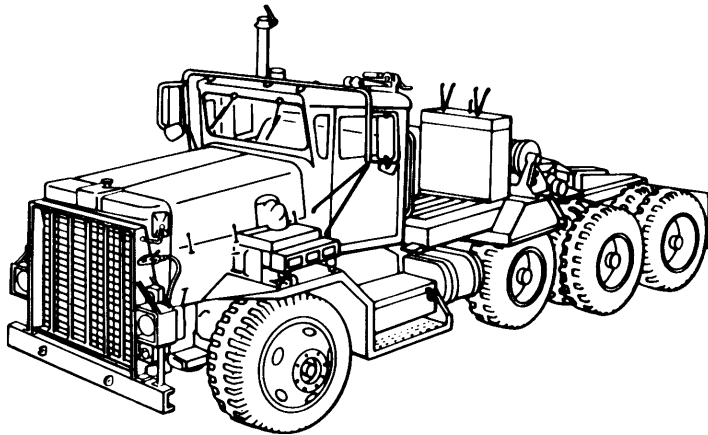


TECHNICAL MANUAL

**ORGANIZATIONAL MAINTENANCE**

**VOLUME 3 OF 3**



MAINTENANCE INSTRUCTIONS —  
CONTINUED  
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MAINTENANCE  
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EXPENDABLE SUPPLIES  
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**TRUCK, TRACTOR, COMMERCIAL  
HEAVY EQUIPMENT TRANSPORTER  
(C-HET) 85,000 GVWR, 8 x 6, M911  
(NSN 2320-01-025-3733)**

---

HEADQUARTERS, DEPARTMENT OF THE ARMY

JUNE 1986



CHANGE  
NO. 1

HEADQUARTERS  
DEPARTMENT OF THE ARMY  
Washington D.C., 28 February 1991

**ORGANIZATIONAL MAINTENANCE  
VOLUME 3 OF 3  
TRUCK, TRACTOR, COMMERCIAL  
HEAVY EQUIPMENT TRANSPORTER  
(C-HET) 85,000 GVWR, 8X6, M911  
(NSN 2320-01-025-3733)**

TM 9-2320-270-20-3, dated 10 June 1986, is changed as follows:

1. Change to narrative materiel is indicated by a vertical bar in the outside margin of the page. Added or revised illustrations are indicated by a vertical bar adjacent to the identification number.
2. Remove old pages and insert new pages as indicated below.
3. File this change sheet in front of the publication for reference purposes.

**Remove Pages**

i and ii  
4-1087 and 4-1088  
F-23 through F-28

**Insert Pages**

i and ii  
4-1087 and 4-1088  
F-23 through F-28

By Order of the Secretary of the Army:

CARL E. VUONO  
*General, United States Army  
Chief of Staff*

Official:

PATRICIA P. HICKERSON  
*Colonel, United States Army  
The Adjutant General*

Distribution:

To be distributed in accordance with DA Form 12-38, Block 0290, Unit maintenance requirements for TM 9-2320-270-20-3.





**WARNING**

Make sure battery ground cable is disconnected to prevent possible injury and damage to the electrical system.

**WARNING**

Make sure all pressure is drained from air system before disconnecting air lines. Parts under pressure can, when removed, fly off with great force causing injury to personnel.

**WARNING**

Do not get between wheels and fender, or between other moving and stationary parts, while assistant is turning wheels. There is no clearance for personnel in these areas when turning vehicle.

**W A R N I N G**

Hearing protection must be worn while working under truck with engine running to prevent possible ear injury.

**WARNING**

Do not use open-end wrench to break stop screws loose. Open-end wrench will slip causing injury to personnel.

**WARNING**

Some parts are heavy. Be careful when handling them. Lifting equipment is needed when parts weigh over 50 pounds (23 kg) for a single person lift, over 100 pounds (45 kg) for a two person lift, and over 150 pounds (68 kg) for a three or more person lift. Do not try to handle heavy parts without lifting equipment. Keep clear of heavy parts supported only by lifting equipment. Failure to observe this precaution could cause serious injury or death of personnel.

**WARNING**

When removing or installing mounting hardware, assistants must hold spare tire mount to prevent it falling and causing injury to personnel.

**WARNING**

Leather gloves must be worn when handling cable to prevent cuts and scrapes. Never let cable run through hands. Broken and frayed wires can cause injury.

**WARNING**

Drycleaning solvent P-D-680 is toxic and flammable. Wear protective goggles and gloves and use only in a well ventilated area. Avoid contact with skin, eyes, and clothes and don't breathe vapors. Do not use near open flame or excessive heat. The flashpoint is 100°F to 138°F (38° to 59°C). If you become dizzy while using cleaning solvent, get fresh air immediately and get medical aid. If contact with eyes is made, wash your eyes with water and get medical aid immediately.

**WARNING**

Rubber cement and its fumes burn easily. Do not smoke or have open flame nearby while using. Use in well-ventilated area. Failure to observe these precautions can cause serious burns to personnel.

**W A R N I N G**

Hearing protection must be worn while adjusting air horns. Air horns are very loud. If hearing protection is not worn, permanent damage could result.

**WARNING**

Be careful when removing radiator cap. If engine is hot, escaping steam could burn you. Using a rag, cover radiator cap to protect your hand. Unscrew cap just enough to allow any built-up steam to escape. When all pressure has been relieved, unscrew cap the rest of the way, and take off of radiator.

**WARNING**

Naptha and its fumes are harmful and flammable. Do not smoke or use near open flame while using. Use only in well-ventilated area. Naptha can catch fire and fumes can explode causing serious injury.

TECHNICAL MANUAL  
NO. 9-2320-270-20-3

HEADQUARTERS  
DEPARTMENT OF THE ARMY  
WASHINGTON, DC 10 JUNE 1986

ORGANIZATIONAL MAINTENANCE MANUAL

TRUCK, TRACTOR, COMMERCIAL  
HEAVY EQUIPMENT TRANSPORTER (C-HET)  
85,000 GVWR, 8 X 6, M911  
(NSN 2320-01-025-3733)

CURRENT AS OF NOVEMBER 1985

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help Improve this manual. If you find any mistakes or if you know of a way to Improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028-2 located in the back of this manual direct to: Commander, US Army Tank-Automotive Command, ATTN: AMSTA-MB, Warren, Mi 48397-5000. A reply will be sent to you.

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\*This manual together with TM 9-2320-270-20-1 and TM 9-2320-270-20-2 supersedes TM 9-2320-270-20, dated 15 November 1977.

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**MAINTENANCE INSTRUCTIONS - CONTINUED**

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**STEERING WHEEL**

---

This task covers:

- a. Removal (page 4-938)
- b. Installation (page 4-938)

---

**INITIAL SETUP**

**Tools**

- Bar, pry
- Handle, ratchet, 1/2-inch drive
- Puller, steering wheel
- Screwdriver, flat-tip, 3/16-inch
- Socket, 1 1/4-inch, 1/2-inch drive

**Equipment Condition**

- Battery ground cable disconnected (page 4-444).
- Left side of hood open and left hood side panel removed (TM 9-2320-270-10).

**Personnel Required**

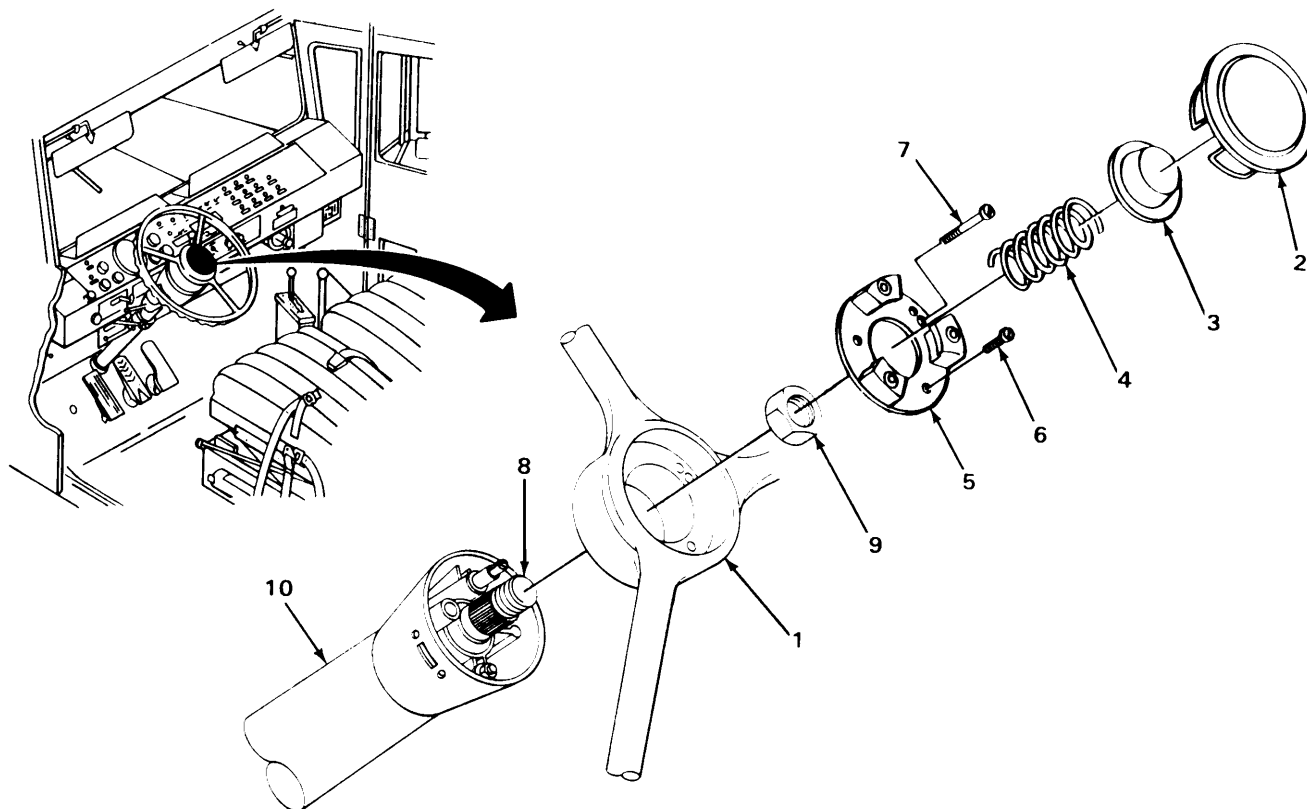
Two

**STEERING WHEEL - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
REMOVAL		
1.	Truck	Park on level surface with front wheels positioned straight ahead (TM 9-2320-270-10).
2. Steering wheel (1)	Horn button (2), contact ring (3), and spring (4)	a. Push down and turn counterclockwise. b. Take out.
3. Base plate (5) to steering wheel (1)	Two screws (6) and screw (7)	Using screwdriver, unscrew and take out. <b>Note location of longer screw.</b>
4. Steering wheel (1)	Base plate (5)	Take out.
5. Steering wheel (1) to steering column shaft (8)	Nut (9)	Using 1 1/4-inch socket and handle, unscrew and take off.
6. Steering column shaft (8)	Steering wheel (1)	Using puller, pull off.
INSTALLATION		
7. Steering column (10)	Steering column shaft (8)	Have assistant push up until it is all the way up.
8. Steering column shaft (8)	Steering wheel (1)	Place in position.
9. Steering wheel (1) to steering column shaft (8)	Nut (9)	Screw on and tighten using 1 1/4-inch socket and handle.

**STEERING WHEEL - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
10. Steering wheel (1)	Base plate (5)	Put in place.
11.	Screw (7)	a. Note location from removal. b. Screw in and tighten using screwdriver.
12. Base plate (5) to steering wheel (1)	Two screws (6)	Screw in and tighten using screwdriver.
13. Steering wheel (1)	Spring (4), contact ring (3), and horn button (2)	a. Put in place. b. Push down and turn clockwise.



**NOTE**

**FOLLOW-ON MAINTENANCE:**

1. Install left hood side panel and close left side of hood (TM 9-2720-270-10).
2. Connect battery ground cable (page 4-444).

**TASK ENDS HERE**

**STEERING COLUMN BRACKET**

---

This task covers:

- a. Removal (page 4-940)
  - b. Installation (page 4-942)
- 

**INITIAL SETUP**

**Tools**

- Extension, 12-inch, 3/8-inch drive
- Handle, ratchet, 3/8-inch drive
- Key, socket head screw, 5/16-inch
- Knife, pocket
- Socket, 1/2-inch, 3/8-inch drive
- Wrench, box, 1/2-inch
- Wrench, box, 9/16-inch

**Materials/Parts**

- Bushing, rubber
- Lockwasher, steering column bracket cap to steering column bracket brace (two required)

**Materials/Parts – Continued**

- Lockwasher, steering column bracket brace to dash brace (two required)
- Lockwasher, steering column mounting plate to floor (two required)

**Personnel Required**

Two

**Equipment Condition**

Left hood side panel removed (TM 9-2320-270-10).

---

LOCATION	ITEM	ACTION REMARKS
<b>REMOVAL</b>		
1. Steering column (1)	Rubber grommet (2)	Pull up.
2. Floor (3)	Floor mat (4)	Pull back.
3. Steering column mounting plate (5) to floor (3)	Two capscrews (6), nuts (7), and lockwasher (8)	a. With help from assistant and using 1/2-inch box wrench, 1/2-inch socket, handle, and extension, unscrew and take out. b. Get rid of lockwasher (8).
4. Steering column bracket cap (9) to steering column bracket brace (10)	Two socket head screws (11), nuts (12), lockwashers (13), and bracket cap (9)	a. Using 5/16-inch key and 9/16-inch box wrench, unscrew and take off. b. Get rid of lockwashers (13). c. Take out screws (11).
5.	Steering column (1)	Lower carefully and rest on front seat.



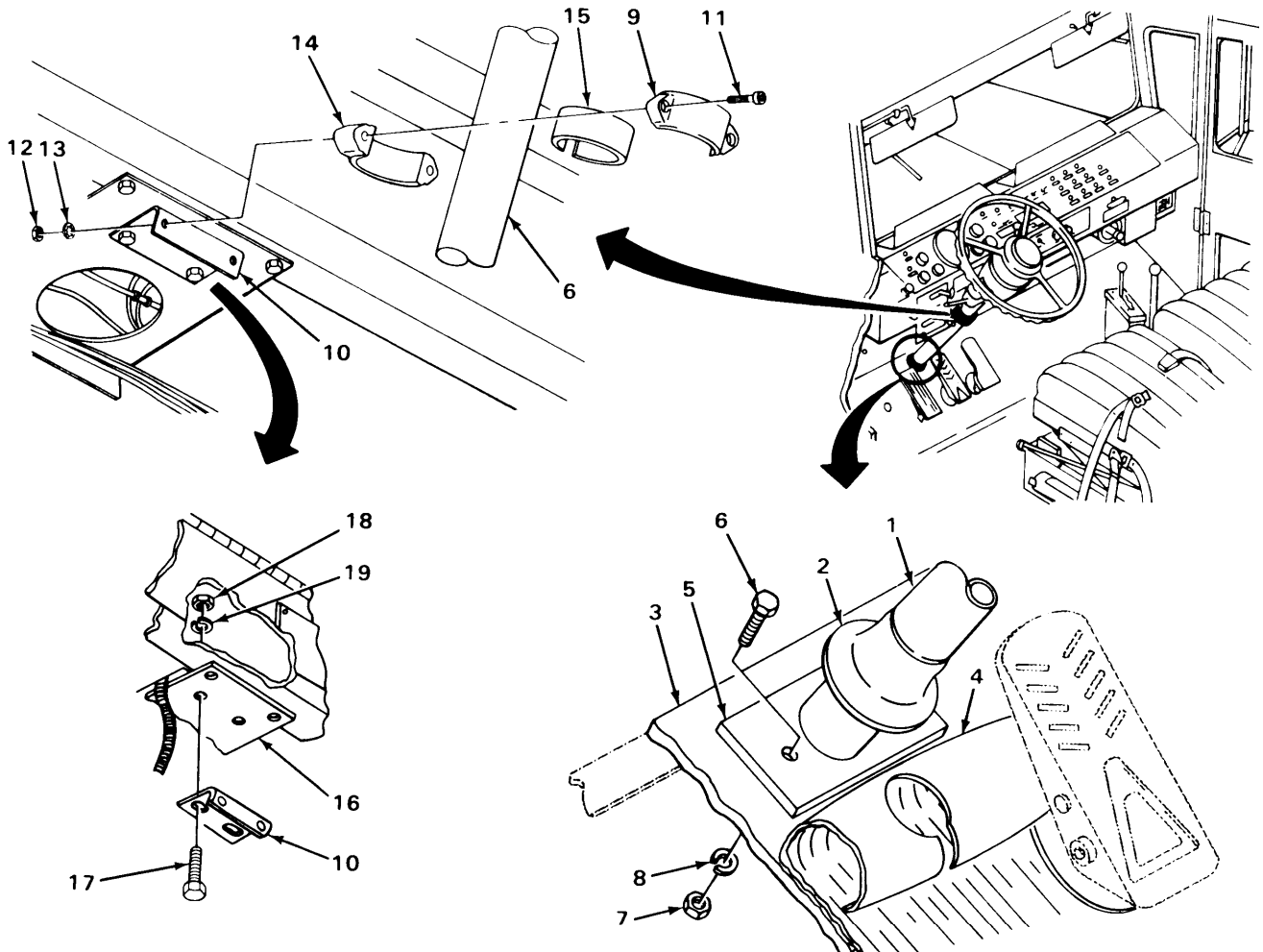
STEERING COLUMN BRACKET - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
6. Steering column (1)	Bracket base (14)	Take off.	
7.	Rubber bushing (15)	a. Using knife, cut off. b. Get rid of.	

**NOTE**

If not removing steering column bracket brace, go to step 13.

- |  |   |   |
|--|---|---|
| 8.   | Instrument panel  | Open (page 4-244).  |
| 9. Steering column bracket brace (10) to dash brace (16) | Two capscrews (17), nuts (18), lockwashers (19), and bracket brace (10) | a. Using 1/2-inch box wrench, 1/2-inch socket, extension, and handle, unscrew and take off with bracket brace.<br>b. Get rid of lockwashers (19). |

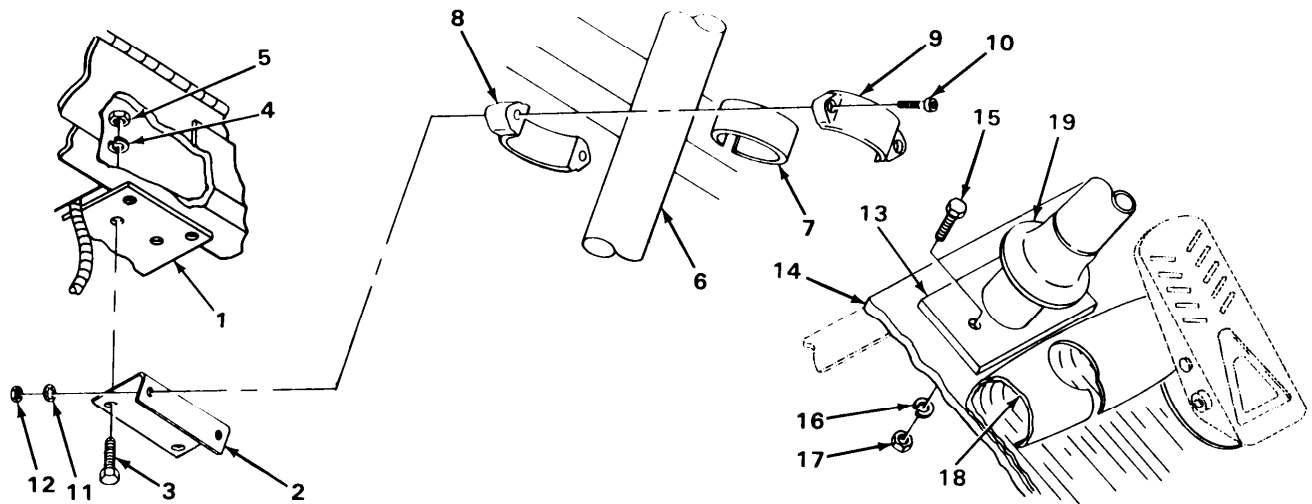


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## STEERING COLUMN BRACKET - CONTINUED

LOCATION	ITEM	ACTION REMARKS	
INSTALLATION			
<b>NOTE</b>			
If not installing steering column bracket brace, go to step 13.			
10.	Dash brace (1)                      Bracket brace (2)	Put in place.	
11.	Bracket brace (2) to dash brace (1)	Two capscrews (3), new lockwashers (4), and nuts (5)	Screw in and tighten using 1/2-inch box wrench, 1/2-inch socket, extension, and handle.
12.		Instrument panel	Close (page 4-244).
13.	Steering column (6)	New rubber bushing (7)	a. Using knife, cut. b. Put in place.
14.		Bracket base (8)	Put in.
15.		Steering column (6)	Have assistant raise into place and hold.
16.		Bracket cap (9) and bracket base (8)	Put in place.
17.	Bracket cap (9) and bracket brace (8) to dash brace (1)	Two screws (10), new lockwashers (11), and nuts (12)	Screw in but do not tighten using 5/16- inch key and 9/16-inch box wrench.
18.	Steering column mounting plate (13) to floor (14)	Two capscrews (15), new lockwashers (16), and nuts (17)	With help from assistant, screw on and tighten using 1/2-inch box wrench, 1/2- inch socket, handle, and extension.
19.	Bracket cap (9) to bracket brace (8)	Two screws (10) and nuts (12)	Using 5/16-inch key and 9/16-inch box wrench, tighten.
20.	Floor (14)	Floor mat (18)	Put in place.
21•	Steering column (6)	Grommet (19)	Push down.

**STEERING COLUMN BRACKET - CONTINUED**



**NOTE**

FOLLOW-ON MAINTENANCE: Install left side hood panel (TM 9-2320-270-10).

**TASK ENDS HERE**

**DASH BRACE**

This task covers:

- a. Removal (page 4-944)
- b. Disassembly (page 4-948)
- c. Assembly (page 4-948)
- d. Installation (page 4-948)

**INITIAL SETUP**

**Tools**

- Hammer, plastic
- Handle, ratchet, 3/8-inch drive
- Pliers, diagonal-cutting
- Pliers, long-nose, round
- Screwdriver, cross-tip, number 2
- Screwdriver, flat-tip, 3/8-inch
- Socket, 3/8-inch, 3/8-inch drive
- Socket, 7/16-inch, 3/8-inch drive
- Socket, 1/2-inch, 3/8-inch drive
- Wrench, box, 1/2-inch
- Wrench, open-end, 7/16-inch
- Wrench, open-end, 1/2-inch
- Wrench, open-end, 9/16-inch
- Wrench, open-end, 5/8-inch

**Materials/Parts**

- Lockwasher, air manifold to dash brace (two required)
- Lockwasher, turn signal flasher holder to dash brace
- Lockwasher, steering column bracket brace to dash brace (two required)
- Lockwasher, dash brace to firewall (two required)
- Lockwasher, dash brace to dashboard (two required)
- Lockwasher, steering column mounting plate to floor (two required)
- Soap, liquid (item 14, appendix C)
- Wrap, tie (item 24, appendix C)

TA240597

**DASH BRACE - CONTINUED**

INITIAL SETUP – CONTINUED

Personnel Required

Two

Equipment Condition

Battery ground cable disconnected  
(page 4-444).

Equipment Condition – Continued

Air system drained (TM 9-2320-270-10).  
Left hood side panel removed and left side  
of hood open (TM 9-2320-270-10).

LOCATION	ITEM	ACTION REMARKS
----------	------	-------------------

REMOVAL

**W A R N I N G**

Make sure battery ground cable is disconnected to prevent possible injury and damage to the electrical system.

- |                                   |   |  |
|-----------------------------------|---|--|
| 1. Dash brace (1)                 | Connector (2) and<br>horn button wire (3) | Unplug.  |
| 2. Air hoses<br>(4), (5), and (6) | Tie wrap (7)                              | a. Using cutting pliers, cut and take off.<br>b. Get rid of. |

**W A R N I N G**

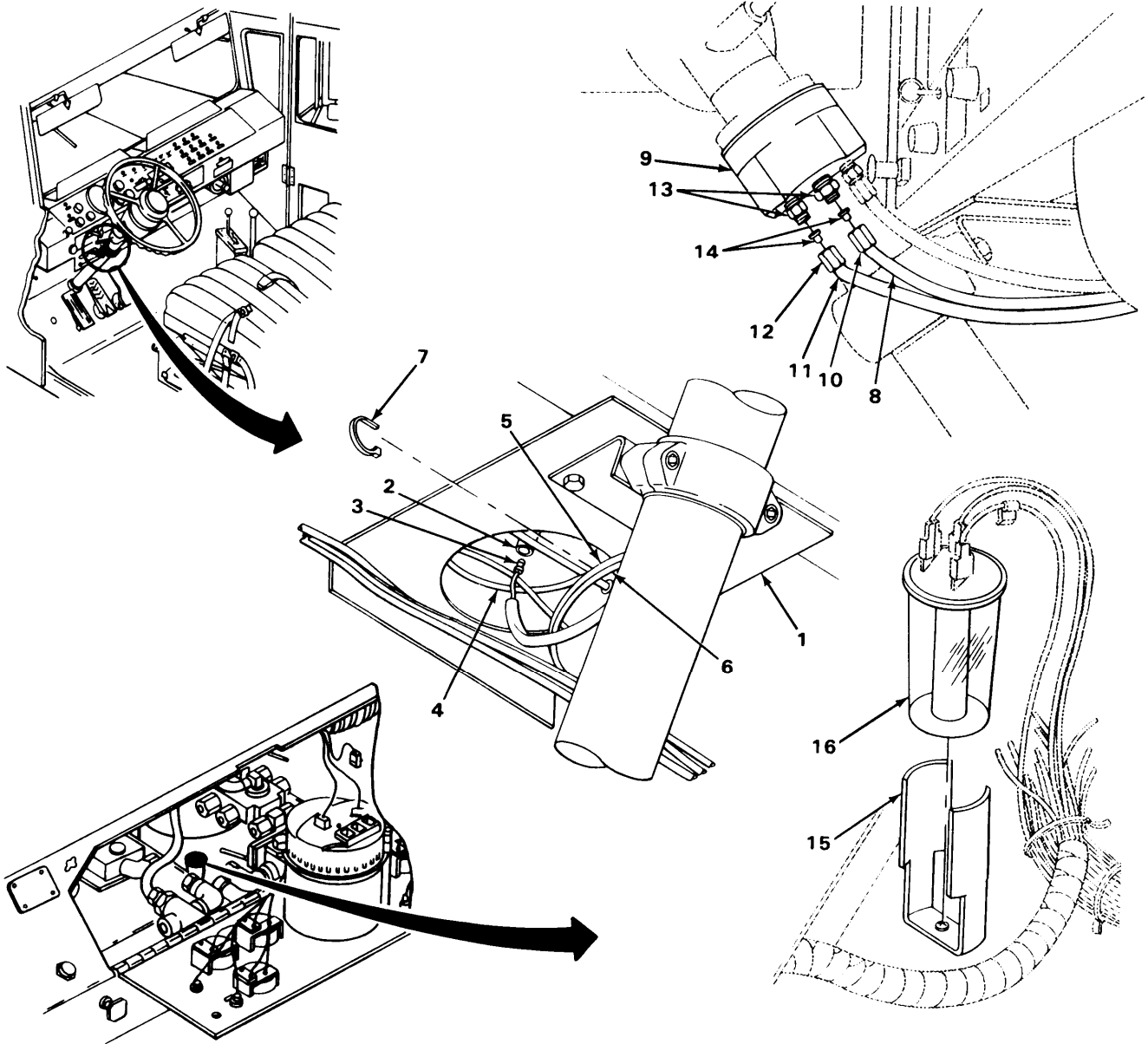
Make sure all pressure is drained from air system before disconnecting air lines. Parts under pressure can, when removed, fly off with great force causing injury to personnel.

- |   |  |   |
|---|--|---|
| 3. Air line 27 (8) to<br>trailer brake<br>handle assembly (9)   | Nut (10)                                 | Using 5/8-inch and 9/16-inch open-end<br>wrenches, unscrew. |
| 4. Air line 663 (11)<br>to trailer brake<br>handle assembly (9) | Nut (12)                                 | Using 5/8-inch and 9/16-inch open-end<br>wrenches, unscrew. |
| 5. Trailer brake<br>handle assembly (9)                         | Air line 27 (8) and<br>air line 663 (11) | Pull out and push up through hole in<br>dash brace.         |
| 6. Adapters (13) or<br>air lines 27 (8)<br>and 663 (11)         | Two inserts (14)                         | Using long-nose pliers, take out.                           |

DASH BRACE - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
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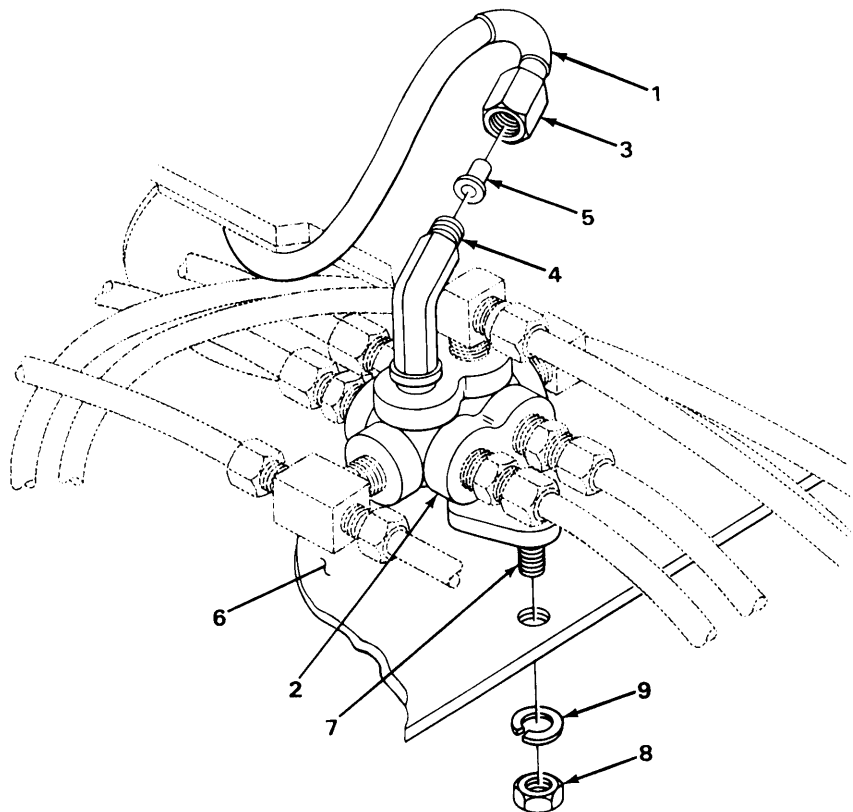
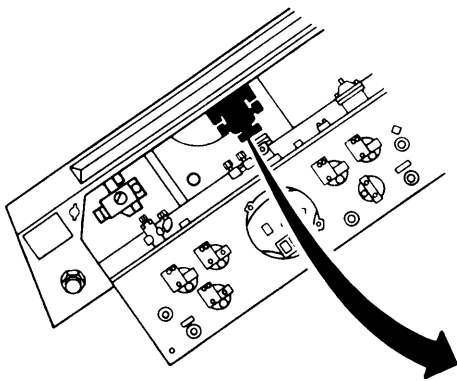
- |                                    |                          |                    |  |
|------------------------------------|--------------------------|--------------------|--|
| 7.                                 | Instrument panel         | Open (page 4-244). |  |
| 8. Turn signal flasher holder (15) | Turn signal flasher (16) | Pull out.          |  |



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## DASH BRACE - CONTINUED

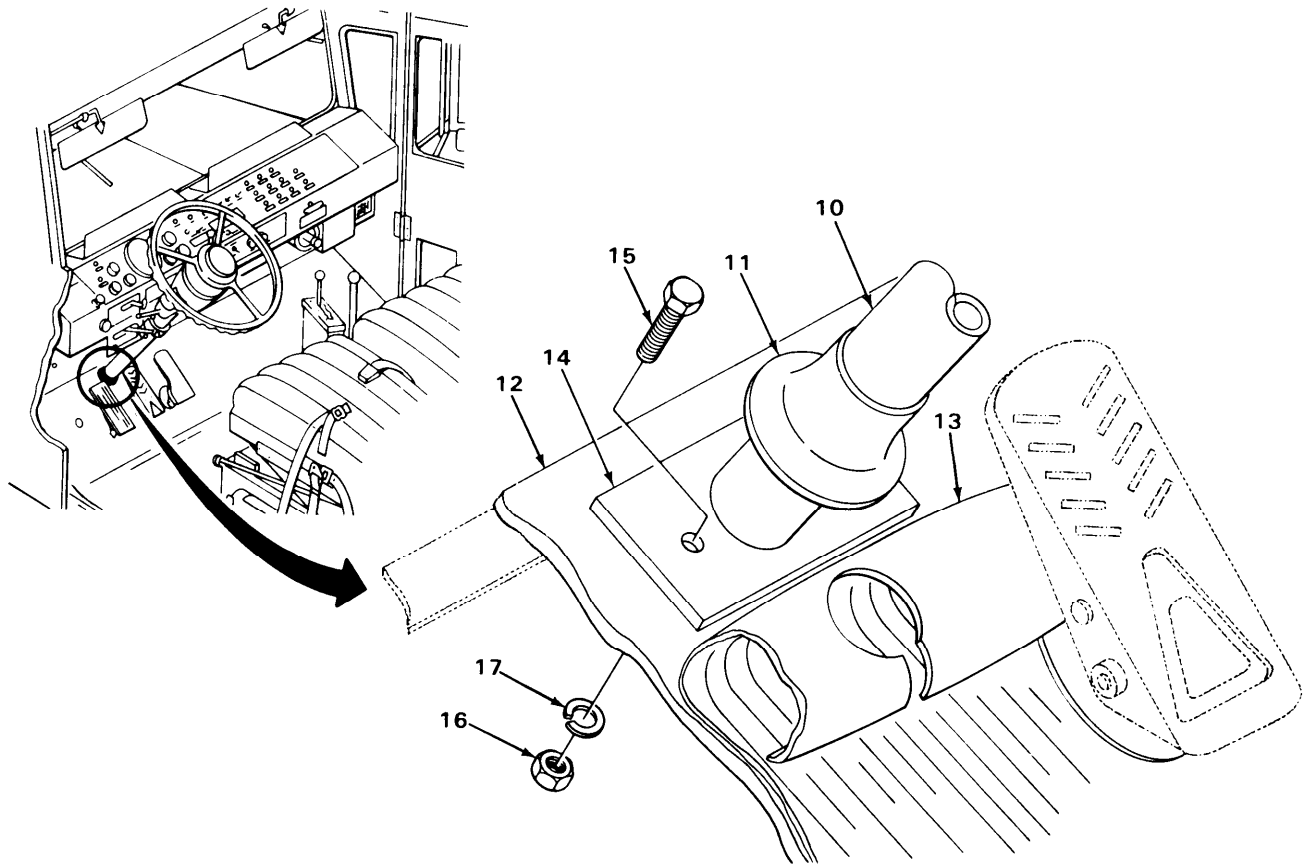
LOCATION	ITEM	ACTION REMARKS
REMOVAL - CONTINUED		
9. Air line 533 (1) to air manifold (2)	Nut (3)	Using 5/8-inch and 1/2-inch open-end wrenches, unscrew.
10. Air manifold (2) elbow (4)	Air line 533 (1)	Pull out and push down through hole.
11. Nut (3) or elbow (4)	insert (5)	Using long-nose pliers, pull out.
12. Air manifold (2) to dash brace (6)	Two capscrews (7), nuts (8), and lock- washers (9)	a. Using 7/16-inch open-end wrench, 7/16-inch socket, and handle, un- screw and take off. b. Get rid of lockwashers (9).
13. Dash brace (6)	Air manifold (2)	Take out.



TA240599

DASH BRACE- CONTINUED

LOCATION	ITEM	ACTION REMARKS
14. Steering column (10)	Rubber grommet (11)	Pull up.
15. Floor (12)	Floor mat (13)	Pull back.
16. Steering column mounting plate (14) to floor (12)	Two screws (15), nuts (16), and lock-washers (17)	a. With help of assistant, using 1/2-inch box wrench, 1/2-inch socket, and ratchet handle, unscrew and take out. b. Get rid of lockwashers (17).



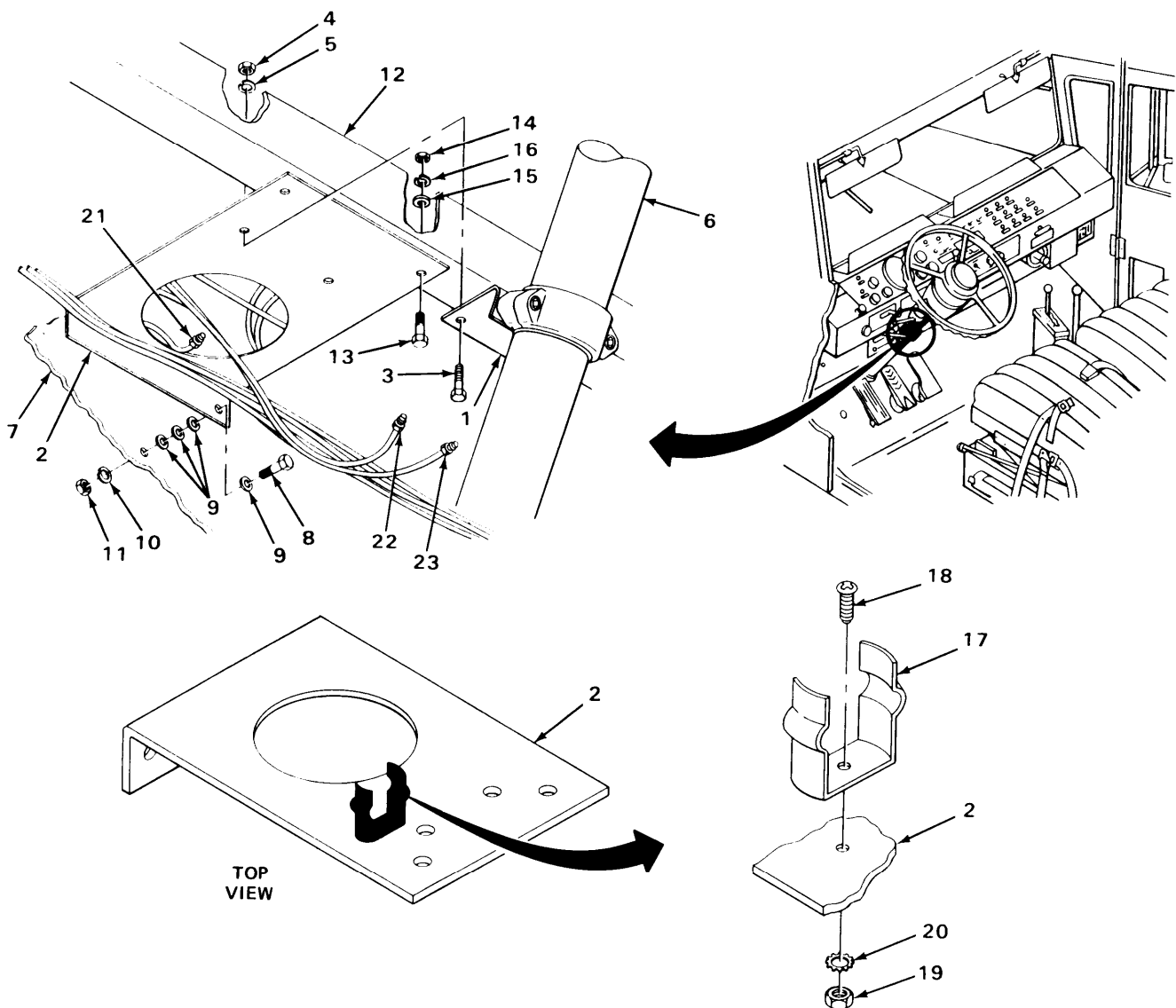
**DASH BRACE- CONTINUED**

LOCATION	ITEM	ACTION REMARKS
<b>REMOVAL-CONTINUED</b>		
17. Steering column bracket brace (1) to dash brace (2)	Two capscrews (3), nuts (4), and lockwashers (5)	a. Using 1/2-inch box wrench, 1/2-inch socket, and handle, unscrew and take out. b. Get rid of lockwashers (5).
18.	Steering column (6)	Lower and rest on front seat.
19. Dash brace (2) to firewall (7)	Two capscrews (8), 12 washers (9), two lockwashers (10), and nuts (11)	a. With help of assistant, using 1/2-inch box wrench, 1/2-inch socket, and handle, unscrew and take out. b. Get rid of lockwashers (10).
20. Dash brace (2) to dashboard (12)	Two capscrews (13), nuts (14), washers (15), and lockwashers (16)	a. Using 1/2-inch box wrench, 1/2-inch socket, and handle, unscrew and take out. b. Get rid of lockwashers (16).
21.	Dash brace (2)	Take out.
<b>DISASSEMBLY</b>		
22. Turn signal flasher holder (17) to dash brace (2)	Screw (18), nut (19), lockwasher (20), and turn signal flasher holder (17)	a. Using cross-tip screwdriver, 3/8-inch socket, and handle, unscrew and take off. b. Get rid of lockwasher (20).
<b>ASSEMBLY</b>		
23. Dash brace (2)	Turn signal flasher holder (17)	Put in place.
24. Turn signal flasher holder (17) to dash brace (2)	Screw (18), new lockwasher (20), and nut (19)	Screw in and tighten using cross-tip screw driver, 3/8-inch socket, and handle.
<b>INSTALLATION</b>		
25. Dash brace (2)	Air lines 533 (21), 27 (22), and 663 (23)	Put through hole in center.
26.	Dash brace (2)	Place in position.



DASH BRACE- CONTINUED

LOCATION	ITEM	ACTION REMARKS
27. Dash brace (2) to firewall (7)	Two capscrews (8), 12 washers (9), two new lockwashers (10), and nuts (11)	With help of assistant, screw in and tighten using 1/2-inch box wrench, 1/2- inch socket, and handle.
28. Dash brace (2) to dashboard (12)	Two capscrews (13), new lockwashers (16), washers (15), and nuts (14)	Using 1/2-inch box wrench, 1/2-inch socket, and handle, tighten.

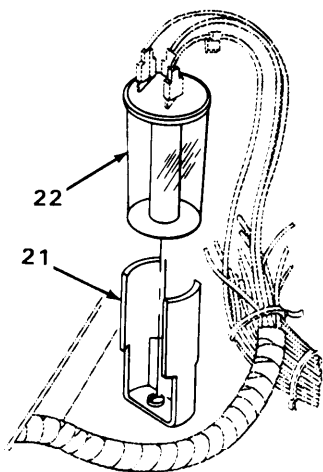
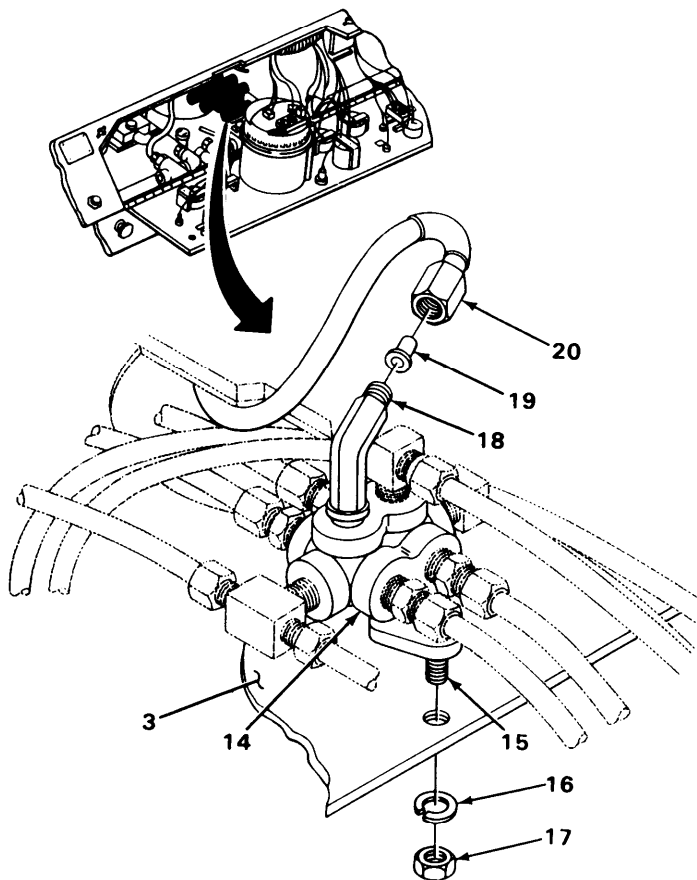
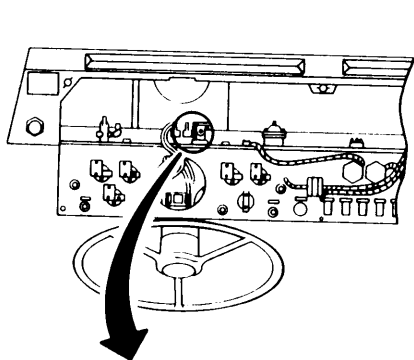
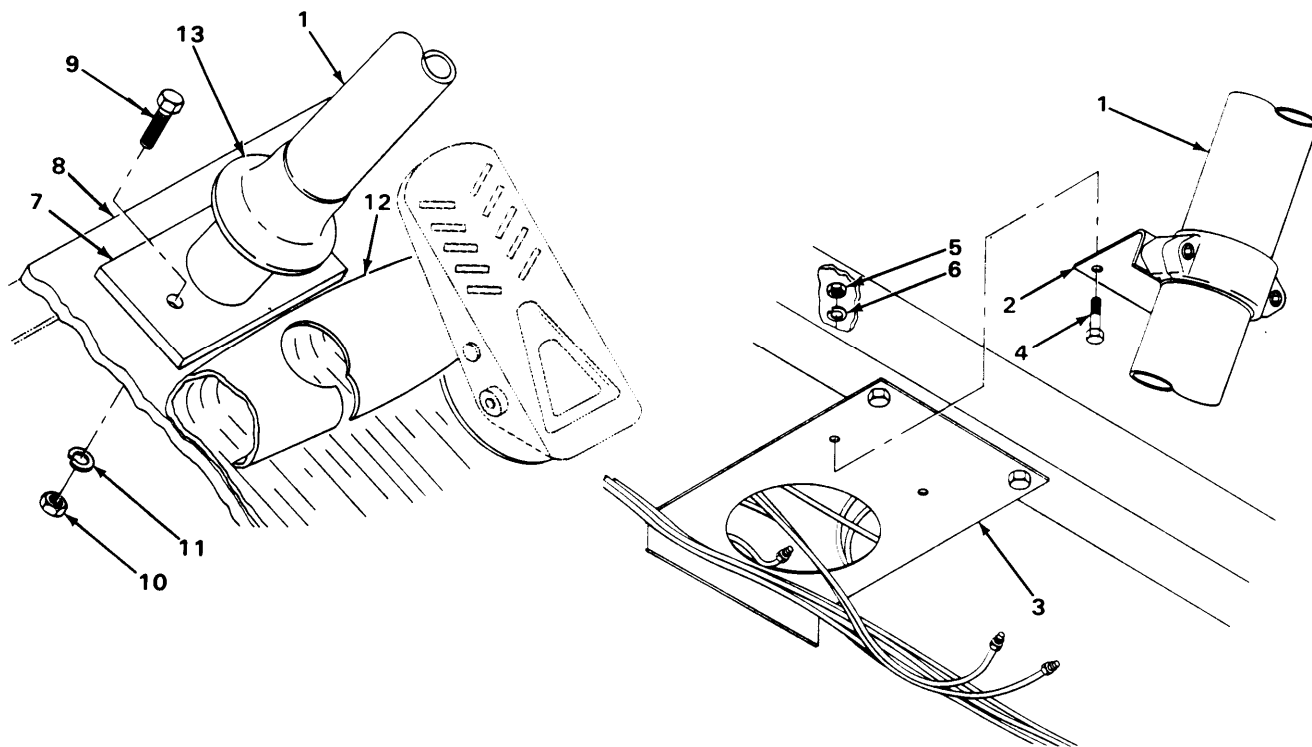


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## DASH BRACE- CONTINUED

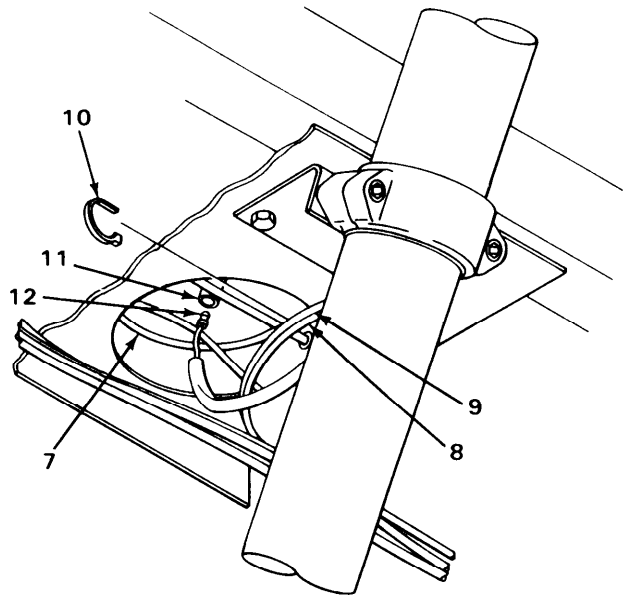
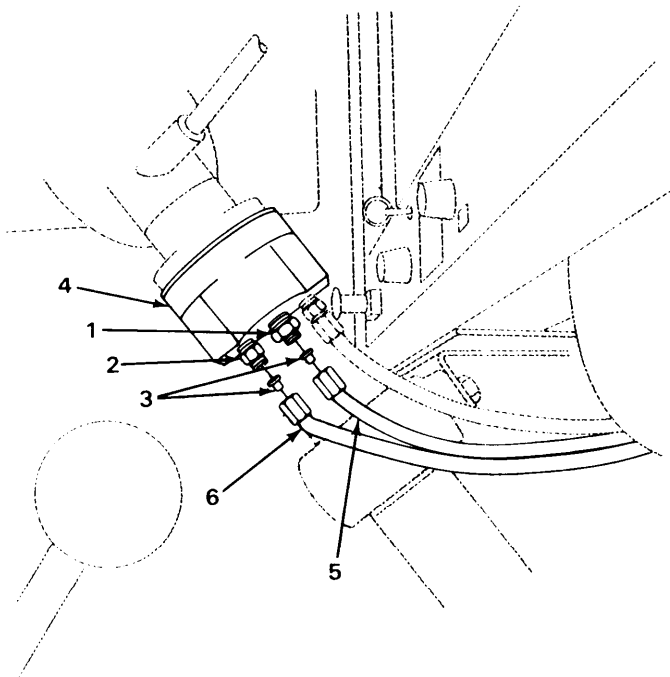
LOCATION	ITEM	ACTION REMARKS
INSTALLATION – CONTINUED		
29.	Steering column (1)	Have assistant lift into place and hold.
30. Steering column brace (2) to dash brace (3)	Two capscrews (4), nuts (5), and new lockwashers (6)	Screw in and tighten using 1/2-inch box wrench, 1/2-inch socket, and handle.
31. Steering column mounting plate (7) to floor (8)	Two capscrews (9), nuts (10), and new lockwashers (11)	With help of assistant, screw in and tighten using 1/2-inch box wrench, 1/2-inch socket, and handle.
32. Floor (8)	Floor mat (12)	Place in position.
33. Steering column (1)	Rubber grommet (13)	Push down.
34. Dash brace (3)	Air manifold (14) and two screws (15)	Put in place.
35. Air manifold (14) to dash brace (3)	Two screws (15), new lockwashers (16), and nuts (17)	Screw in and tighten using 7/16-inch open-end wrench, 7/16-inch socket, and handle.
36. Elbow (18)	Insert (19)	Using plastic hammer, tap in.
37. Air manifold (14)	Air line 533 (20)	a. Lube lightly with soap solution and push in. b. Screw on and tighten using 5/8-inch and 1/2-inch open-end wrenches.
36. Turn signal flasher holder (21)	Turn signal flasher (22)	Push in.
39.	Instrument panel	Close (page 4-244).

DASH BRACE - CONTINUED



DASH BRACE - CONTINUED

LOCATION	ITEM	ACTION REMARKS
INSTALLATION - CONTINUED		
40. Two fittings (1) and (2)	Two inserts (3)	Using rubber hammer, tap in.
41. Trailer brake handle assembly (4)	Air line 27 (5)	a. Lube end lightiy with soap and push in. b. Screw on and tighten using 5/8-inch and 9/16-inch open-end wrenches.
42.	Air line 663 (6)	a. Lube end lightiy with soap and push in. b. Screw on and tighten using 5/8-inch and 9/16-inch open-end wrenches.
43. Air lines (7), (8), and (9)	Tie wrap (10)	Using long-nose pliers, put on.
44. Connector (11)	Horn button wire (12)	Plug in.



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**DASH BRACE - CONTINUED****NOTE****FOLLOW-ON MAINTENANCE:**

1. Install left hood side panel and close hood (TM 9-2320-270-10).
2. Check for leaks (page 4-1).
3. Connect battery ground cable (page 4-444).
4. Check operation (TM 9-2320-270-10).

**TASK ENDS HERE****STEERING SHAFT GREASE FITTING**

---

This task covers:

Replacement (page 4-954)

---

**INITIAL SETUP****Tools**

Wrench, open-end, 5/16-inch

**Materials/Parts**

Grease fitting, steering shaft

**Personnel Required**

One

**Equipment Condition**

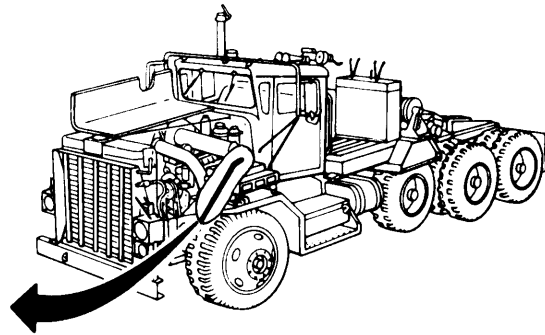
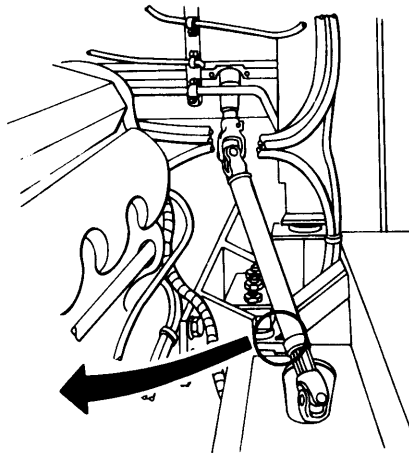
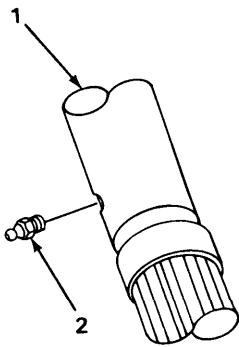
Left hood side panel removed  
(TM 9-2320-270-10).

**STEERING SHAFT GREASE FITTING - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
----------	------	-------------------

REPLACEMENT

- |                       |                        |  |
|-----------------------|------------------------|--|
| 1. Steering shaft (1) | Grease fitting (2)     | a. Using wrench, unscrew and take out.<br>b. Get rid of. |
| 2.                    | New grease fitting (2) | Screw in and tighten using wrench.                       |



**NOTE**

FOLLOW-ON MAINTENANCE:

1. Lubricate (LO 9-2320-270-12).
2. Install left hood side panel (TM 9-2320-270-10).

**TASK ENDS HERE**

**WHEEL TO BOOSTER DRAG LINK**

---

This task covers:

- |                             |  |
|-----------------------------|--|
| a. Inspection (page 4-955)  | e. Cleaning (page 4-958)               |
| b. Adjustment (page 4-956)  | f. Inspection/Replacement (page 4-958) |
| c. Removal (page 4-956)     | g. Assembly (page 4-959)               |
| d. Disassembly (page 4-958) | h. Installation (page 4-960)           |
- 

**INITIAL SETUP**

**Tools**

- Extension, 1/2- inch drive, 3-inch
- Hammer, machinist's ball-peen, 2-pound
- Handle, ratchet, 1/2-inch drive
- Pliers, long-nose, round
- Retrieving tool, magnetic
- Screwdriver bit, 1 13/16-inch, 1/2-inch drive
- Socket, 5/8-inch, 1/2-inch drive
- Woodblock
- Wrench, adjustable
- Wrench, box, 5/8-inch
- Wrench, open-end, 7/16-inch
- Wrench, pipe, 14-inch

**Materials/Parts**

- Cotter pin, spring seat plug
- Grease (LO 9-2320-270-12)
- Nut, self-locking, steering booster clamp
- Rope (item 11, appendix C)

**Personnel Required**

One

---

LOCATION	ITEM	ACTION REMARKS
----------	------	-------------------

---

**INSPECTION**

- |    |       |   |
|----|-------|---|
| 1. | Truck | Park on level surface with wheels positioned straight ahead (TM 9-2320-270-10). |
|----|-------|---|

**WHEEL TO BOOSTER DRAG LINK - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
INSPECTION – CONTINUED		
2. Steering arm (1)	Drag link (2)	Move forward and backward and side to side. <b>Drag link should be able to rock on axis of steering arm ball, but there should be no looseness. If any looseness, go to step 3.</b>
3. Drag link (2) to steering booster (3)	Locking nut (4), screw (5), and nut (6)	Check for correct placement and security. <b>Tighten any loose parts. Replace any missing or damaged parts.</b>

ADJUSTMENT

**NOTE**

Looseness between drag link and steering arm can be taken up by adjustment. If looseness cannot be taken out by the adjustment, go to removal.

4. Drag link (2) to spring seat plug (7)	Cotter pin (8)	a. Using pliers, take out. b. Get rid of.
5. Drag link (2)	Spring seat plug (7)	a. Using screwdriver bit and handle, tighten. b. Back off just enough so slot lines up with holes.
6. Drag link (2) to spring seat plug (7)	New cotter pin (8)	a. Put in. b. Note if spring seat plug is screwed in so far that cotter pin (8) misses slot (9). <b>If cotter pin is above slot, repair drag link.</b> c. Using pliers, put in and bend back over plug (7).

REMOVAL

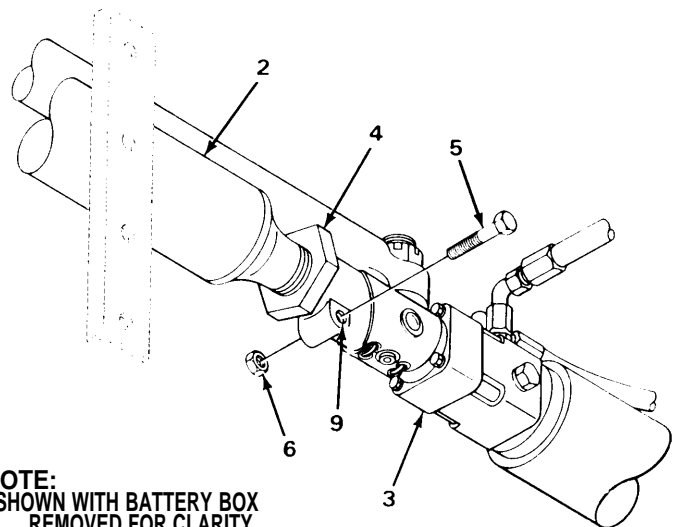
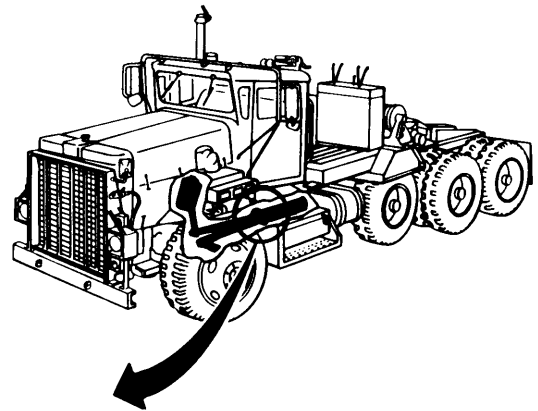
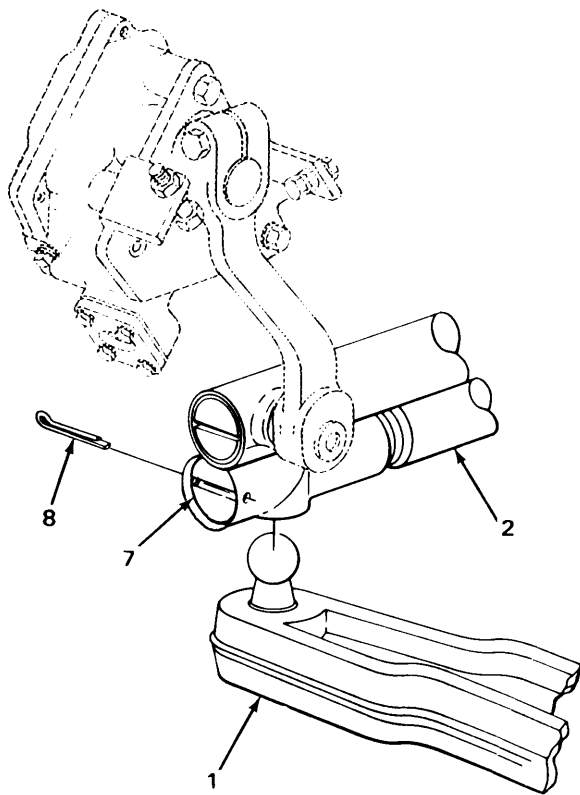
**CAUTION**

If steering booster is not supported when drag link is removed, damage to steering booster may result.



**WHEEL TO BOOSTER DRAG LINK - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
7.	Steering booster (3)	Using rope, support and tie to frame.
8. Drag link (2) to steering booster (3)	Locknut (4)	Using adjustable wrench, unscrew part way.
9. Steering booster clamp (9)	Screw (5) and self-locking nut (6)	a. Using 5/8-inch box wrench, 5/8-inch socket, and handle, unscrew and take out. b. Get rid of self-locking nut (6).



**NOTE:**  
SHOWN WITH BATTERY BOX  
REMOVED FOR CLARITY.

**WHEEL TO BOOSTER DRAG LINK - CONTINUED**

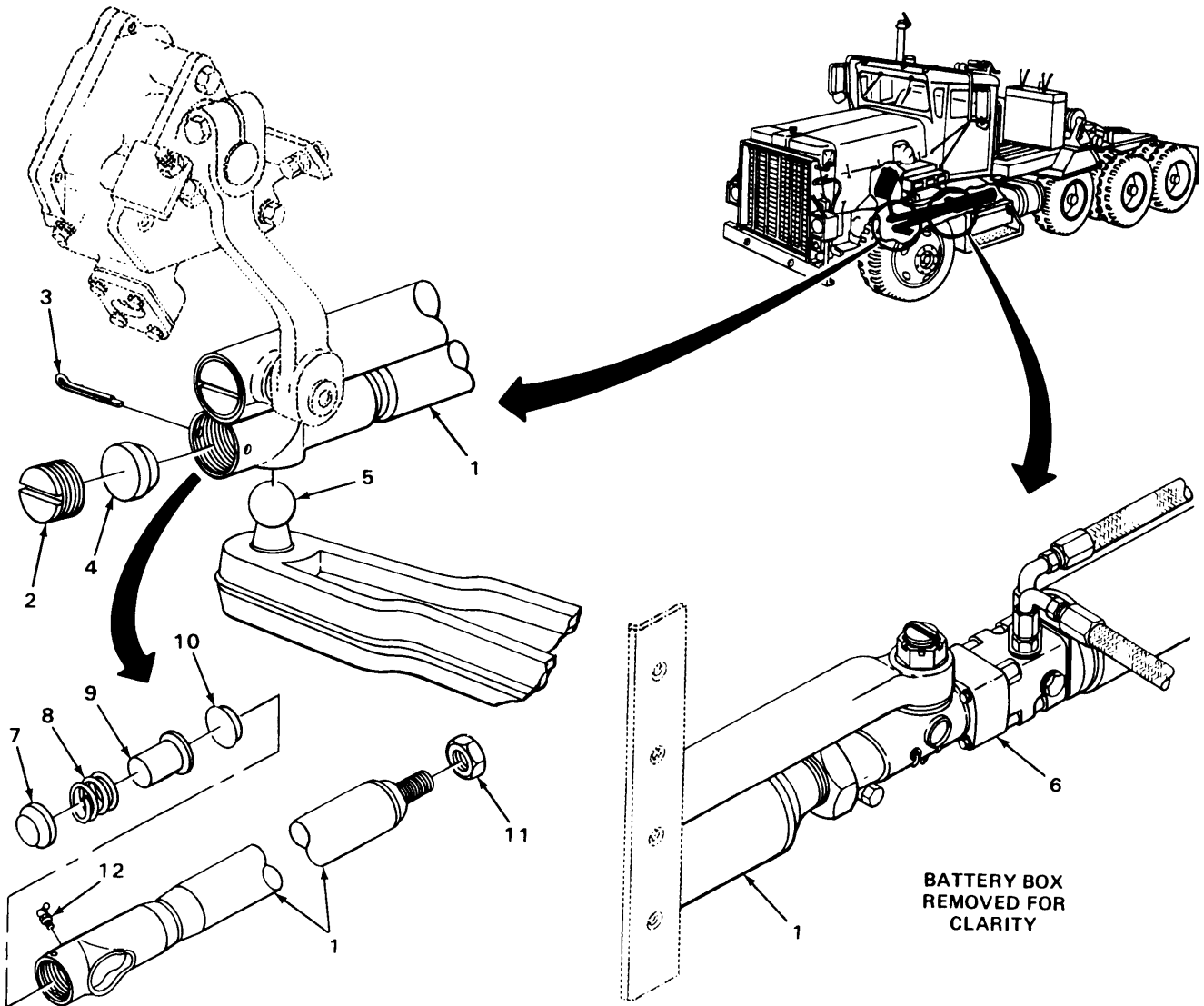
LOCATION	ITEM	ACTION REMARKS
REMOVAL – CONTINUED		
10. Drag link (1) to spring seat plug (2)	Cotter pin (3)	a. Using pliers, take out. b. Get rid of.
11.	Spring seat plug (2)	Using screwdriver bit, extension, and handle, unscrew and take out.
12.	Outer bearing seat (4)	Using magnetic retrieving tool, take out.
13. Steering arm ball (5)	Drag link (1)	Lift off.
14. Steering booster (6)	Drag link (1)	Using pipe wrench, unscrew and take out.
DISASSEMBLY		
15. Drag link (1)	Inner bearing seat (7), spring (8), spring seat (9), and spacer (10)	Tap drag link (1) on woodblock and take out.
16.	Locknut (11)	Using adjustable wrench, unscrew and take off.
17.	Grease fitting (12)	Using 7/16-inch wrench, unscrew and take out.
CLEANING		
18.	All parts	Clean according to general maintenance instructions (page 4-1).
inspection/REPLACEMENT		
19.	All parts	Inspect according to general maintenance instructions (page 4-1).

WHEEL TO BOOSTER DRAG LINK - CONTINUED

LOCATION	ITEM	ACTION REMARKS
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ASSEMBLY

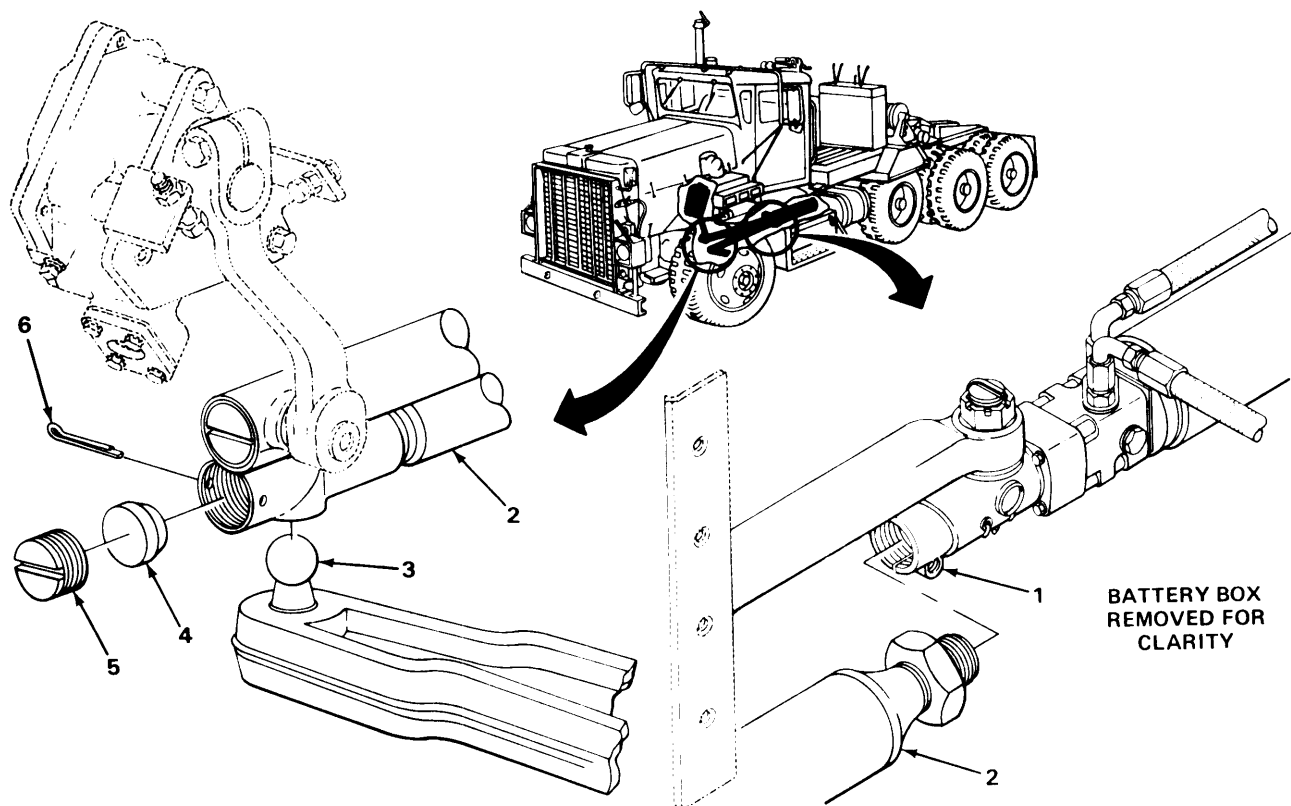
- |                   |  |  |
|-------------------|--|--|
| 20. Drag link (1) | Locknut (11)   | Screw on all the way to front of threads.    |
| 21.               | Grease fitting (12)  | Screw in and tighten using 7/16-inch wrench. |
| 22.               | Spacer (10), spring seat (9), spring (8), and inner bearing seat (7) | Coat with clean grease and put in.           |



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WHEEL TO BOOSTER DRAG LINK - CONTINUED

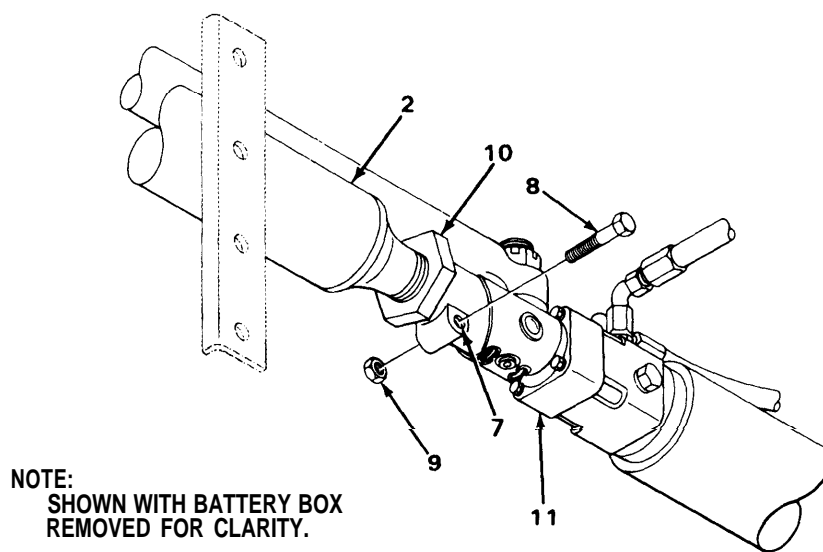
LOCATION	ITEM	ACTION	REMARKS
<b>INSTALLATION</b>			
23. steering booster (1)	Drag link (2)	Put in place and using pipe wrench, screw in until it bottoms.	
24. Steering arm ball (3)	Drag link (2)	a. Unscrew until it fits over steering arm ball (3). b. Put on.	
25. Drag link (2)	Outer bearing seat (4)	Coat with grease and put in.	
26.	Spring seat plug (5)	a. Screw in and tighten using screwdriver bit extension and handle. b. Back off until slot aligns with cotter pin holes.	
27. Drag link (2) to spring seat plug (5)	New cotter pin (6)	Using pliers, put in.	



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**WHEEL TO BOOSTER DRAG LINK - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
28. Steering booster clamp (7)	Screw (8) and new self-locking nut (9)	Screw in and tighten using box wrench, 5/8-inch socket, and handle.
29. Drag link (2) to steering booster clamp (7)	Locknut (10)	Screw on and tighten using adjustable wrench.
30.	Steering booster assembly (11)	Take off rope.



**NOTE**

**FOLLOW-ON MAINTENANCE:**

1. Lubricate (LO 9-2320-270-12).
2. Check operation (TM 9-2320-270-10).

**TASK ENDS HERE**

**PITMAN ARM TO BOOSTER DRAG LINK**

---

This task covers:

- |                             |  |
|-----------------------------|--|
| a. Inspection (page 4-962)  | e. Cleaning (page 4-965)               |
| b. Adjustment (page 4-963)  | f. Inspection/Replacement (page 4-965) |
| c. Removal (page 4-964)     | g. Assembly (page 4-965)               |
| d. Disassembly (page 4-965) | h. Installation (page 4-966)           |
- 

**INITIAL SETUP**

**Tools**

- Hammer, plastic
- Handle, ratchet, 1/2-inch drive
- Key, socket head screw, 3/16-inch
- Pliers, long-nose, round
- Puller, mechanical, gear and bearing
- Retrieving tool, magnetic
- Screwdriver bit, 13/6-inch, 1/2-inch drive
- Socket, 1 1/4-inch, 1/2-inch drive
- Woodblock
- Wrench, open-end, 7/16-inch

**Materials/Parts**

- Cotter pin, boster ball stud
- Cotter pin, spring seat plug
- Drag link dust seal and felt kit
- Grease (LO 9-2330-270-1 2)

**Personnel Required**

One

---

LOCATION	ITEM	ACTION REMARKS
----------	------	-------------------

---

**INSPECTION**

- |                         |                                 |  |
|-------------------------|---------------------------------|--|
| 1.                      | Truck                           | Park on level surface with wheels positioned straight ahead (TM 9-2320-270-10).  |
| 2. Pitman arm (1)       | Drag link (2)                   | Move forward and backward, up and down.<br><b>Drag link should be able to rock back and forth on pitman arm ball, but there should be no looseness. if any looseness, go to step 3.</b>                              |
| 3. Steering booster (3) | Drag link (2) and ball stud (4) | Move right and left, up and down.<br><b>Drag link and ball stud should be able to rock back and forth on bail stud seats, but there should be no looseness. if any looseness, notify direct support maintenance.</b> |

PITMAN ARM TO BOOSTER DRAG LINK - CONTINUED

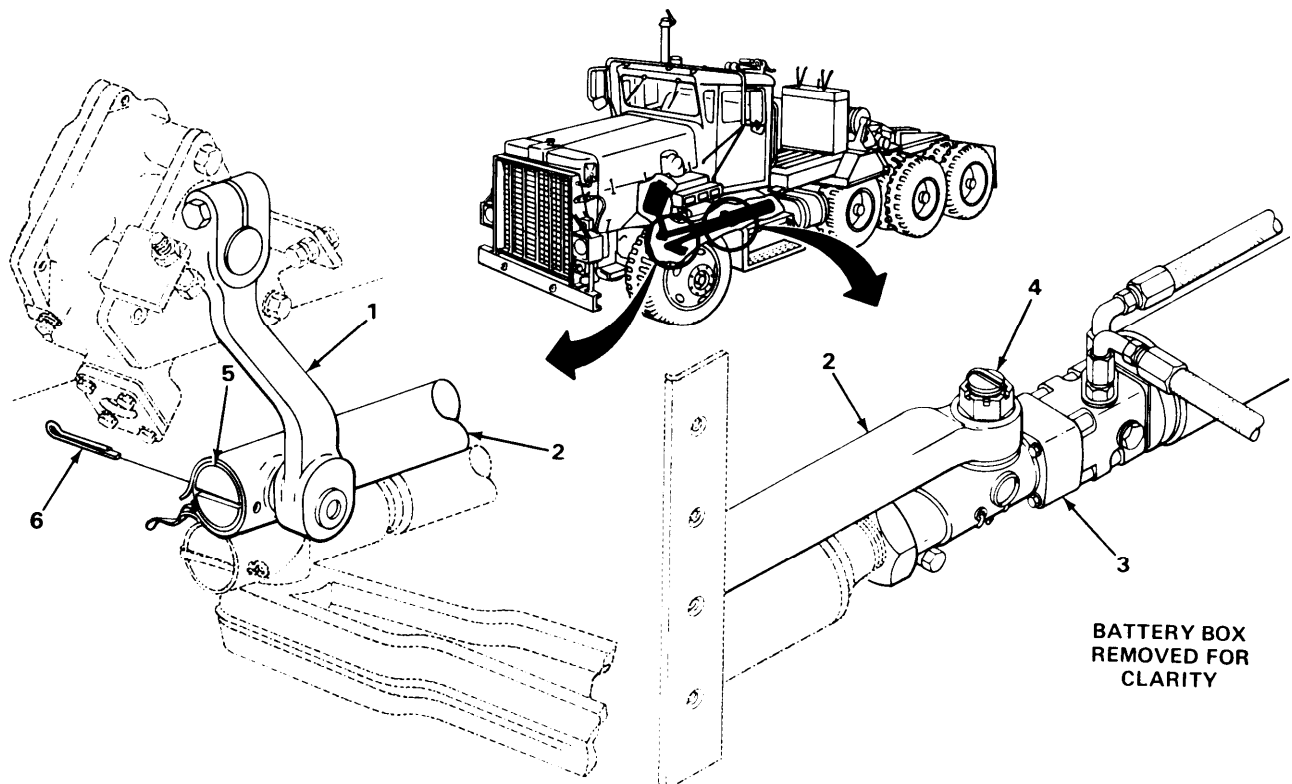
LOCATION	ITEM	ACTION	REMARKS
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ADJUSTMENT

**NOTE**

Looseness between drag link and pitman arm can be taken up by adjustment. If looseness cannot be taken out by adjustment, go to removal.

- |  |                      |  |
|--|----------------------|--|
| 4. Drag link (2) to spring seat plug (5) | Cotter pin (6)       | a. Using pliers, take out.<br>b. Get rid of.   |
| 5. Drag link (2)                         | Spring seat plug (5) | a. Using screwdriver bit and handle, tighten.<br>b. Back off just enough so slot lines up with cotter pin holes.   |
| 6. Drag link (2) to spring seat plug (5) | New cotter pin (6)   | a. Put in.<br>b. Note if spring seat plug is screwed in so far that cotter pin (6) misses slot.<br><b>If cotter pin is above slot, repair drag link.</b><br>c. Using pliers, spread and bend back. |



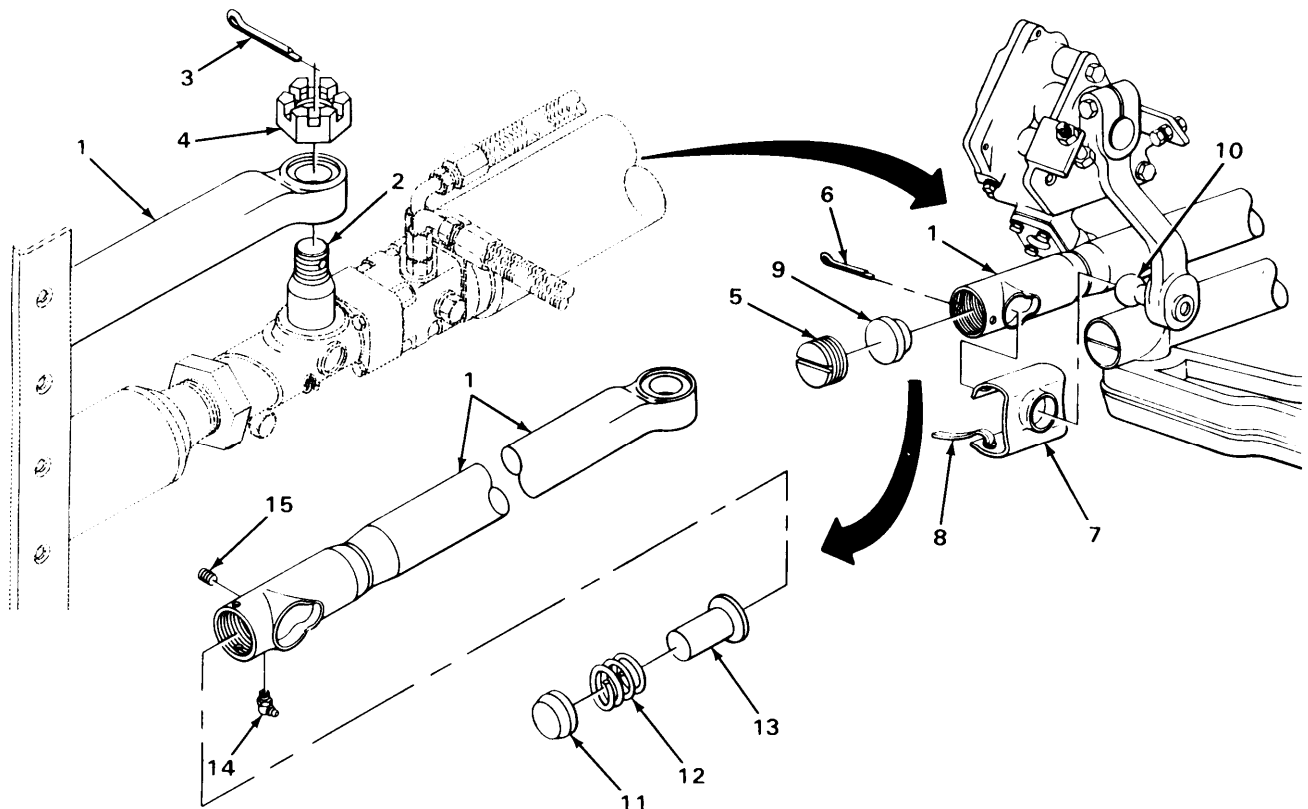
## PITMAN ARM TO BOOSTER DRAG LINK - CONTINUED

LOCATION	ITEM	ACTION REMARKS
REMOVAL		
7. Drag link (1) to steering booster ball stud (2)	Cotter pin (3)	a. Using pliers, take out. b. Get rid of.
8.	Nut (4)	Using 1 1/4-inch socket and handle, unscrew and take out.
9. Steering booster ball stud (2)	Drag link (1)	Using puller, pull off.
10. Drag link (1) to spring seat plug (5)	Cotter pin (6)	a. Using pliers, take out. b. Get rid of.
11. Drag link (1)	Dust seal (7)	Using pliers, untie two ties (8) and take off.
12.	Spring seat plug (5)	Using screwdriver bit and handle, unscrew and take out.
13.	Outer bearing seat (9)	Using magnetic retrieving tool, take out.
14. Pitman arm ball (10)	Drag link (1)	Pull off.
15.	Dust seal (7)	a. Take off. b. Get rid of.
DISASSEMBLY		
16. Drag link (1)	Inner bearing seat (11), spring (12), and spring seat (13)	Tap drag link (1) on woodblock and take out.
17.	Grease fitting (14)	Using 7/16-inch wrench, unscrew and take out.
18.	Plug (15)	Using key, unscrew and take out.



PITMAN ARM TO BOOSTER DRAG LINK - CONTINUED

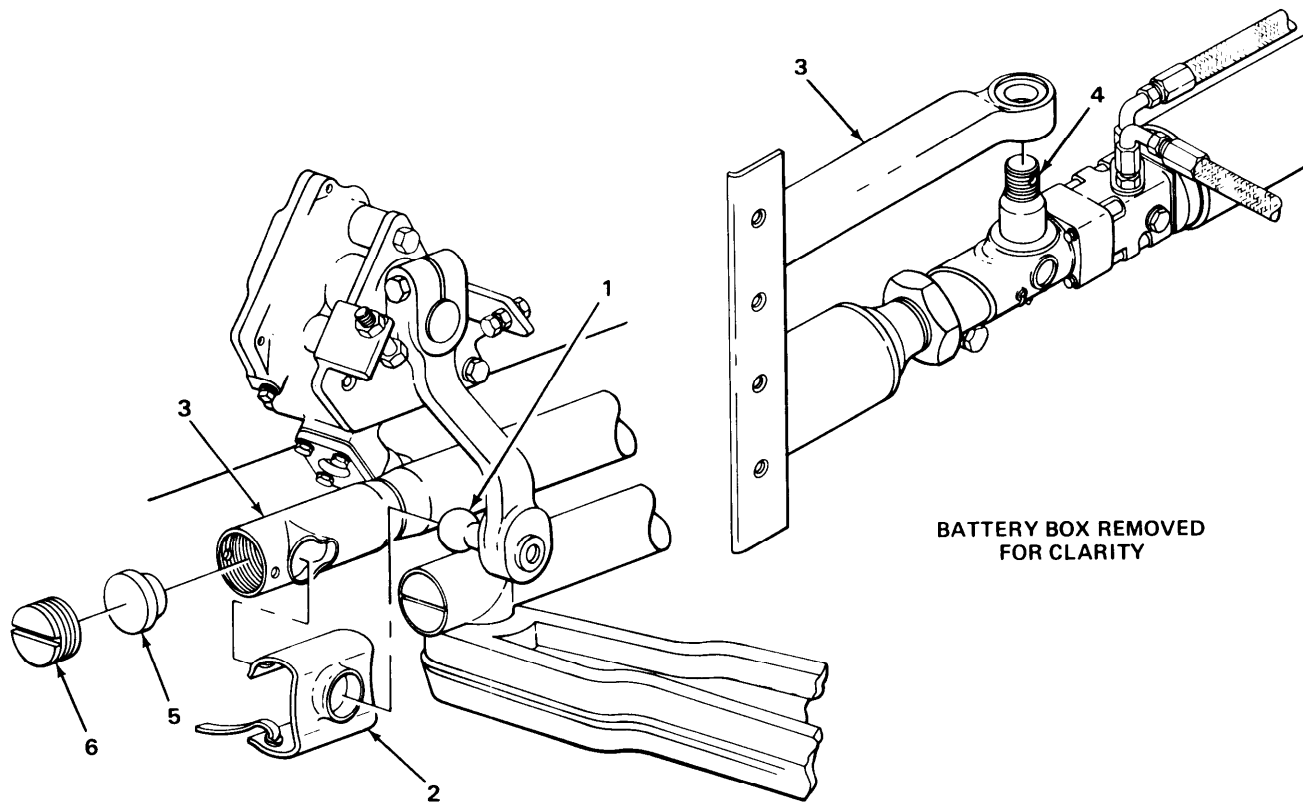
LOCATION	ITEM	ACTION REMARKS
CLEANING		
19.	All parts	Clean according to general maintenance instructions (page 4-1).
inspection/REPLACEMENT		
20.	All parts	Inspect according to general maintenance instructions (page 4-1).
ASSEMBLY		
21. Drag link (1)	Grease fitting (14)	Screw in and tighten using 7/16-inch wrench.
22.	Plug (15)	Screw in and tighten using key.
23.	Spring seat (13), spring (12), and inner bearing seat (11)	Coat with clean grease and put in.



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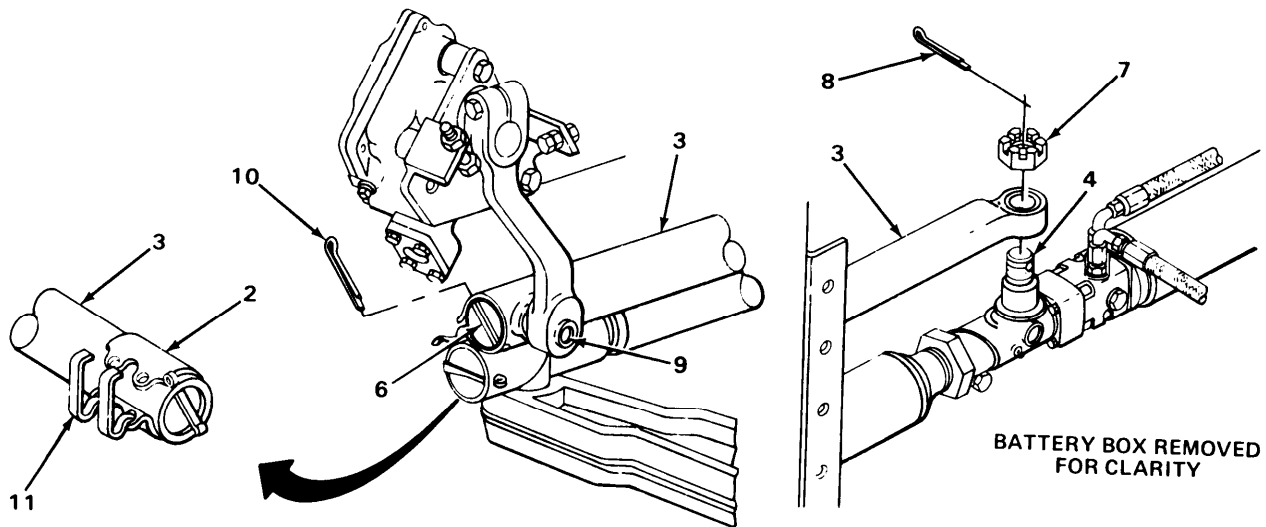
**PITMAN ARM TO BOOSTER DRAG LINK - CONTINUED**

LOCATION	ITEM	ACTION	REMARKS
<b>INSTALLATION</b>			
24. Pitman arm ball (1)	New dust seal (2)	Put on.	
25.	Drag link (3)	Place in position.	
26. Booster ball stud (4)	Drag link (3)	Put on.	
27. Drag link (3)	Outer bearing seat (5)	Coat with grease and put in.	
28.	Spring seat plug (6)	Screw in enough to keep drag link in place.	
29. Booster ball stud (4)	Drag link (3)	With plastic hammer, tap lightly just ahead of ball stud (4) to seat.	



**PITMAN ARM TO BOOSTER DRAG LINK - CONTINUED**

LOCATION	ITEM	ACTION	REMARKS
<b>INSTALLATION – CONTINUED</b>			
30. Drag link (3) to booster ball stud (4)	Nut (7)	a. Screw on and tighten using 1 1/4-inch socket and handle. b. Back off just enough to put in cotter pin (8).	
31.	New cotter pin (8)	Put in and using pliers, bend back.	
32. Drag link (3) to pitman arm (9)	Spring seat plug (6)	a. Using screwdriver bit and handle, tighten. b. Back off just enough to put in cotter pin (10).	
33.	New cotter pin (10)	Put in and using pliers, bend back.	
34. Drag link (3)	Dust seal (2)	Wrap around.	
35. Dust seal (2)	Two metal ties (11)	Using pliers, secure.	



**NOTE**

FOLLOW-ON MAINTENANCE: Lubricate (LO 9-2320-270-12) and check operation (TM 9-2320-270-10).

**TASK ENDS HERE**

**TIE ROD**

---

This task covers:

- |  |                              |
|--|------------------------------|
| a. Removal (page 4-968)                | e. Assembly (page 4-970)     |
| b. Disassembly (page 4-969)            | f. Installation (page 4-971) |
| c. Cleaning (page 4-970)               | g. Alinement (page 4-972)    |
| d. Inspection/Replacement (page 4-970) |                              |
- 

**INITIAL SETUP**

**Tools**

- Chisel, 1/2-inch
- Gage, front wheel alinement
- Hammer, machinist's ball-peen, 2-pound
- Handle, ratchet, 1/2-inch drive
- Handle, ratchet, 3/4-inch drive
- Pliers, long-nose, round
- Puller, mechanical, gear and bearing
- Socket, 5/8-inch, 1/2-inch drive
- Socket, 15/16-inch, 1/2-inch drive
- Socket, 15/16-inch, 3/4-inch drive
- Wrench, box, 15/16-inch
- Wrench, open-end, 7/16-inch
- Wrench, pipe, 14-inch

**Tools – Continued**

- Wrench, torque, 3/4-inch drive

**Materials/Parts**

- Cotter pin, tie rod end nut to steering arm (two required)
- Lockwasher, tie rod clamp screw (four required)

**Personnel Required**

- One
- 

LOCATION	ITEM	ACTION	REMARKS
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**REMOVAL**

**NOTE**

Steps used to disconnect both right and left tie rod ends are the same. Left tie rod end is shown.

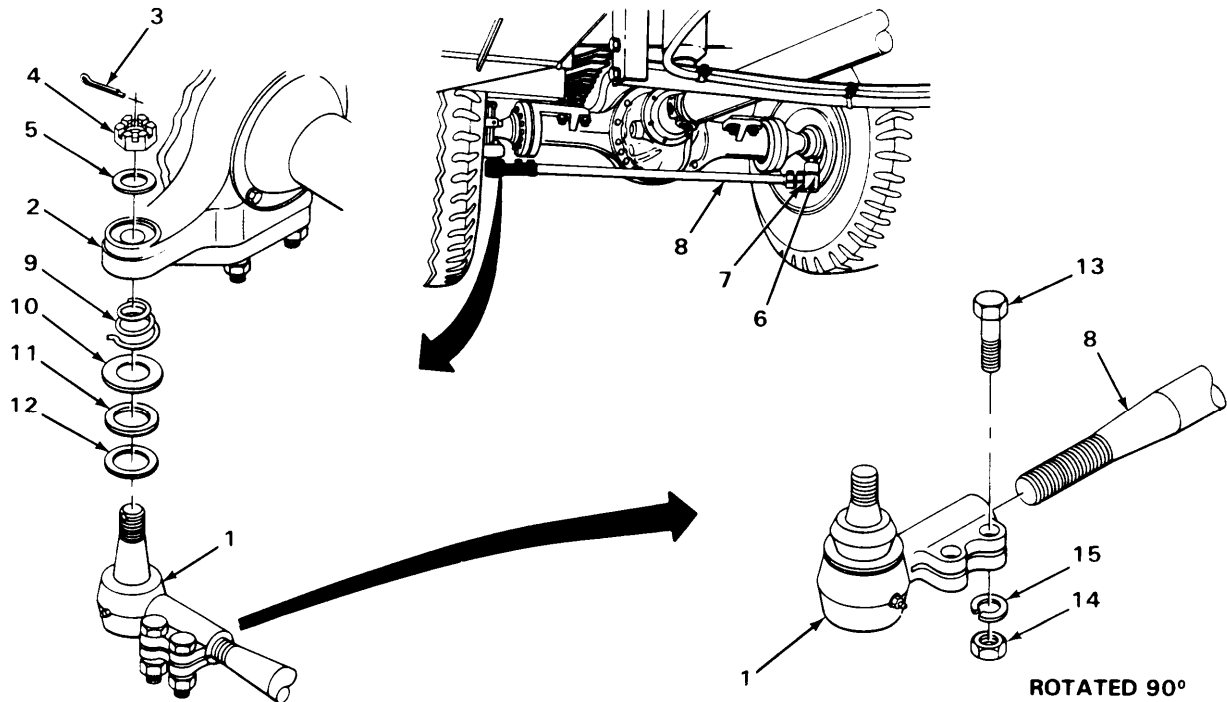
- |    |  |   |
|----|--|---|
| 1. | Truck                                    | Park on level surface with wheels positioned straight ahead (TM 9-2320-270-1 O).                  |
| 2. | Left tie rod end (1) to steering arm (2) | Cotter pin (3)<br>a. Using pliers, take out.<br>b. Get rid of.                                    |
| 3. | Nut (4) and washer (5)                   | Using 15/16-inch socket and handle with 3/4-inch drive, unscrew and take off.                     |
| 4. | Left steering arm (2)                    | Left tie rod end (1)<br>Using puller, 5/8-inch socket, and handle with 1/2-inch drive, press out. |

**TIE ROD - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
5. Right steering arm (6)	Right tie rod end (7) and tie rod (8)	Repeat steps 2 thru 4.
6. Left tie rod end (1)	Spring (9), washer (10), spacer (11), and washer (12)	Take off.

**DISASSEMBLY**

7. Two tie rod ends (1) and (7) to tie rod (8)	Four screws (13), nuts (14), and lockwasher (15)	a. Using 15/16-inch box wrench, 15/16-inch socket, and handle with 1/2-inch drive, unscrew and take out. b. Get rid of lockwashers (15).
8. Tie rod (8)	Tie rod ends (1) and (7)	Using chisel and ball-peen hammer, spread tie rod ends. <b>Do not drive chisel into threads.</b>
9.	Left tie rod end (1)	Unscrew clockwise and take off.
10.	Right tie rod end (7)	Unscrew counterclockwise and take off.



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**TIE ROD - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
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DISASSEMBLY – CONTINUED

**NOTE**

Do not remove tie rod end grease fittings unless damaged.

Step is the same for right or left tie rod end grease fitting. Left tie rod end is shown.

11. Left tie rod end (1)	Grease fitting (2)	Using 7/16-inch wrench, unscrew and take out.
--------------------------	--------------------	---

CLEANING

12.	All parts	Clean according to general maintenance instructions (page 4-1).
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inspection/REPLACEMENT

13.	All parts	Inspect according to general maintenance instructions (page 4-1).
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ASSEMBLY

**NOTE**

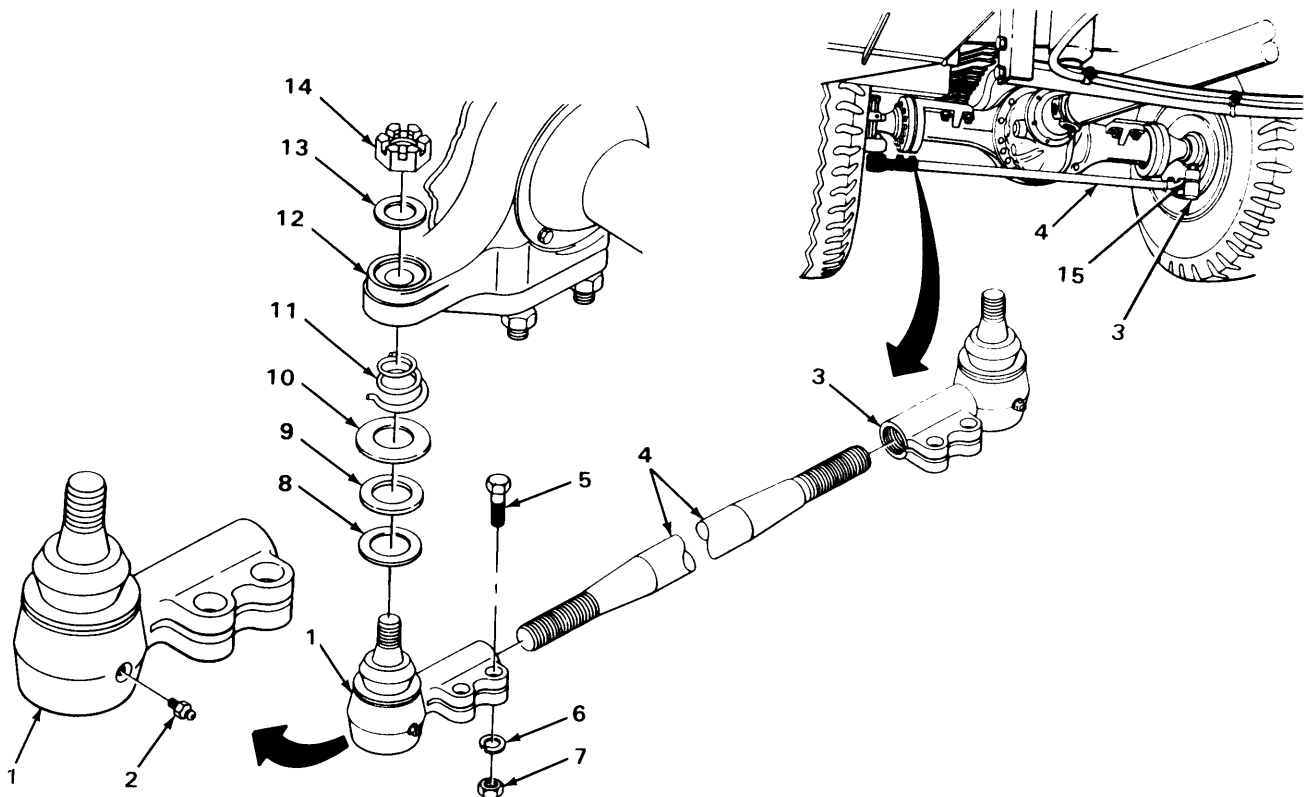
Left tie rod end has left hand threads, right tie rod end has right hand threads.

Skip step 14 if grease fitting was not removed.

14. Tie rod ends (1) and (3)	Grease fitting (2)	Screw in and tighten using 7/16-inch wrench.
15. Tie rod ends (1) and (3) to tie rod (4)	Four screws (5), new lockwashers (6), and nuts (7)	Screw in but do not tighten.
16.	Left tie rod end (1)	a. Using ball-peen hammer and chisel, spread enough so it can be screwed on. b. Screw on counterclockwise.
17. Tie rod (4)	Right tie rod end (3)	Screw on clockwise.

TIE ROD - CONTINUED

LOCATION	ITEM	ACTION REMARKS
<b>INSTALLATION</b>		
18. Left tie rod end (1)	Washer (8), spacer (9), washer (10), and spring (11)	Put in place.
19. Steering arm (12)	Tie rod (4) and left tie rod end (1)	a. Lift tie rod and guide into hole. b. Lift up.
20. Tie rod end (1) to steering arm (12)	Washer (13) and nut (14)	Screw on but do not tighten.
21. Right steering arm (15)	Tie rod (4) and right tie rod end (3)	Repeat steps 18 through 20 to put in.



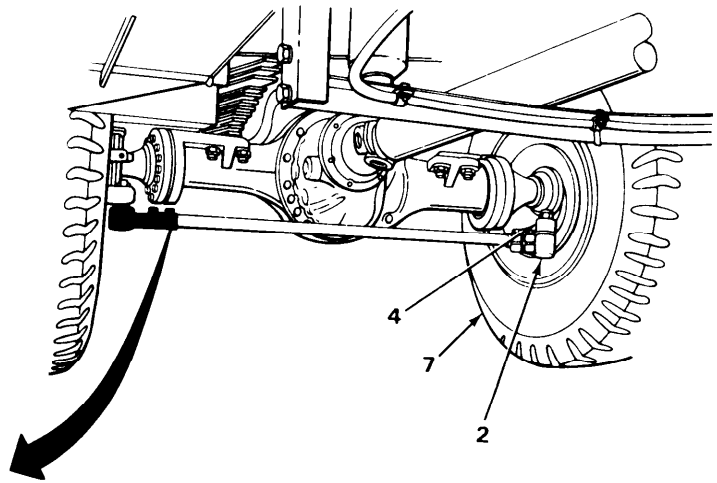
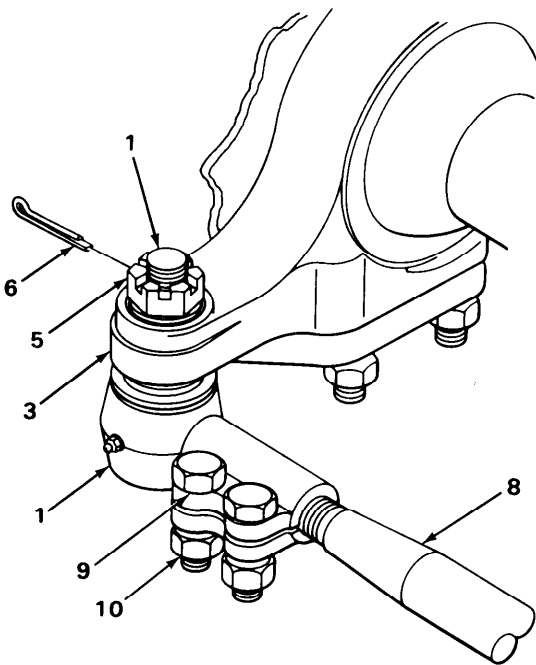
**TIE ROD - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
INSTALLATION – CONTINUED		
22. Tie rod ends (1 and 2) to steering arms (3 and 4)	Two nuts (5)	a. Using 15/16-inch socket and handle with 3/4-inch drive, tighten. b. Using 15/16-inch socket and torque wrench with 3/4-inch drive, tighten to 160 to 180 foot pounds (223.7 to 244.1 N·m). c. Check to see if hole lines up with slots. d. If holes do not line in, tighten just enough to line up.
23.	Two new cotter pins (6)	Using pliers, put in.
ALINEMENT		
24.	Tie rod	Lubricate (LO 9-2320-270-20).
25.	Tires	Check air pressure of all tires (TM 9-2320-270-10).
26.	Front wheels (7)	Using wheel alinement gage, check front wheel toe-in. <b>Toe-in should be 1/8-inch (3.17 millimeter). If toe-in is correct, continue at step 30.</b>
<b>NOTE</b>		
If tie rod has just been installed, skip steps 27 and 28.		
27. Tie rod ends (1 and 2) to tie rod (8)	Four clamp screws (9) and nuts (10)	Using 15/16 box wrench, 15/16-inch socket, and handle with 1/2-inch drive, unscrew part way.
28.	Tie rod ends (1) and (2)	Using ball-peen hammer and cold chisel, spread clamp end of tie rod ends enough to turn tie rod (8).



**TIE ROD - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
20. Front wheels (7)	Tie rod (8)	<p>Using wheel alinement gage and pipe wrench, adjust toe-in to 1/8-inch (3.17 millimeter).</p> <p><b>Looking towards the right tie rod end, turning tie rod clockwise increases toe-in, turning tie rod counterclockwise decreases toe-in.</b></p>
30. Tie rod ends (1) and (2)	Four clamp screws (9) and nuts (10)	<p>Using 15/16-inch box wrench, 15/16-inch socket, and handle with 1/2-inch drive. tighten.</p>



**TASK ENDS HERE**

**PITMAN ARM STOP BRACKET**

---

This task covers:

Adjustment (page 4-974)

---

INITIAL SETUP

Tools	Personnel Required
Gage, thickness Wrench, open-end, 3/4-inch (two required)	Two

---

		ACTION	
LOCATION	ITEM		REMARKS

---

ADJUSTMENT

**CAUTION**

If pitman arm stopscrews are not adjusted correctly, steering booster will be damaged.

- |    |        |                           |
|----|--------|---------------------------|
| 1. | Engine | Start (TM 9-2320-270-10). |
|----|--------|---------------------------|

**WARNING**

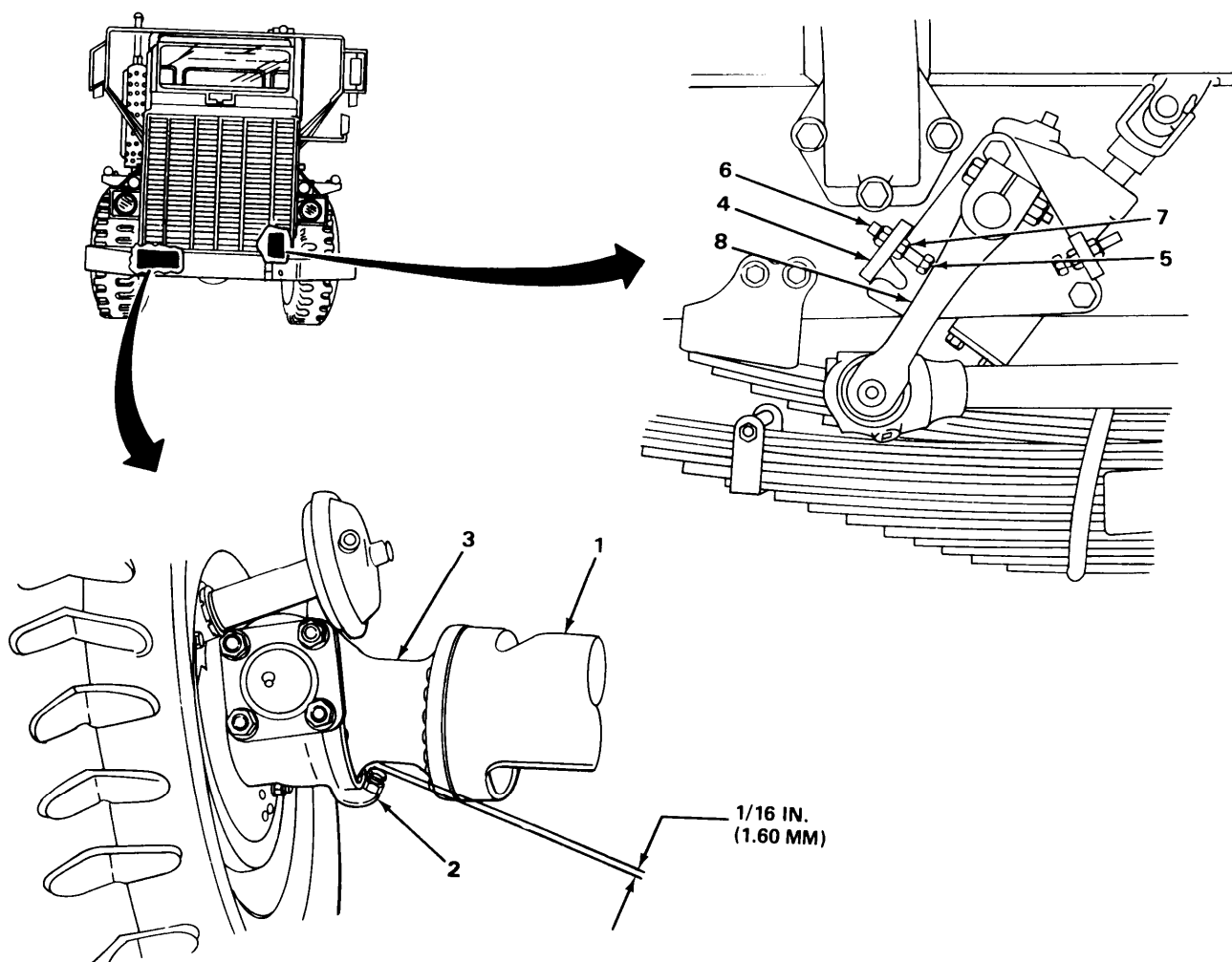
Do not get between wheels and fender, or between other moving and stationary parts, while assistant is turning wheels. There is no clearance for personnel in these areas when turning vehicle.

Hearing protection must be worn while working under truck with engine running to prevent possible ear injury.

- |                                 |   |   |
|---------------------------------|---|---|
| 2. Right side of front axle (1) | Right front spindle stopscrew (2) and right front axle ball (3) | <ul style="list-style-type: none"> <li>a. Position 1/16-inch (1.59 mm) thickness gage between stopscrew (2) and axle ball (3).</li> <li>b. Have assistant slowly turn steering wheel left until stopscrew (2) is stopped by thickness gage.</li> <li>c. Have assistant hold steering in this position.</li> </ul> |
|---------------------------------|---|---|

PITMAN ARM STOP BRACKET - CONTINUED

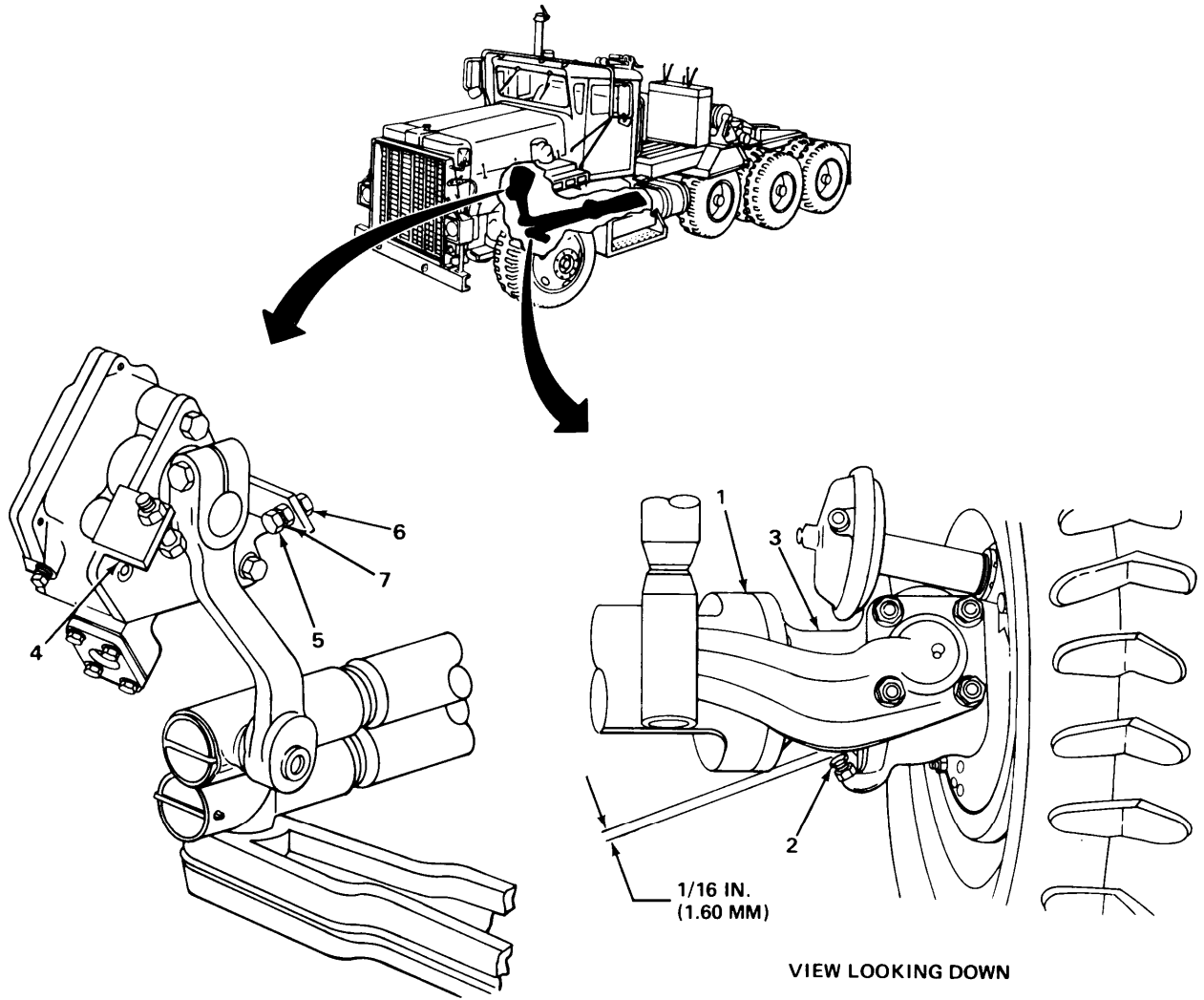
LOCATION	ITEM	ACTION REMARKS
3. Pitman arm stop bracket (4)	Front pitman arm stopscrew (5) and locknut (6)	Using two 3/4-inch open-end wrenches, unscrew part way.
4.	Inner nut (7) and Stopscrew (5)	Using two 3/4-inch open-end wrenches, tighten stopscrew (5).
5.	Locknut (6)	Using two 3/4-inch open-end wrenches, tighten.



## PITMAN ARM STOP BRACKET- CONTINUED

LOCATION	ITEM	ACTION REMARKS
ADJUSTMENT – CONTINUED		
<b><u>WARNING</u></b>		
Do not get between wheels and fender, or between other moving and stationary parts, while assistant is turning wheels. There is no clearance for personnel in these areas when turning vehicle.		
Hearing protection must be worn while working under truck with engine running to prevent possible ear injury.		
6. Left side of front axle (1)	Left front spindle stopscrew (2) and right axle ball (3)	a. Position 1/16-inch (1.59 mm) thickness gage between ball (3) and stopscrew (2). b. Have assistant slowly turn steering wheel right until stopscrew (2) is stopped by thickness gage. c. Have assistant hold steering in this position.
7. Pitman arm stop bracket (4)	Rear pitman arm stopscrew (5) and locknut (6)	Using two 3/4-inch open-end wrenches, unscrew part way.
8.	Inner nut (7) and stopscrew (5)	Using two 3/4-inch open-end wrenches, tighten stopscrew (5).
9.	Locknut (6)	Using two 3/4-inch open-end wrenches, tighten.
10.	Engine	Shut down (TM 9-2320-270-10).

PITMAN ARM STOP BRACKET- CONTINUED



TASK ENDS HERE

**PITMAN ARM**

---

This task covers:

- a. Removal (page 4-978)
  - b. Installation (page 4-979)
- 

**INITIAL SETUP**

**Tools**

- Handle, ratchet, 1/2-inch drive
- Pliers, long-nose, round
- Puller, mechanical
- Retrieving tool, magnetic
- Screwdriver bit, 1 13/16-inch, 1/2-inch drive
- Socket, 3/4-inch, 1/2-inch drive
- Wrench, box, 3/4-inch

**Materials/Parts**

- Cotter pin, drag link to spring seat plug
- Kit, drag link grease seal
- Lockwasher, pitman arm clamp screwnut

**Personnel Required**

One

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LOCATION	ITEM	ACTION REMARKS
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**REMOVAL**

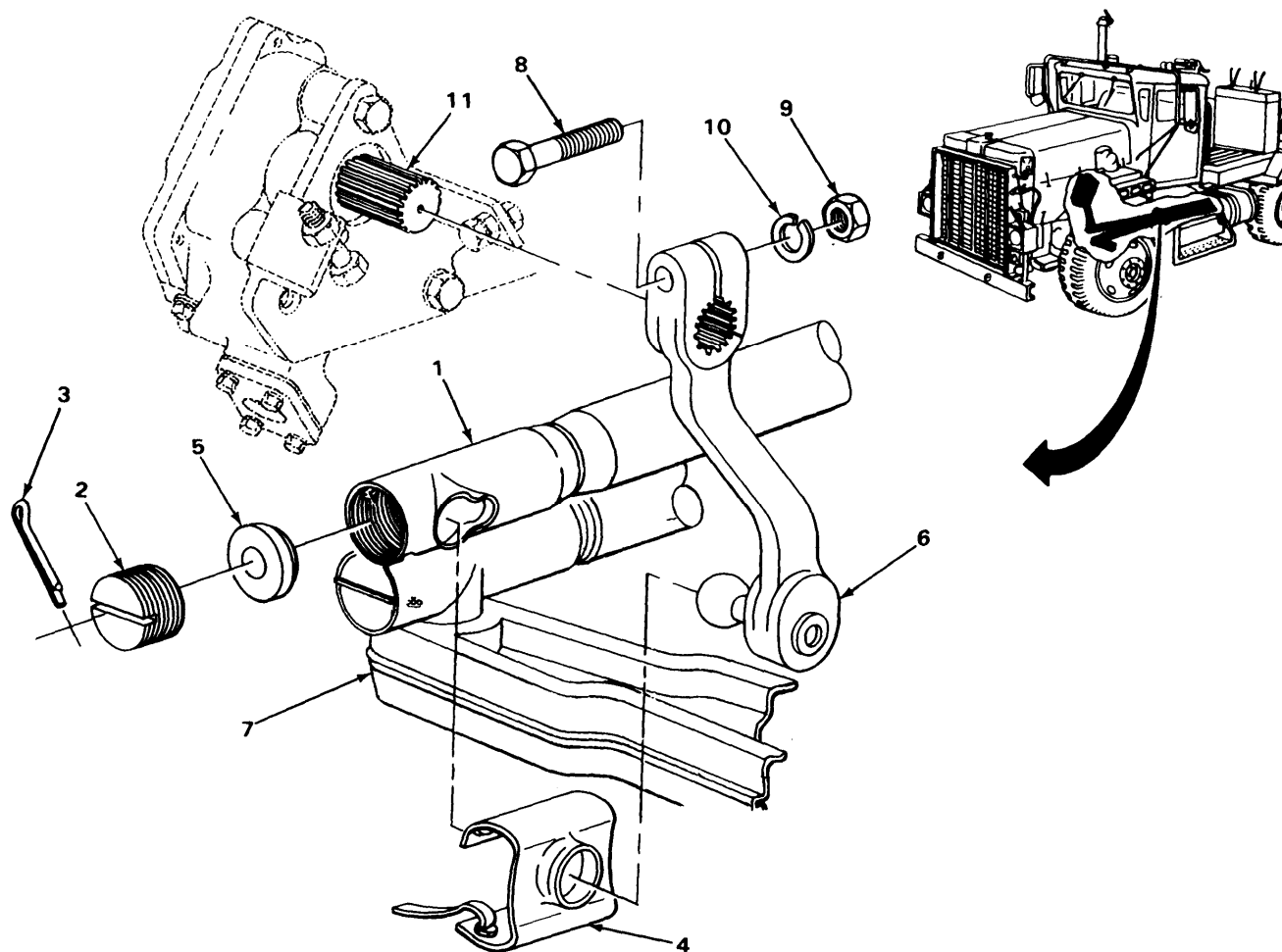
1.	Truck	Park on smooth level surface with front wheels positioned straight ahead (TM 9-2320-270-10).
2.	Drag link (1) to spring seat plug (2)	Cotter pin (3)
		a. Using pliers, take out. b. Get rid of.
3.	Drag link (1)	Dust seal (4)
		Using pliers, take off.
4.	Spring seat plug (2)	Spring seat plug (2)
		Using screwdriver bit and handle, unscrew and take out.
5.	Outer bearing seat (5)	Outer bearing seat (5)
		Using magnetic retrieving tool, take out.
6.	Pitman arm (6)	Drag link (1)
		Pull off of pitman arm ball and support by resting on steering arm (7).
7.	Dust seal (4)	Dust seal (4)
		a. Take off. b. Get rid of.

PITMAN ARM -CONTINUED

LOCATION	ITEM	ACTION REMARKS
8.	Screw (8), nut (9), and lockwasher (10)	a. Using 3/4-inch socket, handle, and box wrench, unscrew and take out. b. Get rid of lockwasher (10).
9. Levershaft(11)	Pitman arm (6)	Using puller, pull off.

INSTALLATION

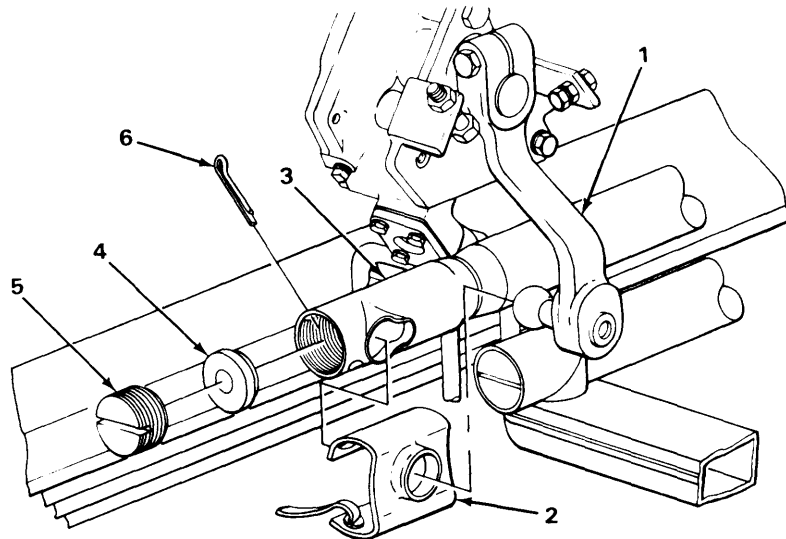
10. Levershaft(11)	Pitman arm (6)	a. Aline index marks and put on. b. Using plastic hammer, tap into place.
11. Pitman arm (6)	Screw (8), new lockwasher (10), and nut (9)	Screw in and tighten using 3/4-inch socket, handle, and box wrench.



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**PITMAN ARM - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
<b>INSTALLATION - CONTINUED</b>		
12. Pitman arm (1)	New dust seal (2)	Put on.
13.	Drag link (3)	Put on.
14. Drag link (3)	Outer bearing seat (4)	Put in.
15.	Spring seat plug (5)	a. Screw in and tighten using screwdriver bit and handle. b. Back off so slot aligns with nearest cotter pin holes.
16.	New cotter pin (6)	a. Put in. b. Using pliers, bend back.
17.	Dust seal (2)	a. Wrap around. b. Using pliers, secure.
18.	Drag link (3)	Lubricate (LO 9-2320270-12).



**NOTE**

FOLLOW-ON MAINTENANCE: Check operation (TM 9-2320-270-10).

**TASK ENDS HERE**

TA240619



## STEERING GEAR

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This task covers:

Adjustment (page 4-981)

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### INITIAL SETUP

#### Tools

Hammer, plastic  
 Handle, ratchet, 1/2-inch drive  
 Puller, mechanical  
 Screwdriver, flat-tip, 5/16-inch  
 Socket, deep, 3/4-inch, 1/2-inch  
 drive  
 Wrench, box, 3/4-inch

#### Materials/Parts

Lockwasher, pitman arm

#### Personnel Required

Two

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LOCATION	ITEM	ACTION REMARKS
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### ADJUSTMENT

#### NOTE

If levershaft adjustment fails to remove excess play from steering gear, notify direct support maintenance.

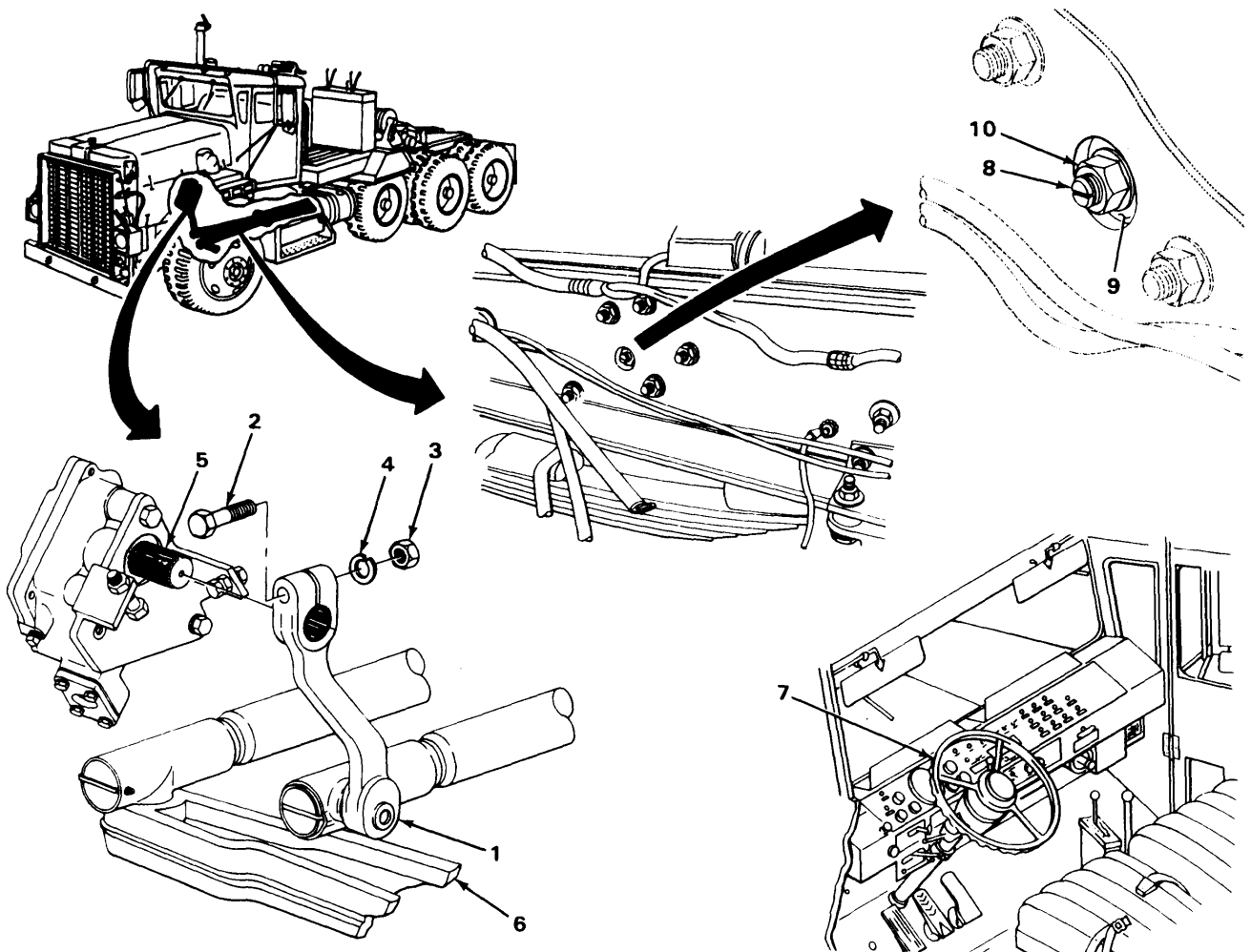
- |    |       |   |
|----|-------|---|
| 1. | Truck | Park on smooth level surface with front wheels positioned straight ahead. |
|----|-------|---|

**STEERING GEAR - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
<b>ADJUSTMENT - CONTINUED</b>		
2. Pitman arm (1)	Screw (2), nut (3), and lockwasher (4)	a. Using socket, handle, and box wrench, unscrew and take out. b. Get rid of lockwasher (4).
3. Levershaft (5)	Pitman arm (1)	a. Using puller, pull off. b. Support pitman arm on steering arm (6).
4.	Steering wheel (7)	With engine off, have assistant turn steering wheel lock to lock and then back to center noting any roughness. <b>If there is any roughness, notify direct support maintenance.</b>
5. Adjusting screw (8) to steering gear (9)	Locknut (10)	Using 3/4-inch socket and handle, unscrew almost all the way.
6. Steering gear(9)	Adjusting screw (8)	Using screwdriver, screw in until adjusting screw (8) starts to tighten.
7.	Steering wheel (7)	a. Have assistant turn lock to lock. <b>There should be slight drag and no play at center. Drag should decrease and play increase as the steering wheel is turned toward locks.</b> b. If there is no drag at center, tighten adjusting screw (8). c. If there is heavy drag at center, loosen adjusting screw (8). <b>If there is still no drag at center, after tightening, and if steering is loose at center, then drag increases and decreases, notify direct support maintenance.</b>
8. Adjusting screw (8) to steering gear(9)	Locknut (10)	Screw down and tighten using socket and handle.

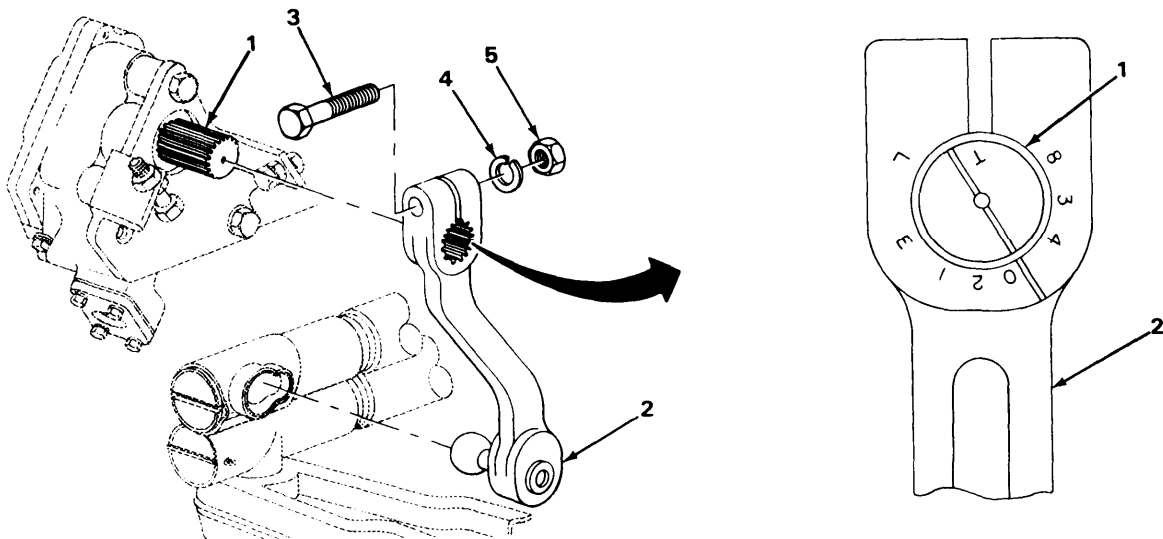
STEERING GEAR - CONTINUED

LOCATION	ITEM	ACTION REMARKS
9.	Steering wheel (7)	<p>a. Have assistant turn lock to lock and see if tightening locknut (10) has caused heavy drag at center.</p> <p>b. If there is heavy drag at center, using 3/4-inch socket and handle, loosen locknut (10).</p> <p>c. Using screwdriver, loosen adjusting screw (1) one-quarter turn.</p> <p>d. Using 3/4-inch socket and handle, tighten locknut (10).</p> <p>e. Have assistant check drag again. If drag is still heavy, repeat steps 9b thru 9e.</p>



**STEERING GEAR - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
<b>ADJUSTMENT - CONTINUED</b>		
10. Levershaft (1)	Pitman arm (2)	a. Aline index marks and put on. b. Using plastic hammer, tap in.
11. Pitman arm (2)	Screw (3), new lockwasher (4), and nut (5)	Screw in and tighten using socket, handle, and box wrench.



**TASK ENDS HERE**

## POWER STEERING PUMP

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This task covers:

- |                             |  |
|-----------------------------|--|
| a. Removal (page 4-986)     | d. Inspection/Replacement (page 4-988) |
| b. Disassembly (page 4-988) | e. Assembly (page 4-989)               |
| c. Cleaning (page 4-988)    | f. Installation (page 4-990)           |
- 

### INITIAL SETUP

#### Tools

Caps, vise jaw, brass  
 Drift, brass, 1/2-inch  
 Hammer, mac inist's ball-peen,  
 12-ounce  
 Hammer, plas tic  
 Knife, pocket  
 Knife, putty  
 Pan, drain  
 Puller, mechanical, gear and bearing  
 Vise  
 Wrench, adjustable  
 Wrench, open-end, 9/16-inch  
 Wrench, open-end, 7/8-inch (two  
 required)  
 Wrench, open-end, 15/16-inch  
 Wrench, open-end, 1 1/8-inch  
 Wrench, open-end, 1 1/4-inch  
 (two required)  
 Wrench, open-end, 1 5/16-inch  
 Wrench, open-end, 1 7/16-inch  
 Wrench, open-end, 1 1/2-inch  
 Wrench, pliers

#### Materials/Parts

Gasket, power steering pump to adapter  
 Fluid, power steering (LO 9-2320-270-12)  
 Lockwasher, power steering pump to adapter  
 (two required)  
 Lockwasher, pump shaft  
 Packing, preformed, elbow and nut  
 Shipping plugs (as required)  
 Tape, teflon (item 22, appendix C)

#### Personnel Required

One

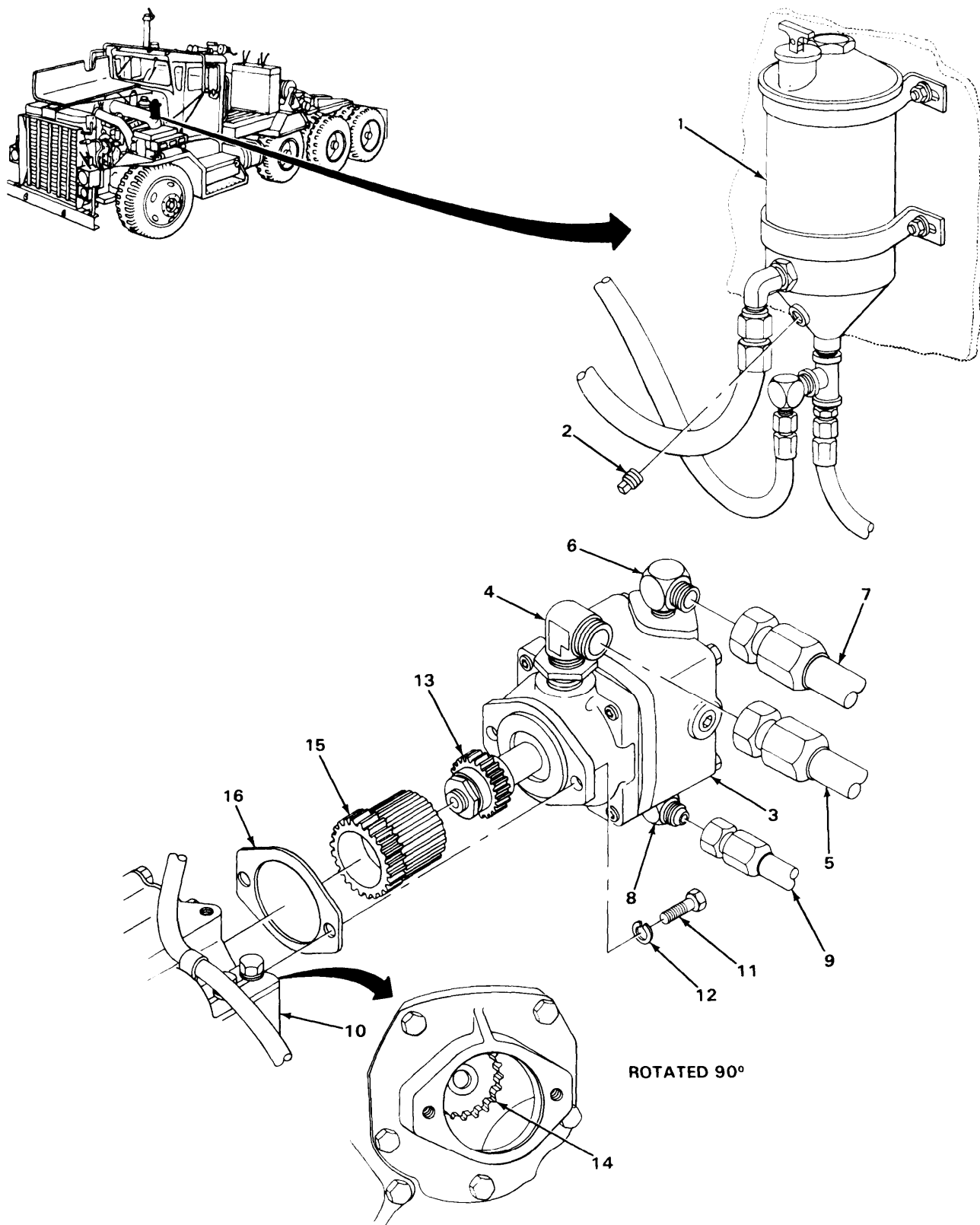
#### Equipment Condition

Left side of hood open (TM 9-2320-270-10).

## POWER STEERING PUMP - CONTINUED

LOCATION	ITEM	ACTION REMARKS
REMOVAL		
1. Power steering reservoir (1)	Drainplug (2)	a. Place drain pan underneath. b. Using 9/16-inch wrench, unscrew and take out. c. Allow fluid to drain and get rid of fluid (page 4-1).
2.	Power steering pump (3)	Put drain pan underneath.
3. Elbow (4)	Inlet hose (5)	Using 1 7/16-inch and 1 1/2-inch wrenches, unscrew and take off.
4. Elbow (6)	Return hose (7)	Using two 1 1/4-inch wrenches, unscrew and take off.
5. Elbow (8)	Pressure hose (9)	Using 15/16-inch and 7/8-inch wrenches, unscrew and take off.
6. Power steering pump (3) to adapter (10)	Two capscrews(11) and lockwashers (12)	a. Using 9/16-inch wrench, unscrew and take out. b. Get rid of lockwashers (12).
7. Adapter (10)	Power steering pump (3)	Take off.
8. Drive gear (13) or drive plate (14)	Coupling (15)	Take out.
9. Adapter (10) or power steering pump (3)	Gasket (16)	a. Using putty knife, take off. b. Get rid of. c. Remove drain pan and get rid of fluid (page 4-1).

POWER STEERING PUMP - CONTINUED



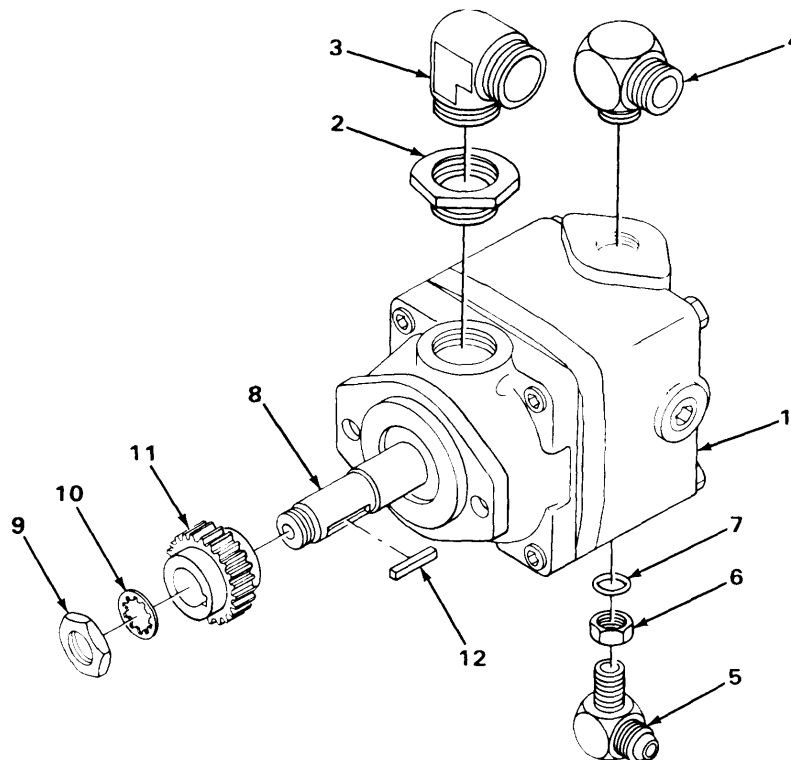
POWER STEERING PUMP - CONTINUED

LOCATION	ITEM	ACTION REMARKS
DISASSEMBLY		
10.	Power steering pump (1)	Secure in vise with brass jaw caps.
11. Reducer (2)	Elbow (3)	Using adjustable and 1 5/16-inch wrenches, unscrew and take out.
12. Power steering pump (1)	Reducer (2)	Using adjustable wrench, unscrew and take out.
13.	Elbow (4)	Using 1 1/8-inch wrench, unscrew and take out.
14.	Elbow (5) and nut (6)	a. Using two 7/8-inch wrenches, unscrew part way. b. Using 7/8-inch wrench, unscrew and take out.
15. Nut (6)	Packing (7)	a. Using pocket knife, take out. b. Get rid of.
16. Power steering pump shaft (8)	Nut (9) and lock-washer (10)	a. Using 1 1/4-inch wrench and pliers wrench, unscrew and take off. b. Get rid of lockwasher (10).
17.	Drive gear (11)	Using puller, pull off.
18.	Key (12)	a. Using ball-peen hammer and brass drift, tap out. b. Remove pump (1) from vise.
CLEANING		
19.	All parts	Clean according to general maintenance instructions (page 4-l).
INSPECTION/REPLACEMENT		
20.	All parts	Inspect according to general maintenance instructions (page 4-l).



**POWER STEERING PUMP - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
<b>ASSEMBLY</b>		
21. Power steering pump shaft (8)	Key (12)	a. Secure pump (1) in vise with brass jaw caps. b. Using plastic hammer, tap in.
22.	Power steering pump (1)	Position in vise shaft (8), up.
23.	Drive gear (11)	a. Put on. b. Using plastic hammer, tap on until two or three shaft threads are showing.
24.	Nut (9)	a. Using pliers and 1 1/4-inch wrenches, screw on. b. Using pliers and 1 1/4-inch wrenches, unscrew and take off.
25.	New lockwasher (10)	Put on.
26.	Nut (9)	Screw on and tighten using 1 1/4-inch and pliers wrenches.



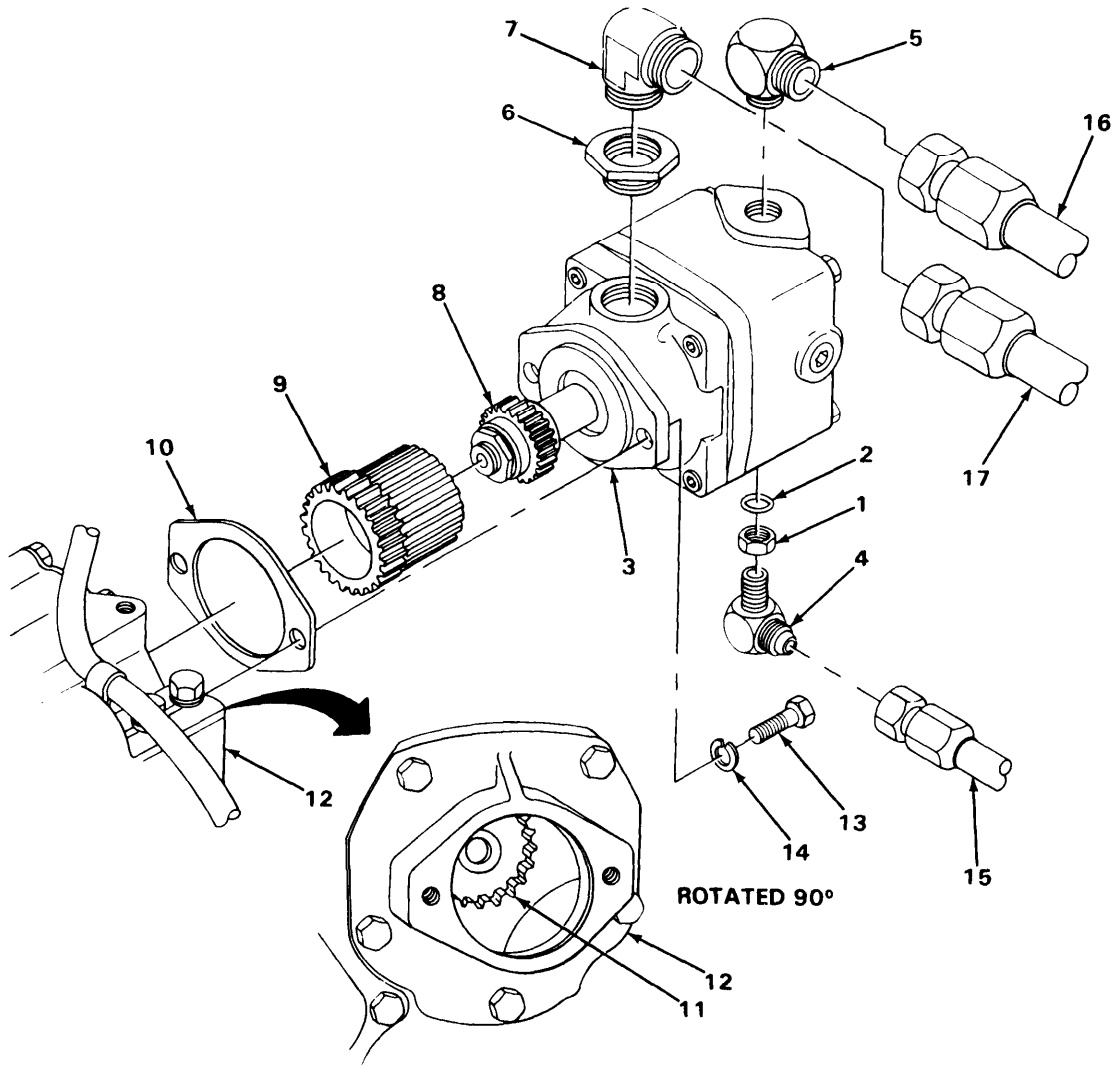
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**POWER STEERING PUMP - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
<b>ASSEMBLY – CONTINUED</b>		
27. Nut (1)	New Packing (2)	Put in place.
28. Power steering pump (3)	Elbow (4) and nut (1)	a. Wrap threads with teflon tape (page 4-1). b. Screw in and tighten using two 7/8-inch wrenches.
29.	Elbow (5)	a. Wrap threads with teflon tape (page 4-1). b. Screw in and tighten using 1 1/8-inch wrench.
30.	Reducer (6)	a. Wrap threads with teflon tape (page 4-1). b. Screw in and tighten using adjustable wrench.
31. Reducer (6)	Elbow (7)	a. Wrap threads with teflon tape (page 4-1). b. Screw in and tighten using 1 5/16-inch wrench.
<b>INSTALLATION</b>		
32.	Power steering pump (3)	Set on end, shaft up.
33. Drive gear (8)	Coupling (9)	Put on.
34. Power steering pump (3)	New gasket (10)	Put in place.
35. Drive plate (11)	Coupling (9)	Put pump (3) in place and engage teeth.
36. Adapter (12)	Power steering pump (3)	Push into place.
37. Power steering pump (3) to adapter (12)	Two screws (13) and new lockwashers (14)	Screw in and tighten using 9/16-inch wrench.
38. Elbow (4)	Pressure hose (15)	Screw on and tighten using 15/16-inch and 7/8-inch wrenches.
39. Elbow (5)	Return hose (16)	Screw on and tighten using 1 1/4-inch and 1 1/4-inch wrenches.

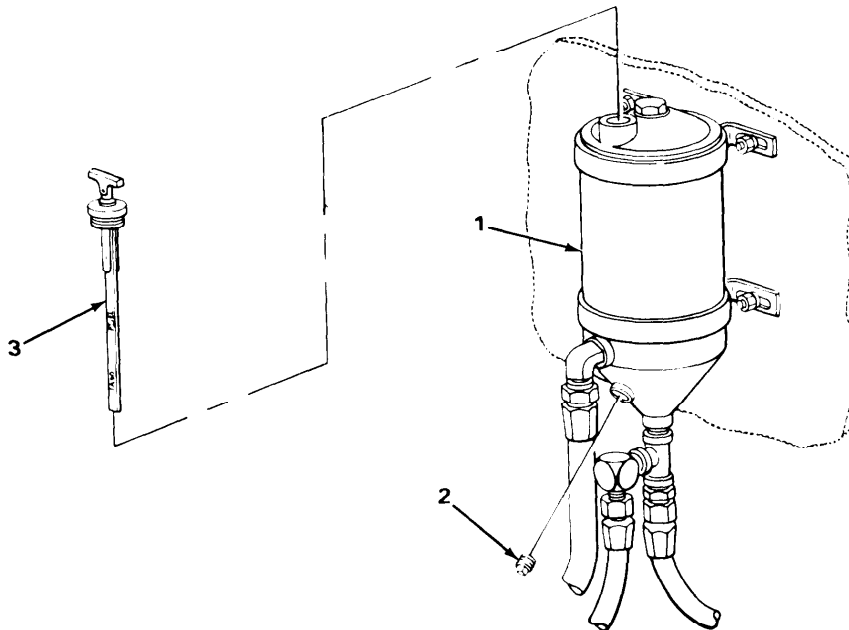
POWER STEERING PUMP - CONTINUED

LOCATION	ITEM	ACTION REMARKS
40. Elbow (7)	Pressure hose (17)	Screw on and tighten using 1 7/16-inch and 1 1/2-inch wrenches.



**POWER STEERING PUMP - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
INSTALLATION - CONTINUED		
41. Power steering reservoir (1)	Drainplug (2)	Screw in and tighten using 9/16-inch wrench.
42.	Oil level gage (3)	Unscrew and take out.
43.	Power steering reservoir (1)	Fill with fluid to full mark on gage (3).
44.	Engine	a. Start and idle for 10 minutes (TM 9-2320-270-10). b. Check for leaks.
45.	Steering wheel	Turn lock-to-lock four times.
46.	Oil level gage (3)	a. Check fluid level and add fluid if necessary. b. Put in and tighten.
47.	Engine	Shut down (TM 9-2320-270-10).



**POWER STEERING PUMP - CONTINUED****NOTE**

FOLLOW-ON MAINTENANCE: Close hood (TM 9-2320-270-10).

TASK ENDS HERE

**RESERVOIR TO BATTERY BOX BRACKET HOSE**

This task covers:

- |                          |  |
|--------------------------|--|
| a. Removal (page 4-994)  | c. Inspection/Replacement (page 4-996) |
| b. Cleaning (page 4-996) | d. Installation (page 4-996)           |

**INITIAL SETUP****Tools**

Handle, ratchet, 3/8-inch drive  
 Pan, drain  
 Pliers, diagonal cutting  
 Socket, 7/16-inch, 3/8-inch drive  
 Vise  
 Wrench, box, 7/16-inch  
 Wrench, open-end, 9/16-inch  
 Wrench, open-end, 7/8-inch  
 Wrench, open-end, 15/16-inch  
 Wrench, open-end, 1 1/8-inch  
 Wrench, open-end, 1 1/4-inch (two  
 required)  
 Wrench, pipe, 1/2- to 1 1/2-inch

**Materials/Parts**

Fluid, power steering (LO 9-2320-270-12)  
 Lockwasher, loop clamp to fender  
 String (item 17, appendix C)  
 Tape, teflon (item 22, appendix C)  
 Wrap, tie (item 24, appendix C)

**Personnel Required**

One

**Equipment Condition**

Left side of hood open (TM 9-2320-270-10).

## RESERVOIR TO BATTERY BOX BRACKET HOSE - CONTINUED

LOCATION	ITEM	ACTION REMARKS
<b>REMOVAL</b>		
<b>NOTE</b>		
Tag hoses according to general maintenance instructions (page 4-1).		
1. Power steering reservoir (1)	Drainplug (2)	a. Place drain pan underneath. b. Using 9/16-inch wrench, unscrew and take out. c. Allow fluid to drain and get rid of fluid (page 4-1).
2. Bulkhead fitting (3)	Hose (4)	a. Place drain pan underneath. b. Using 15/16-inch and 7/8-inch wrenches, unscrew and take off. c. Drain and get rid of fluid (page 4-1).
3. Loop clamp (5) to fender (6)	Screw (7), nut (8), lockwasher (9), and washer (10)	a. Using 7/16-inch wrench, socket, and handle, unscrew and take out. b. Get rid of lockwasher (9).
4. Hoses (4) and (11)	Loop clamp (5)	Spread and take off.
5.	Two tie wraps (12)	a. Using cutting pliers, cut and take off. b. Get rid of.
6. Reducer (13)	Hose (4)	Using two 15/16-inch wrenches, unscrew and take out.
7. Pipe tee (14)	R e d u c e r	Using 7/8-inch and pipe wrenches, unscrew and take out.
8. Elbow (15)	Hose to power steering pump (16)	a. Using two 1 1/4-inch wrenches, unscrew and take off. b. Using string, tie hose out of the way.
9. Pipe tee (14)	Elbow (15)	Using 1 1/8-inch wrench, unscrew and take out.
10. Power steering reservoir (1)	Pipe tee (14) and nipple (17)	Using pipe wrench, unscrew and take off.

RESERVOIR TO BATTERY BOX BRACKET HOSE - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
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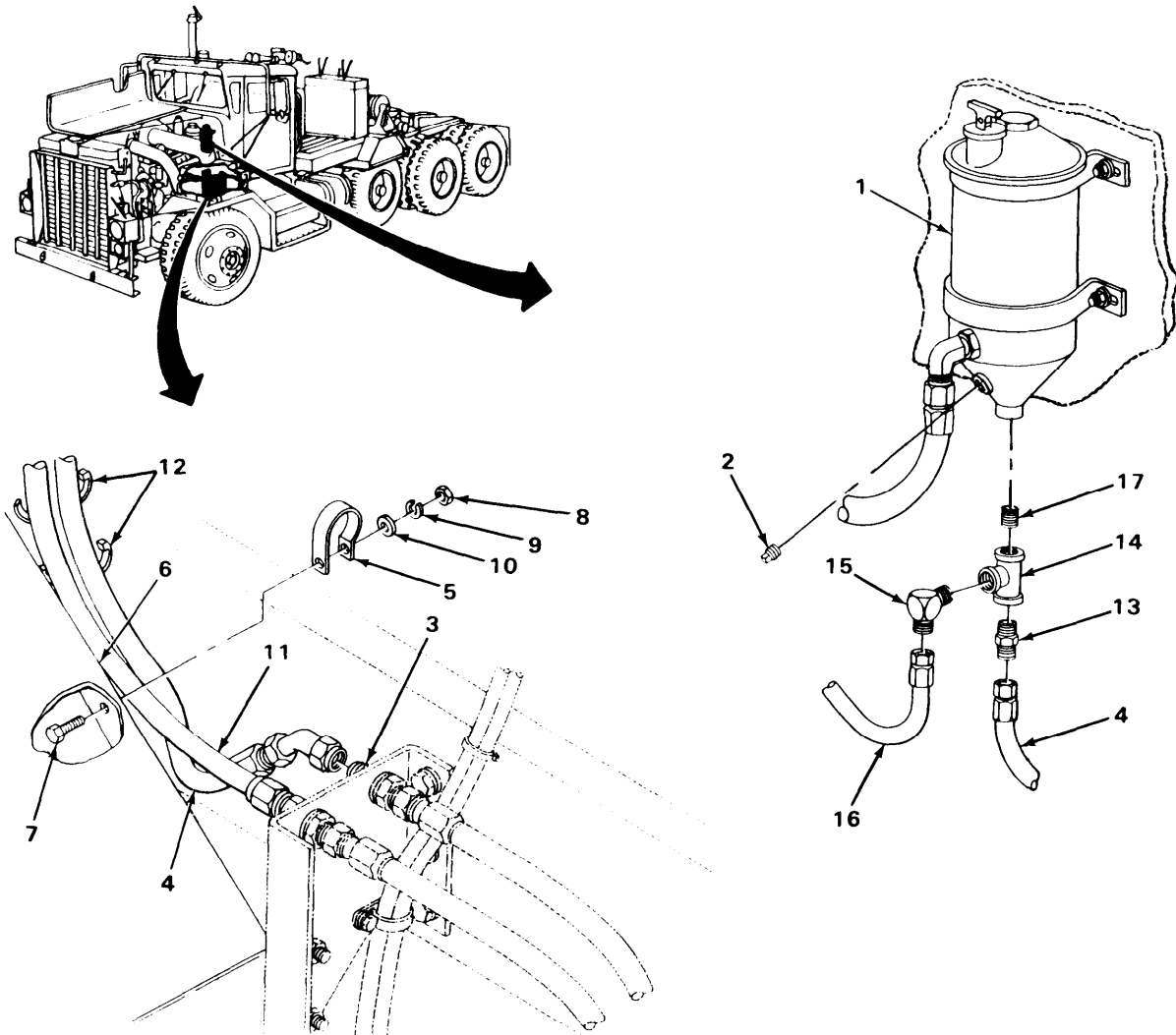
**NOTE**

Do not remove nipple unless inspection shows need for replacement.

11. Pipe tee (14)

Nipple (17)

- a. Secure pipe tee (14) in vise.
- b. Using pipe wrench, unscrew and take out.
- c. Get rid of.



