- All dump body hydraulic hoses are installed the same, two of nine hoses shown.
- Refer to Figure 5 for installation and routing of remaining dump body hydraulic hoses.

1. Connect two hydraulic hoses (Figure 4, Items 3 and 4) to fittings (Figure 4, Items 5 and 6) on control valve (Figure 4, Item 7).
2. Connect two hydraulic hoses (Figure 4, Items 3 and 4) to cross fittings (Figure 4, Items 1 and 2).

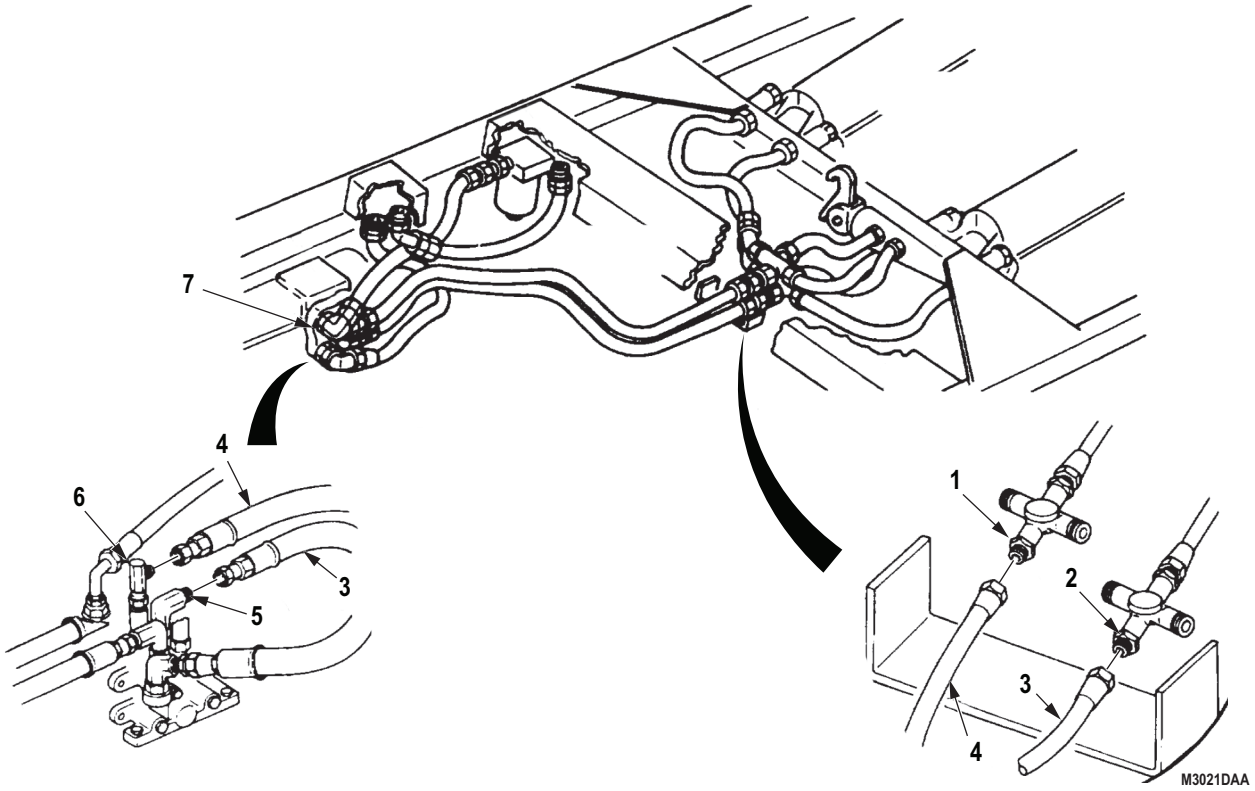


Figure 4. Hydraulic Hoses.

INSTALLATION - Continued

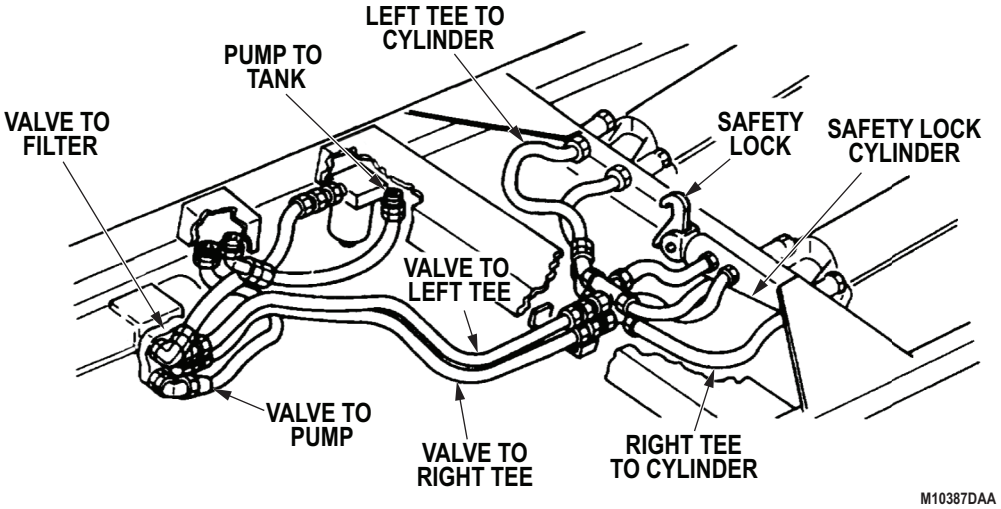


Figure 5. Hydraulic Hoses.

INSTALLATION - Continued

3. Connect two hydraulic hoses (Figure 6, Items 9 and 13) to right and left cylinder ports (Figure 6, Items 17 and 18) (with bypass tube (Figure 6, Items 1 and 3) extending full length of cylinder) and right cross fitting (Figure 6, Item 12).
4. Connect two hydraulic hoses (Figure 6, Items 10 and 14) to right and left cylinder ports (Figure 6, Items 7 and 16) (with bypass tube (Figure 6, Items 2 and 4) extending midway of the cylinder) and left cross fitting (Figure 6, Item 11).
5. Connect left cross fitting-to-safety lock cylinder hose (Figure 6, Item 8) to left safety lock cylinder port (Figure 6, Item 6) and left cross fitting (Figure 6, Item 11).
6. Connect right cross fitting-to-safety lock cylinder hose (Figure 6, Item 15) to right safety lock cylinder port (Figure 6, Item 5) and right cross fitting (Figure 6, Item 12).
7. Remove dump body safety braces and place in lowest position (Volume 5, WP 0820).

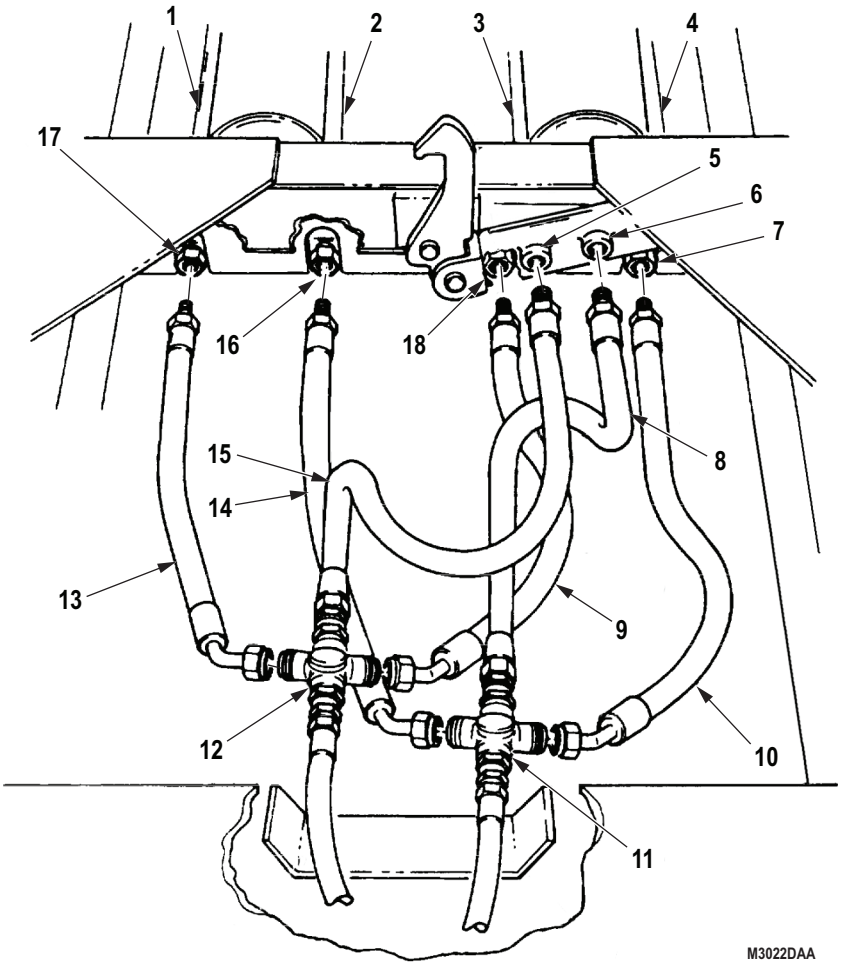


Figure 6. Hydraulic Hoses.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Fill hydraulic reservoir to proper oil level. (Volume 5, WP 0820)
2. Start engine and operate through full range. Check for leaks and proper operation. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
DUMP VALVE CABLE AND SHIFT LEVER REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Cotter Pin
(Volume 5, WP 0827, Table 1, Item 340)
Qty: 2
Locknut (Volume 5, WP 0827, Table 1, Item 256)
Qty: 6
Locknut (Volume 5, WP 0827, Table 1, Item 282)
Qty: 3
Locknut (Volume 5, WP 0827, Table 1, Item 285)
Qty: 14
Locknut (Volume 5, WP 0827, Table 1, Item 289)
Qty: 1
Tiedown Strap
(Volume 5, WP 0827, Table 1, Item 379)
Qty: 1

Personnel Required
(2)

References
Volume 5, WP 0820

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

REMOVAL

1. Remove cotter pin (Figure 1, Item 13), washer (Figure 1, Item 38), and clevis pin (Figure 1, Item 39) from cable clevis (Figure 1, Item 25) and shift lever arm (Figure 1, Item 6). Discard cotter pin.
2. Remove four locknuts (Figure 1, Item 12), screws (Figure 1, Item 9), and shift lever (Figure 1, Item 10) from two shift lever brackets (Figure 1, Item 8), shims (Figure 1, Item 11), and floor (Figure 1, Item 41). Discard locknuts.
3. Remove woodruff key (Figure 1, Item 4) from shift lever rod (Figure 1, Item 10).
4. Remove locknut (Figure 1, Item 7), screw (Figure 1, Item 5), and shift lever arm (Figure 1, Item 6) from cab floor (Figure 1, Item 41). Discard locknut.
5. Remove two shift lever brackets (Figure 1, Item 8) from shift lever rod (Figure 1, Item 10).
6. Remove six locknuts (Figure 1, Item 40), screws (Figure 1, Item 3), seal (Figure 1, Item 2), and retainer ring (Figure 1, Item 1) from cab floor (Figure 1, Item 41). Discard locknuts.
7. Loosen and remove cable clevis (Figure 1, Item 25) and jamnut (Figure 1, Item 24) from dump valve cable (Figure 1, Item 32).
8. Remove two locknuts (Figure 1, Item 21), screws (Figure 1, Item 27), clamp (Figure 1, Item 26), and shim (Figure 1, Item 23) from cable conduit (Figure 1, Item 28) and rear cab floor left bracket (Figure 1, Item 22). Discard locknuts.
9. Remove locknut (Figure 1, Item 20), screw (Figure 1, Item 30), and clamp (Figure 1, Item 29) from cable conduit (Figure 1, Item 28) and rear cab floor right bracket (Figure 1, Item 19). Discard locknut.
10. Remove tiedown strap (Figure 1, Item 31) from cable conduit (Figure 1, Item 28). Discard tiedown strap.
11. Remove cotter pin (Figure 1, Item 17), washer (Figure 1, Item 16), and clevis pin (Figure 1, Item 15) from cable clevis (Figure 1, Item 14) and control valve (Figure 1, Item 18). Discard cotter pin.
12. Loosen and remove cable clevis (Figure 1, Item 14) and jamnut (Figure 1, Item 37) from dump valve cable (Figure 1, Item 32).
13. Remove jamnut (Figure 1, Item 37) and washer (Figure 1, Item 36) from control valve (Figure 1, Item 18) side of cable conduit (Figure 1, Item 28) and lower bracket (Figure 1, Item 35).
14. Pull cable conduit (Figure 1, Item 28) through lower bracket (Figure 1, Item 35). Remove washer (Figure 1, Item 34) and nut (Figure 1, Item 33) from cable conduit. Tag for installation.

REMOVAL - Continued

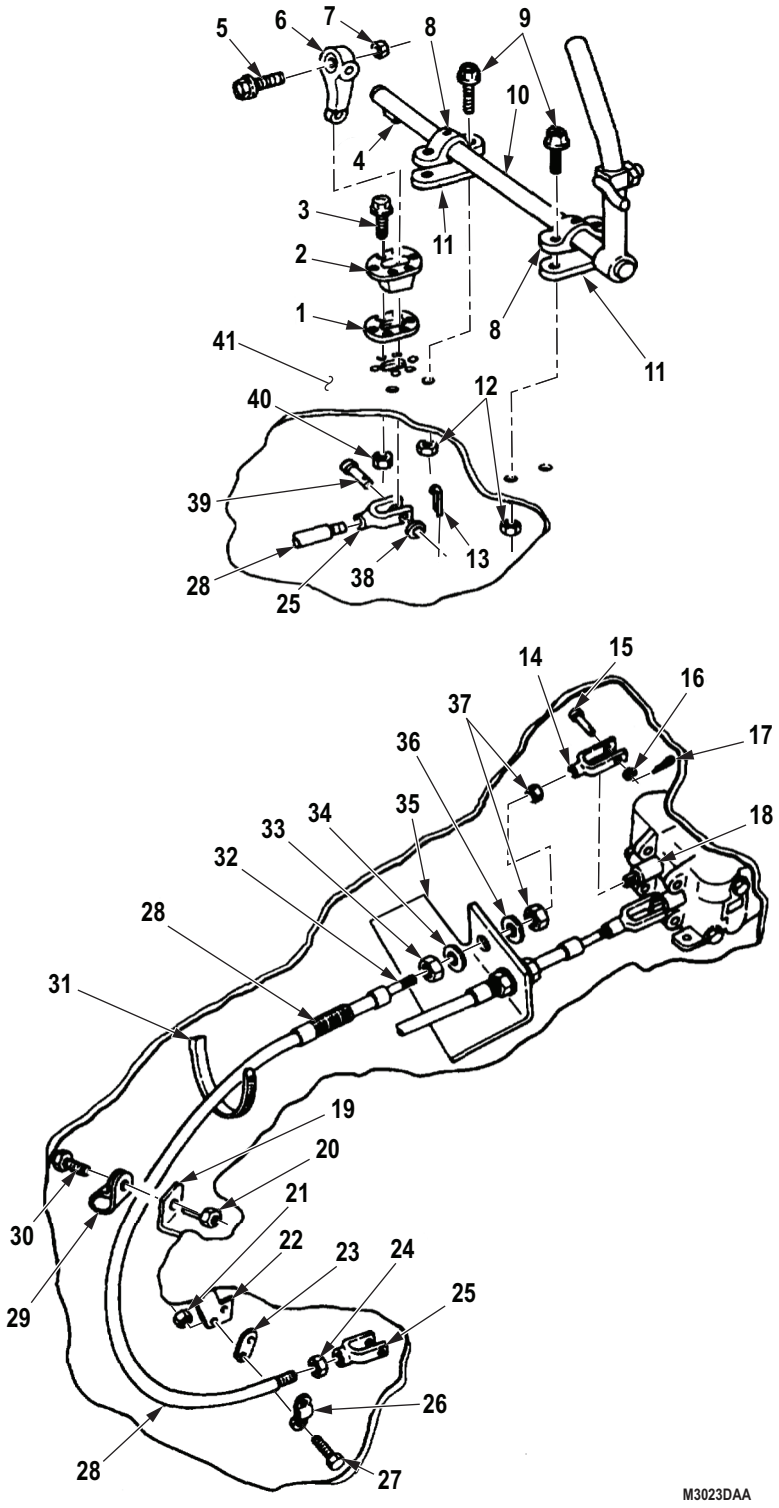


Figure 1. Valve Cable and Shift Lever Removal.

END OF TASK

INSTALLATION AND ADJUSTMENT

1. Install nut (Figure 2, Item 33) and washer (Figure 2, Item 34) on cable conduit (Figure 2, Item 28).
2. Place control valve (Figure 2, Item 18) end of cable conduit (Figure 2, Item 28) through lower bracket (Figure 2, Item 35), and install cable conduit on lower bracket with washer (Figure 2, Item 36) and jamnut (Figure 2, Item 37).
3. Install cable clevis (Figure 2, Item 14) on control valve (Figure 2, Item 18) end of valve cable (Figure 2, Item 32) with four turns.
4. Route cable conduit (Figure 2, Item 28) under cab floor (Figure 2, Item 41).
5. Install retainer ring (Figure 2, Item 1) and seal (Figure 2, Item 2) on cab floor (Figure 2, Item 41) with six screws (Figure 2, Item 3) and locknuts (Figure 2, Item 40).
6. Slide two lever brackets (Figure 2, Item 8) on lever rod (Figure 2, Item 10).
7. Install woodruff key (Figure 2, Item 4) on lever rod (Figure 2, Item 10), and slide arm (Figure 2, Item 6) over lever rod and woodruff key.
8. Install screw (Figure 2, Item 5) and locknut (Figure 2, Item 7) on arm (Figure 2, Item 6).
9. Position shift lever rod (Figure 2, Item 10) on cab floor (Figure 2, Item 41), and install lever rod, two brackets (Figure 2, Item 8), and shims (Figure 2, Item 11) with four screws (Figure 2, Item 9) and locknuts (Figure 2, Item 12).
10. Install cable clevis (Figure 2, Item 25) on lever arm (Figure 2, Item 6) with clevis pin (Figure 2, Item 39), washer (Figure 2, Item 38), and cotter pin (Figure 2, Item 13).
11. Install cable conduit (Figure 2, Item 28) and two shims (Figure 2, Item 23) on rear cab bracket (Figure 2, Item 22) with two clamps (Figure 2, Item 26), screws (Figure 2, Item 27), and locknuts (Figure 2, Item 21).
12. Install cable conduit (Figure 2, Item 28) on front cab bracket (Figure 2, Item 19) with clamp (Figure 2, Item 29), screw (Figure 2, Item 30), and locknut (Figure 2, Item 20).
13. Place shift lever in down position (TM 9-2320-272-10).
14. Pull valve shaft (Figure 2, Item 18) out manually until seated. Valve shaft will stop when seated.

NOTE

Cable throw length can be adjusted with jamnut.

15. Align hole of clevis pin (Figure 2, Item 15) and hole of cable clevis (Figure 2, Item 14) with hole in valve shaft (Figure 2, Item 18). Use jamnuts (Figure 2, Items 33 and 37).
16. Back off clevis (Figure 2, Item 14) one turn and install on valve shaft (Figure 2, Item 18) with clevis pin (Figure 2, Item 15), washer (Figure 2, Item 16), and cotter pin (Figure 2, Item 17).
17. Install tiedown strap (Figure 2, Item 31) on cable conduit (Figure 2, Item 28).

INSTALLATION AND ADJUSTMENT - Continued

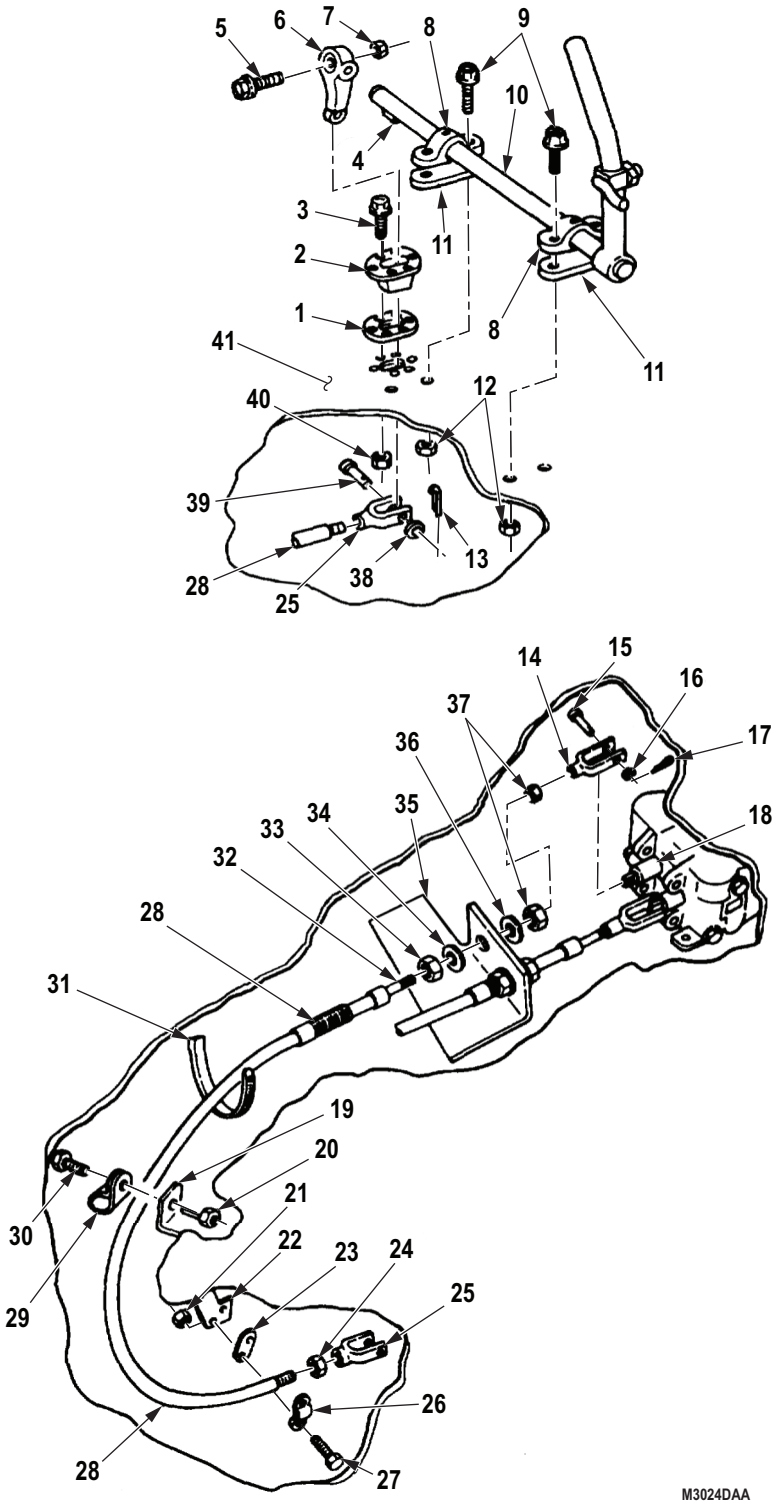


Figure 2. Valve Cable and Shift Lever Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Lubricate shift lever. (Volume 5, WP 0820)
2. Test dump cable operation. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
DUMP SUBFRAME REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Cap Set, Protective, Dust and Moisture Seal
(Volume 5, WP 0825, Table 1, Item 13)
Cotter Pin
(Volume 5, WP 0827, Table 1, Item 349)
Qty: 4
Locknut (Volume 5, WP 0827, Table 1, Item 279)
Qty: 8

Personnel Required
(3)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Hydraulic oil reservoir drained. (Volume 5, WP 0820)
Dump body removed. (WP 0594)

REMOVAL

WARNING



- Accidental or intentional introduction of liquid contaminants into the environment is in violation of state, federal, and military regulations. Refer to local Unit SOP for information concerning storage, use, and disposal of these liquids. Failure to comply may result in injury or death to personnel.
- Do not remove hoses with engine running or start engine with hoses removed. High-pressure fluids may cause hoses to whip violently and spray randomly. Failure to comply may result in injury or death to personnel.

CAUTION

Plug all hydraulic lines or openings to prevent dirt from entering and damaging components.

NOTE

- Have container ready to catch oil from hydraulic tubes, lines, and hoses.
- Drain hoses before plugging.
- Tag hoses for installation.

1. Disconnect pump-to-reservoir hydraulic tube (Figure 1, Item 2) from pump adapter (Figure 1, Item 6) and reservoir adapter (Figure 1, Item 1).
2. Disconnect filter-to-reservoir hydraulic hose (Figure 1, Item 3) from filter elbow (Figure 1, Item 4) and reservoir adapter (Figure 1, Item 5).

REMOVAL - Continued

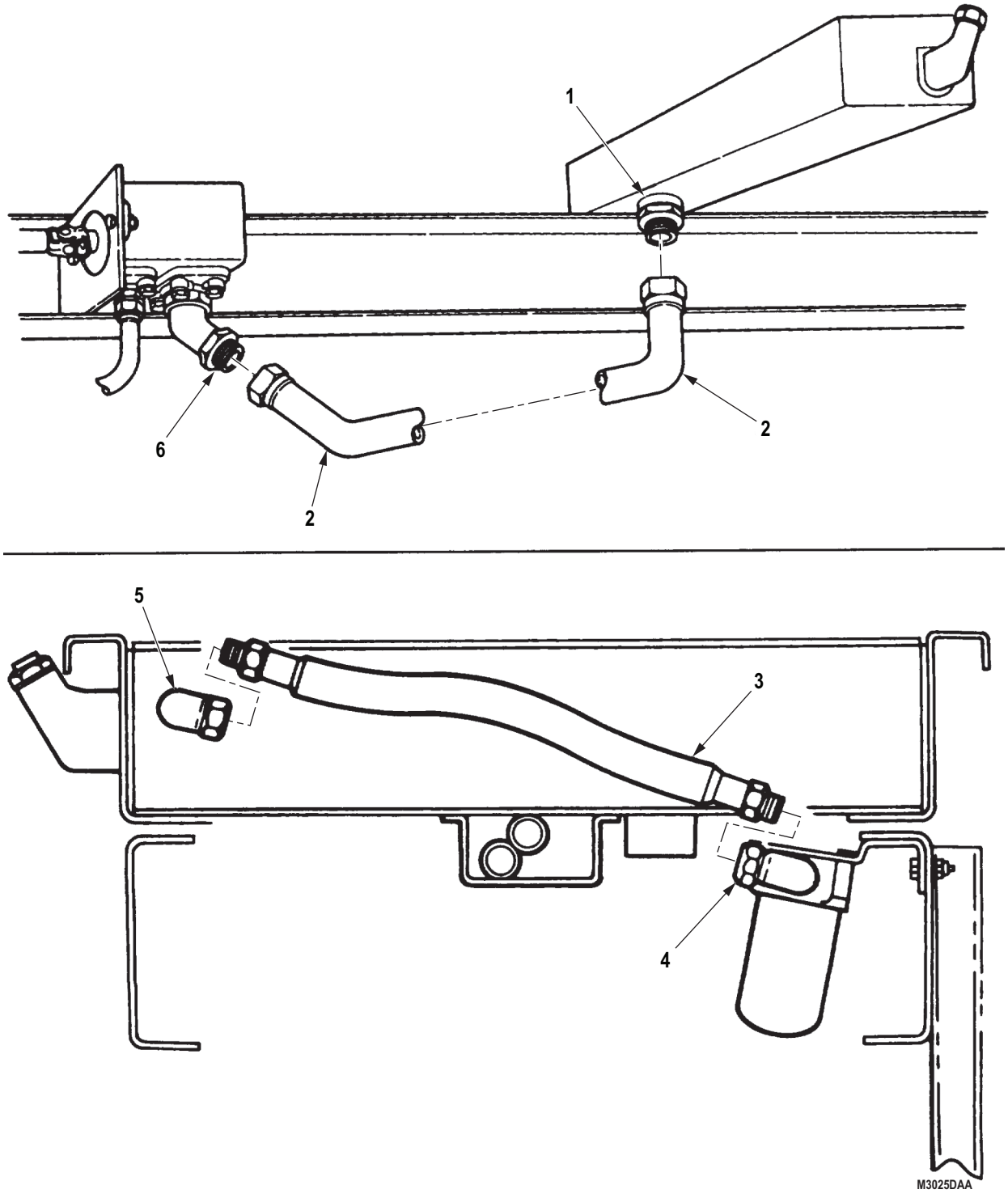


Figure 1. Dump Subframe Removal.

REMOVAL - Continued

NOTE

- Cross fittings to hoist cylinder hoses must be disconnected from the cross fittings first. Then hoses can be removed from hoist cylinders.
- Have drainage container ready to catch oil.
- Use drain pans to retain leaking/draining fluids. Refer to local procedures and plans for preventing and responding to fluid spills or leaks. Comply with local regulations when disposing of clean up material and leaked and spilled fluids.
- Tag hoses for installation.

3. Disconnect three hydraulic hoses (Figure 2, Items 6, 7, and 11) from right cross fitting (Figure 2, Item 10).
4. Disconnect three hydraulic hoses (Figure 2, Items 5, 8, and 12) from left cross fitting (Figure 2, Item 9).
5. Disconnect two hydraulic hoses (Figure 2, Items 7 and 11) from right and left cylinder ports (Figure 2, Items 2 and 13).
6. Disconnect two hydraulic hoses (Figure 2, Items 8 and 12) from right and left cylinder ports (Figure 2, Items 1 and 4).
7. Disconnect two hydraulic hoses (Figure 2, Items 5 and 6) from safety lock cylinder (Figure 2, Item 3).

REMOVAL - Continued

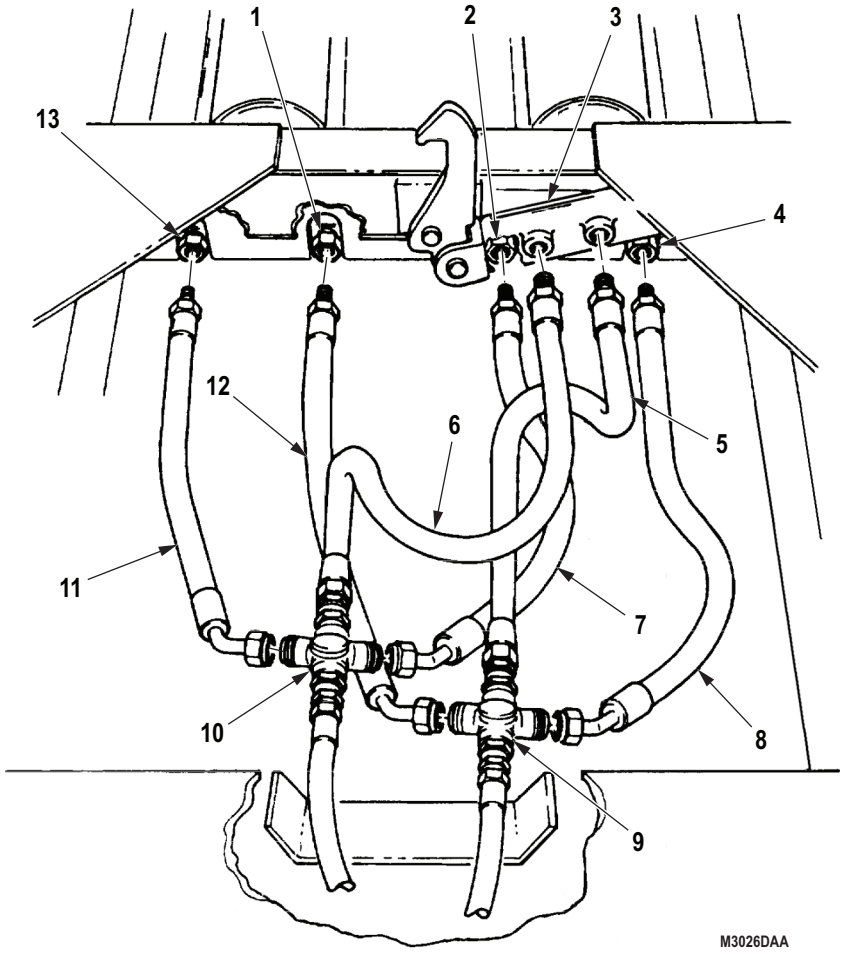


Figure 2. Dump Subframe Removal.

REMOVAL - Continued

8. Remove eight locknuts (Figure 3, Item 6), screws (Figure 3, Item 7), and two rear holddown brackets (Figure 3, Item 5) from frame (Figure 3, Item 8). Discard locknuts.
9. Attach two utility chains to frame channel (Figure 3, Item 4).
10. Attach lifting device to center of two utility chains and remove slack from utility chain.
11. Remove two cotter pins (Figure 3, Item 11), slotted nuts (Figure 3, Item 12), washer (Figure 3, Item 13), screws (Figure 3, Item 18), upper half-keeper (Figure 3, Item 17), spring (Figure 3, Item 16), and lower half-keeper (Figure 3, Item 15) from two front holddown brackets (Figure 3, Item 14) and frame (Figure 3, Item 8). Discard cotter pins.
12. Connect two guide lines (Figure 3, Item 10) to front and rear of subframe (Figure 3, Item 1).

WARNING



All personnel must stand clear during lifting operations. A snapped chain, or shifting or swinging load, may result in injury to personnel. Failure to comply may result in injury or death to personnel.

NOTE

Mechanic will handle one guide line and direct hoisting operation. Assistant will handle other guide line. Second assistant will operate lifting device.

13. Lift subframe (Figure 3, Item 1) clear of frame (Figure 3, Item 8) and place on two shop stands (Figure 3, Item 9).
14. Remove guide lines, lifting device, and utility chains from subframe (Figure 3, Item 1).

REMOVAL - Continued

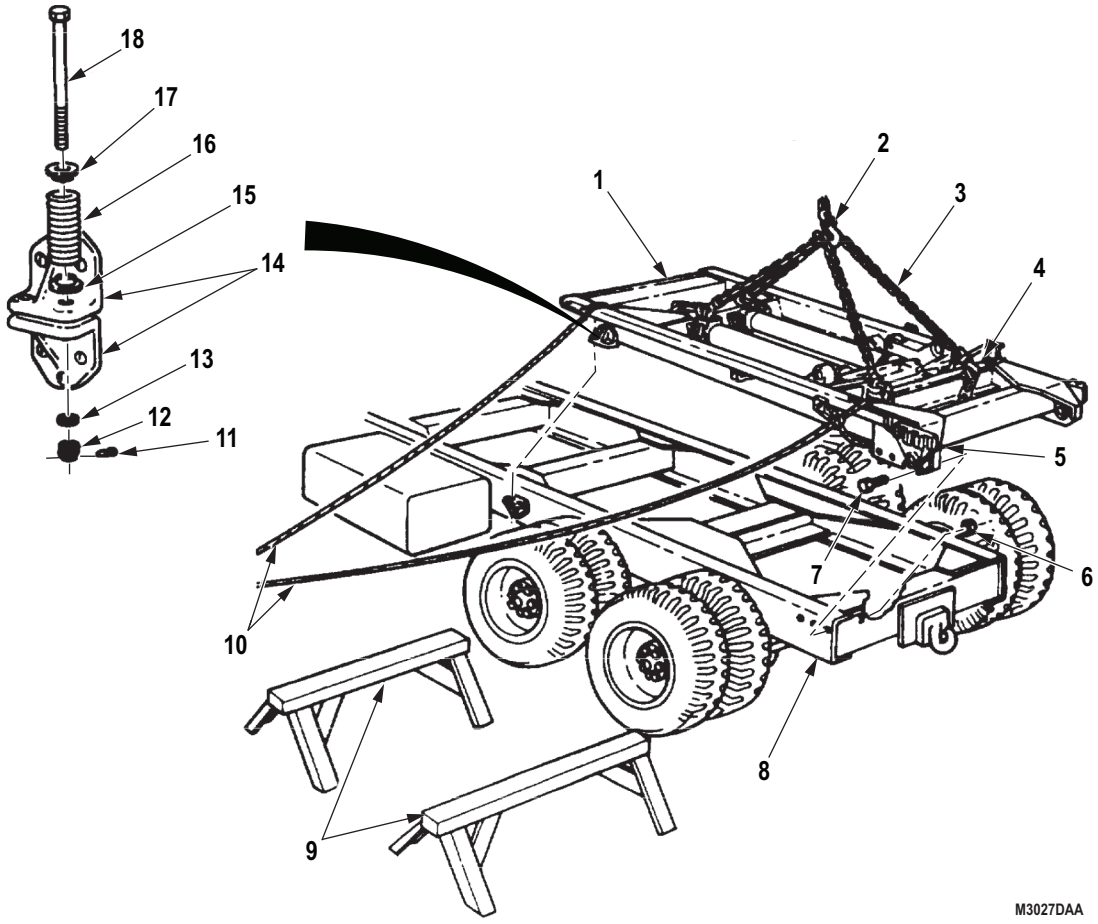


Figure 3. Dump Subframe Removal.

END OF TASK

INSTALLATION

1. Attach two utility chains (Figure 4, Item 3) to subframe (Figure 4, Item 1).
2. Attach lifting device (Figure 4, Item 2) to center of two utility chains (Figure 4, Item 3) and remove slack from utility chain.
3. Connect two guide lines (Figure 4, Item 10) to front and rear of subframe (Figure 4, Item 1).

WARNING



All personnel must stand clear during lifting operations. A snapped chain, or shifting or swinging load, may result in injury to personnel. Failure to comply may result in injury or death to personnel.

NOTE

Mechanic will handle one guide line and direct hoisting operation. Assistant will handle other guide line. Second assistant will operate lifting device.

4. Lift subframe (Figure 4, Item 1) clear of two shop stands (Figure 4, Item 9) and lower onto frame (Figure 4, Item 8).
5. Using drift pin, align holes in brackets (Figure 4, Items 5 and 14).
6. Install two rear holddown brackets (Figure 4, Item 5) on frame (Figure 4, Item 8) with eight screws (Figure 4, Item 7) and locknuts (Figure 4, Item 6).
7. Remove guide lines (Figure 4, Item 10), lifting device (Figure 4, Item 2), and utility chains (Figure 4, Item 3) from subframe (Figure 4, Item 1).
8. Install two front holddown brackets (Figure 4, Item 14) on frame (Figure 4, Item 8) with lower half-keeper (Figure 4, Item 15), spring (Figure 4, Item 16), upper half-keeper (Figure 4, Item 17), screw (Figure 4, Item 18), washer (Figure 4, Item 13), slotted nut (Figure 4, Item 12), and cotter pin (Figure 4, Item 11).

INSTALLATION - Continued

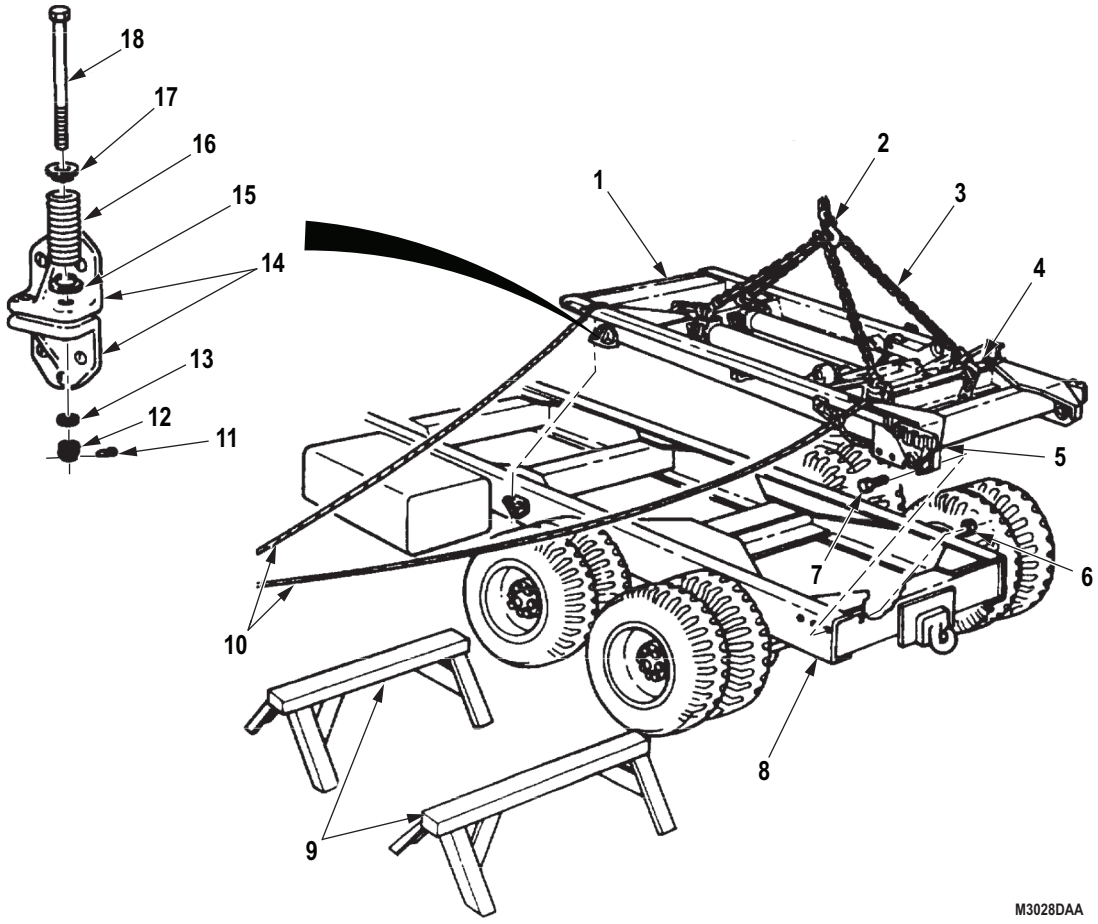


Figure 4. Dump Subframe Installation.

INSTALLATION - Continued

9. Connect two hydraulic hoses (Figure 5, Item 10) to left and right cylinder ports (Figure 5, Item 12) (with bypass tube (Figure 5, Item 1) which extends full length of cylinder) and right cross fitting (Figure 5, Item 9).
10. Connect two hydraulic hoses (Figure 5, Item 7) to left and right cylinder ports (Figure 5, Item 5) (with bypass tube (Figure 5, Item 2) which extends to middle of the cylinder) and left cross fitting (Figure 5, Item 8).
11. Connect left cross fitting-to-safety lock cylinder hose (Figure 5, Item 6) to left safety lock cylinder port (Figure 5, Item 4) and left cross fitting (Figure 5, Item 8).
12. Connect right cross fitting-to-safety lock cylinder hose (Figure 5, Item 11) to right safety lock cylinder port (Figure 5, Item 3), and right cross fitting (Figure 5, Item 9).
13. Connect filter-to-reservoir hydraulic tube (Figure 5, Item 14) to filter adapter (Figure 5, Item 15) and reservoir elbow (Figure 5, Item 13).
14. Connect pump-to-reservoir hydraulic tube (Figure 5, Item 17) to pump adapter (Figure 5, Item 18) and reservoir adapter (Figure 5, Item 16).

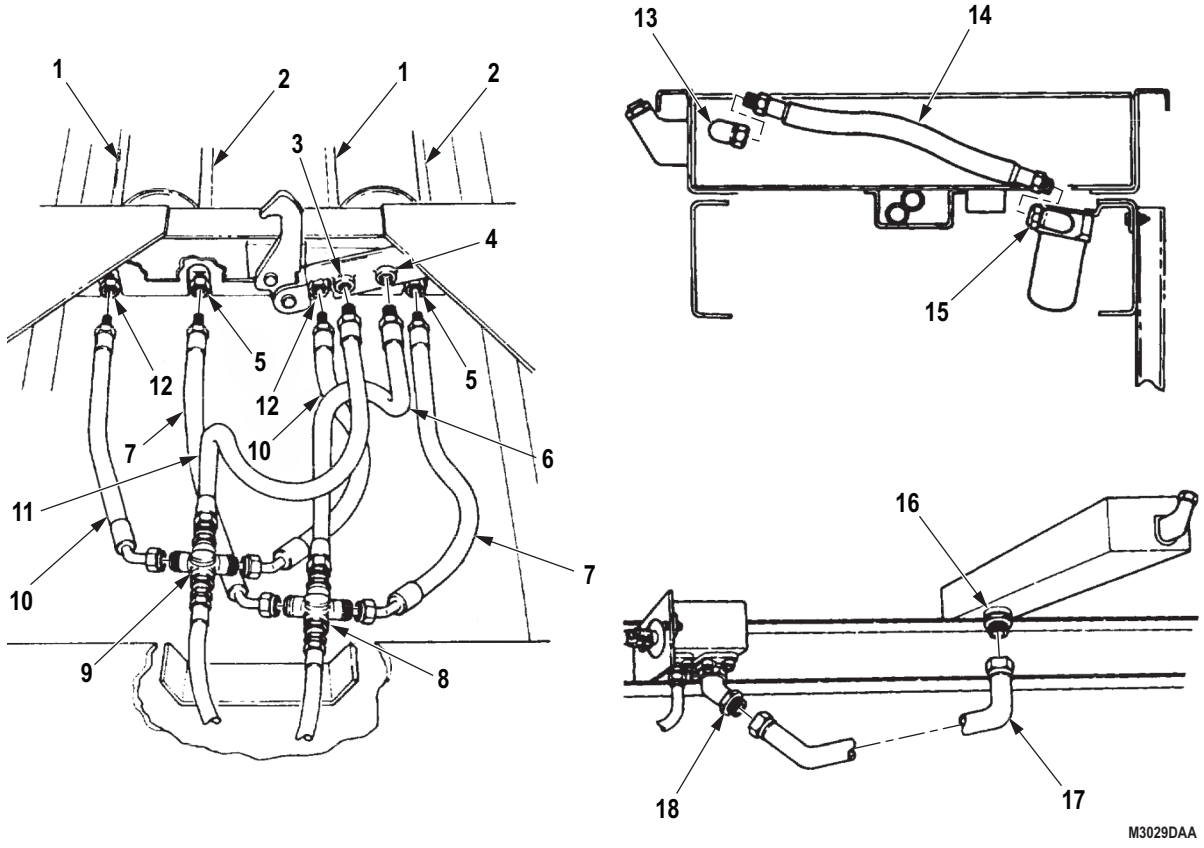


Figure 5. Dump Subframe Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install dump body. (WP 0594)
2. Fill hydraulic reservoir to proper oil level. (Volume 5, WP 0820)
3. Start engine and operate through full range. Check for leaks and proper operation. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
DUMP SAFETY BRACE REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Dump body in lowered position.
(TM 9-2320-272-10)

REMOVAL

NOTE

Both left and right safety braces are removed in the same way. This procedure applies to left brace only.

1. Remove nut (Figure 1, Item 3), washer (Figure 1, Item 2), and screw (Figure 1, Item 1) from safety brace hinge pin (Figure 1, Item 5).
2. Using chisel and hammer, remove safety brace hinge pin (Figure 1, Item 5) from bracket (Figure 1, Item 6) and safety brace (Figure 1, Item 4).
3. Remove safety brace (Figure 1, Item 4) from bracket (Figure 1, Item 6).

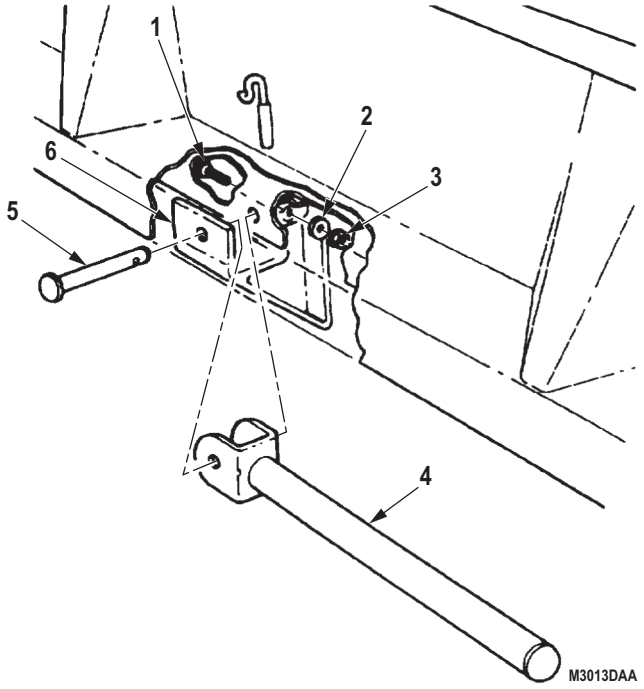


Figure 1. Dump Safety Brace Removal.

END OF TASK

INSTALLATION

1. Install safety brace (Figure 2, Item 4) on bracket (Figure 2, Item 6).
2. Align holes in safety brace (Figure 2, Item 4) and bracket (Figure 2, Item 6), and install safety brace hinge pin (Figure 2, Item 5) with screw (Figure 2, Item 1), washer (Figure 2, Item 2), and nut (Figure 2, Item 3).

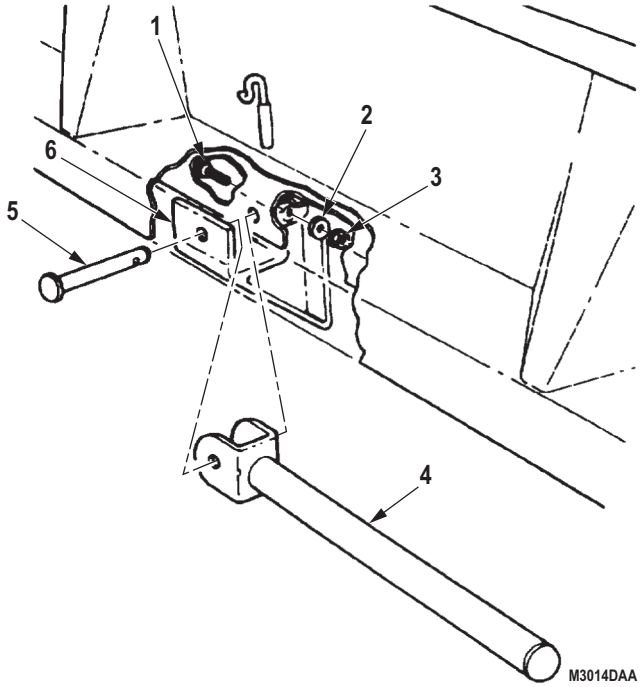


Figure 2. Dump Safety Brace Installation.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
DUMP HYDRAULIC PUMP REPLACEMENT

INITIAL SETUP:

References
WP 0683

REPLACEMENT

Procedure for replacement of the dump hydraulic pump can be found in Front Winch Hydraulic Pump Replacement (WP 0683).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
DUMP CONTROL VALVE REPLACEMENT

INITIAL SETUP:

References
WP 0721

REPLACEMENT

Procedure for replacement of the dump control valve can be found in Front and Rear Winch Control Valve (M930/A1/A2) Replacement (WP 0721).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
FRONT AND REAR WINCH CONTROL VALVE REPLACEMENT (M930/A1/A2)

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Cap Set, Protective, Dust and Moisture Seal
(Volume 5, WP 0825, Table 1, Item 13)
Cotter Pin
(Volume 5, WP 0827, Table 1, Item 340)
Qty: 2
Locknut (Volume 5, WP 0827, Table 1, Item 285)
Qty: 3
O-ring (Volume 5, WP 0827, Table 1, Item 80)
Qty: 4

Materials/Parts (cont.)
O-ring (Volume 5, WP 0827, Table 1, Item 164)
Qty: 1
O-ring (Volume 5, WP 0827, Table 1, Item 364)
Qty: 2

References
Volume 5, WP 0820

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Hydraulic oil reservoir drained. (WP 0703)

REMOVAL

CAUTION

Plug all hydraulic hoses to prevent dirt from entering.

NOTE

- Front and rear winch control valves are replaced basically the same. This procedure covers the front winch control valve.
- Tag all hoses and fittings for installation.

1. Disconnect hoses (Figure 1, Items 2, 4, 5, 6, 7, and 17) from control valve (Figure 1, Item 8).

NOTE

Both upper and lower cable clevises are removed the same way.

2. Remove cotter pin (Figure 1, Item 15), washer (Figure 1, Item 14), and clevis pin (Figure 1, Item 3) from two cable clevises (Figure 1, Item 1). Discard cotter pin.
3. Remove three locknuts (Figure 1, Item 13), screws (Figure 1, Item 12), and control valve (Figure 1, Item 8) from bracket (Figure 1, Item 10). Discard locknuts.
4. Remove four nuts (Figure 1, Item 9), screws (Figure 1, Item 11), and bracket (Figure 1, Item 10) from frame (Figure 1, Item 16).

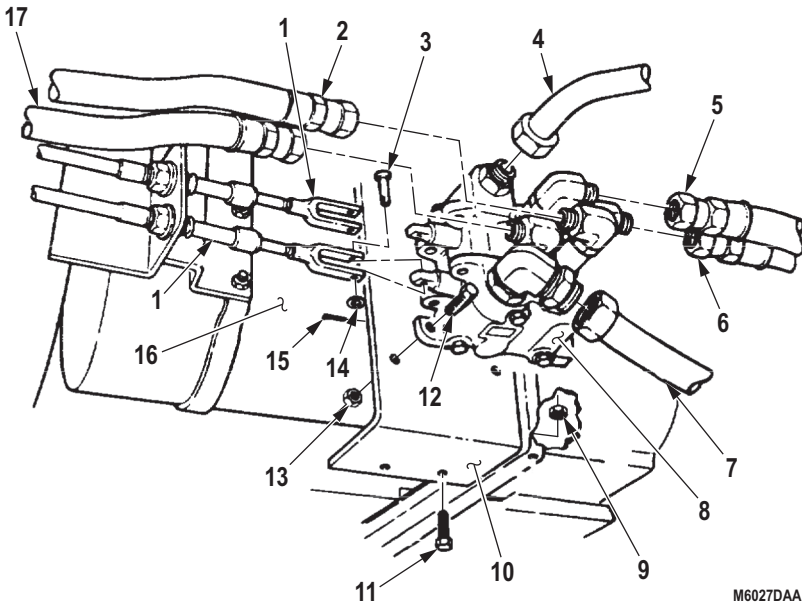


Figure 1. Front and Rear Winch Control Valve Removal.

REMOVAL - Continued

5. Remove elbows (Figure 2, Items 2 and 5) and adapter (Figure 2, Item 10) from valve fittings (Figure 2, Items 1 and 4) and elbow (Figure 2, Item 11).
6. Remove fittings (Figure 2, Items 1, 4, and 14) and elbows (Figure 2, Items 3, 11, and 15) from control valve (Figure 2, Item 13).
7. Remove six o-rings (Figure 2, Item 12) from fittings (Figure 2, Items 1, 4, and 14) and elbows (Figure 2, Items 3 and 11). Discard o-rings.
8. Remove plug (Figure 2, Item 6), o-ring (Figure 2, Item 7), spring (Figure 2, Item 8), and relief valve (Figure 2, Item 9) from control valve (Figure 2, Item 13). Discard o-ring.

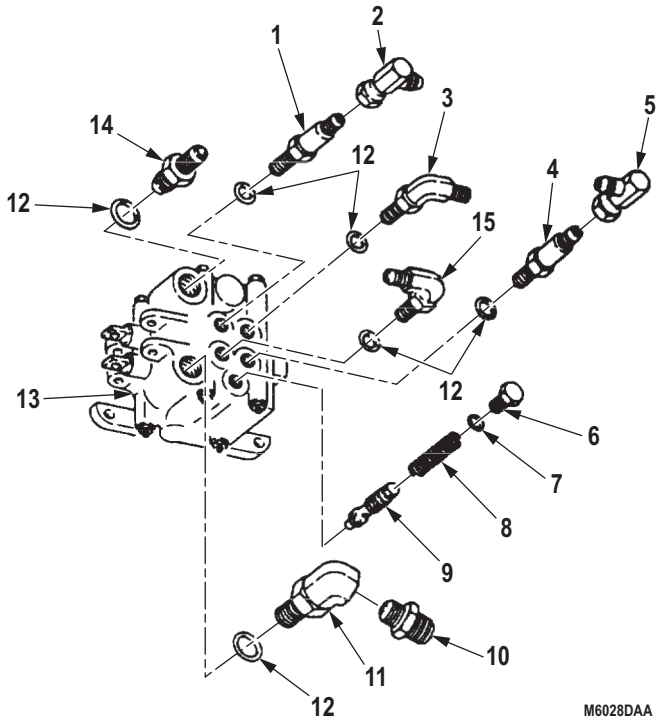


Figure 2. Front and Rear Winch Control Valve Removal.

END OF TASK

INSTALLATION

1. Install six o-rings (Figure 3, Item 12), fittings (Figure 3, Items 1, 4, and 14), and elbows (Figure 3, Items 3 and 11) on control valve (Figure 3, Item 13). Position as noted in removal.
2. Install elbows (Figure 3, Items 2 and 5) and adapter (Figure 3, Item 10) on valve fittings (Figure 3, Items 1 and 4) and elbow (Figure 3, Item 11).
3. Install relief valve (Figure 3, Item 9), spring (Figure 3, Item 8), o-ring (Figure 3, Item 7), and plug (Figure 3, Item 6) in control valve (Figure 3, Item 13).

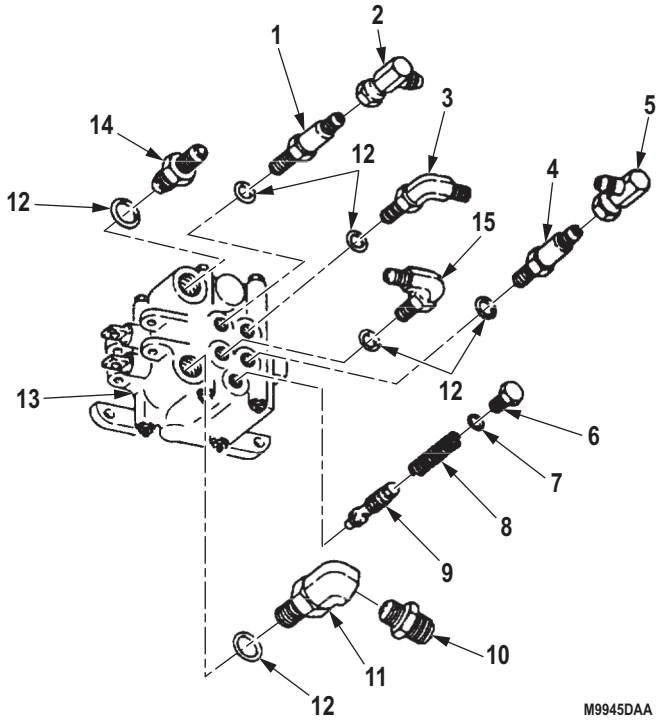


Figure 3. Front and Rear Winch Control Valve Installation.

INSTALLATION - Continued

4. Install bracket (Figure 4, Item 10) on frame (Figure 4, Item 16) with four screws (Figure 4, Item 11) and nuts (Figure 4, Item 9).
5. Install control valve (Figure 4, Item 8) on bracket (Figure 4, Item 10) with three screws (Figure 4, Item 12) and locknuts (Figure 4, Item 13).

WARNING

Do not cross hoses during installation. Failure to comply may result in injury or death to personnel.

6. Install hoses (Figure 4, Items 2, 4, 5, 6, 7, and 17) on control valve (Figure 4, Item 8).

NOTE

Cable clevises are installed the same.

7. Install two cable clevises (Figure 4, Item 1) on control valve (Figure 4, Item 8) rod with clevis pin (Figure 4, Item 3), washer (Figure 4, Item 14), and cotter pin (Figure 4, Item 15). Bend over end of cotter pin.

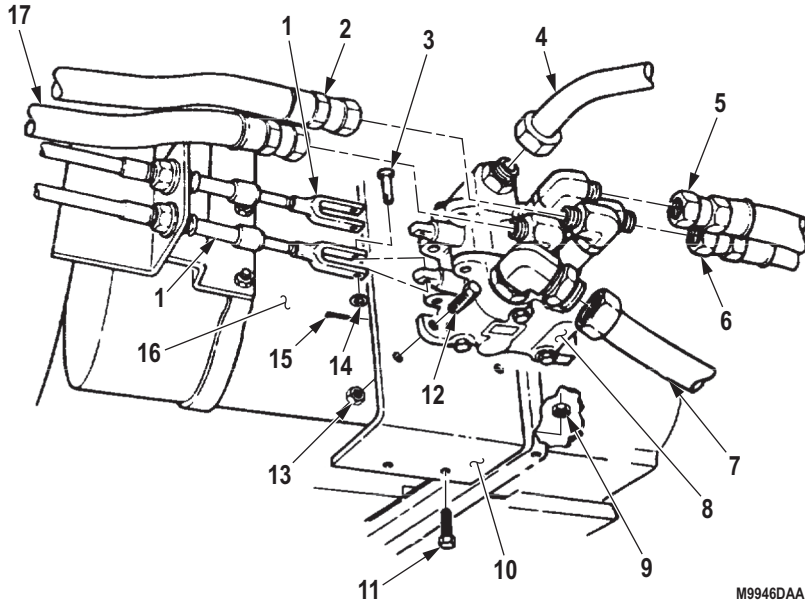


Figure 4. Front and Rear Winch Control Valve Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Fill hydraulic oil reservoir. (Volume 5, WP 0820)
2. Start engine and check hydraulic pump operation. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
REAR WINCH CABLE TENSIONER REPAIR

INITIAL SETUP:

Tools and Special Tools
- Tool Kit, General Mechanic's: Automotive
  (Volume 5, WP 0826, Table 1, Item 56)
- Caliper Set, Micrometer, Outside
  (Volume 5, WP 0826, Table 1, Item 11)
- Press, Arbor, Hand Operated
  (Volume 5, WP 0826, Table 1, Item 39)

Materials/Parts
- Grease, Automotive and Artillery
  (Volume 5, WP 0825, Table 1, Item 28)
- Cotter Pin
  (Volume 5, WP 0827, Table 1, Item 341)
  Qty: 4
- Cotter Pin
  (Volume 5, WP 0827, Table 1, Item 380)
  Qty: 2
- Lockwasher
  (Volume 5, WP 0827, Table 1, Item 405)
  Qty: 4

Materials/Parts (cont.)
- Lockwasher
  (Volume 5, WP 0827, Table 1, Item 437)
  Qty: 8
- Packing with Retainer
  (Volume 5, WP 0827, Table 1, Item 214)
  Qty: 4

References
- TM 9-237
- Volume 5, WP 0820

Equipment Condition
- Rear winch cable removed. (WP 0710)

DISASSEMBLY

1. Remove four cotter pins (Figure 1, Item 10), pins (Figure 1, Items 9 and 11), and lever (Figure 1, Item 7) from bracket (Figure 1, Item 8). Discard cotter pins.
2. Remove four screws (Figure 1, Item 16) and lockwashers (Figure 1, Item 17) from bracket (Figure 1, Item 15). Discard lockwashers.
3. Remove two nuts (Figure 1, Item 20), lockwashers (Figure 1, Item 19), screws (Figure 1, Item 18), and bracket (Figure 1, Item 15) from tensioner frame (Figure 1, Item 14). Discard lockwashers.
4. Remove two nuts (Figure 1, Item 1), lockwashers (Figure 1, Item 2), screws (Figure 1, Item 6), and tensioner frame (Figure 1, Item 14) from frame bracket (Figure 1, Item 8). Discard lockwashers.
5. Remove four nuts (Figure 1, Item 4), lockwashers (Figure 1, Item 5), screws (Figure 1, Item 13), washers (Figure 1, Item 12), and bracket (Figure 1, Item 8) from rear winch (Figure 1, Item 3). Discard lockwashers.

DISASSEMBLY - Continued

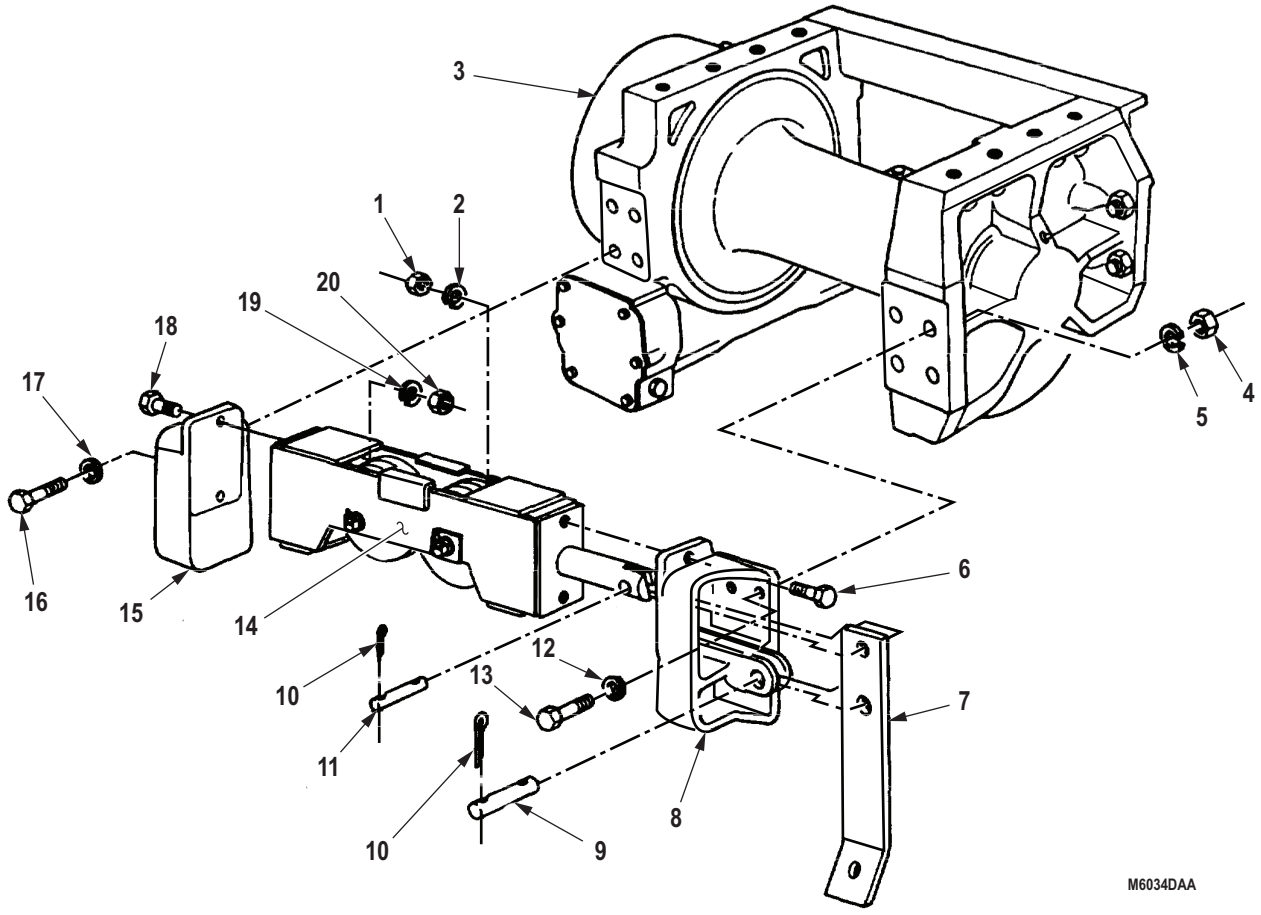


Figure 1. Rear Winch Cable Tensioner Disassembly.

DISASSEMBLY - Continued

6. Remove cotter pin (Figure 2, Item 1) and pin (Figure 2, Item 8) from tensioner frame (Figure 2, Item 2). Discard cotter pin.
7. Remove grease fitting (Figure 2, Item 7) from pin (Figure 2, Item 8).
8. Remove sheave (Figure 2, Item 5), two thrust washers (Figure 2, Item 3), and packings with retainers (Figure 2, Item 4) from tensioner frame (Figure 2, Item 2). Discard packings with retainers.
9. Remove bearing (Figure 2, Item 6) from sheave (Figure 2, Item 5).
10. Remove cotter pin (Figure 2, Item 9) and pin (Figure 2, Item 16) from tensioner frame (Figure 2, Item 2). Discard cotter pin.
11. Remove grease fitting (Figure 2, Item 15) from pin (Figure 2, Item 16).
12. Remove sheave (Figure 2, Item 13), two thrust washers (Figure 2, Item 11), and packings with retainers (Figure 2, Item 12) from frame (Figure 2, Item 2). Discard packings with retainers.
13. Remove bearing (Figure 2, Item 14) from sheave (Figure 2, Item 13).
14. Remove frame (Figure 2, Item 10) from tensioner frame (Figure 2, Item 2).

NOTE

Parts for both sheaves are inspected the same way.

15. Clean and inspect thrust washers (Figure 2, Items 3 and 11) for cracks or wear. Measure thickness with a micrometer and discard thrust washers if thickness is less than 0.055 in. (1.40 mm) or if cracked.
16. Clean and inspect bearings (Figure 2, Items 6 and 14) for chips, cracks, scoring, or damaged cage. Discard if chipped, cracked, scored, or cage is damaged.
17. Clean and inspect pins (Figure 2, Item 8) and (Figure 2, Item 16) for cracks or wear. Measure with a micrometer and discard if outer diameter is less than 1.245 in. (31.63 mm) or if cracked.

NOTE

Refer to TM 9-237 for welding and straightening techniques.

18. Inspect sheave frame (Figure 2, Item 10) for bends and cracks. Repair minor bends or cracks.
19. Clean and inspect tensioner frame (Figure 2, Item 2) for bends, cracks, and broken welds. Repair minor bends, cracks, and broken welds. Replace if not repairable.

DISASSEMBLY - Continued

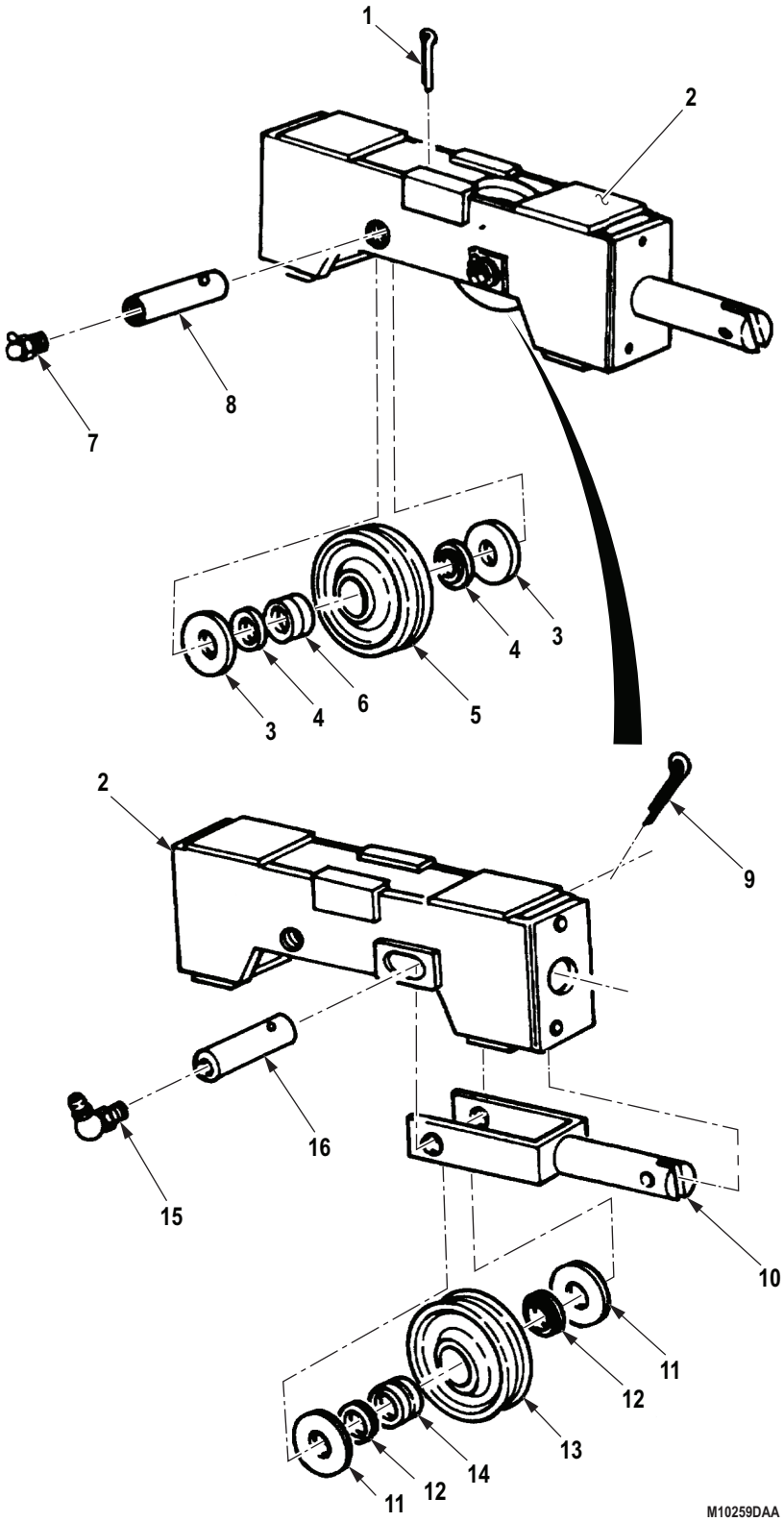


Figure 2. Rear Winch Cable Tensioner Disassembly.

END OF TASK

ASSEMBLY

1. Position sheave frame (Figure 3, Item 3) in tensioner frame (Figure 3, Item 1).
2. Coat bearing (Figure 3, Item 7) with GAA grease and install in sheave (Figure 3, Item 6).
3. Install grease fitting (Figure 3, Item 9) in pin (Figure 3, Item 8).
4. Place steel sides of two packings with retainers (Figure 3, Item 5) on each side of bearing (Figure 3, Item 7) in sheave (Figure 3, Item 6) and place sheave and two thrust washers (Figure 3, Item 4) in frame (Figure 3, Item 3).
5. Install sheave (Figure 3, Item 6) in tensioner frame (Figure 3, Item 1) and frame (Figure 3, Item 3) with pin (Figure 3, Item 8) and cotter pin (Figure 3, Item 2).
6. Coat bearing (Figure 3, Item 14) with GAA grease and install in sheave (Figure 3, Item 13).
7. Install grease fitting (Figure 3, Item 16) in pin (Figure 3, Item 15).
8. Place steel sides of two packings with retainers (Figure 3, Item 12) on each side of bearing (Figure 3, Item 14) in sheave (Figure 3, Item 13) and place sheave and two thrust washers (Figure 3, Item 11) in tensioner frame (Figure 3, Item 1).
9. Install sheave (Figure 3, Item 13) in tensioner frame (Figure 3, Item 1) with pin (Figure 3, Item 15) and cotter pin (Figure 3, Item 10).

ASSEMBLY - Continued

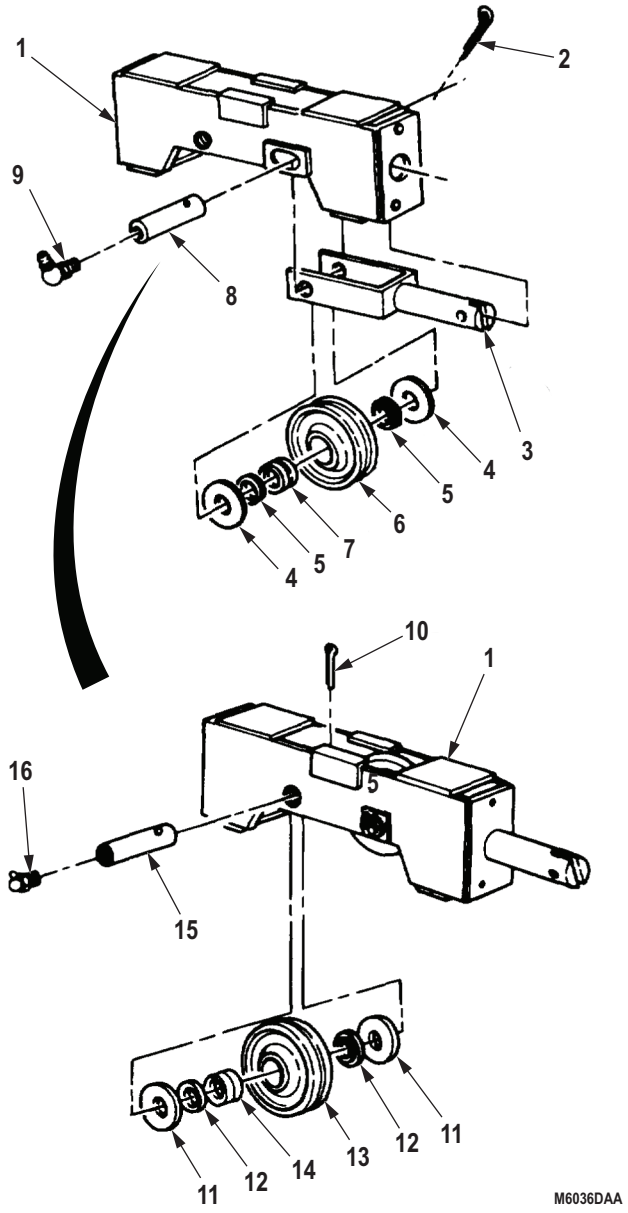


Figure 3. Rear Winch Cable Tensioner Assembly.

ASSEMBLY - Continued

10. Install bracket (Figure 4, Item 8) on rear winch (Figure 4, Item 3) with four washers (Figure 4, Item 11), screws (Figure 4, Item 12), lockwashers (Figure 4, Item 5), and nuts (Figure 4, Item 4).
11. Install tensioner frame (Figure 4, Item 14) on bracket (Figure 4, Item 8) with two screws (Figure 4, Item 6), lockwashers (Figure 4, Item 2), and nuts (Figure 4, Item 1).
12. Install bracket (Figure 4, Item 15) on tensioner frame (Figure 4, Item 14) with two screws (Figure 4, Item 18), lockwashers (Figure 4, Item 19), and nuts (Figure 4, Item 20).
13. Install bracket (Figure 4, Item 15) on rear winch (Figure 4, Item 3) with lockwasher (Figure 4, Item 17) and screw (Figure 4, Item 16).
14. Install lever (Figure 4, Item 7) on bracket (Figure 4, Item 8) and rod of frame (Figure 4, Item 14) with two pins (Figure 4, Items 9 and 13) and four cotter pins (Figure 4, Item 10).

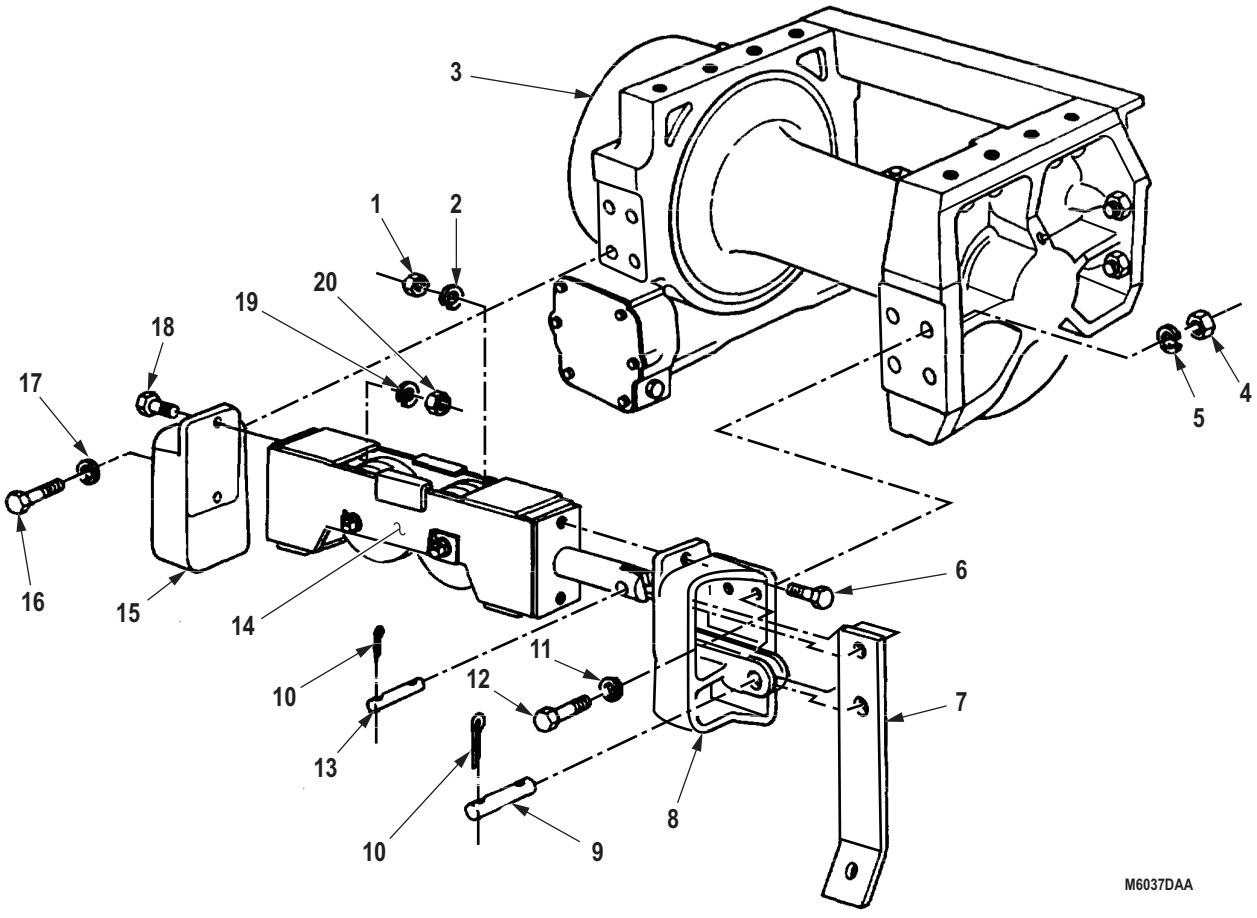


Figure 4. Rear Winch Assembly.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Lubricate rear winch tensioner. (Volume 5, WP 0820)
2. Install rear winch cable. (WP 0710)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
DUMP ROLLER ARM REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)
Hammer, Soft Face
(Volume 5, WP 0826, Table 1, Item 22)

Materials/Parts
Grease, Automotive and Artillery
(Volume 5, WP 0825, Table 1, Item 28)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Dump body removed. (WP 0594)

REMOVAL

WARNING



Ensure dump control lever is in the NEUTRAL position and has not moved. Failure to comply may result in injury or death to personnel.

NOTE

- Left and right roller arms are replaced the same way. Right roller arm shown.
- Use soft-faced hammer to tap roller arm if necessary to complete Step (1).

Remove roller arm (Figure 1, Item 1) from hoist cylinder crosshead shaft (Figure 1, Item 2).

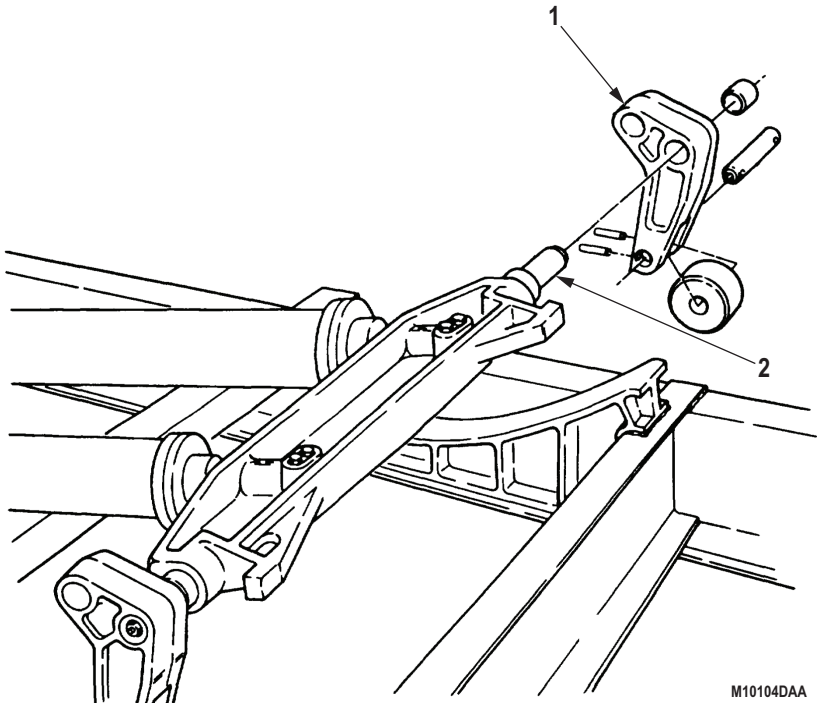


Figure 1. Dump Roller Removal.

