TM 9-2350-277-20-5

TECHNICAL MANUAL

UNIT MAINTENANCE MANUAL

FOR
CARRIER, PERSONNEL, FULL TRACKED, ARMORED M113A3
2350-01-219-7577 (EIC AEY)

CARRIER, COMMAND POST, LIGHT TRACKED M577A3
2350-01-369-6085 (EIC AE7)

CARRIER, SMOKE GENERATOR, FULL TRACKED M1059A3
2350-01-369-6083 (EIC AFA)

CARRIER, MORTAR, 120-MM M121, SELF-PROPELLED M1064A3
2350-01-369-6082 (EIC AE8)

CARRIER, STANDARDIZED INTEGRATED COMMAND POST SYSTEM (SICPS) M1068A3
2350-01-369-6086 (EIC AFC)

CARRIER, MECHANIZED SMOKE OBSCURANT M58
2350-01-418-6654 (EIC 5CG)

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January 2001

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HEADQUARTERS DEPARTMENT OF THE ARMY WASHINGTON, D.C., 31 DECEMBER 2006

TECHNICAL MANUAL

UNIT MAINTENANCE MANUAL

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UNIT MAINTENANCE MANUAL

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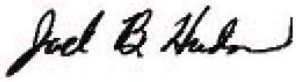

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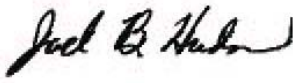

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TECHNICAL MANUAL

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DEPARTMENT OF THE ARMY
WASHINGTON, D.C., 02 January 2001

TECHNICAL MANUAL

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CHAPTER 23 — UNIT MAINTENANCE INSTRUCTIONS FOR MORTAR FIRE CONTROL SYSTEM

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CHAPTER 18

UNIT MAINTENANCE INSTRUCTIONS FOR HULL ACCESSORY ITEMS

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REPLACE TENT AND TENT CLAMPS (M577A3 ONLY) 0627 00

THIS WORK PACKAGE COVERS:

Removal (page 0627 00-1).
Installation (page 0627 00-2).

INITIAL SETUP:

Maintenance Level

Unit

References

See your -10

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Ramp lowered (see your -10)

Materials/Parts

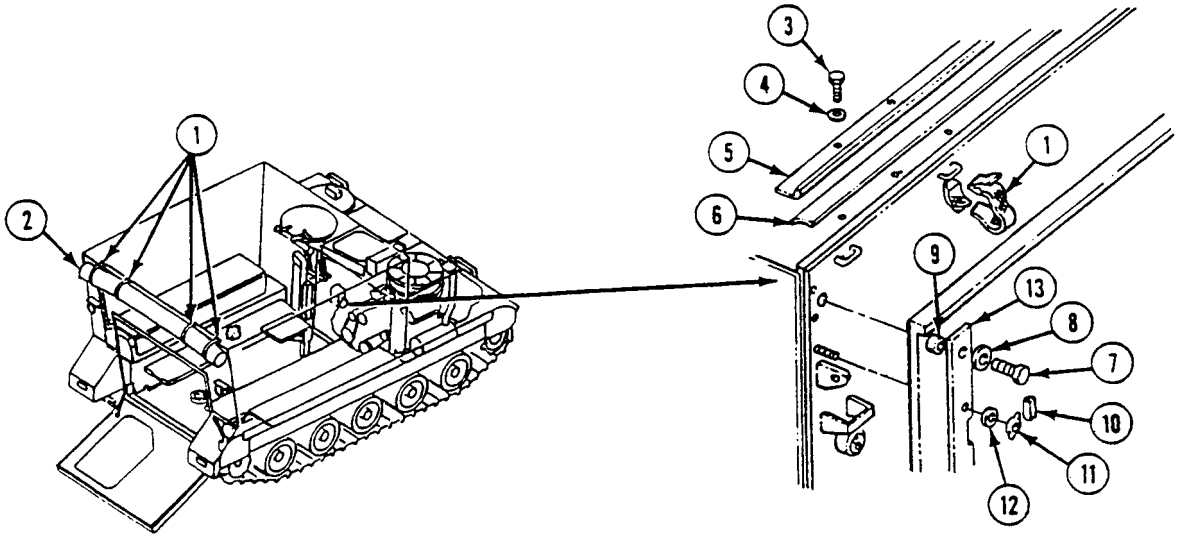
Spring Pin (6)

Personnel Required

Unit Mechanic
Helper

REMOVAL

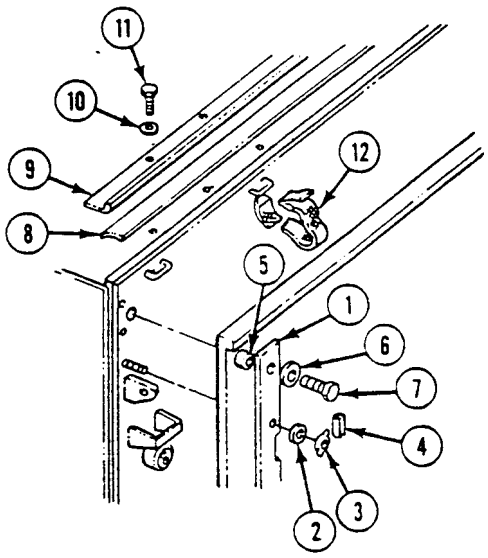
1. Release four straps (1). Remove tent (2) and straps from hull top plate.
2. Remove nine screws (3), washers (4), retainer strip (5), and rubber strip (6) from hull top plate.
3. Remove two screws (7), washers (8), and spacers (9) from rear bulkhead.
4. Remove six spring pins (10), wing nuts (11), washers (12), and two retainer strips (13) from rear bulkhead. Discard spring pins.



REPLACE TENT AND TENT CLAMPS (M577A3 ONLY) — Continued 0627 00

INSTALLATION

1. Place two retainer strips (1) on rear bulkhead. Secure with six washers (2) and wing nuts (3). Secure wing nuts with six new spring pins (4).
2. Install two spacers (5), washers (6), and screws (7) in rear bulkhead.
3. Place rubber strip (8) and retainer strip (9) on hull top plate. Secure with nine washers (10) and screws (11).
4. Place tent on hull top plate. Secure with four straps (12).



FOLLOW-THROUGH STEPS

1. Start engine (see your -10).
2. Raise and lock ramp (see your -10).
3. Stop engine (see your -10).

END OF TASK

REPLACE TENT AND FRAME MOUNTS (M577A3 ONLY) 0628 00

THIS WORK PACKAGE COVERS:

Removal (page 0628 00-1).
Installation (page 0628 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)
Torque wrench (WP 0926 00, Item 82)

Materials/Parts

Cotter Pin (2)
Locknut (4)

Personnel Required

Unit Mechanic

References

See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Ramp lowered (see your -10)
Tent frame removed from carrier (see your -10)

REMOVAL

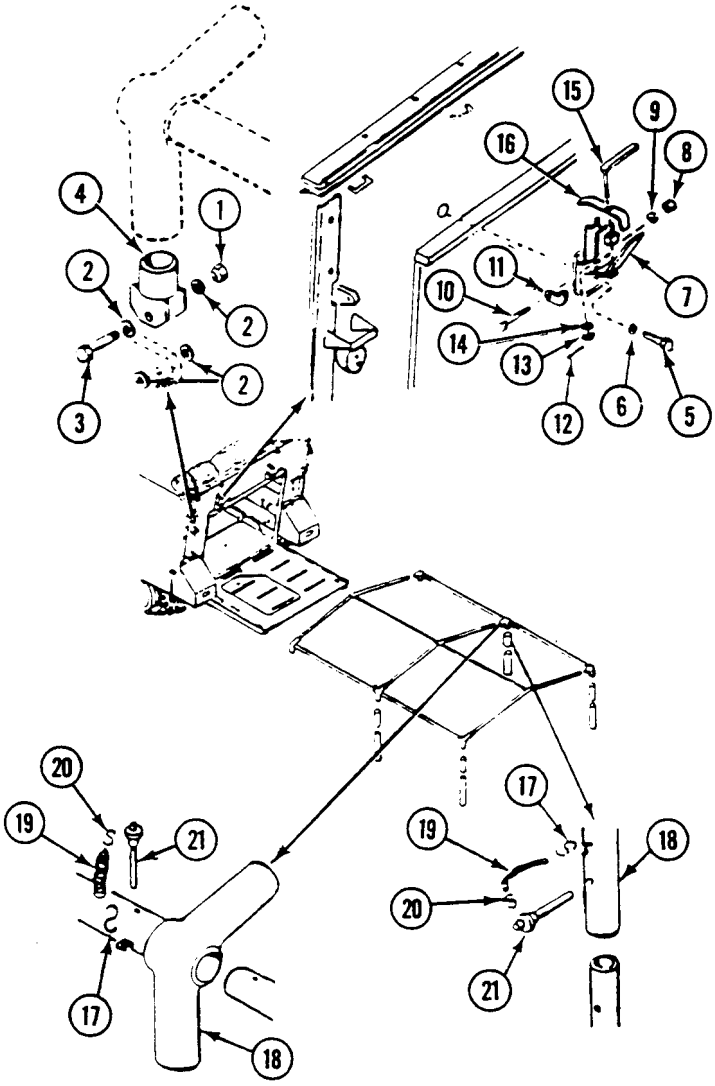
1. Remove two locknuts (1), eight washers (2), two screws (3), and two end fittings (4) from rear bulkhead lugs. Discard locknuts.
2. Remove four screws (5), washers (6), and two brackets (7) from rear bulkhead.
3. Remove two locknuts (8), washers (9), screws (10), and retainers (11) from brackets (7). Discard locknuts.
4. Remove two cotter pins (12), nuts (13), washers (14), hand screws (15), and clamps (16) from brackets (7). Discard cotter pins.

NOTE

There are six quick release pins and attaching chains on the frame assembly. Remove quick release pins and chains, as needed.

5. Open both ends of hook (17). Remove hook from bracket on frame (18) and from chain (19).

6. Open both ends of hook (20). Remove hook from chain (19) and quick release pin (21).

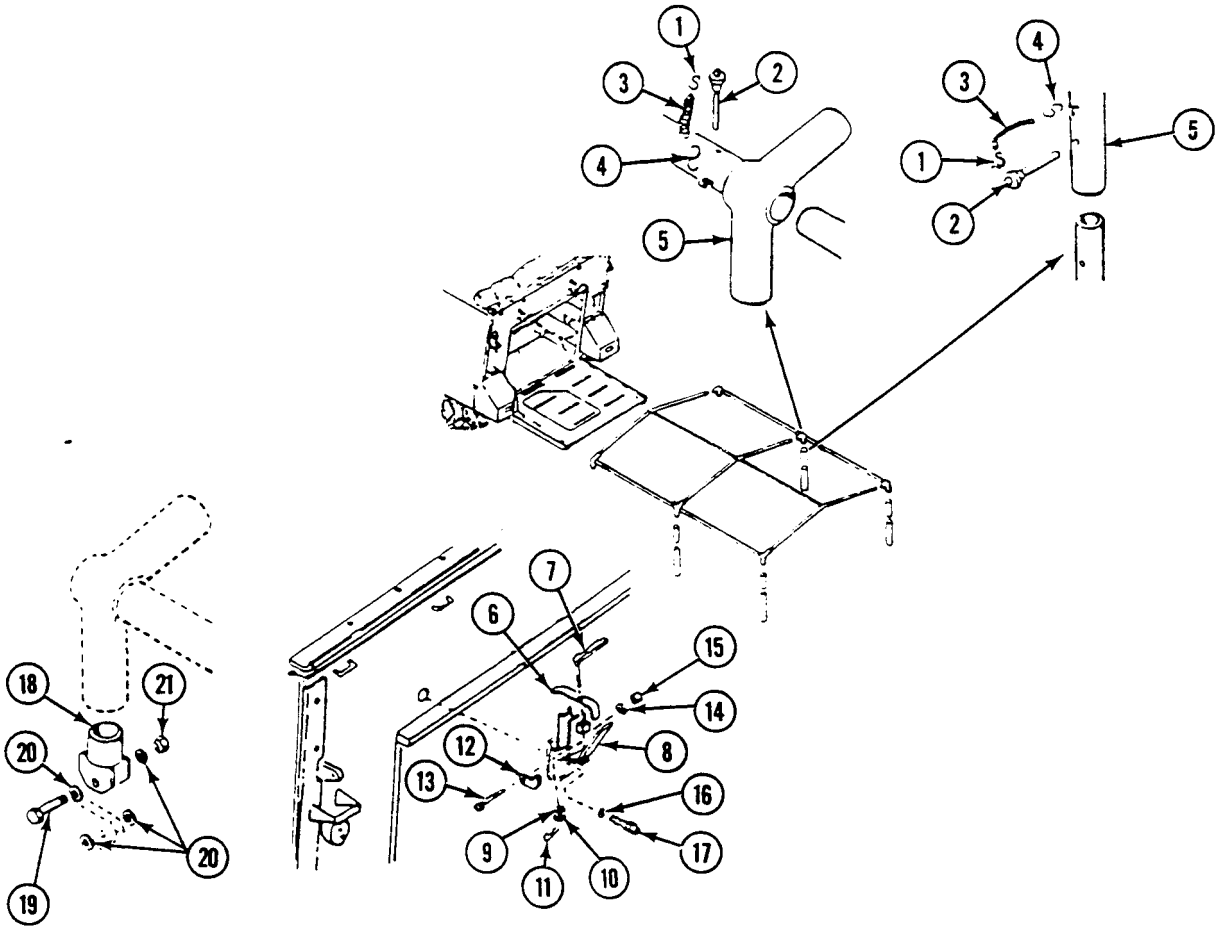


INSTALLATION

NOTE

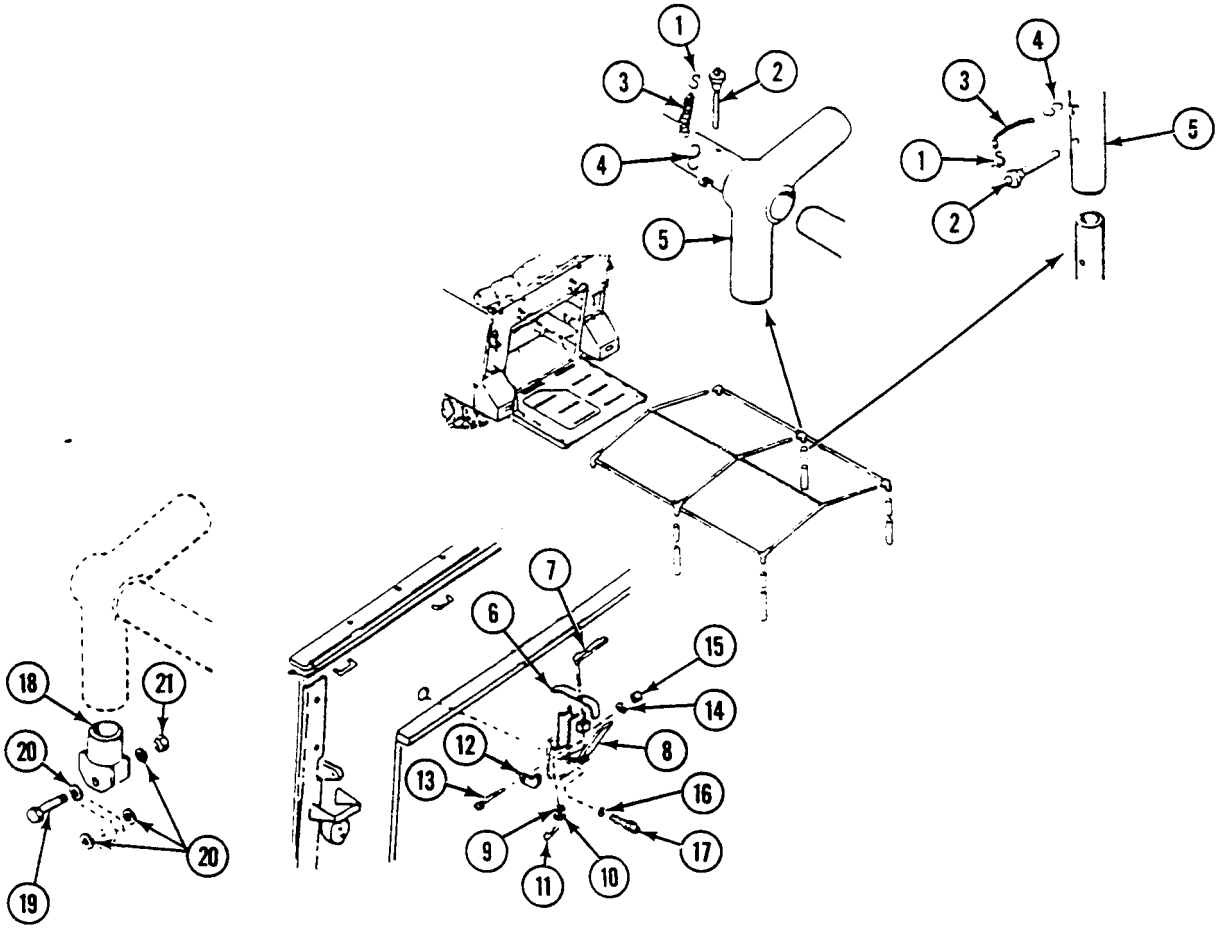
There are six quick release pins and attaching chains on the frame assembly. Install quick release pins and chains, as needed.

1. Install hook (1) on quick release pin (2) and chain (3). Squeeze both ends of hook to secure.
2. Install hook (4) on chain (3) and bracket on frame (5). Squeeze both ends of hook to secure.
3. Install two clamps (6) and hand screws (7) on brackets (8). Secure with two washers (9), nuts (10), and new cotter pins (11).
4. Install two retainers (12) on brackets (8). Secure with two screws (13), washers (14), and new locknuts (15).



REPLACE TENT AND FRAME MOUNTS (M577A3 ONLY) — Continued **0628 00**

5. Align two brackets (8) on rear bulkhead. Secure with four washers (16) and screws (17). TIGHTEN SCREWS TO 60-65 LB-FT (81-88 N·m) TORQUE.
6. Align two end fittings (18) with rear bulkhead lugs. Secure with two screws (19), eight washers (20), and two new locknuts (21).



FOLLOW-THROUGH STEPS

1. Install tent frame on carrier (see your -10).
2. Start engine (see your -10).
3. Raise and lock ramp (see your -10).
4. Stop engine (see your -10).

END OF TASK

REPLACE BLACKOUT CURTAIN AND FRAME (M577A3 AND M1068A3 ONLY) 0629 00

THIS WORK PACKAGE COVERS:

Removal (page 0629 00-1).
Installation (page 0629 00-2).

INITIAL SETUP:

Maintenance Level
Unit

Personnel Required
Unit Mechanic

Tools and Special Tools
General Mechanic's Tool Kit (WP 0926 00, Item 65)

References
See your -10

Materials/Parts
Grommet
Locknut
Locknut (2)
Locknut (6)

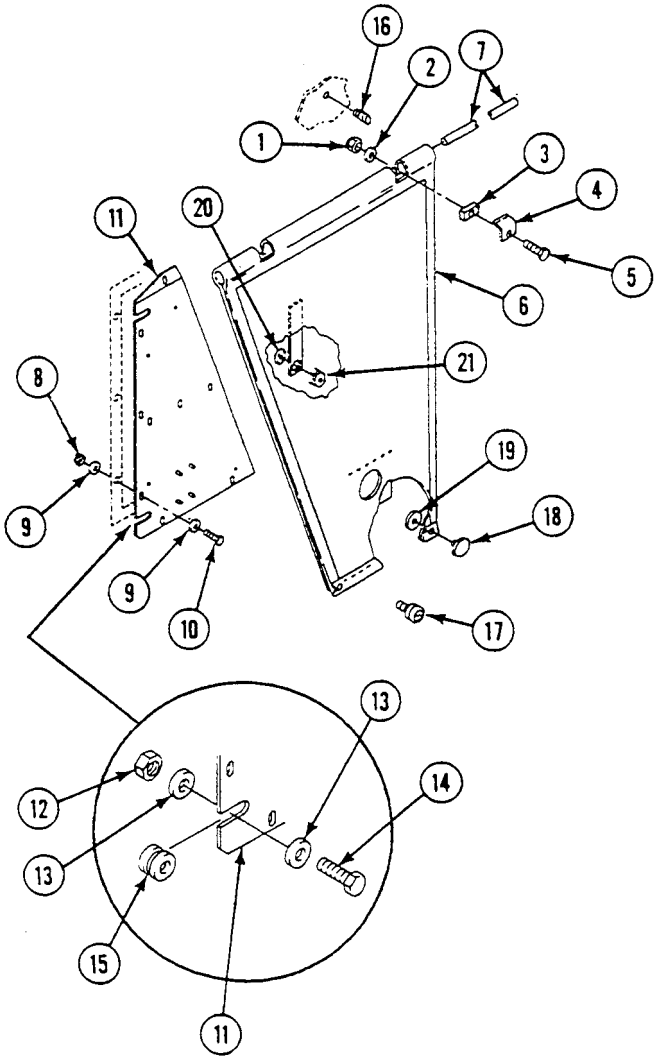
Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Ramp lowered (see your -10)

REMOVAL

1. Remove two locknuts (1), washers (2), blocks (3), clips (4), screws (5), and blackout curtain (6) from driver's compartment opening. Discard locknuts.
2. Remove rod (7) from curtain (6).
3. Remove six locknuts (8), twelve washers (9), six screws (10), and frame (11) from bulkhead and sponson. Discard locknuts.
4. Remove locknut (12), two washers (13), screw (14), and grommet (15) from frame (11). Discard grommet and locknut.
5. If damaged, remove two fasteners (16) from driver's compartment rear bulkhead.
6. Remove two studs (17) from lower frame and traverse beam in driver's compartment.
7. If needed, remove four buttons (18) and sockets (19) from curtain (6).

REPLACE BLACKOUT CURTAIN AND FRAME (M577A3 AND M1068A3 ONLY) — Continued **0629 00**

8. If needed, remove two eyelets (20) and washers (21) from curtain (6).

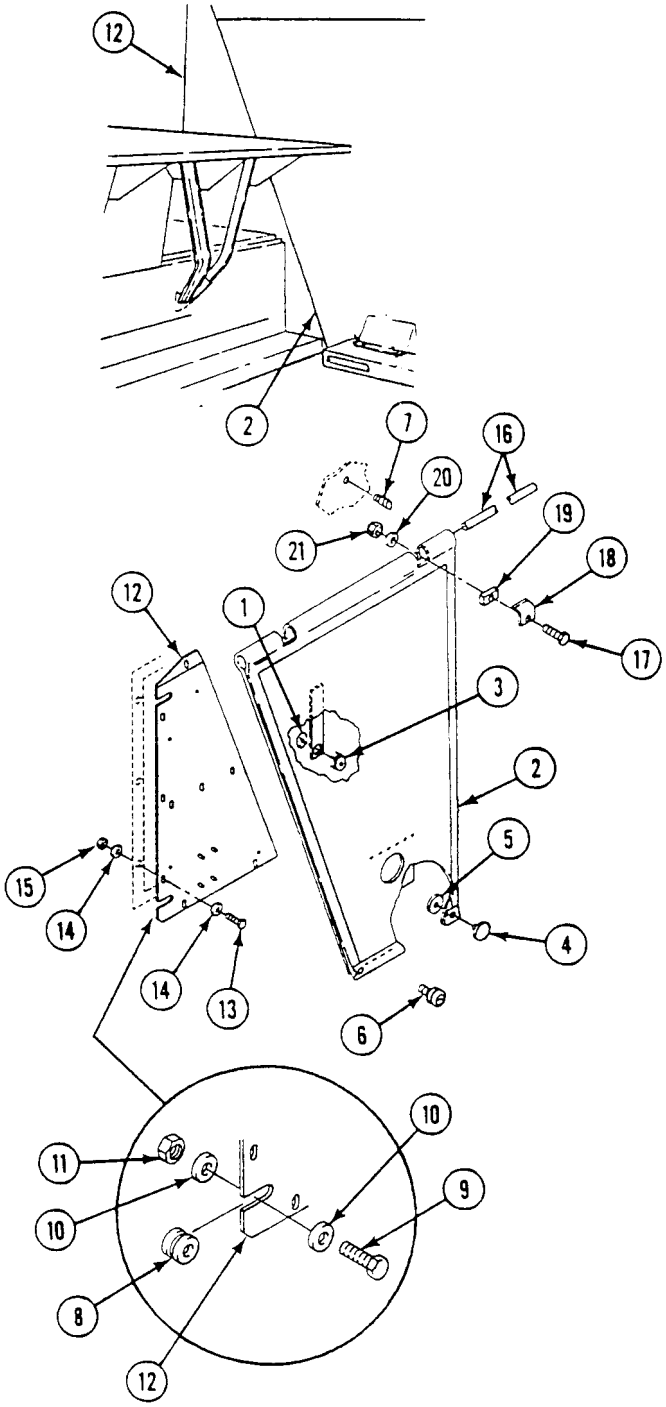


INSTALLATION

1. If removed, place two eyelets (1) on curtain (2). Secure with two washers (3).
2. If removed, place four buttons (4) on curtain (2). Secure with four sockets (5).
3. Install two studs (6) on lower frame and traverse beam in driver's compartment.
4. If removed, install two fasteners (7) on rear bulkhead in driver's compartment.
5. Install new grommet (8), screw (9), two washers (10), and new locknut (11) on frame (12).
6. Align frame (12) with bulkhead and sponson. Secure with six screws (13), twelve washers (14), and six new locknuts (15).
7. Install rod (16) in curtain (2).

REPLACE BLACKOUT CURTAIN AND FRAME (M577A3 AND M1068A3 ONLY) — Continued **0629 00**

8. Align curtain (2) with driver's compartment. Secure with two screws (17), clips (18), blocks (19), washers (20), and new locknuts (21).



REPLACE BLACKOUT CURTAIN AND FRAME (M577A3 AND M1068A3 ONLY) — Continued **0629 00**

FOLLOW-THROUGH STEPS

1. Start engine (see your -10).
2. Raise and lock ramp (see your -10).
3. Stop engine (see your -10).

END OF TASK

REPLACE FRONT BILGE PUMP PIPES 0631 00

THIS WORK PACKAGE COVERS:

Removal (page 0631 00-1).
Installation (page 0631 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts

Gasket
Grommet
Locknut (4)
Lockwasher (2)

Personnel Required

Unit Mechanic

References

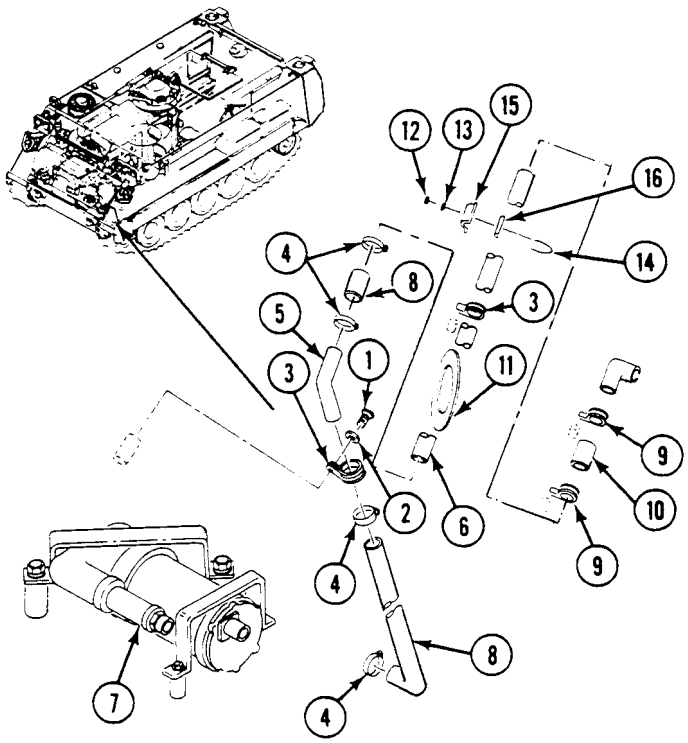
See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Trim vane lowered (see your -10)
Power plant access door open (see your -10)
Hull front access cover removed (WP 0449 00)
Front bilge pump strainer removed (WP 0632 00)

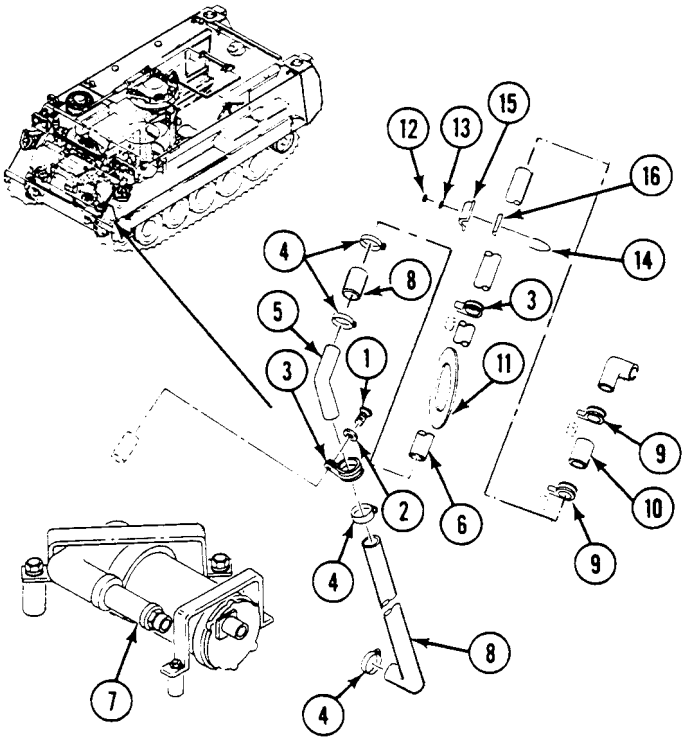
REMOVAL

1. Remove two screws (1), lockwashers (2), and clamps (3) from two bulkhead weldnuts. Discard lockwashers.



REPLACE FRONT BILGE PUMP PIPES — Continued 0631 00

2. Loosen four clamps (4). Remove lower pipe (5) from upper pipe (6) and bilge pump (7). Remove clamp (3), clamps (4), and two hoses (8) from pipe (5).
3. Loosen two clamps (9). Slide pipe (6) from discharge outlet and remove pipe from driver's compartment. Remove clamp (3), clamps (9), and hose (10) from pipe.
4. Remove grommet (11) from driver's compartment bulkhead. Discard grommet.
5. Remove four locknuts (12), washers (13), two U-bolts (14), sight glass (15), and gasket (16) from pipe (6). Discard gasket and locknuts.

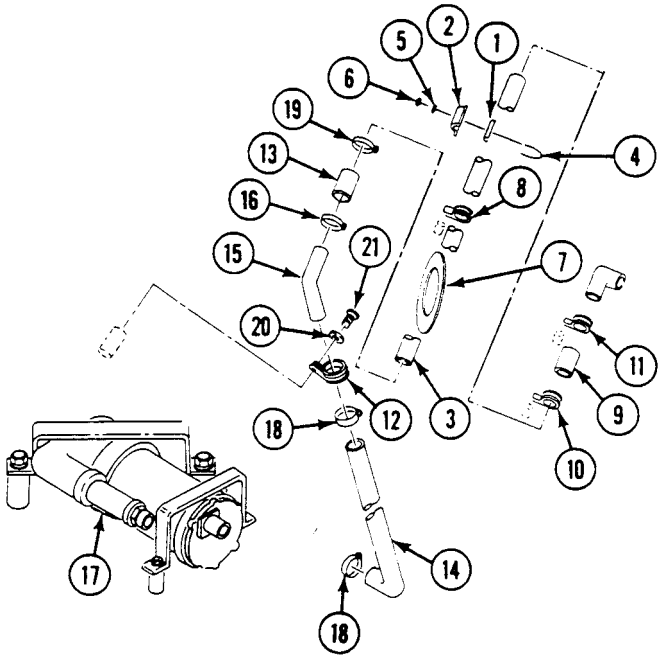


INSTALLATION

NOTE

Do not overtighten nuts. Sight glass will break.

1. Remove backing from new gasket (1). Install gasket, sticky side down, and sight glass (2) on upper pipe (3). Secure with two U-bolts (4), four washers (5), and new locknuts (6). Tighten nuts until gasket is compressed.
2. Install new grommet (7) in driver's compartment bulkhead.
3. Install clamp (8) and hose (9) on upper pipe (3). Secure hose to pipe with clamp (10).
4. Slide pipe (3) through grommet (7) and install hose (9) on discharge outlet. Secure with clamp (11).
5. Install clamp (12) and two hoses (13) and (14) on lower pipe (15). Secure hoses to pipe with two clamps (16).
6. Install hose (14) on bilge pump (17). Secure with clamp (18).
7. Install hose (13) on upper pipe (3). Secure with clamp (19).
8. Align two clamps (8) and (12) with two bulkhead weldnuts. Secure with two new lockwashers (20) and screws (21).



FOLLOW-THROUGH STEPS

1. Install front bilge pump strainer (WP 0632 00).
2. Turn MASTER SWITCH ON (see your -10). Operate bilge pump and check for leaks. Turn all switches OFF.
3. Install hull front access cover (WP 0449 00).
4. Close power plant access door (see your -10).
5. Raise trim vane (see your -10).

END OF TASK

REPLACE FRONT BILGE PUMP AND STRAINER 0632 00

THIS WORK PACKAGE COVERS:

Removal (page 0632 00-1).
Installation (page 0632 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Personnel Required

Unit Mechanic

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)
Adjustable Wrench (WP 0926 00, Item 75)
Pipe Wrench (WP 0926 00, Item 77)

References

See your -10

Materials/Parts

Adhesive (WP 0928 00, Item 4)
Cushion (3)
Key washer (3)
Lockwasher (5)
Star washer (2)

Equipment Condition

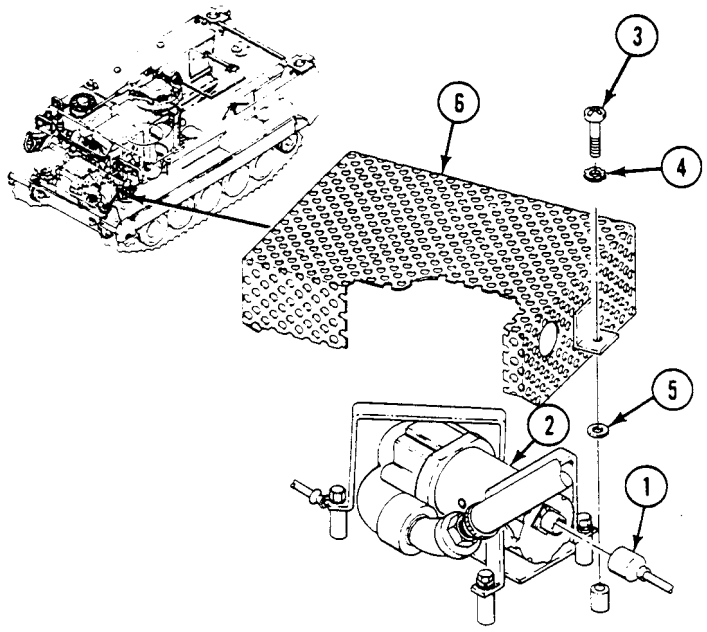
Engine stopped (see your -10)
Carrier blocked (see your -10)
Trim vane lowered (see your -10)
Power plant front access cover removed (WP 0449 00)
Battery ground strap disconnected (WP 0337 00), (WP 0338 00), or (WP 0339 00)

REMOVAL

NOTE

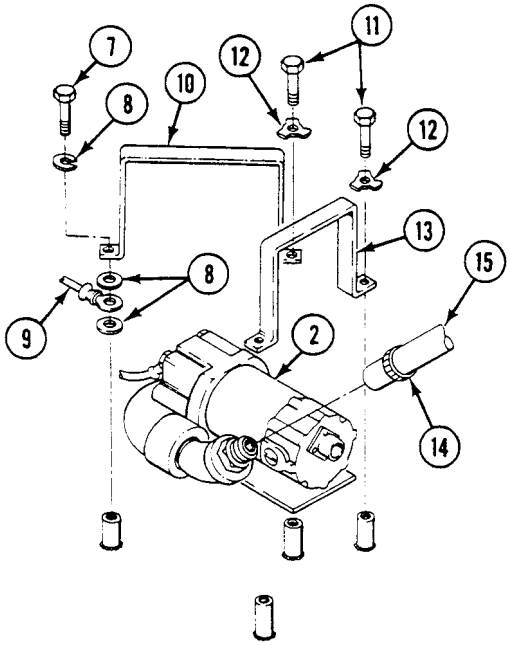
If only strainer is to be replaced, do Removal Step 1 and Step 2, then Installation Steps 9 - 11 only.

1. Disconnect lead (1) from bilge pump (2).
2. Remove two screws (3), star washers (4), washers (5), and strainer (6) from hull weldnuts. Discard star washers.

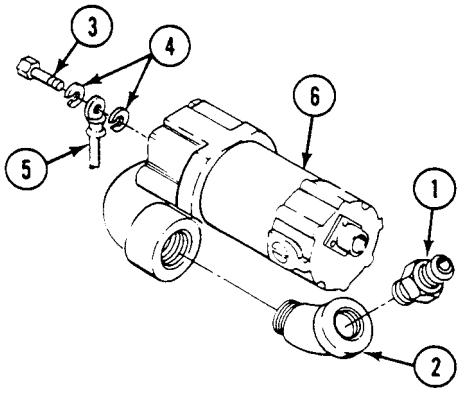


REPLACE FRONT BILGE PUMP AND STRAINER — Continued **0632 00**

3. Remove screw (7), three lockwashers (8), and ground lead (9) from strap (10). Discard lockwashers.
4. Remove three screws (11), key washers (12), and two straps (10)(13). Discard key washers.
5. Loosen clamp (14). Remove hose (15) from pump (2).

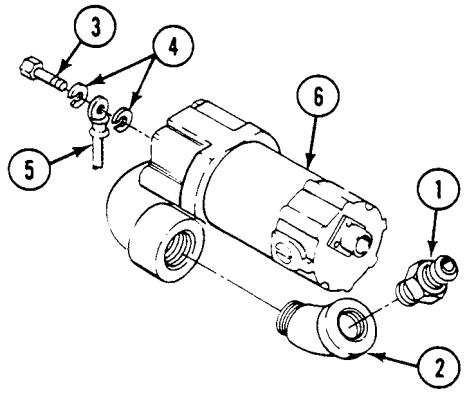


6. Remove adapter (1), elbow (2), screw (3), two lockwashers (4), and ground lead (5) from pump (6). Use adjustable wrench and pipe wrench. Discard lock washers. Reinstall screw in pump.



INSTALLATION

1. Remove screw (3) and washer from new pump (6). Discard washer.
2. Install ground lead (5) on pump (6). Secure with two new lockwashers (4) and screw (3).
3. Install elbow (2) and adapter (1) on pump (6). Use pipe wrench and adjustable wrench.

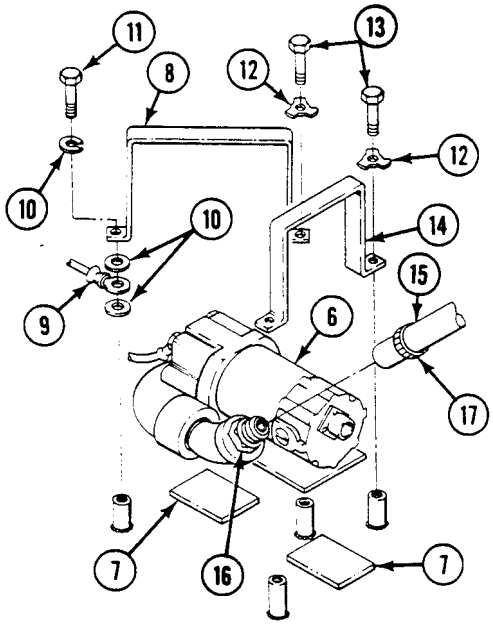


4. Cement new cushion (7) on bottom of pump (6) with adhesive.
5. Install pump (6) in carrier.

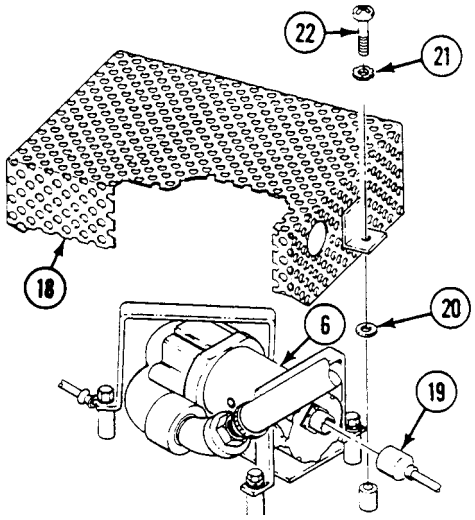
NOTE

Do not tighten strap screws until all four are installed.

6. Install strap (8) and ground lead (9) on hull weldnuts. Secure with three new lockwashers (10), screw (11), new key washer (12) and screw (13). Bend tabs on key washer.
7. Install strap (14) on hull weldnuts. Secure with two screws (13) and new key washers (12). Bend tabs on key washers.
8. Slide hose (15) on adapter (16). Secure with clamp (17).



9. Install strainer (18) on hull weldnuts.
10. Connect lead (19) to bilge pump (6).
11. Secure strainer (18) to hull weldnuts with two washers (20), new star washers (21), and screws (22).



FOLLOW-THROUGH STEPS

1. Connect battery ground strap (WP 0337 00), (WP 0338 00), or (WP 0339 00).
2. Install power plant front access cover (WP 0449 00).
3. Raise trim vane (see your -10).

END OF TASK

REPLACE FRONT BILGE VALVE 0633 00

THIS WORK PACKAGE COVERS:

Removal (page 0633 00-1).
Installation (page 0633 00-2).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts

Locknut (3)

Personnel Required

Unit Mechanic

References

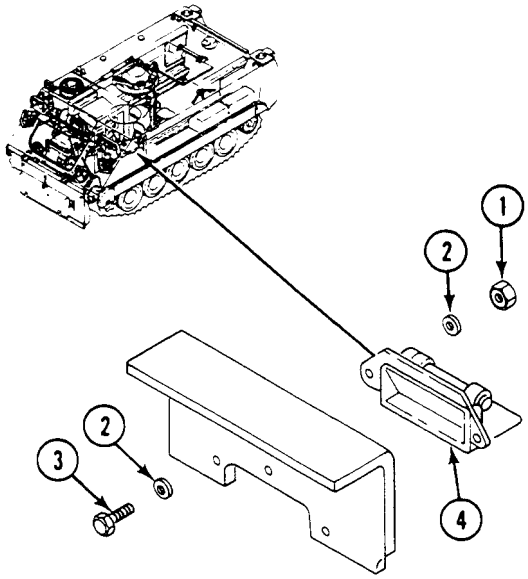
See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Ramp lowered (see your -10)
Driver's rear floor plate removed (WP 0453 00)
Personnel heater floor duct removed (WP 0706 00)
Left front floor plate removed (WP 0539 00)

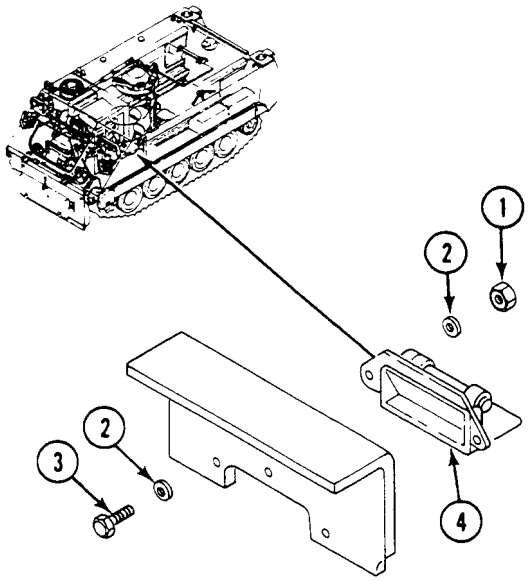
REMOVAL

1. Remove three locknuts (1), six washers (2), and three screws (3) from hull cross beam. Discard locknuts.
2. Remove valve (4) from beam.



INSTALLATION

1. Install valve (4) on hull cross beam.
2. Secure with three screws (3), six washers (2), and three new locknuts (1).



FOLLOW-THROUGH STEPS

1. Check for freedom of movement of valve after installation.
2. Install left front floor plate (WP 0539 00).
3. Install personnel heater floor duct (WP 0706 00).
4. Install driver’s rear floor plate (WP 0453 00).
5. Raise and lock ramp (see your -10).
6. Turn MASTER SWITCH OFF (see your -10).

END OF TASK

REPLACE REAR BILGE PUMP PIPES 0634 00

THIS WORK PACKAGE COVERS:

Removal (page 0634 00-1).
Installation (page 0634 00-2).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts
Lockwasher (2)

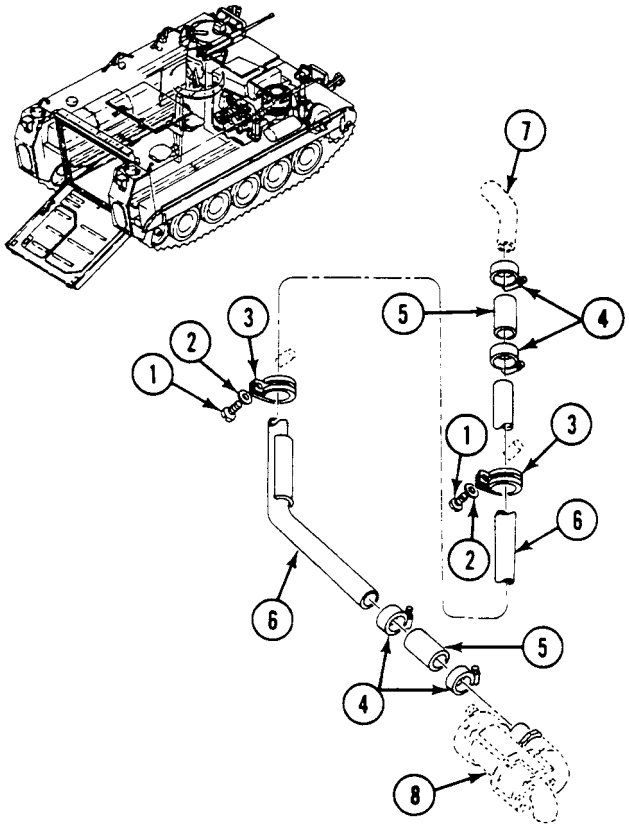
Personnel Required
Unit Mechanic

References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Rear floor plate removed (WP 0539 00)
Smoke generator fog oil tank module removed (M1059A3 only) (WP 0753 00)

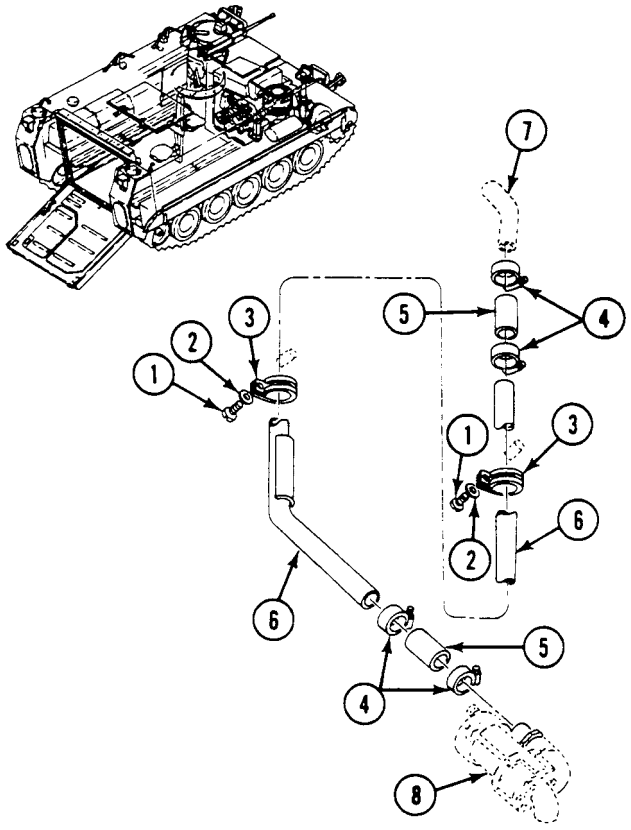
REMOVAL

1. Remove two screws (1), lockwashers (2), and clamps (3) from two bulkhead weldnuts. Discard lockwashers.
2. Loosen four clamps (4) and slide two hoses (5) back on pipe (6). Remove pipe from carrier.
3. Remove four clamps (4), two hoses (5), and two clamps (3) from pipe (6).



INSTALLATION

1. Install two clamps (3), hoses (5), and four clamps (4) on pipe (6).
2. Install pipe (6) in carrier and slide hoses (5) onto discharge tube (7) and bilge pump (8). Secure with four clamps (4).
3. Align two clamps (3) with bulkhead weldnuts. Secure with two screws (1) and new lockwashers (2).



FOLLOW-THROUGH STEPS

1. Turn MASTER SWITCH ON.
2. Turn BILGE PUMPS switch ON. Check pipe for leaks.
3. Turn BILGE PUMPS switch OFF.
4. Turn MASTER SWITCH OFF.
5. Install rear floor plate (WP 0539 00).
6. Install smoke generator fog oil tank module (M1059A3 only) (WP 0753 00).

END OF TASK

REPLACE REAR BILGE PUMP AND STRAINER 0635 00

THIS WORK PACKAGE COVERS:

Removal (page 0635 00-1).
Installation (page 0635 00-3).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0926 00, Item 65)
Adjustable Wrench (WP 0926 00, Item 75)

Materials/Parts
Adhesive (WP 0928 00, Item 4)
Locknut (M1064A3 only)
Lockwasher (5)
Tablock washer (3)

Personnel Required
Unit Mechanic

References
See your -10

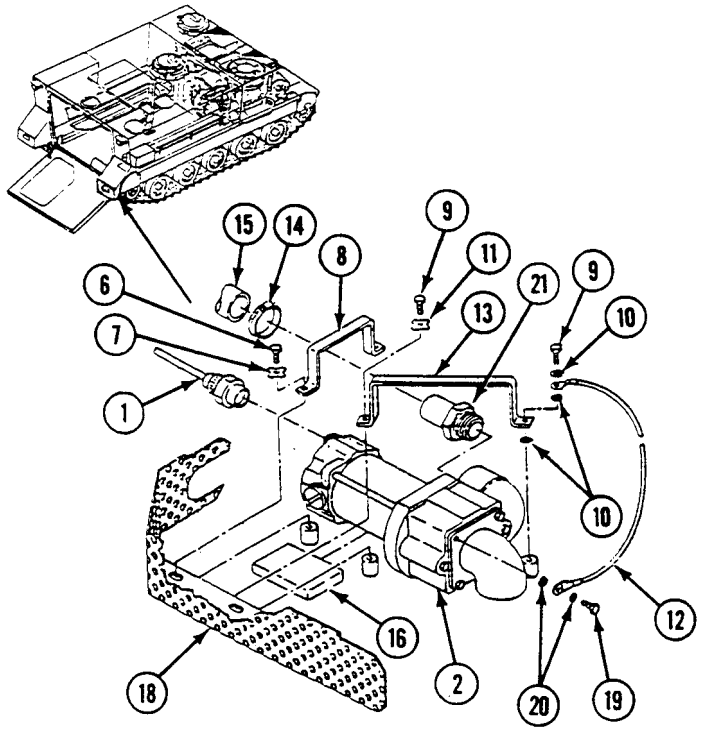
Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Ramp lowered (see your -10)
Battery ground strap disconnected (WP 0337 00), (WP 0338 00), or (WP 0339 00)
Smoke generator fog oil tank module removed (M1059A3 only) (WP 0753 00)
Rear floor plate removed (WP 0539 00)

REMOVAL

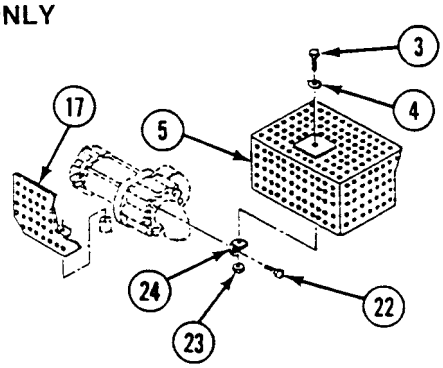
1. Disconnect circuit 451 lead (1) from rear bilge pump (2).
2. On M1064A3 only, remove screw (3), washer (4), and strainer (5) from pump (2).
3. Remove two screws (6), tablock washers (7), and bracket (8) from hull weldnuts. Discard washers.

REPLACE REAR BILGE PUMP AND STRAINER — Continued 0635 00

4. Remove two screws (9), three lockwashers (10), tablock washer (11), ground lead (12), and bracket (13) from hull weldnuts. Discard washers.
5. Loosen clamp (14). Remove pump (2) from hose (15) and cushion (16).
6. Remove strainer (17) (M1064A3) or strainer (18) (all other carriers) from hull weldnuts.
7. Remove screw (19), two lockwashers (20), ground lead (12), and adapter (21) from pump (2). Discard lockwashers.
8. On M1064A3 only, remove screw (22), locknut (23), and bracket (24) from pump (2). Discard locknut.



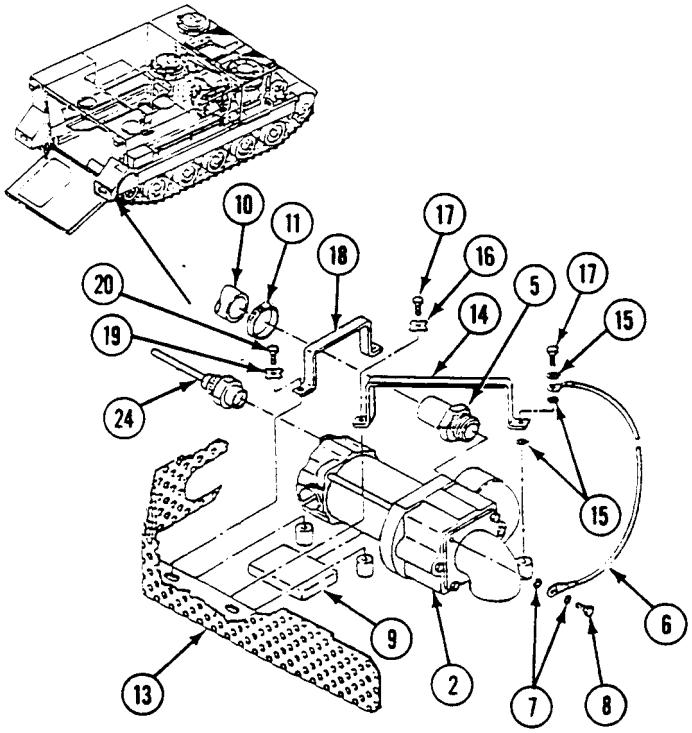
M1064A3 ONLY



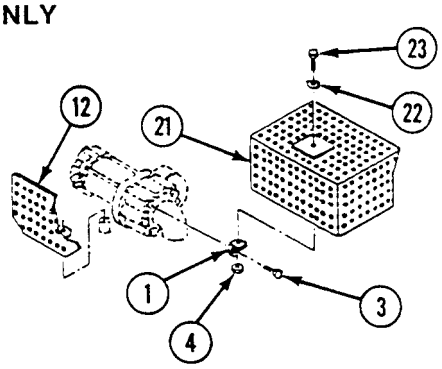
REPLACE REAR BILGE PUMP AND STRAINER — Continued 0635 00

INSTALLATION

1. On M1064A3 only, place bracket (1) on new pump (2). Secure with screw (3) and new locknut (4).
2. Install adapter (5) in pump (2). Place ground lead (6) on pump (2). Secure with two new lockwashers (7) and screw (8).
3. Secure cushion (9) to pump (2) with adhesive.
4. Install pump (2) in carrier. Slide hose (10) on adapter (5) and secure with clamp (11).
5. Place strainer (12) (M1064A3 only) or strainer (13) (all other carriers) on hull weldnuts.
6. Install bracket (14) on weldnuts. Secure with three new lockwashers (15), ground lead (6), new tablock washer (16), and two screws (17).
7. Install bracket (18) on weldnuts. Secure with two new tablock washers (19) and screws (20).
8. On M1064A3 only, place strainer (21) on pump (2). Secure with washer (22) and screw (23).
9. Connect circuit 451 lead (24) to bilge pump (2).



M1064A3 ONLY



FOLLOW-THROUGH STEPS

1. Connect battery ground strap (WP 0337 00), (WP 0338 00), or (WP 0339 00).
2. Turn MASTER SWITCH ON.
3. Turn BILGE PUMPS switch ON and check pump. Put your hand over pump outlet. You should feel air coming out. This means pump is working.
4. Turn BILGE PUMPS switch and MASTER SWITCH OFF.
5. Install rear floor plate (WP 0539 00).
6. Install smoke generator fog oil tank module (M1059A3 only) (WP 0754 00).
7. Start engine (see your -10).
8. Raise and lock ramp (see your -10).
9. Stop engine (see your -10).

END OF TASK

STENCILS (M113A3 ONLY) 0636 00

THIS WORK PACKAGE COVERS:

Inspection of Installed Items (page 0636 00-2).

INITIAL SETUP:

Maintenance Level

Unit

Personnel Required

Unit Mechanic

References

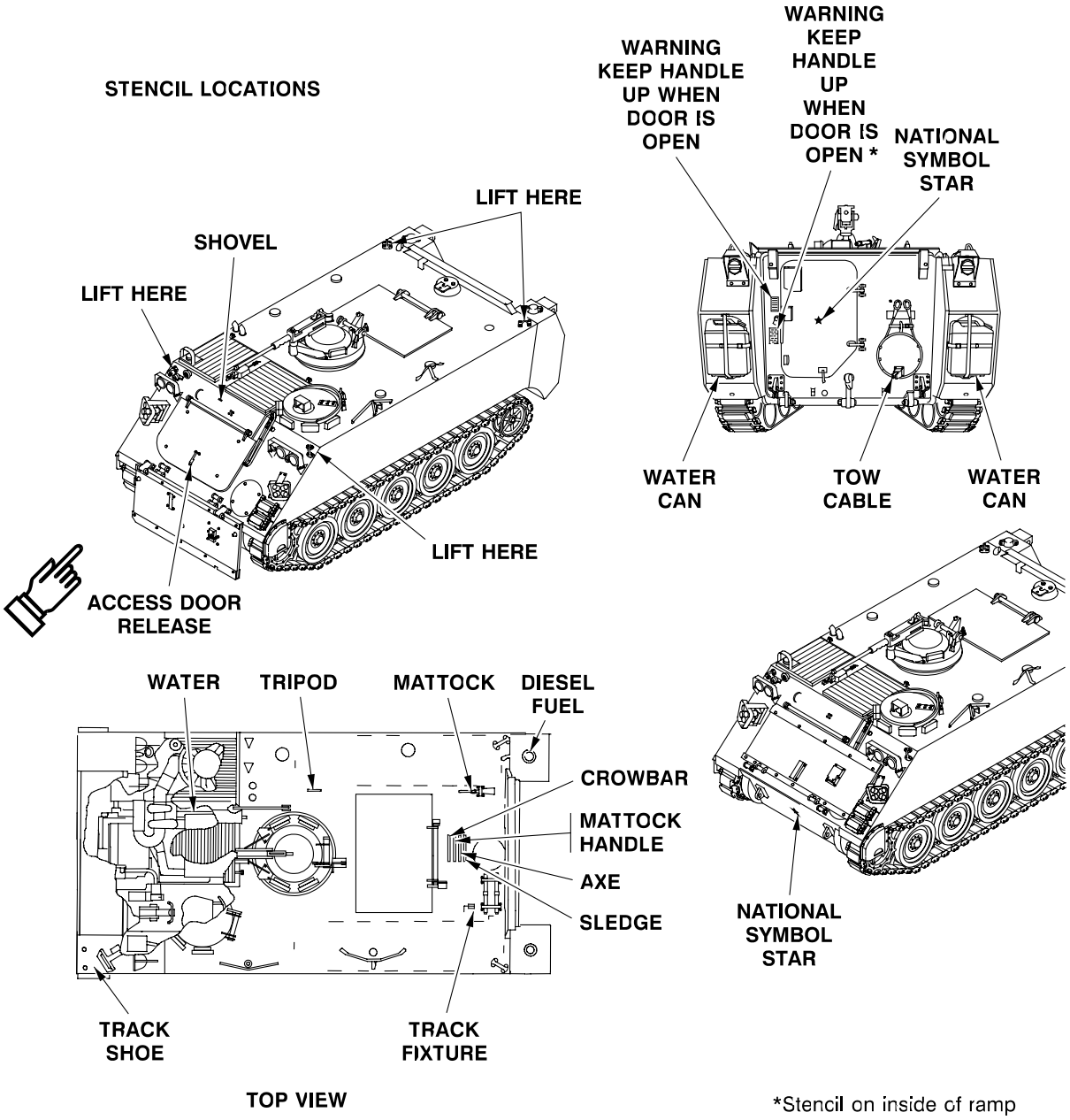
See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)

INSPECTION OF INSTALLED ITEMS

This task shows the location of stencils on the M113A3 carrier. To replace stencils, see WP 0654 00.



END OF TASK

STENCILS (M577A3 ONLY) 0637 00

THIS WORK PACKAGE COVERS:

Inspection of Installed Items (page 0637 00-1).

INITIAL SETUP:

Maintenance Level
Unit

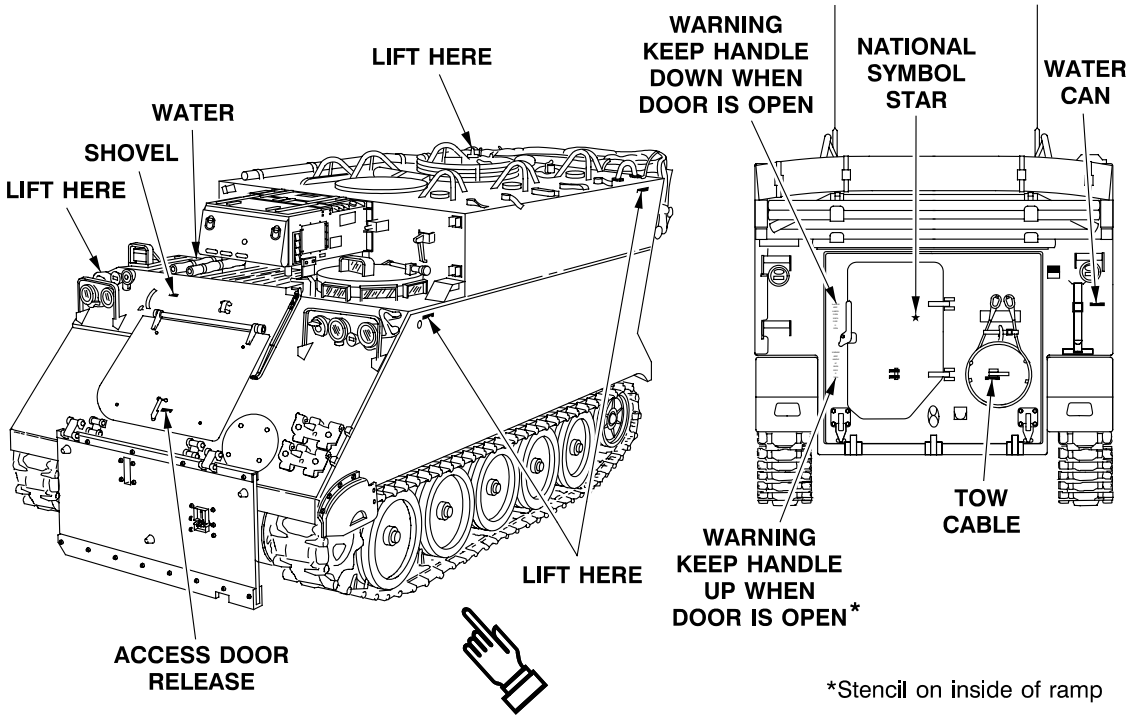
Personnel Required
Unit Mechanic

References
See your -10

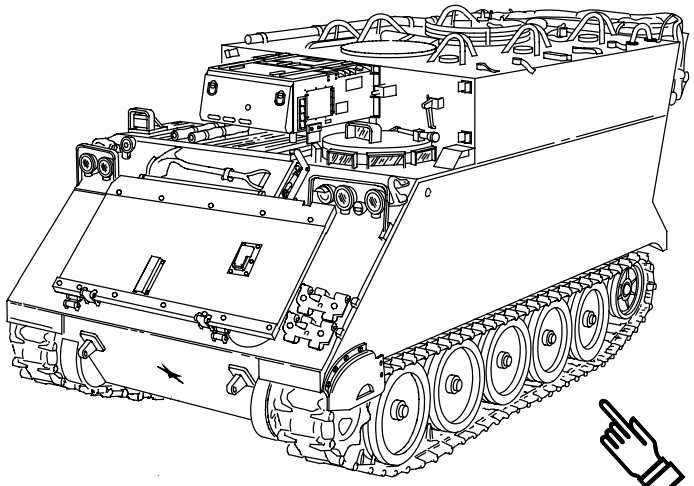
Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)

INSPECTION OF INSTALLED ITEMS

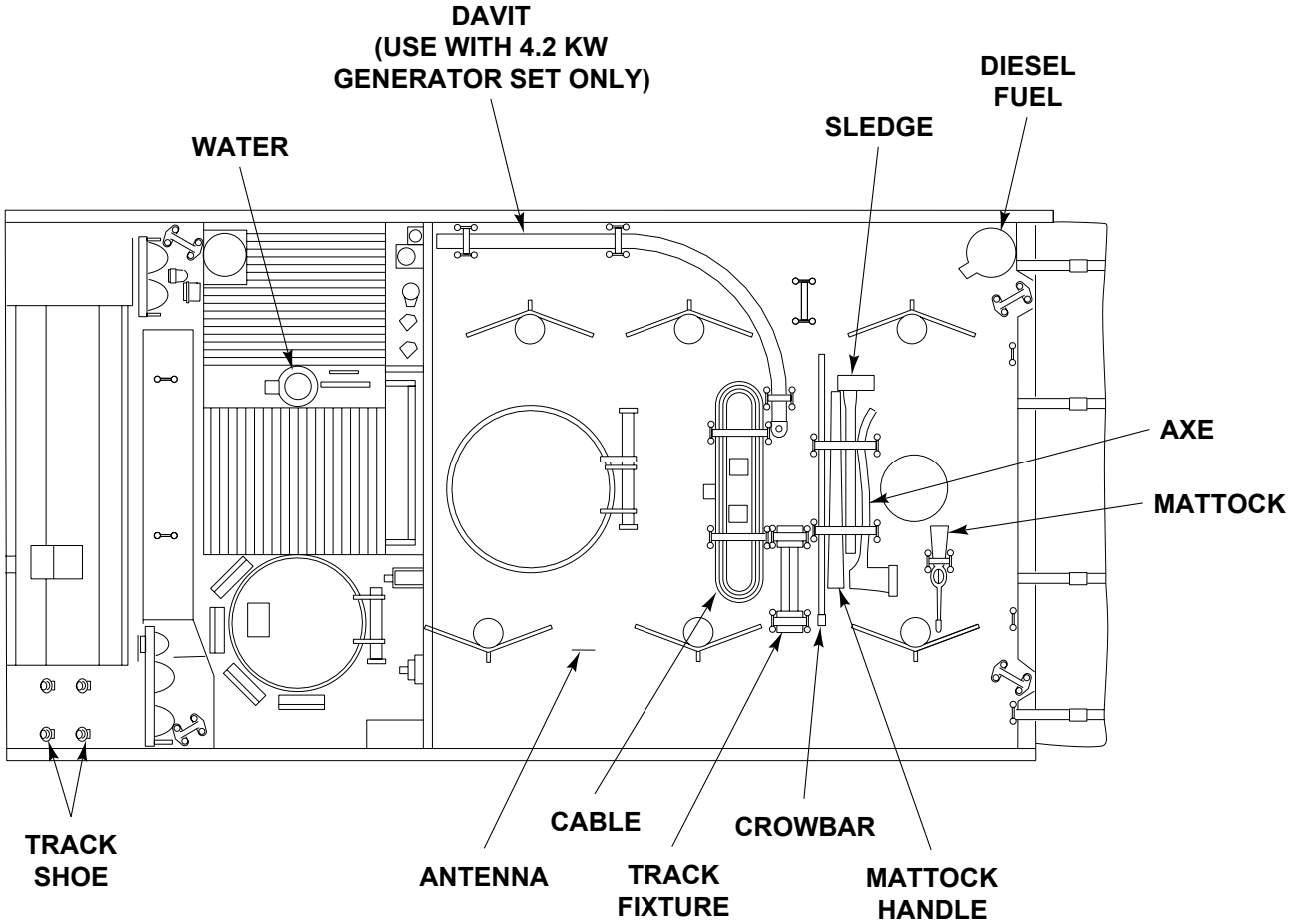
This task shows the location of stencils on the M577A3 carrier. To replace stencils, see WP 0654 00.



STENCILS (M577A3 ONLY) — Continued **0637 00**



NATIONAL
SYMBOL
STAR



END OF TASK

STENCILS (M1059A3 ONLY) 0640 00

THIS WORK PACKAGE COVERS:

Inspection of Installed Items (page 0640 00-1).

INITIAL SETUP:

Maintenance Level
Unit

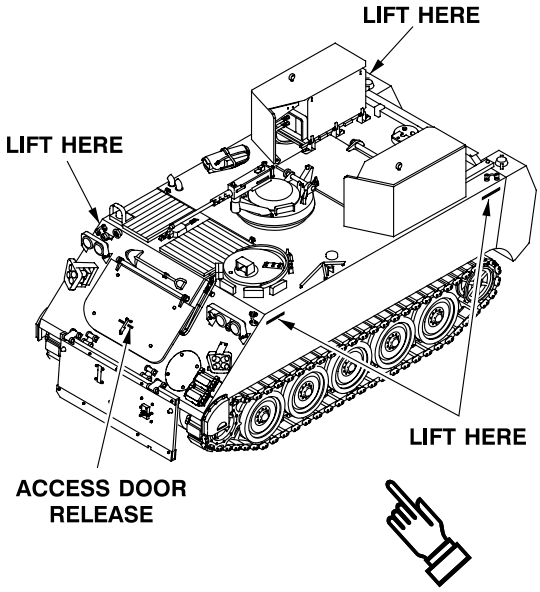
Personnel Required
Unit Mechanic

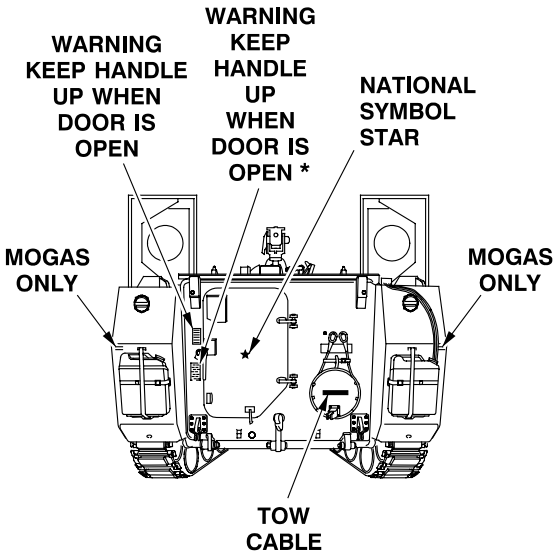
References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)

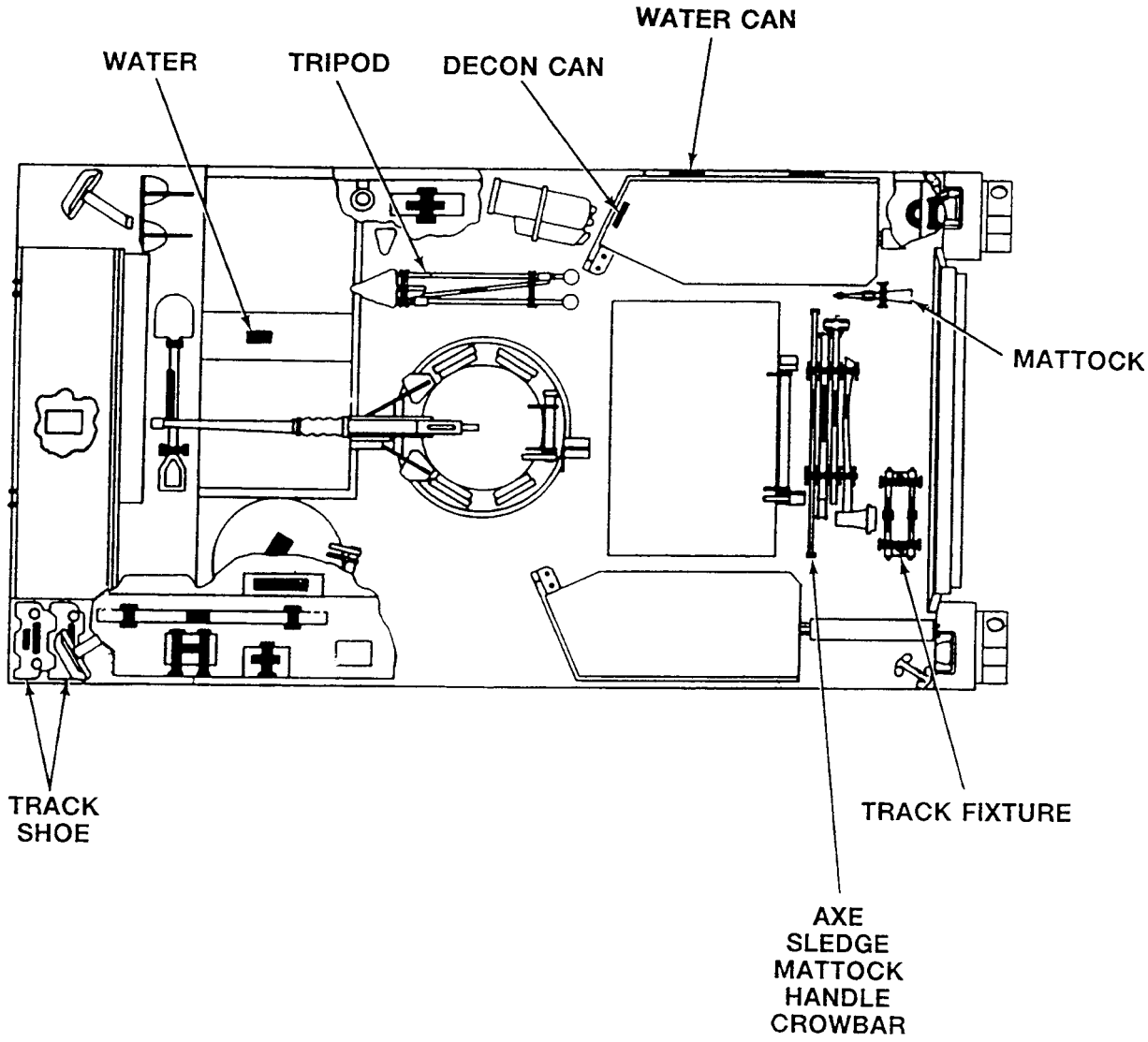
INSPECTION OF INSTALLED ITEMS

This task shows the location of stencils on the M1059A3 carrier. To replace stencils, see WP 0654 00.





*Stencil on inside of ramp


WATER CAN
WATER
TRIPOD
DECON CAN
MATTOCK
TRACK SHOE
TRACK FIXTURE
AXE
SLEDGE
MATTOCK
HANDLE
CROWBAR

END OF TASK

STENCILS (M1064A3 ONLY) 0641 00

THIS WORK PACKAGE COVERS:

Inspection of Installed Items (page 0641 00-2).

INITIAL SETUP:

Maintenance Level

Unit

Personnel Required

Unit Mechanic

References

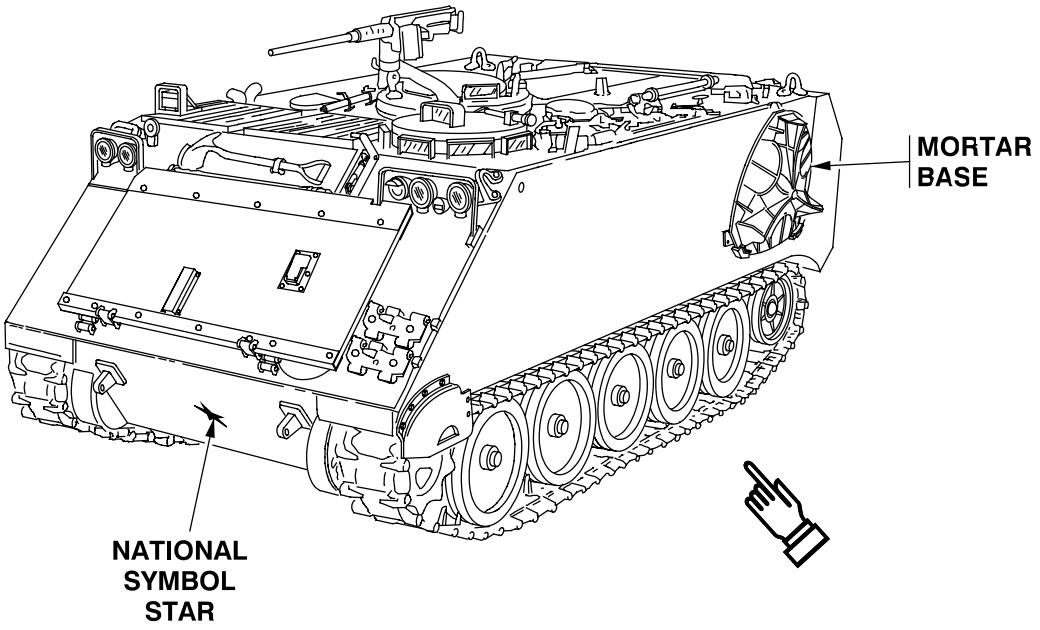
See your -10

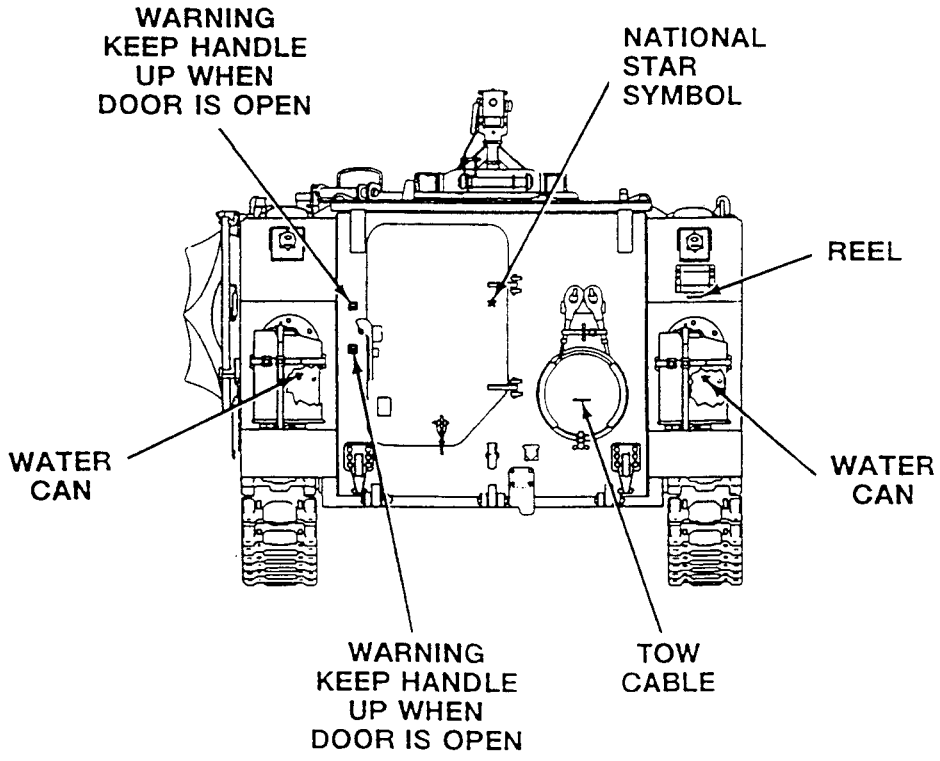
Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)

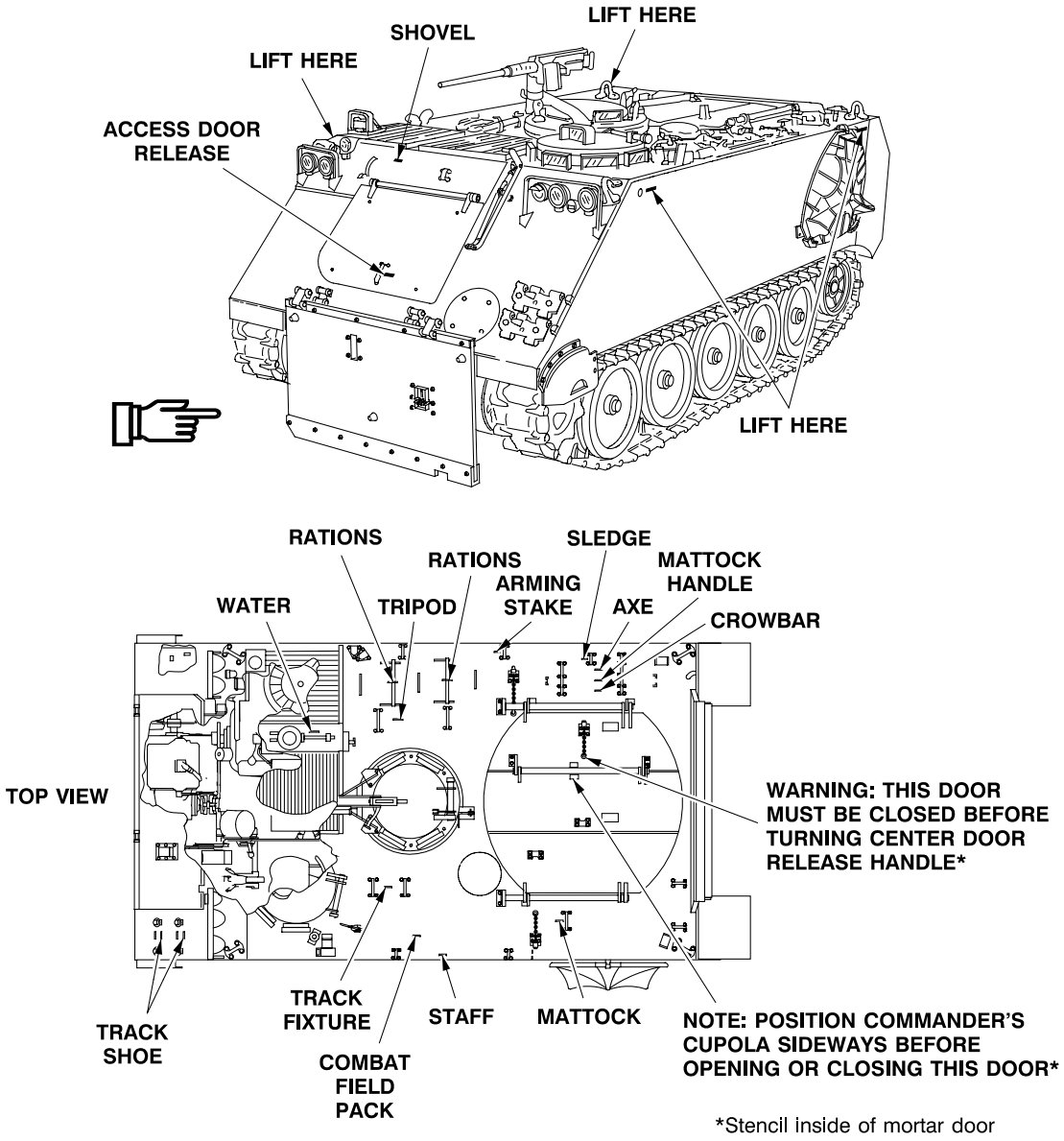
INSPECTION OF INSTALLED ITEMS

This task shows the location of stencils on the M1064A3 carrier. To replace stencils, see WP 0654 00.





STENCILS (M1064A3 ONLY) — Continued **0641 00**



*Stencil inside of mortar door

END OF TASK

STENCILS (M1068A3 ONLY) 0642 00

THIS WORK PACKAGE COVERS:

Inspection of Installed Items (page 0642 00-1).

INITIAL SETUP:

Maintenance Level

Unit

Personnel Required

Unit Mechanic

References

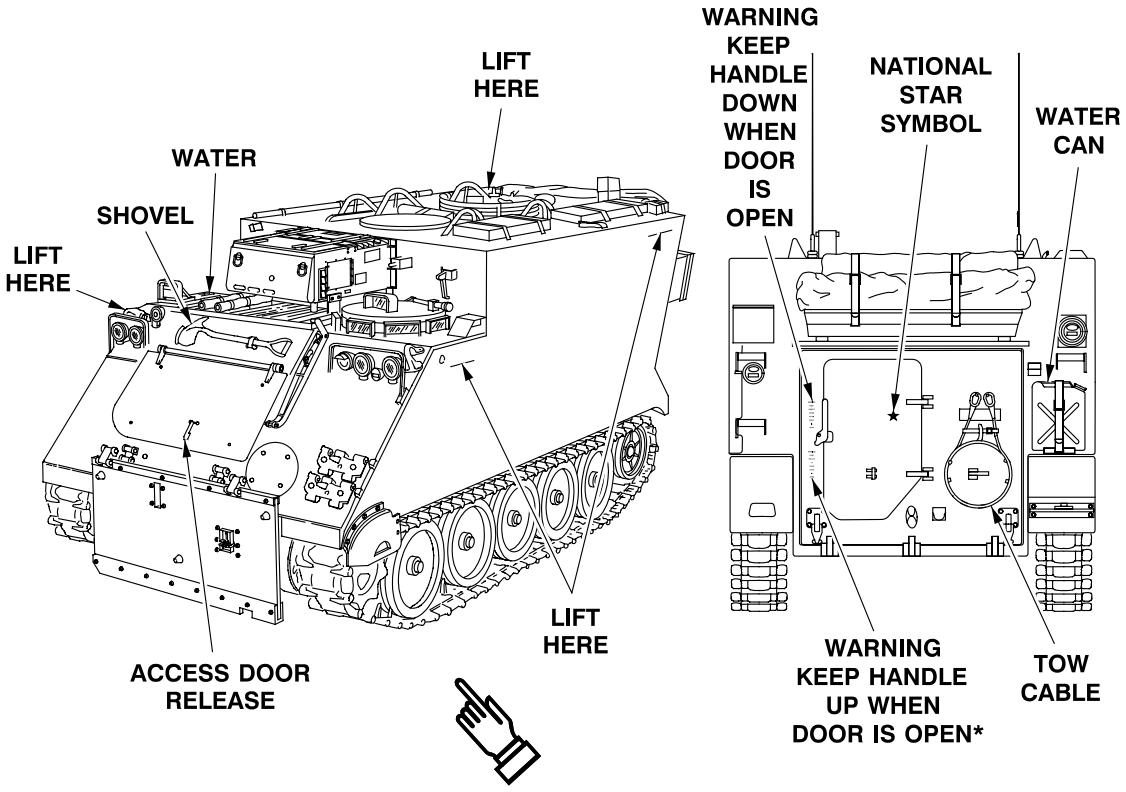
See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)

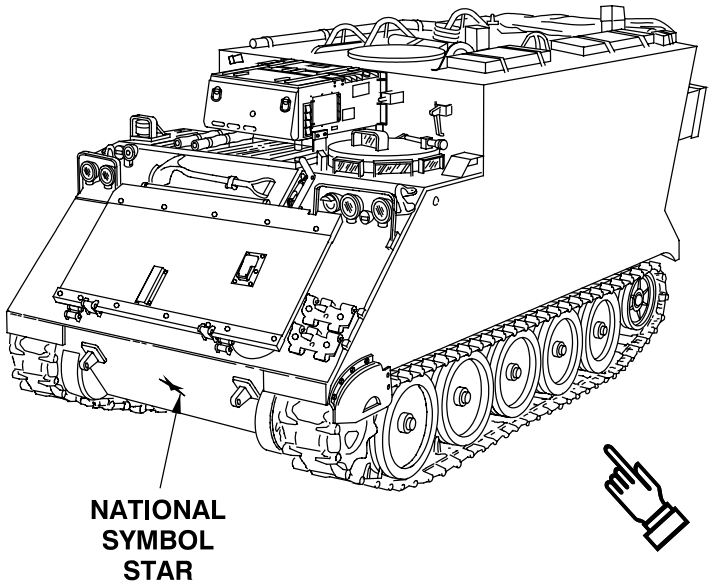
INSPECTION OF INSTALLED ITEMS

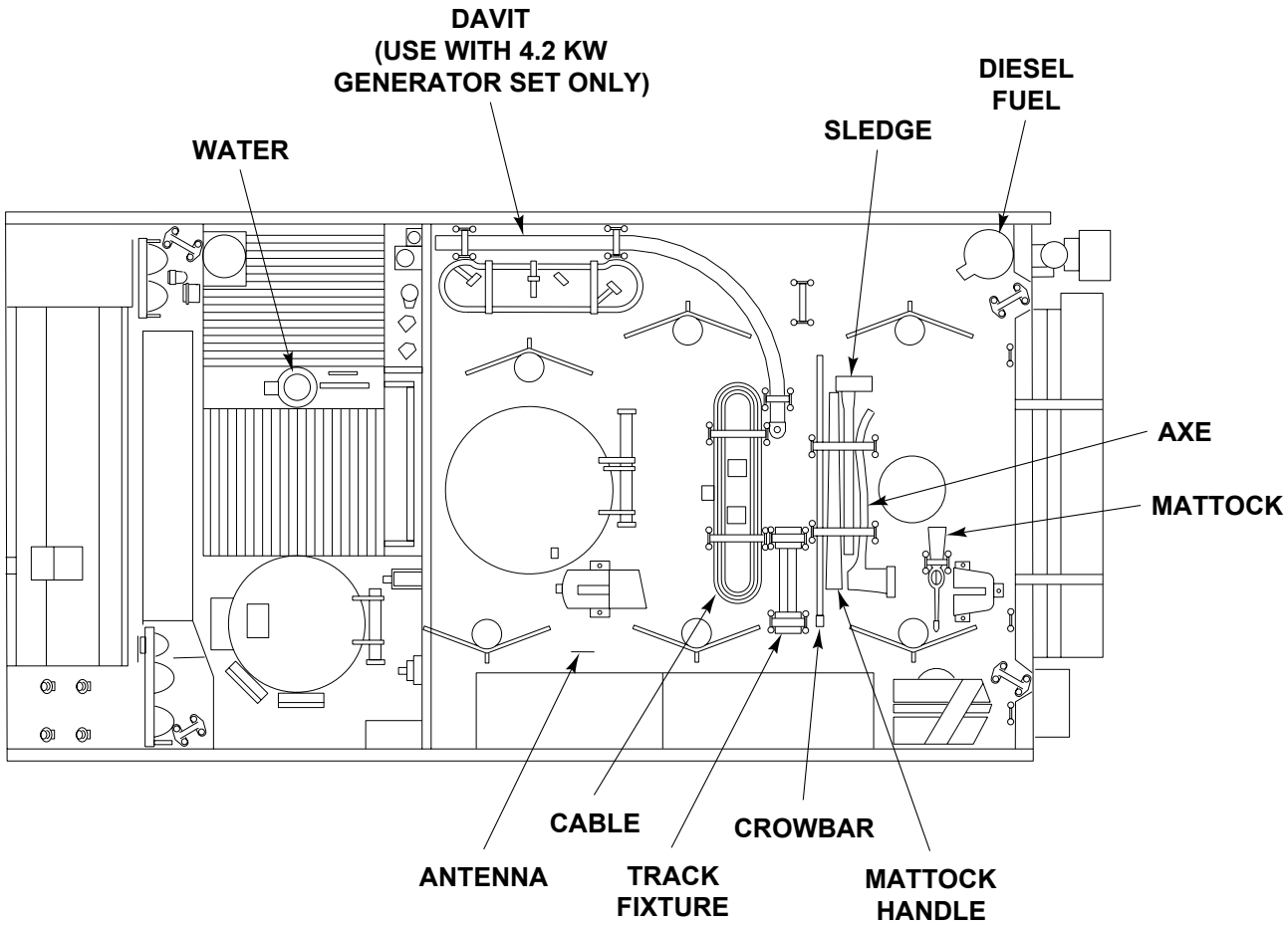
This task shows the location of stencils on the M1068A3 carrier. To replace stencils, see WP 0654 00.



*Stencil on inside of ramp

STENCILS (M1068A3 ONLY) — Continued **0642 00**





END OF TASK

STENCILS (M58 ONLY) 0643 00

THIS WORK PACKAGE COVERS:

Inspection of Installed Items (page 0643 00-2).

INITIAL SETUP:

Maintenance Level

Unit

Personnel Required

Unit Mechanic

References

See your -10

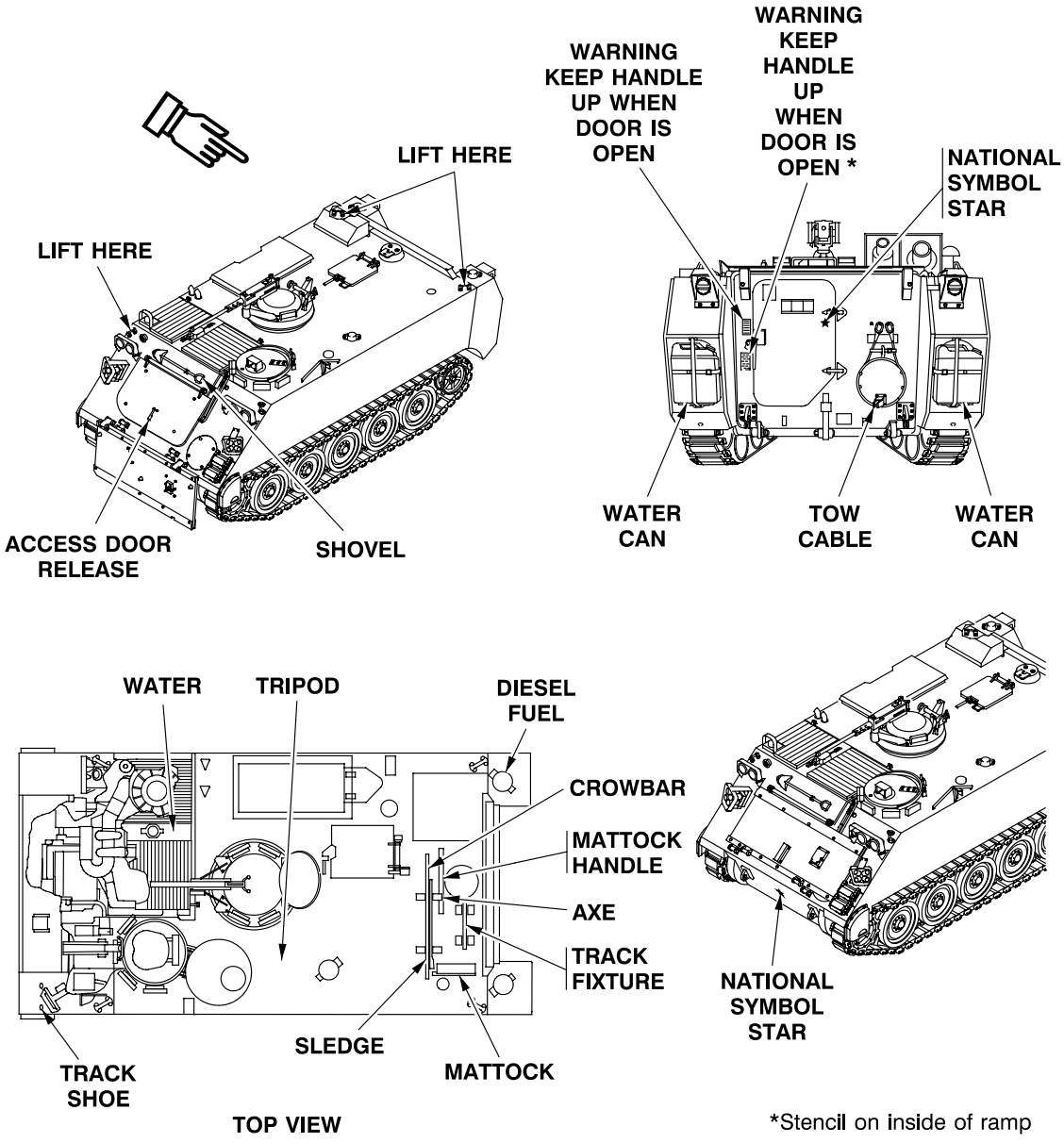
Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)

STENCILS (M58 ONLY) — Continued **0643 00**

INSPECTION OF INSTALLED ITEMS

This task shows the location of stencils on the M58 carrier. To replace stencils, see WP 0654 00.



END OF TASK

DATAPLATES, DECALS, AND MARKERS (ALL MODELS) 0644 00

THIS WORK PACKAGE COVERS:

Inspection of Installed Items (page 0644 00-2).

INITIAL SETUP:

Maintenance Level

Unit

Personnel Required

Unit Mechanic

References

See your -10

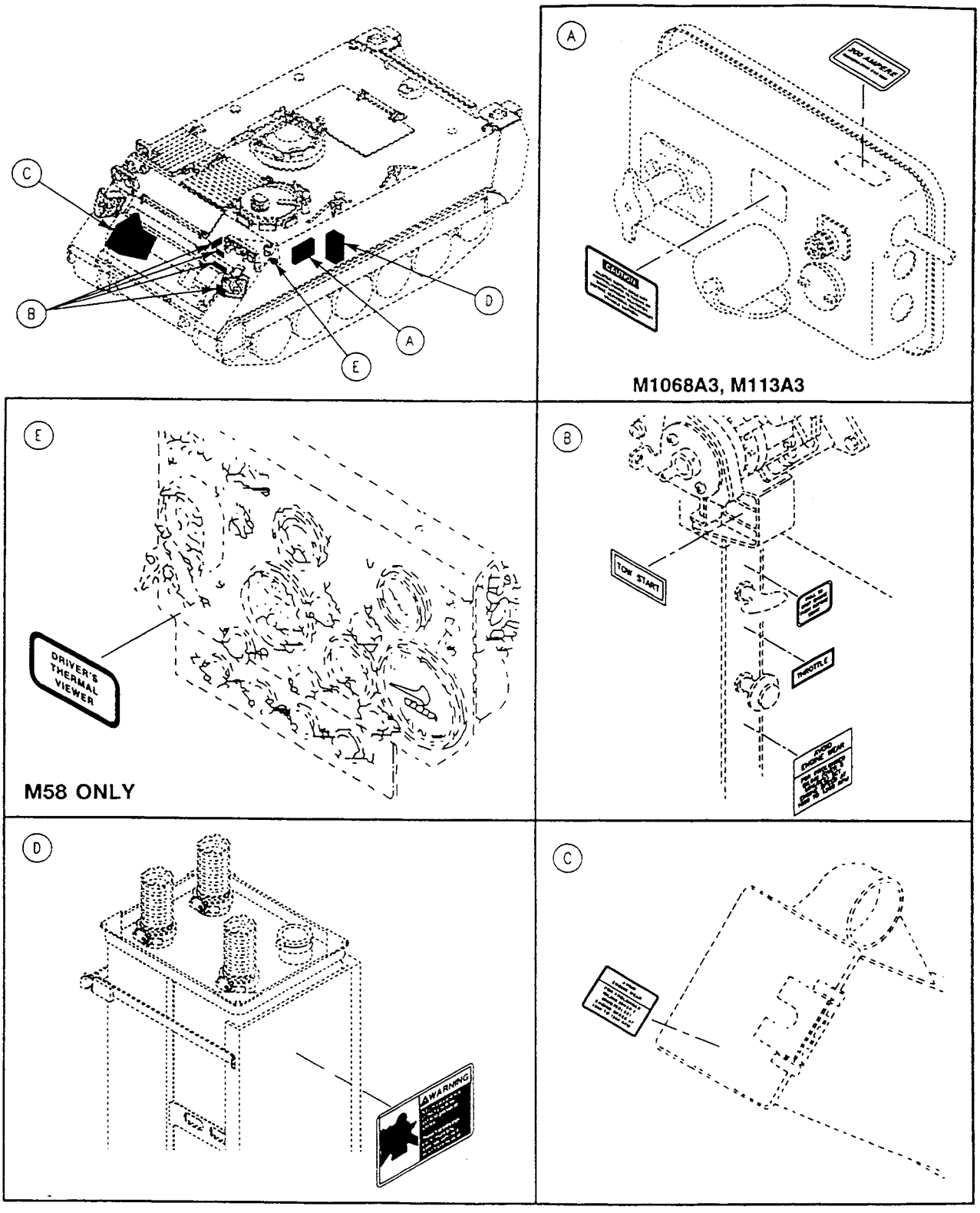
Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)

DATAPLATES, DECALS, AND MARKERS (ALL MODELS) — Continued 0644 00

INSPECTION OF INSTALLED ITEMS

This task shows the location of dataplates, decals, and markers on all the carrier models. To replace dataplates, decals, and markers, see WP 0654 00.



END OF TASK

DATAPLATES, DECALS, AND MARKERS (M113A3 AND M1059A3 ONLY)

0645 00

THIS WORK PACKAGE COVERS:

Inspection of Installed Items (page 0645 00-2).

INITIAL SETUP:

Maintenance Level

Unit

Personnel Required

Unit Mechanic

References

See your -10

Equipment Condition

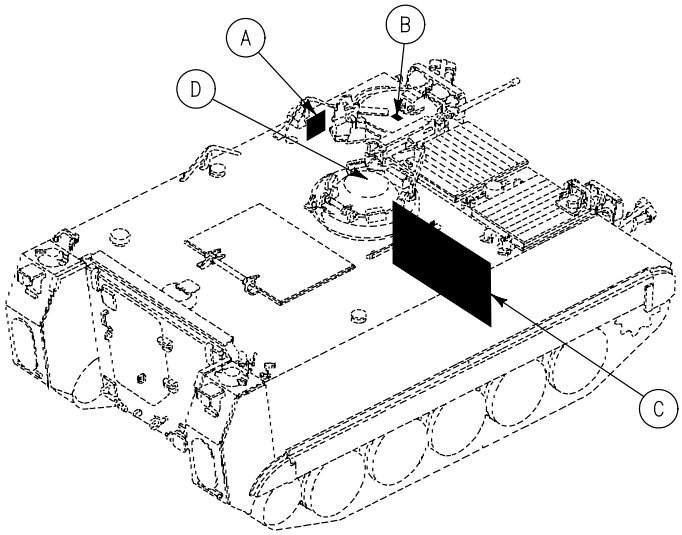
Engine stopped (see your -10)
Carrier blocked (see your -10)

DATAPLATES, DECALS, AND MARKERS (M113A3 AND M1059A3 ONLY) — Continued

0645 00

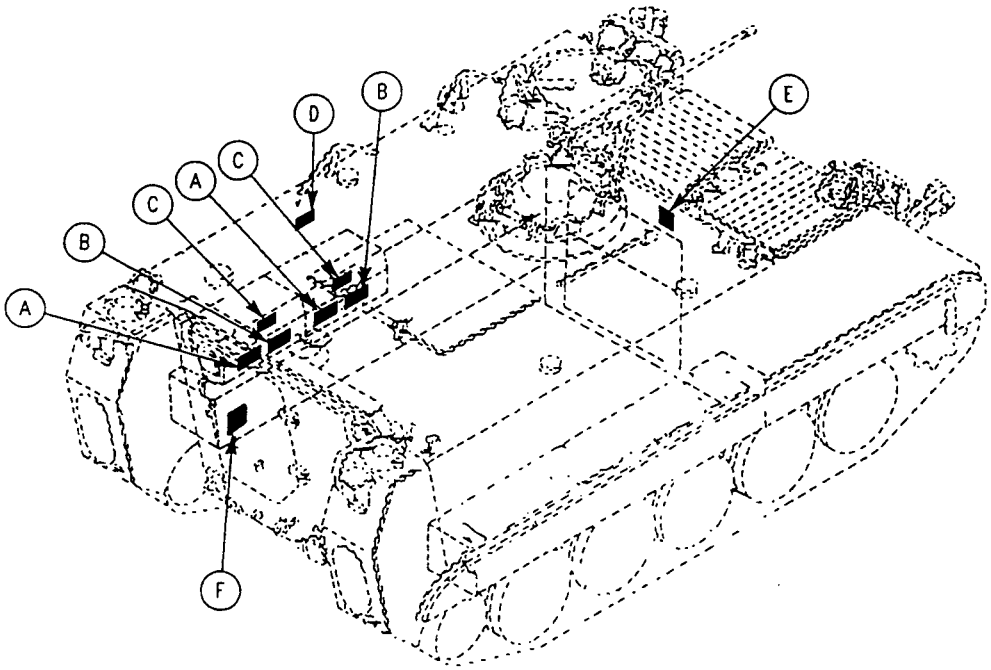
INSPECTION OF INSTALLED ITEMS

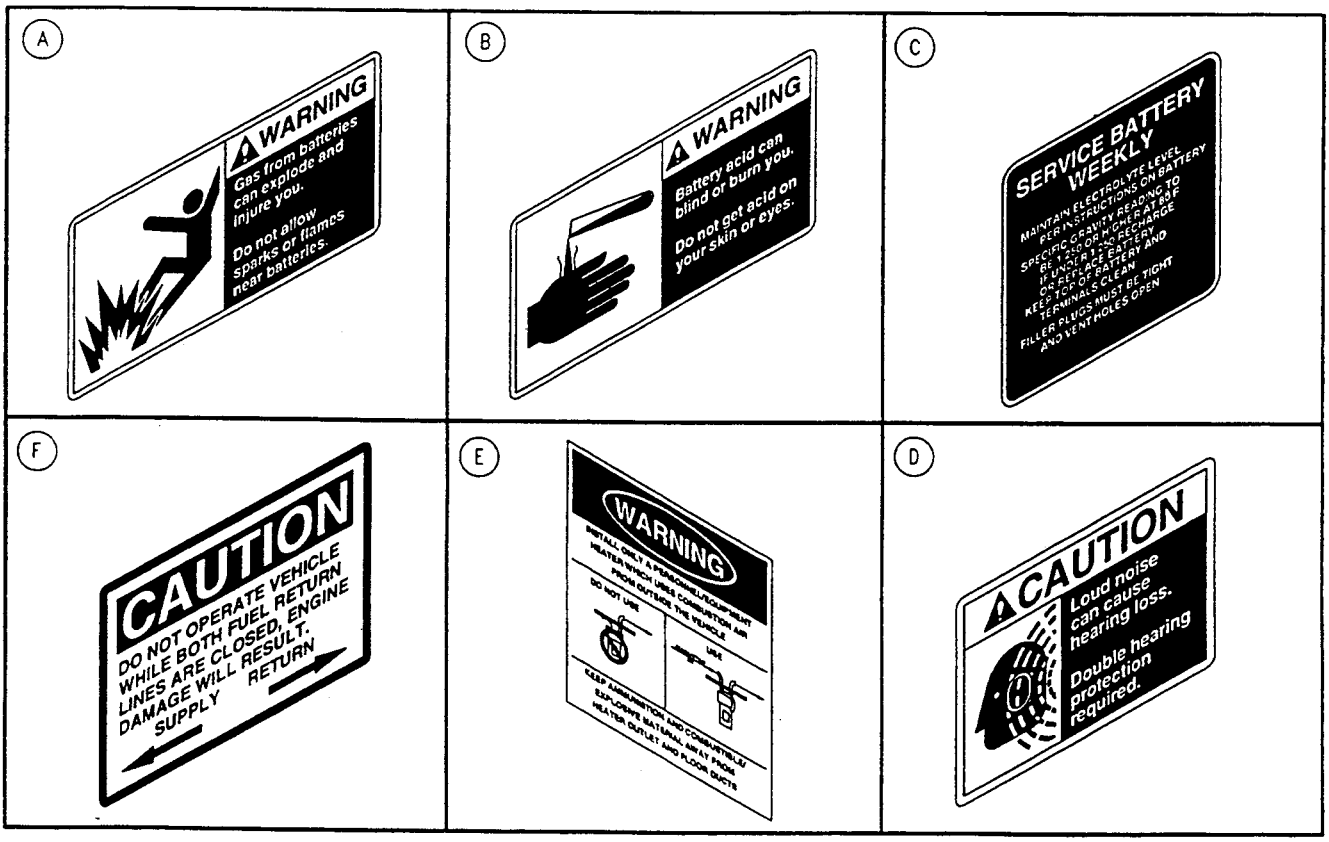
This task shows the location of dataplates, decals, and markers on the M113A3 and M1059A3 carriers. To replace dataplates, decals,and markers, see WP 0654 00.



M113A3

DATAPLATES, DECALS, AND MARKERS (M113A3 AND M1059A3 ONLY) — Continued **0645 00**





END OF TASK

DATAPLATES, DECALS, AND MARKERS (M113A3, M1059A3, M58 ONLY) 0646 00

THIS WORK PACKAGE COVERS:

Inspection of Installed Items (page 0646 00-1).

INITIAL SETUP:

Maintenance Level
Unit

Personnel Required
Unit Mechanic

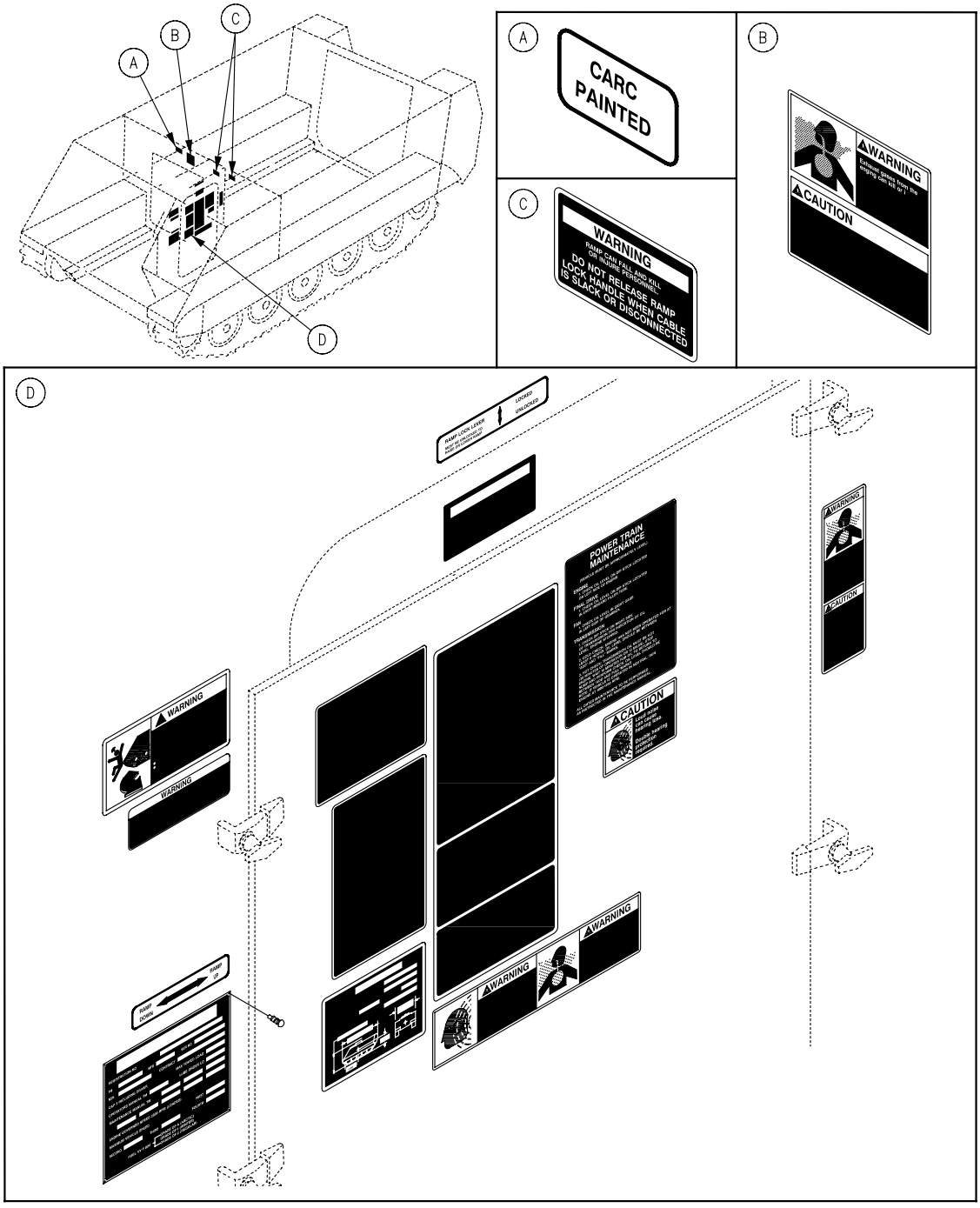
References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)

INSPECTION OF INSTALLED ITEMS

This task shows the location of dataplates, decals, and markers on the M113A3, M1059A3, and M58 carriers. To replace dataplates, decals, and markers, see WP 0654 00.

DATAPLATES, DECALS, AND MARKERS (M113A3, M1059A3, M58 ONLY) — Continued **0646 00**



END OF TASK

DATAPLATES, DECALS, AND MARKERS (M113A3, M1059A3 ONLY) 0647 00

THIS WORK PACKAGE COVERS:

Inspection of Installed Items (page 0647 00-1).

INITIAL SETUP:

Maintenance Level
Unit

Personnel Required
Unit Mechanic

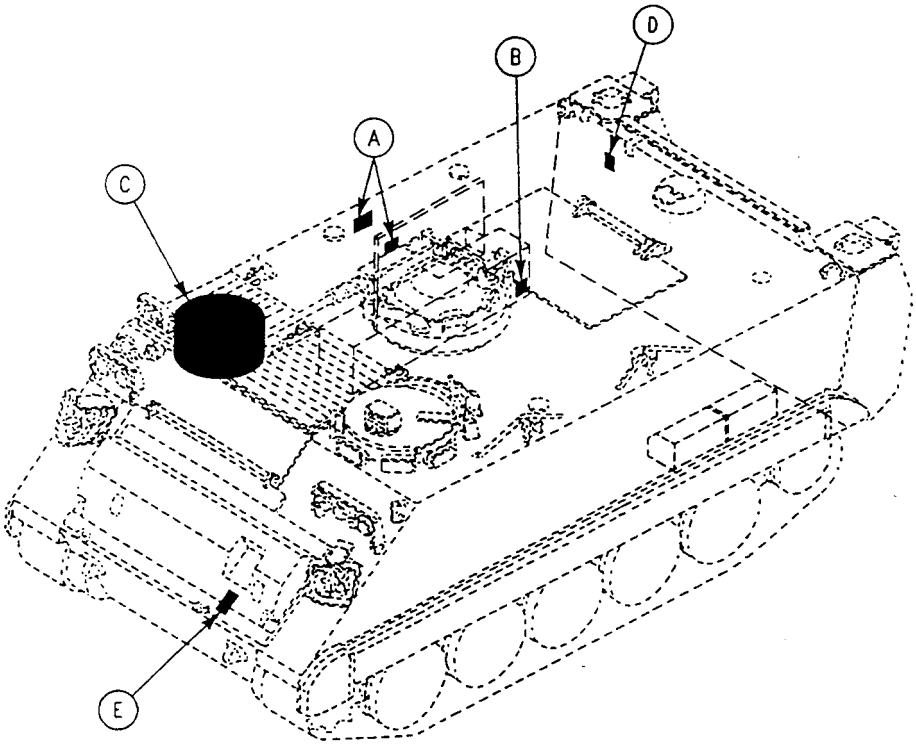
References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)

INSPECTION OF INSTALLED ITEMS

This task shows the location of dataplates, decals, and markers on the M113A3 and M1059A3 carriers. To replace dataplates, decals, and markers, see WP 0654 00.

DATAPLATES, DECALS, AND MARKERS (M113A3, M1059A3 ONLY) — Continued 0647 00



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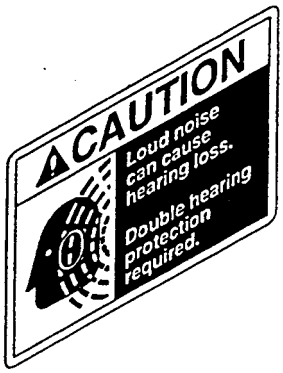

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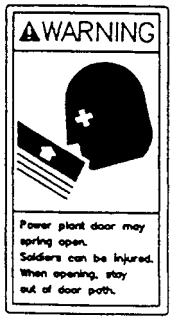
ALL EXCEPT
M1068A3 & M577A3

E



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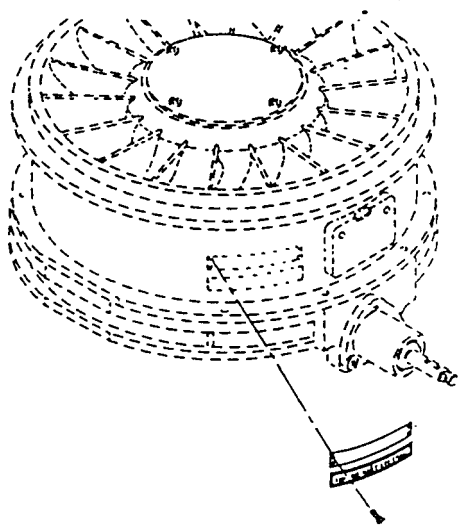


END OF TASK

DATAPLATES, DECALS, AND MARKERS (M577A3, M1068A3 ONLY) 0648 00

THIS WORK PACKAGE COVERS:

Inspection of Installed Items (page 0648 00-1).

INITIAL SETUP:

Maintenance Level

Unit

Personnel Required

Unit Mechanic

Equipment Condition

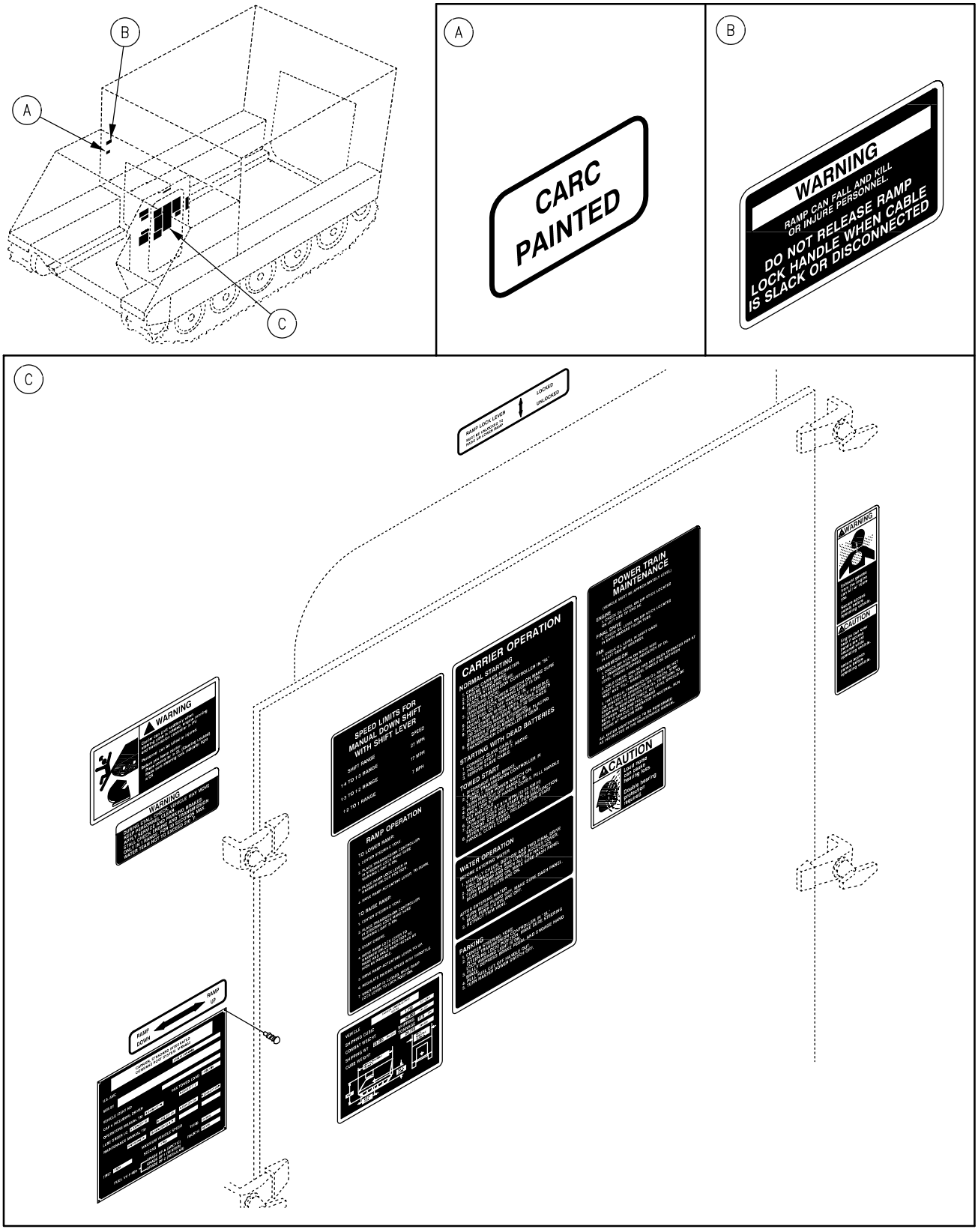
Engine stopped (see your -10)

Carrier blocked (see your -10)

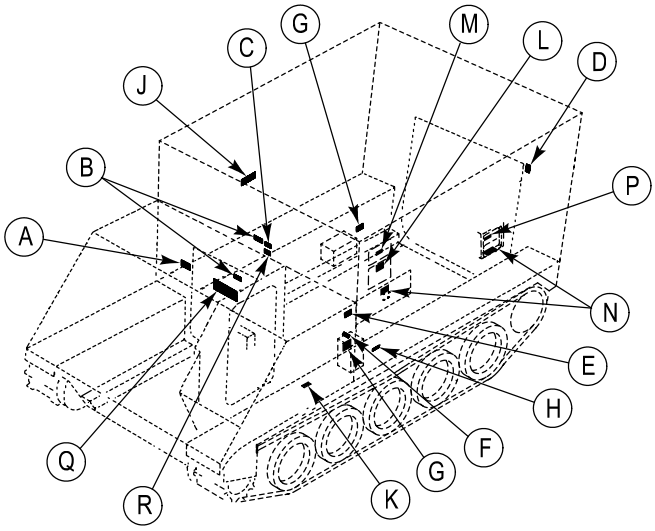
INSPECTION OF INSTALLED ITEMS

This task shows the location of dataplates, decals, and markers on the M577A3 and M1068A3 carriers. To replace dataplates, decals, and markers, see WP 0654 00.

DATAPLATES, DECALS, AND MARKERS (M577A3, M1068A3 ONLY) — Continued 0648 00



DATAPLATES, DECALS, AND MARKERS (M577A3, M1068A3 ONLY) — Continued 0648 00



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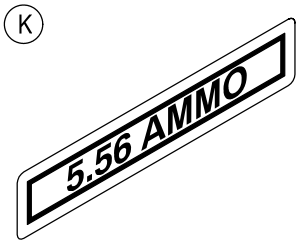

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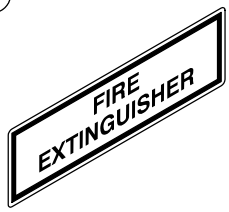

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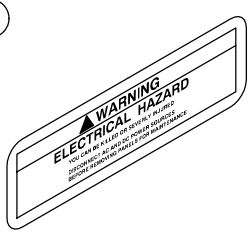

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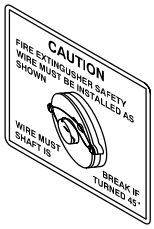

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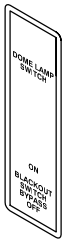


END OF TASK

DATAPLATES, DECALS, AND MARKERS (M1059A3 ONLY) 0651 00

THIS WORK PACKAGE COVERS:

Inspection of Installed Items (page 0651 00-1).

INITIAL SETUP:

Maintenance Level
Unit

Personnel Required
Unit Mechanic

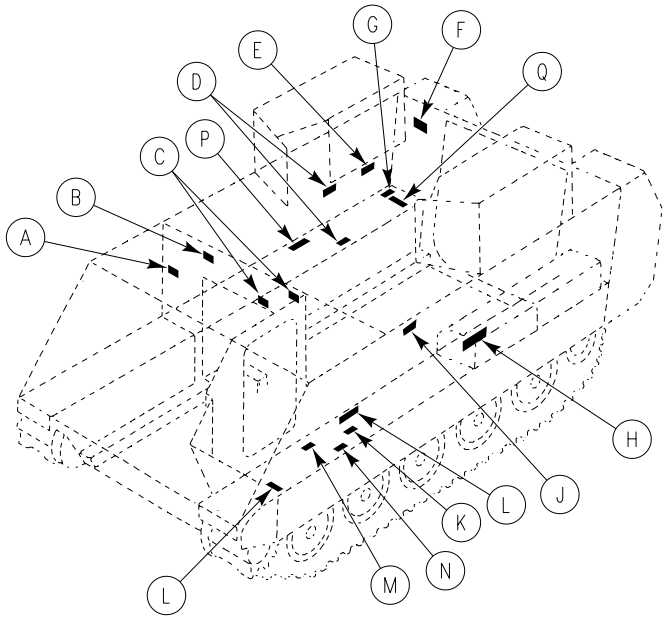
References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)

INSPECTION OF INSTALLED ITEMS

This task shows the location of dataplates, decals, and markers on the M1059A3 carrier. To replace dataplates, decals, and markers, see WP 0654 00.

DATAPLATES, DECALS, AND MARKERS (M1059A3 ONLY) — Continued 0651 00



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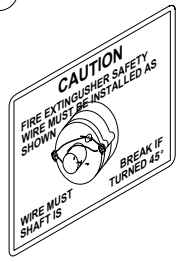

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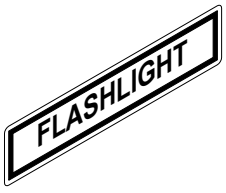

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END OF TASK

DATAPLATES, DECALS, AND MARKERS (M1064A3 ONLY) 0652 00

THIS WORK PACKAGE COVERS:

Inspection of Installed Items (page 0652 00-1).

INITIAL SETUP:

Maintenance Level

Unit

Personnel Required

Unit Mechanic

Equipment Condition

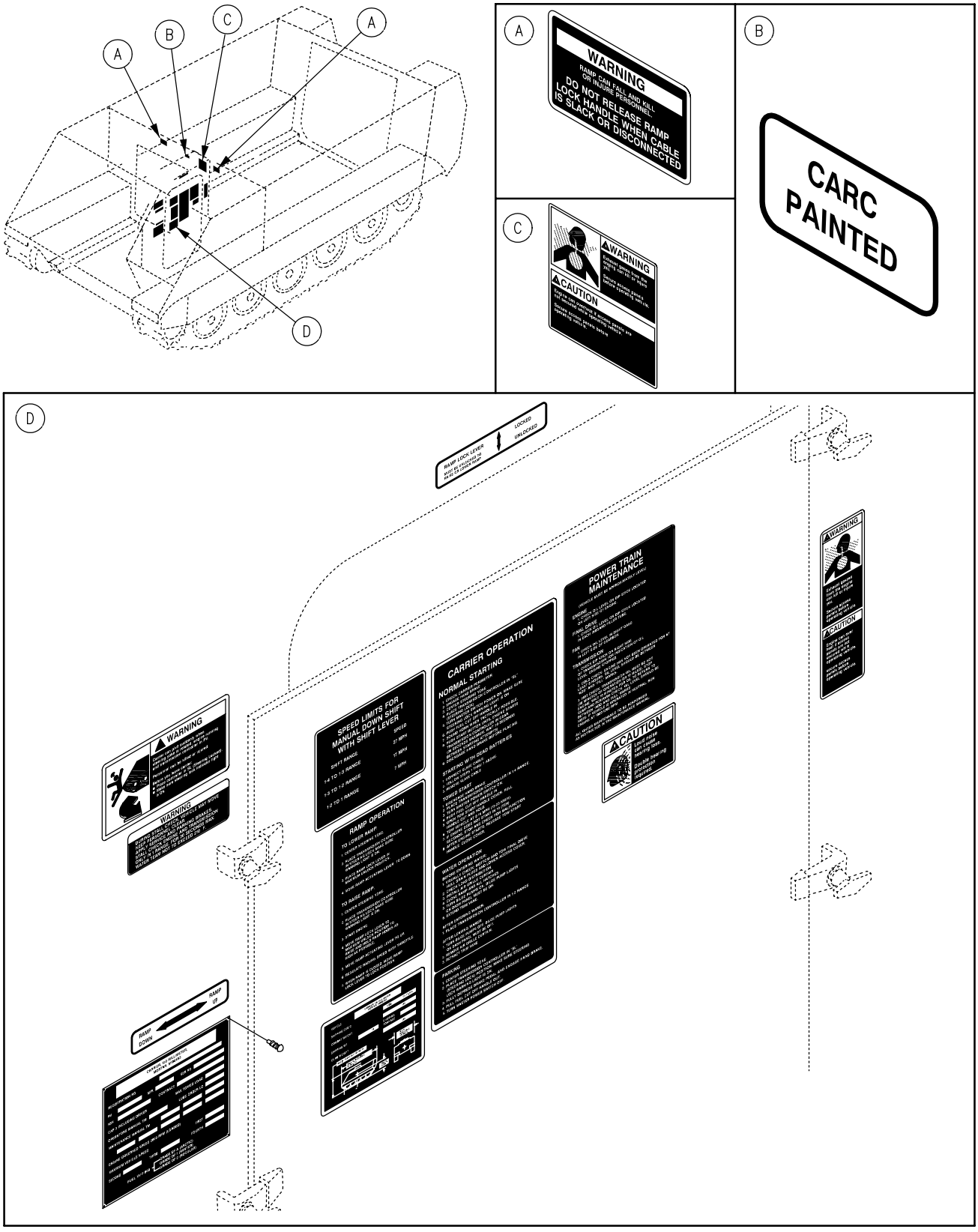
Engine stopped (see your -10)

Carrier blocked (see your -10)

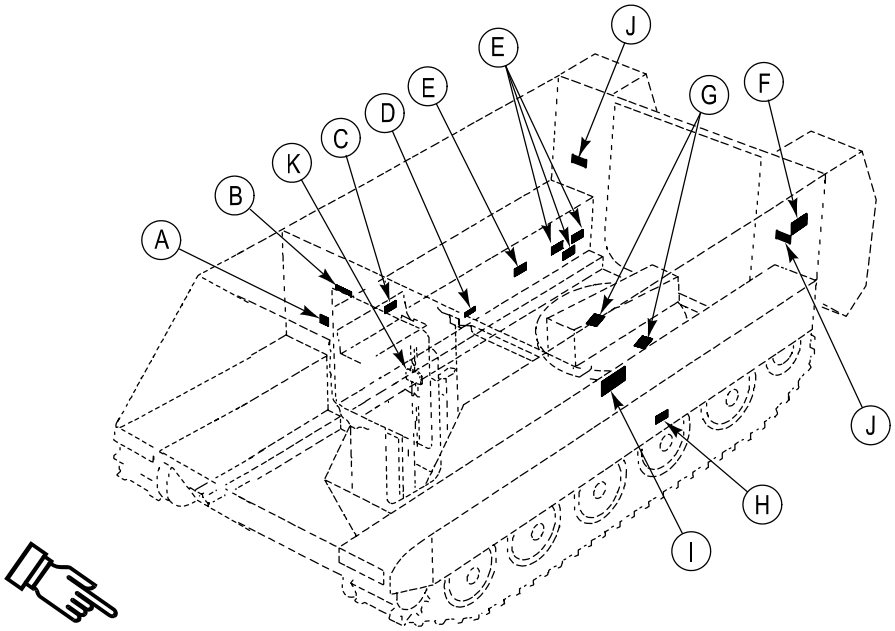
INSPECTION OF INSTALLED ITEMS

This task shows the location of dataplates, decals, and markers on the M1064A3 carrier. To replace dataplates, decals, and markers, see WP 0654 00.

DATAPLATES, DECALS, AND MARKERS (M1064A3 ONLY) — Continued 0652 00



DATAPLATES, DECALS, AND MARKERS (M1064A3 ONLY) — Continued 0652 00



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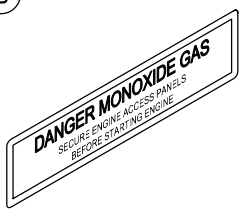

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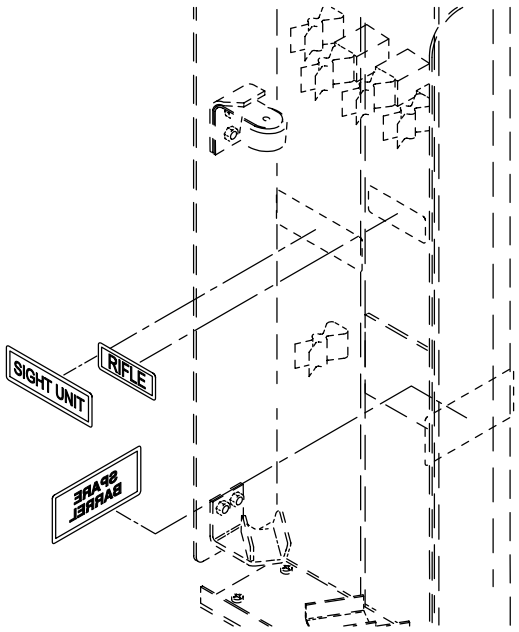

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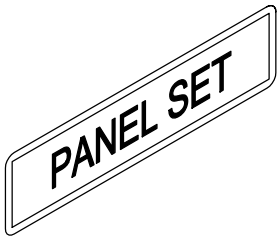

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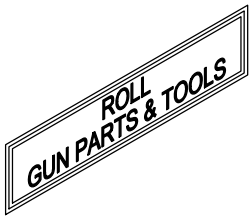

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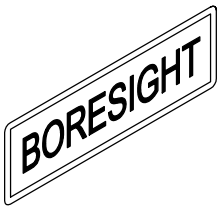

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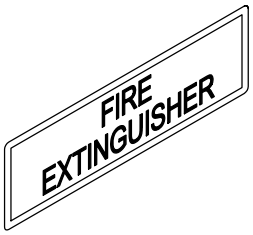

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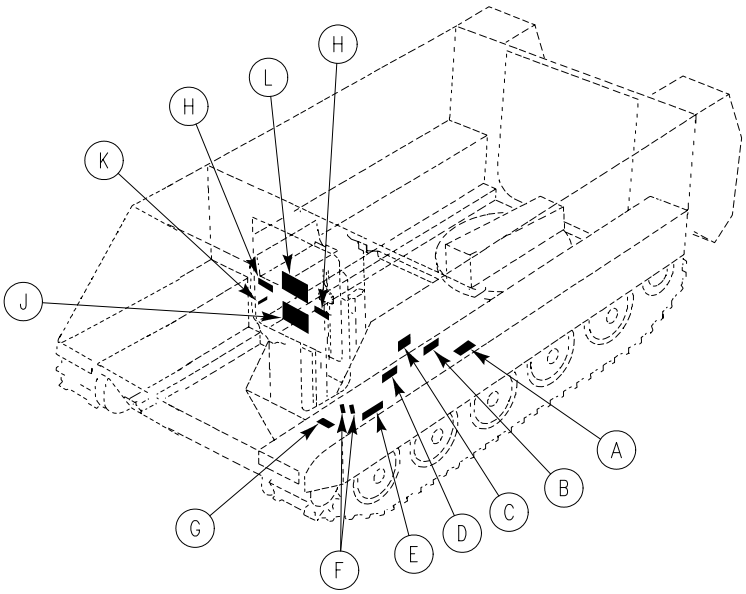
DATAPLATES, DECALS, AND MARKERS (M1064A3 ONLY) — Continued **0652 00**



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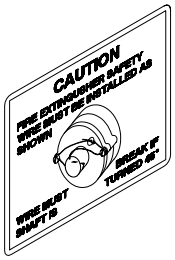

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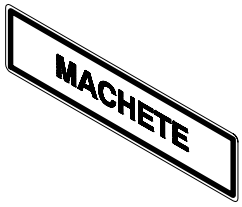

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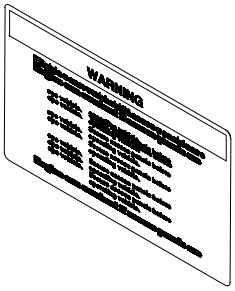

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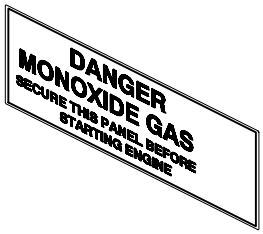

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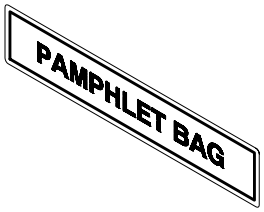

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END OF TASK

DATAPLATES, DECALS, AND MARKERS (M58 ONLY) 0653 00

THIS WORK PACKAGE COVERS:

Inspection of Installed Items (page 0653 00-1).

INITIAL SETUP:

Maintenance Level
Unit

Personnel Required
Unit Mechanic

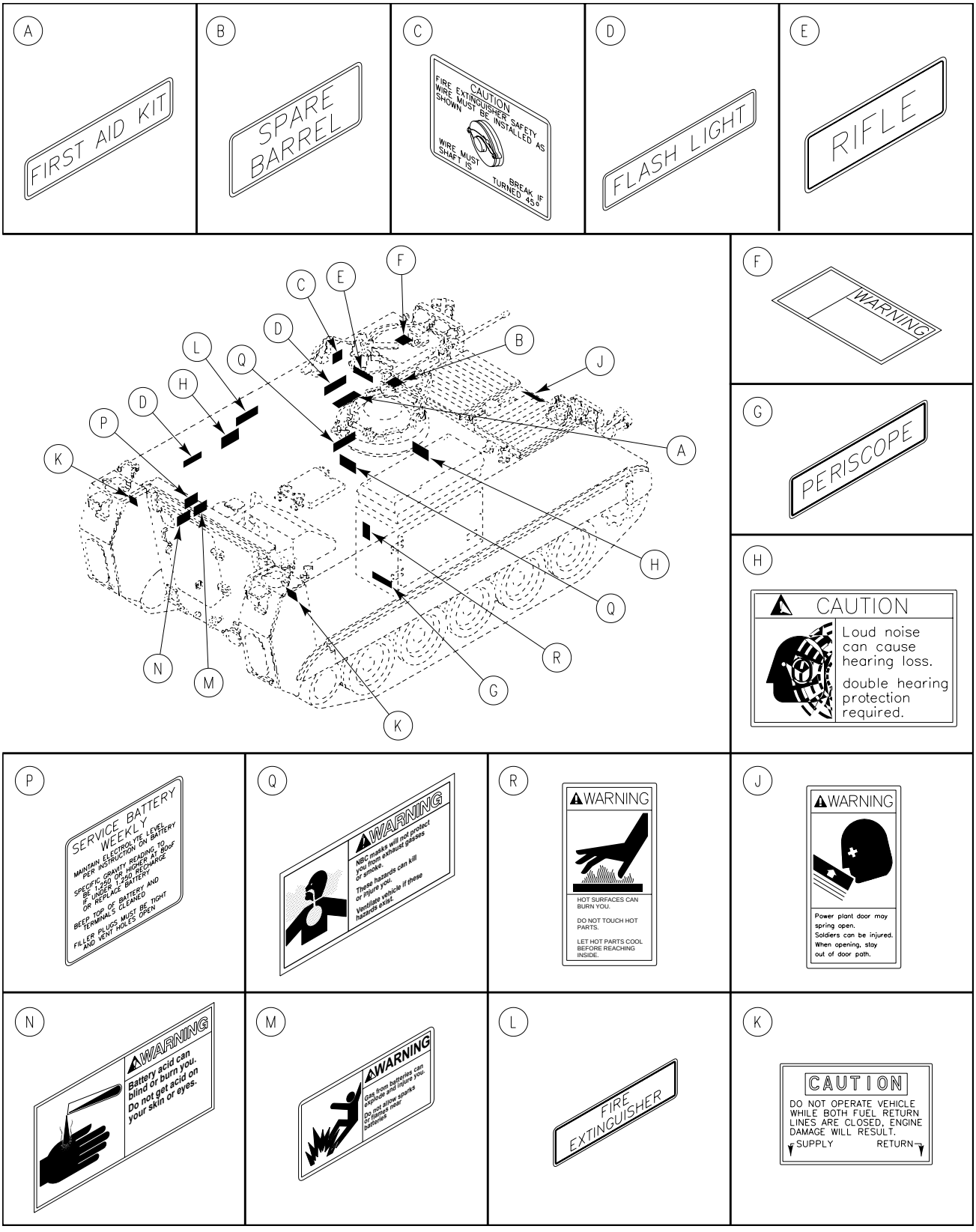
References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)

INSPECTION OF INSTALLED ITEMS

This task shows the location of dataplates, decals, and markers on the M58 carrier. To replace dataplates, decals, and markers, see WP 0654 00.

DATAPLATES, DECALS, AND MARKERS (M58 ONLY) — Continued 0653 00



END OF TASK

REPLACE DATAPLATES, STENCILS, MARKERS, AND DECALS 0654 00

THIS WORK PACKAGE COVERS:

Removal (page 0654 00-2).
Cleaning (page 0654 00-2).
Installation (page 0654 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts

Cleaning compound (WP 0928 00, Item 19)
Drive screw (as needed)

Personnel Required

Unit Mechanic

References

See your -10
TM 43-0139

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)

REMOVAL

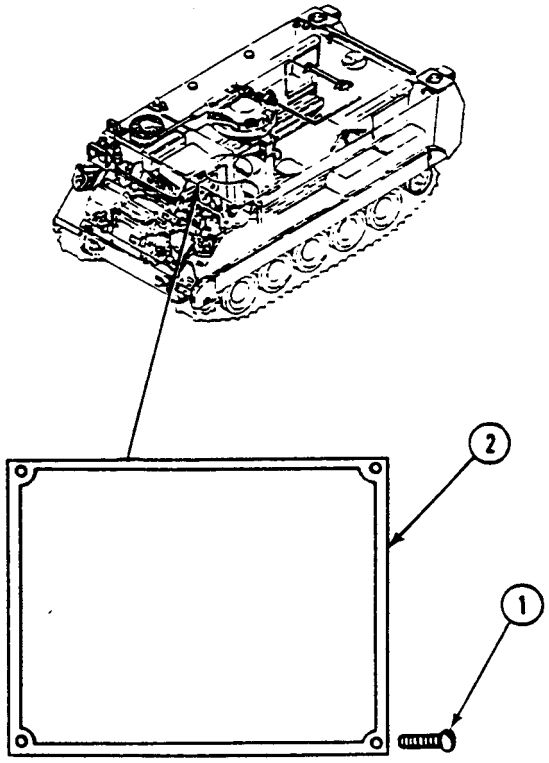
NOTE

Dataplates and markers should be cleaned or replaced when they become too hard to read.

NOTE

Dataplates are secured to bulkheads with drive screws.

1. Remove heads of drive screws (1) from dataplate (2). Remove dataplate from hull.
2. Remove hard to read stencils with cleaning compound.
3. Remove hard to read or damaged markers and decals by scraping.



CLEANING

1. Clean hull surface where dataplate, stencil, marker, or decal is to be applied with cleaning compound.

INSTALLATION

1. Place old dataplate on hull so that holes in plate do NOT align with holes in hull. Using old dataplate as a template, drill four new holes.

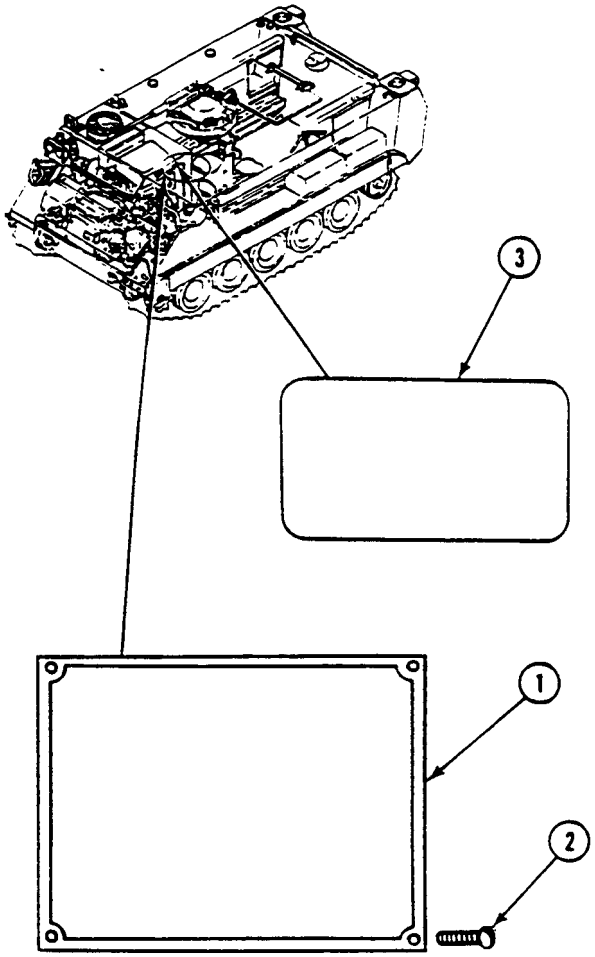
2. Align new dataplate (1) with four new holes. Secure dataplate to hull with four new drive screws (2).

NOTE

If carrier identification plate is being replaced, make sure replacement dataplate contains data that belongs to specific carrier.

3. Check applicable stencil chart (see Table of Contents) for location of stencil, and paint new stencil TM 43-0139.

4. Check applicable decal and marker chart (see Table of Contents) for location of decal or marker (3). Remove backing from decal or marker and press on surface.



END OF TASK

CHAPTER 19

UNIT MAINTENANCE INSTRUCTIONS FOR HYDRAULIC SYSTEM

WORK PACKAGE INDEX

Title	Sequence No.
REPLACE RAMP HYDRAULIC PUMP	0655 00
REPLACE RAMP CYLINDER	0656 00
REPLACE WIRE ROPE AND PULLEYS (ALL EXCEPT M1064A3)	0657 00
REPLACE WIRE ROPE AND PULLEYS (M1064A3 ONLY)	0658 00
REPLACE RAMP CONTROL VALVE (WITH EXTERNAL RELIEF VALVE) AND FITTINGS	0659 00
REPLACE RAMP CONTROL VALVE, EXTERNAL RELIEF VALVE, AND FITTINGS WITH RAMP CONTROL VALVE (INTERNAL RELIEF VALVE)	0660 00
REPLACE RAMP CONTROL VALVE (WITH INTERNAL RELIEF VALVE) AND FITTINGS	0661 00
REPLACE SAFETY RELIEF VALVE, TUBE, HOSE, AND FITTINGS	0662 00
REPLACE RAMP CONTROL VALVE HOSE AND ELBOW	0663 00
REPLACE TUBE FROM RAMP CONTROL VALVE TO BULKHEAD	0664 00
REPLACE HOSE FROM BULKHEAD CONNECTION TO RAMP CYLINDER	0665 00
REPLACE RAMP CYLINDER BREATHER HOSE (ALL EXCEPT M1064A3)	0666 00
REPLACE RAMP CYLINDER BREATHER HOSE (M1064A3 ONLY)	0667 00
REPLACE POWER PLANT HYDRAULIC HOSES	0668 00
SERVICE HYDRAULIC RESERVOIR	0669 00
SERVICE HYDRAULIC RESERVOIR BREATHER	0670 00
REPLACE HYDRAULIC RESERVOIR	0671 00
REPAIR HYDRAULIC RESERVOIR	0672 00

REPLACE RAMP HYDRAULIC PUMP 0655 00

THIS WORK PACKAGE COVERS:

Removal (page 0655 00-2).
Installation (page 0655 00-3).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0926 00, Item 65)
Crow Foot Attachment (WP 0926 00, Item 15)
Universal Socket (WP 0926 00, Item 51)
Torque Wrench (WP 0926 00, Item 85)

Materials/Parts
Gasket
Preformed packing
Preformed packing
Preformed packing

Personnel Required
Unit Mechanic

References
See your -10
See your PMCS

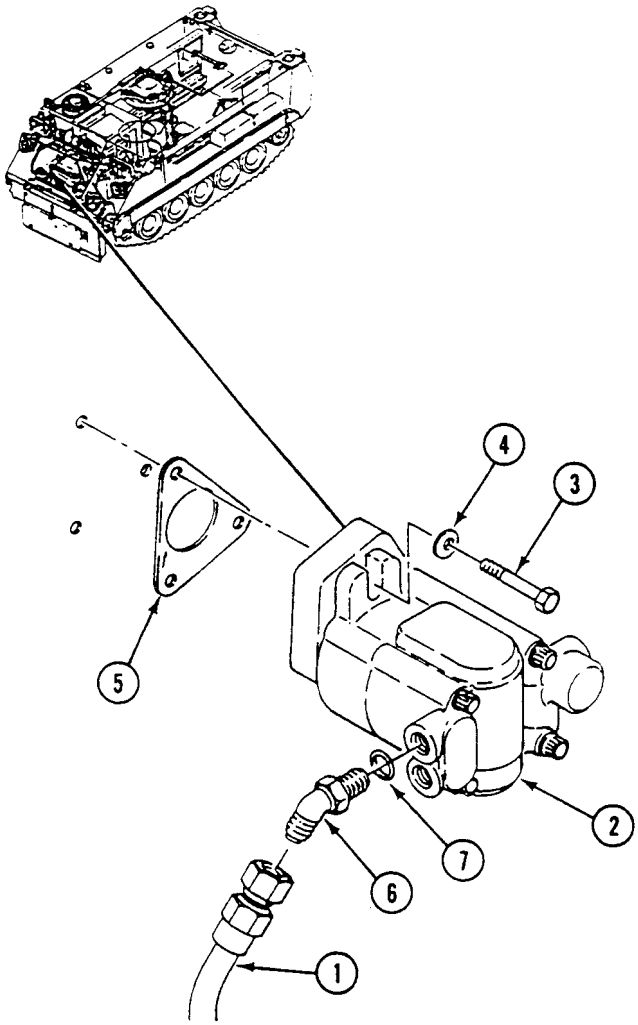
Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Trim vane lowered (see your -10)
Power plant front access door open (see your -10)
Hydraulic reservoir drained (WP 0671 00)
Exhaust elbows removed (WP 0221 00)
Air cleaner removed (WP 0168 00)

REMOVAL

WARNING

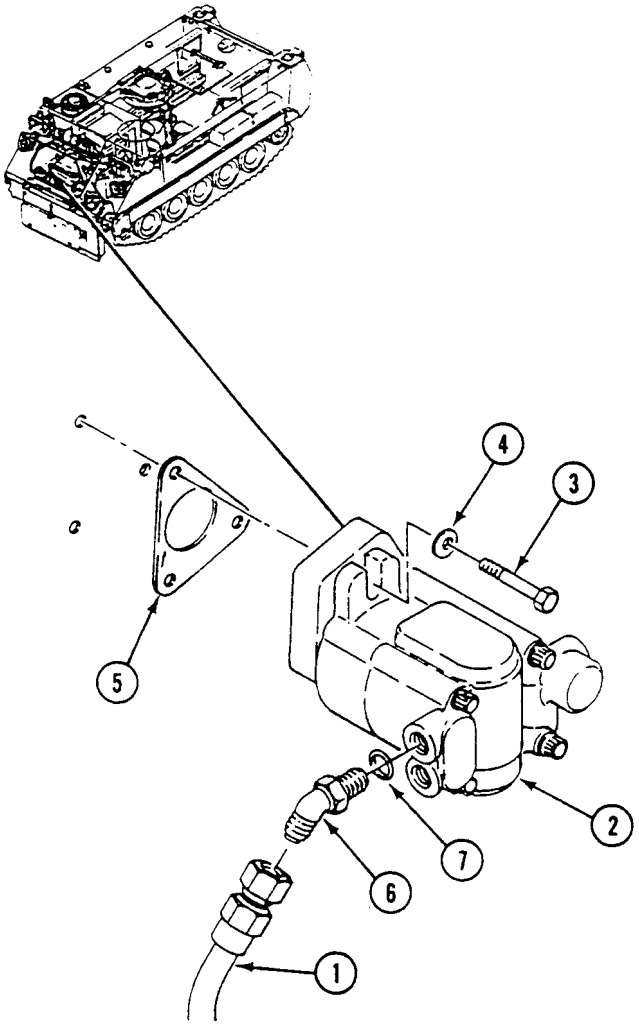
Hydraulic fluid is poisonous and can be absorbed through your skin. Wash off any hydraulic fluid that contacts your skin. Read the hydraulic fluid warning in the front of this manual.

1. Disconnect three hoses (1) from hydraulic pump (2).
2. Remove two screws (3), washers (4), hydraulic pump (2), and gasket (5) from engine. Use universal socket on inboard screw and crow foot attachment on outboard screw. Discard gasket.
3. Remove three elbows (6) and preformed packings (7) from pump (2). Discard packings.



INSTALLATION

1. Install three elbows (6) and new preformed packings (7) on hydraulic pump (2).
2. Install hydraulic pump (2) and new gasket (5) on engine. Secure with two screws (3) and washers (4). Use universal socket on inboard screw and crow foot attachment on outboard screw. TIGHTEN SCREWS TO 25-30 LB-FT (36-41 N·m) TORQUE.
3. Connect three hoses (1) to elbows (6) on hydraulic pump (2).



FOLLOW-THROUGH STEPS

1. Install exhaust elbows (WP 0221 00).
2. Install air cleaner (WP 0168 00).
3. Fill hydraulic reservoir (WP 0671 00).
4. Start engine (see your -10).
5. Check for leaks.
6. Raise and lower ramp several times to bleed air from system (see your -10).
7. Raise and lock ramp (see your -10).
8. Stop engine (see your -10).
9. Turn MASTER SWITCH OFF (see your -10).
10. Close power plant front access door (see your -10).
11. Raise trim vane (see your -10).

END OF TASK

REPLACE RAMP CYLINDER 0656 00

THIS WORK PACKAGE COVERS:

Removal (page 0656 00-2).
Cleaning (page 0656 00-2).
Installation (page 0656 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts

Adhesive (WP 0928 00, Item 4)
Cleaning compound (WP 0928 00, Item 19)
FRH hydraulic fluid (WP 0928 00, Item 37)
Cotter pin

Personnel Required

Unit Mechanic

References

See your -10
See your PMCS

Equipment Condition

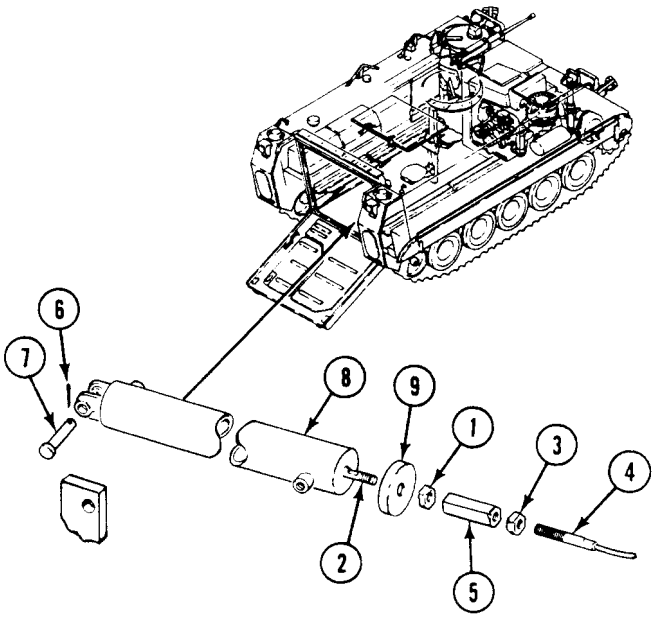
Engine stopped (see your -10)
Carrier blocked (see your -10)
Ramp lowered (see your -10)
Rear floor plate removed (WP 0539 00)
Ramp cylinder hose disconnected (WP 0665 00)
Breather hose removed (WP 0666 00)

REMOVAL

WARNING

Hydraulic fluid is poisonous and can be absorbed through your skin. Wash off any hydraulic fluid that contacts your skin. Read the hydraulic fluid warning in the front of this manual.

1. Loosen nut (1) on cylinder rod (2). Loosen nut (3) on cable (4).
2. Turn post (5) onto cable (4) until it clears cylinder rod (2). Remove nut (1) from rod.
3. Remove post (5) and nut (3) from cable (4).
4. Remove cotter pin (6) from clevis pin (7). Discard cotter pin.
5. Remove clevis pin (7) and ramp cylinder (8) from hull bracket.
6. Remove boot (9) from cylinder (8).



CLEANING

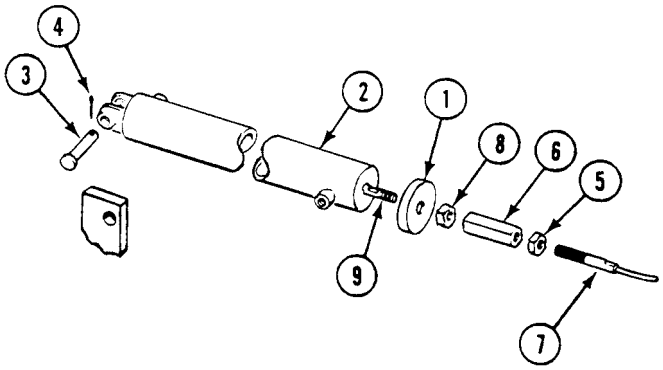
1. Clean boot mating surface on cylinder with cleaning compound.

INSTALLATION

WARNING

Hydraulic fluid is poisonous and can be absorbed through your skin. Wash off any hydraulic fluid that contacts your skin. Read the hydraulic fluid warning in the front of this manual.

1. Apply thin coat of adhesive to surfaces of boot (1) and cylinder (2). Allow adhesive to become tacky and install boot on cylinder.
2. Align cylinder (2) with hull bracket. Secure with clevis pin (3) and new cotter pin (4).
3. Install nut (5) and post (6) on cable (7).
4. Install nut (8) on cylinder rod (9).
5. Thread post (6) on cylinder rod (9). Secure with two nuts (5) and (8).



FOLLOW-THROUGH STEPS

1. Install breather hose (WP 0666 00).
2. Connect ramp cylinder hose (WP 0665 00).
3. Check fluid in tank. Add fluid as needed (see your PMCS).
4. Start engine (see your -10). Check for hydraulic leaks.

WARNING

Unlocked ramp can fall open suddenly. Personnel can be killed or injured. Do not stand behind ramp. Keep away from ramp during testing and bleeding of hydraulic lines.

5. Raise and lower ramp several times to bleed air from system (see your -10).
6. Install rear floor plate (WP 0539 00).
7. Raise and lock ramp (see your -10).

END OF TASK

REPLACE WIRE ROPE AND PULLEYS (ALL EXCEPT M1064A3) 0657 00

THIS WORK PACKAGE COVERS:

Removal (page 0657 00-1).
Installation (page 0657 00-2).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts

Cotter pin (3)

Personnel Required

Unit Mechanic

References

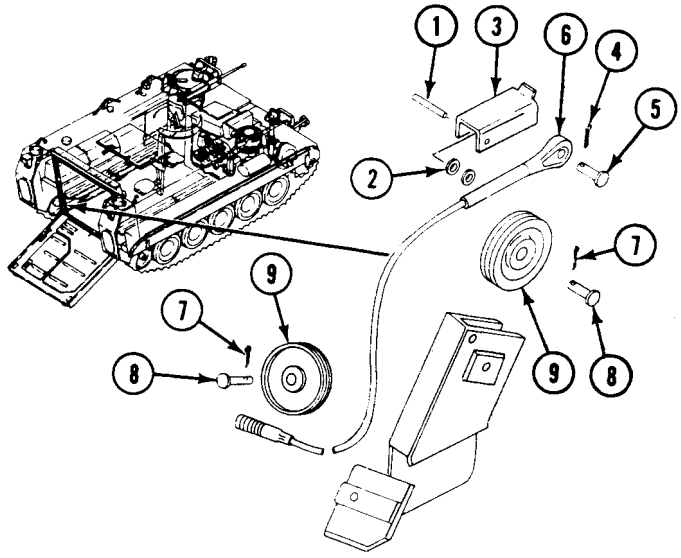
See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Ramp lowered (see your -10)
Rear floor plate removed (WP 0539 00)
Wire rope disconnected from ramp cylinder (WP 0656 00)

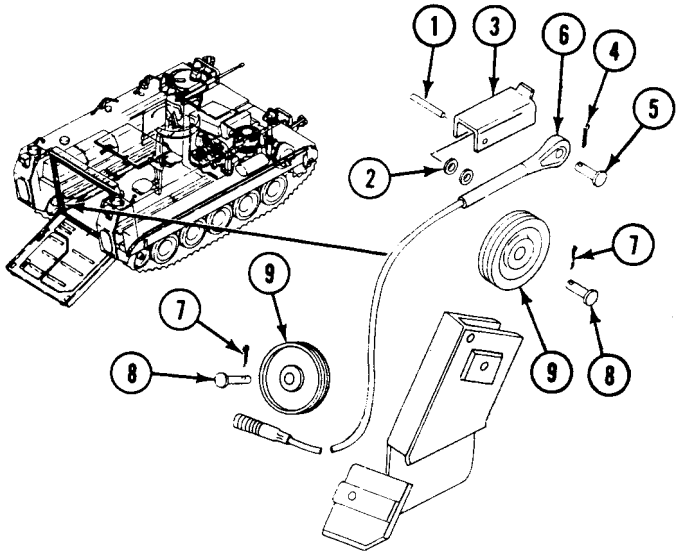
REMOVAL

1. Remove pin (1), two washers (2), and guard (3) from upper pulley mount.
2. Remove cotter pin (4), headed pin (5), and wire rope (6) from ramp mount bracket. Discard cotter pin.
3. Remove two cotter pins (7), headed pins (8), and pulleys (9) from pulley mount. Discard cotter pins.
4. Remove rope (6) from carrier.



INSTALLATION

1. Route wire rope (6) through pulley mount.
2. Align two pulleys (9) with pulley mount. Secure with two headed pins (8) and new cotter pins (7).
3. Align wire rope end fitting with ramp mount bracket. Secure with headed pin (5) and new cotter pin (4).
4. Align guard (3) and two washers (2) with upper pulley mount. Secure with pin (1).



FOLLOW-THROUGH STEPS

1. Connect wire rope to ramp cylinder (WP 0656 00).
2. Install rear floor plate (WP 0539 00).
3. Raise ramp (see your -10). Check that wire rope and pulleys work right.
4. Stop engine (see your -10).

END OF TASK

REPLACE WIRE ROPE AND PULLEYS (M1064A3 ONLY) 0658 00

THIS WORK PACKAGE COVERS:

Removal (page 0658 00-1).
Installation (page 0658 00-2).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts

Cotter pin (4)

Personnel Required

Unit Mechanic

References

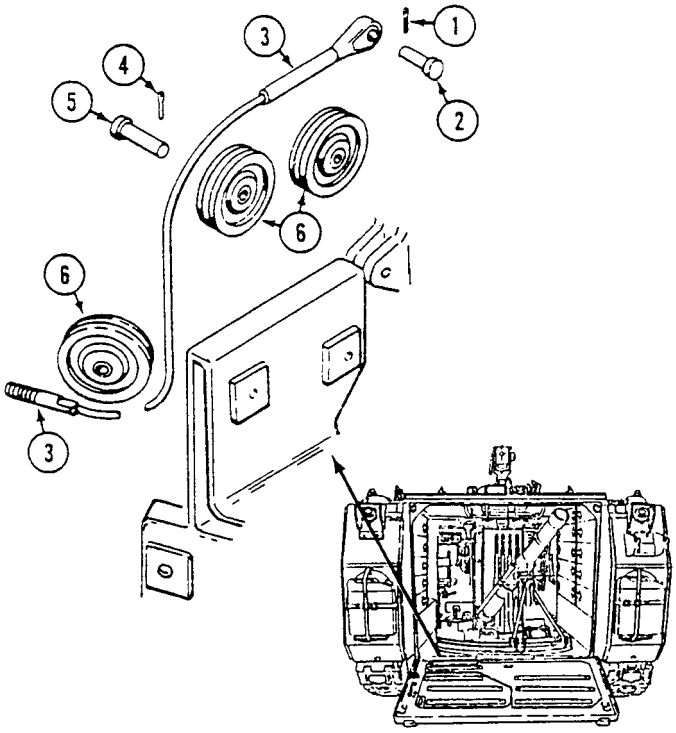
See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Ramp lowered (see your -10)
Rear floor plate removed (WP 0543 00)
Wire rope disconnected from ramp cylinder (WP 0656 00)

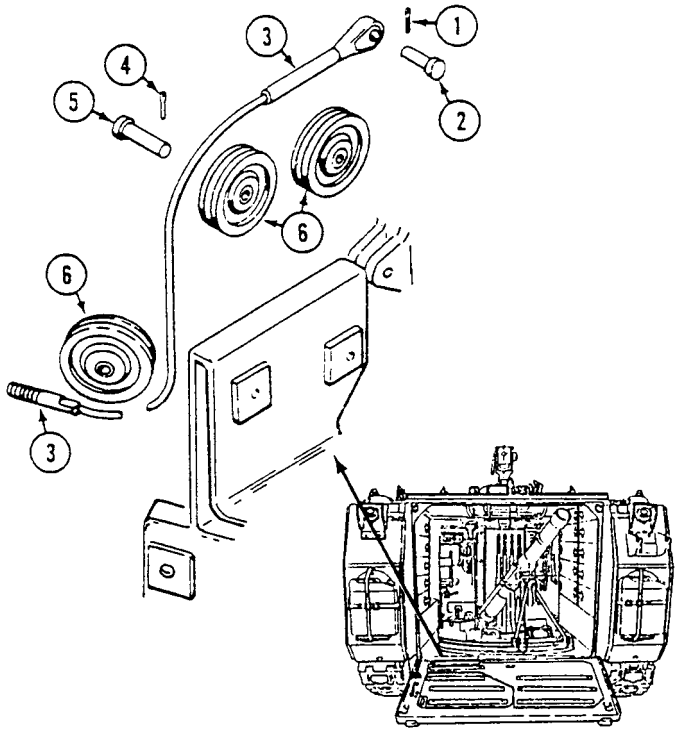
REMOVAL

1. Remove cotter pin (1), headed pin (2), and wire rope (3) from ramp mount bracket. Discard cotter pin.
2. Remove three cotter pins (4), headed pins (5), and pulleys (6) from pulley mount. Discard cotter pins.
3. Remove wire rope (3) from carrier.



INSTALLATION

1. Route wire rope (3) through pulley mount.
2. Align three pulleys (6) with pulley mount. Secure with three headed pins (5) and new cotter pins (4).
3. Align wire rope swedged eye with ramp mount bracket. Secure with headed pin (2) and new cotter pin (1).



FOLLOW-THROUGH STEPS

1. Connect wire rope to ramp cylinder (WP 0656 00).
2. Install rear floor plate (WP 0543 00).
3. Start engine (see your -10).
4. Raise and lower ramp several times (see your -10). Check to see that wire rope and pulleys operate properly.
5. Raise and lock ramp (see your -10).
6. Stop engine (see your -10).

END OF TASK

REPLACE RAMP CONTROL VALVE (WITH EXTERNAL RELIEF VALVE) AND FITTINGS

0659 00

THIS WORK PACKAGE COVERS:

Repair or Replacement (page 0659 00-1).

INITIAL SETUP:

Maintenance Level

Unit

Personnel Required

Unit Mechanic

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)

REPAIR OR REPLACEMENT

1. If ramp control valve (with external relief valve) fails, see task REPLACE RAMP CONTROL VALVE, EXTERNAL RELIEF VALVE, AND FITTINGS WITH RAMP CONTROL VALVE (INTERNAL RELIEF VALVE) (WP 0660 00).

END OF TASK

REPLACE RAMP CONTROL VALVE, EXTERNAL RELIEF VALVE, AND FITTINGS WITH RAMP CONTROL VALVE (INTERNAL RELIEF VALVE)

0660 00

THIS WORK PACKAGE COVERS:

Removal (page 0660 00-1).
Installation (page 0660 00-6).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts

Sealing compound (WP 0928 00, Item 56)
Adapter
Coupling
Elbow
Locknut
Packing
Preformed packing (3)
Tab washer (4)
Valve

Personnel Required

Unit Mechanic

References

See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Ramp lowered (see your -10)
Driver's access panel removed (see your -10)
Hydraulic reservoir drained (WP 0671 00)

REMOVAL

WARNING

Fire Resistant Hydraulic fluid (FRH) is toxic if absorbed through skin or ingested.

Do not service hydraulic system when FRH is hot or pressurized.
Wear gloves and avoid contact with skin.
If FRH contacts skin, wash immediately with soap.
If FRH gets into eyes, wash with lots of water for 15 minutes and get medical attention.
If FRH is swallowed, get medical attention.

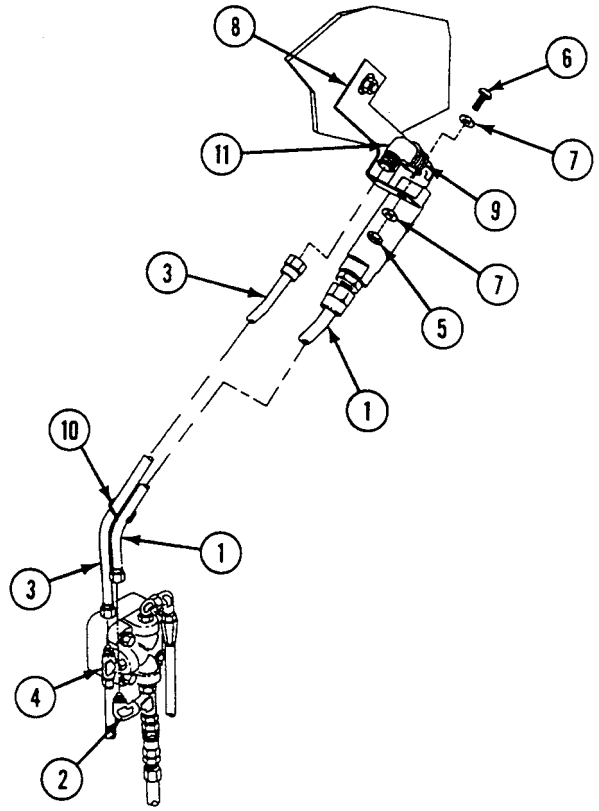
1. Disconnect tube (1) from elbow (2).
2. Disconnect hose (3) from tee (4).

REPLACE RAMP CONTROL VALVE, EXTERNAL RELIEF VALVE, AND FITTINGS WITH RAMP CONTROL VALVE (INTERNAL RELIEF VALVE) — Continued **0660 00**

NOTE

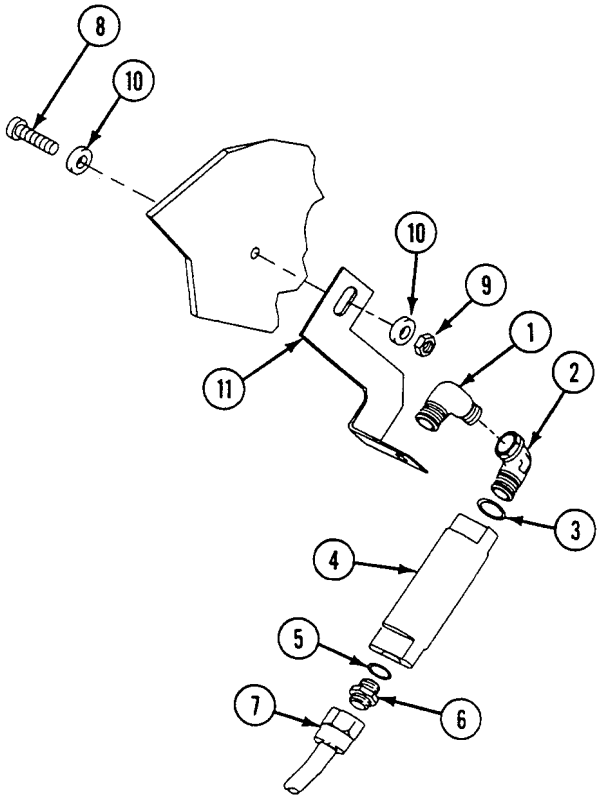
All items supporting safety relief valve should be removed and discarded.

3. Remove nut (5), screw (6), and two washers (7) from bracket (8). Remove clamp (9) from relief valve assembly. Discard nut.
4. Remove strap (10) that secures hose (3) to tube (1). Discard strap.
5. Remove hose (3) from elbow (11).



REPLACE RAMP CONTROL VALVE, EXTERNAL RELIEF VALVE, AND FITTINGS WITH RAMP CONTROL VALVE (INTERNAL RELIEF VALVE) — Continued **0660 00**

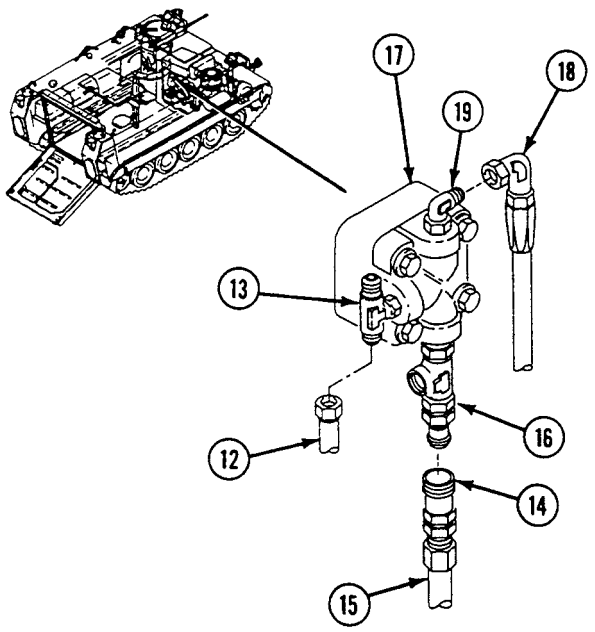
6. Remove two elbows (1)(2) and preformed packing (3) from relief valve (4). Discard packing. Separate two elbows.
7. Remove relief valve (4) and preformed packing (5) from adapter (6). Discard packing.
8. Remove adapter (6) from tube (7).
9. Remove screw (8), nut (9), two washers (10), and bracket (11) from bulkhead. Discard nut.



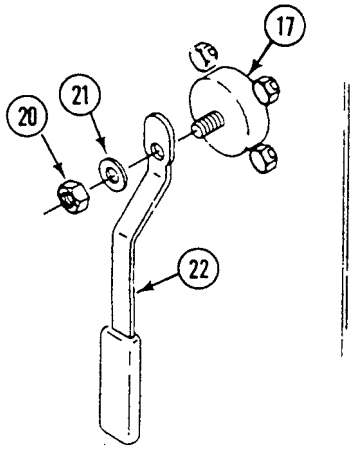
REPLACE RAMP CONTROL VALVE, EXTERNAL RELIEF VALVE, AND FITTINGS WITH RAMP CONTROL VALVE (INTERNAL RELIEF VALVE) — Continued

0660 00

10. Disconnect tube (12) from tee (13). Retain tube.
11. Disconnect quick disconnect (14) with hose (15) from quick disconnect (16) on control valve (17). Retain quick disconnect (14) with hose (15) for installation.
12. Disconnect elbow (18) from elbow (19).



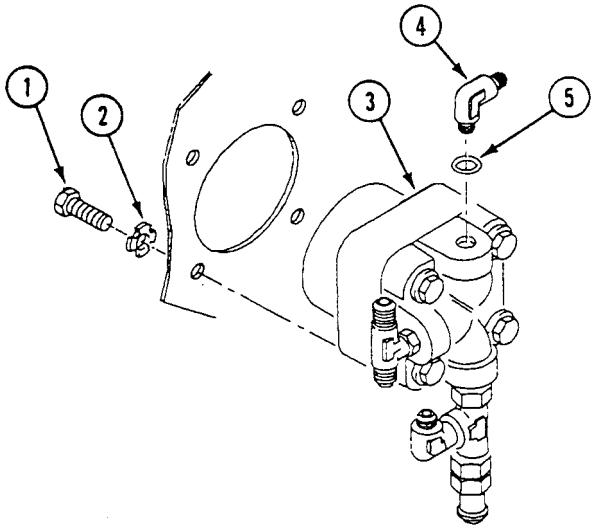
13. Remove locknut (20), washer (21), and handle (22) from valve (17). Discard locknut.



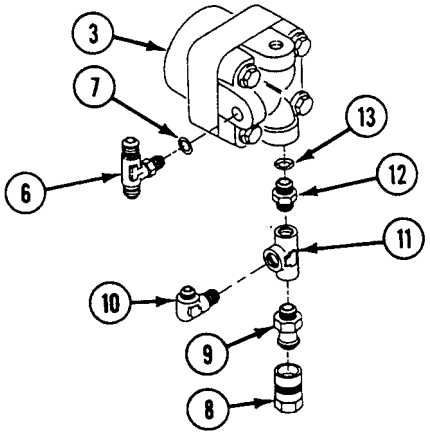
REPLACE RAMP CONTROL VALVE, EXTERNAL RELIEF VALVE, AND FITTINGS WITH RAMP CONTROL VALVE (INTERNAL RELIEF VALVE) — Continued

0660 00

14. Remove four screws (1) and tab washers (2) from valve (3). Remove valve from bulkhead. Discard tab washers.
15. Remove elbow (4) and preformed packing (5) from valve (3). Retain elbow. Discard packing.



16. Remove tee (6) and preformed packing (7) from valve (3). Discard packing and tee.
17. Disconnect quick disconnect fitting (8) from nipple (9).
18. Remove nipple (9) and elbow (10) from tee (11). Discard nipple and elbow.
19. Remove tee (11) from adapter (12).
20. Remove adapter (12) and preformed packing (13) from valve (3). Discard packing.



REPLACE RAMP CONTROL VALVE, EXTERNAL RELIEF VALVE, AND FITTINGS WITH RAMP CONTROL VALVE (INTERNAL RELIEF VALVE) — Continued

0660 00

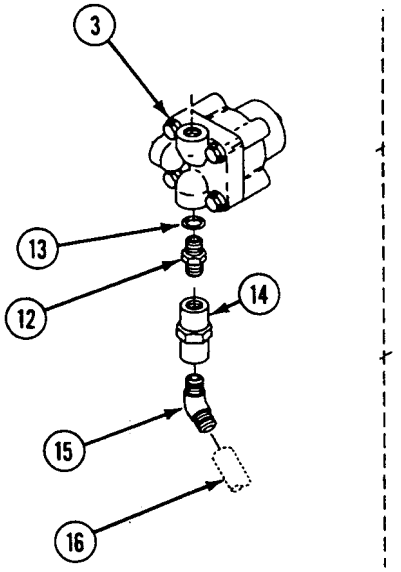
INSTALLATION

WARNING

Fire Resistant Hydraulic fluid (FRH) is toxic if absorbed through skin or ingested.

Do not service hydraulic system when FRH is hot or pressurized.
Wear gloves and avoid contact with skin.
If FRH contacts skin, wash immediately with soap.
If FRH gets into eyes, wash with lots of water for 15 minutes and get medical attention.
If FRH is swallowed, get medical attention.

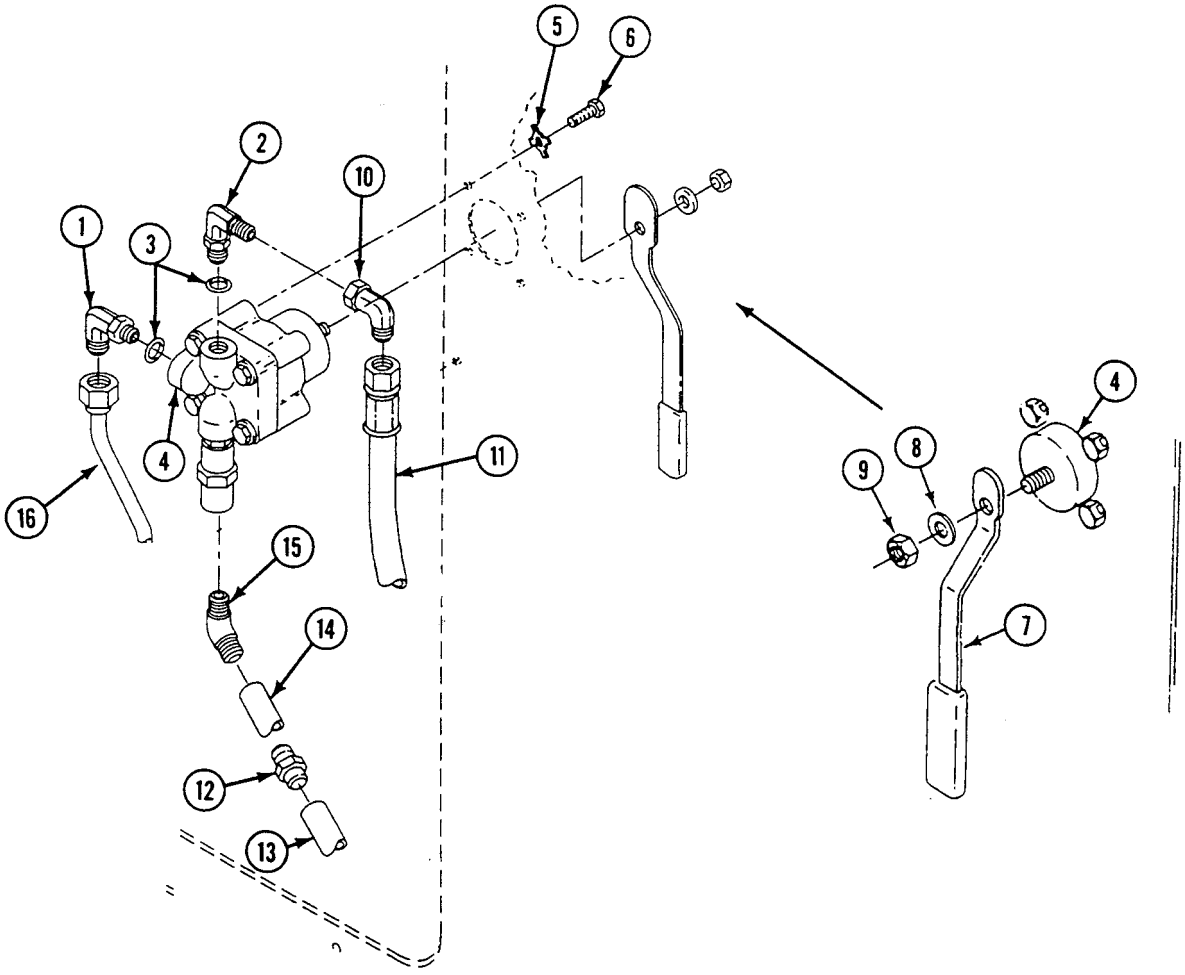
1. Apply sealing compound to all male tapered threaded parts before installation.
2. Install adapter (12) and new preformed packing (13) on valve (3).
3. Install coupling (14) on adapter (12).
4. Install elbow (15) on coupling (14).
5. Install quick disconnect (16) on elbow (15).



REPLACE RAMP CONTROL VALVE, EXTERNAL RELIEF VALVE, AND FITTINGS WITH RAMP CONTROL VALVE (INTERNAL RELIEF VALVE) — Continued

0660 00

6. Install two elbows (1)(2) and new preformed packings (3) on valve (4).
7. Install valve (4) on bulkhead. Secure with four new tab washers (5) and screws (6).
8. Install handle (7) on valve (4). Secure with washer (8) and new locknut (9).
9. Connect elbow (10) with hose (11) to elbow (2).
10. Connect quick disconnect (12) on hose (13) to quick disconnect (14) on elbow (15).
11. Connect tube (16) to elbow (1) on valve (4).



REPLACE RAMP CONTROL VALVE, EXTERNAL RELIEF VALVE, AND FITTINGS WITH RAMP CONTROL VALVE (INTERNAL RELIEF VALVE) — Continued **0660 00**

FOLLOW-THROUGH STEPS

1. Fill hydraulic reservoir (WP 0155 00).
2. Install driver’s access panel (see your -10).
3. Raise and lower ramp several times to bleed system and check for leaks (see your -10).
4. Raise and lock ramp (see your -10).

END OF TASK

REPLACE RAMP CONTROL VALVE (WITH INTERNAL RELIEF VALVE) AND FITTINGS

0661 00

THIS WORK PACKAGE COVERS:

Removal (page 0661 00-1).
Installation (page 0661 00-4).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts

Sealing compound (WP 0928 00, Item 56)
Locknut
Preformed packing (3)
Tab washer (4)

Personnel Required

Unit Mechanic

References

See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Ramp lowered (see your -10)
Drivers access panel removed (see your -10)
Hydraulic reservoir drained (WP 0671 00)

REMOVAL

WARNING

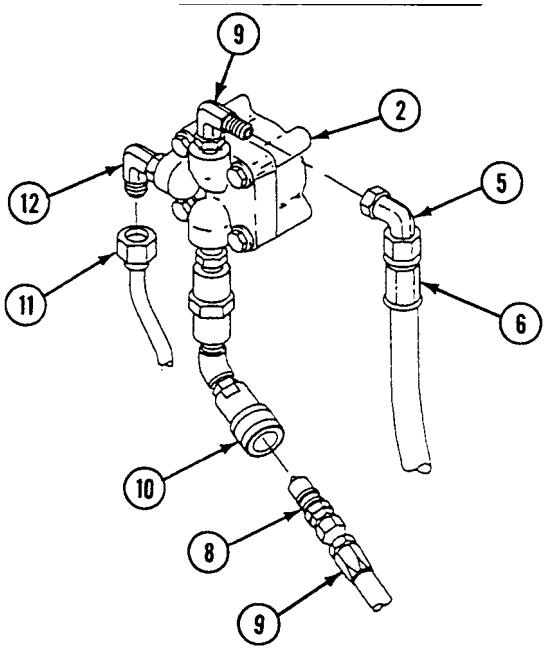
Fire Resistant Hydraulic fluid (FRH) is toxic if absorbed through skin or ingested.

Do not service hydraulic system when FRH is hot or pressurized.
Wear gloves and avoid contact with skin.
If FRH contacts skin, wash immediately with soap.
If FRH gets into eyes, wash with lots of water for 15 minutes and get medical attention.
If FRH is swallowed, get medical attention.

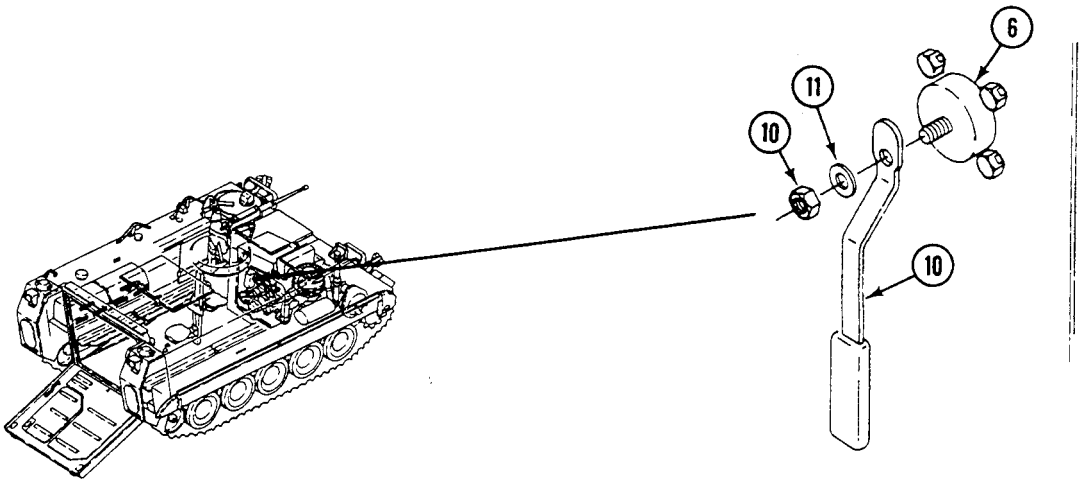
1. Disconnect tube (11) from elbow (12).

REPLACE RAMP CONTROL VALVE (WITH INTERNAL RELIEF VALVE) AND FITTINGS — Continued **0661 00**

2. Remove quick disconnect (8) on hose (9) from quick disconnect (10) on control valve (2).
3. Disconnect elbow (5) and hose (6) from elbow (9).

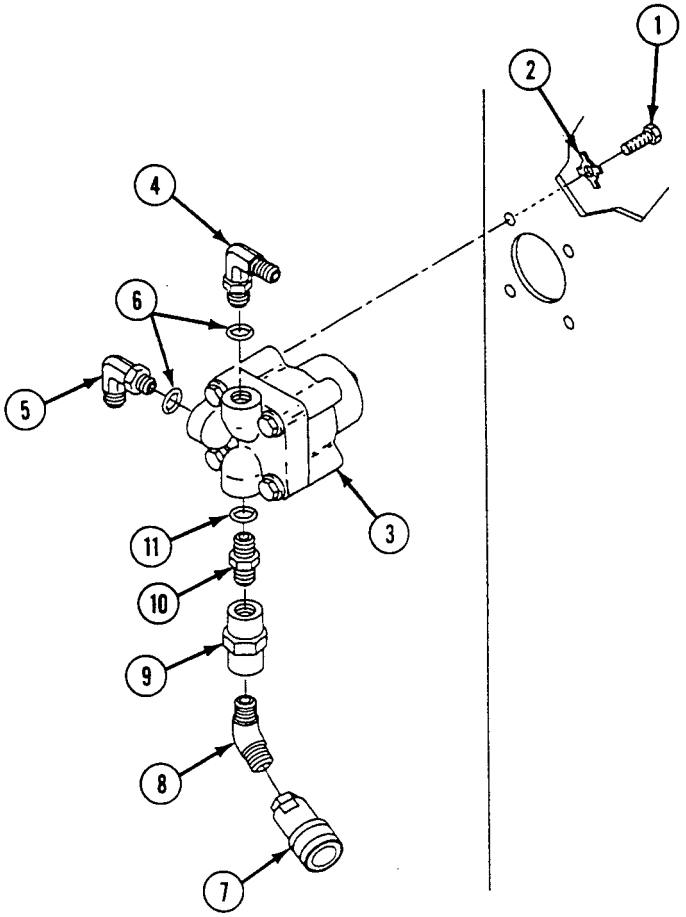


4. Remove locknut (10), washer (11), and handle (12) from valve (6). Discard locknut.



REPLACE RAMP CONTROL VALVE (WITH INTERNAL RELIEF VALVE) AND FITTINGS — Continued **0661 00**

5. Remove four screws (1) and tab washers (2) from valve (3). Remove valve from bulkhead. Discard tab washers.
6. Remove two elbows (4)(5) and preformed packings (6) from valve (3). Discard packings.
7. Remove quick disconnect (7) and adapter (8) from coupling (9).
8. Remove coupling (9), adapter (10), and preformed packing (11) from valve (3). Discard packing.



REPLACE RAMP CONTROL VALVE (WITH INTERNAL RELIEF VALVE) AND FITTINGS — Continued

0661 00

INSTALLATION

WARNING

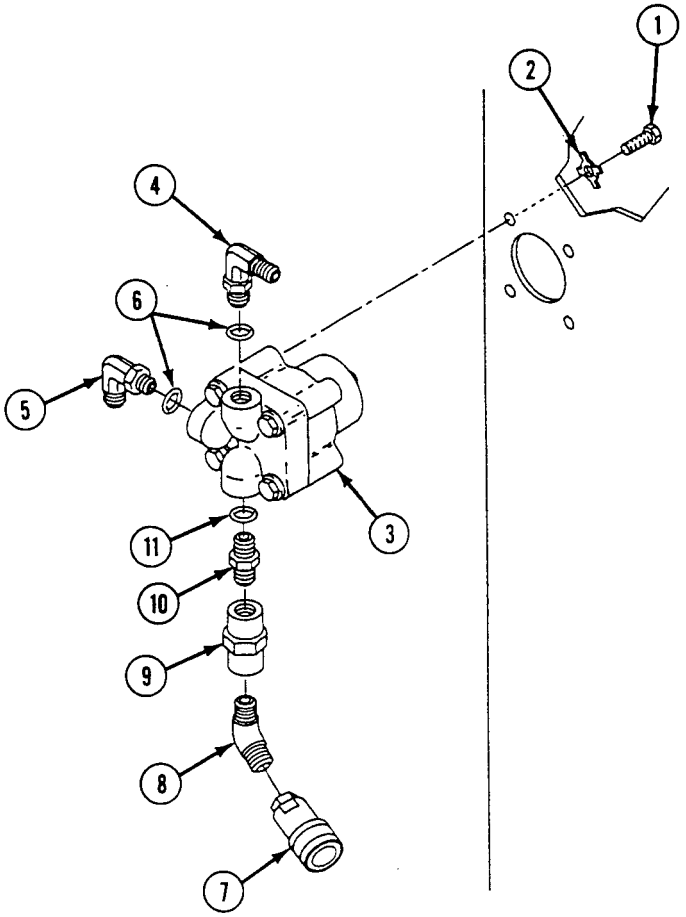
Fire Resistant Hydraulic fluid (FRH) is toxic if absorbed through skin or ingested.

Do not service hydraulic system when FRH is hot or pressurized.
Wear gloves and avoid contact with skin.
If FRH contacts skin, wash immediately with soap.
If FRH gets into eyes, wash with lots of water for 15 minutes and get medical attention.
If FRH is swallowed, get medical attention.

1. Apply sealing compound to all male tapered threaded parts before installation.
2. Install adapter (10), preformed packing (11), and coupling (9) on valve (3).
3. Install adapter (8) on coupling (9).
4. Install quick disconnect (7) on adapter (8).
5. Install two elbows (4)(5) and new preformed packings (6) on valve (3).

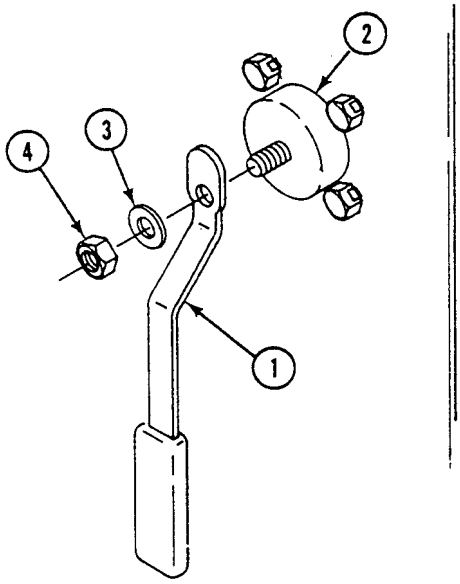
REPLACE RAMP CONTROL VALVE (WITH INTERNAL RELIEF VALVE) AND FITTINGS — Continued **0661 00**

6. Install valve (3) on bulkhead. Secure with four new tab washers (2) and screws (1).



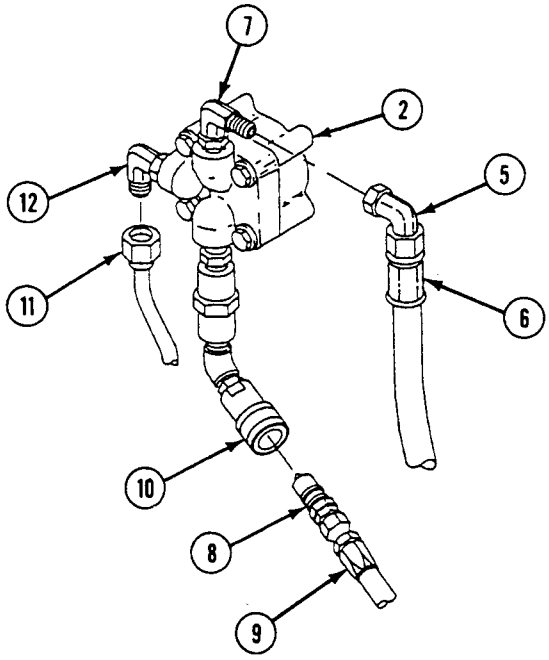
REPLACE RAMP CONTROL VALVE (WITH INTERNAL RELIEF VALVE) AND FITTINGS — Continued **0661 00**

7. Install handle (1) on valve (2). Secure with washer (3) and new locknut (4).



REPLACE RAMP CONTROL VALVE (WITH INTERNAL RELIEF VALVE) AND FITTINGS — Continued **0661 00**

8. Connect elbow (5) with hose (6) to elbow (7).
9. Connect quick disconnect (8) on hose (9) to quick disconnect (10) on valve (2).
10. Connect tube (11) to elbow (12) on valve (2).



FOLLOW-THROUGH STEPS

1. Fill hydraulic reservoir (WP 0155 00).
2. Install drivers access panel (see your -10).
3. Raise and lower ramp several times to bleed system and check for leaks (see your -10).
4. Raise and lock ramp (see your -10).

END OF TASK

REPLACE SAFETY RELIEF VALVE, TUBE, HOSE, AND FITTINGS 0662 00

THIS WORK PACKAGE COVERS:

Repair or Replacement (page 0662 00-1).

INITIAL SETUP:

Maintenance Level

Unit

Personnel Required

Unit Mechanic

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)

REPAIR OR REPLACEMENT

1. If safety relief valve, tube, hose, and fittings fail, see task REPLACE RAMP CONTROL VALVE, EXTERNAL RELIEF VALVE, AND FITTINGS WITH RAMP CONTROL VALVE (INTERNAL RELIEF VALVE) (WP 0660 00).

END OF TASK

REPLACE RAMP CONTROL VALVE HOSE AND ELBOW 0663 00

THIS WORK PACKAGE COVERS:

Removal (page 0663 00-1).
Installation (page 0663 00-3).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts
Sealing Compound (WP 0928 00, Item 56)

Personnel Required
Unit Mechanic

References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Driver's power plant access panel removed (see your -10)
Hydraulic reservoir drained (WP 0671 00)

REMOVAL

WARNING

Fire Resistant Hydraulic fluid (FRH) is toxic if absorbed through skin or ingested.

Do not service hydraulic system when FRH is hot or pressurized.
Wear gloves and avoid contact with skin.
If FRH contacts skin, wash immediately with soap.
If FRH gets into eyes, wash with lots of water for 15 minutes and get medical attention.
If FRH is swallowed, get medical attention.

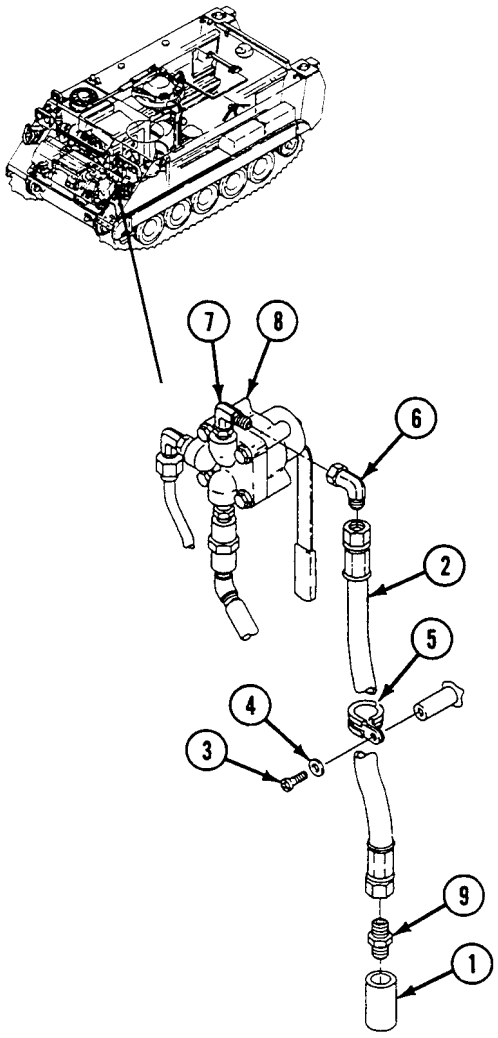
NOTE

There are two types of ramp control valves. One has an internal relief valve and the other has an external relief valve. Replacement of the ramp control valve hose is the same for both types.

1. Disconnect quick disconnect (1) at bottom of hose (2) from engine hose quick disconnect.

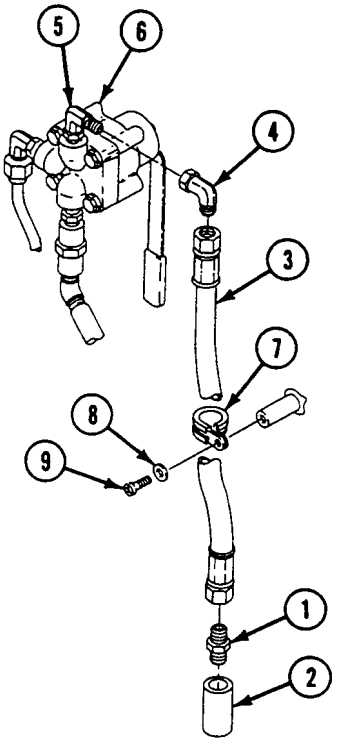
REPLACE RAMP CONTROL VALVE HOSE AND ELBOW — Continued 0663 00

2. Remove screw (3), washer (4), and clamp (5) from hose (2).
3. Remove hose (2) from elbow (6).
4. Remove elbow (6) from elbow (7) on top of control valve (8).
5. Remove adapter (9) and quick disconnect (1) and hose (2).



INSTALLATION

1. Install adapter (1) and quick disconnect (2) on hose (3). Apply sealing compound to male threads of adapter (1).
2. Install elbow (4) on elbow (5) on top of ramp control valve (6).
3. Connect hose (3) to elbow (4).
4. Install clamp (7) on hose (3), and secure with washer (8) and screw (9).
5. Connect quick disconnect (2) at bottom of hose (3) to engine hose quick disconnect.



FOLLOW-THROUGH STEPS

1. Fill hydraulic reservoir (WP 0155 00).
2. Install driver's power plant access panel (see your -10).

END OF TASK

REPLACE TUBE FROM RAMP CONTROL VALVE TO BULKHEAD 0664 00

THIS WORK PACKAGE COVERS:

Removal (page 0664 00-1).
Installation (page 0664 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts

Locknut (3)

Personnel Required

Unit Mechanic

References

See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Ramp lowered (see your -10)
Driver's power plant access panel removed (see your -10)
Left front floor plate removed (WP 0453 00)

REMOVAL

NOTE

There are two types of ramp control valves. One has an internal relief valve and the other has an external relief valve. The tube on the ramp control valve with external relief valve is attached to a tee fitting. The tube on the ramp control valve with internal relief valve is attached to an elbow fitting.

1. Remove three locknuts (1), screws (2), washers (3), and clamps (4) from power plant compartment bulkhead. Discard locknuts.
2. Remove clamps (4) from tube (5).

WARNING

Fire Resistant Hydraulic fluid (FRH) is toxic if absorbed through skin or ingested.

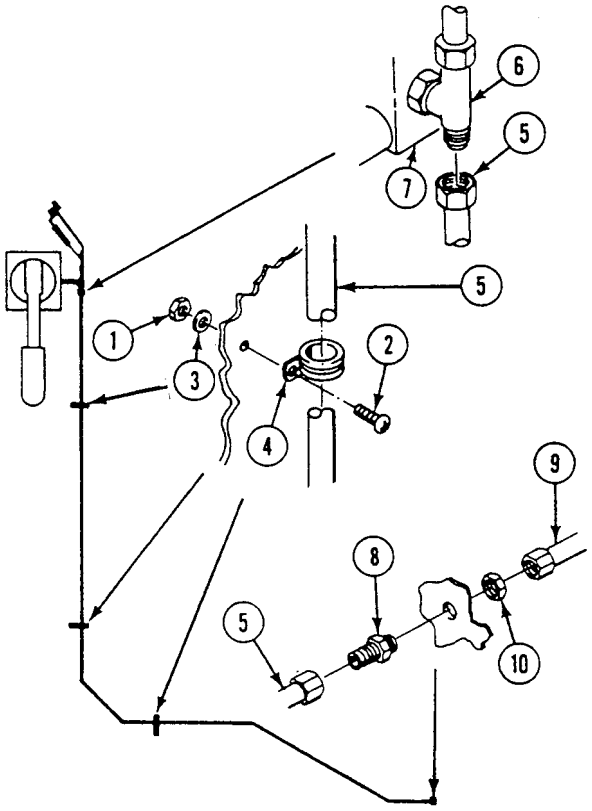
Do not service hydraulic system when FRH is hot or pressurized.
Wear gloves and avoid contact with skin.
If FRH contacts skin, wash immediately with soap.
If FRH gets into eyes, wash with lots of water for 15 minutes and get medical attention.
If FRH is swallowed, get medical attention.