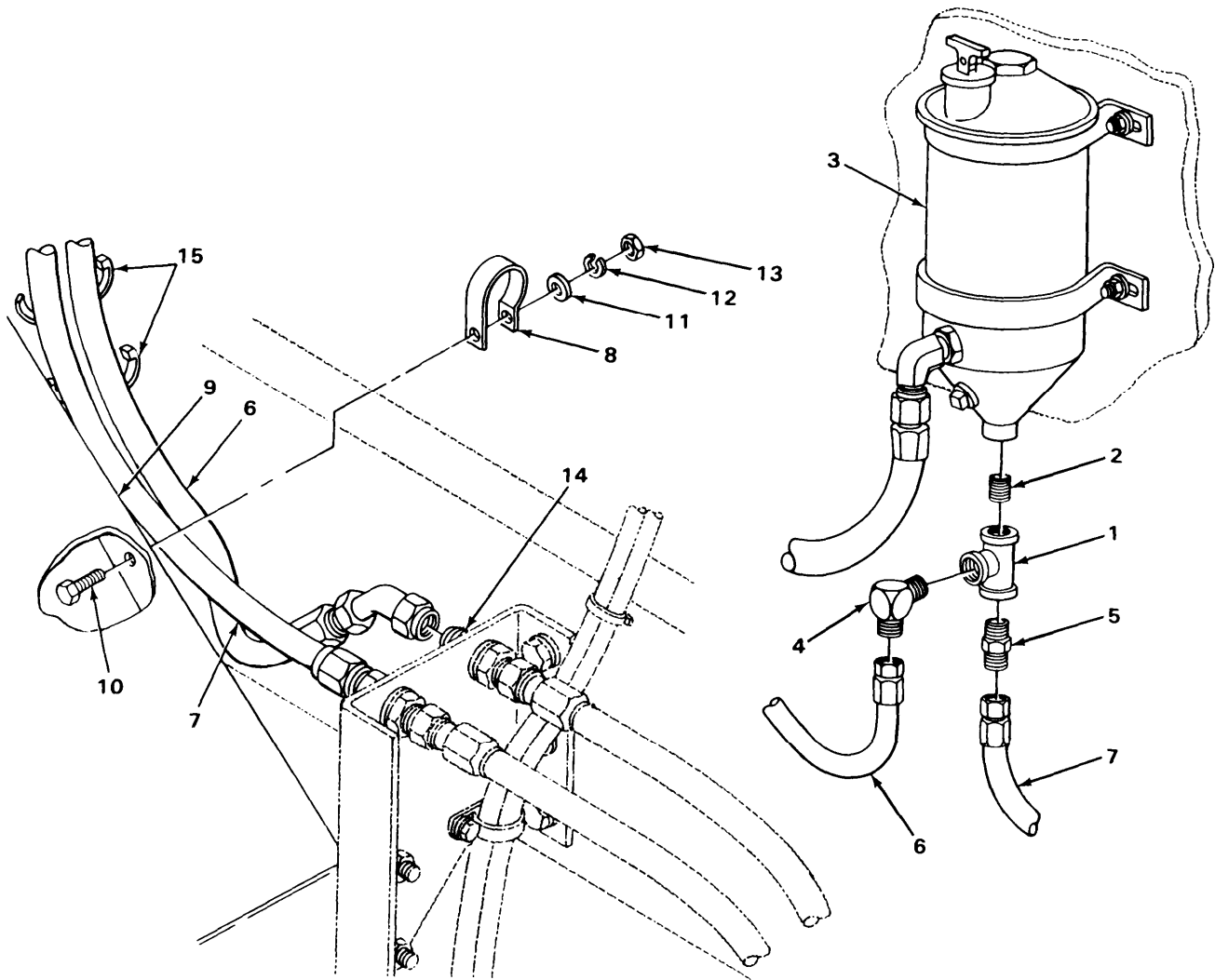
**RESERVOIR TO BATTERY BOX BRACKET HOSE - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
<b>CLEANING</b>		
12.	All parts	Clean according to general maintenance instructions (page 4-1).
<b>INSPECTION/REPLACEMENT</b>		
13.	All parts	Inspect according to general maintenance instructions (page 4-1).
<b>INSTALLATION</b>		
<b>NOTE</b>		
Skip step 14 if nipple was not removed.		
14. Pipe tee (1)	Nipple (2)	a. Wrap threads with teflon tape (page 4-1). b. Screw in.
15. Power steering reservoir (3)	Pipe tee (1) and nipple (2)	Screw in and tighten using pipe wrench.
16. Pipe tee (1)	Elbow (4)	a. Wrap threads with teflon tape (page 4-1). b. Screw in and tighten using 1 1/8-inch wrench.
17.	Reducer (5)	a. Wrap threads with teflon tape (page 4-1). b. Screw in and tighten using 7/8-inch and pipe wrenches.
18. Elbow (4)	Hose to power steering pump (6)	a. Untie and place in position. b. Screw on and tighten using two 1 1/4-inch wrenches.
19. Reducer (5)	Hose (7)	a. Route hose (7) into place. b. Screw on and tighten using 7/8-inch and 15/16-inch wrenches.
20. Hose (6) and (7)	Loop clamp (8)	Put on and close.
21. Fender (9)	Screw (10)	Put in place.



RESERVOIR TO BATTERY BOX BRACKET HOSE - CONTINUED

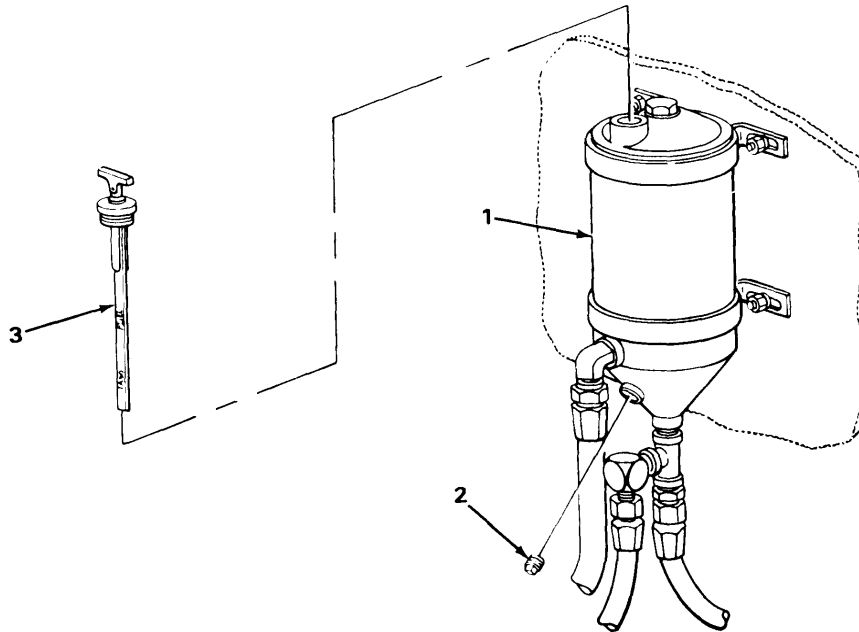
LOCATION	ITEM	ACTION REMARKS
22. Screw (10)	Loop clamp (8), washer (11), new lockwasher(12), and nut (13)	Screw on and tighten using 7/16-inch wrench, socket, and handle.
23. Bulkhead fitting (14)	Hose (6)	Screw on and tighten using 7/8-inch and 15/16-inch wrenches.
24. Hoses (6) and (7)	Two new tie wraps (15)	Using slip-joint pliers, put on.



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**RESERVOIR TO BATTERY BOX BRACKET HOSE - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
<b>INSTALLATION - CONTINUED</b>		
25. Power steering reservoir (1)	Drainplug (2)	Screw in and tighten using 9/16-inch wrench.
26.	Oil level gage (3)	Unscrew and take out.
27.	Power steering reservoir (1)	Fill with fluid to full mark on gage (3).
28.	Engine	a. Start and idle for 10 minutes (TM 9-2320-270-10). b. Check for leaks.
29.	Steering wheel	Turn lock-to-lock four times.
30.	Oil level gage (3)	a. Check fluid level and add fluid if necessary. b. Put in and tighten.
31•	Engine	Shut down (TM 9-2320-270-10).



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**RESERVOIR TO BATTERY BOX BRACKET HOSE - CONTINUED****NOTE**

FOLLOW-ON MAINTENANCE: Close left side hood (TM 9-2320-270-10).

**TASK ENDS HERE****POWER STEERING PUMP TO BATTERY BOX BRACKET PRESSURE HOSE**

---

This task covers:

- |                           |   |
|---------------------------|---|
| a. Removal (page 4-1000)  | c. Inspection/Replacement (page 4-1001) |
| b. Cleaning (page 4-1000) | d. Installation (page 4-1002)           |
- 

**INITIAL SETUP****Tools**

Handle, ratchet, 3/8-inch drive  
 Knife, pocket  
 Pan, drain  
 Pliers, diagonal-cutting  
 Pliers, slipjoint, straight-nose  
 Socket, 7/16-inch, 3/6-inch drive  
 Wrench, box, 7/16-inch  
 Wrench, open-end, 9/16-inch  
 Wrench, open-end, 7/8-inch (two required)  
 Wrench, open-end, 15/16-inch

**Materials/Parts**

Fluid, power steering (LO 9-2320-270-12)  
 Lockwasher, loop clamp to fender  
 Packing, preformed, elbow to power steering pump  
 Tape, teflon (item 22, appendix C)  
 Wrap, tie (item 24, appendix C)

**Personnel Required**

One

**Equipment Condition**

Left side hood open (TM 9-2320-270-10).

**POWER STEERING PUMP TO BATTERY BOX BRACKET PRESSURE HOSE - CONTINUED**

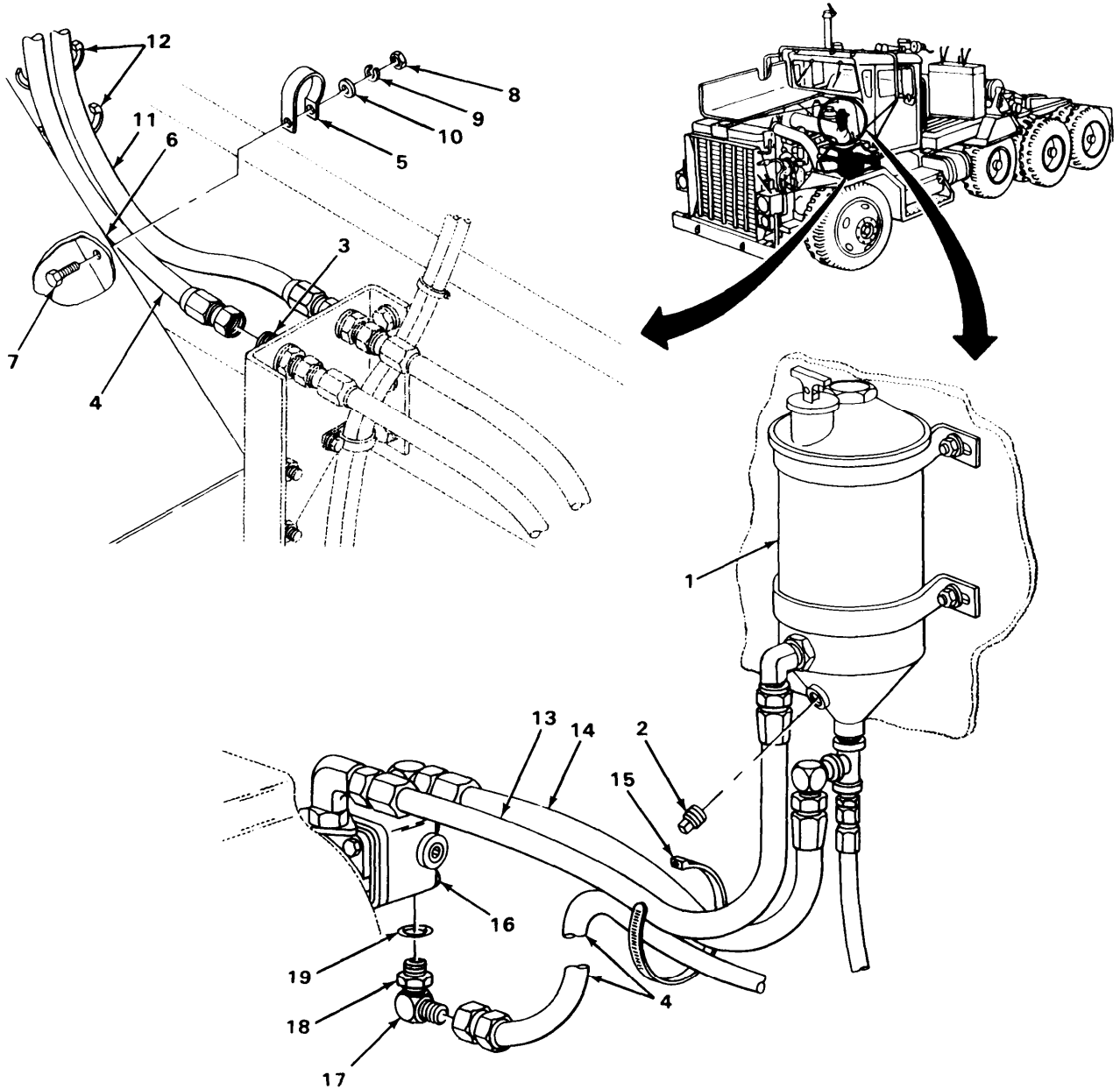
LOCATION	ITEM	ACTION REMARKS
REMOVAL		
1. Power steering reservoir (1)	Drainplug (2)	a. Place drain pan underneath. b. Using 9/16-inch wrench, unscrew and take out. c. Allow fluid to drain and get rid of fluid (page 4-1).
2. Bulkhead fitting (3)	Pressure hose (4)	a. Put drain pan underneath. b. Using 15/16-inch wrench and 7/8-inch wrenches, unscrew and take off. c. Allow fluid to drain and get rid of fluid (page 4-1).
3. Loop clamp (5) to fender (6)	Screw (7), nut (8), lockwasher (9), and washer (10)	a. Using 7/16-inch wrench, socket, and handle, unscrew and take out. b. Get rid of lockwasher (9).
4. Hoses (4) and (11)	Loop clamp (5)	Spread and take off.
5.	Two tie wraps (12)	a. Using cutting pliers, cut and take off. b. Get rid of.
6. Hoses (4), (13), and (14)	Tie wrap (15)	a. Using cutting pliers, cut and take off. b. Get rid of.
7. Power steering pump (16) and elbow (17)	Hose (4)	Using 15/16-inch and 7/8-inch wrenches, unscrew and take out.
8. Power steering pump (16)	Elbow (17) with nut (18)	Using 7/8-inch wrench, unscrew and take out.
9. Nut (18)	Packing (19)	a. Using pocket knife, cut off. b. Get rid of.
CLEANING		
10.	All parts	Clean according to general maintenance instructions (page 4-1).

POWER STEERING PUMP TO BATTERY BOX BRACKET PRESSURE HOSE - CONTINUED

LOCATION	ITEM	ACTION REMARKS
----------	------	-------------------

INSPECTION/REPLACEMENT

- |     |           |   |
|-----|-----------|---|
| 11. | All parts | Inspect according to general maintenance instructions (page 4-1). |
|-----|-----------|---|

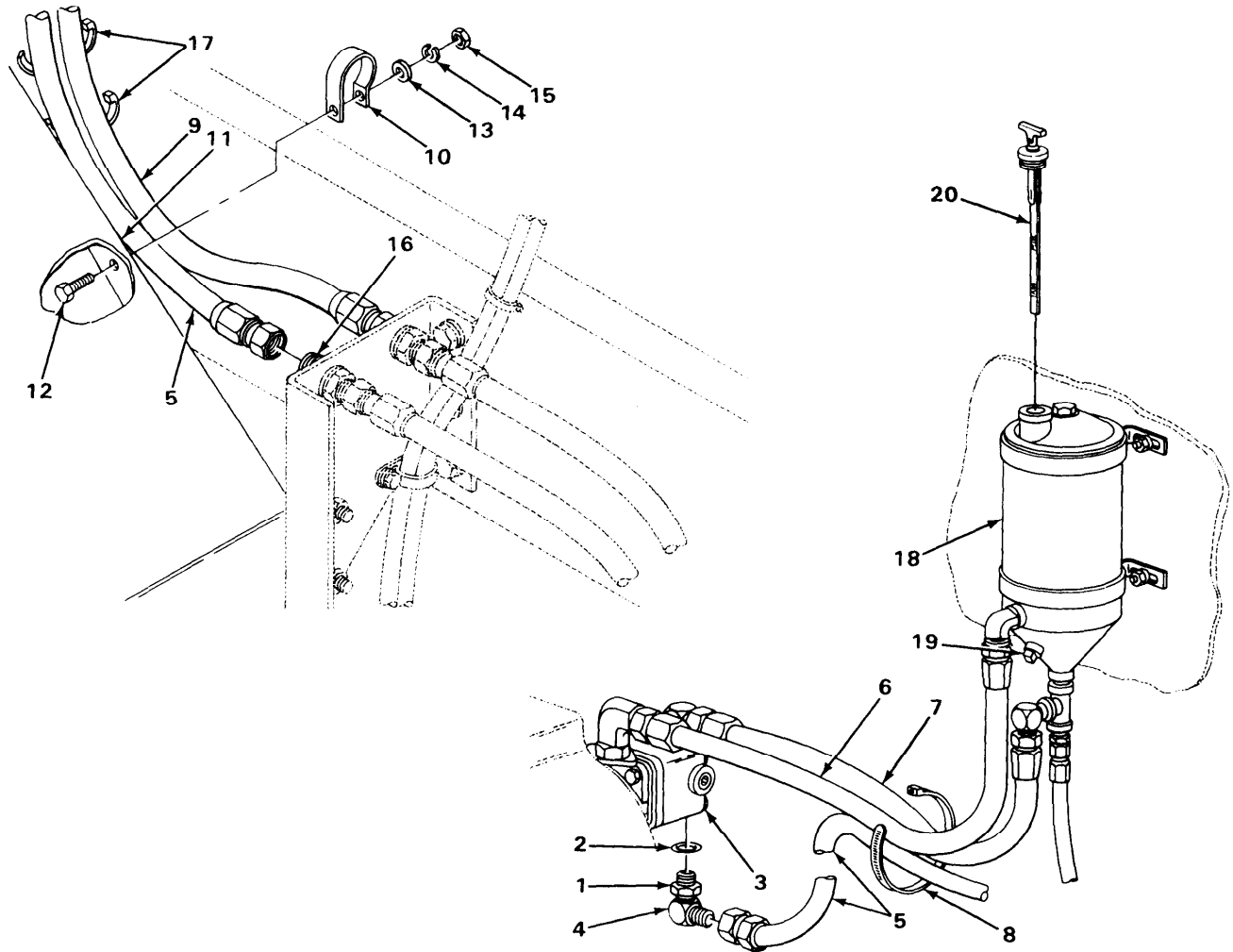


## POWER STEERING PUMP TO BATTERY BOX BRACKET PRESSURE HOSE - CONTINUED

LOCATION	ITEM	ACTION REMARKS
INSTALLATION		
12. Nut (1)	Packing (2)	Put in place.
13. Power steering pump (3)	Nut (1) and elbow (4)	a. Wrap threads with teflon tape (page 4-1). b. Screw in and tighten using two 7/8-inch wrenches.
14. Elbow (4)	Hose (5)	Screw on and tighten using 7/8-inch and 15/16-inch wrenches.
15. Hoses (5), (6), and (7)	New tie wrap (8)	Using slip-joint pliers, put on.
16. Hoses (5) and (9)	Loop clamp (10)	Put around and close.
17. Fender (11)	Screw (12)	Put in place.
18. Screw (12)	Loop clamp (10), washer (13), new lockwasher (14), and nut (15)	Screw on and tighten using 7/16-inch wrench, socket, and handle.
19. Bulkhead fitting (16)	Hose (5)	Screw on and tighten using 15/16-inch and 7/8-inch wrenches.
20. Hoses (5) and (9)	Two new tie wraps (17)	Using slip-joint pliers, put on.
21. Power steering reservoir (18)	Drainplug (19)	Screw in and tighten using 9/16-inch wrench.
22.	Oil level gage (20)	Unscrew and take out.
23.	Power steering reservoir (18)	Fill with fluid to full mark on gage (20).
24.	Engine	a. Start and idle for 10 minutes (TM 9-2320-270-10). b. Check for leaks.
25.	Steering wheel	Turn lock-to-lock four times.

**POWER STEERING PUMP TO BATTERY BOX BRACKET PRESSURE HOSE - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
26.	Oil level gage (20)	a. Check fluid level and add fluid if necessary. b. Put in and tighten.
27.	Engine	Shut down (TM 9-2320-270-10).



**NOTE**

FOLLOW-ON MAINTENANCE: Close left side hood (TM 9-2320-270-10).

**TASK ENDS HERE**

## BATTERY BOX BRACKET TO BOOSTER HOSES

---

This task covers:

- |                           |   |
|---------------------------|---|
| a. Removal (page 4-1004)  | c. Inspection/Replacement (page 4-1006) |
| b. Cleaning (page 4-1006) | d. Installation (page 4-1006)           |
- 

### INITIAL SETUP

#### Tools

Brush, wire  
 Pliers, straight-nose, round  
 Pan, drain  
 Wrench, open-end, 9/16-inch  
 Wrench, open-end, 7/8-inch  
 (two required)  
 Wrench, open-end, 15/16-inch  
 Wrench, open-end, 1-inch  
 (two required)

#### Materials/Parts

Fluid, power steering  
 (LO 9-2320-270-12)

#### Materials/Parts – Continued

Lockwasher, bulkhead fitting to  
 battery box bracket  
 Packing, preformed, adapter to power  
 steering booster

#### Personnel Required

One

#### Equipment Condition

Left side of hood opened  
 (TM 9-2320-270-10).

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LOCATION	ITEM	ACTION	REMARKS
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### REMOVAL

#### NOTE

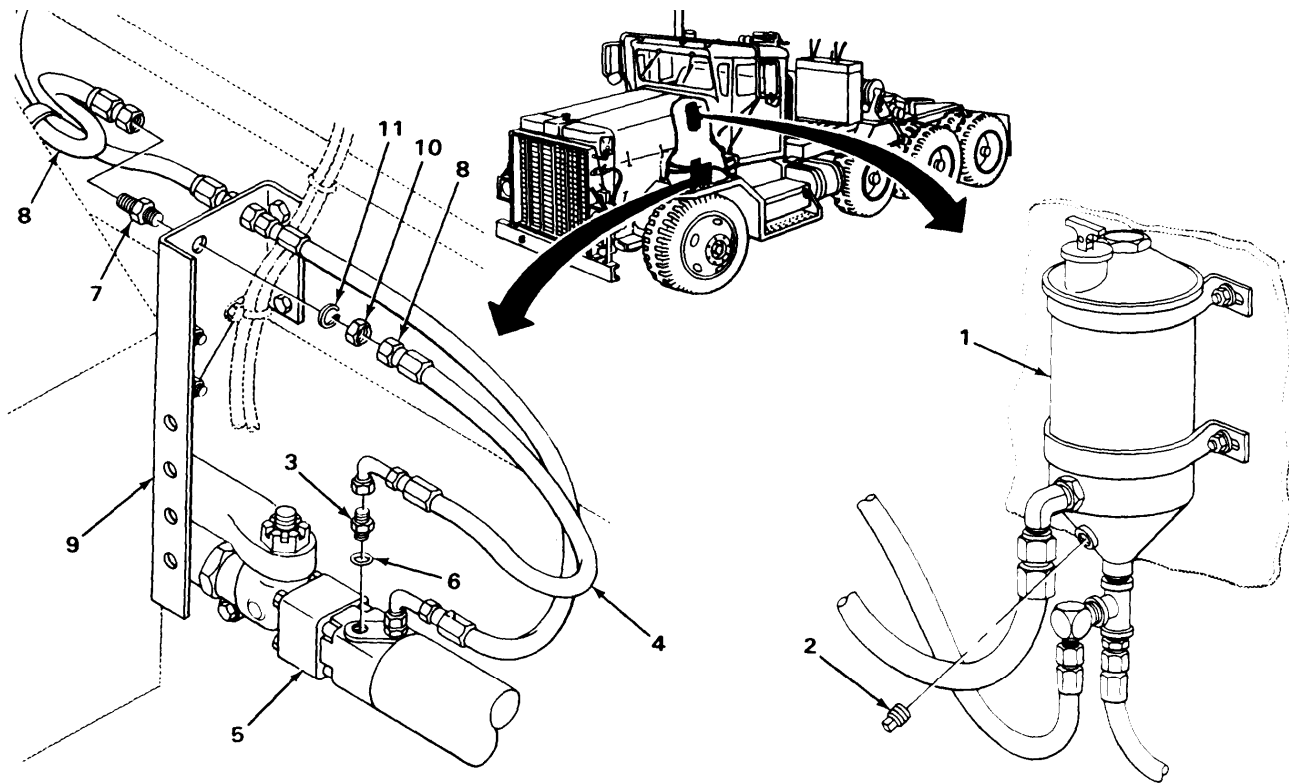
Steps in this task apply to battery box bracket to power steering booster pressure and return hoses. Pressure hose is shown.

- |                                 |                   |   |
|---------------------------------|-------------------|---|
| 1. Power steering reservoir (1) | Drainplug (2)     | <ul style="list-style-type: none"> <li>a. Place drain pan underneath.</li> <li>b. Using 9/16-inch wrench, unscrew and take out.</li> <li>c. Allow fluid to drain and get rid of fluid (page 4-1).</li> </ul>  |
| 2. Adapter(3)                   | Pressure hose (4) | <ul style="list-style-type: none"> <li>a. Using wire brush, clean dirt from around adapter (3).</li> <li>b. Put drain pan underneath.</li> <li>c. Using two 7/8-inch wrenches, unscrew and take off.</li> <li>d. Allow fluid to drain and get rid of fluid (page 4-1).</li> </ul> |



**BATTERY BOX BRACKET TO BOOSTER HOSES - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
3. Steering booster(5)	Adapter (3)	Using 7/8-inch wrench, unscrew and take out.
4. Adapter(3)	Preformed packing (6)	a. Take off. b. Get rid of.
5. Bulkhead fitting(7)	Pressure hose (4)	Using 15/16-inch and 7/8-inch wrenches, unscrew and take off.
6.	Hose to power steering pump (@	Using 15/16-inch and 7/8-inch wrenches, unscrew and take off.
7. Bulkhead fitting(7) to battery box bracket (9)	Nut (10) and lockwasher(11)	a. Using two l-inch wrenches, unscrew and take off. b. Get rid of lockwasher(11).
8. Battery box bracket (9)	Bulkhead fitting (7)	Take out.



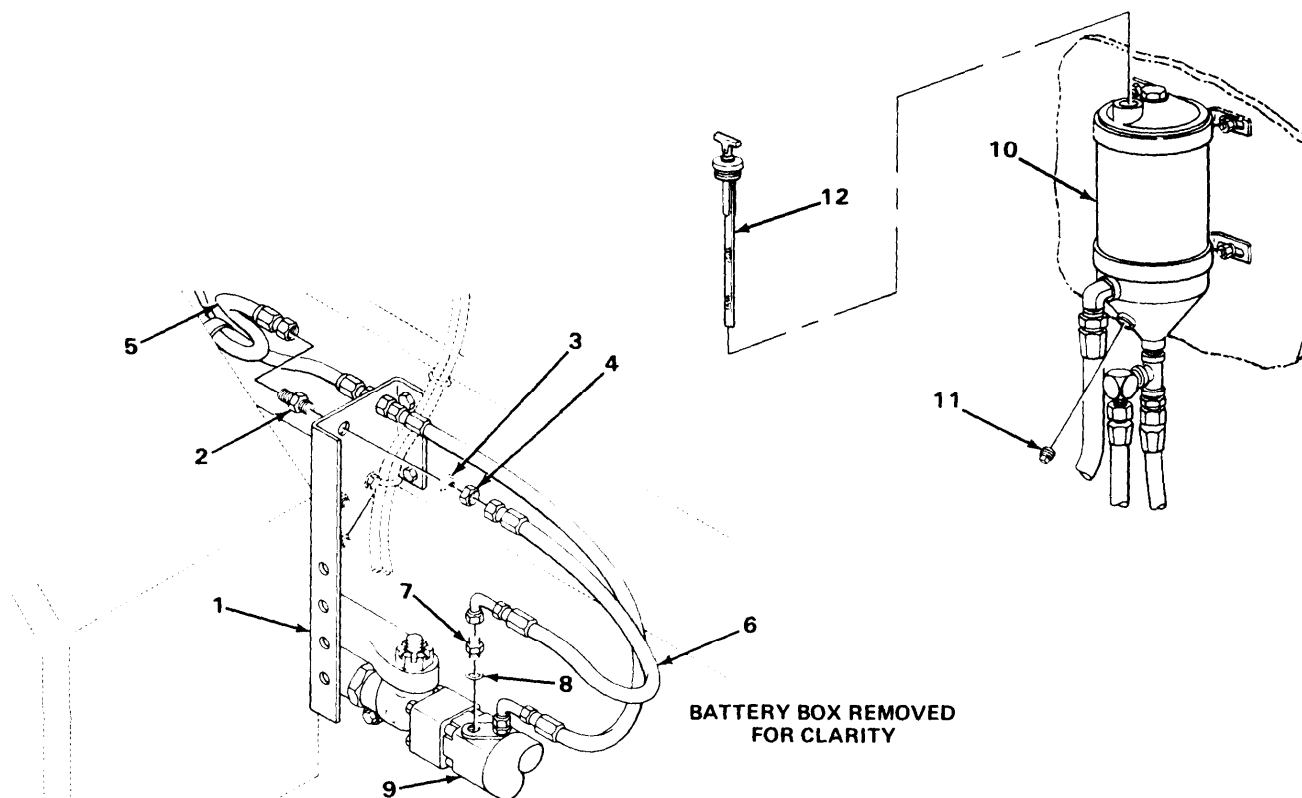
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## BATTERY BOX BRACKET TO BOOSTER HOSES- CONTINUED

LOCATION	ITEM	ACTION REMARKS
<b>CLEANING</b>		
9.	All parts	Clean according to general maintenance instructions (page 4-1).
<b>INSPECTION/REPLACEMENT</b>		
10.	All parts	Inspect according to general maintenance instructions (page 4-1).
<b>INSTALLATION</b>		
11. Battery box bracket (1)	Bulkhead fitting (2)	Put in place.
12. Bulkhead fitting (2) to battery box bracket (1)	New lockwasher (3) and nut (4)	Screw on and tighten using two 1-inch wrenches.
13. Bulkhead fitting (2)	Hose to power steering pump (5)	Screw on and tighten using 7/8-inch and 15/16-inch wrenches.
14.	Pressure hose (6)	Screw on and tighten using 7/8-inch and 15/16-inch wrenches.
15. Adapter (7)	New preformed packing (8)	Put on.
16. Steering booster (9)	Adapter (7)	Screw in and tighten using 7/8-inch wrench.
17. Adapter (7)	Pressure hose (6)	Screw on and tighten using 7/8-inch wrench.
18. Power steering reservoir (10)	Drainplug(11)	Screw in and tighten using 9/16-inch wrench.
19.	Oil level gage (12)	Unscrew and take out.
20.	Power steering reservoir (10)	Fill with fluid to full mark.

**BATTERY BOX BRACKET TO BOOSTER HOSES - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
21.	Engine  fittings	a. Start and idle for 10 minutes (TM 9-2320-270-10). b. Check for leaks.
22.	Steering wheel	Turn lock-to-lock four times.
23.	Oil level gage (12)	a. Check fluid level and add fluid if necessary. b. Put in and tighten.
24.	Engine	Shut down (TM 9-2320-270-10).



## BATTERY BOX BRACKET TO BOOSTER HOSES - CONTINUED

### INSTALLATION - CONTINUED

#### NOTE

FOLLOW-ON MAINTENANCE: Close hood (TM 9-2320-270-10).

TASK ENDS HERE

### POWER STEERING PUMP TO RESERVOIR RETURN HOSE

---

This task covers:

- |                           |   |
|---------------------------|---|
| a. Removal (page 4-1009)  | c. inspection/Replacement (page 4-1010) |
| b. Cleaning (page 4-1010) | d. Installation (page 4-1010)           |
- 

### INITIAL SETUP

#### Tools

Pan, drain  
Pliers, diagonal cutting  
Wrench, open-end, 9/16-inch  
Wrench, open-end, 1 1/8-inch  
Wrench, open-end, 1 1/4-inch  
(two required)

#### Materials/Parts

Fluid, power steering  
(LO 9-2320-270-12)

#### Materials/Parts – Continued

Tape, teflon (item 22, appendix c)  
Wrap, tie (item 24, appendix C)

#### Personnel Required

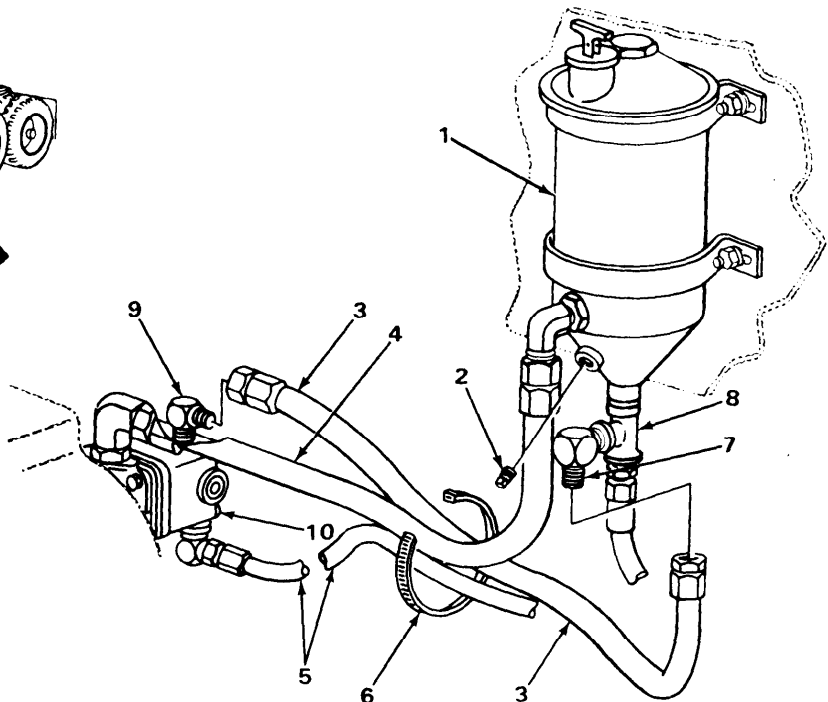
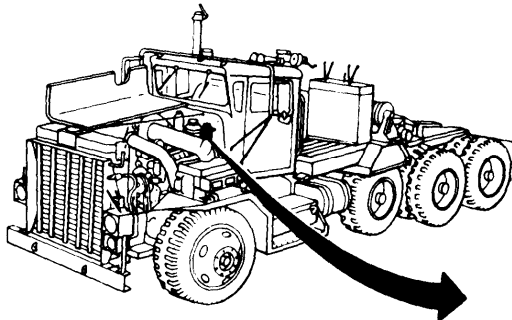
One

#### Equipment Condition

Left side of hood open (TM 9-2320-270-10).

**POWER STEERING PUMP TO RESERVOIR RETURN HOSE - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
<b>REMOVAL</b>		
1. Power steering reservoir (1)	Drainplug (2)	a. Place drain pan underneath. b. Using 9/16-inch wrench, unscrew and take out. c. Allow fluid to drain.
2. t-loses (3), (4), and (5)	Tie wrap (6)	a. Using cutting pliers, cut and take off. b. Get rid of.
3. Elbow (7) at tee (8)	Hose (3)	a. Using two 1 1/4-inch wrenches, unscrew and take off. b. Turn hose (3) down into drain pan and allow fluid to drain. c. Get rid of fluid (page 4-1).
4. Elbow (9) on power steering pump (10)	Hose (3)	Using two 1 1/4-inch wrenches, unscrew and take out.

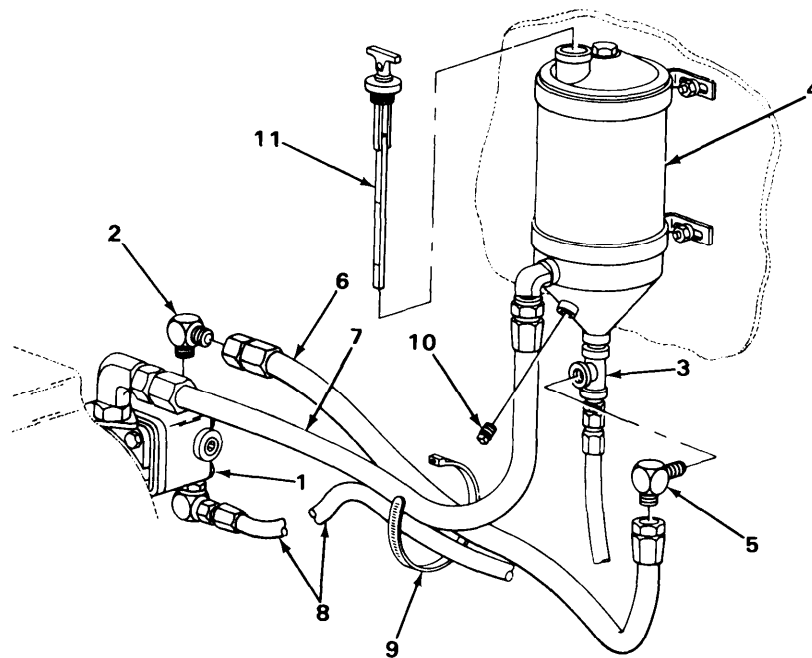


**POWER STEERING PUMP TO RESERVOIR RETURN HOSE - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
<b>REMOVAL - CONTINUED</b>		
<b><u>CAUTION</u></b>		
Do not allow any dirt to get into power steering pump. Pump will be damaged.		
5.	Power steering pump (1)	Using wire brush, clean dirt from top.
6.	Power steering pump (1)	Using 1 1/8-inch wrench, unscrew and take out.
7.	Tee (3) on power steering reservoir (4)	Using 1 1/8-inch wrench, unscrew and take out.
<b>CLEANING</b>		
8.	All parts	Clean according to general maintenance instructions (page 4-1).
<b>INSPECTION/REPLACEMENT</b>		
9.	All parts	inspect according to general maintenance instructions (page 4-1).
<b>INSTALLATION</b>		
10.	Tee (3)	a. Wrap threads with teflon tape (page 4-1). b. Screw in and tighten using 1 1/8-inch wrench.
11.	Power steering pump (1)	a. Wrap threads with teflon tape (page 4-1). b. Screw in and tighten using 1 1/8-inch wrench.
12.	Elbow (2) on power steering pump (1)	Screw on and tighten using two 1 1/4-inch wrenches.
13.	Elbow (5)	Screw on and tighten using two 1 1/4-inch wrenches.
14.	Hoses (6), (7), and (8)	New tie wrap (9) Using straight-nose pliers, put on.

**POWER STEERING PUMP TO RESERVOIR RETURN HOSE - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
15. Power steering reservoir (4)	Drainplug (10)	Screw in and tighten using 9/16-inch wrench.
16.	Oil level gage (11)	Unscrew and take out.
17.	Power steering reservoir (4)	Fill with fluid to full mark.
18.	Engine	a. Start and idle for 10 minutes (TM 9-2320-270-10). b. Check for leaks.
19.	Steering wheel	Turn lock-to-lock four times.
20.	Oil level gage (11)	a. Check fluid level and add fluid if necessary. b. Put in and tighten.
21.	Engine	Shut down (TM 9-2320-270-10).



**NOTE**

FOLLOW-ON MAINTENANCE: Close left side hood (TM 9-2320-270-10).

**TASK ENDS HERE**

**POWER STEERING PUMP SUPPLY HOSE**

---

This task covers:

- a. Removal (page 4-1012)
  - b. Cleaning (page 4-1014)
  - c. Inspection/Replacement (page 4-1014)
  - d. Installation (page 4-1014)
- 

**INITIAL SETUP**

**Tools**

- Brush, wire
- Pan, drain
- Pliers, diagonal cutting
- Pliers, straight-nose
- Wrench, adjustable, 18-inch
- Wrench, open-end, 9/16-inch
- Wrench, open-end, 1 5/16-inch
- Wrench, open-end, 17/16-inch
- Wrench, open-end, 1 1/2-inch

**Materials/Parts**

- Fluid, power steering (LO 9-2320-270-1 2)
- Tape, teflon (item 22, appendix C)
- Wrap, tie (item 24, appendix C)

**Personnel Required**

One

**Equipment Condition**

Left side of hood open (TM 9-2320-270-10).

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LOCATION	ITEM	ACTION REMARKS
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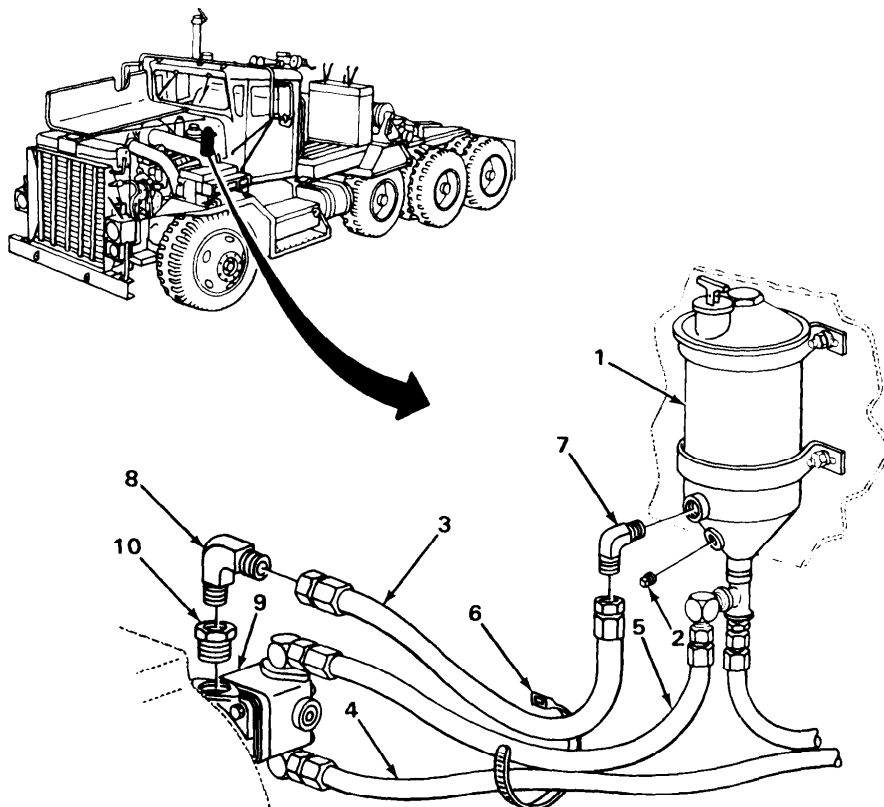
**REMOVAL**

1. Power steering reservoir (1)	Drainplug (2)	<ul style="list-style-type: none"> <li>a. Place drain pan underneath.</li> <li>b. Using 9/16-inch wrench, unscrew and take out.</li> <li>c. Allow fluid to drain.</li> </ul>
2. Hoses (3), (4), and (5)	Tie wrap (6)	<ul style="list-style-type: none"> <li>a. Using cutting pliers, cut and take off.</li> <li>b. Get rid of.</li> </ul>
3. Elbow (7)	Hose (3)	<ul style="list-style-type: none"> <li>a. Using 1 7/16-inch and 1 1/2-inch wrenches, unscrew and take off.</li> <li>b. Turn hose (1) down into drain pan and allow fluid to drain.</li> <li>c. Get rid of fluid (page 4-1).</li> </ul>



**POWER STEERING PUMP SUPPLY HOSE - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
4. Elbow (8)	Hose (3)	a. Using 1 7/16-inch and 1 1/2-inch wrenches, unscrew and take out.
<b><u>CAUTION</u></b>		
Do not allow any dirt to get into power steering pump. Pump will be damaged.		
5.	Power steering pump (9)	Using wire brush, clean loose dirt from top.
6. Reducer (10)	Elbow (8)	Using 1 5/16-inch and adjustable wrenches, unscrew and take out.
7. Power steering pump (9)	Reducer (10)	Using adjustable wrench, unscrew and take out.
8. Power steering reservoir (1)	Elbow (7)	Using 1 5/16-inch wrench, unscrew and take out.

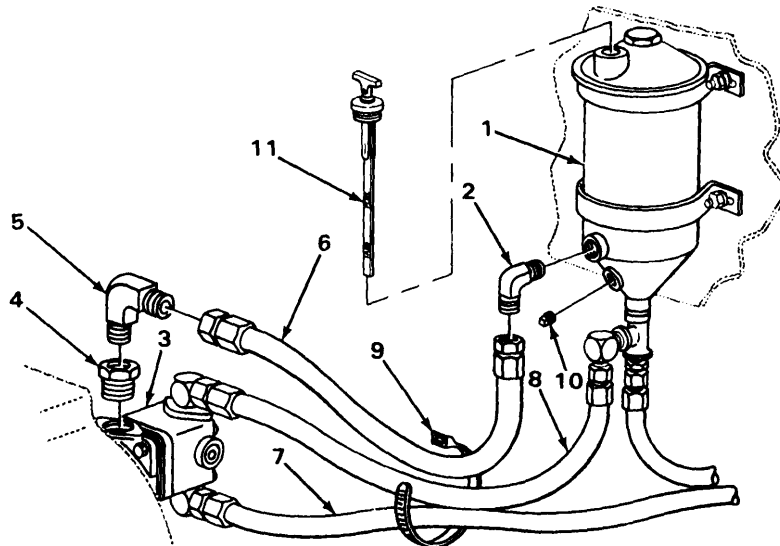


**POWER STEERING PUMP SUPPLY HOSE - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
<b>CLEANING</b>		
9.	All parts	Clean according to general maintenance instructions (page 4-1).
<b>INSPECTION/REPLACEMENT</b>		
10.	All parts	Inspect according to general maintenance instructions (page 4-1).
<b>INSTALLATION</b>		
11. Power steering reservoir (1)	Elbow (2)	a. Wrap threads with teflon tape (page 4-1). b. Screw in and tighten using 1 5/16-inch wrench.
12. Power steering pump (3)	Reducer (4)	a. Wrap threads with teflon tape (page 4-1). b. Screw in and tighten using adjustable wrench.
13. Reducer (4)	Elbow (5)	a. Wrap threads with teflon tape (page 4-1). b. Screw in and tighten using 1 5/16-inch wrench.
14. Elbow (5)	Hose (6)	Screw on and tighten using 1 7/16-inch and 1 1/2-inch wrenches.
15. Elbow (2)	Hose (6)	Screw on and tighten using 1 7/16-inch and 1 1/2-inch wrenches.
16. Hoses (6), (7), and (8)	New tie wrap (9)	Using straight-nose pliers, put on.
17. Power steering reservoir (1)	Drainplug (10)	Screw in and tighten using 9/16-inch wrench.
18.	Oil level gage (11)	Unscrew and take out.

**POWER STEERING PUMP SUPPLY HOSE - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
19.	Power steering reservoir (1)	Fill with fluid to full mark.
20.	Engine	a. Start and idle for 10 minutes (TM 9-2320-270-10). b. Check for leaks.
21.	Steering wheel	Turn lock-to-lock four times.
22.	Oil level gage (11)	a. Check fluid level and add fluid if necessary. b. Put in and tighten.
23.	Engine	Shut down (TM 9-2320-270-10).



**NOTE**

FOLLOW-ON MAINTENANCE: Close left side hood (TM 9-2320-270-10).

**TASK ENDS HERE**

**BOOSTER CYLINDER**

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This task covers:

- a. Removal (page 4-1016)
  - b. Disassembly (page 4-1018)
  - c. Cleaning (page 4-1020)
  - d. Inspection/Replacement (page 4-1020)
  - e. Assembly (page 4-1020)
  - f. Installation (page 4-1020)
- 

**INITIAL SETUP**

**Tools**

- Brush, wire
- Chain, hydraulic hand jack
- Chain plate, hydraulic hand jack
- Extension, 3/4-inch drive, 5-inch
- Hammer, plastic
- Handle, hydraulic hand jack
- Handle, ratchet, 3/4-inch drive
- Pan, drain
- Pliers, long-nose, round
- Puller, mechanical
- Screwdriver, flat-tip, 1/4-inch
- Socket, 1 1/4-inch, 3/4-inch drive
- Socket, 1 13/16-inch, 3/4-inch drive
- Wrench, open-end, 7/16-inch
- Wrench, open-end, 9/16-inch
- Wrench, open-end, 7/8-inch (two required)

**Materials/Parts**

- Cotter pin, booster end to frame bracket
- Cotter pin, drag link to booster ball stud

**Materials/Parts - Continued**

- Dust seal, ball stud
- Dust seal, booster end
- Fluid, power steering (LO 9-2320-270-1 2)
- Packing, preformed, adapter to booster (two required)
- Rope (item 11, appendix C)
- Tag, marking (item 18, appendix C)

**Personnel Required**

One

**Equipment Condition**

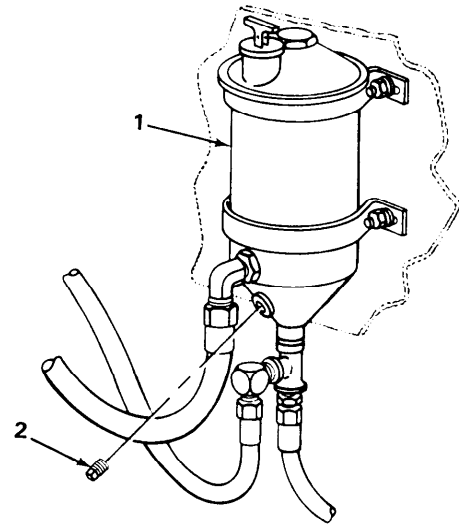
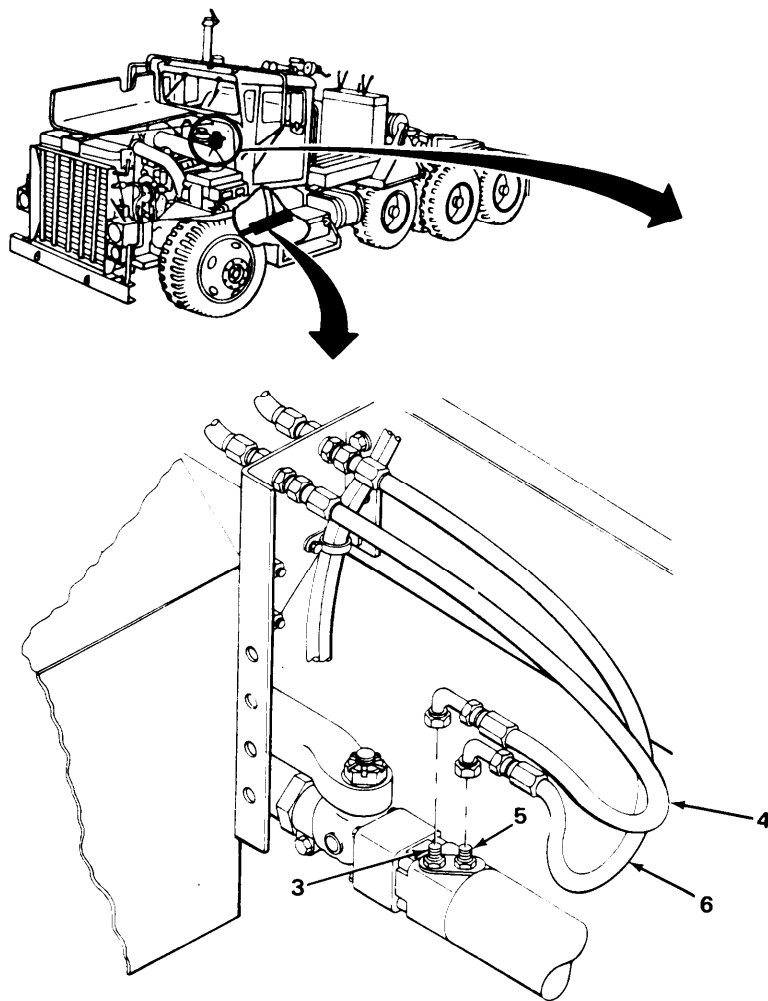
Left side of hood opened (TM 9-2320-270-10).

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LOCATION	ITEM	ACTION REMARKS
<b>REMOVAL</b>		
1.	Truck	Park on level surface with front wheels steered straight ahead.
2. Power steering reservoir (1)	Drainplug (2)	<ul style="list-style-type: none"> <li>a. Place container underneath.</li> <li>b. Using 9/16-inch wrench, unscrew and take out.</li> <li>c. Allow fluid to drain.</li> </ul>

**BOOSTER CYLINDER - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
<b>NOTE</b>		
Tag hoses according to general maintenance instructions (page 4-1).		
3. Adapter (3)	Pressure hose (4)	<ul style="list-style-type: none"> <li>a. Using wire brush, clean around adapters (3) and (5).</li> <li>b. Put container underneath.</li> <li>c. Using two 7/8-inch wrenches, unscrew and take off.</li> <li>d. Allow fluid to drain.</li> </ul>
4. Adapter(5)	Return hose (6)	<ul style="list-style-type: none"> <li>a. Using two 7/8-inch wrenches, unscrew and take off.</li> <li>b. Allow fluid to drain.</li> <li>c. Get rid of fluid (page 4-1).</li> </ul>



BATTERY BOX  
REMOVED FOR CLARITY

**BOOSTER CYLINDER - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
<b>REMOVAL - CONTINUED</b>		
5. Pitman arm to booster cylinder drag link (1) to ball stud (2)	Cotter pin (3)	a. Using pliers, take out. b. Get rid of.
6.	Nut (4)	Using 1 1/4-inch socket and 3/4-inch handle, unscrew and take off.
7. Ball stud (2)	Pitman arm to booster cylinder drag link (1)	a. Using puller, pull off. b. Using rope, tie drag link (1) out of the way.
8. Booster cylinder and steering arm	Wheel to booster drag link	Remove (page 4-955), and using rope, tie up front end of booster cylinder.
9. Booster cylinder (5)	Grease fitting (6)	Using 7/16-inch wrench, unscrew and take out.
10. Ball stud (7) to bracket (8)	Cotter pin (9)	a. Using pliers, take out. b. Get rid of.
11.	Nut (10)	Using 1 13/16-inch socket, extension, and 3/4-inch drive handle, unscrew and take out.
12. Bracket (8)	Ball stud (7)	Using hand jack, chain plate, and chain, press out.
13.	Booster cylinder (5)	Take out.

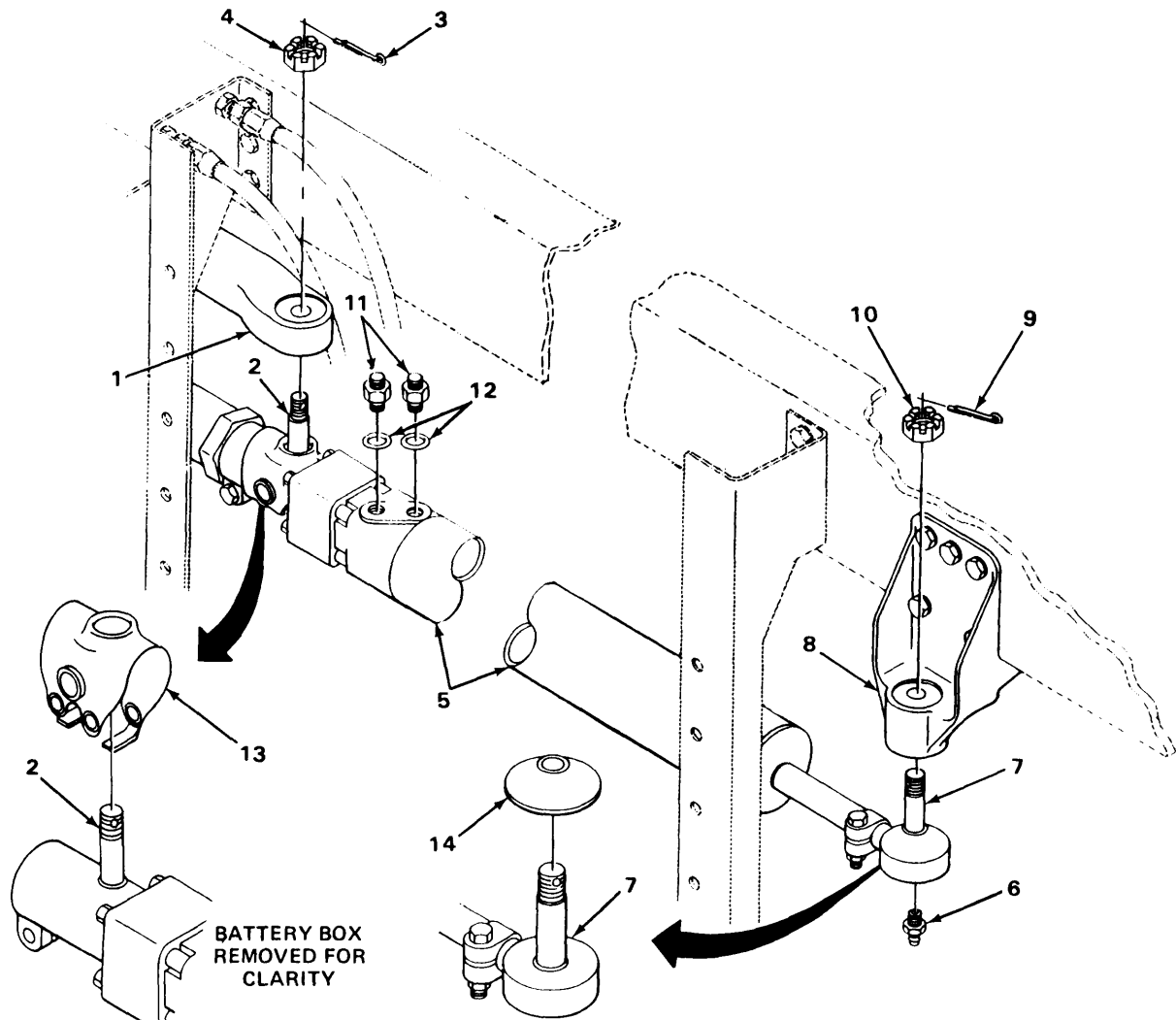
**DISASSEMBLY****CAUTION**

Do not let dirt get into power steering booster cylinder. Dirt will damage cylinder.

- |     |                      |  |
|-----|----------------------|--|
| 14. | Booster cylinder (5) | Using wire brush, clean area around adapters (11). |
|-----|----------------------|--|

**BOOSTER CYLINDER - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
<b>DISASSEMBLY</b>		
15. Booster cylinder(5)	Two adapters (11)	a. Using 7/8-inch wrench, unscrew and take out. b. Using shipping plugs, plug holes.
16. Two adapters (11)	Preformed packing (12)	a. Take off. b. Get rid of.
17. Ball stud (2)	Dust seal (13)	a. Using pliers, take off. b. Get rid of.
18. Ball stud (7)	Dust seal (14)	a. Using flat-tip screwdriver, take off. b. Get rid of.



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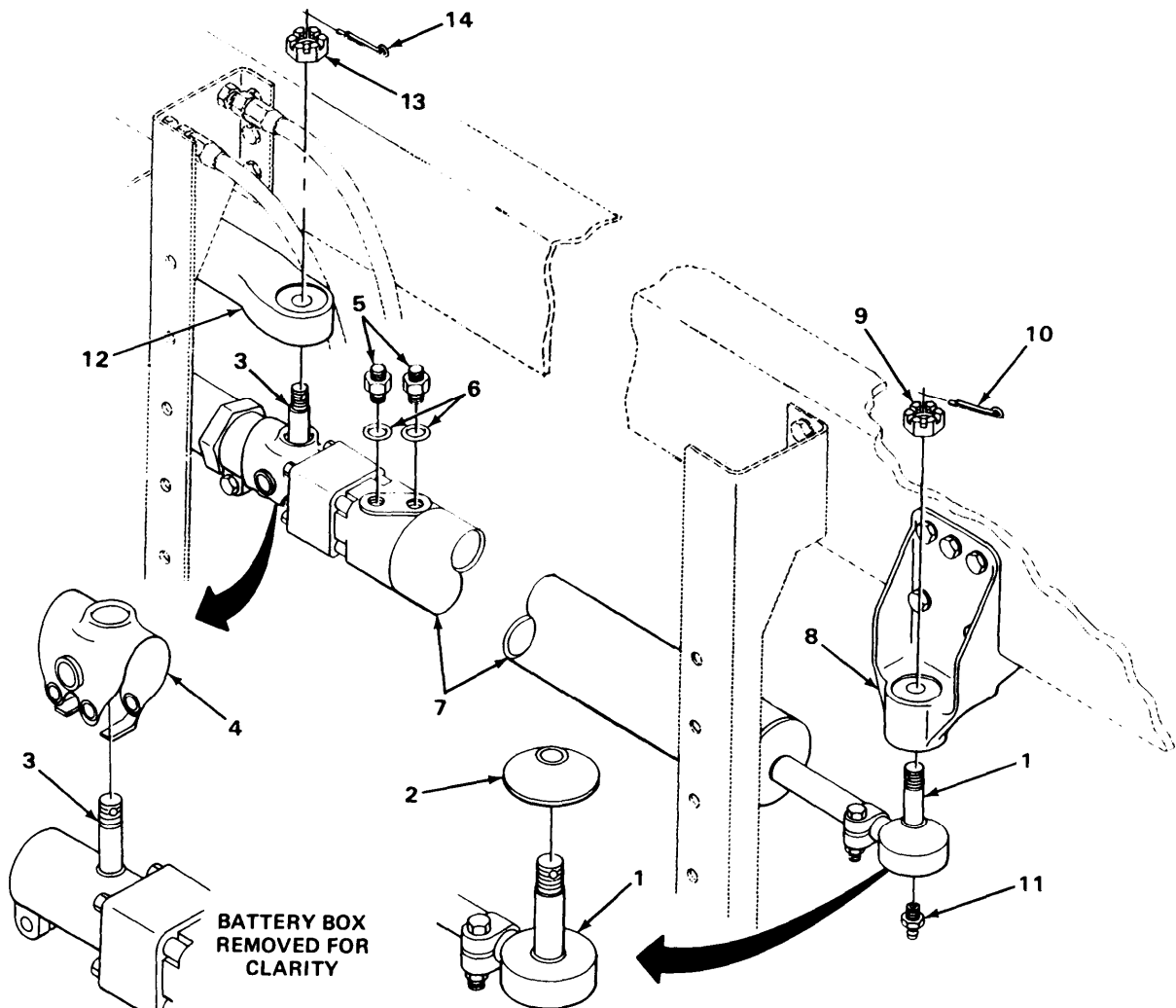
**BOOSTER CYLINDER - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
<b>CLEANING</b>		
19.	All parts	Clean according to general maintenance instructions (page 4-1).
<b>INSPECTION/REPLACEMENT</b>		
20.	All parts	Inspect according to general maintenance instructions (page 4-1).
<b>ASSEMBLY</b>		
21. Ball stud (1)	New dust seal (2)	Put on.
22. Ball stud (3)	New dust seal (4)	a. Put on. b. Using pliers, secure.
23. Two adapters (5)	New preformed packing (6)	Put on.
24. Booster cylinder (7)	Two adapters (5)	a. Remove shipping plugs. b. Screw in and tighten using 7/8-inch wrench.
<b>INSTALLATION</b>		
25.	Booster cylinder (7)	Lift and using rope, position at installed level.
26. Bracket (8)	Booster cylinder (7)	Place in position.
27. Ball stud (1) to bracket (8)	Nut (9)	a. Using 1 13/16-inch socket, extension, and 3/4-inch drive handle, screw on and tighten. b. Tighten so that cotter pin holes line up with slots.
28.	New cotter pin (10)	Using pliers, put on.
29. Booster cylinder (7)	Grease fitting (11)	Screw in and tighten using 7/16-inch wrench.
30. Booster cylinder and steering arm	Wheel to booster drag link	Install (page 4-955).
31.	Booster cylinder (7)	Take off rope.



**BOOSTER CYLINDER - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
32. Ball stud (3)	Pitman arm to booster drag link (12)	a. Remove rope. b. Place in position. c. Using plastic hammer, tap in place.
33. Pitman arm to booster cylinder drag link (12) to ball stud (3)	Nut (13)	a. Screw on and tighten using 1 1/4-inch socket and handle with 3/4-inch drive. b. Tighten so that cotter pin holes and slots line up.
34.	Cotter pin (14)	Using pliers, put in.

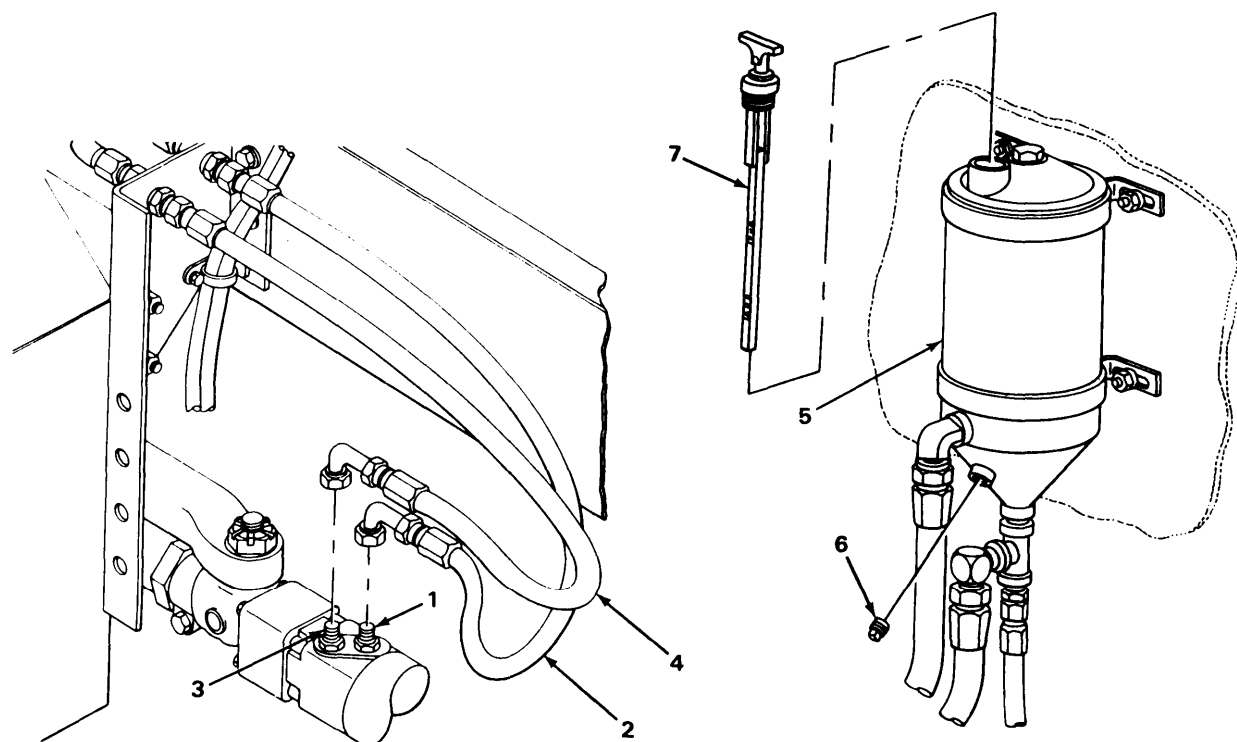


**BOOSTER CYLINDER - CONTINUED**


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LOCATION	ITEM	ACTION REMARKS
<b>INSTALLATION - CONTINUED</b>		
35. Adapter (1)	Return hose (2)	Screw on and tighten using 7/8-inch wrench.
36. Adapter (3)	Pressure hose (4)	Screw on and tighten using 7/8-inch wrench.
37. Power steering reservoir (5)	Drainplug (6)	Screw in and tighten using 9/16-inch wrench.
38.	Oil level gage (7)	Unscrew and take out.
39.	Power steering reservoir (5)	Fill with fluid to full mark.
40.	Engine	a. Start and idle for 10 minutes (TM 9-2320-270-10). b. Check for leaks.
41.	Steering wheel	Turn lock-to-lock four times to purge air from system.
42.	Oil level gage (7)	a. Check fluid level and add fluid if necessary. b. Put in and tighten.
43.	Engine	Shut down (TM 9-2320-270-10).

**BOOSTER CYLINDER - CONTINUED**



**NOTE**

**FOLLOW-ON MAINTENANCE:**

1. Close left side hood (TM 9-2320-270-10).
2. Lubricate (TM 9-2320-270-12).

**TASK ENDS HERE**

**POWER STEERING RESERVOIR**

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This task covers:

- a. Service (page 4-1024)
  - b. Removal (page 4-1026)
  - c. Disassembly (page 4-1028)
  - d. Cleaning (page 4-1030)
  - e. Inspection/Replacement (page 4-1030)
  - f. Assembly (page 4-1030)
  - g. Installation (page 4-1031)
- 

**INITIAL SETUP**

**Tools**

- Extension, 5-inch, 1/2-inch drive
- Handle, ratchet, 1/2-inch drive
- Pan, drain
- Socket, 1/2-inch, 1/2-inch drive
- Socket, 1 1/8-inch, 1/2-inch drive
- Vise
- Wrench, open-end, 1/2-inch
- Wrench, open-end, 9/16-inch
- Wrench, open-end, 7/8-inch
- Wrench, open-end, 15/16-inch
- Wrench, open-end, 1 1/8-inch
- Wrench, open-end, 1 1/4-inch (two required)
- Wrench, open-end, 1 5/16-inch
- Wrench, open-end, 1 7/16-inch
- Wrench, open-end, 1 1/2-inch
- Wrench, pipe, 1/4- to 1-inch

**Materials/Parts**

- Filter, reservoir
- Fluid, power steering (LO 9-2320-270-1 2)
- Gasket, copper
- Gasket, cover
- Lockwasher, reservoir bracket (two required)
- Lockwasher, reservoir to firewall (four required)
- Tape, teflon (item 22, appendix C)

**Personnel Required**

Two

**Equipment Condition**

Left side hood open (TM 9-2320-270-10).

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LOCATION	ITEM	ACTION REMARKS
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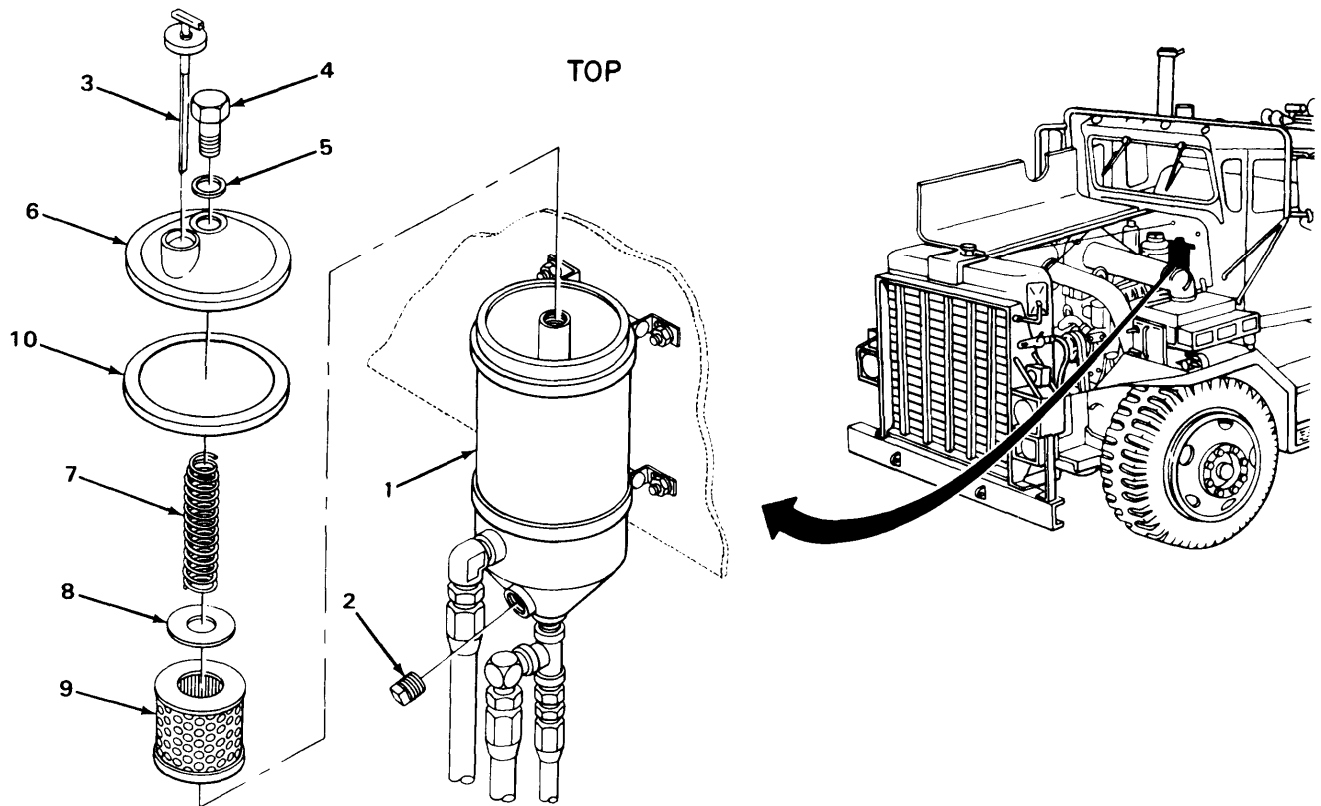
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**SERVICE**

1. Power steering reservoir (1)	Drainplug (2)	<ul style="list-style-type: none"> <li>a. Place drain pan underneath.</li> <li>b. Using 9/16-inch wrench, unscrew and take out.</li> <li>c. Allow fluid to drain and get rid of (page 4-1).</li> </ul>
2.	Oil level gage (3)	Unscrew and take out.
3.	Screw (4) and copper gasket (5)	Using 1 1/8-inch socket and handle, unscrew and take out.
4.	Cover (6)	Take off.

**POWER STEERING RESERVOIR - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
5.	Spring (7), spring seat (8), and filter (9)	a. Take out. b. Get rid of filter (9).
6.	Drainplug (2)	Screw in and tighten using 9/16-inch wrench.
7. Power steering reservoir (1)	New filter (9), spring seat (8), and spring (7)	Put in.
8. Cover (6)	Gasket (10)	a. Inspect for tears, cracks, and brittleness. b. If damaged, peel off and put on new gasket (10).
9. Power steering reservoir (1)	Cover (6)	Put on.



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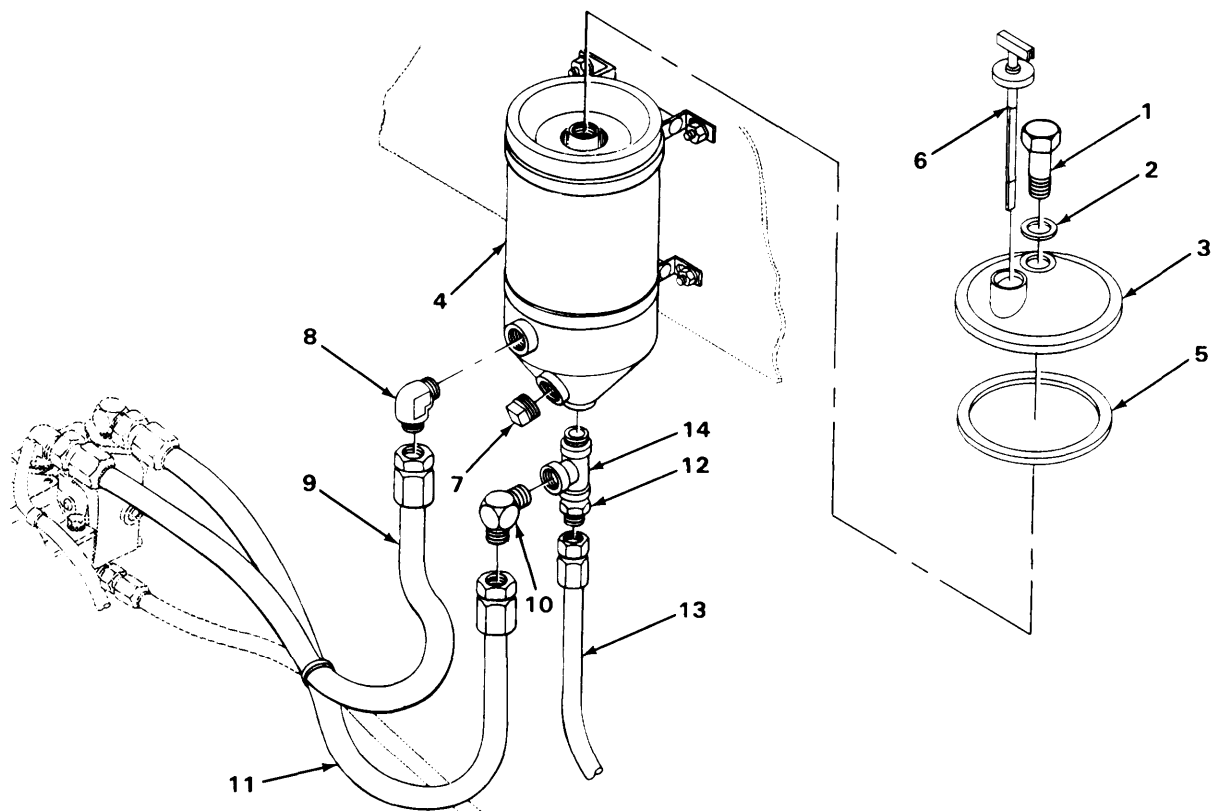
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## POWER STEERING RESERVOIR - CONTINUED

LOCATION	ITEM	ACTION REMARKS
<b>SERVICE - CONTINUED</b>		
10. Screw (1)	Copper gasket (2)	a. Inspect for cracks and wear. Replace defective gasket. b. Put on.
11. Cover (3) to power steering reservoir (4)	Screw (1) and gasket (5)	Screw on and tighten using 1 1/8-inch socket and handle.
12.	Power steering reservoir (4)	Using oil level gage (6), check fluid level and add fluid to full mark.
13.	Engine	a. Start and idle for 10 minutes (TM 9-2320-270-10). b. Check for leaks.
14. Power steering reservoir (4)	Oil level gage (6)	a. Check fluid level and add fluid if necessary. b. Put in and tighten.
15.	Engine	Shut down (TM 9-2320-270-10).
<b>REMOVAL</b>		
16. Power steering reservoir (4)	Drainplug (7)	a. Place drain pan underneath. b. Using 9/16-inch wrench, unscrew and take out. c. Allow fluid to drain.
17. Elbow (8)	Supply hose (9)	a. Using 1 7/16-inch and 1 1/2-inch wrenches, unscrew and take off. b. Turn hose (9) down into drain pan.
18. Power steering reservoir (4)	Elbow (8)	Using 1 5/16-inch wrench, unscrew and take out.

**POWER STEERING RESERVOIR - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
19. Elbow (10)	Pump return hose (11)	a. Using two 1 1/4-inch wrenches, unscrew and take out. b. Turn hose (11) down into drain' pan.
20. Adapter (12)	Cylinder return hose (13)	a. Using 15/16-inch and 7/8-inch wrenches, unscrew and take off. b. Turn hose (13) down into drain pan. c. Get rid of fluid (page 4-1).
21. Tee (14)	Elbow (10)	Using 1 1/8-inch wrench, unscrew and take out.
22. Power steering reservoir (4)	Tee (14)	Using pipe wrench, unscrew and take out.



**POWER STEERING RESERVOIR - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
<b>REMOVAL – CONTINUED</b>		
<b><u>CAUTION</u></b>		
Make sure ignition switch is in off position. If relay terminals are accidentally bumped while ignition is in on position, short circuit could result causing damage to electrical system.		
23. Power steering reservoir (1) to firewall (2)	Four screws (3), nuts (4), eight washers (5), and four lock-washers (6)	a. With help from assistant and using 1/2-inch wrench, 1/2-inch socket, extension, and handle, unscrew and take out. b. Get rid of lockwashers (6).
24. Firewall (2)	Power steering reservoir (1)	Take off.
<b>DISASSEMBLY</b>		
25. Power steering reservoir (1)	Oil level gage (7)	Unscrew and take out.
26.	Screw (8) and copper gasket (9)	Using 1 1/8-inch socket and handle, unscrew and take out.
27. Screw (9)	Copper gasket (9)	a. Take off. b. Get rid of.
28. Power steering reservoir (1)	Cover (10)	Take off.
29. Cover (1 O)	Gasket (11)	a. Take out. b. Get rid of.
30. Power steering reservoir (1)	Spring (12), spring seat (13), and filter (14)	a. Take out. b. Get rid of filter (14).
31. Bracket (15)	Two nuts (16), lock-washers (17), and carriage bolts (18)	a. Using 1/2-inch socket, handle, and extension, unscrew and take off. b. Get rid of lockwashers (18).
32. Power steering reservoir (1)	Two mounting brackets (15)	Slide off.



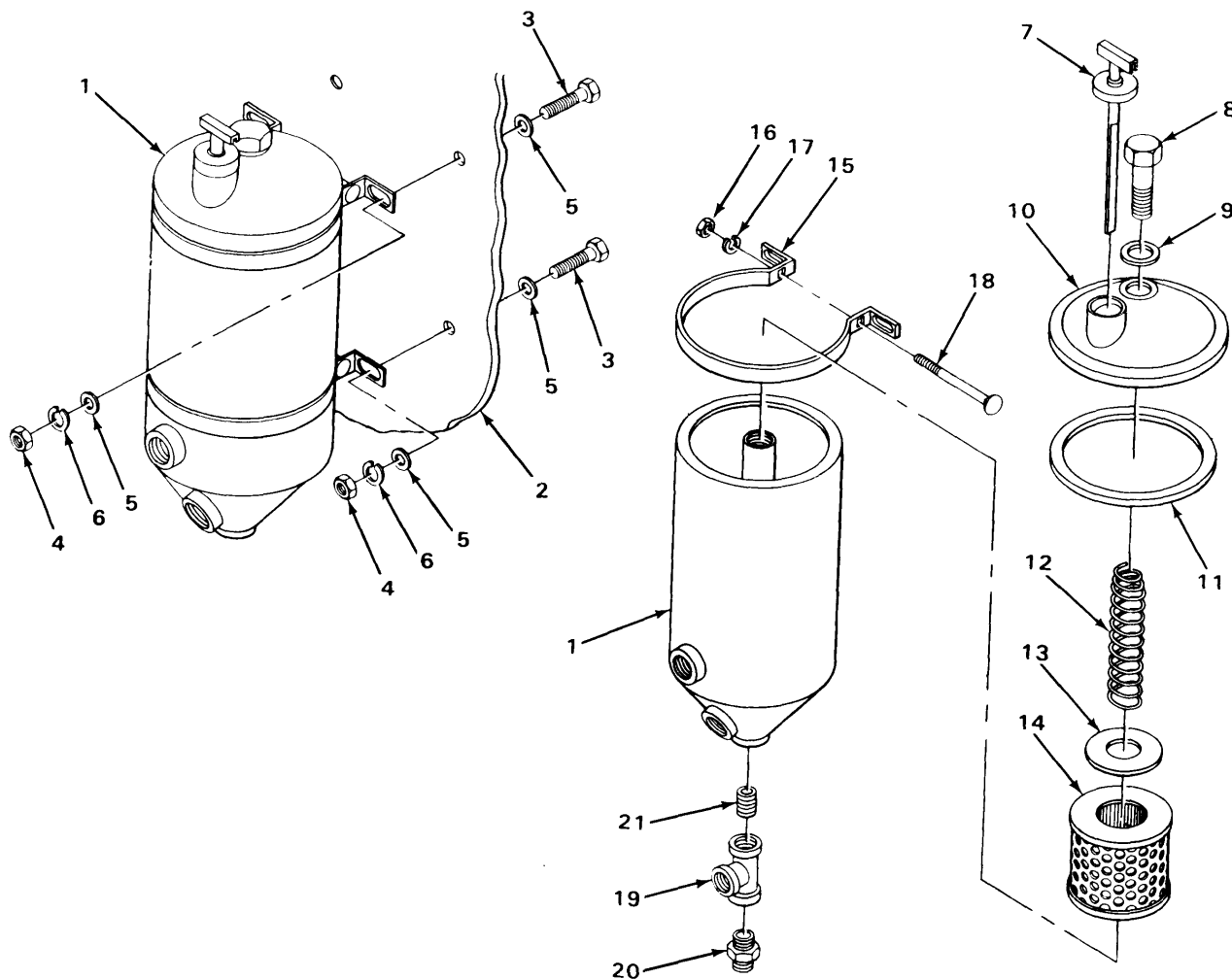
**POWER STEERING RESERVOIR - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
33. Tee (19)	Adapter (20)	a. Secure tee (19) in vise. b. Using 7/8-inch wrench, unscrew and take out. c. Take tee (19) out of vise.

**NOTE**

**Do not remove nipple unless inspection shows need for replacement.**

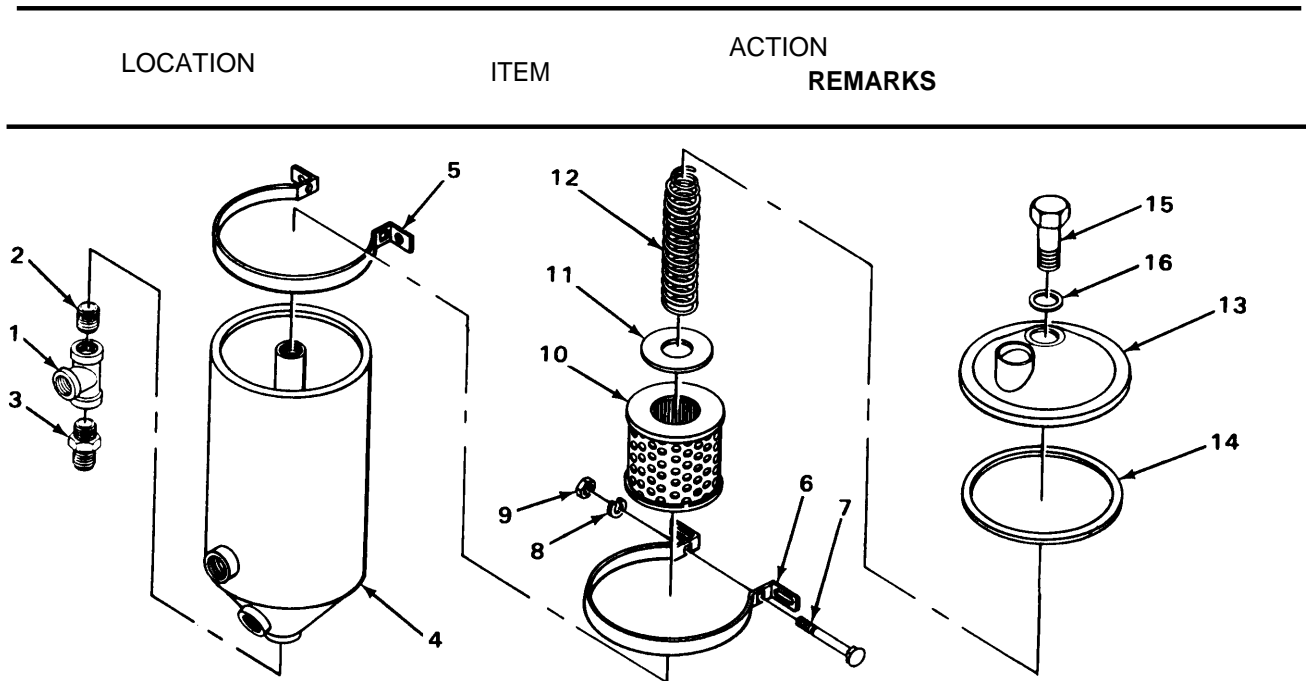
34. Tee (19) or power steering reservoir (1)	Nipple (21)	a. Using pipe wrench, unscrew and take b. Get rid of.
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## POWER STEERING RESERVOIR - CONTINUED

LOCATION	ITEM	ACTION REMARKS
CLEANING		
35.	All parts	Clean according to general maintenance instructions (page 4-1).
INSPECTION/REPLACEMENT		
36.	All parts	Inspect according to general maintenance instructions (page 4-1).
ASSEMBLY		
<b>NOTE</b>		
<b>Do step 37 only if ripple was removed.</b>		
37. Tee (1)	Nipple (2)	a. Secure tee (1) in vise. b. Wrap threads with teflon tape (page 4-1). c. Screw in.
38.	Adapter (3)	a. Wrap threads with teflon tape (page 4-1). b. Screw in and tighten using 7/8-inch wrench. c. Take tee (1) out of vise.
39. Power steering reservoir (4)	Two mounting brackets (5) and (6)	Slide into place with lower bracket against boss.
40. Two mounting brackets (5) and (6)	Two carriage bolts (7), new lockwashers (8), and nuts (9)	a. Screw in. b. Using 1/2-inch socket, handle, and extension, tighten upper bolt (7).
41. Power steering reservoir (4)	New filter (10), spring seat (11), and spring (12)	Put in.
42. Cover (13)	New gasket (14)	Put in.
43. Power steering reservoir (4)	Cover (13)	Put on.
44. Cover (13)	Screw (15) and new copper gasket (16)	Screw on and tighten using 1 1/8-inch socket and handle.

POWER STEERING RESERVOIR - CONTINUED



INSTALLATION

**CAUTION**

Make sure ignition switch is in off position. If relay terminals are accidentally bumped while ignition is in on position, short circuit could result causing damage to electrical system.

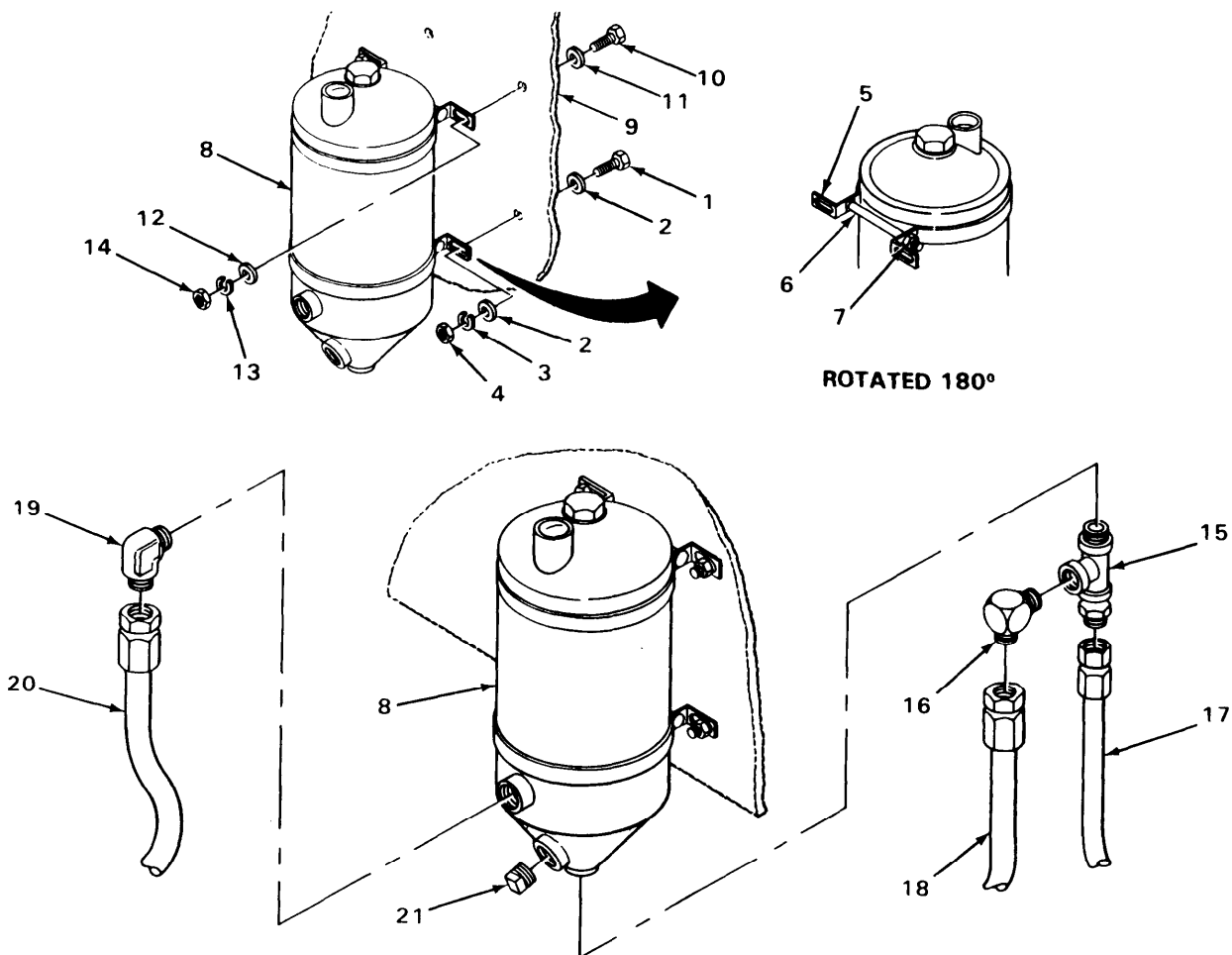
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|-------------------|-------------------------------------|------------------------------|
| 45. Firewall (17) | Two screws (18)<br>and washers (19) | Have assistant put in place. |
| 46.               | Power steering<br>reservoir (4)     | Place in position.           |

## POWER STEERING RESERVOIR - CONTINUED

LOCATION	ITEM	ACTION REMARKS
INSTALLATION – CONTINUED		
47. Two screws (1)	Two washers (2), new lockwashers (3), and nuts (4)	Screw on but do not tighten.
48. Mounting bracket (5) and carriage bolt (6)	Nut (7)	Using 1/2-inch box wrench, unscrew part way.
49. Power steering reservoir (8)	Mounting bracket (5)	Place in position.
50. Mounting bracket (5)	Carriage bolt (6) and nut (7)	Using 1/2-inch wrench, tighten.
51. Firewall (9) to mounting bracket (5)	Two screws (10) and washers (11)	Have assistant put in place.
52. Two screws (10)	Two washers (12), new lockwashers (13), and nuts (14)	Screw on but do not tighten.
53. Power steering reservoir (8) to firewall (9)	Four screws (10) and (1) and nuts (4) and (14)	With help from assistant and using 1/2-inch box wrench, 1/2-inch socket, extension, and handle, tighten.
54. Power steering reservoir (8)	Tee (15)	Screw in and tighten using pipe wrench.
55. Tee (15)	Elbow (16)	a. Wrap threads with teflon tape (page 4-1). b. Screw in and tighten using 1 1/8-inch wrench.
56.	Cylinder return hose (17)	Screw on and tighten using 15/16-inch and 7/8-inch wrenches.

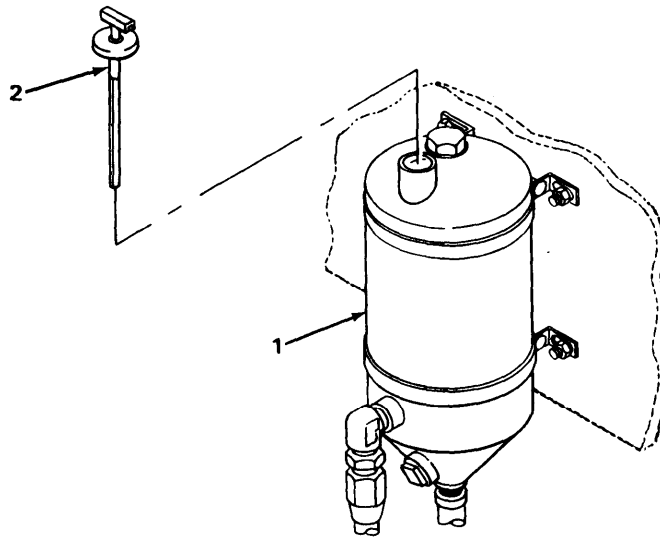
**POWER STEERING RESERVOIR - CONTINUED**

LOCATION	ITEM	ACTION	REMARKS
57. Elbow (16)	Pump return hose (18)	Screw on and tighten using two 1 1/4-inch wrenches.	
58. Power steering reservoir (8)	Elbow (19)	a. Wrap threads with teflon tape (page 4-1). b. Screw in and tighten using 1 5/16-inch wrench.	
59. Elbow (19)	Supply hose (20)	Screw on and tighten using 1 7/16 inch and 1 1/2-inch wrenches.	
60. Power steering reservoir (8)	Drainplug (21)	Screw in and tighten using 9/16-inch wrench.	



**POWER STEERING RESERVOIR - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
INSTALLATION - CONTINUED		
61.	Power steering reservoir (1)	Fill with fluid to full mark.
62.	Engine	a. Start and idle for 10 minutes (TM 9-2320-270-10). b. Check for leaks.
63.	Steering wheel	Turn lock-to-lock four times.
64.	Power steering reservoir (1)	Check fluid level and add fluid if necessary.
65.	Oil level gage (2)	Put in and tighten.
66.	Engine	Shut down (TM 9-2320-270-10).



**NOTE**

**FOLLOW-ON MAINTENANCE: Close left side of hood (TM 9-2320-270-10).**

**TASK ENDS HERE**

## STEERING ALINEMENT

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This task covers:

Alinement (page 4-1035)

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### INITIAL SETUP

**Tools**

Chisel, cold-hand, 1/2-inch cut  
 Gage, front wheel alinement  
 Gage, thickness  
 Hammer, machinist's ball-peen  
 Handle, ratchet, 1/2-inch drive  
 Socket, 15/16-inch, 1/2-inch drive  
 Wrench, box, 15/16-inch

**Tools – Continued**

Wrench, open-end, 3/4-inch (two required)  
 Wrench, open-end, 15/16-inch (two required)

**Personnel Required**

Two

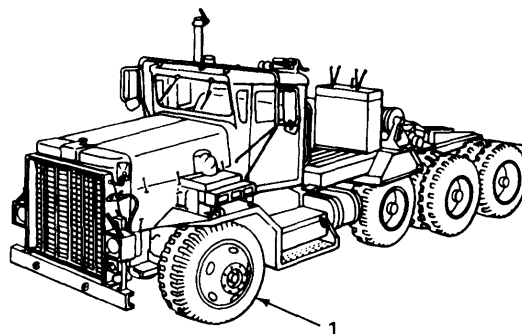
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LOCATION	ITEM	ACTION REMARKS
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### ALINEMENT

- |    |                  |  |
|----|------------------|--|
| 1. | Truck            | Park on level surface with wheels positioned straight ahead.   |
| 2. | All tires        | Check pressure (TM 9-2320-270-10).   |
| 3. | Front wheels (1) | Using alinement gage, check front wheel toe-in.<br><b>Toe-in should be 1/8-inch (3.17 millimeter). If toe-in is correct, continue at step 8.</b> |



## STEERING ALINEMENT - CONTINUED

LOCATION	ITEM	ACTION REMARKS
ALINEMENT		
4. Left (1) and right (2) tie rod ends to tie rod (3)	Four clamp screws (4) and nuts (5)	Using 15/16-inch box wrench, 15/16-inch socket, and handle, unscrew part way.
5.	Tie rod ends (1) and (2)	Using ball-peen hammer and cold chisel, spread clamp ends enough to be able to turn tie rod (3). <b>Do not drive chisel into threads.</b>
6. Front wheels (6)	Tie rod (3)	Using wheel alinement gage and pipe wrench, adjust toe-in to 0-1/8 inch (3.17 millimeter) by turning tie rod (3). <b>Looking toward the right tie rod end, turning tie rod clockwise increases toe-in, counterclockwise decreases toe-in.</b>
7. Tie rod ends (1) and (2)	Four clamp screws (4) and nuts (5)	Using 15/16-inch box wrench, socket, and handle, tighten.
8. Pitman arm stop bracket (7), two stopscrews (8)	Two inner nuts (9)	Using two 3/4-inch open-end wrenches, unscrew down to heads of stopscrews (8).
9. Pitman arm stop bracket (7)	Two stopscrews (8)	Using 3/4-inch open-end wrench, screw up against bracket (7).
10. Left front axle ball socket (10) front stopscrew (11)	Locknut (12)	Using two 15/16-inch open-end wrenches, unscrew up to head of stopscrew (11).

### **WARNING**

**Do not use open-end wrench to break stopscrews loose. Open-end wrench will slip causing injury to personnel.**

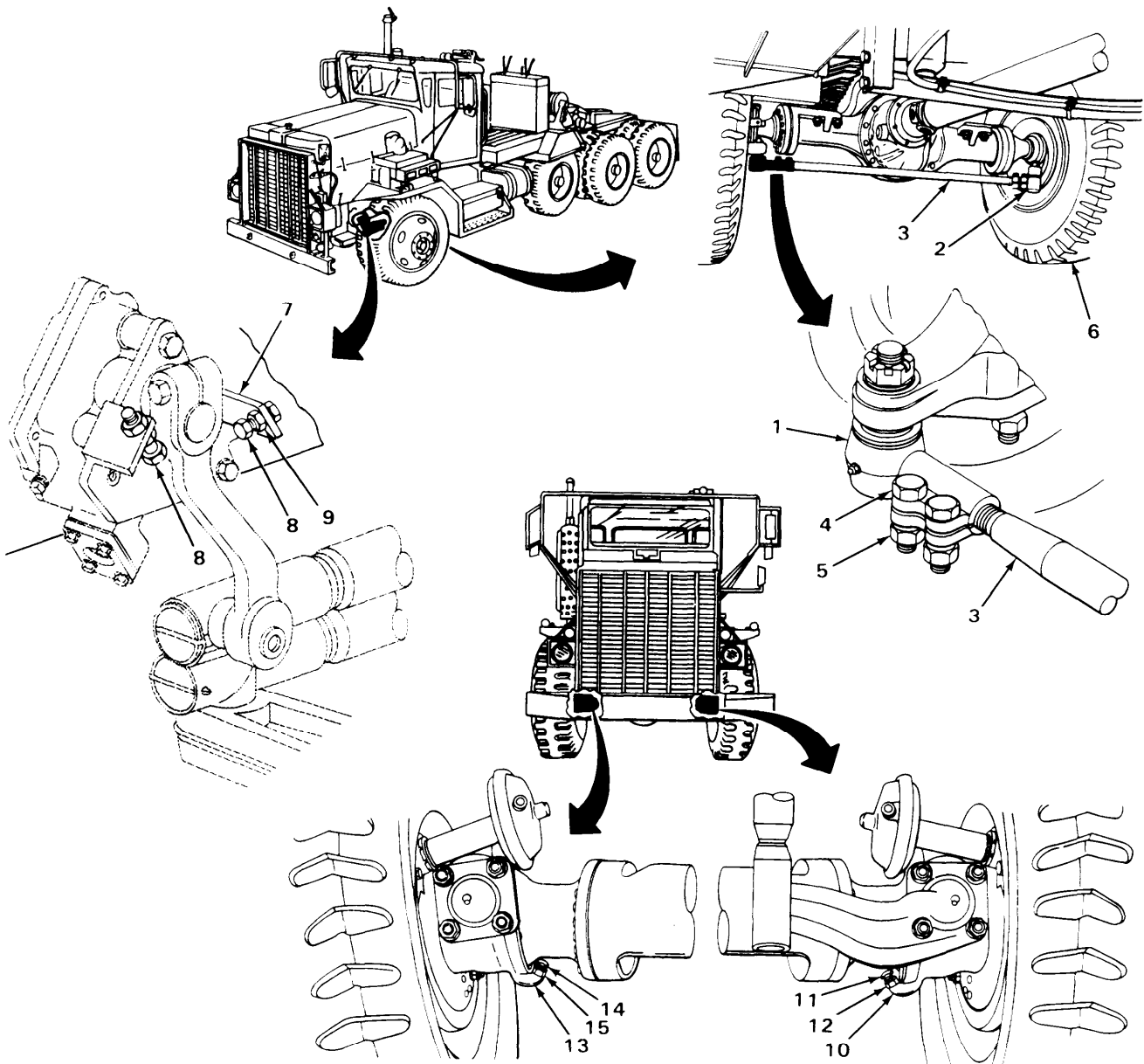
11. Left front axle ball socket (10)	Stopscrew(11)	Using 15/16-inch box wrench, break loose and screw against ball socket (10).
12. Right front axle ball socket (13) front stopscrew(14)	Locknut (15)	Using two 15/16-inch open-end wrenches, unscrew up to head of stopscrew (14).



STEERING ALINEMENT - CONTINUED

LOCATION	ITEM	ACTION REMARKS
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13. Right front axle ball socket (13)	Stopscrew (14)	Using 15/16-inch box wrench, break loose and screw against ball socket (13).
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**STEERING ALINEMENT - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
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ALINEMENT - CONTINUED

- |     |        |  |
|-----|--------|--|
| 14. | Engine | Have assistant start (TM 9-2320-270-10). |
|-----|--------|--|

**WARNING**

**Do not get between wheels and fender, or between other moving and stationary parts, while assistant is turning wheels. There is no clearance for personnel in these areas when turning vehicle.**

Hearing protection must be worn while working under truck with engine running to prevent possible ear injury.

- |                           |                     |   |
|---------------------------|---------------------|---|
| 15.                       | Steering wheel      | Have assistant turn left all the way.   |
| 16. Left ball socket (1)  | Rear stopscrew (2)  | Make sure stopscrew (2) is against axle bail (3).   |
| 17. Right ball socket (4) | Front stopscrew (5) | Using 15/16-inch open-end wrench, screw tight against axle ball (6).                                  |
| 18. Front stopscrew (5)   | Locknut (7)         | Using two 15/16-inch open-end wrenches, screw tight against ball socket (4) to lock up stopscrew (5). |

**WARNING**

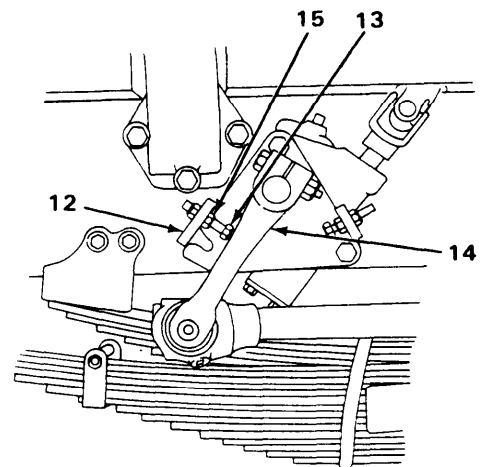
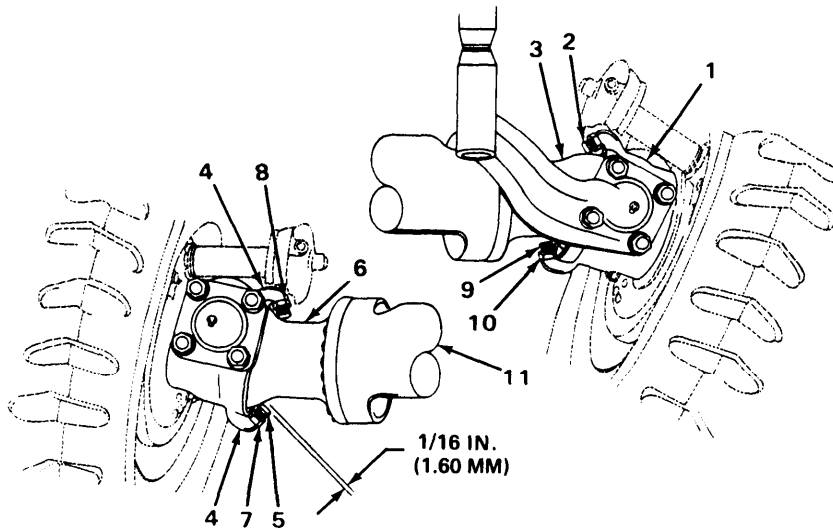
**Do not get between wheels and fender, or between other moving and stationary parts, while assistant is turning wheels. There is no clearance for personnel in these areas when turning vehicle.**

Hearing protection must be worn while working under truck with engine running to prevent possible ear injury.

- |                           |                     |  |
|---------------------------|---------------------|--|
| 19.                       | Steering wheel      | Have assistant turn right all the way.                               |
| 20. Right ball socket (4) | Rear stopscrew (8)  | Make sure stopscrew (8) is against axle ball (6).                    |
| 21. Left ball socket (1)  | Front stopscrew (9) | Using 15/16-inch open-end wrench, screw tight against axle ball (3). |

**STEERING ALINEMENT - CONTINUED**

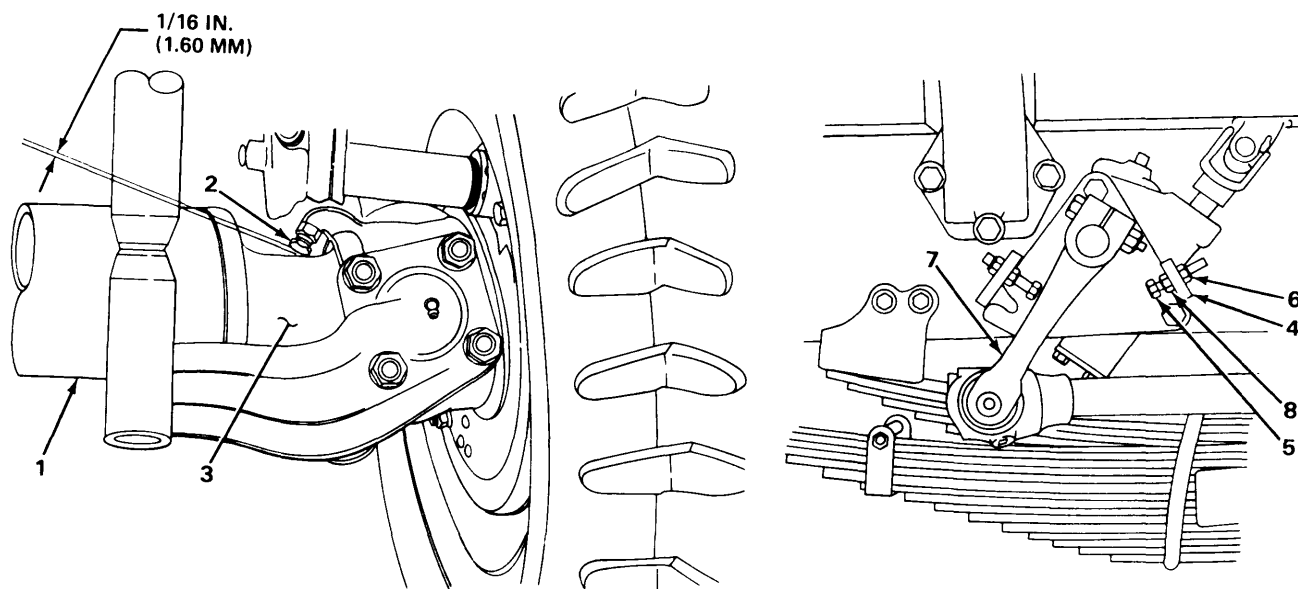
LOCATION	ITEM	ACTION REMARKS
22. Stopscrew (9)	Locknut (10)	Using two 15/16-inch open-end wrenches, screw tight against ball socket (1) to lock stopscrew (9).
23. Right end of front axle (11)	Right front stop-screw (5) and right axle ball (6)	<ul style="list-style-type: none"> <li>s. Place 1/16-inch thickness gage between.</li> <li>b. Have assistant slowly turn steering wheel to the left until stopscrew (5) is stopped by thickness gage.</li> <li>c. Have assistant hold steering wheel in this position.</li> </ul>
24. Pitman arm stop bracket (12)	Front stopscrew (13)	Using two 3/4-inch wrenches, screw stop screw (13) firmly against pitman arm (14).
25. Front stopscrew (13)	Locknut (15)	Using two 3/4-inch wrenches, tighten.



**STEERING ALINEMENT - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
ALINEMENT - CONTINUED		
<b><u>WARNING</u></b>		
<b>Do not get between wheels and fender, or between other moving and stationary parts, while assistant is turning wheels. There is no clearance for personnel in these areas when turning vehicle.</b>		
Hearing protection must be worn while working under truck with engine running to prevent possible ear injury.		
26. Left end of front axle (1)	Left front stopscrew (2) and left axle ball (3)	a. Place 1/16-inch thickness gage between axle ball (3) and stopscrew (2). b. Have assistant slowly turn steering wheel to the right until stopscrew (2) is stopped by thickness gage. c. Have assistant hold steering in this position.
27. Pitman arm stop bracket (4)	Rear stopscrew (5)	Using two 3/4-inch wrenches, hold outer nut (6) and screw stopscrew (5) firmly against pitman arm (7).
28. Rear stopscrew (5)	Locknut (8)	Using two 3/4-inch wrenches, tighten locknut (8).
29.	Steering wheel	Have assistant turn straight ahead.
30.	Engine	Shut down (TM 9-2320-270-10).

STEERING ALINEMENT - CONTINUED



TASK ENDS HERE

**Section XIV. FRAME AND TOWING ATTACHMENT MAINTENANCE**

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**FRONT BUMPER**

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This task covers:

- a. Removal (page 4-1042)
  - b. Installation (page 4-1044)
- 

**INITIAL SETUP**

**Tools**

- Handle, ratchet, 1/2-inch drive
- Socket, 3/4-inch, 1/2-inch drive
- Socket, 15/16-inch, 1/2-inch drive
- Socket, 1 1/8-inch, 1/2-inch drive
- Wrench, box, 3/4-inch
- Wrench, box, 15/16-inch
- Wrench, open-end, 1 1/8-inch

**Materials/Parts**

- Self-locking nut, blackout light guard to bumper
  - Self-locking nut, bumper (four required)
  - Self-locking nut, grille guard to bumper (two required)
  - Personnel Required
  - Two
- 

LOCATION	ITEM	ACTION REMARKS
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**REMOVAL**

- |   |  |   |
|---|--|---|
| 1. Blackout light guard (1) to bumper (2) | Self-locking nut (3), two washers (4), and bolt (5)            | <ul style="list-style-type: none"> <li>a. Using 3/4-inch socket, ratchet, and 3/4-inch box wrench, unscrew and take out.</li> <li>b. Get rid of self-locking nut (3).</li> </ul>          |
| 2. Grille guard (6) to bumper(2)          | Two self-locking nuts (7), four washers (8), and two bolts (9) | <ul style="list-style-type: none"> <li>a. Using 15/16-inch socket, ratchet, and 15/16-inch box wrench, unscrew and take out.</li> <li>b. Get rid of two self-locking nuts (7).</li> </ul> |

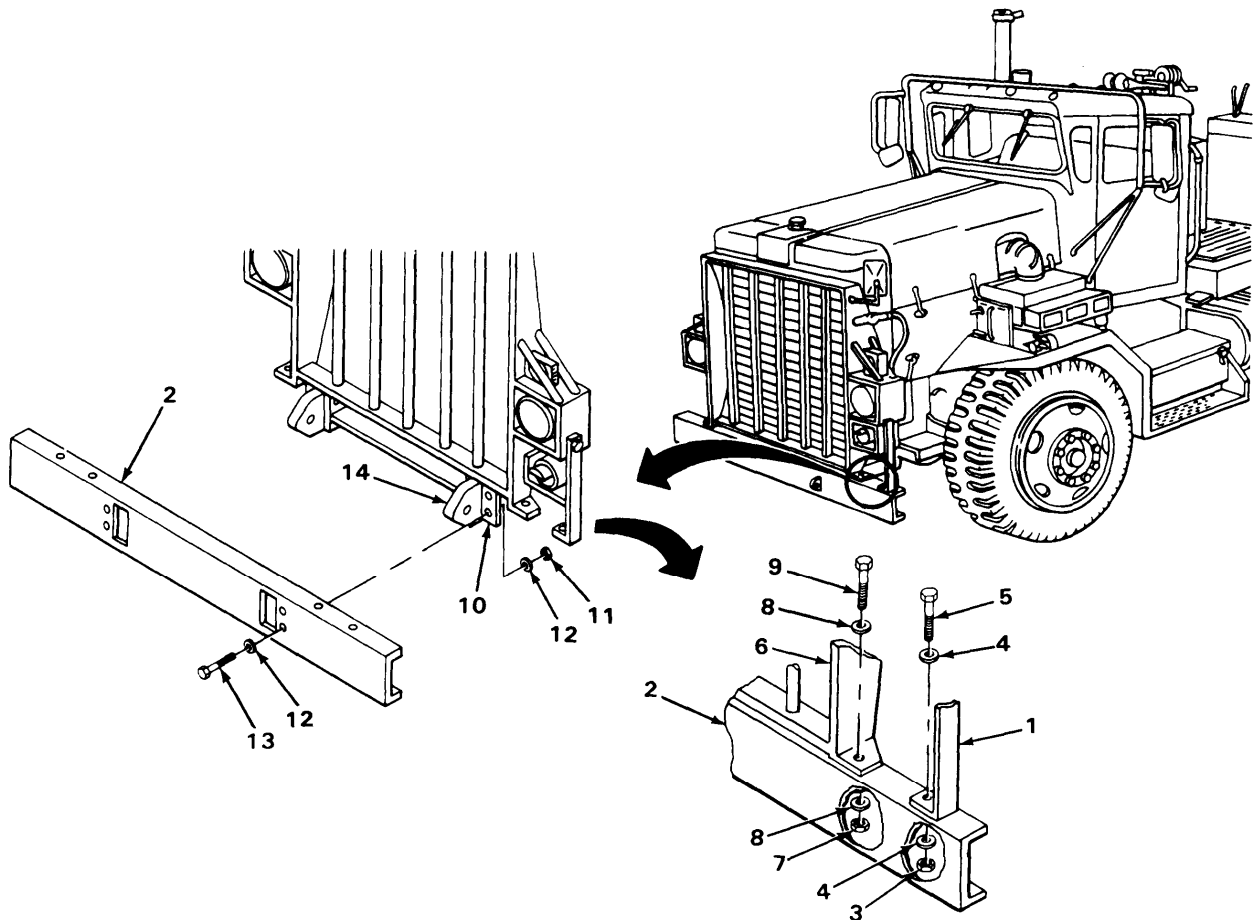
FRONT BUMPER - CONTINUED

LOCATION	ITEM	ACTION REMARKS
3. Bumper (2) to two brackets (10)	Four self-locking nuts (11), eight washers (12), and four bolts (13)	a. Using 1 1/8-inch socket, ratchet, and 1 1/8-inch open-end wrench, unscrew and take out. b. Get rid of self-locking nuts (11).

**WARNING**

Some parts are heavy. Be careful when handling them. Lifting equipment is needed when parts weigh over 50 pounds (23 kg) for a single person lift, over 100 pounds (45 kg) for a two person lift, and over 150 pounds (68 kg) for a three or more person lift. Do not try to handle heavy parts without lifting equipment. Keep clear of heavy parts supported only by lifting equipment. Failure to observe this precaution could cause serious injury or death of personnel.

- |                         |            |                            |
|-------------------------|------------|----------------------------|
| 4. Two towing eyes (14) | Bumper (2) | Pull forward and take off. |
|-------------------------|------------|----------------------------|



**FRONT BUMPER - CONTINUED**

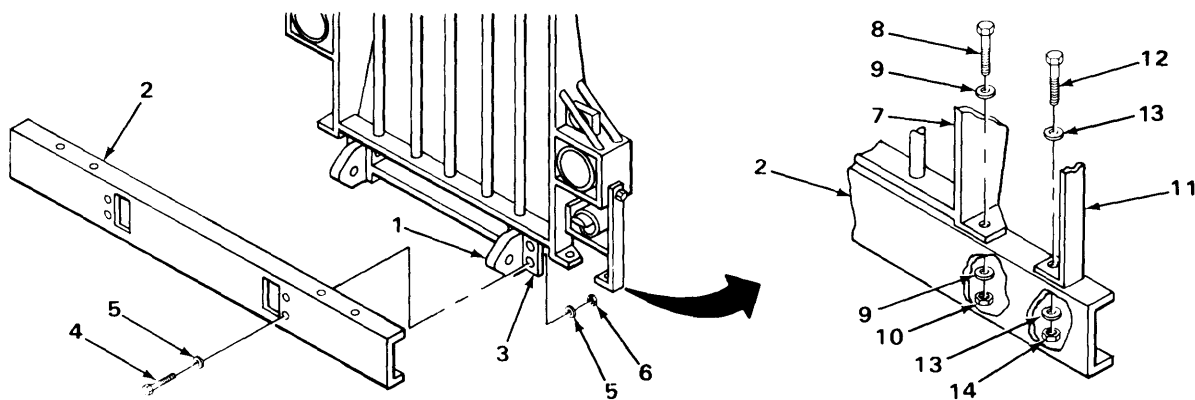
LOCATION	ITEM	ACTION	REMARKS
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INSTALLATION

**WARNING**

**Some parts are heavy. Be careful when handling them. Lifting equipment is needed when parts weigh over 50 pounds (23 kg) for a single person lift, over 100 pounds (45 kg) for a two person lift, and over 150 pounds (68 kg) for a three or more person lift. Do not try to handle heavy parts without lifting equipment. Keep clear of heavy parts supported only by lifting equipment. Failure to observe this precaution could cause serious injury or death of personnel.**

- |  |   |  |
|--|---|--|
| 5. Towing eyes (1)                         | Bumper (2)  | Put on and push against brackets (3).  |
| 6. Bumper (2) to bracket (3)               | Four bolts (4), eight washers (5), and four new self-locking nuts (6) | Screw in and tighten using 1 1/8-inch socket, ratchet, and 1 1/8-inch open-end wrench. |
| 7. Grille guard (7) to bumper(2)           | Two bolts (8), four washers (9), and two new self-locking nuts (10)   | Screw in and tighten using 15/16-inch socket, ratchet, and 15/16-inch box wrench.      |
| 8. Blackout light guard (11) to bumper (2) | Bolt (12), two washers (13), and new self-locking nut (14)            | Screw in and tighten using 3/4-inch socket, ratchet, and 3/4-inch box wrench.          |



**TASK ENDS HERE**

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## TOWING PINTLE

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This task covers:

- |                              |                               |
|------------------------------|-------------------------------|
| a. Removal (page 4-1046)     | c. Assembly (page 4-1048)     |
| b. Disassembly (page 4-1047) | d. Installation (page 4-1050) |
- 

## INITIAL SETUP

### Tools

Bar, pry  
 Chisel, cold hand, 1/2-inch  
 Drill, electric, portable  
 Drill twist, 3/16-inch  
 Extension, 10-inch, 1/2-inch drive  
 Extension, 10-inch, 1-inch drive  
 File, flat  
 Gun, grease  
 Hammer, machinist's ball-peen  
 Handle, ratchet, 1/4-inch drive  
 Handle, ratchet, 1/2-inch drive  
 Handle, ratchet, 1-inch drive  
 Pliers, slip-joint, straight-nose  
 Punch, drive-pin, 1/8-inch  
 Punch, drive-pin, tapered, 5/16-inch  
 Socket, 5/16-inch, 1/4-inch drive  
 Socket, 1 1/8-inch, 1/2-inch drive

### Tools – Continued

Socket, 1 1/2-inch, 1-inch drive  
 Socket, 2 1/4-inch, 1-inch drive  
 Vise  
 Wrench, open-end, 1 1/8-inch  
 Wrench, open-end, 1 1/2-inch

### Materials/Parts

Cotter pin, lock slotted nut  
 Cotter pin, S-link  
 Cotter pin, slotted nut  
 Grease (LO 9-2320-270-12)  
 Screw, drive

### Personnel Required

Two

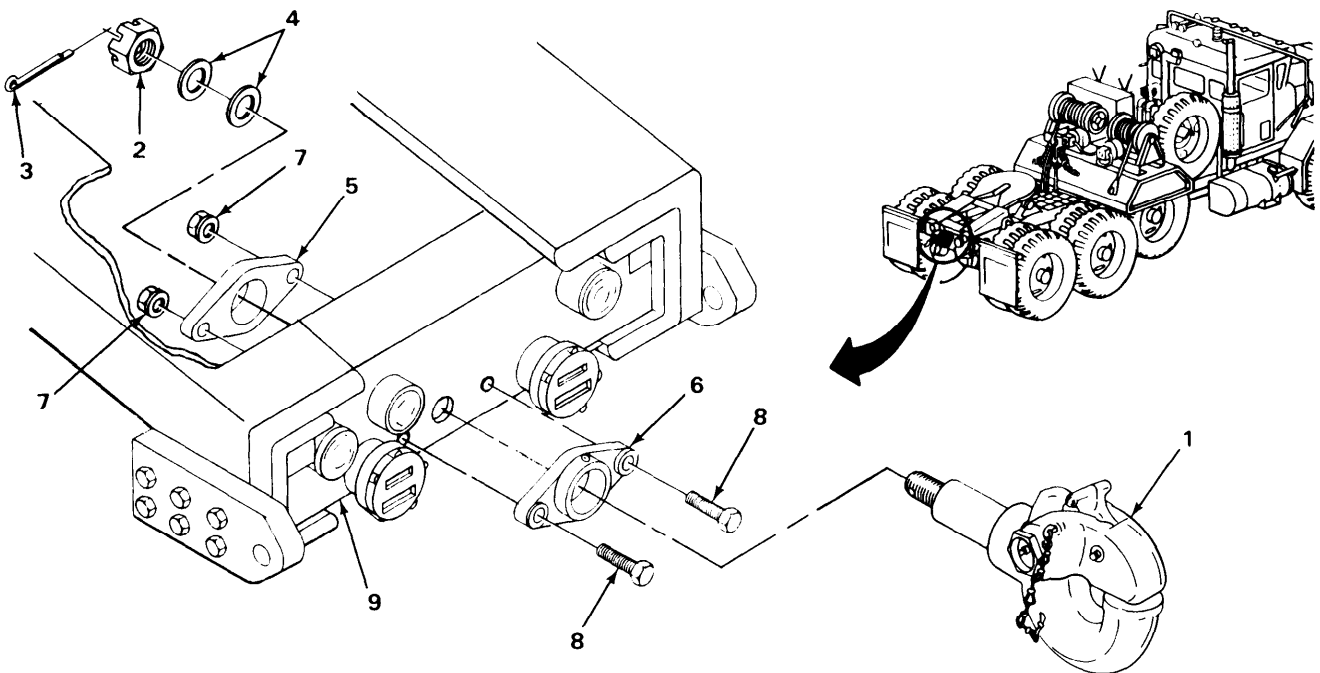
**TOWING PINTLE - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
REMOVAL		
1. Pintle (1) and slotted nut (2)	Cotter pin (3)	a. Using pliers, straighten and take out. b. Get rid of.
2. Pintle (1)	Slotted nut (2) and two washers (4)	With help from assistant and using pry bar, 2 1/4-inch socket, 10-inch extension, and 1-inch drive handle, unscrew and take off.
3.	Pintle (1)	Take out.

**CAUTION**

**Do not wedge wrench against lights to hold bolts. Have assistant hold wrench. Putting pressure on-tailight or blackout light can break it.**

4. Inner bracket (5) and outer bracket (6)	Two nuts (7) and bolts (8)	Using 1 1/8-inch socket, 10-inch extension, 1/2-inch drive handle, and 1 1/8-inch wrench, unscrew and take off.
5. Frame (9)	Inner bracket (5) and outer bracket (6)	Take off.



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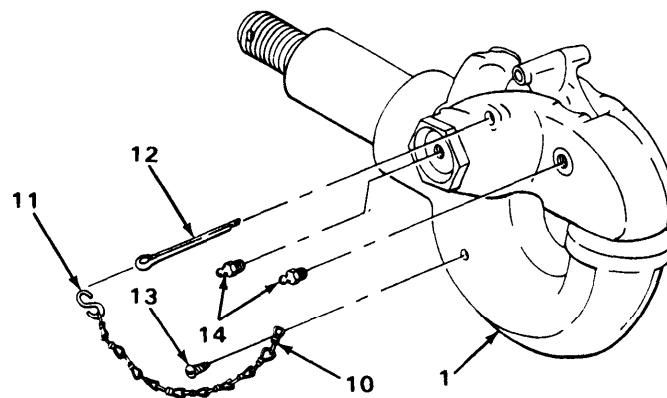
## TOWING PINTLE - CONTINUED

LOCATION	ITEM	ACTION REMARKS
DISASSEMBLY		
6. Chain (10)	S-link(11) and cotter pin (12)	a. Pull out pin (12). b. Using pliers, open S-link(11) and take off. c. Get rid of pin (12).
7.	S-link(11)	Using pliers, open and take off.

## NOTE

**Do not remove drive screw and chain unless last link of chain is broken. if any other link is broken, use an S-link to repair chain,**

8. Chain (10) to pintle (1)	Drive screw (13)	a. Using hammer and chisel, cut off top. b. Using hammer and 1/6-inch drive-pin punch, make centering mark. c. Using 3/16-inch drill twist and electric drill, drill out screw (13). d. Using fiat file, smooth area flush with side of pintle (1).
9. Pintle (1)	Two grease fittings (14)	Using 5/16-inch socket and 1/4-inch drive ratchet, unscrew and take out.



**TOWING PINTLE - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
DISASSEMBLY - CONTINUED		
10. Slotted nut (1)	Cotter pin (2)	a. Using pliers, straighten and take out. b. Get rid of.
11. Pintle lock (3) to pintle hook (4)	Slotted nut (1) and screw (5)	a. Secure assembly in vise. b. Using 1 1/2-inch socket, 1-inch drive handle, and 1 1/2-inch open-end wrench, unscrew and take out.
12. Pintle hook (4)	Pintle lock (3)	a. Take out. b. Take assembly out of vise.

**CAUTION**

**To prevent damage to threads, drive out latch pin from plain side.**

13. Pintle latch (6) to pintle lock (3)	Latch pin (7)	Support pintle lock (3) in vise and using hammer and 5/16-inch drive-pin punch, drive out.
14. Pintle lock (3)	Pintle latch (6) and spring (8)	a. Take out. b. Take lock (3) out of vise.
15. Outer pintle bracket (9)	Grease fitting (10)	Using 5/16-inch socket and 1/4-inch drive handle, unscrew and take out.

ASSEMBLY

16. Outer pintle bracket (9)	Grease fitting (10)	Screw in and tighten using 5/16-inch socket and handle with 1/4-inch drive.
17. Pintle lock (3)	Spring (8) and pintle latch (6)	Put together.

**CAUTION**

**To prevent damage to threads, drive in latch pin from plain side.**

18. Pintle latch (6) to pintle lock (3)	Latch pin (7)	a. Support pintle lock (3) in vise. b. Using hammer and 5/16-inch drive-pin punch, drive in. c. Take lock (3) out of vise.
19. Pintle hook (4)	Pintle lock (3)	a. Put pintle hook (4) in vise. b. Put together.

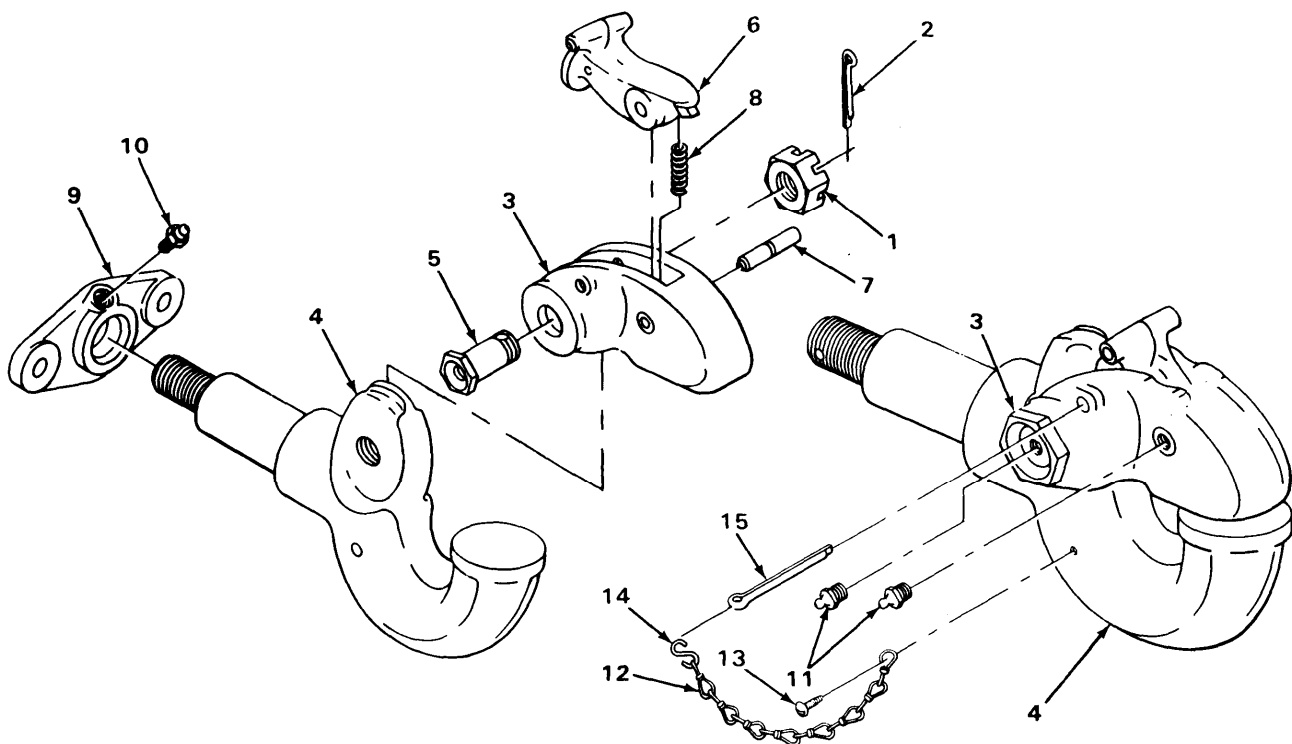
**TOWING PINTLE - CONTINUED**

LOCATION	ITEM	ACTION	REMARKS
20. Pintle hook (4) to pintle lock (3)	Screw (5) and slotted nut (1)	a. Screw together and tighten using 1 1/2-inch socket, 1-inch drive handle, and 1 1/2-inch open-end wrench. b. Take pintle hook (4) out of vise.	
21. Slotted nut (1)	New cotter pin (2)	a. Put in. b. Use pliers to bend ends of cotter pin (2).	
22. Pintle lock (3) and latch pin (7)	Two grease fittings(n)	Screw in and using 5/16-inch socket and 1/4-inch drive handle, tighten.	

**NOTE**

If chain and drive-pin were not removed, go to step 24.

23. Pintle hook (4)	Chain (12) and drive screw (13)	a. Put on. b. Using hammer, drive in.	
24. Chain (12)	S-link (14)	Put on and using pliers, close.	
25. S-link (14)	New cotter pin (15)	a. Put on and using pliers, close. b. Put cotter pin (15) in hook (4).	

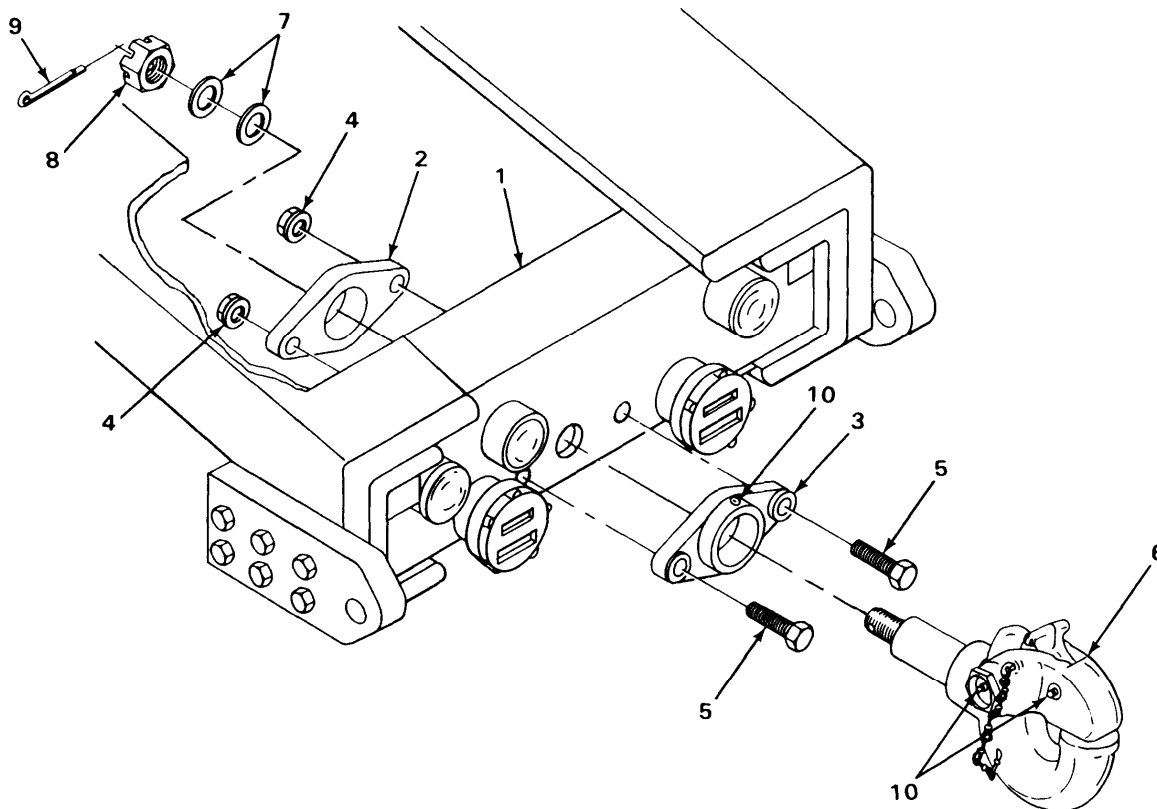


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## TOWING PINTLE - CONTINUED

LOCATION	ITEM	ACTION REMARKS
INSTALLATION		
<b><u>CAUTION</u></b>		
Do not wedge wrench against lights to hold bolts. Have assistant hold wrench. Putting pressure on taillight or blackout light can break it.		
26. Frame (1)	Inner bracket (2) and outer bracket (3)	Place in position.
27. Inner bracket (2) and outer bracket (3)	Two nuts (4) and two screws (5)	Screw in and tighten using 1 1/8-inch socket, 10-inch extension, 1/2-inch drive handle, and 1 1/8 -Inch wrench.
28. Outer bracket (3)	Pintle (6)	Put in.
<b>NOTE</b>		
Have assistant use pry bar to keep pintle from turning while tightening slotted nut. Pintle lock must be closed and latched.		
29. Pintle (6)	Two washers (7)	Put on.
30.	Slotted nut (8)	a. Put on. b. Using 2 1/4-inch socket, 10-inch extension, 1-inch drive handle, and pry bar, tighten. c. Back off just enough so pintle turns freely.
31. Slotted nut (8)	Cotter pin (9)	Using pliers, put in.
32. Pintle (6) and outer bracket (3)	Three grease fittings (10)	Using grease gun, lubricate (LO 9-2320-270-12).

**TOWING PINTLE - CONTINUED**



**TASK ENDS HERE**

**FRONT BUMPER BRACKETS AND TOWING EYES**

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This task covers:

- a. Removal (page 4-1052)
  - b. Installation (page 4-1052)
- 

**INITIAL SETUP**

**Tools**

- Handle, ratchet, 1/2-inch drive
- Socket, 1 1/8-inch, 1/2-inch drive
- Wrench, box, 1 1/8-inch
- Wrench, open-end, 1 1/8-inch

**Materials/Parts**

- Self-locking nuts, bumper bracket and towing eyes to frame (four required)

**Materials/Parts - Continued**

- Self-locking nuts towing eye to frame, (two required)

**Personnel Required**

One

**Equipment Condition**

Front bumper removed (page 4-1042).

TA240656

**FRONT BUMPER BRACKETS AND TOWING EYES - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
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**NOTE**

**This task is the same for either right or left side. Left side is shown.**

**REMOVAL**

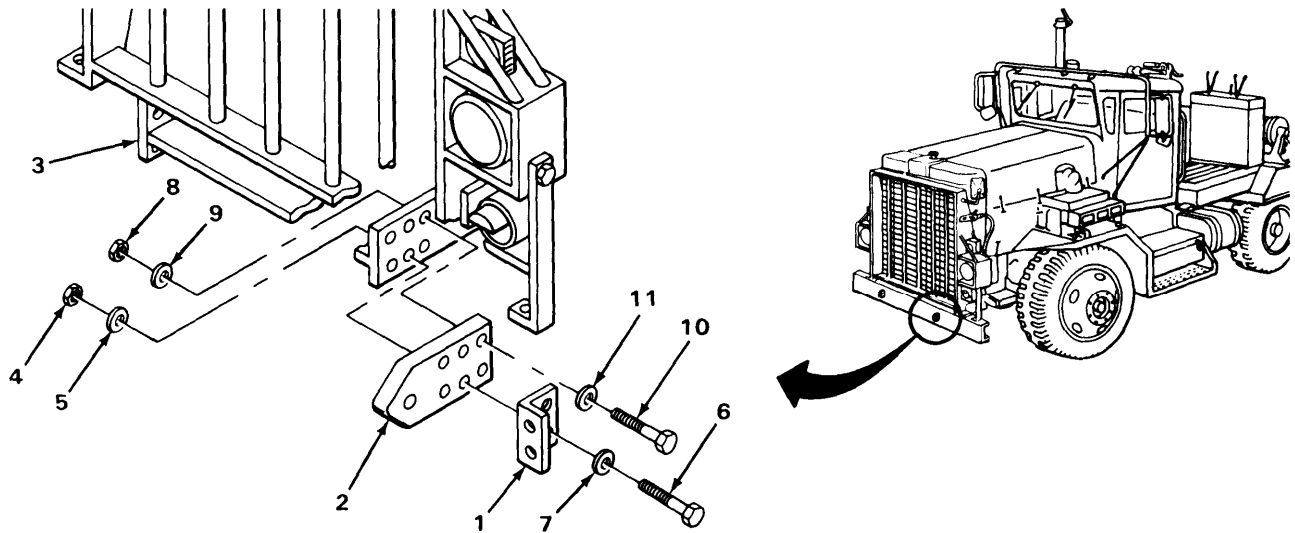
1. Bumper bracket (1) and towing eye (2) to frame (3)	Four self-locking nuts (4), washers (5), four bolts (6), washers (7), and bumper brackets (1)	<ul style="list-style-type: none"> <li>a. Using 1 1/8-inch socket, ratchet, and 1 1/8-inch open-end wrench, unscrew and take off.</li> <li>b. Get rid of self-locking nuts (4).</li> </ul>
2. Towing eye (2) to frame (3)	Two self-locking nuts (8), washer (9), two bolts (10), washers (11), and towing eye (2)	<ul style="list-style-type: none"> <li>a. Using 1 1/8-inch socket, ratchet, and 1 1/8-inch box wrench, unscrew and take off.</li> <li>b. Get rid of self-locking nuts (8).</li> </ul>

**INSTALLATION**

3. Frame (3)	Towing eye (2), two bolts (10), and washers (11)	Place in position.
4. Towing eye (2) to frame (3)	Two washers (9) and new self-locking nuts (8)	Using 1 1/8-inch socket, ratchet, and 1 1/8-inch box wrench, screw together and tighten.
5.	Bumper bracket (1), four bolts (6), and washers (7)	Place in position.
6. Bumper bracket (1) to frame (3)	Four new self-locking nuts (4) and washers (5)	Using 1 1/8-inch socket, ratchet, and 1 1/8-inch open-end wrench, screw on and tighten.



**FRONT BUMPER BRACKETS AND TOWING EYES - CONTINUED**



**NOTE**

**FOLLOW-ON MAINTENANCE:** Install front bumper (page 4-1042).

**TASK ENDS HERE**

**REAR TOWING EYES**

This task covers:

- a. Removal (page 4-1054)
- b. Installation (page 4-1054)

**INITIAL SETUP**

**Tools**

Handle, ratchet, 1/2-inch drive  
 Socket, 15/16-inch, 1/2-inch drive  
 Wrench, open-end, 15/16-inch

**Materials/Parts**

Self-locking nuts, splash shield to  
 towing eye (three required)

**Materials/Parts – Continued**

Self-locking nuts, towing eye to frame  
 (eight required)

**Personnel Required**

One

LOCATION	ITEM	ACTION	REMARKS
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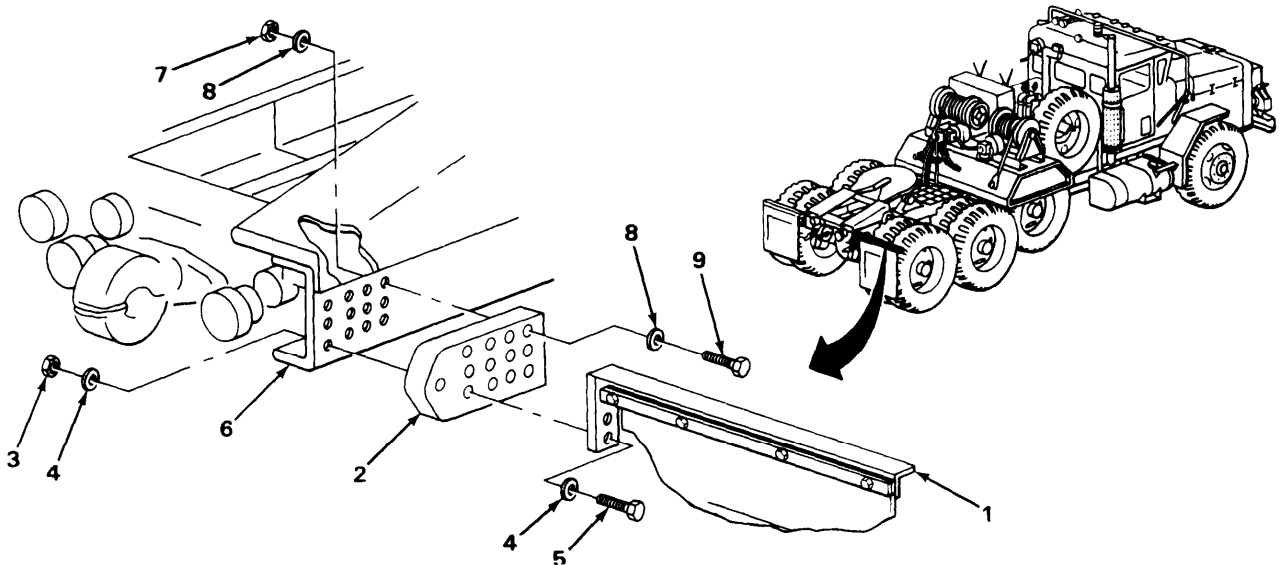
**NOTE**

**This task shows right side rear towing eyes. Procedure is the same for left side,**

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**REAR TOWING EYES - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
<b>REMOVAL</b>		
1. Splash shield assembly (1) to towing eye (2)	Three self-locking nuts (3), six washers (4), three bolts (5), and splash shield assembly (1)	a. Using 15/16-inch socket, ratchet, and 15/16-inch wrench, unscrew nuts and take off. b. Get rid of self-locking nuts (3).
2. Towing eye (2) to frame (6)	Eight self-locking nuts (7), 16 washers (8), eight bolts (9), and towing eye (2)	a. Using 1 1/8-inch socket, ratchet, and 15/16-inch wrench, unscrew and take off. b. Get rid of self-locking nuts (7).
<b>INSTALLATION</b>		
3. Frame (6)	Towing eye (2), eight bolts (9), 16 washers (8), and eight new self-locking nuts (7)	a. Place in position. b. Using 15/16-inch socket, ratchet, and 15/16-inch wrench, tighten.
4. Towing eye (2)	Splash shield assembly (1), three bolts (5), six washers (4), and three new self-locking nuts (3)	a. Place in position. b. Using 15/16-inch socket, ratchet, and 15/16-inch wrench, tighten.



**TASK ENDS HERE**

TA240656

## SPARE TIRE MOUNT, WINCH, AND CABLE

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This task covers:

- |                              |                               |
|------------------------------|-------------------------------|
| a. Removal (page 4-1056)     | c. Assembly (page 4-1058)     |
| b. Disassembly (page 4-1057) | d. Installation (page 4-1060) |
- 

### INITIAL SETUP

#### Tools

Handle, ratchet, 1/2-inch drive  
 Pliers, slip-joint, angle-nose  
 Socket, 7/16-inch, 1/2-inch drive  
 Socket, 9/16-inch, 1/2-inch drive  
 Socket, 15/16-inch, 1/2-inch drive  
 Wrench, box, 9/16-inch  
 Wrench, box, 15/16-inch

#### Materials/Parts

Self-locking nuts, spare tire  
 mount to frame (four required)  
 Self-locking nuts, bracket to  
 platform (two required)

#### Materials/Parts - Continued

Lockwashers, winch to spare tire mount  
 (three required)  
 Self-locking nut, spare wheel carrier pulley  
 wheel

#### Personnel Required

Three

#### Equipment Condition

Spare tire removed (TM 9-2320-270-10).

**SPARE TIRE MOUNT, WINCH, AND CABLE - CONTINUED**

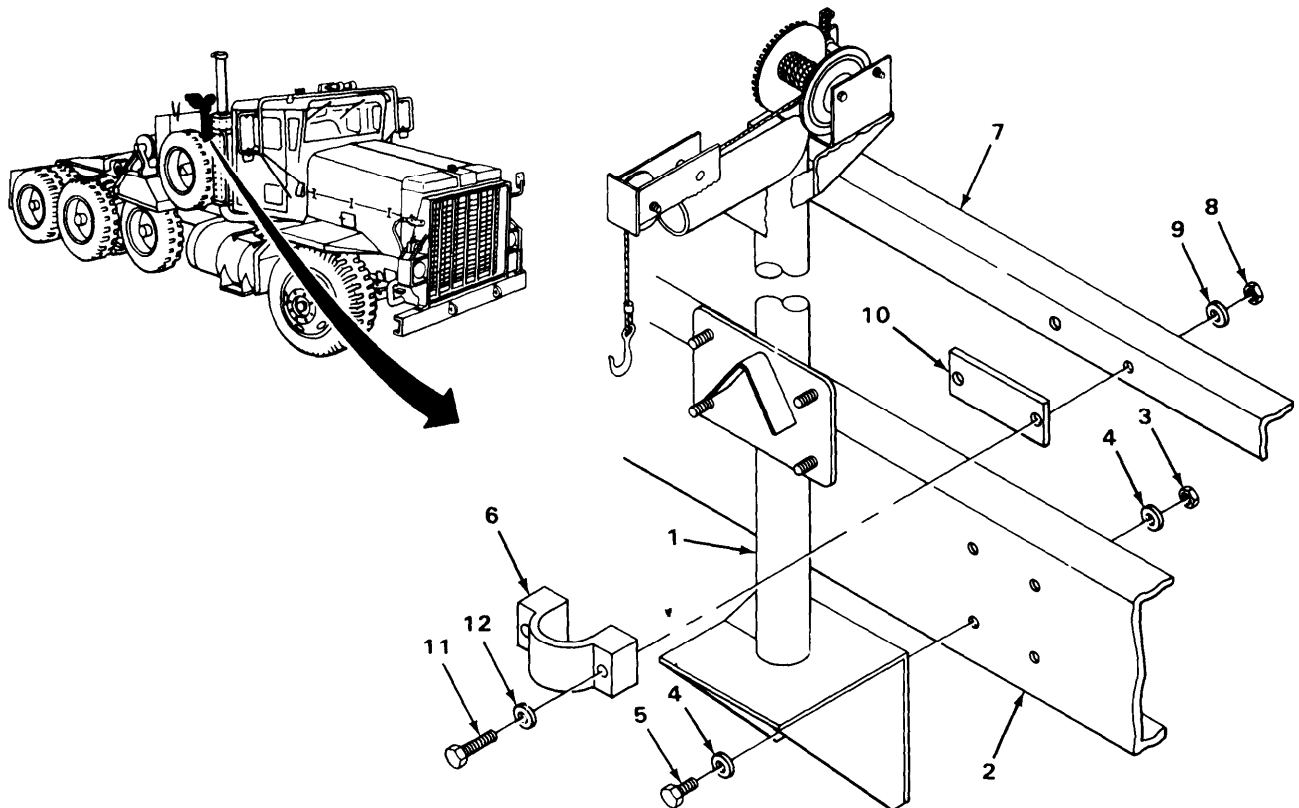
LOCATION	ITEM	ACTION	REMARKS
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REMOVAL

**WARNING**

When removing or installing mounting hardware, assistants must hold spare tire mount to prevent it falling and causing injury to personnel.

- |   |  |   |
|---|--|---|
| <p>1. Spare tire mount (1) to frame (2)</p> | <p>Four self-locking nuts (3), eight washers (4), and four bolts (5)</p>   | <p>a. Using 15/16-inch socket, ratchet, and 15/16-inch box wrench, unscrew and take off.<br/>b. Get rid of self-locking nuts (3).</p> |
| <p>2. Bracket (6) to platform (7)</p>       | <p>Two self-locking nuts (8), two washers (9), bracket (6), bracket plate (10), bolts (11), and washers (12)</p> | <p>a. Using 15/16-inch socket, ratchet, and 15/16-inch box wrench, unscrew and take off.<br/>b. Get rid of self-locking nuts (8).</p> |
| <p>3. Frame (2)</p>                         | <p>Spare tire mount (1)</p>  | <p>With help from assistants, take off.</p>   |



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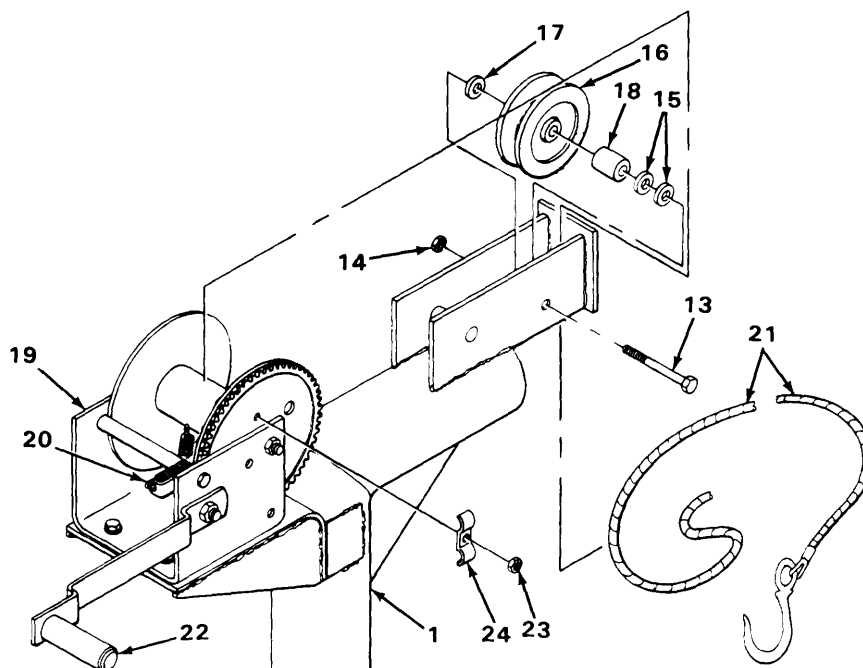
**SPARE TIRE MOUNT, WINCH, AND CABLE - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
DISASSEMBLY		
4. Spare tire mount (1) and bolt (13)	Self-locking nut (14)	a. Using <b>9/16-inch</b> socket, ratchet, and <b>9/16-inch</b> box wrench, unscrew and take off. b. Get rid of self-locking nut (14).
5.	Bolt (13), two washers (15), wheel (16), and washer (17)	Take out.
6. Wheel (16)	Bearing (18)	Push out.
7. Winch (19)	Winch lever (20)	Put in drum released position.

**WARNING**

**Leather gloves must be worn when handling cable to prevent cuts and scrapes. Never let cable run through hands. Broken and frayed wires can cause injury.**

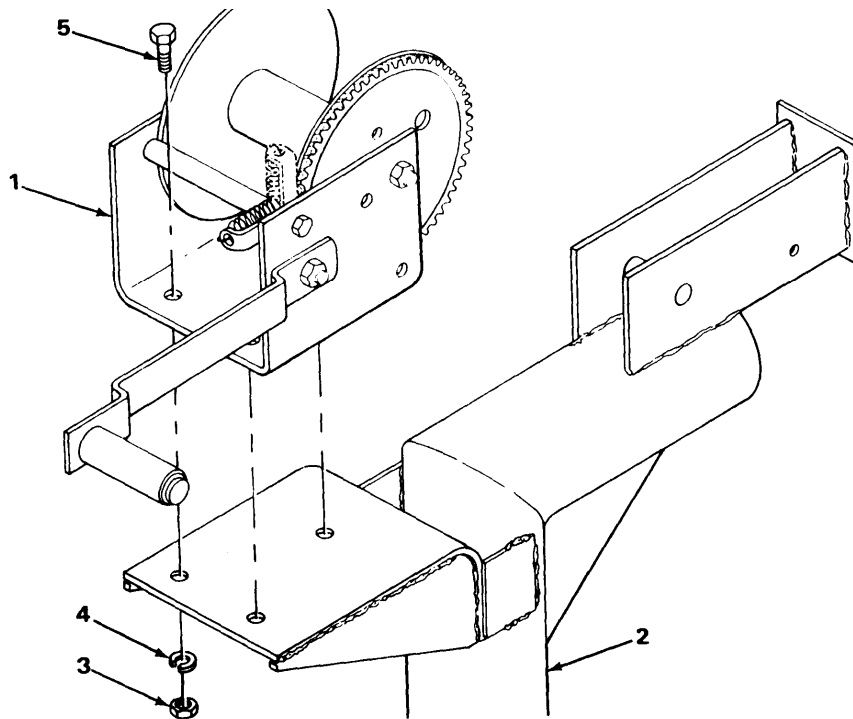
8.	Cable (21) and crank (22)	Have assistant pull on cable as you, using crank (22), unwind it.
9.	Nut (23) and clamp (24)	Using 7/16-inch socket and ratchet handle, unscrew and take off.
10.	Cable (21)	Take off.



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**SPARE TIRE MOUNT, WINCH, AND CABLE - CONTINUED**

LOCATION	ITEM	ACTION	REMARKS
<b>DISASSEMBLY - CONTINUED</b>			
11. Winch (1) to spare tire mount (2)	Three nuts (3), lockwashers (4), and bolts (5)	a. Using 9/16-inch socket, ratchet, and 9/16-inch box wrench, unscrew and take off. b. Get rid of lockwashers (4).	
12. Spare tire mount (2)	Winch (1)	Lift off.	
<b>ASSEMBLY</b>			
13. Spare tire mount (2)	Winch (1)	Place in position.	
14. Winch (1) to spare tire mount (2)	Three nuts (3), new lockwashers (4), and bolts (5)	Screw together and using 9/16-inch socket, ratchet, and 9/16-inch wrench, tighten.	



**WARNING**

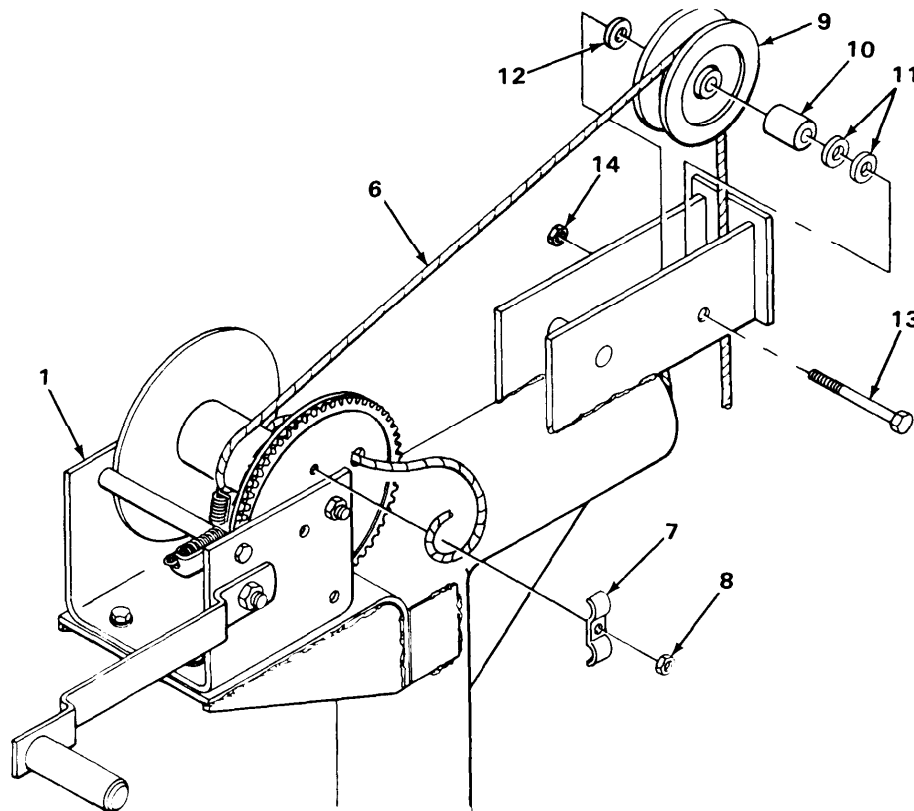
**Leather gloves must be worn when handling cable to prevent cuts and scrapes. Never let cable run through hands. Broken and frayed wires can cause injury.**

15. Winch (1)	Cable (6)	Put end through hole.
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**SPARE TIRE MOUNT, WINCH, AND CABLE - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
16. Cable (6)	Clamp (7)	Using pliers, bend cable (6) as shown and place clamp (7) in position.
17. Clamp (7)	Nut (8)	Screw in and tighten using 7/16-inch socket and ratchet to tighten.
18. Wheel (9)	Bearing (10), two washers (11), and washer (12)	Apply grease and put together.
19. Spare tire mount (2)	Wheel (9), two washers (11), bearing (10), and washer (12)	Place in position. <b>Make sure cable is on top of wheel.</b>
20.	Bolt (13)	Push into place.
21. Bolt (13)	New self-locking nut (14)	Screw on and tighten using 9/16-inch socket, ratchet, and 9/16-inch box wrench.