END OF TASK

INSTALLATION

Install roller arm (Figure 2, Item 1) on hoist cylinder crosshead shaft (Figure 2, Item 2).

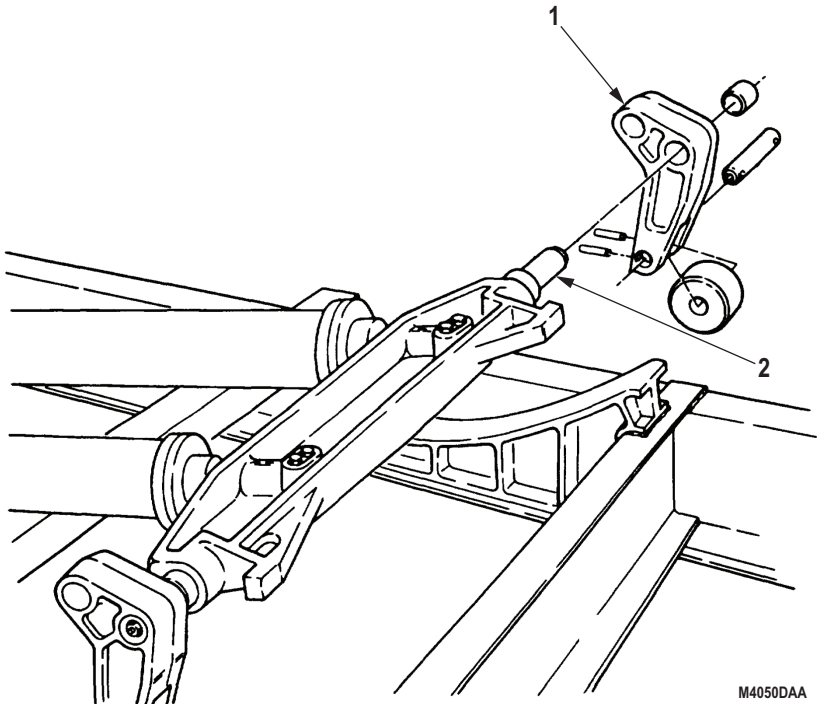


Figure 2. Dump Roller Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install dump body. (WP 0594)
2. Lubricate roller arms. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
DUMP HOIST CYLINDER REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
- Tool Kit, General Mechanic's: Automotive (Volume 5, WP 0826, Table 1, Item 56)
- Hammer, Soft Face (Volume 5, WP 0826, Table 1, Item 22)
- Suitable Container

Materials/Parts
- Cap Set, Protective, Dust and Moisture Seal (Volume 5, WP 0825, Table 1, Item 13)
- Cloth, Cleaning (Volume 5, WP 0825, Table 1, Item 19)

Materials/Parts (cont.)
- Hydraulic Fluid (Volume 5, WP 0825, Table 1, Item 35)
- Lockwasher (Volume 5, WP 0827, Table 1, Item 437) Qty: 12

Equipment Condition
- Dump body removed. (WP 0594)
- Dump roller arms removed. (WP 0723)

REMOVAL

WARNING



Ensure dump control lever is in the NEUTRAL position and has not moved. Failure to comply may result in injury or death to personnel.

NOTE

A 4x4 block of wood is recommended for use as support.

1. Raise hoist cylinders (Figure 1, Items 4 and 10) from subframe (Figure 1, Item 5) and place wood support (Figure 1, Item 3) between subframe (Figure 1, Item 5) and cylinders (Figure 1, Items 4 and 10).
2. Remove four screws (Figure 1, Item 2), lockwashers (Figure 1, Item 1), two upper crosshead retainers (Figure 1, Item 6), lower cross head retainers (Figure 1, Item 8), and crosshead (Figure 1, Item 9) from two piston rods (Figure 1, Item 7). Discard lockwashers.

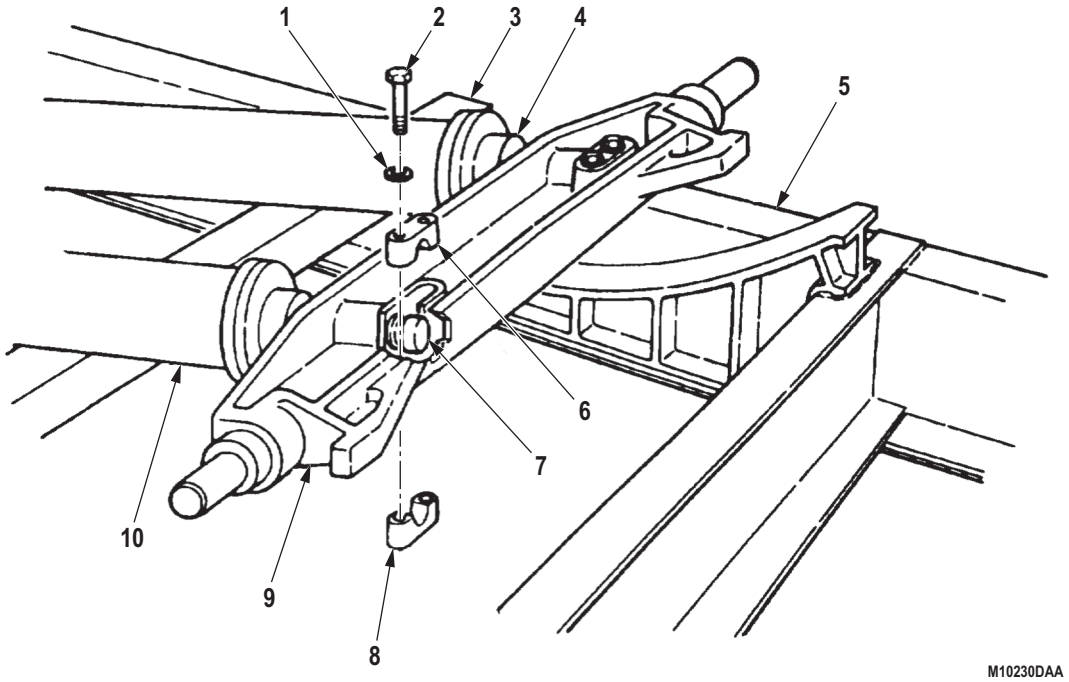


Figure 1. Dump Hoist Cylinder Removal.

REMOVAL - Continued

CAUTION

Plug all hydraulic lines or openings to prevent dirt from entering and damaging components

NOTE

- Cross fitting to hoist cylinder hoses must be disconnected from cross fittings first. Then hoses can be removed from hoist cylinders.
- Have drainage containers ready to catch oil.
- Use drain pans to retain leaking/draining fluids. Refer to local procedures and plans for preventing and responding to fluid spills or leaks. Comply with local regulations when disposing of clean up material and leaked and spilled fluids.
- Tag all parts for installation.

3. Disconnect hydraulic hoses (Figure 2, Items 4 and 9) from right cross fitting (Figure 2, Item 7).
4. Disconnect hydraulic hoses (Figure 2, Items 5 and 8) from left cross fitting (Figure 2, Item 6).
5. Disconnect hydraulic hoses (Figure 2, Items 4 and 9) from right and left cylinder ports A (Figure 2, Items 2 and 10).
6. Disconnect hydraulic hoses (Figure 2, Items 5 and 8) from right and left cylinder ports B (Figure 2, Items 1 and 3).

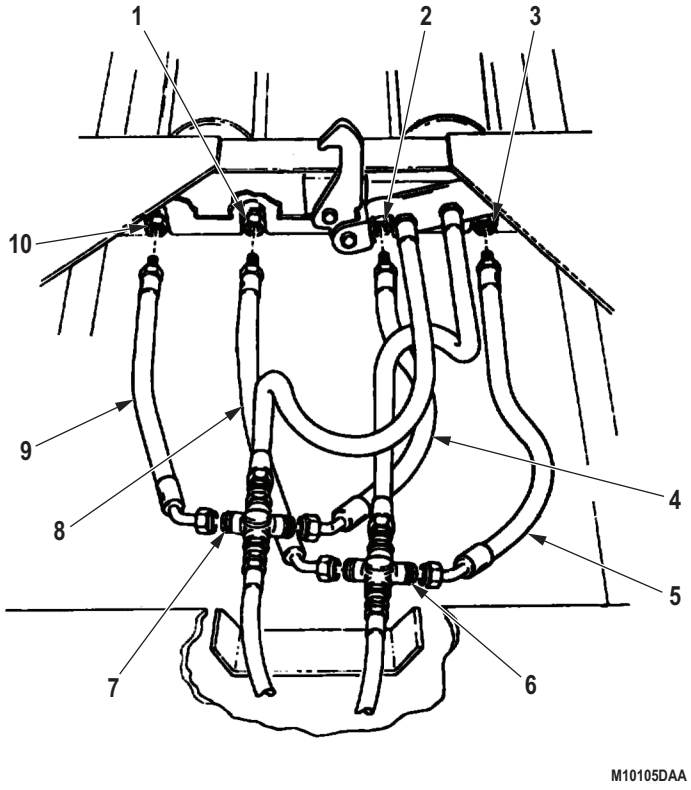


Figure 2. Dump Hoist Cylinder Removal.

REMOVAL - Continued

7. Remove eight screws (Figure 3, Item 3), lockwashers (Figure 3, Item 4), four bearing caps (Figure 3, Item 2), and hoist cylinders (Figure 3, Items 1 and 5) from subframe (Figure 3, Item 6). Discard lockwashers.

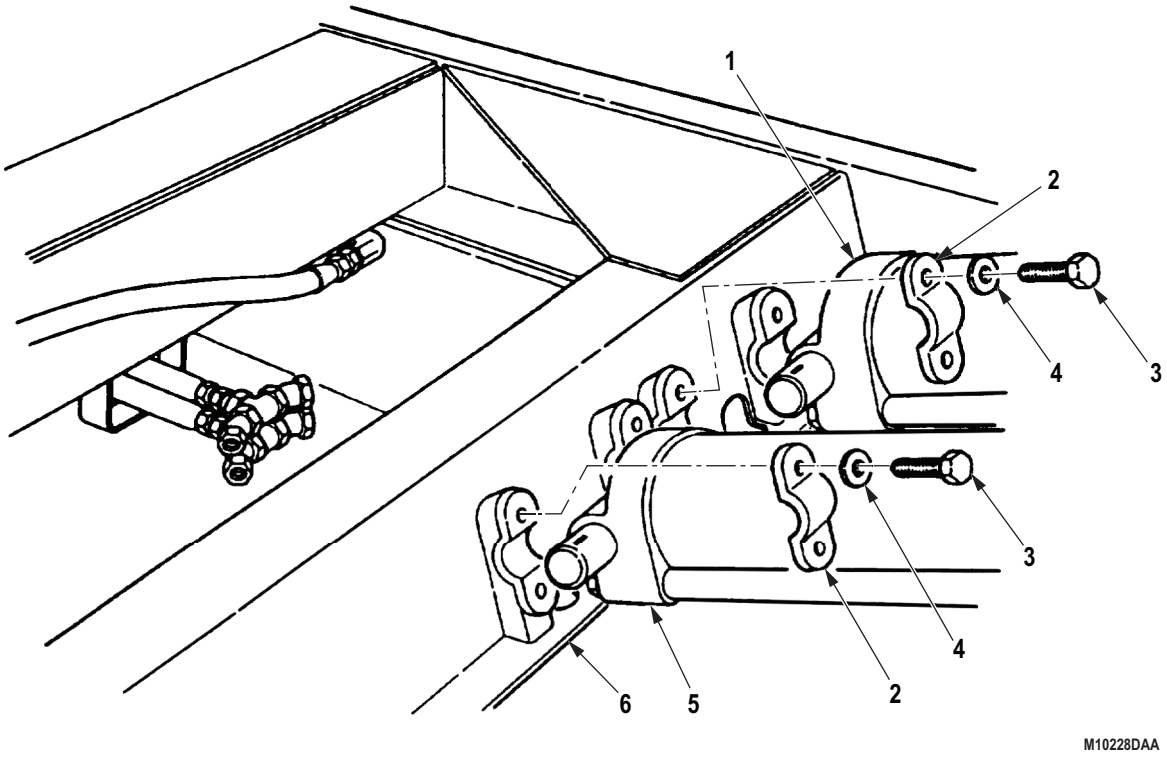


Figure 3. Dump Hoist Cylinder Removal.

END OF TASK

INSTALLATION

1. Position hoist cylinders (Figure 4, Items 1 and 5) on subframe (Figure 4, Item 7) with bypass tubes (Figure 4, Item 5) facing down.
2. Install each hoist cylinder (Figure 4, Items 1 and 6) with two bearing caps (Figure 4, Item 2), four lockwashers (Figure 4, Item 4), and screws (Figure 4, Item 3).

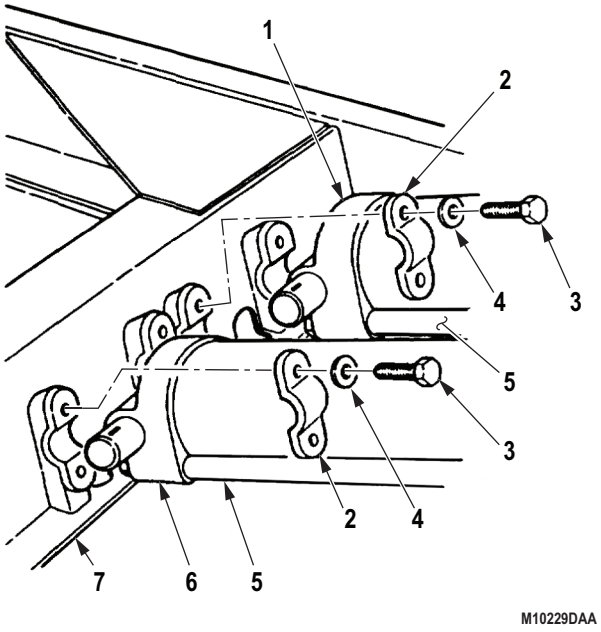


Figure 4. Dump Hoist Cylinder Installation.

INSTALLATION - Continued

NOTE

To properly identify hose connection points, the cylinder port with bypass tube extending to the middle of the cylinder will be identified as port B. The cylinder port with bypass tube extending full length of the cylinder will be identified as port A.

3. Connect hydraulic hoses (Figure 5, Items 4 and 9) to left cylinder port A (Figure 5, Item 2), right cylinder port A (Figure 5, Item 10), and right cross fitting (Figure 5, Item 7).
4. Connect hydraulic hoses (Figure 5, Items 5 and 8) to left cylinder port B (Figure 5, Item 3), right cylinder port B (Figure 5, Item 1) and left cross fitting (Figure 5, Item 6).

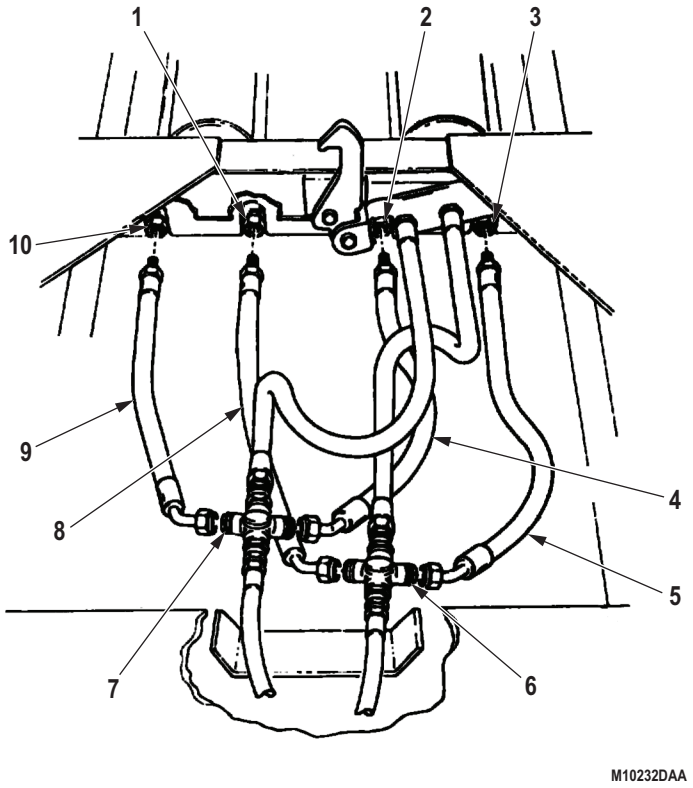


Figure 5. Dump Hoist Cylinder Installation.

INSTALLATION - Continued

5. Position crosshead (Figure 6, Item 9) on piston rods (Figure 6, Item 7) and install with two upper crosshead retainers (Figure 6, Item 6), lower crosshead retainers (Figure 6, Item 8), four lockwashers (Figure 6, Item 1), and screws (Figure 6, Item 2).
6. Raise hoist cylinders (Figure 6, Items 4 and 10) and remove wood block (Figure 6, Item 3).

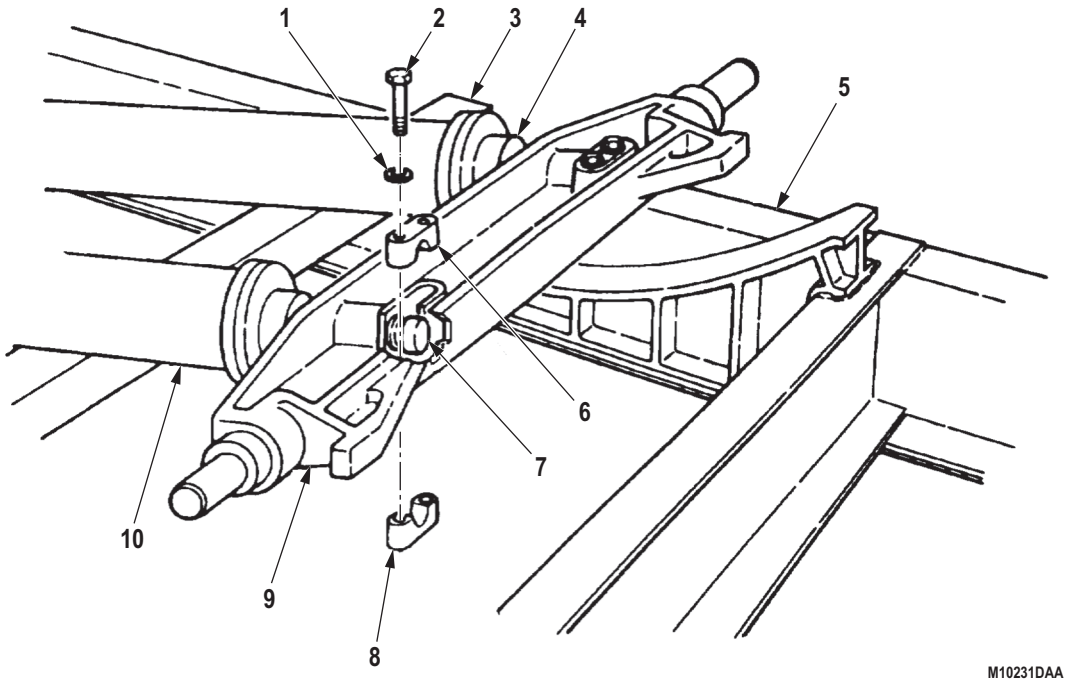


Figure 6. Dump Hoist Cylinder Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install dump roller arms. (WP 0723)
2. Install dump body. (WP 0594)
3. Fill hydraulic reservoir to proper oil level. (Volume 5, WP 0820)
4. Start engine and operate dump through full range. Check for leaks and proper operation. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
TRANSFER CASE POWER TAKEOFF (PTO) REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
- Tool Kit, General Mechanic's: Automotive (Volume 5, WP 0826, Table 1, Item 56)
- Hammer, Soft Face (Volume 5, WP 0826, Table 1, Item 22)
- Indicator, Dial (Volume 5, WP 0826, Table 1, Item 25)
- Press, Arbor, Hand Operated (Volume 5, WP 0826, Table 1, Item 39)
- Wrench, Torque, Click, Ratcheting, 1/2" Drive, 250 Ft-Lb (Volume 5, WP 0826, Table 1, Item 63)

Materials/Parts
- Cap Set, Protective, Dust and Moisture Seal (Volume 5, WP 0825, Table 1, Item 13)
- Cleaning Compound, Solvent (Volume 5, WP 0825, Table 1, Item 16, 17)
- Cloth, Cleaning (Volume 5, WP 0825, Table 1, Item 19)
- Sealing Compound (Volume 5, WP 0825, Table 1, Item 56)
- Tape, Antiseizing (Volume 5, WP 0825, Table 1, Item 65)
- Cotter Pin (Volume 5, WP 0827, Table 1, Item 336) Qty: 1
- Cotter Pin (Volume 5, WP 0827, Table 1, Item 339) Qty: 1
- Gasket (Volume 5, WP 0827, Table 1, Item 92) Qty: 1

Materials/Parts (cont.)
- O-ring (Volume 5, WP 0827, Table 1, Item 299) Qty: 1
- Oil Seal (Volume 5, WP 0827, Table 1, Item 40) Qty: 1
- Oil Seal (Volume 5, WP 0827, Table 1, Item 252) Qty: 1
- Oil Sleeve (Volume 5, WP 0827, Table 1, Item 81) Qty: 1
- Snapring (Volume 5, WP 0827, Table 1, Item 51) Qty: 1
- Woodruff Key (Volume 5, WP 0827, Table 1, Item 414) Qty: 1

References
- TM 9-214
- TM 9-2320-272-10
- Volume 5, WP 0820

Equipment Condition
- Transfer case PTO-to-hydraulic pump propeller shaft removed. (WP 0713)

REMOVAL

1. Remove cotter pin (Figure 1, Item 1), washer (Figure 1, Item 2), clevis pin (Figure 1, Item 4), and clevis (Figure 1, Item 3) from transfer case Power Takeoff (PTO) select lever (Figure 1, Item 5). Discard cotter pin.

NOTE

- Have drainage container ready to catch oil.
- Use drain pans to retain leaking/draining fluids. Refer to local procedures and plans for preventing and responding to fluid spills or leaks. Comply with local regulations when disposing of clean up material and leaked and spilled fluids.

2. Disconnect transfer case oil return line (Figure 1, Item 9) from adapter (Figure 1, Item 10) and plug opening of transfer case oil return line.
3. Remove adapter (Figure 1, Item 10) from PTO unit (Figure 1, Item 11).
4. Remove six screws (Figure 1, Item 6) and washers (Figure 1, Item 7) from transfer case (Figure 1, Item 8).
5. Remove PTO unit (Figure 1, Item 11) from transfer case (Figure 1, Item 8).
6. Remove setscrew (Figure 1, Item 12) from PTO oil pump drive gear assembly (Figure 1, Item 15).
7. Slide PTO oil pump drive gear assembly (Figure 1, Item 15) off transfer case main input shaft (Figure 1, Item 13).
8. Remove oil seal (Figure 1, Item 14) from PTO oil pump drive gear assembly (Figure 1, Item 15). Discard oil seal.

REMOVAL - Continued

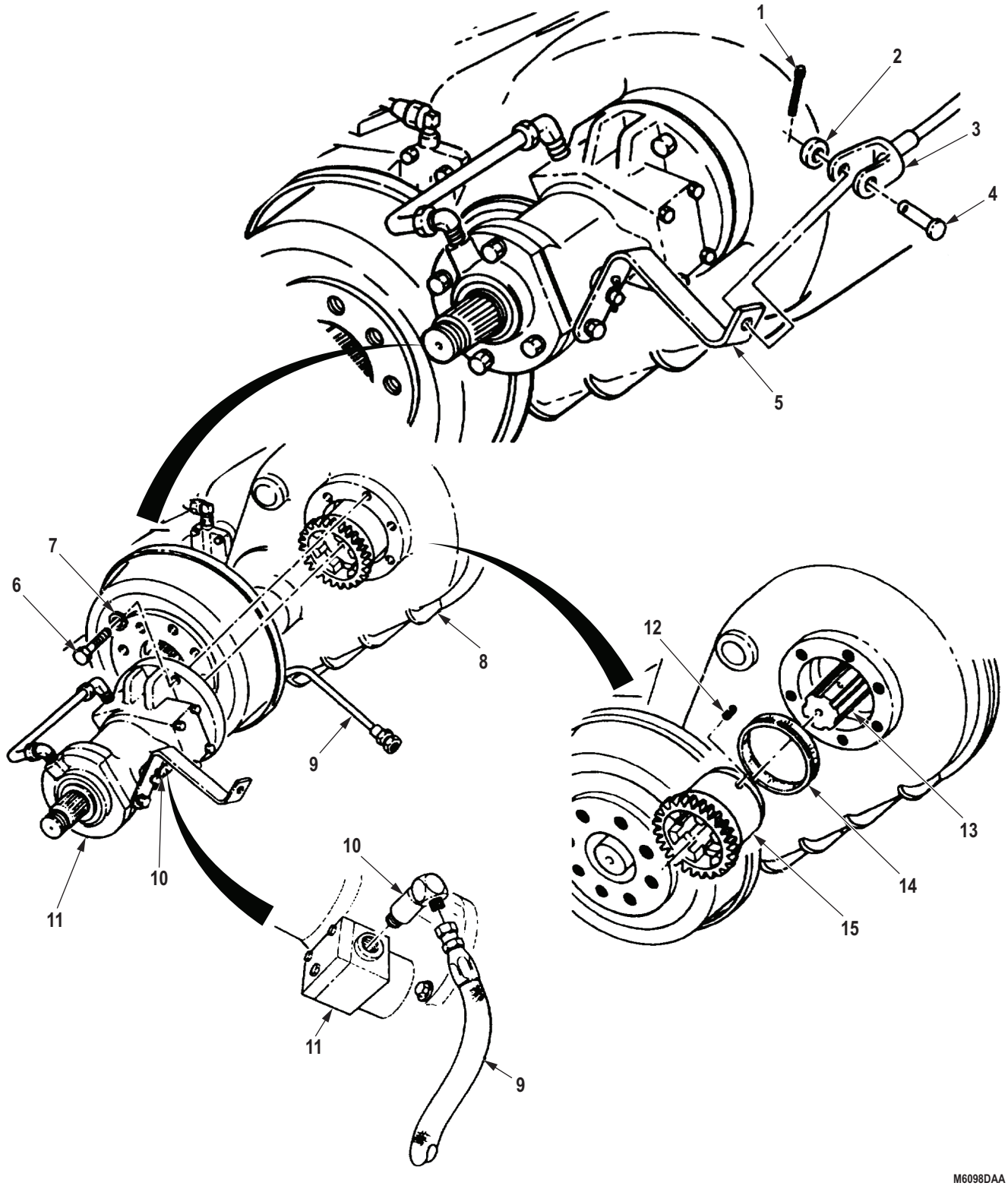


Figure 1. Transfer Case PTO Removal.

END OF TASK

DISASSEMBLY

1. Remove oil line (Figure 2, Item 2) and adapter elbows (Figure 2, Items 1 and 15) from oil pump housing (Figure 2, Item 3) and bearing cap (Figure 2, Item 12).
2. Remove two nuts (Figure 2, Item 8), washers (Figure 2, Item 5), screws (Figure 2, Item 4), washers (Figure 2, Item 5), and PTO housing (Figure 2, Item 7) from oil pump adapter (Figure 2, Item 6).
3. Remove four screws (Figure 2, Item 14) and washers (Figure 2, Item 13) from bearing cap (Figure 2, Item 12) and PTO housing (Figure 2, Item 7).

NOTE

Tag shims for installation.

4. Remove bearing cap (Figure 2, Item 12), shims (Figure 2, Item 11), outer bearing race (Figure 2, Item 10), and PTO shaft (Figure 2, Item 9) from PTO housing (Figure 2, Item 7).

DISASSEMBLY - Continued

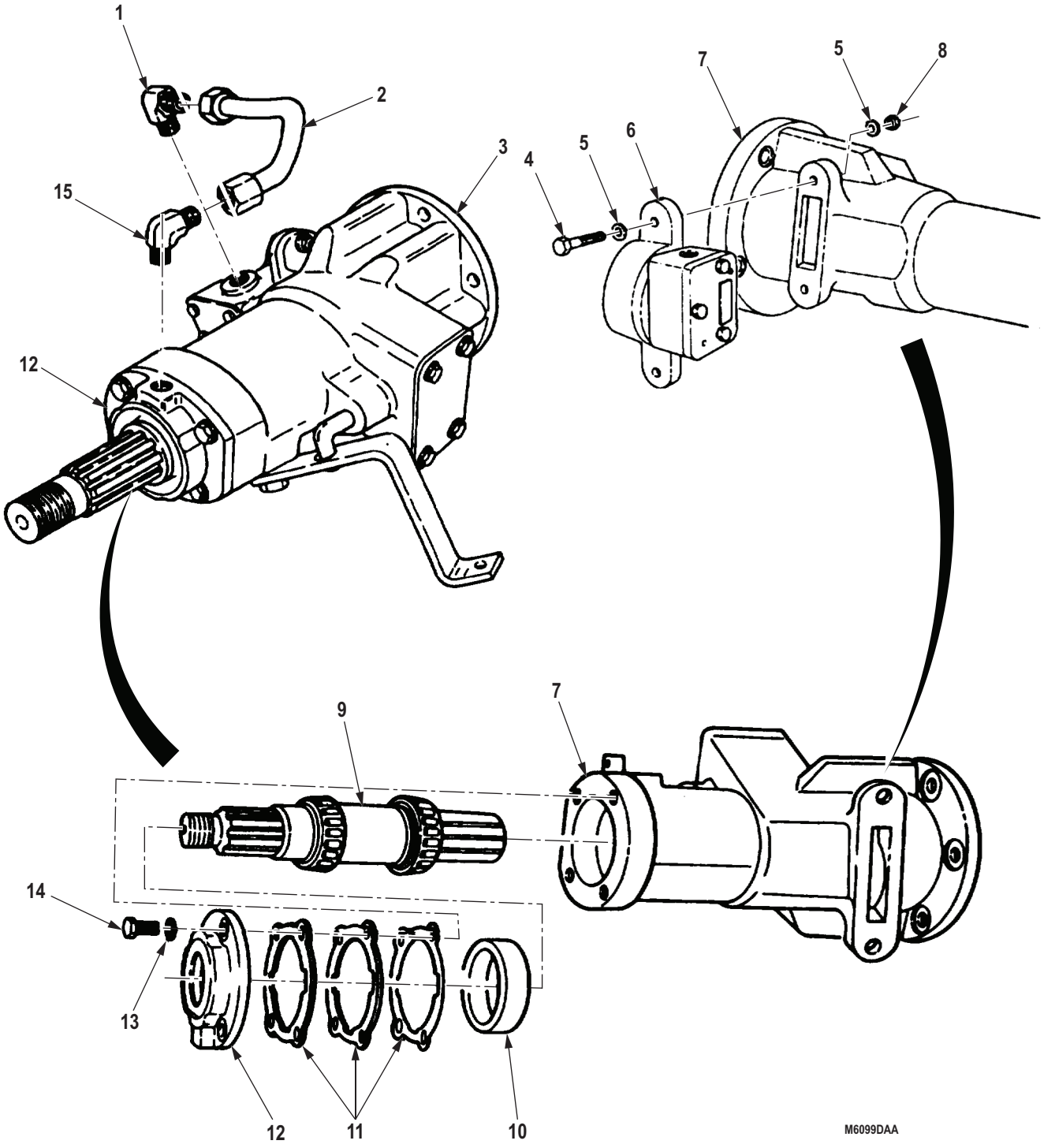


Figure 2. PTO Shaft Disassembly.

DISASSEMBLY - Continued

5. Remove cotter pin (Figure 3, Item 7) and washer (Figure 3, Item 6) from PTO shift lever (Figure 3, Item 5) and shifter shaft (Figure 3, Item 10). Discard cotter pin.
6. Remove screw (Figure 3, Item 8), washer (Figure 3, Item 9), and PTO shift lever (Figure 3, Item 5) from PTO housing (Figure 3, Item 1).
7. Remove four screws (Figure 3, Item 4), washers (Figure 3, Item 3), and plate (Figure 3, Item 2) from PTO housing (Figure 3, Item 1).

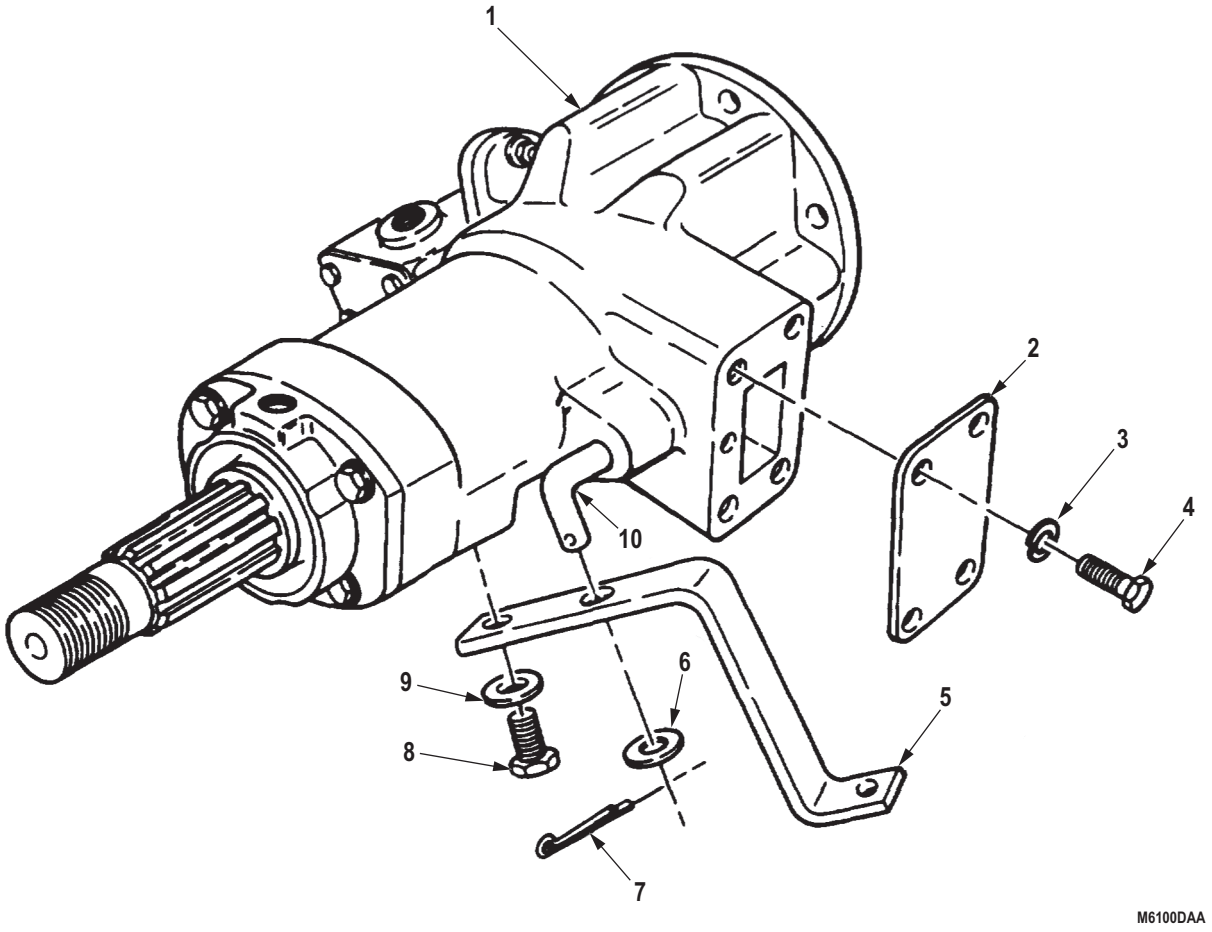


Figure 3. PTO Shift Lever Disassembly.

DISASSEMBLY - Continued

8. Tilt PTO housing (Figure 4, Item 1) until dowel (Figure 4, Item 6), spring (Figure 4, Item 7), and detent ball (Figure 4, Item 8) fall out.
9. Remove setscrew (Figure 4, Item 5) and shifter shaft (Figure 4, Item 3) from shifter fork (Figure 4, Item 4).
10. Remove o-ring (Figure 4, Item 2) from shifter shaft (Figure 4, Item 3). Discard o-ring.

NOTE

Mark position of shifter fork for installation.

11. Remove shifter fork (Figure 4, Item 4) from PTO housing (Figure 4, Item 1).
12. Tilt PTO housing (Figure 4, Item 1) until clutch collar (Figure 4, Item 9) falls out.

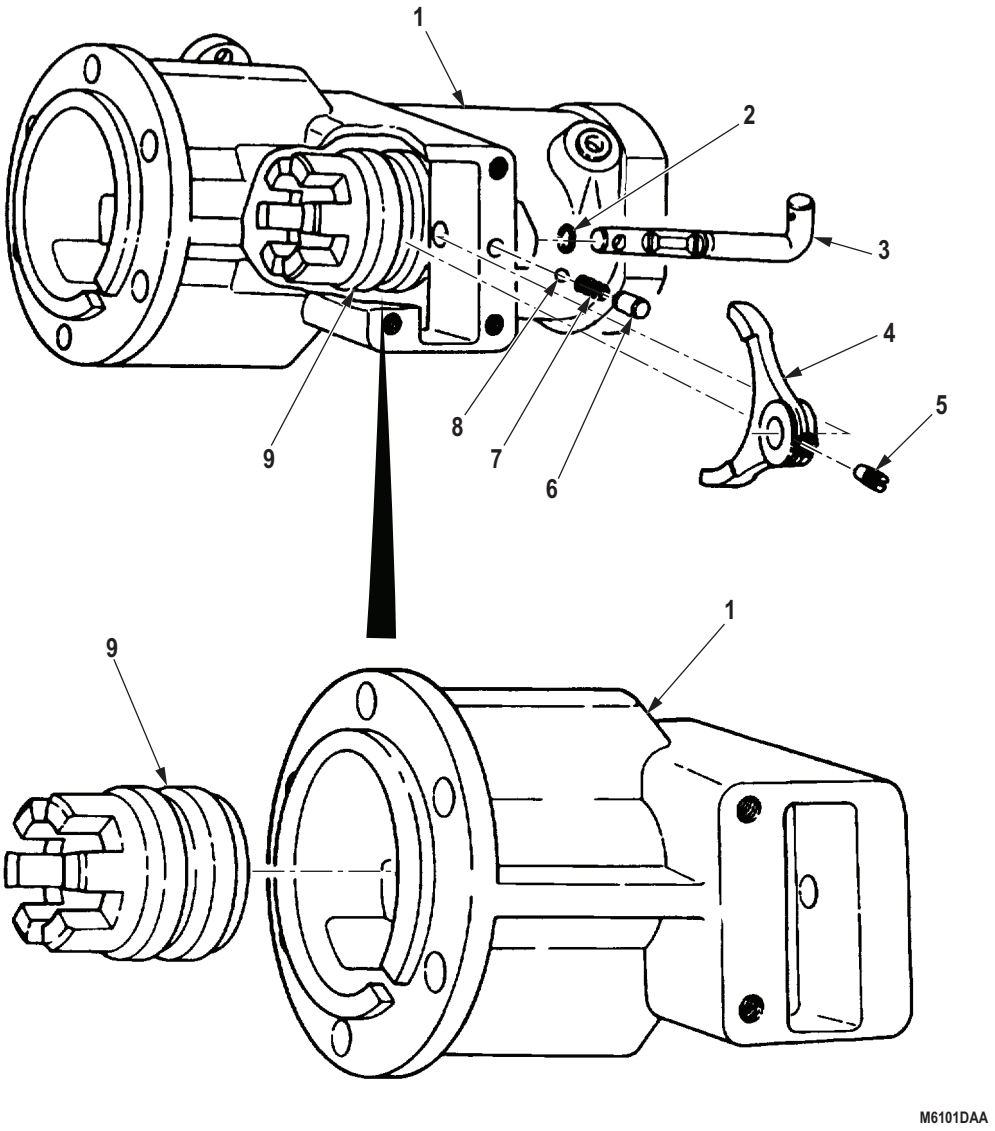


Figure 4. PTO Clutch Collar Disassembly.

DISASSEMBLY - Continued

13. Remove inner bearing race (Figure 5, Item 2) from PTO housing (Figure 5, Item 1).

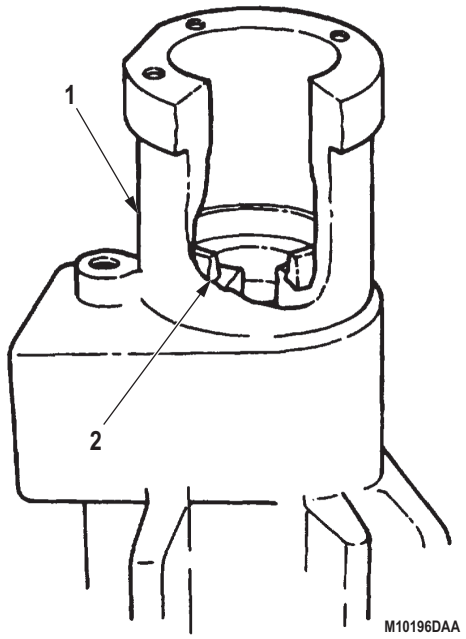


Figure 5. PTO Disassembly.

14. Remove access plug (Figure 6, Item 7) and gasket (Figure 6, Item 8) from oil pump adapter (Figure 6, Item 1). Discard gasket.
15. Remove outer snapring (Figure 6, Item 9) from pump shaft (Figure 6, Item 5). Discard snapring.
16. Remove three screws (Figure 6, Item 4), oil pump adapter (Figure 6, Item 1), and drive gear (Figure 6, Item 6) from oil pump (Figure 6, Item 3).
17. Remove woodruff key (Figure 6, Item 2) from oil pump shaft (Figure 6, Item 5). Discard woodruff key.

DISASSEMBLY - Continued

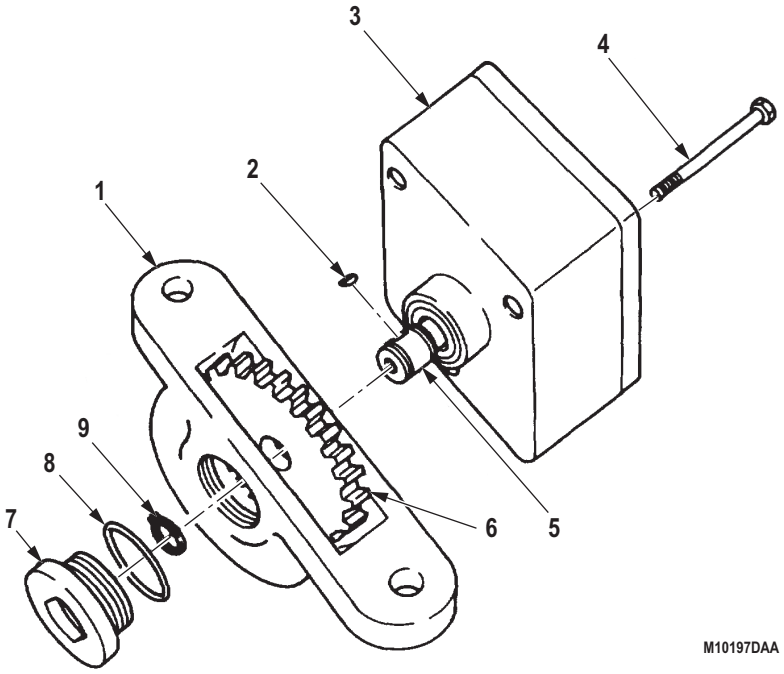


Figure 6. PTO Disassembly.

18. Remove outer (Figure 7, Item 3) and inner (Figure 7, Item 2) output shaft bearings from PTO shaft (Figure 7, Item 1).
19. Remove oil seal sleeve (Figure 7, Item 4) from PTO shaft (Figure 7, Item 1). Discard oil sleeve.

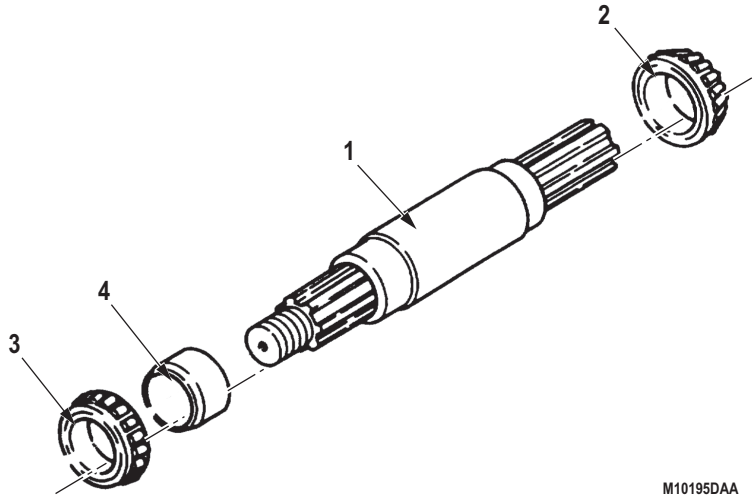


Figure 7. PTO Disassembly.

DISASSEMBLY - Continued

20. Remove PTO oil seal (Figure 8, Item 2) from bearing cap (Figure 8, Item 1). Discard PTO oil seal.

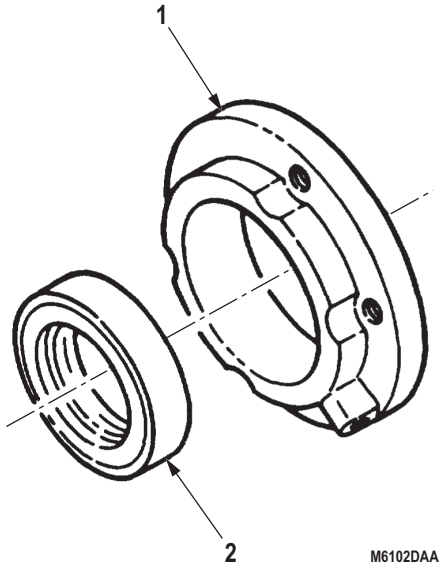


Figure 8. PTO Disassembly.

END OF TASK

CLEANING AND INSPECTION

WARNING



Solvent cleaning compound is flammable and toxic. Do not use near an open flame and always have a fire extinguisher nearby when solvents are used. Use only in well-ventilated places, wear protective clothing, and dispose of cleaning rags in approved container. Failure to comply may result in damage to equipment, injury, or death to personnel.

CAUTION

Cleaning and inspection instructions include PTO oil pump drive gear and collar assembly removed from transfer case input shaft.

1. Clean all transfer case PTO components with solvent cleaning compound and dry with cleaning cloth.
2. Inspect PTO shaft (Figure 9, Item 1) for pitting, galling, and scoring. If pitted, galled, or scored, replace PTO shaft (Figure 9, Item 1).
3. Inspect inner (Figure 9, Item 2) and outer (Figure 9, Item 5) shaft bearings and two bearing races (Figure 9, Items 3 and 4) for cracking, pitting, scoring, and discoloration. If any matched bearings (Figure 9, Item 2 or 5) or races (Figure 9, Item 3 or 4) are pitted, cracked, scored, or discolored, discard and replace all four (TM 9-214).

CLEANING AND INSPECTION - Continued

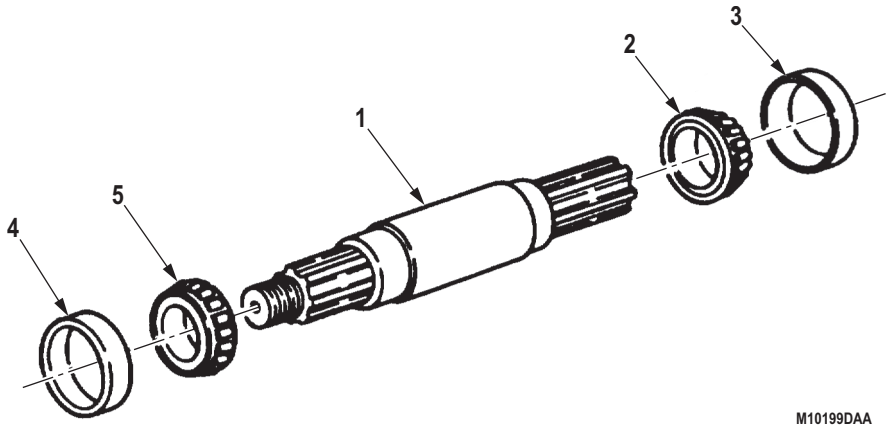


Figure 9. PTO Cleaning and Inspection.

4. Inspect PTO oil pump drive gear (Figure 10, Item 3) and collar (Figure 10, Item 1) for cracks, pitting, scoring, or missing teeth. If cracked, pitted, scored, or teeth are missing, replace PTO oil pump drive gear and collar.
5. Inspect bearing cap (Figure 10, Item 2) for cracks. If cracked, replace bearing cap.

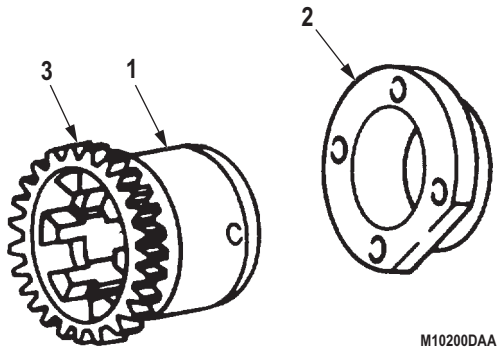


Figure 10. PTO Cleaning and Inspection.

CLEANING AND INSPECTION - Continued

6. Inspect oil pump adapter (Figure 11, Item 3) for cracks. If cracked, replace pump adapter.
7. Inspect oil pump (Figure 11, Item 2) and shaft (Figure 11, Item 1) for cracks and scoring. If cracked or scored, replace oil pump and shaft.

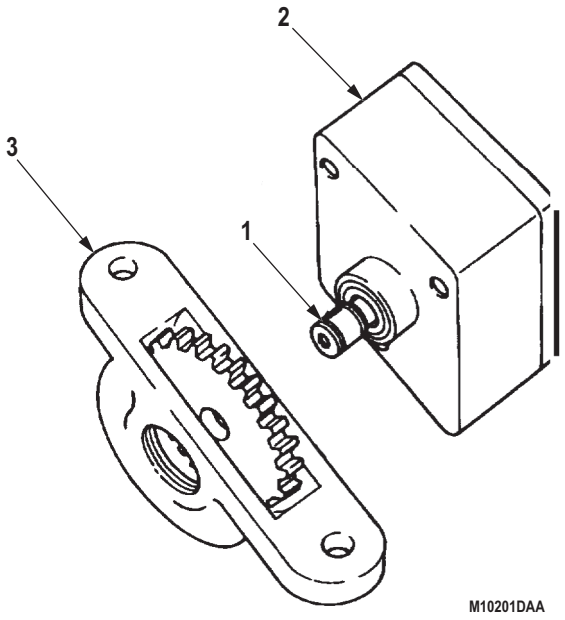


Figure 11. PTO Cleaning and Inspection.

8. Inspect PTO housing (Figure 12, Item 1) for cracks, or pitting in bores and on machined surfaces. If PTO housing is cracked or pitted in bores or on machined surfaces, replace transfer case PTO.

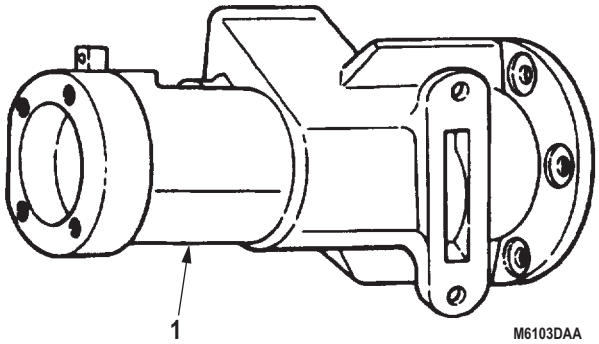


Figure 12. PTO Cleaning and Inspection.

END OF TASK

ASSEMBLY

1. Install woodruff key (Figure 13, Item 3) on oil pump shaft (Figure 13, Item 6).
2. Position oil pump adapter (Figure 13, Item 1) against oil pump (Figure 13, Item 4), align oil pump gear (Figure 13, Item 2) on oil pump shaft (Figure 13, Item 6), and install three screws (Figure 13, Item 5). Tighten screws 9 to 11 lb-ft (12 to 15 N·m).
3. Install snapring (Figure 13, Item 9) on oil pump shaft (Figure 13, Item 6).
4. Install adapter plug gasket (Figure 13, Item 8) and adapter plug (Figure 13, Item 7) on oil pump adapter (Figure 13, Item 1). Tighten adapter plug 80 lb-ft (108 N·m).

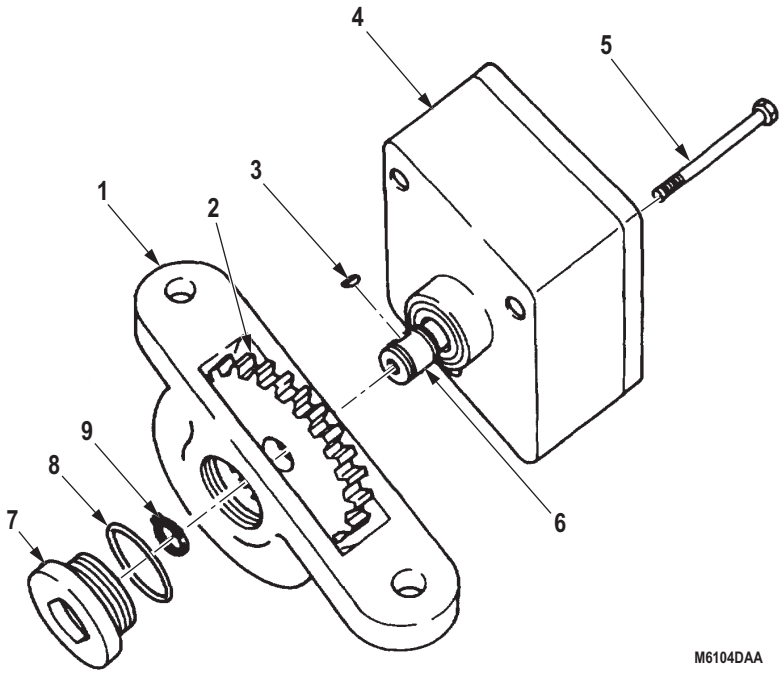


Figure 13. Transfer Case PTO Assembly.

ASSEMBLY - Continued

5. Install inner bearing (Figure 14, Item 2), outer bearing (Figure 14, Item 8), and oil seal sleeve (Figure 14, Item 9) on PTO shaft (Figure 14, Item 1) with arbor press and mandrel.
6. Position inner bearing race (Figure 14, Item 3) over inner bearing (Figure 14, Item 2) on PTO shaft (Figure 14, Item 1).
7. Position PTO shaft (Figure 14, Item 1) in PTO housing (Figure 14, Item 6) through bearing cap end (Figure 14, Item 5) of PTO housing. Ensure inner bearing race (Figure 14, Item 3) seats squarely in bore of PTO housing on shoulder (Figure 14, Item 4).
8. Position outer bearing race (Figure 14, Item 7) in PTO housing (Figure 14, Item 6). Ensure outer bearing race seats squarely in bore of PTO housing.

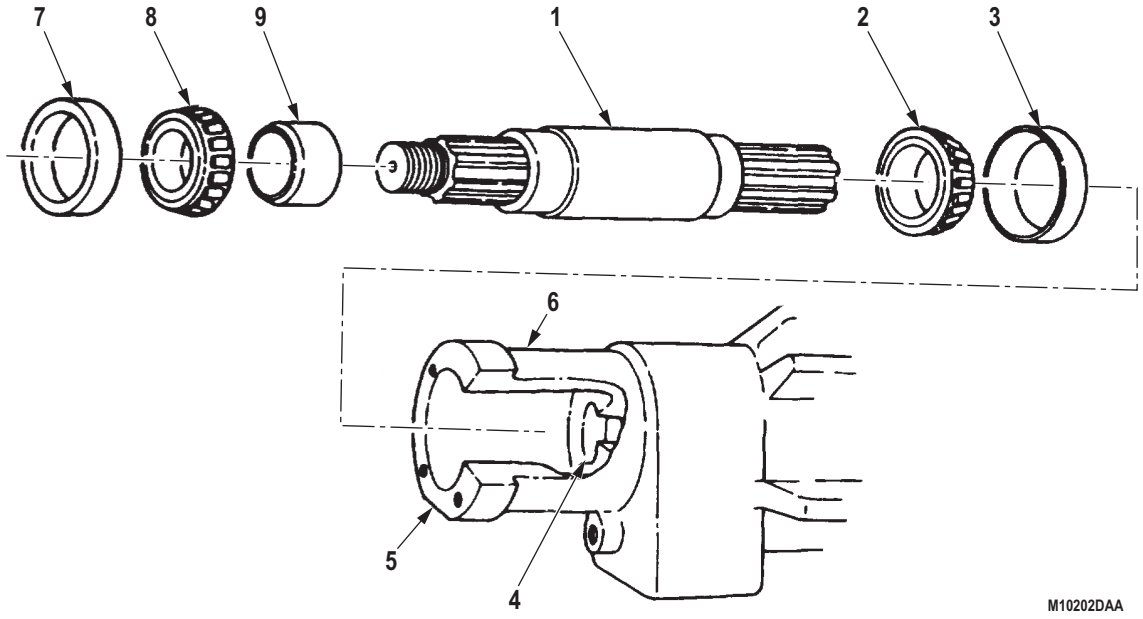


Figure 14. Transfer Case PTO Assembly.

NOTE

Ensure OUTSIDE stamping is up.

9. Using arbor press and mandrel (Figure 15, Item 3), install oil seal (Figure 15, Item 1) in bearing cap (Figure 15, Item 2).

ASSEMBLY - Continued

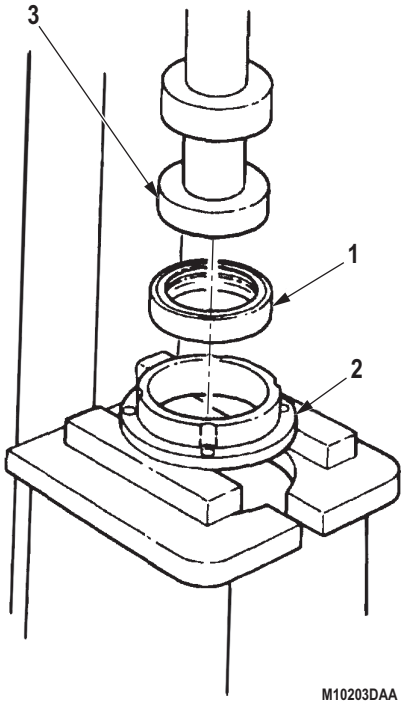


Figure 15. Transfer Case PTO Assembly.

NOTE

Steps (10) and (11) establish starting shim pack thickness.

10. Install bearing cap (Figure 16, Item 5) on transfer case PTO (Figure 16, Item 2) and tap alternately around outer edge with soft-faced hammer.
11. Using feeler gauge, measure clearance between cap (Figure 16, Item 5) and transfer case PTO (Figure 16, Item 2). Record measurement.
12. Remove bearing cap (Figure 16, Item 5) from transfer case PTO (Figure 16, Item 2).

CAUTION

Do not apply sealer on mating surfaces.

NOTE

Use measurement obtained in Step (11) add a 0.003 in. (0.0762 mm) shim for starting shim pack thickness.

13. Install starting shim pack (Figure 16, Item 1) and bearing cap (Figure 16, Item 5) on transfer case PTO (Figure 16, Item 2) with four washers (Figure 16, Item 4) and screws (Figure 16, Item 3). Tighten screws 18 to 24 lb-ft (24 to 32 N·m).
14. Position dial indicator (Figure 16, Item 7) plunger (Figure 16, Item 8) against PTO shaft (Figure 16, Item 6).

ASSEMBLY - Continued

NOTE

Steps (15) through (17) check transfer PTO shaft end play.

15. Force transfer PTO shaft (Figure 16, Item 6) to rear of transfer case PTO (Figure 16, Item 2).
16. Set dial indicator to zero.
17. Force transfer PTO shaft (Figure 16, Item 6) to front of transfer case PTO (Figure 16, Item 2) and record reading shown on dial indicator. End play should be 0.001 to 0.005 in. (0.0254 to 0.127 mm).
18. Remove four screws (Figure 16, Item 3), washers (Figure 16, Item 4), and bearing cap (Figure 16, Item 5) from transfer case PTO (Figure 16, Item 2).

CAUTION

Do not apply sealer to mating surfaces.

NOTE

Use reading obtained in Step (17) plus a 0.003 in. (0.0762 mm) shim for starting shim pack thickness.

19. Install starting shim pack (Figure 16, Item 1) and bearing cap (Figure 16, Item 5) on transfer case PTO (Figure 16, Item 2) with four washers (Figure 16, Item 4) and screws (Figure 16, Item 3). Tighten screws 18 to 24 lb-ft (24 to 32 N·m).
20. Position dial indicator plunger against PTO shaft (Figure 16, Item 6).

NOTE

Steps (21) through (23) check transfer PTO shaft end play.

21. Force transfer PTO shaft (Figure 16, Item 6) to rear of transfer case PTO (Figure 16, Item 2).
22. Set dial indicator to zero and force transfer PTO shaft (Figure 16, Item 6) to front of transfer case PTO (Figure 16, item 2).
23. Record reading shown on dial indicator. End play should be 0.001 to 0.005 in. (0.0254 to 0.127 mm).
24. Remove four screws (Figure 16, Item 3), washers (Figure 16, Item 4), and bearing cap (Figure 16, Item 5) from transfer case PTO (Figure 16, Item 2).

NOTE

Use reading obtained in Step (23) for number or thickness of shims to be removed or added for transfer case PTO shaft adjustment.

25. Remove or add shims (Figure 16, Item 1) as necessary.
26. Remove shim pack (Figure 16, Item 1).

NOTE

Do not apply sealer to shims.

27. Apply a light coat of sealer to mating surfaces or transfer case PTO (Figure 16, Item 2) and bearing cap (Figure 16, Item 5).
28. Install shim pack (Figure 16, Item 1) and bearing cap (Figure 16, Item 5) on transfer case PTO (Figure 16, Item 2) with four washers (Figure 16, Item 4) and screws (Figure 16, Item 3). Tighten screws 18 to 24 lb-ft (24 to 32 N·m).

ASSEMBLY - Continued

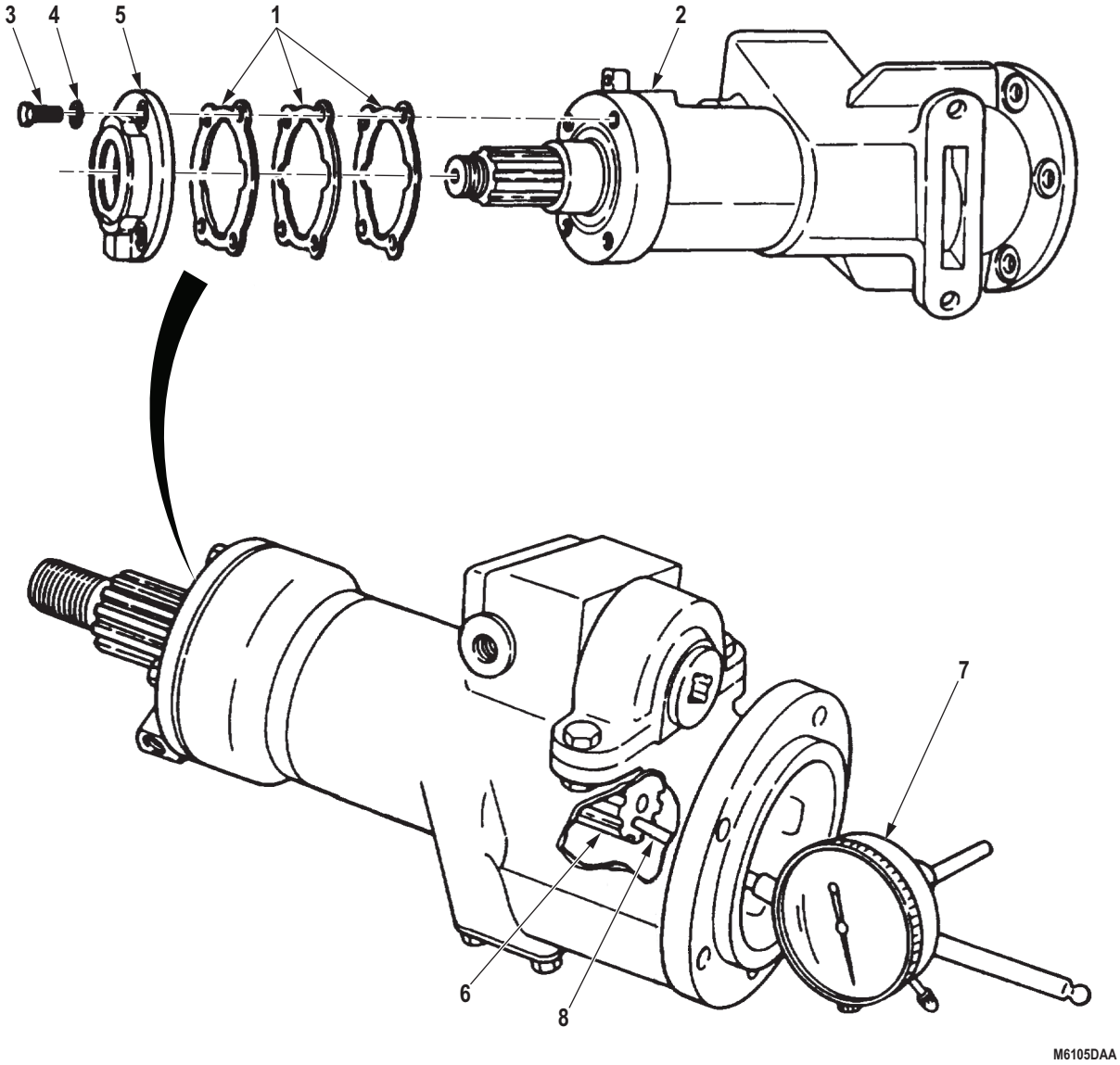


Figure 16. Transfer Case PTO Assembly.

ASSEMBLY - Continued

CAUTION

Clutch collar and shifter must be properly installed to ensure proper PTO operation. Ensure clutch collar internal splines face away from PTO mounting flange and thick edge of shifter fork faces shifter shaft.

29. Position splined end (Figure 17, Item 19) of clutch collar (Figure 17, Item 13) over PTO shaft (Figure 17, Item 18).
30. Position finger ends (Figure 17, Item 5) of shifter fork (Figure 17, Item 6) in center groove (Figure 17, Item 12) of clutch collar (Figure 17, Item 13).
31. Install o-ring (Figure 17, Item 2) on shifter shaft (Figure 17, Item 4).
32. Place shift shaft (Figure 17, Item 4) through PTO housing bore (Figure 17, Item 11) and fork (Figure 17, Item 6) and install with setscrew (Figure 17, Item 7) into hole (Figure 17, Item 3). Tighten setscrew 7 to 9 lb-ft (10 to 12 N·m).
33. Place detent ball (Figure 17, Item 10), spring (Figure 17, Item 9), and dowel (Figure 17, Item 8) into PTO housing bore (Figure 17, Item 1).
34. Install cover plate (Figure 17, Item 15) on PTO housing (Figure 17, Item 14) with four washers (Figure 17, Item 16) and screws (Figure 17, Item 17). Tighten screws 18 to 24 lb-ft (24 to 32 N·m).

ASSEMBLY - Continued

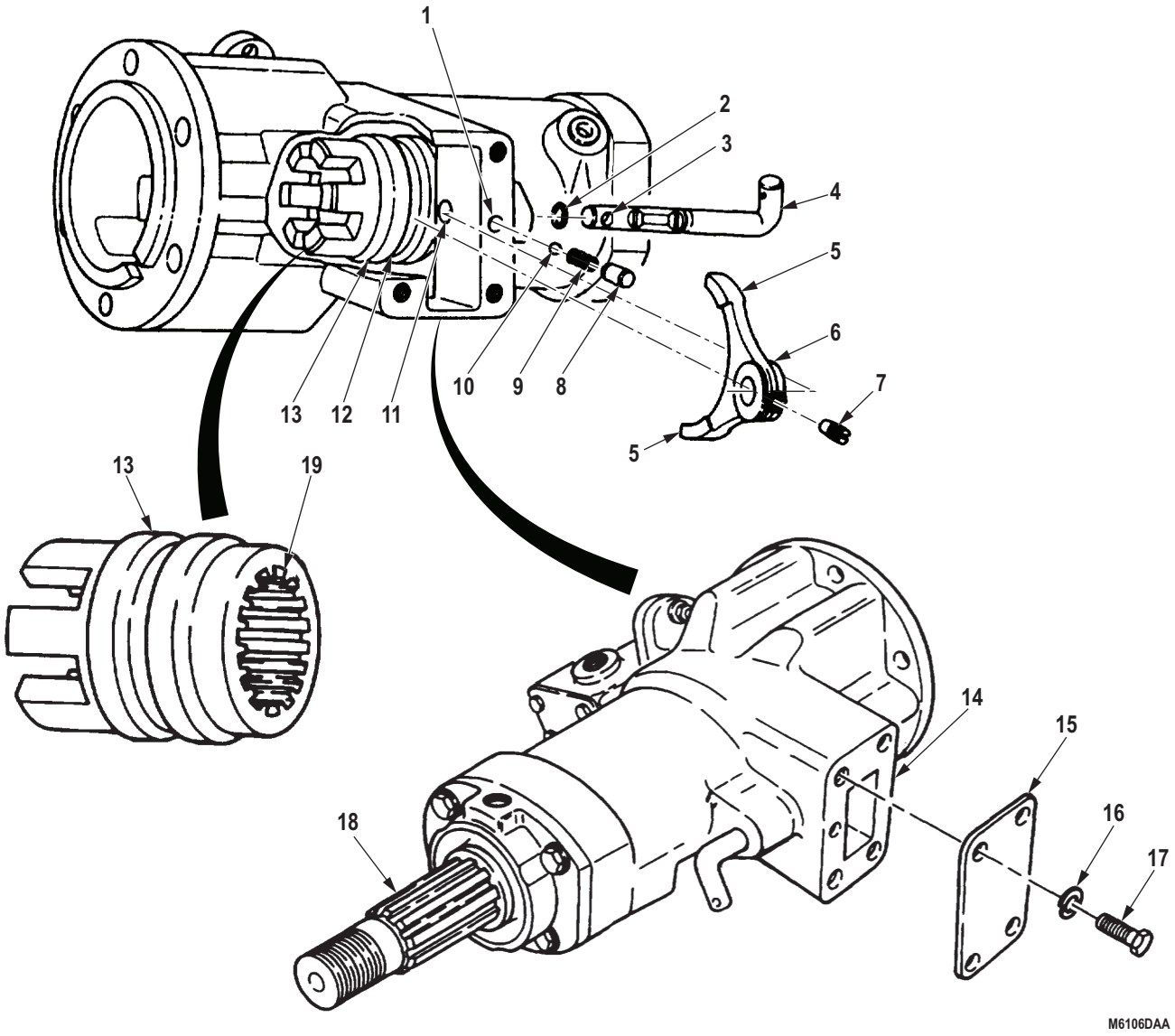


Figure 17. Transfer Case PTO Assembly.

ASSEMBLY - Continued

NOTE

At this point, check operation of PTO shifter shaft. Shifter shaft must be able to be moved into two positions.

35. Install PTO shift lever (Figure 18, Item 2) on shifter shaft (Figure 18, Item 3) with washer (Figure 18, Item 4) and cotter pin (Figure 18, Item 5).

36. Install PTO shift lever (Figure 18, Item 2) on PTO housing end (Figure 18, Item 1) with washer (Figure 18, Item 7) and screw (Figure 18, Item 6).

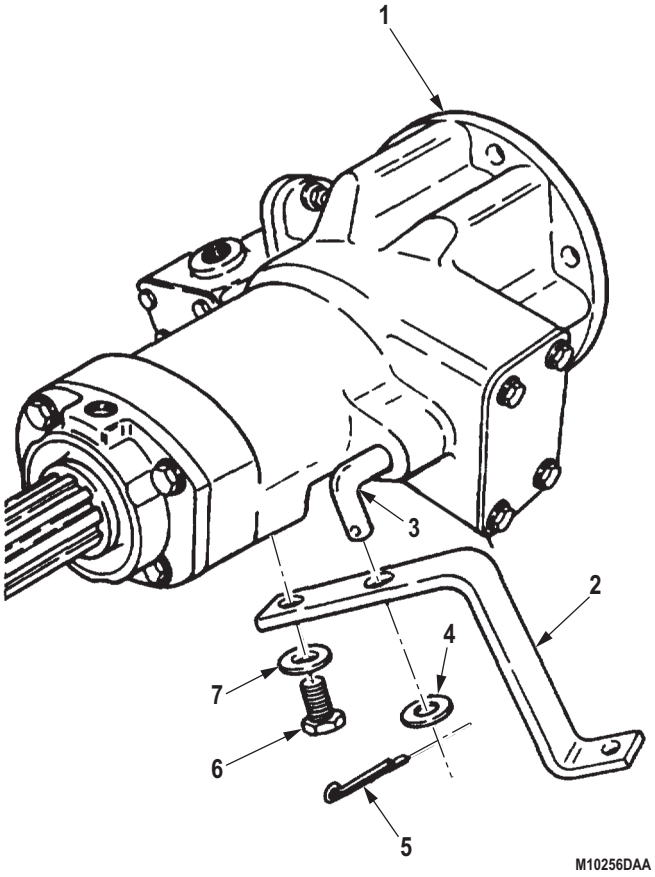


Figure 18. Transfer Case PTO Assembly.

ASSEMBLY - Continued

37. Install oil pump adapter (Figure 19, Item 5) on PTO housing (Figure 19, Item 1) with four washers (Figure 19, Item 2), two screws (Figure 19, Item 4), and nuts (Figure 19, Item 3). Tighten screws 15 to 20 lb-ft (20 to 27 N·m).

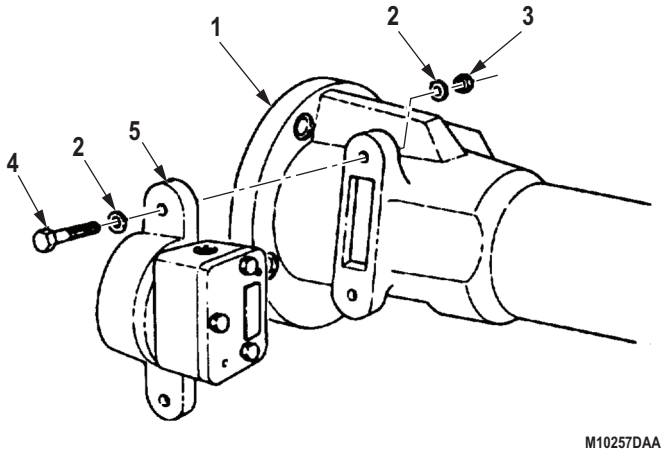


Figure 19. Transfer Case PTO Assembly.

38. Install adapter elbows (Figure 20, Items 1 and 4) on PTO housing (Figure 20, Item 3).

39. Install oil line (Figure 20, Item 2) on PTO adapter elbows (Figure 20, Items 1 and 4).

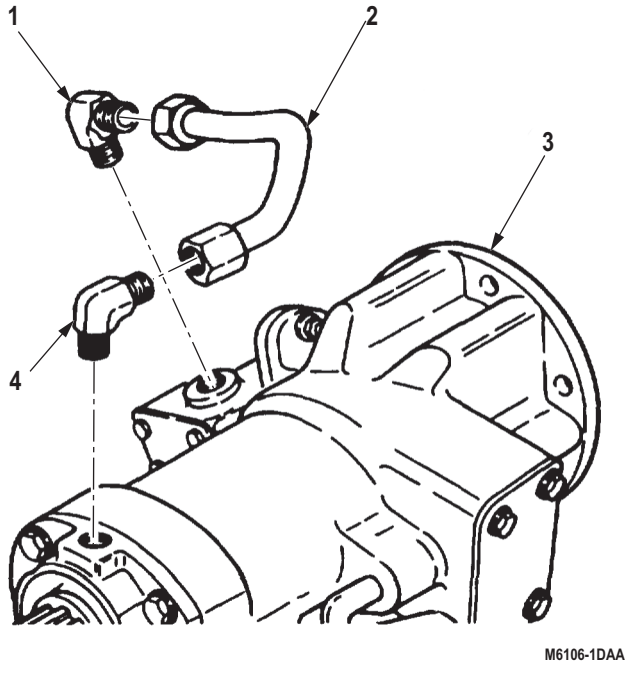


Figure 20. Transfer Case PTO Assembly.

END OF TASK

INSTALLATION

1. Install oil seal (Figure 21, Item 3) on PTO oil pump drive gear assembly (Figure 21, Item 4).
2. Install PTO oil pump drive gear assembly (Figure 21, Item 4) on transfer case main input shaft (Figure 21, Item 2). Align setscrew (Figure 21, Item 1) hole in gear assembly (Figure 21, Item 4) with recess in main input shaft.
3. Install setscrew (Figure 21, Item 1) in PTO oil pump drive gear assembly (Figure 21, Item 4) and apply sealing compound to threads of setscrew. Tighten setscrew 84 to 108 lb-in. (10 to 12 N·m).
4. Install PTO (Figure 21, Item 10) on transfer case (Figure 21, Item 7) with six washers (Figure 21, Item 6) and screws (Figure 21, Item 5). Tighten screws 40 to 65 lb-ft (54 to 88 N·m).

NOTE

Wrap male pipe threads with antiseize tape prior to installation.

5. Install adapter (Figure 21, Item 9) on PTO (Figure 21, Item 10).
6. Connect transfer case oil return line (Figure 21, Item 8) to adapter (Figure 21, Item 9).
7. Install PTO clevis (Figure 21, Item 13) on PTO select lever (Figure 21, Item 15) with clevis pin (Figure 21, Item 14), washer (Figure 21, Item 12), and cotter pin (Figure 21, Item 11).

INSTALLATION - Continued

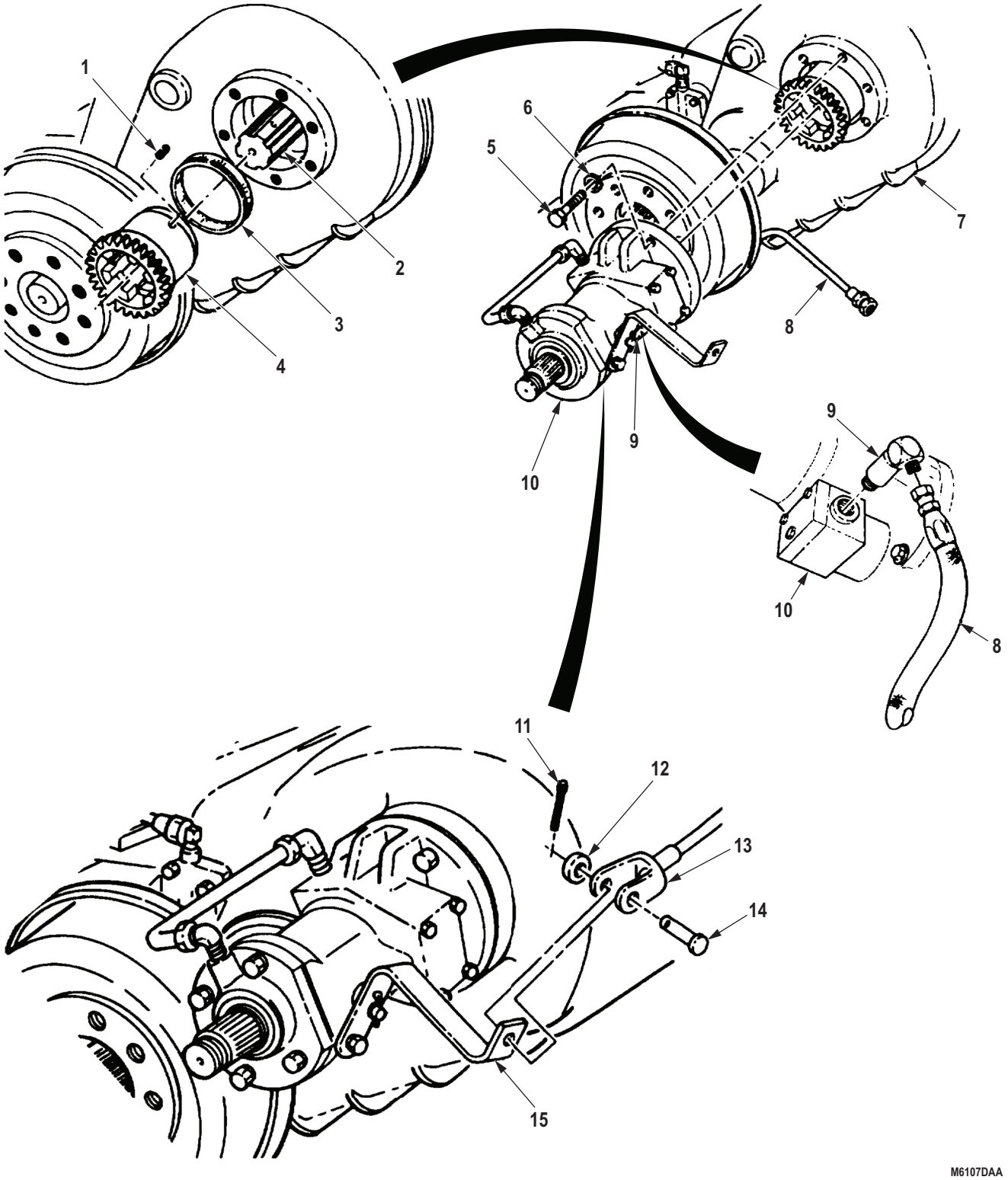


Figure 21. Transfer Case PTO Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Adjust transfer case PTO cable. (WP 0726)
2. Install transfer case PTO-to-hydraulic pump propeller shaft. (WP 0713)
3. Fill transfer case to proper oil level. (Volume 5, WP 0820)
4. Check transfer case PTO for proper operation. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
TRANSFER CASE POWER TAKEOFF (PTO) CONTROL CABLE REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Cotter Pin
(Volume 5, WP 0827, Table 1, Item 336)
Qty: 1
Locknut (Volume 5, WP 0827, Table 1, Item 282)
Qty: 2
Locknut (Volume 5, WP 0827, Table 1, Item 283)
Qty: 1

Materials/Parts (cont.)
Locknut (Volume 5, WP 0827, Table 1, Item 285)
Qty: 2
Tiedown Strap
(Volume 5, WP 0827, Table 1, Item 45)
Qty: 1

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

REMOVAL

1. Remove tiedown straps from Power Takeoff (PTO) cable (Figure 1, Item 10) as required. Discard tiedown straps.
2. Remove cotter pin (Figure 1, Item 6), clevis pin (Figure 1, Item 8), and PTO cable clevis (Figure 1, Item 9) from PTO select lever (Figure 1, Item 7). Discard cotter pin.
3. Remove two locknuts (Figure 1, Item 5), screws (Figure 1, Item 2), clamp (Figure 1, Item 1), PTO cable (Figure 1, Item 10), and shim (Figure 1, Item 3) from PTO cable bracket (Figure 1, Item 4). Discard locknuts.
4. Remove PTO clevis (Figure 1, Item 9) from PTO cable (Figure 1, Item 10).