3. Remove tube (5) from tee or elbow (6) at ramp control valve (7).

4. Remove tube (5) from bulkhead nipple (8).

5. Remove hose (9) from bulkhead nipple (8).

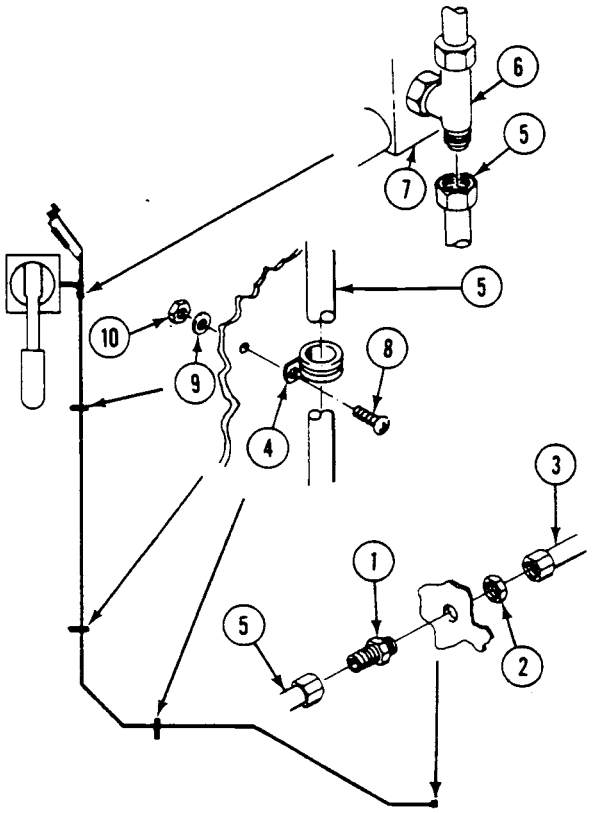
6. Remove jam nut (10) from nipple (8) and remove nipple from bulkhead.



REPLACE TUBE FROM RAMP CONTROL VALVE TO BULKHEAD — Continued 0664 00

INSTALLATION

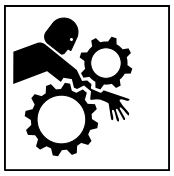
1. Install nipple (1) in bulkhead and secure with jam nut (2).
2. Connect hose (3) to nipple (1).
3. Place three clamps (4) on tube (5).
4. Install tube (5) on tee or elbow (6) of ramp control valve (7).
5. Align three clamps (4) with power plant compartment holes.
6. Secure with three screws (8), washers (9), and new locknuts (10).



FOLLOW-THROUGH STEPS

1. Check fluid level in hydraulic tank (WP 0155 00).

WARNING



Wearing loose clothing around moving parts can allow personnel to get caught and result in injury or death. Tuck in loose clothing.

WARNING

Unlocked ramp can fall open suddenly. Personnel can be killed or injured. Do not stand behind ramp. Keep away from ramp during testing and bleeding of hydraulic lines.

2. Start engine (see your -10).
3. Check for hydraulic leaks.
4. Raise and lower ramp several times to bleed air from system.
5. Install driver’s power plant access panel (see your -10).
6. Raise and lock ramp (see your -10).
7. Stop engine (see your -10).
8. Install left front floor plate (WP 0453 00).

END OF TASK

REPLACE HOSE FROM BULKHEAD CONNECTION TO RAMP CYLINDER 0665 00

THIS WORK PACKAGE COVERS:

Removal (page 0665 00-1).
Installation (page 0665 00-2).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts
FRH hydraulic fluid (WP 0928 00, Item 37)
Sealing compound (WP 0928 00, Item 56)
Lockwasher (7)

Personnel Required
Unit Mechanic

References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Ramp lowered (see your -10)
Power plant rear access panel removed (WP 0439 00)
Floor plates removed (WP 0539 00)
Tread plate on mortar base plate raised

REMOVAL

WARNING

Fire Resistant Hydraulic fluid (FRH) is toxic if absorbed through skin or ingested.

Do not service hydraulic system when FRH is hot or pressurized.
Wear gloves and avoid contact with skin.
If FRH contacts skin, wash immediately with soap.
If FRH gets into eyes, wash with lots of water for 15 minutes and get medical attention.
If FRH is swallowed, get medical attention.

1. Disconnect tube (1) from nipple (2).

NOTE

There are six clamps (3) securing the hose (4) on the M1064A3 carrier, seven on all other carriers.

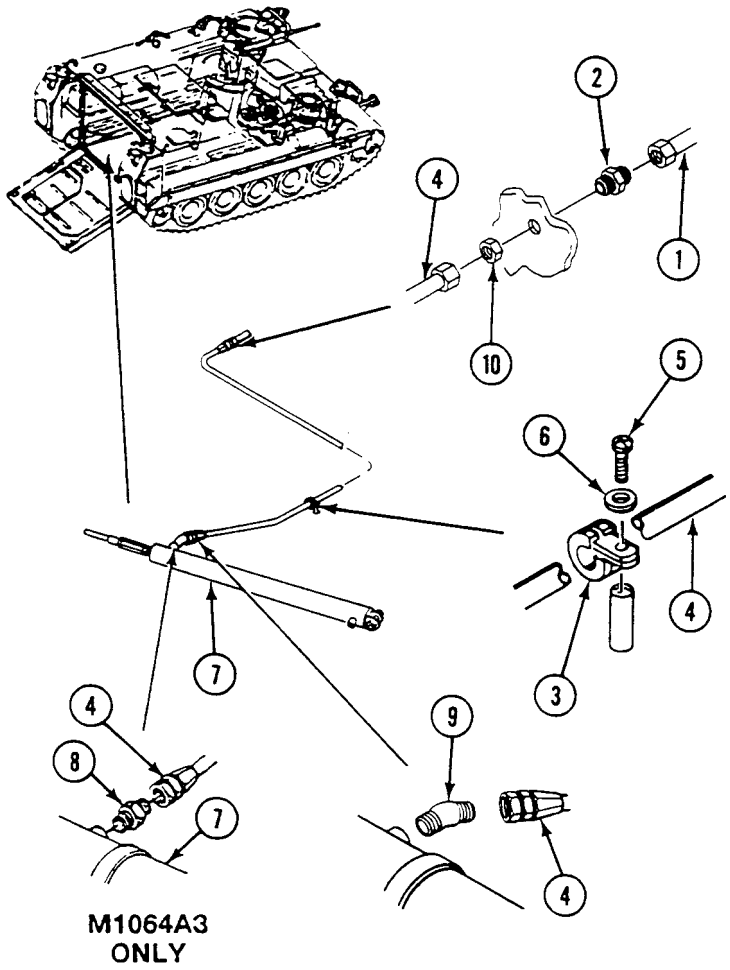
2. Remove clamps (3), screws (5), and lockwashers (6) from weldnuts. Discard lock washers.

NOTE

The M1064A3 ramp cylinder (7) has a nipple (8) installed instead of an elbow (9).

3. Remove hose (4) from elbow (9) or nipple (8) and nipple (2). Remove clamps (3) from hose. Remove elbow or nipple from ramp cylinder (7).

4. Remove jamnut (10) and nipple (2) from bulkhead.



INSTALLATION

WARNING

Fire Resistant Hydraulic fluid (FRH) is toxic if absorbed through skin or ingested.

Do not service hydraulic system when FRH is hot or pressurized.
Wear gloves and avoid contact with skin.
If FRH contacts skin, wash immediately with soap.
If FRH gets into eyes, wash with lots of water for 15 minutes and get medical attention.
If FRH is swallowed, get medical attention.

1. Install nipple (1) in bulkhead. Secure with jamnut (2).
2. Apply light coat of sealing compound to external tapered threads of elbow (3). Do not apply sealant beyond small end of tapered threads.

NOTE

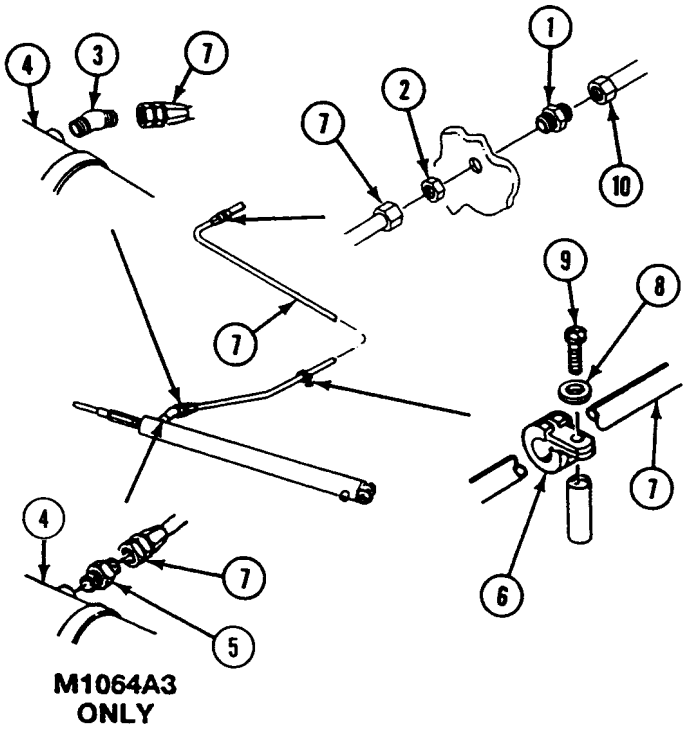
The M1064A3 ramp cylinder (4) has a nipple (5) installed instead of an elbow (3).

3. Install elbow (3) or nipple (5) in ramp cylinder (4). Place clamps (6) on hose (7). Install hose (7) on elbow (3) or nipple (5) and nipple (1).

NOTE

There are six clamps (6) securing hose (7) on the M1064A3 carrier, seven on all other carriers.

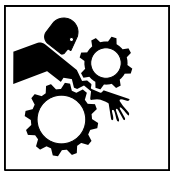
4. Align clamps (6) with hull weldnuts. Secure with new lockwashers (8) and screws (9).
5. Connect tube (10) to nipple (1).



FOLLOW-THROUGH STEPS

1. Check fluid level in tank. Add fluid as needed (see your 10).

WARNING



Wearing loose clothing around moving parts can allow personnel to get caught and could result in injury or death. Tuck in loose clothing.

WARNING

Unlocked ramp can fall open suddenly. Personnel can be killed or injured. Do not stand behind ramp. Keep away from ramp during testing and bleeding of hydraulic lines.

2. Start engine (see your -10). Check for hydraulic leaks.
3. Raise and lower ramp several times to bleed air from system (see your -10).
4. Install power plant rear access panel (WP 0439 00).
5. Install floor plates (WP 0539 00).
6. Lower tread plate on mortar base plate.
7. Raise and lock ramp (see your -10).
8. Stop engine (see your -10).

END OF TASK

REPLACE RAMP CYLINDER BREATHER HOSE (ALL EXCEPT M1064A3) 0666 00

THIS WORK PACKAGE COVERS:

Removal (page 0666 00-1).
Installation (page 0666 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Personnel Required

Unit Mechanic

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)

References

See your -10

Materials/Parts

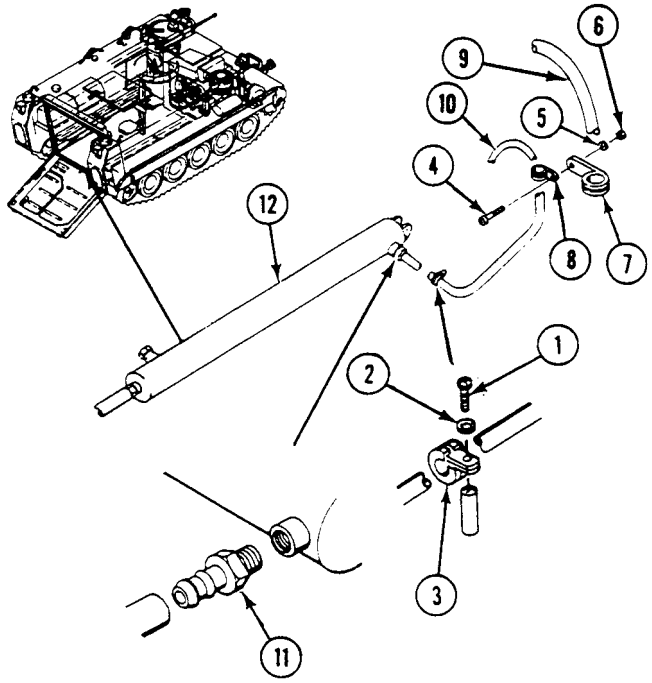
Sealing compound (WP 0928 00, Item 56)
Locknut
Lockwasher (3)

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Ramp lowered (see your -10)
Rear floor plate removed (WP 0539 00)

REMOVAL

1. Remove three screws (1), lockwashers (2), and clamps (3) from hull and bulkhead weldnuts. Discard lockwashers.
2. Remove screw (4), washer (5), locknut (6), and two clamps (7)(8) from bilge pump pipe (9) and breather hose (10). Discard locknut.

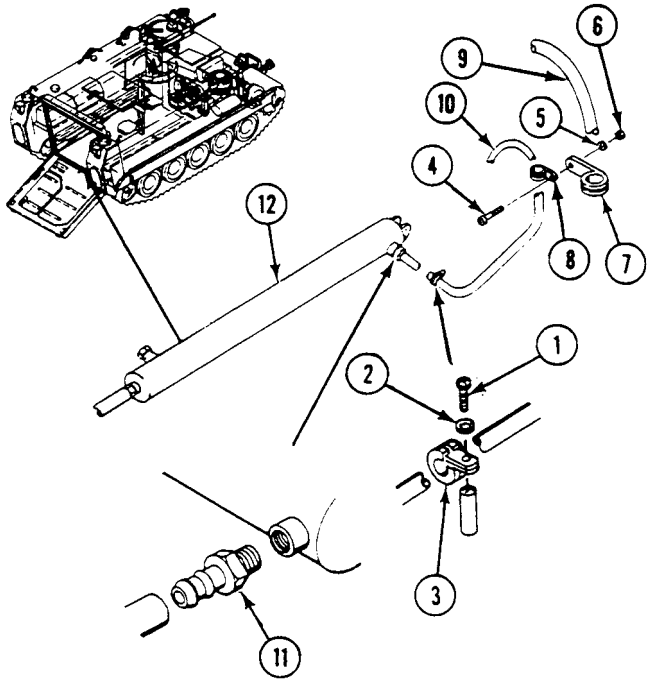


WARNING

Fire Resistant Hydraulic fluid (FRH) is toxic if absorbed through skin or ingested.

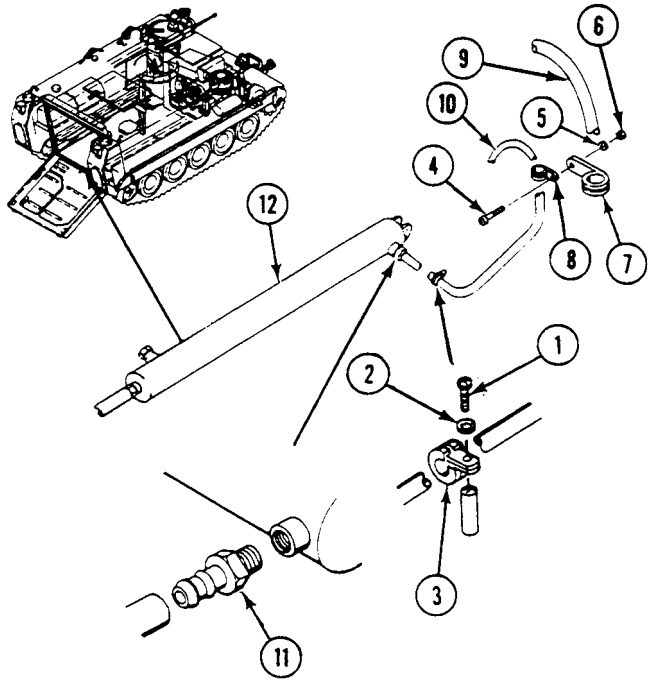
Do not service hydraulic system when FRH is hot or pressurized.
Wear gloves and avoid contact with skin.
If FRH contacts skin, wash immediately with soap.
If FRH gets into eyes, wash with lots of water for 15 minutes and get medical attention.
If FRH is swallowed, get medical attention.

3. Remove hose (10) from adapter (11) on ramp cylinder (12). Remove clamps (3) from hose.
4. Remove adapter (11) from ramp cylinder (12).



INSTALLATION

1. Apply light coat of sealing compound to threads of adapter (11). Install adapter in ramp cylinder (12).
2. Install hose (10) on adapter (11).
3. Install clamp (7) on bilge pump pipe (9) and clamp (8) on breather hose (10). Secure with screw (4), washer (5), and new locknut (6).
4. Install three clamps (3) on hose (10). Align clamps with bulkhead and hull weldnuts. Secure with three new lockwashers (2) and screws (1).



FOLLOW-THROUGH STEPS

1. Install rear floor plate (WP 0539 00).
2. Start engine (see your -10).
3. Raise and lock ramp (see your -10).
4. Stop engine (see your -10).

END OF TASK

REPLACE RAMP CYLINDER BREATHER HOSE (M1064A3 ONLY) 0667 00

THIS WORK PACKAGE COVERS:

Removal (page 0667 00-2)
Installation (page 0667 00-3).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts
Sealing compound (WP 0928 00, Item 56)

Personnel Required
Unit Mechanic
Helper (H)

References
See your -10

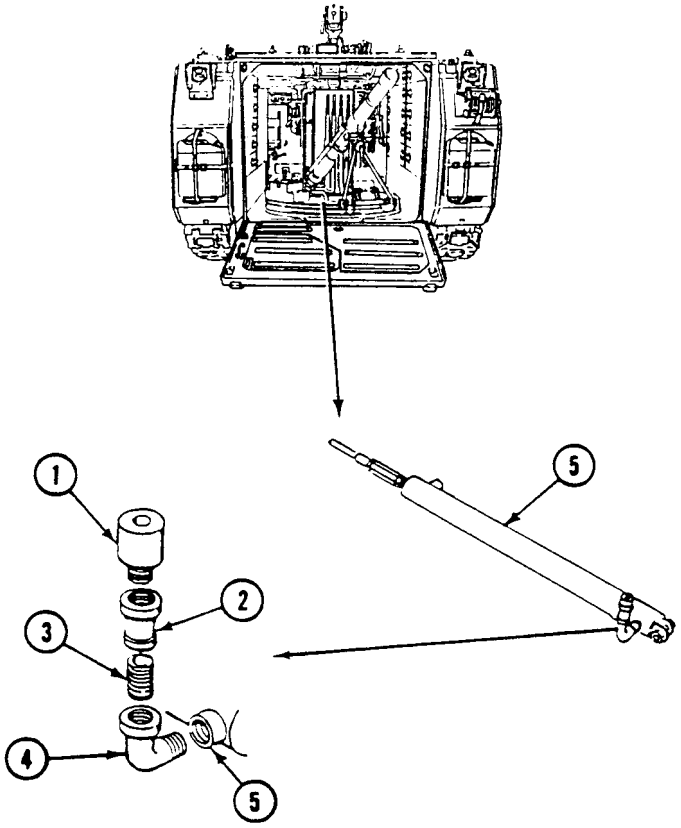
Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Ramp lowered (see your -10)
Tread plate on mortar base plate raised

REMOVAL

NOTE

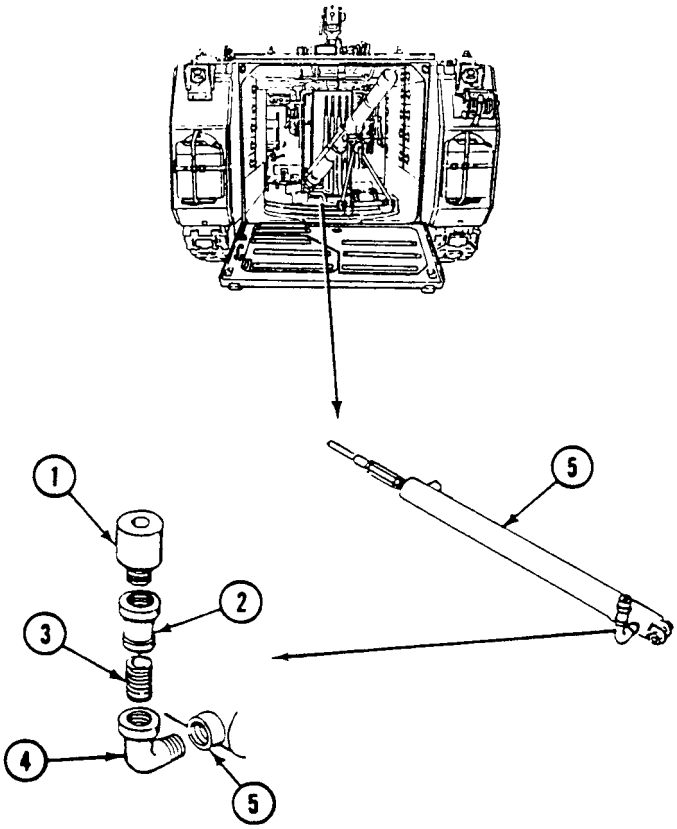
Rotate base plate to access breather. Have helper assist.

1. Remove breather (1) from coupling (2).
2. Remove coupling (2) from nipple (3).
3. Remove nipple (3) from elbow (4).
4. Remove elbow (4) from ramp cylinder (5).



INSTALLATION

1. Apply light coat of sealing compound to external tapered threads. Do not apply sealant beyond small end of external tapered threads.
2. Install elbow (4) in ramp cylinder (5).
3. Install nipple (3) in elbow (4).
4. Install coupling (2) on nipple (3).
5. Install breather (1) in coupling (2).



FOLLOW-THROUGH STEPS

1. Lower mortar base tread plate.
2. Start engine (see your -10).
3. Raise and lock ramp (see your -10).
4. Stop engine (see your -10).

END OF TASK

REPLACE POWER PLANT HYDRAULIC HOSES 0668 00

THIS WORK PACKAGE COVERS:

Removal (page 0668 00-1)
Installation (page 0668 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Personnel Required

Unit Mechanic

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)

References

See your -10

Materials/Parts

Strap (2)
Strap (2)

Equipment Condition

Power plant removed (WP 0156 00)
Hydraulic tank drained (WP 0155 00)

REMOVAL

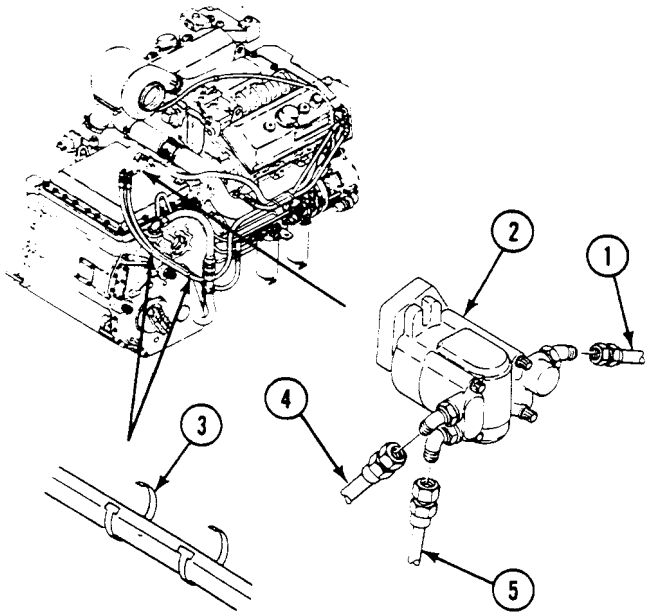
WARNING

Fire Resistant Hydraulic fluid (FRH) is toxic if absorbed through skin or ingested.

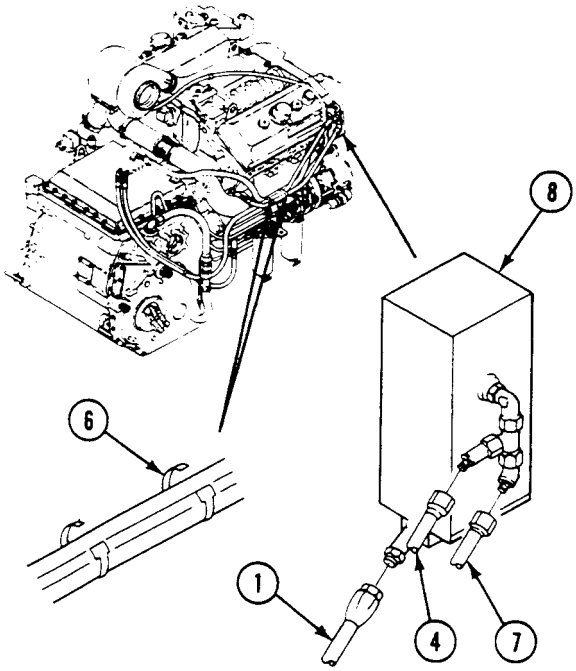
Do not service hydraulic system when FRH is hot or pressurized.
Wear gloves and avoid contact with skin.
If FRH contacts skin, wash immediately with soap.
If FRH gets into eyes, wash with lots of water for 15 minutes and get medical attention.
If FRH is swallowed, get medical attention.

1. Disconnect hose (1) from hydraulic pump (2).
2. Remove two straps (3). Discard straps.
3. Disconnect hose (4) from hydraulic pump (2).

4. Disconnect hose (5) from hydraulic pump (2). Remove hose.



5. Remove two straps (6). Discard straps.
6. Disconnect hose (7) from hydraulic tank (8). Remove hose.
7. Disconnect hose (4) from hydraulic tank (8). Remove hose.
8. Disconnect hose (1) from hydraulic tank (8). Remove hose.



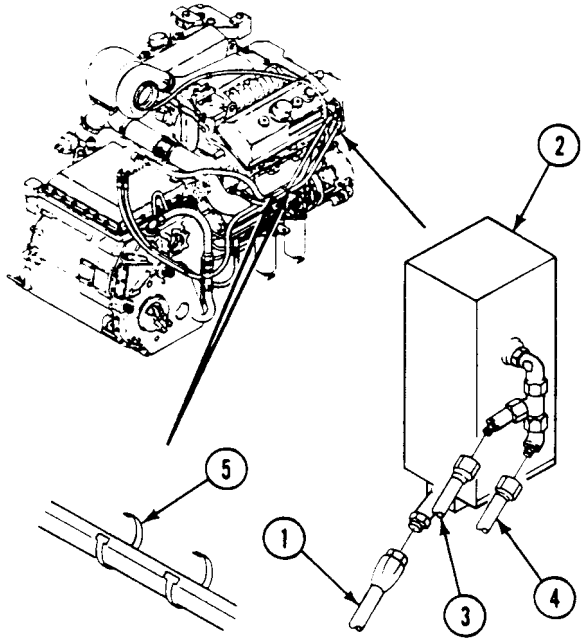
INSTALLATION

WARNING

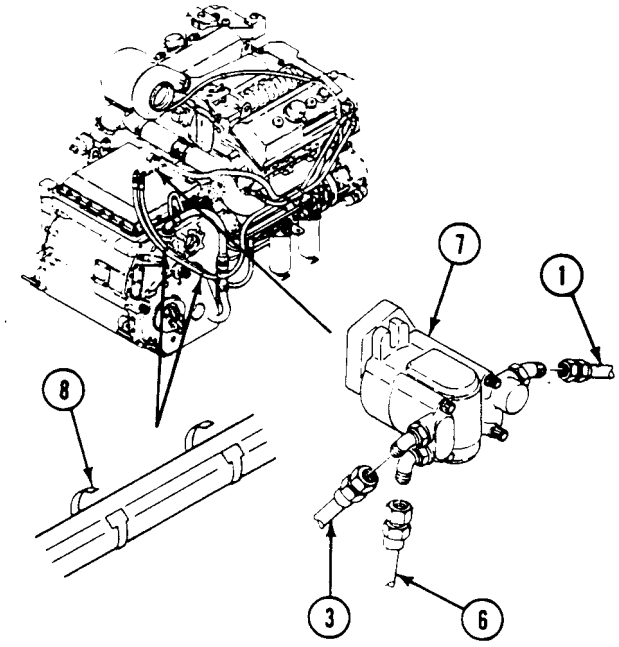
Fire Resistant Hydraulic fluid (FRH) is toxic if absorbed through skin or ingested.

Do not service hydraulic system when FRH is hot or pressurized.
Wear gloves and avoid contact with skin.
If FRH contacts skin, wash immediately with soap.
If FRH gets into eyes, wash with lots of water for 15 minutes and get medical attention.
If FRH is swallowed, get medical attention.

1. Connect hose (1) to hydraulic tank (2).
2. Connect hose (3) to hydraulic tank (2).
3. Connect hose (4) to hydraulic tank (2).
4. Secure two hoses (3)(4) with two new straps (5).



5. Connect hose (6) to hydraulic pump (7).
6. Connect hose (3) to hydraulic pump (7).
7. Secure two hoses (3)(6) with two new straps (8).
8. Connect hose (1) to hydraulic pump (7).



FOLLOW-THROUGH STEPS

1. Install power plant (WP 0156 00).
2. Fill hydraulic tank (WP 0155 00).

WARNING

Unlocked ramp can fall open suddenly. Personnel can be killed or injured. Do not stand behind ramp. Keep away from ramp during testing and bleeding of hydraulic lines.

3. Start engine (see your -10).
4. Check for hydraulic leaks.
5. Raise and lower ramp several times to bleed air from system.
6. Raise and lock ramp (see your -10).
7. Stop engine (see your -10).

END OF TASK

SERVICE HYDRAULIC RESERVOIR 0669 00

THIS WORK PACKAGE COVERS:

Removal (page 0669 00-1).
Cleaning, Inspection, and Repair (page 0669 00-2).
Installation (page 0669 00-3).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts
Cleaning Compound (WP 0928 00, Item 19)
Lockwasher (4)
Preformed packing

Personnel Required
Unit Mechanic

References
See your -10

Equipment Condition
Ramp lowered (see your -10)
Power plant upper rear access panel removed (see your -10)
Driver's power plant access panel removed (see your -10)
Hydraulic reservoir removed (WP 0671 00)

REMOVAL

WARNING

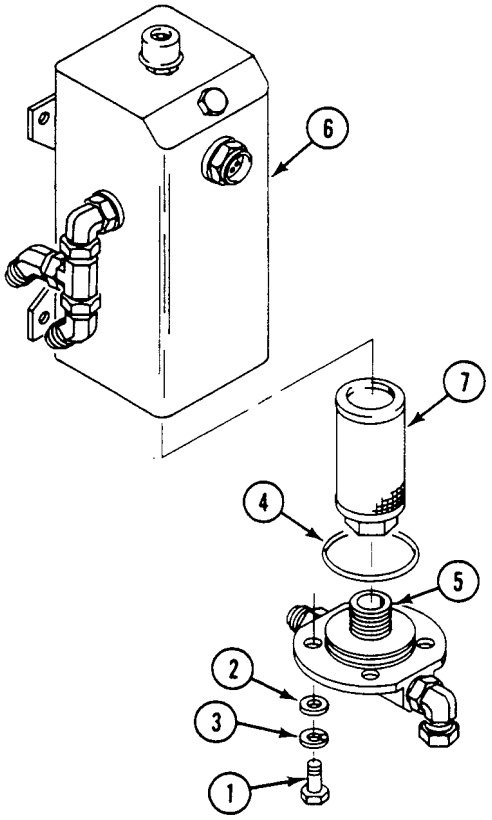
Fire Resistant Hydraulic fluid (FRH) is toxic if absorbed through skin or ingested.

Do not service hydraulic system when FRH is hot or pressurized.
Wear gloves and avoid contact with skin.
If FRH contacts skin, wash immediately with soap.
If FRH gets into eyes, wash with lots of water for 15 minutes and get medical attention.
If FRH is swallowed, get medical attention.

CAUTION

Hydraulic lines, tubes, valves, and components can be damaged. Install covers on disconnected hydraulic lines, tubes, valves, and components during maintenance. Use tape, cloth, cardboard, or any appropriate material to prevent damage to components or accidental hydraulic spills.

1. Remove four bolts (1), washers (2), lockwashers (3), preformed packing (4), and adapter (5) from reservoir (6). Discard lockwashers and packing.
2. Remove strainer (7) from adapter (5).



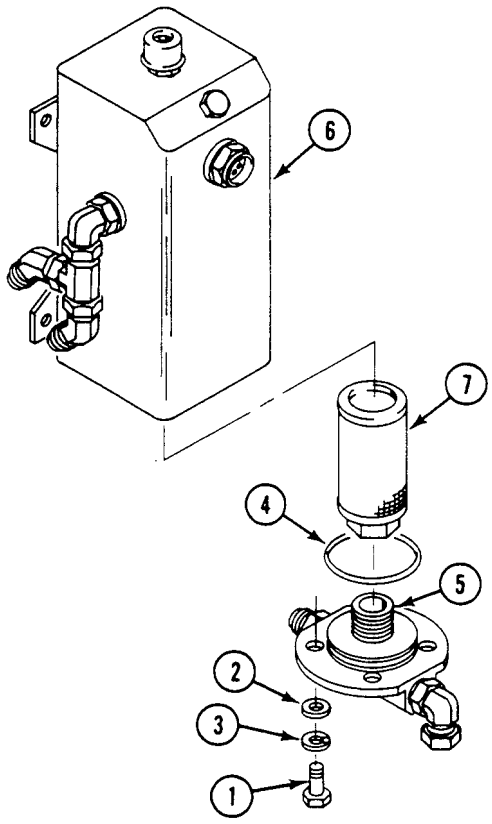
CLEANING

CLEANING, INSPECTION, AND REPAIR

1. Clean strainer with cleaning compound.
2. Clean interior of reservoir with lint free cloth and cleaning compound.

INSTALLATION

1. Install new preformed packing (4) and strainer (7) on adapter (5).
2. Install adapter (5) in reservoir (6). Secure with four washers (2), new lockwashers (3), and bolts (1).



FOLLOW-THROUGH STEPS

1. Install hydraulic reservoir (WP 0671 00).
2. Start engine (see your -10). Check for hydraulic leaks.
3. Raise and lower ramp several times to bleed air from system (see your -10).
4. Install power plant upper rear access panel (see your -10).
5. Install driver’s power plant access panel (see your -10).
6. Raise and lock ramp (see your -10).
7. Stop engine (see your -10).

END OF TASK

SERVICE HYDRAULIC RESERVOIR BREATHER 0670 00

THIS WORK PACKAGE COVERS:

Removal (page 0670 00-1).
Cleaning (page 0670 00-2).
Installation (page 0670 00-2).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts
Cleaning Compound (WP 0928 00, Item 19)
Sealing compound (WP 0928 00, Item 56)

Personnel Required
Unit Mechanic

References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Power plant upper rear access panel removed (see your -10)

REMOVAL

WARNING

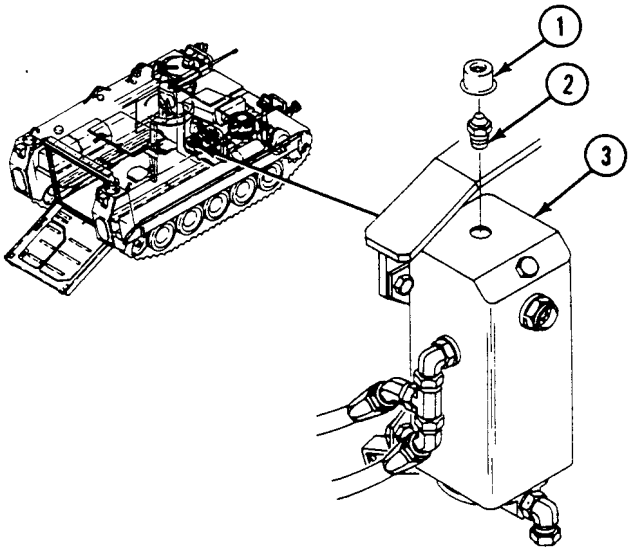
Fire Resistant Hydraulic fluid (FRH) is toxic if absorbed through skin or ingested.

Do not service hydraulic system when FRH is hot or pressurized.
Wear gloves and avoid contact with skin.
If FRH contacts skin, wash immediately with soap.
If FRH gets into eyes, wash with lots of water for 15 minutes and get medical attention.
If FRH is swallowed, get medical attention.

NOTE

Breather must be serviced every 75 hours, 750 miles (1200 km), or semi-annually.

1. Remove breather (1) and adapter (2) from reservoir (3).

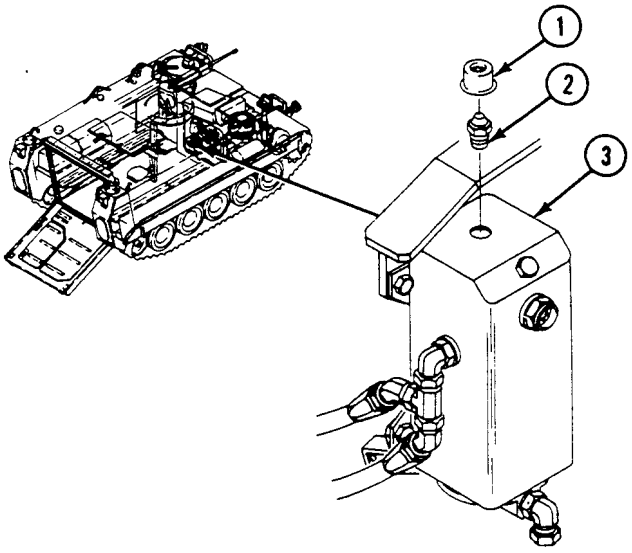


CLEANING

1. Wash breather in cleaning compound.

INSTALLATION

1. Coat threads of adapter (2) with sealing compound, and install adapter and breather (1) in reservoir (3).



FOLLOW-THROUGH STEPS

1. Install power plant upper rear access panel (see your -10).

END OF TASK

REPLACE HYDRAULIC RESERVOIR 0671 00

THIS WORK PACKAGE COVERS:

Removal (page 0671 00-1).
Installation (page 0671 00-3).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts
Locknut (3)
Suitable container

Personnel Required
Unit Mechanic

References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Power plant rear access panel removed (see your -10)
Driver's power plant access panel removed (see your -10)

REMOVAL

WARNING

Fire Resistant Hydraulic fluid (FRH) is toxic if absorbed through skin or ingested.

Do not service hydraulic system when FRH is hot or pressurized.
Wear gloves and avoid contact with skin.
If FRH contacts skin, wash immediately with soap.
If FRH gets into eyes, wash with lots of water for 15 minutes and get medical attention.
If FRH is swallowed, get medical attention.

WARNING

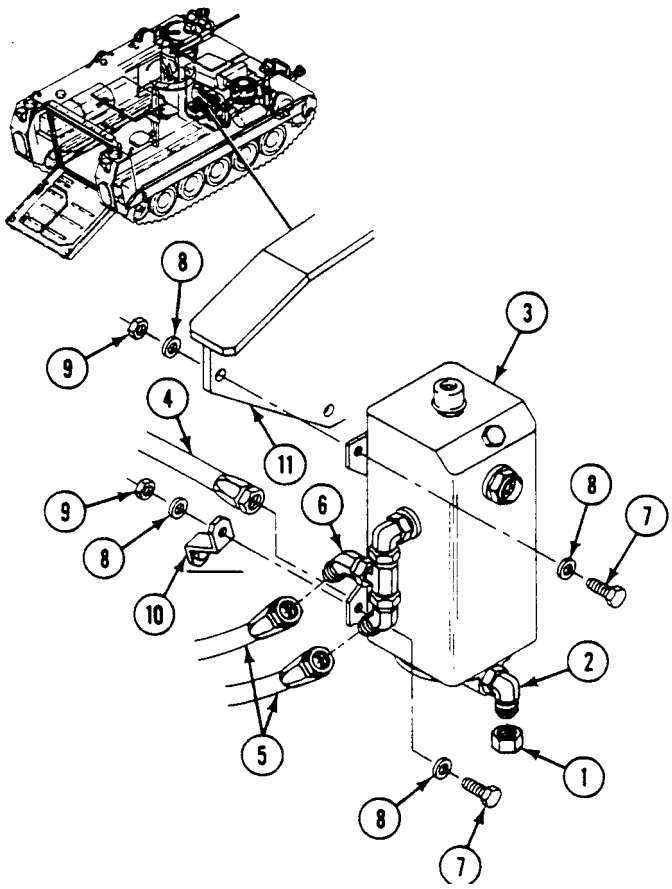
Unlocked ramp can fall open suddenly. Personnel can be killed or injured. Lower ramp before disconnecting hydraulic lines.

CAUTION

Do not allow hydraulic fluid to spill or drain on the generator. Cover generator with appropriate material to prevent damage.

REPLACE HYDRAULIC RESERVOIR — Continued 0671 00

1. Remove cap (1) from elbow (2). Using a suitable container, drain hydraulic reservoir (3). Install cap (1).
2. Disconnect pump to strainer hose (4) from the bottom of reservoir (3).
3. Disconnect two return hoses (5) from elbows (6) on side of reservoir (3).
4. Remove three screws (7), six washers (8), and three locknuts (9) that secure reservoir (3) to brackets (10)(11). Remove reservoir. Discard locknuts.



INSTALLATION

WARNING

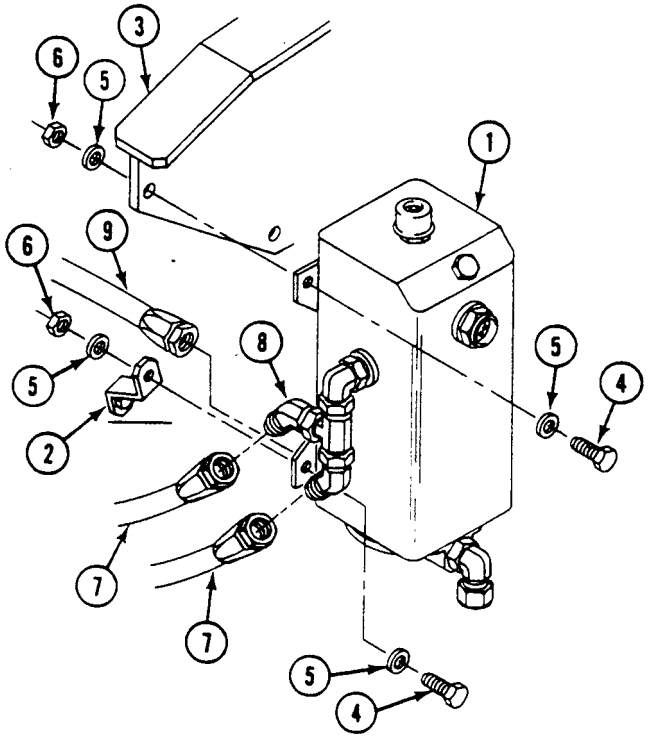
Fire Resistant Hydraulic fluid (FRH) is toxic if absorbed through skin or ingested.

Do not service hydraulic system when FRH is hot or pressurized.
Wear gloves and avoid contact with skin.
If FRH contacts skin, wash immediately with soap.
If FRH gets into eyes, wash with lots of water for 15 minutes and get medical attention.
If FRH is swallowed, get medical attention.

NOTE

Care must be taken not to contaminate the hydraulic system.

1. Install reservoir (1) and secure to brackets (2)(3) with three screws (4), six washers (5), and three new locknuts (6).
2. Connect two return hoses (7) to elbows (8) on side of reservoir (1).
3. Connect pump to strainer hose (9) to bottom of reservoir (1).



4. Fill hydraulic reservoir (WP 0155 00).

FOLLOW-THROUGH STEPS

1. Start engine (see your -10).
2. Check for hydraulic leaks.
3. Raise and lower ramp several times to bleed air from system (see your -10).
4. Install driver’s power plant access panel (see your -10).
5. Install power plant rear access panel (see your -10).
6. Raise and lock ramp (see your -10).
7. Stop engine (see your -10).

END OF TASK

REPAIR HYDRAULIC RESERVOIR 0672 00

THIS WORK PACKAGE COVERS:

Disassembly (page 0672 00-1).
Assembly (page 0672 00-3).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts
Sealing compound WP 0928 00, Item 56
Lockwasher (4)
Preformed packing
Preformed packing (2)
Preformed packing (2)

Personnel Required
Unit Mechanic

Equipment Condition
Hydraulic reservoir removed (WP 0671 00)

DISASSEMBLY

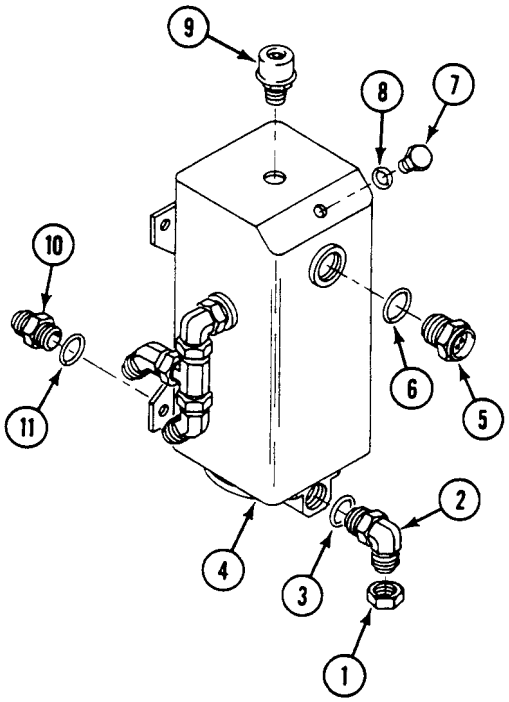
WARNING

Fire Resistant Hydraulic fluid (FRH) is toxic if absorbed through skin or ingested.

Do not service hydraulic system when FRH is hot or pressurized.
Wear gloves and avoid contact with skin.
If FRH contacts skin, wash immediately with soap.
If FRH gets into eyes, wash with lots of water for 15 minutes and get medical attention.
If FRH is swallowed, get medical attention.

1. Remove cap (1), elbow (2), and preformed packing (3) from reservoir (4). Discard packing.
2. Remove liquid sight indicator (5) and preformed packing (6). Discard packing.
3. Remove plug (7) and preformed packing (8). Discard packing.
4. Remove breather (9) from top of reservoir.

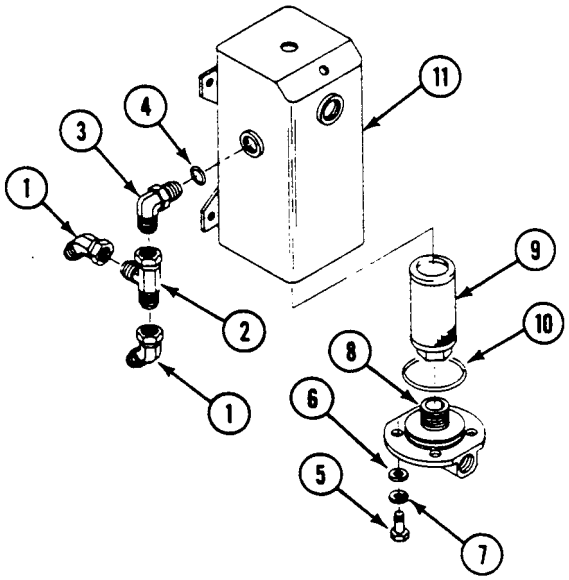
5. Remove adapter (10) and preformed packing (11). Discard packing.



6. Remove two elbows (1), tee (2), elbow (3), and preformed packing (4). Discard packing.

7. Remove four screws (5), washers (6), lockwashers (7), and adapter (8) with filter (9) and preformed packing (10). Discard packing and lockwashers.

8. Remove filter (9) from adapter (8).



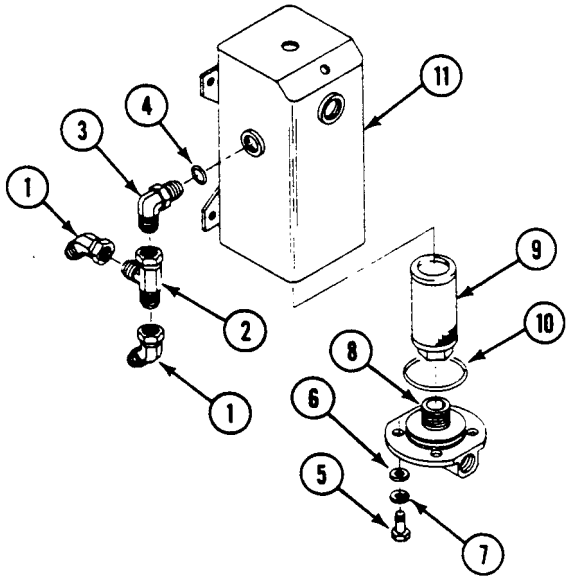
ASSEMBLY

WARNING

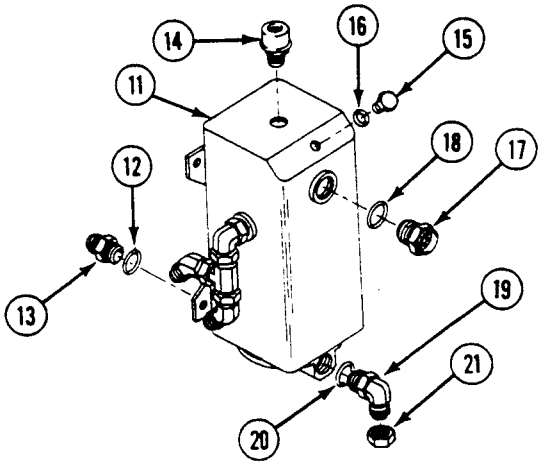
Fire Resistant Hydraulic fluid (FRH) is toxic if absorbed through skin or ingested.

Do not service hydraulic system when FRH is hot or pressurized.
Wear gloves and avoid contact with skin.
If FRH contacts skin, wash immediately with soap.
If FRH gets into eyes, wash with lots of water for 15 minutes and get medical attention.
If FRH is swallowed, get medical attention.

1. Install filter (9) on adapter (8).
2. Install new preformed packing (10), filter (9), adapter (8), four new lockwashers (7), washers (6), and screws (5) in bottom of reservoir (11).
3. Install new preformed packing (4), elbow (3), tee (2), and two elbows (1) on side of reservoir (11).



4. Install new preformed packing (12) and adapter (13) on side of reservoir (11).
5. Apply sealing compound to the male threads of the breather (14).
6. Install breather (14) in top of reservoir (11).
7. Install fill plug (15) and new preformed packing (16).
8. Install liquid indicator sight (17) and new preformed packing (18).
9. Install elbow (19), new preformed packing (20), and cap (21).



FOLLOW-THROUGH STEPS

1. Install hydraulic reservoir (WP 0671 00).

END OF TASK

CHAPTER 20

UNIT MAINTENANCE INSTRUCTIONS FOR TOOLS AND TEST EQUIPMENT

WORK PACKAGE INDEX

Title	Sequence No.
INSPECT POWER PLANT SLING	0673 00

INSPECT POWER PLANT SLING 0673 00

THIS WORK PACKAGE COVERS:

Periodic Check (page 0673 00-2).
Preoperative Check (page 0673 00-8).

INITIAL SETUP:

Maintenance Level

Unit

Personnel Required

Unit Mechanic

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)
Drill Set (WP 0926 00, Item 18)
Measuring Tape (WP 0926 00, Item 58)
Suitable Lifting Device

Equipment Condition

Sling suspended from suitable lifting device

INSPECTION-ACCEPTANCE AND REJECTION CRITERIA

PERIODIC CHECK

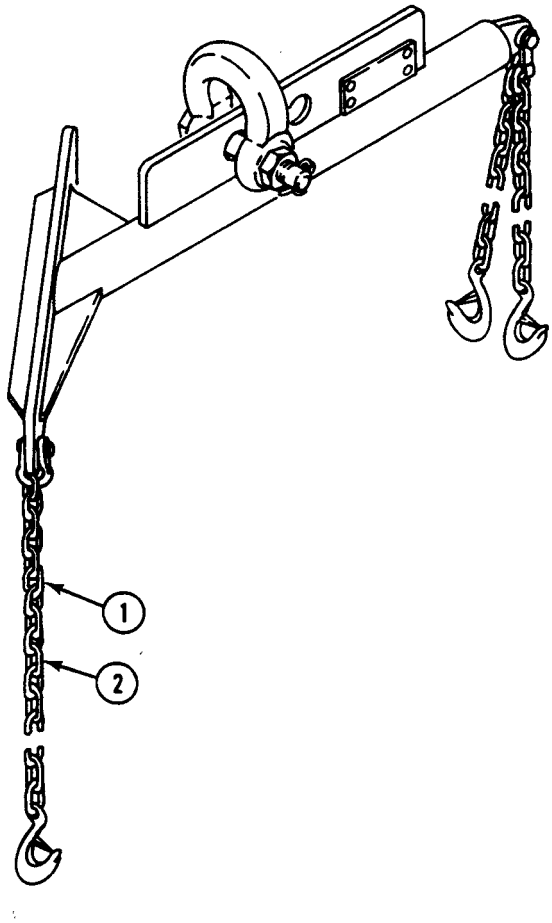
WARNING

Damaged lifting slings can fall with load. Personnel can be injured or killed. Inspect all slings. Do not use damaged slings.

NOTE

Chains are inspected on a link by link basis with the chain slack.

1. Check chains (1) for excessive wear.
   a. For 9/32 inch (7 mm) chain, if any link (2) is worn at any point in excess of 3/64 inch (1 mm) or chain size is less than 15/64 inch (6 mm) in diameter, remove sling from service. Use drill set as No-Go gauge and/or caliper.
   b. For 3/8 inch (10 mm) chain, if any link (2) is worn at any point in excess of 5/64 inch (2 mm) or chain size is less than 19/64 inch (8 mm) in diameter, remove sling from service. Use drill set as No-Go gauge and/or caliper.


1
2

NOTE

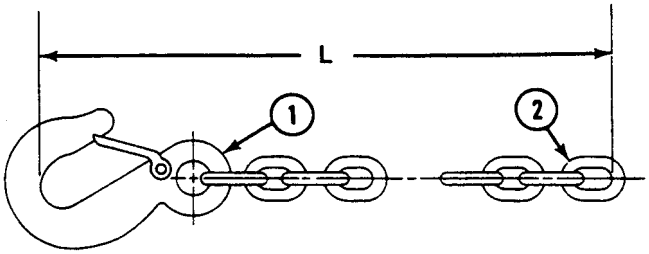
Dimension "L" or "reach" is the distance between the bearing point of hook to bearing point on coupling link while under a light load.

If identification tag attached to chain leg does not contain actual "reach" dimension, then dimension "L" must be calibrated prior to use for each chain leg and entered into maintenance record. At each inspection, chain length must be compared with initial inspection.

2. Check chains (1) for excessive stretch.

Table I

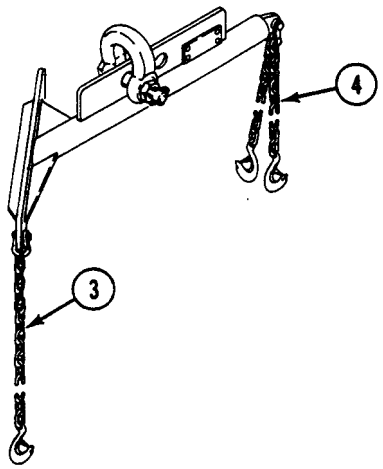
Part Number	(L) Nominal Reach	(L) Maximum Reach	Example
12350350–1	13–1/2 (34.3 cm)	2% Increase	13–3/4 (34.9 cm)
12350350–2	12–3/4 (32.4 cm)	2% Increase	13 (33 cm)
12350350–6	16–7/8 (42.9 cm)	2% Increase	17–1/5 (43.7 cm)



a. If any link (2) does not hinge freely with adjoining link, remove sling from service.

b. If length (L) between bearing point of hook (1) and bearing point of coupling link (2) while under light load is greater than the maximum in Table I, remove sling from service.

3. Check chains (3) for following:

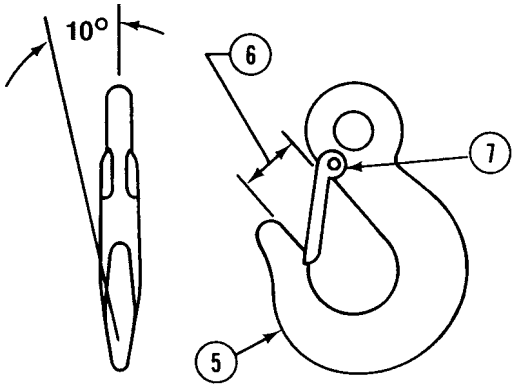


   a. If any link (4) is bent or twisted, remove sling from service.
   b. If any link (4) has a sharp transverse nick or gouge, remove sling from service.
   c. If any link (4) is modified, homemade, or length of chain is altered, remove sling from service.

NOTE

Hooks should be free of paint. Paint covers up cracks. Remove all paint from hooks.

4. Inspect hooks (5) for following:
   a. If any cracks are found on hooks (5), remove sling from service.
   b. If throat opening (6) exceeds 1-7/64 inch (28 mm), remove sling from service.
   c. If twisting exceeds 10° from centerline, remove sling from service.
   d. Inspect safety closure latch (7). If any latch is damaged, remove sling from service.



INSPECT POWER PLANT SLING — Continued **0673 00**

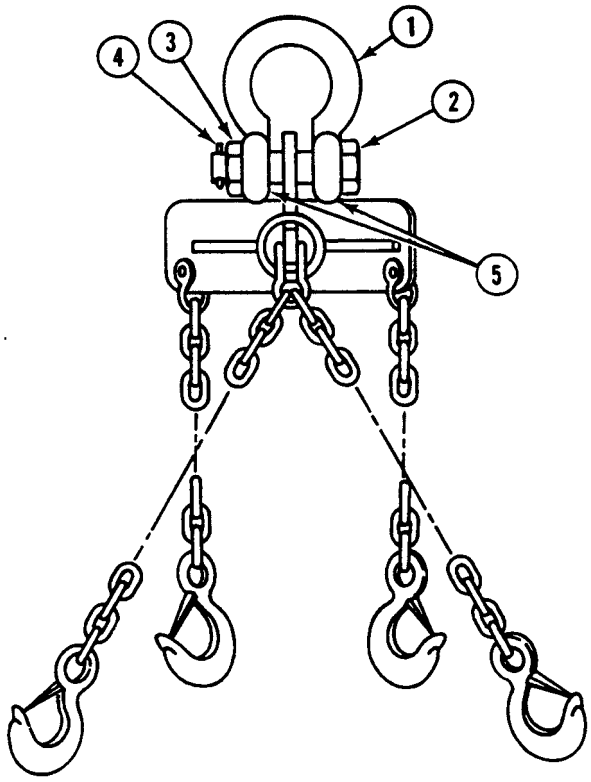
5. Inspect lifting shackle (1) for following:

   a. Verify correct lifting shackle (1) is being used. Part number 12328579 and/or SWL21T should be visible in raised letters.

   b. Verify correct bolt (2) is being used. Diameter of bolt should be 1-3/8 inch (35 mm), and bolt head should be marked with HS in raised letters. Nut (3) should be snug and a cotter pin (4) must be installed through bolt.

   c. If any cracks are found in lifting shackle (1), remove sling from service.

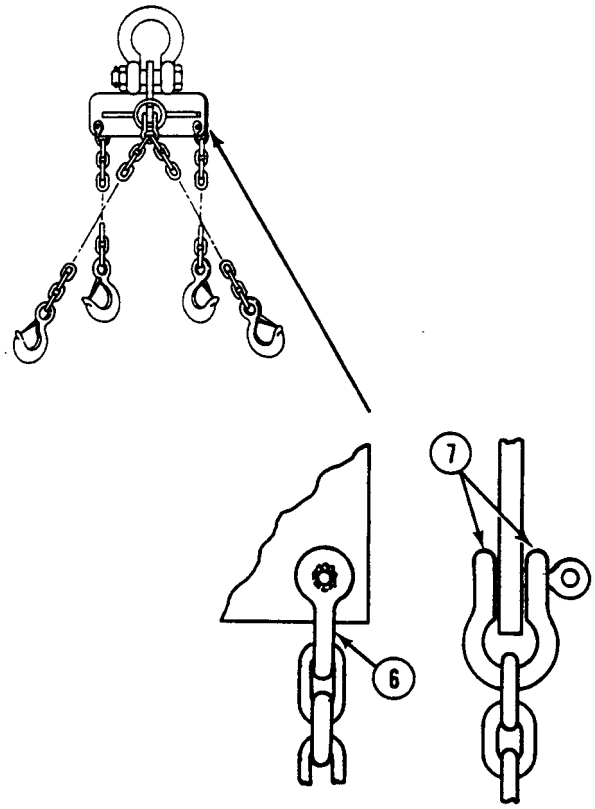
   d. Lifting shackle (1) must have a minimum width of 1-31/32 inch (5 cm) between eyes (5). If shackle has a visible decrease in eye width or bending and deformation and damaged threads, remove sling from service.



NOTE

Make sure pin is secure in shackle.

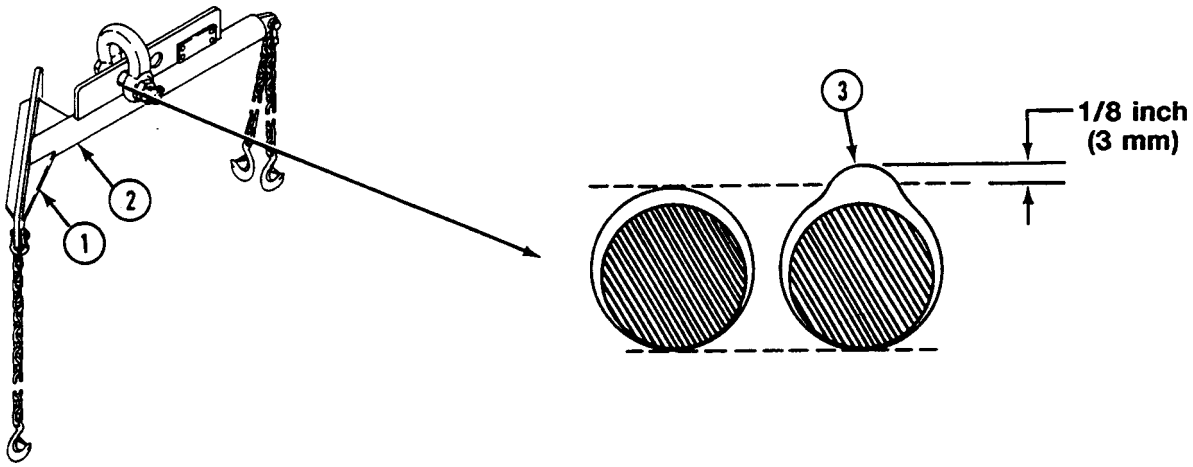
6. Inspect welded shackles (6) for following:



   a. If any welds are cracked or missing, remove sling from service.

   b. If welded shackle (6) has any visible decrease in width between eyes (7) or twisting, bending, and deformation, remove sling from service.

7. Inspect structural members for following:



a. If welded joints are cracked in excess of 1/2 inch (13 mm) or 25% of length of weld in gusset (1) to cross beam (2) area, remove sling from service.

NOTE

Use straight edge to measure cross beam bend.

b. If cross beam is bent or twisted in excess of 1/4 inch (6 mm) at ends of cross beam, remove sling from service. Do not attempt to straighten a bent cross beam.

c. If lifting hole (3) is elongated in excess of 1/8 inch (3 mm), remove sling from service.

8. Complete required forms.

PREOPERATIVE CHECK

WARNING

Damaged lifting slings can fall with load. Personnel can be injured or killed. Inspect all slings. Do not use damaged slings.

NOTE

Chains are inspected on a link by link basis with the chain slack.

1. Do Step 2a and Steps 3 - 8 of Periodic Check.

END OF TASK

CHAPTER 21

UNIT MAINTENANCE INSTRUCTIONS FOR AUXILIARY GENERATOR

WORK PACKAGE INDEX

Title	Sequence No.
REPLACE 4.2 KW GENERATOR SET ENCLOSURE (M577A3 AND M1068A3 ONLY)	0674 00
REPAIR 5.0 KW AUXILIARY POWER UNIT (M577A3 AND M1068A3)	0675 00
REPLACE 5.0 KW AUXILIARY POWER UNIT (APU) (M577A3 AND M1068A3)	0675 01
REPLACE 5.0 KW AUXILIARY POWER UNIT FUEL SHUTOFF VALVE (M577A3 AND M1068A3 ONLY)	0676 00
REPLACE 5.0 KW AUXILIARY POWER UNIT VALVE-TO-BULKHEAD FUEL SUPPLY HOSES (M577A3 AND M1068A3 ONLY)	0677 00
REPLACE 5.0 KW AUXILIARY POWER UNIT BULKHEAD-TO-HULL FUEL SUPPLY HOSES (M577A3 AND M1068A3 ONLY)	0678 00

REPLACE 4.2 KW GENERATOR SET ENCLOSURE (M577A3 AND M1068A3 ONLY) 0674 00

THIS WORK PACKAGE COVERS:

Removal (page 0674 00-2).
Installation (page 0674 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)
Torque Wrench (WP 0926 00, Item 82)
Sling (WP 0926 00, Item 47)

Materials/Parts

Cotter Pin (4)
Locknut (2)

Personnel Required

Unit Mechanic

References

See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
4.2 KW Generator set removed (see your -10)

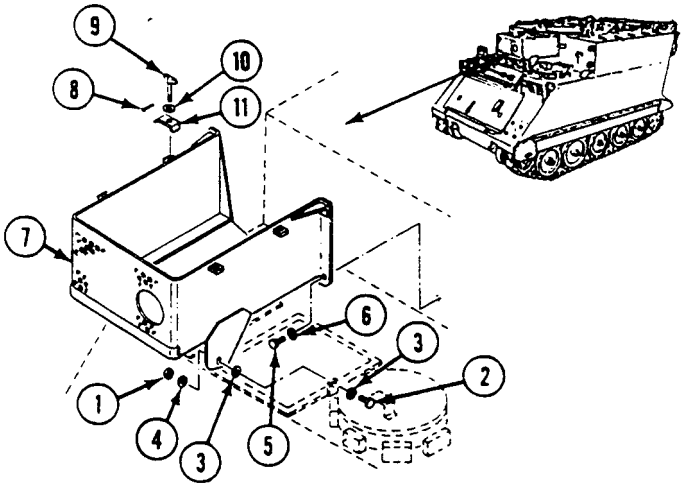
REPLACE 4.2 KW GENERATOR SET ENCLOSURE (M577A3 AND M1068A3 ONLY) — Continued 0674 00

REMOVAL

WARNING

Lifting or moving objects in excess of 70 lbs (32 kg) could injure you. Make sure to get an assistant or use a lifting device to move generator set enclosure or other heavy objects.

1. Remove two locknuts (1), screws (2), washers (3), and washers (4) from two hull lugs. Discard locknuts.
2. Remove four screws (5), washers (6), and generator set enclosure (7) from bulkhead.
3. Remove four cotter pins (8) from thumbscrews (9). Discard cotter pins.
4. Remove four thumbscrews (9), washers (10), and clamps (11) from enclosure (7).
5. Remove enclosure (7).

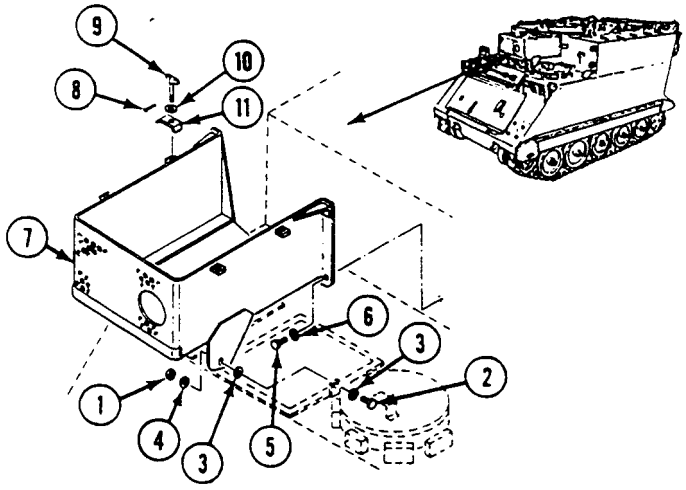


INSTALLATION

WARNING

Lifting or moving objects in excess of 70 lbs (32 kg) could injure you. Make sure to get an assistant or use a lifting device to move generator set enclosure or other heavy objects.

1. Install enclosure (7).
2. Install four clamps (11), washers (10), and thumbscrews (9) in generator set enclosure (7). Secure with four new cotter pins (8).
3. Place enclosure (7) on bulkhead. Secure with four washers (6) and screws (5). TIGHTEN SCREWS TO 55-60 LB-FT (75-81 N·m) TORQUE.
4. If needed, add washers (4) to remove play between enclosure (7) and hull lugs.
5. Align enclosure (7) with two hull lugs. Secure with two washers (4), washers (3), screws (2), and new locknuts (1).



FOLLOW-THROUGH STEPS

1. Install generator set (see your -10).

END OF TASK

REPAIR 5.0 KW AUXILIARY POWER UNIT (M577A3 AND M1068A3) 0675 00

THIS WORK PACKAGE COVERS:

INITIAL SETUP:

Maintenance Level
Unit

References
TM 9-6115-664-13&P

NOTE

Refer to TM 9-6115-664-13&P for all maintenance procedures.

END OF TASK

REPLACE 5.0 KW AUXILIARY POWER UNIT (APU) (M577A3 AND M1068A3) 0675 01

THIS WORK PACKAGE COVERS:

Removal (page 0675 01-2).
Installation (page 0675 01-4).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)
Sling, endless (WP 0926 00, Item 47)
Lifting device with rated lift capability of at least 600 lb (273 kg)

Materials/Parts

Lockwashers (8)
Tie straps (2)

Personnel Required

Unit Mechanic

Equipment Condition

Engine stopped/shutdown (see your -10)
Carrier blocked (see your -10)

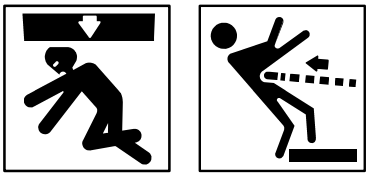
REPLACE 5.0 KW AUXILIARY POWER UNIT (APU) (M577A3 AND M1068A3) — Continued 0675 01

REMOVAL

WARNING

Hanging loads, heavy parts, and overhead equipment can fall unexpectedly. Falling loads can kill or injure personnel. Keep away from hanging loads, heavy parts, and overhead equipment. Use correct lifting device to move loads. A helper is required as a guide when moving loads. Keep hands and feet out of confined spaces from which heavy loads are being removed or installed.

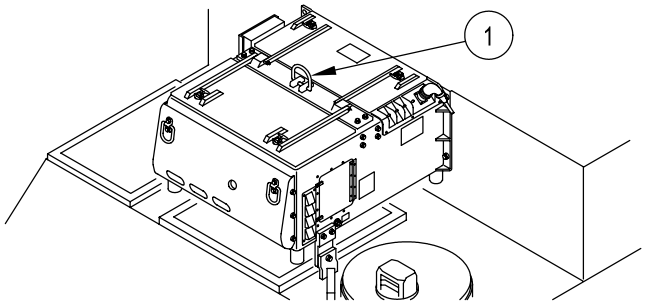
WARNING



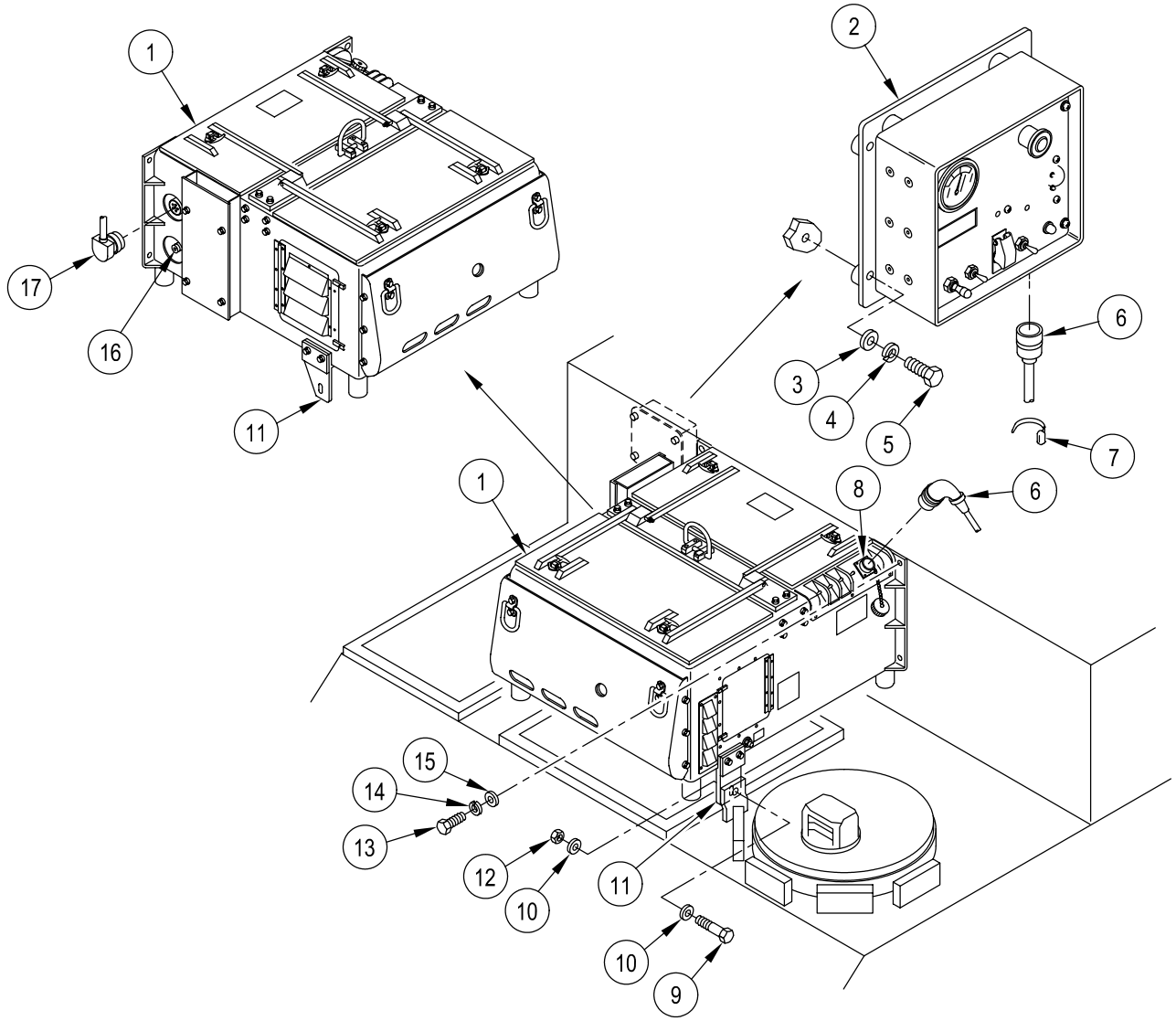
Damaged slings can fail when loaded. Breaking slings can strike and injure personnel. Suspended load can fall and crush personnel.

Inspect all slings before use. Do not use damaged slings. Clearly mark all damaged slings as DAMAGED - DO NOT USE.

1. Attach appropriate lifting device with lifting sling attached to the APU lifting eye (1). Take slack out of lifting device to remove stress from attaching hardware and as a safety precaution.



2. Remove NATO cable assembly (17) from NATO plug on right side of APU (1).
3. Remove fuel supply line from APU connection point (16).
4. Remove remote panel electrical control cable (6) from APU control panel receptacle (8).
5. Remove two self-locking nuts (12), screws (9), and four washers (10) from two APU mounting brackets (11).
6. Remove four screws (13), washers (15), lockwashers (14), and APU (1) from vehicle. Discard lockwashers.
7. Remove electrical control cable (6) from remote panel (2).
8. Remove four screws (5), washers (3), lockwashers (4), and remote panel (2) from inside, forward vehicle bulkhead. Discard lockwashers.
9. Remove tie straps (7) from cable (6) and remove cable with grommet from vehicle through opening in upper engine bulkhead.



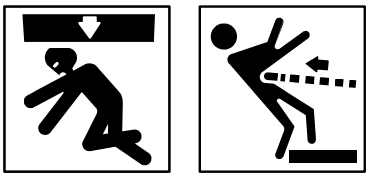
INSTALLATION

1. Install four screws (6), washers (4), new lockwashers (5), and remote panel (3) to inside forward vehicle bulkhead.
2. Install electrical control cable (7) with grommet in vehicle through opening in upper engine bulkhead.
3. Install electrical control cable (7) to remote panel (3) and secure with tie straps (8).

WARNING

Hanging loads, heavy parts, and overhead equipment can fall unexpectedly. Falling loads can kill or injure personnel. Keep away from hanging loads, heavy parts, and overhead equipment. Use correct lifting device to move loads. A helper is required as a guide when moving loads. Keep hands and feet out of confined spaces from which heavy loads are being removed or installed.

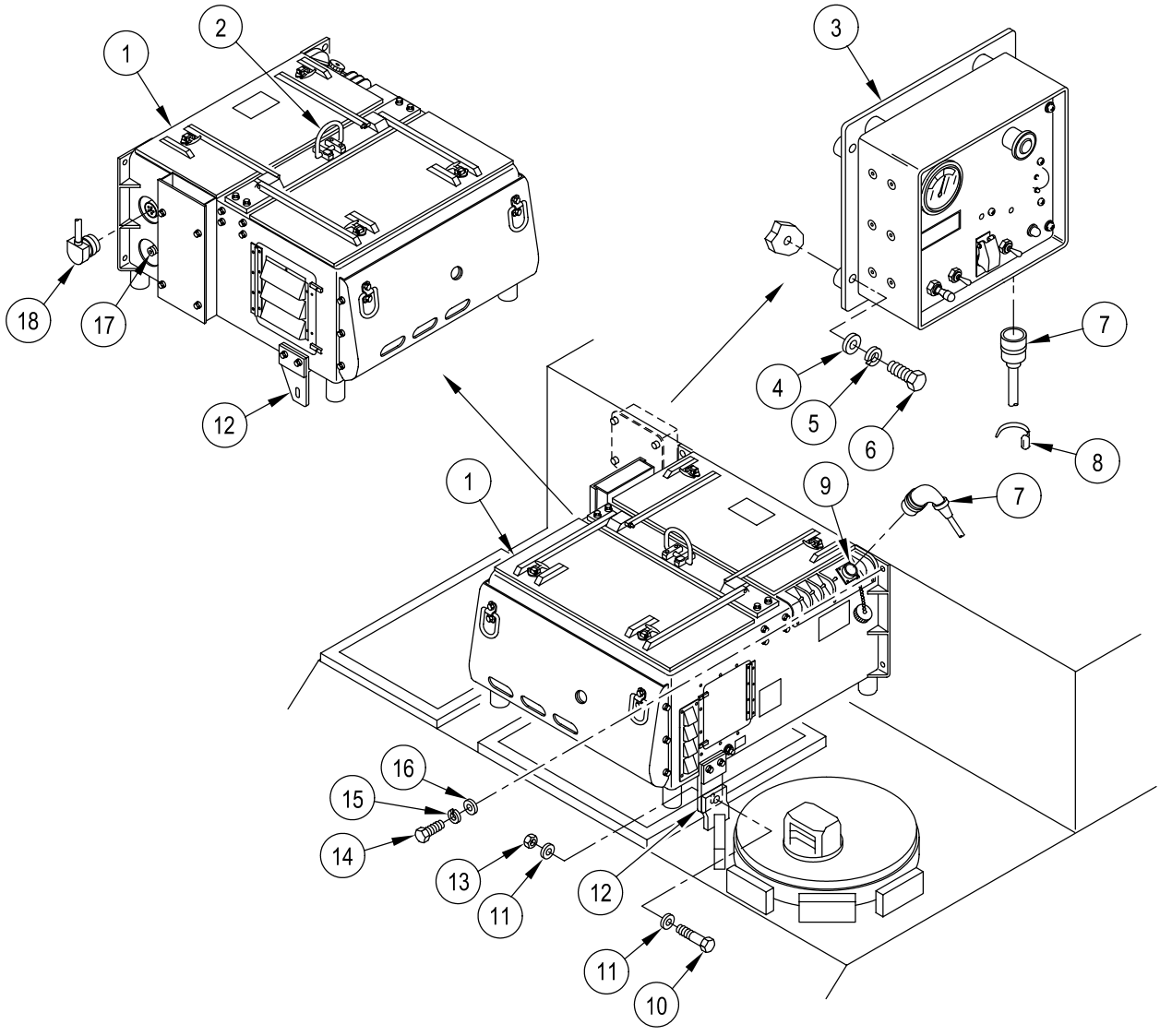
WARNING



Damaged slings can fail when loaded. Breaking slings can strike and injure personnel. Suspended load can fall and crush personnel.

Inspect all slings before use. Do not use damaged slings. Clearly mark all damaged slings as DAMAGED - DO NOT USE.

4. Using appropriate lifting device with lifting sling attached to APU lifting eye (2) of the APU (1), align mounting holes and install four screws (14), washers (16), and new lockwashers (15).
5. Install two self-locking nuts (13), screws (10), and four washers (11) in the two APU mounting brackets (12).
6. Install remote panel electrical control cable (7) to APU control panel receptacle (9).
7. Install fuel supply line to APU connection point (17).
8. Install NATO cable assembly (18) to NATO plug on right side of APU (1).
9. Remove sling and lifting device from APU lifting eye (2).



FOLLOW-THROUGH STEPS

1. Start Auxiliary Power Unit. See TM 9-6115-664-13&P.
2. Stop Auxiliary Power Unit. See TM 9-6115-664-13&P.

END OF TASK

REPLACE 5.0 KW AUXILIARY POWER UNIT FUEL SHUTOFF VALVE (M577A3 AND M1068A3 ONLY) 0676 00

THIS WORK PACKAGE COVERS:

Removal (page 0676 00-2).
Installation (page 0676 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts

Sealing compound (WP 0928 00, Item 56)
Locknut

Personnel Required

Unit Mechanic

References

See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Ramp lowered (see your -10)
Battery ground lead disconnected (WP 0338 00)
Rear floor plate removed (WP 0539 00) or (WP 0544 00)
Auxiliary equipment fuel shutoff valve closed (see your -10)

REPLACE 5.0 KW AUXILIARY POWER UNIT FUEL SHUTOFF VALVE (M577A3 AND M1068A3 ONLY) — Continued

0676 00

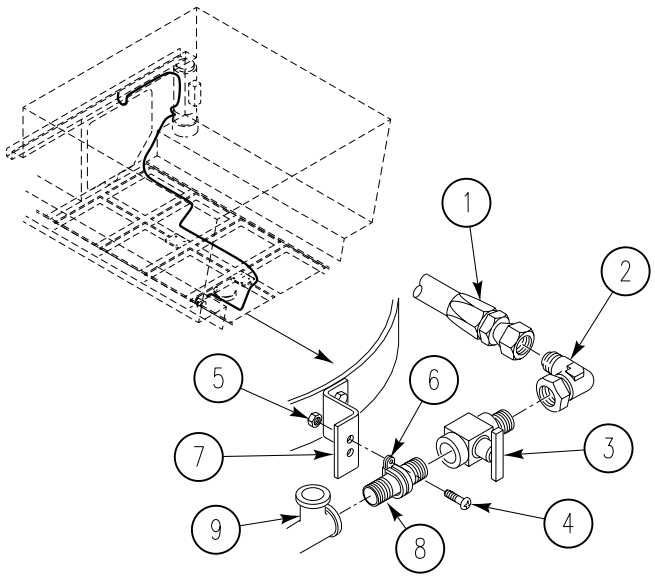
REMOVAL

WARNING

Diesel fuel can catch fire and seriously injure or kill soldiers and damage or destroy vehicle.

Wipe up fuel spills immediately. Do not smoke near fuel or when working on the fuel system.

1. Disconnect hose (1) from elbow (2) on fuel shutoff valve (3).
2. Remove elbow (2) from shutoff valve (3).
3. Remove screw (4), locknut (5), and clamp (6) from bracket (7). Remove clamp from nipple (8). Discard locknut.
4. Remove shutoff valve (3) from nipple (8).
5. Remove nipple (8) from tee (9).

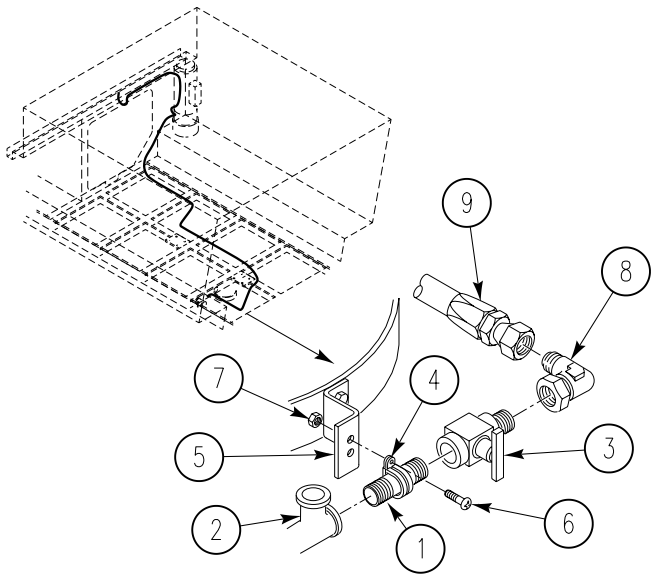


REPLACE 5.0 KW AUXILIARY POWER UNIT FUEL SHUTOFF VALVE (M577A3 AND M1068A3 ONLY) — Continued

0676 00

INSTALLATION

1. Apply light coat of sealing compound to all external tapered threads. Do not apply sealant beyond small end of tapered threads.
2. Install nipple (1) in tee (2).
3. Install shutoff valve (3) on nipple (1).
4. Place clamp (4) on nipple (1). Secure clamp to bracket (5) with screw (6) and new locknut (7).
5. Install elbow (8) on shutoff valve (3).
6. Connect hose (9) to elbow (8).



FOLLOW-THROUGH STEPS

1. Open auxiliary equipment fuel shutoff valve (see your -10).
2. Connect battery ground lead (WP 0338 00).
3. Start auxiliary power unit (see your -10). Check all fittings for leaks. Turn auxiliary power unit off.
4. Install rear floor plate (WP 0539 00) or (WP 0544 00).
5. Raise and lock ramp (see your -10).
6. Stop engine (see your -10).

END OF TASK

REPLACE 5.0 KW AUXILIARY POWER UNIT VALVE-TO-BULKHEAD FUEL SUPPLY HOSES (M577A3 AND M1068A3 ONLY)

0677 00

THIS WORK PACKAGE COVERS:

Removal (page 0677 00-2).
Installation (page 0677 00-4).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts

Strap (6)
Lockwasher (3)
Lockwasher (2)

Personnel Required

Unit Mechanic

References

See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Ramp lowered (see your -10)
Battery ground lead disconnected (WP 0338 00)
Personnel heater duct removed (WP 0706 00)
Right front and rear floor plates removed (WP 0539 00) or (WP 0544 00)
Auxiliary power unit fuel shutoff valve closed (see your -10)

REPLACE 5.0 KW AUXILIARY POWER UNIT VALVE-TO-BULKHEAD FUEL SUPPLY HOSES (M577A3 AND M1068A3 ONLY) — Continued

0677 00

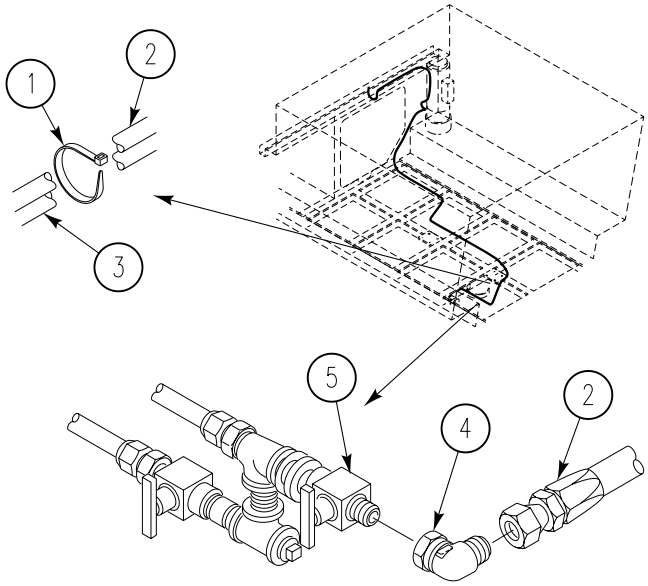
REMOVAL

WARNING

Diesel fuel can catch fire and seriously injure or kill soldiers and damage or destroy vehicle.

Wipe up fuel spills immediately. Do not smoke near fuel or when working on the fuel system.

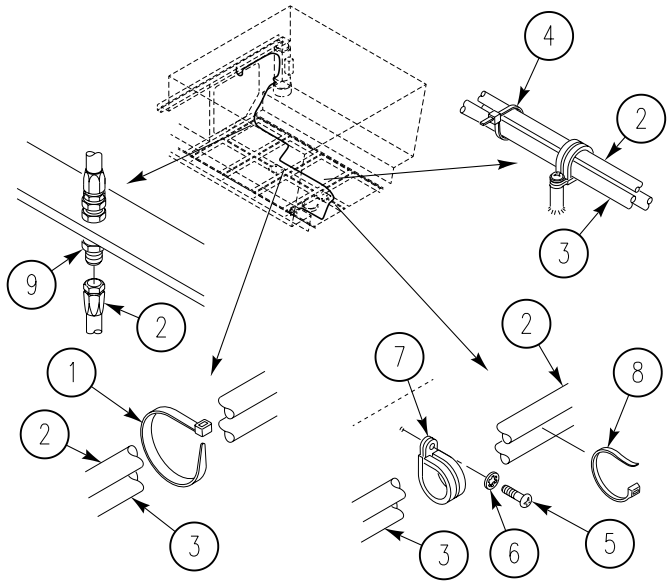
1. Remove two straps (1) holding fuel hose (2) to other hoses (3). Discard straps.
2. Disconnect fuel hose (2) from elbow (4) on fuel shutoff valve (5). Remove hose from carrier.



REPLACE 5.0 KW AUXILIARY POWER UNIT VALVE-TO-BULKHEAD FUEL SUPPLY HOSES (M577A3 AND M1068A3 ONLY) — Continued

0677 00

3. Remove six straps (1) holding fuel hose (2) to other hoses (3). Discard straps.
4. Remove nine straps (4) holding fuel hose (2) to other hoses (3).
5. Remove screw (5), lockwasher (6), clamp (7), and strap (8) securing fuel hose (2) and other hose (3) to weldnut on hull floor and to side of seat support. Discard lockwasher and strap.
6. Disconnect fuel hose (2) from nipple (9) in bulkhead crossbeam. Remove hose from carrier.



REPLACE 5.0 KW AUXILIARY POWER UNIT VALVE-TO-BULKHEAD FUEL SUPPLY HOSES (M577A3 AND M1068A3 ONLY) — Continued

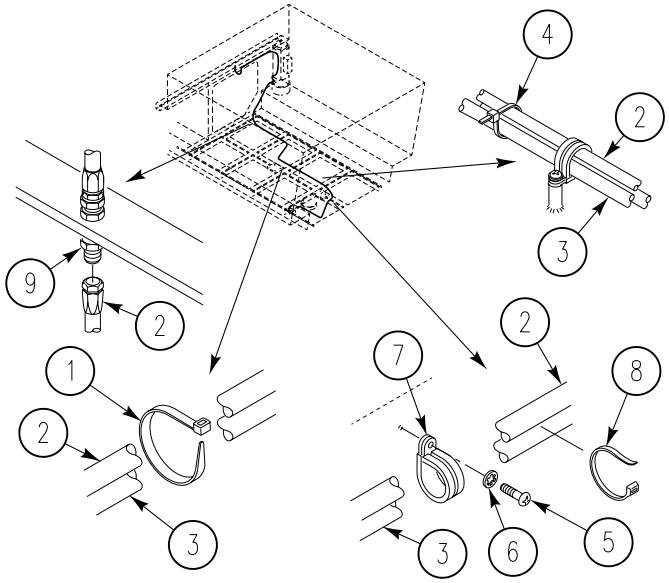
0677 00

INSTALLATION

NOTE

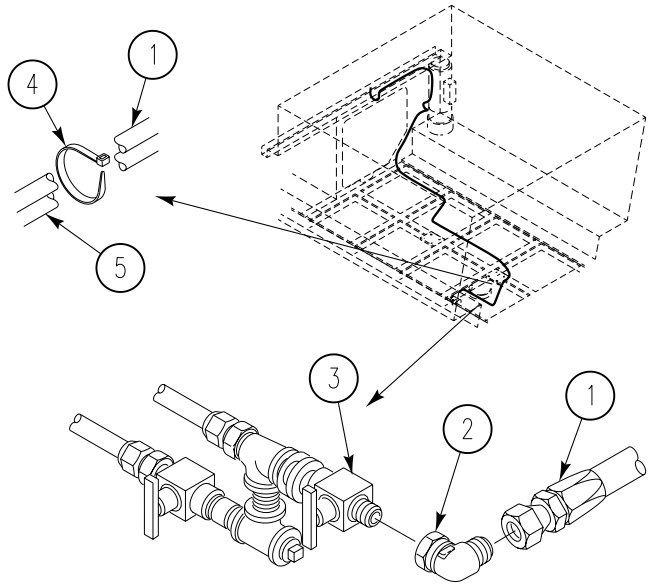
Replacing a flareless fuel hose may also require new mating fittings such as a nipple.

1. Connect fuel hose (2) to nipple (9) in bulkhead crossbeam. Route hose to rear of carrier.
2. Install clamp (7) on fuel hose (2) Secure clamp to weldnut on hull floor and to side of seat support with screw (5) and new lockwasher (6). Install new strap (8) around fuel hose (2) and other hose (3).
3. Secure fuel hose (2) to other hoses (3) with nine straps (4).
4. Secure fuel hose (2) to other hoses (3) with six new straps (1).



REPLACE 5.0 KW AUXILIARY POWER UNIT VALVE-TO-BULKHEAD FUEL SUPPLY HOSES (M577A3 AND M1068A3 ONLY) — Continued

5. Connect fuel hose (1) to elbow (2) on fuel shutoff valve (3).
6. Install two new straps (4) on fuel hose (1) and other hose (5).



FOLLOW-THROUGH STEPS

1. Open auxiliary power unit fuel shutoff valve (see your -10).
2. Connect battery ground lead (WP 0338 00).
3. Start auxiliary power unit (see your -10). Check all fittings for leaks. Turn auxiliary power unit off.
4. Install right front and rear floor plates (WP 0539 00) or (WP 0544 00).
5. Install personnel heater duct (WP 0706 00).
6. Raise and lock ramp (see your -10).
7. Stop engine (see your -10).

END OF TASK

REPLACE 5.0 KW AUXILIARY POWER UNIT BULKHEAD-TO HULL FUEL SUPPLY HOSES (M577A3 AND M1068A3 ONLY) 0678 00

THIS WORK PACKAGE COVERS:

Removal (page 0678 00-1).
Installation (page 0678 00-4).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts
Gasket
Lockwasher (2)
Locknut (1)
Strap (6)
Sleeve (3)

Personnel Required
Unit Mechanic

References
See your -10

Equipment Conditions
Engine stopped (See your -10)
Carrier blocked (See your -10)
Ramp lowered (See your -10)
Battery ground lead disconnected (WP 0338 00)
Personnel heater duct removed (WP 0706 00)
Right front floor plate removed (WP 0539 00 or WP 0544 00)
Power plant rear access panel removed (WP 0439 00)
Auxiliary power unit fuel shutoff valve closed (see your -10)

REMOVAL

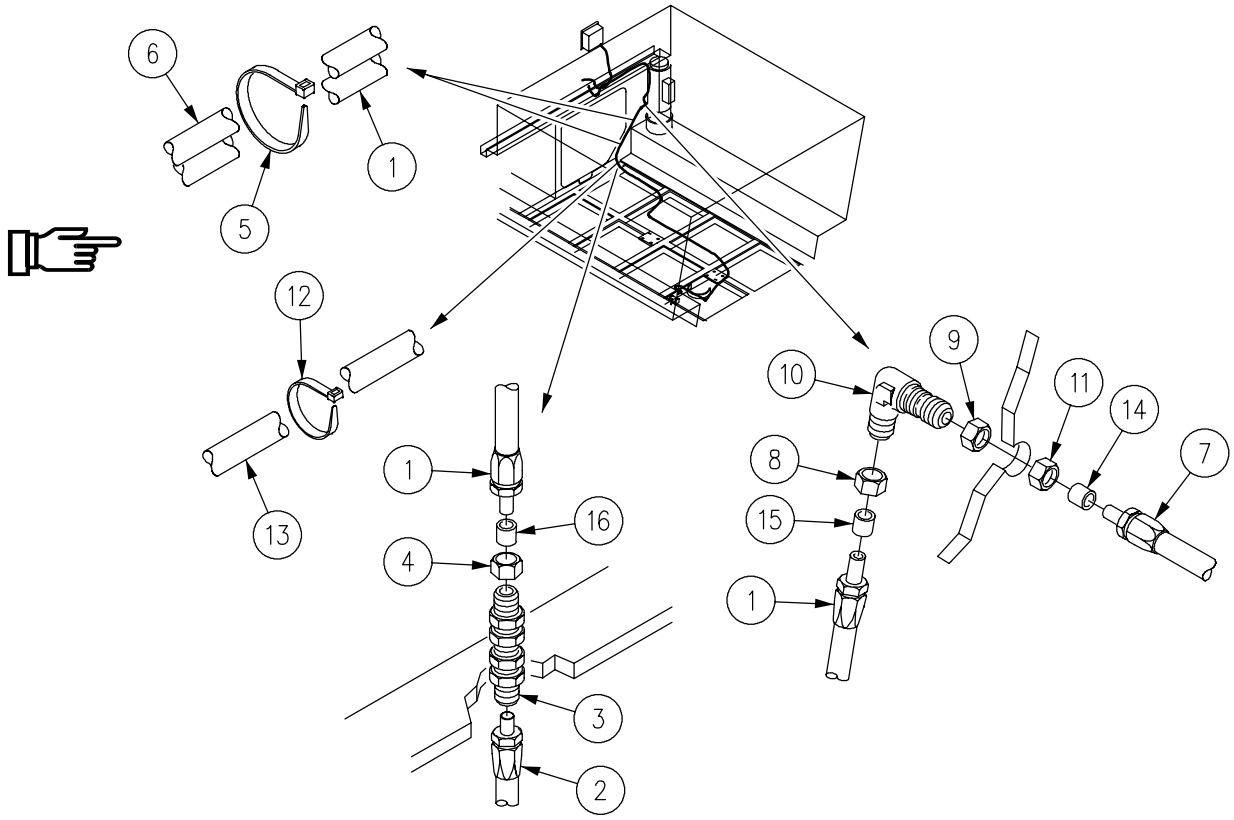
WARNING

Diesel fuel can catch fire and seriously injure or kill soldiers and damage or destroy vehicle. Wipe up fuel spills immediately. Do not smoke near fuel or when working on the fuel system.

REPLACE 5.0 KW AUXILIARY POWER UNIT BULKHEAD-TO HULL FUEL SUPPLY HOSES (M577A3 AND M1068A3 ONLY)

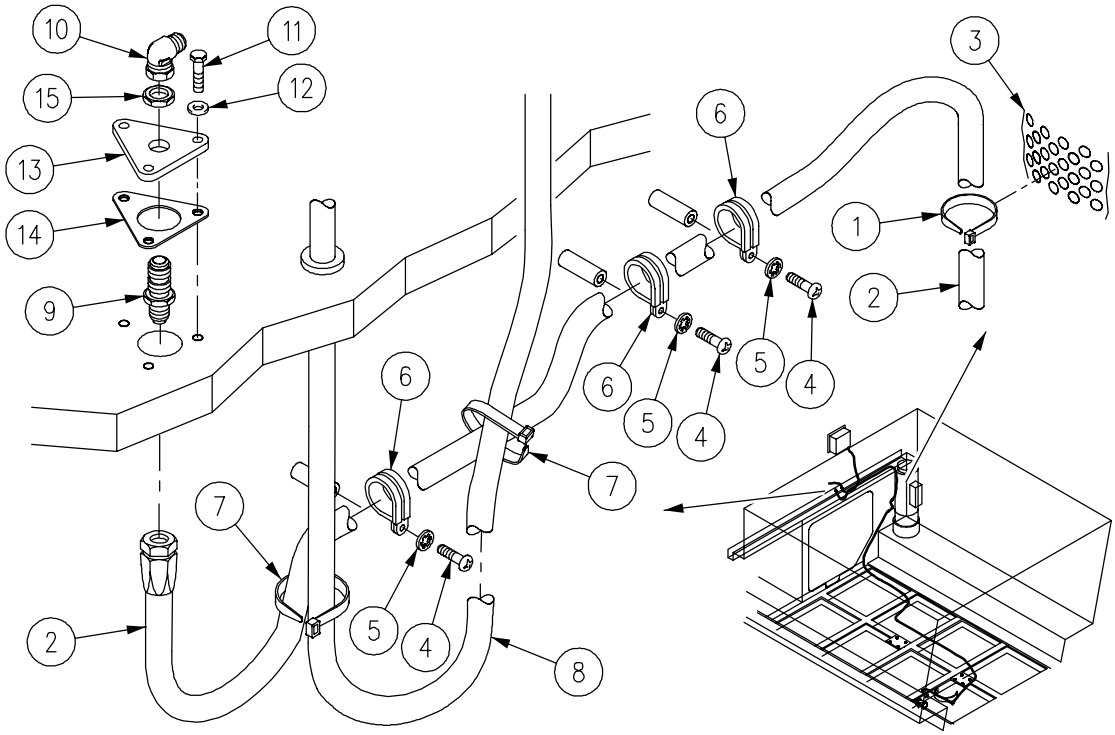
0678 00

1. Disconnect fuel hoses (1) and (2) from nipple (3) in bulkhead crossbeam.
2. Remove jamnut (4) and nipple (3) from bulkhead crossbeam.
3. Remove two straps (5) holding fuel hose (1) to personnel heater fuel hose (6).
4. Disconnect fuel hoses (1) and (7) from jamnuts (8) and (9), and elbow (10) in bulkhead.
5. Remove jamnut (11) and elbow (10) from bulkhead.
6. Remove strap (12) from fuel supply hose (13).
7. Remove sleeve (14) from fuel hose (7) and sleeves (15) and (16) from fuel hose (1).



REPLACE 5.0 KW AUXILIARY POEWR UNIT BULKHEAD-TO HULL FUEL SUPPLY HOSES (M577A3 AND M1068A3 ONLY) **0678 00**

8. Remove strap (1) securing fuel hose (2) to personnel heater shield (3). Discard strap.
9. Remove screw (4), lockwasher (5), and clamp (6) securing fuel hose (2) to bulkhead crossbeam. Remove clamp from hose. Discard lockwasher.
10. Remove tie strap (7) securing remote control harness (8) to fuel hose (2). Discard strap.
11. Disconnect fuel hose (2) from nipple (9) in hull ceiling.
12. Remove elbow (10) from nipple (9).
13. Remove three screws (11), washers (12), flange (13), and gasket (14) from hull roof. Discard gasket.
14. Remove jamnut (15) and nipple (9) from flange (13).



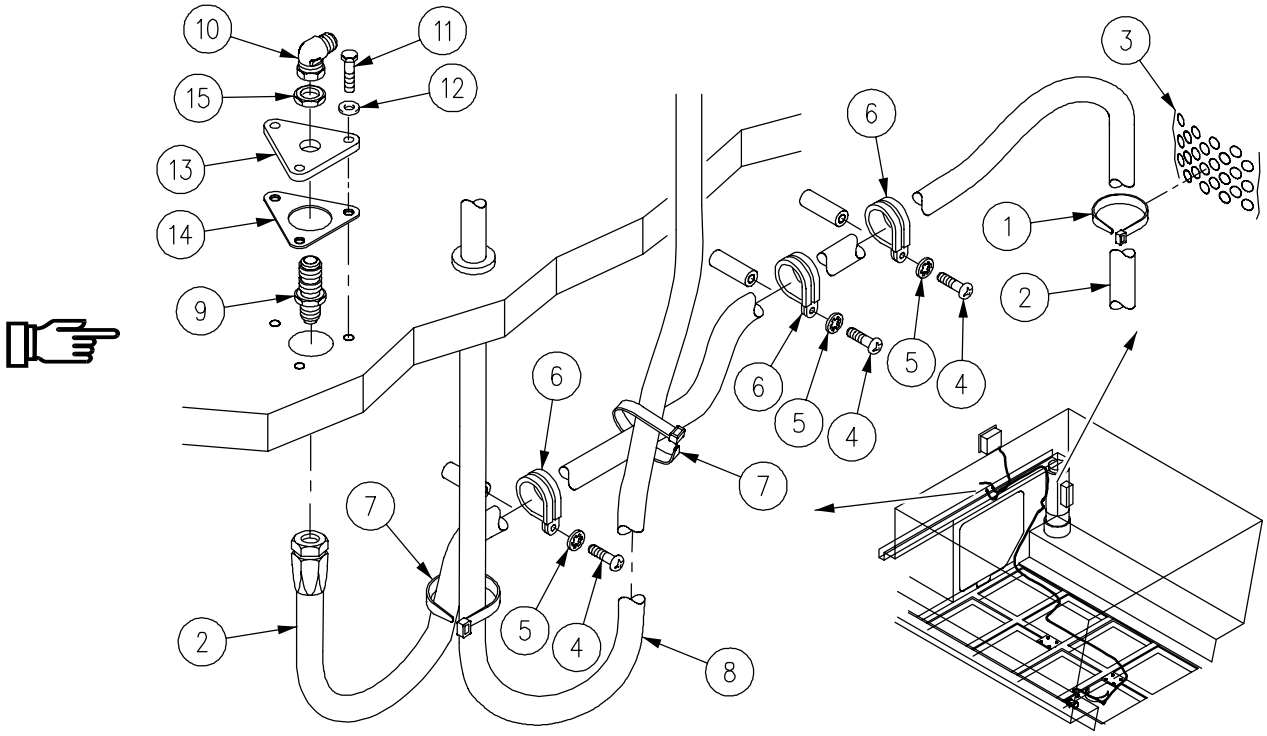
REPLACE 5.0 KW AUXILIARY POWER UNIT BUIKHEAD-TO HULL FUEL SUPPLY HOSES (M577A3 AND M1068A3 ONLY) 0678 00

INSTALLATION

NOTE

Replacing a flareless fuel hose may also require new mating fittings such as a nipple or elbow.

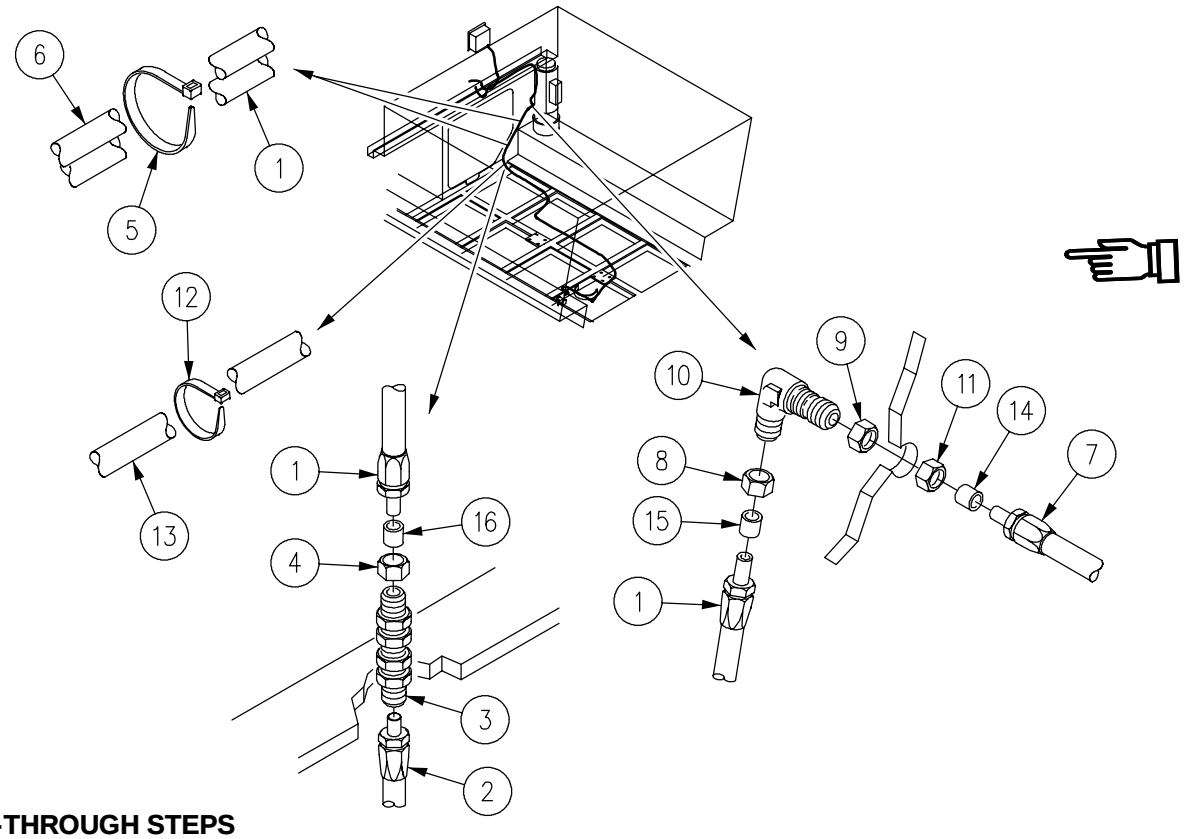
1. Install nipple (9) in flange (13) and secure with jamnut (15).
2. Install new gasket (14) and flange (13) on hull roof and secure with three screws (11) and washers (12).
3. Install elbow (10) on nipple (9).
4. Connect fuel hose (2) to nipple (9) in hull ceiling. Route hose over to personnel heater.
5. Install new strap (7) securing fuel hose (2) to remote control harness (8).
6. Install clamp (6) on fuel hose (2). Secure clamp to bulkhead crossbeam with screw (4) and new lockwasher (5).
7. Secure fuel hose (2) to personnel heater shield (3) with new strap (1).



REPLACE 5.0 KW AUXILIARY POWER UNIT BULKHEAD-TO HULL FUEL SUPPLY HOSES (M577A3 AND M1068A3 ONLY)

0678 00

8. Install strap (12) on fuel supply hose (13).
9. Install elbow (10) in bulkhead and secure with jamnuts (9), and (11).
10. Install sleeve (14) and jamnuts (9), and (11) on fuel hose (7) and connect fuel hose to elbow (10).
11. Install nipple (3) in bulkhead crossbeam and secure with jamnut (4).
12. Install two new sleeves (16), and (15) on fuel hose (1), and connect fuel hose (1) to elbow (10) in bulkhead and to nipple (3) in bulkhead crossbeam. Secure with jamnut (8).
13. Secure fuel hose (6) to personnel heater fuel hose (1) with two straps (5).
14. Connect fuel hose (2) to nipple (3).



FOLLOW-THROUGH STEPS

1. Open auxiliary power unit fuel shutoff valve (see your -10)
2. Connect battery ground lead (WP 0338 00).
3. Start auxiliary power unit (see your -10). Check all fittings for leaks. Turn auxiliary power unit off.
4. Install power plant rear access panel (WP 0439 00).
5. Install right front floor plate (WP 0539 00) or (WP 0544 00).
6. Install personnel heater duct (WP 0706 00).
7. Raise and lock ramp (see your -10).
8. Stop engine (see your -10).

END OF TASK

CHAPTER 22

UNIT MAINTENANCE INSTRUCTIONS FOR SPECIAL PURPOSE KITS

WORK PACKAGE INDEX

Title	Sequence No.
BLEED AIR FROM PERSONNEL HEATER FUEL LINES	0679 00
SERVICE PERSONNEL HEATER FUEL FILTER	0680 00
SERVICE PERSONNEL HEATER FUEL PUMP	0681 00
REPLACE HEATER AIR INTAKE AND EXHAUST PIPES (ALL EXCEPT M1064A3)	0682 00
REPLACE HEATER AIR INTAKE AND EXHAUST PIPES (M1064A3 ONLY)	0683 00
REPLACE FUEL SHUT-OFF VALVE ASSEMBLY (M113A3, M1059A3, AND M58 ONLY)	0684 00
REPLACE HEATER/FILTER FUEL SUPPLY HOSES (M113A3, M1059A3, AND M58 ONLY)	0685 00
REPLACE PERSONNEL HEATER FUEL TUBE (ALL EXCEPT M1064A3)	0686 00
REPLACE BULKHEAD CONNECTION TO PERSONNEL HEATER TUBE (M577A3 AND M1068A3 ONLY)	0687 00
REPLACE PERSONNEL HEATER FUEL FILTER, HOSES, AND FITTINGS (M1064A3 ONLY)	0688 00
REPLACE PERSONNEL HEATER FUEL PUMP HOSE (M113A3, M1059A3, AND M58 ONLY)	0689 00
REPLACE FUEL TANK TO FUEL PUMP HOSE (M577A3 AND M1068A3 ONLY)	0690 00
REPLACE FUEL PUMP TO BULKHEAD CONNECTION HOSE (M113A3, M1059A3, AND M58 ONLY)	0691 00
REPLACE FUEL PUMP TO BULKHEAD CONNECTION HOSE (M577A3 AND M1068A3 ONLY)	0692 00
DELETED	0693 00
REPLACE FUEL PUMP HOSE TO HEATER FUEL SHUTOFF VALVE (M1064A3 ONLY)	0694 00
REPLACE PERSONNEL HEATER FUEL PUMP (M113A3, M1059A3, AND M58 ONLY)	0695 00
REPLACE PERSONNEL HEATER FUEL PUMP (M577A3 AND M1068A3 ONLY)	0696 00
REPLACE HEATER FUEL PUMP (M1064A3 ONLY)	0697 00
REPLACE PERSONNEL HEATER FUEL FILTER/BRACKET (M113A3, M1059A3, AND M58 ONLY)	0698 00
DELETED	0699 00
REPLACE PERSONNEL HEATER FUEL FILTER, HOSE, TUBE, AND FITTINGS (M577A3 AND M1068A3 ONLY)	0700 00
REPLACE PERSONNEL HEATER CONTROL BOX	0701 00
REPAIR PERSONNEL HEATER CONTROL BOX	0702 00
REPLACE PERSONNEL HEATER ASSEMBLY (ALL EXCEPT M1064A3)	0703 00
REPLACE PERSONNEL HEATER ASSEMBLY (M1064A3 ONLY)	0704 00
REPAIR PERSONNEL HEATER ASSEMBLY	0705 00
REPLACE PERSONNEL HEATER DUCT AND HOSES	0706 00
REPAIR PERSONNEL HEATER DUCT	0707 00
REPLACE PERSONNEL HEATER WIRING HARNESS GUIDE (M577A3 AND M1068A3)	0707 01

CHAPTER 22

UNIT MAINTENANCE INSTRUCTIONS FOR SPECIAL PURPOSE KITS

WORK PACKAGE INDEX (Continued)

Title	Sequence No.
SERVICE COOLANT HEATER FUEL FILTER	0708 00
SERVICE COOLANT HEATER FUEL PUMP	0709 00
DRAIN AND FILL ENGINE COOLANT HEATER SYSTEM	0710 00
REPLACE COOLANT HEATER FUEL PUMP HOSE	0711 00
REPLACE COOLANT HEATER FUEL INLET HOSE AND FITTINGS	0712 00
REPLACE COOLANT PUMP TO BATTERY BOX HOSES	0713 00
REPLACE ENGINE TO BATTERY BOX HOSE	0714 00
REPLACE COOLANT HEATER TO ENGINE ELBOW HOSE	0715 00
REPLACE COOLANT HEATER FILTER VALVE HOSE	0716 00
REPLACE ENGINE BLOCK FITTING AND HARDWARE	0717 00
REPLACE BATTERY BOX INSULATION AND HEAT EXCHANGER	0718 00
REPLACE BATTERY DRAWER INSULATION AND HEAT EXCHANGER (M1064A3 ONLY)	0719 00
REPLACE COOLANT HEATER FUEL SHUTOFF VALVE	0720 00
REPLACE FUEL PUMP TEE TO ELBOW HOSE	0721 00
REPLACE BATTERY PLATE TO BATTERY PLATE HOSE	0722 00
REPLACE COOLANT HEATER FUEL PUMP	0723 00
REPLACE COOLANT HEATER EXHAUST ELBOW AND PIPES	0724 00
REPLACE HEATER TO SURGE TANK HOSE	0725 00
REPLACE FUEL FILTER	0726 00
ADJUST FLAME DETECTOR SWITCH	0727 00
REPLACE COOLANT HEATER AND PUMP UNIT	0728 00
REPLACE COOLANT HEATER	0729 00
REPLACE IGNITER	0730 00
REPLACE COOLANT HEATER PUMP	0731 00
REPLACE COOLANT HEATER AND COOLANT PUMP BRACKEt	0732 00
REPLACE COOLANT PUMP TO HEATER WIRING HARNESS	0733 00
REPLACE FLAME DETECTOR SWITCH	0734 00
REPLACE COOLANT HEATER WIRING HARNESS	0735 00
REPLACE COOLANT HEATER CONTROL BOX	0736 00
REPAIR COOLANT HEATER CONTROL BOX	0737 00
REPLACE NON-SKID PLATES (M1064A3 ONLY)	0738 00
REPLACE DRIVER'S WINDSHIELD	0739 00
REPLACE DRIVER'S WINDSHIELD STOWAGE BAG, STRAPS, AND DECAL	0740 00
INITIAL INSTALLATION OF LITTER KIT (M113A3 ONLY)	0741 00
REPLACE POST ASSEMBLY (M113A3 ONLY)	0742 00
REPAIR POST ASSEMBLY (M113A3 ONLY)	0743 00

CHAPTER 22

UNIT MAINTENANCE INSTRUCTIONS FOR SPECIAL PURPOSE KITS

WORK PACKAGE INDEX (Continued)

Title	Sequence No.
REPLACE CHAIN ASSEMBLY (M113A3 ONLY)	0744 00
REPAIR CHAIN ASSEMBLY (M113A3 ONLY)	0745 00
REPLACE ARTILLERY COMMUNICATION INSIDE CABLE (M577A3 ONLY)	0746 00
REPLACE COMMANDER'S CUPOLA ARMOR SHIELDS (M113A3 AND M1064A3 ONLY)	0747 00
DELETED	0748 00
DELETED	0749 00
DELETED	0750 00
DELETED	0751 00
INSTALL/REMOVE MINE ARMOR KIT (M113A3 ONLY)	0752 00
REPLACE FOG OIL TANK MODULE (M1059A3 ONLY)	0753 00
REPLACE SMOKE GENERATOR BREATHER HOSE ASSEMBLY (M1059A3 ONLY)	0754 00
REPLACE SMOKE GENERATOR ASSEMBLY AND SUPPORT BRACKET (M1059A3 ONLY)	0755 00
REPLACE SMOKE GENERATOR CONTROL PANEL ASSEMBLY (M1059A3 ONLY)	0756 00
REPLACE SMOKE GENERATOR SYSTEM POWER SUPPLY CABLE ASSEMBLY (M1059A3 ONLY)	0757 00
REPLACE AIR COMPRESSOR ELECTRICAL CABLE ASSEMBLY (M1059A3 ONLY)	0758 00
REPLACE FOG OIL PUMP ELECTRICAL CABLE ASSEMBLY	0759 00
REPLACE SMOKE GENERATOR INTERNAL CABLE ASSEMBLY (M1059A3 ONLY)	0760 00
REPLACE ADAPTER ACCESS PLATE TO GENERATOR ELECTRICAL CABLE ASSEMBLY (M1059A3 ONLY)	0761 00
REPLACE AIR COMPRESSOR ASSEMBLY (M1059A3 ONLY)	0762 00
REPLACE FOG OIL PUMP ASSEMBLY (M1059A3 ONLY)	0763 00
REPLACE SMOKE GENERATOR FUEL CAN LID ASSEMBLY (M1059A3 ONLY)	0764 00
REPLACE SMOKE GENERATOR FUEL LINES AND GUARDS (M1059A3 ONLY)	0765 00
REPLACE SMOKE GENERATOR ADAPTER ACCESS PLATE AND GASKET (M1059A3 ONLY)	0766 00
REPLACE SMOKE GENERATOR COMPRESSOR RESERVOIR TO ADAPTER ACCESS PLATE AIR HOSE (M1059A3 ONLY)	0767 00
REPLACE SMOKE GENERATOR ADAPTER ACCESS PLATE TO COVER ASSEMBLY AIR HOSE (M1059A3 ONLY)	0768 00
REPLACE FOG OIL TANK QUICK DISCONNECT TO ADAPTER ACCESS PLATE HOSE (M1059A3 ONLY)	0769 00
REPLACE COVER ASSEMBLY FOG OIL QUICK DISCONNECT TO ADAPTER ACCESS PLATE HOSE (M1059A3 ONLY)	0770 00
REPLACE SMOKE GENERATOR ARMOR (M1059A3 ONLY)	0771 00
REPLACE SMOKE GENERATOR GLOW PLUG CABLE ASSEMBLIES (M1059A3 ONLY)	0772 00

CHAPTER 22

UNIT MAINTENANCE INSTRUCTIONS FOR SPECIAL PURPOSE KITS

WORK PACKAGE INDEX (Continued)

Title	Sequence No.
REPLACE/REPAIR SMOKE GENERATOR FUEL FILTER/WATER SEPARATOR (M1059A3 ONLY)	0773 00
REPLACE M14 AIR PURIFIER AND FRAME (M113A3 ONLY)	0774 00
REPLACE NBC AIR PURIFIER AND FRAME (M113A3 ONLY)	0775 00
REPLACE NBC AIR PURIFIER AND FRAME (M577A3 ONLY)	0776 00
REPLACE M8A3 NBC AIR PURIFIER AND FRAME (M1059A3 ONLY)	0777 00
REPLACE M13 AIR PURIFIER AND FRAME (M1059A3 ONLY)	0778 00
REPLACE M13 AIR PURIFIER AND FRAME (M1068A3 ONLY)	0779 00
REPLACE M8A3/M14 ORIFICE CONNECTOR ASSEMBLY, SUPPORT, AND QUICK COUPLING HALF (M113A3, M1059A3, AND M577A3 ONLY)	0780 00
REPLACE M13 ORIFICE CONNECTOR ASSEMBLY, BRACKET, AND QUICK COUPLING HALF (M1068A3 ONLY)	0781 00
REPLACE M3 NBC HEATER HOSES AND FITTINGS (M113A3 ONLY)	0782 00
REPLACE M14 NBC HOSES AND BRACKETS (M113A3 AMBULANCE ONLY)	0783 00
REPLACE M3 NBC HEATER HOSES AND FITTINGS (M113A3 AMBULANCE ONLY)	0784 00
DELETED	0785 00
REPLACE NBC FILTERS AND HOSES (M577A3 ONLY)	0786 00
REPLACE M8A3 NBC HOSES AND BRACKETS (M1059A3 ONLY)	0787 00
REPLACE M3 NBC HOSES AND FITTINGS (M1059A3 ONLY)	0788 00
REPLACE M13 NBC FILTERS AND HOSES (M1068A3 ONLY)	0789 00
REPLACE M13 NBC HEATER HOSES (M1068A3 ONLY)	0790 00
REPLACE M3 NBC HEATER CONTROL BOX, REGULATOR, AND BRACKET (M113A3 AND M577A3)	0791 00
DELETED	0792 00
REPLACE M3 NBC HEATER CONTROL BOX (M1068A3 ONLY)	0793 00
REPLACE M3 NBC HEATERS AND CONTROLLERS (M113A3 ONLY)	0794 00
REPLACE M3 NBC HEATERS AND CONTROLLERS (M113A3 AMBULANCES ONLY)	0795 00
REPLACE NBC HEATERS AND MOUNTS (M577A3 ONLY)	0796 00
REPLACE M3 NBC HEATERS AND CONTROLLERS (M1059A3 ONLY)	0797 00
REPLACE M13 NBC HEATERS (M1068A3 ONLY)	0798 00
REPLACE M14 NBC CABLES AND SWITCH ASSEMBLY (M1059A3 ONLY)	0799 00
REPLACE NBC CABLE TO HEATERS, AIR PURIFIER, AND SWITCH ASSEMBLY (M113A3 ONLY)	0800 00
DELETED	0801 00
REPLACE NBC FILTER SWITCH ASSEMBLY (M113A3 AND M113A3 AMBULANCE ONLY)	0802 00
REPLACE NBC FILTER SWITCH AND MOUNT BRACKET (M577A3 ONLY)	0803 00

CHAPTER 22

UNIT MAINTENANCE INSTRUCTIONS FOR SPECIAL PURPOSE KITS

WORK PACKAGE INDEX (Continued)

Title	Sequence No.
REPLACE M8A3/M3 NBC FILTER SWITCH ASSEMBLY (M1059A3 ONLY)	0804 00
REPLACE M13 NBC FILTER SWITCH (M1068A3 ONLY)	0805 00
REPLACE M3 NBC HEATER WIRING HARNESS (M1059A3 ONLY)	0806 00
REPLACE M14 NBC HEATER WIRING HARNESS (M113A3 AMBULANCE ONLY)	0807 00
REPLACE NBC HEATER WIRING HARNESS (M577A3 ONLY)	0808 00
REPLACE M13 NBC HEATER WIRING HARNESS (M1068A3 ONLY)	0809 00
REPLACE WATER/RATION HEATER POWER CABLE (M113A3 ONLY)	0810 00
REPLACE WATER/RATION HEATER MOUNT BRACKET (M113A3 ONLY)	0811 00
INSTALL TOW PINTLE EXTENDER KIT (M113A3 ONLY)	0811 01
REPAIR TOW PINTLE EXTENDER ASSEMBLY (M113A3 ONLY)	0811 02

BLEED AIR FROM PERSONNEL HEATER FUEL LINES 0679 00

THIS WORK PACKAGE COVERS:

Servicing (page 0679 00-1).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts
Wiping rag (WP 0928 00, Item 65)

Personnel Required
Unit Mechanic

References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Ramp lowered (see your -10)
Rear floor plate removed (WP 0539 00), (WP 0540 00), (WP 0541 00), (WP 0542 00), (WP 0543 00), (WP 0544 00), or(WP 0545 00)

SERVICING

BLEED AIR FROM SYSTEM

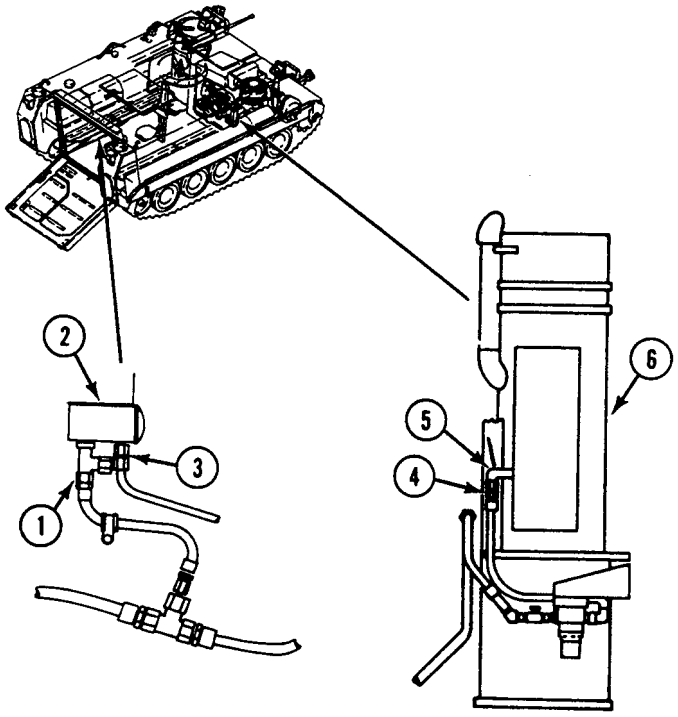
1. Turn on main fuel valves (see your -10).
2. Turn on heater fuel shut-off valve (see your -10).

WARNING

Diesel fuel can catch fire and seriously injure or kill soldiers and damage or destroy the vehicle. Wipe up fuel spills immediately. Do not smoke near fuel or when working on the fuel system. Disconnect vehicle ground when working on the fuel system.

3. Loosen fuel inlet line (1) at tee fitting on fuel pump (2). Tighten connection as soon as fuel begins to escape from line.

4. Loosen fuel outlet line (3) at fuel pump (2). Tighten connection as soon as fuel begins to escape from line.
5. Wipe up spilled fuel. Turn heater on (see your -10).
6. Loosen fuel line (4) at inlet elbow (5) of heater (6). Tighten connection as soon as fuel begins to escape from line.
7. Wipe up spilled fuel. Check heater (6) for proper operation and fuel leaks.
8. Turn heater off (see your -10).



FOLLOW-THROUGH STEPS

1. Install rear floor plate (WP 0539 00), (WP 0540 00), (WP 0541 00), (WP 0542 00), (WP 0543 00), (WP 0544 00), or(WP 0545 00).
2. Start engine (see your -10).
3. Raise and lock ramp (see your -10).
4. Stop engine (see your -10).

END OF TASK

SERVICE PERSONNEL HEATER FUEL FILTER 0680 00

THIS WORK PACKAGE COVERS:

Removal (page 0680 00-2).
Servicing (page 0680 00-2).
Installation (page 0680 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts

Cleaning compound (WP 0928 00, Item 26)
Wiping rag (WP 0928 00, Item 65)
Preformed packing
Lockwasher (4)

Personnel Required

Unit Mechanic

References

See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Personnel heater fuel shutoff valve OFF (see your -10)
Spall liners opened (M113A3 only) (see your -10)

REMOVAL

WARNING

Fuel can catch fire and burn you. Do not smoke. Wipe up spilled fuel.

NOTE

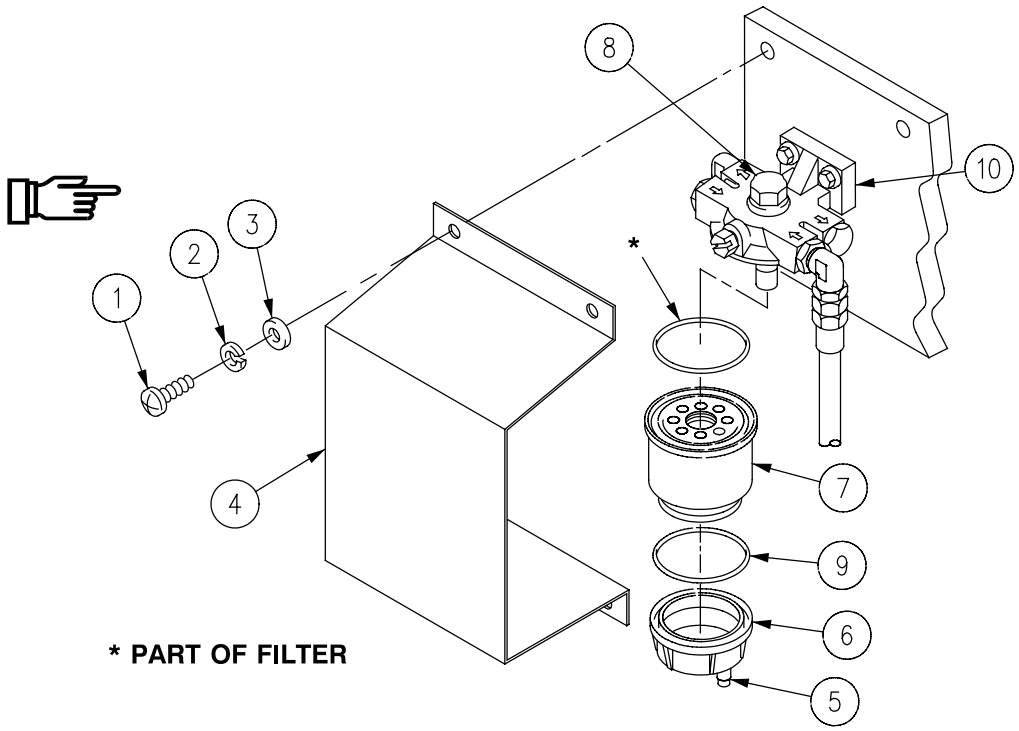
Shield installed on M577A3 and M1068A3 carriers only.

1. Remove four screws (1), lockwashers (2), washers (3), and shield (4) from sponson. Discard lockwashers.
2. Depress plunger (5) until fluid is drained from collector bowl (6). Wipe up spilled fuel.

NOTE

Loosen head bolt as instructed. Do not remove head bolt from filter head.

3. Loosen head bolt (8) until filter element (7) with preformed packing (9) can be removed from filter head (10). Remove head gasket (*) from filter head (10). Discard preformed packing and filter element.

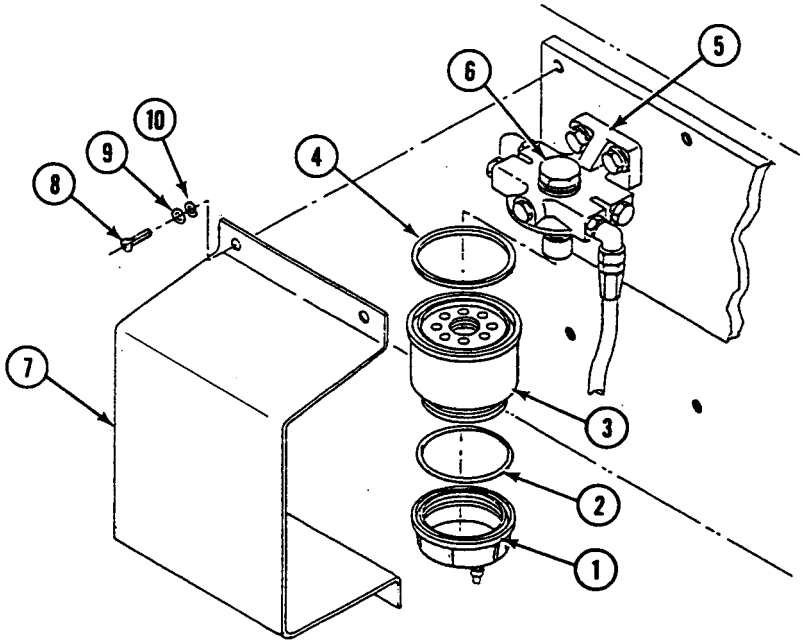


CLEANING, INSPECTION, AND REPAIR

1. Clean collector bowl (1) with cleaning compound and clean wiping rag.

INSTALLATION

1. Install new preformed packing (2) on new filter element (3).
2. Install collector bowl (1) in new filter element (3).
3. If head gasket (4) was removed, position same gasket in filter head (5) or on filter element (3).
4. Install new filter element (3) and gasket (4) on head bolt (6) and filter head (5).
5. Install shield (7), four screws (8), new lockwashers (9), and washers (10) on sponson over fuel filter/water separator assembly.



FOLLOW-THROUGH STEPS

1. Turn personnel heater fuel valve ON (see your -10).
2. Turn personnel heater ON (see your -10). Check for leaks.
3. Turn personnel heater OFF (see your -10).
4. Secure spall liners (M113A3 only) (see your -10).

END OF TASK

SERVICE PERSONNEL HEATER FUEL PUMP 0681 00

THIS WORK PACKAGE COVERS:

Disassembly (page 0681 00-2).
Cleaning (page 0681 00-2).
Assembly (page 0681 00-2).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts

Cleaning compound solvent (WP 0928 00, Item 19)
Gasket

Personnel Required

Unit Mechanic

References

See your -10

Equipment Condition

Personnel heater fuel pump removed (WP 0695 00), (WP 0696 00), or (WP 0697 00)

DISASSEMBLY

NOTE

There are two types of fuel pump. For BENDIX/FACET type, do Assembly Step 1, Cleaning Step 1, and Disassembly Step 2. For WALBRO type, do Assembly Step 2, Cleaning Step 1, and Disassembly Step 1.

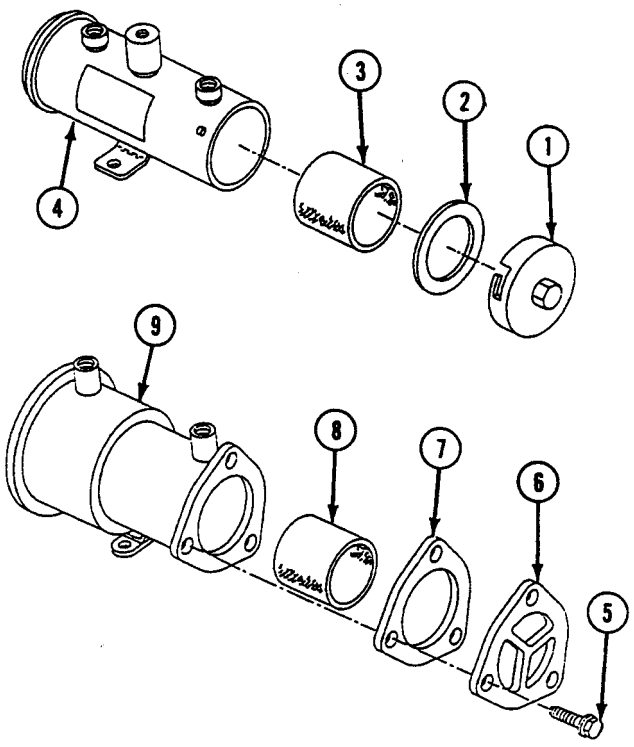
1. Remove cover (1) , gasket (2) , and strainer element (3) from fuel pump housing (4) . Discard gasket.
2. Remove three screws (5) , cover (6) , gasket (7) , and filter element (8) from fuel pump housing (9) . Discard gasket.

CLEANING

1. Clean element with cleaning compound.

ASSEMBLY

1. Install clean filter element (8) , new gasket (7) , and cover (6) on pump housing (9) . Secure with three screws (5) .
2. Install clean strainer element (3) , new gasket (2) , and cover (1) on pump housing (4) .



FOLLOW-THROUGH STEPS

1. Install personnel heater fuel pump (WP 0695 00), (WP 0696 00), or (WP 0697 00).

END OF TASK

REPLACE HEATER AIR INTAKE AND EXHAUST PIPES (ALL EXCEPT M1064A3) 0682 00

THIS WORK PACKAGE COVERS:

Removal (page 0682 00-1).
Installation (page 0682 00-3).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0926 00, Item 65)

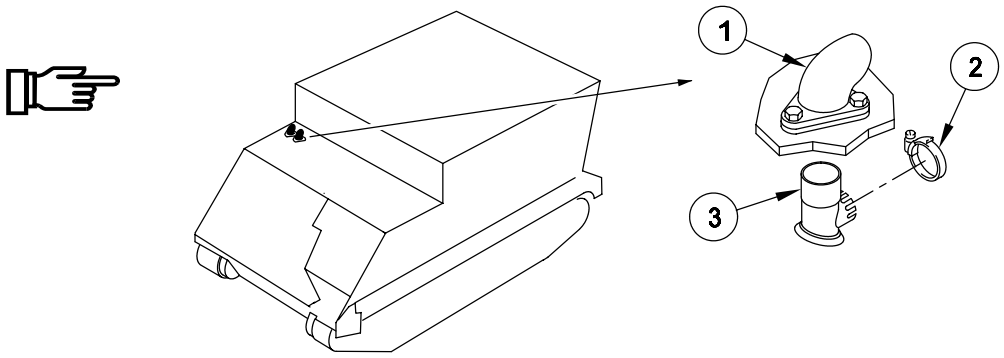
Materials/Parts
Gasket (2)
Gasket (2)
Grommet
Locknut (4)

Personnel Required
Unit Mechanic

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Spall liners opened (M113A3 Only) (see your -10)
Battery ground strap disconnected (WP 0337 00), (WP 0338 00), or (WP 0339 00)
Power plant rear access panel removed (WP 0439 00)
Heater assembly removed (WP 0703 00)

REMOVAL

1. Remove clamp (2) and remove elbow (3) from intake elbow (1).

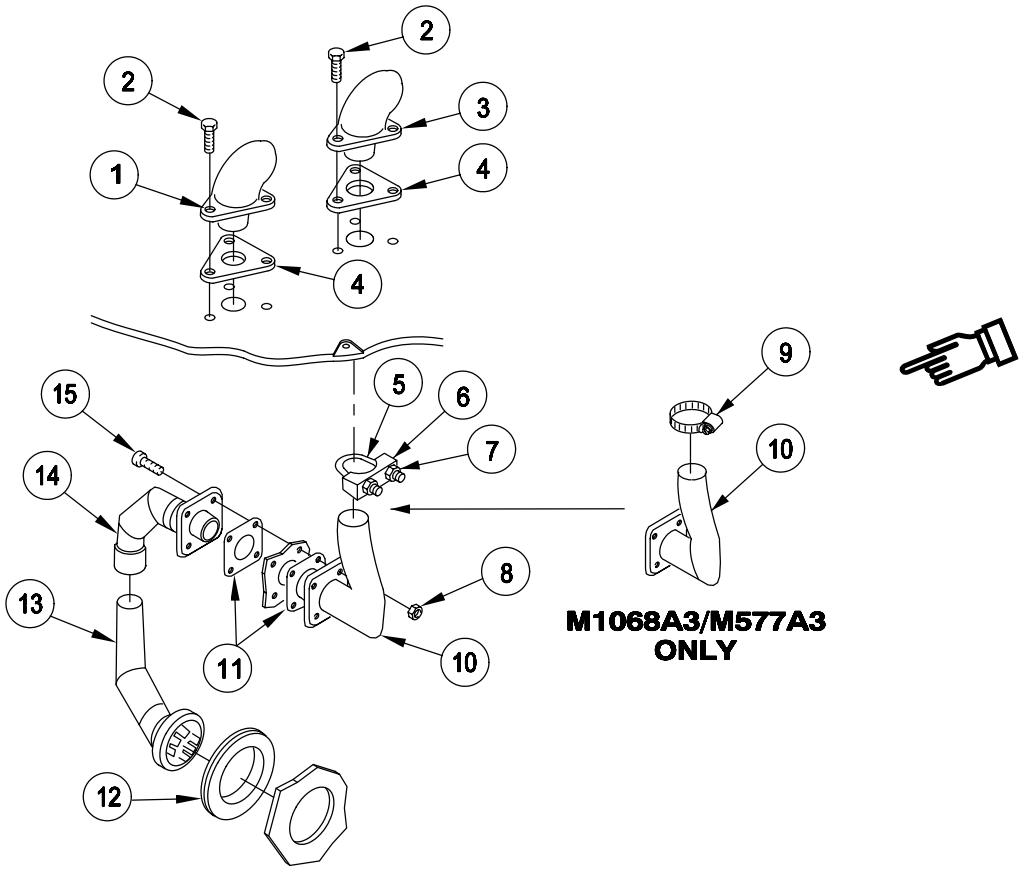


REPLACE HEATER AIR INTAKE AND EXHAUST PIPES (ALL EXCEPT M1064A3) — Continued **0682 00**

NOTE

Perform Step 2 on all vehicles except M1068A3 and M577A3. Perform Step 3 on M1068A3 and M577A3.

2. Remove two nuts (7), U-bolt (5), and clamp (6) from exhaust pipe (10).
3. Remove clamp (9) from exhaust pipe (10).
4. Remove six screws (2), intake elbow (1), exhaust elbow (3), and two elbow gaskets (4) from carrier top deck. Discard gaskets.
5. Remove four screws (15), locknuts (8), two bulkhead gaskets (11), and exhaust pipes (10), (13), and (14) from power plant bulkhead. Discard gaskets and locknuts.
6. If necessary, remove grommet (12) from power plant bulkhead. Discard grommet.



REPLACE HEATER AIR INTAKE AND EXHAUST PIPES (ALL EXCEPT M1064A3) — Continued

0682 00

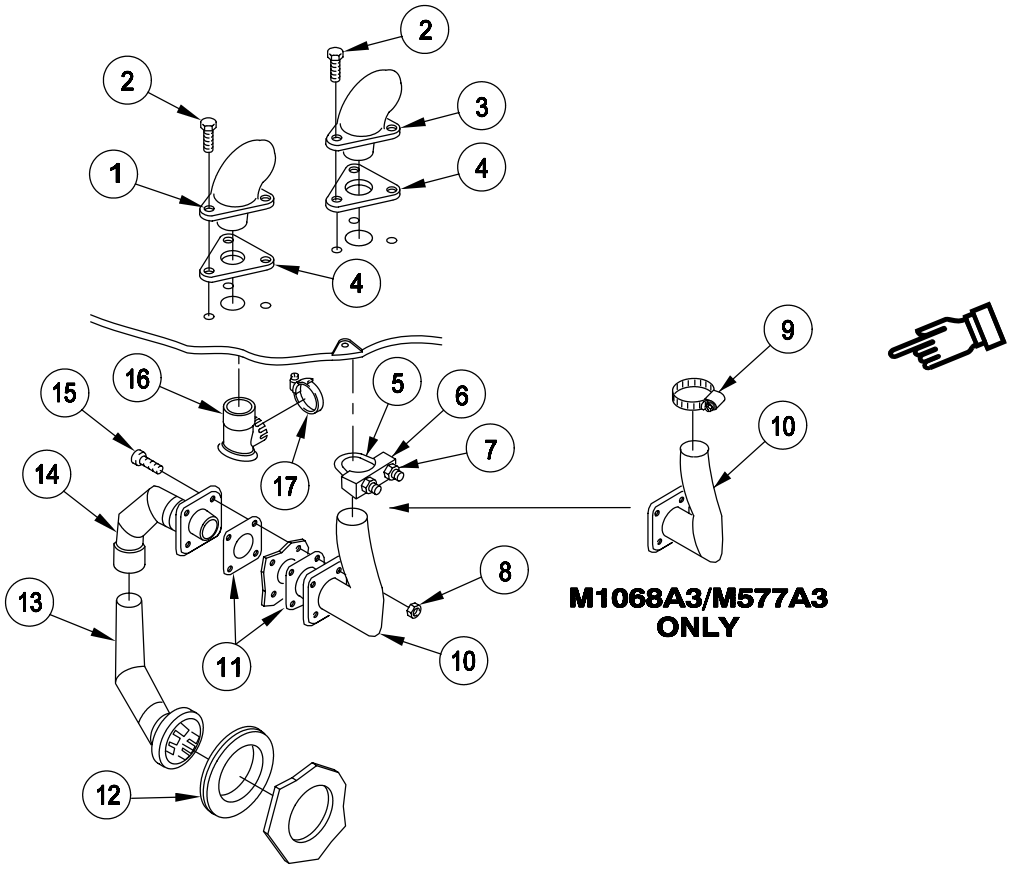
INSTALLATION

1. If grommet (12) was discarded, install new grommet in power plant bulkhead.
2. Install exhaust pipe (13) in grommet (12). Install exhaust pipe (14) on exhaust pipe (13).
3. Align two exhaust pipes (14) and (10) and two new bulkhead gaskets (11) with power plant bulkhead. Secure with four screws (15) and new locknuts (8).
4. Place new elbow gasket (4) on intake elbow (1). Install intake elbow (1) in top deck.
5. Place new elbow gasket (4) on exhaust elbow (3). Install exhaust elbow (3) in top deck.
6. Secure two elbows (1) and (3) to top deck with six screws (2).

NOTE

Perform Step 7 on all vehicles except M1068A3 and M577A3. Perform Step 8 on M1068A3 and M577A3.

7. Secure exhaust pipe (10) to exhaust elbow (3) with U-bolt (5), clamp (6), and two nuts (7).
8. Secure exhaust pipe (10) to exhaust elbow (3) with clamp (9).
9. Connect elbow (16) to intake elbow (1) and place clamp (17) on intake elbow (1).



REPLACE HEATER AIR INTAKE AND EXHAUST PIPES (ALL EXCEPT M1064A3) — Continued **0682 00**

FOLLOW-THROUGH STEPS

1. Install heater assembly (WP 0703 00).
2. Connect battery ground strap (WP 0337 00), (WP 0338 00), or (WP 0339 00).
3. Close spall liners (M113A3 Only) (see your -10).
4. Start heater. Check for intake and exhaust leaks. Turn heater off (see your -10).
5. Install power plant rear access panel (WP 0439 00).

END OF TASK

REPLACE HEATER AIR INTAKE AND EXHAUST PIPES(M1064A3 ONLY) 0683 00

THIS WORK PACKAGE COVERS:

Removal (page 0683 00-1).
Installation (page 0683 00-3).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts
Gasket (2)

Personnel Required
Unit Mechanic

References
See your -10

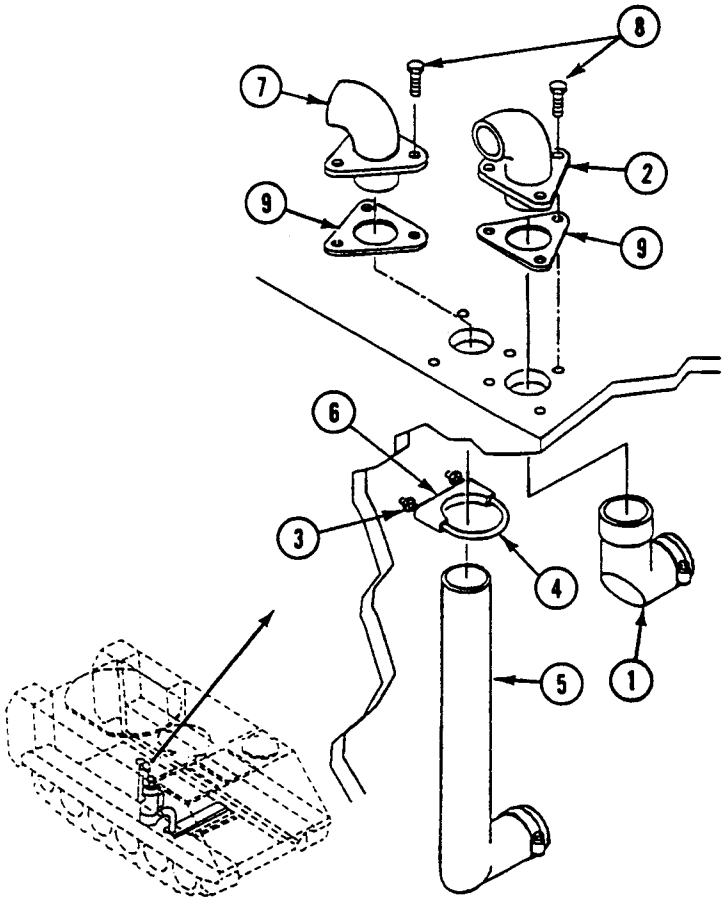
Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Ramp lowered (see your -10)
Battery ground strap disconnected (WP 0337 00)
Heater assembly removed (WP 0704 00)

REMOVAL

1. Remove air intake pipe (1) from intake elbow (2).
2. Loosen two nuts (3) on U-bolt (4), and remove exhaust pipe (5) and clamp (6) from exhaust elbow (7).

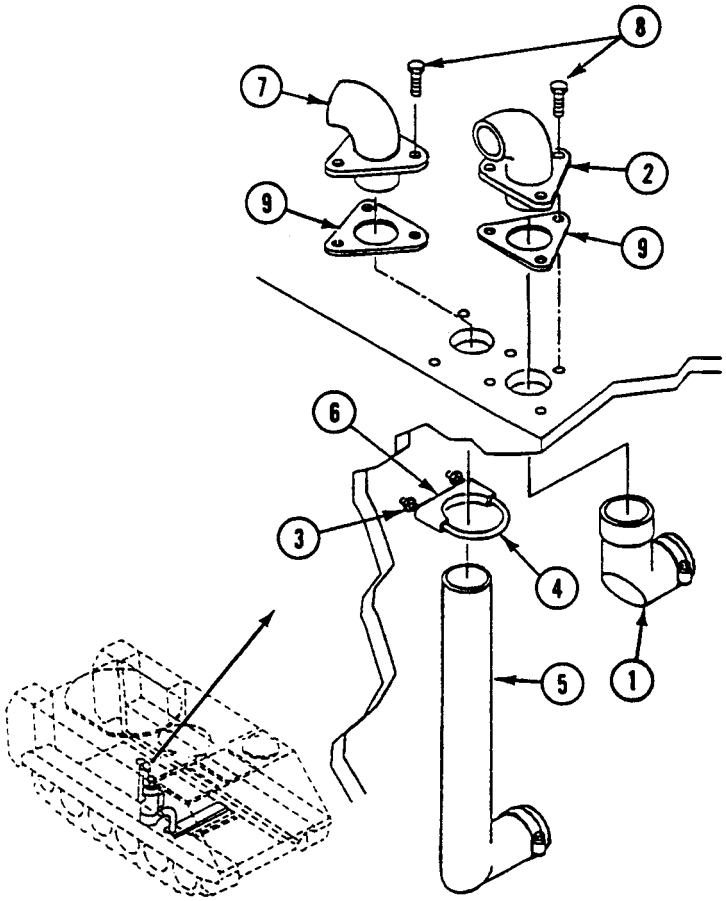
REPLACE HEATER AIR INTAKE AND EXHAUST PIPES(M1064A3 ONLY) — Continued 0683 00

3. Remove six screws (8), intake elbow (2), exhaust elbow (7), and two gaskets (9) from carrier top deck. Discard gaskets.



INSTALLATION

1. Install exhaust elbow (7), intake elbow (2), and two new gaskets (9) on carrier top deck. Secure with six screws (8).
2. Install exhaust pipe (5) on exhaust elbow (7). Secure with U-bolt (4), clamp (6), and two nuts (3).
3. Install intake pipe (1) on intake elbow (2).



FOLLOW-THROUGH STEPS

1. Install heater assembly (WP 0704 00).
2. Connect battery ground strap (WP 0337 00).
3. Start heater. Check for intake and exhaust leaks. Turn heater off (see your -10).
4. Start engine (see your -10).
5. Raise and lock ramp (see your -10).
6. Stop engine (see your -10).

END OF TASK

REPLACE FUEL SHUT-OFF VALVE ASSEMBLY (M113A3, M1059A3, AND M58 ONLY) 0684 00

THIS WORK PACKAGE COVERS:

Removal (page 0684 00-1).
Installation (page 0684 00-3).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts
Sealing compound (WP 0928 00, Item 56)
Preformed packing

Personnel Required
Unit Mechanic

References
See your -10

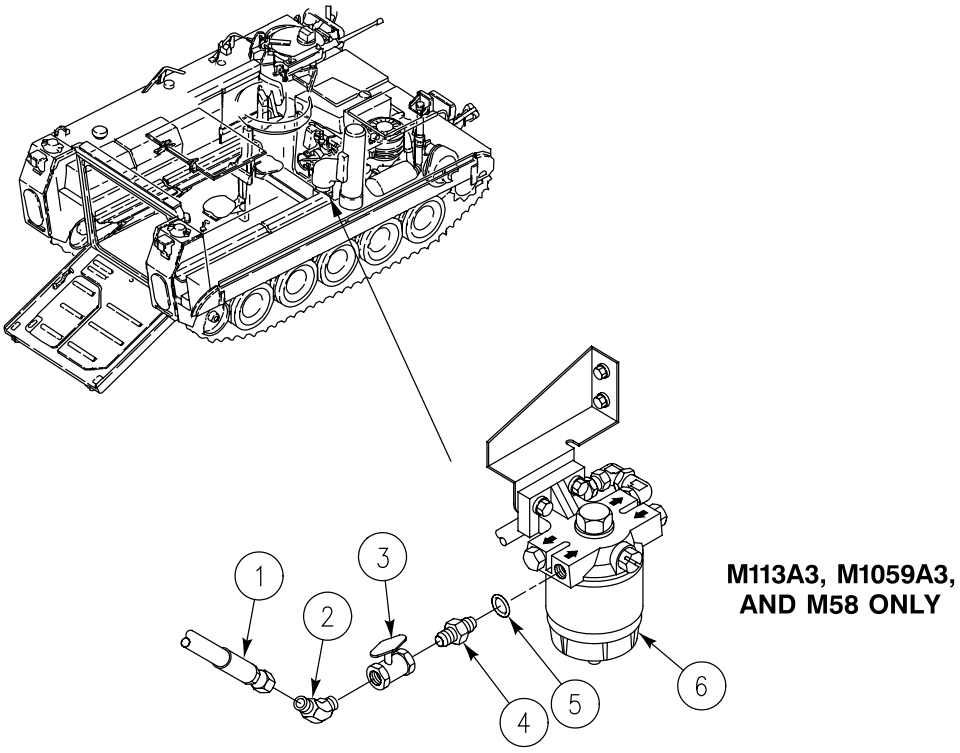
Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Main fuel shut-off valves turned off (see your -10)
Right side spall liners open (M113A3 only) (see your -10)

REPLACE FUEL SHUT-OFF VALVE ASSEMBLY (M113A3, M1059A3, AND M58 ONLY) — Continued

0684 00

REMOVAL

1. Remove fuel filter supply hose (1) from inlet elbow (2) on elbow.
2. Deleted
3. Remove inlet elbow (2) from shut-off valve (3).
4. Remove shut-off valve (3), adapter (4), and preformed packing (5) from heater fuel filter (6). Discard preformed packing.



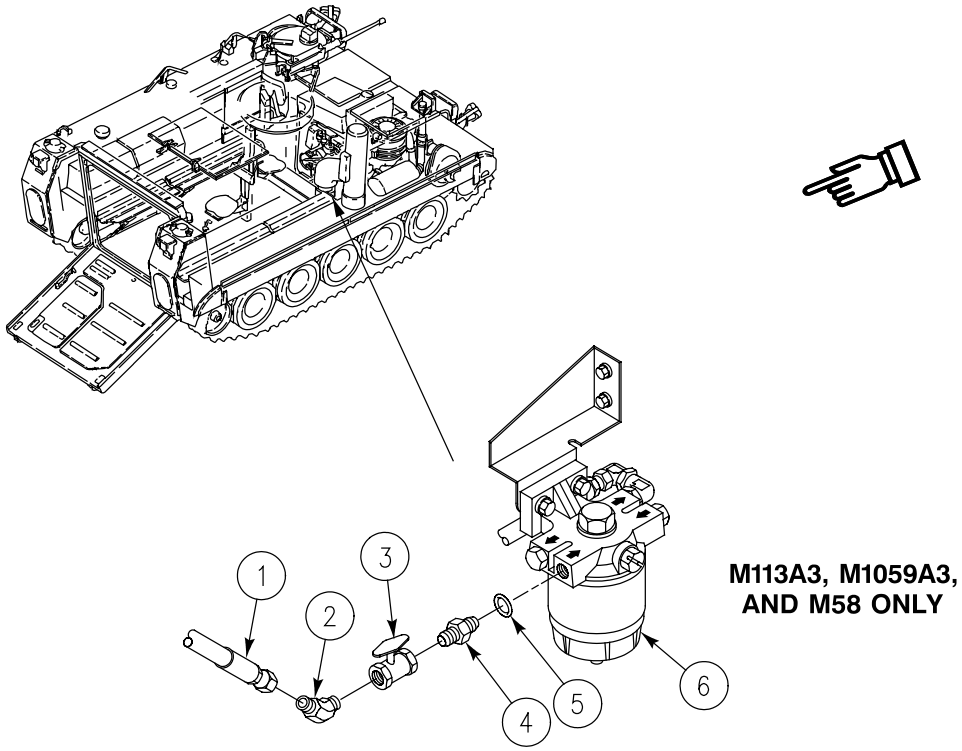
M113A3, M1059A3, AND M58 ONLY

REPLACE FUEL SHUT-OFF VALVE ASSEMBLY (M113A3, M1059A3, AND M58 ONLY) — Continued

0684 00

INSTALLATION

1. Apply thin layer of sealing compound to external tapered threads.
2. Install new preformed packing (5), adapter (4), and shut-off valve (3) on heater fuel filter (6).
3. Install inlet elbow (2) on shut-off valve (3).
4. Deleted
5. Install fuel filter supply hose (1) on adapter (2).



M113A3, M1059A3, AND M58 ONLY

REPLACE FUEL SHUT-OFF VALVE ASSEMBLY (M113A3, M1059A3, AND M58 ONLY) — Continued **0684 00**

FOLLOW-THROUGH STEPS

1. Turn main fuel shut-off valves ON (see your -10).
2. Turn heater ON (see your -10). Check for proper operation and leaks.
3. Turn heater OFF (see your -10).

END OF TASK

REPLACE HEATER/FILTER FUEL SUPPLY HOSES (M113A3, M1059A3, AND M58 ONLY) 0685 00

THIS WORK PACKAGE COVERS:

Removal (page 0685 00-1).
Installation (page 0685 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)

Personnel Required

Unit Mechanic

References

See your -10

Equipment Condition

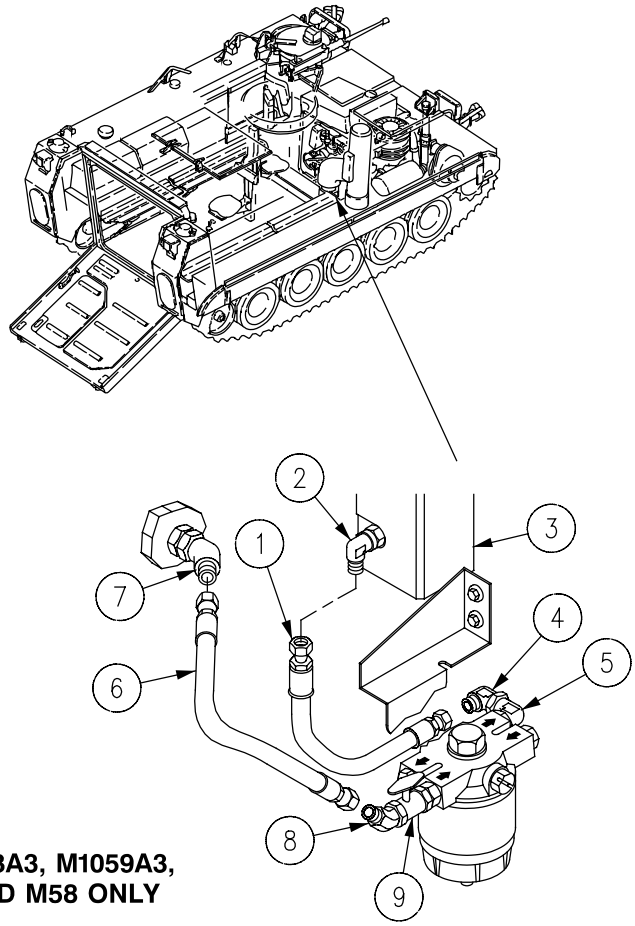
Engine stopped (see your -10)
Carrier blocked (see your -10)
Main fuel shut-off valves turned off (see your -10)
Right side spall liners open (M113A3 only) (see your -10)

REPLACE HEATER/FILTER FUEL SUPPLY HOSES (M113A3, M1059A3, AND M58 ONLY) — Continued

0685 00

REMOVAL

1. Remove heater fuel supply hose (1) from fuel inlet elbow (2) on heater (3) and from elbow (4) on fuel filter outlet elbow (5).
2. Remove heater fuel filter supply hose (6) from fuel supply tube elbow (7) on power plant compartment bulkhead and fuel shut-off valve inlet elbow (8) on valve (9).



M113A3, M1059A3, AND M58 ONLY

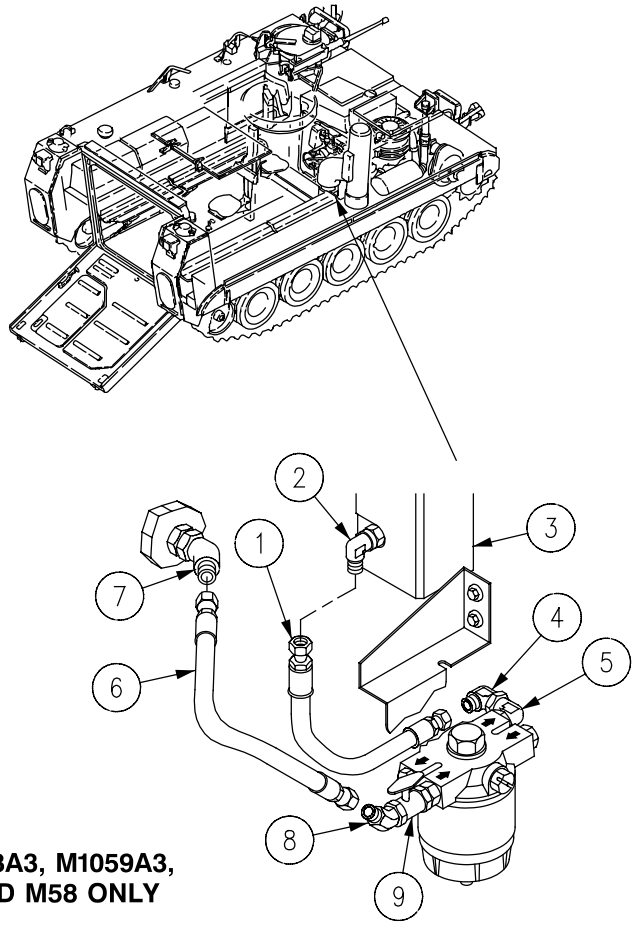
REPLACE HEATER/FILTER FUEL SUPPLY HOSES (M113A3, M1059A3, AND M58 ONLY) — Continued

0685 00

INSTALLATION

1. Connect heater fuel filter supply hose (6) to fuel supply tube elbow (7) and fuel shut-off valve inlet elbow (8). Tighten loose nuts.

2. Connect heater fuel supply hose (1) to fuel inlet elbow (2) and to elbow (4) on fuel filter outlet elbow (5). Tighten loose nuts.



M113A3, M1059A3, AND M58 ONLY

FOLLOW-THROUGH STEPS

1. Turn main fuel shut-off valves ON (see your -10).

2. Turn heater ON (see your -10). Check for proper operation and leaks.

3. Turn heater OFF (see your -10).

END OF TASK

REPLACE PERSONNEL HEATER FUEL TUBE (ALL EXCEPT M1064A3) 0686 00

THIS WORK PACKAGE COVERS:

Removal (page 0686 00-1).
Installation (page 0686 00-2).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts

Lockwasher

Personnel Required

Unit Mechanic

References

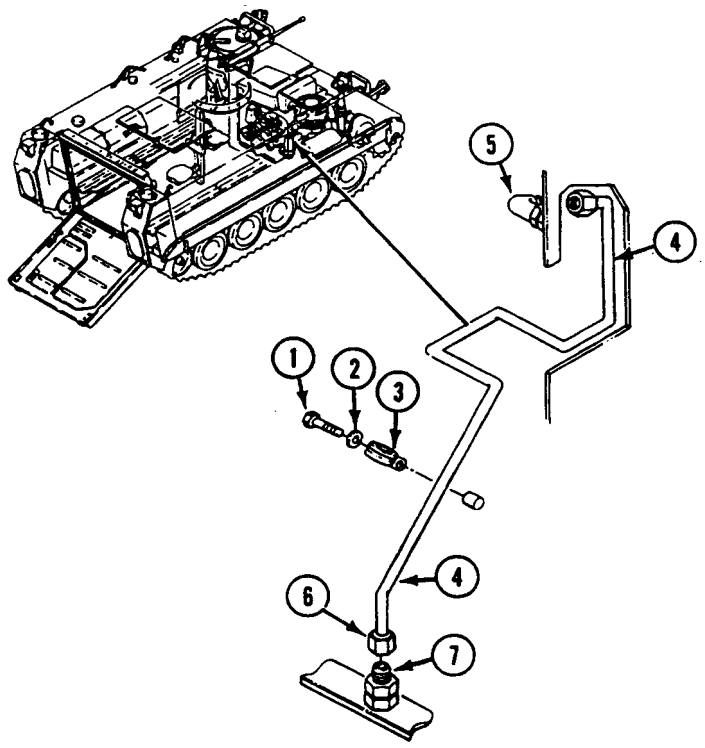
See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Ramp lowered (see your -10)
Main fuel tank shutoff valves closed (see your -10)
Power plant rear access panels removed (WP 0439 00)

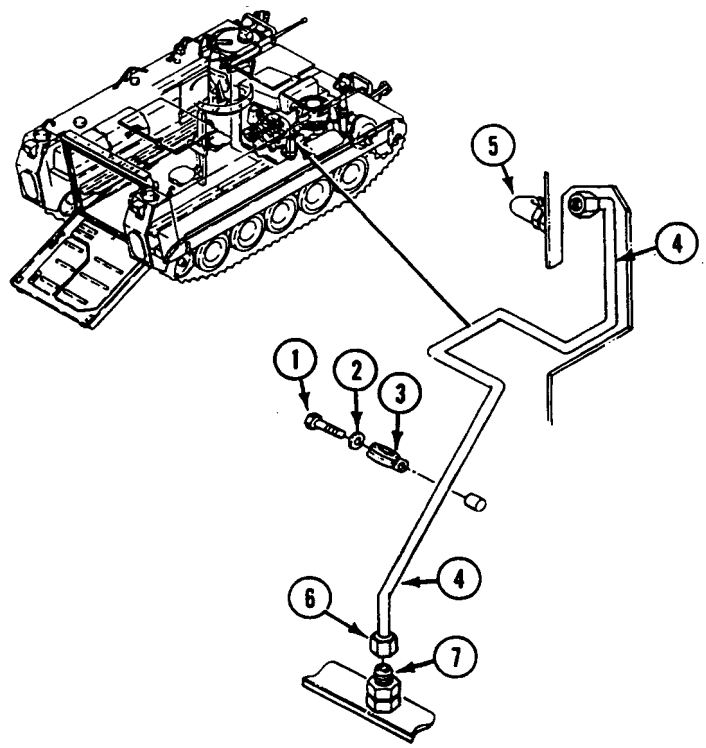
REMOVAL

1. Remove screw (1) and lockwasher (2) from clamp (3). Discard lockwasher.
2. Disconnect heater fuel tube (4) from fuel filter inlet hose elbow (5).
3. Remove nut (6) from nipple (7). Remove tube from carrier.



INSTALLATION

1. Install fuel tube clamp (3) on replacement tube (4).
2. Connect tube (4) to heater fuel filter inlet hose elbow (5) and nipple (7). Tighten nut (6).
3. Secure tube (4) to power plant compartment bulkhead with clamp (3), screw (1), and new lockwasher (2).



FOLLOW-THROUGH STEPS

1. Open main fuel tank shutoff valves (see your -10).
2. Turn heater ON (see your -10). Check for proper operation and leaks.
3. Turn heater OFF (see your -10).
4. Install power plant rear access panels (WP 0439 00).
5. Start engine (see your -10).
6. Raise and lock ramp (see your -10).
7. Stop engine (see your -10).

END OF TASK

REPLACE BULKHEAD CONNECTION TO PERSONNEL HEATER TUBE (M577A3 AND M1068A3 ONLY) 0687 00

THIS WORK PACKAGE COVERS:

Removal (page 0687 00-1).
Installation (page 0687 00-3).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts
Sealing compound (WP 0928 00, Item 56)
Wiping rag (WP 0928 00, Item 65)

Personnel Required
Unit Mechanic

References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Ramp lowered (see your -10)
Battery ground lead disconnected (WP 0338 00)
Heater duct removed (WP 0706 00)
Right front floor plate removed (WP 0539 00) or (WP 0544 00)
Power plant rear access panel removed (WP 0439 00)
Heater fuel shutoff valve closed (see your -10)

REMOVAL

WARNING

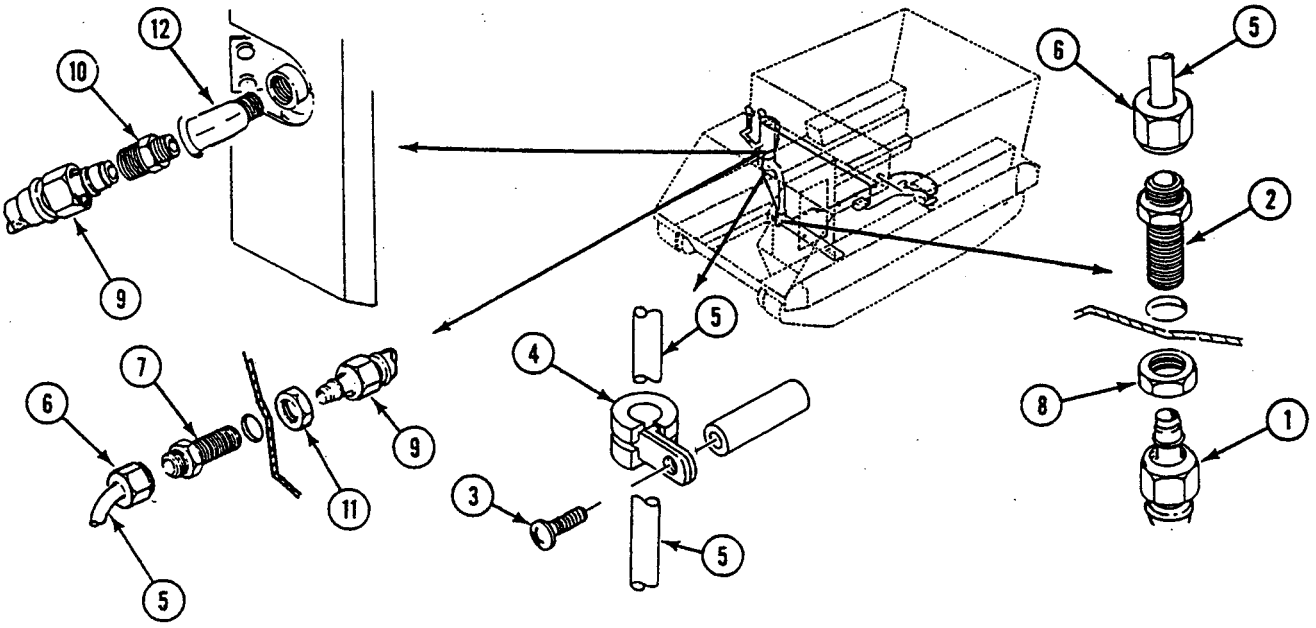
Fuel can catch fire and burn you. Do not smoke. Wipe up spilled fuel.

1. Remove fuel hose (1) from nipple (2).

REPLACE BULKHEAD CONNECTION TO PERSONNEL HEATER TUBE (M577A3 AND M1068A3 ONLY) — Continued

0687 00

2. Remove screw (3) and clamp (4) from bulkhead weldnut. Remove clamp from tube (5).
3. Loosen two nuts (6) on tube (5). Remove tube (5) from nipples (2) and (7).
4. Remove jamnut (8) and nipple (2) from hull.
5. Remove fuel hose (9) from adapter (10) and nipple (7).
6. Remove jamnut (11) and nipple (7) from power plant compartment bulkhead.
7. Remove adapter (10) from elbow (12).
8. Remove elbow (12) from heater.



REPLACE BULKHEAD CONNECTION TO PERSONNEL HEATER TUBE (M577A3 AND M1068A3 ONLY) — Continued

0687 00

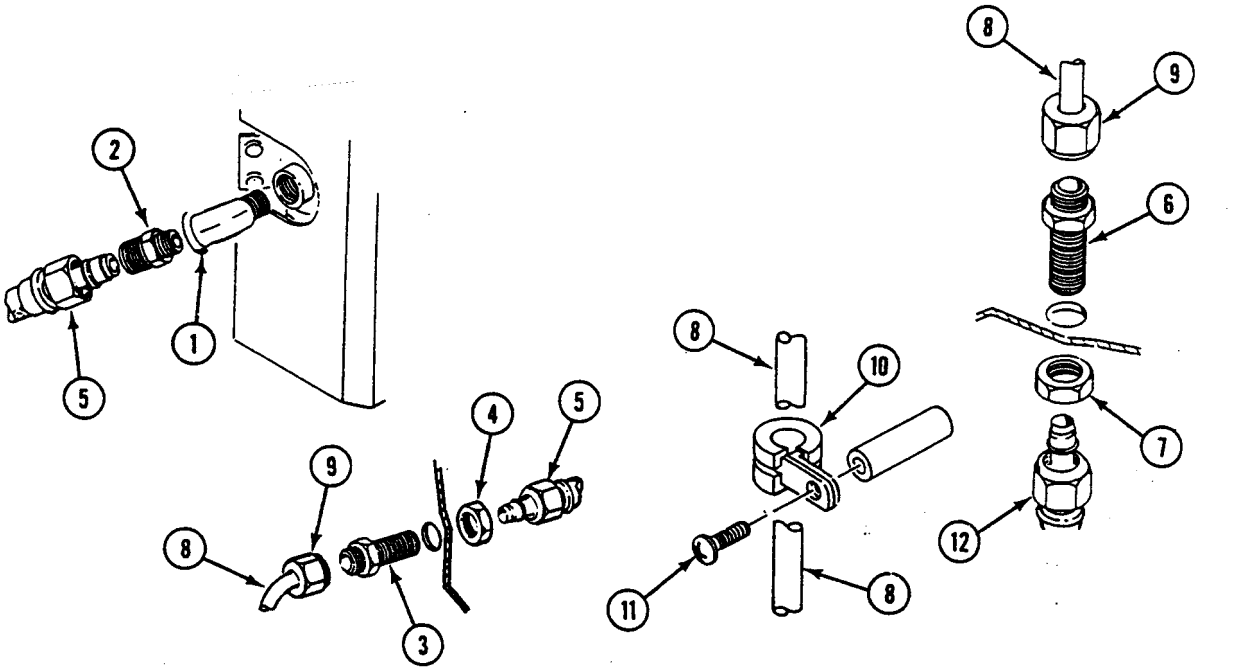
INSTALLATION

1. Apply light coat of sealing compound to all external tapered threads. Do not apply sealant beyond small end of external tapered threads.

NOTE

Flareless (compression) fittings are used on the fuel lines. When these fittings are first installed, a sleeve is crimped on the tube or hose end. Consequently, when tubes or hoses are replaced, new fitting sleeves are also required.

2. Install elbow (1) in heater.
3. Install adapter (2) on elbow (1).
4. Install nipple (3) in power plant compartment bulkhead. Secure with jamnut (4).
5. Install fuel hose (5) on nipple (3) and adapter (2).
6. Install nipple (6) in hull. Secure with jamnut (7).
7. Install tube (8) on nipples (3) and. Tighten two nuts (9).
8. Install clamp (10) on tube (8). Align clamp (10) with bulkhead weldnut. Secure with screw (11).
9. Install fuel hose (12) on nipple (6).



REPLACE BULKHEAD CONNECTION TO PERSONNEL HEATER TUBE (M577A3 AND M1068A3 ONLY) — Continued **0687 00**

FOLLOW-THROUGH STEPS

1. Open heater fuel shutoff valve (see your -10).
2. Connect battery ground lead (WP 0338 00).
3. Bleed fuel line (WP 0679 00).
4. Start heater (see your -10). Check all fittings for leaks. Turn heater off.
5. Install power plant rear access panel (WP 0439 00).
6. Install right front floor plate (WP 0539 00) or (WP 0544 00).
7. Install heater duct (WP 0706 00).
8. Start engine (see your -10).
9. Raise and lock ramp (see your -10).
10. Stop engine (see your -10).

END OF TASK

REPLACE PERSONNEL HEATER FUEL FILTER, HOSES, AND FITTINGS (M1064A3 ONLY) 0688 00

THIS WORK PACKAGE COVERS:

Removal (page 0688 00-1).
Installation (page 0688 00-5).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts
Sealing compound (WP 0928 00, Item 56)
Wiping rags (WP 0928 00, Item 65)
Lockwasher (2)
Lockwasher (3)
Preformed packing (4)
Tie down strap (3)

Personnel Required
Unit Mechanic

References
See your -10

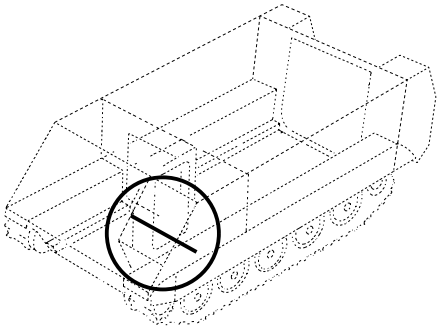
Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Ramp lowered (see your -10)
Heater duct removed (WP 0706 00)
Right front floor plate removed (WP 0543 00)
Battery ground strap disconnected (WP 0337 00)
Heater fuel shutoff valve closed (see your -10)

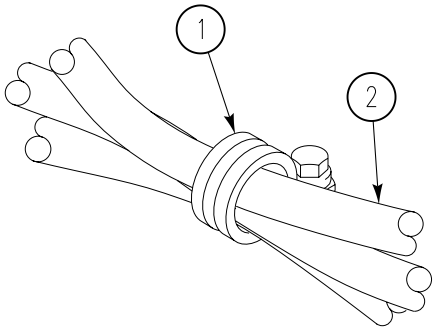
REMOVAL

WARNING

Fuel can catch fire and burn you. Do not smoke. Wipe up spilled fuel.

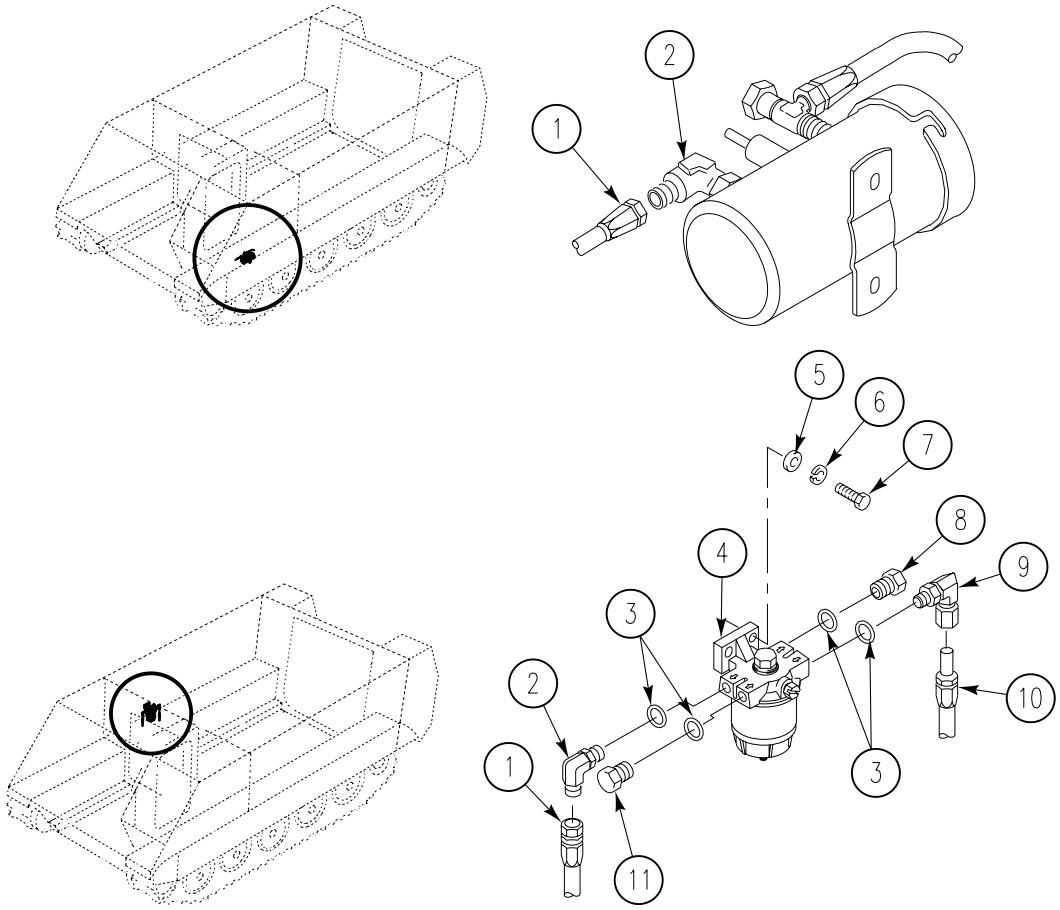
1. Remove three tie down straps (1) from hose assembly (2). Discard straps.



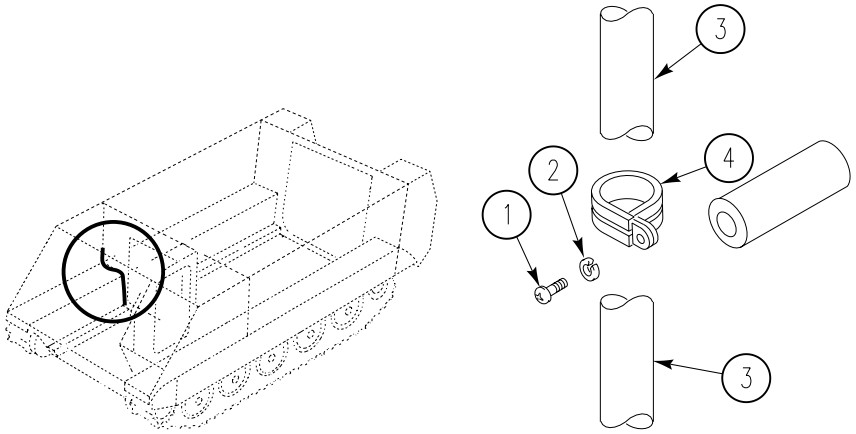


REPLACE PERSONNEL HEATER FUEL FILTER, HOSES, AND FITTINGS (M1064A3 ONLY) — Continued **0688 00**

2. Remove hose assembly (1) from fuel pump elbow (2) and fuel filter elbow (9).

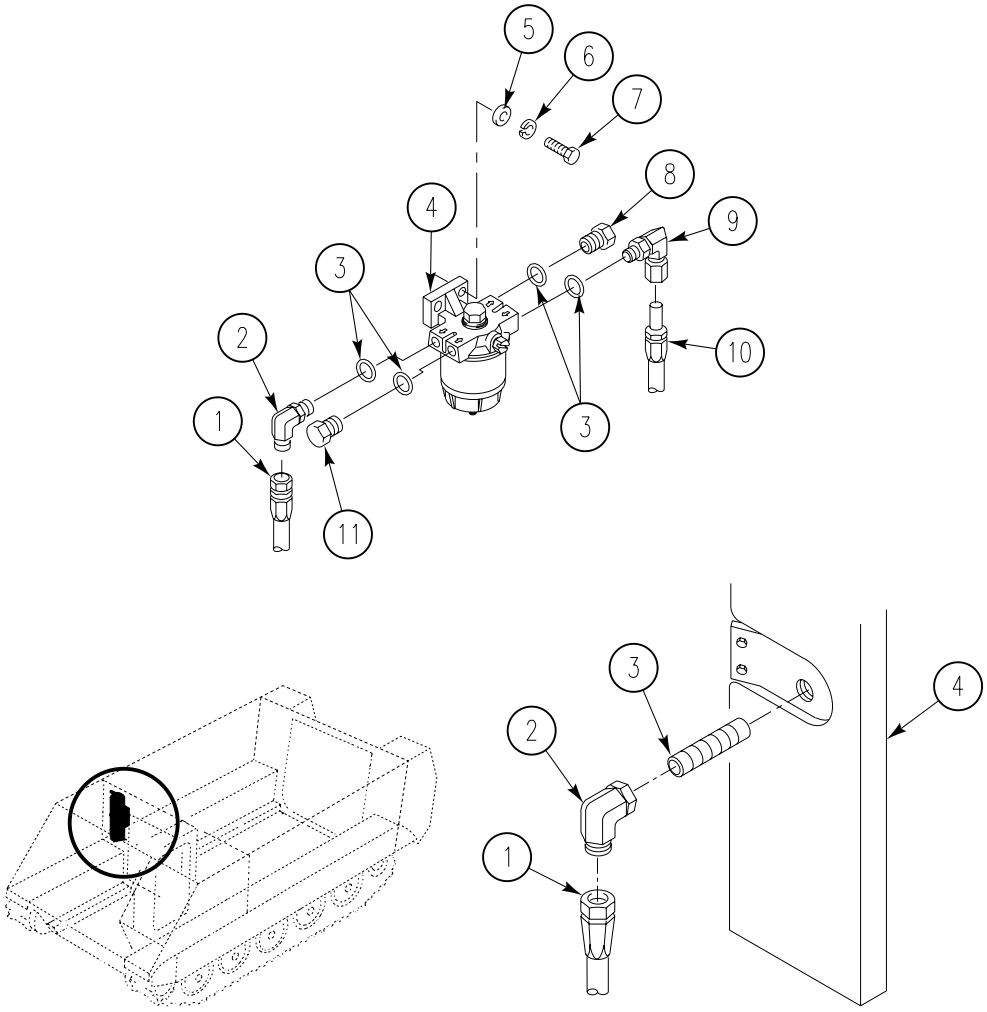


3. Remove three screws (1), lockwashers (2), and clamps (4) from hose assembly (3). Discard lockwashers.



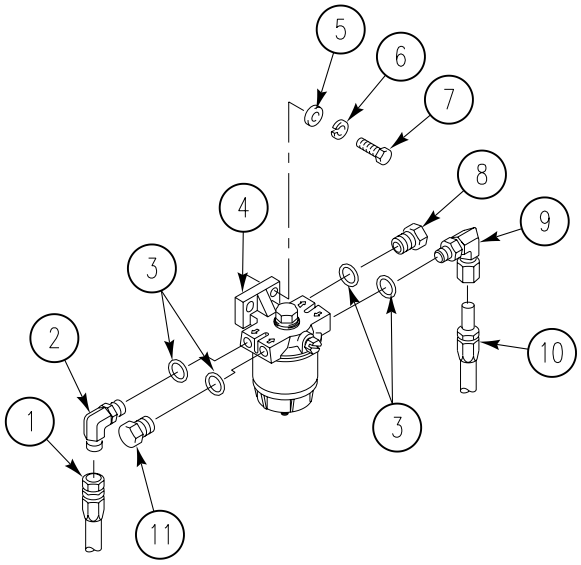
REPLACE PERSONNEL HEATER FUEL FILTER, HOSES, AND FITTINGS (M1064A3 ONLY) — Continued **0688 00**

4. Remove hose assembly (1) from fuel filter elbow (2) and personnel heater elbow (2).

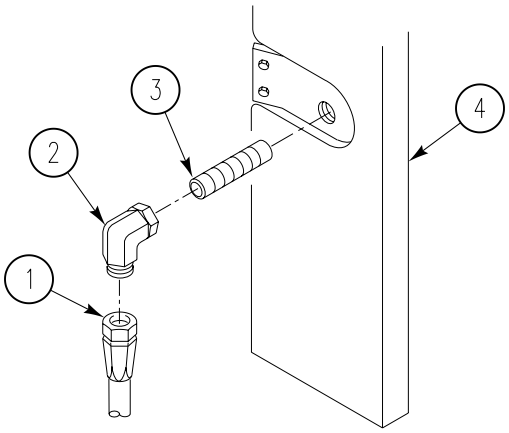


REPLACE PERSONNEL HEATER FUEL FILTER, HOSES, AND FITTINGS (M1064A3 ONLY) — Continued **0688 00**

5. Remove two screws (7), lockwashers (6), washers (5), and fuel filter (4) from right sponson. Discard lockwashers.
6. Remove elbow (2) and packing (3) from fuel filter (4). Discard packing.
7. Remove elbow (9) and packing (3) from fuel filter (4). Discard packing.
8. Remove plug (8), plug (11), and packings (3) from fuel filter (4). Discard packing.



9. Remove elbow (2) from nipple (3) and nipple from heater (4).



REPLACE PERSONNEL HEATER FUEL FILTER, HOSES, AND FITTINGS (M1064A3 ONLY) — Continued

0688 00

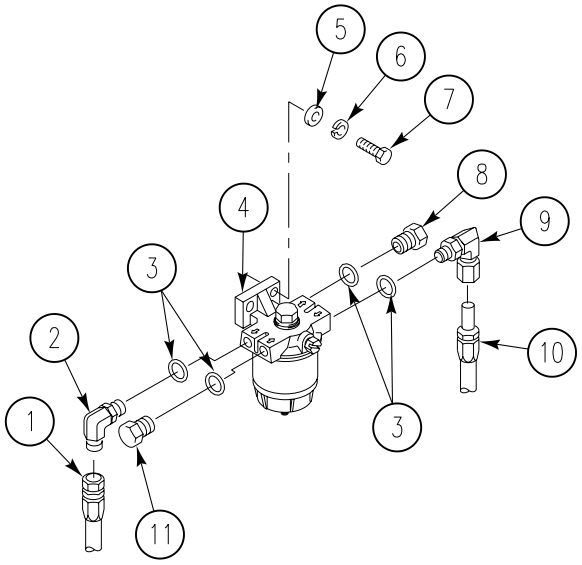
INSTALLATION

1. Apply light coat of sealing compound to all external tapered threads. Do not apply sealant beyond small end of external tapered threads.
2. Install plug (11), plug (8), and new packings (3) in ports **1** and **4** of fuel filter (4).

NOTE

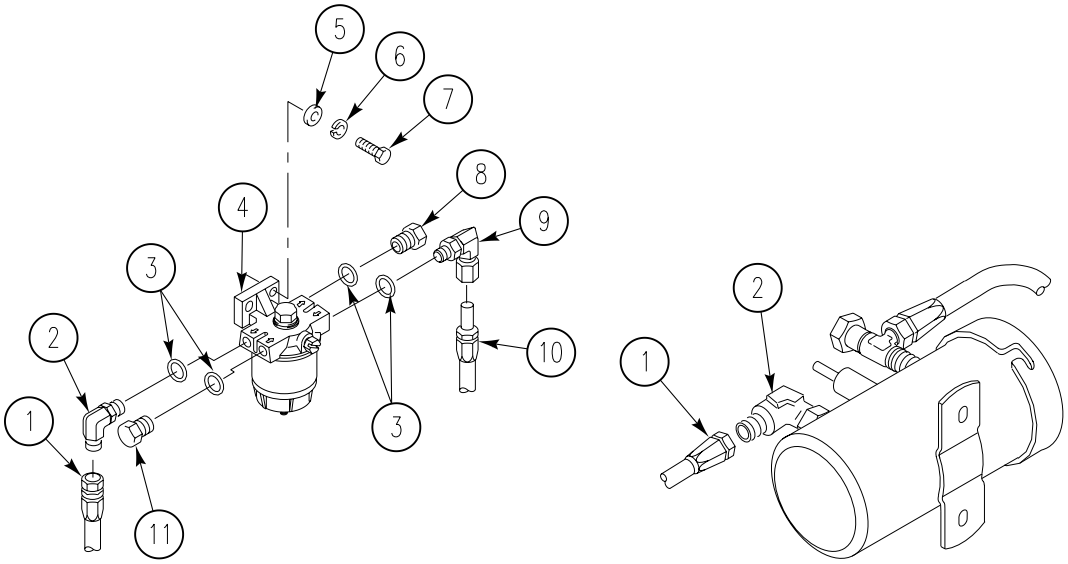
Flareless (compression) fittings are used on the fuel lines. When these fittings are first installed, a sleeve is crimped on the tube or hose end. Consequently, when tubes or hoses are replaced, new fitting sleeves are also required.

3. Install two elbows (9) or (2) and new packings (3) in ports **2** and **3** of fuel filter (4).
4. Install fuel filter (4) on sponson and secure with two screws (7), new lockwashers (6), and washers (5).

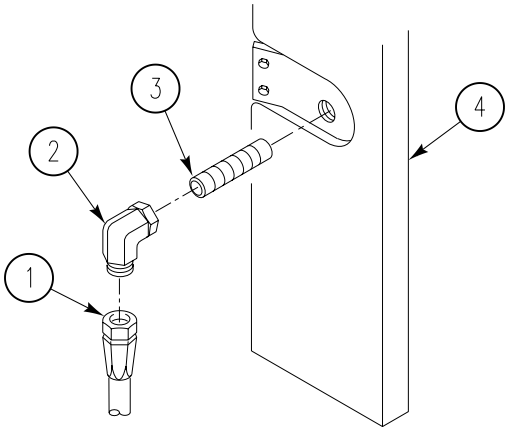


REPLACE PERSONNEL HEATER FUEL FILTER, HOSES, AND FITTINGS (M1064A3 ONLY) — Continued **0688 00**

5. Connect hose assembly (10) to fuel filter elbow (9) and fuel pump elbow (2).

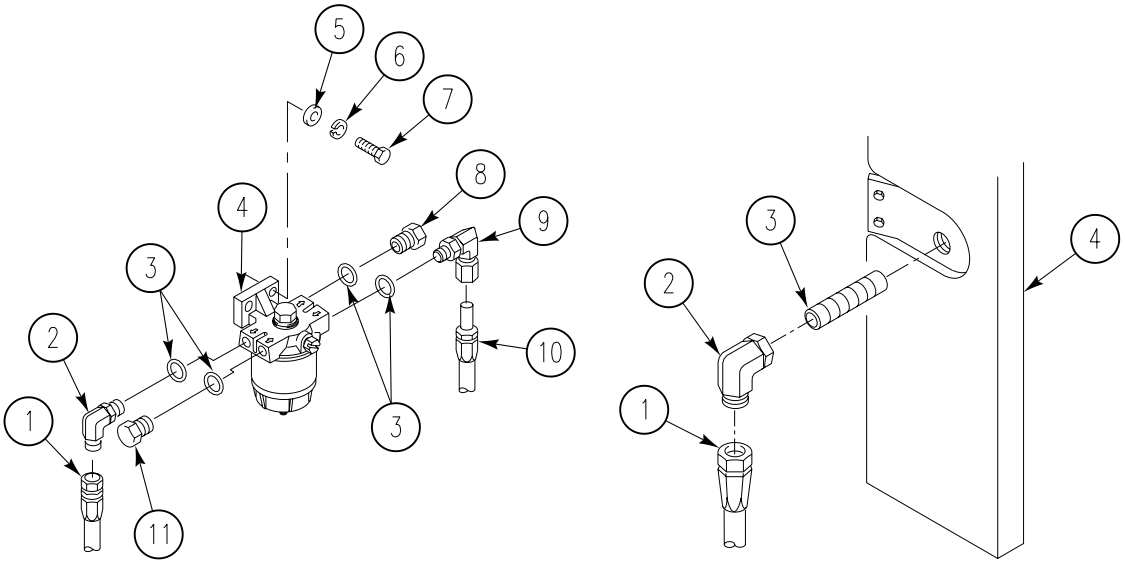


6. Install nipple (3) and elbow (2) on personnel heater (4).

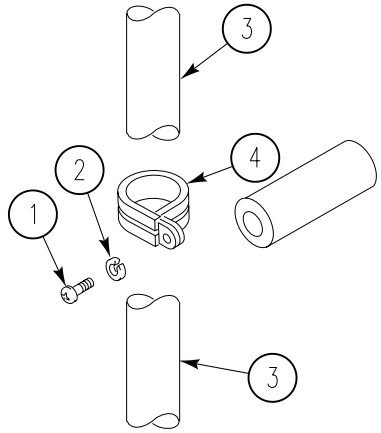


REPLACE PERSONNEL HEATER FUEL FILTER, HOSES, AND FITTINGS (M1064A3 ONLY) — Continued **0688 00**

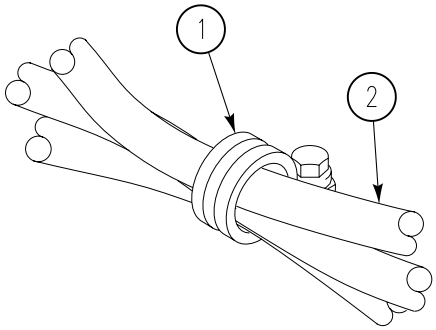
7. Connect hose assembly (1) to fuel filter elbow (2) and personnel heater elbow (2).



8. Install three clamps (4), new lockwashers (2), and screws (1) on hose assembly (3).



9. Install three new tie down straps (1) on hose assembly (2).



REPLACE PERSONNEL HEATER FUEL FILTER, HOSES, AND FITTINGS (M1064A3 ONLY) — Continued **0688 00**

FOLLOW-THROUGH STEPS

1. Open heater fuel shutoff valve (see your -10).
2. Connect battery ground strap (WP 0337 00).
3. Bleed fuel line (WP 0679 00).
4. Start heater (see your -10). Check all fittings for leaks. Turn heater off.
5. Install right front floor plate (WP 0543 00).
6. Install heater duct (WP 0706 00).
7. Start engine (see your -10).
8. Raise and lock ramp (see your -10).
9. Stop engine (see your -10).

END OF TASK

REPLACE PERSONNEL HEATER FUEL PUMP HOSE (M113A3, M1059A3, AND M58 ONLY) 0689 00

THIS WORK PACKAGE COVERS:

Removal (page 0689 00-2).
Installation (page 0689 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts

Sealing compound (WP 0928 00, Item 56)

Personnel Required

Unit Mechanic

References

See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Ramp lowered (see your -10)
Fuel supply valves shut off (see your -10)
Rear floor plate removed (WP 0539 00), (WP 0542 00), or (WP 0545 00)

REPLACE PERSONNEL HEATER FUEL PUMP HOSE (M113A3, M1059A3, AND M58 ONLY) — Continued

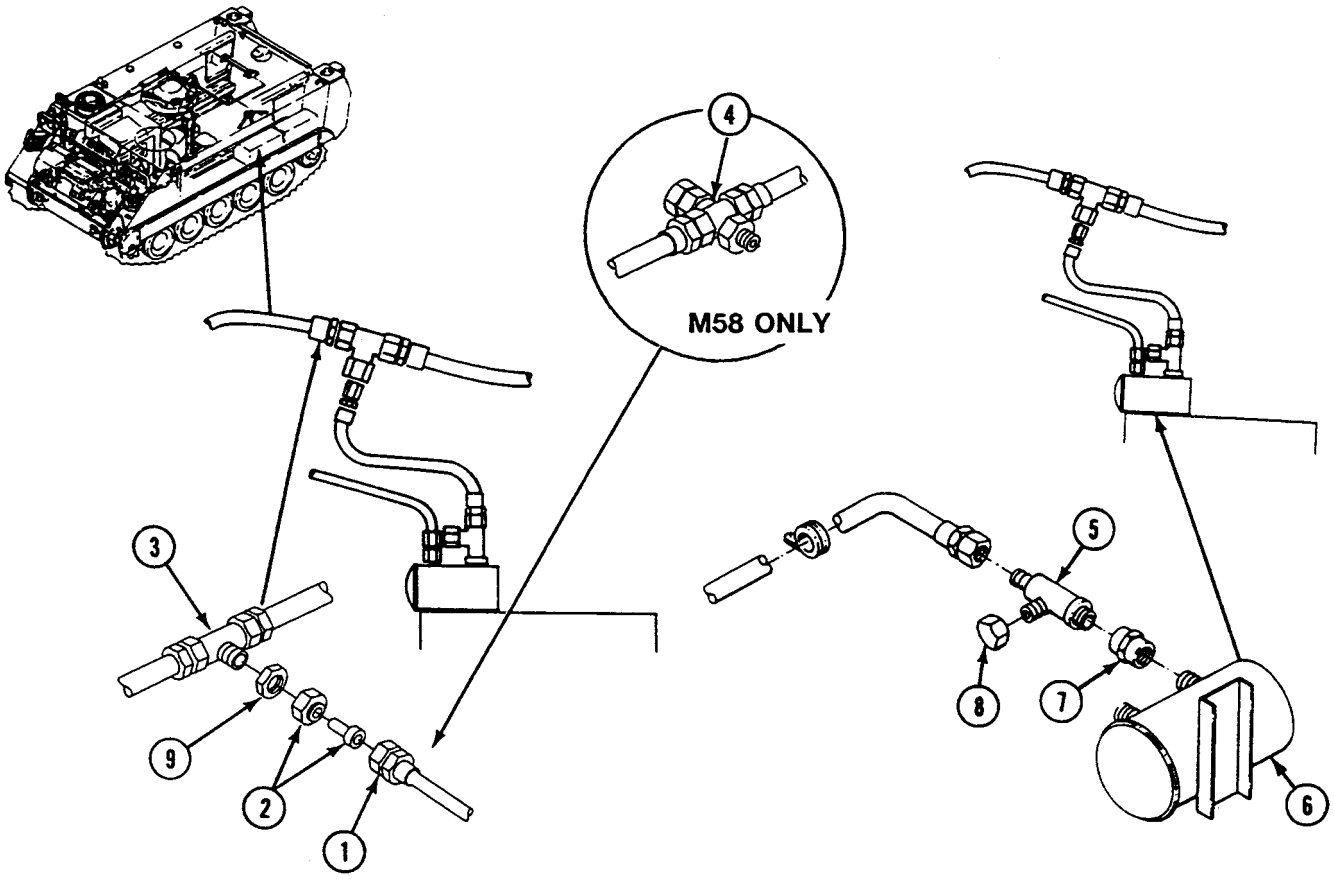
0689 00

REMOVAL

NOTE

On M58 only, a cross is used instead of a tee.

1. Remove hose (1), nut (9), and reducer (2) from tee (all except M58) (3) or cross (M58 only) (4).
2. Remove hose (1) from tee (5) on fuel pump (6).
3. Remove tee (5) from coupling (7).
4. Remove coupling (7) from fuel pump (6).
5. Remove cap (8) from tee (5).