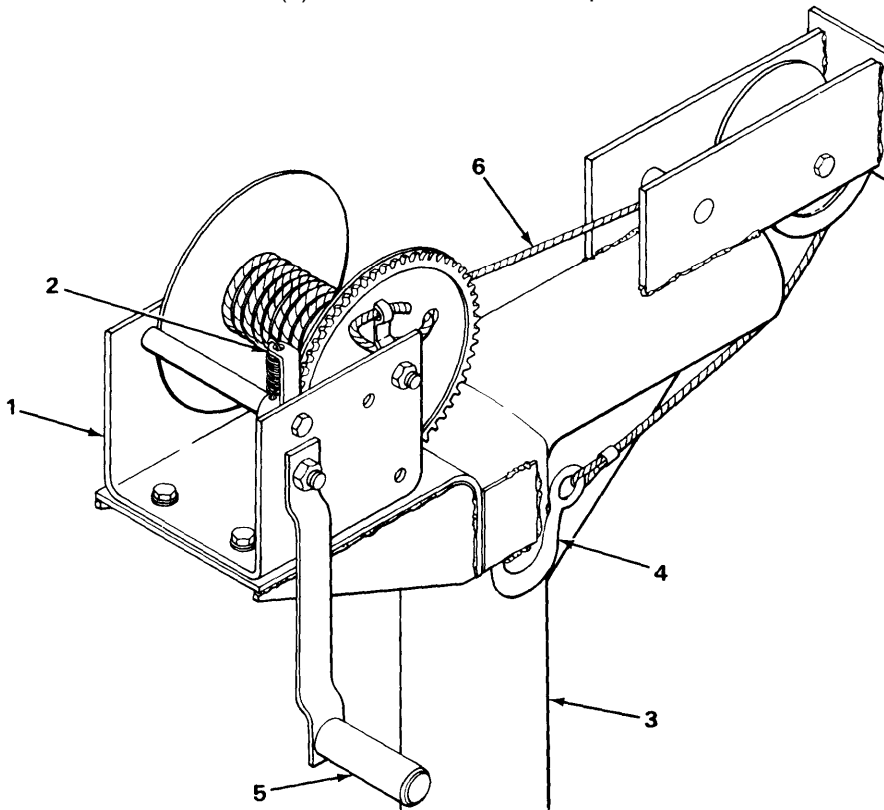
**SPARE TIRE MOUNT, WINCH, AND CABLE-CONTINUED**

LOCATION	ITEM	ACTION	REMARKS
ASSEMBLY - CONTINUED			
22. Winch (1)	Winch lever (2)	Put in wind position.	
23. Spare tire mount (3)	Hook (4)	Secure.	

**WARNING**

Leather gloves must be worn when handling cable to prevent cuts and scrapes. Never let cable run through hands. Broken and frayed wires can cause injury.

24. Crank (5) and cable (6) With assistant pulling on cable (6) to keep tension on it, wind until tight.



INSTALLATION

**WARNING**

When removing or installing mounting hardware, assistants must hold spare tire mount to prevent it falling and causing injury.

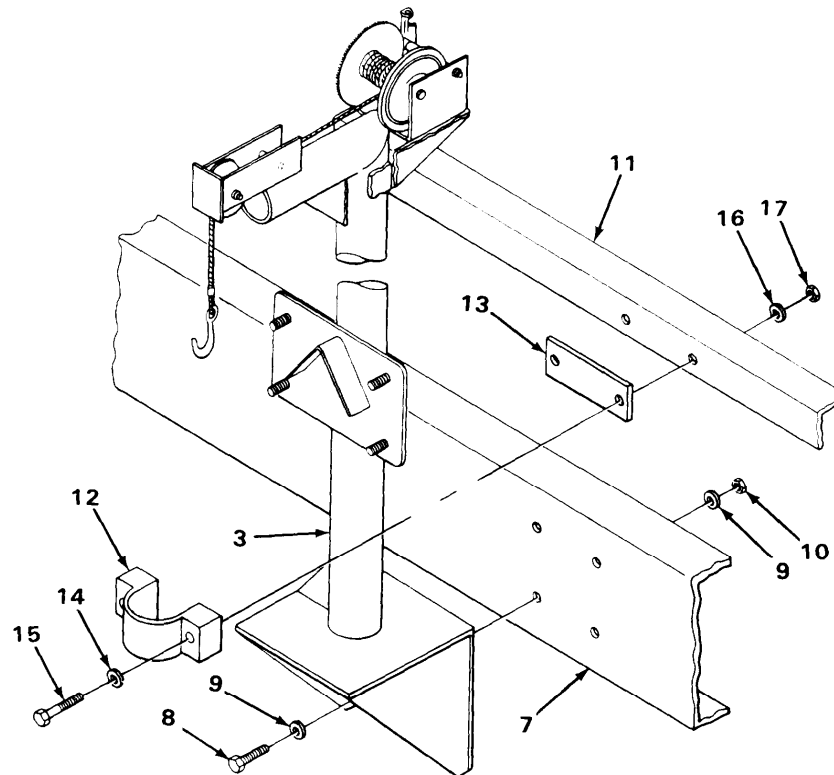
25. Frame (7) Spare tire mount (3) Have assistants place in position.

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**SPARE TIRE MOUNT, WINCH, AND CABLE - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
26. Spare tire mount (3) to frame (7)	Four bolts (8), eight washers (9), and four new self- locking nuts (10)	Screw in and tighten using 15/16-inch socket, ratchet, and 15/16-inch box wrench.
27. Spare tire mount (3) and platform (11)	Bracket (12), bracket plate (13), two washers (14), and two bolts (15)	Put in position.
28. Bolts (15)	Two washers (16) and new self-locking nuts (17)	Screw in and tighten using 15/16- inch socket, ratchet, and 15/16-inch box wrench.



**NOTE**

**FOLLOW-ON MAINTENANCE: Mount spare tire (TM 9-2320-200-10).**

**TASK ENDS HERE**

**SPARE TIRE WINCH CABLE**

---

This task covers:

- a. Removal (page 4-1062)
  - b. Installation (page 4-1062)
- 

**INITIAL SETUP**

Tools	Personnel Required
Pliers, slip-joint Handle, ratchet, 3/8-inch drive Socket, 7/16-inch, 3/8-inch drive	Two

---

LOCATION	ITEM	ACTION REMARKS
----------	------	-------------------

---

REMOVAL

- |  |                 |                                 |
|--|-----------------|---------------------------------|
| 1. Spare tire mount<br>(1) and winch (2) | Winch lever (3) | Put in drain released position. |
|--|-----------------|---------------------------------|

**WARNING**

Leather gloves must be worn when handling cable to prevent cuts and scrapes. Never let cable run through hands. Broken and frayed wires can cause injury.

- |   |                            |  |
|---|----------------------------|--|
| 2.  | Cable (4) and<br>crank (5) | Have assistant pull on cable as you, using crank, unwind it until there is less than one turn of cable left and clamp (6) is accessible. |
| 3.  | Nut (7) and<br>clamp (6)   | Using 7/16-inch socket and ratchet handle, unscrew and take off.   |
| 4. Winch (2)                                      | Cable (4)                  | Route end through hole and pull off.   |
| 5. Cable wheel (8)<br>and spare tire<br>mount (1) | Cable (4)                  | a. Pull through.<br>b. Look for broken and frayed wires.   |

INSTALLATION

- |  |           |                     |
|--|-----------|---------------------|
| 6. Spare tire mount<br>(1) and wheel (8) | Cable (4) | Route between.      |
| 7. Winch (2)                             | Cable (4) | Route through hole. |

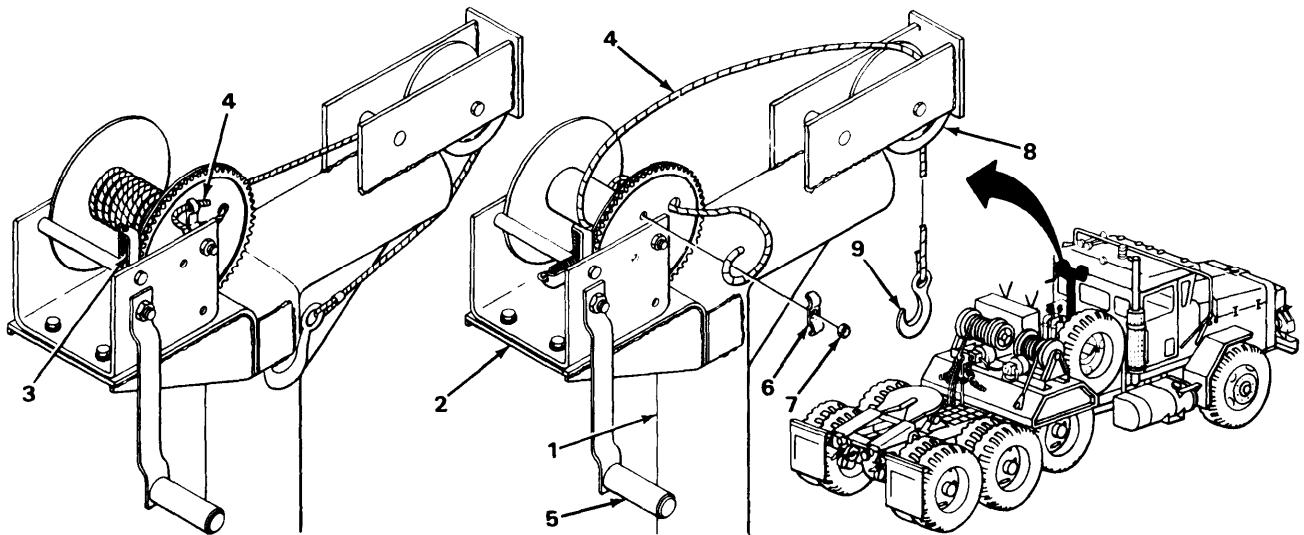
**SPARE TIRE WINCH CABLE- CONTINUED**

LOCATION	ITEM	ACTION REMARKS
8.	Cable (4) and clamp (6)	Using pliers, bend cable (4) as shown and hold in place with clamp (6).
9. Clamp (6)	Nut (7)	Screw on and tighten using ratchet and 7/16-inch socket.
10. Winch (2)	Winch lever (3)	Put in wind position.

**WARNING**

Leather gloves must be worn when handling cable to prevent cuts and scrapes. Never let cable run through hands. Broken and frayed wires can cause injury.

11.	Crank (5) and cable (4)	Using crank (5), wind on cable (4) until there is about 3 feet (1 m) left.
12. Spare tire mount (1)	Hook (9)	Secure on spare tire mount (1).
13.	Crank (5) and cable (4)	Using crank (5), wind in until tight.



**NOTE**

**FOLLOW-ON MAINTENANCE: Check winch operation (TM 9-2320-270-10).**

**TASK ENDS HERE**

## FIFTH WHEEL OSCILLATOR LOCKOUTS

---

This task covers:

- a. Lock (page 4-1064)
  - b. Unlock (page 4-1064)
- 

### INITIAL SETUP

Tools	Personnel Required
Hammer, plastic Wrench, 3/4-inch	One

---

LOCATION	ITEM	ACTION REMARKS
----------	------	-------------------

---

### NOTE

**Fifth wheel oscillator lockouts are adjusted to locked positions (toward center of truck) for normal driving and adjusted to unlocked position for extremely rough ground.**

**Both oscillator lockouts are adjusted the same. Right side is shown.**

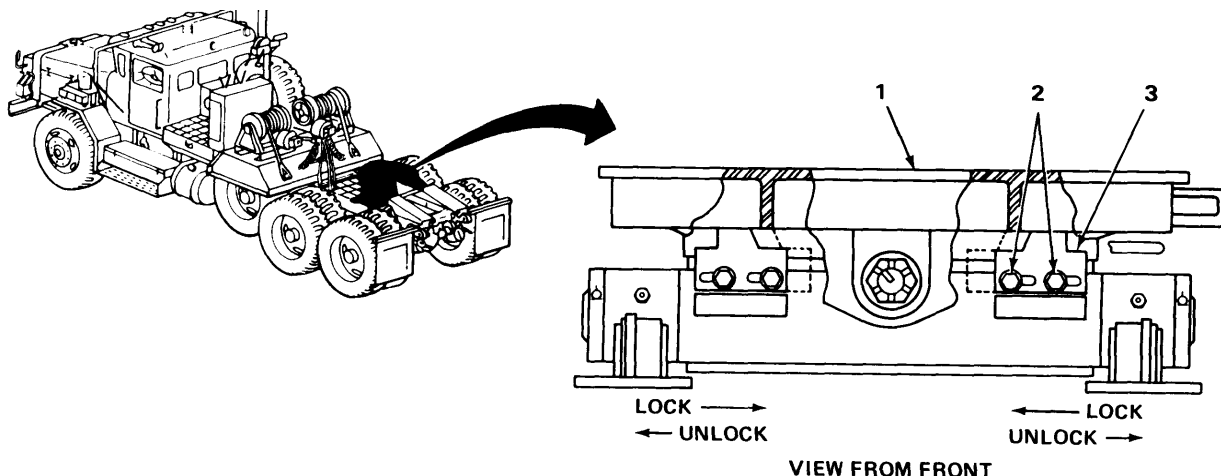
#### LOCK

- |                    |                   |  |
|--------------------|-------------------|--|
| 1. Fifth wheel (1) | Two bolts (2)     | Using 3/4-inch wrench, unscrew part way.   |
| 2.                 | Lockout block (3) | a. Push toward center of truck.<br>b. Using hammer, tap lockout toward center of truck until snug. |
| 3.                 | Two bolts (2)     | a. Using 3/4-inch wrench, tighten.<br>b. Repeat steps 1 thru 3 for left side.                      |

#### UNLOCK

- |                    |                   |   |
|--------------------|-------------------|---|
| 4. Fifth wheel (1) | Two bolts (2)     | Using 3/4-inch wrench, unscrew part way.  |
| 5.                 | Lockout block (3) | Using hammer, tap toward outside of truck to loosen and pull toward outside of truck. |
| 6.                 | Two bolts (2)     | a. Using 3/4-inch wrench, tighten.<br>b. Perform steps 4 thru 6 on left side.         |

**FIFTH WHEEL OSCILLATOR LOCKOUTS- CONTINUED**



**TASK ENDS HERE**

**Section XV. SPRINGS, SHOCK ABSORBERS, AND TORQUE RODS**

	Page		Page
Front Spring Pins .....	4-1074	Rear Axle Spring Lubrication	
Left Air Pilot Valve .....	4-1065	Fitting .....	4-1087
Pusher Axle Air Load Control		Right Air Pilot Valve .....	4-1070
Valve .....	4-1079	Tandem Axle Torque Rod	
Pusher Axle Shock Absorber .....	4-1084	Lubrication Fittings .....	4-1085

**LEFT AIR PILOT VALVE**

This task covers:

- a. Removal (page 4-1065)
- b. Cleaning (page 4-1068)
- c. Inspection/Replacement (page 4-1068)
- d. Installation (page 4-1068)

**INITIAL SETUP**

**Tools**

- Hammer, plastic
- Handle, ratchet, 3/8-inch drive
- Pliers, diagonal cutting
- Pliers, long-nose, round
- Pliers, slip-joint, straight-nose
- Socket, 3/8-inch drive, 7/16-inch
- Vise, machinist's
- Wrench, open-end, 7/16-inch
- Wrench, open-end, 5/8-inch

**Materials/Parts**

- Lockwashers (two required)
- Tag, marking (item 18, appendix C)
- Tape, teflon (item 22, appendix C)
- Wrap, tie (item 24 appendix C)

**Personnel Required**

One

**Equipment Condition**

Air system drained (TM 9-2320-270-10).

TA240666

**LEFT AIR PILOT VALVE - CONTINUED**

---

LOCATION	ITEM	ACTION REMARKS
----------	------	-------------------

---

REMOVAL

**WARNING**

**Make sure all pressure is drained from air system before disconnecting air lines. Parts under pressure can, when removed, fly off with great force causing injury to personnel.**

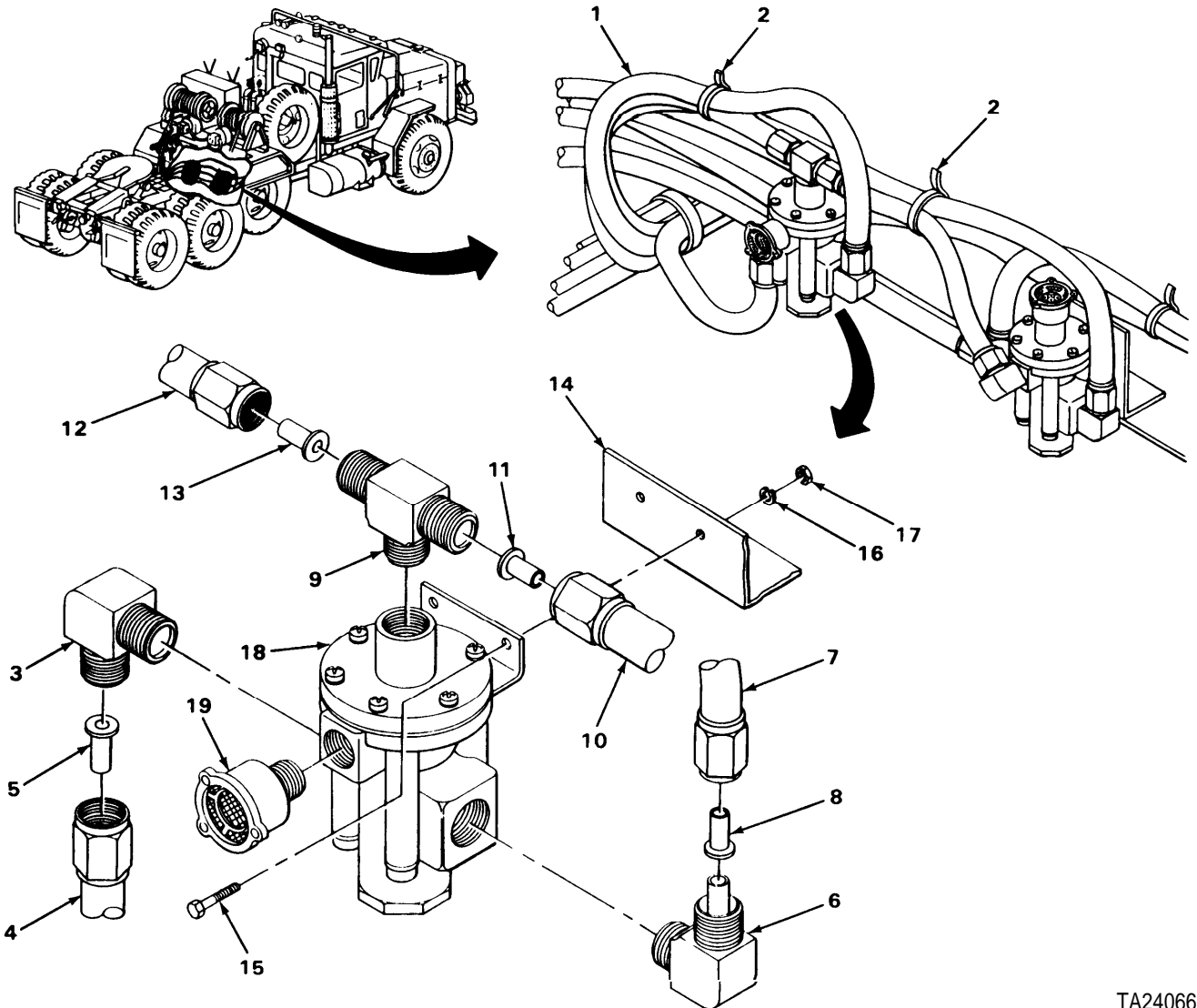
**NOTE**

**Tag lines according to general maintenance instructions (page 4-1).**

1. Hose harness (1)	Two tie wraps (2)	a. Using diagonal cutting pliers, cut and take off. b. Get rid of.
2. Elbow (3)	Hose (4)	Using 5/8-inch wrench, unscrew and take off.
3.	Insert (5)	Using long-nose pliers, pull out.
4. Elbow (6)	Hose (7)	Using 5/8-inch wrench, unscrew and take off.
5.	Insert (8)	Using long-nose pliers, pull out.
6. Tee (9)	Hose (10)	Using 5/8-inch wrench, unscrew and take off.
7.	Insert(n)	Using long-nose pliers, pull out.
8.	Hose (12)	Using 5/8-inch wrench, unscrew and take off.
9.	insert (13)	Using long-nose pliers, pull out.
10. Bracket (14)	Two screws (15), lockwashers (16), and nuts (17)	a. Using 7/16-inch wrench, 7/16-inch socket and handle with 3/8-inch drive, unscrew and take out. b. Get rid of lockwashers (16).
11.	Left air pilot valve (18)	Take off.

LEFT AIR PILOT VALVE - CONTINUED

LOCATION	ITEM	ACTION REMARKS
12. Left air pilot valve (18)	Elbow (3)	a. Secure valve (18) in vise. b. Using 5/8-inch wrench, unscrew and take off.
13.	Elbow (6)	Using 5/8-inch wrench, unscrew and take off.
14.	Tee (9)	Using 5/8-inch wrench, unscrew and take off.
15.	Screened vent valve (19)	a. Using slip-joint pliers, unscrew and take out. b. Take valve (18) out of vise.



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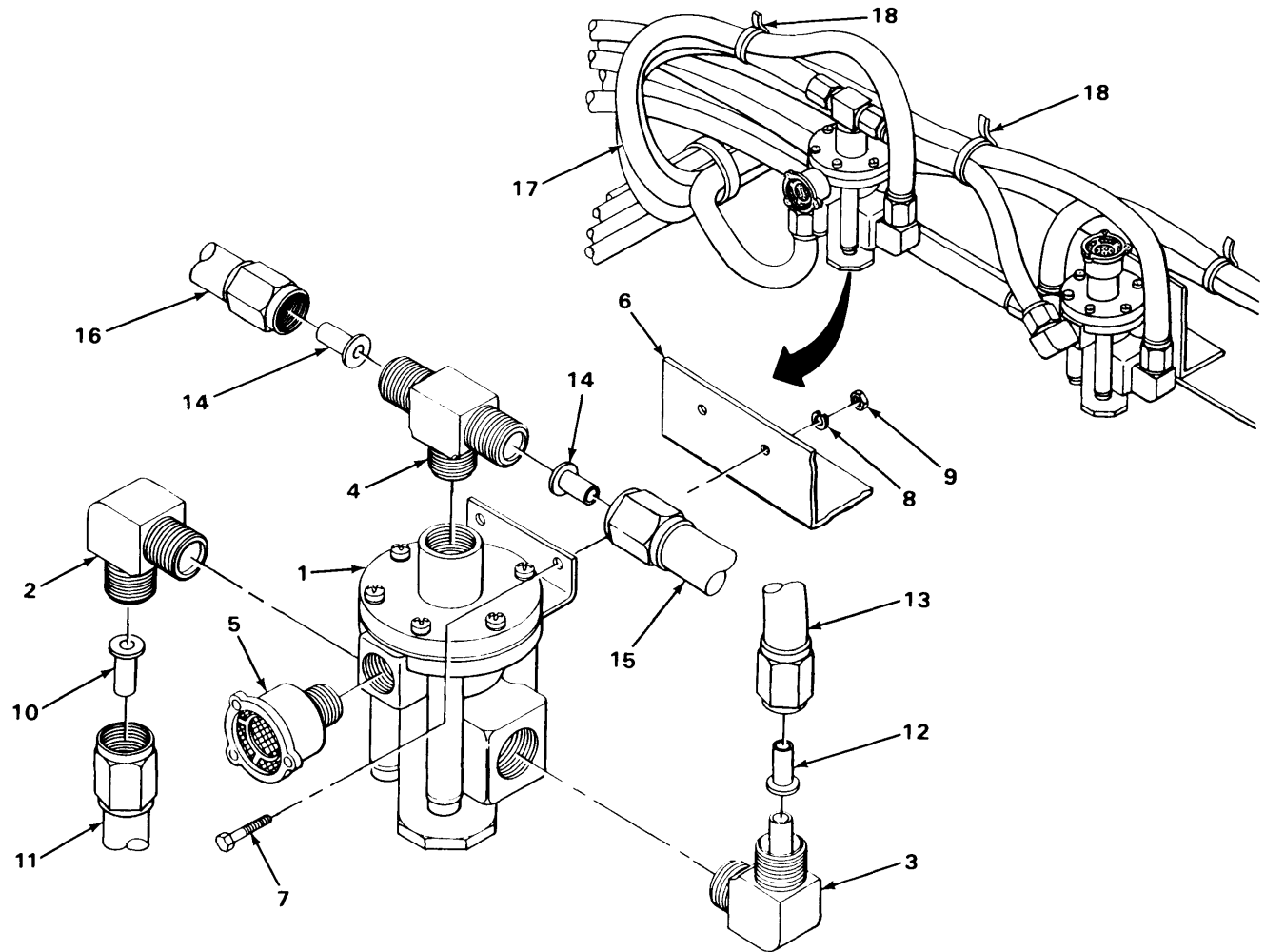
## LEFT AIR PILOT VALVE - CONTINUED

LOCATION	ITEM	ACTION REMARKS
CLEANING		
16.	All parts	Clean according to general maintenance instructions (page 4-1).
INSPECTION/REPLACEMENT		
17.	All parts	Inspect according to general maintenance instructions (page 4-1).
18. Air pilot valve (1)	Elbow (2)	a. Secure valve (1) in vise. b. Wrap threads with teflon tape (page 4-1). c. Using 5/8-inch wrench, screw in and tighten.
19.	Elbow (3)	a. Wrap threads with teflon tape (page 4-1). b. Using 5/8-inch wrench, screw in and tighten.
20.	Tee (4)	a. Wrap threads with teflon tape (page 4-1). b. Using 5/8-inch wrench, screw in and tighten.
21.	Screened vent valve (5)	a. Wrap threads with teflon tape (page 4-1). b. Using slip-joint pliers, screw in and tighten. c. Take valve (1) out of vise.
22. Bracket (6)	Air pilot valve (1)	Place in position.
23. Air pilot valve (1)	Two screws (7), new lockwashers (8), and nuts (9)	Screw in and tighten using 7/16-inch socket, handle with 3/8-inch drive and 7/16-inch wrench.
24. Elbow (2)	Insert (10)	Using hammer, tap in.
25.	Hose (11)	Screw on and tighten.
26. Elbow (3)	Insert (12)	Using hammer, tap in.



**LEFT AIR PILOT VALVE - CONTINUED**

LOCATION	ITEM	ACTION	REMARKS
27.	Hose (13)	Screw on and tighten using 5/8-inch wrench.	
28. Tee (4)	Two inserts (14)	Using hammer, tap in.	
29.	Hose (15)	Screw on and tighten using 5/8-inch wrench.	
30.	Hose (16)	Screw on and tighten using 5/8-inch wrench.	
31. Hose harness (17)	Two new tie wraps (18)	a. Put hoses together. b. Using pliers, put on.	



**TASK ENDS HERE**

## RIGHT AIR PILOT VALVE

---

This task covers:

- |                           |   |
|---------------------------|---|
| a. Removal (page 4-1070)  | c. Inspection/Replacement (page 4-1072) |
| b. Cleaning (page 4-1072) | b. Installation (page 4-1072)           |
- 

### INITIAL SETUP

**Tools**

Hammer, plastic  
 Handle, ratchet, 3/8-inch drive  
 Pliers, diagonal-cutting  
 Pliers, long-nose, round  
 Pliers, slip-joint, straight-nose  
 Socket, 3/8-inch drive, 7/16-inch  
 Vise, machinist's  
 Wrench, open-end, 7/16-inch  
 Wrench, open-end, 5/8-inch

**Materials/Parts**

Lockwashers (two required)  
 Tag, marking (item 18, appendix C)  
 Tape, teflon (item 22, appendix C)  
 Wrap, tie (item 24, appendix C)

**Personnel Required**

One

**Equipment Condition**

Air system drained (TM 9-2320-270-10).

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LOCATION	ITEM	ACTION REMARKS
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### REMOVAL

**WARNING**

**Make sure all pressure is drained from air system before disconnecting air lines. Parts under pressure can, when removed, fly off with great force causing injury to personnel.**

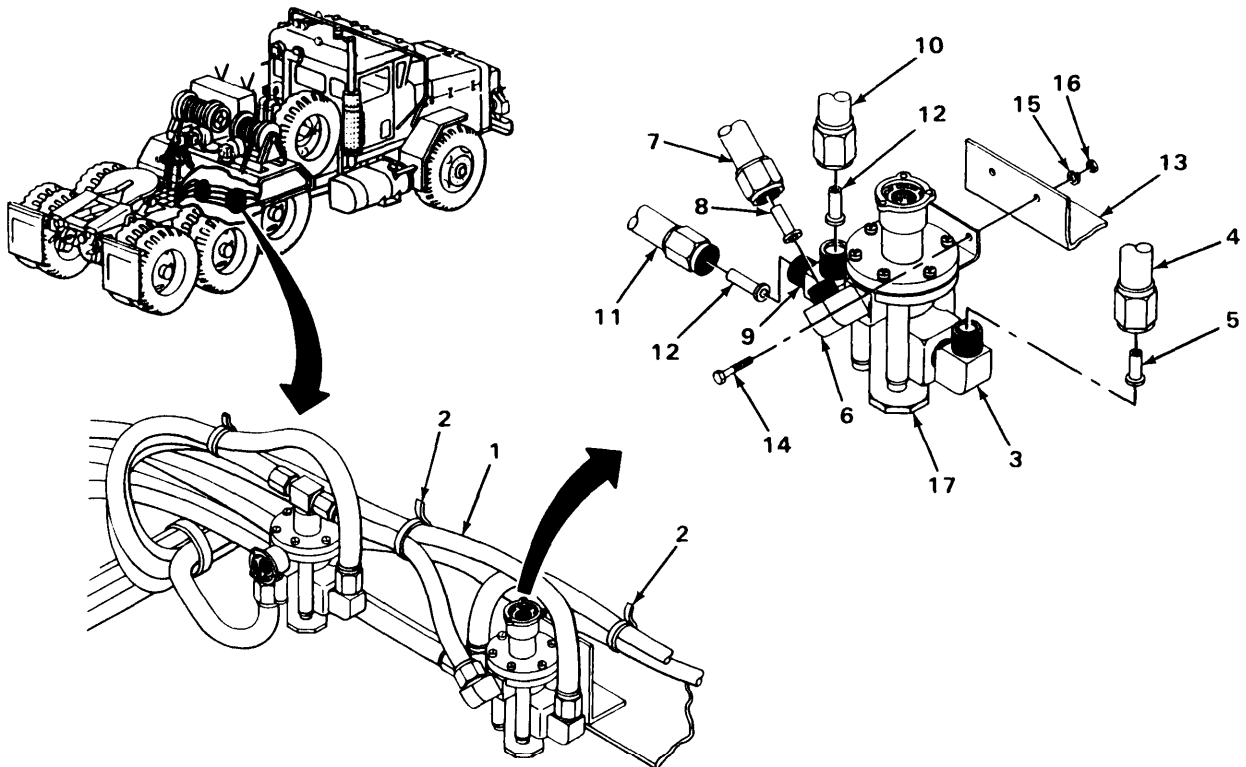
**NOTE**

**Tag lines according to general maintenance instructions (page 4-1).**

- |                     |                   |   |
|---------------------|-------------------|---|
| 1. Hose harness (1) | Two tie wraps (2) | a. Using diagonal-cutting pliers, cut and take off.<br>b. Get rid of. |
| 2. Elbow (3)        | Hose (4)          | Using 5/8-inch wrench, unscrew and take off.                          |
| 3.                  | insert (5)        | Using long-nose pliers, pull out.                                     |

RIGHT AIR PILOT VALVE - CONTINUED

LOCATION	ITEM	ACTION REMARKS
4. Elbow (6)	Hose (7)	Using 5/8-inch wrench, unscrew and take off.
5.	insert (8)	Using long-nose pliers, pull out.
6. Tee (9)	Hose (10)	Using 5/8-inch wrench, unscrew and take off.
7.	Hose (11)	Using 5/8-inch wrench, take off,
8.	Two inserts (12)	Using long-nose pliers, pull out.
9. Bracket (13)	Two screws (14), lockwashers (15), and nuts (16)	a. Using 7/16-inch wrench, socket, and ratchet handle, unscrew and take out. b. Get rid of lockwashers (15).
10.	Right air pilot valve (17)	Take off.

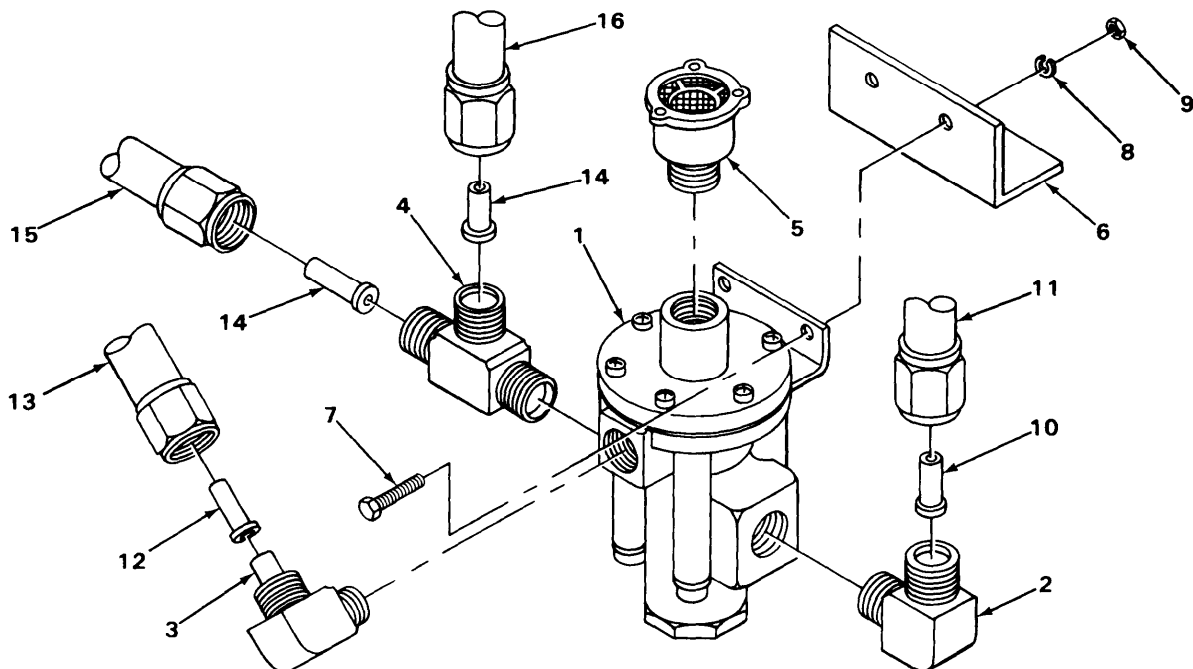


## RIGHT AIR PILOT VALVE - CONTINUED

LOCATION	ITEM	ACTION REMARKS
REMOVAL - CONTINUED		
11. Right air pilot valve (1)	Elbow (2)	a. Secure valve (19) in vise. b. Using 5/8-inch wrench, unscrew and take out.
12.	Elbow (3)	Using 5/8-inch wrench, unscrew and take out.
13.	Tee (4)	Using 5/8-inch wrench, unscrew and take out.
14.	Screened vent valve (5)	a. Using slip-joint pliers, unscrew and take out. b. Take valve (1) out of vise.
<b>CLEANING</b>		
15.	All parts	Clean according to general maintenance instructions (page 4-1).
INSPECTION/REPLACEMENT		
16.	All parts	Inspect according to general maintenance instructions (page 4-1).
INSTALLATION		
17. Right air pilot valve (1)	Elbow (2)	a. Secure valve (1) in vise. b. Wrap threads with teflon tape (page 4-1). c. Using 5/8-inch wrench, screw in and tighten.
18.	Elbow (3)	a. Wrap threads with teflon tape (page 4-1). b. Using 5/8-inch wrench, screw in and tighten.
19.	Tee (4)	a. Wrap threads with teflon tape (page 4-1). b. Using 5/8-inch wrench, screw in and tighten.
20.	Screened vent valve (5)	a. Wrap threads with teflon tape (page 4-1).

**RIGHT AIR PILOT VALVE - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
20. Continued		b. Using slip-joint pliers, screw in and tighten. c. Take valve (1) out of vise.
21. Bracket (6)	Air pilot valve (1)	Place in position.
22. Air pilot valve (1)	Two screws (7), new lockwashers (8), and nuts (9)	Screw in and tighten using 7/16-inch wrench.
23. Elbow (2)	Insert (10)	Using hammer, tap in.
24.	Hose (11)	Screw in and tighten using 5/8-inch wrench.
25. Elbow (3)	Insert (12)	Using hammer, tap in.
26.	Hose (13)	Screw on and tighten using 5/8-inch wrench.
27. Tee (4)	Two inserts (14)	Using hammer, tap in.
28.	Hose (15)	Screw on and tighten using 5/8-inch wrench.
29.	Hose (16)	Screw on and tighten using 5/8-inch wrench.



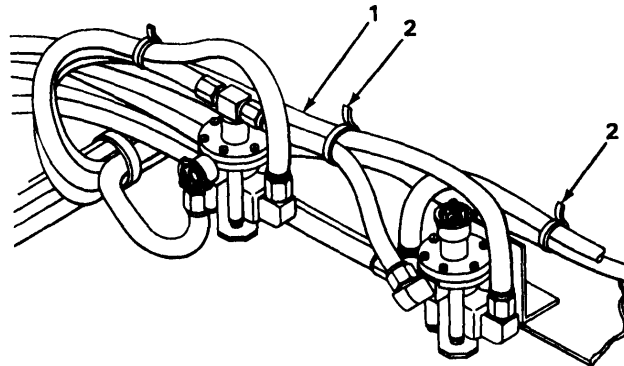
TA240670

**RIGHT AIR PILOT VALVE - CONTINUED**

LOCATION	ITEM	ACTION	REMARKS
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**INSTALLATION - CONTINUED**

30. Hose harness (1)	Two new tie wraps (2)	Using slip-joint pliers, put on.	
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**NOTE**

**FOLLOW-ON MAINTENANCE:** Check for proper operation (TM 9-2320-270-10) and check for air leaks (page 4-1).

**TASK ENDS HERE**

**FRONT SPRING PINS**

This task covers:

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>a. Front Front Pin Removal (page 4-1075)</li> <li>b. Front Front Pin Inspection/Replacement (page 4-1076)</li> <li>c. Front Front Pin Installation (page 4-1076)</li> </ul> | <ul style="list-style-type: none"> <li>d. Front Rear Pin Removal (page 4-1077)</li> <li>e. Front Rear Pin inspection/Replacement (page 4-1078)</li> <li>f. Front Rear Pin installation (page 4-1078)</li> </ul> |
|--|---|

**INITIAL SETUP**

**Tools**

- Driftpin, brass, 1/2-inch
- Hammer, machinist's ball-peen
- Lifting equipment, 30,000 pound capacity
- Punch, drive pin, 3/16-inch
- Trestle, automotive (two required)
- Wrench, open-end, 7/16-inch
- Wrench, open-end, 3/4-inch

**Personnel Required**

One

**Equipment Condition**

Pitman arm to booster drag link removed (page 4-962) (for left rear spring pin only).

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**FRONT SPRING PINS - CONTINUED**

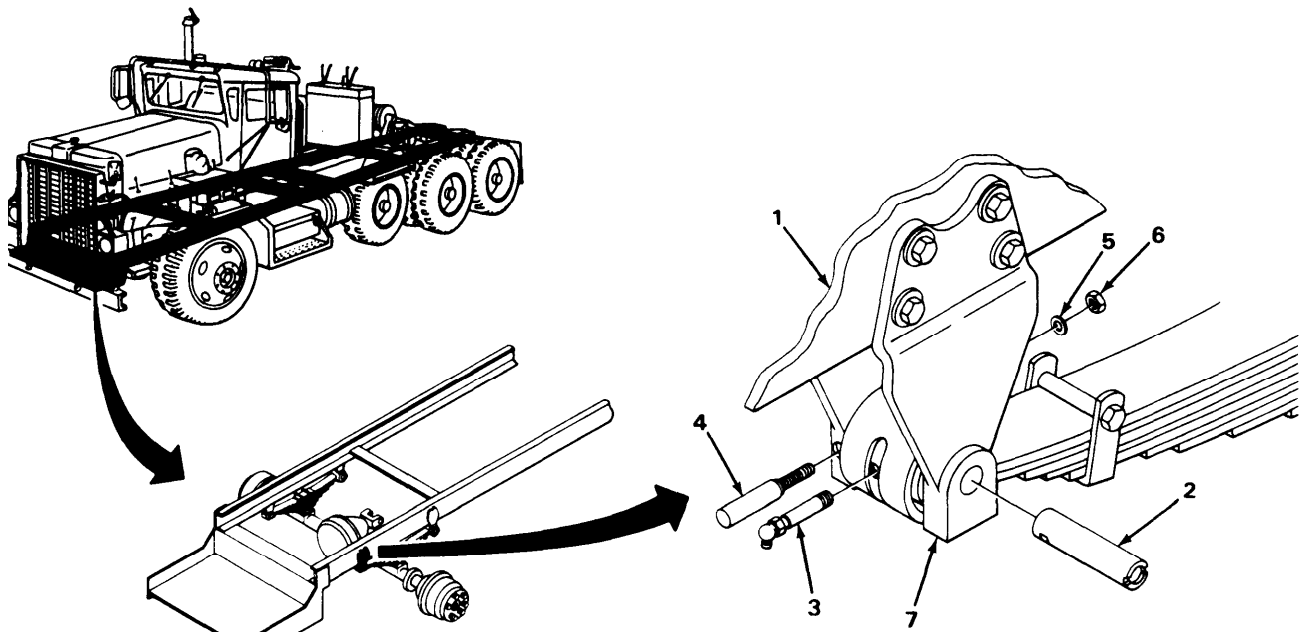
LOCATION	ITEM	ACTION	REMARKS
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FRONT FRONT PIN REMOVAL

**WARNING**

Some parts are heavy. Be careful when handling them. Lifting equipment is needed when parts weigh over 50 pounds (23 kg) for a single person lift, over 100 pounds (45 kg) for a two person lift, and over 150 pounds (66 kg) for a three or more person lift. Do not try to handle heavy parts without lifting equipment. Keep clear of heavy parts supported only by lifting equipment. Failure to observe this precaution could cause serious injury or death of personnel.

- |                    |                                      |  |
|--------------------|--------------------------------------|--|
| 1. Truck           | Frame (1)                            | <ul style="list-style-type: none"> <li>a. Using lifting equipment, lift.</li> <li>b. Place two trestles in position to support so that there will be no load on pins (2).</li> <li>c. Using lifting equipment, lower onto two trestles.</li> </ul> |
| 2. Shackle pin (2) | Lubrication fitting (3)              | Using 7/16-inch wrench, unscrew and take out.  |
| 3.                 | Lockpin (4), washer (5), and nut (6) | <ul style="list-style-type: none"> <li>a. Using 3/4-inch wrench, unscrew and take off.</li> <li>b. Using hammer and punch, drive out.</li> </ul>   |
| 4. Bracket (7)     | Shackle pin (2)                      | Using drift and hammer, drive out.   |



TA240672

**FRONT SPRING PINS - CONTINUED**

LOCATION	ITEM	ACTION	REMARKS
FRONT	FRONT PIN	INSPECTION/REPLACEMENT	

**NOTE**

For more information on how to inspect parts, go to the general maintenance instructions (page 4-1). Replace defective parts as needed.

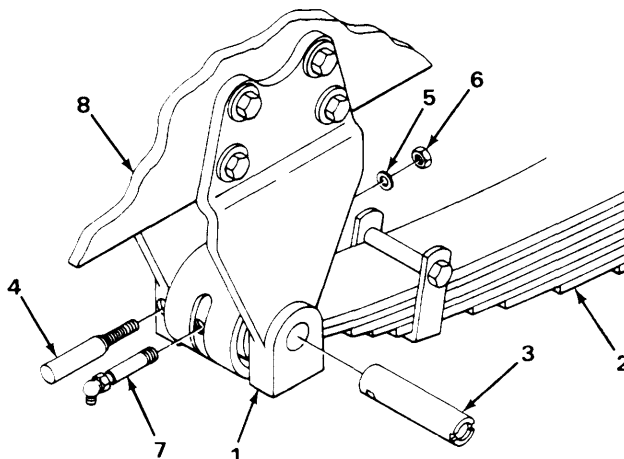
FRONT FRONT PIN INSTALLATION

5. Bracket (1)	Spring (2)	Line up holes.
6.	Shackle pin (3)	Using hammer, drive in. <b>Shackle pin is slotted on end for alignment of shackle pin notch. Slot must be horizontal and shackle pin notch down, when installed.</b>
7. Shackle pin (3)	Lockpin (4), washer (5), and nut (6)	a. Using hammer, drive in lockpin (4). <b>Make sure flats line up.</b> b. Screw on washer (5) and nut (6) and tighten using 3/4-inch wrench.
8.	Lubrication fitting (7)	Screw in and tighten using 7/16-inch wrench.

**NOTE**

If front rear pin will be removed, skip step 9.

9. Truck	Frame (8)	a. Using lifting equipment, lift. b. Remove trestles. c. Using lifting equipment, lower.
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TA240673



**FRONT SPRING PINS - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
----------	------	-------------------

FRONT REAR PIN REMOVAL

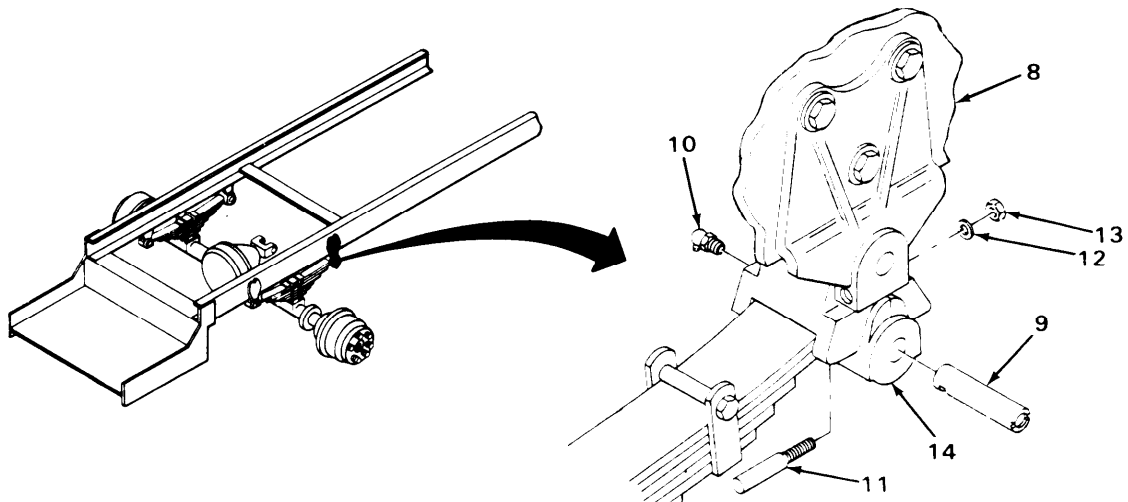
**NOTE**

If frame has been raised for front front pin removal, skip step 10.

**WARNING**

Some parts are heavy. Be careful when handling them. Lifting equipment is needed when parts weigh over 50 pounds (23 kg) for a single person lift, over 100 pounds (45 kg) for a two person lift, and over 150 pounds (68 kg) for a three or more person lift. Do not try to handle heavy parts without lifting equipment. Keep clear of heavy parts supported only by lifting equipment. Failure to observe this precaution could cause serious injury or death of personnel.

- |                     |   |   |
|---------------------|---|---|
| 10. Truck           | Frame (8)                               | <ul style="list-style-type: none"> <li>a. Using lifting equipment, lift.</li> <li>b. Remove trestles.</li> <li>c. Using lifting equipment, lower.</li> </ul>  |
| 11. Shackle pin (9) | Lubrication fitting (10)                | Unscrew and take out using 7/16-inch wrench.  |
| 12.                 | Lockpin (11), washer (12), and nut (13) | <ul style="list-style-type: none"> <li>a. Using 3/4-inch wrench, unscrew and take out.</li> <li>b. Using hammer and punch, drive out lockpin (11).</li> </ul> |
| 13. Bracket (14)    | Shackle pin (9)                         | Using hammer and drift, drive out.<br><b>Shackle pin is threaded on end for lubrication fitting. When driving out, do not damage threads.</b>                 |



**FRONT SPRING PINS - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
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FRONT REAR PIN INSPECTION/REPLACEMENT

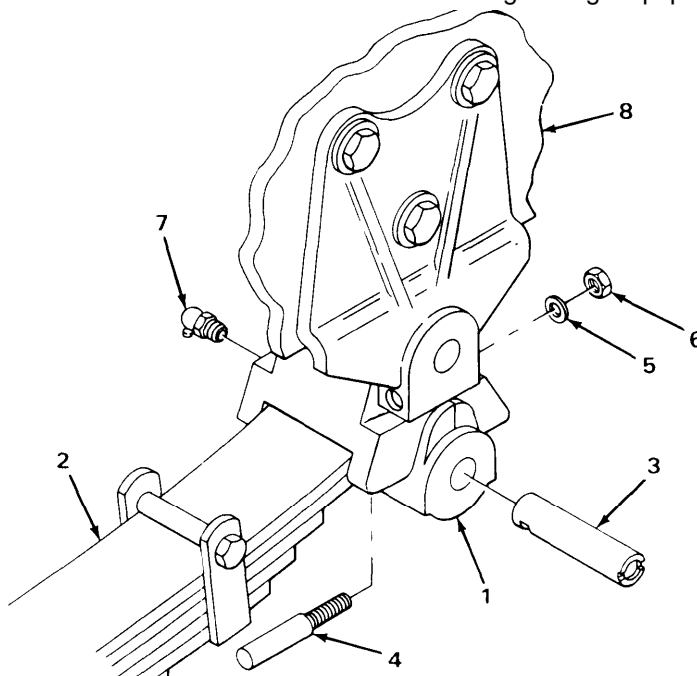
**NOTE**

For more information on how to inspect parts, go to the general maintenance instructions (page 4-1).

Replace defective parts as needed.

FRONT REAR PIN INSTALLATION

- |                     |                                      |   |
|---------------------|--------------------------------------|---|
| 14. Bracket (1)     | Spring (2)                           | Line up holes.  |
| 15.                 | Shackle pin (3)                      | Using hammer and drift, drive in.   |
| 16. Shackle pin (3) | Lockpin (4), washer (5), and nut (6) | a. Using hammer, drive in lockpin (4).<br><b>Make sure flats line up.</b><br>b. Put in and tighten using 3/4-inch wrench. |
| 17.                 | Lubrication fitting (7)              | Screw in and tighten using 7/16-inch wrench.  |
| 18. Truck           | Frame (8)                            | a. Using lifting equipment, lift.<br>b. Remove trestles.<br>c. Using lifting equipment, lower.                            |



TA240675

**FRONT SPRING PINS - CONTINUED****NOTE****FOLLOW-ON MAINTENANCE:**

1. Install pitman arm to booster drag link (page 4-962) (left rear spring only).
2. Lubricate spring pins (LO 9-2320-270-12).

**TASK ENDS HERE****PUSHER AXLE AIR LOAD CONTROL VALVE**

---

This task covers:

- |                           |   |
|---------------------------|---|
| a. Removal (page 4-1080)  | c. inspection/Replacement (page 4-1082) |
| b. Cleaning (page 4-1082) | d. Installation (page 4-1082)           |
- 

**INITIAL SETUP****Tools**

Hammer, plastic  
 Pliers, long-nose, round  
 Vise  
 Wrench, open-end, 3/8-inch  
 Wrench, open-end, 7/16-inch  
 Wrench, open-end, 1/2-inch  
 Wrench, open-end, 9/16-inch  
 Wrench, open-end, 5/8-inch

**Personnel Required**

One

**Equipment Condition**

Air system drained (TM 9-2320-270-10).

**Materials/Parts**

Lockwashers (two required)  
 Tape, teflon (item 22, appendix C)

**PUSHER AXLE AIR LOAD CONTROL VALVE - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
----------	------	-------------------

REMOVAL

**WARNING**

Make sure all pressure is drained from air system before disconnecting air lines. Parts under pressure can, when removed, fly off with great force causing injury to personnel.

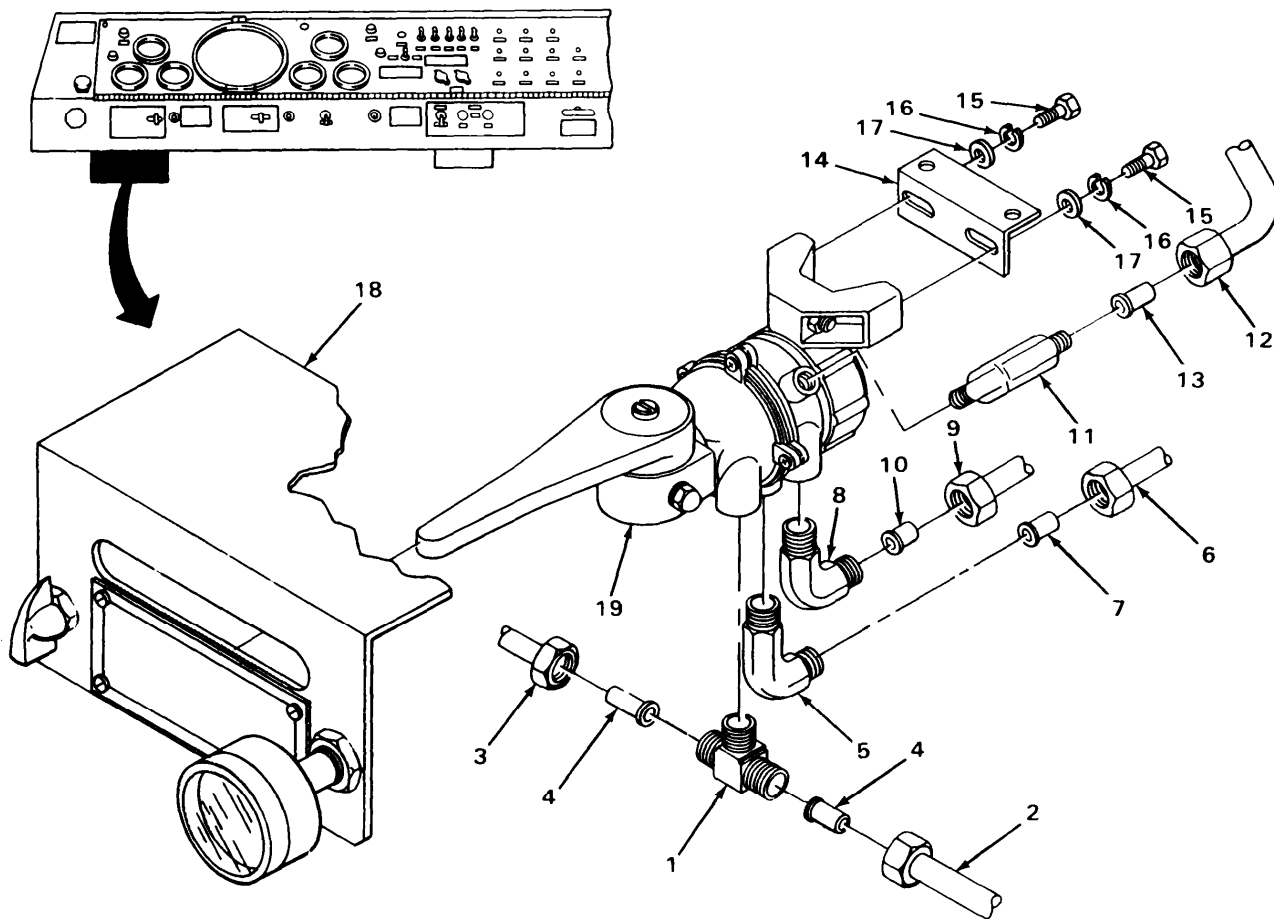
**NOTE**

Tag lines according to general Maintenance instructions (page 4-1).

1. Tee(1)	Hose (2)	Using 5/8-inch wrench, unscrew and take off.
2.	Hose (3)	Using 5/8-inch wrench, unscrew and take off.
3.	Two inserts (4)	Using pliers, pull out.
4. Elbow (5)	Hose (6)	Using 5/8-inch wrench, unscrew and take off.
5.	Insert (7)	Using pliers, pull out.
6. Elbow (8)	Hose (9)	Using 9/16-inch wrench, unscrew and take off.
7.	Insert (10)	Using pliers, pull out.
8. Elbow(11)	Hose (12)	Using 9/16-inch wrench, unscrew and take off.
9.	Insert (13)	Using pliers, pull out.
10. Mounting bracket (14)	Two screws (15), lockwashers (16), and washers (17)	a. Using 1/2-inch wrench, unscrew and remove. b. Get rid of lockwashers (16).
11. Instrument panel (18)	Pusher axle load valve (19)	Take off.

PUSHER AXLE AIR LOAD CONTROL VALVE - CONTINUED

LOCATION	ITEM	ACTION REMARKS
12. Pusher axle load valve (19)	Tee (1)	a. Secure valve (19) in vise. b. Using 5/8-inch wrench, unscrew and take out.
13.	Elbow (5)	Using 1/2-inch wrench, unscrew and take out.
14.	Elbow (8)	Using 7/16-inch wrench, unscrew and take out.
15.	Elbow (11)	a. Using 3/8-inch wrench, unscrew and take out. b. Take valve (19) out of vise.

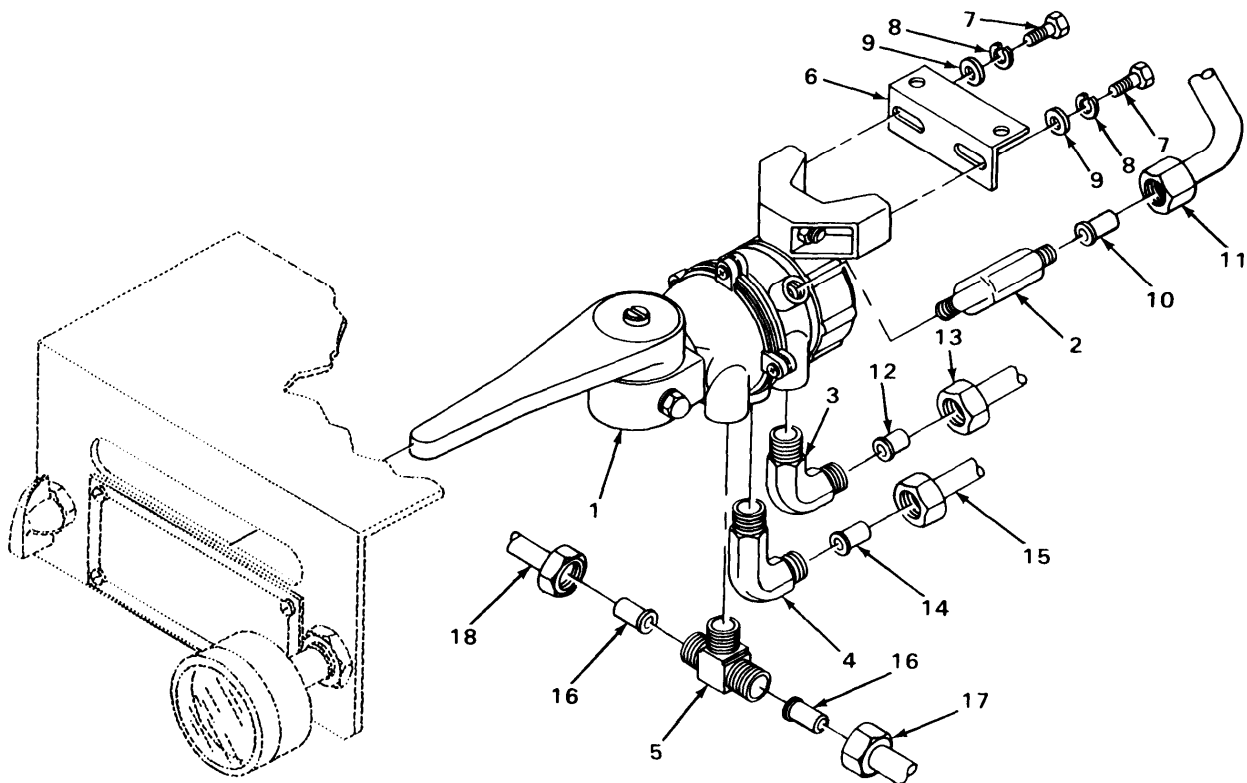


**PUSHER AXLE AIR LOAD CONTROL VALVE - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
<b>CLEANING</b>		
<b>16.</b>	All parts	Clean according to general maintenance instructions (page 4-1).
<b>INSPECTION/REPLACEMENT</b>		
<b>17.</b>	All parts	Inspect according to general maintenance instructions (page 4-1).
<b>INSTALLATION</b>		
<b>18.</b> Pusher axle load valve (1)	Elbow (2)	<ul style="list-style-type: none"> <li>a. Secure valve (1) in vise.</li> <li>b. Wrap threads with teflon tape (page 4-1).</li> <li>c. Using 3/8-inch wrench, screw in and tighten.</li> </ul>
<b>19.</b>	Elbow (3)	<ul style="list-style-type: none"> <li>a. Wrap threads with teflon tape (page 4-1).</li> <li>b. Using 7/16-inch wrench, screw in and tighten.</li> </ul>
<b>20.</b>	Elbow (4)	<ul style="list-style-type: none"> <li>a. Wrap threads with teflon tape (page 4-1).</li> <li>b. Using 1/2-inch wrench, screw in and tighten.</li> </ul>
<b>21.</b>	Tee (5)	<ul style="list-style-type: none"> <li>a. Wrap threads with teflon tape (page 4-1).</li> <li>b. Using 5/8-inch wrench, screw in and tighten.</li> <li>c. Take valve (1) out of vise.</li> </ul>
<b>22.</b> Mounting bracket (6)	Pusher axle load valve (1)	Place in position.
<b>23.</b>	Two screws (7), new lockwashers (8), and washers (9)	Screw in and tighten using 1/2-inch wrench.
<b>24.</b> Elbow (2)	Insert (10)	Using hammer, tap in.
<b>25.</b>	Hose (11)	Screw on and tighten using 9/16-inch wrench.
<b>26.</b> Elbow (3)	Insert (12)	Using hammer, tap in.

**PUSHER AXLE AIR LOAD CONTROL VALVE- CONTINUED**

LOCATION	ITEM	ACTION	REMARKS
27.	Hose (13)	Screw on and tighten using 9/16-inch wrench.	
28. Elbow (4)	Insert (14)	Using hammer, tap in.	
29.	Hose (15)	Screw on and tighten using 5/8-inch wrench.	
30. Tee (5)	Two inserts (16)	Using hammer, tap in.	
31.	Hose (17)	Screw on and tighten using 5/8-inch wrench.	
32.	Hose (18)	Screw on and tighten using 5/8-inch wrench.	



**NOTE**

FOLLOW-ON MAINTENANCE: Check for proper operation (TM 9-2320-270-10).

**TASK ENDS HERE**

TA240677

**4-1083**

## PUSHER AXLE SHOCK ABSORBER

---

This task covers:

- a. Removal (page 4-1084)
  - b. installation (page 4-1084)
- 

### INITIAL SETUP

**Tools**

Driftpin, brass, 3/8-inch  
 Hammer, machinist's ball-peen  
 Hammer, plastic  
 Handle, ratchet, 3/4-inch drive  
 Socket, 1 1/8-inch, 3/4-inch drive  
 Wrench, box-end, 1 1/8-inch

**Personnel Required**

One

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LOCATION	ITEM	ACTION	REMARKS
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---

### REMOVAL

**NOTE**

There are two pusher axle shock absorbers. Left shock absorber is shown. Repeat procedure for right shock absorber.

1. Shock absorber (1)	Screw (2), two washers (3), and nut (4)	a. Using 1 1/8-inch socket, ratchet handle with 3/4-inch drive, and 1 1/8-inch wrench, unscrew and take out. b. Using ball-peen hammer and drift, drive out screw (2).	
2.	Screw (5) and nut (6)	a. Using 1 1/8-inch socket, ratchet handle with 3/4-inch drive, and 1 1/8-inch wrench, unscrew and take out. b. Using ball-peen hammer and drift, drive out screw (5).	
3. Mounting brackets (7) and (8)	Shock absorber (1)	Lift off. If necessary, tap with plastic hammer.	

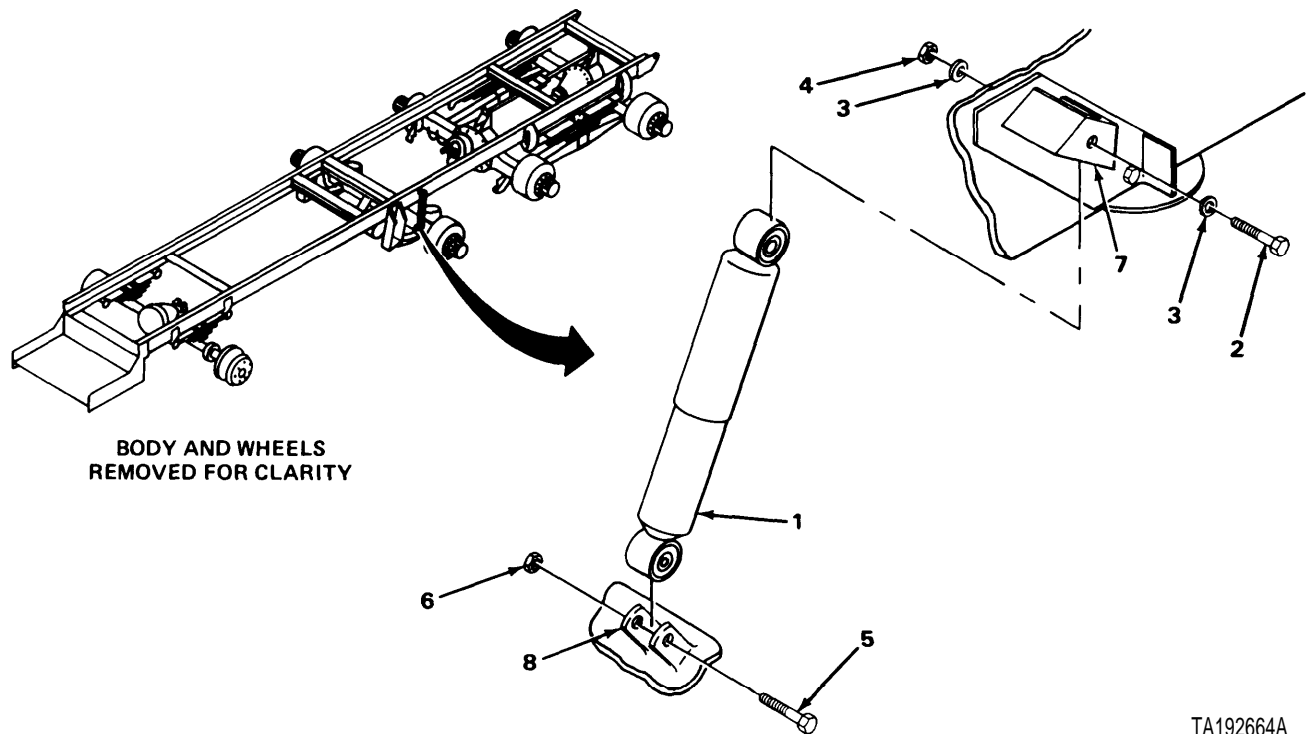
### INSTALLATION

4. Mounting brackets (7) and (8)	Shock absorber (1)	Using plastic hammer, tap in place.	
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**PUSHER AXLE SHOCK ABSORBER -CONTINUED**

LOCATION	ITEM	ACTION REMARKS
5. Shock absorber(l)	Screw (5) and nut (6)	Screw in and tighten using 1 1/8-inch socket, ratchet handle with 3/4-inch drive, and 1 1/8-inch wrench.
6.	Screw (2), two washers (3), and nut (4)	Screw in and tighten using 1 1/8-inch socket, ratchet handle with 3/4-inch drive, and 1 1/8-inch wrench.



TA192664A

**TASK ENDS HERE**

**TANDEM AXLE TORQUE ROD LUBRICATION FITTINGS**

This task covers:

Replacement (page 4-1086)

**INITIAL SETUP**

Tools

Wrench, open-end, 7/16-inch

Personnel Required

One

TA240678

**TANDEM AXLE TORQUE ROD LUBRICATION FITTINGS - CONTINUED**

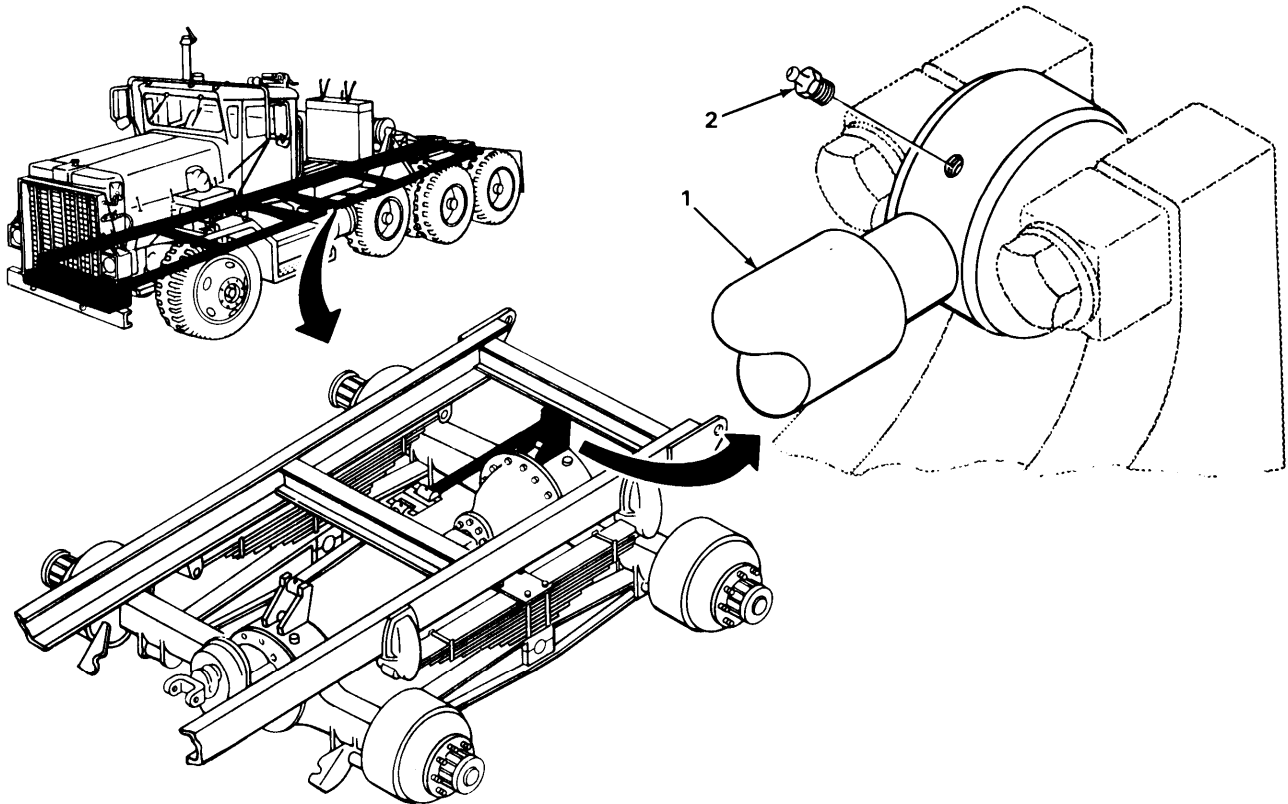
LOCATION	ITEM	ACTION REMARKS
----------	------	-------------------

REPLACEMENT

**NOTE**

There are four torque rod lubrication fittings. Rear fitting is shown. Repeat procedure for other three fittings.

- |                   |                         |   |
|-------------------|-------------------------|---|
| 1. Torque rod (1) | Lubrication fitting (2) | Using 7/16-inch wrench, unscrew and take out. |
| 2.                | Lubrication fitting (2) | Using 7/16-inch wrench, screw in and tighten. |



**NOTE**

FOLLOW-ON MAINTENANCE: Lubricate (LO 9-2320-270-1 2).

**TASK ENDS HERE**

TA240679

## REAR AXLE SPRING LUBRICATION FITTINGS

This task covers:

Replacement (page 4-1087)

### INITIAL SETUP

Tools

Wrench, open-end, 7/16-inch

Personnel Required

One

LOCATION	ITEM	ACTION	REMARKS
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### REPLACEMENT

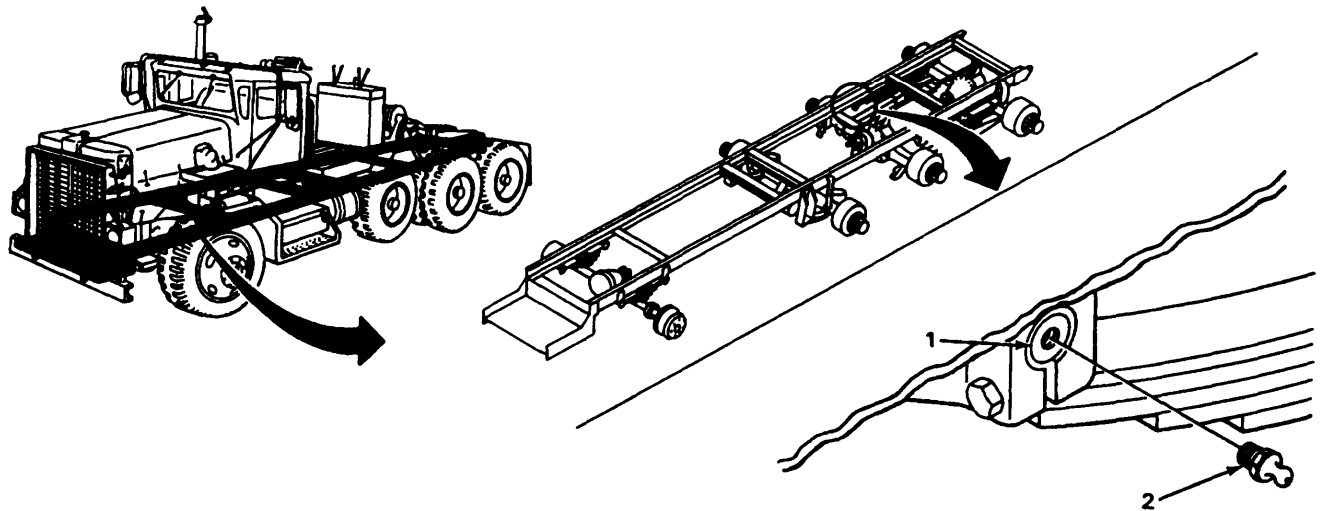
#### WARNING

When the pusher axle is in the up position, it must be supported by trestles before the performance of maintenance under the vehicle. Failure to observe this precaution could cause serious injury to personnel.

#### NOTE

There are two rear axle spring lubrication fittings. Right fitting is shown. Repeat procedure for left fitting.

- |                         |                         |   |
|-------------------------|-------------------------|---|
| 1. Front spring pin (1) | Lubrication fitting (2) | Using 7/16-inch wrench, unscrew and take off. |
| 2.                      | Lubrication fitting (2) | Screw in and tighten, using 7/16-inch wrench. |



TASK ENDS HERE

TA240680

**Section XVI. CAB AND BODY MAINTENANCE**

	Page		Page
Ashtray .....	4-1123	Left Side Panel and Brackets .....	4-1104
Crossbar Supports .....	4-1096	Passenger's Seat .....	4-1125
Driver's Seat and Support .....	4-1127	Radiator and Headlight Guard .....	4-1088
Floor Mat .....	4-1134	Right Side panel .....	4-1100
Grab Handle .....	4-1118	Seat Belts .....	4-1130
Hood .....	4-1093	Splash Shields .....	4-1119
Insulation .....	4-1114	Visors .....	4-1122
Latches, Latch Mounting Brackets and Catches .....	4-1108	Ventilator .....	4-1116

**RADIATOR AND HEADLIGHT GUARD**

---

This task covers:

- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li>a. Removal (page 4-1088)</li> <li>b. Cleaning (page 4-1090)</li> </ul> | <ul style="list-style-type: none"> <li>c. Inspection/Replacement (page 4-1090)</li> <li>d. Installation (page 4-1090)</li> </ul> |
|---|--|
- 

**INITIAL SETUP**

**Tools**

- Handle, ratchet, 1/2-inch drive
- Socket, 9/16-inch, 1/2-inch drive
- Socket, 3/4-inch, 1/2-inch drive
- Socket, 15/16-inch, 1/2-inch drive
- Wrench, open-end, 9/16-inch
- Wrench, open-end, 3/4-inch
- Wrench, open-end, 15/16-inch

**Materials/Parts**

- Lockwasher (two required)

**Personnel Required**

Two

**Equipment Condition**

- Spotter mirror removed (page 4-1242).
- Headlights removed (page 4-348).
- Front directional lights removed (page 4-370).
- Blackout headlights removed (page 4-376).
- Front air coupling removed (page 4-775).

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LOCATION	ITEM	ACTION REMARKS
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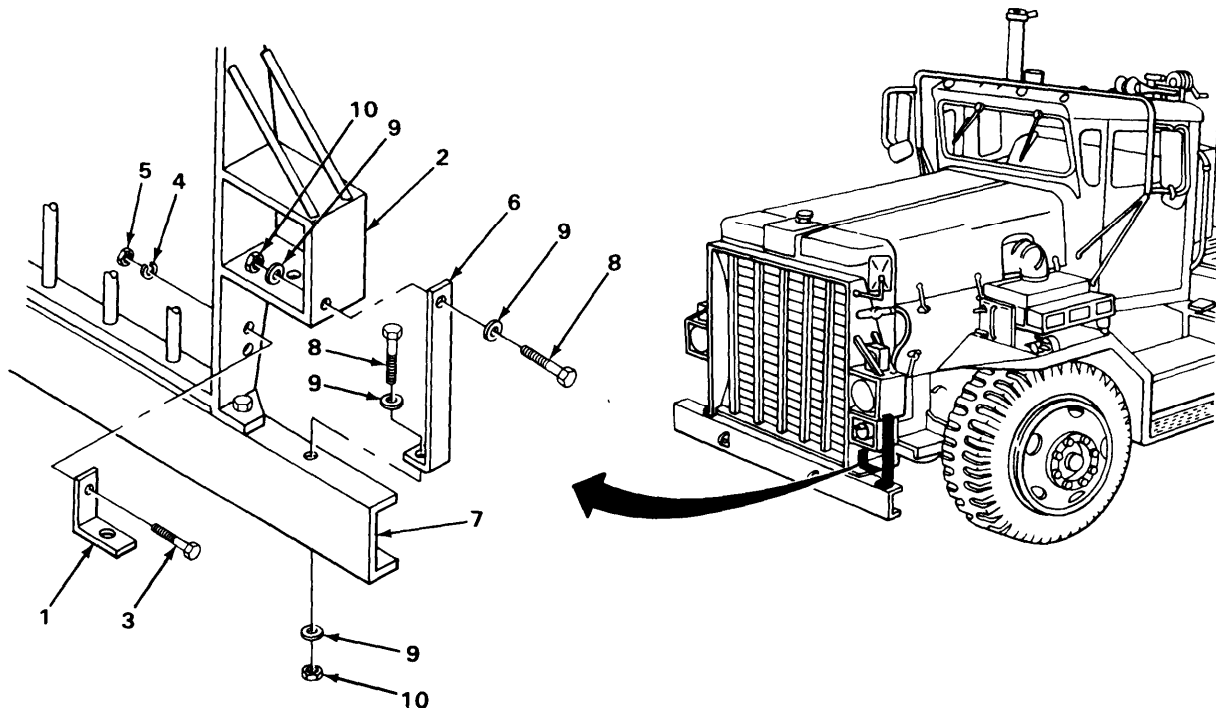
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**REMOVAL**

- |   |   |  |
|---|---|--|
| <ul style="list-style-type: none"> <li>1. Blackout light support (1) to radiator and headlight guard (2)</li> </ul> | <ul style="list-style-type: none"> <li>Two screws (3), lockwashers (4), and nuts (5)</li> </ul> | <ul style="list-style-type: none"> <li>a. Using 9/16-inch socket, ratchet handle with 1/2-inch drive, and 9/16-inch wrench, unscrew and take out.</li> <li>b. Get rid of lockwashers (4).</li> </ul> |
|---|---|--|

**RADIATOR AND HEADLIGHT GUARD - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
2. Radiator and headlight guard (2)	Blackout light support (1)	Take off.
3. Blackout light guard (6) to radiator and headlight guard (2) and bumper (7)	Two screws (8), four washers (9), and two nuts (10)	Using 3/4-inch socket, ratchet handle with 1/2-inch drive, and 3/4-inch wrench, unscrew and take out.
4. Radiator and headlight guard (2) and bumper (7)	Blackout light guard (6)	Take off.



**RADIATOR AND HEADLIGHT GUARD- CONTINUED**

LOCATION	ITEM	ACTION REMARKS
----------	------	-------------------

## REMOVAL- CONTINUED

- |    |  |  |   |
|----|--|--|---|
| 5. | Radiator and headlight guard (1) to two support braces (2) | Four screws (3), eight washers (4), and two nuts (5) | Using 3/4-inch socket, ratchet handle with 1/2-inch drive, and 3/4-inch wrench, unscrew and take out.     |
| 6. | Radiator and headlight guard (1) to bumper(6)              | Two screws (7), four washers (8), and two nuts (9)   | Using 15/16-inch socket, ratchet handle with 1/2-inch drive, and 15/16-inch wrench, unscrew and take out. |

**WARNING**

Some parts are heavy. Be careful when handling them. Lifting equipment is needed when parts weigh over 50 pounds (23 kg) for a single person lift, over 100 pounds (45 kg) for a two person lift, and over 150 pounds (68 kg) for a three or more person lift. Do not try to handle heavy parts without lifting equipment. Keep clear of heavy parts supported only by lifting equipment. Failure to observe this precaution could cause serious injury or death of personnel.

- |    |            |                                  |           |
|----|------------|----------------------------------|-----------|
| 7. | Bumper (6) | Radiator and headlight guard (1) | Take off. |
|----|------------|----------------------------------|-----------|

## CLEANING

- |    |           |   |
|----|-----------|---|
| 8. | All parts | Clean according to general maintenance instructions (page 4-1). |
|----|-----------|---|

## INSPECTION/REPLACEMENT

- |    |           |   |
|----|-----------|---|
| 9. | All parts | Inspect according to general maintenance instructions (page 4-1). |
|----|-----------|---|

## INSTALLATION

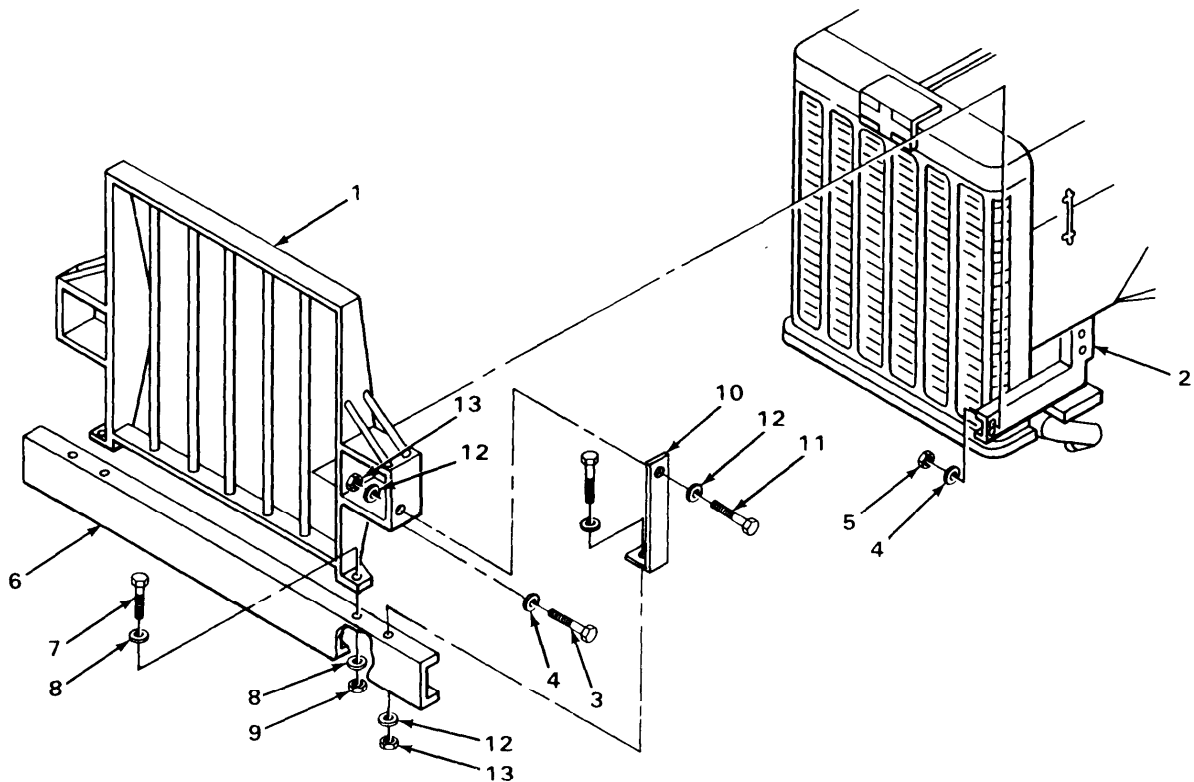
**WARNING**

Some parts are heavy. Be careful when handling them. Lifting equipment is needed when parts weigh over 50 pounds (23 kg) for a single person lift, over 100 pounds (45 kg) for a two person lift, and over 150 pounds (68 kg) for a three or more person lift. Do not try to handle heavy parts without lifting equipment. Keep clear of heavy parts supported only by lifting equipment. Failure to observe this precaution could cause serious injury or death of personnel.

- |     |            |                                  |                    |
|-----|------------|----------------------------------|--------------------|
| 10. | Bumper (6) | Radiator and headlight guard (1) | Place in position. |
|-----|------------|----------------------------------|--------------------|

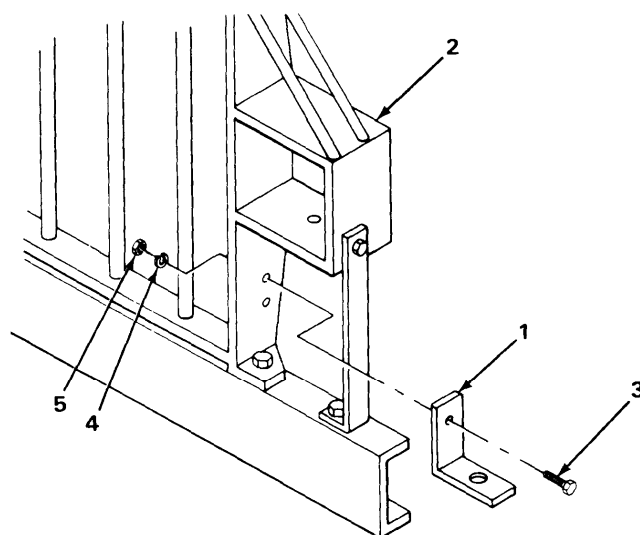
**RADIATOR AND HEADLIGHT GUARD- CONTINUED**

LOCATION	ITEM	ACTION REMARKS
11. Radiator and headlight guard (1) to bumper (6)	Two screws (7), four washers (8), and two nuts (9)	Screw in and tighten using 15/16-inch socket, ratchet handle with 1/2-inch drive, and 15/16-inch wrench.
12. Radiator and headlight guard (1) to two support braces (2)	Four screws (3), eight washers (4), and four nuts (5)	Screw in and tighten using 3/4-inch socket, ratchet handle with 1/2-inch drive and 3/4-inch wrench.
13. Radiator and headlight guard (1) and bumper (6)	Blackout light guard (10)	Put on.
14. Blackout light guard (10) to radiator and headlight guard (1) and bumper (6)	Two screws (11), four washers (12), and two nuts (13)	Screw in and tighten using 3/4-inch socket, ratchet handle with 1/2-inch drive, and 3/4-inch wrench.



**RADIATOR AND HEADLIGHT GUARD - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
INSTALLATION - CONTINUED		
15. Radiator and headlight guard (1)	Blackout light support (2)	Put on.
16. Blackout light support (2) to radiator and headlight guard (1)	Two screws (3), new lockwashers (4), and nuts (5)	Screw in and tighten using 9/16-inch socket, ratchet handle with 1/2-inch drive, and 9/16-inch wrench.



**NOTE**

**FOLLOW-ON MAINTENANCE:**

1. Install blackout headlight (page 4-376).
2. Install front directional lights (page 4-370).
3. Install headlights (page 4-348).
4. Install spotter mirror (page 4-1242).
5. Install front air couplings (page 4-775).

**TASK ENDS HERE**



# HOOD

This task covers:

- |                           |   |
|---------------------------|---|
| a. Removal (page 4-1093)  | c. Inspection/Replacement (page 4-1094) |
| b. Cleaning (page 4-1094) | d. Installation (page 4-1094)           |

## INITIAL SETUP

**Tools**

Handle, ratchet, 3/8-inch drive  
 Socket, 7/16-inch, 3/8-inch drive  
 Wrench, open-end, 7/16-inch

**Personnel Required**

Two

**Equipment Condition**

**Materials/Parts**

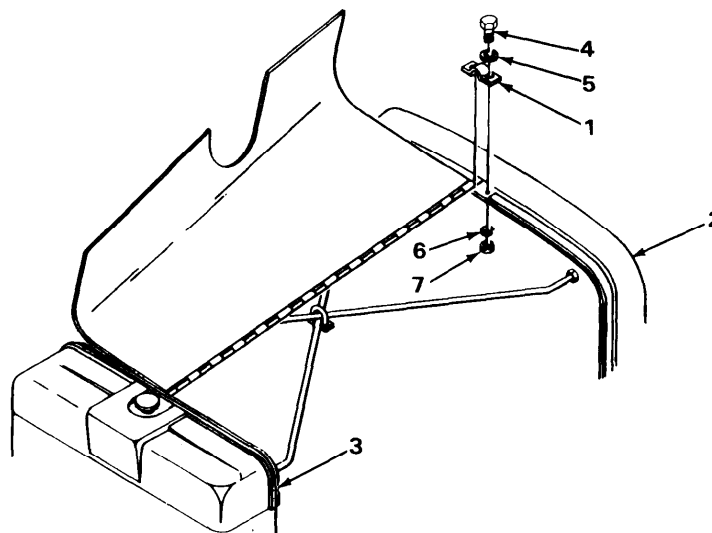
Lockwasher, bracket to cab  
 (four required)

Left side hood opened (TM 9-2320-270-10).

LOCATION	ITEM	ACTION	REMARKS
----------	------	--------	---------

## REMOVAL

- |  |  |   |
|--|--|---|
| <p>1. Two brackets (1) to cab (2) and shroud (3)</p> | <p>Four screws (4), washers (5), lockwashers (6), and nuts (7)</p> | <p>a. Using 7/16-inch socket, ratchet handle with 3/8-inch drive, and 7/16-inch wrench, unscrew and take out.<br/>                 b. Get rid of lockwashers (6).</p> |
| <p>2. Cab (2) and shroud (3)</p>                     | <p>Two brackets (1)</p>  | <p>Take off.</p>  |



HOOD - CONTINUED

LOCATION	ITEM	ACTION REMARKS
----------	------	-------------------

REMOVAL- CONTINUED

**WARNING**

Some parts are heavy. Be careful when handling them. Lifting equipment is needed when parts weigh over 50 pounds (23 kg) for a single person lift, over 100 pounds (45 kg) for a two person lift, and over 150 pounds (68 kg) for a three or more person lift. Do not try to handle heavy parts without lifting equipment. Keep clear of heavy parts supported only by lifting equipment. Failure to observe this precaution could cause serious injury or death of personnel.

3. Cab (1) and shroud (2)	Hood (3)	Take off.
---------------------------	----------	-----------

CLEANING

4.	All parts	Clean according to general maintenance instructions (page 4-1).
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inspection/REPLACEMENT

5.	All parts	Inspect according to general maintenance instructions (page 4-1). <b>If hood is damaged, remove latches (page 4-1108) before replacing it.</b>
----	-----------	---

INSTALLATION

**WARNING**

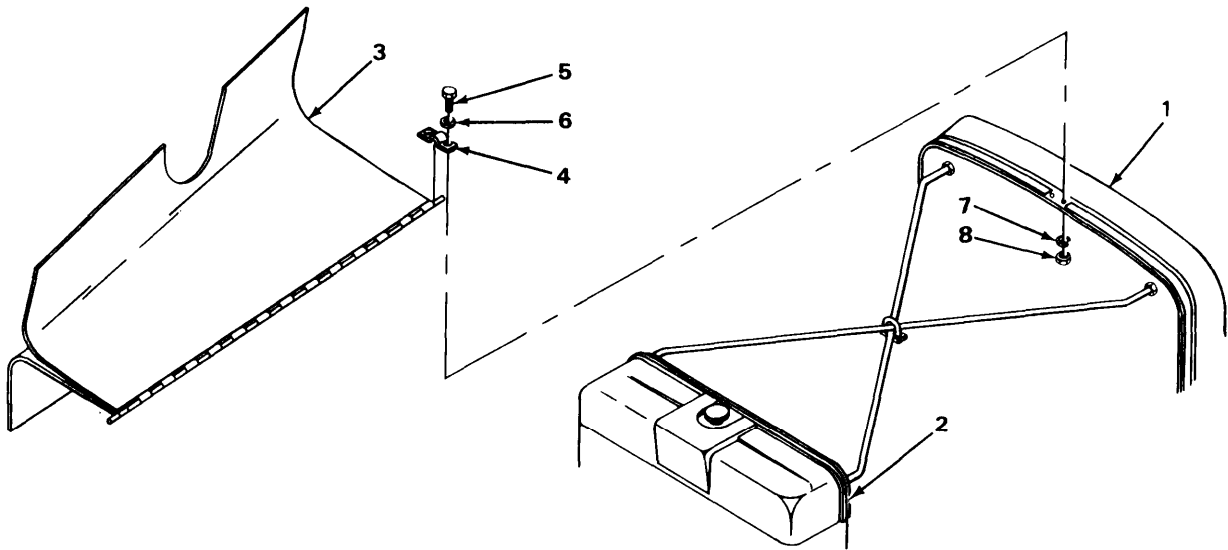
Some parts are heavy. Be careful when handling them. Lifting equipment is needed when parts weigh over 50 pounds (23 kg) for a single person lift, over 100 pounds (45 kg) for a two person lift, and over 150 pounds (68 kg) for a three or more person lift. Do not try to handle heavy parts without lifting equipment. Keep clear of heavy parts supported only by lifting equipment. Failure to observe this precaution could cause serious injury or death of personnel.

6. Cab (1) and shroud (2)	Hood (3)	Put on.
7.	Two brackets (4)	Put on.

HOOD - CONTINUED

LOCATION	ITEM	ACTION REMARKS
----------	------	-------------------

<p>8. Two brackets (4) to cab (1) and shroud (2)</p>	<p>Four screws (5), washers (6), new lockwashers (7), and nuts (8)</p>	<p>Screw in and tighten using 7/16-inch socket and ratchet handle with 3/8-inch drive.</p>
--	--	--



**NOTE**

FOLLOW-ON MAINTENANCE: Close left side of hood (TM 9-2320-270-10).

**TASK ENDS HERE**

CROSSBAR SUPPORTS

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This task covers:

- |                           |   |
|---------------------------|---|
| a. Removal (page 4-1096)  | c. Inspection/Replacement (page 4-1097) |
| b. Cleaning (page 4-1097) | d. Installation (page 4-1098)           |
- 

INITIAL SETUP

Tools

Wrench, open-end, 7/16-inch  
 Wrench, open-end, 3/4-inch

Personnel Required

Two

Equipment Condition

Hood removed (page 4-1093).  
 Instrument panel opened (page 4-244).

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LOCATION	ITEM	ACTION REMARKS
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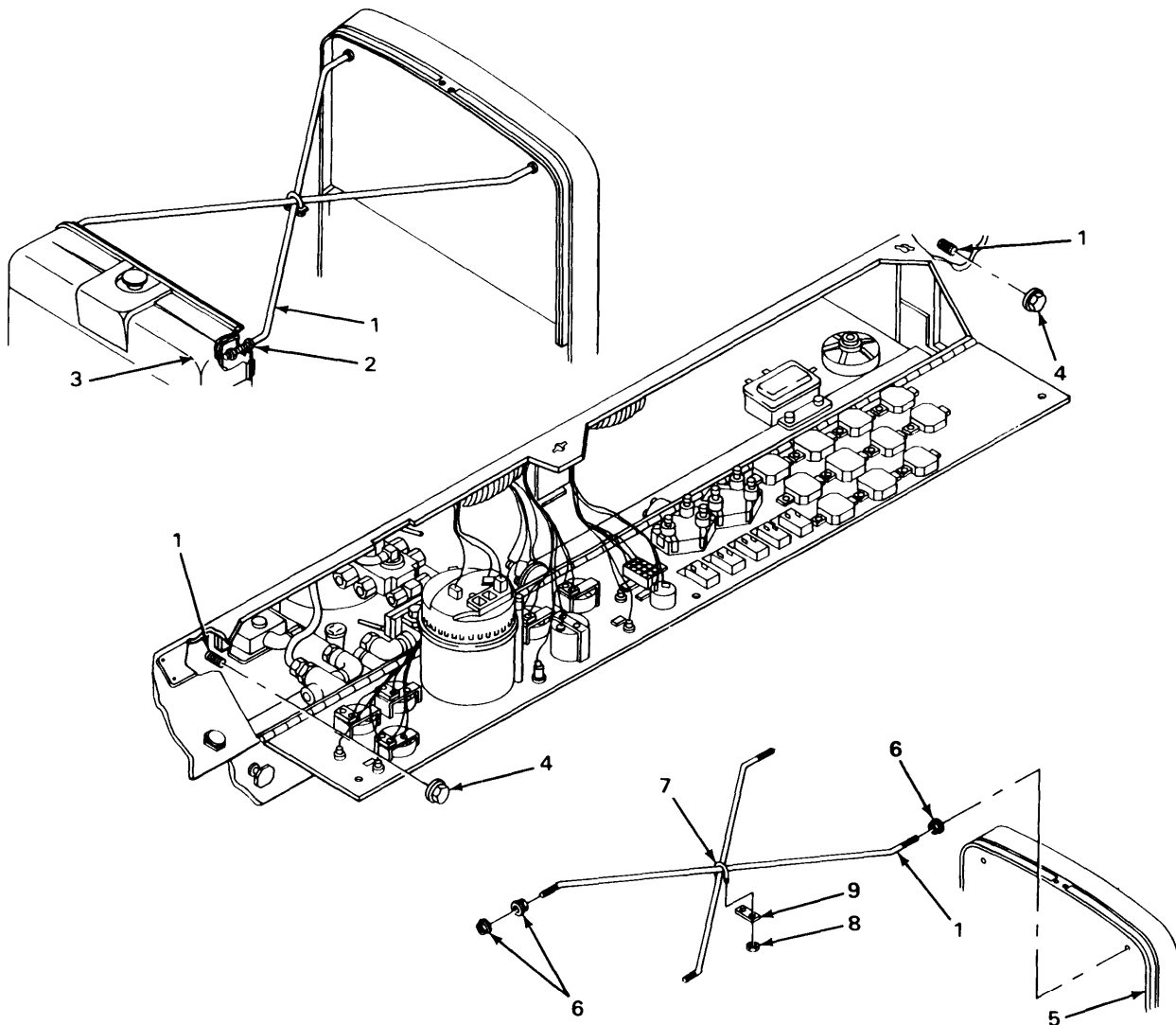
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REMOVAL

1. Crossbar supports (1)	Two nuts (2)	Using 3/4-inch wrench, unscrew part way.
2. Radiator (3)	Crossbar supports (1)	Lift up.
3. Crossbar supports (1)	Two nuts (4)	Using 3/4-inch wrench, unscrew and take off.
4. Firewall (5)	Crossbar supports (1)	Take out.
5. Crossbar supports (1)	Six nuts (6)	Using 3/4-inch wrench, unscrew and take off.
6. U-bolt (7)	Two nuts (8)	Using 7/16-inch wrench, unscrew and take off.
7.	Plate (9)	Take off.
8. Crossbar supports (1)	U-bolt (7)	Take off.

**CROSSBAR SUPPORTS - CONTINUED**

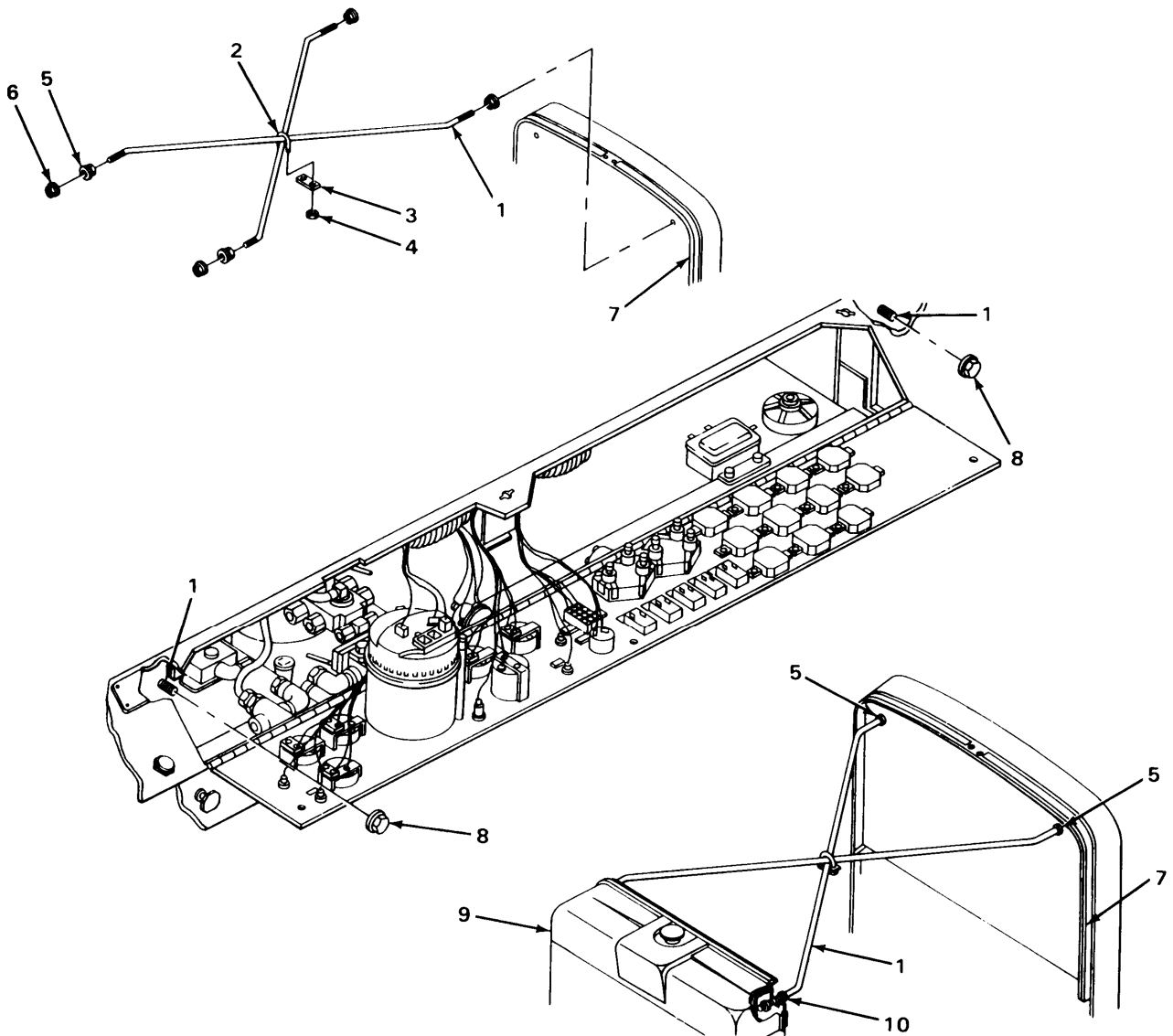
LOCATION	ITEM	ACTION	REMARKS
<b>CLEANING</b>			
9.	All parts	Clean according to general maintenance instructions (page 4-1).	
<b>INSPECTION/REPLACEMENT</b>			
10.	All parts	Inspect according to general maintenance instructions (page 4-1).	



**CROSSBAR SUPPORTS - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
INSTALLIATION		
11. Crossbar supports (1)	U-bolt (2)	Put on.
12. U-bolt(2)	Plate (3)	Put on.
13.	Two nuts (4)	Screw on and tighten using 7/16-inch wrench.
14. Crossbar supports (1)	Four nuts (5)	Screw on as far as possible, but do not tighten, using 3/4-inch wrench.
15.	Two nuts (6)	Screw on flush using 3/4-inch wrench.
16. Firewall (7)	Crossbar supports (1)	Put thru.
17. Crossbar supports (1)	Two nuts (8)	Screw on until flush using 3/4-inch socket and ratchet handle with 3/8-inch drive.
18.	instrument panel	Close (page 4-244).
19. Radiator(9)	Crossbar supports (1)	Put into slots.
20. Crossbar supports (1)	Two nuts (10)	Using 3/4-inch wrench, tighten.
21. Firewall (7)	Two nuts (5)	Using 3/4-inch wrench, tighten.

CROSSBAR SUPPORTS - CONTINUED



**NOTE**

FOLLOW-ON MAINTENANCE: Install hood (page 4-1093).

**TASK ENDS HERE**

**RIGHT SIDE PANEL**

---

This task covers:

- |                           |  |
|---------------------------|--|
| a. Removal (page 4-1100)  | c. Inspection/Replacement (page 4-1 102) |
| b. Cleaning (page 4-1102) | d. Installation (page 4-1102)            |
- 

**INITIAL SETUP**

**Tools**

- Handle, ratchet, 3/8-inch drive
- Screwdriver, cross-tip, number 2
- Socket, deep, 1/2-inch, 3/8-inch drive
- Wrench, open-end, 3/8-inch

**Materials/Parts**

- Lockwasher, bracket to cab (two required)
- Lockwasher, hinge to door (three required)

**Materials/Parts – Continued**

- Lockwasher, hinge to right side panel (three required)
  - Personnel Required
  - One
- 

LOCATION	ITEM	ACTION REMARKS
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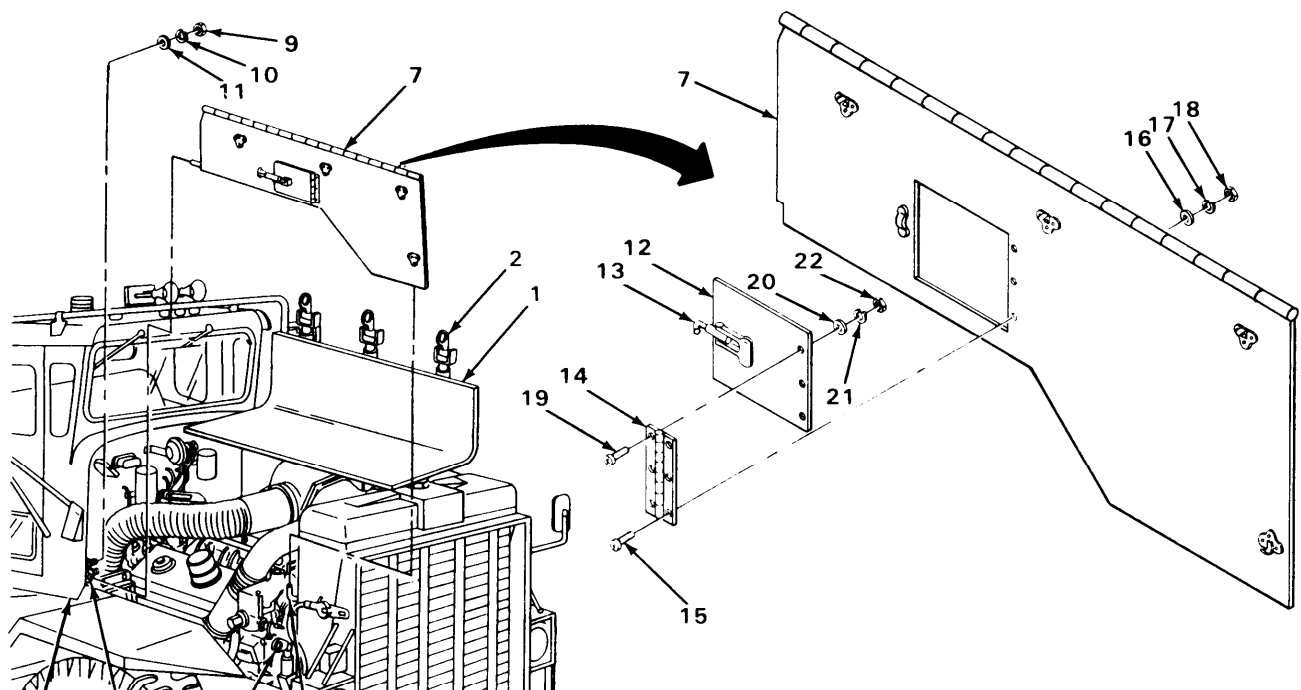
**REMOVAL**

- |                                |  |   |
|--------------------------------|--|---|
| 1. Right side of hood (1)      | Three latches (2)                                | Unlatch.  |
| 2. Front of vehicle            | Right side of hood (1)                           | Open.   |
| 3. Mount (3)                   | Latch (4)  | Unlatch.  |
| 4. Bracket (5) and support (6) | Right side panel (7)                             | Lift, slide towards front of vehicle, and take out.   |
| 5. Bracket (5) to cab (8)      | Two nuts (9), lockwashers (10), and washers (11) | a. Using 1/2-inch socket and handle, unscrew and take off.<br>b. Get rid of lockwashers (10). |
| 6. Cab (8)                     | Bracket (5)                                      | Take off.   |



**RIGHT SIDE PANEL - CONTINUED**

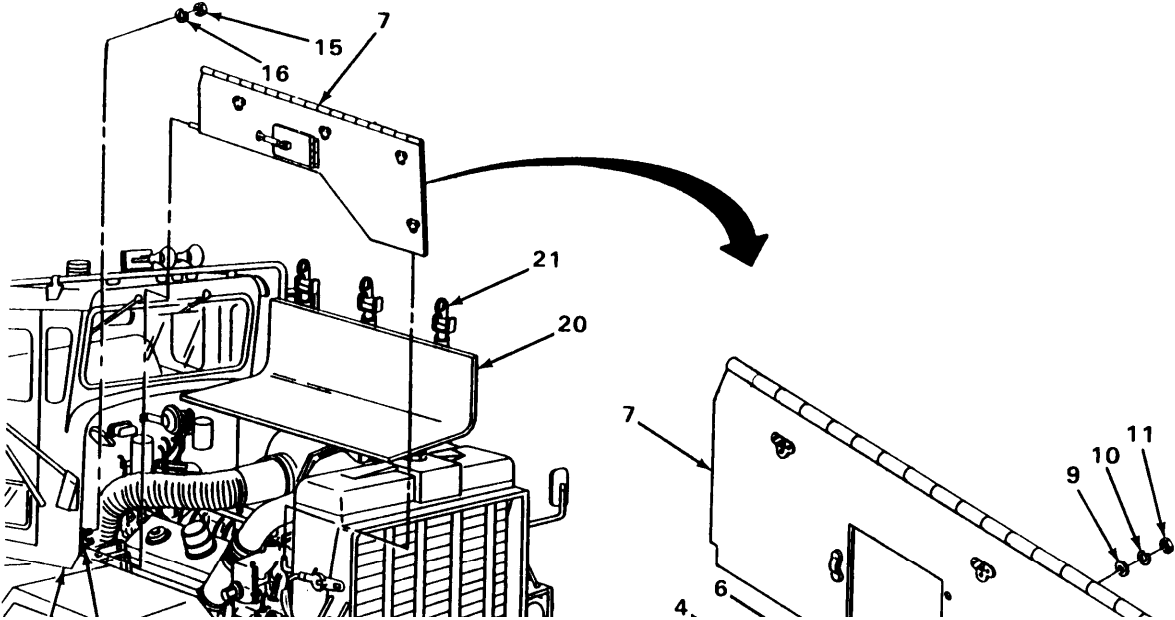
LOCATION	ITEM	ACTION REMARKS
<b>REMOVAL</b>		
7. Door (12)	Latch (13)	Unlatch.
8. Hinge (14) to right side panel (7)	Three screws (15), washers (16), lock-washers (17), and nuts (18)	a. Using 3/8-inch wrench and cross-tip screwdriver, unscrew and take out. b. Get rid of lockwashers (17).
9. Right side panel (7)	Hinge (14) and door (12)	Take off.
10. Hinge (14) to door (12)	Three screws (19), washers (20), lock-washers (21), and nuts (22)	a. Using 3/8-inch wrench and cross-tip screwdriver, unscrew and take out. b. Get rid of lockwashers (21).
11. Door (12)	Hinge (14)	Take off,



**RIGHT SIDE PANEL - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
CLEANING		
12.	All parts	Clean according to general maintenance instructions (page 4-1).
inspection/REPLACEMENT		
13.	All parts	Inspect according to general maintenance instructions (page 4-1).
INSTALIATION		
14. Door (1)	Hinge (2)	Place in position with flat side against door.
15. Hinge (2) to door (1)	Three screws (3), washers (4), new lockwashers (5), and nuts (6)	Screw in and tighten using 3/8-inch wrench and cross-tip screwdriver.
16. Right side panel (7)	Hinge (2) and door (1)	Place in position.
17. Hinge (2) to right side panel (7)	Three screws (8), washers (9), new lockwashers (10), and nuts (11)	Screw in and tighten using 3/8-inch wrench and cross-tip screwdriver.
18. Door (1)	Latch (12)	Latch.
19. Cab (13)	Bracket (14)	Put on.
20. Bracket (14) to cab (13)	Two nuts (15) and new lockwashers (16)	Screw in and tighten using 1/2-inch socket and handle.
21. Bracket (14) and support (17)	Right side panel (7)	Slide in place.
22. Mount (18)	Latch (19)	Latch.
23.	Right side hood (20)	Close.
24. Right side hood (20)	Three latches (21)	Latch.

RIGHT SIDE PANEL - CONTINUED



TASK ENDS HERE

## LEFT SIDE PANEL AND BRACKETS

---

This task covers:

- |   |   |
|---|---|
| <ul style="list-style-type: none"> <li>a. Removal (page 4-1104)</li> <li>b. Cleaning (page 4-1106)</li> </ul> | <ul style="list-style-type: none"> <li>c. Inspection/Replacement (page 4-1 106)</li> <li>d. Installation (page 4-1106)</li> </ul> |
|---|---|
- 

### INITIAL SETUP

#### Tools

Handle, ratchet, 3/8-inch drive  
 Socket, deep-well, 1/2-inch, 3/8-inch drive  
 Socket, 7/16-inch, 3/8-inch drive  
 Socket, 9/16-inch, 3/8-inch drive  
 Wrench, open-end, 7/16-inch  
 Wrench, open-end, 1/2-inch  
 Wrench, open-end, 9/16-inch

#### Materials/Parts

Lockwasher, inner stop to air cleaner bracket (three required)  
 Lockwasher, pivot bracket to air cleaner bracket (two required)  
 Lockwasher, outer stop to air cleaner bracket (two required)

#### Personnel Required

One

#### Equipment Condition

Air cleaner filter removed (page 4-45).

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LOCATION	ITEM	ACTION REMARKS
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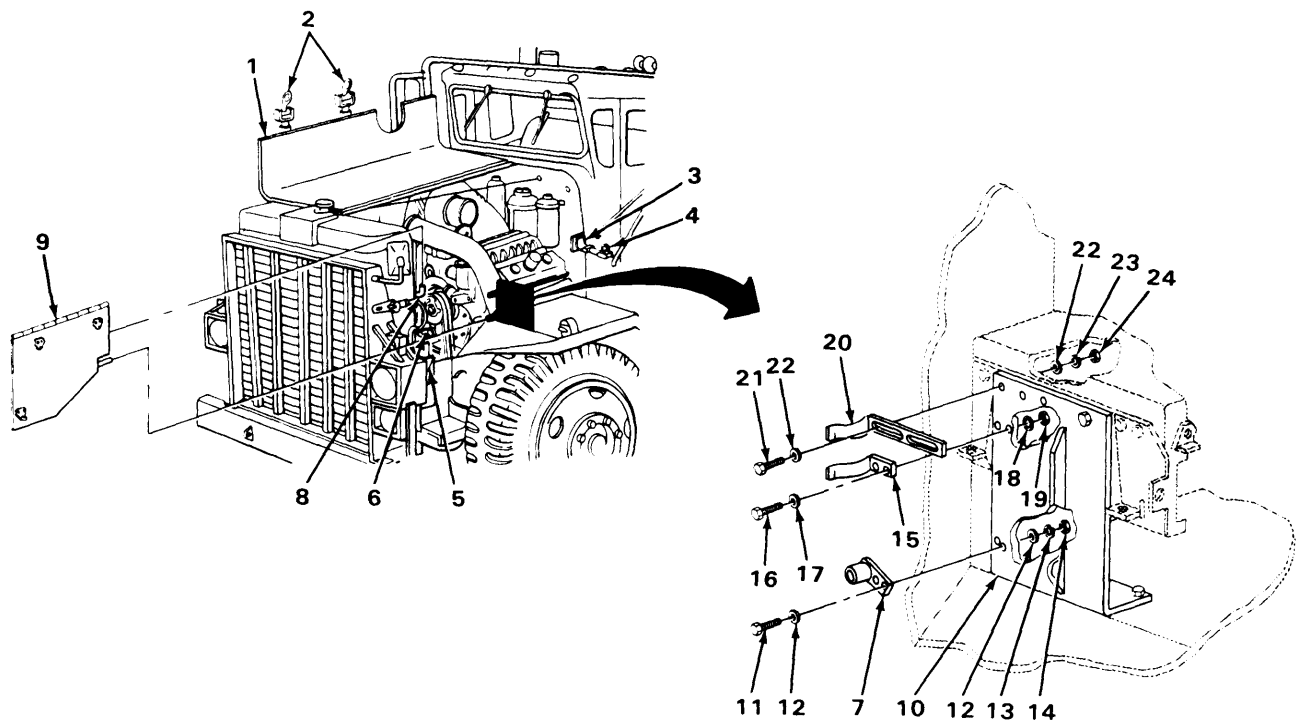
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### REMOVAL

1. Left side hood (1)	Two latches (2)	Unlatch,
2. Mount (3)	Latch (4)	Unlatch.
3.	Left side hood (1)	Lift open.
4. Mount (5)	Latch (6)	Unlatch.
5. Pivot bracket (7) and support (8)	Left side panel (9)	Lift, slide towards front of vehicle, and take out.

**LEFT SIDE PANEL AND BRACKET - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
6. Pivot bracket (7) to air cleaner bracket (10)	Two screws (11), four washers (12), two lockwashers (13), and nuts (14)	a. Using 7/16-inch socket, ratchet handle with 3/8-inch drive, and 7/16-inch wrench, unscrew and take out. b. Get rid of lockwashers (13).
7. Air cleaner bracket (10)	Pivot bracket (7)	Take off.
8. Outer stop (15) to air cleaner bracket (10)	Two screws (16), washers (17), lockwashers (18), and nuts (19)	a. Using 1/2-inch socket, ratchet handle with 3/8-inch drive, and 1/2-inch wrench, unscrew and take out. b. Get rid of lockwashers (18).
9. Air cleaner bracket (10)	Outer stop (15)	Take off.
10. Inner stop (20) to air cleaner bracket (10)	Three screws (21), six washers (22), three lockwashers (23) and nuts (24)	a. Using 9/16-inch socket, ratchet handle with 3/8-inch drive, and 9/16-inch wrench, unscrew and take out. b. Get rid of lockwashers (23).
11. Air cleaner bracket (10)	Inner stop (20)	Take off.



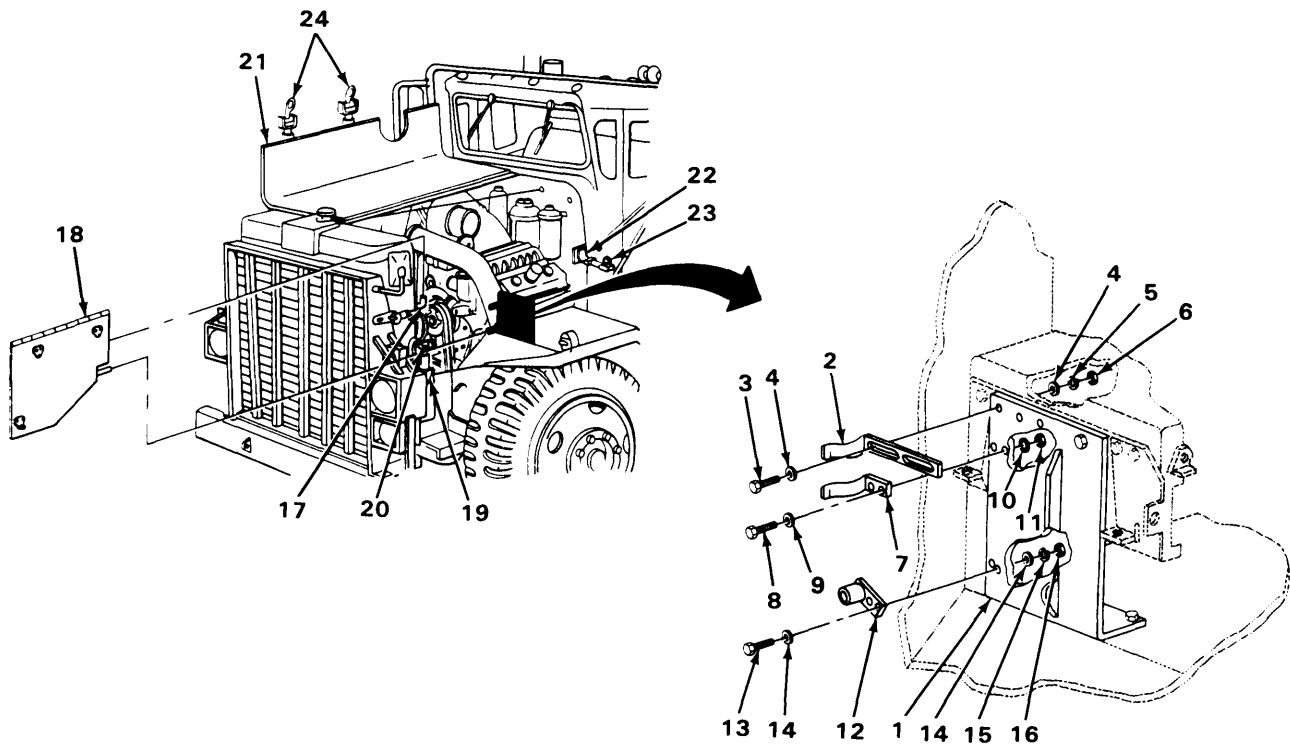
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**LEFT SIDE PANEL AND BRACKETS - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
CLEANING		
12.	All parts	Clean according to general maintenance instructions (page 4-1).
INSPECTION/REPLACEMENT		
13.	All parts	inspect according to general maintenance instructions (page 4-1). <b>If side pane is damaged, remove latches (page 4-1108) before replacing it.</b>
INSTALLATION		
14. Air cleaner bracket (1)	inner stop (2)	Put on.
15. inner stop (2) to air cleaner bracket (1)	Three screws (3), six washers (4), three new lock-washers (5), and nuts (6)	Screw in and tighten using 9/16-inch socket, ratchet handle with 3/8-inch drive, and 9/16-inch wrench.
16. Air cleaner bracket (1)	Outer stop (7)	Put on.
17. Outer stop (7) to air cleaner bracket (1)	Two screws (8), washers (9), new lockwashers (10), and nuts (11)	Screw in and tighten using 1/2-inch socket, ratchet handle with 3/8-inch drive, and 1/2-inch wrench.
18. Air cleaner bracket (1)	Pivot bracket (12)	Put on.
19. Pivot bracket (12) to air cleaner bracket (1)	Two screws (13), four washers (14), two new lock-washers (15), and nuts (16)	Screw in and tighten using 7/16-inch socket, ratchet handle with 3/8-inch drive and 7/16-inch wrench.
20. Pivot bracket (12) support (17)	Left side panel (18)	Slide in position.

**LEFT SIDE PANEL AND BRACKETS - CONTINUED**

LOCATION	ITEM	ACTION	REMARKS
21. Mount (19)	Latch (20)	Latch.	
22.	Left side of hood (21)	Close.	
23. Mount (22)	Latch (23)	Latch.	
24. Left side of hood (21)	Two latches (24)	Latch.	



**NOTE**

FOLLOW-ON MAINTENANCE: Install air cleaner filter (page 4-45).

**TASK ENDS HERE**

**LATCHES, LATCH MOUNTING BRACKETS, AND CATCHES**

---

This task covers:

- |  |   |
|--|---|
| a. Latch Removal (page 4-1108)                   | e. Inspection/Replacement (page 4-111 1).             |
| b. Latch Mounting Bracket Removal (page 4-1 109) | f. Catch Installation (page 4-1111)                   |
| c. Catch Removal (page 4-1110)                   | g. Latch Mounting Bracket Installation (page 4-1112). |
| d. Cleaning (page 4-1111)                        | h. Latch installation (page 4-1113).                  |
- 

**INITIAL SETUP**

**Tools**

- Drill, electric, portable
- Drill twist, 1 1/64-inch
- Hammer, machinist's ball-peen
- Pliers, slip-joint
- Punch, drive pin, 3/16-inch
- Riveter, hand
- Wrench, open-end, 3/8-inch
- Wrench, open-end, 1/2-inch

**Materials/Parts**

- Lockwasher (as required)
- Pin, cotter (as required)
- Rivets (as required)

**Personnel Required**

One

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LOCATION	ITEM	ACTION REMARKS
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---

**LATCH REMOVAL**

**NOTE**

There are nine latches on this vehicle, Do steps 1 thru 7 to remove any latch.

1. Catch (1)	Latch (2)	Unlatch.
2. Pin (3)	Cotter pin (4)	a. Using pliers, take out. b. Get rid of.
3. Latch (2) to mount (5)	Pin (3)	Take out.
4. Mount (5)	Latch (2)	Take off.
5. Mount (5) to hood (6)	Three rivets (7)	a. Using hammer and drive pin punch, mark center. b. Using electric drill and drill twist, drill out.
6.	Three rivets (7) and collars (8)	a. Take out. b. Get rid of rivets (7).



**LATCHES, LATCH MOUNTING BRACKETS, AND CATCHES - CONTINUED**

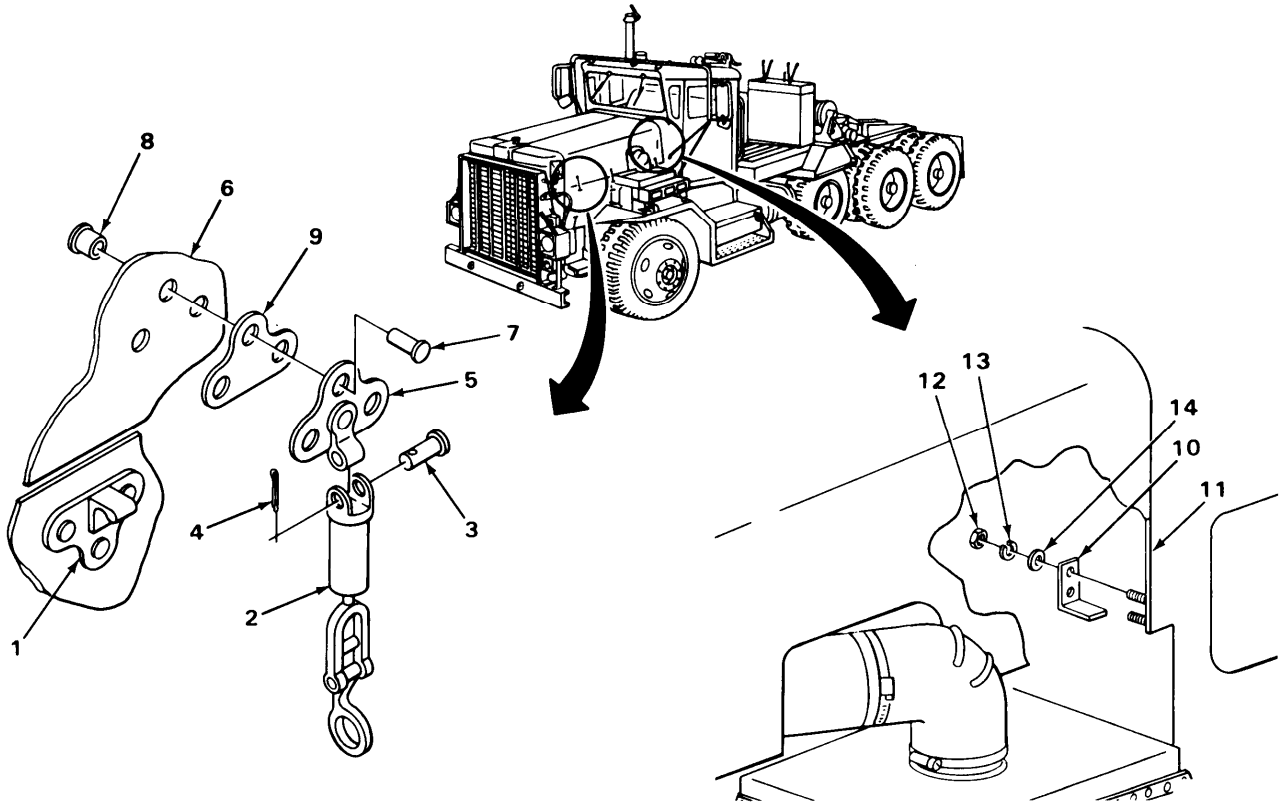
LOCATION	ITEM	ACTION REMARKS
7. Hood (6)	Mount (5) and spacer (9)	Take off.

**LATCH MOUNTING BRACKET REMOVAL**

**NOTE**

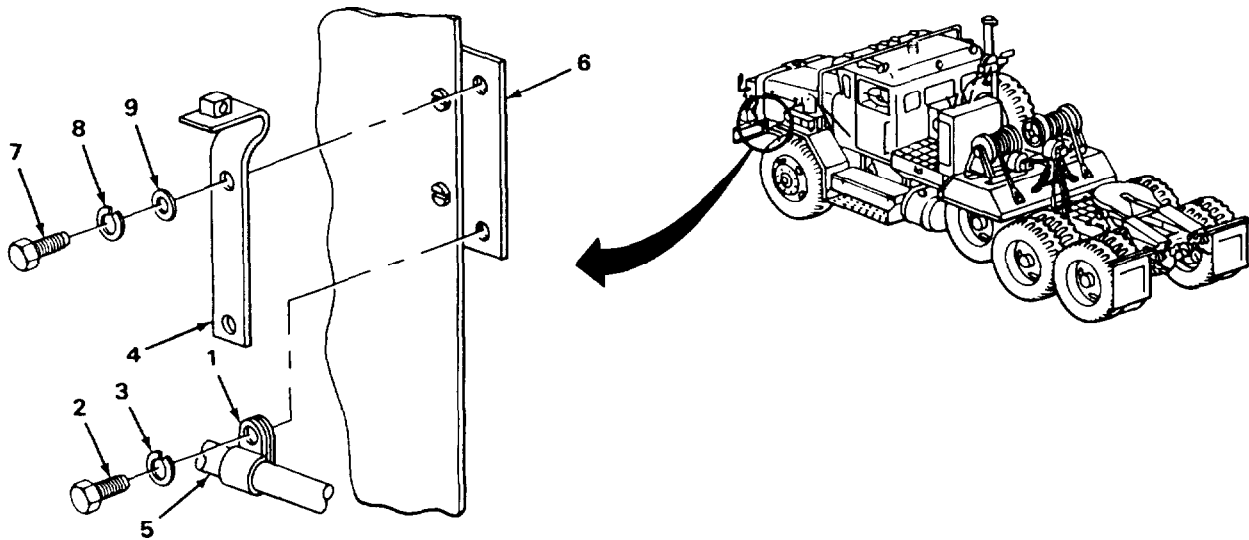
There are three latch mounting brackets on vehicle. Do steps 8 and 9 to remove hood latch mounting bracket. Do steps 12 and 13 to remove either side panel latch mounting bracket.

- |                             |  |  |
|-----------------------------|--|--|
| 8. Bracket (10) to cab (11) | Two nuts (12), lockwashers (13) and washers (14) | a. Using 3/8-inch wrench, unscrew and take out.<br>b. Get rid of lockwashers (13). |
| 9. Cab (11)                 | Bracket (10)                                     | Take off.  |



**LATCHES, LATCH MOUNTING BRACKETS, AND CATCHES - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
<b>LATCH MOUNTING BRACKET REMOVAL - CONTINUED</b>		
10. Clamp (1)	Screw (2) and lock-washer (3)	a. Using 1/2-inch wrench, unscrew and take off. b. Get rid of lockwasher (3).
11. Bracket (4)	Clamp (1) and hose (5)	Lift off.
12. Bracket (4) to support (6)	Screw (7), lock-washer (8), and washer (9)	a. Using 1/2-inch wrench, unscrew and take out. b. Get rid of lockwashers (8).
13. Support (6)	Bracket (4)	Take off.



**CATCH REMOVAL**

**NOTE**

There are nine catches on the vehicle. Do steps 14 thru 16 to remove any catch.

14. Catch (10) to hood (11)	Three rivets (12)	a. Using hammer and drive pin punch, mark center of rivets (12). b. Using electric drill and drill twist, drill out.
15.	Three rivets (12) and collars (13)	a. Take out. b. Get rid of rivets (12).

**LATCHES, LATCH MOUNTING BRACKETS, AND CATCHES - CONTINUED**

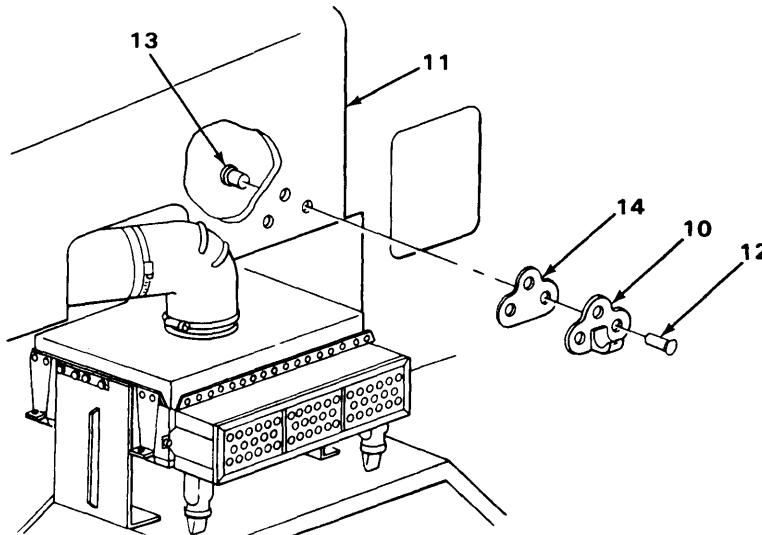
LOCATION	ITEM	ACTION	REMARKS
16. Hood (11)	Catch (10) and spacer (14)	Take off.	
<b>CLEANING</b>			
17.	All parts	Clean according to general maintenance instructions (page 4-1).	
<b>inspection/REPLACEMENT</b>			
18.	All parts	Inspect according to general maintenance instructions (page 4-1).	

**CATCH INSTALLATION**

**NOTE**

There are nine catches on the vehicle. Do steps 19 and 20 to install any catch.

19. Hood (11)	Catch (10) and spacer (14)	Put on.
20. Catch (10) to hood (11)	Three new rivets (12) and collars (13)	Using hand riveter, put in.



**LATCHES, LATCH MOUNTING BRACKETS, AND CATCHES - CONTINUED**

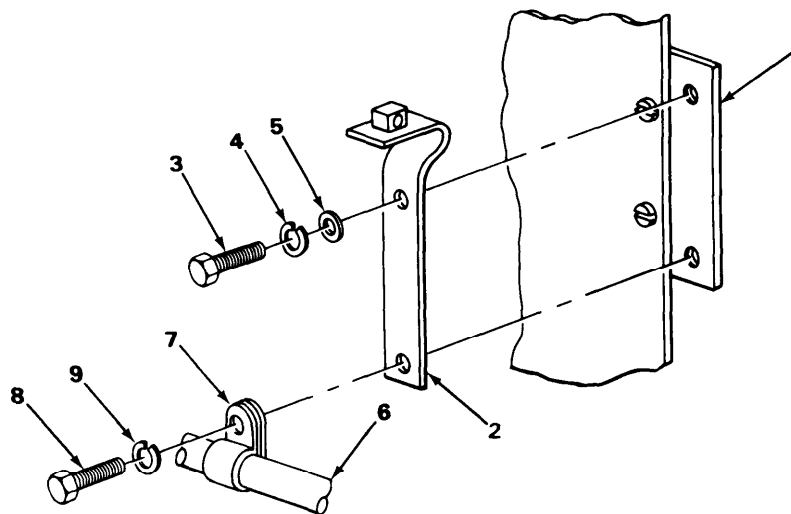
LOCATION	ITEM	ACTION REMARKS
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LATCH MOUNTING BRACKET INSTALLATION

**NOTE**

There are three latch mounting brackets on vehicle. Do steps 21 and 22 to install either side panel latch mounting bracket. Do steps 25 and 26 to install hood latch mounting bracket.

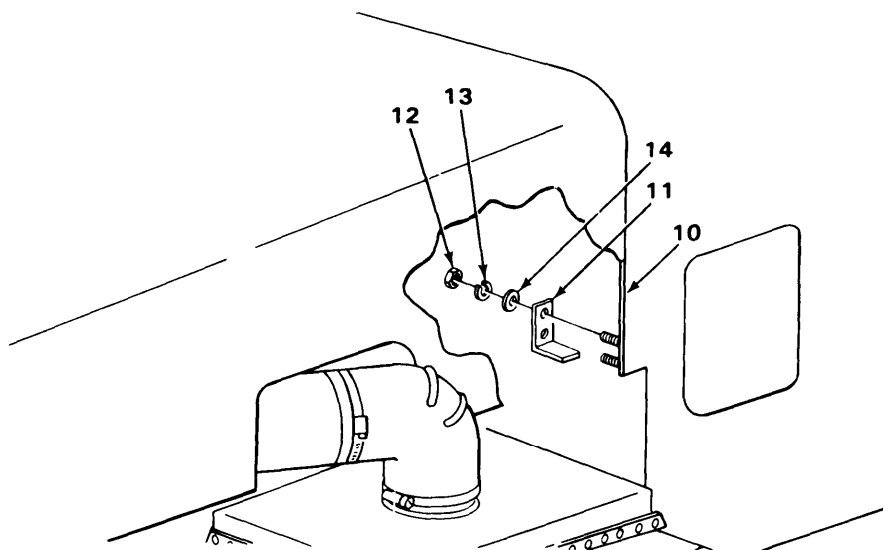
21. support (1)	Bracket (2)	Put on.
22. Bracket (2) to support (1)	Screw (3), new lock-washer (4), and washer (5)	Screw in and tighten using 1/2-inch wrench.
23. Bracket (2)	Hose (6) and clamp (7)	Place in position.
24. Clamp (7)	Screw (8) and lockwasher (9)	Screw in and tighten using 1/2-inch wrench.



25. Cab (10)	Bracket (11)	Put in position.
26. Bracket (11) to cab (10)	Two nuts (12), new lockwashers (13), and washers (14)	Screw in and tighten using 3/8-inch wrench.

**LATCHES, LATCH MOUNTING BRACKETS, AND CATCHES - CONTINUED**

LOCATION	ITEM	ACTION	REMARKS
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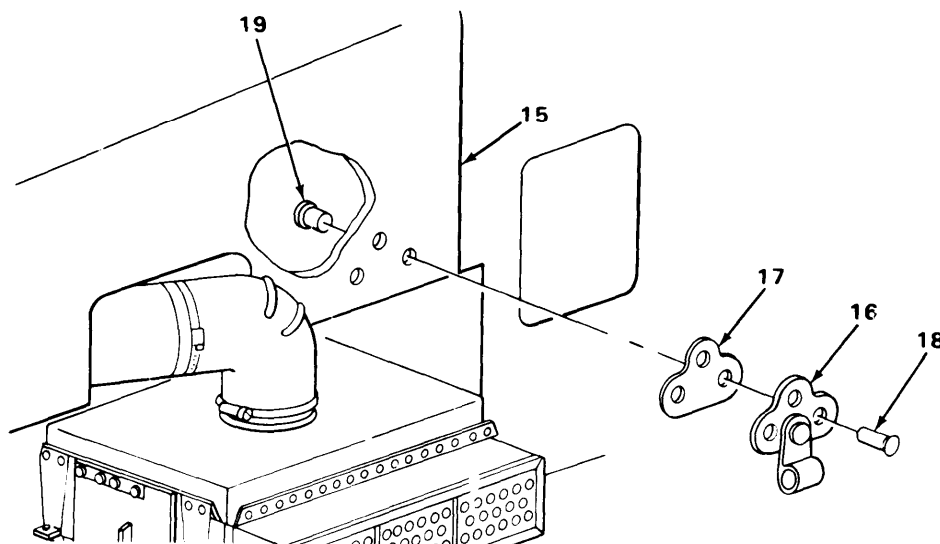


**LATCH INSTALLATION**

**NOTE**

There are nine latches on the vehicle. Do steps 27 thru 32 to install any latch.

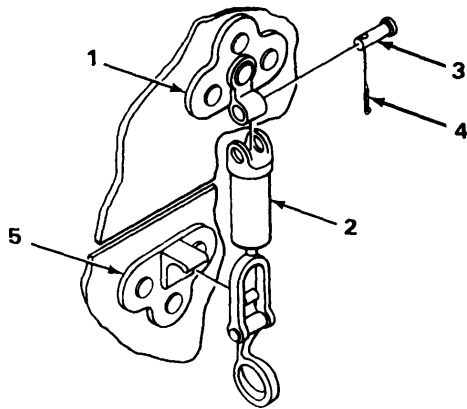
- |                             |  |                             |
|-----------------------------|--|-----------------------------|
| 27. Hood (15)               | Mount (16) and spacer (17)             | Put on.                     |
| 28. Mount (16) to hood (15) | Three new rivets (18) and collars (19) | Using hand riveter, Put in. |



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**LATCHES, LATCH MOUNTING BRACKETS, AND CATCHES - CONTINUED**

LOCATION	ITEM	ACTION	REMARKS
LATCH INSTALUTION - CONTINUED			
29. Mount (1)	Latch (2)	Put on.	
30. Latch (2) to mount (1)	Pin (3)	Put in.	
31. Pin (3)	New cotter pin (4)	Put in.	
32 Catch (5)	Latch (2)	Latch.	



**TASK ENDS HERE**

**INSULATION**

This task covers:

- a. Removal (page 4-1115)
- b. installation (page 4-1115)

**INITIAL SETUP**

**Tools**

- Brush, acid swabbing
- Knife, putty

**Materials/Parts**

- Adhesive (item 1, appendix C)
- insulation, hood (C. H.)
- insulation, hood (R. H.)

**Materials/Parts – Continued**

- insulation, side panel (L. H.)
- insulation, side panel (R. H.)
- insulation, side panel door (R. H.)

**Personnel Required**

One

**INSULATION - CONTINUED**

LOCATION	ITEM	ACTION	REMARKS
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REMOVAL

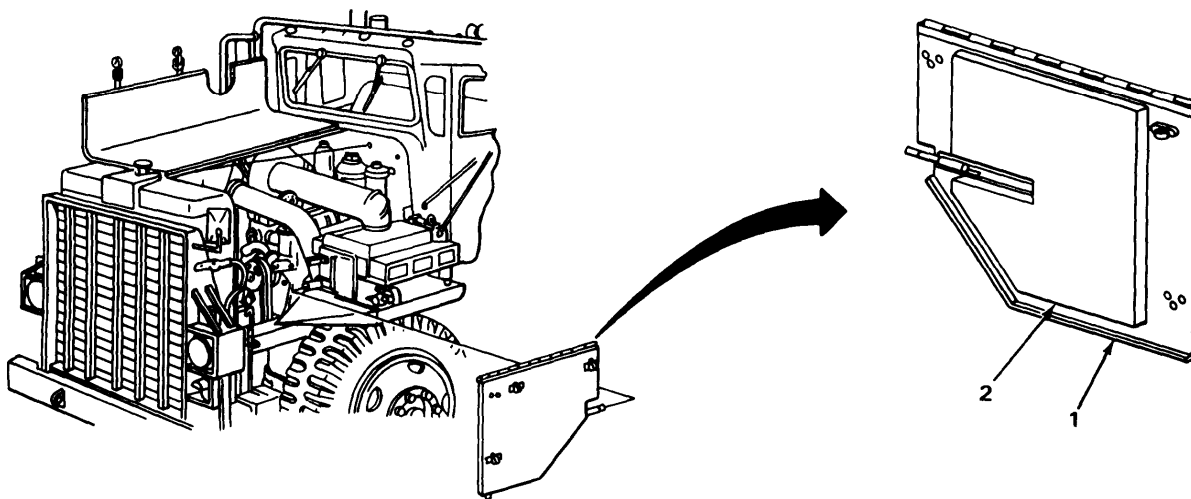
**NOTE**

Use this procedure to replace any insulation on vehicle. Left side insulation is shown.

- |                        |                 |   |
|------------------------|-----------------|---|
| 1. Engine compartment  | Left side panel | Remove (page 4-1 104).                        |
| 2. Left side panel (1) | Insulation (2)  | a. Using knife, scrape off.<br>b. Get rid of. |

**INSTALLATION**

- |                        |                 |  |
|------------------------|-----------------|--|
| 3. Left side panel (1) | Insulation (2)  | a. Using brush, apply thin coat of adhesive.<br>b. Center above panel (1) and press into place.<br>c. Let adhesive set for five minutes. |
| 4. Engine compartment  | Left side panel | Install (page 4-1104).   |



**TASK ENDS HERE**

## VENTILATOR

---

This task covers:

- |                           |  |
|---------------------------|--|
| a. Removal (page 4-1116)  | c. Inspection/Replacement (page 4-1 116) |
| b. Cleaning (page 4-1116) | d. Installation (page 4-1117)            |
- 

### INITIAL SETUP

<p><b>Tools</b></p> <p>Screwdriver, cross-tip, number 3                  Handle, ratchet, 3/8-inch drive                  Extension, 3/8-inch drive, 6-inch                  Socket, 3/8-inch, 3/8-inch drive                  Socket, 9/16-inch, 3/8-inch drive                  Wrench, open-end, 9/16-inch</p>	<p><b>Materials/Parts</b></p> <p>Lockwasher</p> <p><b>Personnel Required</b></p> <p>One</p>
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LOCATION	ITEM	ACTION REMARKS
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### REMOVAL

1. Cab (1) and brace (2) to bracket (3)	Screw (4), lock-washer (5), and nut (6)	a. Using 9/16-inch socket, handle, and wrench, unscrew and take out. b. Get rid of lockwasher (5). c. Swing brace (2) out of the way.
2. Bracket (3) to ventilator (7) and cab (1)	Three screws (8)	Using 3/8-inch socket, extension and handle, unscrew and take out.
3. Ventilator(7)	Bracket (3)	Take off.
4. Ventilator (7) to cab (1)	Eight screws (9)	Using screwdriver, unscrew and take out.
5. Cab (1)	Ventilator (7)	Take off.

### CLEANING

6.	All parts	Clean according to general maintenance instructions (page 4-1).
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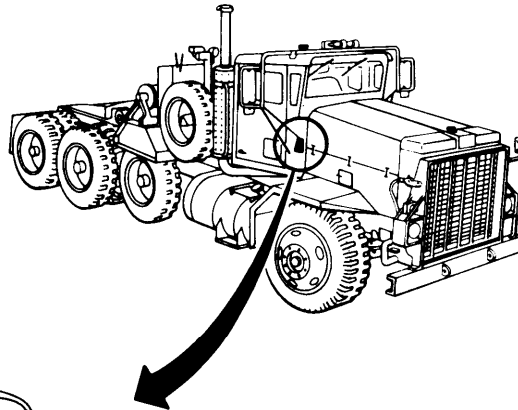
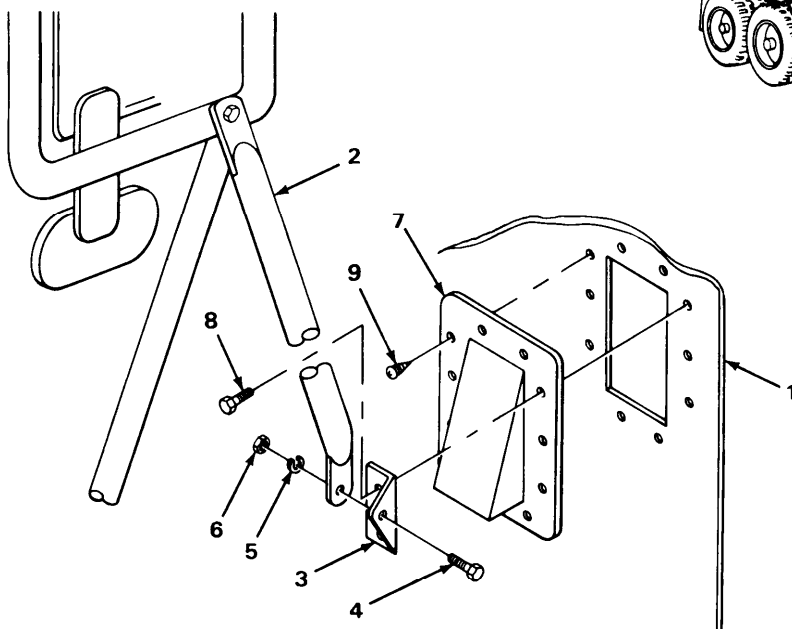
### inspection/REPLACEMENT

7.	All parts	Inspect according to general maintenance instructions (page 4-1).
----	-----------	---



**VENTILATOR - CONTINUED**

LOCATION	ITEM	ACTION	REMARKS
<b>INSTALLATION</b>			
8. Cab (1)	Ventilator (7)	Put in position.	
9. Ventilator (7) to cab (1)	Eight screws (9)	Screw in and tighten using screwdriver.	<b>Do not put screws into the three front holes.</b>
10. Ventilator (7)	Bracket (3)	Put on.	
11. Bracket (3) to ventilator (7) and cab (1)	Three screws (8)	Screw in and tighten using 3/8-inch socket, extension and handle,	
12. Bracket (3)	Brace (2)	Put on.	
13. Brace (2) to bracket (3)	Screw (4), new lockwasher (5), and nut (6)	Screw in and tighten using 9/16-inch socket, handle, and wrench.	



**TASK ENDS HERE**

**GRAB HANDLE**

---

This task covers:

- a. Removal (page 4-1118)
  - b. Cleaning (page 4-1118)
  - c. inspection/Replacement (page 4-1 118)
  - d. Installation (page 4-1118)
- 

**INITIAL SETUP**

**Tools**

Handle, ratchet, 3/8-inch drive  
 Socket, 9/16-inch, 3/8-inch drive  
 Wrench, open-end, 9/16-inch

**Materials/Parts**

Lockwasher (two required)

**Personnel Required**

One

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LOCATION	ITEM	ACTION REMARKS
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**REMOVAL**

- |                                  |   |  |
|----------------------------------|---|--|
| 1. Grab handle (1)<br>to cab (2) | Two screws (3),<br>lockwashers (4),<br>and nuts (5) | a. Using socket, handle, and wrench, un<br>screw and take out.<br>b. Get rid of lockwashers (4). |
| 2. Cab(2)                        | Grab handle (1)                                     | Take off.  |

**CLEANING**

- |    |           |  |
|----|-----------|--|
| 3. | All parts | Clean according to general maintenance<br>instructions (page 4-1). |
|----|-----------|--|

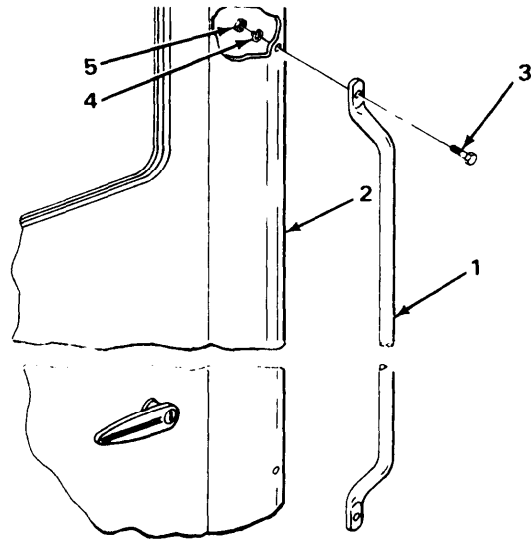
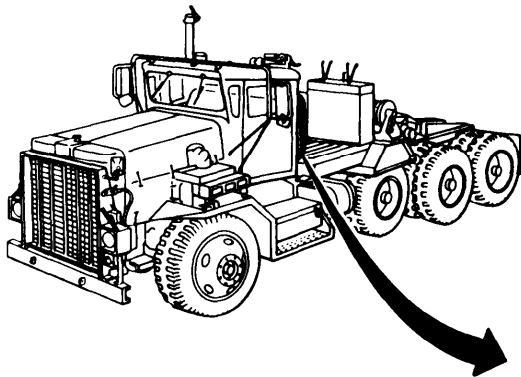
**INSPECTION/REPLACEMENT**

- |    |           |  |
|----|-----------|--|
| 4. | Ail parts | Inspect according to general maintenance<br>instructions (page 4-1). |
|----|-----------|--|

**INSTALLATION**

- |                                  |   |   |
|----------------------------------|---|---|
| 5. Cab(2)                        | Grab handle (1)   | Put on.   |
| 6. Grab handle (1)<br>to cab (2) | Two screws (3),<br>new lockwashers<br>(4), and nuts (5) | Screw in and tighten using socket, handle,<br>and wrench. |

**GRAB HANDLE - CONTINUED**



**TASK ENDS HERE**

**SPLASH SHIELDS**

This task covers:

- a. Removal (page 4-1120)
- b. Cleaning (page 4-1120)
- c. Inspection/Replacement (page 4-1 120)
- d. Installation (page 4-1120)

**INITIAL SETUP**

**Tools**

- Handle, ratchet, 1/2-inch drive
- Socket, 1/2-inch, 1/2-inch drive
- Socket, 15/16-inch, 1/2-inch drive
- Wrench, open-end, 15/16-inch
- Wrench, open-end, 1/2-inch

**Materials/Parts**

- Locknut (three required for each splash shield)

**Materials/Parts - Continued**

- Lockwasher (four required for each splash shield)

**Personnel Required**

One

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**SPLASH SHIELDS - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
----------	------	-------------------

**NOTE**

Use this procedure to replace either splash shield. Left side splash shield is shown.

**REMOVAL**

1. Plate (1) to shield (2) and angle (3)	Four screws (4), lockwashers (5), and nuts (6)	a. Using 1/2-inch socket, handle, and 1/2-inch wrench, unscrew and take out. b. Get rid of lockwashers (5).
2. Angie (3)	Plate (1) and shield (2)	Take off.
3. Angle (3) to frame (7)	Three screws (8), six washers (9), and three locknuts (10)	a. Using 15/16-inch socket, handle, and 15/16-inch wrench, unscrew and take out. b. Get rid of locknuts (10).
4. Frame (7)	Angie (3)	Take off.

**CLEANING**

5.	All parts	Clean according to general maintenance instructions (page 4-1).
----	-----------	---

**INSPECTION/REPLACEMENT**

6.	All parts	inspect according to general maintenance instructions (page 4-1).
----	-----------	---

**INSTALLATION**

7. Frame(7)	Angie (3)	Put on.
8. Angie (3) to frame (7)	Three screws (8), six washers (9), and three new locknuts (10)	Screw in and tighten using 15/16-inch socket, handle, and 15/16-inch wrench.
9. Angie (3)	Shield (2) and plate (1)	Put on.

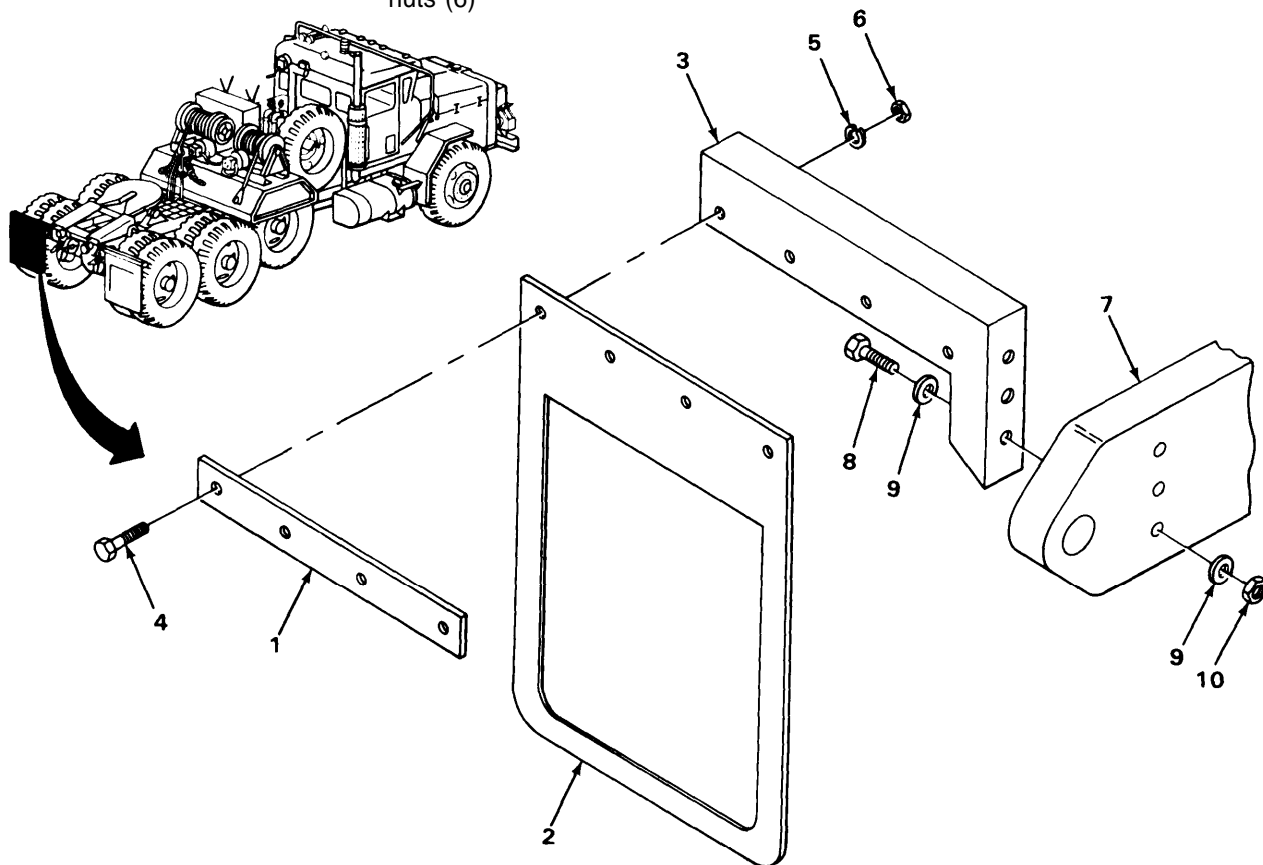
**SPLASH SHIELDS - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
----------	------	-------------------

10. Plate (1) to shield  
(2) and angle (3)

Four screws (4), new  
lockwashers (5), and  
nuts (6)

Screw in and tighten using 1/2-inch  
socket, handle, and 1/2-inch wrench.