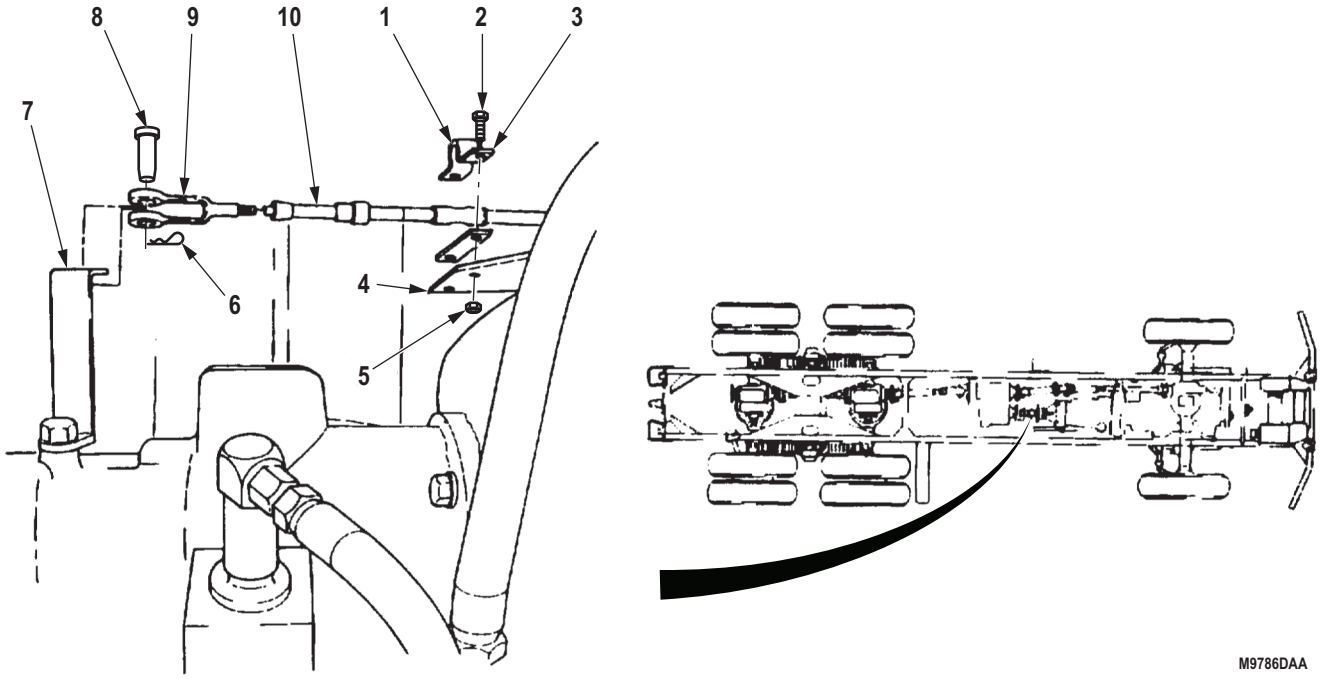


Figure 1. Transfer Case PTO Control Cable Removal.

REMOVAL - Continued

5. Remove two locknuts (Figure 2, Item 6), screws (Figure 2, Item 2), clamp (Figure 2, Item 7), PTO cable (Figure 2, Item 5), and shim (Figure 2, Item 4) from PTO cable bracket (Figure 2, Item 3). Discard locknuts.
6. Remove locknut (Figure 2, Item 1) and PTO cable swivel bolt (Figure 2, Item 9) from select lever (Figure 2, Item 10). Discard locknut.
7. Remove swivel bolt (Figure 2, Item 9) and cable clevis (Figure 2, Item 8) from PTO cable (Figure 2, Item 5).

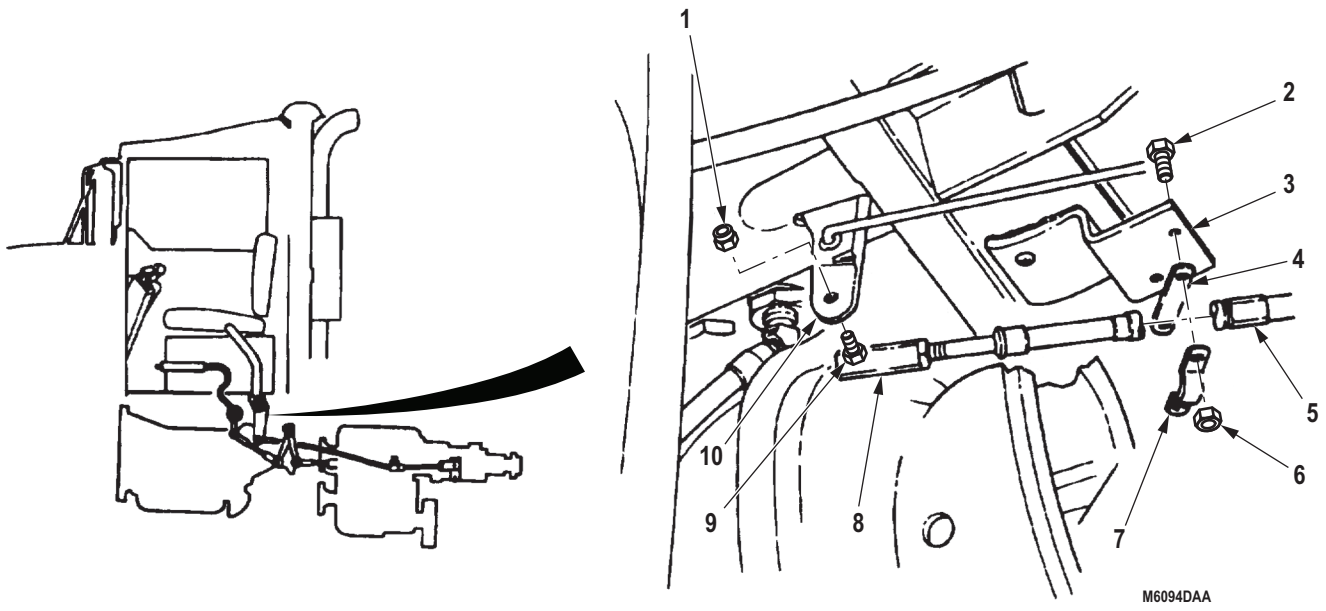


Figure 2. Transfer Case PTO Control Cable Removal.

END OF TASK

INSTALLATION

1. Install swivel bolt (Figure 3, Item 9) and cable end (Figure 3, Item 8) on PTO cable (Figure 3, Item 5).
2. Install PTO cable swivel bolt (Figure 3, Item 9) on select lever (Figure 3, Item 10) with locknut (Figure 3, Item 1).
3. Install shim (Figure 3, Item 4), PTO cable (Figure 4, Item 5), and clamp (Figure 3, Item 7) on PTO cable bracket (Figure 3, Item 3) with two screws (Figure 3, Item 2) and locknuts (Figure 3, Item 6).
4. Install PTO clevis (Figure 4, Item 9) on PTO cable (Figure 4, Item 10).
5. Install shim (Figure 3, Item 4), PTO cable (Figure 3, Item 5), and clamp (Figure 3, Item 7) on PTO cable bracket (Figure 3, Item 5) with two screws (Figure 3, Item 2) and locknuts (Figure 3, Item 6).

NOTE

Transfer case PTO cable can be adjusted at two points. Adjustments can be made at transfer case select lever cable clevis or transfer case PTO select lever cable collar.

6. Adjust PTO cable swivel bolt (Figure 4, Item 9) forward until aligned with transfer PTO select lever (Figure 4, Item 7). If necessary, reposition transfer PTO cable (Figure 4, Item 10) at PTO cable collar at cross-shaft end of cable (Figure 4, Item 4).

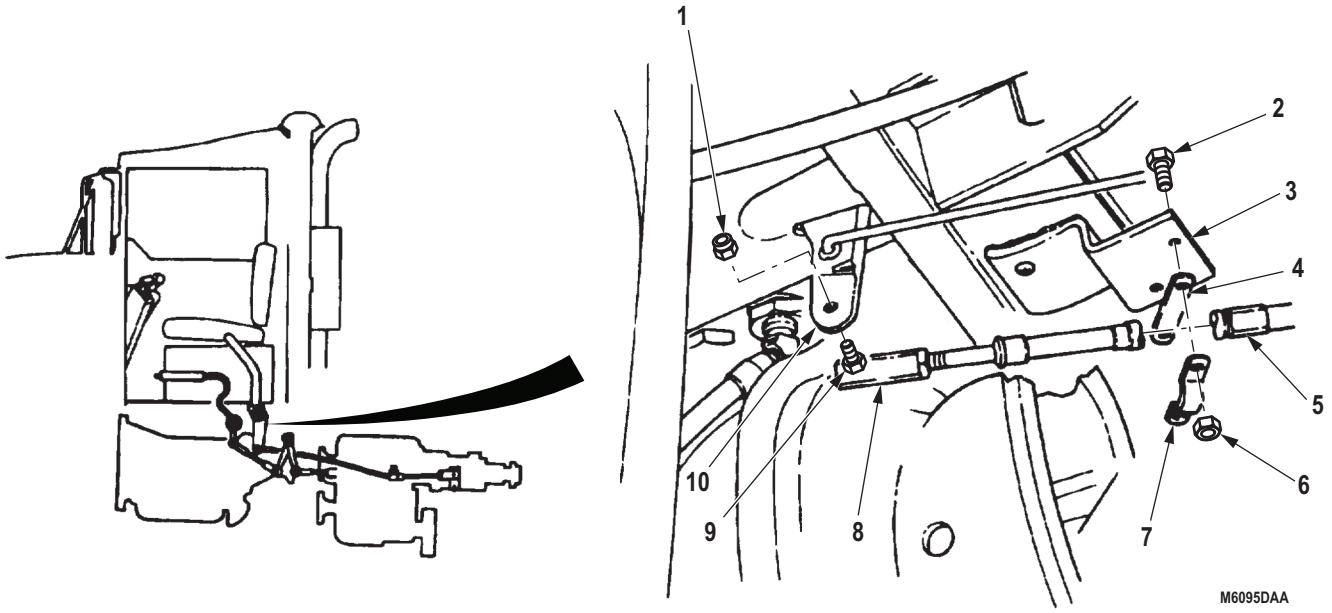


Figure 3. Transfer Case PTO Control Cable Installation.

INSTALLATION - Continued

7. Install PTO clevis (Figure 4, Item 9) on PTO select lever (Figure 4, Item 7) with clevis pin (Figure 4, Item 8) and cotter pin (Figure 4, Item 6).
8. Install tiedown straps on PTO cable (Figure 4, Item 10) as required.

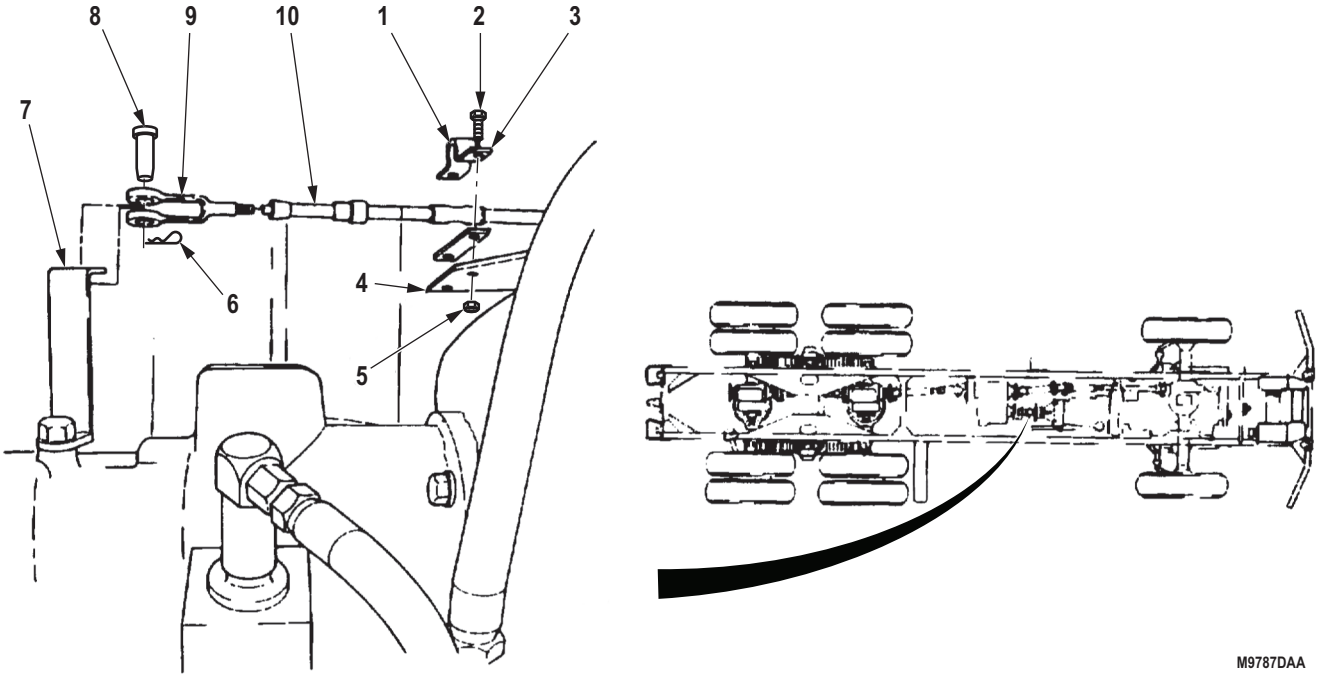


Figure 4. Transfer Case PTO Control Cable Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

Check transfer case PTO for proper operation. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
TRANSFER CASE POWER TAKEOFF (PTO) CROSS SHAFT (CONTROL LEVER) REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Grease, Automotive and Artillery
(Volume 5, WP 0825, Table 1, Item 28)
Cotter Pin
(Volume 5, WP 0827, Table 1, Item 336)
Qty: 1
Locknut (Volume 5, WP 0827, Table 1, Item 256)
Qty: 6
Locknut (Volume 5, WP 0827, Table 1, Item 282)
Qty: 2
Locknut (Volume 5, WP 0827, Table 1, Item 283)
Qty: 1
Locknut (Volume 5, WP 0827, Table 1, Item 285)
Qty: 5

Materials/Parts (cont.)
Locknut (Volume 5, WP 0827, Table 1, Item 289)
Qty: 1
Woodruff Key
(Volume 5, WP 0827, Table 1, Item 415)
Qty: 1

Personnel Required
(2)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Driver's seat removed. (WP 0582)

REMOVAL

1. Remove locknut (Figure 1, Item 17) and PTO cable swivel bolt (Figure 1, Item 18) from cross shaft lever (Figure 1, Item 30). Discard locknut.
2. Remove two locknuts (Figure 1, Item 16), screws (Figure 1, Item 13), clamp (Figure 1, Item 19), PTO control cable (Figure 1, Item 20), and shim (Figure 1, Item 15) from bracket (Figure 1, Item 14). Discard locknuts.

NOTE

Assistant will help with Step (3).

3. Remove four locknuts (Figure 1, Item 12), screws (Figure 1, Item 1), two cross shaft retaining clamps (Figure 1, Item 3), and shims (Figure 1, Item 4) from cab floor (Figure 1, Item 23). Discard locknuts.
4. Remove grease fittings (Figure 1, Item 2) from cross shaft retaining clamps (Figure 1, Item 3).
5. Remove cotter pin (Figure 1, Item 26), washer (Figure 1, Item 28), and brake lock control valve rod (Figure 1, Item 21) from cross shaft lever (Figure 1, Item 30). Discard cotter pin.
6. Remove locknut (Figure 1, Item 31) and screw (Figure 1, Item 29) from cross shaft lever (Figure 1, Item 30). Discard locknut.

NOTE

Assistant will help with Step (7).

7. Remove six locknuts (Figure 1, Item 22), screws (Figure 1, Item 27), ring seal (Figure 1, Item 25), rubber seal (Figure 1, Item 24), and cross shaft lever (Figure 1, Item 30) from cab floor (Figure 1, Item 23) and cross shaft (Figure 1, Item 5). Discard locknuts.
8. Remove woodruff key (Figure 1, Item 11) and two cross shaft retaining clamps (Figure 1, Item 3) from cross shaft (Figure 1, Item 5). Discard woodruff key.
9. Remove locknut (Figure 1, Item 7), washer (Figure 1, Item 8), helical spring (Figure 1, Item 9), and PTO lever pin (Figure 1, Item 10) from PTO lever (Figure 1, Item 6). Discard locknut.

REMOVAL - Continued

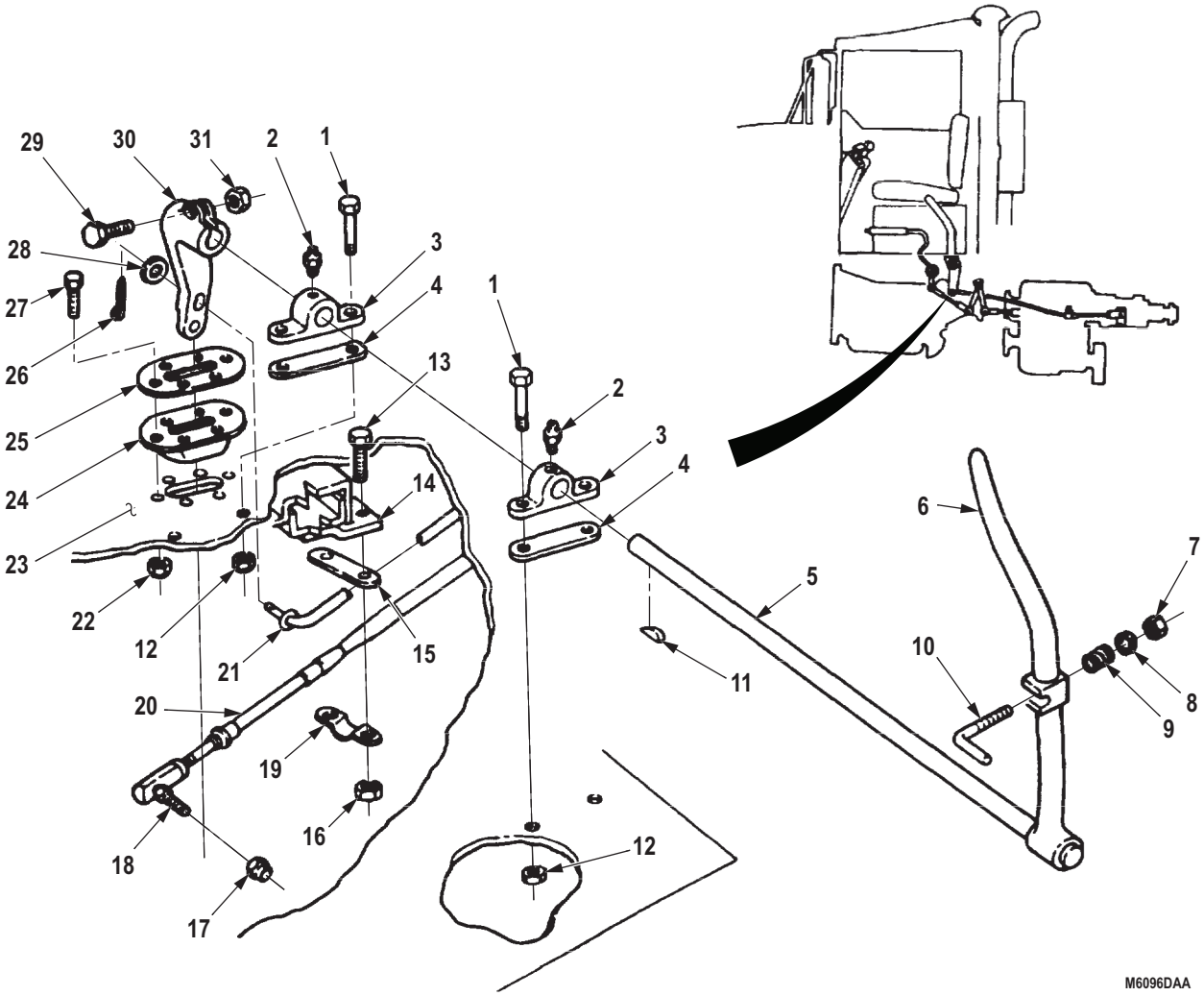


Figure 1. Transfer Case PTO Cross Shaft (Control Lever) Removal.

END OF TASK

INSTALLATION

1. Install PTO lever pin (Figure 2, Item 10), helical spring (Figure 2, Item 9), and washer (Figure 2, Item 8) on PTO lever (Figure 2, Item 6) with locknut (Figure 2, Item 7).
2. Install two cross shaft retaining clamps (Figure 2, Item 3) on cross shaft (Figure 2, Item 5).
3. Install grease fittings (Figure 2, Item 2) on two cross shaft retaining clamps (Figure 2, Item 3).
4. Apply a small amount of automotive and artillery grease to rounded edge of woodruff key (Figure 2, Item 11) and install on cross shaft (Figure 2, Item 5). Grease will hold woodruff key (Figure 2, Item 7) in place.
5. Insert cross shaft (Figure 2, Item 5) into cross shaft lever (Figure 2, Item 30) and install with screw (Figure 2, Item 29) and locknut (Figure 2, Item 31).

NOTE

Assistant will help with Steps (6) through (8).

6. Install rubber seal (Figure 2, Item 24) and ring seal (Figure 2, Item 25) on cab floor (Figure 2, Item 23) with six screws (Figure 2, Item 27) and locknuts (Figure 2, Item 22).
7. Position cross shaft (Figure 2, Item 5), cross shaft lever (Figure 2, Item 30), and cross shaft retaining clamps (Figure 2, Item 3) on cab floor (Figure 2, Item 23).
8. Install two shims (Figure 2, Item 4) and cross shaft retaining clamps (Figure 2, Item 3) on cab floor (Figure 2, Item 23) with four screws (Figure 2, Item 1) and locknuts (Figure 2, Item 12).
9. Install brake lock control valve rod (Figure 2, Item 21) on cross shaft lever (Figure 2, Item 30) with washer (Figure 2, Item 28) and cotter pin (Figure 2, Item 26).
10. Install PTO cable swivel bolt (Figure 2, Item 18) on cross shaft lever (Figure 2, Item 30) with locknut (Figure 2, Item 17).
11. Install shim (Figure 2, Item 15) and PTO control cable (Figure 2, Item 20) on bracket (Figure 2, Item 14) with clamp (Figure 2, Item 19), two screws (Figure 2, Item 13), and locknuts (Figure 2, Item 16).

INSTALLATION - Continued

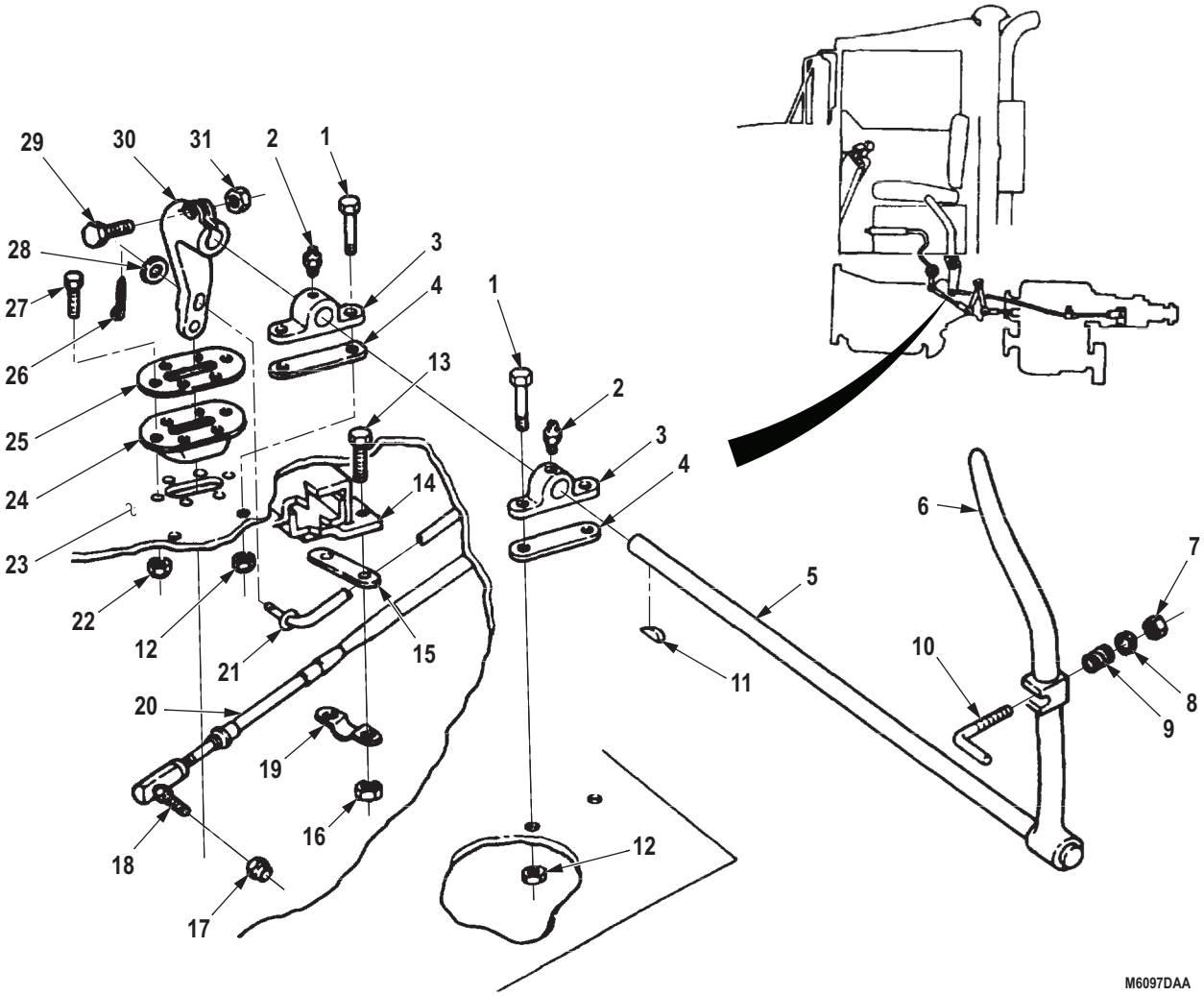


Figure 2. Transfer Case PTO Cross Shaft (Control Lever) Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install driver's seat. (WP 0582)
2. Check transfer case PTO for proper operation. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
TRANSMISSION POWER TAKEOFF (PTO) REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Cap Set, Protective, Dust and Moisture Seal
(Volume 5, WP 0825, Table 1, Item 13)
Lubricating Oil
(Volume 5, WP 0825, Table 1, Item 44, 45, 46, 47)
Tape, Antiseizing
(Volume 5, WP 0825, Table 1, Item 65)
Cotter Pin
(Volume 5, WP 0827, Table 1, Item 333)
Qty: 1

Materials/Parts (cont.)
Gasket (Volume 5, WP 0827, Table 1, Item 121)
Qty: 1
Locknut (Volume 5, WP 0827, Table 1, Item 277)
Qty: 1

References
Volume 5, WP 0820

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Transmission PTO-to-hydraulic pump propeller shaft removed. (WP 0713)
Transmission oil dipstick tube removed.
(Volume 2, WP 0228)

REMOVAL

1. Open transmission dipstick access door (Figure 1, Item 1) on inside of cab.
2. Remove two nuts (Figure 1, Item 3), screws (Figure 1, Item 8), clamp (Figure 1, Item 7), and spacer (Figure 1, Item 5) from PTO cable bracket (Figure 1, Item 4).
3. Remove cotter pin (Figure 1, Item 12) and washer (Figure 1, Item 11) from PTO cable pin (Figure 1, Item 9), and lift PTO cable pin away from select lever (Figure 1, Item 10). Discard cotter pin.
4. Tie PTO cable (Figure 1, Item 4) clear of work area.
5. Remove screw (Figure 1, Item 16), washer (Figure 1, Item 15), and bracket (Figure 1, Item 4) from PTO (Figure 1, Item 19).
6. Remove screw (Figure 1, Item 17), washer (Figure 1, Item 18), two screws (Figure 1, Item 14), and washers (Figure 1, Item 13) from PTO (Figure 1, Item 19) and transmission (Figure 1, Item 2).

REMOVAL - Continued

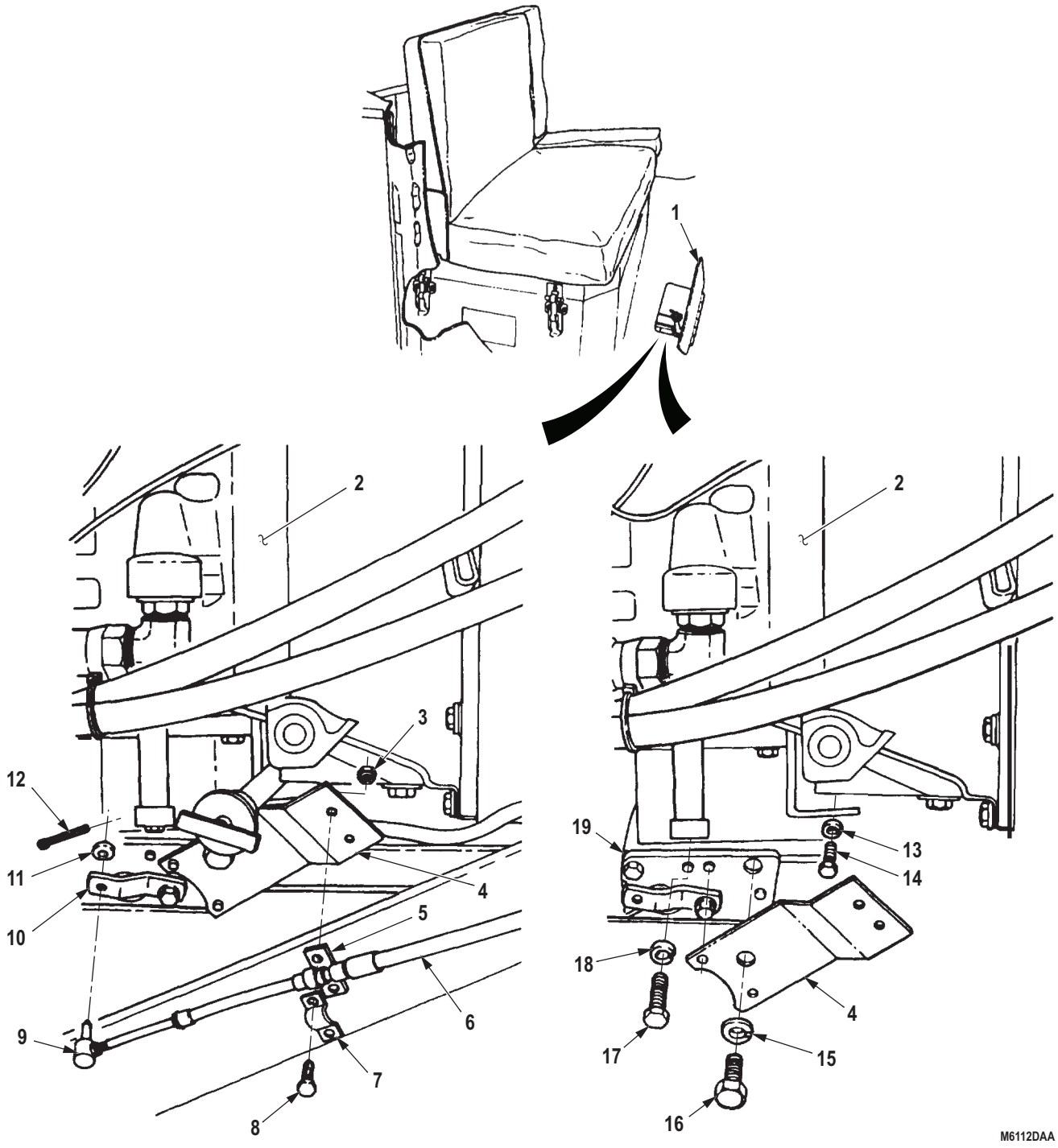


Figure 1. Transmission PTO Removal.

REMOVAL - Continued

7. Disconnect oil hose (Figure 2, Item 8) from PTO oil hose adapter (Figure 2, Item 7) and position oil hose clear of work area.
8. Plug end of oil hose (Figure 2, Item 8).
9. Remove two nuts (Figure 2, Item 5), washers (Figure 2, Item 6), screw (Figure 2, Item 3), and washer (Figure 2, Item 4) from PTO (Figure 2, Item 2) and transmission (Figure 2, Item 1).
10. Remove locknut (Figure 2, Item 12) and screw (Figure 2, Item 10) from right frame rail (Figure 2, Item 13) and bracket (Figure 2, Item 11). Discard locknut.
11. Remove PTO (Figure 2, Item 2) and gasket (Figure 2, Item 9) from transmission (Figure 2, Item 1). Discard gasket.
12. Clean gasket remains from mating surfaces of transmission (Figure 2, Item 11) and PTO (Figure 2, Item 2).
13. Remove PTO oil hose adapter (Figure 2, Item 7) from PTO (Figure 2, Item 2) and plug orifice of PTO.

REMOVAL - Continued

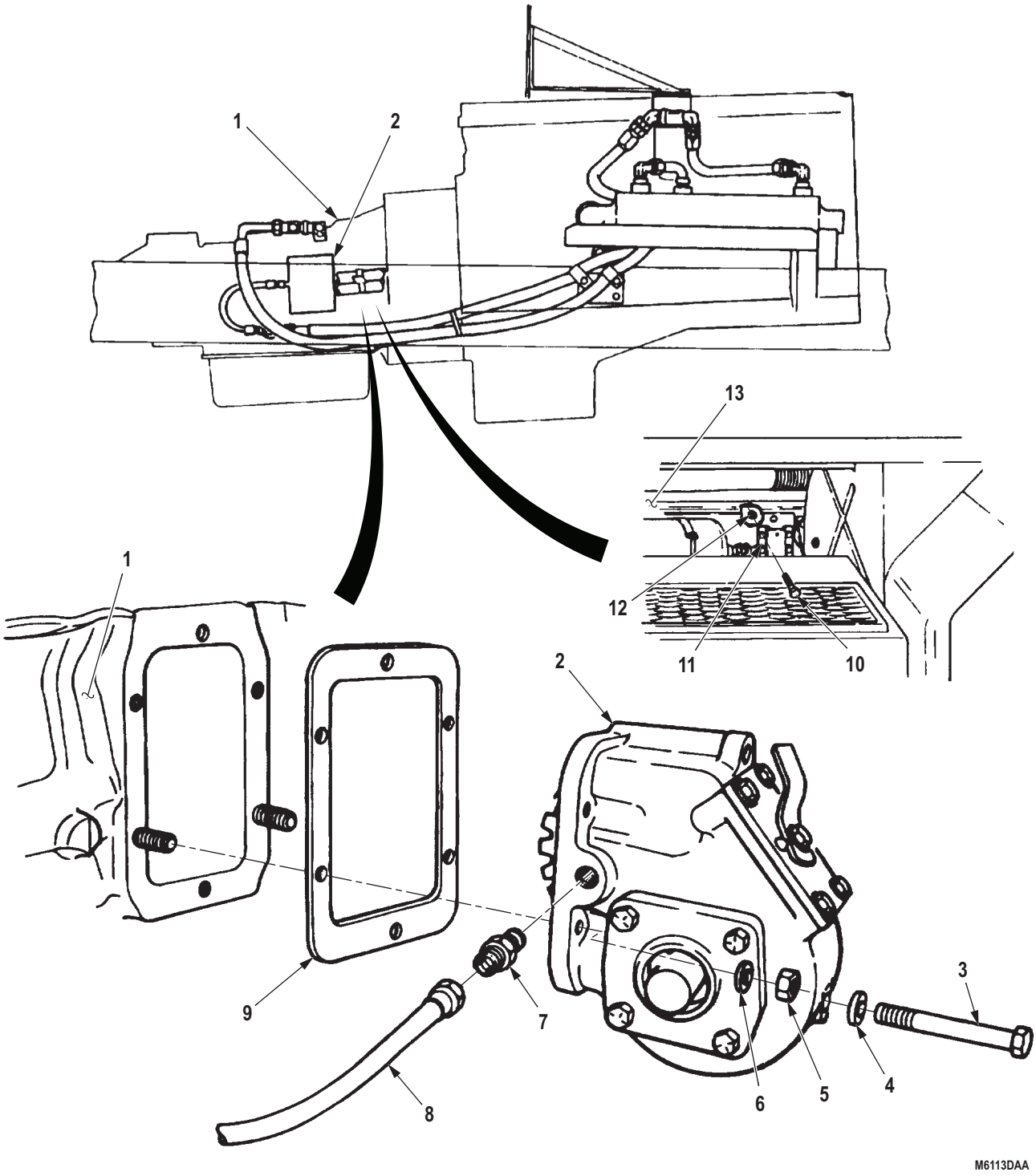


Figure 2. Transmission PTO Removal.

END OF TASK

INSTALLATION

NOTE

- Wrap male pipe threads with antiseize tape before installation.
- Remove plug from PTO (if present) before installing PTO oil hose adapter.

1. Install PTO oil hose adapter (Figure 3, Item 7) on PTO (Figure 3, Item 2).
2. Loosely install washer (Figure 3, Item 4) and screw (Figure 3, Item 3) in PTO (Figure 3, Item 2).
3. Install gasket (Figure 3, Item 9) and PTO (Figure 3, Item 2) on transmission (Figure 3, Item 1) with two washers (Figure 3, Item 6) and nuts (Figure 3, Item 5).
4. Tighten screw (Figure 3, Item 3) and nut (Figure 3, Item 5).
5. Remove plug from PTO oil hose (Figure 3, Item 8) and connect PTO oil hose to adapter (Figure 3, Item 7).
6. Install screw (Figure 3, Item 10) and locknut (Figure 3, Item 12) on frame rail (Figure 3, Item 13) and bracket (Figure 3, Item 11).

INSTALLATION - Continued

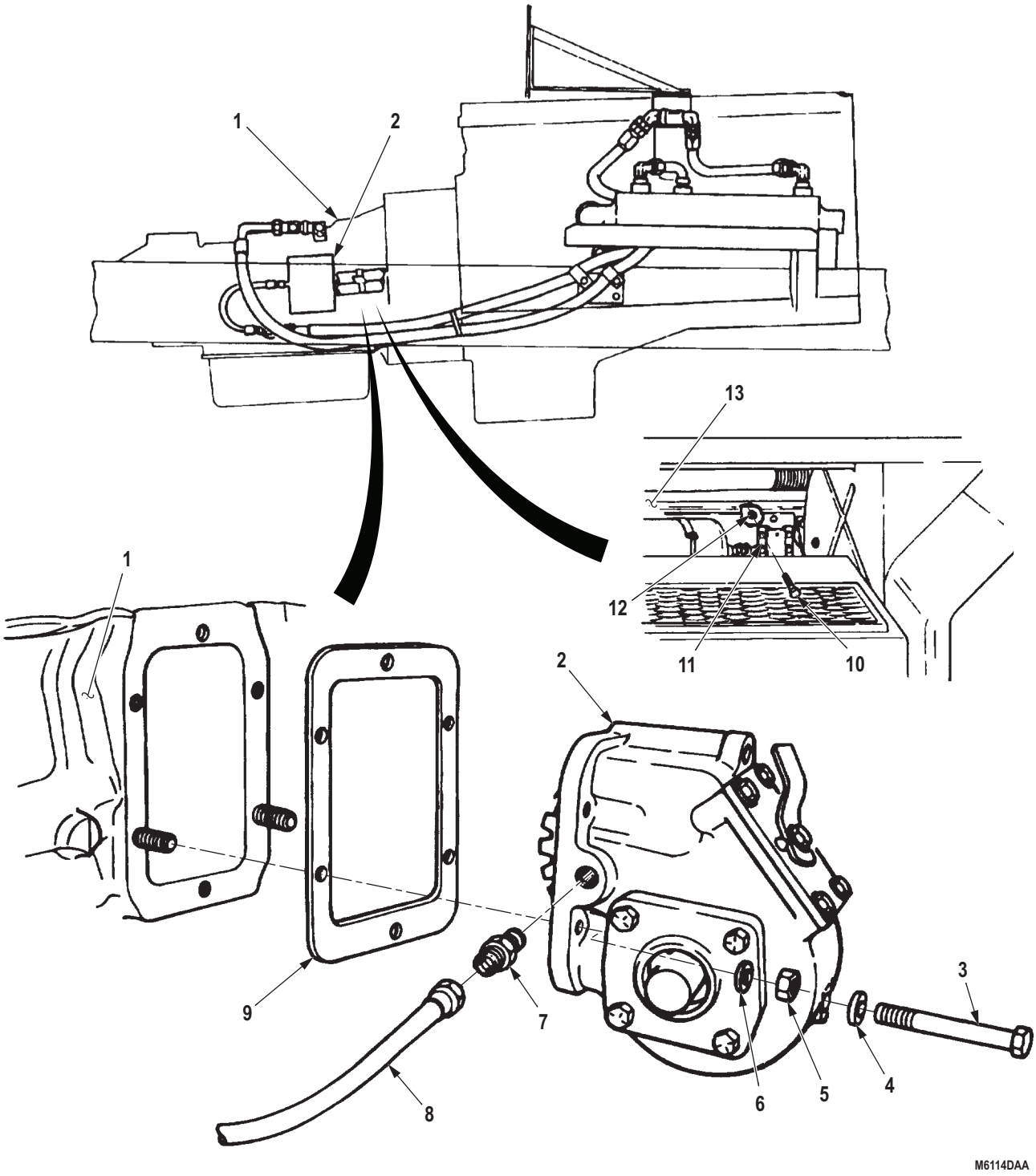


Figure 3. Transmission PTO Installation.

INSTALLATION - Continued

7. Install two washers (Figure 4, Item 3), screw (Figure 4, Item 4), washer (Figure 4, Item 9), and screw (Figure 4, Item 8) on PTO (Figure 4, Item 10) and transmission (Figure 4, Item 2).
8. Install PTO cable bracket (Figure 4, Item 5) on PTO (Figure 4, Item 10) with washer (Figure 4, Item 6) and screw (Figure 4, Item 7).
9. Install PTO cable (Figure 4, Item 16) and PTO cable pin (Figure 4, Item 17) on PTO select lever (Figure 4, Item 18) with washer (Figure 4, Item 19) and cotter pin (Figure 4, Item 20).
10. Install spacer (Figure 4, Item 13) and clamp (Figure 4, Item 15) on PTO cable bracket (Figure 4, Item 5) with two screws (Figure 4, Item 15) and nuts (Figure 4, Item 12).

INSTALLATION - Continued

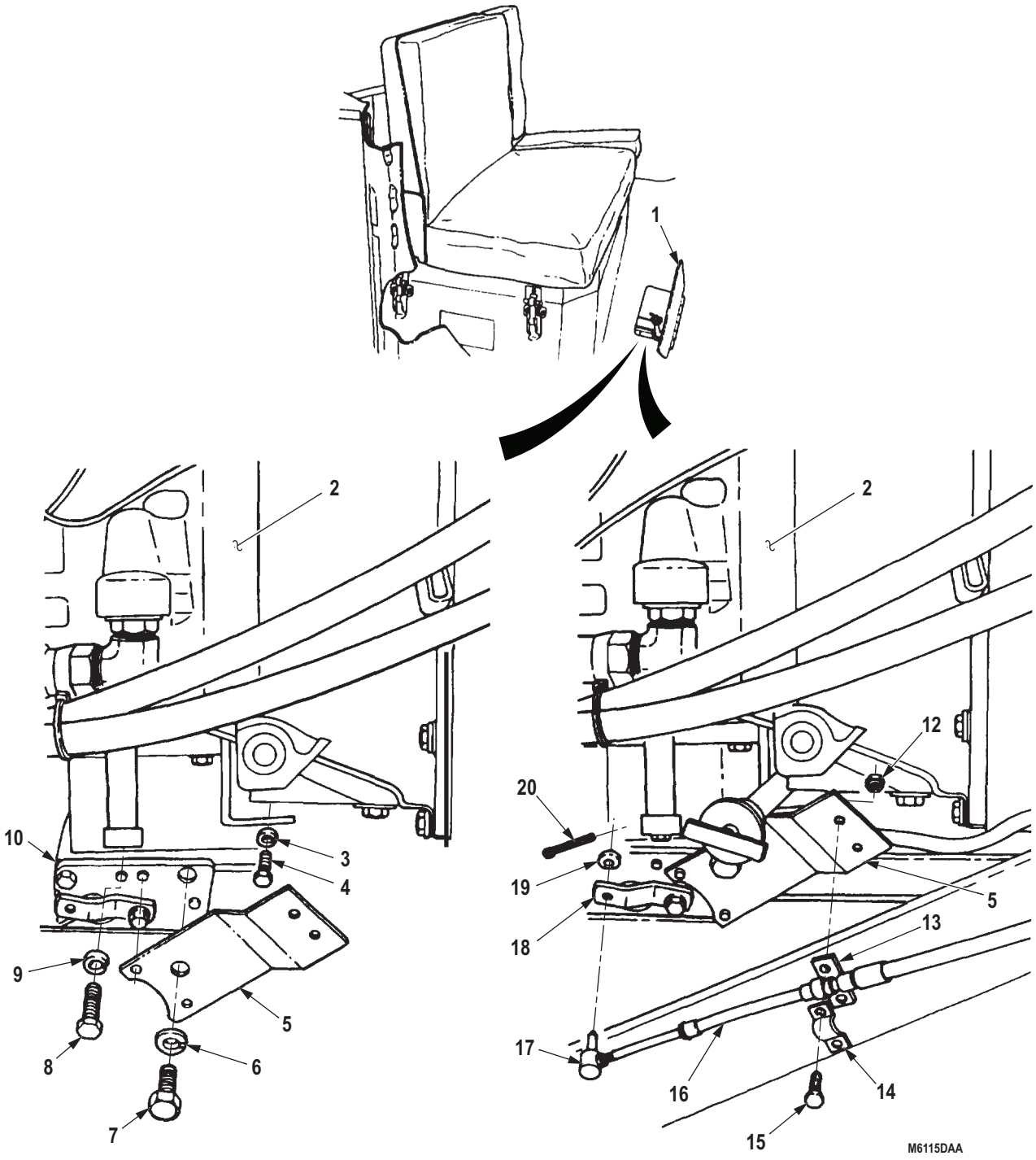


Figure 4. Transmission PTO Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install transmission PTO-to-hydraulic pump propeller shaft. (WP 0713)
2. Install transmission oil dipstick tube. (Volume 2, WP 0228)
3. Fill transmission to proper oil level. (Volume 5, WP 0820)
4. Start engine, check for leaks, and proper operation of transmission PTO. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
TRANSMISSION POWER TAKEOFF (PTO) CONTROL CABLE REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Cotter Pin
(Volume 5, WP 0827, Table 1, Item 331)
Qty: 1

Materials/Parts (cont.)
Cotter Pin
(Volume 5, WP 0827, Table 1, Item 333)
Qty: 1
Locknut (Volume 5, WP 0827, Table 1, Item 256)
Qty: 4

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

REMOVAL

1. Open transmission dipstick access door (Figure 1, Item 1) inside of cab.
2. Remove two locknuts (Figure 1, Item 2), screws (Figure 1, Item 5), clamp (Figure 1, Item 6), and spacer plate (Figure 1, Item 4) from PTO cable bracket (Figure 1, Item 3). Discard locknuts.
3. Remove cotter pin (Figure 1, Item 11) and washer (Figure 1, Item 10) and lift PTO cable pin (Figure 1, Item 8) free of select lever (Figure 1, Item 9). Discard cotter pin.
4. Remove PTO cable pin (Figure 1, Item 8) from PTO cable (Figure 1, Item 7).

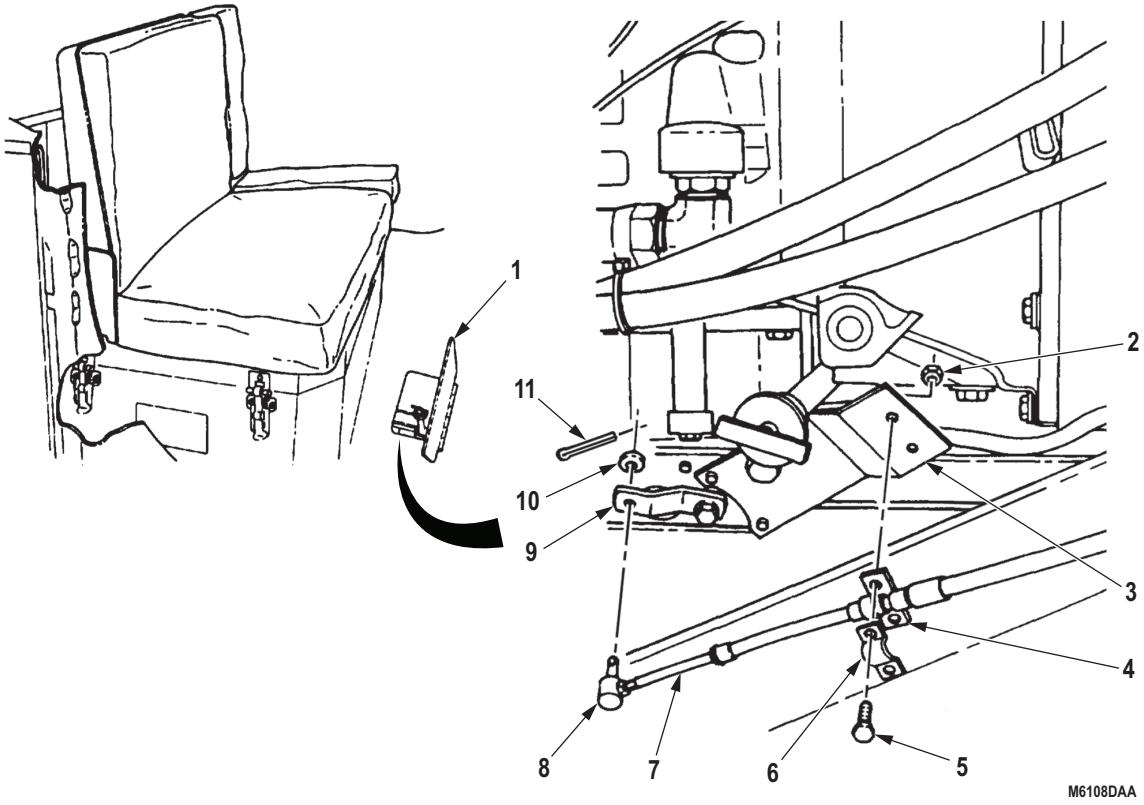


Figure 1. Transmission Control Cable Removal.

REMOVAL - Continued

NOTE

Tag all ends of PTO cable for installation.

5. Remove six screws (Figure 2, Item 9) and access cover (Figure 2, Item 8) from PTO control panel (Figure 2, Item 15).
6. Remove two locknuts (Figure 2, Item 7), screws (Figure 2, Item 2), clamp (Figure 2, Item 6), and spacer (Figure 2, Item 5) from PTO control panel (Figure 2, Item 15). Discard locknuts.
7. Remove cotter pin (Figure 2, Item 11), washer (Figure 2, Item 12), and clevis pin (Figure 2, Item 14) from PTO control lever (Figure 2, Item 1), and pull end of control cable (Figure 2, Item 4) clear of PTO control panel (Figure 2, Item 15). Discard cotter pin.
8. Loosen nut (Figure 2, Item 10) on PTO control cable (Figure 2, Item 4) and remove cable clevis (Figure 2, Item 13).
9. Pull PTO control cable (Figure 2, Item 4) on PTO control panel (Figure 2, Item 15) through grommet (Figure 2, Item 3) and into cab.

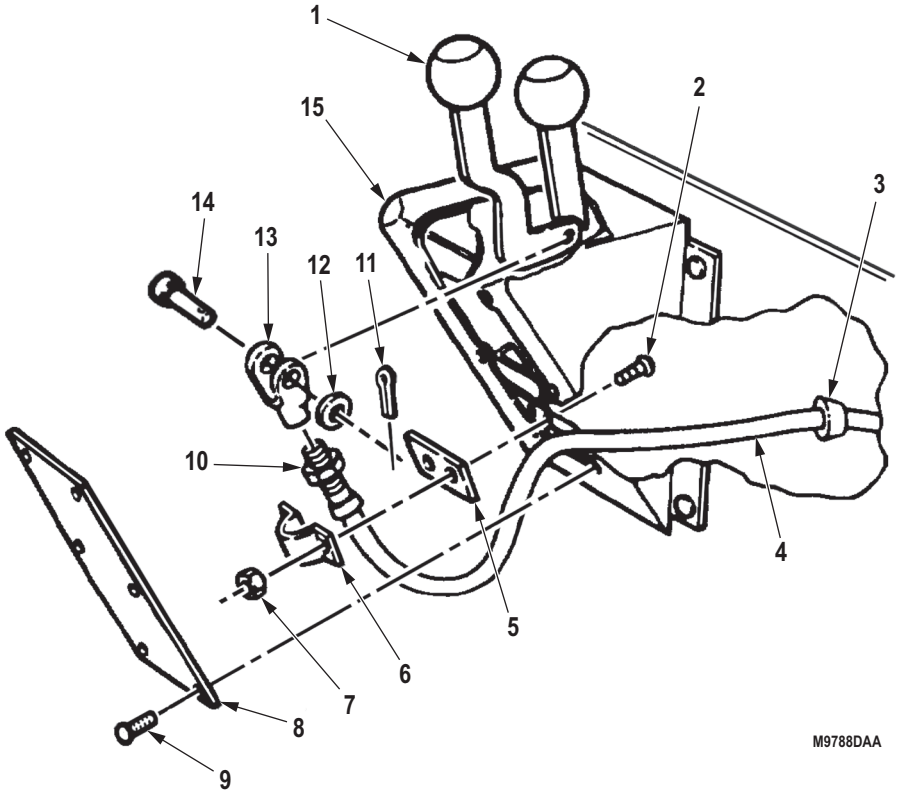


Figure 2. Transmission Control Cable Removal.

END OF TASK

INSTALLATION

1. Feed transmission select lever end of PTO control cable (Figure 3, Item 4) through rear of PTO control panel (Figure 3, Item 15) and into grommet (Figure 3, Item 3).
2. Attach PTO cable clevis (Figure 3, Item 13) to PTO control panel end of cable (Figure 3, Item 4) with nut (Figure 3, Item 10).
3. Install PTO cable clevis (Figure 3, Item 13) on PTO control lever (Figure 3, Item 1) with clevis pin (Figure 3, Item 14), washer (Figure 3, Item 12), and cotter pin (Figure 3, Item 11).
4. Install PTO control cable (Figure 3, Item 4) on PTO control panel (Figure 3, Item 15) with two screws (Figure 3, Item 2), spacer (Figure 3, Item 5), clamp (Figure 3, Item 6), and two locknuts (Figure 3, Item 7).
5. Install PTO control panel access cover (Figure 3, Item 8) on PTO control panel (Figure 3, Item 15) with six screws (Figure 3, Item 9).

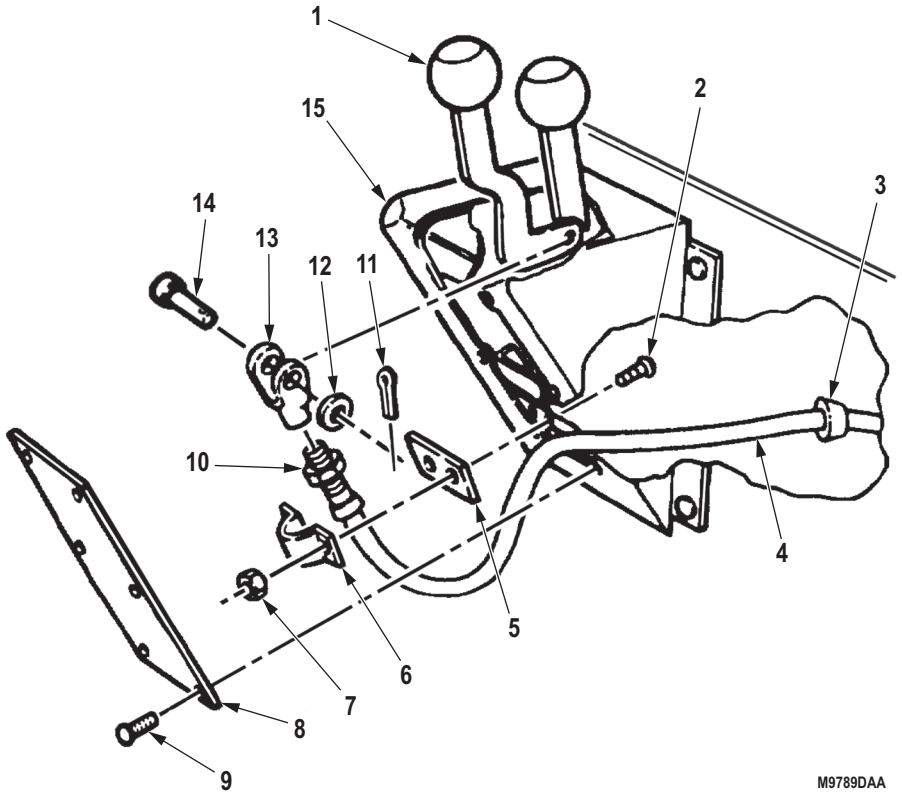


Figure 3. Transmission Control Cable Installation.

INSTALLATION - Continued

6. Pull PTO control cable (Figure 4, Item 7) down to PTO from engine compartment and install PTO cable pin (Figure 4, Item 8) on end of PTO control cable.
7. Connect PTO cable pin (Figure 4, Item 8) to PTO select lever (Figure 4, Item 9) with washer (Figure 4, Item 10) and cotter pin (Figure 4, Item 11).
8. Attach PTO control cable (Figure 4, Item 7) to PTO cable bracket (Figure 4, Item 3) with clamp (Figure 4, Item 6), spacer plate (Figure 4, Item 4), two screws (Figure 4, Item 5), and locknuts (Figure 4, Item 2).
9. Close transmission dipstick access door (Figure 4, Item 1) inside of cab.

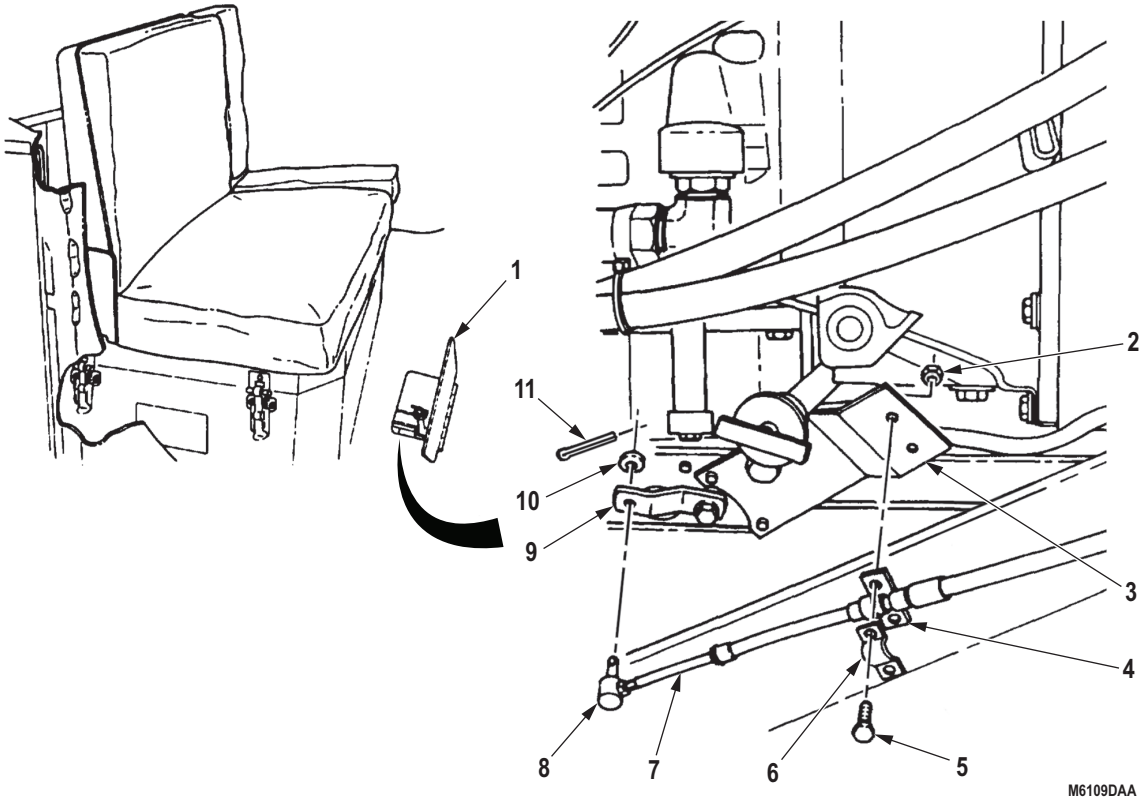


Figure 4. Transmission Control Cable Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

Start engine and check transmission PTO for proper operation. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
TRANSMISSION POWER TAKEOFF (PTO) CONTROL CABLE REPLACEMENT (M939A2)

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Cotter Pin
(Volume 5, WP 0827, Table 1, Item 331)
Qty: 1
Cotter Pin
(Volume 5, WP 0827, Table 1, Item 333)
Qty: 1
Locknut
(Volume 5, WP 0827, Table 1, Item 256)
Qty: 2

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Exhaust pipe removed. (Volume 2, WP 0276)

REMOVAL

1. Remove cotter pin (Figure 1, Item 11), washer (Figure 1, Item 12), and PTO control cable (Figure 1, Item 7) from PTO select lever (Figure 1, Item 13). Discard cotter pin.
2. Loosen nut (Figure 1, Item 2) and remove cable pin (Figure 1, Item 1) from PTO control cable (Figure 1, Item 7).
3. Remove two locknuts (Figure 1, Item 9), screws (Figure 1, Item 6), clamp (Figure 1, Item 5), PTO control cable (Figure 1, Item 7), and spacer (Figure 1, Item 4) from bracket (Figure 1, Item 8). Discard locknuts.

NOTE

Perform Step (4) only if bracket requires replacement.

4. Remove two screws (Figure 1, Item 3) and bracket (Figure 1, Item 8) from PTO (Figure 1, Item 10).

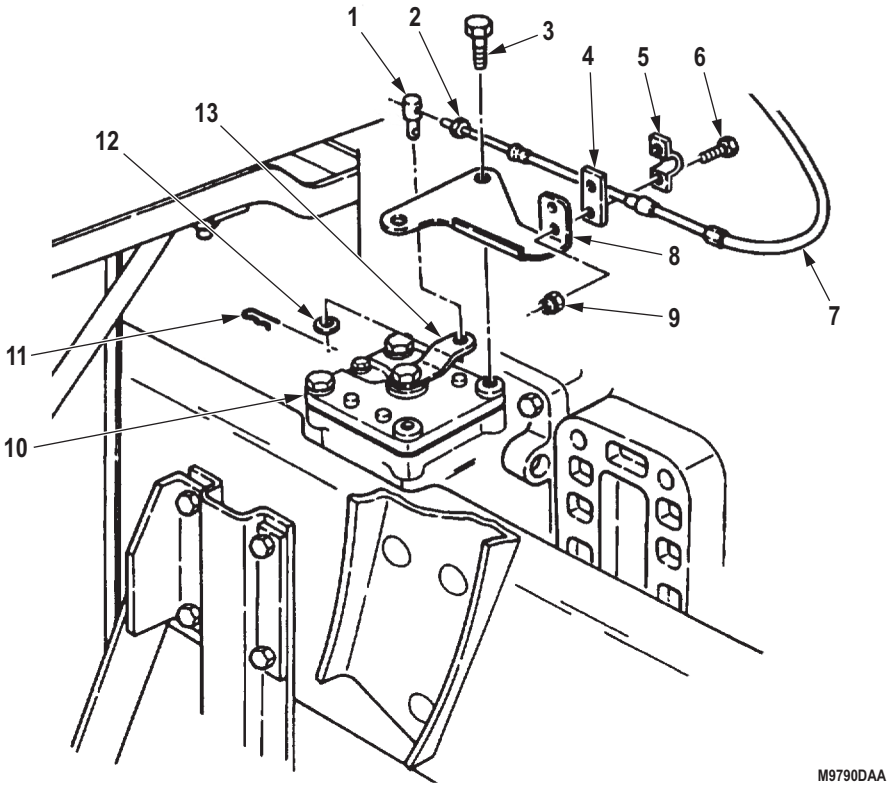


Figure 1. Transmission PTO Control Cable Removal (M939A2).

REMOVAL - Continued

5. Remove six screws (Figure 2, Item 3) and access cover (Figure 2, Item 6) from shift panel (Figure 2, Item 16).
6. Remove two nuts (Figure 2, Item 10), screws (Figure 2, Item 14), clamp (Figure 2, Item 13), PTO control cable (Figure 2, Item 9), and spacer (Figure 2, Item 12) from shift panel (Figure 2, Item 16).
7. Remove cotter pin (Figure 2, Item 2), washer (Figure 2, Item 4), clevis pin (Figure 2, Item 8), and control cable (Figure 2, Item 9) from control lever (Figure 2, Item 1). Discard cotter pin.
8. Loosen nut (Figure 2, Item 7) and remove cable clevis (Figure 2, Item 5) from PTO control cable (Figure 2, Item 9).
9. Remove grommet (Figure 2, Item 11) and PTO control cable (Figure 2, Item 9) from firewall (Figure 2, Item 15).

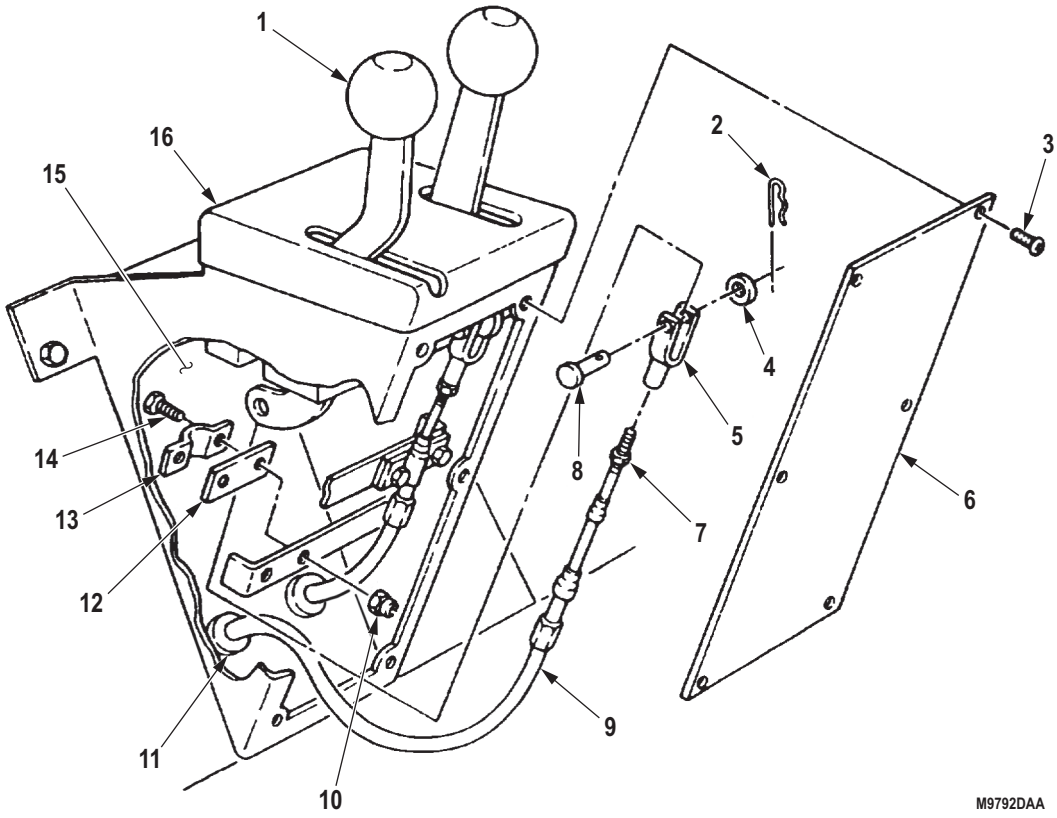


Figure 2. Transmission PTO Control Cable Removal (M939A2).

END OF TASK

INSTALLATION

1. Insert PTO control cable (Figure 3, Item 9) through hole in firewall (Figure 3, Item 15).
2. Place grommet (Figure 3, Item 11) on PTO control cable (Figure 3, Item 9) and install on firewall (Figure 3, Item 15).
3. Install cable clevis (Figure 3, Item 5) on control cable (Figure 3, Item 9). Tighten nut (Figure 3, Item 7) against cable clevis.
4. Install PTO control cable (Figure 3, Item 9) on control lever (Figure 3, Item 1) with clevis pin (Figure 3, Item 8), washer (Figure 3, Item 4), and cotter pin (Figure 3, Item 2).
5. Install spacer (Figure 3, Item 12) and PTO control cable (Figure 3, Item 9) on shift panel (Figure 3, Item 16) with clamp (Figure 3, Item 13), two screws (Figure 3, Item 14), and nuts (Figure 3, Item 10).
6. Install access cover (Figure 3, Item 6) on shift panel (Figure 3, Item 16) with six screws (Figure 3, Item 3).

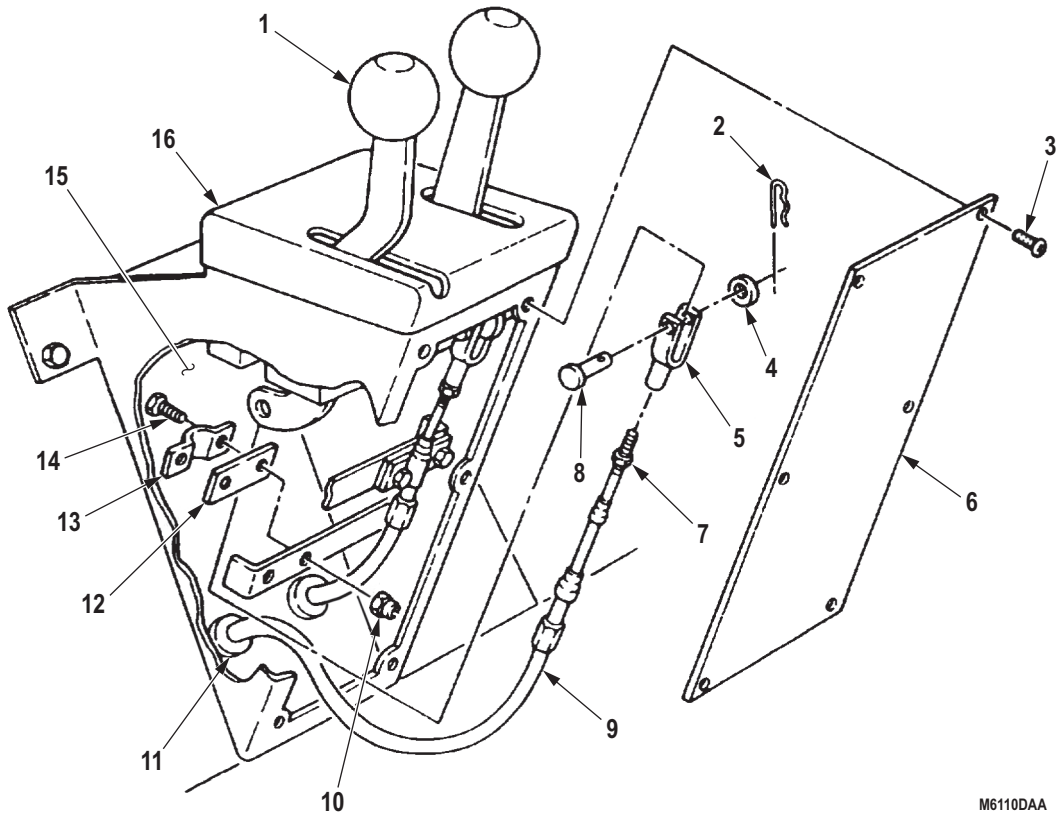


Figure 3. Transmission PTO Control Cable Installation (M939A2).

INSTALLATION - Continued

NOTE

Perform Step (7) if bracket was removed.

7. Install bracket (Figure 4, Item 8) on PTO (Figure 4, Item 10) with two screws (Figure 4, Item 3).
8. Install cable pin (Figure 4, Item 1) on PTO control cable (Figure 4, Item 7). Tighten nut (Figure 4, Item 2) against cable pin.
9. Install PTO control cable (Figure 4, Item 7) on select lever (Figure 4, Item 13) with washer (Figure 4, Item 12) and cotter pin (Figure 4, Item 11).
10. Install spacer (Figure 4, Item 4) and PTO control cable (Figure 4, Item 7) on bracket (Figure 4, Item 8) with clamp (Figure 4, Item 5), two screws (Figure 4, Item 6), and locknuts (Figure 4, Item 9).

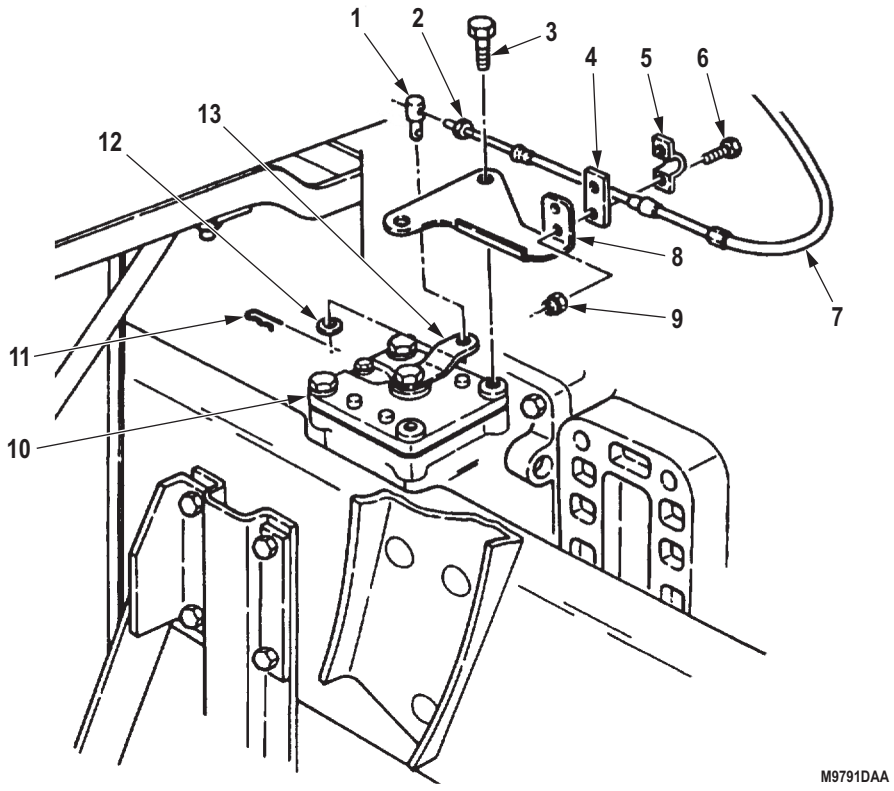


Figure 4. Transmission PTO Control Cable Installation (M939A2).

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install exhaust pipe. (Volume 2, WP 0276)
2. Start engine and check transmission PTO for proper operation. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
CARGO BODY COVER BOWS REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Tarpaulins, curtains, and extensions removed.
(TM 9-2320-272-10)

REMOVAL

1. Remove two screws (Figure 1, Item 6) and stake (Figure 1, Item 7) from corner sections (Figure 1, Item 1).
2. Rotate two latches (Figure 1, Item 2) from rivets (Figure 1, Item 8) and remove corner sections (Figure 1, Item 1) from bow (Figure 1, Item 3).
3. Remove screw (Figure 1, Item 4) and strap (Figure 1, Item 5) from corner sections (Figure 1, Item 1).

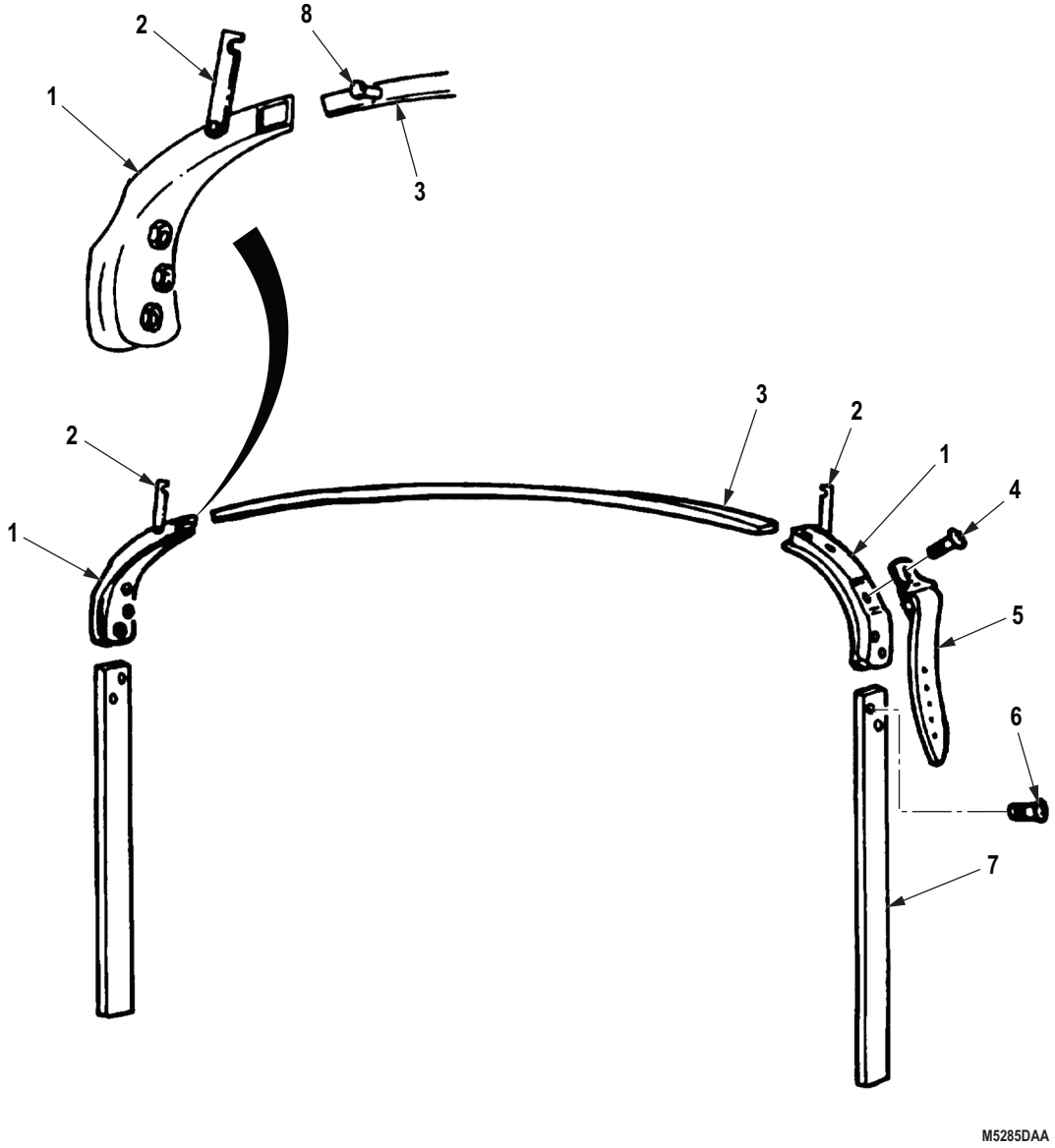


Figure 1. Cargo Body Cover Bows Removal.

END OF TASK

INSTALLATION

1. Install strap (Figure 2, Item 5) on corner sections (Figure 2, Item 1) with screw (Figure 2, Item 4).
2. Insert long end of corner sections (Figure 2, Item 1) over bow (Figure 2, Item 3) and rotate two latches (Figure 2, Item 2) over rivets (Figure 2, Item 8).
3. Install stake (Figure 2, Item 7) on corner sections (Figure 2, Item 1) with two screws (Figure 2, Item 6).

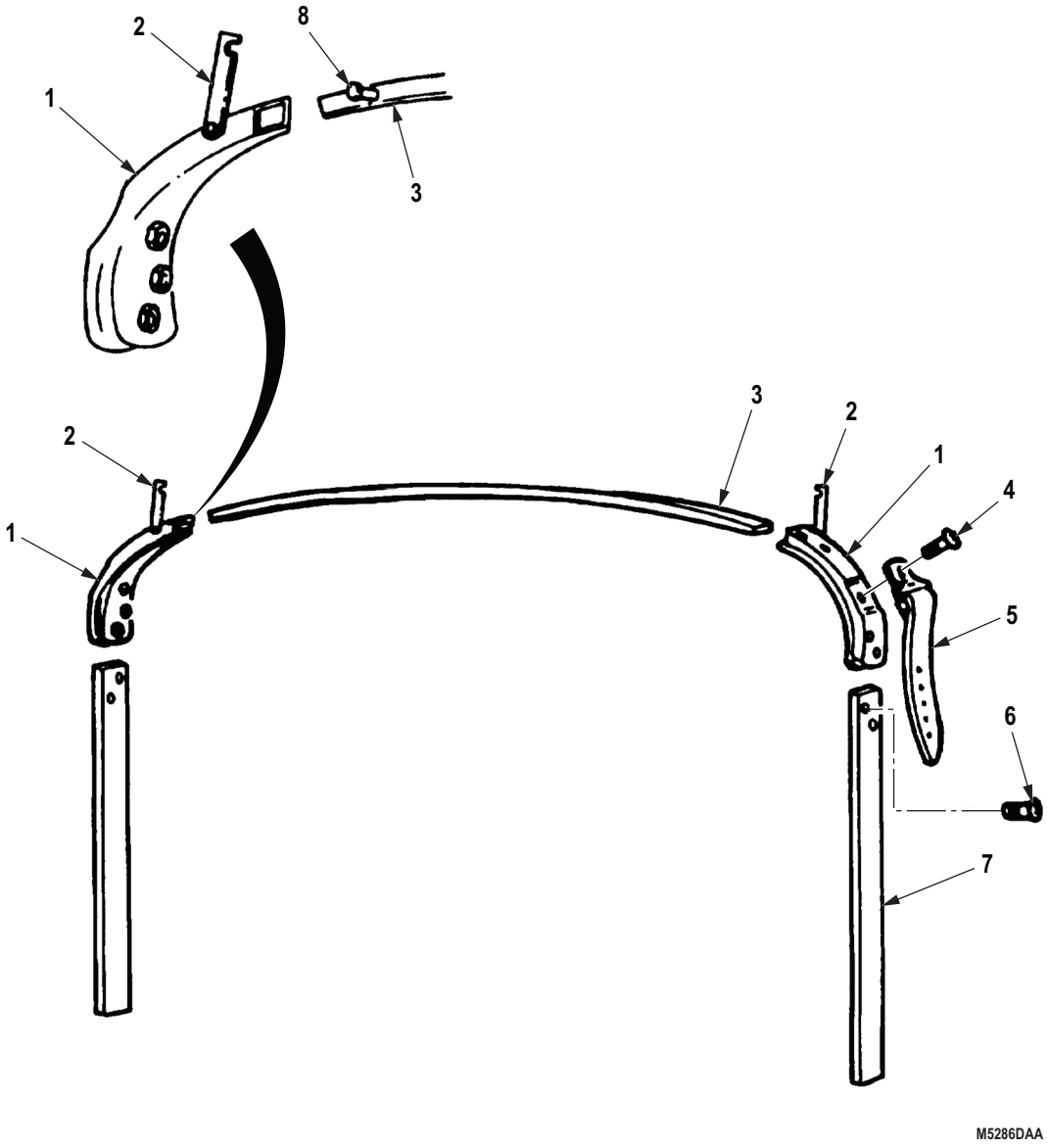


Figure 2. Cargo Body Cover Bows Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

Install tarpaulin, curtains, and extensions. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
CAB TURNBUTTONS AND LASHING HOOKS REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Locknut (Volume 5, WP 0827, Table 1, Item 274)
Qty: 2

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Remove cab cover. (TM 9-2320-272-10)

REMOVAL

1. Remove turnbutton (Figure 1, Item 1) from cab side rail (Figure 1, Item 2).

NOTE

Center lashing hooks have only two screws.