REPLACE PERSONNEL HEATER FUEL PUMP HOSE (M113A3, M1059A3, AND M58 ONLY) — Continued

0689 00

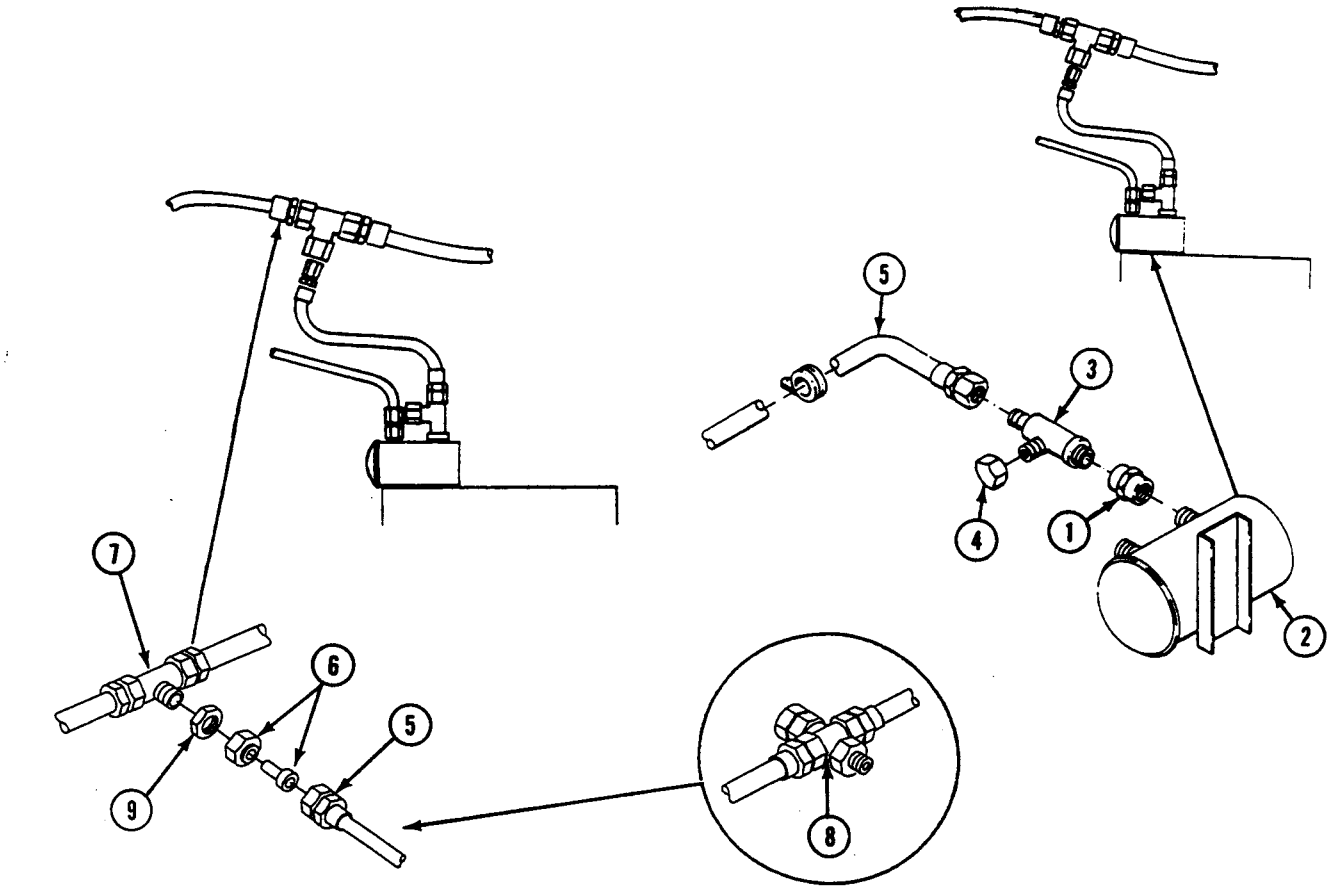
INSTALLATION

1. Install coupling (1) on fuel pump (2).
2. Apply sealing compound to external threads of tee (3).
3. Install tee (3) on coupling (1).
4. Install cap (4) on tee (3).
5. Install hose (5) on tee (3).

NOTE

On M58 only, a cross is used instead of a tee.

6. Install reducer (6) and nut (9) on tee (all except M58) (7) or cross (M58 only) (8).
7. Install hose (5) on reducer (6).



M58 ONLY

REPLACE PERSONNEL HEATER FUEL PUMP HOSE (M113A3, M1059A3, AND M58 ONLY) — Continued **0689 00**

FOLLOW-THROUGH STEPS

1. Open fuel supply valves (see your -10).
2. Install rear floor plate (WP 0539 00), (WP 0542 00), or (WP 0545 00).
3. Start engine (see your -10).
4. Raise and lock ramp (see your -10).
5. Stop engine (see your -10).

END OF TASK

REPLACE FUEL TANK TO FUEL PUMP HOSE (M577A3 AND M1068A3 ONLY) 0690 00

THIS WORK PACKAGE COVERS:

Removal (page 0690 00-2).
Installation (page 0690 00-3).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0926 00, Item 65)
Pipe Wrench (WP 0926 00, Item 77)

Materials/Parts
Sealing compound (WP 0928 00, Item 56)
Wiping rag (WP 0928 00, Item 65)

Personnel Required
Unit Mechanic

References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Ramp lowered (see your -10)
Battery ground lead disconnected (WP 0338 00)
Rear floor plate removed (WP 0539 00) or (WP 0544 00)
Fuel tanks drained (WP 0178 00)

REPLACE FUEL TANK TO FUEL PUMP HOSE (M577A3 AND M1068A3 ONLY) — Continued

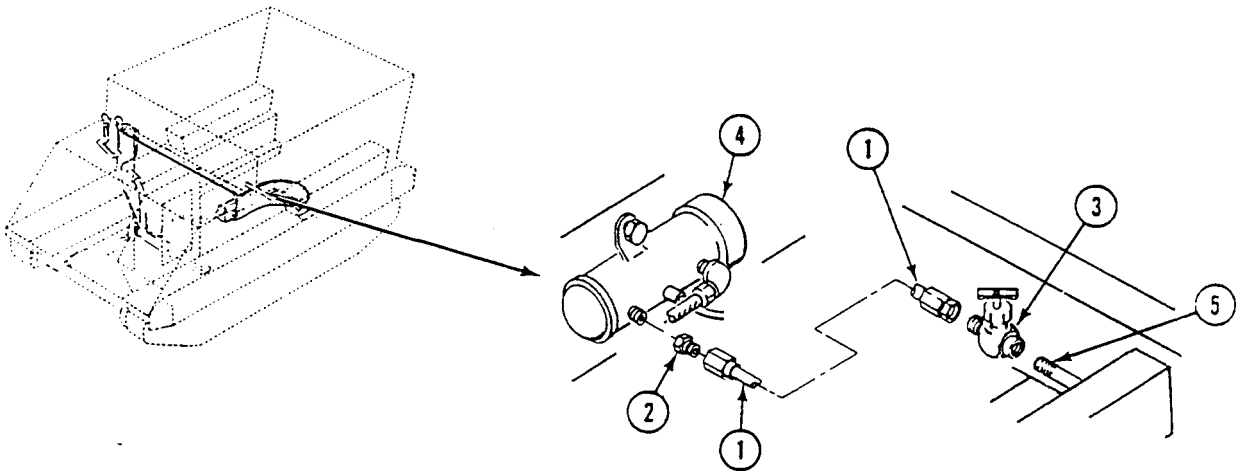
0690 00

REMOVAL

WARNING

Fuel can catch fire and burn you. Do not smoke. Wipe up spilled fuel.

1. Remove fuel hose (1) from adapter (2) and shutoff valve (3).
2. Remove adapter (2) from fuel pump (4).
3. Remove shutoff valve (3) from nipple (5).
4. If damaged, remove nipple (5) from fuel cross pipe.



REPLACE FUEL TANK TO FUEL PUMP HOSE (M577A3 AND M1068A3 ONLY) — Continued 0690 00

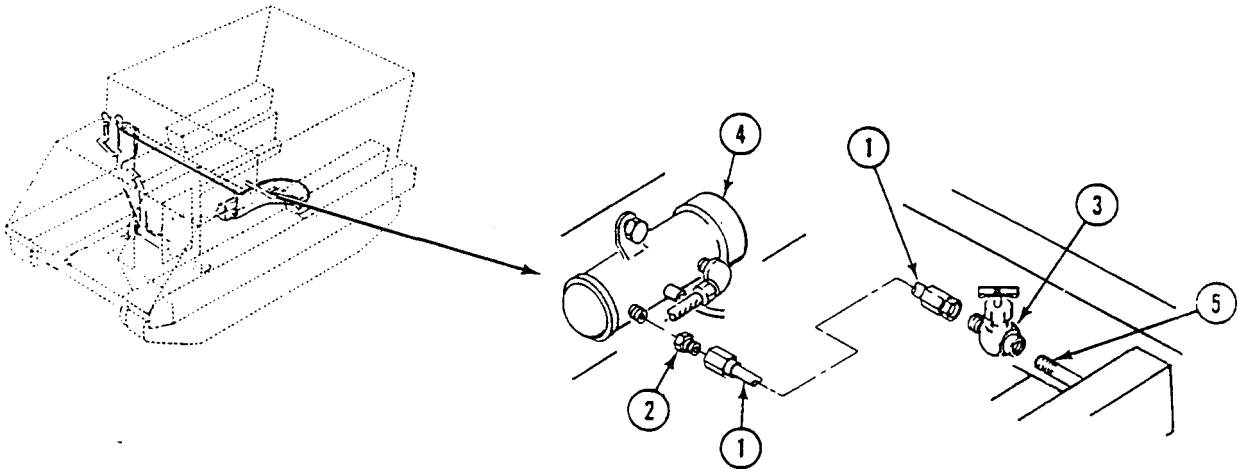
INSTALLATION

1. Apply light coat of sealing compound to all external tapered threads. Do not apply sealant beyond small end of external tapered threads.

NOTE

Flareless (compression) fittings are used on the fuel lines. When these fittings are first installed, a sleeve is crimped on the tube or hose end. Consequently, when tubes or hoses are replaced, new fitting sleeves are also required.

2. If necessary, install nipple (5) in fuel cross pipe.
3. Install shutoff valve (3) on nipple (5).
4. Install adapter (2) on fuel pump (4).
5. Install fuel hose (1) on adapter (2) and shutoff valve (3).



FOLLOW-THROUGH STEPS

1. Fill fuel tanks (see your -10).
2. Connect battery ground lead (WP 0338 00).
3. Bleed fuel line (WP 0679 00).
4. Start heater (see your -10). Check all fittings for leaks. Turn heater off (see your -10).
5. Install rear floor plate (WP 0539 00) or (WP 0544 00).
6. Start engine (see your -10).
7. Raise and lock ramp (see your -10).
8. Stop engine (see your -10).

END OF TASK

REPLACE FUEL PUMP TO BULKHEAD CONNECTION HOSE (M113A3, M1059A3, AND M58 ONLY) 0691 00

THIS WORK PACKAGE COVERS:

Removal (page 0691 00-1).
Installation (page 0691 00-2).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)

Personnel Required

Unit Mechanic

References

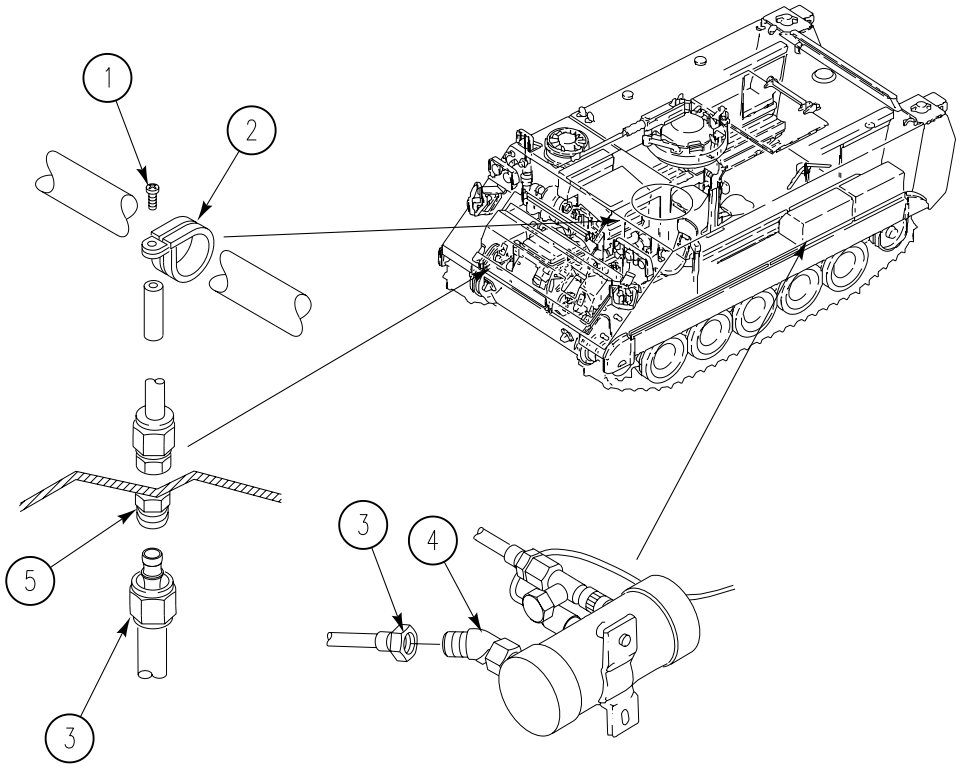
See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Ramp lowered (see your -10)
Both main fuel shutoff valves closed (see your -10)
Battery ground lead disconnected (WP 0337 00)
Heater duct removed (WP 0706 00)
Floor plates removed (WP 0539 00), (WP 0542 00), or (WP 0545 00)
Heater fuel shutoff valve closed (see your -10)

REMOVAL

1. Remove eight screws (1) and clamps (2) from hull weldnuts.
2. Disconnect fuel hose (3) from fuel pump adapter (4) and nipple (5). Remove hose.
3. Remove eight clamps (2) from hose (3).

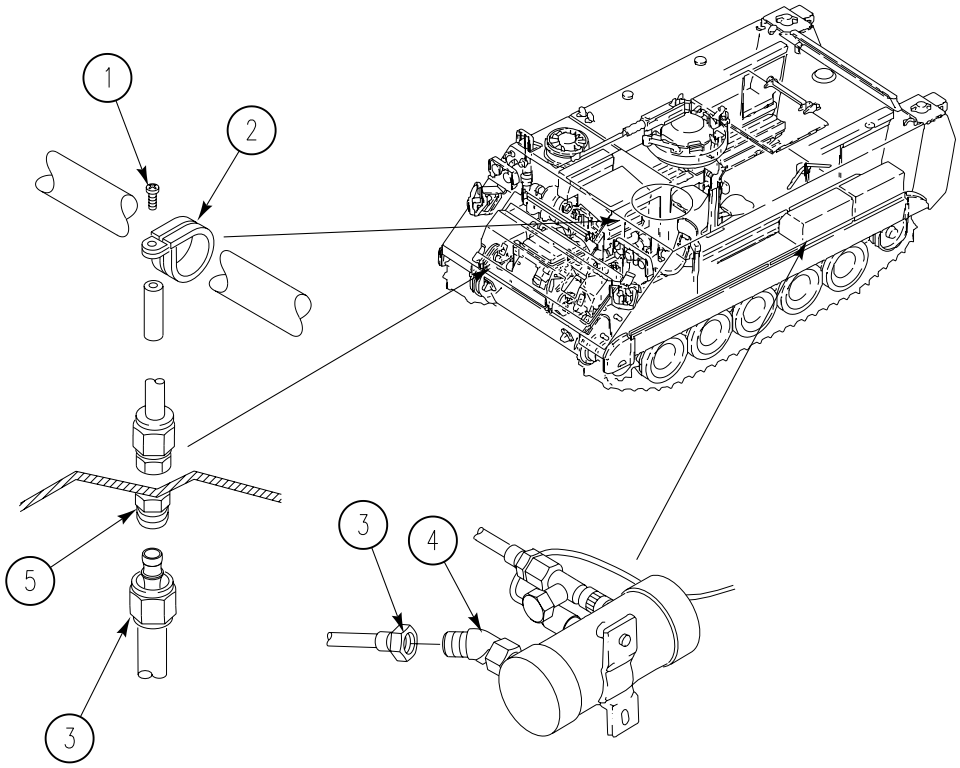


REPLACE FUEL PUMP TO BULKHEAD CONNECTION HOSE (M113A3, M1059A3, AND M58 ONLY) — Continued

0691 00

INSTALLATION

1. Connect new hose (3) to fuel pump adapter (4).
2. Route hose (3) through hull openings. Connect hose to nipple (5).
3. Install eight clamps (2) on hose (3) next to hull weldnuts. Secure clamps to weldnuts with eight screws (1).



FOLLOW-THROUGH STEPS

1. Open both main fuel shutoff valves (see your -10).
2. Connect battery ground lead (WP 0337 00).
3. Bleed fuel line (WP 0679 00).
4. Start heater (see your -10). Check all fittings for leaks. Turn heater off.
5. Install floor plates (WP 0539 00), (WP 0542 00), (WP 0545 00).
6. Install heater duct (WP 0706 00).

END OF TASK

REPLACE FUEL PUMP TO BULKHEAD CONNECTION HOSE (M577A3 AND M1068A3 ONLY) 0692 00

THIS WORK PACKAGE COVERS:

Removal (page 0692 00-2).
Installation (page 0692 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts

Wiping rag (WP 0928 00, Item 65)
Lockwasher (10)

Personnel Required

Unit Mechanic

References

See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Ramp lowered (see your -10)
Battery ground lead disconnected (WP 0338 00)
Heater duct removed (WP 0706 00)
Floor plates removed (WP 0539 00) or (WP 0544 00)
Heater fuel shutoff valve closed (see your -10)

REPLACE FUEL PUMP TO BULKHEAD CONNECTION HOSE (M577A3 AND M1068A3 ONLY) — Continued

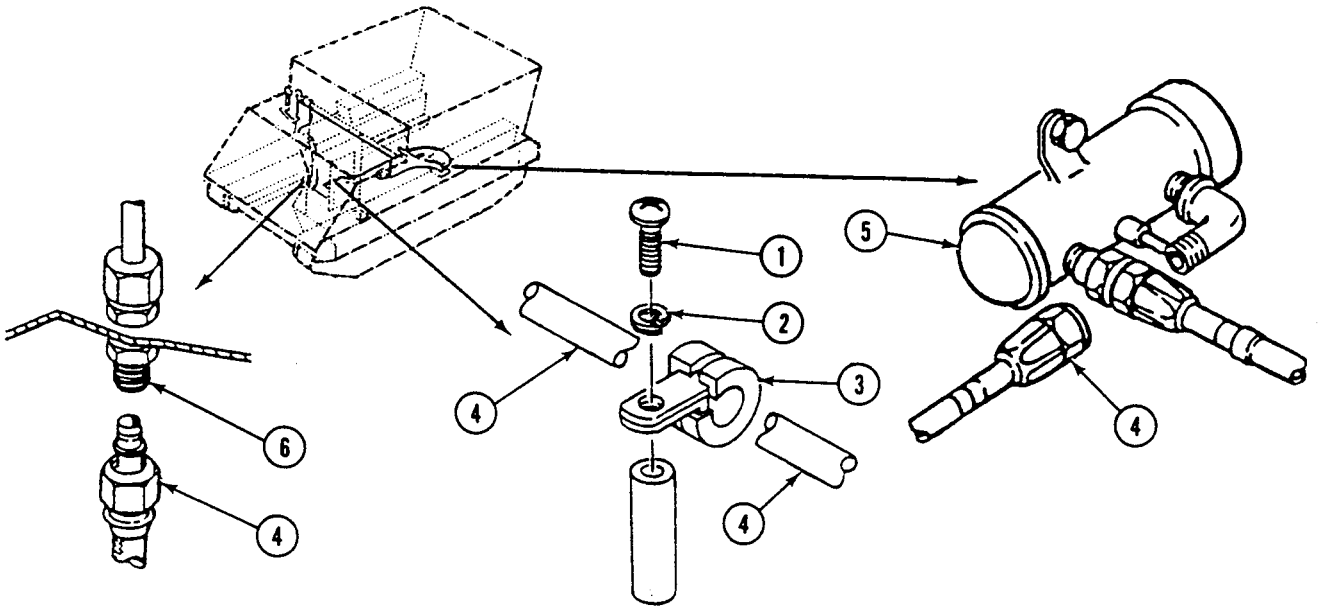
0692 00

REMOVAL

WARNING

Fuel can catch fire and burn you. Do not smoke. Wipe up spilled fuel.

1. Remove 10 screws (1), lockwashers (2), and clamps (3) from 10 hull weldnuts. Discard lockwashers.
2. Remove fuel hose (4) from fuel pump (5) and nipple (6). Remove hose.
3. Remove 10 clamps (3) from hose (4).



REPLACE FUEL PUMP TO BULKHEAD CONNECTION HOSE (M577A3 AND M1068A3 ONLY) — Continued

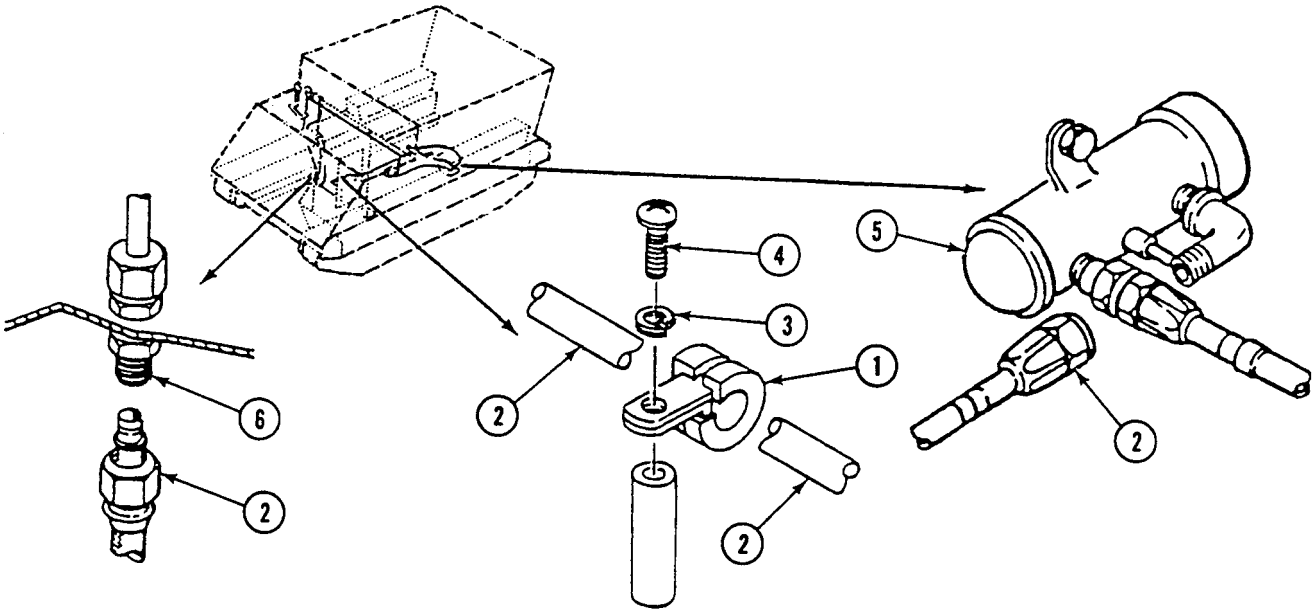
0692 00

INSTALLATION

NOTE

Flareless (compression) fittings are used on the fuel lines. When these fittings are first installed, a sleeve is crimped on the tube or hose end. Consequently, when tubes or hoses are replaced, new fitting sleeves are also required.

1. Install 10 clamps (1) on hose (2).
2. Route hose (2) through openings in hull cross members. Align 10 clamps (1) with hull weldnuts. Secure with 10 new lockwashers (3) and screws (4).
3. Install fuel hose (2) on fuel pump (5) and nipple (6).



FOLLOW-THROUGH STEPS

1. Open heater fuel shutoff valve (see your -10).
2. Connect battery ground lead (WP 0338 00).
3. Bleed fuel line (WP 0679 00).
4. Start heater (see your -10). Check all fittings for leaks. Turn heater off.
5. Install floor plates (WP 0539 00) or (WP 0544 00).
6. Install heater duct (WP 0706 00).
7. Start engine (see your -10).
8. Raise and lock ramp (see your -10).
9. Stop engine (see your -10).

END OF TASK

REPLACE FUEL PUMP HOSE TO HEATER FUEL SHUTOFF VALVE (M1064A3 ONLY) 0694 00

THIS WORK PACKAGE COVERS:

Removal (page 0694 00-1).
Installation (page 0694 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts

Sealing compound (WP 0928 00, Item 56)
Wiping rag (WP 0928 00, Item 65)
Locknut (2)

Personnel Required

Unit Mechanic

References

See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Ramp lowered (see your -10)
Heater fuel shutoff valve closed (see your -10)
Battery ground strap disconnected (WP 0337 00)
Heater duct removed (WP 0706 00)
Left front floor plate removed (WP 0543 00)

REMOVAL

WARNING

Fuel flowing over a metal surface causes static electricity. This will cause a spark unless the surface is grounded.

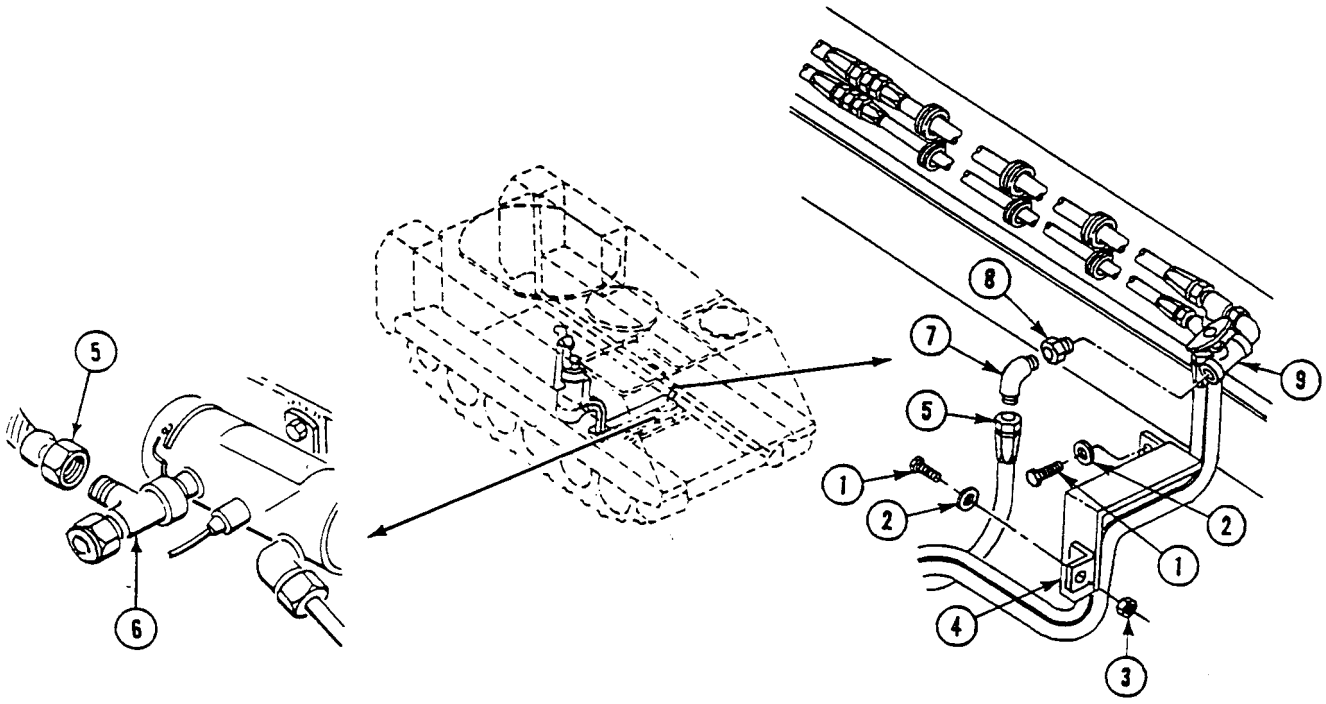
WARNING

Fuel can catch fire and burn you. Do not smoke. Wipe up spilled fuel.

REPLACE FUEL PUMP HOSE TO HEATER FUEL SHUTOFF VALVE (M1064A3 ONLY) — Continued

0694 00

1. Remove two screws (1), washers (2), locknuts (3), and guard (4) from hull. Discard locknuts.
2. Remove hose (5) from tee (6) and elbow (7).
3. Remove elbow (7) from adapter (8).
4. Remove adapter (8) from valve (9).

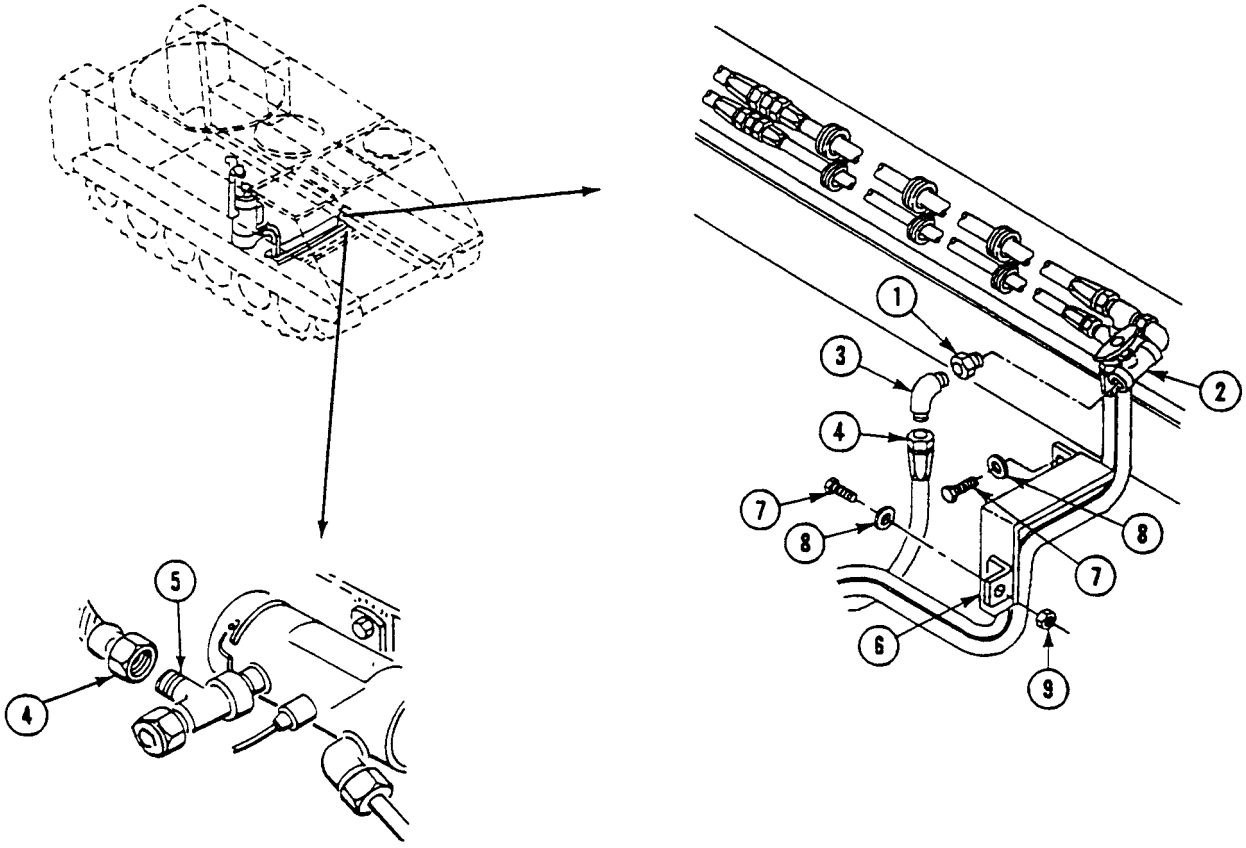


REPLACE FUEL PUMP HOSE TO HEATER FUEL SHUTOFF VALVE (M1064A3 ONLY) — Continued

0694 00

INSTALLATION

1. Apply a thin, even coat of sealing compound to cleaned external threads of fitting before installation.
2. Install adapter (1) on valve (2).
3. Install elbow (3) on adapter (1).
4. Install hose (4) on elbow (3) and tee (5).
5. Install guard (6), two screws (7), washers (8), and new locknuts (9) on hull.



REPLACE FUEL PUMP HOSE TO HEATER FUEL SHUTOFF VALVE (M1064A3 ONLY) — Continued **0694 00**

FOLLOW-THROUGH STEPS

1. Open heater fuel supply shutoff valve (see your -10). Check for leaks.
2. Install left front floor plate (WP 0543 00).
3. Install heater duct (WP 0706 00).
4. Connect battery ground strap (WP 0337 00).
5. Start engine (see your -10).
6. Raise and lock ramp (see your -10).
7. Stop engine (see your -10).

END OF TASK

REPLACE PERSONNEL HEATER FUEL PUMP (M113A3, M1059A3, AND M58 ONLY) 0695 00

THIS WORK PACKAGE COVERS:

Removal (page 0695 00-1).
Installation (page 0695 00-2).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts

Sealing compound (WP 0928 00, Item 56)
Lockwasher (6)

Personnel Required

Unit Mechanic

References

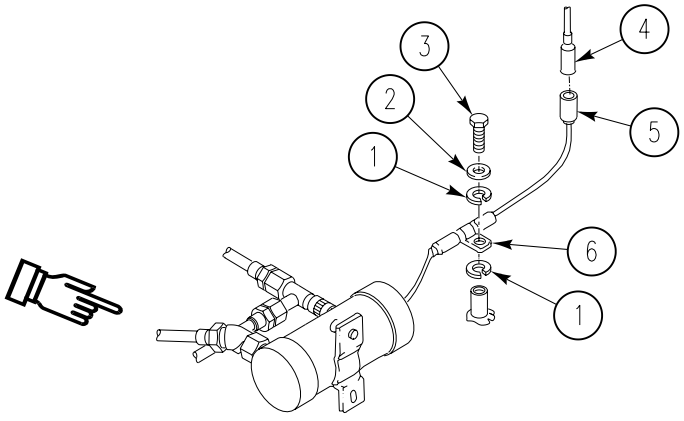
See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Ramp lowered (see your -10)
Heater fuel pump shutoff valve closed (see your -10)
Battery ground strap disconnected (WP 0337 00)
Rear floor plate removed (WP 0539 00)(WP 0542 00)(WP 0545 00)

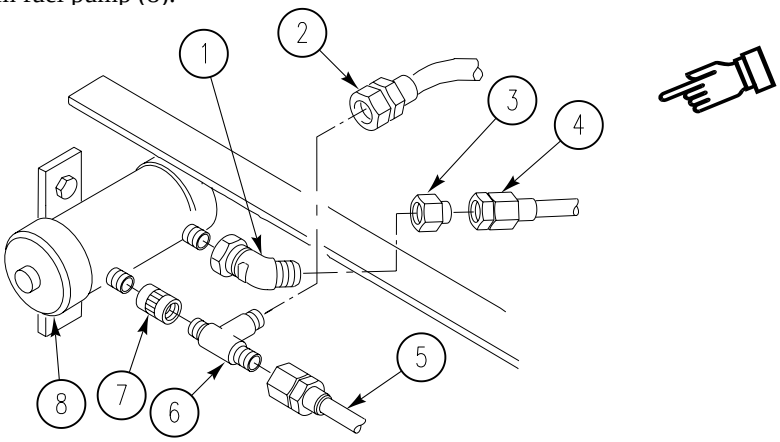
REMOVAL

1. Disconnect circuit 402 lead (4)from pump lead (5).
2. Remove screw (3), two lockwashers (1), washer (2), and clamp (6) from hull weldnut. Discard lockwashers.

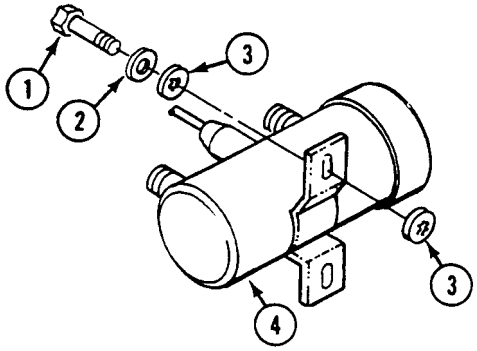


REPLACE PERSONNEL HEATER FUEL PUMP (M113A3, M1059A3, AND M58 ONLY) — Continued 0695 00

3. Disconnect fuel supply hose (5) from tee (6).
4. If engine coolant heater is installed, remove fuel supply line (2) from tee (6). Remove tee and pipe coupling (7) from fuel pump (8).
5. Disconnect fuel hose (4) from adapter (3). Remove adapter from elbow (1). M58 only or remove adapter from fuel pump M113A3 or M105A3 only. Remove elbow from fuel pump (8).

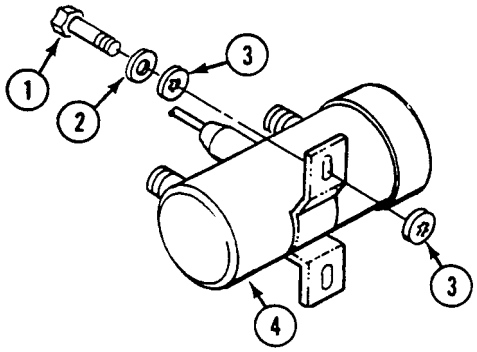


6. Remove two screws (1), two washers (2), four lockwashers (3), and fuel pump (4) from bulkhead bracket. Discard lockwashers.



INSTALLATION

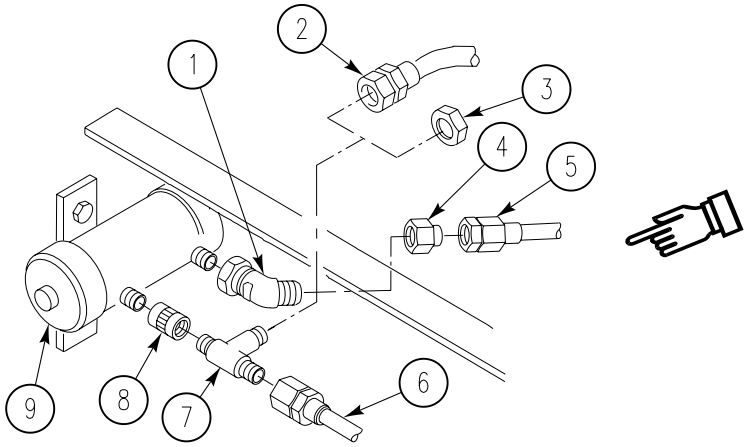
1. Place fuel pump (4) on bulkhead bracket. Secure with four new lockwashers (3), two washers (2), and screws (1).



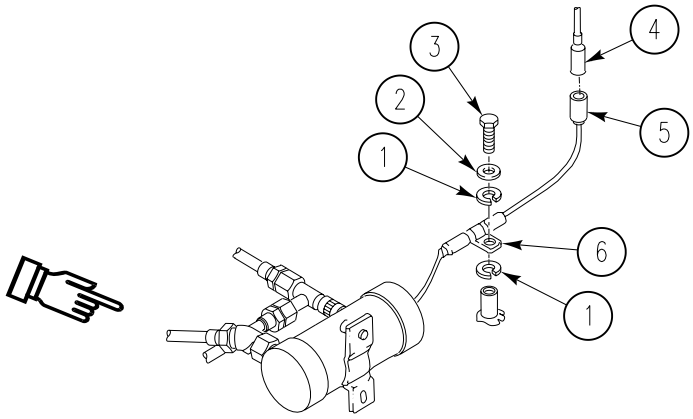
REPLACE PERSONNEL HEATER FUEL PUMP (M113A3, M1059A3, AND M58 ONLY) — Continued 0695 00

2. Apply light coat of sealing compound to all external tapered threads. Do not apply sealant beyond small end of tapered threads.
3. Install elbow (1) on fuel pump (9).
4. Install adapter (4) on elbow (1). M58 only or install adaptor (4) on fuel pump (9) M113, 1059A3 only.

   Install hose (5) on adapter.
5. Install pipe coupling (8) and tee (7) on fuel pump (9).
6. Install fuel supply hose (6) on tee (7).
7. If engine coolant heater is installed, install fuel supply hose (2) on tee (7). If engine coolant heater is not installed, install cap (3) on open end of tee.



8. Align clamp (6) on fuel pump lead (5) with hull weldnut. Secure with washer (2), two new lockwashers (1), and screw (3).
9. Connect fuel pump lead (5) to circuit 402 lead (4).



REPLACE PERSONNEL HEATER FUEL PUMP (M113A3, M1059A3, AND M58 ONLY) — Continued **0695 00**

FOLLOW-THROUGH STEPS

1. Connect battery ground strap (WP 0337 00).
2. Open heater fuel shutoff valve (see your -10).
3. Bleed fuel line (WP 0679 00).
4. Start heater (see your -10). Check for fuel leaks. Turn heater off.
5. Install rear floor plate (WP 0539 00)(WP 0542 00)(WP 0545 00).
6. Start engine (see your -10).
7. Raise and lock ramp (see your -10).
8. Stop engine (see your -10).

END OF TASK

REPLACE PERSONNEL HEATER FUEL PUMP (M577A3 AND M1068A3 ONLY) 0696 00

THIS WORK PACKAGE COVERS:

Removal (page 0696 00-1).
Installation (page 0696 00-4).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts
Sealing compound (WP 0928 00, Item 56)
Wiping rag (WP 0928 00, Item 65)
Lockwasher (6)
Locknut (2)

Personnel Required
Unit Mechanic

References
See your -10

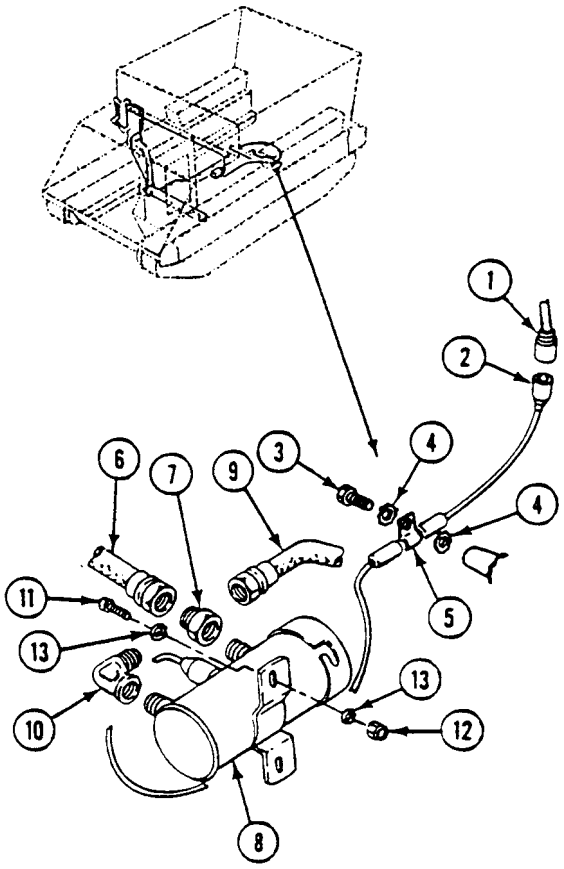
Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Ramp lowered (see your -10)
Battery ground lead disconnected (WP 0338 00)
Rear floor plate removed (WP 0539 00) or (WP 0544 00)
Heater fuel pump shutoff valve closed (see your -10)

REMOVAL

1. Disconnect circuit 402 lead (1) from fuel pump lead (2).

REPLACE PERSONNEL HEATER FUEL PUMP (M577A3 AND M1068A3 ONLY) — Continued **0696 00**

2. Remove screw (3), two lockwashers (4), and clamp (5) from bulkhead weldnut. Discard lockwashers.

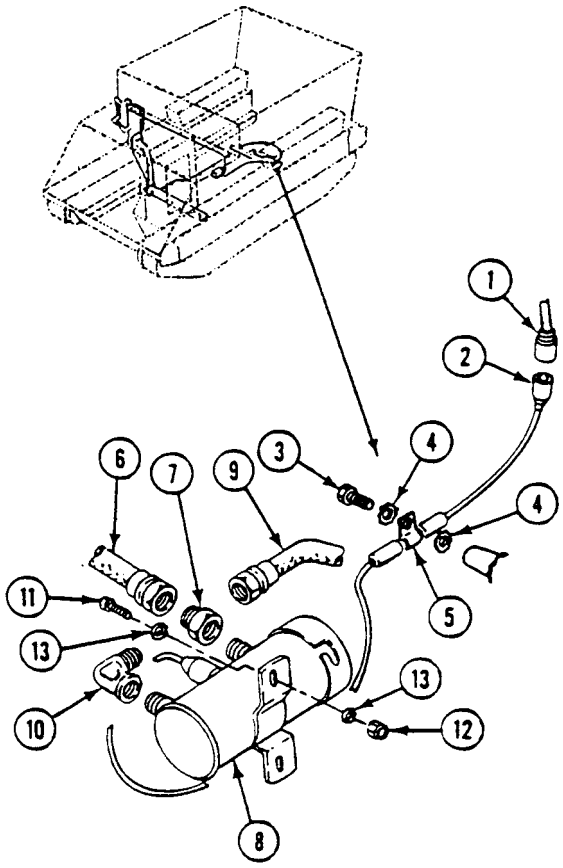


REPLACE PERSONNEL HEATER FUEL PUMP (M577A3 AND M1068A3 ONLY) — Continued **0696 00**

WARNING

Fuel can catch fire and burn you. Do not smoke. Wipe up spilled fuel.

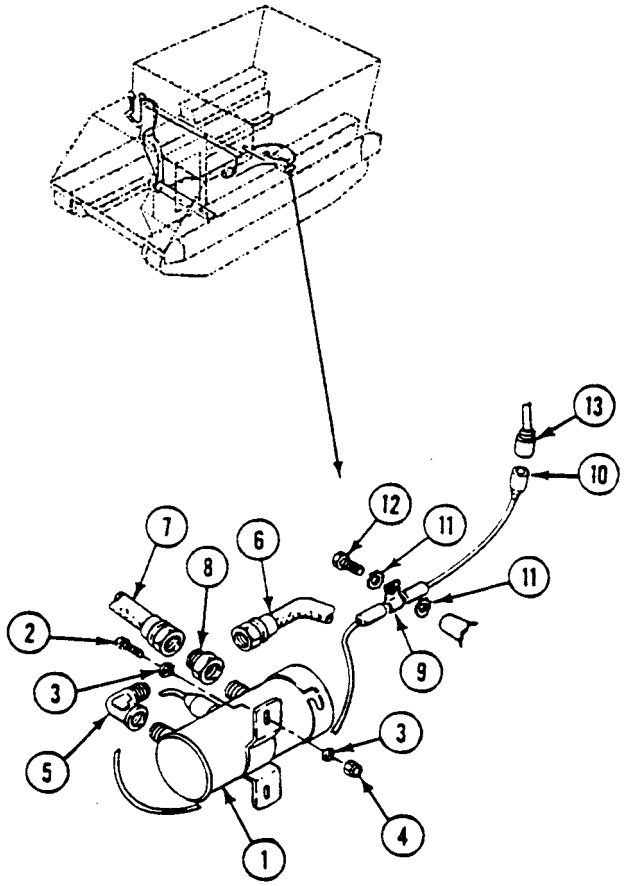
3. Disconnect fuel hose (6) from adapter (7). Remove adapter from fuel pump (8).
4. Disconnect hose (9) from elbow (10). Remove elbow from fuel pump (8).
5. Remove two screws (11), locknuts (12), four lockwashers (13), and fuel pump (8) from bulkhead bracket. Discard lockwashers and locknuts.



REPLACE PERSONNEL HEATER FUEL PUMP (M577A3 AND M1068A3 ONLY) — Continued 0696 00

INSTALLATION

1. Place fuel pump (1) on bulkhead bracket. Secure with two screws (2), four new lockwashers (3), and two new locknuts (4).
2. Apply light coat of sealing compound to all external tapered threads. Do not apply sealant beyond small end of tapered threads.
3. Install elbow (5) on fuel pump (1). Install fuel hose (6) on elbow. Install hose (6) under hose (7).
4. Install adapter (8) on fuel pump (1). Install fuel hose (7) on adapter.
5. Align clamp (9) on fuel pump lead (10) with weldnut. Secure with two new lockwashers (11) and screw (12).
6. Connect fuel pump lead (10) to circuit 402 lead (13).



REPLACE PERSONNEL HEATER FUEL PUMP (M577A3 AND M1068A3 ONLY) — Continued **0696 00**

FOLLOW-THROUGH STEPS

1. Connect battery ground lead (WP 0338 00).
2. Open heater fuel shutoff valve (see your -10).
3. Bleed fuel line (WP 0679 00).
4. Start heater (see your -10). Check for fuel leaks. Turn heater off.
5. Install rear floor plate (WP 0539 00) or (WP 0544 00).
6. Start engine (see your -10).
7. Raise and lock ramp (see your -10).
8. Stop engine (see your -10).

END OF TASK

REPLACE HEATER FUEL PUMP (M1064A3 ONLY) 0697 00

THIS WORK PACKAGE COVERS:

Removal (page 0697 00-1).
Installation (page 0697 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts

Sealing compound (WP 0928 00, Item 52)
Wiping rag (WP 0928 00, Item 65)
Lockwasher (6)

Personnel Required

Unit Mechanic

References

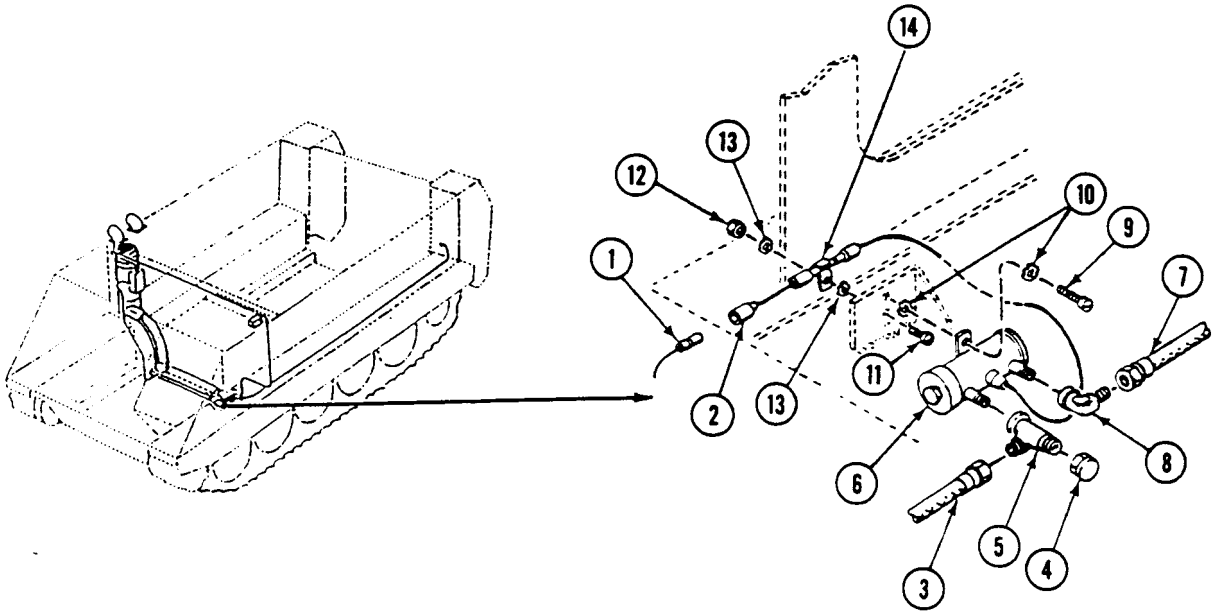
See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Ramp lowered (see your -10)
Battery ground strap disconnected (WP 0337 00)
Heater duct removed (WP 0706 00)
Front floor plate removed (WP 0543 00)
Heater fuel pump shutoff valve closed (see your -10)

REMOVAL

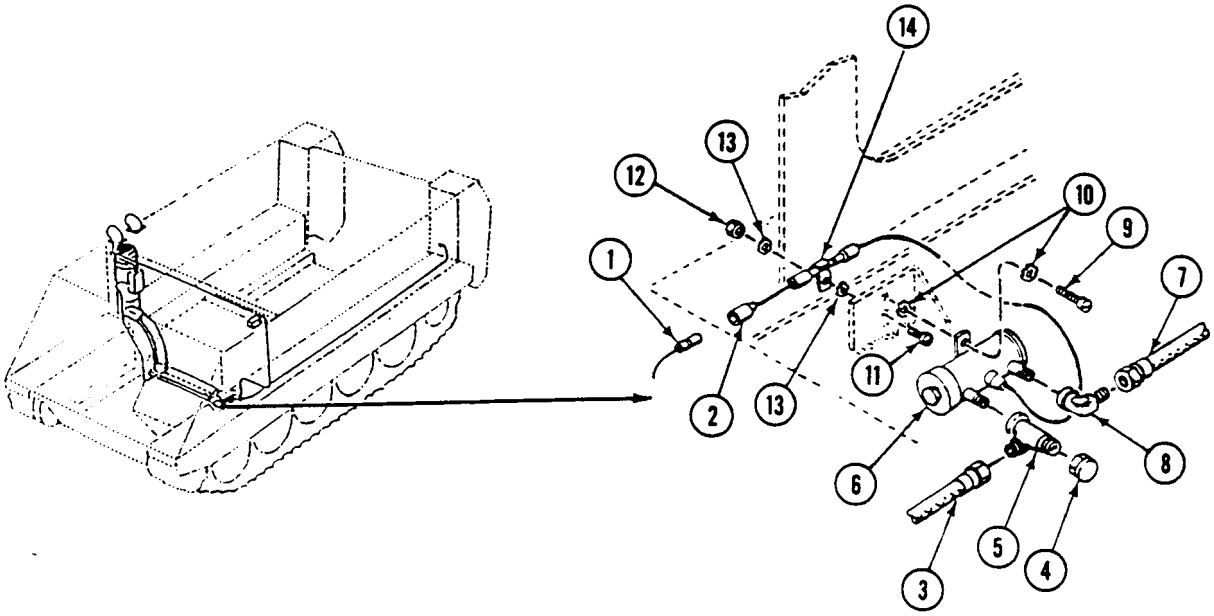
1. Disconnect circuit 402 lead (1) from fuel pump lead (2).



WARNING

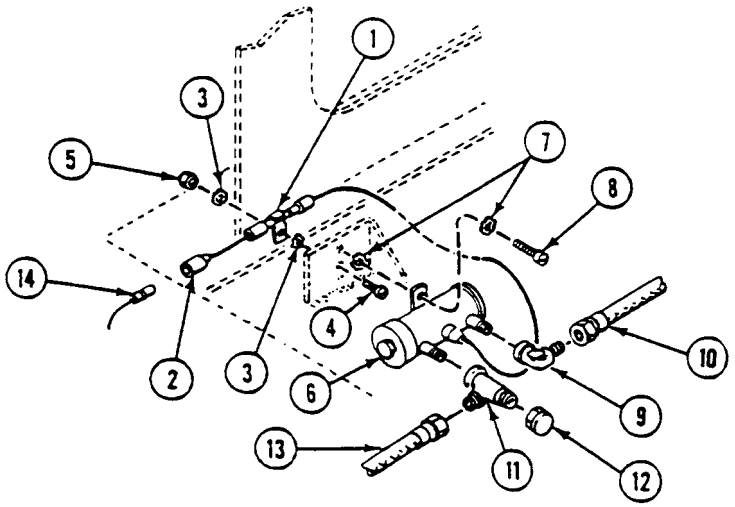
Fuel can catch fire and burn you. Do not smoke. Wipe up spilled fuel.

2. Disconnect fuel hose (3). Remove cap (4) from tee (5). Remove tee from fuel pump (6).
3. Disconnect fuel hose (7) from elbow (8). Remove elbow from fuel pump (6).
4. Remove two screws (9), four lockwashers (10), and fuel pump (6) from hull bracket. Discard lockwashers.
5. Remove screw (11), nut (12), two lockwashers (13), and clamp (14) on fuel pump lead (2) from hull bracket. Discard lockwashers.



INSTALLATION

1. Align clamp (1) on fuel pump lead (2) with hull bracket. Secure with two new lockwashers (3), screw (4) and nut (5).
2. Place fuel pump (6) on hull bracket. Secure with four new lockwashers (7) and two screws (8).
3. Apply light coat of sealing compound to all external tapered threads. Do not apply sealant beyond small end of external tapered threads.
4. Install elbow (9) on fuel pump (6).
5. Install hose (10) on elbow (9).
6. Install tee (11) on fuel pump (6).
7. Install cap (12) on tee (11).
8. Install hose (13) on tee (11).
9. Connect fuel pump lead (2) to circuit 402 lead (14).



FOLLOW-THROUGH STEPS

1. Connect battery ground strap (WP 0337 00).
2. Open heater fuel shutoff valve. Bleed fuel line (WP 0679 00).
3. Start heater (see your -10). Check for fuel leaks. Turn heater off.
4. Install front floor plate (WP 0543 00).
5. Install heater duct (WP 0706 00).
6. Start engine (see your -10).
7. Raise and lock ramp (see your -10).
8. Stop engine (see your -10).

END OF TASK

REPLACE PERSONNEL HEATER FUEL FILTER/BRACKET (M113A3, M1059A3, AND M58 ONLY) 0698 00

THIS WORK PACKAGE COVERS:

Removal (page 0698 00-1).
Installation (page 0698 00-2).

INITIAL SETUP:

Maintenance Level
Unit

Personnel Required
Unit Mechanic

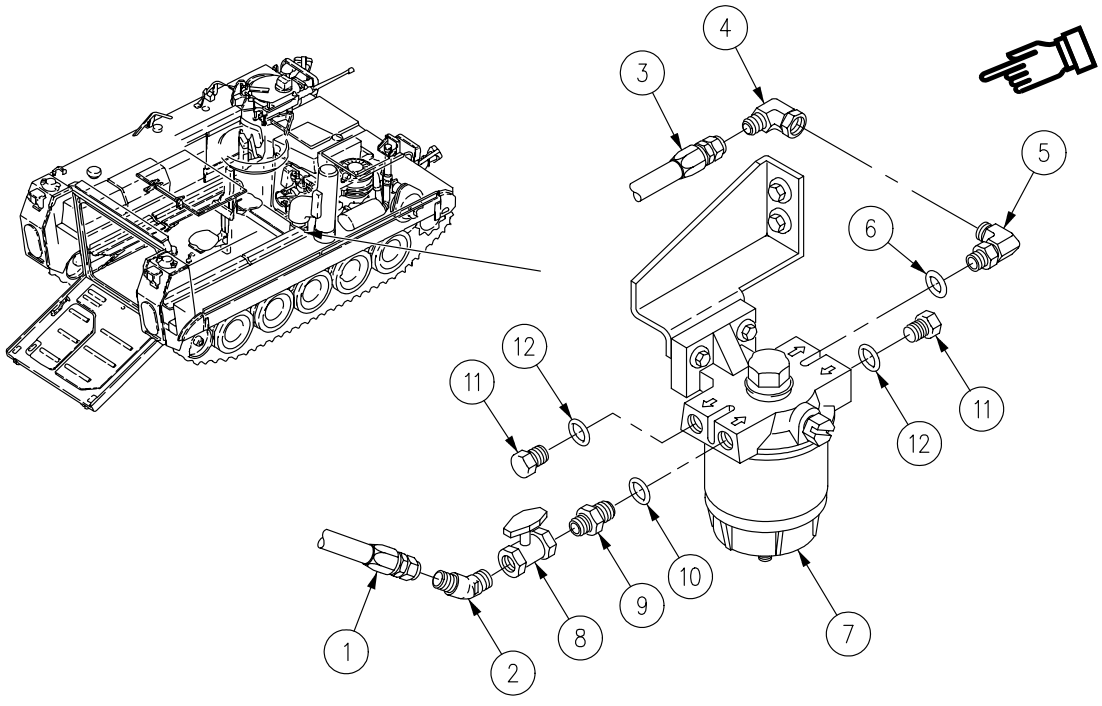
Tools and Special Tools
General Mechanic's Tool Kit (WP 0926 00, Item 65)

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Ramp lowered (see your -10)
Main fuel valve shut off (see your -10)

Materials/Parts
Sealing compound (WP 0928 00, Item 51)
Locknut (2)
Lockwasher (2)
Packing (4)

REMOVAL

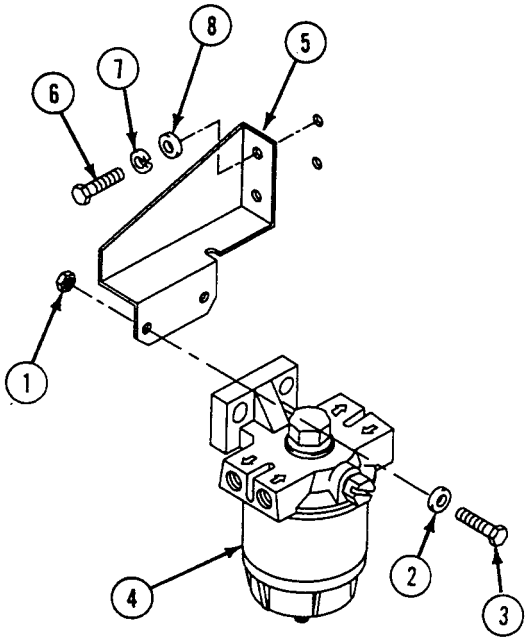
1. Remove heater fuel inlet hose (1) from elbow (2).
2. Remove heater fuel outlet hose (3) from elbow (4).
3. Remove elbow (4) from elbow (5).
4. Remove elbow (5) and packing (6) from port **4** of fuel filter (7). Discard packing.
5. Remove elbow (2), valve (8), adapter (9), and packing (10) from port **1** of fuel filter (7). Discard packing.
6. Remove two plugs (11) and packings (12) from ports **2** and **3** of fuel filter (7). Discard packings.



REPLACE PERSONNEL HEATER FUEL FILTER/BRACKET (M113A3, M1059A3, AND M58 ONLY) — Continued

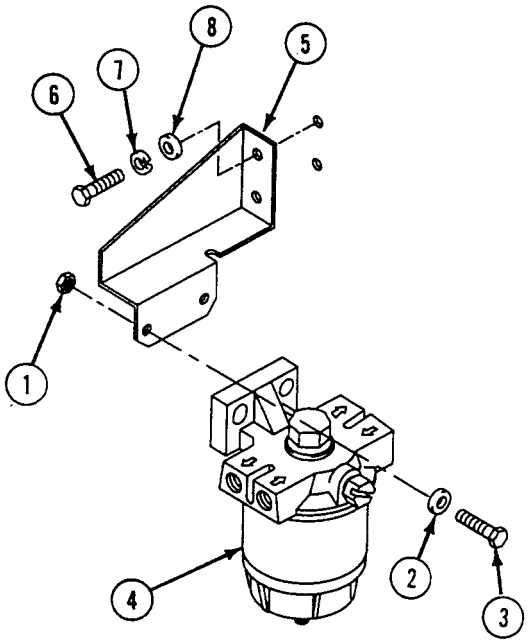
0698 00

7. Remove two locknuts (1), washers (2), screws (3), and fuel filter (4) from bracket (5). Discard locknuts.
8. Remove two screws (6), lockwashers (7), washers (8), and bracket (5) from hull. Discard lockwashers.



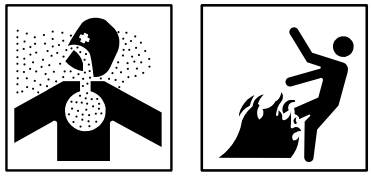
INSTALLATION

1. Install bracket (5) on hull. Secure with two screws (6), new lockwashers (7), and washers (8).
2. Install fuel filter (4) on bracket (5) with port **4** facing hull. Secure with two screws (3), washers (2), and new locknuts (1).



3. Install two plugs (9) and new packings (10) in ports **2** and **3** of fuel filter (4).

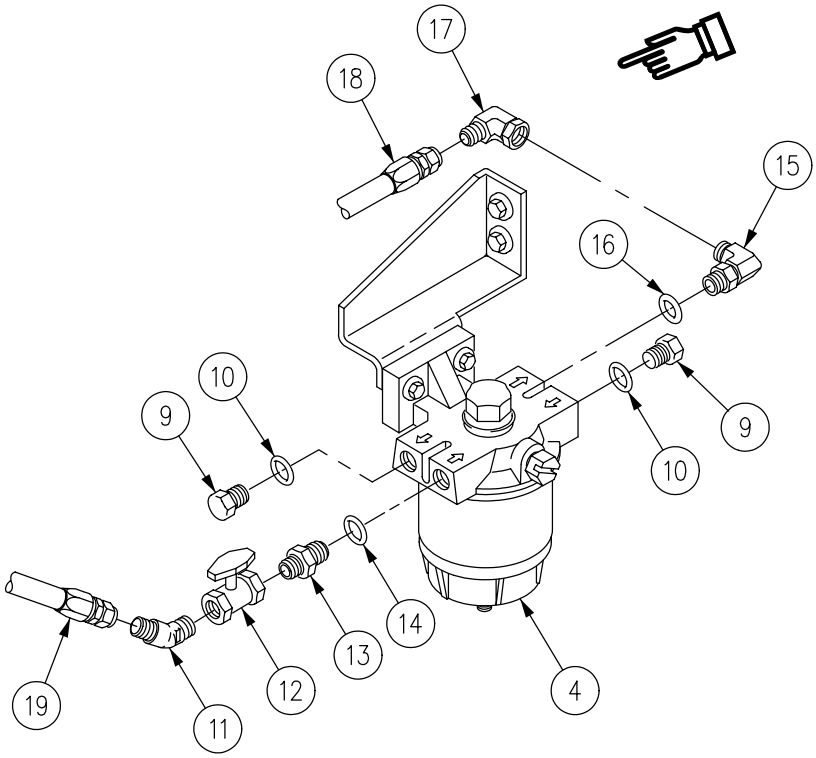
WARNING



Adhesive, primer, sealant compounds, and isopropyl alcohol are toxic and flammable. These compounds are toxic to eyes, skin, and respiratory tract. Continued exposure can make you dizzy and irritate your eyes and throat.

Always use in well ventilated areas, away from heat, sparks, and flames. Do not breathe fumes. Do not allow into contact with skin and eyes. Use goggles or face shield and protective gloves.

4. Install elbow (11), valve (12), adapter (13), and new packing (14) in port **1** of fuel filter (4). Apply sealing compound to external pipe threads of elbow and adapter.
5. Install elbow (15) and new packing (16) in port **4** of fuel filter (4).
6. Install elbow (17) on elbow (15).
7. Install outlet hose (18) on elbow (17).
8. Install inlet hose (19) on elbow (11).



REPLACE PERSONNEL HEATER FUEL FILTER/BRACKET (M113A3, M1059A3, AND M58 ONLY) — Continued **0698 00**

FOLLOW-THROUGH STEPS

1. Bleed air from fuel lines (WP 0679 00).
2. Start heater (see your -10). Check for leaks. Turn heater off.
3. Start engine (see your -10).
4. Raise and lock ramp (see your -10).
5. Stop engine (see your -10).

END OF TASK

REPLACE PERSONNEL HEATER FUEL FILTER, HOSE, TUBE, AND FITTINGS (M577A3 AND M1068A3 ONLY) 0700 00

THIS WORK PACKAGE COVERS:

Removal (page 0700 00-1).
Installation (page 0700 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts

Sealing compound (WP 0928 00, Item 52)
Wiping rag (WP 0928 00, Item 65)
Lockwasher (6)
Packing (4)

Personnel Required

Unit Mechanic

References

See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Ramp lowered (see your -10)
Battery ground strap disconnected (WP 0337 00) or (WP 0338 00)
Heater fuel shutoff valve closed (see your -10)

REPLACE PERSONNEL HEATER FUEL FILTER, HOSE, TUBE, AND FITTINGS (M577A3 AND M1068A3 ONLY) — Continued

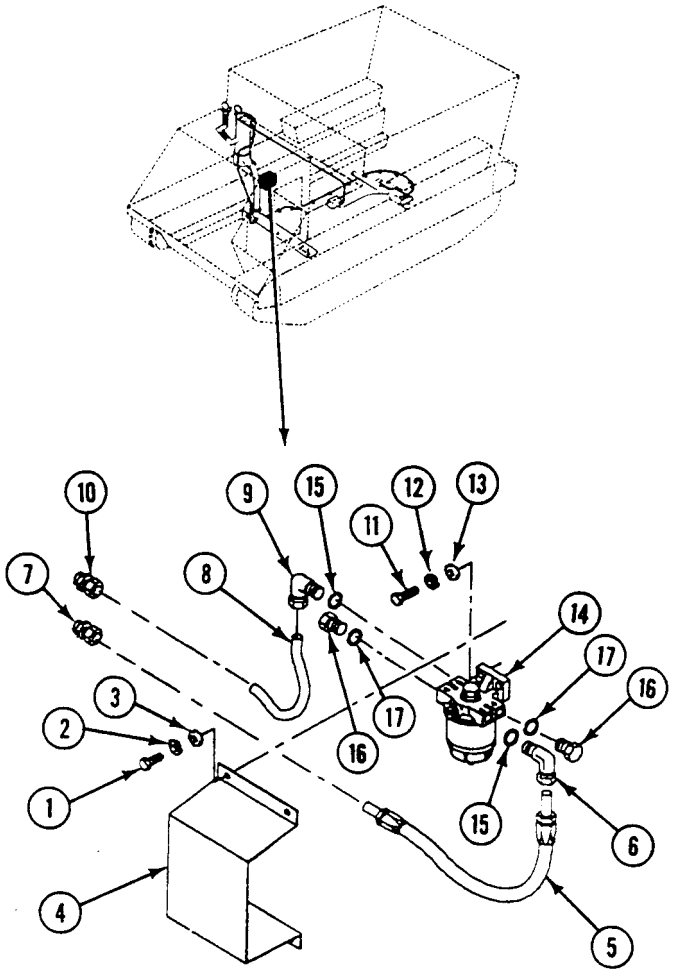
0700 00

REMOVAL

WARNING

Fuel can catch fire and burn you. Do not smoke. Wipe up spilled fuel.

1. Remove four screws (1), lockwashers (2), washers (3), and shield (4) from right sponson. Discard lockwashers.
2. Remove hose assembly (5) from elbow (6) and bulkhead fitting (7).
3. Remove tube (8) from elbow (9) and bulkhead fitting (10).
4. Remove two screws (11), lockwashers (12), washers (13), and fuel filter (14) from right sponson. Discard lockwashers.
5. Remove two elbows (6), (9) and packings (15) from fuel filter (14). Discard packings.
6. Remove two plugs (16) and packings (17) from fuel filter (14). Discard packings.



REPLACE PERSONNEL HEATER FUEL FILTER, HOSE, TUBE, AND FITTINGS (M577A3 AND M1068A3 ONLY) — Continued

0700 00

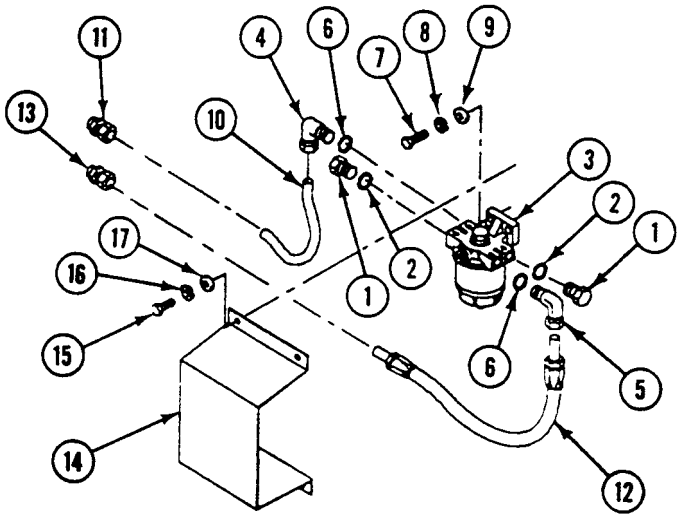
INSTALLATION

1. Apply light coat of sealing compound to all external tapered threads. Do not apply sealant beyond small end of tapered threads.
2. Install two plugs (1) and new packings (2) in ports 1 and 4 of fuel filter (3).

NOTE

Flareless (compression) fittings are used on the fuel lines. When these fittings are first installed, a sleeve is crimped on the tube or hose end. Consequently, when tubes or hoses are replaced, new fitting sleeves are also required.

3. Install two elbows (4) (5) and new packings (6) in ports 2 and 3 of fuel filter (3).
4. Install fuel filter (3) on sponson and secure with two screws (7), new lockwashers (8), and washers (9).
5. Connect tube (10) to elbow (4) and bulkhead fitting (11).
6. Connect hose (12) to elbow (5) and bulkhead fitting (13).
7. Install shield (14) on sponson and secure with four screws (15), new lockwashers (16), and washers (17).



FOLLOW-THROUGH STEPS

1. Open heater fuel shutoff valve (see your -10).
2. Connect battery ground strap (WP 0337 00) or (WP 0338 00).
3. Bleed fuel line (WP 0679 00).
4. Start heater (see your -10). Check all fittings for leaks. Turn heater off.
5. Start engine (see your -10).
6. Raise and lock ramp (see your -10).
7. Stop engine (see your -10).

END OF TASK

REPLACE PERSONNEL HEATER CONTROL BOX 0701 00

THIS WORK PACKAGE COVERS:

Removal (page 0701 00-1).
Installation (page 0701 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts

Lockwasher (2)

Personnel Required

Unit Mechanic

References

See your -10

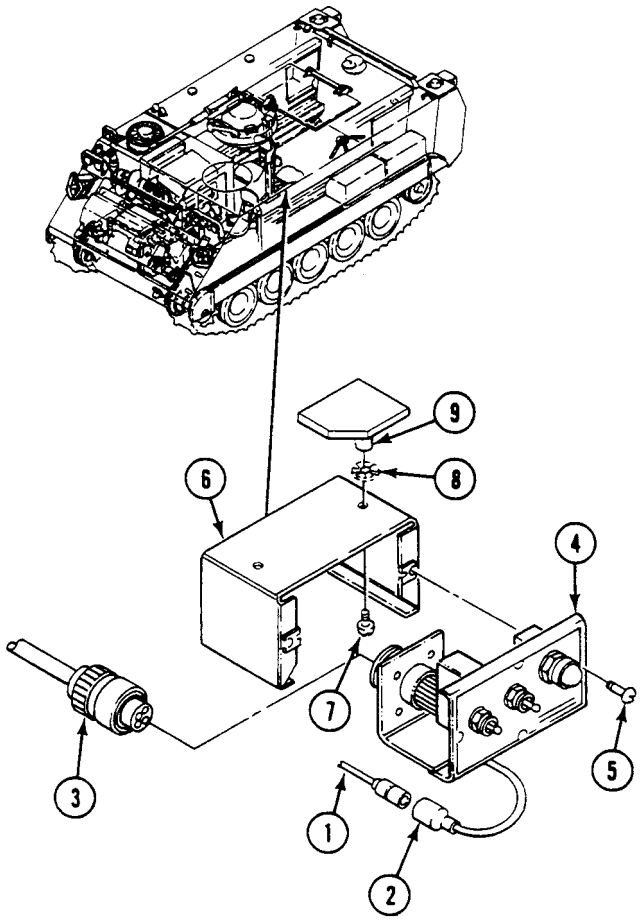
Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Battery ground strap disconnected (WP 0337 00), (WP 0338 00), or (WP 0339 00)

REMOVAL

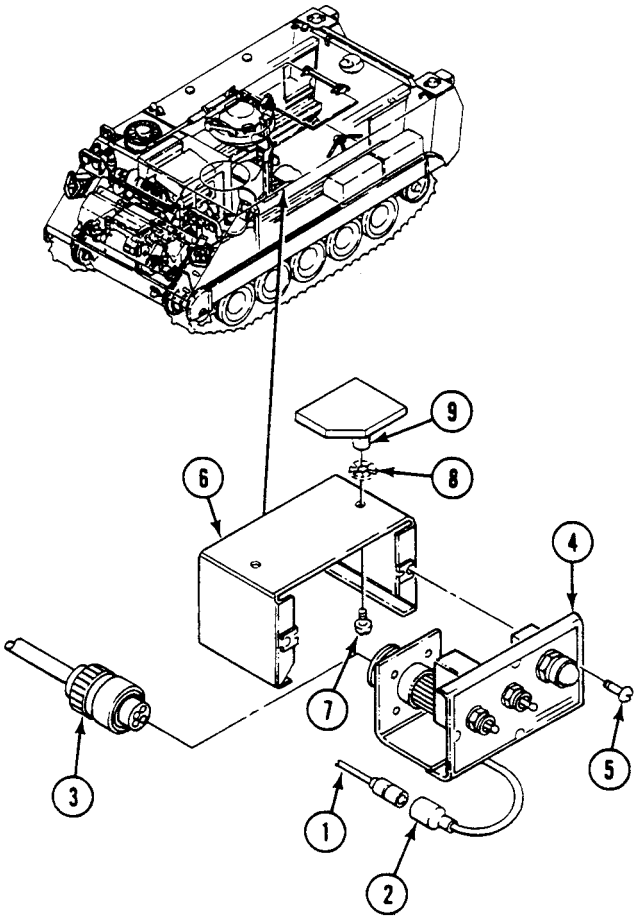
1. Disconnect circuit 400 lead (1) from heater control box lead (2).
2. Disconnect heater wiring harness (3) from heater control box (4).
3. Remove two screws (5) and control box (4) from control box case (6).

4. Remove two screws (7), lockwashers (8), and case (6) from hull weldnuts (9). Discard lockwashers.



INSTALLATION

1. Place control box case (6) on hull weldnuts (9). Secure with two new lockwashers (8) and screws (7).
2. Install heater control box (4) in case (6). Secure with two screws (5).
3. Connect heater wiring harness (3) to control box (4).
4. Connect circuit 400 lead (1) to control box lead (2).



FOLLOW-THROUGH STEPS

1. Connect battery ground strap (WP 0337 00), (WP 0338 00), or (WP 0339 00).
2. Start heater (see your -10). Check that control box works right. Turn heater off.

END OF TASK

REPAIR PERSONNEL HEATER CONTROL BOX 0702 00

THIS WORK PACKAGE COVERS:

Disassembly (page 0702 00-1).
Repair or replacement (page 0702 00-4).
Assembly (page 0702 00-5).

INITIAL SETUP:

Maintenance Level
Unit

Personnel Required
Unit Mechanic

Tools and Special Tools
General Mechanic's Tool Kit (WP 0926 00, Item 65)
Multimeter (WP 0926 00, Item 30)

References
See your -10

Materials/Parts
Lockwasher (9)

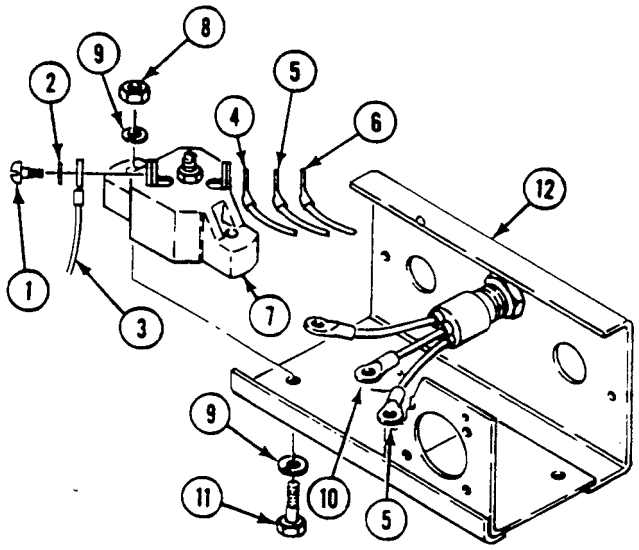
Equipment Condition
Heater control box removed (WP 0701 00)

DISASSEMBLY

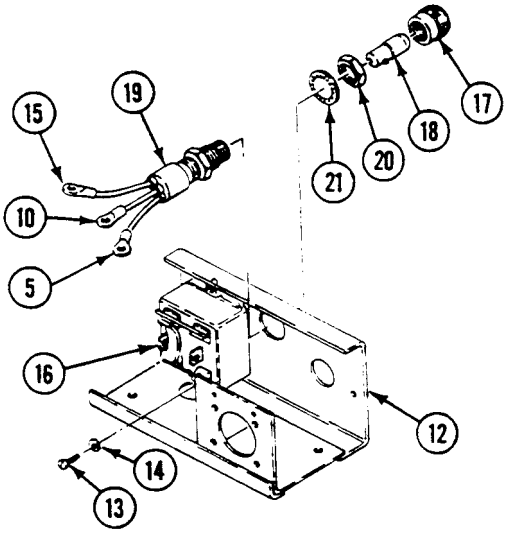
NOTE

Tag all electrical leads before removing.

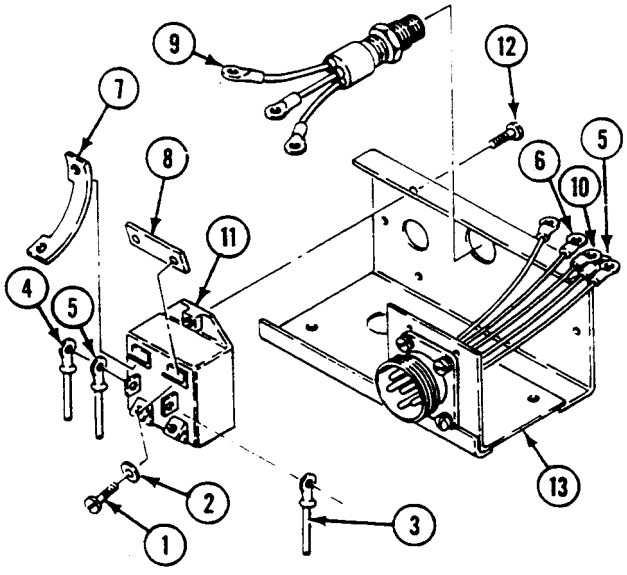
1. Remove circuit breaker (7) from control box (12).
   a. Remove two screws (1), lockwashers (2), lead 16 (3) from one terminal, and lead 17-D (4), lead 17-3 (5), and jumper 15-17 (6) from other terminal on circuit breaker (7).
   b. Remove two nuts (8), four lockwashers (9), ground lead (10), two screws (11), and circuit breaker (7) from control box (12). Discard lockwashers.



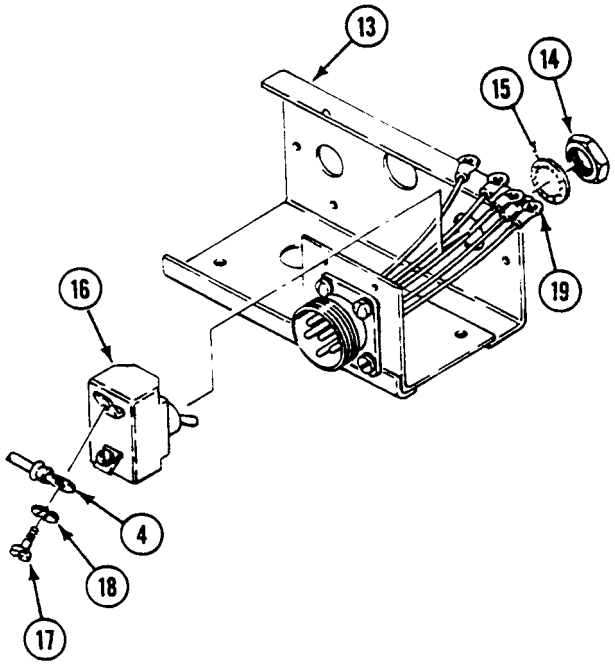
2. Remove indicator light assembly (19) from control box (12).
   a. Remove nut (8), lockwasher (9), and ground lead (10) from circuit breaker (7) mounting screw (11). Discard lockwasher.
   b. Remove screw (1), lockwasher (2), and lead 17-3 (5) from circuit breaker (7).
   c. Remove screw (13), lockwasher (14), and lead 19-2 (15) from RUN-OFF-START switch (16).
   d. Unscrew cap (17) and remove bulb (18) from light assembly (19).
   e. Remove nut (20), lockwasher (21), and light assembly (19) from control box (12).



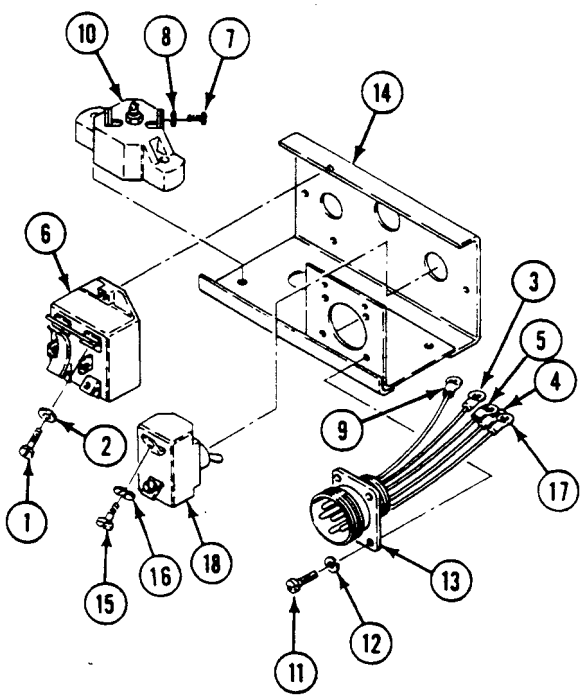
3. Remove RUN-OFF-START switch (11) from control box (13).
   a. Remove six screws (1), lockwashers (2), jumper 15-17 (3), jumper 13-20 (4), lead 20-C (5), lead 14-A (6), jumper 21-18 (7), jumper 21-14 (8), lead 19-2 (9), and lead 19-E (10) from RUN-OFF-START switch (11).
   b. Remove two screws (12) and RUN-OFF-START switch (11) from control box (13).



4. Remove HI-LO heat switch (16) from control box (13).
   a. Remove nut (14), lockwasher (15), instruction plate (if applicable), and HI-LO switch (16) from control box (13). Discard lockwasher.
   b. Remove two screws (17), lockwashers (18), jumper 13-20 (4), and lead 12-B (19) from HI-LO switch (16).



5. Remove receptacle (13) from control box. (14).
   a. Remove three screws (1), lockwashers (2), lead 14-A (3), lead 20-C (4), and lead 19-E (5) from RUN-OFF-START switch (6).
   b. Remove screw (7), lockwasher (8), and lead 17-D (9) from circuit breaker (10).
   c. Remove four screws (11), lockwashers (12), and receptacle (13) from control box (14). Discard lockwashers.
   d. Remove screw (15), lockwasher (16), and lead 12-B (17) from HI-LO switch (18).



REPAIR OR REPLACEMENT

1. Check circuit breaker. See troubleshooting (WP 0086 00). Replace bad circuit breaker.
2. Check indicator light assembly and bulb. See troubleshooting (WP 0086 00). Replace bad light or bulb.
3. Check RUN-OFF-START switch and HI-LO switch. See troubleshooting (WP 0086 00). Replace bad switch.
4. Check receptacle for continuity from pins to lead ends. Replace damaged terminal lugs (WP 0382 00). If pins are damaged, notify supervisor.

ASSEMBLY

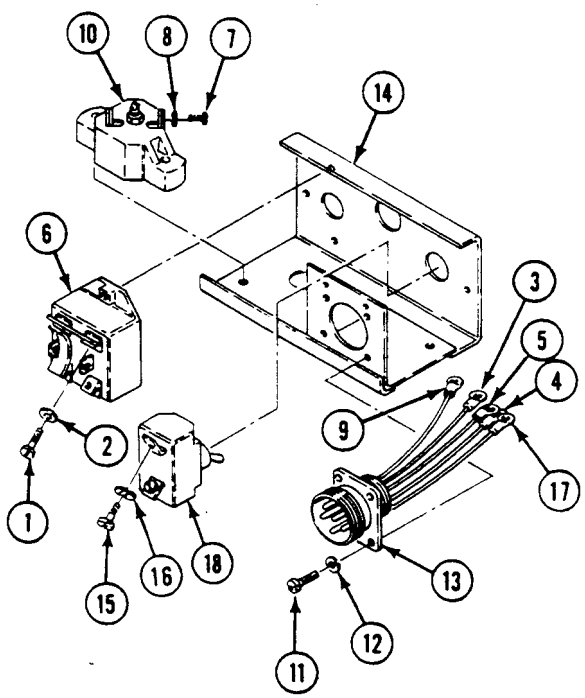
NOTE

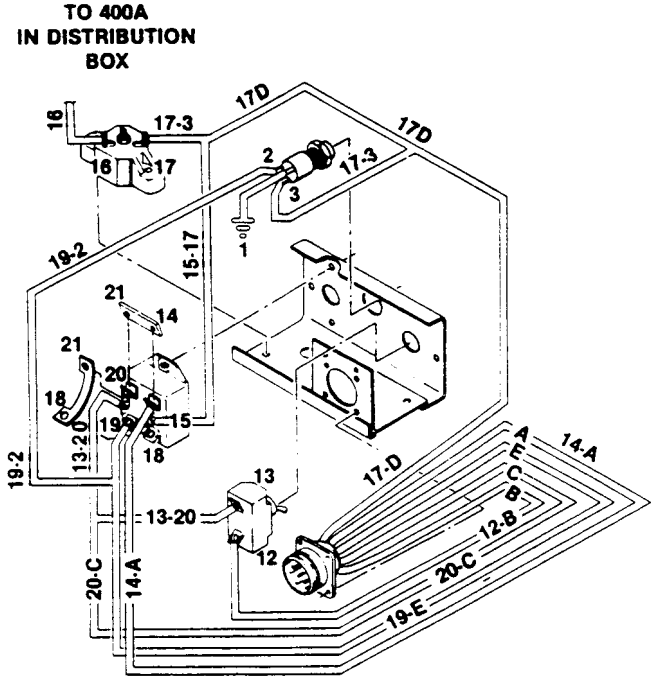
Before connecting electrical leads, check tags and wiring diagram below to verify proper connection.

NOTE

Make sure key in receptacle is at the top.

1. Install receptacle (13) in control box (14).
   a. Install receptacle (13) in control box (14). Secure with four new lockwashers (12) and screws (11).
   b. Install lead 17-D (9) on circuit breaker (10). Secure with lockwasher (8) and screw (7).
   c. Install lead 12-B (17) on HI-LO switch (18). Secure with lockwasher (16) and screw (15).
   d. Install lead 19-E (5), lead 20-C (4), and lead 14-A (3) on RUN-OFF-START switch (6). Secure with three lockwashers (2) and screws (1).

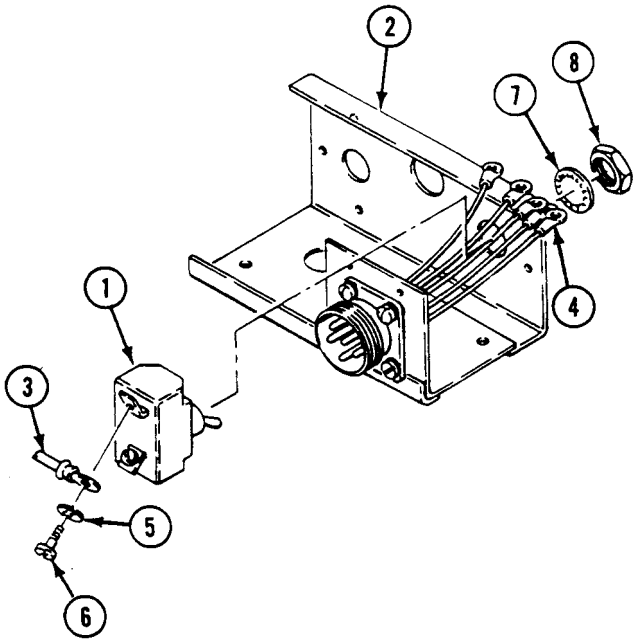




NOTE

Switch is marked ON and OFF.

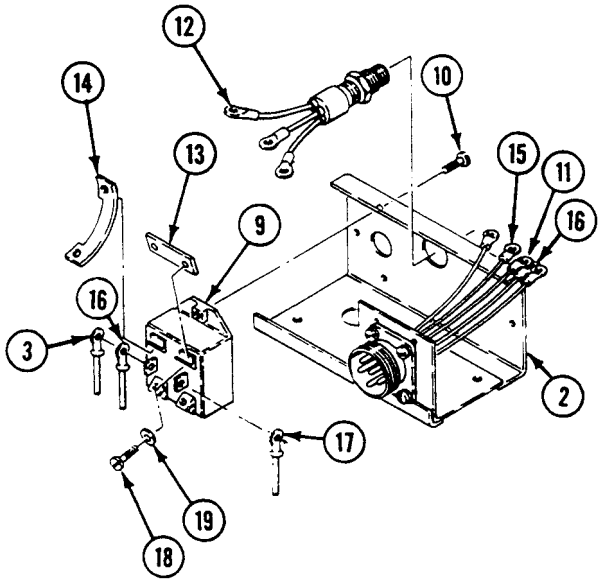
2. Install HI-LO heat switch (1) in control box (2).
   a. Install switch (1) in control box (2) with ON at the top.
   b. Install jumper 13-20 (3) and lead 12-B (4) on switch (1). Secure with two lockwashers (5) and screws (6).
   c. Install instruction plate on switch (if applicable). Secure plate and switch with new lockwasher (7) and nut (8).



NOTE

Start switch has locked RUN position and spring-loaded START position.

3. Install RUN-OFF-START switch (9) in control box (2).
   a. Install switch (9) in control box (2) with locked position at the top. Secure with two screws (10).
   b. Install lead 19-E (11), lead 19-2 (12), jumper 21-14 (13), jumper 21-18 (14), lead 14-A (15), lead 20-C (16), jumper 13-20 (3), and jumper 15-17 (17) on RUN-OFF-START switch (9). Secure with six lockwashers (18) and screws (19).

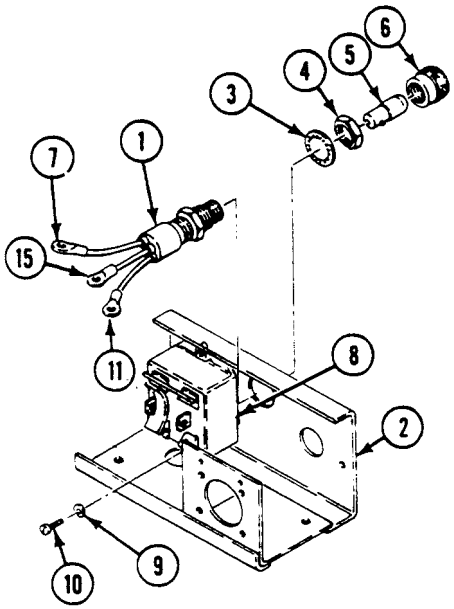


4. Install indicator light assembly (1) in control box (2).

   a. Install light assembly (1) in control box (2). Secure with lockwasher (3) and nut (4).

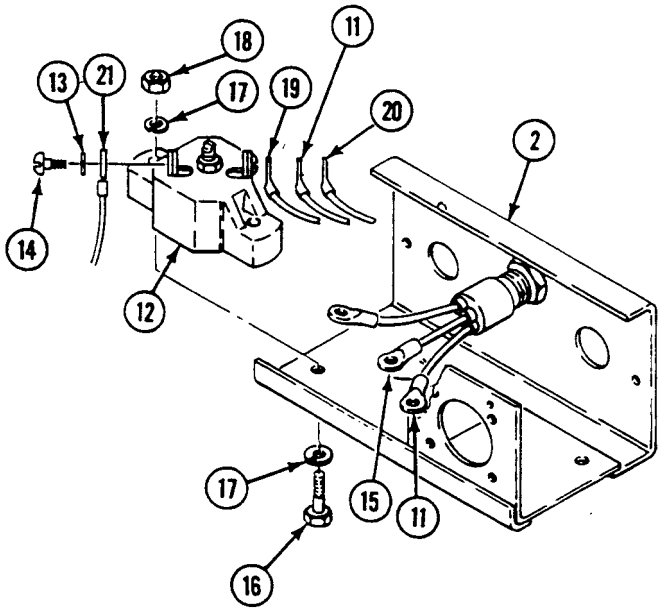
   b. Install bulb (5) and cap (6) in light assembly (1).

   c. Install lead 19-2 (7) on RUN-OFF-START switch (8). Secure with lockwasher (9) and screw (10).



   d. Install lead 17-3 (11) on circuit breaker (12). Secure with lockwasher (13) and screw (14).

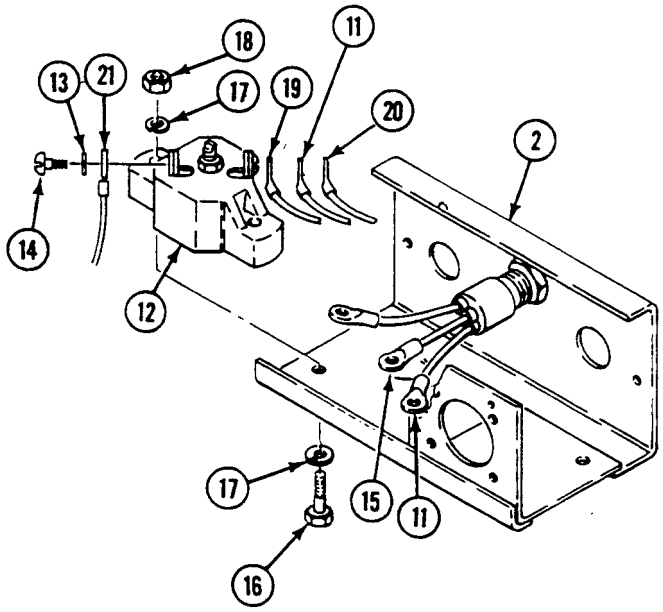
   e. Install ground lead (15) on circuit breaker (12) mounting screw (16). Secure with new lockwasher (17) and nut (18).

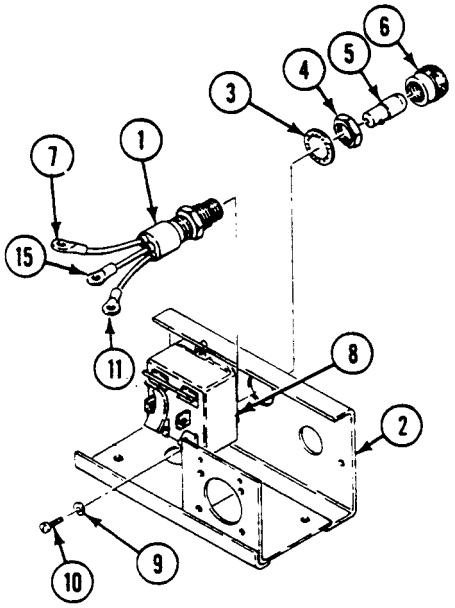


5. Install circuit breaker (12) in control box (2).

   a. Install circuit breaker (12) in control box (2). Secure with four new lockwashers (17), two screws (16), ground lead (15), and two nuts (18).

   b. Install lead 17-D (19), lead 17-3 (11), and jumper 15-17 (20) on one terminal, and lead 16 (21) on other terminal of circuit breaker (12). Secure with two lockwashers (13) and screws (14).





FOLLOW-THROUGH STEPS

1. Install heater control box (WP 0701 00).

END OF TASK

REPLACE PERSONNEL HEATER ASSEMBLY (ALL EXCEPT M1064A3) 0703 00

THIS WORK PACKAGE COVERS:

Removal (page 0703 00-1).
Installation (page 0703 00-5).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts

Lockwasher (11)

Personnel Required

Unit Mechanic

References

See your -10
TM 9-2540-207-14&P
TM 9-2540-205-24&P

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Battery ground strap disconnected (WP 0337 00) or (WP 0338 00)
Power plant rear access panel removed (see your -10)
Heater hose removed from plenum (WP 0706 00)
Spall liners open (M113A3 only) (see your -10)

REMOVAL

WARNING

Exhaust fumes can poison you if wrong heater is installed. Do not interchange "common air" heater for a "dual air" heater.

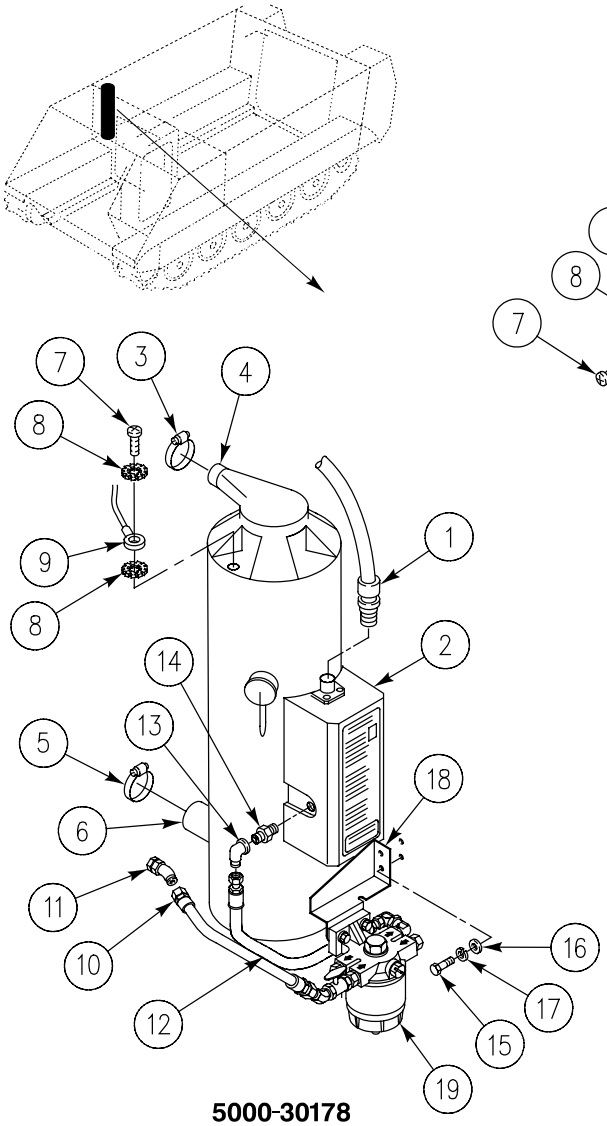
REPLACE PERSONNEL HEATER ASSEMBLY (ALL EXCEPT M1064A3) — Continued 0703 00

1. Disconnect heater wiring harness (1) from heater (2).
2. Loosen clamp (3) on heater intake pipe (4).
3. Loosen clamp (5) on heater exhaust pipe (6).
4. Remove screw (7), two lockwashers (8), and ground strap (9) from heater (2). Discard lockwashers.
5. Remove heater fuel inlet hose (10) from fitting (11) on bulkhead.
6. Remove inlet hose (12) from elbow (13) on heater (2).
7. Remove elbow (13) from nipple (14). Remove nipple from heater (2).

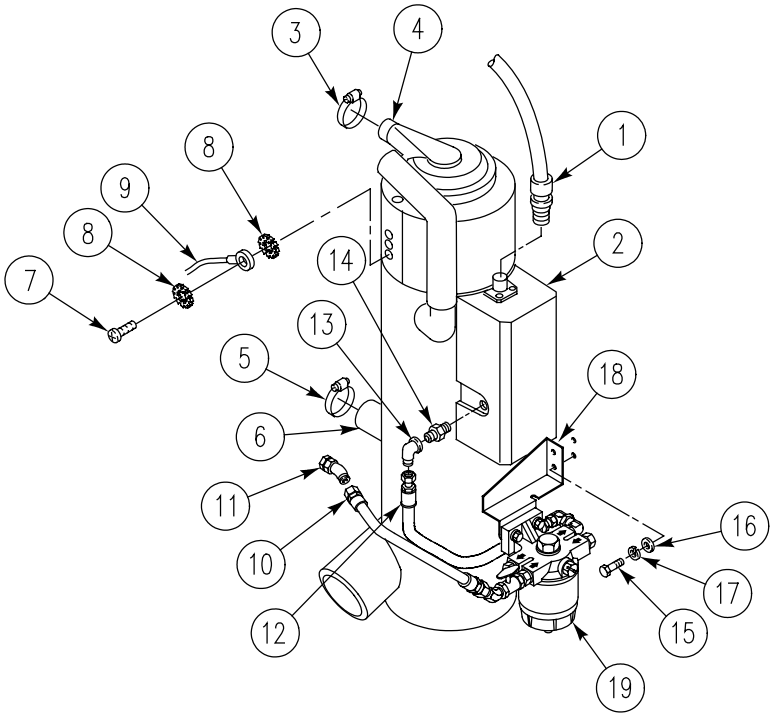
NOTE

Do Step 8 for M113A3, M1059A3, and M58 only.

8. Remove two screws (15), washers (16), lockwashers (17), and bracket (18) from bulkhead. Remove bracket, filter (19), and fuel hoses (10), (12) from carrier. Discard lockwashers.



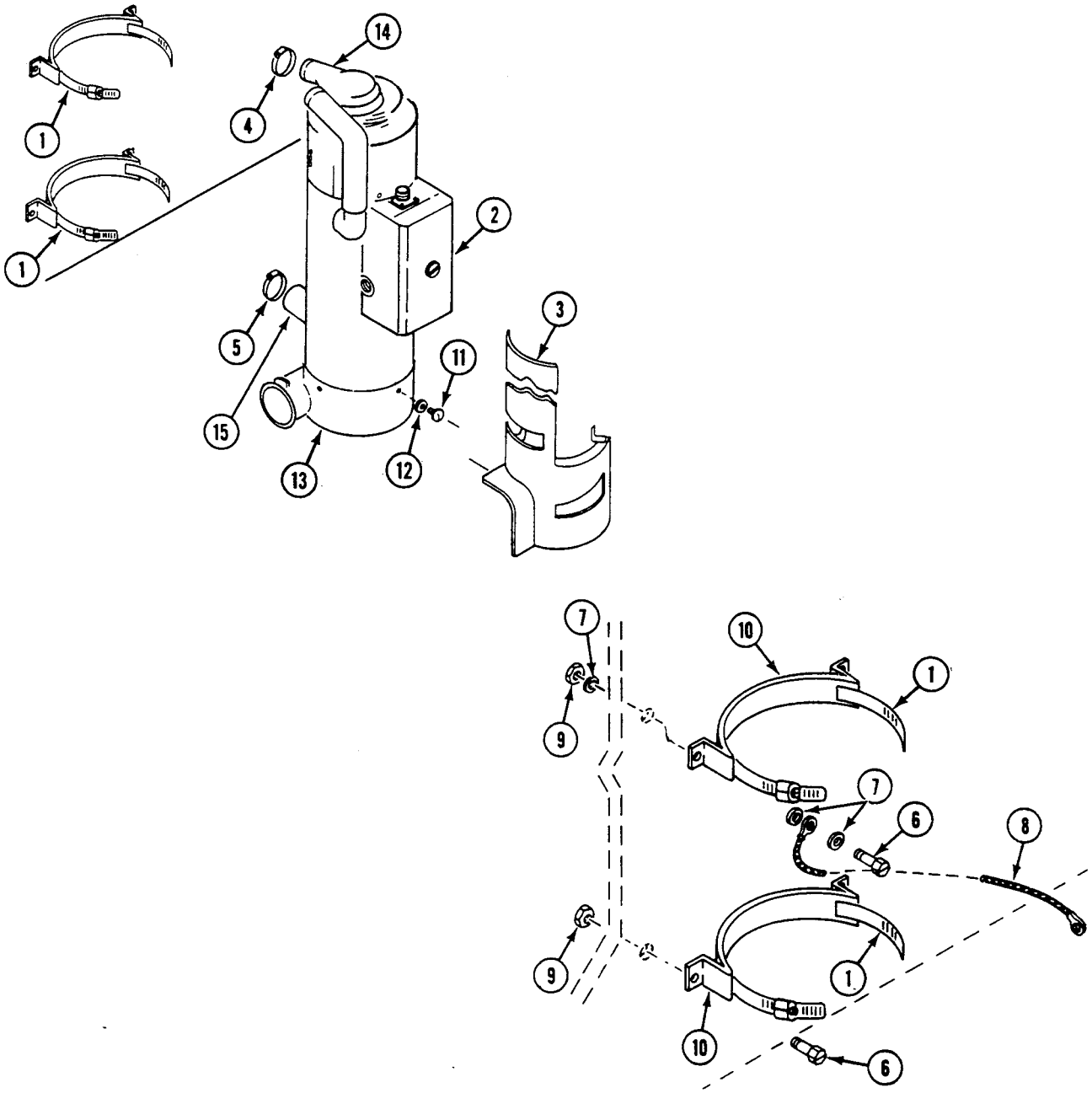
5000-30178
HEATER (MODEL A20)



D55350-G1 OR 10560M24B1
HEATERS

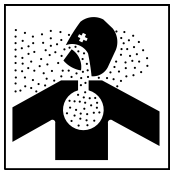
REPLACE PERSONNEL HEATER ASSEMBLY (ALL EXCEPT M1064A3) — Continued 0703 00

9. Loosen two clamps (1). Remove heater (2) and shield (3) from carrier. Remove two clamps (4) (5) from heater.
10. Remove four screws (6), three lockwashers (7), ground strap (8), four nuts (9), and two mounts (10) from power plant bulkhead. Remove two clamps (1) from mounts. Discard lockwashers.
11. Remove four screws (11), lockwashers (12), and plenum (13) from heater (2). Discard lockwashers.



INSTALLATION

WARNING

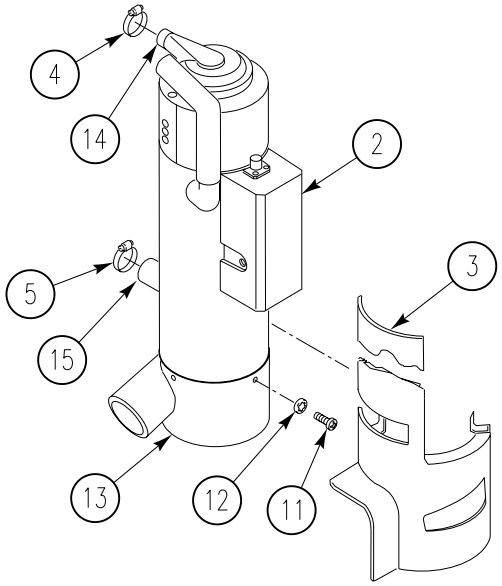


Exhaust fumes can poison you if wrong heater is installed. Do not interchange a "common air" heater for a "dual air" heater.

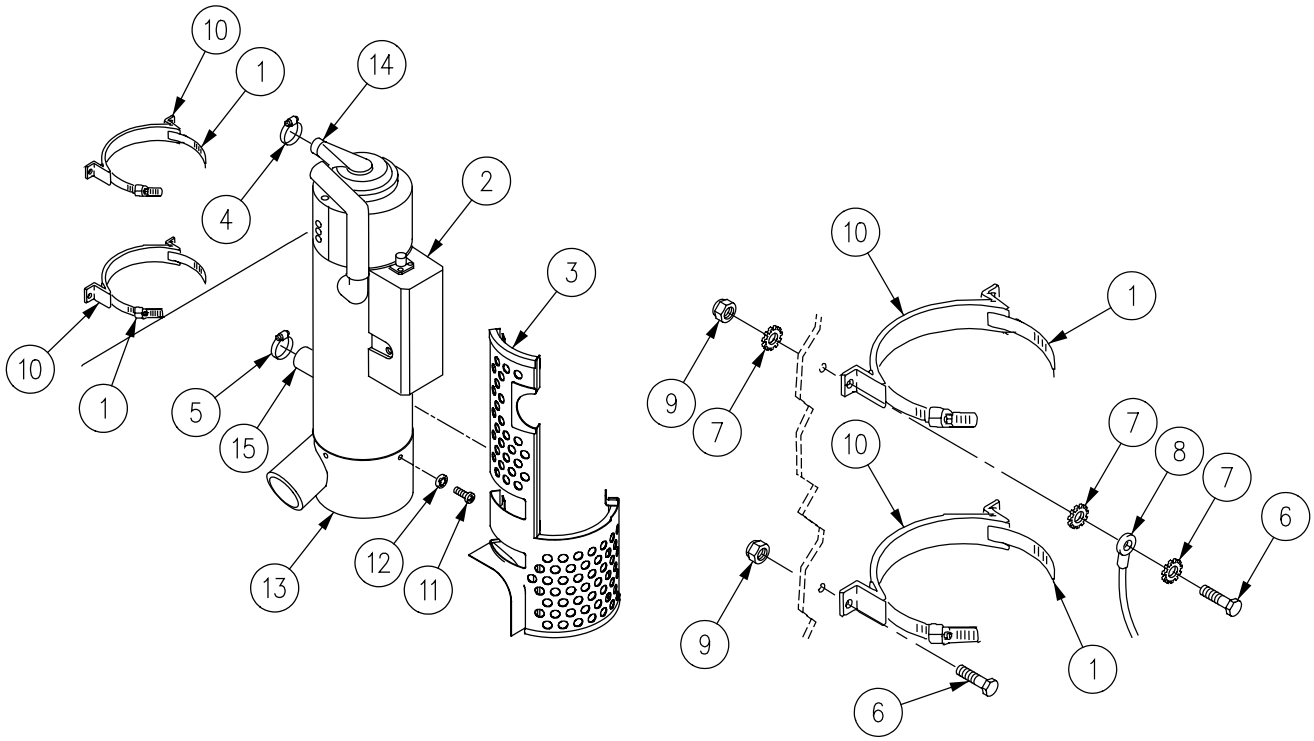
NOTE

Heater 5000-30178 has a vent outlet seal where plenum (13) is secured to heater (2). Install new vent outlet seal each time plenum is removed. See TM 9-2540-207-14&P, model A20.

1. Install plenum (13) on heater (2). Secure with four new lockwashers (12) and screws (11).



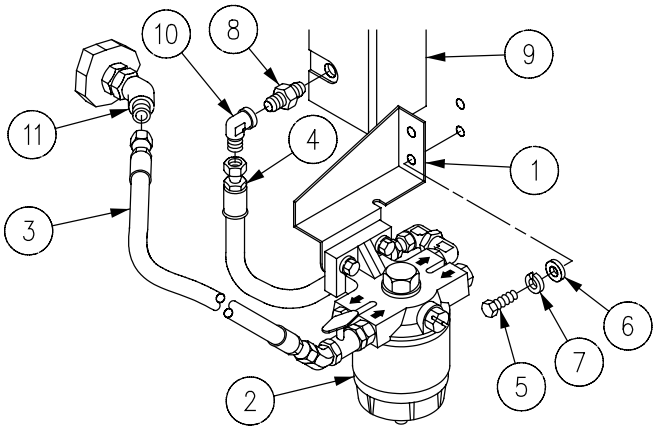
2. Install two clamps (1) in two mounts (10).
3. Install two mounts (10) on power plant bulkhead. Secure with four screws (6), three new lockwashers (7), ground strap (8), and four nuts (9).
4. Slide clamp (4) on heater intake pipe (14) and clamp (5) on heater exhaust pipe (15). Install heater (2) and shield (3) on mounts (10). Secure with two clamps (1).



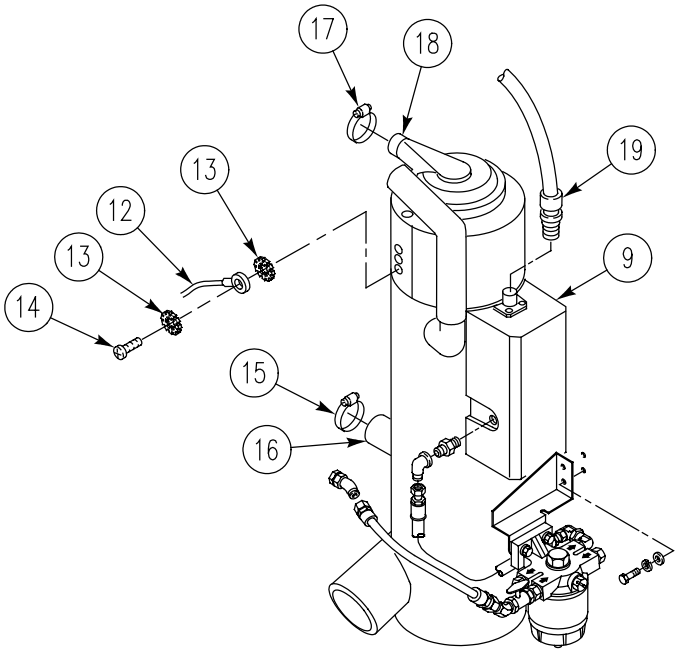
NOTE

Do Step 5 for M113A3, M1059A3, and M58 only.

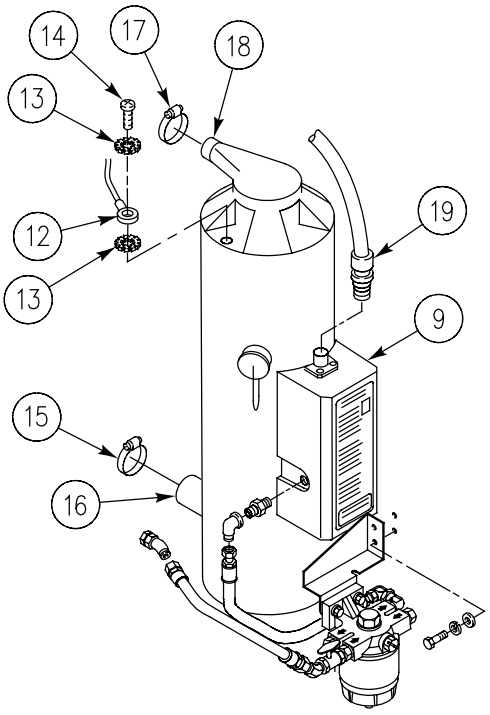
5. Install bracket (1) with filter (2) and fuel hoses (3) (4) on bulkhead. Secure with two screws (5), washers (6), and new lockwashers (7).
6. Install nipple (8) in heater (9).
7. Install elbow (10) on nipple (8).
8. Connect fuel hose (4) from OUT port of filter (2) to elbow (10) on heater (9).
9. Connect fuel hose (3) from IN port of filter (2) to fitting (11) on bulkhead.



10. Install ground strap (12) on heater (9). Secure with two new lockwashers (13) and screw (14).
11. Tighten clamp (15) on heater exhaust pipe (16).
12. Tighten clamp (17) on heater intake pipe (18).
13. Connect heater wiring harness (19) to heater (9).



D55350-G1 OR 10560M24B1
HEATERS



5000-30178
HEATER (MODEL A20)

FOLLOW-THROUGH STEPS

1. Install heater hose on plenum (WP 0706 00).
2. Install power plant rear access panel (see your -10).
3. Connect battery ground strap (WP 0337 00) or (WP 0338 00).
4. Start heater (see your -10), or for heater with P/N 5000-30178 model A20 (see TM 9-2540-207-14&P). Check heater for proper operation. Turn heater off.
5. Secure spall liners (M113A3 only) (see your -10).

END OF TASK

REPLACE PERSONNEL HEATER ASSEMBLY (M1064A3 ONLY) 0704 00

THIS WORK PACKAGE COVERS:

Removal (page 0704 00-2).
Installation (page 0704 00-5).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts
Locknut (4)
Lockwasher
Lockwasher (3)
Lockwasher (4)

Personnel Required
Unit Mechanic

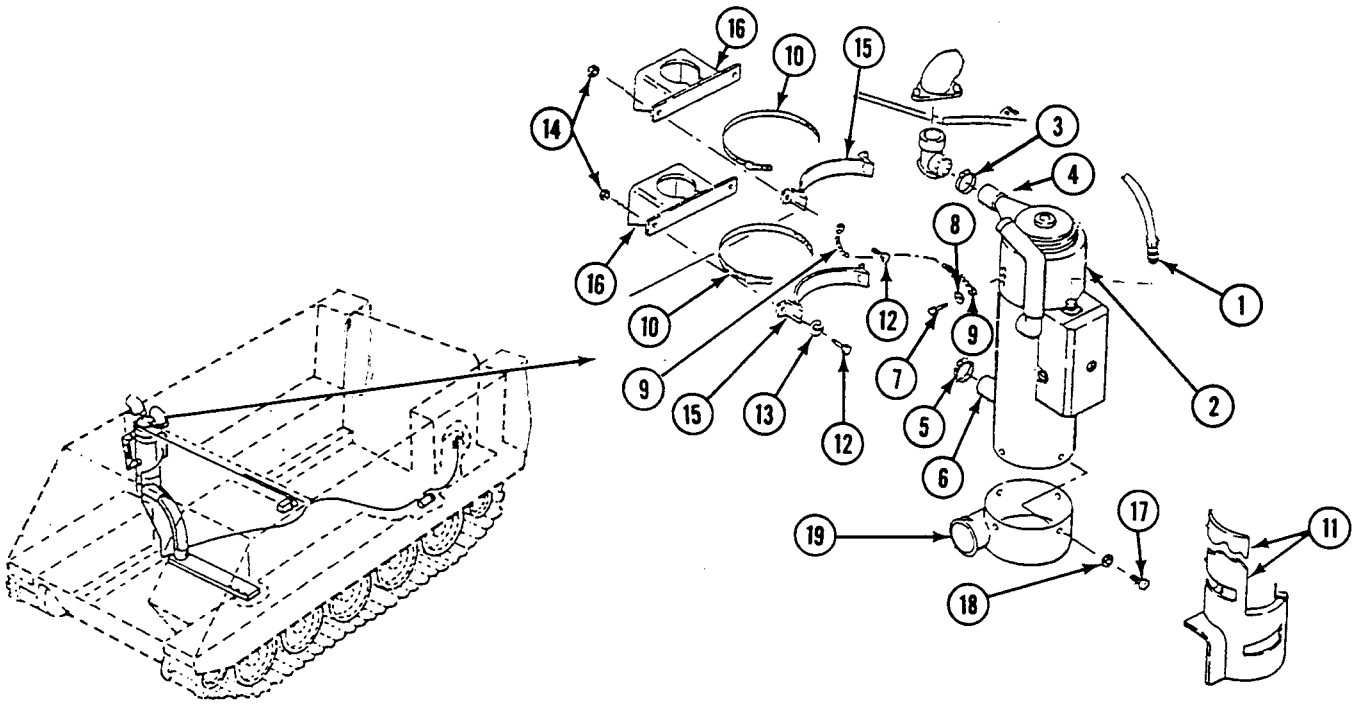
References
See your -10
TM 9-2540-207-14&P

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Battery ground strap disconnected (WP 0337 00)
Heater hose removed from duct (WP 0706 00)
Fuel hose disconnected from heater (WP 0688 00)

REPLACE PERSONNEL HEATER ASSEMBLY (M1064A3 ONLY) — Continued 0704 00

REMOVAL

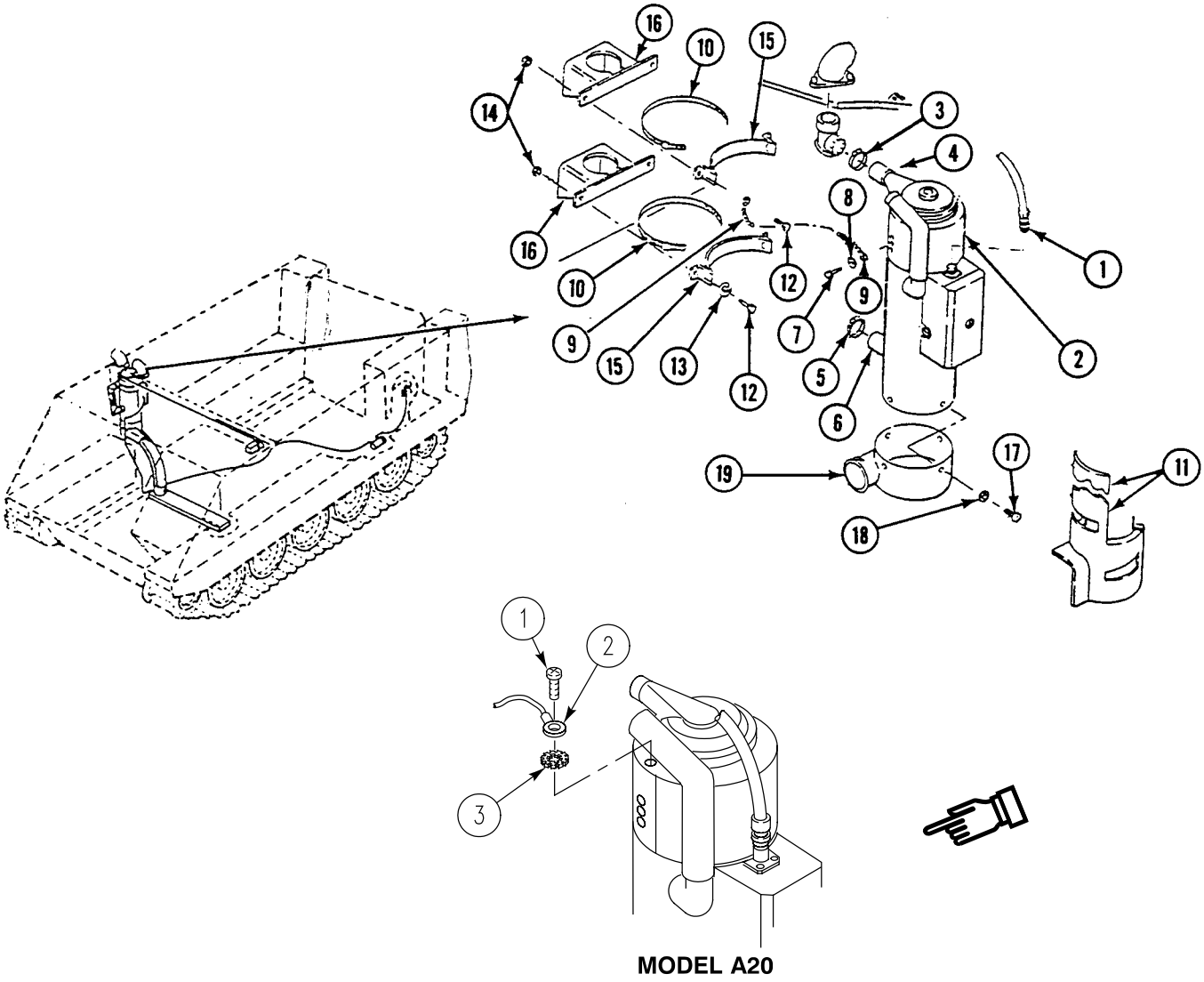
1. Disconnect wiring harness (1) from heater (2).
2. Loosen clamp (3) on heater intake pipe (4).
3. Loosen clamp (5) on heater exhaust pipe (6).



NOTE

For 5000-30178 heaters, ground strap is attached to top of heater.

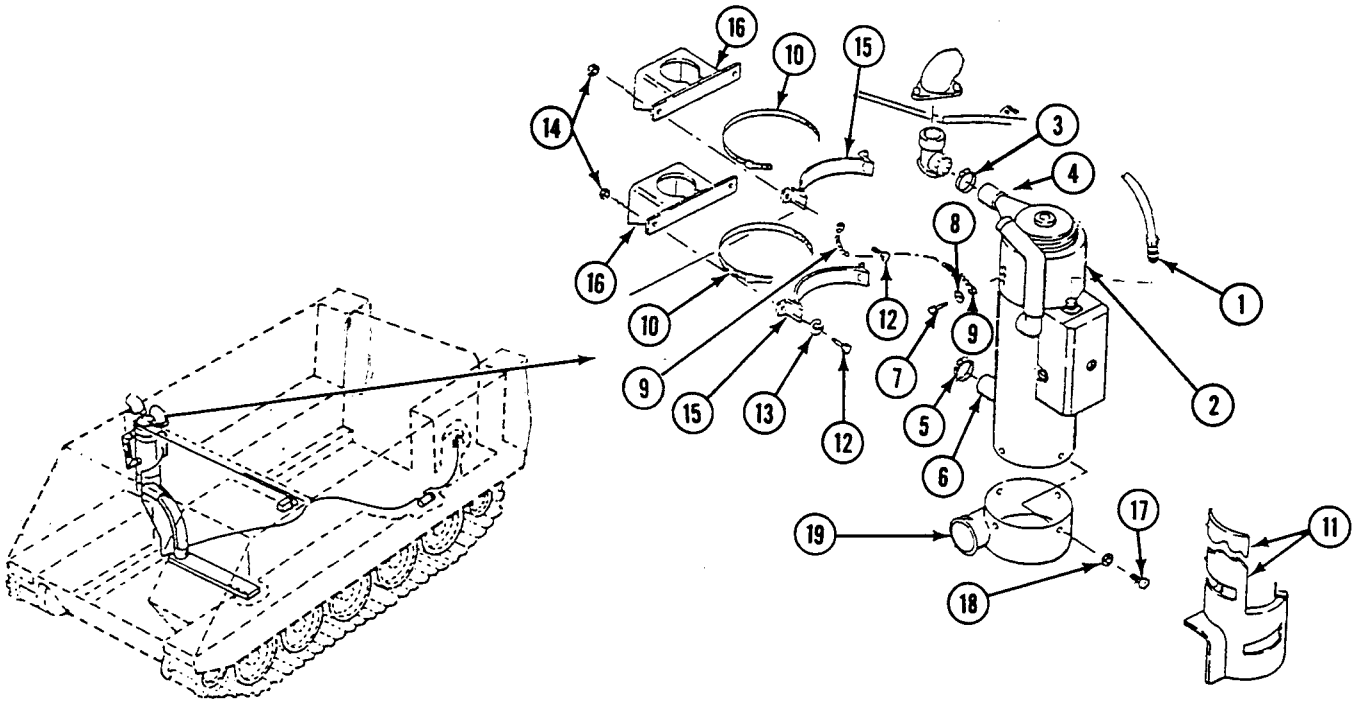
4. Remove screw (7)(1), lockwasher (8)(3), and ground strap (9)(2) from heater (2). Discard lockwasher.
5. Loosen two clamps (10). Remove heater (2) and shield (11) from carrier. Remove clamps (3) and (5) from heater.



MODEL A20

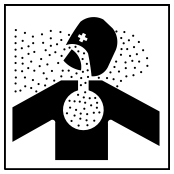
REPLACE PERSONNEL HEATER ASSEMBLY (M1064A3 ONLY) — Continued 0704 00

6. Remove four screws (12), three lockwashers (13), ground strap (9), four locknuts (14) and mounts (15) from right wall mounts (16). Remove two clamps (10) from mounts (15). Discard lockwashers and locknuts.
7. Remove four screws (17), lockwashers (18), and plenum (19) from heater (2). Discard lockwashers.



INSTALLATION

WARNING

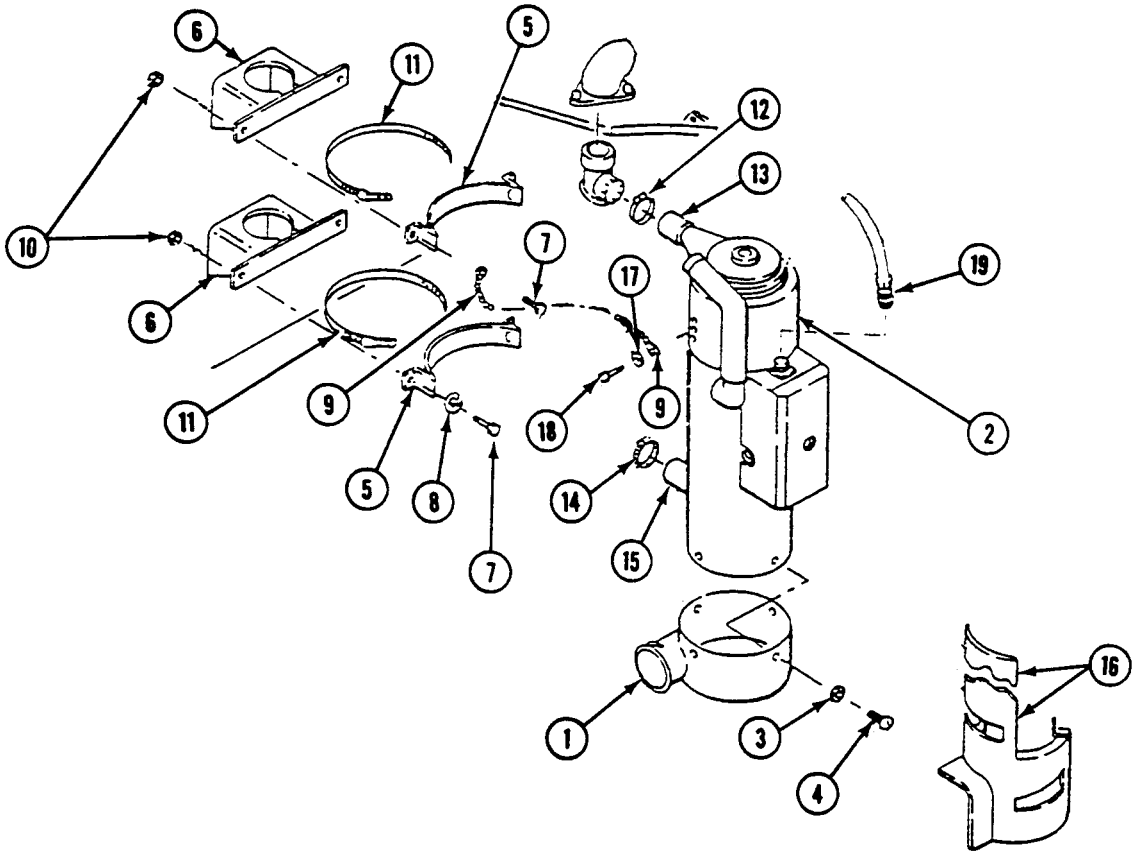


Exhaust fumes can kill. Fumes must be vented. If the wrong heater is installed, fumes will not be completely vented. Never substitute a "common air" heater for a "dual air" heater.

NOTE

For 5000-30178 heaters, the vent outlet seal must be replaced EVERY time the heater is reinstalled into a vent ducting system. See TM 9-2540-207-14&P.

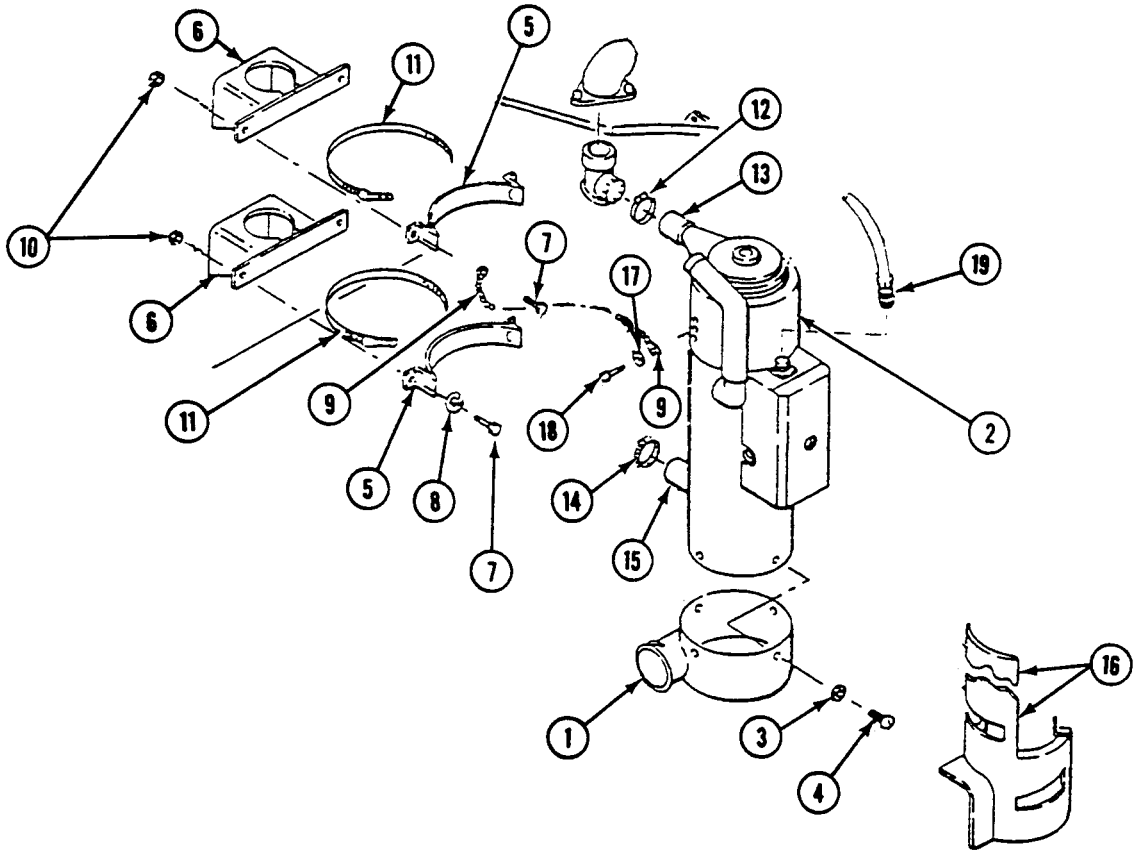
1. Install plenum (1) on heater (2) with four new lockwashers (3) and screws (4).
2. Install two mounts (5) on right wall mounts (6). Secure with four screws (7), three new lockwashers (8), ground strap (9), and four new locknuts (10).
3. Install two clamps (11) in two mounts (6).
4. Slide clamp (12) on heater intake pipe (13) and clamp (14) on heater exhaust pipe (15). Place heater (2) and shield (16) on mounts (5). Secure with two clamps (11).

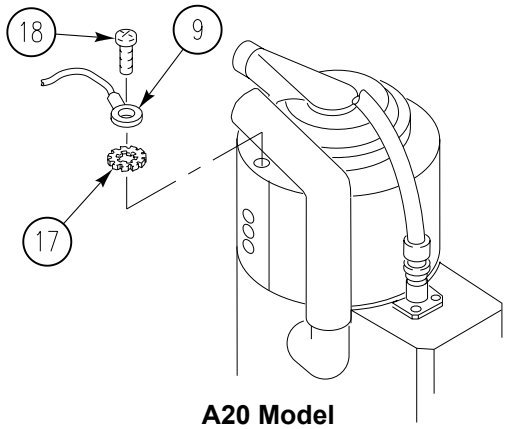


NOTE

For 5000-30178 heaters, ground strap is attached to top of heater.

5. Place ground strap (9) on heater (2). Secure with two new lockwasher (17) and screw (18).
6. Tighten clamp (14) on heater exhaust pipe (15) and clamp (12) on heater intake pipe (13).
7. Connect heater wiring harness (19) to heater (2).





A20 Model

FOLLOW-THROUGH STEPS

1. Connect fuel hose to heater (WP 0688 00).
2. Install heater hose on duct (WP 0706 00).
3. Connect battery ground strap (WP 0337 00).
4. Start heater (see your -10), or for heater with P/N 5000-30178 model A20 (see TM 9-2540-207-14&P). Check heater for proper operation. Turn heater off.

END OF TASK

REPAIR PERSONNEL HEATER ASSEMBLY 0705 00

THIS WORK PACKAGE COVERS:

Repair or replacement (page 0705 00-1).

INITIAL SETUP:

Maintenance Level

Unit

Equipment Condition

Personnel heater assembly removed (WP 0703 00) or (WP 0704 00)

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)

Personnel Required

Unit Mechanic

References

See your -10
TM 9-2540-205-24&P
TM 9-2540-207-14&P

REPAIR OR REPLACEMENT

1. To repair personnel heater P/N D55350–G1 or 10560M24B1, see TM 9-2540-205-24&P.
2. To repair personnel heater P/N 5000-30178, see TM 9-2540-207-14&P. ■

FOLLOW-THROUGH STEPS

1. Install personnel heater assembly (WP 0703 00) or (WP 0704 00).

END OF TASK

REPLACE PERSONNEL HEATER DUCT AND HOSES 0706 00

THIS WORK PACKAGE COVERS:

Removal (page 0706 00-2).
Installation (page 0706 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)

Personnel Required

Unit Mechanic

References

See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Ramp lowered (see your -10)

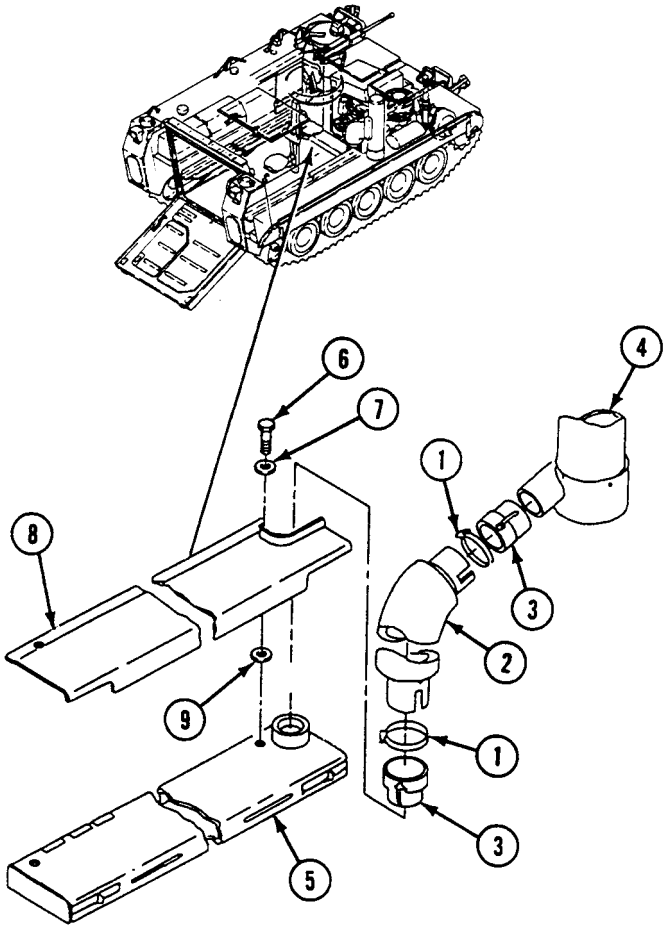
REPLACE PERSONNEL HEATER DUCT AND HOSES — Continued 0706 00

REMOVAL

WARNING

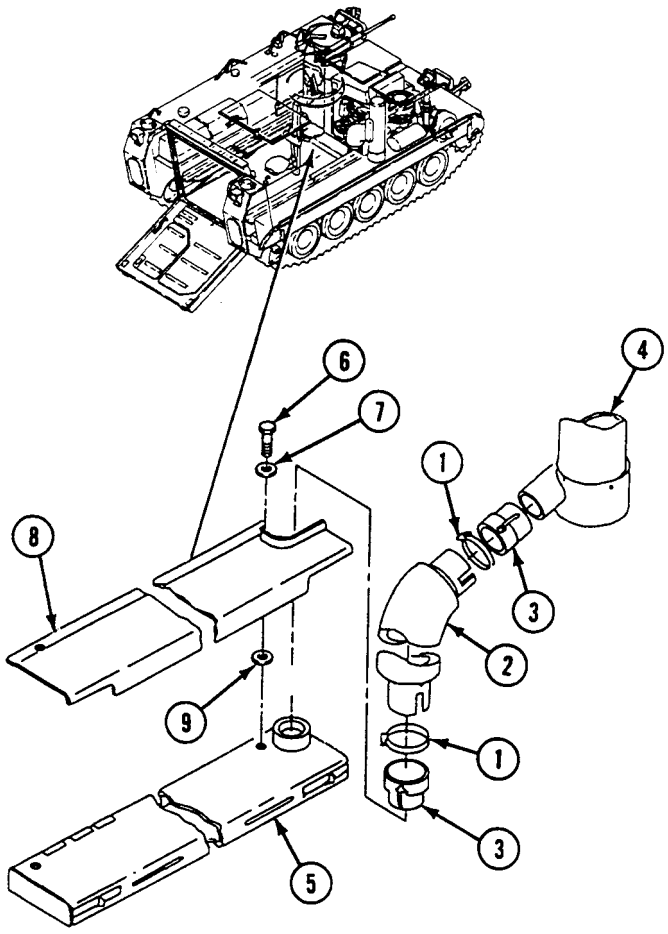
The OBD insulator blanket is made out of asbestos. Handle with care. Discard insulator blanket properly as a hazardous material per local standard operating procedure. The insulator washer takes the place of the blanket.

1. Loosen two clamps (1). Remove hose (2) from two nipples (3). Remove clamps from hose.
2. Loosen latches. Remove nipple (3) from duct (4) and nipple (3) from duct (5).
3. Remove three screws (6), washers (7), shield (8), three insulator washers (9), and duct (5) from carrier.



INSTALLATION

1. Align duct (5), three insulator washers (9), and shield (8) with holes in carrier floor. Secure with three washers (7) and screws (6).
2. Install nipple (3) in duct (5) and nipple (3) in duct (4). Secure with latch on each nipple.
3. Install two clamps (1) on hose (2). Secure hose in two nipples (3) with clamps.



FOLLOW-THROUGH STEPS

1. Start engine (see your -10).
2. Raise and lock ramp (see your -10).
3. Stop engine (see your -10).

END OF TASK

REPAIR PERSONNEL HEATER DUCT 0707 00

THIS WORK PACKAGE COVERS:

Removal (page 0707 00-1).
Installation (page 0707 00-2).

INITIAL SETUP:

Maintenance Level

Unit

Personnel Required

Unit Mechanic

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)

References

See your -10

Materials/Parts

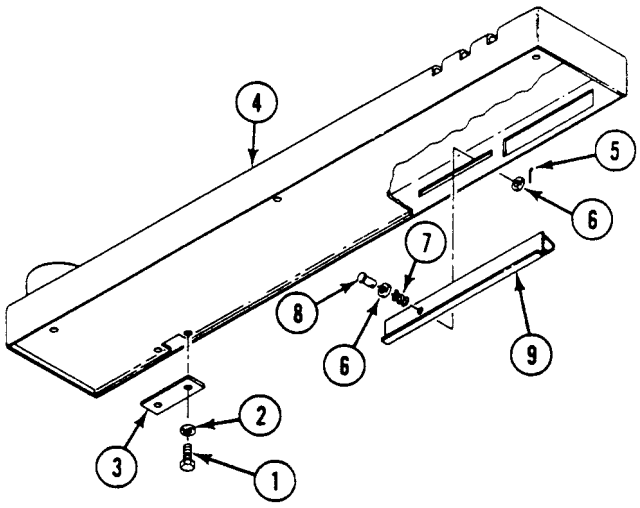
Cotter pin (2)

Equipment Condition

Heater duct removed (WP 0706 00)

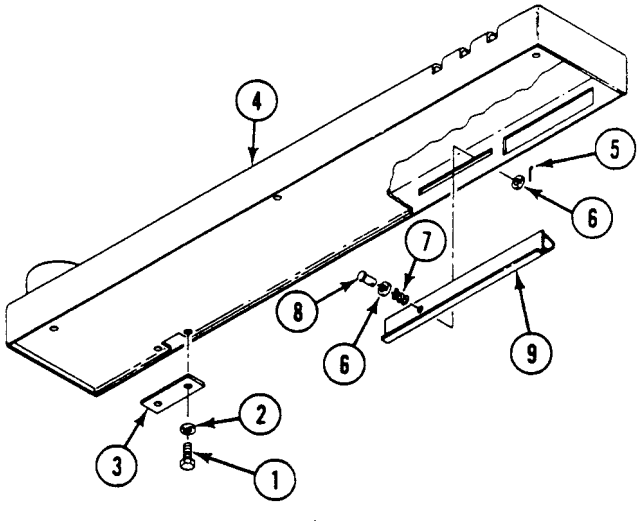
REMOVAL

1. Remove four screws (1), washers (2), and two access covers (3) from bottom of heater duct (4).
2. Remove two cotter pins (5), four washers (6), two springs (7), pins (8), and valves (9) from duct (4) through access openings. Discard cotter pins.



INSTALLATION

1. Install two valves (9) through bottom access openings on heater duct (4). Install two pins (8), four washers (6), and two springs (7) through valves. Secure with two new cotter pins (5).
2. Install two access covers (3) to bottom of heater duct (4). Secure with four washers (2) and screws (1).



FOLLOW-THROUGH STEPS

1. Install heater duct (WP 0706 00).

END OF TASK

REPLACE PERSONNEL HEATER WIRING HARNESS GUIDE (M577A3 AND M1068A3) 0707 01

THIS WORK PACKAGE COVERS:

Removal (page 0707 01-1).
Installation (page 0707 01-3).

INITIAL SETUP:

Maintenance Level
Unit

Personnel Required
Unit Mechanic

Tools and Special Tools
General Mechanic's Tool Kit (WP 0926 00, Item 65)

Equipment Condition
Engine stopped/shutdown (see your -10)
Carrier blocked (see your -10)

Materials/Parts
Lockwasher
Lockwasher
Tie strap (4)

REMOVAL

WARNING

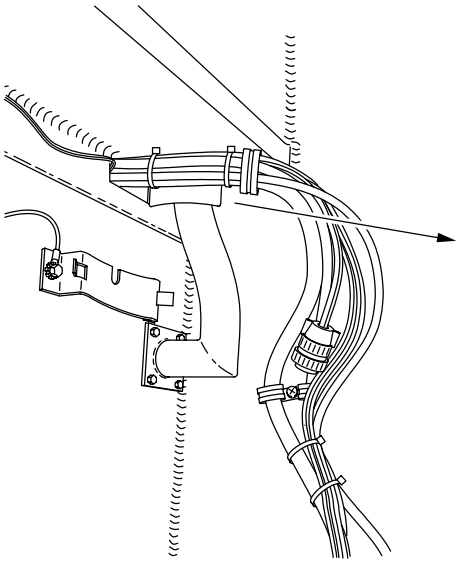
Hot exhaust pipes can burn you. Let power unit cool before you start work.

REPLACE PERSONNEL HEATER WIRING HARNESS GUIDE (M577A3 AND M1068A3) — Continued **0707 01**

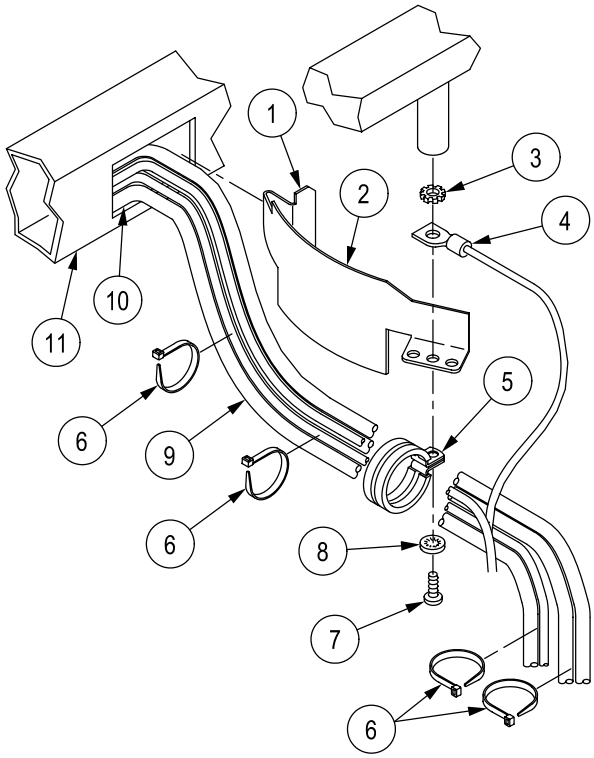
NOTE

Personnel heater assembly is not shown for clarity. It is not required to remove the personnel heater assembly to perform this task.

1. Remove four tie straps (6). Discard tie straps.
2. Remove screw (7), lockwasher (8), clamp (5), harness (9), compartment heater ground wire (4), and lockwasher (3) from guide (2). Discard lockwashers.
3. Remove V-bend (1) of guide (2) from cutout (10) in traverse beam (11).



HEATER REMOVED FOR CLARITY



REPLACE PERSONNEL HEATER WIRING HARNESS GUIDE (M577A3 AND M1068A3) — Continued

0707 01

INSTALLATION

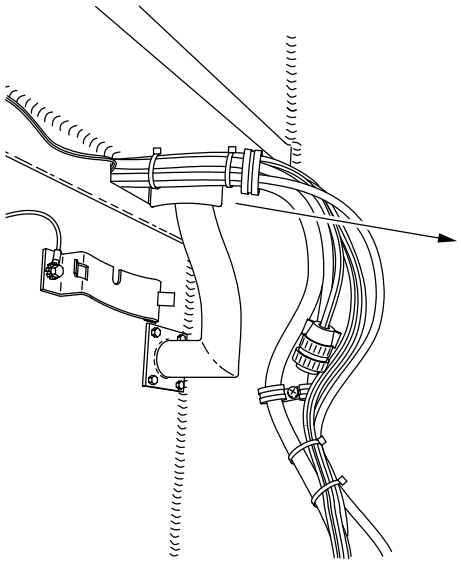
CAUTION

Insure harnesses and cables are routed in front of guide and away from personnel heater exhaust pipe.

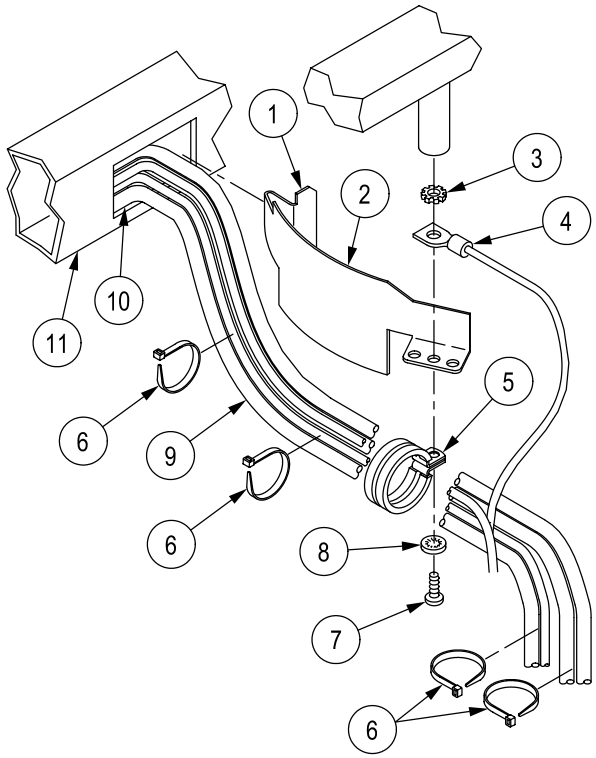
NOTE

Personnel heater assembly is not shown for clarity. It is not required to remove the personnel heater assembly to perform this task.

1. Install V-bend (1) of guide (2) in cutout (10) into traverse beam (11).
2. Install harness (9), clamp (5), and new lockwasher (3), compartment heater ground wire (4), new lockwasher (8), screw (7), and guide (2).
3. Install four new tie straps (6) on harness (9).



HEATER REMOVED FOR CLARITY



END OF TASK

SERVICE COOLANT HEATER FUEL FILTER 0708 00

THIS WORK PACKAGE COVERS:

Removal (page 0708 00-1).
Cleaning (page 0708 00-1).
Installation (page 0708 00-2).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts

Cleaning compound (WP 0928 00, Item 19)
Preformed packing

Personnel Required

Unit Mechanic

References

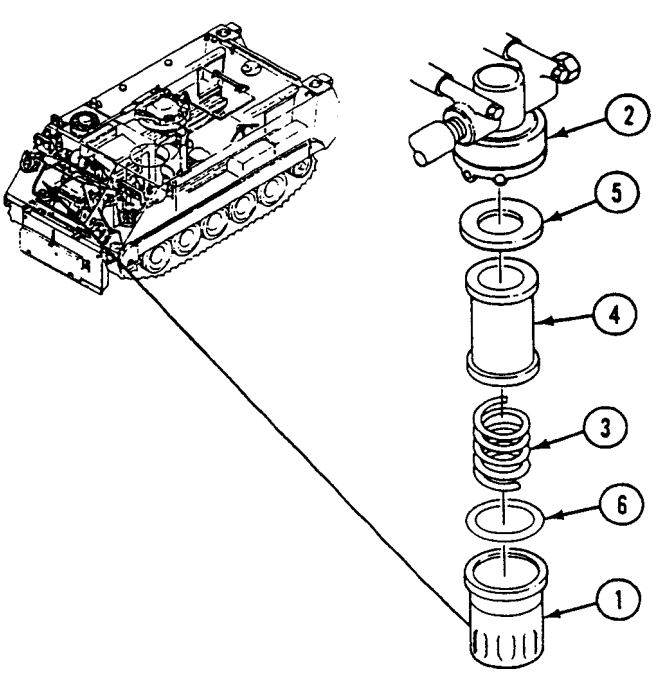
See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Coolant heater fuel shutoff valve OFF (see your -10)
Air cleaner removed (WP 0168 00)

REMOVAL

1. Remove filter bowl (1) from filter housing (2).
2. Remove spring (3), filter element (4), and gasket (5).
3. Remove preformed packing (6) from filter bowl (1). Discard packing.

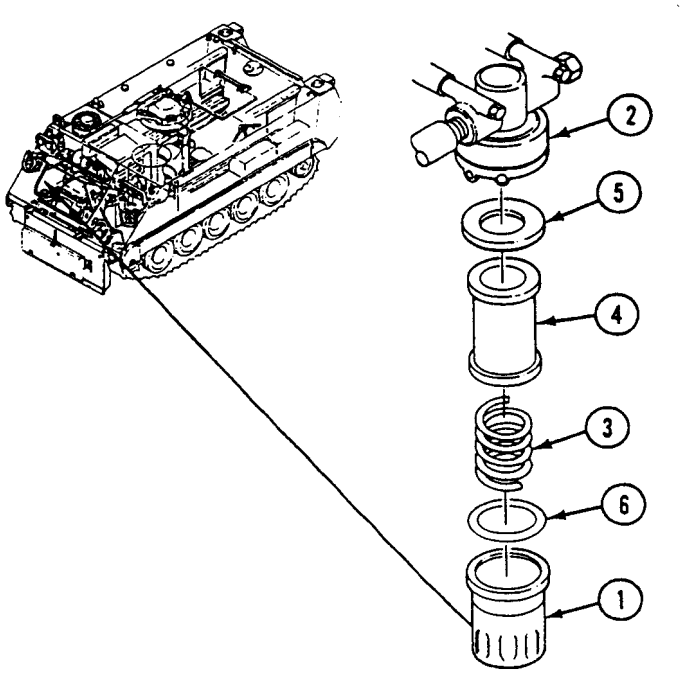


CLEANING

1. Clean filter element with cleaning compound.

INSTALLATION

1. Install new preformed packing (6) on filter bowl (1).
2. Install gasket (5) in filter housing (2).
3. Install spring (3), filter element (4), and filter bowl (1) in filter housing (2).



FOLLOW-THROUGH STEPS

1. Install air cleaner (WP 0168 00).
2. Bleed air from fuel lines (WP 0679 00).

END OF TASK

SERVICE COOLANT HEATER FUEL PUMP 0709 00

THIS WORK PACKAGE COVERS:

Disassembly (page 0709 00-1).
Cleaning (page 0709 00-2).
Assembly (page 0709 00-2).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts
Cleaning compound (WP 0928 00, Item 19)
Gasket

Personnel Required
Unit Mechanic

References
See your -10

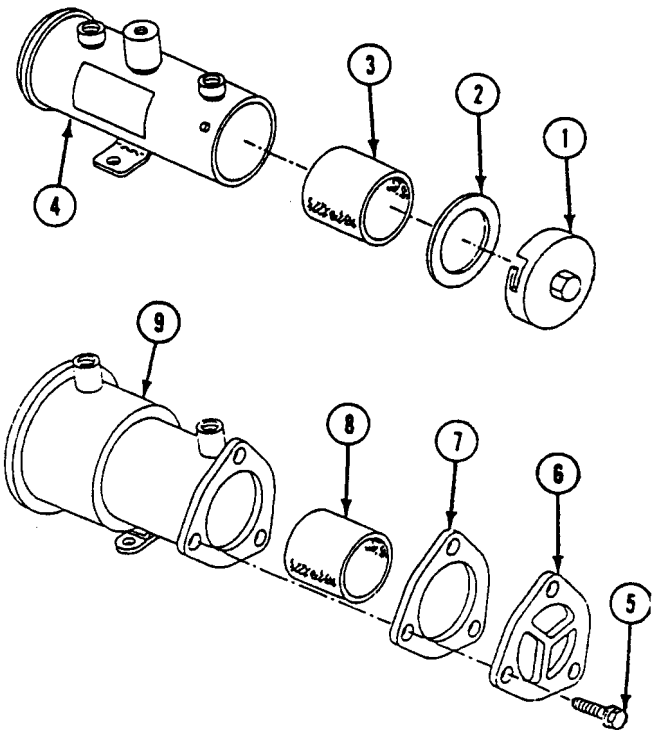
Equipment Condition
Coolant heater fuel pump removed (WP 0723 00)

DISASSEMBLY

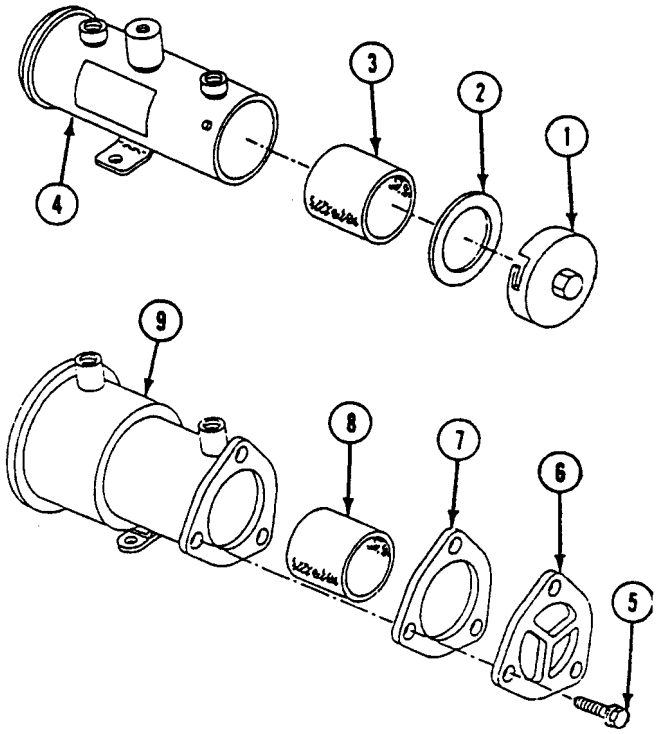
NOTE

There are two types of fuel pump. For BENDIX/FACET type, do Disassembly Step 1, Cleaning Step 1, and Assembly Step 2. For WALBRO type, do Disassembly Step 2, Cleaning Step 1, and Assembly Step 1.

1. Remove cover (1), gasket (2), and strainer element (3) from fuel pump housing (4). Discard gasket.



2. Remove three screws (5), cover (6), gasket (7), and filter element (8) from fuel pump housing (9). Discard gasket.



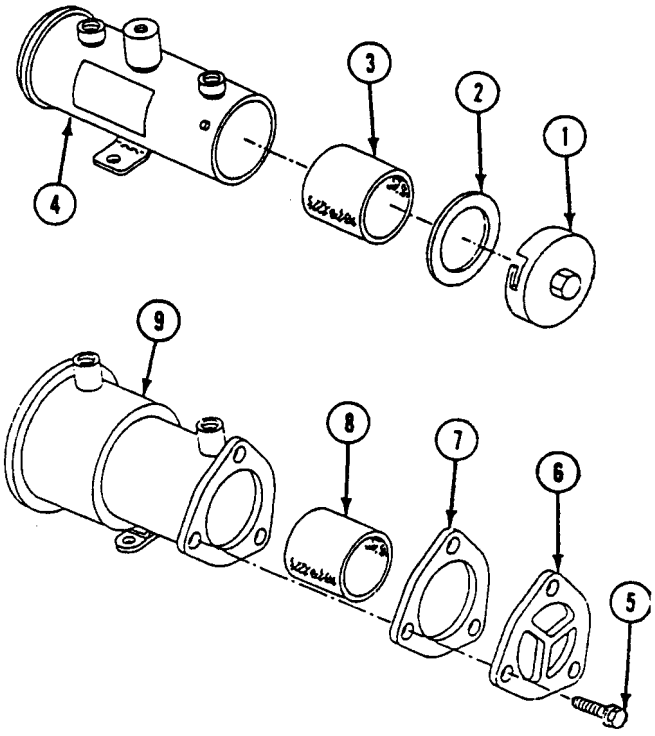
CLEANING

1. Clean element with dry cleaning solvent.

ASSEMBLY

1. Install clean filter element (8), new gasket (7), and cover (6) on pump housing (9). Secure with three screws (5).

2. Install clean strainer element (3), new gasket (2), and cover (1) on pump housing (4).



FOLLOW-THROUGH STEPS

1. Install heater fuel pump (WP 0723 00).

END OF TASK

DRAIN AND FILL ENGINE COOLANT HEATER SYSTEM 0710 00

THIS WORK PACKAGE COVERS:

Drain (page 0710 00-1).
Fill (page 0710 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)

Personnel Required

Unit Mechanic

References

See your -10

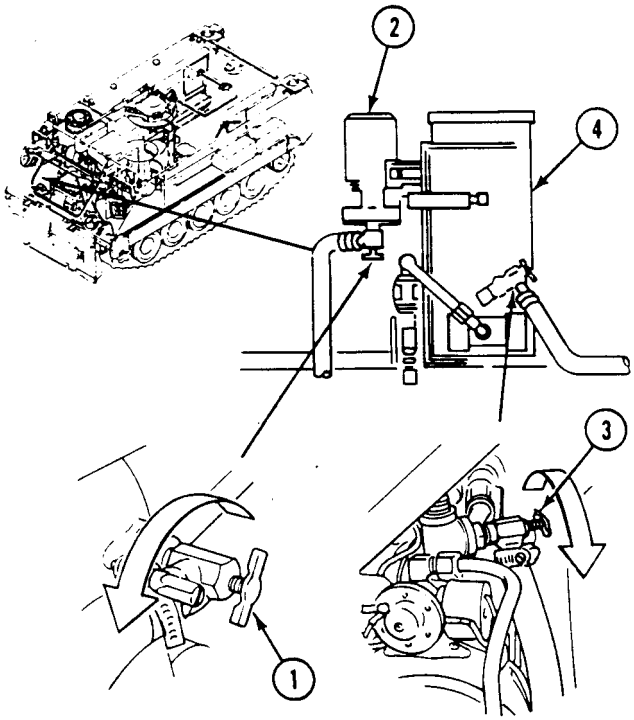
Equipment Condition

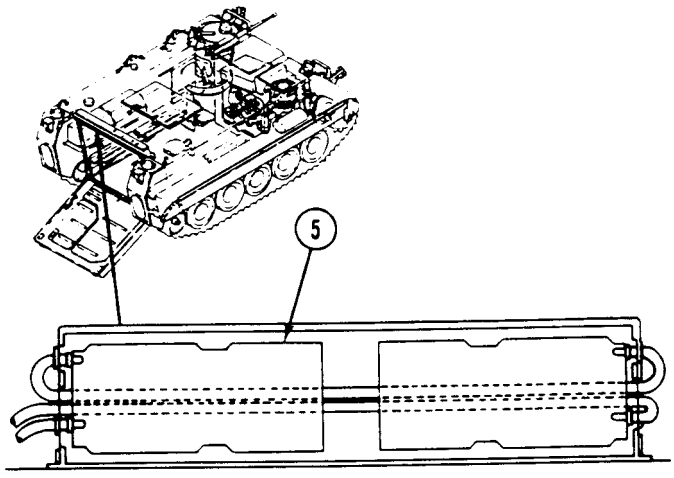
Engine stopped (see your -10)
Ramp lowered (see your -10)
Carrier blocked (see your -10)
Trim vane lowered (see your -10)
Power plant access door open (see your -10)

SERVICING

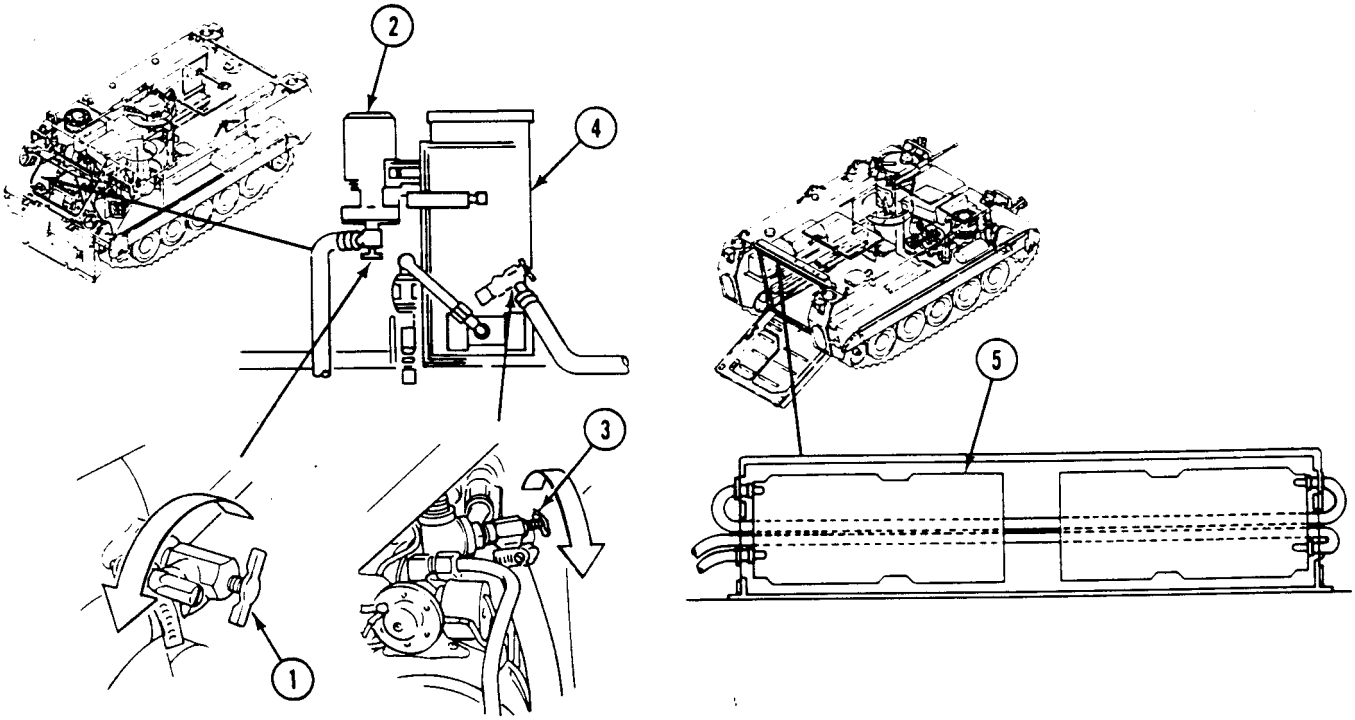
DRAIN

1. Open shutoff valve (1) at coolant pump (2) and valve (3) at heater (4).



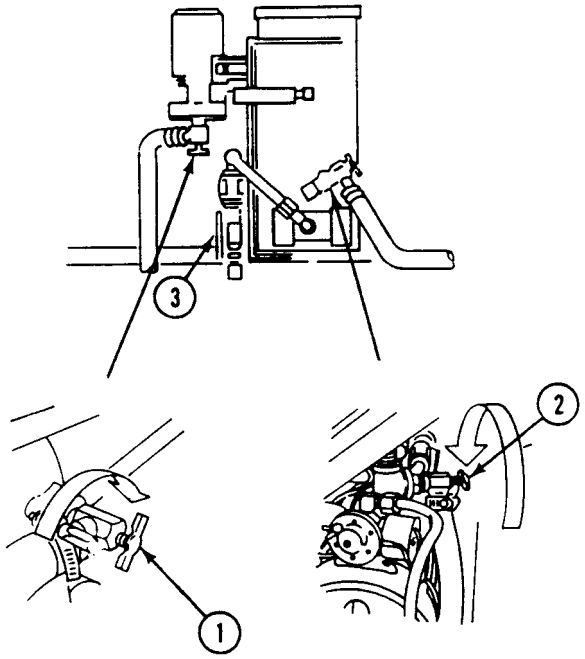


2. Completely drain cooling system (WP 0227 00).
3. Remove batteries and retainers (WP 0337 00).
4. Remove and drain battery box heat exchanger (5) (WP 0718 00) or (WP 0719 00).
5. Install battery box heat exchanger (WP 0718 00) or (WP 0719 00).
6. Install batteries and retainers (WP 0337 00).



FILL

1. Close shutoff valves (1) and (2).
2. Fill cooling system (WP 0227 00).
3. Close heater fuel shutoff valve (3) (see your -10).
4. Start engine (see your -10).
5. Hold RUN-OFF-START switch in START and run engine 2,950 rpm for maximum 30 seconds to prime coolant pump.
6. Stop engine (see your -10). Refill cooling system (WP 0227 00).
7. Open heater fuel shutoff valve (3) (see your -10).



NOTE

Hoses to and from battery box heat exchanger will gradually increase in temperature and remain warm if heater coolant system is primed and coolant heater is operating right.

8. Start heater (see your -10). Check for proper operation. If heater overheats and shuts off, repeat steps Step 3, Step 4, and Step 5.

FOLLOW-THROUGH STEPS

1. Close power plant access door (see your -10).
2. Raise trim vane (see your -10).
3. Start engine (see your -10).
4. Raise and lock ramp (see your -10).
5. Stop engine (see your -10).

END OF TASK

REPLACE COOLANT HEATER FUEL PUMP HOSE 0711 00

THIS WORK PACKAGE COVERS:

Removal (page 0711 00-1).
Installation (page 0711 00-2).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)

Personnel Required

Unit Mechanic

References

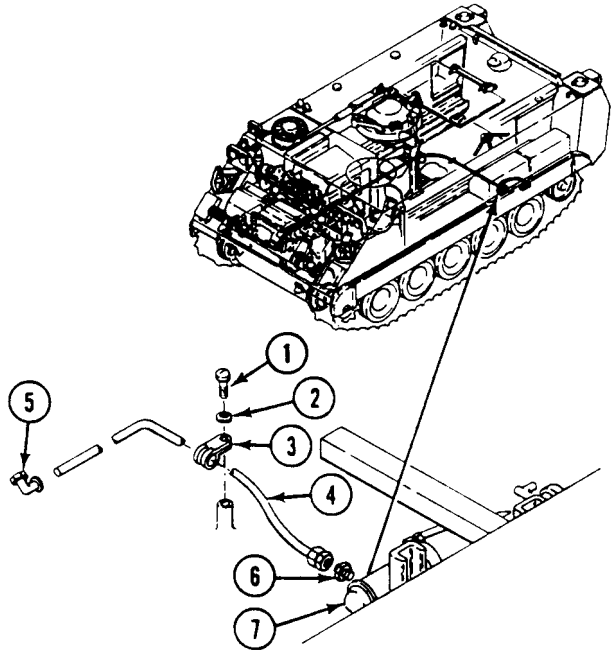
See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Ramp lowered (see your -10)
Personnel heater duct removed (WP 0706 00)
Floor plates removed (WP 0539 00), (WP 0540 00), (WP 0541 00), (WP 0542 00), (WP 0543 00), (WP 0544 00), or (WP 0545 00)
Heater fuel shutoff valve closed (see your -10)

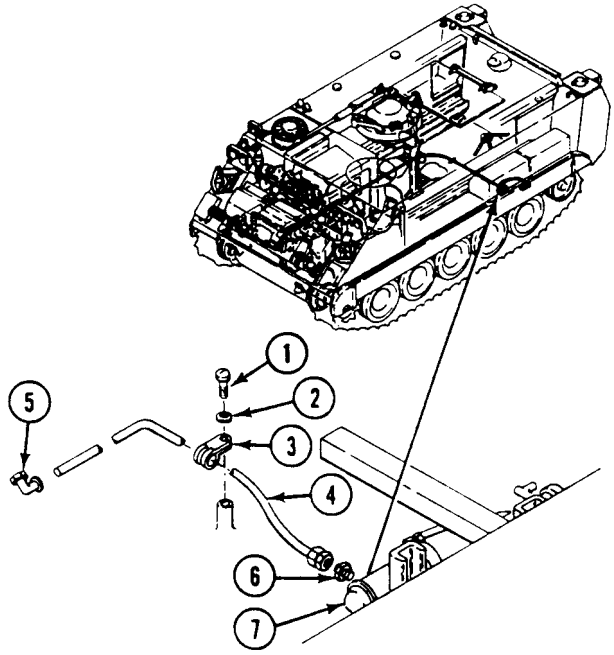
REMOVAL

1. Remove seven screws (1), washers (2), and clamps (3) from hull weldnuts.
2. Disconnect hose (4) from elbow (5) and adapter (6) on fuel pump (7).
3. Remove clamps (3) from hose (4).
4. Route hose (4) through hull openings.
5. Remove adapter (6) from fuel pump (7).



INSTALLATION

1. Install adapter (6) on fuel pump (7).
2. Route hose (4) through hull openings.
3. Install seven clamps (3) on hose (4).
4. Connect hose (4) to adapter (6) on fuel pump (7) and elbow (5).
5. Align clamps (3) with hull weldnuts. Secure with seven screws (1) and washers (2).



FOLLOW-THROUGH STEPS

1. Open heater fuel shutoff valve (see your -10).
2. Start coolant heater (see your -10). Check for fuel leaks. Turn heater off.
3. Bleed fuel lines (WP 0679 00).
4. Install floor plates (WP 0539 00), (WP 0540 00), (WP 0541 00), (WP 0542 00), (WP 0543 00), (WP 0544 00), or (WP 0545 00).
5. Install personnel heater duct (WP 0706 00).
6. Start engine (see your -10).
7. Raise and lock ramp (see your -10).
8. Stop engine (see your -10).

END OF TASK

REPLACE COOLANT HEATER FUEL INLET HOSE AND FITTINGS 0712 00

THIS WORK PACKAGE COVERS:

Removal (page 0712 00-1).
Installation (page 0712 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts

Sealing compound (WP 0928 00, Item 56)
Locknuts (2)

Personnel Required

Unit Mechanic

References

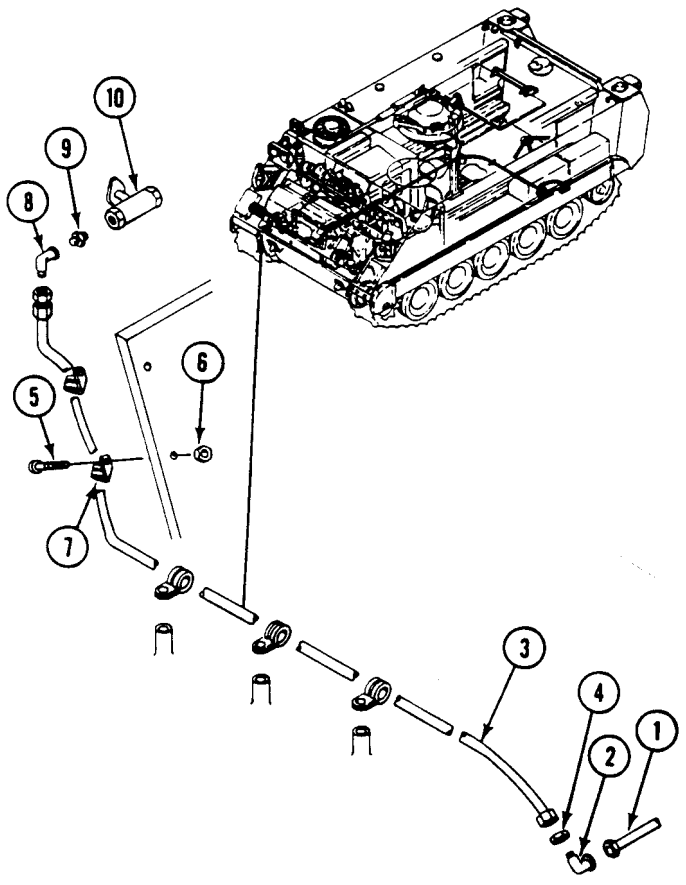
See your -10

Equipment Condition

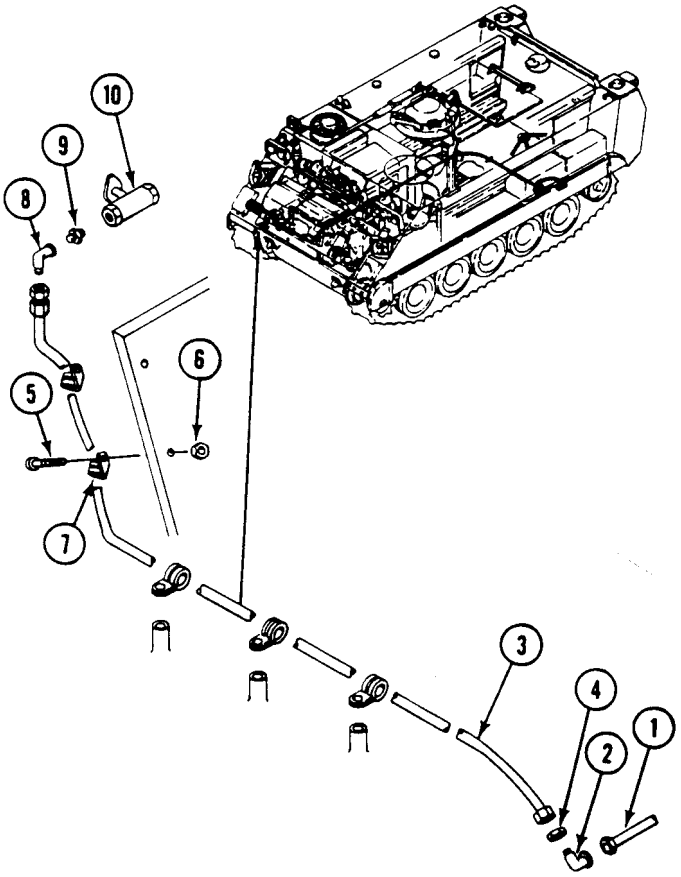
Engine stopped (see your -10)
Carrier blocked (see your -10)
Ramp lowered (see your -10)
Trim vane lowered (see your -10)
Power plant front access door open (see your -10)
Heater fuel shutoff valve closed (see your -10)
Air cleaner removed (WP 0168 00)

REMOVAL

1. Remove fuel supply hose (1) from elbow (2).

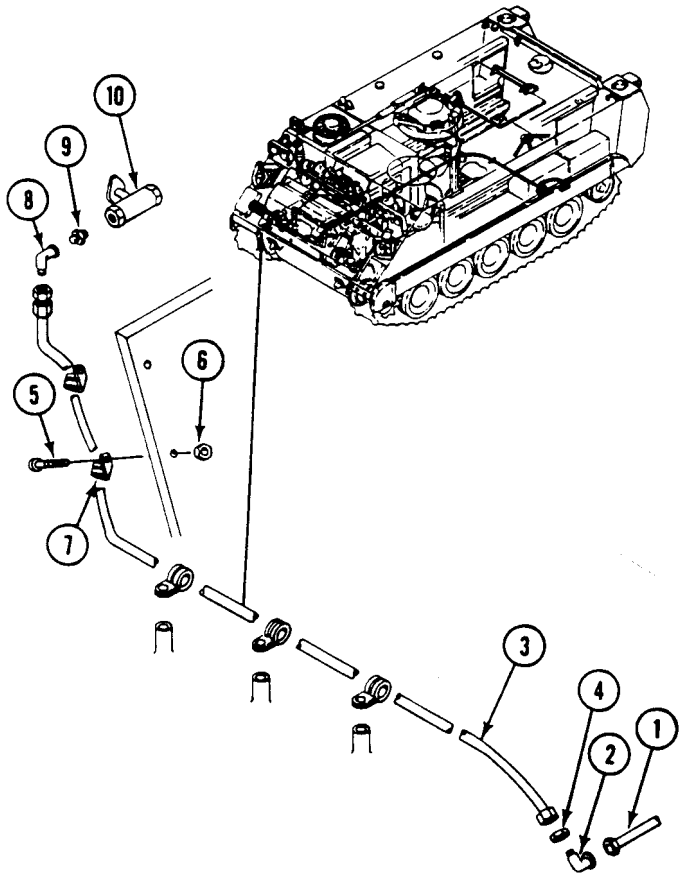


2. Remove fuel inlet hose (3) from elbow (2). Remove jamnut (4) and elbow (2) from bulkhead.
3. Remove five screws (5), two locknuts (6), and clamps (7) from hose (3). Discard locknuts.
4. Remove inlet hose (3) from elbow (8).
5. Remove elbow (8) from nipple (9).
6. Remove nipple (9) from shutoff valve (10).



INSTALLATION

1. Apply light coat of sealing compound to tapered threads of elbows (2) and (8) nipple (9).
2. Install nipple (9) in shutoff valve (10).
3. Install elbow (8) on nipple (9).
4. Install inlet hose (3) on elbow (8).
5. Install five clamps (7) on hose (3).
6. Install elbow (2) and jamnut (4) in bulkhead. Install hose (3) on elbow (2).
7. Align five clamps (7) on hull weldnuts. Secure with five screws (5) and two nuts (6).
8. Install supply hose (1) on elbow (2).



FOLLOW-THROUGH STEPS

1. Open heater fuel shutoff valve (see your -10).
2. Start coolant heater (see your -10). Check for fuel leaks. Turn heater off.
3. Bleed fuel lines (WP 0679 00).
4. Install air cleaner (WP 0168 00).
5. Close power plant front access door (see your -10).
6. Raise trim vane (see your -10).
7. Start engine (see your -10).
8. Raise and lock ramp (see your -10).
9. Stop engine (see your -10).

END OF TASK

REPLACE COOLANT PUMP TO BATTERY BOX HOSES 0713 00

THIS WORK PACKAGE COVERS:

Removal (page 0713 00-1).
Installation (page 0713 00-3).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts
Grommet
Strap (2)

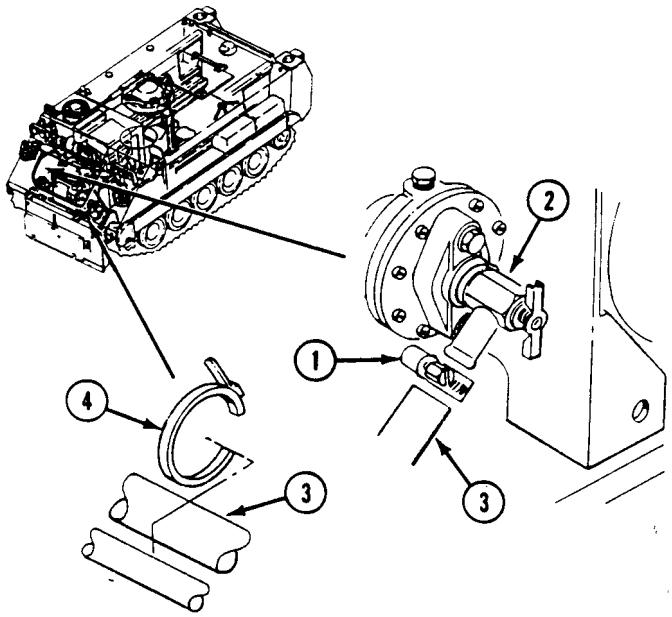
Personnel Required
Unit Mechanic

References
See your -10

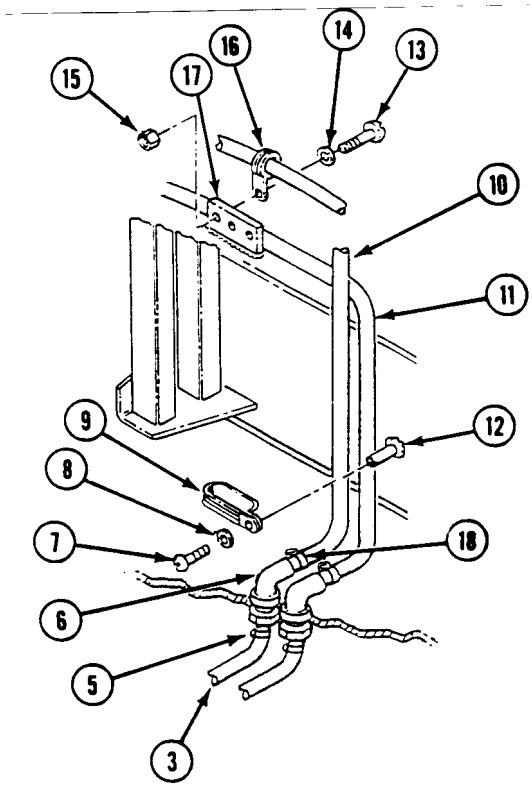
Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Ramp lowered (see your -10)
Driver's compartment floor plates removed (WP 0453 00)
Power plant rear access panel removed (see your -10)
Trim vane lowered (see your -10)
Power plant access door open (see your -10)
Coolant heater system drained (WP 0710 00)
Batteries and retainers removed (WP 0346 00), (WP 0347 00), (WP 0349 00)
Air cleaner removed (WP 0168 00)

REMOVAL

1. Loosen clamp (1) at coolant pump shut off valve (2). Remove hose (3) from shut off valve.
2. Remove two straps (4) from hose (3). Discard straps.



3. Loosen clamp (5) at elbow (6). Remove hose (3) from elbow. Remove hose from vehicle.
4. Remove screw (7), washer (8), and clamp (9) with hose (10) and hose (11) from standoff (12). Remove clamp (9) from hoses.
5. Remove screw (13), washer (14), nut (15), and clamp (16) from seat bracket (17). Remove clamp (16) from hose (10).
6. Loosen clamp (18) at elbow (6). Remove hose (10) from elbow.



7. Loosen clamp (1) and remove hose (2) from battery heater plate elbow (3).
8. Remove hose (2) and grommet (4) from battery box. Discard grommet.

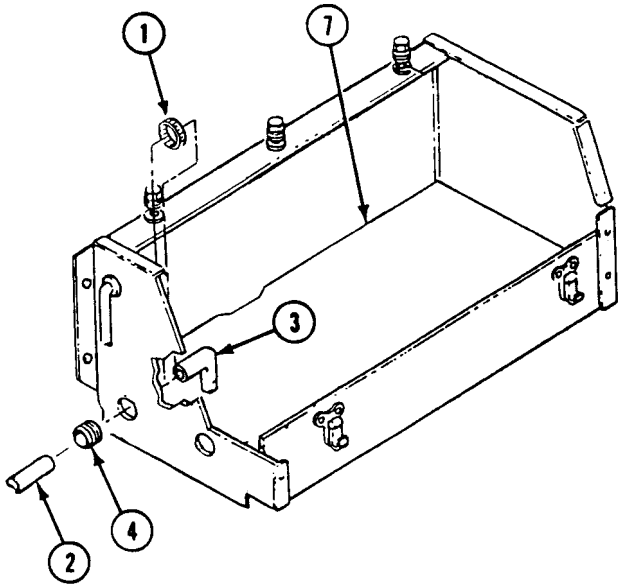
NOTE

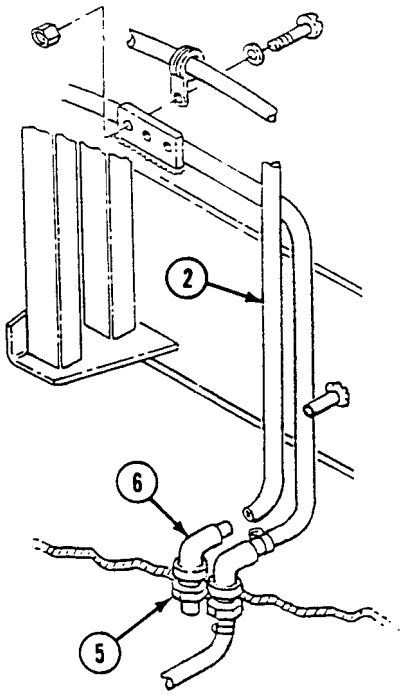
Remove elbows and nuts if damaged or leaking.

9. Remove locknut (5) and elbow (6) from floor plate. Discard locknut.

INSTALLATION

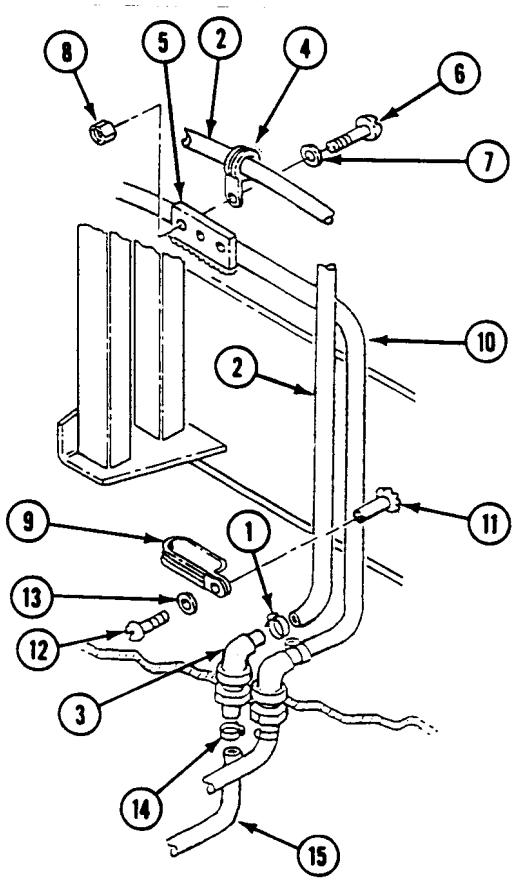
1. If required, install elbow (6) in floor plate with locknut (5).
2. Install new grommet (4) in battery box.
3. Connect hose (2) to battery heater plate elbow (3) and secure with clamp (1).
4. Route hose (2) from battery box heater plate (7) under battery boxes along sponson to elbow (6) on floor plate.



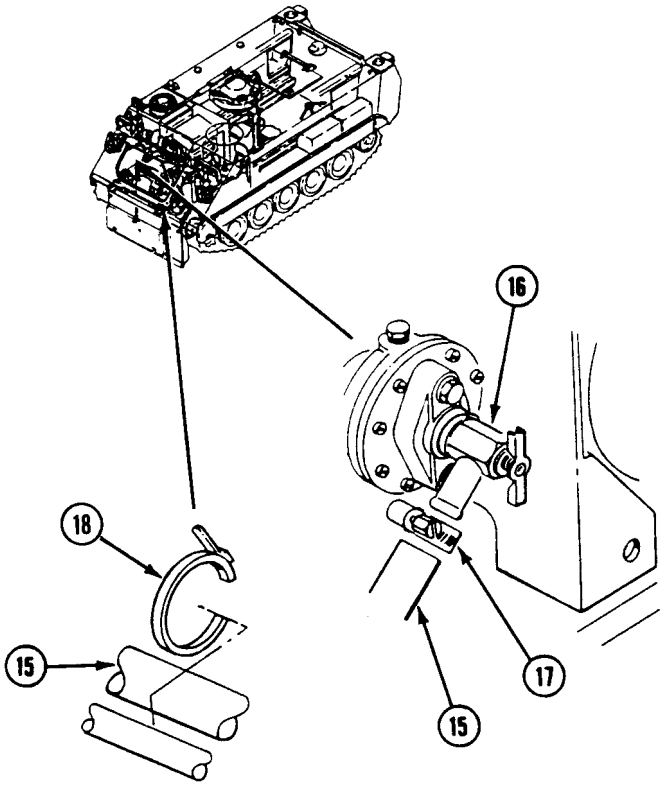


REPLACE COOLANT PUMP TO BATTERY BOX HOSES — Continued 0713 00

5. Install clamp (1) on hose (2). Connect hose (2) to elbow (3). Tighten clamp.
6. Install clamp (4) on hose (2) and secure to seat bracket (5) with screw (6), washer (7), and nut (8).
7. Install clamp (9), hose (2), and hose (10) on standoff (11) with screw (12) and washer (13).
8. Install clamp (14) on hose (15). Connect hose (15) on elbow (3). Tighten clamp.



9. Connect hose (15) to coolant pump shutoff valve (16) and secure with clamp (17).
10. Install two new straps (18) on hose (15).



FOLLOW-THROUGH STEPS

1. Install air cleaner (WP 0168 00).
2. Fill coolant heater system (WP 0710 00).
3. Install batteries and retainers (WP 0346 00), (WP 0347 00), (WP 0349 00).
4. Start coolant heater (see your -10). Check for leaks. Turn heater off.
5. Install driver's compartment floor plates (WP 0453 00).
6. Install power plant rear access panel (see your -10).
7. Close power plant access door (see your -10).
8. Raise trim vane (see your -10).
9. Start engine (see your -10).
10. Raise and lock ramp (see your -10).
11. Stop engine (see your -10).

END OF TASK

REPLACE ENGINE TO BATTERY BOX HOSE 0714 00

THIS WORK PACKAGE COVERS:

Removal (page 0714 00-2).
Installation (page 0714 00-5).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts

Grommet

Personnel Required

Unit Mechanic

References

See your -10

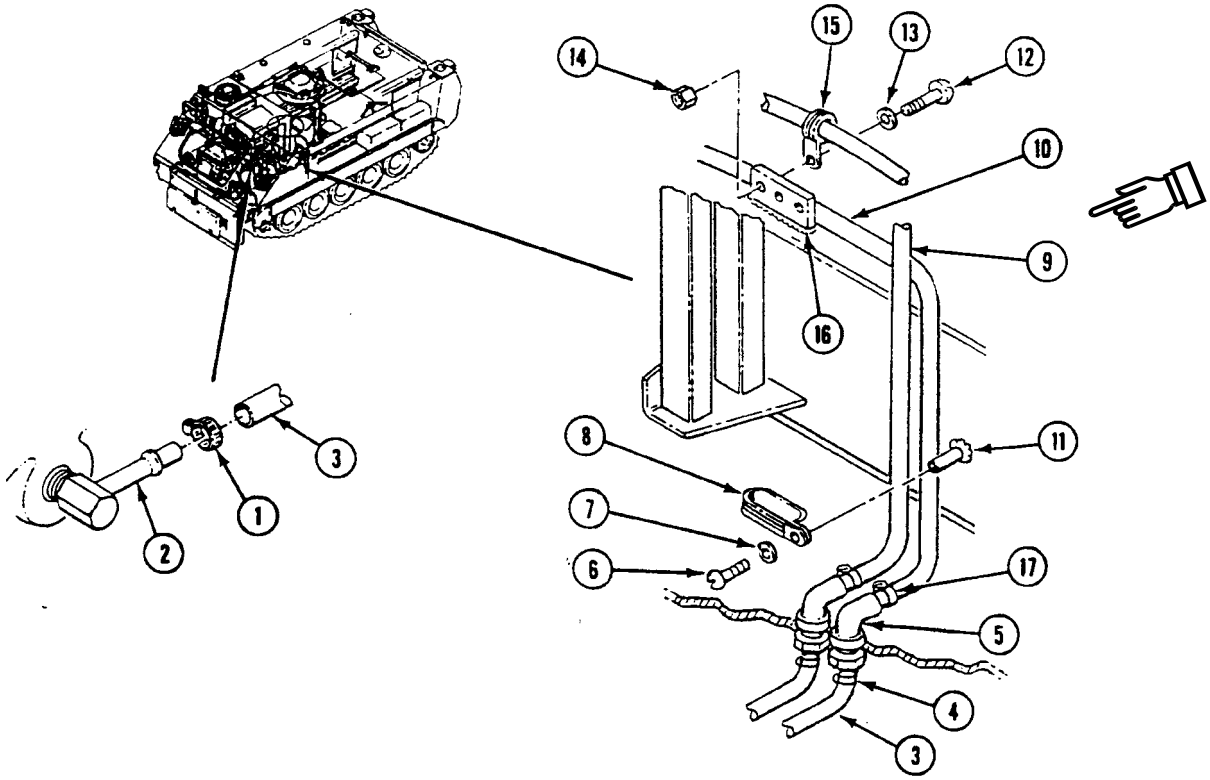
Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Ramp lowered (see your -10)
Driver's compartment floor plates removed (WP 0453 00)
Power plant rear access panel removed (see your -10)
Trim vane lowered (see your -10)
Power plant access door open (see your -10)
Coolant heater system drained (WP 0710 00)
Batteries and retainers removed (WP 0346 00), (WP 0347 00), (WP 0348 00) and (WP 0349 00)
Air cleaner removed (WP 0168 00)

REPLACE ENGINE TO BATTERY BOX HOSE — Continued 0714 00

REMOVAL

1. Loosen clamp (1) at engine coolant elbow (2). Remove hose (3) from elbow.
2. Loosen clamp (4) at elbow (5). Remove hose (3) from elbow. Remove hose from vehicle.
3. Remove screw (6), washer (7), and clamp (8) with hose (9) and hose (10) from standoff (11). Remove clamp (8) from hoses.
4. Remove screw (12), washer (13), nut (14), and clamp (15) from seat bracket (16). Remove clamp (15) from hose (9).
5. Loosen clamp (17) at elbow (5). Remove hose (9) from elbow.

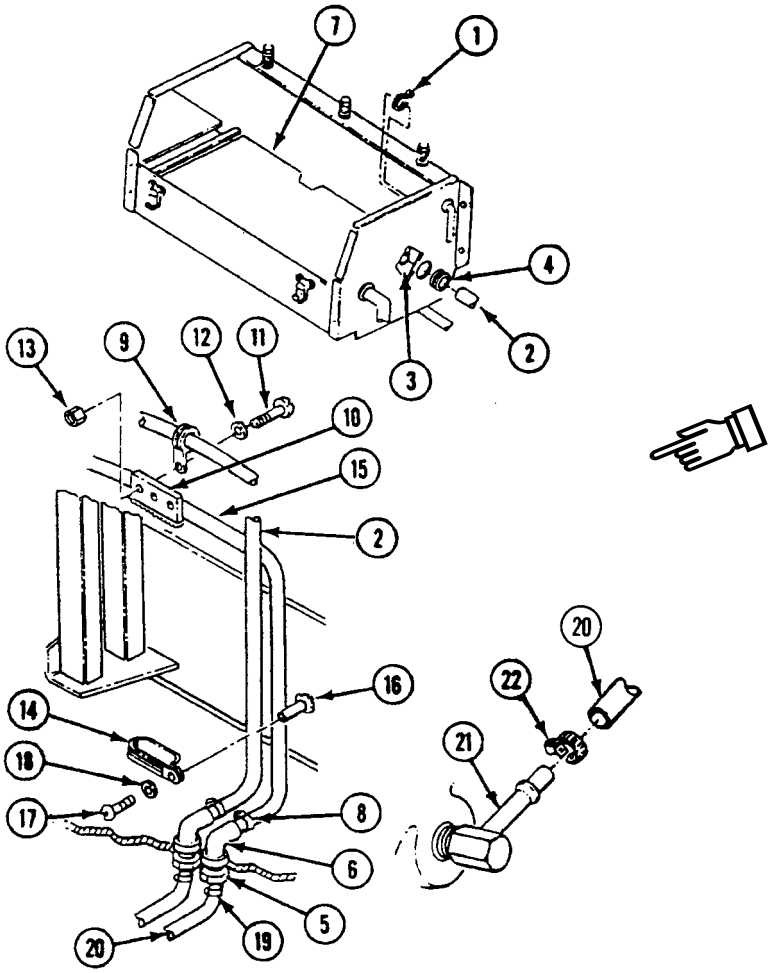


6. Loosen clamp (1) and remove hose (2) from battery heater plate elbow (3).
7. Remove hose (2) and grommet (4) from battery box. Discard grommet

NOTE

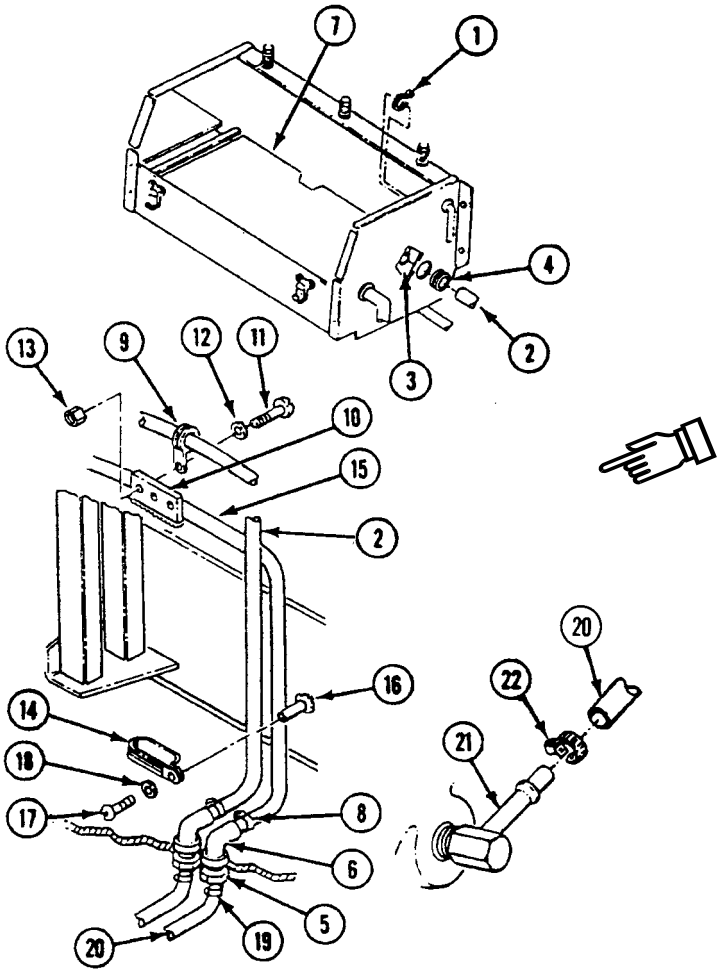
Remove elbows and nuts if damaged or leaking.

8. Remove locknut (5) and elbow (6) from floor plate. Discard locknut.



INSTALLATION

1. If required, install elbow (6) in floor plate with locknut (5).
2. Install new grommet (4) in battery box.
3. Connect hose (2) to battery heater plate elbow (3) and secure with clamp (1).
4. Route hose (2) from battery box heater plate (7) to elbow (6) on floor plate.
5. Install clamp (8) on hose (2). Connect hose (2) to elbow (6). Tighten clamp.
6. Install clamp (9) on hose (2) and secure to seat bracket (10) with screw (11), washer (12), and nut (13).
7. Install clamp (14), hose (2), and hose (15) on standoff (16) with screw (17) and washer (18).
8. Install clamp (19) on hose (20). Connect hose (20) on elbow (6). Tighten clamp.
9. Connect hose (20) to engine coolant pump elbow (21) and secure with clamp (22).