**TASK ENDS HERE**

**VISORS**

This task covers:

- a. Removal (page 4-1122)
- b. Cleaning/Inspection (page 4-1122)
- c. installation (page 4-1122)

**INITIAL SETUP**

Tools	Personnel Required
Screwdriver, cross-tip, number 3	One

LOCATION	ITEM	ACTION	REMARKS
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**NOTE**

There are two visors in vehicle. Use this procedure to replace either visor.

**REMOVAL**

- |                         |                |  |
|-------------------------|----------------|--|
| 1. Visor (1) to cab (2) | Two screws (3) | Using screwdriver, unscrew and take out. |
| 2. Cab (2)              | Visor (1)      | Take off.                                |

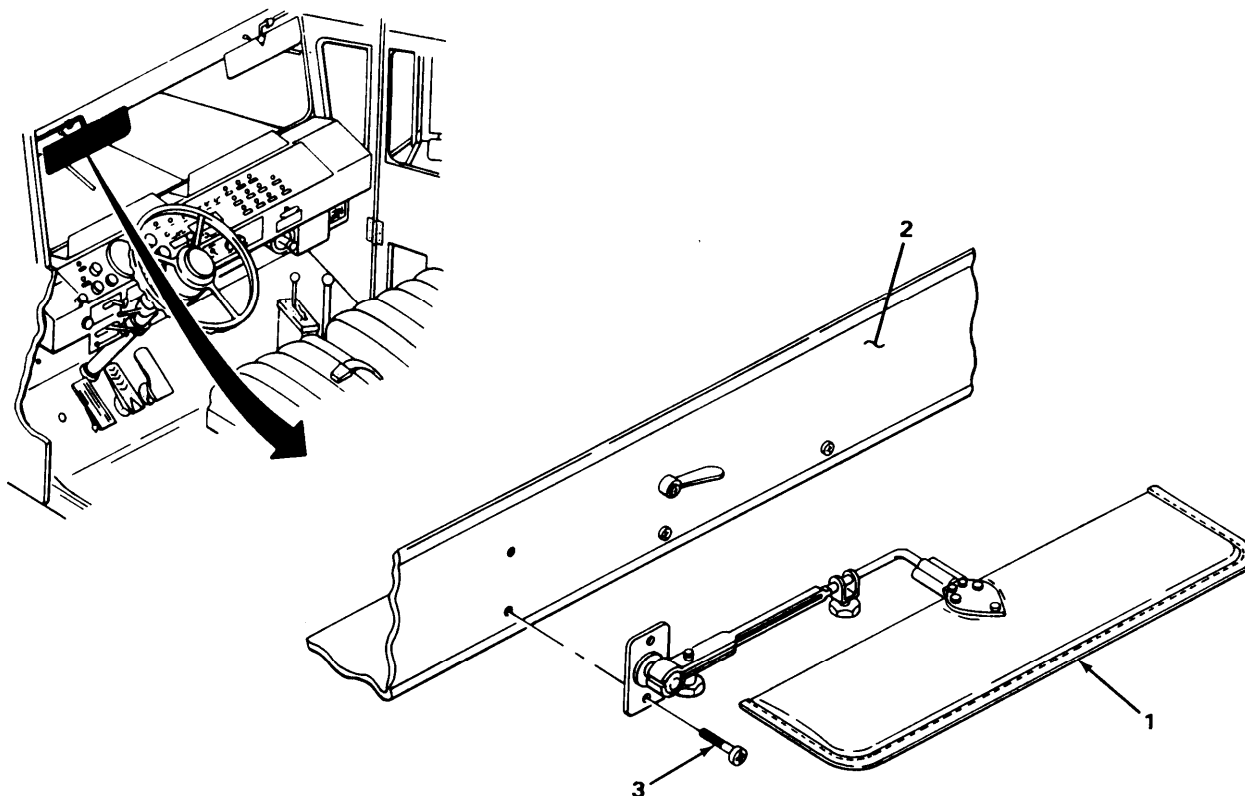
**CLEANING/INSPECTION**

- |    |           |  |
|----|-----------|--|
| 3. | All parts | Clean and inspect as shown in the general maintenance instructions (page 4-1). |
|----|-----------|--|

**INSTALLATION**

- |                        |                |   |
|------------------------|----------------|---|
| 4. Cab (2)             | Visor (1)      | Put on cab (2).                         |
| 5. Visor(1) to cab (2) | Two screws (3) | Screw in and tighten using screwdriver. |

**VISORS - CONTINUED**



**TASK ENDS HERE**

**ASHTRAY**

This task covers:

- a. Removal (page 4-1 124)
- b. Cleaning/Inspection (page 4-1 124)
- c. Installation (page 4-1124)

**Tools**

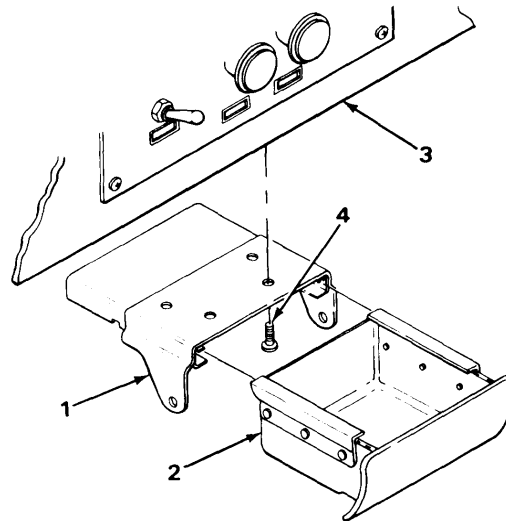
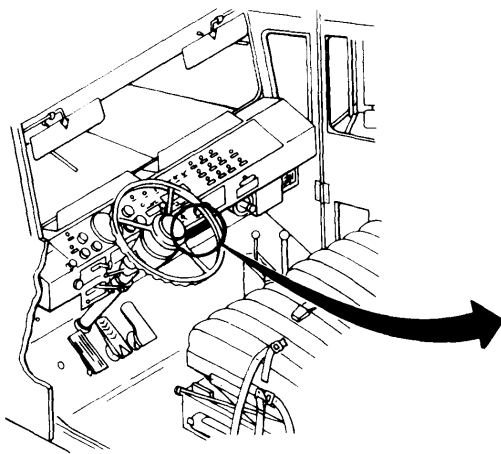
Screwdriver, cross-tip, number 2

**Personnel Required**

One

**ASHTRAY - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
<b>REMOVAL</b>		
1. Carrier (1)	Ashtray (2)	Slide out until it hits stop, bend down slightly and slide out.
2. Carrier (1) to instrument panel (3)	Four screws (4)	Using screwdriver, unscrew and take out.
3. Instrument panel (3)	Carrier (1)	Take off.
<b>CLEANING/inspection</b>		
4.	All parts	Clean and inspect as shown in the general maintenance instructions (page 4-1).
<b>INSTALLATION</b>		
5. Instrument panel (3)	Carrier (1)	Put on.
6. Carrier (1) to instrument panel (3)	Four screws (4)	Screw in and tighten using screwdriver.
7. Carrier (1)	Ashtray (2)	Slide in until it hits stop, bend down slightly and slide in.



**TASK ENDS HERE**



## PASSENGER'S SEAT

This task covers:

- a. Removal (page 4-1125)
- b. Cleaning/Inspection (page 4-1126)
- c. Installation (page 4-1126)

### INITIAL SETUP

**Tools**

Handle, ratchet, 3/8-inch drive  
 Socket, 9/16-inch, 3/8-inch drive  
 Wrench, open-end, 9/16-inch

**Materials/Parts**

Lockwasher (four required)

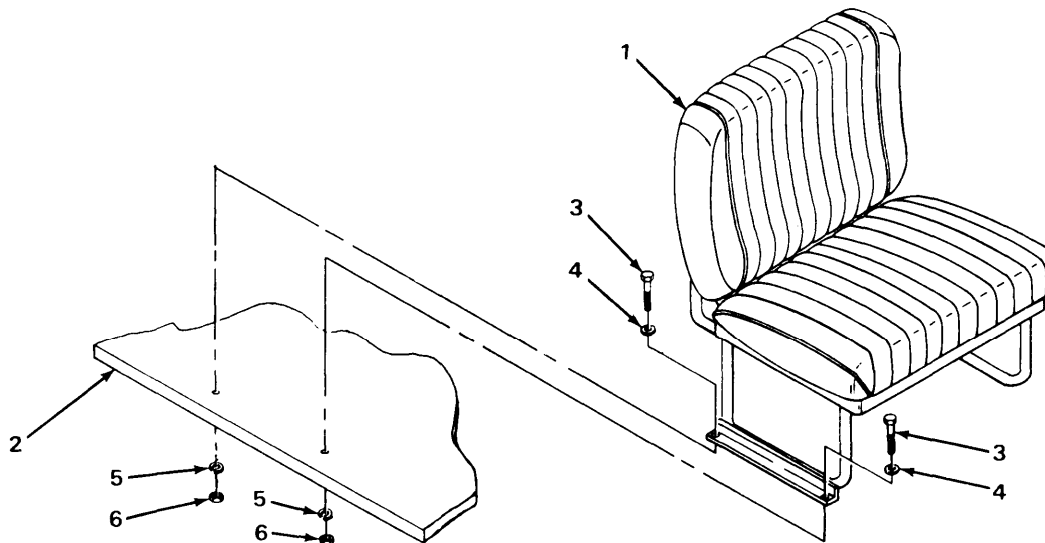
**Personnel Required**

Two

LOCATION	ITEM	ACTION REMARKS
----------	------	-------------------

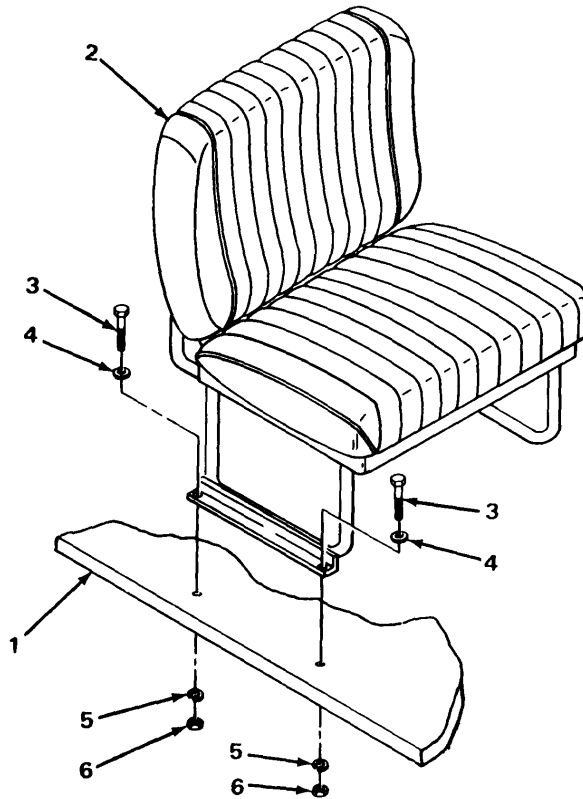
### REMOVAL

- |                                     |  |  |
|-------------------------------------|--|--|
| <p>1. Seat (1) to cab floor (2)</p> | <p>Four screws (3), washers (4), lockwashers (5), and nuts (6)</p> | <p>a. With help from assistant and using socket, handle, and wrench, unscrew and take out.<br/>                     Note location of longer screw.<br/>                     b. Get rid of lockwashers (5).</p> |
| <p>2. Cab floor (2)</p>             | <p>Seat (1)</p>  | <p>Take off.</p>   |



**PASSENGER'S SEAT - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
<b>CLEANING/INSPECTION</b>		
3.	All parts	Clean and inspect as shown in the general maintenance instructions (page 4-1).
<b>INSTALLATION</b>		
4. Cab floor (1)	Seat (2)	Put on.
5. Seat (2) to cab floor (1)	Four screws (3), washers (4), new lockwashers (5), and nuts (6)	a. Note location of longer screw (3). b. With help from assistant, screw in and tighten using socket, handle, and wrench.



TASK ENDS HERE

TA240705

## DRIVER'S SEAT AND SUPPORT

---

This task covers:

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>a. Removal (page 4-1128)</li> <li>b. Cleaning/Inspection (page 4-1128)</li> </ul> | <ul style="list-style-type: none"> <li>c. Installation (page 4-1128)</li> </ul> |
|--|---|
- 

### INITIAL SETUP

#### Tools

Handle, ratchet, 3/8-inch drive  
 Socket, 7/16-inch, 3/8-inch drive  
 Socket, 1/2-inch, 3/8-inch drive  
 Wrench, open-end, 7/16-inch  
 Wrench, open-end, 1/2-inch

#### Materials/Parts

Lockwasher, brace to support (four required)  
 Lockwasher, jumper (two required)  
 Lockwasher, seat to support (four required)

#### Materials/Parts – Continued

Lockwasher, support to cab floor (three required)

#### Personnel Required

Two

#### Equipment Condition

Driver's seat belts removed (page 4-1 130).  
 Fire extinguisher removed  
 (TM 9-2320-270-10).

**DRIVER'S SEAT AND SUPPORT - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
<b>REMOVAL</b>		
1. Seat (1) to support (2)	Four nuts (3), lockwashers (4), and washers (5)	a. Using 1/2-inch wrench, unscrew and take out. b. Get rid of lockwashers (4).
2. support (2)	Seat (1) and two spacers (6)	Take off.
3. Brace (7) to support (2)	Four screws (8), washers (9), lockwashers (10), and nuts (11)	a. Using 7/16-inch socket, handle, and 7/16-inch wrench, unscrew and take out. b. Get rid of lockwashers (10).
4. support (2) to cab floor (12)	Screw (13), washer (14), two lockwashers (15), jumper (16), and nut (17)	a. Using 1/2-inch socket, handle, and 1/2-inch wrench, unscrew and take out. b. Get rid of lockwashers(15).
5.	Screw (18), washer (19), two lockwashers (20), and nut (21)	a. Using 1/2-inch socket, handle, and 1/2-inch wrench, unscrew and take out. b. Get rid of lockwashers (20).
6.	Two screws (22), washers (23), lockwashers (24), and nuts (25)	a. With help from assistant and using 1/2-inch socket, handle, and 1/2-inch wrench, unscrew and take out. b. Get rid of lockwashers (24).
7. Cab floor (12)	support (2)	Take off.
<b>CLEANING/inspection</b>		
8.	All parts	Clean and inspect as shown in the general maintenance instructions (page 4-1).
<b>INSTALLATION</b>		
9. Cab floor (12)	support (2)	Place in position.
10. support (2) to cab floor (12)	Two screws (22), washers (23), new lockwashers (24), and nuts (25)	With help from assistant, screw in and tighten using 1/2-inch socket, handle, and 1/2-inch wrench.

**FRONT SPRING PINS - CONTINUED****NOTE****FOLLOW-ON MAINTENANCE:**

1. Install pitman arm to booster drag link (page 4-962) (left rear spring only).
2. Lubricate spring pins (LO 9-2320-270-12).

**TASK ENDS HERE****PUSHER AXLE AIR LOAD CONTROL VALVE**

---

This task covers:

- |                           |   |
|---------------------------|---|
| a. Removal (page 4-1080)  | c. inspection/Replacement (page 4-1082) |
| b. Cleaning (page 4-1082) | d. Installation (page 4-1082)           |
- 

**INITIAL SETUP****Tools**

Hammer, plastic  
 Pliers, long-nose, round  
 Vise  
 Wrench, open-end, 3/8-inch  
 Wrench, open-end, 7/16-inch  
 Wrench, open-end, 1/2-inch  
 Wrench, open-end, 9/16-inch  
 Wrench, open-end, 5/8-inch

**Personnel Required**

One

**Equipment Condition**

Air system drained (TM 9-2320-270-10).

**Materials/Parts**

Lockwashers (two required)  
 Tape, teflon (item 22, appendix C)

**PUSHER AXLE AIR LOAD CONTROL VALVE - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
----------	------	-------------------

REMOVAL

**WARNING**

Make sure all pressure is drained from air system before disconnecting air lines. Parts under pressure can, when removed, fly off with great force causing injury to personnel.

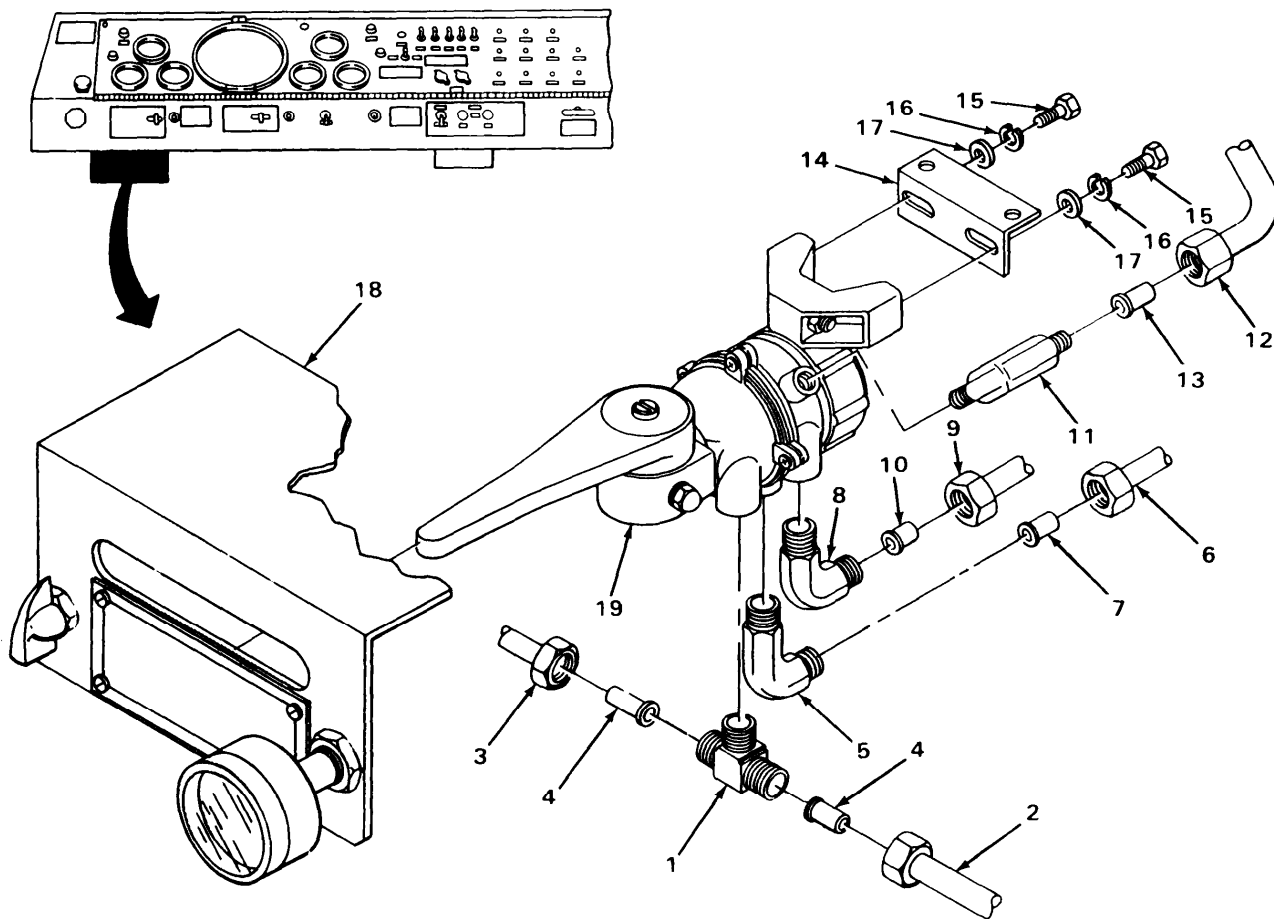
**NOTE**

Tag lines according to general Maintenance instructions (page 4-1).

1. Tee(1)	Hose (2)	Using 5/8-inch wrench, unscrew and take off.
2.	Hose (3)	Using 5/8-inch wrench, unscrew and take off.
3.	Two inserts (4)	Using pliers, pull out.
4. Elbow (5)	Hose (6)	Using 5/8-inch wrench, unscrew and take off.
5.	Insert (7)	Using pliers, pull out.
6. Elbow (8)	Hose (9)	Using 9/16-inch wrench, unscrew and take off.
7.	Insert (10)	Using pliers, pull out.
8. Elbow(11)	Hose (12)	Using 9/16-inch wrench, unscrew and take off.
9.	Insert (13)	Using pliers, pull out.
10. Mounting bracket (14)	Two screws (15), lockwashers (16), and washers (17)	a. Using 1/2-inch wrench, unscrew and remove. b. Get rid of lockwashers (16).
11. Instrument panel (18)	Pusher axle load valve (19)	Take off.

**PUSHER AXLE AIR LOAD CONTROL VALVE - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
12. Pusher axle load valve (19)	Tee (1)	a. Secure valve (19) in vise. b. Using 5/8-inch wrench, unscrew and take out.
13.	Elbow (5)	Using 1/2-inch wrench, unscrew and take out.
14.	Elbow (8)	Using 7/16-inch wrench, unscrew and take out.
15.	Elbow (11)	a. Using 3/8-inch wrench, unscrew and take out. b. Take valve (19) out of vise.



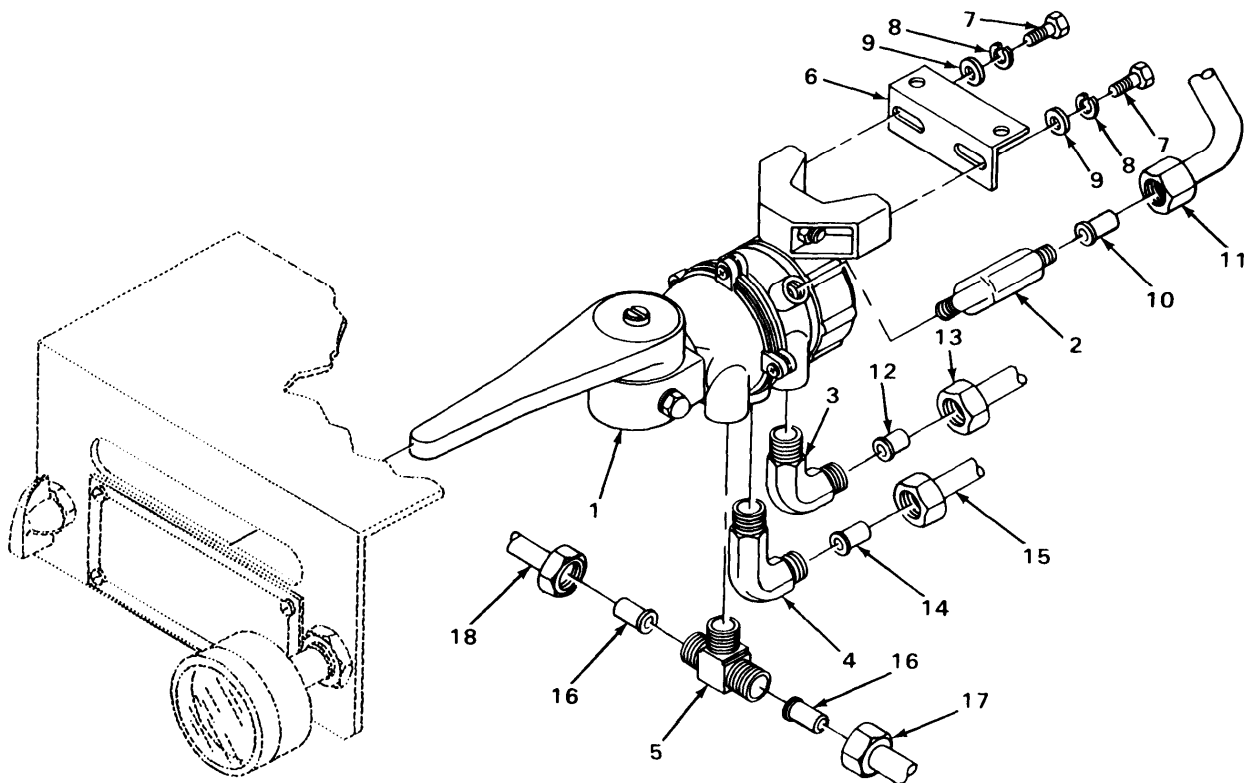
**PUSHER AXLE AIR LOAD CONTROL VALVE - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
<b>CLEANING</b>		
<b>16.</b>	All parts	Clean according to general maintenance instructions (page 4-1).
<b>INSPECTION/REPLACEMENT</b>		
<b>17.</b>	All parts	Inspect according to general maintenance instructions (page 4-1).
<b>INSTALLATION</b>		
<b>18.</b> Pusher axle load valve (1)	Elbow (2)	<ol style="list-style-type: none"> <li>Secure valve (1) in vise.</li> <li>Wrap threads with teflon tape (page 4-1).</li> <li>Using 3/8-inch wrench, screw in and tighten.</li> </ol>
<b>19.</b>	Elbow (3)	<ol style="list-style-type: none"> <li>Wrap threads with teflon tape (page 4-1).</li> <li>Using 7/16-inch wrench, screw in and tighten.</li> </ol>
<b>20.</b>	Elbow (4)	<ol style="list-style-type: none"> <li>Wrap threads with teflon tape (page 4-1).</li> <li>Using 1/2-inch wrench, screw in and tighten.</li> </ol>
<b>21.</b>	Tee (5)	<ol style="list-style-type: none"> <li>Wrap threads with teflon tape (page 4-1).</li> <li>Using 5/8-inch wrench, screw in and tighten.</li> <li>Take valve (1) out of vise.</li> </ol>
<b>22.</b> Mounting bracket (6)	Pusher axle load valve (1)	Place in position.
<b>23.</b>	Two screws (7), new lockwashers (8), and washers (9)	Screw in and tighten using 1/2-inch wrench.
<b>24.</b> Elbow (2)	Insert (10)	Using hammer, tap in.
<b>25.</b>	Hose (11)	Screw on and tighten using 9/16-inch wrench.
<b>26.</b> Elbow (3)	Insert (12)	Using hammer, tap in.



**PUSHER AXLE AIR LOAD CONTROL VALVE- CONTINUED**

LOCATION	ITEM	ACTION REMARKS
27.	Hose (13)	Screw on and tighten using 9/16-inch wrench.
28. Elbow (4)	Insert (14)	Using hammer, tap in.
29.	Hose (15)	Screw on and tighten using 5/8-inch wrench.
30. Tee (5)	Two inserts (16)	Using hammer, tap in.
31.	Hose (17)	Screw on and tighten using 5/8-inch wrench.
32.	Hose (18)	Screw on and tighten using 5/8-inch wrench.



**NOTE**

FOLLOW-ON MAINTENANCE: Check for proper operation (TM 9-2320-270-10).

**TASK ENDS HERE**

TA240677

**4-1083**

## PUSHER AXLE SHOCK ABSORBER

---

This task covers:

- a. Removal (page 4-1084)
  - b. installation (page 4-1084)
- 

### INITIAL SETUP

**Tools**

Driftpin, brass, 3/8-inch  
 Hammer, machinist's ball-peen  
 Hammer, plastic  
 Handle, ratchet, 3/4-inch drive  
 Socket, 1 1/8-inch, 3/4-inch drive  
 Wrench, box-end, 1 1/8-inch

**Personnel Required**

One

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LOCATION	ITEM	ACTION	REMARKS
----------	------	--------	---------

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### REMOVAL

**NOTE**

There are two pusher axle shock absorbers. Left shock absorber is shown. Repeat procedure for right shock absorber.

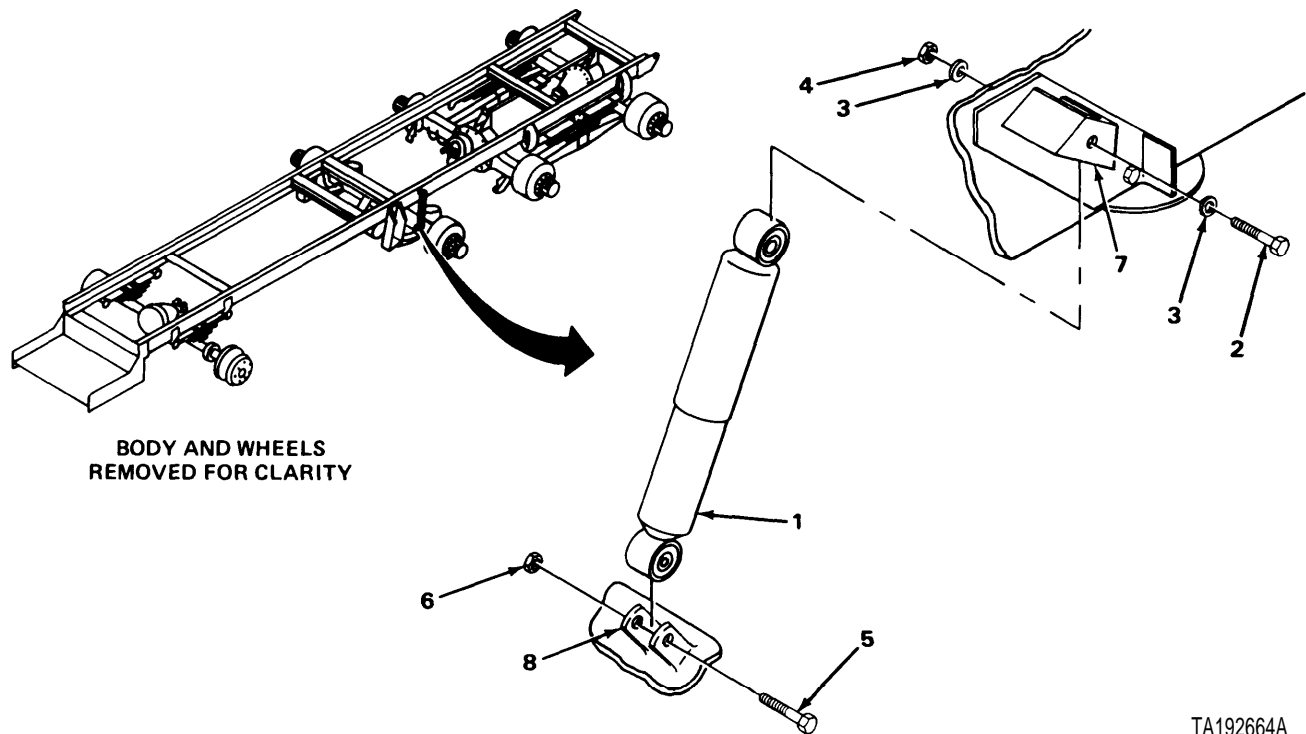
1. Shock absorber (1)	Screw (2), two washers (3), and nut (4)	a. Using 1 1/8-inch socket, ratchet handle with 3/4-inch drive, and 1 1/8-inch wrench, unscrew and take out. b. Using ball-peen hammer and drift, drive out screw (2).	
2.	Screw (5) and nut (6)	a. Using 1 1/8-inch socket, ratchet handle with 3/4-inch drive, and 1 1/8-inch wrench, unscrew and take out. b. Using ball-peen hammer and drift, drive out screw (5).	
3. Mounting brackets (7) and (8)	Shock absorber (1)	Lift off. If necessary, tap with plastic hammer.	

### INSTALLATION

4. Mounting brackets (7) and (8)	Shock absorber (1)	Using plastic hammer, tap in place.	
----------------------------------	--------------------	-------------------------------------	--

**PUSHER AXLE SHOCK ABSORBER -CONTINUED**

LOCATION	ITEM	ACTION REMARKS
5. Shock absorber(l)	Screw (5) and nut (6)	Screw in and tighten using 1 1/8-inch socket, ratchet handle with 3/4-inch drive, and 1 1/8-inch wrench.
6.	Screw (2), two washers (3), and nut (4)	Screw in and tighten using 1 1/8-inch socket, ratchet handle with 3/4-inch drive, and 1 1/8-inch wrench.



TA192664A

**TASK ENDS HERE**

**TANDEM AXLE TORQUE ROD LUBRICATION FITTINGS**

This task covers:

Replacement (page 4-1086)

**INITIAL SETUP**

Tools

Wrench, open-end, 7/16-inch

Personnel Required

One

TA240678

4-1085

**TANDEM AXLE TORQUE ROD LUBRICATION FITTINGS - CONTINUED**

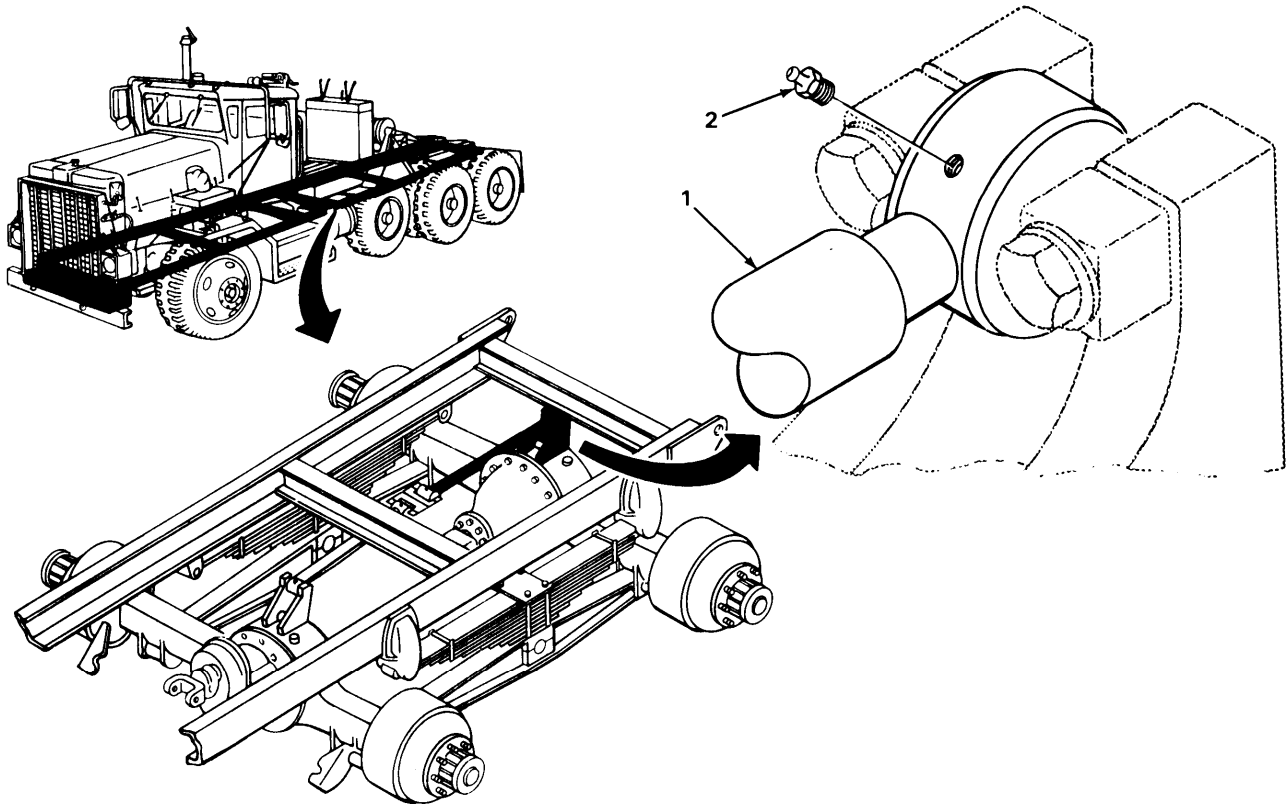
LOCATION	ITEM	ACTION REMARKS
----------	------	-------------------

REPLACEMENT

**NOTE**

There are four torque rod lubrication fittings. Rear fitting is shown. Repeat procedure for other three fittings.

- |                   |                         |   |
|-------------------|-------------------------|---|
| 1. Torque rod (1) | Lubrication fitting (2) | Using 7/16-inch wrench, unscrew and take out. |
| 2.                | Lubrication fitting (2) | Using 7/16-inch wrench, screw in and tighten. |



**NOTE**

FOLLOW-ON MAINTENANCE: Lubricate (LO 9-2320-270-1 2).

**TASK ENDS HERE**

TA240679

## REAR AXLE SPRING LUBRICATION FITTINGS

This task covers:

Replacement (page 4-1087)

### INITIAL SETUP

Tools

Wrench, open-end, 7/16-inch

Personnel Required

One

LOCATION	ITEM	ACTION	REMARKS
----------	------	--------	---------

### REPLACEMENT

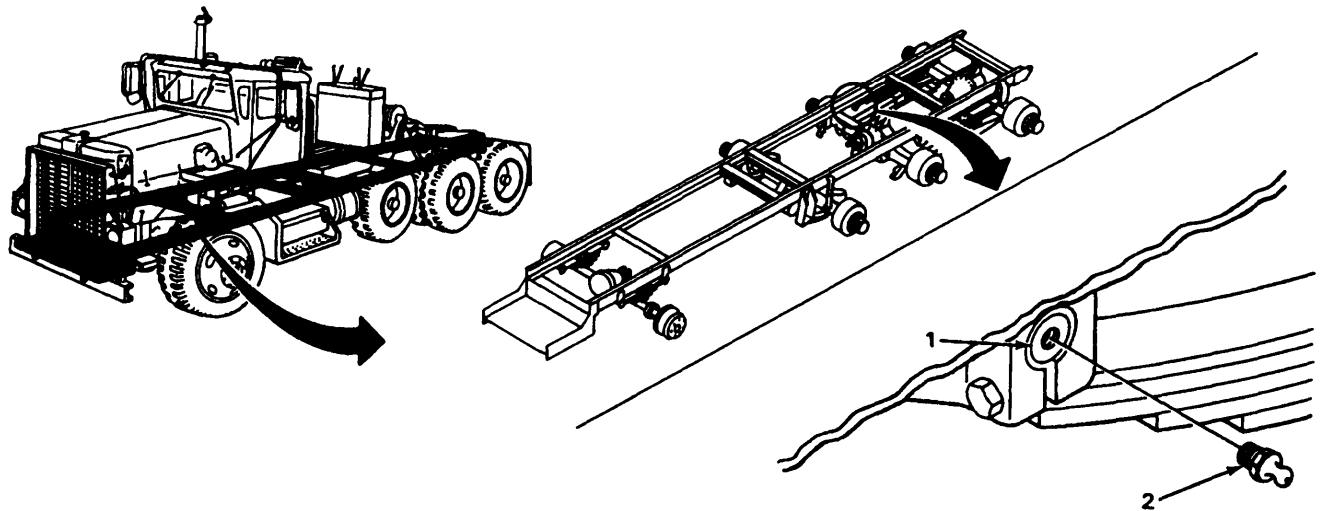
#### WARNING

When the pusher axle is in the up position, it must be supported by trestles before the performance of maintenance under the vehicle. Failure to observe this precaution could cause serious injury to personnel.

#### NOTE

There are two rear axle spring lubrication fittings. Right fitting is shown. Repeat procedure for left fitting.

- |                         |                         |   |
|-------------------------|-------------------------|---|
| 1. Front spring pin (1) | Lubrication fitting (2) | Using 7/16-inch wrench, unscrew and take off. |
| 2.                      | Lubrication fitting (2) | Screw in and tighten, using 7/16-inch wrench. |



TASK ENDS HERE

TA240680

**Section XVI. CAB AND BODY MAINTENANCE**

	Page		Page
Ashtray .....	4-1123	Left Side Panel and Brackets .....	4-1104
Crossbar Supports .....	4-1096	Passenger's Seat .....	4-1125
Driver's Seat and Support .....	4-1127	Radiator and Headlight Guard .....	4-1088
Floor Mat .....	4-1134	Right Side panel .....	4-1100
Grab Handle .....	4-1118	Seat Belts .....	4-1130
Hood .....	4-1093	Splash Shields .....	4-1119
Insulation .....	4-1114	Visors .....	4-1122
Latches, Latch Mounting Brackets and Catches .....	4-1108	Ventilator .....	4-1116

**RADIATOR AND HEADLIGHT GUARD**

---

This task covers:

- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li>a. Removal (page 4-1088)</li> <li>b. Cleaning (page 4-1090)</li> </ul> | <ul style="list-style-type: none"> <li>c. Inspection/Replacement (page 4-1090)</li> <li>d. Installation (page 4-1090)</li> </ul> |
|---|--|
- 

**INITIAL SETUP**

**Tools**

- Handle, ratchet, 1/2-inch drive
- Socket, 9/16-inch, 1/2-inch drive
- Socket, 3/4-inch, 1/2-inch drive
- Socket, 15/16-inch, 1/2-inch drive
- Wrench, open-end, 9/16-inch
- Wrench, open-end, 3/4-inch
- Wrench, open-end, 15/16-inch

**Materials/Parts**

- Lockwasher (two required)

**Personnel Required**

Two

**Equipment Condition**

- Spotter mirror removed (page 4-1242).
- Headlights removed (page 4-348).
- Front directional lights removed (page 4-370).
- Blackout headlights removed (page 4-376).
- Front air coupling removed (page 4-775).

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LOCATION	ITEM	ACTION REMARKS
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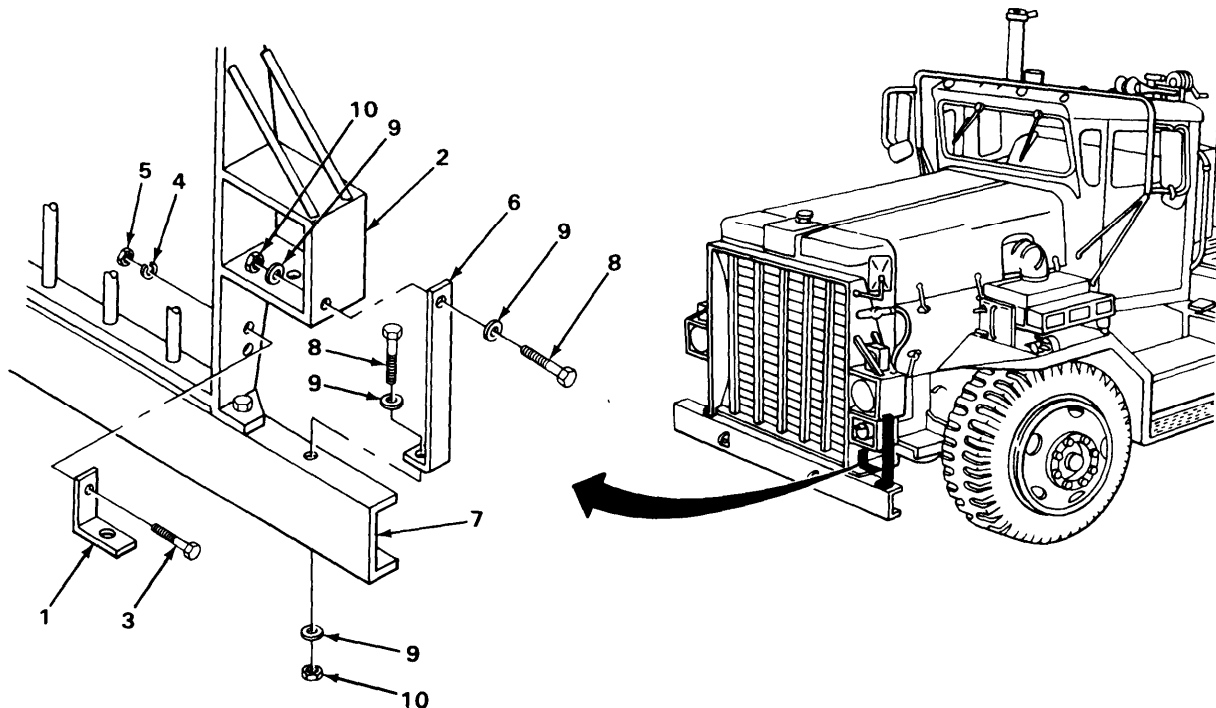
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**REMOVAL**

- |   |   |  |
|---|---|--|
| <ul style="list-style-type: none"> <li>1. Blackout light support (1) to radiator and headlight guard (2)</li> </ul> | <ul style="list-style-type: none"> <li>Two screws (3), lockwashers (4), and nuts (5)</li> </ul> | <ul style="list-style-type: none"> <li>a. Using 9/16-inch socket, ratchet handle with 1/2-inch drive, and 9/16-inch wrench, unscrew and take out.</li> <li>b. Get rid of lockwashers (4).</li> </ul> |
|---|---|--|

**RADIATOR AND HEADLIGHT GUARD - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
2. Radiator and headlight guard (2)	Blackout light support (1)	Take off.
3. Blackout light guard (6) to radiator and headlight guard (2) and bumper (7)	Two screws (8), four washers (9), and two nuts (10)	Using 3/4-inch socket, ratchet handle with 1/2-inch drive, and 3/4-inch wrench, unscrew and take out.
4. Radiator and headlight guard (2) and bumper (7)	Blackout light guard (6)	Take off.



**RADIATOR AND HEADLIGHT GUARD- CONTINUED**

LOCATION	ITEM	ACTION REMARKS
----------	------	-------------------

## REMOVAL- CONTINUED

- |    |  |  |   |
|----|--|--|---|
| 5. | Radiator and headlight guard (1) to two support braces (2) | Four screws (3), eight washers (4), and two nuts (5) | Using 3/4-inch socket, ratchet handle with 1/2-inch drive, and 3/4-inch wrench, unscrew and take out.     |
| 6. | Radiator and headlight guard (1) to bumper(6)              | Two screws (7), four washers (8), and two nuts (9)   | Using 15/16-inch socket, ratchet handle with 1/2-inch drive, and 15/16-inch wrench, unscrew and take out. |

**WARNING**

Some parts are heavy. Be careful when handling them. Lifting equipment is needed when parts weigh over 50 pounds (23 kg) for a single person lift, over 100 pounds (45 kg) for a two person lift, and over 150 pounds (68 kg) for a three or more person lift. Do not try to handle heavy parts without lifting equipment. Keep clear of heavy parts supported only by lifting equipment. Failure to observe this precaution could cause serious injury or death of personnel.

- |    |            |                                  |           |
|----|------------|----------------------------------|-----------|
| 7. | Bumper (6) | Radiator and headlight guard (1) | Take off. |
|----|------------|----------------------------------|-----------|

## CLEANING

- |    |           |   |
|----|-----------|---|
| 8. | All parts | Clean according to general maintenance instructions (page 4-1). |
|----|-----------|---|

## INSPECTION/REPLACEMENT

- |    |           |   |
|----|-----------|---|
| 9. | All parts | Inspect according to general maintenance instructions (page 4-1). |
|----|-----------|---|

## INSTALLATION

**WARNING**

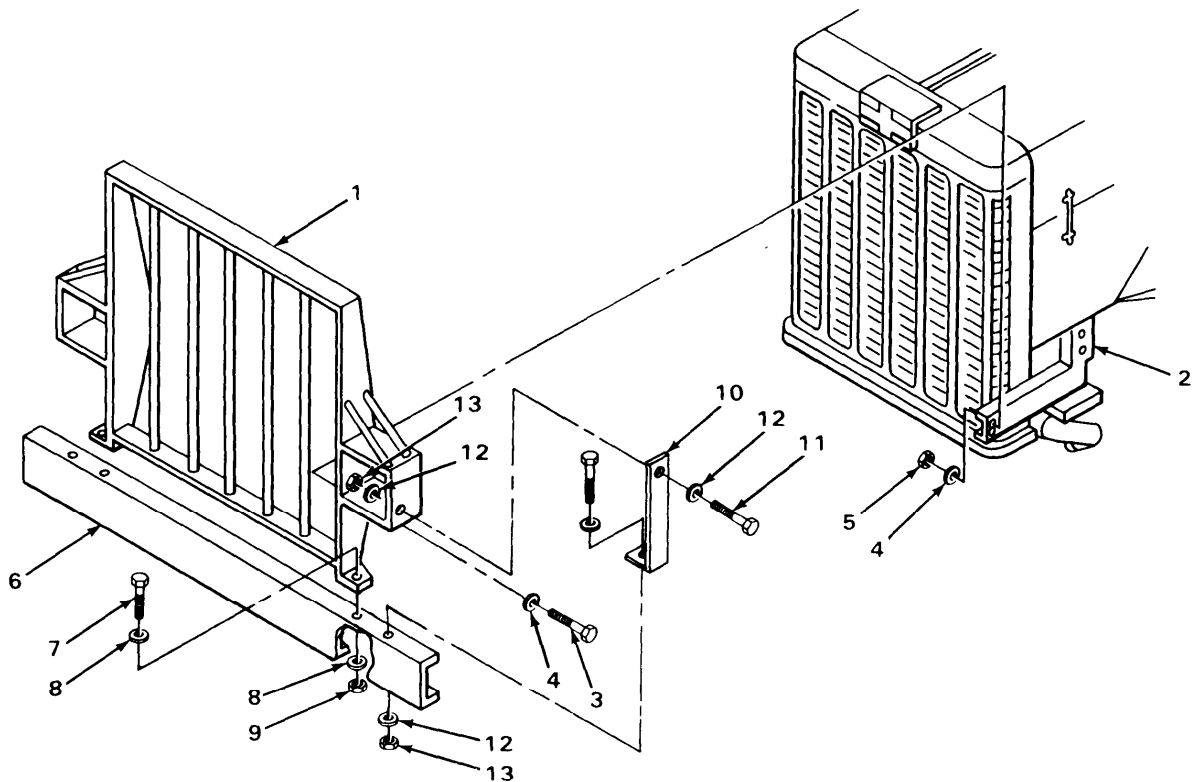
Some parts are heavy. Be careful when handling them. Lifting equipment is needed when parts weigh over 50 pounds (23 kg) for a single person lift, over 100 pounds (45 kg) for a two person lift, and over 150 pounds (68 kg) for a three or more person lift. Do not try to handle heavy parts without lifting equipment. Keep clear of heavy parts supported only by lifting equipment. Failure to observe this precaution could cause serious injury or death of personnel.

- |     |            |                                  |                    |
|-----|------------|----------------------------------|--------------------|
| 10. | Bumper (6) | Radiator and headlight guard (1) | Place in position. |
|-----|------------|----------------------------------|--------------------|



**RADIATOR AND HEADLIGHT GUARD- CONTINUED**

LOCATION	ITEM	ACTION REMARKS
11. Radiator and headlight guard (1) to bumper (6)	Two screws (7), four washers (8), and two nuts (9)	Screw in and tighten using 15/16-inch socket, ratchet handle with 1/2-inch drive, and 15/16-inch wrench.
12. Radiator and headlight guard (1) to two support braces (2)	Four screws (3), eight washers (4), and four nuts (5)	Screw in and tighten using 3/4-inch socket, ratchet handle with 1/2-inch drive and 3/4-inch wrench.
13. Radiator and headlight guard (1) and bumper (6)	Blackout light guard (10)	Put on.
14. Blackout light guard (10) to radiator and headlight guard (1) and bumper (6)	Two screws (11), four washers (12), and two nuts (13)	Screw in and tighten using 3/4-inch socket, ratchet handle with 1/2-inch drive, and 3/4-inch wrench.

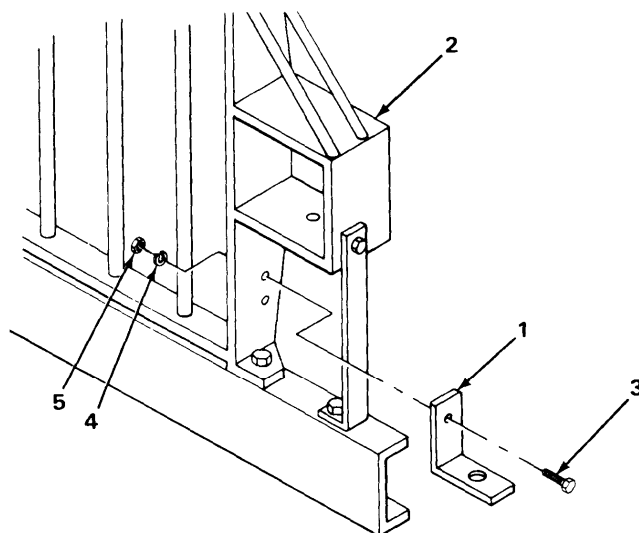


TA240682

4-1091

**RADIATOR AND HEADLIGHT GUARD - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
INSTALLATION - CONTINUED		
15. Radiator and headlight guard (1)	Blackout light support (2)	Put on.
16. Blackout light support (2) to radiator and headlight guard (1)	Two screws (3), new lockwashers (4), and nuts (5)	Screw in and tighten using 9/16-inch socket, ratchet handle with 1/2-inch drive, and 9/16-inch wrench.



**NOTE**

**FOLLOW-ON MAINTENANCE:**

1. Install blackout headlight (page 4-376).
2. Install front directional lights (page 4-370).
3. Install headlights (page 4-348).
4. Install spotter mirror (page 4-1242).
5. Install front air couplings (page 4-775).

**TASK ENDS HERE**

**HOOD**

This task covers:

- |                           |   |
|---------------------------|---|
| a. Removal (page 4-1093)  | c. Inspection/Replacement (page 4-1094) |
| b. Cleaning (page 4-1094) | d. Installation (page 4-1094)           |

**INITIAL SETUP**

**Tools**

Handle, ratchet, 3/8-inch drive  
 Socket, 7/16-inch, 3/8-inch drive  
 Wrench, open-end, 7/16-inch

**Personnel Required**

Two

**Equipment Condition**

**Materials/Parts**

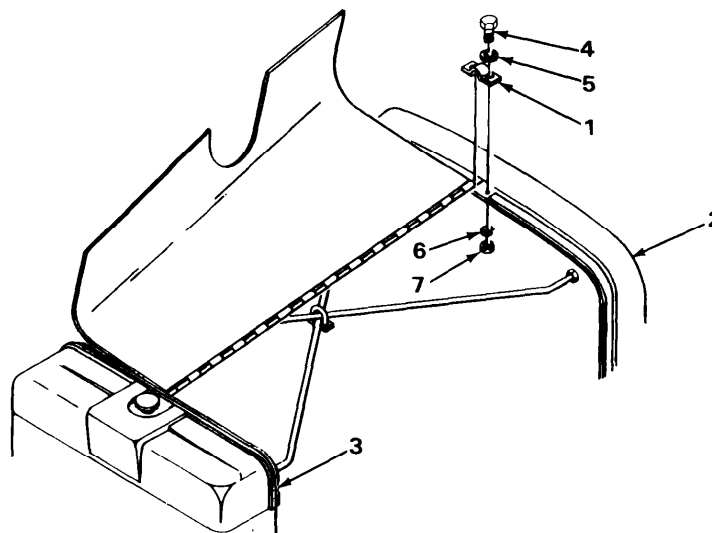
Left side hood opened (TM 9-2320-270-10).

Lockwasher, bracket to cab  
 (four required)

LOCATION	ITEM	ACTION	REMARKS
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**REMOVAL**

- |   |   |  |
|---|---|--|
| 1. Two brackets (1) to cab (2) and shroud (3) | Four screws (4), washers (5), lockwashers (6), and nuts (7) | a. Using 7/16-inch socket, ratchet handle with 3/8-inch drive, and 7/16-inch wrench, unscrew and take out.<br>b. Get rid of lockwashers (6). |
| 2. Cab (2) and shroud (3)                     | Two brackets (1)  | Take off.  |



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HOOD - CONTINUED

LOCATION	ITEM	ACTION REMARKS
----------	------	-------------------

REMOVAL- CONTINUED

**WARNING**

Some parts are heavy. Be careful when handling them. Lifting equipment is needed when parts weigh over 50 pounds (23 kg) for a single person lift, over 100 pounds (45 kg) for a two person lift, and over 150 pounds (68 kg) for a three or more person lift. Do not try to handle heavy parts without lifting equipment. Keep clear of heavy parts supported only by lifting equipment. Failure to observe this precaution could cause serious injury or death of personnel.

3. Cab (1) and shroud (2)	Hood (3)	Take off.
---------------------------	----------	-----------

CLEANING

4.	All parts	Clean according to general maintenance instructions (page 4-1).
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inspection/REPLACEMENT

5.	All parts	Inspect according to general maintenance instructions (page 4-1). <b>If hood is damaged, remove latches (page 4-1108) before replacing it.</b>
----	-----------	---

INSTALLATION

**WARNING**

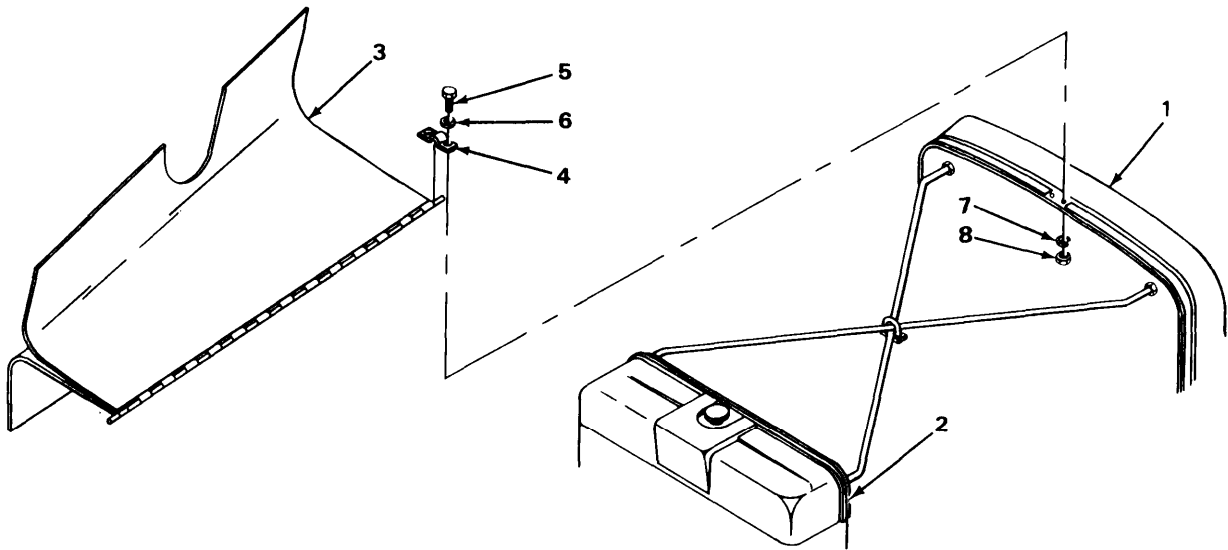
Some parts are heavy. Be careful when handling them. Lifting equipment is needed when parts weigh over 50 pounds (23 kg) for a single person lift, over 100 pounds (45 kg) for a two person lift, and over 150 pounds (68 kg) for a three or more person lift. Do not try to handle heavy parts without lifting equipment. Keep clear of heavy parts supported only by lifting equipment. Failure to observe this precaution could cause serious injury or death of personnel.

6. Cab (1) and shroud (2)	Hood (3)	Put on.
7.	Two brackets (4)	Put on.

HOOD - CONTINUED

LOCATION	ITEM	ACTION REMARKS
----------	------	-------------------

<p>8. Two brackets (4) to cab (1) and shroud (2)</p>	<p>Four screws (5), washers (6), new lockwashers (7), and nuts (8)</p>	<p>Screw in and tighten using 7/16-inch socket and ratchet handle with 3/8-inch drive.</p>
--	--	--



**NOTE**

FOLLOW-ON MAINTENANCE: Close left side of hood (TM 9-2320-270-10).

**TASK ENDS HERE**

CROSSBAR SUPPORTS

---

This task covers:

- |                           |   |
|---------------------------|---|
| a. Removal (page 4-1096)  | c. Inspection/Replacement (page 4-1097) |
| b. Cleaning (page 4-1097) | d. Installation (page 4-1098)           |
- 

INITIAL SETUP

Tools

Wrench, open-end, 7/16-inch  
 Wrench, open-end, 3/4-inch

Personnel Required

Two

Equipment Condition

Hood removed (page 4-1093).  
 Instrument panel opened (page 4-244).

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LOCATION	ITEM	ACTION REMARKS
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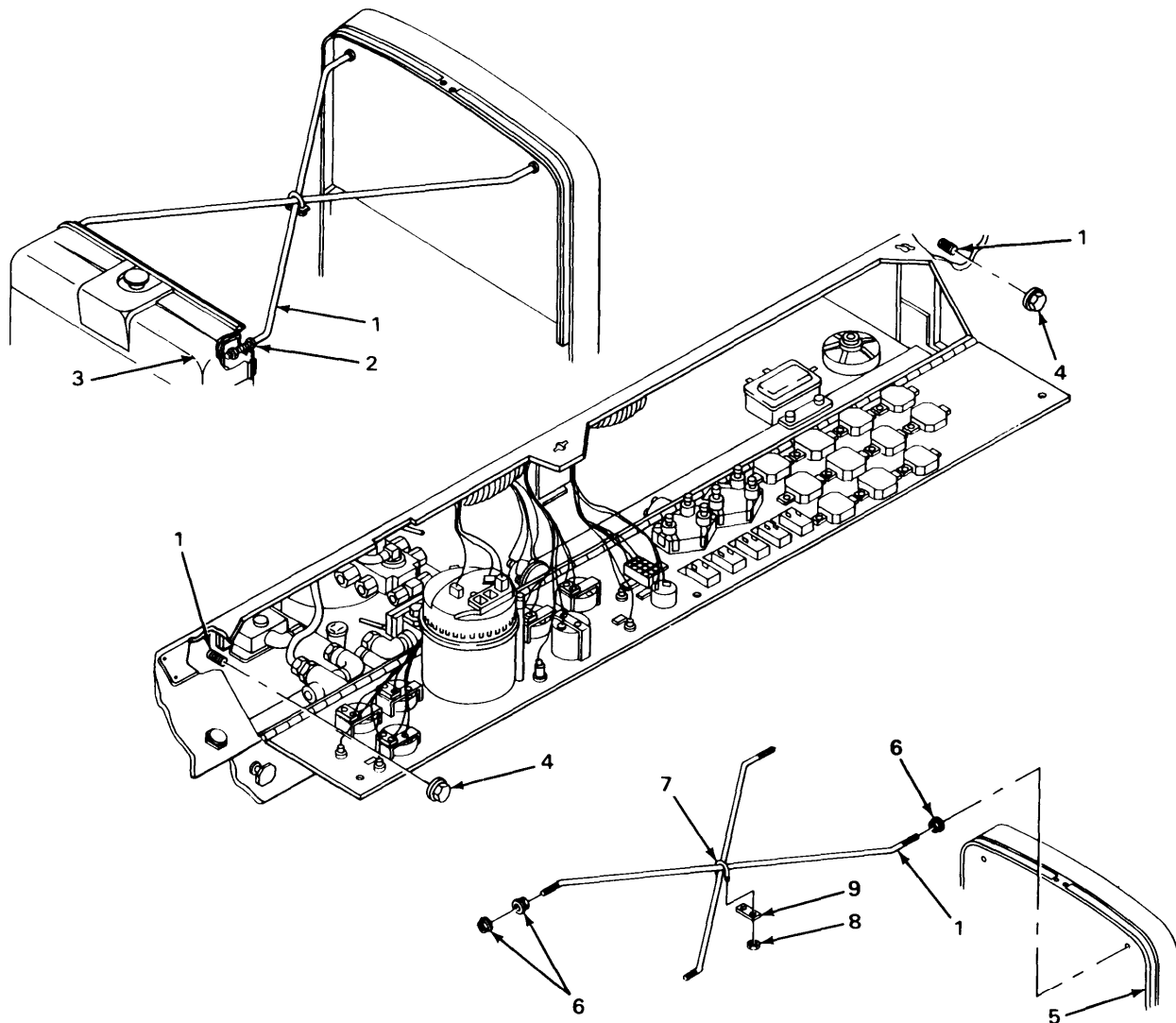
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REMOVAL

1. Crossbar supports (1)	Two nuts (2)	Using 3/4-inch wrench, unscrew part way.
2. Radiator (3)	Crossbar supports (1)	Lift up.
3. Crossbar supports (1)	Two nuts (4)	Using 3/4-inch wrench, unscrew and take off.
4. Firewall (5)	Crossbar supports (1)	Take out.
5. Crossbar supports (1)	Six nuts (6)	Using 3/4-inch wrench, unscrew and take off.
6. U-bolt (7)	Two nuts (8)	Using 7/16-inch wrench, unscrew and take off.
7.	Plate (9)	Take off.
8. Crossbar supports (1)	U-bolt (7)	Take off.

**CROSSBAR SUPPORTS - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
CLEANING		
9.	All parts	Clean according to general maintenance instructions (page 4-1).
INSPECTION/REPLACEMENT		
10.	All parts	Inspect according to general maintenance instructions (page 4-1).



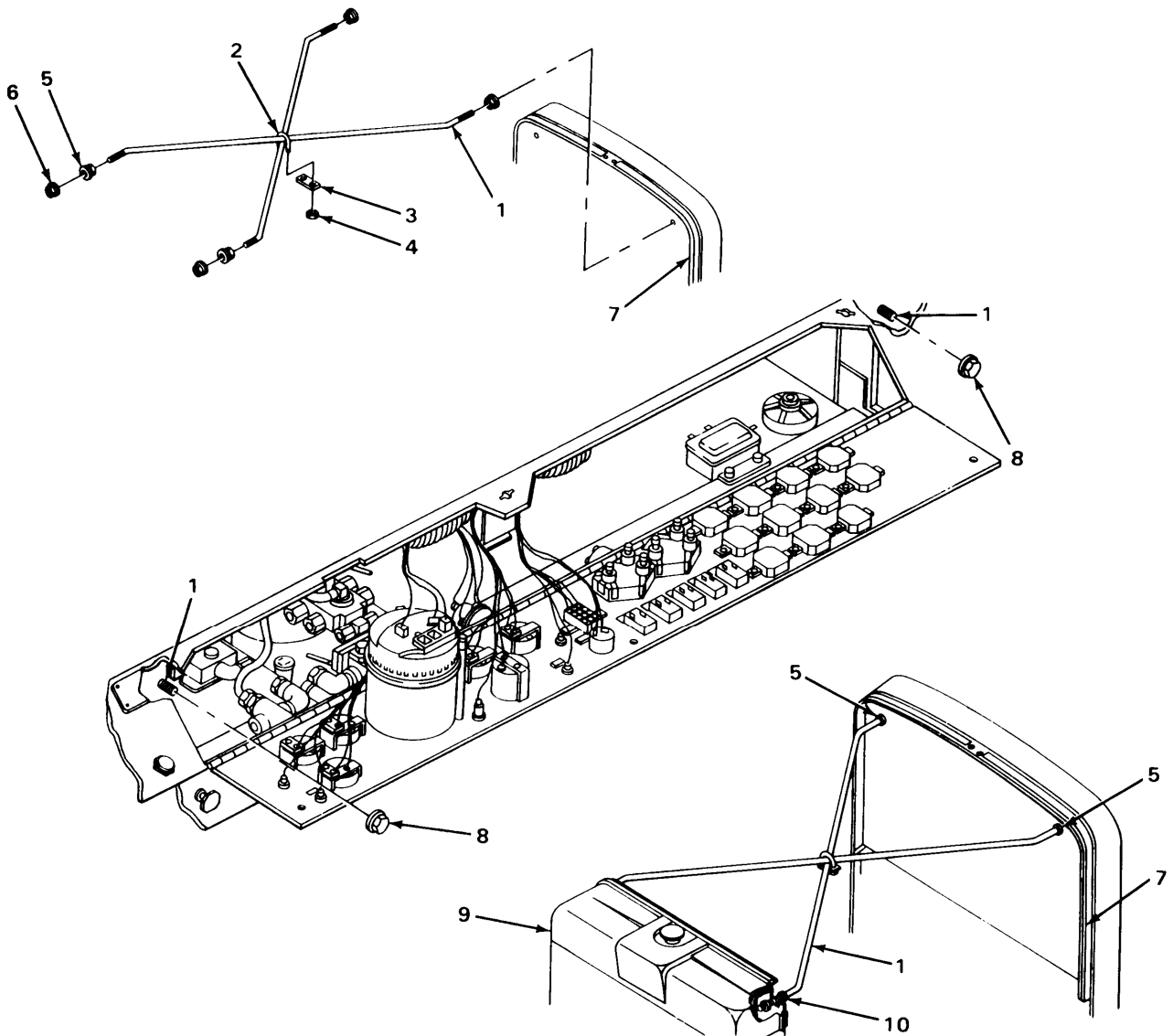
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**CROSSBAR SUPPORTS - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
INSTALLIATION		
11. Crossbar supports (1)	U-bolt (2)	Put on.
12. U-bolt(2)	Plate (3)	Put on.
13.	Two nuts (4)	Screw on and tighten using 7/16-inch wrench.
14. Crossbar supports (1)	Four nuts (5)	Screw on as far as possible, but do not tighten, using 3/4-inch wrench.
15.	Two nuts (6)	Screw on flush using 3/4-inch wrench.
16. Firewall (7)	Crossbar supports (1)	Put thru.
17. Crossbar supports (1)	Two nuts (8)	Screw on until flush using 3/4-inch socket and ratchet handle with 3/8-inch drive.
18.	instrument panel	Close (page 4-244).
19. Radiator(9)	Crossbar supports (1)	Put into slots.
20. Crossbar supports (1)	Two nuts (10)	Using 3/4-inch wrench, tighten.
21. Firewall (7)	Two nuts (5)	Using 3/4-inch wrench, tighten.



CROSSBAR SUPPORTS - CONTINUED



**NOTE**

FOLLOW-ON MAINTENANCE: Install hood (page 4-1093).

**TASK ENDS HERE**

**RIGHT SIDE PANEL**

---

This task covers:

- |                           |  |
|---------------------------|--|
| a. Removal (page 4-1100)  | c. Inspection/Replacement (page 4-1 102) |
| b. Cleaning (page 4-1102) | d. Installation (page 4-1102)            |
- 

**INITIAL SETUP**

**Tools**

- Handle, ratchet, 3/8-inch drive
- Screwdriver, cross-tip, number 2
- Socket, deep, 1/2-inch, 3/8-inch drive
- Wrench, open-end, 3/8-inch

**Materials/Parts**

- Lockwasher, bracket to cab (two required)
- Lockwasher, hinge to door (three required)

**Materials/Parts – Continued**

- Lockwasher, hinge to right side panel (three required)
  - Personnel Required
  - One
- 

LOCATION	ITEM	ACTION REMARKS
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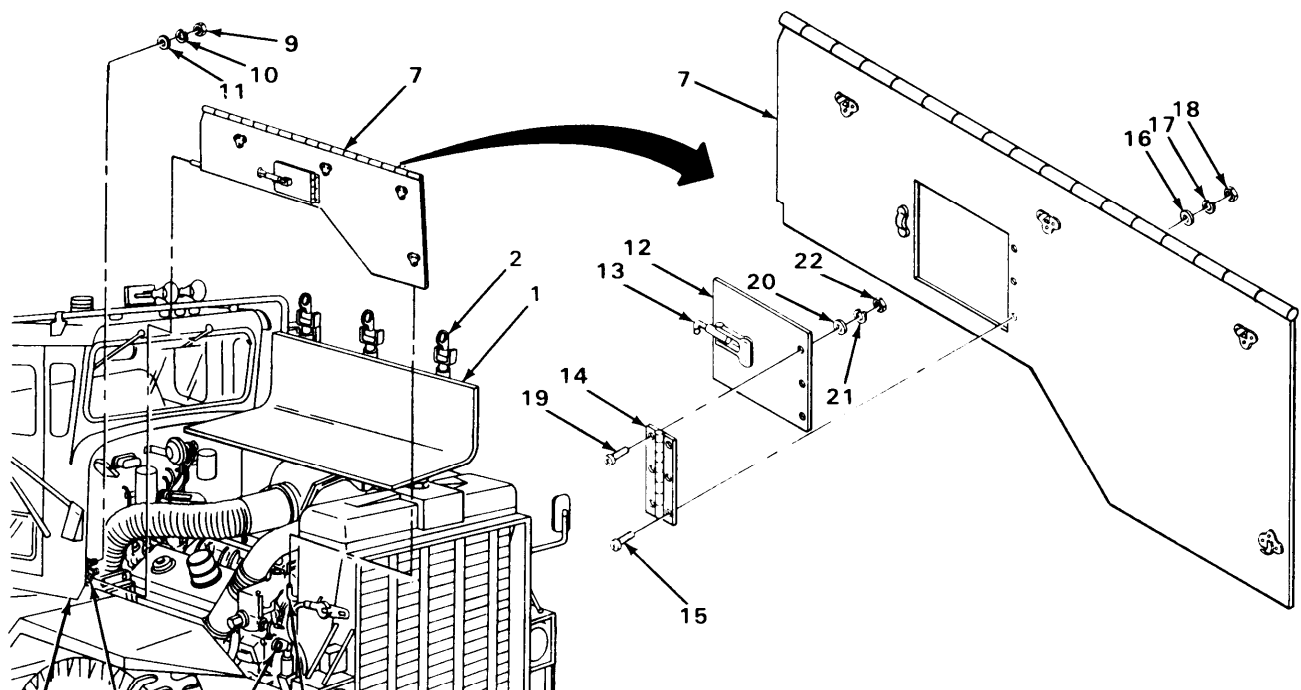
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**REMOVAL**

- |                                |  |   |
|--------------------------------|--|---|
| 1. Right side of hood (1)      | Three latches (2)                                | Unlatch.  |
| 2. Front of vehicle            | Right side of hood (1)                           | Open.   |
| 3. Mount (3)                   | Latch (4)  | Unlatch.  |
| 4. Bracket (5) and support (6) | Right side panel (7)                             | Lift, slide towards front of vehicle, and take out.   |
| 5. Bracket (5) to cab (8)      | Two nuts (9), lockwashers (10), and washers (11) | a. Using 1/2-inch socket and handle, unscrew and take off.<br>b. Get rid of lockwashers (10). |
| 6. Cab (8)                     | Bracket (5)                                      | Take off.   |

**RIGHT SIDE PANEL - CONTINUED**

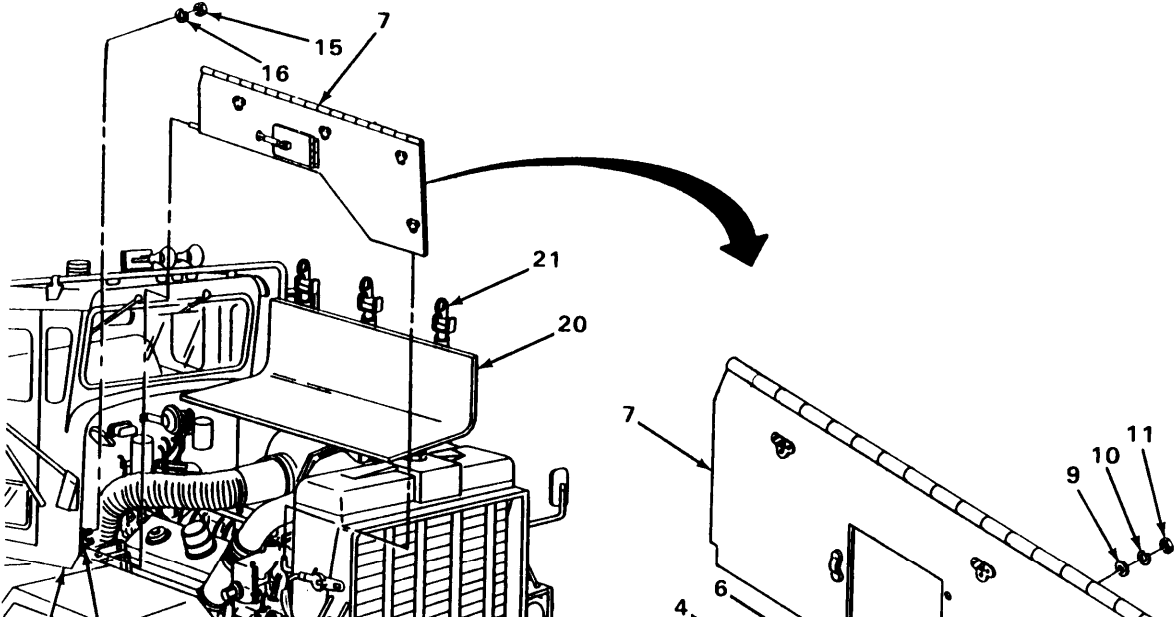
LOCATION	ITEM	ACTION REMARKS
<b>REMOVAL</b>		
7. Door (12)	Latch (13)	Unlatch.
8. Hinge (14) to right side panel (7)	Three screws (15), washers (16), lockwashers (17), and nuts (18)	a. Using 3/8-inch wrench and cross-tip screwdriver, unscrew and take out. b. Get rid of lockwashers (17).
9. Right side panel (7)	Hinge (14) and door (12)	Take off.
10. Hinge (14) to door (12)	Three screws (19), washers (20), lockwashers (21), and nuts (22)	a. Using 3/8-inch wrench and cross-tip screwdriver, unscrew and take out. b. Get rid of lockwashers (21).
11. Door (12)	Hinge (14)	Take off,



## RIGHT SIDE PANEL - CONTINUED

LOCATION	ITEM	ACTION REMARKS
CLEANING		
12.	All parts	Clean according to general maintenance instructions (page 4-1).
inspection/REPLACEMENT		
13.	All parts	Inspect according to general maintenance instructions (page 4-1).
INSTALIATION		
14. Door (1)	Hinge (2)	Place in position with flat side against door.
15. Hinge (2) to door (1)	Three screws (3), washers (4), new lockwashers (5), and nuts (6)	Screw in and tighten using 3/8-inch wrench and cross-tip screwdriver.
16. Right side panel (7)	Hinge (2) and door (1)	Place in position.
17. Hinge (2) to right side panel (7)	Three screws (8), washers (9), new lockwashers (10), and nuts (11)	Screw in and tighten using 3/8-inch wrench and cross-tip screwdriver.
18. Door (1)	Latch (12)	Latch.
19. Cab (13)	Bracket (14)	Put on.
20. Bracket (14) to cab (13)	Two nuts (15) and new lockwashers (16)	Screw in and tighten using 1/2-inch socket and handle.
21. Bracket (14) and support (17)	Right side panel (7)	Slide in place.
22. Mount (18)	Latch (19)	Latch.
23.	Right side hood (20)	Close.
24. Right side hood (20)	Three latches (21)	Latch.

RIGHT SIDE PANEL - CONTINUED



TASK ENDS HERE

## LEFT SIDE PANEL AND BRACKETS

---

This task covers:

- |                           |  |
|---------------------------|--|
| a. Removal (page 4-1104)  | c. Inspection/Replacement (page 4-1 106) |
| b. Cleaning (page 4-1106) | d. Installation (page 4-1106)            |
- 

### INITIAL SETUP

#### Tools

Handle, ratchet, 3/8-inch drive  
 Socket, deep-well, 1/2-inch, 3/8-inch drive  
 Socket, 7/16-inch, 3/8-inch drive  
 Socket, 9/16-inch, 3/8-inch drive  
 Wrench, open-end, 7/16-inch  
 Wrench, open-end, 1/2-inch  
 Wrench, open-end, 9/16-inch

#### Materials/Parts

Lockwasher, inner stop to air cleaner bracket (three required)  
 Lockwasher, pivot bracket to air cleaner bracket (two required)  
 Lockwasher, outer stop to air cleaner bracket (two required)

#### Personnel Required

One

#### Equipment Condition

Air cleaner filter removed (page 4-45).

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LOCATION	ITEM	ACTION	REMARKS
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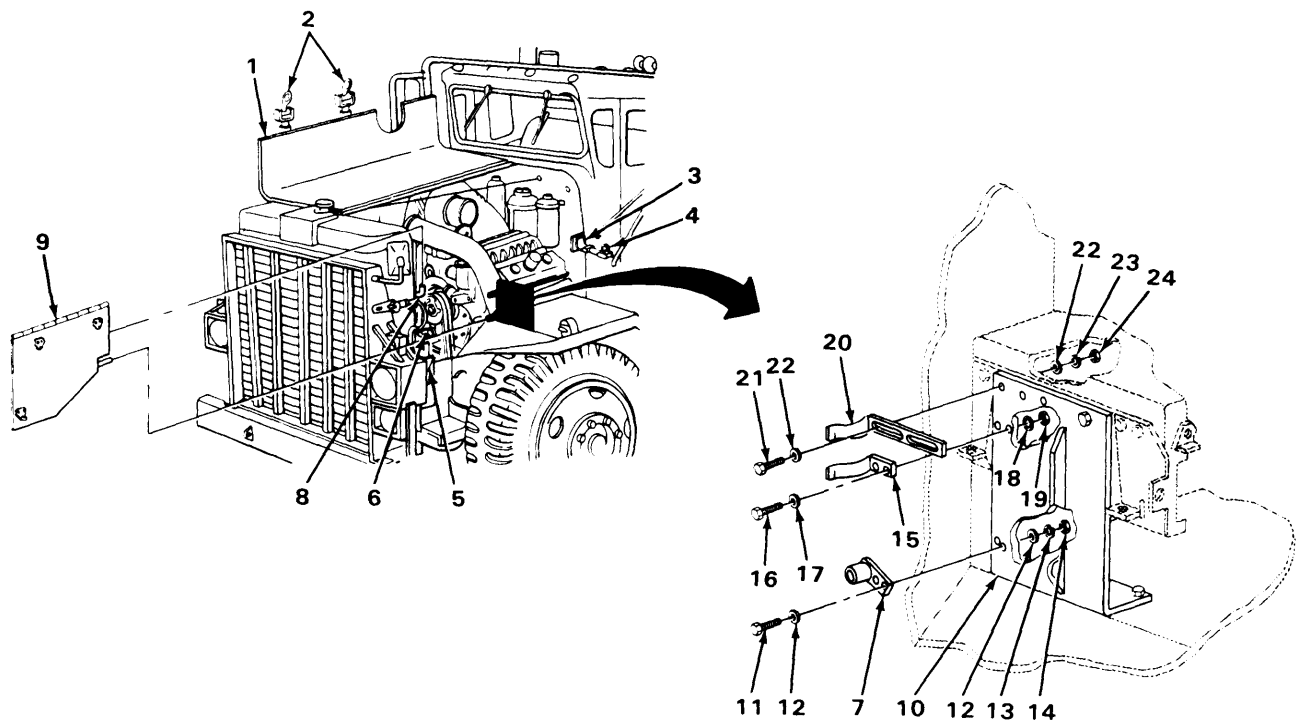
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### REMOVAL

- |                                      |                     |   |  |
|--------------------------------------|---------------------|---|--|
| 1. Left side hood (1)                | Two latches (2)     | Unlatch,  |  |
| 2. Mount (3)                         | Latch (4)           | Unlatch.  |  |
| 3.                                   | Left side hood (1)  | Lift open.  |  |
| 4. Mount (5)                         | Latch (6)           | Unlatch.  |  |
| 5. Pivot bracket (7) and support (8) | Left side panel (9) | Lift, slide towards front of vehicle, and take out. |  |

**LEFT SIDE PANEL AND BRACKET - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
6. Pivot bracket (7) to air cleaner bracket (10)	Two screws (11), four washers (12), two lockwashers (13), and nuts (14)	a. Using 7/16-inch socket, ratchet handle with 3/8-inch drive, and 7/16-inch wrench, unscrew and take out. b. Get rid of lockwashers (13).
7. Air cleaner bracket (10)	Pivot bracket (7)	Take off.
8. Outer stop (15) to air cleaner bracket (10)	Two screws (16), washers (17), lockwashers (18), and nuts (19)	a. Using 1/2-inch socket, ratchet handle with 3/8-inch drive, and 1/2-inch wrench, unscrew and take out. b. Get rid of lockwashers (18).
9. Air cleaner bracket (10)	Outer stop (15)	Take off.
10. Inner stop (20) to air cleaner bracket (10)	Three screws (21), six washers (22), three lockwashers (23) and nuts (24)	a. Using 9/16-inch socket, ratchet handle with 3/8-inch drive, and 9/16-inch wrench, unscrew and take out. b. Get rid of lockwashers (23).
11. Air cleaner bracket (10)	Inner stop (20)	Take off.



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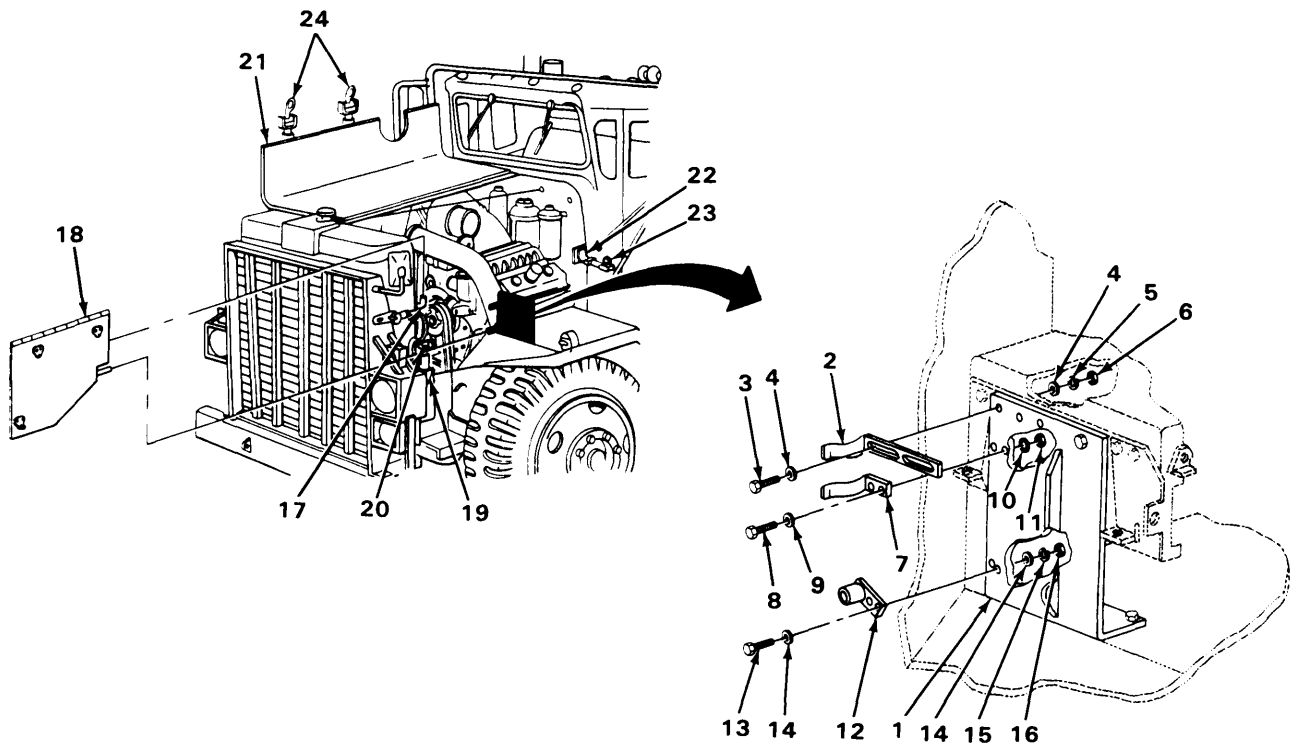
**LEFT SIDE PANEL AND BRACKETS - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
CLEANING		
12.	All parts	Clean according to general maintenance instructions (page 4-1).
INSPECTION/REPLACEMENT		
13.	All parts	inspect according to general maintenance instructions (page 4-1). <b>If side pane is damaged, remove latches (page 4-1108) before replacing it.</b>
INSTALLATION		
14. Air cleaner bracket (1)	inner stop (2)	Put on.
15. inner stop (2) to air cleaner bracket (1)	Three screws (3), six washers (4), three new lock-washers (5), and nuts (6)	Screw in and tighten using 9/16-inch socket, ratchet handle with 3/8-inch drive, and 9/16-inch wrench.
16. Air cleaner bracket (1)	Outer stop (7)	Put on.
17. Outer stop (7) to air cleaner bracket (1)	Two screws (8), washers (9), new lockwashers (10), and nuts (11)	Screw in and tighten using 1/2-inch socket, ratchet handle with 3/8-inch drive, and 1/2-inch wrench.
18. Air cleaner bracket (1)	Pivot bracket (12)	Put on.
19. Pivot bracket (12) to air cleaner bracket (1)	Two screws (13), four washers (14), two new lock-washers (15), and nuts (16)	Screw in and tighten using 7/16-inch socket, ratchet handle with 3/8-inch drive and 7/16-inch wrench.
20. Pivot bracket (12) support (17)	Left side panel (18)	Slide in position.



**LEFT SIDE PANEL AND BRACKETS - CONTINUED**

LOCATION	ITEM	ACTION	REMARKS
21. Mount (19)	Latch (20)	Latch.	
22.	Left side of hood (21)	Close.	
23. Mount (22)	Latch (23)	Latch.	
24. Left side of hood (21)	Two latches (24)	Latch.	



**NOTE**

FOLLOW-ON MAINTENANCE: Install air cleaner filter (page 4-45).

**TASK ENDS HERE**

**LATCHES, LATCH MOUNTING BRACKETS, AND CATCHES**

---

This task covers:

- |   |   |
|---|---|
| <ul style="list-style-type: none"> <li>a. Latch Removal (page 4-1108)</li> <li>b. Latch Mounting Bracket Removal (page 4-1 109)</li> <li>c. Catch Removal (page 4-1110)</li> <li>d. Cleaning (page 4-1111)</li> </ul> | <ul style="list-style-type: none"> <li>e. Inspection/Replacement (page 4-111 1).</li> <li>f. Catch Installation (page 4-1111)</li> <li>g. Latch Mounting Bracket Installation (page 4-1112).</li> <li>h. Latch installation (page 4-1113).</li> </ul> |
|---|---|
- 

**INITIAL SETUP**

**Tools**

- Drill, electric, portable
- Drill twist, 1 1/64-inch
- Hammer, machinist's ball-peen
- Pliers, slip-joint
- Punch, drive pin, 3/16-inch
- Riveter, hand
- Wrench, open-end, 3/8-inch
- Wrench, open-end, 1/2-inch

**Materials/Parts**

- Lockwasher (as required)
- Pin, cotter (as required)
- Rivets (as required)

**Personnel Required**

One

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LOCATION	ITEM	ACTION REMARKS
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**LATCH REMOVAL**

**NOTE**

There are nine latches on this vehicle, Do steps 1 thru 7 to remove any latch.

1. Catch (1)	Latch (2)	Unlatch.
2. Pin (3)	Cotter pin (4)	a. Using pliers, take out. b. Get rid of.
3. Latch (2) to mount (5)	Pin (3)	Take out.
4. Mount (5)	Latch (2)	Take off.
5. Mount (5) to hood (6)	Three rivets (7)	a. Using hammer and drive pin punch, mark center. b. Using electric drill and drill twist, drill out.
6.	Three rivets (7) and collars (8)	a. Take out. b. Get rid of rivets (7).

**LATCHES, LATCH MOUNTING BRACKETS, AND CATCHES - CONTINUED**

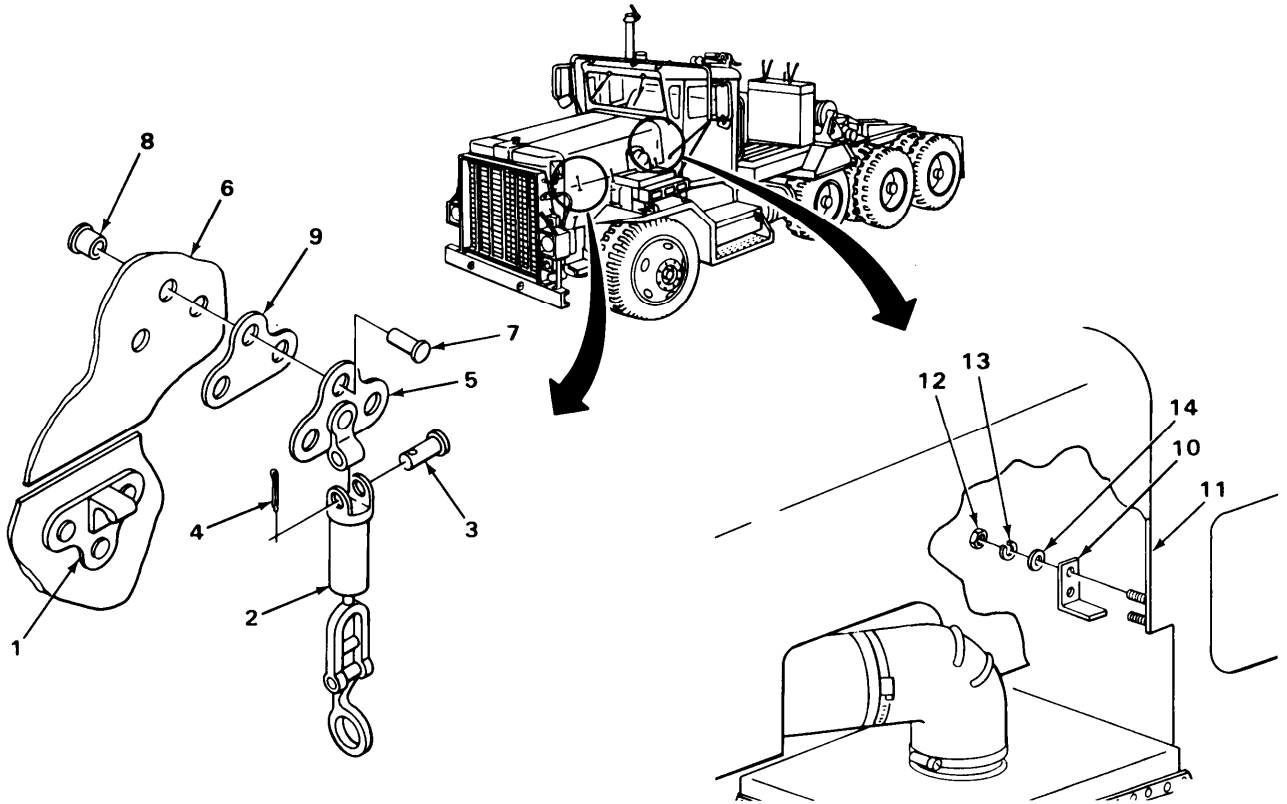
LOCATION	ITEM	ACTION REMARKS
7. Hood (6)	Mount (5) and spacer (9)	Take off.

**LATCH MOUNTING BRACKET REMOVAL**

**NOTE**

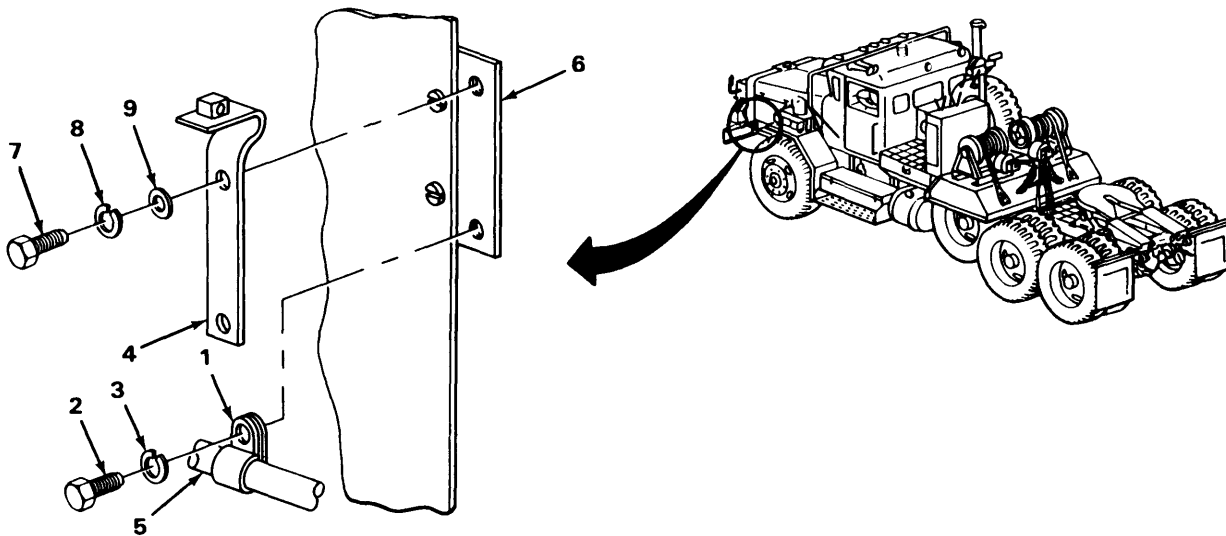
There are three latch mounting brackets on vehicle. Do steps 8 and 9 to remove hood latch mounting bracket. Do steps 12 and 13 to remove either side panel latch mounting bracket.

- |                             |  |  |
|-----------------------------|--|--|
| 8. Bracket (10) to cab (11) | Two nuts (12), lockwashers (13) and washers (14) | a. Using 3/8-inch wrench, unscrew and take out.<br>b. Get rid of lockwashers (13). |
| 9. Cab (11)                 | Bracket (10)                                     | Take off.  |



**LATCHES, LATCH MOUNTING BRACKETS, AND CATCHES - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
<b>LATCH MOUNTING BRACKET REMOVAL - CONTINUED</b>		
10. Clamp (1)	Screw (2) and lock-washer (3)	a. Using 1/2-inch wrench, unscrew and take off. b. Get rid of lockwasher (3).
11. Bracket (4)	Clamp (1) and hose (5)	Lift off.
12. Bracket (4) to support (6)	Screw (7), lock-washer (8), and washer (9)	a. Using 1/2-inch wrench, unscrew and take out. b. Get rid of lockwashers (8).
13. Support (6)	Bracket (4)	Take off.



**NOTE**

There are nine catches on the vehicle. Do steps 14 thru 16 to remove any catch.

14. Catch (10) to hood (11)	Three rivets (12)	a. Using hammer and drive pin punch, mark center of rivets (12). b. Using electric drill and drill twist, drill out.
15.	Three rivets (12) and collars (13)	a. Take out. b. Get rid of rivets (12).

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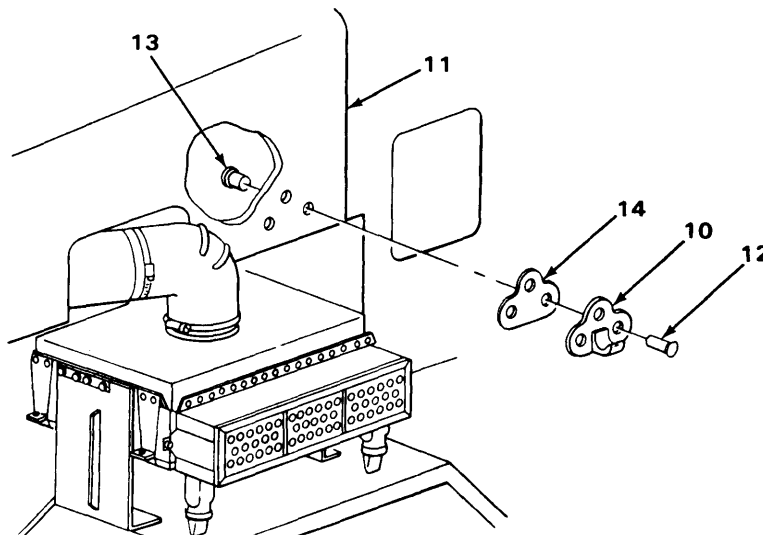
**LATCHES, LATCH MOUNTING BRACKETS, AND CATCHES - CONTINUED**

LOCATION	ITEM	ACTION	REMARKS
16. Hood (11)	Catch (10) and spacer (14)	Take off.	
<b>CLEANING</b>			
17.	All parts	Clean according to general maintenance instructions (page 4-1).	
<b>inspection/REPLACEMENT</b>			
18.	All parts	Inspect according to general maintenance instructions (page 4-1).	
<b>CATCH INSTALLATION</b>			

**NOTE**

There are nine catches on the vehicle. Do steps 19 and 20 to install any catch.

19. Hood (11)	Catch (10) and spacer (14)	Put on.
20. Catch (10) to hood (11)	Three new rivets (12) and collars (13)	Using hand riveter, put in.



**LATCHES, LATCH MOUNTING BRACKETS, AND CATCHES - CONTINUED**

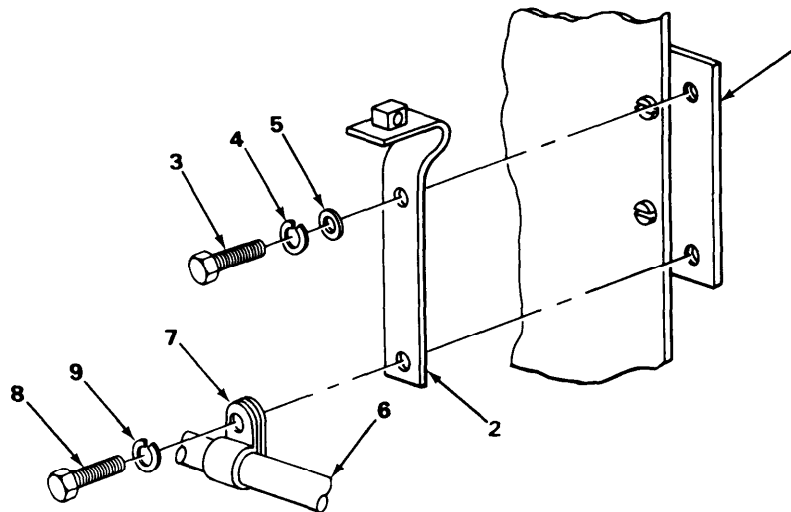
LOCATION	ITEM	ACTION REMARKS
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LATCH MOUNTING BRACKET INSTALLATION

**NOTE**

There are three latch mounting brackets on vehicle. Do steps 21 and 22 to install either side panel latch mounting bracket. Do steps 25 and 26 to install hood latch mounting bracket.

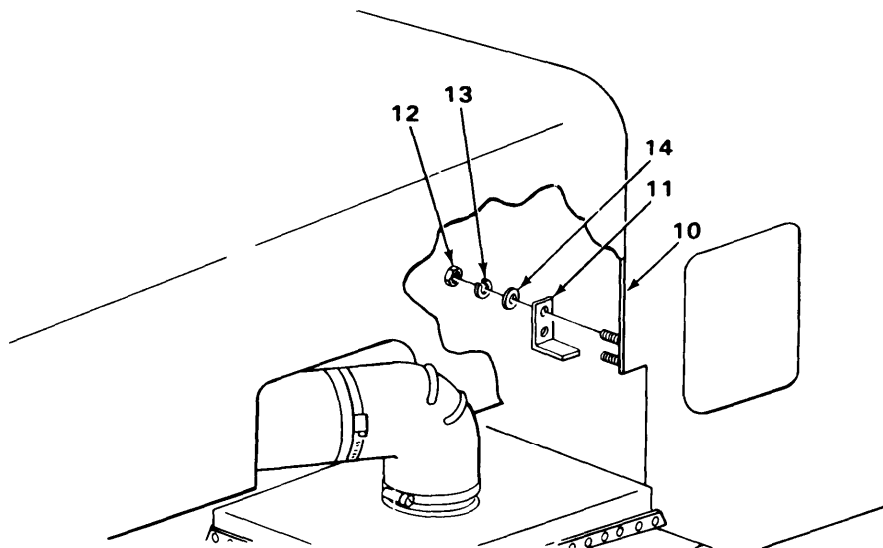
21. support (1)	Bracket (2)	Put on.
22. Bracket (2) to support (1)	Screw (3), new lock-washer (4), and washer (5)	Screw in and tighten using 1/2-inch wrench.
23. Bracket (2)	Hose (6) and clamp (7)	Place in position.
24. Clamp (7)	Screw (8) and lockwasher (9)	Screw in and tighten using 1/2-inch wrench.



25. Cab (10)	Bracket (11)	Put in position.
26. Bracket (11) to cab (10)	Two nuts (12), new lockwashers (13), and washers (14)	Screw in and tighten using 3/8-inch wrench.

LATCHES, LATCH MOUNTING BRACKETS, AND CATCHES - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
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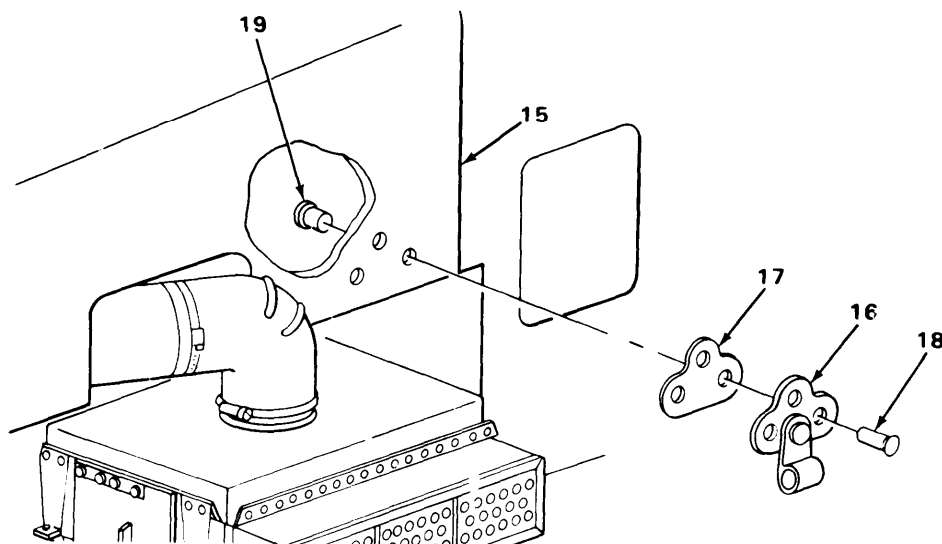


LATCH INSTALLATION

NOTE

There are nine latches on the vehicle. Do steps 27 thru 32 to install any latch.

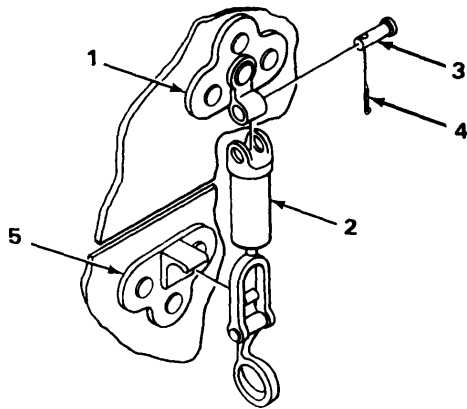
- |                             |  |                             |
|-----------------------------|--|-----------------------------|
| 27. Hood (15)               | Mount (16) and spacer (17)             | Put on.                     |
| 28. Mount (16) to hood (15) | Three new rivets (18) and collars (19) | Using hand riveter, Put in. |



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**LATCHES, LATCH MOUNTING BRACKETS, AND CATCHES - CONTINUED**

LOCATION	ITEM	ACTION	REMARKS
LATCH INSTALUTION - CONTINUED			
29. Mount (1)	Latch (2)	Put on.	
30. Latch (2) to mount (1)	Pin (3)	Put in.	
31. Pin (3)	New cotter pin (4)	Put in.	
32 Catch (5)	Latch (2)	Latch.	



**TASK ENDS HERE**

**INSULATION**

This task covers:

- a. Removal (page 4-1115)
- b. installation (page 4-1115)

**INITIAL SETUP**

**Tools**

- Brush, acid swabbing
- Knife, putty

**Materials/Parts**

- Adhesive (item 1, appendix C)
- insulation, hood (C. H.)
- insulation, hood (R. H.)

**Materials/Parts – Continued**

- insulation, side panel (L. H.)
- insulation, side panel (R. H.)
- insulation, side panel door (R. H.)

**Personnel Required**

One



**INSULATION - CONTINUED**

LOCATION	ITEM	ACTION	REMARKS
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REMOVAL

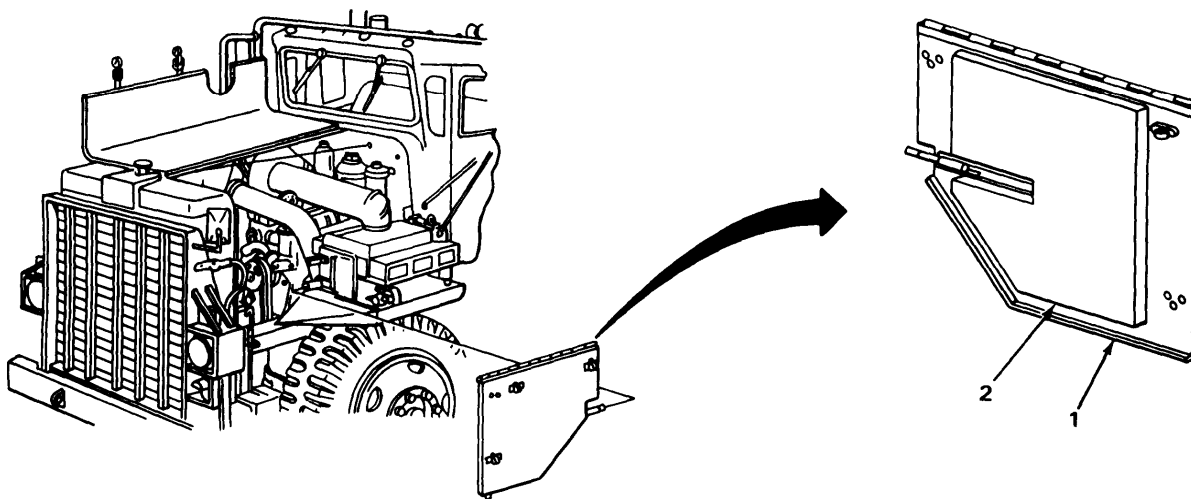
**NOTE**

Use this procedure to replace any insulation on vehicle. Left side insulation is shown.

- |                        |                 |   |
|------------------------|-----------------|---|
| 1. Engine compartment  | Left side panel | Remove (page 4-1 104).                        |
| 2. Left side panel (1) | Insulation (2)  | a. Using knife, scrape off.<br>b. Get rid of. |

**INSTALLATION**

- |                        |                 |  |
|------------------------|-----------------|--|
| 3. Left side panel (1) | Insulation (2)  | a. Using brush, apply thin coat of adhesive.<br>b. Center above panel (1) and press into place.<br>c. Let adhesive set for five minutes. |
| 4. Engine compartment  | Left side panel | Install (page 4-1104).   |



**TASK ENDS HERE**

## VENTILATOR

---

This task covers:

- |                           |  |
|---------------------------|--|
| a. Removal (page 4-1116)  | c. Inspection/Replacement (page 4-1 116) |
| b. Cleaning (page 4-1116) | d. Installation (page 4-1117)            |
- 

### INITIAL SETUP

<p><b>Tools</b></p> <p>Screwdriver, cross-tip, number 3                  Handle, ratchet, 3/8-inch drive                  Extension, 3/8-inch drive, 6-inch                  Socket, 3/8-inch, 3/8-inch drive                  Socket, 9/16-inch, 3/8-inch drive                  Wrench, open-end, 9/16-inch</p>	<p><b>Materials/Parts</b></p> <p>Lockwasher</p> <p><b>Personnel Required</b></p> <p>One</p>
---	---

---

LOCATION	ITEM	ACTION REMARKS
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---

### REMOVAL

1. Cab (1) and brace (2) to bracket (3)	Screw (4), lock-washer (5), and nut (6)	a. Using 9/16-inch socket, handle, and wrench, unscrew and take out. b. Get rid of lockwasher (5). c. Swing brace (2) out of the way.
2. Bracket (3) to ventilator (7) and cab (1)	Three screws (8)	Using 3/8-inch socket, extension and handle, unscrew and take out.
3. Ventilator(7)	Bracket (3)	Take off.
4. Ventilator (7) to cab (1)	Eight screws (9)	Using screwdriver, unscrew and take out.
5. Cab (1)	Ventilator (7)	Take off.

### CLEANING

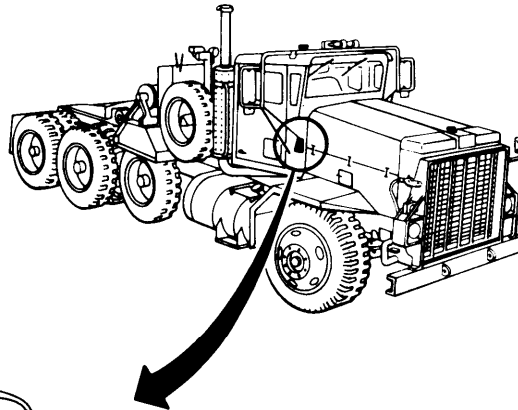
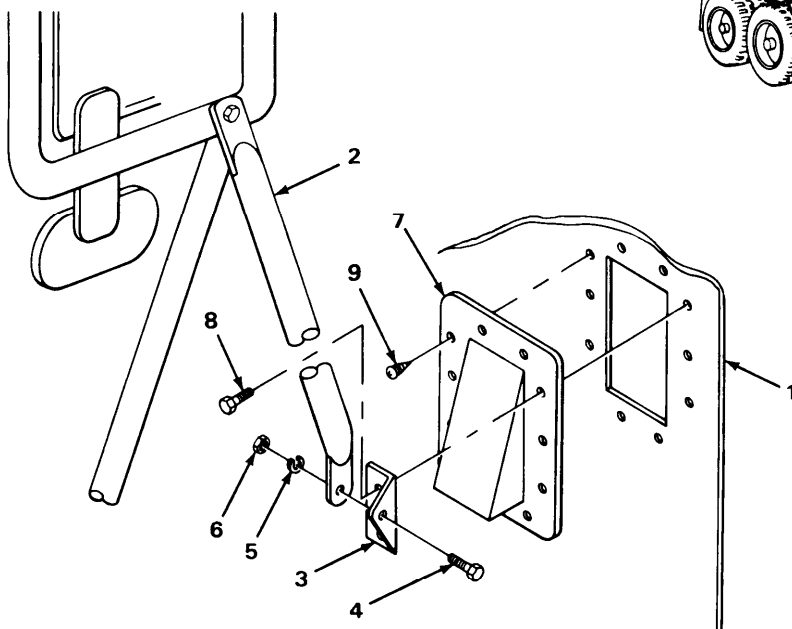
6.	All parts	Clean according to general maintenance instructions (page 4-1).
----	-----------	---

### inspection/REPLACEMENT

7.	All parts	Inspect according to general maintenance instructions (page 4-1).
----	-----------	---

VENTILATOR - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
INSTALLATION			
8. Cab (1)	Ventilator (7)	Put in position.	
9. Ventilator (7) to cab (1)	Eight screws (9)	Screw in and tighten using screwdriver.	<b>Do not put screws into the three front holes.</b>
10. Ventilator (7)	Bracket (3)	Put on.	
11. Bracket (3) to ventilator (7) and cab (1)	Three screws (8)	Screw in and tighten using 3/8-inch socket, extension and handle,	
12. Bracket (3)	Brace (2)	Put on.	
13. Brace (2) to bracket (3)	Screw (4), new lockwasher (5), and nut (6)	Screw in and tighten using 9/16-inch socket, handle, and wrench.	



TASK ENDS HERE

**GRAB HANDLE**

---

This task covers:

- a. Removal (page 4-1118)
  - b. Cleaning (page 4-1118)
  - c. inspection/Replacement (page 4-1 118)
  - d. Installation (page 4-1118)
- 

**INITIAL SETUP**

**Tools**

Handle, ratchet, 3/8-inch drive  
 Socket, 9/16-inch, 3/8-inch drive  
 Wrench, open-end, 9/16-inch

**Materials/Parts**

Lockwasher (two required)

**Personnel Required**

One

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LOCATION	ITEM	ACTION REMARKS
----------	------	-------------------

---

**REMOVAL**

- |                                  |   |  |
|----------------------------------|---|--|
| 1. Grab handle (1)<br>to cab (2) | Two screws (3),<br>lockwashers (4),<br>and nuts (5) | a. Using socket, handle, and wrench, un<br>screw and take out.<br>b. Get rid of lockwashers (4). |
| 2. Cab(2)                        | Grab handle (1)                                     | Take off.  |

**CLEANING**

- |    |           |  |
|----|-----------|--|
| 3. | All parts | Clean according to general maintenance<br>instructions (page 4-1). |
|----|-----------|--|

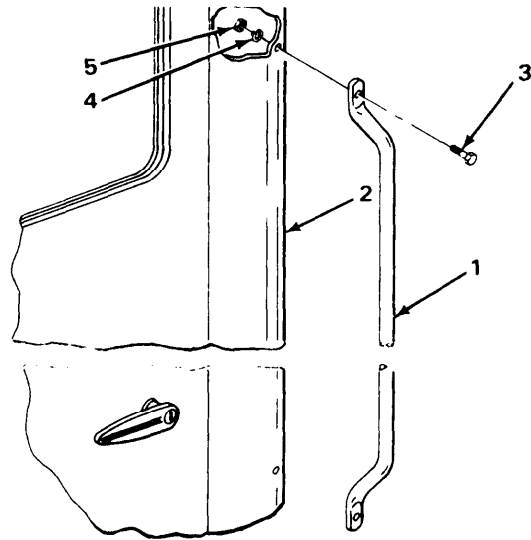
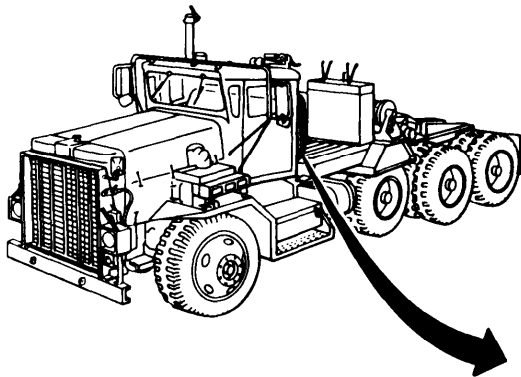
**INSPECTION/REPLACEMENT**

- |    |           |  |
|----|-----------|--|
| 4. | Ail parts | Inspect according to general maintenance<br>instructions (page 4-1). |
|----|-----------|--|

**INSTALLATION**

- |                                  |   |   |
|----------------------------------|---|---|
| 5. Cab(2)                        | Grab handle (1)   | Put on.   |
| 6. Grab handle (1)<br>to cab (2) | Two screws (3),<br>new lockwashers<br>(4), and nuts (5) | Screw in and tighten using socket, handle,<br>and wrench. |

**GRAB HANDLE - CONTINUED**



**TASK ENDS HERE**

**SPLASH SHIELDS**

This task covers:

- a. Removal (page 4-1120)
- b. Cleaning (page 4-1120)
- c. Inspection/Replacement (page 4-1 120)
- d. Installation (page 4-1120)

**INITIAL SETUP**

**Tools**

- Handle, ratchet, 1/2-inch drive
- Socket, 1/2-inch, 1/2-inch drive
- Socket, 15/16-inch, 1/2-inch drive
- Wrench, open-end, 15/16-inch
- Wrench, open-end, 1/2-inch

**Materials/Parts**

- Locknut (three required for each splash shield)

**Materials/Parts - Continued**

- Lockwasher (four required for each splash shield)

**Personnel Required**

One

TA240700

**SPLASH SHIELDS - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
----------	------	-------------------

**NOTE**

Use this procedure to replace either splash shield. Left side splash shield is shown.

**REMOVAL**

1. Plate (1) to shield (2) and angle (3)	Four screws (4), lockwashers (5), and nuts (6)	a. Using 1/2-inch socket, handle, and 1/2-inch wrench, unscrew and take out. b. Get rid of lockwashers (5).
2. Angie (3)	Plate (1) and shield (2)	Take off.
3. Angle (3) to frame (7)	Three screws (8), six washers (9), and three locknuts (10)	a. Using 15/16-inch socket, handle, and 15/16-inch wrench, unscrew and take out. b. Get rid of locknuts (10).
4. Frame (7)	Angie (3)	Take off.

**CLEANING**

5.	All parts	Clean according to general maintenance instructions (page 4-1).
----	-----------	---

**INSPECTION/REPLACEMENT**

6.	All parts	inspect according to general maintenance instructions (page 4-1).
----	-----------	---

**INSTALLATION**

7. Frame(7)	Angie (3)	Put on.
8. Angie (3) to frame (7)	Three screws (8), six washers (9), and three new locknuts (10)	Screw in and tighten using 15/16-inch socket, handle, and 15/16-inch wrench.
9. Angie (3)	Shield (2) and plate (1)	Put on.

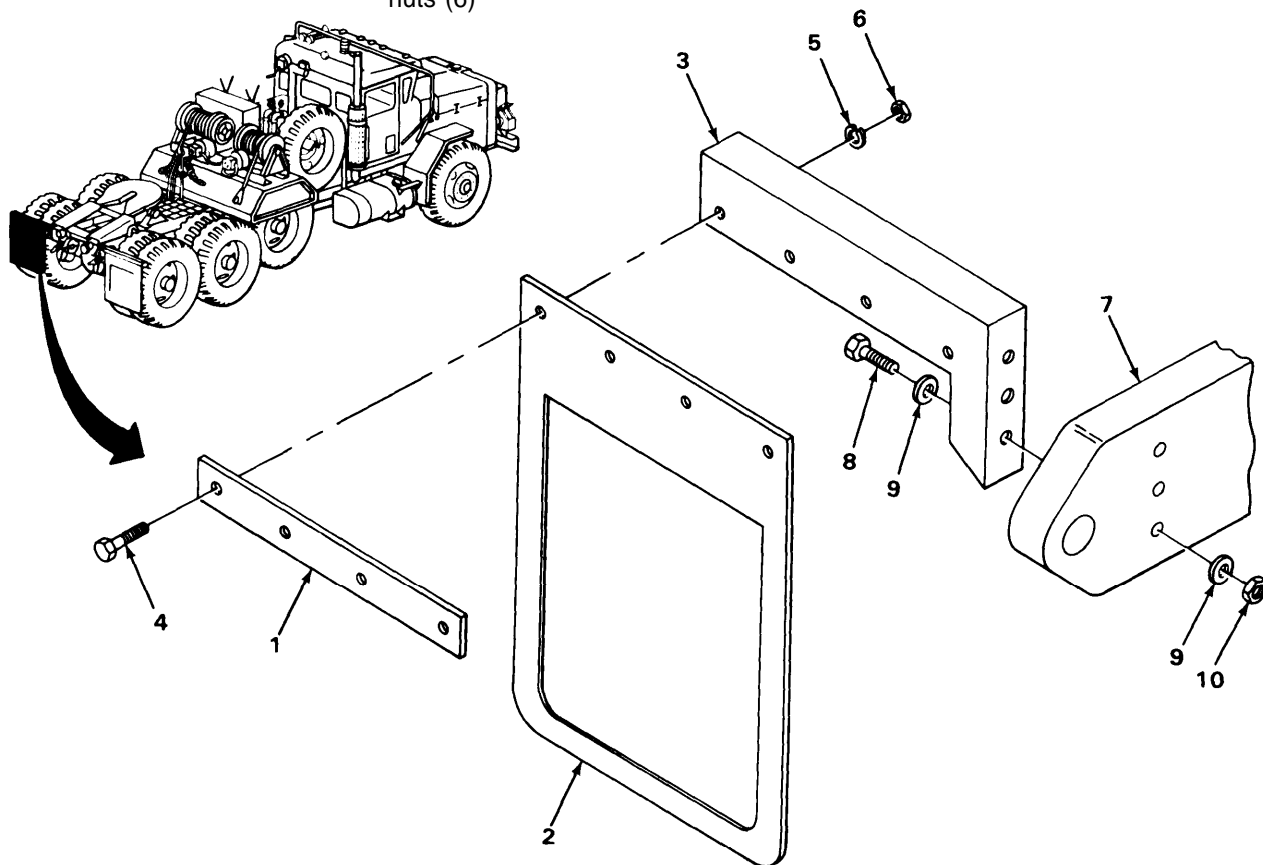
**SPLASH SHIELDS - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
----------	------	-------------------

10. Plate (1) to shield  
(2) and angle (3)

Four screws (4), new  
lockwashers (5), and  
nuts (6)

Screw in and tighten using 1/2-inch  
socket, handle, and 1/2-inch wrench.



**TASK ENDS HERE**

**VISORS**

This task covers:

- a. Removal (page 4-1122)
- b. Cleaning/Inspection (page 4-1122)
- c. installation (page 4-1122)

**INITIAL SETUP**

Tools	Personnel Required
Screwdriver, cross-tip, number 3	One

LOCATION	ITEM	ACTION	REMARKS
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**NOTE**

There are two visors in vehicle. Use this procedure to replace either visor.

**REMOVAL**

- |                         |                |  |
|-------------------------|----------------|--|
| 1. Visor (1) to cab (2) | Two screws (3) | Using screwdriver, unscrew and take out. |
| 2. Cab (2)              | Visor (1)      | Take off.                                |

**CLEANING/INSPECTION**

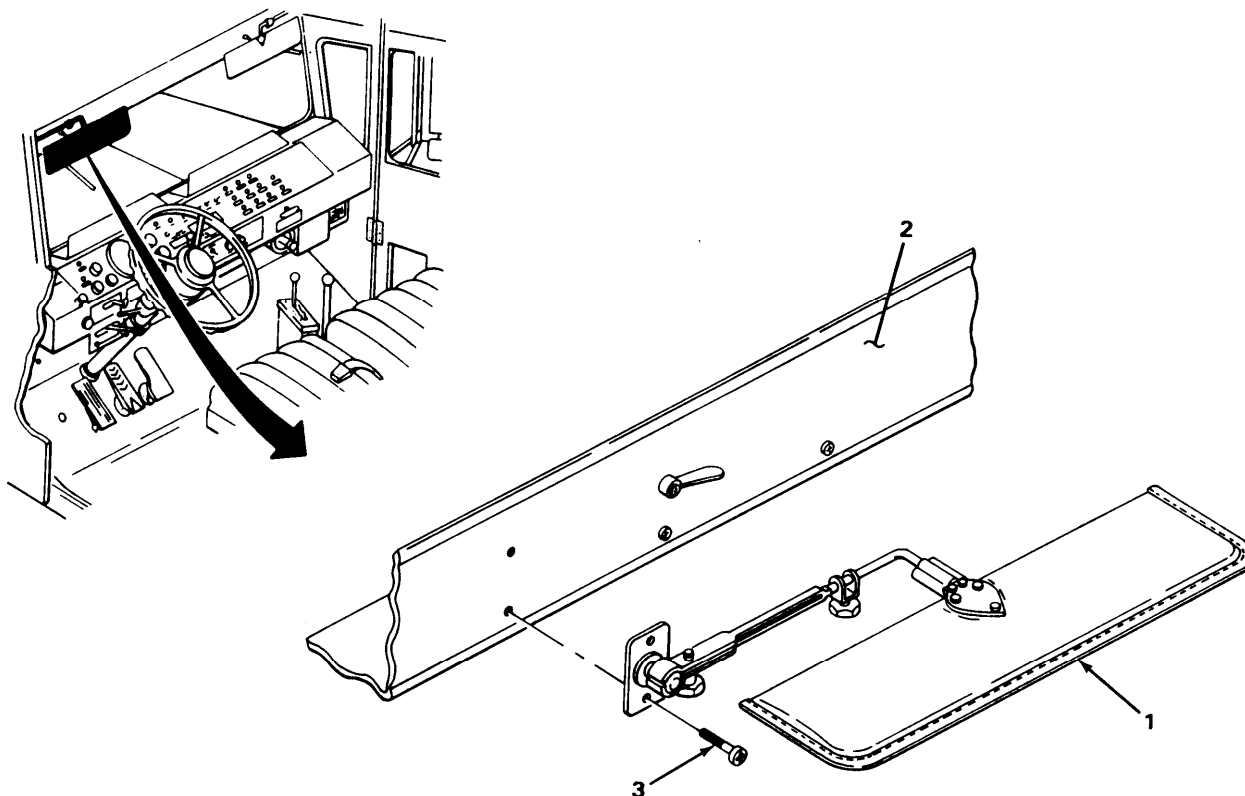
- |    |           |  |
|----|-----------|--|
| 3. | All parts | Clean and inspect as shown in the general maintenance instructions (page 4-1). |
|----|-----------|--|

**INSTALLATION**

- |                        |                |   |
|------------------------|----------------|---|
| 4. Cab (2)             | Visor (1)      | Put on cab (2).                         |
| 5. Visor(1) to cab (2) | Two screws (3) | Screw in and tighten using screwdriver. |



**VISORS - CONTINUED**



**TASK ENDS HERE**

**ASHTRAY**

This task covers:

- a. Removal (page 4-1 124)
- b. Cleaning/Inspection (page 4-1 124)
- c. Installation (page 4-1124)

**Tools**

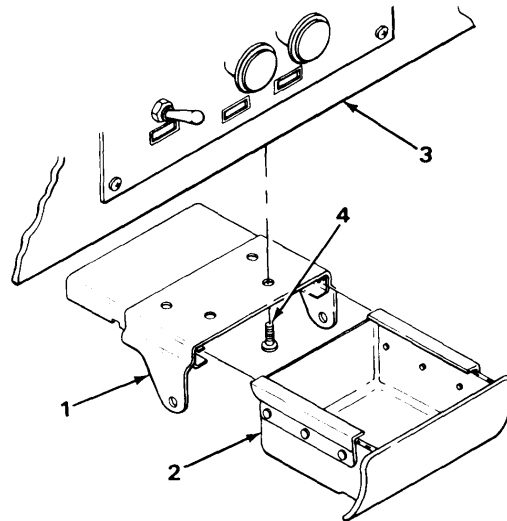
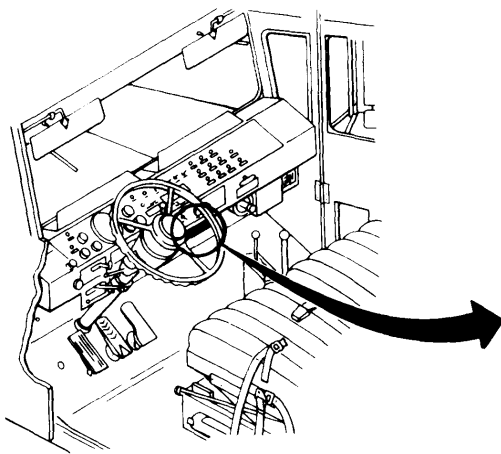
Screwdriver, cross-tip, number 2

**Personnel Required**

One

**ASHTRAY - CONTINUED**

LOCATION	I T E M	ACTION REMARKS
<b>REMOVAL</b>		
1. Carrier (1)	Ashtray (2)	Slide out until it hits stop, bend down slightly and slide out.
2. Carrier (1) to instrument panel (3)	Four screws (4)	Using screwdriver, unscrew and take out.
3. Instrument panel (3)	Carrier (1)	Take off.
<b>CLEANING/inspection</b>		
4.	All parts	Clean and inspect as shown in the general maintenance instructions (page 4-1).
<b>INSTALLATION</b>		
5. Instrument panel (3)	Carrier (1)	Put on.
6. Carrier (1) to instrument panel (3)	Four screws (4)	Screw in and tighten using screwdriver.
7. Carrier (1)	Ashtray (2)	Slide in until it hits stop, bend down slightly and slide in.



**TASK ENDS HERE**

## PASSENGER'S SEAT

This task covers:

- a. Removal (page 4-1125)
- b. Cleaning/Inspection (page 4-1126)
- c. Installation (page 4-1126)

### INITIAL SETUP

**Tools**

Handle, ratchet, 3/8-inch drive  
 Socket, 9/16-inch, 3/8-inch drive  
 Wrench, open-end, 9/16-inch

**Materials/Parts**

Lockwasher (four required)

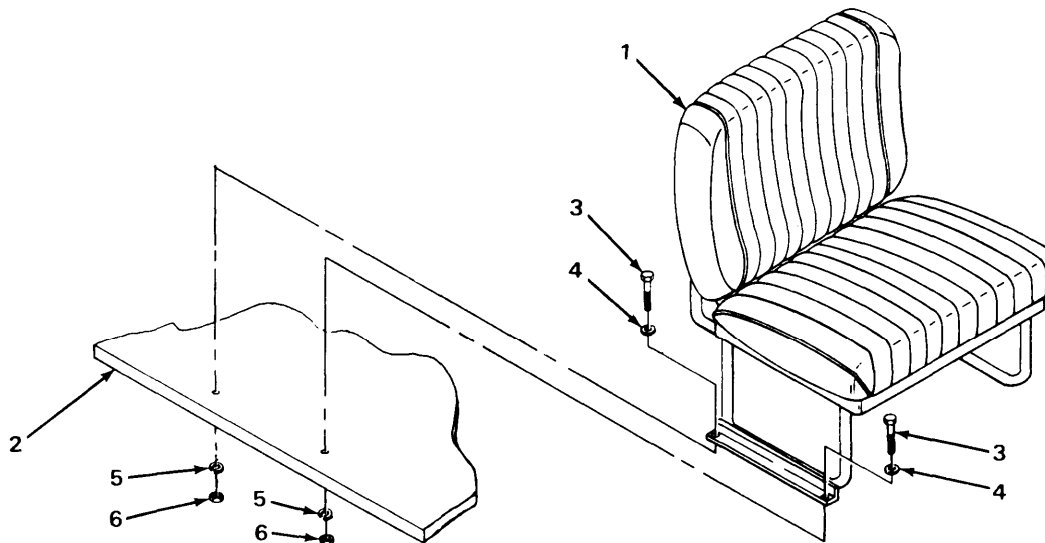
**Personnel Required**

Two

LOCATION	ITEM	ACTION REMARKS
----------	------	-------------------

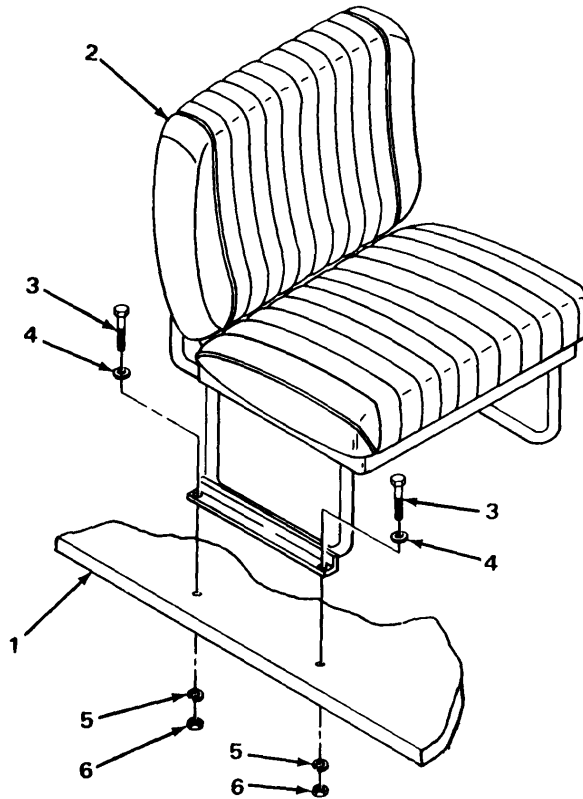
### REMOVAL

- |                                     |  |  |
|-------------------------------------|--|--|
| <p>1. Seat (1) to cab floor (2)</p> | <p>Four screws (3), washers (4), lockwashers (5), and nuts (6)</p> | <p>a. With help from assistant and using socket, handle, and wrench, unscrew and take out.<br/>                     Note location of longer screw.<br/>                     b. Get rid of lockwashers (5).</p> |
| <p>2. Cab floor (2)</p>             | <p>Seat (1)</p>  | <p>Take off.</p>   |



**PASSENGER'S SEAT - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
<b>CLEANING/INSPECTION</b>		
3.	All parts	Clean and inspect as shown in the general maintenance instructions (page 4-1).
<b>INSTALLATION</b>		
4. Cab floor (1)	Seat (2)	Put on.
5. Seat (2) to cab floor (1)	Four screws (3), washers (4), new lockwashers (5), and nuts (6)	a. Note location of longer screw (3). b. With help from assistant, screw in and tighten using socket, handle, and wrench.



TASK ENDS HERE

TA240705

## DRIVER'S SEAT AND SUPPORT

---

This task covers:

- |  |   |
|--|---|
| <ul style="list-style-type: none"> <li>a. Removal (page 4-1128)</li> <li>b. Cleaning/Inspection (page 4-1128)</li> </ul> | <ul style="list-style-type: none"> <li>c. Installation (page 4-1128)</li> </ul> |
|--|---|
- 

### INITIAL SETUP

#### Tools

Handle, ratchet, 3/8-inch drive  
 Socket, 7/16-inch, 3/8-inch drive  
 Socket, 1/2-inch, 3/8-inch drive  
 Wrench, open-end, 7/16-inch  
 Wrench, open-end, 1/2-inch

#### Materials/Parts

Lockwasher, brace to support (four required)  
 Lockwasher, jumper (two required)  
 Lockwasher, seat to support (four required)

#### Materials/Parts – Continued

Lockwasher, support to cab floor (three required)

#### Personnel Required

Two

#### Equipment Condition

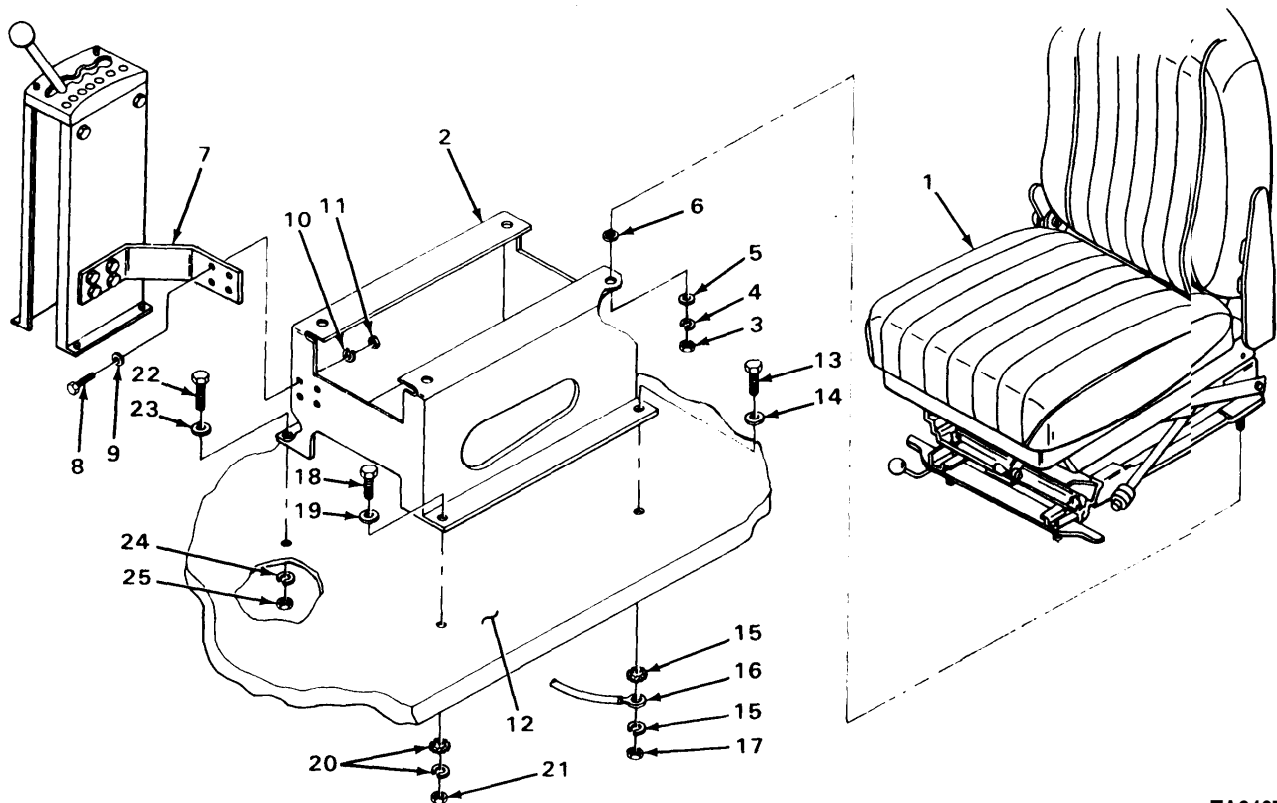
Driver's seat belts removed (page 4-1 130).  
 Fire extinguisher removed  
 (TM 9-2320-270-10).

**DRIVER'S SEAT AND SUPPORT - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
<b>REMOVAL</b>		
1. Seat (1) to support (2)	Four nuts (3), lockwashers (4), and washers (5)	a. Using 1/2-inch wrench, unscrew and take out. b. Get rid of lockwashers (4).
2. support (2)	Seat (1) and two spacers (6)	Take off.
3. Brace (7) to support (2)	Four screws (8), washers (9), lockwashers (10), and nuts (11)	a. Using 7/16-inch socket, handle, and 7/16-inch wrench, unscrew and take out. b. Get rid of lockwashers (10).
4. support (2) to cab floor (12)	Screw (13), washer (14), two lockwashers (15), jumper (16), and nut (17)	a. Using 1/2-inch socket, handle, and 1/2-inch wrench, unscrew and take out. b. Get rid of lockwashers(15).
5.	Screw (18), washer (19), two lockwashers (20), and nut (21)	a. Using 1/2-inch socket, handle, and 1/2-inch wrench, unscrew and take out. b. Get rid of lockwashers (20).
6.	Two screws (22), washers (23), lockwashers (24), and nuts (25)	a. With help from assistant and using 1/2-inch socket, handle, and 1/2-inch wrench, unscrew and take out. b. Get rid of lockwashers (24).
7. Cab floor (12)	support (2)	Take off.
<b>CLEANING/inspection</b>		
8.	All parts	Clean and inspect as shown in the general maintenance instructions (page 4-1).
<b>INSTALLATION</b>		
9. Cab floor (12)	support (2)	Place in position.
10. support (2) to cab floor (12)	Two screws (22), washers (23), new lockwashers (24), and nuts (25)	With help from assistant, screw in and tighten using 1/2-inch socket, handle, and 1/2-inch wrench.

DRIVER'S SEAT AND SUPPORT - CONTINUED

LOCATION	ITEM	ACTION REMARKS
11.	Screw (18), washer (19), two new lockwashers (20), and nut (21)	Screw in and tighten using 1/2-inch socket, handle, and 1/2-inch wrench.
12.	Screw (13), washer (14), two new lockwashers (15), jumper (16), and nuts (17)	Screw in and tighten using 1/2-inch socket, handle, and 1/2-inch wrench.
13. Brace (7) to support (2)	Four screws (8), washers (9), new lockwashers (10), and nuts (11)	Screw in and tighten using 7/16-inch socket, handle, and 7/16-inch wrench.
14. support (2)	Seat (1) and two spacers (6)	Place in position.
15. Seat (1) to support (2)	Four nuts (3), new lockwashers (4), and washers (5)	Screw on and tighten using 1/2-inch wrench.



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**DRIVER'S SEAT AND SUPPORT - CONTINUED**

INSTALLATION – CONTINUED

**NOTE**

FOLLOW-ON MAINTENANCE:

1. Install fire extinguisher (TM 9-2320-270-10).
2. Install driver's seat belts (page 4-1130).

**TASK ENDS HERE**

**SEAT BELTS**

---

This task covers:

- |   |   |
|---|---|
| <ol style="list-style-type: none"> <li>a. Driver's Seat Belt Removal (page 4-1130)</li> <li>b. Passenger's Seat Belt Removal (page 4-1132)</li> <li>c. Cleaning/Inspection (page 4-1132)</li> </ol> | <ol style="list-style-type: none"> <li>d. Passenger's Seat Belt Installation (page 4-1132)</li> <li>e. Driver's Seat Belt Installation (page 4-1132)</li> </ol> |
|---|---|
- 

INITIAL SETUP

Tools

Pliers, slipjoint, straight-nose  
 Wrench, adjustable, 10-inch  
 Wrench, open-end, 11/16-inch  
 Wrench, open-end, 5/8-inch

Materials/Parts

Cotter pin (as required)

Materials/Parts - Continued

Lockwashers (as required)

Personnel Required

Two

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LOCATION	ITEM	ACTION	REMARKS
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DRIVER'S SEAT BELT REMOVAL

**NOTE**

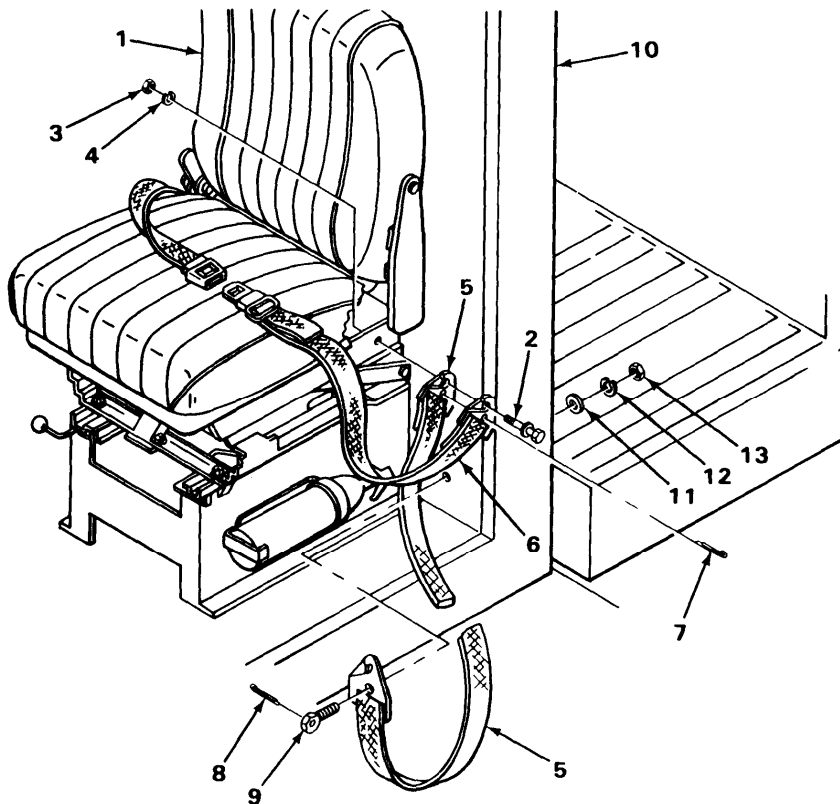
Driver's seat has two seat belts fastened to each side. Both sides are removed the same way. Left side seat belts are shown.

- |   |                                       |   |
|---|---------------------------------------|---|
| <ol style="list-style-type: none"> <li>1. Driver's seat (1)<br/>post (2)</li> </ol> | <p>Nut (3) and<br/>lockwasher (4)</p> | <ol style="list-style-type: none"> <li>a. Using 11/16-inch and 5/8-inch wrenches, unscrew and take off.</li> <li>b. Get rid of lockwasher (4).</li> </ol> |
|---|---------------------------------------|---|



SEAT BELTS - CONTINUED

LOCATION	ITEM	ACTION REMARKS
2. Driver's seat (1)	Post (2) and two seat belts (5) and (6)	Take out.
3. Post (2)	Seat belt (5)	Slide off.
4.	Cotter pin (7) and seat belt (6)	a. Using pliers, take out pin (7). b. Get rid of pin (7). c. Open seat belt (6) and take off.
5. Seat belt (5)	Cotter pin (8)	a. Using pliers, bend ends together and take out. b. Get rid of.
6. Anchor bolt (9)	Seat belt (5)	Open and take off.
7. Cab (10)	Anchor bolt (9), washer (11), lock-washer (12), and nut (13)	a. With help from assistant and using 11/16-inch and adjustable wrenches, unscrew and take out. b. Get rid of lockwasher (12).



TA240707

4-1131

**SEAT BELTS - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
<b>PASSENGER'S SEAT BELT REMOVAL</b>		
<b>NOTE</b>		
There are four seat belts for passenger's seat. Each seat belt is removed the same way. Right side seat belt is shown.		
8. Seat belt (1)	Cotter pin (2)	a. Using pliers, take out. b. Get rid of.
9. Anchor bolt (3)	Seat belt (1)	Open and take off.
10. Cab (4)	Anchor bolt (3), washer (5), lock-washer (6), and nut (7)	a. With help from assistant and using 11/16-inch and adjustable wrenches, unscrew and take out. b. Get rid of lockwasher (6).
<b>CLEANING/inspection</b>		
11.	All parts	Clean and inspect as shown in the general maintenance instructions (page 4-1).

**PASSENGER'S SEAT BELT INSTALLATION**

**NOTE**

There are four seat belts for passenger's seat. Each seat belt is installed the same way. Right side seat belt is shown.

12. Cab (4)	Anchor bolt (3), washer (5), new lockwasher (6), and nut (7)	With help from assistant, screw in and tighten using 11/16-inch and adjustable wrenches.
13. Anchor bolt (3)	Seat belt (1)	Put on and close.
14. Seat belt (1)	New cotter pin (2)	Put into seat belt (1) and bend ends out using pliers.

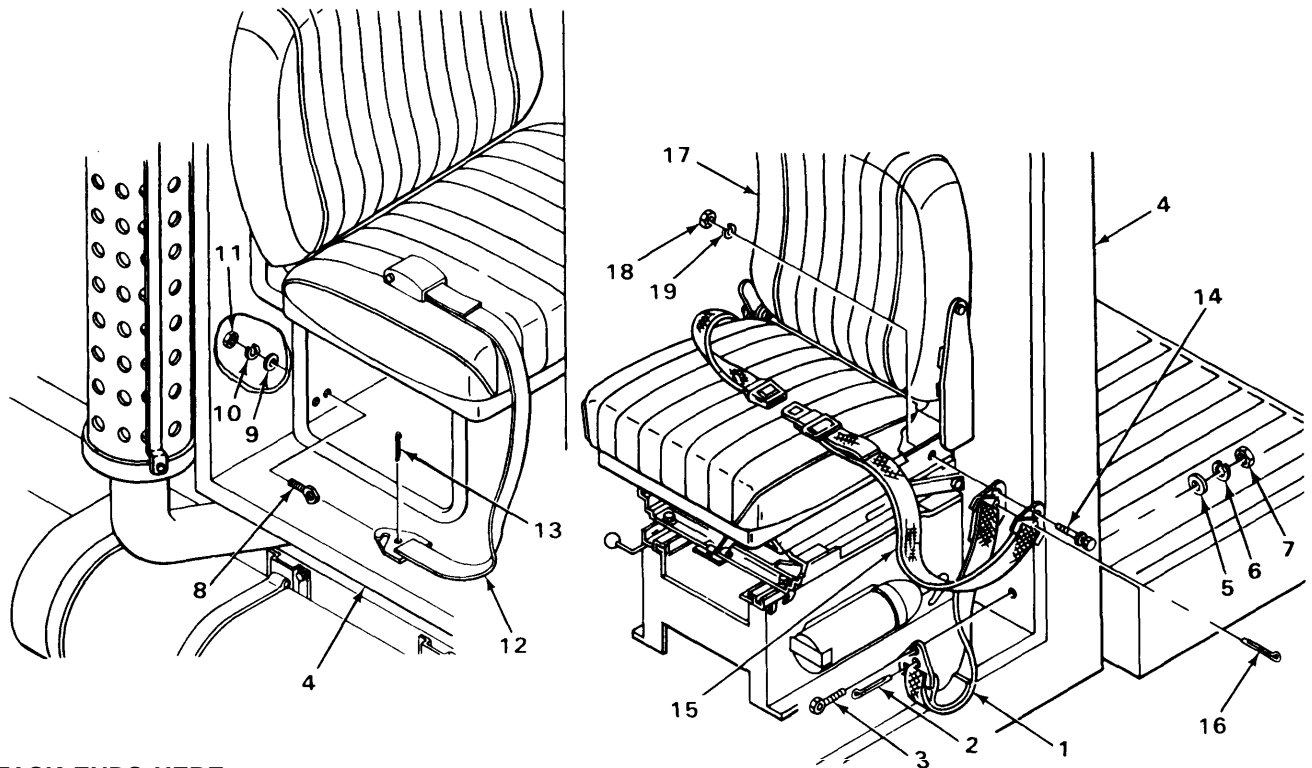
**DRIVER'S SEAT BELT INSTALLATION**

**NOTE**

Driver's seat has two seat belts fastened to each side. Both sides are installed the same way. Left side seat belts are shown.

**SEAT BELTS – CONTINUED**

LOCATION	ITEM	ACTION REMARKS
15. Cab (4)	Anchor bolt (8), washer (9), new lockwasher (10), and nut (11)	Screw in and tighten using 11/16-inch adjustable wrenches.
16. Anchor bolt (8)	Seat belt (12)	Put on and close.
17. Seat belt (12)	New cotter pin (13)	Using pliers, put in.
18. Post (14)	Seat belt (15)	Slide on post.
19. Seat belt (15)	New cotter pin (16)	Using pliers, put in.
20. Post (16)	Seat belt (12)	Slide on.
21. Driver's seat (17)	Post (14) and two seat belts (12) and (15)	Put in.
22. Post (14)	Nut (18) and new lockwasher (19)	Screw on and tighten using 11/16-inch 5/8-inch wrenches.



**TASK ENDS HERE**

TA240708

4-1133

**FLOOR MAT**

---

This task covers:

- a. Removal (page 4-1134)
  - b. Cleaning/Inspection (page 4-1134)
  - c. Installation (page 4-1134)
- 

**INITIAL SETUP**

<p>Tools</p> <p>Screwdriver, cross-tip, number 3</p> <p>Personnel Required</p> <p>One</p>	<p>Equipment Condition</p> <p>Brake pedal and treadle valve removed (page 4-720).                  Accelerator pedal removed (page 4-126).                  Retarder pedal removed (page 4-547).                  Shift control removed (page 4-526).                  Shift control housing removed (page 4-536).</p>
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LOCATION	ITEM	ACTION REMARKS
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---

REMOVAL

- |                              |                                  |  |
|------------------------------|----------------------------------|--|
| 1. Two plates (1) to cab (2) | 10 screws (3)                    | Using screwdriver, unscrew and take out. |
| 2. Cab (2)                   | Two plates (1) and floor mat (4) | Take off.                                |

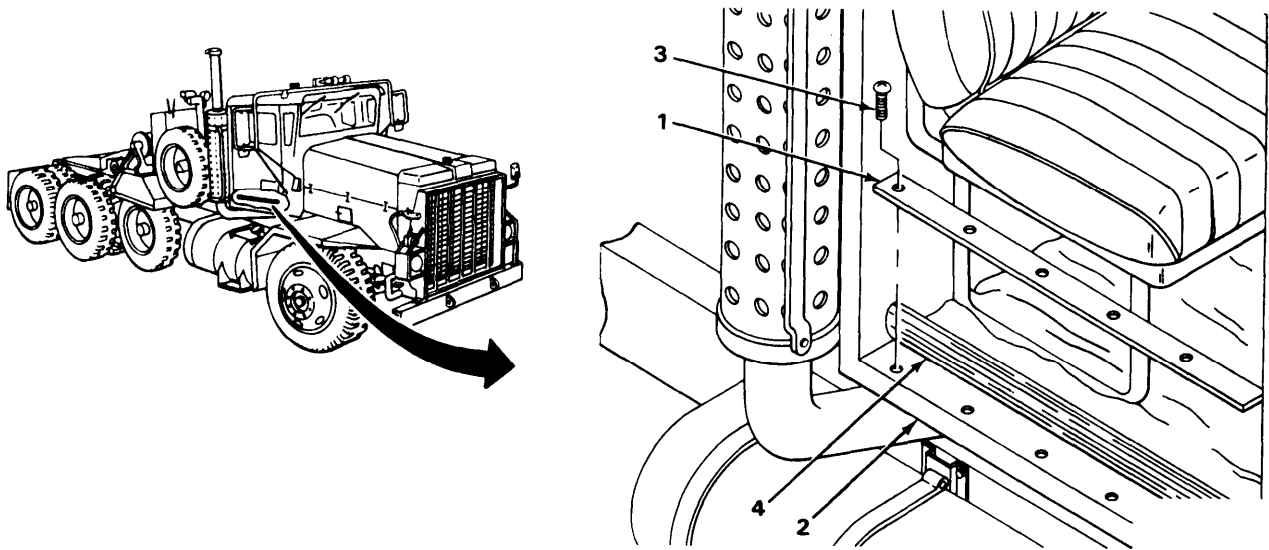
CLEANING/inspection

- |    |           |  |
|----|-----------|--|
| 3. | Ail parts | Clean and inspect as shown in the general maintenance instructions (page 4-1). |
|----|-----------|--|

installation

- |                              |                                  |   |
|------------------------------|----------------------------------|---|
| 4. Cab (2)                   | Floor mat (4) and two plates (1) | Place in position.                      |
| 5. Two plates (1) to cab (2) | 10 screws (4)                    | Screw in and tighten using screwdriver. |

**FLOOR MAT - CONTINUED**



**NOTE**

**FOLLOW-ON MAINTENANCE:**

1. Install shift control housing (page 4-538).
2. Install shift control (page 4-526).
3. Install retarder pedal (page 4-547).
4. Install accelerator pedal (page 4-126).
5. Install brake pedal and treadle valve (page 4-720).

TASK ENDS HERE

**Section XVII. WINCHES**

	Page		Page
Hydraulic Oil Filter .....	4-1172	Winch Control Valve .....	4-1157
Hydraulic Reservoir .....	4-1163	Winch Hydraulic Valves .....	4-1155
Hydraulic Reservoir Draining and Filling .....	4-1160	Winch Propeller Shaft .....	4-1175
Pump to Winch Valves Hydraulic Lines .....	4-1150	Winch Throttle Valve .....	4-1141
Winch .....	4-1136	Winch Valves to Motors Hydraulic Lines .....	4-1146
Winch Cable .....	4-1140		

**WINCH**

---

This task covers:

- a. Removal (page 4-1136)
  - b. Installation (page 4-1138)
- 

**INITIAL SETUP**

**Tools**

- Chain
- Extension, 5-inch, 3/4-inch drive
- Handle, ratchet, 3/4-inch drive
- Lifting equipment
- Socket, 1 1/2-inch, 3/4-inch drive
- Wrench, open-end, 9/16-inch
- Wrench, open-end, 5/8-inch
- Wrench, open-end, 1 1/2-inch
- Wrench, pipe, 12-inch

**Materials/Parts**

- Hose plugs
- Lockwashers, hose clamp (eight required)

**Materials/Parts – Continued**

- Lockwashers, winch base (four required)
- Packing, preformed, hoses (two required)
- Tag, marking (item 18, appendix C)
- Tape, teflon (item 22, appendix C)

**Personnel Required**

Two

**Equipment Condition**

- Winch cable removed (page 4-1140).
  - Pusher axle tire removed (TM 9-2320-270-10).
- 

LOCATION	ITEM	ACTION	REMARKS
----------	------	--------	---------

---

**REMOVAL**

- |                        |  |   |  |
|------------------------|--|---|--|
| 1. Two hose clamps (1) | Four screws (2) and lockwashers (3)            | a. Using 5/8-inch wrench, unscrew and take off.<br>b. Get rid of lockwashers (3).   |  |
| 2. Hydraulic motor (4) | Two hose clamps (1), hose (5), and packing (6) | a. Pull off.<br>b. Get rid of packing (6).<br>c. Plug hose (5).<br><b>There are two hose ports on motor. Repeat steps 1 and 2 to remove other hose.</b> |  |

**NOTE**

Tag lines according to general maintenance instructions (page 4-1).