2. Remove two locknuts (Figure 1, Item 7), screws (Figure 1, Item 5), and forward lashing hook (Figure 1, Item 4) from rear of cab (Figure 1, Item 6). Discard locknuts.

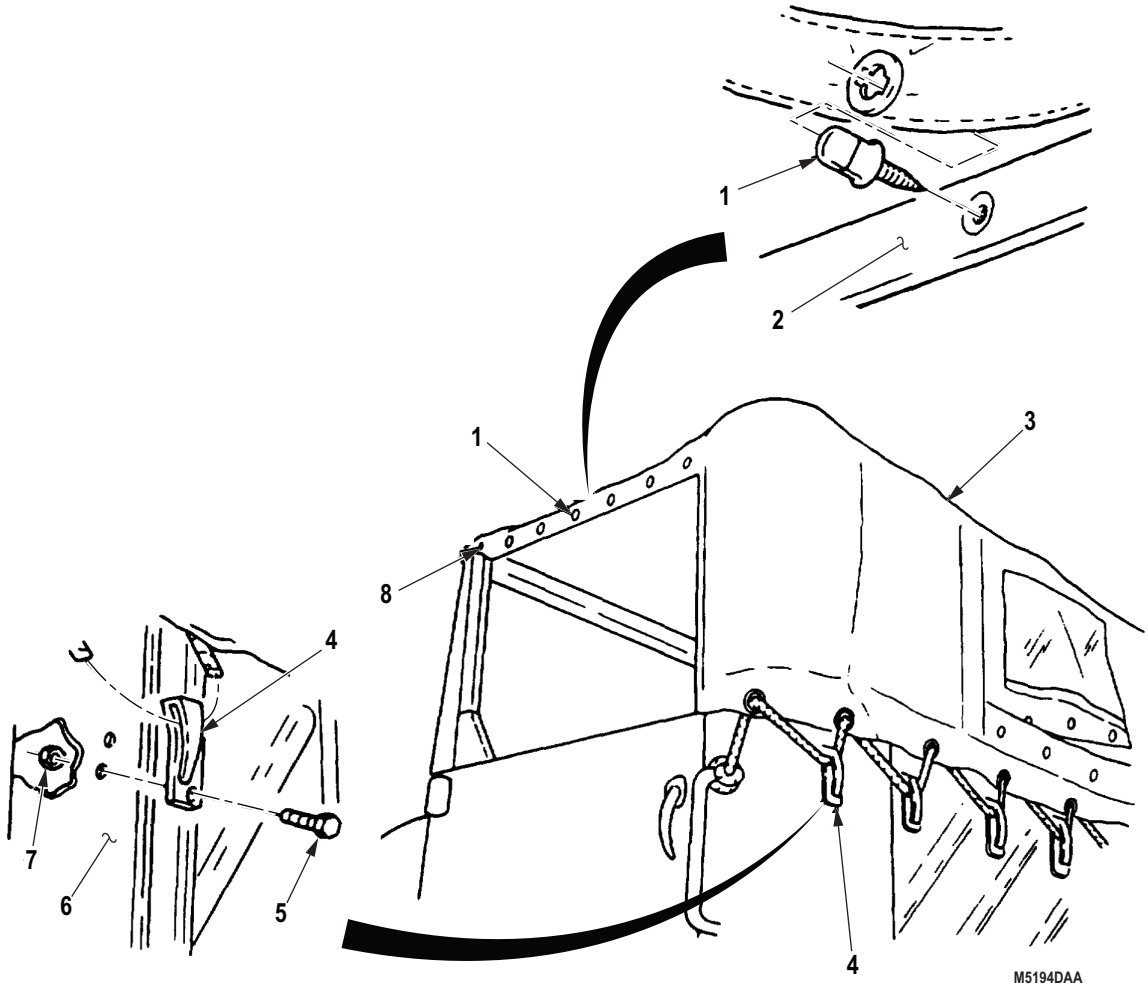


Figure 1. Cab Turnbuttons and Lashing Hooks Removal.

END OF TASK

INSTALLATION

NOTE

Center lashing hooks have only two screws.

1. Install forward lashing hook (Figure 2, Item 4) on rear of cab (Figure 2, Item 6) with two screws (Figure 2, Item 5) and locknuts (Figure 2, Item 7).
2. Install turnbutton (Figure 2, Item 1) on cab side rail (Figure 2, Item 2).

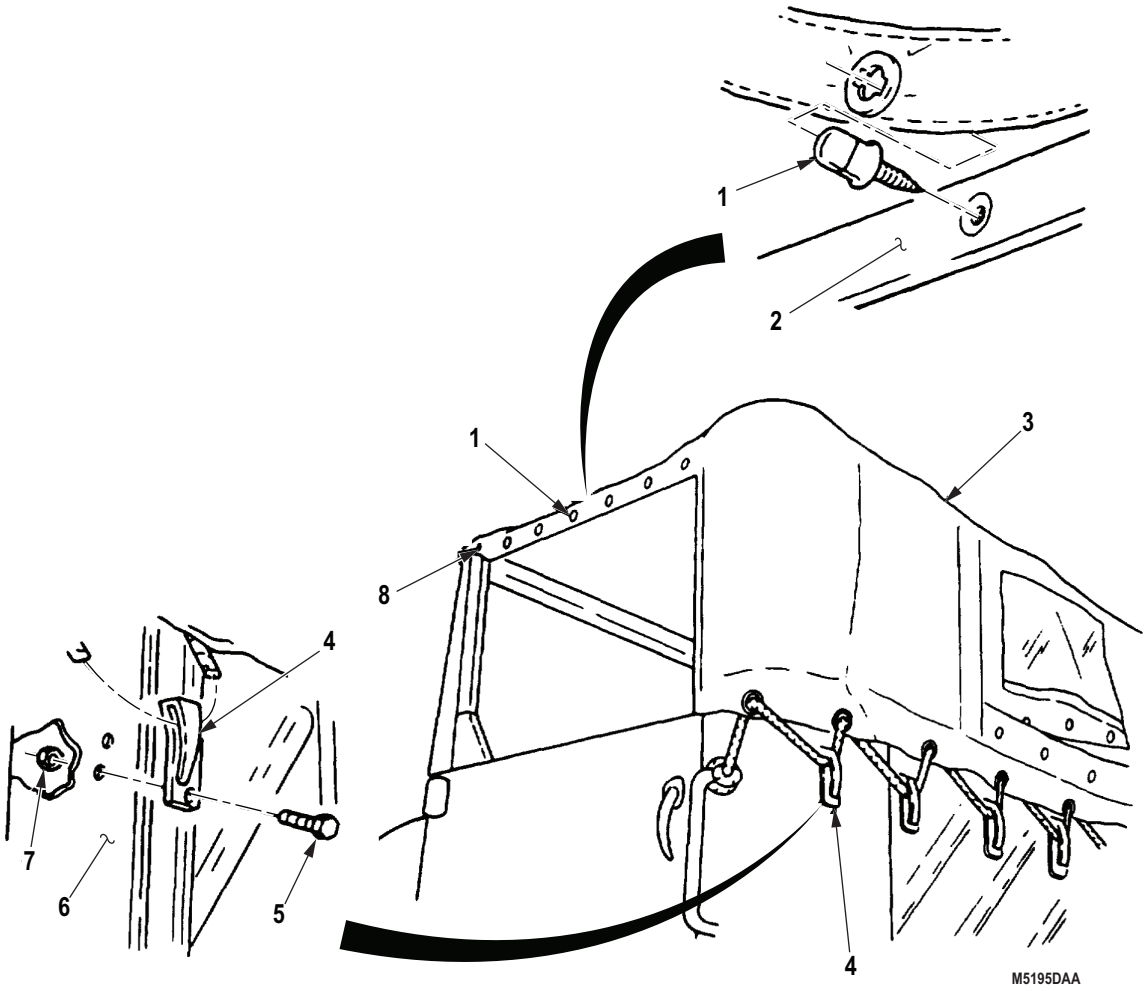


Figure 2. Cab Turnbuttons and Lashing Hooks Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

Install cab cover. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
CAB TOP SEAL AND RETAINER REPAIR

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Adhesive, Silicone Rubber
(Volume 5, WP 0825, Table 1, Item 2)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

Equipment Condition (cont.)
Remove cab cover. (TM 9-2320-272-10)

REMOVAL

1. Remove rubber seals (Figure 1, Items 1 and 6) from cab pillar (Figure 1, Item 3).
2. Remove nine screws (Figure 1, Item 7) and retainer (Figure 1, Item 2) from cab pillar (Figure 1, Item 3).
3. Remove six screws (Figure 1, Item 5) and retainer (Figure 1, Item 4) from cab pillar (Figure 1, Item 3).

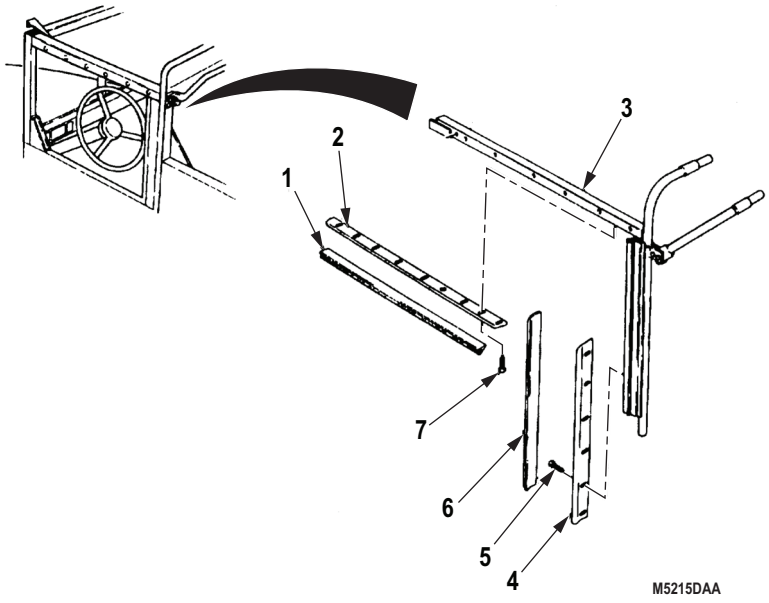


Figure 1. Cab Top Seal and Retainer Repair.

END OF TASK

INSTALLATION

1. Install retainers (Figure 2, Items 4 and 2) on cab pillar (Figure 2, Item 3) with nine screws (Figure 2, Item 7) and six screws (Figure 2, Item 5).
2. Apply light coat of adhesive to rubber seals (Figure 2, Items 1 and 6) and install on cab pillar (Figure 2, Item 3).

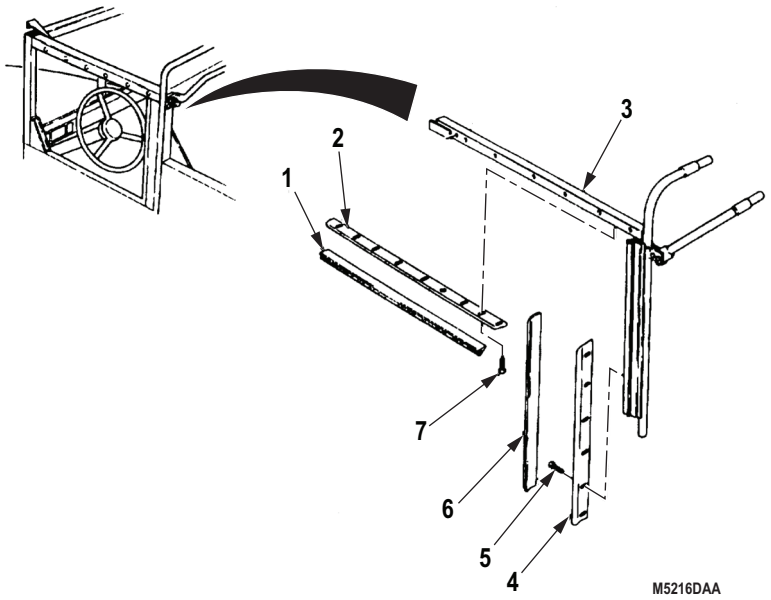


Figure 2. Cab Top Seal and Retainer Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

Install cab cover. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
CARGO LOWER WHEEL SPLASH GUARD REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

Materials/Parts
Locknut (Volume 5, WP 0827, Table 1, Item 285)
Qty: 5

REMOVAL

Remove five locknuts (Figure 1, Item 2), screws (Figure 1, Item 5), lower splash guard (Figure 1, Item 3), and retainer (Figure 1, Item 4) from upper splash guard (Figure 1, Item 1). Discard locknuts.

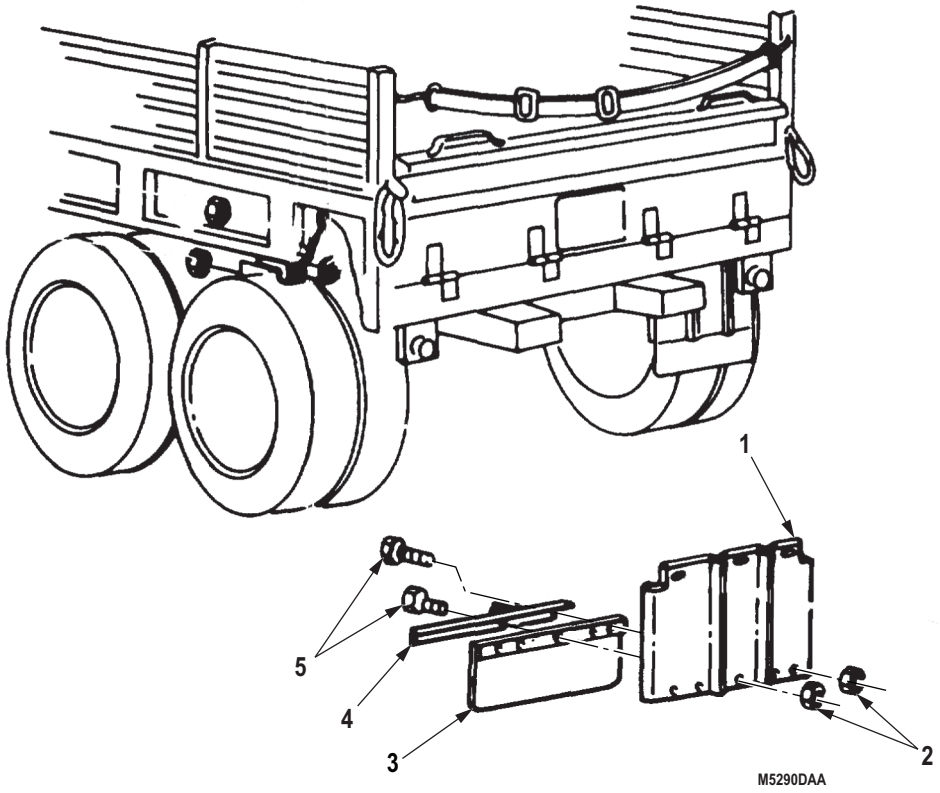


Figure 1. Lower Wheel Splash Guard Replacement.

END OF TASK

INSTALLATION

Install retainer (Figure 1, Item 4) and lower splash guard (Figure 1, Item 3) on upper splash guard (Figure 1, Item 1) with five screws (Figure 1, Item 5) and locknuts (Figure 1, Item 2).

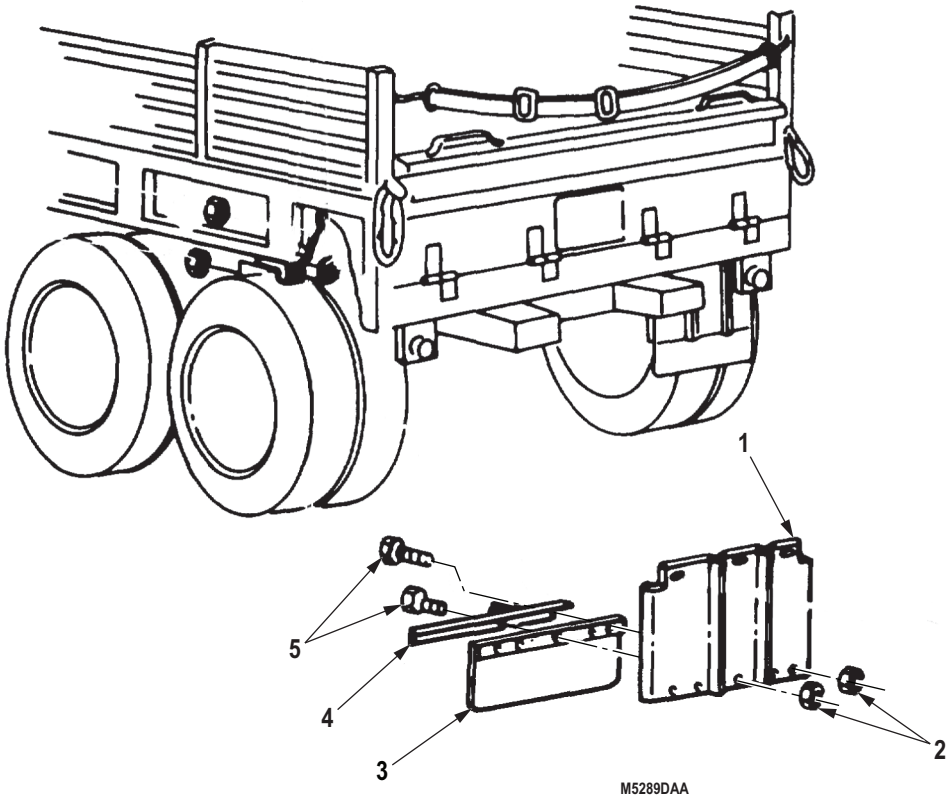


Figure 2. Lower Wheel Splash Guard Installation.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
WINDSHIELD WIPER CONTROL VALVE REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Tape, Antiseizing
(Volume 5, WP 0825, Table 1, Item 65)
Lockwasher
(Volume 5, WP 0827, Table 1, Item 264)
Qty: 1

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

Equipment Condition (cont.)
Air reservoirs drained. (TM 9-2320-272-10)

REMOVAL

WARNING



Do not disconnect air lines or hoses before draining air reservoirs. Small parts under pressure may shoot out with high velocity. Failure to comply may result in injury or death to personnel.

NOTE

Tag air lines for installation.

1. Remove setscrew (Figure 1, Item 6) and remove knob (Figure 1, Item 5) from shaft (Figure 1, Item 4).
2. Remove nut (Figure 1, Item 7), lockwasher (Figure 1, Item 8), and control valve (Figure 1, Item 10) from instrument panel (Figure 1, Item 9). Discard lockwasher.
3. Remove clamp (Figure 1, Item 2) and disconnect wiper motor run delivery line (Figure 1, Item 1) from adapter (Figure 1, Item 3).
4. Disconnect manifold tee supply line (Figure 1, Item 14) from adapter (Figure 1, Item 15).
5. Remove clamp (Figure 1, Item 12) and disconnect motor park delivery line (Figure 1, Item 13) from adapter (Figure 1, Item 11).
6. Remove adapters (Figure 1, Items 3, 11, and 15) from control valve (Figure 1, Item 10).

REMOVAL - Continued

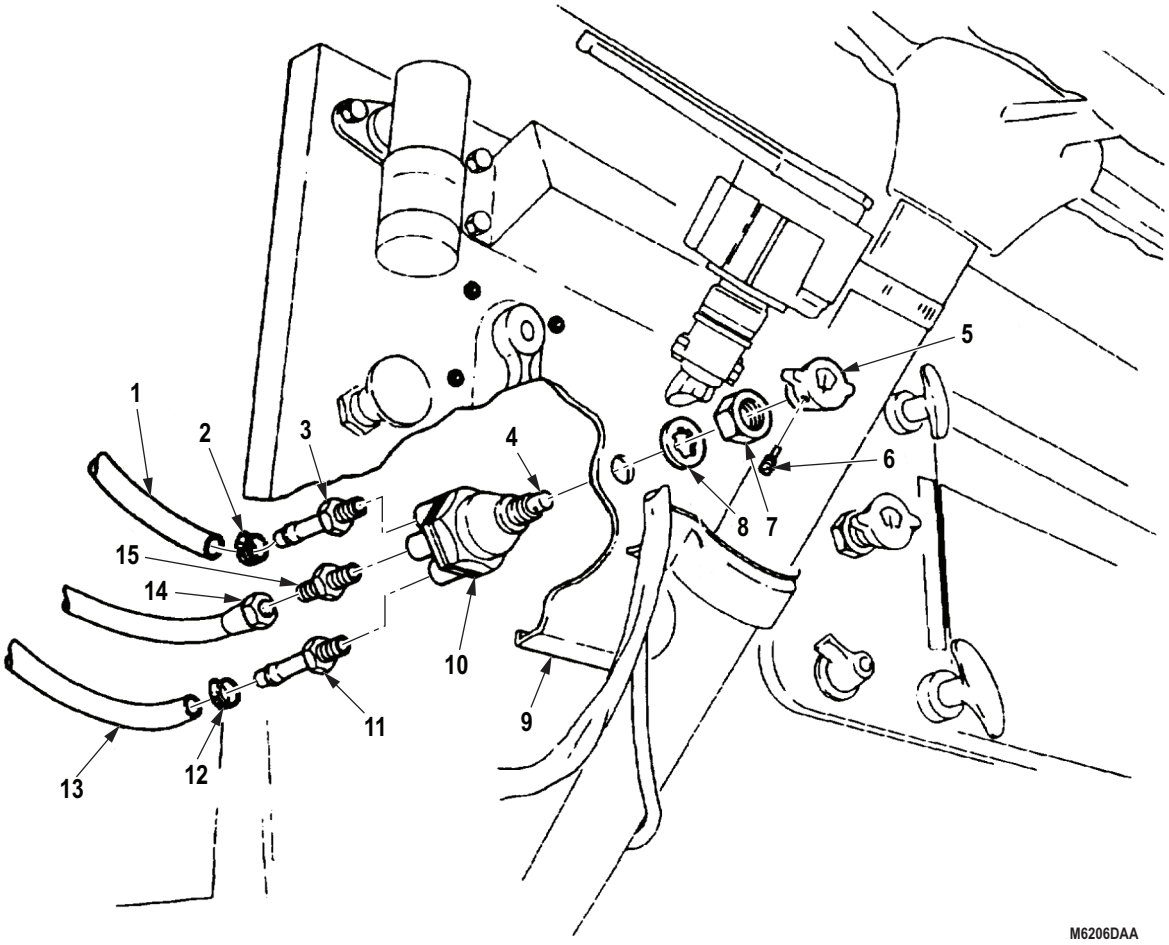


Figure 1. Windshield Wiper Control Valve Removal.

END OF TASK

INSTALLATION

NOTE

- If new wiper control valve is being installed, use fittings from old valve.
- Clean all male pipe threads and wrap with antiseize tape before installation.

1. Install adapters (Figure 2, Items 3, 11, and 15) on control valve (Figure 2, Item 10).
2. Connect motor park delivery line (Figure 2, Item 13) to adapter (Figure 2, Item 11) with clamp (Figure 2, Item 12).
3. Connect manifold tee supply line (Figure 2, Item 14) to adapter (Figure 2, Item 15).
4. Connect wiper motor run delivery line (Figure 2, Item 1) to adapter (Figure 2, Item 3) with clamp (Figure 2, Item 2).
5. Install control valve (Figure 2, Item 10) on instrument panel (Figure 2, Item 9) with lockwasher (Figure 2, Item 8) and nut (Figure 2, Item 7).
6. Install knob (Figure 2, Item 5) on shaft (Figure 2, Item 4) with setscrew (Figure 2, Item 6).

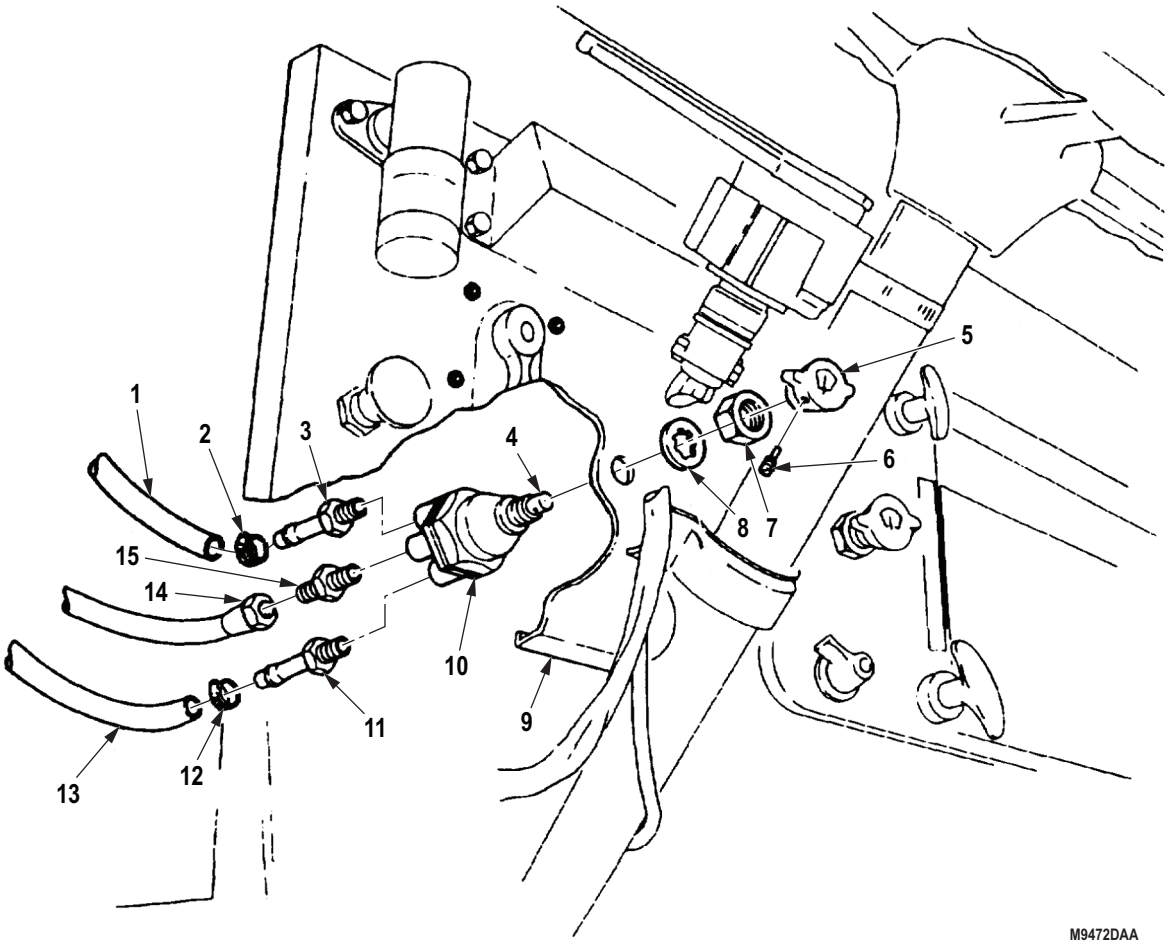


Figure 2. Windshield Wiper Control Valve Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

Start engine and allow air pressure to build to normal operating range. Check for air leaks at wiper control valve. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
WINDSHIELD WIPER BLADE, WIPER ARM, AND WIPER MOTOR REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
- Tool Kit, General Mechanic's: Automotive (Volume 5, WP 0826, Table 1, Item 56)
- Wrench, Torque, Click, Ratcheting, 3/8" Drive, 75 Ft-Lb (Volume 5, WP 0826, Table 1, Item 62)

Materials/Parts
- Cap Set, Protective, Dust and Moisture Seal (Volume 5, WP 0825, Table 1, Item 13)
- Tape, Antiseizing (Volume 5, WP 0825, Table 1, Item 65)
- Leather Washer (Volume 5, WP 0827, Table 1, Item 230) Qty: 1
- Locknut (Volume 5, WP 0827, Table 1, Item 304) Qty: 1
- Locknut (Volume 5, WP 0827, Table 1, Item 325) Qty: 2
- Lockwasher (Volume 5, WP 0827, Table 1, Item 385) Qty: 1

Equipment Condition
- Parking brake set. (TM 9-2320-272-10)
- Air reservoir drained. (TM 9-2320-272-10)

REMOVAL

WARNING



Do not disconnect air lines or hoses before draining air reservoirs. Small parts under pressure may shoot out with high velocity. Failure to comply may result in injury or death to personnel.

CAUTION

Cap or plug all openings immediately after disconnecting lines or hoses to prevent contamination. Failure to do so may result in system damage or injury to personnel.

1. Remove locknut (Figure 1, Item 10), screw (Figure 1, Item 11), and wiper blade (Figure 1, Item 12) from wiper arm (Figure 1, Item 7). Discard locknut.

NOTE

Mark position of wiper arm for installation.

2. Remove nut (Figure 1, Item 9), lockwasher (Figure 1, Item 8), and wiper arm (Figure 1, Item 7) from wiper motor shaft (Figure 1, Item 1). Discard lockwasher.
3. Remove knurled drive (Figure 1, Item 6) from wiper motor shaft (Figure 1, Item 1).
4. Remove nut (Figure 1, Item 5), washer (Figure 1, Item 4), and leather washer (Figure 1, Item 3) from wiper motor shaft (Figure 1, Item 13). Discard leather washer.
5. Remove hose clamps (Figure 1, Item 14) and (Figure 1, Item 17) and hoses (Figure 1, Items 15 and 16) from adapter fittings (Figure 1, Item 23) and (Figure 1, Item 21).
6. Remove two locknuts (Figure 1, Item 20), screws (Figure 1, Item 18), wiper motor (Figure 1, Item 22), and wiper motor bracket (Figure 1, Item 19) from windshield frame (Figure 1, Item 2). Discard locknuts.
7. Remove two screws (Figure 1, Item 26), bracket (Figure 1, Item 19), and two spacers (Figure 1, Item 25) from wiper motor (Figure 1, Item 22).
8. Remove adapter fittings (Figure 1, Item 21) and (Figure 1, Item 23) from wiper motor (Figure 1, Item 22).
9. Remove muffler (Figure 1, Item 24) from wiper motor (Figure 1, Item 22).

REMOVAL - Continued

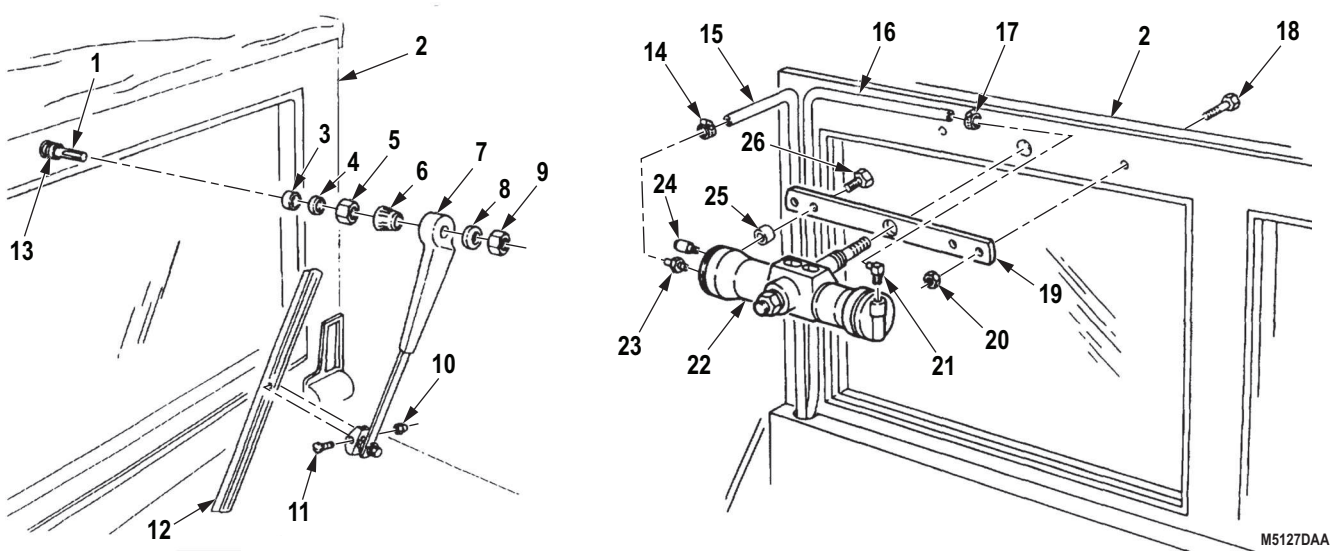


Figure 1. Windshield Wiper Blade, Wiper Arm, and Wiper Motor Removal.

END OF TASK

INSTALLATION

1. Install muffler (Figure 2, Item 12) on wiper motor (Figure 2, Item 10).

NOTE

Wrap male pipe threads with antiseize tape before installation.

2. Install adapter fittings (Figure 2, Item 9) and (Figure 2, Item 11) in wiper motor (Figure 2, Item 10).
3. Install bracket (Figure 2, Item 7) on wiper motor (Figure 2, Item 10) with two spacers (Figure 2, Item 13) and screws (Figure 2, Item 14).
4. Install wiper motor (Figure 2, Item 10) and bracket (Figure 2, Item 7) on windshield frame (Figure 2, Item 5) with two screws (Figure 2, Item 6) and locknuts (Figure 2, Item 8).
5. Install hoses (Figure 2, Items 2 and 3) on adapter fittings (Figure 2, Item 11) and (Figure 2, Item 9) with hose clamps (Figure 2, Items 1 and 4).
6. Install leather washer (Figure 2, Item 16), washer (Figure 2, Item 17), and nut (Figure 2, Item 18) on wiper motor shaft (Figure 2, Item 10).
7. Install knurled drive (Figure 2, Item 19) on wiper motor shaft (Figure 2, Item 15).
8. Install wiper arm (Figure 2, Item 20) on wiper motor shaft (Figure 2, Item 15) with lockwasher (Figure 2, Item 21) and nut (Figure 2, Item 22). Tighten nut 15 to 20 lb-ft (20 to 27 N·m).
9. Install wiper blade (Figure 2, Item 25) on wiper arm (Figure 2, Item 20) with screw (Figure 2, Item 24) and locknut (Figure 2, Item 23). Tighten locknut 15 to 20 lb-ft (20 to 27 N·m).

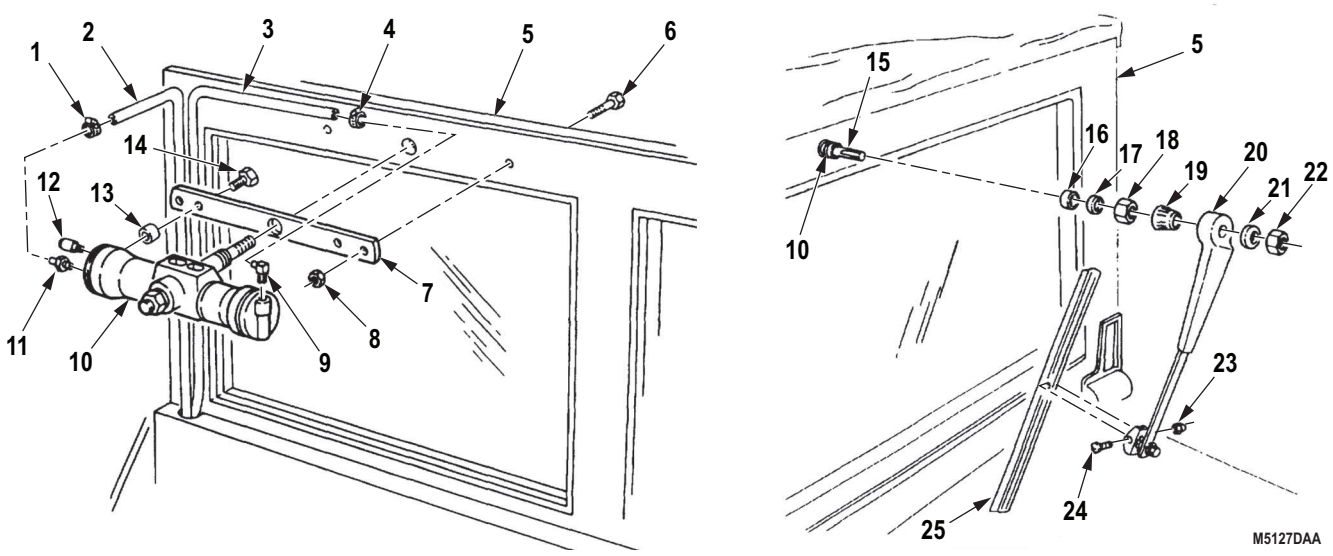


Figure 2. Windshield Wiper Blade, Wiper Arm, and Wiper Motor Removal.

END OF TASK

FOLLOW-ON MAINTENANCE

Start engine and check for air leaks and proper operation. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
WINDSHIELD WIPER RESERVOIR, JET, CONTROL, AND WASHER HOSES REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Tape, Antiseizing
(Volume 5, WP 0825, Table 1, Item 65)
Locknut (Volume 5, WP 0827, Table 1, Item 312)
Qty: 3
Lockwasher
(Volume 5, WP 0827, Table 1, Item 264)
Qty: 1

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

Equipment Condition (cont.)
Air reservoir drained. (TM 9-2320-272-10)
Wheels chocked. (TM 9-2320-272-10)
Hood raised and secured. (TM 9-2320-272-10)
Instrument cluster removed.
(Volume 2, WP 0310)

WASHER HOSES REMOVAL

1. Remove wire clamp (Figure 1, Item 6) and air supply line (Figure 1, Item 7) from washer control valve outlet adapter (Figure 1, Item 5).
2. Remove wire clamp (Figure 1, Item 11) and air supply line (Figure 1, Item 7) from washer bottle air inlet adapter (Figure 1, Item 9).
3. Remove air supply line (Figure 1, Item 7) from grommet (Figure 1, Item 8) and firewall (Figure 1, Item 14).
4. Disconnect washer jet supply tube (Figure 1, Item 12) from outlet adapter (Figure 1, Item 10).
5. Disconnect washer jet supply tube (Figure 1, Item 12) from tee (Figure 1, Item 13), grommet (Figure 1, Item 3), and firewall (Figure 1, Item 14).
6. Disconnect two windshield washer jet supply tubes (Figure 1, Item 2) from washer jet adapters (Figure 1, Item 1).
7. Remove two windshield washer jet supply tubes (Figure 1, Item 2) from tee (Figure 1, Item 13) under cowl (Figure 1, Item 4).

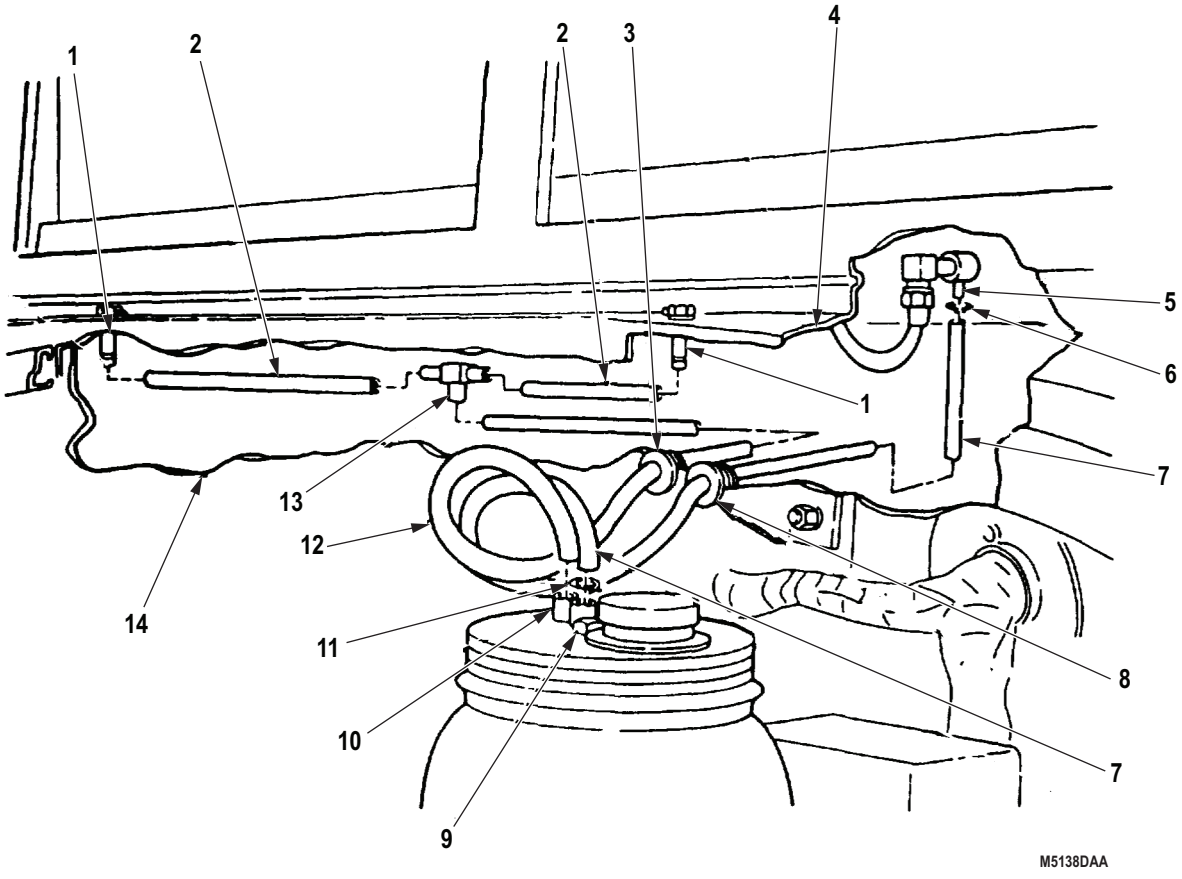


Figure 1. Windshield Washer Hoses Removal.

END OF TASK

WASHER HOSES INSTALLATION

1. Connect two windshield washer jet supply tubes (Figure 2, Item 2) to tee (Figure 2, Item 13) under cowl (Figure 2, Item 4).
2. Connect two windshield washer jet supply tubes (Figure 2, Item 2) to washer jet adapters (Figure 2, Item 1).
3. Push washer jet supply tube (Figure 2, Item 12) through grommet (Figure 2, Item 3) in firewall (Figure 2, Item 14) and connect to tee (Figure 2, Item 13).
4. Connect washer jet supply tube (Figure 2, Item 12) to outlet adapter (Figure 2, Item 10).
5. Install air supply line (Figure 2, Item 7) on washer bottle air inlet adapter (Figure 2, Item 9) with wire clamp (Figure 2, Item 11).
6. Push air supply line (Figure 2, Item 7) through grommet (Figure 2, Item 8) in firewall (Figure 2, Item 14).
7. Install air supply line (Figure 2, Item 7) on washer control valve outlet adapter (Figure 2, Item 5) with wire clamp (Figure 2, Item 6).

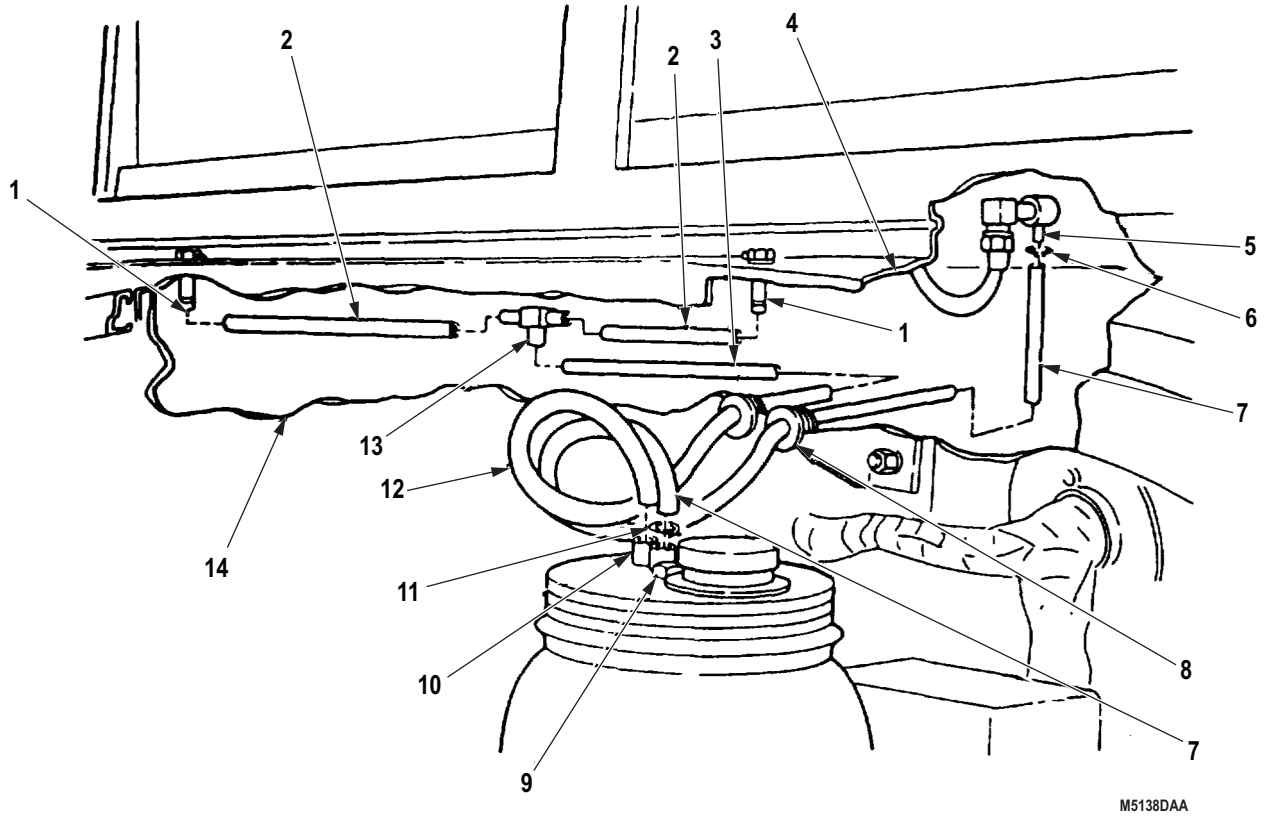


Figure 2. Windshield Washer Hoses Installation.

END OF TASK

RESERVOIR REMOVAL

WARNING



Do not disconnect air lines or hoses before draining air reservoirs. Small parts under pressure may shoot out with high velocity. Failure to comply may result in injury or death to personnel.

NOTE

Tag all air lines for installation.

1. Remove setscrew (Figure 3, Item 13) and knob (Figure 3, Item 14) from windshield wiper control (Figure 3, Item 11).
2. Remove nut (Figure 3, Item 1), lockwasher (Figure 3, Item 2), and windshield wiper control (Figure 3, Item 11) from instrument panel (Figure 3, Item 4). Discard lockwasher.
3. Remove clamp (Figure 3, Item 10) and hose (Figure 3, Item 12) from windshield wiper control (Figure 3, Item 11).
4. Remove hose (Figure 3, Item 9) and elbow (Figure 3, Item 8) from windshield wiper control (Figure 3, Item 11).
5. Remove clamp (Figure 3, Item 6) and duct hose (Figure 3, Item 5) from defrost duct (Figure 3, Item 3). Pull duct hose from firewall (Figure 3, Item 7).
6. Disconnect hoses (Figure 3, Item 17) and (Figure 3, Item 31) from jets (Figure 3, Items 15 and 18).
7. Remove wingnuts (Figure 3, Item 19) and (Figure 3, Item 33) and jets (Figure 3, Items 15 and 18) from cab (Figure 3, Item 32).
8. Remove hoses (Figure 3, Item 17), (Figure 3, Item 30), and (Figure 3, Item 31) from tee (Figure 3, Item 16).
9. Remove clamps (Figure 3, Item 22) and (Figure 3, Item 23) and hoses (Figure 3, Items 12 and 30) from windshield wiper reservoir cap (Figure 3, Item 24).
10. Remove windshield wiper reservoir cap (Figure 3, Item 24) from windshield wiper reservoir (Figure 3, Item 25).
11. Remove windshield wiper reservoir (Figure 3, Item 25) from bracket (Figure 3, Item 26).
12. Remove three locknuts (Figure 3, Item 29), screws (Figure 3, Item 27), and bracket (Figure 3, Item 26) from mounting bracket (Figure 3, Item 28). Discard locknuts.
13. Remove grommets (Figure 3, Item 20) and (Figure 3, Item 21) and hoses (Figure 3, Items 12 and 30) from firewall (Figure 3, Item 7).

RESERVOIR REMOVAL - Continued

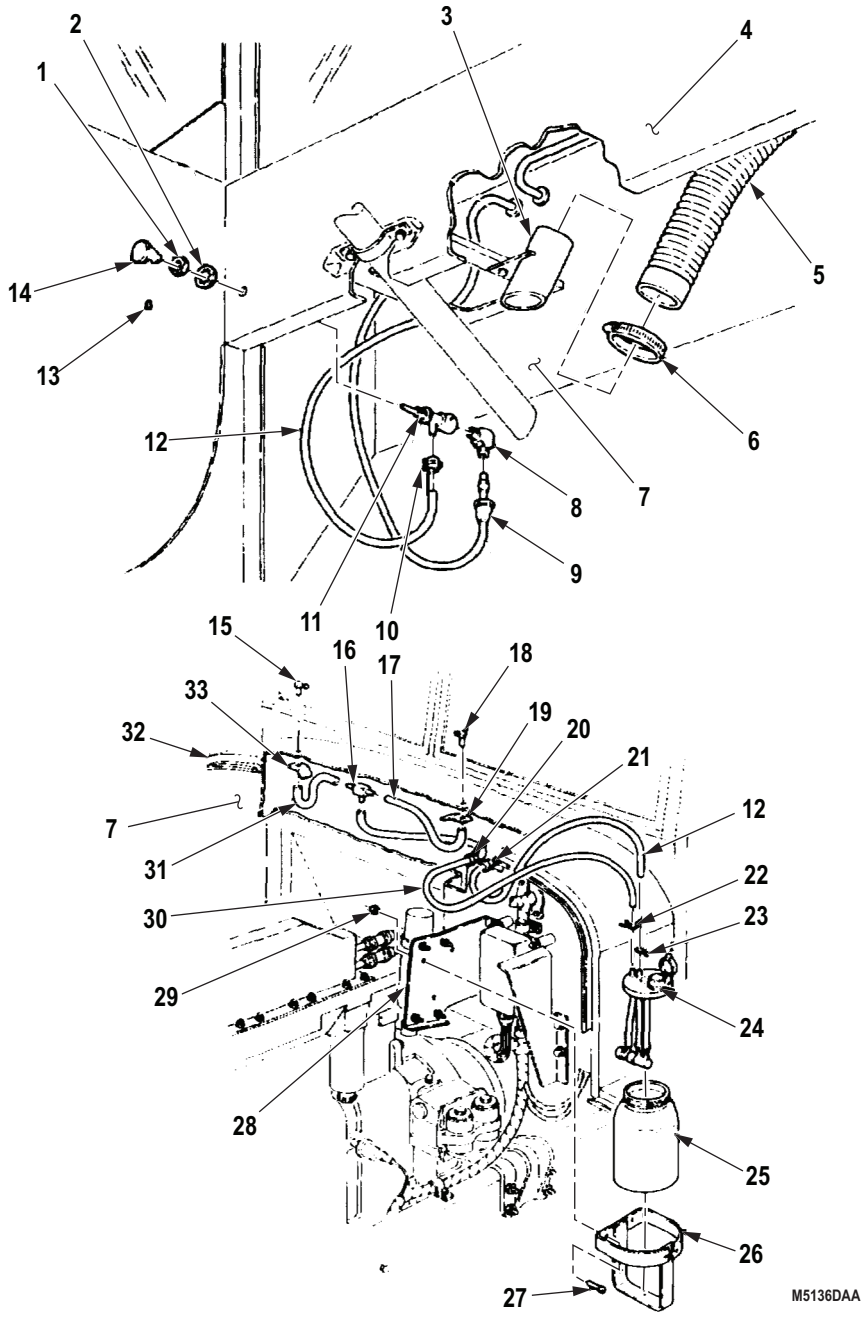


Figure 3. Windshield Wiper Reservoir Removal.

END OF TASK

RESERVOIR INSTALLATION

NOTE

Wrap all male threads with antiseize tape prior to installation.

1. Install bracket (Figure 4, Item 26) on mounting bracket (Figure 4, Item 28) with three screws (Figure 4, Item 27) and locknuts (Figure 4, Item 29).
2. Install windshield wiper reservoir (Figure 4, Item 25) on bracket (Figure 4, Item 26).
3. Install windshield wiper reservoir cap (Figure 4, Item 24) on reservoir (Figure 4, Item 25).
4. Install hoses (Figure 4, Item 12) and (Figure 4, Item 30) on windshield wiper reservoir cap (Figure 4, Item 24) with clamps (Figure 4, Item 22) and (Figure 4, Item 23).
5. Insert hoses (Figure 4, Item 12) and (Figure 4, Item 30) through holes in firewall (Figure 4, Item 7).
6. Install hoses (Figure 4, Item 17), (Figure 4, Item 30), and (Figure 4, Item 31) on tee (Figure 4, Item 16).
7. Install jets (Figure 4, Item 15) and (Figure 4, Item 18) on cab (Figure 4, Item 32) with wing nuts (Figure 4, Item 33) and (Figure 4, Item 19).
8. Connect hoses (Figure 4, Item 31) and (Figure 4, Item 17) on jets (Figure 4, Item 15) and (Figure 4, Item 18).
9. Place grommets (Figure 4, Items 20 and 21) on hoses (Figure 4, Items 12 and 30) and install on firewall (Figure 4, Item 7).
10. Install elbow (Figure 4, Item 8) and hose (Figure 4, Item 9) on windshield wiper control (Figure 4, Item 11).
11. Install hose (Figure 4, Item 12) on windshield wiper control (Figure 4, Item 11) with clamp (Figure 4, Item 10).
12. Install windshield wiper control (Figure 4, Item 11) on instrument panel (Figure 4, Item 4) with lockwasher (Figure 4, Item 2) and nut (Figure 4, Item 1).
13. Install knob (Figure 4, Item 14) on windshield wiper control (Figure 4, Item 11) with setscrew (Figure 4, Item 13).
14. Install duct hose (Figure 4, Item 5) on defrost duct (Figure 4, Item 3) with clamp (Figure 4, Item 6).

RESERVOIR INSTALLATION - Continued

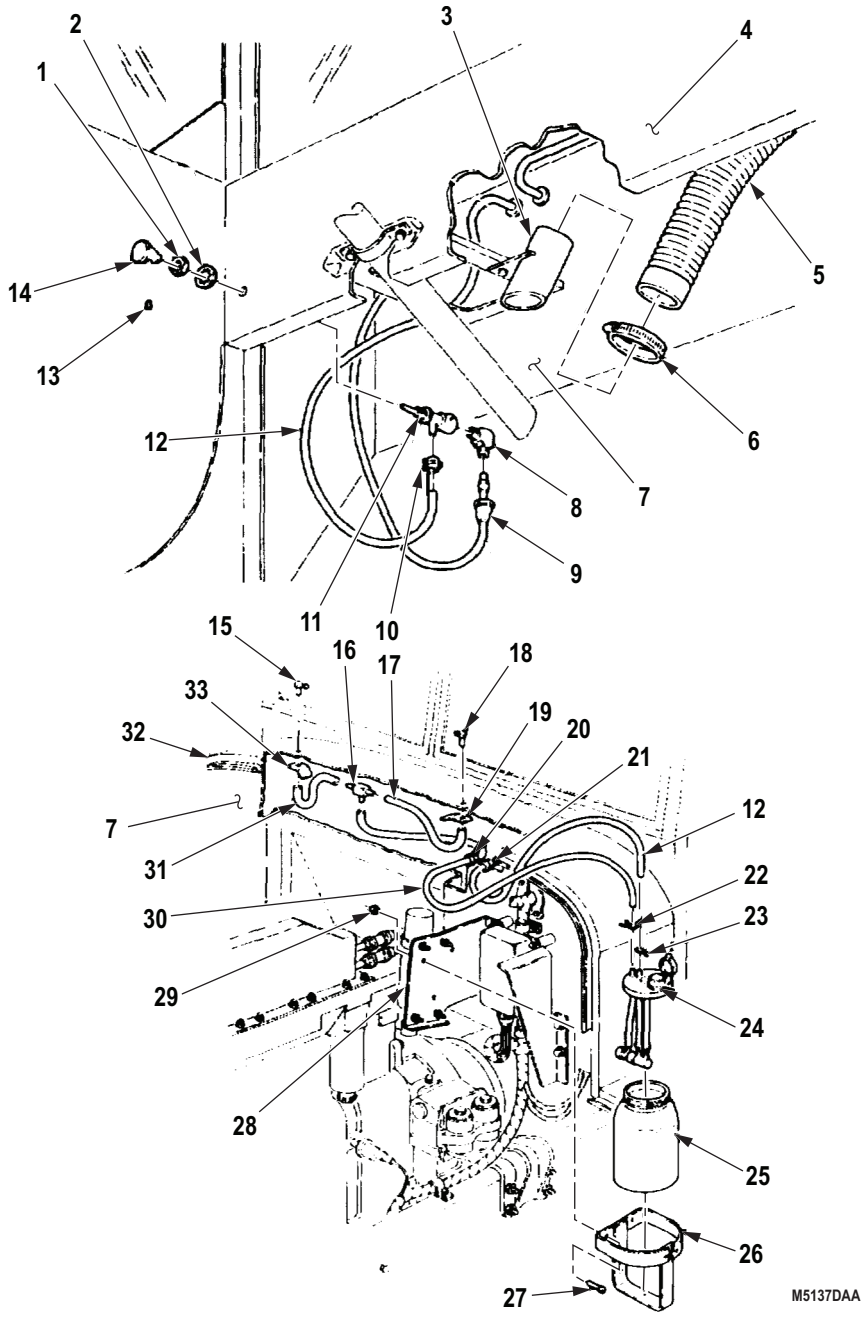


Figure 4. Windshield Wiper Reservoir Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install instrument cluster. (Volume 2, WP 0310)
2. Start engine and check for leaks and proper operation. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
REAREVIEW MIRROR AND BRACE REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Locknut (Volume 5, WP 0827, Table 1, Item 272)
Qty: 2
Locknut (Volume 5, WP 0827, Table 1, Item 289)
Qty: 5
Locknut (Volume 5, WP 0827, Table 1, Item 320)
Qty: 2

Materials/Parts (cont.)
Lockwasher
(Volume 5, WP 0827, Table 1, Item 403)
Qty: 1
Screw Assembled Lockwasher
(Volume 5, WP 0827, Table 1, Item 171)
Qty: 5

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

REMOVAL

1. Remove two locknuts (Figure 1, Item 9) and washers (Figure 1, Item 8) from mirror (Figure 1, Item 7). Discard locknuts.
2. Remove rearview mirror (Figure 1, Item 7) and two spacers (Figure 1, Item 6) from rearview mirror brace (Figure 1, Item 4).
3. Remove nut (Figure 1, Item 19), lockwasher (Figure 1, Item 20), and screw (Figure 1, Item 38) from two clamp halves (Figure 1, Item 21). Discard lockwasher.
4. Remove screw assembled lockwasher (Figure 1, Item 35), two clamp halves (Figure 1, Item 21), and convex mirror (Figure 1, Item 5) from upper brace (Figure 1, Item 34). Discard screw assembled lockwasher.
5. Remove locknut (Figure 1, Item 28), washer (Figure 1, Item 29), and hinge screw (Figure 1, Item 33) from upper mirror braces (Figure 1, Item 36) and (Figure 1, Item 1) and upper cab door hinge (Figure 1, Item 31). Discard locknut.
6. Push upper mirror braces (Figure 1, Item 36) and (Figure 1, Item 1) away from cab door hinge (Figure 1, Item 31).
7. Insert hinge screw (Figure 1, Item 33) into upper cab door hinge (Figure 1, Item 31). Do not tighten hinge screw.
8. Remove locknut (Figure 1, Item 12), washer (Figure 1, Item 23), and hinge screw (Figure 1, Item 22) from lower mirror brace (Figure 1, Item 11) and lower cab door hinge (Figure 1, Item 24). Discard locknut.
9. Push lower mirror brace (Figure 1, Item 11) away from lower cab door hinge (Figure 1, Item 24).
10. Insert hinge screw (Figure 1, Item 22) into lower cab door hinge (Figure 1, Item 24). Do not tighten hinge screw.
11. Remove locknut (Figure 1, Item 27), washer (Figure 1, Item 26), and screw (Figure 1, Item 32) from front mirror brace (Figure 1, Item 17) and (Figure 1, Item 37) and cab cowl bracket (Figure 1, Item 30). Discard locknut.
12. Remove two locknuts (Figure 1, Item 3), washers (Figure 1, Item 2), gaskets (Figure 1, Item 18), braces (Figure 1, Items 1, 4, 11, 17, 36, and 37) from rod (Figure 1, Item 10) and upper brace (Figure 1, Item 34). Discard locknuts.
13. Open air vent door (Figure 1, Item 25).
14. Remove two locknuts (Figure 1, Item 15), screws (Figure 1, Item 13), cowl plate (Figure 1, Item 14), and bracket (Figure 1, Item 30) from cowl side panel (Figure 1, Item 16). Discard locknuts.

REMOVAL - Continued

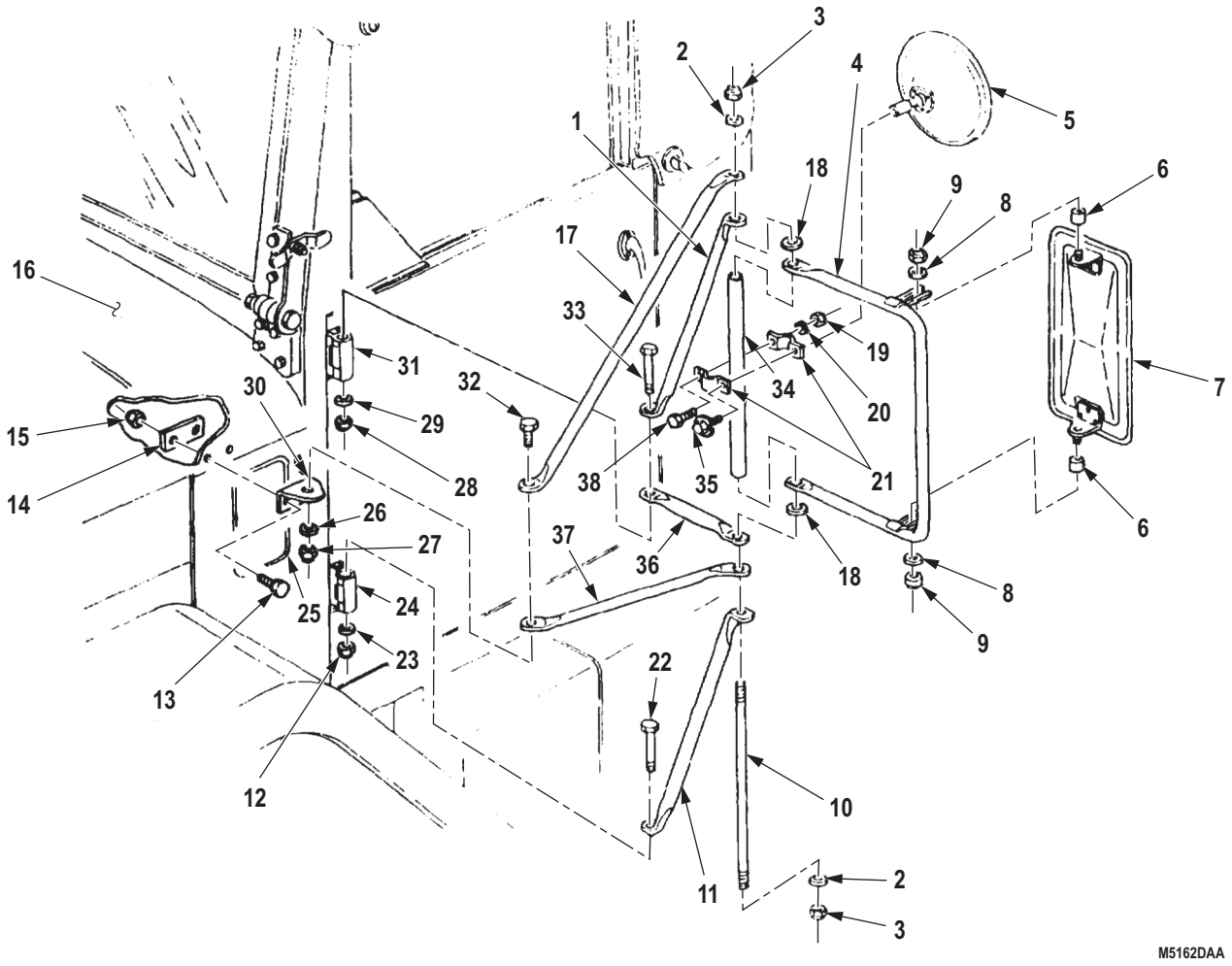


Figure 1. Rearview Mirror and Brace Removal.

END OF TASK

INSTALLATION

1. Install bracket (Figure 2, Item 30) and cowl plate (Figure 2, Item 14) on cowl side panel (Figure 2, Item 16) with two screws (Figure 2, Item 13) and two locknuts (Figure 2, Item 15).
2. Install braces (Figure 2, Items 1, 4, 11, 17, 34, 36, and 37), and two gaskets (Figure 2, Item 18) on rod (Figure 2, Item 10) with two washers (Figure 2, Item 2) and locknuts (Figure 2, Item 3).
3. Install mirror braces (Figure 2, Item 37) and (Figure 2, Item 17) on cab cowl bracket (Figure 2, Item 30) with screw (Figure 2, Item 32), washer (Figure 2, Item 26), and locknut (Figure 2, Item 27).
4. Remove hinge screw (Figure 2, Item 33) from top door hinge (Figure 2, Item 31).
5. Position upper mirror brace (Figure 2, Item 1) and mirror brace (Figure 2, Item 36) over upper door hinge (Figure 2, Item 31) and install hinge screw (Figure 2, Item 33) through brace and hinge with washer (Figure 2, Item 29) and locknut (Figure 2, Item 28).
6. Remove hinge screw (Figure 2, Item 22) from lower door hinge (Figure 2, Item 24).
7. Position lower mirror brace (Figure 2, Item 11) over lower door hinge (Figure 2, Item 24) and insert hinge screw (Figure 2, Item 22) through brace and hinge and secure with washer (Figure 2, Item 23) and locknut (Figure 2, Item 12).
8. Install two clamp halves (Figure 2, Item 21) on upper brace (Figure 2, Item 34) with screw (Figure 2, Item 38), lockwasher (Figure 2, Item 20), and nut (Figure 2, Item 19).
9. Install convex mirror (Figure 2, Item 5) on clamp halves (Figure 2, Item 21) with screw assembled lockwasher (Figure 2, Item 35).
10. Position rearview mirror (Figure 2, Item 7) and two spacers (Figure 2, Item 6) on mirror brace (Figure 2, Item 4) and install with two washers (Figure 2, Item 8) and locknuts (Figure 2, Item 9).

INSTALLATION - Continued

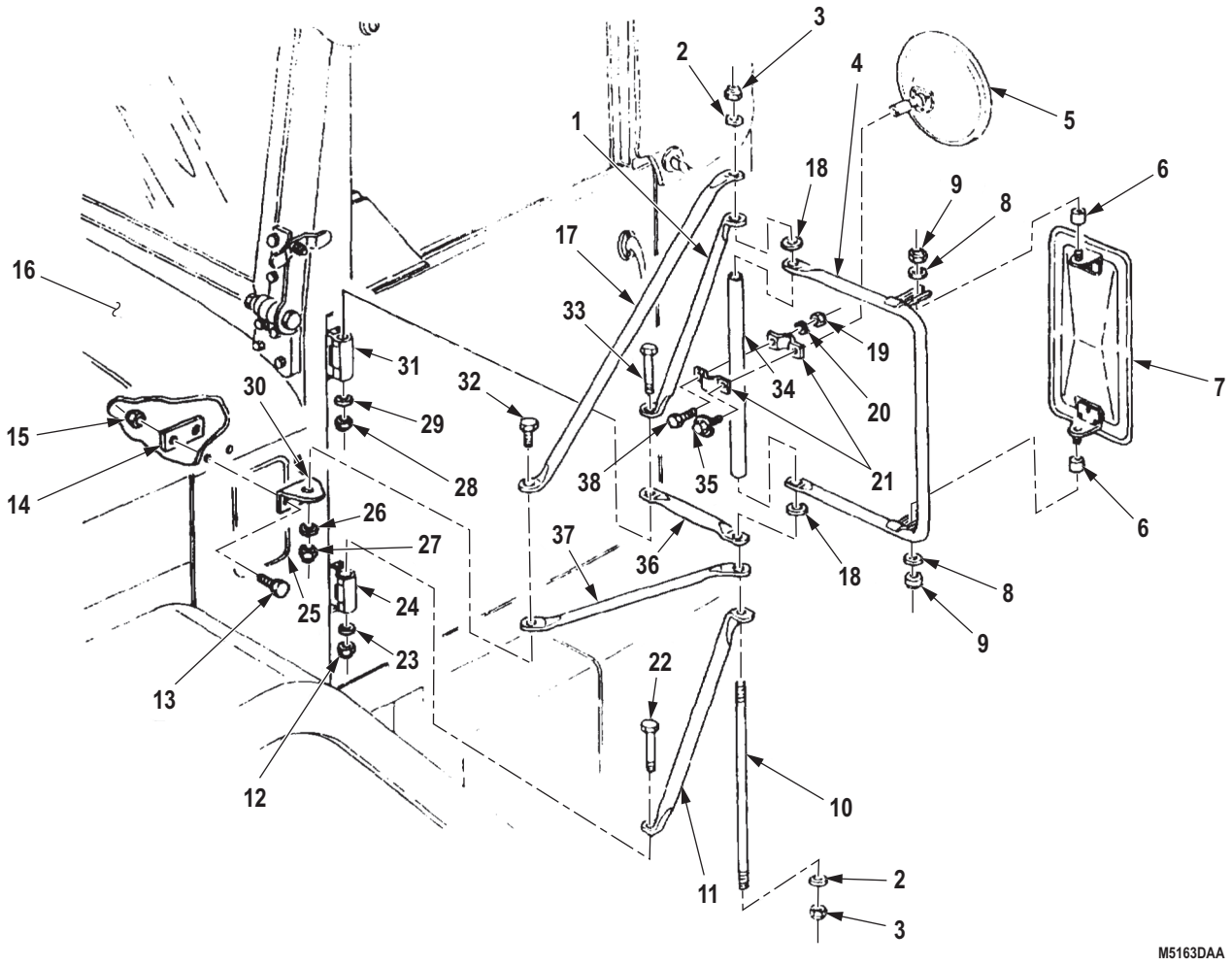


Figure 2. Rearview Mirror and Brace Installation.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
WASHER CONTROL VALVE REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Tape, Antiseizing
(Volume 5, WP 0825, Table 1, Item 65)

Equipment Condition
Air reservoirs drained. (TM 9-2320-272-10)

Equipment Condition (cont.)
Parking brake set. (TM 9-2320-272-10)

REMOVAL

WARNING



Do not disconnect air lines or hoses before draining air reservoirs. Small parts under pressure may shoot out with high velocity. Failure to comply may result in injury or death to personnel.

1. Remove setscrew (Figure 1, Item 6) and knob (Figure 1, Item 7) from shaft (Figure 1, Item 10).
2. Remove retaining ring (Figure 1, Item 8), nut (Figure 1, Item 5), washer (Figure 1, Item 4), and washer control valve (Figure 1, Item 3) from instrument panel (Figure 1, Item 9).
3. Remove clamp (Figure 1, Item 11) and washer bottle delivery line (Figure 1, Item 12) from washer control valve (Figure 1, Item 3).
4. Remove manifold tee supply line (Figure 1, Item 1) from elbow (Figure 1, Item 2).

REMOVAL - Continued

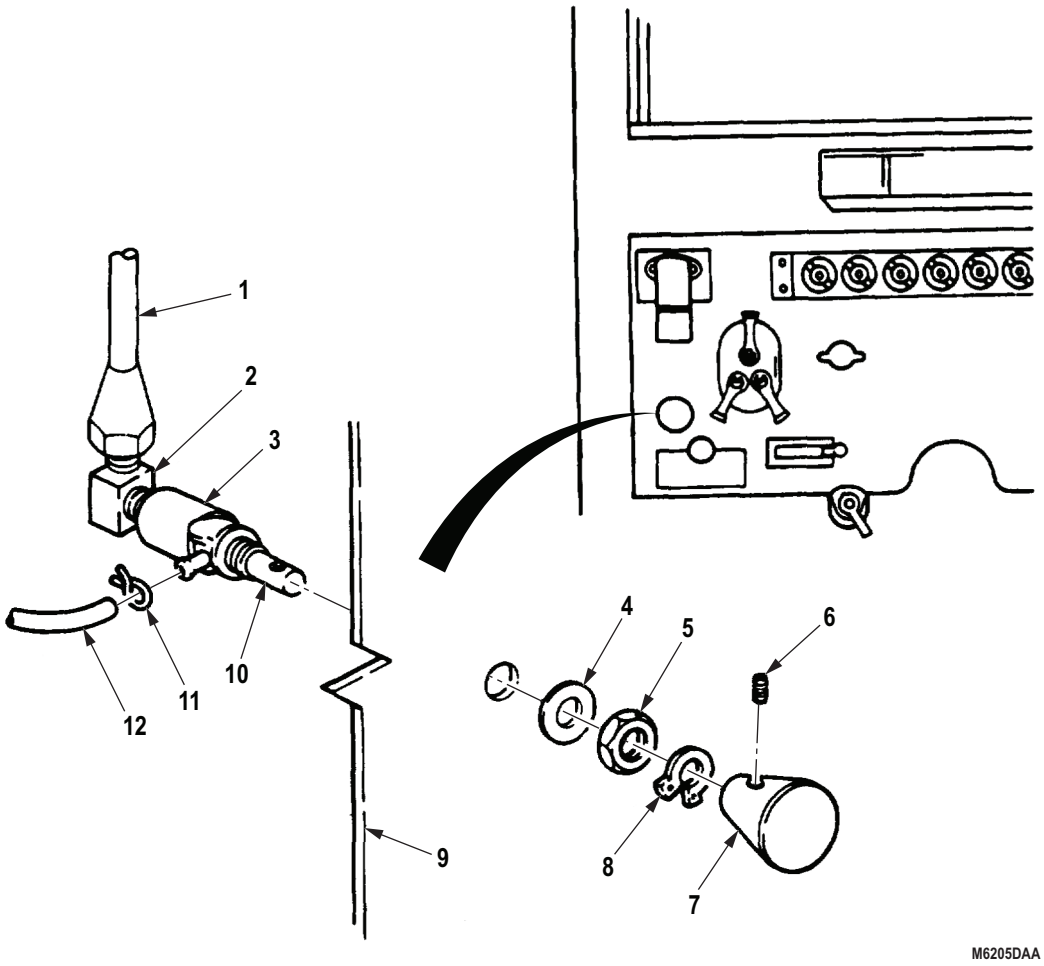


Figure 1. Washer Control Valve Removal.

END OF TASK

INSTALLATION

NOTE

- If new valve is being installed, use fittings from old valve.
- Wrap all male pipe threads with antiseize tape before installation.

1. Install manifold tee supply line (Figure 2, Item 1) on elbow (Figure 2, Item 2).
2. Install delivery line (Figure 2, Item 12) on washer control valve (Figure 2, Item 3) with clamp (Figure 2, Item 11).
3. Install washer control valve (Figure 2, Item 3) on instrument panel (Figure 2, Item 9) with washer (Figure 2, Item 4) and nut (Figure 2, Item 5).
4. Install retaining ring (Figure 2, Item 8) and knob (Figure 2, Item 7) on shaft (Figure 2, Item 10) with setscrew (Figure 2, Item 6).

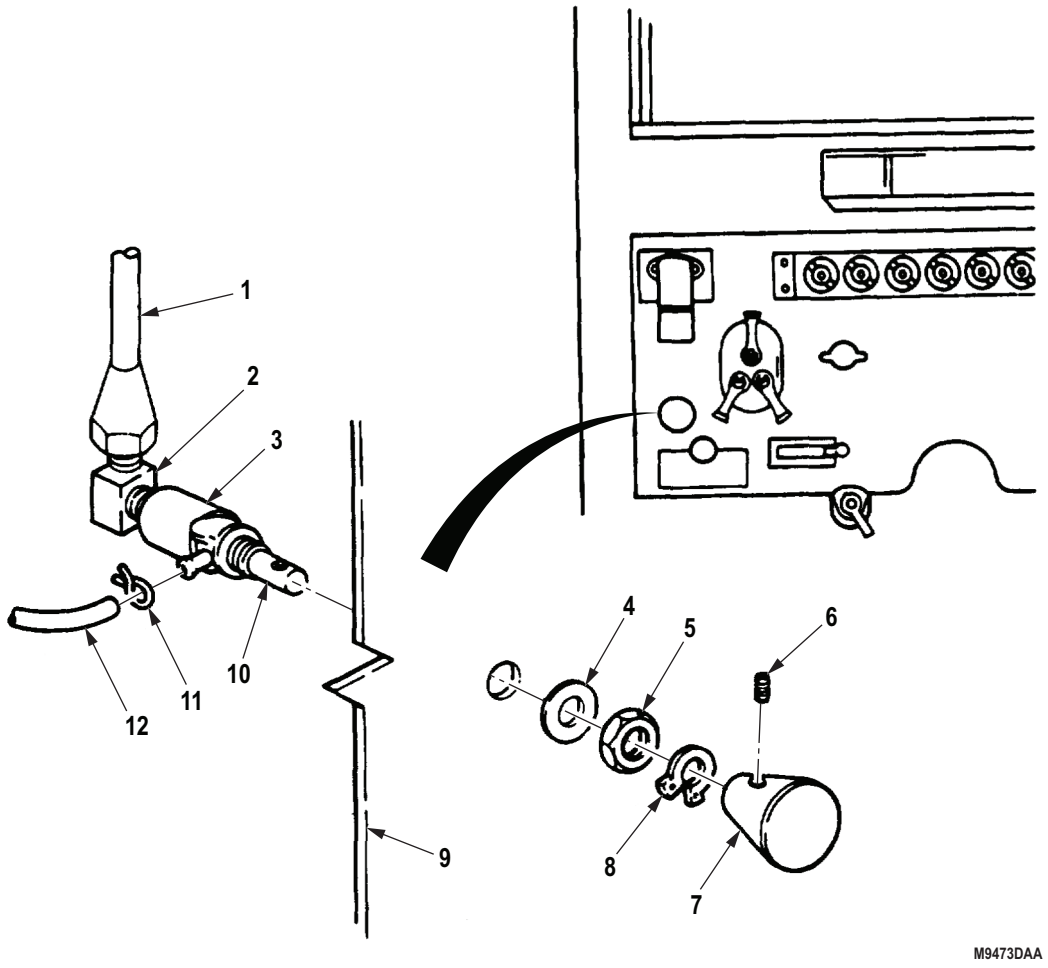


Figure 2. Washer Control Valve Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

Start engine and check for air leaks and proper washer control valve operation. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
REFLECTORS REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

REMOVAL

NOTE

Reflectors on all vehicles are basically the same. Mounting hardware may differ. This procedure covers replacement of reflectors on cargo dropside vehicle.

Remove two nuts (Figure 1, Item 3), screws (Figure 1, Item 4), and reflector (Figure 1, Item 1) from cargo body (Figure 1, Item 2).

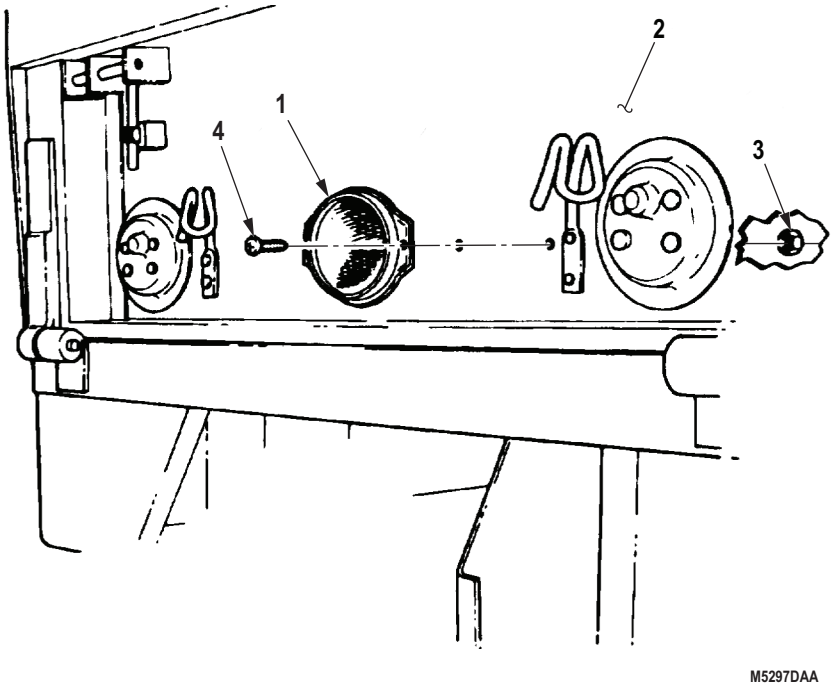


Figure 1. Reflectors Removal.

END OF TASK

INSTALLATION

Install reflector (Figure 2, Item 1) on cargo body (Figure 2, Item 2) with two screws (Figure 2, Item 4) and nuts (Figure 2, Item 3).

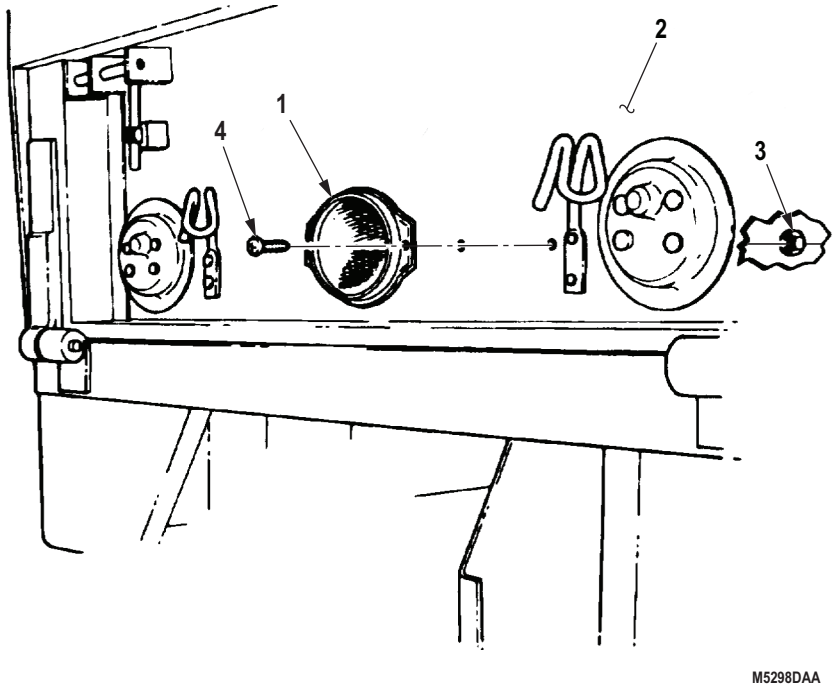


Figure 2. Reflectors Installation.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
FRESH AIR VENT CONTROL CABLE ASSEMBLY REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Cotter Pin

Materials/Parts (cont.)
(Volume 5, WP 0827, Table 1, Item 257)
Qty: 1
Lockwasher
(Volume 5, WP 0827, Table 1, Item 186)
Qty: 1

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Hood raised and secured. (TM 9-2320-272-10)

REMOVAL

1. Remove screw (Figure 1, Item 3), sheet spring nut (Figure 1, Item 5), and clamp bracket (Figure 1, Item 4) from personnel hot water heater (Figure 1, Item 7).
2. Remove cotter pin (Figure 1, Item 6), fresh air control cable (Figure 1, Item 2), and clip (Figure 1, Item 1) from fresh air shutoff rod (Figure 1, Item 8). Discard cotter pin.