FOLLOW-THROUGH STEPS

1. Install air cleaner (WP 0168 00).
2. Fill coolant heater system (WP 0710 00).
3. Install batteries and retainers (WP 0346 00), (WP 0347 00), (WP 0348 00) and (WP 0349 00).
4. Start coolant heater (see your -10). Check for leaks. Turn heater off.
5. Install driver's compartment floor plates (WP 0453 00).
6. Install power plant rear access panel (see your -10).
7. Close power plant access door (see your -10).
8. Raise trim vane (see your -10).
9. Start engine (see your -10).
10. Raise and lock ramp (see your -10).
11. Stop engine (see your -10).

END OF TASK

REPLACE COOLANT HEATER TO ENGINE ELBOW HOSE 0715 00

THIS WORK PACKAGE COVERS:

Removal (page 0715 00-1).
Installation (page 0715 00-2).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts

Sealing compound (WP 0928 00, Item 56)

Personnel Required

Unit Mechanic

References

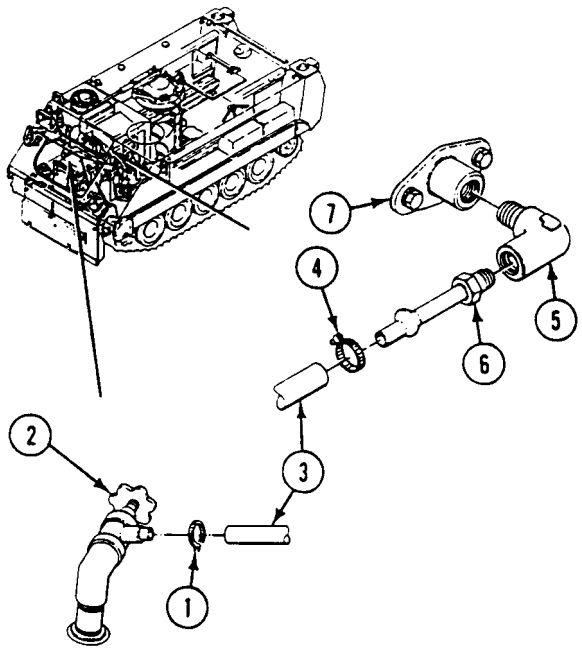
See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Ramp lowered (see your -10)
Power plant rear access panel removed (see your -10)
Trim vane lowered (see your -10)
Power plant access door open (see your -10)
Coolant heater system drained (WP 0710 00)
Air cleaner removed (WP 0168 00)

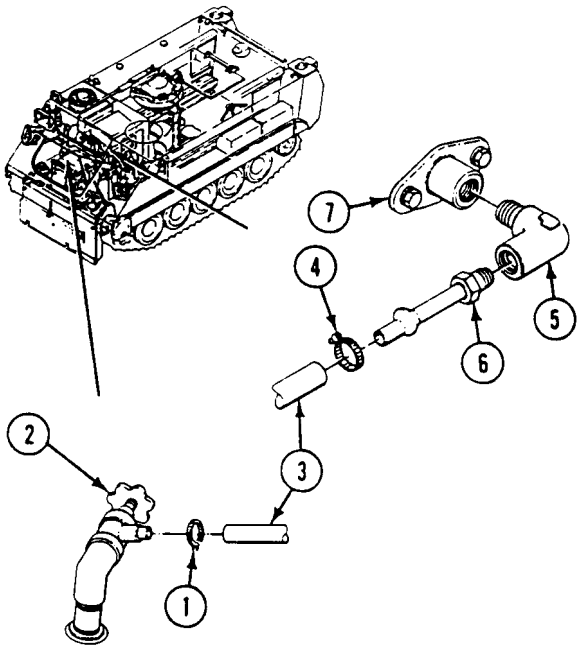
REMOVAL

1. Loosen clamp (1) at coolant heater shutoff valve (2) and remove hose (3) and clamp (1).
2. Loosen clamp (4) at engine elbow (5) and remove hose (3) and clamp (4).
3. Remove adapter (6) and elbow (5) from engine block fitting (7).



INSTALLATION

1. Apply light coat of sealing compound to external tapered threads of elbow (5). Do not apply sealing compound beyond small end of tapered threads.
2. Install elbow (5) in engine block fitting (7). Install adapter (6) in elbow (5).
3. Install clamps (1) and (4) on hose (3).
4. Connect hose (3) to elbow (5) and shutoff valve (2). Tighten clamps (1) and (4).



FOLLOW-THROUGH STEPS

1. Install air cleaner (WP 0168 00).
2. Fill coolant heater system (WP 0710 00).
3. Start coolant heater (see your -10). Check for leaks. Turn heater off.
4. Close power plant access door (see your -10).
5. Raise trim vane (see your -10).
6. Install power plant rear access panel (see your -10).
7. Start engine (see your -10).
8. Raise and lock ramp (see your -10).
9. Stop engine (see your -10).

END OF TASK

REPLACE COOLANT HEATER FILTER VALVE HOSE 0716 00

THIS WORK PACKAGE COVERS:

Removal (page 0716 00-1).
Installation (page 0716 00-2).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts

Sealing compound (WP 0928 00, Item 56)

Personnel Required

Unit Mechanic

References

See your -10

Equipment Condition

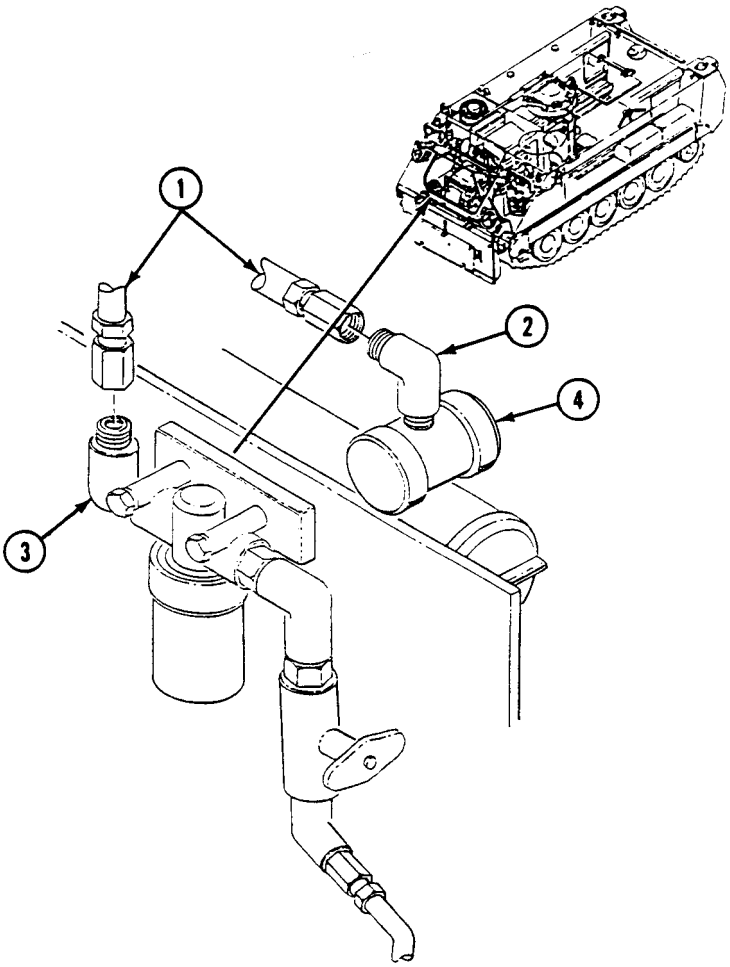
Engine stopped (see your -10)
Carrier blocked (see your -10)
Air cleaner removed (WP 0168 00)
Engine coolant heater fuel shutoff valve closed (see your -10)
Coolant heater and pump unit removed (WP 0728 00)

REMOVAL

1. Disconnect hose (1) from elbows (2) and (3).
2. Remove elbow (2) from fuel control valve (4).

INSTALLATION

1. Apply light coat of sealing compound to external threads of elbow (2). Do not apply sealing compound beyond small end of tapered threads.
2. Install elbow (2) on fuel control valve (4).
3. Connect hose (1) to elbows (2) and (3).



FOLLOW-THROUGH STEPS

1. Install coolant heater and pump unit (WP 0728 00).
2. Install air cleaner (WP 0168 00).
3. Open engine coolant heater fuel shutoff valve (see your -10).

END OF TASK

REPLACE ENGINE BLOCK FITTING AND HARDWARE 0717 00

THIS WORK PACKAGE COVERS:

Removal (page 0717 00-1).
Installation (page 0717 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts

Sealing compound (WP 0928 00, Item 56)
Gasket
Lockwasher (2)

Personnel Required

Unit Mechanic

References

See your -10

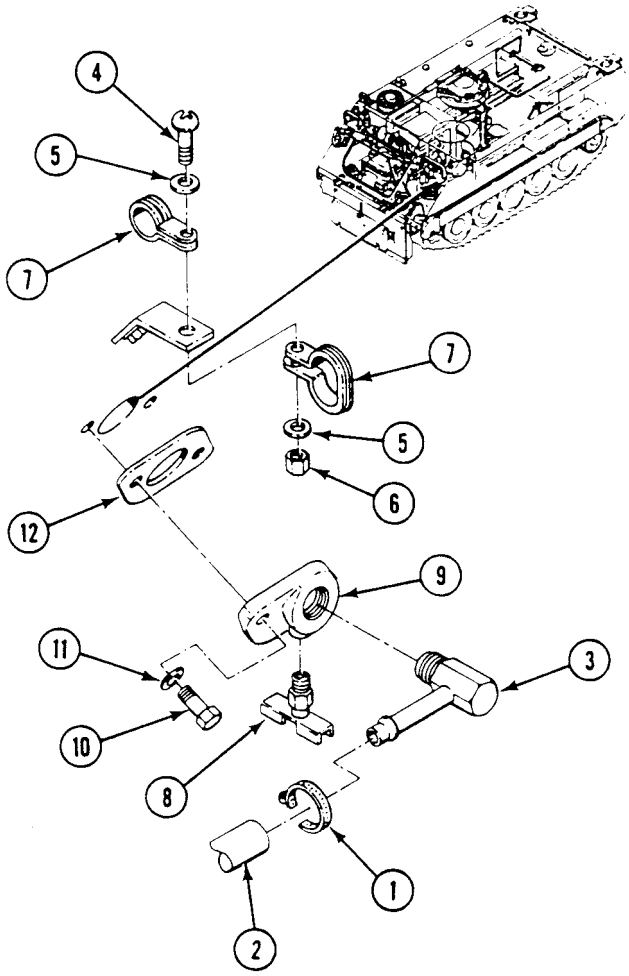
Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Ramp lowered (see your -10)
Power plant rear access panel removed (see your -10)
Drivers compartment access panel removed (see your -10)
Power plant grill raised (WP 0464 00)
Coolant heater system drained (WP 0710 00)

REMOVAL

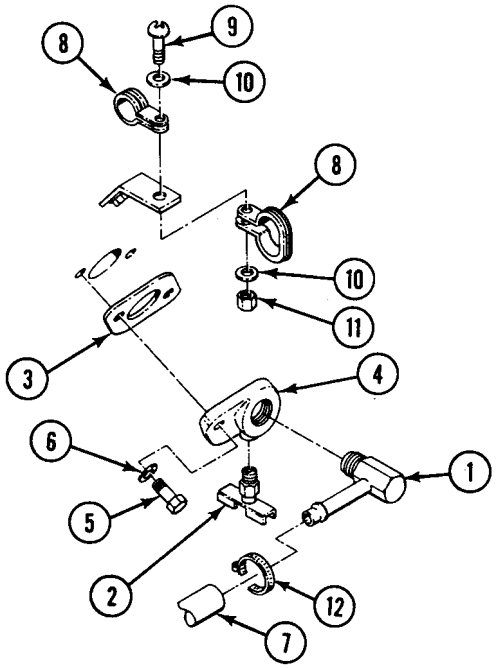
1. Loosen clamp (1) and disconnect hose (2) from elbow (3).
2. Remove screw (4), two washers (5), nut (6), and two clamps (7) that secure hose (2) to engine block.
3. Remove elbow (3) and drain cock (8) from fitting (9).

4. Remove two screws (10), lockwashers (11), fitting (9), and gasket (12) from engine. Discard gasket and lockwashers.



INSTALLATION

1. Apply light coat of sealing compound to external threads of elbow (1) and drain cock (2). Do not apply sealing compound beyond small end of tapered threads.
2. Install new gasket (3) and fitting (4) on engine block and secure with two screws (5) and new lockwashers (6).
3. Install elbow (1) and drain cock (2) on fitting (4).
4. Secure hose (7) with two clamps (8), screw (9), two washers (10), and nut (11).
5. Connect hose (7) to elbow (1) and secure with clamp (12).



FOLLOW-THROUGH STEPS

1. Lower power plant grill (WP 0464 00).
2. Fill coolant heater cooling system (WP 0710 00).
3. Start coolant heater (see your -10).
4. Check for leaks. Turn coolant heater off (see your -10).
5. Install drivers compartment access panel (see your -10).
6. Install power plant rear access panel (see your -10).

END OF TASK

REPLACE BATTERY BOX INSULATION AND HEAT EXCHANGER 0718 00

THIS WORK PACKAGE COVERS:

Removal (page 0718 00-2).
Installation (page 0718 00-4).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts
Adhesive (WP 0928 00, Item 4)
Battery box grommet (4)

Personnel Required
Unit Mechanic

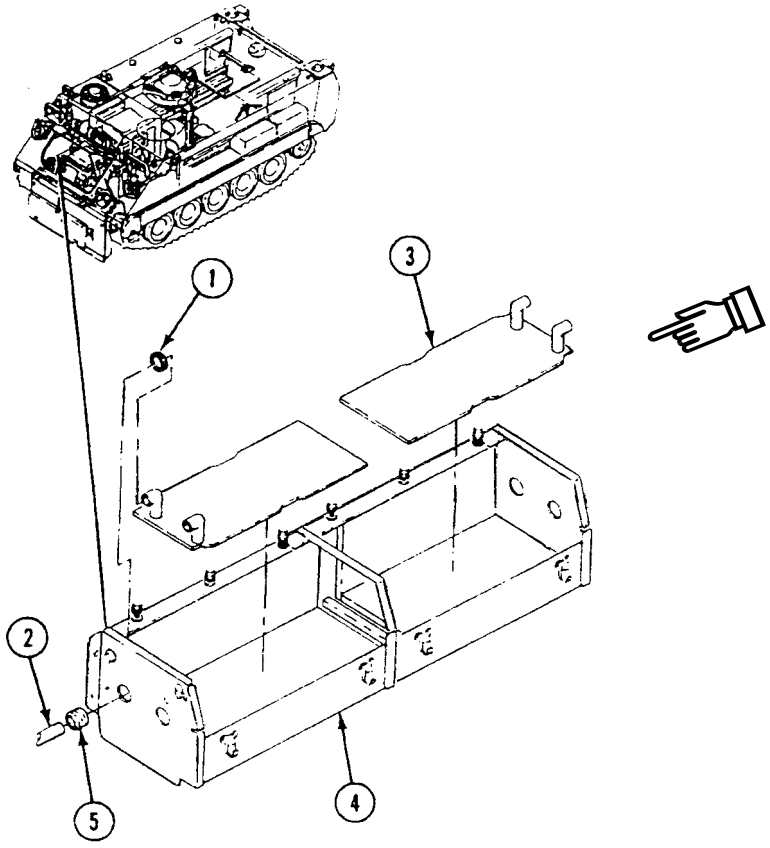
References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Ramp lowered (see your -10)
Carrier cooling system drained (WP 0227 00)
Coolant heater system drained (WP 0710 00)

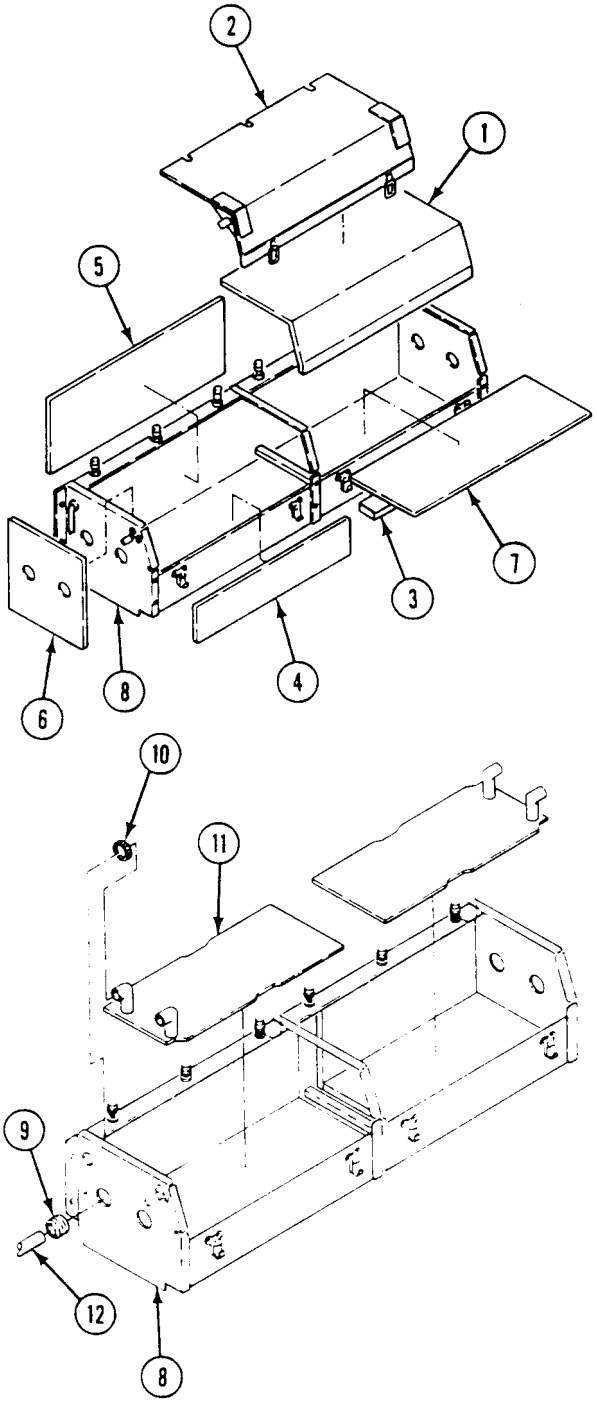
REPLACE BATTERY BOX INSULATION AND HEAT EXCHANGER — Continued 0718 00

REMOVAL

1. Loosen four clamps (1) on four hoses (2). Remove hoses from two heat exchangers (3). Remove clamps from hoses.
2. Remove two heat exchangers (3) from battery box (4). Remove clamps from heat exchangers.
3. Remove four grommets (5) from battery box (4). Discard grommets.

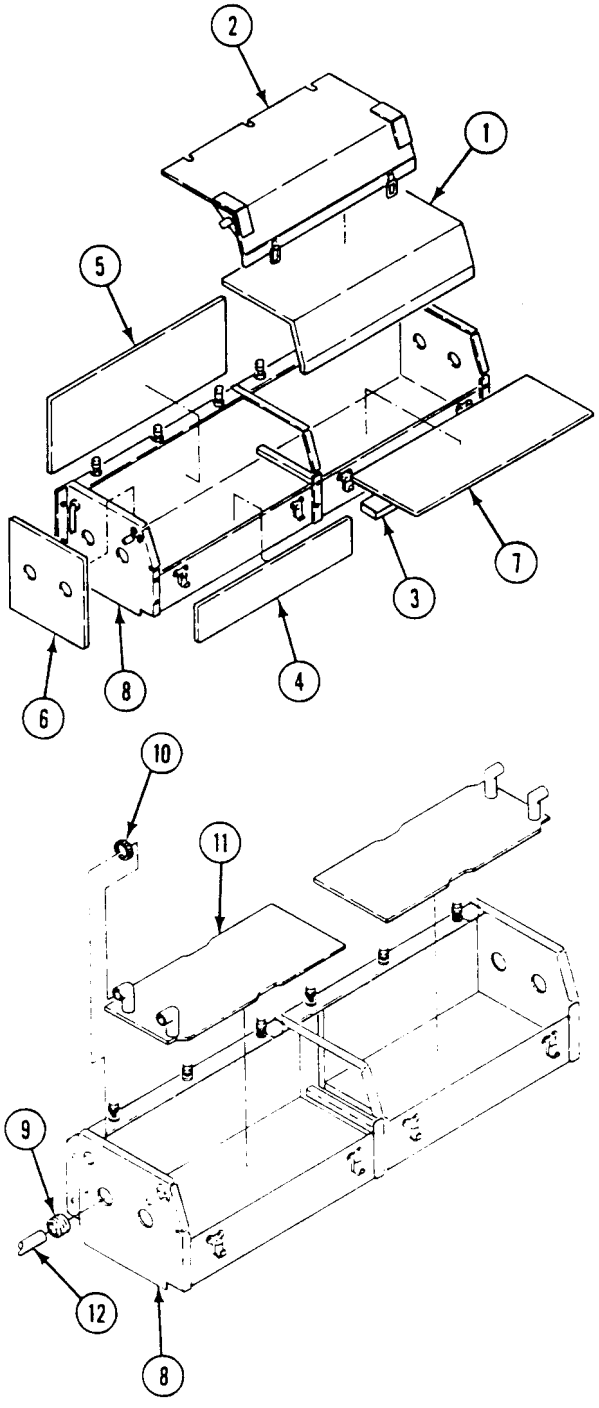


4. If damaged, remove two insulation sheets (1) from battery box cover (2).
5. If damaged, remove two insulation strips (3), two front insulation sheets (4), two rear insulation sheets (5), two side insulation sheets (6), and two bottom insulation sheets (7) from battery box (8).



INSTALLATION

1. Apply adhesive to insulation sheets. Wait 10 to 20 seconds until adhesive becomes tacky.
2. If removed, install two bottom insulation sheets (7), two side insulation sheets (6), two rear insulation sheets (5), two front insulation sheets (4), and two insulation strips (3) in battery box (8).
3. If removed, install two insulation sheets (1) on battery box cover (2).
4. Install four new grommets (9) in battery box (8).
5. Install four clamps (10) on two heat exchangers (11). Install heat exchanger in battery box (8).
6. Install four hoses (12) on heat exchanger (11). Secure with four clamps (10).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FOLLOW-THROUGH STEPS

1. Fill carrier cooling system (WP 0227 00).
2. Fill coolant heater system (WP 0710 00).
3. Start coolant heater (see your -10). Check heat exchanger for leaks. Turn heater off.
4. Raise and lock ramp (see your -10).
5. Turn MASTER SWITCH OFF

END OF TASK

REPLACE BATTERY DRAWER INSULATION AND HEAT EXCHANGER (M1064A3 ONLY) 0719 00

THIS WORK PACKAGE COVERS:

Removal (page 0719 00-1).
Cleaning (page 0719 00-2).
Inspection and Repair (page 0719 00-2).
Installation (page 0719 00-2).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts
Sealing compound (WP 0928 00, Item 53)
Sodium bicarbonate (WP 0928 00, Item 60)

Personnel Required
Unit Mechanic

References
See your -10

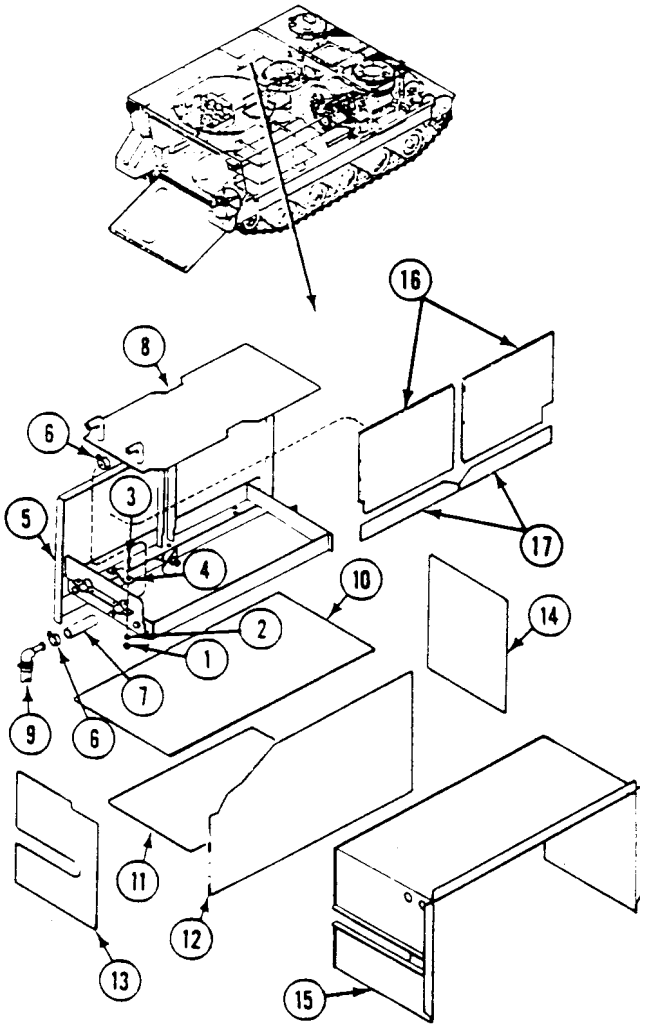
Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Ramp lowered (see your -10)
Batteries removed (WP 0349 00)
Carrier cooling system drained (WP 0227 00)
Coolant heater system drained (WP 0710 00)

REMOVAL

1. Remove four nuts (1), washers (2), screws (3), and two brackets (4) from battery drawer (5).
2. Loosen four clamps (6). Remove two hoses (7) from heat exchanger (8) and two elbows (9). Remove clamps from hoses.
3. Remove battery drawer (WP 0353 00).
4. Remove heat exchanger (8) from battery drawer (5).
5. If damaged, remove top insulation sheet (10), bottom insulation sheet (11), rear insulation sheet (12), right insulation sheet (13), and left insulation sheet (14) from battery drawer shield (15).

REPLACE BATTERY DRAWER INSULATION AND HEAT EXCHANGER (M1064A3 ONLY) — Continued **0719 00**

6. If damaged, remove two installation sheets (16) and two insulation strips (17) from battery drawer (5).



CLEANING

1. Clean heat exchanger plate with brush dipped in mixture of sodium bicarbonate. After foaming stops, flush with clean water and dry.

INSPECTION-ACCEPTANCE AND REJECTION CRITERIA

1. Check heat exchanger. Replace bent or cracked heat exchanger.
2. Check insulation. Replace loose, missing, or damaged strip or sheets.

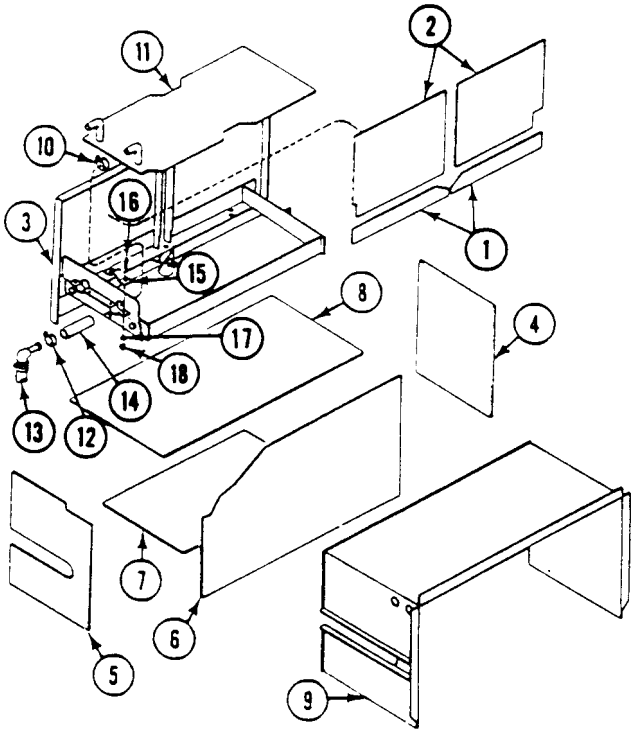
INSTALLATION

1. Apply sealing compound to insulation sheets. Wait 10-20 seconds until sealing compound becomes tacky.
2. If removed, install two insulation strips (1) and two insulation sheets (2) on battery drawer (3).

REPLACE BATTERY DRAWER INSULATION AND HEAT EXCHANGER (M1064A3 ONLY) — Continued

0719 00

3. If removed, install left insulation sheet (4) right insulation sheet (5), rear insulation sheet (6), bottom insulation sheet (7), and top insulation sheet (8) in battery drawer shield (9).
4. Place two clamps (10) on heat exchanger (11). Install heat exchanger in battery drawer (3).
5. Install battery drawer (WP 0353 00).
6. Place two clamps (12) on two elbows (13). Install two hoses (14) on two elbows (13) and heat exchanger (11). Secure with four clamps (10) and (12).
7. Place two brackets (15) on battery drawer (3). Secure with four screws (16), washers (17), and nuts (18).



FOLLOW-THROUGH STEPS

1. Install batteries (WP 0349 00).
2. Fill carrier cooling system (WP 0227 00).
3. Fill coolant heater system (WP 0710 00).
4. Start coolant heater (see your -10). Check heat exchanger for leaks. Turn heater off.
5. Start engine (see your -10).
6. Raise and lock ramp (see your -10).
7. Stop engine (see your -10).

END OF TASK

REPLACE COOLANT HEATER FUEL SHUTOFF VALVE 0720 00

THIS WORK PACKAGE COVERS:

Removal (page 0720 00-1).
Installation (page 0720 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts

Sealing compound (WP 0928 00, Item 56)

Personnel Required

Unit Mechanic

References

See your -10

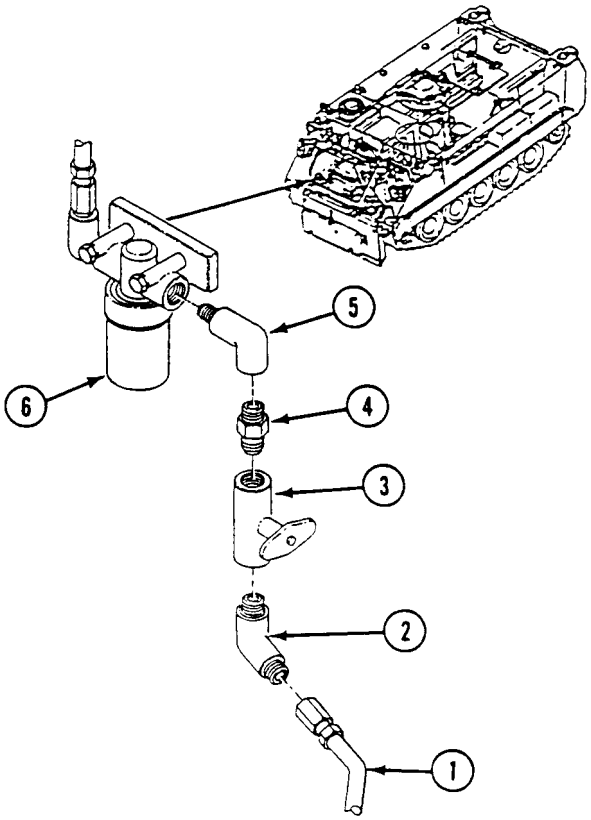
Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Air cleaner removed (WP 0168 00)

REMOVAL

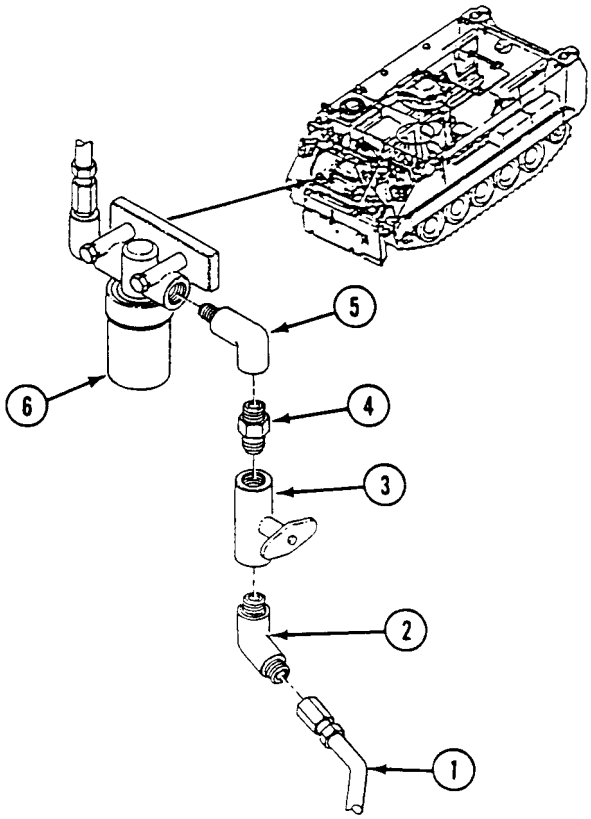
1. Disconnect hose (1) from elbow (2).
2. Remove elbow (2) from fuel shutoff valve (3).
3. Remove fuel shutoff valve (3) from nipple (4).
4. Remove nipple (4) from elbow (5).

5. Remove elbow (5) from fuel filter (6).



INSTALLATION

1. Apply light coat of sealing compound to all external tapered threads. Do not apply sealant beyond small end of tapered threads.
2. Install elbow (5) on fuel filter (6).
3. Install nipple (4) on elbow (5).
4. Install fuel shutoff valve (3) on nipple (4).
5. Install elbow (2) on fuel shutoff valve (3)
6. Connect hose (1) to elbow (2).



FOLLOW-THROUGH STEPS

1. Install air cleaner (WP 0168 00).

END OF TASK

REPLACE FUEL PUMP TEE TO ELBOW HOSE 0721 00

THIS WORK PACKAGE COVERS:

Removal (page 0721 00-1).
Installation (page 0721 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts

Sealing compound (WP 0928 00, Item 56)

Personnel Required

Unit Mechanic

References

See your -10

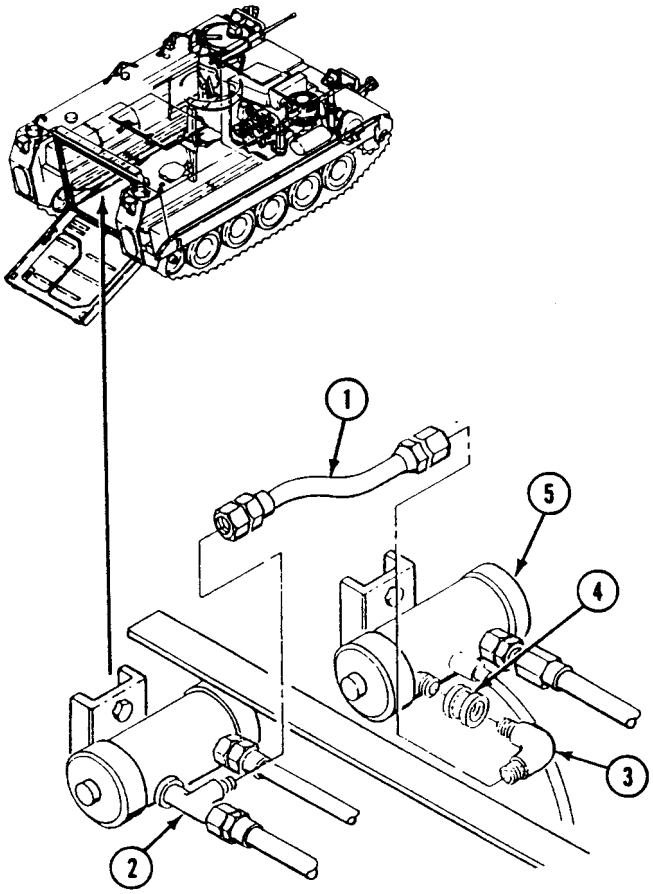
Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Ramp lowered (see your -10)
Fuel tank fuel shutoff valves closed (see your -10)
Rear floor plate removed (WP 0539 00), (WP 0540 00), (WP 0541 00), (WP 0542 00), (WP 0543 00), (WP 0544 00), or (WP 0545 00)

REMOVAL

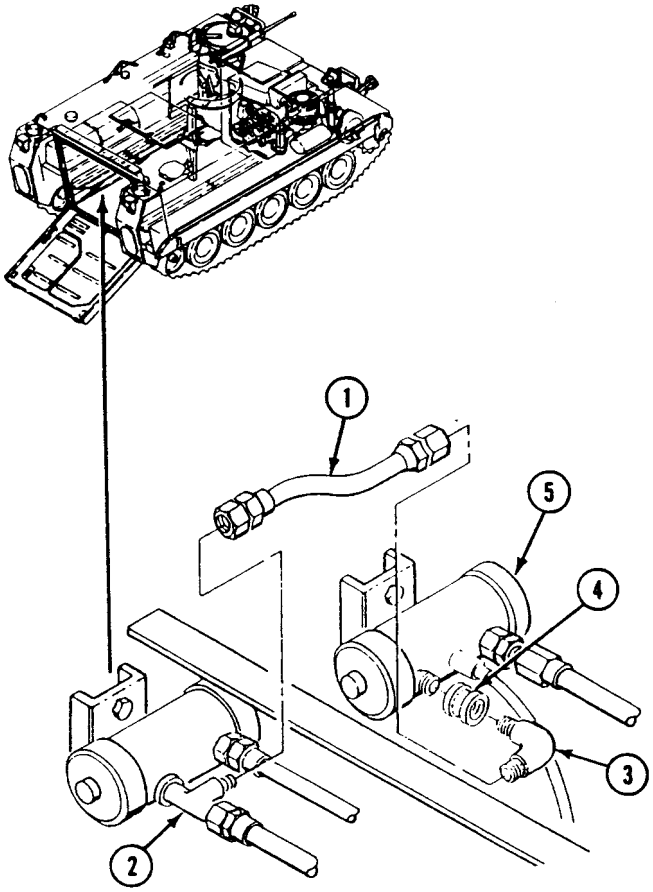
1. Remove hose (1) from fuel pump tee (2) and fuel pump elbow (3).
2. Remove elbow (3) from coupling (4).

3. Remove coupling (4) from fuel pump (5).



INSTALLATION

1. Apply light coat of sealing compound to all external tapered threads of pump and elbow (3). Do not apply sealant beyond small end of tapered threads.
2. Install coupling (4) on fuel pump (5).
3. Install elbow (3) on coupling (4).
4. Connect hose (1) to fuel pump tee (2) and fuel pump elbow (3).



FOLLOW-THROUGH STEPS

1. Install rear floor plate (WP 0539 00), (WP 0540 00), (WP 0541 00), (WP 0542 00), (WP 0543 00), (WP 0544 00), or (WP 0545 00).
2. Open fuel tank shutoff valves (see your -10).
3. Start engine (see your -10).
4. Raise and lock ramp (see your -10).
5. Stop engine (see your -10).

END OF TASK

REPLACE BATTERY PLATE TO BATTERY PLATE HOSE 0722 00

THIS WORK PACKAGE COVERS:

Removal (page 0722 00-1).
Installation (page 0722 00-2).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts

Grommet (2)

Personnel Required

Unit Mechanic

References

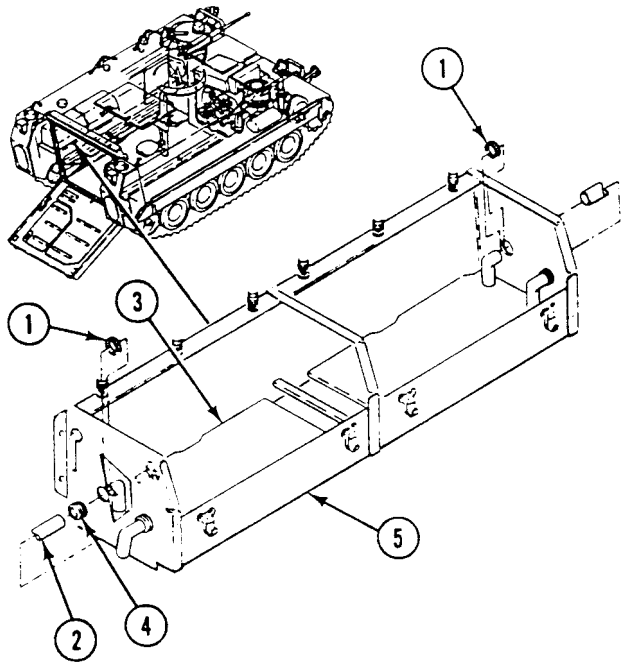
See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Ramp lowered (see your -10)
Shut off valves on coolant heater closed (see your -10)
Carrier cooling system drained (WP 0227 00)
Coolant heater system drained (WP 0710 00)
Batteries and retainers removed (WP 0346 00), (WP 0347 00), or (WP 0349 00)

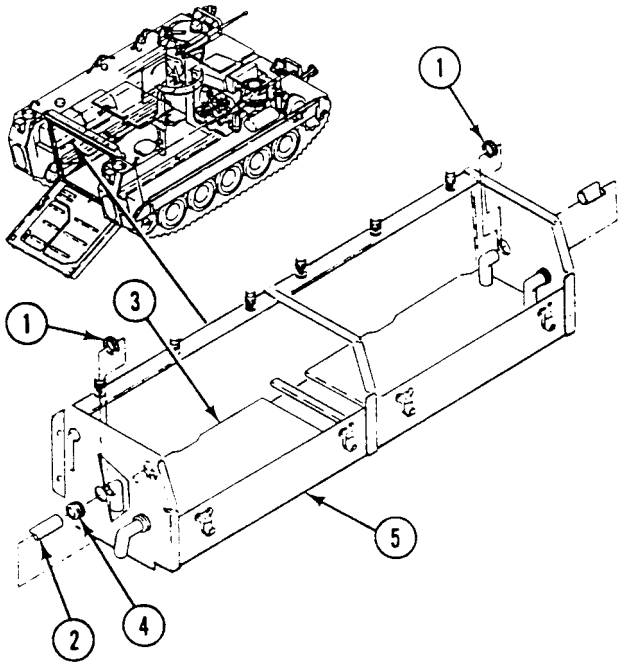
REMOVAL

1. Loosen two clamps (1) on hose (2) and remove hose from battery plates (3).
2. Remove clamps (1) from hose (2).
3. Remove two grommets (4) from battery box (5). Discard grommets.



INSTALLATION

1. Install two new grommets (4) in battery box (5).
2. Install two clamps (1) on hose (2).
3. Install hose (2) on battery plates (3) and tighten clamps (1).



FOLLOW-THROUGH STEPS

1. Fill carrier cooling system (WP 0227 00).
2. Fill coolant heater system (WP 0710 00).
3. Install batteries and retainers (WP 0346 00), (WP 0347 00), or (WP 0349 00).
4. Start coolant heater (see your -10). Check for leaks. Turn heater off.
5. Start engine (see your -10).
6. Raise and lock ramp (see your -10).
7. Stop engine (see your -10).

END OF TASK

REPLACE COOLANT HEATER FUEL PUMP 0723 00

THIS WORK PACKAGE COVERS:

Removal (page 0723 00-1).
Installation (page 0723 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts

Sealing compound (WP 0928 00, Item 56)
Lockwasher (4)
Locknut (2)

Personnel Required

Unit Mechanic

References

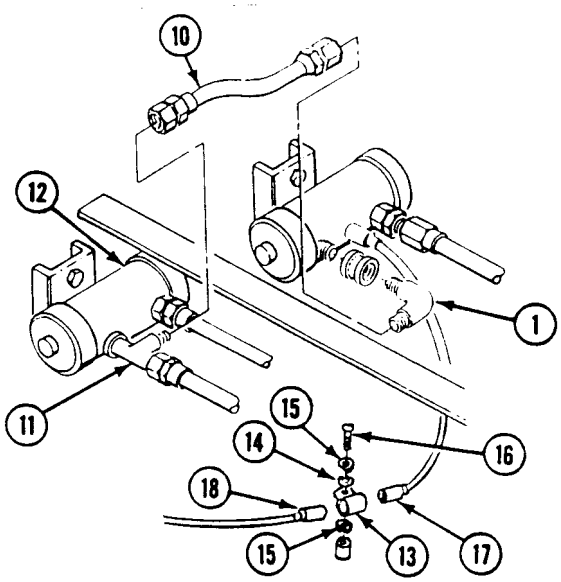
See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Ramp lowered (see your -10)
Battery ground strap disconnected (WP 0337 00), (WP 0338 00), or (WP 0339 00)
Rear floor plate removed (WP 0539 00), (WP 0540 00), (WP 0541 00), (WP 0542 00), (WP 0543 00), (WP 0544 00), or (WP 0545 00)
Heater fuel shut off valve closed (see your -10)

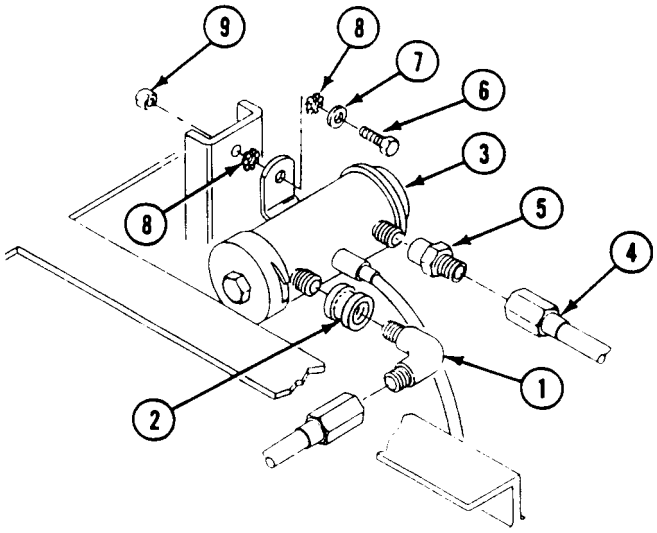
REMOVAL

1. Disconnect circuit 402A lead (18) from fuel pump lead (17).
2. Remove screw (16), two lockwashers (15), washer (14), and clamp (13) from hull weldnut. Discard lockwashers.
3. Remove hose (10) from tee (11) on personnel heater fuel pump (12) and from elbow (1) on coolant heater fuel pump.



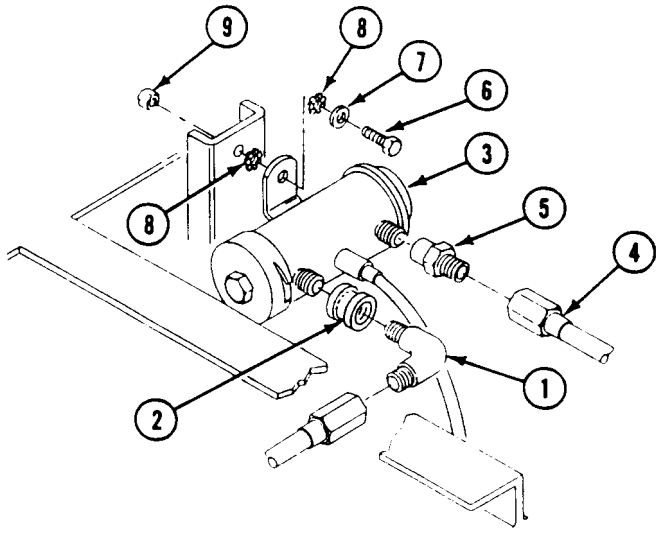
REPLACE COOLANT HEATER FUEL PUMP — Continued **0723 00**

4. Remove elbow (1) from coupling (2).
5. Remove coupling (2) from fuel pump (3).
6. Disconnect hose (4) from adapter (5). Remove adapter from fuel pump (3).
7. Remove two screws (6), washers (7), lockwashers (8), two locknuts (9), and fuel pump (3) from hull bracket. Discard lockwashers and locknuts.

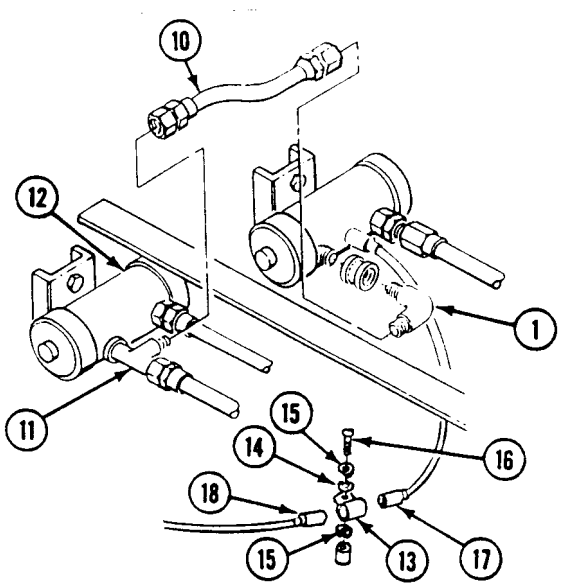


INSTALLATION

1. Place fuel pump (3) on hull bracket. Secure with two new locknuts (9), two new lockwashers (8), two washers (7), and screws (6).
2. Apply light coat of sealing compound to all external tapered threads. Do not apply sealant beyond small end of tapered threads.
3. Install adapter (5) on fuel pump (3). Connect hose (4) to adapter.
4. Install coupling (2) on fuel pump (3).
5. Install elbow (1) on coupling (2).



6. Install hose (10) on elbow (1) and on tee (11) on personnel heater fuel pump (12).
7. Place clamp (13) on hull weldnut. Secure with washer (14), two new lockwashers (15), and screw (16).
8. Connect fuel pump lead (17) to circuit 402A lead (18).



FOLLOW-THROUGH STEPS

1. Open heater fuel shut off valve (see your -10).
2. Connect battery ground strap (WP 0337 00), (WP 0338 00), or (WP 0339 00).
3. Bleed fuel lines (WP 0679 00).
4. Start heater (see your -10). Check for fuel leaks. Turn heater off.
5. Install rear floor plate (WP 0539 00), (WP 0540 00), (WP 0541 00), (WP 0542 00), (WP 0543 00), (WP 0544 00), or (WP 0545 00).
6. Start engine (see your -10).
7. Raise and lock ramp (see your -10).
8. Stop engine (see your -10).

END OF TASK

REPLACE COOLANT HEATER EXHAUST ELBOW AND PIPES 0724 00

THIS WORK PACKAGE COVERS:

Removal (page 0724 00-1).
Installation (page 0724 00-2).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts

Gasket

Personnel Required

Unit Mechanic

References

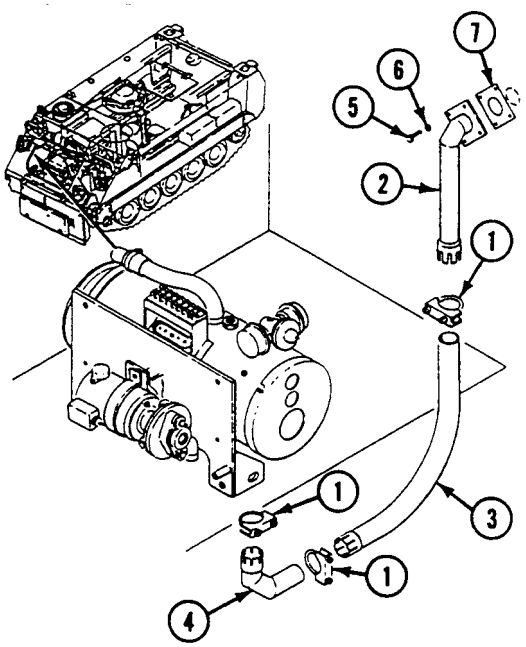
See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Ramp lowered (see your -10)
Trim vane lowered (see your -10)
Power plant access door open (see your -10)
Air cleaner removed (WP 0168 00)

REMOVAL

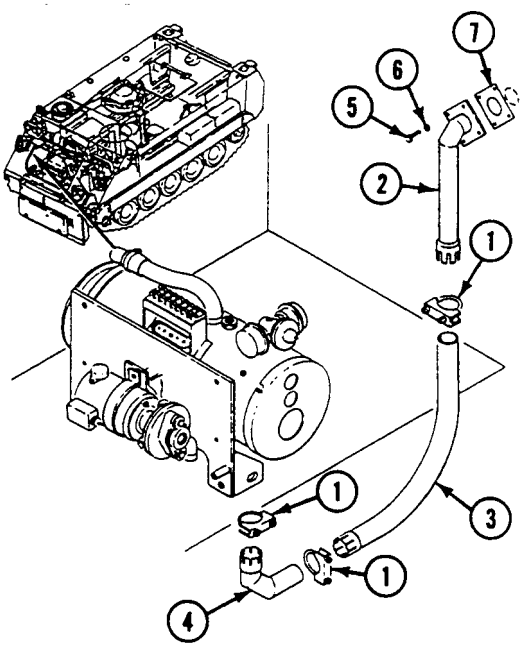
1. Loosen three clamps (1) on upper exhaust pipe (2), on lower exhaust pipe (3), and on exhaust elbow (4).



WARNING

Older gaskets are made out of asbestos. Handle with care. Discard older gasket properly as a hazardous material per local standard operating procedure.

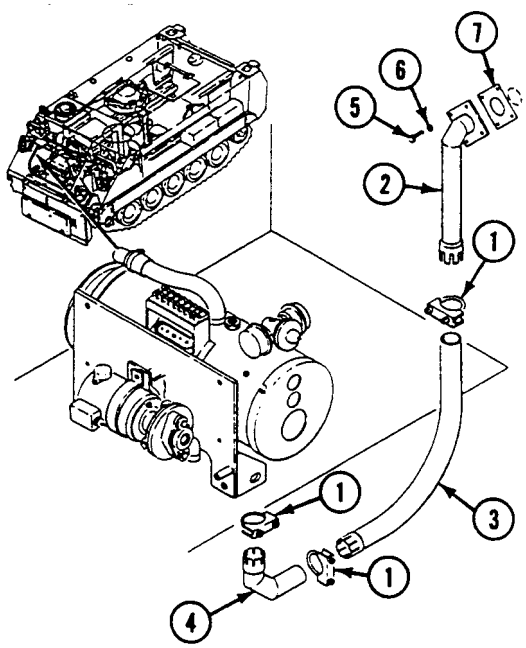
2. Remove four screws (5), washers (6), upper pipe (2), and gasket (7) from exhaust grill housing. Discard gasket.
3. Remove upper pipe (2) from lower pipe (3). Remove lower pipe from elbow (4).
4. Remove elbow (4) from coolant heater.



INSTALLATION

1. Place clamp (1) on elbow (4). Install elbow on coolant heater. Tighten clamp.
2. Place clamp (1) on lower pipe (3). Install pipe in elbow (4). Tighten clamp.
3. Place clamp (1) on upper pipe (2). Install upper pipe in lower pipe (3). Tighten clamp.

4. Align new gasket (7) and upper pipe (2) with exhaust grill housing. Secure with four washers (6) and screws (5).



FOLLOW-THROUGH STEPS

1. Install air cleaner (WP 0168 00).
2. Start coolant heater (see your -10). Check for exhaust leaks. Turn heater off.
3. Close power plant access door (see your -10).
4. Raise trim vane (see your -10).
5. Start engine (see your -10).
6. Raise and lock ramp (see your -10).
7. Stop engine (see your -10).

END OF TASK

REPLACE HEATER TO SURGE TANK HOSE 0725 00

THIS WORK PACKAGE COVERS:

Removal (page 0725 00-1).
Installation (page 0725 00-1).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)

Personnel Required

Unit Mechanic

Equipment Condition

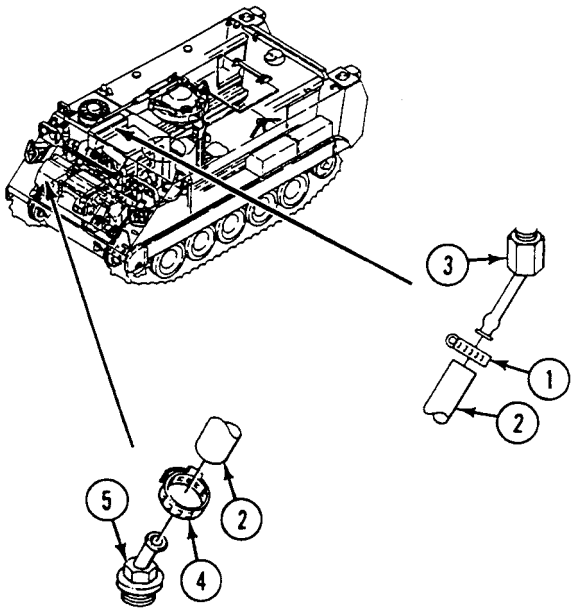
Engine stopped (see your -10)
Carrier blocked (see your -10)
Air cleaner removed (WP 0168 00)
Engine coolant heater drained (WP 0710 00)

REMOVAL

1. Remove clamp (1) from hose (2) and elbow (3). Remove hose from surge tank.
2. Remove clamp (4) from hose (2) and elbow (5). Remove hose from coolant heater.

INSTALLATION

1. Install hose (2) on elbow (5). Secure with clamp (4).
2. Install hose (2) on elbow (3). Secure with clamp (1).



FOLLOW-THROUGH STEPS

1. Install air cleaner (WP 0168 00).
2. Fill engine coolant heater (WP 0710 00).

END OF TASK

REPLACE FUEL FILTER 0726 00

THIS WORK PACKAGE COVERS:

Removal (page 0726 00-1).
Installation (page 0726 00-2).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts
Lockwasher (2)

Personnel Required
Unit Mechanic

References
See your -10

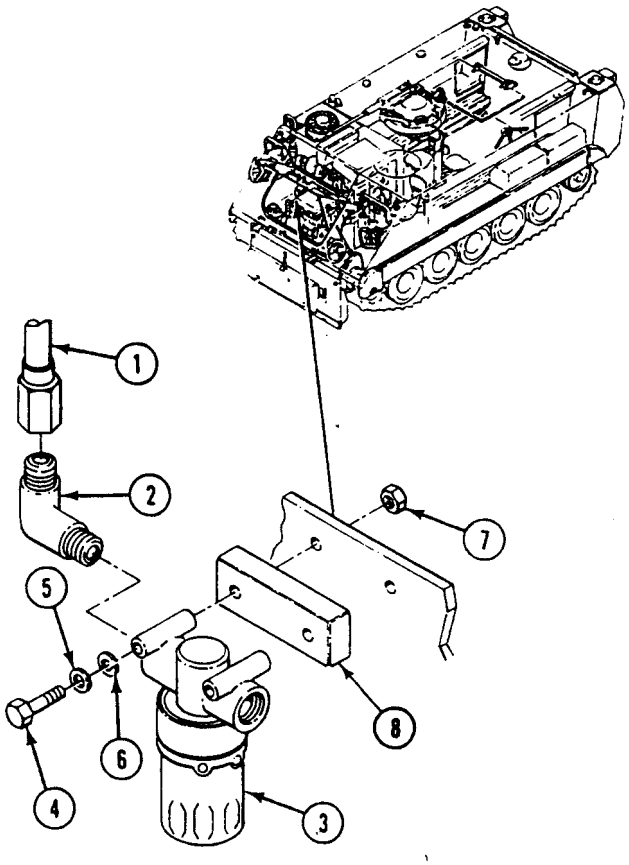
Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Air cleaner removed (WP 0168 00)
Coolant heater fuel shut off valve removed (WP 0720 00)

REMOVAL

1. Remove hose (1) from elbow (2).
2. Remove elbow (2) from filter (3).
3. Remove two screws (4), washers (5), lockwashers (6), and nuts (7). Remove filter (3) and spacer (8). Discard lockwashers.

INSTALLATION

1. Install filter (3) and spacer (8). Secure with two screws (4), washers (5), new lockwashers (6) and nuts (7).
2. Install elbow (2) on filter (3).
3. Install hose (1) on elbow (2).



FOLLOW-THROUGH STEPS

1. Install coolant heater fuel shut off valve (WP 0720 00).
2. Install air cleaner (WP 0168 00).

END OF TASK

ADJUST FLAME DETECTOR SWITCH 0727 00

THIS WORK PACKAGE COVERS:

Adjustment (page 0727 00-1).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0926 00, Item 65)

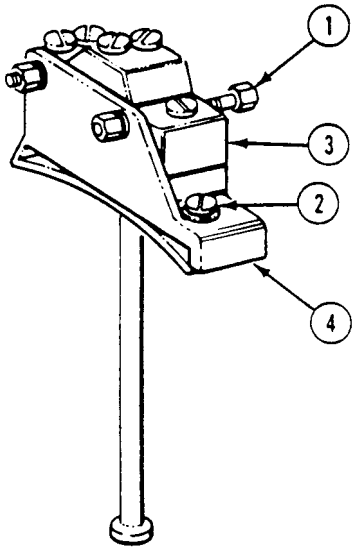
Materials/Parts
Sealing compound (WP 0928 00, Item 56)

Personnel Required
Unit Mechanic

Equipment Condition
Flame detector switch removed (WP 0734 00)

ADJUSTMENT

1. Loosen mounting screws (1).
2. Back off adjusting screw (2) until switch (3) clicks.
3. Turn screw (2) slowly in until switch (3) just clicks. Then turn screw exactly 3/4 turn past the click point.
4. Tighten mounting screws (1).
5. Cement screw (2) to mount (4) with sealing compound.



FOLLOW-THROUGH STEPS

1. Install flame detector switch (WP 0734 00).

END OF TASK

REPLACE COOLANT HEATER AND PUMP UNIT 0728 00

THIS WORK PACKAGE COVERS:

Removal (page 0728 00-1).
Inspection and Repair (page 0728 00-5).
Installation (page 0728 00-5).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts
Lockwasher

Personnel Required
Unit Mechanic

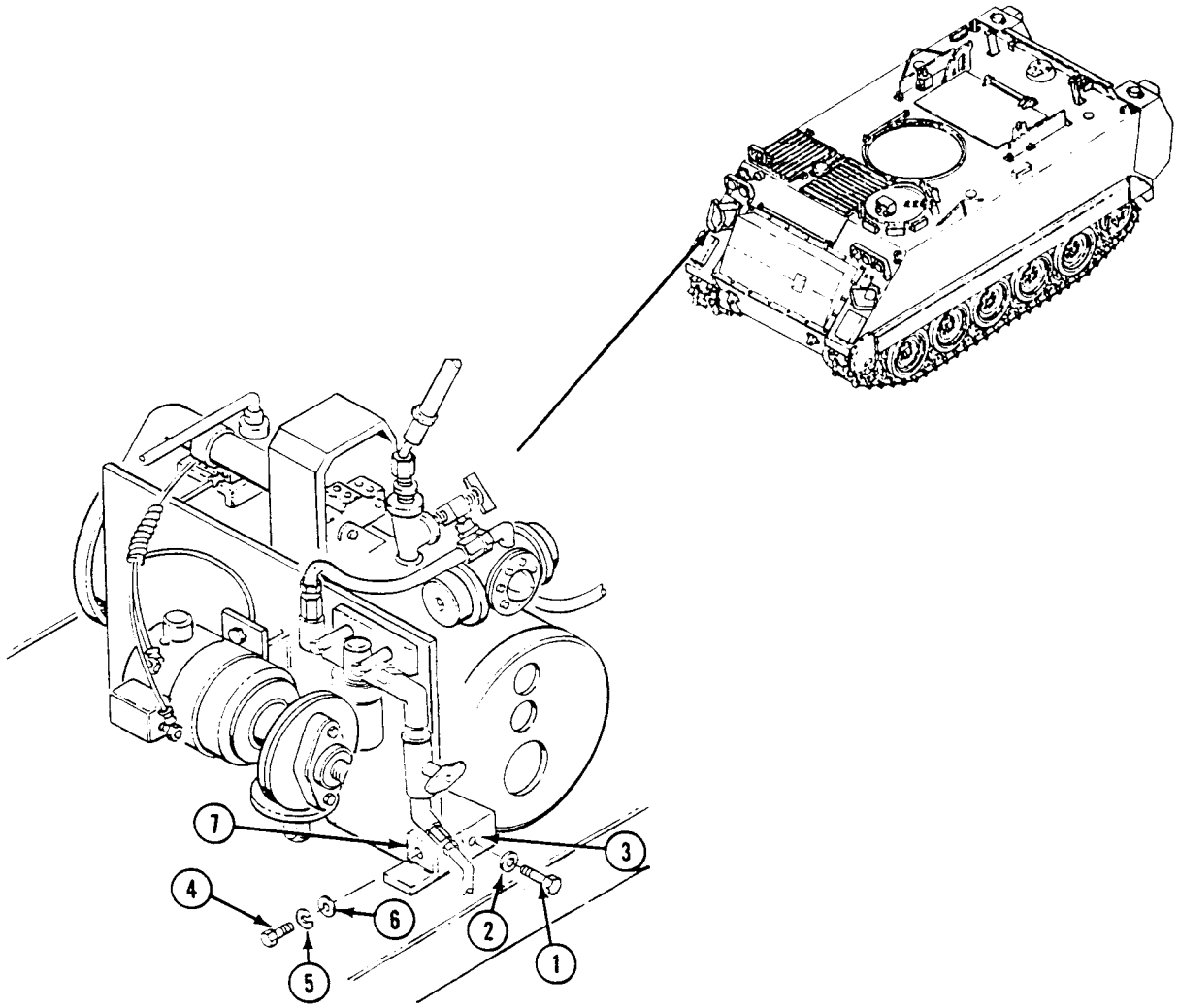
References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Trim vane lowered (see your -10)
Power plant access door open (see your -10)
Fuel tank shut off valves closed (see your -10)
Coolant heater fuel shut off valve closed (see your -10)
Carrier cooling system drained (WP 0227 00)
Battery ground strap disconnected (WP 0337 00), (WP 0338 00), or (WP 0339 00)
Air cleaner removed (WP 0168 00)

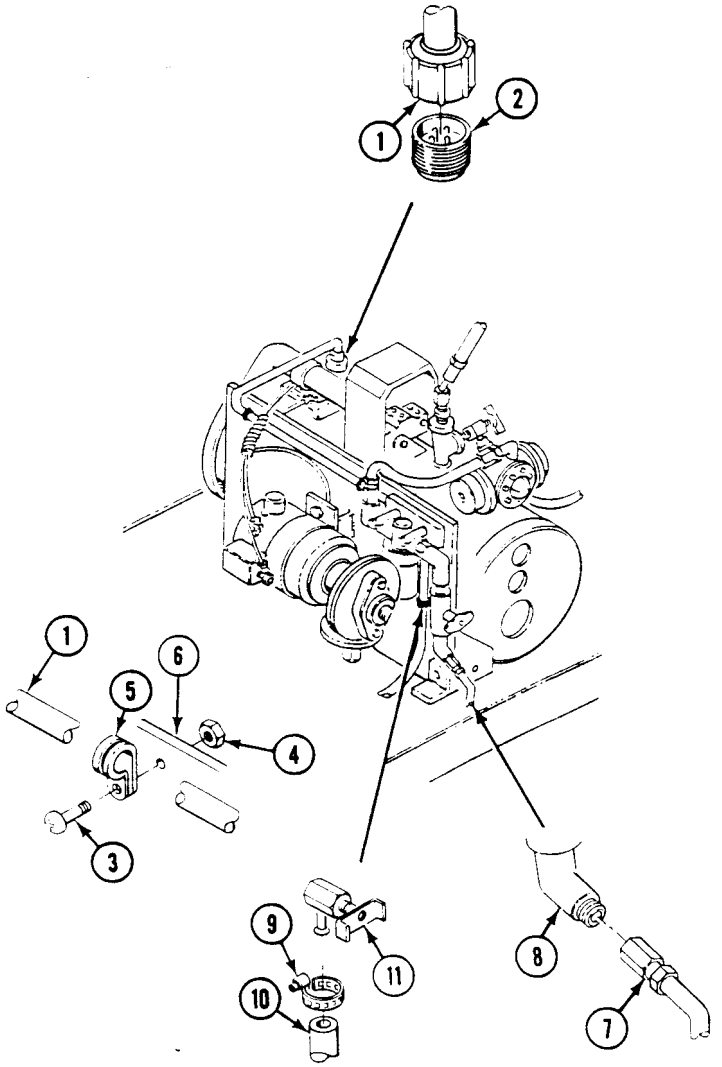
REMOVAL

1. Remove two screws (1) and flat washers (2) from outboard end of bracket (3).

2. Remove two screws (4), lockwasher (5), and two flat washers (6) from inboard end of bracket (7). Discard lockwasher.



3. Disconnect wiring harness (1) from receptacle (2).
4. Remove three screws (3), nuts (4), clamps (5), and harness (1) from bracket (6).
5. Disconnect fuel inlet hose (7) from elbow (8).
6. Loosen clamp (9). Disconnect hose (10) from coolant pump (11).



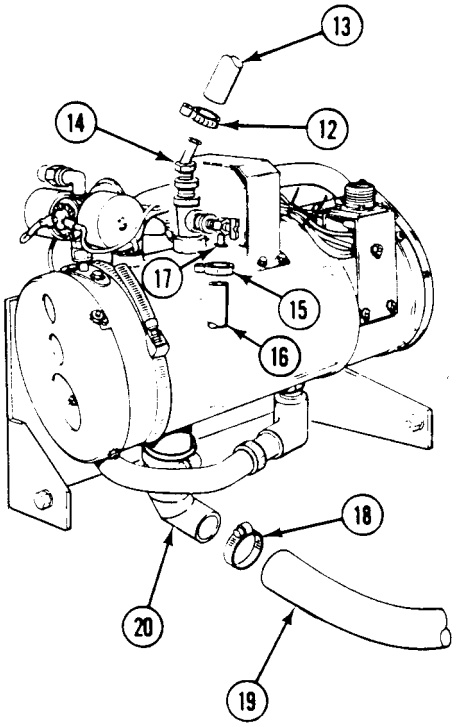
REPLACE COOLANT HEATER AND PUMP UNIT — Continued 0728 00

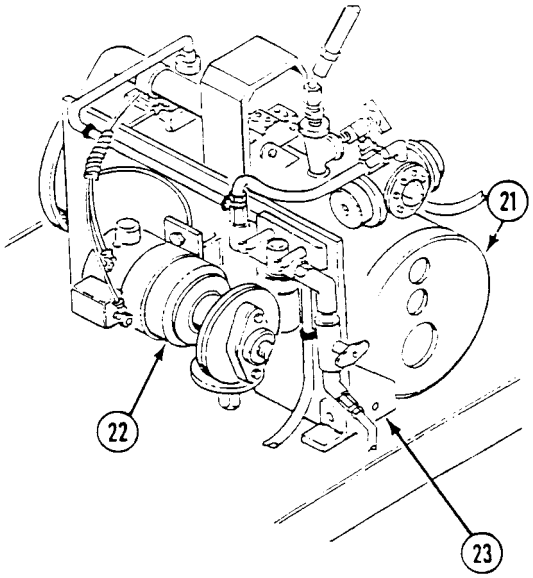
7. Loosen clamp (12). Disconnect hose (13) from elbow (14).

8. Loosen clamp (15). Disconnect hose (16) from tee (17).

9. Loosen clamp (18). Disconnect exhaust pipe (19) from elbow hose (20).

10. Remove heater (21), pump (22), and bracket (23) from carrier as an assembly.



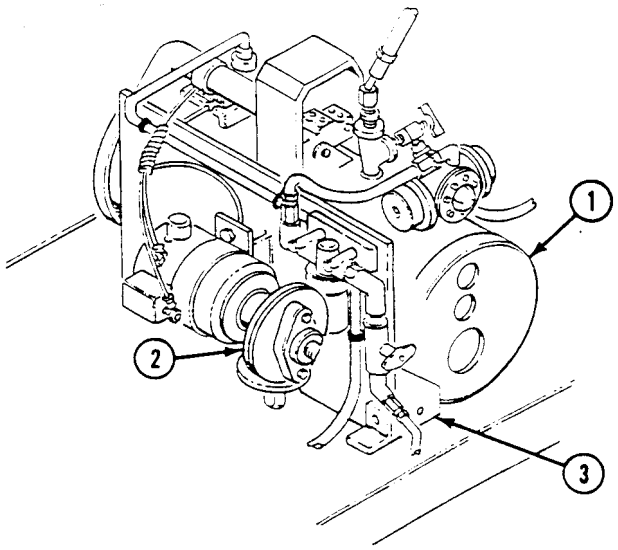


INSPECTION-ACCEPTANCE AND REJECTION CRITERIA

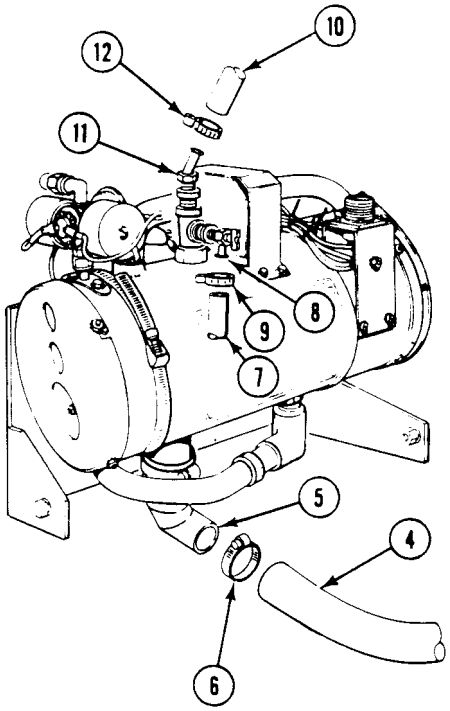
1. Check coolant heater and components. See troubleshooting (WP 0089 00). Replace bad heater (WP 0729 00) or components (WP 0730 00)(WP 0734 00).
2. Check coolant pump. See troubleshooting (WP 0089 00). Replace bad coolant pump (WP 0731 00).
3. Check heater. Replace cracked, dented, or damaged heater (WP 0729 00).

INSTALLATION

1. Install heater (1), pump (2), and bracket (3) assembly in carrier on right front sponson. Align bracket (3) with four hull brackets.

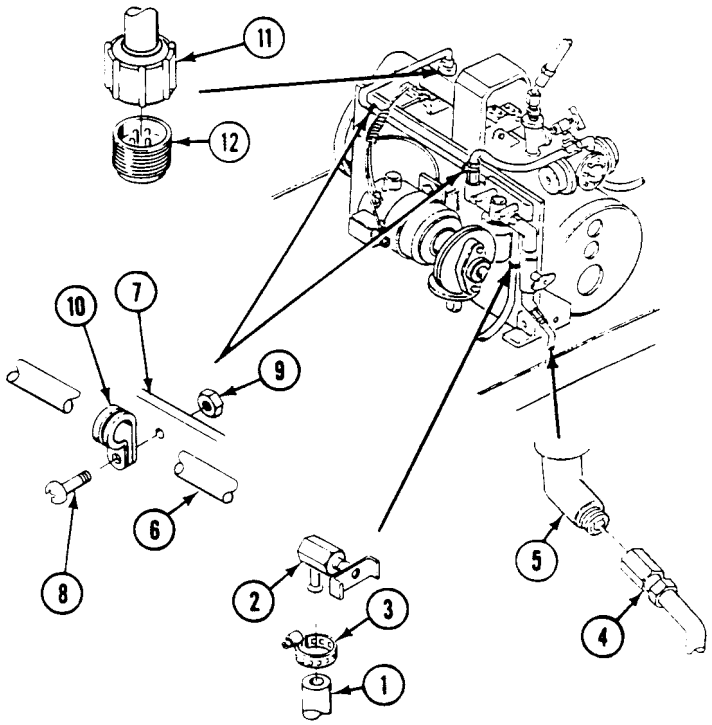


2. Connect exhaust pipe hose (4) to elbow (5). Secure with clamp (6).
3. Connect hose (7) to tee (8). Secure with clamp (9).
4. Connect hose (10) to elbow (11). Secure with clamp (12).



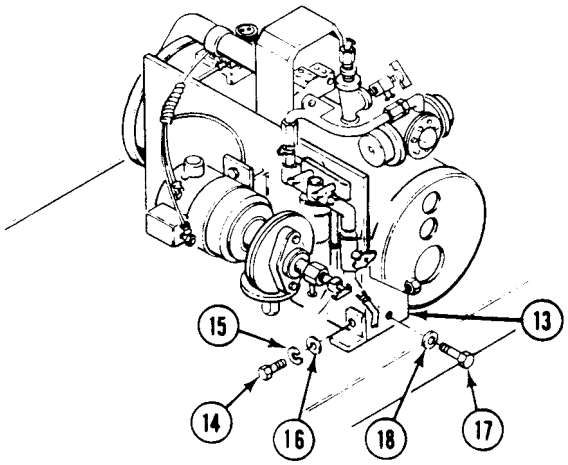
5. Connect hose (1) to coolant pump (2). Secure with clamp (3).
6. Unplug fuel inlet hose (4) and connect hose to fuel shut off valve elbow (5).
7. Install harness (6) on bracket (7). Secure with three screws (8), nuts (9), and clamps (10).

8. Connect harness (11) to receptacle (12).



9. Align bracket (13) with four hull brackets. Secure with two screws (14), new lockwashers (15), and two flat washers (16) in outboard end of bracket (13) and brackets on hull.

10. Install two screws (17), and two flat washers (18) in inboard end of bracket (13) and brackets on hull.



FOLLOW-THROUGH STEPS

1. Install air cleaner (WP 0168 00).
2. Connect battery ground strap (WP 0337 00), (WP 0338 00), or (WP 0339 00).
3. Fill carrier cooling system (WP 0227 00).
4. Open fuel tank shut off valves (see your -10).
5. Open heater fuel shut off valve (see your -10).
6. Start heater (see your -10). Check to make sure heater is installed right. Check for leaks. Turn heater off.
7. Close power plant access door (see your -10).
8. Raise trim vane (see your -10).
9. Start engine (see your -10).
10. Raise and lock ramp (see your -10).
11. Stop engine (see your -10).

END OF TASK

REPLACE COOLANT HEATER 0729 00

THIS WORK PACKAGE COVERS:

Removal (page 0729 00-1).
Inspection and Repair (page 0729 00-1).
Installation (page 0729 00-2).

INITIAL SETUP:

Maintenance Level
Unit

Personnel Required
Unit Mechanic

Tools and Special Tools
General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts
Sealing compound (WP 0928 00, Item 56)

Equipment Condition
Coolant heater and pump unit removed from carrier (WP 0728 00)

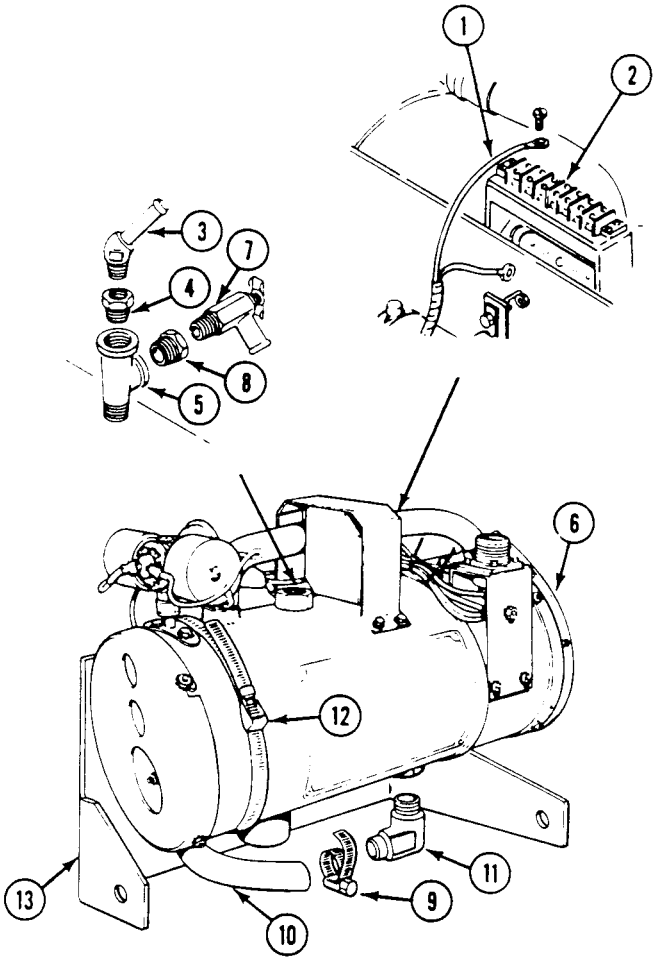
REMOVAL

1. Disconnect circuit 402B lead (1) from heater terminal strip (2).
2. Remove elbow (3), bushing (4), and tee (5) from heater (6).
3. Remove shut off valve (7) and bushing (8) from tee (5).
4. Loosen clamp (9). Remove pump-to-heater hose (10) from elbow (11).
5. Remove elbow (11) from heater (6).
6. Loosen clamps (12). Remove heater (6) from bracket (13).

INSPECTION-ACCEPTANCE AND REJECTION CRITERIA

1. Check coolant heater and components. See troubleshooting (WP 0089 00). Replace bad heater or components (WP 0730 00) or (WP 0734 00).

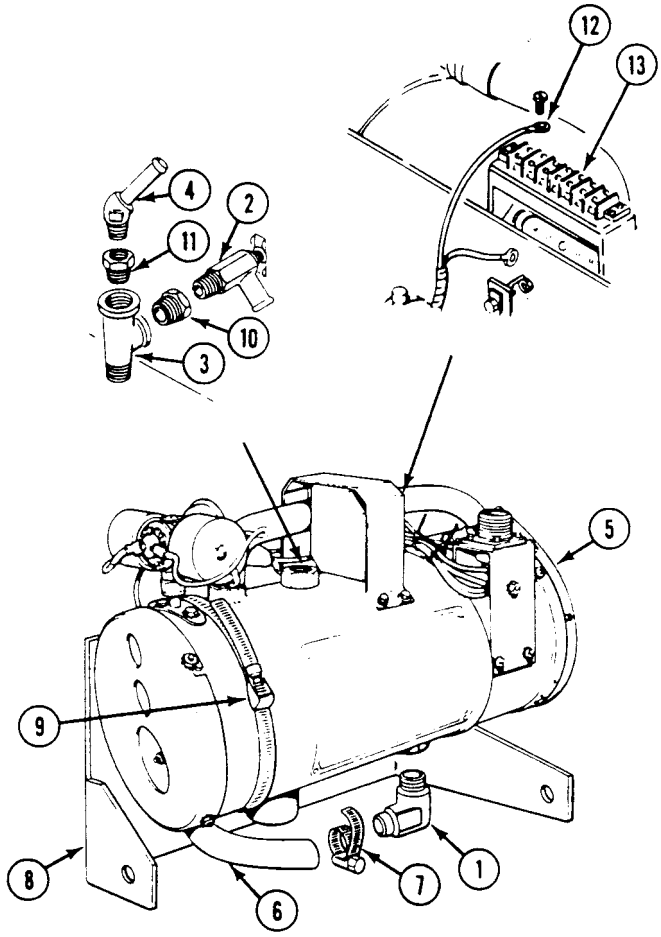
2. Check coolant heater. Replace cracked, damaged, or leaky heater. Replace heater that shows burn-through.



INSTALLATION

1. Apply sealing compound to threads of elbow (1), shut off valve (2), tee (3), elbow (4), and bushings (10)(11).
2. Install elbow (1) in heater (5).
3. Install hose (6) on elbow (1). Secure with clamp (7).
4. Install heater (5) on bracket (8). Secure with two clamps (9).
5. Install bushing (10) in tee (3).
6. Install shut off valve (2) in bushing (10).
7. Install tee (3) in heater (5).
8. Install bushing (11) in tee (3).
9. Install elbow (4) in bushing (11).

10. Connect circuit 402B lead (12) to terminal strip (13).



FOLLOW-THROUGH STEPS

1. Install coolant heater and pump unit (WP 0728 00).

END OF TASK

REPLACE IGNITER 0730 00

THIS WORK PACKAGE COVERS:

Removal (page 0730 00-1).
Inspection (page 0730 00-2).
Installation (page 0730 00-2).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts

Gasket
Lockwasher

Personnel Required

Unit Mechanic

References

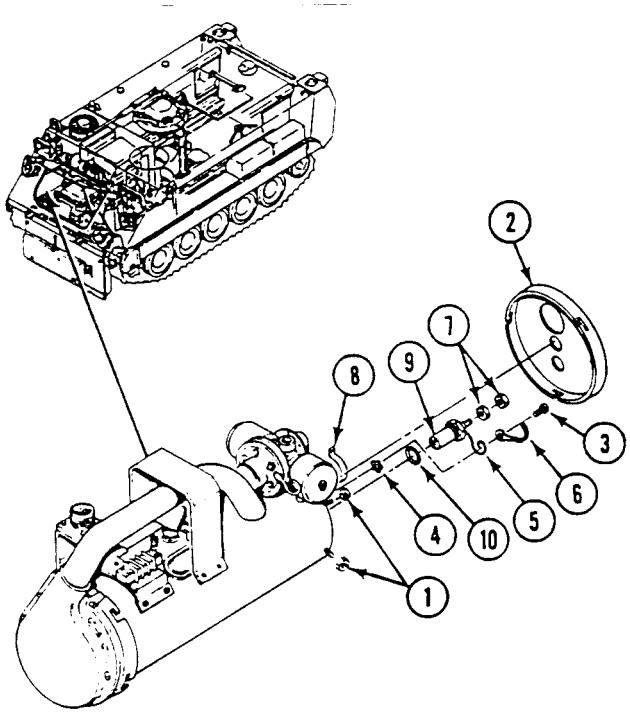
See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Trim vane lowered (see your -10)
Power plant access door open (see your -10)
Battery ground strap disconnected (WP 0337 00), (WP 0338 00), or (WP 0339 00)
Air cleaner removed (WP 0168 00)

REMOVAL

1. Loosen four nuts (1). Turn cover plate (2) to the left and remove.
2. Remove screw (3), lockwasher (4), igniter ground lead (5), and ground strap (6) from coolant heater. Discard lockwasher.
3. Remove two nuts (7) and resistor strap (8) from igniter (9). Bend strap out of way.
4. Remove igniter (9) and gasket (10) from heater. Discard gasket.

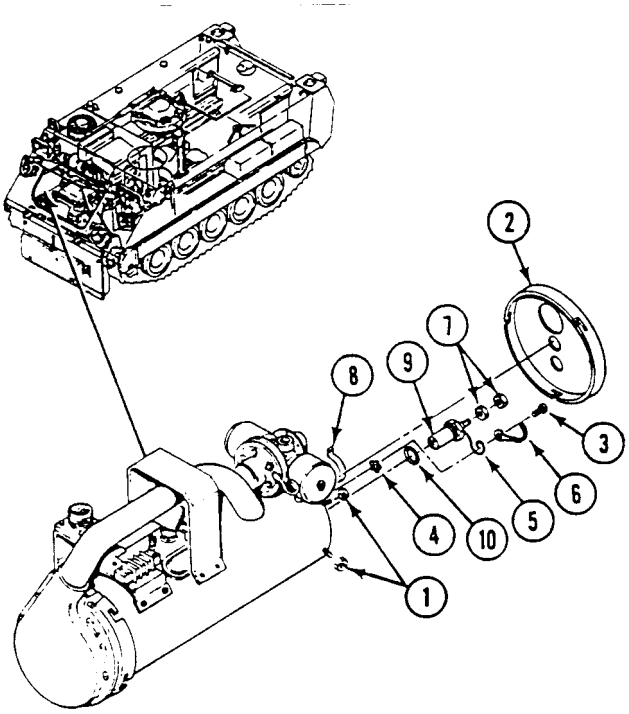


INSPECTION-ACCEPTANCE AND REJECTION CRITERIA

1. Check ground strap. Replace igniter if strap is worn or broken.

INSTALLATION

1. Install new gasket (10) and igniter (9) in heater.
2. Place resistor strap (8) on igniter (9). Secure with two nuts (7).
3. Place ground strap (6) and igniter ground lead (5) on coolant heater. Secure with new lockwasher (4) and screw (3).
4. Place cover plate (2) on end of heater. Turn cover to right and secure with four nuts (1).



FOLLOW-THROUGH STEPS

1. Install air cleaner (WP 0168 00).
2. Connect battery ground strap (WP 0337 00), (WP 0338 00), or (WP 0339 00).
3. Start heater (see your -10). Check that igniter works right. Turn heater off.
4. Close power plant access door (see your -10).
5. Raise trim vane (see your -10).

END OF TASK

REPLACE COOLANT HEATER PUMP 0731 00

THIS WORK PACKAGE COVERS:

Removal (page 0731 00-1).
Installation (page 0731 00-2).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts

Sealing compound (WP 0928 00, Item 56)
Lockwasher

Personnel Required

Unit Mechanic

References

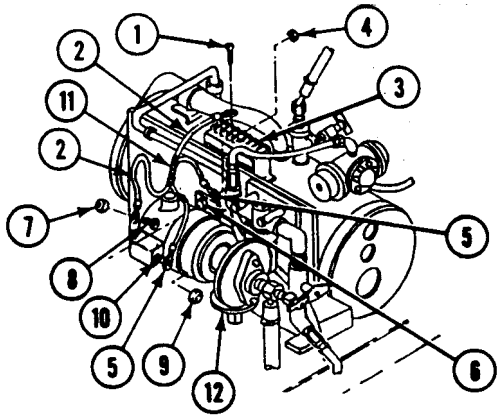
See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Trim vane lowered (see your -10)
Power plant access door open (see your -10)
Carrier cooling system drained (WP 0227 00)
Coolant heater system drained (WP 0710 00)
Battery ground strap disconnected (WP 0337 00), (WP 0338 00), or (WP 0339 00)
Coolant heater and pump unit removed (WP 0728 00)

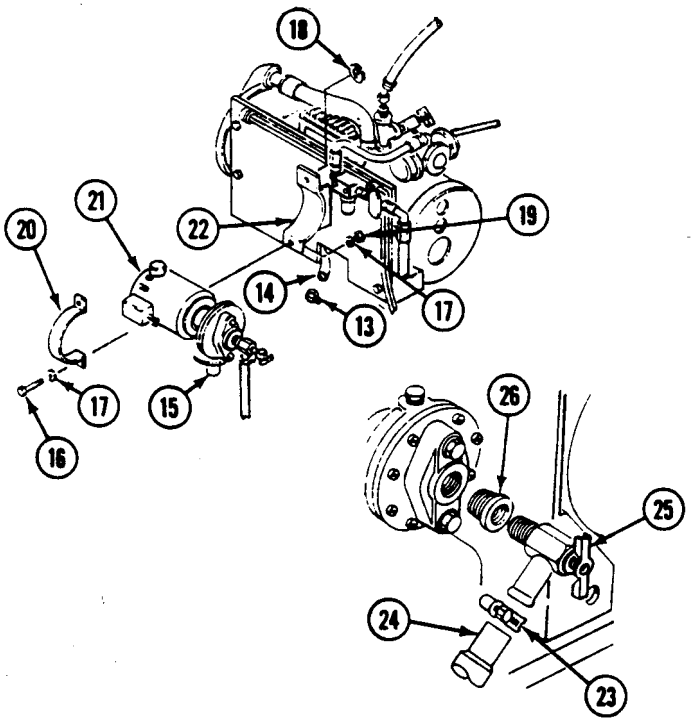
REMOVAL

1. Remove screw (1) and circuit lead 402B (2) from terminal strip (3).
2. Remove nut (4) and ground lead (5) from pump mounting screw (6).
3. Remove nut (7) and circuit 402B lead (2) from pump terminal (8).
4. Remove nut (9) and ground lead (5) from pump terminal (10).
5. Remove wiring harness (11) from pump (12).



6. Loosen clamp (13). Remove hose (14) from elbow (15).
7. Remove two screws (16), three washers (17), lockwasher (18), nut (19), retaining strap (20), and pump (21) from support bracket (22). Discard lockwasher.
8. Remove elbow (15) from pump (21).
9. Loosen clamp (23). Remove hose (24) from shutoff valve (25).

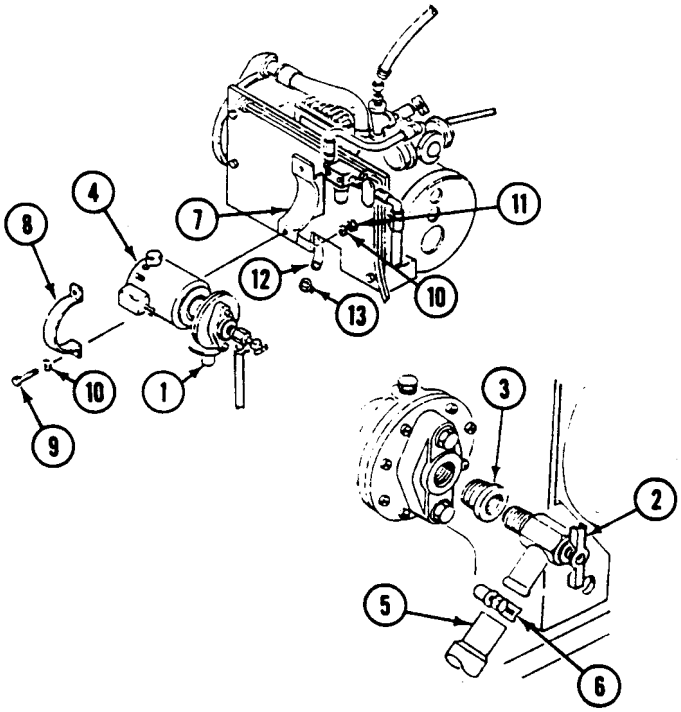
10. Remove shutoff valve (25) from pump (21).
11. Remove bushing (26) from pump (21).



INSTALLATION

1. Apply sealing compound to threads of elbow (1), shutoff valve (2), and bushing (3).
2. Install bushing (3) in coolant pump (4).
3. Install shutoff valve (2) in bushing (3).
4. Install hose (5) on shutoff valve (2). Secure with clamp (6).
5. Install elbow (1) in coolant pump (4).
6. Install pump (4) on bracket (7). Secure with retaining strap (8), two screws (9), three washers (10), and nut (11).

7. Install hose (12) on elbow (1). Secure with clamp (13).



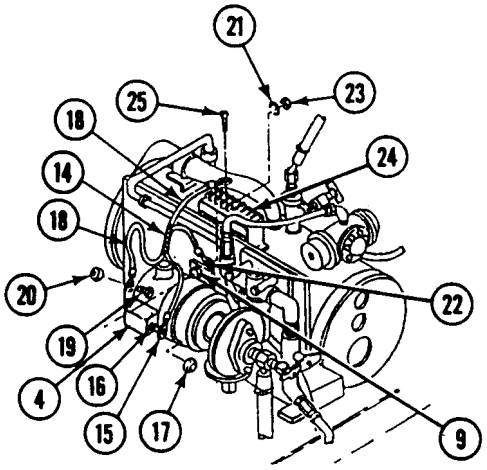
8. Install wiring harness (14) on pump (4).

9. Install ground lead (15) on pump terminal (16). Secure with nut (17).

10. Install circuit 402B lead (18) on pump terminal (19). Secure with nut (20).

11. Install new lockwasher (21) and ground lead (22) on upper pump screw (9). Secure with nut (23).

12. Install circuit 402B lead (18) on terminal strip (24). Secure with screw (25).



FOLLOW-THROUGH STEPS

1. Install coolant heater and pump unit(WP 0728 00).
2. Connect battery ground strap (WP 0337 00), (WP 0338 00) or (WP 0339 00).
3. Fill carrier cooling system (WP 0227 00).
4. Fill coolant heater system (WP 0710 00).
5. Start coolant heater (see your -10). Check for leaks. Turn heater off.
6. Close power plant access door (see your -10).
7. Raise trim vane (see your -10).

END OF TASK

REPLACE COOLANT HEATER AND COOLANT PUMP BRACKET 0732 00

THIS WORK PACKAGE COVERS:

Removal (page 0732 00-1).
Installation (page 0732 00-1).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0926 00, Item 65)

Personnel Required
Unit Mechanic

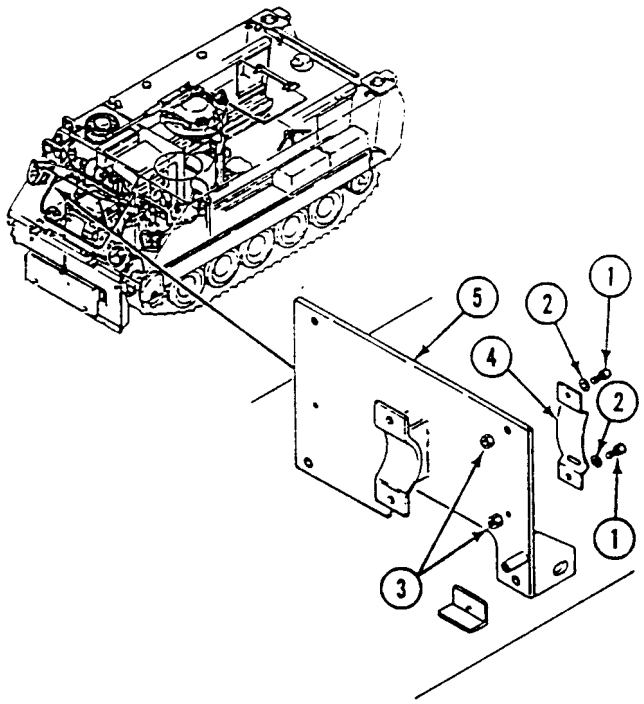
Equipment Condition
Engine stopped (See your -10)
Carrier blocked (See your -10)
Coolant heater and pump unit removed (WP 0728 00)
Coolant heater removed (WP 0729 00)
Coolant pump removed (WP 0731 00)

REMOVAL

1. Remove four screws (1), washers (2), nuts (3), and two heater saddle mounts (4) from bracket (5).

INSTALLATION

1. Install saddle mounts (4) on bracket (5). Secure with four nuts (3), washers (2), and screws (1).



FOLLOW-THROUGH STEPS

1. Install coolant pump (WP 0731 00).
2. Install coolant heater (WP 0729 00).
3. Install coolant heater and pump unit (WP 0728 00).

END OF TASK

REPLACE COOLANT PUMP TO HEATER WIRING HARNESS 0733 00

THIS WORK PACKAGE COVERS:

Removal (page 0733 00-1).
Inspection and Repair (page 0733 00-2).
Installation (page 0733 00-2).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)
Multimeter (WP 0926 00, Item 30)

Personnel Required

Unit Mechanic

References

See your -10

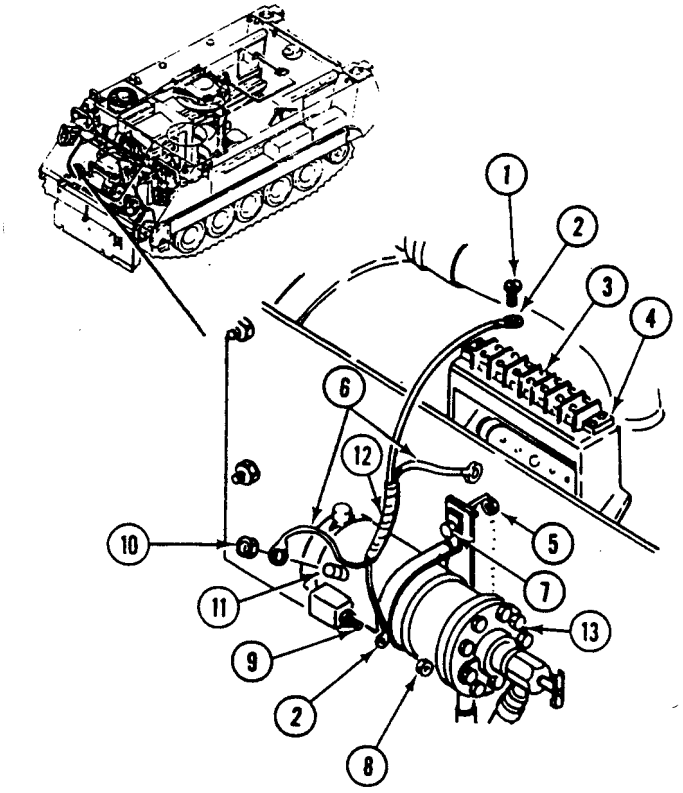
Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Trim vane lowered (see your -10)
Power plant access door opened (see your -10)
Battery ground strap disconnected (WP 0337 00), (WP 0338 00) or (WP 0339 00)
Coolant heater and pump unit removed (WP 0728 00)

REMOVAL

1. Remove screw (1) and circuit lead (2) from terminal 4 (3) of heater terminal strip (4).
2. Remove nut (5) and ground lead (6) from coolant pump mount screw (7).
3. Remove nut (8) and circuit 402B lead (2) from coolant pump terminal (9).

4. Remove nut (10) and ground lead (6) from coolant pump terminal (11). Remove wiring harness (12) from pump (13).



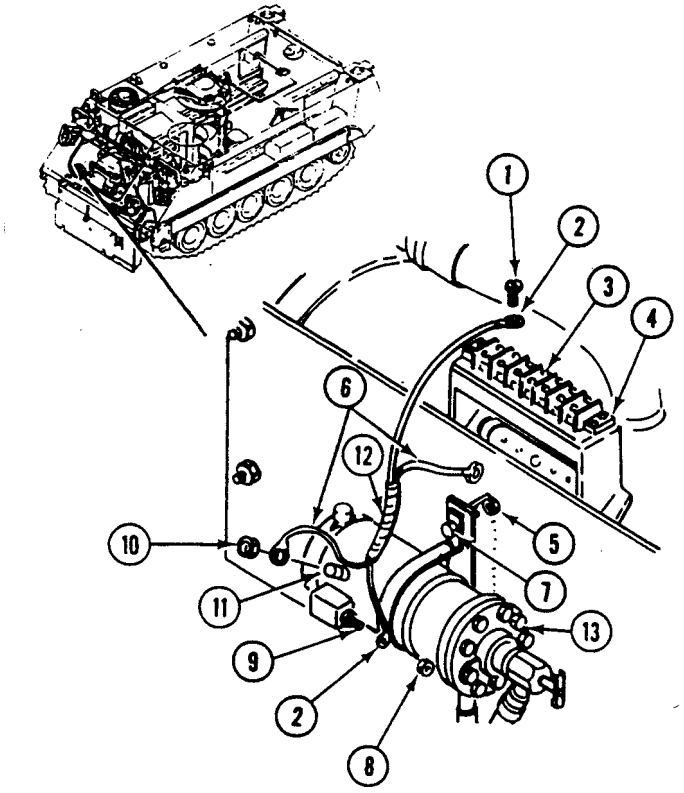
INSPECTION-ACCEPTANCE AND REJECTION CRITERIA

1. Check wiring harness continuity. Check leads for frayed or broken insulation or damaged terminal lugs. Repair harness as needed (WP 0382 00).

INSTALLATION

1. Place wiring harness (12) on coolant pump (13). Install ground lead (6) and nut (10) on pump terminal (11).
2. Install circuit 402B lead (2) and nut (8) on pump terminal (9).
3. Install ground lead (6) and nut (5) on coolant pump mount screw (7).

4. Install circuit 402B lead (2) and screw (1) on terminal 4 (3) of terminal strip (4).



FOLLOW-THROUGH STEPS

1. Install coolant heater and pump unit (WP 0728 00).
2. Connect battery ground strap (WP 0337 00), (WP 0338 00) or (WP 0339 00).
3. Start coolant heater (see your -10). Check that wiring harness is installed right. Turn heater off.
4. Close power plant access door (see your -10).
5. Raise trim vane (see your -10).

END OF TASK

REPLACE FLAME DETECTOR SWITCH 0734 00

THIS WORK PACKAGE COVERS:

Removal (page 0734 00-1).
Inspection and Repair (page 0734 00-1).
Installation (page 0734 00-2).

INITIAL SETUP:

Maintenance Level
Unit

Personnel Required
Unit Mechanic

Tools and Special Tools
General Mechanic's Tool Kit (WP 0926 00, Item 65)

Equipment Condition
Coolant heater and pump unit removed (WP 0728 00)

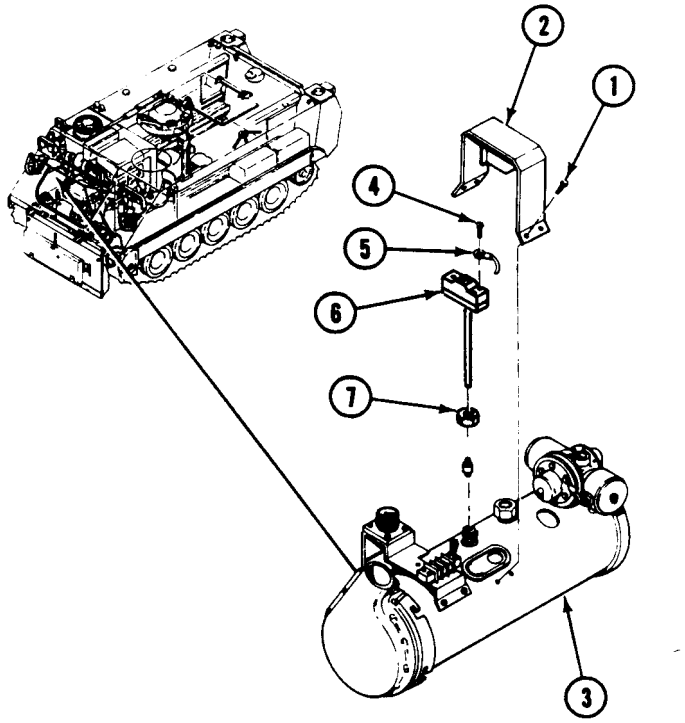
REMOVAL

1. Remove four screws (1) and guard (2) from heater (3).

NOTE

Tag all leads before removal.

2. Remove five screws (4) and leads (5) from flame detector switch (6).
3. Loosen nut (7) on switch (6). Pull switch straight out from heater (3).



INSPECTION-ACCEPTANCE AND REJECTION CRITERIA

1. Check leads and connectors. Replace worn leads and damaged connectors (WP 0382 00).

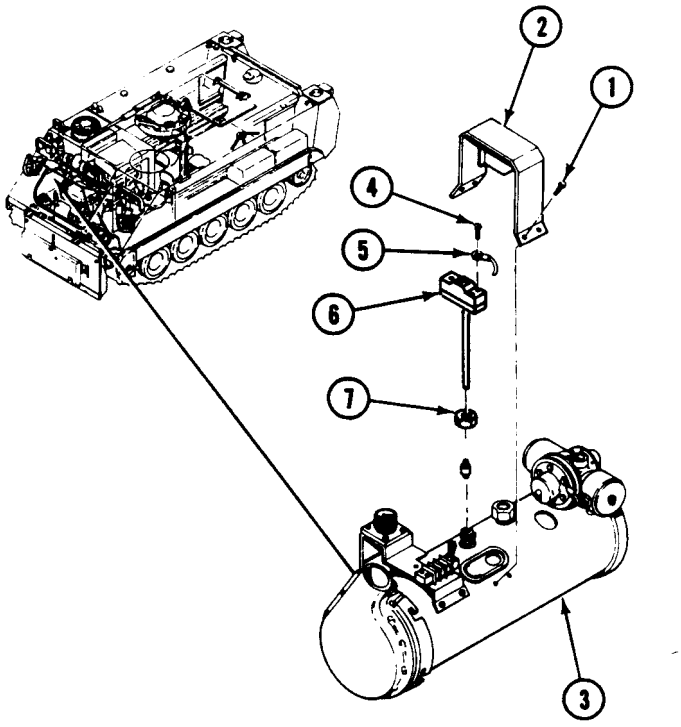
INSTALLATION

1. Install flame detector switch (6) in heater (3). Secure with nut (7) on switch.

NOTE

Check tags on leads to make sure of proper connections.

2. Place five leads (5) on switch (6). Secure with five screws (4).
3. Place guard (2) on heater (3). Secure with four screws (1).



FOLLOW-THROUGH STEPS

1. Install coolant heater and pump unit (WP 0728 00).
2. Start heater (see your -10). Check that flame detector switch works right. Turn heater off.

END OF TASK

REPLACE COOLANT HEATER WIRING HARNESS 0735 00

THIS WORK PACKAGE COVERS:

Removal (page 0735 00-1).
Installation (page 0735 00-4).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts

Tie down strap (2)

Personnel Required

Unit Mechanic

References

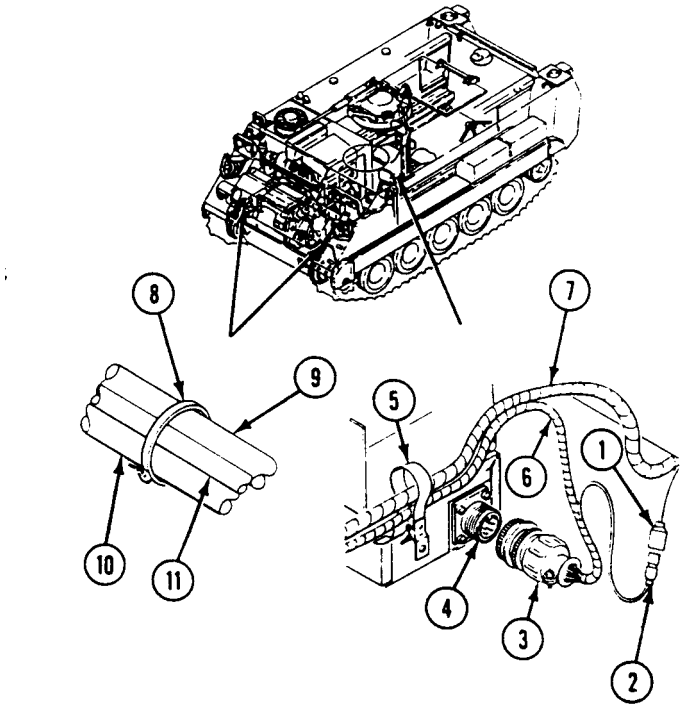
See your -10

Equipment Condition

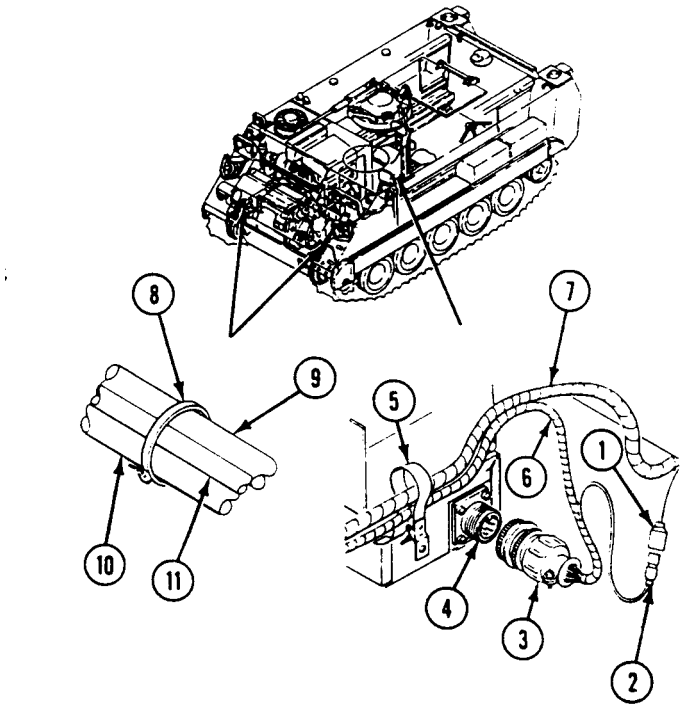
Engine stopped (see your -10)
Carrier blocked (see your -10)
Trim vane lowered (see your -10)
Power plant access door opened (see your -10)
Battery ground strap disconnected (WP 0337 00), (WP 0338 00) or (WP 0339 00)
Coolant heater and pump unit removed (WP 0728 00)

REMOVAL

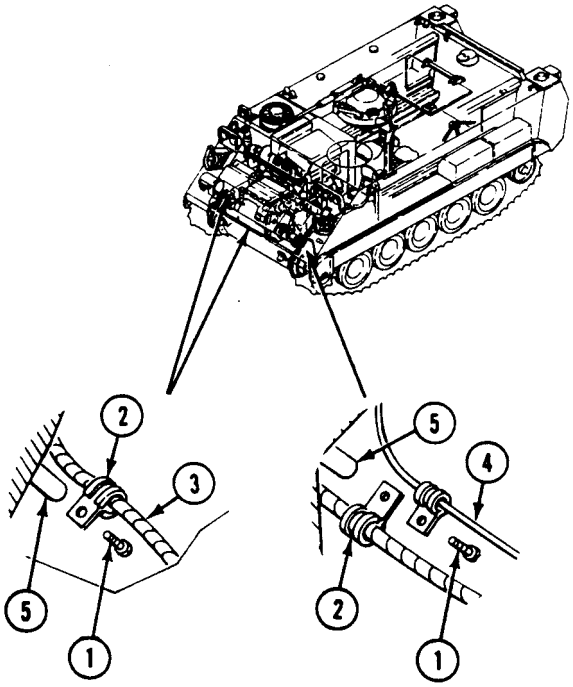
1. Disconnect main wiring harness 402A lead (1) from coolant heater wiring harness lead (2).
2. Disconnect control box connector (3) from control box receptacle (4).
3. Remove eight line straps (5) securing coolant heater wiring harness (6) to main wiring harness (7).



4. Remove two tie down straps (8) securing coolant pump hose (9) to two wiring harnesses (10)(11). Discard straps.

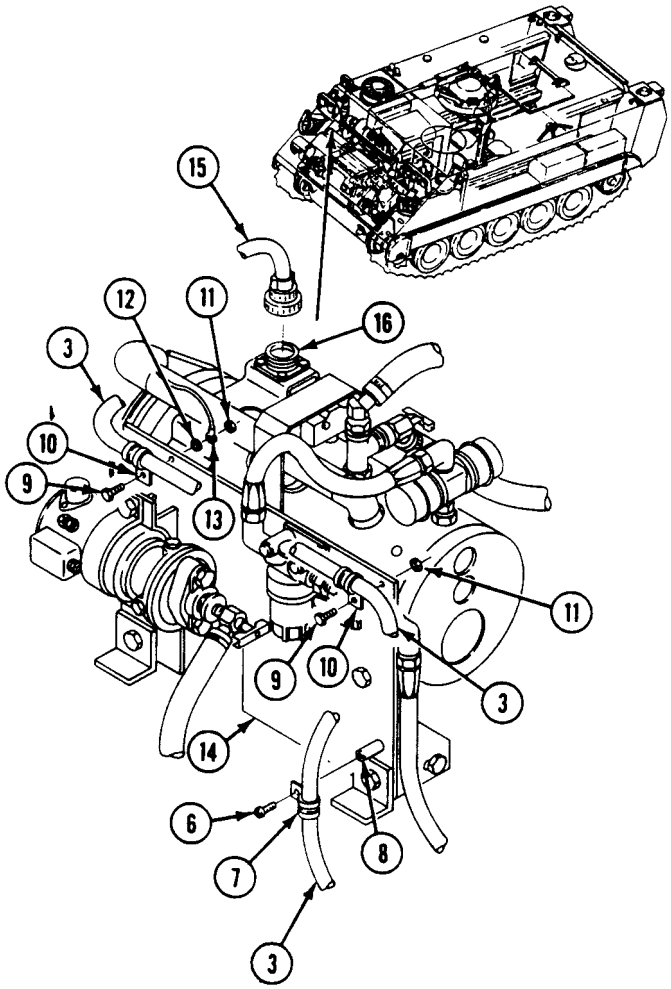


5. Remove five screws (1) and clamps (2) securing coolant heater wiring harness (3) and coolant heater fuel line (4) to weldnuts (5).



REPLACE COOLANT HEATER WIRING HARNESS — Continued 0735 00

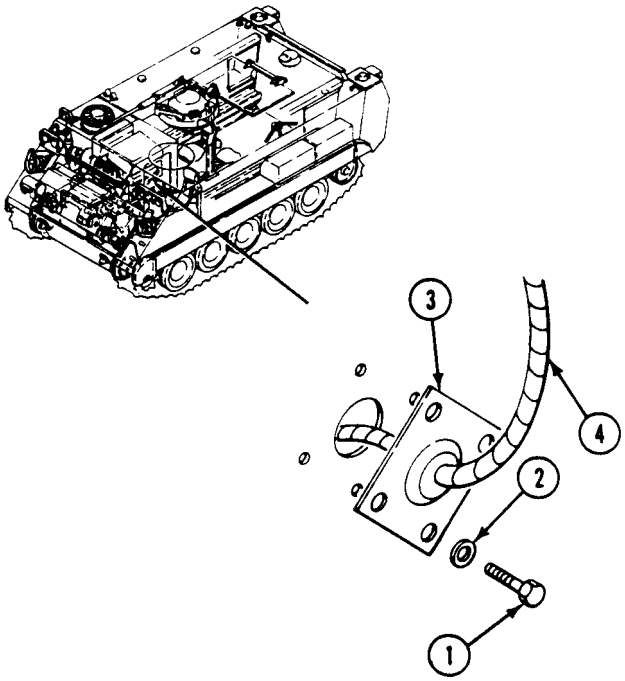
6. Remove screw (6) and clamp (7) securing coolant heater wiring harness (3) to mounting bracket weldnut (8).
7. Remove two screws (9), clamps (10), nuts (11), and washer (12) securing coolant heater wiring harness (3) and terminal ground lead (13) to mounting bracket (14).
8. Disconnect coolant heater connector (15) from coolant heater receptacle (16).



9. Remove four screws (1), washers (2), harness plate (3), and coolant heater wiring harness (4) from driver's compartment bulkhead.

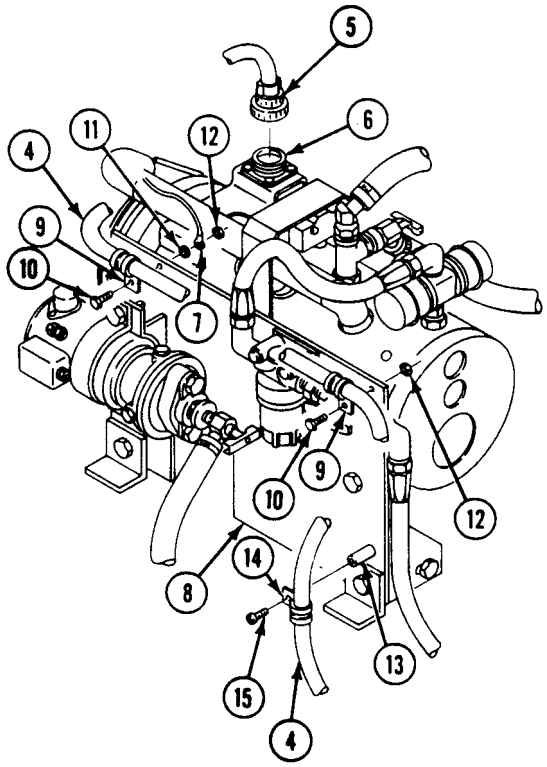
INSTALLATION

1. Thread terminal ground lead and coolant heater connector of wiring harness (4) through driver's compartment bulkhead opening.
2. Install wiring harness plate (3) to driver's compartment bulkhead. Secure with four washers (2) and screws (1).

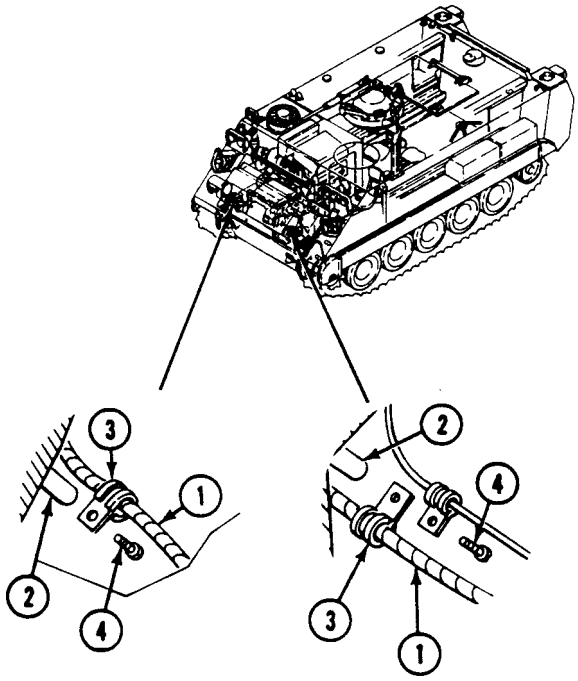


3. Route coolant heater wiring harness along front of power plant compartment to coolant heater. Connect coolant heater connector (5) to coolant heater receptacle (6).
4. Install coolant heater wiring harness (4) and terminal ground lead (7) to mounting bracket (8). Secure with two clamps (9), screws (10), washer (11), and nuts (12).

5. Install coolant heater wiring harness (4) to mounting bracket weldnut (13). Secure with clamp (14) and screw (15).

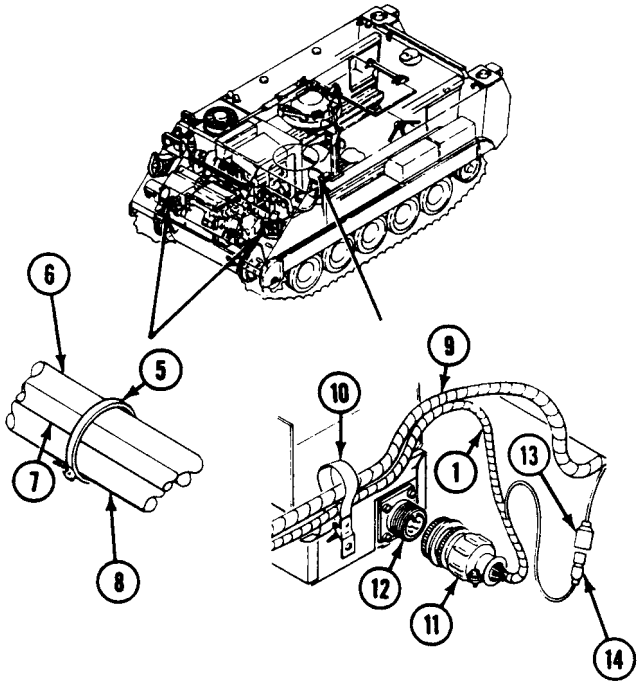


6. Install coolant heater wiring harness (1) to five weldnuts (2). Secure with five clamps (3) and screws (4).



7. Install two new tie down straps (5) securing coolant pump hose (6) to two wiring harnesses (7)(8).
8. Secure coolant heater wiring harness (1) to main wiring harness (9) with eight line straps (10).
9. Connect control box connector (11) to control box receptacle (12).

10. Connect main wiring harness 402A lead (13) to coolant heater wiring harness lead (14).



FOLLOW-THROUGH STEPS

1. Install coolant heater and pump unit (WP 0728 00).
2. Connect battery ground strap (WP 0337 00), (WP 0338 00) or (WP 0339 00).
3. Close power plant access door (see your -10).
4. Raise trim vane (see your -10).

END OF TASK

REPLACE COOLANT HEATER CONTROL BOX 0736 00

THIS WORK PACKAGE COVERS:

Removal (page 0736 00-1).
Inspection and Repair (page 0736 00-2).
Installation (page 0736 00-2).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit WP 0926 00, Item 65

Materials/Parts
Lockwasher (2)

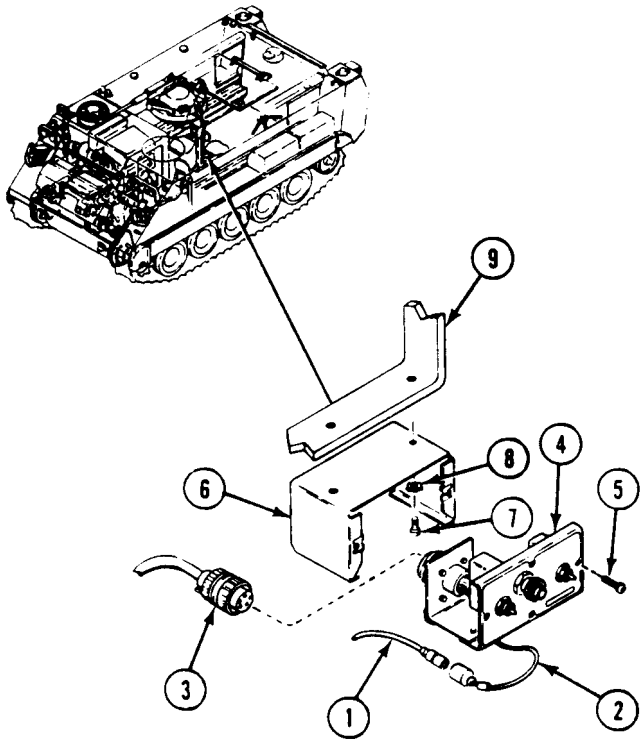
Personnel Required
Unit Mechanic

References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Battery ground strap disconnected (WP 0337 00), (WP 0338 00) or (WP 0339 00)

REMOVAL

1. Disconnect circuit 400A lead (1) from heater control box lead (2).
2. Disconnect heater wiring harness (3) from heater control box (4).
3. Remove two screws (5) and control box (4) from control box case (6).
4. Remove two screws (7), lockwashers (8), and case (6) from support bracket (9). Discard lockwashers.

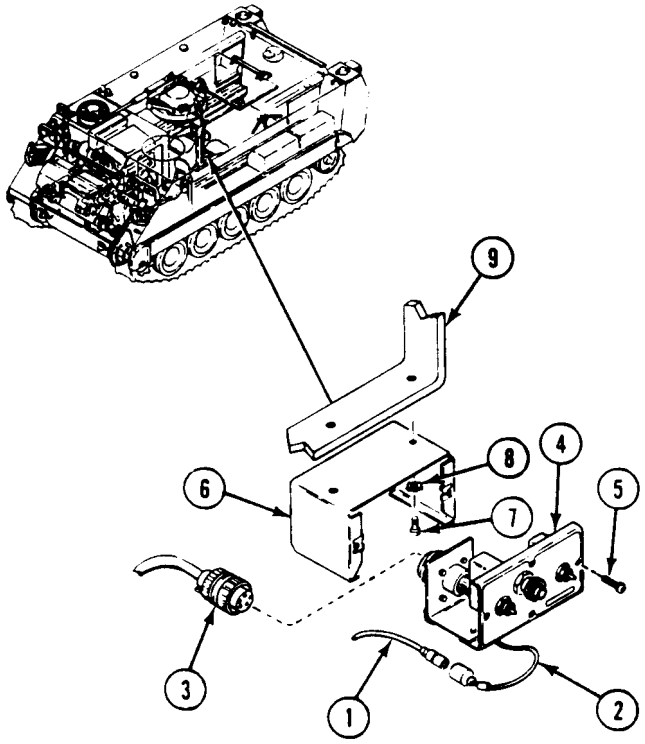


INSPECTION-ACCEPTANCE AND REJECTION CRITERIA

1. Check control box and components. See troubleshooting (WP 0089 00). Replace bad control box or components (WP 0737 00).

INSTALLATION

1. Place control box case (6) on support bracket (9). Secure with two new lockwashers (8) and screws (7).
2. Install heater control box (4) in case (6). Secure with two screws (5).
3. Connect heater wiring harness (3) to control box (4).
4. Connect circuit 400A lead (1) to control box lead (2).



FOLLOW-THROUGH STEPS

1. Connect battery ground strap (WP 0337 00), (WP 0338 00) or (WP 0339 00).
2. Start heater (see your -10). Check that heater control box works right. Turn heater off.

END OF TASK

REPAIR COOLANT HEATER CONTROL BOX 0737 00

THIS WORK PACKAGE COVERS:

Disassembly (page 0737 00-1).
Inspection and Repair (page 0737 00-6).
Assembly (page 0737 00-7).

INITIAL SETUP:

Maintenance Level
Unit

Personnel Required
Unit Mechanic

Tools and Special Tools
General Mechanic's Tool Kit (WP 0926 00, Item 65)
Multimeter (WP 0926 00, Item 30)

References
See your -10

Materials/Parts
Lockwasher (9)

Equipment Condition
Heater control box removed (WP 0736 00)

DISASSEMBLY

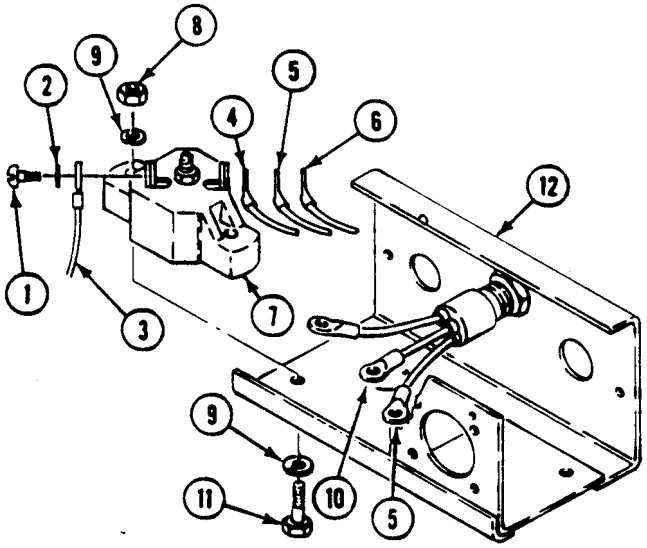
NOTE

Tag all electrical leads before removing.

1. Remove circuit breaker from control box:

   a. Remove two screws (1), lockwashers (2), lead 16 (3) from one terminal, and lead 17-D (4), lead 17-3 (5), and jumper 15-17 (6) from other terminal on circuit breaker (7).

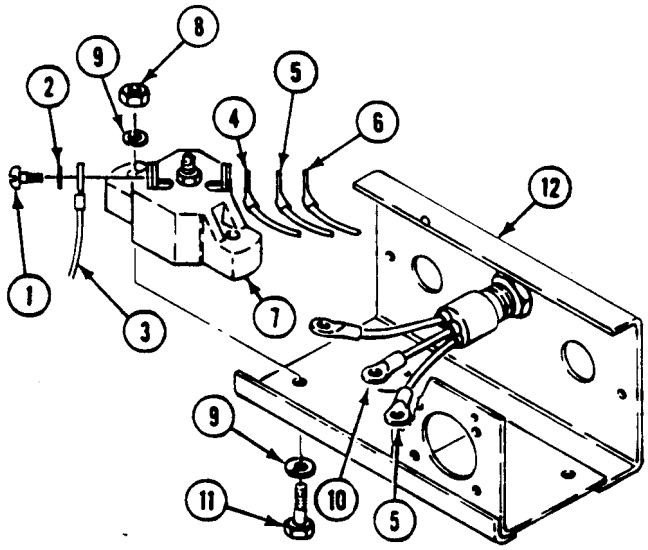
   b. Remove two nuts (8), four lockwashers (9), ground lead (10), two screws (11), and circuit breaker (7) from control box (12). Discard lockwashers.



2. Remove indicator light assembly from control box:

   a. Remove nut (8), lockwasher (9), and ground lead (10) from circuit breaker (7) mounting screw (11). Discard lockwasher.

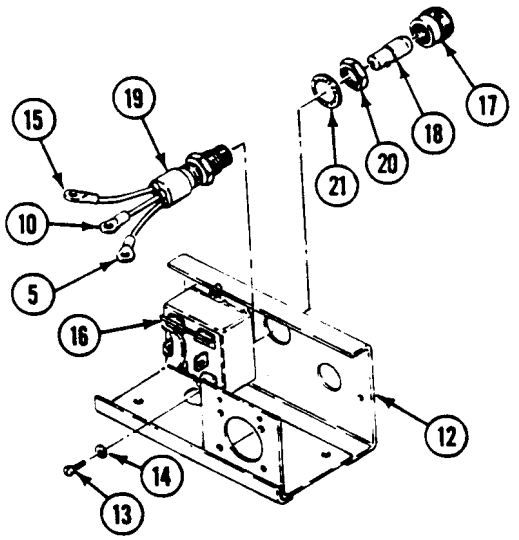
   b. Remove screw (1), lockwasher (2), and lead 17-3 (5) from circuit breaker (7).



   c. Remove screw (13), lockwasher (14), and lead 19-2 (15) from RUN-OFF-START switch (16).

   d. Unscrew cap (17) and remove bulb (18) from light assembly (19).

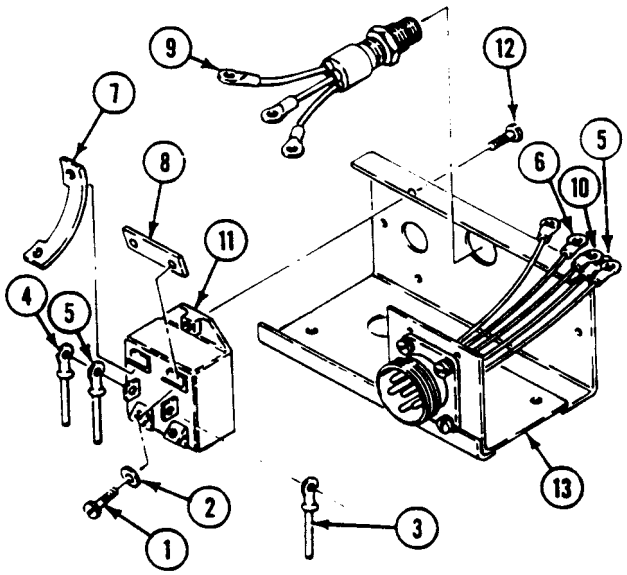
   e. Remove nut (20), lockwasher (21), and light assembly (19) from control box (12).



3. Remove RUN-OFF-START switch from control box:

   a. Remove six screws (1), lockwashers (2), jumper 15-17 (3), jumper 13-20 (4), lead 20-C (5), lead 14-A (6), jumper 21-18 (7), jumper 21-14 (8), lead 19-2 (9), and lead 19-E (10) from RUN-OFF-START switch (11).

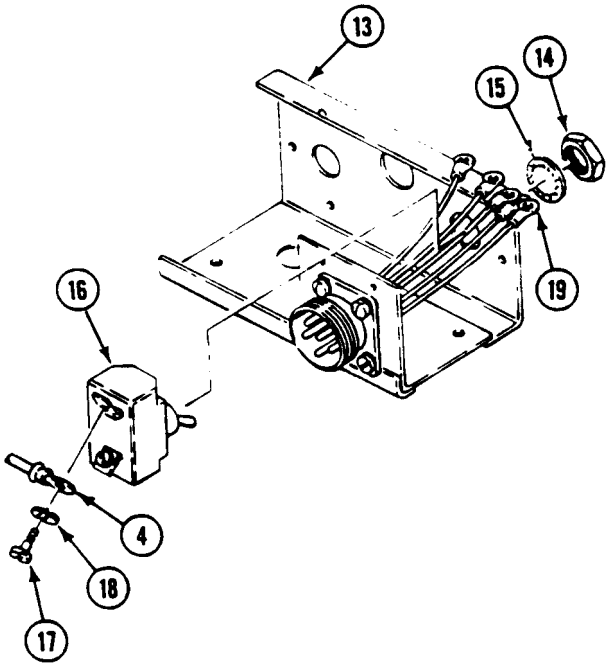
   b. Remove two screws (12) and RUN-OFF-START switch (11) from control box (13).



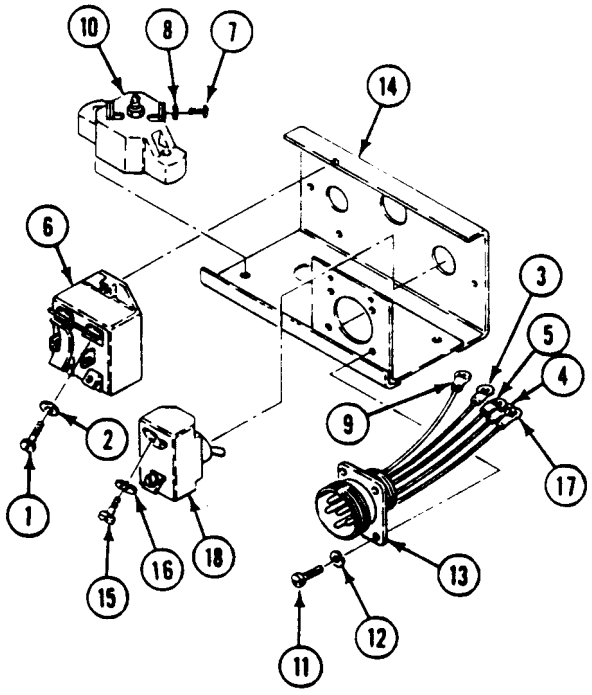
4. Remove HI-LO heat switch from control box:

   a. Remove nut (14), lockwasher (15), instruction plate (if applicable), and HI-LO switch (16) from control box (13). Discard lockwasher.

   b. Remove two screws (17), lockwashers (18), jumper 13-20 (4), and lead 12-B (19) from HI-LO switch (16).

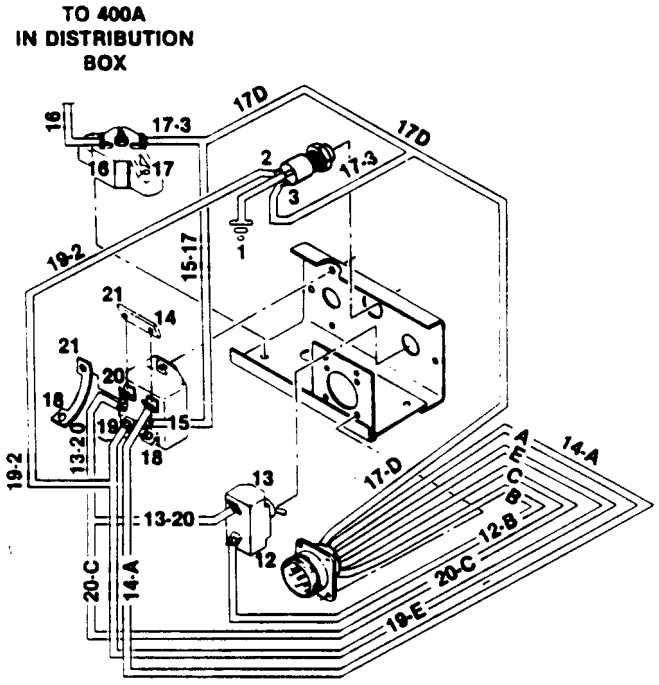


5. Remove receptacle from control box as follows:
   a. Remove three screws (1), lockwashers (2), lead 14-A (3), lead 20-C (4), and lead 19-E (5) from RUN-OFF-START switch (6).
   b. Remove screw (7), lockwasher (8), and lead 17-D (9) from circuit breaker (10).
   c. Remove four screws (11), lockwashers (12), and receptacle (13) from control box (14). Discard lockwashers.
   d. Remove screw (15), lockwasher (16), and lead 12-B (17) from HI-LO switch (18).



INSPECTION-ACCEPTANCE AND REJECTION CRITERIA

1. Check circuit breaker. See troubleshooting (WP 0089 00). Replace bad circuit breaker.
2. Check indicator light assembly and bulb. See troubleshooting (WP 0089 00). Replace bad light or bulb.
3. Check RUN-OFF-START switch and HI-LO switch. See troubleshooting (WP 0089 00). Replace bad switch.
4. Check receptacle for continuity from pins to lead ends. Replace damaged terminal lugs (WP 0382 00). If pins are damaged, notify supervisor.



ASSEMBLY

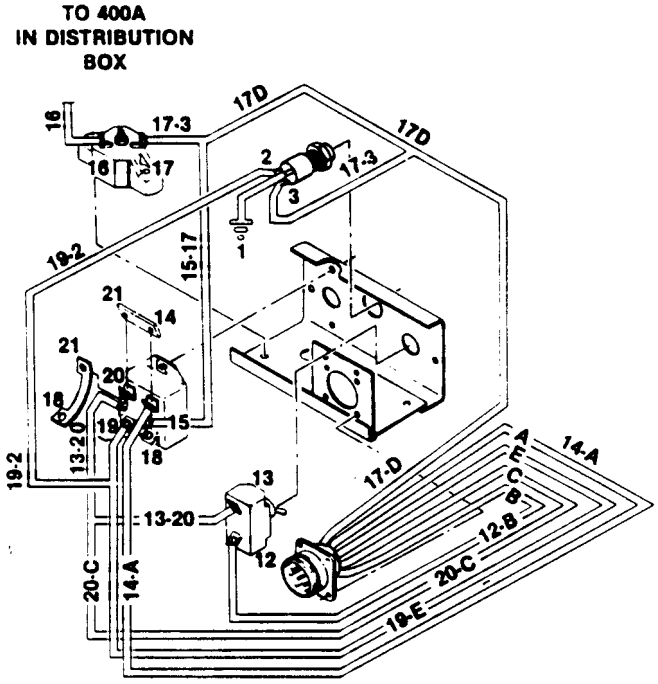
NOTE

Before connecting electrical leads, check tags and wiring diagram below to verify proper connection.

NOTE

Make sure key in receptacle is at the top.

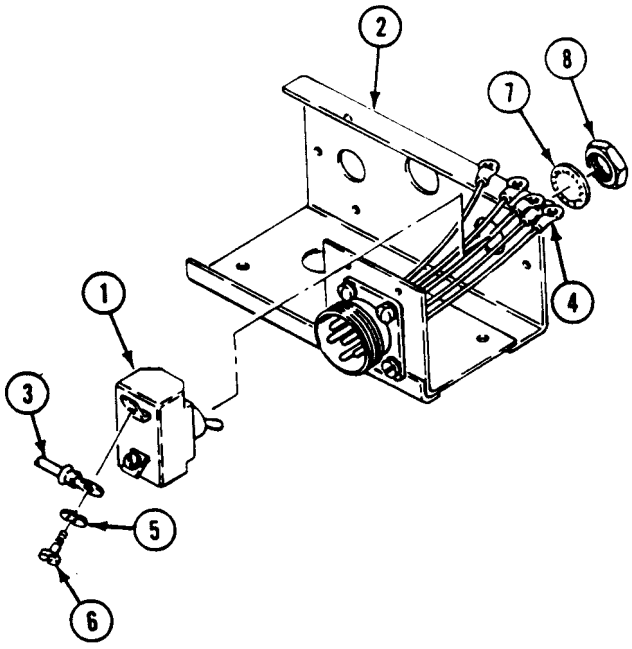
1. Install receptacle in control box:
   a. Install receptacle (13) in control box (14). Secure with four new lockwashers (12) and screws (11).
   b. Install lead 17-D (9) on circuit breaker (10). Secure with lockwasher (8) and screw (7).
   c. Install lead 12-B (17) on HI-LO switch (18). Secure with lockwasher (16) and screw (15).
   d. Install lead 19-E (5), lead 20-C (4), and lead 14-A (3) on RUN-OFF-START switch (6). Secure with three lockwashers (2) and screws (1).



NOTE

Switch is marked ON and OFF

2. Install HI-LO heat switch in control box:
   a. Install switch (1) in control box (2) with ON at the top.
   b. Install jumper 13-20 (3) and lead 12-B (4) on switch (1). Secure with two lockwashers (5) and screws (6).
   c. Install instruction plate on switch (if applicable). Secure plate and switch with new lockwasher (7) and nut (8).



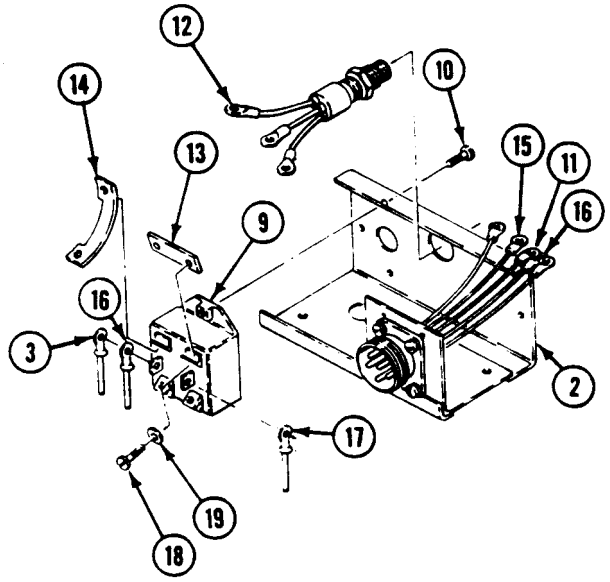
NOTE

Start switch has locked RUN position and spring-loaded START position.

3. Install RUN-OFF-START switch in control box:

   a. Install switch (9) in control box (2) with locked position at the top. Secure with two screws (10).

   b. Install lead 19-E (11), lead 19-2 (12), jumper 21-14 (13), jumper 21-18 (14), lead 14-A (15), lead 20-C (16), jumper 13-20 (3), and jumper 15-17 (17) on RUN-OFF-START switch (9). Secure with six lockwashers (18) and screws (19).

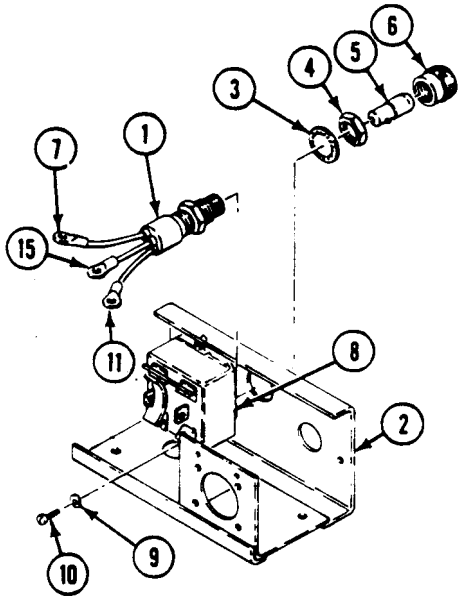


4. Install indicator light assembly in control box:

   a. Install light assembly (1) in control box (2). Secure with lockwasher (3) and nut (4).

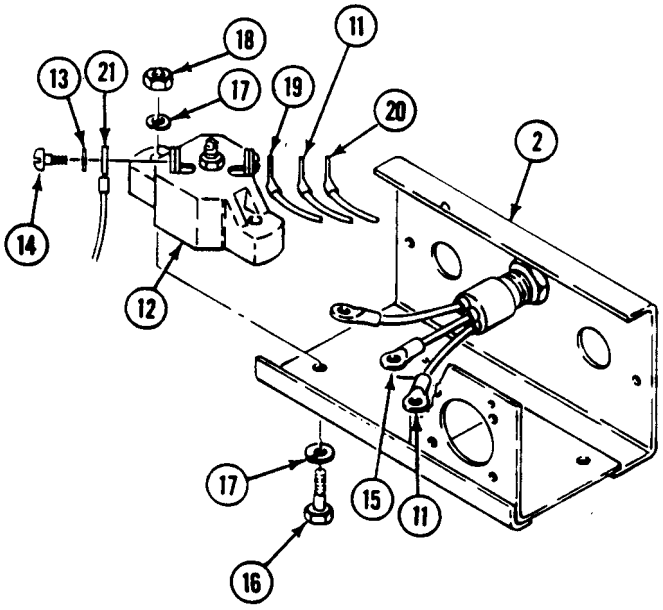
   b. Install bulb (5) and cap (6) in light assembly (1).

   c. Install lead 19-2 (7) on RUN-OFF-START switch (8). Secure with lockwasher (9) and screw (10).



   d. Install lead 17-3 (11) on circuit breaker (12). Secure with lockwasher (13) and screw (14).

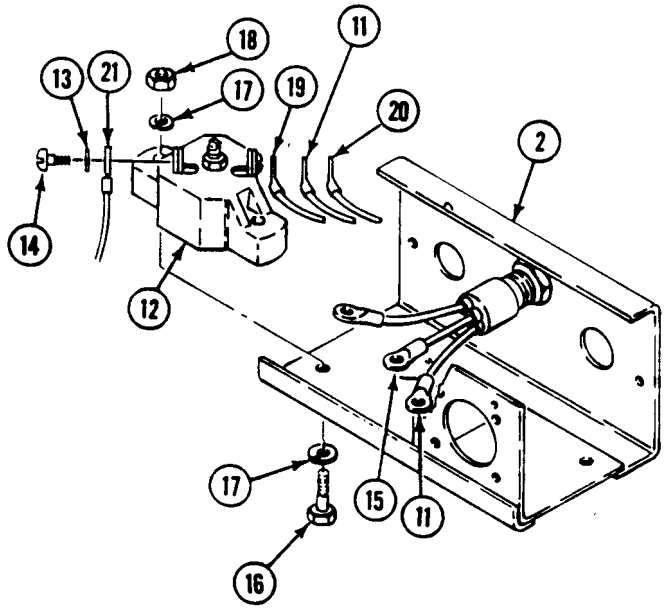
   e. Install ground lead (15) on circuit breaker (12) mounting screw (16). Secure with new lockwasher (17) and nut (18).



5. Install circuit breaker in control box:

   a. Install circuit breaker (12) in control box (2). Secure with four new lockwashers (17), two screws (16), ground lead (15), and two nuts (18).

   b. Install lead 17-D (19), lead 17-3 (11), and jumper 15-17 (20) on one terminal, and lead 16 (21) on other terminal of circuit breaker (12). Secure with two lockwashers (13) and screws (14).



FOLLOW-THROUGH STEPS

1. Install heater control box (WP 0736 00).

END OF TASK

REPLACE NON-SKID PLATES (M1064A3 ONLY) 0738 00

THIS WORK PACKAGE COVERS:

Removal (page 0738 00-1).
Installation (page 0738 00-2).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts

Key washer (9)

Personnel Required

Unit Mechanic

References

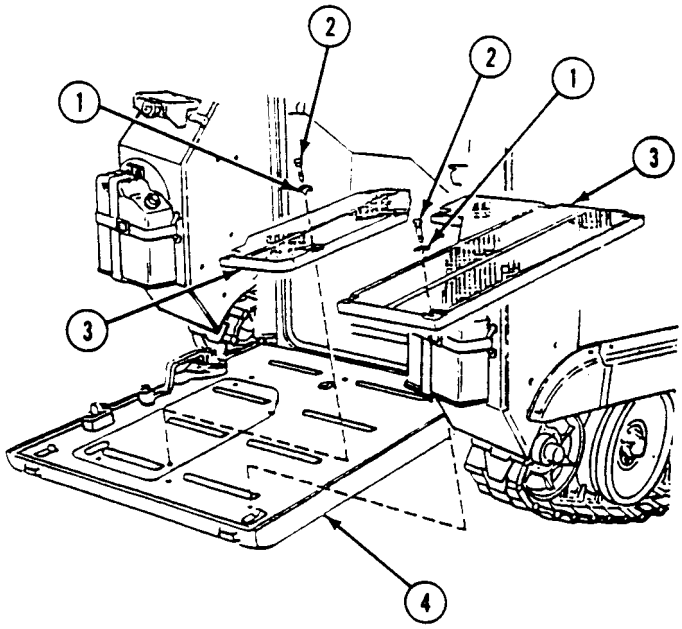
See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Ramp lowered (see your -10)

REMOVAL

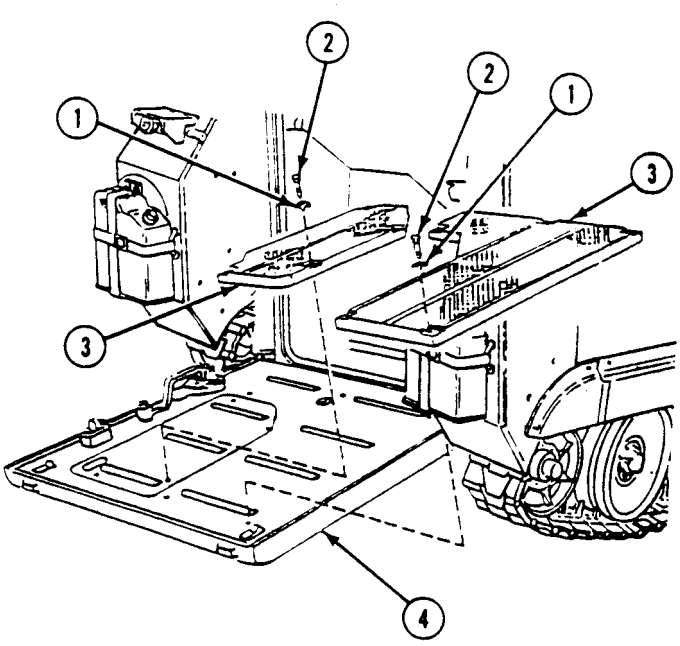
1. Straighten tabs on nine key washers (1). Remove nine screws (2), key washers (1), and two non-skid plates (3) from ramp (4). Discard key washers.



REPLACE NON-SKID PLATES (M1064A3 ONLY) — Continued 0738 00

INSTALLATION

1. Secure two non-skid plates (3) to ramp (4) with nine screws (2) and new key washers (1). Bend tabs on key washers to secure screws.



FOLLOW-THROUGH STEPS

1. Start engine (see your -10).
2. Raise and lock ramp (see your -10).
3. Stop engine (see your -10).

END OF TASK

REPLACE DRIVER'S WINDSHIELD 0739 00

THIS WORK PACKAGE COVERS:

Removal (page 0739 00-1).
Installation (page 0739 00-2).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit WP 0926 00, Item 65

Personnel Required
Unit Mechanic

References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)

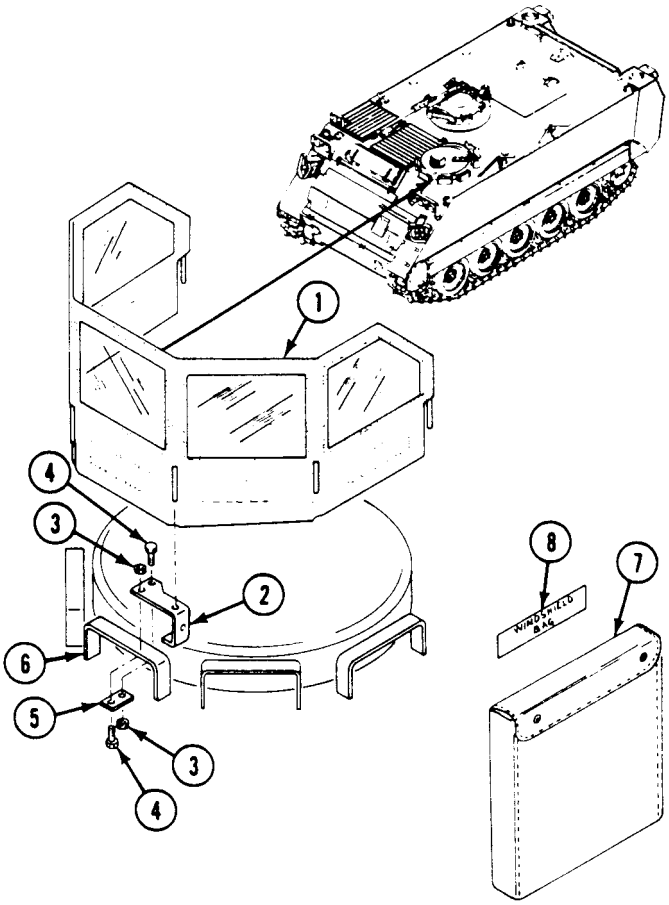
REMOVAL

CAUTION

Handle windshield carefully to avoid damage to windows. Do not fold windshield after use in extreme cold; windows will crack. Warm cold windshield before folding for stowage.

1. Lift windshield (1) out of five brackets (2).

2. Remove 10 nuts (3), screws (4), five brackets (2), and plates (5) from driver's hatch periscope guards (6).



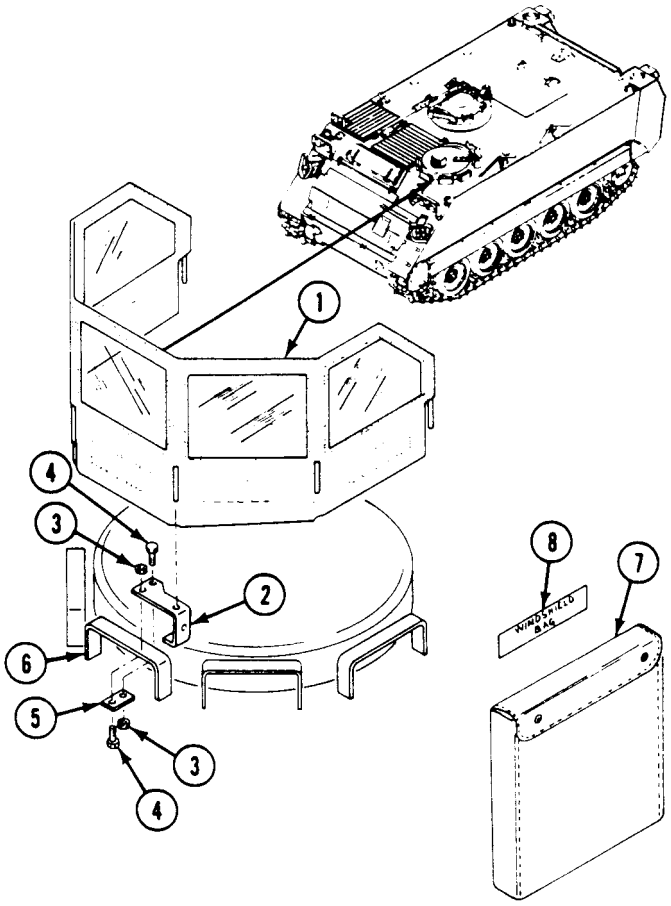
INSTALLATION

NOTE

Install the heads of outside screws down and the heads of inside screws up to prevent interference.

1. If windshield (1) is to be stowed, stow in bag (7). Stow bag at decal (8) location in carrier.
2. If windshield (1) is to be reinstalled, secure five brackets (2) and plates (5) to driver's hatch periscope guards (6) with 10 screws (4) and nuts (3).

3. Install windshield (1) in five brackets (2).



END OF TASK

REPLACE DRIVER'S WINDSHIELD STOWAGE BAG, STRAPS, AND DECAL 0740 00

THIS WORK PACKAGE COVERS:

Removal (page 0740 00-1).
Repair or replacement (page 0740 00-2).
Installation (page 0740 00-2).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0926 00, Item 65)

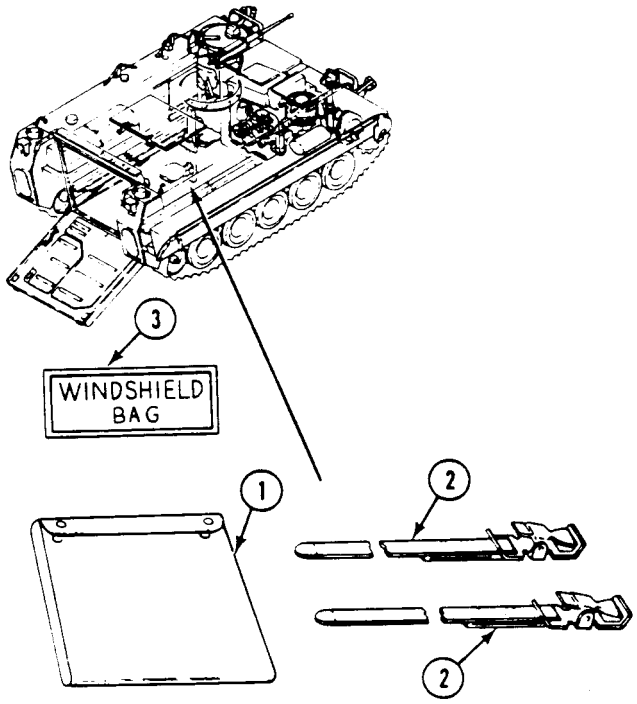
Personnel Required
Unit Mechanic

References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)

REMOVAL

1. Remove stowage bag (1) from bulkhead.
2. If replacing bag (1), remove windshield.
3. Remove straps (2) from stowage bag (1). Discard bag and/or straps.

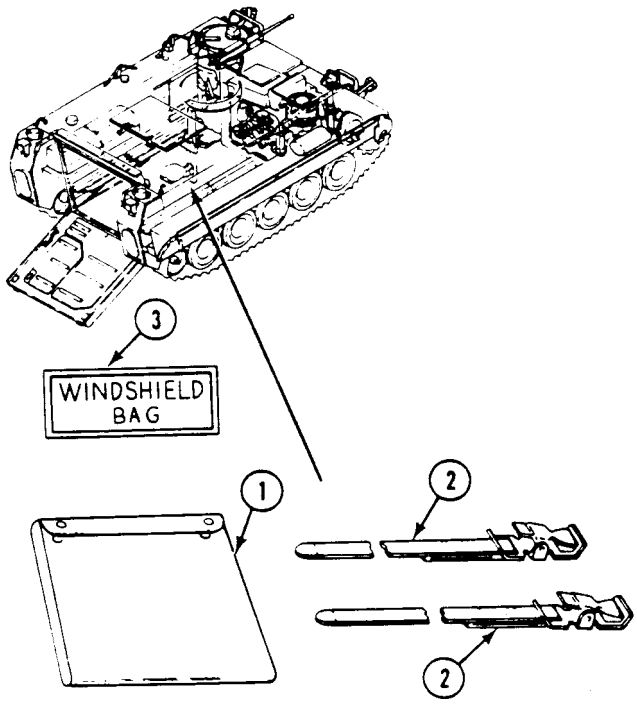


REPAIR OR REPLACEMENT

1. Check decal (3). Replace decal that can not be read (WP 0654 00).

INSTALLATION

1. Install new straps (2) through new stowage bag (1).
2. If removed, place windshield in stowage bag (1).
3. Attach stowage bag (1) to bulkhead at decal (3) location.



END OF TASK

INITIAL INSTALLATION OF LITTER KIT (M113A3 ONLY) 0741 00

THIS WORK PACKAGE COVERS:

Installation (page 0741 00-1).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0926 00, Item 65)

Personnel Required
Unit Mechanic

References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Ramp lowered (see your -10)
Commander's seat and post removed (WP 0560 00)
Personnel seats removed (WP 0546 00)
Right spall liners removed (WP 0504 00)
Left spall liners removed (WP 0505 00)

INSTALLATION

WARNING

Remove machine gun and all ammunition when operating M113A3 as a litter carrier. Display red cross symbol on exterior of carrier.

NOTE

Spall liners must be returned to stock or stored for future use.

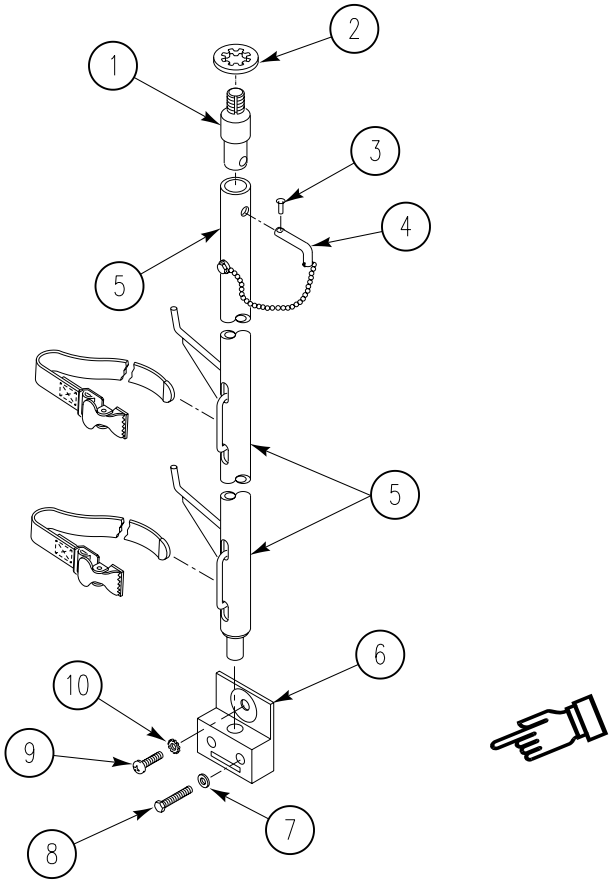
All four mounting brackets, posts, and chain assemblies are installed in the same way.

1. Install upper post pin (1) and lockwasher (2) into hull ceiling.

NOTE

Locate mounting brackets in the forward two and rearmost two position.

2. Install four mounting brackets (6)on sponson and secure with two washers (7), screws (8), lockwasher (10)and screw (9).
3. Place top of post (5) under pin (1). Lift post as far as it will go.
4. Lower bottom of post (5) into mounting bracket (6).
5. Install retainer pin (4) in post (5). Turn pin down.
6. Install spring pin (3) into end of retainer pin (4) and secure.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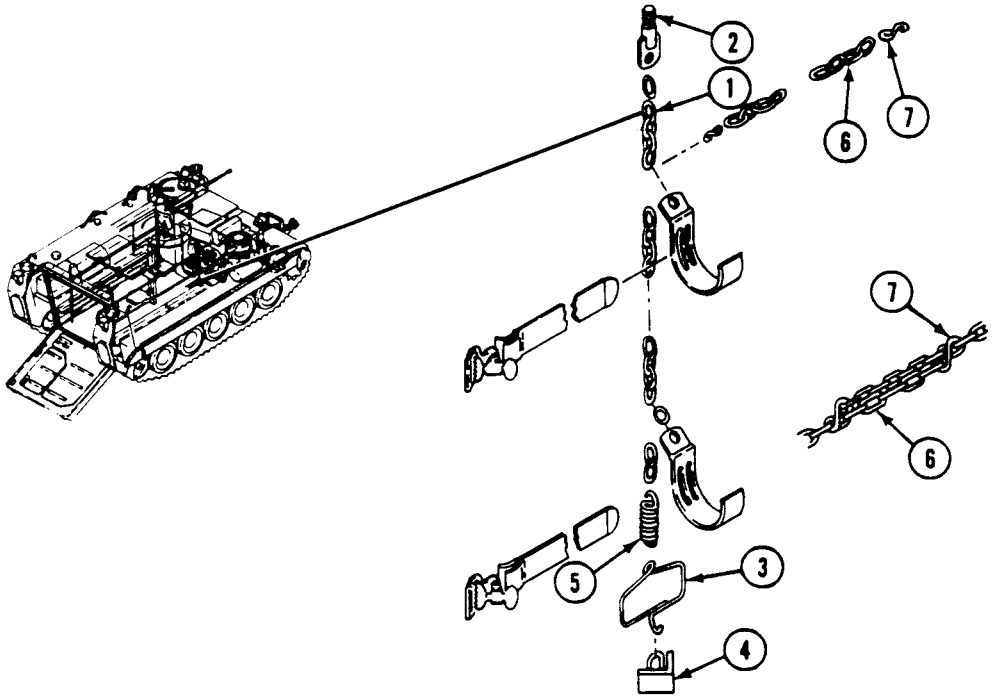
INITIAL INSTALLATION OF LITTER KIT (M113A3 ONLY) — Continued **0741 00**

7. Suspend four chain assemblies (1) by installing four hangers (2) in hull ceiling.
8. Attach four hooks (3) to four anchors (4) below floor plates by extending four springs (5). Use hand or foot to extend springs.
9. Connect two chains (6) on each side with two S-hooks (7). Keep these chains tight to prevent movement of litter from front to rear.



FOLLOW-THROUGH STEPS

1. Install commander's seat and post (WP 0560 00).
2. Start engine (see your -10).
3. Raise and lock ramp (see your -10).
4. Stop engine (see your -10).
5. Return spall liners and personnel seats to stock or store for future use.

END OF TASK

REPLACE POST ASSEMBLY (M113A3 ONLY) 0742 00

THIS WORK PACKAGE COVERS:

Removal (page 0742 00-1).
Installation (page 0742 00-3).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts
Spring pin

Personnel Required
Unit Mechanic

References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Ramp lowered (see your -10)

NOTE

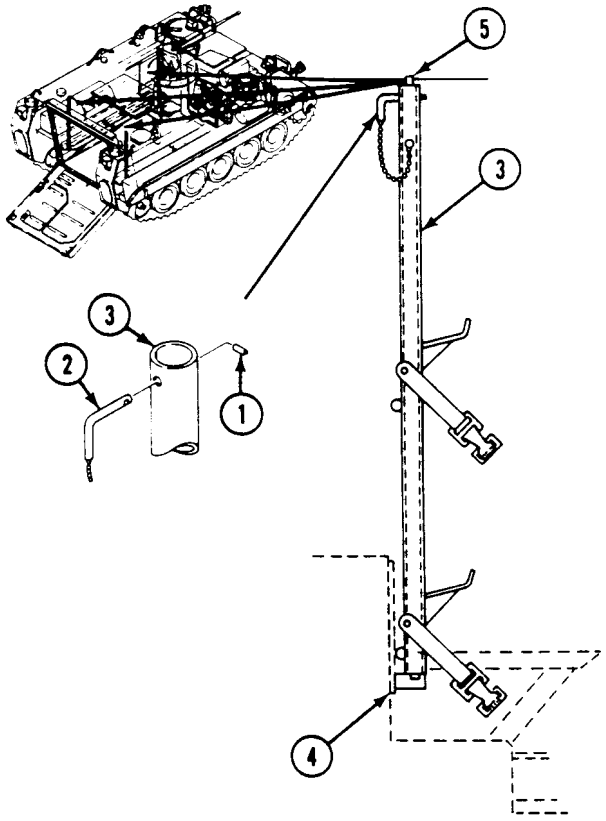
All four posts are removed and installed in the same way.

REMOVAL

1. Remove spring pin (1) from pin (2). Discard spring pin.
2. Turn and remove pin (2) from post (3).

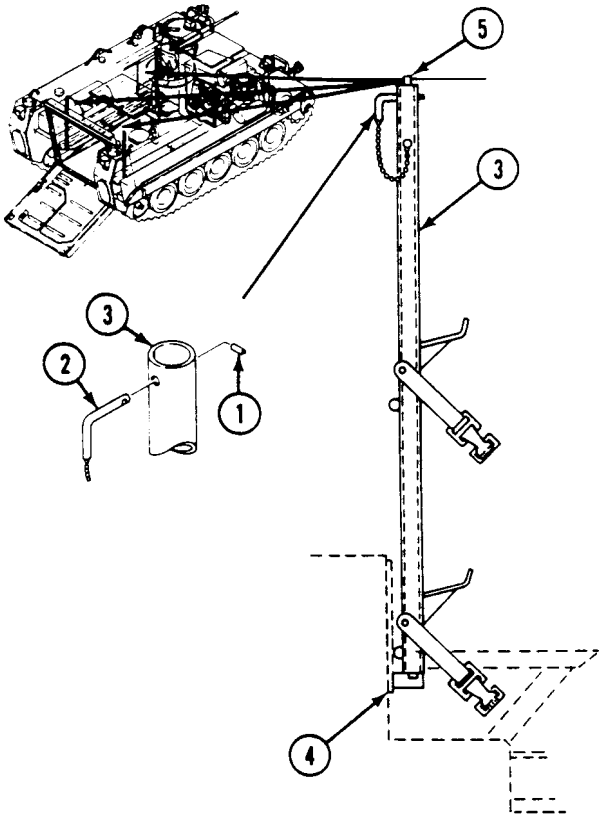
REPLACE POST ASSEMBLY (M113A3 ONLY) — Continued **0742 00**

3. Lift bottom of post (3) until it clears personnel seat bracket (4). Then lower post until it clears stud (5) in hull top.



INSTALLATION

1. Place post (3) under stud (5) in hull top. Lift bottom of post up as far as it will go.
2. Lower bottom of post (3) into personnel seat bracket (4).
3. Insert pin (2) through post (3). Turn end of pin down.
4. Install and secure new spring pin (1) in pin (2).



FOLLOW-THROUGH STEPS

1. Start engine (see your -10).
2. Raise and lock ramp (see your -10).
3. Stop engine (see your -10).

END OF TASK

REPAIR POST ASSEMBLY (M113A3 ONLY) 0743 00

THIS WORK PACKAGE COVERS:

Disassembly (page 0743 00-1).
Assembly (page 0743 00-2).

INITIAL SETUP:

Maintenance Level
Unit

Personnel Required
Unit Mechanic

Tools and Special Tools
General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts
Drive Screw
Spring pin

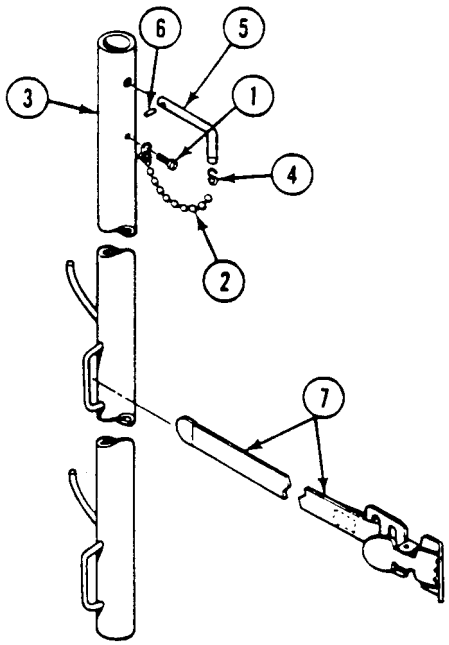
Equipment Condition
Post assembly removed (WP 0742 00)

NOTE

All four posts are repaired in the same way.

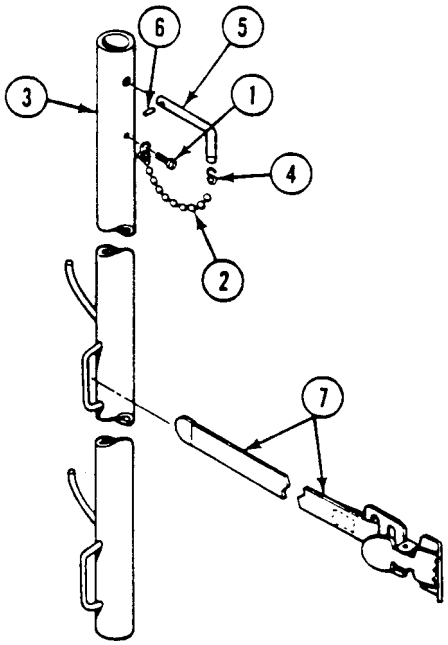
DISASSEMBLY

1. Remove drive screw (1) and bead chain (2) from post (3). Discard drive screw.
2. Open and remove S-hook (4) and bead chain (2) from pin (5).
3. Remove spring pin (6) from pin (5). Discard spring pin.
4. Remove pin (5) from post (3).
5. Remove two straps (7) from post (3).



ASSEMBLY

1. Install new spring pin (6) in pin (5).
2. Secure pin (5) to bead chain (2) with S-hook (4). Crimp S-hook to secure.
3. Secure bead chain (2) to post (3) with new drive screw (1).
4. Install two straps (7) on post (3).



FOLLOW-THROUGH STEPS

1. Install post assembly (WP 0742 00).

END OF TASK

REPLACE CHAIN ASSEMBLY (M113A3 ONLY) 0744 00

THIS WORK PACKAGE COVERS:

Removal (page 0744 00-1).
Installation (page 0744 00-2).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0926 00, Item 65)

Personnel Required
Unit Mechanic

References
See your -10

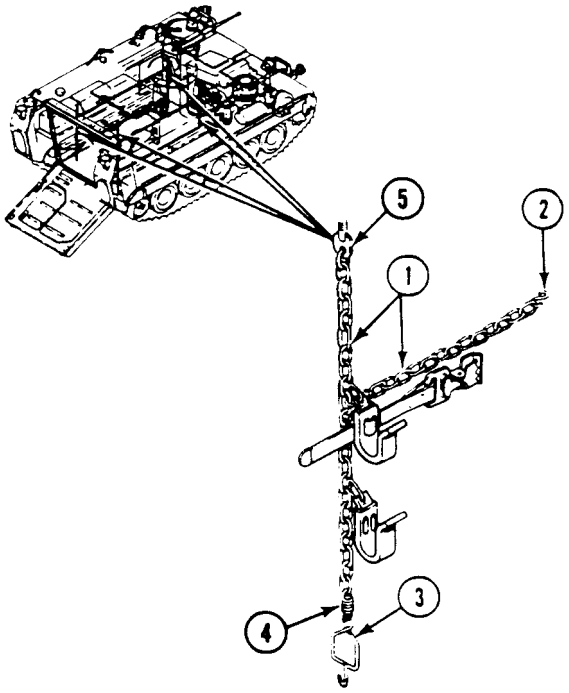
Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Ramp lowered (see your -10)

NOTE

All four chains are removed and installed in the same way.

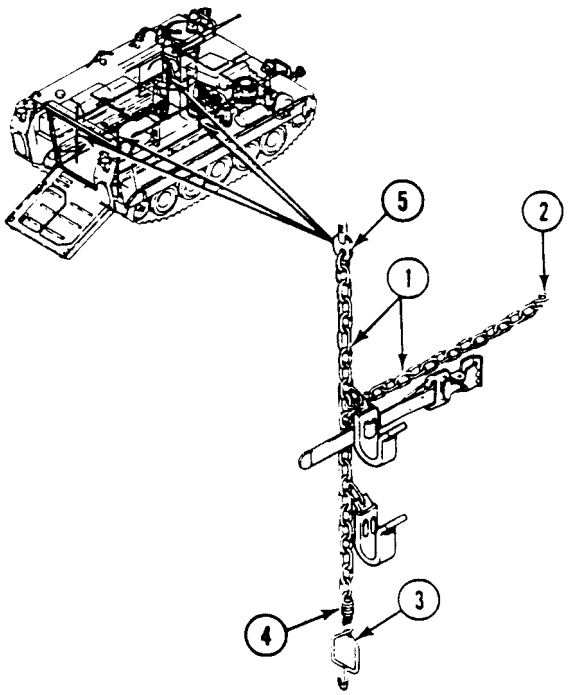
REMOVAL

1. Disconnect four chain assemblies (1) at two S-hooks (2).
2. Remove four hooks (3) from four anchors by extending spring (4). Use hand or foot to extend spring.
3. Remove four hangers (5) and chain assemblies (1) from hull top.



INSTALLATION

1. Suspend four chain assemblies (1) by installing four hangers (5) in hull top.
2. Attach four hooks (3) to four anchors by extending four springs (4). Use hand or foot to extend springs.
3. Connect four chain assemblies (1) with two S-hooks (2).



FOLLOW-THROUGH STEPS

1. Start engine (see your -10).
2. Raise and lock ramp (see your -10).
3. Stop engine (see your -10).

END OF TASK

REPAIR CHAIN ASSEMBLY (M113A3 ONLY) 0745 00

THIS WORK PACKAGE COVERS:

Disassembly (page 0745 00-1).
Assembly (page 0745 00-4).

INITIAL SETUP:

Maintenance Level
Unit

Personnel Required
Unit Mechanic

Tools and Special Tools
General Mechanic's Tool Kit (WP 0926 00, Item 65)

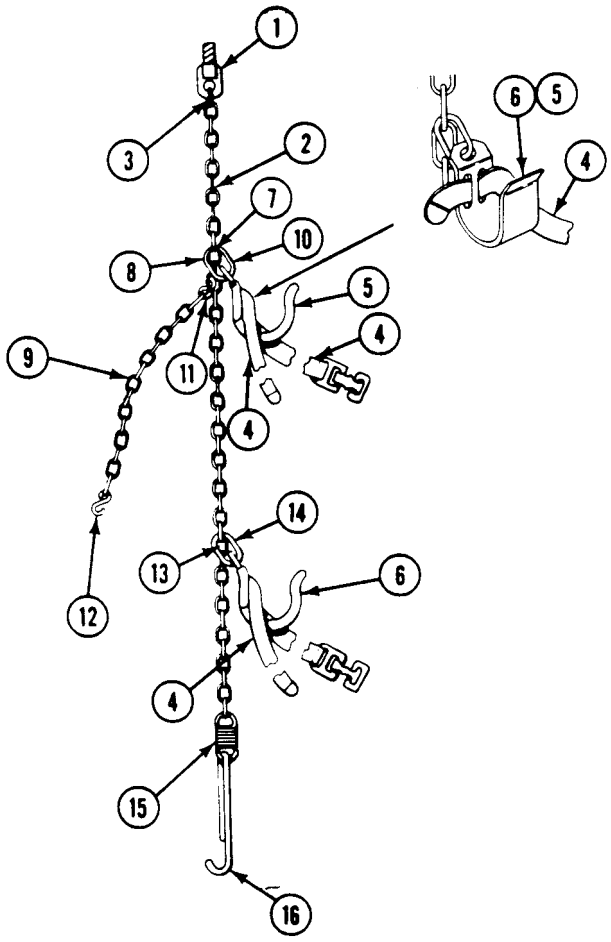
Equipment Condition
Chain assembly removed (WP 0744 00)

DISASSEMBLY

NOTE

All four chains are disassembled and assembled in the same way.

1. Remove hanger (1) from chain assembly (2) by opening repair link (3).

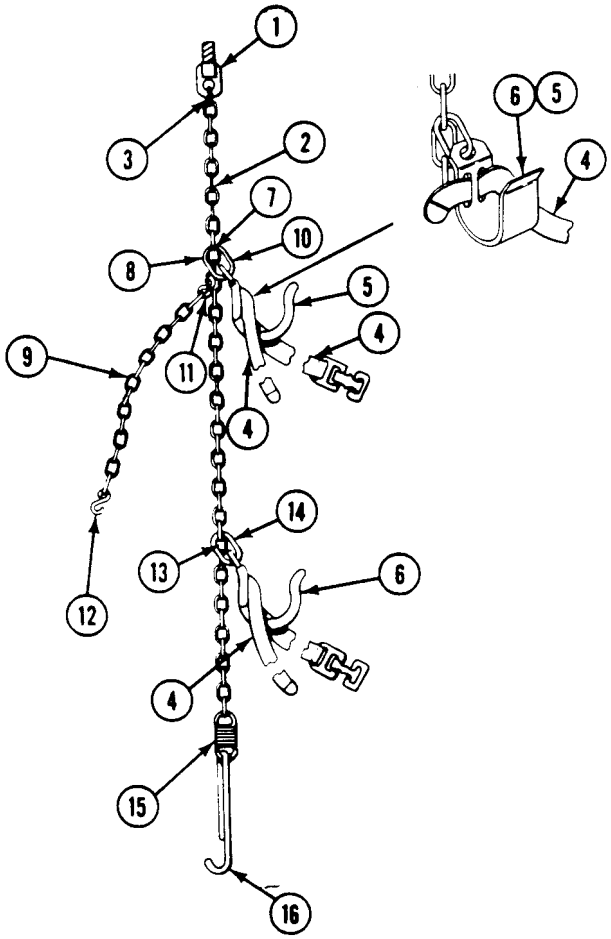


2. Remove two straps (4) from two litter hooks (5) and (6).

NOTE

Link 18 is the 18th link below hanger.

3. Remove upper litter hook (5) from chain link 18 (7) by opening repair link (8).



NOTE

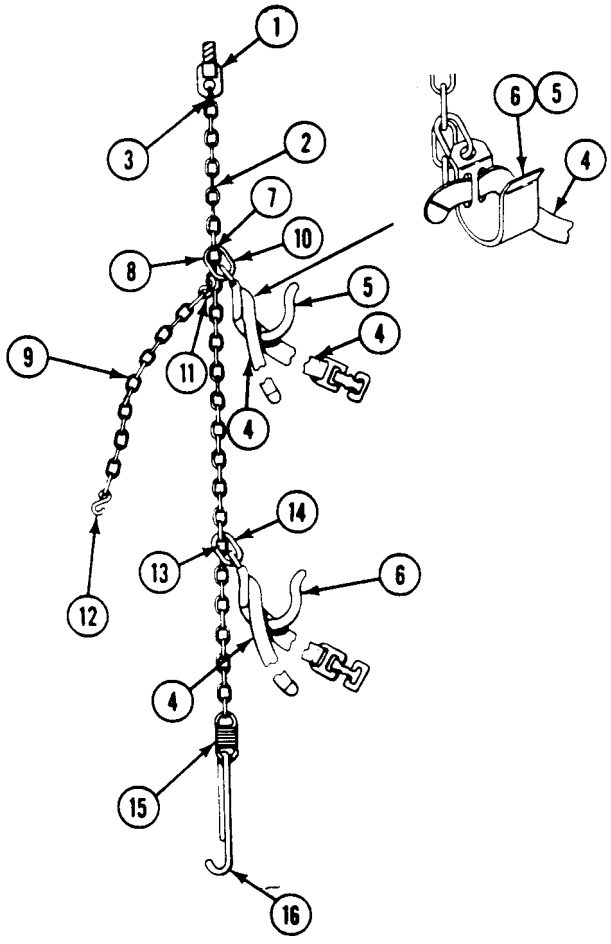
Link 24 is the 24th link below hanger.

4. Remove chain (9) from chain link 24 (10) by opening S-hook (11).
5. Remove S-hook (12) from chain (9).

NOTE

Link 47 is the 47th link below hanger.

6. Remove lower litter hook (6) from chain link 47 (13) by opening repair link (14).
7. Remove spring (15) from chain assembly (2).
8. Remove hook (16) from spring (15).



ASSEMBLY

1. Install hook (1) on spring (2).
2. Install spring (2) on chain assembly (3).

WARNING

To prevent litter tilt, which could cause injury, be sure to install repair link at chain link No. 47.

NOTE

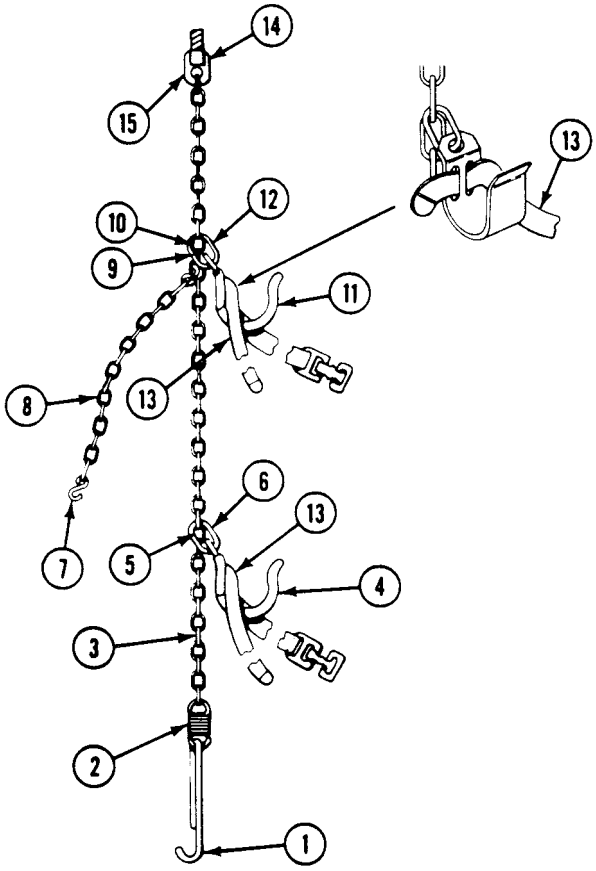
Link 47 is the 47th link below hanger.

3. Install lower litter hook (4) on chain link 47 (5) with repair link (6). Crimp repair link to secure.
4. Install S-hook (7) on chain (8).

NOTE

Link 24 is the 24th link below hanger.

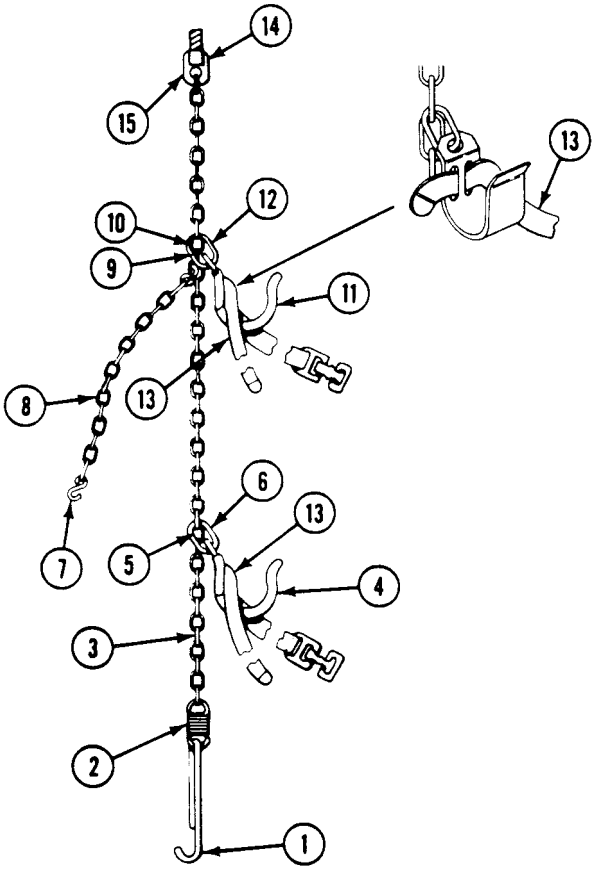
5. Connect chain (8) to chain link 24 (9) with S-hook (10). Crimp S-hook to secure.



NOTE

Link 18 is the 18th link below hanger.

6. Connect upper litter hook (11) to chain link (9) with repair link (12). Crimp repair link to secure.
7. Install two litter straps (13) in upper and lower litter hooks (4) and (11). Install straps through both slots in litter hooks and tie straps.
8. Connect hanger (14) to top link of chain assembly (3) with repair link (15). Crimp repair link to secure.



FOLLOW-THROUGH STEPS

1. Install chain assembly (WP 0744 00).

END OF TASK

REPLACE ARTILLERY COMMUNICATION INSIDE CABLE (M577A3 ONLY) 0746 00

THIS WORK PACKAGE COVERS:

Removal (page 0746 00-1).
Installation (page 0746 00-2).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)

Personnel Required

Unit Mechanic

References

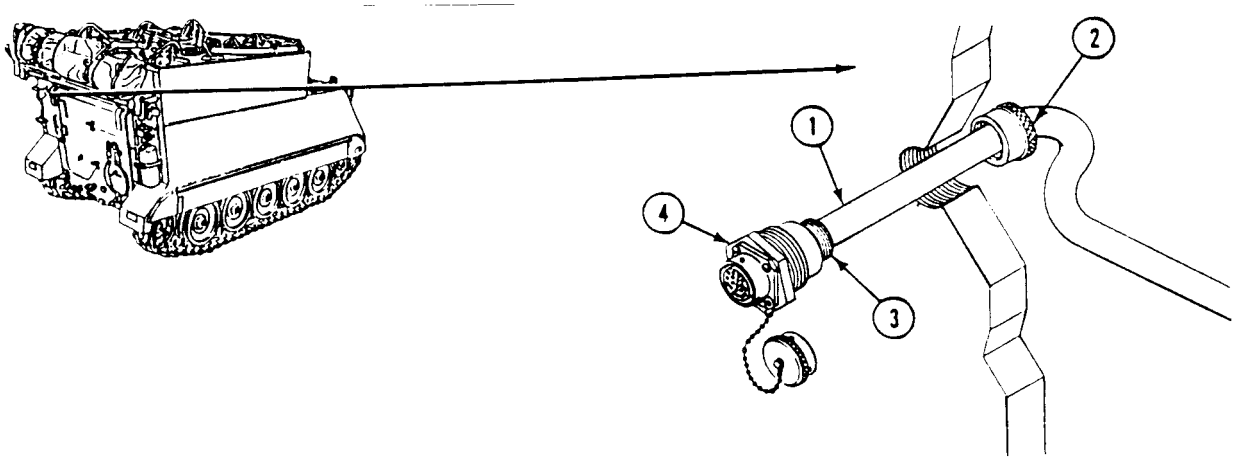
See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Ramp lowered (see your -10)
Battery ground lead disconnected (WP 0338 00)

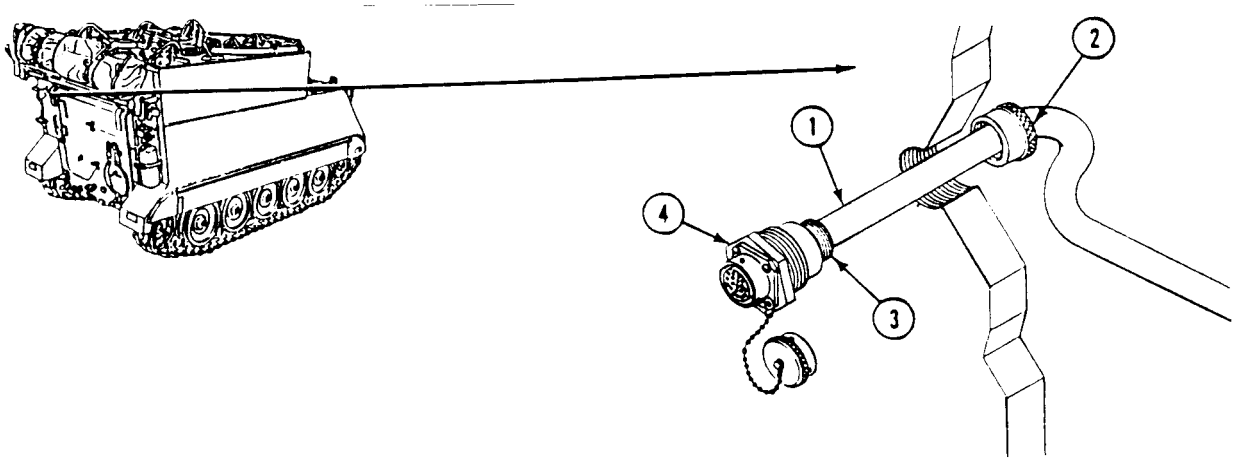
REMOVAL

1. Disconnect inside cable assembly (1) from artillery controls terminal board.
2. Remove retainer (2) from cable assembly connector (3).
3. Remove adapter (4) and cable assembly (1) from hull left rear plate threaded opening.



INSTALLATION

1. Install adapter (4) and cable assembly (1) in hull left rear plate threaded opening.
2. Install retainer (2) on cable assembly connector (3).
3. Connect inside cable (1) to artillery controls terminal board.



FOLLOW-THROUGH STEPS

1. Connect battery ground lead (WP 0338 00).
2. Start engine (see your -10).
3. Raise and lock ramp (see your -10).
4. Stop engine (see your -10).

END OF TASK

REPLACE COMMANDER'S CUPOLA ARMOR SHIELDS (M113A3 AND M1064A3 ONLY) 0747 00

THIS WORK PACKAGE COVERS:

Removal (page 0747 00-1).
Installation (page 0747 00-3).

INITIAL SETUP:

Maintenance Level
Unit

Personnel Required
Unit Mechanic

Tools and Special Tools
General Mechanic's Tool Kit (WP 0926 00, Item 65)

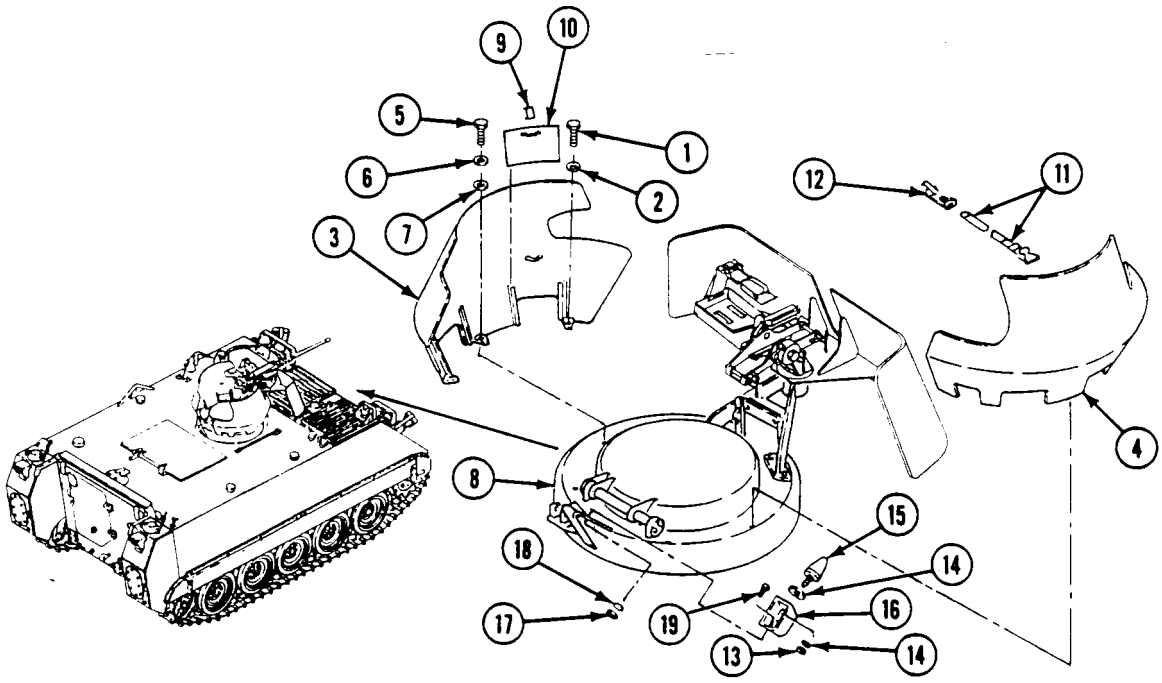
References
See your -10

Materials/Parts
Locknut
Locknut
Locknut
Lockwasher (4)

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Traverse travel lock secured (see your -10)

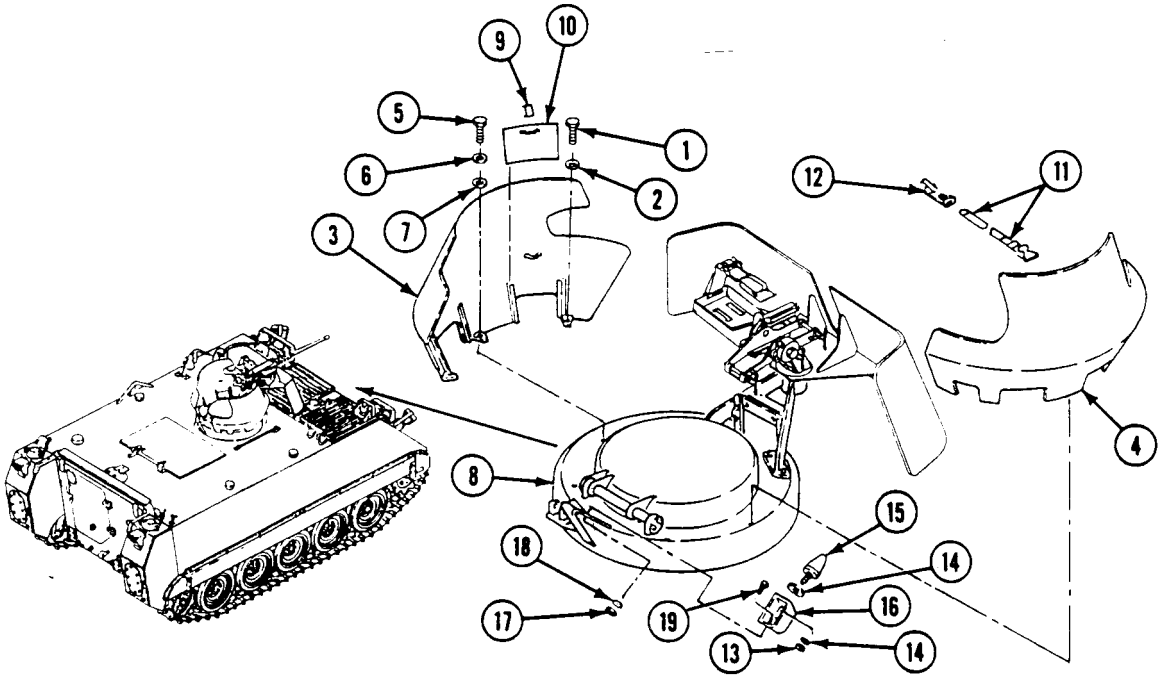
REMOVAL

1. Remove screw (1) and washer (2) from first hole of each shield (3)(4).
2. Remove four screws (5), lockwashers (6), and washers (7) from remaining holes in left and right shields (3)(4). Discard lockwashers.



REPLACE COMMANDER'S CUPOLA ARMOR SHIELDS (M113A3 AND M1064A3 ONLY) 0747 00
— Continued

3. Remove two shields (3)(4) from commander's cupola (8).
4. Release four clips (9) and remove four doors (10) from two shields (3)(4).
5. If damaged, remove clips (9) from doors (10).
6. Remove strap (11) from loop on right shield (4) and clamp (12) mounted on machine gun mount bracket.
7. Remove clamp (12) from lower bracket of machine gun handle.
8. Remove locknut (13), washers (14), and bumper (15) from bracket (16). Discard locknut.
9. Remove locknut (17), washer (18), screw (19) and bracket (16) from cupola bracket. Discard locknut.



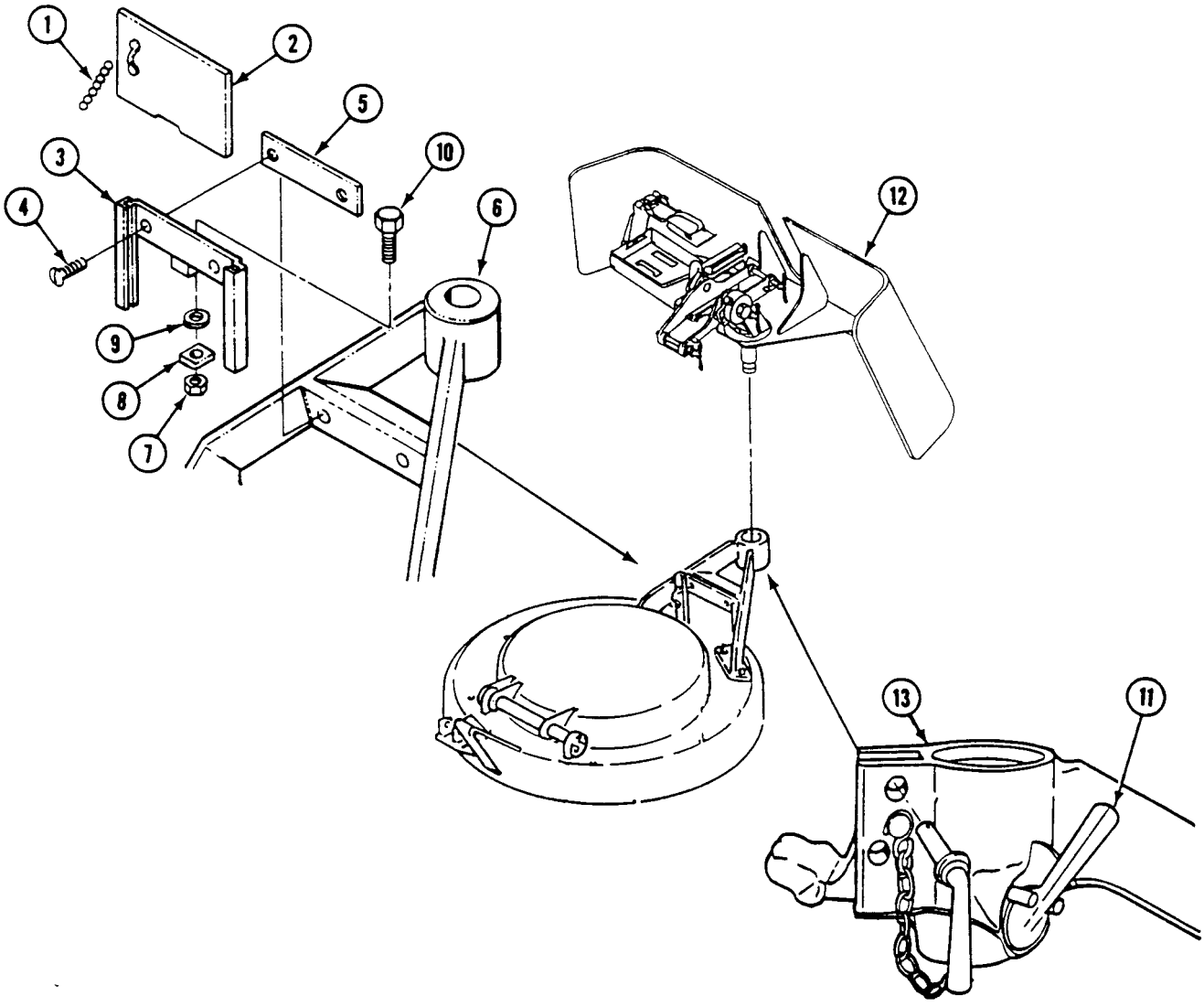
REPLACE COMMANDER'S CUPOLA ARMOR SHIELDS (M113A3 AND M1064A3 ONLY) — Continued

0747 00

10. Remove chain (1) and door (2) from bracket (3). If needed remove chain (1) from door (2).
11. Remove two screws (4), bracket (3), and spacer (5) from gun mount (6).
12. Remove locknut (7), plate (8), washer (9), and screw (10) from bracket (3). Discard locknut.
13. Push lock handle (11) down and remove machine gun shield assembly (12) from commander's cupola mount (13).

INSTALLATION

1. Push lock handle (11) down and install machine gun shield assembly (12) in commander's cupola mount (13).
2. Install screw (10), washer (9), plate (8), and new locknut (7) on bracket (3). Do not tighten locknut (7) so that plate (8) is able to turn freely.
3. Install spacer (5), bracket (3), and two screws (4) on gun mount (6).
4. Install chain (1) on bracket (3) and door (2). Deform ends of chain to secure chain on door and bracket.