- |            |          |   |  |
|------------|----------|---|--|
| 3. Tee (7) | Hose (8) | Using 9/16-inch wrench, unscrew and pull off. |  |
|------------|----------|---|--|

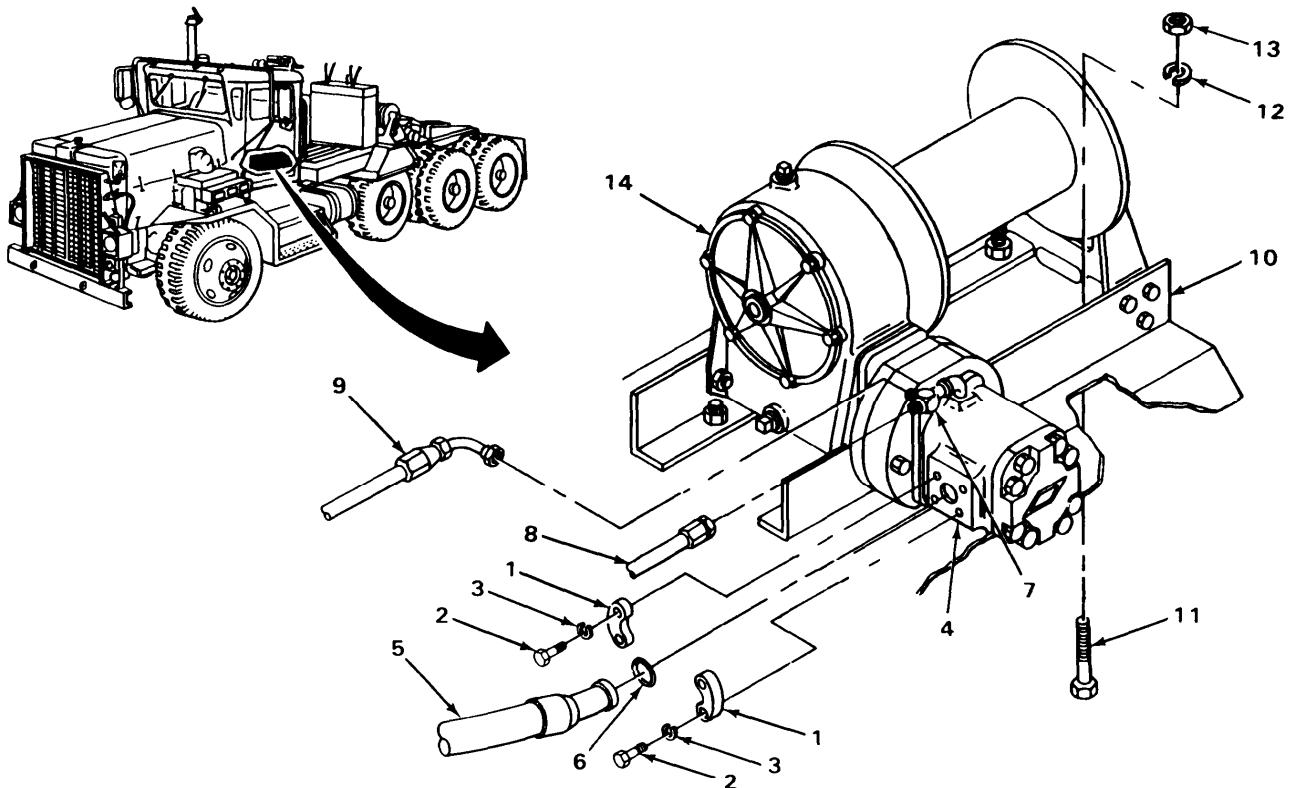
**WINCH - CONTINUED**

LOCATION	ITEM	ACTION	REMARKS
4.	Hose (9)	Using 9/16-inch wrench, unscrew and pull off.	

**WARNING**

Some parts are heavy. Be careful when handling them. Lifting equipment is needed when parts weigh over 50 pounds (23 kg) for a single person lift, over 100 pounds (45 kg) for a two person lift, and over 150 pounds (68 kg) for a three or more person lift. Do not try to handle heavy parts without lifting equipment. Keep clear of heavy parts supported only by lifting equipment. Failure to observe this precaution could cause serious injury or death of personnel.

- |    |                 |  |   |
|----|-----------------|--|---|
| 5. | Winch base (10) | Eight screws (11), lockwashers (12), and nuts (13) | <ul style="list-style-type: none"> <li>a. With help from assistant and using 1 1/2-inch open-end wrench, socket, handle, and extension, unscrew and take off.</li> <li>b. Get rid of lockwashers (12).</li> </ul> |
| 6. | Winch (14)      |  | <ul style="list-style-type: none"> <li>a. Attach lifting equipment.</li> <li>b. Using lifting equipment, take out.</li> </ul>   |



TA240710

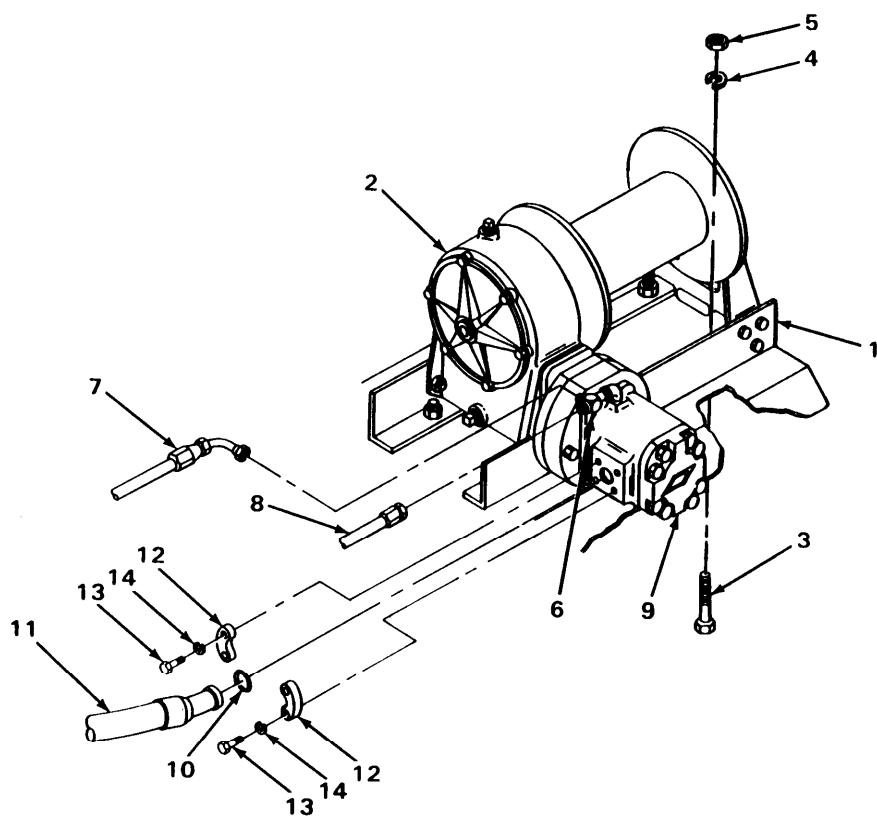
4-1137

**WINCH - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
<b>INSTALLATION</b>		
<b><u>WARNING</u></b>		
<p>Some parts are heavy. Be careful when handling them. Lifting equipment is needed when parts weigh over 50 pounds (23 kg) for a single person lift, over 100 pounds (45 kg) for a two person lift, and over 150 pounds (68 kg) for a three or more person lift. Do not try to handle heavy parts without lifting equipment. Keep clear of heavy parts supported only by lifting equipment. Failure to observe this precaution could cause serious injury or death of personnel.</p>		
7. Winch base (1)	Winch (2)	a. Attach lifting equipment. b. Using lifting equipment, place in position.
8.	Eight screws (3), new lockwashers (4), and nuts (5)	With help from assistant, screw on and tighten using 1 1/2-inch wrench, socket, handle, and extension.
9. Tee (6)	Hose (7)	a. Wrap threads with teflon tape (page 4-1). b. Screw on and tighten using 9/16-inch wrench.
10.	Hose (8)	Screw on and tighten using 9/16-inch wrench.
11. Hydraulic motor (9)	New packing (10) and hose (11)	a. Remove plug. b. Place in position.
12.	Two hose clamps (12)	Place in position.
13. Two hose clamps (12)	Four screws (13) and new lockwashers (14)	Screw in and tighten using 5/8-inch wrench. There are two port hoses to motor. Repeat steps 11 to 13 for other hose.



WINCH - CONTINUED



**NOTE**

FOLLOW-ON MAINTENANCE:

1. Install pusher axle tire (TM 9-2320-270-10).
2. Install winch cable (page 4-1140).

**TASK ENDS HERE**

**WINCH CABLE**

---

This task covers:

- a. Removal (page 4-1140)
  - b. Installation (page 4-1140)
- 

**INITIAL SETUP**

Tools	Personnel Required
Wrench, open-end, 1 1/8-inch	One

---

LOCATION	ITEM	ACTION REMARKS
----------	------	-------------------

---

**REMOVAL**

**WARNING**

Leather gloves must be worn when handling cable to prevent cuts and scrapes. Never let cable run through hands. Broken and frayed wires can cause injury.

1. Winch drum (1)	Cable (2)	Operate winch (TM 9-2320-270-10) and unwind all cable from drum.
2.	Two nuts (3) and U-bolt (4)	<ul style="list-style-type: none"> <li>a. Using 1 1/8-inch wrench, unscrew and take out.</li> <li>b. Take off cable (2).</li> </ul>

**INSTALLATION**

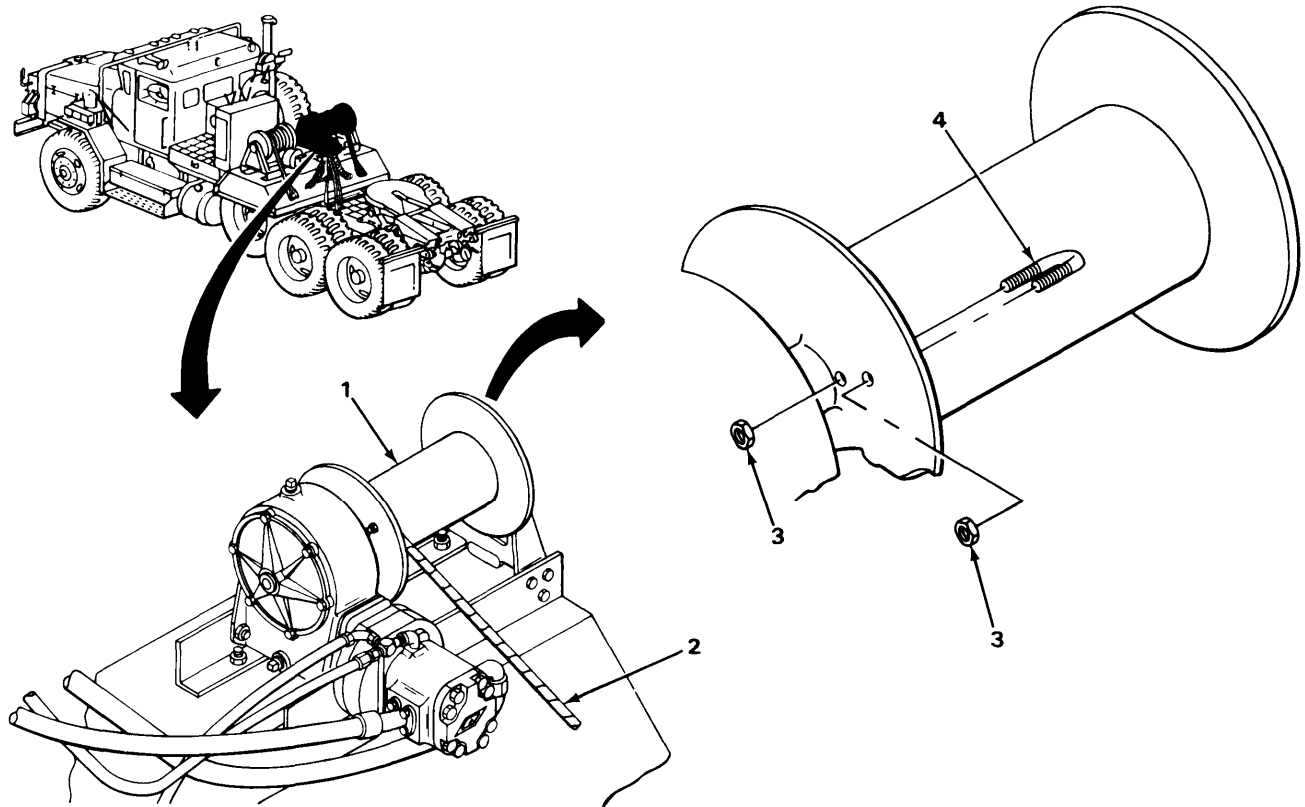
3. Winch drum (1)	Two nuts (3) and U-bolt (4)	<ul style="list-style-type: none"> <li>a. Put U-bolt (4) in holes and start nuts.</li> <li>b. Put cable end under U-bolt (4).</li> <li>c. Using 1 1/8-inch wrench, screw on and tighten.</li> </ul>
-------------------	-----------------------------	---

**WARNING**

Leather gloves must be worn when handling cable to prevent cuts and scrapes. Never let cable run through hands. Broken and frayed wires can cause injury.

4.	Cable (2)	Operate winch (TM 9-2320-270-10) and wind cable onto drum.
----	-----------	--

**WINCH CABLE- CONTINUED**



**TASK ENDS HERE**

**WINCH THROTTLE VALVE**

This task covers:

- a. Removal (page 4-1142)
- b. Installation (page 4-1144)

**INITIAL SETUP**

**Tools**

- Hammer, plastic
- Wrench, open-end, 1/2-inch
- Wrench, open-end, 5/8-inch

**Materials/Parts**

- Lockwashers (12 required)
- Lockwashers, valve bracket (two required)
- Tag, marking (item 18, appendix C)
- Tape, teflon (item 22, appendix C)

**Personnel Required**

One

**Equipment Condition**

Air system drained (TM 9-2320-070-10).

TA240712

4-1141

**WINCH THROTTLE VALVE - CONTINUED**

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LOCATION	ITEM	ACTION REMARKS
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REMOVAL

- |                            |   |   |
|----------------------------|---|---|
| 1. Winch control panel (1) | 12 screws (2), lockwashers (3), and washers (4) | a. Using 1/2-inch wrench, unscrew and take out.<br>b. Get rid of lockwashers (3). |
| 2.                         | Front cover plate (5)                           | Take off.   |

**WARNING**

Make sure all pressure is drained from air system before disconnecting air lines. Parts under pressure can, when removed, fly off with great force causing injury to personnel.

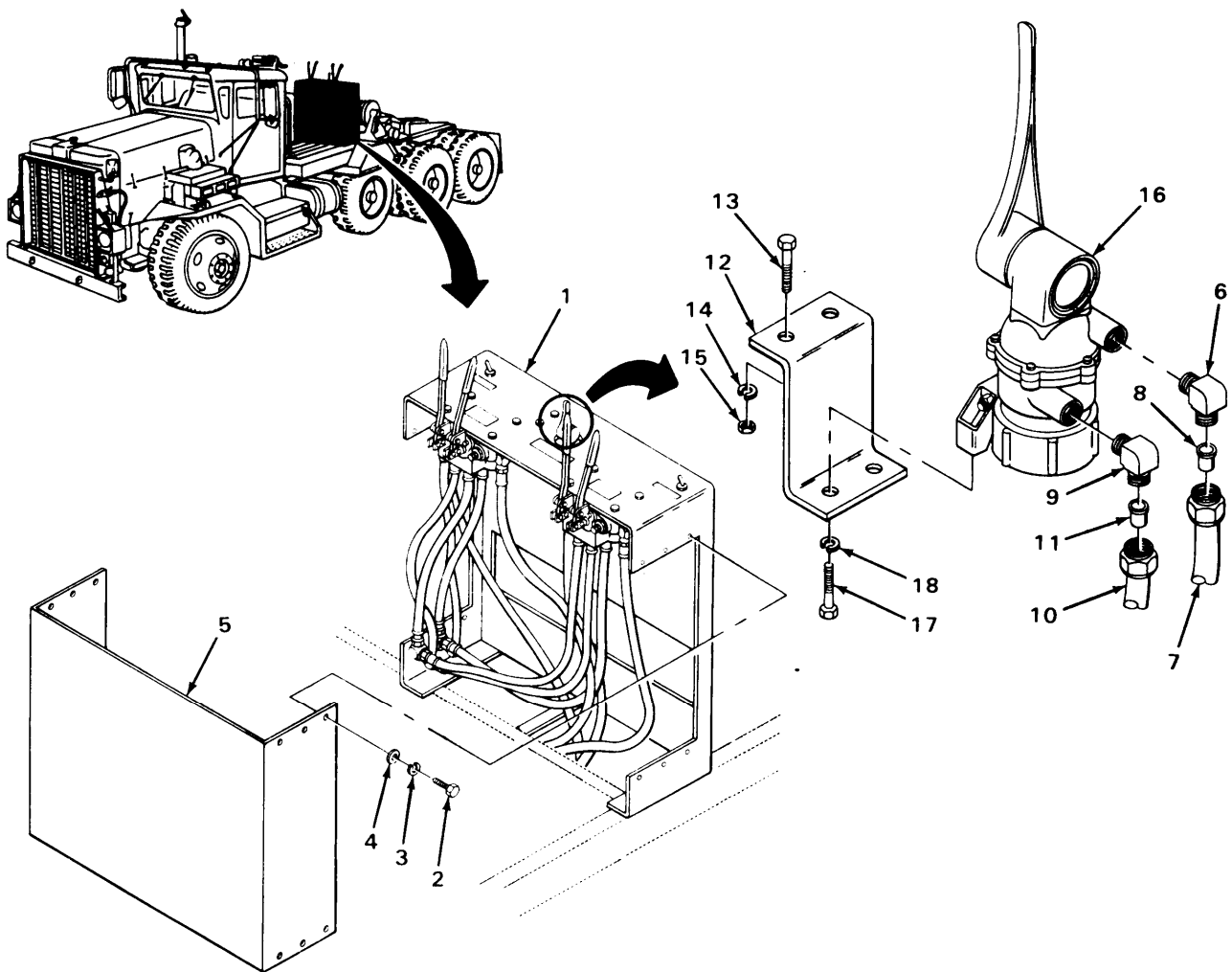
**NOTE**

Tag lines according to general maintenance instructions (page 4-1).

- |                              |  |  |
|------------------------------|--|--|
| 3. Elbow (6)                 | Hose (7)   | Using 5/8-inch wrench, unscrew and take off.                                       |
| 4. Elbow (6) or hose (7)     | Insert (8)                                       | Pull out.  |
| 5. Elbow (9)                 | Hose (10)  | Using 5/8-inch wrench, unscrew and take off.                                       |
| 6. Elbow (9) or hose (10)    | Insert (11)                                      | Pull out.  |
| 7. Bracket (12)              | Two screws (13), lockwashers (14), and nuts (15) | a. Using 1/2-inch wrench, unscrew and take off.<br>b. Get rid of lockwashers (14). |
| 8. Winch throttle valve (16) | Two screws (17) and lockwashers (18)             | a. Using 1/2-inch wrench, unscrew and take off.<br>b. Get rid of lockwashers (18). |

WINCH THROTTLE VALVE - CONTINUED

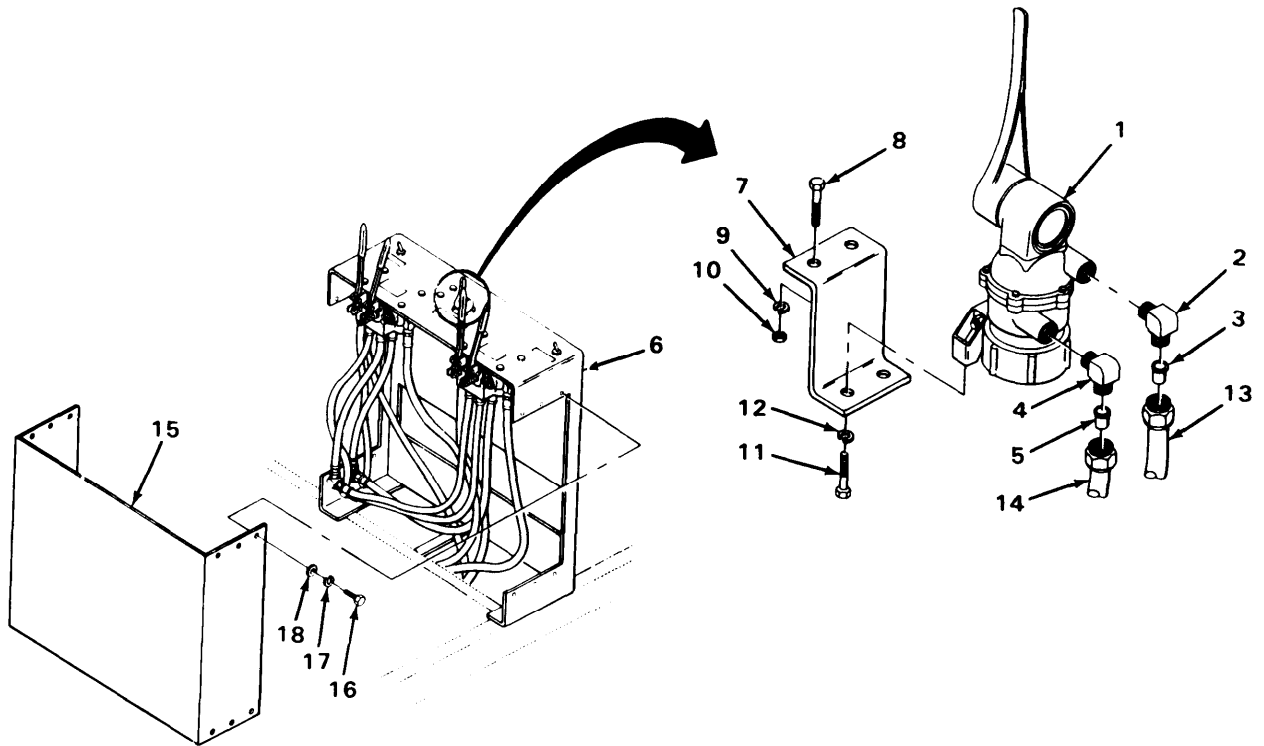
LOCATION	ITEM	ACTION REMARKS
9. Winch control panel (1)	Bracket (12)	Take off.
10.	Winch throttle valve (16)	Take out.
11. Winch throttle valve (16)	Two elbows (6) and (9)	Using 5/8-inch wrench, unscrew and take out.



**WINCH THROTTLE VALVE - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
INSTALLATION		
12. Winch throttle valve (1)	Elbow (2)	a. Wrap threads with teflon tape (page 4-1). b. Using 5/8-inch wrench, screw in and tighten.
13. Elbow (2)	Insert (3)	Using plastic hammer, tap in.
14. Winch throttle valve (1)	Elbow (4)	a. Wrap threads with teflon tape (page 4-1). b. Using 5/8-inch wrench, screw in and tighten.
15. Elbow (4)	insert (5)	Using plastic hammer, tap in.
16. Winch control panel (6)	Winch throttle valve (1)	Place in position.
17. Winch control panel (6)	Bracket (7)	Put in.
18. Bracket (7)	Two screws (8), new lockwashers (9), and nuts (10)	Screw in and tighten using 1/2-inch wrench.
19. Winch control valve (1)	Two screws (11) and new iockwashers (12)	Screw in and tighten using 1/2-inch wrench.
20. Elbow (2)	Hose (13)	Using 5/8-inch wrench, screw on and tighten.
21. Elbow (4)	Hose (14)	Using 5/8-inch wrench, screw on and tighten.
22. Winch control panel (6)	Front cover plate (15)	Place in position.
23. Front cover plate (15)	12 screws (16), new lockwashers (17), and washers (18)	Screw in and tighten using 1/2-inch wrench.

WINCH THROTTLE VALVE - CONTINUED



**NOTE**

FOLLOW-ON MAINTENANCE: Check operation (TM 9-2320-270-10).

**TASK ENDS HERE**

**WINCH VALVES TO MOTORS HYDRAULIC LINES**

---

This task covers:

- a. Removal (page 4-1146)
  - b. Installation (page 4-1148)
- 

**INITIAL SETUP**

Tools

- Wrench, open-end, 7/16-inch (two required)
- Wrench, open-end, 1/2-inch
- Wrench, open-end, 5/8-inch
- Wrench, open-end, 1 1/2-inch
- Wrench, open-end, 2-inch

Materials/Parts

- Hose plugs
- Lockwashers, cover deck (four required)

Materials/Parts - Continued

- Lockwashers, hose clamps (four required)
- Lockwashers, winch control panel (12 required)
- Packing, preformed, hose
- Tag, marking (item 18, appendix C)

Personnel Required

One

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LOCATION	ITEM	ACTION	REMARKS
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REMOVAL

**NOTE**

**Tag hoses according to general maintenance instructions.**

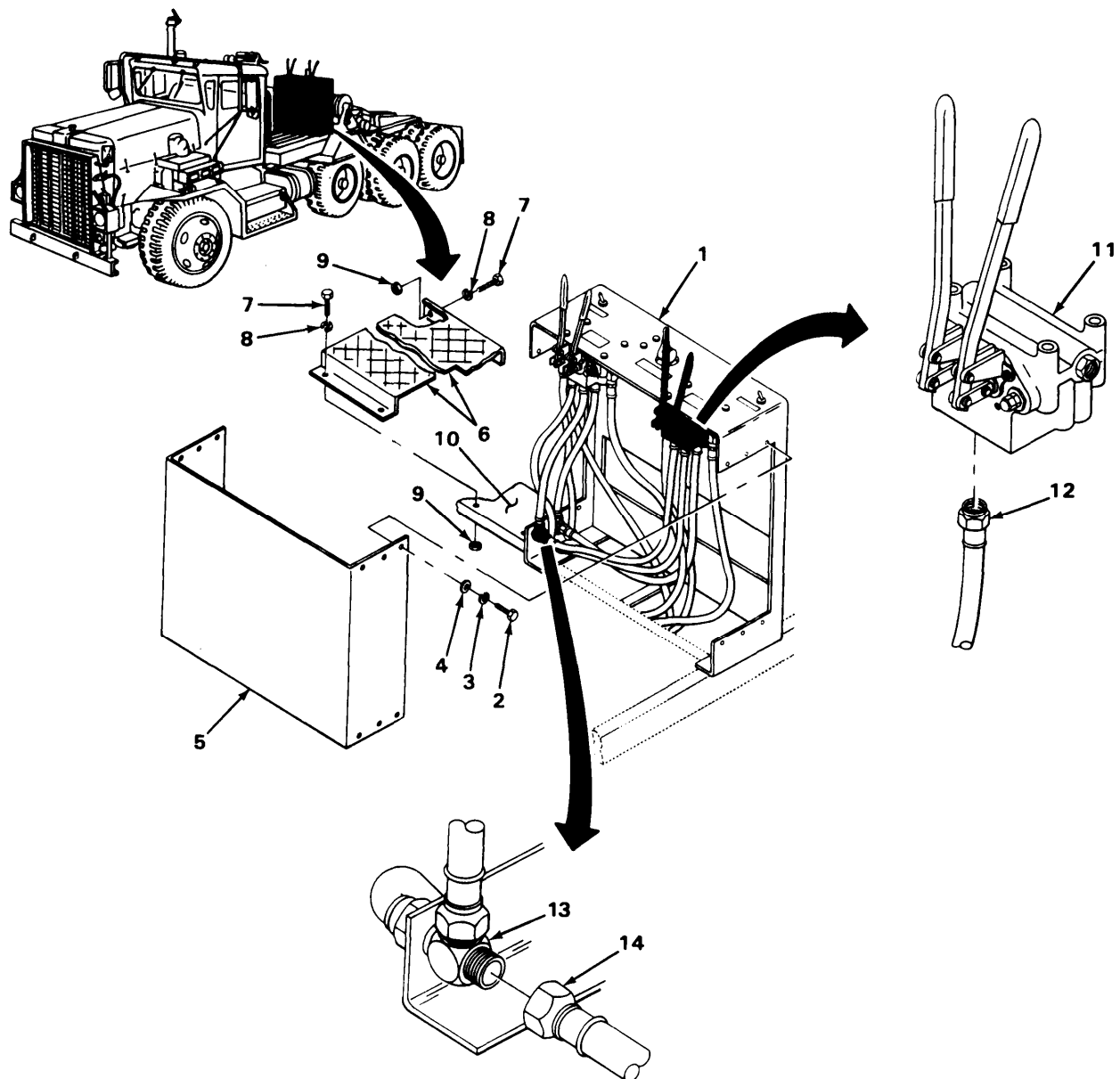
There are four sets of hoses. This procedure is for one set. Repeat for other three.

- |  |   |  |
|--|---|--|
| 1. Winch control panel (1)                   | 12 screws (2), lockwashers (3), and washers (4) | a. Using 1/2-inch wrench, unscrew and take off.<br>b. Get rid of lockwashers (3).        |
| 2.   | Front cover plate (5)                           | Take off.  |
| 3. Cover deck (6)                            | Four screws (7), lockwashers (8), and nuts (9)  | a. Using two 7/16-inch wrenches, unscrew and take off.<br>b. Get rid of lockwashers (8). |
| 4. Rear winch and tire carrier assembly (10) | Cover deck (6)                                  | Lift off.  |



WINCH VALVES TO MOTORS HYDRAULIC LINES - CONTINUED

LOCATION	ITEM	ACTION REMARKS
5. Control valve (11)	Hose (12)	a. Using 1 1/2-inch wrench, unscrew and take off. b. Plug hose (12).
6. Tee (13)	Hose (14)	a. Using 2-inch wrench, unscrew and take off. b. Plug hose (14). <b>Repeat steps 5 and 6 for the other hose.</b>



**WINCH VALVES TO MOTORS HYDRAULIC LINES - CONTINUED**

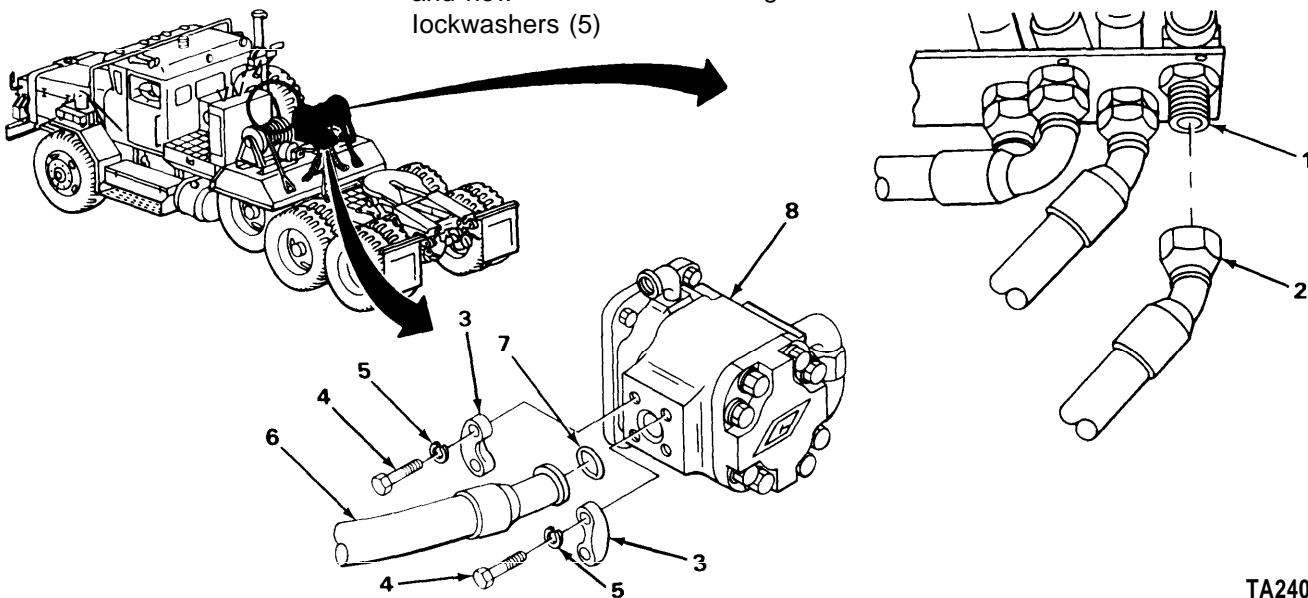
LOCATION	ITEM	ACTION	REMARKS
<b>REMOVAL - CONTINUED</b>			
7. Tee (1)	Hose (2)	a. Using 2-inch wrench, unscrew and take off. b. Plug hose (12).	
& Two hose clamps (3)	Four screws (4), lockwashers (5), hose (6) and packing (7)	a. Using 5/8-inch wrench, unscrew and take off. b. Get rid of lockwashers (5) and packing (7). c. Plug hose (6).	

**INSTALLATION**

**CAUTION**

Do not overtighten hoses. Hoses or fittings will leak.

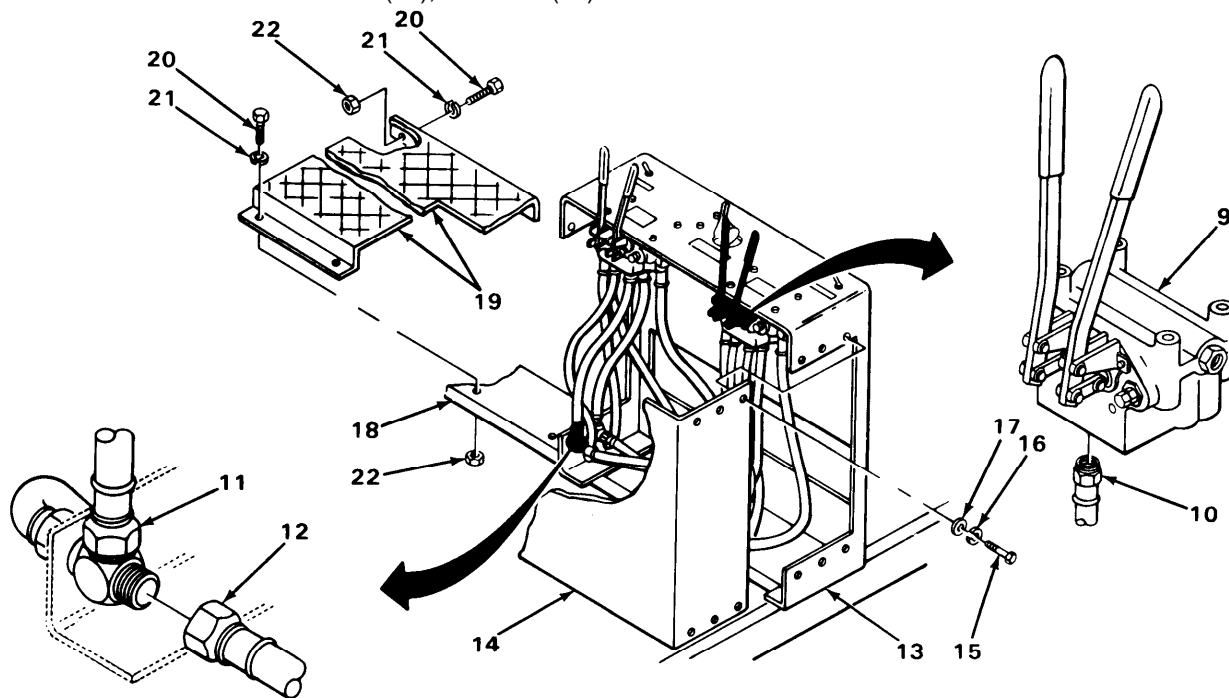
9. Tee (1)	Hose (2)	a. Take out plug. b. Using 2-inch wrench, screw on and tighten.	
10. Hydraulic motor (8)	New packing (7)	Put in.	
11.	Hose (6) and two hose clamps (3)	a. Take out plug. b. Put in place.	
12. Two hose clamps (3)	Four screws (4) and new lockwashers (5)	Using 5/8-inch wrench, screw in and tighten.	



TA240716

WINCH VALVES TO MOTORS HYDRAULIC LINES - CONTINUED

LOCATION	ITEM	ACTION REMARKS
13. Control valve (9)	Hose (10)	a. Take out plug. b. Using 1 1/2-inch wrench, screw on and tighten.
14. Tee(n)	Hose (12)	a. Take out plug. b. Using 2-inch wrench, screw on and tighten. <b>Repeat steps 13 and 14 for other hose.</b>
15. Winch control panel (13)	Front cover plate (14)	Put in place.
16. Front cover plate (14)	12 screws (15), new lockwashers (16), and washers (17)	Using 1/2-inch wrench, screw in and tighten.
17. Rear winch and tire carrier assembly (18)	Cover deck (19)	Place in position.
18. Cover deck (19)	Four screws (20), new lockwashers (21), and nuts (22)	Screw in and tighten using two 7/16-inch wrenches.



TA240717

**WINCH VALVES TO MOTORS HYDRAULIC LINES - CONTINUED**

INSTALLATION – CONTINUED

**NOTE**

FOLLOW-ON MAINTENANCE: Check operation (TM 9-2320-270-10).

**TASK ENDS HERE**

**PUMP TO WINCH VALVES HYDRAULIC LINES**

---

This task covers:

- a. Removal (page 4-1150)
  - b. Installation (page 4-1152)
- 

**INITIAL SETUP**

**Tools**

- Wrench, open-end, 5/8-inch
- Wrench, open-end, 3/4-inch
- Wrench, open-end, 2-inch
- Wrench, open-end, 2 5/8-inch
- Wrench, open-end, 2 7/8-inch
- Wrench, pipe, 3-foot

**Materials/Parts**

- Hose plugs
- Lockwasher, hose clamp (eight required)
- Lockwashers, hose clamps (eight required)
- Packing, preformed, hoses (two required)
- Packing, preformed, hose (two required)
- Tag, marking (item 18, appendix C)

**Personnel Required**

One

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LOCATION	ITEM	ACTION	REMARKS
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**REMOVAL**

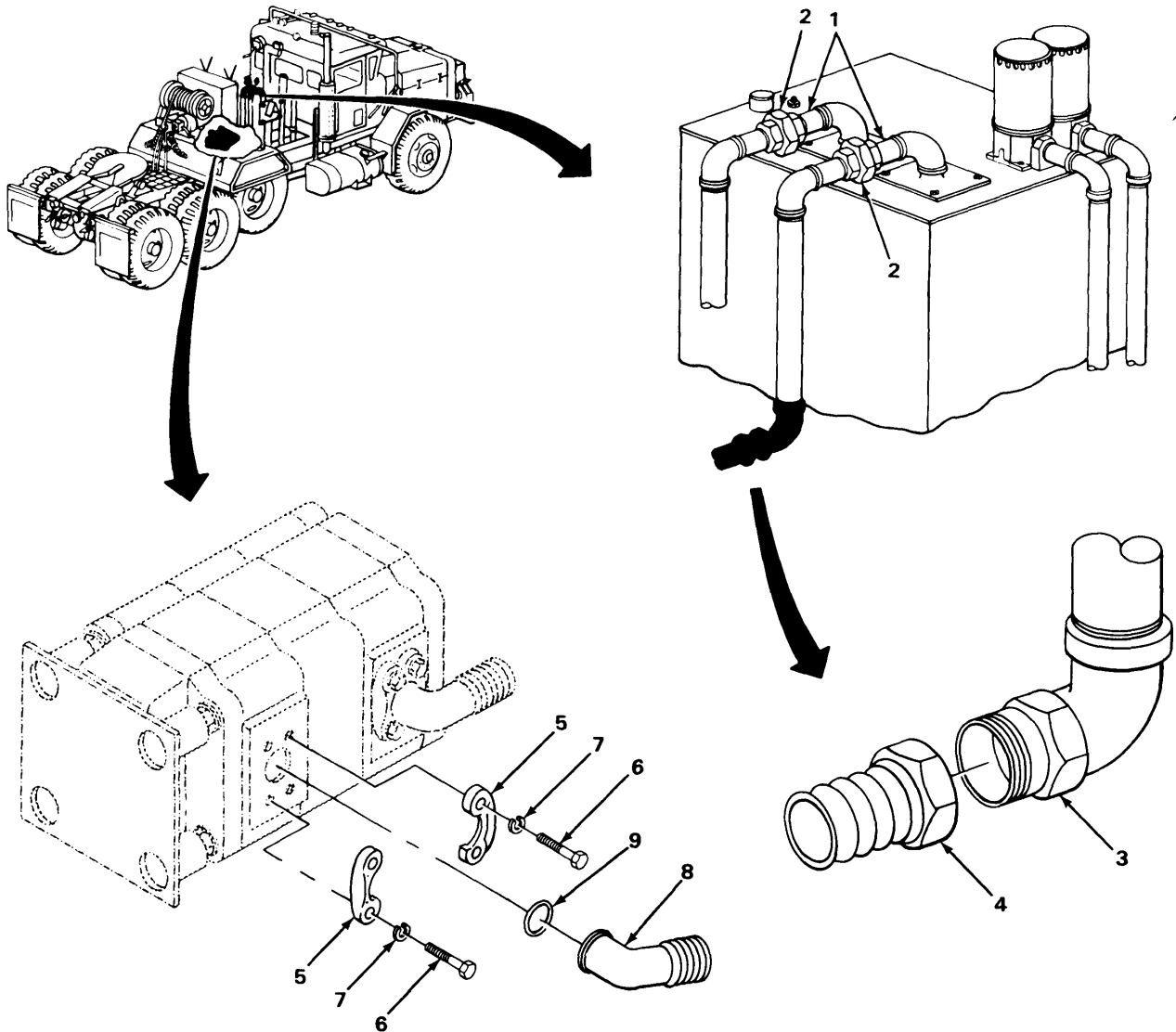
**NOTE**

Tag hoses according to general maintenance instructions (page 4-1).

- |                  |                |  |
|------------------|----------------|--|
| 1. Two pipes (1) | Two unions (2) | Using pipe wrench, unscrew part way.   |
| 2. Nipple (3)    | Hose (4)       | <ul style="list-style-type: none"> <li>a. Using 2 7/8-inch wrench and 2 5/8 inch wrench, unscrew and take off.</li> <li>b. Plug hose (4).</li> </ul> |

PUMP TO WINCH VALVES HYDRAULIC LINES - CONTINUED

LOCATION	ITEM	ACTION REMARKS
3. Two hose clamps (5)	Four screws (6), lockwashers (7), hose (8), and packing (9)	a. Using 3/4-inch wrench, unscrew and take off. b. Get rid of lockwashers (7) and packing (9). c. Plug hose (8). <b>Repeat steps 2 and 3 for other hose.</b>

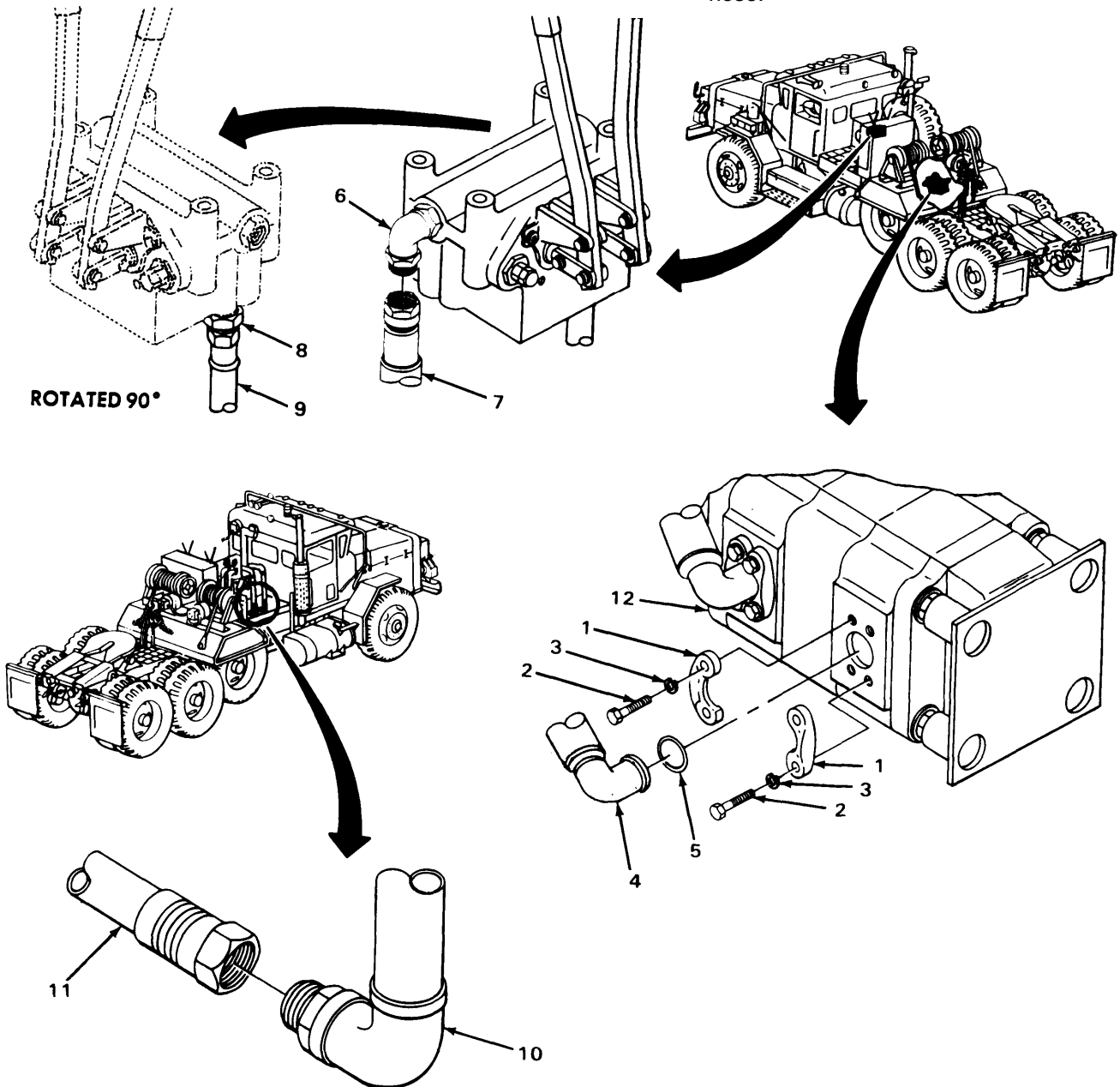


**PUMP TO WINCH VALVES HYDRAULIC LINES - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
<b>REMOVAL - CONTINUED</b>		
4. Hose clamps (1)	Four screws (2), lockwashers (3), hose (4), and packing (5)	a. Using 5/8-inch wrench, unscrew and take off. b. Get rid of lockwashers (3) and packing (5). c. Plug hose (4).
5. Elbow (6)	Hose (7)	a. Using 2-inch wrench, unscrew and take off. b. Plug hose (7). <b>Repeat steps 4 and 5 for other hose.</b>
6. Nipple(8)	Hose (9)	a. Using 2-inch wrench, unscrew and take off. b. Plug hose (9).
7. Nipple (10)	Hose(n)	a. Using 2-inch wrench, unscrew and take off. b. Plug hose (11). <b>Repeat steps 6 and 7 for other hose.</b>
<b>INSTALLATION</b>		
8. Nipple (10)	Hose (11)	a. Take out plug. b. Using 2-inch wrench, screw in and tighten.
9. Nipple (8)	Hose (9)	a. Take out plug. b. Using 2-inch wrench, screw in and tighten. <b>Repeat steps 8 and 9 for other hose.</b>
10. Elbow (6)	Hose (7)	a. Take out plug. b. Using 2-inch wrench, screw in and tighten.
11. Hydraulic pump (12)	New packing (5)	Put in.

PUMP TO WINCH VALVES HYDRAULIC LINES - CONTINUED

LOCATION	ITEM	ACTION REMARKS
12.	Hose (4) and two hose clamps (1)	a. Take out plug. b. Put in place.
13. Hose clamp (15)	Four screws (2) and new lock-washers (3)	Using 5/8-inch wrench, screw in and tighten. Repeat steps 10 thru 13 for other hose.



**PUMP TO WINCH VALVES HYDRAULIC LINES - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
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INSTALLATION - CONTINUED

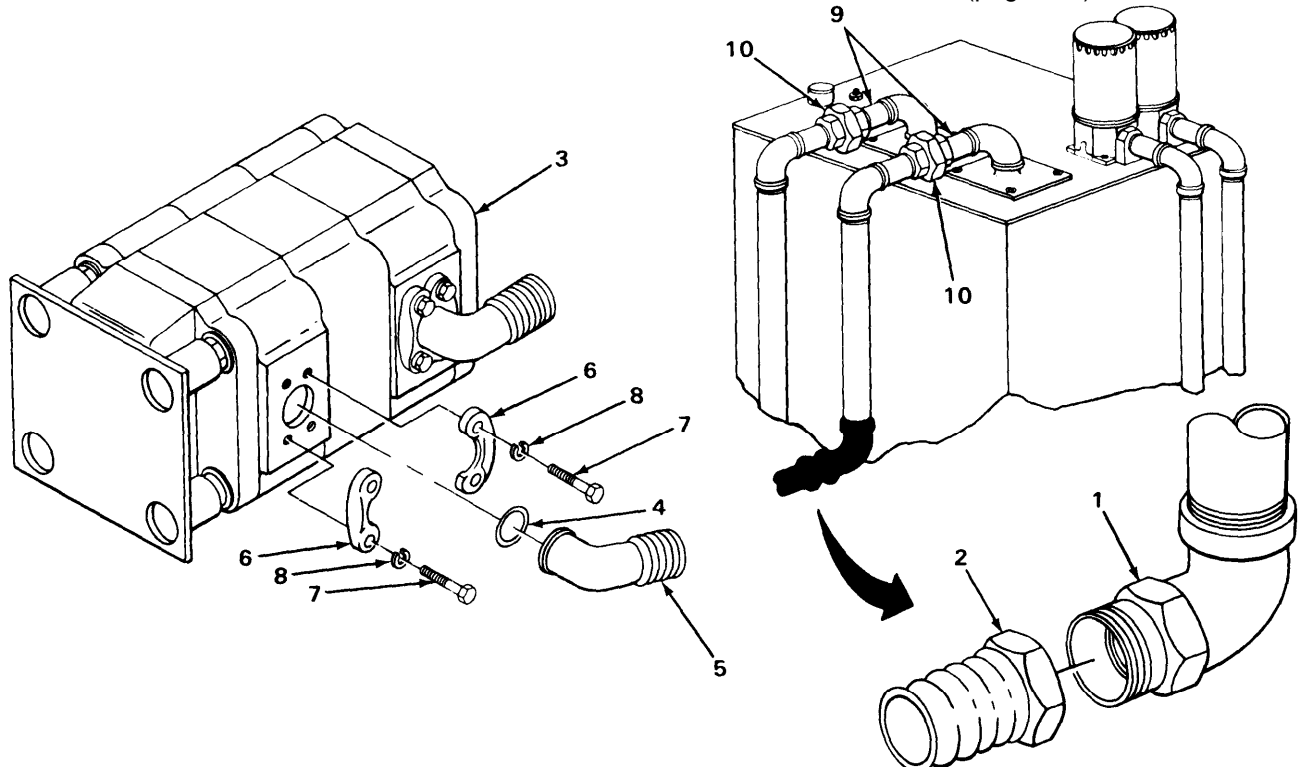
**CAUTION**

Do not overtighten hoses. Hoses or fittings will leak.

14. Nipple (1)	Hose (2)	a. Take out plug. b. Using 2 7/8-inch wrench, screw on and tighten.
15. Pump (3)	New packing (4)	Put in.
16.	Hose (5) and hose clamps (6)	a. Take out plug. b. Put in place.
17. Hose clamps (6)	Four screws (7) and new lockwashers (8)	Using 3/4-inch wrench, screw in and tighten.

**Repeat steps 14 thru 17 for other hose.**

18. Two pipes (9)	Two unions (10)	a. Using pipe wrench, tighten. b. Check for leaks (page 4-1).
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**TASK ENDS HERE**

TA240720



**WINCH HYDRAULIC VALVES**

This task covers:

Adjustment (page 4-1155)

**INITIAL SETUP**

**Tools**

- Gage, multi-range pressure
- Screwdriver, flat-tip, 3/6-inch
- Wrench, open-end, 1/2-inch
- Wrench, open-end, 1 1/16-inch
- Wrench, open-end, 2-inch

**Materials/Parts**

Lockwashers, winch control panel  
(12 required)

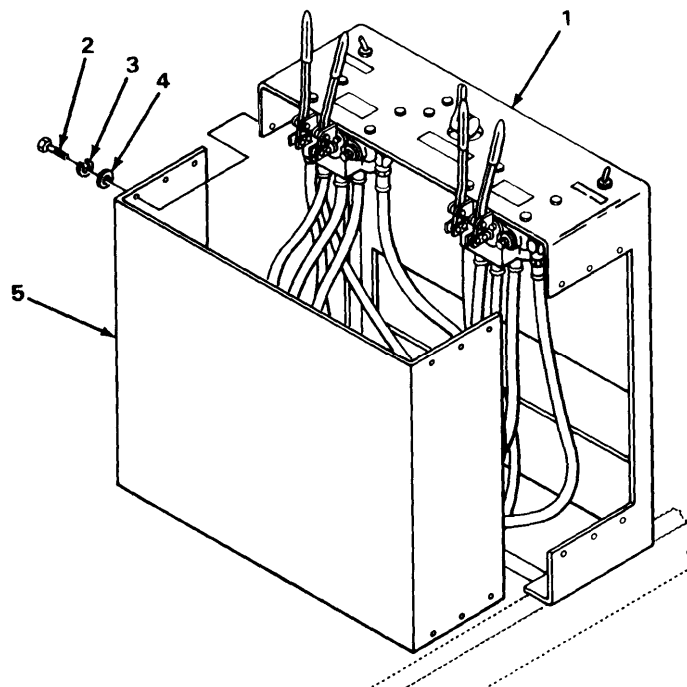
**Personnel Required**

One

LOCATION	ITEM	ACTION	REMARKS
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**ADJUSTMENT**

- |                            |   |   |
|----------------------------|---|---|
| 1. Winch control panel (1) | 12 screws (2), lockwashers (3), and washers (4) | a. Using 1/2-inch wrench, unscrew and take out.<br>b. Get rid of lockwashers (3). |
| 2.                         | Front cover plate (5)                           | Take off.   |

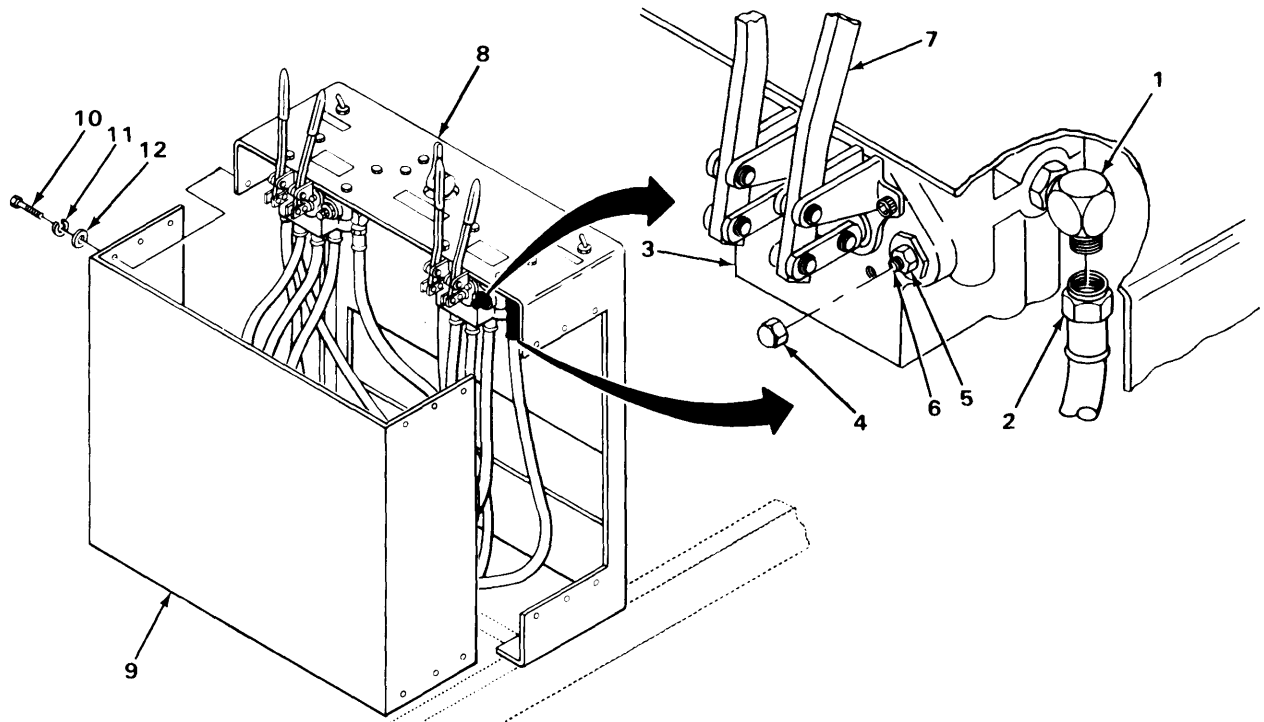


TA240721

## WINCH HYDRAULIC VALVES - CONTINUED

LOCATION	ITEM	ACTION REMARKS
ADJUSTMENT - CONTINUED		
3. Elbow (1)	Inlet hose (2)	a. Using 2-inch wrench, unscrew and take off. b. Install pressure gage between elbow (1) and hose (2).
4. Valve (3)	Acorn nut (4)	Using 1 1/16-inch wrench, unscrew and take off.
5.	Jamnut (5)	Using 1 1/16-inch wrench, unscrew part way.
6.	Pilot adjustment screw (6)	a. Using screwdriver, back off screw. b. Screw in until screw just seats. c. Start engine (TM 9-2320-270-10) and set at 1500 RPM.
7.	Control valve arm (7)	Pull until pressure reading is noted on gage.
8.	Pilot adjustment screw (6)	Using screwdriver, adjust until pressure reads 2050 ± 50 PSI at 39 GPM.
9. Pilot adjustment screw (6)	Jamnut (5)	a. Using screwdriver, and 11/16-inch wrench, tighten. b. Check gage and make sure reading is correct. c. Shut down engine (TM 9-2320-270-10).
10.	Acorn nut (4)	Screw on and tighten using 11/16-inch wrench.
11. Elbow (1)	Inlet hose (2)	a. Remove pressure gage. b. Screw on and tighten using 2-inch wrench. <b>Repeat steps 3 thru 11 for other valve.</b>
12. Winch control panel (8)	Front cover plate (9)	Put in place.
13. Front cover plate (9)	12 screws (10), washers (11), and new lockwashers (12)	Screw in and tighten using 1/2-inch wrench.

**WINCH HYDRAULIC VALVES - CONTINUED**



**NOTE**

FOLLOW-ON MAINTENANCE: Check for leaks (TM 9-2320-270-10),

**TASK ENDS HERE**

**WINCH CONTROL VALVE**

This task covers:

- a. Removal (page 4-1158)
- b. Cleaning (page 4-1158)
- c. Inspection/Replacement (page 4-1158).
- d. Installation (page 4-1158)

**INITIAL SETUP**

**Tools**

- Handle, ratchet, 1/2-inch drive
- Socket, 1/2-inch drive, 3/4-inch
- Wrench, adjustable, 0 to 3 5/8-inch
- Wrench, open-end, 1/2-inch
- Wrench, open-end, 3/4-inch

**Materials/Parts**

- Hose plugs
- Lockwashers, winch control panel (four required)

**Materials/Parts - Continued**

- Lockwashers, winch control panel (12 required)
- Tag, marking (item 18, appendix C)
- Tape, teflon (item 22, appendix C)

**Personnel Required**

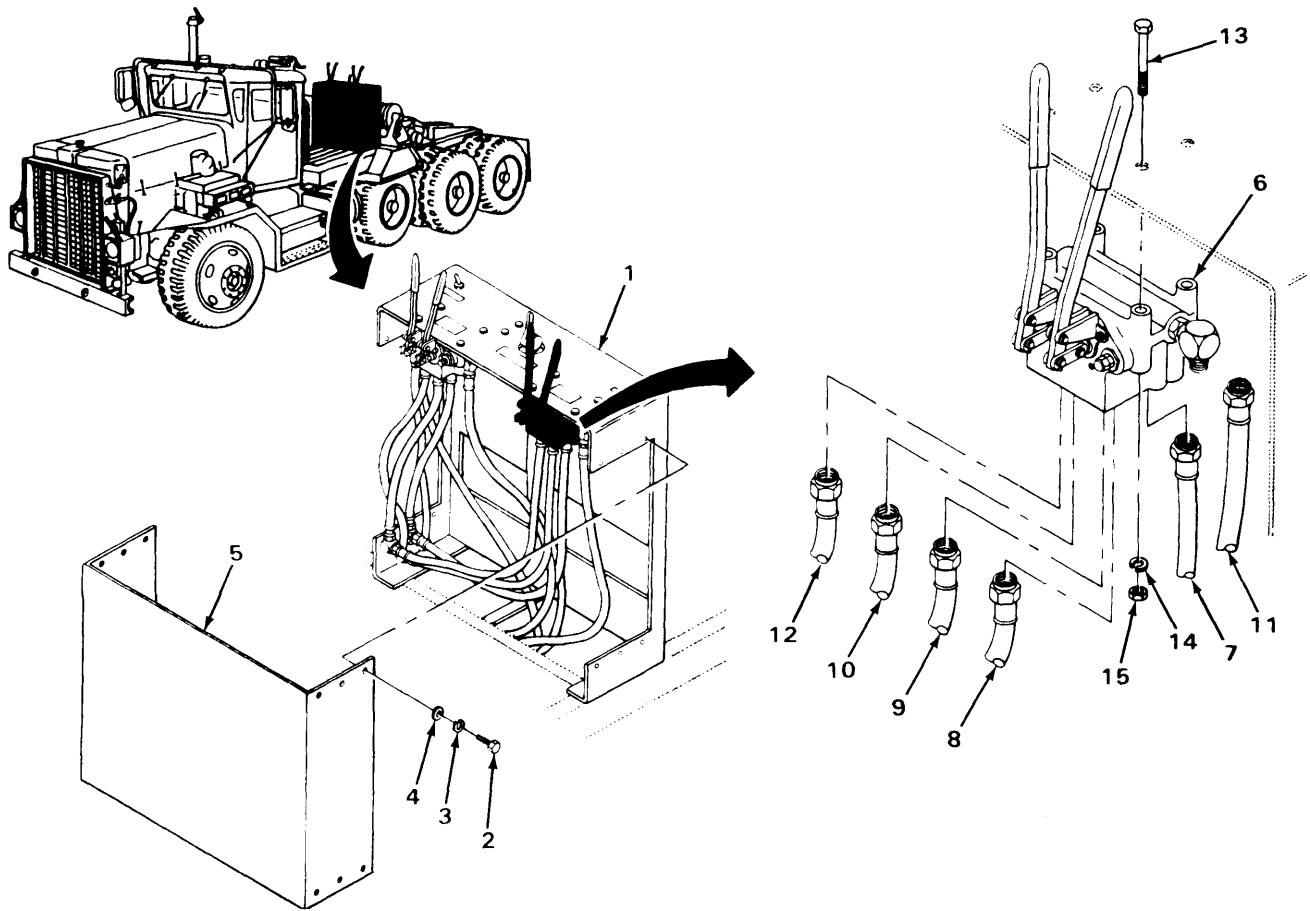
One

**WINCH CONTROL VALVE - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
REMOVAL		
<b>NOTE</b>		
Tag lines according to general maintenance instructions (page 4-1).		
1. Winch control panel (1)	12 screws (2), lockwashers (3), and washers (4)	a. Using 1/2-inch wrench, unscrew and take out. b. Get rid of lockwashers (3).
2.	Front cover plate (5)	Take off.
3. Control valve (6)	Four hoses (7), (8), (9), and (10)	a. Using adjustable wrench, unscrew and take off. b. Plug.
4.	Two hoses (11) and (12)	a. Using 0 to 3 5/8-inch automobile adjustable wrench, unscrew and take off. b. Plug.
5. Winch control panel (1)	Four screws (13), lockwashers (14), and nuts (15)	a. Using 3/4-inch wrench, 3/4-inch socket and ratchet handle with 1/2-inch drive, unscrew and take out. b. Get rid of lockwashers (14).
6.	Control valve (6)	Take off.
CLEANING		
7.	All parts	Clean according to general maintenance instructions (page 4-1).
INSPECTION/REPLACEMENT		
8.	All parts	Inspect according to general maintenance instructions (page 4-1).
INSTALLATION		
9. Winch control panel (1)	Control valve (6)	Place in position.
10. Control valve (6)	Four screws (13), new lockwashers (14), and nuts (15)	Screw in and tighten, using 3/4-inch socket, ratchet handle with 1/2-inch drive and 3/4-inch wrench.

WINCH CONTROL VALVE - CONTINUED

LOCATION	ITEM	ACTION REMARKS
11.	Four hoses (7), (8), (9), and (10)	a. Unplug. b. Wrap threads with teflon tape (page 4-1). c. Screw on and tighten using adjustable wrench.
12.	Two hoses (11) and (12)	a. Unplug. b. Wrap threads with teflon tape (page 4-1). c. Screw on and tighten using adjustable wrench.
13. Winch control panel (1)	Front cover plate (5)	Place in position.
14. Front cover plate (5)	12 screws (2), new lockwashers (3), and washers (4)	Screw in and tighten using 1/2-inch wrench.



TA240723

**WINCH CONTROL VALVE - CONTINUED**

INSTALLATION - CONTINUED

**NOTE**

FOLLOW-ON MAINTENANCE: Check for leaks (page 4-1).

**TASK ENDS HERE**

**HYDRAULIC RESERVOIR DRAINING AND FILLING**

---

This task covers:

- a. Draining (page 4-1160)
  - b. Filling (page 4-1162)
- 

**INITIAL SETUP**

**Tools**

- Barrels, steel, 55-gallon (two required)
- Knife, putty
- Pan, drain
- Pump, rotary hand
- Wrench, open-end, 1/2-inch
- Wrench, open-end, 5/8-inch
- Wrench, open-end, 2-inch
- Wrench, pipe

**Materials/Parts**

- Cement, gasket (item 2, appendix C)
- Gasket, filter assembly
- Lockwashers (four required)

**Personnel Required**

One

**Equipment Condition**

Spare tire removed (TM 9-2320-270-10).

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LOCATION	ITEM	ACTION REMARKS
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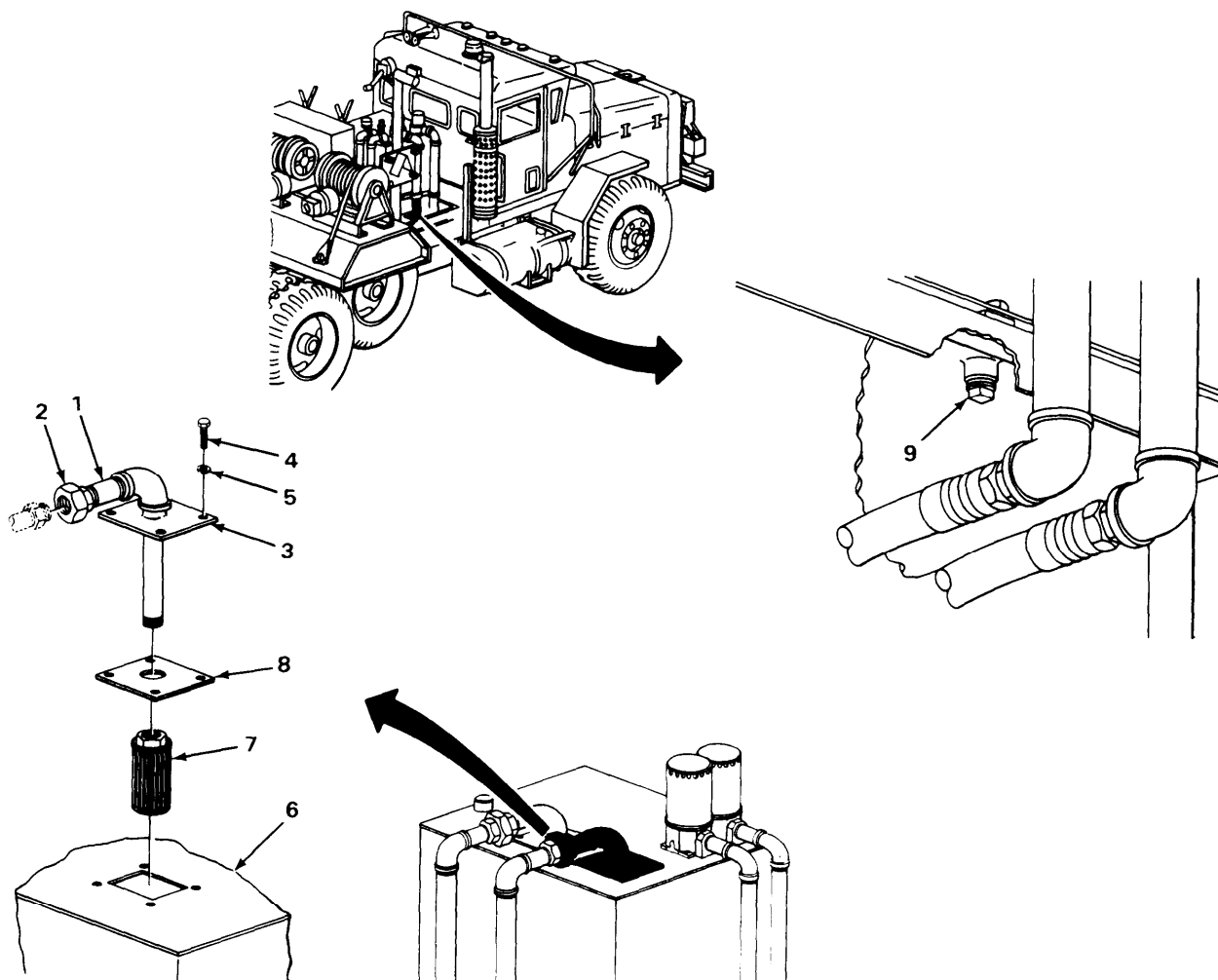
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**DRAINING**

1. Pipe (1)	Union (2)	Using pipe wrench, unscrew and slide back along pipe.
2. Cover (3)	Four screws (4) and lockwashers (5)	a. Using 1/2-inch wrench, unscrew and take out. b. Get rid of lockwashers (5).
3. Reservoir (6)	Cover (3) and filter (7)	Lift out.

HYDRAULIC RESERVOIR DRAINING AND FILLING - CONTINUED

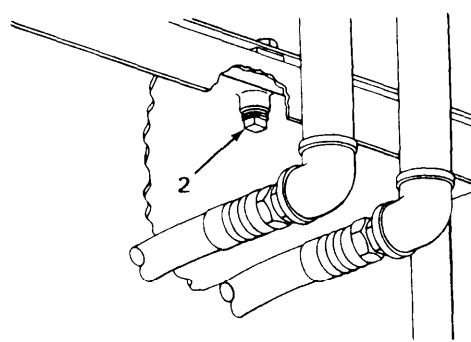
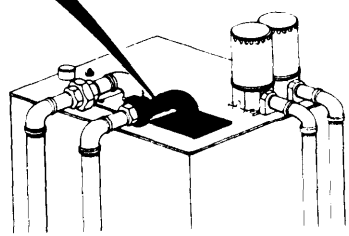
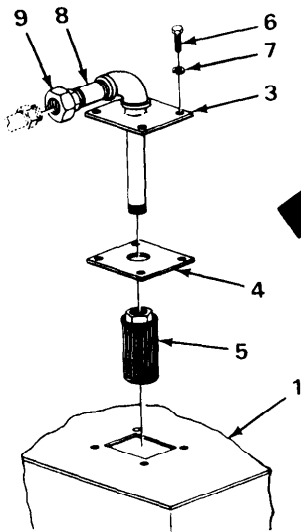
LOCATION	ITEM	ACTION REMARKS
4. Cover (3)	Filter (7)	Using 2-inch wrench, unscrew and take off.
5.	Gasket (8)	a. Using putty knife, scrape off. b. Get rid of.
6. Reservoir (6)	Drainplug (9)	a. Using rotary pump and barrels, pump out hydraulic fluid. b. Place drain pan underneath. c. Using 5/8-inch wench, unscrew and take out. d. Allow remaining fluid to drain. e. If fluid is contaminated, get rid of it (page 4-1).



TA240724

**HYDRAULIC RESERVOIR DRAINING AND FILLING - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
<b>FILLING</b>		
7. Reservoir (1)	Drainplug (2)	a. Screw in plug and tighten using 5/8-inch wrench. b. Using rotary pump, fill.
8. Cover (3)	New gasket (4)	a. Apply gasket cement to cover (3). b. Place in position.
9.	Filter (5)	Screw on and tighten using 2-inch wrench.
10. Reservoir (1)	Cover (3)	Put in position.
11. Cover (3)	Four screws (6) and new lock-washers (7)	Screw in and tighten using 1/2-inch wrench.
12. Pipe (8)	Union (9)	Screw on and tighten using pipe wrench.



**NOTE**

- FOLLOW-ON MAINTENANCE:
1. Install spare tire (TM 9-2320-270-10).
  2. Check for leaks (page 4-1).

**TASK ENDS HERE**



## HYDRAULIC RESERVOIR

---

This task covers:

- a. Removal (page 4-1164)
  - b. Installation (page 4-1168)
- 

### INITIAL SETUP

#### Tools

Hammer, plastic  
 Handle, ratchet, 3/8-inch drive  
 Handle, ratchet, 1/2-inch drive  
 Knife, pocket  
 Knife, putty  
 Lifting equipment  
 Pliers, diagonal-cutting  
 Screwdriver, flat-tip, 5/16-inch  
 Socket, 1/2-inch, 1/2-inch drive  
 Socket, 15/16-inch, 1/2-inch drive  
 Socket handle, 1/2-inch drive  
 Vise, machinist's  
 Wrench, adjustable, 0 to 3 5/8-inch  
 (two required)  
 Wrench, open-end, 1/2-inch  
 Wrench, open-end, 5/8-inch  
 Wrench, open-end, 9/16-inch  
 Wrench, open-end, 15/16-inch  
 (two required)  
 Wrench, open-end, 1 1/16-inch  
 Wrench, pipe (two required)

#### Materials/Parts

Cotter pin  
 Gaskets (three required)  
 Lockwashers, U-bolts (eight required)  
 Nipple, reservoir  
 Packing, preformed, filter base  
 Seal, washer,  
 Tape, teflon (item 22, appendix C)  
 Wrap, tie (item 24, appendix C)

#### Personnel Required

One

#### Equipment Condition

Spare tire removed (TM 9-2320-270-10).  
 Spare tire mount removed (page 4-1055).  
 Hydraulic reservoir drained (page 4-1160).  
 Hydraulic oil filter removed (page 4-1172).

## HYDRAULIC RESERVOIR -CONTINUED

LOCATION	ITEM	ACTION REMARKS
<b>REMOVAL</b>		
1. Nipple (1)	Hose (2)	a. Using two adjustable wrenches, unscrew and take off. b. Plug. <b>Repeat step 1 for other hose.</b>
2. Two U-bolts (3) and (4)	Four nuts (5), washers (6) and lockwashers (7)	a. Using 1/2-inch wrench, unscrew and take off. b. Get rid of lockwashers (7).
3. Two U-bolt brackets (8) and (9)	Two U-bolts (3) and (4)	Take off. <b>Repeat steps 2 and 3 for other U-bolts.</b>
4. Elbow (10)	Pipe(n)	Using pipe wrench, unscrew and take off. <b>Repeat step 4 for other pipe.</b>
5. Pipe(n)	Tie wraps (12)	a. Using pliers, take off. b. Get rid of.
6. U-bolt bracket (9)	Pipe(n)	Move out of way. <b>Repeat steps 5 and 6 for other pipe.</b>
7. Elbow (13)	Hose (14)	Using 9/16-inch wrench, unscrew and take off.
8. Reducer bushing (15)	Elbow (13)	Using 5/8-inch and 1 1/16-inch open-end wrenches, unscrew and take off.
9. Tee pipe (16)	Reducer bushing (15)	Using 1 1/16-inch open-end wrench and pipe wrench, unscrew and take off.
10. Reservoir (17)	Tee pipe (16)	Using pipe wrench, unscrew and take off.

**NOTE**

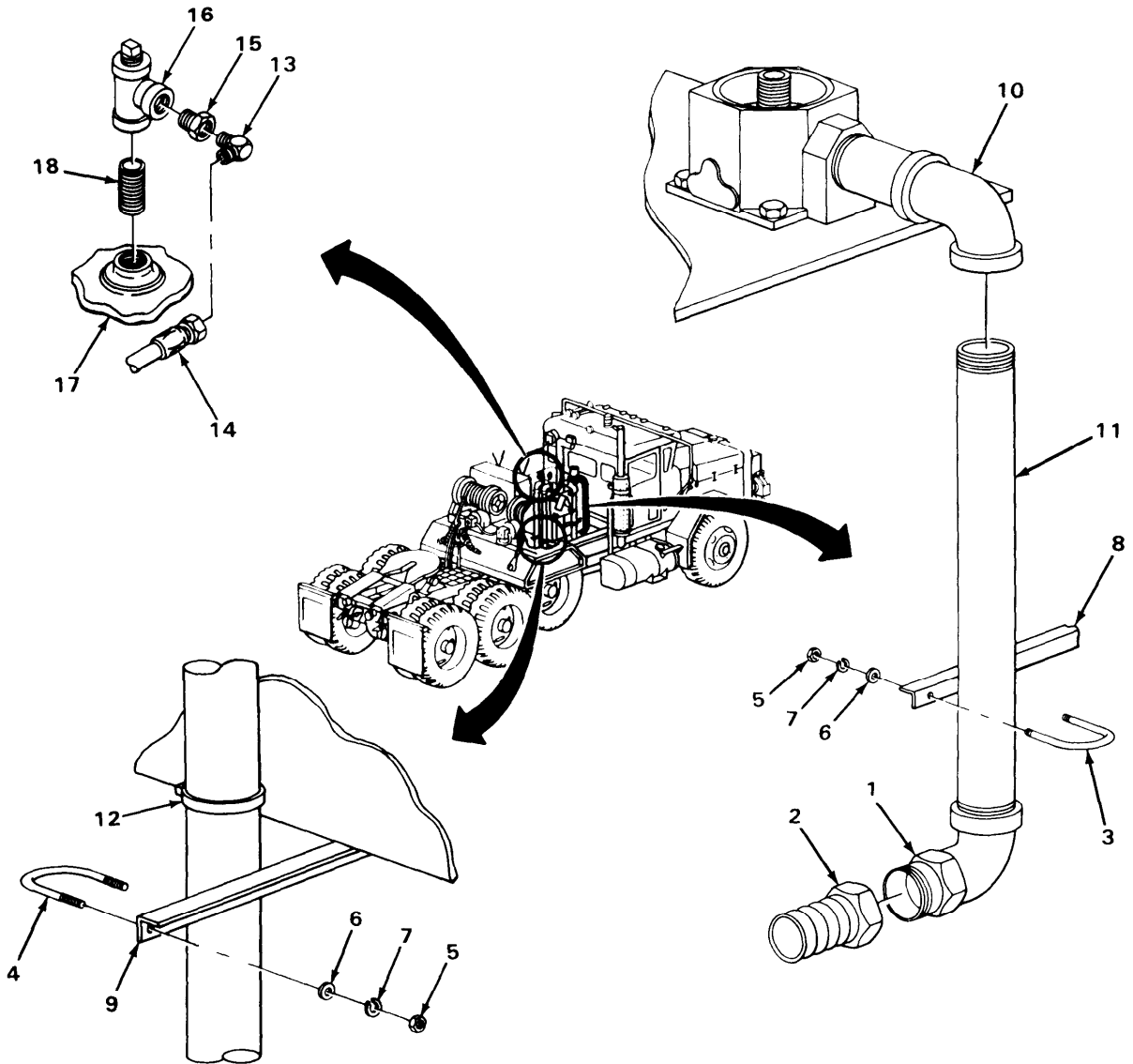
Do not remove nipple unless it is damaged and needs replacement.

If nipple stays in tee pipe and must be removed, do step 11. If nipple stays in reservoir and must be removed, do step 12.

11. Tee pipe (16)	Nipple (18)	a. Secure tee pipe (16) in vise. b. Using pipe wrench, unscrew and take out. c. Get rid of. d. Take tee pipe (16) out of vise.
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HYDRAULIC RESERVOIR - CONTINUED

LOCATION	ITEM	ACTION REMARKS
12. Reservoir (17)	Nipple (18)	a. Using pipe wrench, unscrew and take out. b. Get rid of.



## HYDRAULIC RESERVOIR - CONTINUED

LOCATION	ITEM	ACTION REMARKS
REMOVAL- CONTINUED		
13. Base (1)	Cap (2) with chain (3)	Unscrew and take off.
14. Base (1) and reservoir (4)	Six screws (5)	Using fiat-tip screwdriver, unscrew and take off.
15. Gasket (6)	Base (1)	Take off.
16. Reservoir (4)	Gasket (6), strainer (7) and gasket (8)	a. Take off and separate. Gasket may have to be scraped off with putty knife. b. Get rid of gaskets (6) and (8).
17. Nipple (9)	Elbow (10)	Using two pipe wrenches, unscrew and take off.
18. Filter base (11)	Nipple (9)	Using pipe wrench, unscrew and take off. Repeat steps 17 and 18 for other nipple and elbow.
19. Filter base (11) and reservoir (4)	Four screws (12) and lockwashers (13)	a. Using 1/2-inch socket, and handle 3/8-inch drive, unscrew and take off. b. Get rid of lockwashers (13).
20. Reservoir (4)	Filter base (11)	Using plastic-faced hammer, unseat and take off.
21. Filter base (11)	Packing (14)	a. Using pocket knife, cut off. b. Get rid of.
22.	Pipe (15)	a. Secure base (1) in vise. b. Using pipe wrench, unscrew and take out. c. Take base (1) out of vise.
23. Screw (16)	Cotter pin (17)	a. Using pliers, take out. b. Get rid of.
24.	Nut (18) and spring (19)	Using two 15/16-inch wrenches, unscrew and take off.

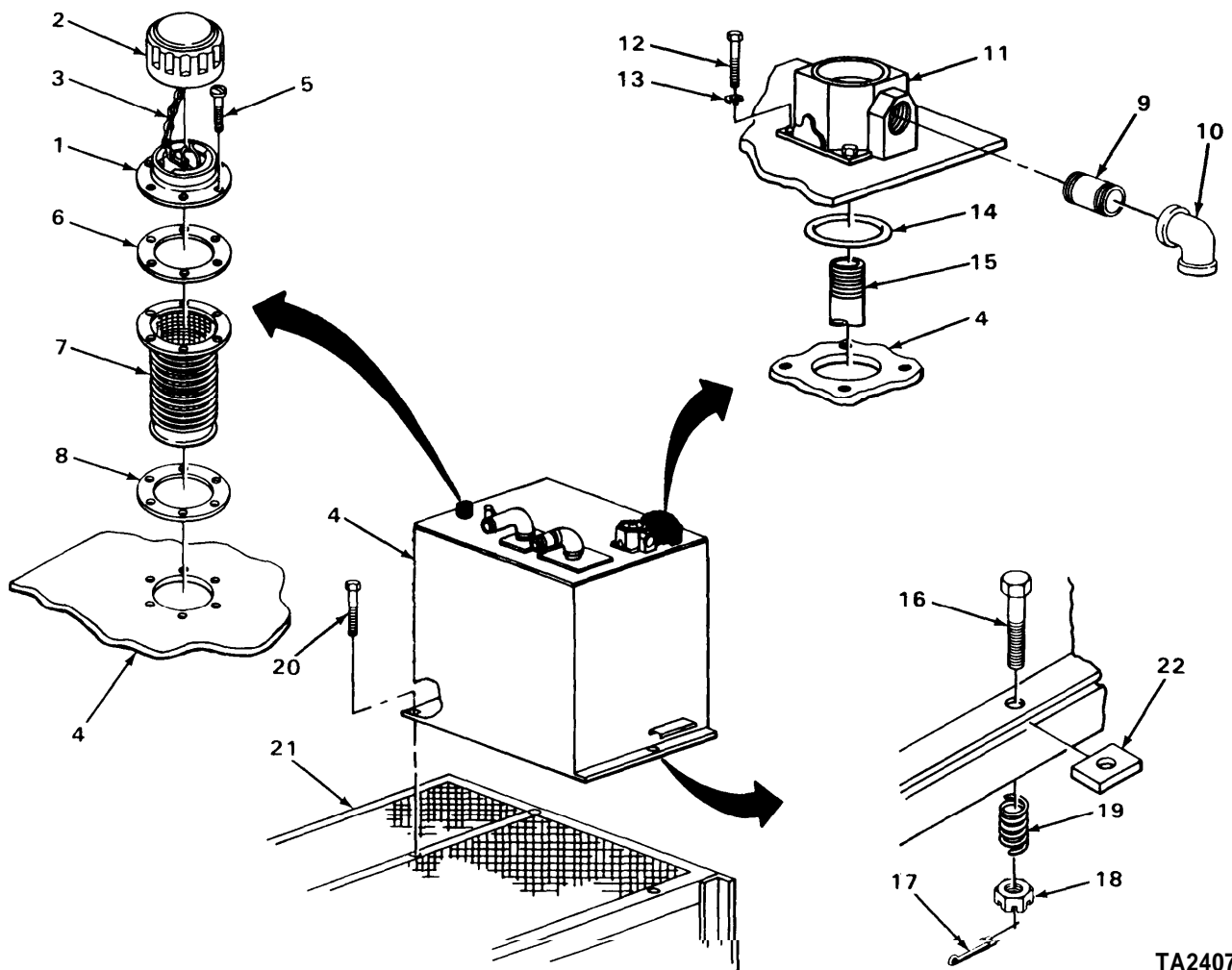
HYDRAULIC RESERVOIR - CONTINUED

LOCATION	ITEM	ACTION REMARKS
25. Reservoir (4)	Two screws (20)	Using 15/16-inch wrench, unscrew and take off.

**WARNING**

Some parts are heavy. Be careful when handling them. Lifting equipment is needed when parts weigh over 50 pounds (23 kg) for a single person lift, over 100 pounds (45 kg) for a two person lift, and over 150 pounds (68 kg) for a three or more person lift. Do not try to handle heavy parts without lifting equipment. Keep clear of heavy parts supported only by lifting equipment. Failure to observe this precaution could cause serious injury or death of personnel.

26. Deck (21)	Reservoir (4) and three spacers (22)	a. Attach lifting equipment. b. Using lifting equipment, take out. c. Take out spacers (22).
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TA240727

## HYDRAULIC RESERVOIR - CONTINUED

LOCATION	ITEM	ACTION REMARKS
REMOVAL - CONTINUED		
27. Reservoir (1) and cover (2)	Screw (3) and seal washer (4)	a. Using 15/16-inch socket and handle with 1/2-inch drive, unscrew and take off. b. Get rid of seal washer (4).
28. Reservoir (1)	Cover (2) and gasket (5)	a. Take off. b. Get rid of gasket (5).
INSTALLATION		
29.	New gasket (5)	Put in place.
30.	Cover (2)	Put in place.
31. Reservoir (1) and cover (2)	New seal washer (4) and screw (3)	Screw in and tighten using 15/16-inch socket and handle with 1/2-inch drive.

**WARNING**

Some parts are heavy. Be careful when handling them. Lifting equipment is needed when parts weigh over 50 pounds (23 kg) for a single person lift, over 100 pounds (45 kg) for a two person lift, and over 150 pounds (68 kg) for a three or more person lift. Do not try to handle heavy parts without lifting equipment. Keep clear of heavy parts supported only by lifting equipment. Failure to observe this precaution could cause serious injury or death of personnel.

32. Deck (6)	Three spacers (7) and reservoir (1)	a. Put spacers (7) in place. b. Attach lifting equipment. c. Using lifting equipment, place in position.
33. Reservoir (1)	Two screws (8)	Screw in and tighten using 15/16-inch wrench.
34.	Screw (9), spring (10) and nut (11)	Screw on and tighten using two 15/16-inch wrenches.
35.	New cotter pin (12)	Using pliers, put on.
38. Filter base (13)	Pipe (14)	a. Put filter base (13) in vise. b. Screw in and tighten using pipe wrench. c. Take filter base (13) out of vise.
37.	New packing (15)	Put in place.

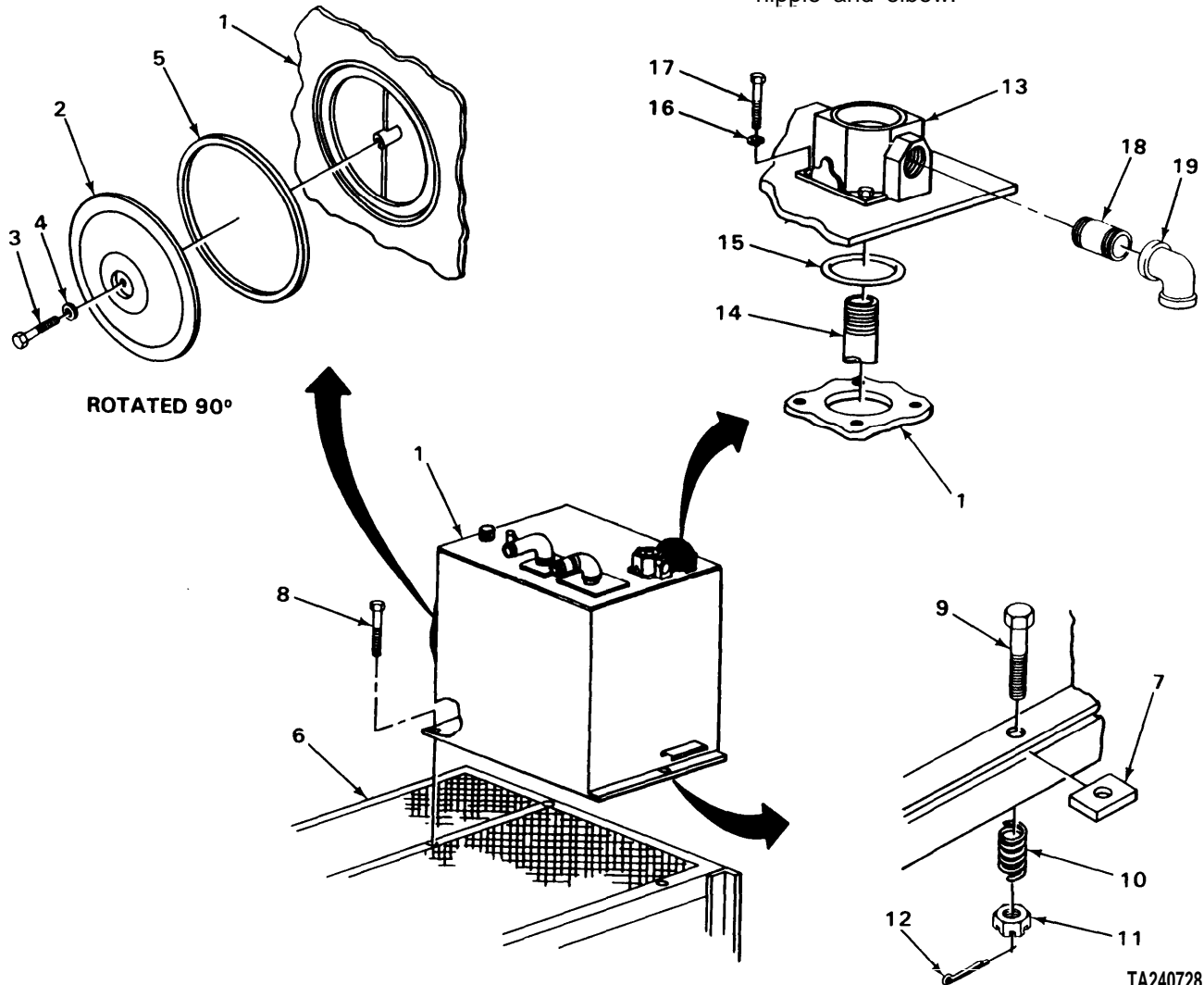
HYDRAULIC RESERVOIR - CONTINUED

LOCATION	ITEM	ACTION REMARKS
36. Reservoir (1)	Filter base (13)	Put in place.
39. Filter base (13) and reservoir (1)	Four new lockwashers (16) and screws (17)	Screw in and tighten using 1/2-inch socket and handle 1/2-inch drive.

NOTE

Wrap all external threads with teflon tape (page 4-1).

40. Filter base (13)	Nipple (18)	Screw in and tighten using pipe wrench.
41. Nipple (18)	Elbow (19)	Screw in and tighten using two pipe wrenches. Repeat steps 39 and 40 for other nipple and elbow.



TA240728

4-1169

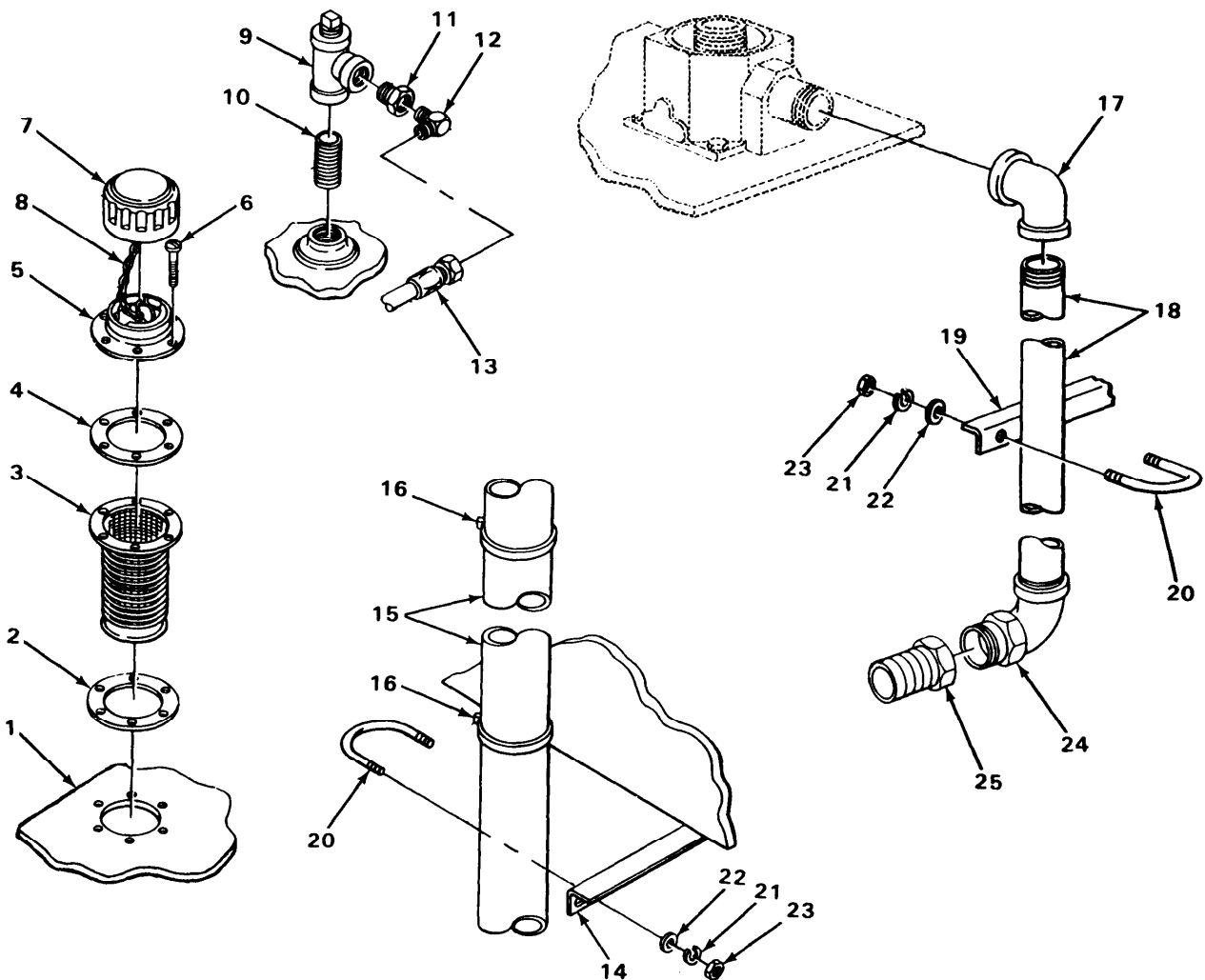
## HYDRAULIC RESERVOIR - CONTINUED

LOCATION	ITEM	ACTION REMARKS
INSTALLATION – CONTINUED		
42. Reservoir (1)	New gasket (2), strainer (3) and new gasket (4)	Put in place.
43. New gasket (4)	Base (5)	Put in place.
44. Base (5) and reservoir (1)	Six screws (6)	Screw in and tighten using flat-tip screwdriver.
45. Base (5)	Cap (7) with chain (8)	Screw on and tighten.
46. Tee pipe (9)	New nipple (10)	Screw in.
47. Reservoir (1)	Tee pipe (9) with new nipple (10)	Screw in and tighten using pipe wrench.
48. Tee pipe (9)	Reducer bushing (11)	Screw in and tighten using 1 1/16-inch open-end wrench and pipe wrench.
49. Reducer bushing (11)	Elbow (12)	Screw in and tighten using 5/8-inch and 1 1/16-inch open-end wrenches.
50. Elbow (12)	Hose (13)	Screw in and tighten using 9/16-inch wrench.
51. U-bolt bracket (14)	Pipe (15)	Put in place. <b>Repeat step 54 for other pipe.</b>
52. Pipe (15)	Hose (13)	Put hose (13) next to pipe (15).
53. Hose (13) and pipe (15)	New tie wraps (16)	Using pliers, put on.
54. Elbow (17)	Pipe (18)	Screw in and tighten using pipe wrench. <b>Repeat step 54 for other pipe.</b>
55. U-bolt bracket (19) and (14)	Two U-bolts (20)	Put in place.



HYDRAULIC RESERVOIR -CONTINUED

LOCATION	ITEM	ACTION REMARKS
56. Two U-bolts (20)	Four new lockwashers (21), washers (22) and nuts (23)	Screw in and tighten using 1/2-inch wrench. Repeat steps 55 and 58 for other Unbolts.
57. Nipple (24)	Hose (25)	a. Unplug. b. Screw in and tighten using two 2-inch open-end wrenches.



TA240729

4-1171

**HYDRAULIC RESERVOIR -CONTINUED**

INSTALLATION – CONTINUED

**NOTE**

FOLLOW-ON MAINTENANCE:

1. Install hydraulic oil filters (page 4-1172).
2. Fill hydraulic reservoir (page 4-1160).
3. Install spare tire mount (page 4-1055).
4. Install spare tire (TM 9-2320-270-10).

**TASK ENDS HERE**

**HYDRAULIC OIL FILTER**

---

This task covers:

- a. Removal (page 4-1172)
  - b. Installation (page 4-1174)
- 

INITIAL SETUP

Tools

- Knife, putty
- Wrench, adjustable, 0 to 3 5/8-inch
- Wrench, filter
- Wrench, open-end, 1/2-inch
- Wrench, pipe

Materials/Parts – Continued

- Adhesive, sealant (item 1, appendix C)
- Fluid, hydraulic (LO 9-2320-270-12)
- Lockwashers (four required)
- Rags, wiping (item 10, appendix C)

Materials/Parts

- Gasket

Personnel Required

- One
- 

LOCATION	ITEM	ACTION	REMARKS
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REMOVAL

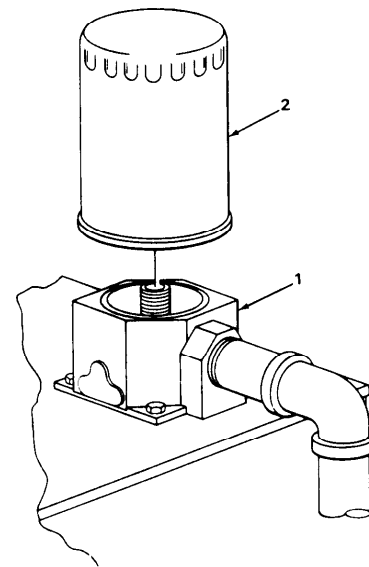
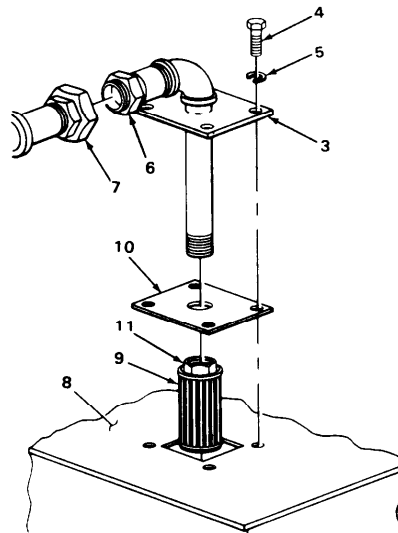
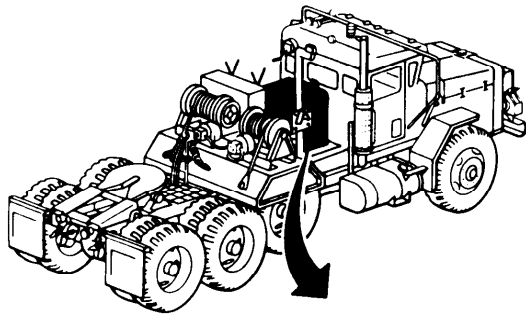
**NOTE**

There are two hydraulic oil filters. This procedure covers one. Repeat as necessary for other.

- |                    |                |  |
|--------------------|----------------|--|
| 1. Filter base (1) | Oil filter (2) | <ol style="list-style-type: none"> <li>a. Using filter wrench, unscrew and take off.</li> <li>b. Using rags, clean up any spills.</li> </ol> |
|--------------------|----------------|--|

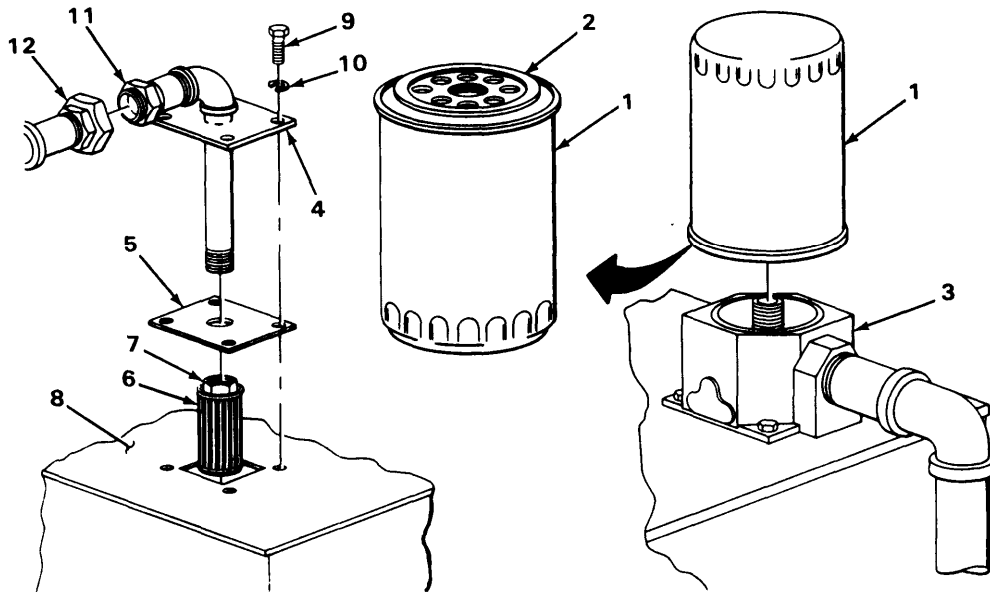
HYDRAULIC OIL FILTER - CONTINUED

LOCATION	ITEM	ACTION REMARKS
2. Plate (3)	Four screws (4) and lockwashers (5)	a. Using 1/2-inch wrench, unscrew and take out. b. Get rid of lockwashers (5).
3. Pipe (6)	Union (7)	Using pipe wrench, unscrew and slide back along pipe.
4. Reservoir (8)	Filter screen assembly (9) and gasket (10)	a. Take out. b. Using rags, clean up any spills.
5. Plate (3)	Gasket (10)	Using putty knife, scrape off.
6. Filter screen assembly (9)	Filter screen nut (11)	Using adjustable wrench, unscrew and take off.



HYDRAULIC OIL FILTER - CONTINUED

LOCATION	ITEM	ACTION REMARKS
INSTALLATION		
7. Oil filter (1)	Gasket ring (2)	Apply thin coat of hydraulic oil.
8. Filter base (3)	Oil filter (1)	Screw in. Do not overtighten.
9. Plate (4)	New gasket (5)	Put on.
10. Filter screen assembly (6)	Filter screen nut (7)	Using adjustable wrench, screw on and tighten.
11. Reservoir (8)	Plate (4)	a. Apply sealant around hole in reservoir and in each screw hole. b. Place in position.
12 Plate (4)	Four screws (9) and new lockwashers (10)	Using 1/2-inch wrench, screw in and tighten.
13. Pipe (11)	Union (12)	Using pipe wrench, screw on and tighten.



NOTE

FOLLOW-ON MAINTENANCE: Check for leaks (TM 9-2320-270-10).

TASK ENDS HERE

TA240731

**WINCH PROPELLER SHAFT**

This task covers:

- a. Removal (page 4-1175)
- b. Installation (page 4-1176)

**INITIAL SETUP**

**Tools**

Bar, pry  
 Hammer, machinist's, ball-peen  
 Key, socket-head screw, 3/16-inch  
 Punch, drive pin, 5/32-inch

**Personnel Required**

One

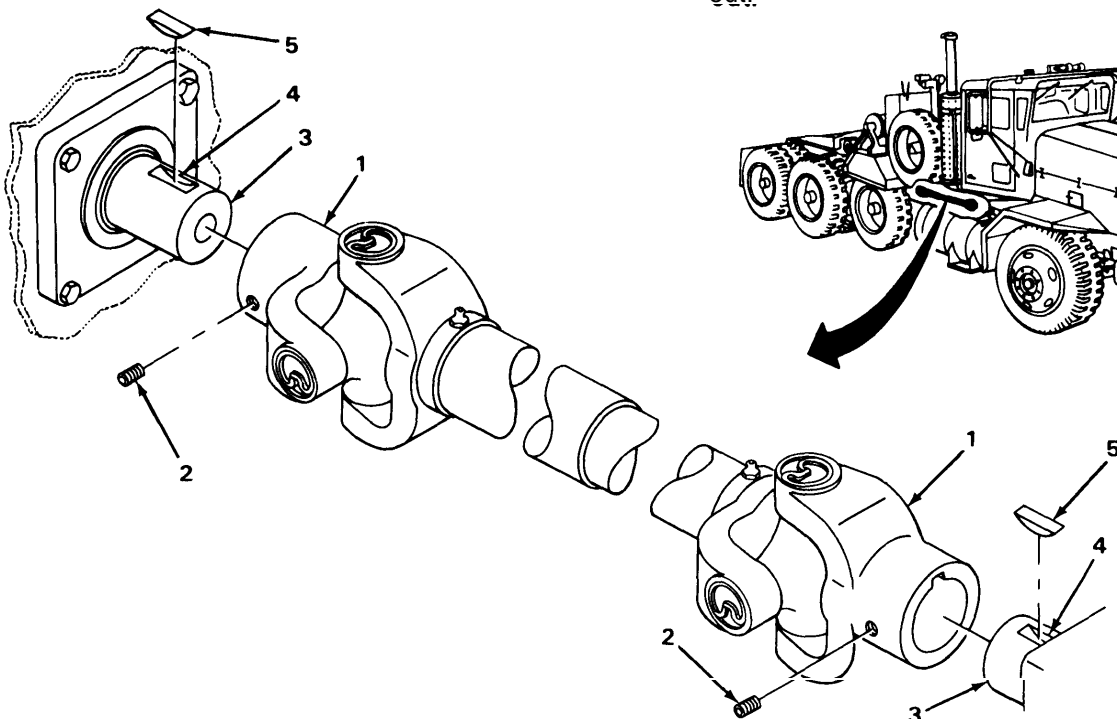
**Equipment Condition**

Spare tire removed (TM 9-2320-270-10).

LOCATION	ITEM	ACTION REMARKS
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**REMOVAL**

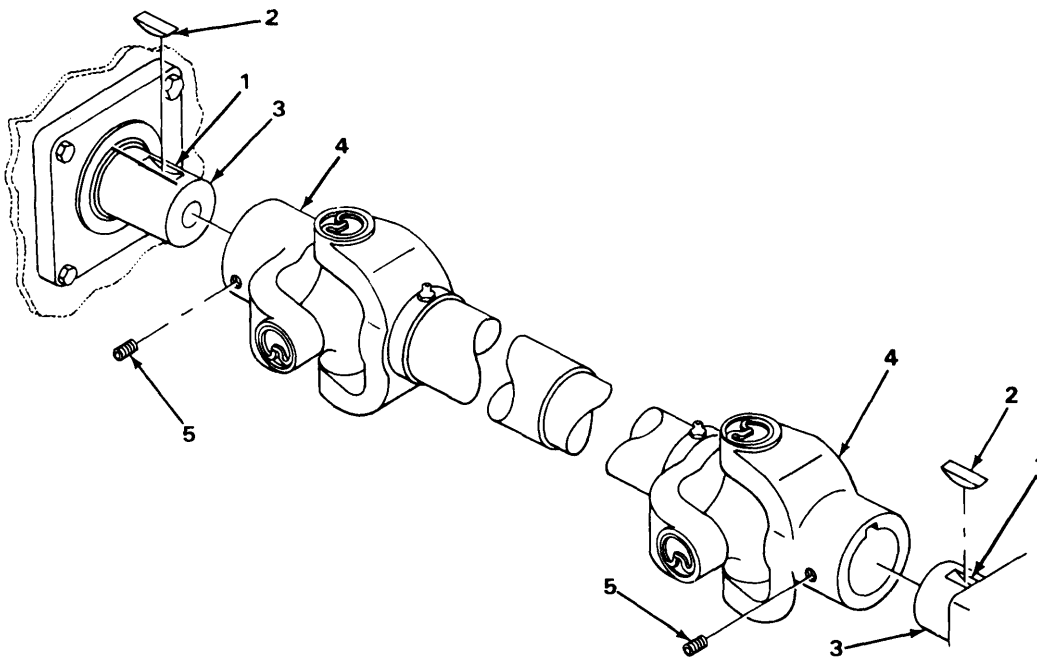
- |                    |                |   |
|--------------------|----------------|---|
| 1. Two yokes (1)   | Two screws (2) | Using 3/16-inch key, unscrew.                                       |
| 2. Two shafts (3)  | Two yokes (1)  | a. Using hammer, tap to break loose.<br>b. Using pry bar, take off. |
| 3. Two keyways (4) | Two keys (5)   | Using hammer and 5/32-inch punch, drive out.                        |



TA240732

**WINCH PROPELLER SHAFT - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
<b>INSTALLATION</b>		
4. Two keyways (1)	Two keys (2)	Using hammer, tap in.
5. Two shafts (3)	Two yokes (4)	Line up keys (2) and keyways and put on.
6. Two yokes (4)	Two screws (5)	Using 3/16-inch key, screw in and tighten.



**NOTE**

FOLLOW-ON MAINTENANCE: Install spare tire (TM 9-2320-270-10).

**TASK ENDS HERE**

**Section XVIII. ACCESSORIES MAINTENANCE**

	Page		Page
Air Horn .....	4-1251	Heater Knob and Cable .....	4-1284
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Air Horn Chain .....	4-1249	Heater Motor Suppressor .....	4-1316
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Convex Mirror Head .....	4-1228	Heater Shutoff Valve .....	4-1302
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With Adhesive .....	4-1224	Instrument Panel Illuminated Label	
Data Plates Secured With Blind		Assembly .....	4-1330
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Data Plates Secured With		Label Assembly .....	4-1330
Drivescrews .....	4-1325	Mirror Detent Loop Assembly .....	4-1229
Data Plates Secured With		Mirror Mounting Tube Assembly .....	4-1232
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Engine Data Plate .....	4-1329	Windshield Washer Nylon Air	
Heater Assembly .....	4-1275	Line .....	4-1185
Heater Control Panel .....	4-1307	Windshield Washer Reservoir .....	4-1180
Heater Control Panel Bezels .....	4-1312	Windshield Washer Rubber Hose .....	4-1186
Heater Control Panel Optical		Windshield Wiper Motor .....	4-1191
Ribbon .....	4-1312	Wiper Air Lines .....	4-1208
Heater Coolant Return Elbow .....	4-1319	Wiper Arm and Blade .....	4-1205
Heater Core .....	4-1265	Wiper Control Valve .....	4-1200
Heater Deflector .....	4-1288	Wiper Vent Lines .....	4-1220
Heater Hoses .....	4-1293		

**WINDSHIELD WASHER JET ASSEMBLY**

This task covers:

- |  |  |
|--|--|
| <ul style="list-style-type: none"> <li>a. Removal (page 4-1178)</li> <li>b. Cleaning/Inspection (page 4-1178)</li> </ul> | <ul style="list-style-type: none"> <li>c. Installation/Adjustment (page 4-1178)</li> </ul> |
|--|--|

**INITIAL SETUP**

**Tools**

- Knife, pocket
- Wrench, open-end, 9/32-inch
- Wrench, open-end, 7/16-inch
- Wrench, open-end, 5/8-inch

**Materials/Parts**

- Gasket, windshield washer jet to cowl
- Solvent, cleaning (item 16, appendix C)

**Materials/Parts – Continued**

- Wire, non-electrical (item 23, appendix C)

**Personnel Required**

Two

**Equipment Condition**

- Instrument panel open (page 4-244).

**WINDSHIELD WASHER JET ASSEMBLY - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
REMOVAL		
<b>NOTE</b>		
Except as noted, steps in this task are the same for both right and left windshield washer jet assemblies. Right jet assembly is shown.		
1. Jet fitting (1)	Jet (2)	Using 9/32-inch wrench, unscrew and take out.
2.	Hose (3)	Pull off. <b>If hose is brittle, replace it (page 4-1).</b>
3. Jet fitting (1) to cowl (4)	Nut (5)	With help from assistant and using 7/16-inch and 5/8-inch wrenches, unscrew and take off.
4. Cowl (4)	Jet fitting (1)	Turn and take out.
5. Jet fitting (1)	Gasket (6)	a. Take off. b. Get rid of.

CLEANING/INSPECTION

**WARNING**

Drycleaning solvent P-D-680 is toxic and flammable. Wear protective goggles and gloves and use only in a well ventilated area. Avoid contact with skin, eyes, and clothes and don't breathe vapors. Do not use near open flame or excessive heat. The flashpoint is 100°F to 138°F (38° to 59°C). If you become dizzy while using cleaning solvent, get fresh air immediately and get medical aid. If contact with eyes is made, wash your eyes with water and get medical aid immediately.

6.	Jet (2) and jet fitting (1)	a. Soak in solvent for at least 30 minutes. b. Using wire, clean out passages. <b>If passages are still plugged, replace jet assembly.</b> c. Look for stripped threads and other damage. <b>Replace if damaged.</b>
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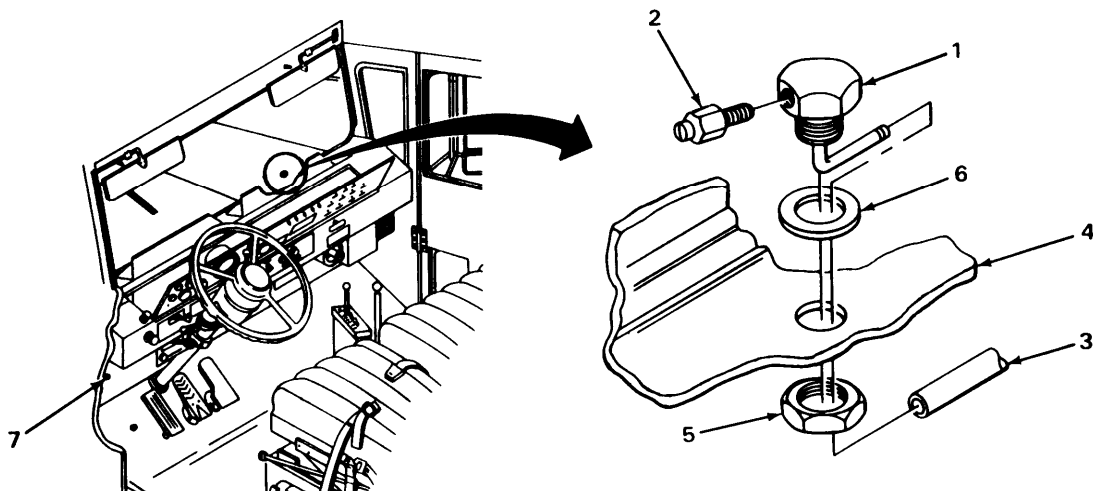
INSTALLATION/ADJUSTMENT

7. Jet fitting (1)	New gasket (6)	Put on.
8. Cowl (4)	Jet fitting (1)	Turn and put in place.



**WINDSHIELD WASHER JET ASSEMBLY - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
9. Jet fitting (1) to cowl (4)	Nut (5)	a. With help from assistant and using 5/8-inch wrench, position so jet (2) will face toward outside. b. Screw on.
10. Jet fitting (1)	Hose (3)	Push on.
11.	Jet (2)	Have assistant screw in.
12.	Air system	Pressurize (TM 9-2320-270-10).
13.	Windshield washer control (7)	Step on control and watch spray pattern.
14. Cowl (4)	Jet fitting (1)	a. Have assistant, using 5/8-inch wrench, turn so fluid is sprayed into center of windshield wiper path right to left. b. Using 7/16-inch wrench, tighten nut (5).
1. Jet fitting (1)	Jet (2)	Have assistant, using 9/32-inch wrench, tighten until fluid is sprayed into center of windshield wiper path up and down.
16.	instrument panel	Close (page 4-244).



**TASK ENDS HERE**

TA240734

**WINDSHIELD WASHER RESERVOIR**

---

This task covers:

- |                              |                               |
|------------------------------|-------------------------------|
| a. Removal (page 4-1180)     | c. Assembly (page 4-1181)     |
| b. Disassembly (page 4-1180) | d. Installation (page 4-1181) |
- 

**INITIAL SETUP**

**Tools**

Handle, ratchet head, 3/8-inch drive  
Screwdriver, cross-tip, offset,  
number 1  
Socket, 3/8-inch, 3/8-inch drive

**Personnel Required**

Two

**Equipment Condition**

Left side of hood opened (TM 9-2320-270-10).

**Materials/Parts**

Lockwasher, reservoir to firewall  
(two required)  
Tag, marking (item 18, appendix C)

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LOCATION	ITEM	ACTION REMARKS
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**REMOVAL**

**NOTE**

Tag hoses according to general maintenance instructions (page 4-1).

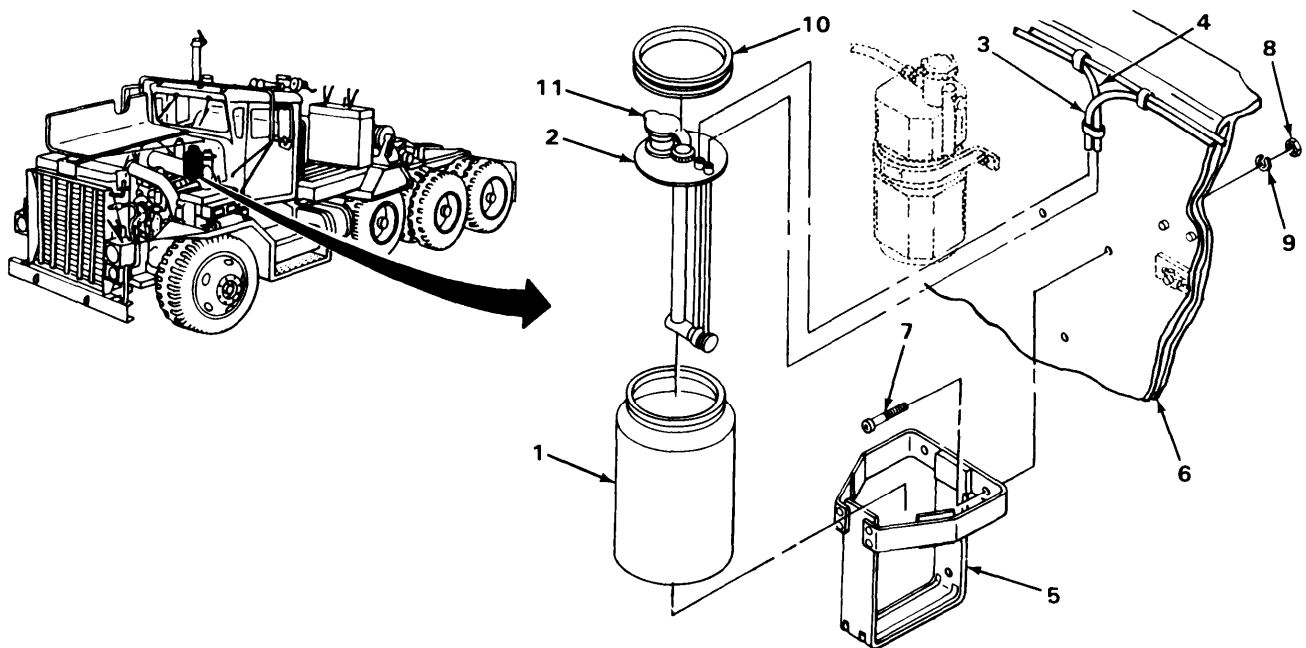
1. Reservoir (1) and cover (2)	Two hoses (3) and (4)	Pull off.
2. Bracket (5)	Reservoir (1)	Lift out.
3. Bracket (5) to firewall (6)	Three screws (7), nuts (8), lockwashers (9), and bracket (5)	a. With help from assistant and using screwdriver, 3/8-inch socket and handle, unscrew and take out. b. Get rid of lockwashers (9).

**DISASSEMBLY**

4. Reservoir (1)	Cap (10)	Unscrew and take off.
5.	Cover and pump assembly (2)	a. Take out. b. Get rid of fluid (page 4-1).

**WINDSHIELD WASHER RESERVOIR - CONTINUED**

LOCATION	ITEM	ACTION	REMARKS
<b>ASSEMBLY</b>			
6. Reservoir (1)	Cover and pump assembly (2)	Put in.	
7.	Cap (10)	Screw on and tighten.	
<b>INSTALLATION</b>			
8. Firewall (6)	Bracket (5)	Place in position.	
9. Bracket (5) to firewall (6)	Three screws (7), new lockwashers (9), and nuts (8)	With help from assistant, screw in and tighten using screwdriver, 3/8-inch socket and handle.	
10. Bracket (5)	Reservoir (1)	Put in.	
11. Cover (2)	Fluid hose (4)	Push onto nipple marked W.	
12.	Air hose (3)	Push onto nipple marked A.	
13.	Reservoir (1)	Fill (TM 9-2320-270-10).	



TA240735

**WINDSHIELD WASHER RESERVOIR - CONTINUED**

**NOTE**

FOLLOW-ON MAINTENANCE:

1. Close left side of hood (TM 9-2320-270-10).
2. Check operation (TM 9-2320-270-10).

**TASK ENDS HERE**

**WINDSHIELD WASHER CONTROL VALVE**

---

This task covers:

- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li>a. Removal (page 4-1182)</li> <li>b. Disassembly (page 4-1184)</li> <li>c. Cleaning (page 4-1184)</li> </ul> | <ul style="list-style-type: none"> <li>d. inspection/Replacement (page 4-1 184)</li> <li>e. Assembly (page 4-1184)</li> <li>f. installation (page 4-1184)</li> </ul> |
|---|--|
- 

**INITIAL SETUP**

Tools

- Extension, 5-inch, 3/8-inch drive
- Hammer, plastic
- Handle, ratchet, 3/8-inch drive
- Pliers, long-nose, round
- Pliers, slip-joint, straight-nose
- Socket, 7/16-inch, 3/8-inch drive
- Vise
- Wrench, box, 7/16-inch
- Wrench, open-end, 7/16-inch
- Wrench, open-end, 9/16-inch

Materials/Parts

- Lockwasher, windshield washer control valve to firewall (two required)

Materials/Parts – Continued

- Soap, liquid (item 14, appendix C)
- Tape, teflon (item 22, appendix C)

Personnel Required

Two

Equipment Condition

Left side of hood opened (TM 9-2320-270-10).

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LOCATION	ITEM	ACTION	REMARKS
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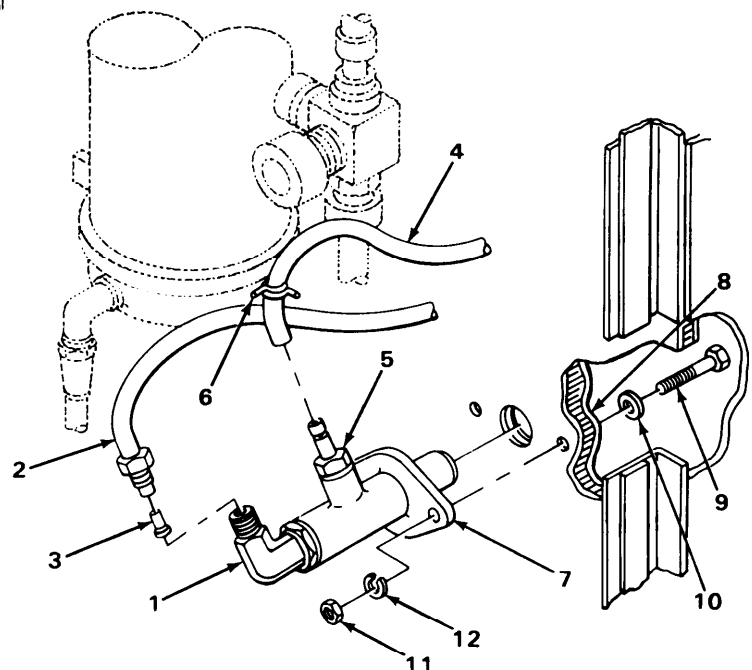
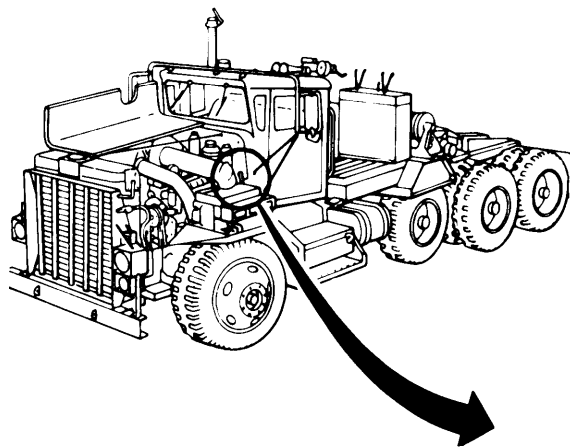
**REMOVAL**

**WARNING**

Make sure all pressure is drained from air system before disconnecting air lines. Parts under pressure can, when removed, fly off with great force causing injury to personnel.

WINDSHIELD WASHER CONTROL VALVE - CONTINUED

LOCATION	ITEM	ACTION REMARKS
1.	Air system	Drain (TM 9-2320-270-10).
2. Elbow (1)	Airline(2)	Using 9/16-inch wrench, unscrew and pull out.
3. Air line (2) or elbow (1)	Insert (3)	Using long-nose pliers, pull out.
4. Hose (4) to adapter (5)	Clamp (6)	Using pliers, open and slide back.
5. Adapter(5)	Hose (4)	Pull off.
6. Valve (7) to firewall (8)	Two screws (9), washers (10), nuts (11), and lockwashers (12)	a. With help from assistant and using 7/16-inch box wrench, 7/16-inch socket, extension, and handle, unscrew and take off. b. Get ridoflockwashers(11).
7. Firewall (8)	Valve (7)	Take out.



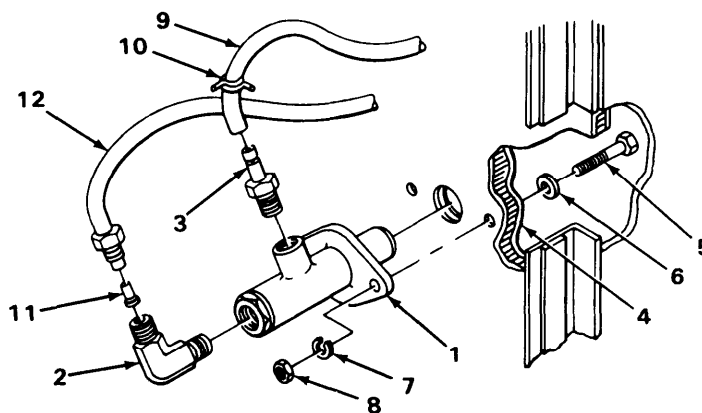
TA240736

## WINDSHIELD WASHER CONTROL VALVE - CONTINUED

LOCATION	ITEM	ACTION REMARKS
<b>DISASSEMBLY</b>		
8. Valve (1)	Elbow (2)	a. Secure valve (1) in vise. b. Using 7/16-inch open-end wrench, unscrew and take out.
9.	Adapter (3)	a. Using 7/16-inch box wrench, unscrew and take out. b. Remove valve (1) from vise.
<b>CLEANING</b>		
10.	All parts	Clean according to general maintenance instructions (page 4-1).
<b>INSPECTION/REPLACEMENT</b>		
11.	All parts	Inspect according to general maintenance instructions (page 4-1).
<b>ASSEMBLY</b>		
12. Valve (1)	Adapter (3)	a. Secure valve (1) in vise. b. Wrap threads with teflon tape (page 4-1) c. Screw in and tighten using 7/16-inch box wrench.
13.	Elbow (2)	a. Wrap threads with teflon tape (page 4-1). b. Screw in and tighten using 7/16-inch open-end wrench. c. Remove valve (1) from vise.
<b>INSTALLATION</b>		
14. Firewall (4)	Valve (1)	Place in position.
15. Valve (1) to firewall (4)	Two screws (5), washers (6), new lockwashers (7), and nuts (8)	With help from assistant, screw in and tighten using 7/16-inch box wrench, 7/16-inch socket, extension, and handle.
16. Adapter (3)	Hose (9)	Lube end lightly with soap and push on.
17. Hose (9) to adapter (3)	Clamp (10)	Using pliers, open and slide down over adapter (3).

**WINDSHIELD WASHER CONTROL VALVE - CONTINUED**

LOCATION	ITEM	ACTION	REMARKS
18. Elbow (2)	Insert (11)	Push in and using plastic hammer, seat.	
19.	Air line (12)	a. Lube end lightly with soap and push in until seated. b. Screw on and tighten using 9/18-inch wrench.	



**NOTE**

FOLLOW-ON MAINTENANCE:

1. Close left side of hood (TM 9-2320-270-10).
2. Check for leaks (page 4-1).

**TASK ENDS HERE**

**WINDSHIELD WASHER NYLON AIR LINE**

This task covers:

Maintenance (page 4-1 185)

MAINTENANCE

**NOTE**

For maintenance instructions on windshield washer nylon air line, see Nylon Tubing (page 4-834).

**TASK ENDS HERE**

**WINDSHIELD WASHER RUBBER HOSE**

---

This task covers:

- a. Removal (page 4-1186)
  - b. Installation (page 4-1188)
- 

**INITIAL SETUP**

**Tools**

Knife, pocket  
Pliers, slip-joint, straight-nose

**Personnel Required**

One

**Equipment Condition**

Left side panel removed (page 4-1104).

**Materials/Parts**

Hose, windshield washer (as required)  
Tape, pressure sensitive  
(item 21, appendix C)

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LOCATION	ITEM	ACTION	REMARKS
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**REMOVAL**

**WARNING**

Make sure all pressure is drained from air system before disconnecting air lines. Parts under pressure can, when removed, fly off with great force causing injury to personnel.

**CAUTION**

If hoses have become too brittle to pull off, use pocket knife and cut hose end of fitting and peel off. Fitting can break if hoses are pulled too hard.

**NOTE**

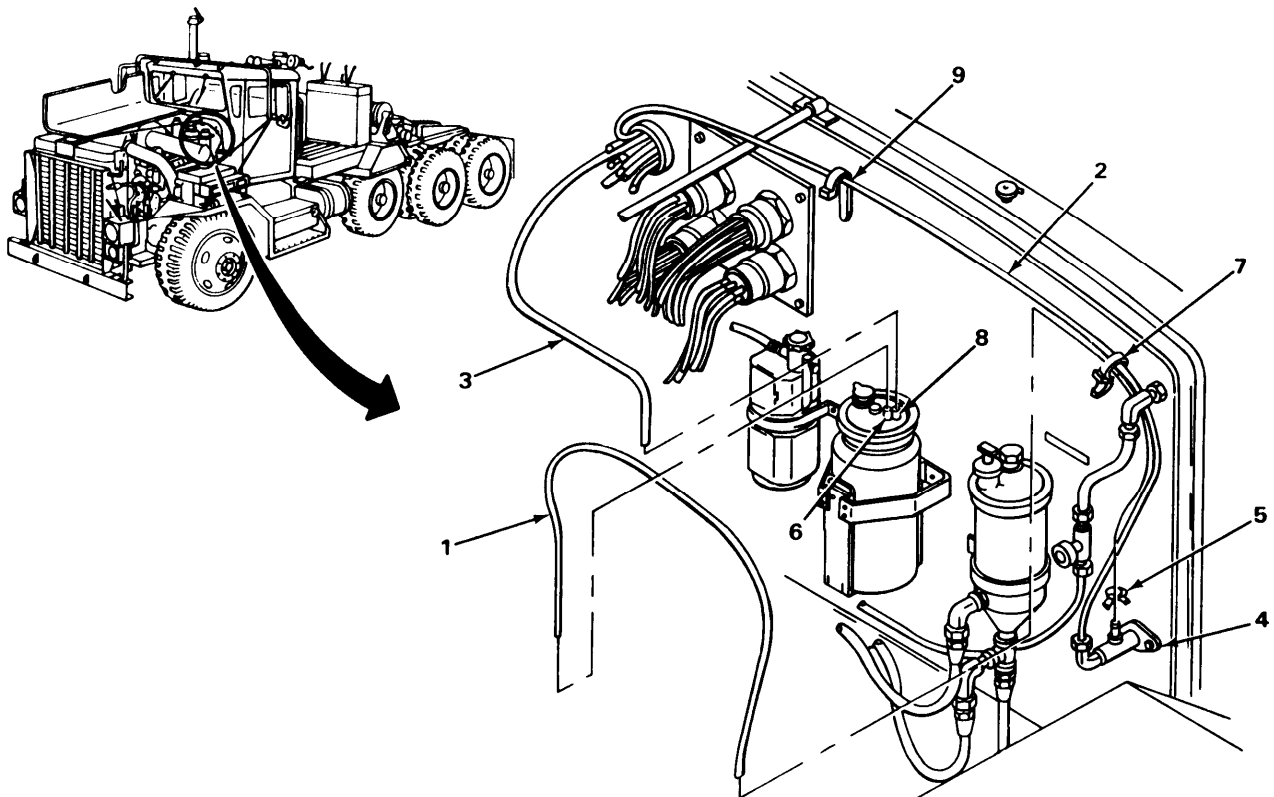
Steps in this task are for all four windshield washer hoses. Do only those steps for hose or hoses that need replacement.

- |    |                             |   |
|----|-----------------------------|---|
| 1. | Air system                  | Drain (TM 9-2320-270-10).                                       |
| 2. | Airhose (1)<br>Air line (2) | a. Using pocket knife, cut tape and take off.<br>b. Get rid of. |
| 3. | Fluid hose (3)              | a. Using pocket knife, cut tape and take off.<br>b. Get rid of. |



**WINDSHIELD WASHER RUBBER HOSE - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
4. Airhose (1) to valve (4)	Clamp (5)	Using pliers, open and slide up.
5. Valve (4)	Airhose (1)	Pull off.
6. Airhose (1)	Clamp (5)	Using pliers, slide off.
7. Nipple (6)	Airhose (1)	Pull off.
8. Tie wrap (7)	Air hose (1)	Pull through and take out.
9. Nipple (8)	Fluid hose (3)	Pull off.
10. Fluid hose (3)	Air line (2)	a. Using pocket knife, cut tape and take off. b. Get rid of.
11. Tie wrap (9)	Fluid hose (3)	Pull through and take out.

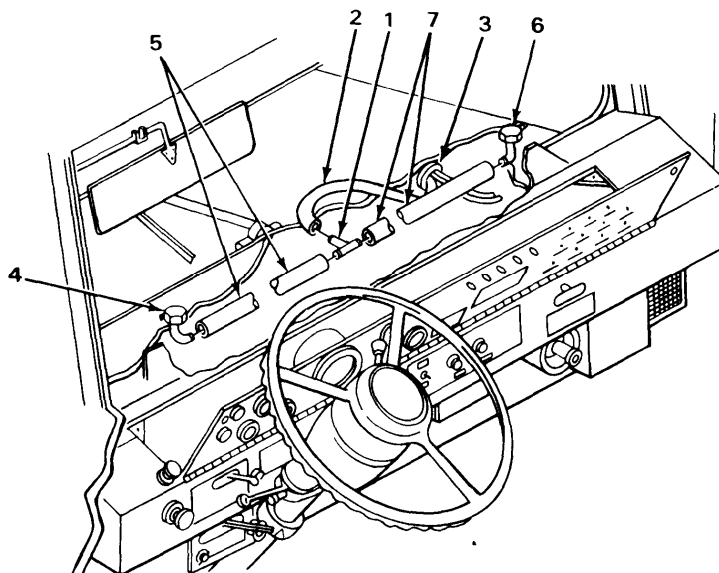


## WINDSHIELD WASHER RUBBER HOSE - CONTINUED

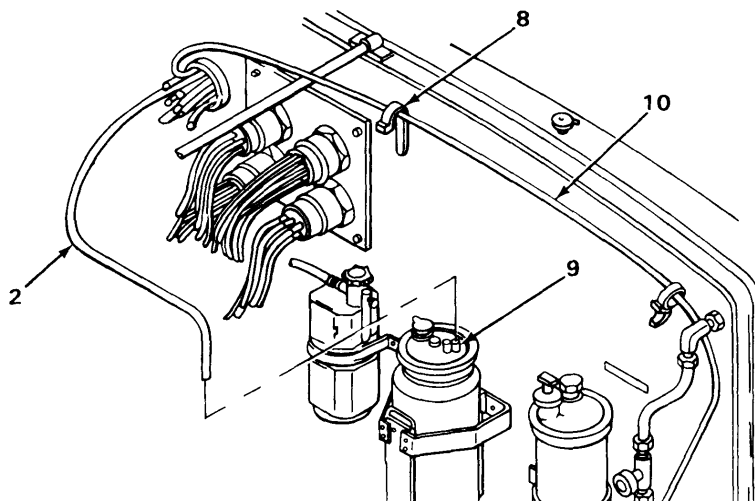
LOCATION	ITEM	ACTION REMARKS
REMOVAL - CONTINUED		
12. Cab	Instrument panel	Open (page 4-244).
13. Tee (1)	Fluid hose (2)	Pull off.
14. Grommet (3)	Fluid hose (2)	Pull hose out from engine side.
15. Left jet assembly (4)	Left fluid hose (5)	Pull off.
16. Tee (1)	Left fluid hose (5)	Pull off and take out.
17. Right jet assembly (6)	Right fluid hose (7)	Pull off.
18. Tee (1)	Right fluid hose (7)	Pull off and take out.
19.	Tee (1)	Lift out.
INSTALLATION		
20.	New left fluid hose (5)	Cut to same length as old hose (5).
21.	Tee (1)	Put in position.
22. Tee (1)	Left fluid hose (5)	Push on.
23. Left jet assembly (4)	Left fluid hose (5)	Push on.
24.	New right fluid hose (7)	Cut to same length as old hose (4).
25. Tee (1)	Right fluid hose (7)	Push on.
26. Right jet assembly (6)	Right fluid hose (7)	Push on.
27.	New fluid hose (2)	Using pocket knife, cut from stock to same length as old hose (2).

**WINDSHIELD WASHER RUBBER HOSE - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
28. Grommet (3)	Fluid hose (2)	a. Push through from engine side. b. Pull through from cab side to reach tee (1).
29. Tee (1)	Fluid hose (2)	Push on.



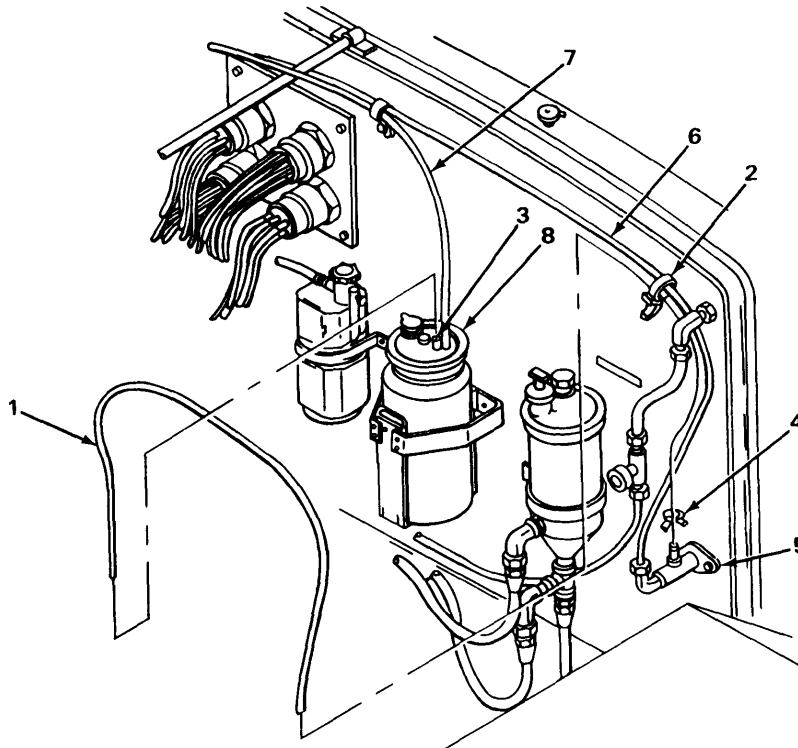
30. Tie wrap (8)	Fluid hose (2)	Push through.
31. Nipple (9)	Fluid hose (2)	Push on.
32.	Fluid hose (2) and air line (10)	Using pressure sensitive tape, tape together.



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**WINDSHIELD WASHER RUBBER HOSE - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
INSTALLATION - CONTINUED		
33.	New airhose (1)	Using pocket knife, cut from bulk stock same length as old airhose (1).
34. Tie wrap (2)	Airhose (1)	Push through.
35. Nipple (3)	Airhose (1)	Push on.
38. Airhose (1)	Clamp (4)	Using pliers, open and slide on about 3 inches.
37. Valve (5)	Airhose (1)	Push on until seated.
38. Airhose (1) to valve (5)	Clamp (4)	Using pliers, open and slide down.
39.	Airhose (1) and air line (6)	Using pressure sensitive tape, tape together in two places.
40.	Airhose (1) and fluid hose (7)	Using pressure sensitive tape, tape together at nipple (3).



TA240740

**WINDSHIELD WASHER RUBBER HOSE - CONTINUED****NOTE****FOLLOW-ON MAINTENANCE:**

1. Check for leaks (page 4-1).
2. Install left side panel (page 4-1104).
3. Close instrument panel (page 4-244).

**TASK ENDS HERE****WINDSHIELD WIPER MOTOR**

---

This task covers:

- |                              |  |
|------------------------------|--|
| a. Removal (page 4-1192)     | d. Inspection/Replacement (page 4-1 195) |
| b. Disassembly (page 4-1194) | e. Assembly (page 4-1196)                |
| c. Cleaning (page 4-1195)    | f. Installation (page 4-1197)            |
- 

**INITIAL SETUP****Tools**

Hammer, plastic  
 Knife, pocket  
 Pliers, long-nose, round  
 Punch, drive-pin, 5/32-inch  
 Screwdriver, cross-tip, number 2  
 Screwdriver, cross-tip, number 3  
 Screwdriver, flat-tip, 1/4-inch  
 Screwdriver, flat-tip, 3/16-inch  
 Wrench, box, 9/16-inch  
 Wrench, open-end, 3/8-inch  
 Wrench, open-end, 7/16-inch

**Materials/Parts**

Gasket, threaded bushing  
 Gasket, motor to header (two required)  
 Soap, liquid (item 14, appendix C)  
 Tag, marking (item 18, appendix C)  
 Tape, pressure sensitive (item 21, appendix C)  
 Tape, teflon (item 22, appendix C)

**Personnel Required**

One

**WINDSHIELD WIPER MOTOR - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
----------	------	-------------------

REMOVAL

**WARNING**

Make sure all pressure is drained from air system before disconnecting air lines. Parts under pressure can, when removed, fly off with great force causing injury to personnel.

**NOTE**

Except as noted, steps in this task are the same for both right and left windshield wiper motors. Right windshield motor is shown.

Tag air lines according to general maintenance instructions (page 4-1).

1.	Air system	Drain (TM 9-2320-270-10).
2.	Windshield wiper arm and blade	Remove (page 4-1205).
3. Windshield wiper shaft (1)	Drive cone (2)	Pull Off.
4. Nut (3)	Boot (4)	Pull off.
5. Bushing (5)	Nut (3), washer (6), spacer (7), and gasket (8)	a. Using 9/16-inch wrench, unscrew and take off. b. Get rid of gasket (8).
6. Windshield wiper motor (9) to header (10)	Two screws (11), washers (12), and gaskets (13)	Using 3/16-inch flat-tip screwdriver, unscrew and take out.
7. Front inner roof panel (14)	Four screws (15), and two sun visor assemblies (16)	Using number three cross-tip screwdriver, unscrew and take off.
8. Two windshield wiper handles (17) to wiper motors (18)	Two nuts (19)	Using 7/16-inch wrench, unscrew and take off.
9. Wiper motors (18)	Two handles (17)	Take off.

**WINDSHIELD WIPER MOTOR - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
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10. Front inner roof panel (14) to header (10)

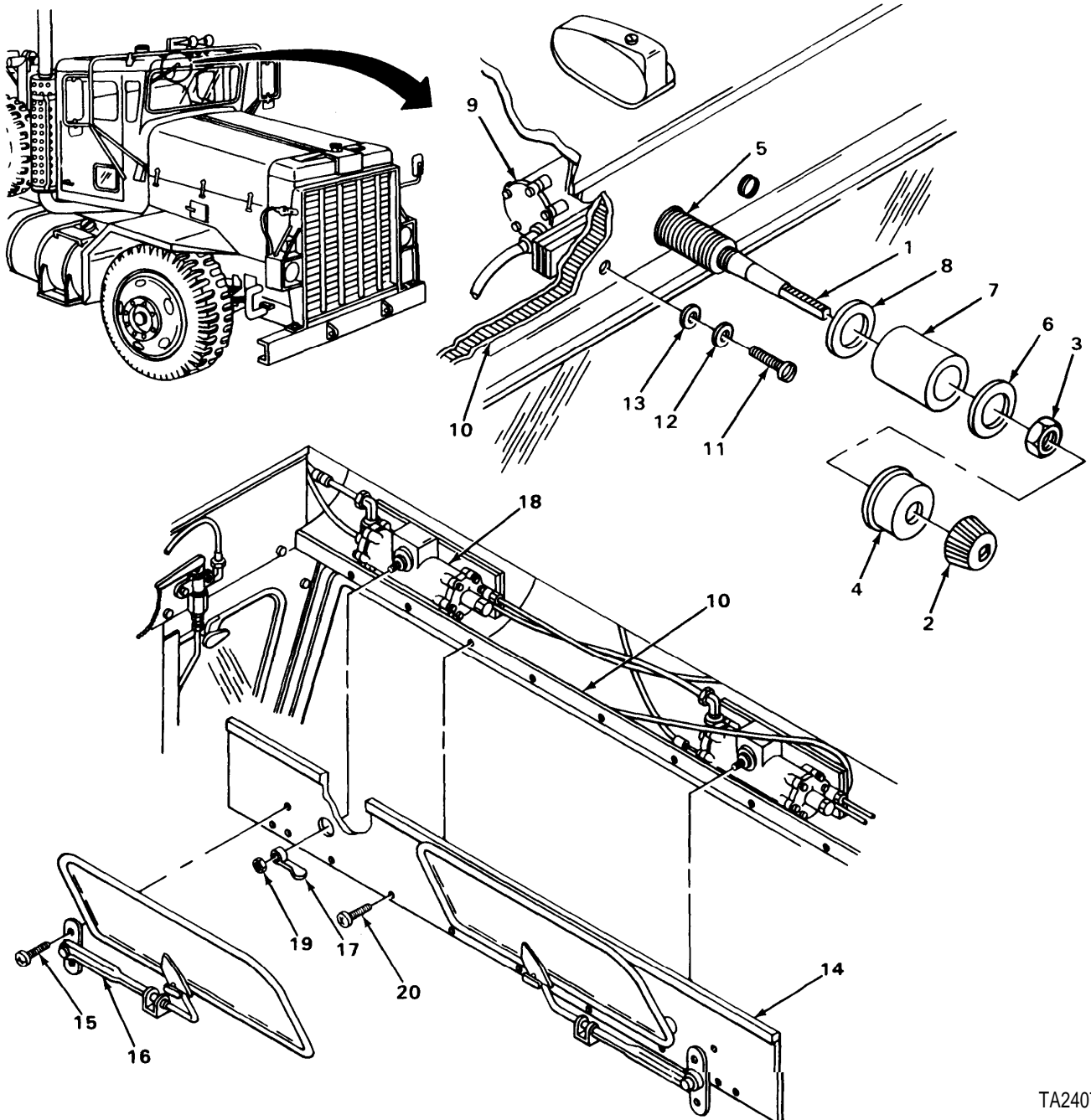
Seven screws (20)

Using number two cross-tip screwdriver, unscrew and take out.

11. Header (10)

Front inner roof panel (14)

Take off.



TA240741

**WINDSHIELD WIPER MOTOR - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
REMOVAL - CONTINUED		
12. Elbow (1)	Left air line (2)	Using 9/16-inch wrench, unscrew and pull out.
13. Left air line (2) or elbow (1)	Insert (3)	Using pliers, pull out.
14. Header (4)	Windshield wiper motor (5)	Lift out.
15. Vent line (6)	Check valve (7)	a. Using pocket knife, cut tape and take off. b. Get rid of.
16. Check valve (7')	Vent line (6)	Pull off.
17. Adapter (8)	Right air line (9)	Using 9/16-inch wrench, unscrew and pull out.
18. Right air line (9) or adapter(8)	Insert (10)	Using pliers, pull out.
19.	Windshield wiper motor (5)	Take out.
DISASSEMBLY		
20. Spacers (11)	Bushing assembly (12)	a. Using pocket knife, cut tape and take off. b. Get rid of.
21. Bushing assembly (12)	Spacers (11)	a. Note number of spacers (11). b. Take off.
22. Bushing assembly (12) to wiper motor (5)	Two screws (13)	Using 1/4-inch flat-tip screwdriver, unscrew and take out.
23. Wiper motor (5)	Bushing assembly (12)	Take off.



**WINDSHIELD WIPER MOTOR - CONTINUED**

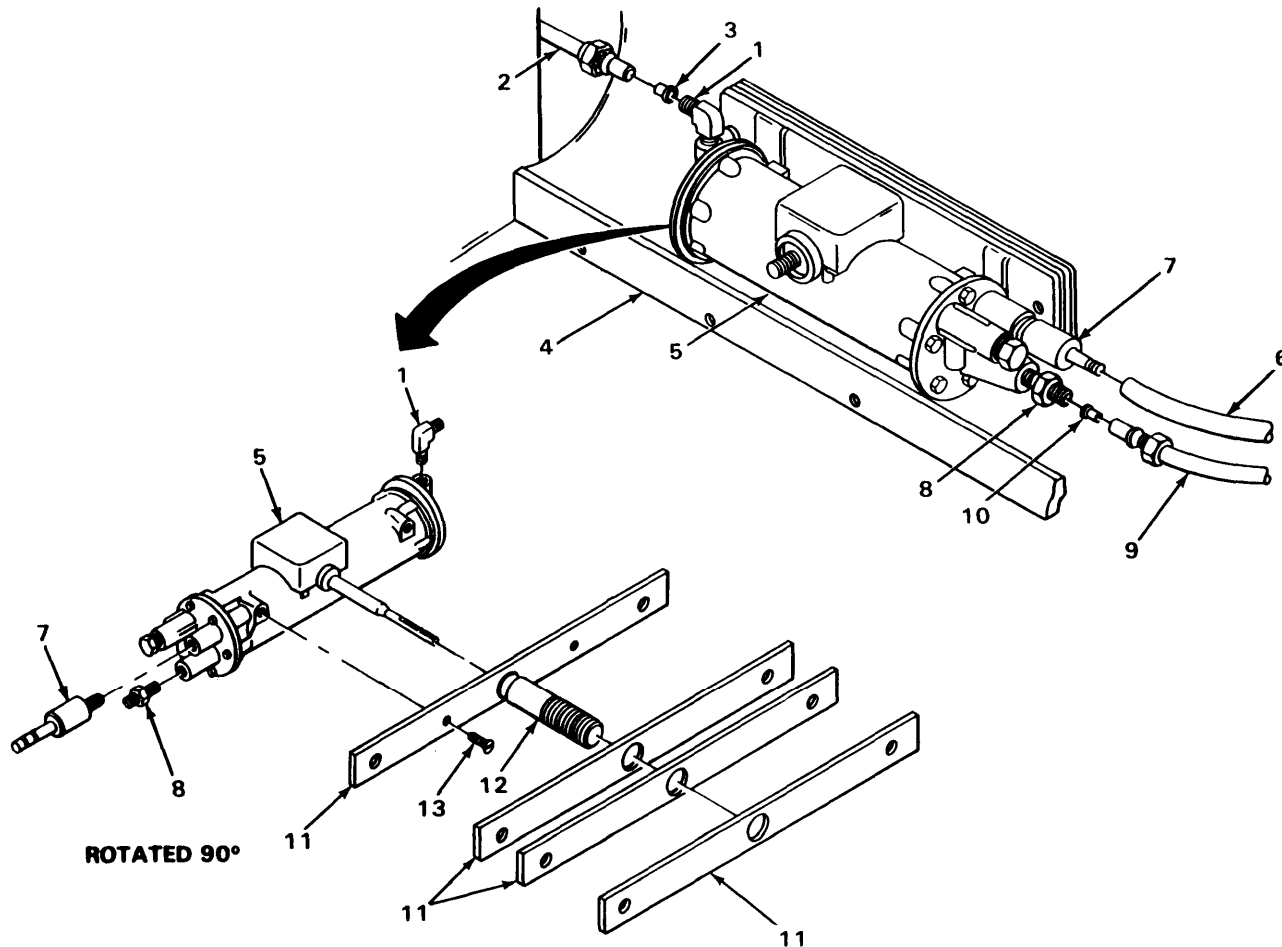
LOCATION	ITEM	ACTION REMARKS
24.	Adapter (8)	Using 7/16-inch wrench, unscrew and take out.
25.	Elbow (1)	Using 3/8-inch wrench, unscrew and take out.
20.	Check valve (7)	Unscrew and take out.

**CLEANING**

27.	All parts	Clean according to general maintenance instructions (page 4-1).
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**INSPECTION/REPLACEMENT**

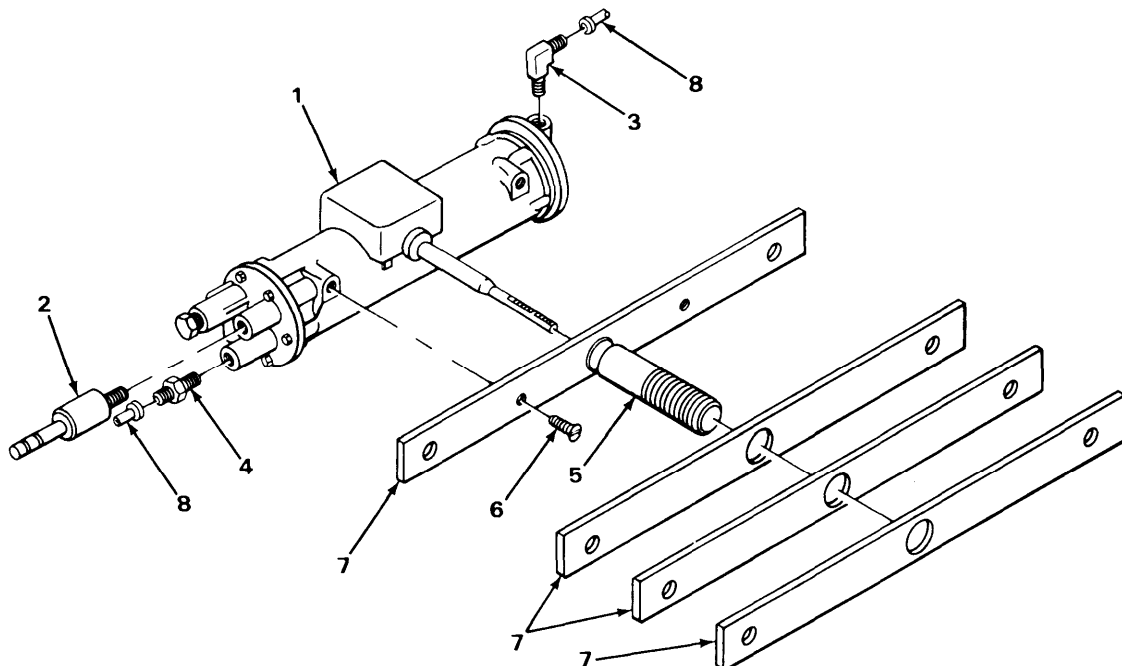
28.	All parts	inspect according to general maintenance instructions (page 4-1).
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TA240742

**WINDSHIELD WIPER MOTOR - CONTINUED**

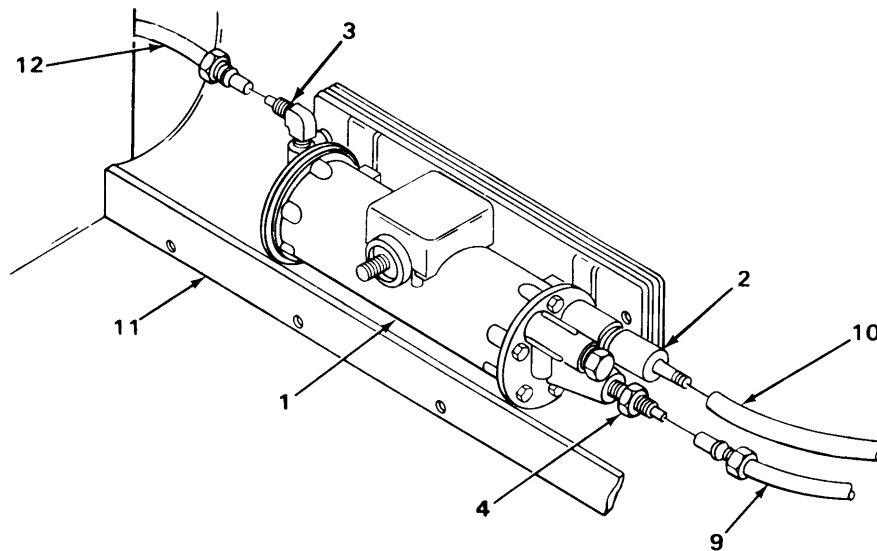
LOCATION	ITEM	ACTION	REMARKS
ASSEMBLY'			
29.	Wiper motor (1)	Check valve (2)	Screw in and tighten.
30.		Elbow (3)	a. Wrap threads with teflon tape (page 4-1). b. Screw in and tighten using 3/8-inch wrench.
31.		Adapter (4)	a. Wrap threads with teflon tape (page 4-1). b. Screw in and tighten using 7/16-inch wrench.
32.		Bushing assembly (5)	Put in place.
33.	Bushing assembly (5) to motor (1)	Two screws (6)	Screw in and tighten using 1/4-inch flat-tip screwdriver.
34.	Bushing assembly (5)	Spacers (7)	a. Put in place same number as removed in step 21. b. Using pressure sensitive tape, tape together.
35.	Elbow (3) and adapter (4)	Two inserts (8)	Put in and using plastic hammer, seat.