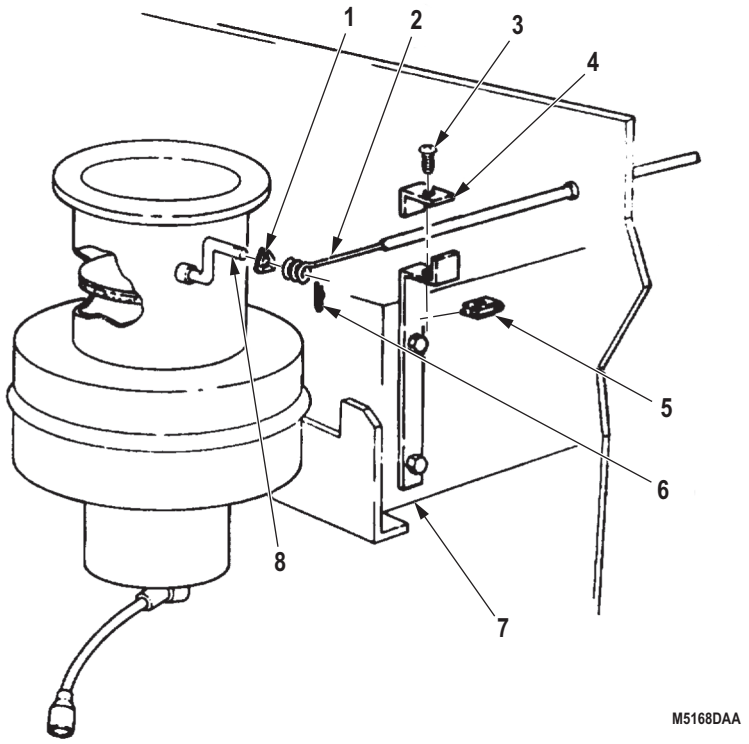


Figure 1. Fresh Air Vent Control Assembly Removal.

REMOVAL - Continued

3. Remove eight screws (Figure 2, Item 7) and pull instrument cluster (Figure 2, Item 6) from instrument panel (Figure 2, Item 1).
4. Remove nut (Figure 2, Item 2) and lockwasher (Figure 2, Item 3) from fresh air control handle (Figure 2, Item 5) and slide off fresh air control cable (Figure 2, Item 4) at coiled end. Discard lockwasher.
5. Remove fresh air control handle (Figure 2, Item 5) and fresh air control cable (Figure 2, Item 4) from instrument cluster (Figure 2, Item 6).

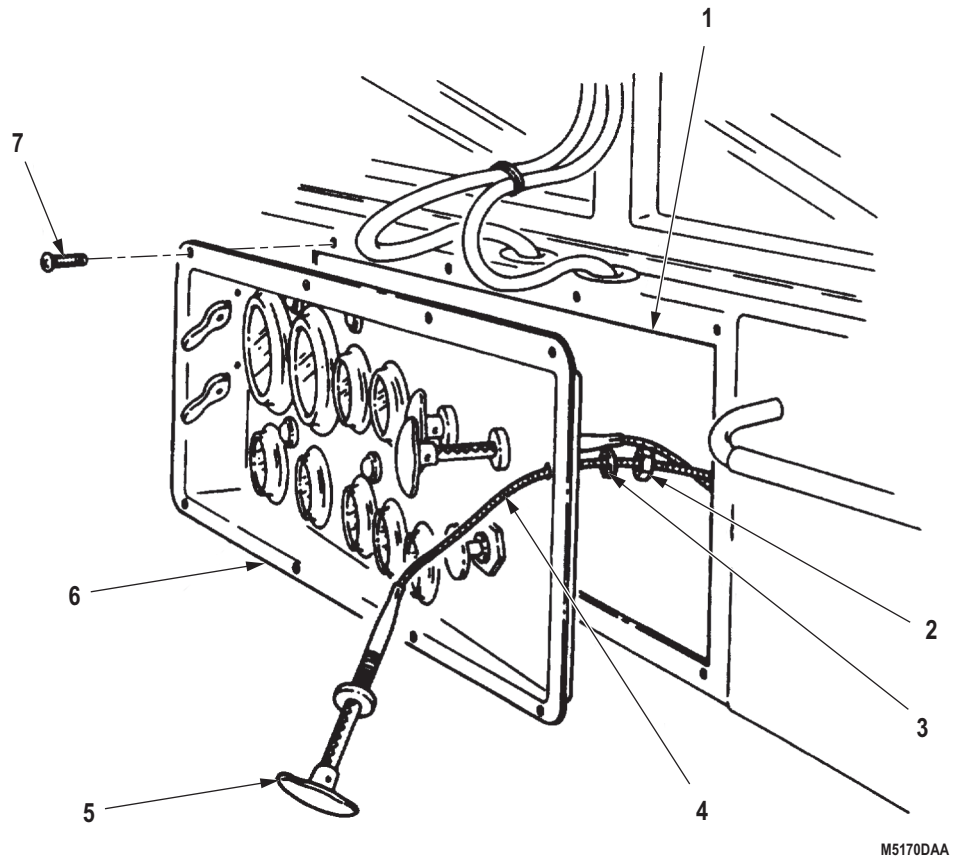


Figure 2. Fresh Air Vent Control Assembly Removal.

END OF TASK

INSTALLATION

1. Install fresh air control handle (Figure 3, Item 5) and fresh air control cable (Figure 3, Item 4) through hole in instrument cluster (Figure 3, Item 6).
2. Position fresh air control handle (Figure 3, Item 5) against instrument cluster (Figure 3, Item 6) and install with lockwasher (Figure 3, Item 3) and nut (Figure 3, Item 2).
3. Install instrument cluster (Figure 3, Item 6) on instrument panel (Figure 3, Item 1) with eight screws (Figure 3, Item 7).
4. Push fresh air control handle (Figure 3, Item 5) in all the way.
5. Push fresh air control cable (Figure 4, Item 2) through firewall (Figure 4, Item 5).

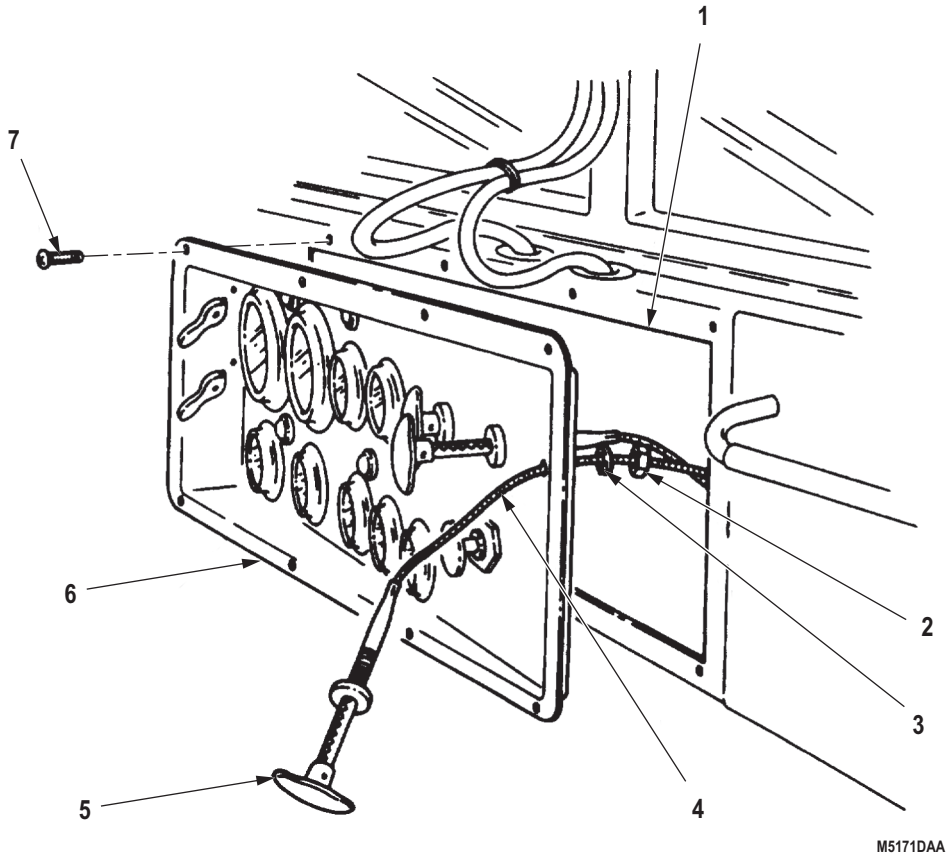


Figure 3. Fresh Air Vent Control Assembly Installation.

INSTALLATION - Continued

6. Close fresh air shutoff rod (Figure 4, Item 9) before connecting fresh air control cable (Figure 4, Item 2).
7. Install clip (Figure 4, Item 1) and fresh air control cable (Figure 4, Item 2) on fresh air shutoff rod (Figure 4, Item 9) with cotter pin (Figure 4, Item 7).
8. Install fresh air control cable (Figure 4, Item 2) on personnel hot water heater (Figure 4, Item 8) with clamp bracket (Figure 4, Item 4), spring nut (Figure 4, Item 6), and screw (Figure 4, Item 3).
9. Adjust air intake flap (Figure 4, Item 10) to the closed position.

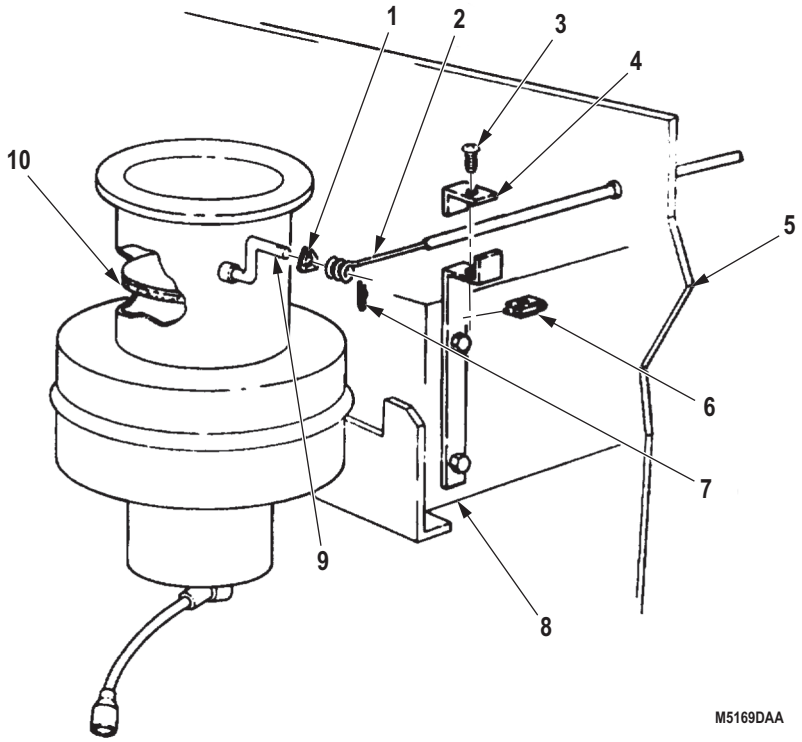


Figure 4. Fresh Air Vent Control Assembly Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

Check fresh air vent for proper operation. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
DIVERTER ASSEMBLY REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Cotter Pin
(Volume 5, WP 0827, Table 1, Item 257)
Qty: 2
Spring Nut
(Volume 5, WP 0827, Table 1, Item 427)
Qty: 2

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

Equipment Condition (cont.)
Defrost and heat control levers closed.
(TM 9-2320-272-10)
Right fender splash shield removed.
(WP 0575)

REMOVAL

1. Remove two screw assembled washers (Figure 1, Item 3) and bracket (Figure 1, Item 2) from right side of engine compartment cowl (Figure 1, Item 1).

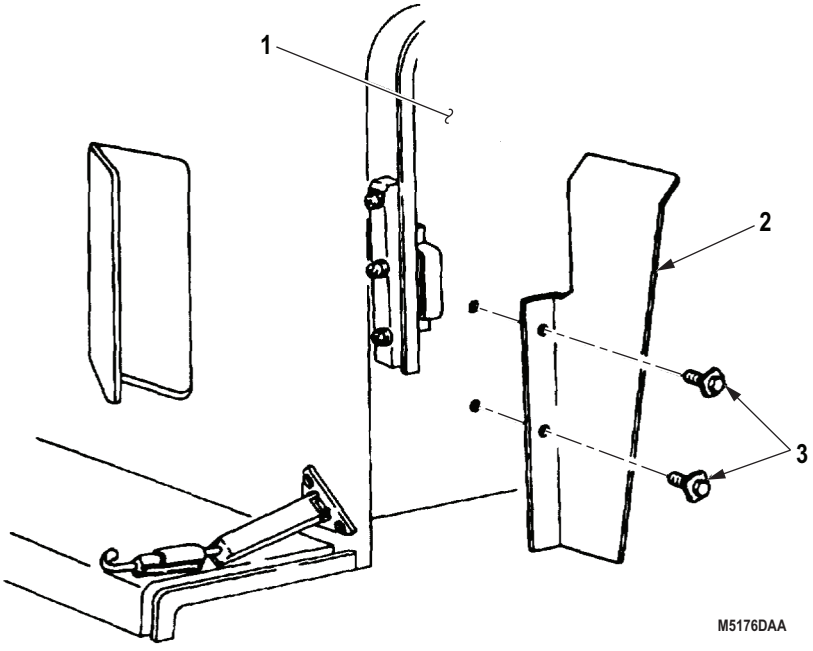


Figure 1. Diverter Assembly Removal.

REMOVAL - Continued

2. Remove three clamps (Figure 2, Item 6) and ducting hoses (Figure 2, Item 3) from diverter (Figure 2, Item 5) and three adapter flanges (Figure 2, Item 4).
3. Remove screw (Figure 2, Item 19), clamp (Figure 2, Item 18), and retaining clip (Figure 2, Item 8) from defroster control cable bracket (Figure 2, Item 9).
4. Remove cotter pin (Figure 2, Item 20), defroster control cable (Figure 2, Item 21), and spring nut (Figure 2, Item 22) from control rod (Figure 2, Item 7). Discard cotter pin and spring nut.
5. Remove screw (Figure 2, Item 17), clamp (Figure 2, Item 16), and retaining clip (Figure 2, Item 11) from heater control cable bracket (Figure 2, Item 10).
6. Remove cotter pin (Figure 2, Item 14), heater control cable (Figure 2, Item 15), and spring nut (Figure 2, Item 13) from control rod (Figure 2, Item 12). Discard cotter pin and spring nut.

CAUTION

Hold personnel hot water heater and brackets in place during removal of diverter. Both mount to firewall with same screws.

7. Remove four screw assembled washers (Figure 2, Item 23), cage nuts (Figure 2, Item 2), personnel hot water heater bracket (Figure 2, Item 24), and diverter (Figure 2, Item 5) from firewall (Figure 2, Item 1).

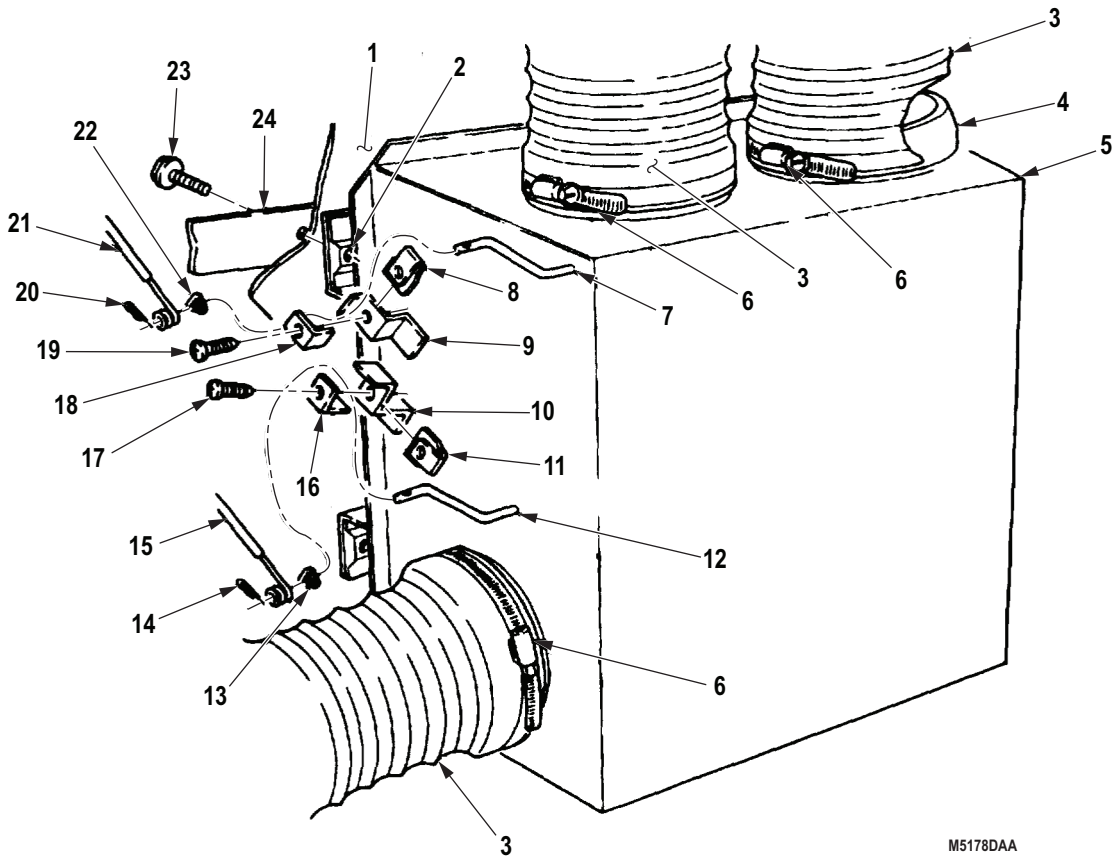


Figure 2. Diverter Assembly Removal.

END OF TASK

INSTALLATION

1. Install diverter (Figure 3, Item 5) on hot water heater bracket (Figure 3, Item 24) and firewall (Figure 3, Item 1) with four screw assembled washers (Figure 3, Item 23) and cage nuts (Figure 3, Item 2).

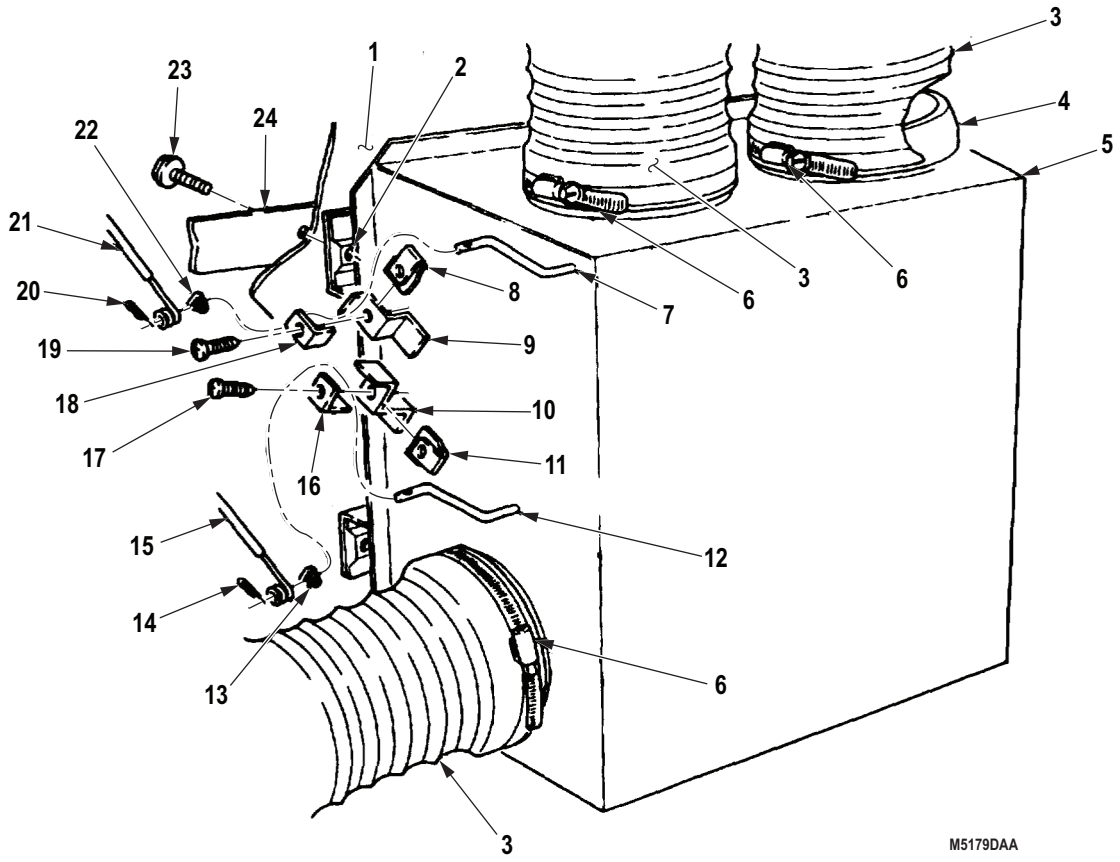


Figure 3. Diverter Assembly Installation.

INSTALLATION - Continued

2. Install three ducting hoses (Figure 3, Item 3) on diverter (Figure 3, Item 5) and adapter flanges (Figure 3, Item 4) with three clamps (Figure 3, Item 6).

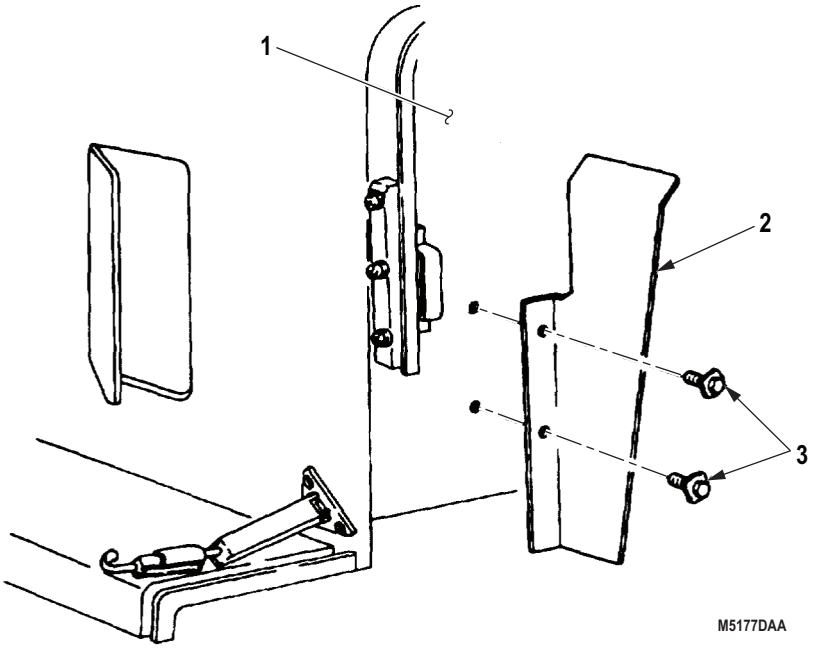


Figure 4. Diverter Assembly Installation.

3. Install heater control cable (Figure 3, Item 15) on control rod (Figure 3, Item 12) with spring nut (Figure 3, Item 13) and cotter pin (Figure 3, Item 14).
4. Install heater control cable (Figure 3, Item 15) on heater control cable bracket (Figure 4, Item 10) with clamp (Figure 3, Item 16), screw (Figure 3, Item 17), and retaining clip (Figure 3, Item 11).
5. Install defroster control cable (Figure 3, Item 21) on control rod (Figure 3, Item 7) with spring nut (Figure 3, Item 22) and cotter pin (Figure 3, Item 20).
6. Install defroster control cable (Figure 3, Item 21) on defroster control cable bracket (Figure 3, Item 9) with clamp (Figure 3, Item 18), screw (Figure 3, Item 19), and retaining clip (Figure 3, Item 8).
7. Install bracket (Figure 4, Item 2) to right side engine compartment cowl (Figure 4, Item 1) with two screw assembled washers (Figure 4, Item 3).

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install right fender splash shield. (WP 0575)
2. Check heater for proper operation. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
FRESH AIR INLET DUCTING REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

Equipment Condition (cont.)
Defrost and heat control levers closed.
(TM 9-2320-272-10)
Hood raised and secured. (TM 9-2320-272-10)

REMOVAL

1. Loosen clamp (Figure 1, Item 1) and remove fresh air ducting (Figure 1, Item 5) from adapter flange (Figure 1, Item 2).
2. Remove two nuts (Figure 1, Item 6), screws (Figure 1, Item 9), and clamps (Figure 1, Item 3) from fresh air ducting (Figure 1, Item 5) and hood (Figure 1, Item 4).
3. Loosen clamp (Figure 1, Item 8) and remove fresh air ducting (Figure 1, Item 5) from flange (Figure 1, Item 7).

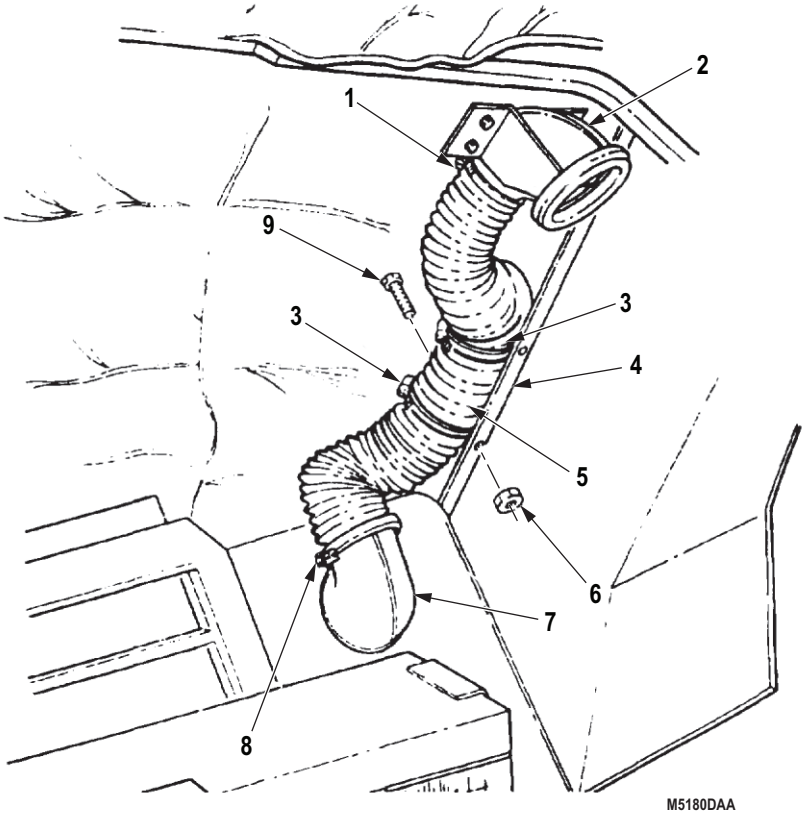


Figure 1. Fresh Air Inlet Ducting Removal.

END OF TASK

INSTALLATION

1. Install fresh air ducting (Figure 2, Item 5) on flange (Figure 2, Item 7) with clamp (Figure 2, Item 8).
2. Install fresh air ducting (Figure 2, Item 5) on hood (Figure 2, Item 4) with two clamps (Figure 2, Item 3), screws (Figure 2, Item 9), and nuts (Figure 2, Item 6).
3. Install fresh air ducting (Figure 2, Item 5) on adapter flange (Figure 2, Item 2) with clamp (Figure 2, Item 1).

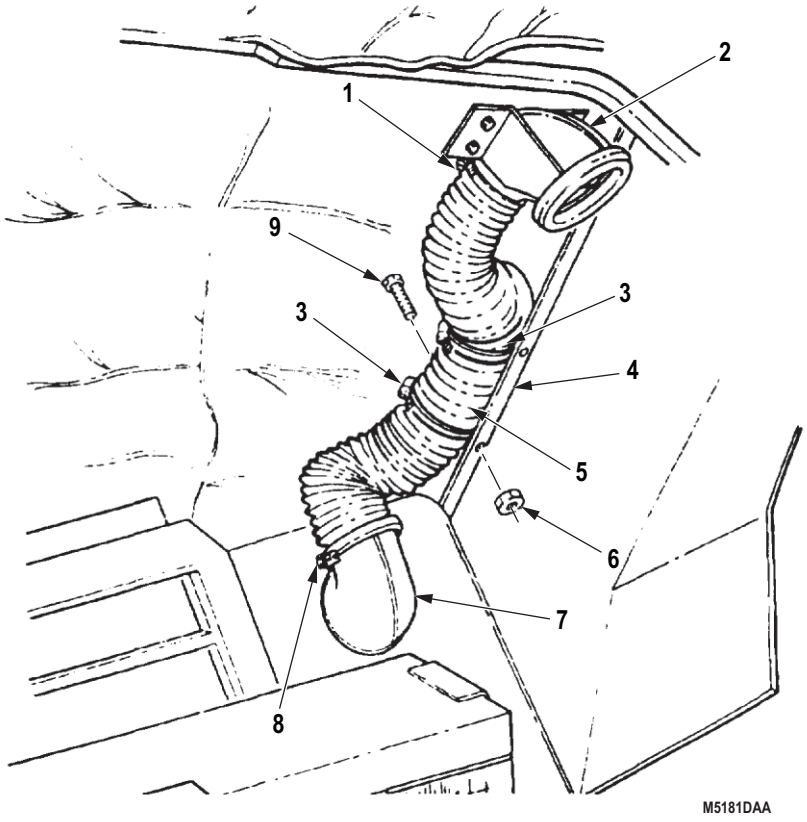


Figure 2. Fresh Air Inlet Ducting Installation.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
CAB HEAT AND DEFROST AIR DUCTING REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

REMOVAL

1. Remove eight screws (Figure 1, Item 5) and instrument cluster (Figure 1, Item 7) from instrument panel (Figure 1, Item 6).
2. Loosen six clamps (Figure 1, Item 4) and remove cab heat ducting hose (Figure 1, Item 9) and defrost ducting hoses (Figure 1, Items 1 and 10) from diverter (Figure 1, Item 2), exhaust flange (Figure 1, Item 8), and two defrost air flanges (Figure 1, Item 3).

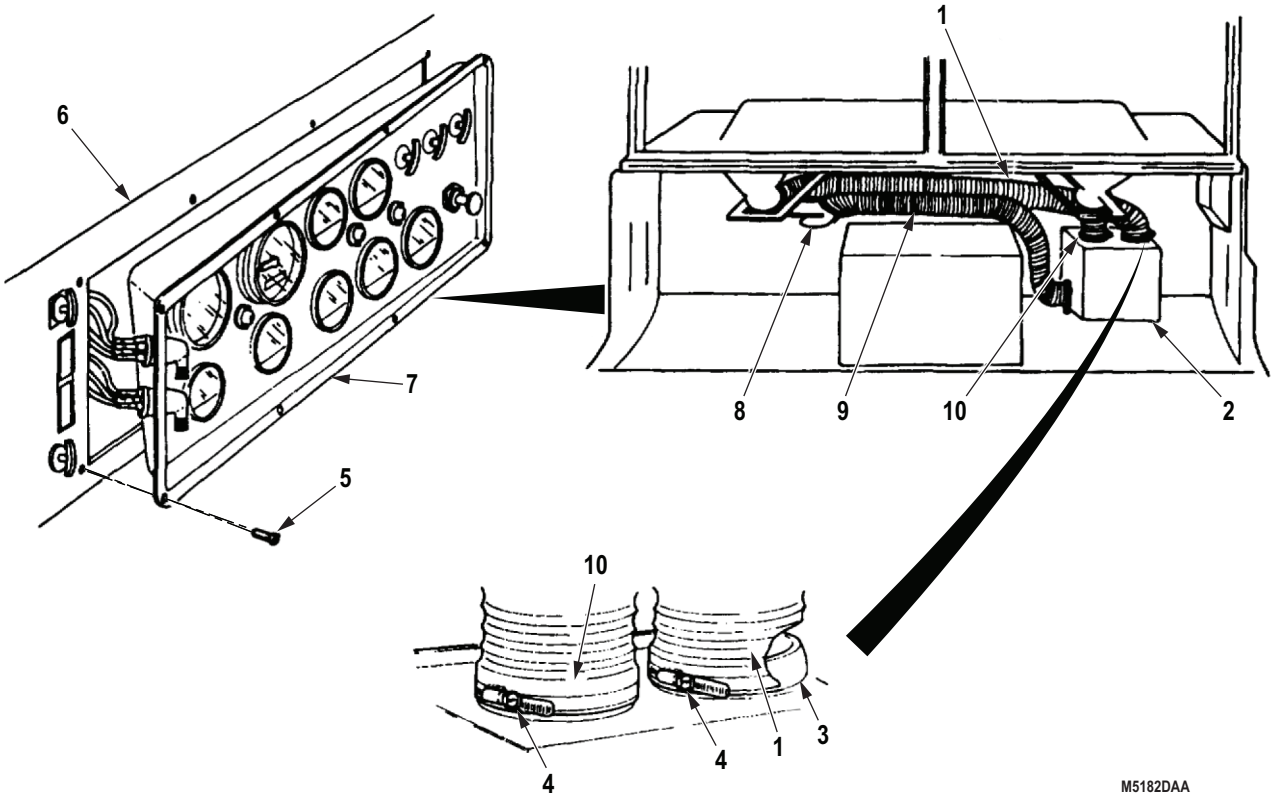


Figure 1. Cab Heat and Defrost Air Ducting Removal.

END OF TASK

INSTALLATION

1. Install cab heat ducting hose (Figure 2, Item 9) on diverter (Figure 2, Item 2) and exhaust flange (Figure 2, Item 8) with clamps (Figure 2, Item 4).
2. Install defrost ducting hoses (Figure 2, Items 1 and 10) on defrost air flanges (Figure 2, Item 3) with clamps (Figure 2, Item 4).
3. Install instrument cluster (Figure 2, Item 7) on instrument panel (Figure 2, Item 6) with eight screws (Figure 2, Item 5).

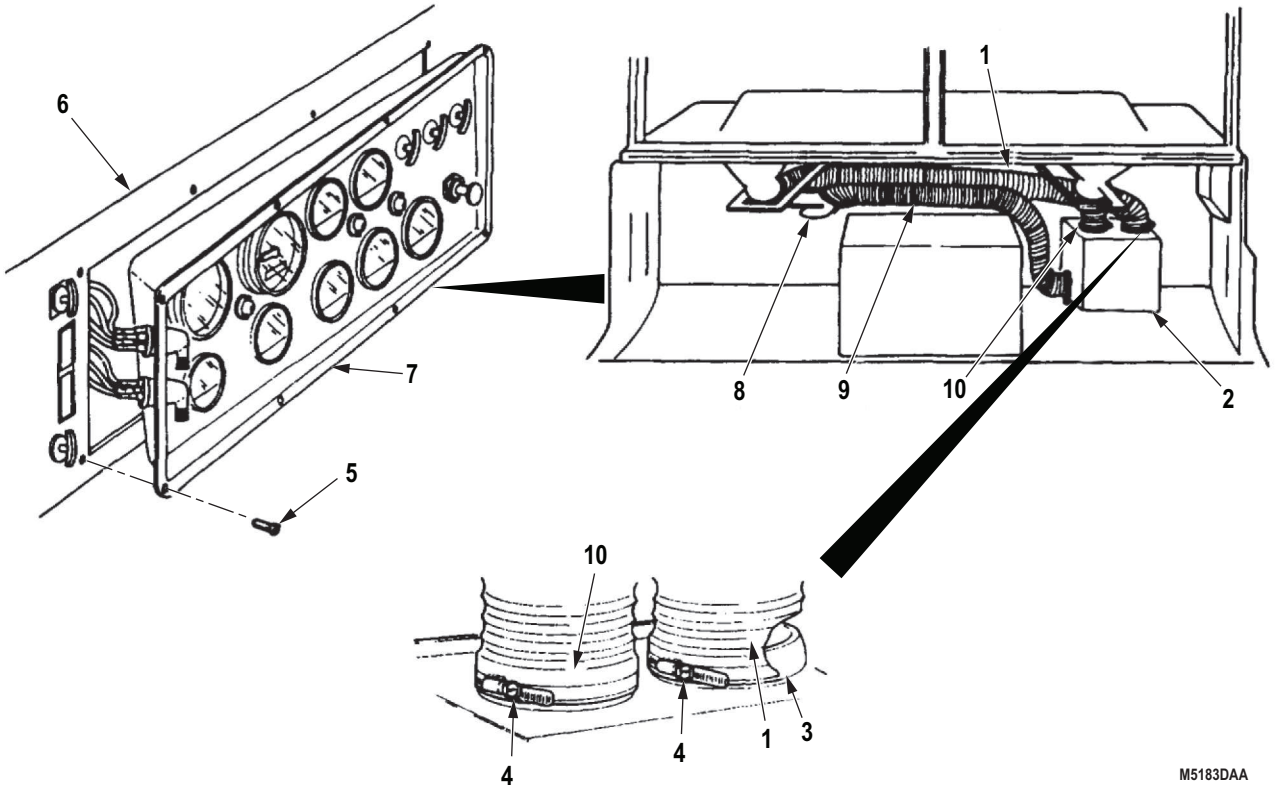


Figure 2. Cab Heat and Defrost Air Ducting Installation.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
DEFROST AND HEAT CONTROLS REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Cotter Pin

Materials/Parts (cont.)
(Volume 5, WP 0827, Table 1, Item 257)
Qty: 2
Spring Nut
(Volume 5, WP 0827, Table 1, Item 427)
Qty: 2

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

REMOVAL

NOTE

Tag all cables for installation.

1. Remove screw (Figure 1, Item 12), clamp (Figure 1, Item 16), defrost cable (Figure 1, Item 14), and retaining clip (Figure 1, Item 1) from diverter bracket (Figure 1, Item 3).
2. Remove cotter pin (Figure 1, Item 13), defrost cable (Figure 1, Item 14), and spring nut (Figure 1, Item 15) from control rod (Figure 1, Item 2). Discard cotter pin and spring nut.
3. Remove screw (Figure 1, Item 11), clamp (Figure 1, Item 10), heat control cable (Figure 1, Item 9), and retaining clip (Figure 1, Item 5) from diverter bracket (Figure 1, Item 4).
4. Remove cotter pin (Figure 1, Item 8), heat control cable (Figure 1, Item 9), and spring nut (Figure 1, Item 7) from control rod (Figure 1, Item 6). Discard cotter pin and spring nut.

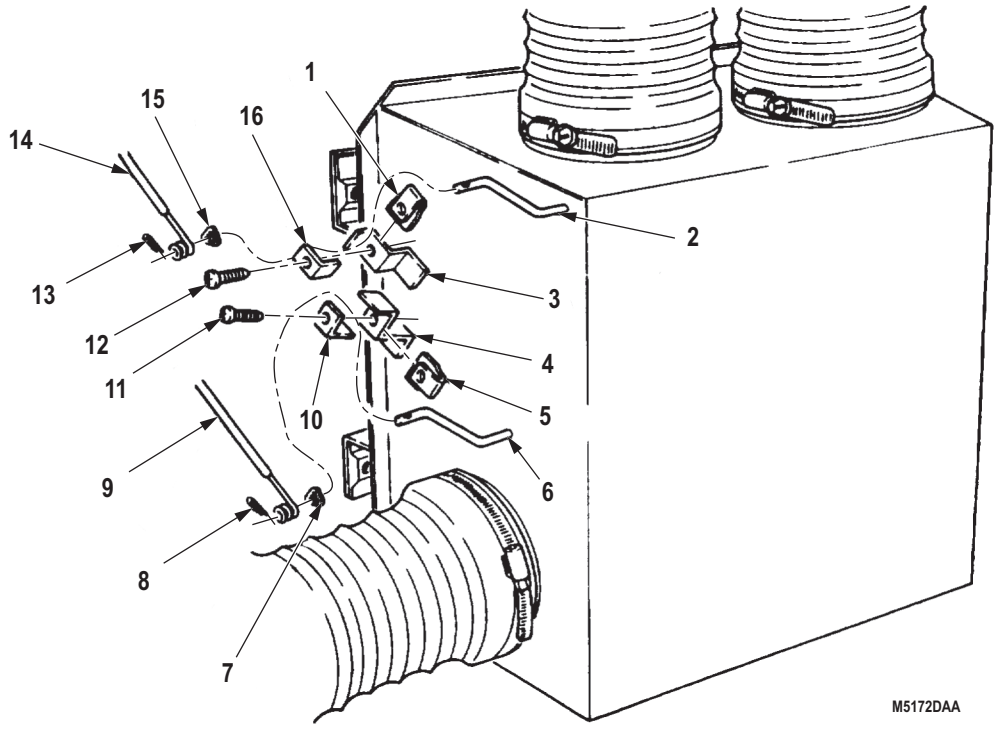


Figure 1. Defrost and Heat Controls Removal.

REMOVAL - Continued

5. Remove eight screws (Figure 2, Item 7) and pull instrument cluster (Figure 2, Item 6) away from instrument panel (Figure 2, Item 8).
6. Remove two nuts (Figure 2, Item 2), washers (Figure 2, Item 1), and defrost cable (Figure 2, Item 4) from instrument cluster (Figure 2, Item 8).
7. Remove heat control cable handle (Figure 2, Item 3), heat control cable (Figure 1, Item 9), defrost cable (Figure 2, Item 4), and defrost control handle (Figure 2, Item 5) from instrument cluster (Figure 2, Item 6).

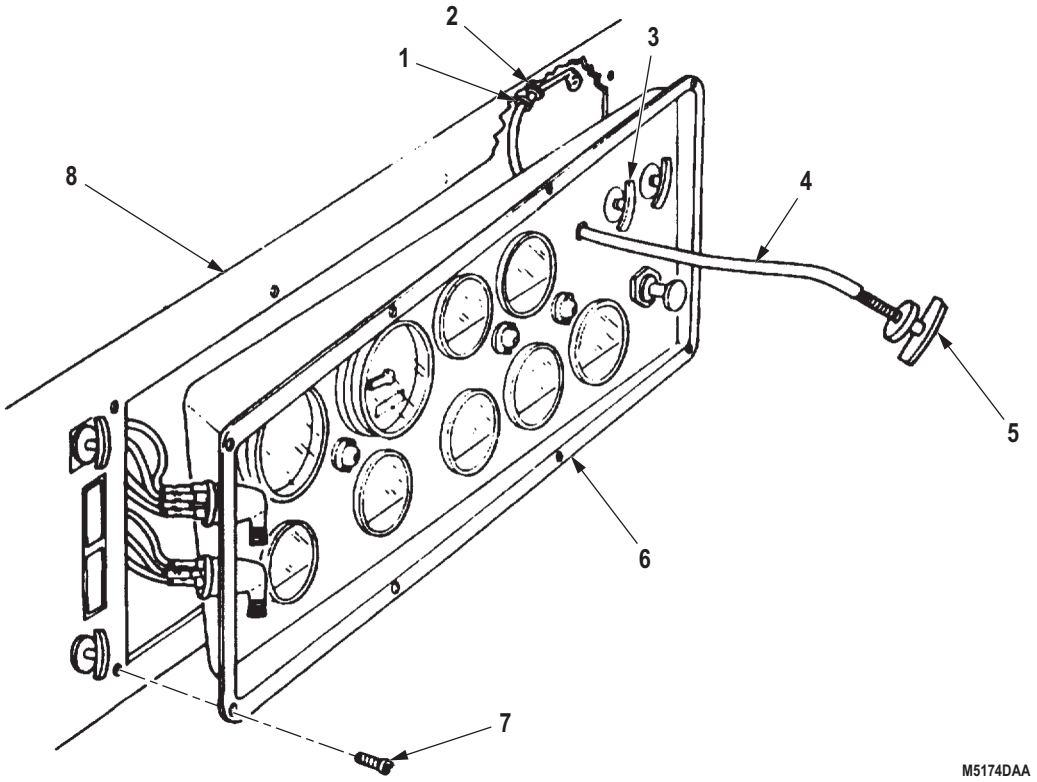


Figure 2. Defrost and Heat Controls Removal.

END OF TASK

INSTALLATION

1. Install heat control cable handle (Figure 3, Item 3), heat control cable (Figure 4, Item 9), defrost control handle (Figure 3, Item 5), and defrost cable (Figure 3, Item 4) on instrument cluster (Figure 3, Item 6) with two washers (Figure 3, Item 1) and nuts (Figure 3, Item 2).
2. Route cables (Figure 3, Item 4) and (Figure 4, Item 9) to diverter brackets (Figure 4, Items 3 and 4).
3. Install instrument cluster (Figure 3, Item 6) on instrument panel (Figure 3, Item 8) with eight screws (Figure 3, Item 7).
4. Push heat control handle (Figure 3, Item 3) and defrost handle (Figure 3, Item 5) in all the way.

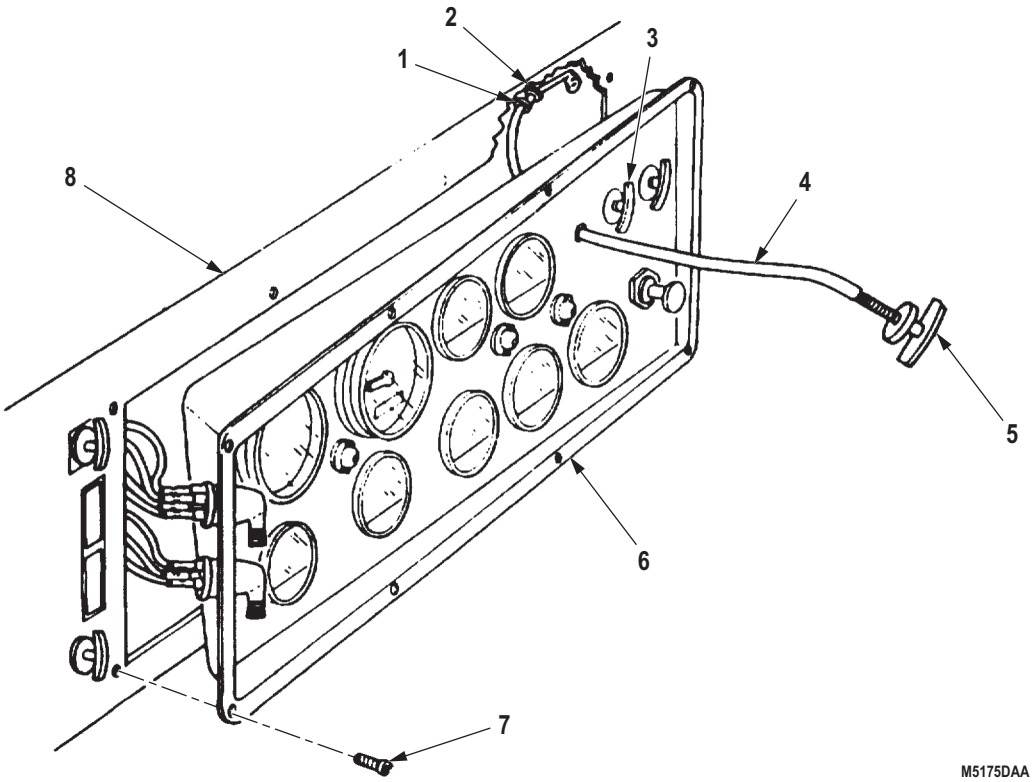


Figure 3. Defrost and Heat Controls Installation.

INSTALLATION - Continued

5. Install heat control cable (Figure 4, Item 9) on control rod (Figure 4, Item 6) with spring nut (Figure 4, Item 7) and cotter pin (Figure 4, Item 8).
6. Install heat control cable (Figure 4, Item 9) on diverter bracket (Figure 4, Item 4) with retaining clip (Figure 4, Item 5), clamp (Figure 4, Item 10), and screw (Figure 4, Item 11).
7. Install defrost control cable (Figure 4, Item 14) on control rod (Figure 4, Item 2) with spring nut (Figure 4, Item 1) and cotter pin (Figure 4, Item 13).
8. Install defrost control cable (Figure 4, Item 14) on diverter bracket (Figure 4, Item 3) with retaining clip (Figure 4, Item 1), clamp (Figure 4, Item 16), and screw (Figure 4, Item 12).

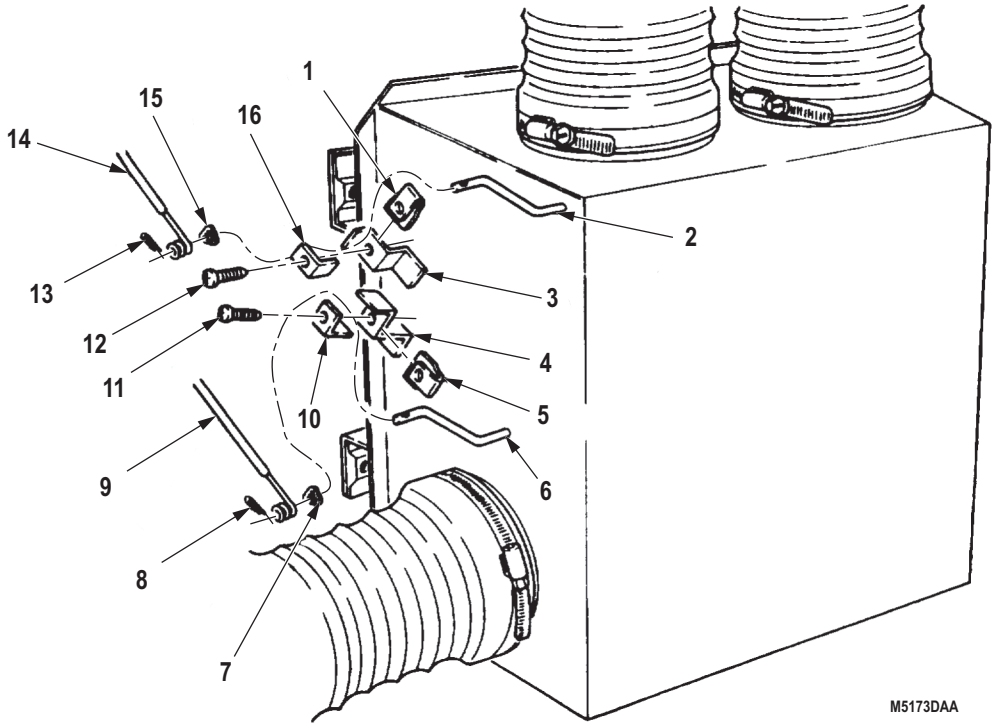


Figure 4. Defrost and Heat Controls Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

Check defrost and heat controls for proper operation. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
PERSONNEL HEATER HOSES REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

References
Volume 2, WP 0287

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Right fender splash shield removed.
(WP 0575)

REMOVAL

NOTE

- Have drainage container ready to catch coolant.
- Use drain pans to retain leaking/draining fluids. Refer to local procedures and plans for preventing and responding to fluid spills or leaks. Comply with local regulations when disposing of clean up material and leaked and spilled fluids.
- The personnel heater inlet hose and outlet hose are removed the same. This procedure covers the inlet hose.

1. Loosen hose clamp (Figure 1, Item 9) and remove heater inlet hose (Figure 1, Item 1) from elbow (Figure 1, Item 8).
2. Remove nut (Figure 1, Item 6), screw (Figure 1, Item 4), clamp (Figure 1, Item 5), and heater inlet hose (Figure 1, Item 1) from heater (Figure 1, Item 7).
3. Loosen hose clamp (Figure 1, Item 2) and remove heater inlet hose (Figure 1, Item 1) from oil cooler shutoff valve (Figure 1, Item 3).

REMOVAL - Continued

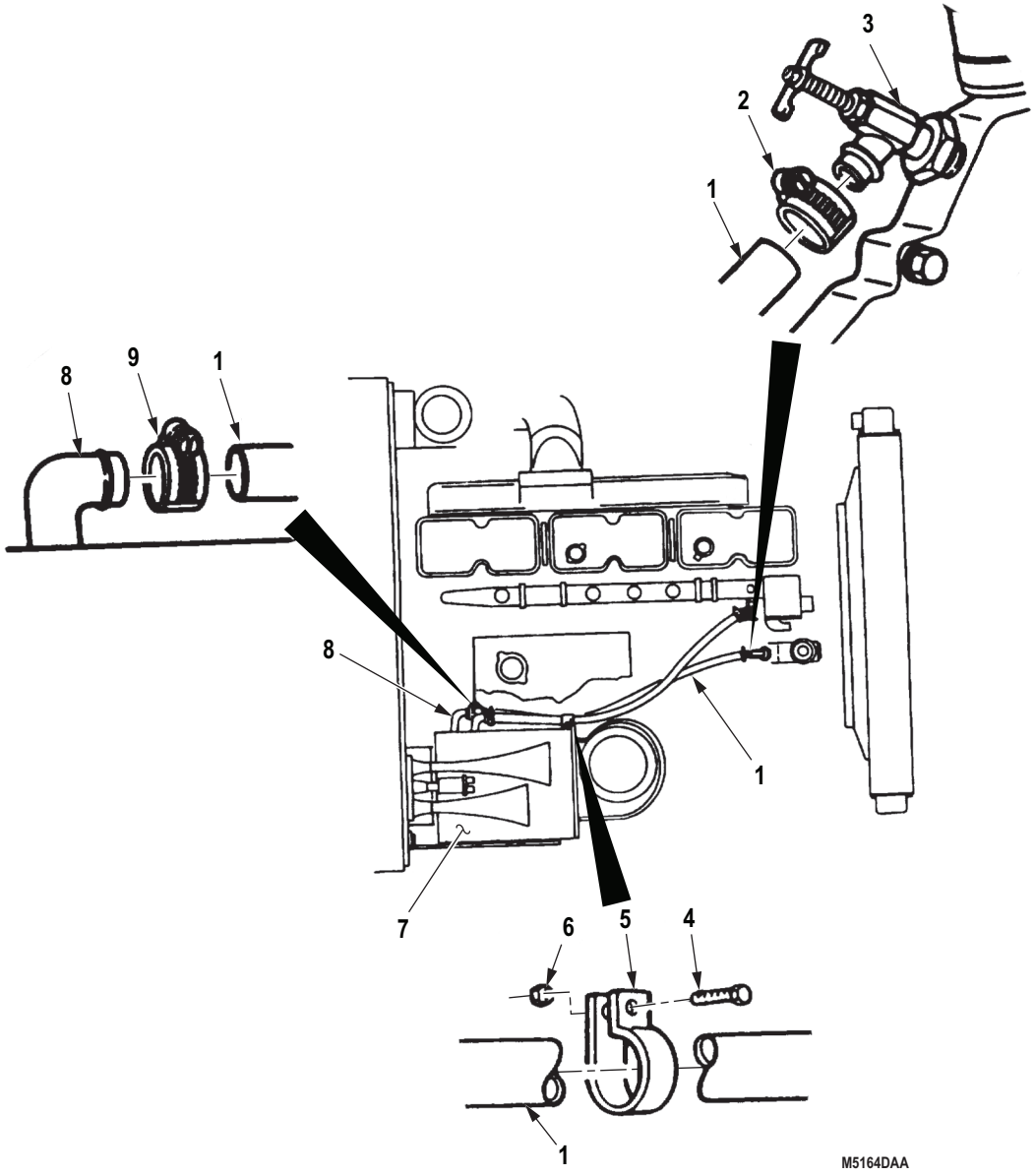


Figure 1. Personnel Heater Hoses Removal.

END OF TASK

INSTALLATION

1. Install heater inlet hose (Figure 2, Item 1) on elbow (Figure 2, Item 8) with clamp (Figure 2, Item 9).
2. Install heater inlet hose (Figure 2, Item 1) on oil cooler shutoff valve (Figure 2, Item 3) with hose clamp (Figure 2, Item 2).
3. Install heater inlet hose (Figure 2, Item 1) on heater (Figure 2, Item 7) with clamp (Figure 2, Item 5), screw (Figure 2, Item 4), and nut (Figure 2, Item 6).

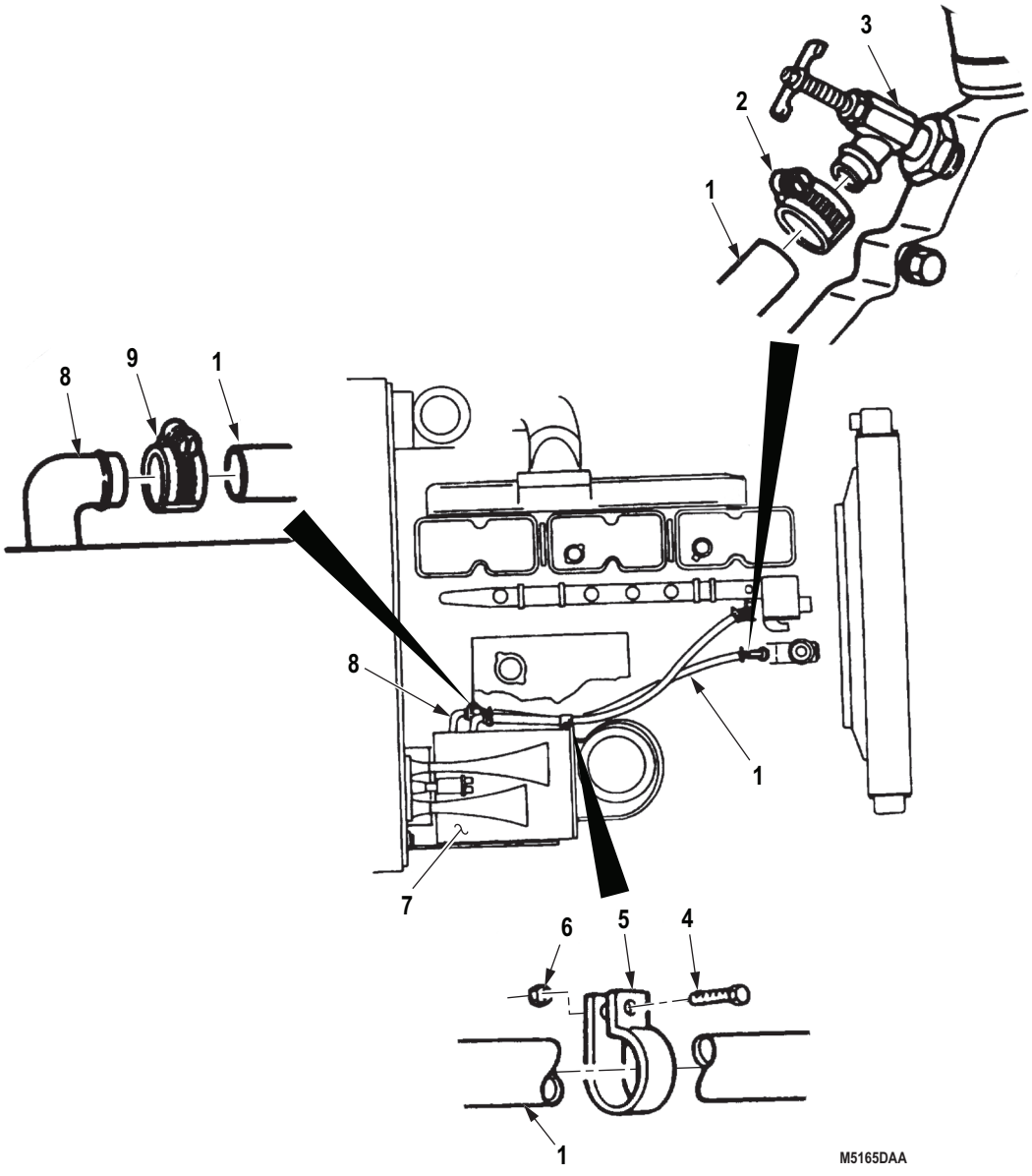


Figure 2. Personnel Heater Hoses Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Fill cooling system to proper level and test antifreeze. (Volume 2, WP 0287)
2. Install right fender splash shield. (WP 0575)
3. Check heater for proper operation. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
PERSONNEL HOT WATER HEATER REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Cotter Pin
(Volume 5, WP 0827, Table 1, Item 257)
Qty: 1

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

Equipment Condition (cont.)
Personnel heater inlet and outlet hoses removed.
(WP 0746)

REMOVAL

1. Remove screw (Figure 1, Item 3), sheet spring nut (Figure 1, Item 7), and clamp bracket (Figure 1, Item 4) from bracket (Figure 1, Item 6).
2. Remove cotter pin (Figure 1, Item 30) from fresh air shutoff rod (Figure 1, Item 2). Discard cotter pin.
3. Remove fresh air control cable (Figure 1, Item 5) and clip (Figure 1, Item 31) from fresh air shutoff rod (Figure 1, Item 2).
4. Remove four screws (Figure 1, Item 35), washers (Figure 1, Item 34), and canister (Figure 1, Item 1) from personnel hot water heater (Figure 1, Item 21).
5. Disconnect lead (Figure 1, Item 25) from heater blower motor lead (Figure 1, Item 26).
6. Remove setscrew (Figure 1, Item 33) and fan/impeller (Figure 1, Item 32) from heater blower motor (Figure 1, Item 29).
7. Remove four screws (Figure 1, Item 27), washers (Figure 1, Item 28), and heater blower motor (Figure 1, Item 29) from personnel hot water heater (Figure 1, Item 21).
8. Remove nut (Figure 1, Item 19), washer (Figure 1, Item 13), screw (Figure 1, Item 10), and washer (Figure 1, Item 13) from rear heater support (Figure 1, Item 14).
9. Remove nut (Figure 1, Item 24), washer (Figure 1, Item 15), screw (Figure 1, Item 12), and washer (Figure 1, Item 15) from forward heater support (Figure 1, Item 18).
10. Remove four screws (Figure 1, Item 23) and washers (Figure 1, Item 22) from forward and rear heater supports (Figure 1, Item 18) and (Figure 1, Item 14).
11. Remove two screws (Figure 1, Item 17), washers (Figure 1, Item 16), and left mounting bracket (Figure 1, Item 20) from firewall (Figure 1, Item 8).

CAUTION

Do not twist or bend elbows. They are welded to personnel hot water heater.

12. Remove personnel hot water heater (Figure 1, Item 21) from diverter duct (Figure 1, Item 9) and right mounting bracket (Figure 1, Item 11).

REMOVAL - Continued

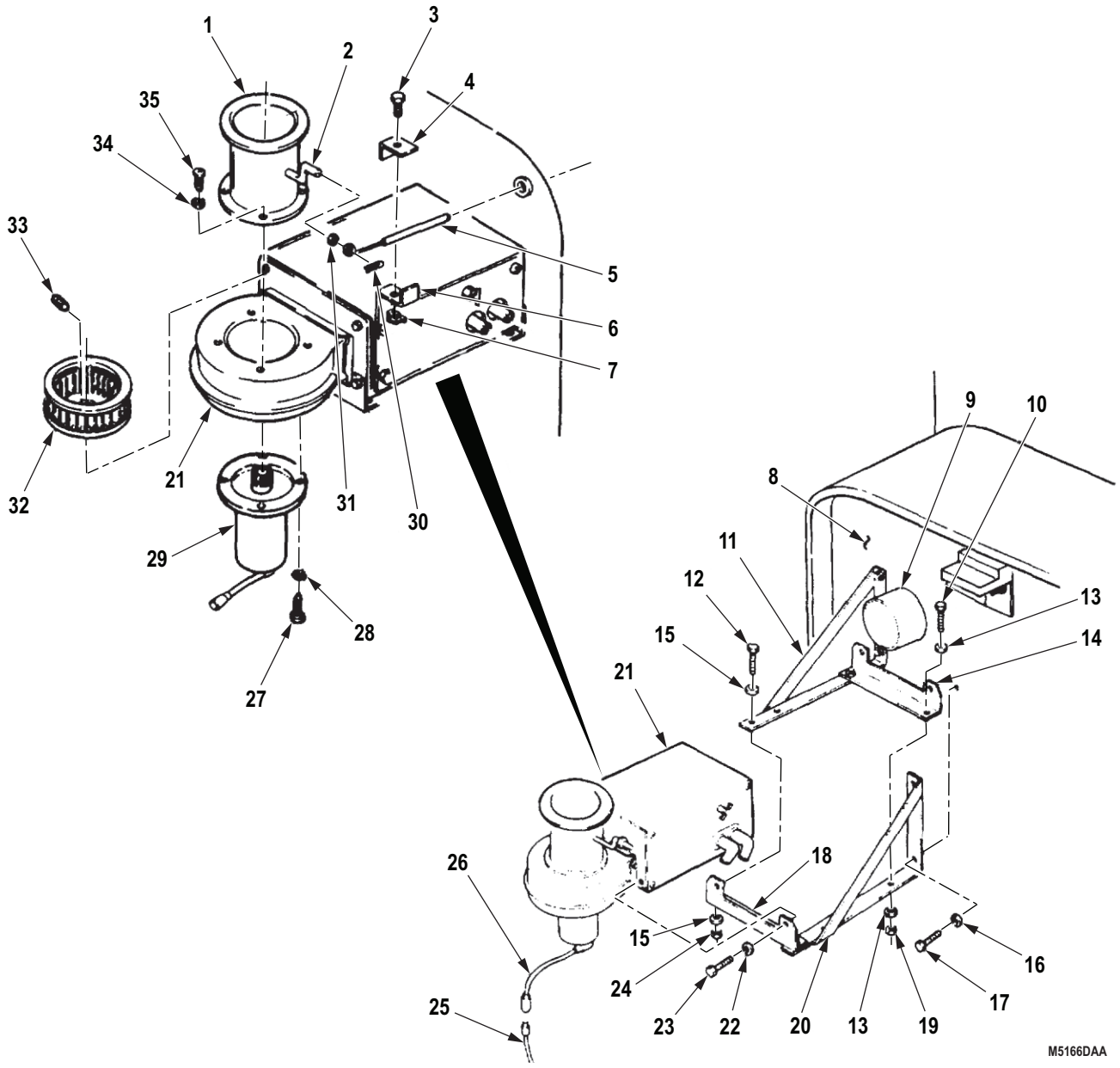


Figure 1. Personnel Hot Water Heater Removal.

END OF TASK

INSTALLATION

CAUTION

During installation of personnel water heater, do not twist or bend elbows. They are welded and may be damaged.

1. Position personnel hot water heater (Figure 2, Item 21) on diverter duct (Figure 2, Item 9) and right mounting bracket (Figure 2, Item 11).
2. Install left mounting bracket (Figure 2, Item 20) on firewall (Figure 2, Item 8) with two washers (Figure 2, Item 16) and screws (Figure 2, Item 17).
3. Install forward and rear supports (Figure 2, Item 18) and (Figure 2, Item 14) on personnel hot water heater (Figure 2, Item 21) with four washers (Figure 2, Item 22) and screws (Figure 2, Item 23).
4. Install forward and rear supports (Figure 2, Item 18) and (Figure 2, Item 14) on left mounting bracket (Figure 2, Item 20) and right mounting bracket (Figure 2, Item 11) with washer (Figure 2, Item 15), screw (Figure 2, Item 12), washer (Figure 2, Item 15), nut (Figure 2, Item 24), washer (Figure 2, Item 13), screw (Figure 2, Item 10), washer (Figure 2, Item 13), and nut (Figure 2, Item 19).
5. Install heater blower motor (Figure 2, Item 29) on personnel hot water heater (Figure 2, Item 21) with four washers (Figure 2, Item 28) and screws (Figure 2, Item 27).
6. Install fan/impeller (Figure 2, Item 32) on heater blower motor (Figure 2, Item 29) with setscrew (Figure 2, Item 33).
7. Connect lead (Figure 2, Item 25) to heater blower motor lead (Figure 2, Item 26).
8. Install canister (Figure 2, Item 1) on personnel hot water heater (Figure 2, Item 21) with four washers (Figure 2, Item 34) and screws (Figure 2, Item 35).
9. Install clip (Figure 2, Item 31) and fresh air control cable (Figure 2, Item 5) on fresh air shutoff rod (Figure 2, Item 2) with cotter pin (Figure 2, Item 30).
10. Install clamp bracket (Figure 2, Item 4) and fresh air control cable (Figure 2, Item 5) on bracket (Figure 2, Item 6) with screw (Figure 2, Item 3) and spring nut (Figure 2, Item 7).

INSTALLATION - Continued

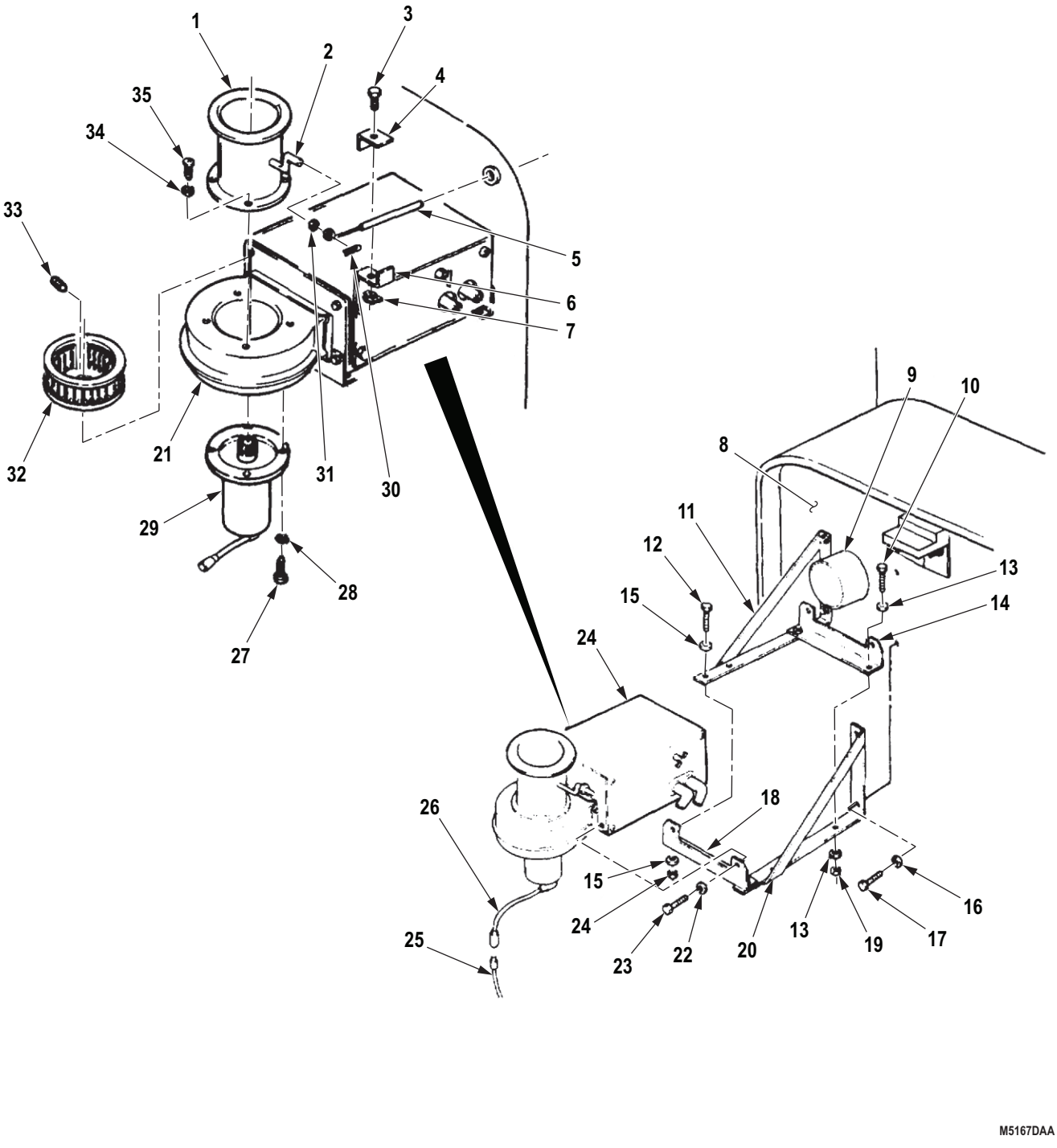


Figure 2. Personnel Hot Water Heater Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install personnel heater inlet and outlet hoses. (WP 0746)
2. Check heater for proper operation. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
ENGINE COOLANT HEATER REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Cotter Pin

Materials/Parts (cont.)
(Volume 5, WP 0827, Table 1, Item 348)
Qty: 1
Locknut
(Volume 5, WP 0827, Table 1, Item 285)
Qty: 4

Equipment Condition
Engine coolant heater pump removed. (WP 0752)

REMOVAL

1. Disconnect heater harness (Figure 1, Item 3) from engine coolant heater (Figure 1, Item 2).

NOTE

- Have drainage container ready to catch excess fuel.
- Use drain pans to retain leaking/draining fluids. Refer to local procedures and plans for preventing and responding to fluid spills or leaks. Comply with local regulations when disposing of clean up material and leaked and spilled fluids.

2. Disconnect fuel line (Figure 1, Item 8) and elbow (Figure 1, Item 9) from engine coolant heater (Figure 1, Item 2).
3. Disconnect hose (Figure 1, Item 7), adapter (Figure 1, Item 6), elbow (Figure 1, Item 5), union (Figure 1, Item 4), and nipple (Figure 1, Item 10) from engine coolant heater (Figure 1, Item 2).
4. Remove cotter pin (Figure 1, Item 19) and exhaust tube (Figure 1, Item 18) from engine coolant heater (Figure 1, Item 2). Discard cotter pin.
5. Remove hose (Figure 1, Item 13), adapter (Figure 1, Item 15), and elbow (Figure 1, Item 16) from engine coolant heater (Figure 1, Item 2).
6. Remove two clamps (Figure 1, Item 11) from engine coolant heater (Figure 1, Item 2).
7. Remove engine coolant heater (Figure 1, Item 2) from bracket (Figure 1, Item 12).
8. Remove four locknuts (Figure 1, Item 17) and screws (Figure 1, Item 14) from bracket (Figure 1, Item 12). Discard locknuts.
9. Remove bracket (Figure 1, Item 12) from toolbox (Figure 1, Item 1).

REMOVAL - Continued

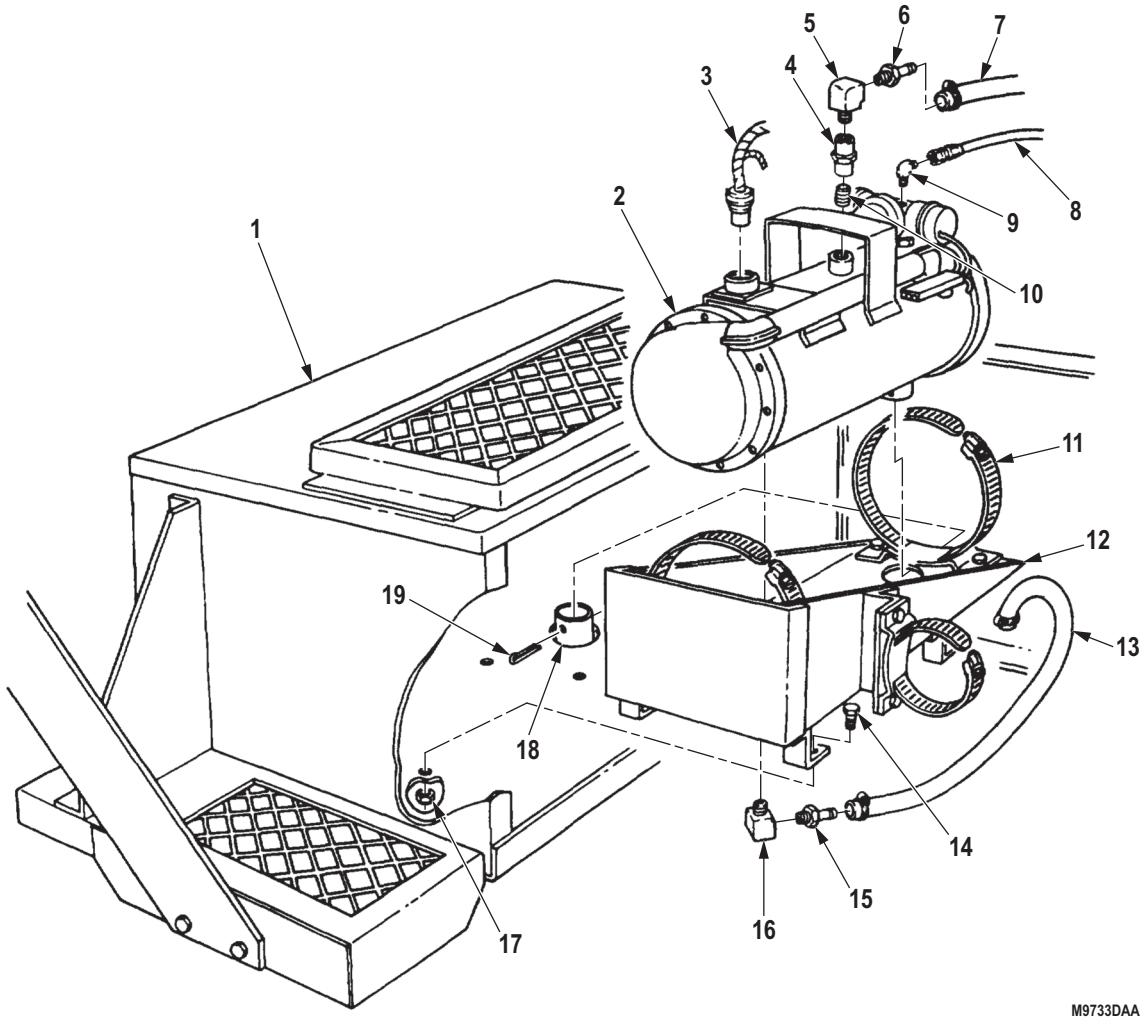


Figure 1. Engine Coolant Heater Removal.

END OF TASK

INSTALLATION

1. Install bracket (Figure 2, Item 12) on toolbox (Figure 2, Item 1).
2. Install four screws (Figure 2, Item 14) and locknuts (Figure 2, Item 17) on bracket (Figure 2, Item 12).
3. Install engine coolant heater (Figure 2, Item 2) on bracket (Figure 2, Item 12).
4. Install two clamps (Figure 2, Item 11) on engine coolant heater (Figure 2, Item 2).
5. Install elbow (Figure 2, Item 16), adapter (Figure 2, Item 15), and hose (Figure 2, Item 13) on engine coolant heater (Figure 2, Item 2).
6. Install exhaust tube (Figure 2, Item 18) on engine coolant heater (Figure 2, Item 2) with cotter pin (Figure 2, Item 19).
7. Install nipple (Figure 2, Item 10), union (Figure 2, Item 4), elbow (Figure 2, Item 5), adapter (Figure 2, Item 6), and hose (Figure 2, Item 7) on engine coolant heater (Figure 2, Item 2).
8. Install elbow (Figure 2, Item 9) and fuel line (Figure 2, Item 8) on engine coolant heater (Figure 2, Item 2).
9. Connect heater harness (Figure 2, Item 3) to engine coolant heater (Figure 2, Item 2).

INSTALLATION - Continued

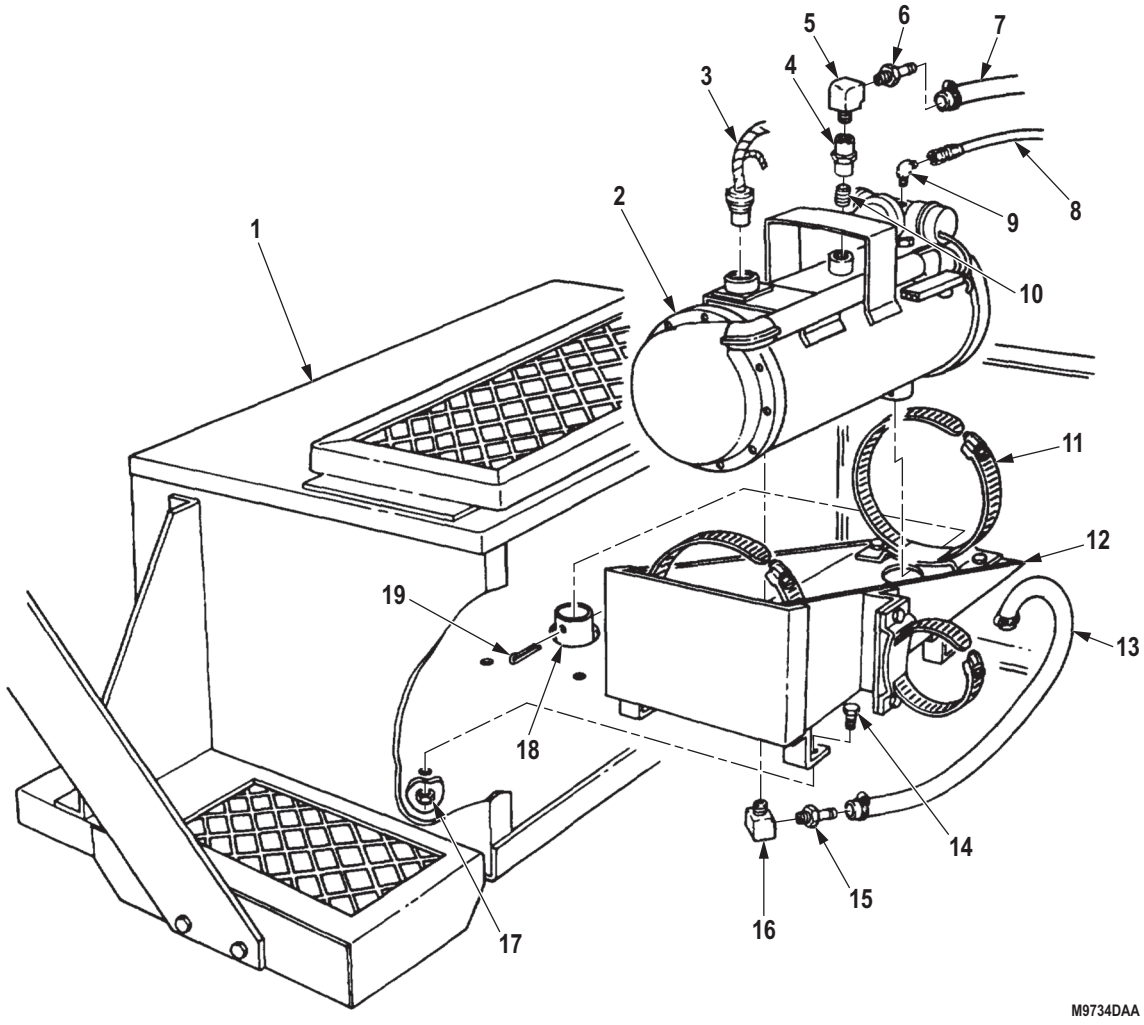


Figure 2. Engine Coolant Heater Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

Install engine coolant heater pump. (WP 0752)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
RADIATOR COVER KIT REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

REMOVAL

1. Untie ends of tiedown strap (Figure 1, Item 5) and remove from 28 tiedown loops (Figure 1, Item 2).
2. Remove radiator cover (Figure 1, Item 1), 56 screws (Figure 1, Item 3), and 28 tiedown loops (Figure 1, Item 2) from hood (Figure 1, Item 4).