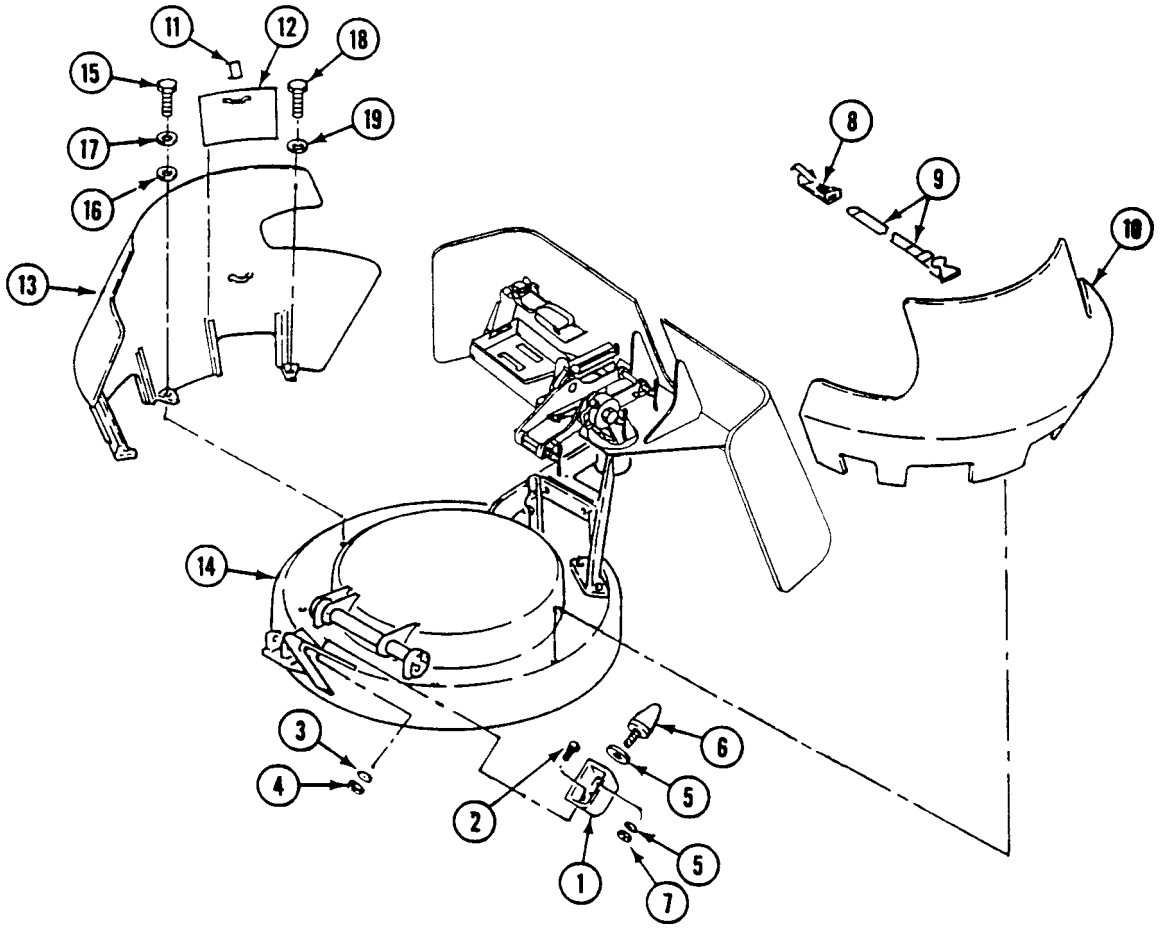


REPLACE COMMANDER'S CUPOLA ARMOR SHIELDS (M113A3 AND M1064A3 ONLY) — Continued **0747 00**

NOTE

Install washer(s) as needed, to compress bumper 1/4 inch (6 mm) when hold-open hook is engaged.

5. Install bracket (1) on cupola bracket. Secure bracket (1) with screw (2), washer (3), and new locknut (4).
6. Install washers (5), bumper (6), and new locknut (7) on bracket (1).
7. Install clamp (8) on lower bracket of machine gun handle.
8. Install strap (9) through loop on right shield (10) and clamp (8) on machine gun handle. Tighten strap.
9. If removed, install clips (11) on doors (12). Deform ends of clips (11) over loops on doors (12).
10. Install four doors (12) on two shields (10) and (13).
11. Install two shields (10) and (13) on commander's cupola (14).
12. Install the right and left shields (10) and (13), four screws (15), washers (16), and new lockwashers (17) on commander's cupola (14).
13. Install two screws (18) and washers (19) in first two holes of two shields (10) and (13).



REPLACE COMMANDER'S CUPOLA ARMOR SHIELDS (M113A3 AND M1064A3 ONLY) — Continued **0747 00**

FOLLOW THROUGH STEPS

1. Release traverse travel lock (see your -10).

END OF TASK

INSTALL ARMOR KIT (M113A3 ONLY) 0748 00

THIS WORK PACKAGE COVERS:

Installation (page 0748 00-1).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926, Item 65
Torque Wrench Adapter (WP 0926 00, Item 4)
Torque Wrench (WP 0926 00, Item 85)
Lifting device rated at 200 lb (91 kg) minimum

Materials/Parts

Sealing compound (WP 0928 00, Item 51)

Personnel Required

Unit Mechanic
Helper (H)

References

See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Track cover removed (WP 0438 00)
Smoke grenade launchers removed (WP 0455 00)
Trim vane lowered (see your -10)

INSTALLATION

WARNING

Armor plates are heavy and can cause injury or death. Support armor plate properly to avoid injury.

NOTE

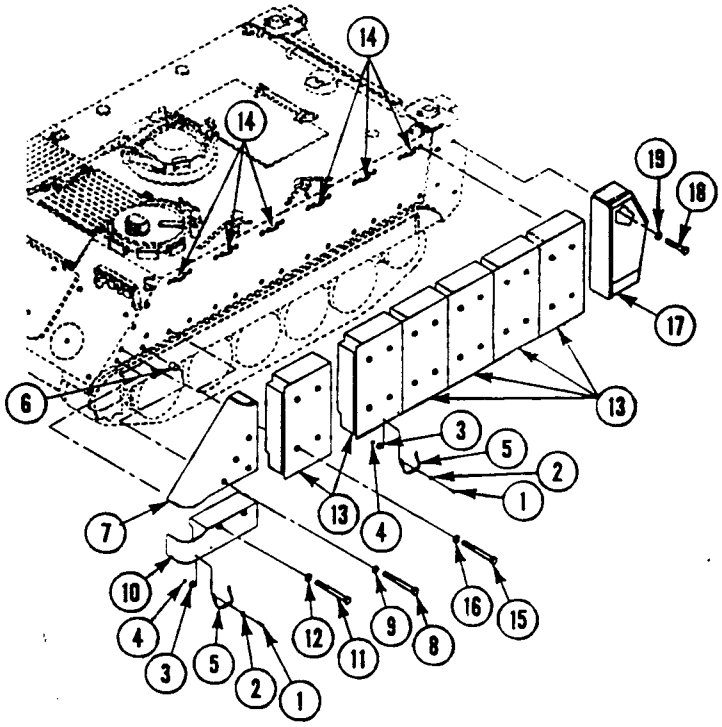
There are two armor kits, 57K0429 and 57K0467. Steps apply to both kits unless otherwise noted.

Make sure armor plate mounting holes in hull are clean.

Some armor plates in this task weigh over 130 lb. Use lifting device and helper to support and position armor.

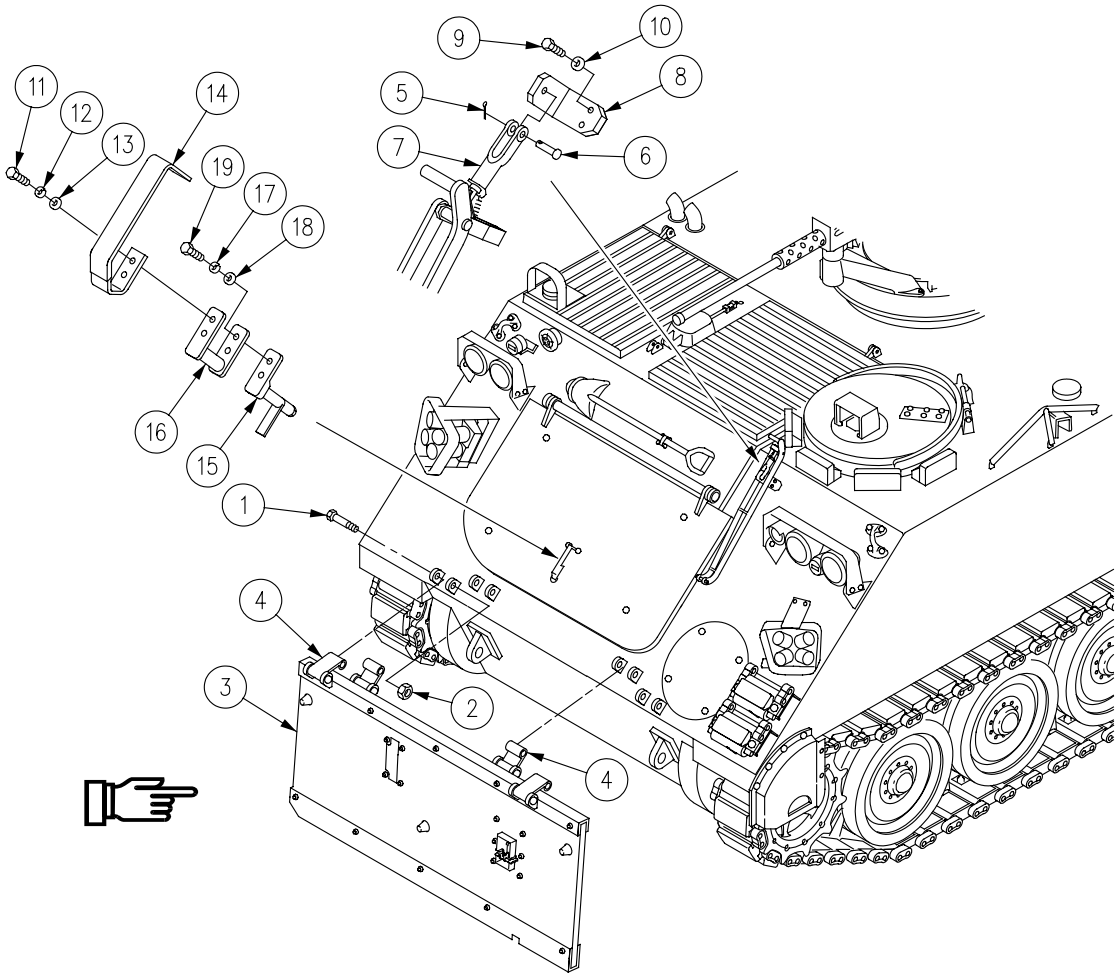
INSTALL ARMOR KIT (M113A3 ONLY) — Continued 0748 00

1. Remove four screws (1), washers (2) and (3), nuts (4) and two foot cables (5) from left side of carrier.
2. Remove 34 protective plugs (6) from mounting holes in hull.
3. Attach upper side plate (7) to carrier with four screws (8) and washers (9).
4. Install lower side plate (10) to carrier with two screws (11) and washers (12).
5. Install six side plates (13) to carrier by attaching hooks on back of plates to footman loops (14). Secure plates to carrier with 24 screws (15) and washers (16).
6. Install two foot cables (5) on side plates (10) and (13) with two screws (1), washers (2) and (3), and two nuts (4).
7. Install stowage box (17) on rear of carrier with four screws (18) and washers (19).
8. Repeat Steps 1 - 7 for other side of carrier.



INSTALL ARMOR KIT (M113A3 ONLY) — Continued **0748 00**

9. Remove four screws (1), locknuts (2), trim vane (3), and hinges (4) from carrier.
10. Remove cotter pin (5) and pin (6) from trim vane clevis (7) and pivot bracket (8). Remove two screws (9), washers (10), and pivot bracket (8). Discard cotter pin.
11. Remove two screws (11), lockwashers (12), washers (13), and handle (14) from plate (15). Discard screws, save lockwashers.
12. Install extension (16) on plate (15) with two new lockwashers (17), washers (18), and screws (19).
13. Install handle (14) on extension (16) with two lockwashers (12), washers (13) and new screws (11).



NOTE

Backing plates (6) and (10) are used with kit 57K0467.

14. Install trim vane hinge (1) on armor plate (2) with two screws (3), lockwashers (4), washers (5) and backing plate (6).
15. Install trim vane strike (7) on plate (2) with two screws (8), washers (9) and backing plate (10).

NOTE

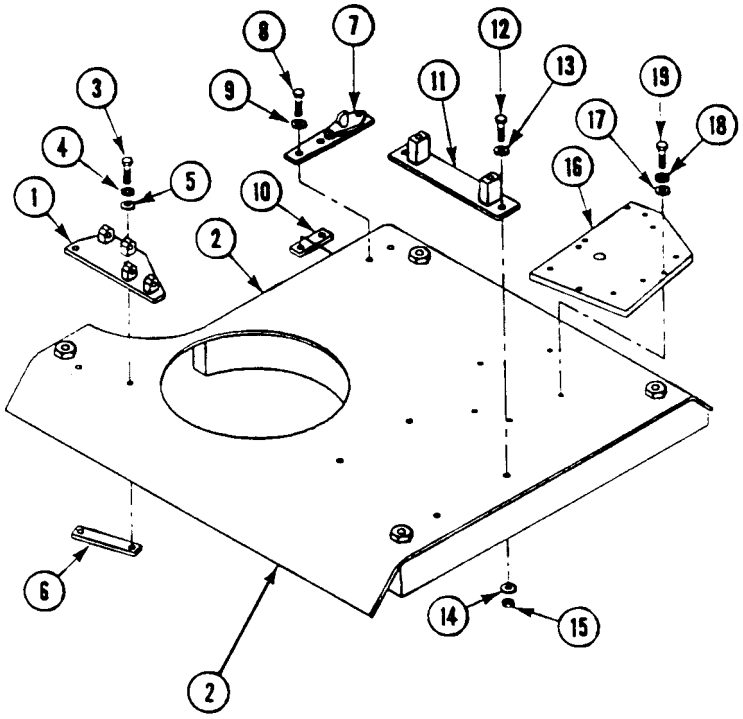
If installing kit 57K0429, do Step 17.

16. Install two track shoe brackets (11) to plate (2) with four screws (12), washers (13) and (14), and locknuts (15). Use knife or chisel to remove foam on back of plate (2) so locknuts (15) can be attached to screws (12).

NOTE

If installing kit 57K0429, do Step 17.

17. Install bracket (16) to plate (2) with four washers (17), lockwashers (18), and screws (19).



NOTE

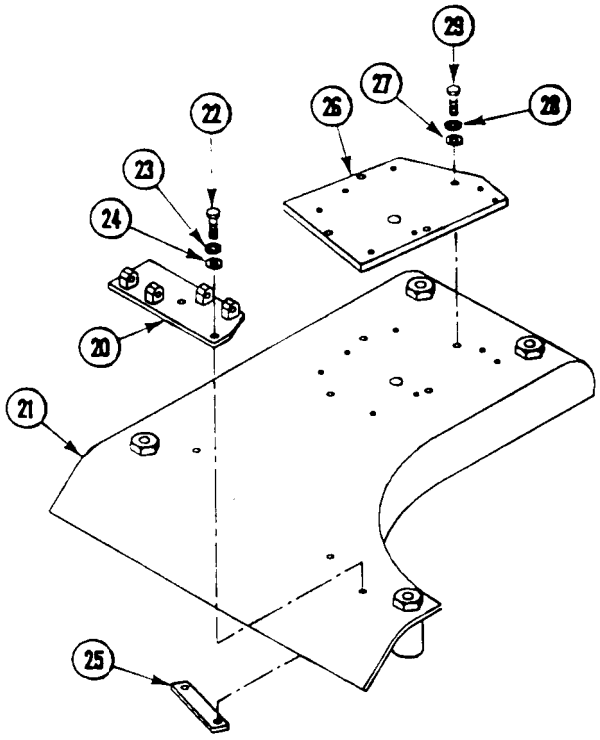
Backing plate (25) is used with kit 57K0467.

18. Install trim vane hinge (20) to right front armor plate (21) with two screws (22), lockwashers (23), washers (24) and backing plate (25).

NOTE

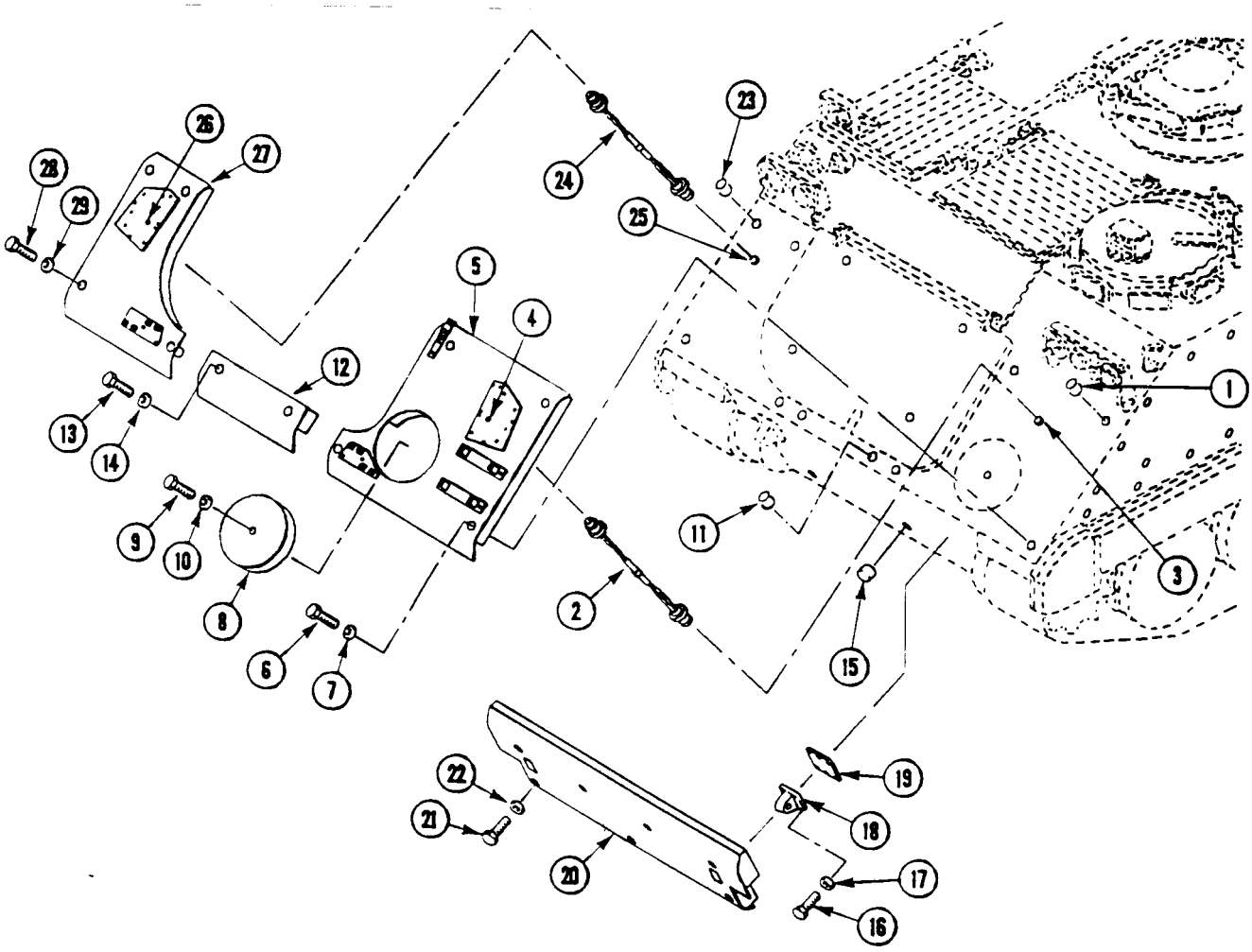
If installing kit 57K0429, do Step 19.

19. Install bracket (26) to plate (21) with four washers (27), lockwashers (28), and screws (29).



INSTALL ARMOR KIT (M113A3 ONLY) — Continued 0748 00

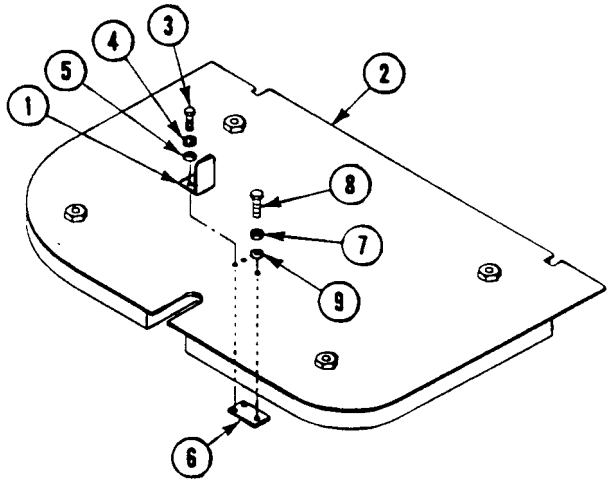
20. Remove five protective plugs (1) from left front mounting holes.
21. Connect extension harness (2) to smoke grenade launcher harness (3) and push through hole (4) in left front armor plate (5).
22. Install left front armor plate (5) on carrier with four screws (6) and washers (7).
23. Install armor access cover (8) with screw (9) and washer (10).
24. Remove two protective plugs (11) from front center mounting holes.
25. Install armor plate (12) on front center of carrier with two screws (13) and washers (14).
26. Remove seven protective plugs (15) from lower front center mounting holes.
27. Remove 12 screws (16), washers (17) and two towing eyes (18) from hull. Install two spacer plates (19) and towing eyes to hull with 12 screws and washers.
28. Install armor plate (20) on lower front center of carrier with seven screws (21) and fourteen washers (22).
29. Remove four protective plugs (23) from mounting holes on right front of carrier.
30. Connect extension harness (24) to smoke grenade launcher harness (25) and push through hole (26) in plate (27).
31. Install right front armor plate (27) on hull with four screws (28) and washers (29).



NOTE

Backing plate (6) is used with kit 57K0467.

32. Place latch stop (1) on top side of armor plate (2) with two screws (3), lockwashers (4), and washers (5). Apply sealing compound to top of backing plate (6). Install backing plate under armor plate (2) and align with two screws (3). Hand tighten screws.
33. Thread jam nut (7) to end of threads on screw (8).
34. Install detent screw (8) with jam nut (7) and washer (9) into plate (2) and backing plate (6). Tighten screws (3). Do not tighten detent screw (8) with jam nut (7) yet.

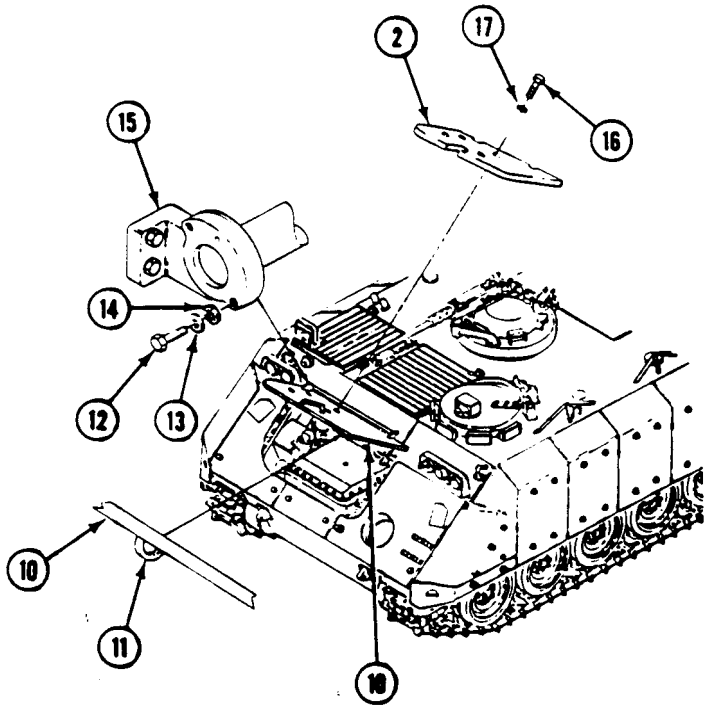


35. Raise power plant door (10) 120-130 degrees from closed position.
36. Attach lifting device to door lifting eye (11).

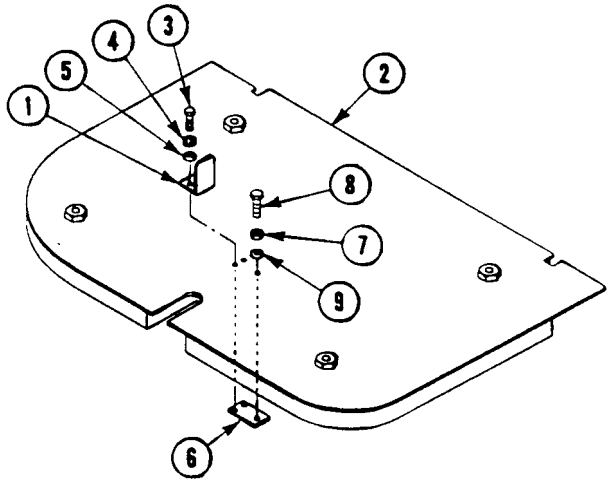
WARNING

Power plant door contains a torsion spring assembly which could cause injury or death to personnel. Door must be raised to neutral position before removing two screws from housing.

37. Remove two screws (12), washers (13), and lockwashers (14) from housing (15). Save lockwashers.
38. Rotate housing (15) toward top of carrier (counterclockwise) until second set of screw holes are aligned.
39. Install two screws (12), washers (13), and lockwashers (14) in housing (15). Remove lifting device and lower power plant door (10).
40. Install armor plate (2) on power plant door (10) with four screws (16) and washers (17).

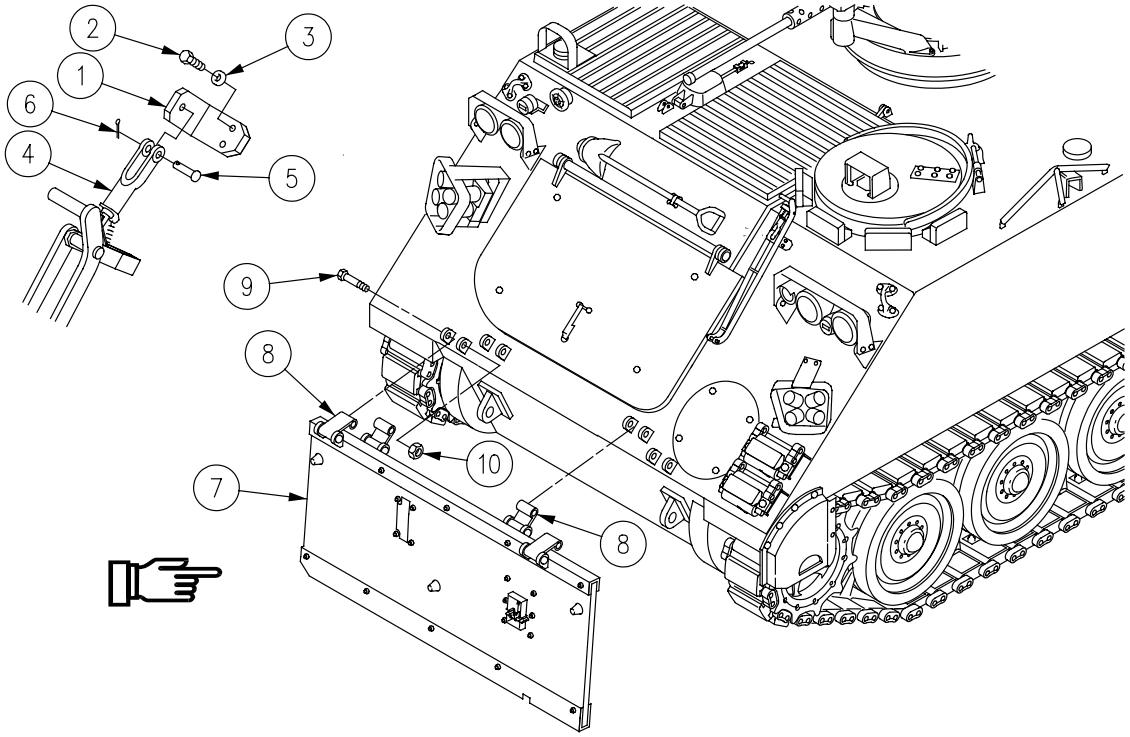


41. Loosen detent screw (8) until access door handle rubs screw head. Tighten jam nut (7).



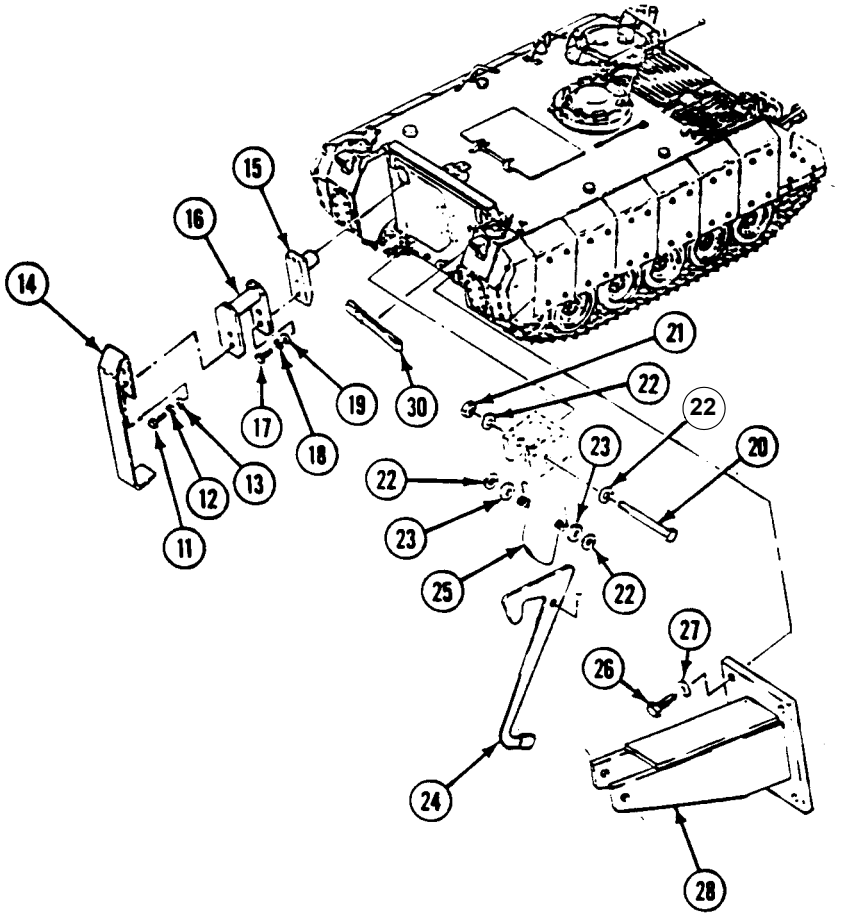
42. Install trim vane pivot bracket (1) on carrier with two screws (2) and washers (3). Attach trim vane clevis (4) to pivot bracket (1) with pin (5) and new cotter pin (6).

43. Install trim vane (7) with hinges (8) on carrier with four screws (9) and new locknuts (10). Stow trim vane (see your -10).



INSTALL ARMOR KIT (M113A3 ONLY) — Continued **0748 00**

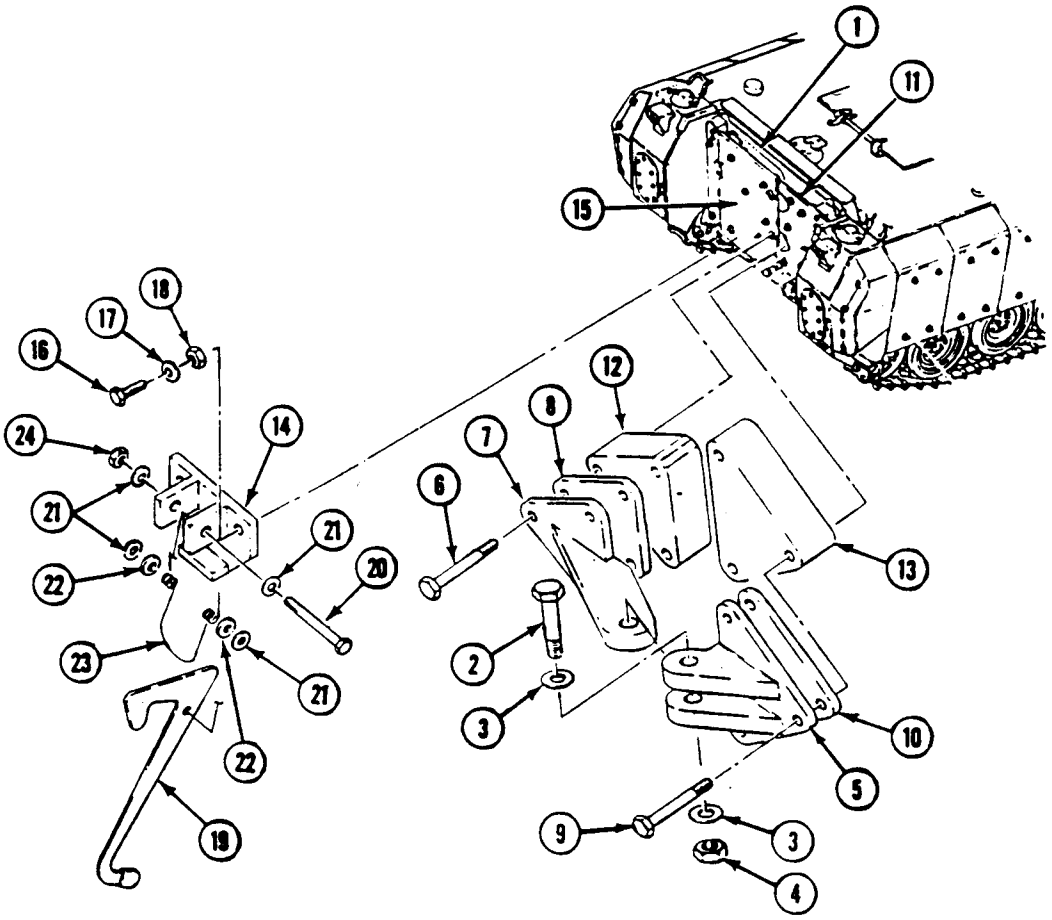
44. Remove two screws (11), lockwashers (12), washers (13) and handle (14) from shaft (15). Discard lockwashers.
45. Install handle (14) on extension (16) with two screws (11), new lockwashers (12) and washers (13). Attach handle (14) and extension (16) to shaft (15) with two screws (17), new lockwashers (18), and washers (19).
46. Remove screw (20), nut (21), four washers (22), two spacers (23), hook (24), and spring (25).
47. Remove four screws (26), washers (27), and bracket (28) from ramp. Discard screws and washers.
48. Remove strap (30) from ramp.



WARNING

Ramp door is heavy and can cause injury or death. Support ramp door properly to avoid injury.

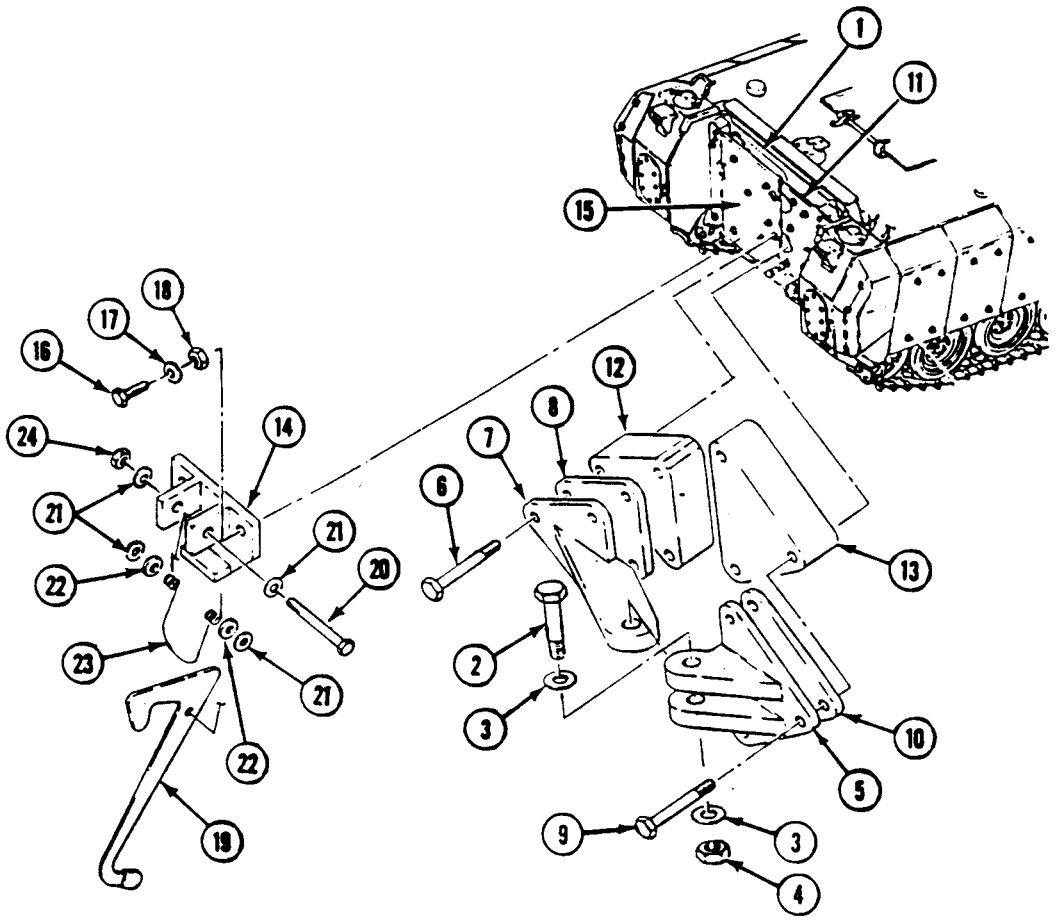
49. Attach lifting device to ramp door (1). Remove two screws (2), four washers (3), two nuts (4), and ramp door from hinges (5).
50. Remove six screws (6), two hinges (7), and shims (8) from ramp door (1). Discard screws and shims.
51. Remove six screws (9), two hinges (5), and shims (10) from ramp (11). Discard screws and shims.



NOTE

For proper alignment and sealing of ramp door, install washers between door hinges and ramp hinges to keep outer edges of door flush with ramp weldment within 1/16 inch (1.5 mm).

52. Install two spacers (12), new shims (8) and two hinges (7) on ramp door (1) with six new screws (6). Hand tighten screws.
53. Install two spacers (13), new shims (10) and two hinges (5) on ramp (11) with six new screws (9). Hand tighten screws.
54. Attach lifting device to ramp door (1) and install on ramp (11). Secure four hinges (5) and (7) with two screws (2), four washers (3), and two nuts (4).
55. TIGHTEN 12 SCREWS (6)(9) TO 107-118 LB-FT (145-160 N·m). Remove lifting device from ramp door (1).
56. Attach bracket (14) to ramp door armor plate (15) with two new screws (16), new washers (17), and new locknuts (18).
57. Install hook (19) on bracket (14) with screw (20), four washers (21), two spacers (22), spring (23), and new locknut (24).

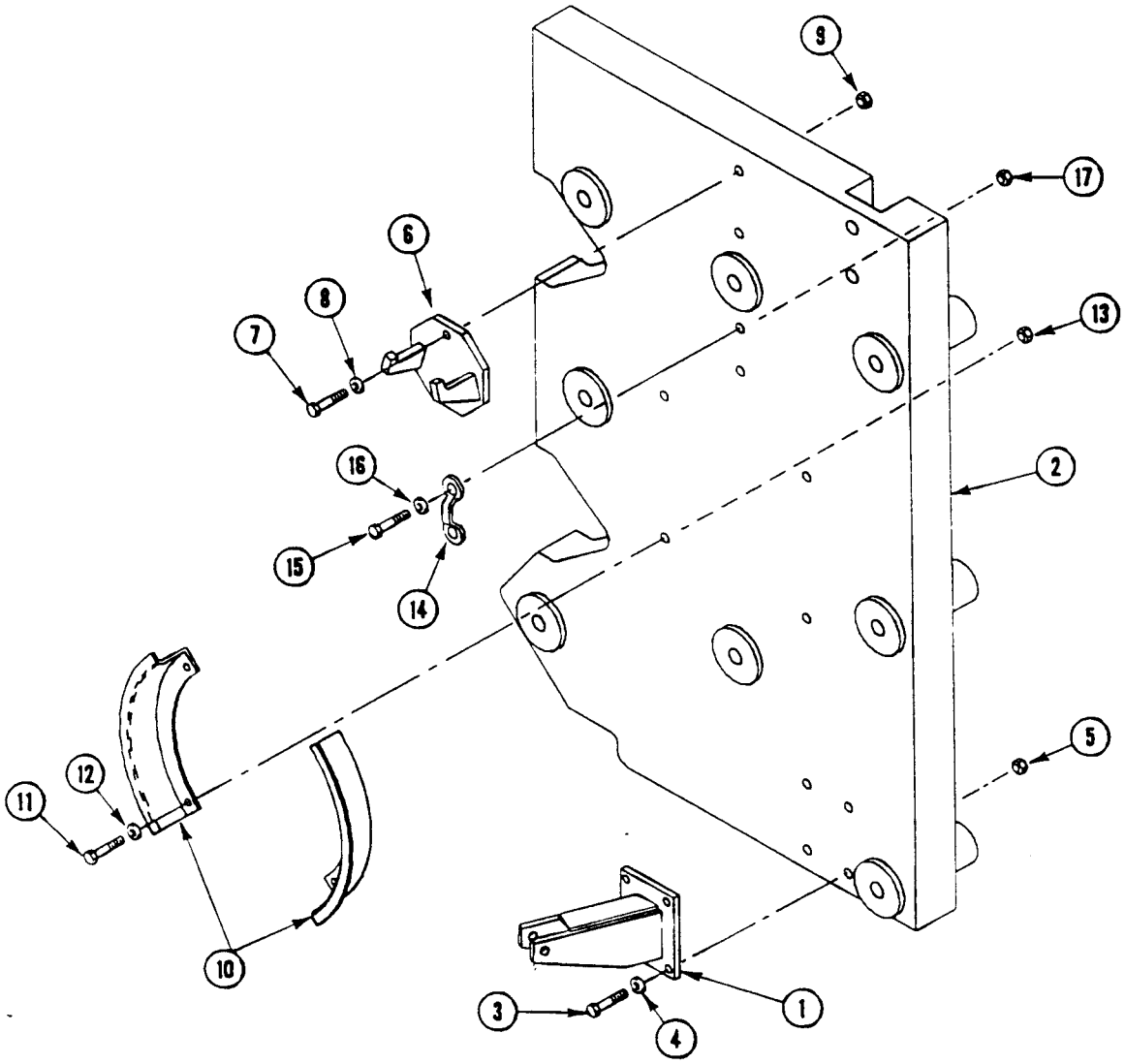


58. Install bracket (1) on right rear armor plate (2) with four new screws (3) and washers (4).

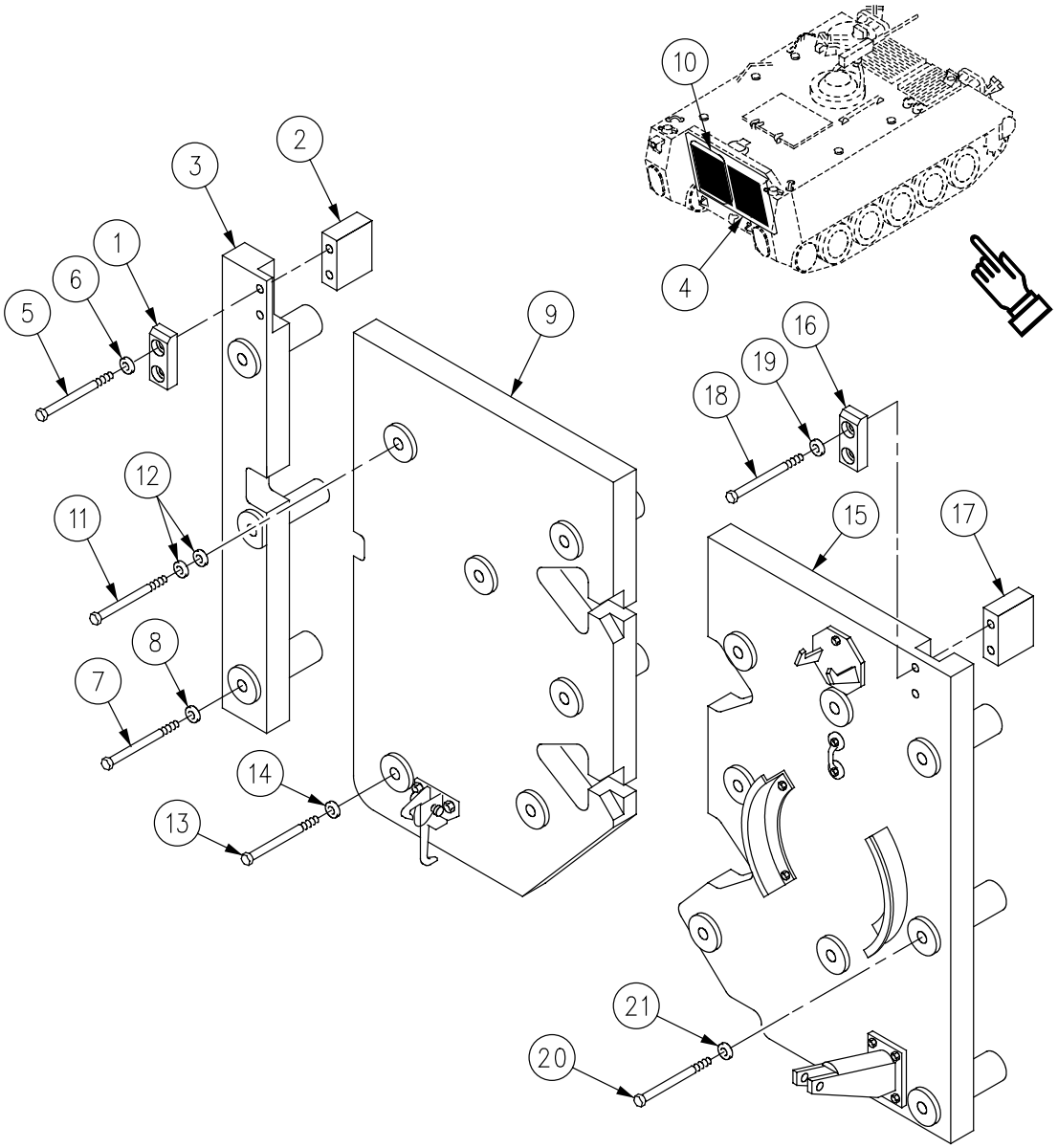
NOTE

If installing kit 57K0467, do Step 59, Step 61, Step 63, and Step 65.

59. Install four locknuts (5) on four screws (3).
60. Install bracket (6) on right rear armor plate (2) with two screws (7) and washers (8).
61. Install two locknuts (9) on screws (7).
62. Install bracket (10) on right rear armor plate (2) with four screws (11) and washers (12).
63. Install four locknuts (13) on screws (11).
64. Install footman loop (14) on right rear armor plate (2) with two screws (15) and washers (16). Attach strap to loop (14).
65. Install two locknuts (17) on screws (15).



66. Attach pad (1), support (2) and left rear armor plate (3) to ramp (4) with two screws (5) and washers (6).
67. Install three screws (7) and washers (8) through armor plate (3) to ramp (4).
68. Attach lifting device to ramp door armor plate (9). Install armor plate (9) to ramp door (10) with screw (11) and two washers (12) at upper left corner and five screws (13) and washers (14) in remaining holes. Remove lifting device.
69. Attach lifting device to right rear armor plate (15). Install pad (16), right armor plate (15) and support (17) to ramp (4) with two screws (18) and washers (19).
70. Install eight screws (20) and washers (21) through armor plate (15) to ramp (4). Remove lifting device.



FOLLOW-THROUGH STEPS

1. Install track cover (WP 0438 00).
2. Install smoke grenade launchers (WP 0455 00).

END OF TASK

REPLACE FRONT ARMOR (M113A3 ONLY) 0749 00

THIS WORK PACKAGE COVERS:

Removal (page 0749 00-1).
Disassembly (page 0749 00-5).
Assembly (page 0749 00-8).
Installation (page 0749 00-10).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)
Lifting device rated at 200 lb (91 kg) minimum

Materials/Parts

Sealing compound (WP 0928 00, Item 55)
Cotter pin
Locknut (4)
Locknut (12)
Lockwasher (2)
Lockwasher (4)
Lockwasher (4)

Personnel Required

Unit Mechanic
Helper (H)

References

See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Trim vane lowered (see your -10)
Smoke grenade launchers removed (WP 0455 00)

REMOVAL

WARNING

Armor plates are heavy. Be sure to support plate properly to avoid injury to personnel.

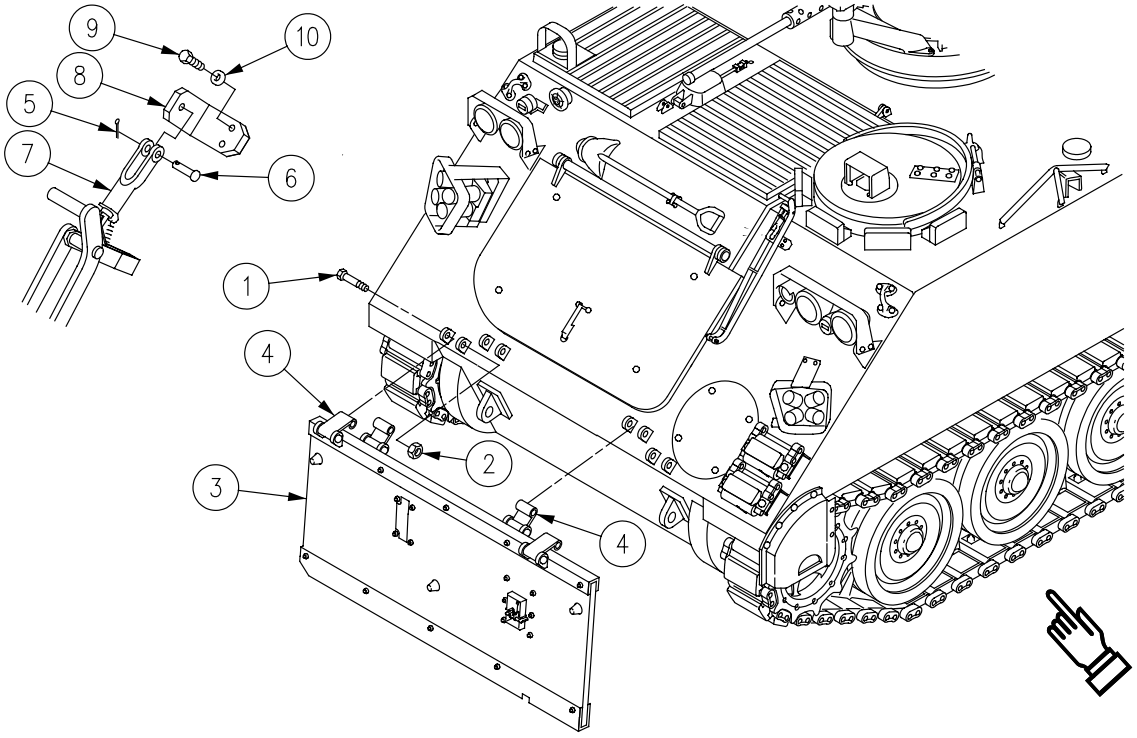
NOTE

There are two armor kits, 57K0429 and 57K0467. Steps apply to both kits unless otherwise noted.

Some armor plates in this task weigh over 130 lb. Use lifting device and helper to support and position armor.

REPLACE FRONT ARMOR (M113A3 ONLY) — Continued 0749 00

1. Remove four screws (1), locknuts (2), trim vane (3), and hinges (4) from carrier. Discard locknuts.
2. Remove cotter pin (5) and pin (6) from clevis (7). Remove clevis from pivot bracket (8). Discard cotter pin.
3. Remove two screws (9), washers (10), and pivot bracket (8) from hull.

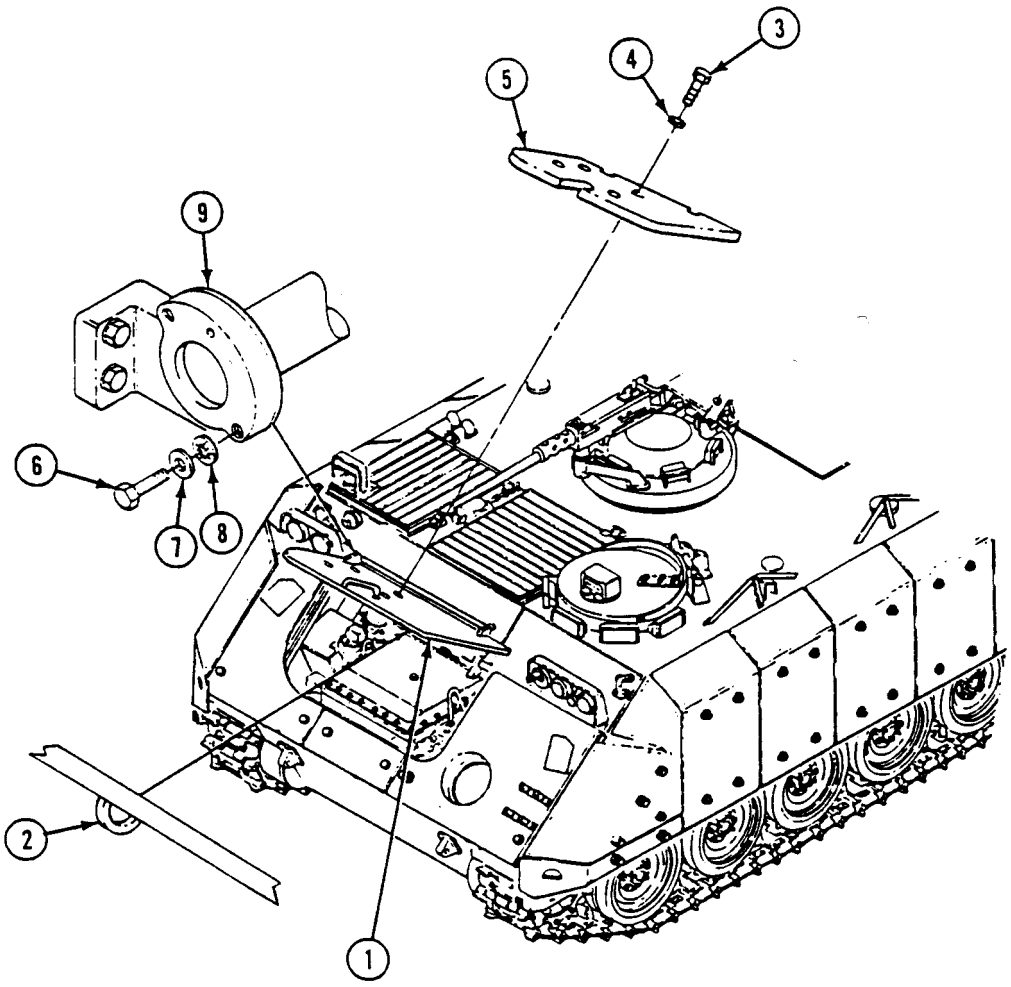


WARNING

Power plant door contains a loaded torsional spring assembly. To avoid injury to personnel, door must be raised to neutral position before removing two housing screws.

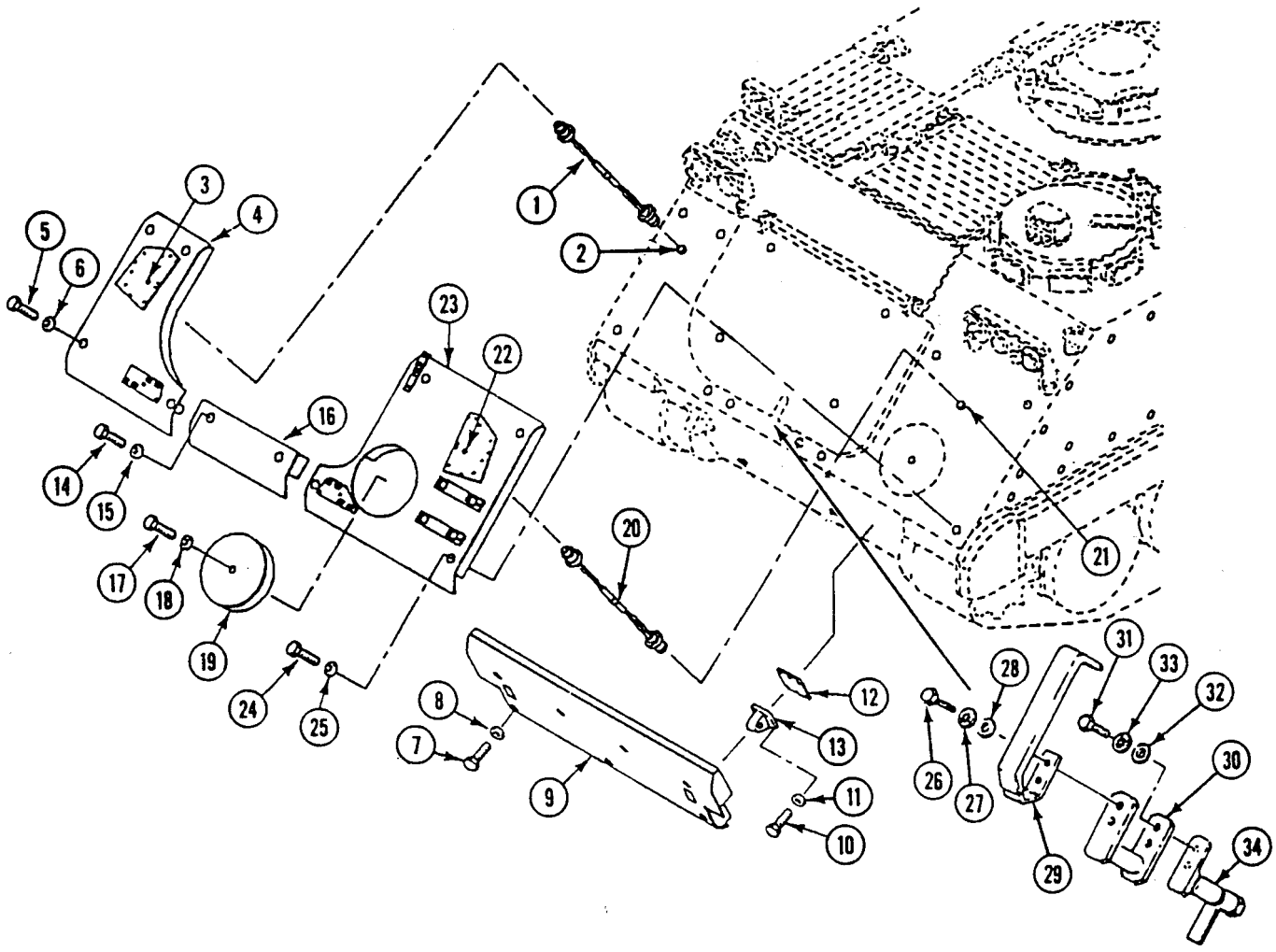
REPLACE FRONT ARMOR (M113A3 ONLY) — Continued 0749 00

4. Raise power plant door (1) 120 to 130 degrees from closed position.
5. Attach lifting device to door lifting eye (2).
6. Remove four screws (3), washers (4), and door armor plate (5) from power plant door (1).
7. Remove two screws (6), washers (7), and lockwashers (8) from housing (9). Discard lockwashers.
8. Rotate housing (9) toward bottom of carrier (clockwise), until second set of screw holes are aligned.
9. Reinstall two screws (6) and washers (7) on housing (9). Detach lifting device and lower door (1).



REPLACE FRONT ARMOR (M113A3 ONLY) — Continued 0749 00

10. Disconnect and remove extension harness (1) from smoke grenade launcher harness (2) and push through hole (3) in front right armor plate (4).
11. Remove four screws (5), washers (6), and front right armor plate (4) from hull.
12. Remove seven screws (7), fourteen washers (8), and armor plate (9) from lower front center of vehicle.
13. Remove twelve screws (10), washers (11), two spacer plates (12), and towing eyes (13) from hull.
14. Remove two screws (14), washers (15), and armor plate (16) from front center of vehicle.
15. Remove screw (17), washer (18), and access cover (19).
16. Disconnect and remove extension harness (20) from smoke grenade launcher harness (21) and push through hole (22) in front left armor plate (23).
17. Remove four screws (24), washers (25), and front left armor plate (23) from hull.
18. Remove two screws (26), lockwashers (27), washers (28), and handle (29) from extension (30). Discard lockwashers.
19. Remove two screws (31), washers (32), lockwashers (33), and extension (30) from plate (34). Discard lockwashers.



DISASSEMBLY

WARNING

Armor plates are heavy. Be sure to support plate properly to avoid injury to personnel.

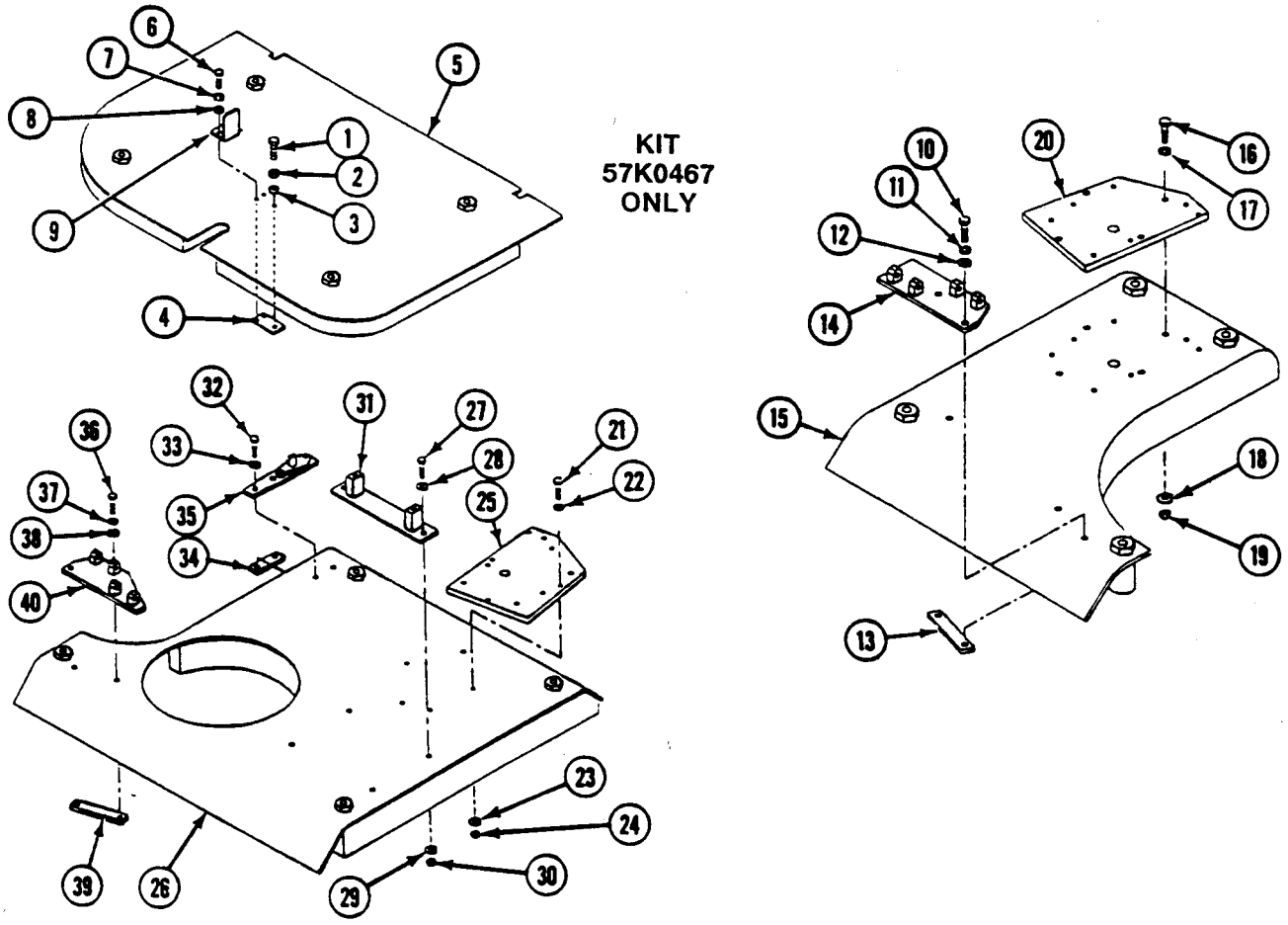
NOTE

If kit 57K0467 is installed, do Steps 1 - 9.

If kit 57K0429 is installed, do Steps 10 - 18.

REPLACE FRONT ARMOR (M113A3 ONLY) — Continued 0749 00

1. Remove screw (1) with jam nut (2) and washer (3) from backing plate (4) and power plant door armor plate (5).
2. Remove jam nut (2) from screw (1).
3. Remove two screws (6), lockwashers (7), washers (8), backing plate (4), and latch stop (9), from power plant door armor plate (5). Discard lockwashers.
4. Remove two screws (10), lockwashers (11), washers (12), backing plate (13), and trim vane hinge (14) from front right armor plate (15). Discard lockwashers.
5. Remove four screws (16), washers (17)(18), locknuts (19) and bracket (20) from front right armor plate (15). Discard locknuts.
6. Remove four screws (21), washers (22)(23), locknuts (24), and bracket (25) from front left armor plate (26). Discard locknuts.
7. Remove four screws (27), washers (28)(29), locknuts (30), and two track shoe brackets (31) from front left armor plate (26). Discard locknuts.
8. Remove two screws (32), washers (33), backing plate (34), and trim vane strike (35) from front left armor plate (26).
9. Remove two screws (36), lockwashers (37), washers (38), backing plate (39), and trim vane hinge (40) from front left armor plate (26). Discard lockwashers.



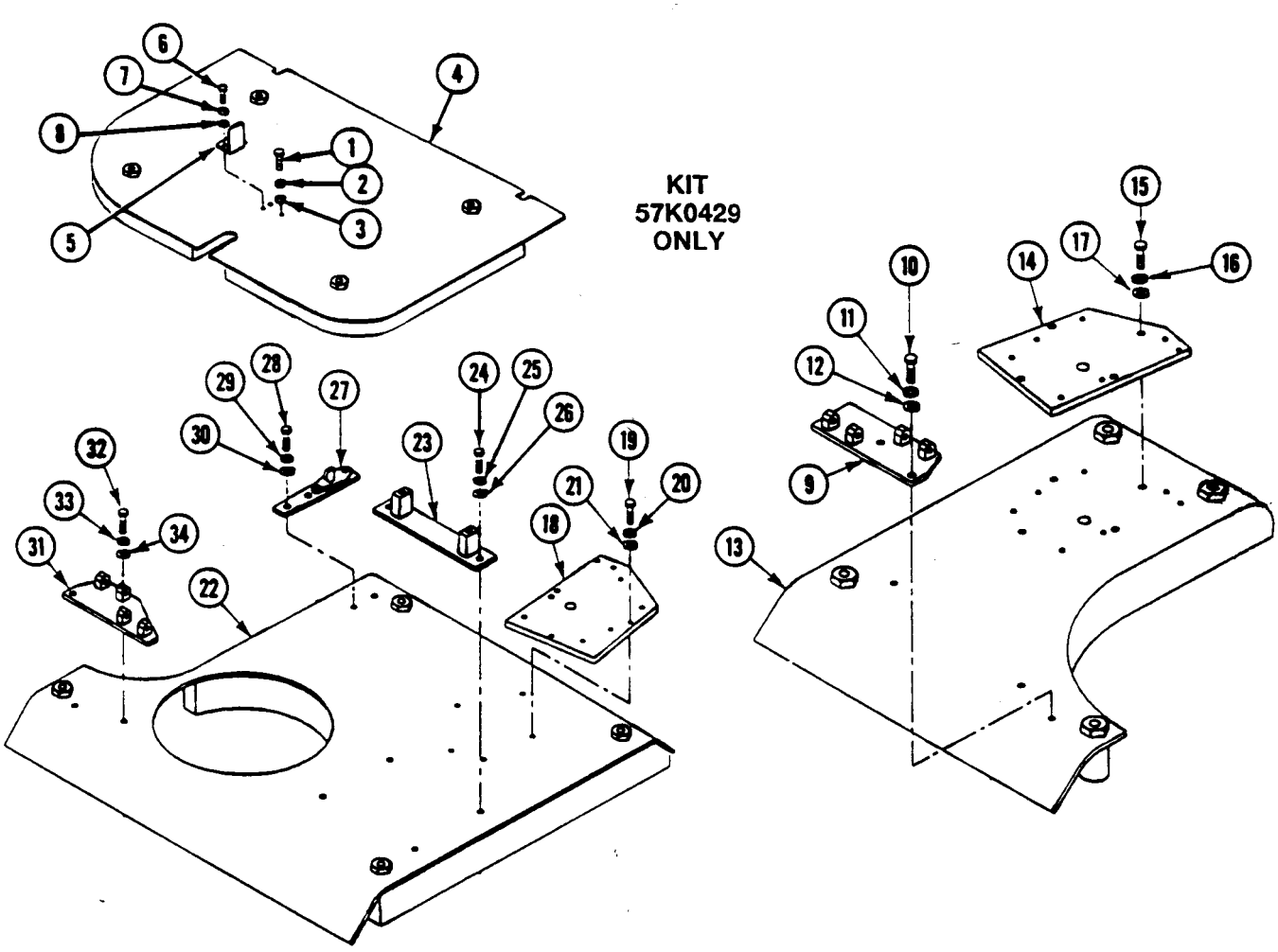
WARNING

Armor plates are heavy. Be sure to support plate properly to avoid injury to personnel.

10. Remove screw (1) with jam nut (2) and washer (3) from power plant door armor plate (4).
11. Remove jam nut (2) from screw (1).
12. Remove latch stop (5), two screws (6), lockwashers (7), and washers (8) from power plant door armor plate (4). Discard lockwashers.
13. Remove trim vane hinge (9), two screws (10), lockwashers (11), and washers (12), from front right armor plate (13). Discard lockwashers.

REPLACE FRONT ARMOR (M113A3 ONLY) — Continued 0749 00

14. Remove bracket (14), four screws (15), lockwashers (16), and washers (17) from front right armor plate (13). Discard lockwashers.
15. Remove bracket (18), four screws (19), lockwashers (20), and washers (21) from front left armor plate (22). Discard lockwashers.
16. Remove two track shoe brackets (23), four screws (24), lockwashers (25), and washers (26) from front left armor plate (22). Discard lockwashers.
17. Remove trim vane strike (27), two screws (28), lockwashers (29), and washers (30) from front left armor plate (22). Discard lockwashers.
18. Remove trim vane hinge (31), two screws (32), lockwashers (33), and washers (34) from front left armor plate (22). Discard lockwashers.



ASSEMBLY

WARNING

Armor plates are heavy. Be sure to support plate properly to avoid injury to personnel.

NOTE

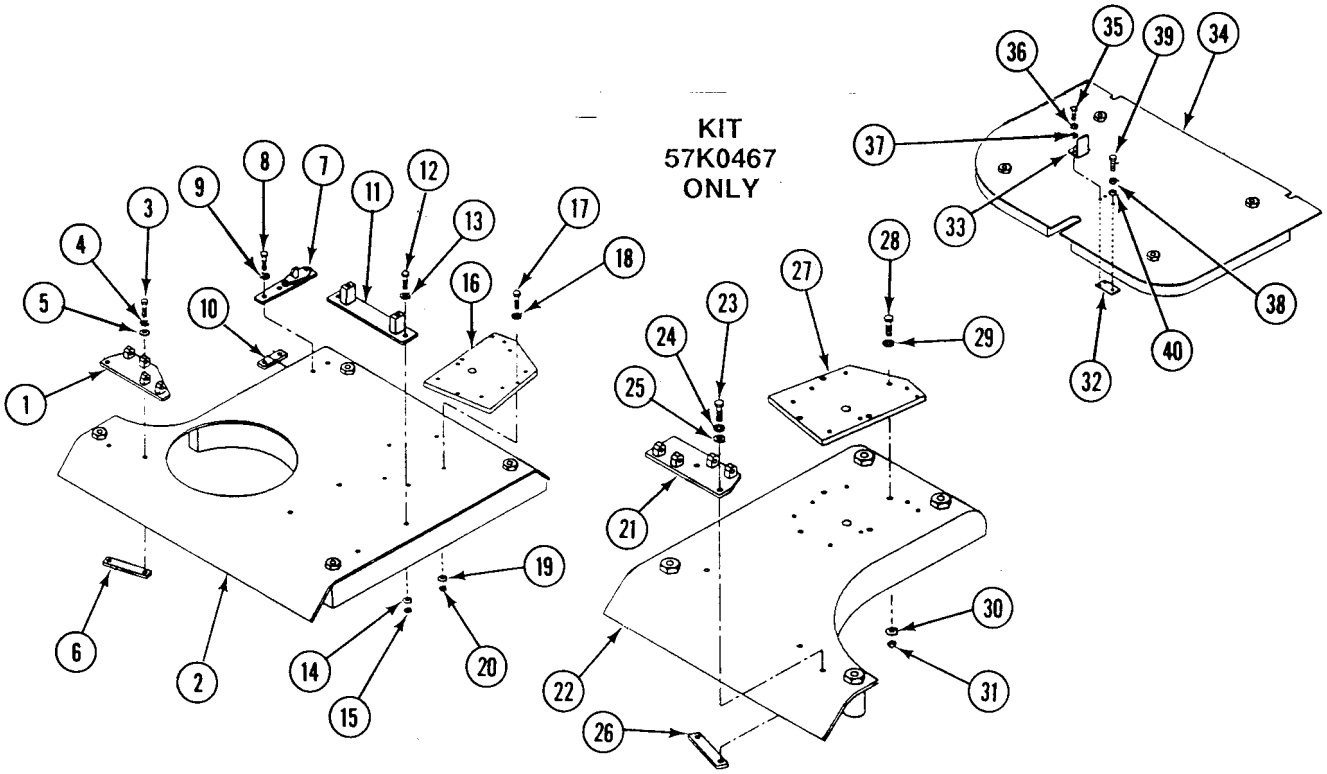
If installing kit 57K0467, do Steps 1 - 10.

If installing kit 57K0429, do Steps 11 - 19.

Make sure armor plate mounting holes in hull are clean.

1. Install trim vane hinge (1) on front left armor plate (2) with two screws (3), new lockwashers (4), washers (5), and backing plate (6).
2. Install trim vane strike (7) on front left armor plate (2) with two screws (8), washers (9), and backing plate (10).
3. Install two track shoe brackets (11) on front left armor plate (2) with four screws (12), washers (13)(14), and new locknuts (15). Use knife or chisel to remove foam on back of front left armor plate (2) so locknuts (15) can be attached to screws (12).
4. Install bracket (16) on front left armor plate (2) with four screws (17), washers (18)(19), and new locknuts (20).
5. Install trim vane hinge (21) on front right armor plate (22) with two screws (23), new lockwashers (24), washers (25), and backing plate (26).
6. Install bracket (27) to front right armor plate (22) with four screws (28), washers (29)(30), and new locknuts (31).
7. Apply sealing compound to top surface of backing plate (32).
8. Install latch stop (33) on power plant door armor plate (34) with two screws (35), new lockwashers (36), washers (37), and backing plate (32).
9. Thread jam nut (38) on detent screw (39) to end of threads.

10. Insert detent screw (39) with nut (38)installed, through washer (40) and door plate (34) into backing plate (32) until threads of detent screw (39) bottom out. Do not tighten detent screw (39) or jam nut (38) yet.

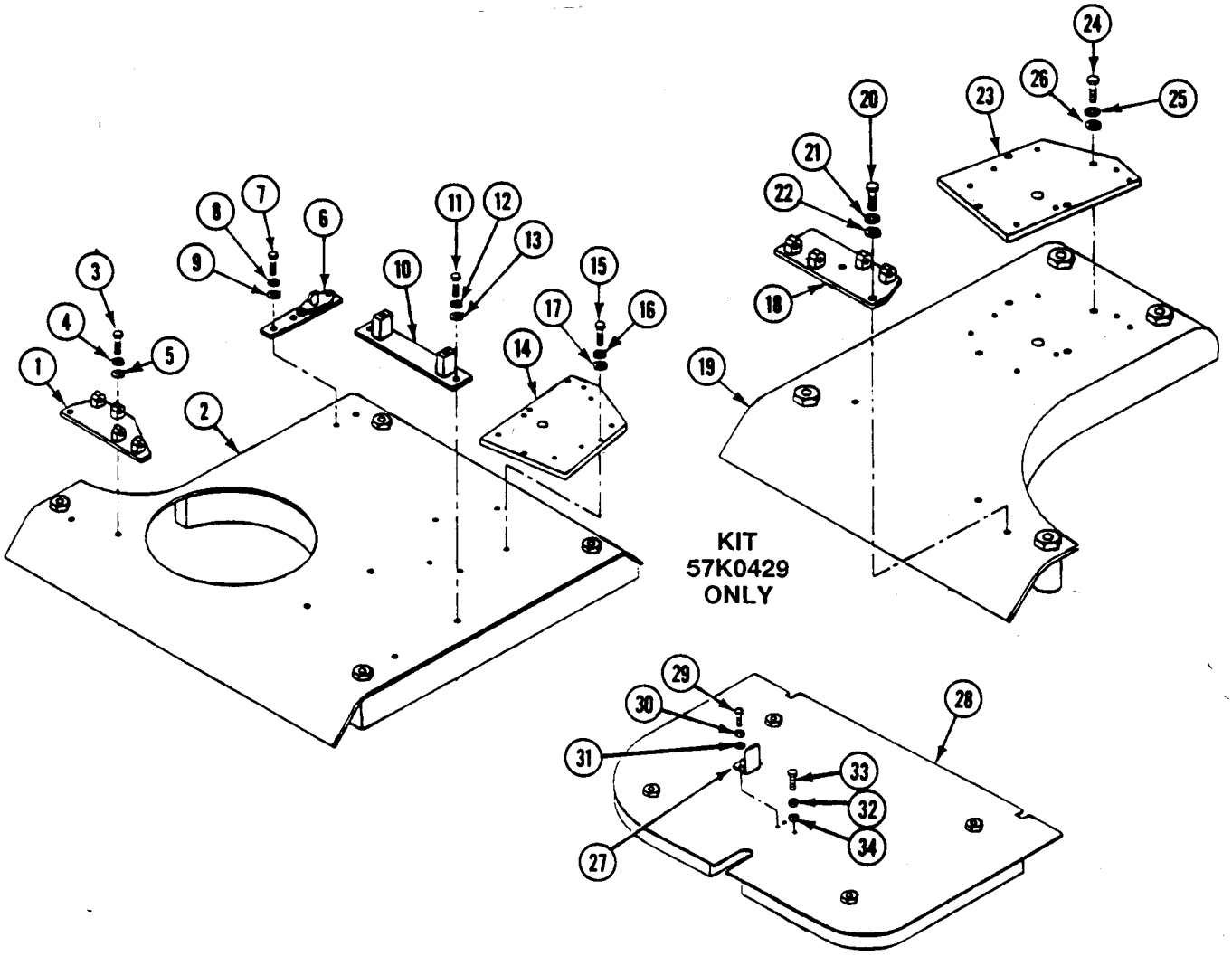


WARNING

Armor plates are heavy. Be sure to support plate properly to avoid injury to personnel.

11. Install trim vane hinge (1) on front left armor plate (2) with two screws (3), new lockwashers (4), and washers (5).
12. Install trim vane strike (6) on front left armor plate (2) with two screws (7), new lockwashers (8), and washers (9).
13. Install two track shoe brackets (10) on front left armor plate (2) with four screws (11), new lockwashers (12), and washers (13).
14. Install bracket (14) on front left armor plate (2) with four screws (15), new lockwashers (16), and washers (17).
15. Install trim vane hinge (18) on front right armor plate (19) with two screws (20), new lockwashers (21), and washers (22).
16. Install bracket (23) on front right armor plate (19) with four screws (24), new lockwashers (25), and washers (26).
17. Install latch stop (27) on power plant door armor plate (28) with two screws (29), new lockwashers (30), and washers (31).
18. Thread jam nut (32) on detent screw (33) to end of threads.

19. Insert detent screw (33) with nut (32) installed, through washer (34) and into door plate (28) until threads of detent screw (33) bottom out. Do not tighten detent screw (33) or jam nut (32) yet.



INSTALLATION

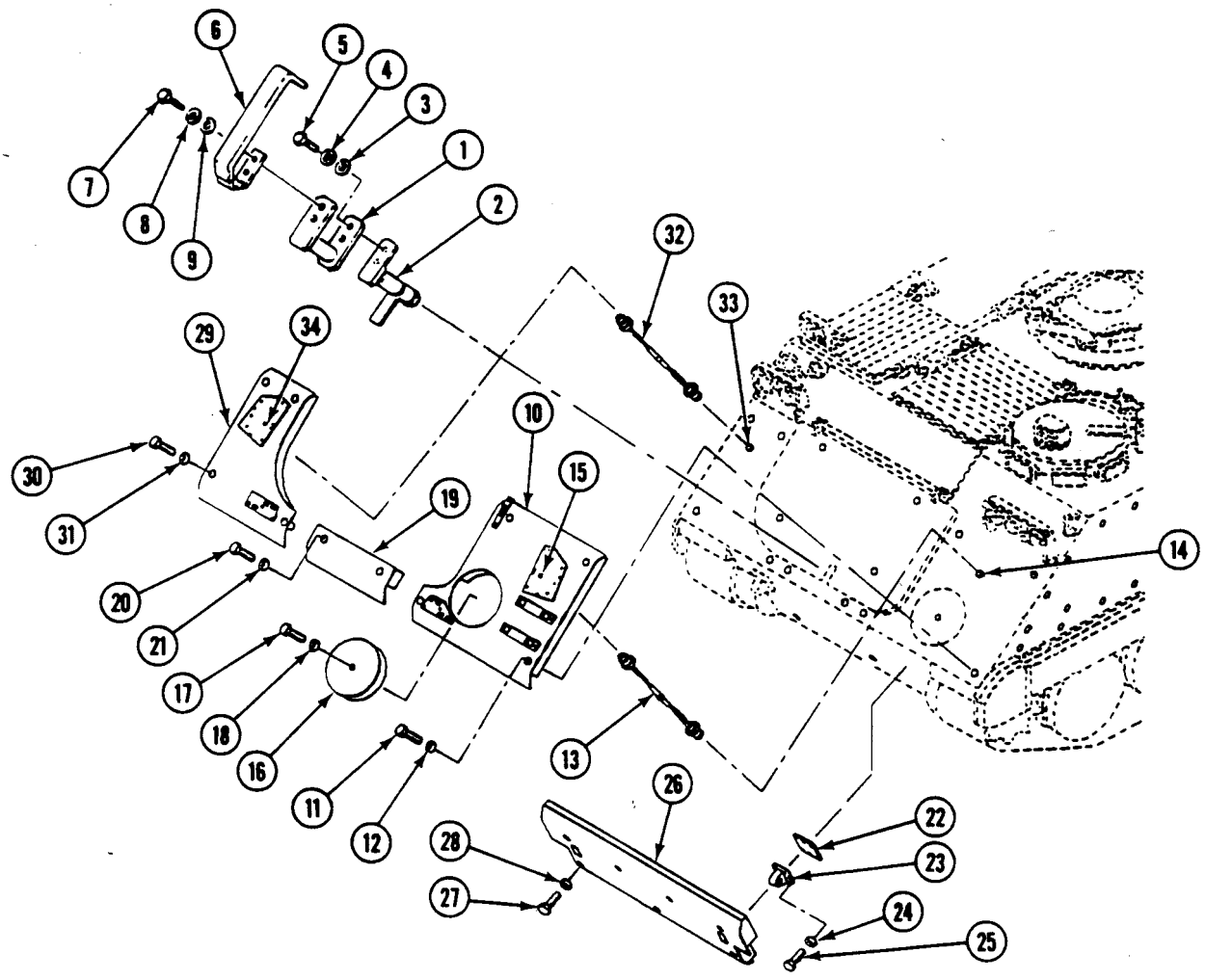
1. Install extension (1) on plate (2) with two new lockwashers (3), washers (4), and new screws (5).
2. Install handle (6) on extension (1) with two screws (7), new lockwashers (8), and washers (9).

WARNING

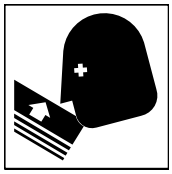
Armor plates are heavy. Be sure to support plate properly to avoid injury to personnel.

3. Install front left armor plate (10) on hull with four screws (11) and washers (12).

4. Connect extension harness (13) to smoke grenade launcher harness (14) and push through hole (15) in front left armor plate (10).
5. Install access cover (16) with screw (17) and washer (18).
6. Install armor plate (19) on front center of vehicle with two screws (20) and washers (21).
7. Install two spacer plates (22) and towing eyes (23) on hull with twelve washers (24) and screws (25).
8. Install armor plate (26) on lower front center of vehicle with seven screws (27) and fourteen washers (28) as required.
9. Install front right armor plate (29) on hull with screws (30) and washers (31).
10. Connect extension harness (32) to smoke grenade launcher harness (33) and push through hole (34) in front right armor plate (29).



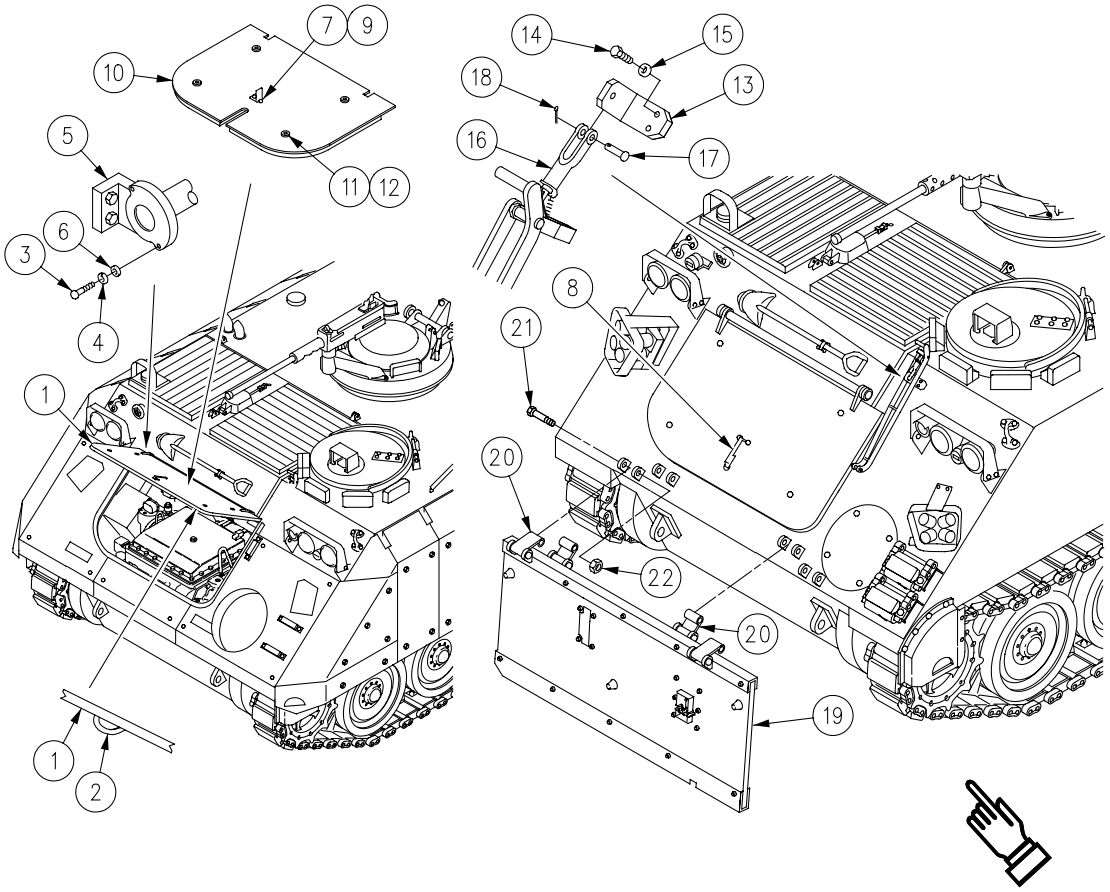
WARNING



Power plant door contains a loaded torsional spring assembly. To avoid injury to personnel, door must be raised to neutral position before removing two housing screws.

11. Raise power plant door (1) 120-130 degrees from closed position.
12. Attach lifting device to door lifting eye (2).
13. Remove two screws (3) and washers (4) from housing (5).
14. Rotate housing (5) toward top of carrier (counterclockwise), until second set of screw holes are aligned.
15. Reinstall two screws (3), washers (4), and new lockwashers (6) on housing (5). Detach lifting device and lower door (1).
16. Loosen detent screw (7) until access door handle (8) rubs screw head. Tighten jam nut (9).
17. Install armor plate (10) on power plant door (1) with four screws (11) and washers (12).
18. Install pivot bracket (13) on hull with two screws (14) and washers (15). Install clevis (16) on pivot bracket (13) with pin (17) and new cotter pin (18).

19. Install trim vane (19) and hinges (20) on carrier with four screws (21) and new locknuts (22).



FOLLOW-THROUGH STEPS

1. Raise and stow trim vane (see your -10).
2. Install smoke grenade launchers (WP 0455 00).

END OF TASK

REPLACE SIDE ARMOR/STOWAGE BOX (M113A3 ONLY) 0750 00

THIS WORK PACKAGE COVERS:

Removal (page 0750 00-1).
Installation (page 0750 00-3).

INITIAL SETUP:

Maintenance Level

Unit

References

See your -10

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)
Lifting Device rated at 200 lb (91 kg) minimum

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)

Personnel Required

Unit Mechanic
Helper

REMOVAL

WARNING

Armor plates are heavy. Be sure to support plate properly to avoid injury to personnel. Use helper, lifting device, and support equipment as needed.

NOTE

Left and right armor/stowage boxes are replaced the same way.

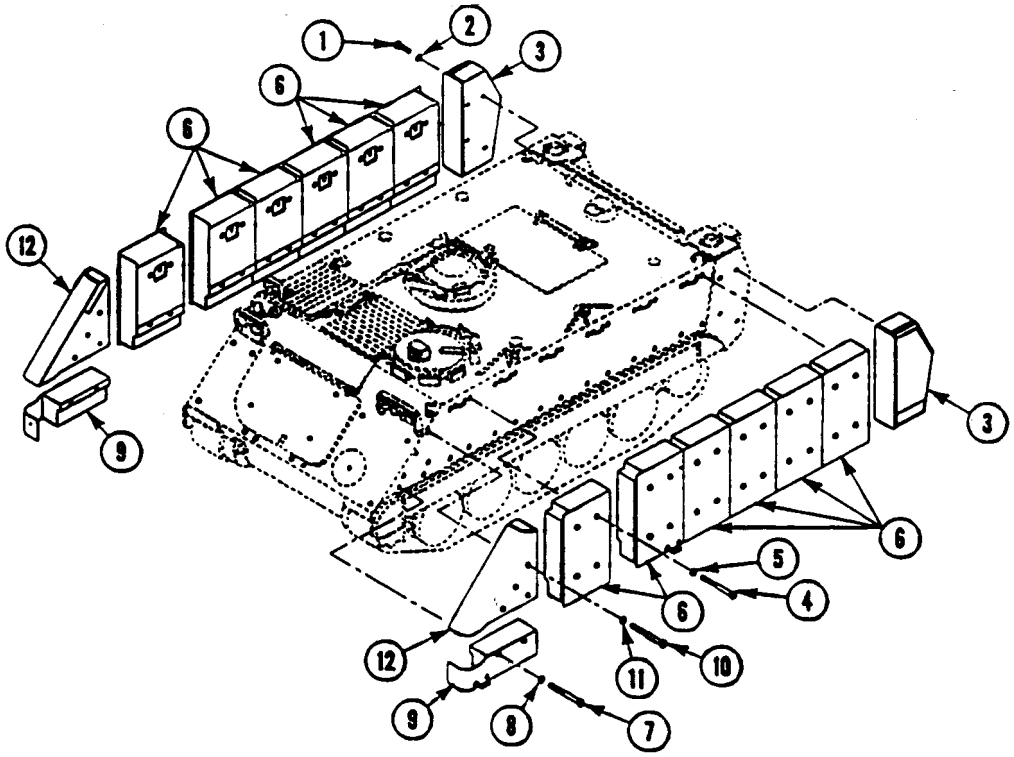
NOTE

To remove stowage box, do Step 1; for side armor plate, do Step 2; for lower side plate, do Step 3; and for upper side plate, do Step 4.

1. Remove four screws (1), washers (2), and stowage box (3) from rear of carrier.

REPLACE SIDE ARMOR/STOWAGE BOX (M113A3 ONLY) — Continued **0750 00**

2. Remove 24 screws (4), washers (5), and six armor plates (6) from side of carrier.
3. Remove two screws (7), washers (8), and lower side plate (9) from carrier.
4. Remove four screws (10), washers (11), and upper side plate (12) from carrier.

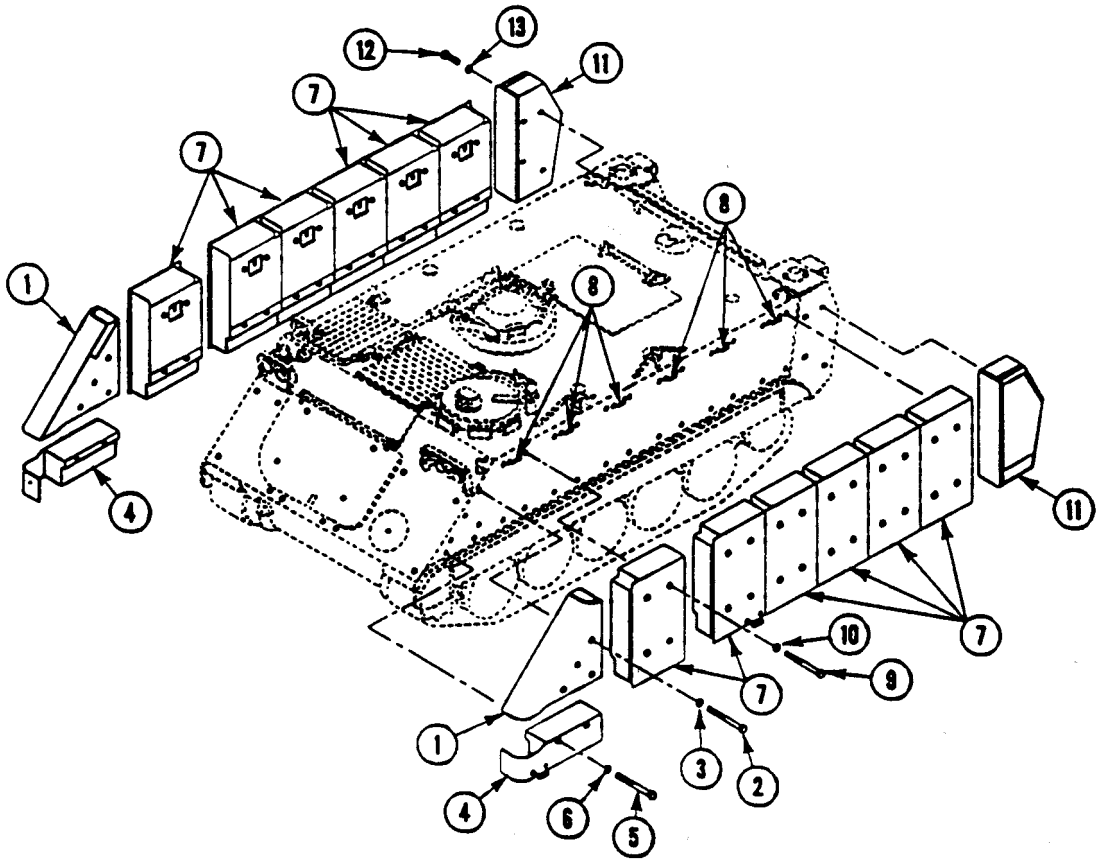


INSTALLATION

NOTE

To install upper side plate, do Step 1; for lower side plate, do Step 2; for side armor plate, do Step 3; and for stowage box, do Step 4.

1. Install upper side plate (1) on carrier with four screws (2) and washers (3).
2. Install lower side plate (4) on carrier with four screws (5) and washers (6).
3. Install six side armor plates (7) on carrier by attaching hooks on back of plates to footman loops (8), and securing with 24 screws (9) and washers (10).
4. Install stowage box (11) on rear of carrier with four screws (12) and washers (13).



END OF TASK

REPLACE REAR ARMOR (M113A3 ONLY) 0751 00

THIS WORK PACKAGE COVERS:

Removal (page 0751 00-1).
Installation (page 0751 00-5).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0926 00, Item 65)
Torque Wrench Adapter (WP 0926 00, Item 1)
Torque Wrench (WP 0926 00, Item 86)
Lifting Device rated at 200 lb (91 kg) minimum

Materials/Parts
Locknut (spaced armor only) (14)
Locknut
Lockwasher (4)
Shim (2)
Shim (2)

Personnel Required
Unit Mechanic
Helper (H)

References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)

REMOVAL

WARNING

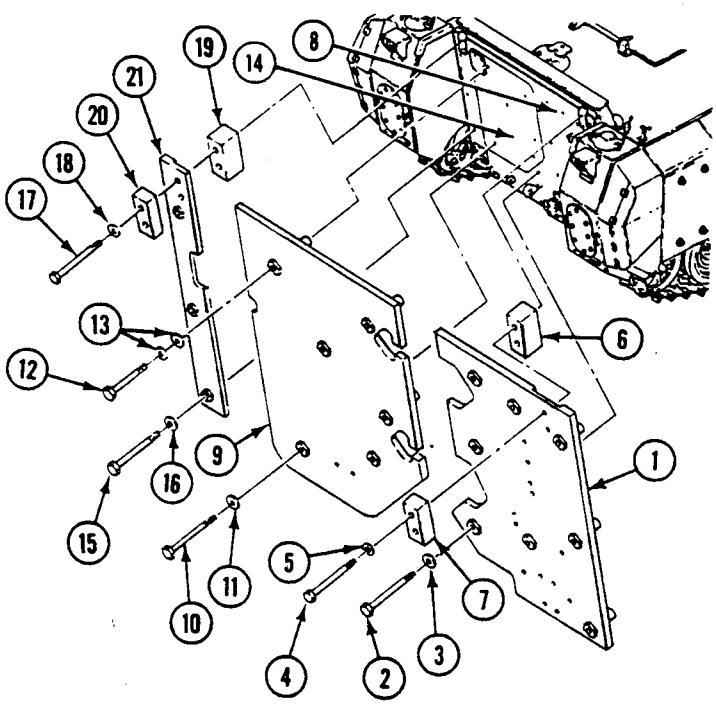
Armor plates are heavy. Support plate properly to avoid injury. Use helper, lifting device, and support equipment as needed.

NOTE

Armor kit 57K0567 (spaced armor) and armor kit 57K0429 (solid armor) are removed and installed the same way, except locknuts are not used on the solid armor. Screws securing parts to solid armor are threaded directly into the armor plates.

1. Attach lifting device to right rear armor plate (1).

2. Remove eight screws (2), washers (3), two screws (4), washers (5), support (6), pad (7), and armor plate (1) from ramp (8). Remove lifting device.
3. Attach lifting device to ramp door armor plate (9).
4. Remove five screws (10), washers (11), left corner screw (12), two washers (13), and armor plate (9) from ramp door (14). Remove lifting device.
5. Remove three screws (15), washers (16), two screws (17), washers (18), support (19), pad (20), and left armor plate (21) from ramp (8). Have helper assist.



WARNING

Ramp door could fall and injure you. Make sure door is supported properly by a lifting device before removing hinge screws.

6. Open ramp door (1) and attach lifting device.

7. Remove two nuts (2), four washers (3), and two screws (4) from ramp door hinge halves (5) and (6). Remove ramp door (1) from carrier. Remove lifting device. Have helper assist.

8. Remove six screws (7), two shims (8), spacers (9), and two hinge halves (6) from ramp (10). Discard shims.

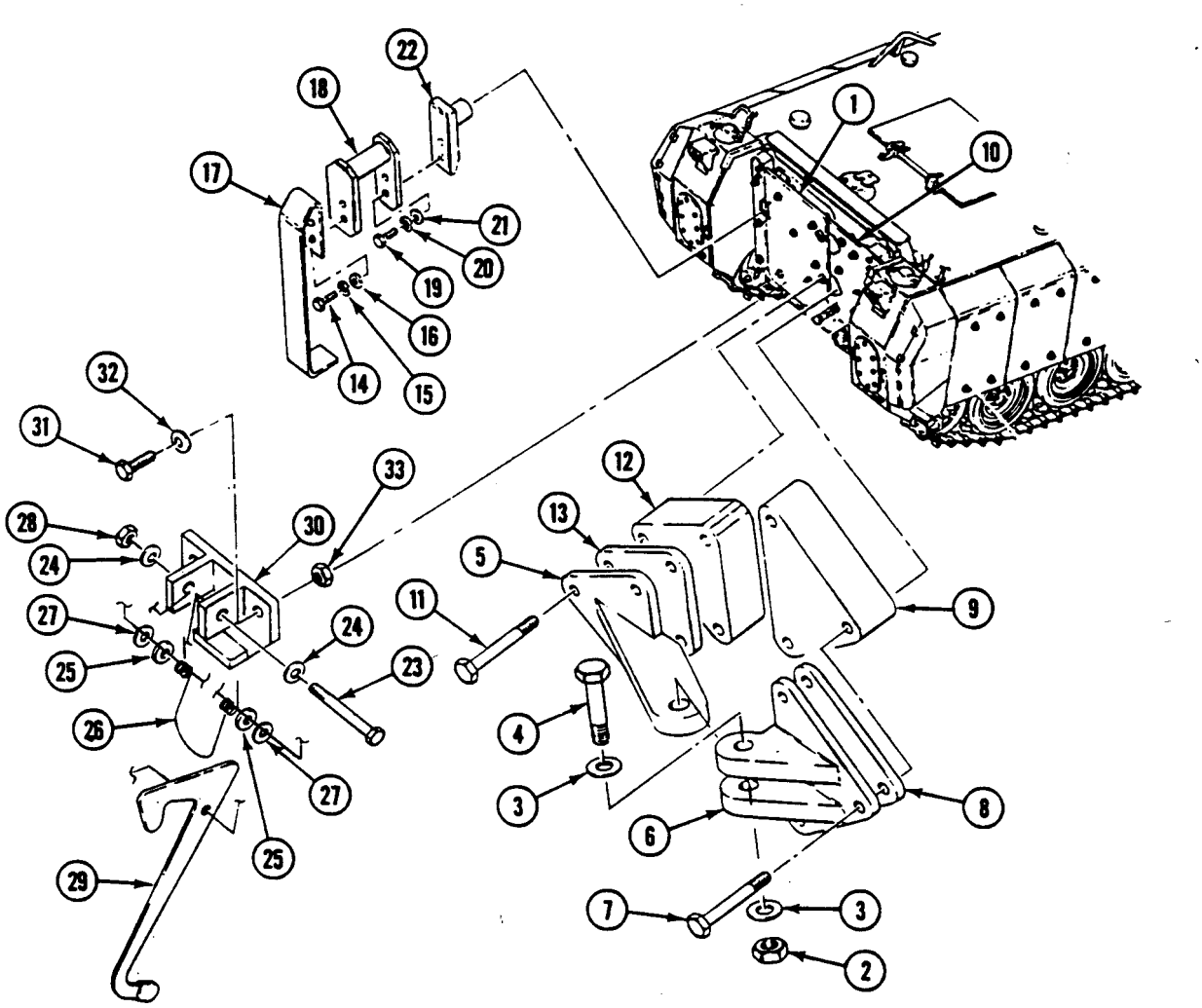
9. Remove six screws (11), two spacers (12), shims (13), and two hinge halves (5) from ramp door (1). Discard shims.

10. Remove two screws (14), lockwashers (15), washers (16), and handle (17) from extension (18). Discard lockwashers.

11. Remove two screws (19), lockwashers (20), washers (21), and extension (18) from bracket (22). Discard lockwashers.

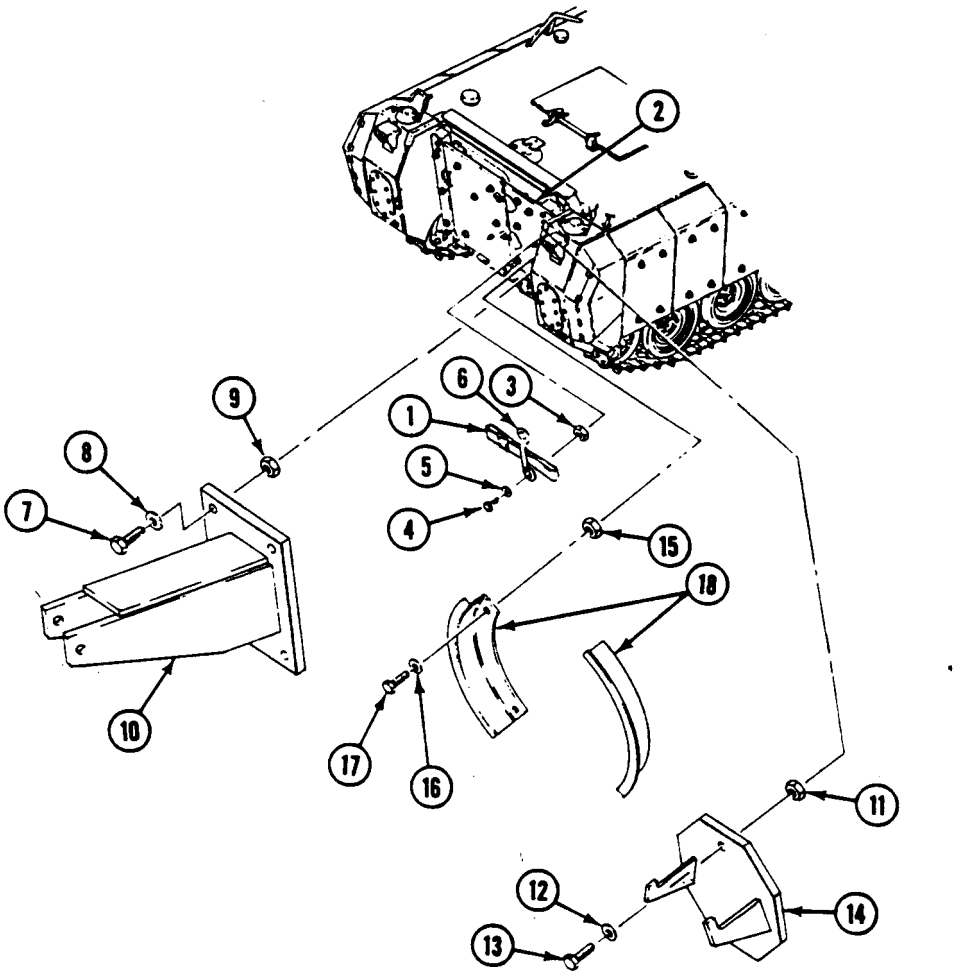
12. Remove screw (23), two washers (24), two spacers (25), spring (26), two washers (27), locknut (28), and hook (29) from bracket (30). Discard locknut.

13. Remove two screws (31), washers (32), locknuts (spaced armor only) (33), and bracket (30) from ramp door armor plate (1). Discard locknuts.



REPLACE REAR ARMOR (M113A3 ONLY) — Continued 0751 00

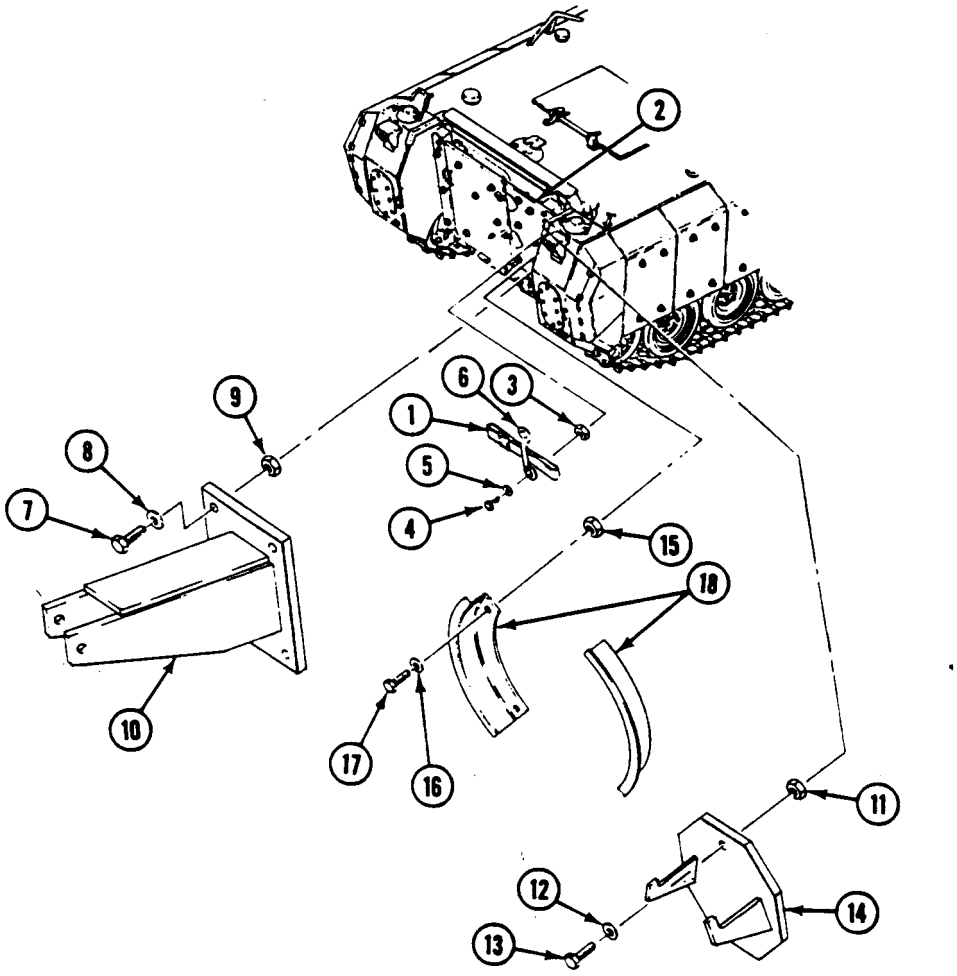
14. Remove strap (1) from right rear armor plate (2).
15. Remove two locknuts (spaced armor only) (3), screws (4), washers (5), and footman loop (6) from right rear armor plate (2). Discard locknuts.
16. Remove four screws (7), washers (8), locknuts (spaced armor only) (9), and bracket (10) from right rear armor plate (2). Discard locknuts.
17. Remove two locknuts (spaced armor only) (11), washers (12), screws (13), and bracket (14) from right rear armor plate (2). Discard locknuts.
18. Remove four locknuts (spaced armor only) (15), washers (16), screws (17), and two brackets (18) from right rear armor plate (2). Discard locknuts.



REPLACE REAR ARMOR (M113A3 ONLY) — Continued 0751 00

INSTALLATION

1. Install two brackets (18), four screws (17), washers (16), and new locknuts (spaced armor only) (15) on right rear armor plate (2).
2. Install bracket (14), two screws (13), washers (12), and new locknuts (spaced armor only) (11) on right rear armor plate (2).
3. Install bracket (10), four screws (7), washers (8), and new locknuts (spaced armor only) (9) on right rear armor plate (2).
4. Install footman loop (6), two screws (4), washers (5), and new locknuts (spaced armor only) (3) on right rear armor plate (2).
5. Install strap (1) on right rear armor plate (2).

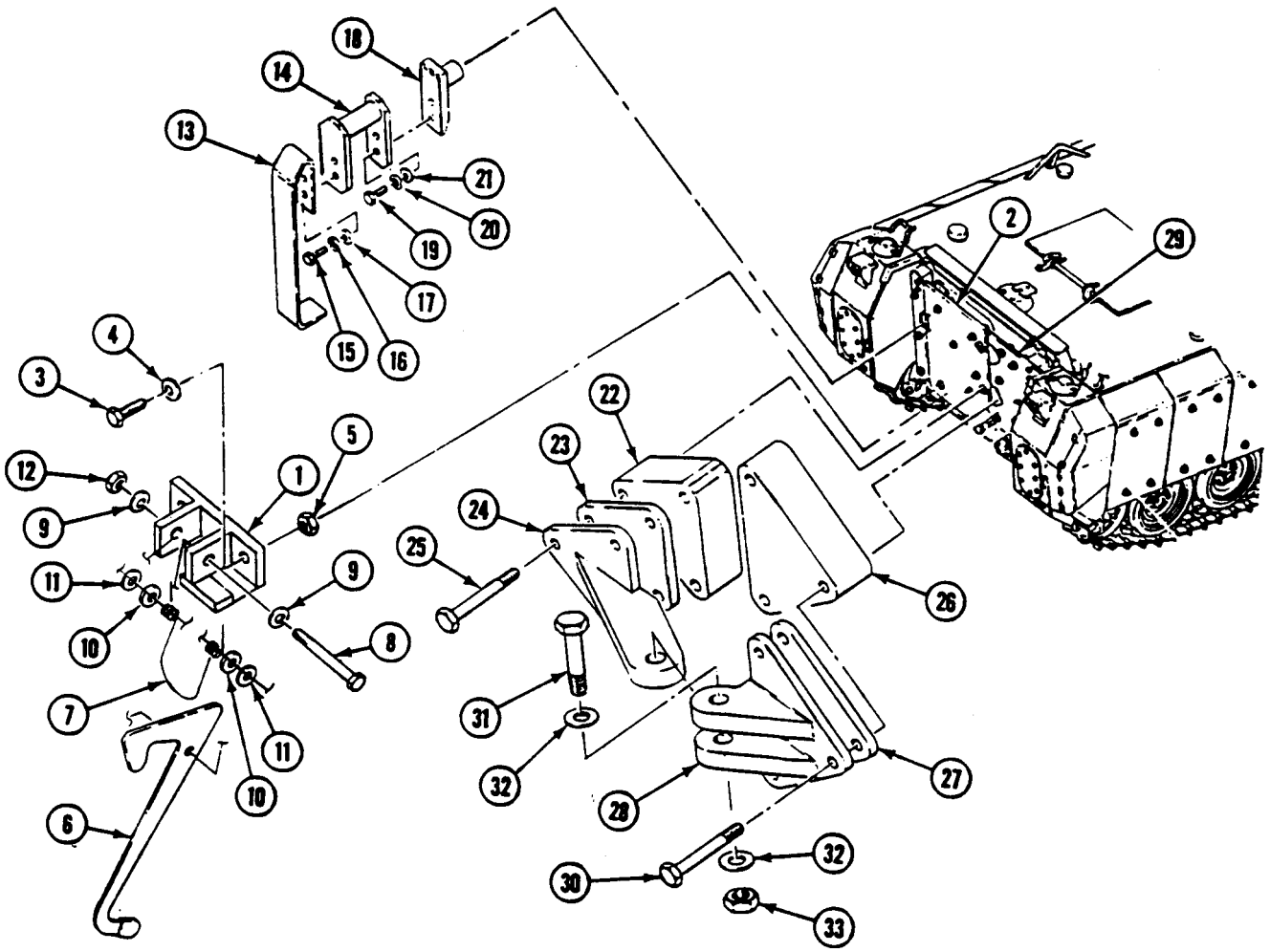


6. Install bracket (1) on ramp door armor plate (2). Secure with two screws (3), washers (4), and new locknuts (spaced armor only) (5).
7. Install hook (6) and spring (7) on bracket (1). Secure with screw (8), two washers (9), spacers (10), washers (11), and new locknut (12).

WARNING

Ramp door is heavy. Support door properly to avoid injury. Use helper, lifting device, and support equipment as needed.

8. Install handle (13) on extension (14). Secure with two screws (15), new lockwashers (16), and washers (17). Attach handle and extension to bracket (18) with two screws (19), new lockwashers (20), and washers (21).



NOTE

For proper alignment and sealing of ramp door, install washers between door and ramp hinges to keep outer edges of door flush with ramp weld, within 1/16 inch (1.5 mm).

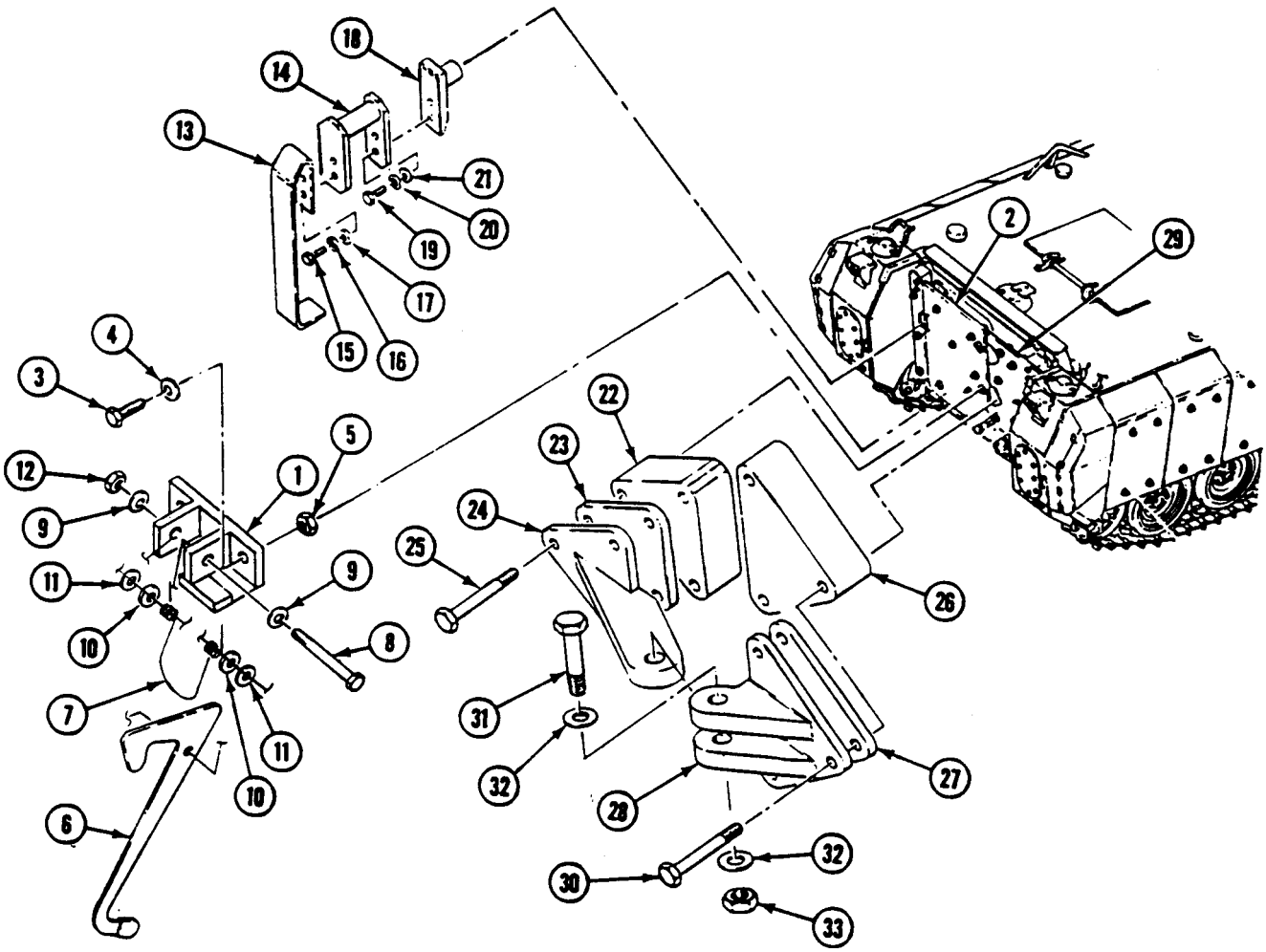
9. Install two spacers (22), new shims (23), and two hinge halves (24) on ramp door (2). Secure with six screws (25). Hand tighten screws.

10. Install two spacers (26), new shims (27), and two hinge halves (28) on ramp (29). Secure with six screws (30). Hand tighten screws.

11. Attach lifting device to ramp door (2) and position door in ramp (29).

12. Align two hinge halves (24) with hinge halves (28). Secure with two screws (31), four washers (32), and two nuts (33). Remove lifting device and close door.

13. TIGHTEN 12 SCREWS (25)(30) TO 107-118 LB-FT (145-160 N·m) TORQUE.

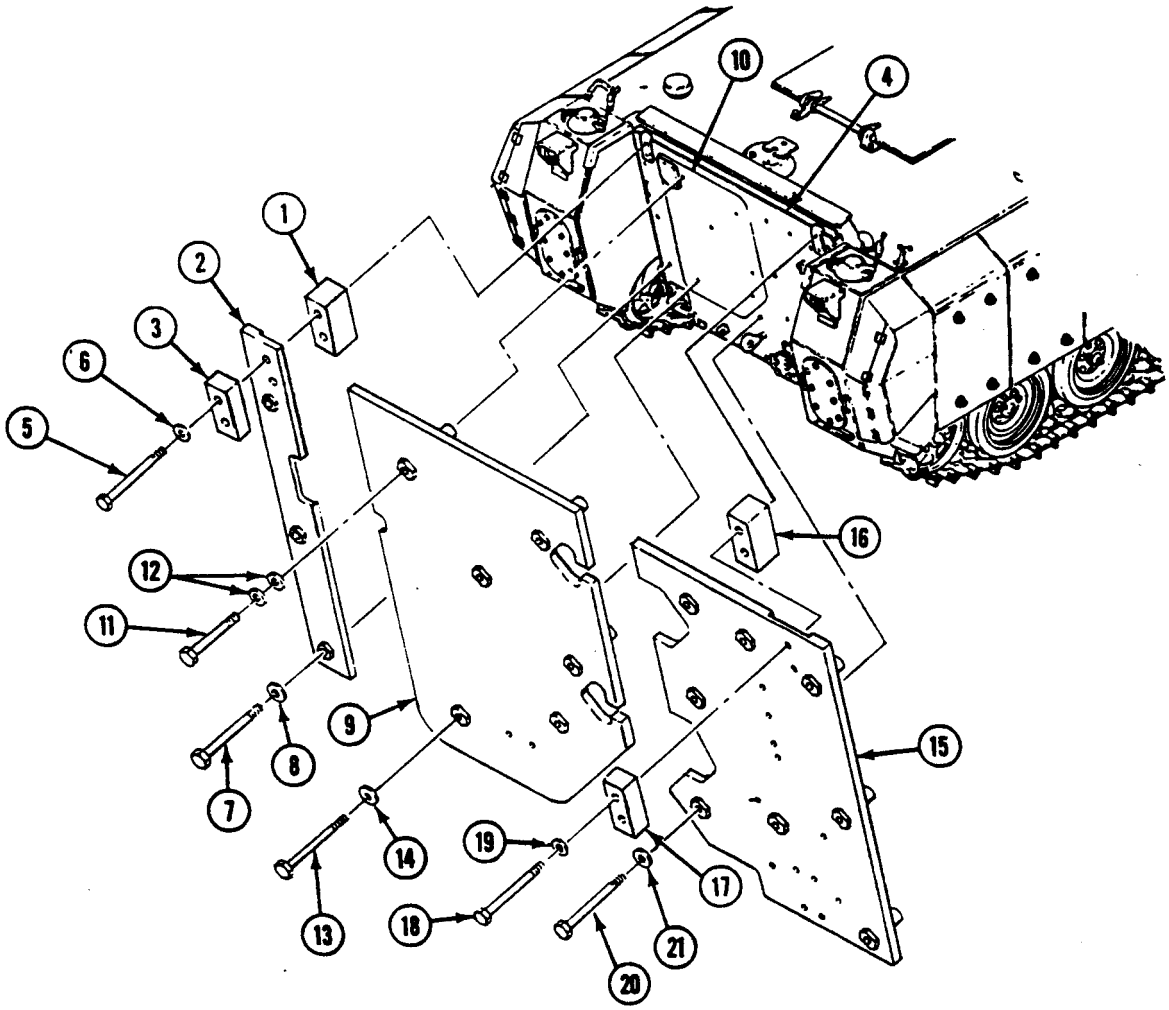


WARNING

Armor plates are heavy. Support armor plate properly to avoid injury. Use helper, lifting device, and support equipment as needed.

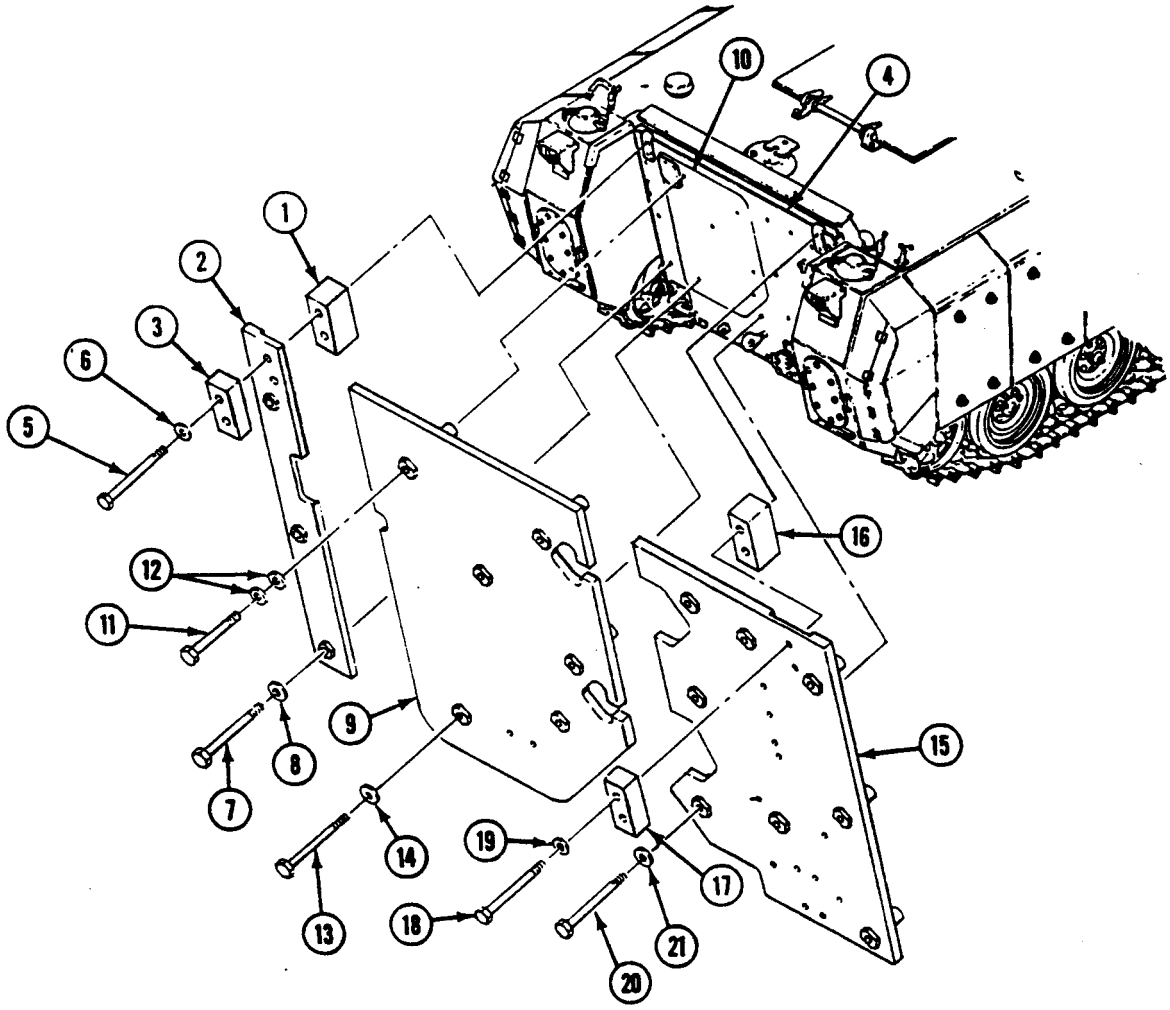
14. Attach support (1), left rear armor plate (2), and pad (3) to ramp (4) with two screws (5) and washers (6). Have helper assist.

15. Secure armor plate (2) to ramp (4) with three screws (7) and washers (8).



REPLACE REAR ARMOR (M113A3 ONLY) — Continued **0751 00**

16. Attach lifting device to ramp door armor plate (9) and align armor plate on ramp door (10). Attach armor plate to ramp door at upper left corner with screw (11) and washer (12). Secure armor plate to ramp door with five screws (13) and washers (14).
17. Attach lifting device to right rear armor plate (15). Align support (16), armor plate (15), and pad (17) on ramp (4). Secure with two screws (18) and washers (19).
18. Secure right rear armor plate (15) with eight screws (20) and washers (21). Remove lifting device.



END OF TASK

INSTALL/REMOVE MINE ARMOR KIT (M113A3 ONLY) 0752 00

THIS WORK PACKAGE COVERS:

Install Mine Armor Plate (page 0752 00-1).
Install Cover Armor Plate (page 0752 00-4).
Instal Sponson Armor Plate (page 0752 00-5).
Remove Cover Armor Plate (page 0752 00-6).
Remove Mine Armor Plate (page 0752 00-6).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0926 00, Item 65)
Hydraulic Jack (WP 0926 00, Item 27)
Tap and Reamer Wrench (WP 0926 00, Item 77A)
Thread Cutting Tap (WP 0926 00, Item 57A)
Thread Cutting Tap (WP 0926 00, Item 57B)
Torque Wrench (WP 0926 00, Item 84)
Lifting Device

Materials/Parts
Adhesive (WP 0928 00, Item 8.1)
Tie strap (AR)

Personnel Required
Unit Mechanic
Helper (H)

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)

INSTALL MINE ARMOR PLATE

CAUTION

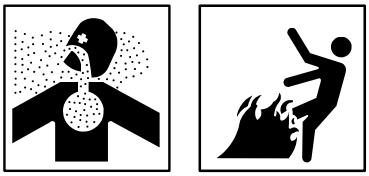
Use a fork lift capable of lifting 800 lb (363 kg) to help support and hold the mine armor plate in place during installation. There are various other methods to install the mine armor plate, use caution and safety to prevent injuries.

NOTE

To install the new mine armor kit, the mounting provisions for the sponson armor plate have to be already in the vehicle the kit is being installed into. Once the sponson armor plate is installed, it becomes a permanent part of the vehicle.

1. Remove 14 protective plugs (17) from threaded inserts (18) in lower hull and on front lower slope of hull.
2. Clean each insert and make sure the screws will thread into each insert before placing the mine armor plate under the hull. Use tap (WP 0926 00, Item 57.2) to clean out the debris left in the 11 inserts (18) for the mine armor plate. Use tap (WP 0926 00, Item 57.1) to clean out the debris left in the three inserts (18) for the cover armor plate. If any insert is damaged, notify direct support maintenance. Do not install mine armor plate until all the inserts are in good working order.

WARNING



Adhesive, primer, sealant compounds, and isopropyl alcohol are toxic and flammable. These compounds are toxic to eyes, skin, and respiratory tract. Continued exposure can make you dizzy and irritate your eyes and throat.

Always use in well ventilated areas, away from heat, sparks, and flames. Do not breathe fumes. Do not allow into contact with skin and eyes. Use goggles or face shield and protective gloves.

3. Apply adhesive to eight spacers (3).

NOTE

There are eight spacers (3) required for the mine armor plate to go between it and the lower hull, three spacers (16) will be slipped into place along the front of the armor plate to the sloping hull area after the armor plate is in place. The eight screws (5) should be installed but not torqued to allow enough movement of the mine armor plate to make sure the last three screws (14) can be installed. Tighten the screws enough to hold the armor plate in place until you get all 11 screws installed, then torque the screws as specified in the following steps.

4. Install eight spacers (3) over the eight holes on top of the mine armor plate that will fit up to the lower hull.

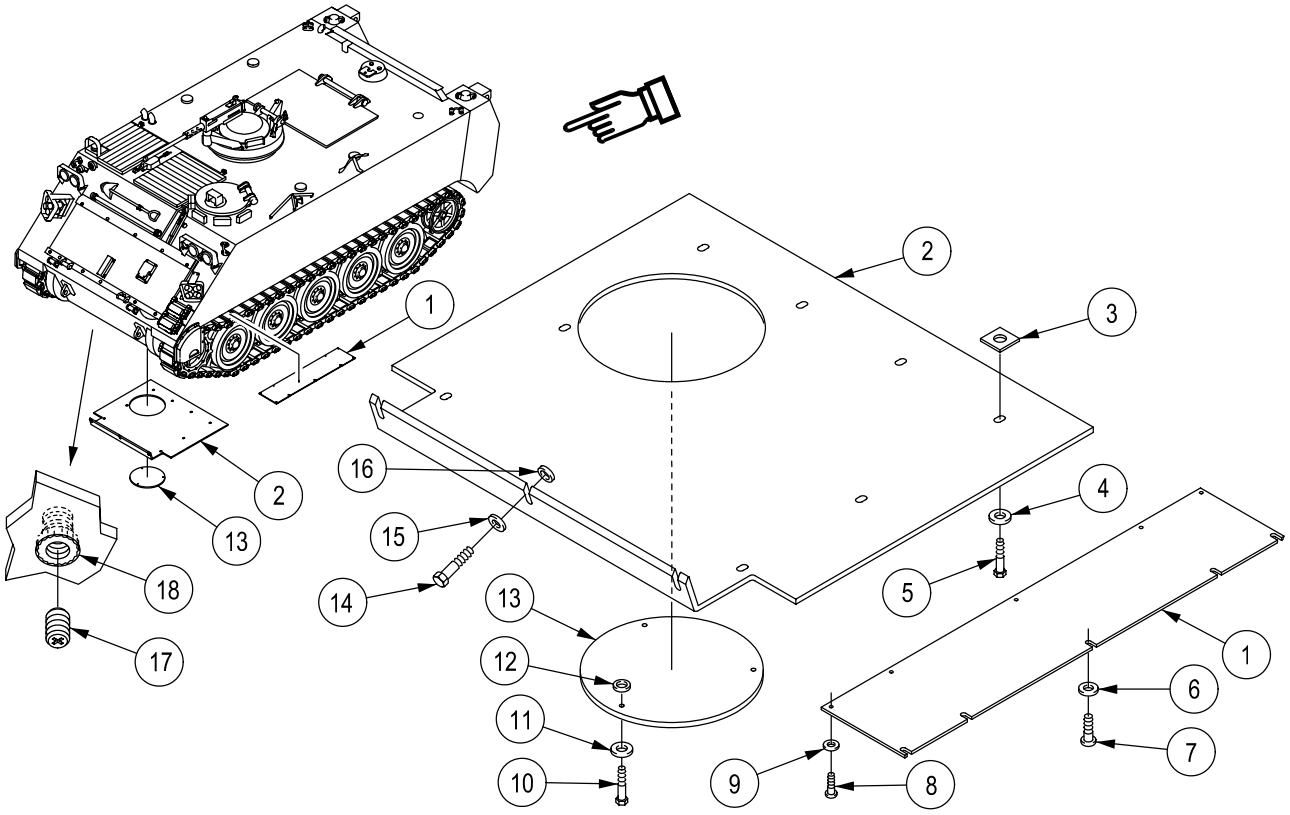
WARNING

Personnel can be killed or injured by a falling 800 lb (363 kg) mine armor plate. Use a forklift or mechanical lifting device capable of lifting 800 lb (363 kg) to position hull mine armor plate for assembly.

NOTE

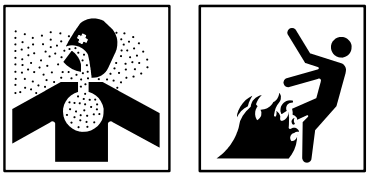
After mine armor plate is positioned, support it with jacks, blocking, or other such devices to prevent armor plate movement during assembly. Verify that armor plate is properly supported before reaching under to install hardened washers and screws. Ensure enough screws are installed to hold plate to hull before placing body under armor plate to complete assembly.

5. Align and position the mine armor plate (2) using a forklift or hydraulic jacks. If using a forklift, move the armor plate into place. Watch the mine armor plate as it moves under the hull. The shocks can be damaged if the mine armor plate makes contact, so go slow and smooth.
6. Raise the mine armor plate up to the lower hull. Place four trestles or hydraulics jacks under the mine armor plate to provide support to prevent anyone under it from being hurt.
7. Install eight screws (5) and hardened washers (4), tighten, but do not torque screws until all eight screws (5) and three screws (14) are installed.
8. Position three spacers between the front sloping hull and mine armor plate. Install three screws (14) and hardened washers (15) in mine armor plate.
9. Tighten all 11 screws (5) and (14).
10. TORQUE THREE SCREWS (14) TO 54-59 LB-FT (73-80 N·M). Use torque wrench.
11. TORQUE EIGHT SCREWS (5) TO 107-118 LB-FT (145-160 N·M). Use torque wrench.



INSTALL COVER ARMOR PLATE

WARNING



Adhesive, primer, sealant compounds, and isopropyl alcohol are toxic and flammable. These compounds are toxic to eyes, skin, and respiratory tract. Continued exposure can make you dizzy and irritate your eyes and throat.

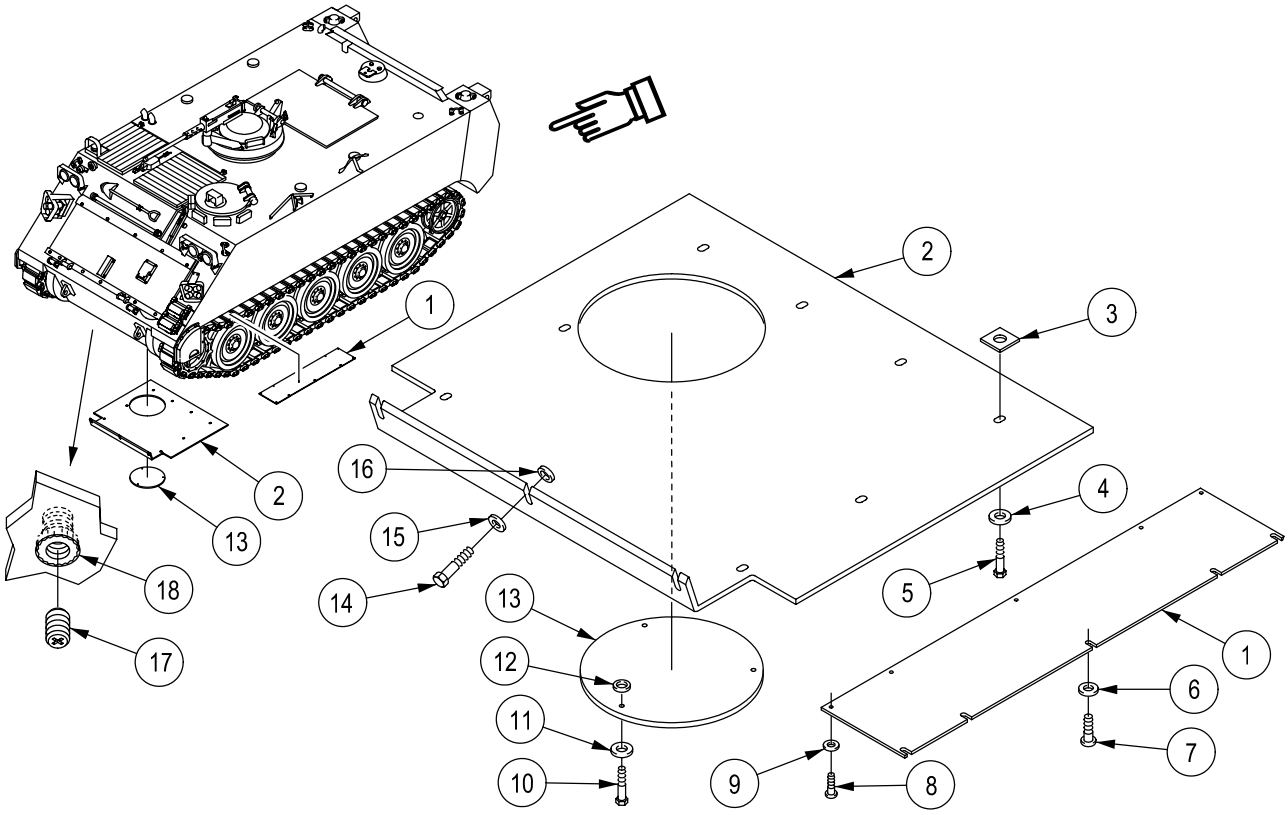
Always use in well ventilated areas, away from heat, sparks, and flames. Do not breathe fumes. Do not allow into contact with skin and eyes. Use goggles or face shield and protective gloves.

1. Apply adhesive to three spacers (12) and place on the cover armor plate (13).

NOTE

The cover armor plate (13) weighs 76 lbs (34 kg). Have helper assist and use a lifting device capable of lifting 80 lbs (36 kg).

2. Using floor jack or suitable lifting device, position cover armor plate (13) to lower access hull cover opening in the mine armor plate. Have helper assist. Secure with three screws (10) and hardened washers (11) to secure the cover armor plate to the hull.
3. TORQUE THREE SCREWS TO 86-94 LB FT (117-127 N·M). Use torque wrench.



INSTALL SPONSON ARMOR PLATE

NOTE

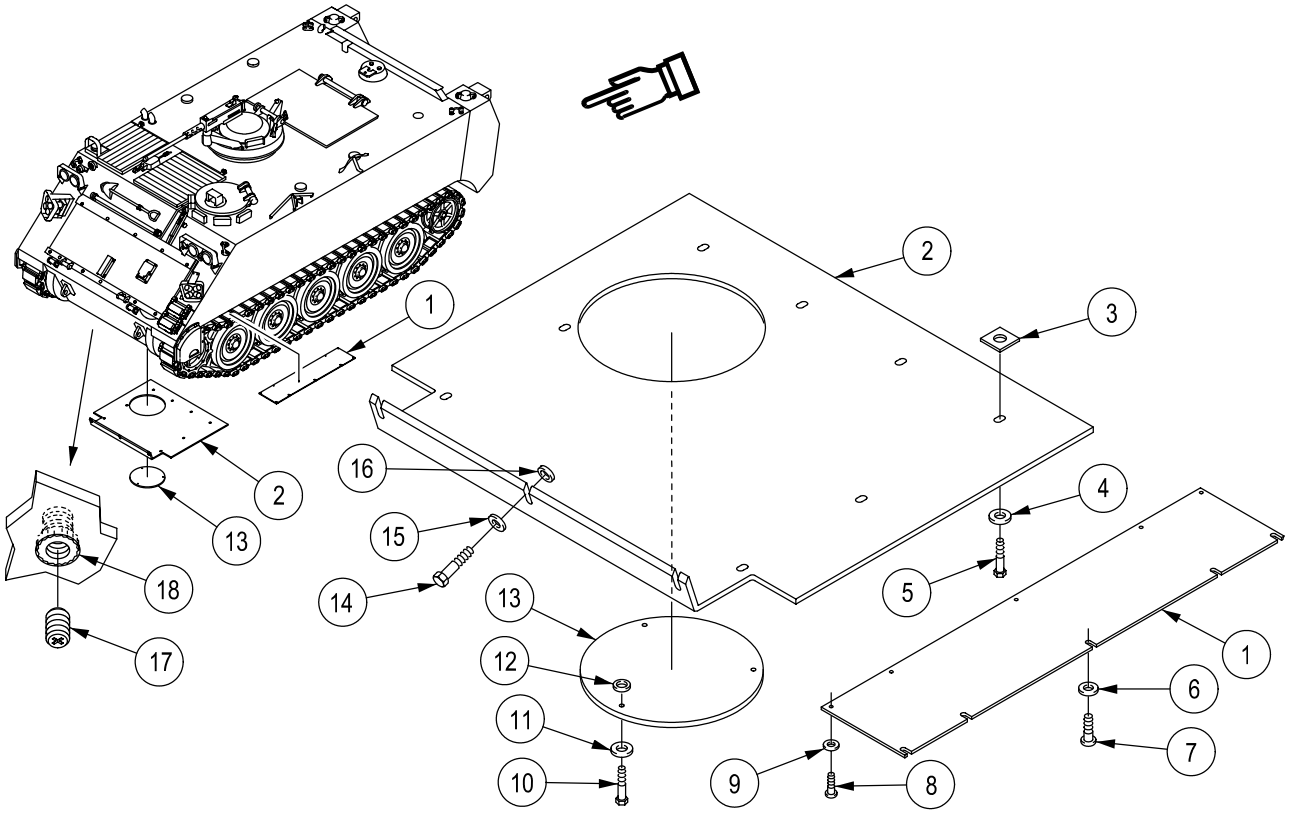
The sponson armor plate (1) weighs 67 lbs (30 kg). Have helper assist and use a lifting device capable of lifting 70 lbs (32 lbs) to hold the sponson armor plate up to the underside of the sponson. This can be done with the track installed or removed if the mounting provisions for it are in place. Once the sponsor armor plate is installed it will stay a permanent part of the vehicle.

1. Position sponson armor plate (1) on top of the left track under the left side sponson with the slotted holes facing outward and chamfered edge to the rear. Have helper assist in holding the plate in position. Use forklift, or other lifting bar, to hold sponson armor plate (1) in place.

NOTE

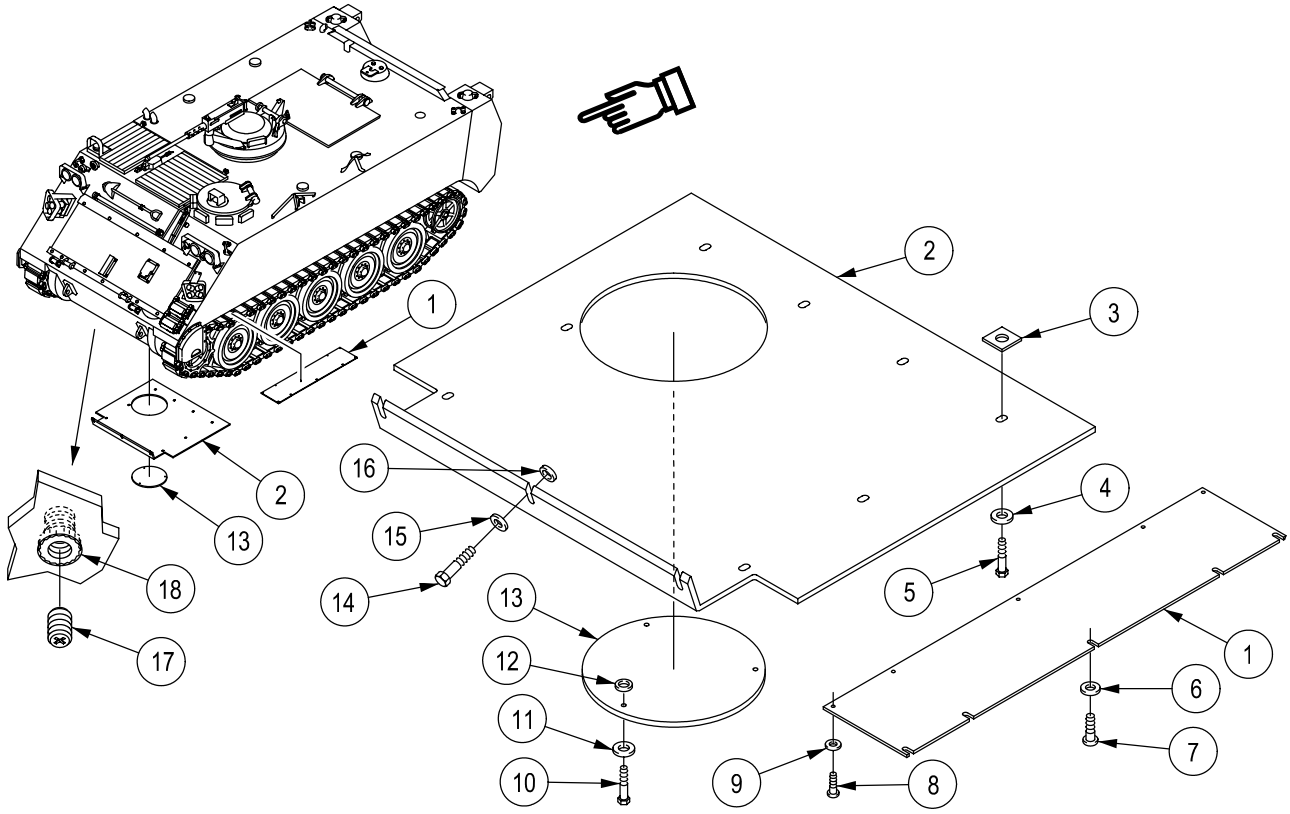
Do not tighten socket head screws (8) and (7) until all of them have been installed.

2. Install five socket screws (8) and washers (9) in sponson armor plate (1).
3. Install five socket screws (7) and washers (6) in sponson armor plate (1).
4. Tighten all 10 socket head screws (8) and (7).



REMOVE COVER ARMOR PLATE

1. Using floor jack or suitable lifting device, position under cover armor plate (13). Remove three screws (10) and hardened washers (11) securing the cover armor plate to the hull. Have helper assist. Lower and remove cover armor plate from under vehicle.
2. Remove three spacers (12) from cover armor plate (13). Secure spacers with a tie strap to cover armor plate.



REMOVE MINE ARMOR PLATE

NOTE

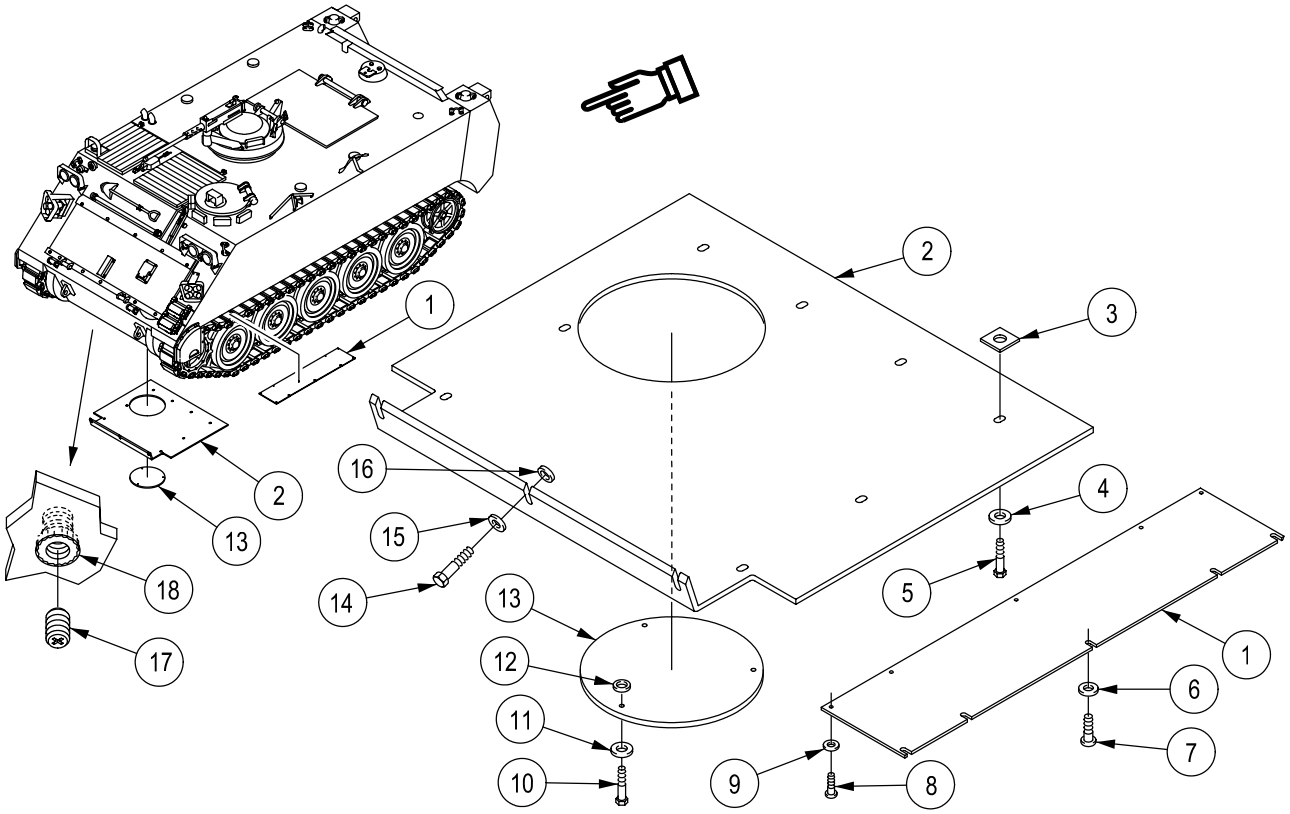
Use a forklift capable of lifting 800 lbs (363 kg) to help support and hold the mine armor plate in place during removal. There are various other methods to remove the mine armor plate. Use caution and safety to prevent injuries.

1. Using forklift or hydraulic jacks, support the mine armor plate (2) before loosening and removing the screws and washers.

WARNING

Personnel can be killed or injured by a falling 800 lb (363 kg) mine armor plate. Use a forklift or mechanical lifting device capable of lifting 800 lb (363 kg) to support hull mine armor plate for removal. Verify that armor plate is properly supported before reaching under to remove hardened washers and screws.

2. Remove three screws (14) and hardened washers (15) from front slope of mine armor plate (2).
3. Remove eight screws (5) and hardened washers (4) from mine armor plate (2).
4. Have helper assist in removing the mine armor plate from under the vehicle.
5. Place mine armor plate on blocks of wood or in a container to stow and return to supply.
6. Remove three spacers (16) and eight spacers (3) from top of mine armor plate. Secure spacers using a tie strap and secure to the mine armor plate on top.
7. Install 14 protective plugs (17) in threaded inserts (18).



FOLLOW-THROUGH STEPS

1. Clean mud and debris from mine armor plate and cover armor plate.
2. Return mine armor plate, cover armor plate, attaching hardware, and spacers to supply. Sponson armor plate is a permanant part of the vehicle.

END OF TASK

REPLACE FOG OIL TANK MODULE (M1059A3 ONLY) 0753 00

THIS WORK PACKAGE COVERS:

Removal (page 0753 00-1).
Installation (page 0753 00-4).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)
Suitable Lifting Device

Personnel Required

Unit Mechanic
Helper (H)

References

See your -10
TM 3-1040-283-10
TM 3-1040-283-20&P

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Ramp level and blocked (see your -10)
Circuit breaker CB1 OFF (TM 3-1040-283-10)
Battery ground strap disconnected (WP 0337 00)
Air pressure released from compressor reservoir (TM 3-1040-283-20&P)
Fog oil tank drained (TM 3-1040-283-20&P)

REMOVAL

WARNING

Fog oil is slippery and can cause soldiers to fall and get injured. Clean up all spillage or leakage of fog oil as soon as possible by washing the area or absorbing the fog oil with sand or other absorbent material.

NOTE

Before you do any maintenance, discharge all capacitors to ground.

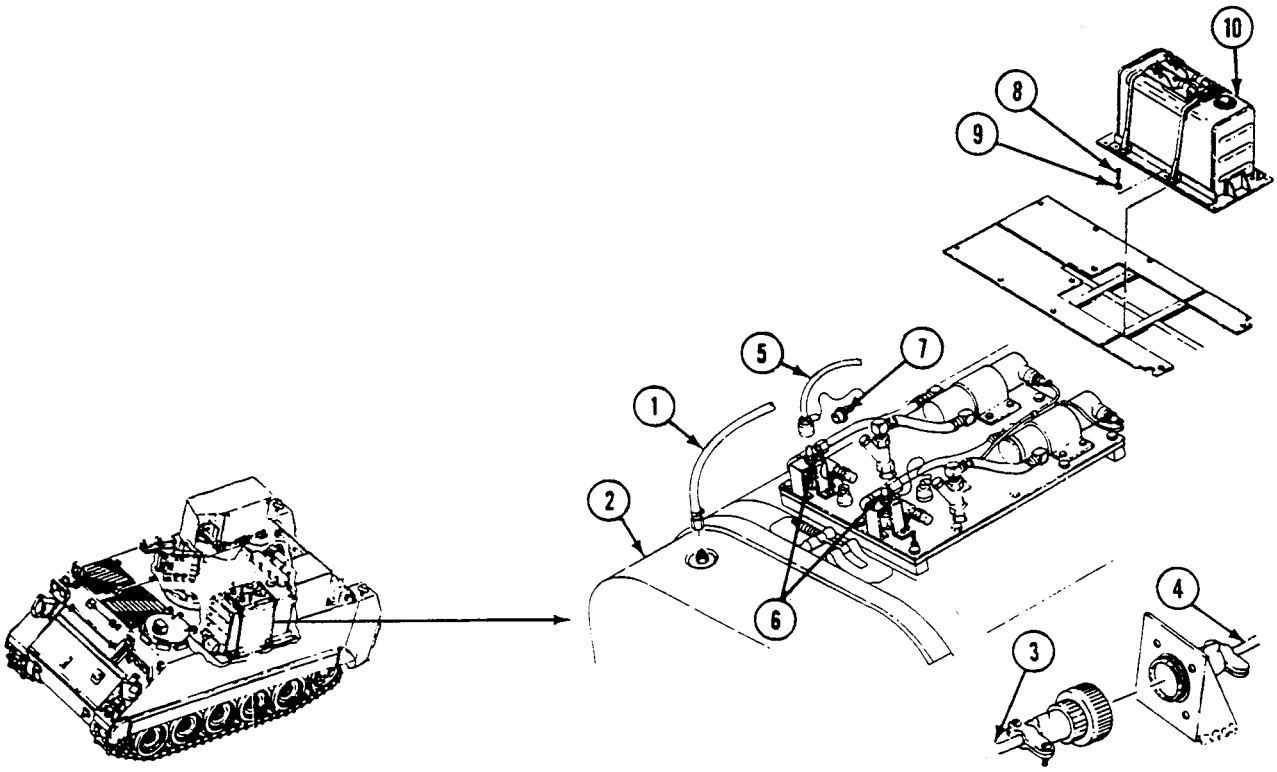
1. Remove breather hose (1) from fog oil tank (2).

2. Disconnect cable (3) from fog oil pump electrical cable assembly (4).
3. Disconnect two fog oil hoses (5) at quick disconnects (6).

NOTE

Do not install dust covers on quick disconnects until fog oil tank is clear of air compressor.

4. Install two safety caps (7) on two fog oil hoses (5).
5. Remove six screws (8) and washers (9) that secure fog oil tank module (10) to hull.



WARNING

Lifting or moving objects in excess of 70 pounds (32 kilograms) could injure you. Make sure to get an assistant or use a lifting device to move fog oil tank, armor, or other heavy objects.

NOTE

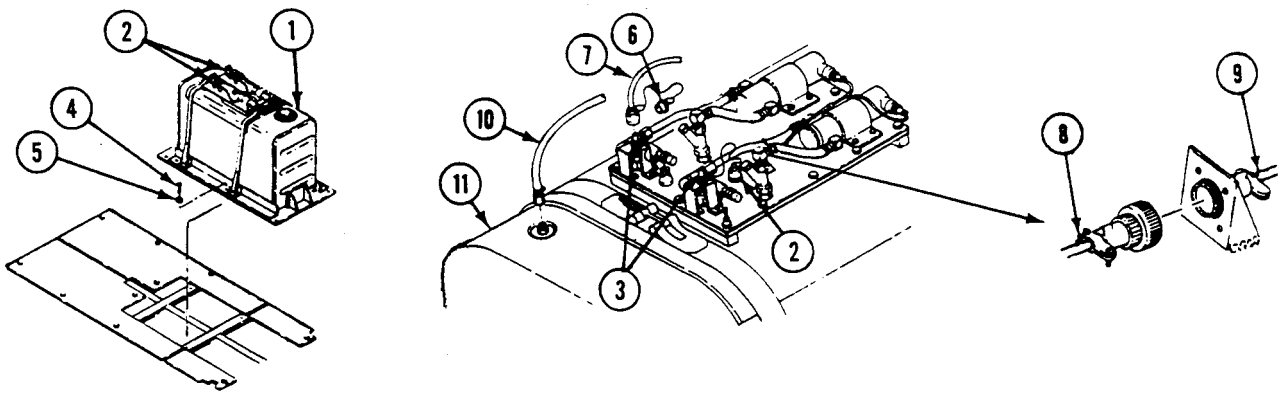
Slide fog oil tank all the way to the left side of the carrier to clear air compressor for removal of tank from carrier.

6. Slide fog oil tank module (1) on to ramp. Have helper assist.
7. Install two dust covers (2) on quick disconnect couplings (3).

WARNING

Hanging loads can kill or injure you. Keep away from hanging loads and overhead equipment. Keep hands away from pinch points.

8. Using a suitable lifting device, lower fog oil tank module (1) from ramp to ground.



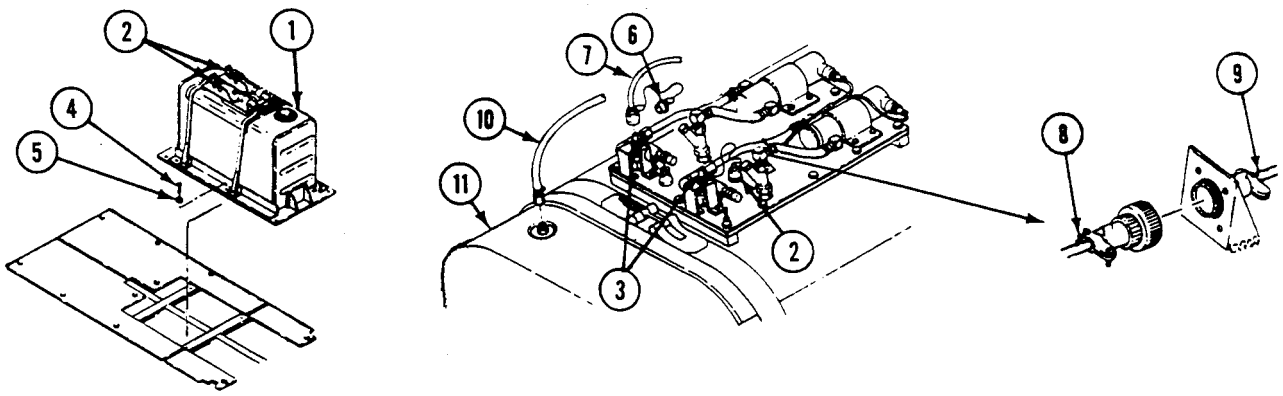
INSTALLATION

1. Using a suitable lifting device, raise fog oil tank module (1) from ground to ramp.
2. Remove two dust covers (2) from two quick disconnect couplings (3).

NOTE

Slide fog oil tank all the way to the left side of carrier to clear air compressor for installation of tank in carrier.

3. Slide fog oil tank module (1) on to hull cross members. Have helper assist. Secure to hull with six screws (4) and washers (5).
4. Remove two safety caps (6) from two fog oil hoses (7).
5. Connect two fog oil hoses (7) to two quick disconnect couplings (3).
6. Connect cable assembly (8) to fog oil pump electrical cable assembly (9).
7. Install breather hose (10) on fog oil tank (11).



FOLLOW-THROUGH STEPS

1. Connect battery ground strap (WP 0337 00).
2. Set circuit breaker CB1 to ON (TM 3-1040-283-10).
3. Service fog oil tank as required (TM 3-1040-283-20&P).
4. Start engine (see your -10).
5. Raise and lock ramp (see your -10).
6. Stop engine (see your -10).

END OF TASK

REPLACE SMOKE GENERATOR BREATHER HOSE ASSEMBLY (M1059A3 ONLY) 0754 00

THIS WORK PACKAGE COVERS:

Removal (page 0754 00-1).
Installation (page 0754 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts

Lockwasher (2)

Personnel Required

Unit Mechanic

References

See your -10

Equipment Condition

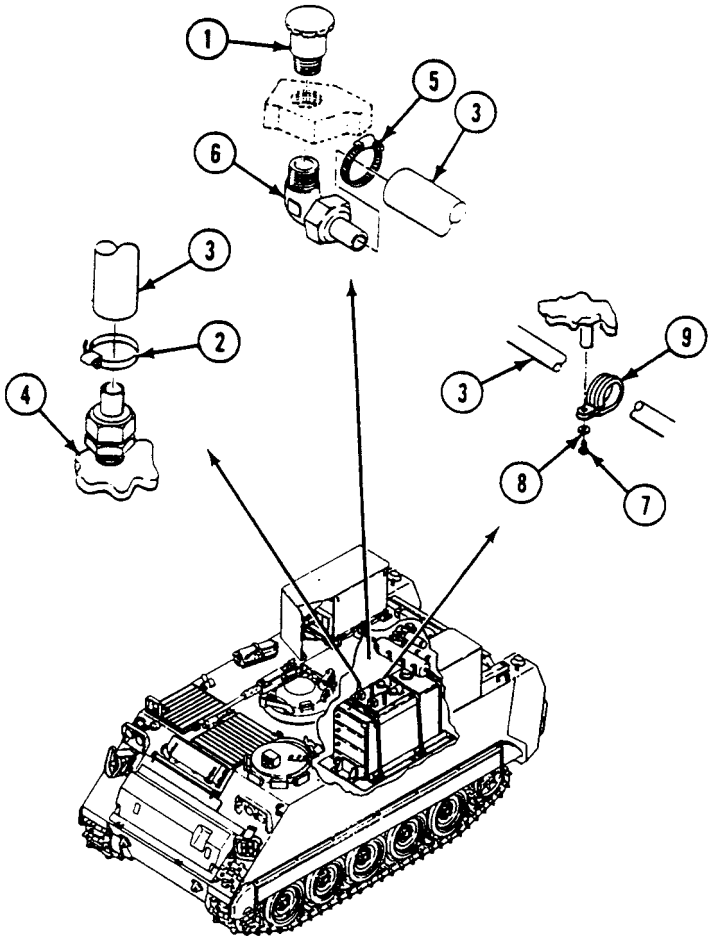
Engine stopped (see your -10)
Carrier blocked (see your -10)

REMOVAL

1. Remove breather (1).
2. Loosen clamp (2) and remove hose assembly (3) from front of fog oil tank (4).
3. Loosen clamp (5) and remove hose assembly (3) from elbow (6) on hull ceiling.

REPLACE SMOKE GENERATOR BREATHER HOSE ASSEMBLY (M1059A3 ONLY) — Continued **0754 00**

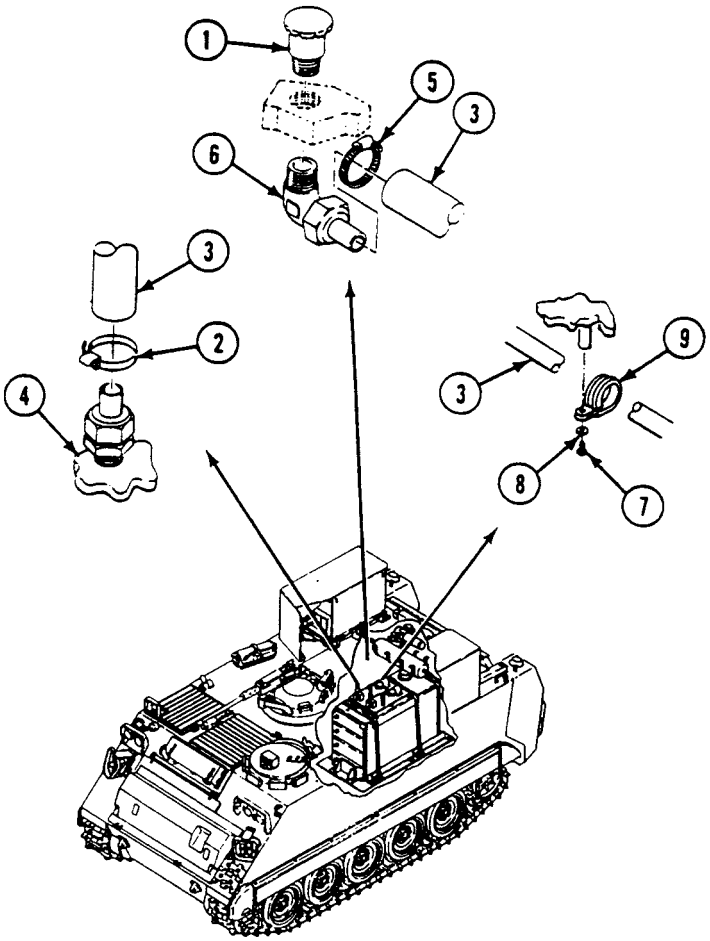
4. Remove two screws (7), lockwashers (8), clamps (9), and hose assembly (3) from hull ceiling. Discard lockwashers.



REPLACE SMOKE GENERATOR BREATHER HOSE ASSEMBLY (M1059A3 ONLY) — Continued **0754 00**

INSTALLATION

1. Secure hose assembly (3) to hull ceiling with two clamps (9), screws (7), and new lockwashers (8).
2. Install hose assembly (3) on elbow (6) on hull ceiling. Tighten clamp (5).
3. Install hose assembly (3) on fog oil tank tube (4). Tighten clamp (2).
4. Install breather (1).



END OF TASK

REPLACE SMOKE GENERATOR ASSEMBLY AND SUPPORT BRACKET (M1059A3 ONLY) 0755 00

THIS WORK PACKAGE COVERS:

Removal (page 0755 00-1).
Installation (page 0755 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)
Torque Wrench (WP 0926 00, Item 85)
Suitable Lifting Device

Materials/Parts

Locknut (2)
Lockwasher (4)

Personnel Required

Unit Mechanic
Helper

References

See your -10
TM 3-1040-283-10
TM 3-1040-283-20&P

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Circuit breaker CB1 OFF (TM 3-1040-283-10)
Battery ground strap disconnected (WP 0337 00)
Air pressure released from compressor reservoir (TM 3-1040-283-20&P)
Inboard armor shield removed (WP 0771 00)

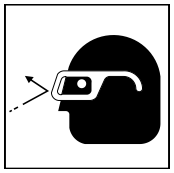
NOTE

Before you do any maintenance, discharge all capacitors to ground.

REMOVAL

1. Remove two screws (1), four washers (2), two locknuts (3), and wedges (4) from support bracket (5) and generator (6). Discard locknuts.
2. Slide generator (6) out and onto shield. Have helper assist.
3. Disconnect electrical cable assembly (7) from cover assembly connector 5J1 (8).

WARNING



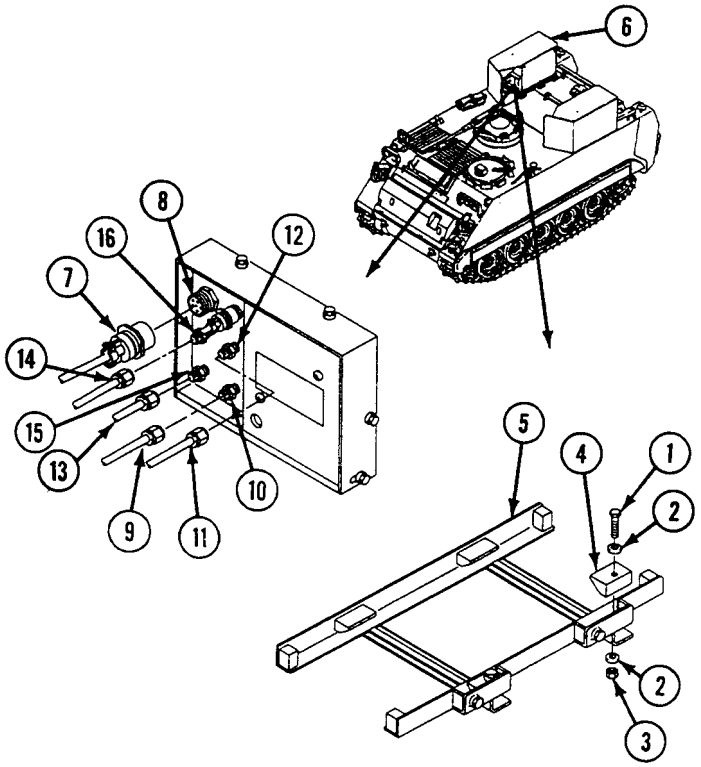
Compressed air pressure from smoke generator can cause serious injury or death. To avoid accidents, bleed air before working on air compressor assembly or disconnecting any air hose.

4. Disconnect air hose (9) from cover assembly connector (10).
5. Disconnect fog oil hose (11) from cover assembly connector (12).

REPLACE SMOKE GENERATOR ASSEMBLY AND SUPPORT BRACKET (M1059A3 ONLY) — Continued

0755 00

6. Remove fuel supply hose (13) and fuel return hose (14) from fuel supply connector (15) and fuel return connector (16).



7. Disconnect glow plug cable (19) from preheat harness jack (20) from panel (21) on smoke generator (1).

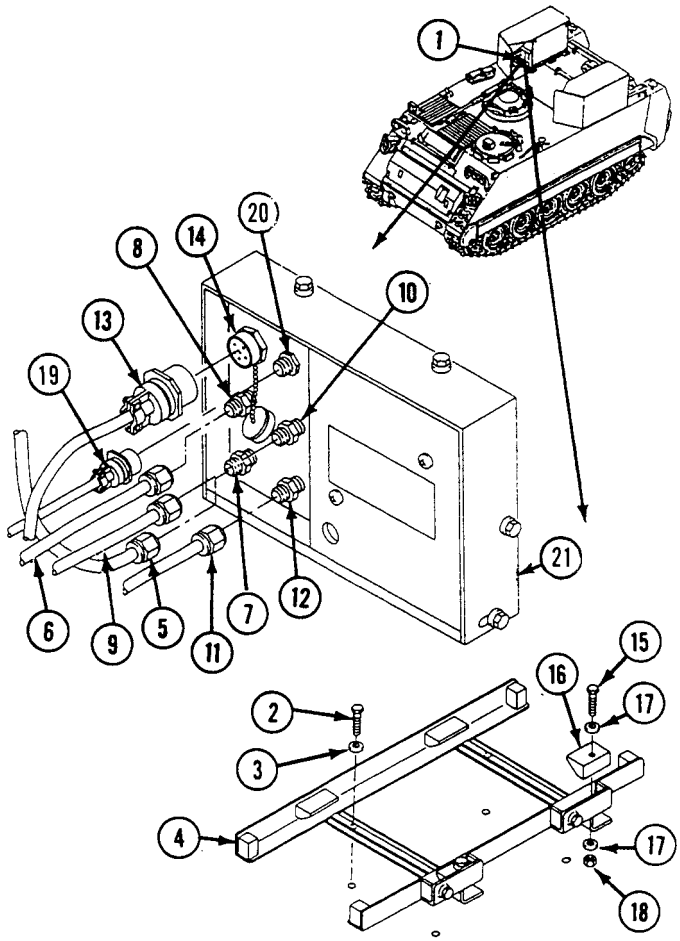
WARNING

You could be killed or injured by accidental carrier movement. Before you perform maintenance, make sure to properly block the carrier. Do not stand under suspended heavy objects. Keep hands away from pinch points.

8. Using suitable lifting device, remove generator (1) from carrier.

REPLACE SMOKE GENERATOR ASSEMBLY AND SUPPORT BRACKET (M1059A3 ONLY) — Continued **0755 00**

9. Remove four screws (2), lockwashers (3), and support bracket (4) from hull top. Discard lockwashers.

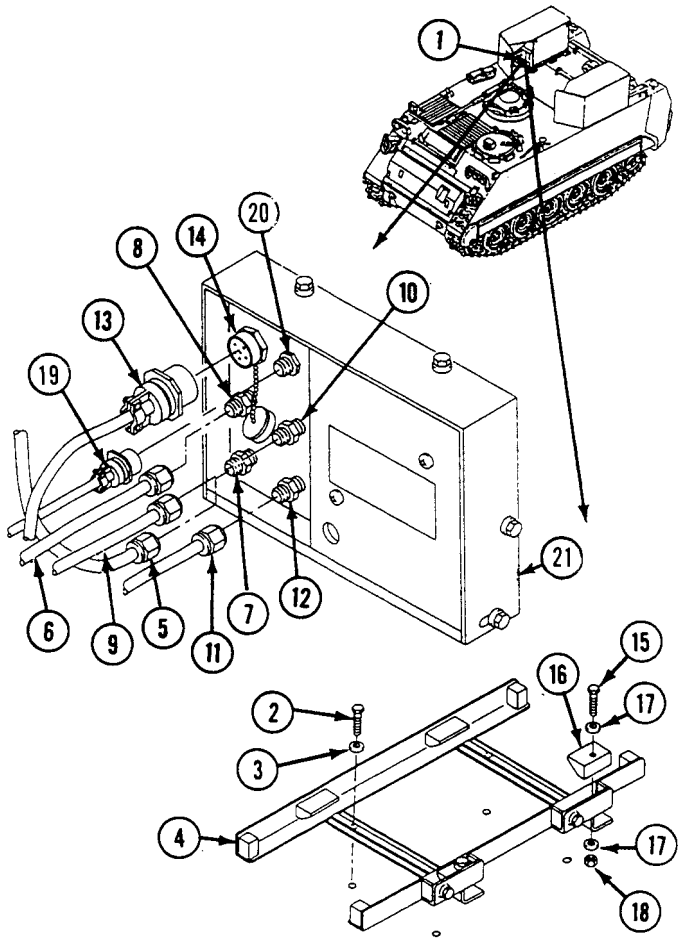


INSTALLATION

1. Position generator support bracket (4) on hull top. Secure with four screws (2) and new lockwashers (3). TIGHTEN SCREWS TO 54-59 LB-FT (73-80 N·m) TORQUE.
2. Using a suitable lifting device, install smoke generator (1) on armor shield.
3. Connect glow plug cable (19) to preheat harness jack (20) to panel (21) on smoke generator (1).
4. Connect fuel supply hose (5) to fuel supply connector (7) and fuel return hose (6) to fuel return connector (8).
5. Connect fog oil hose (9) to cover assembly connector (10).
6. Connect air hose (11) to cover assembly connector (12).
7. Connect electrical cable assembly (13) to cover connector 5J1 (14).
8. Slide generator (1) onto support bracket (4). Have helper assist.

REPLACE SMOKE GENERATOR ASSEMBLY AND SUPPORT BRACKET (M1059A3 ONLY) — Continued **0755 00**

9. Secure generator (1) to support (4) with two screws (15), wedges (16), four washers (17), and two new locknuts (18).



FOLLOW-THROUGH STEPS

1. Install inboard armor shield (WP 0771 00).
2. Connect battery ground strap (WP 0337 00).
3. Set circuit breaker CB1 to ON (TM 3-1040-283-10).

END OF TASK

REPLACE SMOKE GENERATOR CONTROL PANEL ASSEMBLY (M1059A3 ONLY) 0756 00

THIS WORK PACKAGE COVERS:

Removal (page 0756 00-1).
Installation (page 0756 00-2).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts

Lockwasher (12)
Locknut (4)

Personnel Required

Unit Mechanic

References

See your -10
TM 3-1040-283-10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Circuit breaker CB1 OFF (TM 3-1040-283-10)
Battery ground strap disconnected (WP 0337 00)

WARNING

Before you do any maintenance, discharge all capacitors to ground or electrical shock could injure personnel.

REMOVAL

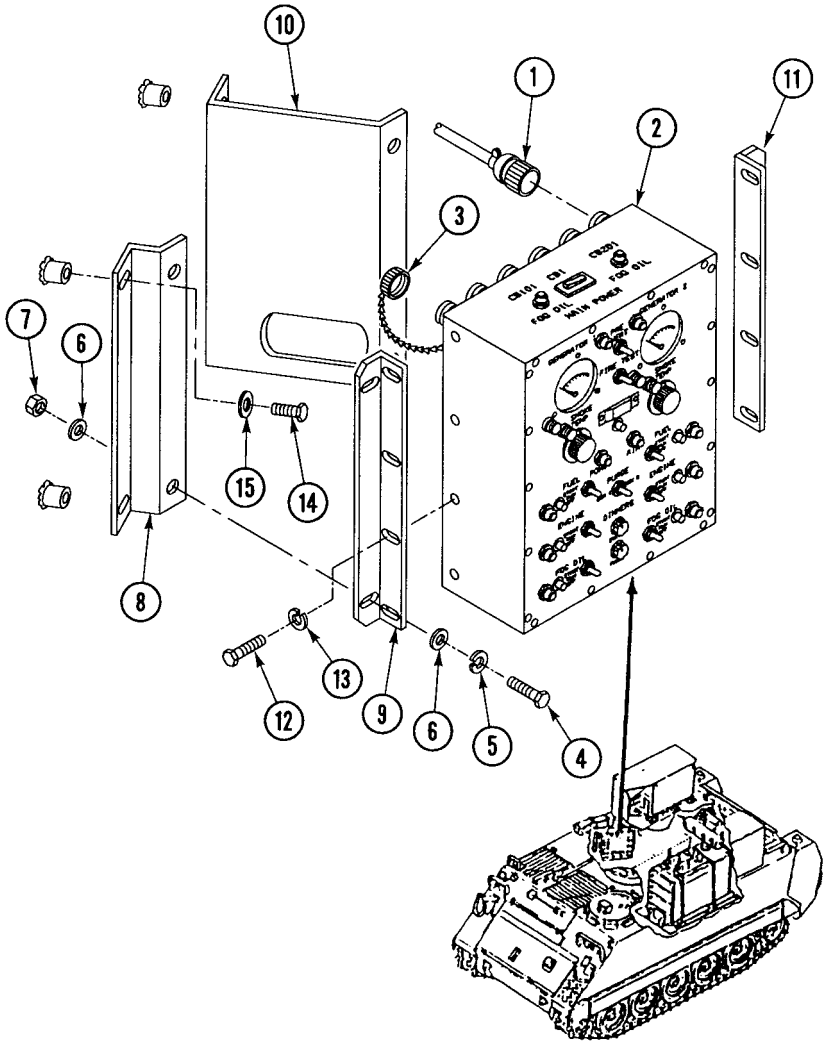
NOTE

Tag all cables to match their respective connectors before removal.

1. Disconnect six cable assembly plugs (1) from control panel (2). Install associated dust caps (3).
2. Remove four screws (4), lockwashers (5), eight washers (6), four locknuts (7), and control panel (2) with two attached brackets (9) and (11) from two brackets (8) and (10). Discard lockwashers and locknuts.
3. Remove eight screws (12), lockwashers (13) and two brackets (9)(11) from control panel (2). Discard lockwashers.

REPLACE SMOKE GENERATOR CONTROL PANEL ASSEMBLY (M1059A3 ONLY) — Continued **0756 00**

4. Remove four screws (14), washers (15) and two brackets (8)(10) from carrier.

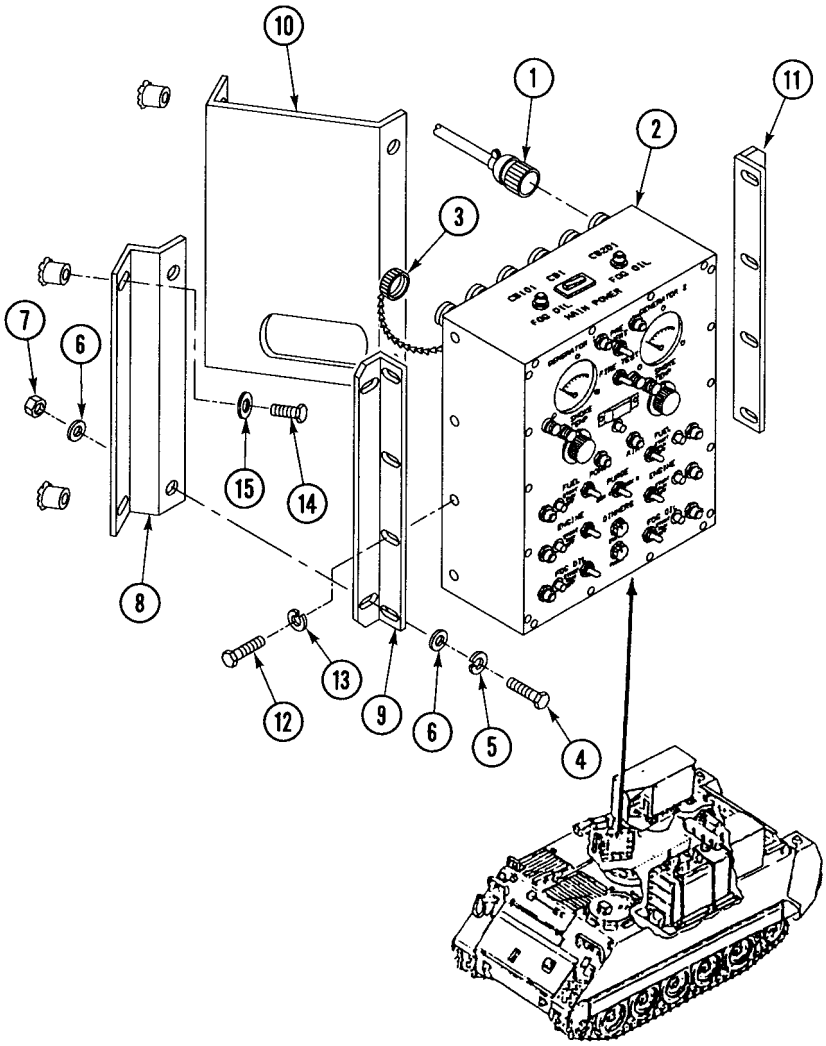


INSTALLATION

1. Install two brackets (8), (10), four screws (14), and washers (15) on carrier.
2. Install two brackets (9), (11), eight screws (12), and new lockwashers (13) on control panel (2).
3. Install control panel (2) with two attached brackets (9)(11) on two brackets (8)(10). Secure with four screws (4), new lockwashers (5), eight washers (6), and four new locknuts (7).

REPLACE SMOKE GENERATOR CONTROL PANEL ASSEMBLY (M1059A3 ONLY) — Continued **0756 00**

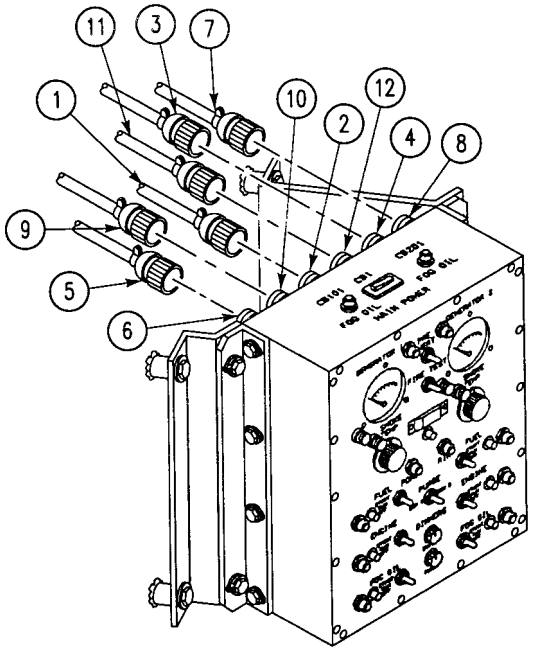
4. Remove dust caps (3) from six connectors.

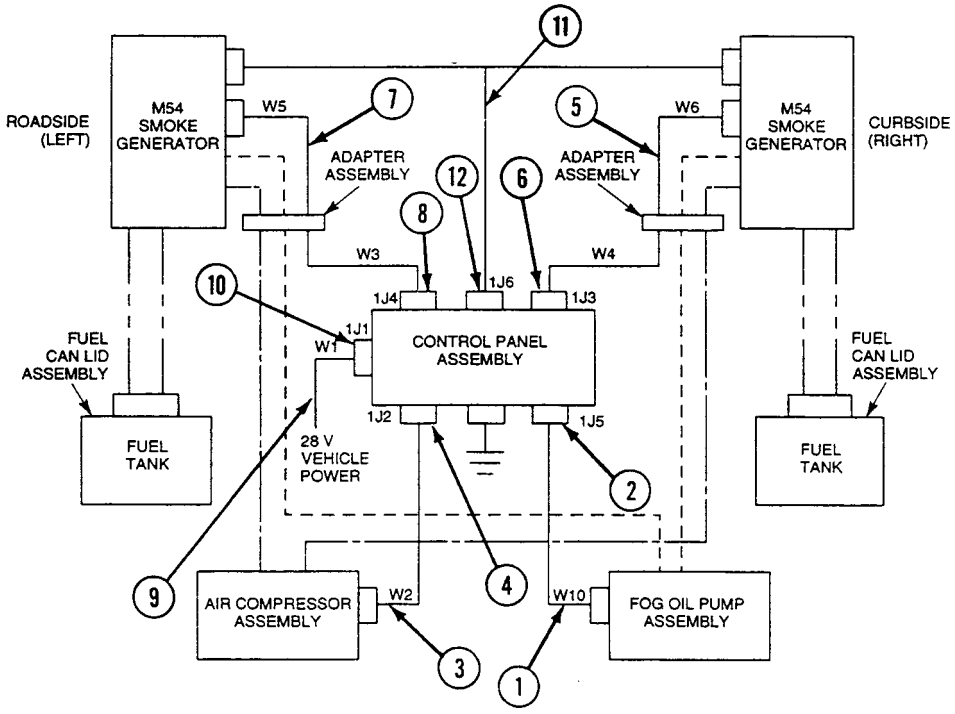


5. Connect fog oil pump cable assembly (1) to control panel assembly connector marked 1J5 (2).
6. Connect air compressor cable assembly (3) to control panel assembly connector marked 1J2 (4).
7. Connect smoke generator number 1 (right) cable assembly (5) to control panel assembly connector marked 1J3 (6).
8. Connect smoke generator number 2 (left) cable assembly (7) to control panel assembly connector marked 1J4 (8).
9. Connect main power cable assembly (9) to control panel assembly connector marked 1J1 (10).

REPLACE SMOKE GENERATOR CONTROL PANEL ASSEMBLY (M1059A3 ONLY) — Continued **0756 00**

10. Connect glow plug cable (11) to control panel assembly connector marked 1J6 (12).





FOLLOW-THROUGH STEPS

1. Connect battery ground strap (WP 0337 00).
2. Set circuit breaker CB1 to ON (TM 3-1040-283-10).

END OF TASK

REPLACE SMOKE GENERATOR SYSTEM POWER SUPPLY CABLE ASSEMBLY (M1059A3 ONLY) 0757 00

THIS WORK PACKAGE COVERS:

Removal (page 0757 00-1).
Installation (page 0757 00-2).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts
Grommet
Locknut
Lockwasher
Lockwasher (8)

Personnel Required
Signal Support System Specialist 31U10

References
See your -10
TM 3-1040-283-10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Circuit breaker CB1 OFF (TM 3-1040-283-10)
Battery ground strap disconnected (WP 0337 00)

NOTE

Before you do any maintenance, discharge all capacitors to ground.

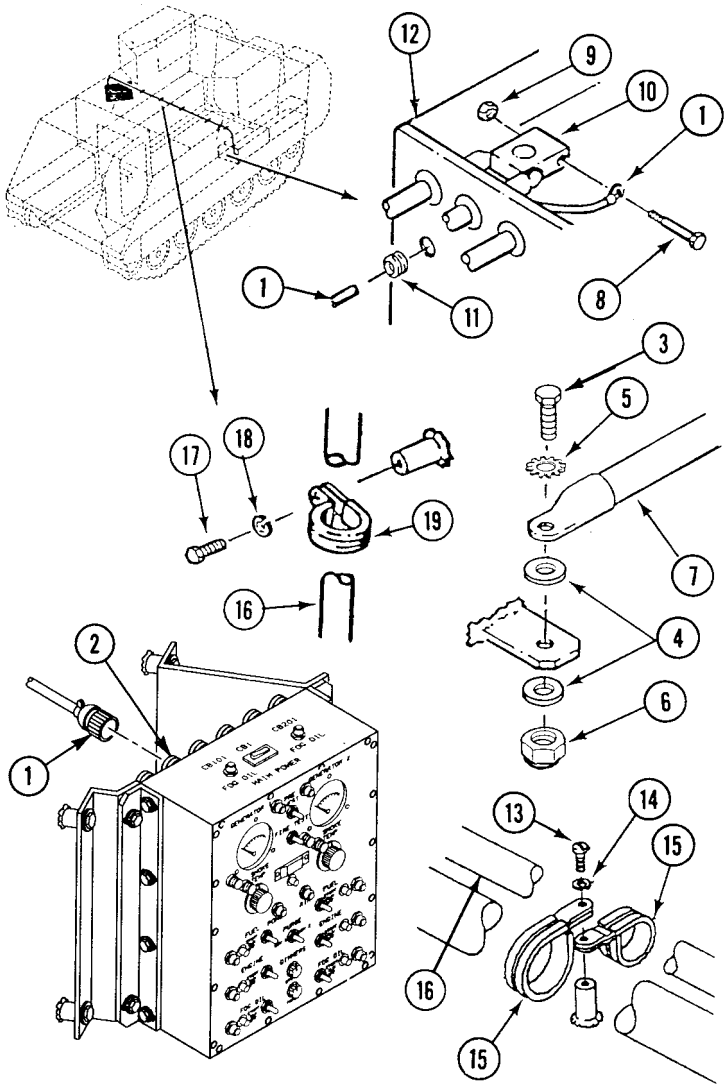
REMOVAL

1. Disconnect cable assembly (1) from control panel assembly connector 1J1 (2).
2. Remove screw (3), two washers (4), lockwasher (5), locknut (6), and ground lead (7) from hull bracket. Discard lockwasher and locknut.
3. Remove screw (8), nut (9), and cable assembly (1) from positive battery terminal (10).
4. Remove cable assembly (1) and grommet (11) from battery box (12). Discard grommet.
5. Remove six screws (13), lockwashers (14), and 12 clamps (15) from cable assembly (16). Discard lockwashers.

REPLACE SMOKE GENERATOR SYSTEM POWER SUPPLY CABLE ASSEMBLY (M1059A3 ONLY) — Continued

0757 00

6. Remove two screws (17), lockwashers (18), clamps (19), and cable assembly (16) from hull. Discard lockwashers.

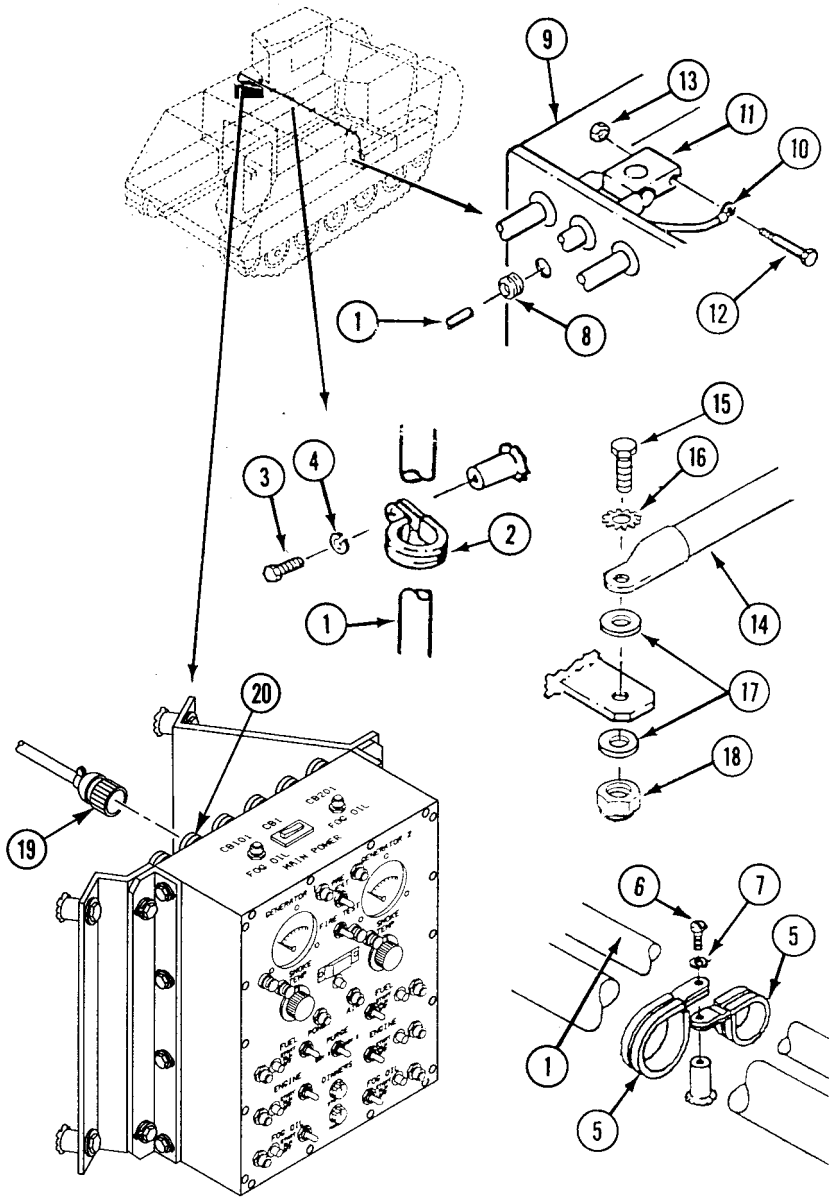


INSTALLATION

1. Secure cable assembly (1) to hull with two clamps (2), screws (3), and new lockwashers (4).
2. Secure cable assembly (1) to hull top plate with 12 clamps (5), six screws (6), and new lockwashers (7).
3. Install new grommet (8) on cable assembly (1). Route cable through hole in battery box (9).
4. Install cable assembly lead (10) on positive battery terminal (11). Secure with screw (12) and nut (13).
5. Install ground lead (14) on clean, paint-free hull bracket. Secure with screw (15), new lockwasher (16), two washers (17), and new locknut (18).

REPLACE SMOKE GENERATOR SYSTEM POWER SUPPLY CABLE ASSEMBLY (M1059A3 ONLY) — Continued **0757 00**

6. Connect cable assembly (19) to control panel assembly connector 1J1 (20).



FOLLOW-THROUGH STEPS

1. Connect battery ground strap (WP 0337 00).

2. Set circuit breaker CB1 to ON (TM 3-1040-283-10).

END OF TASK

REPLACE AIR COMPRESSOR ELECTRICAL CABLE ASSEMBLY (M1059A3 ONLY) 0758 00

THIS WORK PACKAGE COVERS:

Removal (page 0758 00-1).
Installation (page 0758 00-2).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts

Lockwasher (6)

Personnel Required

Signal Support System Specialist 31U10

References

See your -10
TM 3-1040-283-10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Circuit breaker CB1 OFF (TM 3-1040-283-10)
Battery ground strap disconnected (WP 0337 00)

WARNING

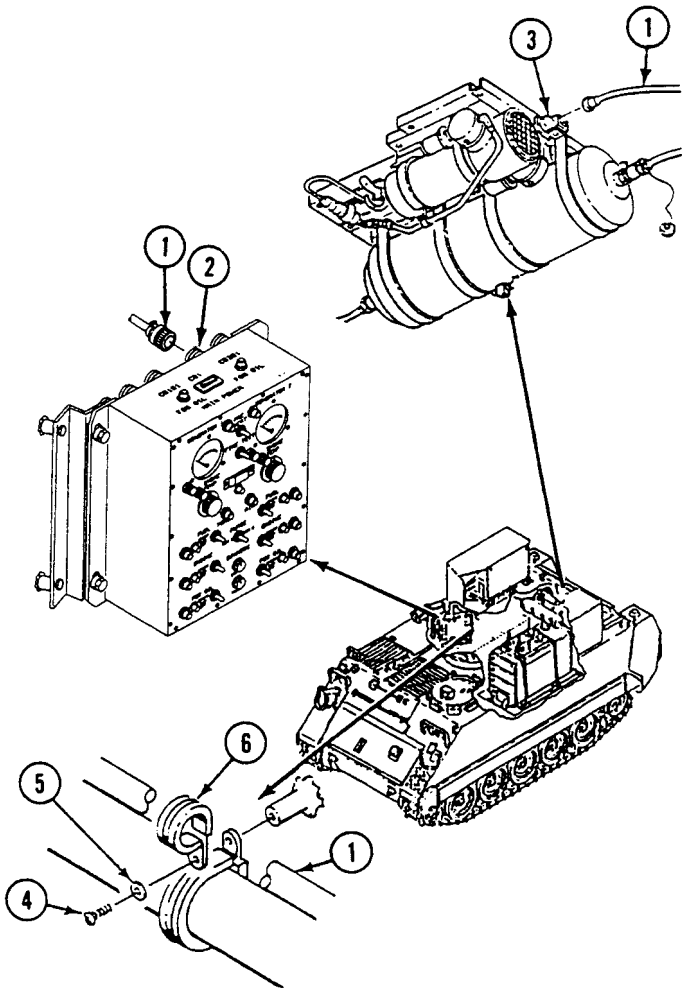
Before you do any maintenance, discharge all capacitors to ground or electrical shock could injure personnel.

REMOVAL

1. Disconnect cable assembly (1) from control panel connector 1J2 (2).
2. Disconnect cable assembly (1) from air compressor cable assembly connector (3).

REPLACE AIR COMPRESSOR ELECTRICAL CABLE ASSEMBLY (M1059A3 ONLY) — Continued **0758 00**

3. Remove six screws (4), lockwashers (5), clamps (6), and cable assembly (1) from carrier hull. Discard lockwashers.

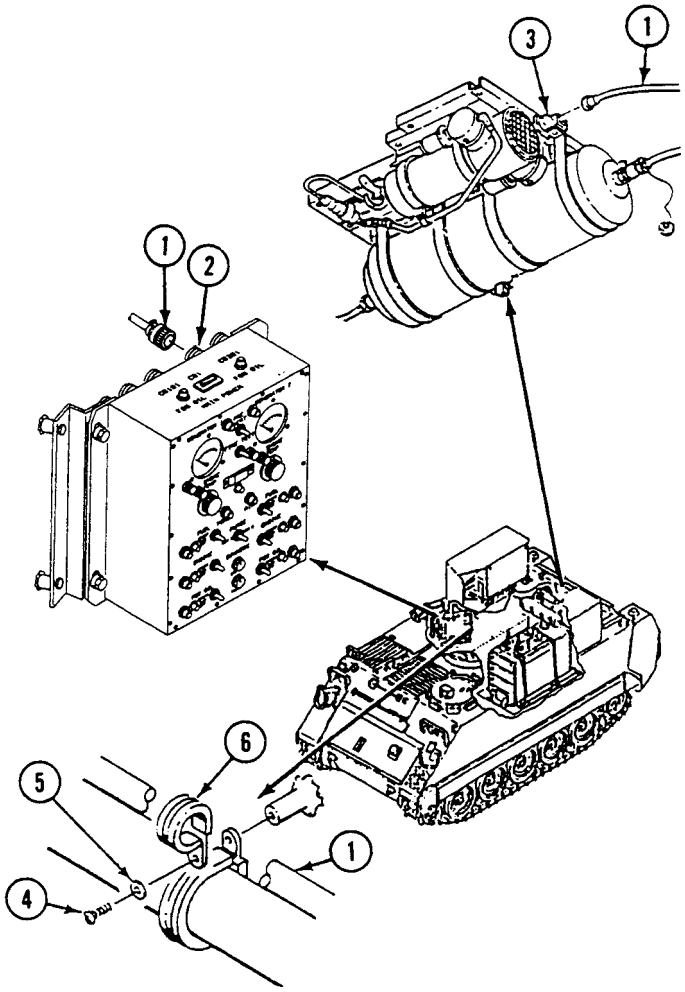


INSTALLATION

1. Connect cable assembly (1) to air compressor cable assembly connector (3).
2. Connect cable assembly (1) to control panel assembly connector 1J2 (2).