TA240743

**WINDSHIELD WIPER MOTOR - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
INSTALLATION		
36. Adapter (4)	Right air line (9)	a. Lube end lightly with soap and push in until seated. b. Screw on and tighten using 9/16-inch wrench.
37. Check valve (2)	Vent line (10)	Push on.
38. Vent line (10)	Check valve (2)	Using pressure sensitive tape, tape together.
39. Header (11)	Windshield wiper motor (1)	Put up in place.
40. Elbow (3)	Left air line (12)	a. Lube end lightly with soap and push in until seated. b. Screw on and tighten using 9/16-inch wrench.



**WINDSHIELD WIPER MOTOR - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
INSTALLATION - CONTINUED		
41. Header (1)	Front inner roof panel (2)	Place in position.
42. Front inner roof panel (2) to header (1)	Seven screws (3)	Screw in and tighten using number two cross-tip screwdriver.
43. Two wiper motors (4)	Two wiper handles (5)	Put in place.
44. Two wiper handles (5) to wiper motors (4)	Two nuts (6)	Screw on but do not tighten.
45. Front inner roof panel (2)	Left sun visor assembly (7)	Put in place.
46. Sun visor (7) to panel (2)	Two screws (8)	Screw in and tighten using number three cross-tip screwdriver.
47. Front inner roof panel (2)	Right sun visor assembly (9)	Put in place.
40. Sun visor (9) to panel (2)	Two screws (10)	Screw in and tighten using number three cross-tip screwdriver.
49. Windshield wiper motor (4) to header (1)	Two screws (11), washers (12), and new gaskets (13)	a. Using punch, line up holes. b. Screw in and tighten using flat-tip screwdriver.
50. Threaded bushing (14)	New gasket (15), washer (16), and spacer (17)	Put on.

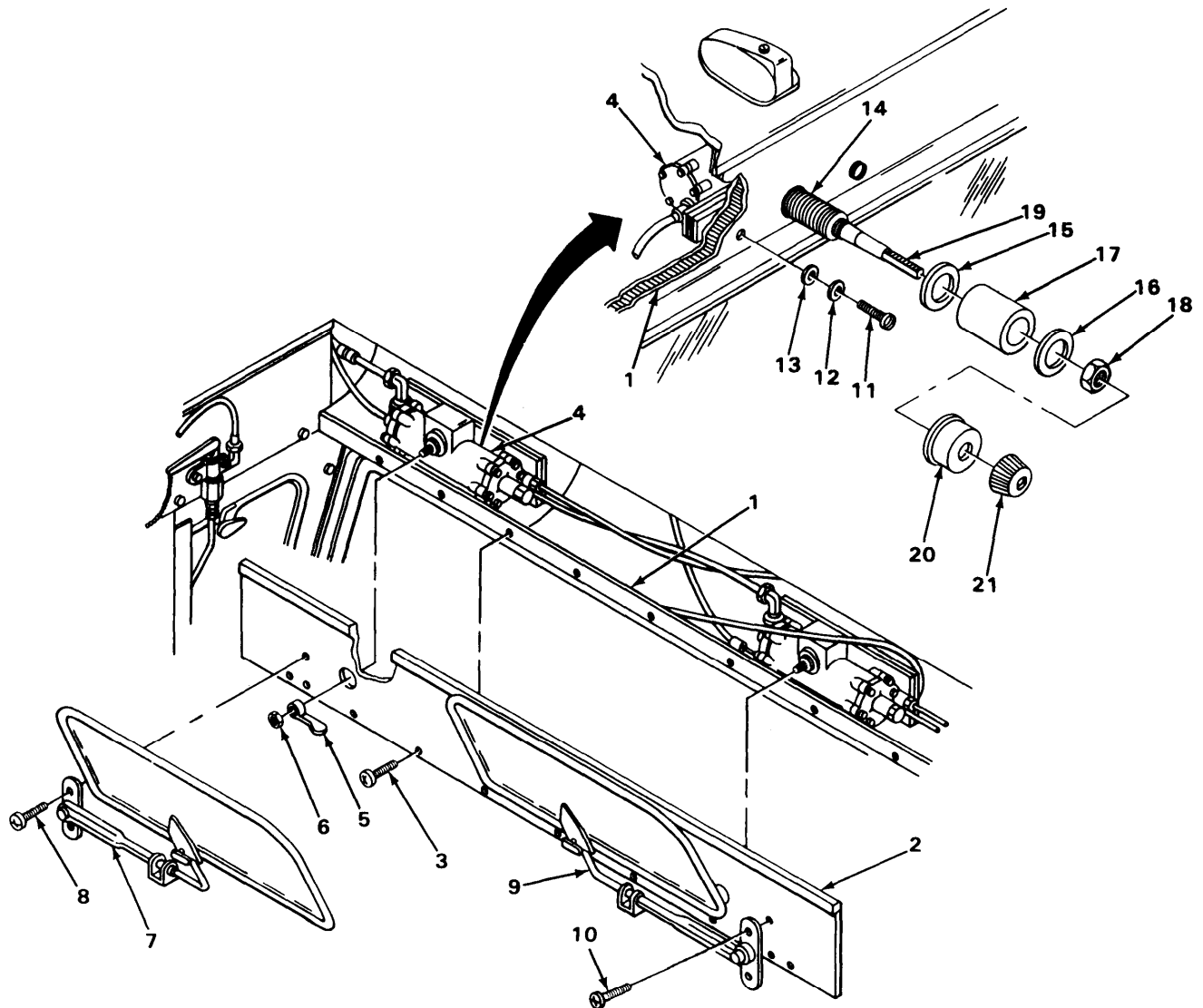
**CAUTION**

Do not overtighten nut. Threaded bushing can be easily broken.

51.	Nut (18)	Screw on and tighten lightly using 9/16-inch wrench.
-----	----------	--

**WINDSHIELD WIPER MOTOR - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
52. Shaft (19)	Boot (20)	Push on.
53.	Drive cone (21)	Put on.
54.	Windshield wiper arm and blade	a. Install (page 4-1205). b. Push over to left stop.
55. Two wiper motors (4)	Two wiper handles (5)	Position at same angle as motors.
56.	Nut (6)	Using 7/16-inch wrench, tighten.



## WINDSHIELD WIPER MOTOR - CONTINUED

INSTALLATION – CONTINUED

### NOTE

FOLLOW-ON MAINTENANCE: Check operation (TM 9-2320-270-10).

**TASK ENDS HERE**

## WIPER CONTROL VALVE

---

This task covers:

- |                              |   |
|------------------------------|---|
| a. Removal (page 4-1201)     | d. inspection/Replacement (page 4-1203) |
| b. Disassembly (page 4-1202) | e. Assembly (page 4-1203)               |
| c. Cleaning (page 4-1202)    | f. installation (page 4-1204)           |
- 

## INITIAL SETUP

### Tools

Brush, wire  
Hammer, plastic  
Key, socket-head screw, 5/64-inch  
Pliers, long-nose, round  
Wrench, box, 3/4-inch  
Wrench, open-end, 7/16-inch  
Wrench, open-end, 9/16-inch

### Materials/Parts

Lockwasher, wiper control valve to instrument panel  
Rags, wiping (item 10, appendix C)  
Soap, liquid (item 14, appendix C)  
Tag, marking (item 18, appendix C)  
Tape, teflon (item 22, appendix C)

### Personnel Required

One

**WIPER CONTROL VALVE - CONTINUED**

LOCATION	ITEM	ACTION	REMARKS
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REMOVAL

**WARNING**

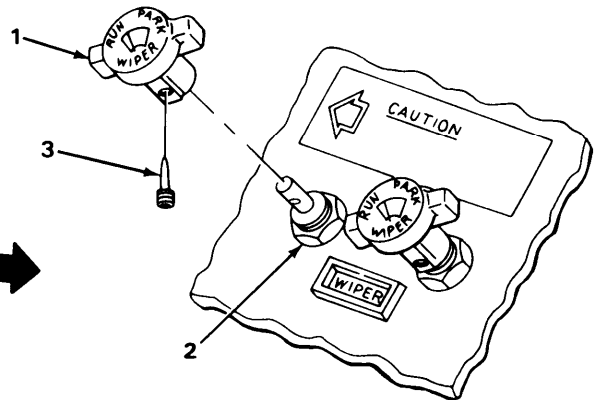
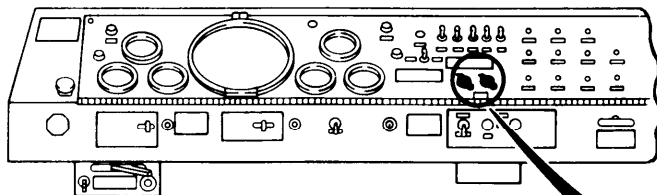
Make sure all pressure is drained from air system before disconnecting air lines. Parts under pressure can, when removed, fly off with great force causing injury to personnel.

**NOTE**

Except as noted, steps in this task are the same for both windshield wiper control valves. Left valve is shown.

Tag air lines according to general maintenance instructions (page 41).

- |    |  |  |
|----|--|--|
| 1. | Air system                                     | Drain (TM 9-2320-270-10).                      |
| 2. | Windshield wiper control knob (1) to valve (2) | Using 5/64-inch hex key, unscrew and take out. |
| 3. | Valve (2) Knob (1)                             | Take off.                                      |



- |    |     |                  |                    |
|----|-----|------------------|--------------------|
| 4. | Cab | Instrument panel | Open (page 4-244). |
|----|-----|------------------|--------------------|

**WIPER CONTROL VALVE - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
----------	------	-------------------

REMOVAL- CONTINUED

**NOTE**

Steps 5 thru 8 also apply to air lines 36 and 37 on right valve.

5. Adapter(1)	Air line (2)	Using 9/16-inch wrench, unscrew and pull Out.
6. Air line 33(2) or adapter(1)	insert (3)	Using pliers, pull out.
7. Adapter(4)	Air line 34 (5)	Using 9/16-inch wrench, unscrew and pull out.
8. Air line 34(5) or adapter(4)	insert (6)	Using pliers, pull out.

**NOTE**

Steps 9 and 10 also apply to air line 32 on the left valve.

9. Adapter(7)	Air line 35 (8)	Using 9/16-inch wrench, unscrew and pull out.
10. Air line (8) or adapter(7)	insert (9)	Using pliers, pull out.
11. Valve (10) to instrument panel(11)	Nut (12)	Using 3/4-inch wrench, unscrew and take out.
12. instrument panel(11)	Valve (10) and lockwasher (13)	a. Take off. b. Get rid of.

DISASSEMBLY

13. Valve (10)	Three adapters (1), (4), and (7)	Using 7/16-inch wrench, unscrew and take out.
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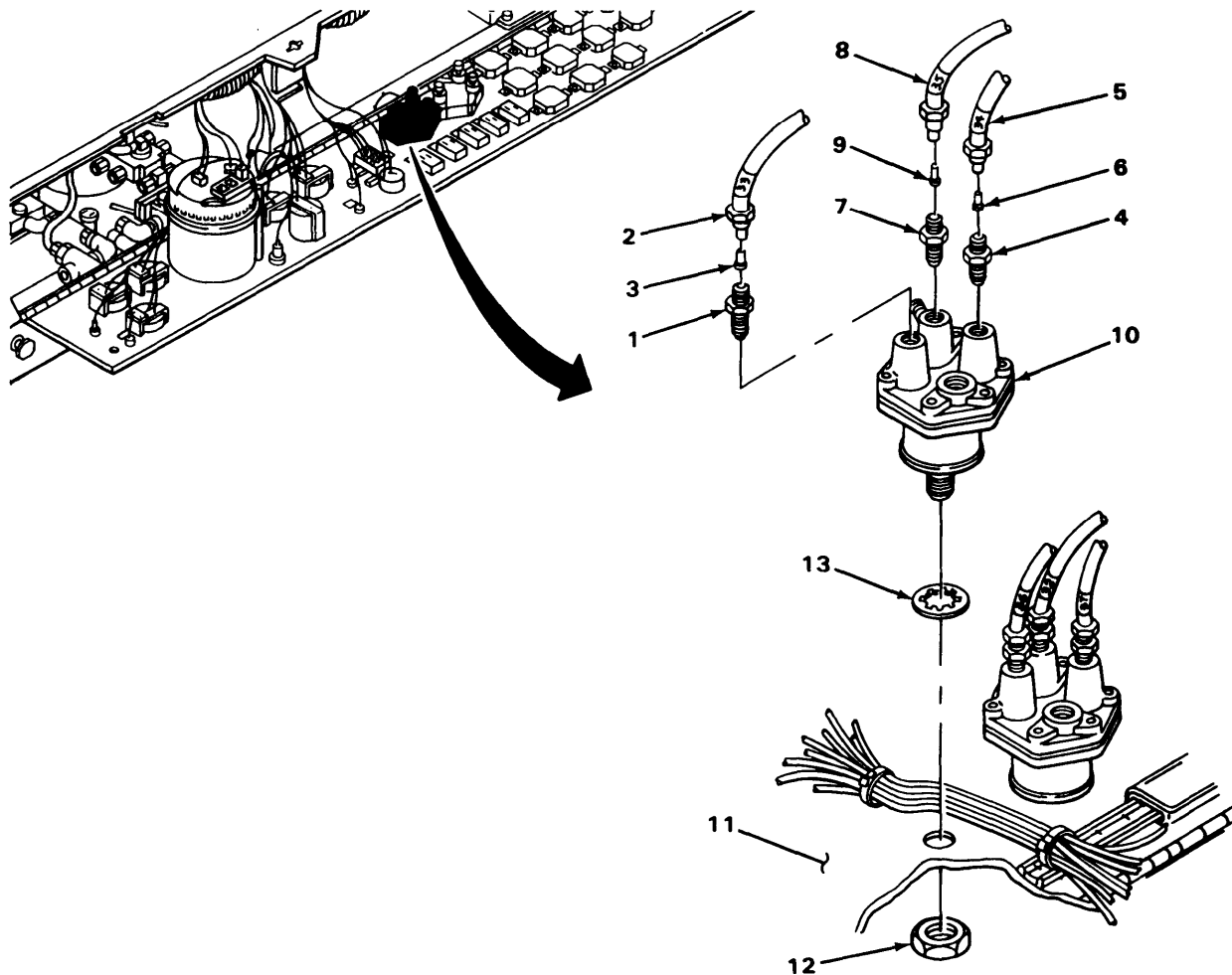
CLEANING

14.	All parts	Clean according to general maintenance instructions (page 4-1).
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**WIPER CONTROL VALVE - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
<b>INSPECTION/REPLACEMENT</b>		
15.	All parts	Inspect according to general maintenance instructions (page 4-1).
<b>ASSEMBLY</b>		
16. Valve (10)	Three adapters (1), (4), and (7)	a. Wrap threads with teflon tape (page 4-1). b. Screw into valve(4) and tighten using 7/16-inch wrench.
17. Three adapters (1), (4), and (7)	Three inserts (3), (6), and (9)	Push in and using plastic hammer, seat.

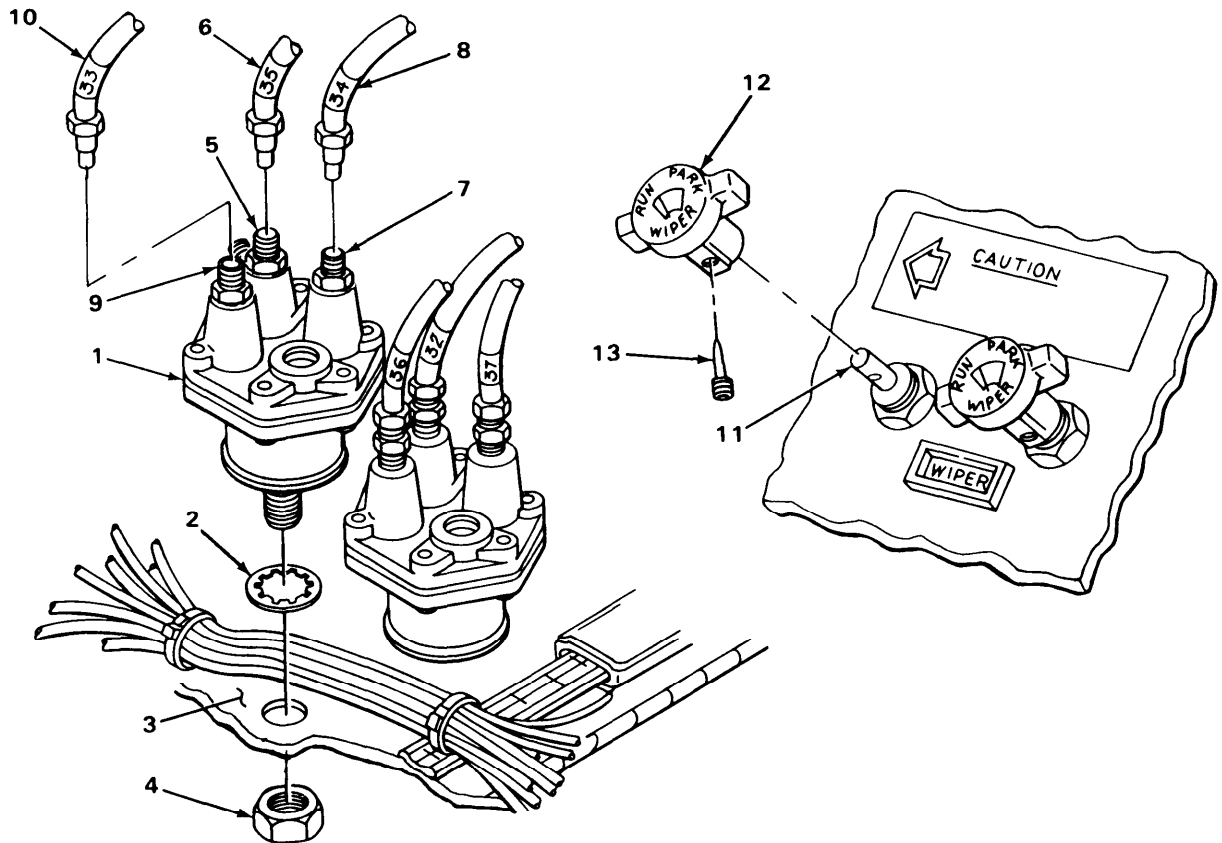


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**WIPER CONTROL VALVE - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
<b>INSTALLATION</b>		
18. Valve (1)	New lockwasher (2)	Put on.
19. Instrument panel (3)	Valve (1)	Put in place.
20. Valve (1) to instrument panel (3)	Nut (4)	Screw on and tighten using 3/4-inch wrench.
<b>NOTE</b>		
Step 21 also applies to air line 32 on left valve.		
21. Adapter (5)	Air line 35 (6)	a. Lube end lightly with soap and push in until seated. b. Screw on and tighten using 9/16-inch wrench.
<b>NOTE</b>		
Step 22 also applies to air line 37 on right valve.		
22. Adapter (7)	Air line 34 (8)	a. Lube end lightly with soap and push in until seated. b. Screw on and tighten using 9/16-inch wrench.
<b>NOTE</b>		
Step 23 also applies to air line 36 on right valve.		
23. Adapter (9)	Air line 33 (10)	a. Lube end lightly with soap and push in until seated. b. Screw on and tighten using 9/16-inch wrench.
24. Cab	Instrument panel	Close (page 4-244).
25. Shaft (11)	Knob (12)	Place in position and line up holes.
26. Knob (12) to shaft (11)	Setscrew (13)	Screw in and tighten using 5/64-inch key.

**WIPER CONTROL VALVE - CONTINUED**



**NOTE**

FOLLOW-ON MAINTENANCE: Check operation (TM 9-2320-270-10).

**TASK ENDS HERE**

**WIPER ARM AND BLADE**

This task covers:

- a. Removal (page 4-1206)
- b. Installation (page 4-1206)

**INITIAL SETUP**

**Tools**

- Hammer, plastic
- Punch, drive pin, 3/16-inch
- Vise
- Wrench, box, 5/16-inch
- Wrench, box, 7/16-inch
- Wrench, pliers

**Materials/Parts**

- Lockwasher, wiper arm to shaft
- Rags, wiping (item 10, appendix C)

**Personnel Required**

One

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**WIPER ARM AND BLADE - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
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REMOVAL

**NOTE**

it is not necessary to remove wiper arm to replace blade.

1.	Wiper blade (1) to wiper arm (2)	Nut (3) and washer (4)	Using 5/16-inch wrench, unscrew and take off.
2.	Wiper arm (2)	Wiper blade (1)	Lift up arm (2) and take out.
3.	Wiper arm (2) to wiper shaft (5)	Nut (6) and lockwasher (7)	a. Using 7/16-inch wrench, unscrew and take off. b. Get rid of lockwasher (7).
4.	Wiper shaft (5)	Wiper arm (2) and drive cone (8)	a. Protect wiper arm (2) with rag. b. Using pliers wrench, pull off. c. Pull off drive cone (8).

**NOTE**

if drive cone stays wiper arm, do steps 5 and 6.

5.	Wiper arm (2)	Rest on vise.
6.	Wiper arm (2)	Drive cone (8)

INSTALLATION

7.	Wiper shaft (5)	Drive cone (8)	Put in place.
8.	Wiper arm (2)	Wiper blade (1)	Put in place.
9.	Wiper blade (1) to wiper arm (2)	Washer (4) and nut (3)	Screw on but do not tighten.
10.	Wiper shaft (5)	Make sure wiper shaft is all the way to right stop. <b>If necessary, use pliers wrench on flats to carefully turn it to right stop. Right stop is left when facing windshield.</b>	

**WIPER ARM AND BLADE - CONTINUED**

LOCATION	ITEM	ACTION	REMARKS
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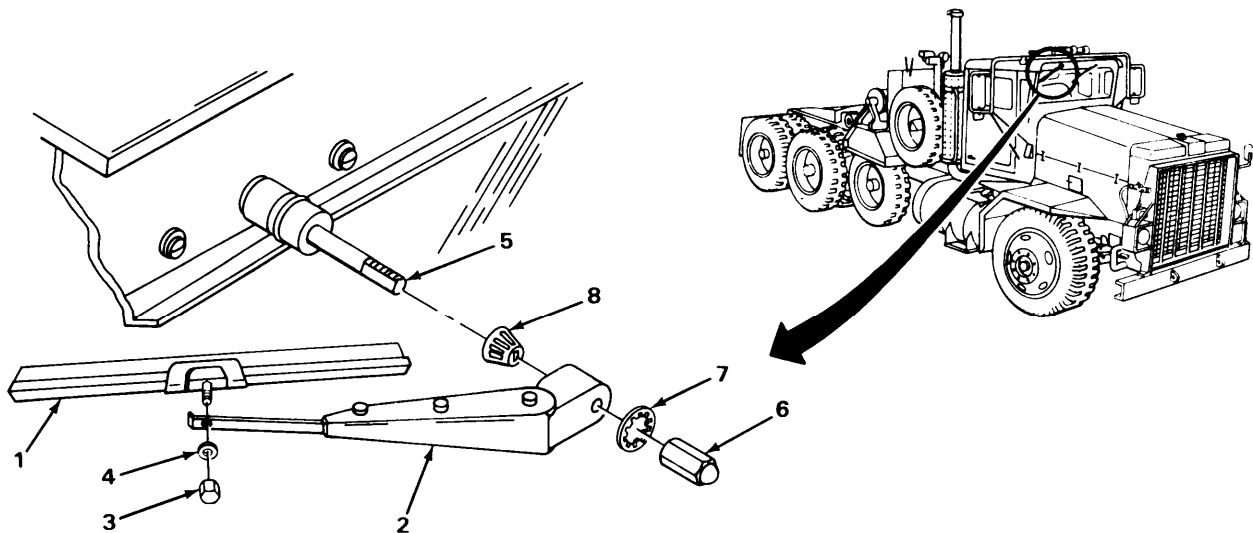
**CAUTION**

When alining windshield wipers, make sure blades do not strike windshield gasket during operation. This will cause rapid wear of blades and damage to gasket.

**NOTE**

Right blade should be positioned parallel to arm. Left blade should be positioned at 45 degrees to arm.

- |  |  |   |
|--|--|---|
| <p><b>11.</b> Wiper shaft (5) and drive cone (8)</p> | <p>Wiper arm (2) and wiper blade (1)</p> | <p>a. Push on and line up.<br/>b. Push on all the way.</p>                      |
| <p><b>12.</b> Wiper arm (2) to wiper shaft (5)</p>   | <p>New lockwasher (7) and nut (6)</p>    | <p>Screw on and tighten using 7/16-inch wrench.</p>                             |
| <p><b>13.</b> Wiper blade (1) to wiper arm (2)</p>   | <p>Nut (3)</p>                           | <p>Make sure blade (1) is still alined and using 5/16-inch wrench, tighten.</p> |



**NOTE**

FOLLOW-ON MAINTENANCE: Check operation (TM 9-2320-270-10).

**TASK ENDS HERE**

**WIPER AIR LINES**

---

This task covers:

- a. Removal (page 4-1208)
  - b. Repair (page 4-1214)
  - c. Installation (page 4-1214)
- 

**INITIAL SETUP**

Tools	Materials/Parts
Hammer, plastic	Loop clamp, air lines and wires to dashboard (one required)
Handle, ratchet, 1/4-inch drive	Sleeve, air line to fitting (two required per air line)
Knife, pocket	Soap, liquid (item 14, appendix C)
Pliers, diagonal-cutting	String (item 17, appendix C)
Pliers, long-nose, round	Wrap, tie (item 24, appendix C)
Screwdriver, cross-tip, number 2	
Screwdriver, cross-tip, number 3	
Socket, 5/16-inch, 1/4-inch drive	
Wrench, open-end, 7/16-inch	<b>Personnel Required</b>
Wrench, open-end, 9/16-inch	One
Wrench, open-end, 3/8-inch	

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		ACTION	
LOCATION	ITEM		REMARKS

---

**REMOVAL**

**WARNING**

Make sure all pressure is drained from air system before disconnecting air lines. Parts under pressure can, when removed, fly off with great force causing injury to personnel.

**NOTE**

Except as noted, steps in this task are the same for all wiper air lines. Air line 36 is shown.

Chart on next page lists all six wiper air lines and routing.

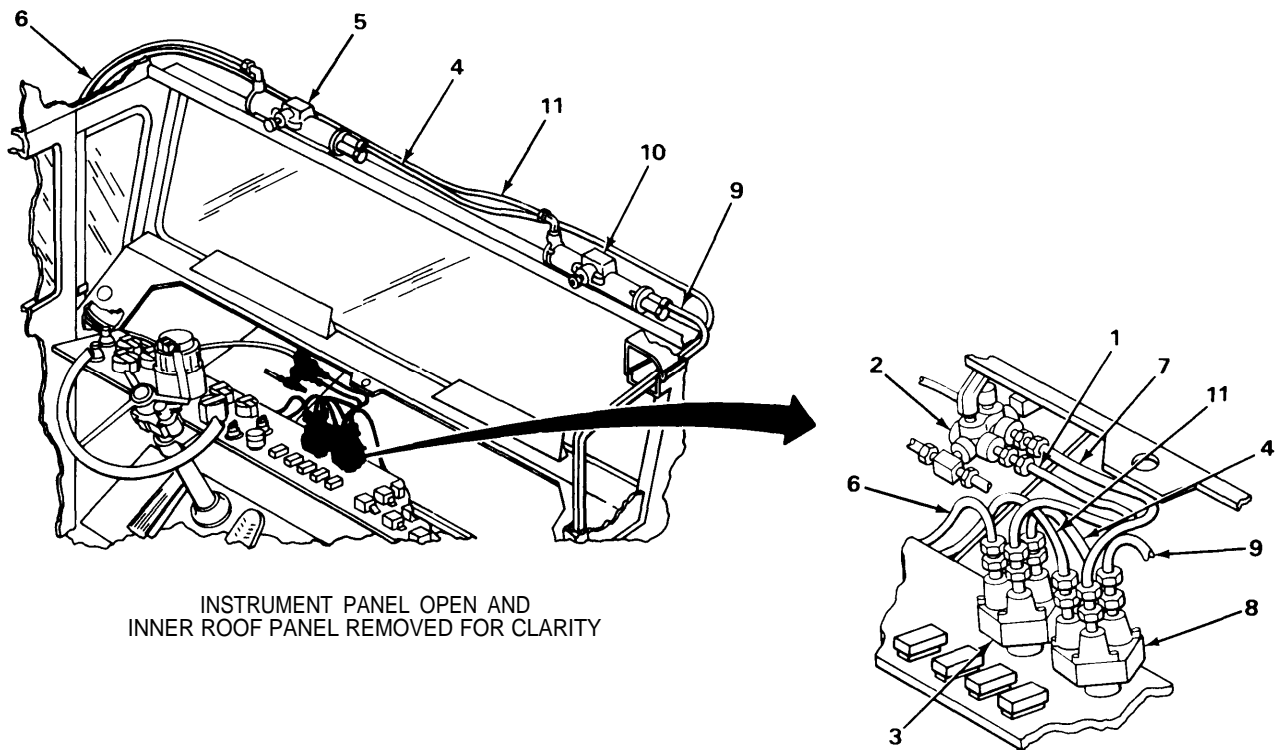
- |    |            |                           |
|----|------------|---------------------------|
| 1. | Air system | Drain (TM 9-2320-270-10). |
|----|------------|---------------------------|

**WIPER AIR LINES - CONTINUED**

REMOVAL - CONTINUED

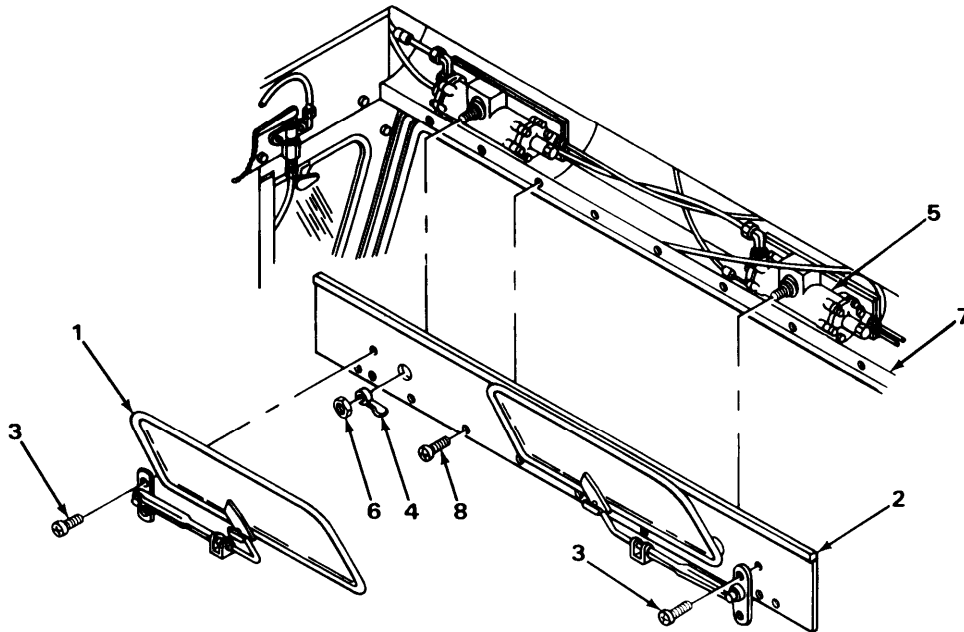
WINDSHIELD WIPER AIR LINES

AIR LINE NUMBER	FROM	TO
32 (1)	AIR MANIFOLD (2)	LEFT VALVE (3) IN PORT
33 (4)	LEFT VALVE (3) RUN PORT	LEFT WIPER (5) RUN PORT
34 (6)	LEFT VALVE (3) PARK PORT	LEFT WIPER (5) PARK PORT
35 (7)	AIR MANIFOLD (2)	RIGHT VALVE (8) IN PORT
36 (9)	RIGHT VALVE (8) RUN PORT	RIGHT WIPER (10) RUN PORT
37(11)	RIGHT VALVE (8) PARK PORT	RIGHT WIPER (10) PARK PORT



**WIPER AIR LINES - CONTINUED**

LOCATION	ITEM	ACTION	REMARKS
REMOVAL - CONTINUED			
2. Cab	Instrument panel	Open (page 4-244).	
<b>NOTE</b>			
If replacing air line 32 or 35, go to step 15.			
3. Two sun visor assemblies (1) to front Inner roof panel (2)	Four screws (3) and two sun visor assemblies (1)	Using number three cross-tip screwdriver, unscrew and take off.	
4. Two windshield wiper handles (4) to wiper motors (5)	Two nuts (6)	Using 7/16-inch wrench, unscrew and take off.	
5. Wiper motors (5)	Two handles (4)	Take off.	
6. Front inner roof panel (2) to header (7)	Seven screws (8)	Using number two cross-tip screwdriver, unscrew and take out.	
7. Header (7)	Front inner roof panel (2)	Take off.	



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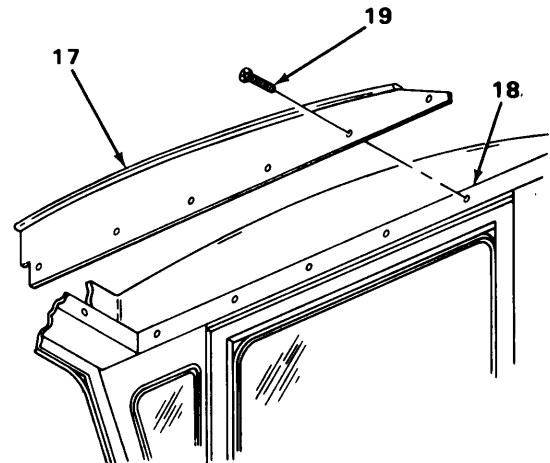
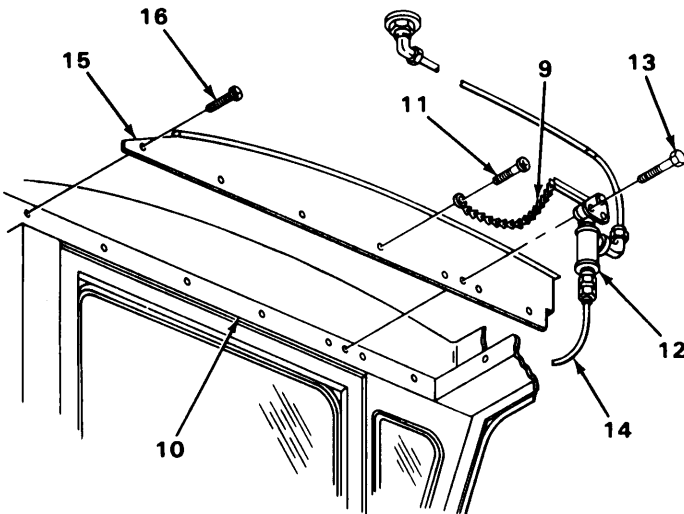
WIPER AIR LINES - CONTINUED

LOCATION	ITEM	ACTION REMARKS
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**NOTE**

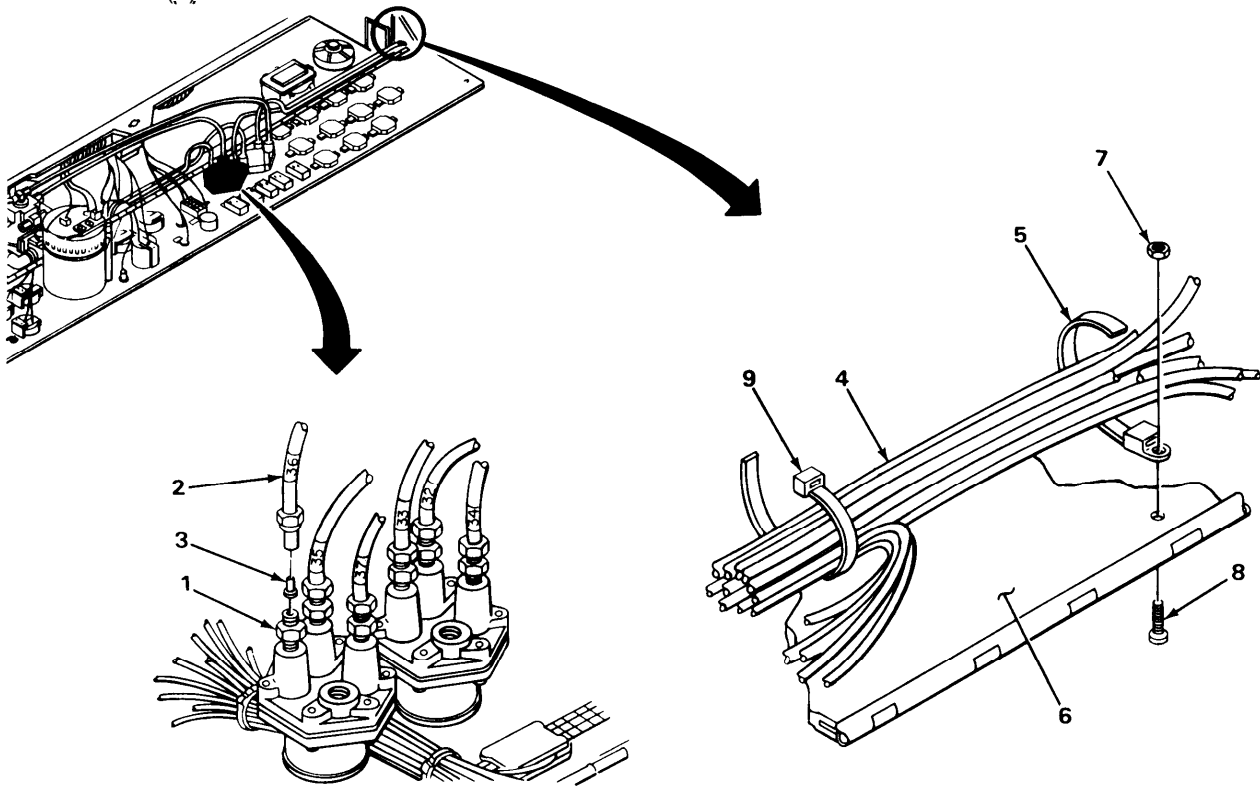
For air line 34 or 37, do steps 8 thru 12. For air line 33 or 36, do steps 13 and 14.

8. Air horn chain (9), to side rail (10)	Screw (11) and chain (9)	Using number two cross-tip screwdriver, unscrew and take off.
9. Air horn valve (12) to side rail (10)	Two screws (13)	Using 5/16-inch socket and handle, unscrew and take out.
10.	Air horn valve (12)	Allow to hang by air lines (14).
11. Left inner roof panel (15) to side rail (10)	Five screws (16)	Using number two cross-tip screwdriver, unscrew and take off.
12. Side rail (10)	Left inner roof panel (15)	Take off.
13. Right inner side panel (17) to side rail (18)	Six screws (19)	Using number two cross-tip screwdriver, unscrew and take off.
14. Side rail (18)	Right inner roof panel (17)	Take off.



**WIPER AIR LINES - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
REMOVAL – CONTINUED		
15. Adapter (1)	Air line (2)	Using 9/16-inch wrench, unscrew and pull out.
16. Air line (2) or adapter(1)	Insert (3)	Using long-nose pliers, pull out.
17. Air line (2) to other air lines and wires (4)	Loop clamp (5)	Using cutting pliers, cut and take out.
18. Loop clamp (5) to dashboard (6)	Nut (7)	Using 3/8-inch open-end wrench, unscrew and take.
19. Screw (8)	Loop clamp (5)	a. Take off. b. Get rid of.
20. Air line (2) to other air lines and wires (4)	Tie wrap (9)	a. Using cutting, pliers, cut and take off. b. Get rid of.



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WIPER AIR LINES - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
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**NOTE**

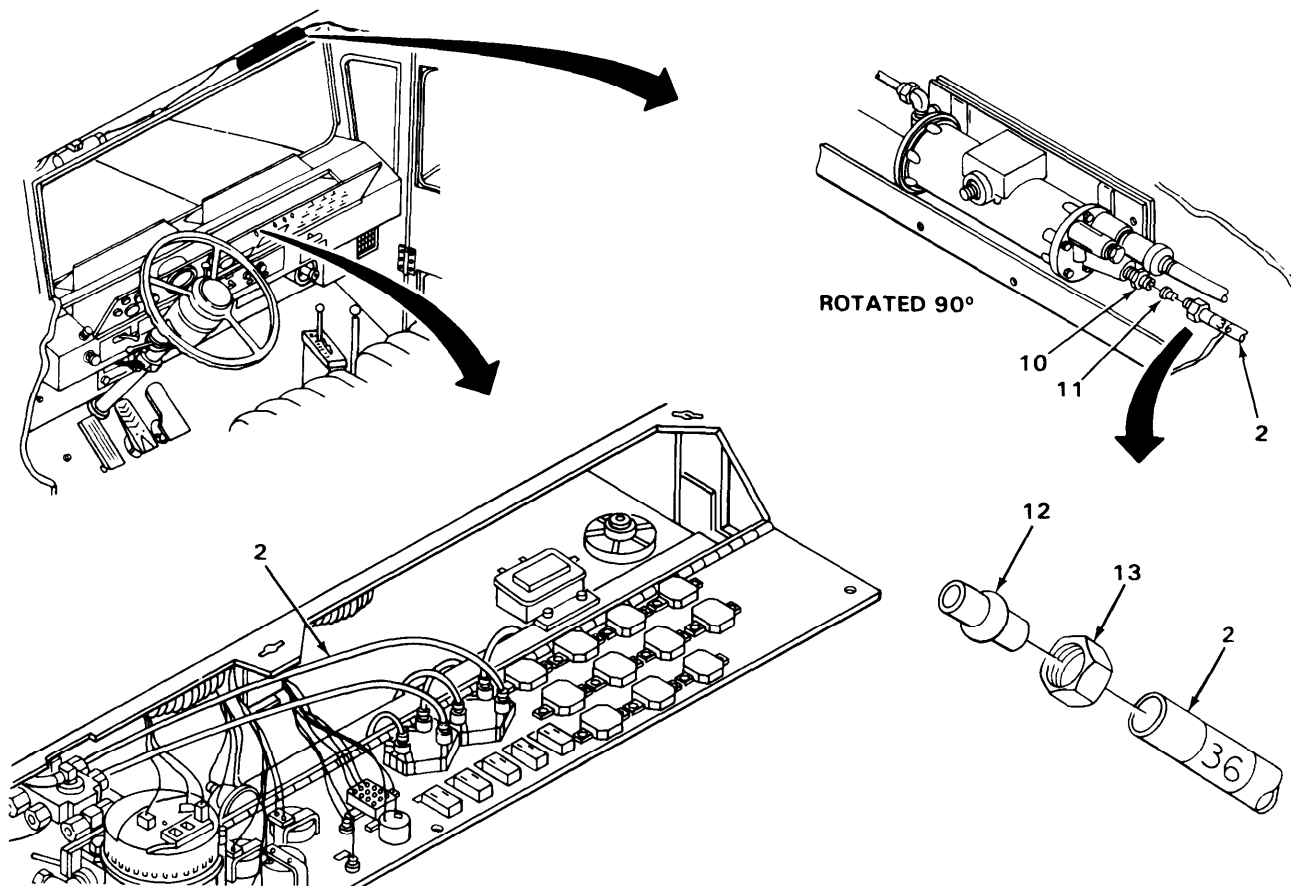
Air lines 32 and 36 go to air manifold

- |                                  |              |   |  |
|----------------------------------|--------------|---|--|
| 21. Adapter (10)                 | Air line (2) | Using 9/16-inch wrench, unscrew and pull out. |  |
| 22. Air line (2) or adapter (10) | Insert (11)  | Using long-nose pliers, pull out.             |  |

**NOTE**

For air line 32 or 36, go to REPAIR (page 4-1214).

- |                  |             |  |
|------------------|-------------|--|
| 23. Air line (2) | Sleeve (12) | a. Using pocket knife, cut behind sleeve (12).<br>b. Get rid of. |
| 24.              | Nut (13)    | Slide off.   |



TA240754

**WIPER AIR LINES - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
REMOVAL - CONTINUED		
25.	Air line (1)	a. Using pocket knife, notch as shown. b. Attach string to air line (1) inside notches.
26. Header (2), side rail (3), hinge pillar (4), and dashboard (5)	Air line (1)	a. Pull out. b. Take string off line (1). c. Leave string in place.
27. Air line (1)	Nut (6)	Cut off air line (1) behind sleeve (7) and take off.

REPAIR

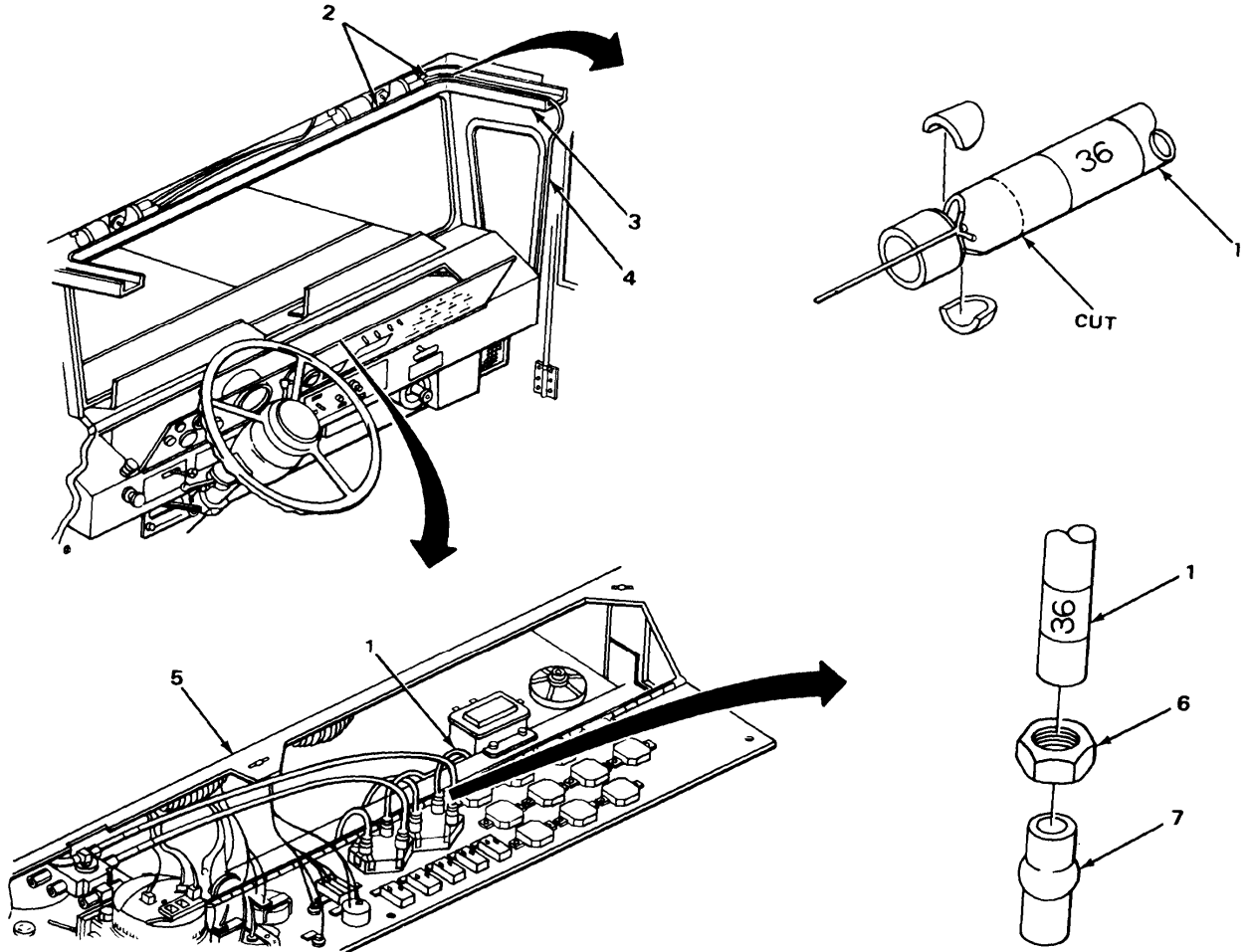
**NOTE**

It is not necessary to remove air lines to repair them.

Procedure for repairing wiper air lines can be found in Nylon Tubing Repair (page 4-634).

installation

28.	New air line (1)	a. Cut from bulk, 1/2-inch longer than old air line (1). b. Using pocket knife, notch <b>as</b> shown. c. Attach string to air line(1) inside notches.
29. Dashboard (5), hinge pillar (4), side rail (3), and header (2)	Air line (1)	a. Using string, route into place. b. Using pocket knife, cut off square behind notches.



**WIPER AIR LINES - CONTINUED**

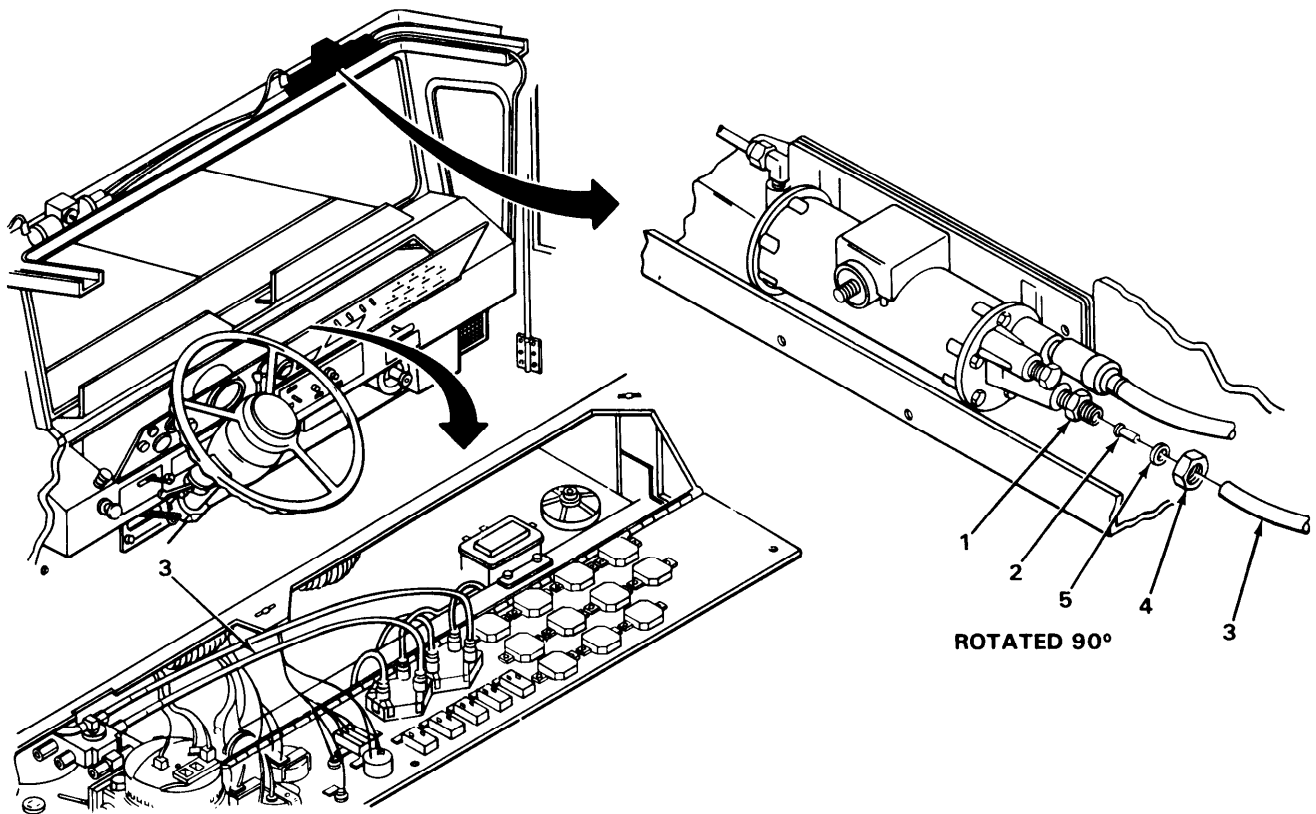
LOCATION	ITEM	ACTION	REMARKS
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INSTALLATION – CONTINUED

**NOTE**

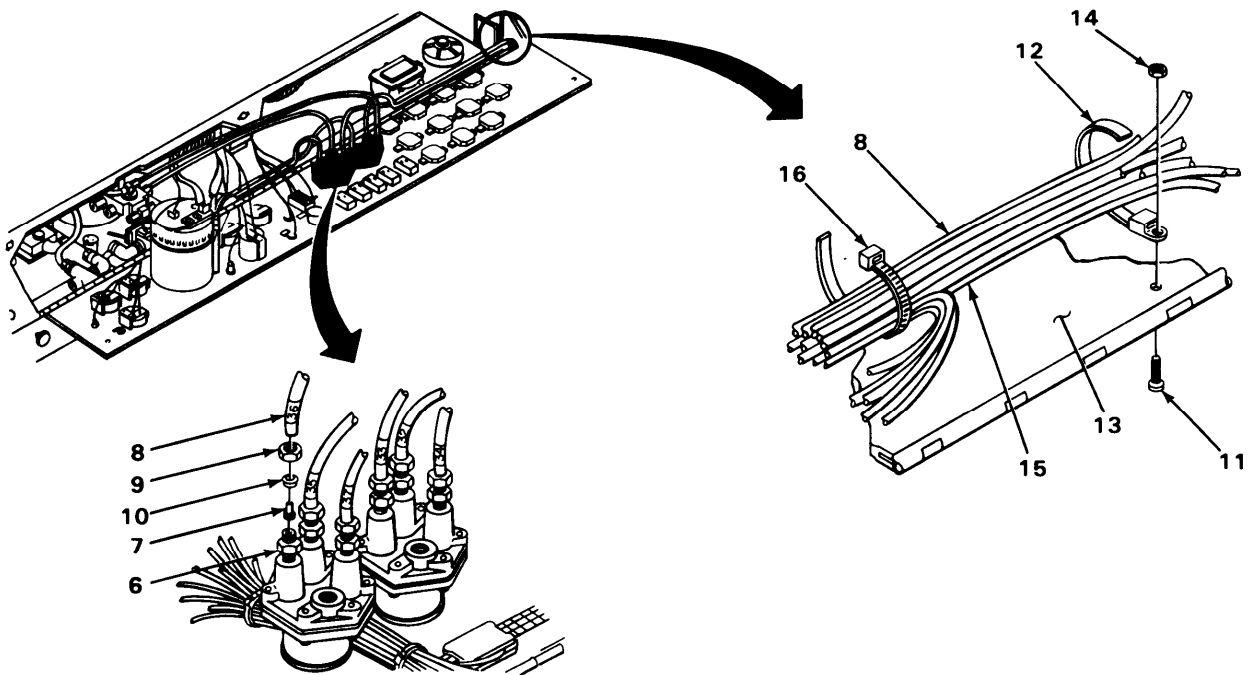
Air lines 32 and 36 go to air manifold.

- |                  |                        |  |
|------------------|------------------------|--|
| 30. Adapter (1)  | Insert (2)             | Push in and using plastic hammer, seat.  |
| 31. Air line (3) | Nut (4) and sleeve (5) | Slide on.  |
| 32. Adapter (1)  | Air line (3)           | a. Lube end lightly with soap and push in until seated.<br>b. Screw on and tighten using 9/16-inch wrench. |



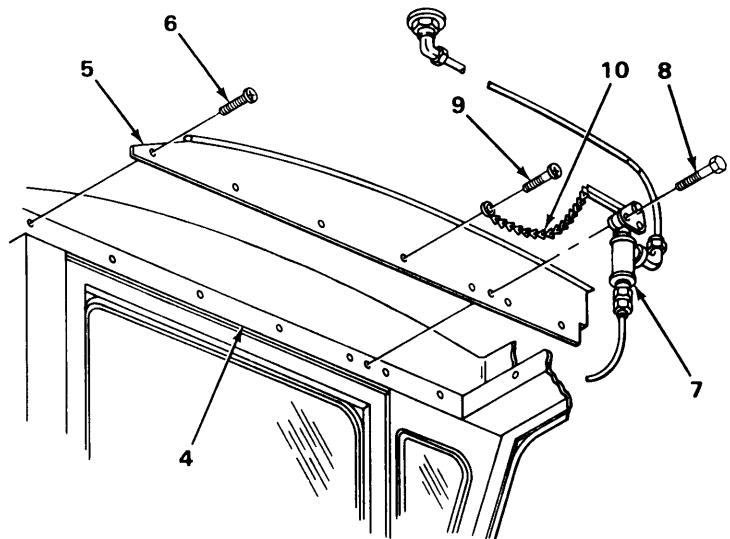
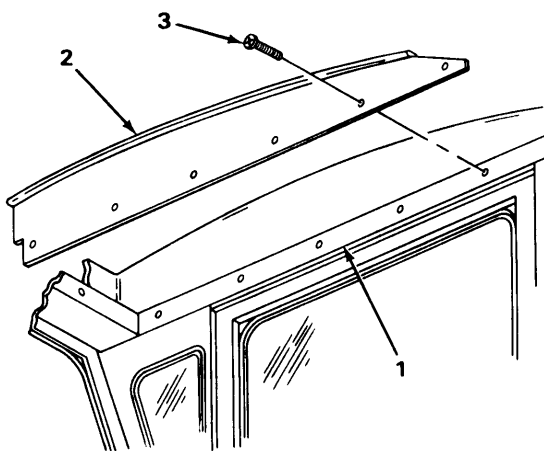
**WIPER AIR LINES - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
33. Adapter (6)	Insert (7)	Push in and seat using plastic hammer, seat.
34. Air line (8)	Nut (9) and sleeve (10)	Slide on.
35. Adapter (6)	Air line (8)	a. Lube end lightly with soap and push in until seated. b. Screw on and tighten using 9/16-inch wrench.
36. Screw (11)	New loop clamp (12)	Put on.
37. Loop clamp (12) to dashboard (13)	Nut (14)	Screw on and tighten using 3/8-inch wrench.
38. Air line (8) and other air lines and wires (15)	Loop clamp (12)	Using long nose pliers, put on.
39.	New tie wrap (16)	Using long nose pliers, put on.



**WIPER AIR LINES - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
INSTALLATION – CONTINUED		
40. Side rail (1)	Right inner roof panel (2)	Put in place.
41. Right inner roof panel (2) to side rail (1)	Six screws (3)	Screw in and tighten using number two cross-tip screwdriver.
42. Side rail (4)	Left inner roof panel (5)	Put in place.
43. Left inner roof panel (5) to side rail (4)	Five screws (6)	Screw in and tighten using number two cross-tip screwdriver.
44. Left inner roof panel (5)	Air horn valve (7)	Put in place.
45. Air horn valve (7) to side rail (4)	Two screws (8)	Screw in and tighten using 5/16-inch socket and handle.
46. Screw (9)	Air horn chain (10)	Put on.
47. Air horn chain (10) to side rail (4)	Screw (9)	Screw in and tighten using number two cross-tip screwdriver.

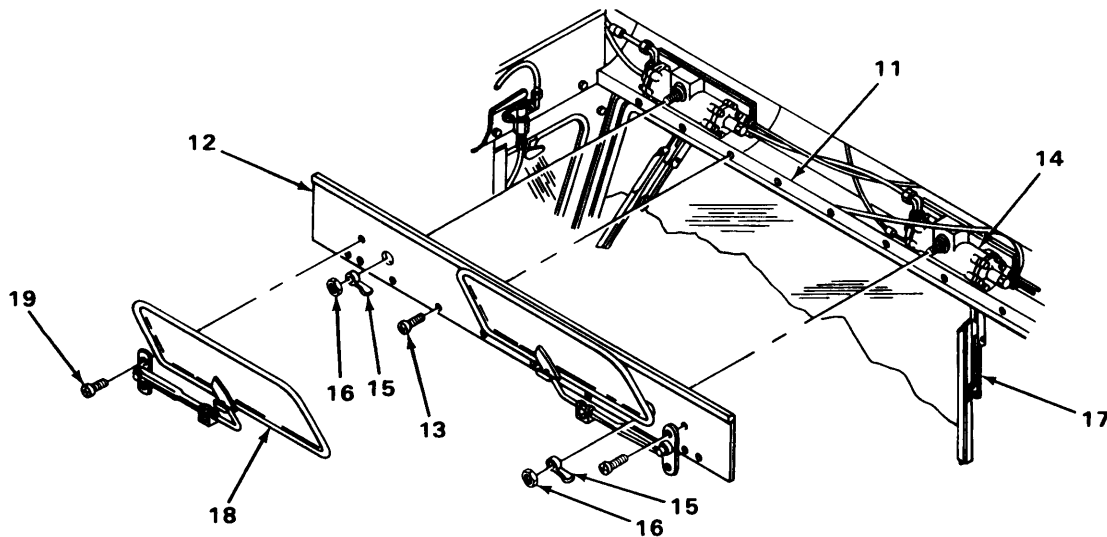


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**WIPER AIR LINES - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
48. Header (11)	Front inner roof panel (12)	Put in place.
49. Front inner roof panel (12) to header (11)	Seven screws (13)	Screw in and tighten using number two cross-tip screwdriver.
50. Wiper motors (14)	Two handles (15)	Put in place.
51. Wipe handles (15) to wiper motors (14)	Two nuts (16)	a. Screw on but do not tighten. b. Position handles (15) parallel to wiper arms (17). c. Tighten nuts using 7/16-inch wrench.
52. Front inner roof panel (12)	Two sun visors (18)	Put in.
53. Two sun visors (18) to front inner roof panel (12)	Four screws (19)	Screw in and tighten using number three cross-tip screwdriver.
54. Cab	Instrument panel	Close (page 4-244).



**NOTE**

FOLLOW-ON MAINTENANCE: Check operation (TM 9-2320-270-20).

**TASK ENDS HERE**

TA240759

4-1219

**WIPER VENT LINES**

---

This task covers:

- a. Removal (page 4-1220)
  - b. Installation (page 4-1223)
- 

**INITIAL SETUP**

**Tools**

- Knife, pocket
- Pliers, diagonal cutting
- Pliers, slip-joint straight-nose
- Screwdriver, cross-tip, number 2
- Screwdriver; cross-tip, number 3
- Wrench, box, 7/16-inch
- Wrench, open-end, 3/8-inch

**Materials/Parts**

- Loop clamp, air lines and wires to dashboard

**Materials/Parts – Continued**

- String (item 17, appendix C)
- Tape, pressure sensitive (item 21, appendix C)
- Tape, teflon (item 22, appendix C)
- Tubing, nylon air brake
- Wrap, tie (item 24, appendix C)

**Personnel Required**

One

**Equipment Condition**

Instrument panel open (page 4-244).

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LOCATION	ITEM	ACTION REMARKS
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**REMOVAL**

**WARNING**

Make sure all pressure is drained from air system before disconnecting air lines. Parts under pressure can, when removed, fly off with great force causing injury to personnel.

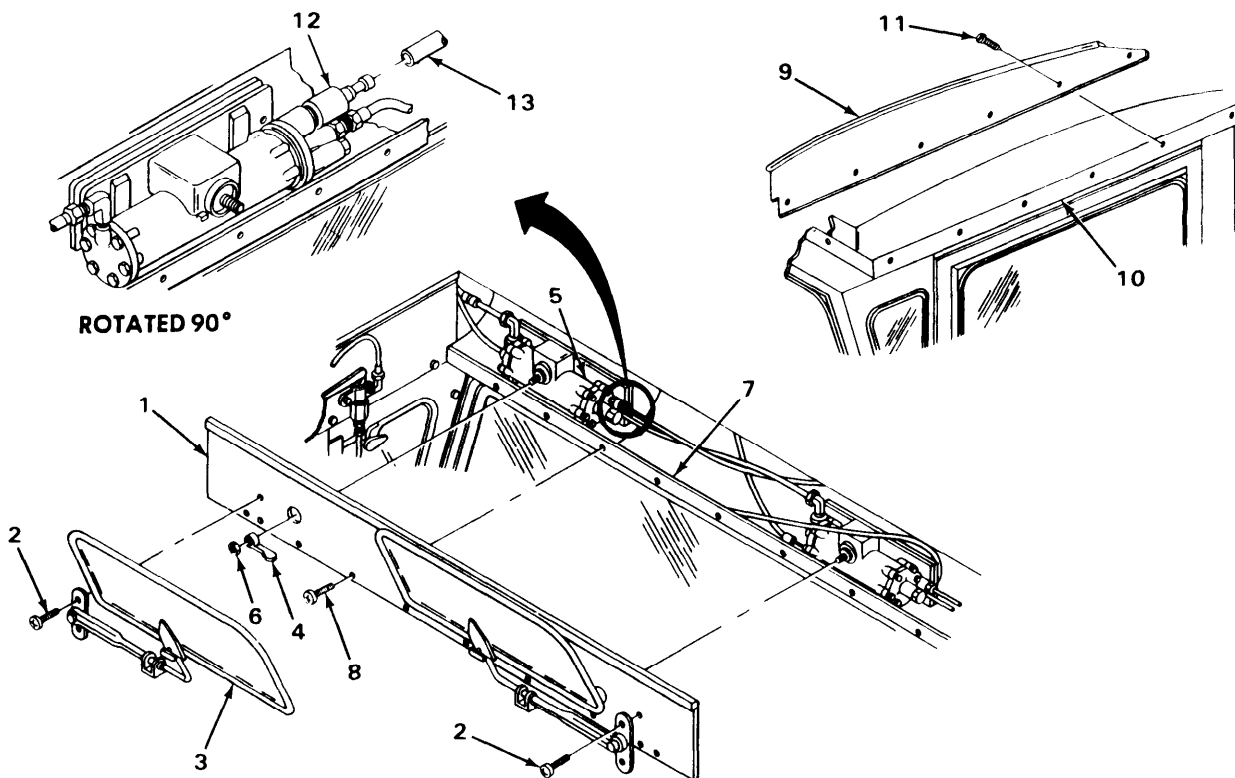
**NOTE**

Steps in this task are the same for both right and left wiper vent lines. Right wiper vent line is shown.

- |    |  |   |
|----|--|---|
| 1. | Air system   | Drain (TM 9-2320-270-10).                                       |
| 2. | Front inner roof panel (1)<br>Four screws (2) and two sun visor assemblies (3) | Using number three cross-tip screwdriver, unscrew and take off. |
| 3. | Two windshield wiper handles (4) to wiper motors (5)                           | Using 7/16-inch wrench, unscrew and take off.                   |

**WIPER VENT LINES - CONTINUED**

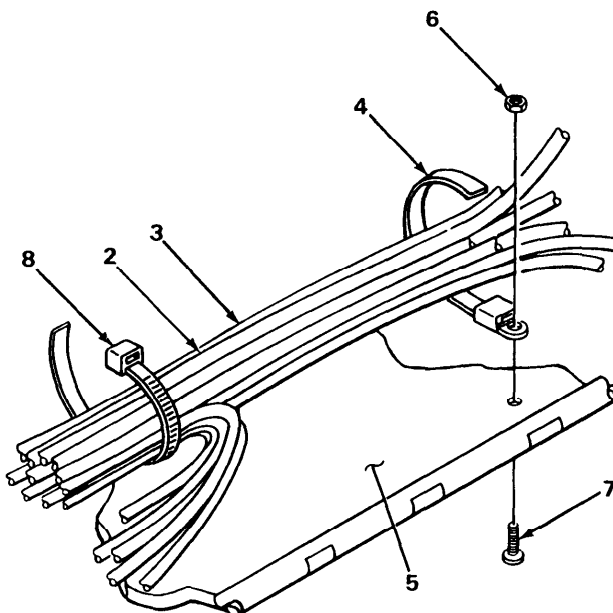
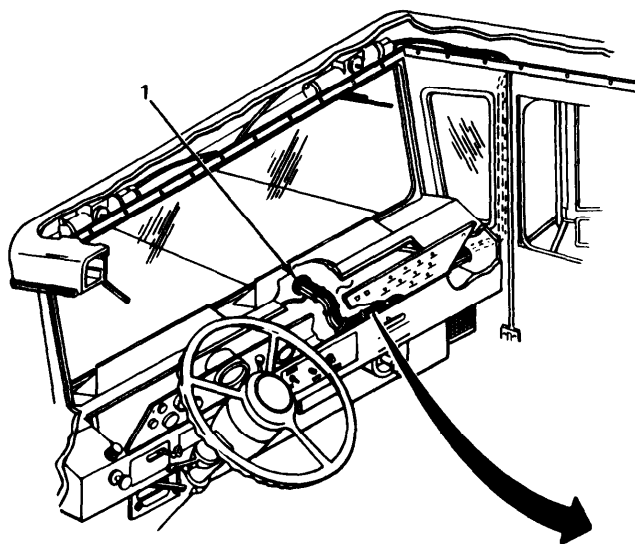
LOCATION	ITEM	ACTION	REMARKS
4. Two wiper motors (5)	Two handles (4)	Take off.	
5. Front inner roof panel (1) to header (7)	Seven screws (8)	Using number two cross-tip screwdriver, unscrew and take off.	
6. Header(7)	Front inner roof panel (1)	Take off.	
7. Right inner roof panel (9) to side rail (10)	Six screws (11)	Using number two cross-tip screwdriver, unscrew and take off.	
8. Side rail (10)	Right inner roof panel (9)	Take off.	
9. Check valve (12)	Vent line (13)	a. Using pocket knife, cut tape and take off. b. Get rid of tape. c. Pull off. d. Using pocket knife, notch end. e. Attach string to vent line (13) inside notches.	



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**WIPER VENT LINES - CONTINUED**

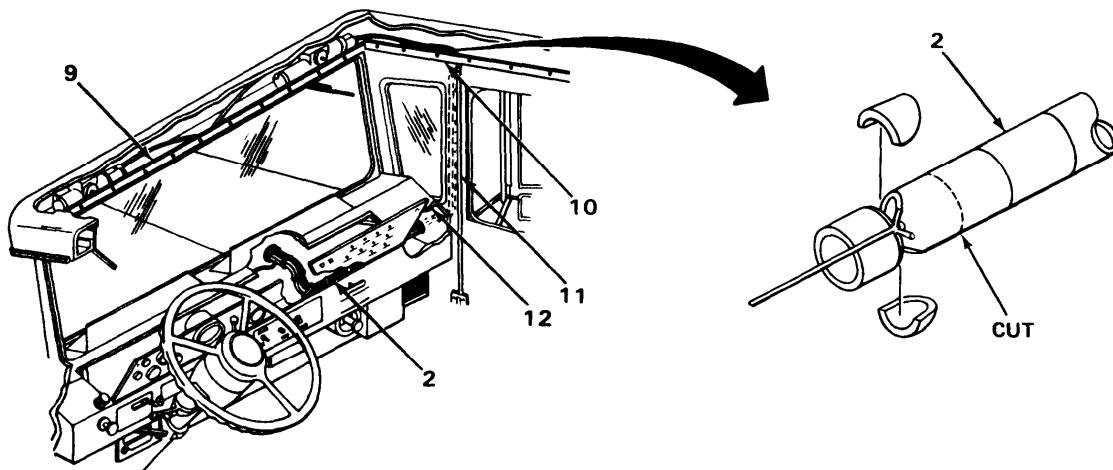
LOCATION	ITEM	ACTION REMARKS
<b>REMOVAL - CONTINUED</b>		
10. Grommet (1)	Vent line (2)	Pull through.
11. Vent line (2) to other air lines and wires (3)	Loop clamp (4)	Using cutting pliers, take out air lines and wires.
12. Loop clamp (4) to dashboard (5)	Nut (6)	Using 3/8-inch open-end wrench, unscrew and take off.
13. Screw (7)	Loop clamp (4)	a. Take off. b. Get rid of.
14. Vent line (2) to other air lines and wires (3)	Tie wraps (8)	a. Using cutting pliers, cut and take off. b. Get rid of.



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**WIPER VENT LINES - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
15. Header (9), side rail (10), hinge pillar (11), and dashboard (12)	Vent line (2)	a. Pull out. b. Take string off line (2). c. Leave string in place.
<b>INSTALLATION</b>		
16.	Vent line (2)	a. Using pocket knife, cut from bulk 1/2-inch longer than old vent line (2). b. Using pocket knife, notch one end. c. Attach string to line in notches.
17. Dashboard (12), hinge pillar (11), side rail (10), and header (9)	Vent line (2)	a. Using string, route vent line into place. b. Take off string. c. Using pocket knife, cut off vent line square behind notches.



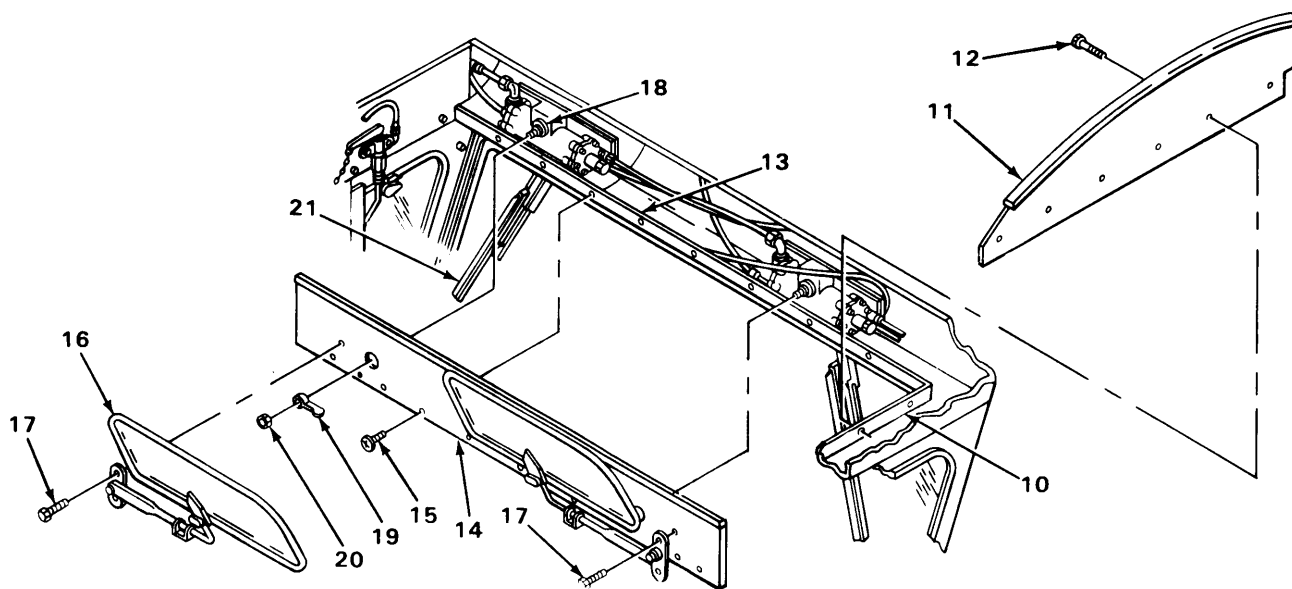
**WIPER VENT LINES - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
<b>INSTALLATION – CONTINUED</b>		
18. Check valve (1)	Vent line (2)	Push on.
19. Vent line (2)	Check valve (1)	Using pressure sensitive tape, tape together.
20. Grommet (3)	Vent line (2)	Push through.
21. Screw (4)	New loop clamp (5)	Put on.
22. Loop clamp (5) to dashboard (6)	Nut (7)	Screw on and tighten using 3/8-inch wrench.
23. Vent line (2) and other air lines and wires (8)	Loop clamp (5)	Using slip-joint pliers, put on.
24.	New tie wraps (9)	Using slip-joint pliers, put on.
		Put in place.
25. Side rail (10)	Right inner roof panel (11)	Put in place.

TA240763

**WIPER VENT LINES - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
28. Right inner roof panel (11) to side rail (10)	Six screws (12)	Screw in and tighten using number two cross-tip screwdriver.
27. Header (13)	Front inner roof panel (14)	Put in place.
28. Front inner roof panel (14)	Seven screws (15)	Screw in and tighten using number two cross-tip screwdriver.
29.	Two sun visor assemblies (16)	Put in place.
30. Two sun visor assemblies (16)	Four screws (17)	Screw in and tighten using number three cross-tip screwdriver.
31. Two wiper motors (18)	Two handles (19)	Put in place.
32. Wiper handles (19)	Two nuts (20)	a. Screw on but do not tighten. b. Position handles (19) parallel to wiper arms (21). c. Using 7/16-inch wrench, tighten.
33. Cab	Instrument panel	Close (page 4-244).



**TASK ENDS HERE**

**REAR VIEW MIRROR HEAD**

---

This task covers:

- a. Removal (page 4-1226)
  - b. Installation (page 4-1226)
- 

**INITIAL SETUP**

**Tools**

Handle, ratchet, 3/8-inch drive  
 Socket, 7/16-inch, 3/8-inch drive  
 Wrench, box, 7/16-inch

**Materials/Parts**

Head, mirror assembly  
 Lockwasher, mirror assembly to  
 bracket (two required)

**Materials/Parts - Continued**

Lockwasher, mirror assembly to bracket  
 (two required)

**Personnel Required**

Two

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LOCATION	ITEM	ACTION	REMARKS
----------	------	--------	---------

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**REMOVAL**

**NOTE**

Steps in this task are the same for both right and left rearview mirror heads. Right mirror head is shown.

- |                                       |   |  |
|---------------------------------------|---|--|
| 1. Mirror head (1) to detent loop (2) | Nut (3), lockwasher (4), convex mirror and bracket (5), spacer (6), lockwasher (7), and screw (8) | a. Using box wrench, socket, and handle, unscrew and take out.<br>b. Get rid of lockwashers (4) and (7).   |
| 2.                                    | Nut (9), lockwasher (10), spacer (11), lockwasher(12), screw (13), and mirror head (1)            | a. Using box wrench, socket, and handle, unscrew and take out.<br>b. Get rid of lockwashers (10) and (12). |

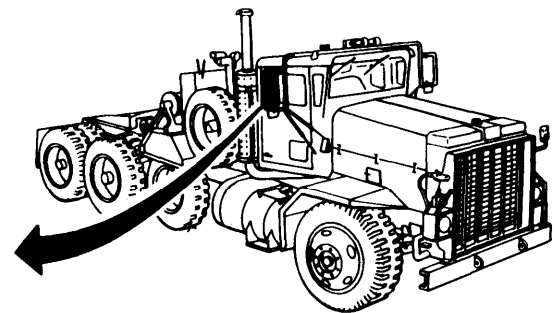
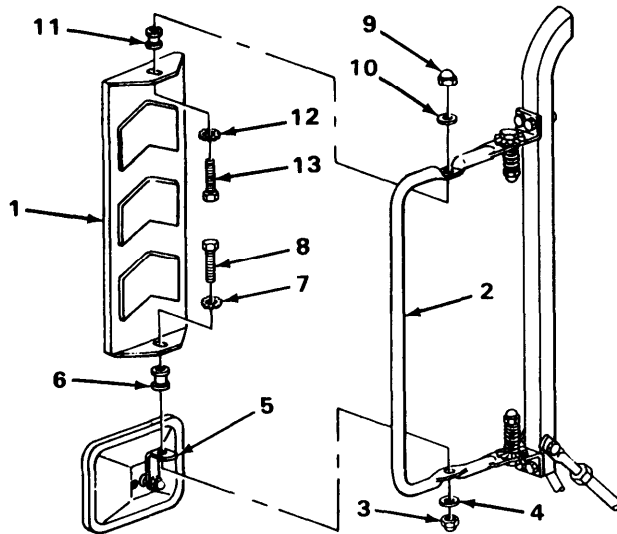
**INSTALLATION**

- |                        |                                   |              |
|------------------------|-----------------------------------|--------------|
| 3. New mirror head (1) | Screw (13) and new lockwasher(12) | Put through. |
|------------------------|-----------------------------------|--------------|



**REAR VIEW MIRROR HEAD - CONTINUED**

LOCATION	ITEM	ACTION	REMARKS
4. Screw (13)	Spacer (11)	Put on.	
5. Detent loop (2)	Screw (13) with mirror head (1)	Put through.	
6. Mirror head (1) to detent loop (2)	New lockwasher (10) and nut (9)	Screw on but do not tighten.	
7. Screw (8)	New lockwasher (7')	Put on.	
8. Mirror head (1)	Screw (8)	Put through part way.	
9. Screw(8)	Spacer (6) and convex mirror and bracket (5)	Put in place and push screw (8) through.	
10. Mirror head (1) to detent loop (2)	New lockwasher (4) and nut (3)	Screw on but do not tighten.	
11.	Mirror (1)	With help from assistant, adjust.	
12. Mirror head (1) to detent loop (2)	Two screws (8) and (13) and nuts (3) and (9)	Using box wrench, socket, and handle, tighten.	



**TASK ENDS HERE**

## CONVEX MIRROR HEAD

---

This task covers:

- a. Removal (page 4-1228)
  - b. Installation (page 4-1228)
- 

### INITIAL SETUP

Tools

Handle, ratchet, 3/8-inch drive  
 Pliers, slip-joint, straight-nose  
 Screwdriver, cross-tip, number two  
 Socket, deep-well, 7/16-inch,  
 3/8-inch drive

Materials/Parts

Lockwasher, convex mirror head to bracket

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LOCATION	ITEM	ACTION REMARKS
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### REMOVAL

#### NOTE

Steps in this task are the same for both right and left convex mirrors. Right convex mirror is shown.

If mirror is not holding adjustment, use cross-tip screwdriver and tighten three screws on back of mirror.

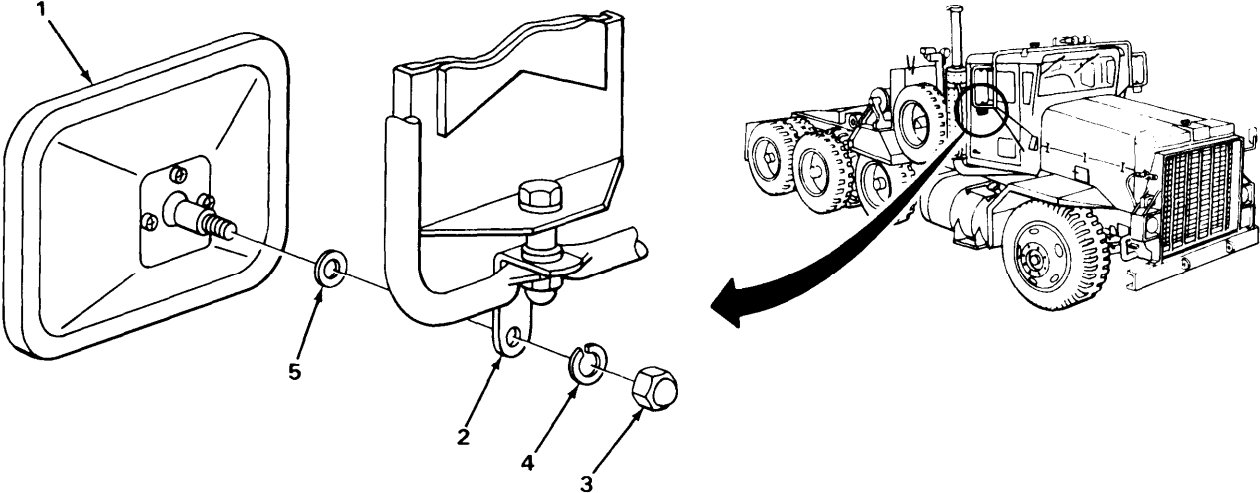
1. Mirror(1) to bracket (2)	Nut (3) and lockwasher (4)	a. Using socket and handle, unscrew and take off. b. Get rid of lockwasher (4). <b>You may have to hold ball shaft with pliers.</b>
2. Bracket (2)	Mirror (1)	Take out.
3. Mirror (1)	Washer (5)	Take off.

### INSTALLATION

4. New mirror (1)	Washer (5)	Put on.
5. Bracket (2)	Mirror (1)	Put in place.
6. Mirror (1) to bracket (2)	New lockwasher (4) and nut (3)	Screw on and tighten using socket and handle.

**CONVEX MIRROR HEAD - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
7.	Mirror (1)	Adjust.



**TASK ENDS HERE**

**MIRROR DETENT LOOP ASSEMBLY**

**This task covers:**

- a. Removal (page 4-1230)
- b. Installation (page 4-1230)

**INITIAL SETUP**

**Tools**

- Handle, ratchet, 3/8-inch drive
- Socket, deep-well, 7/16-inch, 3/8-inch drive
- Socket, deep-well, 9/16-inch, 3/8-inch drive
- Wrench, box, 7/16-inch
- Wrench, box, 9/16-inch

**Materials/Parts**

- Lockwasher, dent loop bracket to mirror mounting tube (four required)

**Personnel Required**

One

**Equipment Condition**

Rear view mirror head removed (page 4-1226).

**MIRROR DETENT LOOP ASSEMBLY - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
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**REMOVAL**

**NOTE**

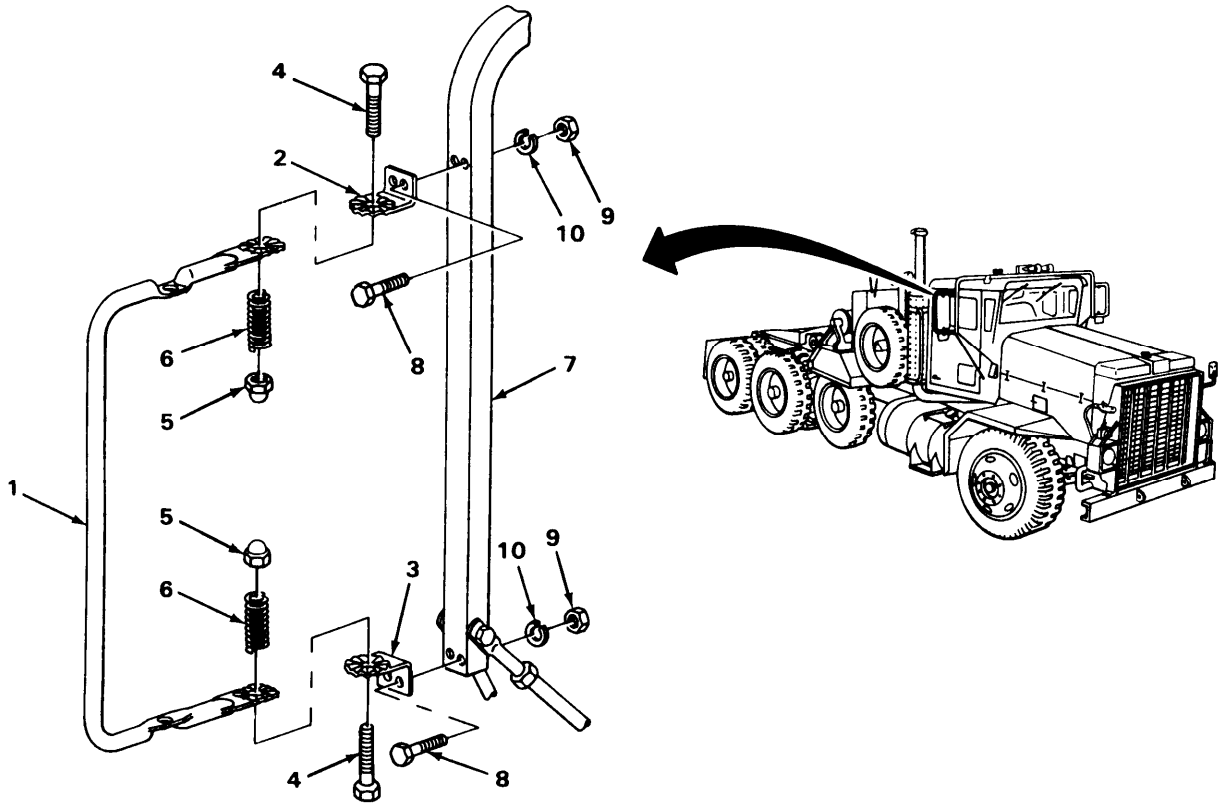
Steps in this task are the same for both right and left mirror detent loop assemblies.  
Right mirror detent loop assembly is shown.

1. Detent loop (1) to two brackets (2) and (3)	Two screws (4), nuts (5), and springs (6)	Using 9/16-inch box wrench, 9/16-inch socket, and handle, unscrew and take out.
2. Two brackets (2) and (3)	Detent loop (1)	Take out.
3. Two brackets (2) and (3) to support tube (7)	Four screws (8), nuts (9), and lockwashers (10)	a. Using 7/16-inch box wrench, 7/16-inch socket, and handle, unscrew and take out. b. Get rid of lockwashers (10)

**INSTALLATION**

4. Support tube (7)	Two brackets (2) and (3)	Put in place and hold.
5. Two brackets (2) and (3) to support tube (7)	Four screws (8), new lockwashers (10), and nuts (9)	Screw in and tighten using 7/16-inch box wrench, 7/16-inch socket, and handle.
6. Two brackets (2) and (3)	Detent loop (1)	Put in place.
7. Detent loop (1) to brackets (2) and (3)	Two screws (4), springs (6), and nuts (5)	Screw on and tighten using 9/16-inch box wrench, 9/16-inch socket, and handle.

MIRROR DETENT LOOP ASSEMBLY - CONTINUED



NOTE

FOLLOW-ON MAINTENANCE: Install rear view mirror head (page 4-1226).

TASK ENDS HERE

**MIRROR MOUNTING TUBE ASSEMBLY**

---

This task covers:

- a. Removal (page 4-1232)
  - b. Installation (page 4-1236)
- 

**INITIAL SETUP**

**Tools**

Extension, 5-inch, 3/8-inch drive  
 Handle, ratchet, 1/4-inch drive  
 Handle, ratchet, 3/8 inch drive  
 Pliers, slip-joint, straight-nose  
 Screwdriver, cross-tip, number 2  
 Socket, 5/16-inch, 1/4-inch drive  
 Socket, 3/8-inch, 3/8-inch drive  
 Socket, 7/16-inch, 3/8-inch drive  
 Socket, 9/16-inch, 3/8-inch drive  
 Wrench, box, 7/16-inch  
 Wrench, open-end, 9/16-inch  
 Wrench, open-end, 7/8-inch

**Materials/Parts**

Lockwasher, front inner cross brace  
 to bracket

**Materials/Parts – Continued**

Lockwasher, front and rear outer cross  
 braces to support arm  
 Lockwasher, mounting tube bracket to two  
 brackets (four required)  
 Lockwasher, mirror mounting tube bracket to  
 roof (two required)  
 Lockwasher, rear inner cross brace to bracket  
 Lockwasher, Left mirror mounting tube  
 bracket to roof (two required)

**Personnel Required**

One

**Equipment Condition**

Rear view mirror removed (page 4-1226).  
 Mirror detent loop assembly removed  
 (page 4-1229).

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LOCATION	ITEM	ACTION	REMARKS
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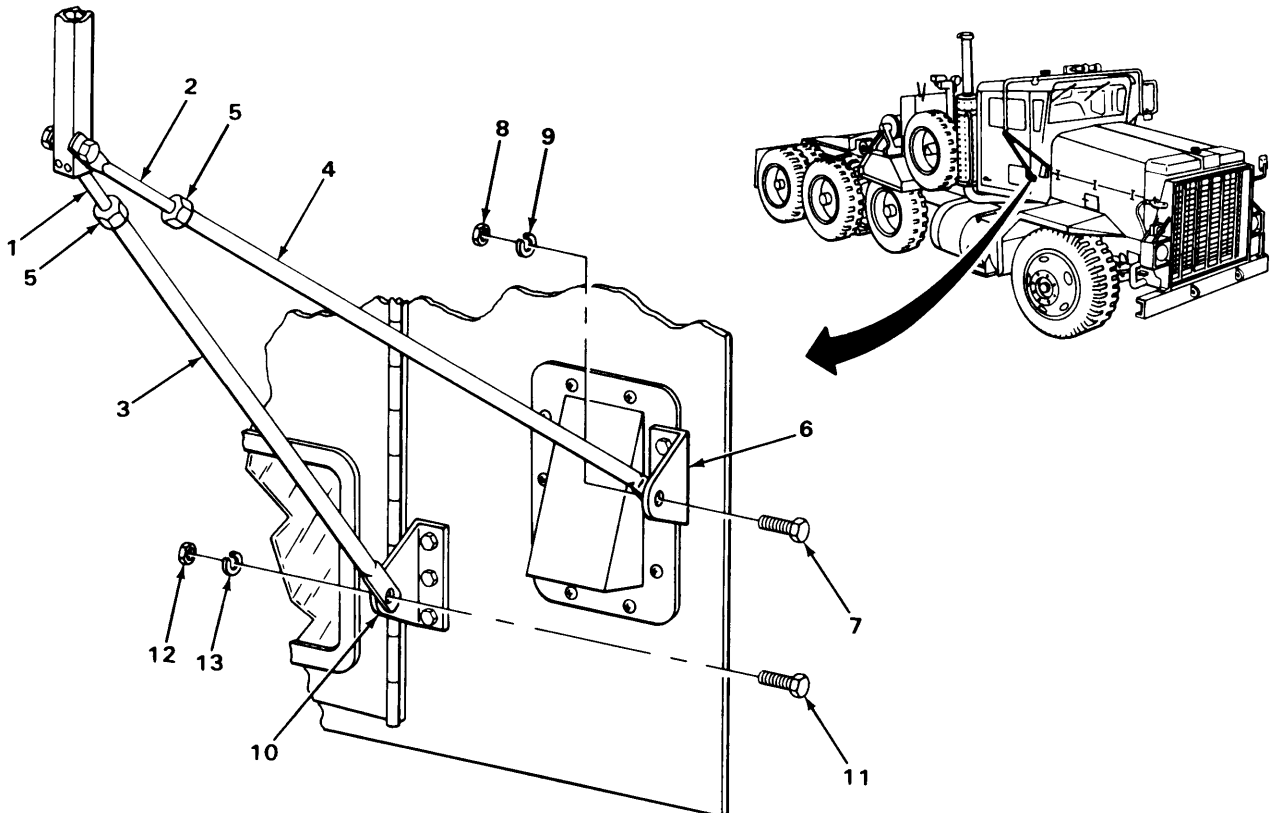
**REMOVAL**

**NOTE**

Steps 1 thru 6 are the same for removing both right and left support arms. Right support arm is shown.

MIRROR MOUNTING TUBE ASSEMBLY - CONTINUED

LOCATION	ITEM	ACTION REMARKS
1. Two outer cross braces (1) and (2) to two inner cross braces (3) and (4)	Two nuts (5)	Using 7/8-inch wrench, unscrew part way.
2. Front inner cross brace (4) to bracket (6)	Screw (7), nut (8), and lockwasher (9)	a. Using 9/16-inch open-end wrench, 9/16-inch socket, and 3/8-inch drive handle, unscrew and take out. b. Get rid of lockwasher (9).
3. Rear inner cross brace (3) to bracket (10)	Screw (11), nut (12), and lock-washer (13)	a. Using 9/16-inch open-end wrench, 9/16-inch socket, and 3/8-inch drive handle, unscrew and take out. b. Get rid of lockwasher (13).

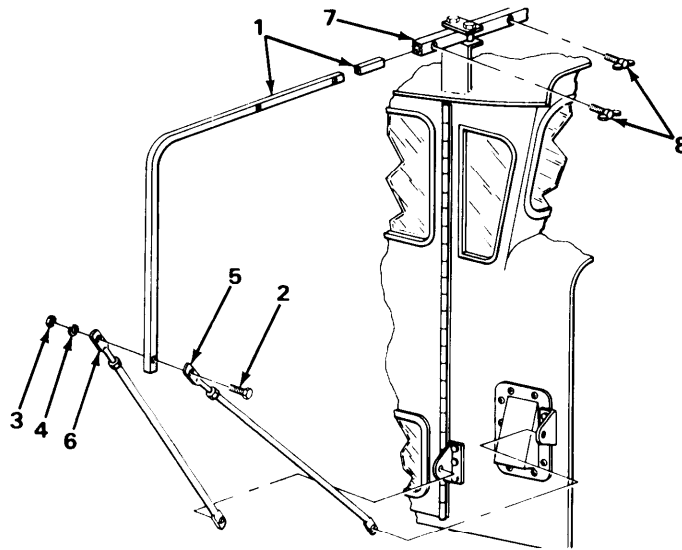


MIRROR MOUNTING TUBE ASSEMBLY - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
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REMOVAL- CONTINUED

- |   |  |   |
|---|--|---|
| 4. Support arm (1)                      | Screw (2), nut (3), lockwasher (4), and two outer cross braces (5) and (6) | a. Using 9/16-inch open-end wrench, 9/16-inch socket, and 3/8-inch drive handle, unscrew and take off.<br>b. Get rid of lockwasher (4). |
| 5. Support arm (1) to mounting tube (7) | Two wing screws (8)  | Unscrew and take out.<br><b>You may have to use pliers to break loose.</b>  |
| 6. Mounting tube (7)                    | Support arm (1)  | Pull out.   |
| 7.                                      | Left support arm and braces  | Repeat steps 1 to 6.  |



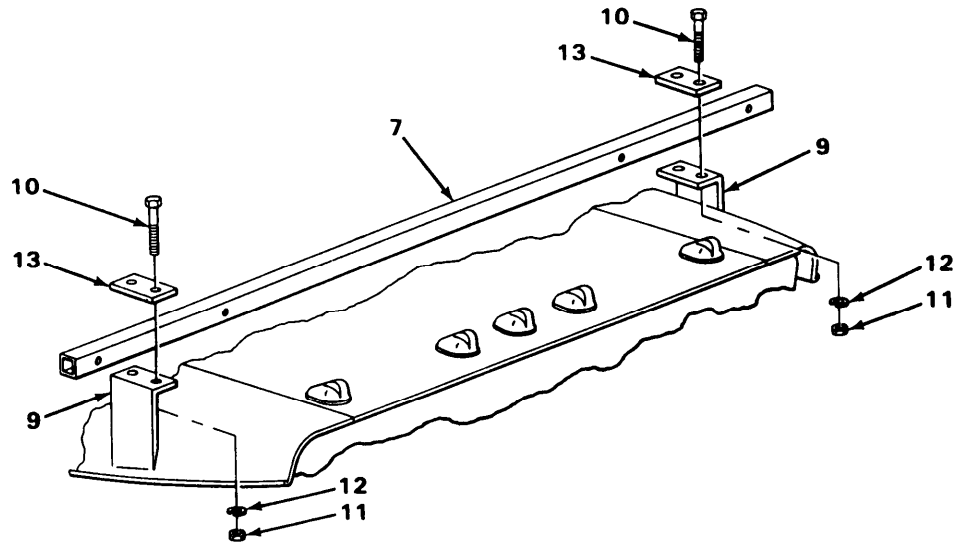
- |  |   |  |
|--|---|--|
| 8. Mounting tube (7) to two brackets (9) | Four screws (10), four nuts (11), and four lockwashers (12) | a. Using 7/16-inch box wrench, 7/16-inch socket, and 3/8-inch drive handle, unscrew and take off.<br>b. Get rid of lockwashers (12). |
| 9. Mounting tube (7)                     | Two clamp plates (13)                                       | Take off.  |
| 10. Two brackets (9)                     | Mounting tube (7)   | Take off.  |

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MIRROR MOUNTING TUBE ASSEMBLY - CONTINUED

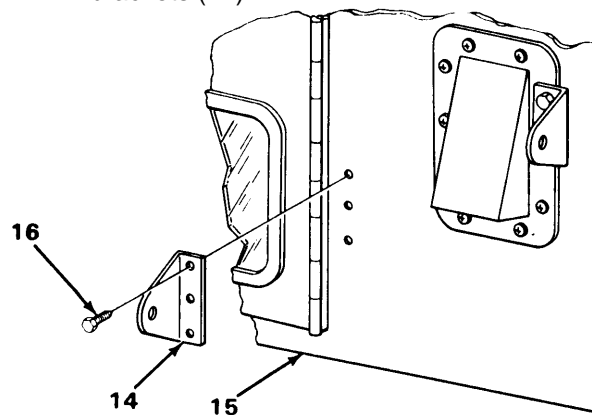
LOCATION	ITEM	ACTION REMARKS
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**NOTE**

Steps are the same for removing all four cross brace brackets. Right rear bracket is shown.

- |   |                                       |  |
|---|---------------------------------------|--|
| 11. Cross brace bracket (14) to cowl (15) | Three screws (16)                     | Using 3/8-inch socket, extension, and 3/8-inch drive handle, unscrew and take out. |
| 12. Cowl (16)                             | Cross brace bracket (14)              | Take off.  |
| 13.                                       | Three other cross brace brackets (14) | Repeat steps 1 1 and 12.   |

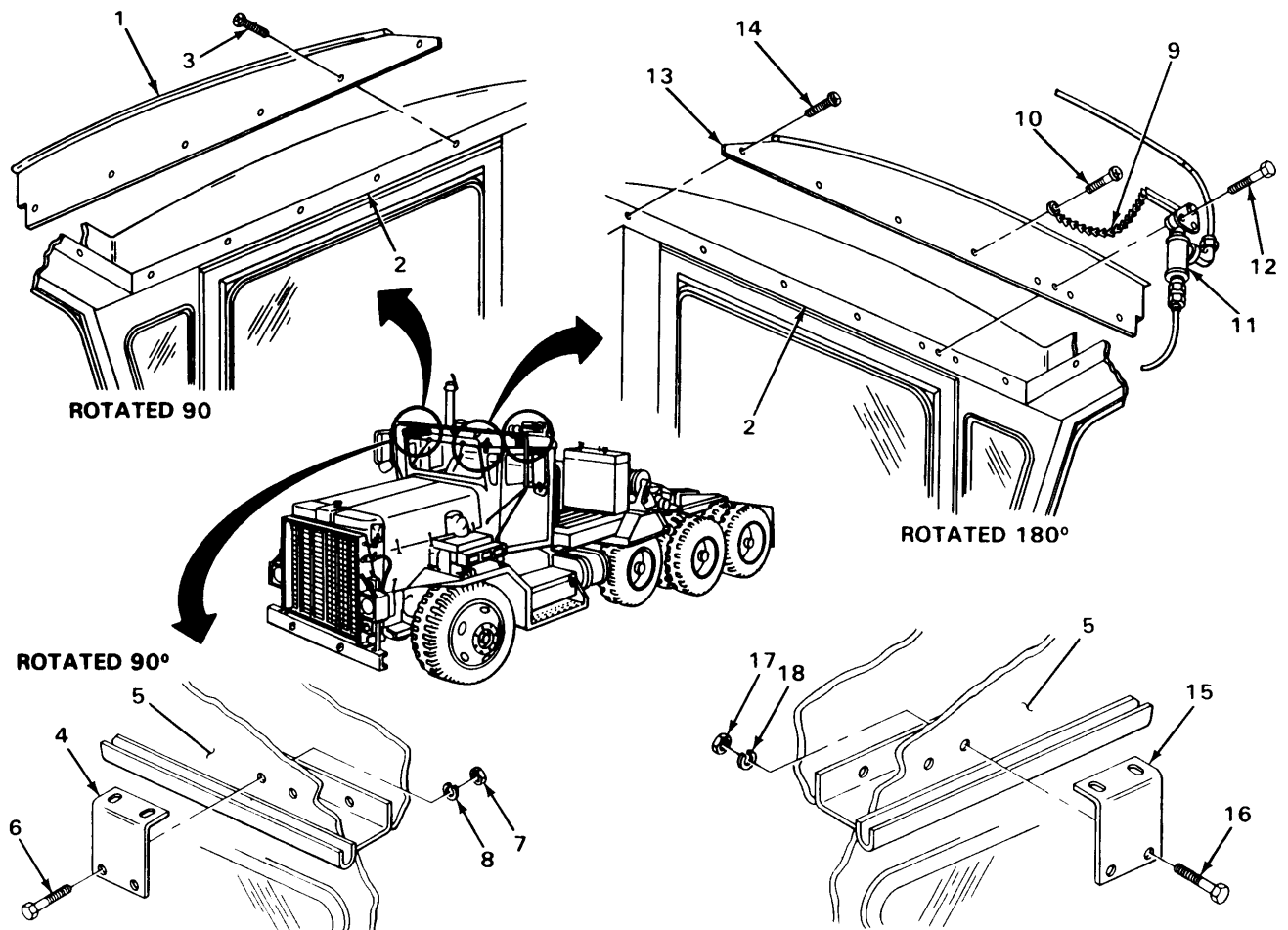


**MIRROR MOUNTING TUBE ASSEMBLY - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
REMOVAL- CONTINUED		
14. Right inner roof side panel (1) to side rail (2)	Six screws (3)	Using cross-tip screwdriver, unscrew and take out.
15. Side rail (2)	Right inner roof panel (1)	Take out.
16. Right mirror mounting tube bracket (4) to roof (5)	Two screws (6), nuts (7), lockwashers (8), and bracket (4)	a. Using 7/16-inch box wrench, 7/16-inch socket, extension, and 3/8-inch drive handle, unscrew and take off. b. Get rid of lockwashers (8).
17. Air horn chain (9) to side rail (2)	Screw (10) and chain (9)	Using number two cross-tip screwdriver, unscrew and take off.
18. Air horn valve (11) to side rail (2)	Two screws (12)	Using 5/16-inch socket and 1/4-inch drive handle, unscrew and take out.
19.	Air horn valve (11)	Allow to hang by air lines.
20. Left inner roof panel (13) to side rail (2)	Five screws (14)	Using number two cross-tip screwdriver, unscrew and take out.
21. Side rail (2)	Left inner roof panel (13)	Take off.
22. Left mirror mounting tube bracket (15) to roof (5)	Two screws (16), nuts (17), lockwashers (18), and bracket (15)	a. Using 7/16-inch box wrench, socket, extension, and 3/8-inch drive handle, unscrew and take off. b. Get rid of lockwashers (18).
INSTALLATION		
23. Roof (5)	Left mirror mounting tube bracket (15)	Put in place and hold.
24. Left mirror mounting tube bracket (15) to roof (5)	Two screws (16), new lockwashers (18), and nuts (17)	Screw in and tighten using 7/16-inch box wrench, socket, extension, and 3/8-inch drive handle.

MIRROR MOUNTING TUBE ASSEMBLY - CONTINUED

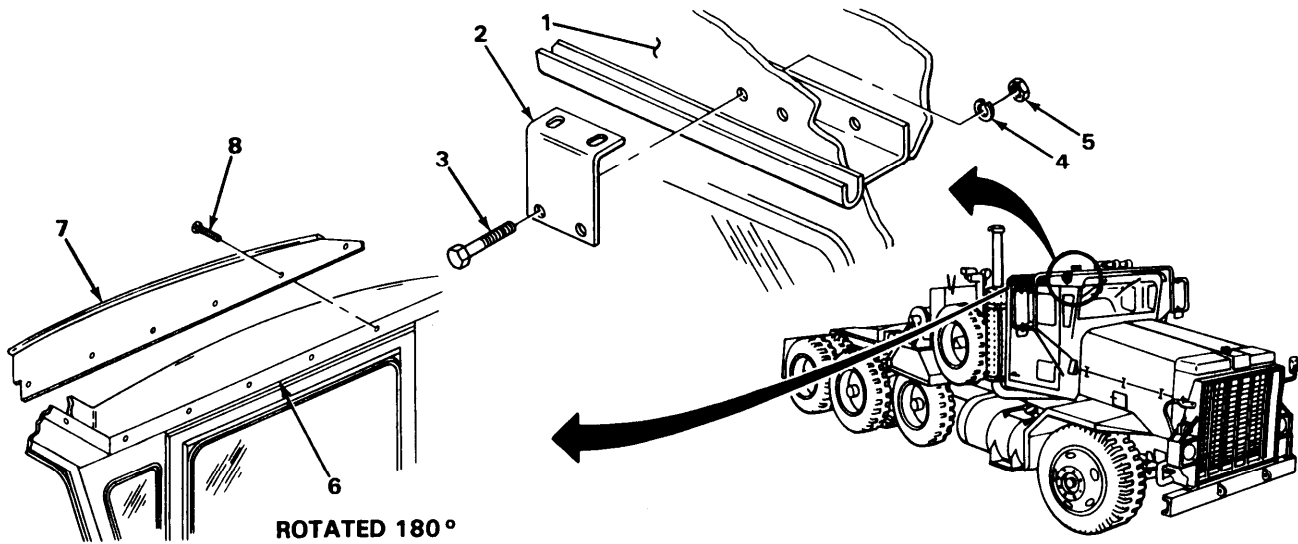
LOCATION	ITEM	ACTION	REMARKS
25. Side rail (2)	Left inner roof panel (13)	Put in place and hold.	
26. Left inner roof panel (13) to side rail (2)	Five screws (14)	Screw in and tighten using number two cross-tip screwdriver.	
27. Left inner roof panel (13)	Air horn valve (11)	Put in place.	
28. Air horn valve (11) to side rail (2)	Two screws (12)	Screw in and tighten using 5/16-inch socket and handle, 1/4-inch drive.	
29. Screw (10)	Air horn chain (9)	Put on.	
30. Air horn chain (9) to side rail (2)	Screw (10)	Screw in and tighten using number two cross-tip screwdriver.	



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**MIRROR MOUNTING TUBE ASSEMBLY - CONTINUED**

LOCATION	ITEM	ACTION	REMARKS
<b>INSTALLATION - CONTINUED</b>			
31. Roof (1)	Right mounting tube bracket (2)	Put in place.	
32. Right mounting tube bracket (2) to roof (1)	Two screws (3), new lockwashers (4), and nuts (5)	Screw in and tighten using 7/16-inch box wrench, 7/16-inch socket, and 3/8-inch drive handle.	
33. Side rail (6)	Right inner roof panel (7)	Put in place.	
34. Right inner roof panel (7) to side rail (6)	Six screws (8)	Screw in and tighten using number two cross-tip screwdriver.	



**NOTE**

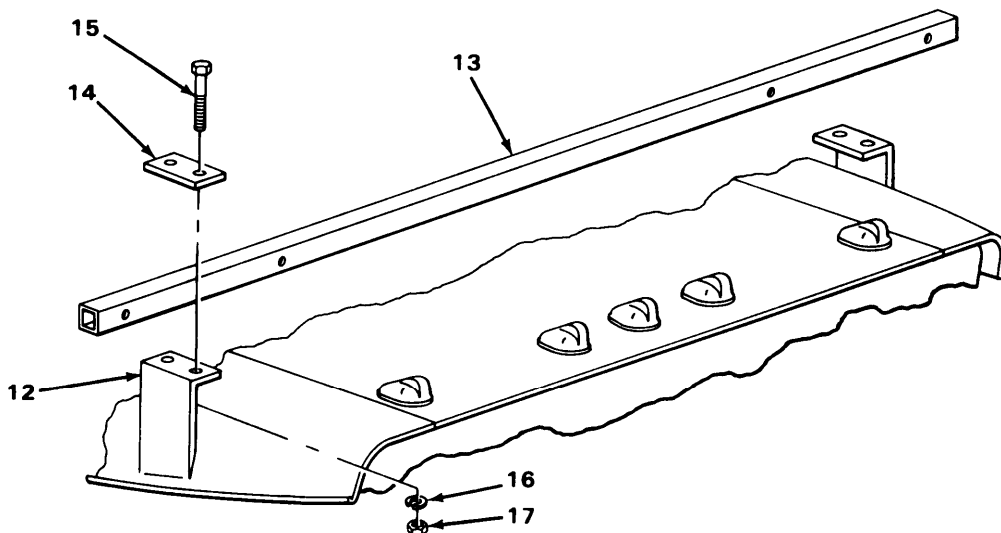
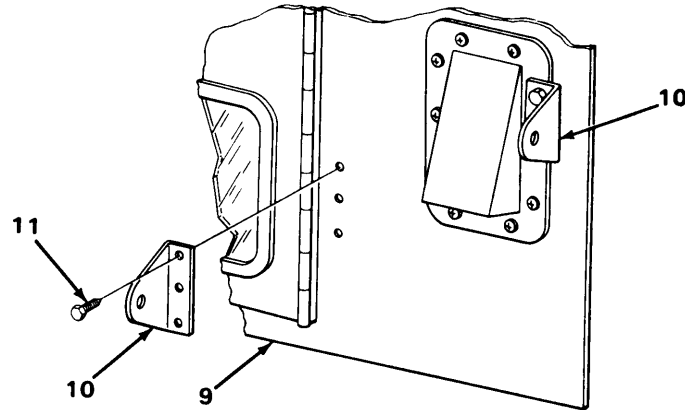
Steps are the same for installing all four cross brace brackets. Right rear bracket is shown.

35. cowl (9)	Cross brace bracket (10)	Put in place.	
36. Cross brace bracket (10) to cowl (9)	Three screws (11)	Screw in and tighten using 3/8-inch socket, extension, and 3/8-inch drive handle.	

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MIRROR MOUNTING TUBE ASSEMBLY - CONTINUED

LOCATION	ITEM	ACTION REMARKS
37. cowl (9)	Other three cross brace brackets (10)	Repeat steps 35 and 36.
38. Two brackets (12)	Mounting tube (13)	Put in place.
39. Mounting tube (13)	Two clamp plates (14)	Put in place.
40. Two clamp plates (14) to brackets (12)	Four screws (15), new lockwashers (16), and nuts (17)	Screw in and alternately tighten using 7/16-inch box wrench, 7/16-inch socket, and 3/8-inch drive handle.



MIRROR MOUNTING TUBE ASSEMBLY - CONTINUED

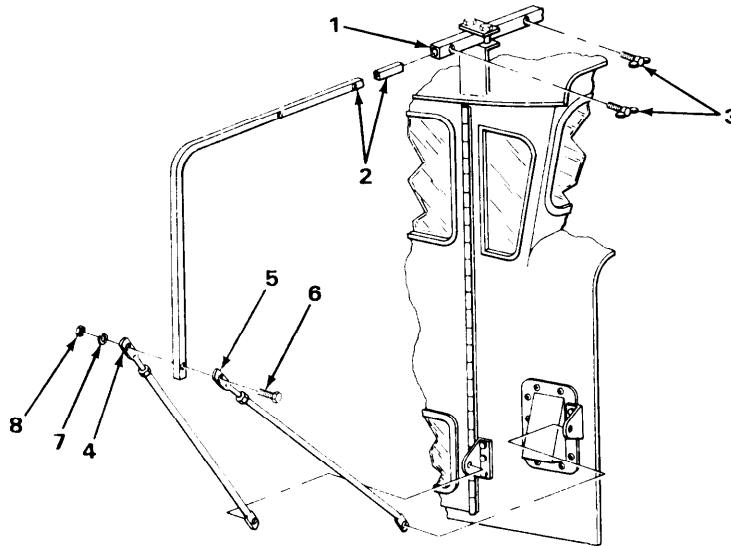
LOCATION	ITEM	ACTION	REMARKS
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INSTALLATION – CONTINUED

NOTE

Steps are the same for installing both right and left support arms. Right support arm is shown.

41. Mounting tube (1)	Support arm (2)	Push in until screw holes line up.	
42. Support arm (2) to mounting tube (1)	Two wing screws (3)	Screw in and tighten by hand.	
43. Support arm (2)	Two outer cross braces (4) and (5)	Put in place.	
44. Two cross braces (4) and (5) to support arm (2)	Screw (6), new lockwasher (7), and nut (8)	Screw in but do not tighten.	

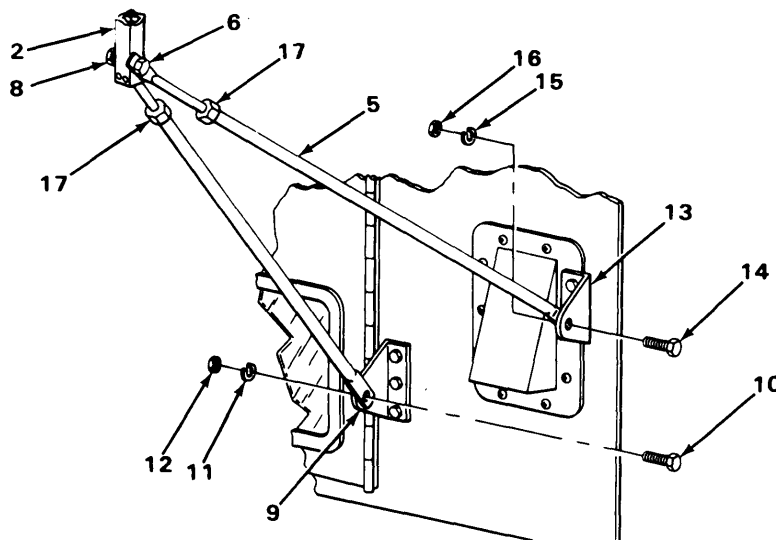


45. Rear cross brace bracket (9)	Outer cross brace (4)	a. Slide up or down until holes line up. b. Put in place.	
46. Outer cross brace (4) to outer cross brace bracket (9)	Screw (10), new lockwasher (11), and nut (12)	Screw in and tighten using 9/16-inch open-end wrench, 9/16-inch socket, and 3/8-inch drive handle.	
47. Front cross brace bracket (13)	Outer cross brace (5)	a. Slide up or down until holes line up. b. Put in place.	

TA240774

**MIRROR MOUNTING TUBE ASSEMBLY - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
48. Outer cross brace (5) to front cross brace bracket (13)	Screw (14), new lockwasher (15), and nut (16)	Screw in and tighten using 9/16-inch open-end wrench, 9/16-inch socket, and 3/8-inch drive handle.
49. Two outer cross braces (4) and (5)	Two nuts (17)	Using 7/8-inch wrench, tighten.
50. Two outer cross braces (4) and (5) to support arm (2)	Screw (6) and nut (8)	Using 9/16-inch open-end wrench, 9/16-inch socket, and 3/8-inch drive handle, tighten.
51.	Left support arm and cross tubes	Repeat steps 41 to 50.



**NOTE**

FOLLOW-ON MAINTENANCE: Install mirror detent loop assembly (page 4-1232).

**TASK ENDS HERE**

**SPOTTER MIRROR HEAD AND BRACKET**

---

This task covers:

- a. Removal (page 4-1242)
  - b. Installation (page 4-1243)
- 

**INITIAL SETUP**

**Tools**

- Wrench, box, 1/2-inch
- Wrench, box, 15/16-inch
- Wrench, open-end, 1/2-inch
- Wrench, open-end, 13/16-inch

**Materials/Parts - Continued**

- Lockwasher, rod to radiator guard
- Nut, self-locking, rod to radiator guard

Personnel Required

**Materials/Parts**

Two

- Lockwasher, mirror head to rod  
(two required)
- 

LOCATION	ITEM	ACTION REMARKS
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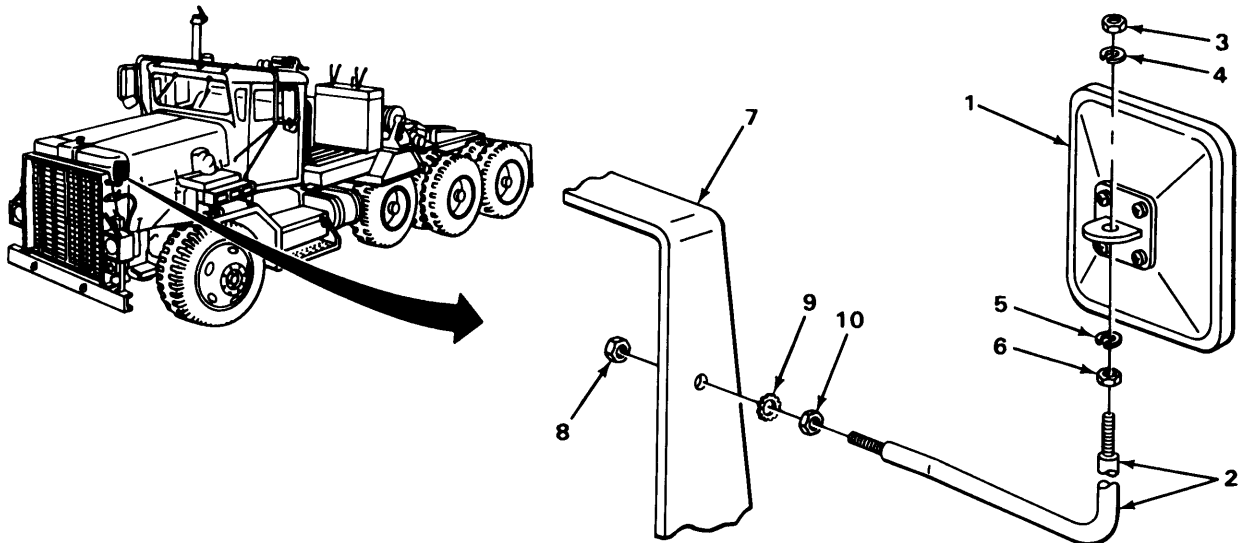
**REMOVAL**

1. Mirror head (1) to rod (2)	Nut (3) and lock-washer (4)	s. Using 1/2-inch open-end and box wrenches, unscrew and take off. b. Get rid of lockwasher (4).
2. Rod (2)	Mirror head (1) and lockwasher (5)	a. Take off. b. Get rid of lockwasher (5).
3.	Nut (6)	Unscrew and take off.
4. Rod (2) to radiator guard (7)	Self-locking nut (8)	a. Using 15/16-inch box wrench, unscrew and take off. c. Get rid of nut (8).
5. Radiator guard (7)	Rod (2) and lock-washer (9)	a. Take off. b. Get rid of lockwasher (9).
6. Rod (2)	Nut (10)	Using 15/16-inch box wrench, unscrew and take off.



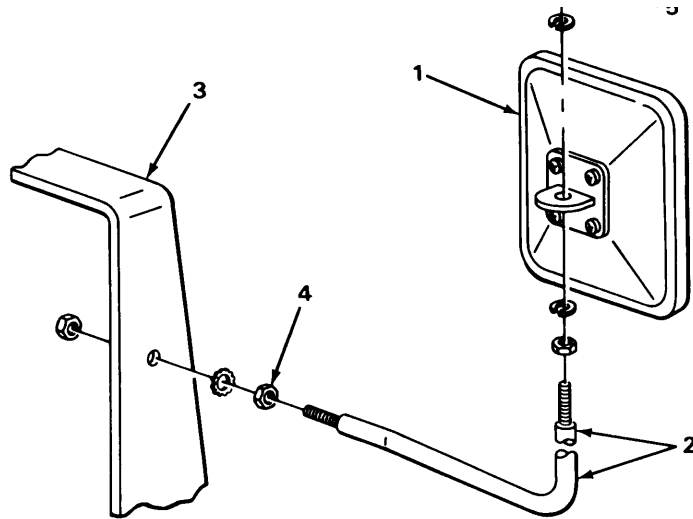
**SPOTTER MIRROR HEAD AND BRACKET - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
<b>INSTALLATION</b>		
7. Rod (2)	Nut (10)	Screw on, leaving 1/4-inch of threads showing between nut (10) and beginning of threads.
8.	New lockwasher (9)	Put on.
9. Radiator guard (7)	Rod (2)	Put in place.
10. Rod (2) to radiator guard (7)	New self-locking nut (8)	Screw on and tighten using 15/16inch box wrench.
11. Rod (2)	Nut (10)	Using 15/16-inch open-end wrench, unscrew part way, then tighten.
12.	Nut (6)	Screw on.
13.	New lockwasher (5) and mirror head (1)	Put on.
14. Mirror head (1) to rod (2)	New lockwasher (4) and nut (3)	Screw on finger tight.



**SPOTTER MIRROR HEAD AND BRACKET - CONTINUED**

LOCATION	ITEM	ACTION	REMARKS
<b>INSTALLATION</b>			
15.	Mirror head (1) and rod (2)	With help from assistant, adjust.	
16.	Rod (2) to radiator guard (3)	Using 15/16-inch box and open-end wrenches, tighten.	
17.	Mirror head (1) to rod (2)	Using 1/2-inch open-end and box wrenches, tighten.	



**TASK ENDS HERE**

**AIR HORN VALVE**

This task covers:

- a. Removal (page 4-1245)
- b. Disassembly (page 4-1246)
- c. Cleaning (page 4-1246)
- d. Inspection/Replacement (page 4-1246)
- e. Assembly (page 4-1247)
- f. Installation (page 4-1248)

**AIR HORN VALVE - CONTINUED**

**INITIAL SETUP**

**Tools**

- Hammer, plastic
- Handle, ratchet, 1/4-inch drive
- Pliers, long-nose, round
- Pliers, slip-joint, straight-nose
- Screwdriver, cross-tip, number 2
- Socket, 5/16-inch, 1/4-inch drive
- Vise
- Wrench, open-end, 3/8-inch
- Wrench, open-end, 9/16-inch
- Wrench, open-end, 13/16-inch

**Materials/Parts**

- Soap, liquid (Item 14, appendix C)
- Tag, marking (item 18, appendix C)
- Tape, teflon (item 22, appendix C)

**Personnel Required**

One

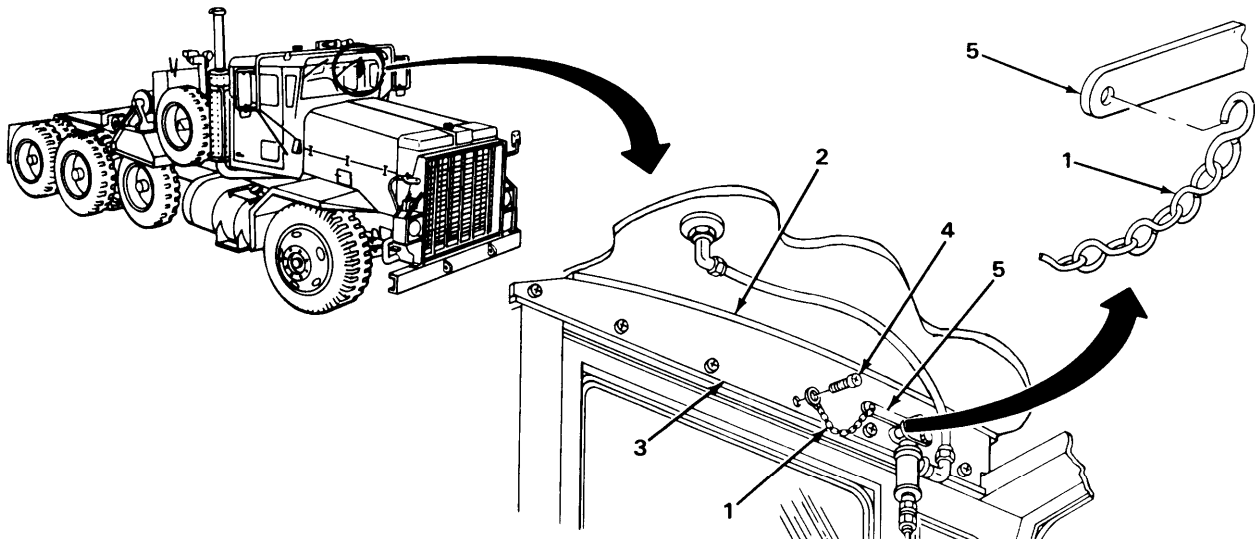
LOCATION	ITEM	ACTION	REMARKS
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**REMOVAL**

**WARNING**

Make sure all pressure is drained from air system before disconnecting air lines. Parts under pressure can, when removed, fly off with great force causing injury to personnel.

- |    |  |   |
|----|--|---|
| 1. | Air system   | Drain (TM 9-2330-270-10).   |
| 2. | Chain (1) to left inner roof panel (2) and side rail (3) | Using cross-tip screwdriver, unscrew and take off.                  |
| 3. | Valve arm (5)  | Using slip-joint and long-nose pliers, open last link and take off. |



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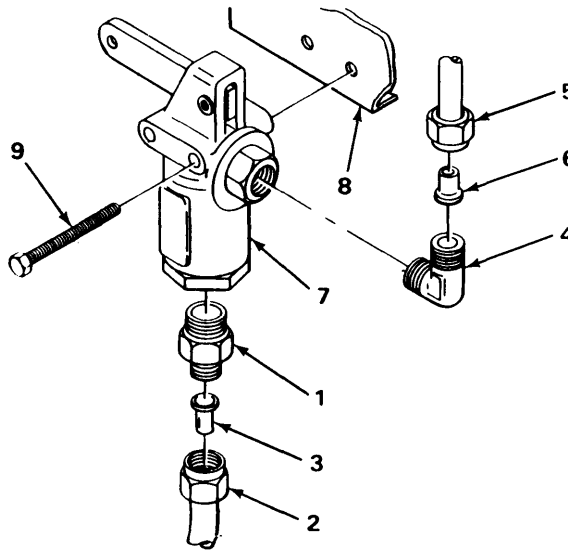
4-1245

**AIR HORN VALVE - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
<b>REMOVAL - CONTINUED</b>		
<b>NOTE</b>		
Tag lines according to general maintenance instructions (page 4-1).		
4. Adapter (1)	Air line 38 (2)	Using 9/16-inch wrench, unscrew and pull out.
5. Air line 38 (2) or adapter (1)	Insert (3)	Using pliers, pull out.
6. Elbow (4)	Air line 39 (5)	Using 9/16-inch wrench, unscrew and pull out.
7. Air line 39 (5) or elbow (4)	Insert (6)	Using long-nose pliers, pull out.
8. Valve (7) to side rail (8)	Two screws (9)	Using 5/16-inch socket and handle, unscrew and take off.
9. Side rail (8)	Valve (4)	Take off.
<b>DISASSEMBLY</b>		
10. Valve (7)	Adapter (1)	a. Secure valve (7) in vise. b. Using 9/16-inch and 13/16-inch wrenches, unscrew and take out.
11.	Elbow (4)	a. Using 3/8-inch wrench, unscrew and take out. b. Take valve (7) out of vise.
<b>CLEANING</b>		
12.	All parts	Clean according to general maintenance instructions (page 4-1).
<b>INSPECTION/REPLACEMENT</b>		
13.	All parts	Inspect according to general maintenance instructions (page 4-1).

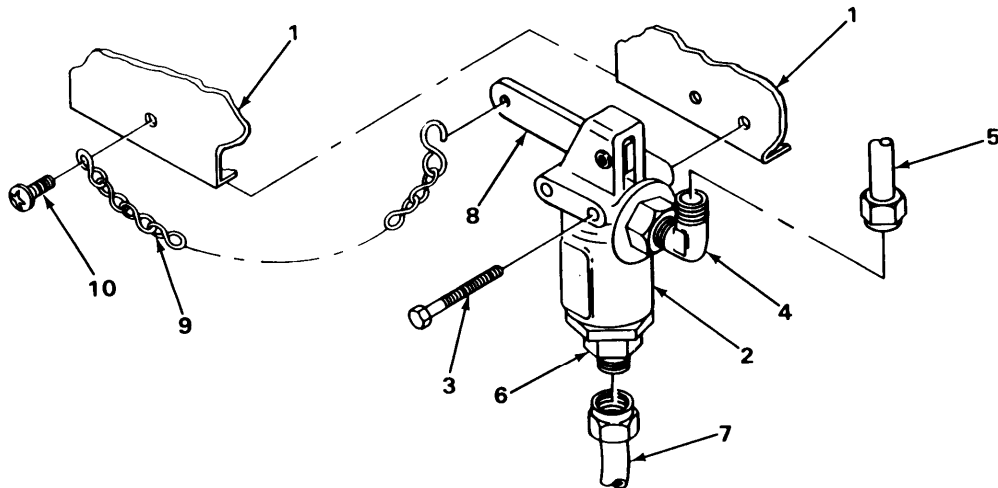
**AIR HORN VALVE - CONTINUED**

LOCATION	ITEM	ACTION	REMARKS
<b>ASSEMBLY</b>			
14. Valve (7)	Elbow (4)	a. Secure valve (7) in vise. b. Wrap threads with teflon tape (page 4-1). c. Screw in and tighten using 3/6-inch wrench.	
15.	Adapter (1)	a. Wrap threads with teflon tape (page 4-1). b. Screw in and tighten using 9/16-inch wrench.	
16. Elbow (4) and adapter (1)	Two inserts (3) and (6)	a. Push in and using plastic hammer, seat. b. Take valve (7) out of vise.	



AIR HORN VALVE - CONTINUED

	LOCATION	ITEM	ACTION	REMARKS
INSTALLATION				
17.	Left inner roof side panel (1)	Valve (2)	Put in place.	
18.	Valve (2) to left inner roof side panel (1)	Two screws (3)	Screw in and tighten using 5/16-inch socket and handle.	
19.	Elbow (4)	Air line 39 (5)	a. Lube end lightly with soap and push in until seated. b. Screw on and tighten using 9/16-inch wrench.	
20.	Adapter (6)	Air line 38 (7)	a. Lube end lightly with soap and push in until seated. b. Screw on and tighten using 9/16-inch wrench.	
21•	Arm (8)	Chain (9)	a. Put through hole. b. Using slip-joint pliers. close.	
22.	Chain (9)	Screw (10)	Put through first link.	
23.	Left inner roof side panel (1)	Screw (10)	Screw in and tighten using screwdriver.	



## AIR HORN VALVE - CONTINUED

### NOTE

FOLLOW-ON MAINTENANCE: Check operation (TM 9-2320-270-10).

### TASK ENDS HERE

## AIR HORN CHAIN

This task covers:

- a. Removal (page 4-1249)
- b. Installation (page 4-1250)

### INITIAL SETUP

#### Tools

Pliers, long-nose, round  
 Pliers, slip-joint, straight nose  
 Screwdriver, cross-tip, number 2

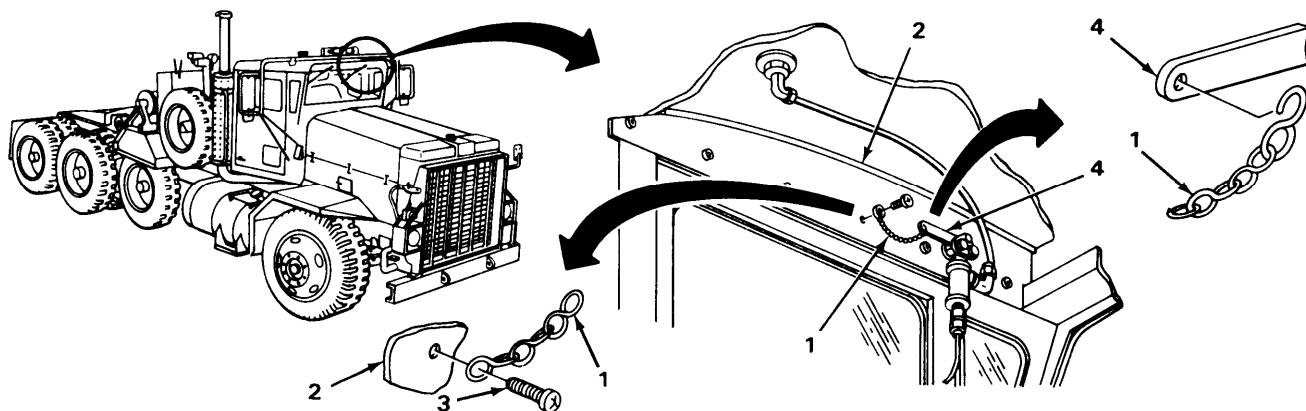
#### Personnel Required

One

LOCATION	ITEM	ACTION	REMARKS
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### REMOVAL

- |   |                         |   |
|---|-------------------------|---|
| 1. Chain (1) to left inner roof panel (2) | Screw (3) and chain (1) | Using screwdriver, unscrew and take out.                            |
| 2. Valve arm (4)                          | Chain (1)               | Using slip-joint and long-nose pliers, open last link and take off. |

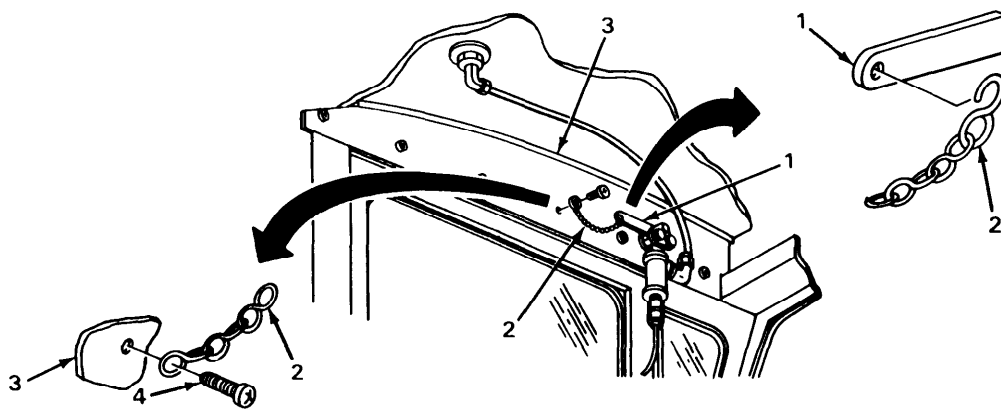


**AIR HORN CHAIN - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
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**INSTALLATION**

- |                              |                         |  |
|------------------------------|-------------------------|--|
| 3. Valve arm (1)             | New chain (2)           | a. Put through hole.<br>b. Using slip-joint pliers, close. |
| 4. Left inner roof panel (3) | Screw (4) and chain (2) | Screw in and tighten using screwdriver.                    |



**TASK ENDS HERE**



## AIR HORN

---

This task covers:

- |   |                               |
|---|-------------------------------|
| a. Removal (page 4-1252)                | e. Assembly (page 4-1255)     |
| b. Disassembly (page 4-1254)            | f. installation (page 4-1257) |
| c. Cleaning (page 4-1254)               | g. Adjustment (page 4-1258)   |
| d. inspection/Replacement (page 4-1255) |                               |
- 

## INITIAL SETUP

### Tools

Caps, vise-jaw, brass  
 Hammer, plastic  
 Key, socket-head screw, 5/32-inch  
 Knife, pocket  
 Knife, putty  
 Pliers, long-nose, round  
 Screwdriver, cross-tip, number 3  
 Screwdriver, fiat-tip, 3/8-inch  
 Vise, machinist's  
 Wrench, adjustable, 14-inch  
 Wrench, box, 1/2-inch  
 Wrench, open-end, 3/8-inch  
 Wrench, open-end, 9/16-inch  
 Wrench, open-end, 15/16-inch  
 Wrench, pipe, 1/4- to 1-inch

### Materials/Parts

Cement, gasket (item 2, appendix C)  
 Gasket, horn to roof

### Materials/Parts - Continued

Lockwasher, horn cover to body  
 (eight required)  
 Lockwasher, horn tor roof  
 Sandpaper, medium grit (item 13,  
 appendix C)  
 Soap, liquid (item 14, appendix C)  
 Tape, tefion (item 22, appendix C)

### Personnel Required

One

**AIR HORN - CONTINUED**

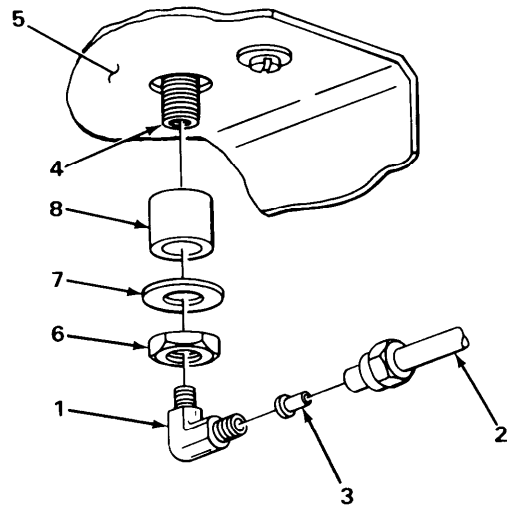
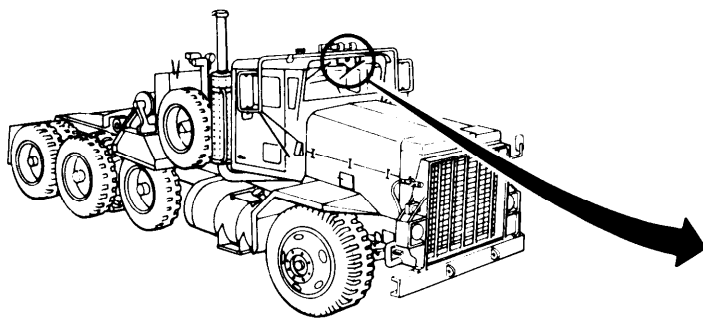
LOCATION	ITEM	ACTION	REMARKS
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**REMOVAL**

**WARNING**

Make sure all pressure is drained from air system before disconnecting air lines. Parts under pressure can, when removed, fly off with great force causing injury to personnel.

- |                                 |                                     |  |
|---------------------------------|-------------------------------------|--|
| 1.                              | Air system                          | Drain (TM 9-2320-270-10).                              |
| 2. Elbow (1)                    | Air line 39 (2)                     | Using 9/16-inch open-end wrench, unscrew and pull out. |
| 3. Air line 39 (2) or elbow (1) | Insert (3)                          | Using pliers, pull out.                                |
| 4. Coupling (4)                 | Elbow (1)                           | Using 3/8-inch open-end wrench, unscrew and take out.  |
| 5. Coupling (4) to roof (5)     | Nut (6), washer (7), and spacer (8) | Using 15/16-inch wrench, unscrew and take out.         |



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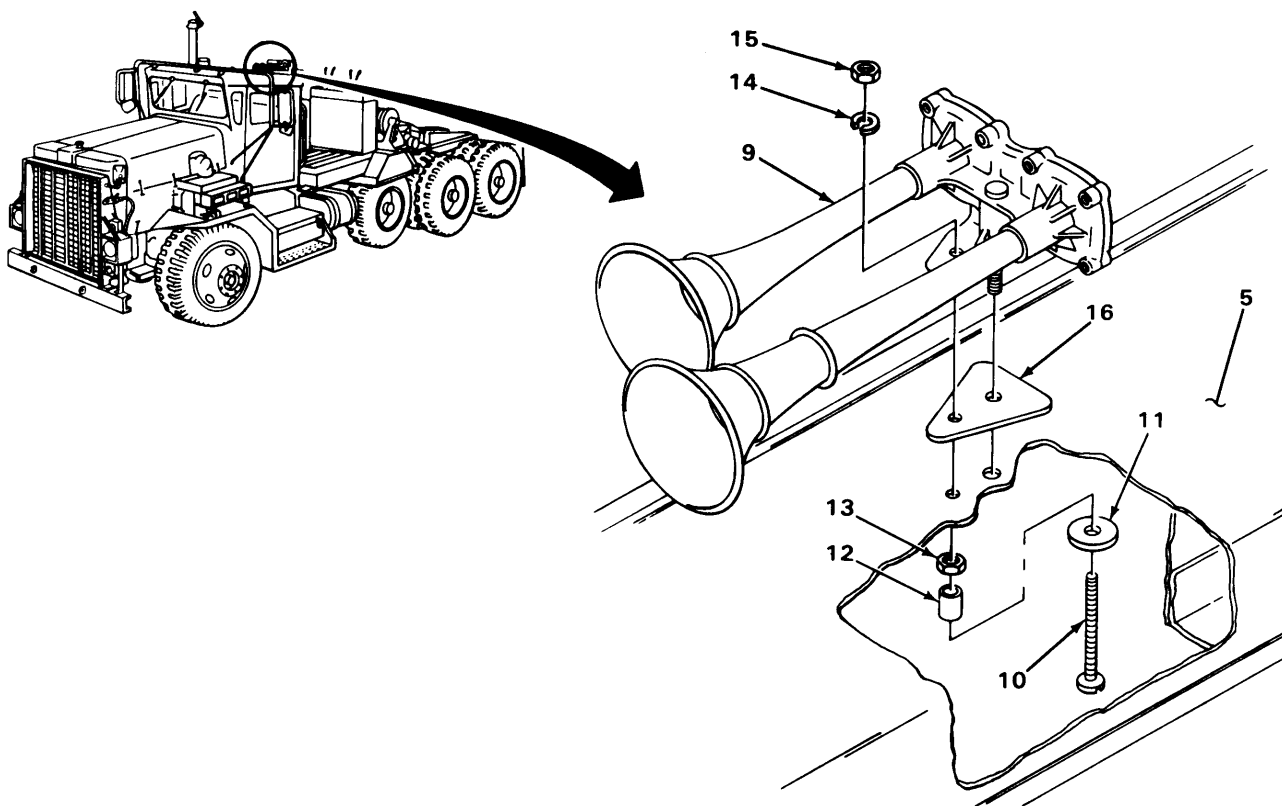
**AIR HORN - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
6. Horn (9) to roof (5)	Screw (10), washer (11), spacer (12), nut (13), lockwasher (14), and nut (15)	a. Using 3/8-inch screwdriver and 1/2-inch box wrench, unscrew and take out. b. Get rid of lockwasher (14).
7. Roof (5)	Horn (9)	Lift off.

**NOTE**

Do not remove gasket unless it is leaking or you are installing a different horn assembly.

8. Gasket (16) Using putty knife and sandpaper, scrape and sand off.



**AIR HORN - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
----------	------	-------------------

**DISASSEMBLY**

**NOTE**

Except as noted, steps are the same for disassembling both right and left horn. However, do not mix parts. Right horn is shown,

9. Cover(1) to body (2)	Four screws (3), four lockwashers (4), and one tag (5)	a. Using cross-tip screwdriver, unscrew and take out. b. Get rid of lockwashers (4). Left horn does not have part number tag.
10. Body (2)	Cover (1)	Lift off.
11.	Spring (6), contact (7), and diaphragm (8)	Take out.
12. Spring (6)	Contact (7)	Snap out.
13. Cover (1)	Spring seat (9) and nut (10)	Using 5/32-inch key, and 1/2-inch wrench, unscrew and take off.
14. Body (2)	Bell (11)	Using adjustable wrench, unscrew and take off.
15. Bell (11)	Screen (12)	Using pocket knife, pry out.

**CAUTION**

Do not remove coupling unless inspection shows need for replacement.

16. Body (2)	Coupling (13)	Using pipe wrench, unscrew and take off.
17.	Left horn (14)	Repeat steps 9 thru 17.

**CLEANING**

18.	All parts	Clean according to general maintenance instructions (page 4-1).
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**AIR HORN - CONTINUED**

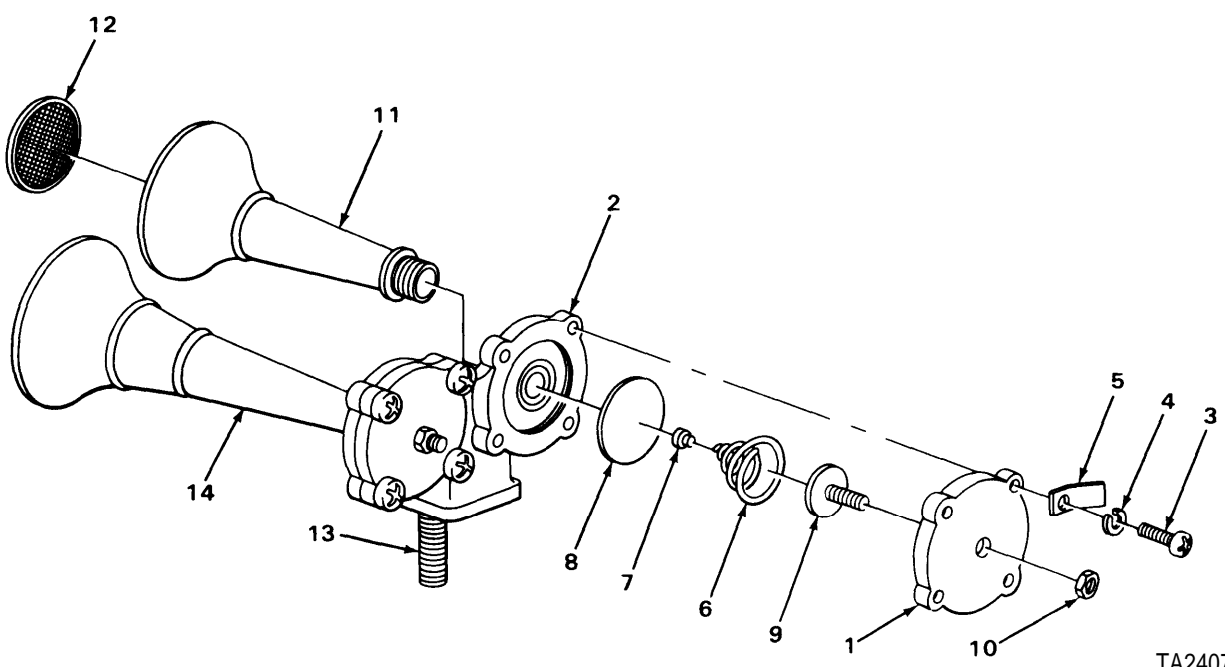
LOCATION	ITEM	ACTION	REMARKS
<b>INSPECTION/REPLACEMENT</b>			
19.	All parts	Inspect according to general maintenance instructions (page 4-1).	

**ASSEMBLY**

**NOTE**

Except as noted, steps are the same for assembling both right and left horns. Right horn is shown.

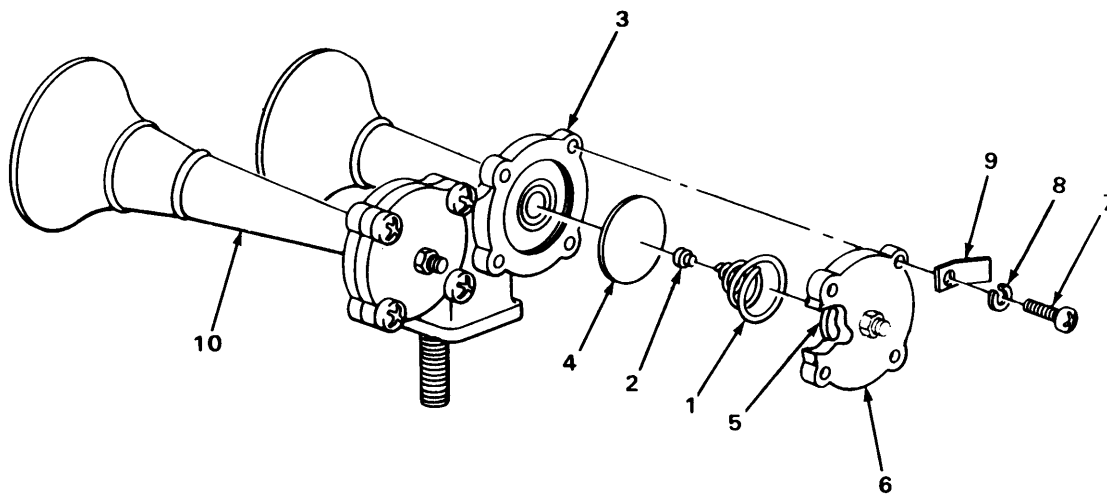
20. Body (2)	Coupling (13)	a. Put body (2) in vise with jaw caps. b. Wrap 1/2 inch of threads with teflon tape (page 4-1). c. Screw in and tighten using pipe wrench. d. Take body (2) out of vise.
21. Bell (11)	Screen (12)	Snap into groove.
22. Body (2)	Bell (11)	Screw in and tighten using adjustable wrench.
23. Cover (1)	Spring seat (9)	Screw in but do not tighten.
24. Spring seat (9)	Nut (10)	Screw on but do not tighten.



TA240785

**AIR HORN - CONTINUED**

LOCATION	ITEM	ACTION	REMARKS
<b>ASSEMBLY - CONTINUED</b>			
25. Spring (1)	Contact (2)	Snap in.	
28. Body (3)	Diaphragm (4)	Put in place.	
27. Spring seat (5)	Spring (1) and contact (2)	Put in place.	
28. Body (3)	Cover (6)	Put in place.	
29. Cover (6) to body (3)	Four screws (7), new lockwashers (8), and one tag (9)	Screw in and tighten using cross-tip screwdriver.	Left horn does not have part number tag.
30.	Left horn (10)	Repeat steps 20 thru 29.	



TA240786

**AIR HORN - CONTINUED**

LOCATION	ITEM	ACTION	REMARKS
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**INSTALLATION**

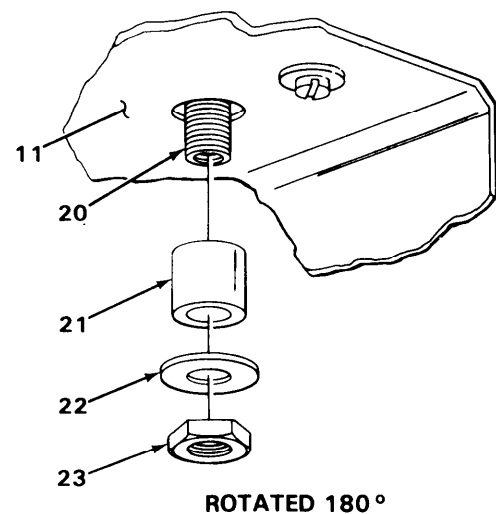
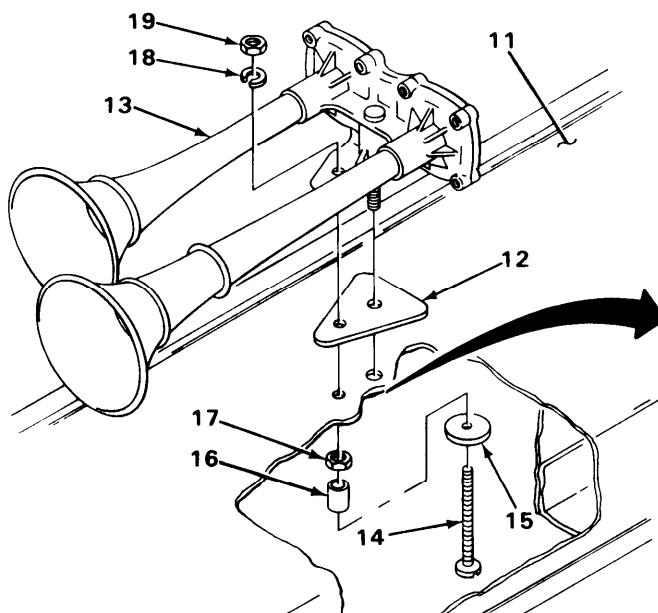
**NOTE**

Skip step 31 if gasket was not removed,

**WARNING**

Rubber cement and its fumes burn easily. Do not smoke or have open flame nearby while using. Use in well-ventilated area. Failure to observe these precautions can cause serious burns to personnel.

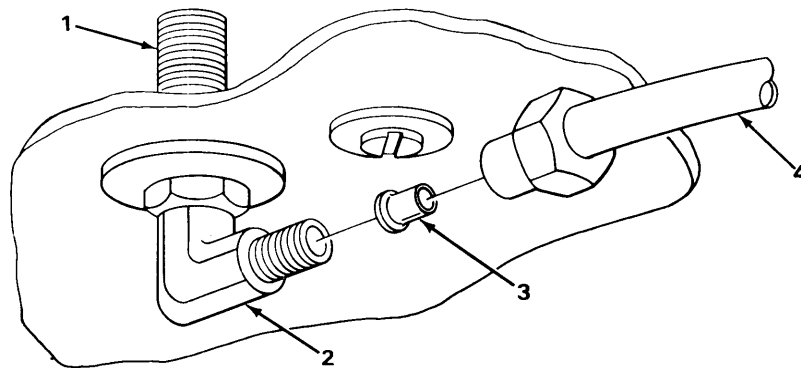
31. Roof (11)	Gasket (12)	Apply cement and put in place.
32.	Horn (13)	Put in place.
33. Screw (14)	Washer (15), spacer (16), and nut (17)	Put on.
34. Horn (13) to roof (11)	Screw (14), new lockwasher (18), and nut (19)	Screw on but do not tighten.
35. Coupling (20)	Spacer (21), washer (22), and nut (23)	Screw on and tighten using 15/16-inch wrench.
36. Horn (13) to roof (11)	Screw (14) and nut (19)	Using 3/8-inch screwdriver and 1/2-inch box wrench, tighten.



TA240787

**AIR HORN - CONTINUED**

LOCATION	ITEM	ACTION	REMARKS
INSTALLATION – CONTINUED			
37. Coupling (1)	Elbow (2)	a. Wrap threads with teflon tape (page 4-1). b. Screw in and tighten using 3/8-inch wrench.	
38. Elbow (2)	Insert (3)	Push in and using plastic hammer, seat.	
39.	Air line 39(4)	a. Lube end lightly with soap and push in until seated. b. Screw on and tighten using 9/16-inch wrench.	



**ADJUSTMENT**

**WARNING**

Hearing protection must be worn while adjusting air horns. Air horns are very loud. If hearing protection is not worn, permanent ear damage could result.

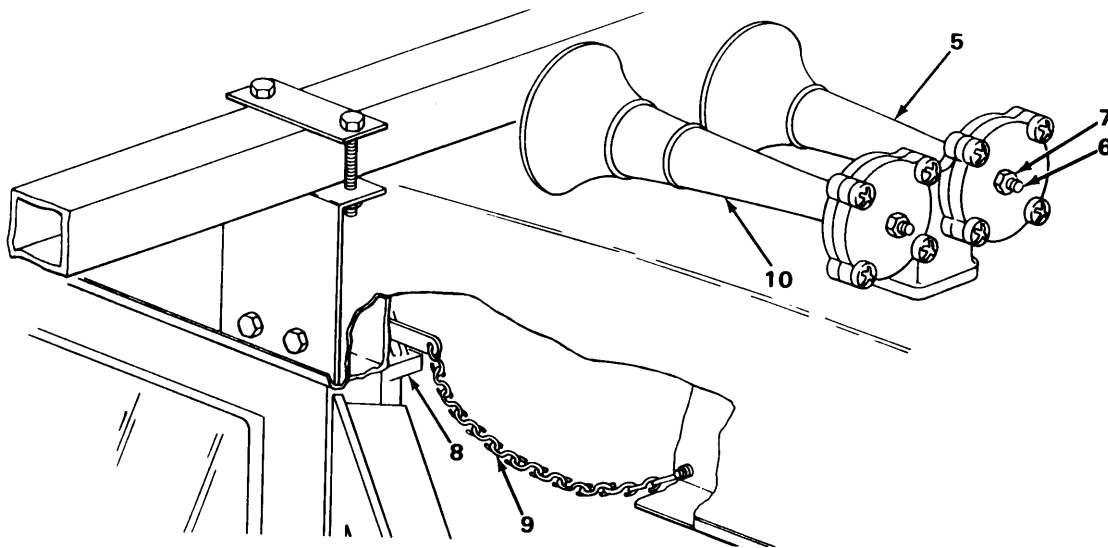
40.	Engine	a. Start engine and charge air system to normal pressure (TM 9-2320-270-10). b. Shut down engine (TM 9-2320-270-10).	
41. Right horn (5)	Spring seat (6) and nut (7)	a. Using 5/32-inch key and 1/2-inch wrench, unscrew nut part way. b. Using 5/32-inch key, unscrew seat (6) as far out as it will go.	
42. Air horn valve (8)	Chain (9)	Pull, sounding horn as many times as needed to adjust.	

TA240788



**AIR HORN - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
43. Right horn (5)	Spring seat (6) and nut (7)	a. Using 5/32-inch key, screw seat (6) in until horn sounds clear. b. Using 5/32-inch key and 1/2-inch wrench, tighten nut (7).
44. Air horn valve (8)	Chain (9)	Sound horn again to make sure adjustment is the same.
45.	Left horn (10)	Repeat steps 40 thru 44 for left horn.



**TASK ENDS HERE**

**AIR HORN AIR LINES**

---

This task covers:

- a. Removal (page 4-1260)
  - b. Repair (page 4-1262)
  - c. Installation (page 4-1262)
- 

**INITIAL SETUP**

**Tools**

- Hammer, plastic
- Knife, pocket
- Pliers, diagonal-cutting
- Pliers, long-nose, round
- Pliers, slip-joint, straight-nose
- Wrench, open-end, 9/16-inch

**Materials/Parts – Continued**

- Soap, liquid (item 14, appendix C)
- Tag marking (item 18, appendix C)
- Tubing, nylon air brake, 1/4-inch OD (as required)
- Wrap, tie (item 24, appendix C)

**Materials/Parts**

- Sleeve, compression, tube, 1/4-inch inside diameter (two required)

**Personnel Required**

One

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LOCATION	ITEM	ACTION	REMARKS
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**REMOVAL**

**WARNING**

Make sure ail pressure is drained from air system before disconnecting air lines. Parts under pressure can, when removed, fly off with great force causing injury to personnel.