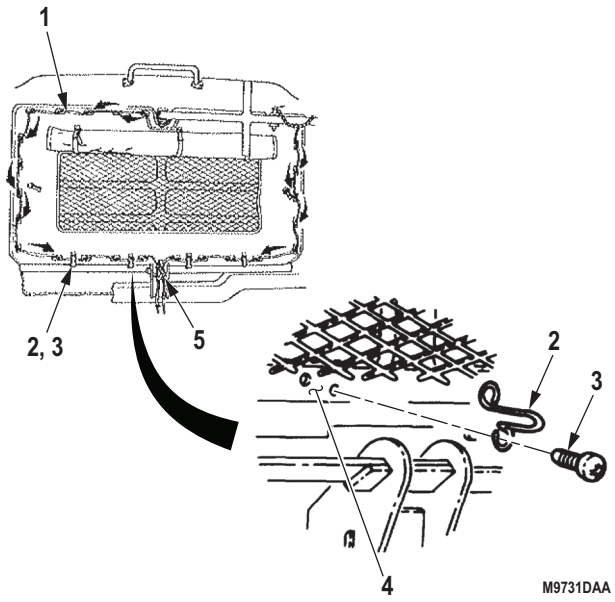


Figure 1. Radiator Cover Kit Removal.

END OF TASK

INSTALLATION

1. Install 28 tiedown loops (Figure 2, Item 2) on hood (Figure 2, Item 4) with 56 screws (Figure 2, Item 3).

NOTE

Raise hood for ease in tucking bottom flap between hood brackets.

2. Position radiator cover (Figure 2, Item 1) on 28 tiedown loops (Figure 2, Item 2).
3. Thread tiedown strap (Figure 2, Item 5) through 28 tiedown loops (Figure 2, Item 2) and tie ends together.

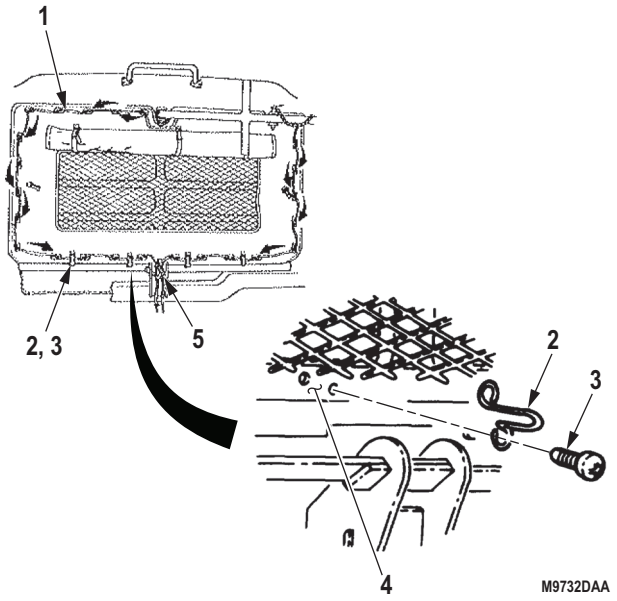


Figure 2. Radiator Cover Kit Installation.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
HARDTOP KIT REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Locknut (Volume 5, WP 0827, Table 1, Item 314)
Qty: 32
Lockwasher
(Volume 5, WP 0827, Table 1, Item 392)
Qty: 2
Rubber Seal
(Volume 5, WP 0827, Table 1, Item 44)
Qty: 2

Personnel Required
(2)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

REMOVAL

NOTE

Assistant will help when required.

1. Remove two screws (Figure 1, Item 1) and lockwashers (Figure 1, Item 16) from roof assembly (Figure 1, Item 2). Discard lockwashers.

NOTE

Note position of hook bolts for installation.

2. Remove four nuts (Figure 1, Item 3) and hook bolts (Figure 1, Item 15) from top of roof assembly (Figure 1, Item 2) and windshield frame (Figure 1, Item 14).
3. Remove 16 locknuts (Figure 1, Item 4), washers (Figure 1, Item 5), screws (Figure 1, Item 8), and washers (Figure 1, Item 5) from roof assembly (Figure 1, Item 2). Discard locknuts.
4. Remove roof assembly (Figure 1, Item 2) and rubber seal (Figure 1, Item 6) from back panel assembly (Figure 1, Item 7) and windshield frame (Figure 1, Item 14). Discard rubber seal.
5. Remove 16 locknuts (Figure 1, Item 10), screws (Figure 1, Item 9), washers (Figure 1, Item 13), back panel assembly (Figure 1, Item 7), and rubber seal (Figure 1, Item 12) from cab body (Figure 1, Item 11). Discard locknuts and rubber seals.

REMOVAL - Continued

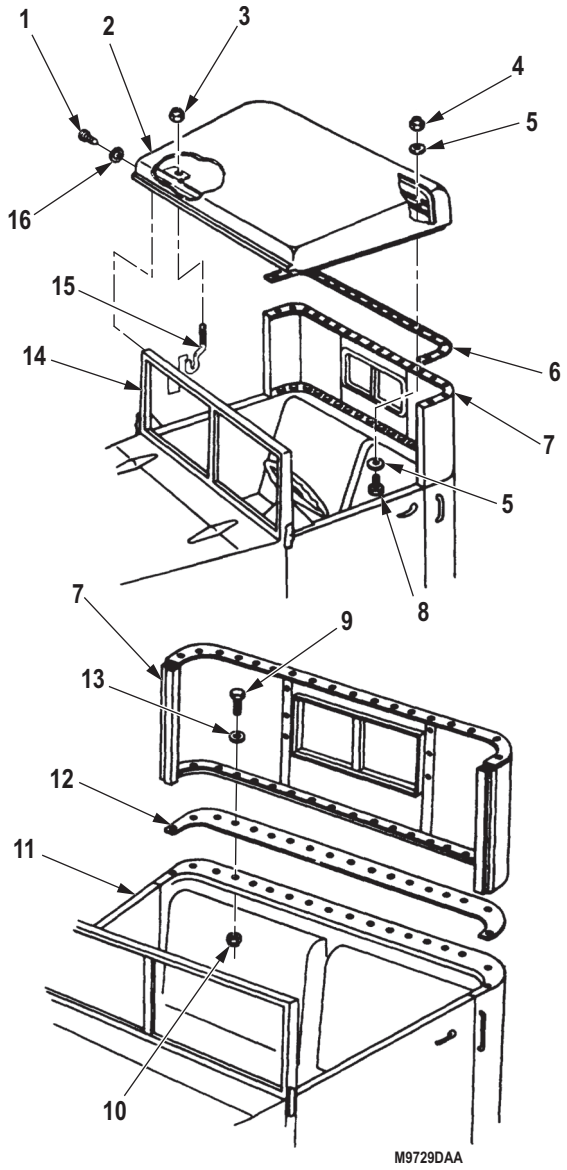


Figure 1. Hardtop Kit Removal.

END OF TASK

INSTALLATION

1. Install rubber seal (Figure 2, Item 12) and back panel assembly (Figure 2, Item 7) on cab body (Figure 2, Item 11) with 16 washers (Figure 2, Item 13), screws (Figure 2, Item 9), and locknuts (Figure 2, Item 10). Do not tighten locknuts.
2. Install rubber seal (Figure 2, Item 6) and roof assembly (Figure 2, Item 2) on back panel assembly (Figure 2, Item 7) with 16 washers (Figure 2, Item 5), screws (Figure 2, Item 8), washers (Figure 2, Item 5), and locknuts (Figure 2, Item 4). Do not tighten locknuts.
3. Install roof assembly (Figure 2, Item 2) on windshield frame (Figure 2, Item 14) with four hook bolts (Figure 2, Item 15) and nuts (Figure 2, Item 3). Do not tighten nuts.
4. Inspect all hardtop kit panels for alignment and seating. Adjust as required.
5. Close cab windows and inspect for alignment with roof assembly (Figure 2, Item 2). Adjust as required.
6. Tighten 16 locknuts (Figure 2, Items 4 and 10) and four nuts (Figure 2, Item 3).
7. Install two lockwashers (Figure 2, Item 16) and screws (Figure 2, Item 1) on roof assembly (Figure 2, Item 2).

INSTALLATION - Continued

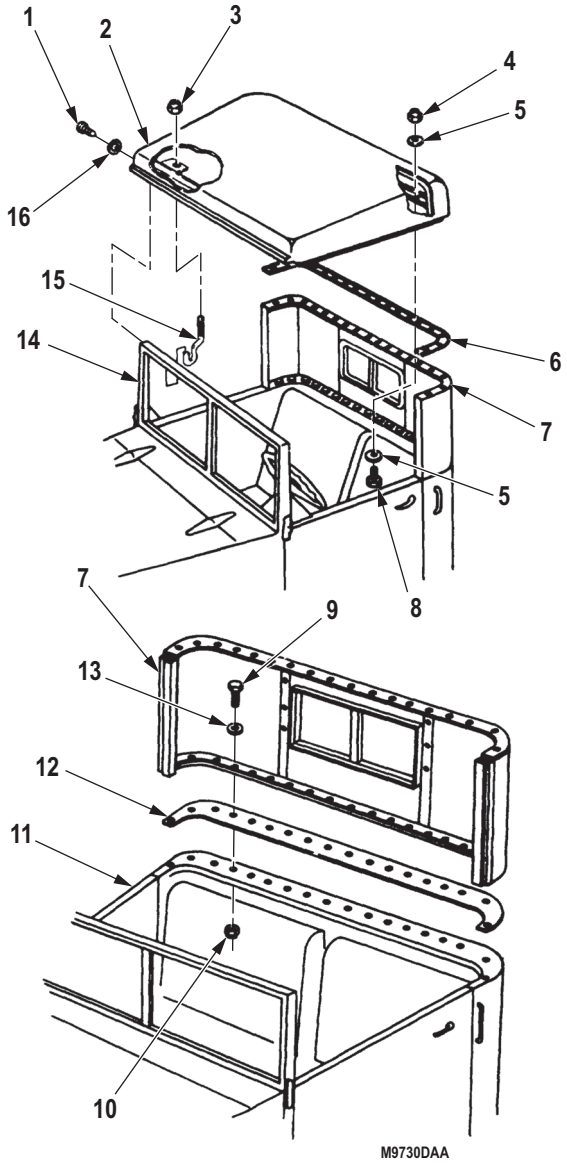


Figure 2. Hardtop Kit Installation.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
PERSONNEL FUEL BURNING HEATER AND MOUNTING BRACKET REPLACEMENT (M939/A1)

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Cotter Pin
(Volume 5, WP 0827, Table 1, Item 351)
Qty: 1

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

Equipment Condition (cont.)
Hood raised and secured. (TM 9-2320-272-10)

REMOVAL

WARNING



Diesel fuel is flammable. Do not perform this procedure near open flames. Failure to comply may result in injury or death to personnel.

1. Disconnect heater harness (Figure 1, Item 2) from fuel burning heater (Figure 1, Item 1).
2. Disconnect fuel line (Figure 1, Item 7) from heater elbow (Figure 1, Item 6).
3. Remove cotter pin (Figure 1, Item 3) from exhaust tube (Figure 1, Item 4) and fuel burning heater (Figure 1, Item 1). Discard cotter pin.
4. Loosen two clamps (Figure 1, Item 5) and remove fuel burning heater (Figure 1, Item 1) from clamps.
5. Remove four screws (Figure 1, Item 11) and mounting brackets (Figure 1, Items 9 and 10) from firewall (Figure 1, Item 8).

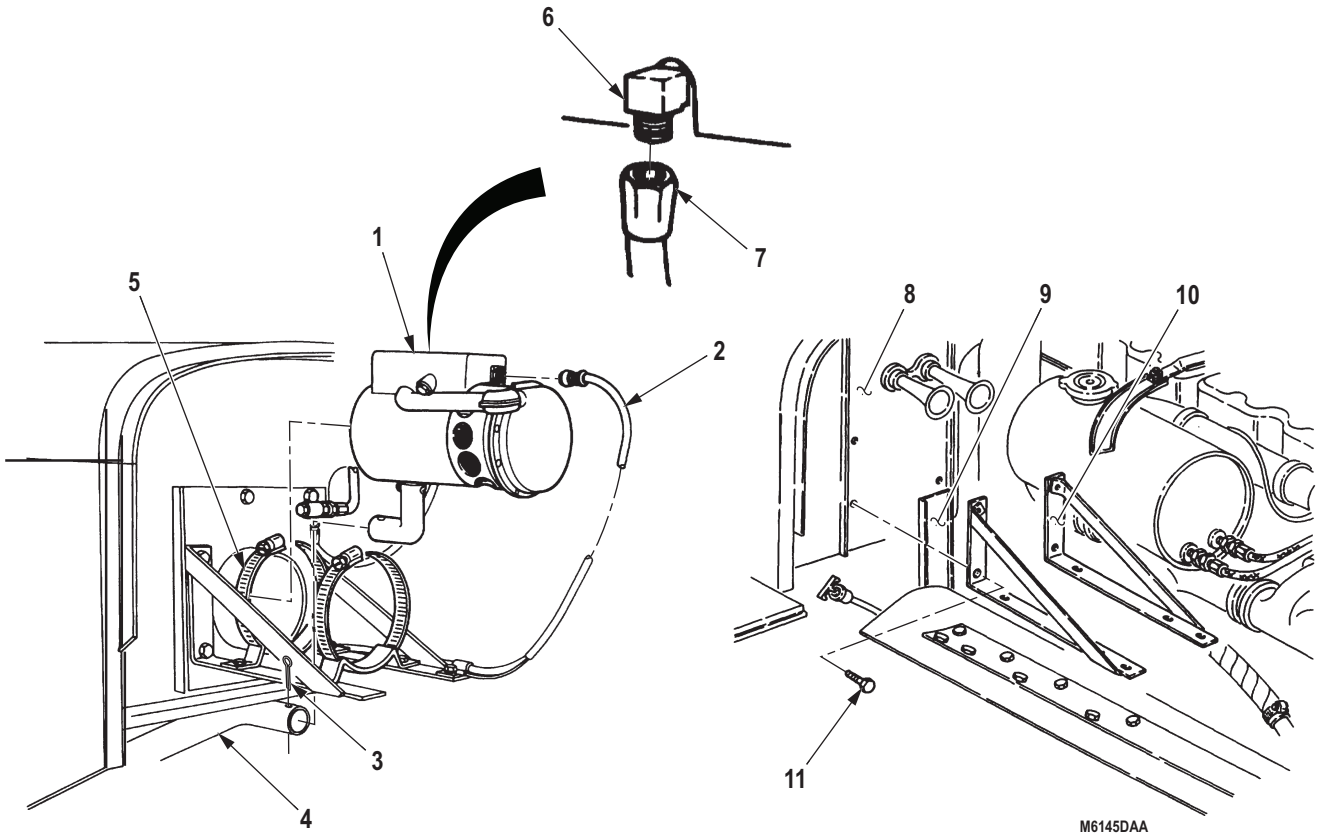


Figure 1. Personnel Fuel Burning Heater and Mounting Bracket Removal (M939/A1).

END OF TASK

INSTALLATION

1. Install mounting brackets (Figure 2, Items 9 and 10) on firewall (Figure 2, Item 8) with four screws (Figure 2, Item 11).
2. Install fuel burning heater (Figure 2, Item 1) into clamps (Figure 2, Item 5) and tighten clamps.
3. Install exhaust tube (Figure 2, Item 4) on fuel burning heater (Figure 2, Item 1) with cotter pin (Figure 2, Item 3).
4. Connect fuel line (Figure 2, Item 7) to heater elbow (Figure 2, Item 6).
5. Connect heater harness (Figure 2, Item 2) to fuel burning heater (Figure 2, Item 1).

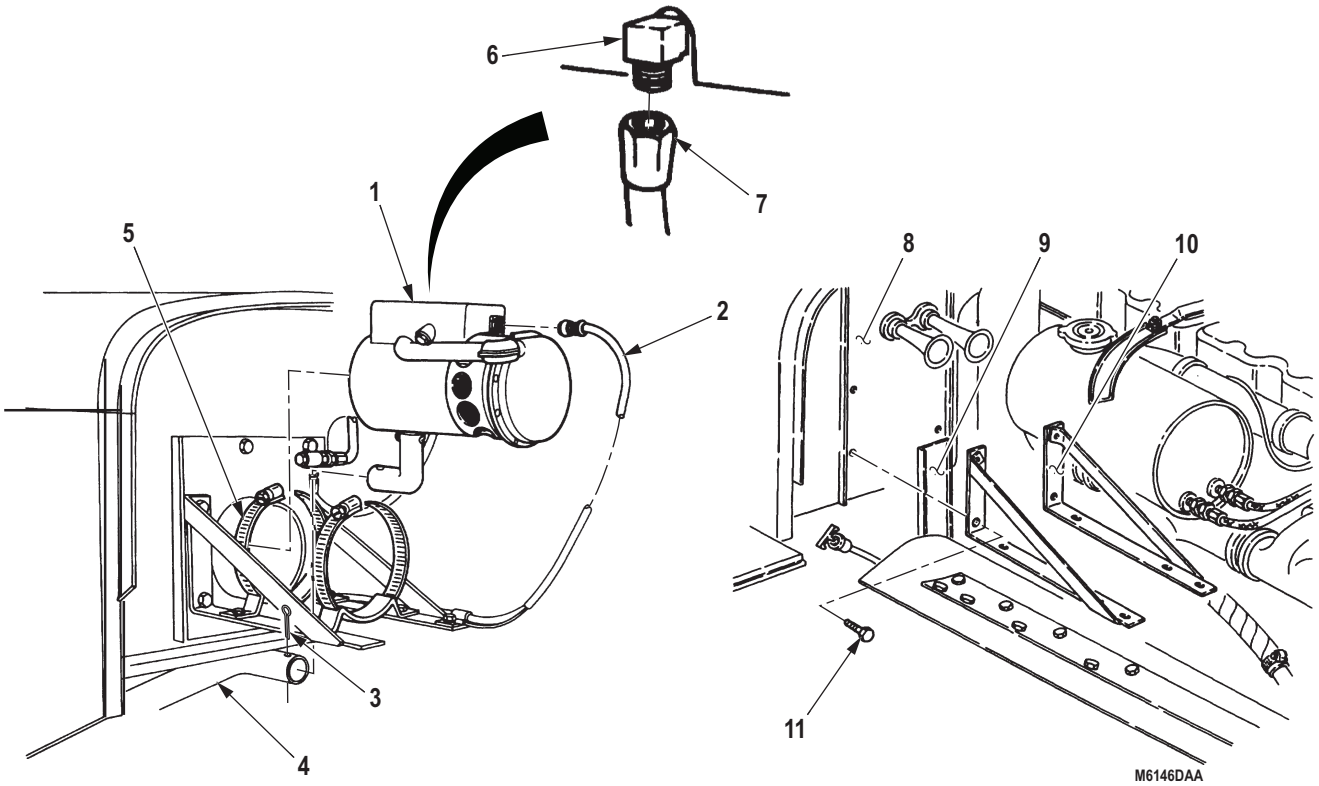


Figure 2. Personnel Fuel Burning Heater and Mounting Bracket Installation (M939/A1).

END OF TASK

FOLLOW-ON MAINTENANCE

Check personnel fuel burning heater for proper operation. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
ENGINE COOLANT HEATER PUMP REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Lockwasher
(Volume 5, WP 0827, Table 1, Item 390)
Qty: 2

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

Equipment Condition (cont.)
Hood raised and secured. (TM 9-2320-272-10)

REMOVAL

1. Close water manifold drain valve (Figure 1, Item 1) and oil cooler drain valve (Figure 1, Item 2).
2. Open toolbox door (Figure 1, Item 10).
3. Close two engine coolant heater drain valves (Figure 1, Item 22).
4. Loosen clamp (Figure 1, Item 19) and remove manifold inlet hose (Figure 1, Item 21) from heater pump elbow (Figure 1, Item 8).
5. Loosen clamp (Figure 1, Item 20) and remove pump outlet hose (Figure 1, Item 23) from heater pump adapter (Figure 1, Item 14).
6. Remove nut (Figure 1, Item 11) and lockwasher (Figure 1, Item 17) from terminal stud (Figure 1, Item 14) and disconnect ground wire (Figure 1, Item 13) from heater pump (Figure 1, Item 6). Discard lockwasher.
7. Remove nut (Figure 1, Item 18) and lockwasher (Figure 1, Item 17) from terminal stud (Figure 1, Item 15) and disconnect wire (Figure 1, Item 16) from heater pump (Figure 1, Item 6). Discard lockwasher.
8. Remove clamp (Figure 1, Item 4) and heater pump (Figure 1, Item 6) from pump bracket (Figure 1, Item 3).
9. Remove heater pump elbow (Figure 1, Item 8) and adapter (Figure 1, Item 7) from heater pump.
10. Remove heater pump adapter (Figure 1, Item 5) from port (Figure 1, Item 9).

REMOVAL - Continued

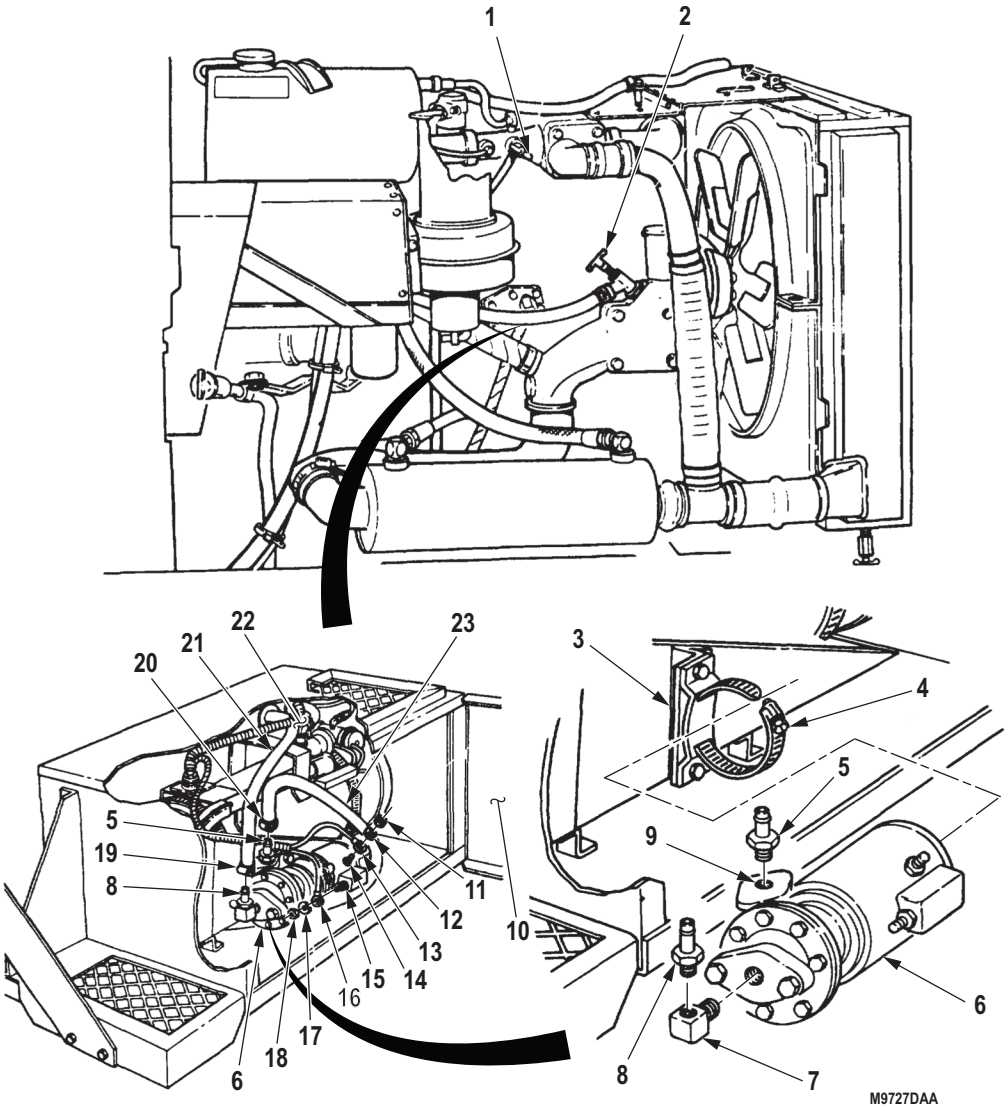


Figure 1. Engine Coolant Heater Pump Removal.

END OF TASK

INSTALLATION

1. Install heater pump adapter (Figure 2, Item 5) in port (Figure 2, Item 9).
2. Install adapter (Figure 2, Item 7) and heater pump elbow (Figure 2, Item 8) in heater pump (Figure 2, Item 6).
3. Install heater pump (Figure 2, Item 6) on pump bracket (Figure 2, Item 3) with clamp (Figure 2, Item 4).
4. Install wire (Figure 2, Item 16) on terminal stud (Figure 2, Item 15) with lockwasher (Figure 2, Item 17) and nut (Figure 2, Item 18).
5. Install ground wire (Figure 2, Item 13) on terminal stud (Figure 2, Item 14) with lockwasher (Figure 2, Item 12) and nut (Figure 2, Item 11).
6. Install pump outlet hose (Figure 2, Item 23) on heater pump elbow (Figure 2, Item 5) and tighten clamp (Figure 2, Item 20).
7. Install manifold inlet hose (Figure 2, Item 21) on heater pump elbow (Figure 2, Item 8) and tighten clamp (Figure 2, Item 19).
8. Open two engine coolant heater drain valves (Figure 2, Item 22).
9. Open water manifold drain valve (Figure 2, Item 1) and coolant outlet drain valve (Figure 2, Item 2).
10. Close toolbox door (Figure 2, Item 10).

INSTALLATION - Continued

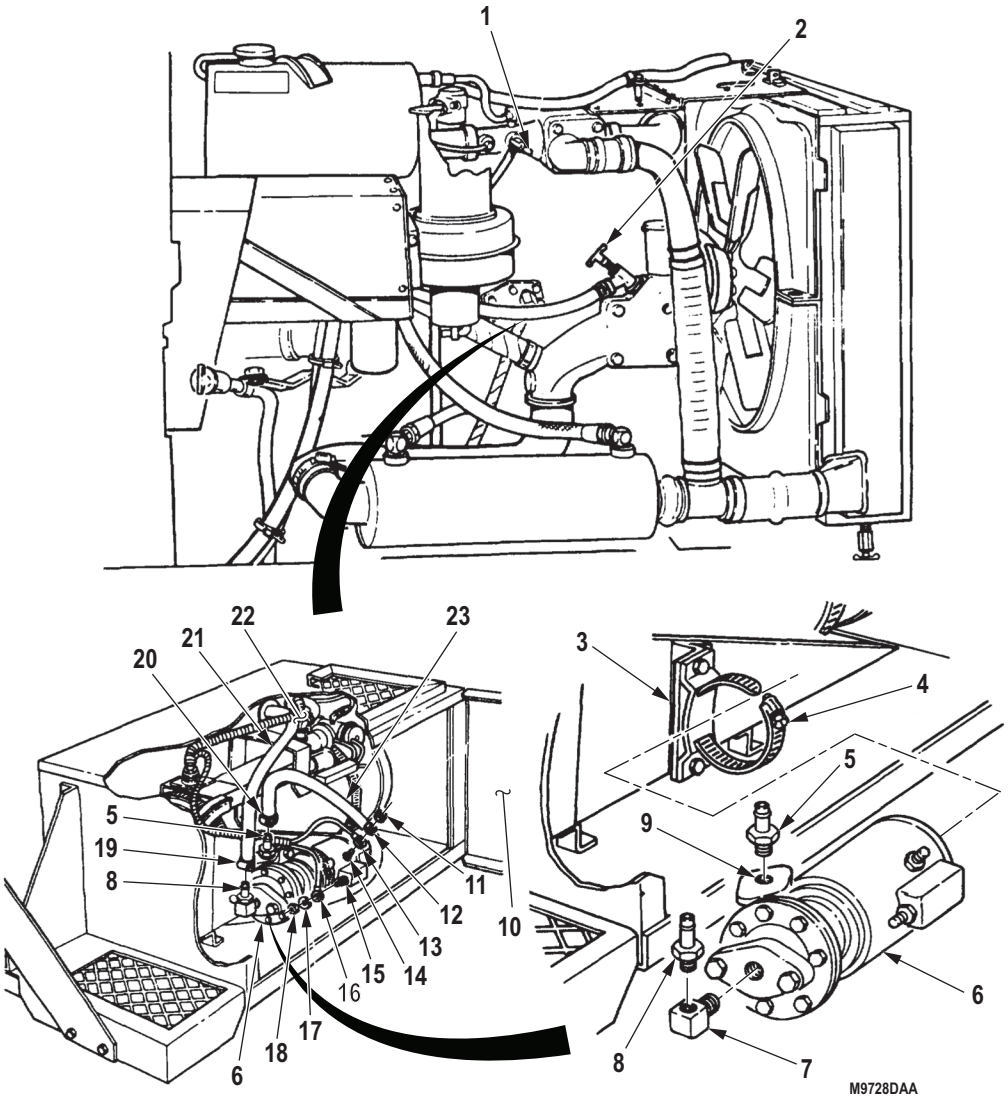


Figure 2. Engine Coolant Heater Pump Installation.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
ENGINE COOLANT HEATER CONTROL BOX REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Locknut (Volume 5, WP 0827, Table 1, Item 282)
Qty: 2
Lockwasher
(Volume 5, WP 0827, Table 1, Item 403)
Qty: 2

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

Equipment Condition (cont.)
Battery ground cables disconnected.
(Volume 2, WP 0350)

REMOVAL

1. Disconnect coolant heater harness connector (Figure 1, Item 5) from coolant heater control box (Figure 1, Item 8).
2. Disconnect connector (Figure 1, Item 6) from control box wire (Figure 1, Item 7).
3. Remove two nuts (Figure 1, Item 2), lockwashers (Figure 1, Item 3), and coolant heater control box (Figure 1, Item 8) from control mounting bracket (Figure 1, Item 4). Discard lockwashers.
4. Remove two locknuts (Figure 1, Item 1), screws (Figure 1, Item 9), and control mounting bracket (Figure 1, Item 4) from instrument panel (Figure 1, Item 10). Discard locknuts.

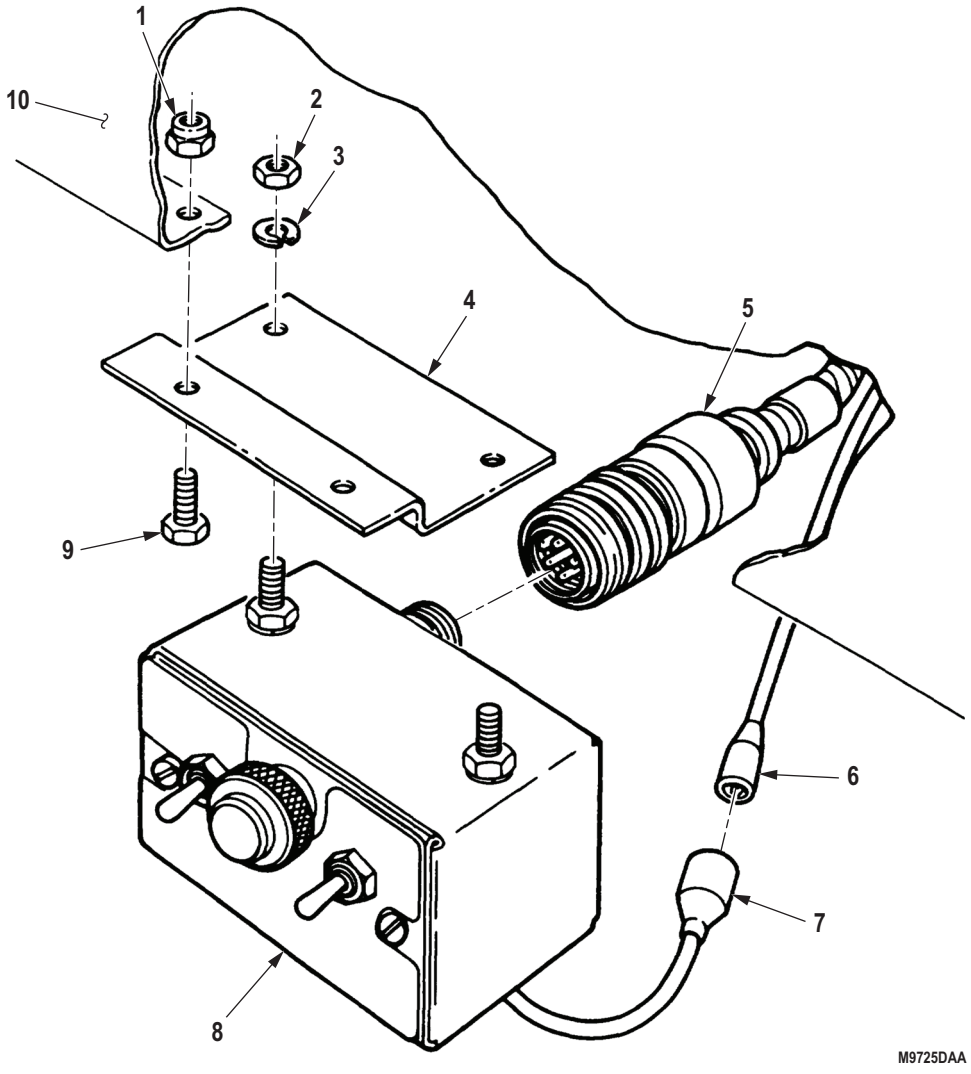


Figure 1. Engine Coolant Heater Control Box Removal.

END OF TASK

INSTALLATION

1. Install control mounting bracket (Figure 2, Item 4) on instrument panel (Figure 2, Item 10) with two screws (Figure 2, Item 9) and locknuts (Figure 2, Item 1).
2. Install coolant heater control box (Figure 2, Item 8) on control mounting bracket (Figure 2, Item 4) with two lockwashers (Figure 2, Item 3) and nuts (Figure 2, Item 2).
3. Connect connector (Figure 2, Item 6) to control box wire (Figure 2, Item 7).
4. Connect coolant heater harness (Figure 2, Item 5) to coolant heater control box (Figure 2, Item 8).

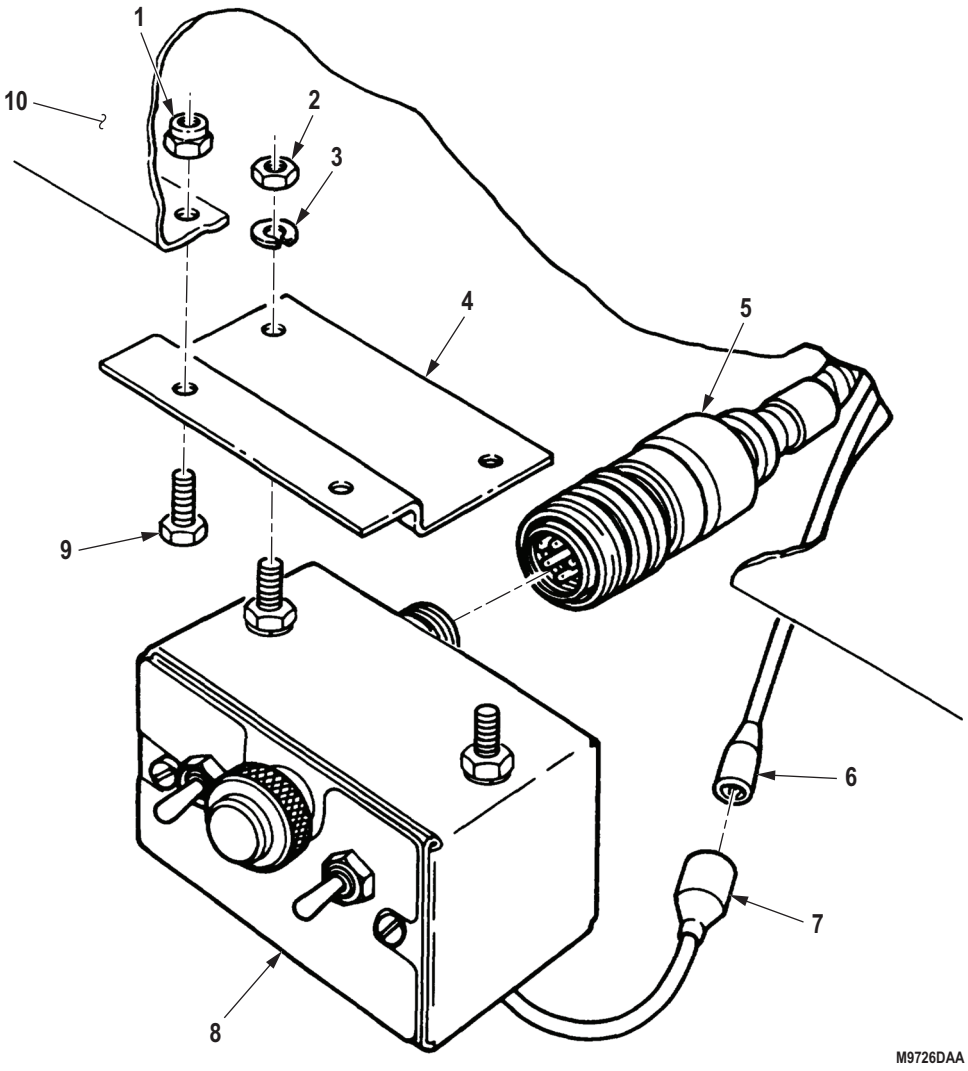


Figure 2. Engine Coolant Heater Control Box Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Connect battery ground cables. (Volume 2, WP 0350)
2. Check engine coolant heater for proper operation. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
ENGINE COOLANT HEATER HARNESS REPLACEMENT (M939/A1)

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Lockwasher
(Volume 5, WP 0827, Table 1, Item 403)
Qty: 2
Tiedown Strap
(Volume 5, WP 0827, Table 1, Item 375)
Qty: 10

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

Equipment Condition (cont.)
Hood raised and secured. (TM 9-2320-272-10)
Battery ground cables disconnected.
(Volume 2, WP 0350)

REMOVAL

1. Open toolbox door (Figure 1, Item 9).
2. Disconnect engine coolant heater harness (Figure 1, Item 2) from engine coolant heater (Figure 1, Item 20).
3. Remove nut (Figure 1, Item 10), lockwasher (Figure 1, Item 11), and ground wire (Figure 1, Item 12) from terminal stud (Figure 1, Item 13) on heater pump (Figure 1, Item 18). Discard lockwasher.
4. Remove nut (Figure 1, Item 17), lockwasher (Figure 1, Item 16), and ground wire (Figure 1, Item 15) from terminal stud (Figure 1, Item 14) on heater pump (Figure 1, Item 18). Discard lockwasher.
5. Remove ten tiedown straps (Figure 1, Item 5) from engine coolant heater harness (Figure 1, Item 2), fuel pump cable (Figure 1, Item 6), hose (Figure 1, Item 7), and lead (Figure 1, Item 22). Discard tiedown straps.
6. Disconnect lead (Figure 1, Item 22) from engine coolant heater harness lead (Figure 1, Item 4).
7. Disconnect engine coolant heater harness (Figure 1, Item 2) from control box (Figure 1, Item 1), slide through grommet (Figure 1, Item 3) in firewall (Figure 1, Item 21) and grommet (Figure 1, Item 8) in toolbox (Figure 1, Item 19), and remove from vehicle.

REMOVAL - Continued

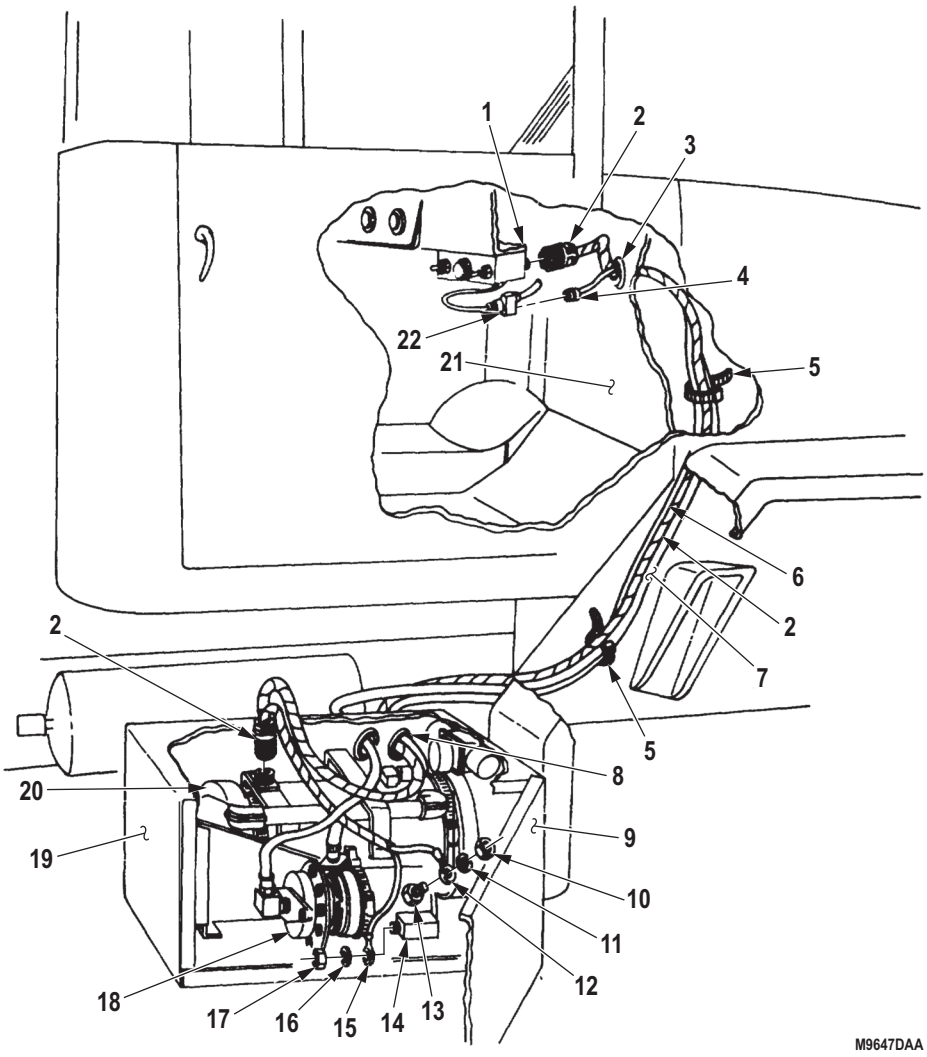


Figure 1. Engine Coolant Heater Harness Removal.

END OF TASK

INSTALLATION

1. Slide engine coolant heater harness (Figure 2, Item 2) through grommet (Figure 2, Item 8) in toolbox (Figure 2, Item 19) and grommet (Figure 2, Item 3) in firewall (Figure 2, Item 21) and connect to control box (Figure 2, Item 1).
2. Connect lead (Figure 2, Item 22) to engine coolant heater harness lead (Figure 2, Item 4).
3. Install ten tiedown straps (Figure 2, Item 5) on engine coolant heater harness (Figure 2, Item 2), fuel pump cable (Figure 2, Item 6), hose (Figure 2, Item 7), and lead (Figure 2, Item 22).
4. Connect ground wire (Figure 2, Item 15) to terminal stud (Figure 2, Item 14) on heater pump (Figure 2, Item 18) with lockwasher (Figure 2, Item 16) and nut (Figure 2, Item 17).
5. Connect ground wire (Figure 2, Item 12) to terminal stud (Figure 2, Item 13) on heater pump (Figure 2, Item 18) with lockwasher (Figure 2, Item 11) and nut (Figure 2, Item 10).
6. Connect engine coolant heater harness (Figure 2, Item 2) to engine coolant heater (Figure 2, Item 20).
7. Close toolbox door (Figure 2, Item 9).

INSTALLATION - Continued

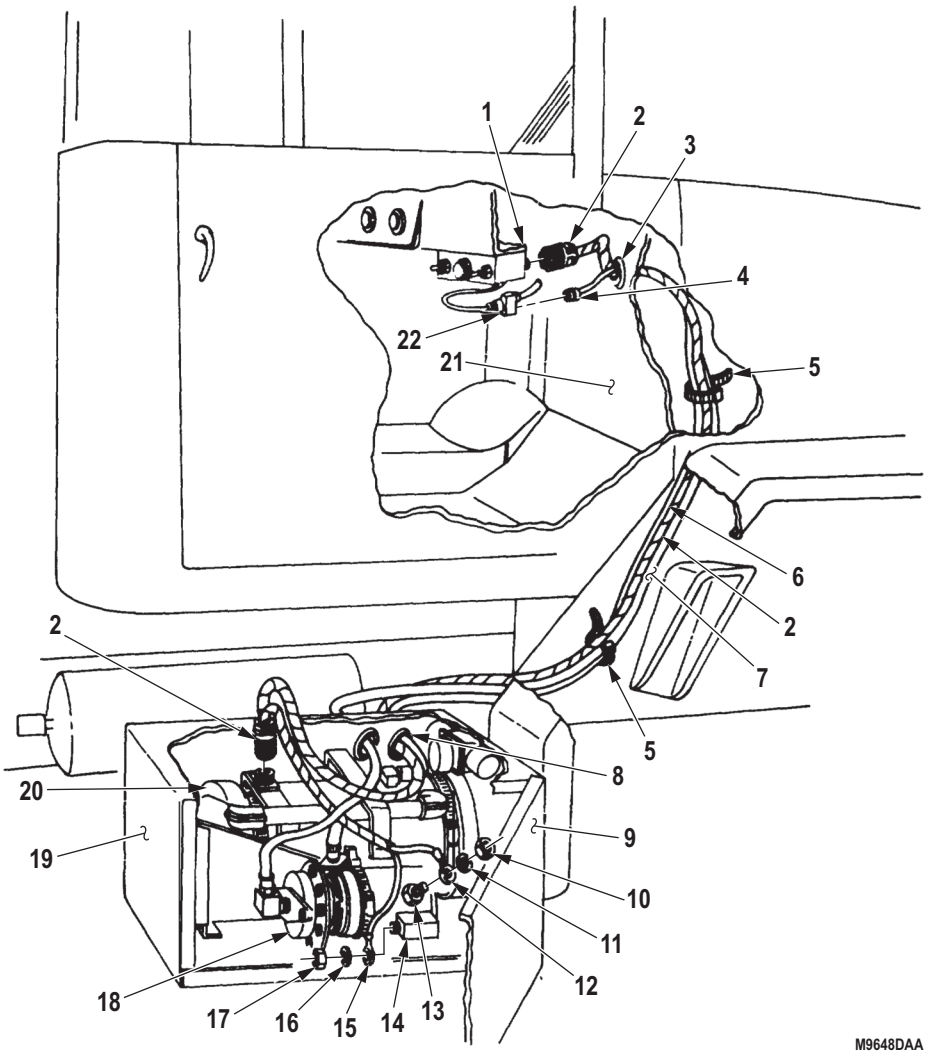


Figure 2. Engine Coolant Heater Harness Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Connect battery ground cables. (Volume 2, WP 0350)
2. Check engine coolant heater for proper operation. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
ENGINE COOLANT HEATER HARNESS REPLACEMENT (M939/A2)

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Lockwasher
(Volume 5, WP 0827, Table 1, Item 403)
Qty: 2
Tiedown Strap
(Volume 5, WP 0827, Table 1, Item 375)
Qty: 1

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

Equipment Condition (cont.)
Battery ground cables disconnected.
(Volume 2, WP 0350)

REMOVAL

1. Open toolbox door (Figure 1, Item 12).
2. Disconnect engine coolant heater harness (Figure 1, Item 3) from engine coolant heater (Figure 1, Item 22).
3. Remove nut (Figure 1, Item 13), lockwasher (Figure 1, Item 14), and ground wire (Figure 1, Item 21) from terminal stud (Figure 1, Item 15) on heater pump (Figure 1, Item 19). Discard lockwasher.
4. Remove nut (Figure 1, Item 18), lockwasher (Figure 1, Item 20), and wire (Figure 1, Item 17) from terminal stud (Figure 1, Item 16) on heater pump (Figure 1, Item 19). Discard lockwasher.
5. Remove screw (Figure 1, Item 7), nut (Figure 1, Item 6), and clamp (Figure 1, Item 8) from bracket (Figure 1, Item 9).
6. Remove tiedown strap (Figure 1, Item 5) from engine coolant heater harness (Figure 1, Item 3). Discard tiedown strap.
7. Disconnect engine coolant heater harness (Figure 1, Item 3) from control box (Figure 1, Item 1) and slide harness through grommet (Figure 1, Item 4) in firewall (Figure 1, Item 2) and grommet (Figure 1, Item 10) in toolbox (Figure 1, Item 11).

REMOVAL - Continued

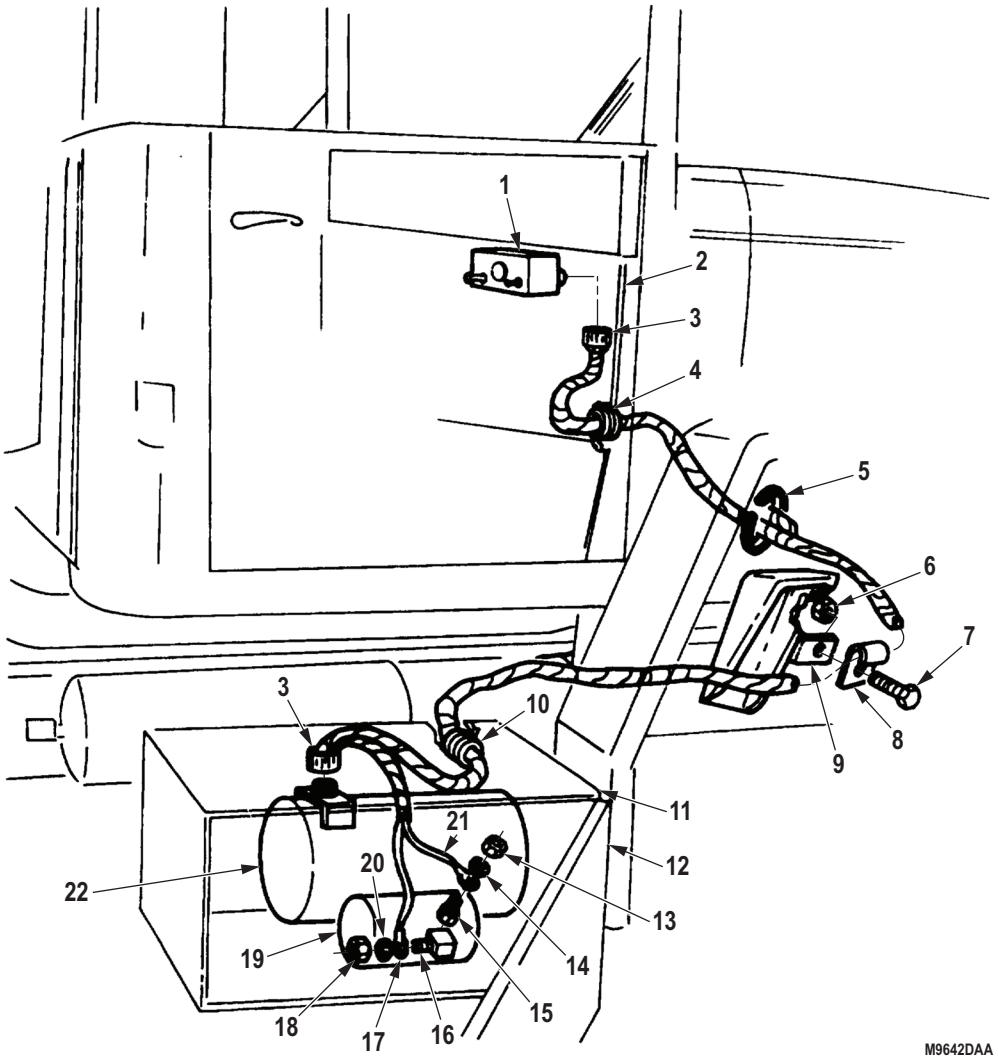


Figure 1. Engine Coolant Heater Harness Removal.

END OF TASK

INSTALLATION

1. Slide engine coolant heater harness (Figure 2, Item 3) through grommet (Figure 2, Item 4) in firewall (Figure 2, Item 2) and grommet (Figure 2, Item 10) in toolbox (Figure 2, Item 11) and connect to control box (Figure 2, Item 1).
2. Install tiedown strap (Figure 2, Item 5) on engine coolant heater harness (Figure 2, Item 3).
3. Install engine coolant heater harness (Figure 2, Item 3) on bracket (Figure 2, Item 9) with clamp (Figure 2, Item 8), screw (Figure 2, Item 7), and nut (Figure 2, Item 6).
4. Connect engine coolant heater harness (Figure 2, Item 3) to engine coolant heater (Figure 2, Item 22).
5. Install wire (Figure 2, Item 17) on terminal stud (Figure 2, Item 16) with lockwasher (Figure 2, Item 20) and nut (Figure 2, Item 18).
6. Install ground wire (Figure 2, Item 21) on terminal stud (Figure 2, Item 15) with lockwasher (Figure 2, Item 14) and nut (Figure 2, Item 13).
7. Close toolbox door (Figure 2, Item 12).

INSTALLATION - Continued

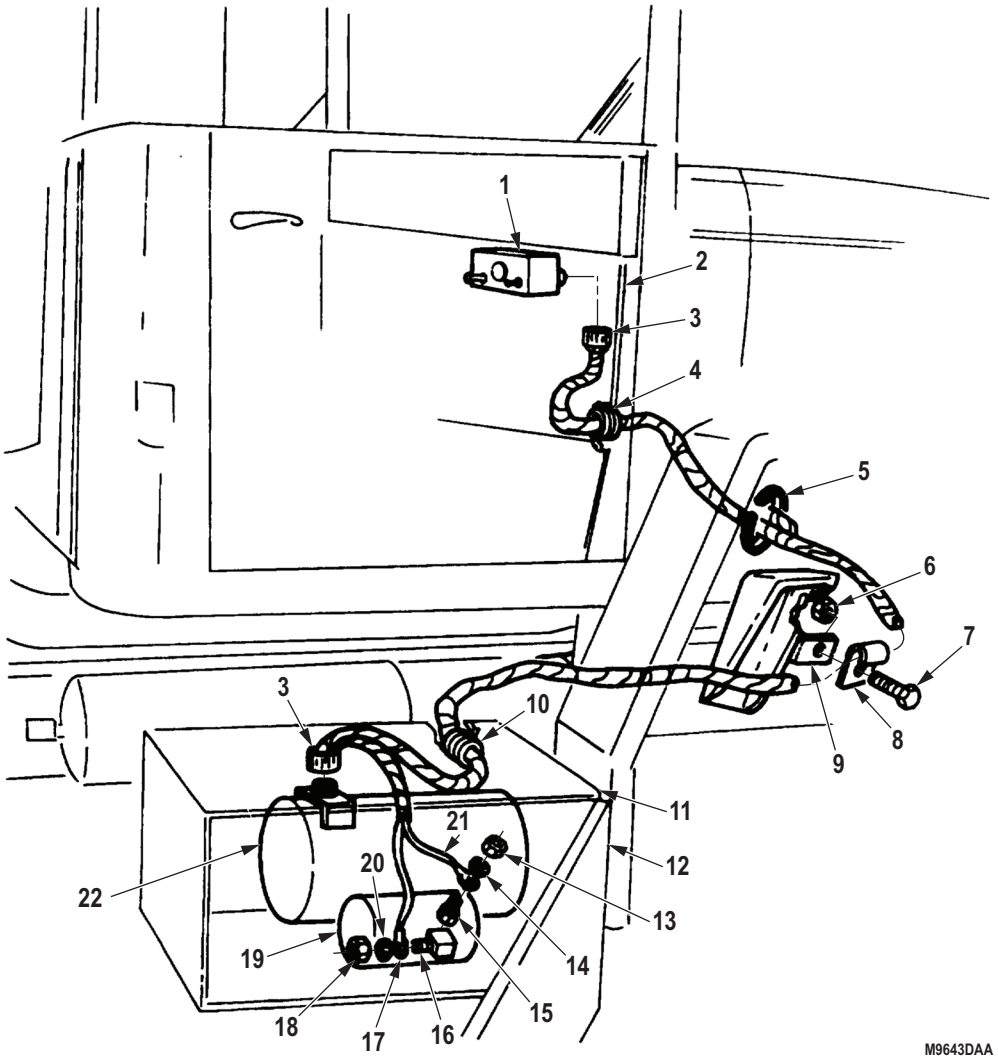


Figure 2. Engine Coolant Heater Harness Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Connect battery ground cables. (Volume 2, WP 0350)
2. Check engine coolant heater for proper operation. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
ENGINE COOLANT OIL PAN SHROUD AND EXHAUST TUBE REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Cotter Pin

Materials/Parts (cont.)
(Volume 5, WP 0827, Table 1, Item 351)
Qty: 3
Locknut
(Volume 5, WP 0827, Table 1, Item 285)
Qty: 2

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

REMOVAL

1. Remove two locknuts (Figure 1, Item 4), screws (Figure 1, Item 10), and clamps (Figure 1, Item 9) from exhaust tube (Figure 1, Item 13), crossmember (Figure 1, Item 11), and bracket (Figure 1, Item 12). Discard locknuts.
2. Open toolbox door (Figure 1, Item 1).
3. Remove two cotter pins (Figure 1, Item 3), exhaust tube (Figure 1, Item 13), and elbow (Figure 1, Item 14) from engine coolant heater (Figure 1, Item 2) and oil pan shroud (Figure 1, Item 6). Discard cotter pins.
4. Remove cotter pin (Figure 1, Item 3) and elbow (Figure 1, Item 14) from exhaust tube (Figure 1, Item 13). Discard cotter pin.
5. Remove four nuts (Figure 1, Item 8), washers (Figure 1, Item 7), and oil pan shroud (Figure 1, Item 6) from oil pan studs (Figure 1, Item 5).

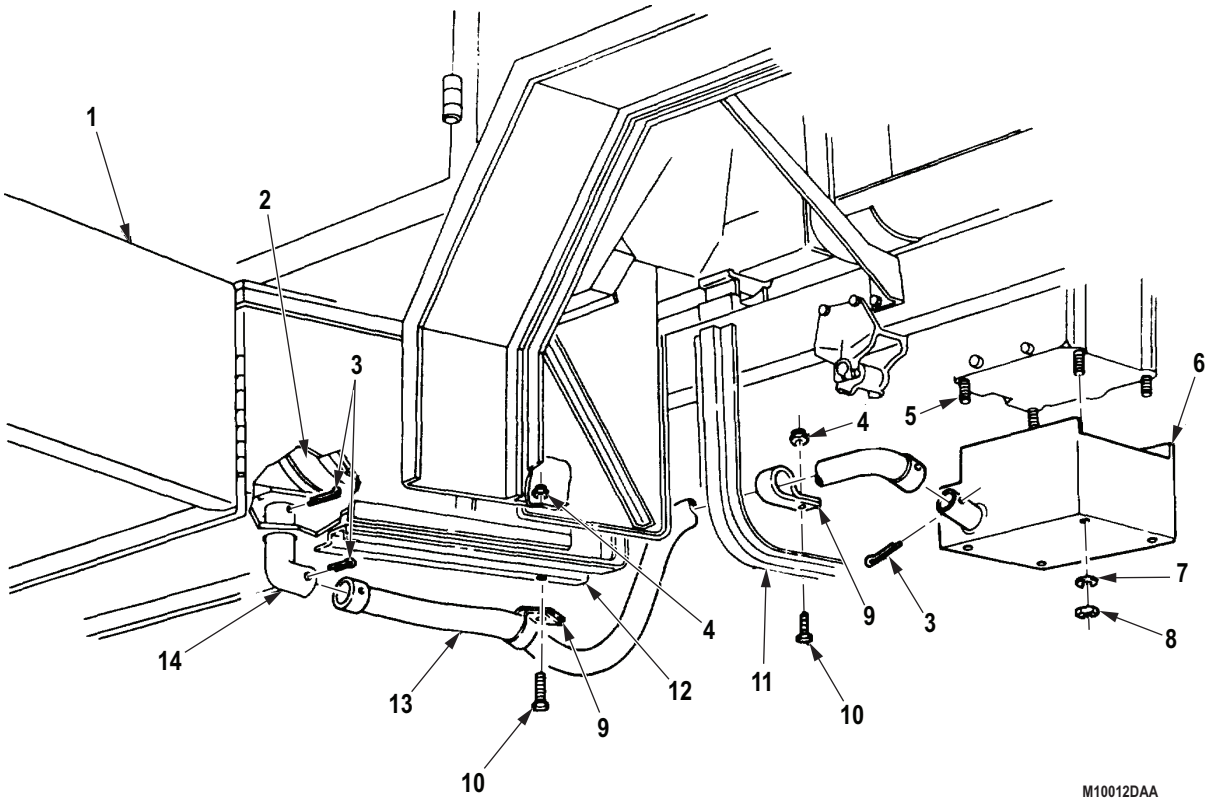


Figure 1. Engine Coolant Oil Pan Shroud and Exhaust Tube Removal.

END OF TASK

INSTALLATION

1. Install oil pan shroud (Figure 2, Item 6) on oil pan studs (Figure 2, Item 5) with four washers (Figure 2, Item 7) and nuts (Figure 2, Item 8).
2. Install elbow (Figure 2, Item 14) on exhaust tube (Figure 2, Item 13) with cotter pin (Figure 2, Item 3).
3. Install exhaust tube (Figure 2, Item 13) and elbow (Figure 2, Item 14) on engine coolant heater (Figure 2, Item 2) and oil pan shroud (Figure 2, Item 6) with two cotter pins (Figure 2, Item 3).
4. Close toolbox door (Figure 2, Item 1).
5. Install exhaust tube (Figure 2, Item 13) on crossmember (Figure 2, Item 11) and bracket (Figure 2, Item 12) with two clamps (Figure 2, Item 9), screws (Figure 2, Item 10), and locknuts (Figure 2, Item 4).

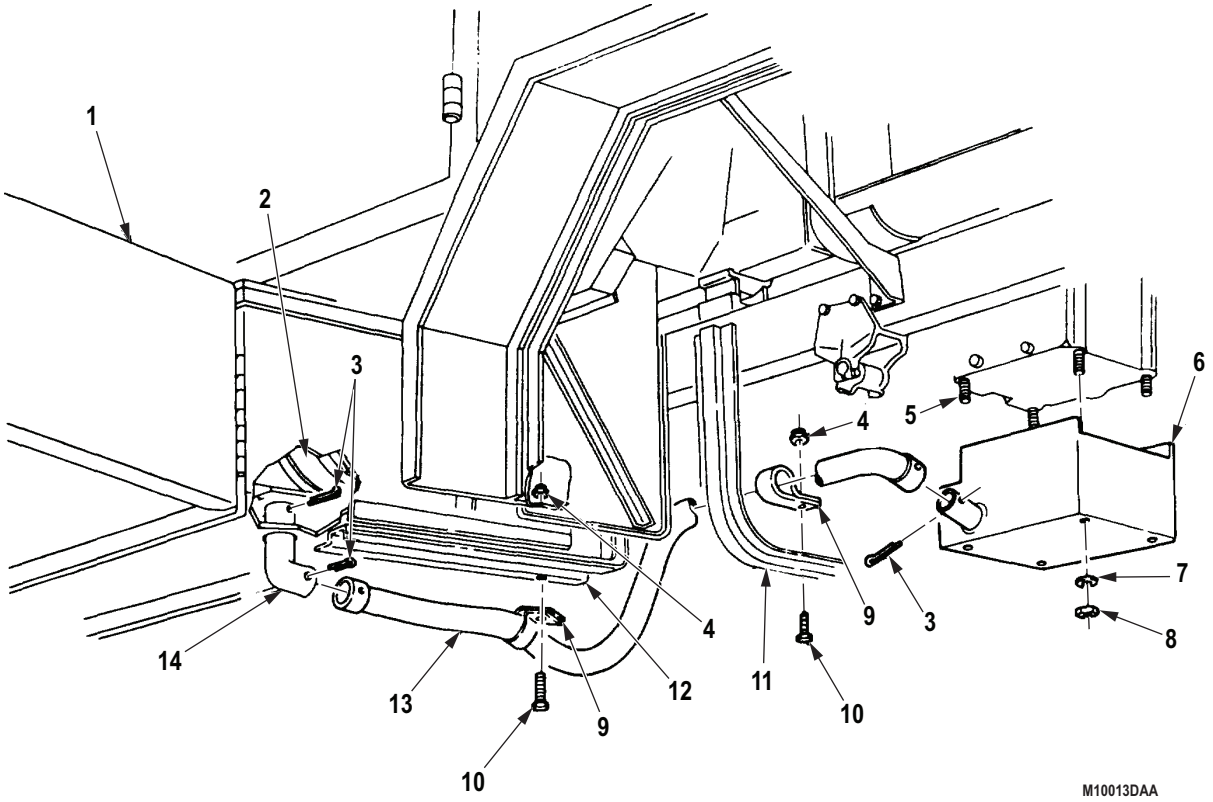


Figure 2. Engine Coolant Oil Pan Shroud and Exhaust Tube Installation.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
ENGINE COOLANT HEATER HOSE REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Lockwasher
(Volume 5, WP 0827, Table 1, Item 186)
Qty: 1
Tiedown Strap
(Volume 5, WP 0827, Table 1, Item 375)
Qty: 9

References
Volume 2, WP 0287

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

Equipment Condition (cont.)
Hood raised and secured. (TM 9-2320-272-10)
Right side splash shield removed.
(TM 9-2320-272-10)

REMOVAL

1. Close water manifold drain valve (Figure 1, Item 1) on right side of engine (Figure 1, Item 3).
2. Close coolant outlet drain valve (Figure 1, Item 2) on right side of engine (Figure 1, Item 3).

NOTE

- Have drainage container ready to catch excess coolant.
- Use drain pans to retain leaking/draining fluids. Refer to local procedures and plans for preventing and responding to fluid spills or leaks. Comply with local regulations when disposing of clean up material and leaked and spilled fluids.

3. Loosen clamp (Figure 1, Item 27) and remove hose (Figure 1, Item 20) from water manifold drain valve (Figure 1, Item 1).
4. Remove nut (Figure 1, Item 10), lockwasher (Figure 1, Item 9), clamps (Figure 1, Items 12 and 24), washer (Figure 1, Item 22), and screw (Figure 1, Item 23) from oil dipstick tube bracket (Figure 1, Item 8) and oil dipstick tube (Figure 1, Item 11). Discard lockwasher.
5. Remove screw (Figure 1, Item 18) and clamp (Figure 1, Item 19) from cab support (Figure 1, Item 13).
6. Remove three tiedown straps (Figure 1, Item 21) from hose (Figure 1, Item 20), fuel line (Figure 1, Item 26), and electrical harness (Figure 1, Item 25). Discard tiedown straps.
7. Loosen clamp (Figure 1, Item 7) and remove hose (Figure 1, Item 6) from coolant outlet drain valve (Figure 1, Item 2).
8. Remove screw (Figure 1, Item 16), washer (Figure 1, Item 15), and clamp (Figure 1, Item 14) from engine access cover (Figure 1, Item 5).
9. Remove two tiedown straps (Figure 1, Item 17) from hose (Figure 1, Item 6) and two transmission oil cooler lines (Figure 1, Item 4). Discard tiedown straps.

REMOVAL - Continued

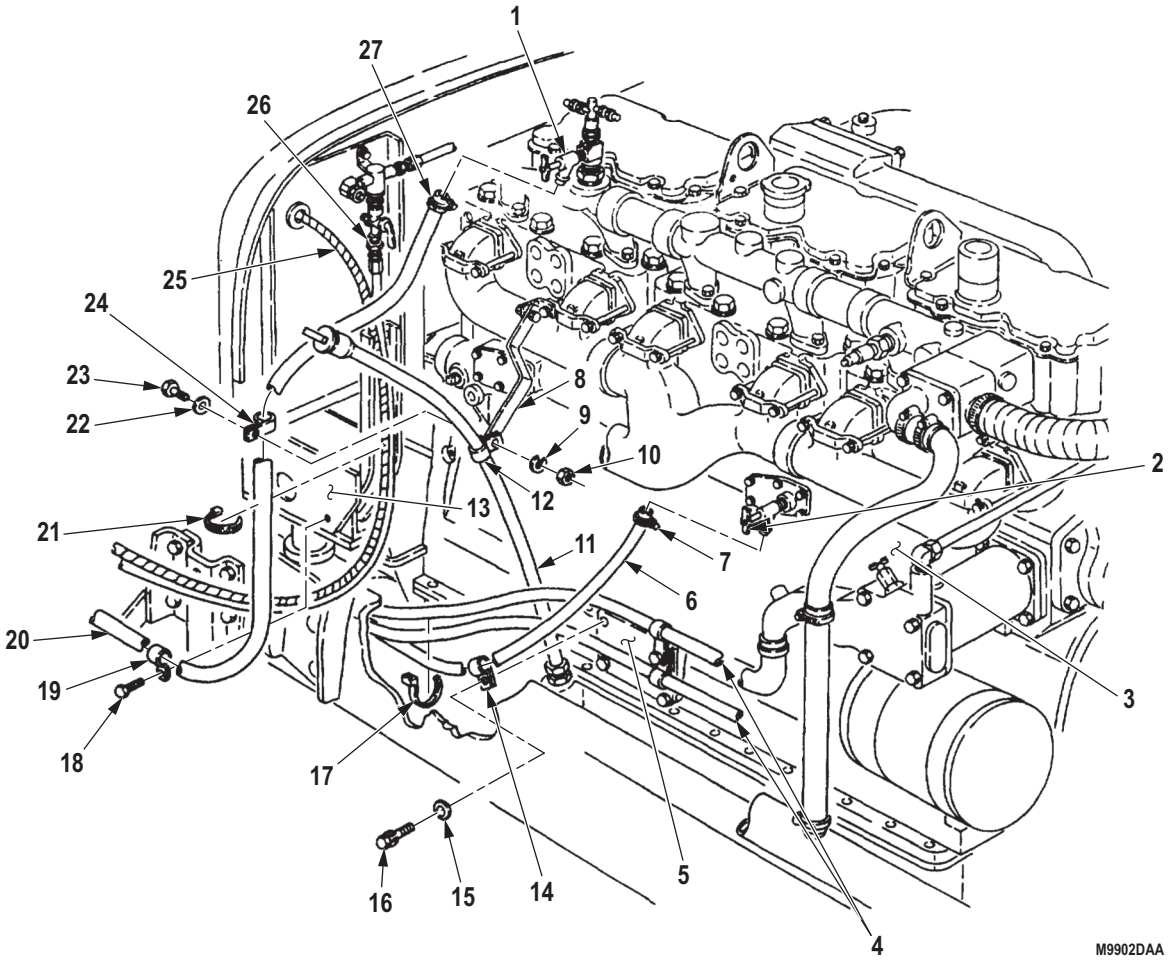


Figure 1. Engine Coolant Heater Hose Removal.

REMOVAL - Continued

10. Remove two tiedown straps (Figure 2, Item 3) from hose (Figure 2, Item 7), fuel line (Figure 2, Item 14), and electrical harness (Figure 2, Item 13). Discard tiedown straps.
11. Remove screw (Figure 2, Item 8), clamp (Figure 2, Item 5), and hose (Figure 2, Item 7) from crossmember (Figure 2, Item 6).

NOTE

Note routing of hose for installation.

12. Loosen clamp (Figure 2, Item 12) and remove hose (Figure 2, Item 7) from coolant heater (Figure 2, Item 15), adapter (Figure 2, Item 11), and vehicle.
13. Remove nut (Figure 2, Item 4), screw (Figure 2, Item 10), clamp (Figure 2, Item 2), and hose (Figure 2, Item 1) from air tank bracket (Figure 2, Item 9).
14. Remove two tiedown straps (Figure 2, Item 24) from hose (Figure 2, Item 1) and electrical harness (Figure 2, Item 25). Discard tiedown straps.
15. Loosen clamp (Figure 2, Item 23) and remove hose (Figure 2, Item 1) from adapter (Figure 2, Item 22) on coolant heater pump (Figure 2, Item 21).
16. Loosen clamp (Figure 2, Item 19) and remove hose (Figure 2, Item 17) from adapter (Figure 2, Item 20) on coolant heater pump (Figure 2, Item 21).
17. Loosen clamp (Figure 2, Item 18) and remove hose (Figure 2, Item 17) from adapter (Figure 2, Item 16) on coolant heater (Figure 2, Item 15).

REMOVAL - Continued

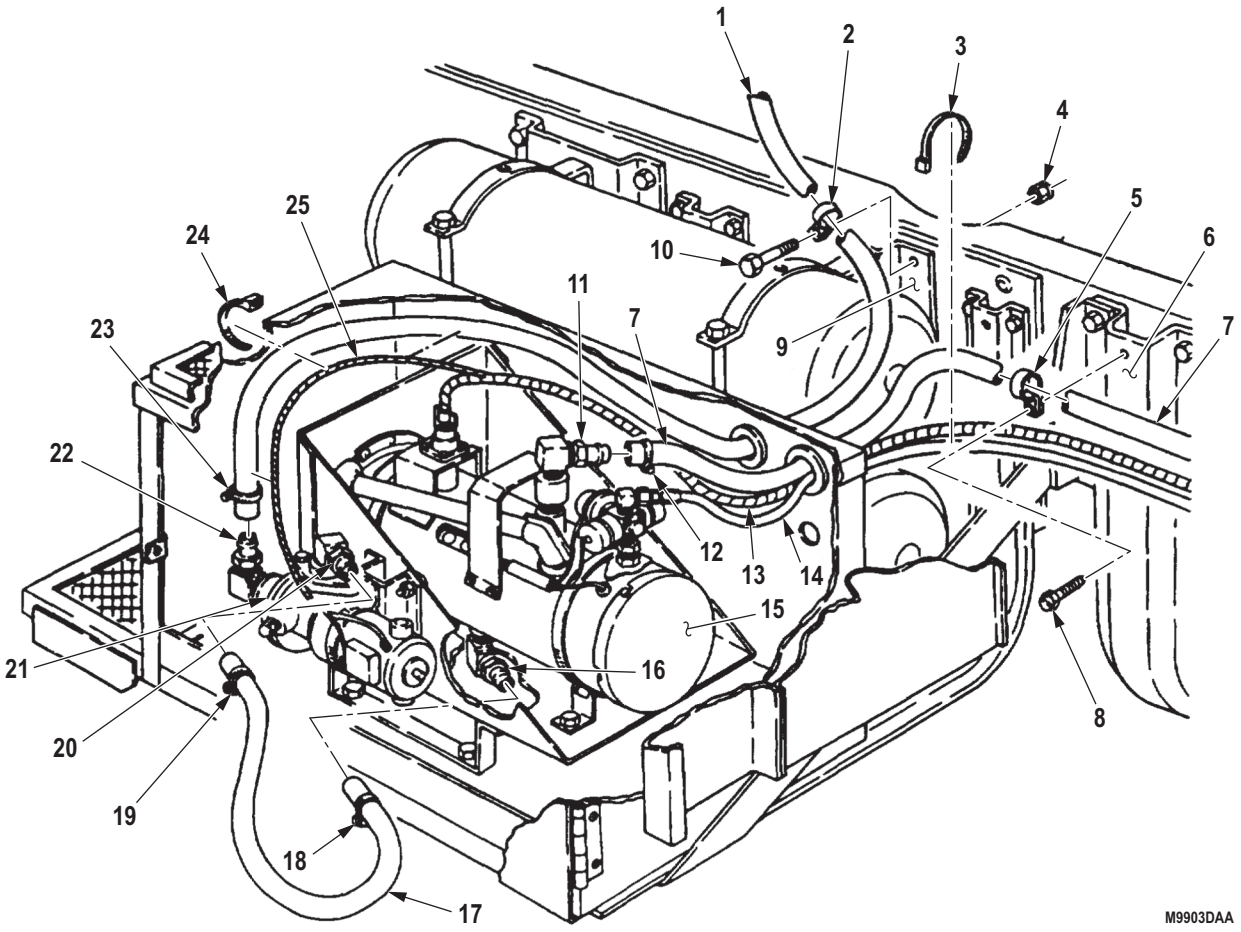


Figure 2. Engine Coolant Heater Hose Removal.

REMOVAL - Continued

18. Loosen clamp (Figure 3, Item 6) and remove hose (Figure 3, Item 1) from adapter (Figure 3, Item 2) and vehicle.
19. Loosen clamp (Figure 3, Item 5) and remove hose (Figure 3, Item 4) from nipple (Figure 3, Item 3) and vehicle.

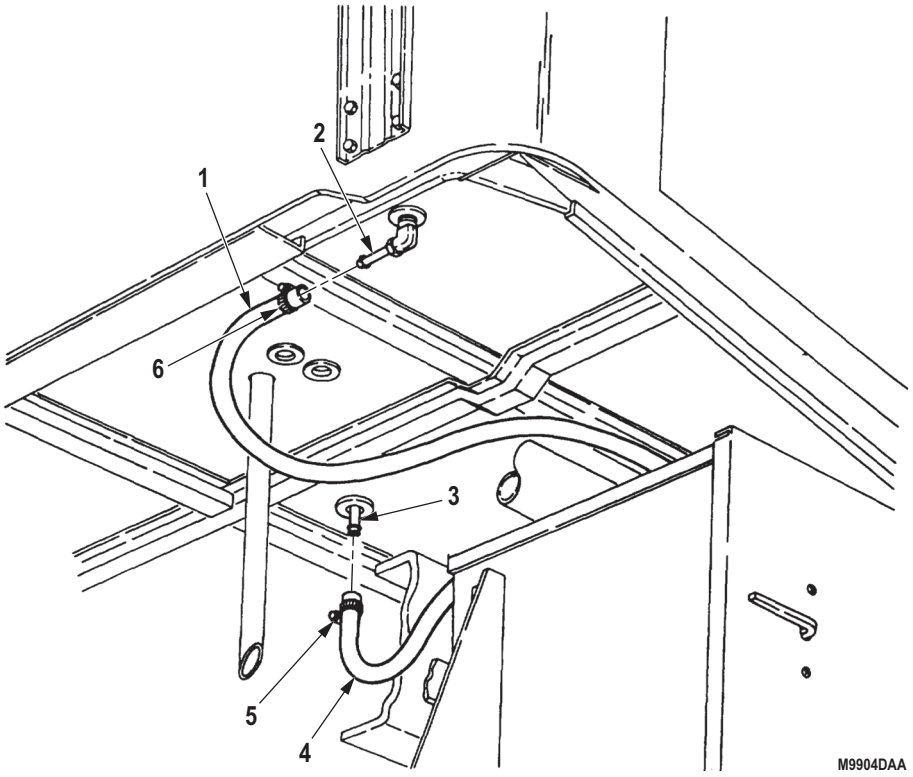


Figure 3. Engine Coolant Heater Hose Removal.

END OF TASK

INSTALLATION

1. Route hose (Figure 4, Item 5) into position on vehicle and install hose on nipple (Figure 4, Item 4) and tighten clamp (Figure 4, Item 6).
2. Route hose (Figure 4, Item 1) into position on vehicle and install hose on adapter (Figure 4, Item 3) and tighten clamp (Figure 4, Item 2).

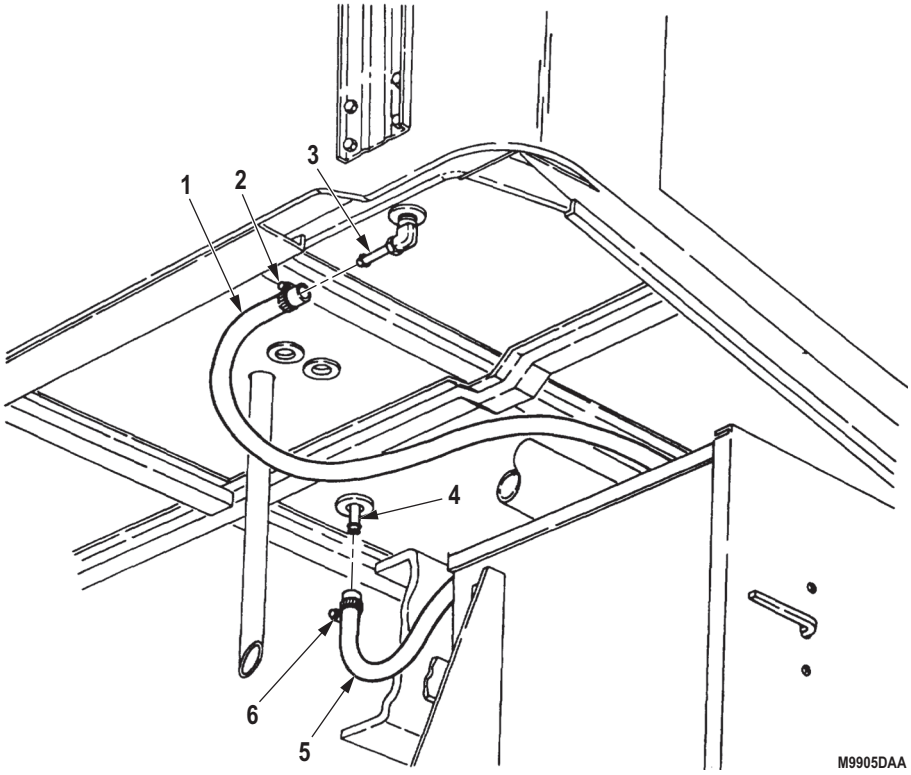


Figure 4. Engine Coolant Heater Hose Installation.

INSTALLATION - Continued

3. Install hose (Figure 5, Item 17) on adapter (Figure 5, Item 16) and tighten clamp (Figure 5, Item 18).
4. Install hose (Figure 5, Item 17) on adapter (Figure 5, Item 20) and tighten clamp (Figure 5, Item 19).
5. Install hose (Figure 3, Item 1) on adapter (Figure 5, Item 22) and tighten clamp (Figure 5, Item 23).
6. Install two tiedown straps (Figure 5, Item 24) on hose (Figure 5, Item 1) and electrical harness (Figure 5, Item 25).
7. Install hose (Figure 5, Item 1) on air tank bracket (Figure 5, Item 9) with clamp (Figure 5, Item 2), screw (Figure 5, Item 10), and nut (Figure 5, Item 4).
8. Route hose (Figure 5, Item 7) into position on vehicle and install hose and adapter (Figure 5, Item 11) on coolant heater (Figure 5, Item 15) and tighten clamp (Figure 5, Item 12).
9. Install hose (Figure 5, Item 7) on crossmember (Figure 5, Item 6) with clamp (Figure 5, Item 5) and screw (Figure 5, Item 8).
10. Install two tiedown straps (Figure 5, Item 3) on hose (Figure 5, Item 7), fuel line (Figure 5, Item 14), and electrical harness (Figure 5, Item 13).