REPLACE AIR COMPRESSOR ELECTRICAL CABLE ASSEMBLY (M1059A3 ONLY) — Continued **0758 00**

3. Secure cable assembly (1) to hull with six clamps (6), screws (4), and new lockwashers (5).



FOLLOW-THROUGH STEPS

1. Connect battery ground strap (WP 0337 00).
2. Set circuit breaker CB1 to ON (TM 3-1040-283-10).

END OF TASK

REPLACE FOG OIL PUMP ELECTRICAL CABLE ASSEMBLY 0759 00

THIS WORK PACKAGE COVERS:

Removal (page 0759 00-1).
Installation (page 0759 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts

Lockwasher (4)

Personnel Required

Signal Support System Specialist 31U10

References

See your -10
TM 3-1040-283-10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Circuit breaker CB1 OFF (TM 3-1040-283-10)
Battery ground strap disconnected (WP 0337 00), (WP 0338 00) or (WP 0339 00)

WARNING

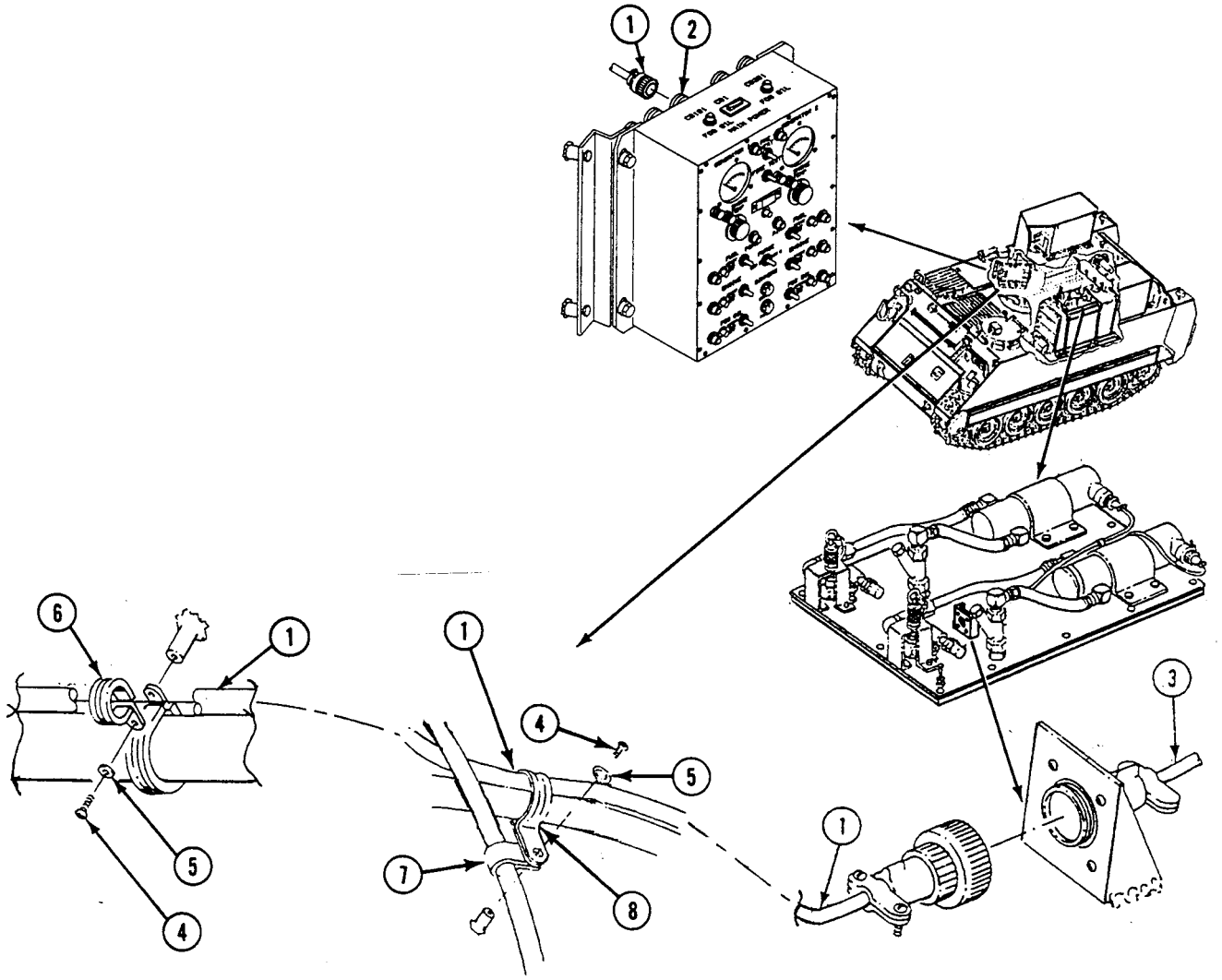
Before you do any maintenance, discharge all capacitors to ground or electrical shock could injure personnel.

REMOVAL

1. Disconnect cable assembly (1) from control panel connector 1J5 (2).
2. Disconnect cable assembly (1) from fog oil pump cable assembly (3).
3. Remove three screws (4), lockwashers (5), and clamps (6), from cable assembly (1). Discard lockwashers.

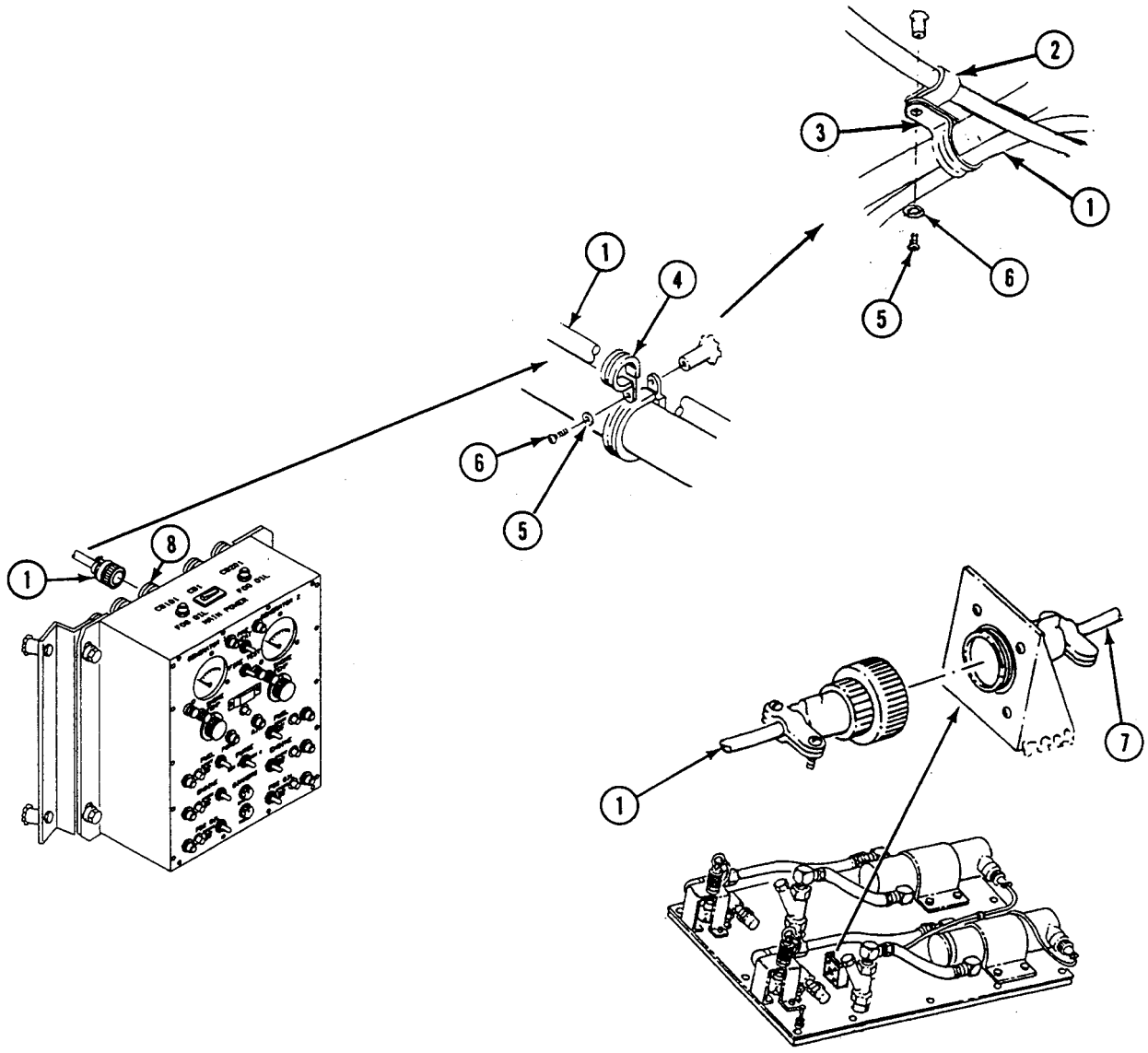
REPLACE FOG OIL PUMP ELECTRICAL CABLE ASSEMBLY — Continued **0759 00**

4. Remove other screw (4), lockwasher (5), clamps (7)(8), and cable assembly (1) from carrier hull. Discard lockwasher.



INSTALLATION

1. Align cable assembly (1) on hull with clamps (2)(3) and three clamps (4). Secure with new lockwashers (5) and screws (6).
2. Connect cable assembly (1) to control panel assembly connector 1J5 (8).



3. Connect cable assembly (1) to fog oil pump cable assembly (7).

FOLLOW-THROUGH STEPS

1. Connect battery ground strap (WP 0337 00), (WP 0338 00), or (WP 0339 00).
2. Set circuit breaker CB1 to ON (TM 3-1040-283-10).

END OF TASK

REPLACE SMOKE GENERATOR INTERNAL CABLE ASSEMBLY (M1059A3 ONLY) 0760 00

THIS WORK PACKAGE COVERS:

Removal (page 0760 00-1).
Installation (page 0760 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts

Gasket
Locknut (4)
Lockwasher (7)

Personnel Required

Signal Support System Specialist 31U10

References

See your -10
TM 3-1040-283-10
TM 3-1040-283-20&P

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Circuit breaker CB1 OFF (TM 3-1040-283-10)
Battery ground strap disconnected (WP 0337 00)
Air pressure released from compressor reservoir (TM 3-1040-283-20&P)
Inboard armor shield removed (WP 0771 00)
Smoke generator assembly removed from bracket (WP 0755 00)

REMOVAL

WARNING

Before you do any maintenance, discharge all capacitors to ground or electrical shock could injure personnel.

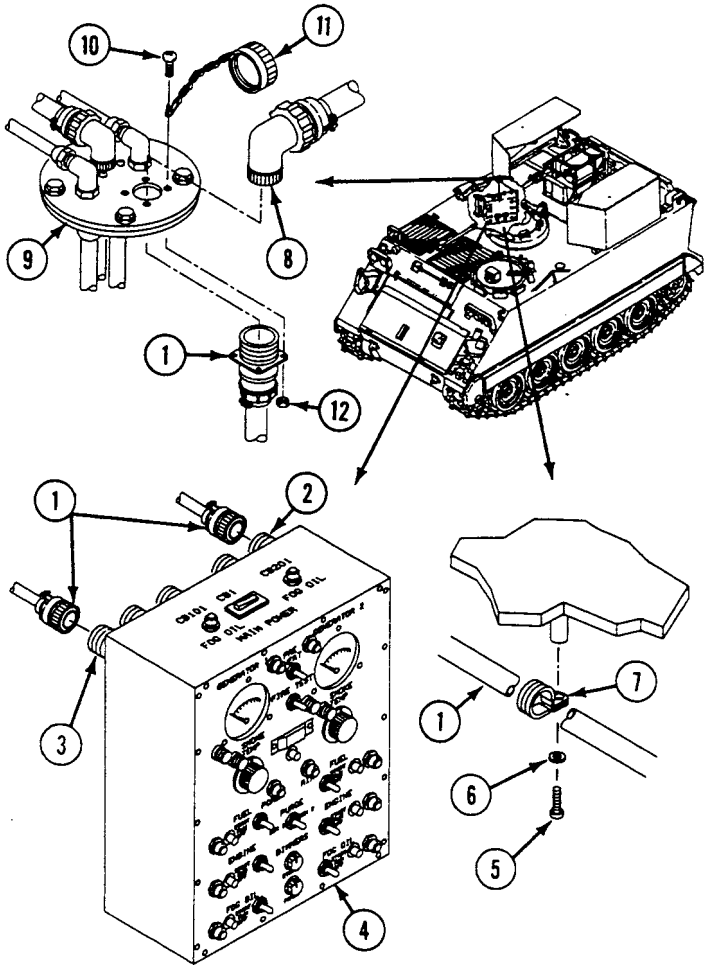
NOTE

Left and right cable assemblies are replaced the same way, except left side cable assembly has six clamps and right side has only one. Left side is shown.

1. Disconnect cable (1) from jack 1J3 (left) (2) or 1J4 (right) (3) on back of control panel (4).
2. Remove six screws (5), lockwashers (6), clamps (7) and cable (1) from hull. Discard lockwashers.
3. Remove connector (8) attached to cable (1) through access plate (9).

REPLACE SMOKE GENERATOR INTERNAL CABLE ASSEMBLY (M1059A3 ONLY) — Continued **0760 00**

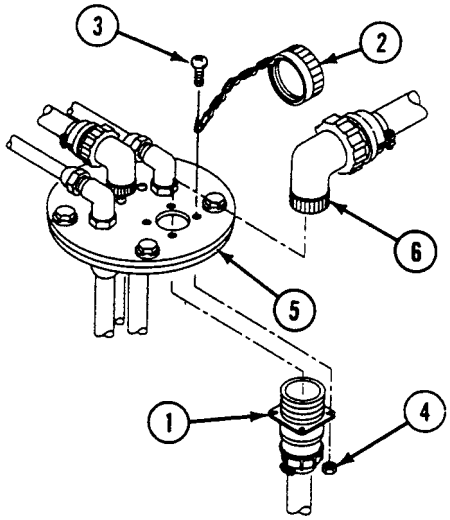
4. Remove four screws (10), dust cap (11), locknuts (12), and cable (1) from access plate (9). Discard locknuts.



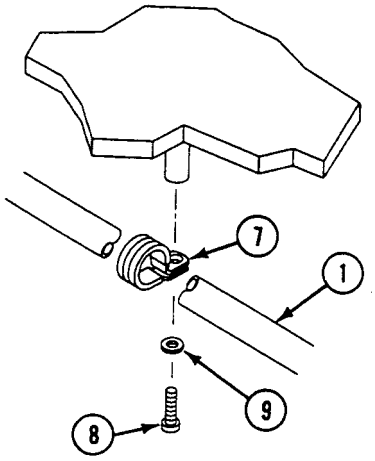
REPLACE SMOKE GENERATOR INTERNAL CABLE ASSEMBLY (M1059A3 ONLY) — Continued **0760 00**

INSTALLATION

1. Install cable (1), dust cap (2), four screws (3), and new locknuts (4) on access plate (5).
2. Install connector (6) to cable (1) on access plate (5).



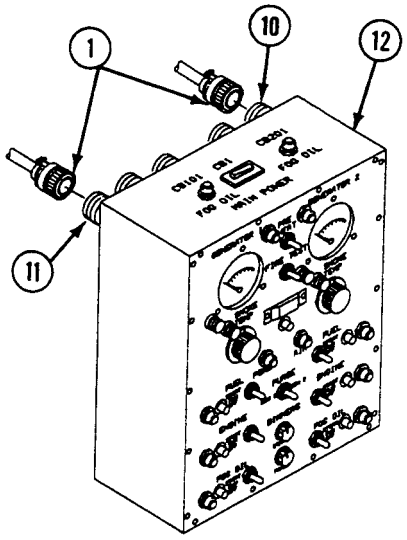
3. Install cable (1), six clamps (7), screws (8), and new lockwashers (9) on hull.



REPLACE SMOKE GENERATOR INTERNAL CABLE ASSEMBLY (M1059A3 ONLY) — Continued

0760 00

4. Connect cable (1) to jack 1J3 (left) (10) or 1J4 (right) (11) on back of control panel (12).



FOLLOW-THROUGH STEPS

1. Install smoke generator assembly on bracket (WP 0755 00).
2. Install inboard armor shield (WP 0771 00).
3. Connect battery ground strap (WP 0337 00).
4. Set circuit breaker CB1 to ON (TM 3-1040-283-10).

END OF TASK

REPLACE ADAPTER ACCESS PLATE TO GENERATOR ELECTRICAL CABLE ASSEMBLY (M1059A3 ONLY) 0761 00

THIS WORK PACKAGE COVERS:

Removal (page 0761 00-1).
Installation (page 0761 00-3).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0926 00, Item 65)

Personnel Required
Signal Support System Specialist 31U10

References
See your -10
TM 3-1040-283-10
TM 3-1040-283-20&P

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Circuit breaker CB1 OFF (TM 3-1040-283-10)
Battery ground strap disconnected (WP 0337 00)
Air pressure released from compressor reservoir (TM 3-1040-283-20&P)
Inboard armor shield removed (WP 0771 00)
Smoke generator assembly removed from bracket (WP 0755 00)

REMOVAL

WARNING

Before you do any maintenance, discharge all capacitors to ground or electrical shock could injure personnel.

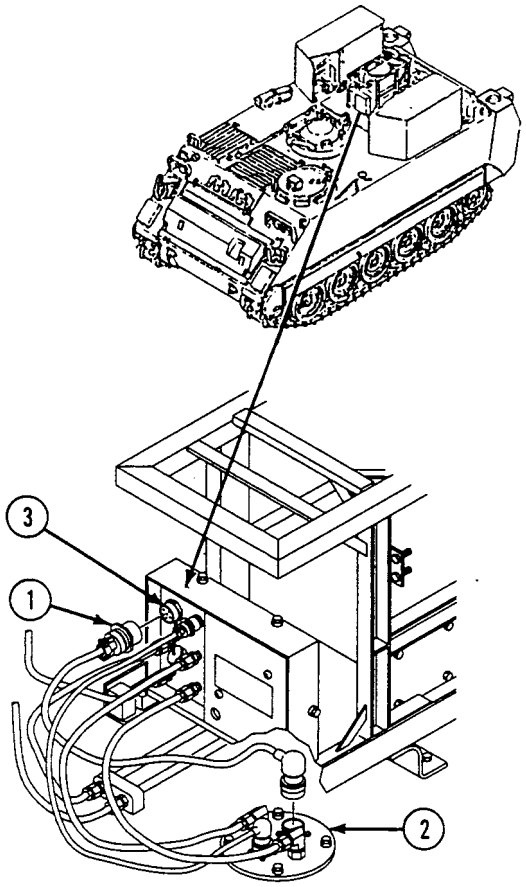
NOTE

Left and right cable assemblies are replaced the same way.

1. Disconnect cable assembly (1) from adapter access plate connector (2).

REPLACE ADAPTER ACCESS PLATE TO GENERATOR ELECTRICAL CABLE ASSEMBLY (M1059A3 ONLY) — Continued **0761 00**

2. Disconnect cable assembly (1) from smoke generator cover assembly connector 5J1 (3).

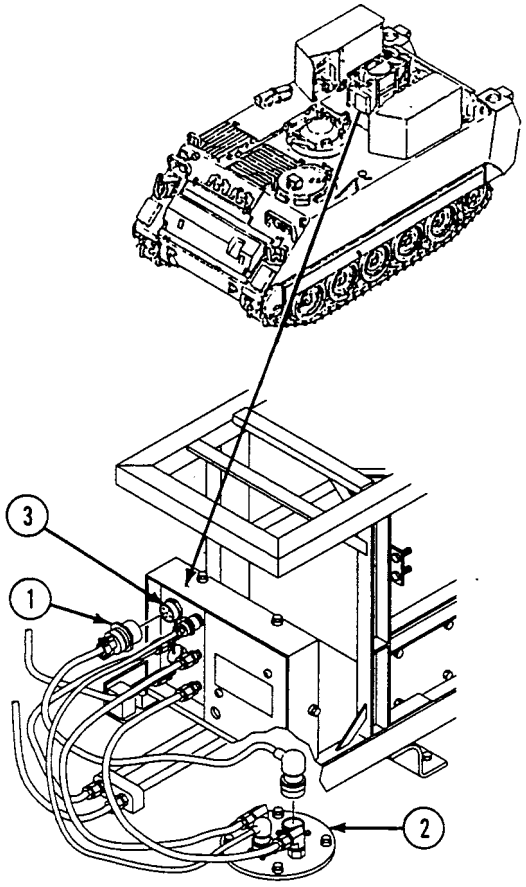


REPLACE ADAPTER ACCESS PLATE TO GENERATOR ELECTRICAL CABLE ASSEMBLY (M1059A3 ONLY) — Continued

0761 00

INSTALLATION

1. Connect cable assembly (1) to smoke generator cover assembly connector 5J1 (3).
2. Connect cable assembly (1) to adapter access plate connector (2).



FOLLOW-THROUGH STEPS

1. Install smoke generator assembly on bracket (WP 0755 00).
2. Install inboard armor shield (WP 0771 00).
3. Connect battery ground strap (WP 0337 00).
4. Set circuit breaker CB1 to ON (TM 3-1040-283-10).

END OF TASK

REPLACE AIR COMPRESSOR ASSEMBLY (M1059A3 ONLY) 0762 00

THIS WORK PACKAGE COVERS:

Removal (page 0762 00-1).
Installation (page 0762 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)
Socket Wrench Set (WP 0926 00, Item 72)
Torque Wrench (WP 0926 00, Item 81)

Materials/Parts

Lockwasher (8)

Personnel Required

Signal Support System Specialist 31U10
Helper (2)

References

See your -10
TM 3-1040-283-10
TM 3-1040-283-20&P

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Ramp lowered (see your -10)
Circuit breaker CB1 OFF (TM 3-1040-283-10)
Battery ground strap disconnected (WP 0337 00)
Air pressure released from compressor reservoir (TM 3-1040-283-20&P)

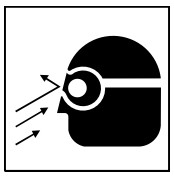
REMOVAL

WARNING

Before you do any maintenance, discharge all capacitors to ground or electrical shock could injure personnel.

1. Disconnect air compressor electrical cable assembly (1) from compressor cable assembly connector (2).

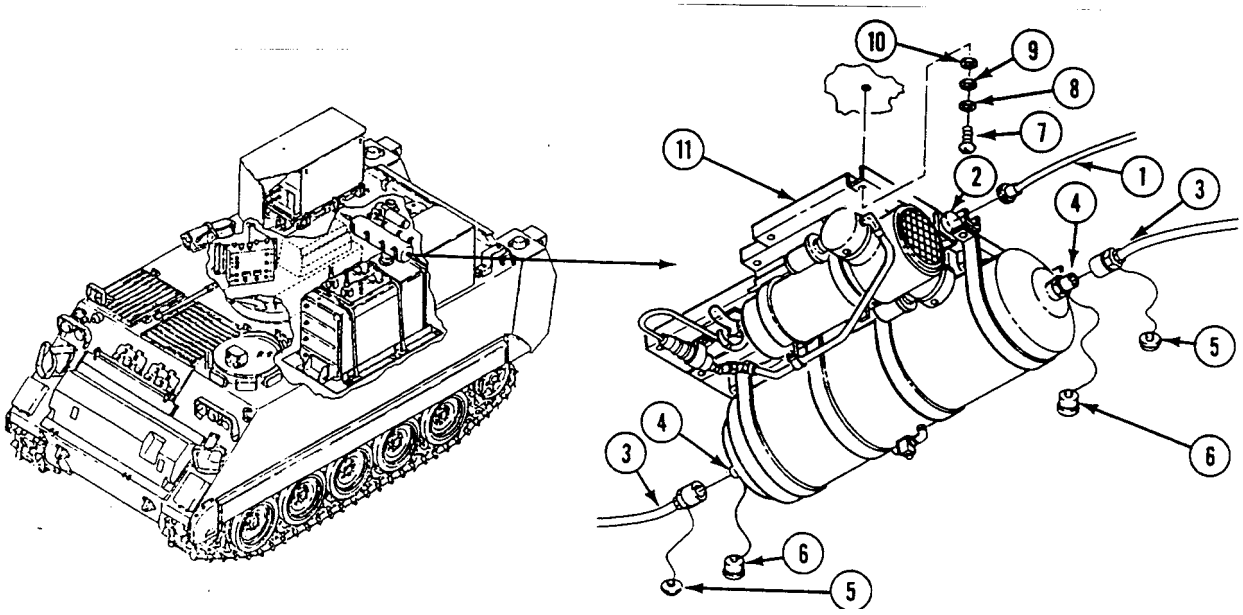
WARNING



Compressed air pressure from smoke generator can cause serious injury or death. To avoid accidents, bleed air before working on air compressor assembly or disconnecting any air hose.

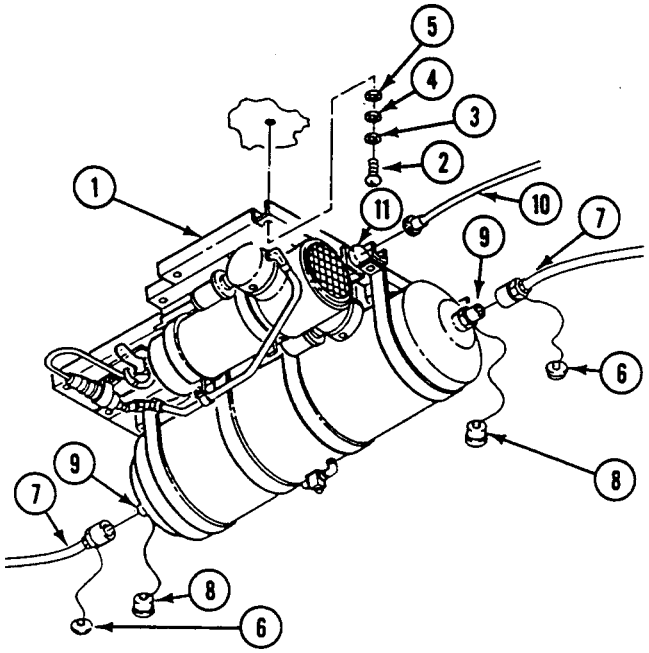
2. Disconnect two air lines (3) from two compressor air reservoir fittings (4). Install safety caps (5) on lines and dust covers (6) on fittings.

3. Remove eight screws (7), lockwashers (8), washers (9), washers (10), and compressor unit (11) from carrier. Have helpers assist. Discard lockwashers.



INSTALLATION

1. Position air compressor assembly (1) on ceiling of carrier. Have helpers assist. Secure with eight screws (2), new lockwashers (3), washers (4), and washers (5). TIGHTEN SCREWS TO 264-288 LB-IN (30-33 N·m TORQUE.
2. Remove safety caps (6) from two air lines (7) and dust covers (8) from two air compressor reservoir fittings (9). Connect lines to fittings.
3. Connect air compressor electrical cable assembly (10) to compressor cable assembly connector (11).



FOLLOW-THROUGH STEPS

1. Connect battery ground strap (WP 0337 00).
2. Set circuit breaker CB1 to ON (TM 3-1040-283-10).
3. Start engine (see your -10).
4. Raise and lock ramp (see your -10).
5. Stop engine (see your -10).

END OF TASK

REPLACE FOG OIL PUMP ASSEMBLY (M1059A3 ONLY) 0763 00

THIS WORK PACKAGE COVERS:

Removal (page 0763 00-1).
Installation (page 0763 00-2).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts

Lockwasher (12)

Personnel Required

Unit Mechanic

References

See your -10
TM 3-1040-283-10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Ramp lowered (see your -10)
Circuit breaker CB1 OFF (TM 3-1040-283-10)
Battery ground strap disconnected (WP 0337 00)

REMOVAL

WARNING

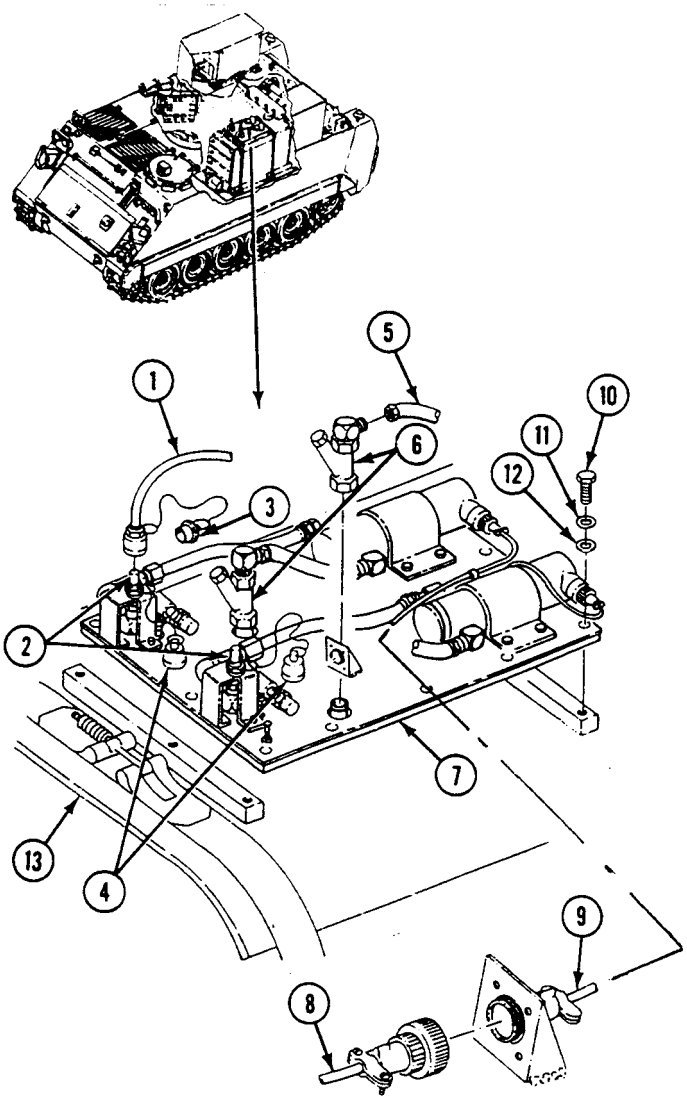
Fuel and fog oil can burn and could poison you. Read warnings at front of this manual.

WARNING

Before you do any maintenance, discharge all capacitors to ground or electrical shock could injure personnel.

1. Disconnect two fog oil hoses (1) from two quick disconnect fittings (2). Tag hoses.
2. Install safety caps (3) on hoses (1) and dust caps (4) on fittings (2).
3. Disconnect two fog oil hoses (5) from two strainers (6).
4. Remove strainers (6) from fog oil pump assembly (7).
5. Disconnect cable assembly (8) from fog oil pump cable assembly (9).

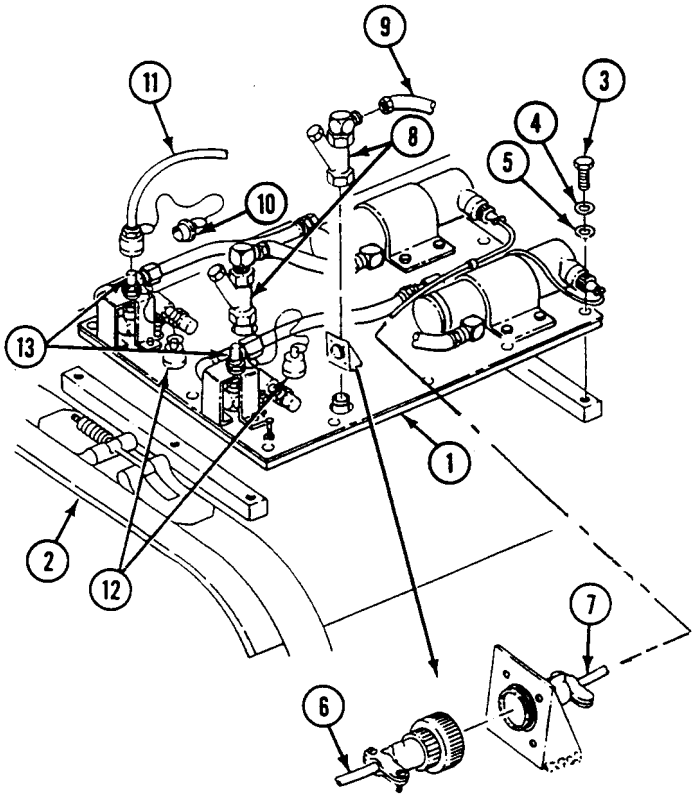
6. Remove 12 screws (10), lockwashers (11), washers (12), and pump assembly (7) from fog oil tank (13). Discard lockwashers.



INSTALLATION

1. Install fog oil pump assembly (1) on fog oil tank (2). Secure with 12 screws (3), new lockwashers (4), and washers (5).
2. Connect cable assembly (6) to fog oil pump cable assembly (7).
3. Install two strainers (8) on pump assembly (1).
4. Connect two fog oil hoses (9) to two strainers (8).
5. Remove safety caps (10) from two fog oil hoses (11) and dust caps (12) from two quick disconnect couplings (13).

6. Connect two fog oil hoses (11) to two quick disconnect couplings (13).



FOLLOW-THROUGH STEPS

1. Connect battery ground strap (WP 0337 00).
2. Set circuit breaker CB1 to ON (TM 3-1040-283-10).
3. Start engine (see your -10).
4. Raise and lock ramp (see your -10).
5. Stop engine (see your -10).

END OF TASK

REPLACE SMOKE GENERATOR FUEL CAN LID ASSEMBLY (M1059A3 ONLY) 0764 00

THIS WORK PACKAGE COVERS:

Removal (page 0764 00-1).
Installation (page 0764 00-2).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts

Sealing compound (WP 0928 00, Item 52)

Personnel Required

Unit Mechanic

References

See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)

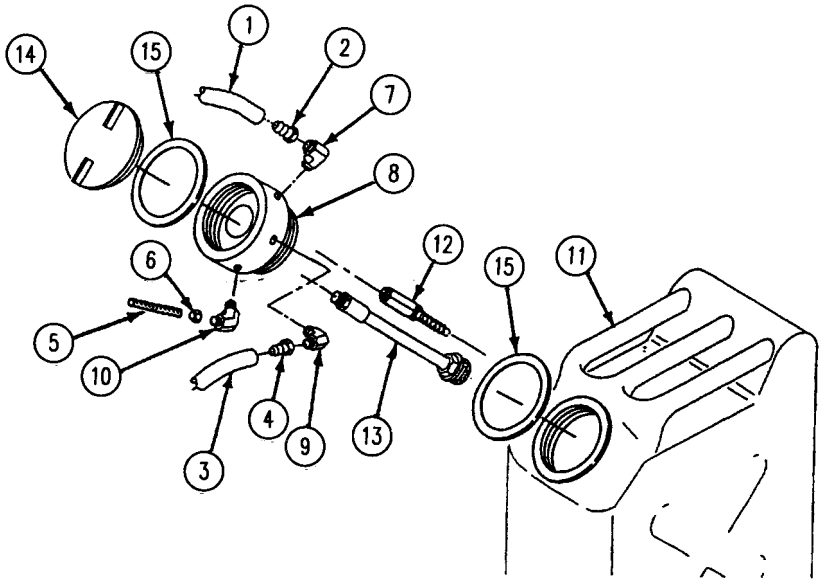
REMOVAL

WARNING

Fuel and fog oil can burn and could poison you. Read warnings at front of this manual.

1. Remove return hose (1) from adapter (2).
2. Remove supply hose (3) from adapter (4).
3. Remove vent hose (5) from adapter (6).
4. Remove adapter (2) from return elbow (7).
5. Remove return elbow (7) from lid (8).
6. Remove adapter (4) from supply elbow (9).
7. Remove supply elbow (9) from lid (8).
8. Remove adapter (6) from vent elbow (10).
9. Remove vent elbow (10) from lid (8).
10. Remove lid (8) from fuel can (11).
11. Remove check valve (12) from lid (8).
12. Remove fuel pipe (13) from lid (8).

13. Remove fuel lid closure (14) and two gaskets (15) from lid (8).

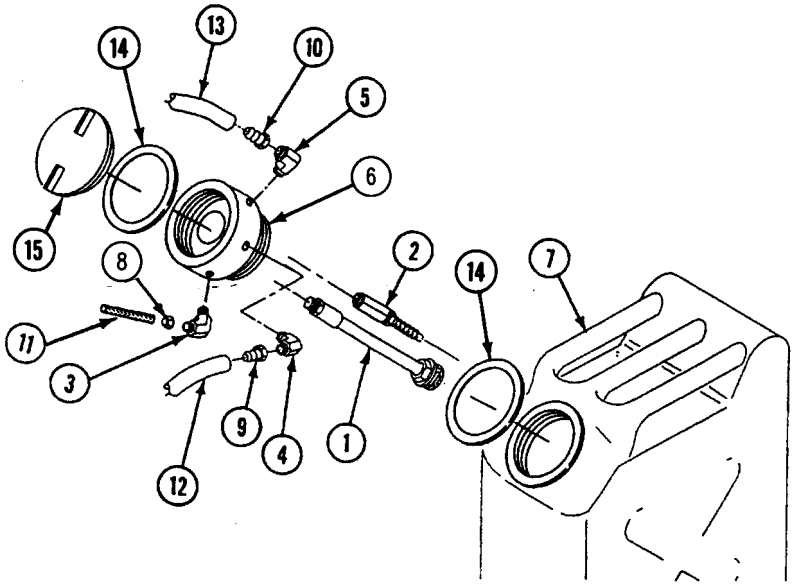


INSTALLATION

1. Coat fuel pipe (1), check valve (2), and vent, supply, and return elbows (3)(4)(5) with sealing compound.
2. Install check valve (2) on lid (6).
3. Install fuel pipe (1) in lid (6).
4. Install two gaskets (14) and fuel lid closure (15) on lid (6).
5. Install lid (6) in fuel can (7).
6. Install vent elbow (3) in lid (6).
7. Install supply elbow (4) in lid (6).
8. Install return elbow (5) in lid (6).
9. Install adapter (8) on vent elbow (3).
10. Install adapter (9) on supply elbow (4).
11. Install adapter (10) on return elbow (5).
12. Install vent hose (11) on adapter (8).
13. Install supply hose (12) on adapter (9).

REPLACE SMOKE GENERATOR FUEL CAN LID ASSEMBLY (M1059A3 ONLY) — Continued **0764 00**

14. Install return hose (13) on adapter (10).



END OF TASK

REPLACE SMOKE GENERATOR FUEL LINES AND GUARDS (M1059A3 ONLY) 0765 00

THIS WORK PACKAGE COVERS:

Removal (page 0765 00-1).
Installation (page 0765 00-4).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)
Torque wrench (WP 0926 00, Item 83)

Materials/Parts

Primer (WP 0928 00, Item 45)
Lockwasher (16)

Personnel Required

Unit Mechanic

References

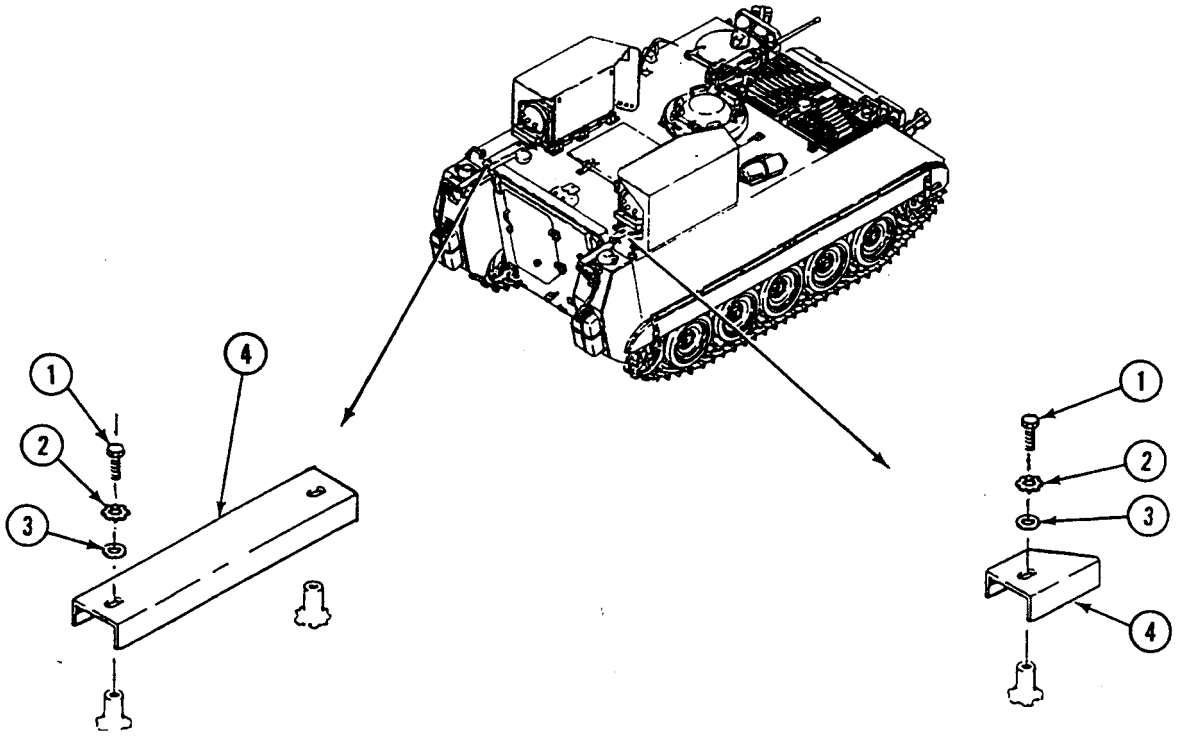
See your -10
TM 3-1040-283-10
TM 3-1040-283-20&P

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Circuit breaker CB1 OFF (TM 3-1040-283-10)
Battery ground strap disconnected (WP 0337 00)
Air pressure released from compressor reservoir (TM 3-1040-283-20&P)
Inboard armor shield removed (WP 0771 00)
Smoke generator assembly removed from bracket (WP 0755 00)

REMOVAL

1. Remove three screws (1), lockwashers (2), washers (3), and two fuel line guards (4) from left and right side of carrier hull. Discard lockwashers.

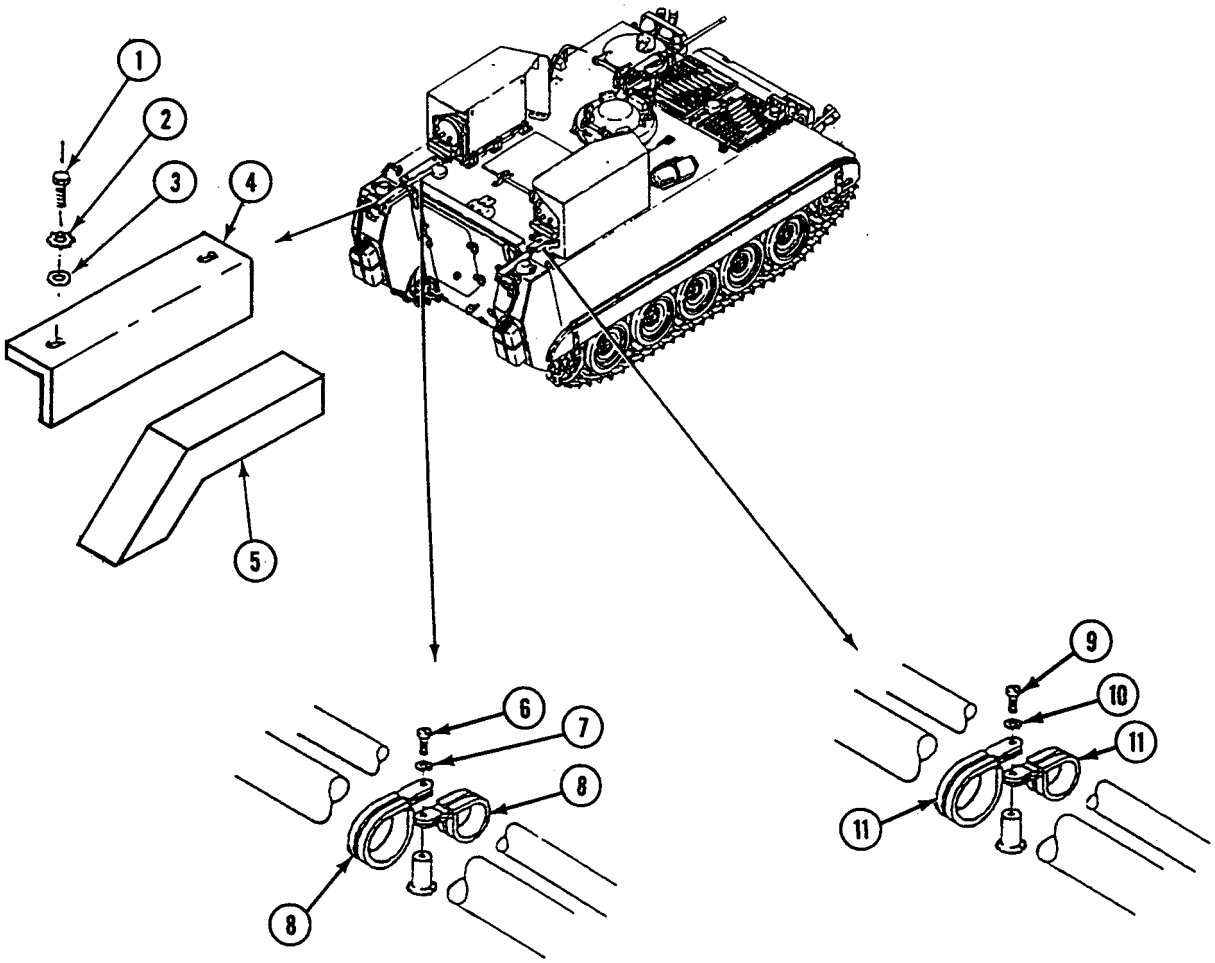


REPLACE SMOKE GENERATOR FUEL LINES AND GUARDS (M1059A3 ONLY) — Continued **0765 00**

NOTE

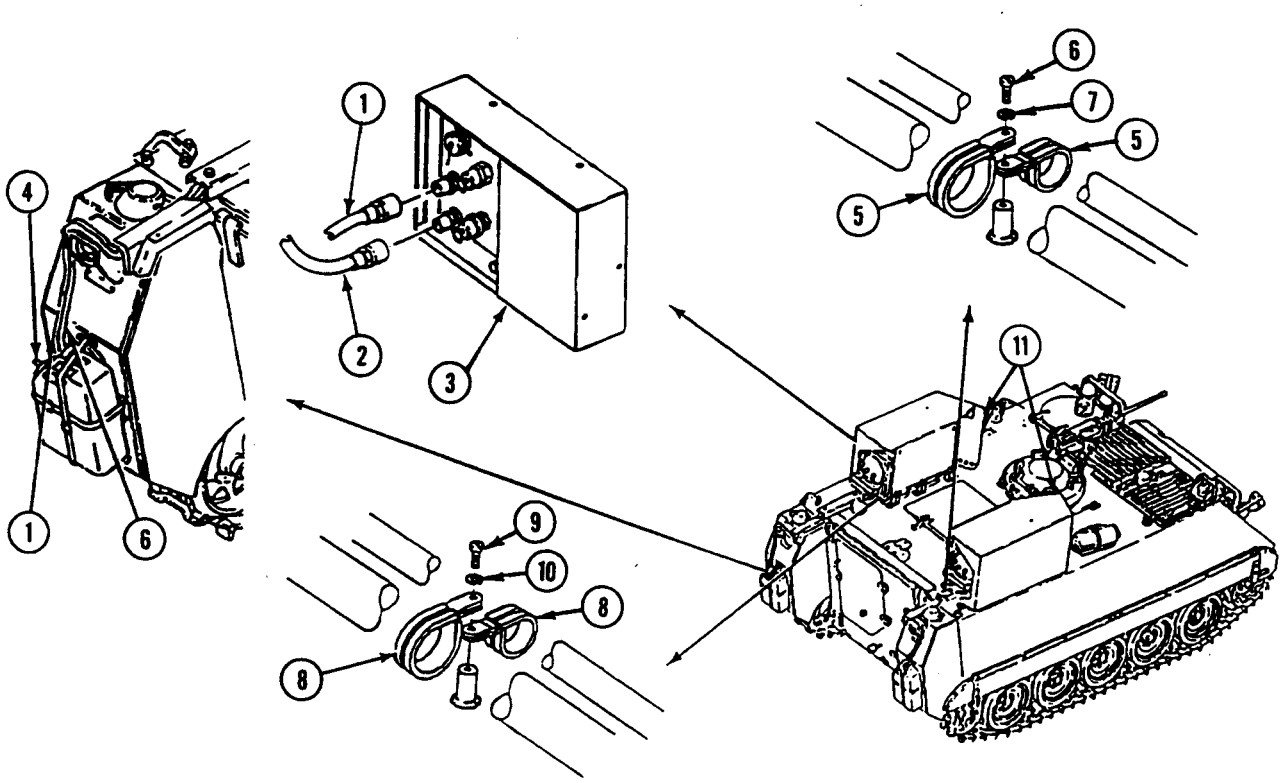
Removing fuel line guard (4) will also loosen electrical line guard (5). Electrical line guard should be held in place and not removed. Follow Step 2 below.

2. Remove four screws (1), lockwashers (2), washers (3) and two fuel line guards (4) on fuel tanks. Discard lockwashers.
3. To hold electrical line guard (5) in place, reinstall, but do not completely tighten, four screws (1) and washers (3) into electrical line guards.
4. On left side of carrier, remove four screws (6), lockwashers (7), and ten clamps (8) from fuel lines. Discard lockwashers.
5. On right side of carrier, remove five screws (9), lockwashers (10), and ten clamps (11) from fuel lines. Discard lockwashers.



REPLACE SMOKE GENERATOR FUEL LINES AND GUARDS (M1059A3 ONLY) — Continued **0765 00**

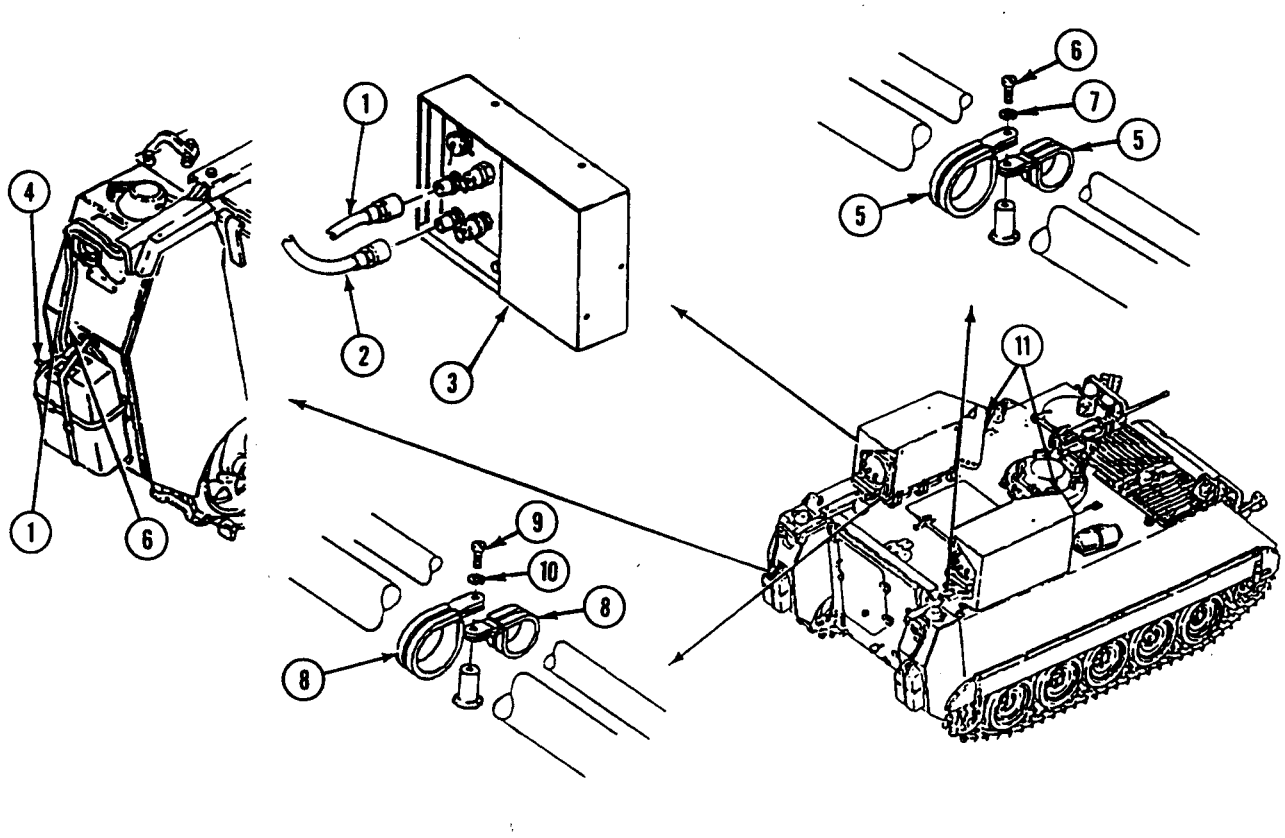
6. Disconnect fuel return lines (1) from two smoke generator cover assemblies (3).
7. Disconnect fuel supply lines (2) from fuel filters/water separator (11).
8. Disconnect fuel lines (1) and (2) from two fuel can lid assemblies (4). Remove fuel lines from carrier.



REPLACE SMOKE GENERATOR FUEL LINES AND GUARDS (M1059A3 ONLY) — Continued **0765 00**

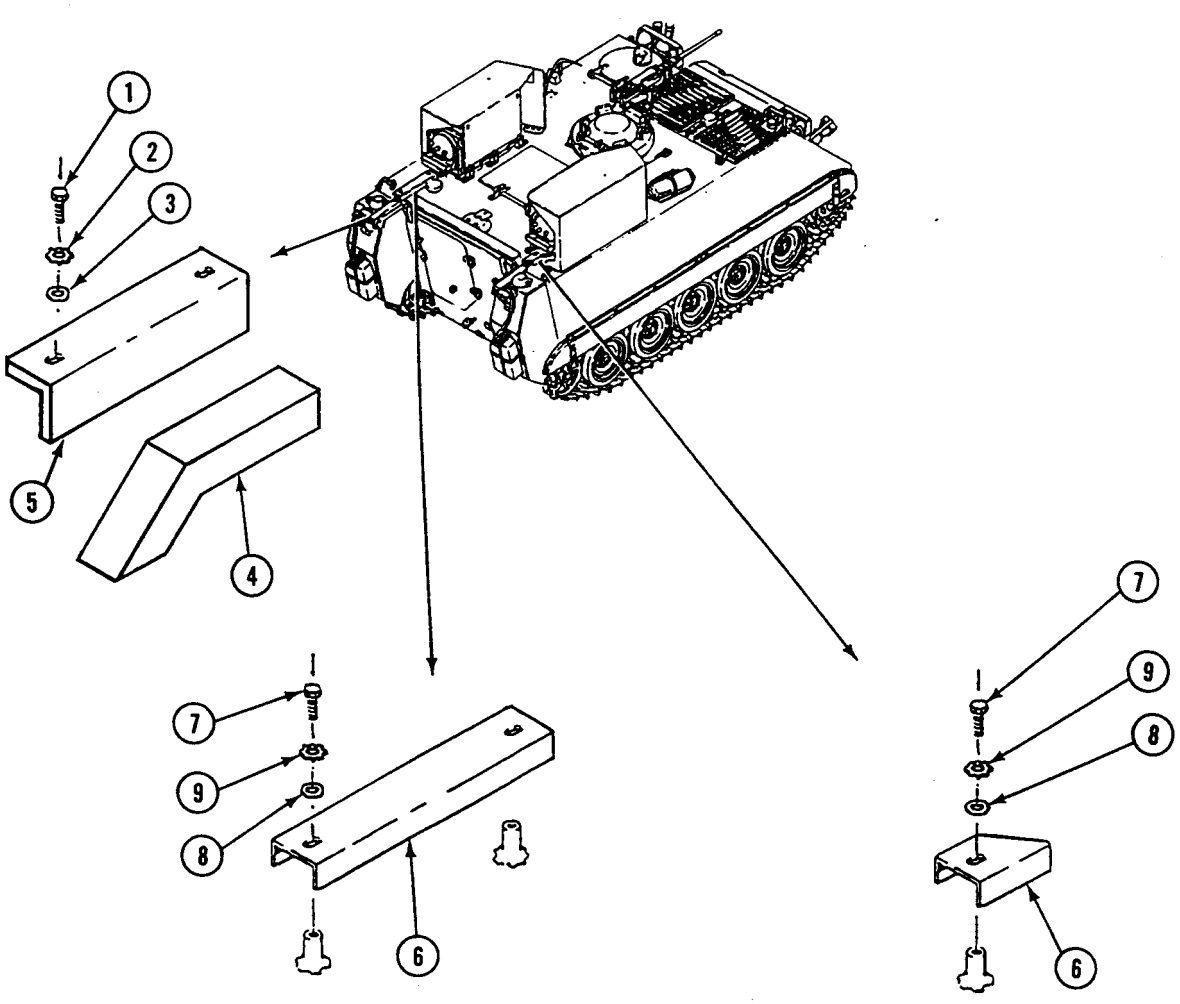
INSTALLATION

1. Connect fuel lines (1) and (2) to two fuel can lid assemblies (4). Position fuel lines along top of carrier to each smoke generator cover assembly (3).
2. Connect fuel supply lines (2) to fuel filters/water separator (11).
3. Connect fuel return lines (1) to the smoke generator cover assembly (3) on right and left sides of carrier.
4. Secure fuel supply line and fuel return lines on right side of carrier with ten clamps (5), five screws (6), and new lockwashers (7).
5. Secure fuel supply line and fuel return lines on left side of carrier with eight clamps (8), four screws (9), and new lockwashers (10).



REPLACE SMOKE GENERATOR FUEL LINES AND GUARDS (M1059A3 ONLY) — Continued 0765 00

6. Remove four screws (1) and washers (3) holding electrical line guards (4) in place.
7. Cover two fuel lines with fuel line guards (5). Use four screws (1), new lockwashers (2) and washers (3). Apply primer to screw heads.
8. Install two fuel line guards (6) over fuel lines on top of hull. Secure fuel line guards (6) with three screws (7), washers (8) and new lockwashers (9). TIGHTEN SCREWS TO 96-120 LB-IN (11-14 N·m) TORQUE.



FOLLOW-THROUGH STEPS

1. Install smoke generator assembly on bracket (WP 0755 00).
2. Install inboard armor shield (WP 0771 00).
3. Connect battery ground strap (WP 0337 00).
4. Set circuit breaker CB1 to ON (TM 3-1040-283-10).

END OF TASK

REPLACE SMOKE GENERATOR ADAPTER ACCESS PLATE AND GASKET (M1059A3 ONLY) 0766 00

THIS WORK PACKAGE COVERS:

Removal (page 0766 00-1).
Installation (page 0766 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts

Locknut (4)
Lockwasher (6)

Personnel Required

Signal Support System Specialist 31U10

References

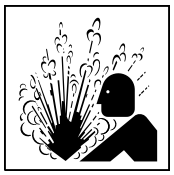
See your -10
TM 3-1040-283-10
TM 3-1040-283-20

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Circuit breaker CB1 OFF (TM 3-1040-283-10)
Battery ground strap disconnected (WP 0337 00)
Air pressure released from compressor reservoir (TM 3-1040-283-20)
Inboard armor shield lowered (WP 0771 00)
Smoke generator assembly removed from bracket (WP 0755 00)

REMOVAL

WARNING



Compressed air pressure from smoke generator can cause serious injury or death. To avoid accidents, bleed air before working on air compressor assembly or disconnecting any air hose.

WARNING

Before you do any maintenance, discharge all capacitors to ground or electrical shock could injure personnel.

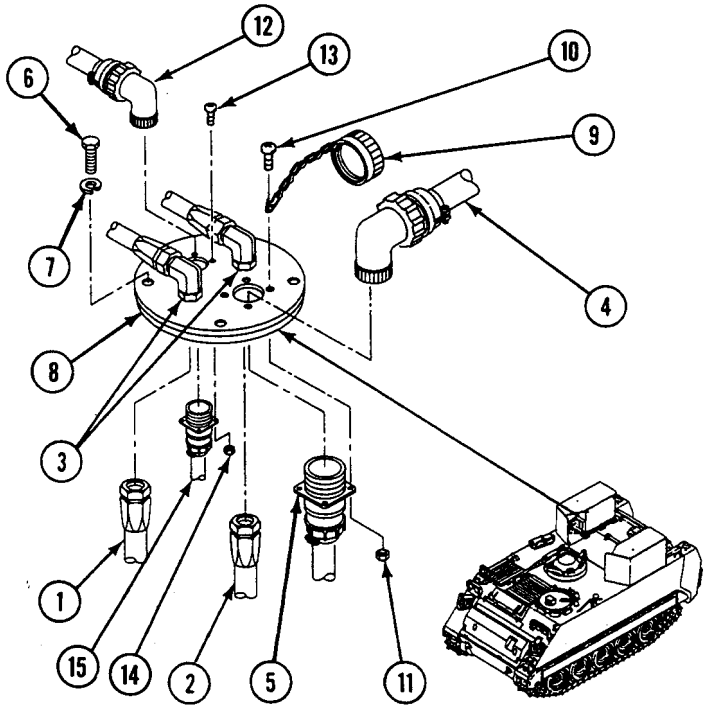
NOTE

Left and right access plates and gasket are replaced the same way.

1. Disconnect air hose (1) and fog oil hose (2) from two elbows (3).

REPLACE SMOKE GENERATOR ADAPTER ACCESS PLATE AND GASKET (M1059A3 ONLY) — Continued **0766 00**

2. Disconnect electrical cable assembly (4) from adapter access plate fitting (5).
3. Remove four screws (6), lockwashers (7), and adapter access plate (8) from hull. Discard lockwashers.
4. Disconnect exterior cable (12) from interior cable (15) at adapter access plate (8).
5. Remove four screws (13), locknuts (14), and interior cable (15) from adapter access plate (8). Discard locknuts.
6. Remove dust cover (9) four screws (10), locknuts (11), and adapter access plate fitting (5) from adapter access plate (8). Discard locknuts.



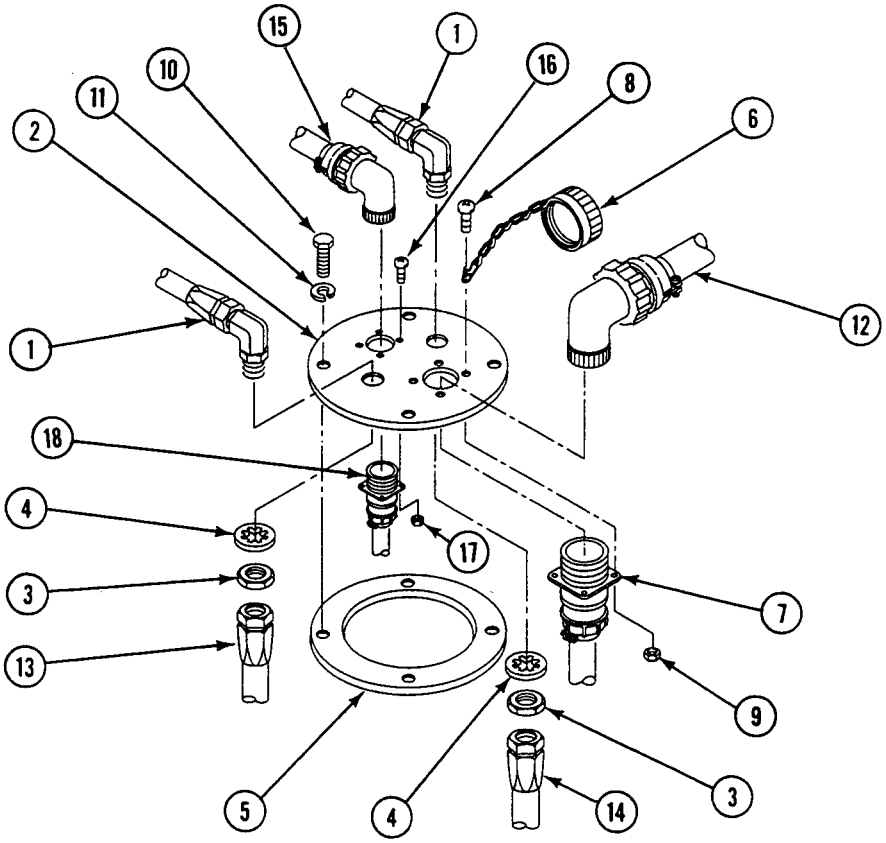
7. Remove gasket (5) from plate (2). Replace if damaged.

REPLACE SMOKE GENERATOR ADAPTER ACCESS PLATE AND GASKET (M1059A3 ONLY) — Continued **0766 00**

NOTE

If only gasket is to be replaced, go to installation Step 1.

8. Remove two jam nuts (3) and lockwashers (4) from two elbows (1). Remove elbows from plate (2). Discard lockwashers.

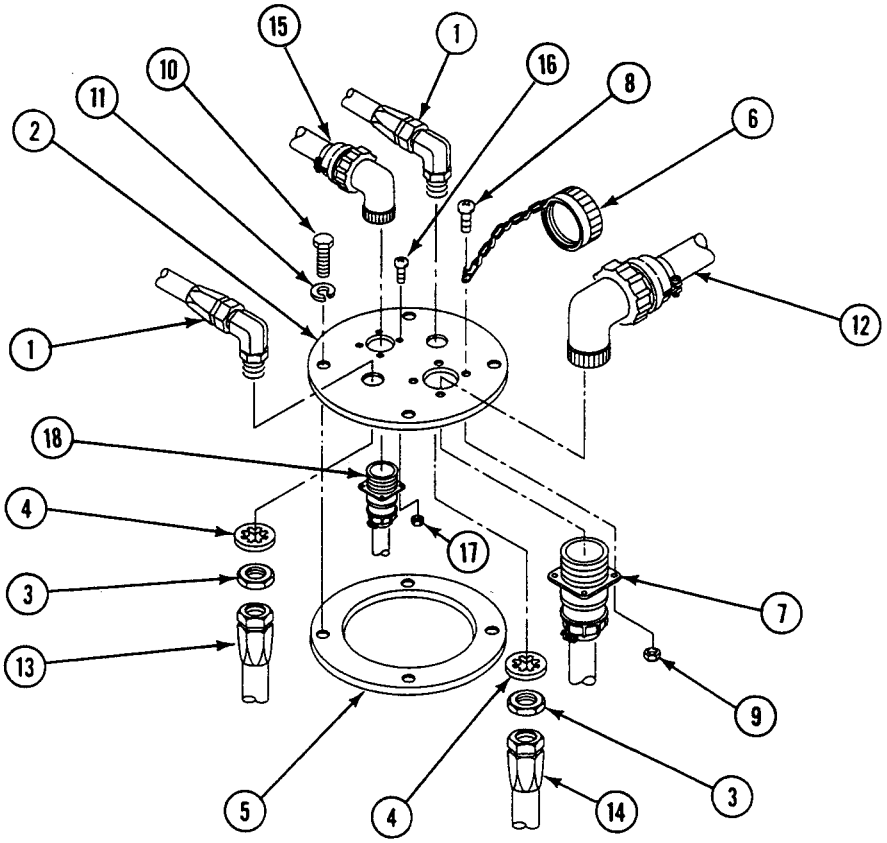


INSTALLATION

1. Install two elbows (1) on adapter access plate (2). Secure with two jam nuts (3) and new lockwashers (4).
2. Install gasket (5) on plate (2).
3. Install dust cover (6) and fitting (7) on plate (2). Secure with four screws (8) and new locknuts (9).
4. Install interior cable (18), four screws (16), and new locknuts (17) on adapter access plate (2)
5. Connect exterior cable (15) to interior cable (18) on adapter access plate (2).
6. Install plate (2) on hull. Secure with four screws (10) and new lockwashers (11).
7. Connect electrical cable assembly (12) to plate fitting (7).

REPLACE SMOKE GENERATOR ADAPTER ACCESS PLATE AND GASKET (M1059A3 ONLY) — Continued **0766 00**

8. Connect air hose (13) and fog oil hose (14) to two elbows (1).



FOLLOW-THROUGH STEPS

1. Install smoke generator assembly on bracket (WP 0755 00).
2. Raise inboard armor shield (WP 0771 00).
3. Connect battery ground strap (WP 0337 00).
4. Set circuit breaker CB1 to ON (TM 3-1040-283-10).

END OF TASK

REPLACE SMOKE GENERATOR COMPRESSOR RESERVOIR TO ADAPTER ACCESS PLATE AIR HOSE (M1059A3 ONLY) 0767 00

THIS WORK PACKAGE COVERS:

Removal (page 0767 00-1).
Installation (page 0767 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts

Lockwasher (3)

Personnel Required

Unit Mechanic

References

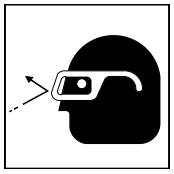
See your -10
TM 3-1040-289-10
TM 3-1040-283-20&P

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Circuit breaker CB1 OFF (TM 3-1040-283-10)
Battery ground strap disconnected (WP 0337 00)
Air pressure released from compressor reservoir (TM 3-1040-283-20&P)

REMOVAL

WARNING



Compressed air pressure from smoke generator can cause serious injury or death. To avoid accidents, bleed air before working on air compressor assembly or disconnecting any air hose.

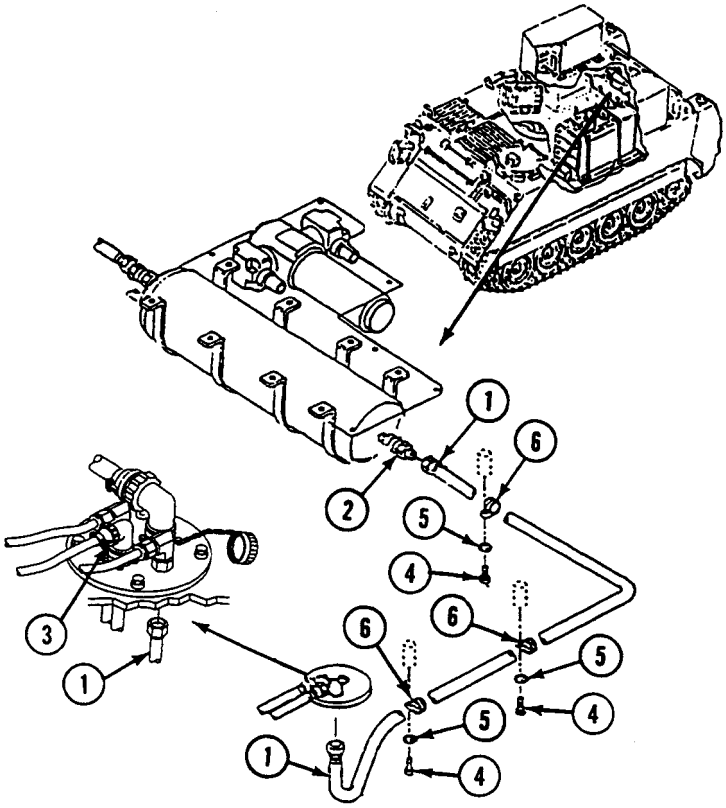
NOTE

Left and right hoses are replaced the same way.

1. Disconnect air hose (1) from compressor reservoir fitting (2).
2. Disconnect air hose (1) from adapter plate fitting (3).

REPLACE SMOKE GENERATOR COMPRESSOR RESERVOIR TO ADAPTER ACCESS PLATE AIR HOSE (M1059A3 ONLY) — Continued **0767 00**

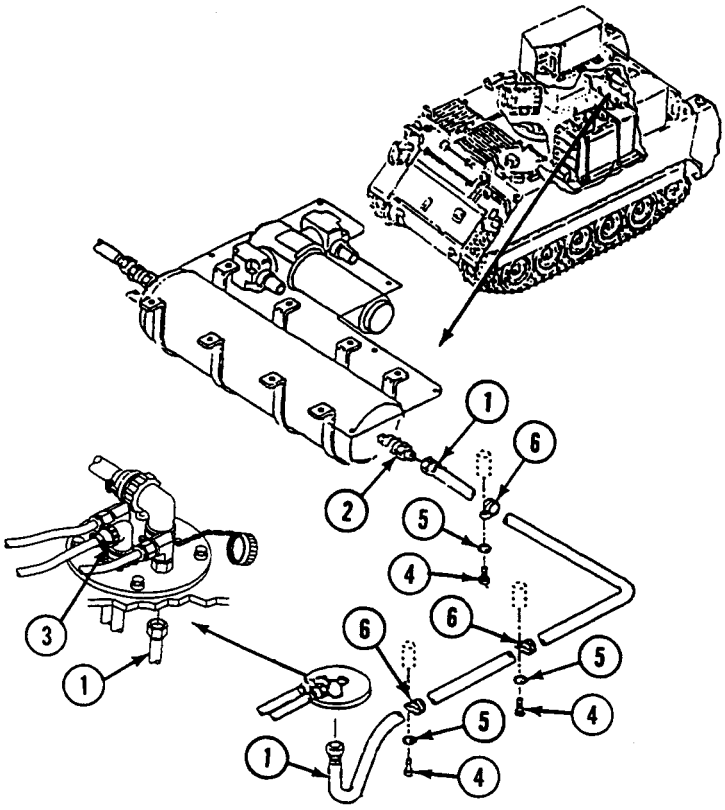
3. Remove three screws (4), lockwashers (5), clamps (6), and air hose (1) from carrier hull. Discard lockwashers.



REPLACE SMOKE GENERATOR COMPRESSOR RESERVOIR TO ADAPTER ACCESS PLATE AIR HOSE (M1059A3 ONLY) — Continued **0767 00**

INSTALLATION

1. Secure air hose (1) to carrier hull with three clamps (6), new lockwashers (5), and screws (4).
2. Connect air hose (1) to adapter plate fitting (3).
3. Connect air hose (1) to compressor reservoir fitting (2).



FOLLOW-THROUGH STEPS

1. Connect battery ground strap (WP 0337 00).
2. Set circuit breaker CB1 to ON (TM 3-1040-283-10).

END OF TASK

REPLACE SMOKE GENERATOR ADAPTER ACCESS PLATE TO COVER ASSEMBLY AIR HOSE (M1059A3 ONLY) 0768 00

THIS WORK PACKAGE COVERS:

Removal (page 0768 00-1).
Installation (page 0768 00-2).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0926 00, Item 65)

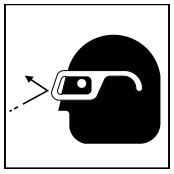
Personnel Required
Unit Mechanic

References
See your -10
TM 3-1040-283-10
TM 3-1040-283-20

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Circuit breaker CB1 OFF (TM 3-1040-283-10)
Battery ground strap disconnected (WP 0337 00)
Air pressure released from compressor reservoir (TM 3-1040-283-20)
Inboard armor shield removed (WP 0771 00)
Smoke generator assembly removed from bracket (WP 0755 00)

REMOVAL

WARNING



Compressed air pressure from smoke generator can cause serious injury or death. To avoid accidents, bleed air compressor storage tank until empty before working on air compressor assembly or disconnecting any air hose.

NOTE

Left side and right side hoses are replaced the same way.

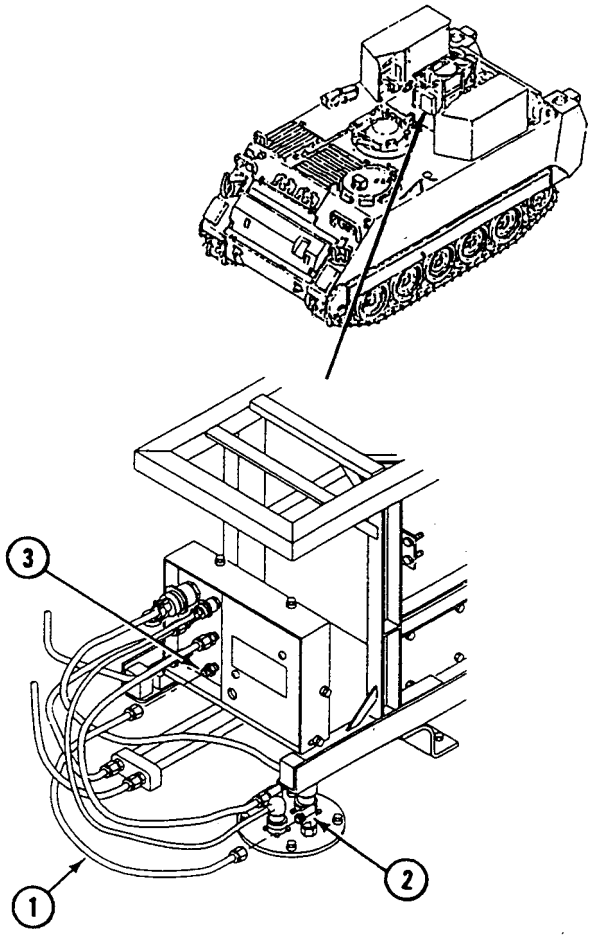
1. Disconnect air hose (1) from adapter plate elbow (2).
2. Disconnect air hose (1) from cover assembly quick disconnect coupling (3).

REPLACE SMOKE GENERATOR ADAPTER ACCESS PLATE TO COVER ASSEMBLY AIR HOSE (M1059A3 ONLY) — Continued

0768 00

INSTALLATION

1. Connect air hose (1) to cover assembly quick disconnect coupling (3).
2. Connect air hose (1) to adapter assembly elbow (2).



FOLLOW-THROUGH STEPS

1. Install smoke generator assembly on bracket (WP 0755 00).
2. Install inboard armor shield (WP 0771 00).
3. Connect battery ground strap (WP 0337 00).
4. Set circuit breaker CB1 to ON (TM 3-1040-283-10).

END OF TASK

REPLACE FOG OIL TANK QUICK DISCONNECT TO ADAPTER ACCESS PLATE HOSE (M1059A3 ONLY) 0769 00

THIS WORK PACKAGE COVERS:

Removal (page 0769 00-1).
Installation (page 0769 00-2).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts

Lockwasher (9)

Personnel Required

Unit Mechanic

References

See your -10
TM 3-1040-283-10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Circuit breaker CB1 OFF (TM 3-1040-283-10)
Battery ground strap disconnected (WP 0337 00)

REMOVAL

WARNING

Fog oil is slippery and can cause soldiers to fall and get injured. Clean up all spillage or leakage of fog oil as soon as possible by washing the area, or absorbing the fog oil with sand or other absorbent material.

NOTE

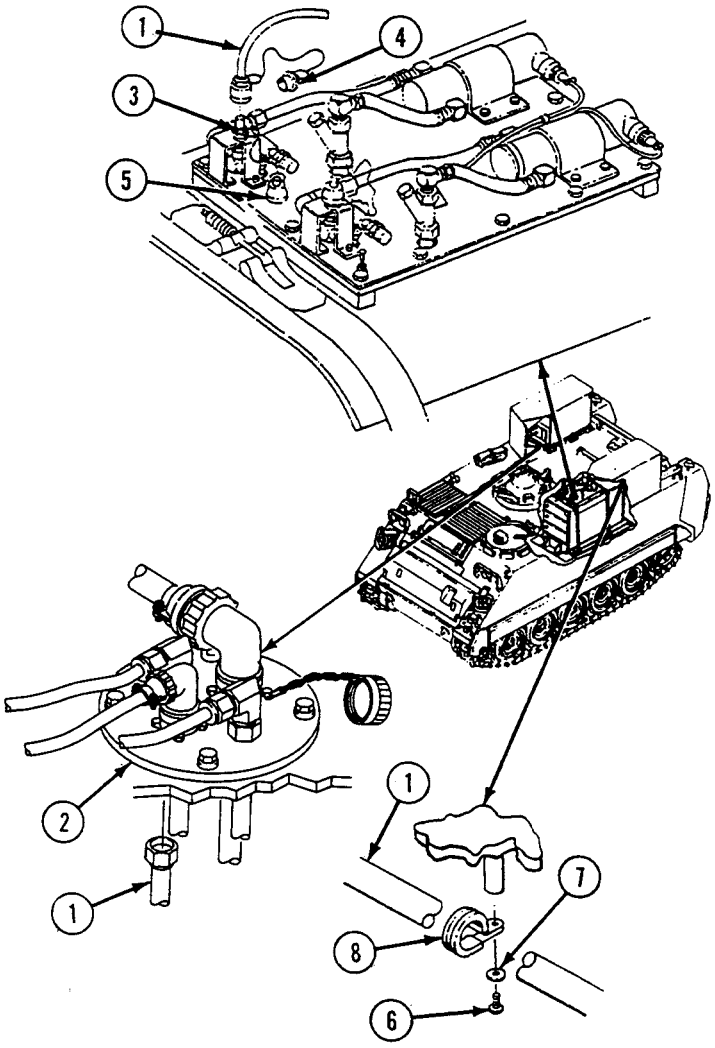
Left and right hoses are replaced the same way.

1. Disconnect fog oil hose assembly (1) from access plate adapter (2).
2. Disconnect fog oil hose assembly (1) from fog oil tank at quick disconnect coupling (3).
3. Install safety cap (4) on hose (1) and dust cap (5) on quick disconnect coupling (3).

REPLACE FOG OIL TANK QUICK DISCONNECT TO ADAPTER ACCESS PLATE HOSE (M1059A3 ONLY) — Continued

0769 00

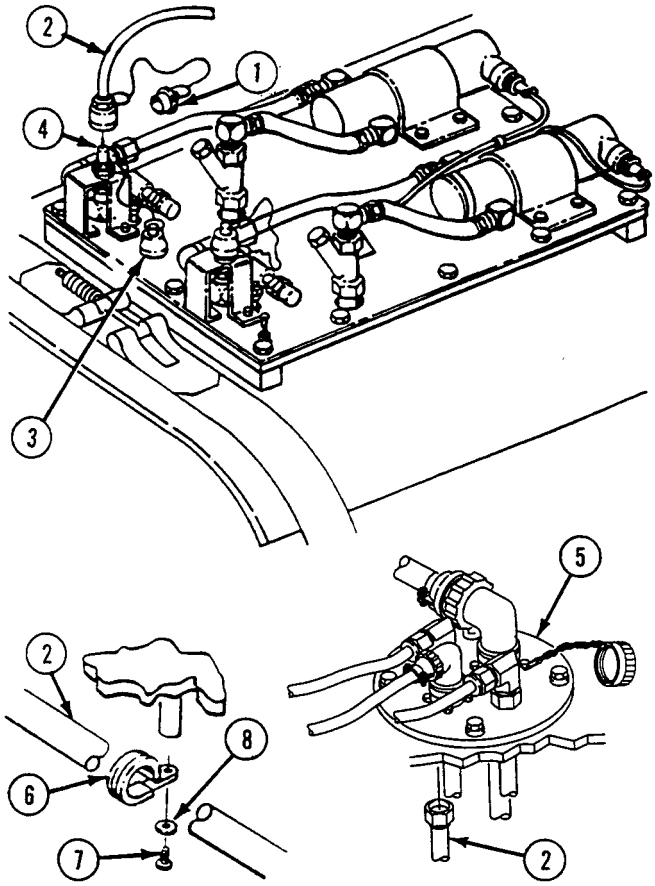
4. Remove four screws (6), lockwashers (7), clamps (8), and fog oil hose assembly (1) from carrier hull (right side: remove five screws, lockwashers, and clamps). Discard lockwashers.



INSTALLATION

1. Remove safety cap (1) from hose (2) and dust cap (3) from quick disconnect coupling (4).
2. Connect fog oil hose assembly (2) to fog oil tank quick disconnect coupling (4).
3. Connect fog oil hose assembly (2) to access plate adapter (5).

4. Secure hose assembly (2) to hull with four clamps (6), screws (7), and new lockwashers (8) (right side: secure with five clamps, screws, and new lockwashers).



FOLLOW-THROUGH STEPS

1. Connect battery ground strap (WP 0337 00).
2. Set circuit breaker CB1 to ON (TM 3-1040-283-10).

END OF TASK

REPLACE COVER ASSEMBLY FOG OIL QUICK DISCONNECT TO ADAPTER ACCESS PLATE HOSE (M1059A3 ONLY) 0770 00

THIS WORK PACKAGE COVERS:

Removal (page 0770 00-1).
Installation (page 0770 00-2).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0926 00, Item 65)

Personnel Required
Unit Mechanic

References
See your -10
TM 3-1040-283-10
TM 3-1040-283-20&P

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Circuit breaker CB1 OFF (TM 3-1040-283-10)
Battery ground strap disconnected (WP 0337 00)
Air pressure released from compressor reservoir (TM 3-1040-283-20&P)
Inboard armor shield removed (WP 0771 00)
Smoke generator assembly removed from bracket (WP 0755 00)

REMOVAL

WARNING

Fog oil is slippery and can cause soldiers to fall and get injured. Clean up all spillage or leakage of fog oil as soon as possible by washing the area, or absorbing the fog oil with sand or other absorbent material.

NOTE

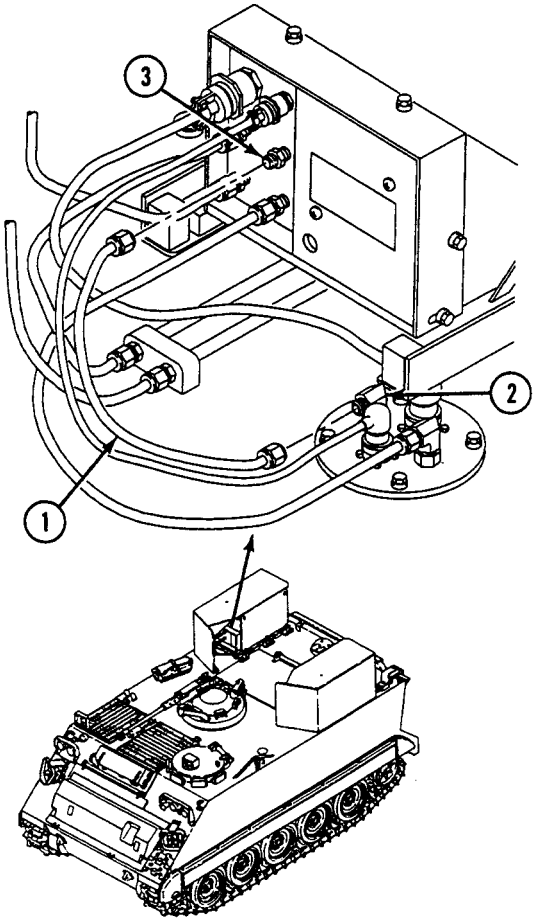
Left and right hoses are replaced the same way.

1. Disconnect fog oil hose assembly (1) from adapter assembly elbow (2).
2. Disconnect fog oil hose assembly (1) from cover assembly quick disconnect coupling (3).

REPLACE COVER ASSEMBLY FOG OIL QUICK DISCONNECT TO ADAPTER ACCESS PLATE HOSE (M1059A3 ONLY) — Continued **0770 00**

INSTALLATION

1. Connect fog oil hose assembly (1) to adapter plate elbow (2).
2. Connect fog oil hose assembly (1) to cover assembly quick disconnect coupling (3).



FOLLOW-THROUGH STEPS

1. Install smoke generator assembly on bracket (WP 0755 00)
2. Install inboard armor shield (WP 0771 00).
3. Connect battery ground strap (WP 0337 00).
4. Set circuit breaker CB1 to ON (TM 3-1040-283-10).

END OF TASK

REPLACE SMOKE GENERATOR ARMOR (M1059A3 ONLY) 0771 00

THIS WORK PACKAGE COVERS:

Removal (page 0771 00-1).
Installation (page 0771 00-2).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0926 00, Item 65)
Torque Wrench (WP 0926 00, Item 84)
Suitable Lifting Device

Materials/Parts
Locknut (3)
Lockwasher

Personnel Required
Unit Mechanic

References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Decontamination can removed (right side only) (see your -10)
Smoke generator fuel filter/water separator removed (WP 0773 00)

REMOVAL

WARNING

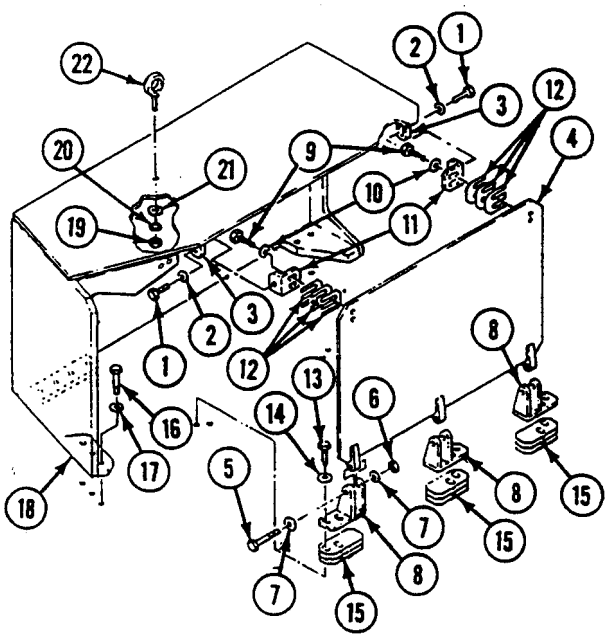
You could be killed or injured by accidental carrier movement. Before you perform maintenance make sure to properly block the carrier. Do not stand under suspended heavy objects. Keep hands away from pinch points.

1. Remove inboard armor shield.
   a. Remove two screws (1) and washers (2) from two angle brackets (3) at top of inboard armor shield (4).
   b. Lower shield (4).
   c. Remove three screws (5), locknuts (6), six washers (7), and inboard shield from three hinge assemblies (8). Discard locknuts.
   d. Remove four screws (9) and washers (10) securing two angle brackets (11) and shims (12) to shield (4).
   e. Remove six screws (13) flat washers (14) securing three hinges (8) and shims (15) to hull.

WARNING

Hanging loads can kill or injure you. Keep away from hanging loads and overhead equipment. Keep hands clear while armor is being lifted for removal or lowered for installation.

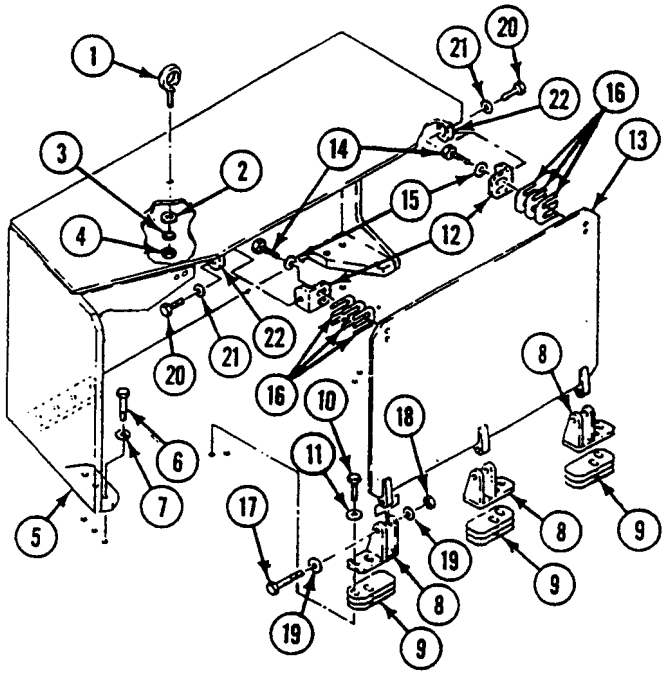
2. Remove outboard armor shield.
   a. Remove ten screws (16), washers (17), and outboard shield (18) from hull.
   b. Remove nut (19), lockwasher (20), washer (21), and eyebolt (22) from outboard shield (18). Discard lockwasher.



INSTALLATION

1. Install outboard armor shield.
   a. Install eyebolt (1), washer (2), new lockwasher (3), and nut (4).
   b. Install outboard shield (5) on hull. Secure with ten screws (6) and washers (7).
2. Install inboard armor shield.
   a. Position three hinges (8) and shims (9) on hull and secure with six screws (10) and washers (11). TIGHTEN SCREWS TO 51-54 LB-FT (68-73 N·m TORQUE.
   b. Position two angle brackets (12) on shield (13). Secure with four screws (14) and washers (15). If necessary, add shims (16). TIGHTEN SCREWS TO 22-24 LB-FT (28-33 N·m) TORQUE.
   c. Install armor shield (13) in three hinge assemblies (8). Secure with three screws (17), new locknuts (18), and six washers (19).

d. Raise armor shield (13). Secure with two screws (20) and washers (21) to angle brackets (22). TIGHTEN SCREWS TO 54-59 LB-FT (73-80 N·m) TORQUE.



FOLLOW-THROUGH STEPS

1. Install decontamination can (right side only) (see your -10).
2. Install smoke generator fuel filter/water separator (WP 0773 00).

END OF TASK

REPLACE SMOKE GENERATOR GLOW PLUG CABLE ASSEMBLIES (M1059A3 ONLY) 0772 00

THIS WORK PACKAGE COVERS:

Removal (page 0772 00-2).
Installation (page 0772 00-4).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts

Locknut (8)
Lockwasher (7)

Personnel Required

Signal Support System Specialist 31U10
Helper

References

See your -10
TM 3-1040-283-10
TM 3-1040-283-20&P

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Circuit breaker CB1 OFF (TM 3-1040-283-10)
Battery ground strap disconnected (WP 0337 00)
Air pressure released from compressor reservoir (TM 3-1040-283-20&P)
In-board armor shield removed (WP 0771 00)
Smoke generator assembly removed from bracket (WP 0755 00)

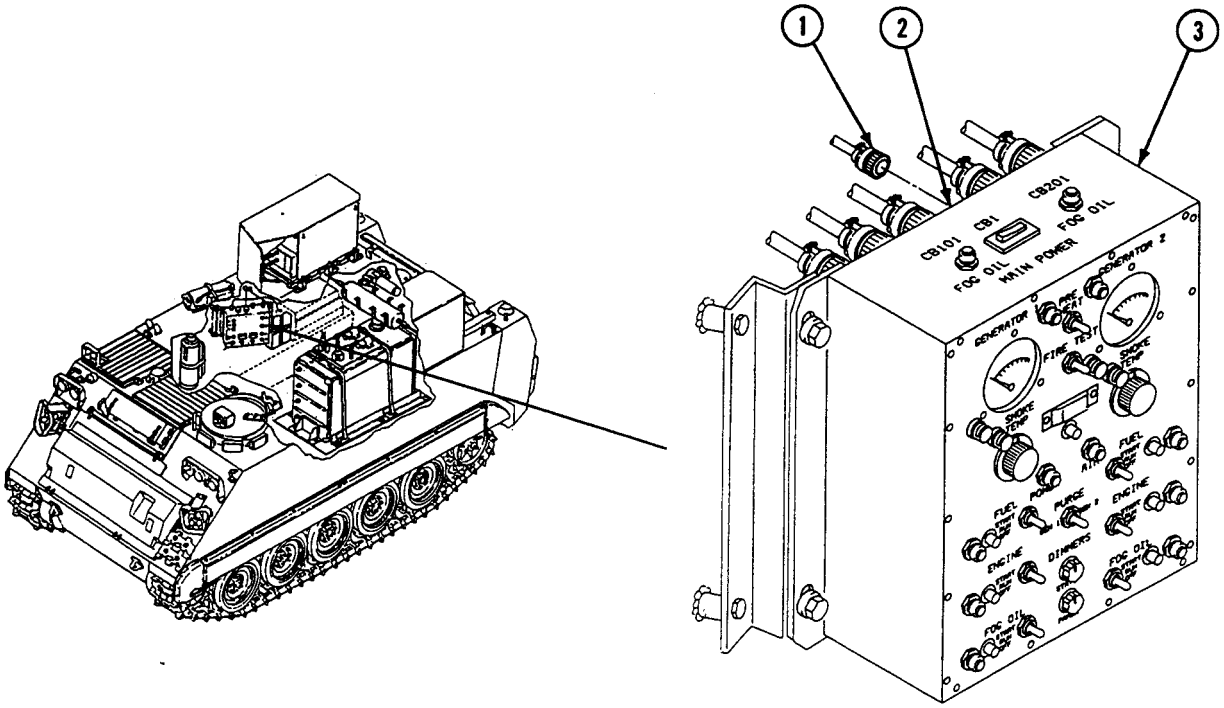
REPLACE SMOKE GENERATOR GLOW PLUG CABLE ASSEMBLIES (M1059A3 ONLY) — Continued **0772 00**

REMOVAL

WARNING

Before you do any maintenance, discharge all capacitors to ground or electrical shock could injure personnel.

1. Disconnect interior cable (1) from jack 1J6 (2) on back of control panel (3).



NOTE

There are seven clamps that bolt interior cable to hull. One is used on the right side of vehicle and six on the left. All are removed the same way. Only one clamp is shown. Remove as required.

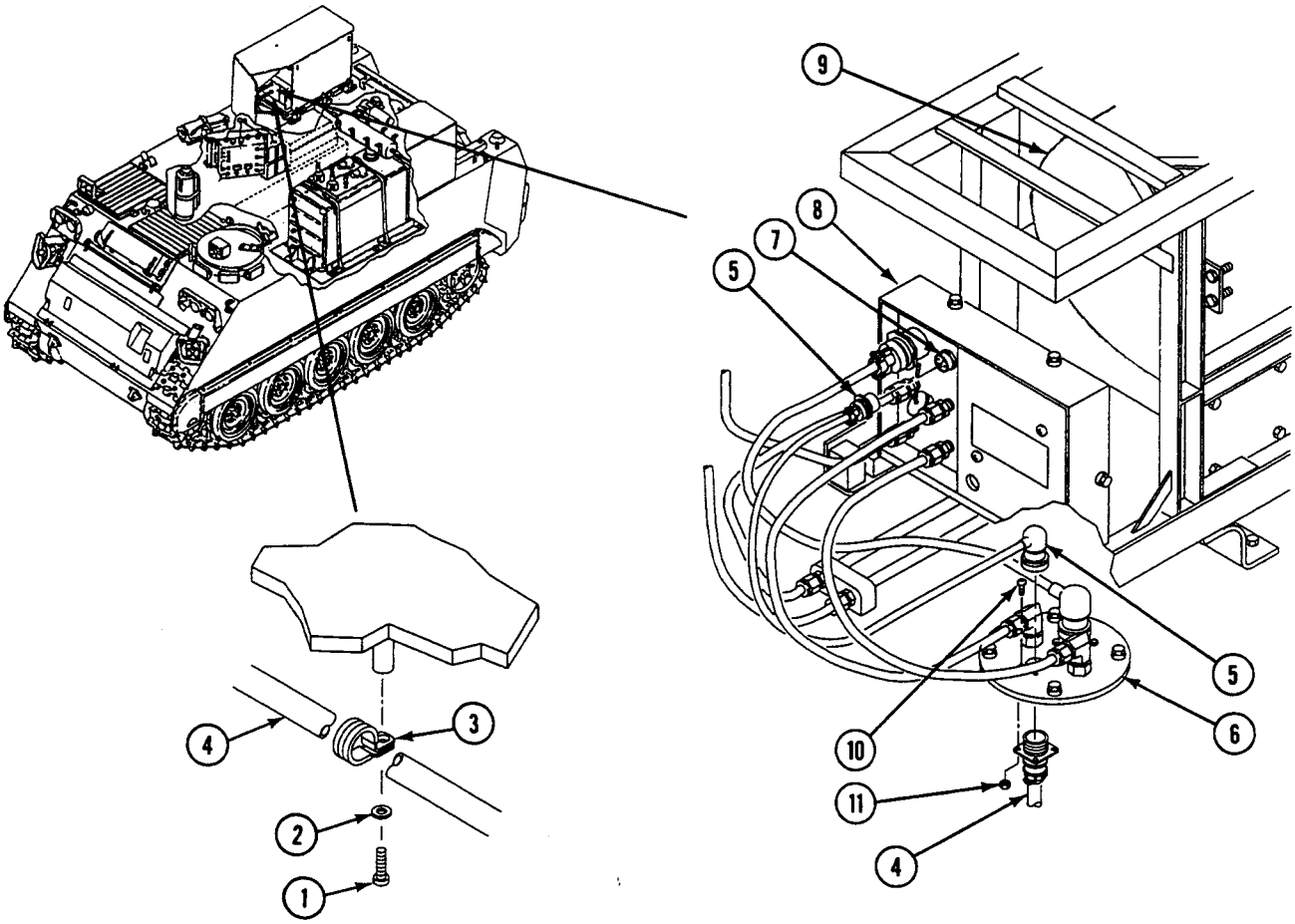
2. Remove six screws (1), lockwashers (2), clamps (3) and interior cable (4) from left side of hull. Discard lockwashers.

REPLACE SMOKE GENERATOR GLOW PLUG CABLE ASSEMBLIES (M1059A3 ONLY) — Continued **0772 00**

NOTE

There are two exterior cables, access plates, and smoke generators, left and right. Cables are removed from vehicle the same way. Only one exterior cable, access plate, and smoke generator is shown. Remove cables as required.

3. Disconnect exterior cable (5) from interior cable (4) in left access plate (6).
4. Disconnect exterior cable (5) from preheat harness jack (7) on panel (8) of left smoke generator (9).
5. Remove screw (1), lockwasher (2), and clamp (3), and interior cable (4) from right side of hull. Discard lockwashers.
6. Disconnect exterior cable (5) from interior cable (4) in right access plate (6).
7. Disconnect exterior cable (5) from preheat harness jack (7) on panel (8) of right smoke generator (9).
8. Remove four screws (10), locknuts (11), and interior cable (4) from right access plate (6). Discard locknuts.
9. Remove four screws (10), locknuts (11), and interior cable (4) from left access plate (6). Discard locknuts.



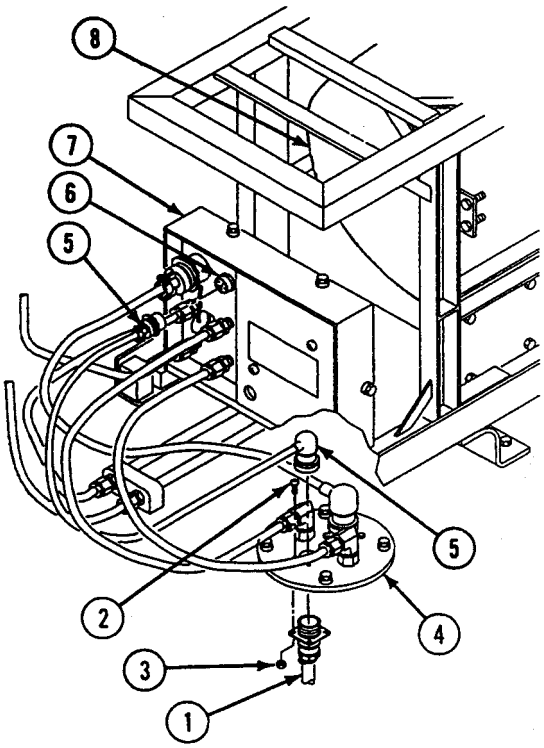
REPLACE SMOKE GENERATOR GLOW PLUG CABLE ASSEMBLIES (M1059A3 ONLY) — Continued **0772 00**

INSTALLATION

NOTE

There are two exterior cables, access plates, and smoke generators, left and right. Cables are installed on vehicle the same way. Only one exterior cable, access plate, and smoke generator is shown. Remove cables as required.

1. Install interior cable (1), four screws (2) and new locknuts (3) to right access plate (4).
2. Connect exterior cable (5) to preheat harness jack (6) on panel (7) of right smoke generator (8).
3. Connect exterior cable (5) to interior cable (1) in right access plate (4).
4. Install interior cable (1), four screws (2) and new locknuts (3) to left access plate (4).
5. Connect exterior cable (5) to interior cable (1) in left access plate (4).
6. Connect exterior cable (5) to preheat harness jack (6) on panel (7) of left smoke generator (8).

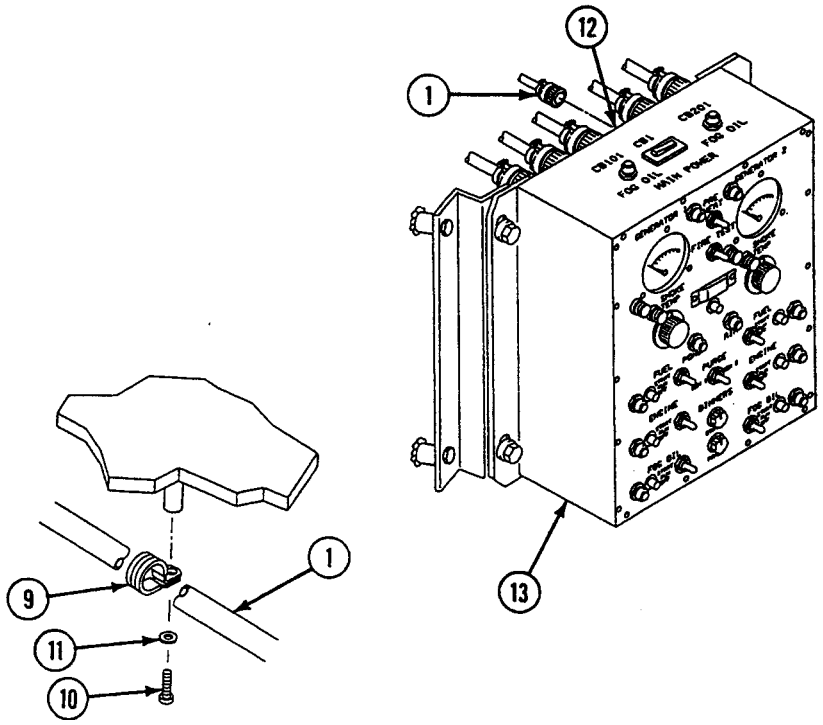


REPLACE SMOKE GENERATOR GLOW PLUG CABLE ASSEMBLIES (M1059A3 ONLY) — Continued **0772 00**

NOTE

There are seven clamps that bolt interior cable to hull. One is used on the right side of vehicle and six on the left. All are installed the same way. Only one clamp is shown. Install as required.

7. Install interior cable (1), six clamps (9), screws (10), and new lockwashers (11) to hull.
8. Install interior cable (1), clamp (9), screw (10), and new lockwasher (11) to hull.
9. Connect interior cable (1) to jack 1J6 (12) on back of control panel (13).



FOLLOW-THROUGH STEPS

1. Install smoke generator assembly on bracket (WP 0755 00).
2. Install in-board armor shield (WP 0771 00).
3. Connect battery ground strap (WP 0337 00).
4. Set circuit breaker CB1 to ON (TM 3-1040-283-10).

END OF TASK

REPLACE/REPAIR SMOKE GENERATOR FUEL FILTER/WATER SEPARATOR (M1059A3 ONLY)

0773 00

THIS WORK PACKAGE COVERS:

Removal (page 0773 00-1).
Repair (page 0773 00-2).
Installation (page 0773 00-3).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts
Filter element gasket

Personnel Required
Unit Mechanic

References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Battery ground strap disconnected (WP 0337 00)

REMOVAL

NOTE

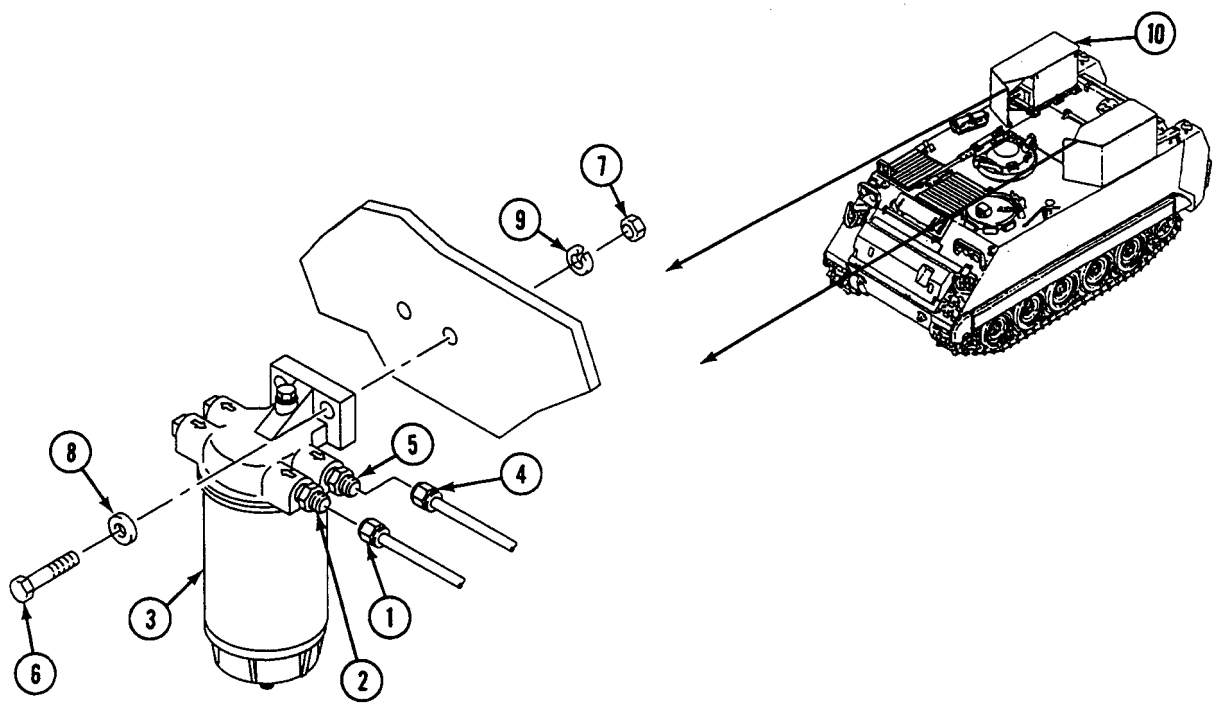
There are two fuel filter/water separators. One is located on the left side of the vehicle and the other on the right. Both are removed and installed the same way. Only one is shown.

Plug fuel hoses after removing to prevent leakage.

1. Remove fuel hose (1) from inlet tube adapter (2) on fuel filter/water separator (3).
2. Remove fuel hose (4) from outlet tube adapter (5) on fuel filter/water separator (3).

REPLACE/REPAIR SMOKE GENERATOR FUEL FILTER/WATER SEPARATOR (M1059A3 ONLY) — Continued **0773 00**

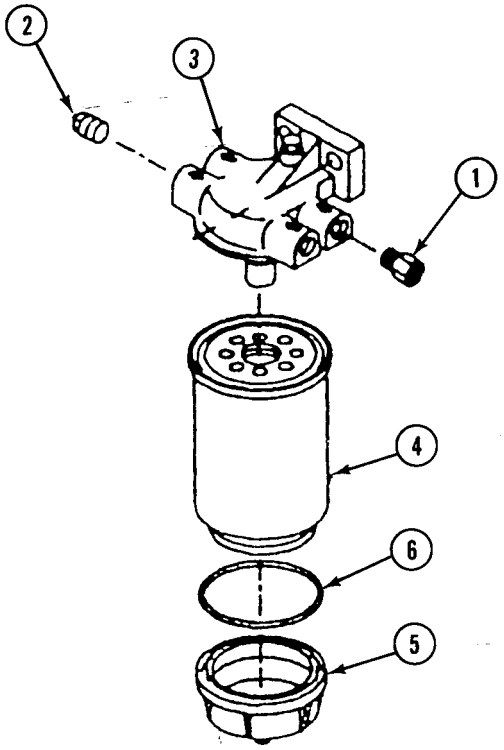
3. Remove two screws (6), nuts (7), washers (8), lockwashers (9), and fuel filter/water separator (3) from armor shield (10). Discard lockwashers.



REPAIR OR REPLACEMENT

1. Remove two adapters (1) and plugs (2) from filter head (3).
2. Remove filter head (3) and filter element body (4).
3. Remove sediment bowl (5) from filter element body (4). Discard filter element.
4. Remove gasket (6) from sediment bowl (5). Discard gasket.
5. Coat new gasket (6) with a small amount of fluid from filter head (3). Install gasket (6) on sediment bowl (5).
6. Install sediment bowl (5) on new filter element body (4).
7. Coat threaded part on top of filter element body (4) and install on filter head (3)

8. Install two plugs (2) and adapters (1) on filter head (3).

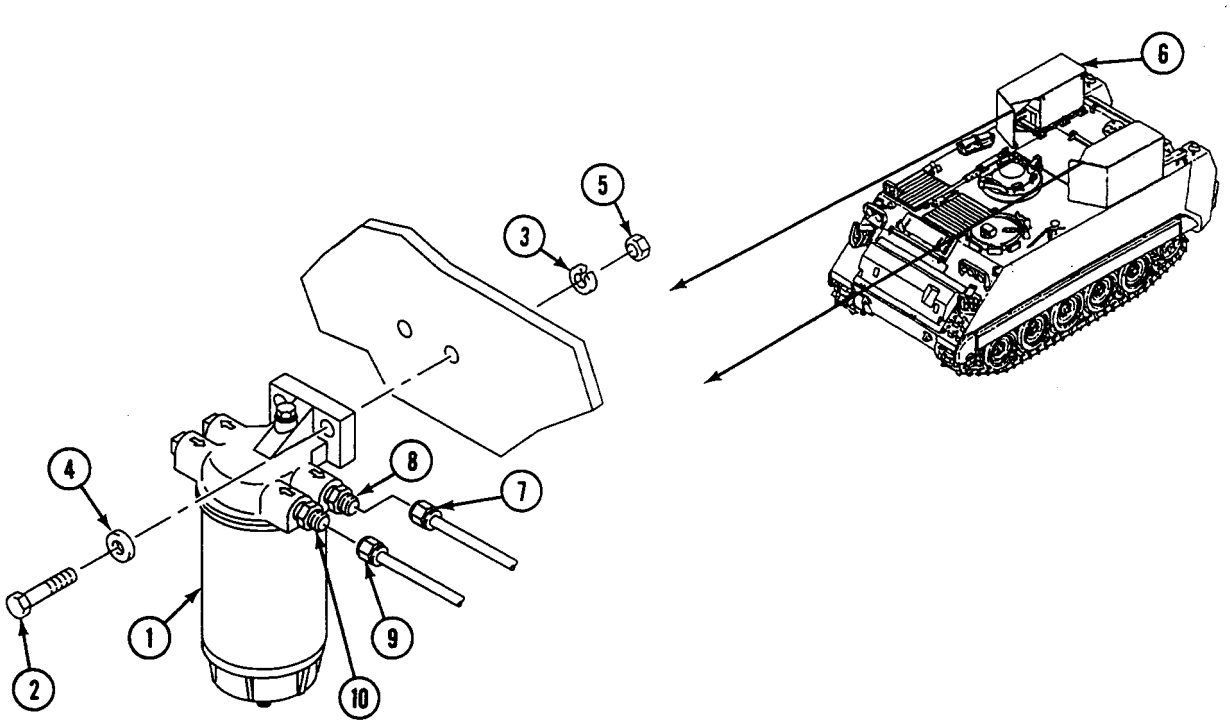


INSTALLATION

1. Install fuel filter/water separator (1), two screws (2), new lockwashers (3), washers (4), and nuts (5) on armor shield (6).
2. Connect fuel hose (7) to outlet tube adapter (8) on fuel filter/water separator (1).

REPLACE/REPAIR SMOKE GENERATOR FUEL FILTER/WATER SEPARATOR (M1059A3 ONLY) — Continued **0773 00**

3. Connect fuel hose (9) to inlet tube adapter (10) on fuel filter/water separator (1).



FOLLOW-THROUGH STEPS

1. Connect battery ground strap (WP 0337 00).

END OF TASK

REPLACE M14 AIR PURIFIER AND FRAME (M113A3 ONLY) 0774 00

THIS WORK PACKAGE COVERS:

Removal (page 0774 00-1).
Installation (page 0774 00-2).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts
Locknuts (24)
Locknuts (5)

Personnel Required
Unit Mechanic

References
See your -10
See FM 21-40
TM 3-6680-316-10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Battery ground strap disconnected (WP 0337 00)

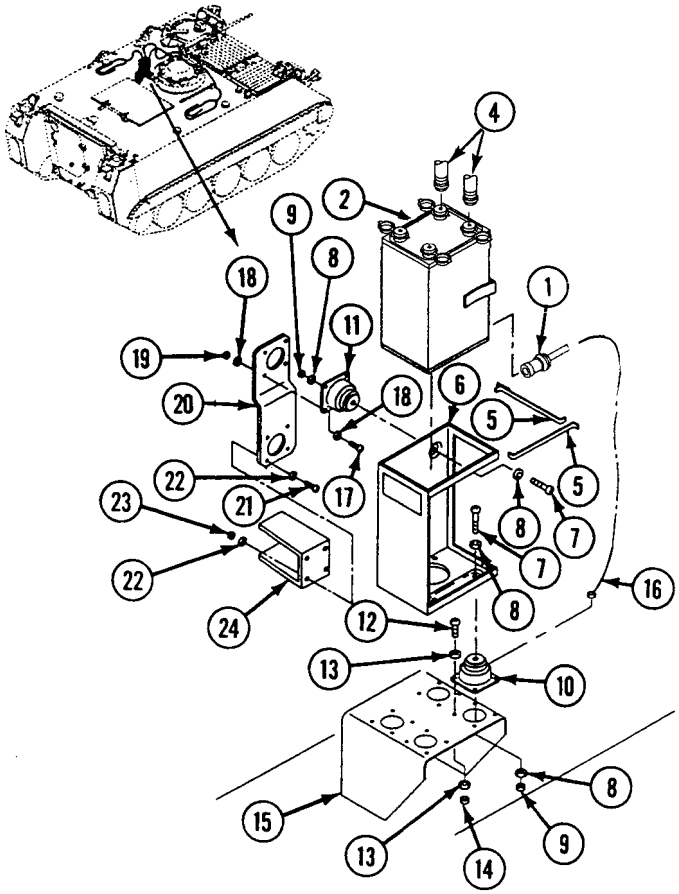
REMOVAL

WARNING

Contaminated filters are hazardous to personnel. Use precautions when handling filters (see FM 21-40). Dispose of filters using trained chemical environment personnel.

1. Disconnect power cable (1) from air purifier (2).
2. Remove three hoses (4) from air purifier (2).
3. Unfasten latch (5) and lift air purifier (2) from frame assembly (6).
4. Remove five screws (7), 10 washers (8), five locknuts (9), and frame assembly (6) from five mounts (10) and (11). Discard locknuts.
5. Remove 16 screws (12), 32 washers (13), 16 locknuts (14), and four mounts (10) from welded frame (15). Discard locknuts.
6. Remove ground wire lead (16).
7. Remove four screws (17), eight washers (18), four locknuts (19), and mount (11) from bracket (20). Discard locknuts.

8. Remove four screws (21), eight washers (22), four locknuts (23), and bracket (20) from welded frame (24). Discard locknuts.



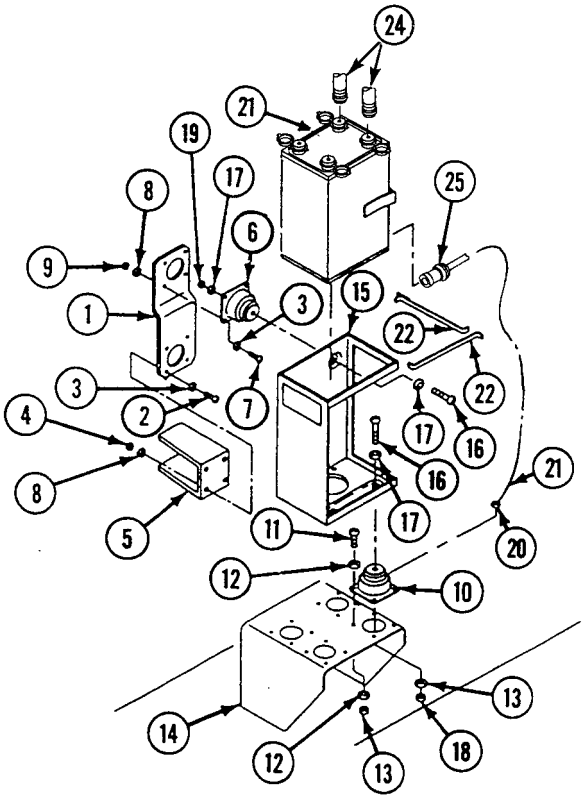
INSTALLATION

NOTE

Remove paint around mounting hole, beyond outside diameter of lockwasher. Install lockwasher against surface where paint was removed to ensure electrical grounding.

1. Install bracket (1), four screws (2), eight washers (3), and four new locknuts (4) on welded frame (5).
2. Install mount (6), four screws (7), eight washers (8), and four new locknuts (9) on bracket (1).
3. Install four mounts (10), 16 screws (11), 32 washers (12), and 16 new locknuts (13) on welded frame (14).
4. Install frame assembly (15), five screws (16), 10 washers (17), and five new locknuts (18) and (19) on five mounts (6) and (10). Do not tighten one outside locknut (18) for ground wire lead (20) connection.
5. Insert ground wire lead (20) and tighten locknut (18).
6. Place air purifier (21) in frame assembly (15) and close latch (22).
7. Install three hoses (24) onto the air purifier (21).

8. Connect power cable (25) to air purifier (21).



FOLLOW-THROUGH STEPS

1. Connect battery ground strap (WP 0337 00).
2. Adjust air purifier. See (TM 3-6680-316-10) for procedure.

END OF TASK

REPLACE NBC AIR PURIFIER AND FRAME (M113A3 ONLY) 0775 00

THIS WORK PACKAGE COVERS:

Removal (page 0775 00-1).
Installation (page 0775 00-2).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts
Lockwasher
Lockwasher
Lockwasher
Lockwashers (5)
Lockwashers (20)

Personnel Required
Unit Mechanic

References
See your -10
See FM 21-40
TM 3-6680-316-10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Battery ground strap disconnected (WP 0337 00)

REMOVAL

WARNING

Contaminated filters are hazardous to personnel. Use precautions when handling filters (see FM 21-40). Dispose of filters using trained chemical environment personnel.

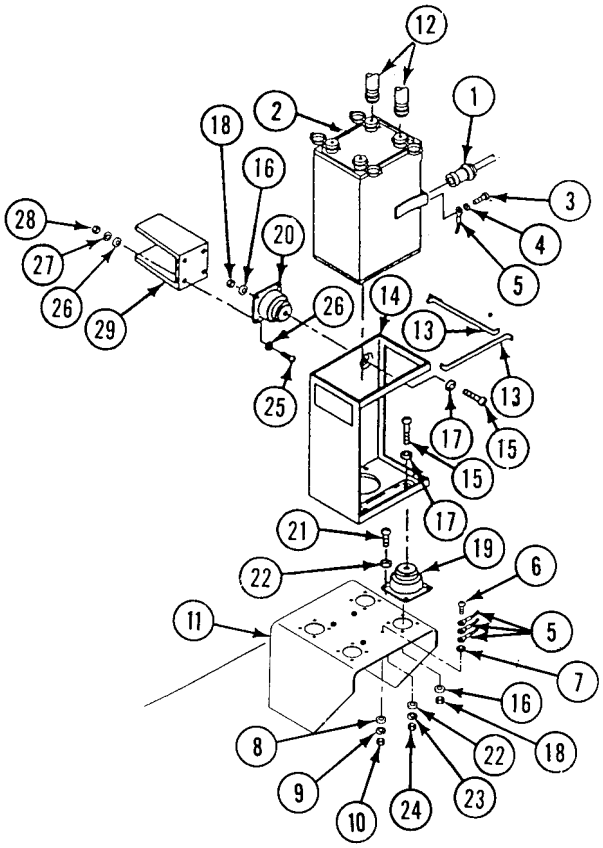
1. Disconnect power cable (1) from air purifier (2).

NOTE

To replace the ground lead, the mounting hardware securing the driver's heater to the welded frame needs to be removed.

2. Remove screw (3), lockwasher (4), and ground lead (5) from air purifier wiring harness connector (2). Install screw back into connector. Discard lockwasher.
3. If ground lead needs to be replaced, remove screw (6), three ground leads (5), lockwasher (7), washer (8), lockwasher (9), and nut (10) securing driver's heater under welded frame (11). discard lockwashers.
4. Disconnect two hoses (12) from air purifier (2).
5. Unfasten latch (13) and lift air purifier (2) from frame assembly (14).
6. Remove five screws (15), lockwashers (16), washers (17), nuts (18), and frame assembly (14) from five mounts (19) and (20). Discard lockwashers.
7. Remove 16 screws (21), 32 washers (22), 16 lockwashers (23), nuts (24), and four mounts (19) from welded frame (11). Discard locknuts.

8. Remove four screws (25), eight washers (26), four lockwashers (27), nuts (28), and mount (20) from welded frame (29). Discard lockwashers.



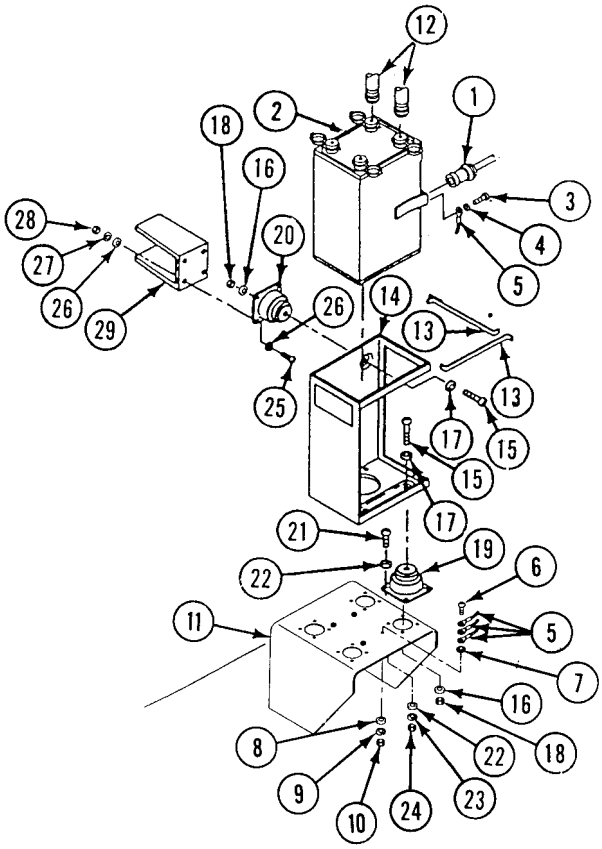
INSTALLATION

NOTE

Remove paint around mounting hole, beyond outside diameter of lockwasher. Install lockwasher against surface where paint was removed to ensure electrical grounding.

1. Install mount (20), four screws (25), four new lockwashers (27), eight washers (26), and nuts (28) on bracket (29).
2. Install four mounts (19), 16 screws (21), 32 washers (22), 16 new lockwashers (23), and nuts (24) on welded frame (11).
3. Install frame assembly (14), five screws (15), washers (17), new lockwashers (16), and nuts (18), on five mounts (19), (20).
4. Place air purifier (2) in frame assembly (14) and close latch (13).
5. Install two quick disconnect hoses (12) onto the air purifier (2) outlets.
6. If ground lead is being replaced, install screw (6), three ground leads (5), new lockwasher (7), washer (8), new lockwasher (9), and nut (10) securing driver's heater under welded frame (11).
7. Remove screw (3) from wiring harness connector on air purifier (2). Secure ground lead (5) to air purifier with screw (3) and new lockwasher (4).

8. Connect power cable (1) to air purifier (2).



FOLLOW-THROUGH STEPS

1. Connect battery ground strap (WP 0337 00).
2. Adjust air purifier. See TM 3-6680-316-10 for procedure.

END OF TASK

REPLACE NBC AIR PURIFIER AND FRAME (M577A3 ONLY) 0776 00

THIS WORK PACKAGE COVERS:

Removal (page 0776 00-1).
Installation (page 0776 00-2).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts
Lockwasher (4)

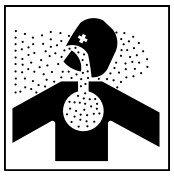
Personnel Required
Unit Mechanic

References
See your -10
See FM 21-40
TM 3-6680-316-10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Battery ground lead disconnected (WP 0338 00)

REMOVAL

WARNING



Contaminated filters are hazardous to personnel. Use precautions when handling filters (see FM 21-40). Dispose of filters using trained chemical environment personnel.

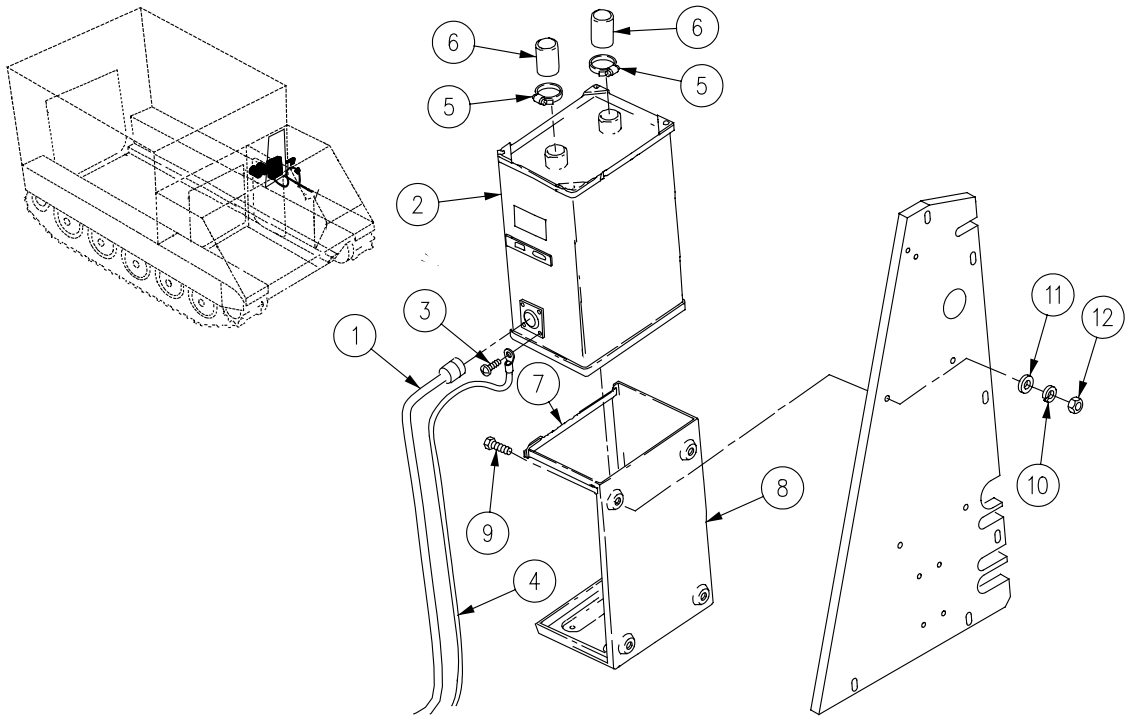
1. Disconnect power cable (1) from air purifier (2).
2. Remove screw (3) and ground strap (4) from air purifier (2). Reinstall screw (3) into air purifier (2).
3. Loosen two clamps (5) and remove two couplings (6) and clamps from air purifier (2).

NOTE

You may need to loosen clamps and turn hose tubes away to remove air purifier.

REPLACE NBC AIR PURIFIER AND FRAME (M577A3 ONLY) — Continued 0776 00

4. Unfasten latch (7) and lift air purifier (2) from frame assembly (8).
5. Remove four screws (9), four lockwashers (10), four washers (11), four nuts (12), and frame assembly (8) from plate. Discard lockwashers.



INSTALLATION

1. Install frame assembly (8), four screws (9), four new lockwashers (10), four washers (11), and four nuts (12) on plate.
2. Place air purifier (2) in frame assembly (8) and close latch (7).
3. Install two clamps (5) and couplings (6) on air purifier (2) and tighten clamps (5). Tighten all clamps to tubes and hoses.
4. Remove screw (3) from air purifier (2). Secure ground lead (4) with screw (3) to air purifier (2).
5. Connect power cable (1) to air purifier (2).

FOLLOW-THROUGH STEPS

1. Connect battery ground lead (WP 0338 00).
2. Adjust air purifier. See TM 3-6680-316-10 for procedure.

END OF TASK

REPLACE M8A3 NBC AIR PURIFIER AND FRAME (M1059A3 ONLY) 0777 00

THIS WORK PACKAGE COVERS:

Removal (page 0777 00-1).
Installation (page 0777 00-2).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts

Locknuts (20)
Locknuts (5)

Personnel Required

Unit Mechanic

References

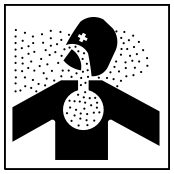
See your -10
See FM 3-5
TM 3-6680-316-10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Ramp lowered (see your -10)
Battery ground strap disconnected (WP 0337 00)

REMOVAL

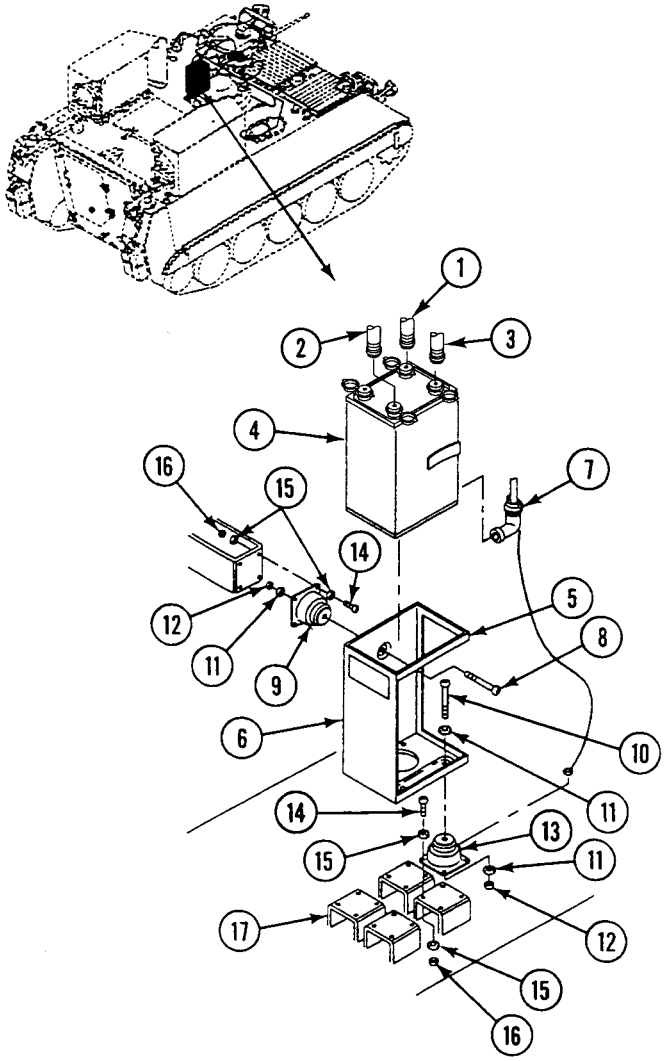
WARNING



Contaminated filters are hazardous to personnel. Use precautions when handling filters (see FM 3–5). Dispose of filters using trained chemical environment personnel.

1. Remove quick-disconnect fittings of hoses for driver's station (1), commander's station (2), and smoke operator's station (3) from air purifier (4).
2. Release latch (5) on frame (6) and remove air purifier (4).
3. Disconnect cable connector and ground cable assembly (7) from air purifier (4).
4. Loosen screw (8) from shock mount (9). Remove slotted ground lead from screw.
5. Remove five screws (10), 10 washers (11), five locknuts (12), and air purifier frame (6) from mounts (13). Discard locknuts.

6. Remove 20 screws (14), 40 washers (15), 20 locknuts (16), and five mounts (13) from welded brackets (17). Discard locknuts.



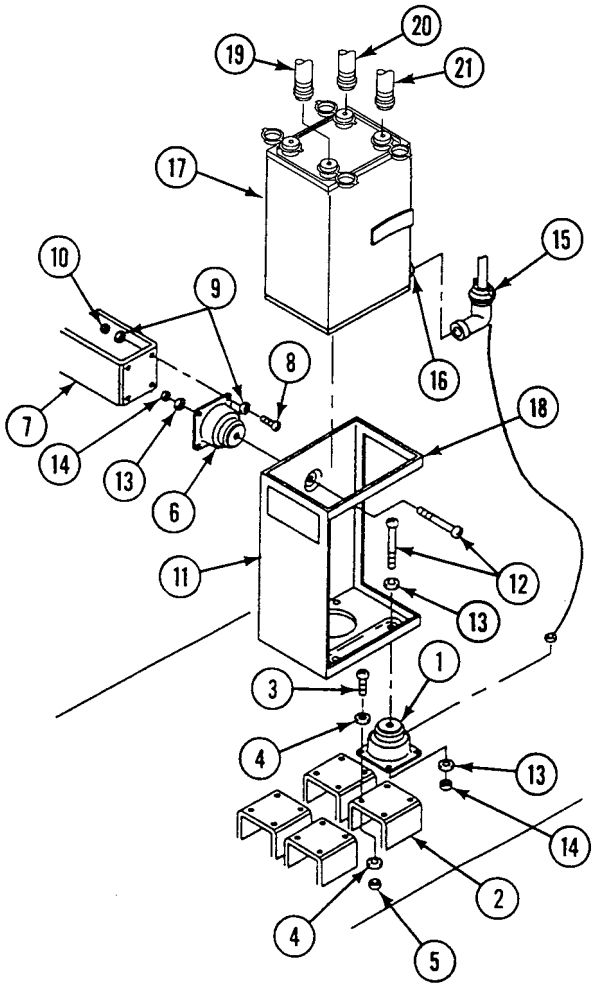
INSTALLATION

NOTE

Remove paint around mounting hole, beyond outside diameter of lockwasher. Install lockwasher against surface where paint was removed to ensure electrical grounding.

1. Attach four shock mount insulators (1) to welded brackets (2) on sponson behind driver with 16 screws (3), 32 washers (4), and 16 new locknuts (5).
2. Attach shock mount insulator (6) to welded bracket (7) mounted on side plate behind driver with four screws (8), eight washers (9), and four new locknuts (10).
3. Install air purifier frame (11) to five shock mounts (1). Secure with five screws (12), 10 washers (13), and five new locknuts (14).
4. Attach cable connector and ground cable assembly (15) to connector (16) on air purifier (17).

5. Loosen screw (12) on shock mount (6). Slide slotted end of ground cable (15) under screw (12). Tighten screw.
6. Install air purifier (17) in frame (11). Secure with latch (18).
7. Attach quick-disconnect fittings of hoses for driver's station (19), commander's station (20), and smoke operator's station (21) to air purifier (17).



FOLLOW-THROUGH STEPS

1. Connect battery ground strap (WP 0337 00).
2. Adjust air purifier. See TM 3-6680-316-10 for procedure.
3. Start engine (see your -10).
4. Raise and lock ramp (see your -10).
5. Stop engine (see your -10).

END OF TASK

REPLACE M8A3 AIR PURIFIER AND FRAME (M1059A3 ONLY) 0778 00

THIS WORK PACKAGE COVERS:

Removal (page 0778 00-1).
Installation (page 0778 00-3).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts
Locknut (24)
Locknut (5)

Personnel Required
Unit Mechanic

References
See your -10
See FM 3-5
TM 3-6680-316-10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Battery ground strap disconnected (WP 0337 00)

REMOVAL

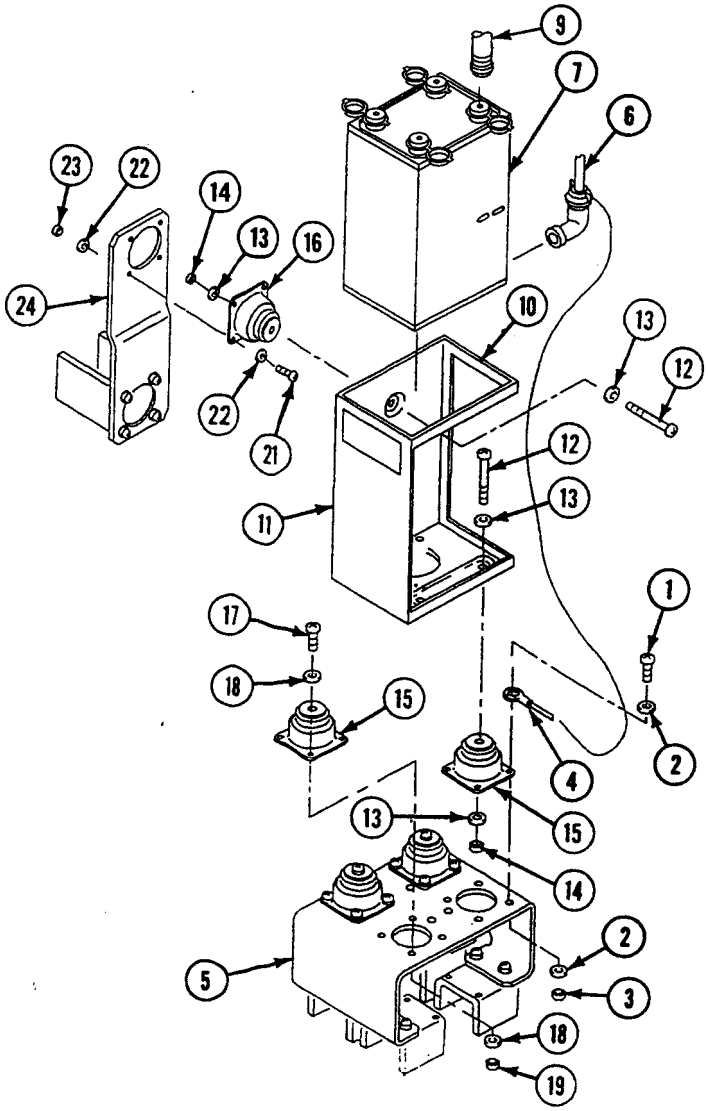
WARNING

Contaminated filters are hazardous to personnel. Use precautions when handling filters (see FM 3–5). Dispose of filters using trained chemical environment personnel.

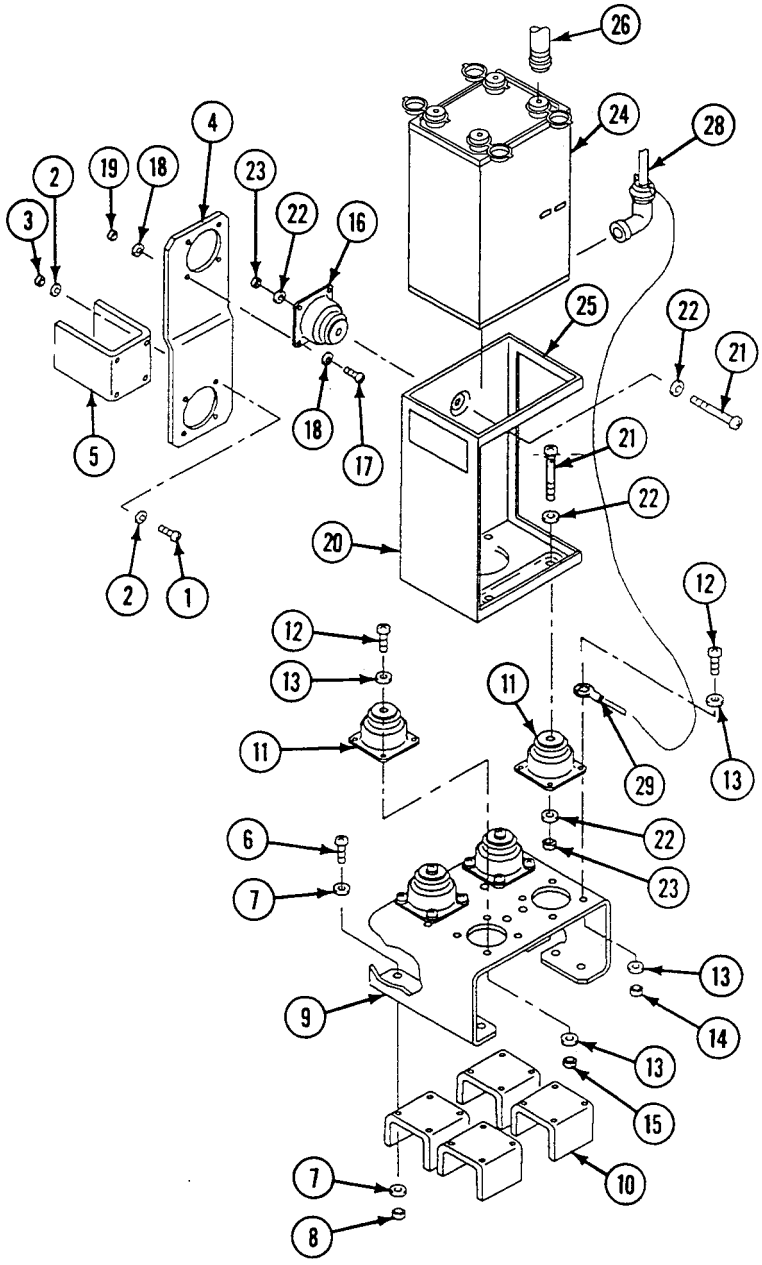
1. Remove screw (1), two washers (2), locknut (3), and ground lead (4) from bracket (5).
2. Disconnect power cable (6) from air purifier (7).
3. Remove quick disconnect fittings of three hoses (9) from air purifier (7).
4. Unfasten latch (10) and lift air purifier (7) from frame assembly (11).
5. Remove five screws (12), ten washers (13), five locknuts (14), and frame assembly (11) from centers of five mounts (15) and (16). Discard locknuts.
6. Remove 15 screws (17), 30 washers (18), 15 locknuts (19), and 4 mounts (15) from bracket (5). Discard locknuts.

REPLACE M8A3 AIR PURIFIER AND FRAME (M1059A3 ONLY) — Continued 0778 00

7. Remove four screws (21), eight washers (22), four locknuts (23), and mount (16) from bracket (24). Discard locknuts.



8. Remove eight screws (1), 16 washers (2), eight locknuts (3), and bracket (4) from welded mount (5). Discard locknuts.
9. Remove eight screws (6), 16 washers (7), eight locknuts (8), and bracket (9) from four sponson supports (10). Discard locknuts.

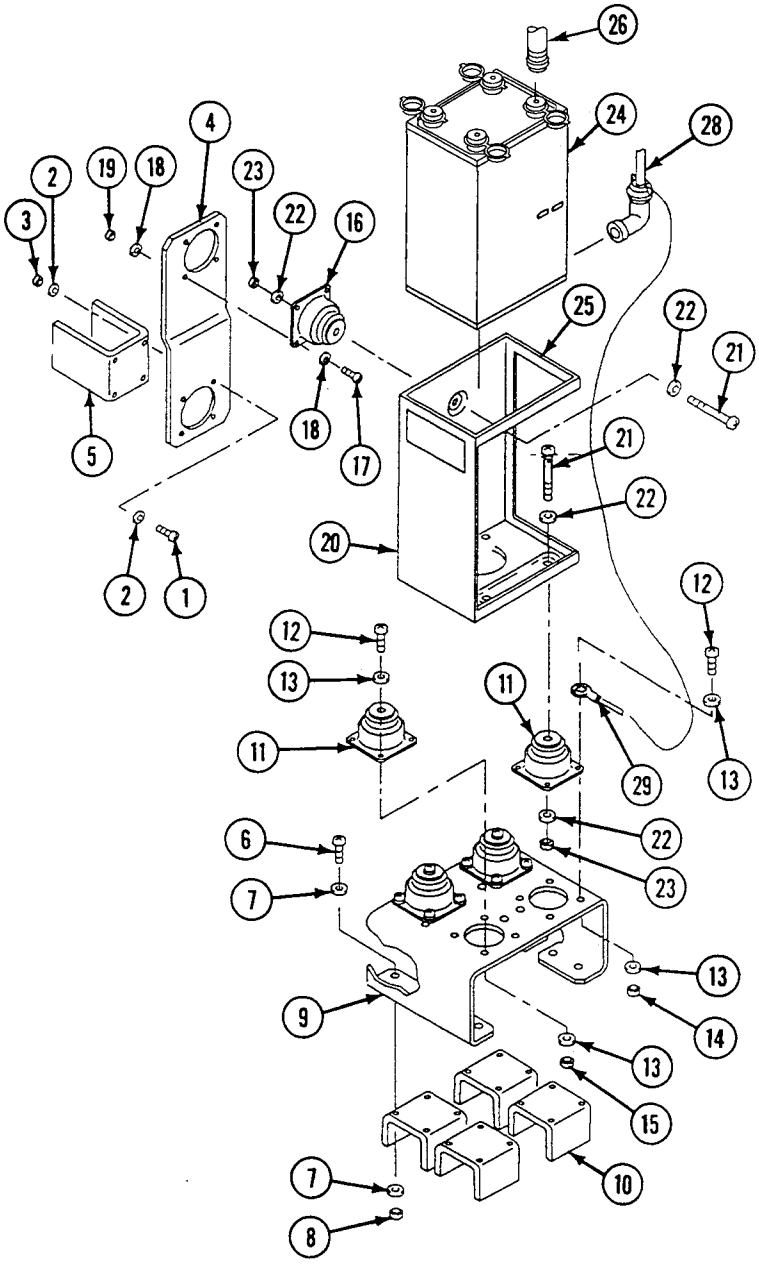


INSTALLATION

1. Install bracket (9), eight screws (6), 16 washers (7), and eight new locknuts (8) on four sponson supports (10).
2. Install bracket (4), eight screws (1), 16 washers (2), and eight new locknuts (3) on welded mount (5).
3. Install four mounts (11), 16 screws (12), 32 washers (13), and 16 new locknuts (14) and (15) on bracket (9). Do not tighten one outside locknut for ground lead connection.

REPLACE M8A3 AIR PURIFIER AND FRAME (M1059A3 ONLY) — Continued 0778 00

4. Install mount (16), four screws (17), eight washers (18), and four new locknuts (19) on bracket (4).
5. Install frame assembly (20), five screws (21), ten washers (22), and five new locknuts (23) in centers of five mounts (11) and (16).
6. Place air purifier (24) in frame assembly (20) and close latch (25).
7. Install quick disconnect fittings of three hoses (26) on air purifier (24).
8. Connect power cable (28) to air purifier (24).
9. Insert ground lead (29) between locknut (15) and bracket (9) and tighten locknut.



FOLLOW-THROUGH STEPS

1. Connect battery ground strap (WP 0337 00).
2. Adjust air purifier. See TM 3-6680-316-10 for procedure.

END OF TASK

REPLACE M13 AIR PURIFIER AND FRAME (M1068A3 ONLY) 0779 00

THIS WORK PACKAGE COVERS:

Removal (page 0779 00-1).
Installation (page 0779 00-3).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts
Locknut (2)
Lockwasher (2)

Personnel Required
Unit Mechanic

References
See your -10
See FM 21-40
TM 3-6680-316-10

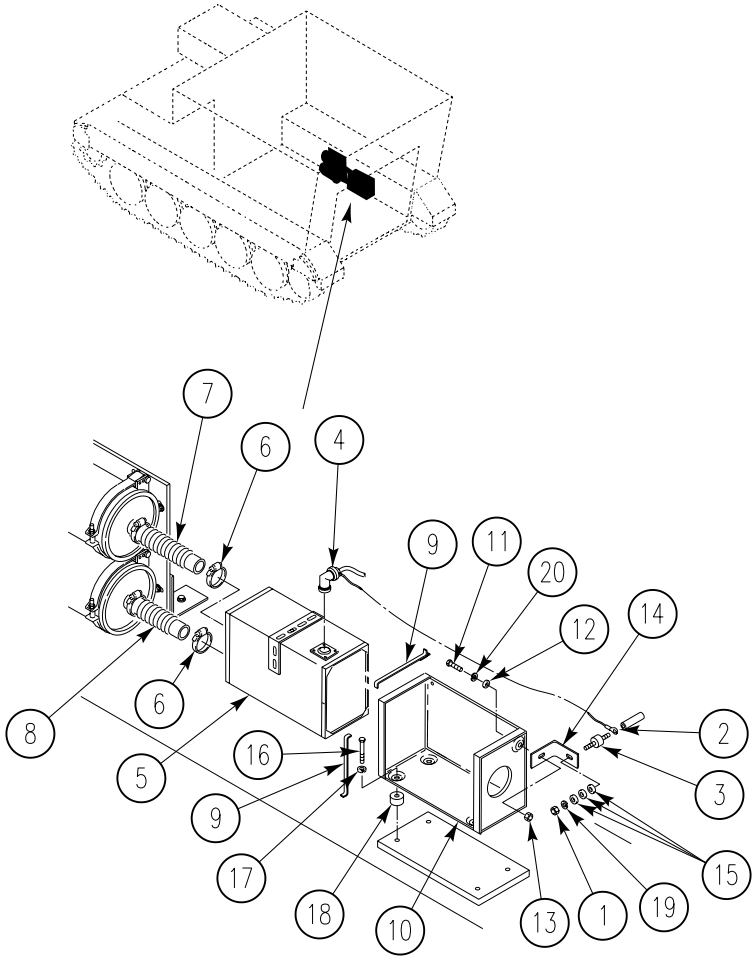
Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Battery ground lead disconnected (WP 0338 00)

REMOVAL

1. Loosen locknut (1) and remove ground lead (2) from air purifier mount (3).
2. Remove circuit lead 538A (4) with ground lead from air purifier (5).
3. Loosen two clamps (6) and remove two hoses (7) and (8) from air purifier (5).

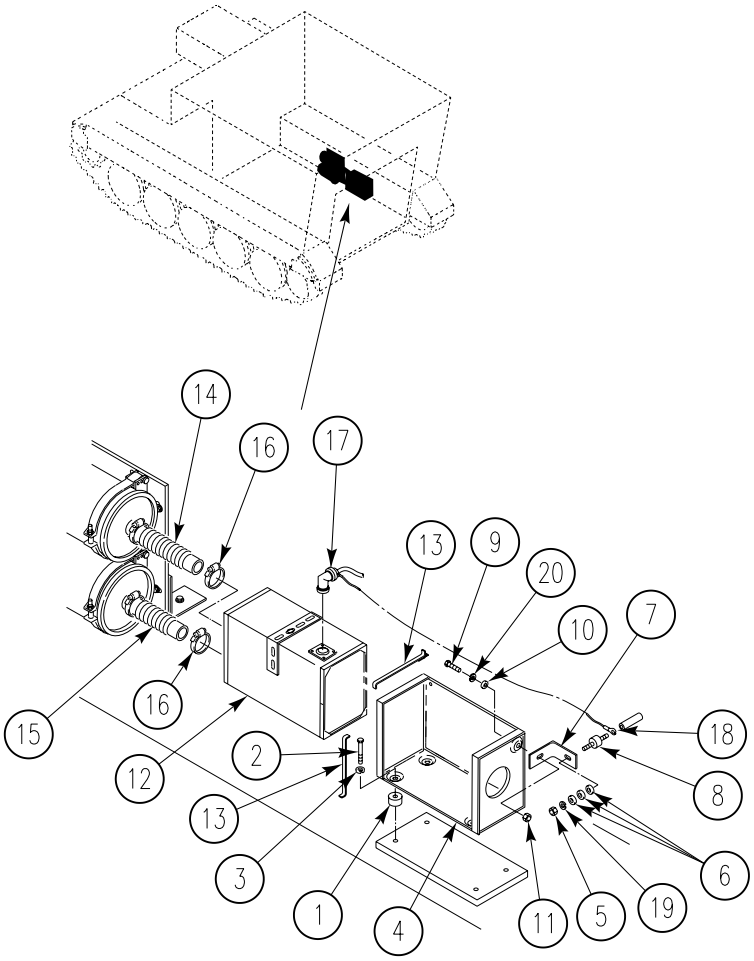
REPLACE M13 AIR PURIFIER AND FRAME (M1068A3 ONLY) — Continued 0779 00

4. Unfasten latch (9) and lift air purifier (5) from frame (10).
5. Remove screw (11), washer (12), lockwasher (20), locknut (13), and frame (10) from bracket (14). Discard locknut and lockwasher.
6. If damaged, remove locknut (1), three washers (15), one lockwasher (19), bracket (14), and mount (3) from sponson. Discard locknut and lockwasher.
7. Remove four screws (16), washers (17), and frame (10) from four mounts (18).
8. If damaged, remove mount(s) (18) from sponson.

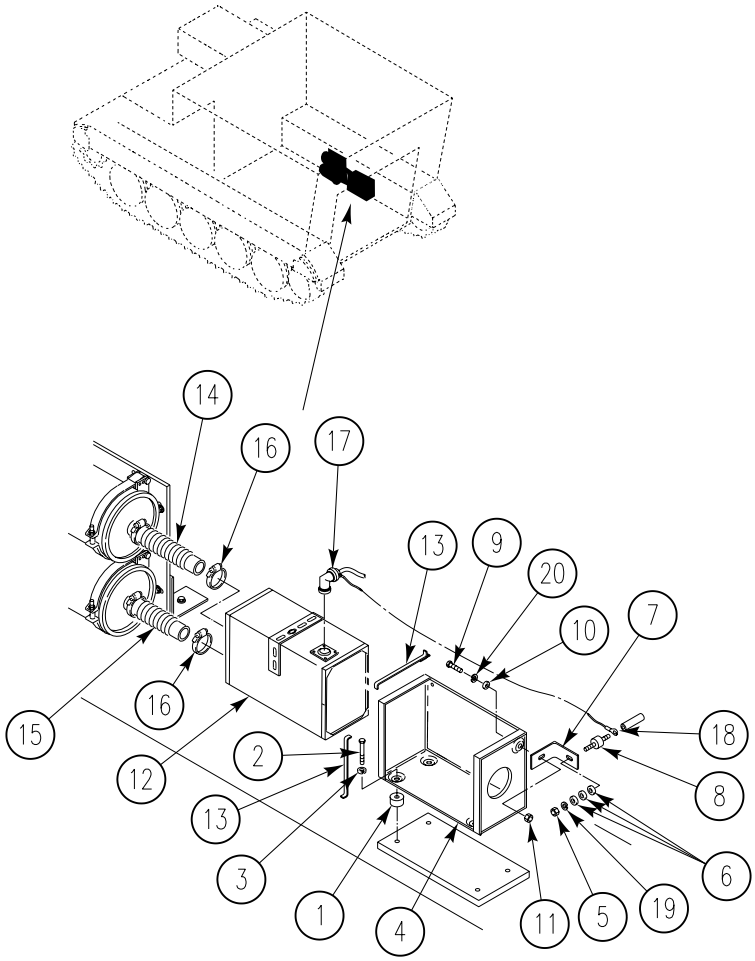


INSTALLATION

1. If removed, install mount(s) (1) on sponson.
2. Install four screws (2), flat washers (3), and frame (4) on mounts (1).
3. If removed, install new locknut (5), three washers (6), one new lockwasher (19), bracket (7), and mount (8) on sponson.



4. Install screw (9), washer (10), new lockwasher (20), new locknut (11), and frame (4) on bracket (7).
5. Place air purifier (12) in frame (4) and secure with latch (13).
6. Install two hoses (14) and (15) on air purifier (12). Tighten two clamps (16) on the two hoses.
7. Install circuit lead 538A (17) with ground lead on air purifier (12).
8. Install ground lead (18) on air purifier mount (8). Tighten locknut (5).



FOLLOW-THROUGH STEPS

1. Connect battery ground lead (WP 0338 00).
2. Adjust air purifier. See TM 3-6680-316-10 for procedure.
3. Start engine (see your -10).
4. Raise and lock ramp (see your -10).
5. Stop engine (see your -10).

END OF TASK

REPLACE M8A3/M14 ORIFICE CONNECTOR ASSEMBLY, SUPPORT, AND QUICK COUPLING HALF (M113A3, M1059A3, AND M577A3 ONLY) 0780 00

THIS WORK PACKAGE COVERS:

Removal (page 0780 00-1).
Installation (page 0780 00-4).

INITIAL SETUP:

Maintenance Level

Unit

Personnel Required

Unit Mechanic

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)
Retaining Ring Pliers Set (WP 0926 00, Item 32)

References

See your -10

Materials/Parts

Lockwasher
Lockwashers (2)

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Ramp lowered (see your -10)

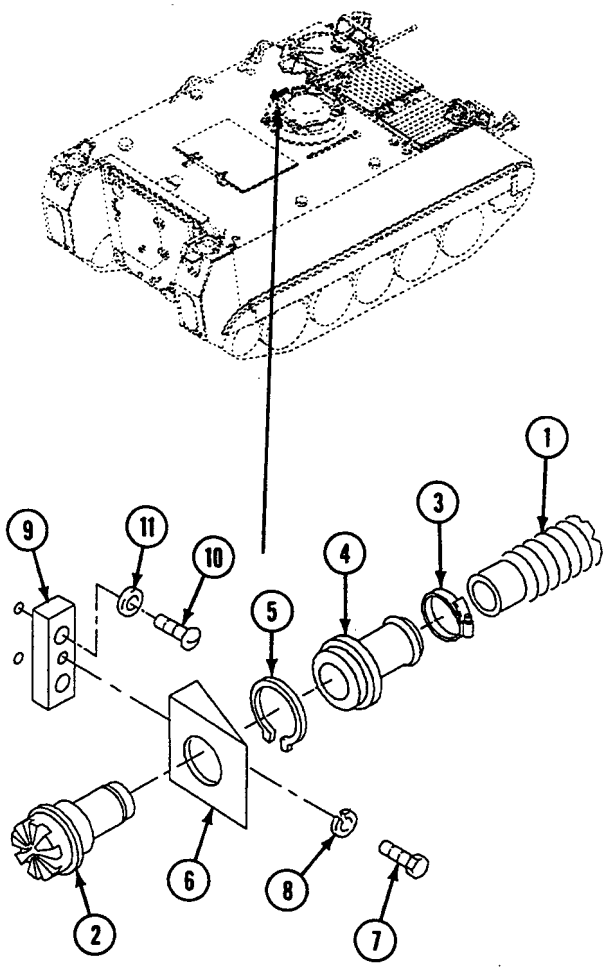
REMOVAL

1. Remove hose (1) from orifice connector assembly (2).
2. Disassemble clamp (3), quick coupling half (4) and hose (1).
3. Remove retaining ring (5) from orifice connector assembly (2).

REPLACE M8A3/M14 ORIFICE CONNECTOR ASSEMBLY, SUPPORT, AND QUICK COUPLING HALF (M113A3, M1059A3, AND M577A3 ONLY) — Continued

0780 00

4. Remove orifice connector assembly (2) from mounting bracket (6).

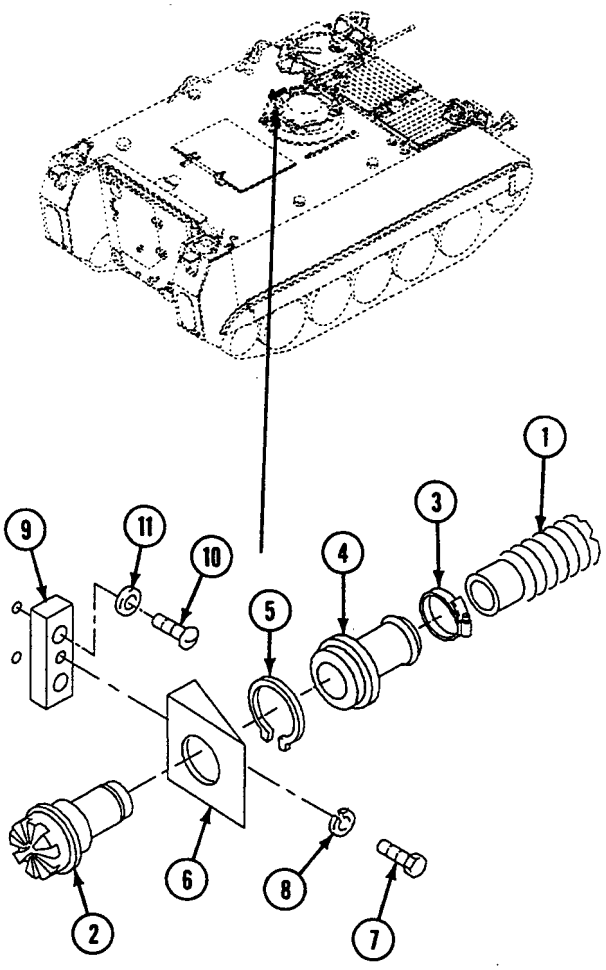


REPLACE M8A3/M14 ORIFICE CONNECTOR ASSEMBLY, SUPPORT, AND QUICK COUPLING HALF (M113A3, M1059A3, AND M577A3 ONLY) — Continued **0780 00**

NOTE

Mounting brackets are secured directly to the vehicle bulkhead or a support. Both options are covered in this task.

5. Remove screw (7), lockwasher (8), and mounting bracket (6) from bulkhead or support (9). Discard lockwasher.
6. Remove two screws (10), lockwashers (11), and support (9). Discard lockwashers.

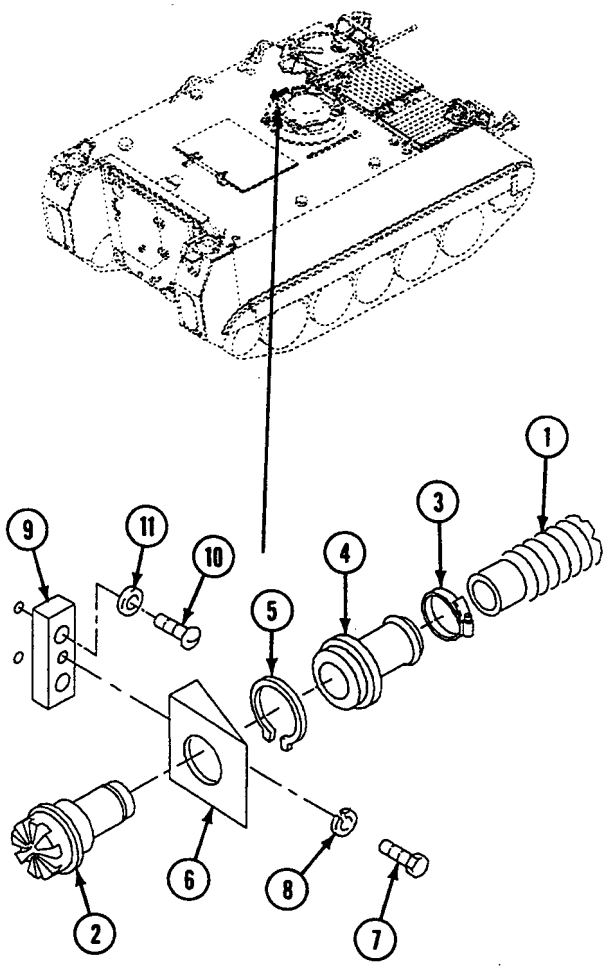


REPLACE M8A3/M14 ORIFICE CONNECTOR ASSEMBLY, SUPPORT, AND QUICK COUPLING HALF (M113A3, M1059A3, AND M577A3 ONLY) — Continued

0780 00

INSTALLATION

1. Install two screws (10), new lockwashers (11), and support (9) on bulkhead.
2. Install screw (7), new lockwasher (8), and mounting bracket (6) on support (9).
3. Install orifice connector assembly (2) into mounting bracket (6). Secure with retaining ring (5).
4. Assemble quick coupling half (4), hose (1), and clamp (3).
5. Install hose (1) on orifice connector assembly (2).



FOLLOW-THROUGH STEPS

1. Raise and secure ramp (see your -10).

END OF TASK

REPLACE M13 ORIFICE CONNECTOR ASSEMBLY, BRACKET, AND QUICK COUPLING HALF (M1068A3 ONLY) 0781 00

THIS WORK PACKAGE COVERS:

Removal (page 0781 00-1).
Installation (page 0781 00-2).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)
Retaining Ring Pliers Set (WP 0926 00, Item 32)

Materials/Parts

Lockwasher
Lockwasher (2)

Personnel Required

Unit Mechanic

References

See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Ramp lowered (see your -10)

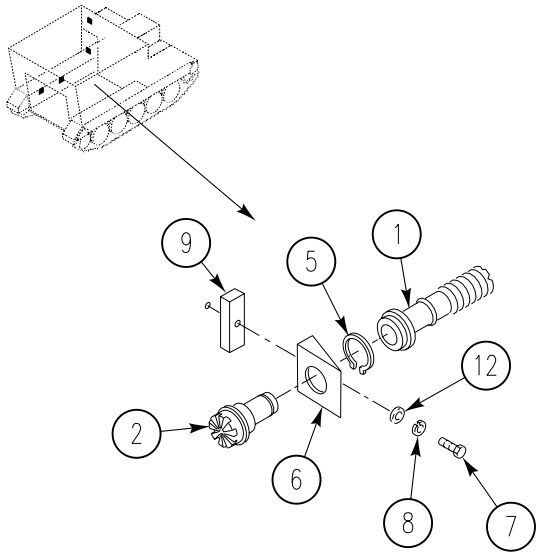
REMOVAL

1. Remove hose (1) from orifice connector assembly (2).
2. Remove retaining ring (5) from orifice connector assembly (2).
3. Remove orifice connector assembly (2) from mounting bracket (6).

NOTE

Mounting brackets are secured to a support or a vehicle mounting bracket. To remove mounting bracket from support go to Step 4. To remove mounting bracket from vehicle mounting bracket go to Step 5.

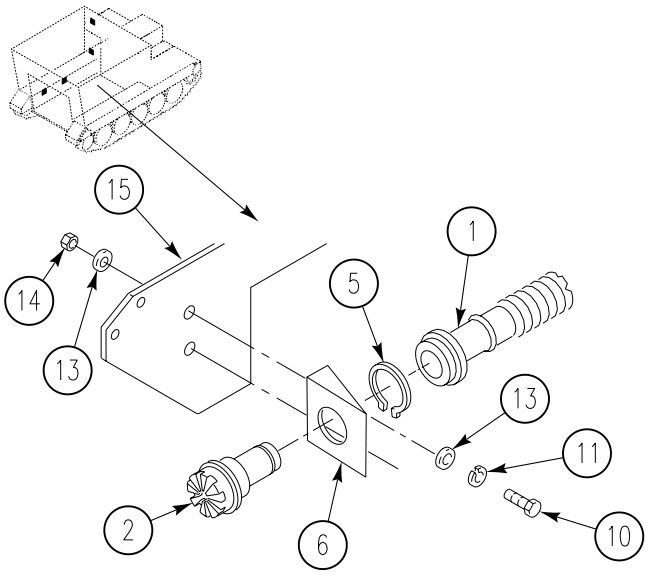
4. Remove screw (7), lockwasher (8), washer(12), and mounting bracket (6) from support (9). Discard lockwasher.



REPLACE M13 ORIFICE CONNECTOR ASSEMBLY, BRACKET, AND QUICK COUPLING HALF (M1068A3 ONLY) — Continued

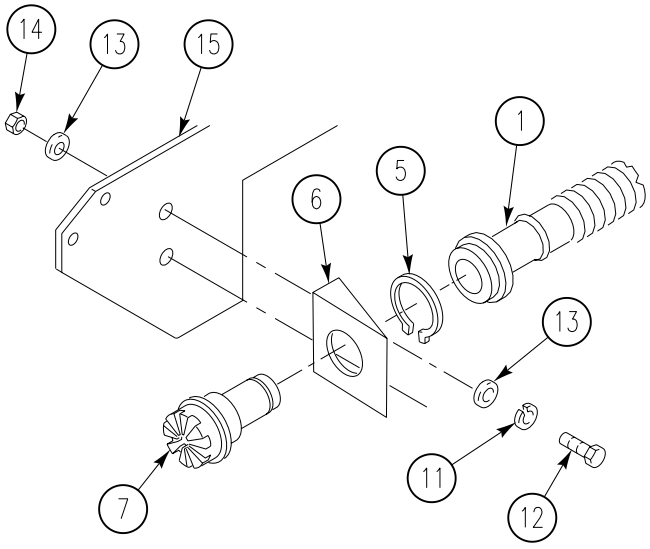
0781 00

5. Remove two screws (10), lockwashers (11), nuts (14), four washers(13), and mounting bracket (6) from vehicle mounting bracket (15). Discard lockwashers.



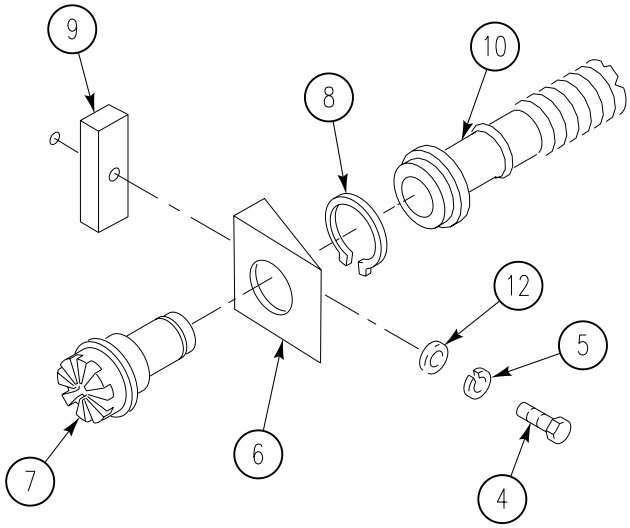
INSTALLATION

1. Install four washers (13), two new lockwashers (11), screws (12), and mounting bracket (6) on vehicle mounting bracket (15).
2. Install orifice connector assembly (7) into mounting bracket (6). Secure with retaining ring (5).
3. Install hose (1) on orifice connector assembly (7).



REPLACE M13 ORIFICE CONNECTOR ASSEMBLY, BRACKET, AND QUICK COUPLING HALF (M1068A3 ONLY) — Continued **0781 00**

4. Install screw (4), new lockwasher (5), washer (12), and mounting bracket (6) on support (9).
5. Install orifice connector assembly (7) into mounting bracket (6). Secure with retaining ring (8).
6. Install hose (10) on orifice connector assembly (7).



FOLLOW-THROUGH STEPS

1. Raise and secure ramp (see your -10).

END OF TASK

REPLACE M3 NBC HEATER HOSES AND FITTINGS (M113A3 ONLY) 0782 00

THIS WORK PACKAGE COVERS:

Removal (page 0782 00-1).
Installation (page 0782 00-4).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts

Lockwasher (10)
Straps (as required)

Personnel Required

Unit Mechanic

References

See your -10

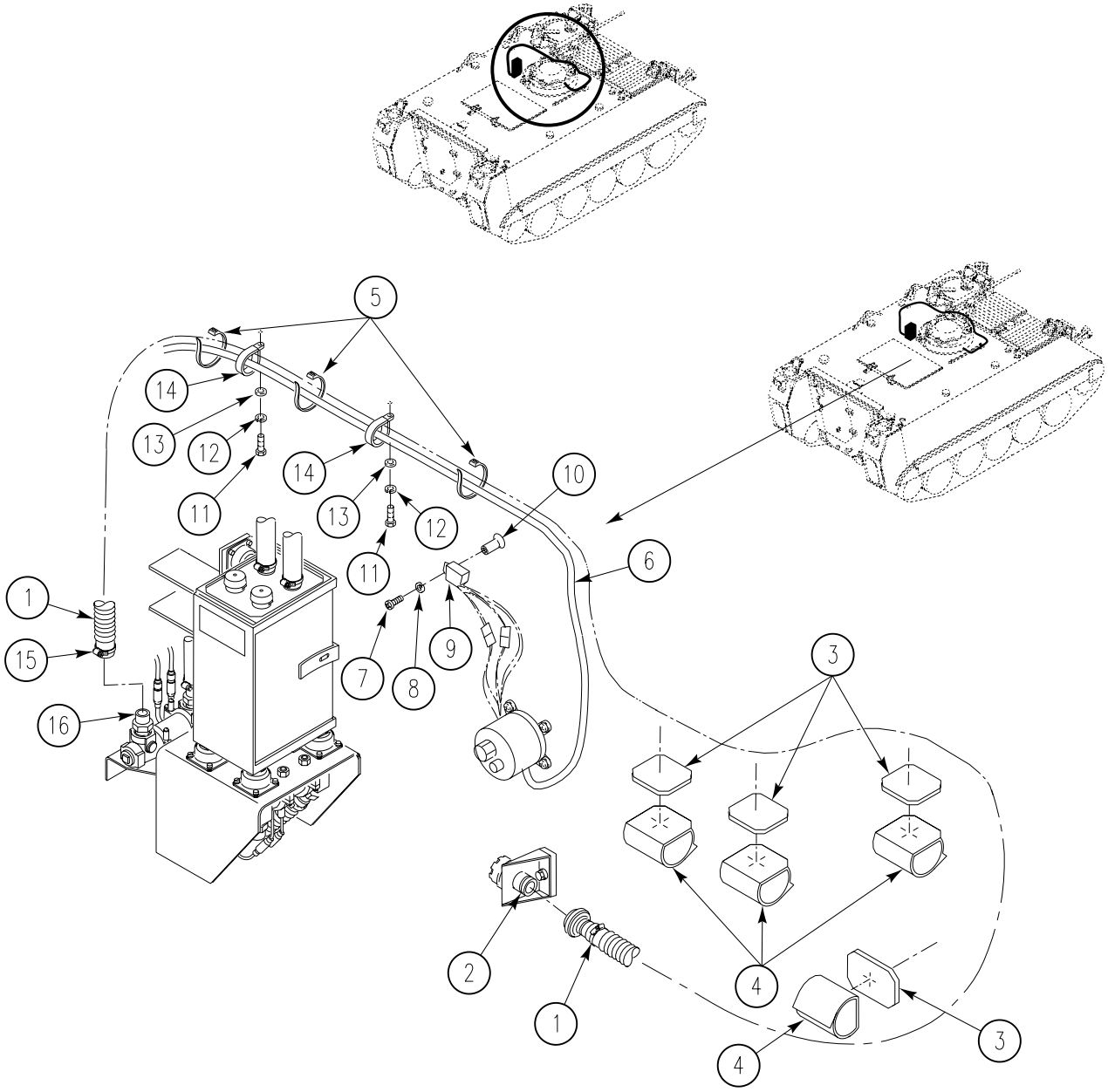
Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Battery ground strap disconnected (WP 0337 00)

REMOVAL

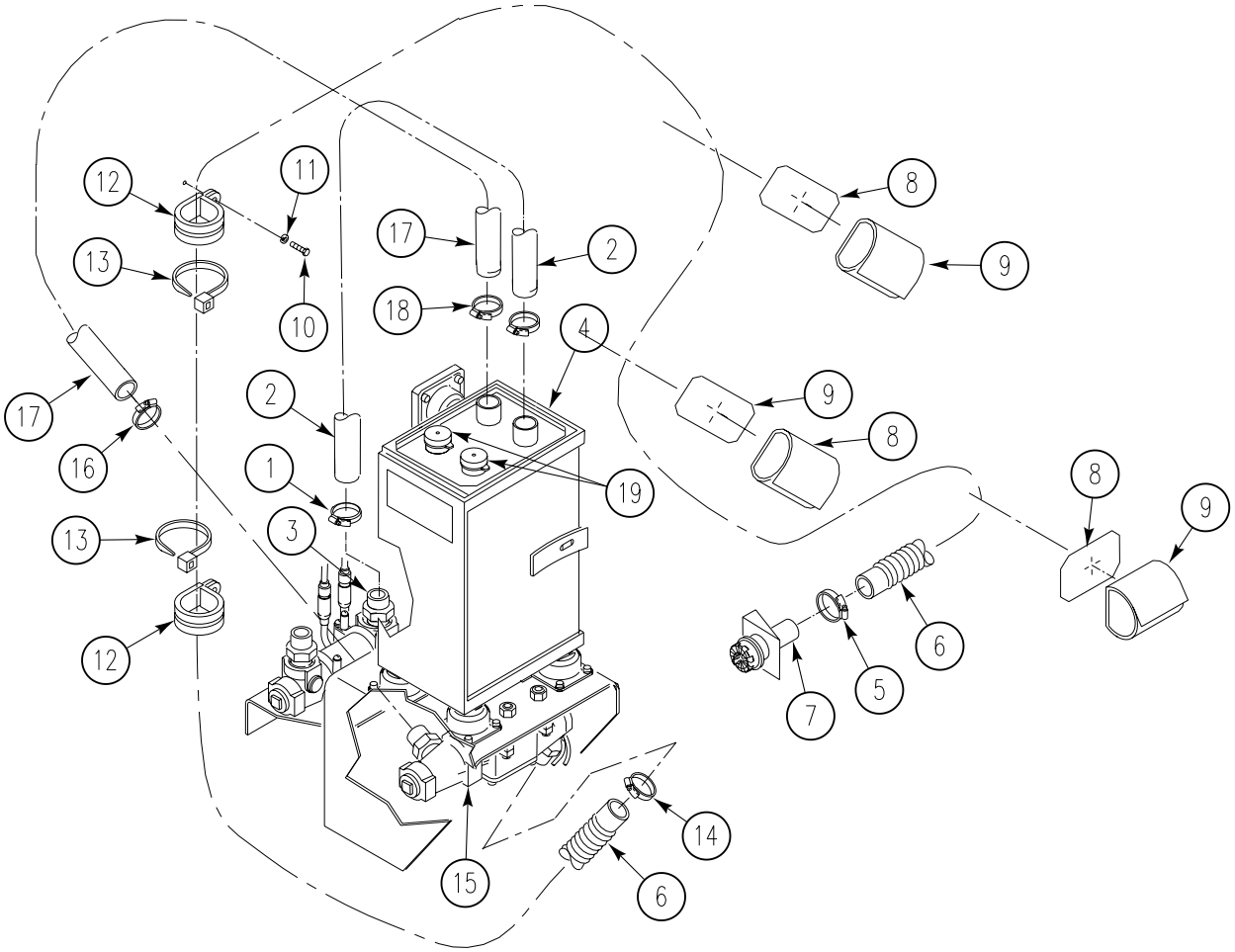
1. Remove commander's station hose (1) from connector (2) and four web straps (3).
2. If web straps (4) or fastener tape (3) are damaged, remove from bulkhead or top plate, as required.
3. Cut and remove all straps (5) securing electrical leads (6) to commander's station hose (1). Discard straps.
4. Remove screw (7), lockwasher (8), and jumper assembly (9) from weld nut (10). Discard lockwashers.
5. Remove two screws (11), lockwasher (12), washer (13) and clamp (14) from top plate. Remove two clamps from commander's station hose (1). Discard lockwashers.

6. Loosen clamp (15) on commander's station hose (1). Remove hose from heater (16).



REPLACE M3 NBC HEATER HOSES AND FITTINGS (M113A3 ONLY) — Continued 0782 00

7. Loosen clamp (1) on commander's station inlet hose (2). Remove hose from heater (3).
8. Remove inlet quick disconnect hose (2) on air purifier (4).
9. Loosen clamp (5) on driver's station hose (6). Remove hose from connector (7) and three web straps (8) on driver's bulkhead.
10. If web straps (9) or fastener tapes (8) are damaged, remove from hull, as required.
11. Remove two screws (10), lockwashers (11), and clamps (12) from bulkhead. Remove clamps from driver's station hose (6). Discard lockwashers.
12. Cut and remove all straps (13) securing electrical leads to driver's station hose (6). Discard straps.
13. Loosen clamp (14) on driver's station hose (6). Remove hose from heater (15).
14. Remove driver's station hose (17) from air purifier (4).
15. Loosen clamp (16) on driver's station inlet hose (17). Remove quick disconnect from hose (17).
16. Remove two plugs (19) from outlets on air purifier (4).



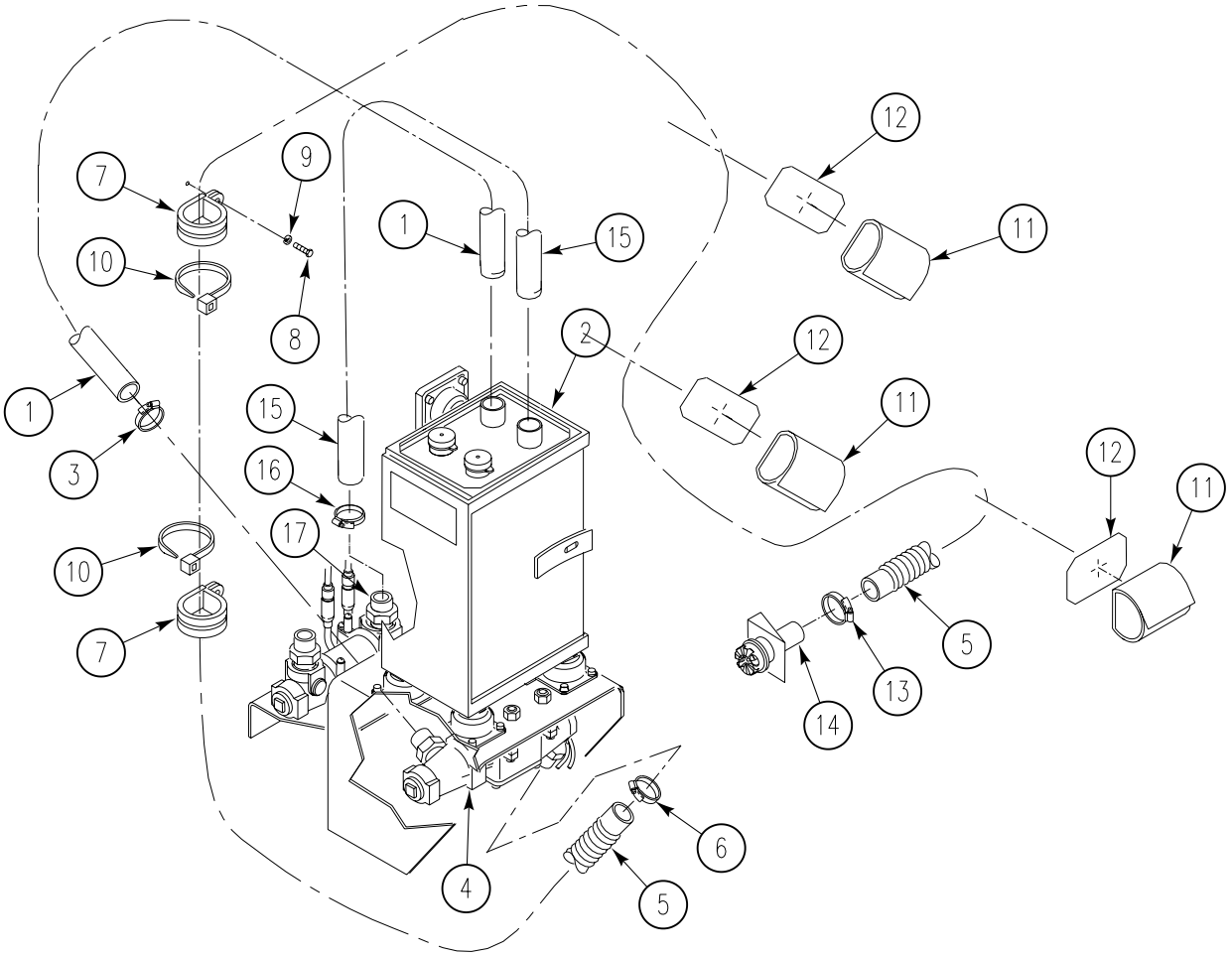
INSTALLATION

1. Install driver's station inlet hose (1) on air purifier (2).
2. Install driver's station inlet hose (1) and clamp (3) on heater (4). Tighten clamp.
3. Install driver's station hose (5) and clamp (6) on heater (4). Tighten clamp.

NOTE

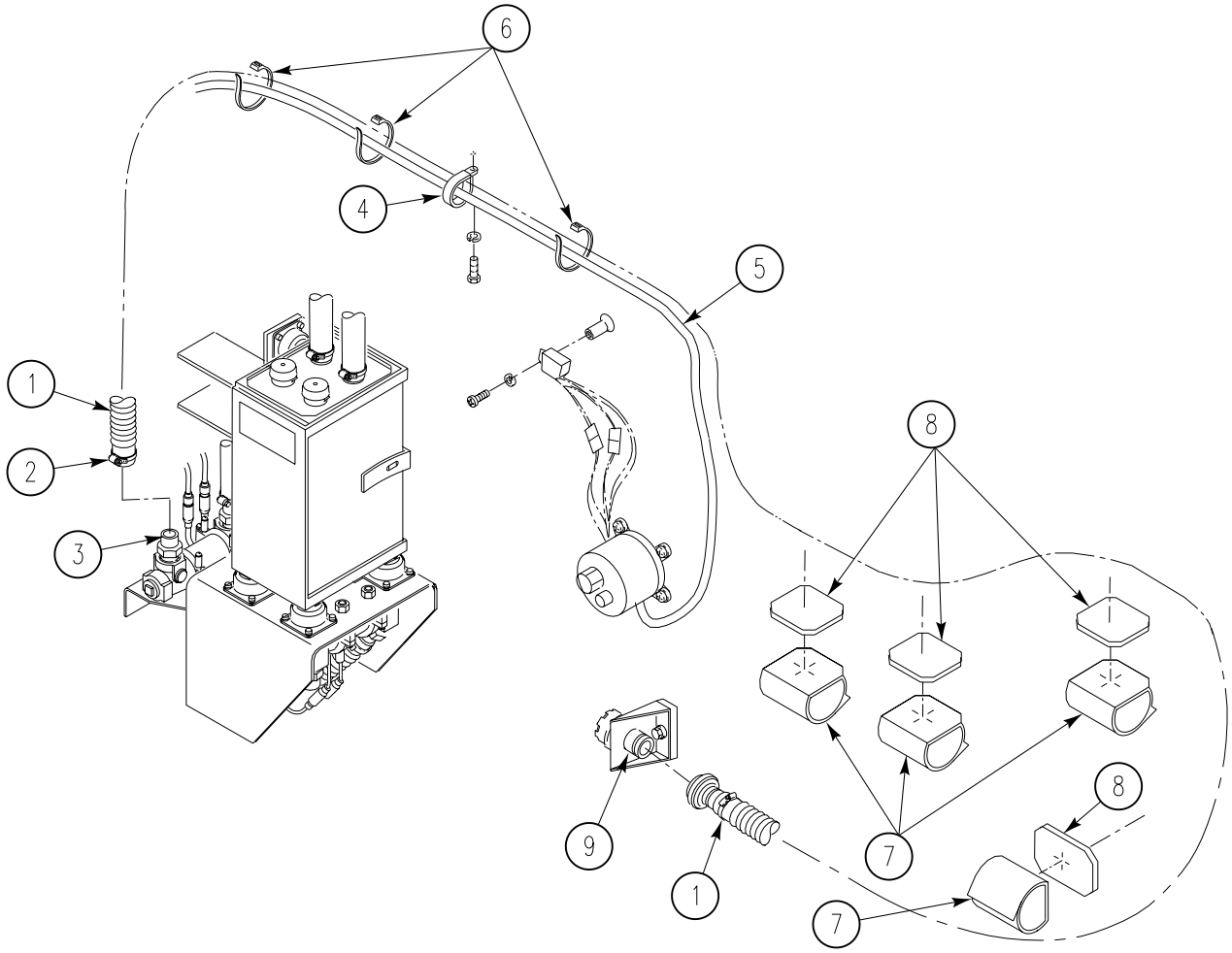
Hoses can go into any of the four outlets. The two open outlets have to be covered with plugs to keep the air pressure balanced.

4. Install two clamps (7) on driver's station hose (5). Secure clamps to bulkhead with two screws (8) and new lockwashers (9).
5. Secure electrical leads to driver's station hose (5) with new straps (10) as required.
6. If removed, clean hull, remove backing paper and firmly install new fastener tape (12) against the hull. Install the web strap (11) to tape (12).
7. Install driver's station hose (5) in three web straps (12) on bulkhead.
8. Install driver's station hose (5) and clamp (13) on connector (14). Tighten clamp.
9. Install commander's station inlet hose (15) on air purifier (2).
10. Install commander's station inlet hose (15) and clamp (16) on heater (17). Tighten clamp.



REPLACE M3 NBC HEATER HOSES AND FITTINGS (M113A3 ONLY) — Continued 0782 00

11. Install commander's station hose (1) and clamp (2) on heater (3). Tighten clamp.
12. Install clamp (4) on commander's station hose (1).
13. Secure electrical leads (5) to commander's station hose (1) with new straps (6) as required.
14. If removed, clean hull, remove backing paper and firmly install new fastener tape (8) against the front bulkhead or top plate. Install the web straps (7) to the tapes (8).
15. Install commander's station hose (1) in three web straps (7) on front bulkhead and top plate.
16. Install commander's station hose (1) on connector (9).



FOLLOW-THROUGH STEPS

1. Connect battery ground strap (WP 0337 00).
2. Check/adjust air flow of NBC system. Follow procedures in TM 3-6680-316-10.
3. Start engine (see your -10).
4. Raise and lock ramp (see your -10).
5. Stop engine (see your -10).

END OF TASK

REPLACE M14 NBC HOSES AND BRACKETS (M113A3 AMBULANCE ONLY) 0783 00

THIS WORK PACKAGE COVERS:

Removal (page 0783 00-1).
Installation (page 0783 00-4).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts
Lockwasher (21)

Personnel Required
Unit Mechanic

References
See your -10

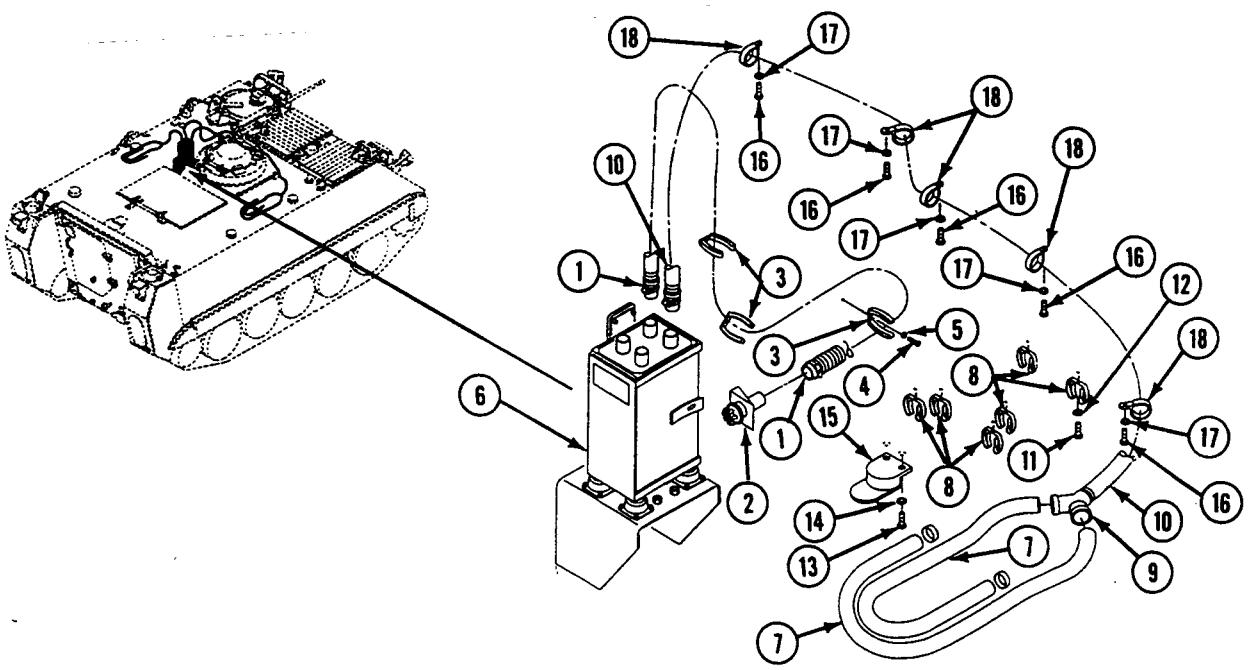
Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Ramp lowered (see your -10)
Battery ground strap disconnected (WP 0337 00)

REMOVAL

1. Remove driver's hose (1) from connector (2) and three clips (3).
2. Remove three screws (4), lockwashers (5), and clips (3) from driver's bulkhead. Discard lockwashers.
3. Loosen clamp and remove hose (1) from air purifier (6).
4. Remove two hoses (7) from six spring clips (8) and Y-connector (9) on hose assembly (10).
5. Remove six screws (11), lockwashers (12), and clips (8) from top plate. Discard lockwashers.
6. Remove two screws (13), washers (14), and bracket (15) from top plate.
7. Loosen clamp and remove hose (10) from air purifier (6)

REPLACE M14 NBC HOSES AND BRACKETS (M113A3 AMBULANCE ONLY) — Continued **0783 00**

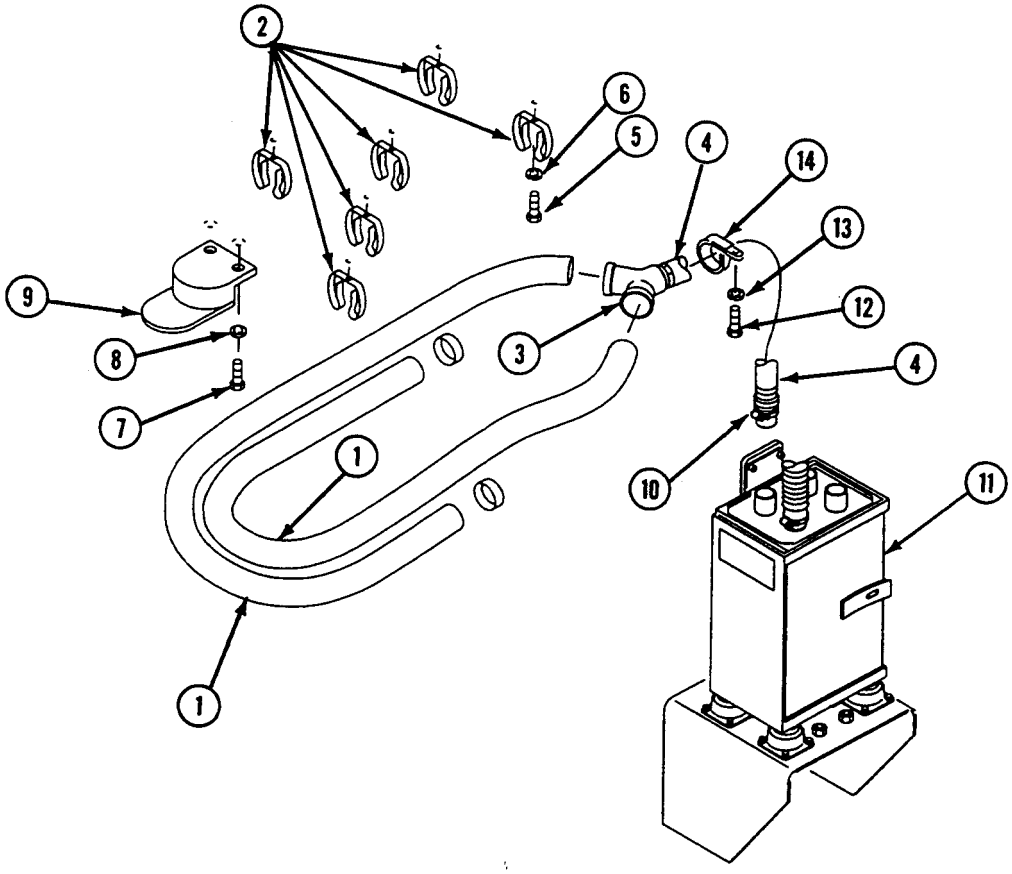
8. Remove five screws (16), lockwashers (17), and clamps (18) from top plate. Remove clamps from hose assembly (10). Discard lockwashers.



9. Remove two hoses (1) from six spring clips (2) and Y-connector (3) on hose assembly (4).
10. Remove six screws (5), lockwashers (6), and clips (2) from top plate. Discard lockwashers.
11. Remove two screws (7), washers (8), and bracket (9) from top plate.
12. Loosen clamp (10) and remove hose (4) from air purifier (11).

REPLACE M14 NBC HOSES AND BRACKETS (M113A3 AMBULANCE ONLY) — Continued **0783 00**

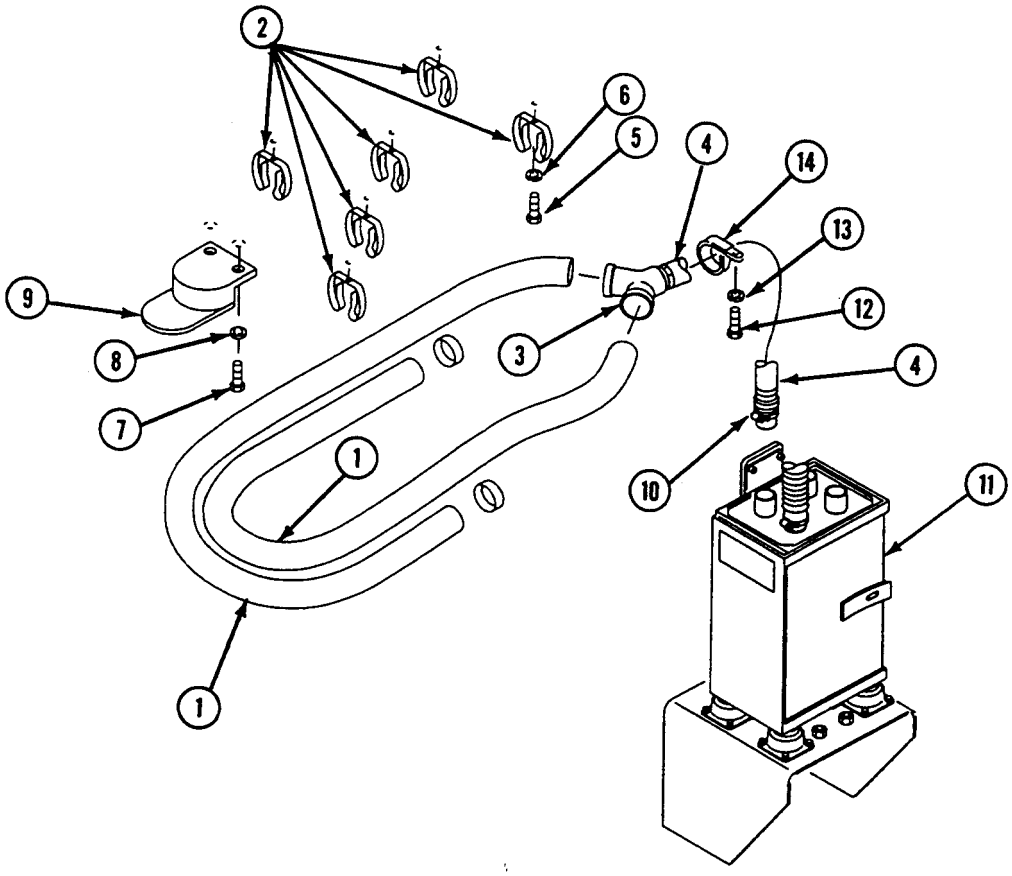
13. Remove screw (12), lockwasher (13), and clamp (14) from top plate. Remove clamps from hose assembly (4). Discard lockwashers.



REPLACE M14 NBC HOSES AND BRACKETS (M113A3 AMBULANCE ONLY) — Continued **0783 00**

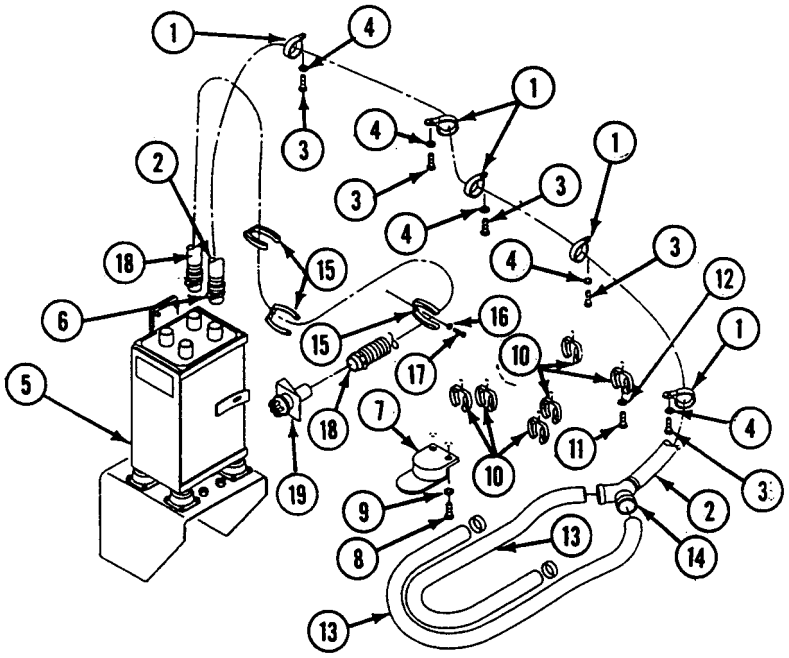
INSTALLATION

1. Install clamp (14) on hose assembly (4). Secure clamp to top plate with screw (12) and new lockwasher (13).
2. Install hose assembly (4) on air purifier (11) and tighten clamp (10) on hose (4).
3. Install bracket (9), two screws (7) and washers (8) on top plate.
4. Install six clips (2), screws (5), and new lockwashers (6) on top plate.
5. Install two hoses (1) on Y-connector (3) of hose assembly (4).
6. Route two hoses (1) around bracket (9) and insert in six clips (2).



REPLACE M14 NBC HOSES AND BRACKETS (M113A3 AMBULANCE ONLY) — Continued **0783 00**

7. Install five clamps (1) on hose assembly (2). Secure clamp to top plate with five screws (3) and new lockwashers (4).
8. Install hose assembly (2) on air purifier (5) and tighten clamp (6) on hose (2).
9. Install bracket (7), two screws (8) and washers (9) on top plate.
10. Install six clips (10), screws (11), and new lockwashers (12) on top plate.
11. Install two hoses (13) on Y-connector (14) of hose assembly (2).
12. Route two hoses (13) around bracket (7) and insert in six clips (10).
13. Install three clips (15), new lockwashers (16) and screws (17) on driver's bulkhead.
14. Install driver's hose (18) on air purifier (5), three clips (15), and connector (19).