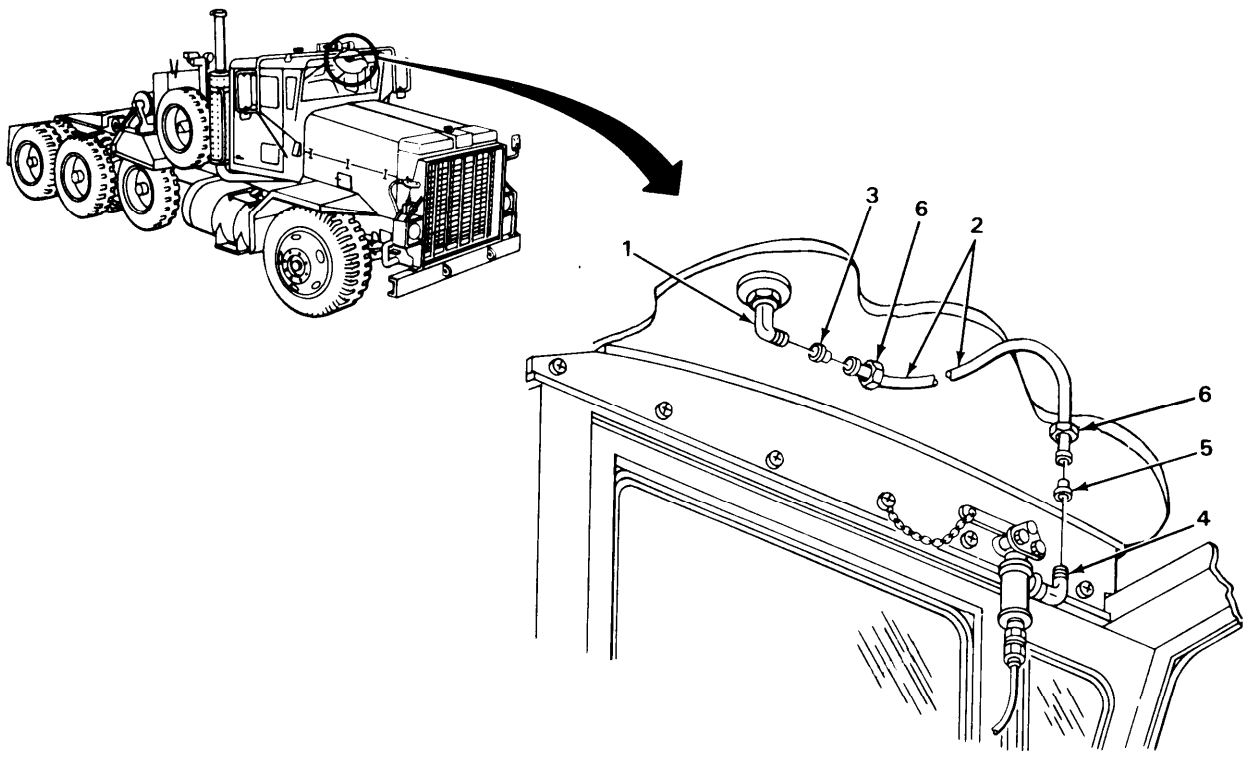
**NOTE**

Tag lines according to general maintenance instructions (page 4-1).

- |                                    |                 |   |
|------------------------------------|-----------------|---|
| 1.                                 | Air system      | Drain (TM 9-2320-270-10).                     |
| 2. Elbow (1)                       | Air line 39 (2) | Using 9/16-inch wrench, unscrew and pull out. |
| 3. Air line 39 (2)<br>or elbow (1) | insert (3)      | Using long-nose pliers, pull out.             |

**AIR HORN AIR LINES - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
4. Elbow (4)	Air line 39 (2)	Using 9/16-inch wrench, unscrew and pull out.
5. Air line 39 (2) or elbow (4)	Insert (5)	Using long-nose pliers, pull out.
6. Air line 39 (2)	Two nuts (6)	Using pocket knife, cut line (2) and slide off.
7. Cab	Instrument panel	Open (page 4-244).



**AIR HORN AIR LINES - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
<b>REMOVAL - CONTINUED</b>		
8. Air line 38 (1) to other air lines and wires (2)	Two tie wraps (3)	a. Using cutting pliers, cut. b. Get rid of.
9. Adapter (4)	Air line 38 (1)	Using 9/16-inch wrench, unscrew and pull out.
10. Air line 38 (1) or adapter (4)	insert (5)	Using long-nose pliers, pull out.
11. Adapter (6)	Air line 38(1)	Using 9/16-inch wrench, unscrew and pull out.
12. Air line 38 (1) or adapter (6)	insert (7)	Using long-nose pliers, pull out.
13. Air line 38 (1)	Sleeve (8)	a. Using pocket knife, cutoff at valve end. b. Get rid of.
14.	Nut (9)	Slide off.
15. Hinge pillar (10) and dashboard (11)	Air line 38 (1)	a. Attach string at valve end. b. Using string, pull out from manifold end. c. Untie string and leave in pillar (10).
16. Air line 38 (1)	Nut (12)	Slide off.

**REPAIR**

**NOTE**

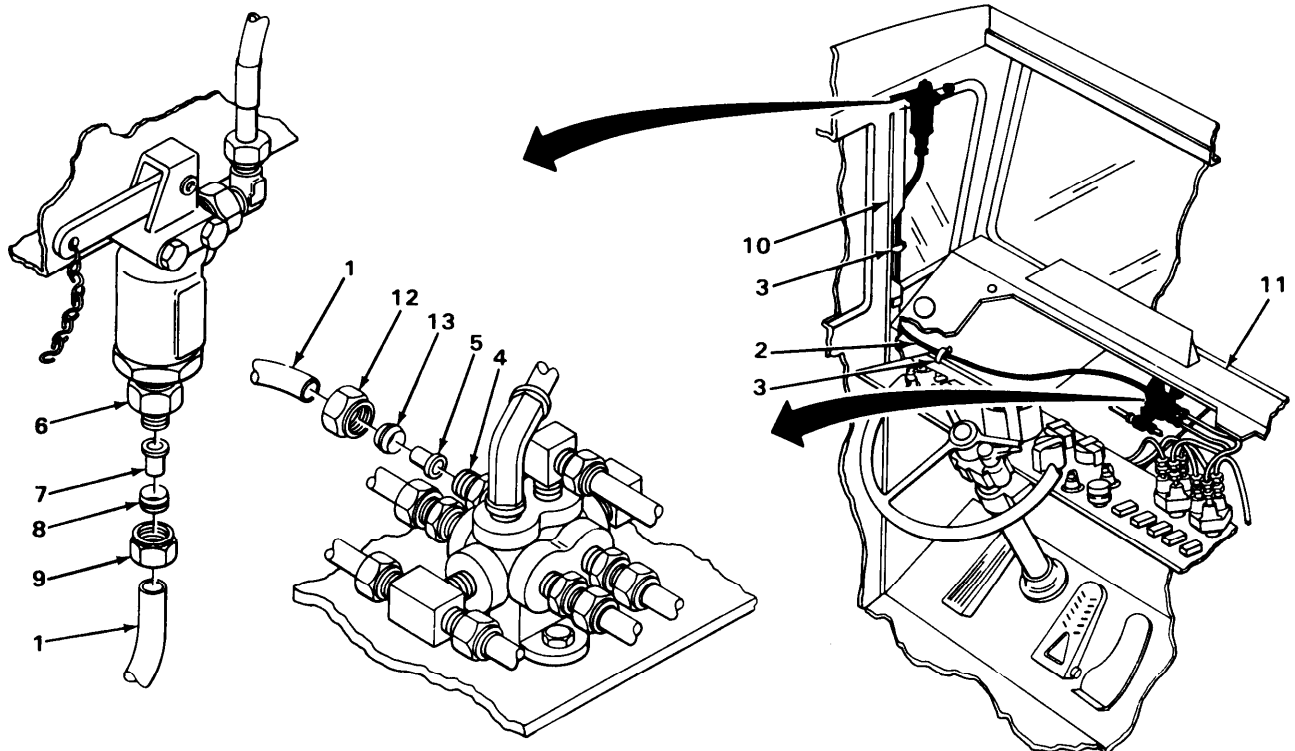
To repair air horn air lines, see Nylon Tubing Repair (page 4-634).

**INSTALLATION**

17. Dashboard (11) and hinge pillar (10)	New air line 38(1)	a. Using pocket knife, cut from bulk stock 1/2 inch longer than old air line (1). b. Attach string to end. c. Using string, route into place. d. Remove string.
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**AIR HORN AIR LINES - CONTINUED**

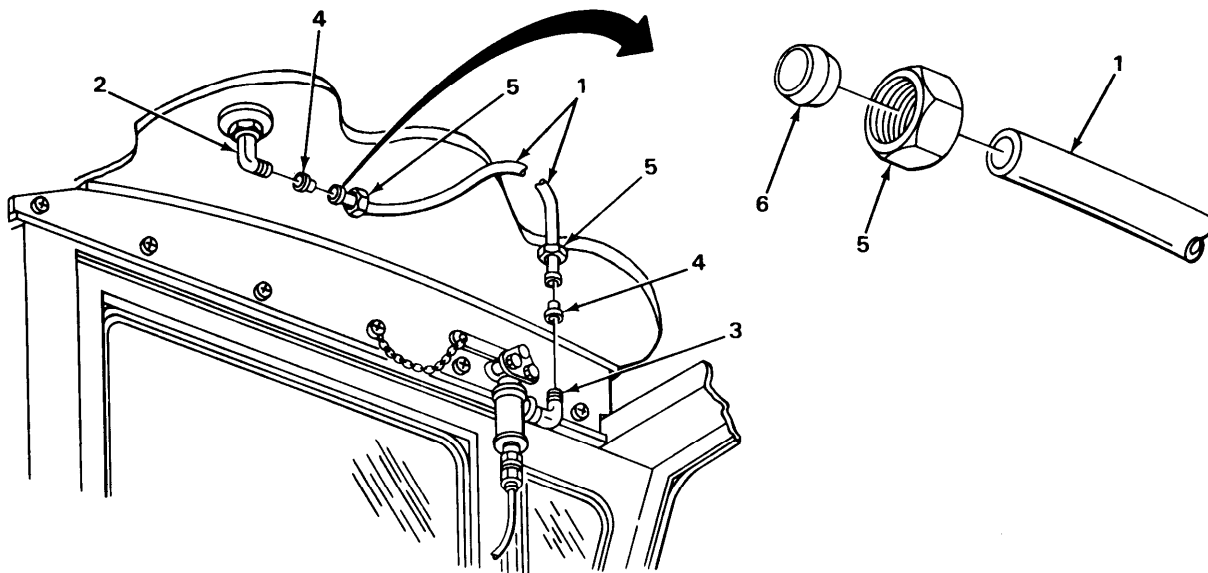
LOCATION	ITEM	ACTION REMARKS
18. Air line 38 (1)	Nut (9) and new sleeve (8)	Slide on valve end.
19. Adapter (6)	Insert (7)	Push in and using plastic hammer, seat.
20.	Air line 38(1)	a. Lube end lightly with soap and push in until seated. b. Screw on and tighten using 9/16-inch wrench.
21. Adapter (4)	Insert (5)	Push in and using plastic hammer, seat.
22. Air line 38 (1)	Nut (12) and new sleeve (13)	Slide on.
23. Adapter (4)	Air line 38(1)	a. Lube end lightly with soap and push in until seated. b. Screw on and tighten using 9/16-inch wrench.
24. Air line 38 (1) to other lines and wires (2)	Two tie wraps (3) and wires (2)	Using slip-joint pliers, put on.



TA240791

**AIR HORN AIR LINES - CONTINUED**

LOCATION	ITEM	ACTION	REMARKS
<b>INSTALLATION - CONTINUED</b>			
25. Cab	Instrument panel	Close.	
28.	New air line 39 (1)	Using pocket knife, cut from bulk stock same length as old air line 39 (l).	
27. Two elbows (2) and (3)	Two inserts (4)	Push in and using plastic hammer, seat.	
28. Air line 39(1)	Nut (5) and new sleeve (6)	Slide on.	
29. Elbow (2)	Air line 39 (1)	a. Lube end lightly with soap and push in until seated. b. Screw on and tighten using 9/16-inch wrench.	
30. Air line 39(1)	Nut (5) and new sleeve (6)	Slide on.	
31. Elbow (3)	Air line 39 (1)	a. Lube end lightly with soap and push in until seated. b. Screw on and tighten using 9/16-inch wrench.	



TA240792

**AIR HORN AIR LINES - CONTINUED****NOTE**

FOLLOW-ON MAINTENANCE: Check operation (TM 9-2320-270-10).

**TASK END HERE****HEATER CORE**

---

This task covers:

- a. Removal (page 4-1266)
  - b. Installation (page 4-1266)
- 

**INITIAL SETUP****Tools**

Handle, speeder, 1/4-inch drive  
Pan, drain  
Socket, 1/4-inch, 1/4-inch drive  
Screwdriver, flat-tip, 3/16-inch  
Screwdriver, flat-tip, 1/4-inch

**Materials/Parts**

Rags, wiping (item 10, appendix C)

**Personnel Required**

One

**Equipment Condition**

Right side of hood open and right hood side panel removed (TM 9-2320-270-10).

HEATER CORE - CONTINUED

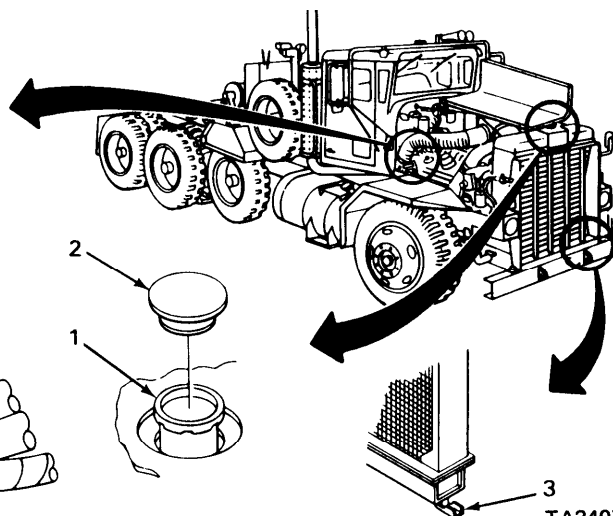
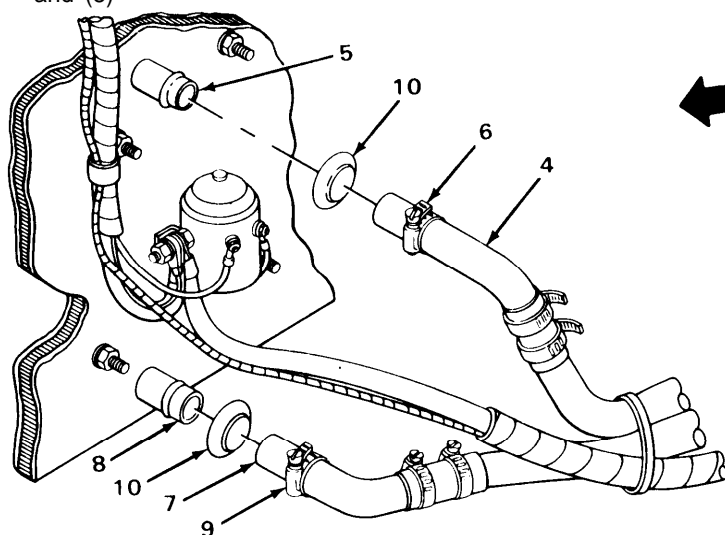
LOCATION	ITEM	ACTION	REMARKS
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REMOVAL

**WARNING**

Be careful when removing radiator cap. If engine is hot, escaping steam could burn you. Using a rag, cover radiator cap to protect your hand. Unscrew cap just enough to allow any built-up steam to escape. When all pressure has been relieved, unscrew cap the rest of the way, and take off of radiator.

- |                                  |                   |   |
|----------------------------------|-------------------|---|
| 1. Radiator (1)                  | Radiator cap (2)  | a. Slowly unscrew to first stop, pause, and allow pressure escape.<br>b. When all pressure has escaped, unscrew and take off.                   |
| 2.                               | Draincock (3)     | a. Place drain pan underneath.<br>b. Open and let coolant drain.<br>c. When coolant stops draining, close.<br>d. Get rid of coolant (page 4-1). |
| 3. Heater hose (4) to nipple (5) | Clamp (6)         | Using 1/4-inch flat-tip screwdriver, unscrew and pull back.   |
| 4. Nipple (5)                    | Heater hose (4)   | Pull off.   |
| 5. Return hose (7) to nipple (8) | Clamp (9)         | Using 1/4-inch flat-tip screwdriver, unscrew and pull back.   |
| 6. Nipple (8)                    | Return hose (7)   | Pull off.   |
| 7. Two nipples (5) and (8)       | Two grommets (10) | Pull off.   |



TA240793



HEATER CORE - CONTINUED

LOCATION	ITEM	ACTION REMARKS
8. Cover (11) to heater (12)	Four screws (13) with captive lockwashers	Using 1/4-inch socket and handle, unscrew and take out. Some covers may use five screws.
9. Heater (12)	Cover (11)	Take off.
10. Heater core (14) to heater (12)	Four screws (15) with captive lockwashers	Using 1/4-inch socket and handle, unscrew and take out.

**NOTE**

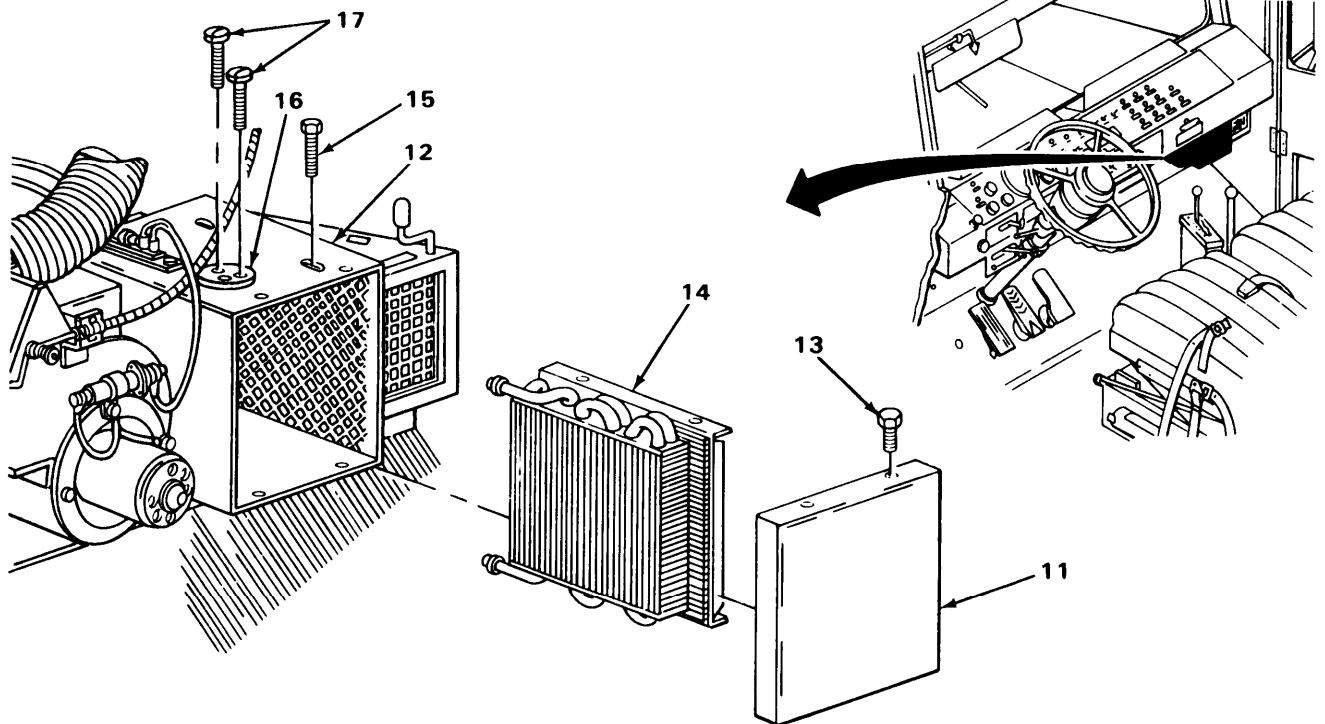
Step 11 is necessary only if your heater has access cover.

11. Access cover (16)	Two screws (17)	Using 3/16-inch screwdriver, unscrew and take out.
-----------------------	-----------------	--

**NOTE**

There will still be some coolant in core.

12 Heater (12)	Heater core (14)	a. Pull out. b. Using rags, wipe up spilled coolant.
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TA240794

## HEATER CORE - CONTINUED

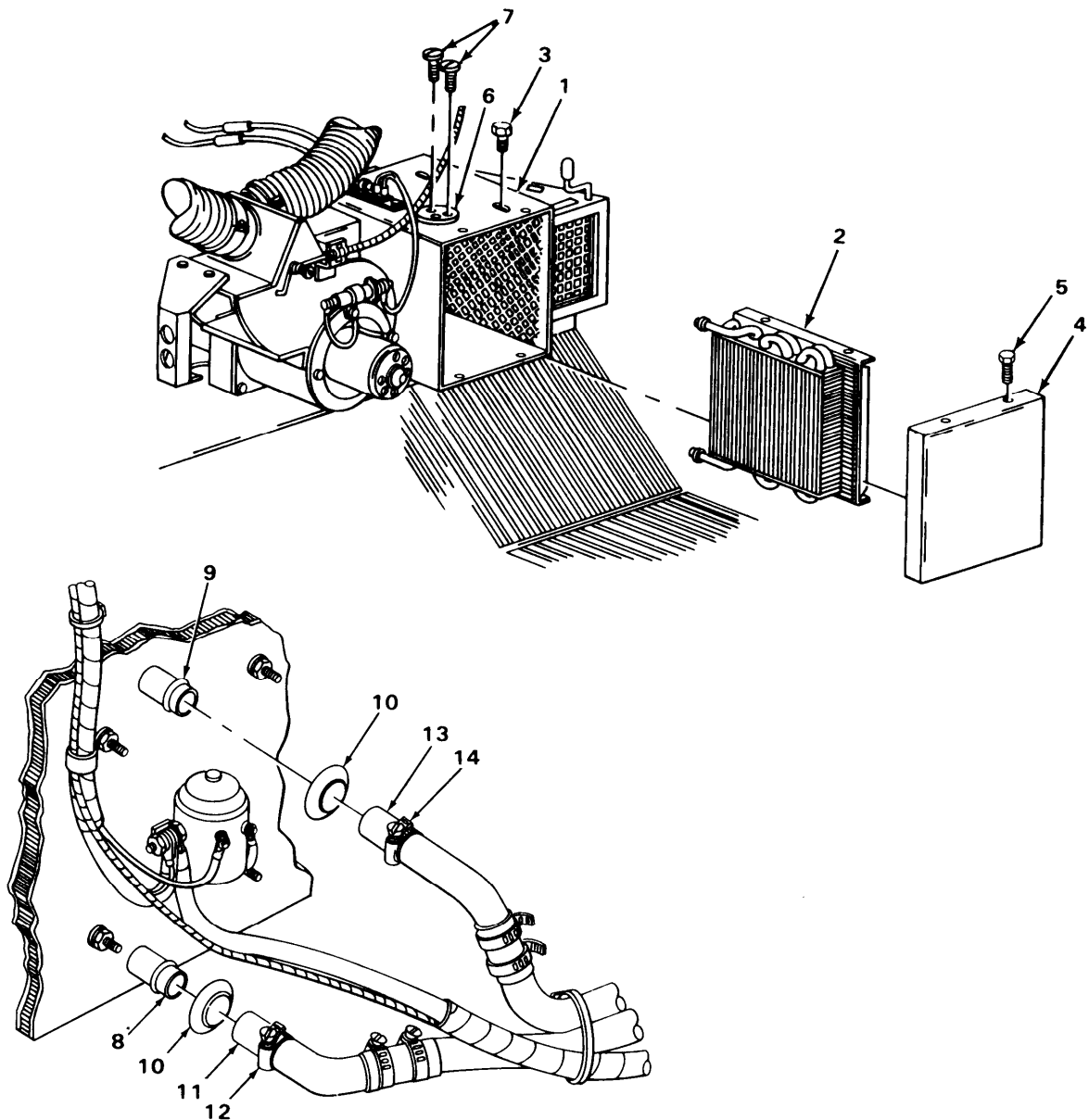
LOCATION	ITEM	ACTION REMARKS
<b>INSTALLATION</b>		
13. Heater (1)	Heater core (2)	Push into place.
14. Heater core (2) to heater (1)	Four screws (3) with captive lockwashers	Screw in and tighten using 1/4-inch socket and handle.
15. Heater (1)	Cover (4)	Push into place.
16. Cover (4) to heater (1)	Four screws (5) with captive lockwashers	Screw in and tighten using 1/4-inch socket and handle. Some covers may use five screws.

**NOTE**

Step 17 is necessary only if heater has access cover.

17. Access cover (6)	Two screws (7)	Screw in and tighten using 3/16-inch flat-tip screwdriver.
18. Two nipples (8) and (9)	Two grommets (10)	Push into place.
19. Nipple (8)	Return hose (11)	Push on until seated.
20. Return hose (11) to nipple (8)	Clamp (12)	a. Put in place over nipple (8). b. Using 1/4-inch flat-tip screwdriver, tighten.
21. Nipple (9)	Heater hose (13)	Push on until seated.
22. Heater hose (13) to nipple (9)	Clamp (14)	a. Put in place over nipple (9). b. Using 1/4-inch flat-tip screwdriver, tighten.
23.	Cooling system	Fill (TM 9-2320-270-10).

HEATER CORE - CONTINUED



NOTE

FOLLOW-ON MAINTENANCE:

1. Check operation (TM 9-2320-270-10).
2. Close right side of hood and install right hood side panel (TM 9-2320-270-10).

TASK ENDS HERE

## HEATER MOTOR

---

This task covers:

- a. Removal (page 4-1270)
  - b. installation (page 4-1270)
- 

### INITIAL SETUP

**Tools**

Handle, speeder, 1/4-inch drive  
 Socket, 1/4-inch, 1/4-inch drive  
 Screwdriver, fiat-tip, 3/16-inch

**Materials/Parts**

Lockwasher, wire to suppressor

**Personnel Required**

One

**Equipment Condition**

Battery ground cable disconnected  
 (page 4-444).

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LOCATION	ITEM	ACTION REMARKS
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### REMOVAL

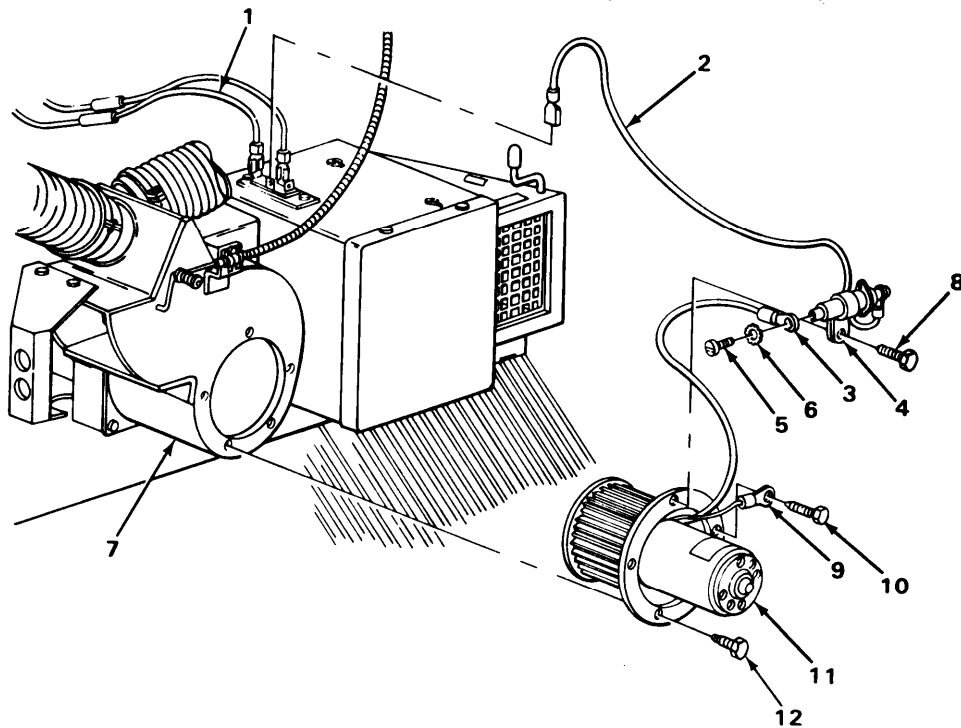
1. Red wire to switch (1)	Red wire to suppressor (2)	Unplug.
2. Red wire to motor (3) to suppressor (4)	Screw (5), lockwasher (6), and wire (3)	a. Using screwdriver, unscrew and take out. b. Get rid of lockwasher (6).
3. Suppressor (4) to heater (7)	Screw (8) and suppressor (4)	Using 1/4-inch socket and handle, unscrew and take off.
4. Black wire (9) to heater (7)	Screw (10) and wire (9)	Using 1/4-inch socket and handle, unscrew and take off.
5. Motor assembly (11) to heater (7)	Three screws (12)	Using 1/4-inch socket and handle, unscrew and take out.
6. Heater (7)	Motor assembly(11)	Take out.

### INSTALLATION

7. Heater (7)	Motor assembly(11)	Place in position.
8. Motor assembly(11) to heater (7)	Three screws (12)	Screw in and tighten using 1/4- inch socket and handle.
9. Screw (10)	Black wire (9)	Put on.

**HEATER MOTOR - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
10. Black wire (9) to heater (7)	Screw (10)	Screw in and tighten using 1/4-inch socket and handle.
<b>NOTE</b>		
Make sure suppressor is installed and connections are correct.		
11. Heater (7)	Suppressor (4)	Put in place and hold.
12. Suppressor (4) to heater (7)	Screw (8)	Screw in and tighten using 1/4-inch socket and handle.
13. Screw (5)	New lockwasher (6) and red wire to motor (3)	Put on.
14. Suppressor (4)	Screw (5)	Screw in and tighten using screwdriver.
15. Red wire to switch (1)	Red wire to suppressor (2)	Plug in.
16.	Battery ground cable	Connect (page 4-444) and check operation (TM 9-2320-070-10).



**TASK ENDS HERE**

## DEFROSTER KNOB AND CABLE

---

This task covers:

- a. Removal (page 4-1272)
  - b. Installation (page 4-1273)
- 

### INITIAL SETUP

#### Tools

Pliers, slip-joint, straight-nose  
 Screwdriver, cross-tip, number 1  
 Screwdriver, flat-tip, 1/8-inch  
 Wrench, open-end, 5/8-inch

#### Personnel Required

One

---

LOCATION	ITEM	ACTION REMARKS
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---

### REMOVAL

1. Knob (1) to cable (2)	Setscrew (3)	Using flat-tip screwdriver, unscrew part way.
2. Cable (2)	Knob (1)	Pull off.
3. Cable (2) to heater control panel (4)	Nut (5)	Using 5/8-inch wrench, unscrew and take off.
4. Dashboard (6)	Cable (2)	Pull out from behind.
5. Cable (2) to defroster door arm (7)	Spring washer (8)	Using slip-joint pliers, pull off.
6. Cable clip (9) to cable support (10)	Screw (11)	Using cross-tip screwdriver, unscrew and take out.
7. Cable support (10)	Cable clip (9)	Pull up and off.
8. Defroster door arm (7)	Defroster cable (2)	Pull off and take out.

**DEFROSTER KNOB AND CABLE - CONTINUED**

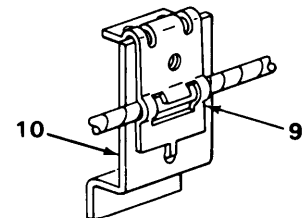
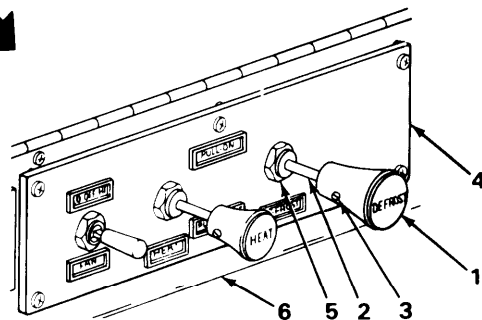
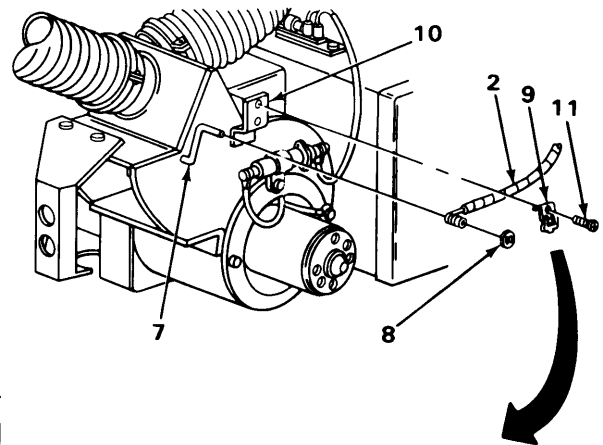
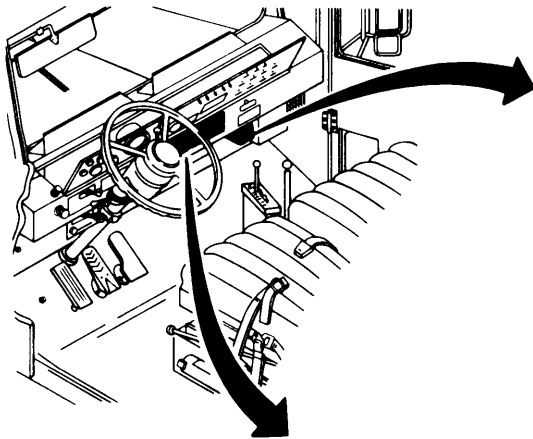
LOCATION	ITEM	ACTION	REMARKS
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INSTALLATION

**CAUTION**

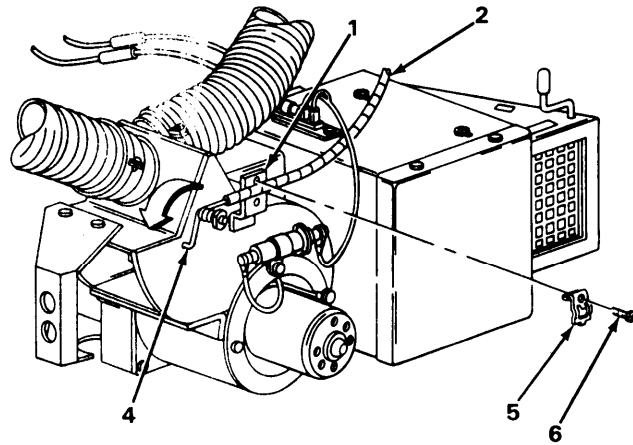
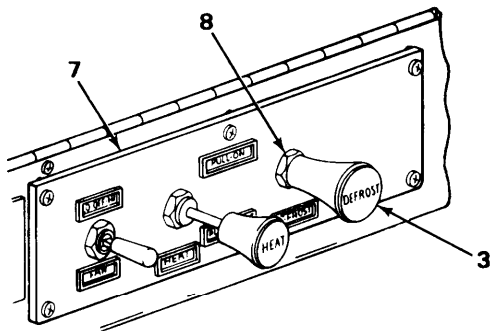
When installing defroster cable, do not bend cable tighter than 4 1/2 inches. Wire inside cable will kink and cable will be damaged.

- |   |                     |   |
|---|---------------------|---|
| 9. Dashboard (6)                          | Cable (2)           | Route behind and push in from behind.                           |
| 10. Cable (2) to heater control panel (4) | Nut (5)             | Screw on but do not tighten.                                    |
| 11. Cable (2)                             | Knob (1)            | With cable shaft pulled out, push on.                           |
| 12. Knob (1) to cable (2)                 | Setscrew (3)        | a. Using flat-tip screwdriver, tighten.<br>b. Push knob (1) in. |
| 13. Defroster door arm (7)                | Defroster cable (2) | Push on.  |
| 14. Cable (2) to defroster door arm (7)   | Spring washer (8)   | Using pliers, push on.  |



**DEFROSTER KNOB AND CABLE - CONTINUED**

LOCATION	ITEM	ACTION	REMARKS
<b>INSTALLATION - CONTINUED</b>			
15. Cable support (1)	Cable (2)	a. Make sure defroster knob(3) is pushed in. b. Make sure defroster door arm (4) is all the way to the left. c. Put cable (2) in place.	
16. Cable (2) to support (1)	Cable clip (5)	a. Hook tab in hole. b. Snap on.	
17. Cable clip (5) to support (1)	Screw (6)	Screw in and tighten using cross-tip screwdriver.	
18. Cable (2) to heater control panel (7)	Nut (8)	Tighten using 5/8-inch wrench.	



**NOTE**

**FOLLOW-ON MAINTENANCE:** Check operation (TM 9-2320-270-10).

**TASK ENDS HERE**

TA240798



## HEATER ASSEMBLY

---

This task covers:

- a. Removal (page 4-1286)
  - b. Disassembly (page 4-1278)
  - c. Assembly (page 4-1279)
  - d. installation (page 4-1280)
- 

### INITIAL SETUP

#### Tools

Extension, 12-inch, 3/8-inch drive  
 Handle, ratchet, 3/8-inch drive  
 (two required)  
 Handle, speeder, 1/4-inch drive  
 Pliers, diagonal-cutting  
 Pliers, slip-joint, straight-nose  
 Screwdriver, cross-tip, number one  
 Socket, 1/4-inch, 1/4-inch drive  
 Socket, deep-well, 7/16-inch, 3/8-  
 inch drive  
 Socket, 7/16-inch, 3/8-inch drive

#### Materials/Parts

Cement, rubber (item 3, appendix C)

#### Materials/Parts - Continued

Lockwasher, heater assembly to firewall  
 (four required)  
 Naptha (item 9, appendix C)  
 Tag, marking (item 18, appendix C)  
 Wrap, tie (item 24, appendix C)

#### Personnel Required

One

#### Equipment Condition

Battery ground cable disconnected  
 (page 4-444).  
 Heater core removed (page 4-1265).

**HEATER ASSEMBLY - CONTINUED**

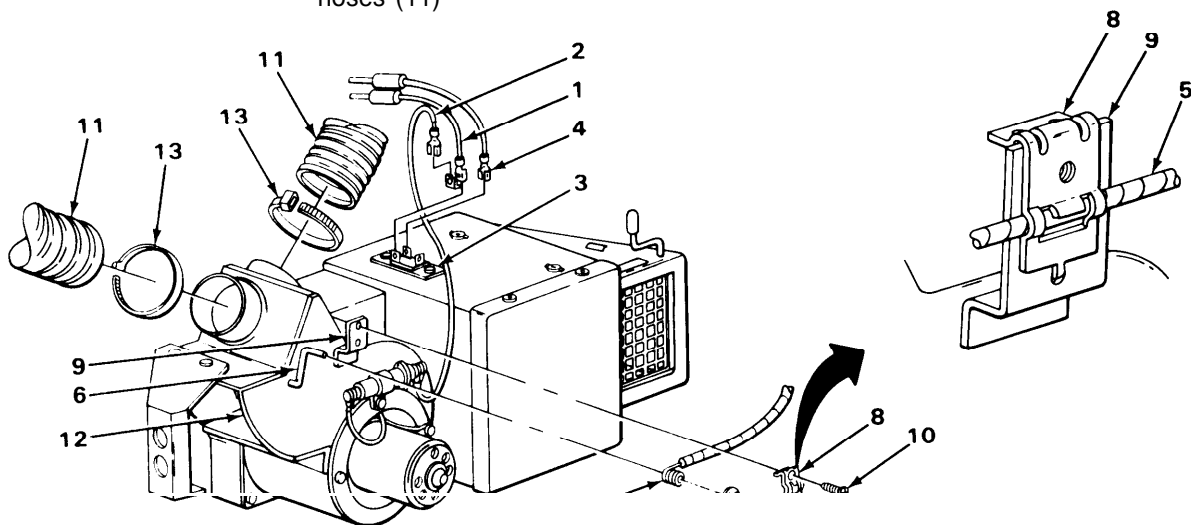
LOCATION	ITEM	ACTION	REMARKS
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**REMOVAL**

**NOTE**

Tag wires according to general maintenance instructions (page 4-1).

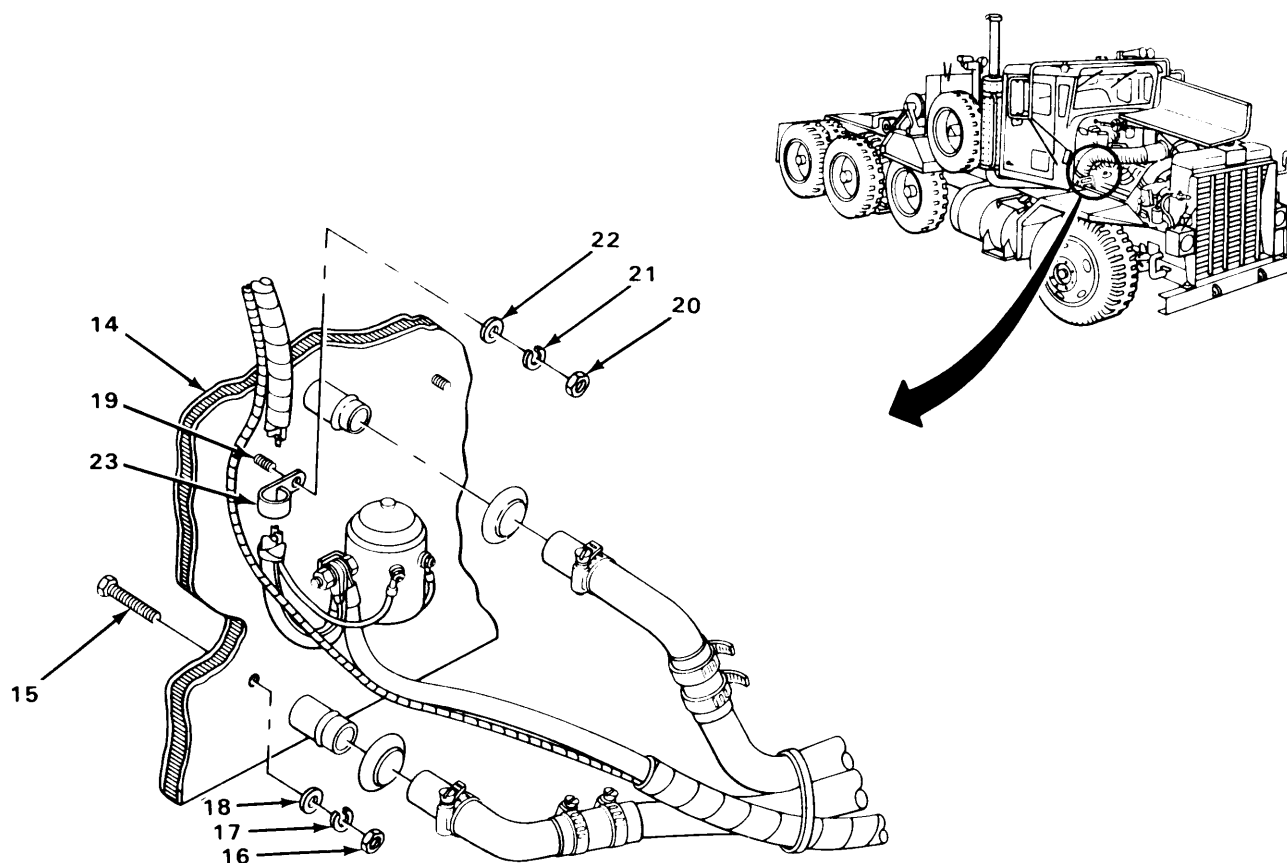
- |  |  |  |
|--|--|--|
| 1. Red switch wire (1)                           | Red wire to suppressor (2)                     | Unplug.  |
| 2. Resistor (3)                                  | Red switch wire (1) and orange switch wire (4) | Unplug.  |
| 3. Defroster cable (5) to defroster door arm (6) | Spring washer (7)                              | Using slip-joint pliers, pull off.                 |
| 4. Cable clip (8) to cable support (9)           | Screw (10)                                     | Using cross-tip screwdriver, unscrew and take out. |
| 5. Cable support (9)                             | Cable clip (8)                                 | Pull up and snap off.                              |
| 6. Defroster door arm (6)                        | Defroster cable (5)                            | Pull off.  |
| 7. Two defroster hoses (11) to heater (12)       | Two tie wraps (13)                             | Using cutting pliers, cut and take off.            |
| 8. Heater (12)                                   | Two defroster hoses (11)                       | Pull off.  |



TA240799

**HEATER ASSEMBLY- CONTINUED**

LOCATION	ITEM	ACTION REMARKS
9. Heater (hidden) to firewall (14)	Two screws (15)	Using 7/16-inch socket, extension, and handle, hold.
10. Two screws (15)	Two nuts (16), lockwashers (17), and washers (18)	With help from assistant and using 7/16-inch deep-well socket and handle, unscrew and take off.
11. Firewall (14)	Two screws (15)	Take out.
12. Two studs (19)	Two nuts (20), lockwashers (21), washers (22), and one wire clip (23)	With help from assistant and using 7/16-inch deep-well socket and handle, unscrew and take off.
13.	Lockwashers (17) and (21)	Get rid of.

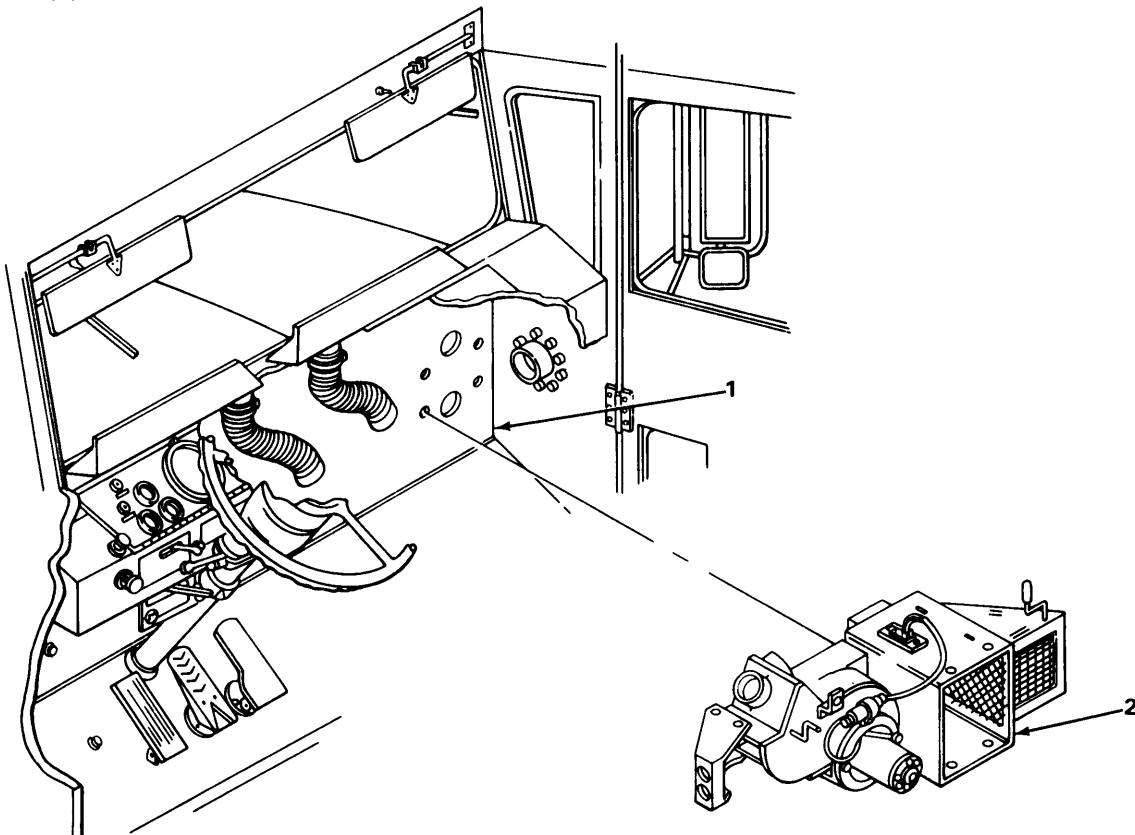


**HEATER ASSEMBLY - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
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**REMOVAL - CONTINUED**

14. Firewall (1)                      Heater (2)                      Take out.



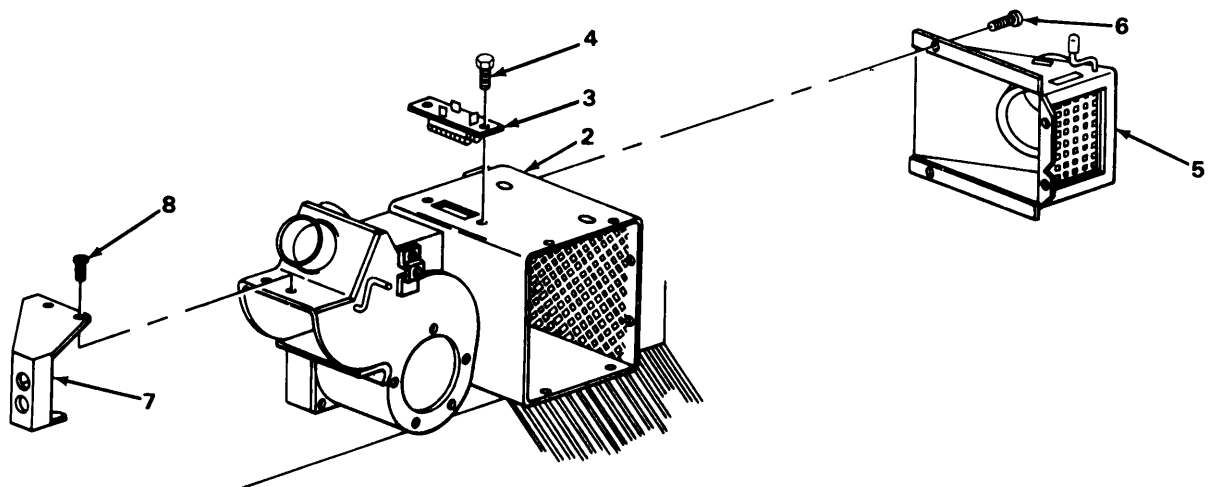
**DISASSEMBLY**

15. Resistor (3) to heater (2)	Two screws (4)	Using 1/4-inch socket and speeder handle, unscrew and take out.
16. Heater (2)	Resistor (3)	Take out.
17.	Heater motor and heater motor suppressor	Remove (pages 4-1270 and 4-1316).
18. Air deflector (5) to heater (2)	Two screws (6)	Using number one cross-tip screwdriver, unscrew and take out.
19. Heater (2)	Air deflector (5)	Take off.

TA240801

**HEATER ASSEMBLY - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
20. Heater deflector (7)	Three screws (8)	Using number one cross-tip screwdriver, unscrew and take out.
21. Heater (2)	Heater deflector (7)	Take off.
ASSEMBLY		
22. Heater (2)	Heater deflector (7)	Put in place.
23. Heater deflector (7) to heater(2)	Three screws (8)	Screw in and tighten using number one cross-tip screwdriver.
24. Heater (2)	Air deflector (5)	put in place.
25. Air deflector (5) to heater(2)	Two screws (6)	Screw in and tighten using number one cross-tip screwdriver.
26. Heater (2)	Heater motor and heater motor suppressor	Install (pages 4-2170 and 4-1316).
27.	Resistor (3)	Put in place.
28. Resistor (3) to heater (2)	Two screws (4)	Screw in and tighten using 1/4-inch socket and speeder handle.



**HEATER ASSEMBLY - CONTINUED**

LOCATION	ITEM	ACTION	REMARKS
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INSTALLATION

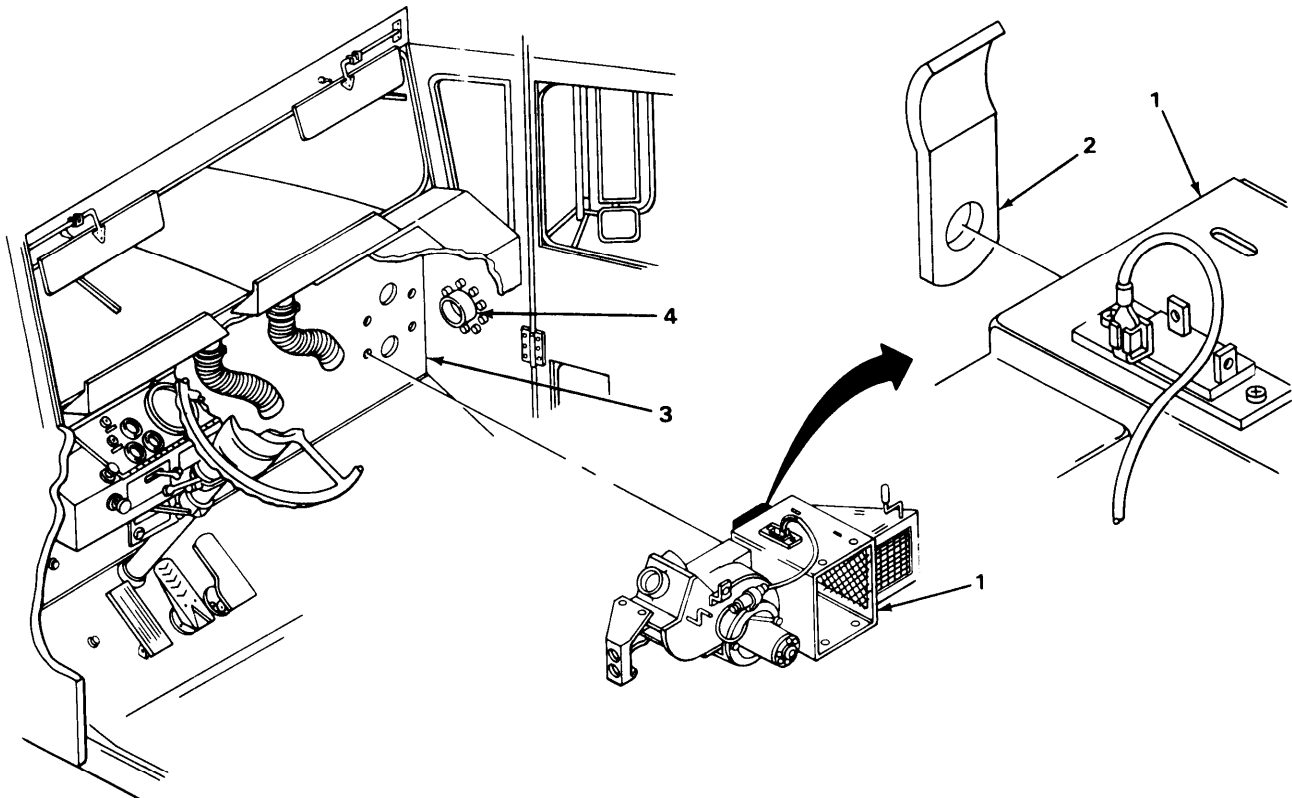
**WARNING**

Naptha and its fumes are harmful and flammable. Do not smoke or use near open flame while using. Use only in well-ventilated area. Naptha can catch fire and fumes can explode causing serious injury.

Rubber cement and its fumes burn easily. Do not smoke or have open flame nearby while using. Use in well-ventilated area. Failure to observe these precautions can cause serious burns to personnel.

- |                |                   |  |
|----------------|-------------------|--|
| 29. Heater (1) | Two foam pads (2) | <ul style="list-style-type: none"> <li>a. Peel off.</li> <li>b. Using rags and naptha, clean.</li> <li>c. Using naptha) rags! and sandpaper area where pads (2) attach.</li> <li>d. Apply rubber cement and glue on new pads (2).</li> </ul> |
|----------------|-------------------|--|

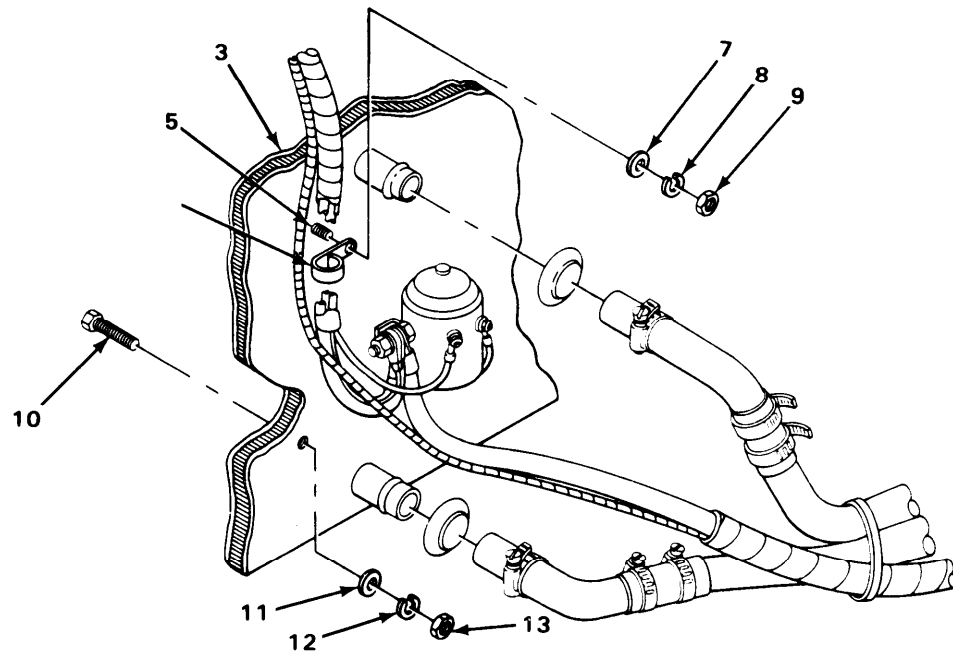
- |                  |            |                                    |
|------------------|------------|------------------------------------|
| 30. Firewall (3) | Heater (1) | Place in position over intake (4). |
|------------------|------------|------------------------------------|



TA240803

HEATER ASSEMBLY - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
31. Two studs (5)	Wire clip (6), two washers (7), new lockwashers (8), and nuts (9)	With help from assistant, screw on and tighten using 7/16-inch deep-well socket and handle.	
32. Firewall (3)	Two screws (10), washers (11), new lockwashers (12), and nuts (13)	With help from assistant, screw on and tighten using 7/16-inch and deep-well sockets, extension, and two handles.	

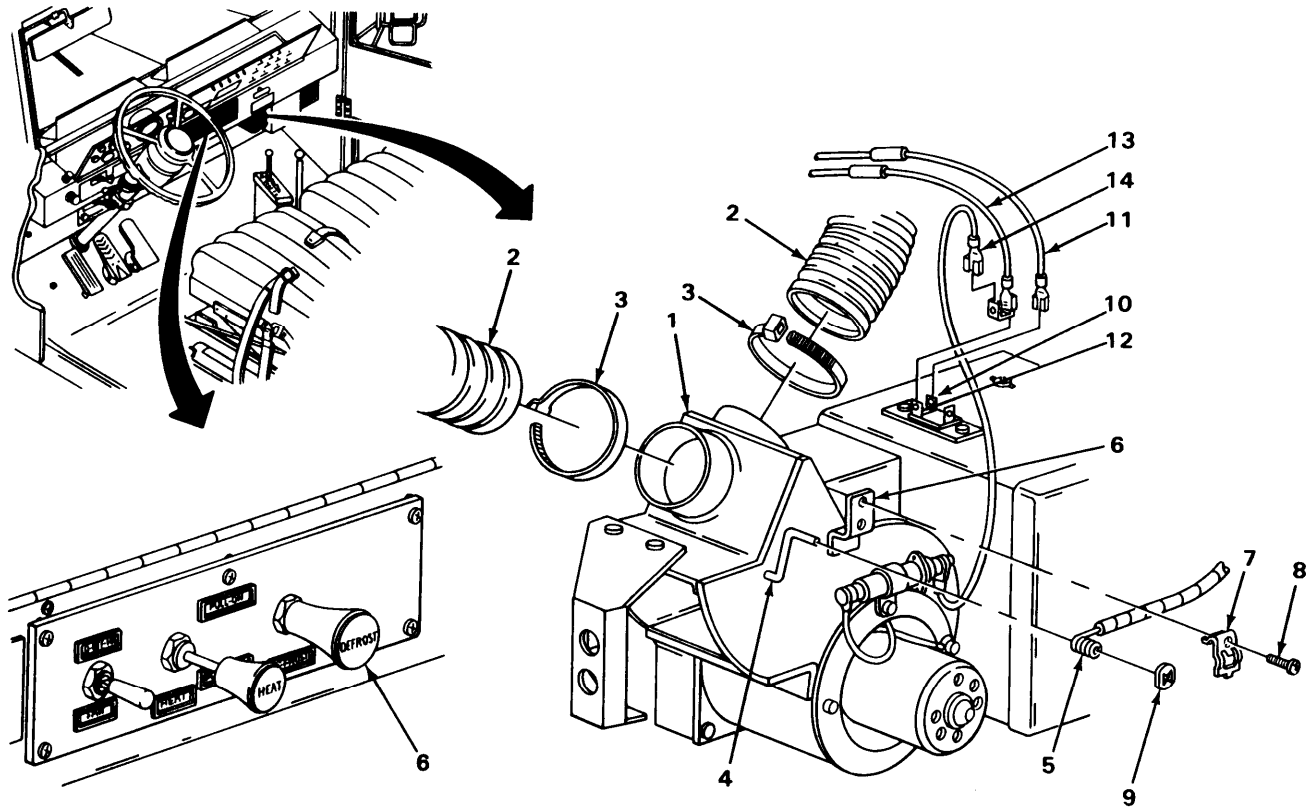


## HEATER ASSEMBLY - CONTINUED

LOCATION	ITEM	ACTION REMARKS
INSTALLATION - CONTINUED		
33. Heater (1)	Two defroster hoses (2)	Push on.
34. Two defroster hoses (2) to heater(1)	Two new tie wraps (3)	Using slipjoint pliers, put on.
35. Defroster door arm (4)	Defroster cable (5)	a. Push knob (6) in. b. Push arm (4) all the way left. c. Put loop on end on.
36. Cable support (6)	Defroster cable (5)	Put in place.
37. Defroster cable (5)	Cable clip (7)	With arm (4) all the way left, put on.
38. Cable clip (7) to cable support (6)	Screw (8)	Screw in and tighten using cross-tip screwdriver.
39. Defroster cable (5) to arm (4)	Spring washer (9)	Push on.
40. Terminal (10)	Orange switch wire(n)	Push on.
41. Terminal (12)	Red switch wire (13)	Push on.
42. Red switch wire (13)	Red wire to suppressor (14)	Push on.



HEATER ASSEMBLY - CONTINUED



**NOTE**

**FOLLOW-ON MAINTENANCE:**

1. Install heater core (page 4-1265).
2. Connect battery ground cable (page 4-444).

**TASK ENDS HERE**

## HEATER KNOB AND CABLE

---

This task covers:

- a. Removal (page 4-1284)
  - b. Installation (page 4-1286)
- 

### INITIAL SETUP

#### Tools

Handle, speeder, 1/4-inch drive  
 Pliers, diagonal-cutting  
 Pliers, long-nose, round  
 Pliers, slip-joint, straight-nose  
 Screwdriver, flat-tip, 1/8-inch  
 Socket, 1/4-inch, 1/4-inch drive  
 Wrench, open-end, 5/8-inch

#### Personnel Required

Two

#### Equipment Condition

Right side of hood open and right hood side panel removed (TM 9-2320-270-10).

#### Materials/Parts

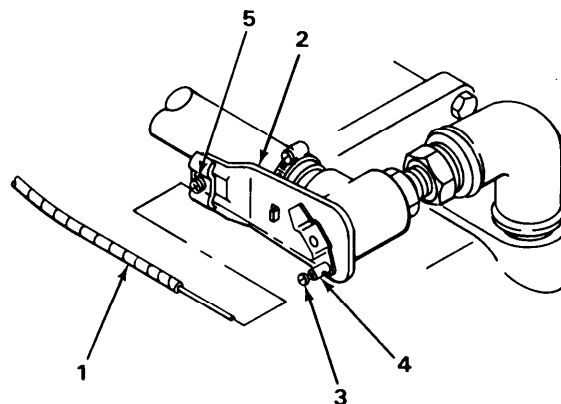
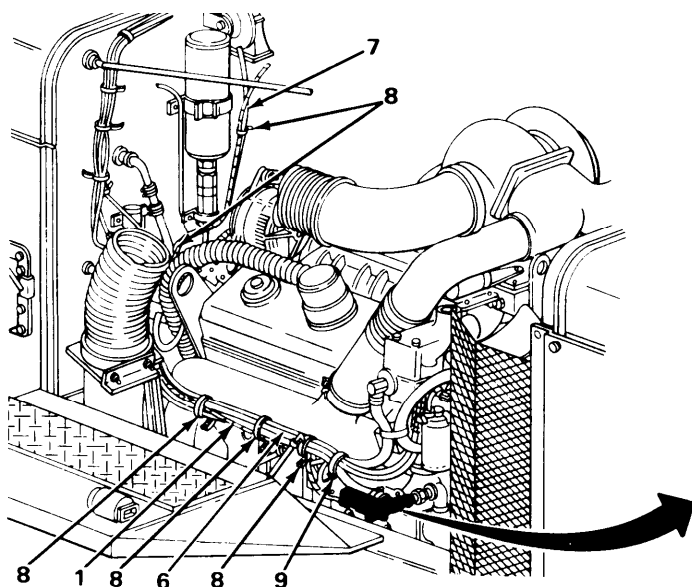
Wrap, tie (item 24, appendix C)

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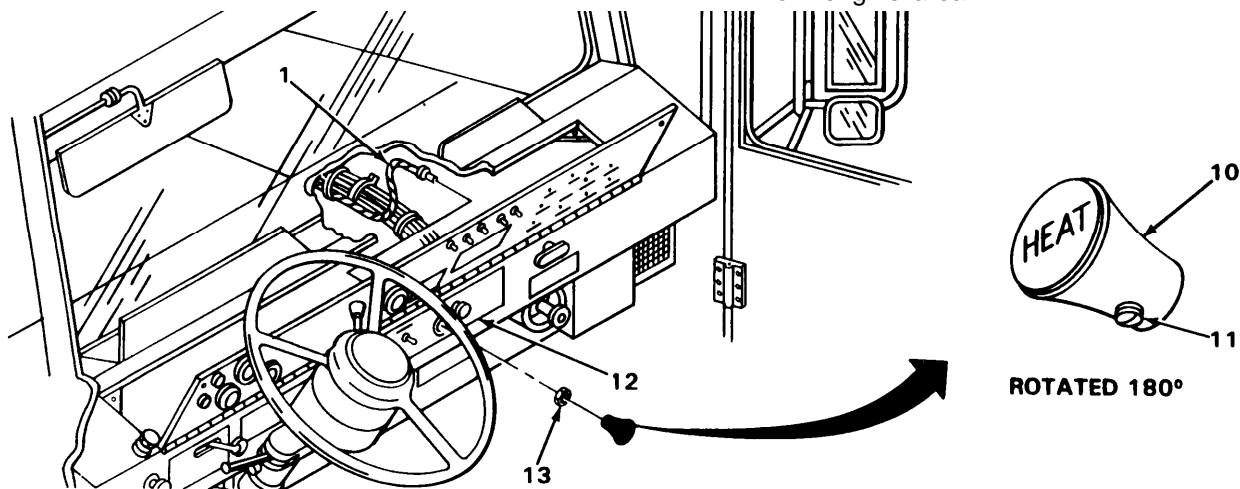
LOCATION	ITEM	ACTION REMARKS
<b>REMOVAL</b>		
1. Cable (1) to heater shutoff valve (2)	Screw (3) on swivel (4)	a. Using long-nose pliers, straighten cable (1). b. Using 1/8-inch screwdriver, unscrew but do not take out.
2.	Clamp screw (5)	Using 1/4-inch socket and handle, unscrew but do not take out.
3. Shutoff valve (2)	Cable (1)	Pull out.
4. Cable (1) to heater hoses (6) or wires (7)	Tie wraps (8)	a. Using cutting pliers, cut and take off. b. Get rid of. Number of ties will vary between trucks.
5. Loop clamp(9)	Cable (1)	Pull out.

HEATER KNOB AND CABLE- CONTINUED

LOCATION	ITEM	ACTION	REMARKS
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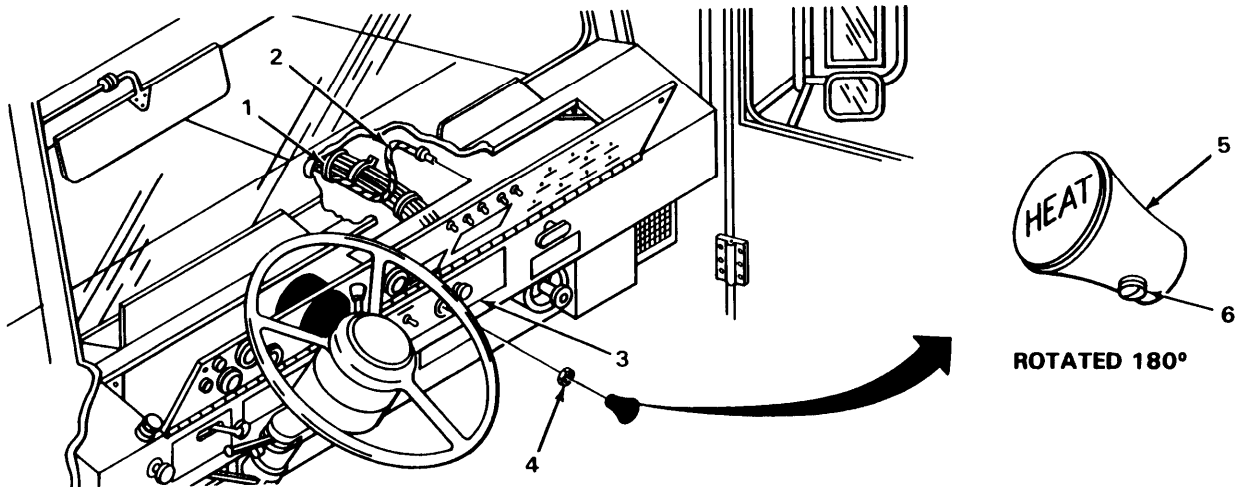
6. Heater knob (10) to cable (1)	Setscrew (11)	Using 1/8-inch screwdriver, unscrew but do not take out.
7. Cable (1)	Knob (10)	Take off.
8. Cable (1) to heater control panel (12)	Nut (13)	Using 5/8-inch wrench, unscrew and take off.
9. Cab	Instrument panel	Open (page 4-244).
10. Heater control panel (12)	Cable (1)	a. Pull out from behind. b. With help from assistant, pull out from engine area.



TA240806

**HEATER KNOB AND CABLE - CONTINUED**

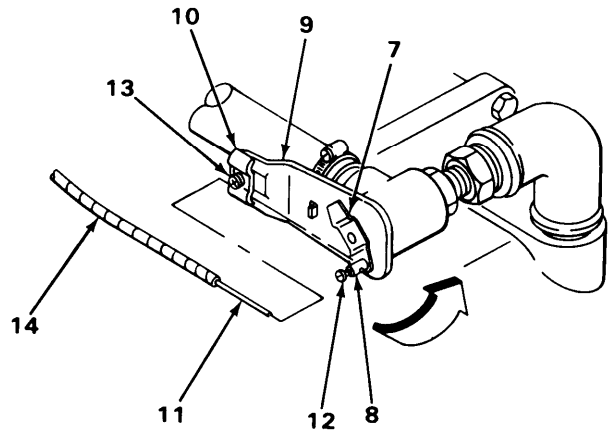
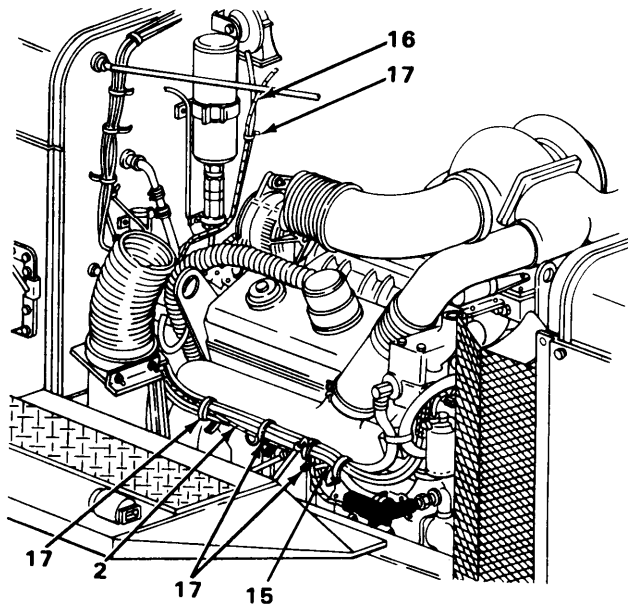
LOCATION	ITEM	ACTION	REMARKS
<b>INSTALLATION</b>			
11. Grommet (1)	Cable (2)		Route through cab side and with help from assistant, pull into engine area.
12. Heater control panel (3)	Cable (2)		Push into place from behind.
13. Cable (2) to heater control panel (3)	Nut (4)		Screw on and tighten using 5/8-inch wrench.
14. Cable (2)	Knob (5)		With shaft pulled out, push on.
15. Knob (5) to cable (2)	Setscrew (6)		a. Using 1/8-inch screwdriver, tighten. b. Push in knob (5).
16. Cab	instrument panel		Close (page 4-244).



- |                                      |           |   |
|--------------------------------------|-----------|---|
| 17. Shutoff valve (7) and swivel (8) | Cable (2) | a. Route into place.<br>b. With lever (9) turned toward front, route through clamp (10) and push wire (11) through. |
|--------------------------------------|-----------|---|

**HEATER KNOB AND CABLE - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
18. Cable (2) to swivel (8)	Setscrew (12)	a. Using long-nose pliers, bend end over. b. Using 1/8-inch screwdriver, tighten.
19. Cable (2) to shut-off valve (7)	Clamp screw (13)	With clamp (10) over conduit (14), and using 1/4-inch socket and handle, tighten.
20. Cable (2) to heater hoses (15) and wires (16)	New tie wraps (17)	Using slip-joint pliers, put on.



**NOTE**

**FOLLOW-ON MAINTENANCE:**

1. Check operation (TM 9-2320-270-10).
2. Close right side of hood and install right hood side panel (TM 9-2320-270-10).

TASK ENDS HERE

## HEATER DEFLECTOR

This task covers:

Replacement (page 4-1288)

### INITIAL SETUP

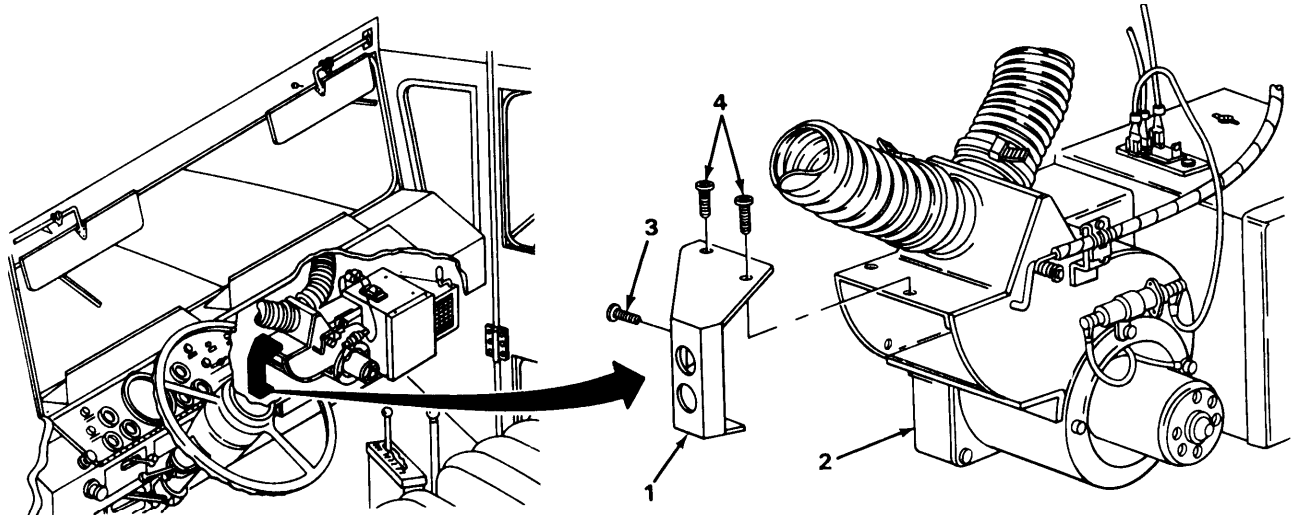
**Tools**

- Screwdriver, cross-tip, number 1
- Screwdriver, offset, cross-tip, number 1

**Personnel Required**

One

LOCATION	ITEM	ACTION REMARKS
<b>REPLACEMENT</b>		
1. Deflector (1) to heater (2)	Screw (3)	Using offset screwdriver, unscrew and take out.
2.	Two screws (4)	Using cross-tip screwdriver, unscrew and take out.
3. Heater (2)	Deflector (1)	Take off.
4.	New deflector (1)	Put in place.
5. Deflector (1) to heater (2)	Two screws (4)	Screw in and tighten using cross-tip screwdriver.
6.	Screw (3)	Screw in and tighten using offset screwdriver.



TASK ENDS HERE

TA240809

## DEFROSTER NOZZLE

This task covers:

- a. Removal (page 4-1289)
- b. Installation (page 4-1290)

### INITIAL SETUP

**Tools**

Pliers, diagonal-cutting  
 Pliers, slip-joint, straight-nose  
 Screwdriver, cross-tip, number 1

**Materials/Parts**

Wrap, tie (item 24, appendix C)

**Personnel Required**

One

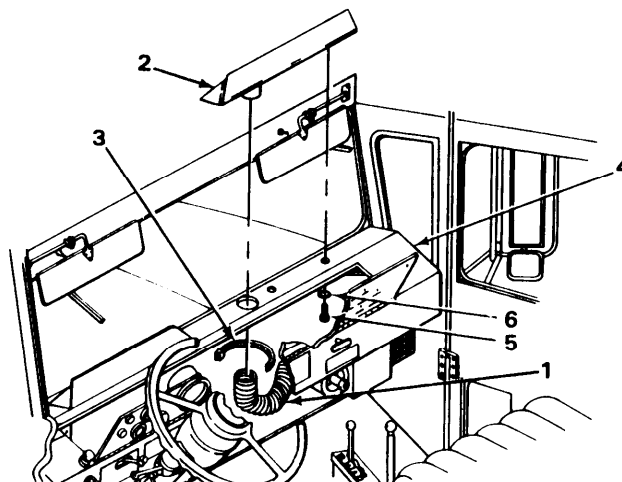
LOCATION	ITEM	ACTION	REMARKS
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### REMOVAL

**NOTE**

Steps in this task are the same for right and left defroster nozzles.

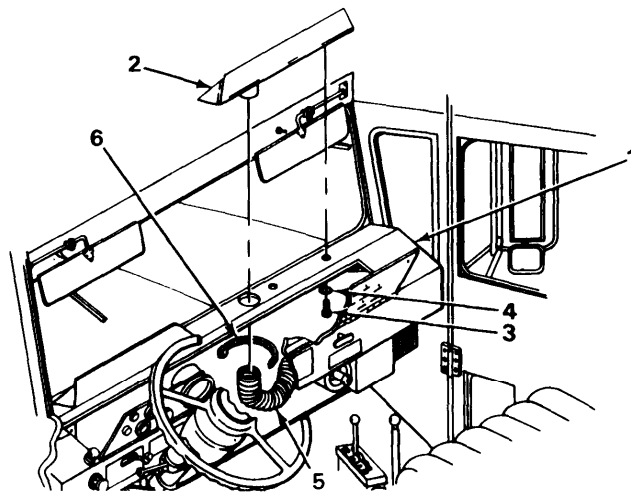
- |                           |   |   |
|---------------------------|---|---|
| 1. Cab                    | Instrument panel                                | Open (page 4-244).  |
| 2. Hose (1) to nozzle (2) | Tie wrap (3)                                    | a. Using cutting pliers, cut and take off.<br>b. Get rid of.                            |
| 3. Nozzle (2)             | Hose (1)  | Pull off.   |
| 4. Dashboard (4)          | Two screws (5), lockwashers (6), and nozzle (2) | a. Using cross-tip screwdriver, unscrew and take off.<br>b. Get rid of lockwashers (6). |



TA240810

**DEFROSTER NOZZLE - CONTINUED**

LOCATION	ITEM	ACTION	REMARKS
<b>INSTALLATION</b>			
5. Dashboard (1)	Nozzle (2)	Put in place.	
6. Nozzle (2) to dashboard (1)	Two screws (3) and new lockwashers (4)	Screw in and tighten using cross-tip screwdriver.	
7. Nozzle (2)	Hose (5)	Push on.	
8. Hose (5) to nozzle (2)	New tie wrap (6)	Using slip-joint pliers, put on.	
9. Cab	Instrument panel	Close (page 4-244).	



**NOTE**

FOLLOW-ON MAINTENANCE: Check operation (TM 9-2320-27-10).

**TASK ENDS HERE**

**DEFROSTER HOSE**

This task covers:

- a. Removal (page 4-1291)
- b. Installation (page 4-1292)



## DEFROSTER HOSE - CONTINUED

### INITIAL SETUP

**Tools**

Pliers, diagonal-cutting  
 Pliers, slipjoint, straight-nose  
 Screwdriver, flat-tip, 3/8-inch

**Materials/Pads**

Wrap, tie (item 24, appendix C)

**Personnel Required**

One

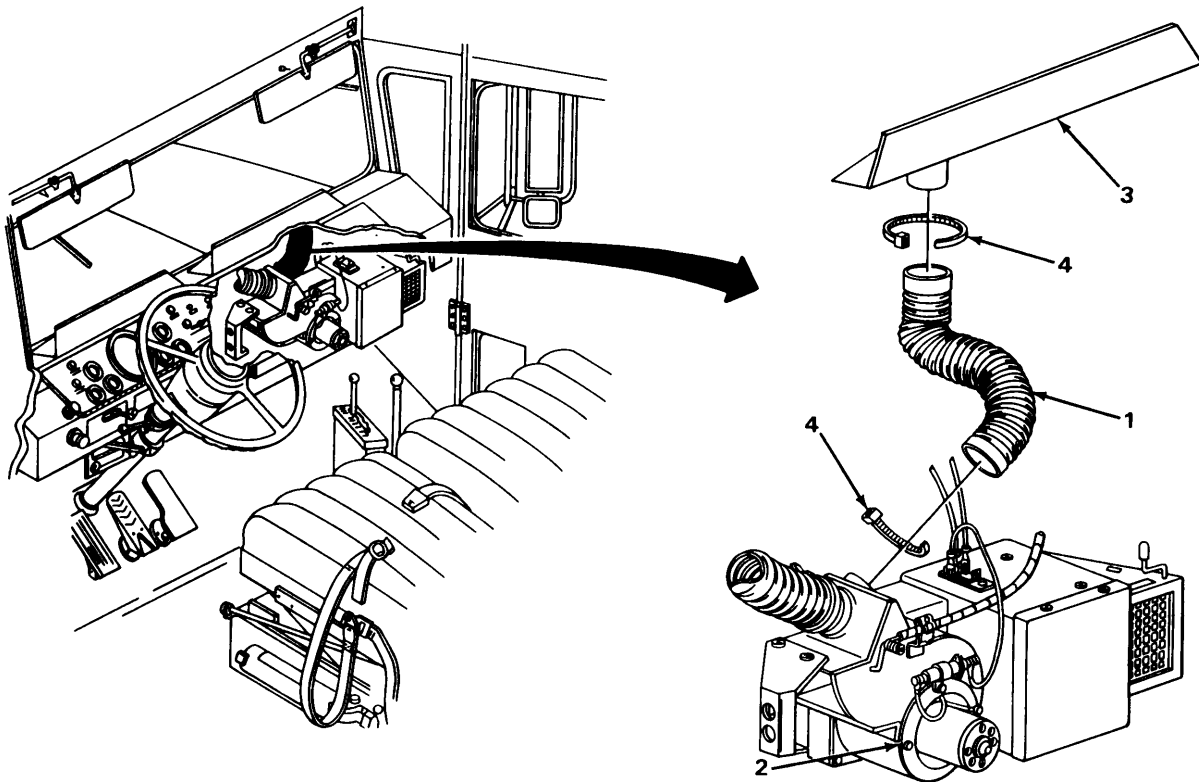
LOCATION	ITEM	ACTION	REMARKS
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### REMOVAL

**NOTE**

Steps in this task are the same for both right and left defroster hoses. Right defroster hose is shown.

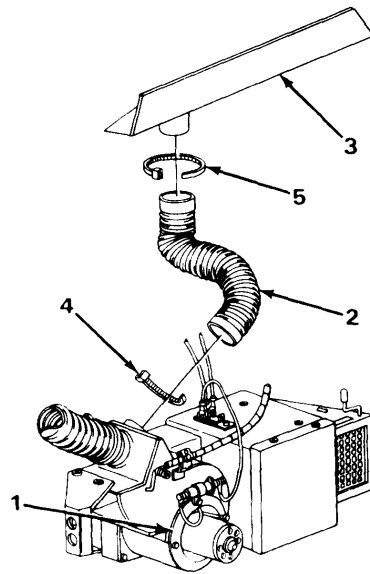
- |  |                   |  |
|--|-------------------|--|
| 1. Cab                                   | instrument panel  | Open (page 4-244).   |
| 2. Hose (1) to heater (2) and nozzle (3) | Two tie wraps (4) | a. Using cutting pliers, cut and take off.<br>b. Get rid of. |
| 3. Heater(2) and nozzle (3)              | Hose (1)          | Pull off.  |



TA240812

**DEFROSTER HOSE - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
<b>INSTALLATION</b>		
4. Heater(1)	Hose (2)	Push on.
5. Nozzle(3)	Hose (2)	Push on.
6. Hose (2) to heater (1)	New tie wrap (4)	Using slip-joint pliers, put on.
7. Hose (2) to nozzle (3)	New tie wrap (5)	Using slip-joint pliers, put on.
8. C a b	Instrument panel	Close (page 4-244).



**NOTE**

FOLLOW-ON MAINTENANCE: Check operation (TM 9-2320-270-10).

**TASK ENDS HERE**

## HEATER HOSES

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This task covers:

- |                              |   |
|------------------------------|---|
| a. Removal (page 4-1294)     | d. Inspection/Replacement (page 4-1297) |
| b. Disassembly (page 4-1297) | e. Assembly (page 4-1298)               |
| c. Cleaning (page 4-1297)    | f. Installation (page 4-1299)           |
- 

### INITIAL SETUP

#### Tools

Handle, ratchet, 3/8-inch drive  
 Knife, pocket  
 Pan, drain  
 Pliers, diagonal-cutting  
 Pliers, slipjoint, straight-nose  
 Screwdriver, fiat-tip, 3/16-inch  
 Socket, 1/2-inch, 3/8-inch drive

#### Materials/Parts

Elbow, heater hose (two required)  
 Hose, heater, 5/8-inch ID  
 (cut from bulk as needed)  
 Lockwasher, loop clamp to oil cooler

#### Materials/Parts – Continued

Soap, liquid (item 14, appendix C)  
 Wrap, tie (item 24, appendix C)

#### Personnel Required

One

#### Equipment Condition

Right hood side panel removed  
 and right side of hood open  
 (TM 9-2320-270-10).

**HEATER HOSES - CONTINUED**

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LOCATION	ITEM	ACTION REMARKS
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**REMOVAL**

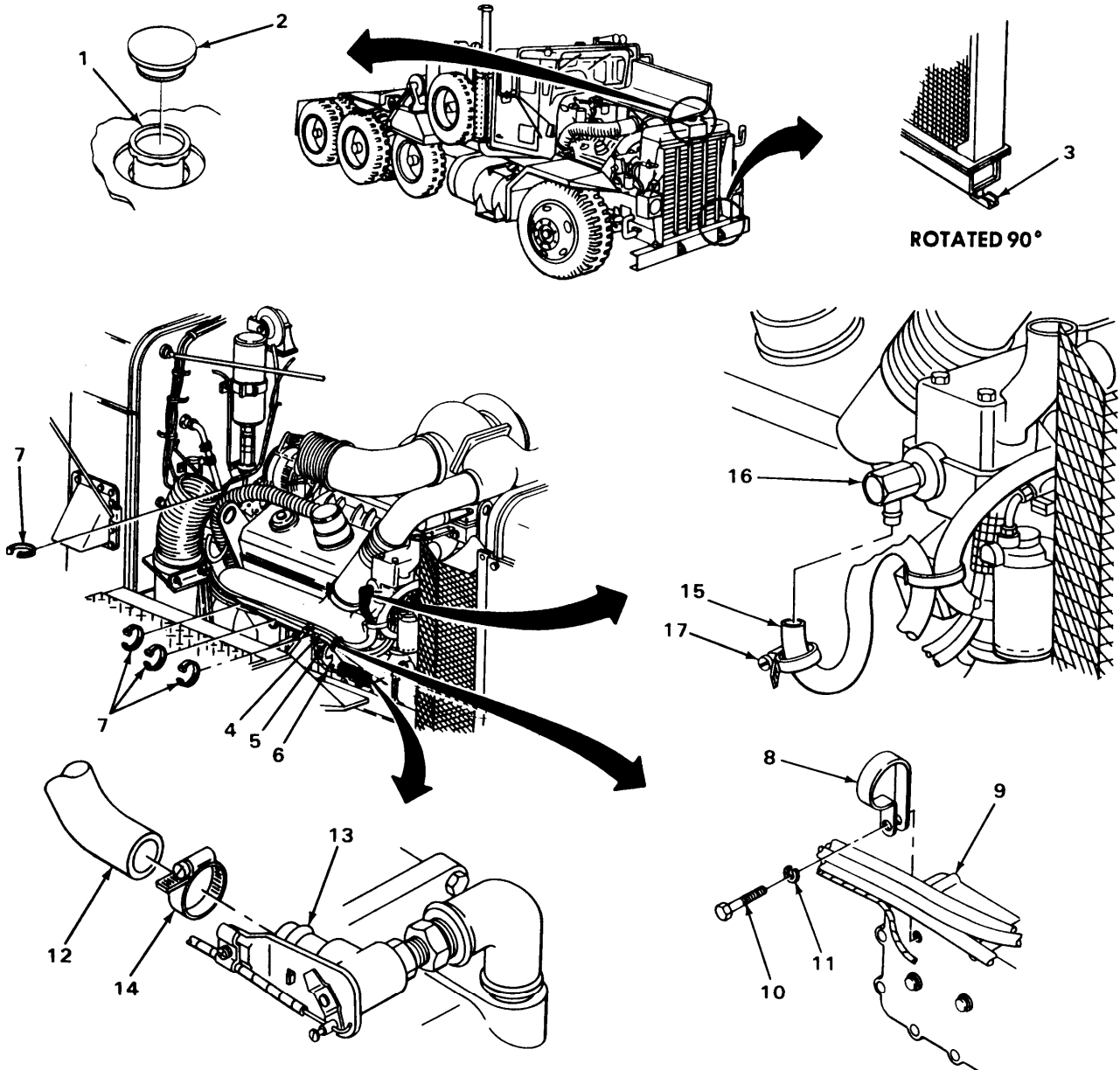
**WARNING**

Be careful when removing radiator cap. If engine is hot, escaping steam could burn you. Using a rag, cover radiator cap to protect your hand. Unscrew cap just enough to allow any built-up steam to escape. When all pressure has been relieved, unscrew cap the rest of the way, and take off of radiator.

1. Radiator(1)	Radiator cap (2)	a. Slowly unscrew to first stop, pause, and allow pressure escape. b. When all pressure has escaped, unscrew and take off.
2.	Draincock (3)	a. Put drain pan underneath. b. Open and let coolant drain. c. When coolant stops draining, close. d. Get rid of coolant (page 4-1).
3. Heater hoses (4) and (5) to other hoses and cables (6)	All tie wraps (7)	a. Using cutting pliers, cut and take off. b. Get rid of.
4. Loop clamp (8) to oil cooler (9)	Screw (10) and lockwasher(11)	a. Using 1/2-inch socket and handle, unscrew and take out. b. Get rid of lockwasher(11).
5. Heater hoses (4) and (5) to other hoses and cables (6) and oil cooler (9)	Loop clamp (8)	Spread and take off.
6. Heater hose (12) to control valve (13)	Clamp (14)	Using screwdriver, unscrew and pull back.
7. Control valve (13)	Heater hose (12)	Twist and pull off. It maybe necessary to use pocket knife to cut off.
8. Return hose (15) to elbow (16)	Clamp (17)	Using screwdriver, unscrew and pull down.

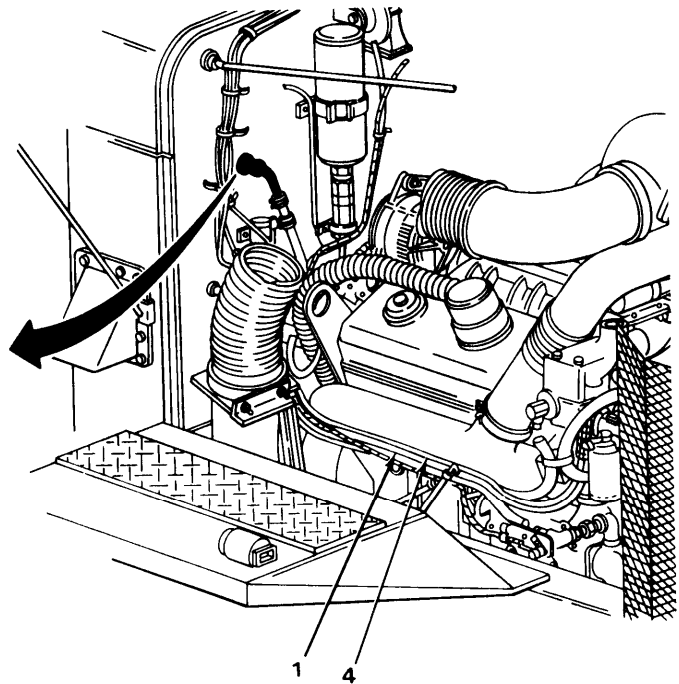
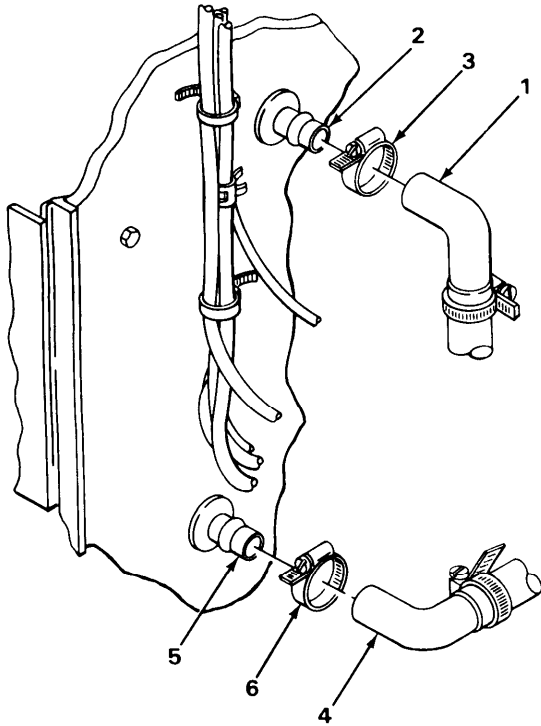
HEATER HOSES - CONTINUED

LOCATION	ITEM	ACTION REMARKS
9. Elbow (16)	Return hose (15)	Twist and pull off. It maybe necessary to use pocket knife to cut off.
10. Return hose (15) and heater hose (12)	Clamps (14) and (17)	Slide off.



**HEATER HOSES - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
REMOVAL - CONTINUED		
11. Heater hose (1) to nipple (2)	Clamp (3)	Using screwdriver, unscrew and pull back.
12. Nipple (2)	Heater hose (1)	Twist and pull off.
13. Return hose (4) to nipple(5)	Clamp (6)	Using screwdriver, unscrew and pull back.
14. Nipple (5)	Return hose (4)	Twist and pull off.
15. Return hose (4) and heater hose (1)	clamps (3) and (6)	Take off.
16.	Return hose (4) and heater hose (1)	Take out.



TA240815

**HEATER HOSES - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
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**DISASSEMBLY**

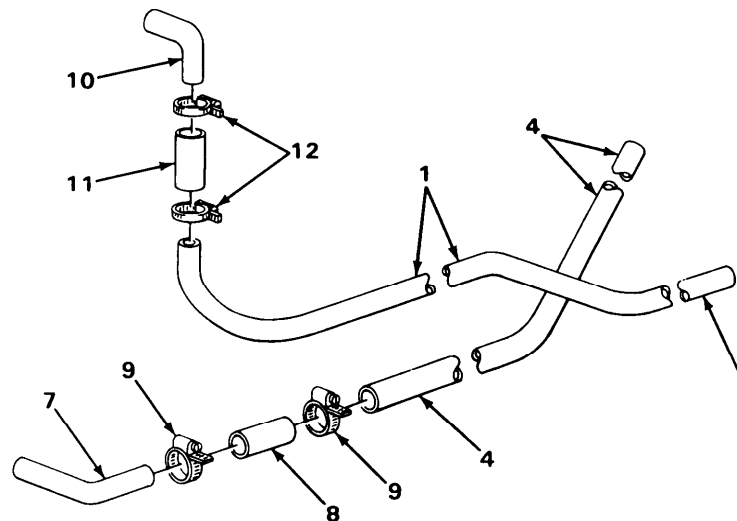
17. Return hose (4) and elbow (7) to nipple (8)	Two clamps (9)	Using screwdriver, unscrew and take off.
18. Nipple (8)	Elbow (7)	Twist and pull off.
19. Return hose (4)	Nipple (8)	a. Using slip-joint pliers, twist and pull out. b. Get rid of hose (4).
20. Heater hose (1) and elbow (10) to nipple(n)	Two clamps (12)	Using screwdriver, unscrew and take off.
21. Nipple (11)	Elbow (10)	Twist and pull off.
22. Heater hose (1)	Nipple(n)	a. Using slip-joint pliers, twist and pull out.

**CLEANING**

23.	All parts	Clean according to general maintenance instructions (page 4-1).
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**inspection/REPLACEMENT**

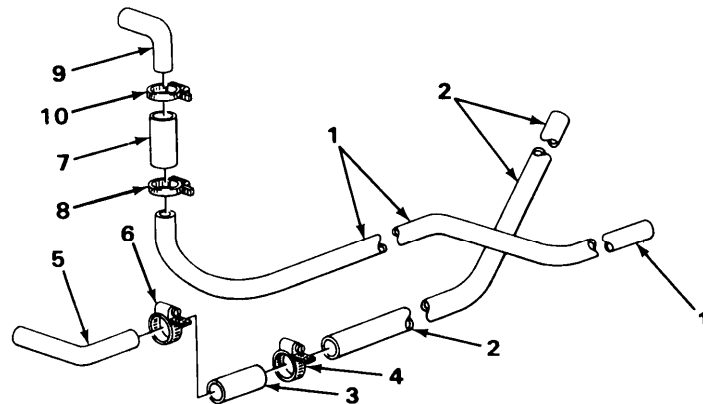
24.	All parts	Inspect according to general maintenance instructions (page 4-1).
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TA240816

**HEATER HOSES - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
ASSEMBLY		
25.	New return hose (1) and heater hose (2)	Using pocket knife, cut from bulk stock same length as old hoses (1) and (2).
26. Heater hose (2)	Nipple (3)	Lube lightly with soap and push in half way.
27. Nipple (3) to heater hose (2)	Clamp (4)	Slide into place and tighten using screwdriver.
28. Nipple (3)	New elbow (5)	Lube nipple (3) lightly with soap and push until seated against hose (2).
20. New elbow (5) to nipple(3)	Clamp (6)	Slide into place and tighten using screwdriver.
30. Heater return hose (1)	Nipple (7)	Lube lightly with soap and push in half way.
31. Nipple (7) to return hose (1)	Clamp (8)	Slide into place and tighten using screwdriver.
32. Nipple (7)	New elbow (9)	Lube nipple (7) lightly with soap and push until seated against return hose (1).
33. New elbow (9) to nipple(7)	Clamp (10)	Slide into place and tighten using screwdriver.

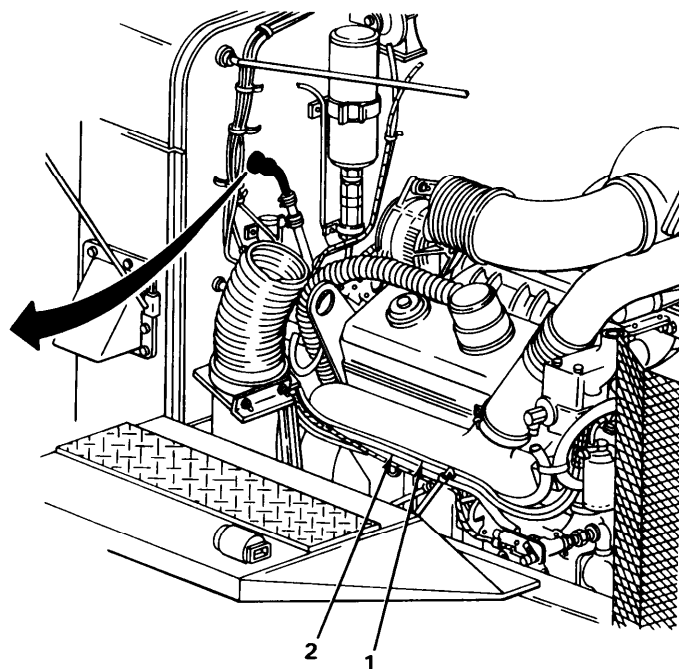
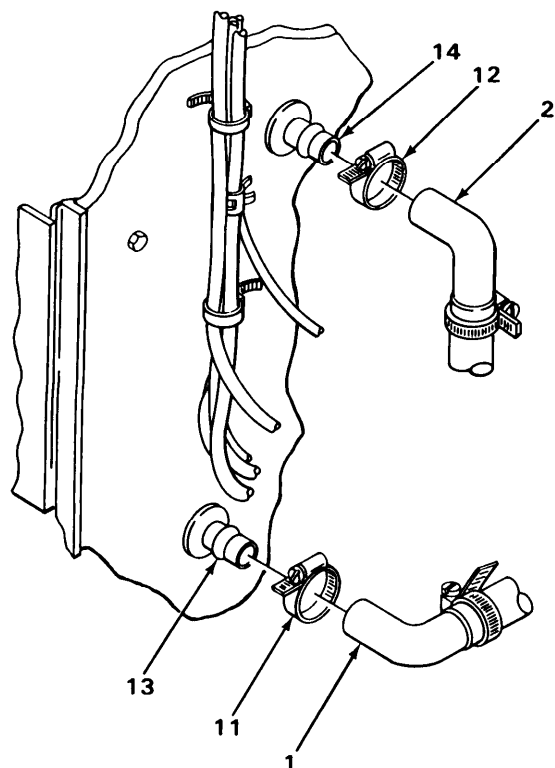


TA240817



**HEATER HOSES - CONTINUED**

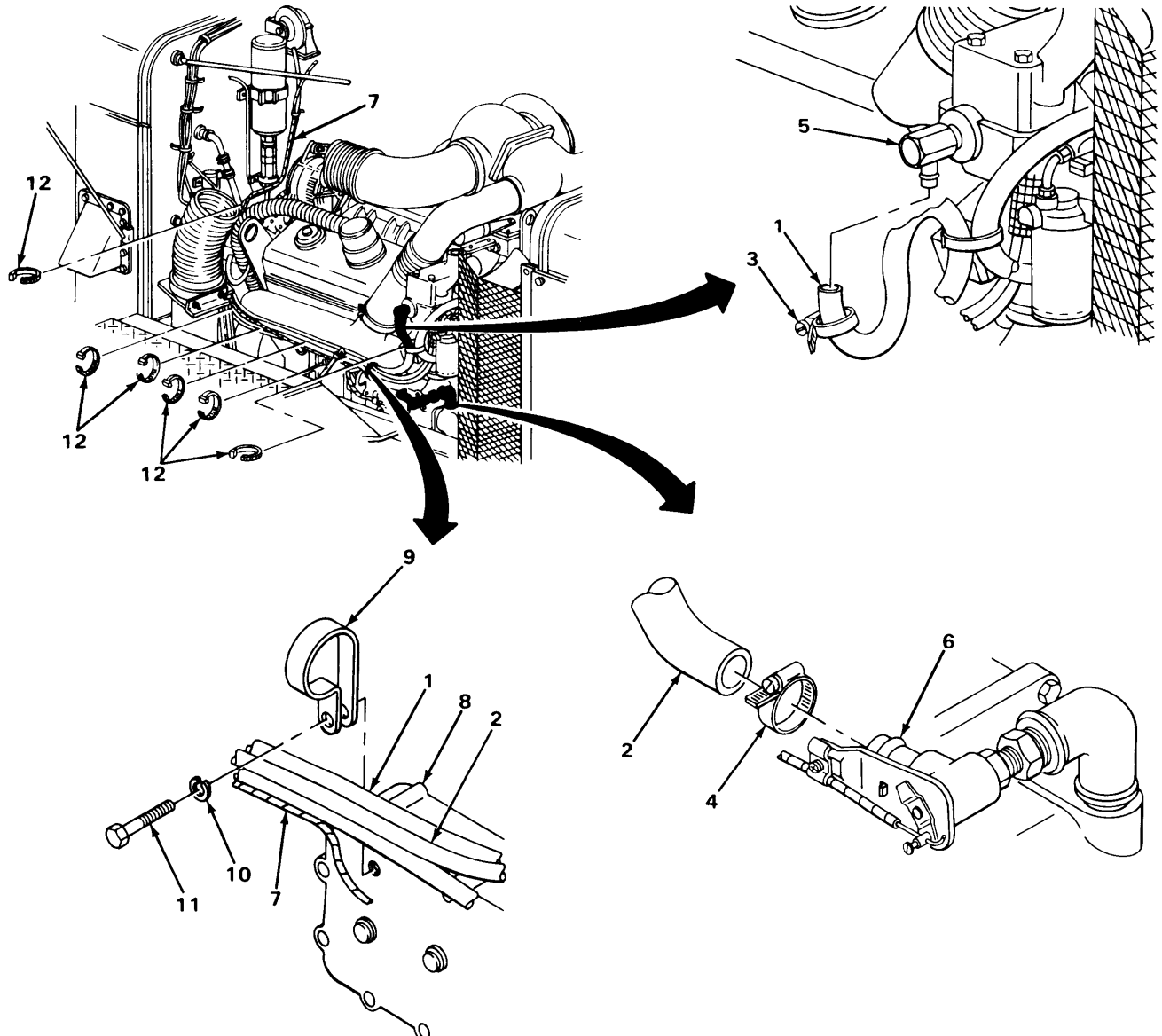
LOCATION	ITEM	ACTION	REMARKS
<b>INSTALIATION</b>			
34.	Return (1) and heater (2) hoses	Route into place.	
35. Return hose (1) and heater hose (2)	Clamps (11) and (12)	Slide on.	
36. Nipple (13)	Return hose (1)	Lube nipple (13) lightly with soap and push on.	
37. Return hose (1) to nipple (13)	Clamp (11)	Slide into place and tighten using screwdriver.	
38. Nipple (14)	Heater hose (2)	Lube nipple (14) lightly with soap and push on.	
39. Heater hose (2) to nipple (14)	Clamp (12)	Slide into place and tighten using screwdriver.	



**HEATER HOSES - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
INSTALLATION - CONTINUED		
40. Return hose (1) and heater hose (2)	Clamps (3) and (4)	Slide on.
41. Elbow (5)	Return heater hose (1)	Lube elbow (5) lightly with soap and push on until seated.
42. Return hose (1) to elbow (5)	Clamp (3)	Slide into place and tighten using screwdriver.
43. Control valve (6)	Heater hose (2)	Lube end of valve (6) lightly with soap and push on until seated.
44. Heater hose (2) to control valve (6)	Clamp (4)	Slide into place and tighten using screwdriver.
45. Return hose (1), heater hose (2) and other hoses and cables (7) to oil cooler (8)	Loop clamp (9)	put around.
46. Loop clamp (9) to oil cooler(8)	New lockwasher (10) and screw (11)	Screw in, and tighten using 1/2-inch socket and handle.
47. Return hose (1), heater hose (2) to other hoses and cables (7)	New tie wraps (12)	Using pliers, put on.
48.	Cooling system	Fill (TM 9-2320-270-10).

HEATER HOSES - CONTINUED



**NOTE**

FOLLOW-ON MAINTENANCE:

1. Check operation (TM 9-2320-270-10).
2. Close right side of hood and install right hood side panel (TM 9-2320-270-10).

**TASK ENDS HERE**

**HEATER SHUTOFF VALVE**

---

This task covers:

- a. Removal (page 4-1303)
  - b. Cleaning (page 4-1304)
  - c. Inspection/Replacement (page 4-1 304)
  - d. Installation (page 4-1305)
- 

**INITIAL SETUP**

**Tools**

- Handle, speeder, 1/4-inch drive
- Knife, pocket
- Pan, drain
- Pliers, long-nose, round
- Screwdriver, flat-tip, 1/8-inch
- Screwdriver, flat-tip, 3/16-inch
- Socket, 1/4-inch, 1/4-inch drive
- Vise
- Wrench, open-end, 1 1/16-inch
- Wrench, open-end, 1 1/16-inch
- Wrench, pipe, 1/4- to 1-inch

**Materials/Parts**

- Soap, liquid (item 14, appendix C)
- Tape, teflon (item 22, appendix C)

**Personnel Required**

One

**Equipment Condition**

Right side hood open (TM 9-2320-270-10).

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LOCATION	ITEM	ACTION	REMARKS
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**REMOVAL**

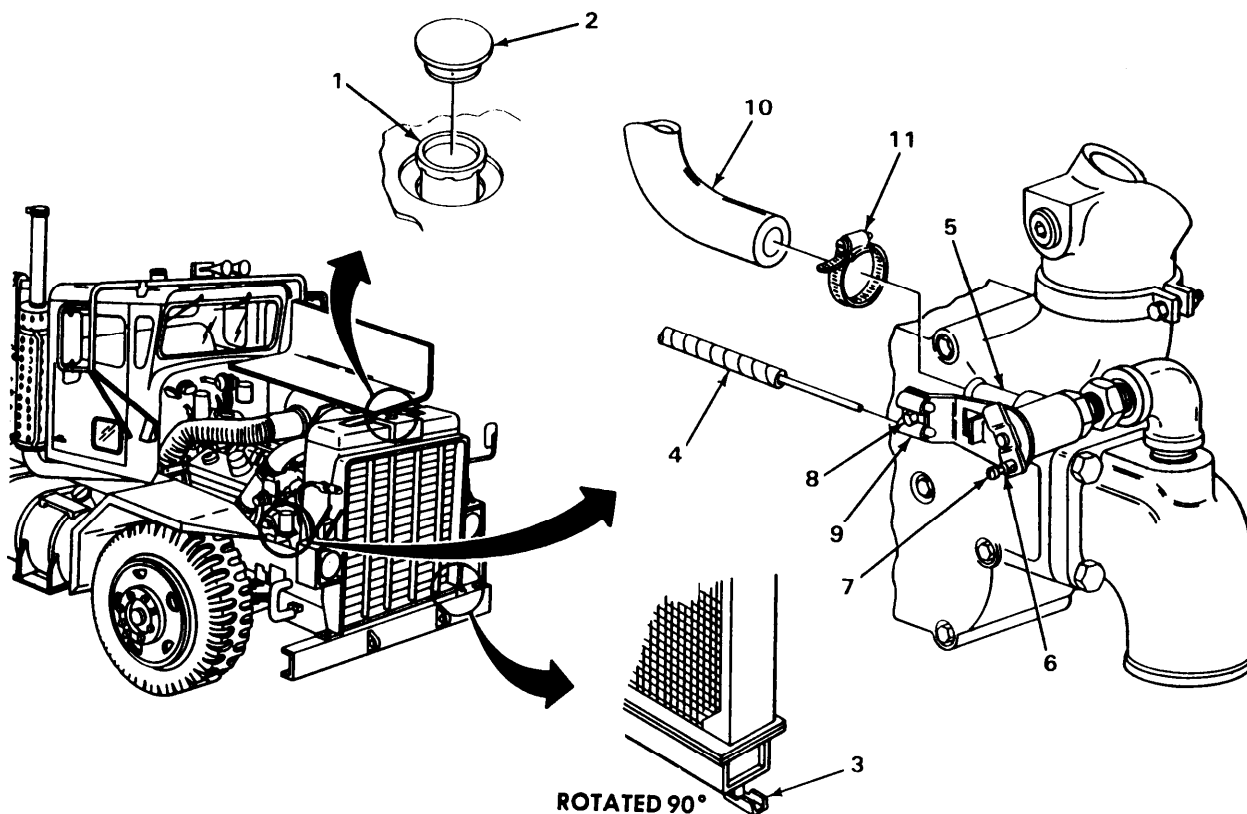
**WARNING**

Be careful when removing radiator cap. If engine is hot, escaping steam could burn you. Using a rag, cover radiator cap to protect your hand. Unscrew cap just enough to allow any built-up steam to escape. When all pressure has been relieved, unscrew cap the rest of the way, and take off of radiator.

- |    |               |                  |   |
|----|---------------|------------------|---|
| 1. | Radiator(1)   | Radiator cap (2) | <ul style="list-style-type: none"> <li>a. Slowly unscrew to first stop, pause, and allow pressure escape.</li> <li>b. When all pressure has escaped, unscrew and take off.</li> </ul>                             |
| 2. | Draincock (3) |                  | <ul style="list-style-type: none"> <li>a. Put drain pan underneath.</li> <li>b. Open and let coolant drain.</li> <li>c. When coolant stops draining, close.</li> <li>d. Get rid of coolant (page 4-1).</li> </ul> |

HEATER SHUTOFF VALVE - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
REMOVAL- CONTINUED			
3. Cable (4) to shutoff valve (5) swivel (6)	Screw (7)	a. Using long-nose pliers, straighten cable (4). b. Using 1/8-inch screwdriver, unscrew but do not take out.	
4. Cable (4) to valve (5)	Clamp screw(8)	Using 1/4-inch socket and speeder handle, unscrew but do not take out.	
5. Clamp (9) and swivel (6)	Cable (4)	Pull out.	
6. Hose (10) to shutoff valve (5)	Clamp (11)	Using 3/16-inch screwdriver, unscrew and pull back.	
7. Shutoff valve (5)	Hose (10)	Twist and pull off. <b>It maybe necessary to cut hose with pocket knife. If so, replace hose.</b>	



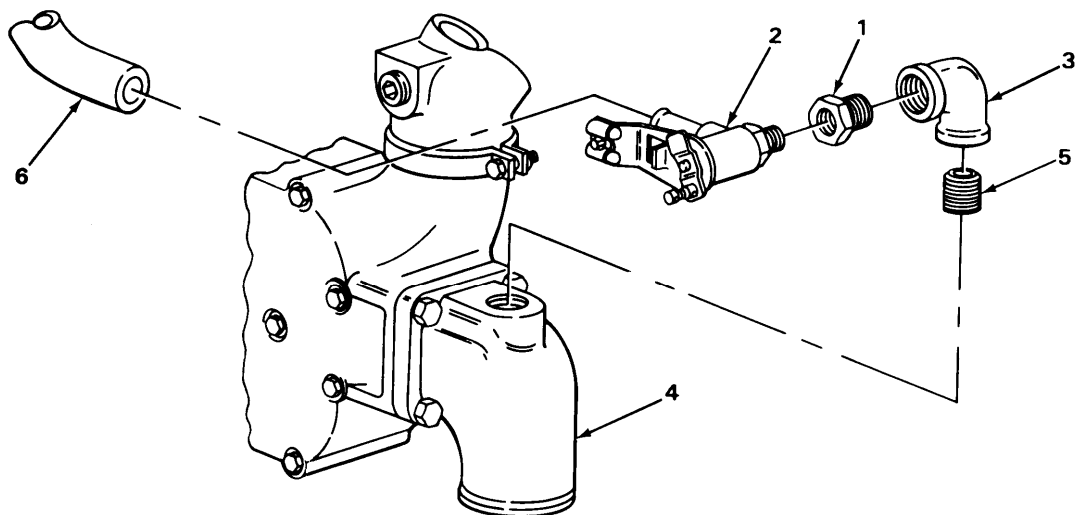
TA240820

**HEATER SHUTOFF VALVE - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
REMOVAL – CONTINUED		
8. Reducer (1)	Valve (2)	Using 1 1/16-inch and 1 1/16-inch wrenches, unscrew and take out.
9. Elbow (3)	Reducer (1)	Using 1 1/16-inch wrench, unscrew and take off.
<b><u>CAUTION</u></b>		
Nipple may stay in oil cooler assembly or elbow. Do not remove nipple unless inspection shows need for replacement.		
10. Oil cooler assembly (4)	Elbow (3)	Unscrew and take off.
<b>NOTE</b>		
If nipple stayed in elbow, do step 11. If nipple stayed in oil cooler assembly, do step 12.		
11. Elbow (3)	Nipple (5)	<ul style="list-style-type: none"> <li>a. Secure elbow (3) in vise.</li> <li>b. Using pipe wrench, unscrew and take out.</li> <li>c. Get rid of.</li> <li>d. Take elbow (3) out of vise.</li> </ul>
12. Oil cooler assembly (4)	Nipple (5)	<ul style="list-style-type: none"> <li>a. Using pipe wrench, unscrew and take out.</li> <li>b. Get rid of.</li> </ul>
CLEANING		
13.	All parts	Clean according to general maintenance instructions (page 4-1).
INSPECTION/REPLACEMENT		
14.	All parts	Inspect according to general maintenance instructions (page 4-1).

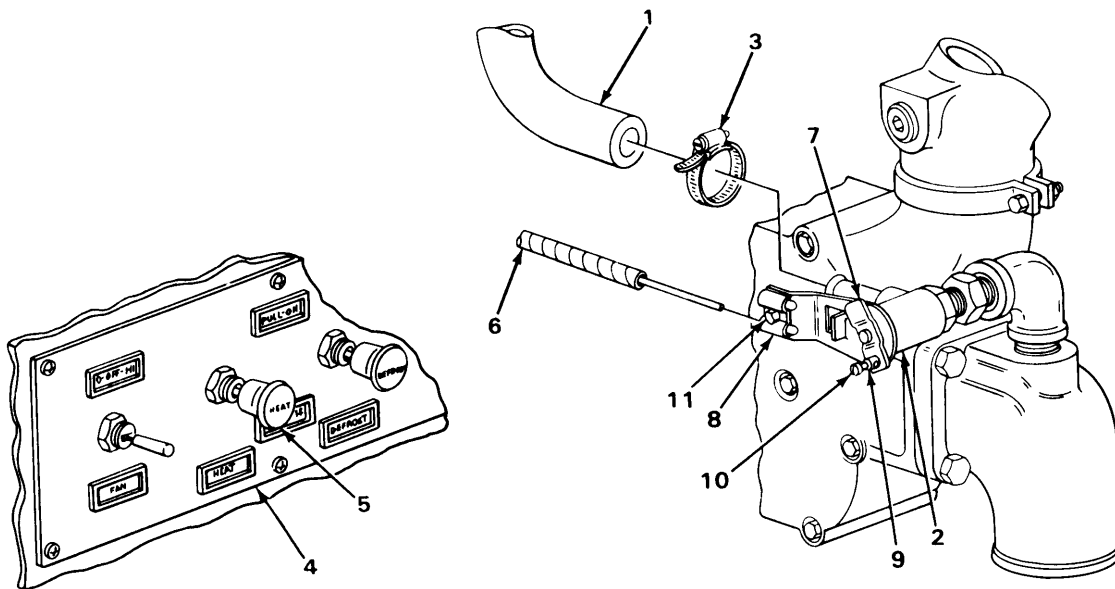
**HEATER SHUTOFF VALVE - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
<b>INSTALLATION</b>		
<b>15.</b> Oil cooler assembly (4)	Nipple (5)	a. Wrap threads with teflon tape (page 4-1). b. Screw in but do not tighten.
<b>16.</b> Nipple (5)	Elbow (3)	Screw on and tighten using pipe wrench.
<b>17.</b> Elbow (3)	Reducer (1)	a. Wrap threads with teflon tape (page 4-1). b. Screw in and tighten using 1 1/16-inch wrench.
<b>18.</b> Reducer (1)	Valve (2)	a. Wrap threads with teflon tape (page 4-1). b. Screw in and tighten using 11/16-inch wrench.
<b>19.</b> Valve (2)	Hose (6)	Lube lightly with soap and push on until seated.



HEATER SHUTOFF VALVE - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
INSTALLATION - CONTINUED			
20. Hose (1) to valve (2)	Clamp (3)	a. Place In position. b. Using 3/16-inch screwdriver, tighten.	
21. Heater control panel (4)	HEAT knob (5)	Push in.	
22. Valve (2)	Cable (6)	With valve lever (7) turned toward front, route through clamp (8) and push through swivel (9).	
23. Cable (6) to swivel (9)	Setscrew (10)	a. Using long-nose pliers, bend over end. b. Using 1/8-inch screwdriver, tighten.	
24. Cable (6) to valve (2)	Clamp screw (11)	Using 1/4-inch socket and speeder driver handle, tighten.	
25.	Cooling system	Fill (TM 9-2320-270-10).	



TA240822



**HEATER SHUTOFF VALVE - CONTINUED****NOTE****FOLLOW-ON MAINTENANCE:**

1. Check operation (TM 9-2320-270-10).
2. Close right side of hood and install right hood side panel (TM 9-2320-270-10).

**TASK ENDS HERE****HEATER CONTROL PANEL**

This task covers:

- a. Removal (page 4-1308)
- b. installation (page 4-1310)

**INITIAL SETUP****Tools**

Extension, 5-inch, 1/4-inch drive  
 Handle, ratchet, 1/4-inch drive  
 Screwdriver, cross-tip, number one  
 Screwdriver, fiat-tip, 1/8-inch  
 Socket, 3/8-inch, 1/4-inch drive  
 Wrench, open-end, 9/16-inch  
 Wrench, open-end, 5/8-inch

**Personnel Required**

One

**Equipment Condition**

Battery ground cable disconnected  
 (page 4-444).  
 Heater optical ribbon and label bezels  
 removed (page 4-563).

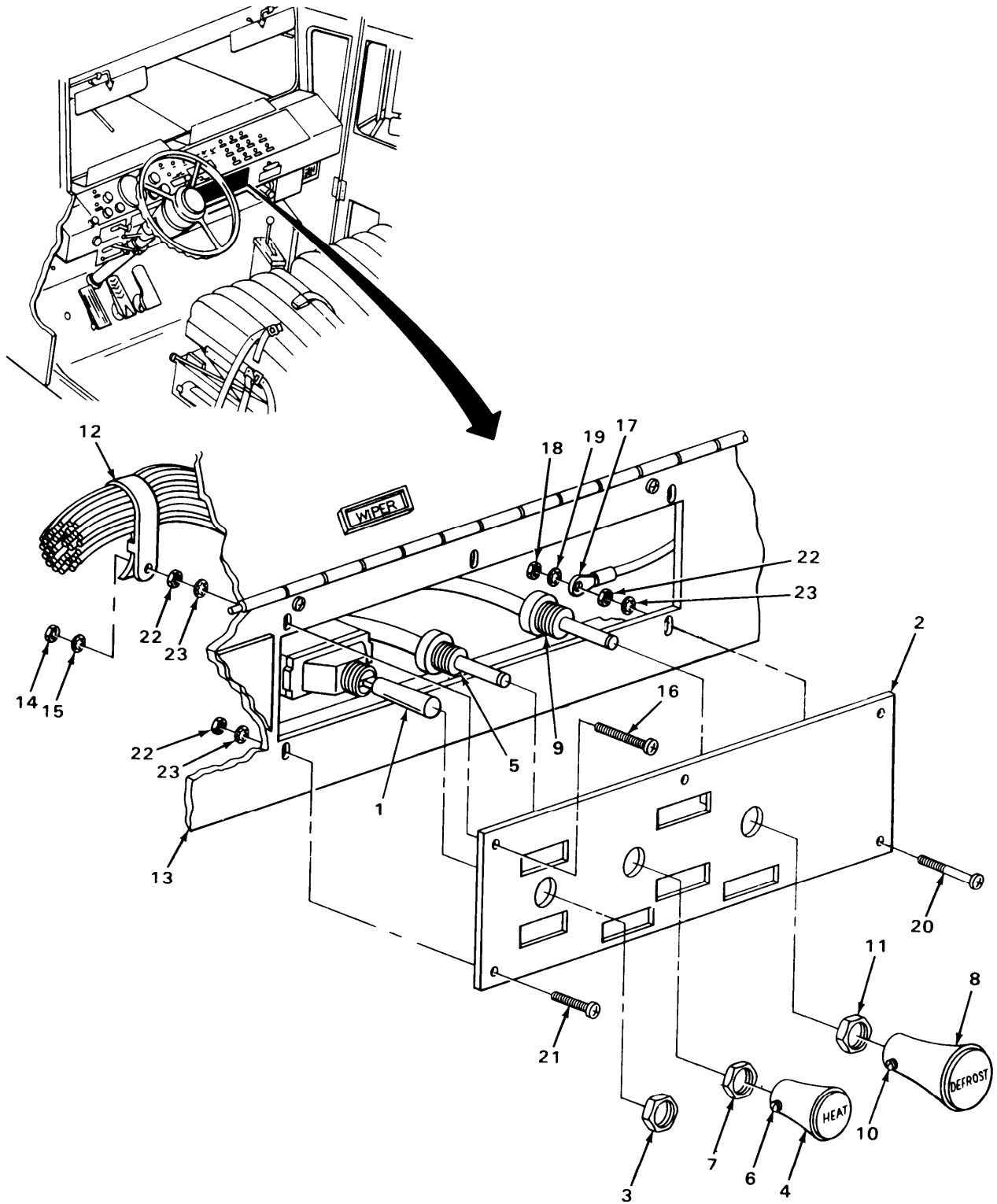
**Materials/Pafis**

Lockwasher, ground wire to dashboard  
 Lockwasher, loop clamp to dashboard  
 Lockwashers, control panel to dash-  
 board (five required)

**HEATER CONTROL PANEL- CONTINUED**

LOCATION	ITEM	ACTION REMARKS
<b>REMOVAL</b>		
1. Switch (1) to heater control panel (2)	Nut (3)	Using 9/16-inch wrench, unscrew and take off.
2. Heater control panel (2)	Switch (1)	Push through.
3. HEAT knob (4) to heater control cable (5)	Setscrew (6)	Using 1/8-inch screwdriver, unscrew but do not take out.
4. Cable (5)	HEAT knob (4)	Pull off.
5. Cable (5) to panel (2)	Nut (7)	Using 5/8-inch wrench, unscrew and take off.
6. DEFROST knob (8) to defroster control cable (9)	Setscrew (10)	Using 1/8-inch screwdriver, unscrew but do not take out.
7. Cable (9)	DEFROST knob (8)	Pull off.
8. Cable (9) to panel (2)	Nut (11)	Using 5/8-inch wrench, unscrew and take off.
9. Loop clamp (12) to dashboard (13)	Nut (14) and lockwasher (15)	a. Using 3/8-inch socket, handle, and extension, unscrew and take out. b. Get rid of lockwasher(15).
10. Screw (16)	Loop clamp (12)	Take off.
11. Optical ribbon ground wire (17) to dashboard(13)	Nut (18) and lockwasher (19)	a. Using 3/8-inch socket, handle, and extension, unscrew and take out. b. Get rid of lockwasher (19).
12. Screw (20)	Ground wire (17) .	Take off.
13. Heater control panel (2) to dashboard (13)	Five screws (21), (16), and (20), nuts (22) and lockwashers (23)	a. Using cross-tip screwdriver and 3/8-inch socket, handle, and extension, unscrew and take out. b. Get rid of lockwashers (23).
14. Dashboard (13) and heater and defroster cables (5) and (9)	Heater control panel (2)	Take off.

HEATER CONTROL PANEL - CONTINUED



TA240823

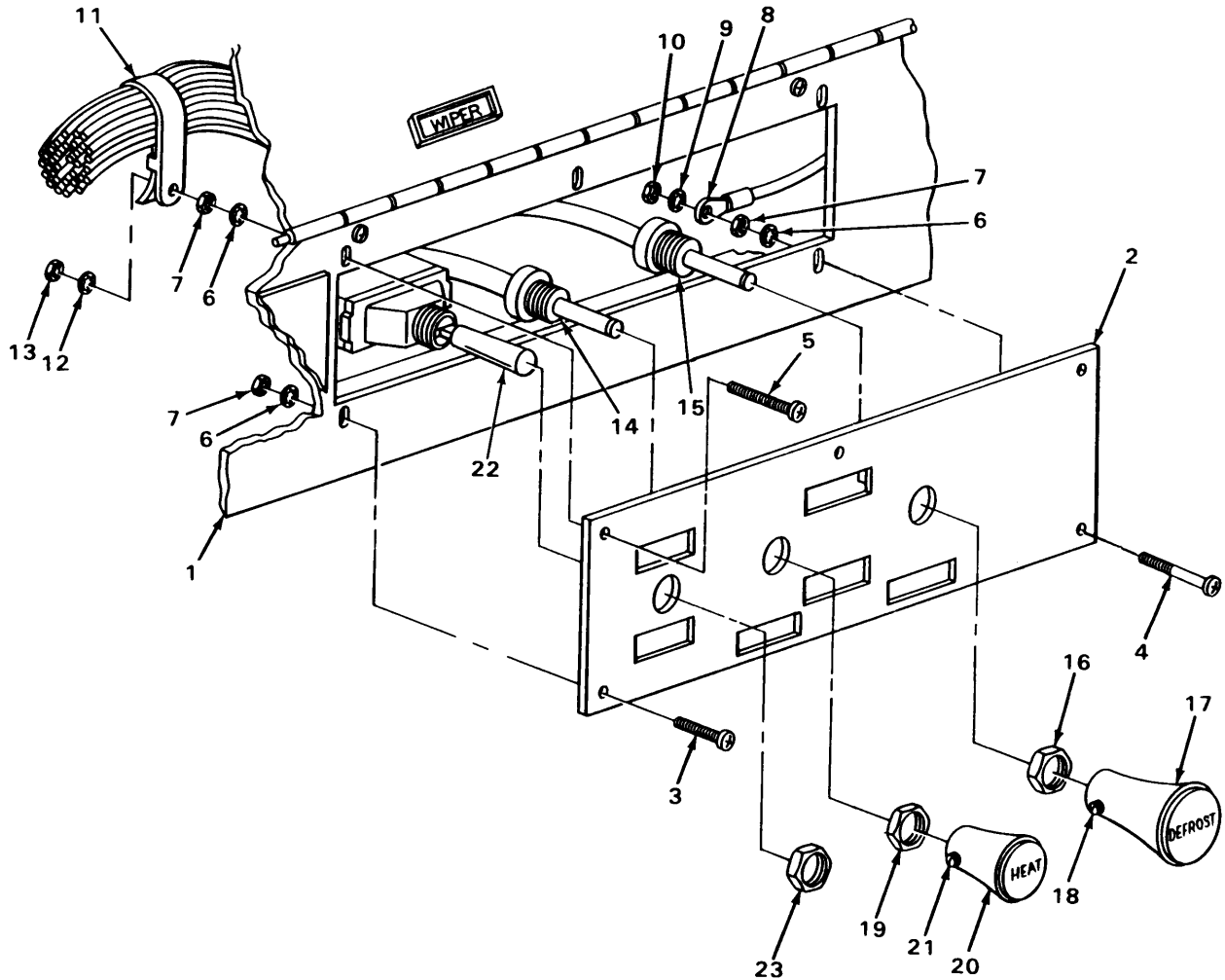
4-1309

**HEATER CONTROL PANEL - CONTINUED**

	LOCATION	ITEM	ACTION REMARKS
<b>INSTALLATION</b>			
15.	Dashboard (1)	Heater control panel (2)	Put in place.
16.	Heater control panel (2) to dashboard (1)	Five screws (3), (4), and (5), new lockwashers (6), and nuts (7)	Screw in and tighten using cross-tip screwdriver, 3/8-inch socket, extension and handle.
17.	Screw (4)	Optical ribbon ground wire (8)	Put on.
18.	Optical ribbon ground wire (8) to dashboard (1)	New lockwasher (9) and nut (10)	Screw on and tighten using 3/8-inch socket, extension, and handle.
19.	Screw (5)	Loop clamp(11)	Put on.
20.	Loop clamp(11) to dashboard (1)	New lockwasher(12) and nut (13)	Screw on and tighten using 3/8-inch socket, extension, and handle.
21.	Heater control panel (2)	Heater and defroster control cables (14) and (15)	Push into place from behind.
22.	Defroster control cable(15) to heater control panel (2)	Nut (16)	Screw on and tighten using 5/8-inch wrench.
23.	Defroster control cable (15)	DEFROST knob (17)	Push on.
24.	DEFROST knob (17)	Setscrew (18)	Using 1/8-inch screwdriver, tighten.
25.	Heater control cable (14) to heater control panel (2)	Nut (19)	Screw on and tighten using 5/8-inch wrench.
26.	Heater control cable (14)	HEAT knob (20)	Push on.
27.	HEAT knob (20)	Setscrew (21)	Using 1/8-inch screwdriver, tighten.

HEATER CONTROL PANEL - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
28. Heater control panel (2)	Switch (22)	Push through.	
29. Switch (22)	Nut (23)	Screw on and tighten using 9/16-inch wrench.	



**NOTE**

FOLLOW-ON MAINTENANCE:

1. Check operation (TM 9-2320-270-10).
2. Install optical ribbon and bezels (page 4-476).
3. Connect battery ground cable (page 4-444).

**TASK ENDS HERE**

TA240824

4-1311

## HEATER CONTROL PANEL OPTICAL RIBBON

---

This task covers:

Maintenance (page 4-1312)

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### MAINTENANCE

#### NOTE

Heater control panel optical ribbon maintenance can be found in Electrical System Maintenance (page 4-476).

**TASK ENDS HERE**

## HEATER CONTROL PANEL BEZELS

---

This task covers:

Maintenance (page 4-131 2)

---

### MAINTENANCE

#### NOTE

Heater control panel label bezels maintenance can be found in Electrical System Maintenance (page 4-476).

**TASK ENDS HERE**

## HEATER SWITCH

---

This task covers:

- a. Removal (page 4-1313)
  - b. Installation (page 4-1314)
- 

## INITIAL SETUP

### Tools

Screwdriver, fiat-tip, 1/4-inch  
Screwdriver, fiat-tip, 3/8-inch  
Wrench, open-end, 9/16-inch

### Materials/Parts

Lockwasher (three required)  
Tag, marking (item 18, appendix C)

### Personnel Required

One

### Equipment Condition

Battery ground cable disconnected  
(page 4-526).  
instrument panel open (page 4-244).

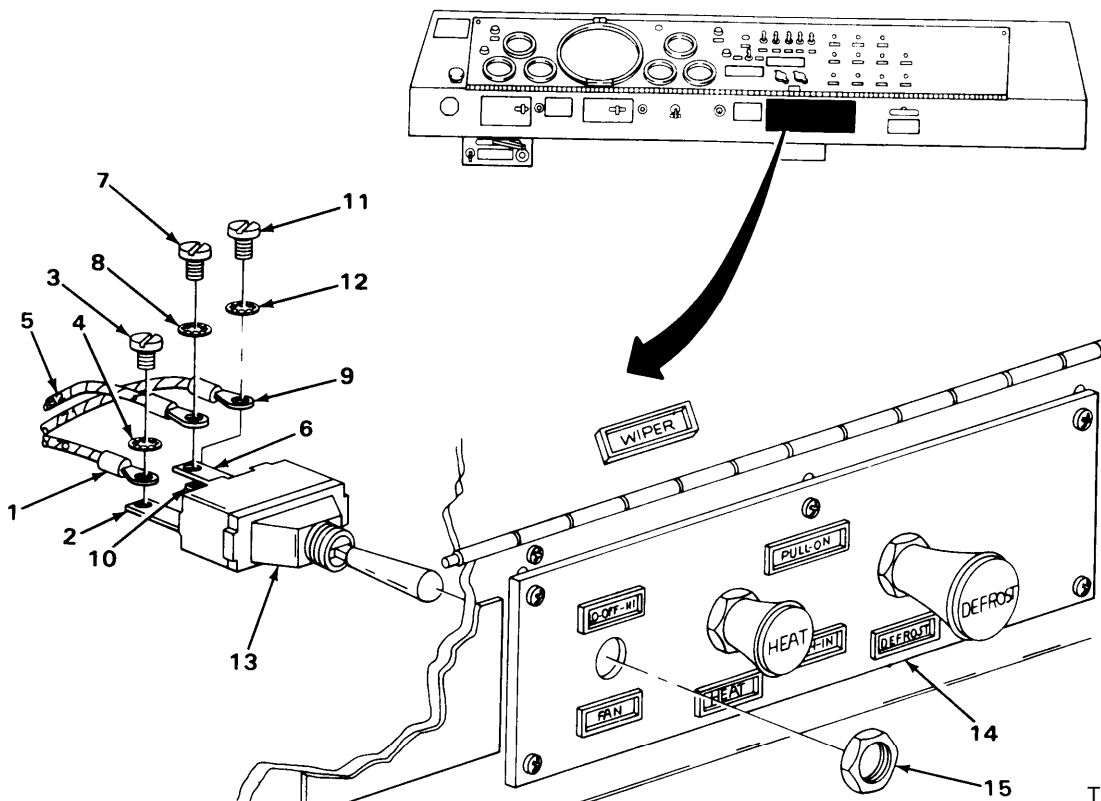
HEATER SWITCH - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
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**NOTE**

Tag wires according to general maintenance instructions (page 4-1).

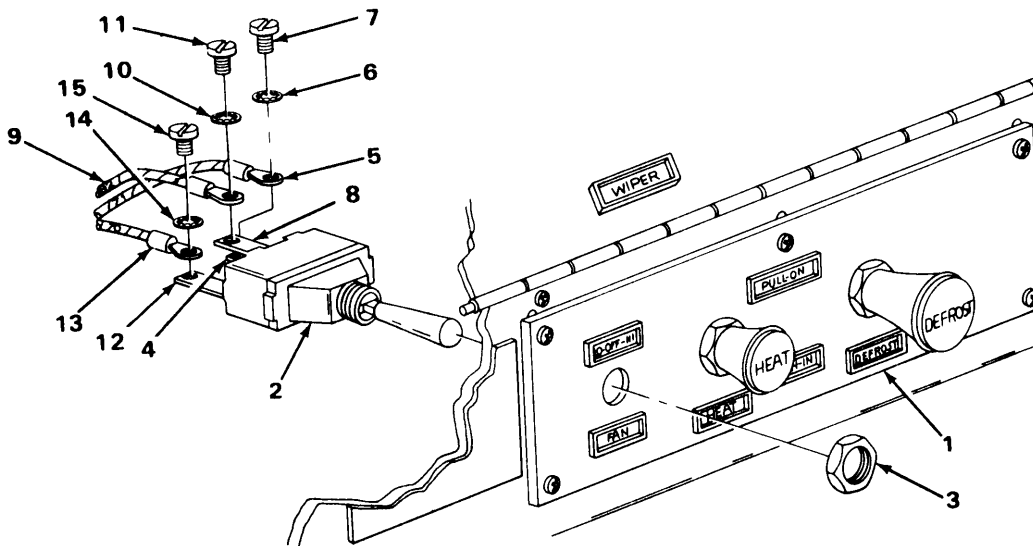
- |   |   |  |  |
|---|---|--|--|
| 1. Wire 70 (1) to terminal (2)              | Screw (3), lock-washer (4), and wire 70 (1)   | a. Using 1/4-inch screwdriver, unscrew and take off.<br>b. Get rid of lockwasher (4).  |  |
| 2. Wire 82 (5) to terminal (6)              | Screw (7), lock-washer (8), and wire 82 (5)   | a. Using 1/4-inch screwdriver, unscrew and take off.<br>b. Get rid of lockwasher (8).  |  |
| 3. Wire 71 (9) to terminal (10)             | Screw (11), lock-washer (12), and wire 71 (9) | a. Using 1/4-inch screwdriver, unscrew and take off.<br>b. Get rid of lockwasher (12). |  |
| 4. Switch (13) to heater control panel (14) | Nut (15)                                      | Using 9/16-inch wrench, unscrew and take off.  |  |
| 5. Heater control panel (14)                | Switch (13)                                   | Take out from behind.  |  |



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**HEATER SWITCH - CONTINUED**

LOCATION	ITEM	ACTION	REMARKS
<b>INSTALLATION</b>			
6. Heater control panel (1)	Switch (2)	Put into place from behind.	
7. Switch (2)	Nut (3)	Screw on and tighten using 9/16-inch wrench.	
8. Terminal (4)	Wire 71 (5), new lockwasher (6), and screw (7)	Screw in and tighten using 1/4-inch screwdriver.	
9. Terminal (8)	Wire 82 (9), new lockwasher (10), and screw (11)	Screw in and tighten using 1/4-inch screwdriver.	
10. Terminal (12)	Wire 70 (13), new lockwasher (14), and screw (15)	Screw in and tighten using 1/4-inch screwdriver.	



**NOTE**

**FOLLOW-ON MAINTENANCE:**

1. Check operation (TM 9-2320-270-10).
2. Connect battery ground cable (page 4-444).

**TASK ENDS HERE**

TA240826



# HEATER RESISTOR

This task covers:

- a. Removal (page 4-1315)
- b. Installation (page 4-1316)

## INITIAL SETUP

**Tools**

Handle, ratchet, 1/4-inch drive  
 Socket, 5/16-inch, 1/4-inch drive

**Equipment Condition**

Battery ground cable disconnected  
 (page 4-444).

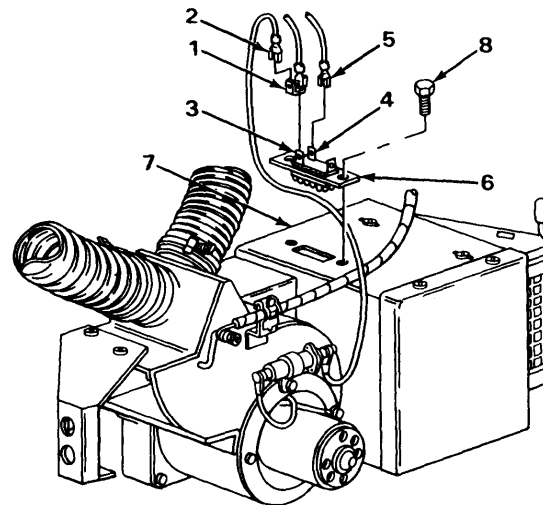
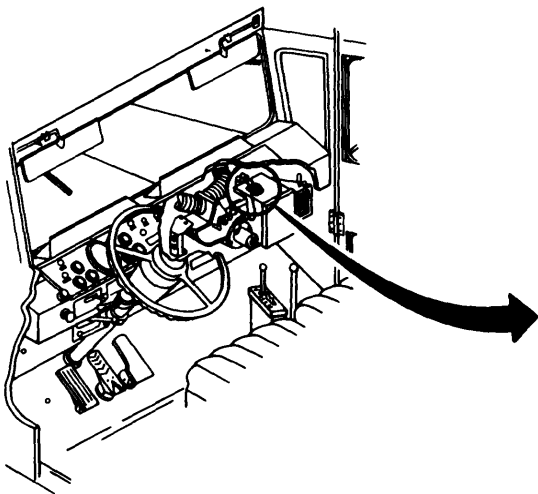
**Personnel Required**

One

LOCATION	ITEM	ACTION REMARKS
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## REMOVAL

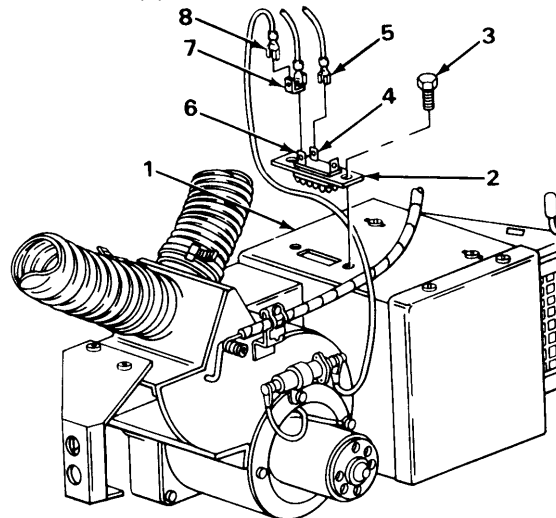
- |                                 |                 |   |
|---------------------------------|-----------------|---|
| 1. Red wire (1)                 | Red wire (2)    | Unplug.   |
| 2. Terminal (3)                 | Red wire (1)    | Unplug.   |
| 3. Terminal (4)                 | Orange wire (5) | Unplug.   |
| 4. Resistor (6)<br>to heater(7) | Two screws (8)  | Using 5/16-inch socket and handle,<br>unscrew and take out. |
| 5. Heater (7)                   | Resistor (6)    | Take out.   |



TA240827

**HEATER RESISTOR - CONTINUED**

LOCATION	ITEM	ACTION	REMARKS
<b>INSTALLATION</b>			
6. Heater (1)	Resistor (2)	put in place.	
7. Resistor (2) to heater(1)	Two screws (3)	Screw in and tighten using 5/16-inch socket and handle.	
8. Terminal (4)	Orange wire (5)	Push on.	
9. Terminal (6)	Red wire (7)	Push on.	
10. Red wire (7)	Red wire (8)	Push on.	



**NOTE**

**FOLLOW-ON MAINTENANCE:**

1. Check heater operation (TM 9-2320-270-10).
2. Connect battery ground cable (page 4-444).

**TASK ENDS HERE**

**HEATER MOTOR SUPPRESSOR**

This task covers:

- |                           |   |
|---------------------------|---|
| a. Removal (page 4-1317)  | c. Inspection/Replacement (page 4-1318) |
| b. Cleaning (page 4-1318) | d. Installation (page 4-1318)           |

## HEATER MOTOR SUPPRESSOR - CONTINUED

### INITIAL SETUP

**Tools**

Extension, 1/4-inch drive, 3-inch  
 Handle, ratchet, 1/4-inch drive  
 Screwdriver, flat-tip, 1/4-inch  
 Socket, 1/4-inch, 1/4-inch drive

**Personnel Required**

One

**Equipment Condition**

Battery ground cable disconnected  
 (page 4-444).

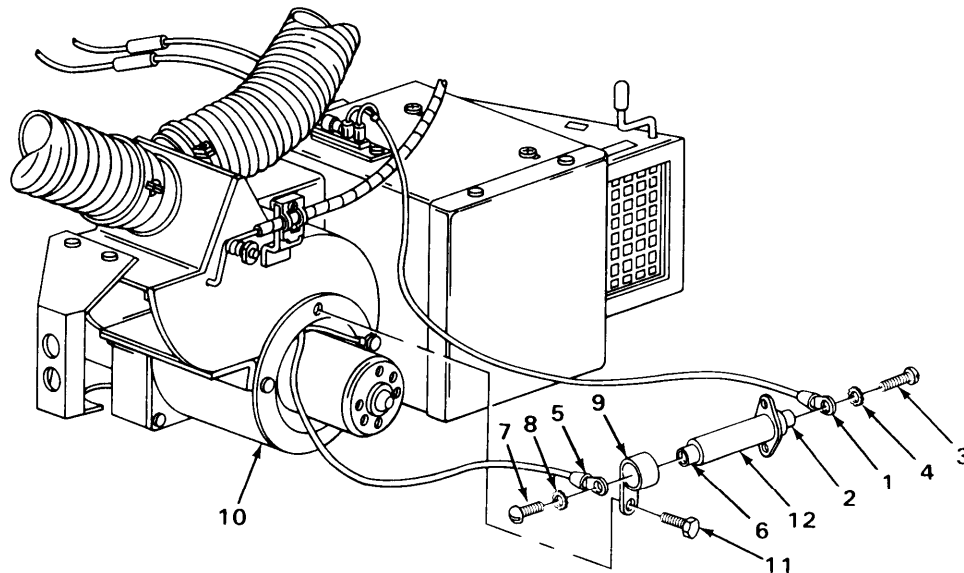
**Materials/Parts**

Lockwasher, red wire to right terminal  
 Lockwasher, red wire to left terminal

LOCATION	ITEM	ACTION	REMARKS
----------	------	--------	---------

### REMOVAL

- |   |  |  |
|---|--|--|
| 1. Red wire to resistor (1) to right terminal (2) | Screw (3), lockwasher (4), and wire (1)      | s. Using screwdriver, unscrew and take out.<br>b. Get rid of lockwasher (4). |
| 2. Red wire to motor (5) to left terminal (6)     | Screw (7), lockwasher (8), and wire (5)      | s. Using screwdriver, unscrew and take out.<br>b. Get rid of lockwasher (8). |
| 3. Bracket (9) to heater (10)                     | Screw (11), bracket (9), and suppressor (12) | Using 1/4-inch socket, handle, and extension, unscrew and take off.          |
| 4. Bracket (9)                                    | Suppressor (12)                              | Slide out,   |



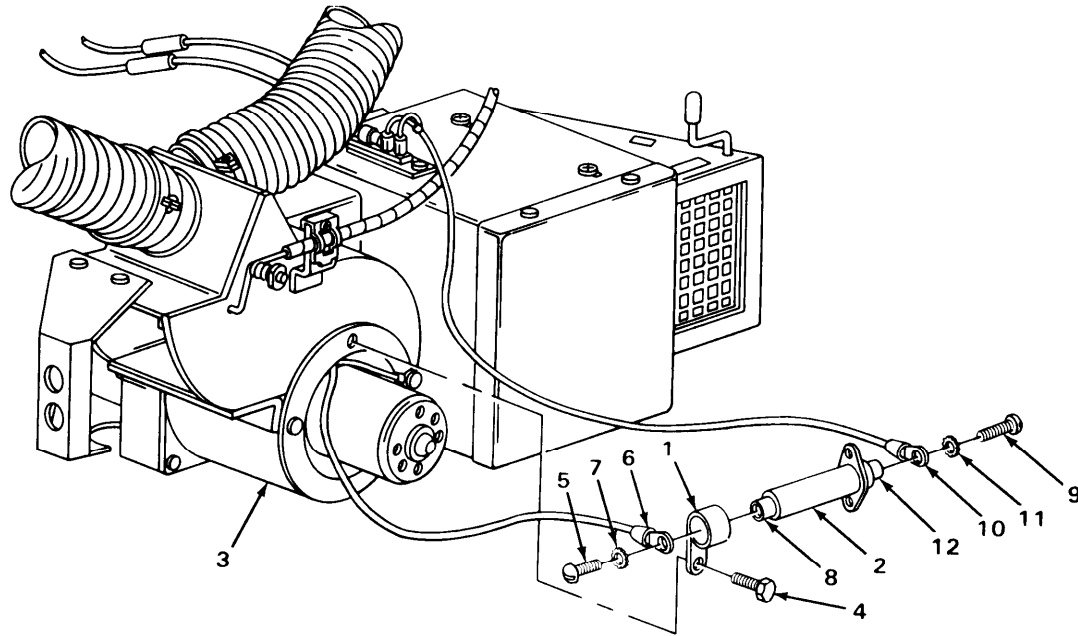
TA240829

**HEATER MOTOR SUPPRESSOR - CONTINUED**

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LOCATION	ITEM	ACTION REMARKS
CLEANING		
5.	All parts	Clean according to general maintenance instructions (page 4-1).
inspection/REPLACEMENT		
6.	All parts	inspect according to general maintenance instructions (page 4-1).
INSTALLATION		
<b>NOTE</b>		
Suppressor must be installed correctly or it will not work. Flange end must be connected to resistor wire.		
7. Bracket (1)	Suppressor (2)	Slide in so it is even on both sides.
8. Heater(3)	Bracket (1)	Put in place and hold.
9. Bracket (1) to heater (3)	Screw (4)	Screw in and tighten using 1/4-inch socket, handle, and extension.
10. Screw (5)	Red wire to motor (6) and new lockwasher (7)	Put on.
11. Terminal (8)	Screw (5)	Screw in and tighten using screwdriver.
12. Screw (9)	Red wire to resistor (10) and new lockwasher(11)	Put on.
13. Terminal (12)	Screw (9)	Screw in and tighten using screwdriver.

**HEATER MOTOR SUPPRESSOR - CONTINUED**



**FOLLOW-ON MAINTENANCE:**

1. Check heater motor operation (TM 9-2320-270-10).
2. Connect battery ground cable (page 4-444).

**TASK ENDS HERE**

**HEATER COOLANT RETURN ELBOW**

---

This task covers:

- |   |  |
|---|--|
| <ul style="list-style-type: none"> <li>a. Removal (page 4-1320)</li> <li>b. Cleaning (page 4-1320)</li> </ul> | <ul style="list-style-type: none"> <li>c. Inspection/Replacement (page 4-1320)</li> <li>d. Installation (page 4-1321)</li> </ul> |
|---|--|
- 

**INITIAL SETUP**

**Tools**

- Knife, pocket
- Pan, drain
- Screwdriver, flat-tip, 3/16-inch
- Wrench, open-end, 11/16-inch
- Wrench, open-end, 11/8-inch

**Materials/Parts**

- Soap, liquid  
(item 14, appendix C)

**Materials/Parts - Continued**

- Tape, teflon (item 22, appendix C)

**Personnel Required**

One

**Equipment Condition**

Right side of hood open and right hood side panel removed (TM 9-2320-270-10).

**HEATER COOLANT RETURN ELBOW - CONTINUED**

LOCATION	ITEM	ACTION	REMARKS
REMOVAL			
<b><u>WARNING</u></b>			
Be careful when removing radiator cap. If engine is hot, escaping steam could burn you. Using a rag, cover radiator cap to protect your hand. Unscrew cap just enough to allow any built-up steam to escape. When all pressure has been relieved, unscrew cap the rest of the way, and take off of radiator.			
1. Radiator(1)	Radiator cap (2)	a. Slowly unscrew to first stop, pause, and let pressure escape. b. When all pressure has escaped, unscrew and take off.	
2.	Draincock (3)	a. Put drain pan underneath. b. Open and let coolant drain. c. When coolant stops draining close. d. Get rid of coolant (page 4-1).	
3. Hose (4) to elbow (5)	Clamp (6)	a. Put drain pan underneath. b. Using screwdriver, unscrew and slide down.	

**NOTE**

it maybe necessary to cut off hose with pocket knife. if hose has to be cut, replace hose.

4. Elbow (5)	Hose (4)	a. Twist and pull off. b. Get rid of coolant (page 4-1).	
5. Reducer(7)	Elbow (5)	Using 11/8-inch and 11/16-inch wrenches, unscrew and take out.	
6. Thermostat housing (8)	Reducer (7)	Using 11/8-inch wrench, unscrew and take out.	

CLEANING

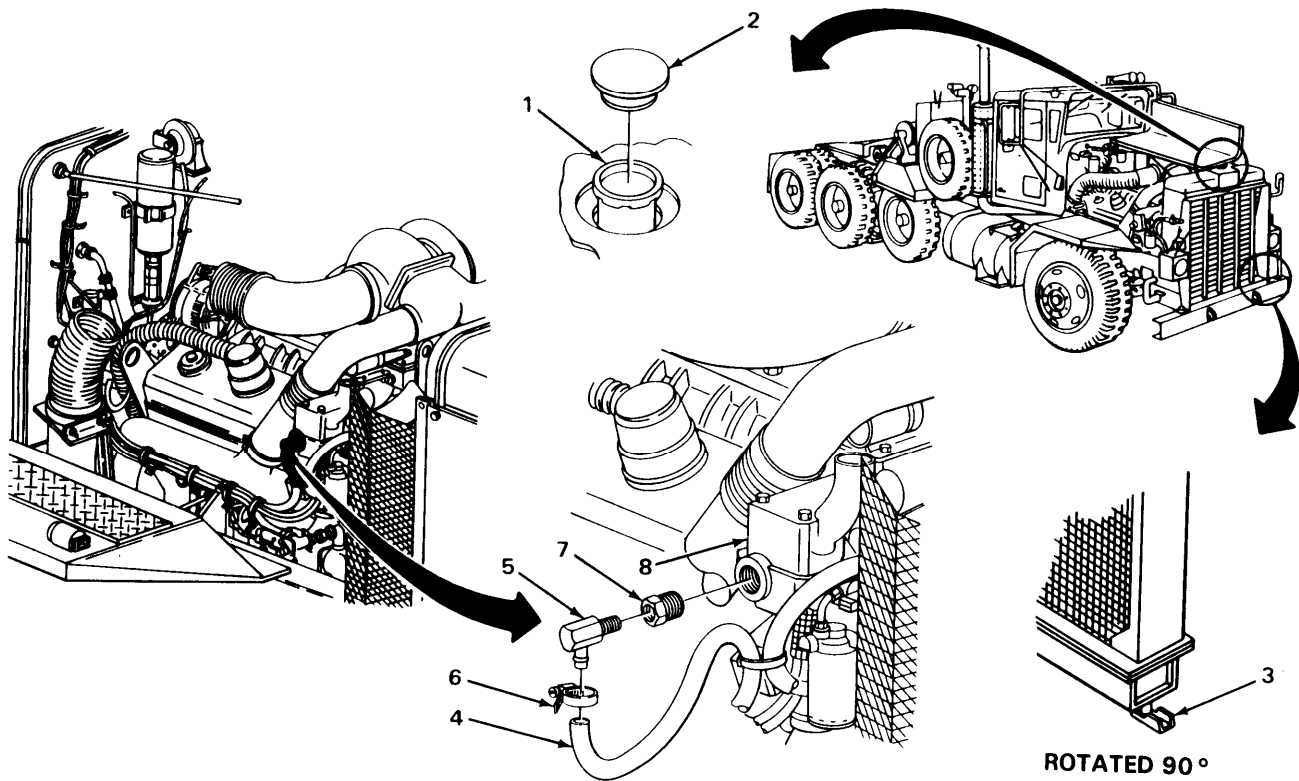
7.	All parts	Clean according to general maintenance instructions (page 4-1).	
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INSPECTION/REPLACEMENT

8.	All parts	inspect according to general maintenance instructions (page 4-1).	
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HEATER COOLANT RETURN ELBOW - CONTINUED

LOCATION	ITEM	ACTION	REMARKS
<b>INSTALLATION</b>			
9. Thermostat housing (8)	Reducer (7)	a. Wrap threads with teflon tape (page 4-1). b. Screw in and tighten using 1 1/8-inch wrench.	
10. Reducer (7)	Elbow (5)	a. Wrap threads with teflon tape (page 4-1). b. Screw in and tighten using 11/16-inch wrench.	
11. Elbow (5)	Hose (4)	Lube elbow (1) lightly with soap and push on until seated.	
12. Hose (4) to elbow (5)	Clamp (6)	Slide into place and using screwdriver, tighten.	
13.	Cooling system	Fill (TM 9-2320-270-10).	



**HEATER COOLANT RETURN ELBOW - CONTINUED**

INSTALLATION – CONTINUED

**NOTE**

FOLLOW-ON MAINTENANCE:

1. Check for leaks (page 4-1).
2. Close right side of hood and install right hood side panel TM 9-2320-270-10).

**TASK ENDS HERE**

**DATA PLATES SECURED WITH BLIND RIVETS**

---

This task covers:

Replacement (page 4-1322)

---

INITIAL SETUP

Tools

- Drill twist, 3/32-inch
- Drill twist, 1/8-inch
- Drill, electric, portable
- Hammer, machinist's ball-peen
- Punch, drive pin, 3/32-inch
- Punch, drive pin, 1/8-inch
- Riveter, blind, hand
- Stamps, metal numbering and lettering (as required)

Materials/Parts

- Data plate (as required)
- Blind rivets, 3/32-inch (as required)
- Blind rivets, 1/8-inch (as required)

Personnel Required

One

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LOCATION	ITEM	ACTION REMARKS
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REPLACEMENT

**NOTE**

Except as noted, steps in this task apply to all data plates secured with blind rivets. Noise emissions data plate is shown.