INSTALLATION - Continued

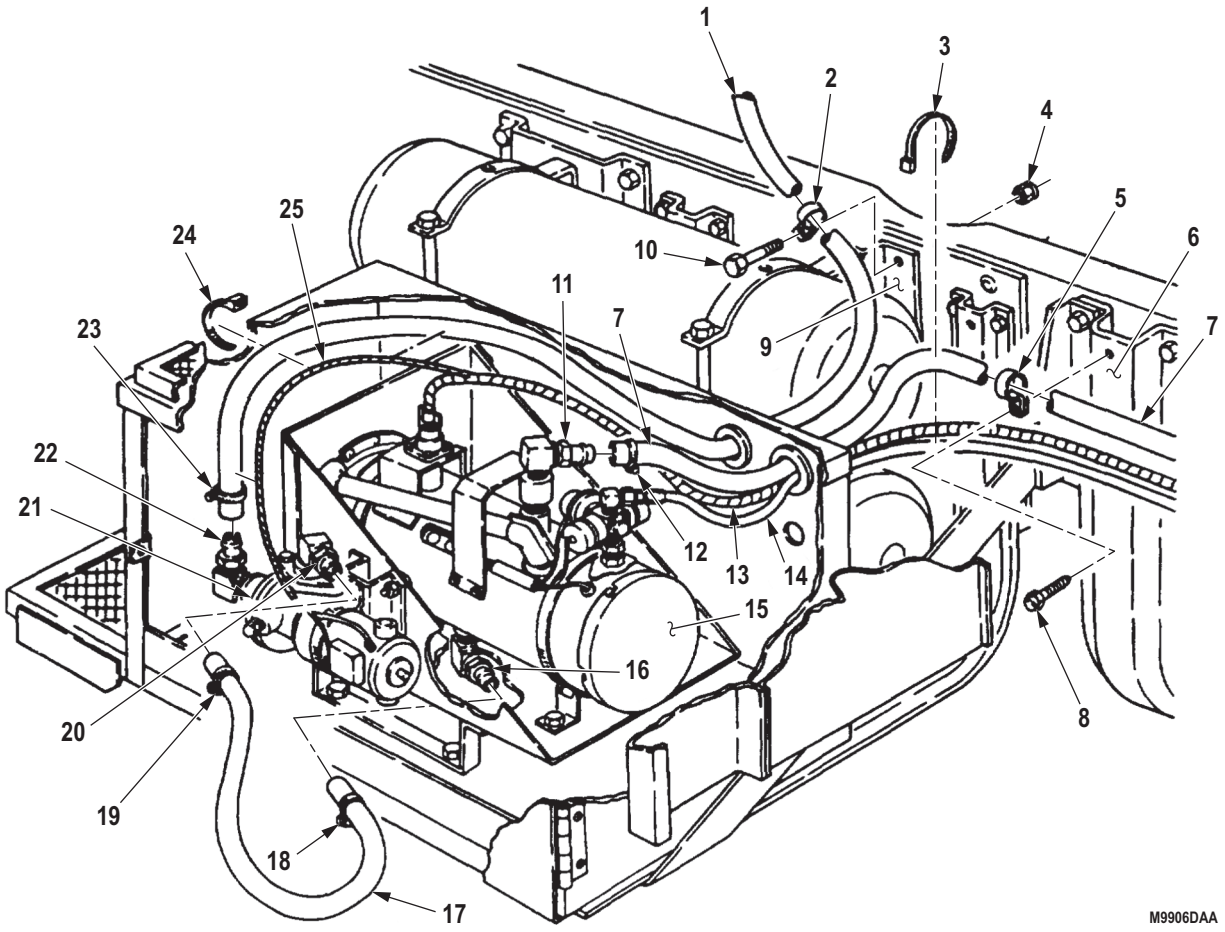


Figure 5. Hoses and Electrical Harness Installation.

INSTALLATION - Continued

11. Install two tiedown straps (Figure 6, Item 17) on hose (Figure 6, Item 7) and two transmission oil cooler lines (Figure 6, Item 5).
12. Install hose (Figure 6, Item 7) on engine access cover (Figure 6, Item 6) with clamp (Figure 6, Item 14), washer (Figure 6, Item 15), and screw (Figure 6, Item 16).
13. Install hose (Figure 6, Item 7) on coolant outlet drain valve (Figure 6, Item 3) and tighten clamp (Figure 6, Item 8).
14. Install three tiedown straps (Figure 6, Item 22) on hose (Figure 6, Item 21), fuel line (Figure 6, Item 27), and electrical harness (Figure 6, Item 26).
15. Install hose (Figure 6, Item 21) on cab support (Figure 6, Item 18), clamp (Figure 6, Item 20), and screw (Figure 6, Item 19).
16. Install hose (Figure 6, Item 21) and oil dipstick tube (Figure 6, Item 13) on oil dipstick tube bracket (Figure 6, Item 9) with clamps (Figure 6, Item 23) and (Figure 6, Item 10), washer (Figure 6, Item 24), screw (Figure 6, Item 25), lockwasher (Figure 6, Item 12), and nut (Figure 6, Item 11).
17. Install hose (Figure 6, Item 21) on water manifold drain valve (Figure 6, Item 2) and tighten clamp (Figure 6, Item 1).
18. Open coolant outlet drain valve (Figure 6, Item 2) on right side of engine (Figure 6, Item 4).
19. Open water manifold drain valve (Figure 6, Item 3) on right side of engine (Figure 6, Item 4).

INSTALLATION - Continued

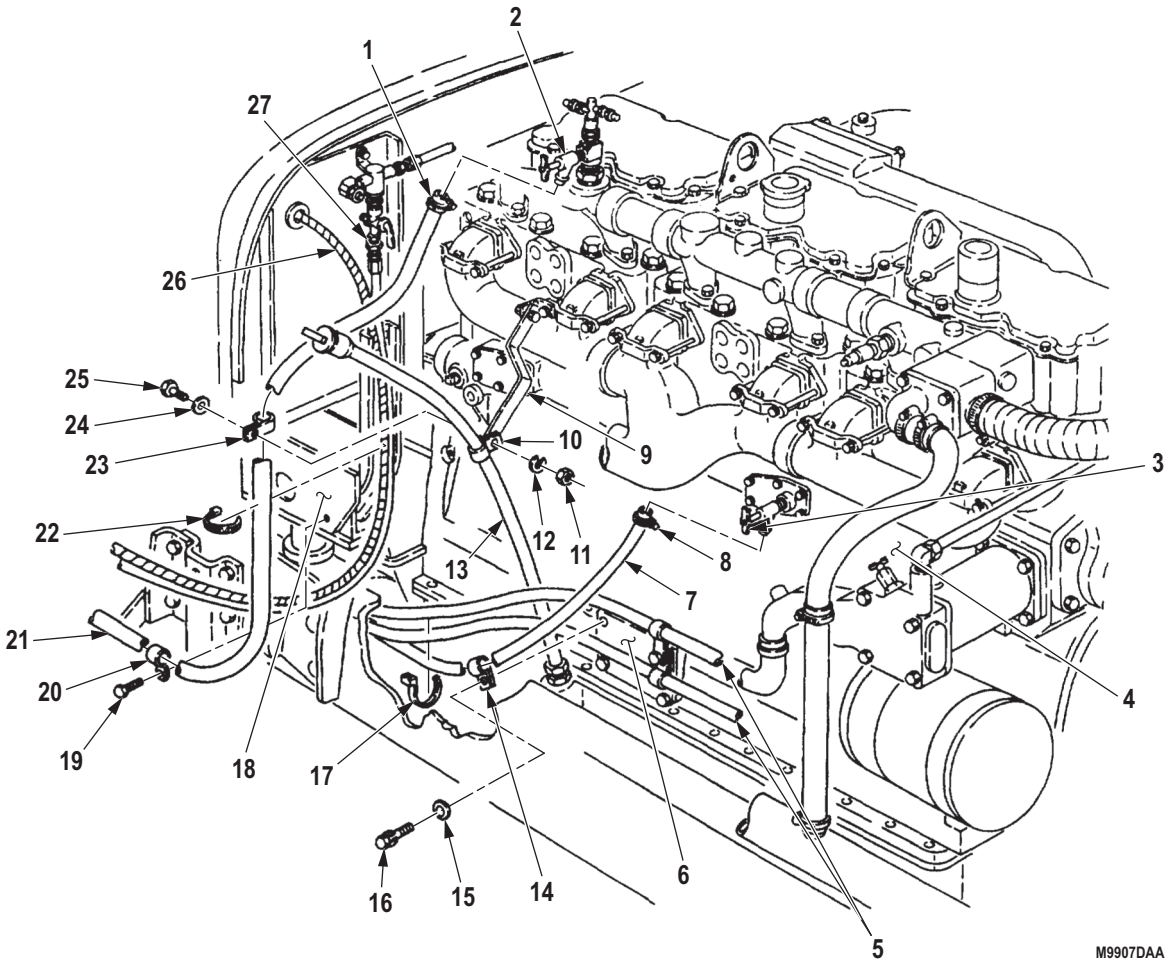


Figure 6. Engine Coolant Heater Hose Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Fill coolant to proper level. (Volume 2, WP 0287)
2. Start engine and check hose connections for leaks. (TM 9-2320-272-10)
3. Install right splash shield. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
ENGINE COOLANT BATTERY BOX HEATER PAD REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Tape, Antiseizing
(Volume 5, WP 0825, Table 1, Item 65)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

Equipment Condition (cont.)
Batteries removed. (Volume 2, WP 0350)

REMOVAL

1. Loosen two hose clamps (Figure 1, Item 3) and remove inlet hose (Figure 1, Item 5) and outlet hose (Figure 1, Item 4) from engine coolant heater pad (Figure 1, Item 1) and adapter (Figure 1, Item 6).
2. Remove adapter (Figure 1, Item 6) from elbow (Figure 1, Item 7).

NOTE

Mark position of elbow for installation.

3. Remove elbow (Figure 1, Item 7) and nipple (Figure 1, Item 12) from heater pad (Figure 1, Item 1) at floor panel (Figure 1, Item 8).
4. Remove heater pad (Figure 1, Item 1), two blocks (Figure 1, Item 10), four blocks (Figure 1, Item 9), and two blocks (Figure 1, Item 11) from battery box (Figure 1, Item 2).

REMOVAL - Continued

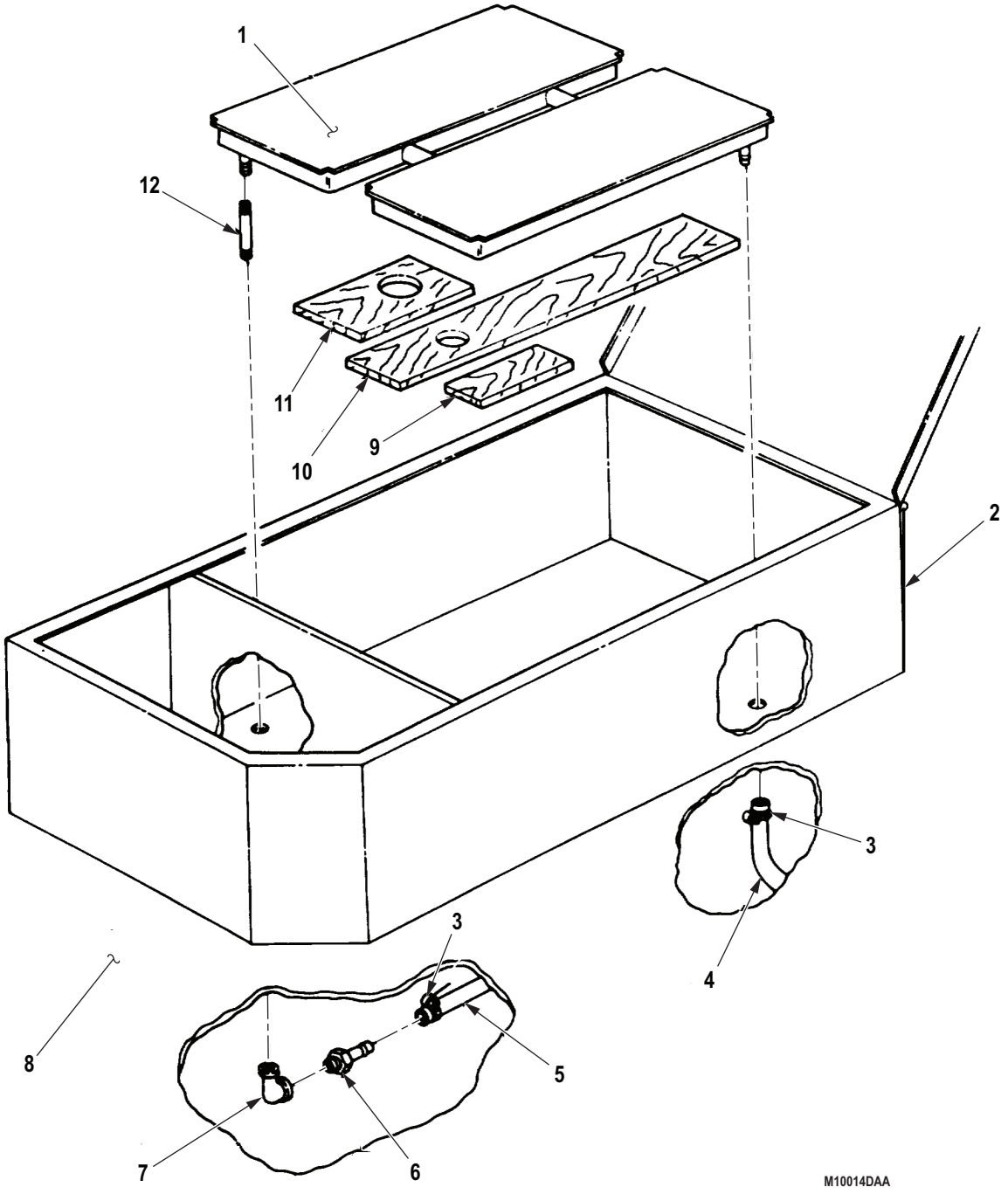


Figure 1. Engine Coolant Battery Box Heater Pad Removal.

END OF TASK

INSTALLATION

NOTE

Wrap all male pipe threads with antiseize tape before installation.

1. Position two blocks (Figure 2, Item 11), four blocks (Figure 2, Item 9), two blocks (Figure 2, Item 10), and heater pad (Figure 2, Item 1) in battery box (Figure 2, Item 2).
2. Install nipple (Figure 2, Item 12) and elbow (Figure 2, Item 7) on heater pad (Figure 2, Item 1) at floor panel (Figure 2, Item 8).
3. Install adapter (Figure 2, Item 6) on elbow (Figure 2, Item 7).
4. Install inlet hose (Figure 2, Item 5) and outlet hose (Figure 2, Item 4) on engine coolant heater pad (Figure 2, Item 1) and adapter (Figure 2, Item 6) and tighten two hose clamps (Figure 2, Item 3).

INSTALLATION - Continued

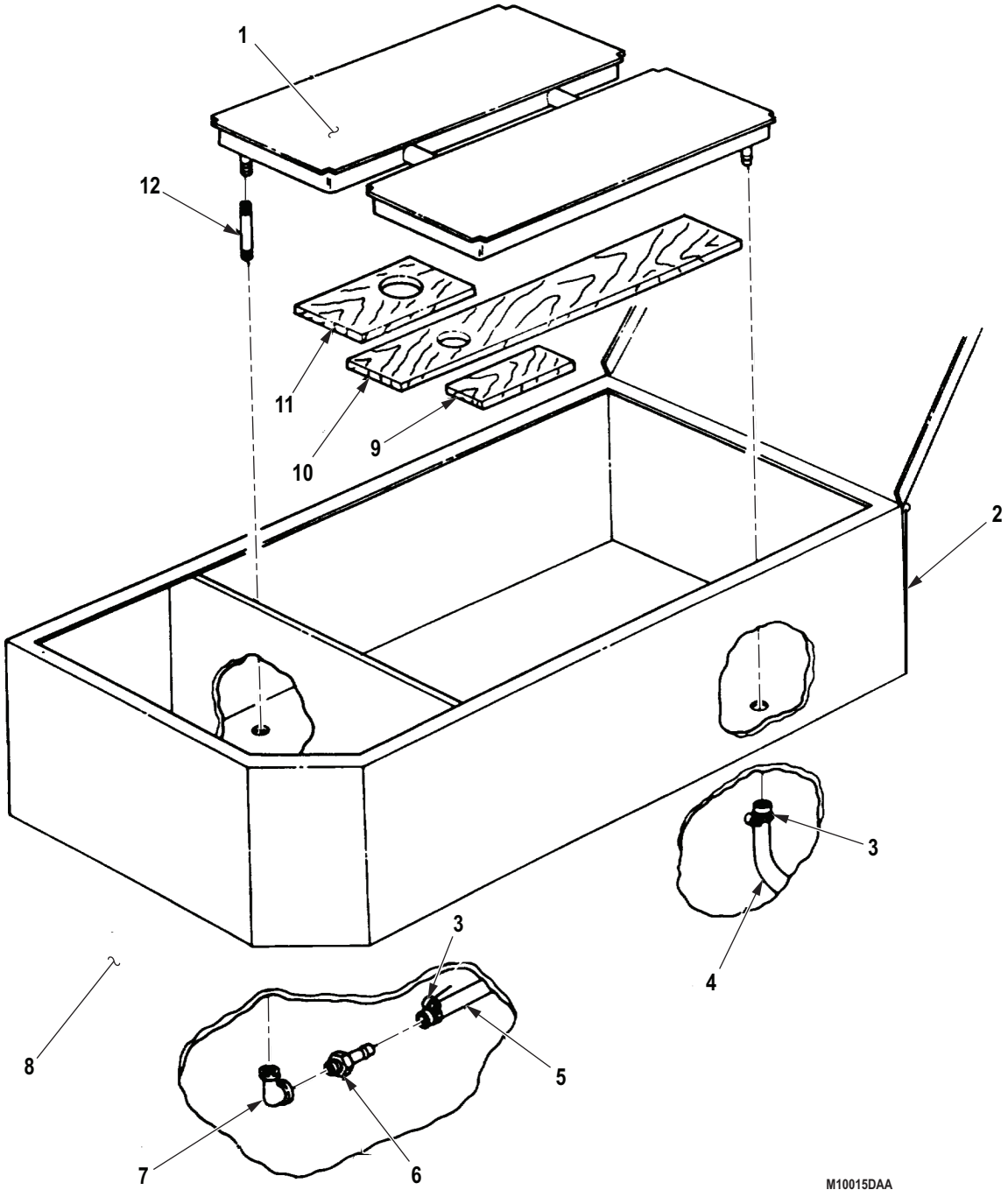


Figure 2. Engine Coolant Battery Box Heater Pad Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

Install batteries. (Volume 2, WP 0350)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
PERSONNEL FUEL BURNING HEATER CONTROL BOX REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Locknut (Volume 5, WP 0827, Table 1, Item 282)
Qty: 2
Lockwasher
(Volume 5, WP 0827, Table 1, Item 394)
Qty: 2

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

Equipment Condition (cont.)
Battery ground cables disconnected.
(Volume 2, WP 0350)

REMOVAL

1. Disconnect heater harness (Figure 1, Item 4) from heater control box (Figure 1, Item 7).
2. Disconnect connector (Figure 1, Item 5) from control box wire (Figure 1, Item 6) on heater control box (Figure 1, Item 7).
3. Remove two nuts (Figure 1, Item 2) and lockwashers (Figure 1, Item 3) from studs (Figure 1, Item 8) and remove coolant heater box (Figure 1, Item 7) from mounting bracket (Figure 1, Item 10). Discard lockwashers.
4. Remove two locknuts (Figure 1, Item 1), screws (Figure 1, Item 9), and mounting bracket (Figure 1, Item 10) from underside of dash (Figure 1, Item 11). Discard locknuts.

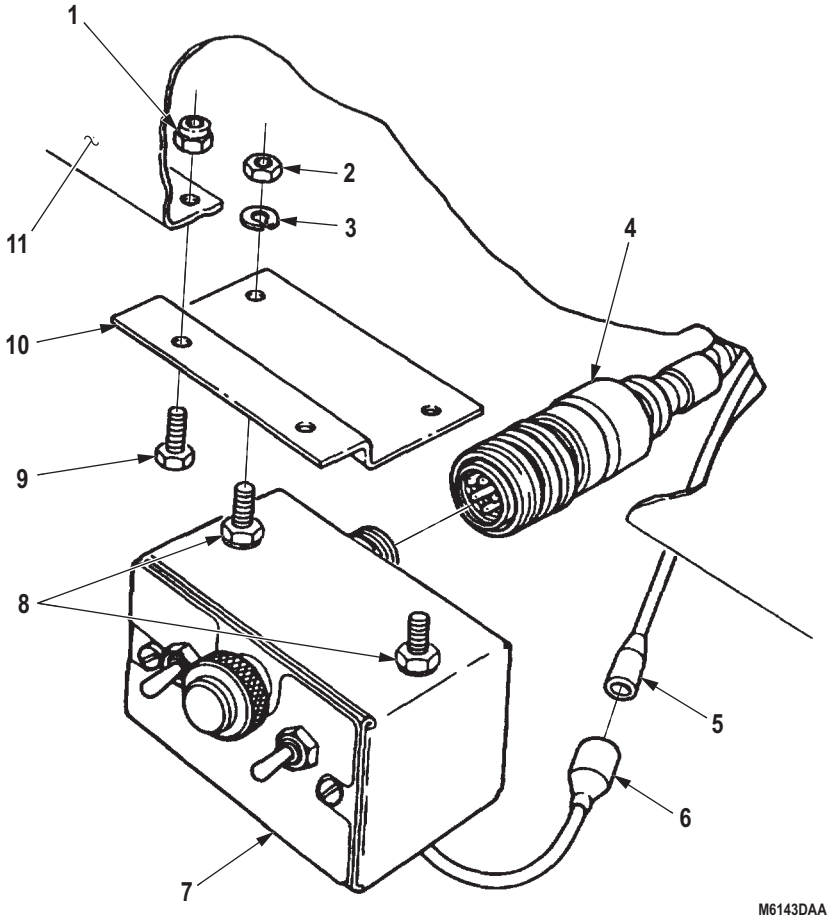


Figure 1. Personnel Fuel Burning Heater Control Box Removal.

END OF TASK

INSTALLATION

1. Install mounting bracket (Figure 2, Item 10) on underside of dash (Figure 2, Item 11) with two screws (Figure 2, Item 9) and locknuts (Figure 2, Item 1).
2. Install heater control box (Figure 2, Item 7) on mounting bracket (Figure 2, Item 10) with two lockwashers (Figure 2, Item 3) and nuts (Figure 2, Item 2).
3. Connect connector (Figure 2, Item 5) to control box wire (Figure 2, Item 6) on heater control box (Figure 2, Item 7).
4. Connect heater harness (Figure 2, Item 4) to heater control box (Figure 2, Item 7).

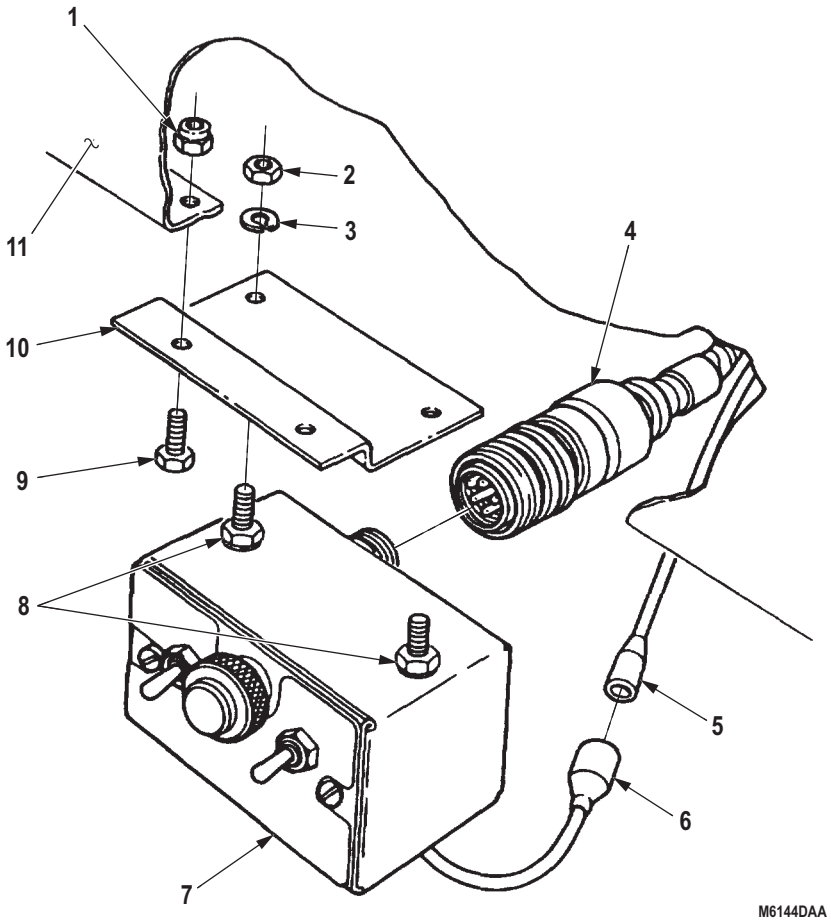


Figure 2. Personnel Fuel Burning Heater Control Box Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Connect battery ground cables. (Volume 2, WP 0350)
2. Check personnel fuel burning heater for proper operation. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
PERSONNEL FUEL BURNING HEATER AND MOUNTING BRACKETS REPLACEMENT (M939A2)

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Tape, Antiseizing
(Volume 5, WP 0825, Table 1, Item 65)
Cotter Pin
(Volume 5, WP 0827, Table 1, Item 350)
Qty: 1
Locknut
(Volume 5, WP 0827, Table 1, Item 283)
Qty: 4
Lockwasher
(Volume 5, WP 0827, Table 1, Item 422)
Qty: 1

Personnel Required
(2)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Hood raised and secured. (TM 9-2320-272-10)
Fuel shutoff valve closed. (TM 9-2320-272-10)
Battery ground cables disconnected.
(Volume 2, WP 0350)

REMOVAL

WARNING



Diesel fuel is flammable. Do not perform this procedure near open flames. Failure to comply may result in injury or death to personnel.

1. Disconnect heater harness (Figure 1, Item 12) from heater (Figure 1, Item 1).
2. Disconnect hose (Figure 1, Item 4) from adapter (Figure 1, Item 3).
3. Remove adapter (Figure 1, Item 3) from heater (Figure 1, Item 1).
4. Remove cotter pin (Figure 1, Item 9) from elbow (Figure 1, Item 10) and exhaust port (Figure 1, Item 13). Discard cotter pin.
5. Remove two clamps (Figure 1, Item 2) and heater (Figure 1, Item 1) from bracket (Figure 1, Item 8).
6. Remove four locknuts (Figure 1, Item 7), washers (Figure 1, Item 6), screws (Figure 1, Item 5), two brackets (Figure 1, Item 8), lockwasher (Figure 1, Item 15), and ground wire (Figure 1, Item 14) from two mounting brackets (Figure 1, Item 11). Discard lockwasher and locknuts.

REMOVAL - Continued

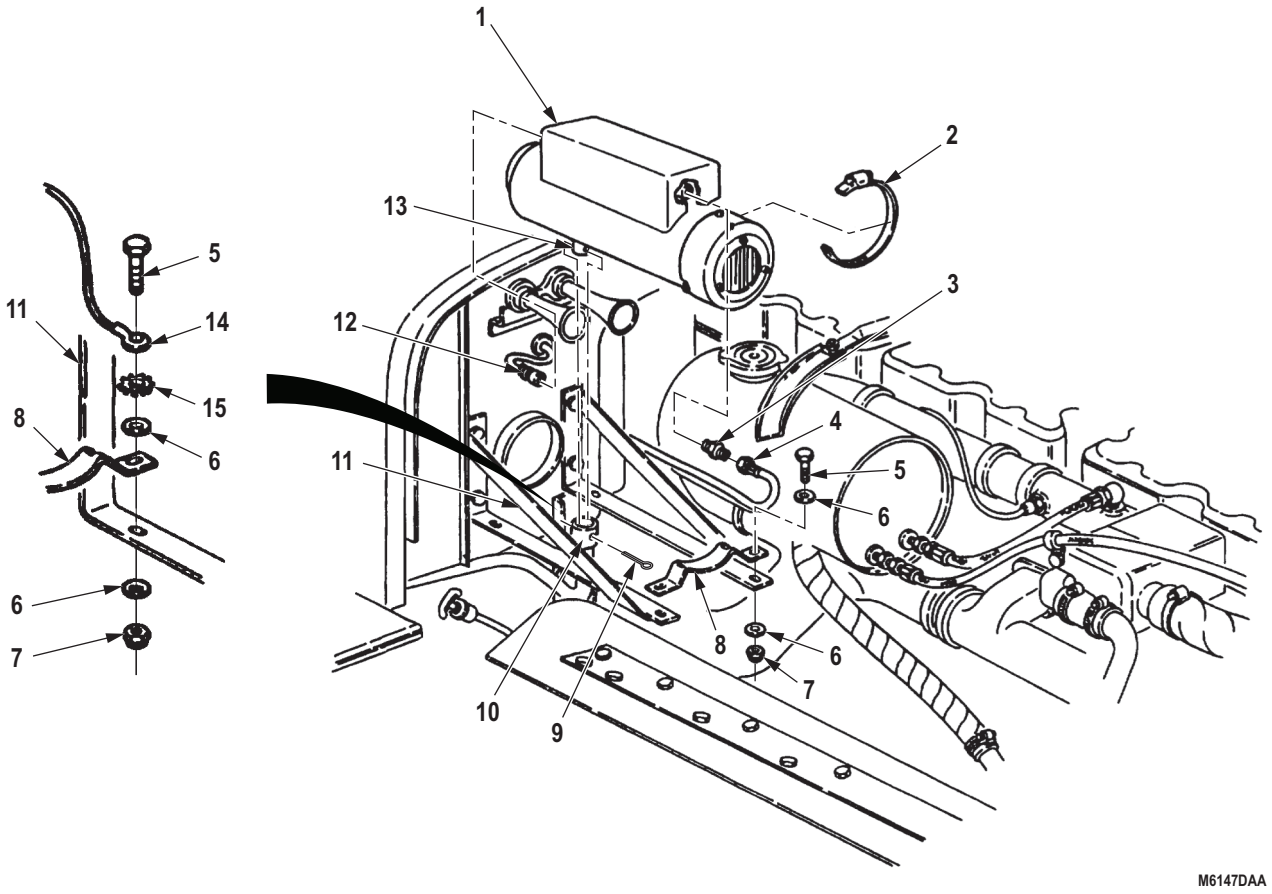


Figure 1. Personnel Fuel Burning Heater and Mounting Brackets Removal.

END OF TASK

INSTALLATION

NOTE

Clean all male pipe and hose threads and wrap with antiseize tape before installation.

1. Install two brackets (Figure 2, Item 8) on two mounting brackets (Figure 2, Item 11) with five washers (Figure 2, Item 6), lockwasher (Figure 2, Item 15), ground wire (Figure 2, Item 14), four screws (Figure 2, Item 5), and locknuts (Figure 2, Item 7).
2. Install heater (Figure 2, Item 1) on bracket (Figure 2, Items 8) with two clamps (Figure 2, Item 2).
3. Install cotter pin (Figure 2, Item 9) on elbow (Figure 2, Item 10) and exhaust port (Figure 2, Item 13).
4. Install adapter (Figure 2, Item 3) on heater (Figure 2, Item 1).
5. Connect hose (Figure 2, Item 4) to adapter (Figure 2, Item 3).
6. Connect heater harness (Figure 2, Item 12) to fuel burning heater (Figure 2, Item 1).

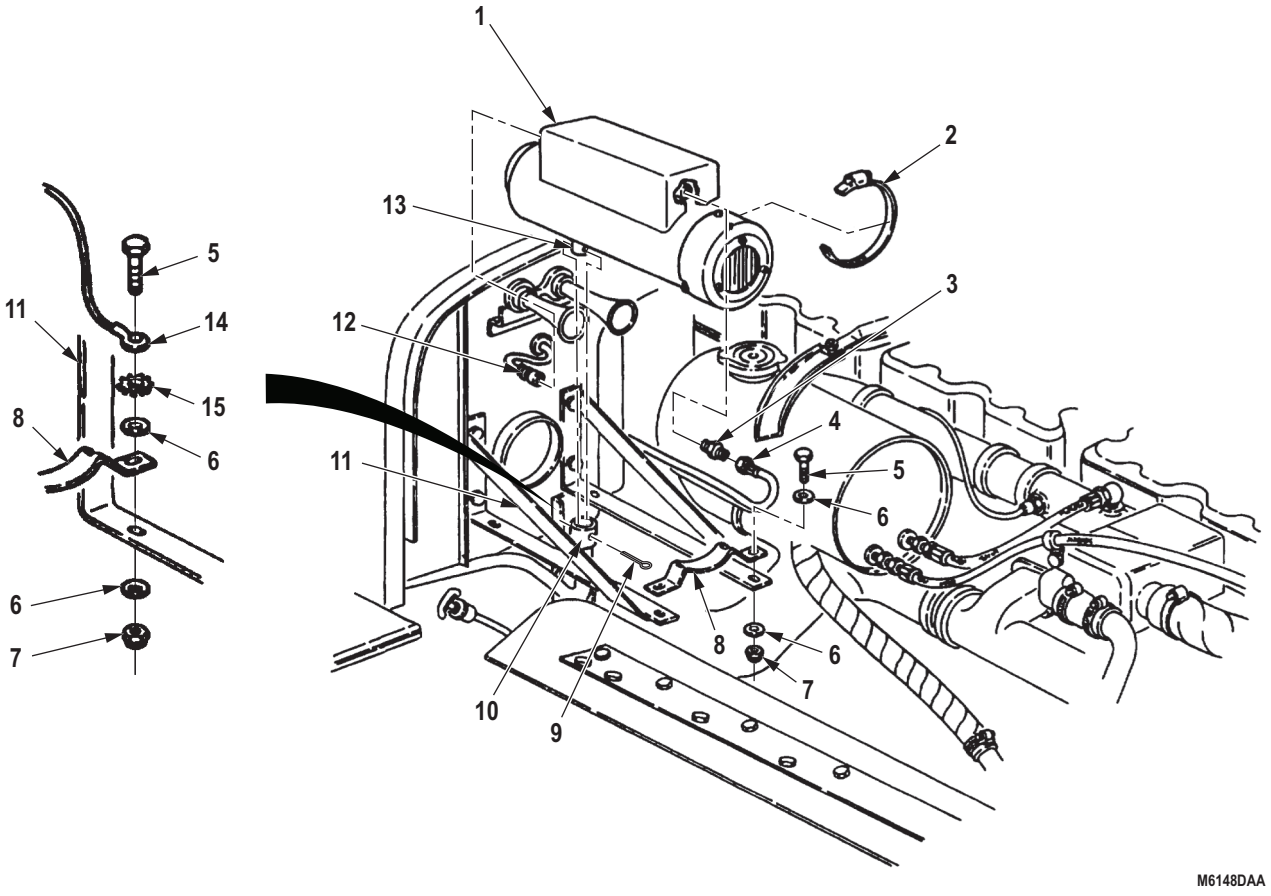


Figure 2. Personnel Fuel Burning Heater and Mounting Brackets Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Connect battery ground cables. (Volume 2, WP 0350)
2. Open fuel shutoff valve. (TM 9-2320-272-10)
3. Check personnel fuel burning heater for proper operation. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
PERSONNEL FUEL BURNING HEATER FUEL PUMP REPLACEMENT (M939/A1)

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Cap Set, Protective, Dust and Moisture Seal
(Volume 5, WP 0825, Table 1, Item 13)
Tape, Antiseizing

Materials/Parts (cont.)
(Volume 5, WP 0825, Table 1, Item 65)
Locknut
(Volume 5, WP 0827, Table 1, Item 282)
Qty: 2

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Battery ground cables disconnected.
(Volume 2, WP 0350)

REMOVAL

WARNING



Diesel fuel is flammable. Do not perform this procedure near open flames. Failure to comply may result in injury or death to personnel.

1. Disconnect wire (Figure 1, Item 16) from wire (Figure 1, Item 17) on electrical wire clip (Figure 1, Item 15).

CAUTION

Cover or plug all openings after disconnecting lines and hoses to prevent contamination. Failure to do this may result in fuel pump damage.

NOTE

Tag hoses for installation.

2. Disconnect hose (Figure 1, Item 5) from adapter (Figure 1, Item 4).
3. Disconnect hose (Figure 1, Item 6) from adapter (Figure 1, Item 7).
4. Remove locknut (Figure 1, Item 11) and screw (Figure 1, Item 1) from left-hand splash panel (Figure 1, Item 12) and fuel pump mounting bracket (Figure 1, Item 10). Discard locknut.
5. Remove locknut (Figure 1, Item 11), screw (Figure 1, Item 1), fuel pump (Figure 1, Item 9), washer (Figure 1, Item 14), wire clip (Figure 1, Item 15), and washer (Figure 1, Item 13) from left-hand splash panel (Figure 1, Item 12). Discard locknut.
6. Remove adapter (Figure 1, Item 7) from elbow (Figure 1, Item 8).
7. Remove adapter (Figure 1, Item 4) from fuel shutoff valve (Figure 1, Item 3).
8. Remove fuel shutoff valve (Figure 1, Item 3) from elbow (Figure 1, Item 2).
9. Remove elbows (Figure 1, Items 2 and 8) from fuel pump (Figure 1, Item 9).

REMOVAL - Continued

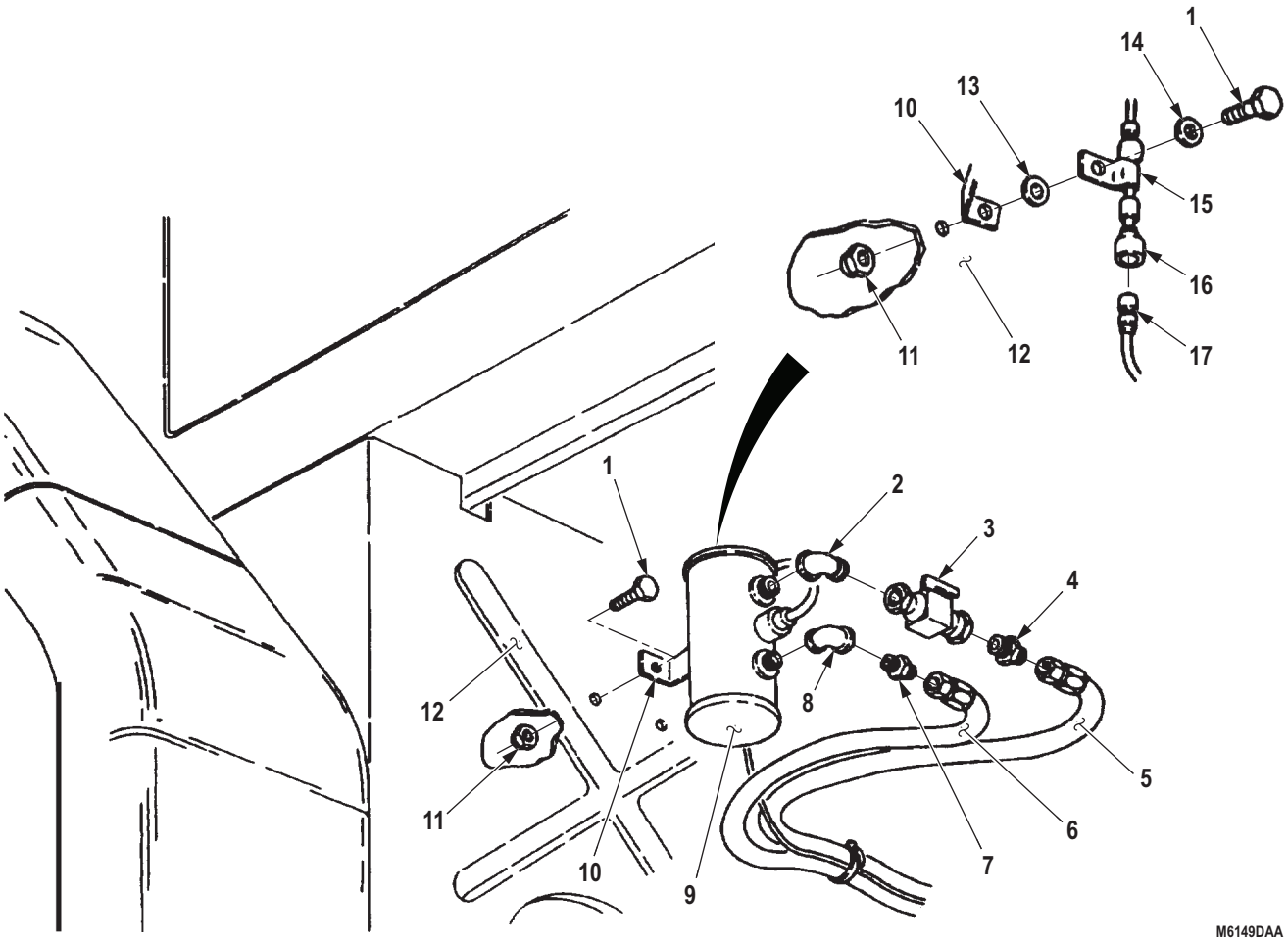


Figure 1. Personnel Fuel Burning Heater Fuel Pump Removal.

END OF TASK

INSTALLATION

NOTE

Clean all male pipe threads and wrap with antiseize tape before installation.

1. Install elbows (Figure 2, Items 2 and 8) on fuel pump (Figure 2, Item 9).
2. Install fuel shutoff valve (Figure 2, Item 3) on elbow (Figure 2, Item 2).
3. Install adapter (Figure 2, Item 4) on fuel shutoff valve (Figure 2, Item 3).
4. Install adapter (Figure 2, Item 7) on elbow (Figure 2, Item 8).
5. Install fuel pump (Figure 2, Item 9) on left-hand splash panel (Figure 2, Item 12) with washer (Figure 2, Item 13), electrical wire clip (Figure 2, Item 15), washer (Figure 2, Item 14), screw (Figure 2, Item 1), and locknut (Figure 2, Item 11).
6. Install screw (Figure 2, Item 1) and locknut (Figure 2, Item 11) on left-hand splash panel (Figure 2, Item 12) and fuel pump mounting bracket (Figure 2, Item 10).
7. Connect hose (Figure 2, Item 6) to adapter (Figure 2, Item 7).
8. Connect hose (Figure 2, Item 5) to adapter (Figure 2, Item 4).
9. Connect wire (Figure 2, Item 16) to wire (Figure 2, Item 17) on wire clip (Figure 2, Item 15).

INSTALLATION - Continued

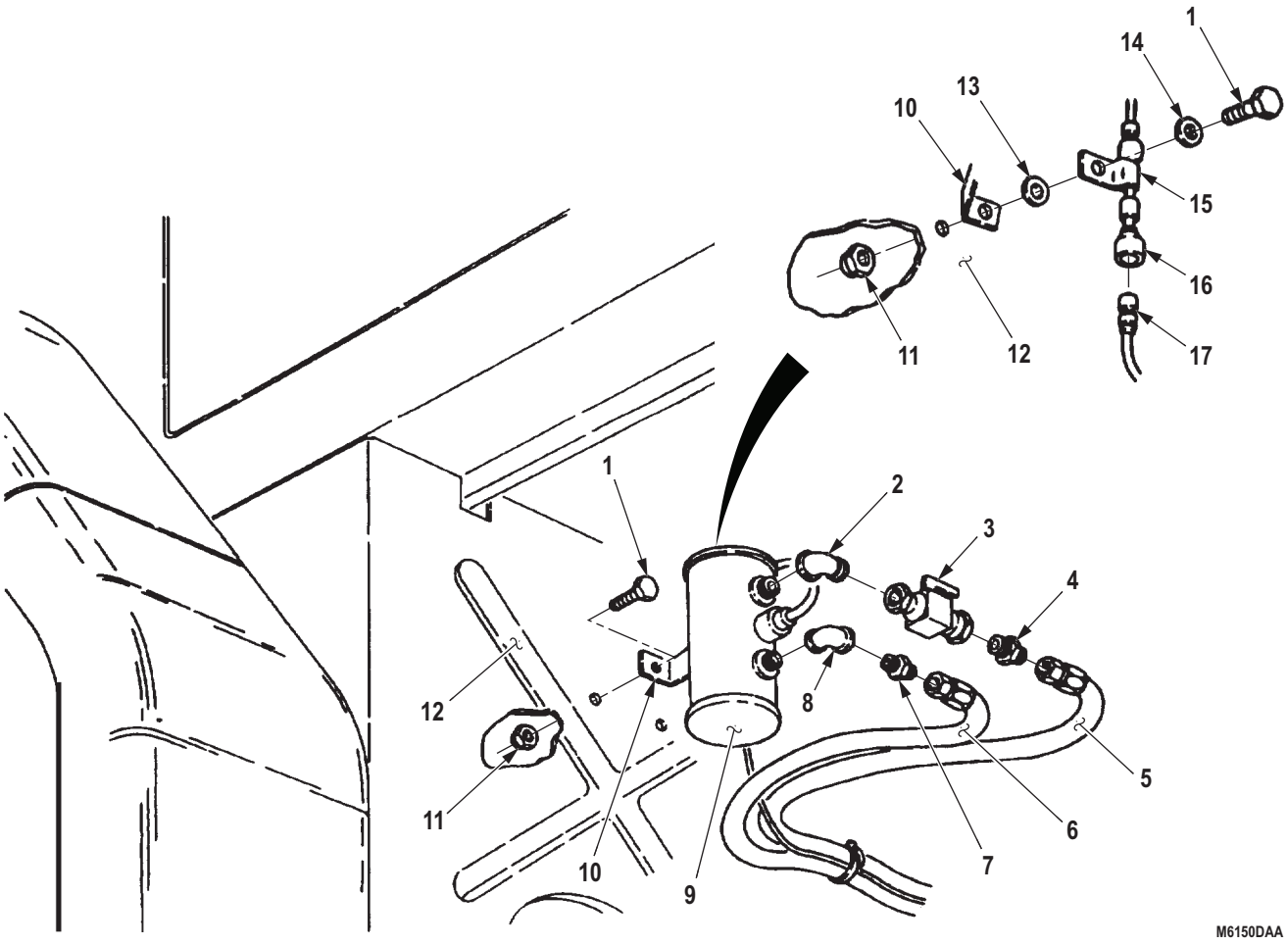


Figure 2. Personnel Fuel Burning Heater Fuel Pump Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Connect battery ground cables. (Volume 2, WP 0350)
2. Check personnel fuel burning heater for proper operation. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
PERSONNEL FUEL BURNING HEATER ELECTRIC FUEL PUMP REPLACEMENT (M939A2)

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Cap Set, Protective, Dust and Moisture Seal
(Volume 5, WP 0825, Table 1, Item 13)
Qty: 1
Locknut (Volume 5, WP 0827, Table 1, Item 282)
Qty: 2

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Battery ground cables disconnected.
(Volume 2, WP 0350)

REMOVAL

WARNING



Diesel fuel is flammable. Do not perform this procedure near open flames. Failure to comply may result in injury or death to personnel.

NOTE

Procedures for changing personnel fuel burning and engine coolant heater electric fuel pumps are similar, this procedure is for personnel fuel burning heater electric fuel pump.

1. Disconnect connector (Figure 1, Item 2) from electric fuel pump wire (Figure 1, Item 5).

CAUTION

When disconnecting lines and hoses from pump, immediately plug all open ports. Failure to comply can cause damage to pump.

NOTE

- Tag all lines and ports for installation.
- Use drain pans to retain leaking/draining fluids. Refer to local procedures and plans for preventing and responding to fluid spills and leaks. Comply with local regulations when disposing of clean up material and leaked and spilled fluids.

2. Disconnect fuel inlet line (Figure 1, Item 7) and outlet line (Figure 1, Item 1) from adapter fittings (Figure 1, Item 3).
3. Remove two screws (Figure 1, Item 4), locknuts (Figure 1, Item 9), and electric fuel pump (Figure 1, Item 6) from left-hand splash panel (Figure 1, Item 8). Discard locknuts.

REMOVAL - Continued

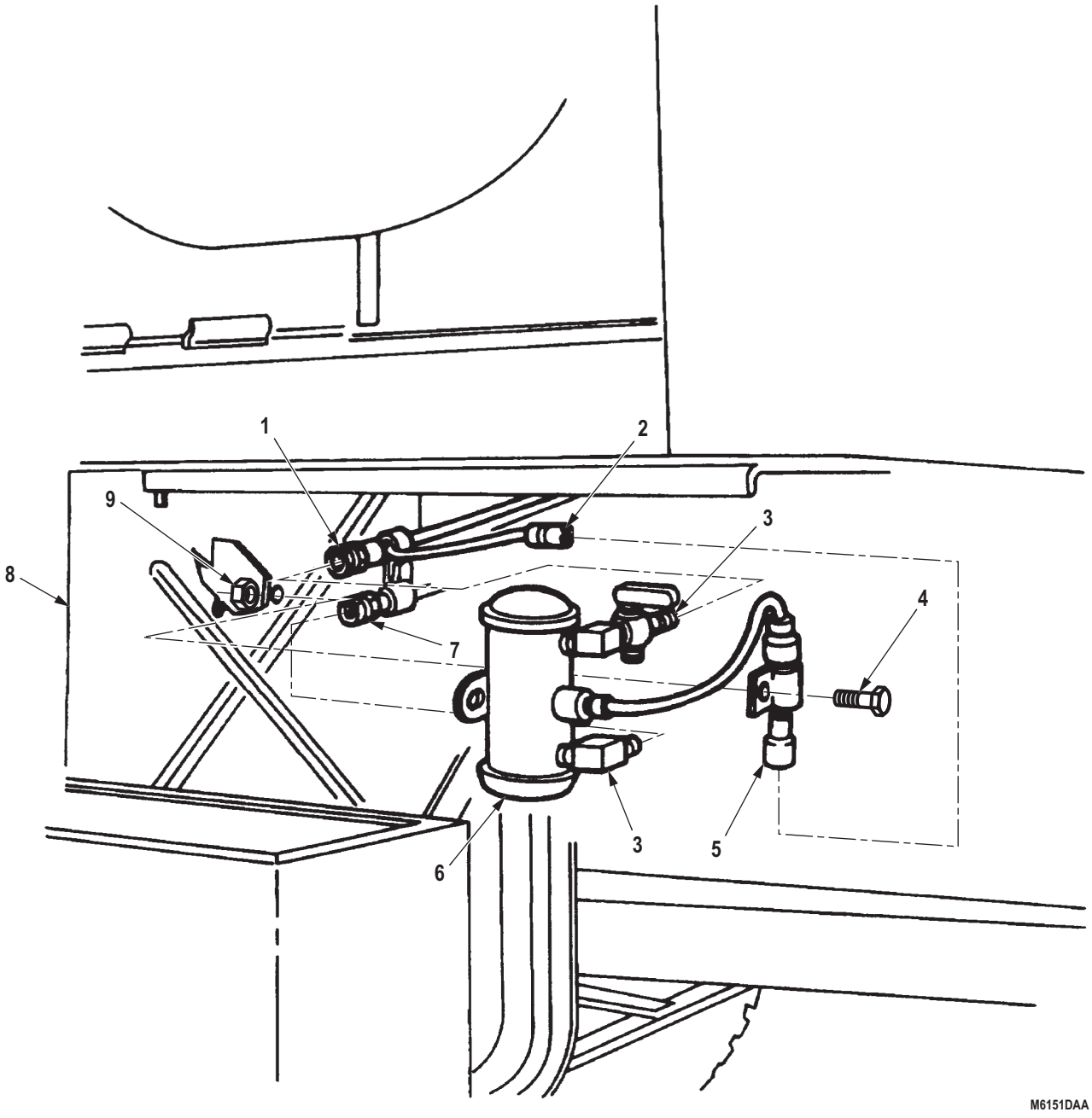


Figure 1. Personnel Fuel Burning Heater Electric Fuel Pump Removal.

END OF TASK

INSTALLATION

1. Install electric fuel pump (Figure 2, Item 6) on left-hand splash panel (Figure 2, Item 8) with two screws (Figure 2, Item 4) and locknuts (Figure 2, Item 9).
2. Connect fuel inlet line (Figure 2, Item 7) and outlet line (Figure 2, Item 1) to adapter fittings (Figure 2, Item 3).
3. Connect connector (Figure 2, Item 2) to electric fuel pump wire (Figure 2, Item 5).

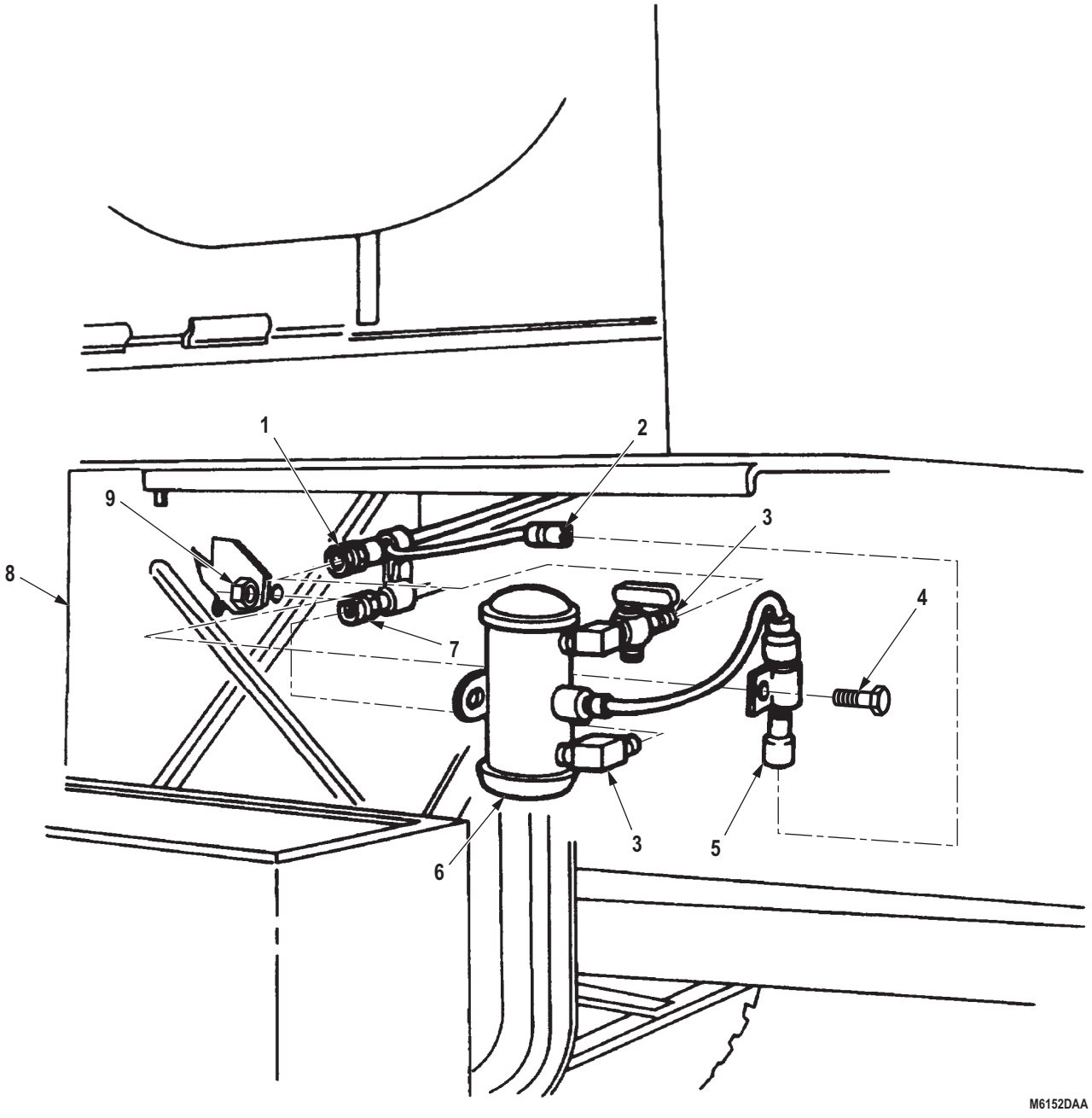


Figure 2. Personnel Fuel Burning Heater Electric Fuel Pump Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Connect battery ground cables. (Volume 2, WP 0350)
2. Check personnel fuel burning heater for proper operation. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
PERSONNEL FUEL BURNING HEATER FUEL SHUTOFF VALVE REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Cap Set, Protective, Dust and Moisture Seal
(Volume 5, WP 0825, Table 1, Item 13)
Qty: 1
Tape, Antiseizing
(Volume 5, WP 0825, Table 1, Item 65)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

REMOVAL

WARNING



Diesel fuel is flammable. Do not perform this procedure near open flames. Failure to comply may result in injury or death to personnel.

CAUTION

Cover or plug all openings after disconnecting lines and hoses to prevent contamination. Failure to comply may result in fuel pump damage.

NOTE

Use drain pans to retain leaking/draining fluids. Refer to local procedures and plans for preventing and responding to fluid spills and leaks. Comply with local regulations when disposing of clean up material and leaked and spilled fluids.

1. Disconnect hose (Figure 1, Item 4) from adapter (Figure 1, Item 3).
2. Remove adapter (Figure 1, Item 3) from fuel shutoff valve (Figure 1, Item 2).
3. Remove fuel shutoff valve (Figure 1, Item 2) from elbow (Figure 1, Item 1).

REMOVAL - Continued

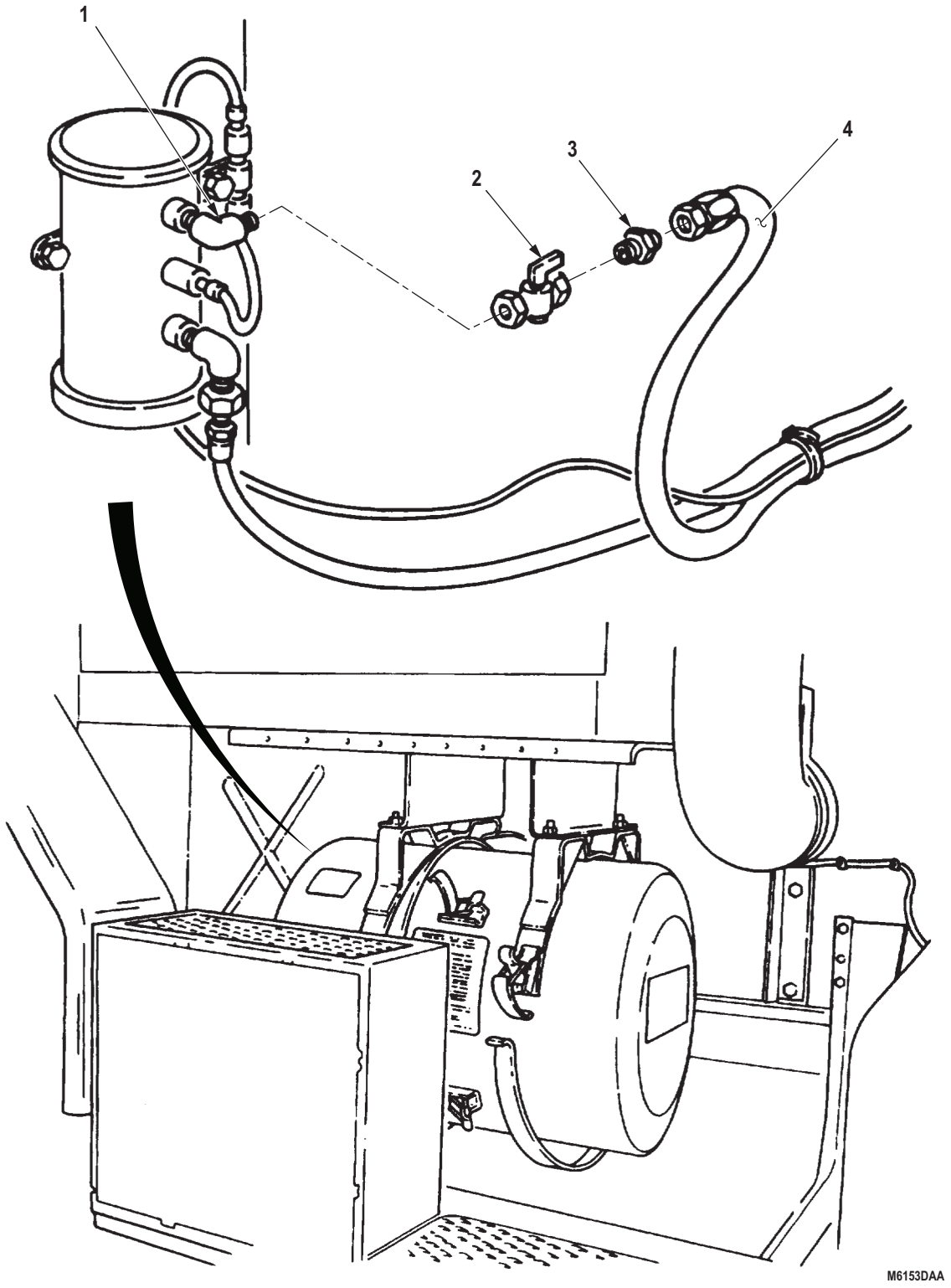


Figure 1. Fuel Burning Heater Fuel Shutoff Valve Removal.

END OF TASK

INSTALLATION

NOTE

Clean all male pipe threads and wrap with antiseize tape before installation.

1. Install fuel shutoff valve (Figure 2, Item 2) on elbow (Figure 2, Item 1).
2. Install adapter (Figure 2, Item 3) on fuel shutoff valve (Figure 2, Item 2).
3. Connect hose (Figure 2, Item 4) to adapter (Figure 2, Item 3).

INSTALLATION - Continued

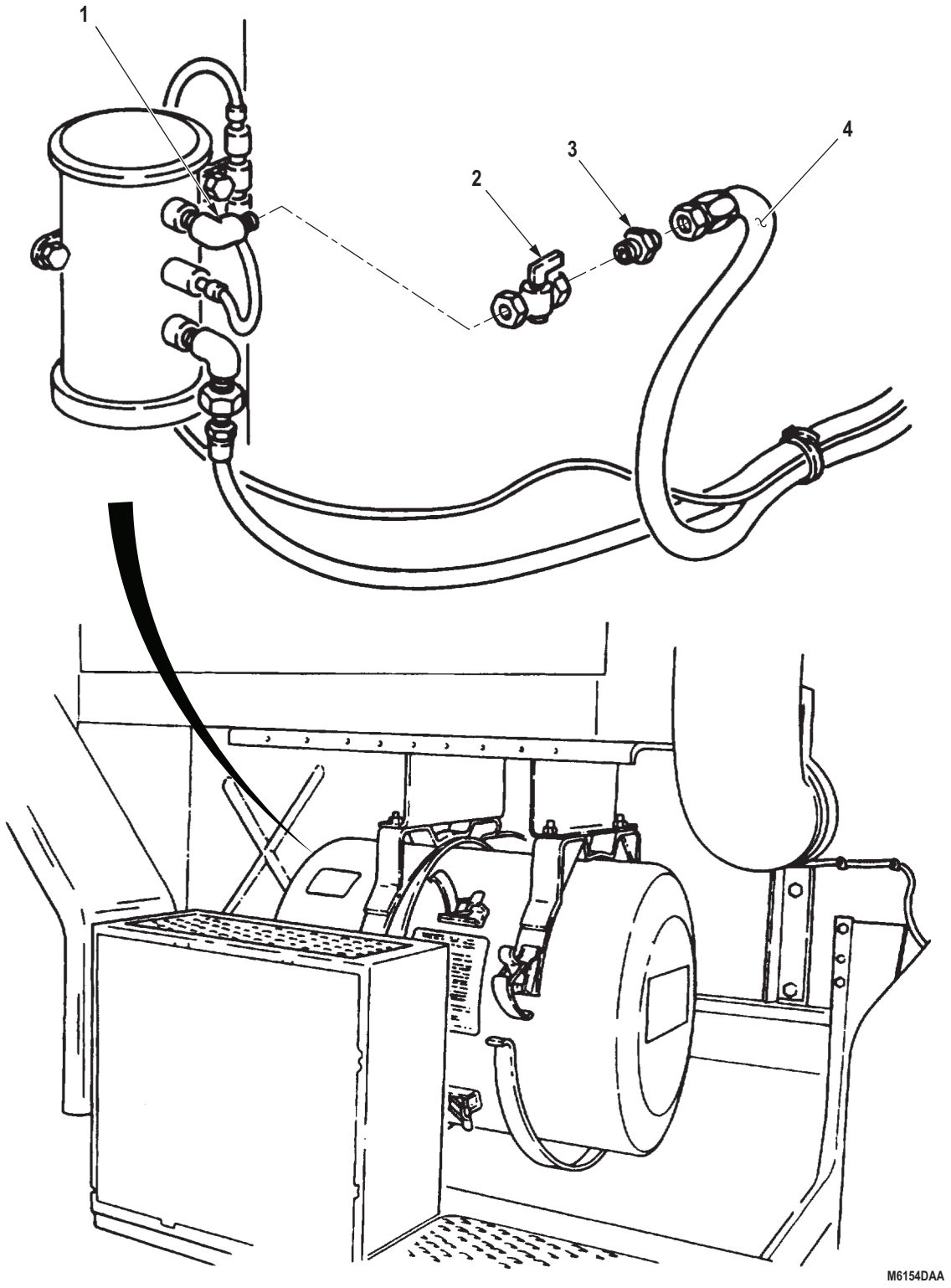


Figure 2. Fuel Burning Heater Fuel Shutoff Valve Installation.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
PERSONNEL FUEL BURNING HEATER WIRING HARNESS REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Locknut (Volume 5, WP 0827, Table 1, Item 283)
Qty: 1
Lockwasher
(Volume 5, WP 0827, Table 1, Item 422)
Qty: 1
Tiedown Strap
(Volume 5, WP 0827, Table 1, Item 375)
Qty: 11

Personnel Required
(2)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

Equipment Condition (cont.)
Hood raised and secured. (TM 9-2320-272-10)
Right and left splash shield removed.
(TM 9-2320-272-10)
Battery ground cables disconnected.
(Volume 2, WP 0350)

REMOVAL

1. Remove locknut (Figure 1, Item 28), washer (Figure 1, Item 27), screw (Figure 1, Item 25), washer (Figure 1, Item 27), lockwasher (Figure 1, Item 26), and ground wire (Figure 1, Item 19) from mounting bracket (Figure 1, Item 16) and angle bracket (Figure 1, Item 14). Discard lockwasher and locknut.

NOTE

Note routing of wiring harness and leads for installation.

2. Disconnect heater harness connector (Figure 1, Item 22) from personnel heater (Figure 1, Item 15) and push harness connector (Figure 1, Item 22) into cab through grommet (Figure 1, Item 23).
3. Remove grommet (Figure 1, Item 23) from firewall knockout (Figure 1, Item 17) and fuel pump lead (Figure 1, Item 10).
4. Remove four tiedown straps (Figure 1, Item 11) from fuel pump lead (Figure 1, Item 10) and front harness (Figure 1, Item 13) on engine compartment firewall (Figure 1, Item 24). Discard tiedown straps.
5. Disconnect leads (Figure 1, Items 10 and 21) from connector (Figure 1, Item 20) on cab (Figure 1, Item 18) and push lead (Figure 1, Item 10) through firewall (Figure 1, Item 24) into engine compartment.
6. Remove three tiedown straps (Figure 1, Item 30) from fuel pump fuel lines (Figure 1, Item 31). Discard tiedown straps.
7. Disconnect leads (Figure 1, Items 29 and 10) from fuel pump (Figure 1, Item 32).
8. Disconnect heater harness (Figure 1, Item 6) and lead (Figure 1, Item 8) from heater control box (Figure 1, Item 5) and lead (Figure 1, Item 7).
9. Disconnect lead (Figure 1, Item 9) from lead (Figure 1, Item 12) of wiring harness (Figure 1, Item 2).
10. Remove four tiedown straps (Figure 1, Item 1) from heater harness (Figure 1, Item 6) on cab (Figure 1, Item 18). Discard tiedown straps.
11. Disconnect wire (Figure 1, Item 4) from pin A of battery switch (Figure 1, Item 3) and remove wiring harness (Figure 1, Item 2) from cab (Figure 1, Item 18).
12. Remove heater harness (Figure 1, Item 6) from cab (Figure 1, Item 18).

REMOVAL - Continued

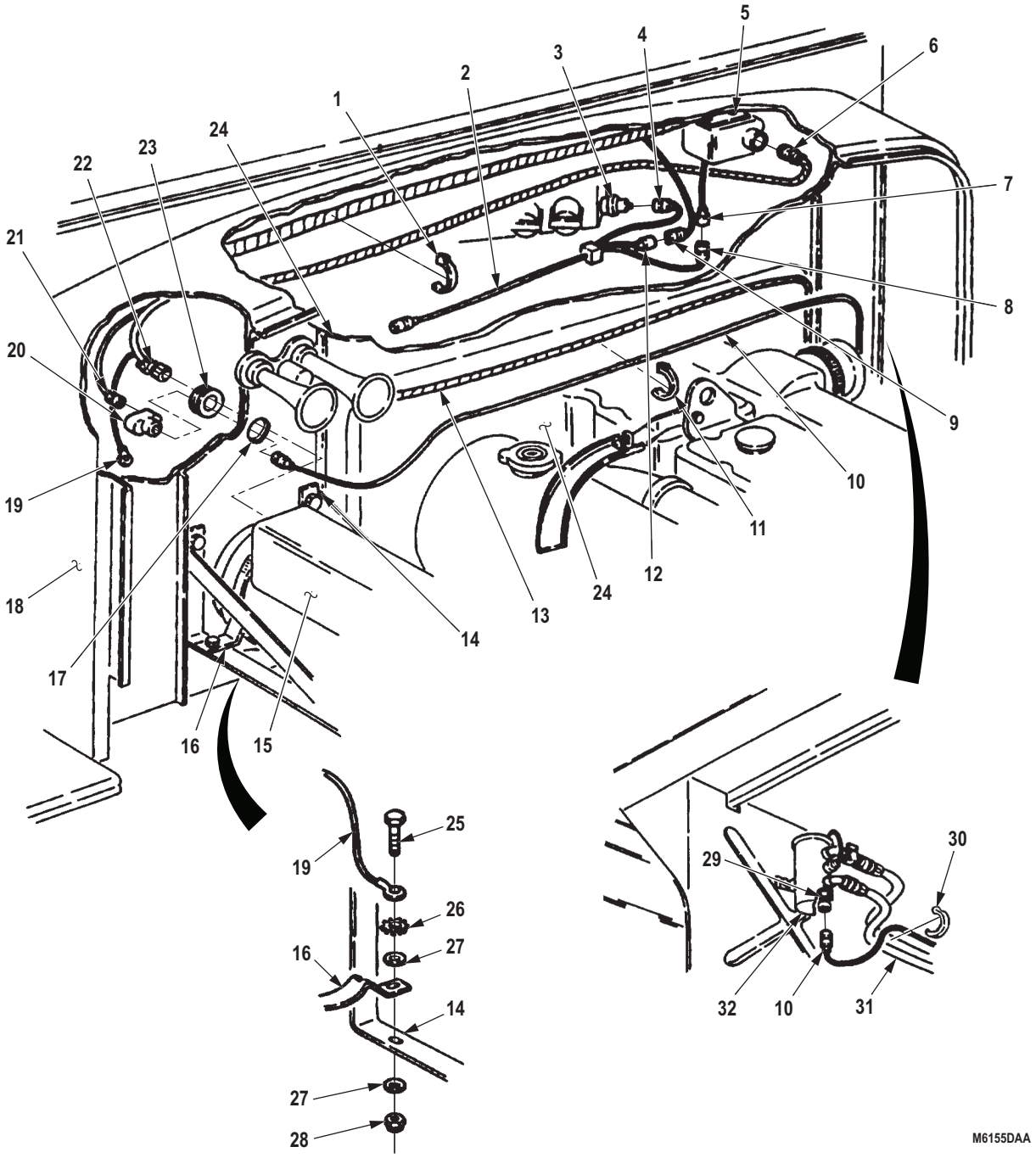


Figure 1. Personnel Fuel Burning Heater Wiring Harness Removal.

END OF TASK

INSTALLATION

1. Install heater harness (Figure 2, Item 6) in cab (Figure 2, Item 18) with four tiedown straps (Figure 2, Item 1).
2. Connect wire (Figure 2, Item 4) to pin A of battery switch (Figure 2, Item 3) and install wiring harness (Figure 2, Item 2) on cab (Figure 2, Item 18).
3. Connect lead (Figure 2, Item 9) to lead (Figure 2, Item 12) of wiring harness (Figure 2, Item 2).
4. Connect heater harness (Figure 2, Item 6) and lead (Figure 2, Item 8) to heater control box (Figure 2, Item 5) and lead (Figure 2, Item 7).
5. Connect leads (Figure 2, Items 10 and 29) to fuel pump (Figure 2, Item 32).
6. Install three tiedown straps (Figure 2, Item 30) on fuel pump fuel lines (Figure 2, Item 31).
7. Push lead (Figure 2, Item 10) through firewall (Figure 2, Item 24) into cab (Figure 2, Item 18) and connect leads and (Figure 2, Item 21) to connector (Figure 2, Item 20) on cab.
8. Install four tiedown straps (Figure 2, Item 11) on fuel pump lead (Figure 2, Item 10) and front harness (Figure 2, Item 13) on engine compartment firewall (Figure 2, Item 24).
9. Install grommet (Figure 2, Item 23) on heater harness (Figure 2, Item 6) and firewall knockout (Figure 2, Item 17).
10. Push harness connector (Figure 2, Item 22) into engine compartment through firewall knockout (Figure 2, Item 17) and connect heater harness connector to personnel heater (Figure 2, Item 15).
11. Install washer (Figure 2, Item 27), lockwasher (Figure 2, Item 26), ground wire (Figure 2, Item 19), screw (Figure 2, Item 25), washer (Figure 2, Item 27), and locknut (Figure 2, Item 28) on mounting bracket (Figure 2, Item 16) and angle bracket (Figure 2, Item 14).

INSTALLATION - Continued

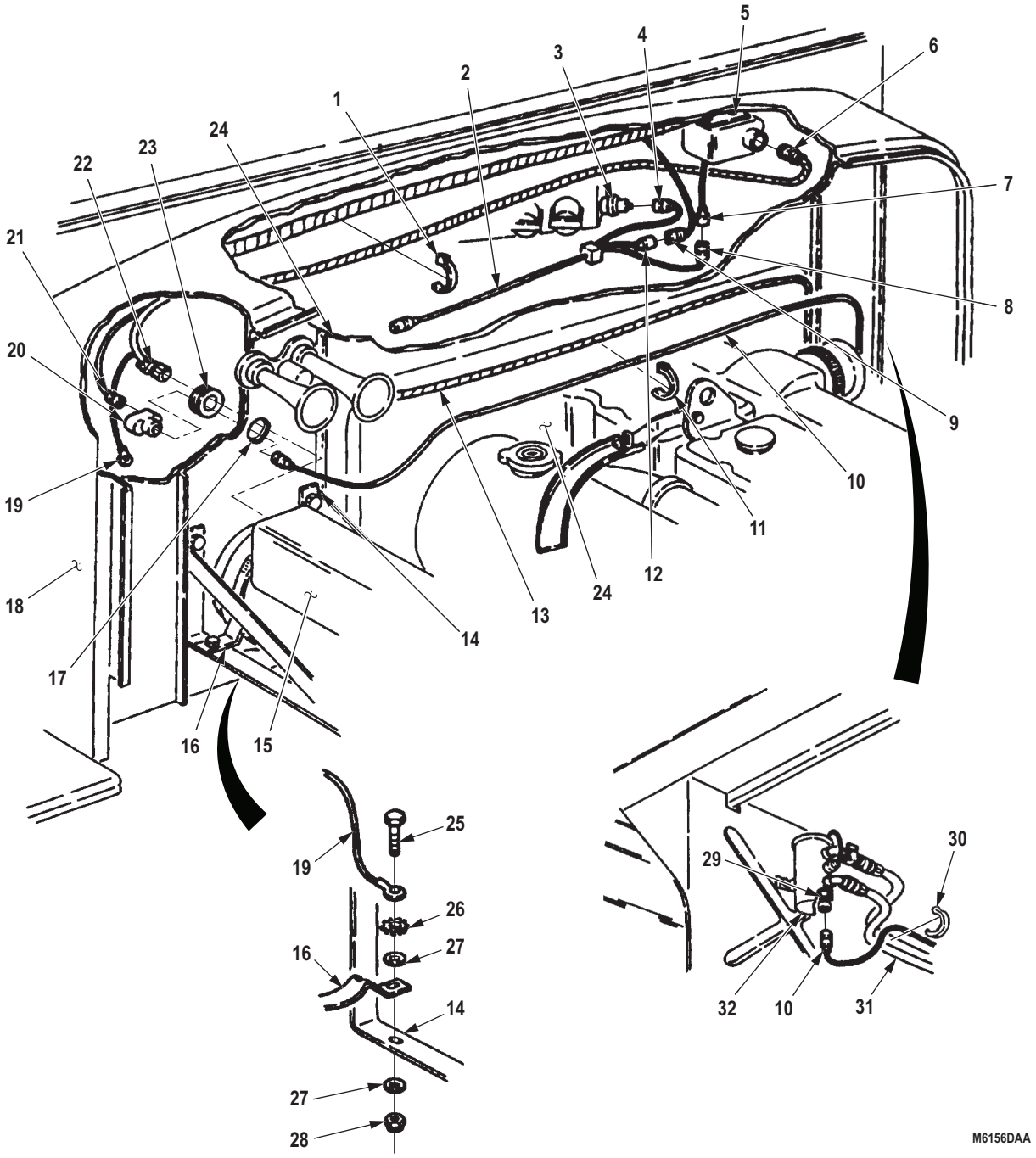


Figure 2. Personnel Fuel Burning Heater Wiring Harness Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Connect battery ground cables. (Volume 2, WP 0350)
2. Install right and left splash shield. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
PERSONNEL FUEL BURNING HEATER EXHAUST TUBE REPLACEMENT (M939/A1)

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Cotter Pin

Materials/Parts (cont.)
(Volume 5, WP 0827, Table 1, Item 351)
Qty: 2
Locknut (Volume 5, WP 0827, Table 1, Item 285)
Qty: 2

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

REMOVAL

WARNING



Do not handle hot exhaust tube with bare hands. Failure to comply may result in injury or death to personnel.

1. Remove cotter pin (Figure 1, Item 3) from exhaust elbow (Figure 1, Item 1) and fuel burning heater (Figure 1, Item 2). Discard cotter pin.
2. Remove cotter pin (Figure 1, Item 4) from exhaust elbow (Figure 1, Item 1) and exhaust tube (Figure 1, Item 7). Discard cotter pin.
3. Remove two locknuts (Figure 1, Item 6), screws (Figure 1, Item 9), clamps (Figure 1, Item 5), tube (Figure 1, Item 7), and exhaust elbow (Figure 1, Item 1) from fuel burning heater (Figure 1, Item 2) and splash panel (Figure 1, Item 8).

REMOVAL - Continued

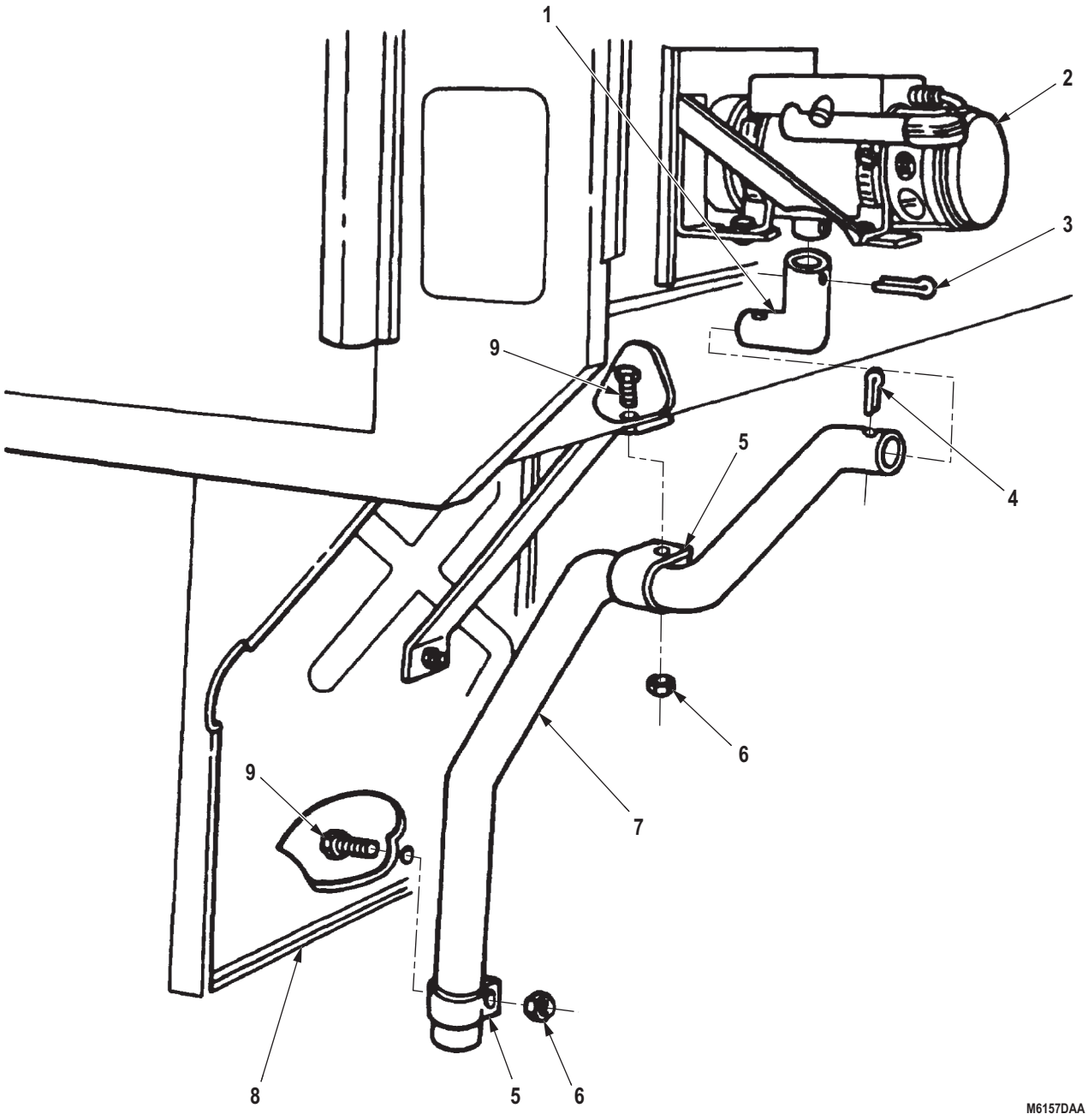


Figure 1. Fuel Burning Heater Exhaust Tube Removal.

END OF TASK

INSTALLATION

1. Install exhaust tube (Figure 2, Item 7) and elbow (Figure 2, Item 1) on splash panel (Figure 2, Item 8) with two clamps (Figure 2, Item 5), screws (Figure 2, Item 9), and locknuts (Figure 2, Item 6).
2. Install exhaust elbow (Figure 2, Item 1) on fuel burning heater (Figure 2, Item 2) with cotter pin (Figure 2, Item 3).
3. Install exhaust elbow (Figure 2, Item 1) on exhaust tube (Figure 2, Item 7) with cotter pin (Figure 2, Item 4).