FOLLOW-THROUGH STEPS

1. Connect battery ground strap (WP 0337 00).
2. Check air flow if NBC system. Follow procedures in TM 3-6680-316-10.

END OF TASK

REPLACE M3 NBC HEATER HOSES AND FITTINGS (M113A3 AMBULANCE ONLY) 0784 00

THIS WORK PACKAGE COVERS:

Removal (page 0784 00-1).
Installation (page 0784 00-4).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts

Grommet
Lockwasher (23)
Straps (as required)

Personnel Required

Unit Mechanic

References

See your -10
TM 3-6680-316-10

Equipment Condition

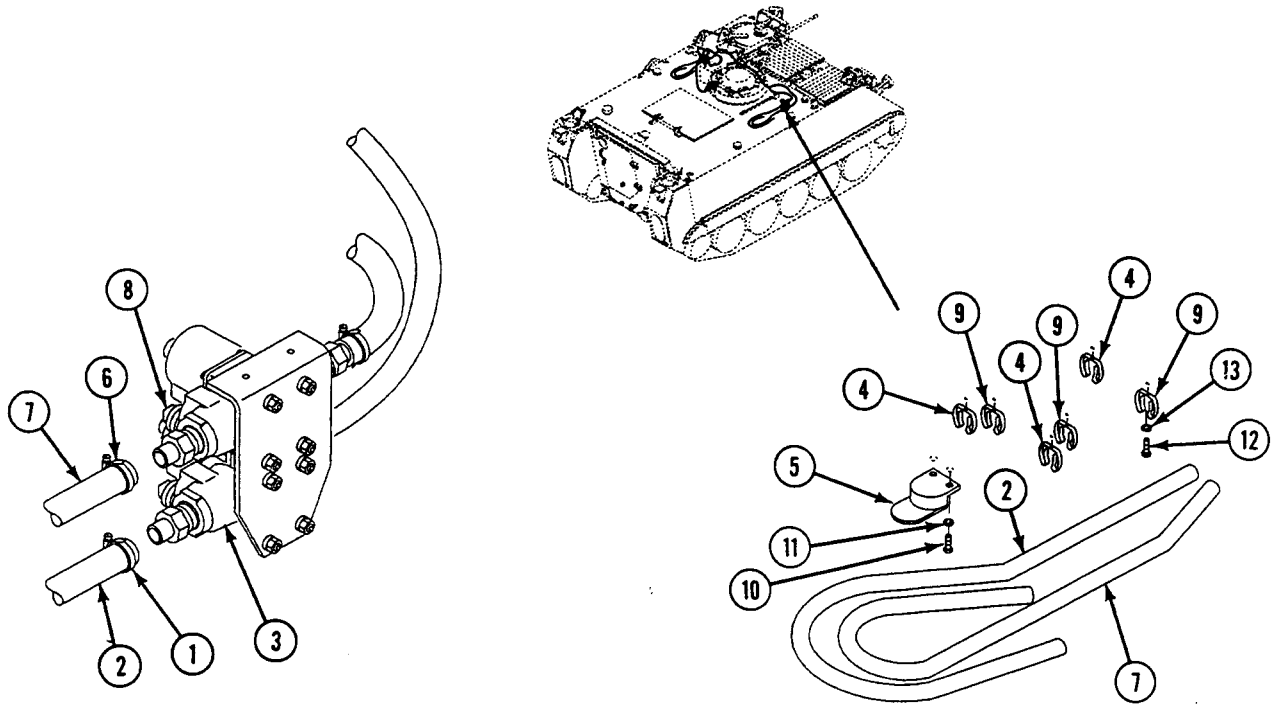
Engine stopped (see your -10)
Carrier blocked (see your -10)
Battery ground strap disconnected (WP 0337 00)

REMOVAL

1. Loosen clamp (1) on patient's lower right outlet hose (2). Remove hose from lower right heater (3), three spring clips (4) and right bracket (5).
2. Loosen clamp (6) on patient's upper right outlet hose (7). Remove hose from upper right heater (8), three spring clips (9) and right bracket (5).
3. If right bracket (5) is damaged, remove two screws (10), lockwashers (11), and bracket from top plate. Discard lockwashers.

REPLACE M3 NBC HEATER HOSES AND FITTINGS (M113A3 AMBULANCE ONLY) — Continued 0784 00

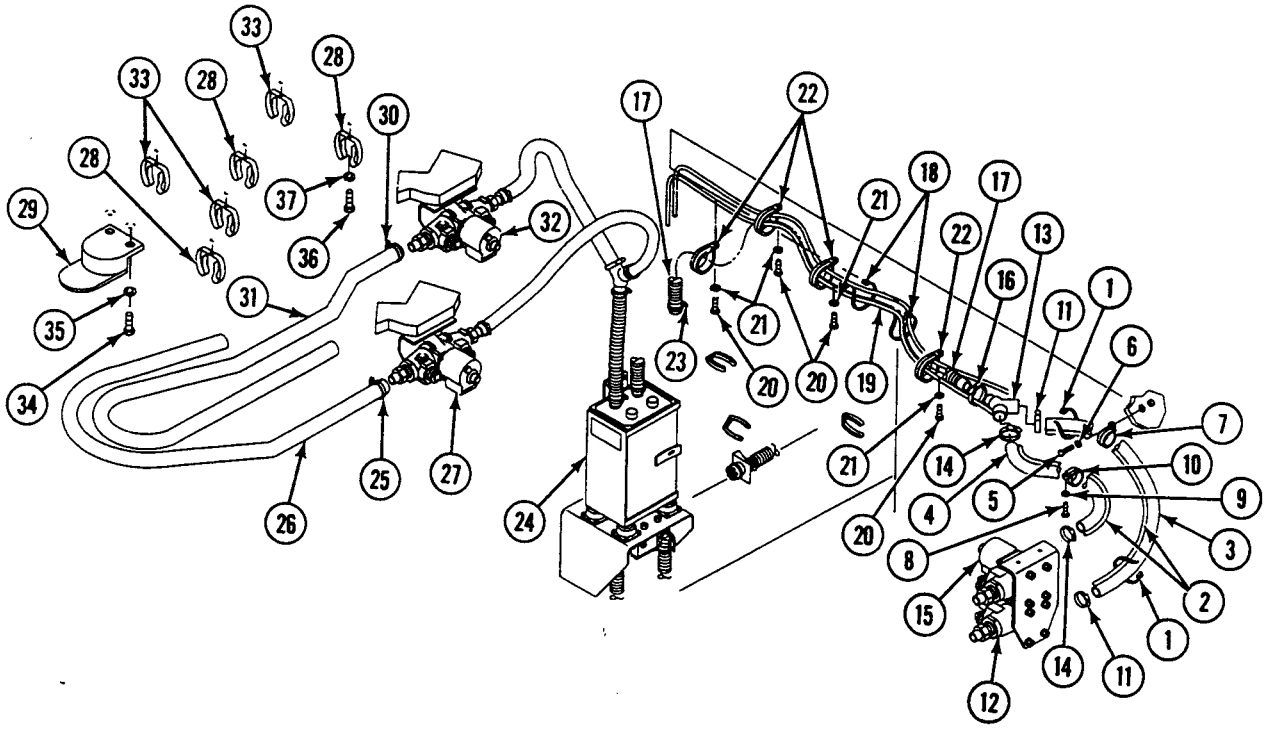
4. If any spring clip (4) or (9) is damaged, remove screw (12), lockwasher (13), and damaged clip from front bulkhead and top plate. Discard lockwashers.



5. Cut and remove all straps (1) securing electrical leads (2) to right inlet hoses (3) and (4). Discard straps.
6. Remove screw (5), lockwasher (6), and clamp (7) from top plate. Remove clamp from patient's lower right inlet hose (3). Discard lockwasher.
7. Remove screw (8), lockwasher (9), and clamp (10) from top plate. Remove clamp from patient's upper right inlet hose (4). Discard lockwasher.
8. Loosen two clamps (11) on patient's lower right inlet hose (3). Remove hose from lower right heater (12) and Y-fitting (13).
9. Loosen two clamps (14) on patient's upper right inlet hose (4). Remove hose from upper right heater (15) and Y-fitting (13).
10. Loosen clamp (16) on right inlet hose (17). Remove hose from Y-fitting (13).
11. Cut and remove all straps (18) securing wiring harness (19) to right inlet hose (17). Discard straps.
12. Remove four screws (20), lockwashers (21), and clamps (22) from top plate. Remove clamps from right inlet hose (17). Discard lockwashers.
13. Loosen clamp (23) on right inlet hose (17). Remove hose from air purifier (24).
14. Loosen clamp (25) on patient's left rear outlet hose (26). Remove hose from left rear heater (27), three spring clips (28) and left bracket (29).
15. Loosen clamp (30) on patient's left forward outlet hose (31). Remove hose from left forward heater (32), three spring clips (33) and left bracket (29).
16. If left bracket (29) is damaged, remove two screws (34), lockwashers (35), and bracket from top plate. Discard lockwashers.

REPLACE M3 NBC HEATER HOSES AND FITTINGS (M113A3 AMBULANCE ONLY) — Continued **0784 00**

17. If any spring clip (28) or (33) is damaged, remove screw (36), lockwasher (37), and damaged clip from front bulkhead and top plate. Discard lockwashers.



18. Cut and remove all straps (1) securing electrical leads (2) to left inlet hoses (3)(4). Discard straps.

19. Loosen two clamps (5) on patient's left rear inlet hose (3). Remove hose from left rear heater (6) and Y-fitting (7).

20. Loosen two clamps (8) on patient's left forward inlet hose (4). Remove hose from left forward heater (9) and Y-fitting (7).

21. Loosen clamp (10) on left inlet hose (11). Remove hose from Y-fitting (7).

22. Loosen clamp (12) on left inlet hose (11). Remove hose from air purifier (13).

23. Remove hose (14) from connector (15) and three spring clips (16).

24. If any spring clip (16) is damaged, remove screw (17), lockwasher (18), and damaged clip from driver's bulkhead. Discard lockwashers.

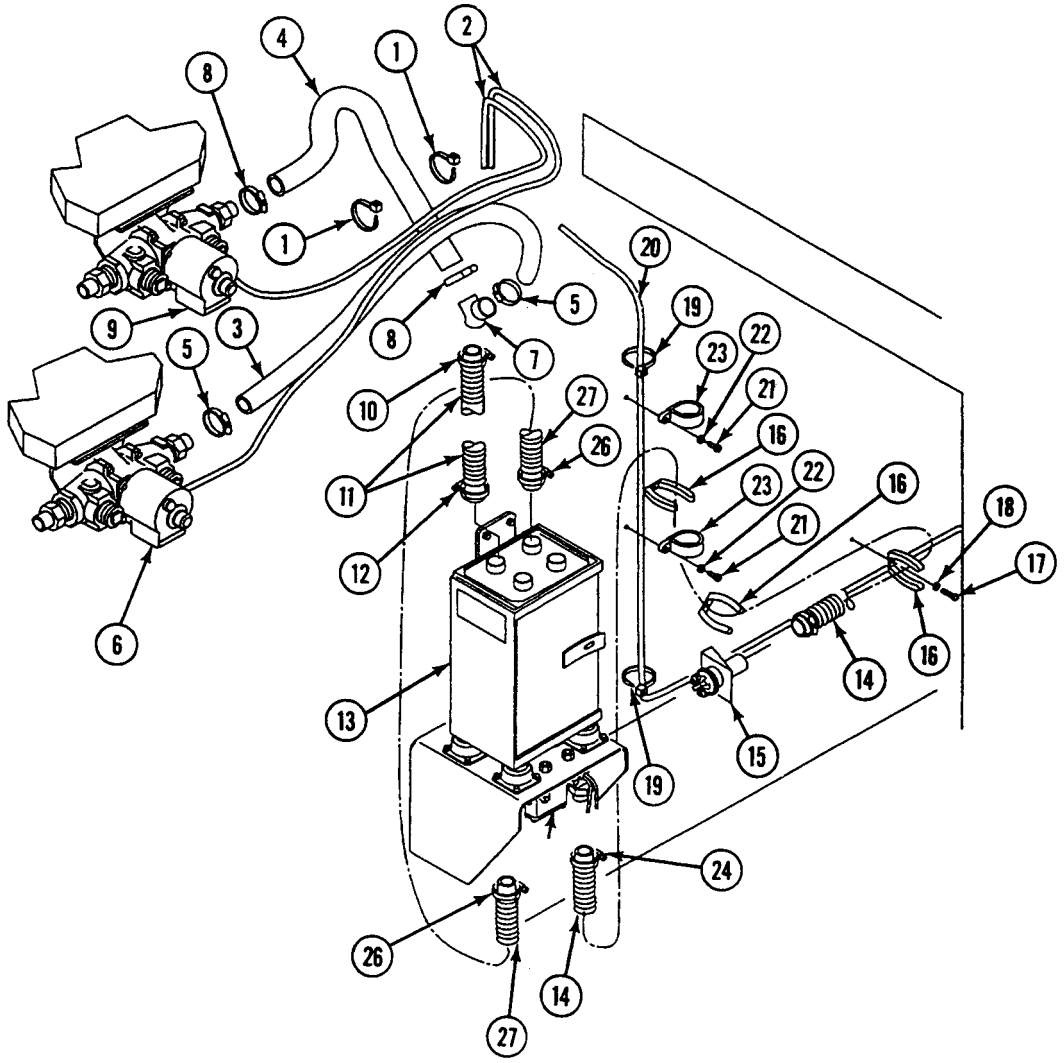
25. Cut and remove all straps (19) securing electrical leads (20) to outlet hose (14). Discard straps.

26. Remove two screws (21), lockwashers (22), and clamps (23) from bulkhead. Remove clamps from outlet hose (14). Discard lockwashers.

27. Loosen clamp (24) on outlet hose (14). Remove hose from heater (25).

REPLACE M3 NBC HEATER HOSES AND FITTINGS (M113A3 AMBULANCE ONLY) — Continued **0784 00**

28. Loosen two clamps (26) on inlet hose (27). Remove hose from heater (25) and air purifier (13).

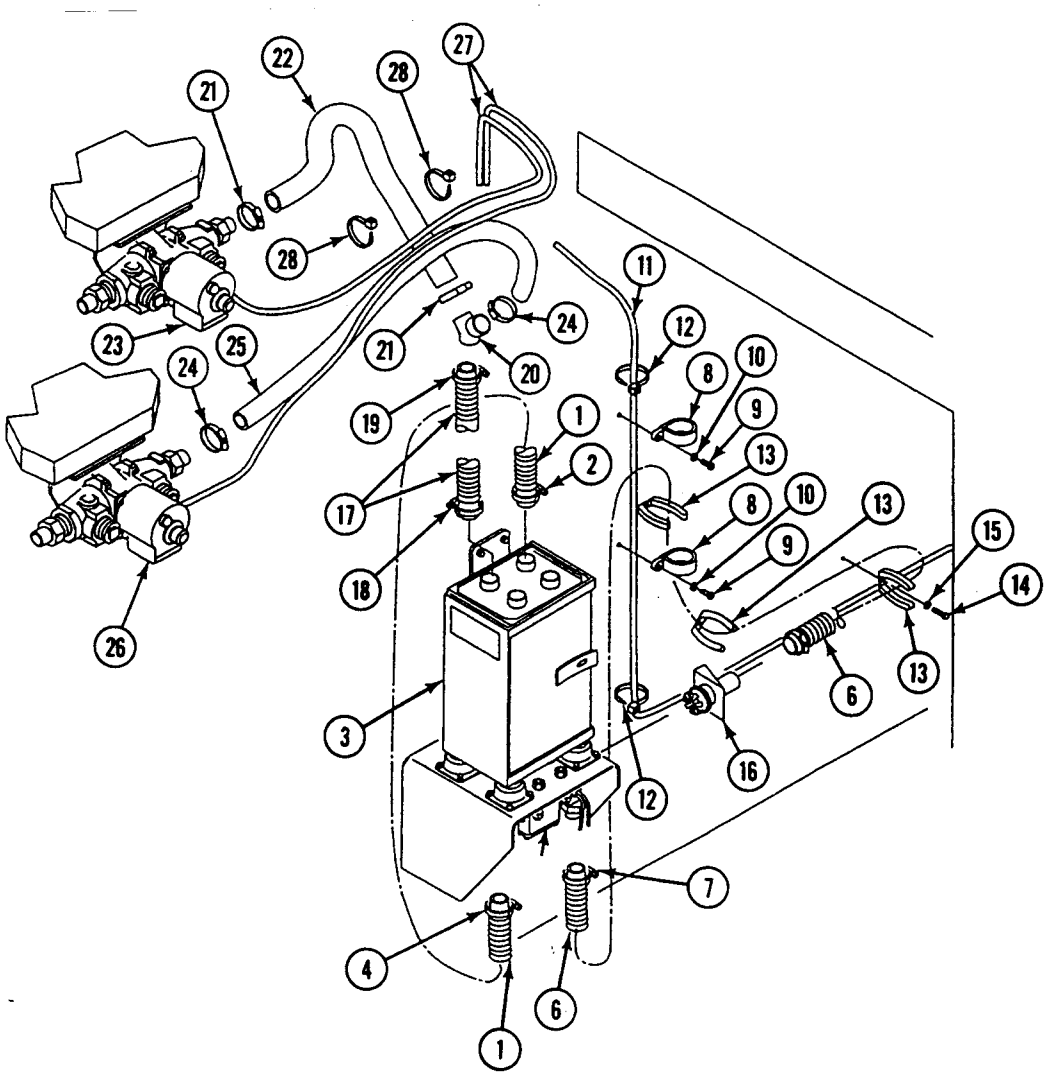


INSTALLATION

1. Install inlet hose (1) and clamp (2) on air purifier (3). Tighten clamp.
2. Install inlet hose (1) and clamp (4) on heater (5). Tighten clamp.
3. Install outlet hose (6) and clamp (7) on heater (5). Tighten clamp.
4. Install two clamps (8) on outlet hose (6). Secure clamps to bulkhead with two screws (9) and new lockwashers (10).
5. Secure electrical leads (11) to outlet hose (6) with new straps (12) as required.
6. If removed, install spring clips (13) on driver's bulkhead with screws (14) and new lockwashers (15).
7. Install outlet hose (6) in three spring clips (13) on driver's bulkhead.
8. Install outlet hose (6) on connector (16).
9. Install inlet hose (17) and clamp (18) on air purifier (3). Tighten clamp.

REPLACE M3 NBC HEATER HOSES AND FITTINGS (M113A3 AMBULANCE ONLY) — Continued **0784 00**

10. Install inlet hose (17) and clamp (19) on Y-fitting (20). Tighten clamp.
11. Install two clamps (21) and patient's left forward inlet hose (22) on Y-fitting (20) and left forward heater (23). Tighten clamps.
12. Install two clamps (24) and patient's left rear inlet hose (25) on Y-fitting (20) and left rear heater (26). Tighten clamps.
13. Secure wiring harness (27) to inlet hoses (22) and (25) with new straps (28) as required.



14. If removed, install spring clips (1) on top plate with screws (2) and new lockwashers (3).
15. If removed, install left bracket (4) on top plate with two screws (5) and new lockwashers (6).
16. Install clamp (7) and patient's left forward outlet hose (8) on left forward heater (9), three spring clips (1) and left bracket (4). Tighten clamp.
17. Install clamp (10) and patient's left rear outlet hose (11) on left rear heater (12), three spring clips (1) and left bracket (4). Tighten clamp.
18. Install patients right inlet hose (13) and clamp (14) on air purifier (15). Tighten clamp.

REPLACE M3 NBC HEATER HOSES AND FITTINGS (M113A3 AMBULANCE ONLY) — Continued **0784 00**

19. Install four clamps (16) on patients right inlet hose (13). Secure clamps to top plate with four screws (17) and new lockwashers (18).

20. Secure wiring harness (19) to right inlet hose (13) with new straps (20) as required.

21. Install right inlet hose (13) and clamp (21) on Y-fitting (22). Tighten clamp.

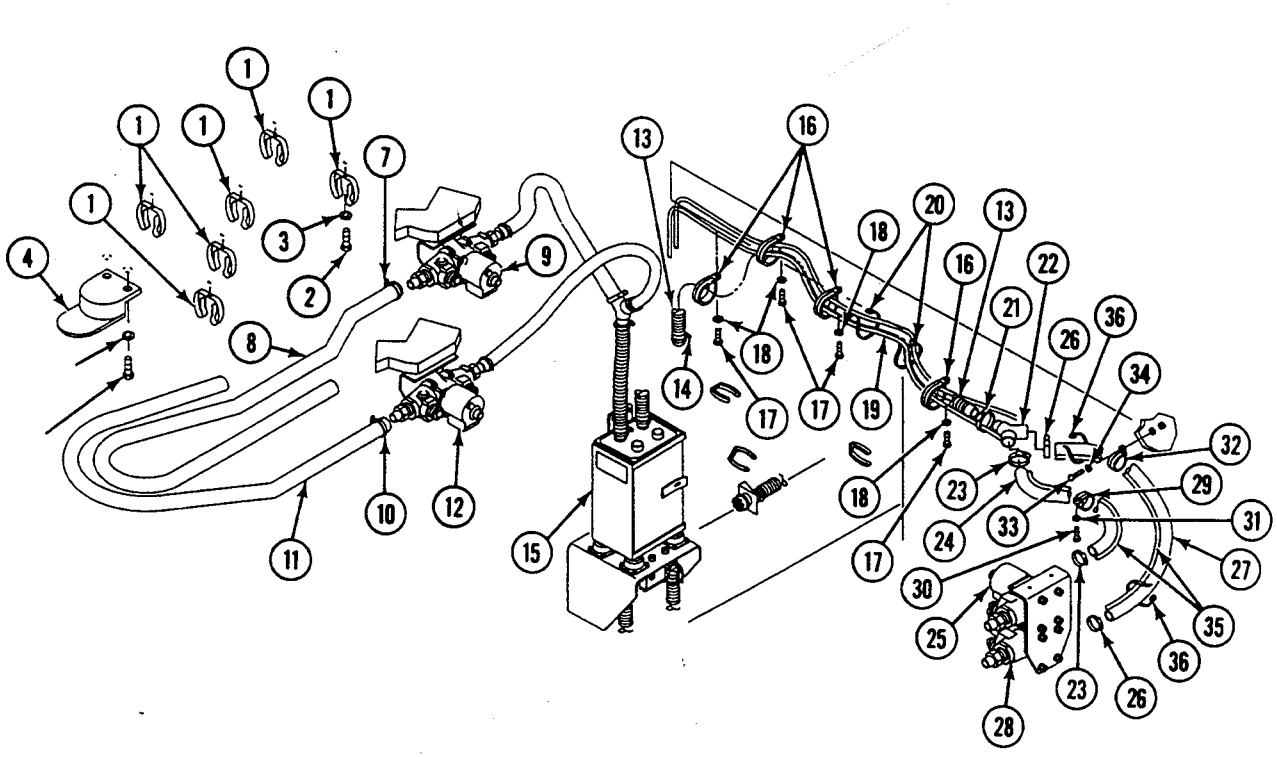
22. Install two clamps (23) and patient's upper right inlet hose (24) on Y-fitting (22) and upper right heater (25). Tighten clamps.

23. Install two clamps (26) and patient's lower right inlet hose (27) on Y-fitting (22) and lower right heater (28). Tighten clamps.

24. Install clamp (29) on patient's upper right inlet hose (24). Secure clamp to top plate with screw (30) and new lockwasher (31).

25. Install clamp (32) on patient's lower right inlet hose (27). Secure clamp to top plate with screw (33) and new lockwasher (34).

26. Secure electrical leads (35) to inlet hoses (24) and (27) with new straps (36) as required.



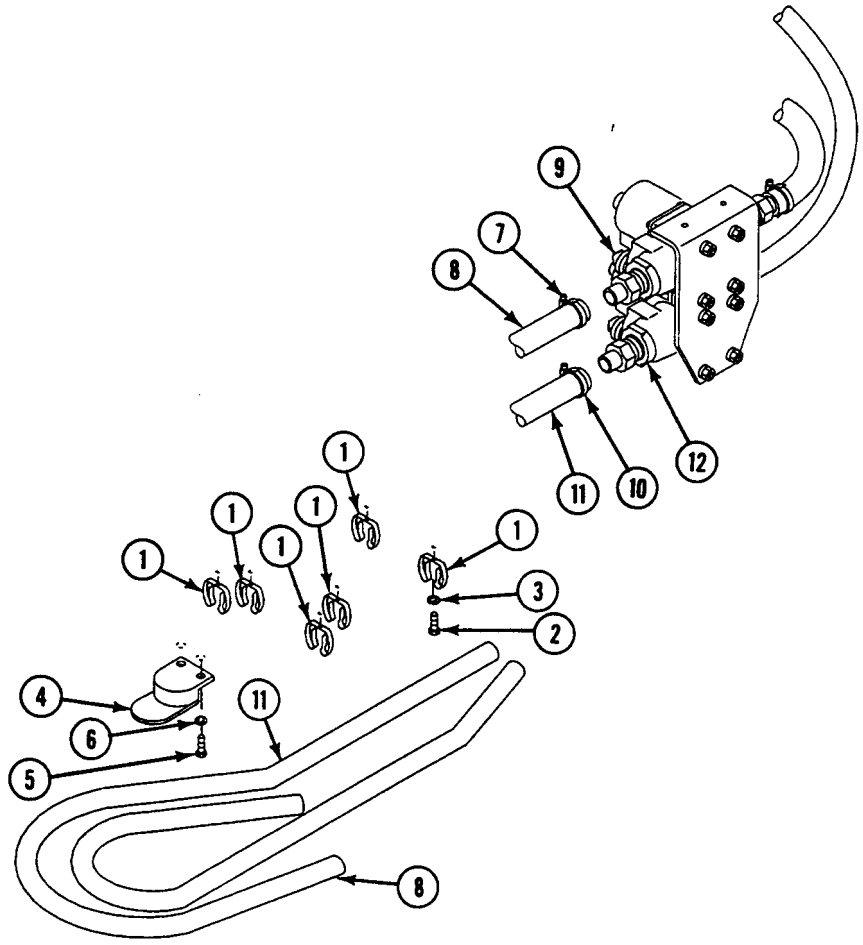
27. If removed, install spring clips (1) on top plate with screws (2) and new lockwashers (3).

28. If removed, install right bracket (4) on top plate with two screws (5) and new lockwashers (6).

29. Install clamp (7) and patient's upper right outlet hose (8) on upper right heater (9), three spring clips (1), and right bracket (4). Tighten clamp.

REPLACE M3 NBC HEATER HOSES AND FITTINGS (M113A3 AMBULANCE ONLY) — Continued **0784 00**

30. Install clamp (10) and patient's lower right outlet hose (11) on lower right heater (12), three spring clips (1), and right bracket (4). Tighten clamp.



FOLLOW-THROUGH STEPS

1. Connect battery ground strap (WP 0337 00).
2. Start engine (see your -10).
3. Raise and lock ramp (see your -10).
4. Stop engine (see your -10).
5. Check air flow of NBC system. Follow procedures in TM 3-6680-316-10.

END OF TASK

REPLACE NBC FILTERS AND HOSES (M577A3 ONLY) 0786 00

THIS WORK PACKAGE COVERS:

Removal (page 0786 00-2).
Installation (page 0786 00-8).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts
Lockwasher (2)
Lockwasher (3)
Strap (as required)

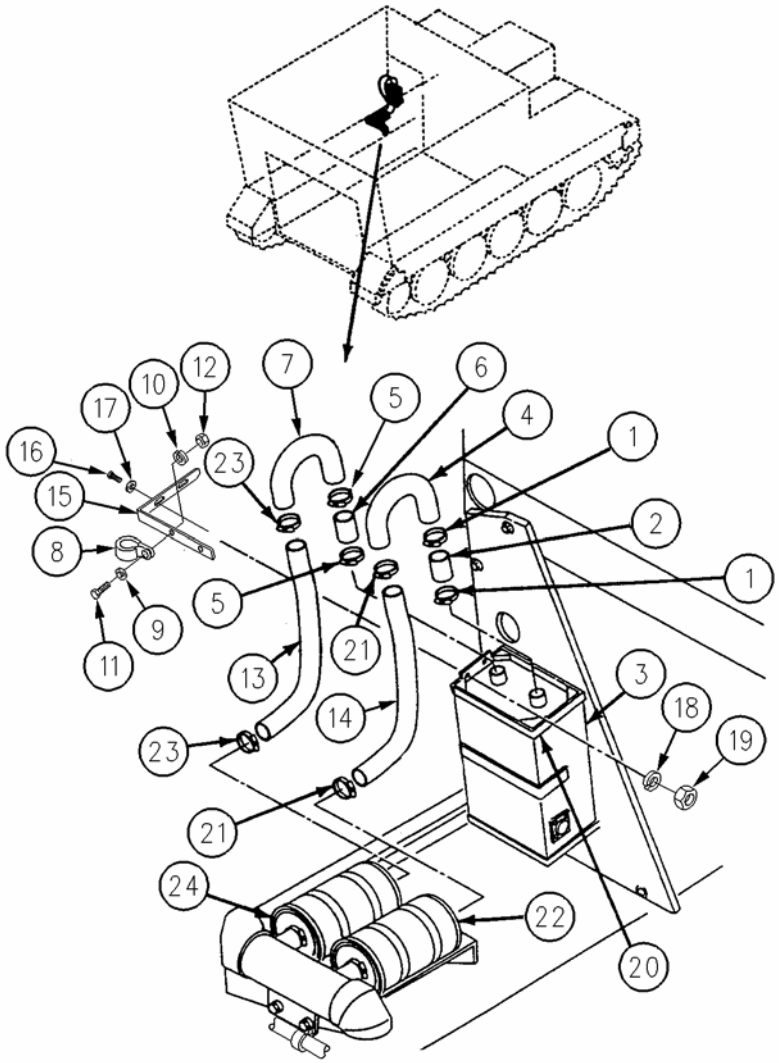
Personnel Required
Unit Mechanic

References
See your -10 TM 3-6680-316-10

Equipment Conditions
Engine stopped (see your -10)
Carrier blocked (see your -10)

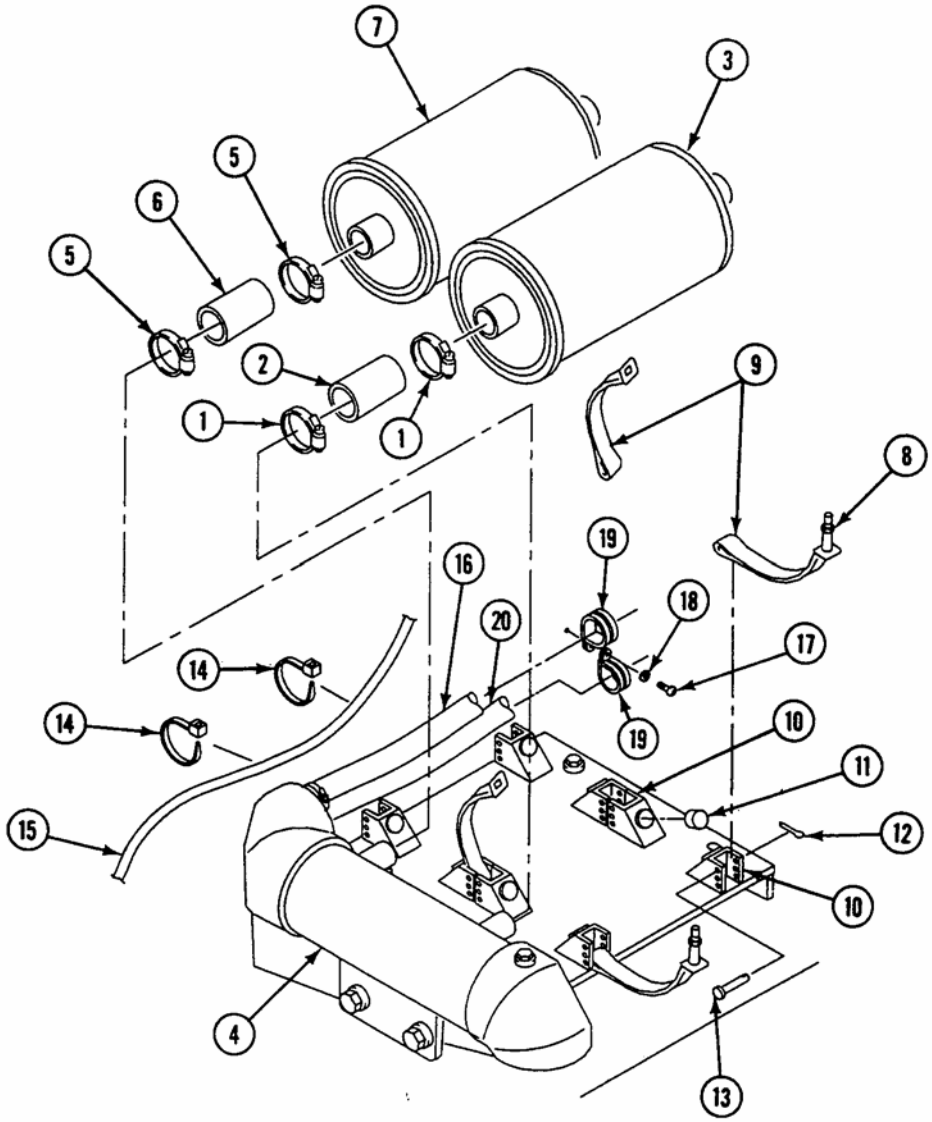
REMOVAL

1. Loosen twa clamps (1) and remove hose (2) from precleaner (3) and tube (4).
2. Loosen two clamp (5) and remove hose (6) from precleaner (3) and tube (7).
3. Remove two clamps (8), washer (9), lockwasher (10), screw (11), and nut (12) that secure hoses (13) and (14) to bracket (15). Discard lockwasher.
4. If bracket (15) is damaged, remove two screws (16), two washers (17), two lockwashers (18), two locknuts (19) and bracket from frame (20). Discard lockwashers.
5. Loosen two clamps (21) and remove hose (14) from tube (4) and filter (22).
6. Loosen two clamps (23) and remove hose (13) from tube (7) and filter (24).



REPLACE NBC FILTERS AND HOSES (M577A3 ONLY) - Continued 0786 00

7. Loosen two clamps (1) and remove hose (2) from filter (3) and manifold (4).
8. Loosen two clamps (5) and remove hose (6) from filter (7) and manifold (4).
9. Loosen four nuts (8), open four clamps (9), and remove filters (3) and (7) from bracket (10).
10. If damaged, remove rubber bumpers (11) from bracket (10) as required. Discard rubber bumpers.
11. If any cotter pin (12) is damaged, remove cotter pin, straight pin (13) and clamps (9) from bracket (10) as required. Discard cotter pin
12. Cut straps (14) that secure wiring harness (15) to hose (16) and manifold (4). Discard straps.
13. Remove screw (17), lockwasher (18), and two clamps (19) from side bulkhead. Remove clamps from hoses (16) and (20). Discard lockwasher.



REPLACE NBC FILTERS AND HOSES (M577A3 ONLY) - Continued 0786 00

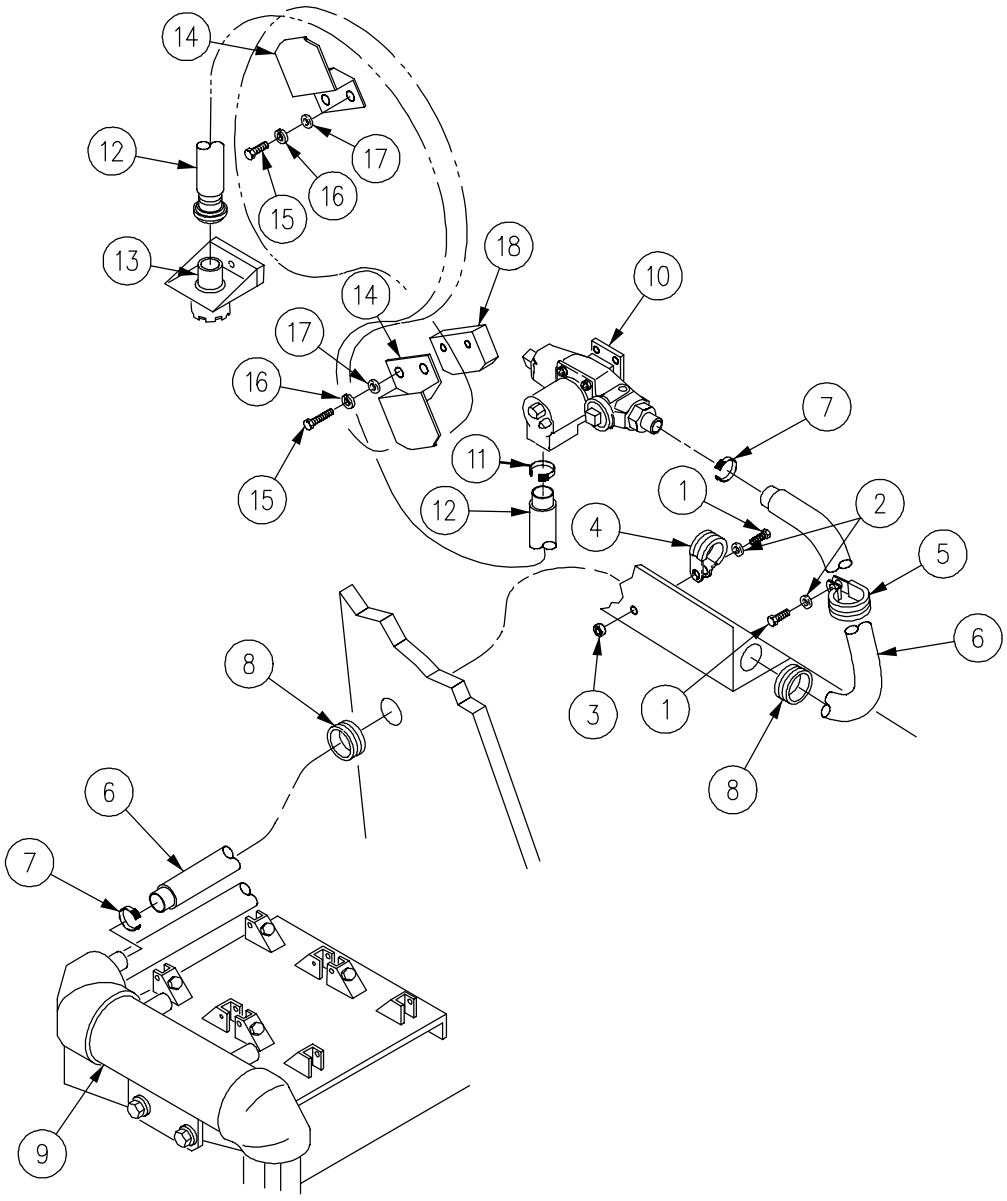
14. Remove three screws (1), lockwashers (2), nuts (3), two clamps (4) and clamp (5) from upper bulkhead. Remove from hose (6). Discard lockwashers.

15. Loosen two clamps (7) and remove hose (6) with two grommets (8) from manifold (9) and commander's heater (10).

16. If damaged, remove grommets (8) from hose (6), as required. Discard grommets.

17. Loosen clamp (11) and remove hose (12) from commander's heater (10) and connector (13).

18. If either bracket (14) is damaged, remove two screws (15), lockwashers (16), two flat washers (17, bracket (14) and spacer (18) from front bulkhead as required. Discard lockwashers.



REPLACE NBC FILTERS AND HOSES (M577A3 ONLY) - Continued 0786 00

19. Loosen two clamps (1) and remove hose (2) with grommet (3) from manifold (4) and driver's heater (5).

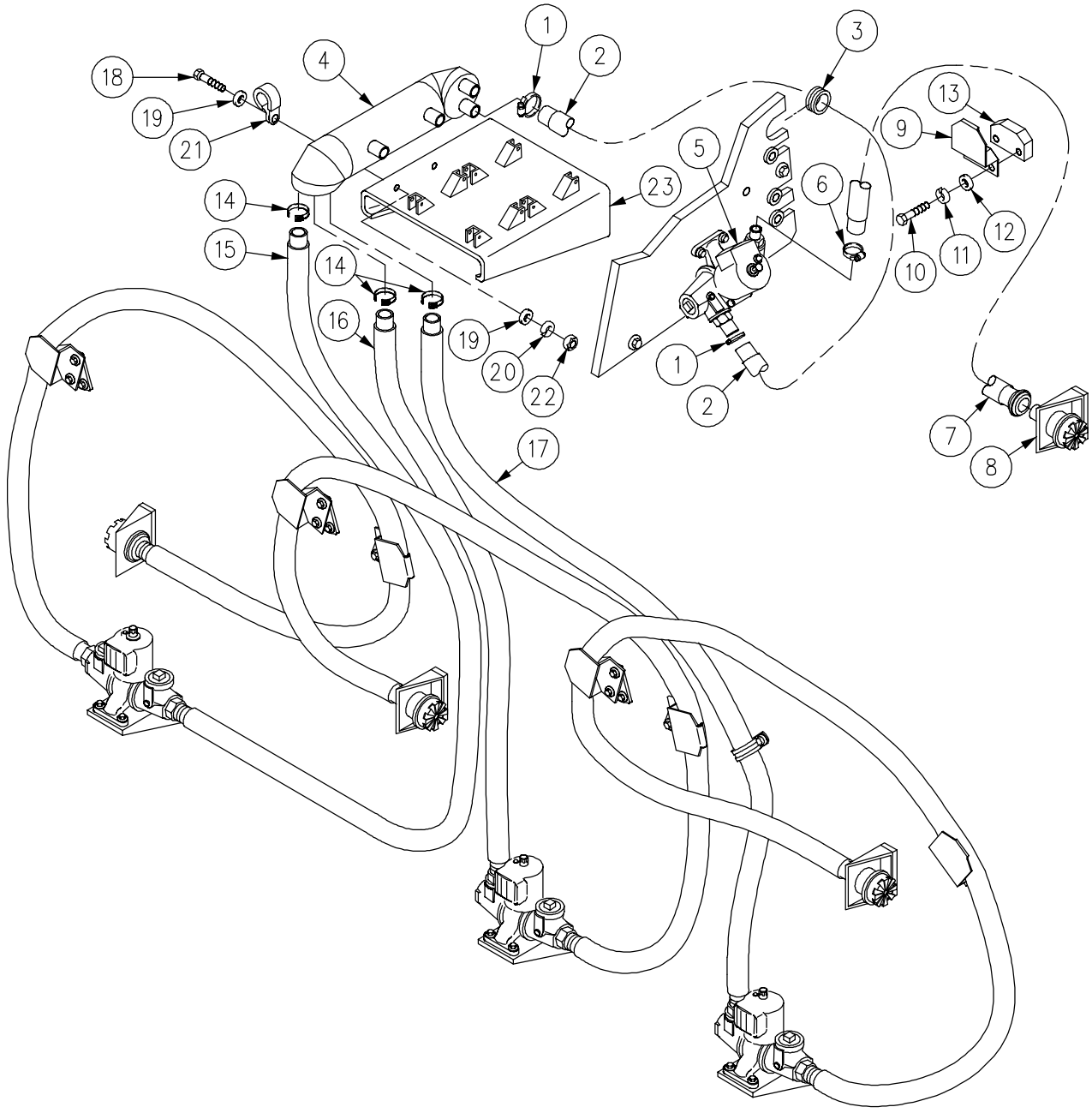
20. If damaged, remove grommet (3) from hose (2). Discard grommet.

21. Loosen clamp (6) and remove hose (7) from driver's heater (5) and pull off connector (8).

22. If bracket (9) is damaged, remove two screws (10), lockwashers (11), washers (12), bracket (9) and space bracket (13) from front bulkhead.

23. Loosen three clamps (14) and remove three hoses (15), (16), and (17) from manifold (4).

24. Remove two screws (18), four washers (19), two lockwashers (20), one clamp (21) two nuts (22), and manifold (4) from bracket (23). Discard lockwashers.



25. Remove screw (1), lockwasher (2), and clamp (3) securing hose (4) and wiring harness to sponson. Discard lockwasher.

26. Remove tie straps (5), loosen three clamps (6) and remove three hoses (4), (7), and (8) from three heaters (9), (10), and (11) respectively.

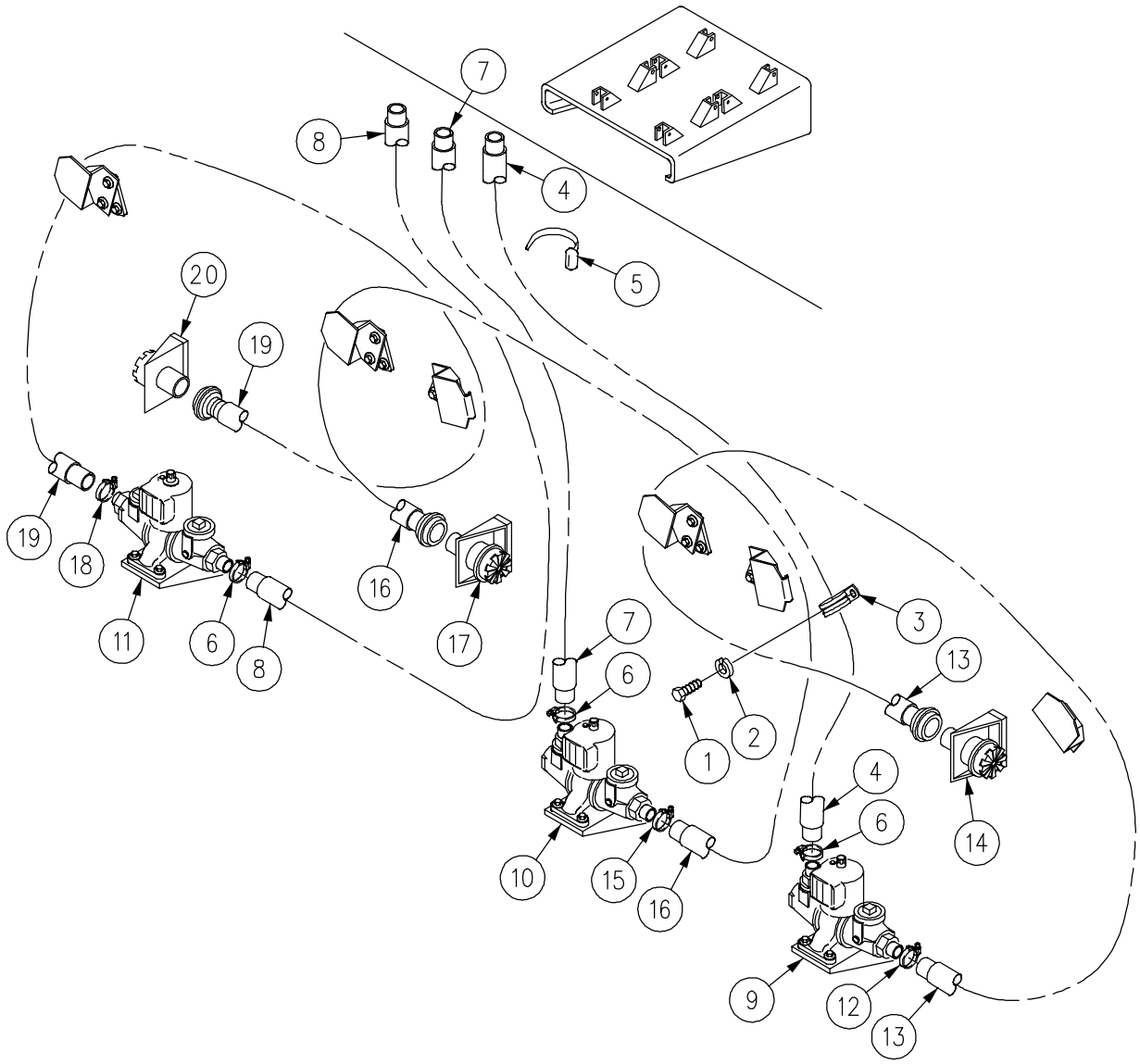
NOTE

The hoses (4, 6, 7) have the connector and clamp as a part of it.

27. Loosen clamp (12) and remove hose (13) from heater (9) and connector (14).

28. Loosen clamp (15) and remove hose (16) from heater (10) and connector (17).

29. Loosen clamp (18) and remove hose (19) from heater (11) and connector (20).



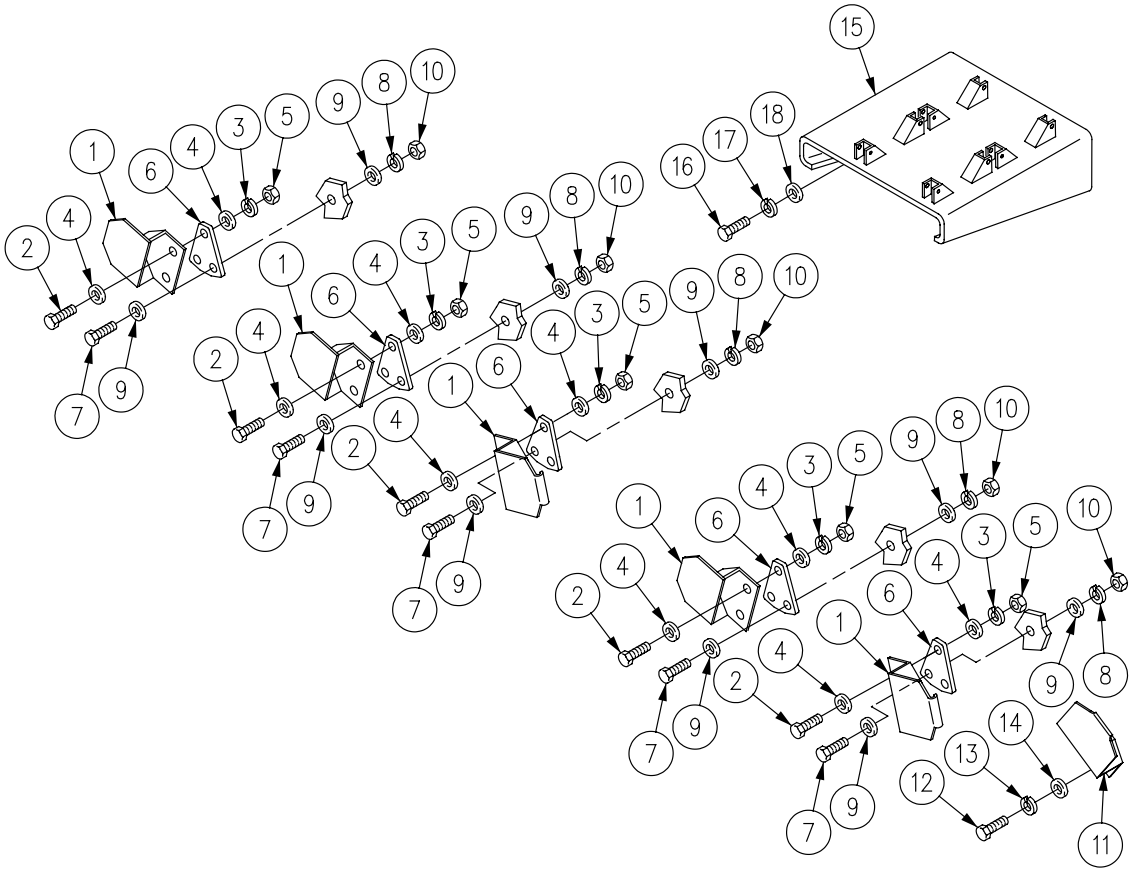
REPLACE NBC FILTERS AND HOSES (M577A3 ONLY) - Continued 0786 00

30. If any of five brackets (1) are damaged, remove two screws (2), two lockwashers (3), two washers (4), and two nuts (5) and bracket (1) from bracket. Discard lockwashers.

31. If five brackets (6) are damaged, remove screws (7), lockwasher (8), flatwashers (9), nut (10), and bracket (6) from table support. Discard lockwashers.

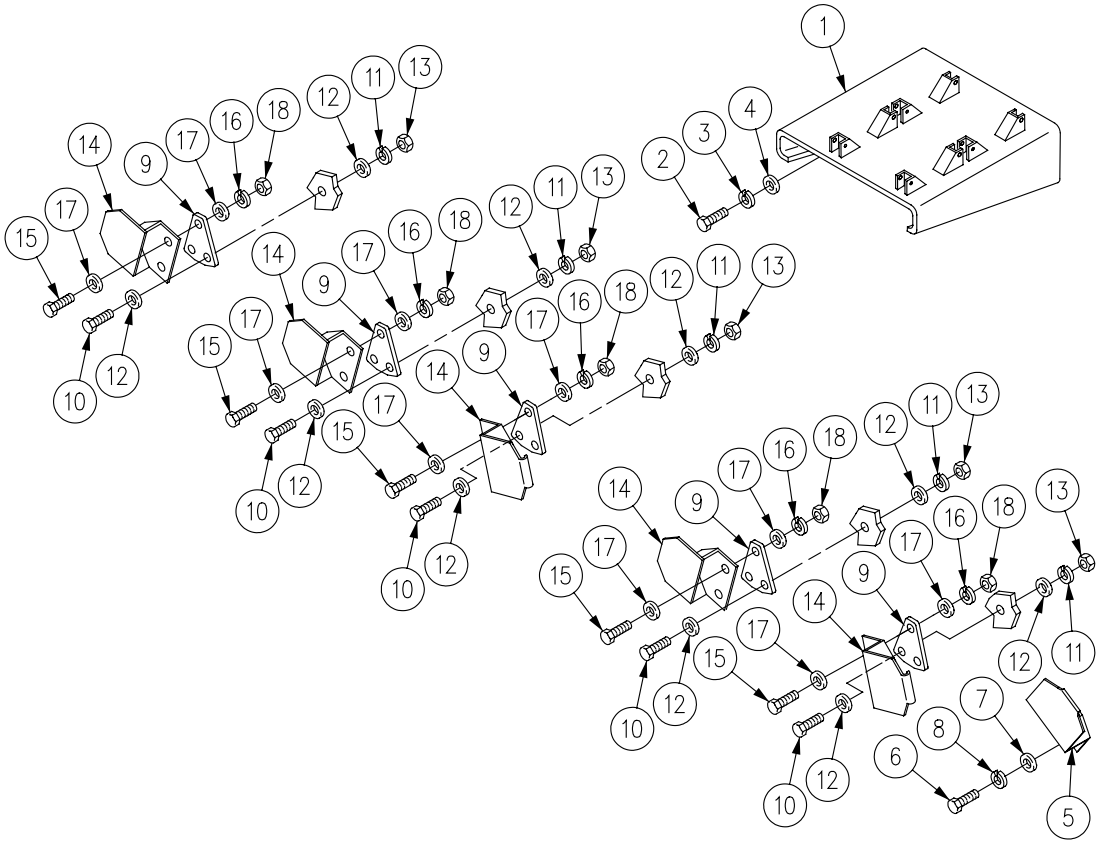
32. If bracket (11) is damaged, remove two screws (12), lockwashers (13), washers (14), and bracket from sponson.

33. If bracket (15) is damaged, remove four screws (16), lockwashers (17), washers (18), and bracket from bulkhead. Discard lockwashers.



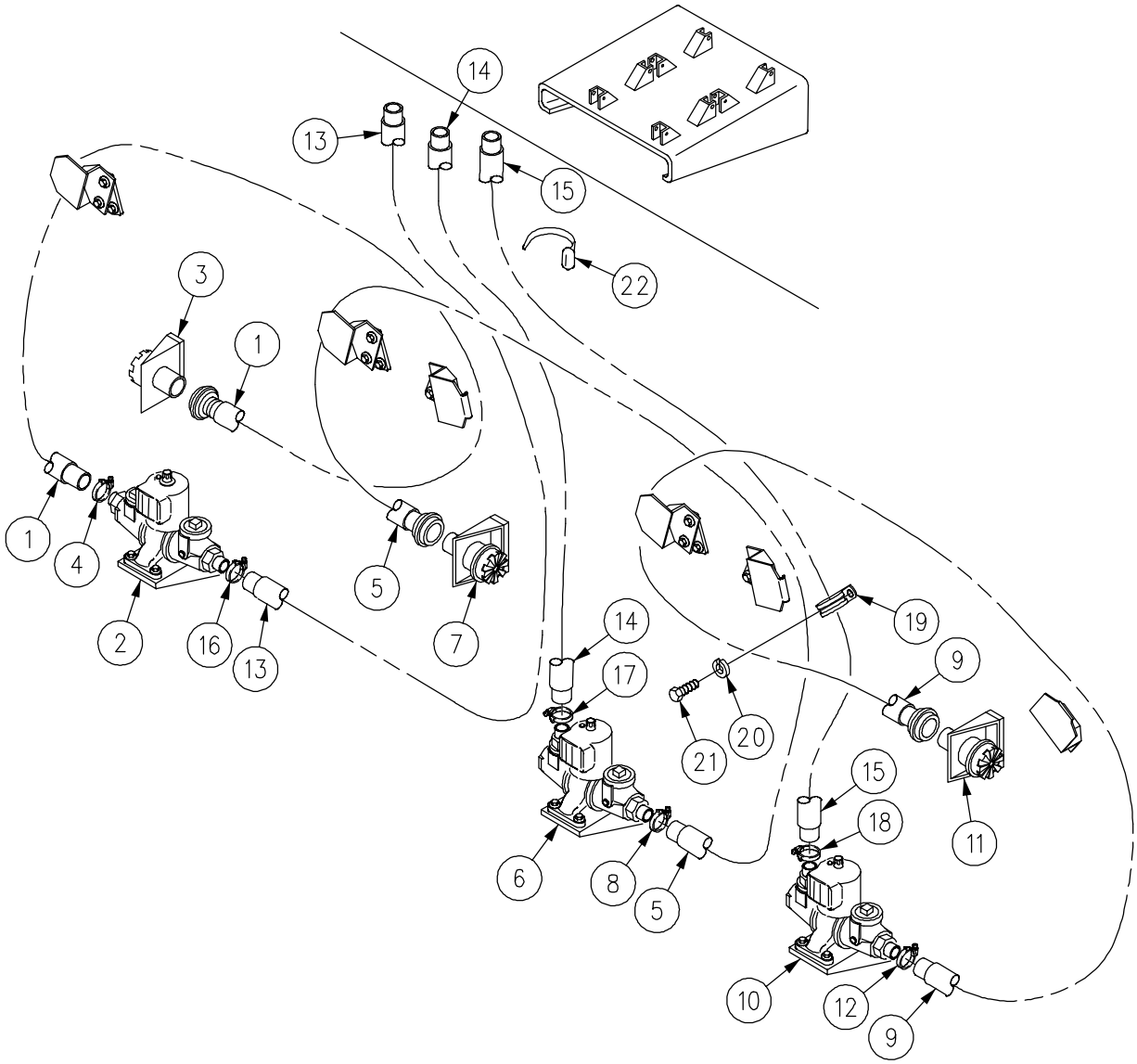
INSTALLATION

1. If bracket (1) was removed, install on bulkhead with four screws (2), new lockwashers (3), and washers (4)
2. If bracket (5) was removed, install on sponson with two screws (6), washers (7), and new lockwashers (8).
3. If any of five support brackets (9) on the table support were removed, install with screw (10), new lockwasher (11), washer (12), and nut (13).
4. If any of five brackets (14) were removed, install on table support with two screws (15), two new lockwashers (16), two new washers (17), and two nuts (18).



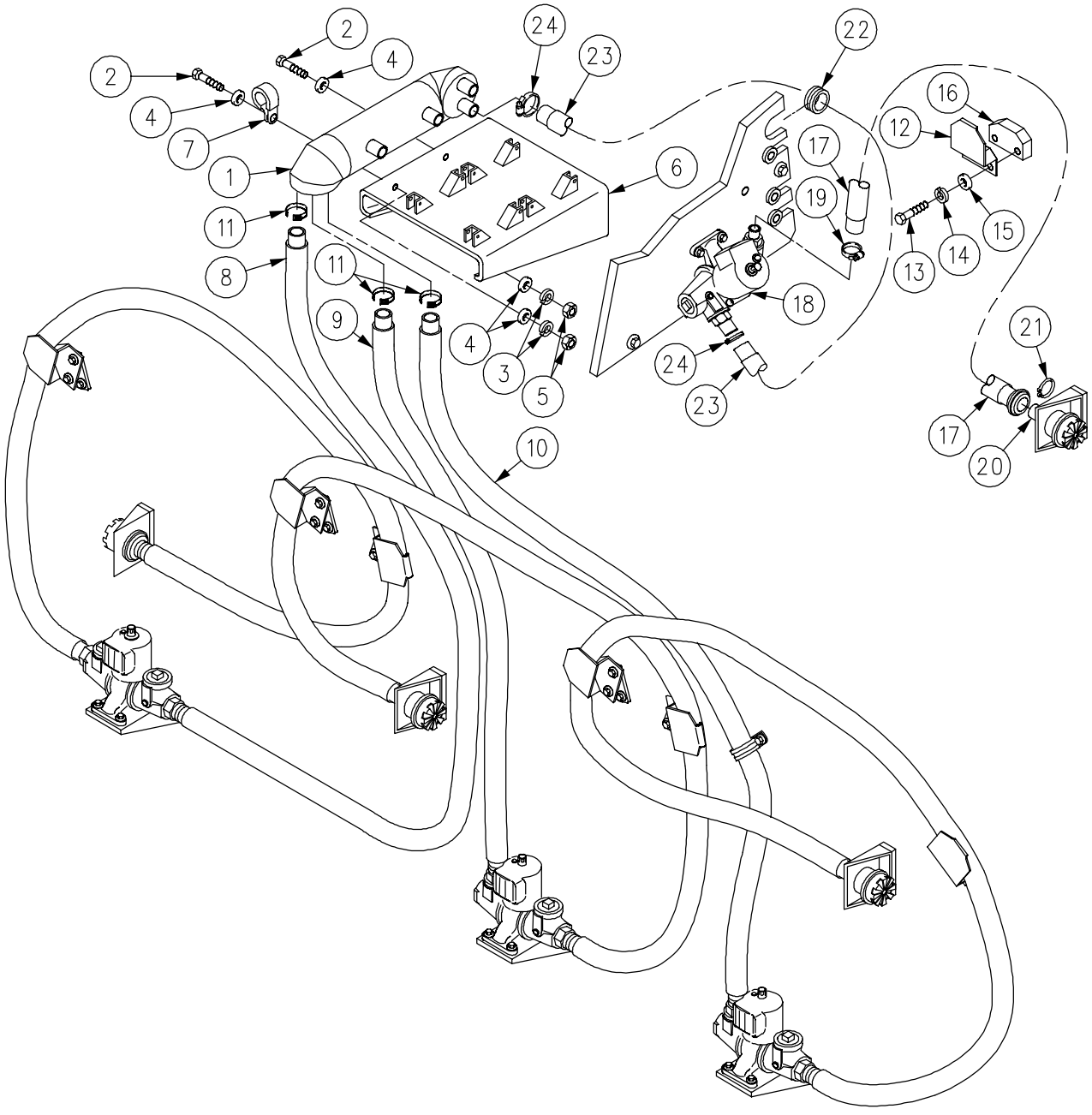
REPLACE NBC FILTERS AND HOSES (M577A3 ONLY) - Continued 0786 00

5. Install hose (1) on heater (2) and connector (3) and tighten clamp (4).
6. Install hose (5) on heater (6) and connector (7) and tighten clamp (8).
7. Install hose (9) on heater (10) and connector (11) and tighten clamp (12).
8. Install three hoses (13), (14), and (15) on heaters (2), (6), and (10) and tighten three clamps (16), (17), and (18), respectively.
9. Secure hose to sponson with clamp (19), new lockwasher (20), and screw (21).
10. Secure wiring harness to three hoses (13), (14), and (15) with new straps (22).



REPLACE NBC FILTERS AND HOSES (M577A3 ONLY) - Continued 0786 00

11. Install manifold (1), screws (2), new lockwashers (3), two washers (4), and nuts (5) on bracket (6).
12. Secure leads with clamp (7), screw (2), new lockwasher (3), two washers (4), nut (5) to manifold (1) and bracket (6).
13. Install three hoses (8), (9), and (10) on manifold (1) and tighten three clamps (11).
14. If bracket (12) was removed, install on front bulkhead with two screws (13), new lockwashers (14), and washers (15) with spacer bracket (16).
15. Install hose (17) on driver's heater (18), and tighten clamp (19), then push on connector (20) and secure with ring (21).
16. If removed, install new grommet (22) on hose (23).
17. Install hose (23) and grommet (22) on manifold (1) and driver's heater (18) and tighten two clamps (24).



NOTE

Spacer bracket (1) is used with the bottom bracket (4).

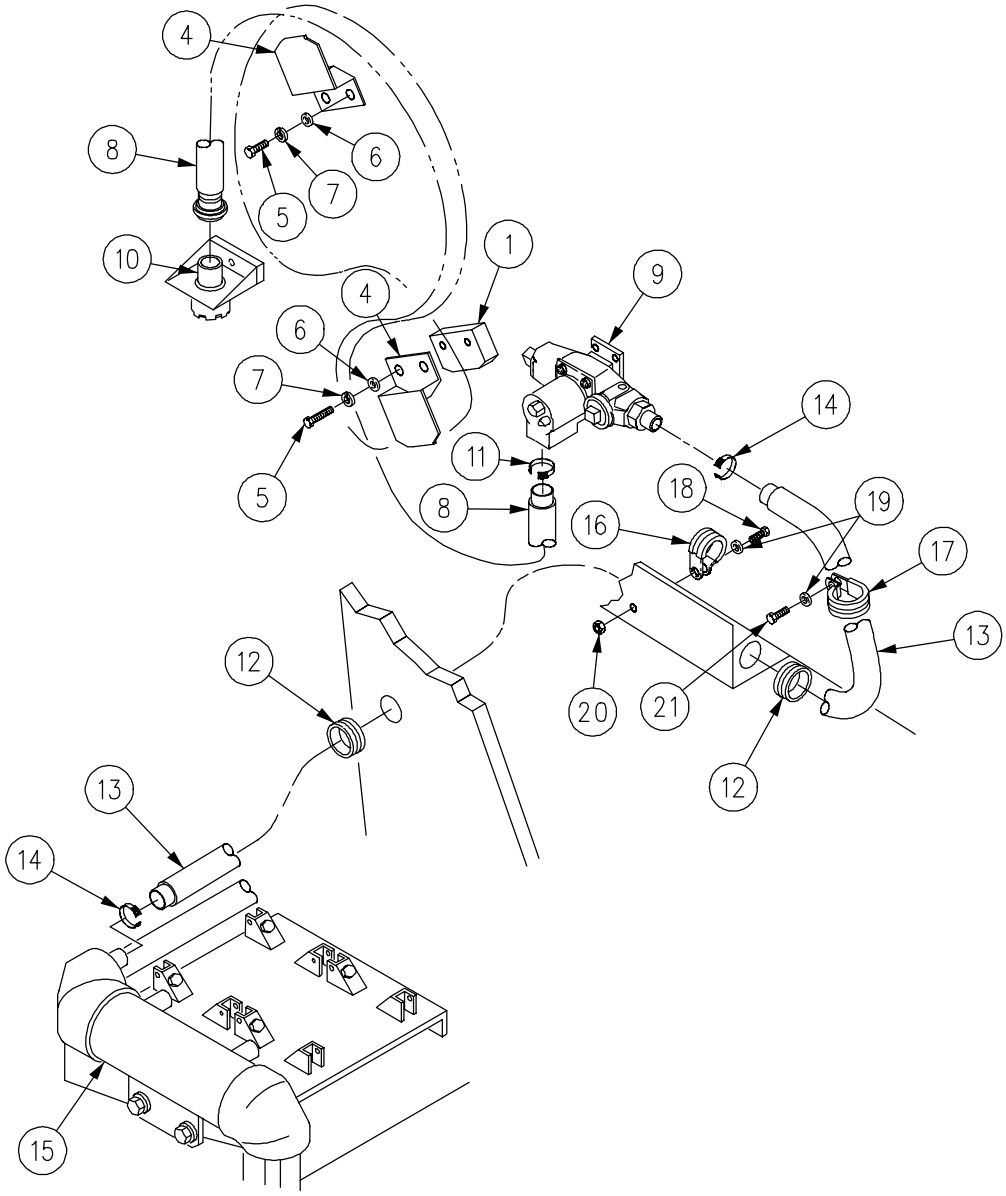
18. If either bracket (4) was removed, install on front bulkhead with spacer (1), as required, with two screws (5), flatwasher (6), and new lockwashers (7).

19. Install hose (8) on commander's heater (9) and connector (10) and tighten clamp (11).

20. If removed, install new grommets (12) on hose (13), as required.

21. Install hose (13), two clamps (14), and grommets (12) on manifold (15) and commander's heater (9). Insert grommets in frame. Tighten clamps.

22. Install clamps (16) and clamp (17) on hose (13). Secure clamps to upper bulkhead with two screws (18), new lockwashers (19), and two nuts (20). Secure clamp (17) to bulkhead with screw (21) and new lockwasher (19).



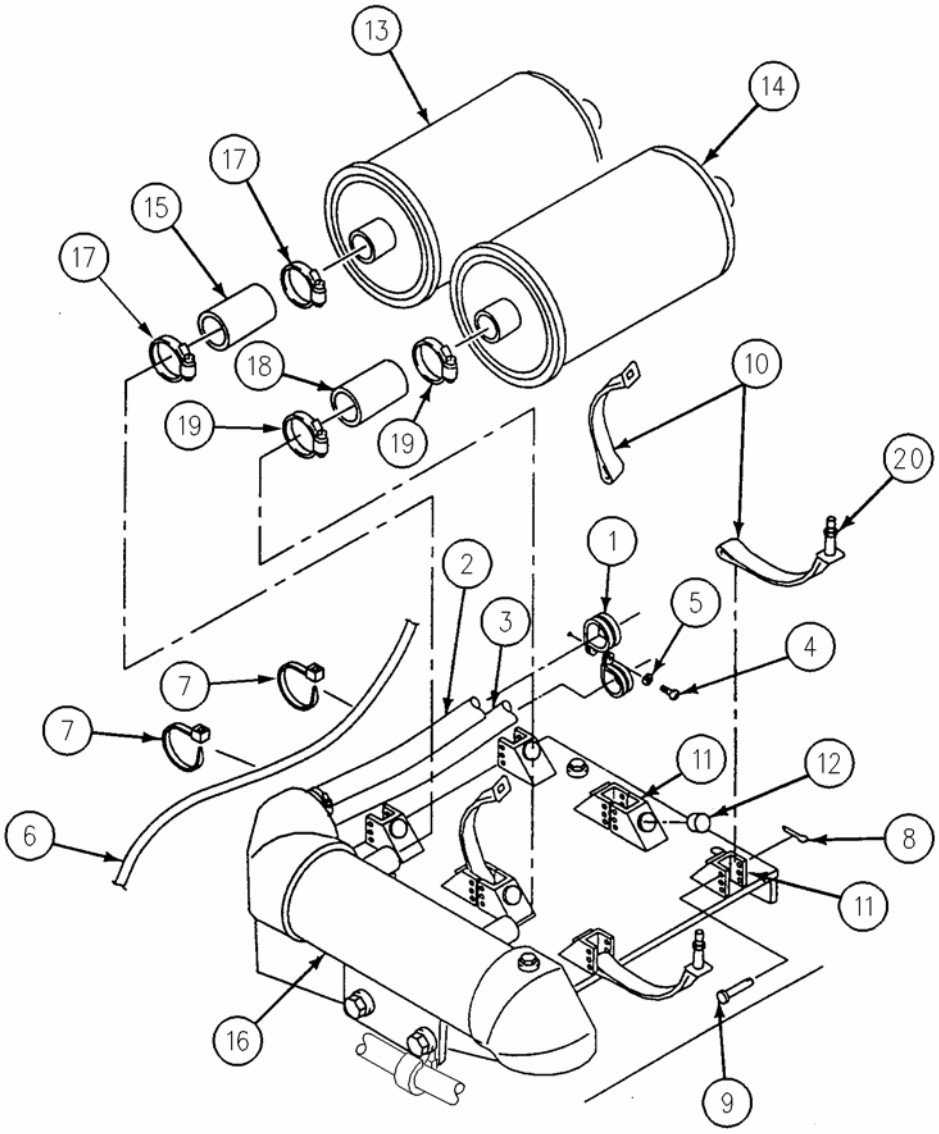
REPLACE NBC FILTERS AND HOSES (M577A3 ONLY) - Continued 0786 00

23. Install two clamps (1) on hoses (2) and (3). Secure clamps to side bulkhead with screw (4) and new lockwasher (5).
24. Secure wiring harness (6) to hose (2) with new straps (7).

NOTE

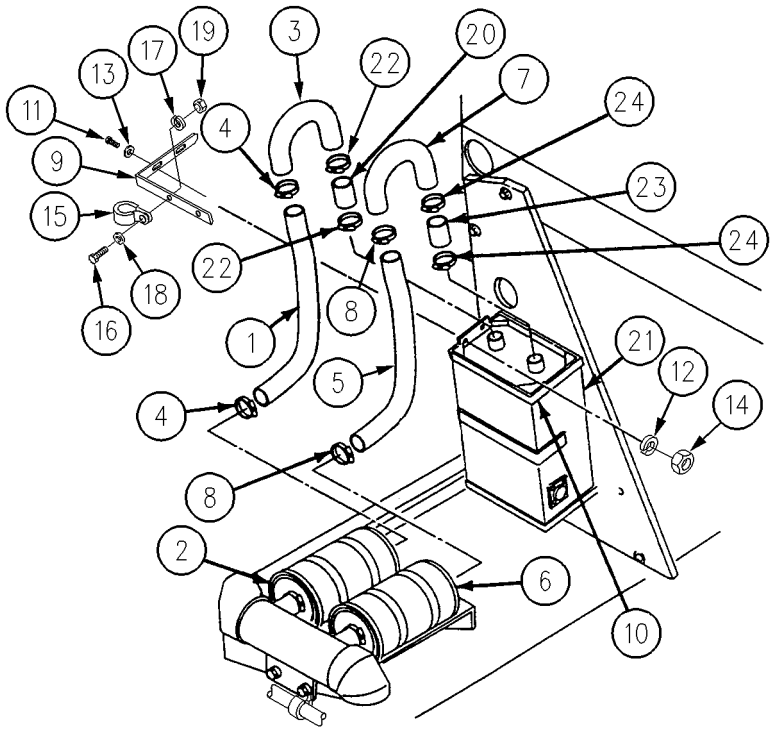
All eight clamps are installed the same way except for orientation.

25. If removed, install new cotter pins (8), straight pins (9), and clamps (10) on bracket (11).
26. If missing or removed, install new rubber bumpers (12) on bracket (11), as required.
27. Install filters (13) and (14) on brackets (11).
28. Install hose (15) on filter (13) and manifold (16) and tighten two clamps (17).
29. Install hose (18) on filter (14) and manifold (16) and tighten two clamps (19).
30. Secure filters (13) and (14). Tighten nuts (20) on four clamps (10).



REPLACE NBC FILTERS AND HOSES (M577A3 ONLY) - Continued 0786 00

31. Install hose (1) on filter (2) and tube (3) and tighten two clamps (4).
32. Install hose (5) on filter (6) and tube (7) and tighten two clamps (8).
33. If bracket (9) was removed, install on frame (10). Secure with two screws (11), two new lockwashers (12), two washers (13), and two nuts (14).
34. Secure hoses (1) and (5) to bracket (9) with two clamps (15), screws (16), new lockwashers (17), washers (19).
35. Install hose (20) on precleaner (21) and tube (3) and secure with two clamps (22).
36. Install hose (23) on precleaner (21) and tube (7) and secure with two clamps (24).



FOLLOW-THROUGH STEPS

1. Check air flow of NBC system. Follow procedures of TM 3-6680-316-10.

END OF TASK

REPLACE M8A3 NBC HOSES AND BRACKETS (M1059A3 ONLY) 0787 00

THIS WORK PACKAGE COVERS:

Removal (page 0787 00-1).
Installation (page 0787 00-4).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts
Locknut (2)
Lockwasher (12)
Lockwasher (8)

Personnel Required
Unit Mechanic

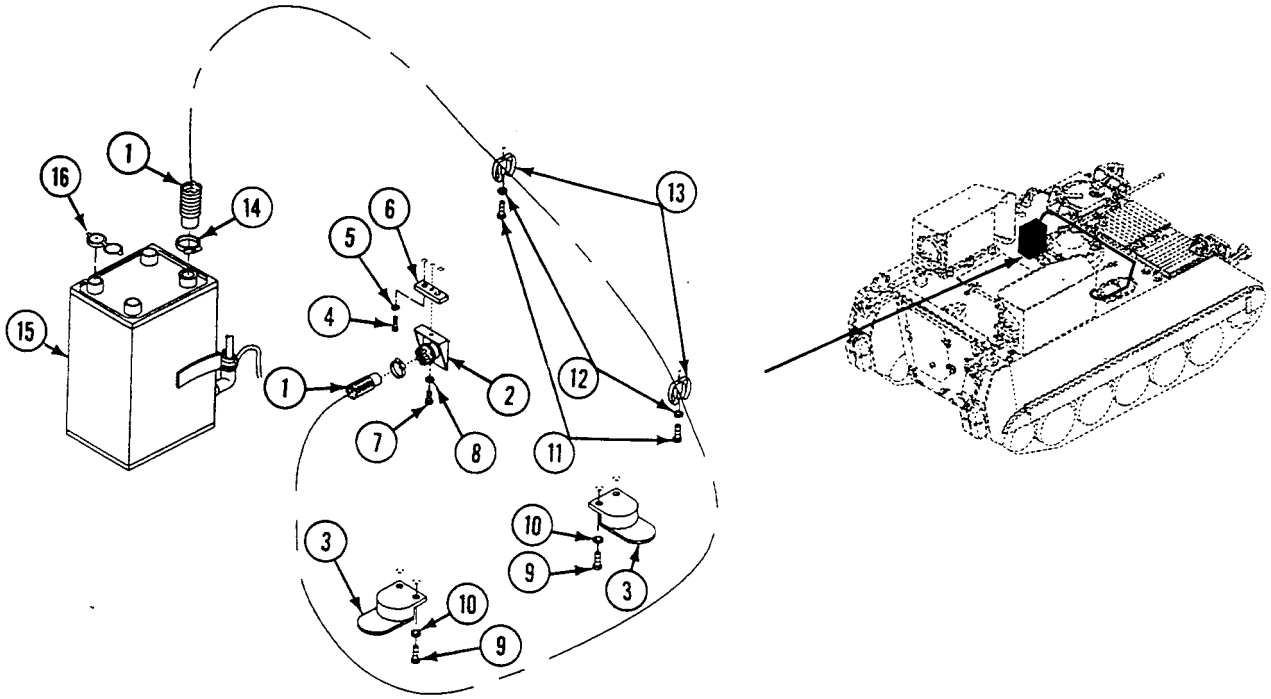
References
See your -10
TM 3-6680-316-10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Ramp lowered (see your -10)
Battery ground strap disconnected (WP 0337 00)
Power plant rear access panel removed (WP 0439 00)

REMOVAL

1. Remove smoke generator operator's hose (1) from connector (2) and two brackets (3).
2. Remove screw (4), lockwasher (5), and connector (2) from support (6). Discard lockwasher.
3. Remove two screws (7), lockwashers (8), and support (6) from vehicle top plate. Discard lockwashers.
4. Remove four screws (9), lockwashers (10), and two brackets (3) from vehicle top plate. Discard lockwashers.
5. Remove smoke generator operator's hose (1), two screws (11), lockwashers (12), and clips (13) from top plate. Discard lockwashers.
6. Loosen clamp (14) and remove smoke generator operator's hose (1) from top of transverse beam and disconnect from air purifier (15).

7. Remove rubber cap (16) from air purifier (15).



8. Remove commander's station hose (1) from connector (2).

9. Remove screw (3), lockwasher (4), and connector (2) from support (5). Discard lockwasher.

10. Remove two screws (6), four washers (7), two locknuts (8), and support (5) from bulkhead above engine access door. Discard locknuts.

11. Remove commander's station hose (1), two screws (9), lockwashers (10), and clips (11) from top plate in front of commander's hatch. Discard lockwashers.

12. Remove two screws (12), lockwashers (13), clamps (14) and commander's station hose (1) from top plate and transverse beam. Remove hose from clamps. Discard lockwashers.

13. Loosen clamp (15) and remove commander's station hose (1) from air purifier (16).

14. Disconnect driver's station hose (17) from connector (18).

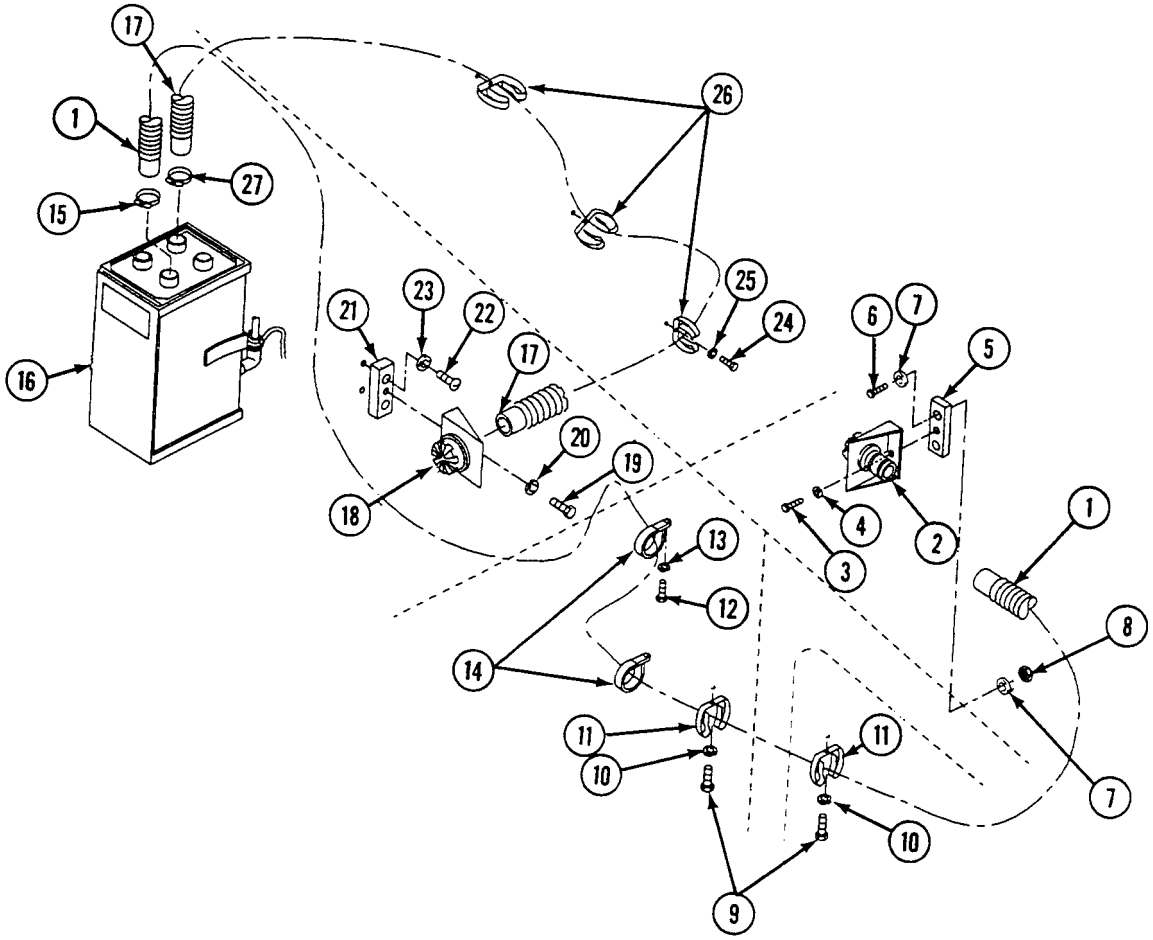
15. Remove screw (19), lockwasher (20), and connector (18) from support (21). Discard lockwasher.

16. Remove two screws (22), lockwashers (23), and support (21) from side plate. Discard lockwashers.

17. Remove driver's station hose (17), three screws (24), lockwashers (25), and clips (26) from side plate. Discard lockwashers.

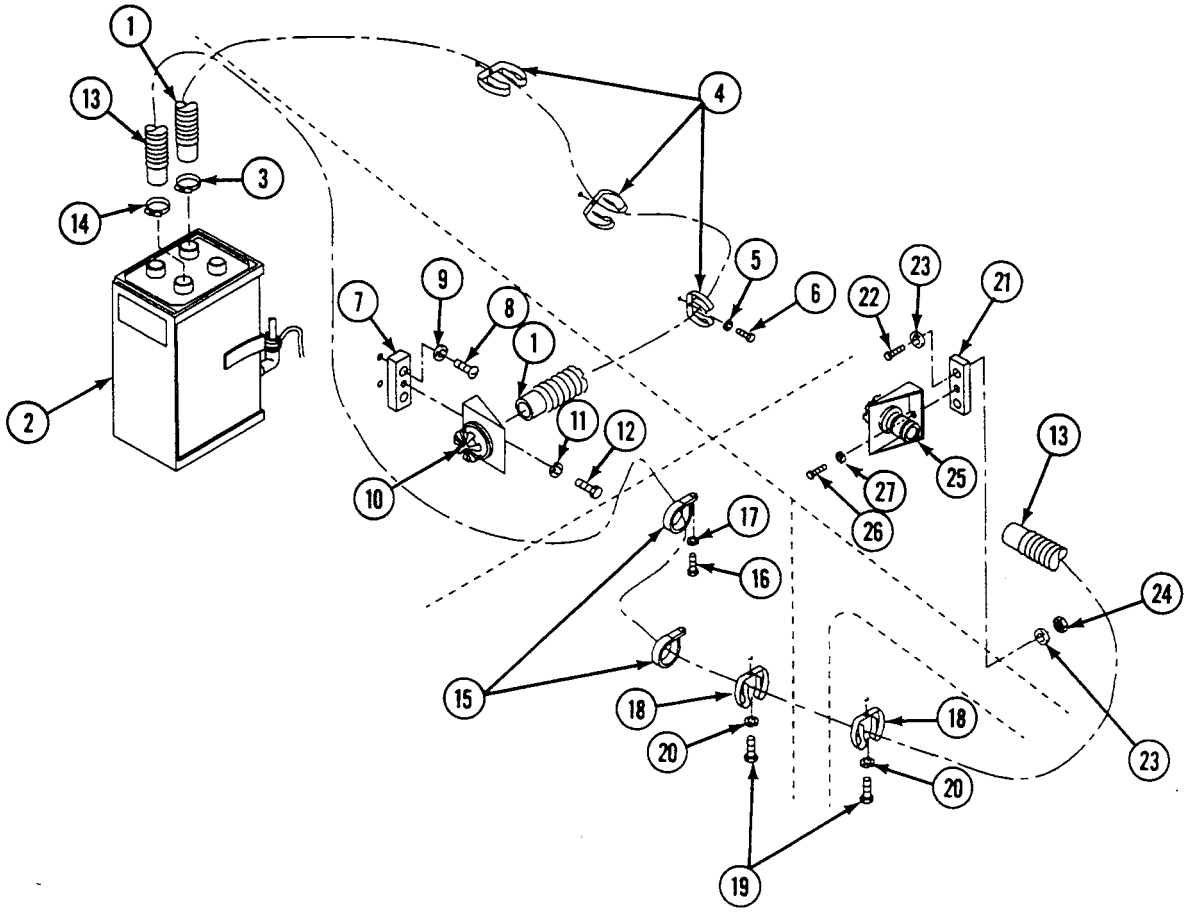
18. Loosen clamp (27) and remove driver's station hose (17) from air purifier (16).

19. Disassemble connectors (2) and (18), if required (WP 0778 00).

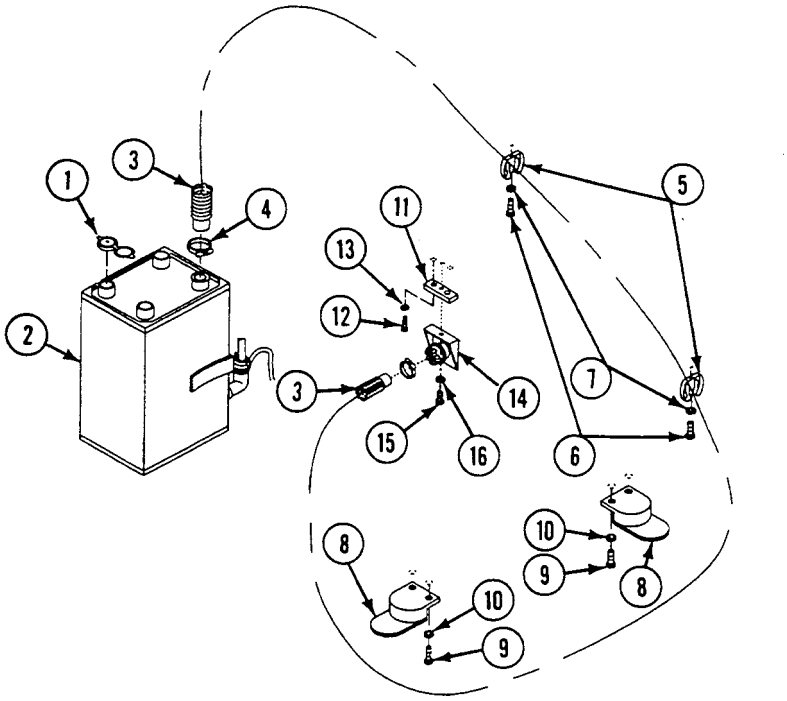


INSTALLATION

1. Install driver's station hose (1) on air purifier (2) and tighten clamp (3).
2. Route driver's station hose (1) to driver's station. Secure to side of hull with three clips (4), new lockwashers (5), and screws (6).
3. Attach support (7), two screws (8), and new lockwashers (9) to side plate.
4. Install connector (10), two new lockwashers (11), and screws (12) to support (7).
5. Insert end of driver's station hose (1) into connector (10).
6. Install commander's station hose (13) on air purifier (2) and tighten clamp (14).
7. Secure commander's station hose (13), two clamps (15), screws (16), and new lockwashers (17) to transverse beam and top plate.
8. Attach commander's station hose (13), two clips (18), screws (19), and new lockwashers (20) to top plate in front of commander's hatch.
9. Install support (21), two screws (22), four washers (23), and two new locknuts (24) to bulkhead above engine access door.
10. Install connector (25), screw (26), and new lockwasher (27) on support (21).
11. Install commander's station hose (13) on connector (25).



12. Attach rubber cap (1) without center hole over unused outlet on air purifier (2).
13. Attach smoke generator operator's hose (3) to air purifier (2) and tighten clamp (4).
14. Install two clips (5), two screws (6), and new lockwashers (7) to top plate behind smoke generator operator's seat.
15. Route smoke generator operator's hose (3) across top of transverse beam and attach to two clips (5).
16. Install two brackets (8), four screws (9) and new lockwashers (10) to vehicle top plate.
17. Install support (11), two screws (12), and new lockwashers (13) to vehicle top plate beside smoke generator operator's seat.
18. Install connector (14), screw (15), and new lockwasher (16) on support (11).
19. Route smoke generator operator's hose (3) around two brackets (8) and insert end of hose in connector (14).



FOLLOW-THROUGH STEPS

1. Install power plant rear access panel (WP 0439 00).
2. Connect battery ground strap (WP 0337 00).
3. Start engine (see your -10).
4. Raise and lock ramp (see your -10).
5. Stop engine (see your -10).
6. Check air flow of NBC system. Follow procedures in TM 3-6680-316-10.

END OF TASK

REPLACE M3 NBC HOSES AND FITTINGS (M1059A3 ONLY) 0788 00

THIS WORK PACKAGE COVERS:

Removal (page 0788 00-1).
Installation (page 0788 00-5).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts

Grommet
Lockwasher (23)
Straps (as required)

Personnel Required

Unit Mechanic

References

See your -10
TM 3-6680-316-10

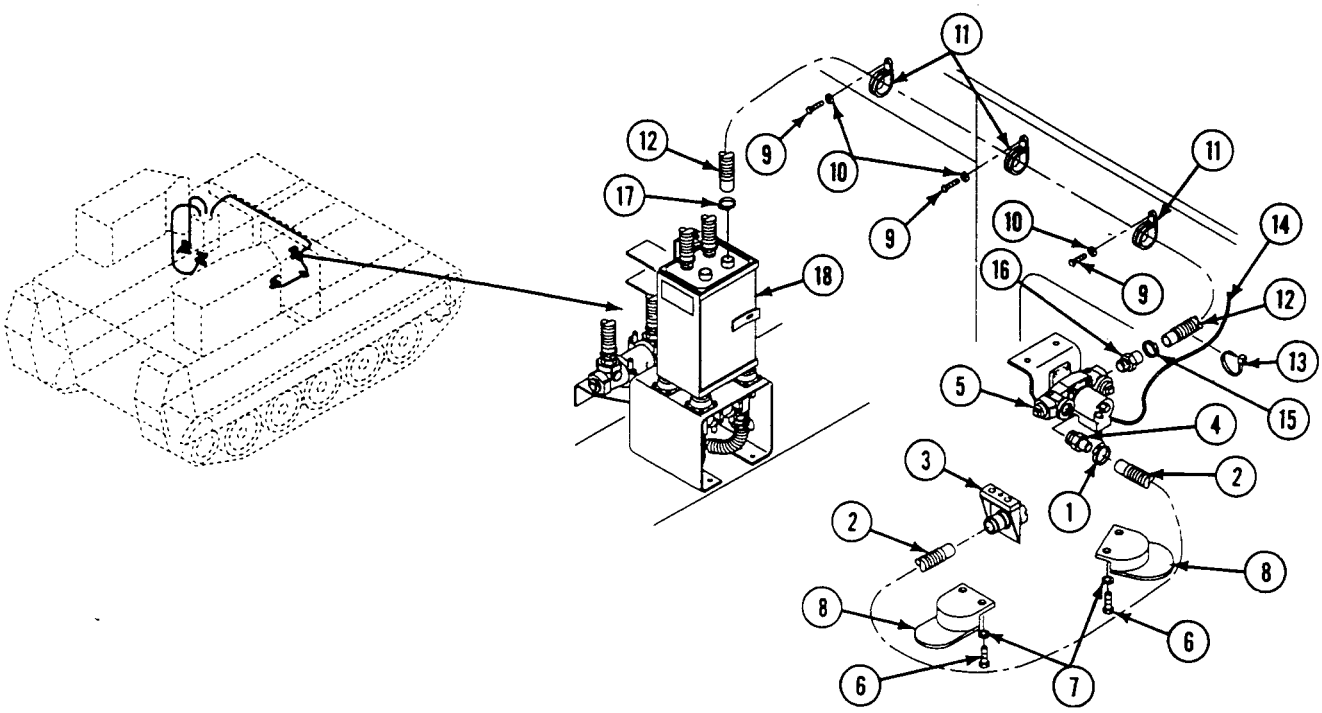
Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Battery ground strap disconnected (WP 0337 00)

REMOVAL

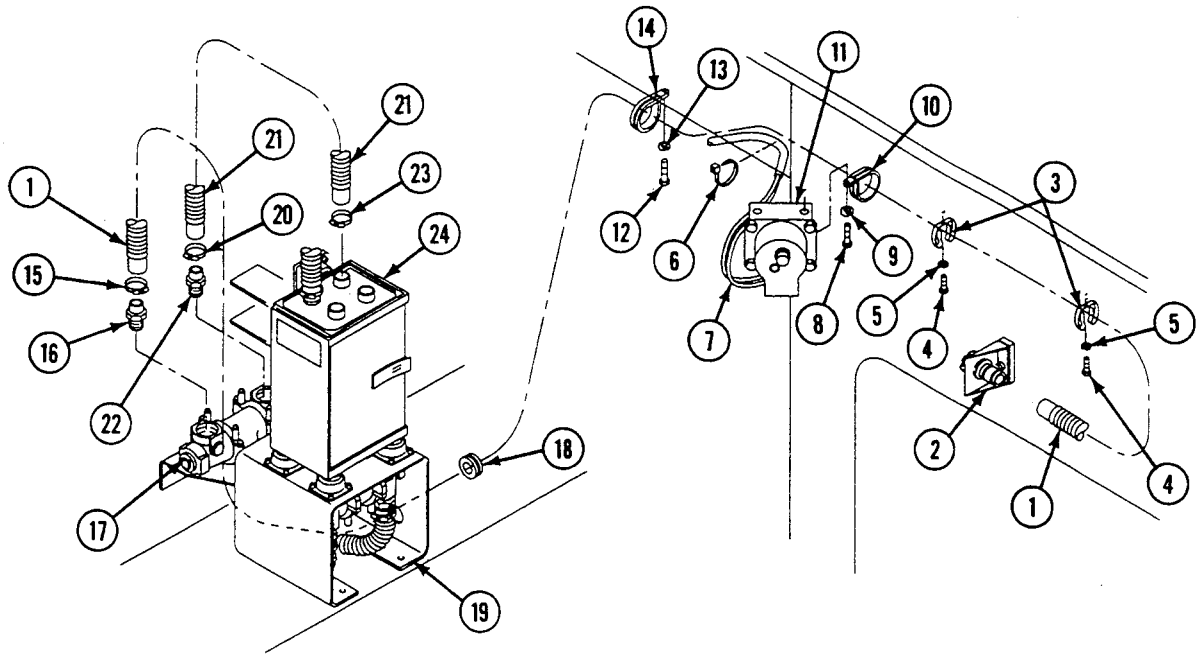
1. Loosen clamp (1) and remove hose (2) from connector (3) and adapter (4) on operator's heater (5).
2. If damaged, remove adapter (4) from operator's heater (5).
3. Remove four screws (6), lockwashers (7), and two brackets (8) from top plate. Discard lockwashers.
4. Remove three screws (9), lockwashers (10), and clamps (11) from top plate. Remove clamps from operator's inlet hose (12). Discard lockwashers.
5. Cut straps (13) that secure lead 537D (14) to operator's inlet hose (12). Discard straps.
6. Loosen clamp (15) and remove operator's inlet hose (12) from adapter (16) on operator's heater (5).
7. If damaged, remove adapter (16) from operator's heater (5).

8. Loosen clamp (17) and remove operator's inlet hose (12) from air purifier (18).



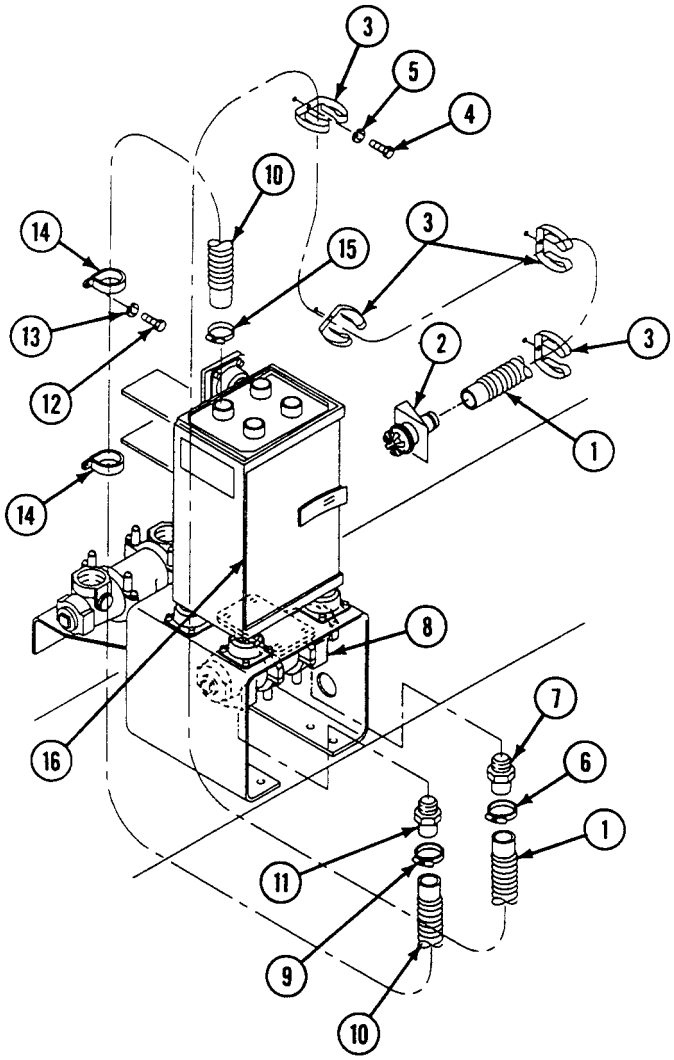
9. Remove commander's station hose (1) from connector (2) and two clips (3) on top plate.
10. Remove two screws (4), lockwashers (5), and clips (3) from top plate. Discard lockwashers.
11. Cut straps (6) that secure leads (7) to commander's station hose (1). Discard straps.
12. Remove screw (8), lockwasher (9), and clamp (10) from bracket (11) and top plate. Remove clamp from commander's station hose (1).
13. Remove screw (12), lockwasher (13), and clamp (14) from top plate. Remove clamp from commander's station hose (1). Discard lockwashers.
14. Loosen clamp (15) and remove commander's station hose (1) from adapter (16) on heater (17).
15. If damaged, remove adapter (16) from heater (17).
16. Remove commander's station hose (1) and grommet (18) from mount (19).
17. Loosen clamp (20) and remove hose (21) from adapter (22) on heater (17).
18. If damaged, remove adapter (22) from heater (17).

19. Loosen clamp (23) and remove hose (21) from air purifier (24).



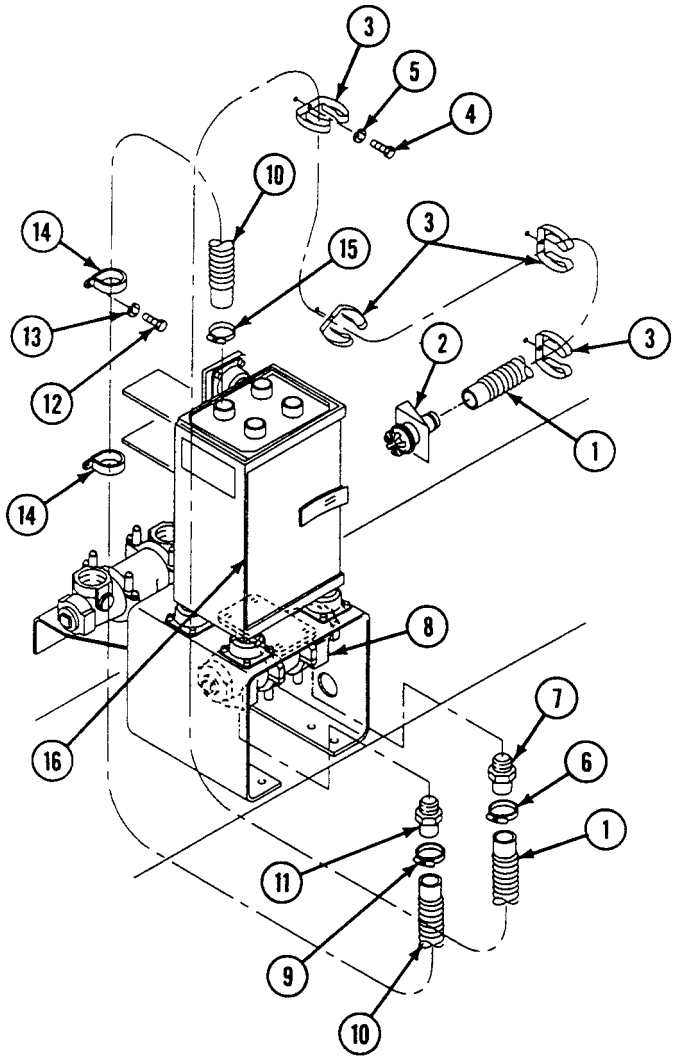
REPLACE M3 NBC HOSES AND FITTINGS (M1059A3 ONLY) — Continued 0788 00

20. Remove driver's station hose (1) from connector (2) and four clips (3) on driver's bulkhead.
21. Remove four screws (4), lockwashers (5), and clips (3) from driver's bulkhead. Discard lockwashers.
22. Loosen clamp (6) and remove driver's station hose (1) from adapter (7) on heater (8).
23. If damaged, remove adapter (7) from heater (8).
24. Loosen clamp (9) and remove hose (10) from adapter (11) on heater (8).
25. If damaged, remove adapter (11) from heater (8)
26. Remove two screws (12), lockwashers (13), and clamps (14) from bulkhead. Remove clamps from hose (10).
27. Loosen clamp (15) and remove hose (10) from air purifier (16).
28. Disassemble connector (2), if required (WP 0778 00).

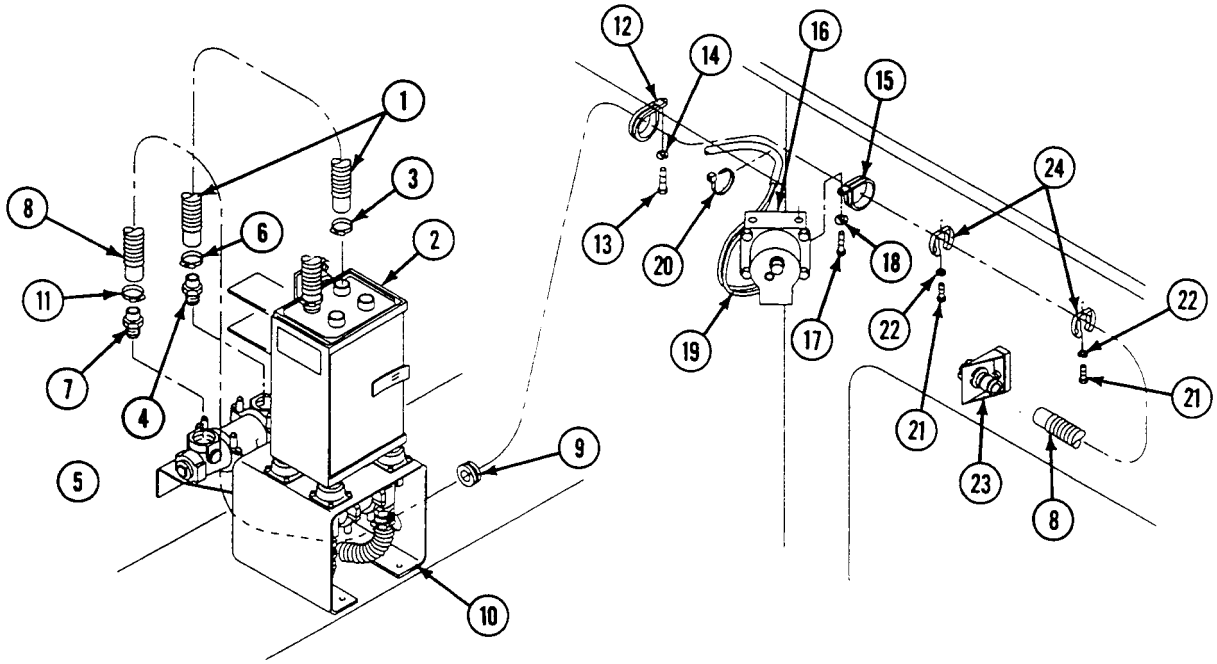


INSTALLATION

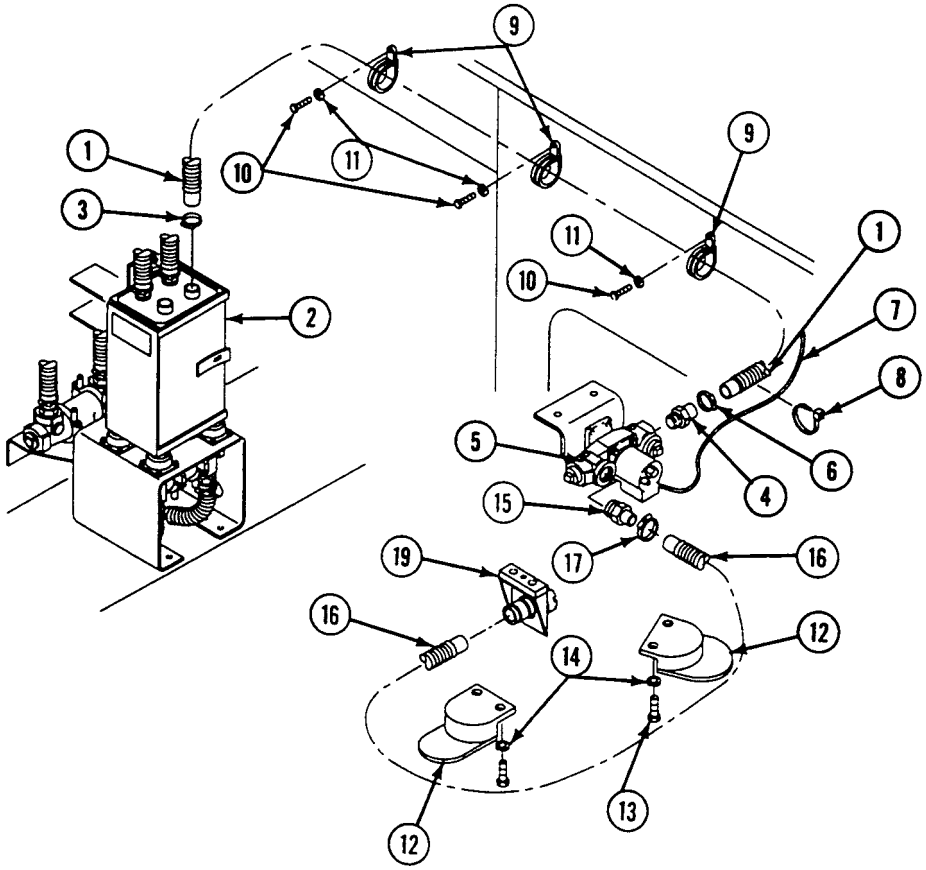
1. Assemble connector (2), if required (WP 0778 00).
2. Install hose (10) on air purifier (16) and tighten clamp (15).
3. Install two clamps (14) on hose (10). Secure clamps to bulkhead with two screws (12) and new lockwashers (13).
4. If removed, install adapter (11) on heater (8).
5. Install hose (10) on adapter (11) on heater (8) and tighten clamp (9).
6. If removed, install adapter (7) on heater (8).
7. Install driver's station hose (1) on adapter (7) on heater (8) and tighten clamp (6).
8. Install four screws (4), new lockwashers (5), and clips (3) on driver's bulkhead.
9. Install driver's station hose (1) in four clips (3) on connector (2).



10. Install hose (1) on air purifier (2) and tighten clamp (3).
11. If removed, install adapter (4) on heater (5).
12. Install hose (1) on adapter (4) on heater (5) and tighten clamp (6).
13. If removed, install adapter (7) on heater (5).
14. Route commander's station hose (8) with grommet (9) through mount (10). Insert grommet in mount.
15. Install commander's station hose (8) on adapter (7) on heater (5) and tighten clamp (11).
16. Install clamp (12) on commander's station hose (8). Secure clamp (12) to top plate with screw (13) and new lockwasher (14).
17. Install clamp (15) on commander's station hose (8). Secure clamp to bracket (16) and top plate with screw (17) and new lockwasher (18).
18. Secure leads (19) to commander's station hose (8) with new straps (20).
19. Install two screws (21), new lockwashers (22), and clips (23) on top plate.
20. Install commander's station hose (8) on connector (23) and in two clips (24) bolted on top plate.



21. Install hose (1) on air purifier (2) and tighten clamp (3).
22. If removed, install adapter (4) on operator's heater (5).
23. Install operator's inlet hose (1) on adapter (4) and tighten clamp (6).
24. Connect lead 537D (7) to operator's heater (5). Install new straps (8) to secure lead to operator's inlet hose (1).
25. Install three clamps (9) on operator's inlet hose (1). Secure clamps to top plate with three screws (10) and new lockwashers (11).
26. Install two brackets (12), four screws (13), and new lockwashers (14) on top plate.
27. If removed, install adapter (15) on operator's heater (5).
28. Install hose (16) on adapter (15) and tighten clamp (17).
29. Route hose (16) around bracket (12). Install hose on connector (19).



FOLLOW-THROUGH STEPS

1. Connect battery ground strap (WP 0337 00).
2. Check air flow of NBC system. Follow procedures in TM 3-6680-316-10.

END OF TASK

REPLACE M13 NBC FILTERS AND HOSES (M1068A3 ONLY) 0789 00

THIS WORK PACKAGE COVERS:

Removal (page 0789 00-1).
Installation (page 0789 00-4).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0926 00, Item 65)

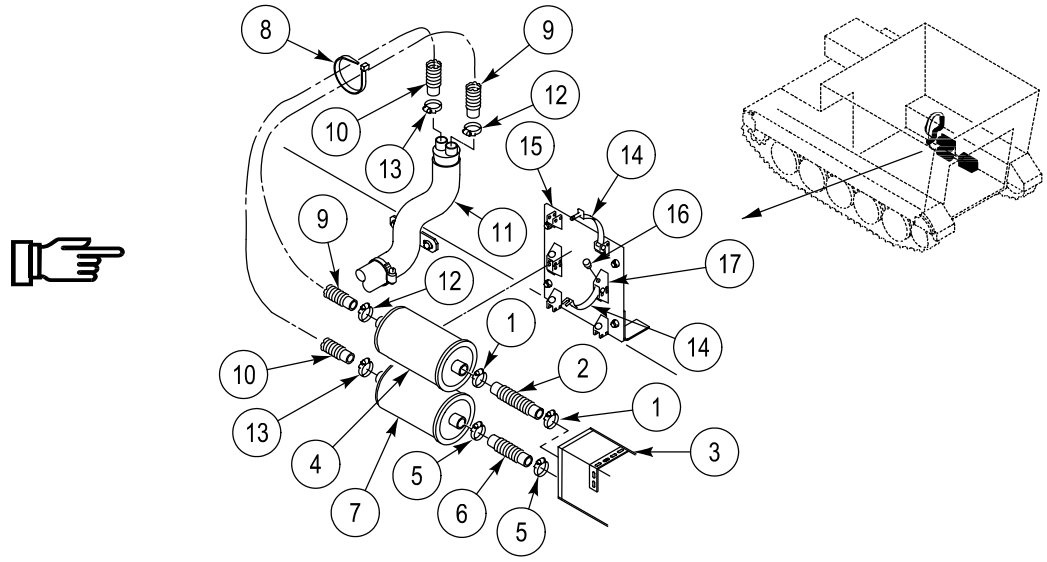
Materials/Parts
Locknut (2)
Lockwasher (10)
Tie strap (AR)

Personnel Required
Unit Mechanic

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Ramp lowered (see your -10)
Battery ground leads disconnected (WP 0338 00)
Radio operator's seats removed (WP 0568 00)
Crew compartment floor plates removed (WP 0544 00)

REMOVAL

1. Loosen two clamps (1) and remove hose (2) from precleaner (3) and filter (4).
2. Loosen two clamps (5) and remove hose (6) from precleaner (3) and filter (7).
3. Cut tie strap (8) securing hoses (9) and (10) together at manifold (11). Discard tie strap.
4. Loosen two clamps (12) and remove hose (9) from filter (4) and manifold (11).
5. Loosen two clamps (13) and remove hose (10) from filter (7) and manifold (11).
6. Loosen four clamps (14). Open clamps and remove filters (4) and (7) from mount (15).
7. If damaged, remove any rubber bumper (16) from bracket (17) as required. Discard rubber bumpers.

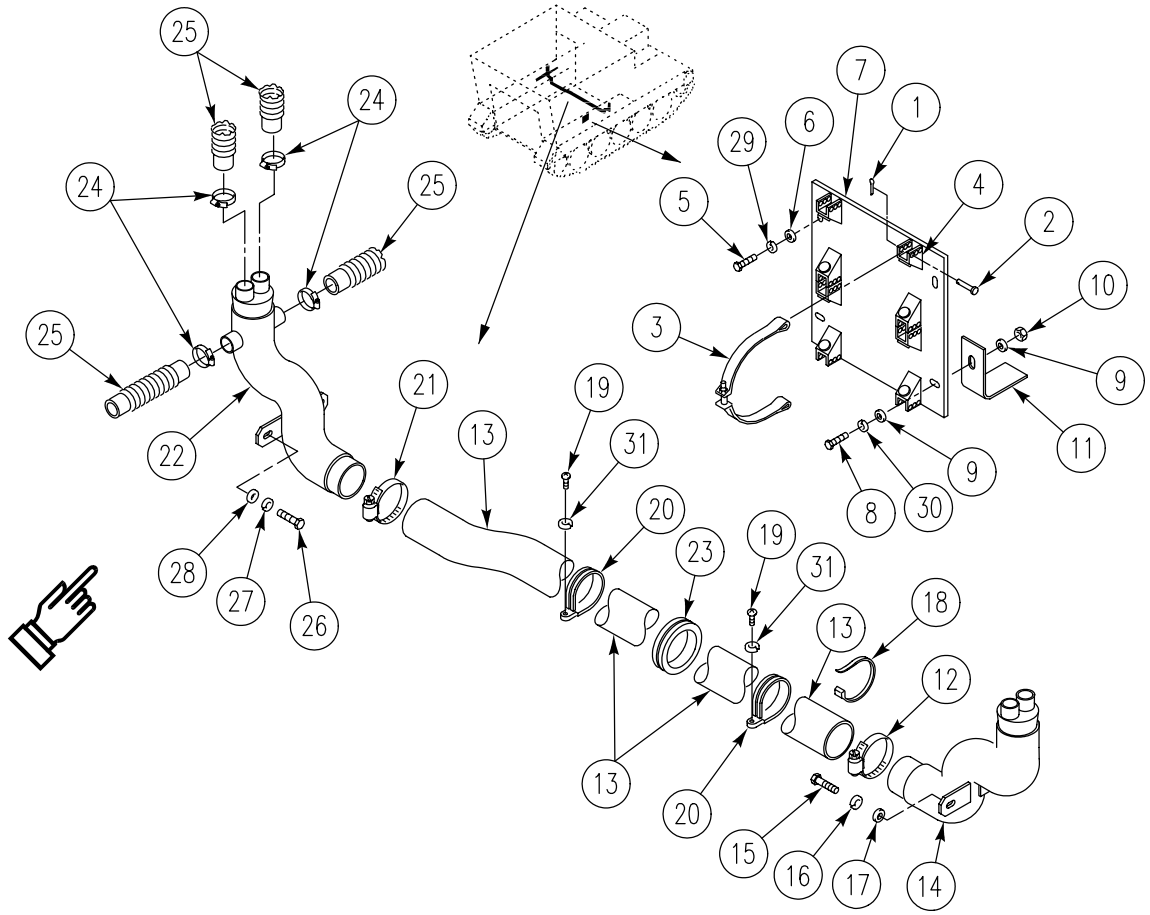


8. If any cotter pin (1) is damaged, remove cotter pin, straight pin (2), and clamp (3) from bracket (4) as required. Discard cotter pins.

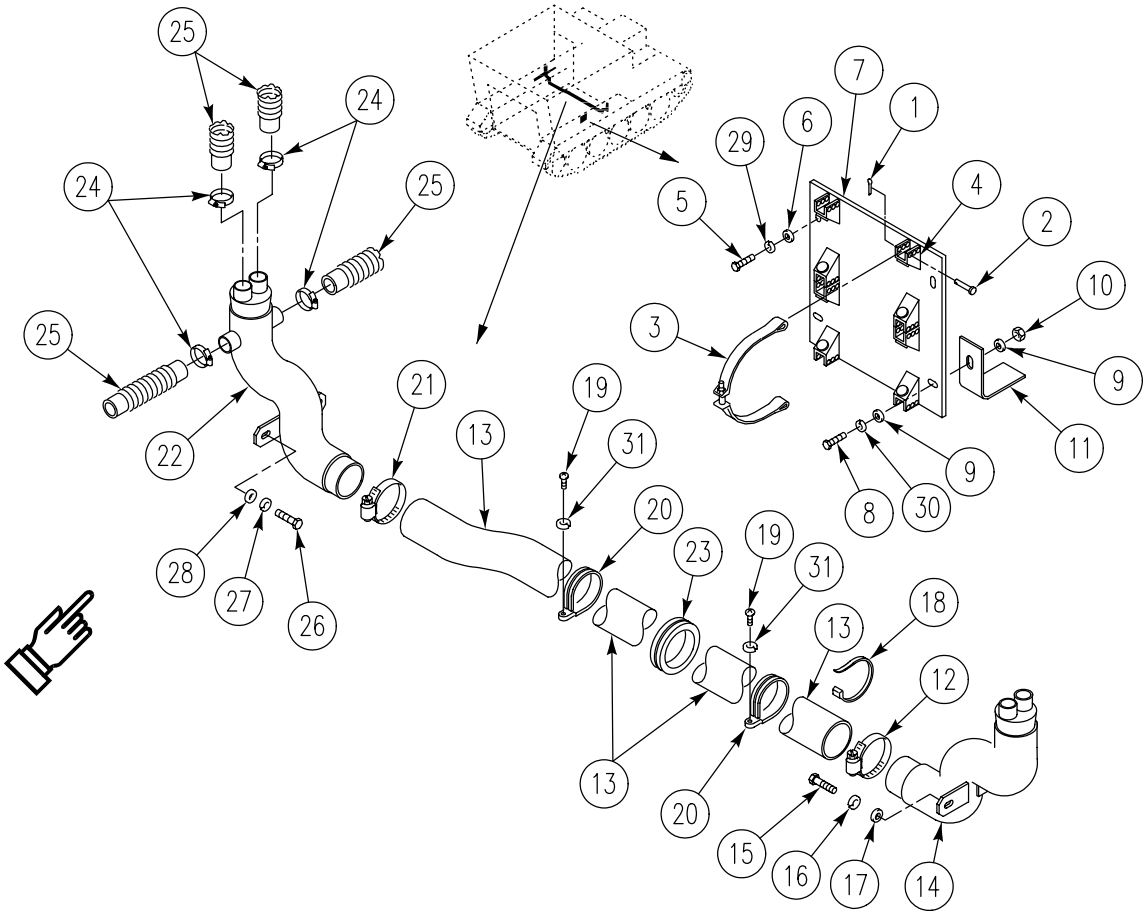
NOTE

If mount is damaged, do Step 9 and Step 10. If not, go to Step 11.

9. Remove two screws (5), lockwashers (29), and washers (6) from mount (7) and weldnuts. Discard lockwashers.
10. Remove two screws (8), four washers (9), two lockwashers (30), two locknuts (10), and mount (7) from welded bracket (11). Discard locknuts and lockwashers.
11. Loosen clamp (12) and remove hose (13) from manifold (14).
12. Remove two screws (15), lockwashers (16), washers (17), and manifold (14) from sponson. Discard lockwashers.

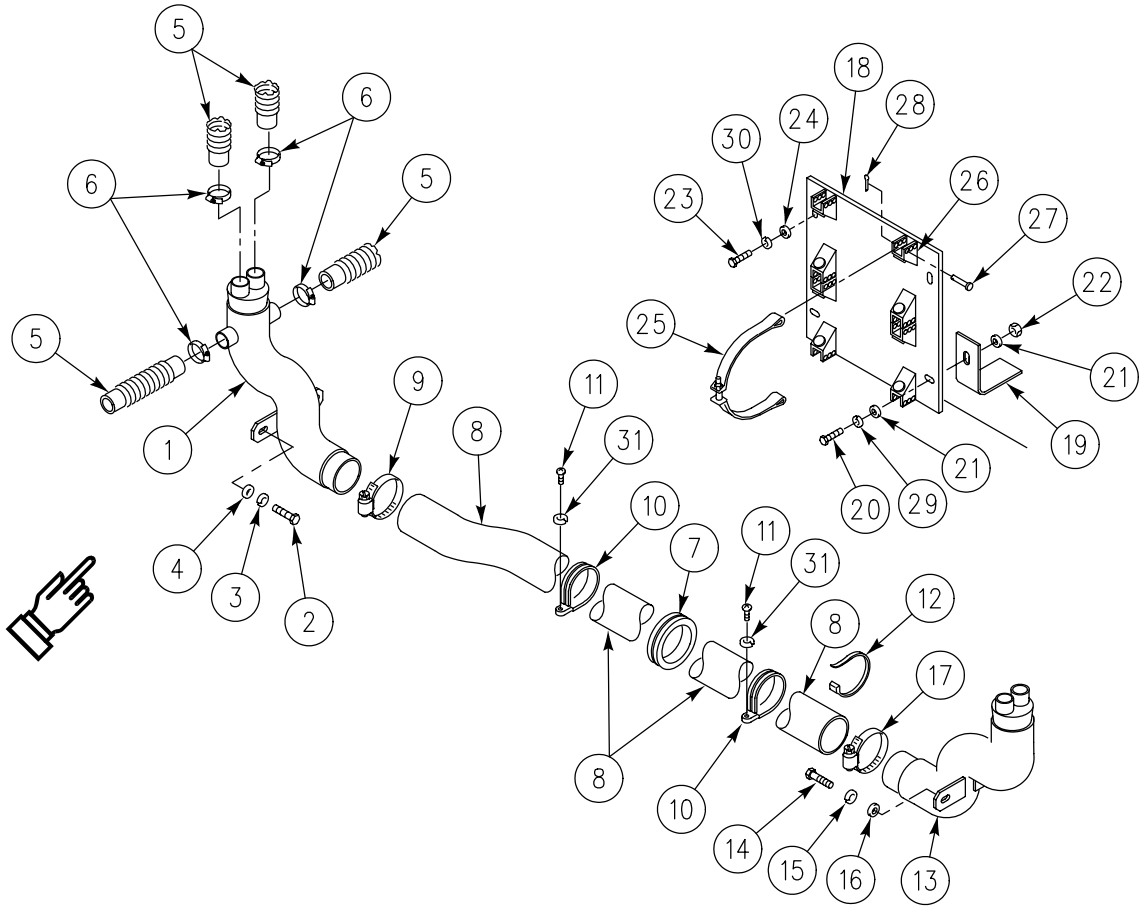


13. Cut tie strap (18) securing two fuel lines to hose (13). Discard tie strap.
14. Remove two screws (19), lockwashers (31), and clamps (20) from hose (13). Discard lockwashers.
15. Loosen clamp (21) and remove hose (13) from manifold (22).
16. Remove hose (13) with grommet (23) from hull.
17. If damaged, remove grommet (23) from hose (13). Discard grommet.
18. Loosen four clamps (24) and remove four heater inlet hoses (25) from manifold (22).
19. Remove two screws (26), lockwashers (27), washers (28), and manifold (22) from sponson. Discard lockwashers.



INSTALLATION

1. Install manifold (1) on sponson. Secure with two screws (2), washers (3), and new lockwashers (4).
2. Install four heater inlet hoses (5) on manifold (1) and tighten four clamps (6).
3. If removed, install new grommet (7) on hose (8). Route hose through hull and insert grommet in hull.
4. Install hose (8) on manifold (1) and tighten clamp (9).
5. Install two clamps (10) on hose (8). Secure clamps and hose to hull with two new lockwashers (31) and screws (11).
6. Secure two fuel lines to hose (8) with new tie strap (12).

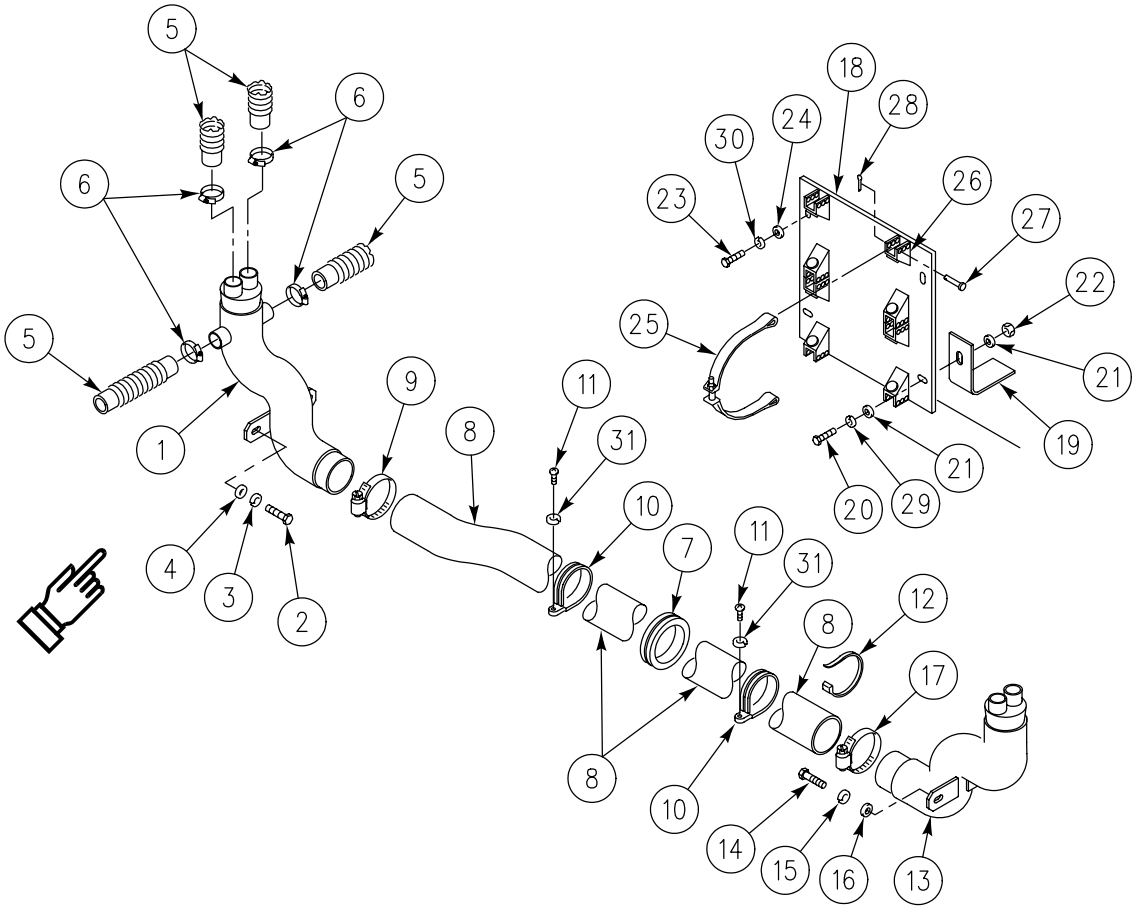


7. Install manifold (13) on sponson. Secure with two screws (14), new lockwashers (15), and washers (16).
8. Install hose (8) and clamp (17) on manifold (13). Tighten clamp.

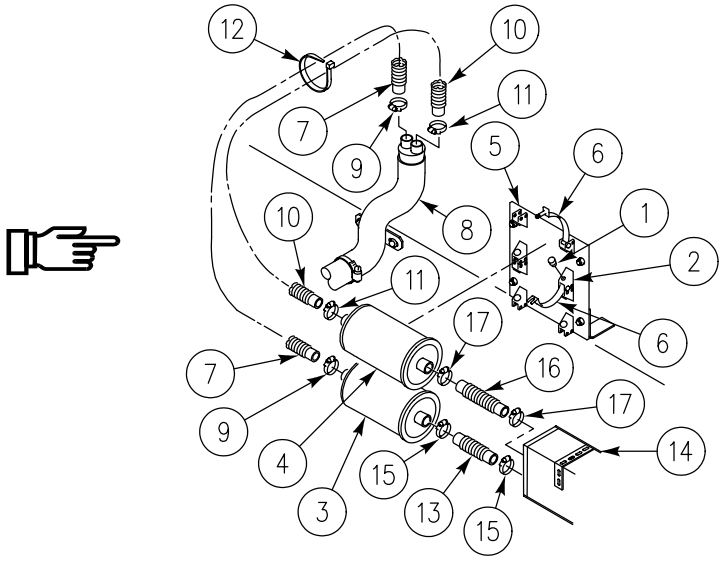
NOTE

If mount was removed, do Step 9 and Step 10. If not, go to Step 11.

9. Install mount (18) on welded bracket (19). Secure with two screws (20), four washers (21), two new lockwashers (29), and new locknuts (22).
10. If removed, install mount (18) on weldnut. Secure with two screws (23), new locknuts (30), and washers (24).
11. If removed, install clamps (25) on bracket (26). Secure with straight pins (27) and new cotter pins (28).



12. If removed or missing, install new rubber bumpers (1) on bracket (2), as required.
13. Install filters (3) and (4) on mount (5) and tighten clamps (6).
14. Install hose (7) on filter (3) and manifold (8) and tighten clamps (9).
15. Install hose (10) on filter (4) and manifold (8) and tighten clamps (11).
16. Secure hoses (7) and (10) together at manifold (8) with new tie strap (12).
17. Install hose (13) on precleaner (14) and filter (3) and tighten clamps (15).
18. Install hose (16) on precleaner (14) and filter (4) and tighten clamps (17).



FOLLOW-THROUGH STEPS

1. Install radio operator's seats (WP 0568 00).
2. Install crew compartment floor plates (WP 0544 00).
3. Connect battery ground leads (WP 0338 00).
4. Start engine (see your -10).
5. Raise and lock ramp (see your -10).
6. Stop engine (see your -10).
7. Check air flow of NBC system. Follow procedures in TM 3-6680-316-10.

END OF TASK

REPLACE M13 NBC HEATER HOSES (M1068A3 ONLY) 0790 00

THIS WORK PACKAGE COVERS:

Removal (page 0790 00-2).
Installation (page 0790 00-6).

INITIAL SETUP:

Maintenance Level
Unit

Personnel Required
Unit Mechanic

Tools and Special Tools
General Mechanic's Tool Kit (WP 0926 00, Item 65)

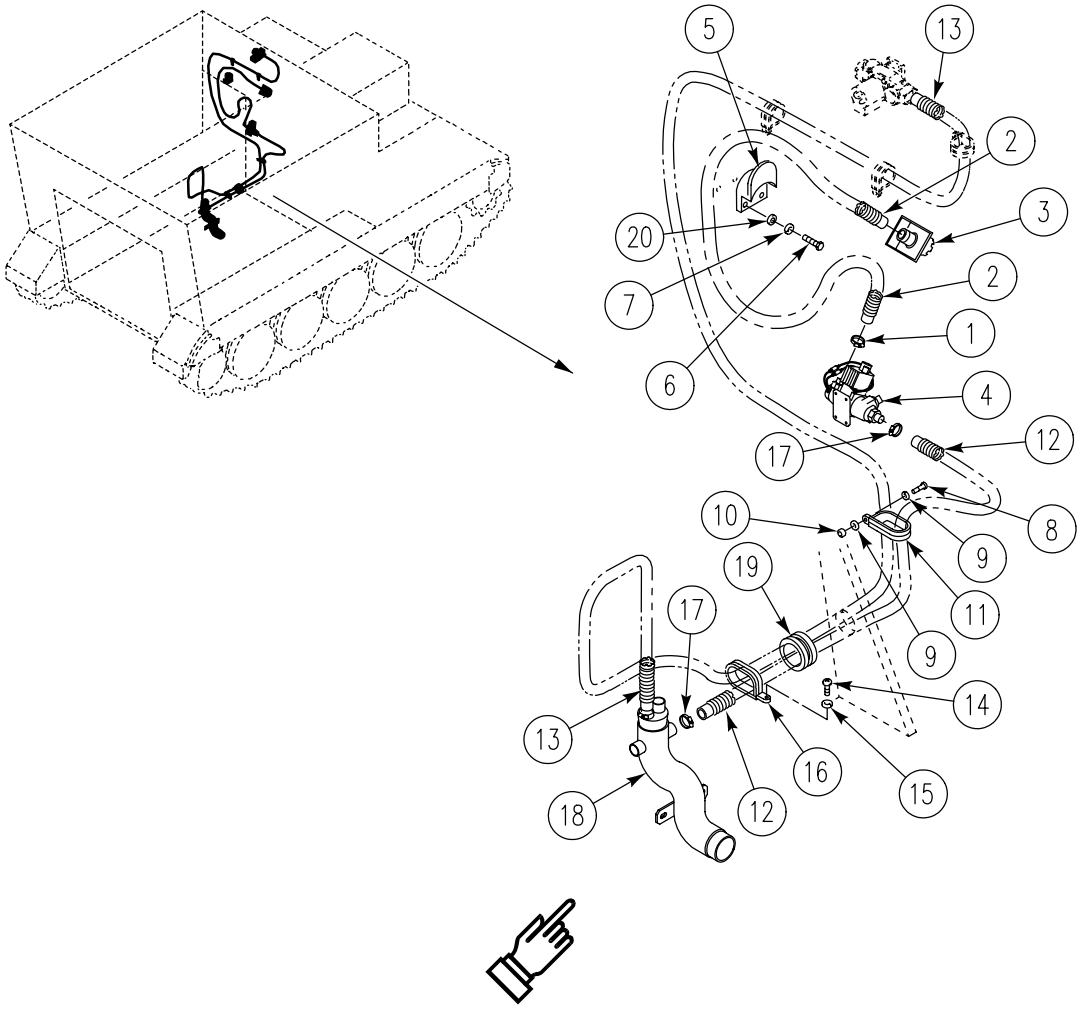
Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Ramp lowered (see your -10)
Battery ground lead disconnected (WP 0338 00)

Materials/Parts
Grommet (2)
Locknut (2)
Locknut (4)
Locknut (10)
Lockwasher (4)
Lockwasher (4)
Lockwasher (6)
Tie strap (AR)

REPLACE M13 NBC HEATER HOSES (M1068A3 ONLY) — Continued 0790 00

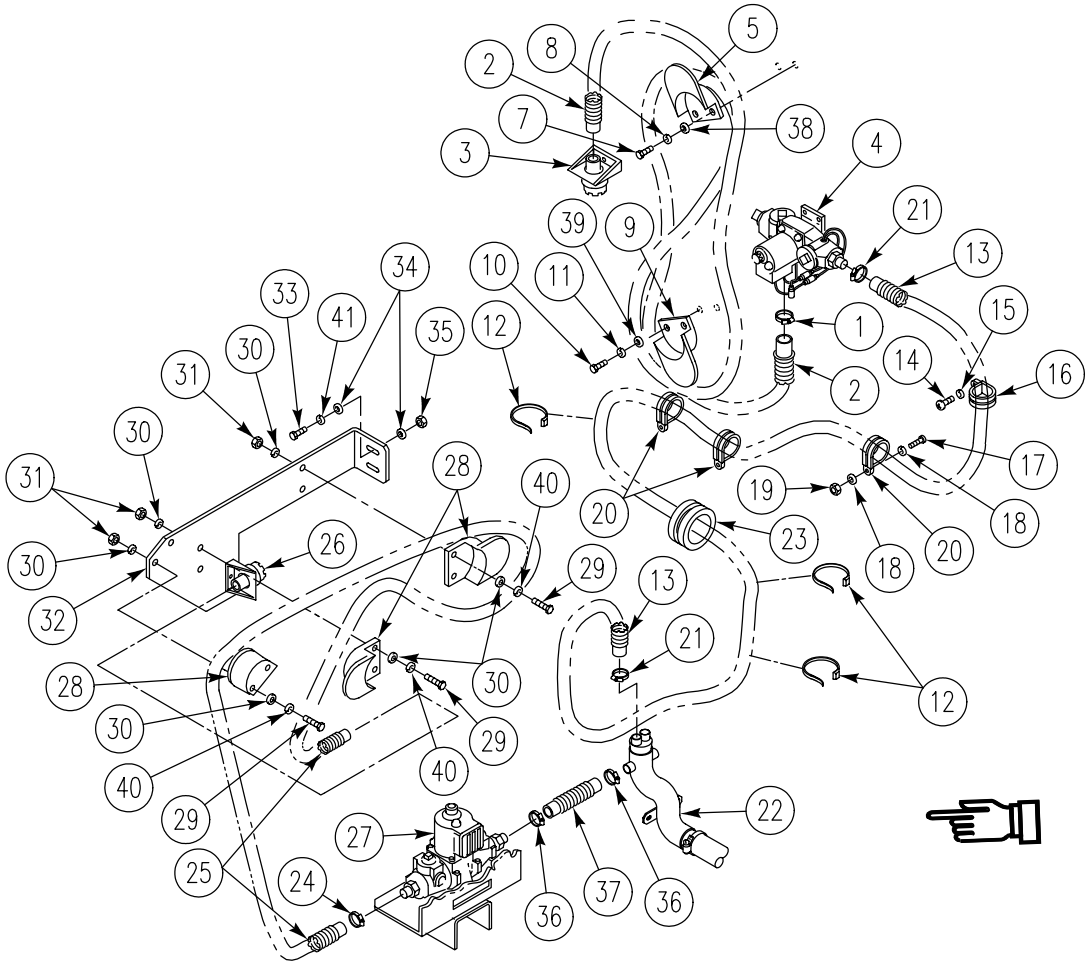
REMOVAL

1. Loosen clamp (1) on driver's outlet hose (2). Remove hose from connector (3) and driver's heater (4).
2. If bracket (5) is damaged, remove two screws (6), lockwashers (20), washers (7), and bracket from driver's bulkhead. Discard lockwashers.
3. Remove screw (8), two washers (9), one locknut (10), and clamp (11) from welded bracket. Remove clamp from driver's inlet hose (12) and commander's inlet hose (13). Discard locknut.
4. Remove screw (14), lockwasher (15), and clamp (16) from sponson. Remove clamp from driver's inlet hose (12) and commander's inlet hose (13). Discard lockwasher.
5. Loosen two clamps (17) on driver's inlet hose (12). Remove hose from heater (4) and manifold (18).
6. Remove driver's inlet hose (12), with grommet (19), from welded frame. Discard grommet if damaged.



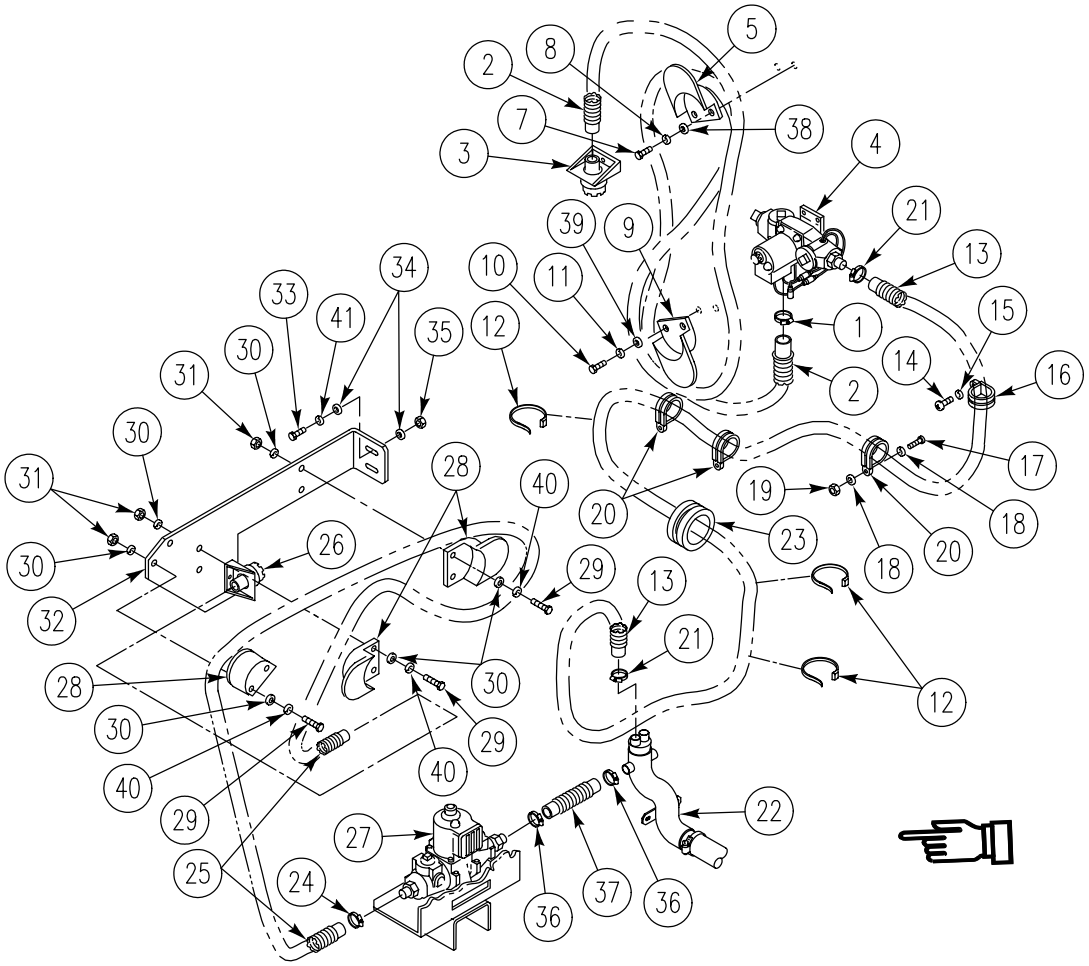
REPLACE M13 NBC HEATER HOSES (M1068A3 ONLY) — Continued 0790 00

7. Loosen clamp (1) on commander's outlet hose (2). Remove hose from connector (3) and commander's heater (4).
8. If upper bracket (5) is damaged, remove two screws (7), lockwashers (8), washers (38), bracket, and spacer from commander's bulkhead. Discard lockwashers.
9. If lower bracket (9) is damaged, remove two screws (10), lockwashers (11), washers (39), and bracket from commander's bulkhead. Discard lockwashers.
10. Cut all tie straps (12) securing commander's inlet hose (13) to electrical leads. Discard tie straps.
11. Remove screw (14), lockwasher (15), and clamp (16) from commander's bulkhead. Remove clamp from commander's inlet hose (13). Discard lockwasher.
12. Remove three screws (17), six washers (18), three locknuts (19), and clamps (20) from crossbeam. Remove clamps from commander's inlet hose (13). Discard locknuts.

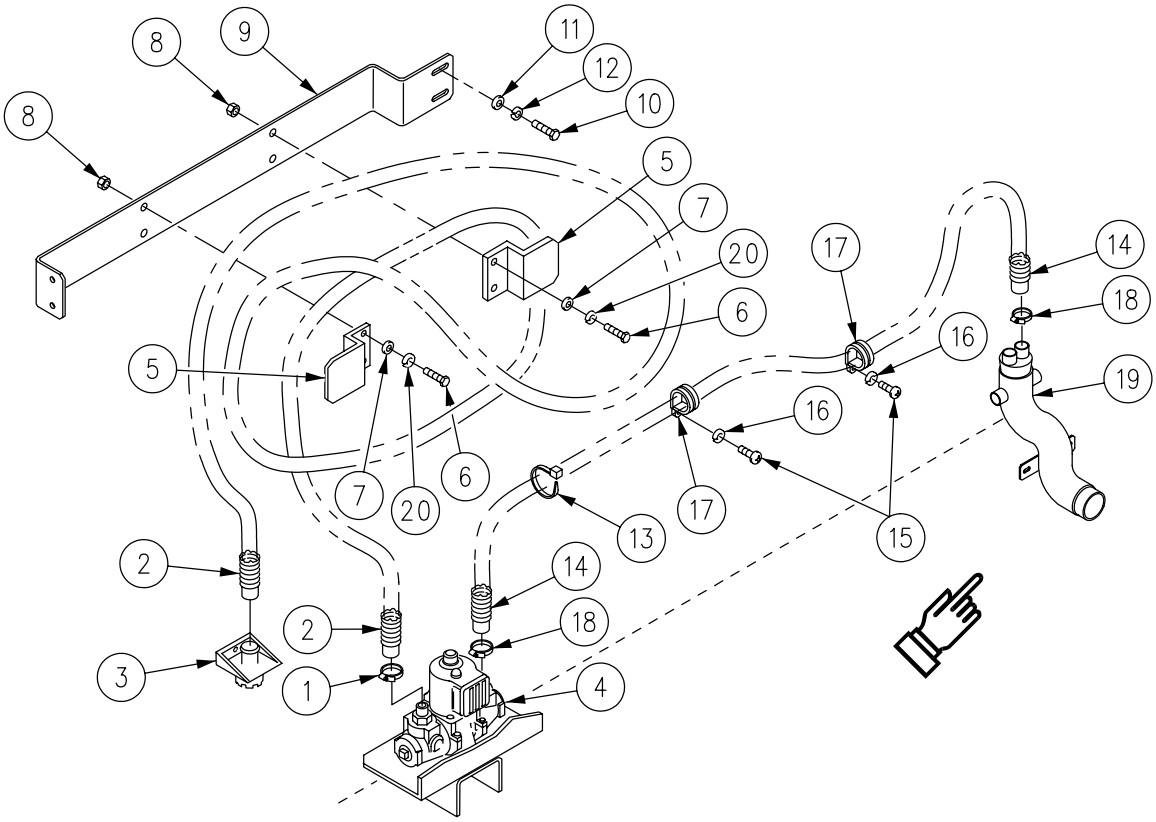


REPLACE M13 NBC HEATER HOSES (M1068A3 ONLY) — Continued **0790 00**

13. Loosen two clamps (21) on commander's inlet hose (13). Remove hose from commander's heater (4) and manifold (22).
14. Remove commander's inlet hose (13), with grommet (23), from welded frame. Discard grommet if damaged.
15. Loosen clamp (24) on forward operator's outlet hose (25). Remove hose from connector (26) and forward operator's heater (27).
16. If any of three brackets (28) are damaged, remove two screws (29), four washers (30), two lockwashers (40), nuts (31), and damaged bracket (28) from bracket (32). Discard lockwashers.
17. If bracket (32) is damaged, remove two screws (33), four washers (34), two lockwashers (41), nuts (35), and damaged bracket from table supports. Discard lockwashers.
18. Loosen two clamps (36) on forward operator's inlet hose (37). Remove hose from forward operator's heater (27) and manifold (22).

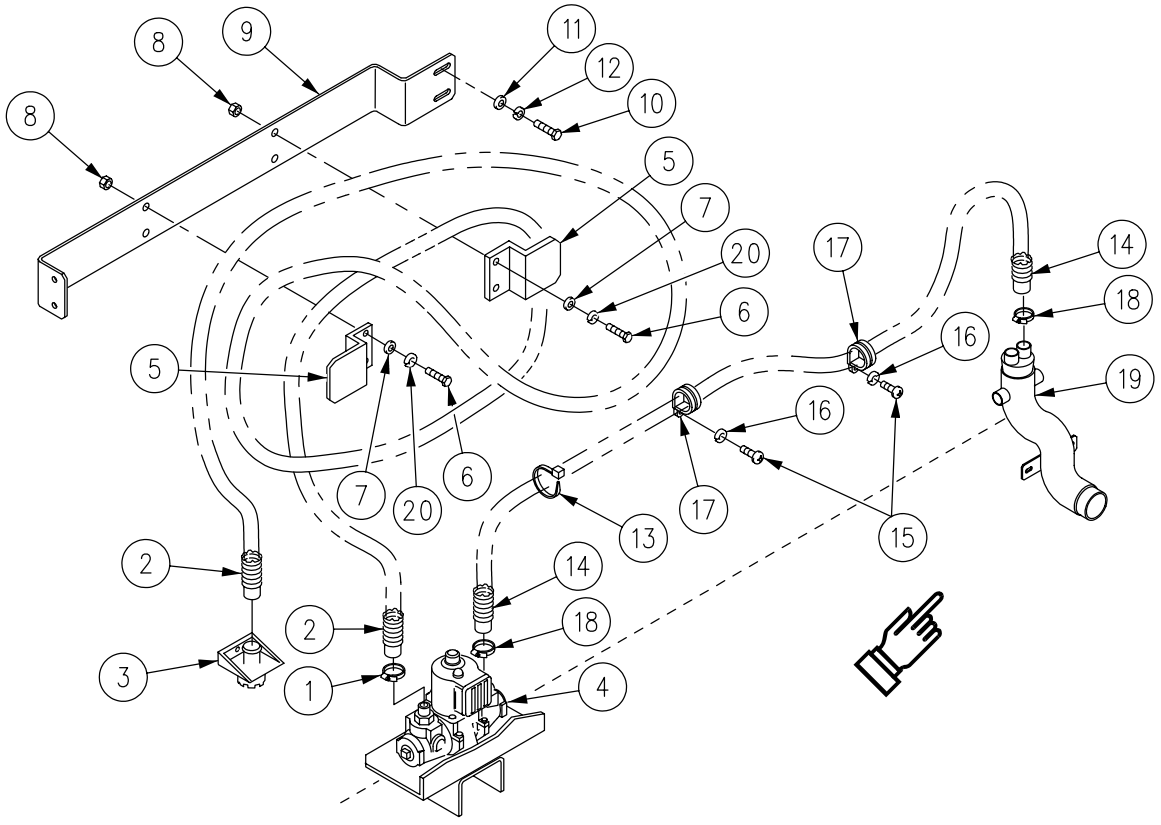


19. Loosen clamp (1) on rear operator's outlet hose (2). Remove hose from connector (3) and rear operator's heater (4).
20. If either of two brackets (5) are damaged, remove two screws (6), washers (7), lockwashers (20), nuts (8), and damaged bracket (5) from bracket (9). Discard lockwashers.
21. If bracket (9) is damaged, remove four screws (10), washers (11), lockwashers (12), and bracket from table supports. Discard lockwashers.
22. Cut tie straps (13) securing electrical leads to rear operator's inlet hose (14). Discard tie straps.
23. Remove two screws (15), lockwashers (16), and clamps (17) from sponson. Remove clamps from rear operator's inlet hose (14). Discard lockwashers.
24. Loosen two clamps (18) on rear operator's inlet hose (14). Remove hose from rear operator's heater (4) and manifold (19).

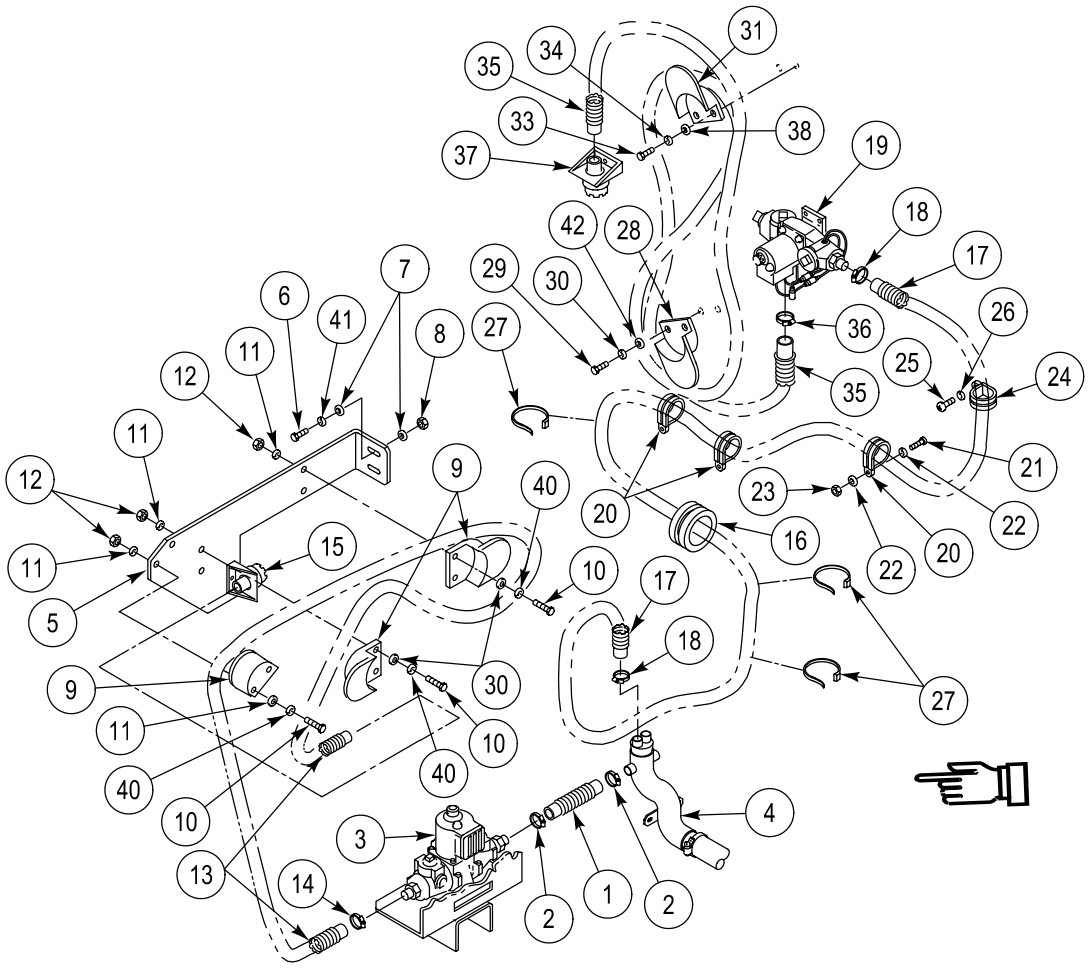


INSTALLATION

1. Install rear operator's inlet hose (14) and two clamps (18) on rear operator's heater (4) and manifold (19). Tighten clamps.
2. Install two clamps (17) on rear operator's inlet hose (14). Secure clamps on sponson with two screws (15) and new lockwashers (16).
3. Secure electrical leads to rear operator's inlet hose (14) with new tie straps (13).
4. If bracket (9) was removed, install bracket on table supports with four screws (10), washers (11), and new lockwashers (12).
5. If either bracket (5) was removed, install bracket (5) on bracket (9) with two screws (6), washers (7), new lockwashers (20), and nuts (8).
6. Install rear operator's outlet hose (2) and two clamps (1) on connector (3) and rear operator's heater (4). Tighten clamps.

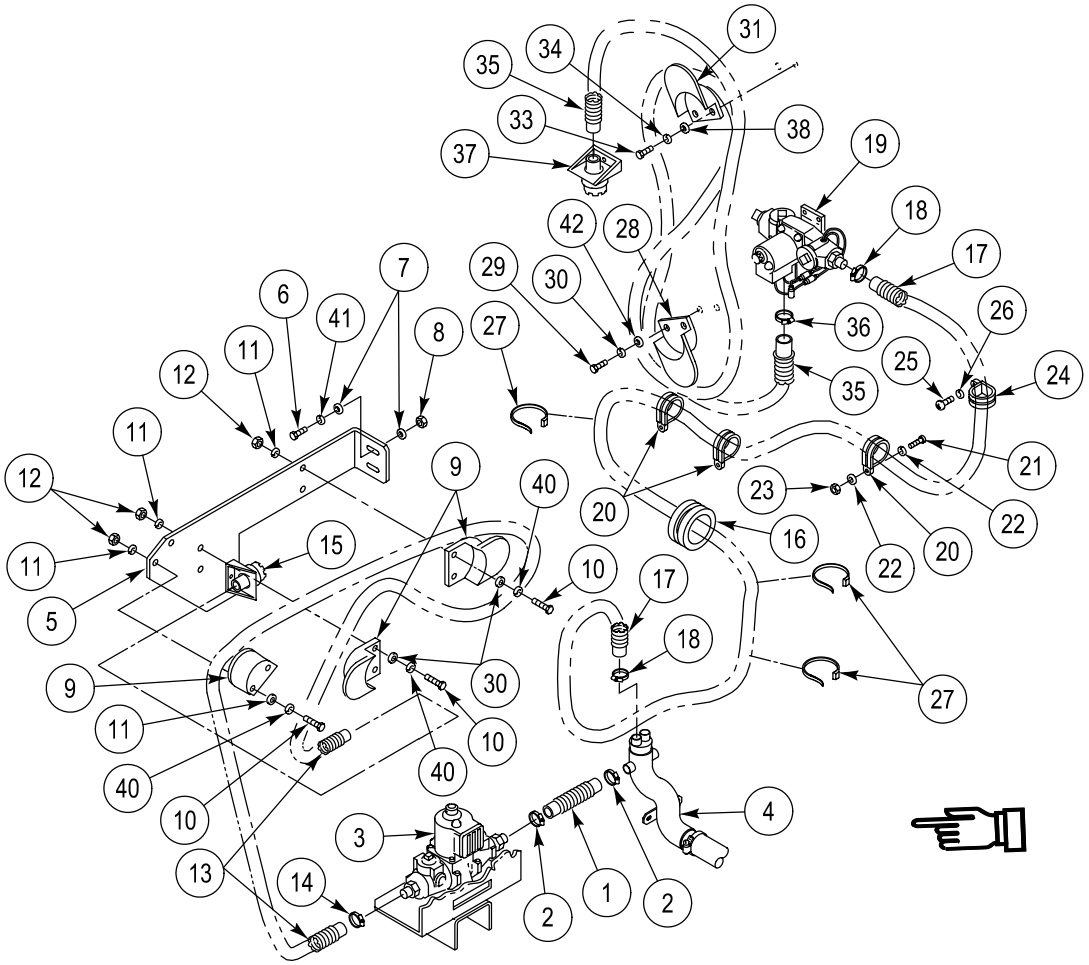


7. Install forward operator's inlet hose (1) and two clamps (2) on forward operator's heater (3) and manifold (4). Tighten clamps.
8. If bracket (5) was removed, install bracket on table supports with two screws (6), new lockwashers (41), four washers (7), and two nuts (8).
9. If any of three brackets (9) was removed, install bracket (9) on bracket (5) with two screws (10), four washers (11), two new lockwashers (40), and nuts (12).
10. Install forward operator's outlet hose (13) on connector (15).
11. Install forward operator's outlet hose (13) and clamp (14) on forward operator's heater (3). Tighten clamp.
12. If grommet (16) was removed, install new grommet on commander's inlet hose (17). Route hose through welded frame and insert grommet.
13. Install commander's inlet hose (17) and two clamps (18) on commander's heater (19) and manifold (4). Tighten clamps.

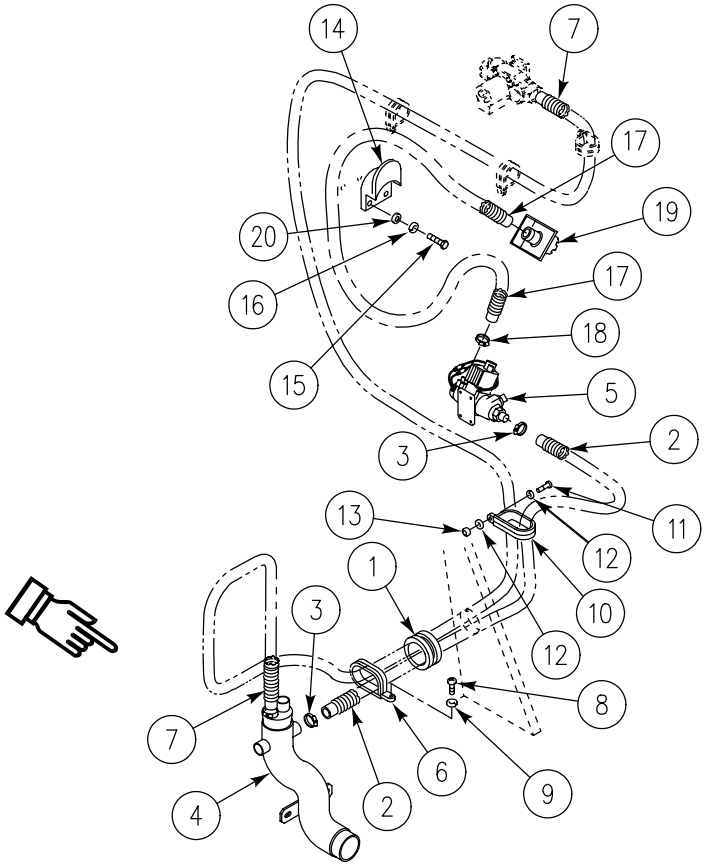


REPLACE M13 NBC HEATER HOSES (M1068A3 ONLY) — Continued **0790 00**

14. Install three clamps (20) on commander's inlet hose (17). Secure clamps on crossbeam with three screws (21), six washers (22), and three new locknuts (23).
15. Install clamp (24) on commander's inlet hose (17). Secure clamp on commander's bulkhead with screw (25) and new lockwasher (26).
16. Secure electrical leads to commander's inlet hose (17) with new tie straps (27).
17. If lower bracket (28) was removed, install bracket on commander's bulkhead with two screws (29), washers (42), and new lockwashers (30).
18. If upper bracket (31) was removed, install bracket on commander's bulkhead with two screws (33), washers (38), and new lockwashers (34).
19. Install commander's outlet hose (35) and clamp (36) on connector (37) and commander's heater (19). Tighten clamp.



20. If grommet (1) was removed, install new grommet on driver's inlet hose (2). Route hose through welded frame and insert grommet in frame.
21. Install driver's inlet hose (2) and two clamps (3) on manifold (4) and driver's heater (5). Tighten clamps.
22. Install clamp (6) on driver's inlet hose (2) and commander's inlet hose (7). Secure clamp on sponson with screw (8) and new lockwasher (9).
23. Install clamp (10) on driver's inlet hose (2) and commander's inlet hose (7). Secure clamp on welded bracket with screw (11), two washers (12), and new locknut (13).
24. If bracket (14) was removed, install bracket on driver's bulkhead with two screws (15), washers (20), and new lockwashers (16).
25. Install driver's outlet hose (17) and clamp (18) on connector (19) and driver's heater (5). Tighten clamp.



FOLLOW-THROUGH STEPS

1. Connect battery ground lead (WP 0338 00).
2. Start engine (see your -10).
3. Raise and lock ramp (see your -10).
4. Stop engine (see your -10).
5. Check air flow of NBC systems. Follow procedures in TM 3-6680-316-10.

END OF TASK

REPLACE M3 NBC HEATER CONTROL BOX, REGULATOR, AND BRACKET (M113A3 AND M577A3 ONLY)

0791 00

THIS WORK PACKAGE COVERS:

Removal (page 0791 00-1).
Installation (page 0791 00-4).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts
Lockwashers (1)
Lockwashers (1)
Lockwashers (8)
Lockwashers (8)
Lockwashers (4)
Straps (2)

Personnel Required
Unit Mechanic

References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Battery ground strap disconnected (WP 0337 00) or (WP 0338 00)
Open master switch panel assembly (WP 0260 00)

REMOVAL

NOTE

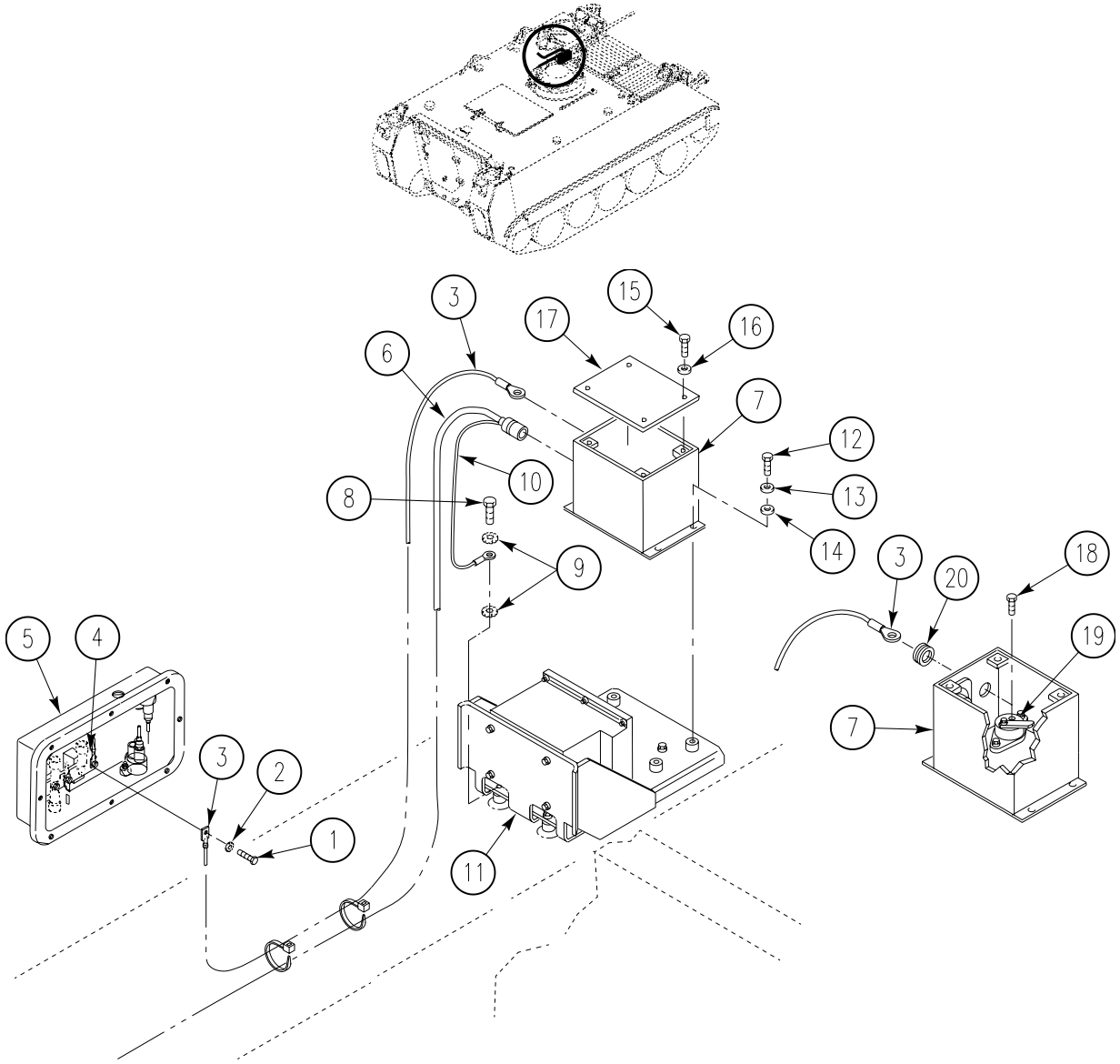
Tag all leads and cables before removing.

1. Remove screw (1), lockwasher (2), and circuit 536 cable (3) from bus bar (4) in distribution box (5). Discard lockwasher.
2. Disconnect wiring harness (6) from control box (7).
3. Remove four screws (12), four washers (13), four lockwashers (14) and control box (7) from bracket (11). Discard lockwashers.
4. Remove four screws (15), washers (16), and cover (17) from control box (7).

REPLACE M3 NBC HEATER CONTROL BOX, REGULATOR, AND BRACKET (M113A3 AND M577A3) ONLY) — Continued

0791 00

5. Remove screw (18) and terminal of 536 cable (3) from circuit breaker (19). Pull 536 cable and grommet (20) from control box (7).
6. Install cover (17), four washers (16), and screws (15) on control box (7).



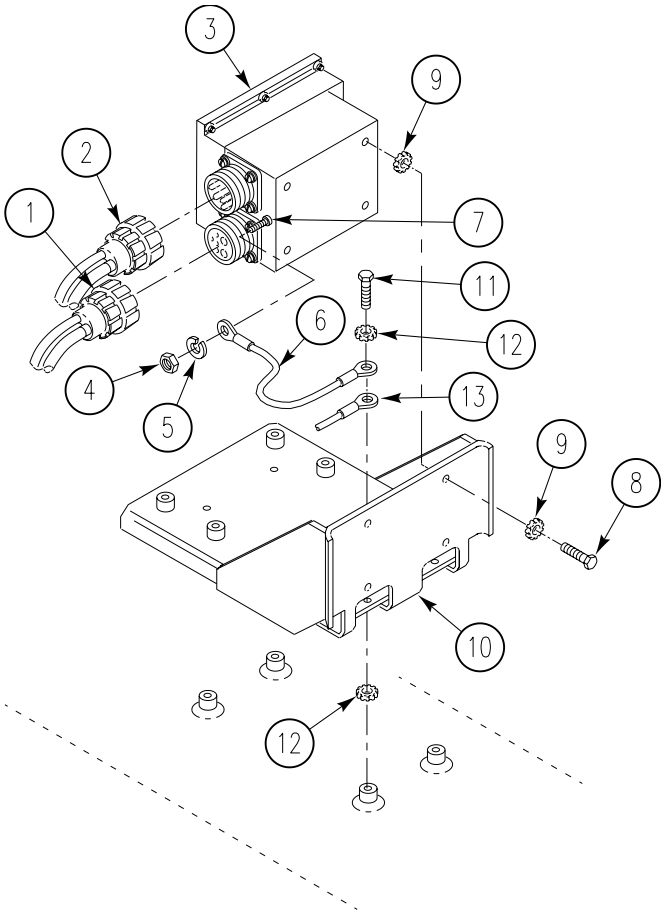
REPLACE M3 NBC HEATER CONTROL BOX, REGULATOR, AND BRACKET (M113A3 AND M577A3 ONLY) — Continued

0791 00

NOTE

Procedures to remove the control box/regulator bracket, follow Steps 7 - 10.

7. Disconnect two cannon plugs (1) and (2) from regulator (3).
8. Remove nut (4), lockwasher (5), and ground strap (6) from stud (7) on regulator (3). Discard lockwasher.
9. Remove four screws (8), eight lockwashers (9) and regulator (3) from bracket (10). Discard lockwashers.
10. Remove four screws (11), eight lockwashers (12), two ground straps (6) and (13) and bracket (10) from hull. Discard lockwashers.



REPLACE M3 NBC HEATER CONTROL BOX, REGULATOR, AND BRACKET (M113A3 AND M577A3 ONLY) — Continued

0791 00

INSTALLATION

NOTE

Procedures to install the control box/regulator bracket if removed, follow Steps 1 - 4.

NOTE

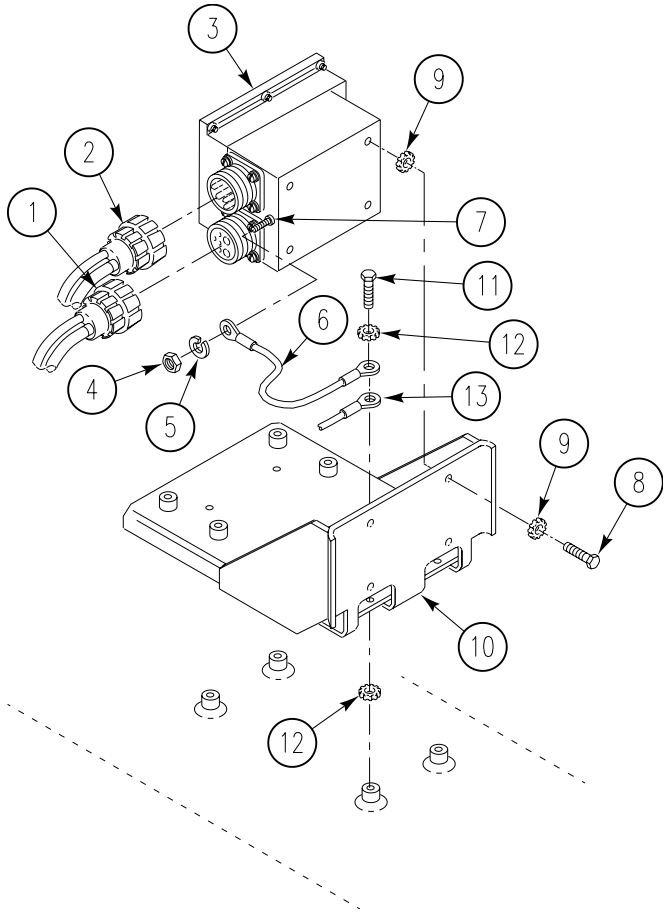
If installing a new bracket, clean paint around the areas the lockwasher will be mounted on both sides of the bracket for the hull, regulator, and control box mounting location. This is to insure proper grounding of both the regulator and NBC control box.

1. Place four new lockwashers (12) on the hull weldment studs. Position the bracket (10) and secure with four new lockwashers (12), two ground straps (6) and (13), and four screws (11).

NOTE

Place a lockwasher on both sides of the bracket to insure good grounding when securing the regulator.

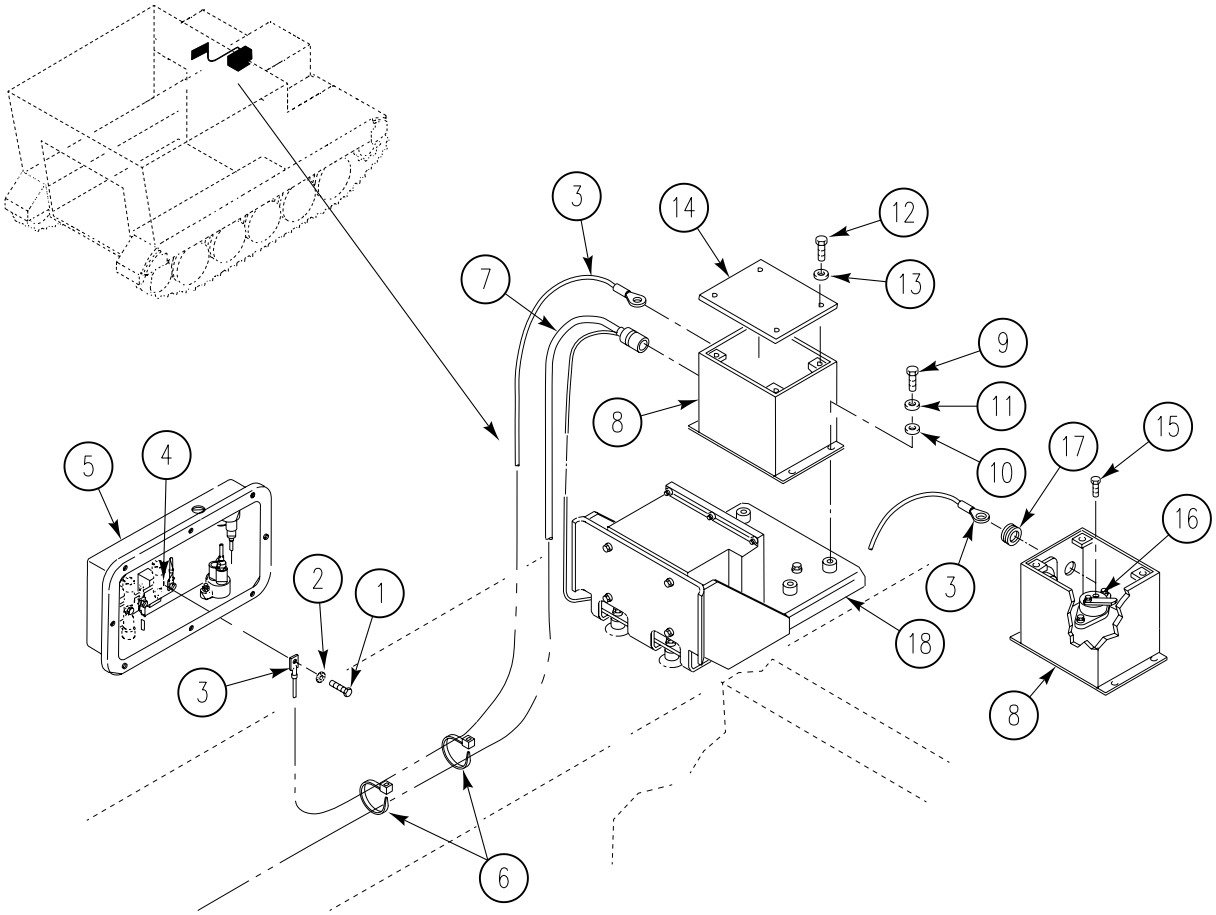
2. Install regulator (3), eight new lockwashers (9), and four screws (8) on bracket (10).
3. Install ground strap (6) new lockwasher (5), and nut (4) on regulator (3).
4. Connect two cannon plugs (1) and (2) regulator (3).



REPLACE M3 NBC HEATER CONTROL BOX, REGULATOR, AND BRACKET (M113A3 AND M577A3 ONLY) — Continued

0791 00

5. Remove four screws (12), washers (13), and cover (14) from control box (8).
6. Install 536 cable (3) and grommet (17) in control box (8). Position terminal of 536 cable in circuit breaker (16). Install screw (15) and cable on circuit breaker.
7. Install cover (14), four washers (13), and screws (12) on control box (8).
8. Install control box (8), four screws (9) washers (10), and new lockwashers (11) on bracket (18).
9. Connect wiring harness (7) to control box (8).
10. Install 536 cable (3), screw (1), and new lockwasher (2) on bus bar (4) in distribution box (5).



FOLLOW-THROUGH STEPS

1. Install master switch panel (WP 0260 00).
2. Connect battery ground strap (WP 0337 00) or (WP 0338 00).
3. Start engine (see your -10).
4. Raise and lock ramp (see your -10).
5. Stop engine (see your -10).

END OF TASK

REPLACE M3 NBC HEATER CONTROL BOX (M577A3 ONLY) 0792 00

THIS WORK PACKAGE COVERS:

Removal (page 0792 00-2).
Installation (page 0792 00-3).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts
Locknut (4)
Lockwasher

Personnel Required
Unit Mechanic

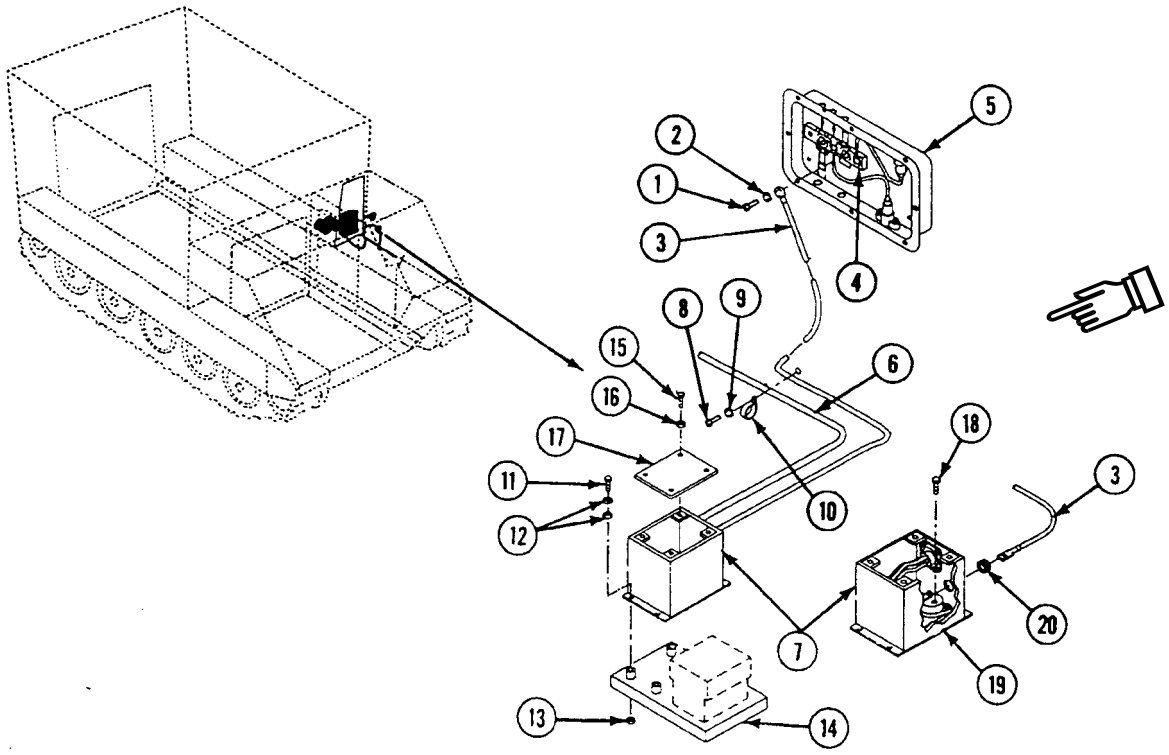
References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Battery ground lead disconnected (WP 0338 00)
Master switch panel assembly removed (WP 0261 00)

REPLACE M3 NBC HEATER CONTROL BOX (M577A3 ONLY) — Continued 0792 00

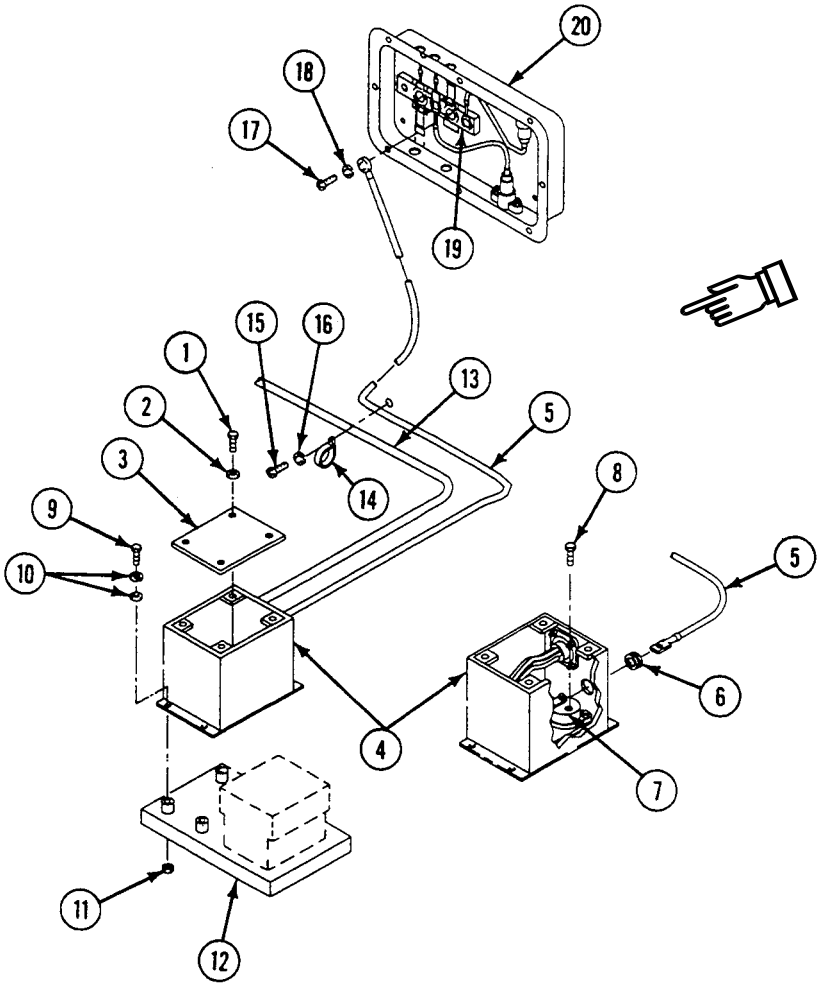
REMOVAL

1. Remove screw (1), washer (2), and cable (3) from bus bar (4) in distribution box (5).
2. Disconnect cable (6) from control box (7).
3. Remove screw (8), lockwasher (9), and clamp (10) with cables (3) and (6) from weldnut. Remove clamp from cables. Discard lockwasher.
4. Remove four screws (11), eight washers (12), four locknuts (13), and control box (7) from bracket (14). Discard locknuts.
5. Remove four screws (15), washers (16), and cover (17) from control box (7).
6. Remove screw (18) and terminal of cable (3) on circuit breaker (19). Pull cable and grommet (20) from control box (7).
7. Install cover (17), four washers (16), and screws (15) on control box (7).



INSTALLATION

1. Remove four screws (1), washers (2), and cover (3) from control box (4).
2. Install cable (5) and grommet (6) in control box (4). Position terminal of cable on circuit breaker (7). Install cable and screw (8) on circuit breaker.
3. Install cover (3), four washers (2), and screws (1) on control box (4).
4. Install control box (4), four screws (9), eight washers (10), and four new locknuts (11) on bracket (12).
5. Connect cable (13) to control box (4).
6. Install clamp (14) on cables (5) and (13). Secure clamp to weldnut with screw (15) and new lockwasher (16).
7. Install cable (5), screw (17), and washer (18) on bus bar (19) in distribution box (20).



FOLLOW-THROUGH STEPS

1. Install master switch panel (WP 0261 00).
2. Connect battery ground strap (WP 0338 00).

END OF TASK

REPLACE M3 NBC HEATER CONTROL BOX (M1068A3 ONLY) 0793 00

THIS WORK PACKAGE COVERS:

Removal (page 0793 00-1).
Installation (page 0793 00-3).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts
Lockwasher (5)
Tie Strap (as required)

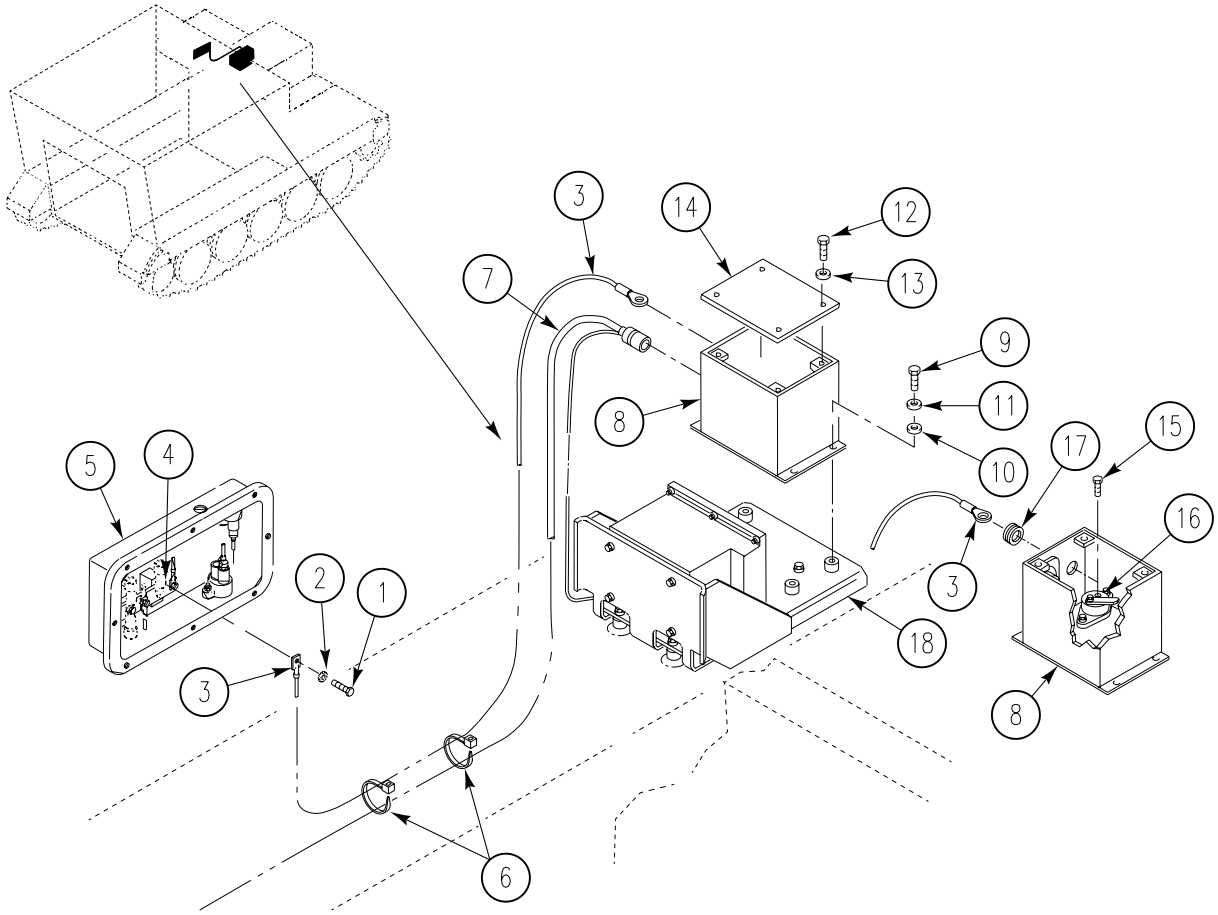
Personnel Required
Unit Mechanic

References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Battery ground lead disconnected (WP 0338 00)
Open master switch panel assembly (WP 0261 00)

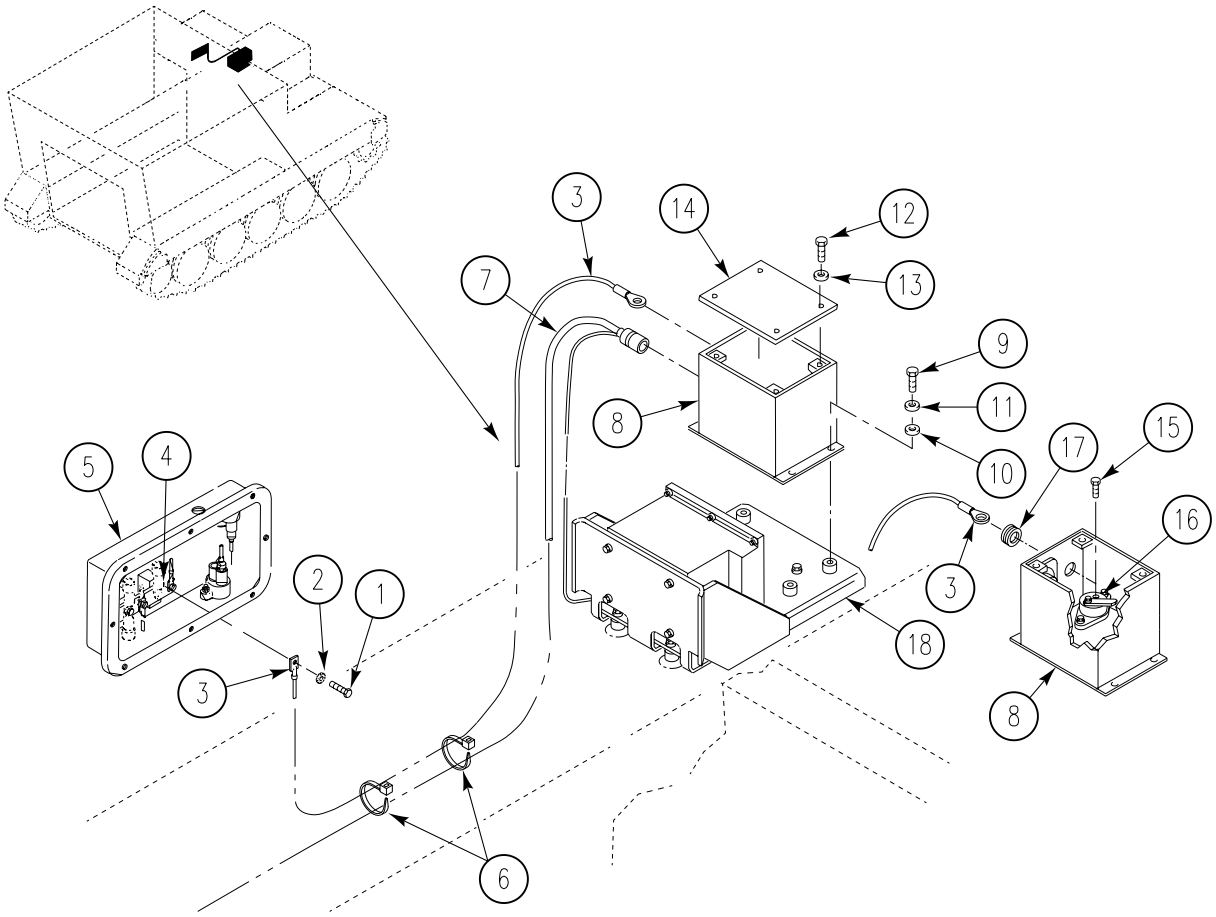
REMOVAL

1. Remove screw (1), lockwasher (2), and cable (3) from bus bar (4) in distribution box (5). Discard lockwasher.
2. Cut straps (6) that secure cable (3) to wiring harness (7). Discard straps.
3. Disconnect wiring harness (7) from control box (8).



REPLACE M3 NBC HEATER CONTROL BOX (M1068A3 ONLY) — Continued **0793 00**

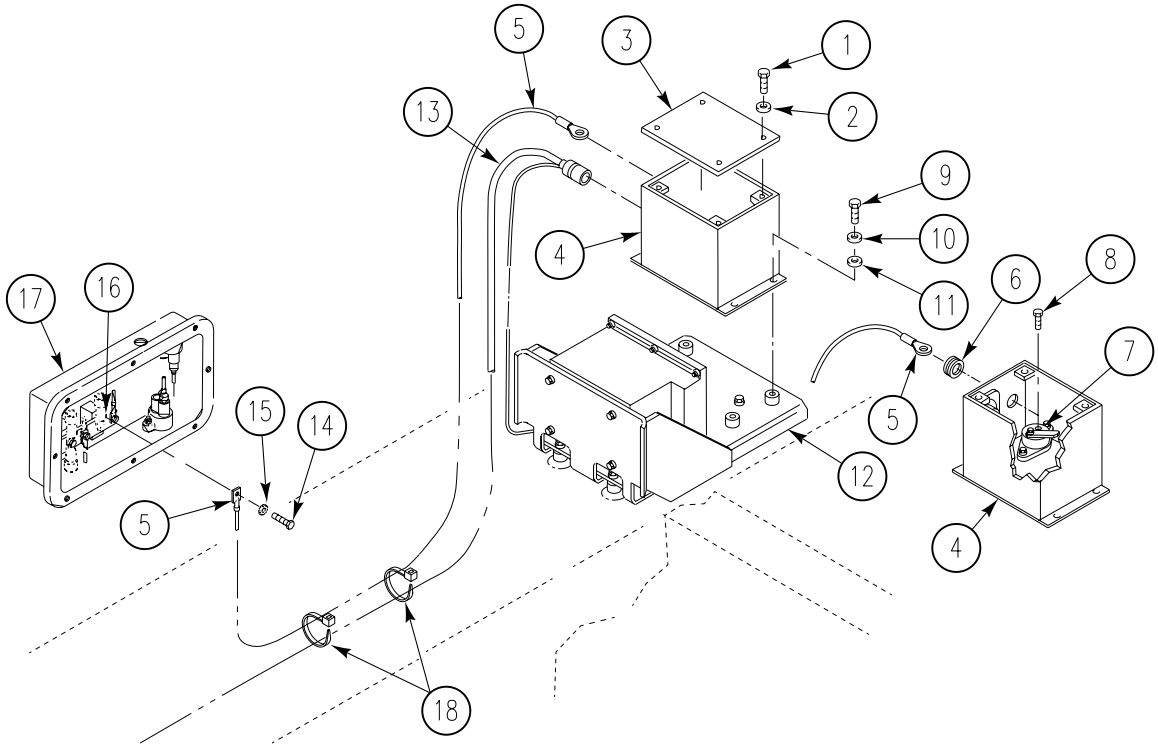
4. Remove four screws (9), washers (11), lockwashers (10), and control box (8) from bracket (18) on driver's sponson. Discard lockwashers.
5. Remove four screws (12), washers (13), and cover (14) from control box (8).
6. Remove screw (15) and terminal of cable (3) from circuit breaker (16). Pull cable and grommet (17) from control box (8).
7. Install cover (14), four washers (13), and screws (12) on control box (8).



REPLACE M3 NBC HEATER CONTROL BOX (M1068A3 ONLY) — Continued 0793 00

INSTALLATION

1. Remove four screws (1), washers (2), and cover (3) from control box (4).
2. Install cable (5) and grommet (6) in control box (4). Position terminal of cable on circuit breaker (7) and secure with screw (8).
3. Install cover (3), four washers (2), and screws (1) on control box (4).
4. Install four screws (9), new lockwashers (10), washers (11), and control box (4) on bracket (12) on driver's sponson.
5. Connect wiring harness (13) to control box (4).
6. Secure cable (5) to wiring harness (13) with new straps (18).
7. Install screw (14), new lockwasher (15), and cable (5) on bus bar (16) in distribution box (17).



FOLLOW-THROUGH STEPS

1. Install master switch panel (WP 0261 00).
2. Connect battery ground lead (WP 0338 00).

END OF TASK

REPLACE M3 NBC HEATERS AND CONTROLLERS (M113A3 ONLY) 0794 00

THIS WORK PACKAGE COVERS:

Removal (page 0794 00-2).
Installation (page 0794 00-4).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts

Locknut (16)
Lockwasher (6)
Tie straps (as required)

Personnel Required

Unit Mechanic

References

see your -10
TM 3-6680-316-10

Equipment Condition

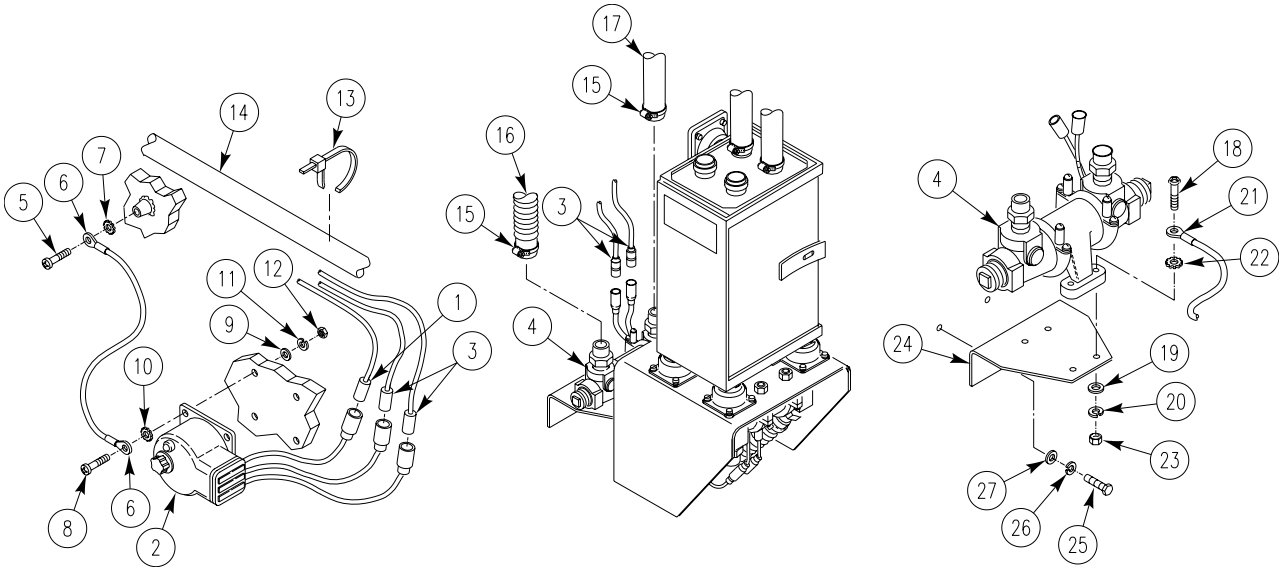
Engine stopped (see your -10)
Carrier blocked (see your -10)
Battery ground strap disconnected (WP 0337 00)

REMOVAL

NOTE

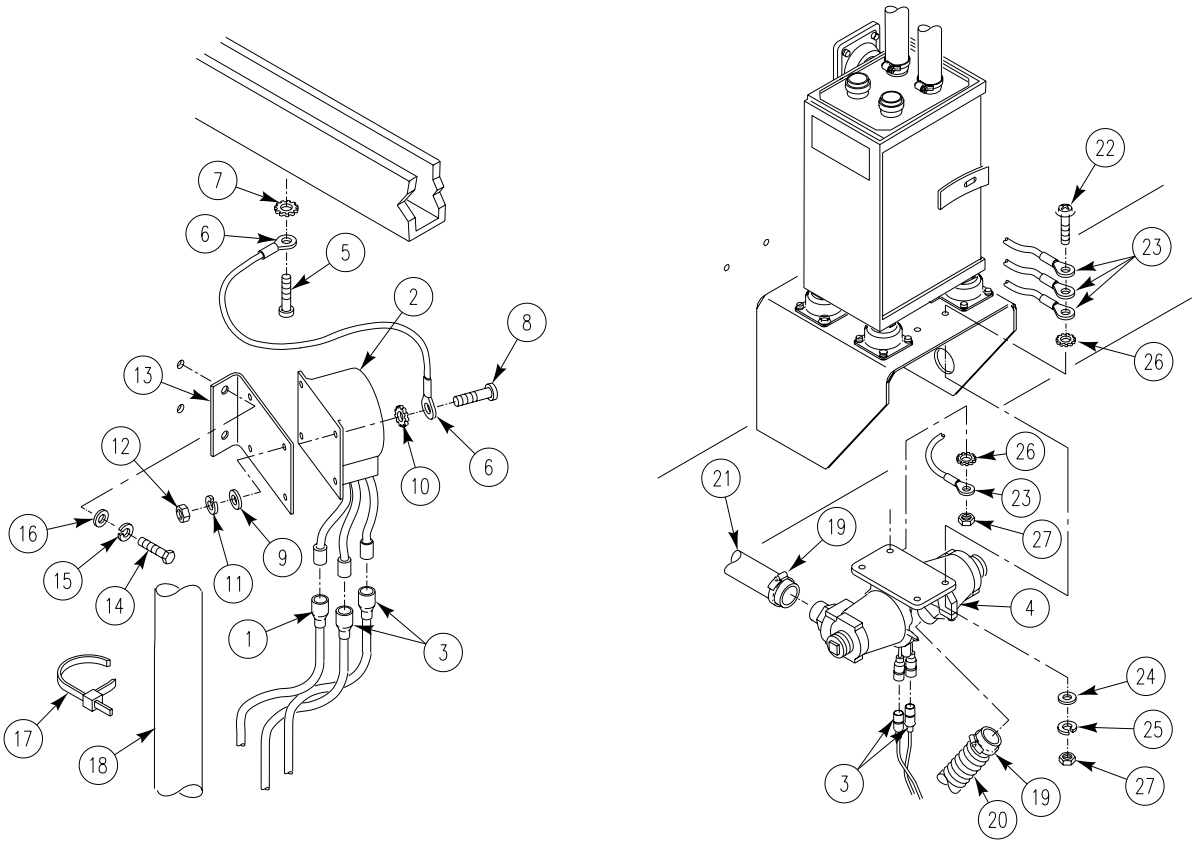
Tag all leads before removing.

1. Disconnect lead 537A (1) from commander's controller (2).
2. Disconnect two leads (3) from commander's controller (2) and commander's heater (4).
3. Remove screw (5), ground lead (6), and lockwasher (7) from weld nut. Discard lockwasher.
4. Remove four screws (8), seven washers (9), one lockwasher (10), ground lead (6), four lockwashers (11), nuts (12), and commander's controller (2) from rear engine bulkhead.
5. Cut straps (13) and separate two leads (3) from adjacent hose (14). Discard straps.
6. Loosen clamps (15) and remove commander's station hose (16) and commander's station inlet hose (17) from commander's heater.
7. Remove four screws (18), seven washers (19), four lockwashers (20), ground lead terminal (21), one lockwasher (22), four nuts (23), and commander's heater (4) from bracket (24). Discard lockwashers.
8. If damaged, remove two screws (25), lockwashers (26), washers (27), and bracket (24) from bulkhead. Discard lockwashers.



REPLACE M3 NBC HEATERS AND CONTROLLERS (M113A3 ONLY) — Continued 0794 00

9. Disconnect lead 537B (1) from driver's controller (2).
10. Disconnect two leads (3) from driver's controller (2) and driver's heater (4).
11. Remove screw (5), ground lead terminal (6), and lockwasher (7) from hull.
12. Remove four screws (8), seven washers (9), ground lead terminal (6), lockwasher (10), four lockwashers (11), four nuts (12), and driver's controller (2) from bracket (13). Discard lockwashers.
13. If damaged, remove two screws (14), lockwashers (15), washers (16), and bracket (13). Discard lockwashers.
14. Cut straps (17) and separate two leads from adjacent hose (18). Discard straps.
15. Loosen clamps (19) and remove driver's station outlet hose (20) and driver's station inlet hose (21) from driver's heater (4).
16. Remove four screws (22), three ground lead terminals (23), four washers (24), four lockwashers (25), one ground lead terminal (23), two lockwashers (26), four nuts (27) and driver's heater (4) from welded mount. Discard lockwashers.