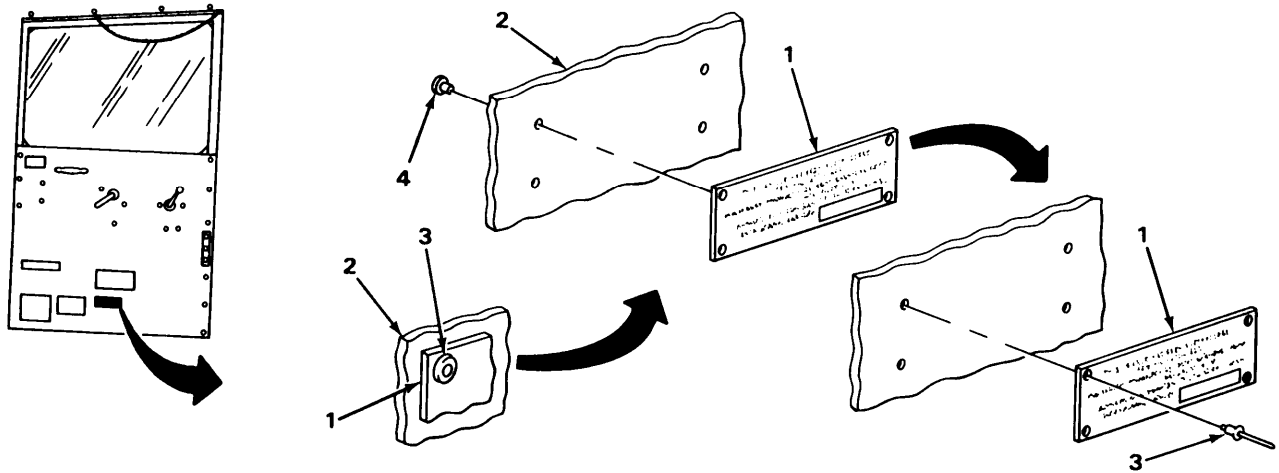
All data plates secured with blind rivets use 1/8-inch rivets, except for rustproofing data plate, which is secured with 3/32-inch rivets,

- |                                |                 |   |
|--------------------------------|-----------------|---|
| 1. Data plate(1)<br>to door(2) | Four rivets (3) | <ol style="list-style-type: none"> <li>a. Using drill and twist, drill off rivet heads (4).</li> <li>b. Using punch and hammer, tap out.</li> <li>c. Get rid of.</li> </ol> |
|--------------------------------|-----------------|---|



**DATA PLATES SECURED WITH BLIND RIVETS - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
2. Door(2)	Data plate (1)	Take off.
3.	New data plate (1)	Using number stamps and hammer, restamp any numbers.
4. Door(2)	New data plate (1)	Put in place.
5. Data plate(1) to door(2)	Four new rivets (3)	Using riveter, put in.



**TASK ENDS HERE**

**DATA PLATES AND DECALS SECURED WITH ADHESIVE**

---

This task covers:

Replacement (page 4-1224)

---

**INITIAL SETUP**

Tools

Knife, putty

Materials/Parts

Data plate or decal (as required)  
 Naptha (item 9, appendix C)

Materials/Parts – Continued

Rags, wiping (item 10, appendix C)

Personnel Required

One

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LOCATION	ITEM	ACTION	REMARKS
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**REPLACEMENT**

**NOTE**

Steps in this task are the same for all data plates and decals secured with adhesive. Left door warning plate is shown.

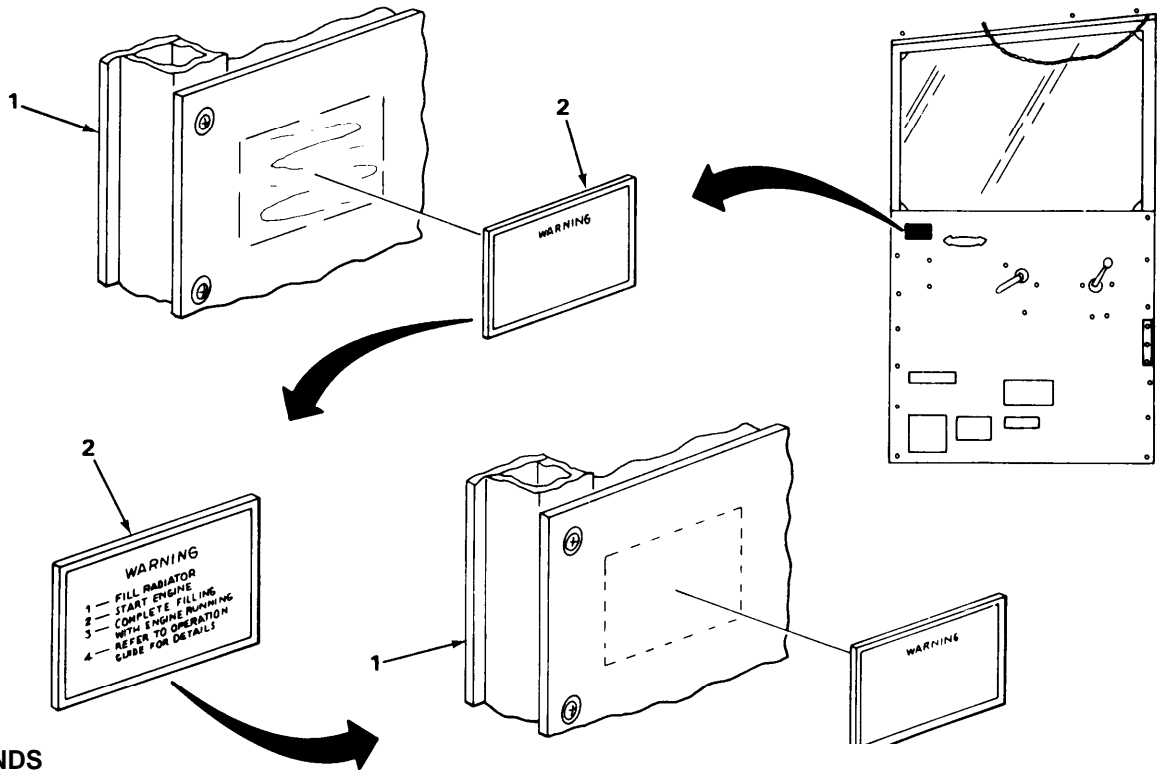
- |            |                |   |
|------------|----------------|---|
| 1. Door(1) | Data plate (2) | a. Using putty knife, scrape off.<br>b. Get rid of. |
|------------|----------------|---|

**WARNING**

Naptha and its fumes are harmful and flammable. Do not smoke or use near open flame while using. Use only in well-ventilated area. Naptha can catch fire and fumes can explode causing serious injury.

- |            |                    |  |
|------------|--------------------|--|
| 2.         | Door (1)           | Using naptha and rags, clean off all adhesive.                                 |
| 3. Door(1) | New data plate (2) | a. Peel off paper backing.<br>b. Place on door and smooth out any air bubbles. |

**DATA PLATES AND DECALS SECURED WITH ADHESIVE- CONTINUED**



**TASK ENDS**

**DATA PLATES SECURED WITH DRIVESCREWS**

This task covers:

Replacement (page 4-1326)

**INITIAL SETUP**

**Tools**

- Chisel, cold-hand, 3/8-inch
- Drill twist, 1/8-inch
- Drill, portable electric
- Hammer, machinist's ball-peen

**Materials/Parts**

- Data Plate (as required)
- Drivescrew (as required)
- Tape, pressure sensitive (item 21, appendix C)

**Personnel Required**

One

**DATA PLATES SECURED WITH DRIVESCREWS - CONTINUED**

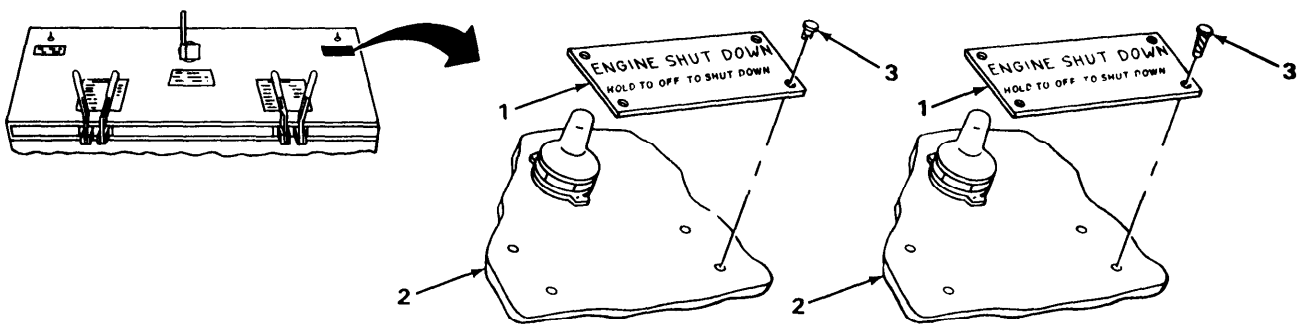
LOCATION	ITEM	ACTION	REMARKS
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REPLACEMENT

**NOTE**

Steps in this task are the same for all data plates secured with drivescrews. Winch control panel engine shut down plate is shown.

- |  |                            |   |
|--|----------------------------|---|
| 1. Data plate (1)<br>to winch control<br>panel(2)  | Four drive-<br>screws (3)  | s. Using hammer and chisel, cut off<br>drivescrew heads.<br>b. Get rid of.  |
| 2. Winch control<br>panel (2)                      | Data plate (1)             | Take off.   |
| 3. Winch control<br>panel (2)                      | New data plate (1)         | Put on as close as possible to<br>location of old data plate, screw holes<br>should not line up.  |
| 4.   | Winch control<br>panel (2) | a. Put tape on drill twist, same dis-<br>tance on twist as length of<br>drivescrew shank.<br>b. Using new data plate as template and<br>using drill and twist, drill four holes<br>same length of screws (3). |
| 5. Data plate (1)<br>to winch control<br>panel (2) | Four drive-<br>screws (3)  | Using hammer, tap in.   |



**TASK ENDS HERE**

TA240834

## DATA PLATES SECURED WITH SELF-TAPPING SCREWS

This task covers:

Replacement (page 4-1327)

### INITIAL SETUP

**Tools**

Hammer, machinist's ball-peen  
Screwdriver, cross-tip, number 1  
Screwdriver, fiat-tip, 1/4-inch  
Stamps, numbering

**Materials/Parts**

Data Plate (as required)  
Self-tapping screw (as required)

**Personnel Required**

One

LOCATION	ITEM	ACTION	REMARKS
----------	------	--------	---------

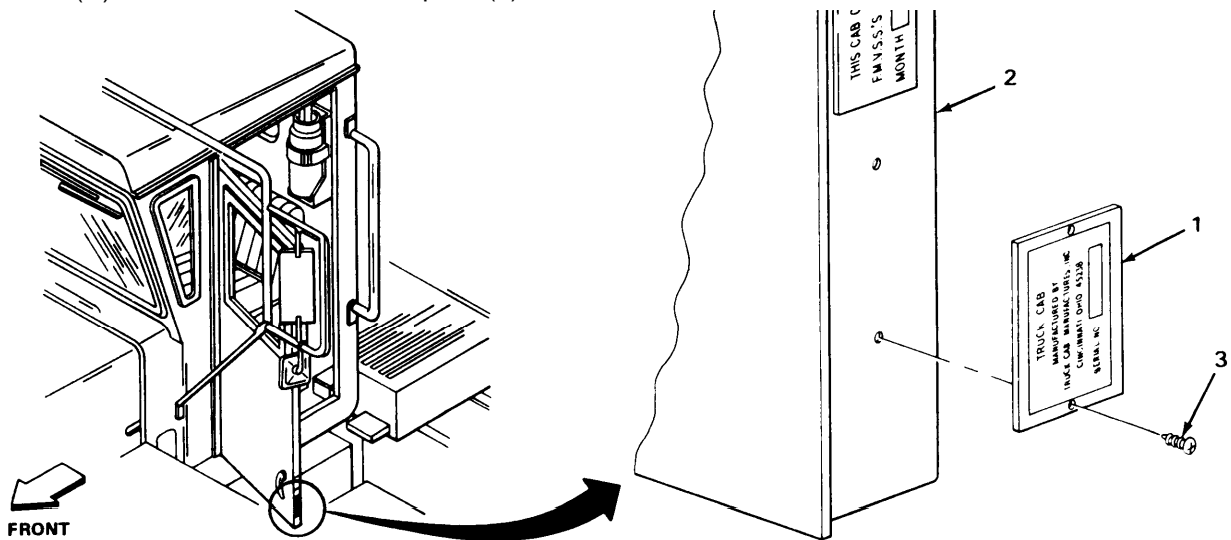
### REPLACEMENT

**NOTE**

Except as noted, steps in this task are the same for all data plates secured with self-tapping screws. The truck cab number plate is shown.

Truck cab serial number plate uses cross tip screws, all others use slotted screws.

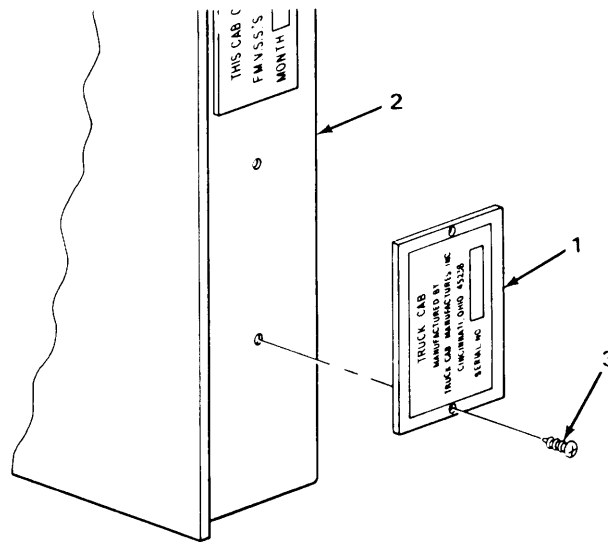
- |                                 |                |  |
|---------------------------------|----------------|--|
| 1. Data plate (1)<br>to door(2) | Two screws (3) | Using screwdriver, unscrew and take out. |
| 2. Door(2)                      | Data plate (1) | Take off.                                |



TA240835

**DATA PLATES SECURED WITH SELF-TAPPING SCREWS - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
REPLACEMENT – CONTINUED		
3.	New data plate (1)	Using hammer and numbering stamps, stamp any number stamped on old data plate.
4. Door(2)	New data plate (1)	Put in place and hold.
5. Data plate (1) to door(2)	Two screws (3)	Screw in and tighten using screwdriver.



**TASK ENDS HERE**

**ENGINE DATA PLATE**

This task covers:

Replacement (page 4-1329)

**INITIAL SETUP**

**Tools**

Pliers, long-nose

**Materials/Parts**

Engine data plate

**Personnel Required**

One

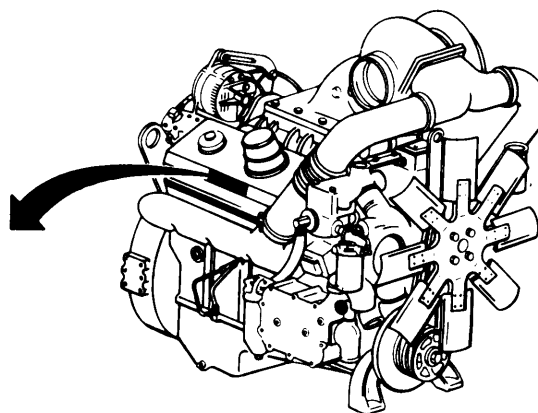
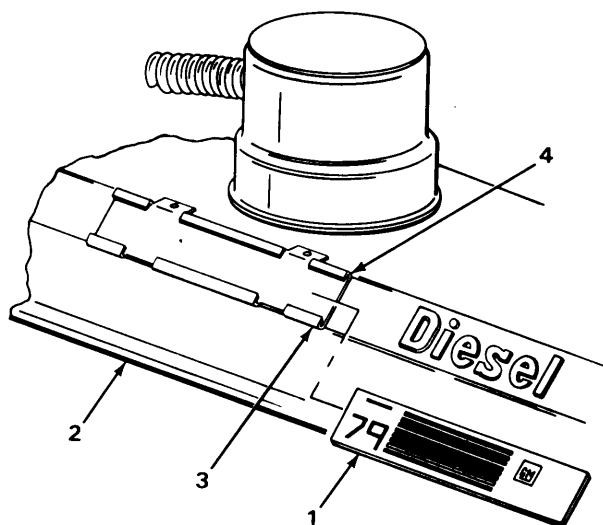
**Equipment Condition**

Right side of hood open and right hood side panel removed (TM 9-2320-270-10).

TA240836

**ENGINE DATA PLATE - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
<b>REPLACEMENT</b>		
1. Data plate (1) to valve cover (2)	Three tabs (3)	Using pliers, pry up.
2. Valve cover (2)	Data plate (1)	Slide out.
3.	New data plate (1)	Slide in.
4. Data plate (1) to valve cover (2)	Three tabs (3)	Using pliers, push down.



**NOTE**

FOLLOW-ON MAINTENANCE: Close right side hood and install right hood side panel (TM 9-2320-270-10).

**TASK ENDS HERE**

## INSTRUMENT PANEL NON-ILLUMINATED LABEL ASSEMBLY

---

This task covers:

Maintenance (page 4-1330)

---

### MAINTENANCE

### NOTE

Instrument panel label assembly maintenance can be found in Electrical Section, Instrument Panel Label Assembly (page 4-404).

TASK ENDS HERE

## INSTRUMENT PANEL ILLUMINATED LABEL ASSEMBLY

---

This task covers:

Maintenance (page 4-1330)

---

### MAINTENANCE

### NOTE

Instrument panel illuminated label assembly maintenance can be found in Electrical Section, Optical Ribbon and Light Source (page 4-563).

TASK ENDS HERE

### Section XIX. GAGES, NONELECTRIC

#### Page

Air Pressure Gage..... 4-1330

### AIR PRESSURE GAGE

---

This task covers:

- a. Removal (page 4-1331)
  - b. Cleaning (page 4-1332)
  - c. Inspection/Replacement (page 4-1332)
  - d. Installation (page 4-1332)
- 

### INITIAL SETUP

#### Tools

Hammer, plastic  
Pliers, long-nose, round  
Screwdriver, flat-tip, 3/8-inch  
Wrench, open-end, 9/16-inch

#### Materials/Parts

Lockwasher, gage to retainer (two required)  
Soap, liquid (item 14, appendix C)  
Tape, teflon (item 22, appendix C)



**AIR PRESSURE GAGE - CONTINUED**

**INITIAL SETUP - CONTINUED**

Personnel Required

One

Equipment Condition

Instrument panel open (page 4-244).

LOCATION

ITEM

ACTION

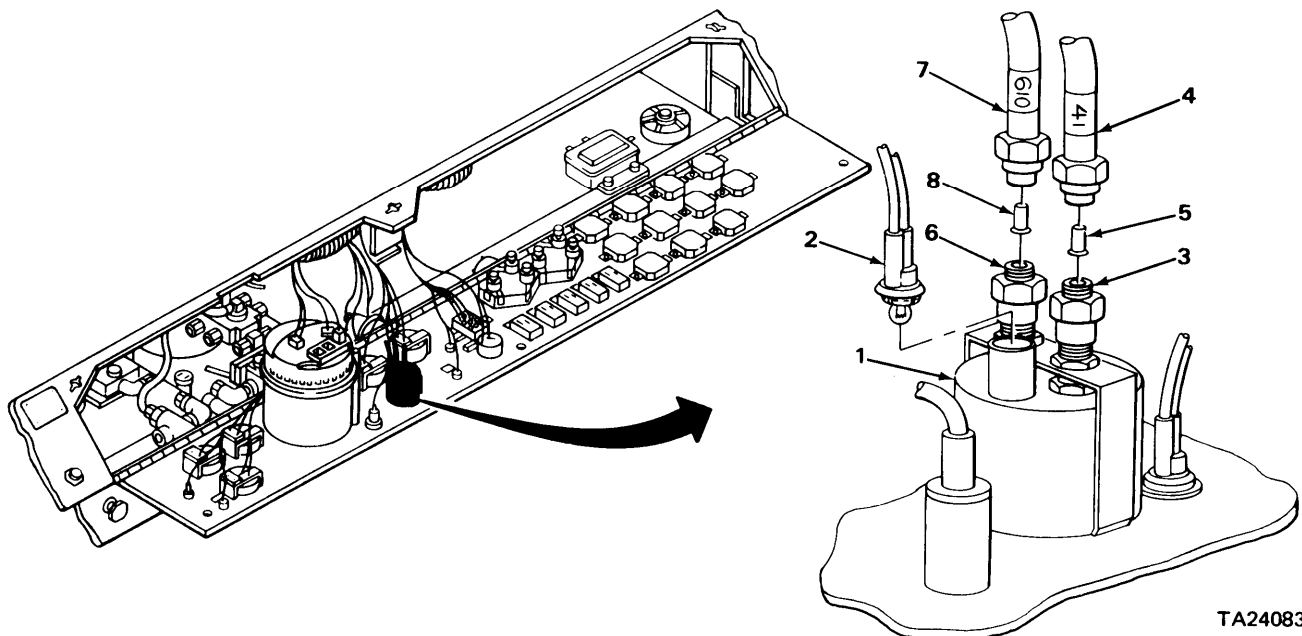
REMARKS

**REMOVAL**

**WARNING**

**Make sure all pressure is drained from air system before disconnecting air lines. Parts under pressure can, when removed, fly off with great force causing injury to personnel.**

- |                                    |                 |   |
|------------------------------------|-----------------|---|
| 1.                                 | Air system      | Drain (TM 9-2320-270-10).                     |
| 2. Gage (1)                        | Lamp socket (2) | Pull out.                                     |
| 3. Adapter (3)                     | Air line 41 (4) | Using 9/16-inch wrench, unscrew and pull out. |
| 4. Air line 41 (4) or adapter (3)  | Insert (5)      | Using pliers, pull out.                       |
| 5. Adapter (6)                     | Airline 610 (7) | Using 9/16-inch wrench, unscrew and pull out. |
| 6. Air line 610 (7) or adapter (6) | Insert (8)      | Using pliers, pull out.                       |



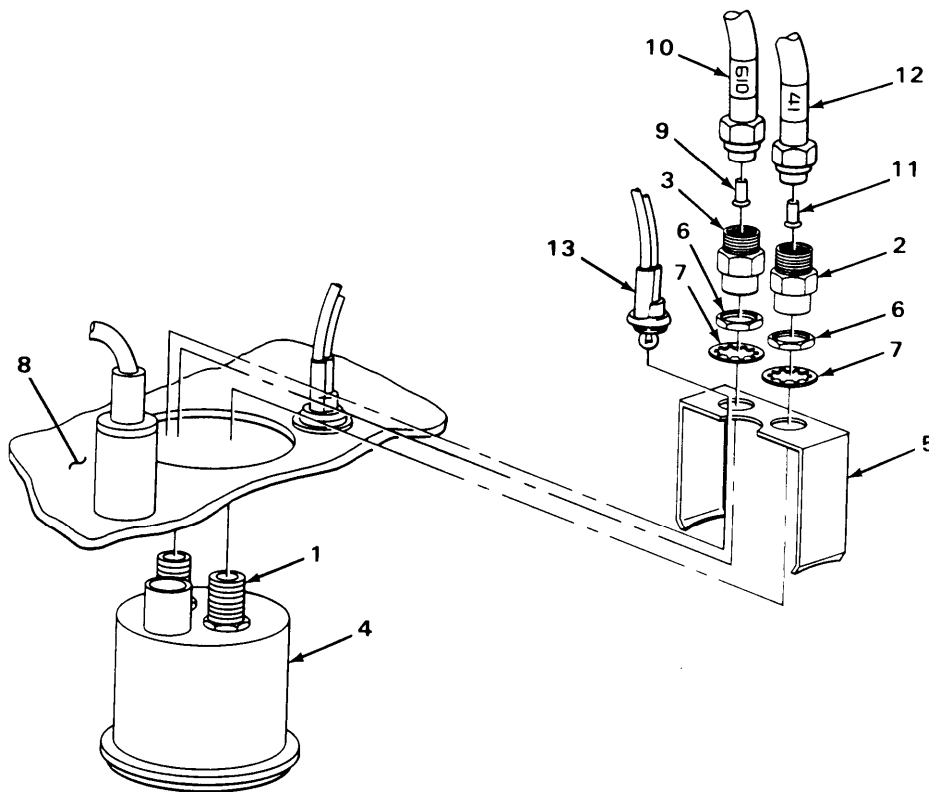
TA240838

## AIR PRESSURE GAGE - CONTINUED

LOCATION	ITEM	ACTION REMARKS
<b>REMOVAL – CONTINUED</b>		
7. Two nipples (1)	Two adapters (2) and (3)	Using 9/16-inch wrench, unscrew and take off.
8. Gage (4) to retainer (5)	Two nuts (6) and lockwashers (7)	a. Using 9/16-inch wrench, unscrew and take off. b. Get rid of lockwashers (7).
9. Gage (4) to instrument panel (8)	Retainer (5)	Take off.
10. Instrument panel (8)	Gage (4)	Take out.
<b>CLEANING</b>		
11.	All parts	Clean according to general maintenance instructions (page 4-1).
<b>INSPECTION/REPLACEMENT</b>		
12.	All parts	Inspect according to general maintenance instructions (page 4-1).
<b>INSTALLATION</b>		
13. Instrument panel (8)	Gage (4)	Put in place.
14. Gage (4) to instrument panel (8)	Retainer (5)	Put on.
15. Retainer (5) to gage (4)	Two new lockwashers (7) and nuts (6)	Screw on and tighten using 9/16-inch wrench.
16. Two nipples (1)	Two adapters (2) and (3)	a. Wrap nipple threads with teflon tape (page 4-1). b. Screw on and tighten using 9/16-inch wrench.
17. Adapter (3)	Insert (9)	Push in and using plastic hammer, seat.
18.	Air line 610 (10)	a. Lube end lightly with soap and push in until seated. b. Screw on and tighten using 9/16-inch wrench.
19. Adapter (2)	Insert (11)	Push in and using plastic hammer, seat.

**AIR PRESSURE GAGE - CONTINUED**

LOCATION	ITEM	ACTION REMARKS
20.	Air line 41 (12)	a. Lube end lightly with soap and push in until seated. b. Screw on and tighten using 9/16-inch wrench.
21. Gage (4)	Lamp socket (13)	Push in.
22.	Gage (4)	a. Start engine and check operation (TM 9-2320-270-10). b. Charge air system to normal pressure (TM 9-2320-270-10).
23.	Gage connections	a. Check for leaks (page 4-1). b. Shut down engine (TM 9-2320-270-10).



**TASK ENDS HERE**



**APPENDIX A****REFERENCES**

	Page		Page
Forms .....	A-1	Scope .....	A-1
Miscellaneous Publications .....	A-2	Technical Bulletins .....	A-1
Publication Indexes .....	A-1	Technical Manuals .....	A-1

**SCOPE**

This appendix lists all forms, field manuals, technical manuals, and miscellaneous publications referenced in this manual.

**PUBLICATION INDEXES**

The following indexes should be consulted frequently for latest changes or revisions and for new publications relating to material covered in this technical manual.

Consolidated Index of Army Publications .....	DA PAM 310-1
US Army Equipment Index of Modification Work Orders .....	DA PAM 750-10

**FORMS**

Refer to DA PAM 738-750. The Army Maintenance Management Systems (TAMMS), for instructions on the use of maintenance forms pertaining to this equipment.

**TECHNICAL MANUALS**

Cooling Systems: Tactical Vehicles .....	TM 750-254
Destruction of Army Materiel to Prevent Enemy Use .....	TM 750-244-6
Materials Used for Cleaning, Preserving, Abrading and Cementing	
Ordnance Materiel and Related Materials Including Chemicals .....	TM 9-247
Inspection, Care, and Maintenance of Antifriction Bearings .....	TM 9-214
Operator and Organizational Maintenance Manual for Lead-Acid	
Storage Batteries .....	TM 9-6140-200-14
Operator's Manual, Truck, Tractor, Commercial Heavy Equipment	
Transporter (C-HET) .....	TM 9-2320-270-10
Operator's Manual: Welding Theory and Application .....	TM 9-237
Organizational Care, Maintenance Care, Maintenance and Repair of	
Pneumatic Tires and Inner Tubes .....	TM 9-2610-200-24
Organizational Maintenance Repair Parts and Special Tools List .....	TM 9-2320-270-20P

**TECHNICAL BULLETINS**

Elimination of Combustibles from Interiors of Metal or Plastic	
Gasoline and Diesel Fuel Tanks .....	TB 750-047
Equipment Improvement Report and Maintenance Digest .....	TB 43-0001-40
Rustproofing Procedures .....	TB 43-0213
Use of Antifreeze Solutions and Cleaning Compounds in Engine	
Cooling Systems .....	TB 750-651

**TECHNICAL BULLETINS - CONTINUED**

Warranty Procedures for M911, Truck, Tractor, Commercial Heavy Equipment Transporter .....	TB 9-2300-295- 15/15
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**MISCELLANEOUS PUBLICATIONS**

Lubrication Order for Truck, Tractor, Commercial Heavy Equipment Transporter (C-H ET) .....	LO 9-2320-270-12
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**APPENDIX B**  
**MAINTENANCE ALLOCATION CHART**

		Page
Section 1.	Introduction .....	B-1
Section II.	Maintenance Allocation Chart .....	B-5
Section III.	Tool and Test Equipment Requirements .....	B-22
Section IV.	Remarks .....	B-30

**Section I INTRODUCTION**

	Page			Page
Explanation of Columns in Remarks, Section IV .....	B-4	General .....		B-1
Explanation of Columns in the MAC, Section II .....	B-3	Maintenance Functions .....		B-1
Explanation of Columns in Tool and Test Equipment Requirements, Section III .....	B-4			

**GENERAL**

This section provides a general explanation of all maintenance and repair functions authorized at various maintenance categories.

The Maintenance Allocation Chart (MAC) in Section II designates overall authority and responsibility for the performance of maintenance functions on the identified end item or component. The application of the maintenance functions to the end item or component will be consistent with the capacities and capabilities of the designated maintenance categories.

Section III lists the tools and test equipment (both special tools and common tool sets) required for each maintenance function as referenced from Section II.

Section IV contains supplemental instructions and explanatory notes for a particular maintenance function.

**MAINTENANCE FUNCTIONS**

Maintenance functions will be limited to and defined as follows (except for ammunition MAC1):

Inspect. To determine the serviceability of an item by comparing its physical, mechanical, and/or electrical characteristics with established standards through examination (e.g., by sight, sound, or feel).

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<sup>1</sup>Exception is authorized for ammunition MAC to permit the redesignation/redifinition of maintenance function headings to more adequately identify ammunition maintenance functions. The heading designations and definitions will be included in the appropriate technical manual for each category of ammunition.

## MAINTENANCE FUNCTIONS - CONTINUED

**Test.** To verify serviceability by measuring the mechanical, pneumatic, hydraulic, or electrical characteristics of an item and comparing those characteristics with prescribed standards.

**Service.** Operations required periodically to keep an item in proper operating condition, i.e., to clean (includes decontaminate when required), to preserve, to drain, to paint, or to replenish fuel, lubricants, chemical fluids, or gases.

**Adjust.** To maintain or regulate, within prescribed limits, by bringing into proper or exact position, or by setting the operating characteristics to specified parameters.

**Aline.** To adjust specified variable elements of an item to bring about optimum or desired performance.

**Calibrate.** To determine and cause corrections to be made or to be adjusted on instruments or test, measuring, and diagnostic equipment used in precision measurement. Consists of comparisons of two instruments, one of which is a certified standard of known accuracy, to detect and adjust any discrepancy in the accuracy of the instrument being compared.

**Remove/Install** To remove and install the same item when required to perform service or other maintenance functions. Install may be the act of emplacing, seating, or fixing into position a spare, repair part, or module (component or assembly) in a manner to allow the proper functioning of equipment or a system.

**Replace.** To remove an unserviceable item and install a serviceable counterpart in its place. "Replace" is authorized by the MAC and is shown as the 3rd position code of the SMR code.

**Repair.** The application of maintenance services<sup>2</sup>, including fault location/troubleshooting<sup>3</sup>, removal/installation, and disassembly/assembly<sup>4</sup> procedures, and maintenance actions<sup>5</sup> to identify troubles and restore serviceability to an item by correcting specific damage, fault, malfunction, or failure in part, subassembly, module (component or assembly), end item, or system.

**Overhaul.** That maintenance effort (service/action) prescribed to restore an item to a completely serviceable/operational condition as required by maintenance standards in appropriate technical publications (i.e., DMWR). Overhaul is normally the highest degree of maintenance performed by the Army. Overhaul does not normally return an item to a like new condition.

---

<sup>2</sup>Services - inspect, test, service, adjust, aline, calibrate, and/or replace.

<sup>3</sup>Fault location/troubleshoot - The process of investigating and detecting the cause of equipment malfunction; the act of isolating a fault within a system or unit under test (UUT).

<sup>4</sup>Disassembly/assembly - encompasses the step-by-step taking apart (or breakdown) of a spare/functional group coded item to the level of its least competency identified as maintenance significant (i.e., assigned an SMR code) for the category of maintenance under consideration.

<sup>5</sup>Actions - welding, grinding, riveting, straightening, facing, remachinery and/or resurfacing.



**MAINTENANCE FUNCTIONS - CONTINUED**

Rebuild. Consists of those services/actions necessary for the restoration of unserviceable equipment to a like new condition in accordance with original manufacturing standards. Rebuild is the highest degree of materiel maintenance applied to Army equipment. The rebuild operation includes the act of returning to zero those age measurements (hours/miles. etc.) considered in classifying Army equipment/components.

**EXPLANATION OF COLUMNS IN THE MAC, SECTION II**

Column 1, Group Number. Column 1 lists functional group code numbers, the purpose of which is to identify maintenance significant components, assemblies, subassemblies, and modules of the next higher assembly. End item group number shall be "00".

Column 2, Component/Assembly. Column 2 contains the names of components, assemblies, subassemblies, and modules for which maintenance is authorized.

Column 3, Maintenance Function. Column 3 lists the functions to be performed on the item listed in Column 2. (For detailed explanation of these functions, see Maintenance Functions, page B-1).

Column 4, Maintenance Category. Column 4 specifies, by the listing of a work time figure in the appropriate subcolumn(s), the category of maintenance authorized to perform the function listed in Column 3. This figure represents the active time required to perform that maintenance function at the indicated category of maintenance. If the number or complexity of the tasks within the listed maintenance function vary at different maintenance categories, appropriate work time figures will be shown for each category. The work time figure represents the average time required to restore an item (assembly, subassembly, component, module, end item, or system) to a serviceable condition under typical field operating conditions. This time includes preparation time (including any necessary disassembly/assembly time), troubleshooting/fault location time, and quality assurance/quality control time in addition to the time required to perform the specific tasks identified for the maintenance functions authorized in the maintenance allocation chart. The symbol designations for the various maintenance categories are as follows:

- C - Operator/Crew
- O - Organizational Maintenance
- F - Direct Support Maintenance
- H - General Support Maintenance
- L - Specialized Repair Activity (SRA) <sup>6</sup>
- D - Depot Maintenance

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<sup>6</sup> This maintenance category is not included in Section II, Column 4, of the Maintenance Allocation Chart. To identify functions to this category of maintenance, enter a work time figure in the "H" column of Section 11., Column 4, and use an associated reference code in the Remarks column, Column 6. Key the code to Section IV, Remarks, and explain the SRA complete repair application there. The explanatory remark(s) shall reference the specific Repair Parts and Special Tools List (RPSTL) TM which contains additional SRA criteria and the authorized spare/repair parts.

**EXPLANATION OF COLUMNS IN THE MAC, SECTION II - CONTINUED**

Column 5, Tools and Equipment. Column 5 specifies, by code, those common tools sets (not individual tools) and special tools, TMDE, and support equipment required to perform the designated function.

Column 6, Remarks. This column shall, when applicable, contain a letter code, in alphabetic order, which shall be keyed to the remarks contained in Section IV.

**EXPLANATION OF COLUMNS IN TOOLS AND TEST EQUIPMENT REQUIREMENTS, SECTION III**

Column 1, Reference Code. The tool and test equipment reference code correlates with a code used in the MAC, Section II, Column 5,

Column 2, Maintenance Category. The lowest category of maintenance authorized to use the tool or test equipment.

Column 3, Nomenclature. Name or identification of the tool or test equipment.

Column 4, National Stock Number. The National Stock Number of the tool or test equipment.

Column 5, Tool Number. The manufacturer's part number.

**EXPLANATION OF COLUMNS IN REMARKS, SECTION IV**

Column 1, Reference Code. The code recorded in Column 6, Section II.

Column 2, Remarks. This column lists information pertinent to the maintenance function being performed as indicated in the MAC, Section II.

Section II. MAINTENANCE ALLOCATION CHART

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY					(5) TOOLS AND EQPT	(6) REMARKS
			C	O	F	H	D		
01 0100	ENGINE Engine	Inspect Test Service Adjust Replace	0.2	0.5 3.0	0.4 2.5 12.0			1,2,3 1 1,2,3,21 1 thru 33, 35 thru 38 1 thru 38	
0101	Engine Block	Overhaul Inspect Replace Repair					85.0 2.0 40.0 40.0	1,2,3,13, 22,31 1,2,3,13, 22,31	
	Head Cylinder	Inspect Replace Repair			1.0 10.1 12.0			1,2,3,5,6, 13,14 1,2,3,4, 16,17,18, 27,28	
0102	Vibration Damper	Replace			1.0			1,2,3,25	
	Main Seals	Inspect Replace				0.1 7.2		1,2,3,11, 12,26,32	
	Crankshaft and Bearings	Inspect Replace				0.5 3.5		1,2,3	
0103	Flex Coupling Assembly	Inspect Replace Repair			0.5 4.0 1.0			1,2,3 1,2,3	
	Flywheel Housing	Inspect Replace			0.5 4.0			1,2,3,12, 32	
0104	Pistons and Con- necting Rods	Inspect Replace Repair				0.3 8.0 1.0		1,2,3,34 1,2,3,34	

MAINTENANCE ALLOCATION CHART - CONTINUED

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY					(5) TOOLS AND EQPT	(6) REMARKS	
			C	O	F	H	D			
0104 (Cont)	Connecting Rod Bearings	Inspect Replace				0.9 3.0		1,2,3		
	Rings	Inspect Replace				1.2 7.2		1,2,3		
0105	Camshaft and Bearing	Inspect Replace				0.8 8.0		1,2,3,10, 25		
	Valves and Tappets	Inspect			0.5					
		Adjust			1.5				1,2,3,21	
		Replace			2.0				1,2,3,5, 7,15,21	
	Timing Gears	Inspect Replace				0.6 3.5		1,2,3,10		
	Rocker Arms	Inspect Replace			0.6 2.5			1,2,3		
Rocker Arm and Valve Cover and Gasket	Inspect Replace		0.1 0.1				1,2,3			
0106	Oil Pump	Inspect				1.5		1,2,3		
		Test				0.7		1,2,3		
		Replace			3.5			1,2,3		
	Oil Filter	Service		0.5					1,2,3	
		Replace		1.0					1,2,3	
	External Lines	Inspect			0.1				1,2,3	
		Replace			1.0				1,2,3	
Oil Breather	Inspect Service Replace		0.1 0.2 0.2					1,2,3 1,2,3		
Oil Coolers	Inspect		0.1					1,2,3		
	Test Replace			1.0 3.0				1,2,3 1,2,3		

MAINTENANCE ALLOCATION CHART - CONTINUED

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY					(5) TOOLS AND EQPT	(6) REMARKS		
			C	O	F	H	D				
0106 (Cont)	Level Gage (Dipstick)	Inspect Replace		0.1 0.1							
	Oil Pan	Inspect Replace			0.1 2.0			1,2,3			
	Regulator and Relief Valves	Inspect Replace Repair			0.1 0.2 0.2			1,2,3 1,2,3			
0108	Manifolds	Inspect Replace			0.1 2.0			1,2,3			
0109	Accessory Drive	Inspect Repair Replace			0.5 2.0		4.5	1,2,3 1,2,3			
03 0301	FUEL SYSTEM Fuel Injector Assembly	Inspect Test Adjust			0.2 0.1 0.3			1,2,3,38 1,2,3,8, 9,38			
		Calibrate Replace Repair			0.8 1.0		0.8	1,2,3,38 1,2,3 1,2,3,38			
		Fuel Injector Rack and Control Linkage	Inspect Adjust Replace			0.1 1.0 1.3			1,2,3,38 1,2,3,38		
		Fuel Pipes Injector	Inspect Replace		0.3	1.5			1,2,3 1,2,3,21, 37		
		0302	Engine Fuel Pump Assembly	Inspect Replace Repair		0.5 0.3	1.0			1,2,3 1,2,3,36	
				Engine Fuel Lines and Fittings	Inspect Replace		0.5 1.5			1,2,3	
0304	Air Cleaner Assembly	Inspect Service Replace Repair	0.1	0.1 0.5 0.5				1,2,3 1,2,3 1,2,3			

MAINTENANCE ALLOCATION CHART - CONTINUED

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY					(5) TOOLS AND EQPT	(6) REMARKS
			C	O	F	H	D		
0304 (Cont)	Air Cleaner Restriction Indicator	Inspect Replace	0.1	0.1				1	
0305	Turbocharger	Inspect Replace Repair			0.1 1.5 1.5			1,2,3 1,2,3	
	Air Inlet	Inspect Replace			0.1 0.3			1,2,3	
	Blower Drive	Inspect Replace Repair			0.1 6.0 3.0			1,2,3,33 1,2,3,35	
	Blower	Replace Repair			2.0 4.0			1,2,3,35 1,2,3,33, 35	
0306	Fuel Tanks	Inspect Service Replace Repair	0.1 1.0	2.0	2.0			1,2,3 1,2,3	
	Fuel Lines and Fittings	Inspect Replace		0.1 1.0				1,2,3	
0308	Governor	Inspect Adjust Replace Repair			0.5 1.0 6.0 2.0			1,2,3,21 1,2,3,21 1,2,3,21	
0309	Fuel Filter	Inspect Service Replace	0.1	0.3 0.3				1,2,3 1,2,3	
0311	Engine Starting Ether Kit	Inspect Service Replace Repair		0.1 0.3 0.5 0.5				1,2,3 1,2,3 1,2,3	
0312	Accelerator Air Treadle Valve	Inspect Replace Repair		0.1 0.5	0.5			1,2,3 1,2,3	

MAINTENANCE ALLOCATION CHART - CONTINUED

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY					(5) TOOLS AND EQPT	(6) REMARKS
			C	O	F	H	D		
0312 (Cont)	Engine Throttle Control	Inspect Replace		0.1 0.1				1,2,3	
04 0401	EXHAUST SYSTEM Exhaust Pipes	Inspect Replace		0.2 0.3				1,2,3	
	Muffler	Inspect Replace		0.1 0.9				1,2,3	
05 0501	COOLING SYSTEM Radiator	Inspect Test Service Replace Repair	0.2  0.2	  0.5 3.5	0.1  4.0			1,2,3 1,2,3 1,2,3	
	Heat Exchanger	Inspect Replace		0.1 3.0				1,2,3	
0502	Radiator Shroud	Inspect Replace		0.1 1.5				1,2,3	
0503	Thermostats	Test Replace		0.2 1.5				1,2,3,14 1,2,3,14	
	Hoses	Inspect Replace		0.1 0.5				1,2,3	
0504	Water Pump	Inspect Replace Repair		0.1	2.5 2.5			1,2,3 1,2,3,19, 20,29	
0505	Fan Assembly	Replace		0.1				1,2,3	
	Fan Belts	Inspect Adjust Replace	0.1	0.2 1.0				1,2,3 1,2,3	
	Fan Clutch Drive	Inspect Service Replace		0.1 0.2 0.4				1,2,3 1,2,3	

MAINTENANCE ALLOCATION CHART - CONTINUED

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY					(5) TOOLS AND EQPT	(6) REMARKS
			C	O	F	H	D		
0505 (Cont)	Thermal Air Valve	Inspect Replace		0.2 0.5				1,2,3	
	Fan Clutch Drive Hoses	Inspect Replace	0.1	0.5				1,2,3	
06 0601	ELECTRICAL SYSTEM Alternator (Internally Regulated)	Inspect Test Adjust Replace Repair		0.1 1.0 0.5 0.3		2.0		1,2,3 1,2,3 1,2,3 1,2,3	
0603	Drive Belts	Inspect Adjust Replace	0.1	0.2 0.2				1,2,3 1,2,3	
	Starter	Inspect Test Replace Repair		0.1 1.4 1.0 1.0		2.0		1,2,3 1,2,3 1,2,3	
0606	Relay and Magnetic Switches	Inspect Test Replace		0.1 0.4 0.3				1,2,3 1,2,3	
	Engine Safety Controls	Test Repair		1.5 1.0				1,2,3 1,2,3	
0607	Instrument Panel	Inspect Replace Repair	0.2			1.5		1,2,3 1,2,3	
	Gages	Inspect Test Replace	0.1	1.5 0.5				1,2,3 1,2,3	
	Tachograph	Inspect Replace Repair		0.1 1.4 1.5				1,2,3 1,2,3	A A
	Circuit Breakers	Inspect Test Replace		0.1 0.5 0.1				1,2,3 1,2,3	



MAINTENANCE ALLOCATION CHART - CONTINUED

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY					(5) TOOLS AND EQPT	(6) REMARKS
			C	O	F	H	D		
0608	Switches	Inspect	0.1						
		Test		0.4				1,2,3	
		Replace		0.5				1,2,3	
	Turn Signal Control	Inspect			0.2				
		Test	0.5						
		Replace		0.4				1,2,3	
Warning Buzzer	Inspect			0.1					
	Test			0.2			1,2,3		
	Replace			0.2			1,2,3		
0609	Headlights	Inspect	0.1						
		Adjust		0.2				1,2,3	
		Replace		0.4				1,2,3	
		Repair		1.0				1,2,3	
	Lights	Inspect			0.1				
		Replace			0.3			1,2,3	
		Repair			0.4			1,2,3	
	Floodlights	Inspect	0.1						
		Replace		0.3				1,2,3	
		Repair		0.2				1,2,3	
	0610	Sending Units	Inspect		0.1				
			Test		0.5				1,2,3
Replace				0.5				1,2,3	
0611	Switch and Relay	Inspect		0.1					
		Test		0.3				1,2,3	
		Replace		1.0				1,2,3	
	Horn	Inspect	0.1						
		Test		0.2				1,2,3	
		Replace		0.2				1,2,3	
0612	Batteries	Inspect	0.2						
		Test		0.6				1,2,3	
		Service	0.5						
		Replace		0.4				1,2,3	
	Battery Box	Inspect	0.1						
		Replace		1.0				1,2,3	
		Repair		1.0			1,2,3		

MAINTENANCE ALLOCATION CHART - CONTINUED

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY					(5) TOOLS AND EQPT	(6) REMARKS
			C	O	F	H	D		
0612 (Cont)	Battery Cables	Inspect		0.1				1,2,3	
		Replace		0.4					
	Optical Ribbon	Replace		0.2				1,2,3	
0613	Wiring	Inspect		0.1				1,2,3	
		Test		2.5				1,2,3	
		Replace			6.0			1,2,3	
		Repair		2.0				1,2,3	
07 0700	TRANSMISSION Auxiliary Trans- mission	Inspect		0.1				1,2,3	A
		Service		0.8				1,2,3	
		Replace			6.0			1,2,3	
		Repair			4.0			1,2,3,48, 49	
		Overhaul				12.0	1,2,3,48, 49		
0701	Transmission Shafts	Replace			10.0			1,2,3,48, 49	
0705	Gear Shift	Inspect		0.1				1,2,3	
		Adjust		0.2				1,2,3	
	Cable	Remove/ Install		1.0				1,2,3	A
		Replace			1.0			1,2,3	
0708	Torque Converter	Inspect			0.2			1,2,3	
		Repair			6.0			1,2,3	
		Replace			4.5			1,2,3	
0710	Transmission	Inspect		0.2				1,2,3	
		Test			0.2			1,2,3	
		Service		0.2				1,2,3	
		Replace			6.5			1,2,3	
		Repair			16.0			1,2,3,50 thru 60	
		Overhaul				40.0	1,2,3,50 thru 60		
0713	Retarder Control Linkage	Inspect		0.1				1,2,3	
		Adjust		0.1				1,2,3	
		Replace		1.0				1,2,3	

MAINTENANCE ALLOCATION CHART - CONTINUED

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY					(5) TOOLS AND EQPT	(6) REMARKS
			C	O	F	H	D		
0713 (Cont)	Retarder	Inspect			0.2				
		Test			0.5			1,2,3	
		Replace			6.5			1,2,3	
0714	Servo Unit	Replace			7.0			1,2,3	
		Repair			7.0			1,2,3,50	
0721	External Filters	Inspect		0.1					
		Replace		2.0				1,2,3	
		Repair		1.0				1,2,3	
	Internal Filter	Replace			1.5			1,2,3	
08 0801	TRANSFER Transfer Assembly	Inspect		0.1					
		Service	0.3						
		Replace			5.0			1,2,3	
		Repair			5.0			1,2,3,47	
	Overhaul					12.0	1,2,3,47		
0803	Gear Shift Vacuum Booster and Controls	Replace			1.5			1,2,3	
		Repair			1.5			1,2,3	
09	PROPELLER SHAFTS								
0900	Shaft Assemblies and U-Joints	Inspect		0.3					
		Service		0.2					
		Replace		1.0				1,2,3	
10 1000	FRONT AXLE Axle Assembly	Inspect		0.2				1,2,3	
		Service		1.0					
		Replace			6.0			1,2,3,42, 44	
		Repair			4.0	36.0		1,2,3,42 44	A
		Overhaul				40.0			
		Axle Ball and Bushings (CVJ)	Inspect			0.1			
	Replace			4.0			1,2,3,42, 44		
	Repair			0.2			1,2,3,42 44		

MAINTENANCE ALLOCATION CHART - CONTINUED

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY					(5) TOOLS AND EQPT	(6) REMARKS
			C	O	F	H	D		
1002	Differential	Inspect		0.1				1,2,3,45	
		Replace			12.0			1,2,3,45	
		Repair				10.0		1,2,3,45	
1004	Steering Wheel Mechanism	Replace			4.0			1,2,3,42, 44	
11	REAR AXLES (TANDEM) Forward and Rear Axle Assemblies	Inspect		0.2				1,2,3	A
1100		Service		1.0				1,2,3,46	
		Replace			6.0			1,2,3,45, 46	
		Repair		2.0		18.0		1,2,3,45, 46	
		Overhaul				40.0		1,2,3,45, 46	
	Axle Shafts	Inspect		0.5				1,2,3,45, 46	
		Replace		1.0					
	Pusher Axle	Inspect		0.2				1,2,3	A
		Service		1.0				1,2,3	
		Replace			4.0			1,2,3	
		Repair		3.0	4.0			1,2,3	
	Pusher Axle Control	Inspect		0.2				1,2,3	
		Repair			3.0			1,2,3	
		Replace			1.5			1,2,3	
1101	Housing	Replace			15.0			1,2,3,45, 46	
		Repair			15.0			1,2,3,45, 46	
1102	Differential	Inspect		0.1				1,2,3,45, 46	
		Replace			9.8			1,2,3,45, 46	
	Repair					9.8		1,2,3,45, 46	
	Filter	Inspect		0.1				1,2,3	
		Replace		0.2					

MAINTENANCE ALLOCATION CHART - CONTINUED

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY					(5) TOOLS AND EQPT	(6) REMARKS
			C	O	F	H	D		
1102 (Cont)	Breather Valve	Inspect		0.1					
		Service		0.1				1,2,3	
		Replace		0.1				1,2,3	
1105	Power Divider Lockout Control Valve Assembly	Inspect		0.1					
		Replace			0.5			1,2,3	
		Repair			1.1			1,2,3	
1108	Pusher Axle Equalizer Beams	Inspect		0.1					
		Service		0.1				1,2,3	
		Replace			4.0			1,2,3,41	
		Repair			6.0			1,2,3,41, 43	
	Equalizer Beam Bushings	Inspect			0.1				
		Replace			6.0			41,43	
12 1202	BRAKES Brake Shoes	Inspect							
		Adjust		1.0				1,2,3	
		Replace		0.5				1,2,3	
		Repair		3.0				1,2,3	
					0.5			1,2,3	
	Camshafts and Slack Adjusters	Inspect		0.1					
		Adjust		1.0				1,2,3	
		Replace		3.0				1,2,3	
		Repair		1.5				1,2,3	
	Wedge and Actuator Housing Assemblies	Inspect		0.1					
		Adjust		0.3				1,2,3	
		Replace		2.0				1,2,3	
		Repair			2.5			1,2,3	
1208	Air Lines and Fittings	Inspect		0.5					
		Replace		2.2				1,2,3	
		Repair		1.6				1,2,3	
	Air Reservoir	Inspect		0.2					
		Service	0.1					1,2,3	
		Replace		1.1				1,2,3	
		Repair		1.1				1,2,3	
	Airbrake Chambers	Inspect		0.2					
		Replace		2.0				1,2,3	
		Repair		0.5				1,2,3	

MAINTENANCE ALLOCATION CHART - CONTINUED

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY					(5) TOOLS AND EQPT	(6) REMARKS
			C	O	F	H	D		
1208 (Cont)	Spring Brake Units	Inspect		0.1					
		Adjust		0.2				1,2,3	
		Replace		0.9				1,2,3	
		Repair			1.2			1,2,3	
	All Valves	Inspect		0.1					
		Replace		1.8				1,2,3	
		Repair			1.5			1,2,3	
1209	Air Compressor Assembly	Inspect		0.1					
		Service		0.2				1,2,3	
		Adjust		1.0				1,2,3	
		Replace		1.5				1,2,3	
		Repair			3.0			1,2,3	
	Alcohol Evaporator	Replace		2.0				1,2,3	
		Repair		1.1				1,2,3	
1211	Trailer Brake Lines and Couplings	Inspect	1.0						
		Replace		1.0				1,2,3	
13 1311	WHEELS Hub and Assemblies	Inspect		0.1					
		Service		1.0				1,2,3,44, 46	
		Adjust		0.5				1,2,3,44, 46	
		Replace		1.0				1,2,3,44, 46	
		Repair		0.3				1,2,3,44 46	
	Drums	Inspect		0.1					
		Replace		1.5				1,2,3,44 46	
	Bearings and Seals	Inspect		0.2					
		Service		0.7				1,2,3,44 46	
		Replace		0.5				1,2,3,44 46	

MAINTENANCE ALLOCATION CHART - CONTINUED

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY					(5) TOOLS AND EQPT	(6) REMARKS
			C	O	F	H	D		
1313	Tires	Inspect Service Replace Repair	0.4 0.3					1,2,3 1,2,3	
14 1401	STEERING Steering Wheel	Inspect Replace		0.1 0.5				1,2,3	
	Steering Column	Inspect Replace Repair		0.1		2.8 3.3		1,2,3 1,2,3	
	Drag Links	Inspect Adjust Replace Repair		1.1 0.3 1.0 1.5				1,2,3 1,2,3 1,2,3 1,2,3	
	Tie Rod	Inspect Adjust Replace		0.1 0.1 1.5				1,2,3 1,2,3	
	Steering Gear	Inspect Adjust Service Replace Repair		0.1 0.2 0.3		1.5 3.0		1,2,3 1,2,3 1,2,3 1,2,3	
1410	Hydraulic Steering Pump	Inspect Test Replace Repair		0.1		0.2		1,2,3 1,2,3 1,2,3	
1411	Hydraulic Lines and Fittings	Inspect Replace		0.1 0.6				1,2,3	
1412	Power Steering Cylinder	Inspect Adjust Replace Repair		0.1 1.0 2.0		1.5		1,2,3 1,2,3 1,2,3	
1413	Reservoir	Replace Repair		1.5 2.2				1,2,3 1,2,3	

**MAINTENANCE ALLOCATION CHART - CONTINUED**

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY					(5) TOOLS AND EQPT	(6) REMARKS
			C	O	F	H	D		
15	FRAME AND TOWING ATTACHMENTS								
1501	Frame	Inspect Repair		0.1			1.0	1,2,3	
	Bumper	Inspect Replace Repair		0.1 1.0 1.0				1,2,3 1,2,3	
1503	Towing Pintle	Inspect Service Replace Repair		0.1 0.2 0.5 0.3				1,2,3 1,2,3 1,2,3	
	Towing Eyes	Inspect Replace		0.1 0.5				1,2,3	
1504	Spare Tire Mount	Inspect Replace		0.1 1.0				1,2,3	
1506	Fifth Wheel	Inspect Service Replace  Repair		0.1 0.2		3.0 3.0		1,2,3,39, 40 1,2,3,39, 40	
16	SPRINGS, SHOCK ABSORBERS AND TORQUE RODS								
1601	Springs and Spring Seats	Inspect Service Replace Repair		0.2 0.2		4.0 6.0		1,2,3 1,2,3	
	Front Spring Pins	Inspect Remove/ Install Replace		0.2 1.0		1.0		1,2,3 1,2,3	
	Air Bag	Inspect Replace		0.2		0.5		1,2,3	

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MAINTENANCE ALLOCATION CHART - CONTINUED

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY					(5) TOOLS AND EQPT	(6) REMARKS
			C	O	F	H	D		
1604	Shock Absorbers (Pusher Axle)	Inspect Replace		0.2 1.8				1,2,3	
1605	Torque Rods	Inspect Replace		0.2	0.5			1,2,3	
18 1801	CAB AND BODY Cab and Mounts	Inspect Replace		0.1	1.0			1,2,3	
	Doors	Inspect Replace		0.1	2.0			1,2,3	
	Panels and Hood and Crossbar Support	Inspect Replace		0.1 0.5				1,2,3	A
	Grille	Inspect Replace		0.1 0.5				1,2,3	
	Splash Shields	Inspect Replace		0.1 0.3				1,2,3	
	Radiator and Headlight Guard	Inspect Replace		0.1 0.3				1,2,3	
1802	Fenders	Inspect Replace Repair		0.1	2.7 2.0			1,2,3 1,2,3	A A
	Windshield	Inspect Replace	0.1		1.2			1,2,3	
1805	Floorboards	Replace			2.0			1,2,3	
1806	Seats	Inspect Replace Repair	0.1	0.5	0.5			1,2,3 1,2,3	
1808	Stowage Box	Inspect Replace		0.2	0.8			1,2,3	

MAINTENANCE ALLOCATION CHART - CONTINUED

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY					(5) TOOLS AND EQPT	(6) REMARKS
			C	O	F	H	D		
20 2001	WINCHES Winches	Inspect		0.1					
		Service		0.3					
		Adjust		0.3				1,2,3	
		Replace		3.0				1,2,3	
		Repair			6.0			1,2,3	A
	Cable Assemblies	Inspect	0.5						
		Service Replace	1.0	1.5				1,2,3	
	Controls	Inspect	0.2						
		Replace		0.5				1,2,3	
		Repair			1.0			1,2,3	
Hydraulic Lines and Fittings	Inspect	0.2							
	Replace		2.0				1,2,3		
Hydraulic Motor	Inspect		0.2						
	Replace			3.0			1,2,3		
	Repair			1.5			1,2,3		
Hydraulic Valves	Inspect			0.1					
	Adjust			1.0			1,2,3		
	Replace			2.0			1,2,3		
	Repair				1.5		1,2,3		
2001 Hydraulic Pump	Inspect			0.1					
	Replace				3.0		1,2,3		
	Repair				1.0		1,2,3		
Reservoir Filter	Inspect	0.2							
	Service	0.3					1,2,3		
	Replace Repair		4.0 6.0				1,2,3 1,2,3		
Power Takeoff	Inspect				0.2				
	Replace				1.0		1,2,3		
	Repair				2.0		1,2,3		
Universal Joint and Shaft Assembly	Replace		1.5				1,2,3		
	Repair			0.3			1,2,3		

MAINTENANCE ALLOCATION CHART - CONTINUED

(1) GROUP NUMBER	(2) COMPONENT/ ASSEMBLY	(3) MAINTENANCE FUNCTION	(4) MAINTENANCE CATEGORY					(5) TOOLS AND EQPT	(6) REMARKS
			C	O	F	H	D		
22 2202	ACCESSORY ITEMS Windshield Wiper Motors	Inspect		0.1				1,2,3	
		Replace		1.4				1,2,3,	
	Arm and Wiper Blades	Inspect	0.1					1,2,3	
		Replace		0.2					
	Mirrors	Inspect	0.1					1,2,3	
		Replace		0.3					
	Windshield Washer	Inspect	0.1						
		Service	0.2						
		Replace Repair		0.5 1.5				1,2,3 1,2,3	
	Personnel Heater	Inspect							
Replace			0.2				1,2,3		
Repair			2.0	1.0			1,2,3		
Air Ducts	Inspect	0.2							
	Replace		1.0				1,2,3		
Control Panel	Inspect								
	Test		0.2						
	Replace		0.5 1.0				1,2,3 1,2,3		
Air Horn	Replace		0.5				1,2,3		
	Repair		0.3				1,2,3		
2210	Data and Instruc- tion Plates	Inspect Replace		0.1 0.5				1,2,3	
47 4702	GAGES, NON- ELECTRIC Pressure Gages	Inspect Test Replace	0.1	0.5 0.5				1,2,3 1,2,3	

**Section III. TOOL AND TEST EQUIPMENT REQUIREMENTS**

(1) REFERENCE CODE	(2) LEVEL MAINTENANCE	(3) NOMENCLATURE	(4) NATIONAL STOCK NUMBER	(5) TOOL NUMBER
		TOOL SETS: Automotive Maintenance and Repair		
1	O	General Mechanics Automotive Tool Kit	5180-00-177-7033	
2	O	Number 1 Common Organi- zational Maintenance Automotive Repair Shop Equipment	4910-00-754-0654	
3	O	Number 1 Supplemental Automotive Maintenance Set	4910-00-754-0653	
		CHASSIS TOOLS: Engine		
4	F	Collet, Valve Seat (use w/J2347415 puller)	5120-01-048-1379	J23479-13
5	F	Fixture, Cam Follower Service	2815-00-705-9278	J5840-01
6	F	Fixture, Lifting Cylin- der Head	4810-00-456-7620	J22062-01
7	F	Fixture, Valve Holding Bridge	4940-01-025-0424	J21772
8	F	Gage, Throttle Delay Cylinder (0.520)		J24873
9	F	Gage, Throttle Delay Cylinder (0.570)	5120-01-048-2200	J25559
10	F	installer, Camshaft Gear Consisting of:	5120-00-473-7456	J1903
		Driver	5120-01-048-1381	J1903-1
		Pilot	5120-01-048-1380	J1903-2

## TOOL AND TEST EQUIPMENT REQUIREMENTS - CONTINUED

(1) REFERENCE CODE	(2) LEVEL MAINTENANCE	(3) NOMENCLATURE	(4) NATIONAL STOCK NUMBER	(5) TOOL NUMBER
11	F	Installer, Crankshaft Front Oil Seal	5120-00-936-4377	J9783
12	F	Installer, Crankshaft Oil Seal Sleeve (use w/J. 8092 handle and w/J9727-2 guide)	5120-00-254-5021	J4194-01
13	F	Installer/Remover, After Cooler Water inlet Adapter Consisting of:  Body Assembly  Extension  Plate, Stabilizer	5120-01-048-2180  5120-01-048-2181  5120-01-048-2154  5120-01-048-2182	J25275  J25275-1  J25275-3  J25275-2
14	O	Installer, Thermostat Housing Seal (use w/J-7079-2 handle)	5120-00-977-5579	J8550
15	F	Installer, Valve Bridge Guide	5120-00-999-8616	J7482
16	F	Installer, Valve Guide	5120-00-999-8617	J21520
17	F	Installer, Valve Seat Insert	5120-01-048-3118	J24357
18	F	Installer, Water Nozzle	5120-01-048-3119	J24857
19	F	Installer, Water Pump Drive Gear	5120-01-033-8902	J25257
20	F	Installer, Water Pump Oil Seal	5120-00-937-7267	J8501

## TOOL AND TEST EQUIPMENT REQUIREMENTS - CONTINUED

(1) REFERENCE CODE	(2) LEVEL MAINTENANCE	(3) NOMENCLATURE	(4) NATIONAL STOCK NUMBER	(5) TOOL NUMBER
21	F	CHASSIS TOOLS: Engine (Cont)  Kit, Engine Tuneup Consisting of:  Case, Carrying  Gage, Feeler Governor (0.0015)  Gage, Governor Gap (0.170)  Gage, Governor Gap (0.200)  Gage, Injector Timing (1.460)  Gage, Injector Timing (1.470)  Gage, Injector Timing (1.484)  Gage, Throttle Delay Checking (0.454)  Wrench, Fuel Line Nut  Wrench, Open-End 3/8 x 7/16 in.  Wrench Set, Push Rod Adjusting		J24790   J24790-1  5120-01-048-7085 J23185  5120-00-972-0468 J5407  5120-01-048-6532 J23478  5220-00-387-9581 J1853  5120-01-048-3116 J24236  5120-00-474-6400 J1242  5120-00-538-8465 J23190  5120-00-019-5232 J8932-01  5120-00-132-2109 J21100-02
22	F	Leak Detector Set Consisting of:  Pump, Vacuum  Cup, Vacuum		J23987-01  J23987  J23987-2
23	O	Puller, Tachometer Shaft	5120-01-048-3117	J24730

## TOOL AND TEST EQUIPMENT REQUIREMENTS - CONTINUED

(1) REFERENCE CODE	(2) LEVEL MAINTENANCE	(3) NOMENCLATURE	(4) NATIONAL STOCK NUMBER	(5) TOOL NUMBER
24	F	Reamer, Injector Body	5110-00-937-7628	J21089
25	F	Remover, Camshaft Gear and Water Pump Pulley (use w/J24420 bar)		J9732
26	F	Remover, Seal and Dust Shield		J24171
27	F	Remover, Valve Guide	5120-00-733-8880	J6569
28	F	Remover, Valve Guide Bridge Consisting of:	5120-00-999-8614	J7091-01
		Body	5120-01-048-3121	J7091-5
		Sleeve, Long	5120-01-048-3120	J7091-2
		Sleeve, Short	5120-01-048-1384	J7091-4
		Washer	5120-01-048-1383	J7091-3
29	F	Remover, Water Pump Seal		J22150-01
30	F	Retainer Nut Wrench, High Speed	5120-00-627-9311	J 1652-01
31	F	Setting Master Gage Set (use w/J5347-01 gage)	5120-01-367-7378	J23059-01
32	F	Stud Set, Crankshaft Rear Oil Seal Expander (Use w/J4239 Expander and w/J8092 handle)	5120-01-048-2155	J25002
33	F	Tool, Blower Drive Shaft Aliner	5120-01-048-3122	J24619
34	H	Tool, Piston Pin Retainer	5120-00-127-7757	J23762

## TOOL AND TEST EQUIPMENT REQUIREMENTS - CONTINUED

(1) REFERENCE CODE	(2) LEVEL MAINTENANCE	(3) NOMENCLATURE	(4) NATIONAL STOCK NUMBER	(5) TOOL NUMBER
35	F	CHASSIS TOOLS: Engine (Cont)  Tool Set, Blower Service Consisting of:  Adapter, Remover, Blower Seal Ring Carrier  Installer, Blower Bearing and Seal  Puller, Blower Gear, End Plate, and Seal Ring Carrier (2 ea)  Remover, Blower Bearing and Seal  Screw  Swivel	5120-00-936-4376  5120-01-048-1387  5120-00-070-1016  5120-00-070-1014  5120-01-048-1388  5120-01-048-1389  5120-01-048-1390	J6270-2  J6270-2  J6270-4  J6270-1  J6270-3  J6270-21  J6270-22
36	F	Tool Set, Fuel Pump Consisting of:  Adapter  Handle, Oil Seal Installer  Holder, Fuel Pump  Remover, Oil Seal	5120-00-785-1001  5120-00-970-9031  5120-00-970-9030  5120-00-494-1770  5120-01-048-1385	J1508-3  J1508-9  J1508-8  J1508-10  J1508-13
37	F	Tool Set, Injector Tube Reconditioning Consisting of:  Box and Instruction Assembly  Installer, Body	2910-00-146-9619  4940-00-711-1918	J22525  J5286-25  J5286-4



## TOOL AND TEST EQUIPMENT REQUIREMENTS - CONTINUED

(1) REFERENCE CODE	(2) LEVEL MAINTENANCE	(3) NOMENCLATURE	(4) NATIONAL STOCK NUMBER	(5) TOOL NUMBER
37 (Cont)		Installer, Flaring Die	4940-00-071-1920	J5286-6
		Installer, Pilot	4940-00-711-1919	J5286-5
		Pilot Reamer	5110-01-048-2199	J22525-3
		Refinisher, Tube Tip	5120-00-785-1017	J5286-8
		Reamer, First Operation	5120-01-048-2198	J22525-1
		Reamer, Second Operation	5110-00-294-4606	K5286-9
38	F	Vise and Rack Set, Injector Freeness Tester Consisting of:	4910-00-950-3119	J22396
		Adapter Disk		J22396-9
		Base		J22396-24
		Block, Support		J22396-4
		Fixture, Injector Assembly		J22396-1
		Handle Assembly		J22396-5
		O-Ring	5330-01-049-1212	J22396-23
		Plate, Base		J22396-14
		Rack, Freeness Tester		J22396-2
		Screw Assembly		J22396-8
		Stop Tab		J22396-21

TOOL AND TEST EQUIPMENT REQUIREMENTS - CONTINUED

(1) REFERENCE CODE	(2) LEVEL MAINTENANCE	(3) NOMENCLATURE	(4) NATIONAL STOCK NUMBER	(5) TOOL NUMBER
		CHASSIS TOOLS: Fifth Wheel		
39	F	Adapter, Fifth Wheel Lock Tester		1TL42
40	F	Tester, Fifth Wheel Lock		1TL41
		CHASSIS TOOLS: Suspension		
41	F	Service Set, Equalizing Beam Center, Tandem Suspension		1TL32
42	F	Tool, Axle Ball Trunnion Front Axle	5120-01-048-1391	1TL3
43	F	Tooling Set, Equalizing Beam End, Tandem Suspension		1TL31
44	O	Wrench, Bearing Nut (Front Axle) Wheel		1048TR
45	F	Wrench, Torque Multi- plier Set Consisting of:	5180-00-706-5578	J6985
		Adapter, 3/4-inch		J6985-2
		Male, 1/12-inch Female Adapter		J6985-3
		3/4-inch Male, 1-inch Female Wrench, Multiplier		J6985-1
46	O	Wrench, Wheel Bearing Nut (Tandem Axle)		5EX217

## TOOL AND TEST EQUIPMENT REQUIREMENTS - CONTINUED

(1) REFERENCE CODE	(2) LEVEL MAINTENANCE	(3) NOMENCLATURE	(4) NATIONAL STOCK NUMBER	(5) TOOL NUMBER
47	H	CHASSIS TOOLS: Transfer Case wrench, Spanner, Trans- fer Case Differential	5120-01-148-8749	1TL35
48	F	CHASSIS TOOLS: Transmission Auxiliary Puller, Front Counter Shaft Bearing Aux- iliary Transmission		1TL33
49	F	Wrench, Input Yoke (Aux- iliary Transmission)	5180-00-706-5578	1TL37
50	H	CHASSIS TOOLS: Transmission Main Compressor, Main Pressure Regulator and Lockup Valve Spring	5120-01-048-2160	J24219
51	H	Compressor Set, Clutch Spring Consisting of:	5120-01-048-3129	J24204
		Bar and Stud Assembly	5120-01-048-2150	J24204-2
		Compressor, Forward and Fourth Clutch Spring	5120-01-048-2159	J24204-3
		Compressor, Low and First Clutch Spring	5120-01-048-3130	J24204-1
52	H	Gage, Clutch Pack (0.060-0.120)	5120-01-048-2162	J24193
53	H	Gage, Clutch Pack (0.80-0.120)	5120-01-048-2161	J24192
54	H	Gage, Clutch Pack (0.095-0.145)	5210-01-048-5283	J24194
55	H	Gage, Clutch Pack (0.128-0.208)	5120-01-048-2163	J26421

**TOOL AND TEST EQUIPMENT REQUIREMENTS - CONTINUED**

(1) REFERENCE CODE	(2) LEVEL MAINTENANCE	(3) NOMENCLATURE	(4) NATIONAL STOCK NUMBER	(5) TOOL NUMBER
56	H	CHASSIS TOOLS: Transmission Main (Cont)  Installer and Stake Set Consisting of:  Stake  Pilot  installer, Valve Guide Pin	5120-01-048-3124     5120-01-048-3125     5120-01-048-3126	J24200       J24200-1     J24200-2     J24458
57	H	Protector, Clutch Piston Inner Seal	5120-01-048-2157	J24216-01
58	H	Protector, Low and First Clutch Piston Inner Seal	5120-01-046-2156	J24210
59	H	Remover, Valve Pin (Use w/J6125-1 hammer)		J24412-2
60	H	Tool, Valve Ring Adjusting		J24314

**Section IV. REMARKS**

REFERENCE CODE	REMARKS
A	All repair and/or replacement of parts performed by organizational maintenance is limited to authorized items listed in TM 9-2320-270-20P.

## APPENDIX C

### EXPENDABLE SUPPLIES AND MATERIALS LIST

		Page
Section 1.	Introduction .....	C-1
Section II.	Expendable Supplies and Materials List.....	C-2

#### Section I INTRODUCTION

		Page	Page
Explanation of Columns .....	C-1	Scope .....	C-1

#### SCOPE

This appendix lists expendable supplies and materials you will need to operate and maintain the M911 truck. These items are authorized to you by CTA 50-970, Expendable/Durable items (except Medical, Class V, Repair Parts, and Heraldic items).

#### EXPLANATION OF COLUMNS

Column 1, item Number. This number is assigned to the entry in the listing and is referenced in the narrative instructions to identify the material (e.g., "Solvent, cleaning (item 16, appendix C)").

Column 2, Level. This column identifies the lowest level of maintenance that requires the listed item.

- C - Operator/Crew
- o - Organizational Maintenance
- F - Direct Support Maintenance
- H - General Support Maintenance

Column 3, National Stock Number. This is the national stock number assigned to the item, use it to request or requisition the item.

Column 4, Description. indicates the federal item name and, if required, a description to identify the item. The last line for each item indicates the Federal Supply Code for Manufacturer (FSCM) in parenthesis followed by the part number.

Column 5, Unit of Measure (U/M). Indicates the measure used in performing the actual maintenance function. This measure is expressed by a two-character alphabetical abbreviation (e.g., ea, in., pr). if the unit of measure differs from the unit of issue, requisition the lowest unit of issue that will satisfy your requirements.

## Section II. EXPENDABLE SUPPLIES AND MATERIALS LIST

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION (FSCM)	(5) U/M
1	O	8040-00-225-4548	Adhesive, Sealant (Glue): 12-ounce (355-ml) can (01139) RTV102	oz
2	O	8040-01-038-5043	Cement, Gasket: 8-ounce (237-ml) can (11083) 5M2471	oz
3	O	8030-00-220-6973	Cement, Rubber-to-Metal	oz
4	O	6850-00-319-0834	Cleaning Compound, Solvent (Electrical Parts) (Trichlorotrifluoroethane): 11-pound (4.99-kg) bottle (81349) (MIL-C-81302)	lb
5	O	5350-00-221-0872	Cloth, Abrasive (Crocus): 50-sheet package (58536) A-A-1206	sh
6	O		Compound, Insulating	lb
7	O	3439-00-255-9935	Flux, Soldering (Rosin Base): (81348) OF506	lb
8	O	5970-00-815-1295	Insulation, Sleeving (Shrinkable Tubing): (81349) MIL-I-23053/5	ft
9	O	6810-00-238-8119	Naptha	gl
10	O	7920-00-205-1711	Rags, Wiping: 50-pound (22.7-kg) bale (58536) A-A-531	ea
11	O	4020-00-968-1357	Rope, Nylon	yd
12	O	5350-00-598-5537	Sandpaper, Abrasive: Fine grit (58536) A-A-1202	sh
13	O	5350-00-598-5539	Sandpaper, Abrasive: Medium grit (58536) A-A-1202	sh

## EXPENDABLE SUPPLIES AND MATERIALS LIST - CONTINUED

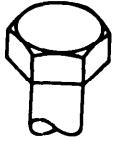
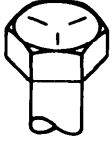



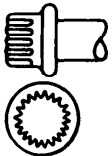

(1) ITEM NUMBER	(2) LEVEL	(3) NATIONAL STOCK NUMBER	(4) DESCRIPTION (FSCM)	(5) U/M
14	C	7930-00-985-6911	Soap, Liquid, Detergent, General Purpose: 5-gallon (-18.93-liter) can (81349) MIL-D-16791	gl
15	O	3349-01-007-5491	Solder, Tin Alloy (Rosin Core): (81348) QQ-S-571	ro
16			Solvent, Drycleaning (SD): (81348) P-D-680	
	C	6850-00-264-9038	5-gallon (18.93-liter) can	gl
	O	6850-00-285-8012	55-gallon (208-liter) drum	gl
17	C	4020-00-233-5987	String, Twine, Cotton: (81349)	bl
18	O	9905-00-537-8954	Tags, Marking: (81349)MIL-T-12755	ea
19	O	5640-00-103-2254	Tape, Duct: 60-Yard (54-m) Roll (07124) C-519	ea
20	O	5970-00-543-1154	Tape, Electrical, Vinyl: (81349)MIL-I-15126	ro
21	O	7510-00-283-0612	Tape, Pressure Sensitive: Adhesive, 1-inch wide (58536) A-A-113	ro
22	O	8030-00-889-3534	Tape, Teflon, Antiseizing: 260-inch (6.41-m) Roll (81349)MIL-T-27730	ea
23	O	9505-00-293-4208	Wire, Non-Electrical (Lockwire): (96906) MS20995C32 (81348) QQW423	lb
24	O	5975-00-984-6582	Wrap, Tie, Electrical: (81349)MIL-S-23190	ea





## APPENDIX E TORQUE LIMITS

### CAPSCREW MARKING

Current Usage	Much Used	Much Used	Used at Times	Used at Times
Quality of Material	Indeterminate	Minimum Commercial	Medium Commercial	Best Commercial
SAE Grade Number	1 or 2	5	6 or 7	8
Capscrew Head Markings			6  7 	 
Manufacturer's marks may vary				
These are all SAE Grade 5 (3 line)				

### TORQUE VALUES

### CAUTION

If replacement capscrews are of a higher grade than originality supplied, use torque specifications for that placement. This will prevent equipment damage due to over torquing.

Capscrew Body Size (Inches) – (Thread)		Torque Ft Lb (N·m)	Torque Ft Lb (N·m)	Torque Ft Lb (N·m)	Torque Ft Lb (N·m)
1/4	20	5 (7)	8 (11)	10 (14)	12 (16)
	28	6 (8)	10 (14)		14 (19)
5/16	18	11 (15)	17 (23)	19 (26)	24 (33)
	24	13 (18)	19 (26)		27 (37)
3/8	16	18 (24)	31 (42)	34 (46)	44 (60)
	24	20 (27)	35 (47)		49 (66)
7/16	14	28 (38)	49 (66)	55 (75)	70 (95)
	20	30 (41)	55 (75)		78 (106)
1/2	13	39 (53)	75 (102)	85 (115)	105 (142)
	20	41 (56)	85 (115)		120 (163)
9/16	12	51 (69)	110 (149)	120 (163)	155 (210)
	18	55 (75)	120 (163)		170 (231)
5/8	11	83 (113)	150 (203)	167 (226)	210 (285)
	18	95 (129)	170 (231)		240 (325)
3/4	10	105 (142)	270 (366)	280 (380)	375 (508)
	16	115 (156)	295 (400)		420 (569)
7/8	9	160 (217)	395 (536)	440 (597)	605 (820)
	14	175 (237)	435 (590)		675 (915)
1	8	235 (319)	590 (800)	660 (895)	910 (1234)
	14	250 (339)	660 (895)		990 (1342)

**TORQUE VALUES - CONTINUED**

**NOTE**

Always use the torque values listed above when specific torque values are not available.

Do not use above values in place of those specified in other sections of this manual; special attention should be observed when using SAE Grade 6, 7, and 8 capscrews.

The above is based on use of clean, dry threads.

Reduce torque by 10 percent when engine oil is used as a lubricant.

Reduce torque by 20 percent if new plated capscrews are used.

Capscrews threaded into aluminum may require reductions in torque of 30 percent or more of Grade 5 capscrews and must attain two capscrew diameters of thread engagement.

## APPENDIX F SCHEMATIC DIAGRAMS

Page

Section 1.	Wire List .....	F-1
Section II.	Electrical Schematic Symbols .....	F-21
Section III.	Schematics .....	F-23

### Section I. WIRE LIST

WIRE NUMBER/ COLOR	COMPONENT	FROM TERMINAL	COMMON WITH	COMPONENT	TO TERMINAL	COMMON WITH	BULKHEAD CONNECTOR	
							NAME	PIN
001	Directional Signal Y-Connector	Green Lead	001	Right Front Directional Signal Connector	Orange Lead	-	Head- light	F
001	Directional Signal Y-Connector	Green Lead	001	Right Indi- cating Lamp	Lead	-	-	-
002	Directional Signal Y-Connector	Yellow Lead	002	Left Front Directional Signal Connector	Orange Lead	-	Head- light	H
002	Directional Signal Y-Connector	Yellow Lead	002	Left Indi- cating Lamp	Lead	-	-	-
003	Directional Signal Y-Connector	Orange Lead	003	Left Rear Directional Signal Connector	Brown Lead	-	Chassis	E
003	Directional Signal Y-Connector	Orange Lead	003	Trailer Socket	Pin B	-	Chassis	S
004	Directional Signal Y-Connector	Brown Lead	004	Right Rear Directional Signal Connector	Brown Lead	-	Chassis	B
004	Directional Signal Y-Connector	Brown Lead	004	Trailer Socket	Pin J	-	Chassis	L

WIRE LIST - CONTINUED

WIRE NUMBER/ COLOR	COMPONENT	FROM TERMINAL	COMMON WITH	COMPONENT	TO TERMINAL	COMMON WITH	BULKHEAD CONNECTOR	
							NAME	PIN
005	Primary Stoplight Switch	Not Labeled	-	Secondary Stoplight Switch	Not Labeled	005 Towing Kit Red	-	-
005	Secondary Stoplight Switch	Not Labeled	005 Towing Kit Red	Blackout Light Switch	2	429	Firewall	W
006A	Dimmer Switch	Top	006B	Right Head- light Con- nector (low beam)	Red Lead	-	Head- light	A
006B	Dimmer Switch	Top	006A	Left Head- light Con- nector (low beam)	Red Lead	-	Head- light	C
007A	Dimmer Switch	Bottom	007B 018	Right Head- light Con- nector (high beam)	Yellow Lead	-	Head- light	B
007B	Dimmer Switch	Bottom	007A 018	Left Head- light Con- nector (high beam)	Yellow Lead	-	Head- light	D
008A	LIGHTS Switch	Left Top	017	Left Tail- light Connector	Red Lead	-	Chassis	C
009	STOP LT Circuit Breaker	3	-	Primary Stoplight Switch	Not Labeled	009 Towing Kit Brown	Firewall	X
009	Primary Stoplight Switch	Not Labeled	009 Towing Kit Brown	Secondary Stoplight Switch	Not Labeled	-	-	-
012	CL LPS Switch		012 012	Five Clear- ance Lights	Five Leads	-	-	-

## WIRE LIST - CONTINUED

WIRE NUMBER/ COLOR	COMPONENT	FROM TERMINAL	COMMON WITH	COMPONENT	TO TERMINAL	COMMON WITH	BULKHEAD CONNECTOR	
							NAME	PIN
012	CL LPS Switch	-	012 012	Right Di- rectional Signal and Marker Light Left Direc- tional Sig- nal and Marker Light	Blue Lead  Blue Lead	-	Head- light	E
012	CL LPS Switch	-	012 012	Trailer Socket	Pin E	-	Chassis	H
016	Horn Relay (outside)	3	-	Steering Column Y-Connector	Yellow Lead	048	Firewall	Y
017	LIGHTS Switch	Left Top	008A	Dimmer Switch	Center	-	-	-
018	Dimmer Switch	Bottom	007A 007B	High Beam Indicator Light	Lead	-	-	-
019	Dashboard ENGINE STOP Switch	-	019	Engine Shutdown Solenoid	Top	-	Engine	F
019	Winch Panel ENGINE STOP Switch	-	-	Dashboard ENGINE STOP Switch	-	019	Chassis	J
019	Engine Shutdown Solenoid	Bottom	-	Mounting Plate	Screw (Ground)	-	-	-
021	Starter Relay	2	-	Magnetic Switch	Right Front	-	-	-
029	DOME Circuit Breaker	3	094 040A	BEACON Switch	-	-	-	-
029	BEACON Switch	-	-	Warning Light	Lead	-	-	-

WIRE LIST - CONTINUED

WIRE NUMBER/ COLOR	COMPONENT	FROM TERMINAL	COMMON WITH	COMPONENT	TO TERMINAL	COMMON WITH	BULKHEAD CONNECTOR	
							NAME	PIN
031	HORN Circuit Breaker	2	096 677	Horn Relay (outside)	1	279	Firewall	2
032	Warning Buzzer	5	-	High Water Temperature Switch	-	-	Engine	B
032B	OIL-WATER Warning Light Y-Connector	-	525B	Warning Buzzer	2	-	-	-
040A	DOME Circuit Breaker	3	094 029	WORK LIGHT Switch	-	-	-	-
040	WORK LIGHT Switch	-	040	Right Work Light	Lead	-	-	-
040	WORK LIGHT Switch	-	040	Left Work Light	Lead	-	-	-
045	Magnetic Switch	Left Terminal	-	Starter Solenoid	Small Terminal	-	-	-
046	Starter Solenoid	Battery Terminal	278 139	Magnetic Switch	Right Terminal	430 431	-	-
048	Y-Connector on 016	-	016 048	Door Pillar Switch	-	-	-	-
052	LIGHTS Switch	Right Upper	-	PANEL LPS Rheostat	EAT	-	-	-
052	PANEL LPS Rheostat	Unmarked	No Num- ber to Optical Ribbon Light No Num- ber to Trans- mission Selector Light	Eight Instrument Panel Lights	Splices to Leads	-	-	-

## WIRE LIST - CONTINUED

WIRE NUMBER/ COLOR	COMPONENT	FROM TERMINAL	COMMON WITH	COMPONENT	TO TERMINAL	COMMON WITH	BULKHEAD CONNECTOR	
							NAME	PIN
070	FAN Switch	(HI)	—	Connector	Heater Resistor Red Wire	Heater Motor Red Wire	—	—
071	FAN Switch	(LO)	—	Connector	Heater Resistor Orange Wire	—	—	—
074	INSTR PANEL Circuit Breaker	3	078, 079, 437	BATTERY Gage	On Gage Resistor	113	—	—
075	Ignition Switch	16N	—	INSTR PANEL Circuit Breaker	1	—	—	—
076	FUEL Gage	On Gage Resistor	078, 405	AIR Warning Light	Lead	—	—	—
077	WATER TEMP Gage	On Gage Resistor	320	OIL-WATER Warning Light	Lead	—	—	—
077	OIL-WATER Warning Light	Lead	—	Y-Connector on 077	—	525B 032B	—	—
078	INSTR PANEL Circuit Breaker	3	074, 079, 437	FUEL Gage	On Gage Resistor	076, 405	—	—
079	INSTR PANEL Circuit Breaker	3	074, 078, 437	Warning Buzzer				
080	TURN SIG Circuit Breaker	3	—	Flasher	X	—	—	—

WIRE LIST - CONTINUED

WIRE NUMBER/ COLOR	COMPONENT	FROM TERMINAL	COMMON WITH	COMPONENT	TO TERMINAL	COMMON WITH	BULKHEAD CONNECTOR	
							NAME	PIN
082	DEFROST Circuit Breaker	2	-	FAN Switch	-	-	-	-
084	LIGHTS Circuit Breaker	2	-	LIGHTS Switch	LEFT Bottom	-	-	-
085	AIR Warning Light	Lead	-	Warning Buzzer	4	-	-	-
090	CL LPS Circuit Breaker	3	091	CL LPS Switch	-	-	-	-
091	CL LPS Circuit Breaker	3	090	Backup Light Switch	-	-	-	-
091	Backup Light Switch	-	-	Backup Light Connector	Lead	-	Chassis	D
093	OIL TEMP Gage	On Gage Resistor	405 Taco- graph Green/ Black	Differen- tial Lock Indicator Light	Lead	-	-	-
094	DOME Circuit Breaker	3	040-A 029	WORK LIGHT Switch	-	-	-	-
096	HORN Circuit Breaker	2	677 331	ENGINE STOP Switch	-	-	-	-
113	BATTERY Gage	On Gage Resistor	170	OIL PRESS Gage	On Gage Resistor	666, 320	-	-
113	OIL PRESS Gage	Plain	-	Oil Pres- sure Send- ing Unit	-	-	Engine	A
120	Warning Buzzer	1	-	Y-Connector on 120	-	120 120	-	-



WIRE LIST - CONTINUED

WIRE NUMBER/ COLOR	COMPONENT	FROM TERMINAL	COMMON WITH	COMPONENT	TO TERMINAL	COMMON WITH	BULKHEAD CONNECTOR	
							NAME	PIN
120	Y-Connector on 120	120 120		Primary Air System Low Pressure Switch				
120	Y-Connector on 120	120 120		Secondary Air System Low Pres- sure Switch				
128	Starter	Ground	138, 148 No num- ber to solenoid	Alternator	1			
137	Two Batteries	+		Two Batteries	- negative)			
137	Battery	+		Battery	+	139		
137	Battery	- Negative)		Battery	- negative)	138		
138	Battery	- (negative)	137	Hatter	Ground	128, 148		
139	Battery	+	137	Starter Solenoid	Power	278, 046		
148	Starter	Ground	128, 138	Frame	Screw ground)			
153	DOME Switch			Dome Light	Lead			
154	Fifth Gear Switch			Auxiliary Transmis- sion Neu- al Switch				
154A	Auxiliary Transmission Neutral Switch		458	THROTTLE RELEASE SAFETY SWITCH	2	279		
168	Horn Relay Outside)	4	168	Right Horn				

WIRE LIST - CONTINUED

WIRE NUMBER/ COLOR	COMPONENT	FROM TERMINAL	COMMON WITH	COMPONENT	TO TERMINAL	COMMON WITH	BULKHEAD CONNECTOR	
							NAME	PIN
168	Horn Relay (outside)	4	168	Left Horn	-	-	-	-
168	Right Horn	GRD		Horn Relay (outside)	Mounting Screw (ground)	-	-	-
168	Left Horn	GRD		Horn relay (outside)	Mounting Screw (ground)	-	-	-
170	THROTTLE RELEASE SAFETY SWITCH	6		Air Solenoid	Lead	-	Chassis	N
174	LIGHTS Circuit Breaker		675, 174, 174	DOMES Circuit Breaker	1	-	-	-
174	LIGHTS Circuit Breaker		675, 174, 174	CLIPS Circuit Breaker	1	774	-	-
174	CLIPS Circuit Breaker		174	TURN SIG Circuit Breaker	1		-	-
174	CIRCUIT BRKR Circuit Breaker		430, 674	HORN Circuit Breaker	1	174	-	-
174	HORN Circuit Breaker	1	174	STOP LT Circuit Breaker	1		-	-
196 (Labeled GRD)	Magnetic Switch	Left Front		Firewall	Mounting Screw (ground)		-	-
232	BATTERY Gage	Plain Terminal		Instrument Panel	Screw (ground)	Tacometer Brown, Tacometer Brown/Greer		

## WIRE LIST - CONTINUED

WIRE NUMBER COLOR	COMPONENT	FROM TERMINAL	COMMON WITH	COMPONENT	TO TERMINAL	COMMON WITH	BULKHEAD CONNECTOR	
							NAME	PIN
278	Starter Solenoid	Battery	139, 046	Alternator	BAT	-	-	-
279	Starter Relay	1	458, 458	Neutral Safety Relay	3	-	-	-
279	Horn Relay (outside)	1	031	Horn Relay (outside)	2	-	-	-
279	THROTTLE RELEASE SAFETY SWITCH	2	154A	Winch Control Panel ENGINE SHUT DOWN Switch	-	-	-	-
279	Neutral Safety Switch		437	Fifth gear Switch	-	-	-	-
294	BLACKOUT LIGHTS Switch	1		Turn Signal Switch Connector	Red Lead	-	-	-
318	FUEL Gage	Plain Terminal	-	Fuel Gage Sending Unit		-	Chassis	A
320	OIL PRESS Gage	Resistor Terminal	666, 113	WATER TEMP Gage	Resistor Terminal	077		-
320	WATER TEMP Gage	Plain Terminal		Water Temperature Sending Unit			Engine	G
329	IGN START Circuit Breaker	3	192	Horn Relay		-	-	-
330	Neutral Safety Relay	2		Firewall	Mounting Screw (ground)	-	-	-
330	Neutral Safety Relay	4		Firewall	Mounting Screw (ground)	-	-	-

WIRE LIST - CONTINUED

WIRE NUMBER/ COLOR	cOMPONENT	FROM TERMINAL	COMMON WITH	COMPONENT	TO TERMINAL	COMMON WITH	BULKHEAD CONNECTOR	
							N A M E	P I N
331	Door Pillar Switch		-	Horn Relay (inside)	1	-	-	-
359	IGN START Circuit Breaker	3	-	Trailer Brake StopLight witch	-	-	-	-
360	Trailer Brake Stop-light Switch		-	Stoplight Diode	+	-	-	-
376	Horn Relay (inside)	2	-	Neutral Safety Relay	1	-	-	-
405	FUEL Gage	Resistor Terminal	076, 078	OILTEMP Gage	Resistor Terminal	-	-	-
422	OILTEMP Gage			Oil Temperature Sending Unit		-	Engine	H
423	Differen-tail Lockup Indicator Light	Lead	-	Inter-Axle Pressure Switch		-	-	-
423	Inter-Axle Pressure Switch		-	Firewall	Screw (ground)	-	-	-
429	Stoplight Diode	+	-	BLACKOUT LIGHTS Switch	2	5	-	-
430	Magnetic Switch	Battery (left)	046 431	CIRCUIT BRKR Circuit Breaker	1	674, 174	Firewall	R
431	Magnetic Switch	Battery (left)	046 430	Ignition Switch	BAT	-	Firewall	S

## WIRE LIST - CONTINUED

WIRE NUMBER/ COLOR	COMPONENT	FROM TERMINAL	COMMON WITH	COMPONENT	TO TERMINAL	COMMON WITH	BULKHEAD CONNECTOR	
							N A M E	P I N
435	Trailer Socket	Pin D	-	Frame	Screw (ground)	435	-	-
435	Trailer Socket	Pin L	-	Frame	Screw (ground)	435	-	-
436	Ignition Switch	START	-	Starter Relay	3	-	-	-
437	INSTR PANEL Circuit Breaker	3	078, 074, 079	Neutral Safety Switch	-	-	-	-
458	Neutral Safety Switch	-	-	Starter Relay	1	458, 279	-	-
458	Starter Relay	1	458 279	Starter Diode	(negative)	-	-	-
458	Starter Diode	+	-	Auxiliary Transmis- sion Neu- tral Switch	-	154A	Chassis	G
525	Warning Buzzer	6	-	Oil Pres- sure Switch	-	-	Engine	C
525B	Y-Connector on 077		032 077	Warning Buzzer	3	-	-	-
622	Ignition Switch	ACC	-	IGN START Circuit Breaker	1	174	-	-
637	Fuel Gage Sending Unit	Attaching Screw	-	Frame	Screw (ground)	-	-	-
665	CIRCUIT BRKR Circuit Breaker	2	-	Trailer Socket	Pin K	-	Chassis	M

WIRE LIST - CONTINUED

WIRE NUMBER/ COLOR	COMPONENT	FROM TERMINAL	COMMON WITH	COMPONENT	TO TERMINAL	COMMON WITH	BULKHEAD CONNECTOR	
							NAME	P I N
666	OIL PRESS Gage	Resistor Terminal	320 113	PTO Warning Light	Lead	-	-	-
666	PTO Warn- ing Light	Lead	-	PTO Neutral Safety Switch	-	667	Chassis	F
666	PTO Control Mounting Screw	-	-	Air Reser- voir Mount- ing Support	Screw (ground)	-	-	-
667	PTO Neutral Safety Switch	-	666	Auxiliary Throttle Switch	2	-	-	-
667	Auxiliary Throttle Switch	5	-	Cover Panel	Screw (ground)	-	-	-
674	CIRCUIT BRKR Circuit Breaker	1	430	BLACKOUT LIGHTS Switch	11	674	-	-
674	BLACKOUT LIGHTS Switch	11	674	BLACKOUT LIGHTS Switch	8	674	-	-
674	BLACKOUT LIGHTS Switch	8	674	BLACKOUT LIGHTS Switch	5	-	-	-
675	BLACKOUT LIGHTS Switch	10	675	LIGHTS Circuit Breaker	1	174, 174	-	-
675	BLACKOUT LIGHTS Switch	10	675	BLACKOUT LIGHTS Switch	7	675	-	-
675	BLACKOUT LIGHTS Switch	7	675	BLACKOUT LIGHTS Switch	4	-	-	-

WIRE LIST - CONTINUED

WIRE NUMBER/ COLOR	COMPONENT	FROM TERMINAL	COMMON WITH	COMPONENT	TO TERMINAL	COMMON WITH	BULKHEAD CONNECTOR	
							NAME	PIN
676	BLACKOUT LIGHTS Switch	12	676	BLACKOUT Circuit Breaker	1		-	-
676	BLACKOUT LIGHTS Switch	12	676	BLACKOUT LIGHTS Switch	9	676	-	-
676	BLACKOUT LIGHTS Switch	9	676	BLACKOUT LIGHTS Switch	6		-	-
677	HORN Circuit Breaker	2	031, 096	LIGHTS Switch	Left Bottom			-
678	BLACKOUT LIGHTS Switch	3		Left Black- out stop- light (splice) Right Blackout Stoplight (splice) Trailer Connector splice)	Lead 23  Lead 23  Pin F		Chassis	P
679	BLACKOUT Circuit Breaker	3	680	Blackout Driving Light			Head- light	G
680	Wire 679	Splice		Left Blackout Marker Light				-
680	Wire 679	Splice		Right Blackout Marker Light				-

WIRE LIST - CONTINUED

WIRE NUMBER/ COLOR	COMPONENT	FROM TERMINAL	COMMON WITH	COMPONENT	TO TERMINAL	COMMON WITH	BULKHEAD CONNECTOR	
							NAME	
680	BLACKOUT Circuit Breaker		-	Right Blackout Taillight (splice)	Lead 24	-	Chassis	R
				Left Black- out Tail- light (splice)	Lead 24	-	-	-
				Trailer Connector (splice)	Pin A	-	-	-
				Trailer Connector (splice)	Pin C	-	-	-
No Number	PANEL LPS Rheostat	Unmarked	052 No Num- ber to Trans- mission Selector	Optical Ribbon Light	Lead	-	-	-
				Heater Con- trol Panel	Screw (ground)	-	-	-
No Number	PANEL LPS Rheostat	Unmarked	052 No Num- ber to Optical Ribbon Light	Transmis- sion Selec- tor Light	Lead	-	-	-
No Number	Starter Solenoid	Unmarked (ground)	-	Starter	Ground Terminal	-	-	-
Yellow Horn Button Lead	Y-Connector		016 048	Horn Button Brush		-	-	-



## WIRE LIST - CONTINUED

WIRE NUMBER/ COLOR	COMPONENT	FROM TERMINAL	COMMON WITH	COMPONENT	TO TERMINAL	COMMON WITH	BULKHEAD	
							NAME	PIN
Tacograph Black Lead	STOP LT Circuit Breaker	1	174	Tacograph	Top Plug	-	-	-
Tacograph Gray/Red Lead	PANEL LPS Rheostat	Unmarked	052, No Num- ber to Optical Ribbon Light, No Num- ber to Trans- mission Selector Light	Tacograph	Top Plug	-	-	-
Tacograph Brown/ Black Lead	Tacograph	Top Plug	-	Instrument Panel	Screw (ground)	-	-	-
Tacograph Brown Lead	Tacograph	Top Plug	-	Instrument Panel	Screw (ground)	-	-	-
Tacograph Green/ Black Lead	OILTEMP Gage	Resistor Terminal	405 093	Tacograph	Top Plug	-	-	-
Tacograph Gray Cable	Tacograph	Left Plug	-	RPMSending Unit	-	-	-	-
Tacograph Gray Cable	Tacograph	Right Plug	-	Speed Sending Unit	-	-	-	-
Heater Resistor Red Wire	Wire 070	Connector	-	Heater Resistor	Left	Heater Motor Red Lead	-	-

WIRE LIST - CONTINUED

WIRE NUMBER/ COLOR	COMPONENT	FROM TERMINAL	COMMON WITH	COMPONENT	TO TERMINAL	COMMON WITH	BULKHEAD CONNECTOR	
							NAME	PIN
Heater Resistor Orange Wire	Wire 071	Connector	-	Heater Resistor	Right	-	-	-
Heater Motor Red Lead	Heater Resistor	Left	Heater Resistor Red Wire	Heater Motor		-	-	-
Heater Motor Black Lead	Heater Motor	-		Heater Case	Screw (ground)	-	-	-
Directional Signal Switch Red Lead	Wire 294	Connector	-	Directional Signal Switch		-	-	-
Directional Signal Switch Orange Lead	Directional Signal Switch	-	-	)03 )03	Y-Connector	-	-	-
Directional Signal Switch Yellow Lead	Directional Signal	-	-	002 002	Y-Connector	-	-	-
Directional Signal Black Lead	FLASHER	L		Directional Signal Switch		-	-	-
Directional Signal Switch Blue Lead	FLASHER	P	-	Directional Signal Switch		-	-	-

WIRE LIST - CONTINUED

WIRE NUMBER/ COLOR	COMPONENT	FROM TERMINAL	COMMON WITH	COMPONENT	TO TERMINAL	COMMON WITH	BULKHEAD CONNECTOR	
							NAME	PIN
Directional Signal Switch Green Lead	Directional Signal Switch			Wire 001 Wire 001	Y-Connector	-	-	-
Directional Signal Brown Lead	Directional Signal Switch			Wire 004 Wire 004	Y-Connector	-	-	-
Right Headlight Red Lead	Wire 006	Connector		Headlight Socket (low beam)		-	-	-
Right Headlight Yellow Lead	Wire 007	Connector		Headlight Socket high beam)		-	-	-
Right Headlight Black Lead	Headlight Socket			Headlight Shell	Mounting Screw (ground)	-	-	-
Left Headlight Red Lead	Wire 006	Connector		Headlight Socket (low beam)		-	-	-
Left Headlight Yellow Lead	Wire 007	Connector		Headlight Socket (high beam)		-	-	-
Left Headlight Black Lead	Headlight Socket			Headlight Shell	Mounting Screw (ground)	-	-	-
No Number (strap)	Right Headlight Assembly	Munting Screw		Radiator Guard	Headlight Mounting Screw (ground)	-	-	-

WIRE LIST - CONTINUED

WIRE NUMBER/ COLOR	COMPONENT	FROM TERMINAL	COMMON WITH	COMPONENT	TO TERMINAL	COMMON WITH	BULKHEAD CONNECTOR	
							NAME	PIN
No Number (strap)	Left Headlight Assembly	Mounting Screw	-	Radiator Guard	Headlight Mounting Screw (ground)	-	-	-
Right Di- rectional Signal and Mark- er Light Blue Lead	Wire 012	Connector	-	Right Di- rectional Signal and Marker Light As- sembly (marker lights)	-	-	-	-
Right Di- rectional Signal and Mark- er Light Orange Lead	Wire 001	Connector	-	Right Di- rectional Signal and darker Light As- sembly (di- rectional signal)	-	-	-	-
Left Di- rectional Signal and Mark- er Light Blue Lead	Wire 012	Connector	-	Left Direc- tional Sig- nal and Marker Light As- sembly (marker lights)	-	-	-	-
Left Di- rectional Signal and Mark- er Light, Orange Lead	Wire 002	Connector	-	Left Direc- tional Sig- nal and Marker Light As- sembly (di- rectional signal)	-	-	-	-

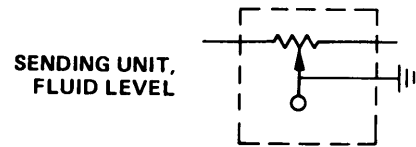
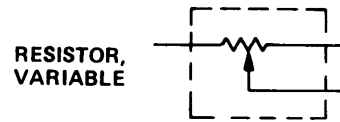
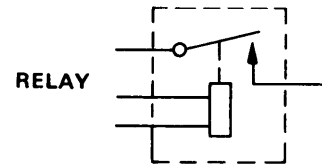
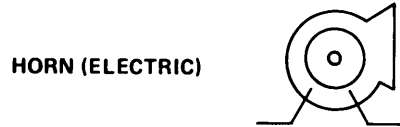
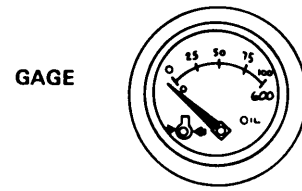
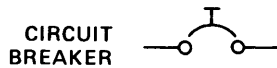
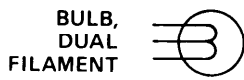
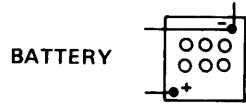
WIRE LIST - CONTINUED

WIRE NUMBER COLOR	COMPONENT	FROM TERMINAL	COMMON WITH	COMPONENT	TO TERMINAL	COMMON WITH	BULKHEAD CONNECTOR	
							NAME	PTN
Right Taillight Brown Lead	Wire 004	Connector	-	Right Tail- light As- sembly (di- rectional signal)	-	-	-	-
Right Taillight Red Lead	Wire 008	Connector	-	Right Tail- light As- sembly (taillight)	-	-	-	-
Left Taillight Brown Lead	Wire 003	Connector	-	Left Tail- light As- sembly (di- rectional signal)	-	-	-	-
Left Taillight Red Lead	Wire 008	Connector	-	Left Tail- light As- sembly (taillight)	-	-	-	-
Right Blackout Taillight Lead 23	Wire 680	Connector	-	Right Blackout Taillight Assembly (blackout taillight)	-	-	-	-
Right Blackout Taillight Lead 24	Wire 678	Connector	-	Right Blackout Taillight Assembly (blackout stoplight)	-	-	-	-
Left Blackout Taillight Lead 23	Wire 680	Connector	-	Left Blackout Taillight Assembly blackout taillight)	-	-	-	-

WIRE LIST - CONTINUED

WIRE NUMBER/ COLOR	COMPONENT	FROM TERMINAL	COMMON WITH	COMPONENT	TO TERMINAL	COMMON WITH	BULKHEAD CONNECTOR	
							NAME	PIN
Left Blackout Taillight Lead 24	Wire 678	Connector		Left Blackout Taillight Assembly (blackout stoplight)	-	-	-	-
Towing Kit Red Wire	Primary Stoplight Switch	-	005 005	Towing Kit Stoplight Switch	-	-	-	-
Towing Kit Brown Wire	Primary Stoplight Switch		009 009	Towing Kit Stoplight Switch	-	-	-	-

**Section II. ELECTRICAL SCHEMATIC SYMBOLS**



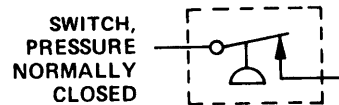
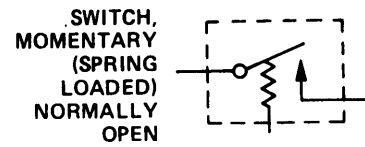
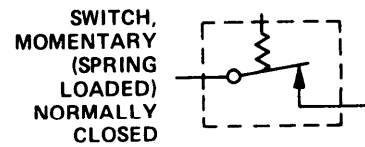
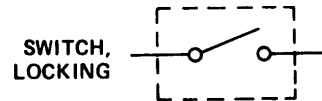
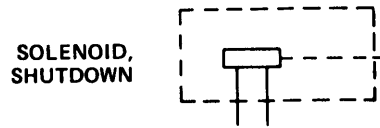
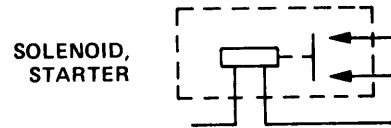
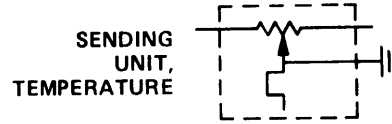
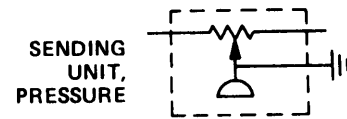
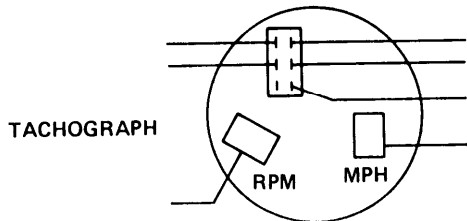
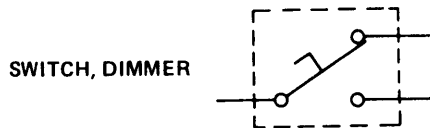
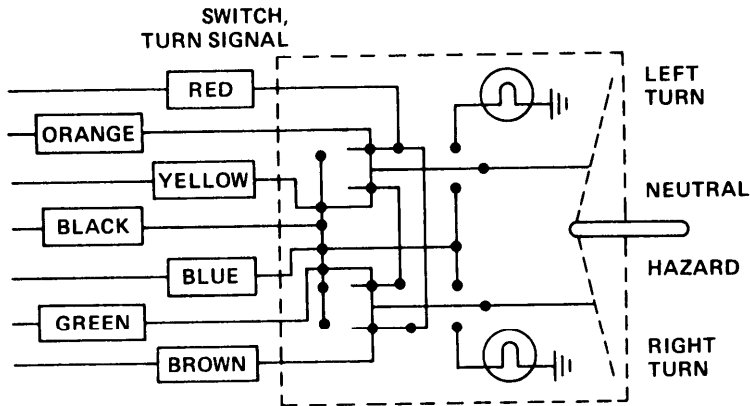
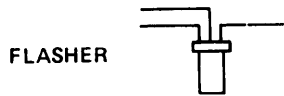
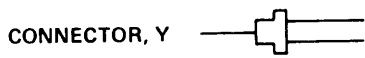
CONNECTOR,  
TRAILER

PIN	WIRE	MIL. CODE
A	680	24-484
B	003	22-461
C	680	24-483
D	435	90
E	012	21-489
F	678	23
G	680	490
H	004	22-460
J	665	37
K	435	90
L		53
M		53

CONNECTOR,  
BULKHEAD

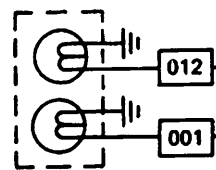
HEADLIGHT	
PIN	WIRE
A	006
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C	006
D	007
E	012
F	001
G	679
H	002

**ELECTRICAL SCHEMATIC SYMBOLS - CONTINUED**

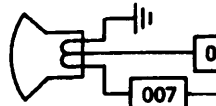




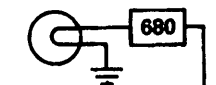
RIGHT DIRECTIONAL  
SIGNAL AND  
SIDE MARKER  
LIGHT



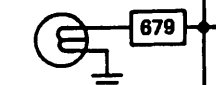
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HEADLIGHT



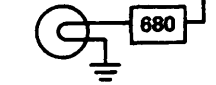
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BLACKOUT  
MARKER  
LIGHT



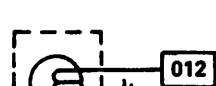
BLACKOUT  
HEADLIGHT



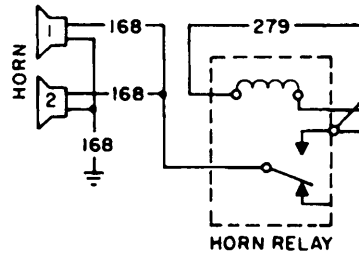
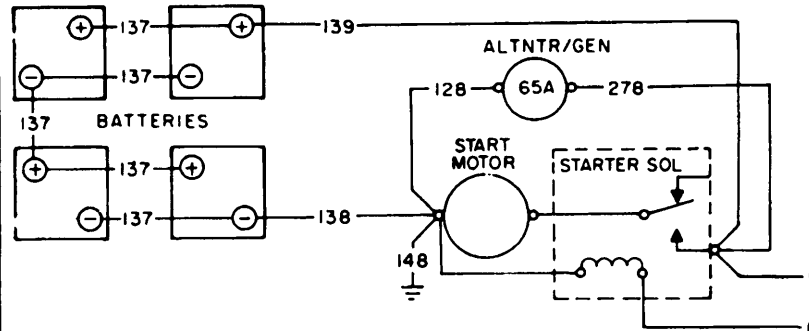
LEFT  
BLACKOUT  
MARKER  
LIGHT



LEFT  
HEADLIGHT

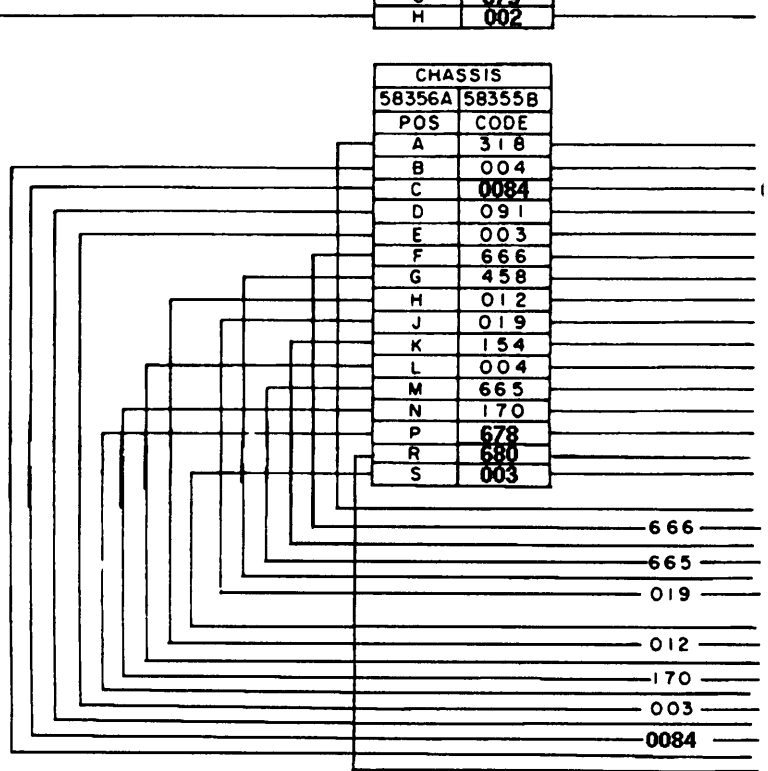


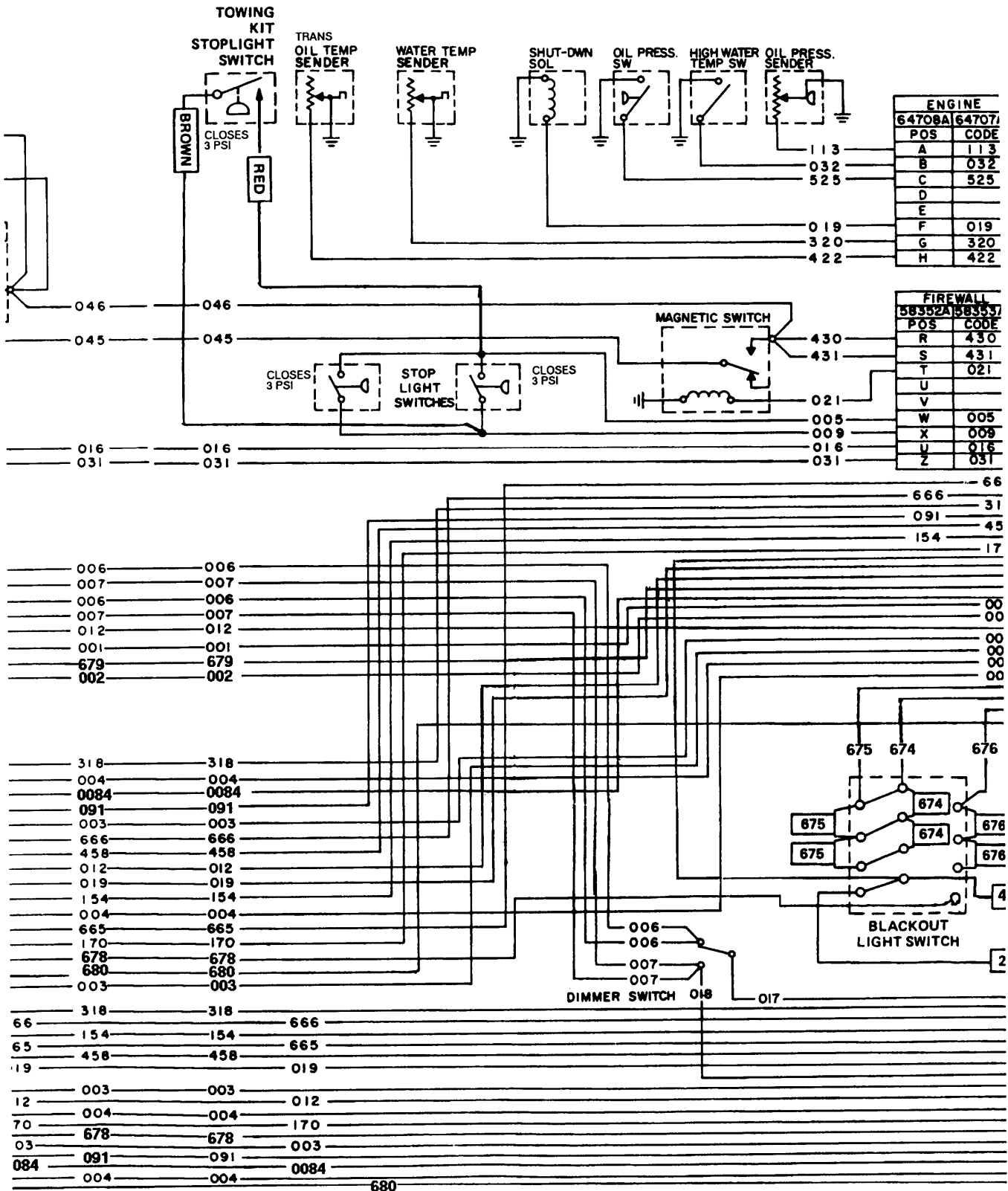
LEFT DIRECTIONAL  
SIGNAL AND  
SIDE MARKER  
LIGHT

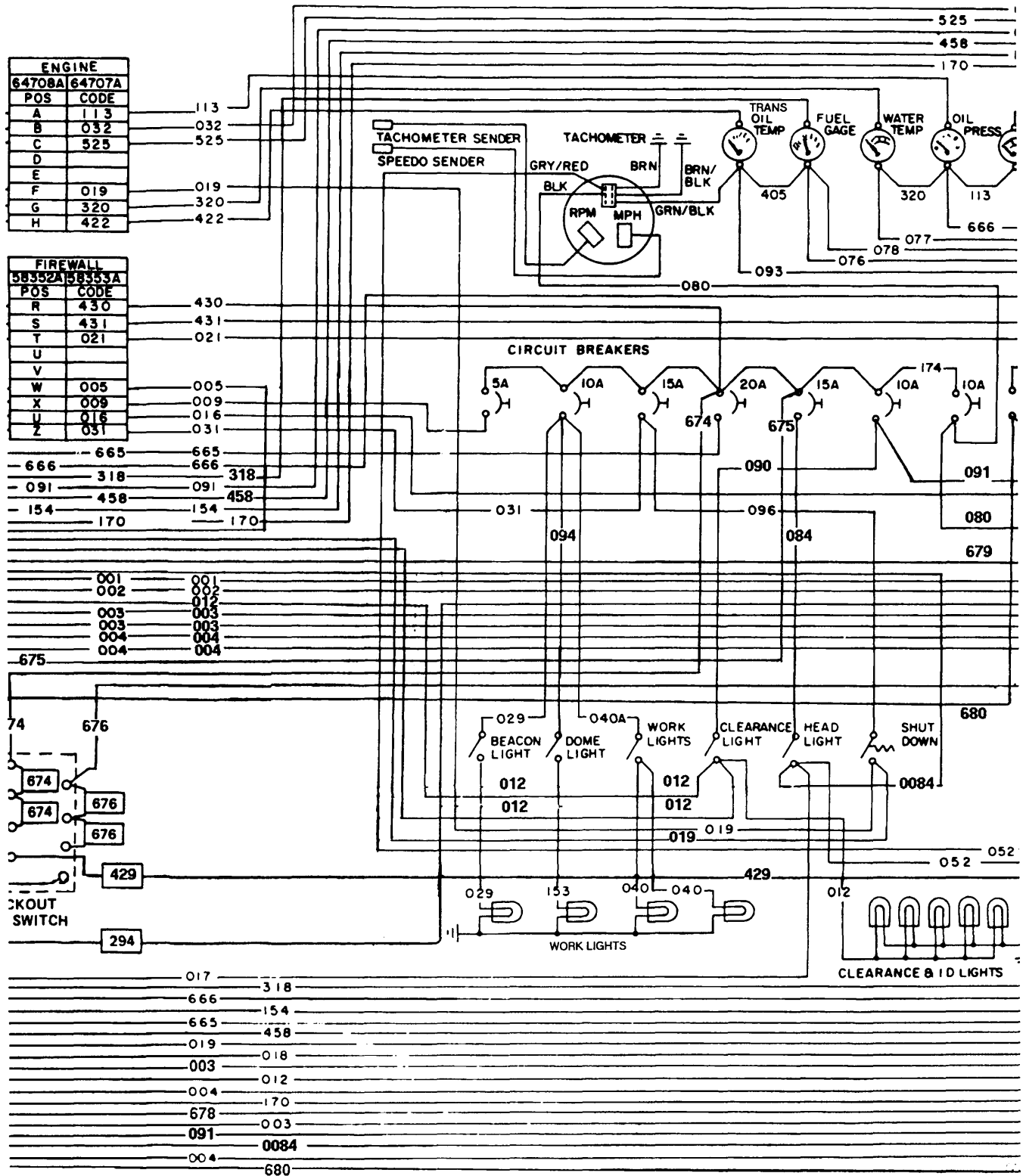


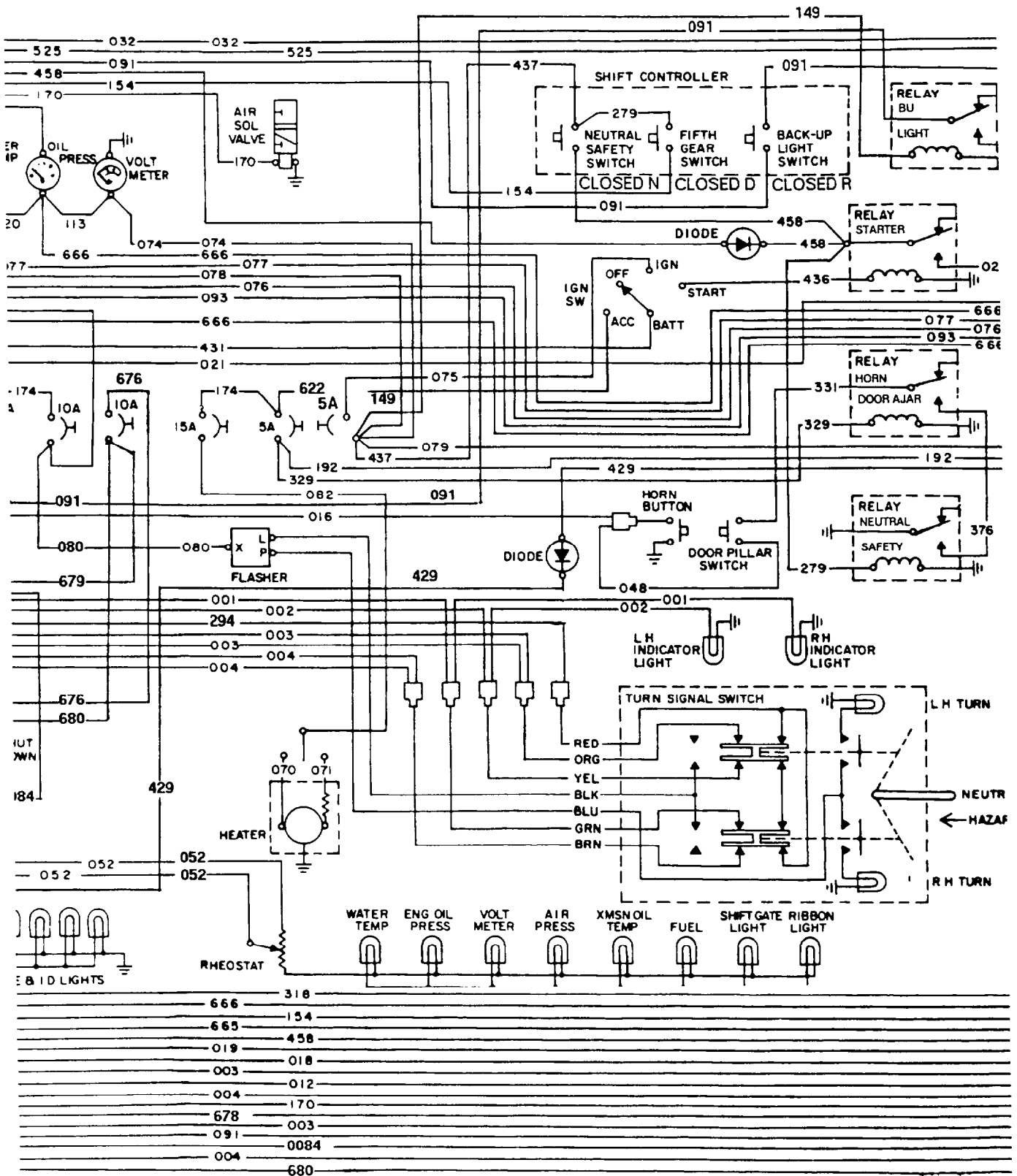
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58359A	58358B
POS	CODE
A	006
B	007
C	006
D	007
E	012
F	001
G	679
H	002

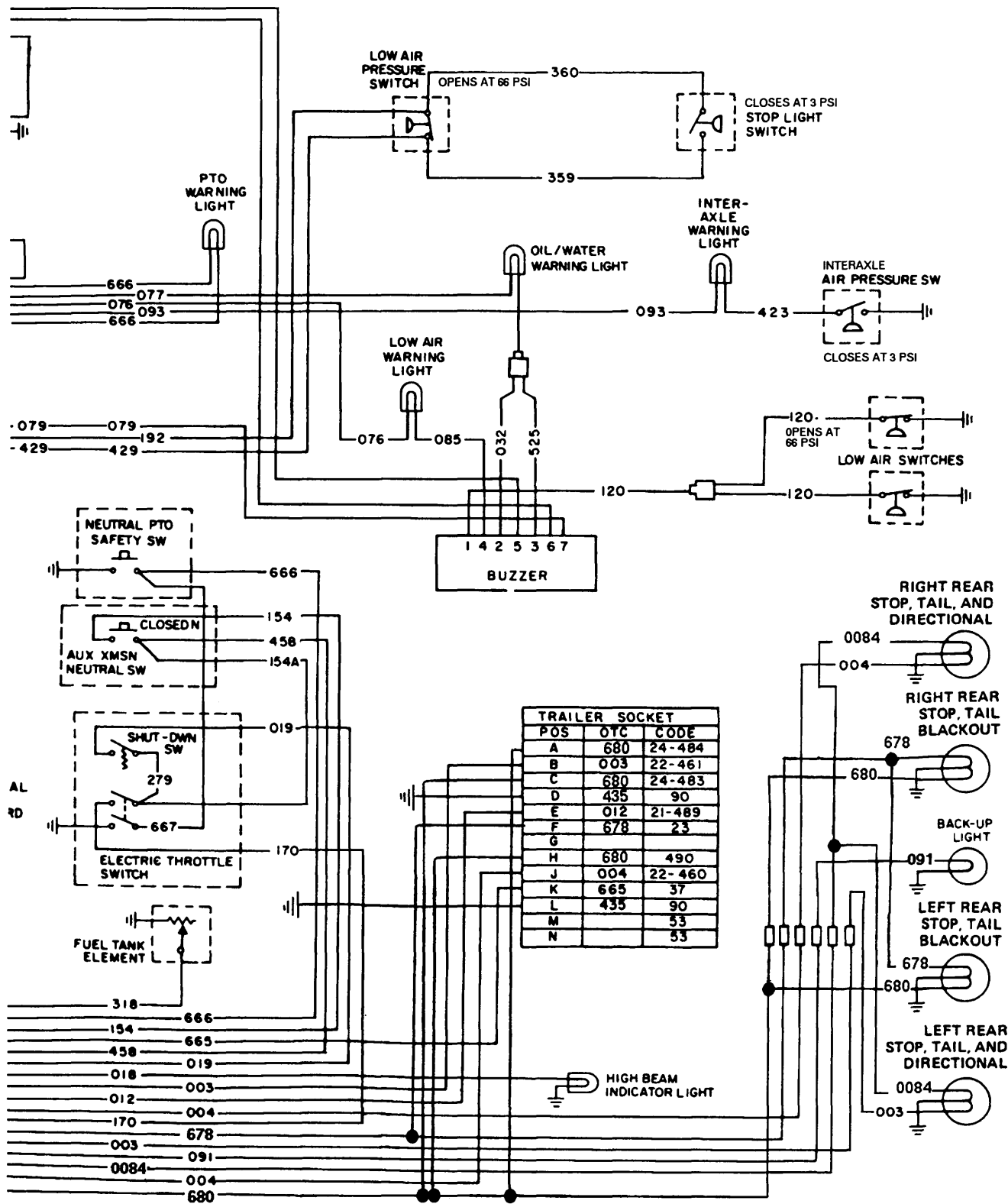
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58356A	58355B
POS	CODE
A	318
B	004
C	0084
D	091
E	003
F	666
G	458
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J	019
K	154
L	004
M	665
N	170
P	678
R	680
S	003





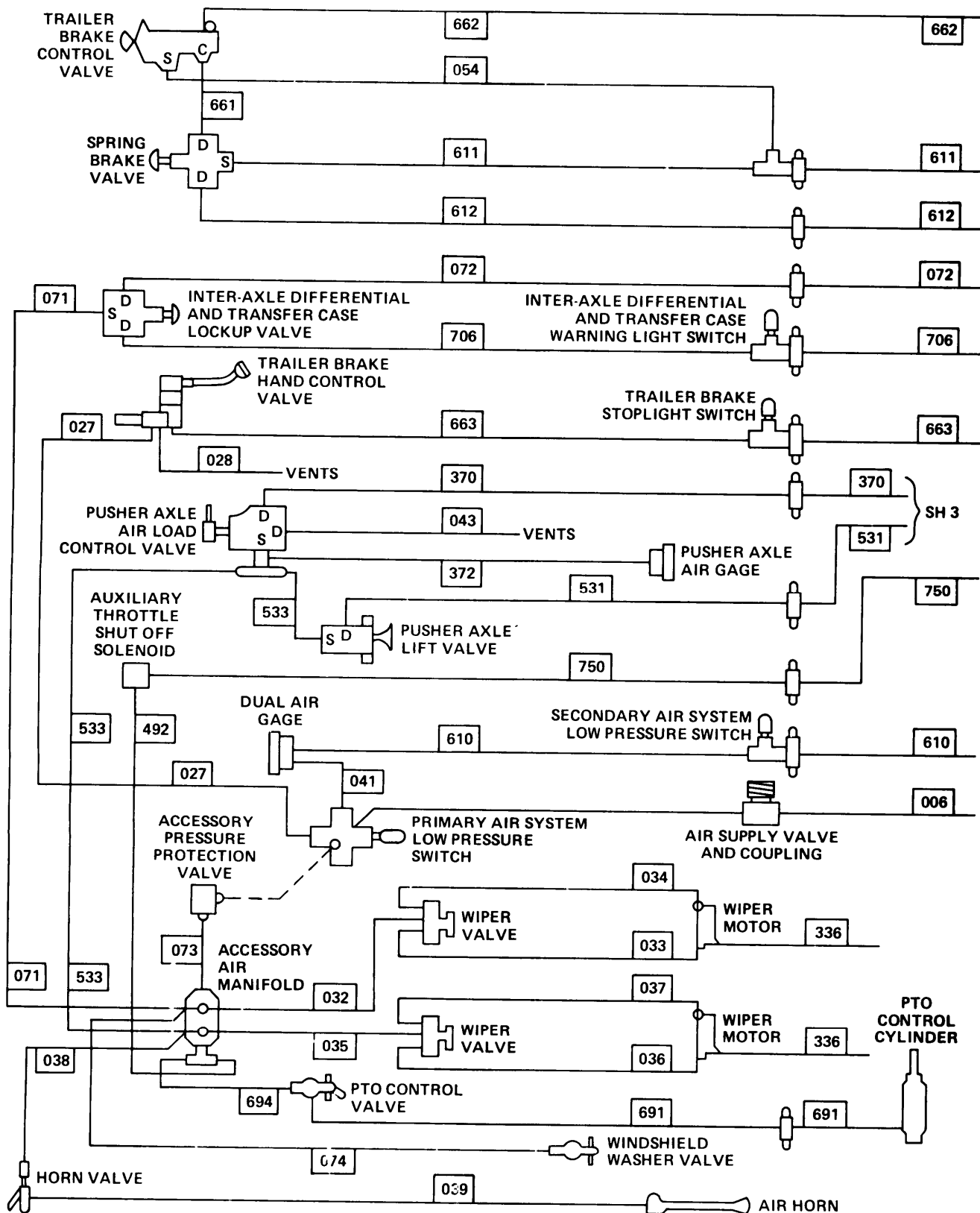








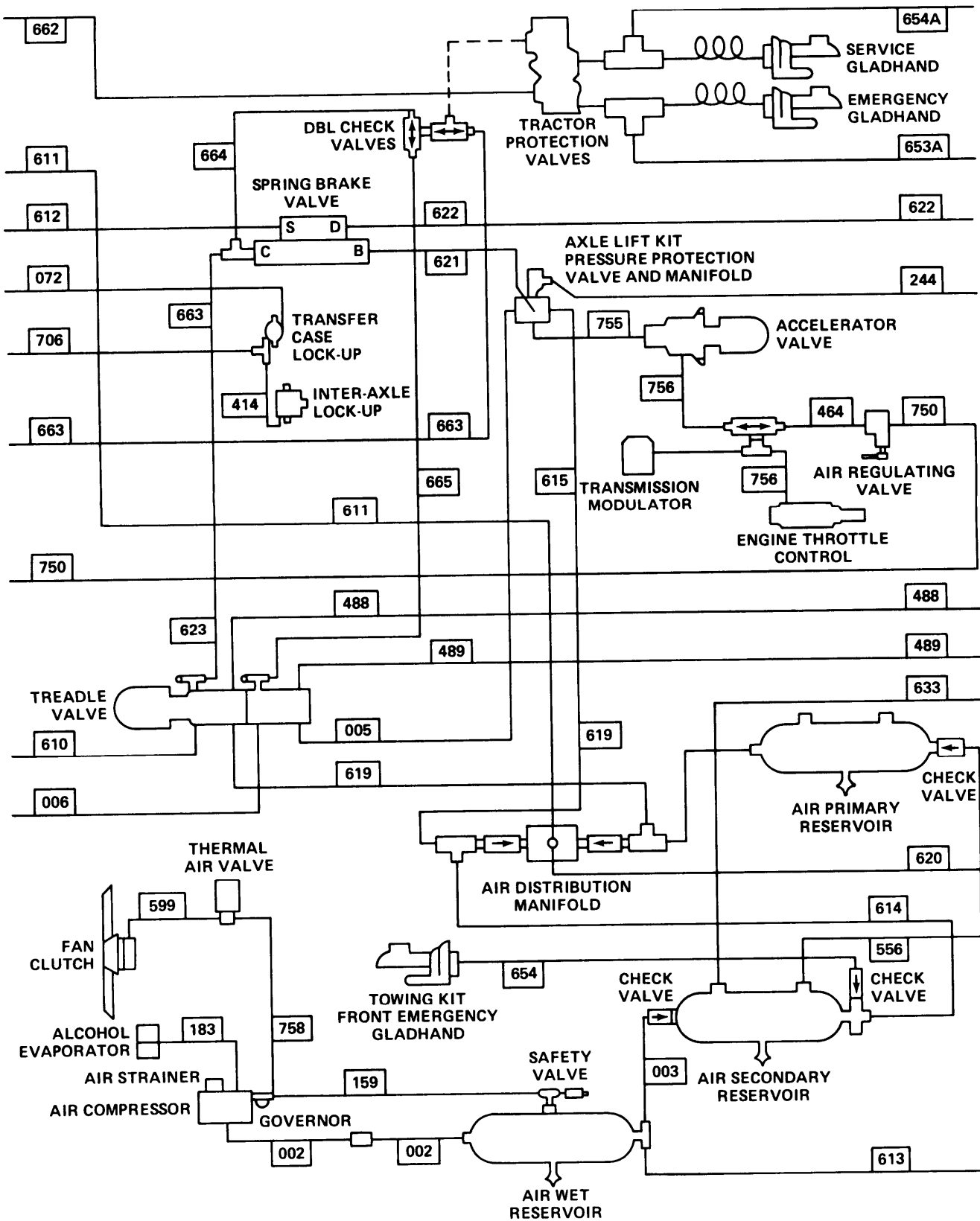
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Air Schematic (Sheet 1 of 3)

T A 2 4 0 8 4 8

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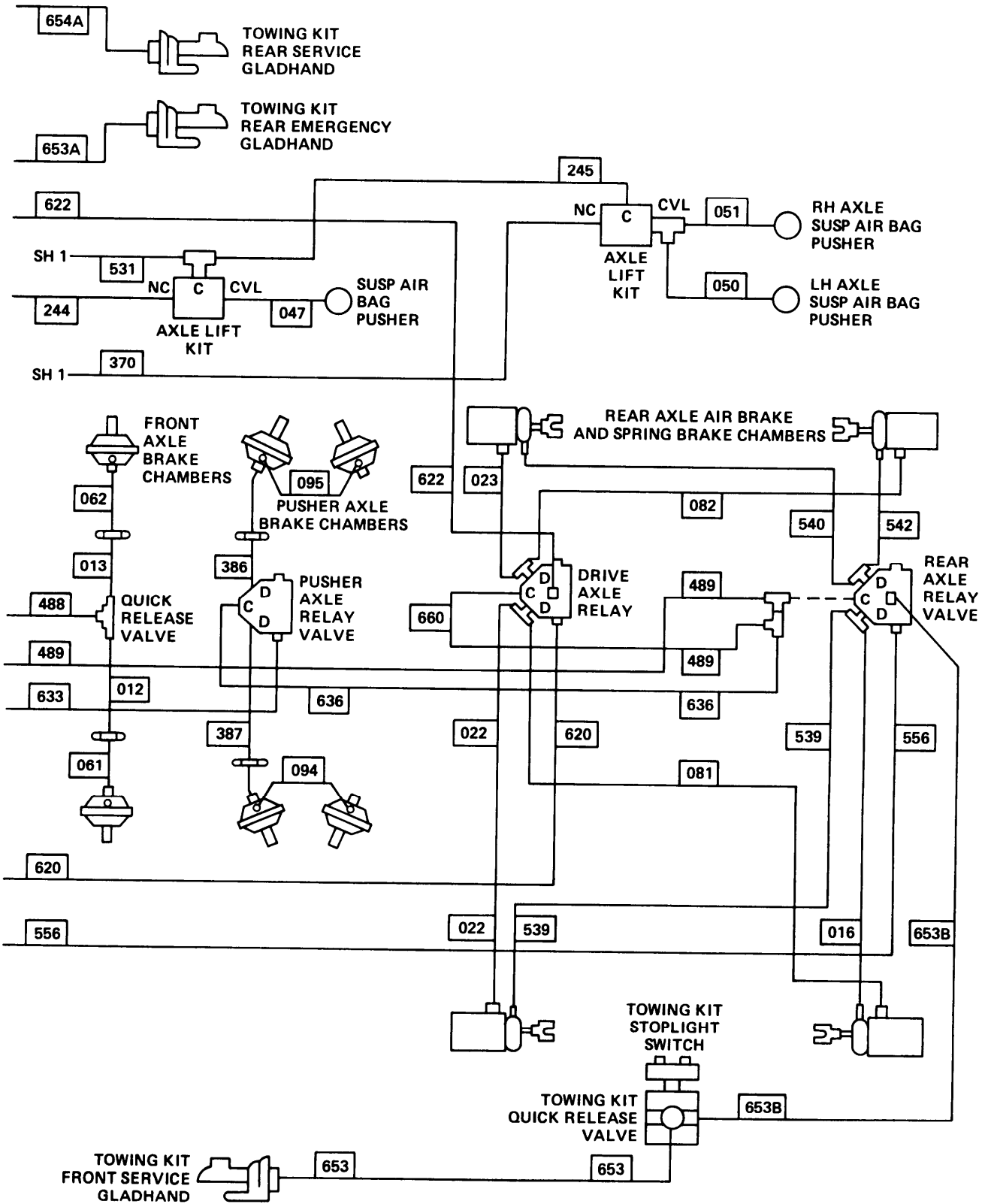


Air Schematic (Sheet 2 of 3)

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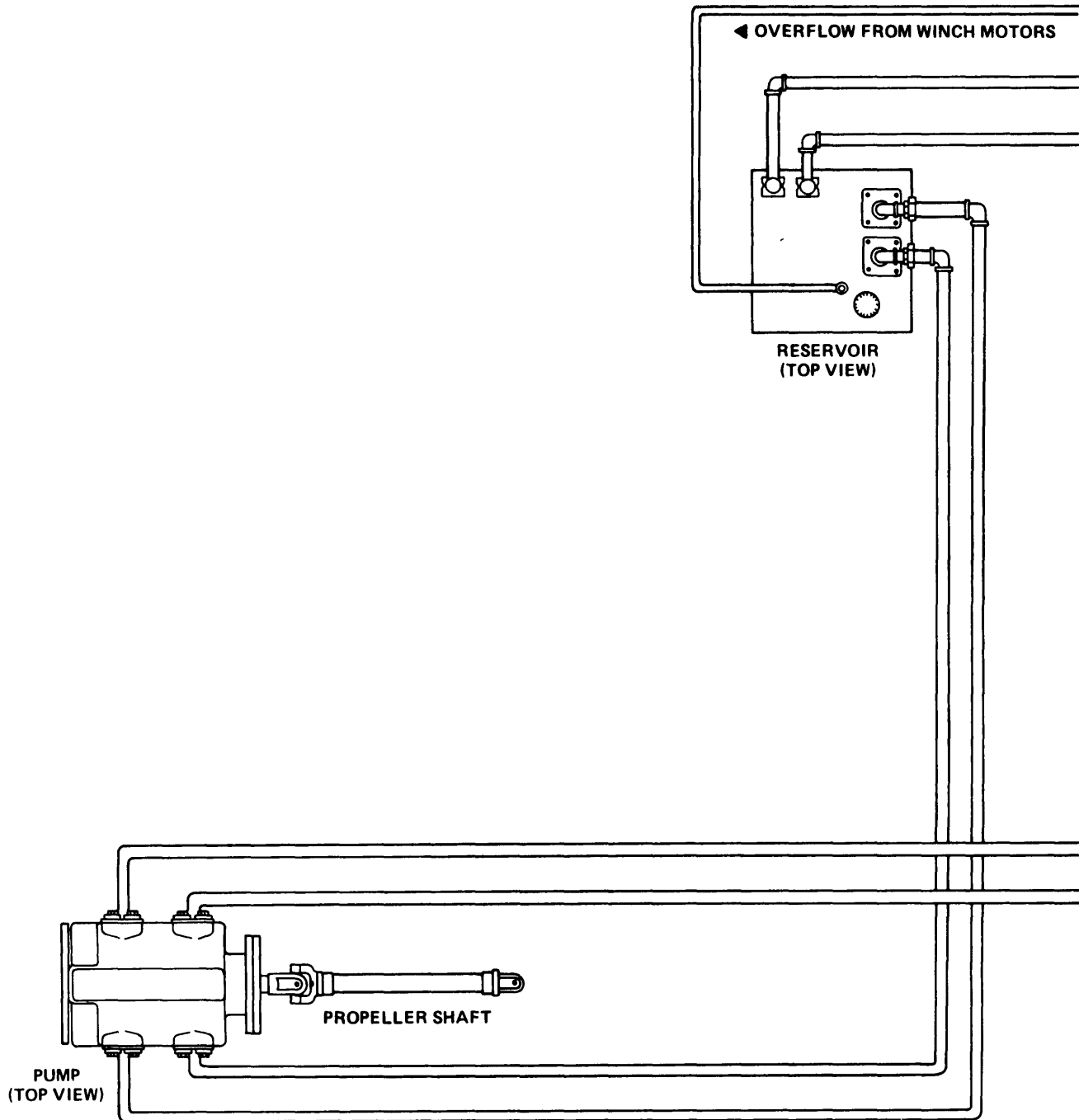


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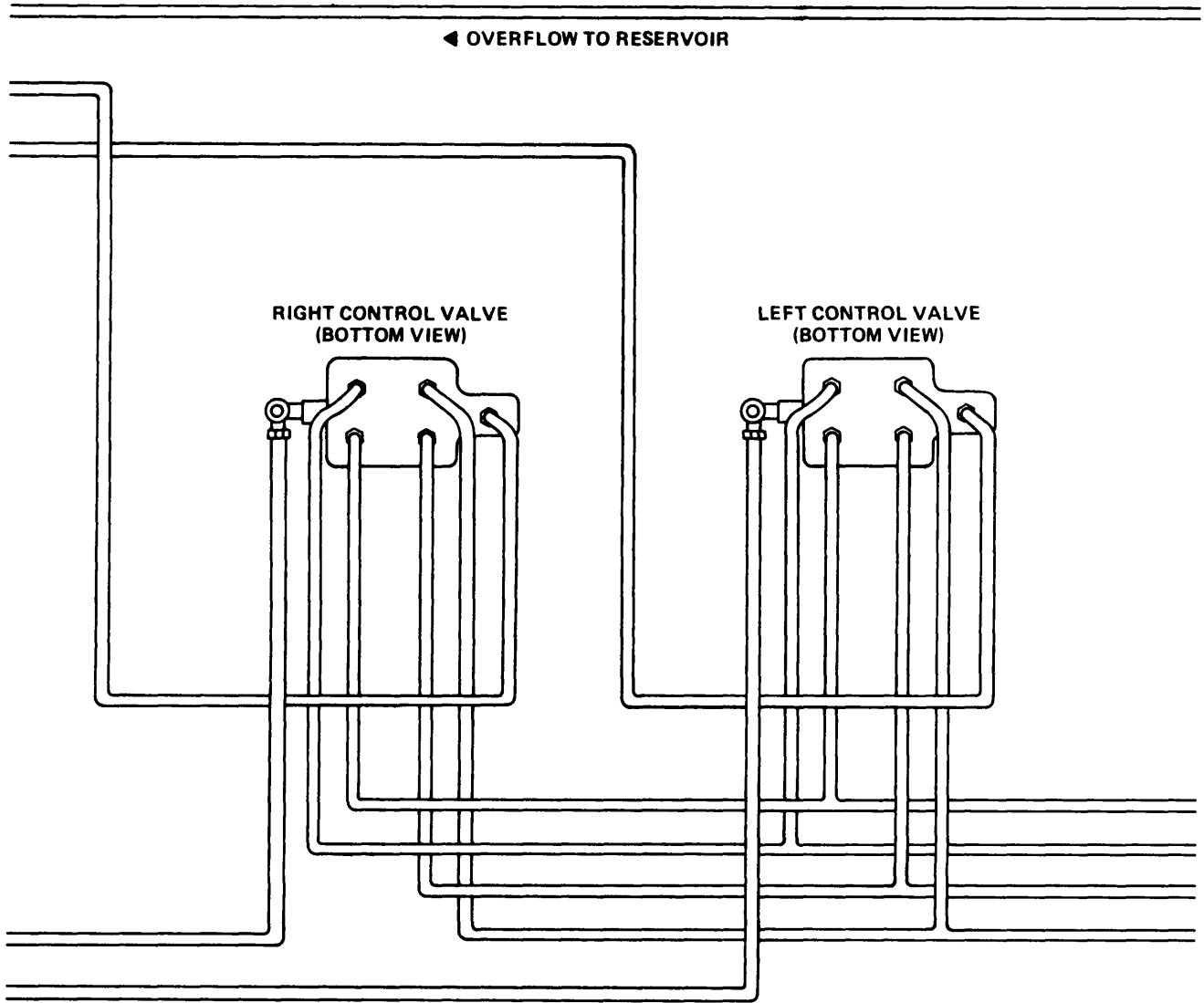
SCHEMATICS - CONTINUED



Hydraulic Schematic (Sheet 1 of 3)

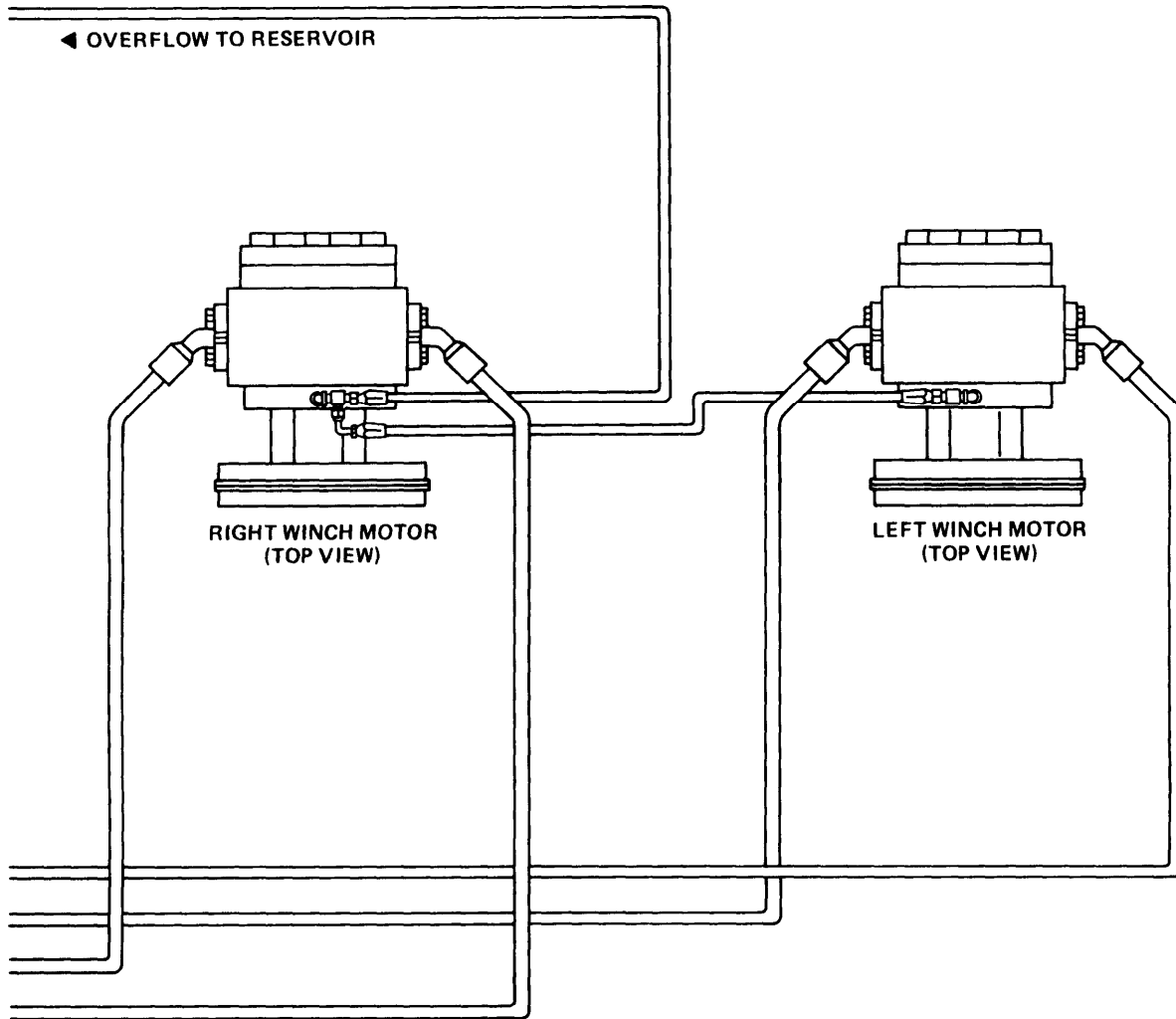
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**SCHEMATICS - CONTINUED**



Hydraulic Schematic (Sheet 2 of 3)

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TA240853

## GLOSSARY

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### Section I. ABBREVIATIONS

BII	Basic Issue Items
C-HET	Commercial Heavy Equipment Transport
EIR	Equipment Improvement Request
FGC	Functional Group Code
FSCM	Federal Supply Code for Manufacturers
gal	Gallon
HET	Heavy Equipment Transport
kPa	Kilopascals
kg	Kilograms
km	Kilometers
lb	Pound
LO	Lubrication Order
MAC	Maintenance Allocation Chart
MOD	Modification
MWO	Maintenance Work Order
N•m	Newton Meters
NSN	National Stock Number
psi	Pounds per square inch
pt	Pint
qt	Quart
rad	Radians
RPSTL	Repair Parts and Special Tools List
STD	Standard
TAMMS	The Army Maintenance Management System
TACOM	US Army Tank Automotive Command
TMDE	Test, Measurement, and Diagnostic Equipment
TOE	Table of Organization and Equipment.

### Section II. DEFINITION OF UNUSUAL TERMS

**Airbrakes.** Brake system where compressed air, controlled by driver operated valve, provides force to apply brakes.

**Air Chamber.** Device in airbrake system which turns air pressure into mechanical force to apply brakes.

## Section II. DEFINITION OF UNUSUAL TERMS - CONTINUED

Blind Rivet. Hollow rivet with ball-headed nail through its center. This rivet is installed by special tool which pulls on nail, expanding unflanged end of rivet securing it, and then breaks off nail.

Brinnelling. Type of wear or damage to bearing characterized by many small dents or pits.

Diesel Engine. internal combustion engine in which fuel-air mixture is ignited by heat generated by compressing air-fuel mixture. Unlike gasoline engine where air-fuel mixture is ignited by electric spark.

Diode. Electronic device which allows electricity to flow in only one direction.

Fifth Wheel. Round coupling and support device mounted on truck tractor to pull semitrailer.

Optical Ribbon. Ribbon made up of glass fibers which carries light.

Pusher Axle. Truck or trailer axle which can be lowered to help support load and raised when not needed. Used on some roadways which cannot support full load per wheel.

Performed Packing. Round neoprene or synthetic rubber seal or gasket. Also known as an O-ring.

Quick Release Valve. Valve in airbrake system which allows air pressure used to apply brakes, to be exhausted near brake chambers rather than having to exhaust it back through treadle valve. Allows brakes to release more quickly.

Relay. Electrical device that allows small current to control larger current.

Relay Valve. Airbrake valve that allows pilot air, small in both volume and pressure, to control larger flow in volume or pressure.

RPSTL. Repair Parts and Special Tools List. Army parts catalog.

Semitrailer. Trailer where part of load is carried by towing vehicle.

Spring Brake Chamber. Device in airbrake system where brakes are normally applied by large spring while parking or during an air system failure. Spring is held back during driving by air system pressure. Spring brake chambers are installed as safety device in case of an air system failure, and to hold truck while parked.

TOE. Table of Organizational and Equipment. A listing of number and types of personnel and equipment required to makeup an army unit.

Transfer Case. Gearbox which drives drive shafts, which drive front and rear axles.

Treadle Valve. Valve in airbrake system which controls brakes by driver's foot pedal.

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TEAR ALONG PERFORATED LINE







**THE METRIC SYSTEM AND EQUIVALENTS**

**LINEAR MEASURE**

1 Centimeter=10 Millimeters=0.01 Meters=0.3937 Inches  
 1 Meter=100 Centimeters=1000 Millimeters=39.37 Inches  
 1 Kilometer=1000 Meters=0.621 Miles

**SQUARE MEASURE**

1 Sq Centimeter=100 Sq Millimeters=0.155 Sq Inches  
 1 Sq Meter=10,000 Sq Centimeters=10.76 Sq Feet  
 1 Sq Kilometer=1,000,000 Sq Meters=0.386 Sq Miles

**WEIGHTS**

1 Gram=0.001 Kilograms=1000 Milligrams=0.035 Ounces  
 1 Kilogram=1000 Grams=2.2 Lb  
 1 Metric Ton=1000 Kilograms=1 Megagram=1.1 Short Tons

**CUBIC MEASURE**

1 Cu Centimeter=1000 Cu Millimeters=0.06 Cu Inches  
 1 Cu Meter=1,000,000 Cu Centimeters=35.31 Cu Feet

**LIQUID MEASURE**

1 Milliliter=0.001 Liters=0.0338 Fluid Ounces  
 1 Liter=1000 Milliliters=33.82 Fluid Ounces

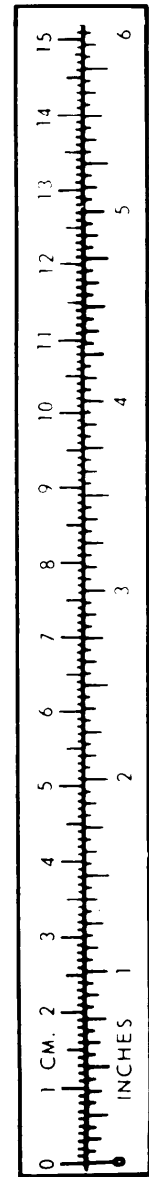
**TEMPERATURE**

$5/9 (°F - 32) = °C$   
 212° Fahrenheit is equivalent to 100° Celsius  
 90° Fahrenheit is equivalent to 32° Celsius  
 32° Fahrenheit is equivalent to 0° Celsius  
 $9/5 C° + 32 = F°$

**APPROXIMATE CONVERSION FACTORS**

<u>TO CHANGE</u>	<u>TO</u>	<u>MULTIPLY BY</u>
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 per Square Inch . . . . .	Kilopascals . . . . .	5.895
Miles per Gallon . . . . .	Kilometers per Liter . . . . .	0.425
Miles per hour . . . . .	Kilometers per Hour . . . . .	1.609

<u>TO CHANGE</u>	<u>TO</u>	<u>MULTIPLY BY</u>
Centimeters . . . . .	Inches . . . . .	0.394
Metres . . . . .	Feet . . . . .	3.280
Meters . . . . .	Yards . . . . .	1.094
Kilometers . . . . .	Miles . . . . .	0.621
Square Centimeters . . . . .	Square Inches . . . . .	0.155
Square Meters . . . . .	Square Feet . . . . .	10.764
Square Meters . . . . .	Square Yards . . . . .	1.196
Square Kilometers . . . . .	Square Miles . . . . .	0.385
Square 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 Square Inch . . . . .	0.145
Kilometers per Liter . . . . .	Miles per Gallon . . . . .	2.354
Kilometers per Hour . . . . .	Miles per Hour . . . . .	0.621



(FOR REFERENCE ONLY)