INSTALLATION - Continued

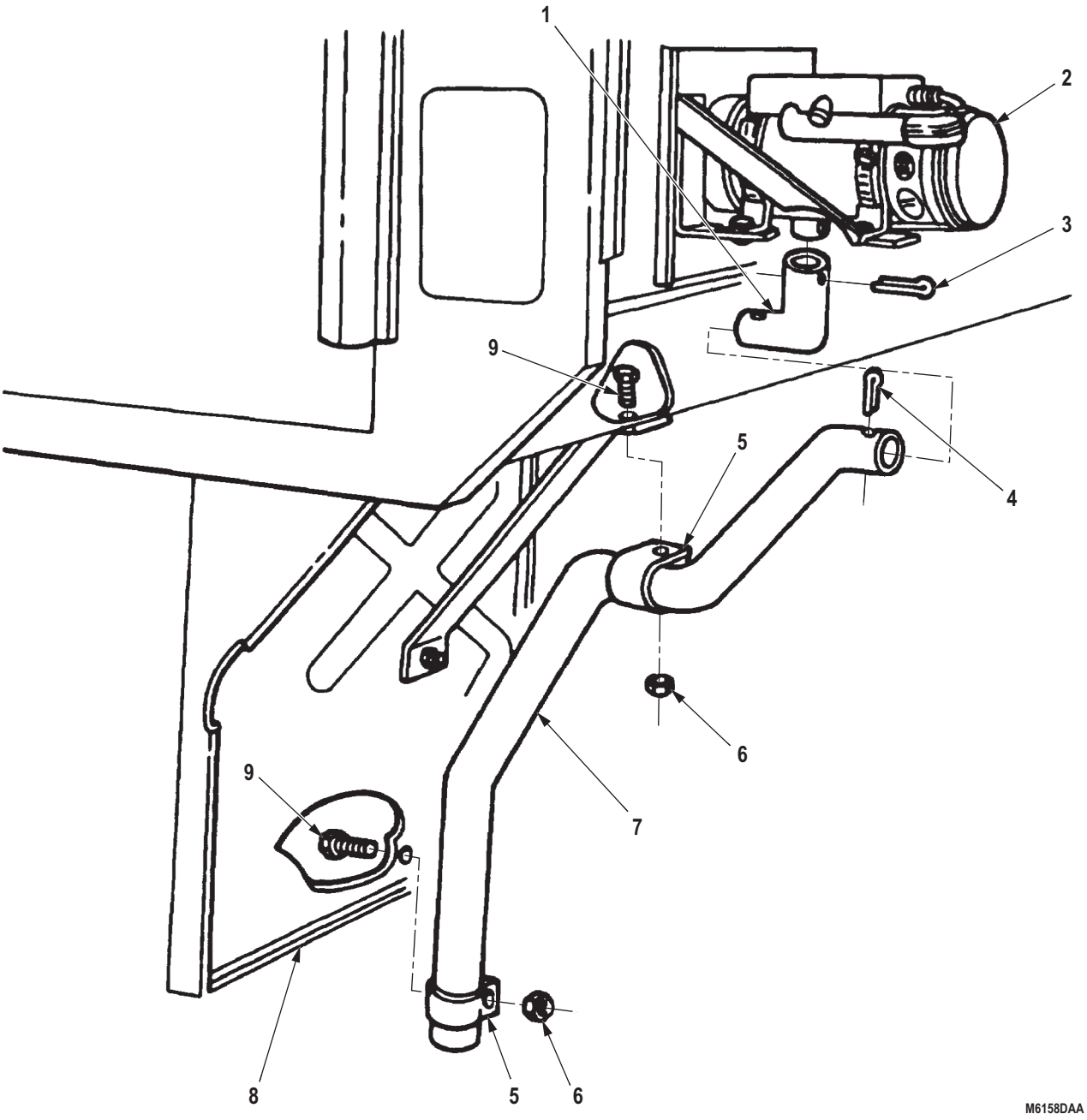


Figure 2. Fuel Burning Heater Exhaust Tube Installation.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
PERSONNEL FUEL BURNING HEATER EXHAUST TUBE REPLACEMENT (M939A2)

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Cotter Pin
(Volume 5, WP 0827, Table 1, Item 350)
Qty: 3
Locknut (Volume 5, WP 0827, Table 1, Item 61)
Qty: 1

Equipment Condition
Parking brake set. (TM 9-2320-272-10)

Equipment Condition (cont.)
Hood raised and secured. (TM 9-2320-272-10)

REMOVAL

WARNING



Do not handle hot exhaust tube with bare hands. Failure to comply may result in injury or death to personnel.

1. Remove locknut (Figure 1, Item 10), washer (Figure 1, Item 9), screw (Figure 1, Item 8), and clamp (Figure 1, Item 7) from firewall (Figure 1, Item 1) and exhaust tube (Figure 1, Item 6). Discard locknut.
2. Remove cotter pin (Figure 1, Item 5) and exhaust tube (Figure 1, Item 6) from elbow (Figure 1, Item 4). Discard cotter pin.
3. Remove cotter pins (Figure 1, Items 3 and 11) and elbows (Figure 1, Items 4 and 12) from heater exhaust outlet (Figure 1, Item 2). Discard cotter pins.

REMOVAL - Continued

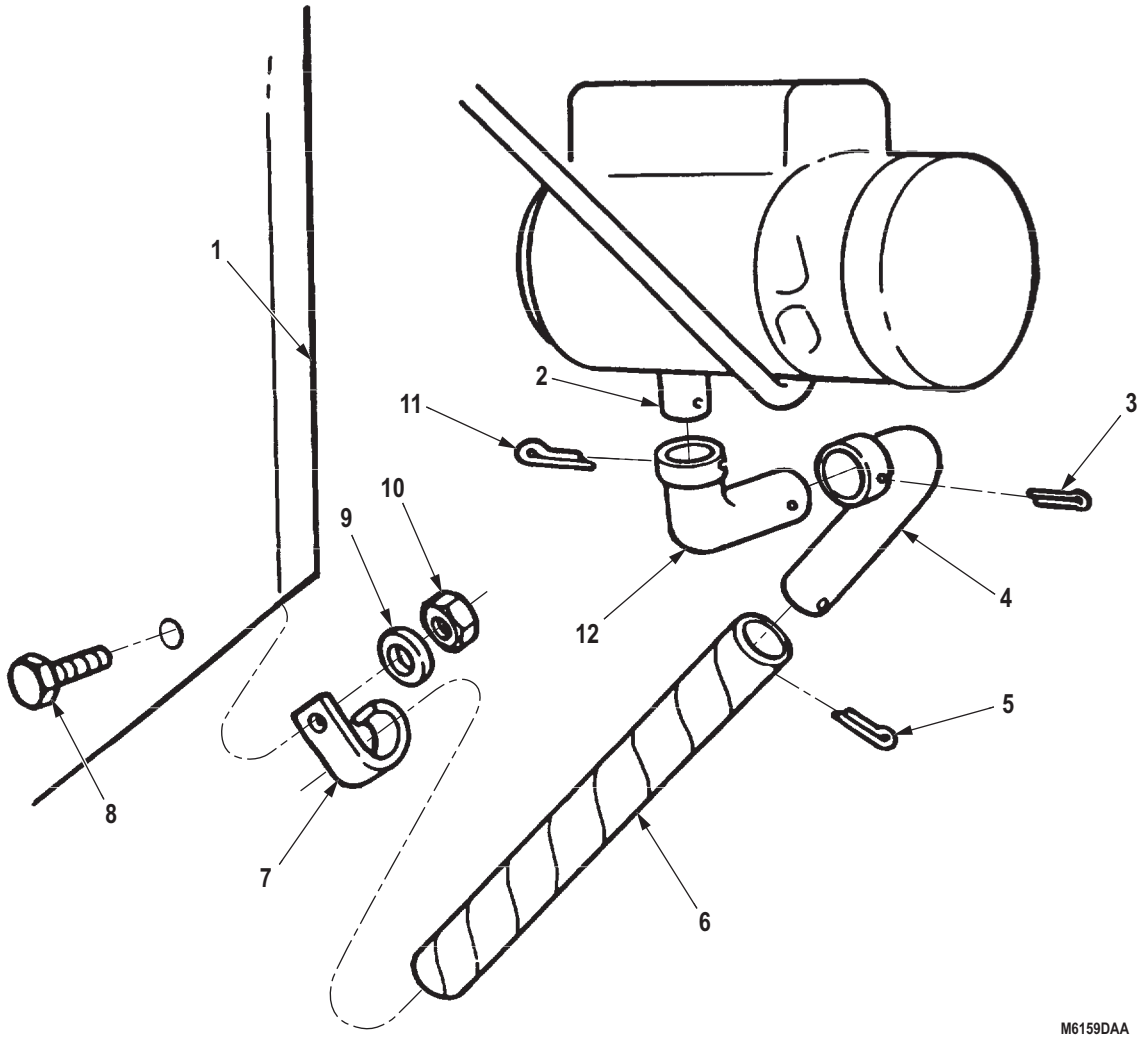


Figure 1. Fuel Burning Heater Exhaust Tube Removal.

END OF TASK

INSTALLATION

1. Install elbows (Figure 2, Items 4 and 12) on heater exhaust outlet (Figure 2, Item 2) with cotter pins (Figure 2, Items 3 and 11).
2. Install exhaust tube (Figure 2, Item 6) on elbow (Figure 2, Item 4) with cotter pin (Figure 2, Item 5).
3. Install clamp (Figure 2, Item 7) on exhaust tube (Figure 2, Item 6) and firewall (Figure 2, Item 1) with screw (Figure 2, Item 8), washer (Figure 2, Item 9), and locknut (Figure 2, Item 10).

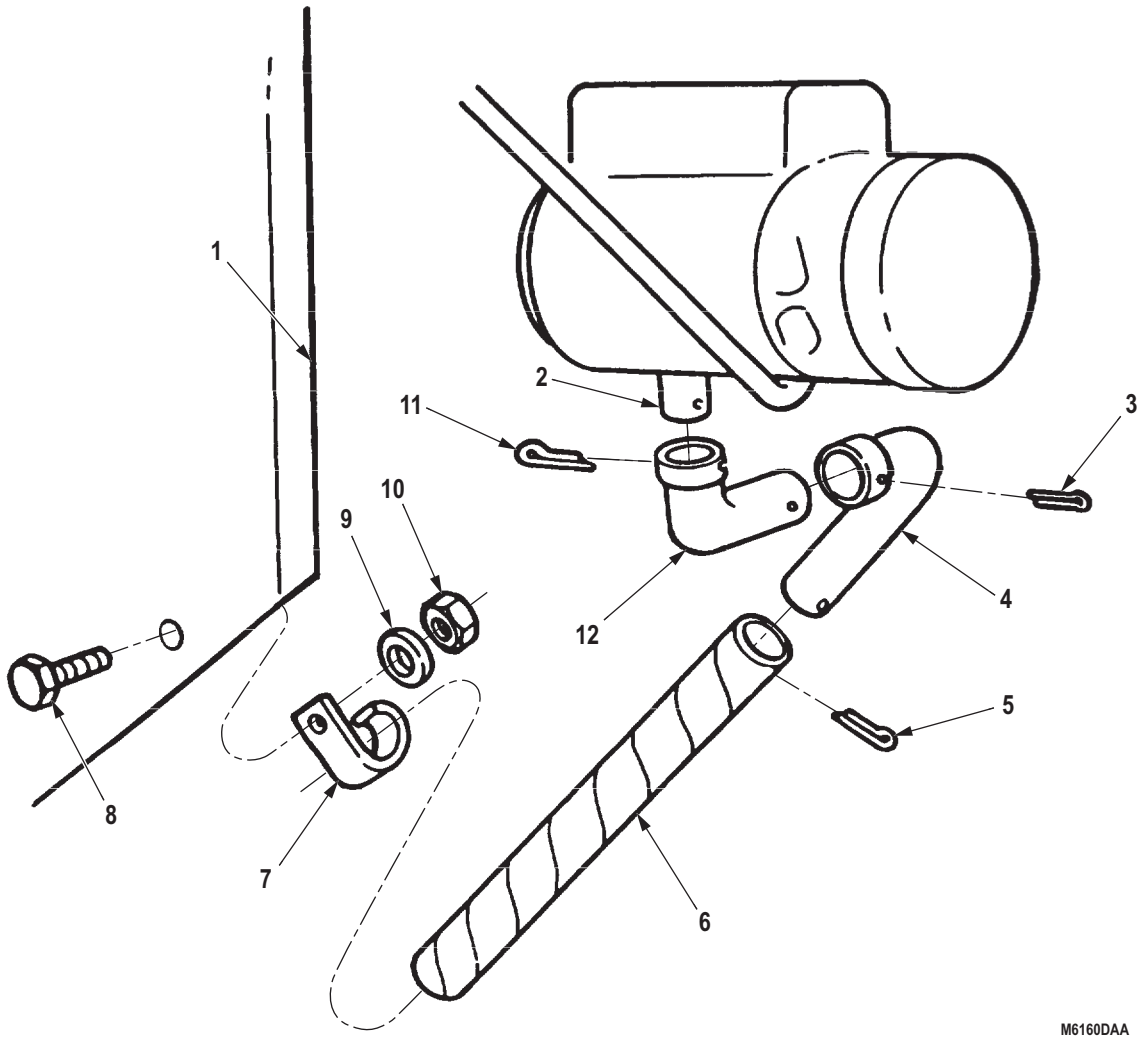


Figure 2. Fuel Burning Heater Exhaust Tube Installation.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
PERSONNEL FUEL BURNING HEATER CIRCUIT BREAKER REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Battery ground cables disconnected.
(Volume 2, WP 0350)

REMOVAL

1. Disconnect connectors (Figure 1, Item 3) and (Figure 1, Item 4) from heater circuit breaker (Figure 1, Item 1).
2. Remove two screws (Figure 1, Item 2) and heater circuit breaker (Figure 1, Item 1) from left underside of dash (Figure 1, Item 5).

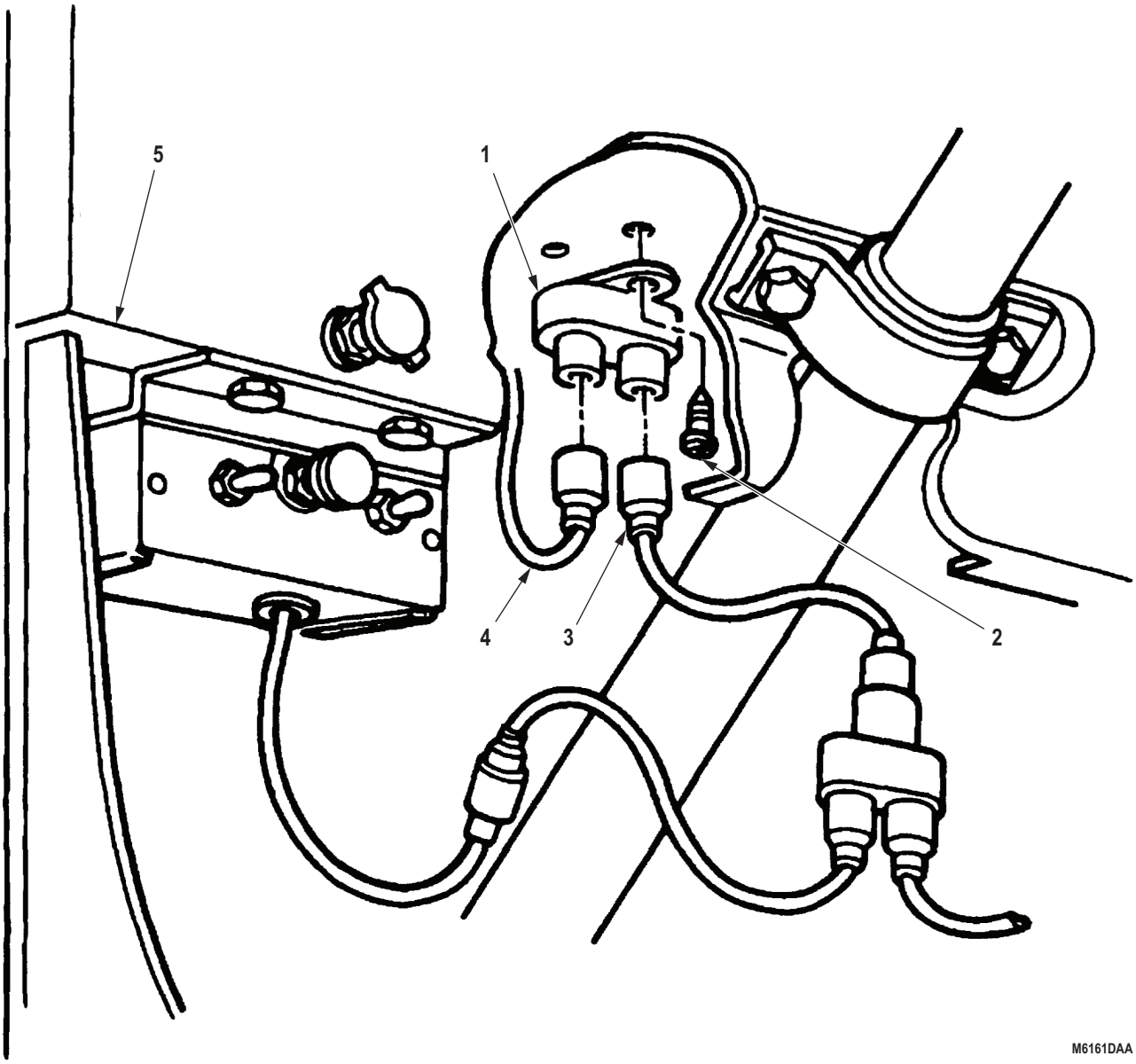


Figure 1. Personnel Fuel Burning Heater Circuit Breaker Removal.

END OF TASK

INSTALLATION

1. Install heater circuit breaker (Figure 2, Item 1) on left underside of dash (Figure 2, Item 5) with two screws (Figure 2, Item 2).
2. Connect connectors (Figure 2, Item 3) and (Figure 2, Item 4) to heater circuit breaker (Figure 2, Item 1).

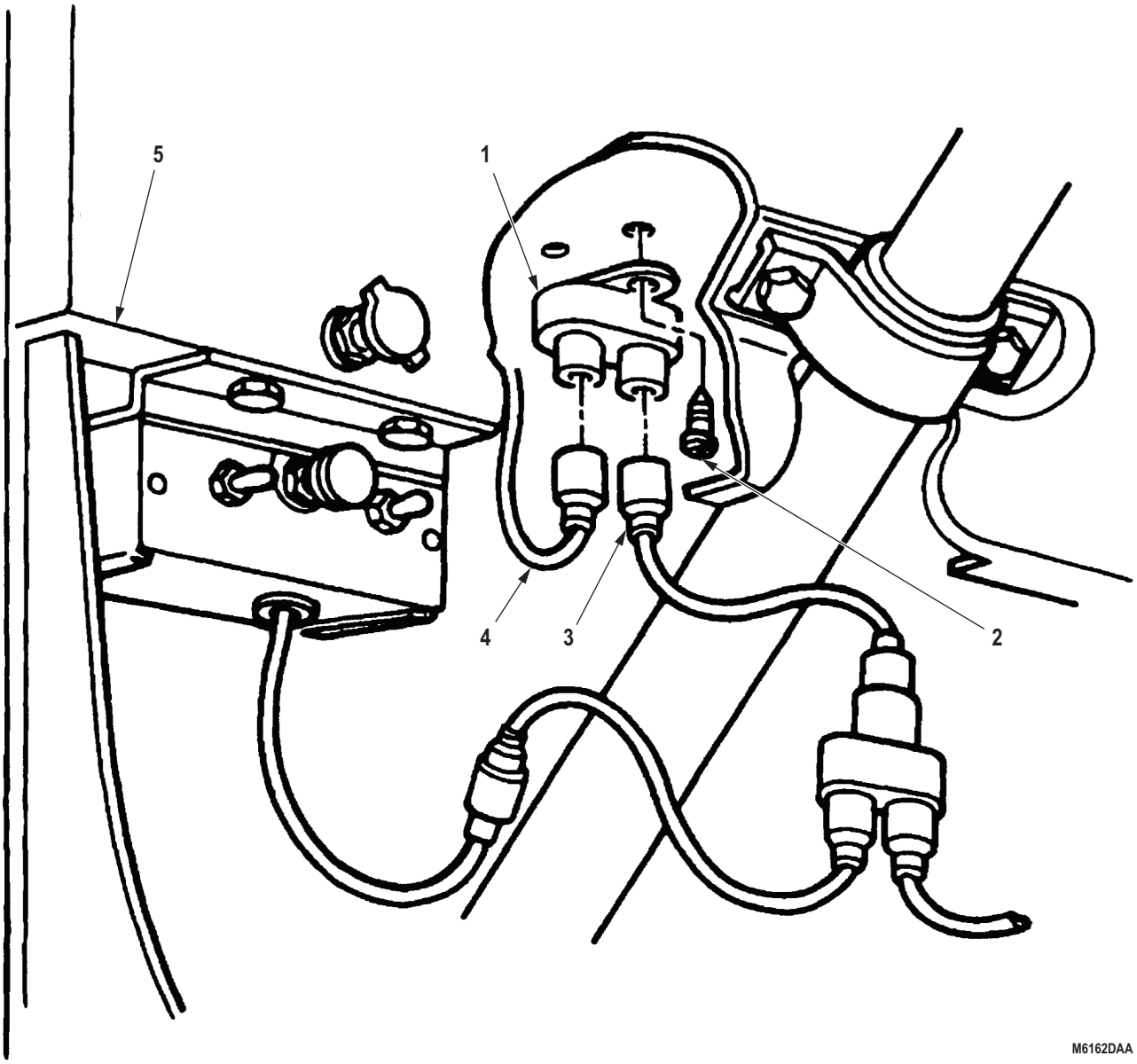


Figure 2. Personnel Fuel Burning Heater Circuit Breaker Installation.

END OF TASK

FOLLOW-ON MAINTENANCE

Connect battery ground cables. (Volume 2, WP 0350)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
DEEPWATER FORDING CONTROL CABLE REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Locknut (Volume 5, WP 0827, Table 1, Item 282)
Qty: 2

Materials/Parts (cont.)
Locknut (Volume 5, WP 0827, Table 1, Item 312)
Qty: 2
Lockwasher
(Volume 5, WP 0827, Table 1, Item 411)
Qty: 1

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Hood raised and secured. (TM 9-2320-272-10)

REMOVAL

1. Loosen screw (Figure 1, Item 1) and remove control cable (Figure 1, Item 10) from nut (Figure 1, Item 2) on pressurization valve (Figure 1, Item 3).
2. Remove two locknuts (Figure 1, Item 11), screws (Figure 1, Item 4), clamp (Figure 1, Item 5), and control cable (Figure 1, Item 10) from fording cable bracket (Figure 1, Item 6). Discard locknuts.
3. Remove nut (Figure 1, Item 16) and lockwasher (Figure 1, Item 17), and slide down control cable (Figure 1, Item 10).
4. Pull hand control (Figure 1, Item 14) and control cable (Figure 1, Item 10) from instrument panel (Figure 1, Item 15) and grommet (Figure 1, Item 12) in firewall (Figure 1, Item 13), and remove nut (Figure 1, Item 16) and lockwasher (Figure 1, Item 17) from control cable. Discard lockwasher.
5. Remove two locknuts (Figure 1, Item 9), screws (Figure 1, Item 7), and fording cable bracket (Figure 1, Item 6) from surge tank mounting bracket (Figure 1, Item 8). Discard locknuts.

REMOVAL - Continued

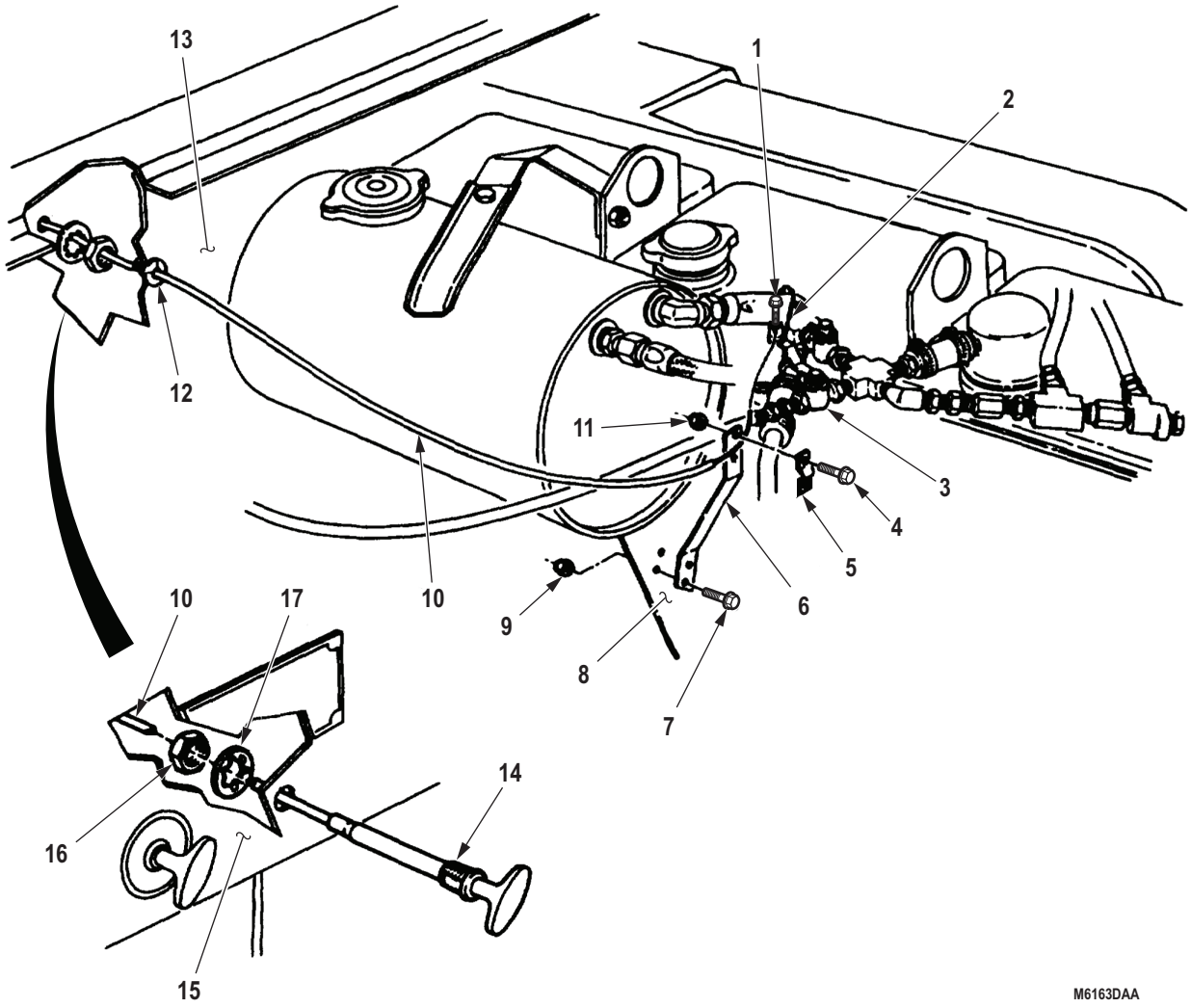


Figure 1. Deepwater Fording Control Removal.

END OF TASK

INSTALLATION

1. Install fording cable bracket (Figure 2, Item 6) on surge tank mounting bracket (Figure 2, Item 8) with two screws (Figure 2, Item 7) and locknuts (Figure 2, Item 9).
2. Insert control cable (Figure 2, Item 10) and hand control (Figure 2, Item 14) through instrument panel (Figure 2, Item 15), lockwasher (Figure 2, Item 17), nut (Figure 2, Item 16), and grommet (Figure 2, Item 12) in firewall (Figure 2, Item 13), and tighten nut.
3. Install control cable (Figure 2, Item 10) on fording cable bracket (Figure 2, Item 6) with clamp (Figure 2, Item 5), two screws (Figure 2, Item 4), and locknuts (Figure 2, Item 11).
4. Install control cable (Figure 2, Item 10) in nut (Figure 2, Item 2) on pressurization valve (Figure 2, Item 3), and tighten screw (Figure 2, Item 1).

INSTALLATION - Continued

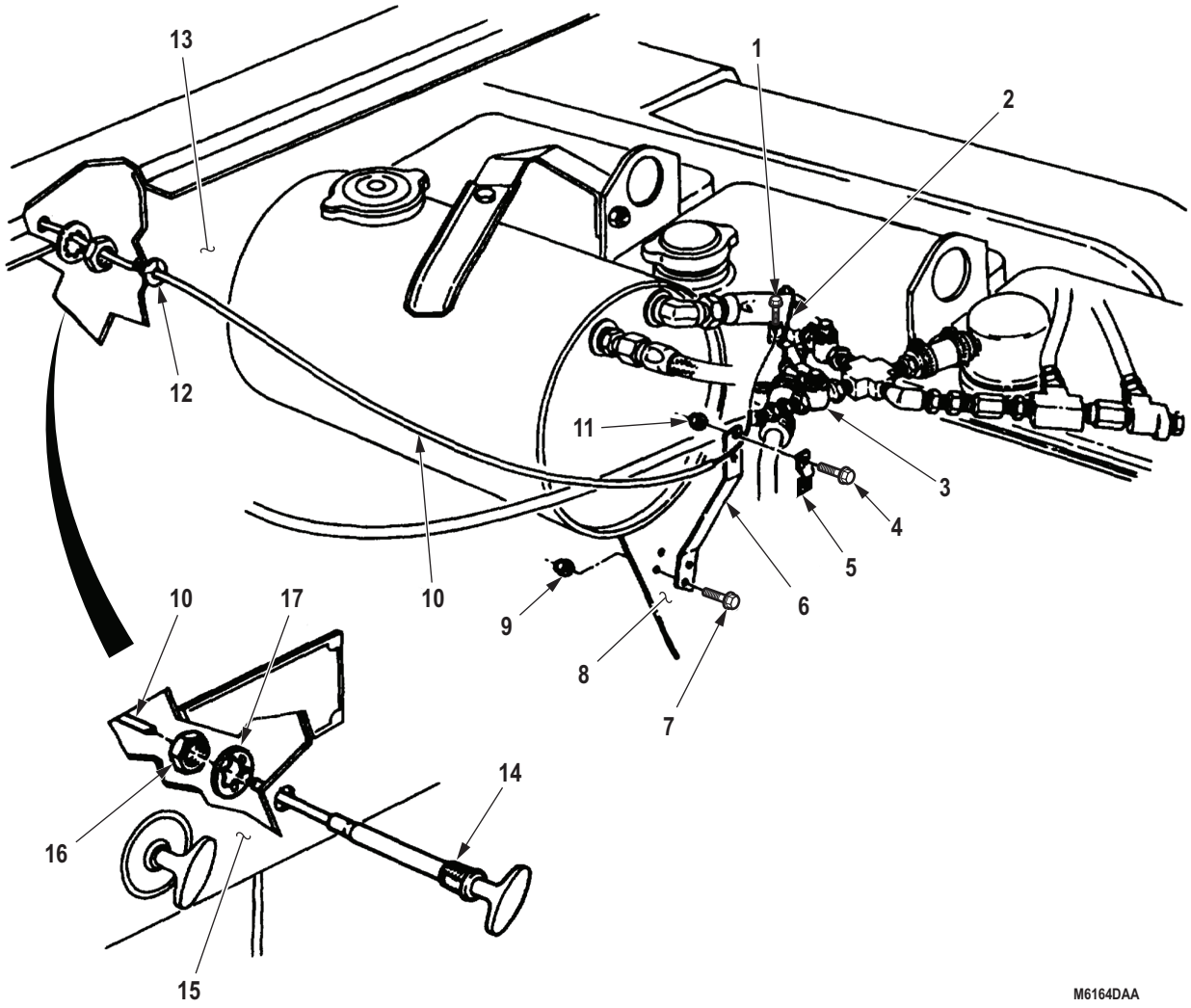


Figure 2. Deepwater Fording Control Installation.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
DEEPWATER FORDING PRESSURIZATION VALVE REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Tape, Antiseizing
(Volume 5, WP 0825, Table 1, Item 65)
Locknut (Volume 5, WP 0827, Table 1, Item 312)
Qty: 2

Materials/Parts (cont.)
Locknut (Volume 5, WP 0827, Table 1, Item 321)
Qty: 1
Lockwasher
(Volume 5, WP 0827, Table 1, Item 186)
Qty: 1

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Hood raised and secured. (TM 9-2320-272-10)
Air reservoirs drained. (TM 9-2320-272-10)
Air pressure hose removed from valve (M939A2). (WP 0770)

REMOVAL (M939/A1)

WARNING



Do not disconnect air lines or hoses before draining air reservoirs. Small parts under pressure may shoot out with high velocity. Failure to comply may result in injury or death to personnel.

NOTE

- Tag all hoses and lines for installation.
- All lines are removed the same way for M939/A1 and A2.

1. Remove two locknuts (Figure 1, Item 25), screws (Figure 1, Item 18), and clamp (Figure 1, Item 19) from fording cable bracket (Figure 1, Item 24). Discard locknuts.
2. Loosen screw (Figure 1, Item 29) and remove control cable (Figure 1, Item 26) from nut (Figure 1, Item 28).
3. Disconnect supply hose (Figure 1, Item 20) from pressurized valve adapter (Figure 1, Item 21).

NOTE

Perform Step (4) for vehicles equipped with positive crankcase ventilation system.

4. Remove two clamps (Figure 1, Item 33), hose (Figure 1, Item 35), and crankcase vent tube (Figure 1, Item 32) from pressurization valve elbow (Figure 1, Item 34).
5. Remove two clamps (Figure 1, Item 16), hose (Figure 1, Item 17), and crankcase breather tube (Figure 1, Item 15) from pressurization valve elbow (Figure 1, Item 27).
6. Disconnect pressurization hose (Figure 1, Item 6) and vent hose (Figure 1, Item 5) from pressurization valve connectors (Figure 1, Item 7).
7. Remove locknut (Figure 1, Item 8), screw (Figure 1, Item 12), clamp (Figure 1, Item 11), and power steering pump hose (Figure 1, Item 13) from bracket (Figure 1, Item 9) on radiator support bracket (Figure 1, Item 10). Discard locknut.
8. Disconnect power steering pump hose (Figure 1, Item 13) from pressurization valve connector (Figure 1, Item 14).
9. Remove two clamps (Figure 1, Item 1) and hose (Figure 1, Item 2) from crankcase breather (Figure 1, Item 3) and pressurization valve (Figure 1, Item 22).
10. Remove screw (Figure 1, Item 30), lockwasher (Figure 1, Item 31), and pressurization valve (Figure 1, Item 22) with bracket (Figure 1, Item 23) from rocker lever cover (Figure 1, Item 4). Discard lockwasher.

REMOVAL (M939/A1) - Continued

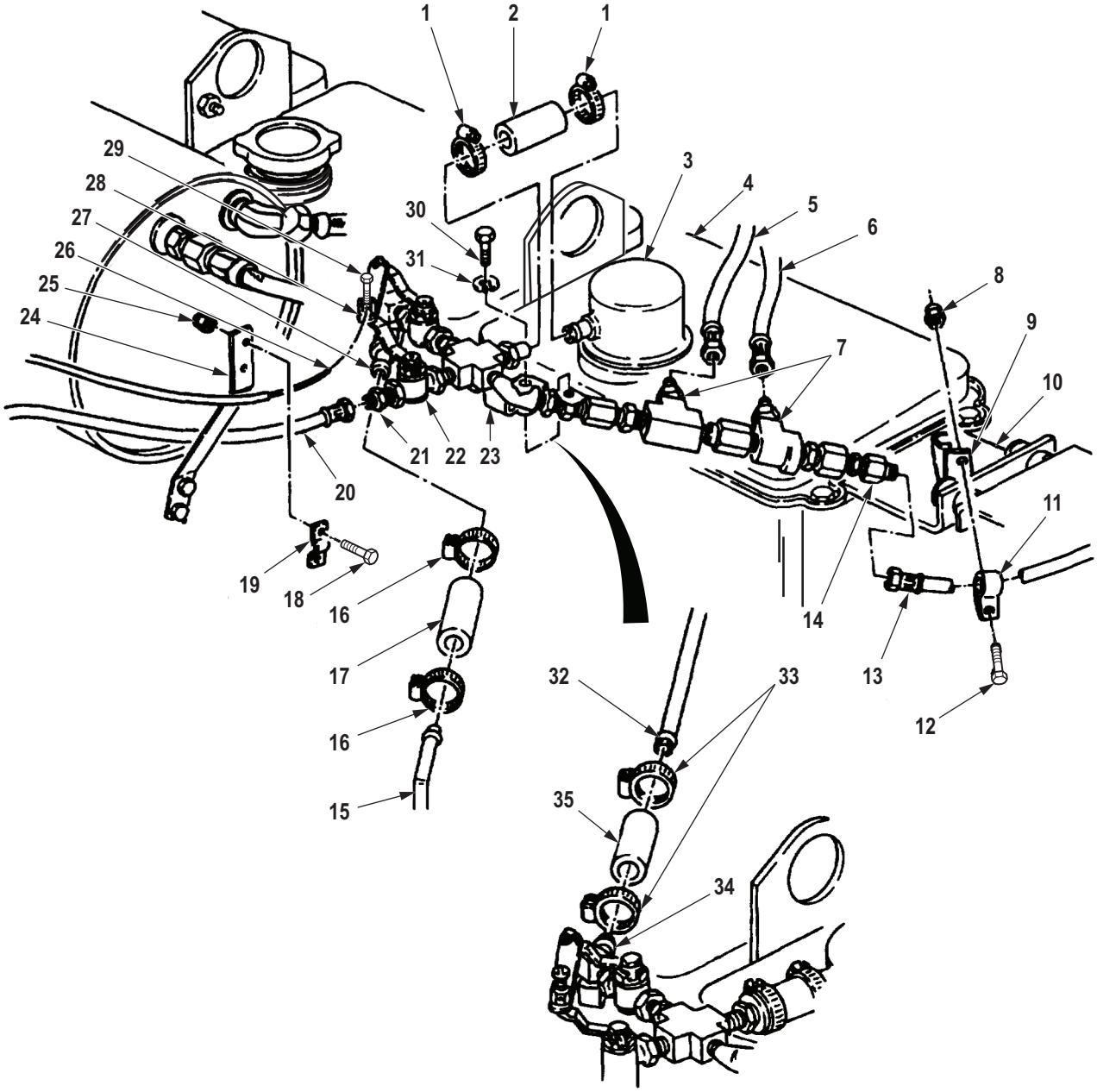


Figure 1. Deepwater Fording Pressurization Valve Removal (M939/A1).

END OF TASK

REMOVAL (M939/A2)

1. Remove two screws (Figure 2, Item 13), washers (Figure 2, Item 12), and pressurization valve (Figure 2, Item 3) from mounting bracket (Figure 2, Item 11) and bracket (Figure 2, Item 10).
2. Remove screw (Figure 2, Item 5), washer (Figure 2, Item 6), spacer (Figure 2, Item 7), and arm (Figure 2, Item 4) from pressurization valve (Figure 2, Item 3).
3. Remove connector (Figure 2, Item 1) from pressurization valve (Figure 2, Item 3).
4. Remove tee (Figure 2, Item 2) from pressurization valve (Figure 2, Item 3).
5. Remove adapter (Figure 2, Item 17) from tee (Figure 2, Item 18).
6. Remove tee (Figure 2, Item 18) and connector (Figure 2, Item 19) from pressurization valve (Figure 2, Item 3).
7. Remove regulator valve (Figure 2, Item 16) from elbow (Figure 2, Item 15).
8. Remove elbow (Figure 2, Item 15) and connector (Figure 2, Item 14) from pressurization valve (Figure 2, Item 3).
9. Remove elbow (Figure 2, Item 8) from pressurization valve (Figure 2, Item 3).
10. Remove elbow (Figure 2, Item 9) from pressurization valve (Figure 2, Item 3).

REMOVAL (M939/A2) - Continued

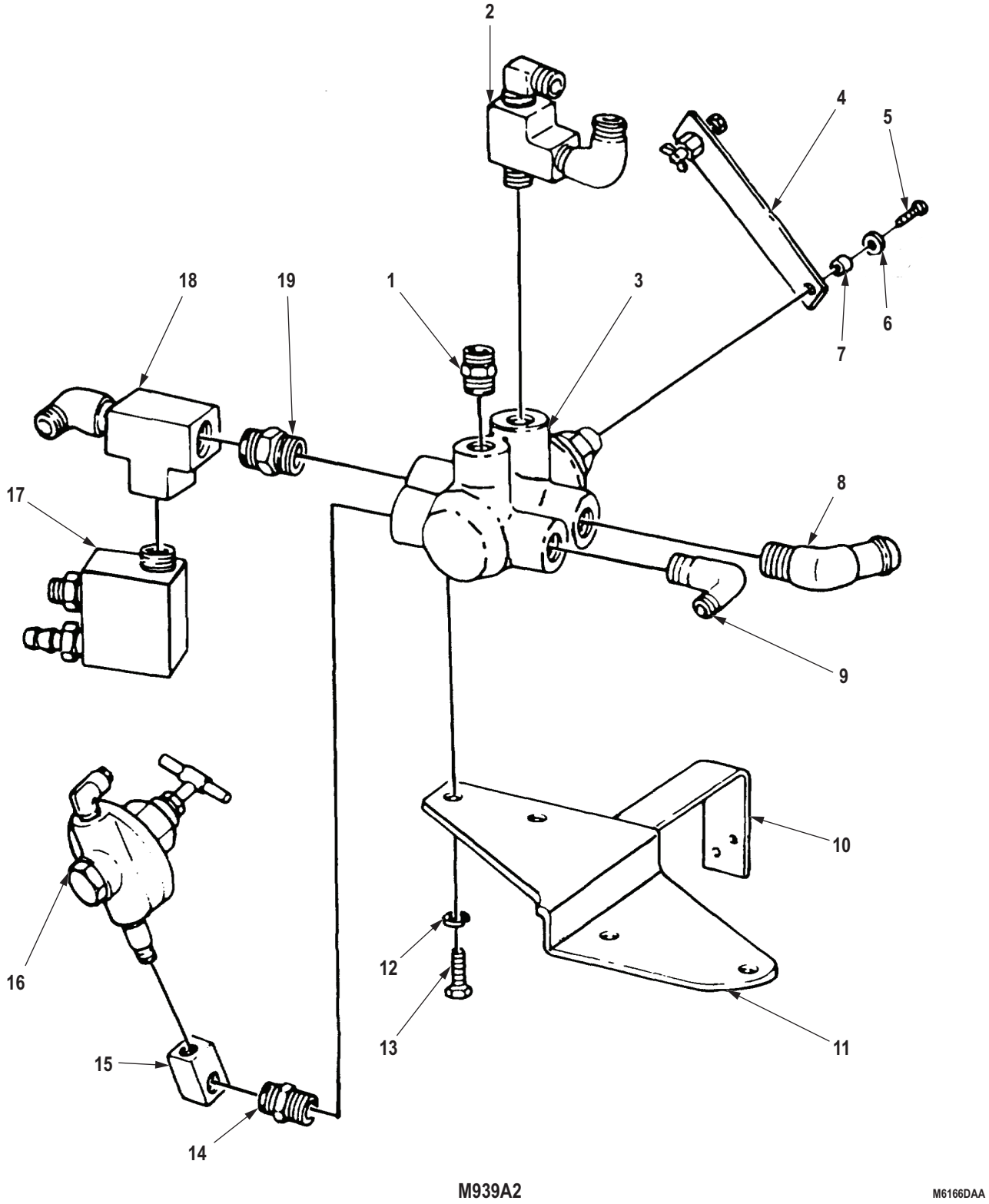


Figure 2. Deepwater Fording Pressurization Valve Removal (M939/A2).

END OF TASK

INSTALLATION (M939/A2)

NOTE

All male threads must be wrapped with antiseize tape before installation.

1. Install elbow (Figure 3, Item 9) on pressurization valve (Figure 3, Item 3).
2. Install elbow (Figure 3, Item 8) on pressurization valve (Figure 3, Item 3).
3. Install connector (Figure 3, Item 14) and elbow (Figure 3, Item 15) on pressurization valve (Figure 3, Item 3).
4. Install regulator valve (Figure 3, Item 16) on elbow (Figure 3, Item 15).
5. Install connector (Figure 3, Item 19) and tee (Figure 3, Item 18) on pressurization valve (Figure 3, Item 3).
6. Install adapter (Figure 3, Item 17) on tee (Figure 3, Item 18).
7. Install tee (Figure 3, Item 2) on pressurization valve (Figure 3, Item 3).
8. Install connector (Figure 3, Item 1) on pressurization valve (Figure 3, Item 3).
9. Install arm (Figure 3, Item 4) on pressurization valve (Figure 3, Item 3) with spacer (Figure 3, Item 7), washer (Figure 3, Item 6), and screw (Figure 3, Item 5).
10. Install pressurization valve (Figure 3, Item 3) on mounting bracket (Figure 3, Item 11) and bracket (Figure 3, Item 10) with two washers (Figure 3, Item 12) and screws (Figure 3, Item 13).

INSTALLATION (M939/A2) - Continued

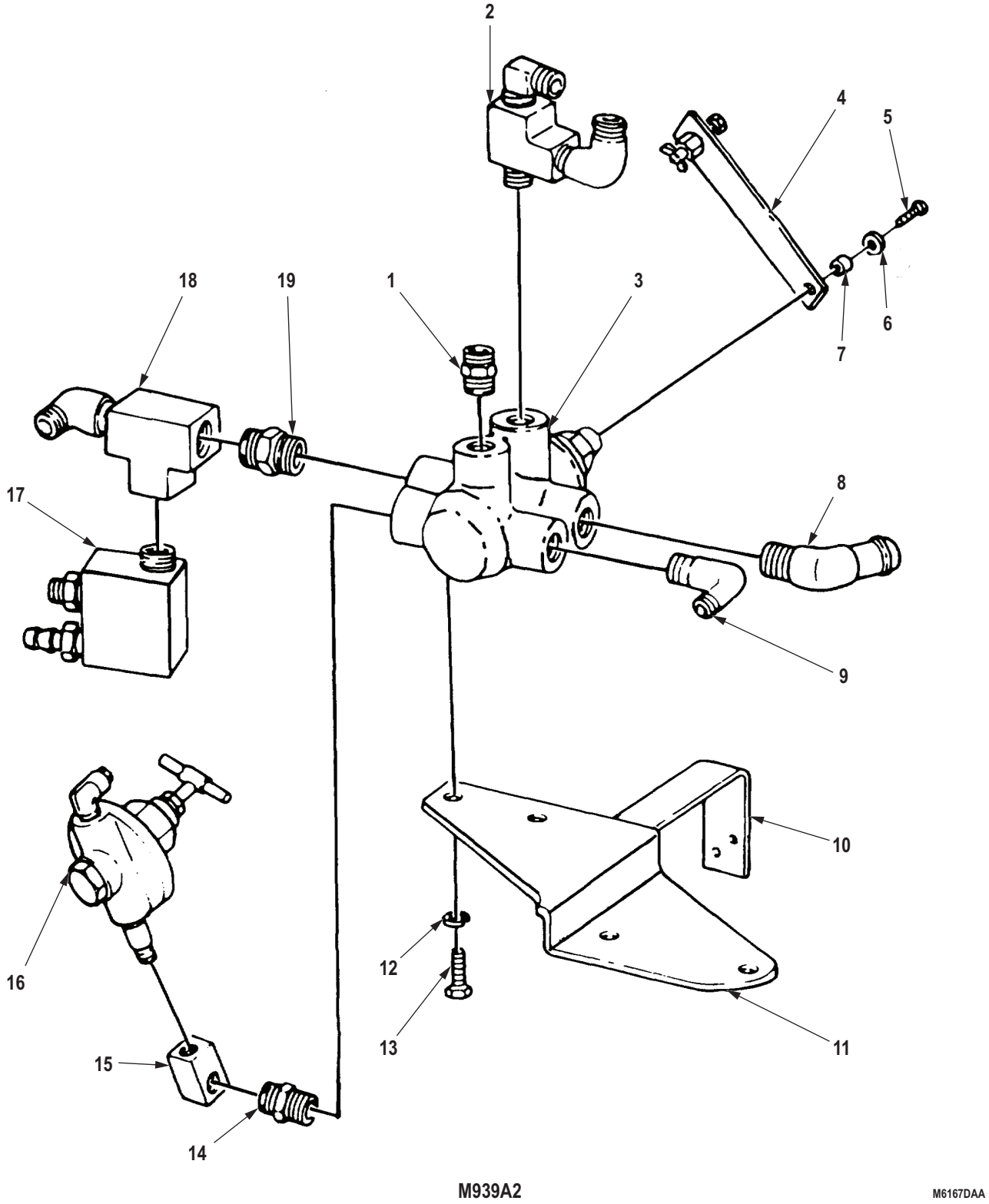


Figure 3. Deepwater Fording Pressurization Valve Installation (M939/A2).

END OF TASK

INSTALLATION (M939/A1)

NOTE

All male threads must be wrapped with antiseize tape before installation.

1. Connect pressurization valve (Figure 4, Item 22) on crankcase breather (Figure 4, Item 3) with hose (Figure 4, Item 2) and two clamps (Figure 4, Item 1).
2. Install pressurization valve bracket (Figure 4, Item 23) on rocker lever cover (Figure 4, Item 4) with lockwasher (Figure 4, Item 31) and screw (Figure 4, Item 30).
3. Connect power steering pump hose (Figure 4, Item 13) to pressurization valve connector (Figure 4, Item 14).
4. Install power steering pump hose (Figure 4, Item 13) on radiator support bracket (Figure 4, Item 10) and bracket (Figure 4, Item 9) with clamp (Figure 4, Item 11), screw (Figure 4, Item 12), and locknut (Figure 4, Item 8).
5. Connect pressurization hose (Figure 4, Item 6) and vent hose (Figure 4, Item 5) to pressurization valve connectors (Figure 4, Item 7).
6. Install crankcase breather tube (Figure 4, Item 15) on pressurization valve elbow (Figure 4, Item 27) with hose (Figure 4, Item 17) and two clamps (Figure 4, Item 16).

NOTE

Perform Step (7) for vehicles equipped with positive crankcase ventilation system.

7. Install crankcase vent tube (Figure 4, Item 32) on pressurization valve elbow (Figure 4, Item 34) with hose (Figure 4, Item 35) and two clamps (Figure 4, Item 33).
8. Connect supply hose (Figure 4, Item 20) to pressurized valve adapter (Figure 4, Item 21).
9. Install control cable (Figure 4, Item 26) on nut (Figure 4, Item 28) and tighten screw (Figure 4, Item 29).
10. Install control cable (Figure 4, Item 26) on fording cable bracket (Figure 4, Item 24) with clamp (Figure 4, Item 19), two screws (Figure 4, Item 18), and locknuts (Figure 4, Item 25).

INSTALLATION (M939/A1) - Continued

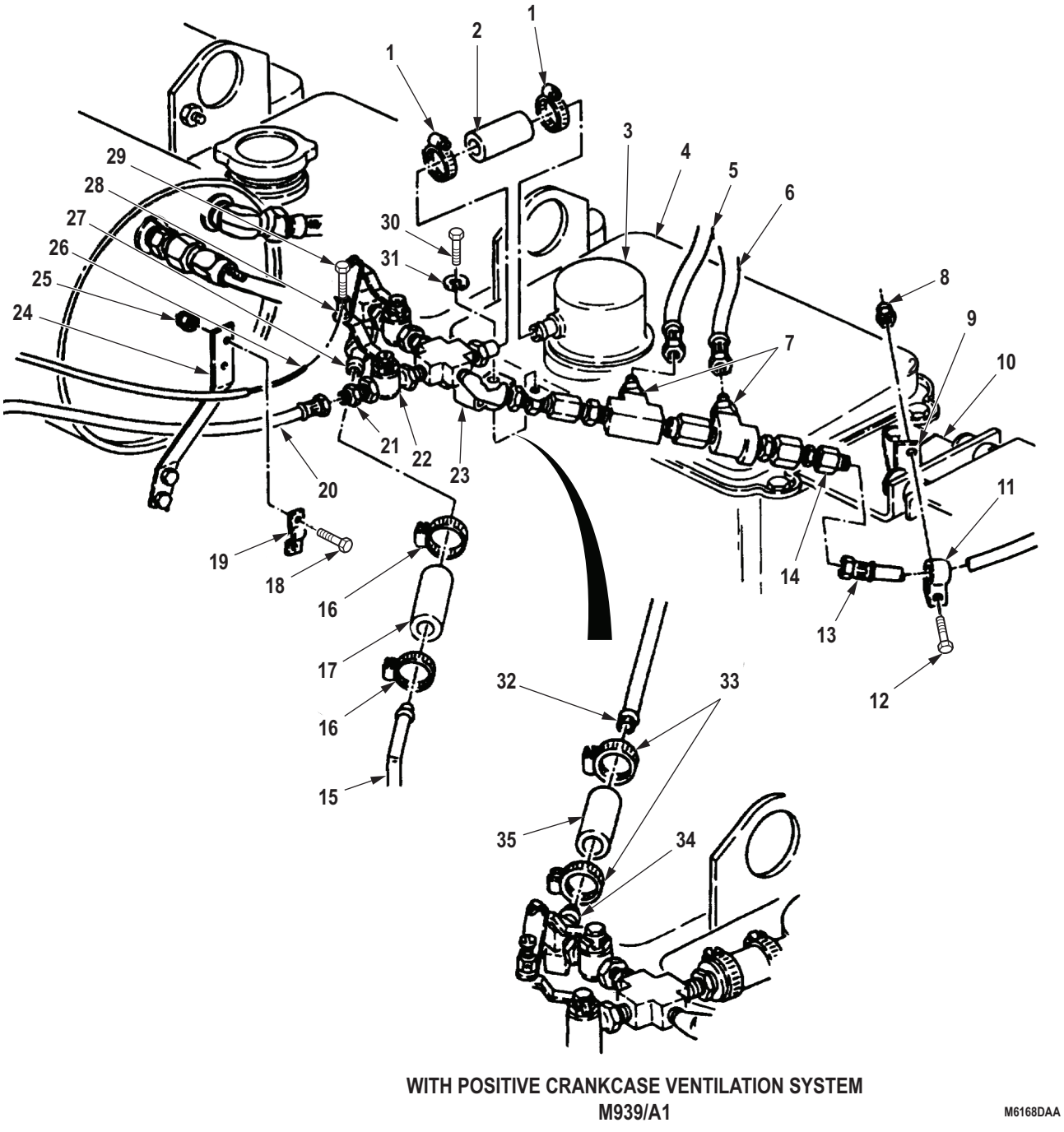


Figure 4. Deepwater Fording Pressurization Valve Installation (M939/A1).

END OF TASK

FOLLOW-ON MAINTENANCE

1. Connect air pressure hose to valve (M939A2). (WP 0770)
2. Start engine and allow air pressure to build up to normal operating range. Check air for leaks. Road test vehicle. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE
DEEPWATER FORDING AIR PRESSURE HOSE REPLACEMENT

INITIAL SETUP:

Tools and Special Tools
Tool Kit, General Mechanic's: Automotive
(Volume 5, WP 0826, Table 1, Item 56)

Materials/Parts
Tape, Antiseizing
(Volume 5, WP 0825, Table 1, Item 65)

Materials/Parts (cont.)
Locknut (Volume 5, WP 0827, Table 1, Item 321)
Qty: 2
Tiedown Strap
(Volume 5, WP 0827, Table 1, Item 370)
Qty: 5

Equipment Condition
Parking brake set. (TM 9-2320-272-10)
Hood raised and secured. (TM 9-2320-272-10)
Air reservoirs drained. (TM 9-2320-272-10)

REMOVAL (M939/A1)

WARNING



Do not disconnect air lines or hoses before draining air reservoirs. Small parts under pressure may shoot out with high velocity. Failure to comply may result in injury or death to personnel.

1. Remove nut (Figure 1, Item 5), screw (Figure 1, Item 2), and clamp (Figure 1, Item 3) from supply hose (Figure 1, Item 4) and remove supply hose from pressurized valve (Figure 1, Item 6) and pressurized valve adapter (Figure 1, Item 1).
2. Remove locknut (Figure 1, Item 26), screw (Figure 1, Item 24), clamp (Figure 1, Item 25), and power steering pump hose (Figure 1, Item 28) from bracket (Figure 1, Item 22). Discard locknut.
3. Remove power steering pump hose (Figure 1, Item 28) from pressurized valve connector (Figure 1, Item 27) and adapter (Figure 1, Item 20).
4. Remove five tiedown straps (Figure 1, Item 18) from pressure hose (Figure 1, Item 7) and vent hose (Figure 1, Item 8). Discard tiedown straps.
5. Remove pressure hose (Figure 1, Item 7) and bushing (Figure 1, Item 17) from toe (Figure 1, Item 16) and pressurized valve connector (Figure 1, Item 31).
6. Remove vent hose (Figure 1, Item 8) and bushing (Figure 1, Item 15) from toe (Figure 1, Item 14) and pressurized valve connector (Figure 1, Item 30).
7. Remove air line (Figure 1, Item 9) from shutoff valve (Figure 1, Item 10) and alcohol evaporator (Figure 1, Item 13).
8. Remove drain valve (Figure 1, Item 11) and elbow (Figure 1, Item 12) from alcohol evaporator (Figure 1, Item 13).
9. Remove adapter (Figure 1, Item 20) from power steering pump (Figure 1, Item 21).
10. Remove shutoff valve (Figure 1, Item 10) from air compressor (Figure 1, Item 19).
11. Remove screw (Figure 1, Item 29) and bracket (Figure 1, Item 22) from radiator support bracket (Figure 1, Item 23).

REMOVAL (M939/A1) - Continued

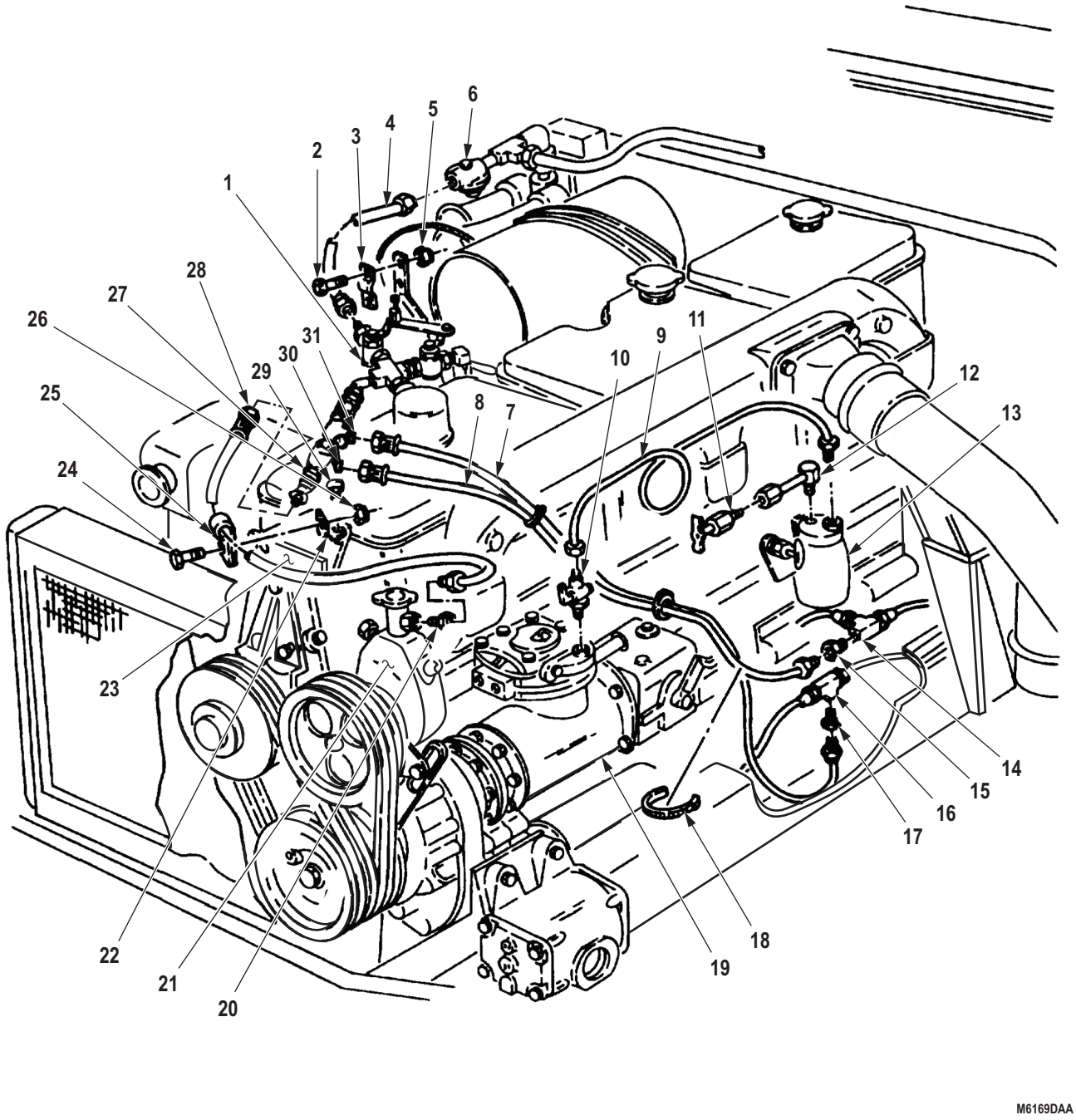


Figure 1. Deepwater Fording Air Pressure Hose Removal (M939/A1).

END OF TASK

REMOVAL (M939A2)

1. Remove hose (Figure 2, Item 31) from elbows (Figure 2, Items 29 and 32) on air governor (Figure 2, Item 1) and pressurization valve (Figure 2, Item 21).
2. Remove hose (Figure 2, Item 18) from elbow (Figure 2, Item 22) and connector (Figure 2, Item 19) on pneumatic controller (Figure 2, Item 23) and pressurization valve (Figure 2, Item 21).
3. Remove hose (Figure 2, Item 17) from connectors (Figure 2, Item 16) and (Figure 2, Item 20) on air intake tube (Figure 2, Item 15) and pressurization valve (Figure 2, Item 21).
4. Remove hose (Figure 2, Item 2) from connectors (Figure 2, Items 3 and 30) on tee (Figure 2, Item 4) and pressurization valve (Figure 2, Item 21).
5. Remove hose (Figure 2, Item 5) from elbows (Figure 2, Items 6 and 9) on power steering reservoir (Figure 2, Item 13) and pressurization valve (Figure 2, Item 21).
6. Remove hose (Figure 2, Item 14) from elbows (Figure 2, Items 12 and 28) on pressurization valve (Figure 2, Item 21).
7. Remove clamp (Figure 2, Item 10) and hose (Figure 2, Item 8) from elbow (Figure 2, Item 11) on pressurization valve (Figure 2, Item 21).
8. Remove two clamps (Figure 2, Item 26) and hose (Figure 2, Item 27) from elbows (Figure 2, Items 7 and 25) on rocker cover (Figure 2, Item 24) and pressurization valve (Figure 2, Item 21).

REMOVAL (M939A2) - Continued

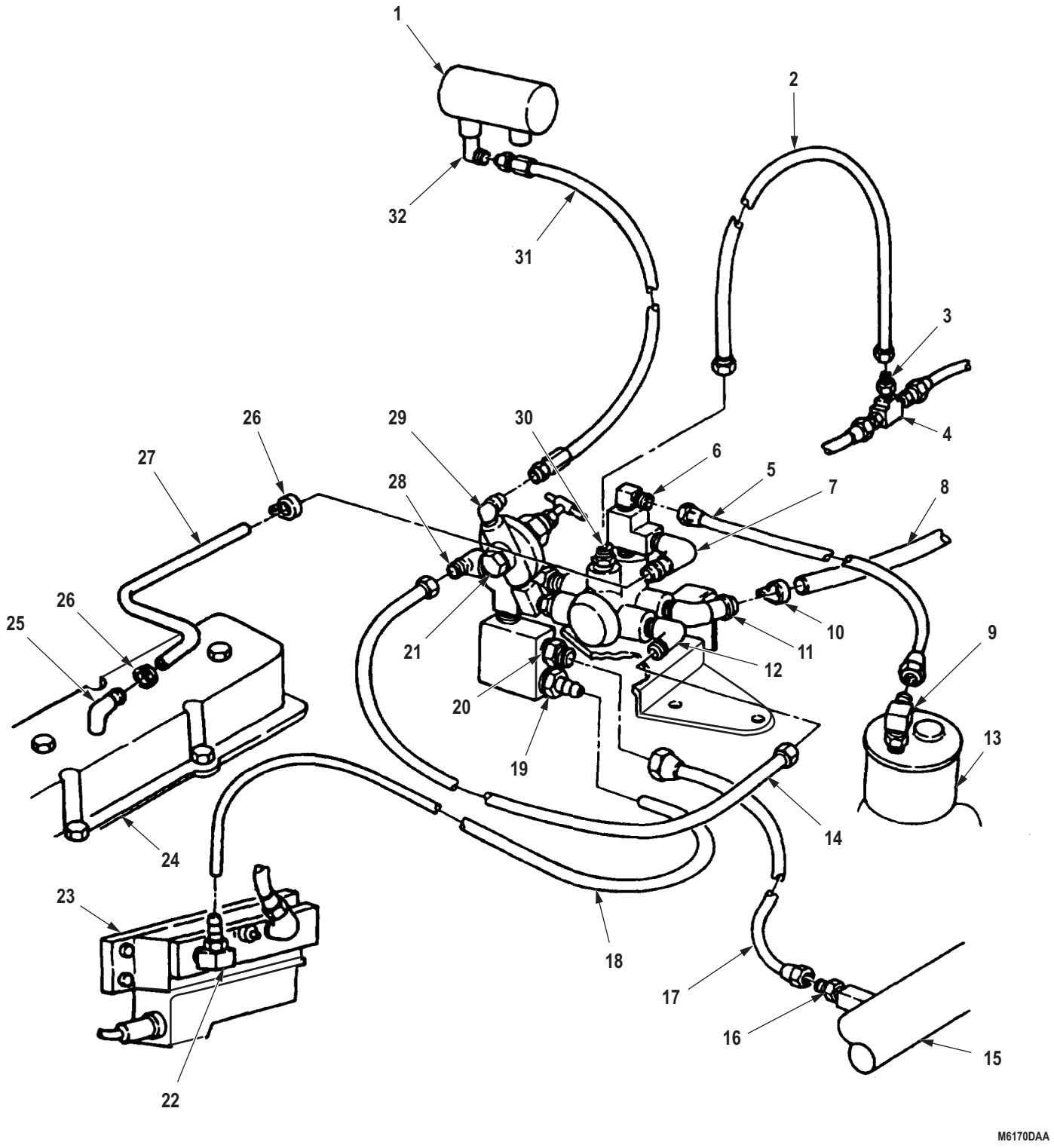


Figure 2. Deepwater Fording Air Pressure Hose Removal (M939A2).

END OF TASK

INSTALLATION (M939A2)

NOTE

All male threads must be wrapped with antiseize tape before installation.

1. Install hose (Figure 3, Item 27) on elbows (Figure 3, Items 7 and 25) on rocker cover (Figure 3, Item 24) and pressurization valve (Figure 3, Item 21) with two clamps (Figure 3, Item 26).
2. Install hose (Figure 3, Item 8) on elbow (Figure 3, Item 11) on pressurization valve (Figure 3, Item 21) with clamp (Figure 3, Item 10).
3. Install hose (Figure 3, Item 14) on elbows (Figure 3, Items 12 and 28) on pressurization valve (Figure 3, Item 21).
4. Install hose (Figure 3, Item 5) on elbows (Figure 3, Items 6 and 9) on power steering reservoir (Figure 3, Item 13) and pressurization valve (Figure 3, Item 21).
5. Install hose (Figure 3, Item 2) on connectors (Figure 3, Items 3 and 30) on tee (Figure 3, Item 4) and pressurization valve (Figure 3, Item 21).
6. Install hose (Figure 3, Item 17) on connectors (Figure 3, Items 16 and 20) on air intake tube (Figure 3, Item 15) and pressurization valve (Figure 3, Item 21).
7. Install hose (Figure 3, Item 18) on elbow (Figure 3, Item 22) and connector (Figure 3, Item 19) on pneumatic controller (Figure 3, Item 23) and pressurization valve (Figure 3, Item 21).
8. Install hose (Figure 3, Item 31) on elbows (Figure 3, Items 29 and 32) on air governor (Figure 3, Item 1) and pressurization valve (Figure 3, Item 21).

INSTALLATION (M939A2) - Continued

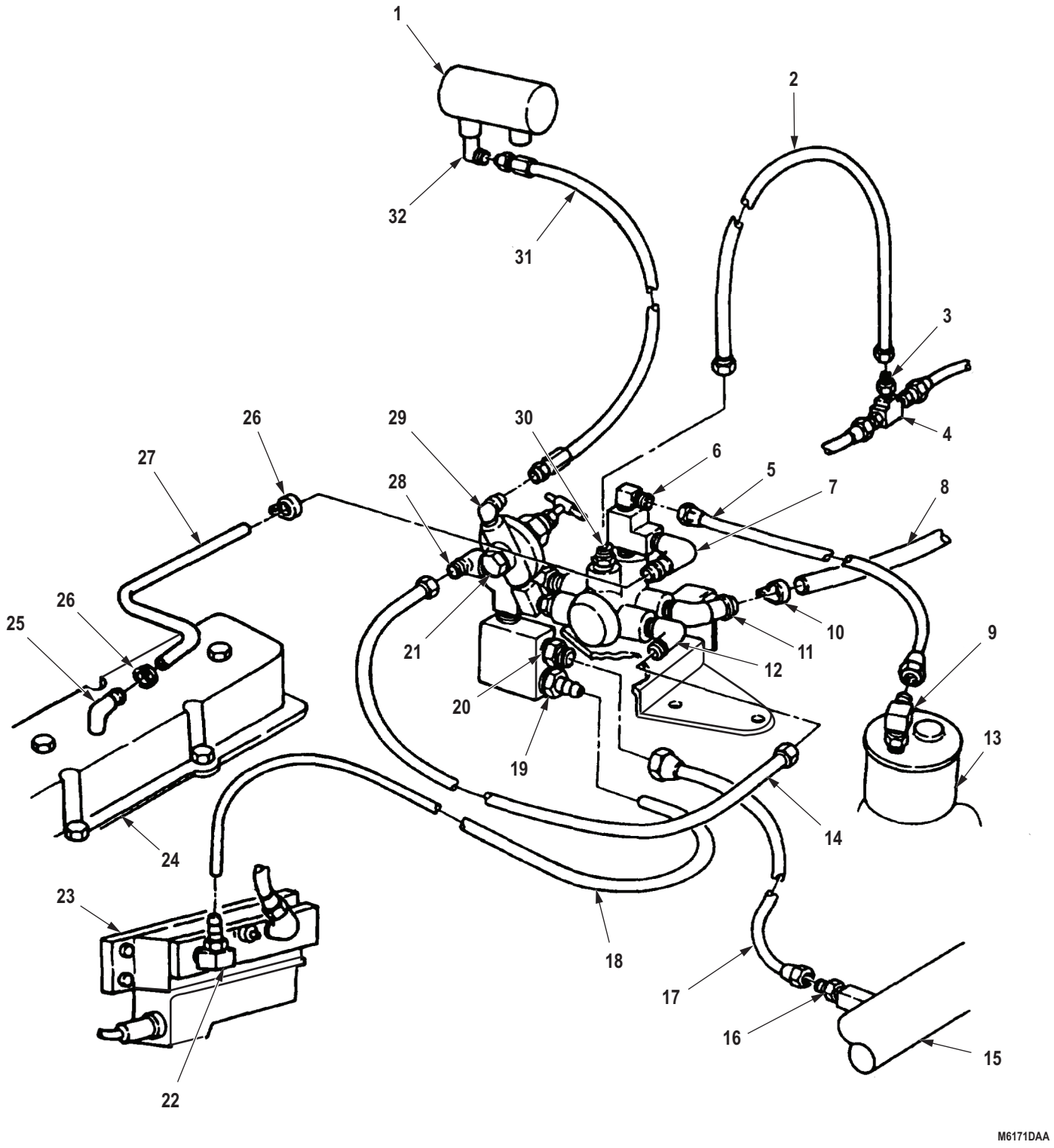


Figure 3. Deepwater Fording Air Pressure Hose Installation (M939A2).

END OF TASK

INSTALLATION (M939/A1)

NOTE

All male threads must be wrapped with antiseize tape before installation.

1. Install bracket (Figure 4, Item 22) on radiator support bracket (Figure 4, Item 23) with screw (Figure 4, Item 29).
2. Install shutoff valve (Figure 4, Item 10) on air compressor (Figure 4, Item 19).
3. Install elbow (Figure 4, Item 12) and drain valve (Figure 4, Item 11) on alcohol evaporator (Figure 4, Item 13).
4. Install air line (Figure 4, Item 9) on shutoff valve (Figure 4, Item 10) and alcohol evaporator (Figure 4, Item 13).
5. Install bushing (Figure 4, Item 16) on tee (Figure 4, Item 14).
6. Install vent hose (Figure 4, Item 8) on bushing (Figure 4, Item 15) and pressurized valve connector (Figure 4, Item 30).
7. Install bushing (Figure 4, Item 17) on tee (Figure 4, Item 16).
8. Install pressure hose (Figure 4, Item 7) on bushing (Figure 4, Item 17) and pressurized valve connector (Figure 4, Item 31).
9. Install five tiedown straps (Figure 4, Item 18) on pressure hose (Figure 4, Item 7) and vent hose (Figure 4, Item 8).
10. Install adapter (Figure 4, Item 20) on power steering pump (Figure 4, Item 21).
11. Install power steering pump hose (Figure 4, Item 28) on pressurized valve connector (Figure 4, Item 27) and adapter (Figure 4, Item 20).
12. Install power steering pump hose (Figure 4, Item 28) on bracket (Figure 4, Item 22) with clamp (Figure 4, Item 25), screw (Figure 4, Item 24), and locknut (Figure 4, Item 26).
13. Install supply hose (Figure 4, Item 4) on pressurized valve adapter (Figure 4, Item 1) and regulator valve (Figure 4, Item 6).
14. Install clamp (Figure 4, Item 3) on supply hose (Figure 4, Item 4) with screw (Figure 4, Item 2) and nut (Figure 4, Item 5).

INSTALLATION (M939/A1) - Continued

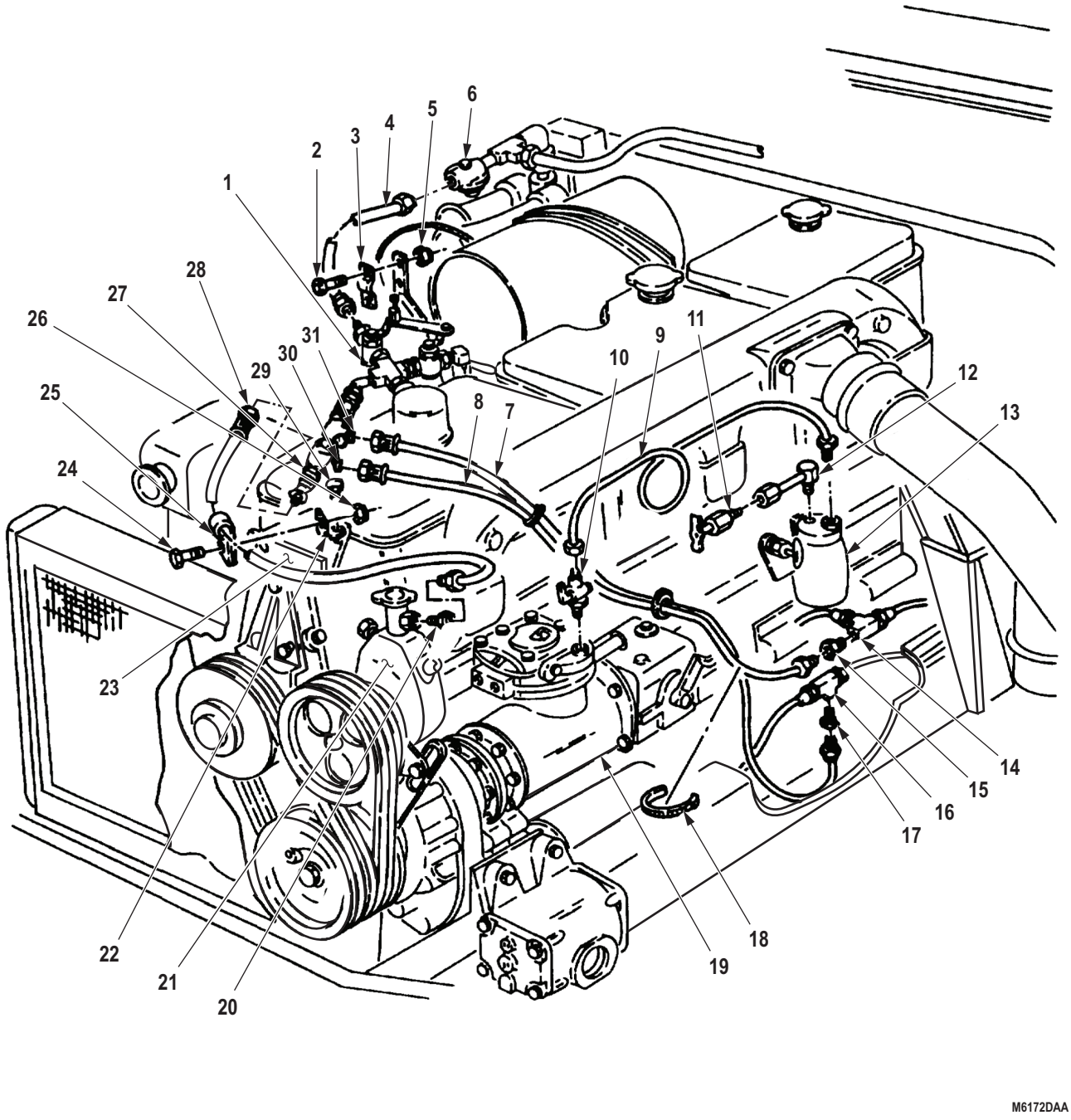


Figure 4. Deepwater Fording Air Pressure Hose Installation (M939/A1).

END OF TASK

FOLLOW-ON MAINTENANCE

Start engine and allow air pressure to build up to normal operating range. Check for air leaks. Road test vehicle. (TM 9-2320-272-10)

END OF TASK

END OF WORK PACKAGE

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WRECKER CRANE HYDRAULIC HOSE AND TUBE REPLACEMENT	WP 0711-1
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WRECKER HYDRAULIC OIL RESERVOIR, BRACKETS AND STRAPS REPAIR	WP 0703-1

RECOMMENDED CHANGES TO PUBLICATIONS AND BLANK FORMS For use of this form, see AR 25-30; the proponent agency is OAASA.	Use Part II *(reverse)* for Repair Parts and Special Tool Lists (RPSTL) and Supply Catalogs/Supply Manuals (SC/SM).	DATE *Date you filled out this form.*
TO *(Forward to proponent of publication or form) (Include ZIP Code)* U.S. Army TACOM Life Cycle Management Command ATTN: AMSTA-LCL-MPP/TECH PUBS 6501 E. 11 Mile Road, Warren, MI 48397-5000	**FROM** *(Activity and location) (Include ZIP Code)* *Your mailing address*	

PART I – ALL PUBLICATIONS (EXCEPT RPSTL AND SC/SM) AND BLANK FORMS

PUBLICATION/FORM NUMBER	DATE	TITLE
TM Number	*Date of the TM*	*Title of the TM*

ITEM	PAGE	PARA-GRAPH	LINE	FIGURE NO.	TABLE	RECOMMENDED CHANGES AND REASON (Exact wording of recommended change must be given)
	0007-3					*Figure 2, Item 9 should show a lockwasher. Currently shows a flat washer.*
	0018-2					*Cleaning and inspection, Step 6, reference to governor support pin (14) is wrong reference. Reference should be change to (12).*

SAMPLE

TYPED NAME, GRADE OR TITLE	TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION	SIGNATURE
Your Name	*Your Phone Number*	*Your Signature*

TO *(Forward direct to addressee listed in publication)*	**FROM** *(Activity and location) (Include ZIP Code)*	**DATE**
U.S. Army TACOM Life Cycle Management Command ATTN: AMSTA-LCL-MPP/TECH PUBS 6501 E. 11 Mile Road, Warren, MI 48397-5000	*Your Address*	*Date you filled out this form*

PART II – REPAIR PARTS AND SPECIAL TOOL LISTS AND SUPPLY CATALOGS/SUPPLY MANUALS

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PAGE NO.	COLM NO.	LINE NO.	NATIONAL STOCK NUMBER	REFERENCE NO.	FIGURE NO.	ITEM NO.	TOTAL NO. OF MAJOR ITEMS SUPPORTED	RECOMMENDED ACTION

SAMPLE

PART III – REMARKS *(Any general remarks, or recommendations, or suggestions for improvement of publications and blank forms. Additional blank sheets may be used if more space is needed.)*

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PUBLICATION/FORM NUMBER	DATE	TITLE
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APD V4.00

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DA FORM 2028, FEB 74 REPLACES DA FORM 2028, 1 DEC 68, WHICH WILL BE USED. APD V4.00

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APD V4.00

By Order of the Secretary of the Army:

RAYMOND T. ODIERNO
General, United States Army
Chief of Staff

Official:



JOYCE E. MORROW
Administrative Assistant to the
Secretary of the Army
1220212

By Order of the Secretary of the Air Force:

DONALD J. HOFFMAN
General, United States Air Force
Commander, AFMC

NORTON A. SCHWARTZ
General, United States Air Force
Chief of Staff

Distribution:

To be distributed in accordance with the initial distribution number (IDN) 386968 requirements for TM 9-2320-272-23-4.

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

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

LIQUID MEASURE

1 Milliliter=0.001 Liters=0.0338 Fluid Ounces
1 Liter=1000 Milliliters=33.82 Fluid Ounces

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

CUBIC MEASURE

1 Cu Centimeter=1000 Cu Millimeters=0.06 Cu Inches
1 Cu Meter=1,000,000 Cu Centimeters=35.31 Cu Feet

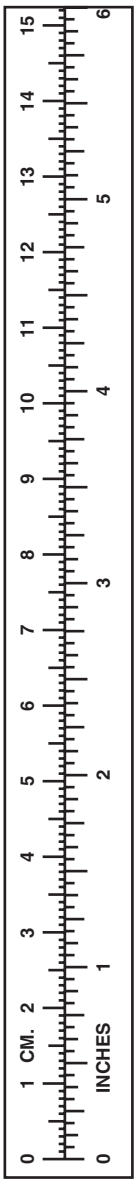
TEMPERATURE

5/9 (°F – 32) = °C
212°Fahrenheit is equivalent to 100°Celsius
90°Fahrenheit is equivalent to 32.2°Celsius
32°Fahrenheit is equivalent to 0°Celsius
9/5 (°C + 32) = °F

APPROXIMATE CONVERSION FACTORS

TO CHANGE	TO	MULTIPLY BY
Inches	Centimeters	2.540
Feet	Meters	0.305
Yards	Meters	0.914
Miles	Kilometers	1.609
Square Inches	Square Centimeters	6.451
Square Feet	Square Meters	0.093
Square Yards	Square Meters	0.836
Square Miles	Square Kilometers	2.590
Acres	Square Hectometers	0.405
Cubic Feet	Cubic Meters	0.028
Cubic Yards	Cubic Meters	0.765
Fluid Ounces	Milliliters	29.573
Pints	Liters	0.473
Quarts	Liters	0.946
Gallons	Liters	3.785
Ounces	Grams	28.349
Pounds	Kilograms	0.454
Short Tons	Metric Tons	0.907
Pound-Feet	Newton-Meters	1.356
Pounds/Sq Inch	Kilopascals	6.895
Miles per Gallon	Kilometers per Liter	0.425
Miles per Hour	Kilometers per Hour	1.609

TO CHANGE	TO	MULTIPLY BY
Centimeters	Inches	0.394
Meters	Feet	3.280
Meters	Yards	1.094
Kilometers	Miles	0.621
Sq Centimeters	Square Inches	0.155
Square Meters	Square Feet	10.764
Square Meters	Square Yards	1.196
Square Kilometers	Square Miles	0.386
Sq Hectometers	Acres	2.471
Cubic Meters	Cubic Feet	35.315
Cubic Meters	Cubic Yards	1.308
Milliliters	Fluid Ounces	0.034
Liters	Pints	2.113
Liters	Quarts	1.057
Liters	Gallons	0.264
Grams	Ounces	0.035
Kilograms	Pounds	2.205
Metric Tons	Short Tons	1.102
Newton-Meters	Pound-Feet	0.738
Kilopascals	Pounds per Sq Inch	0.145
Km per Liter	Miles per Gallon	2.354
Km per Hour	Miles per Hour	0.621



PIN: 087178-000