INSTALLATION

NOTE

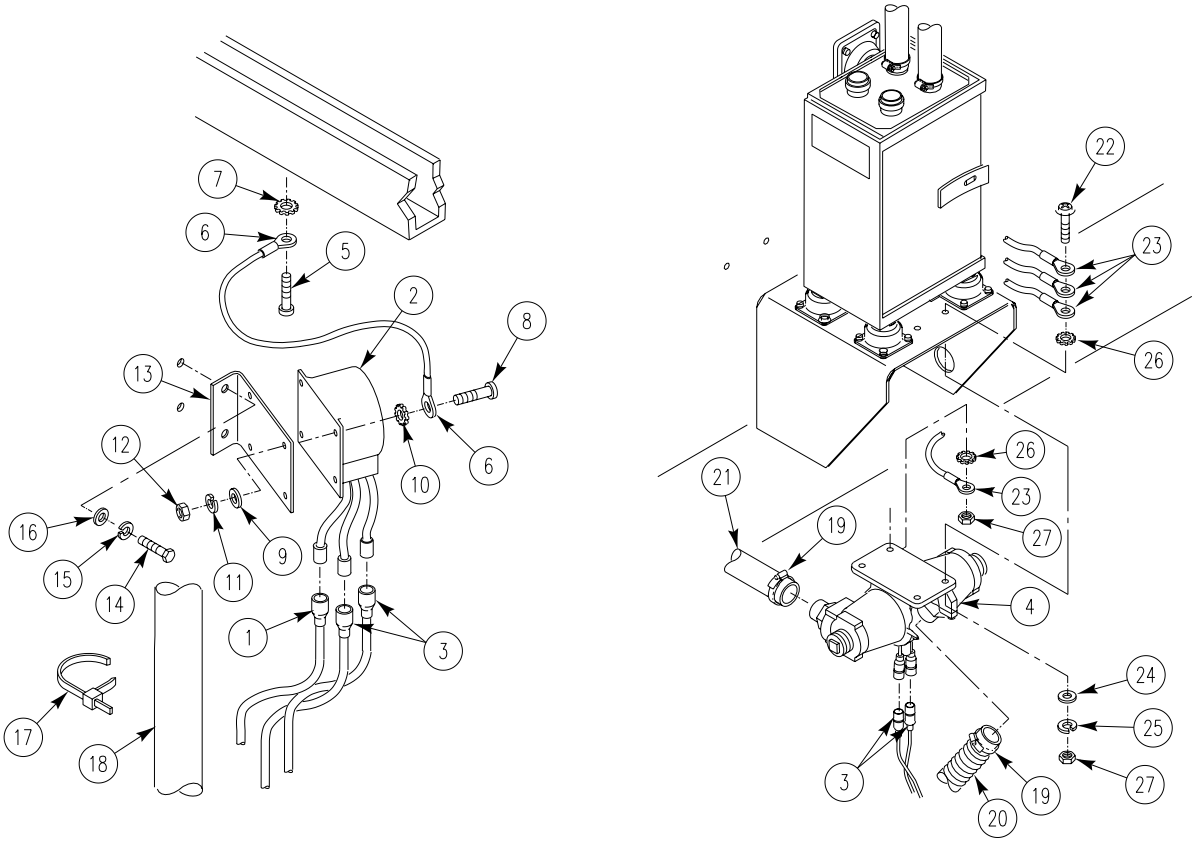
Before installing driver's station heater, make sure both end adapters are adjusted for routing the hose under the welded bracket and toward the roadside hull. If installing a new heater, remove the controller portion from the heater and adjust the adapters for routing.

NOTE

To insure a good electrical ground, remove paint from around mounting hole. Install toothed washer against surface where paint was removed, then ground lead terminal. The longer screw is where the combined ground leads are secured. Do not include both ends of the driver's heaters ground lead terminal to the same location.

1. If installing a new heater, disassemble the controller from the heater body. Discard the hardware securing the controller to the heater and use the hardware listed in TM 9-2350-277-24P for securing the controller.
2. Install two screws (22), four washers (24), two lockwashers (26), two nuts (27), and driver's heater (4) on welded mount.
3. Install screw (22), ground lead terminal (23), new lockwasher (26), washer (24), new lock washer (26), and nut (27) securing the driver's heater (4) on welded mount.
4. Install the longer screw (22), three ground lead terminals (23), new lock washer (26), washer (24), new lockwasher (26), and nut (27) securing the driver's heater (4) on welded mount.
5. Install driver's outlet hose (20) and driver's inlet hose (21) on driver's heater (4) and tighten clamps (19).
6. If removed, install two screws (14), new lockwashers (15), washers (16), bracket (13) on bulkhead.
7. Install four screws (10), four new lockwashers (10), four washers (12), one ground lead terminal (6), one new lockwasher (11) as shown in the art, and driver's controller (2) on bracket (13).
8. Connect two leads (3) to driver's controller (2) and driver's heater (4).
9. Connect lead 537B (1) to driver's controller (2).

10. Install new straps (17) and leads (1) and (3) on adjacent hose (18).



11. If removed, install two screws (25), new lockwashers (26), washers (24), and bracket (24) on bulkhead.

12. Install four screws (25), one ground lead (21), one new lockwasher (22), seven washers (19), four new lockwashers (20), four nuts (23) and commander's heater (4) on bracket (24).

13. Connect commander's station outlet hose (16) and commander's station inlet hose (17) on commander's heater (4) and tighten clamps (15).

NOTE

Clean off paint on mounting surface of controller to allow the lockwasher with ground lead to make contact and positive electrical grounding.

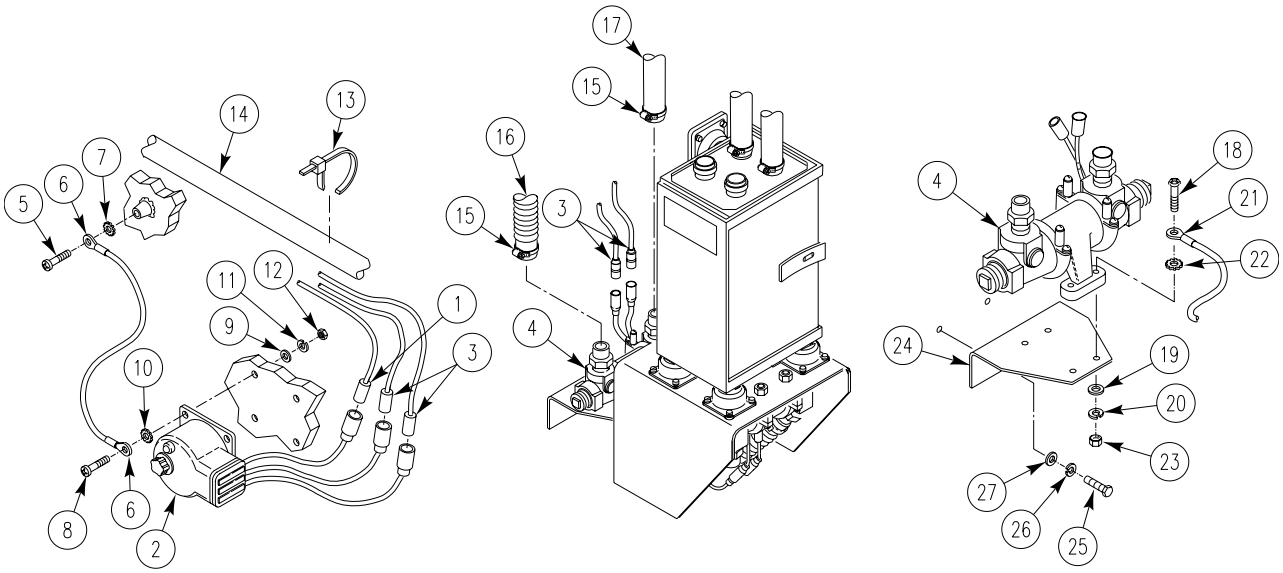
14. Install four screws (8), one ground lead terminal (6), one new lockwasher (10), seven washers (9), four new lockwashers (10), four nuts (11), and commander's controller (2) on engine bulkhead.

15. Connect ground lead (6), new lockwasher (7) and screw (5) on weld nut.

16. Connect two leads (3) to commander's controller (2) and commander's heater (4).

17. Connect lead 537A (1) to commander's controller (2).

18. Install new straps (13) on leads (1) and (3) and adjacent hose (14).



FOLLOW-THROUGH STEPS

1. Connect battery ground strap (WP 0337 00).

2. Adjust air purifier. See TM 3-6810-316-10.

3. Check air flow of NBC system. Follow procedures in TM 3-6680-316-10.

END OF TASK

REPLACE M3 NBC HEATERS AND CONTROLLERS (M113A3 AMBULANCES ONLY) 0795 00

THIS WORK PACKAGE COVERS:

Removal (page 0795 00-1).
Installation (page 0795 00-4).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts

Locknut (20)
Lockwasher (8)
Tie straps (as required)

Personnel Required

Unit Mechanic

References

See your -10
TM 3-6680-316-10

Equipment Condition

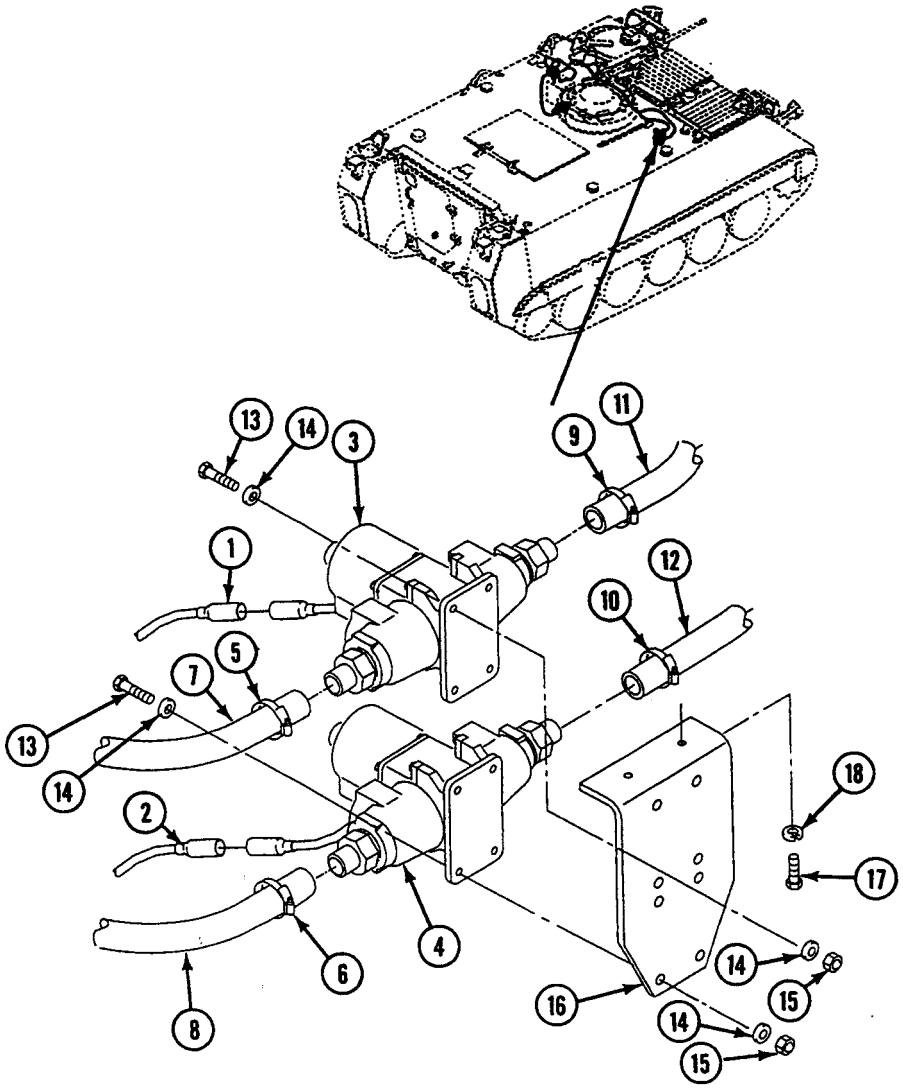
Engine stopped (see your -10)
Carrier blocked (see your -10)
Battery ground strap disconnected (WP 0337 00)

REMOVAL

1. Disconnect circuit lead 537A (1) and circuit lead 537B (2) from upper and lower heaters (3) and (4) on right side of vehicle.
2. Loosen clamps (5) and (6). Remove upper and lower outlet hoses (7) and (8) from upper and lower heater (3) and (4).
3. Loosen clamps (9) and (10). Remove upper and lower inlet hoses (11) and (12) from upper and lower heaters (3) and (4).
4. Remove eight screws (13), 16 washers (14), eight locknuts (15), upper and lower heater (3) and (4) from bracket (16). Discard locknuts.

REPLACE M3 NBC HEATERS AND CONTROLLERS (M113A3 AMBULANCES ONLY) — Continued **0795 00**

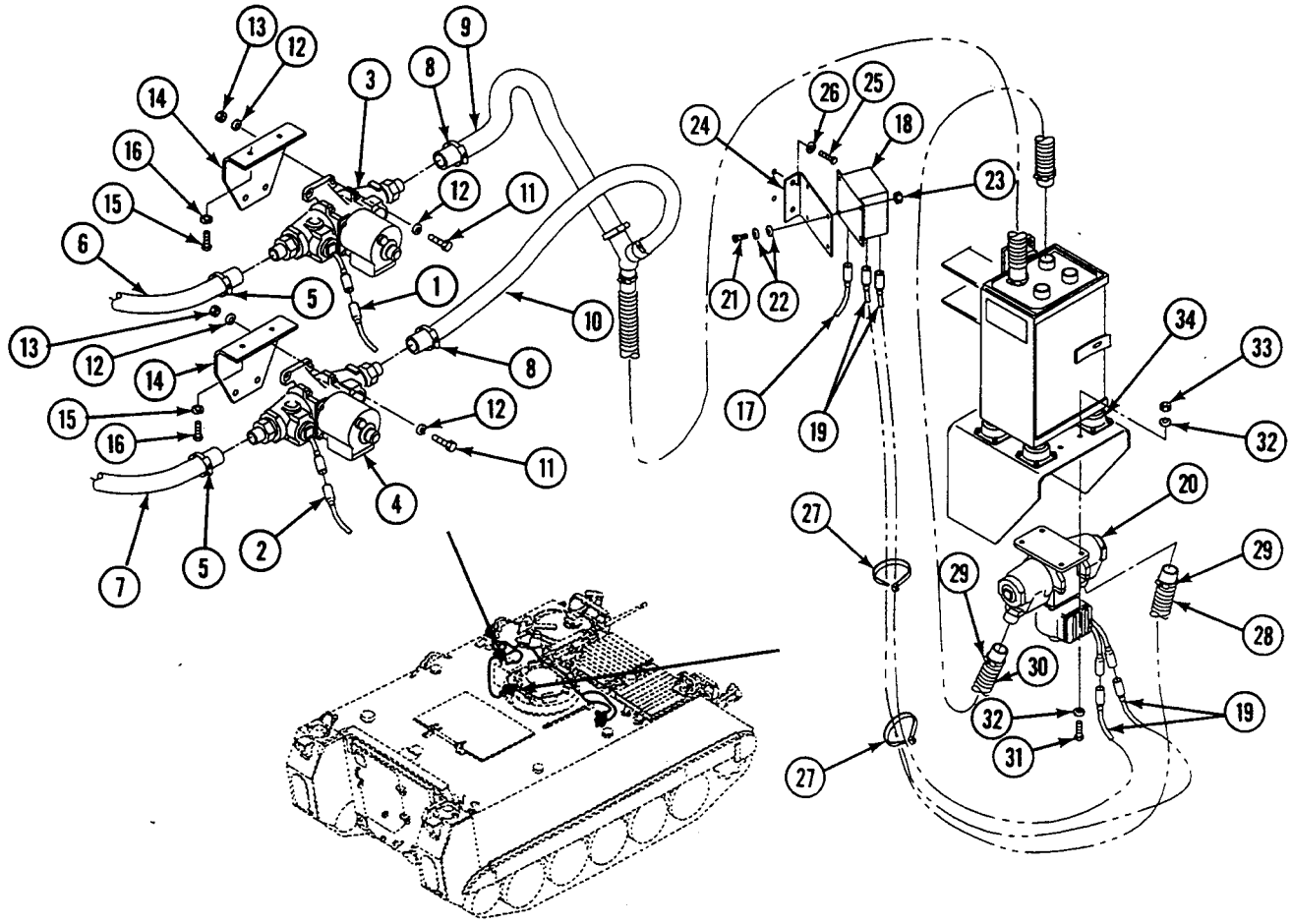
5. If damaged, remove two screws (17), lockwashers (18), and bracket (16) from hull top plate. Discard lockwashers.



6. Disconnect circuit lead 537C (1) and circuit lead 537D (2) from forward and rear heaters (3) and (4) on left side of vehicle.
7. Loosen clamps (5). Remove forward and rear outlet hoses (6) and (7) from forward and rear heaters (3) and (4).
8. Loosen clamps (8). Remove forward and rear inlet hoses (9) and (10) from forward and rear heaters (3) and (4).
9. Remove eight screws (11), 16 washers (12), eight locknuts (13), and upper heater (3), and lower heater (4) from two brackets (14). Discard locknuts.
10. If damaged, remove four screws (15), lockwashers (16), and brackets (14) from bulkhead. Discard lockwashers.
11. Disconnect circuit lead 537G (17) from driver's controller (18).
12. Disconnect two leads (19) from driver's controller (18) and driver's heater (20).

REPLACE M3 NBC HEATERS AND CONTROLLERS (M113A3 AMBULANCES ONLY) — Continued **0795 00**

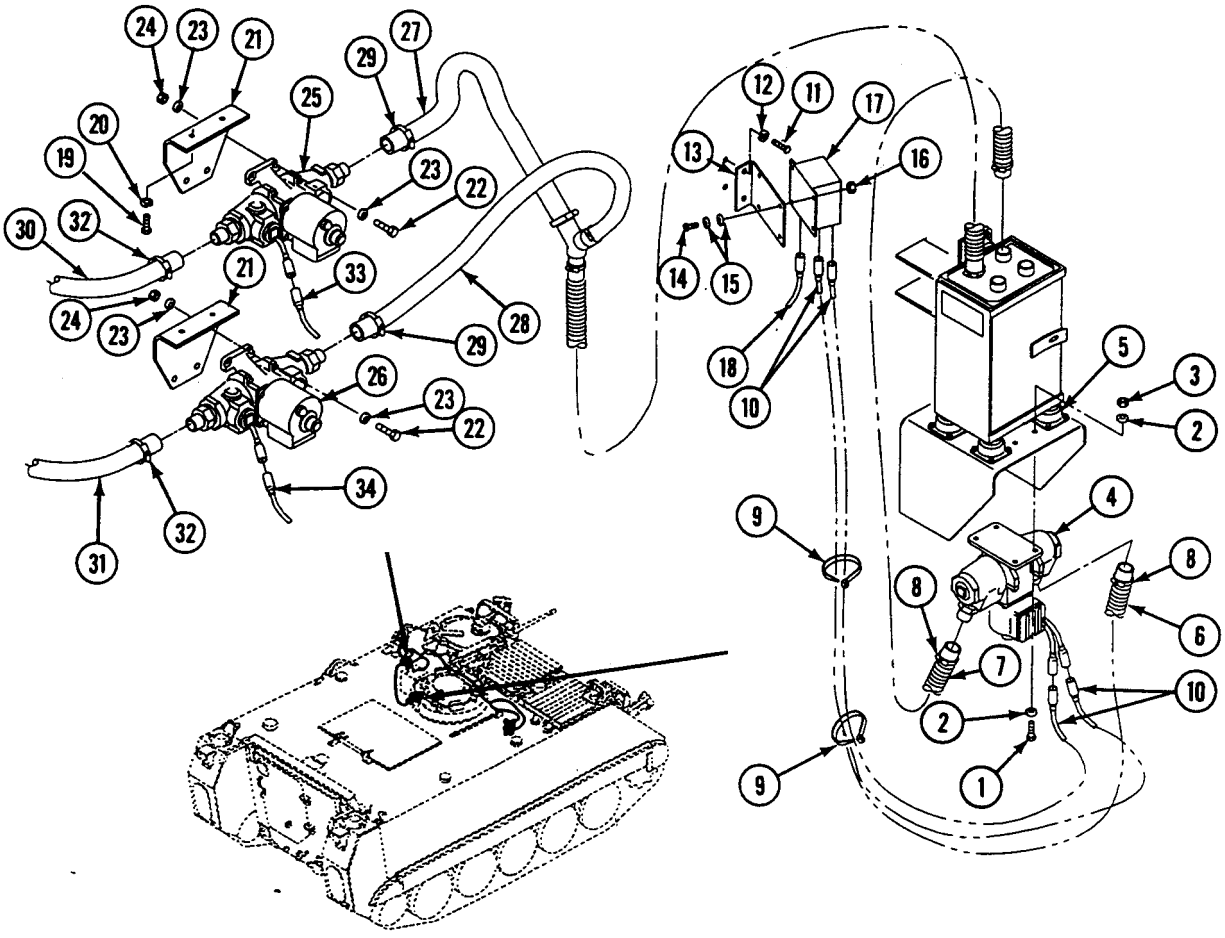
13. Remove four screws (21), eight washers (22), four locknuts (23), and driver's controller (18) from bracket (24). Discard locknuts.
14. If damaged, remove two screws (25), lockwashers (26), and bracket (24) from bulkhead. Discard lockwashers.
15. Cut tie straps (27) and remove two leads (19) from adjacent driver's outlet hose (28). Discard tie straps.
16. Loosen clamps (29). Remove driver's outlet hose (28) and driver's inlet hose (30) from driver's heater (20).
17. Remove four screws (31), eight washers (32), four locknuts (33), and driver's heater (20) from welded mount (34). Discard locknuts.



REPLACE M3 NBC HEATERS AND CONTROLLERS (M113A3 AMBULANCES ONLY) — Continued **0795 00**

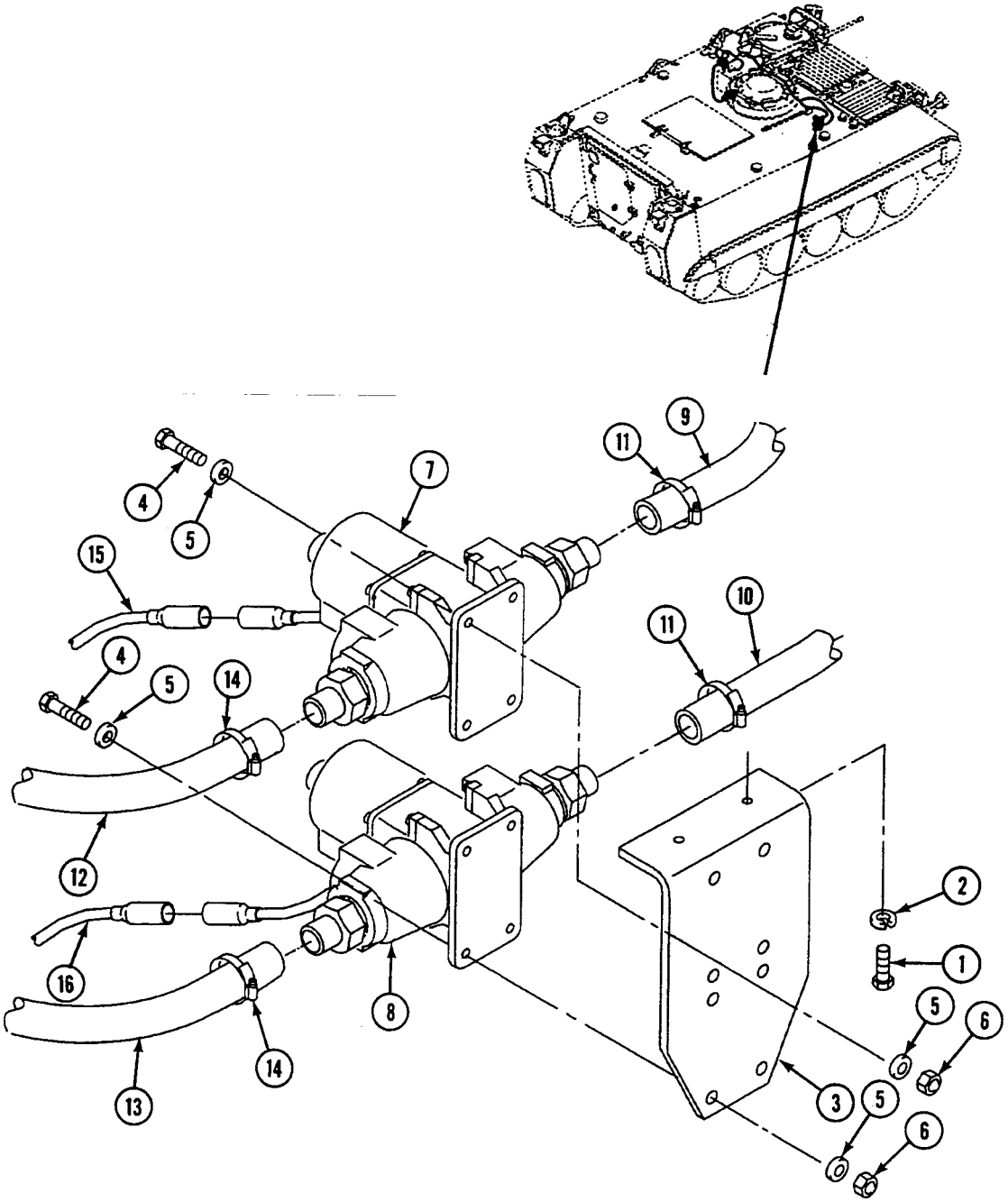
INSTALLATION

1. Install four screws (1), eight washers (2), four new locknuts (3), and driver's heater (4) on welded mount (5).
2. Install driver's outlet hose (6) and driver's inlet hose (7) on driver's heater (4). Tighten clamps (8).
3. Install new tie straps (9) on two leads (10) and adjacent heater hose (6).
4. If removed, install two screws (11), new lockwashers (12), and bracket (13) on bulkhead.
5. Install four screws (14), eight washers (15), four new locknuts (16), and driver's controller (17) on bracket (13).
6. Connect two leads (10) to driver's controller (17) and driver's heater (4).
7. Connect circuit lead 537G (18) to driver's controller (17).
8. If removed, install four screws (19), new lockwashers (20), and brackets (21) on bulkhead.
9. Install eight screws (22), 16 washers (23), eight new locknuts (24), and two heaters (25) and (26) on two brackets (21).
10. Install forward and rear inlet hoses (27) and (28) on forward and rear heaters (25) and (26). Tighten clamps (29).
11. Install forward and rear outlet hoses (30) and (31) on forward and rear heaters (25) and (26). Tighten clamps (32).
12. Connect circuit lead 537C (33) and circuit lead 537D (34) to forward and rear heaters (25) and (26) on left side of vehicle.



REPLACE M3 NBC HEATERS AND CONTROLLERS (M113A3 AMBULANCES ONLY) — Continued **0795 00**

13. If removed, install two screws (1), new lockwashers (2), and bracket (3) on hull top plate.
14. Install eight screws (4), 16 washers (5), eight new locknuts (6), upper and lower heater (7) and (8) on bracket (3).
15. Install upper and lower inlet hoses (9) and (10) on upper and lower heater (7) and (8). Tighten clamps (11).
16. Install upper and lower outlet hoses (12) and (13) on upper and lower heater (7) and (8). Tighten clamps (14).
17. Connect circuit lead 537A (15) and circuit lead 537B (16) to upper and lower heaters (7) and (8) on right side of vehicle.



REPLACE M3 NBC HEATERS AND CONTROLLERS (M113A3 AMBULANCES ONLY) — Continued **0795 00**

FOLLOW-THROUGH STEPS

1. Connect battery ground strap (WP 0337 00).
2. Check air flow of NBC system. Follow procedures in TM 3-6680-316-10.

END OF TASK

REPLACE NBC HEATERS AND MOUNTS (M577A3 ONLY) 0796 00

THIS WORK PACKAGE COVERS:

Removal (page 0796 00-2)
Installation (page 0796 00-4)

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts
Locknut (2)
Locknut (4)
Locknut (6)
Locknut (16)
Lockwasher (2)
Lockwasher (4)
Grommet (AR)

Personnel Required
Unit Mechanic

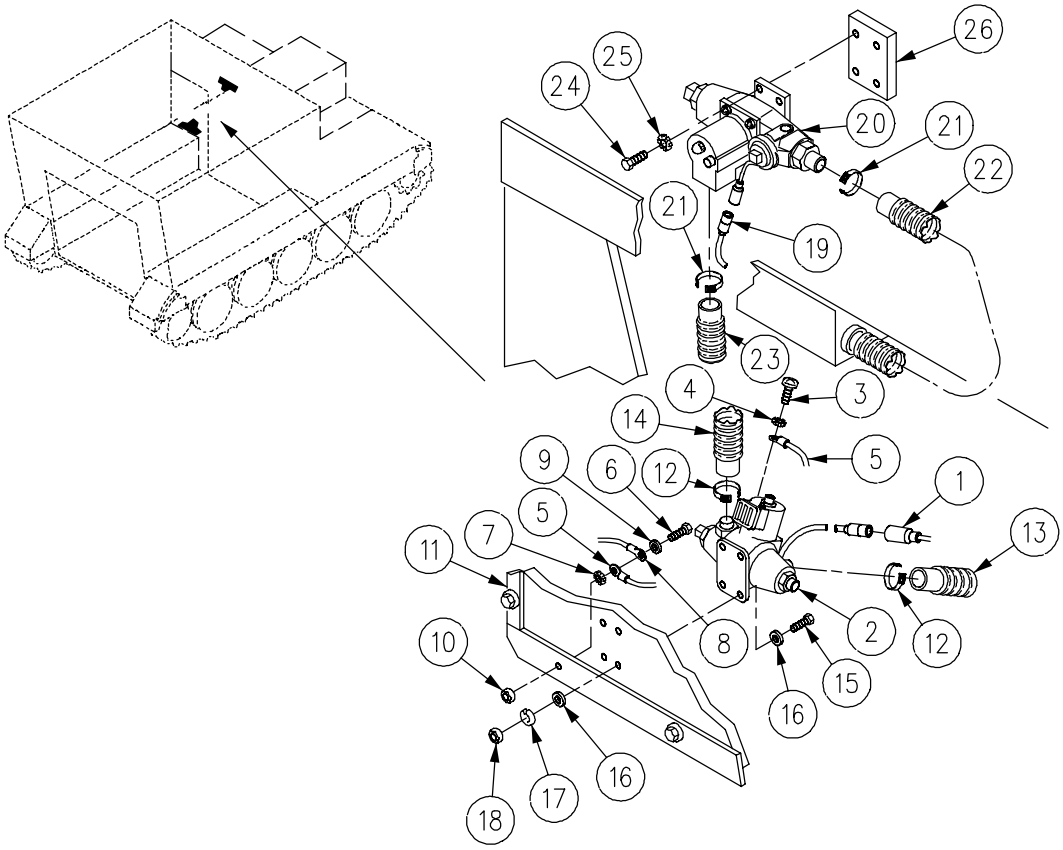
References
See your -10
TM 3-6680-316-10

Equipment Conditions
Engine stopped (see your -10)
Carrier blocked (see your -10)
Battery ground leads disconnected (WP 0338 00)

REPLACE NBC HEATERS AND MOUNTS (M577A3 ONLY) - Continued 0796 00

REMOVAL

1. Disconnect circuit 537B lead (1) from driver's heater (2).
2. Remove screw (3), lockwashers (4), and ground wire terminal (5) from heater (2). Discard lockwasher. Reinstall screw (3) on heater.
3. Remove screw (6), lockwasher (7), ground wire (5), washer (9), and nut (10) from frame (11). Discard lockwasher. Reinstall screw (6), washer (9), and nut (10).
4. Loosen two clamps (12) and remove inlet and outlet hoses (13) and (14) from heater (2).
5. Remove four screws (15), eight washers (16), four lockwashers (17), four nuts (18) and heater (2) from frame (11). Discard lockwashers.
6. Disconnect circuit 537G lead (19) from commander's heater (20).
7. Loosen two clamps (21) and remove inlet and outlet hoses (22) and (23) from commander's heater (20).
8. Remove four screws (24), lockwashers (25), and commander's heater (20) from weldment (26). Discard lockwashers.



NOTE

If removing frame, see Replace Air Purifier and Frame (WP 0776 00).

9. Remove circuit 537E, 537D, and 537C leads (18), (19), and (20) from operator's heaters (21), (22), and (23), respectively.
10. Loosen two clamps (24) and remove inlet and outlet hoses (25) and (26) from heater (21).
11. Loosen two clamps (27) and remove inlet and outlet hoses (28) and (29) from heater (22).
12. Loosen two clamps (30) and remove inlet and outlet hoses (31) and (32) from heater (23).

NOTE

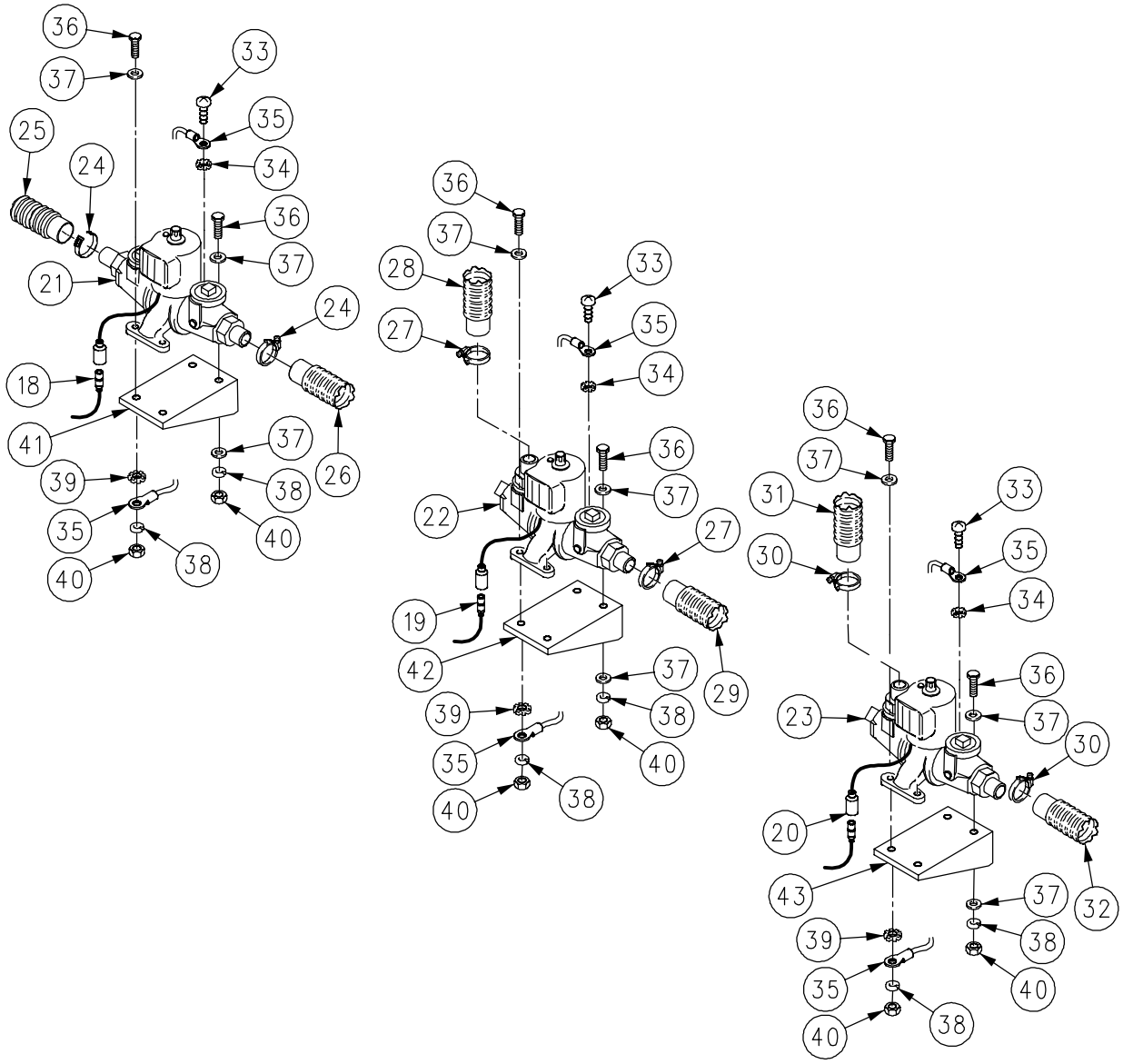
Heaters 21, 22, and 23 all have the ground lead and are removed the same way.

13. Remove screws (33), lockwasher (34), ground lead (35) from heater (21), (22), or (23). Discard lockwasher. Reinstall the screw on the heater.

NOTE

Lockwasher (39) is used in place of the flat washer with the ground lead.

14. Remove four screws (36), seven washers (37), four lockwashers (38), ground lead (35), lockwasher (39), and four nuts (40) from each operator's heater (21), (22), and (23). Discard lockwashers.
15. Remove heaters from welded mounts (41), (42), and (43).

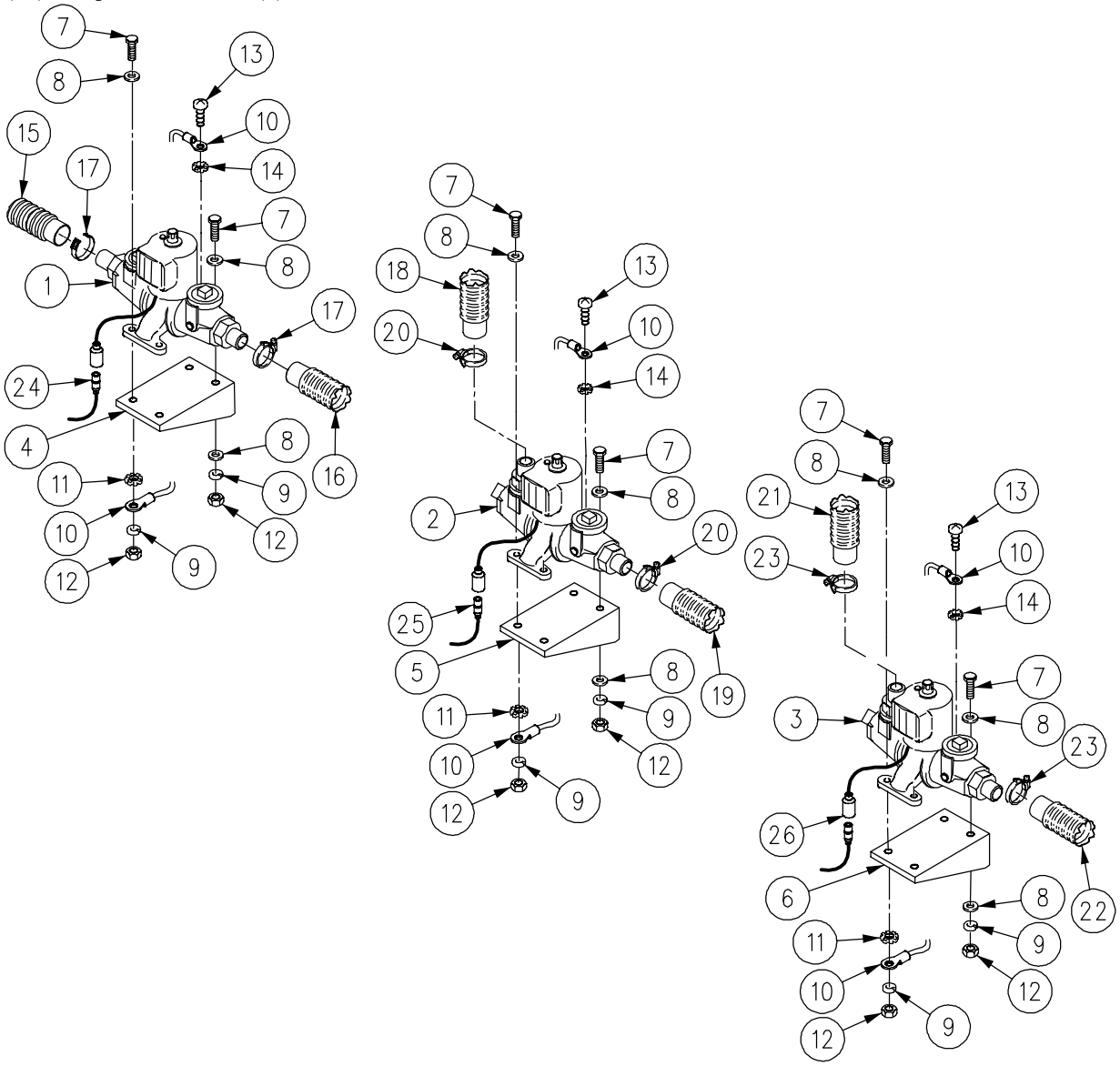


INSTALLATION

NOTE

Lockwasher (11) is used in place of the flatwasher with the ground lead.

1. Install operator's heaters (1), (2), and (3) on welded mounts (4), (5), and (6). Secure each heater with four screws (7), seven washers (8), four new lockwashers (9), ground lead (10), new lockwasher (11), and four nuts (12).
2. Install ground lead (10) on heaters (1), (2), and (3) with screws (13) and new lock washers (14).
3. Install inlet and outlet hoses (15) and (16) and two clamps (17) on operator's heater (1). Tighten clamps.
4. Install inlet and outlet hoses (18) and (19) and two clamps (20) on operator's heater (2). Tighten clamps.
5. Install inlet and outlet hoses (21) and (22) and two clamps (23) on operator's heater (3). Tighten clamps.
6. Install circuit 537C lead (24) on operator's heater (1), circuit 537D lead (25) on operator's heater (2), and circuit 537E lead (26) on operator's heater (3).



NOTE

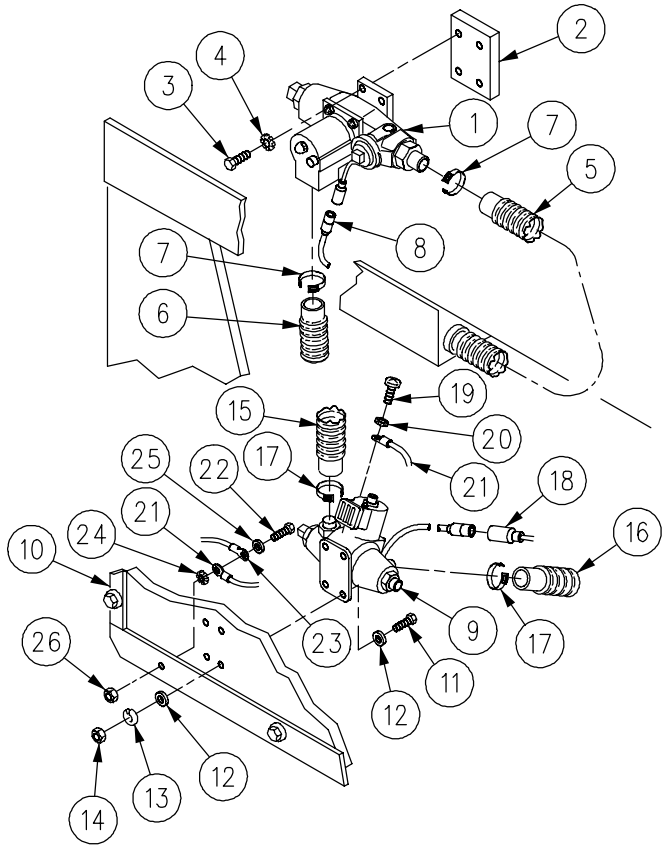
If frame was removed, see Replace Air Purifier and Frame (WP 0776 00).

7. Remove paint from heater mounting area where mounting hardware makes contact.

NOTE

Make sure to clean all paint off the heater mounting holes. This will ensure a good ground.

8. Install commander's heater (1) on weldment (2) with four screws (3) and new lockwashers (4).
9. Install inlet and outlet hoses (5) and (6) and two clamps (7) on commander's heater (1). Tighten clamps
10. Install circuit 537G lead (8) on commander's heater (1).
11. Install driver's heater (9) on frame (10). Secure with four screws (11), eight washers (12), four new lockwashers (13), and four nuts (14).
12. Install inlet and outlet hoses (15) and (16) and two clamps (17) on driver's heater (9). Tighten clamps.
13. Install circuit 579C lead (18) on driver's heater (9).
14. Remove screw (19) from heater (9). Install screw (19), new lockwashers (20), and ground lead (21) on heater (9).
15. Install screw (22), washer (25), ground leads (21) and (23), new lockwasher (24), and nut (26) into frame (10).



FOLLOW-THROUGH STEPS

1. Connect battery ground leads (WP 0338 00).
2. Check air flow of NBC system. Follow procedures of TM 3-6680-316-10.

END OF TASK

REPLACE M3 NBC HEATERS AND CONTROLLERS (M1059A3 ONLY) 0797 00

THIS WORK PACKAGE COVERS:

Removal (page 0797 00-1).
Installation (page 0797 00-6).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts
Locknut (4)
Locknut (16)
Lockwasher (2)
Lockwasher (4)
Self-locking screw (2)
Straps (as required)

Personnel Required
Unit Mechanic

References
See your -10
TM 3-6680-316-10

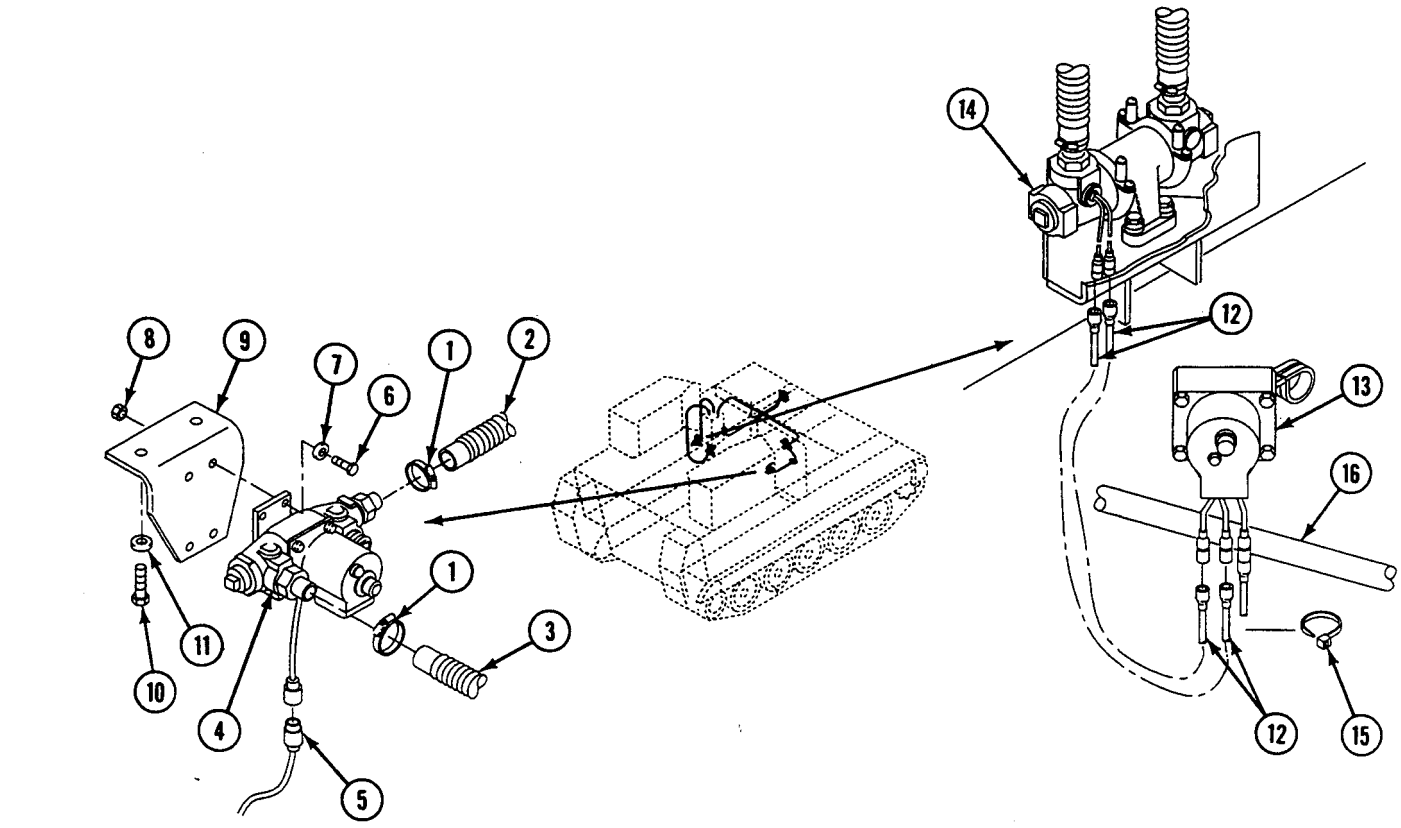
Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Battery ground strap disconnected (WP 0337 00)

REMOVAL

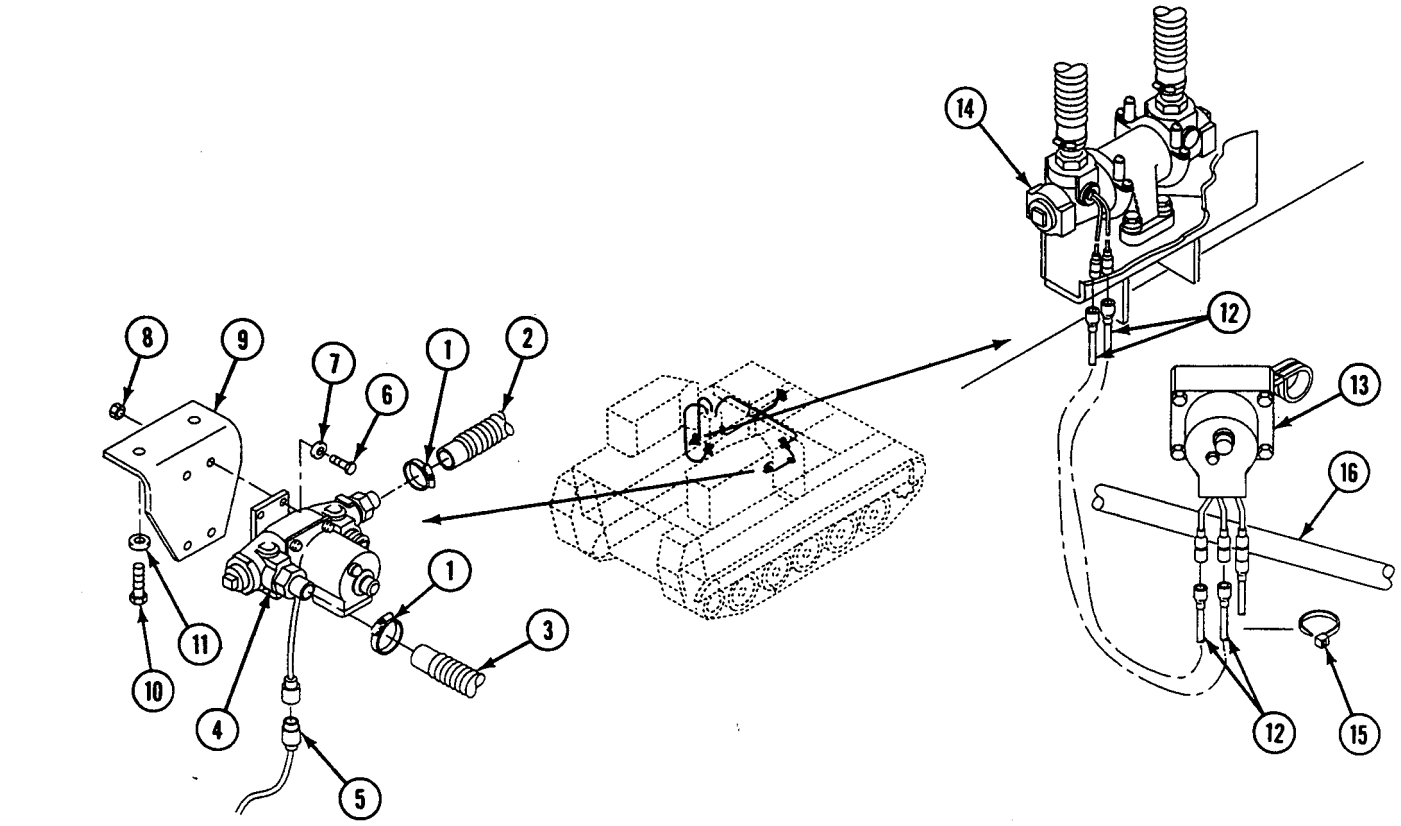
1. Loosen two clamps (1) and remove inlet hose (2) and outlet hose (3) from operator's heater (4).
2. Disconnect circuit 537D lead (5) from operator's heater (4).

REPLACE M3 NBC HEATERS AND CONTROLLERS (M1059A3 ONLY) — Continued 0797 00

3. Remove four screws (6), washers (7), locknuts (8), and operator's heater (4) from bracket (9). Discard locknuts.

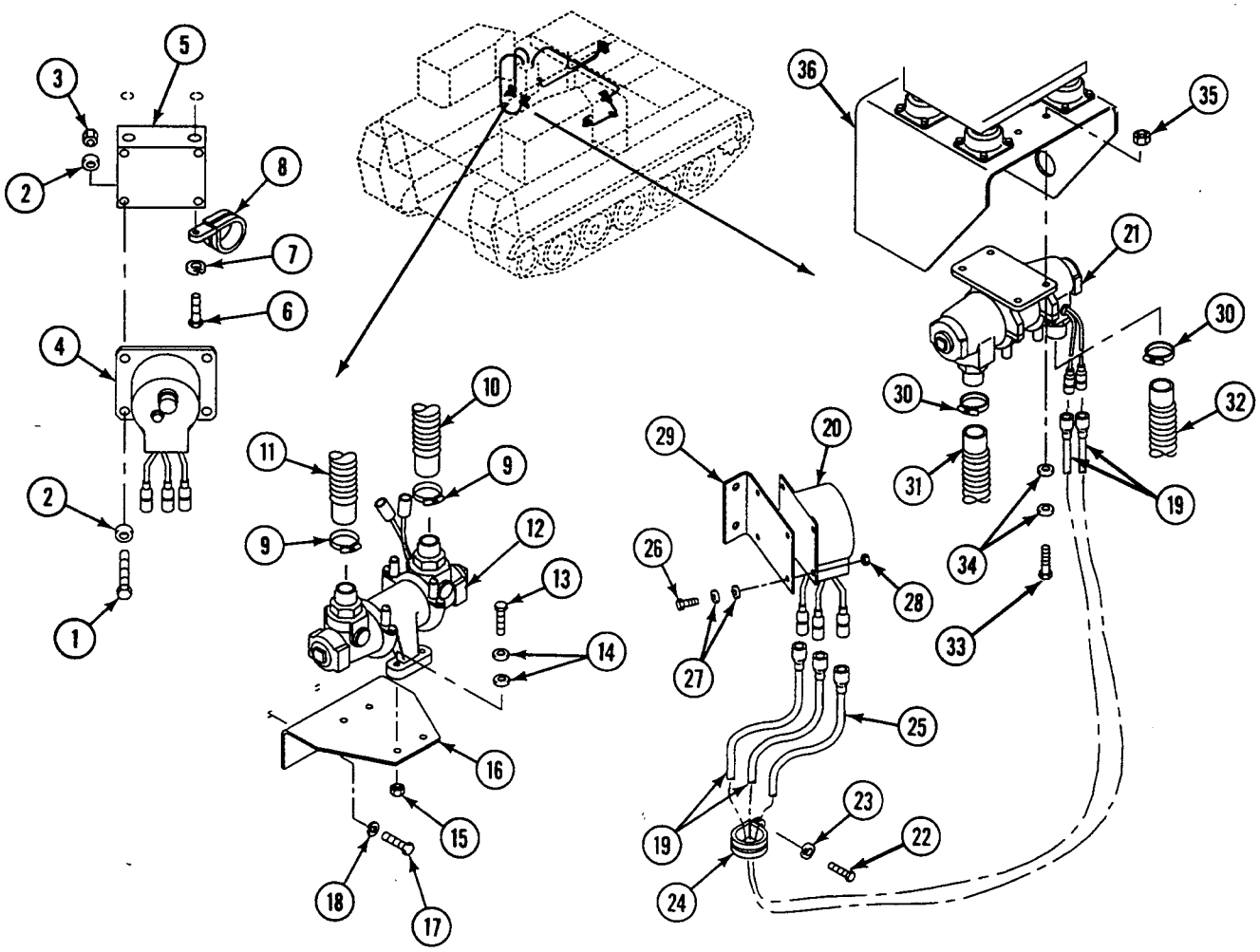


4. If bracket (9) is damaged, remove two lockscrews (10), washers (11), and bracket from hull top plate. Discard lock screws.
5. Disconnect two leads (12) from commander's controller (13) and commander's heater (14).
6. Cut straps (15) and remove two leads (12) from adjacent heater hoses (16). Discard straps.

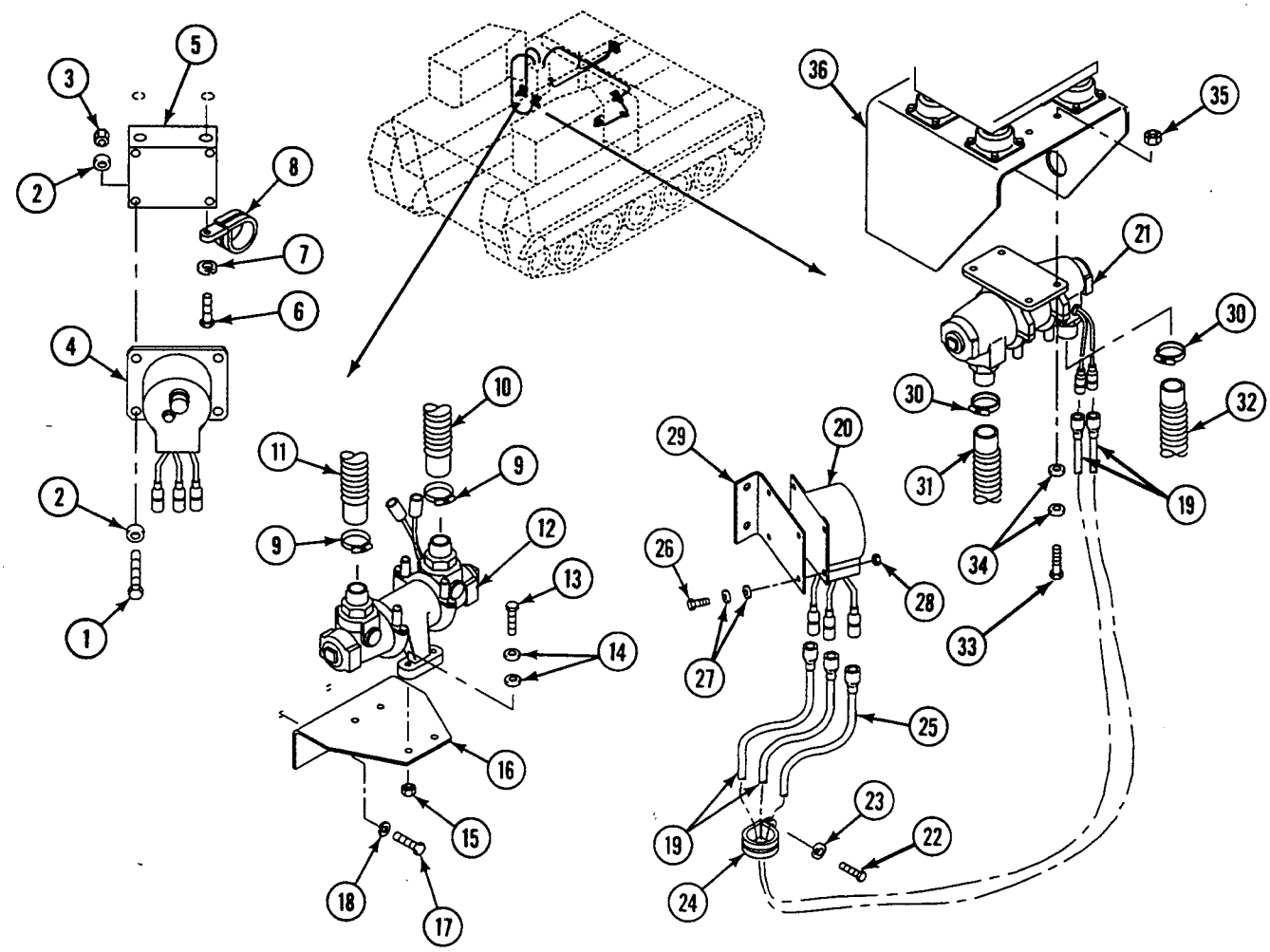


REPLACE M3 NBC HEATERS AND CONTROLLERS (M1059A3 ONLY) — Continued 0797 00

7. Remove four screws (1), eight washers (2), four locknuts (3), and commander's controller (4) from bracket (5). Discard locknuts.
8. If bracket (5) is damaged, remove two screws (6), lockwashers (7), clamp (8), and bracket from hull top plate. Discard lockwashers.
9. Loosen two clamps (9) and remove inlet hose (10) and outlet hose (11) from commander's heater (12).
10. Remove four screws (13), eight washers (14), four locknuts (15), and commander's heater (12) from bracket (16). Discard locknuts.
11. If bracket (16) is damaged, remove two screws (17), lockwashers (18), and bracket from bulkhead. Discard lockwashers.

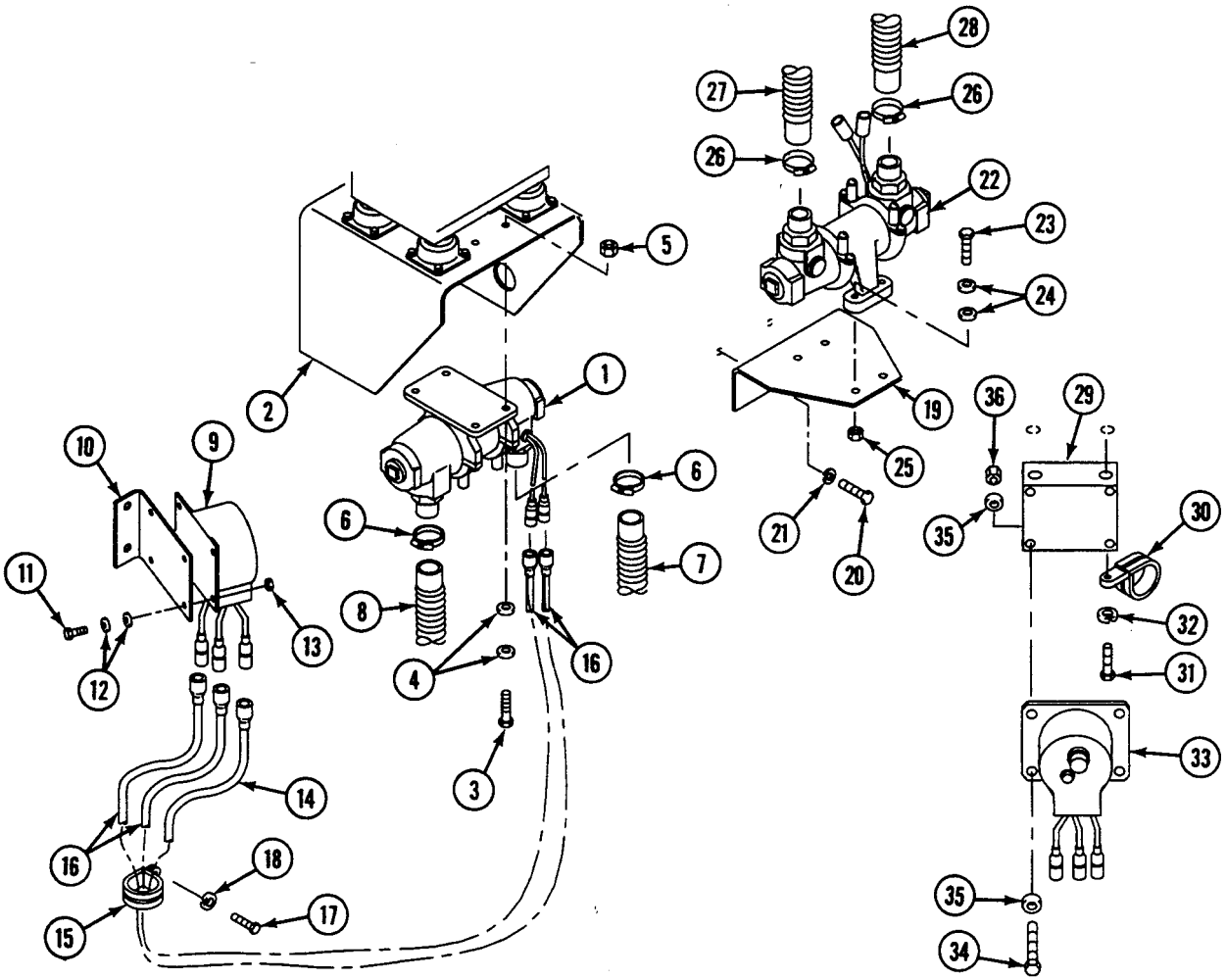


12. Disconnect two leads (19) from driver's controller (20) and driver's heater (21).
13. Remove two screws (22), lockwashers (23), and clamps (24) from bulkhead. Remove clamps from leads (19). Discard lockwashers.
14. Disconnect circuit 537B lead (25) from driver's heater controller (20).
15. Remove four screws (26), eight washers (27), four locknuts (28), and driver's controller (20) from bracket (29). Discard locknuts.
16. Loosen two clamps (30) and remove inlet hose (31) and outlet hose (32) from driver's heater (21).
17. Remove four screws (33), eight washers (34), four locknuts (35), and driver's heater (21) from bracket (36). Discard locknuts.

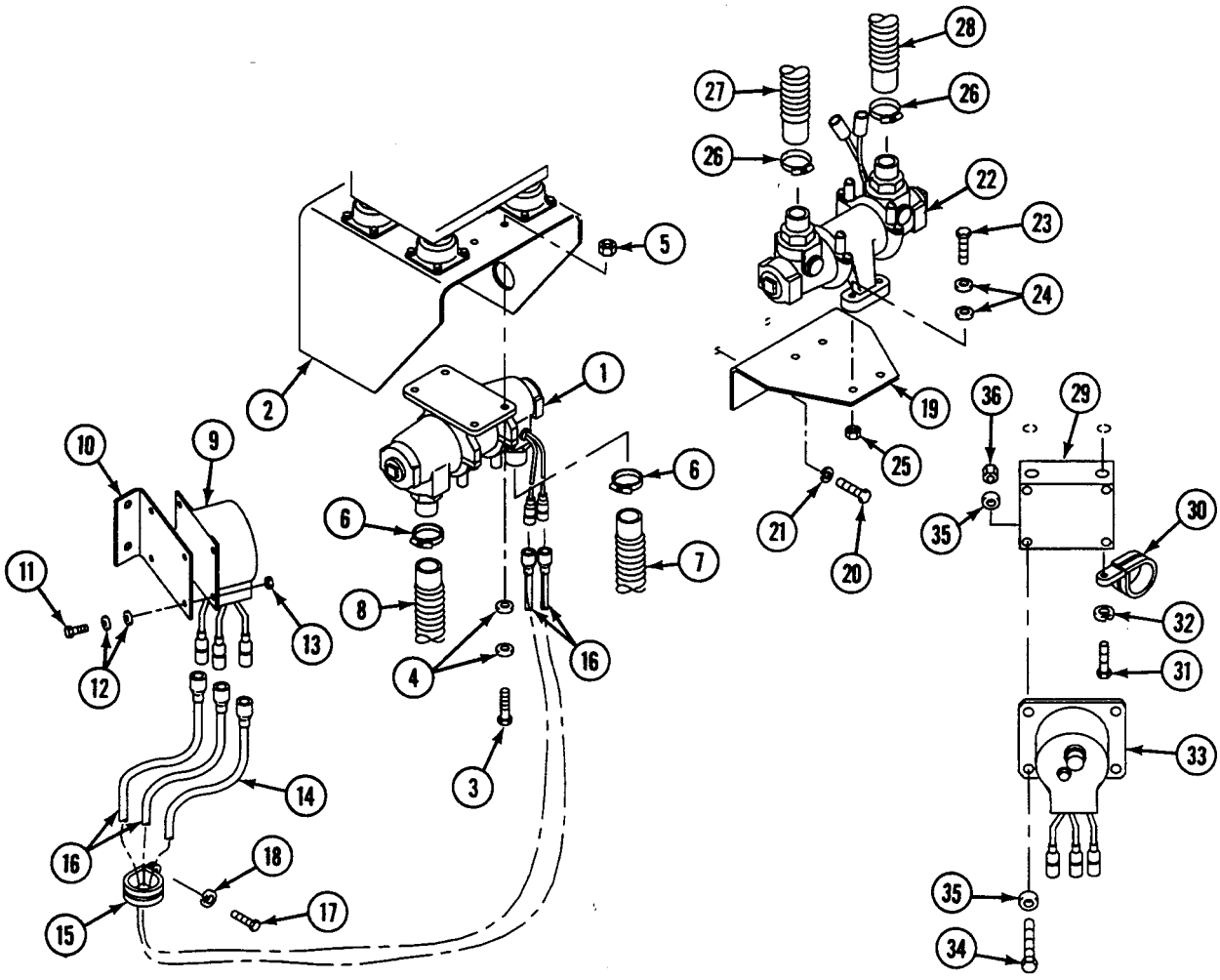


INSTALLATION

1. Install driver's heater (1) on bracket (2). Secure with four screws (3), eight washers (4), and four new locknuts (5).
2. Install two clamps (6) on outlet hose (7) and inlet hose (8). Install hoses on driver's heater (1). Tighten clamps.
3. Install driver's controller (9) on bracket (10). Secure with four screws (11), eight washers (12), and four new locknuts (13).
4. Connect circuit lead 537B (14) to driver's controller (9).

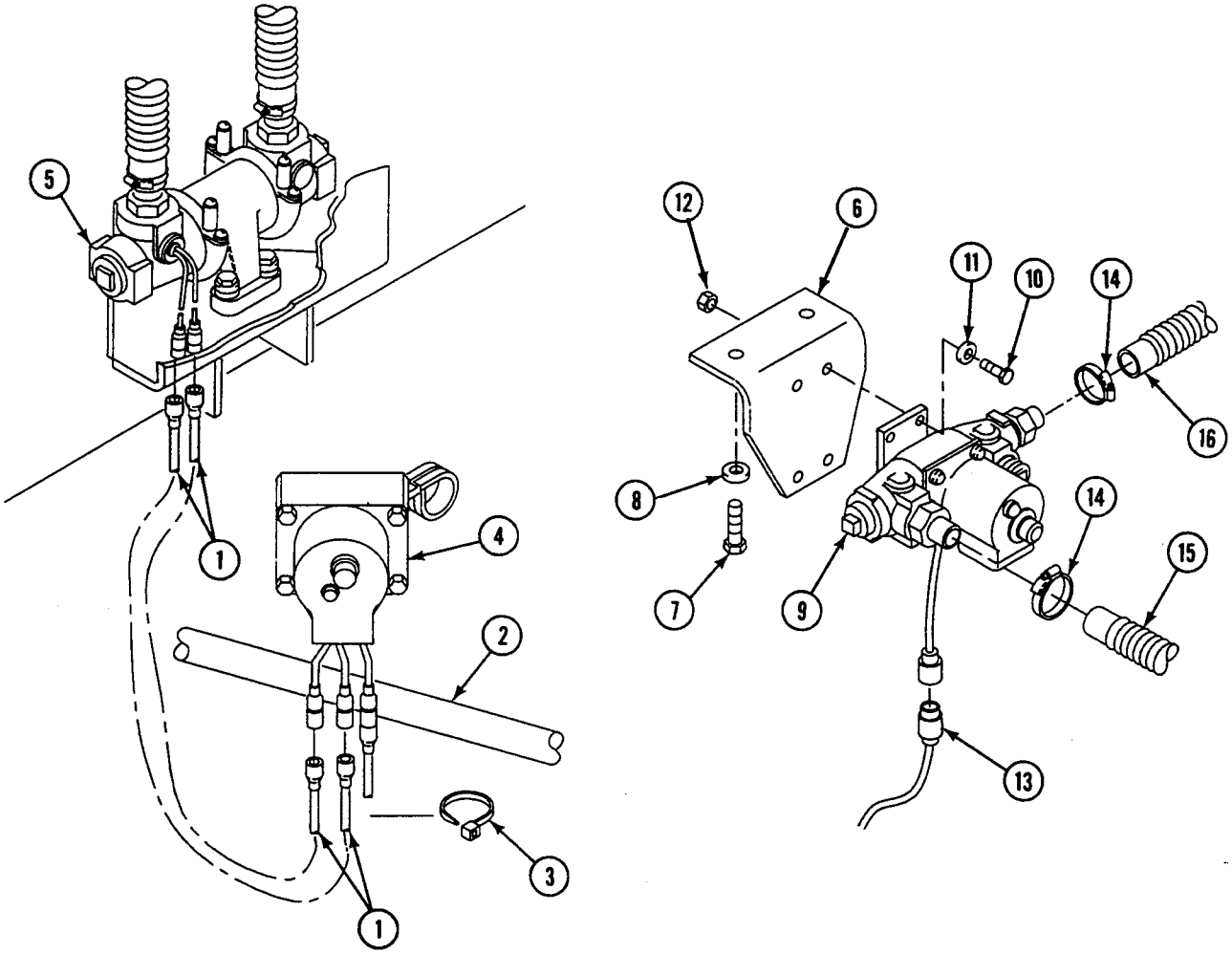


5. Install two clamps (15) on two leads (16). Secure clamps to bulkhead with two screws (17) and new lockwashers (18).
6. Connect two leads (16) to driver's controller (9) and driver's heater (1).
7. If removed, install bracket (19) on bulkhead. Secure with two screws (20) and new lockwashers (21).
8. Install commander's heater (22) on bracket (19). Secure with four screws (23), eight washers (24), and four new locknuts (25).
9. Install two clamps (26) on outlet hose (27) and inlet hose (28). Install hoses on commander's heater (22). Tighten clamps.
10. If removed, install bracket (29) and clamp (30) on hull top plate. Secure with two screws (31) and new lockwashers (32).
11. Install commander's controller (33) on bracket (29). Secure with four screws (34), eight washers (35), and four new locknuts (36).



REPLACE M3 NBC HEATERS AND CONTROLLERS (M1059A3 ONLY) — Continued 0797 00

12. Secure two leads (1) to adjacent heater hoses (2) with new straps (3).
13. Connect two leads (1) to commander's controller (4) and commander's heater (5).
14. If bracket (6) was removed, install bracket on hull top plate. Secure with two new lock screws (7) and washers (8).
15. Install operator's heater (9) on bracket (6). Secure with four screws (10), washers (11), and new locknuts (12).
16. Connect circuit 537D lead (13) to operator's heater (9).
17. Install two clamps (14) on outlet hose (15) and inlet hose (16). Install hoses on operator's heater (9). Tighten clamps.



FOLLOW-THROUGH STEPS

1. Connect battery ground strap (WP 0337 00).
2. Start engine (see your -10).
3. Raise and lock ramp (see your -10).
4. Stop engine (see your -10).
5. Check air flow of NBC system. Follow procedures of TM 3-6680-316-10.

END OF TASK

REPLACE M13 NBC HEATERS (M1068A3 ONLY) 0798 00

THIS WORK PACKAGE COVERS:

Removal (page 0798 00-1).
Installation (page 0798 00-4).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts
Lockwasher (18)
Locknut (9)

Personnel Required
Unit Mechanic

References
See your -10
See TM 3-6680-316-10

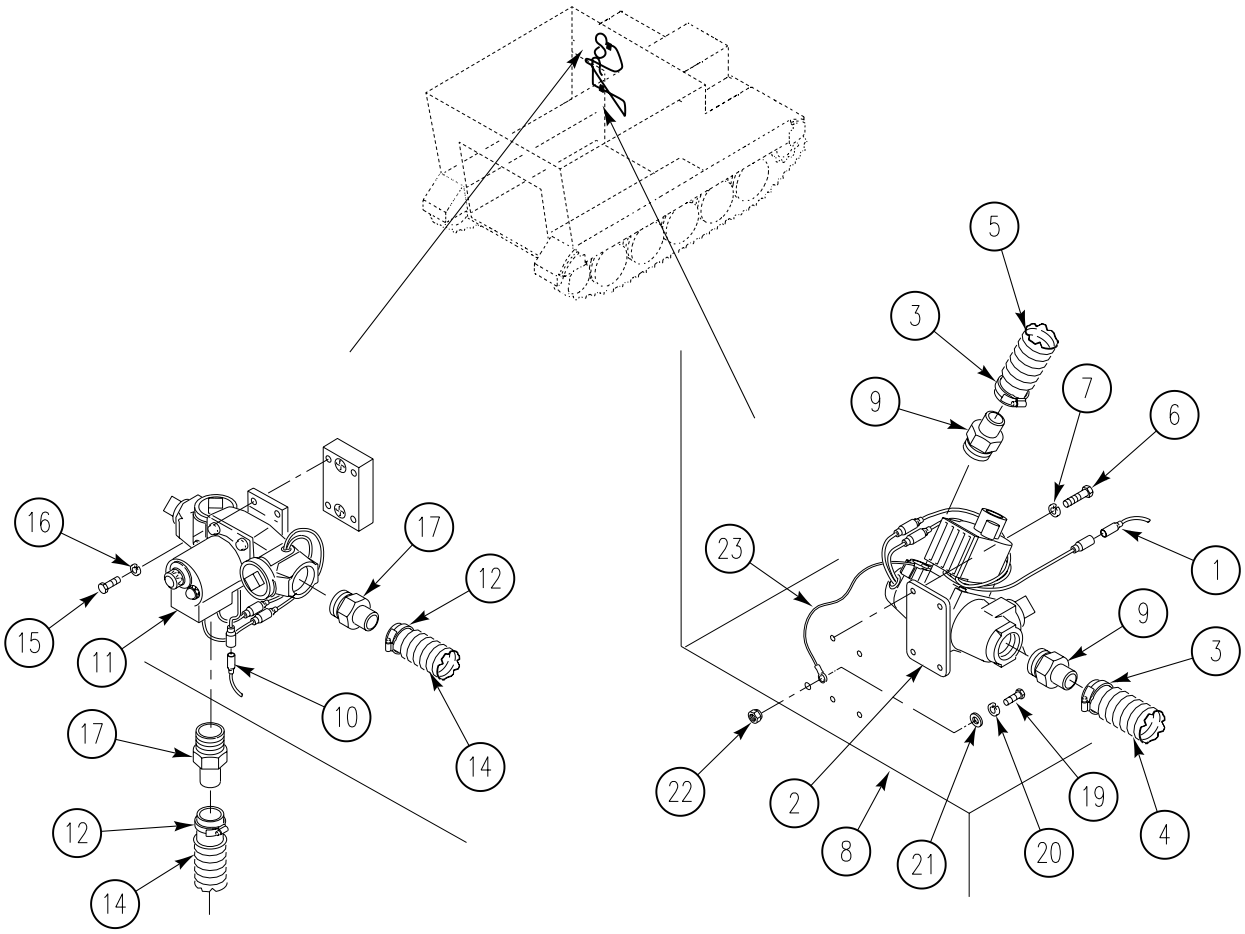
Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Battery ground lead disconnected (WP 0338 00)

REMOVAL

1. Disconnect circuit lead 537A (1) from driver's heater (2).
2. Loosen two clamps (3) and remove inlet and outlet hoses (4) and (5) from driver's heater (2).
3. Remove screw (19), lockwasher (20), washer (21), locknut (22), and jumper (23) from hull. Discard locknut and lockwasher.

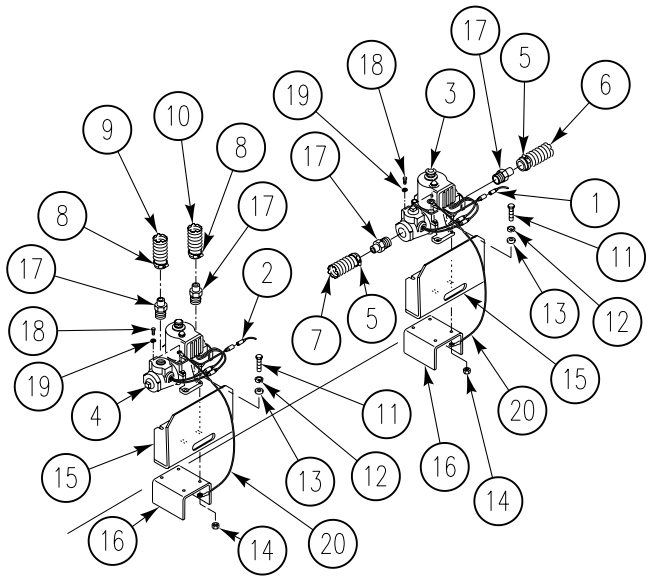
REPLACE M13 NBC HEATERS (M1068A3 ONLY) — Continued **0798 00**

4. Remove four screws (6), lockwashers (7), jumper (23), and heater (2) from frame (8). Discard lockwashers.
5. Remove two adapters (9) from heater (2).
6. Disconnect circuit lead 537B (10) from commander's heater (11).
7. Loosen two clamps (12) and remove inlet and outlet hoses (14) from commander's heater (11).
8. Remove four screws (15), lockwashers (16), and commander's heater (11) from forward bulkhead. Discard lockwashers.
9. Remove two adapters (17) from commander's heater (11).



REPLACE M13 NBC HEATERS (M1068A3 ONLY) — Continued 0798 00

10. Remove circuit leads 537D and 537E (1) and (2) from front and rear heaters (3) and (4).
11. Loosen two clamps (5) and remove inlet and outlet hoses (6) and (7) from front heater (3).
12. Loosen two clamps (8) and remove inlet and outlet hoses (9) and (10) from rear heater (4).
13. Remove four screws (11), five lockwashers (12), four washers (13), nuts (14), shield (15), jumper (20), and heater (3) or (4) from welded mount (16). Discard lockwashers.
14. Remove two adapters (17) from heater (3) and (4).
15. Remove screw (18), lockwasher (19), and jumper (20) from heater (3) and (4). Discard lockwasher.

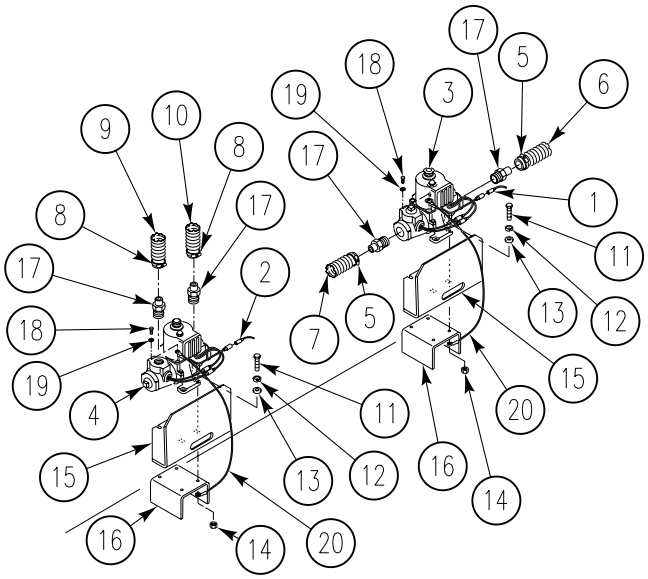


INSTALLATION

NOTE

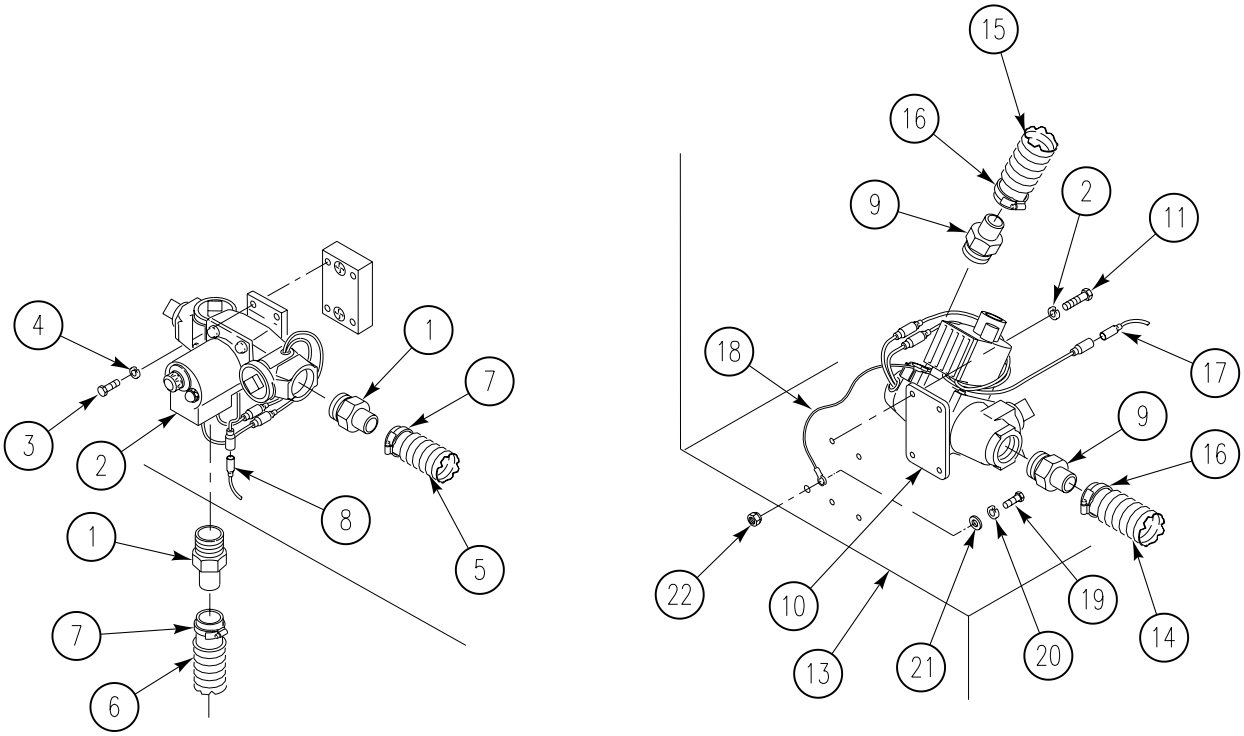
To ensure electrical ground, verify entire contact area of lockwasher is free of paint.

1. Install jumper (20) on front or rear heater (3) or (4) with screw (18) and new lockwasher (19).
2. Install two adapters (17) on front or rear heater (3) or (4).
3. Install shield (15) on front or rear heater (3) or (4) to welded mount (16) with four screws (11), five new lockwashers (12), four washers (13), and nuts (14).
4. Install inlet and outlet hoses (9) and (10) on rear heater (4). Tighten clamps (8) on each hose.
5. Install inlet and outlet hoses (6) and (7) on front heater (3). Tighten clamps (5) on each hose.
6. Install circuit leads 537D and 537E (1) and (2) on front and rear heaters (3) and (4).



7. Install two adapters (1) on commander's heater (2).
8. Install four screws (3), new lockwashers (4), and commander's heater (2) on foreward bulkhead.
9. Install inlet and outlet hoses (5) and (6) on commander's heater (2). Tighten clamp (7) on each hose.
10. Install circuit lead 537B (8) on commander's heater (2).
11. Install two adapters (9) on driver's heater (10).
12. Install four screws (11), new lockwashers (2), jumper(18), and heater (10) on frame (13).
13. Install jumper (18) to hull with washer (21), new lockwasher (20), screw (19) and new locknut (22).
14. Install inlet and outlet hoses (14) and (15) on heater (10). Tighten clamp (16) on each hose.

15. Install circuit lead 537A (17) on heater (10).



FOLLOW-THROUGH STEPS

1. Connect battery ground lead (WP 0338 00).
2. Check air flow of NBC system. Follow procedures in TM 3-6680-316-10.

END OF TASK

REPLACE M14 NBC CABLES AND SWITCH ASSEMBLY (M1059A3 ONLY) 0799 00

THIS WORK PACKAGE COVERS:

Removal (page 0799 00-1).
Installation (page 0799 00-3).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts
Lockwasher (4)
Straps (3)

Personnel Required
Unit Mechanic

References
See your -10

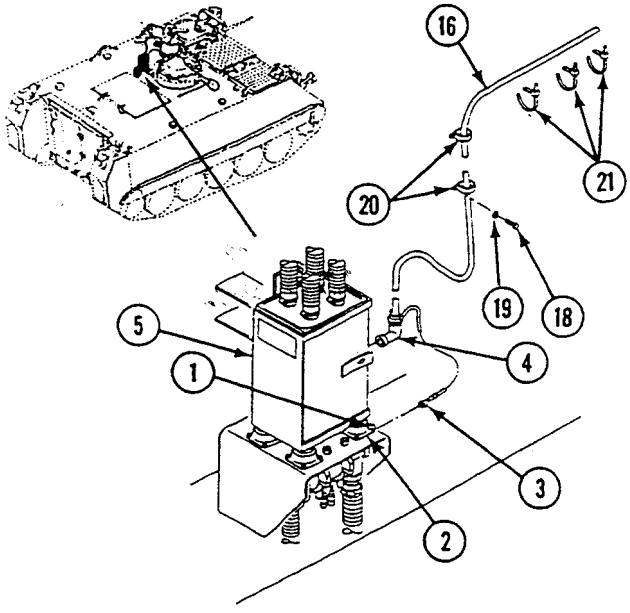
Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Ramp lowered (see your -10)
Battery ground strap disconnected (WP 0337 00)
Drop instrument panel. See Replace Panel Mounts and Ground Leads (WP 0295 00).

REMOVAL

NOTE

Ground lead terminal may be either ring terminal end or split terminal end.

1. Loosen or remove screw (1) on mount (2) and remove ground lead (3).
2. Remove power cable and ground assembly (4) from air purifier (5).



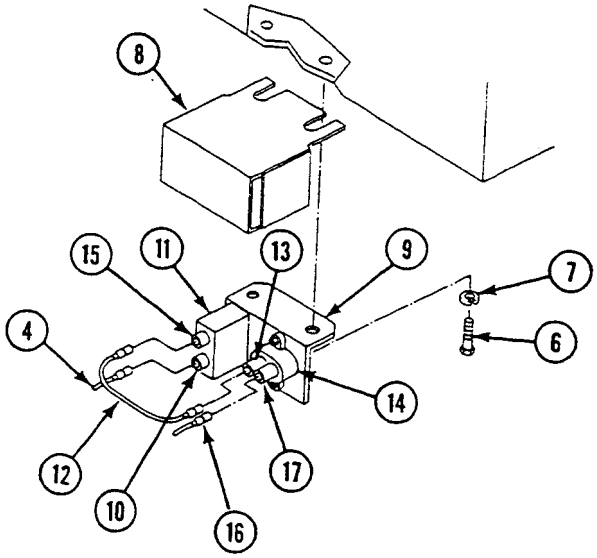
REPLACE M14 NBC CABLES AND SWITCH ASSEMBLY (M1059A3 ONLY) — Continued 0799 00

3. Remove two screws (6), lockwashers (7), cover (8), and circuit breaker switch assembly (9) from transverse beam. Discard lockwashers.

4. Remove power cable (4) from jack (10) on switch (11).

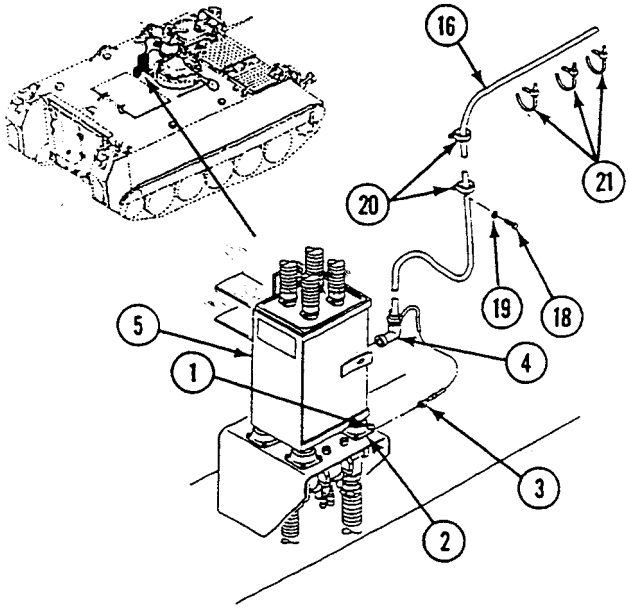
5. Remove short cable assembly (12) from jack (13) on circuit breaker (14) and jack (15) on switch (11).

6. Remove circuit 579A cable assembly (16) from jack (17) on circuit breaker (14).

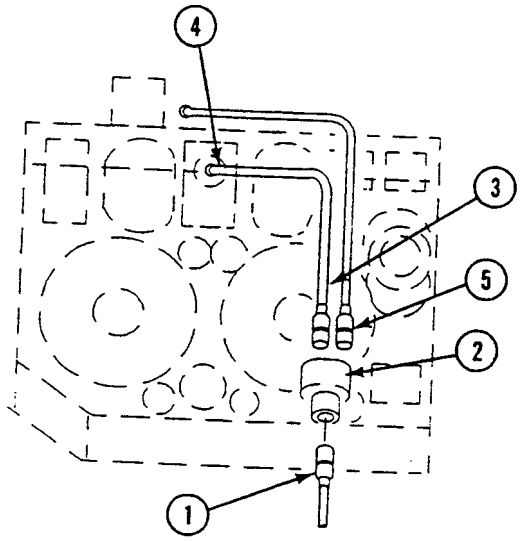


7. Remove two screws (18), lockwashers (19), and clamps (20) from bulkhead. Remove clamps from circuit 579A cable assembly (16). Discard lockwashers.

8. Remove three straps (21) securing circuit 579A cable assembly (16) to wiring harness on side plate. Discard straps.

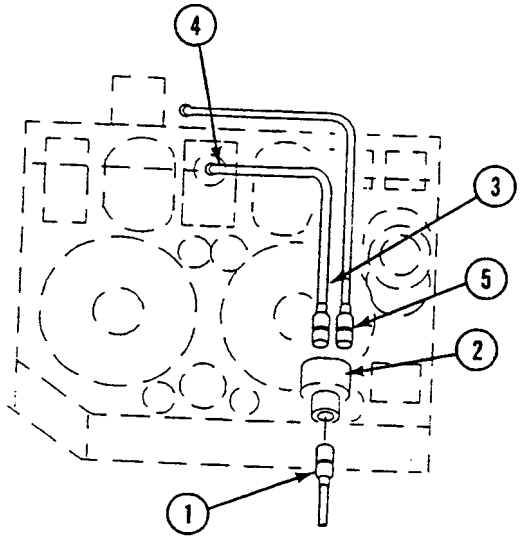


9. Remove circuit 579A lead (1) from connector (2) on back of instrument panel.
10. Remove circuit 10A lead (3) from connector (2) and circuit breaker (4).
11. Remove circuit 10 lead (5) from connector (2).

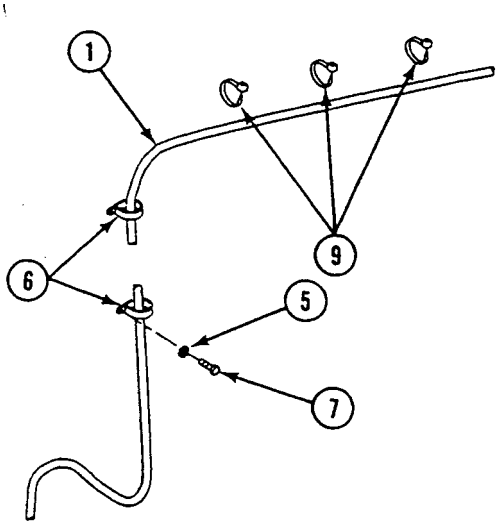


INSTALLATION

1. Install circuit 10 lead (5) on connector (2).
2. Install circuit 10A lead (3) on connector (2) and circuit breaker (4).
3. Install circuit 579A lead (1) on connector (2).
4. Install circuit 579A lead (1) on connector (2).

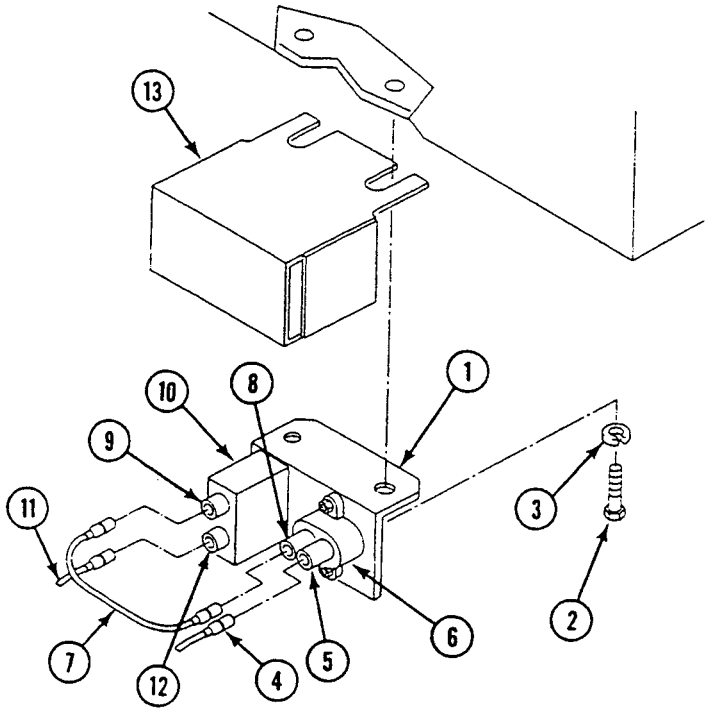


5. Install clamps (6) on circuit 579A cable (1). Secure clamps (6) to bulkhead with two screws (7) and new lockwashers (5).
6. Install circuit 579A cable (1) along existing wiring harness on side plate. Secure cable (1) to harness with three new straps (9).



7. Align circuit breaker and switch assembly (1) to threaded inserts under left side of traverse beam, with controls facing front of vehicle. Secure with two screws (2) and new lockwashers (3). Do not tighten screws.
8. Install circuit 579A lead (4) on jack (5) of circuit breaker (6).
9. Install short cable assembly (7) on jack (8) of circuit breaker (6) and jack (9) of switch (10).
10. Install power cable assembly (11) on jack (12) of switch (10).
11. Install slots on cover (13) under two screws (2) securing switch assembly (1) to traverse beam.

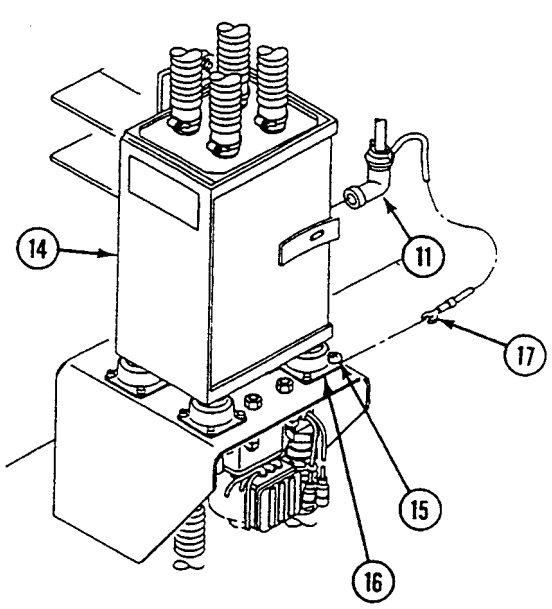
12. Install power and ground cable assembly (11) on air purifier assembly (14).



NOTE

Ground lead terminal may be either a ring end or split end.

13. Loosen or remove screw (15) on shock mount insulator (16). Install end of ground cable (17) under screw (15). Tighten screw.



FOLLOW-THROUGH STEPS

1. Install driver's instrument panel (WP 0295 00).
2. Connect battery ground strap (WP 0337 00).
3. Start engine (see your -10).
4. Raise and lock ramp (see your -10).
5. Stop engine (see your -10).

END OF TASK

REPLACE NBC CABLE TO HEATERS, AIR PURIFIER, AND SWITCH ASSEMBLY (M113A3 ONLY) 0800 00

THIS WORK PACKAGE COVERS:

Removal (page 0800 00-1).
Installation (page 0800 00-3).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts
Straps (3)

Personnel Required
Unit Mechanic

References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Battery ground strap disconnected (WP 0337 00)
Drop instrument panel. See Replace Panel Mounts and Ground Leads (WP 0295 00).

REMOVAL

1. Disconnect cable (1) from air purifier (2).
2. Loosen two screws (3) and remove cover (4) from switch assembly (5) and transverse beam.
3. If circuit breaker switch assembly needs to be replaced, see Replace NBC Filter Switch (WP 0802 00).
4. Remove circuit 579C (6) from jack (7) on air filter switch (8).
5. Remove circuit 537C (9) from jack (10) on air filter on lamp (11).
6. Remove all tie straps (12) securing cable (1) to other wiring harnesses. Discard straps.
7. Remove circuit 579A lead (13) from connector (14) on back of instrument panel.
8. Remove circuit 537B lead (15) from driver's heater controller lead (16).
9. Remove circuit 537A lead (17) from commander's heater controller lead (18).
10. Remove circuit 10A lead (19) from connector (20) and circuit breaker (21).
11. Remove circuit 10 lead (22) from connector (14).

WARNING

Removing cables from the regulator without disconnecting the vehicle battery ground cable may hurt personnel and damage equipment from electrical power.

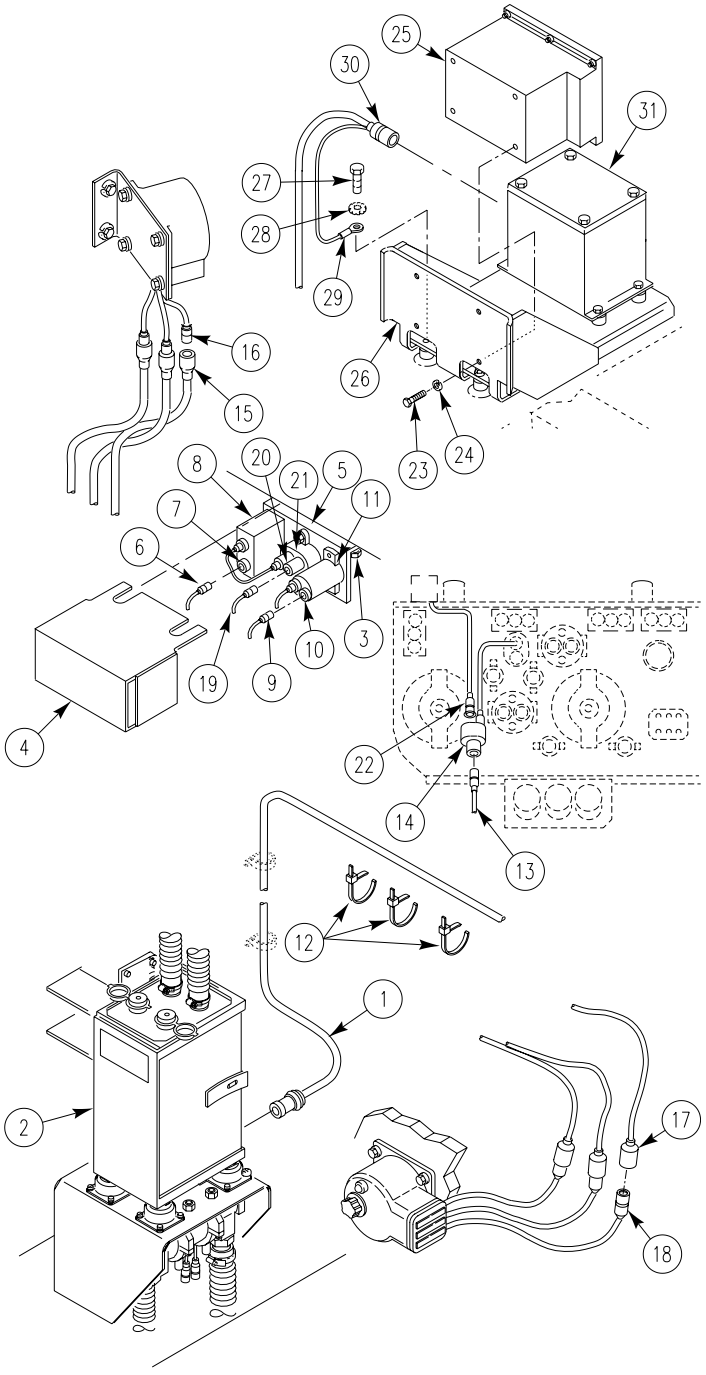
NOTE

Do Step 12 to gain better access to remove NBC cable ground lead.

12. Remove four screws (23), lockwashers (24) and regulator (25) from bracket (26).

REPLACE NBC CABLE TO HEATERS, AIR PURIFIER, AND SWITCH ASSEMBLY (M113A3 ONLY) — Continued **0800 00**

13. Remove screw (27) lockwasher (28) and ground lead from bracket.
14. Disconnect cable connector (30) from NBC control box (31).
15. Remove cable assembly (1) from vehicle.



REPLACE NBC CABLE TO HEATERS, AIR PURIFIER, AND SWITCH ASSEMBLY (M113A3 ONLY) — Continued

0800 00

INSTALLATION

1. Position NBC cable assembly in vehicle.
2. Install screw (27) lockwasher (28) and ground lead (29) to bracket (26).

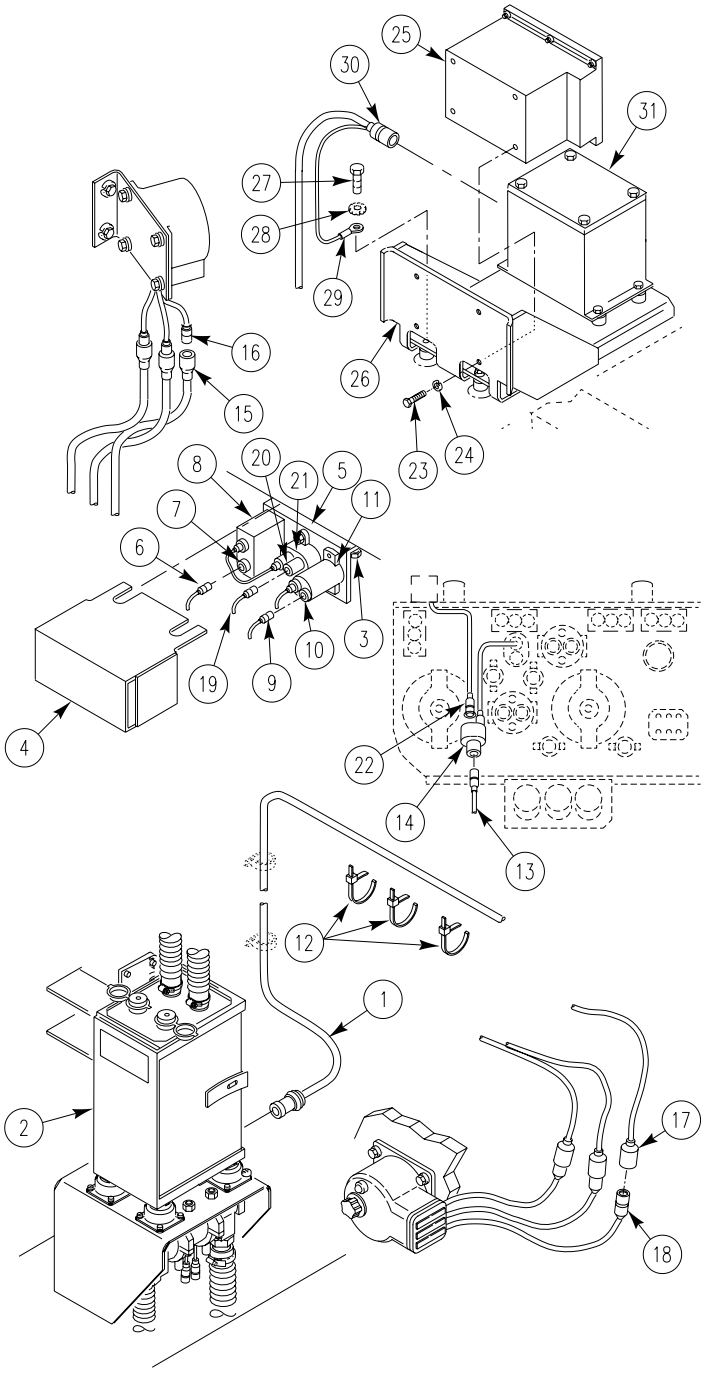
WARNING

Removing cables from the regulator without disconnecting the vehicle battery ground cable may hurt personnel and damage equipment from electrical power.

3. Install four screws (23), lockwashers (24), and regulator (25) to bracket (26).
4. Connect cable connector (30) to NBC control box (31).
5. Install circuit 10 lead (22) on connector (14).
6. Install circuit 10A lead (19) on connector (21) and circuit breaker (21).
7. Install circuit 579A lead (13) on connector (14).
8. Install circuit 537B lead (15) to driver's heater controller lead (16).
9. Install circuit 537A lead (17) to commander's heater controller lead (18).
10. Install circuit 579C lead (6) to jack (7) on air filter switch (8).
11. Install circuit 537C (9) to jack (10) on air filter in lamp (11).
12. Install NBC cable (1) on air purifier (2).
13. Install cover (4) between the switch assembly (5) and transverse beam. Tighten two screws (3) to secure switch (5) and cover (4) to transverse beam.

REPLACE NBC CABLE TO HEATERS, AIR PURIFIER, AND SWITCH ASSEMBLY (M113A3 ONLY) — Continued **0800 00**

14. Install new tie straps to secure NBC cable leads to existing wiring harnesses.



FOLLOW-THROUGH STEPS

1. Install Drivers instrument panel (WP 0295 00).
2. Connect battery ground strap (WP 0337 00).

END OF TASK

REPLACE NBC FILTER SWITCH ASSEMBLY (M113A3 AND M113A3 AMBULANCE ONLY) 0802 00

THIS WORK PACKAGE COVERS:

Removal (page 0802 00-1).
Installation (page 0802 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Personnel Required

Unit Mechanic

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)

References

See your -10

Materials/Parts

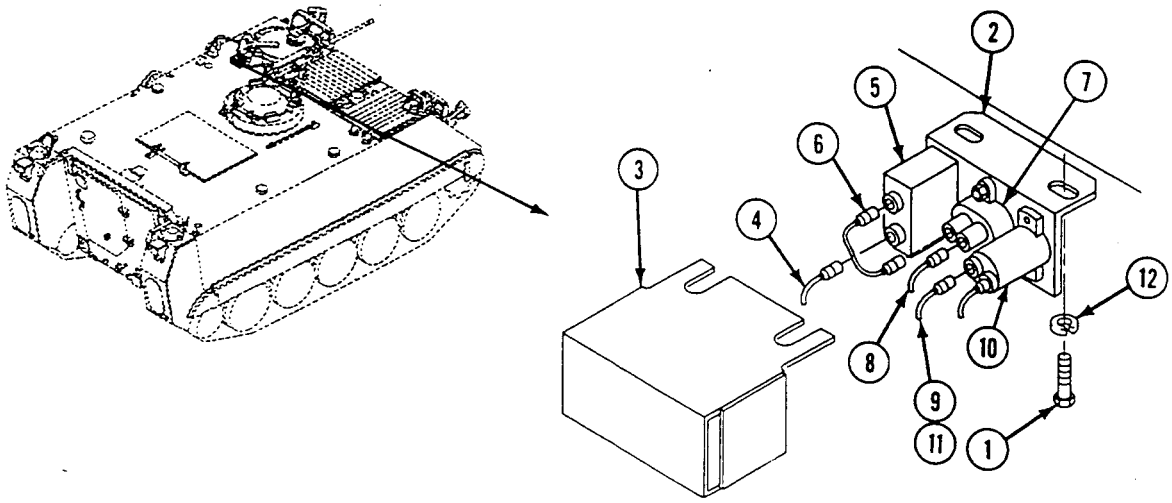
Lockwasher (2)
Lockwasher (2)
Lockwasher (2)
Lockwasher (2)

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Battery ground strap disconnected (WP 0337 00)

REMOVAL

1. Loosen two mounting screws (1) securing air filter switch assembly (2) to transverse beam. Remove cover (3) from switch assembly.
2. Remove circuit 579C lead (4) from air filter switch (5) on switch assembly (2).
3. Remove jumper lead (6) from air filter switch (5) and circuit breaker (7).



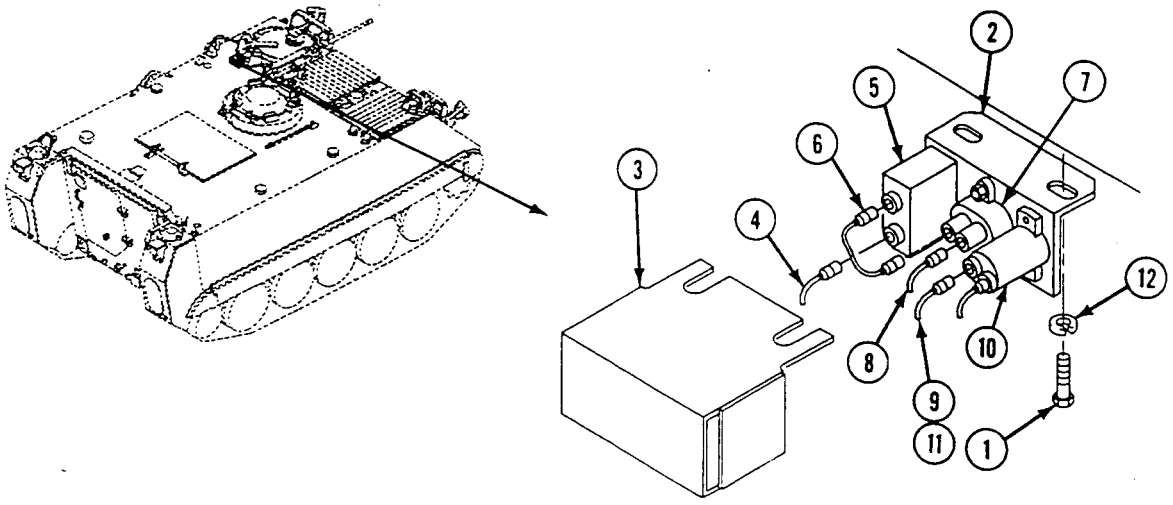
REPLACE NBC FILTER SWITCH ASSEMBLY (M113A3 AND M113A3 AMBULANCE ONLY) — Continued **0802 00**

4. Remove circuit 579A lead (8) from circuit breaker (7).

NOTE

For M113A3, do Step 5. For M113A3 Ambulance, do Step 6.

5. Remove circuit 537C lead (9) from air filter ON lamp (10).
6. Remove circuit 537F lead (11) from air filter ON lamp (10).
7. Remove two mounting screws (1), lockwashers (12), and switch assembly (2) from transverse beam. Discard lockwashers.



REPLACE NBC FILTER SWITCH ASSEMBLY (M113A3 AND M113A3 AMBULANCE ONLY) — Continued **0802 00**

NOTE

Remove following components, as needed, for repair of switch assembly.

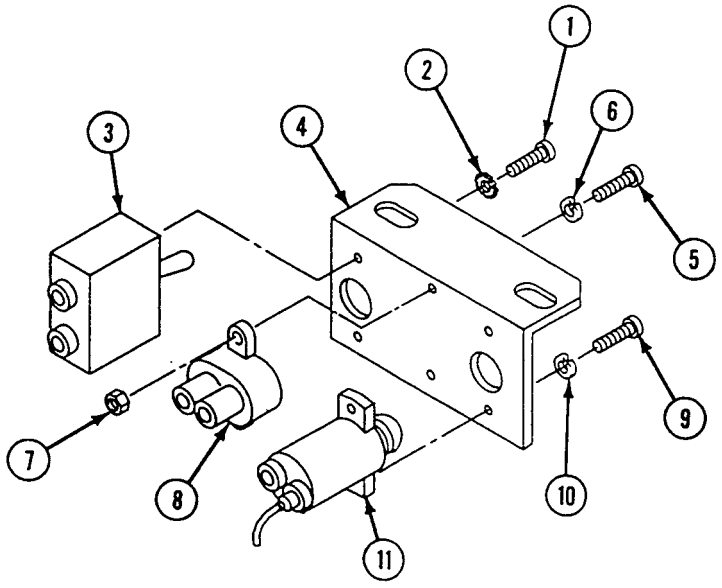
8. Remove two screws (1), lockwashers (2), and air filter switch (3) from switch assembly (4). Discard lockwashers.
9. Remove two screws (5), lockwashers (6), nuts (7), and circuit breaker (8) from switch assembly (4). Discard lockwashers.
10. Remove two screws (9), lockwashers (10), and air filter ON lamp (11) from switch assembly (4). Discard lockwashers.

INSTALLATION

NOTE

Install following components, as needed, for repair of switch assembly.

1. Install air filter ON lamp (11) on switch assembly (4). Secure with two screws (9) and new lockwashers (10).
2. Install circuit breaker (8) on switch assembly (4). Secure with two screws (5), new lockwashers (6), and nuts (7).
3. Install air filter switch (3) on switch assembly (4). Secure with two screws (1) and new lockwashers (2).



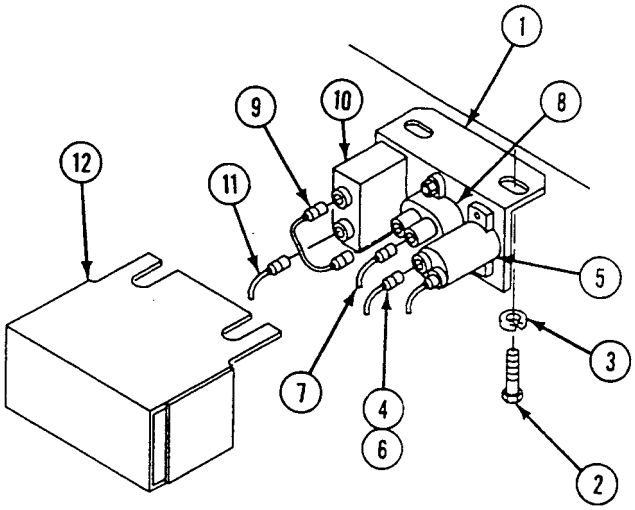
REPLACE NBC FILTER SWITCH ASSEMBLY (M113A3 AND M113A3 AMBULANCE ONLY) — Continued **0802 00**

4. Install switch assembly (1) on transverse beam. Secure with two mounting screws (2) and new lockwashers (3). Do not tighten screws at this time.

NOTE

For M113A3 Ambulance, do Step 5. For M113A3, do Step 6.

5. Install circuit 537F lead (4) on air filter ON lamp (5).
6. Install circuit 537C lead (6) on air filter ON lamp (5).
7. Install circuit 579A lead (7) on circuit breaker (8).
8. Install jumper lead (9) on air filter switch (10) and circuit breaker (8).
9. Install circuit 579C lead (11) on air filter switch (10) on switch assembly (1).
10. Install cover (12) on air filter switch assembly (1). Tighten mounting screws (2) securing switch assembly to transverse beam.



FOLLOW-THROUGH STEPS

1. Connect battery ground strap (WP 0337 00).

END OF TASK

REPLACE NBC FILTER SWITCH AND MOUNT BRACKET (M577A3 ONLY) 0803 00

THIS WORK PACKAGE COVERS:

Removal (page 0803 00-2)
Installation (page 0803 00-3)

INITIAL SETUP:

Maintenance Level
Unit

Personnel Required
Unit Mechanic

Tools and Special Tools
General Mechanic's Tool Kit (WP 0926 00, Item 65)

References
See your -10

Materials/Parts
Locknut (2)
Lockwasher (2)

Equipment Conditions
Engine stopped (see your -10)
Carrier blocked (see your -10)
Battery ground lead disconnected (WP 0338 00)

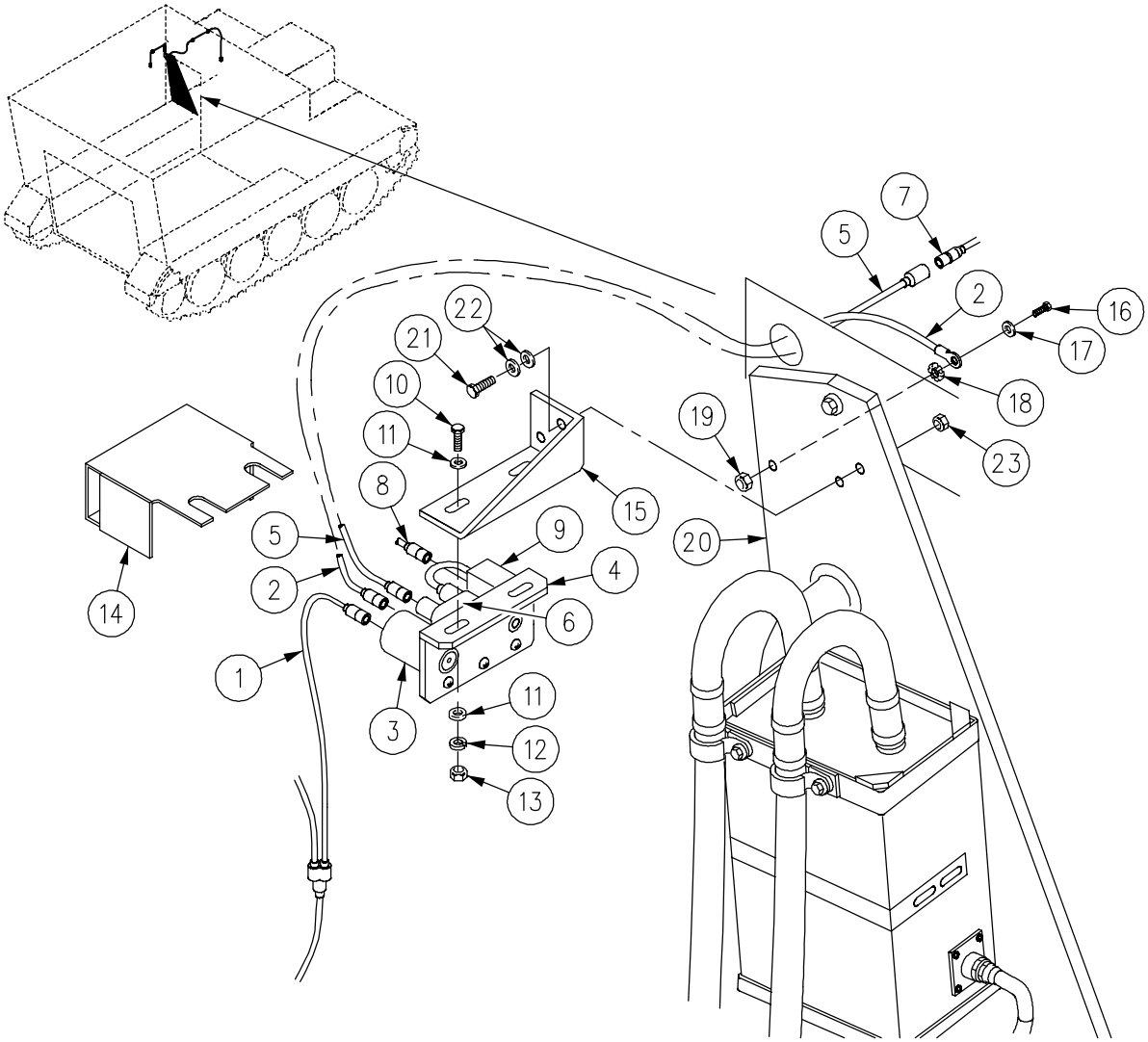
REPLACE NBC FILTER SWITCH AND MOUNT BRACKET (M577A3 ONLY) 0803 00

NOTE

Tag all leads and cables before removing.

REMOVAL

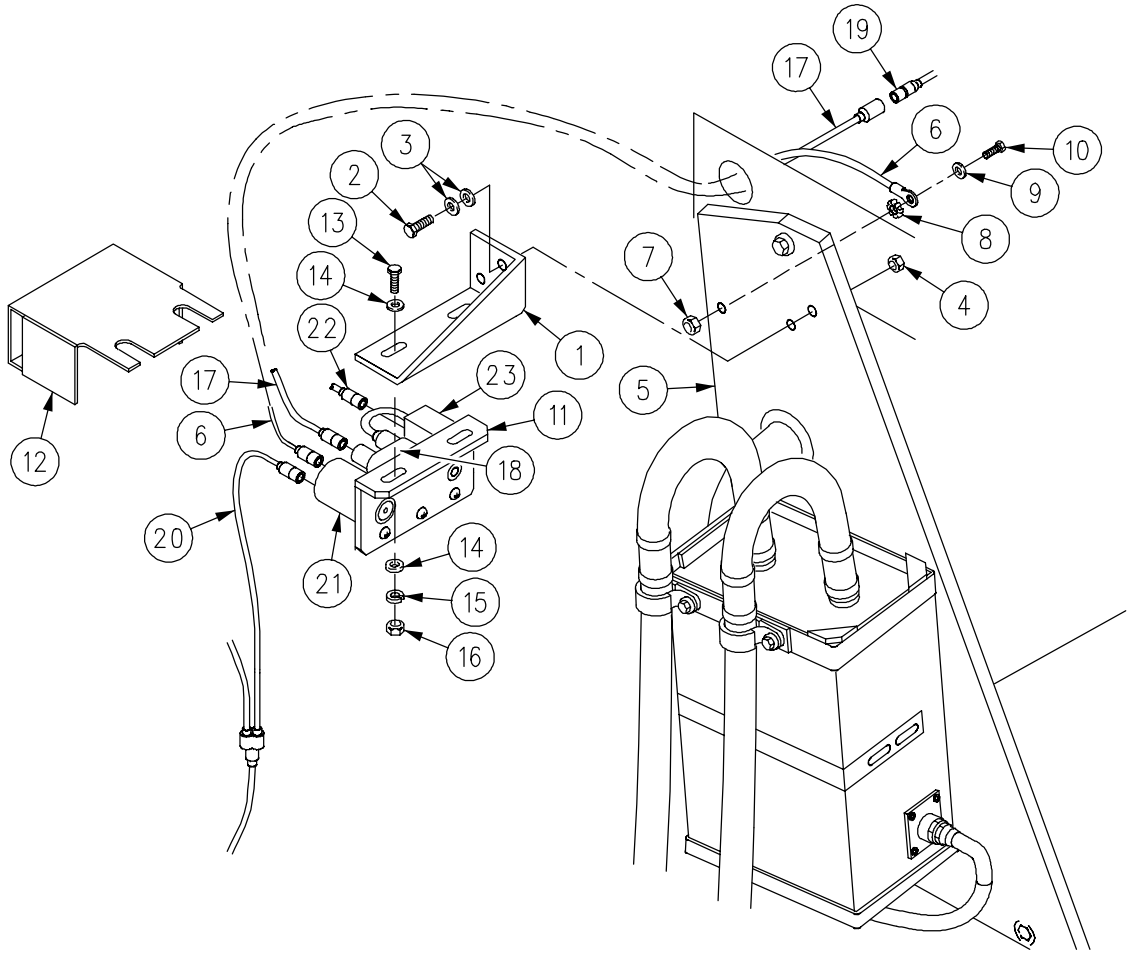
1. Disconnect circuit 537F (1) and ground lead (2) from light (3) on switch assembly (4).
2. Disconnect circuit 579A (5) from circuit breaker (6) on switch assembly (4) and circuit lead 415 (7).
3. Disconnect circuit 579C (8) from air filter (9).
4. Remove two screws (10), four washers (11), two lockwashers (12) two nuts (13), cover (14), and switch assembly (4) from bracket (15). Discard lockwashers.
5. Remove screw (16), flatwasher (17), lock washer (18), nut (19), and ground lead (2) from frame (20).
6. Remove two screws (21), four washers (22), two locknuts (23), and bracket (15) from frame (20). Discard locknuts.



REPLACE NBC FILTER SWITCH AND MOUNT BRACKET (M577A3 ONLY) 0803 00

INSTALLATION

1. Install bracket (1), two screws (2), four washers (3), and two new locknuts (4) on frame (5).
2. Install ground lead (6) onto frame (5) with nut (7), new lock washer (8), flatwasher (9), and screw (10).
3. Install switch assembly (11), cover (12) two screws (13), four washers (14), two new lockwashers (15) and two nuts (16) on bracket (1).
4. Connect circuit 579A (17) to circuit breaker (18) on switch assembly (11) and circuit lead 415 (19).
5. Connect circuit 537F (20) and ground lead (6) to light (21) on switch assembly (11).
6. Connect circuit 579C (22) to switch (23).



FOLLOW-THROUGH STEPS

1. Connect battery ground lead (WP 0338 00).

END OF TASK

REPLACE M8A3/M3 NBC FILTER SWITCH ASSEMBLY (M1059A3 ONLY) 0804 00

THIS WORK PACKAGE COVERS:

Removal (page 0804 00-1).
Installation (page 0804 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Personnel Required

Unit Mechanic

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)

References

See your -10

Materials/Parts

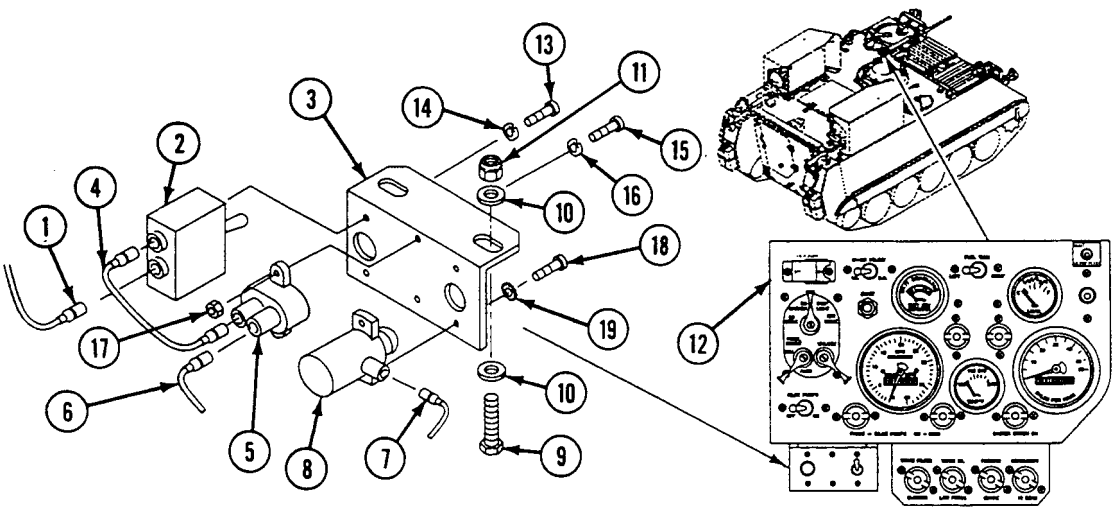
Locknut (4)
Lockwasher (2)
Lockwasher (2)
Lockwasher (2)

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Battery ground strap disconnected (WP 0337 00)

REMOVAL

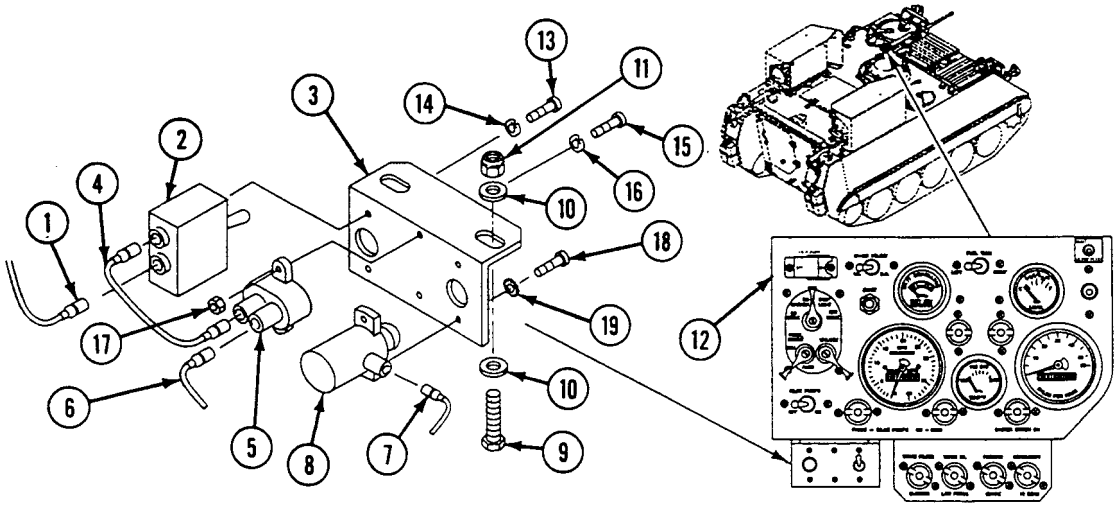
1. Remove circuit 579C lead (1) from air filter switch (2) on switch assembly (3).
2. Remove jumper lead (4) from air filter switch (2) and circuit breaker (5) on switch assembly (3).
3. Remove circuit 579A lead (6) from circuit breaker (5) on switch assembly (3).
4. Remove circuit 537C lead (7) from air filter ON lamp (8) on switch assembly (3).
5. Remove two mounting screws (9), four washers (10), two locknuts (11), and switch assembly (3) from instrument panel (12). Discard locknuts.



NOTE

Remove following components, as needed, for repair of switch assembly.

6. Remove two screws (13), lockwashers (14), and air filter switch (2) from switch assembly (3). Discard lockwashers.
7. Remove two screws (15), lockwashers (16), nuts (17), and circuit breaker (5) from switch assembly (3). Discard lockwashers.
8. Remove two screws (18), lockwashers (19), and air filter ON lamp (8) from switch assembly (3). Discard lockwashers.

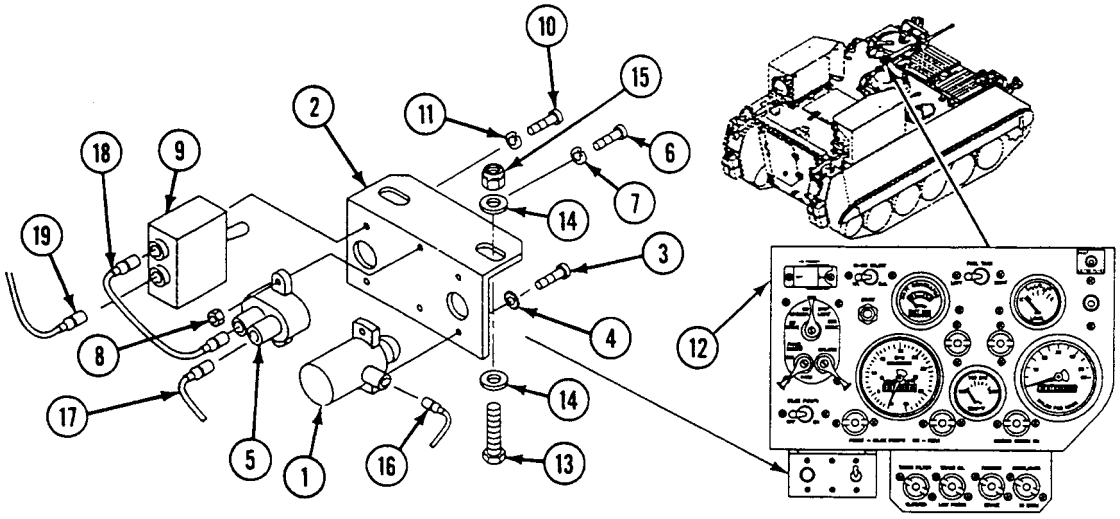


INSTALLATION

NOTE

Install following components, as needed, for repair of switch assembly.

1. Install air filter ON lamp (1) on switch assembly (2). Secure with two screws (3) and new lockwashers (4).
2. Install circuit breaker (5) on switch assembly (2). Secure with two screws (6), new lockwashers (7), and nuts (8).
3. Install air filter switch (9) on switch assembly (2). Secure with two screws (10) and new lockwashers (11).
4. Install switch assembly (2) on instrument panel (12). Secure with two mounting screws (13), four washers (14), and new locknuts (15).
5. Install circuit 537C lead (16) on air filter ON lamp (1) on switch assembly (2).
6. Install circuit 579A lead (17) on circuit breaker (5) on switch assembly (2).
7. Install jumper lead (18) on air filter switch (9) and circuit breaker (5).
8. Install circuit 579C lead (19) on air filter switch (9) on switch assembly (2).



FOLLOW-THROUGH STEPS

1. Connect battery ground strap (WP 0337 00).
2. Start engine (see your -10).
3. Raise and lock ramp (see your -10).
4. Stop engine (see your -10).

END OF TASK

REPLACE M13 NBC FILTER SWITCH (M1068A3 ONLY) 0805 00

THIS WORK PACKAGE COVERS:

Removal (page 0805 00-1).
Installation (page 0805 00-2).

INITIAL SETUP:

Maintenance Level
Unit

Personnel Required
Unit Mechanic

Tools and Special Tools
General Mechanic's Tool Kit (WP 0926 00, Item 65)

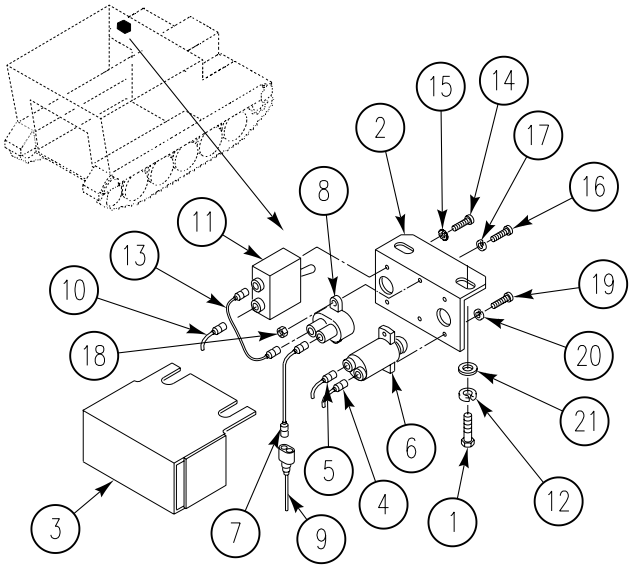
References
See your -10

Materials/Parts
Lockwasher (2)
Lockwasher (2)
Lockwasher (2)
Lockwasher (2)

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Battery ground lead disconnected (WP 0338 00)

REMOVAL

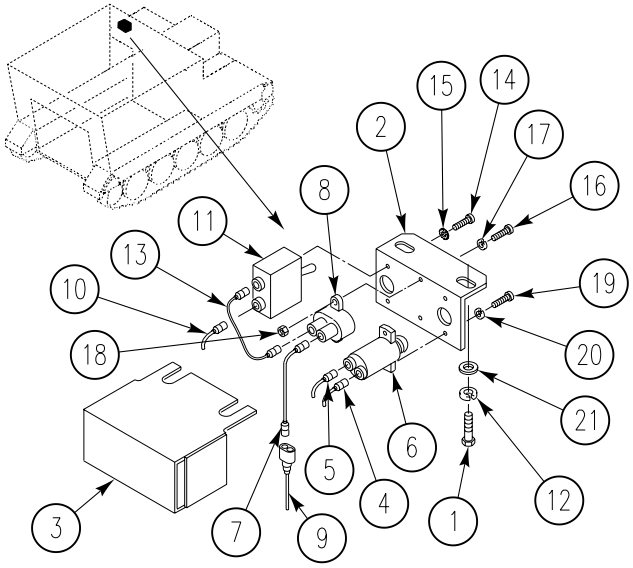
1. Loosen two mounting screws (1) securing air filter switch assembly (2) to top plate. Remove cover (3) from switch assembly.
2. Remove circuit 537C lead (4) and ground lead (5) from air filter ON lamp (6) on switch assembly (2).
3. Remove circuit 579A lead (7) from circuit breaker (8) on switch assembly (2) and Y-connector (9).
4. Remove circuit 579C lead (10) from air filter switch (11) on switch assembly (2).
5. Remove two mounting screws (1), lockwashers (12), washers (21), and switch assembly (2) from top plate. Discard lockwashers.



NOTE

Remove following components, as needed, for repair of switch assembly.

6. Remove circuit 579B lead (13) from air filter switch (11) and circuit breaker (8).
7. Remove two screws (14), lockwashers (15), and air filter switch (11) from switch assembly (2). Discard lockwashers.
8. Remove two screws (16), lockwashers (17), nuts (18), and circuit breaker (8) from switch assembly (2). Discard lockwashers.
9. Remove two screws (19), lockwashers (20), and air filter ON lamp (6) from switch assembly (2). Discard lockwashers.



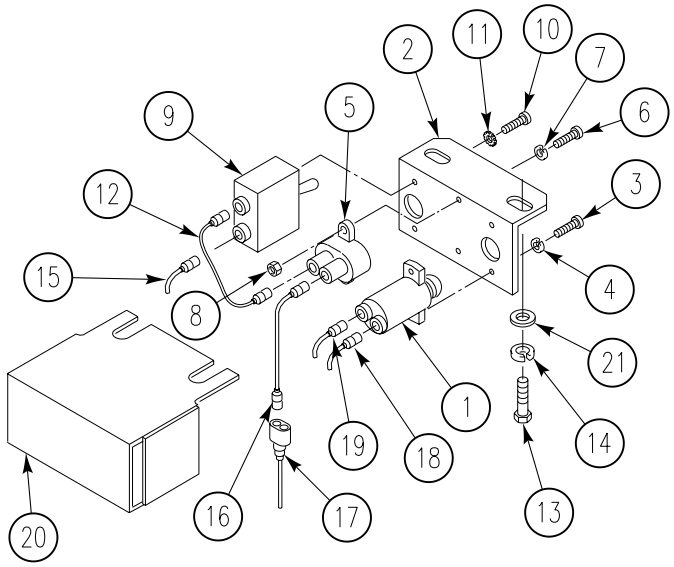
INSTALLATION

NOTE

Install following components, as needed, for repair of switch assembly.

1. Install air filter ON lamp (1) on switch assembly (2). Secure with two screws (3) and new lockwashers (4).
2. Install circuit breaker (5) on switch assembly (2). Secure with two screws (6), new lockwashers (7), and nuts (8).
3. Install air filter switch (9) on switch assembly (2). Secure with two screws (10) and new lockwashers (11).
4. Install circuit 579B lead (12) on air filter switch (9) and circuit breaker (5).

5. Install switch assembly (2) on top plate. Secure with two mounting screws (13), washers (21) and new lockwashers (14). Do not tighten screws at this time.
6. Install circuit 579C lead (15) on air filter switch (9) on switch assembly (2).
7. Install circuit 579A lead (16) on circuit breaker (5) on switch assembly (2) and Y-connector (17).
8. Install circuit 537C lead (18) and ground lead (19) on air filter ON lamp (1) on switch assembly (2).
9. Install cover (20) on air filter switch assembly (2). Tighten mounting screws (13) securing switch assembly to top plate.



FOLLOW-THROUGH STEPS

1. Connect battery ground lead (WP 0338 00).
2. Start engine (see your -10).
3. Raise and lock ramp (see your -10).
4. Stop engine (see your -10).

END OF TASK

REPLACE M3 NBC HEATER WIRING HARNESS (M1059A3 ONLY) 0806 00

THIS WORK PACKAGE COVERS:

Removal (page 0806 00-1).
Installation (page 0806 00-3).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts
Strap (as required)

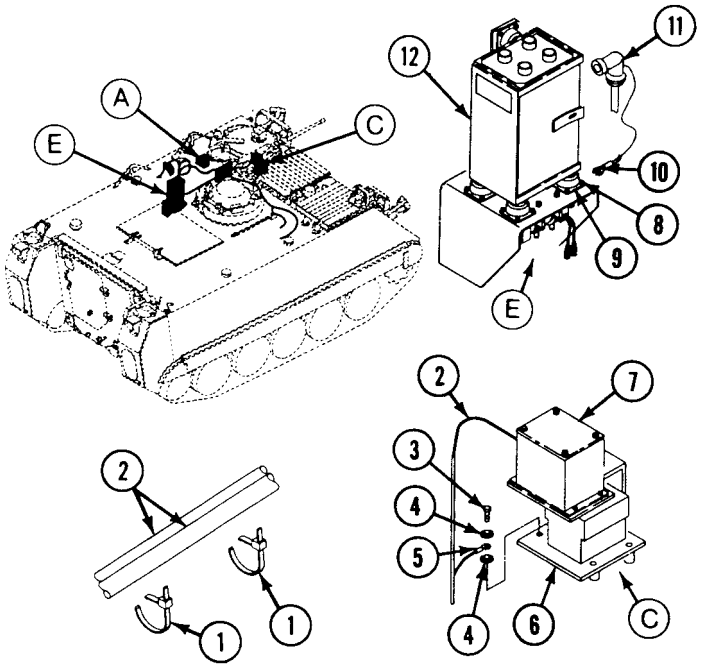
Personnel Required
Unit Mechanic

References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Battery ground strap disconnected (WP 0337 00)

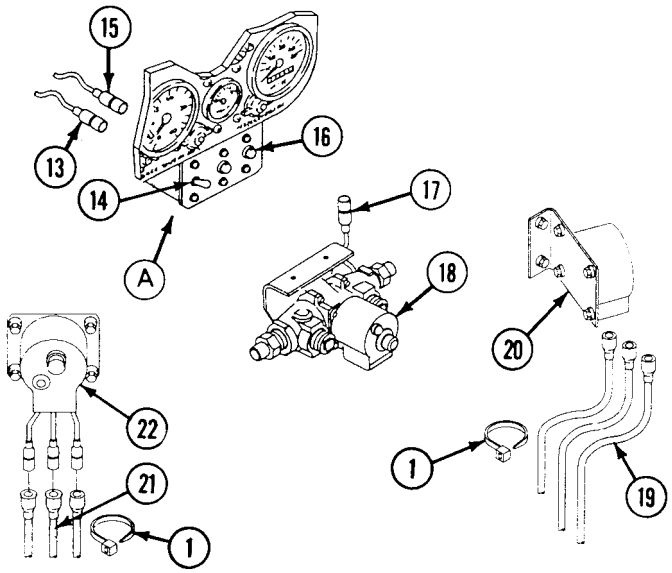
REMOVAL

1. Cut tie straps (1) that hold NBC wiring harness (2) to adjacent cables. Discard tie straps.
2. Remove screw (3), washers (4), and ground lead (5) from regulator bracket (6).
3. Disconnect wiring harness (2) from NBC control box (7).
4. Loosen screw (8) on mount (9) and remove ground lead (10).
5. Remove lead 538A (11) with ground lead (10) from air purifier (12).



REPLACE M3 NBC HEATER WIRING HARNESS (M1059A3 ONLY) — Continued 0806 00

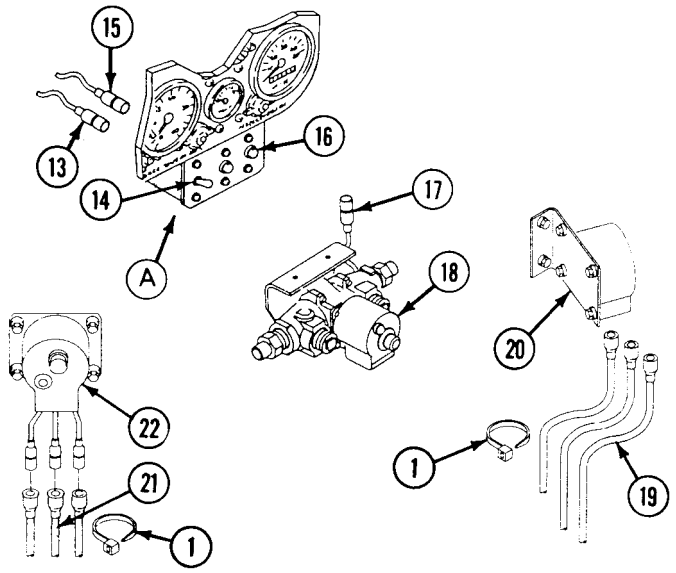
6. Remove circuit lead 579C (13) from air filter switch (14).
7. Remove circuit lead 537C (15) from air filter ON lamp (16).
8. For M1059A3 only, remove circuit lead 537D (17) from operator's heater (18).
9. Remove circuit lead 537A (19) from driver's heater controller (20).
10. Remove circuit lead 537B (21) from commander's heater controller (22).



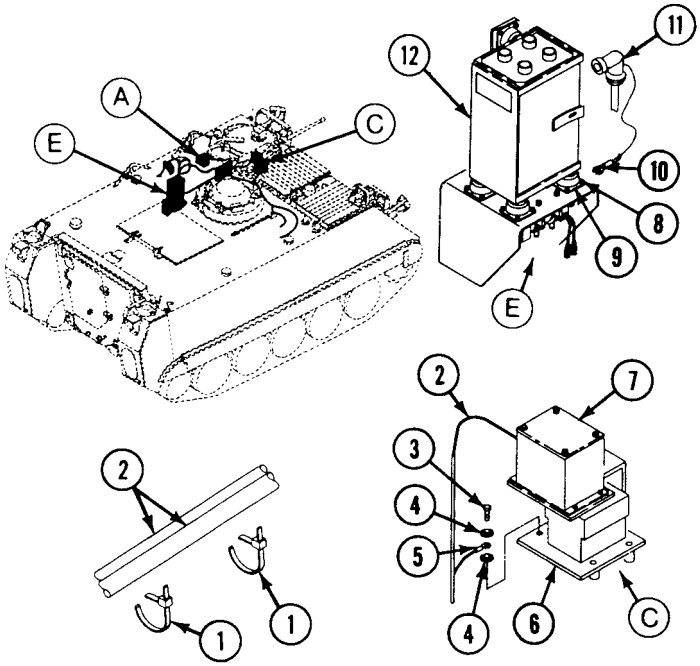
11. Remove NBC heater wiring harness from vehicle.

INSTALLATION

1. Lay out NBC heater wiring harness in vehicle.
2. Connect circuit lead 537B (21) to commander's heater controller (22).
3. Connect circuit lead 537A (19) to driver's heater controller (20).
4. For M1059A3 only, connect circuit lead 537D (17) to operator's heater (18).
5. Connect circuit lead 537C (15) to air filter ON lamp (16).
6. Connect circuit lead 579C (13) to air filter switch (14).



7. Connect circuit lead 538A (11) with ground lead (10) to air filter purifier (12).
8. Install ground lead (10) under mount (9) and tighten screw (8).
9. Connect wiring harness (2) to NBC control box (7).
10. Install ground lead (5), screw (3), and washers (4) on regulator bracket (6).
11. Secure wiring harness (2) to adjacent cables with new tie straps (1) as needed.



FOLLOW-THROUGH STEPS

1. Connect battery ground strap (WP 0337 00).

END OF TASK

REPLACE M14 NBC HEATER WIRING HARNESS (M113A3 AMBULANCE ONLY) 0807 00

THIS WORK PACKAGE COVERS:

Removal (page 0807 00-1).
Installation (page 0807 00-4).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts
Strap (as required)

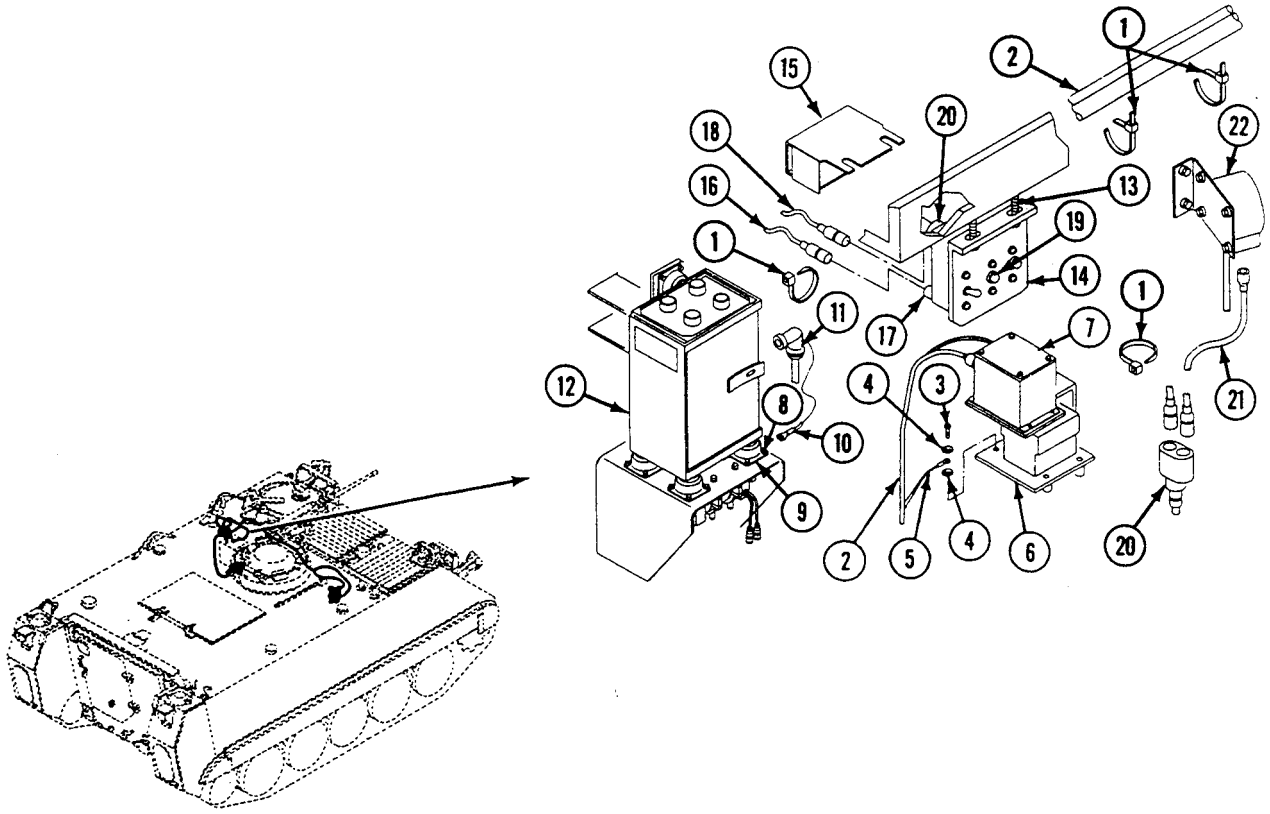
Personnel Required
Unit Mechanic

References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Battery ground strap disconnected (WP 0337 00)

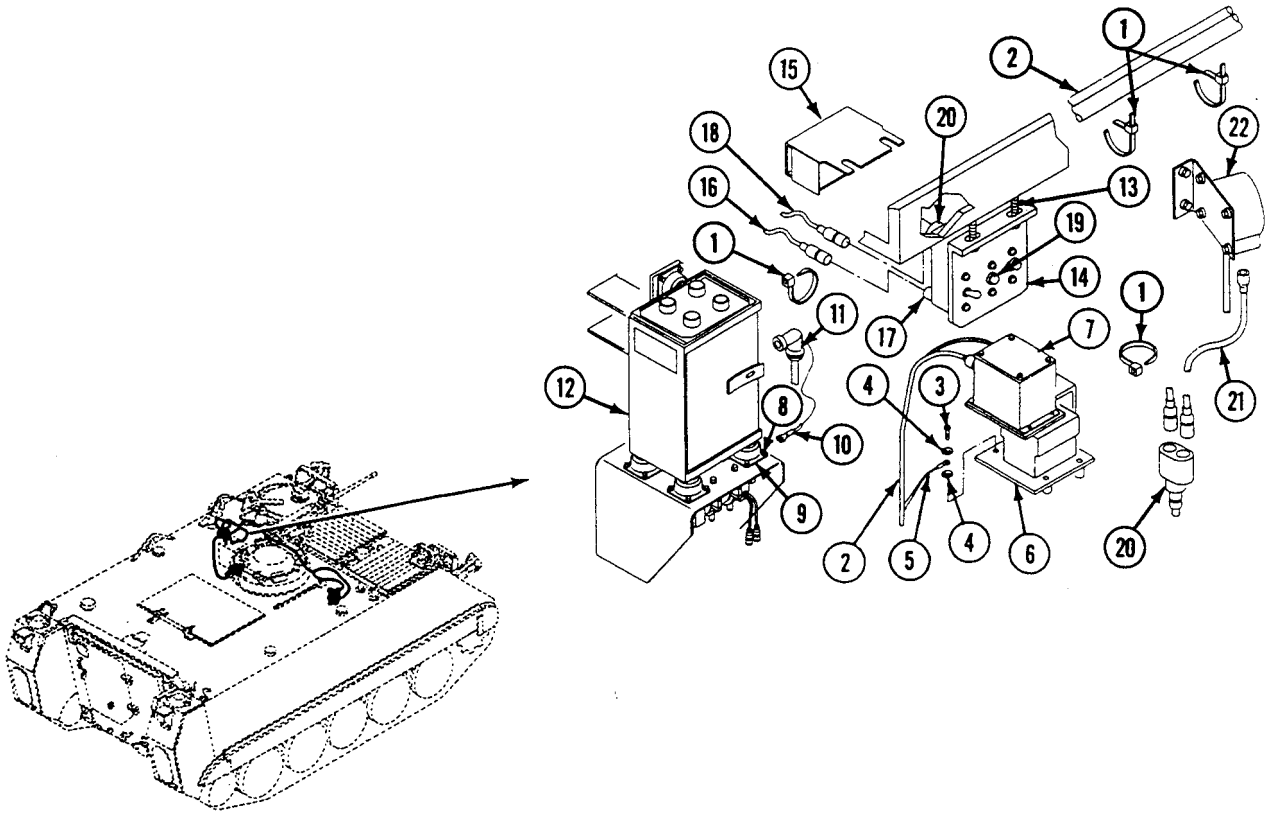
REMOVAL

1. Cut and remove all straps (1) securing NBC wiring harness (2) to adjacent cables and hoses. Discard straps.
2. Remove screw (3), washers (4), and ground lead (5) from regulator bracket (6).
3. Disconnect NBC wiring harness (2) from NBC control box (7).
4. Loosen screw (8) on air purifier resilient mount (9) and remove ground lead (10).



REPLACE M14 NBC HEATER WIRING HARNESS (M113A3 AMBULANCE ONLY) — Continued **0807 00**

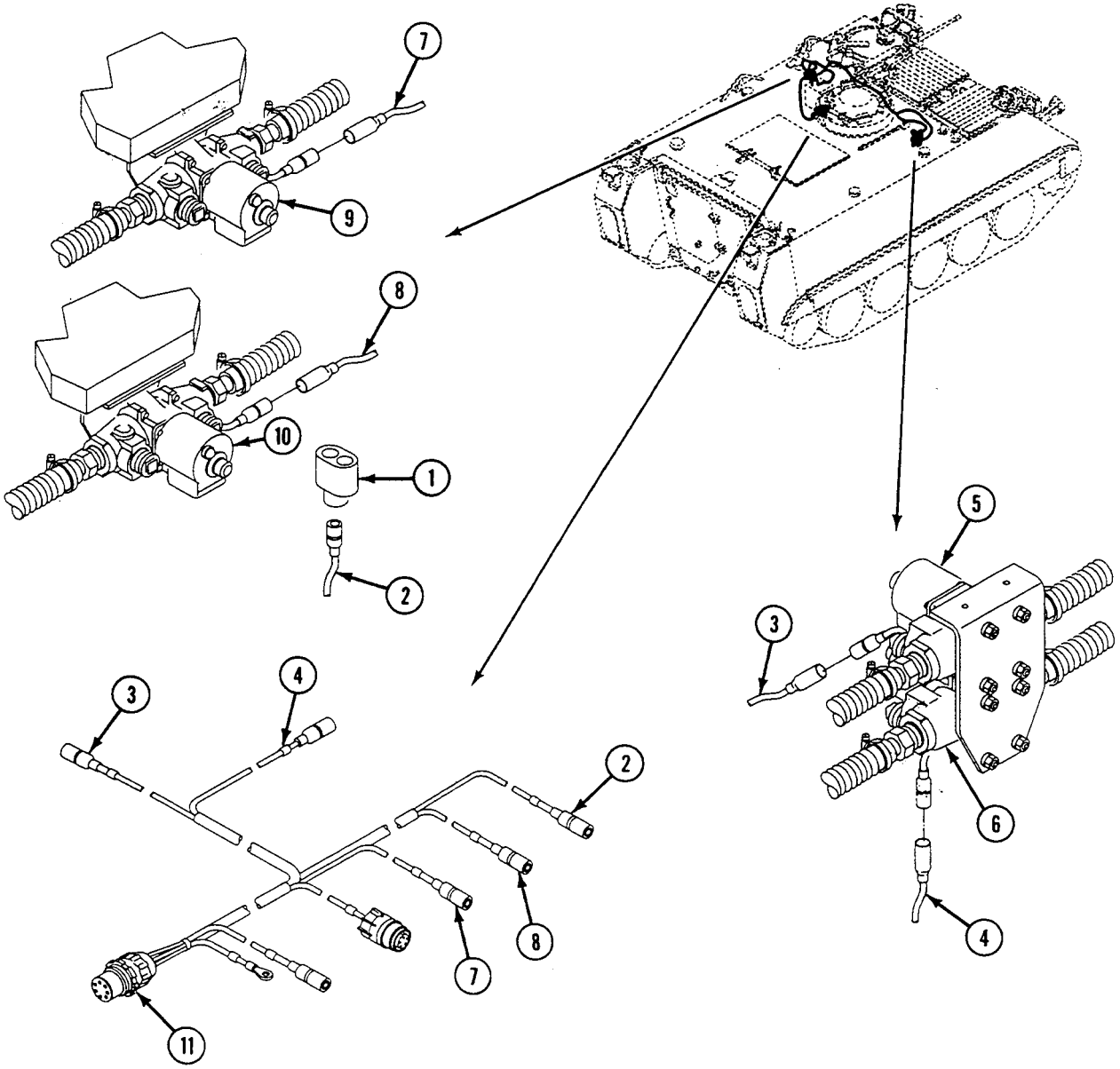
5. Remove circuit 538A lead (11) with ground lead (10) from air purifier (12).
6. Loosen two mounting screws (13) securing air filter switch assembly (14) to transverse beam. Remove cover (15) from switch assembly.
7. Remove circuit 579C lead (16) from air filter switch (17).
8. Remove circuit 537F lead (18) from air filter ON lamp (19) and connector (20).
9. Remove circuit 537G lead (21) from driver's heater controller (22) and connector (20).



REPLACE M14 NBC HEATER WIRING HARNESS (M113A3 AMBULANCE ONLY) — Continued

0807 00

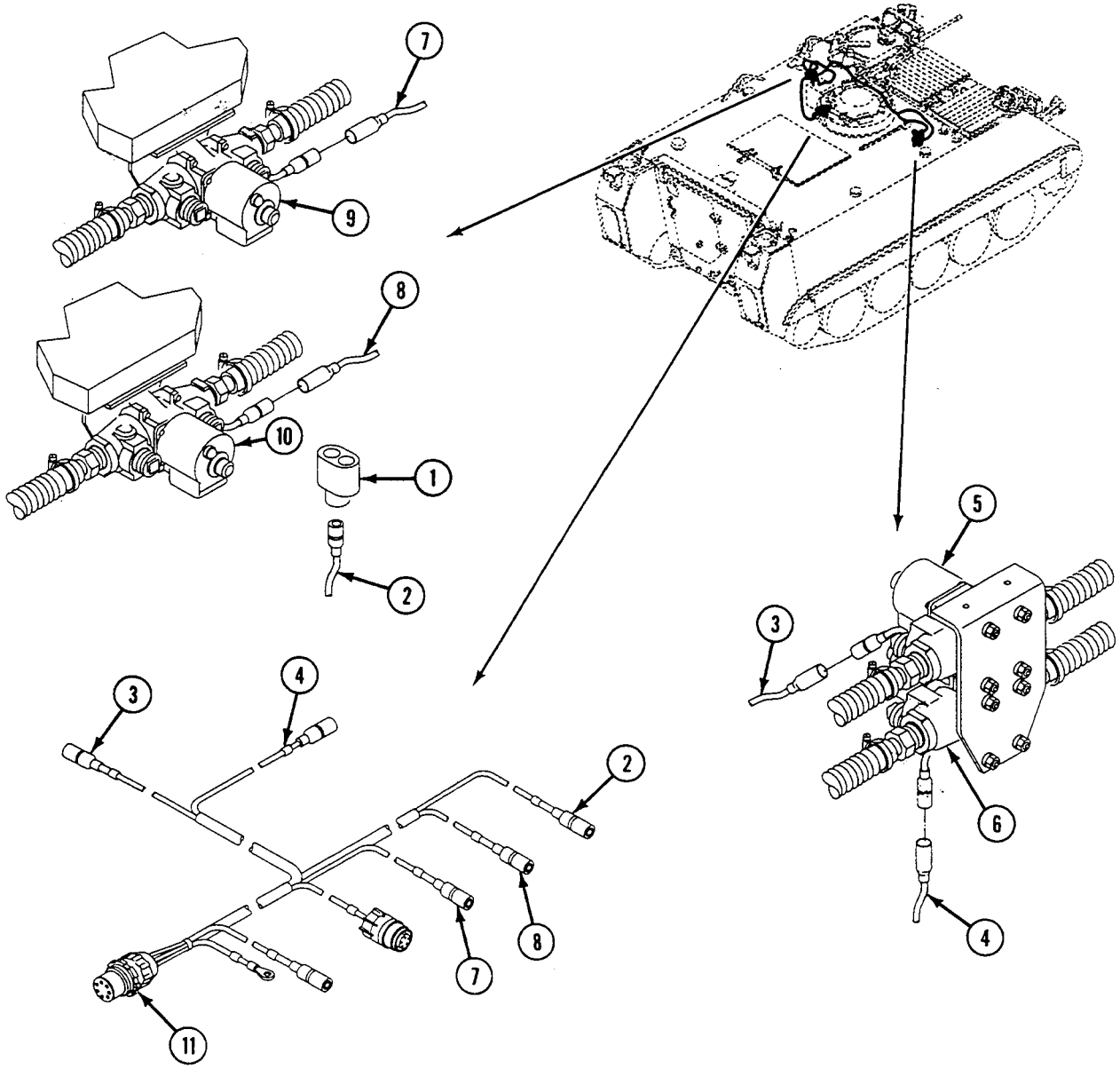
10. Remove connector (1) from circuit 537E lead (2).
11. Remove circuit 537A lead (3) and circuit 537B lead (4) from right-side patient's heaters (5) and (6).
12. Remove circuit 537C lead (7) and circuit 537D lead (8) from left-side patient's heaters (9) and (10).
13. Remove NBC wiring harness (11) from vehicle.



REPLACE M14 NBC HEATER WIRING HARNESS (M113A3 AMBULANCE ONLY) — Continued **0807 00**

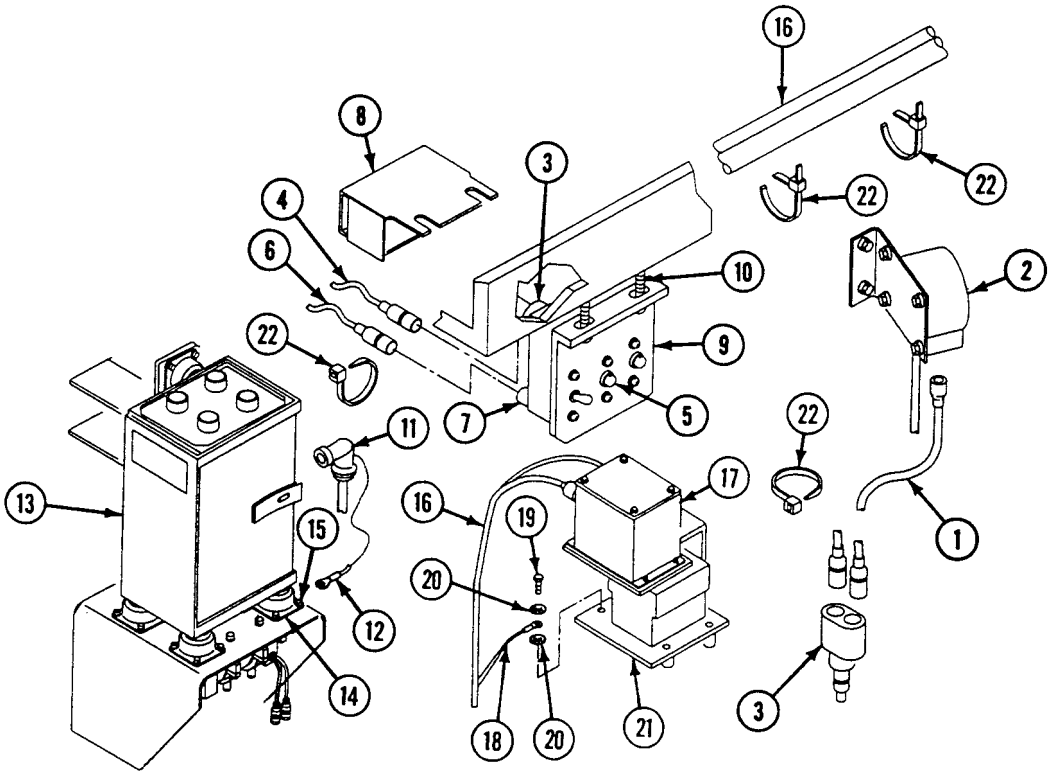
INSTALLATION

1. Lay out NBC wiring harness (11) in vehicle.
2. Install circuit 537C (7) and 537D (8) leads on left-side patient's heaters (9) and (10).
3. Install circuit 537A (3) and 537B (4) leads on right-side patient's heaters (5) and (6).



REPLACE M14 NBC HEATER WIRING HARNESS (M113A3 AMBULANCE ONLY) — Continued **0807 00**

4. Install circuit 537E lead (1) on connector (2).
5. Install circuit 537G lead (1) on driver's heater controller (2) and connector (3).
6. Install circuit 537F lead (4) on air filter ON lamp (5) and connector (3).
7. Install circuit 579C lead (6) on air filter switch (7).
8. Install cover (8) on air filter switch assembly (9). Tighten two mounting screws (10) that secure switch assembly to transverse beam.
9. Install circuit 538A lead (11) with ground lead (12) on air purifier (13).
10. Install ground lead (12) under air purifier resilient mount (14) and tighten screw (15).
11. Connect NBC wiring harness (16) to NBC control box (17).
12. Install ground lead (18), screw (19), and washers (20) on regulator bracket (21).
13. Secure NBC wiring harness (16) to adjacent cables with new straps (22) as needed.



REPLACE M14 NBC HEATER WIRING HARNESS (M113A3 AMBULANCE ONLY) — Continued **0807 00**

FOLLOW-THROUGH STEPS

1. Connect battery ground strap (WP 0337 00).
2. Start engine (see your -10).
3. Raise and lock ramp (see your -10).
4. Stop engine (see your -10).

END OF TASK

REPLACE NBC HEATER WIRING HARNESS (M577A3 ONLY) 0808 00

THIS WORK PACKAGE COVERS:

Removal (page 0808 00-2)
Installation (page 0808 00-4)

INITIAL SETUP:

Maintenance Level
Unit

Personnel Required
Unit Mechanic

Tools and Special Tools
General Mechanic's Tool Kit (WP 0926 00, Item 65)

References
See your -10

Materials/Parts
Locknut
Lockwasher (4)
Strap (as required)
Grommet

Equipment Conditions
Engine stopped (see your -10)
Carrier blocked (see your - 10)
Battery ground lead disconnected (WP 0338 00)

REPLACE NBC HEATER WIRING HARNESS (M577A3 ONLY) - Continued 0808 00

REMOVAL

1. Remove four screws (1), four lockwashers (2), four clamps (3) and straps (4) from weldnuts in driver's compartment. Remove clamps from wiring harness (5) and cable (6). Discard lockwashers and straps.

NOTE

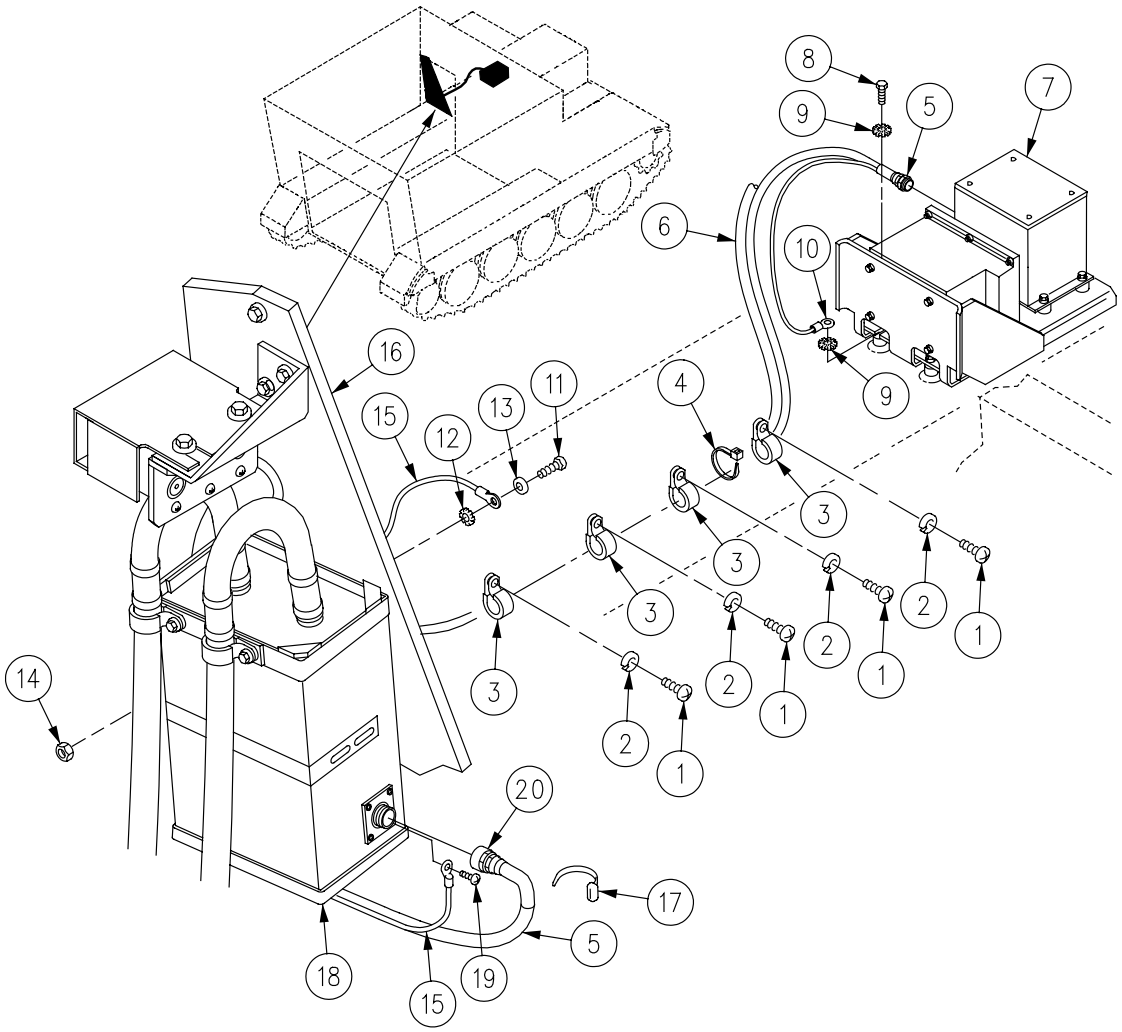
Tag all leads and cables before removing.

2. Disconnect wiring harness (5) from control box (7).
3. Remove screw (8), two lockwashers (9), and ground lead (10) from control box (7). Discard lockwashers.

NOTE

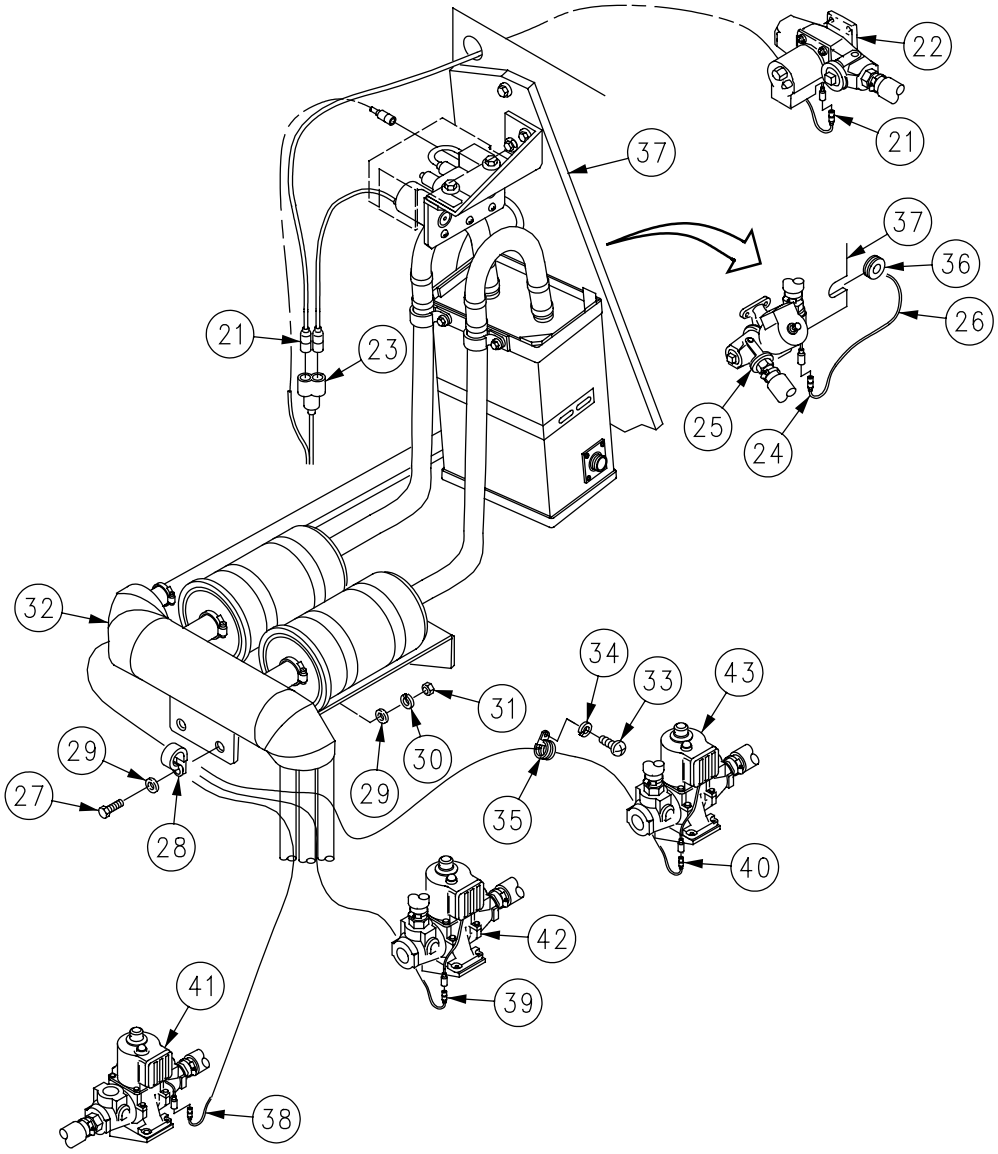
Lead (15) may be mounted to either front or back side of frame (16).

4. Remove screw (11), lockwasher (12), washer (13), locknut (14), and ground lead (15) from frame (16). Discard locknut and lockwasher.
5. Cut strap (17) from ground lead (15) and wiring harness (5). Discard strap.
6. Remove screw (19) on air purifier (18) and remove ground lead (15). Reinstall screw (19) on air purifier (18).
7. Remove cable connector (20) from air purifier (18).



REPLACE NBC HEATER WIRING HARNESS (M577A3 ONLY) - Continued 0808 00

8. Remove lead 537G (21) from commander's heater (22) and connector (23).
9. Remove lead 537B (24) from driver's heater (25).
10. Cut and remove all straps along wiring harness (26) and adjacent wiring harness. Discard straps.
11. Remove screw (27), clamp (28), two washers (29), one lockwasher (30), and nut (31) securing leads (circuit 537C, 537D, and 537E) to the manifold support (32). Discard lockwasher.
12. Remove screw (33), lockwasher (34), and clamp (35) from sponson securing the hose and lead. Discard lockwasher.
13. Cut grommet (36) and pull wiring harness (26) through hole in frame (37). Discard grommet.
14. Remove leads 537E (38), 537D (39), and 537C (40) from heaters (41), (42), and (43) respectively.

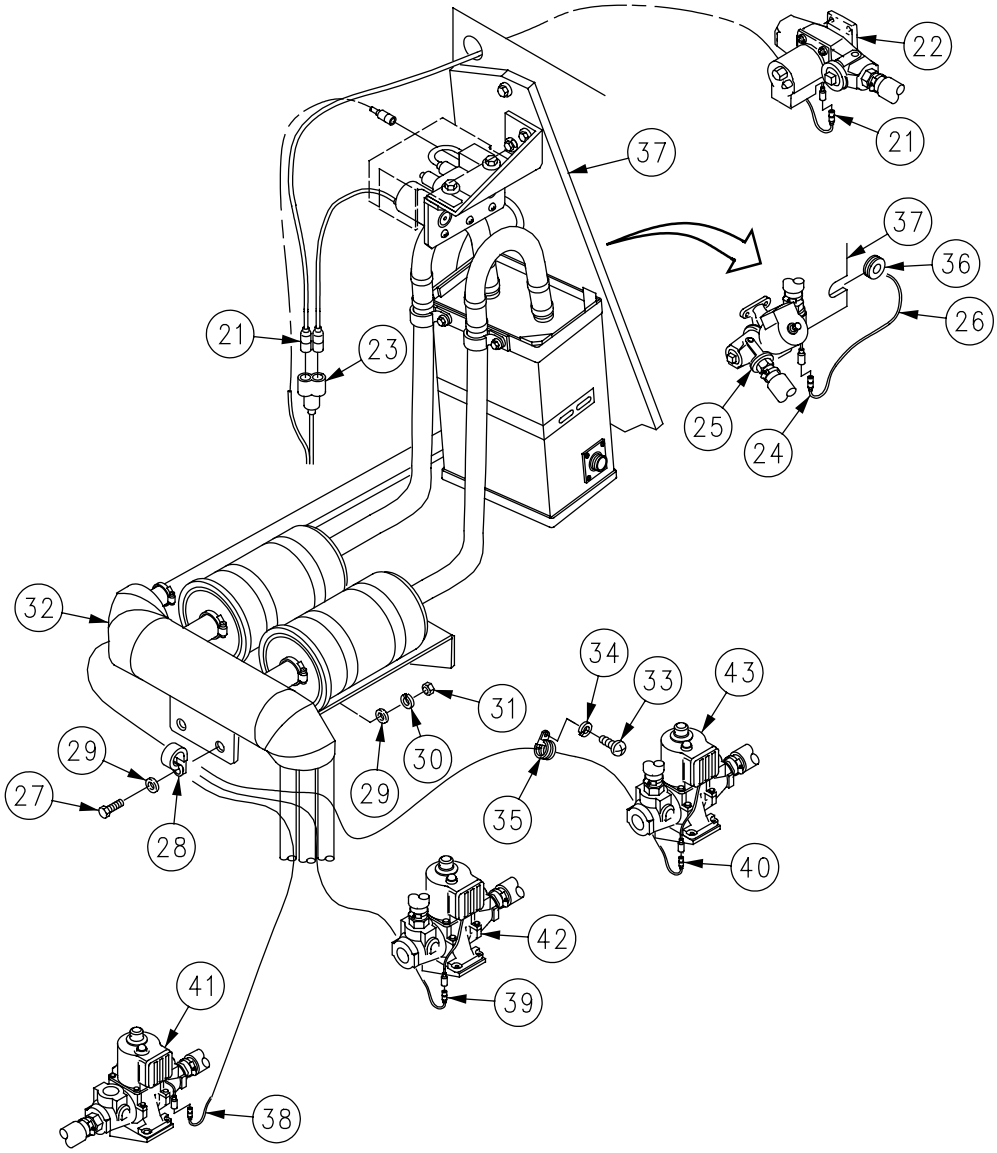


INSTALLATION

NOTE

Lead 537B must remain on driver's side of frame.

1. Install leads 537E (38), 537D (39), and 537C (40) on heaters (43), (42), and (41) respectively.
2. Install new grommet (36) on wiring harness (26). Route wiring harness and ground lead through frame (37).
3. Secure hose and lead to sponson with clamp (35), screw (33), new lockwasher (34).
4. Secure leads (circuit 537C, 537D, and 537E) with clamp (28), screw (27), two washers (29), new lockwasher (30), and nut (31) to manifold support (32).
5. Install new straps along wiring harness (26) and adjacent wiring harness as required·
6. Install lead 537B (24) on driver's heater (25).
7. Install lead 537G (21) on commander's heater (22) and connector (23).

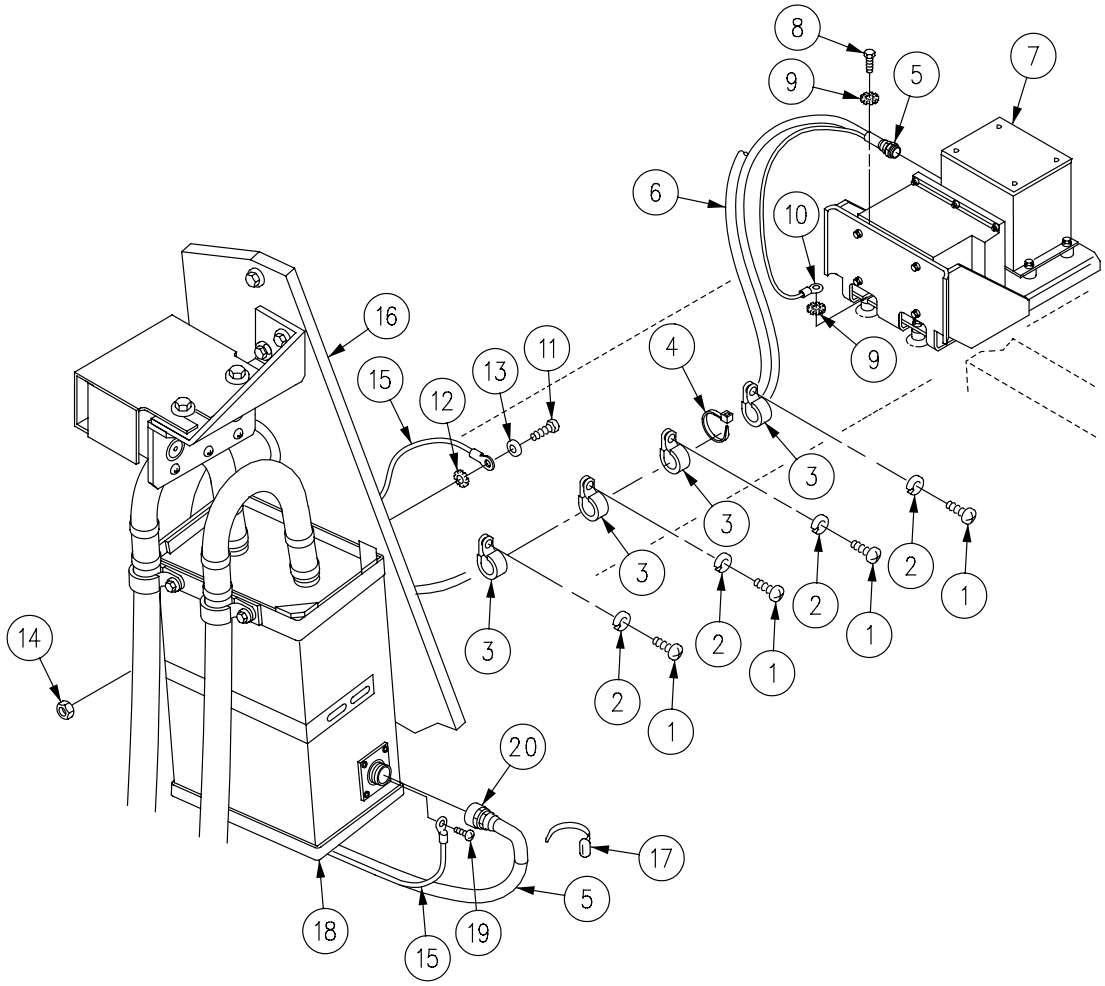


8. Connect cable connector (20) onto air purifier (18).
9. Remove screw (19) on air purifier (18). Install ground lead (15) with screw (19) on air purifier (18).
10. Install new straps (17) along ground lead (15) and adjacent wiring harness (5).

NOTE

Lead (15) may be mounted to either front or back side of frame (16).

11. Install ground lead (15), lockwasher (12), washer (13), and screw (11), and new locknut (14) on frame (16).
12. Connect wiring harness (5) to control box (7).
13. Install ground lead (10) onto control box (7) with two new lockwashers (9) and screw (8).
14. Install four screws (1), new lockwashers (2), four clamps (3), and straps (4) on weldnuts with wiring harness (5) and cable (6).



FOLLOW-THROUGH STEPS

1. Master switch panel assembly installed (WP 0261 007).
2. Connect battery ground lead (WP 0338 00).

END OF TASK

REPLACE M13 NBC HEATER WIRING HARNESS (M1068A3 ONLY) 0809 00

THIS WORK PACKAGE COVERS:

Removal (page 0809 00-2).
Installation (page 0809 00-6).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts
Strap (as required)
Lockwasher (8)
Locknut (4)
Lockwasher
Locknut

Personnel Required
Unit Mechanic

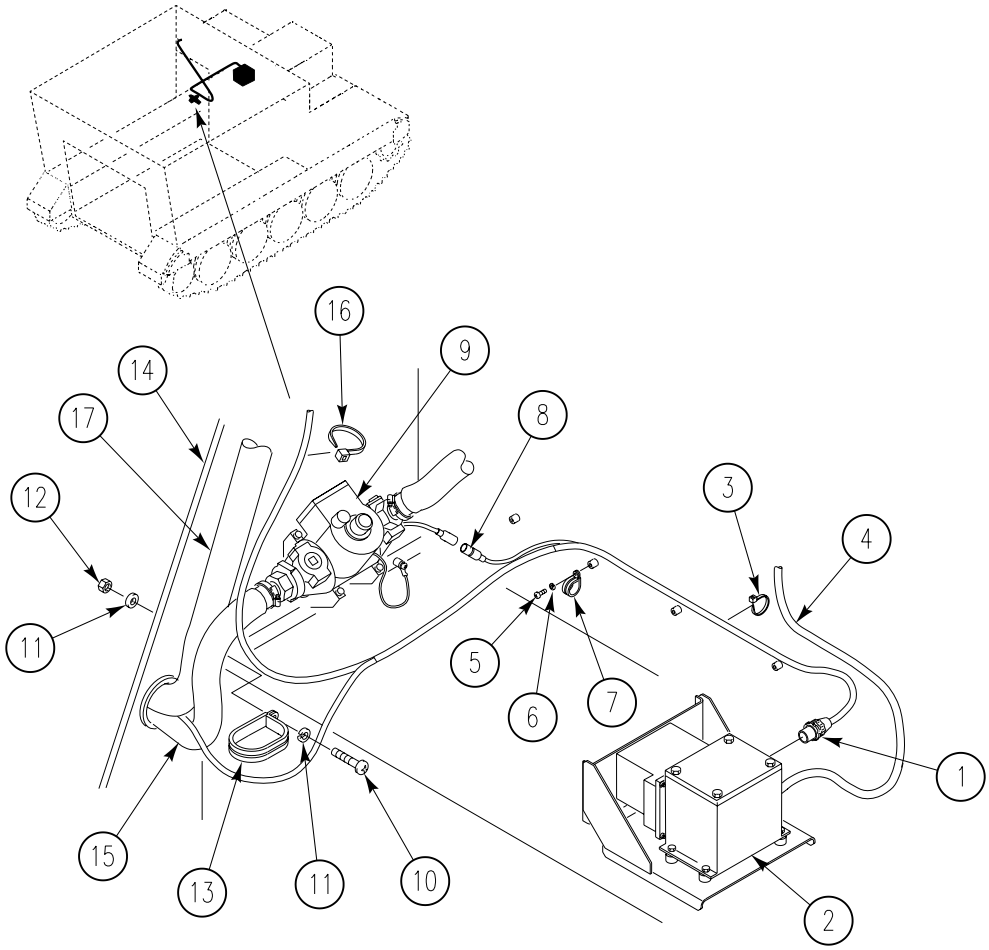
References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Battery ground lead disconnected (WP 0338 00)

REPLACE M13 NBC HEATER WIRING HARNESS (M1068A3 ONLY) — Continued 0809 00

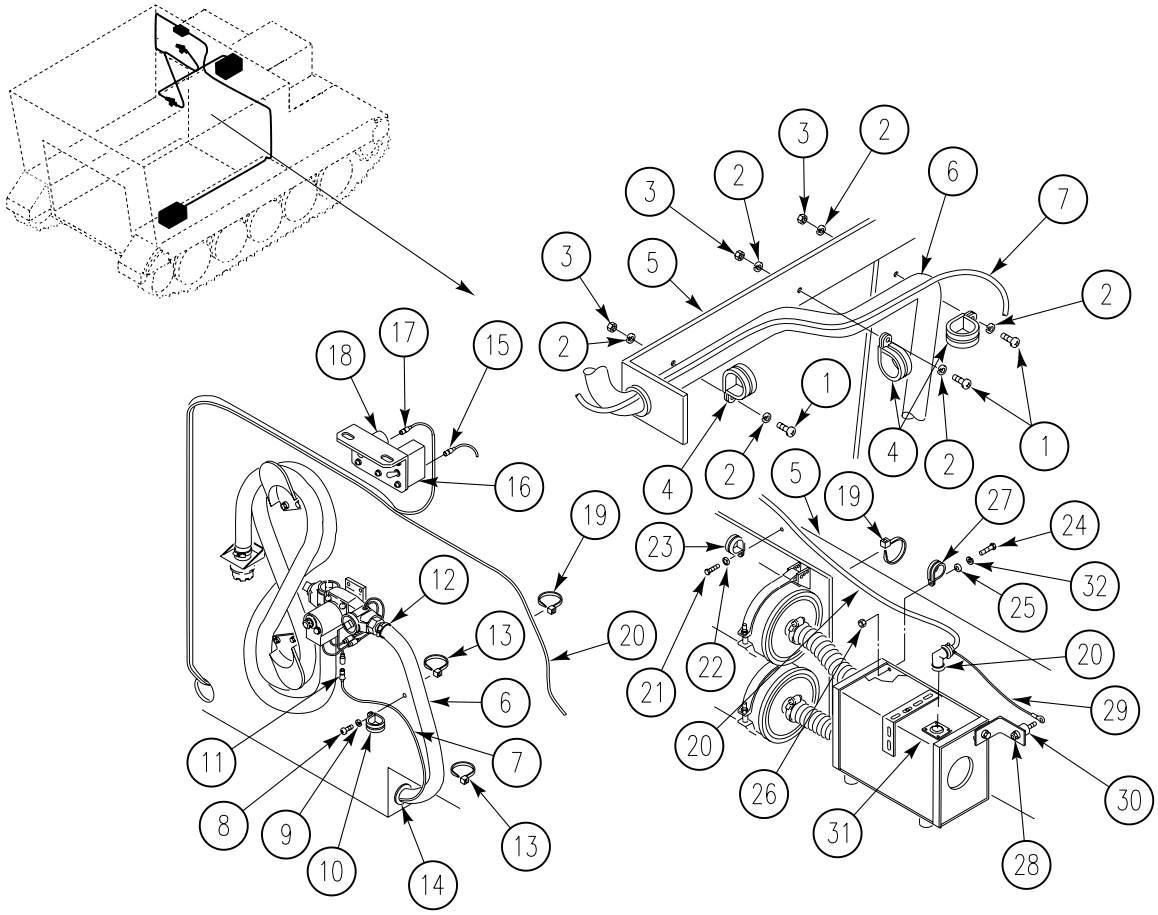
REMOVAL

1. Disconnect wiring harness (1) from NBC control box (2).
2. Cut tie strap (3) that secures cable (4) to wiring harness (1). Discard tie strap.
3. Remove four screws (5), lockwashers (6), clamps (7), and wiring harness (1) from bulkhead weldnuts. Remove clamps from wiring harness. Discard lockwashers.
4. Remove circuit lead 537A (8) from driver's heater (9).
5. Remove screw (10), two washers (11), locknut (12), and clamp (13) from frame (14). Remove clamp from driver's heater inlet hose (15) and wiring harness (1). Discard locknut.
6. Cut tie straps (16) that secure wiring harness (1) to commander's heater inlet hose (17). Discard tie straps.



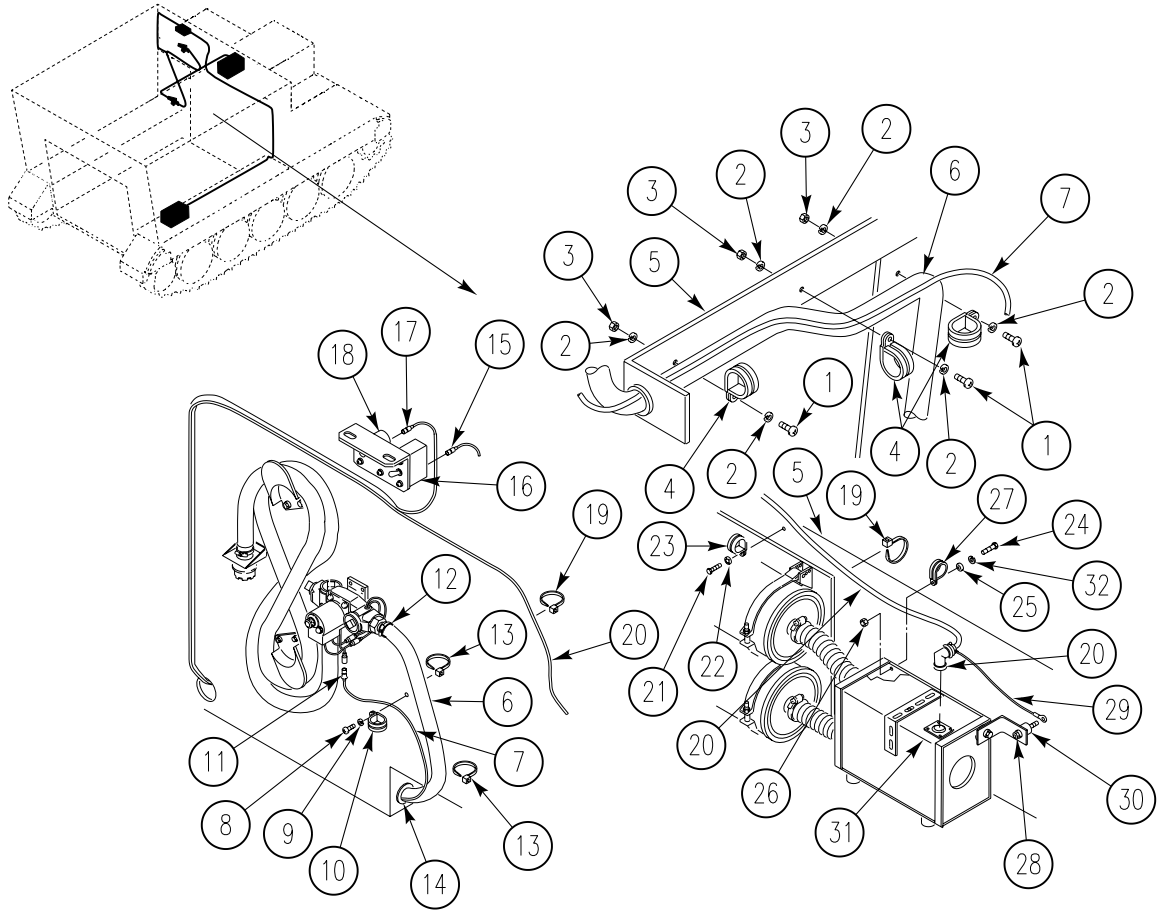
REPLACE M13 NBC HEATER WIRING HARNESS (M1068A3 ONLY) — Continued 0809 00

7. Remove three screws (1), six washers (2), locknuts (3), and clamps (4) from frame (5) and crossbeam. Remove clamps from commander's heater inlet hose (6) and wiring harness (7). Discard locknuts.
8. Remove screw (8), lockwasher (9), and clamp (10) from forward bulkhead. Remove clamp from hose (6) and wiring harness (7). Discard lockwasher.
9. Remove circuit lead 537B (11) from commander's heater (12).
10. Cut tie straps (13) that secure wiring harness (7) to adjacent wiring harnesses and hoses. Discard tie straps.
11. Pull circuit lead 537B (11) through grommet (14) on hose (6).
12. Remove circuit lead 579C (15) from air filter switch (16).

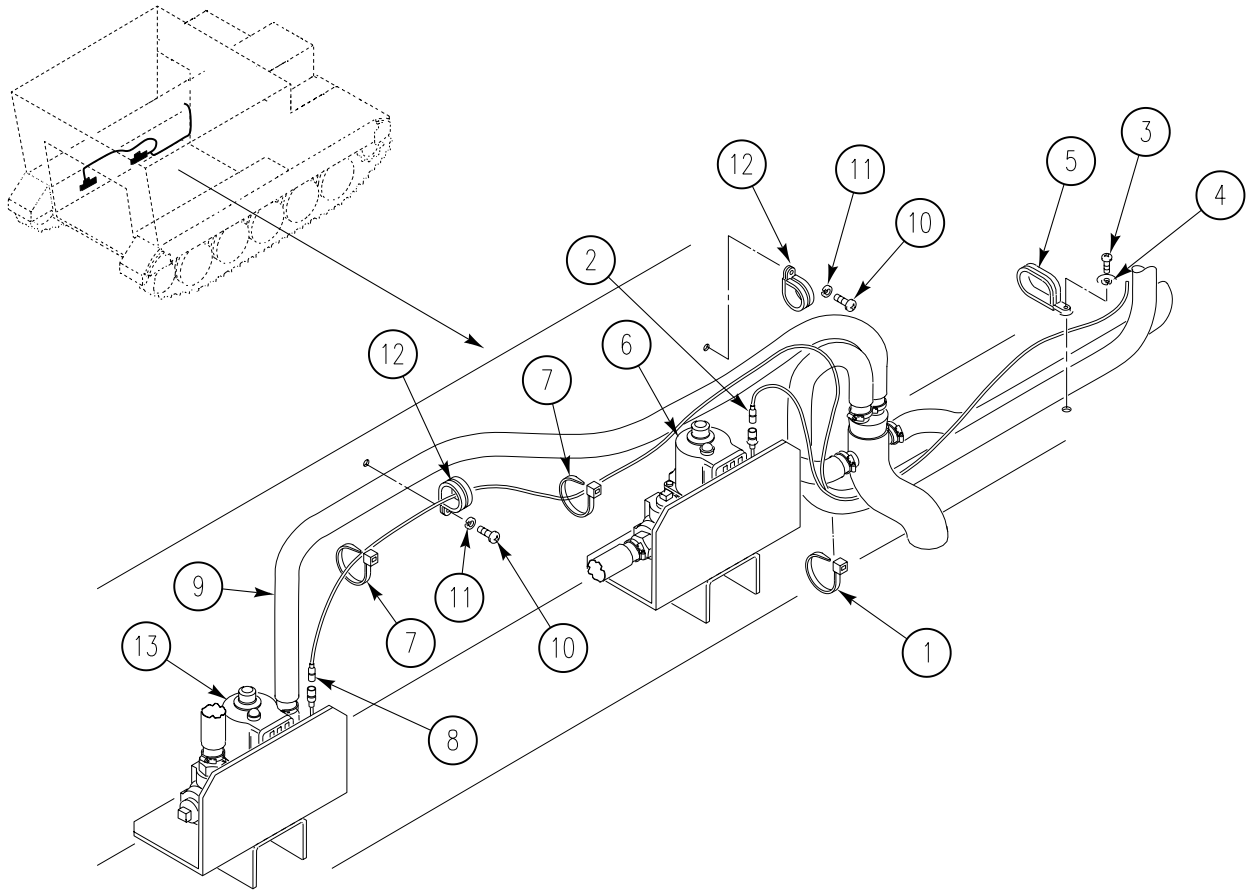


REPLACE M13 NBC HEATER WIRING HARNESS (M1068A3 ONLY) — Continued 0809 00

13. Remove circuit lead 537C (17) from air filter ON lamp (18).
14. Cut and remove all tie straps (19) along circuit lead 538A (20) and adjacent wiring harnesses. Discard tie straps.
15. Remove screw (21), lockwasher (22), and clamp (23) from right sponson. Remove clamp from circuit lead 538A (20). Discard lockwasher.
16. Remove screw (24), washer (25), lockwasher (32), locknut (26), and clamp (27) from frame (5). Remove clamp from circuit lead 538A (20). Discard locknut and lockwasher.
17. Loosen locknut (28) and remove ground lead (29) from precleaner mount (30).
18. Remove circuit lead 538A (20) with ground lead (29) from precleaner (31).

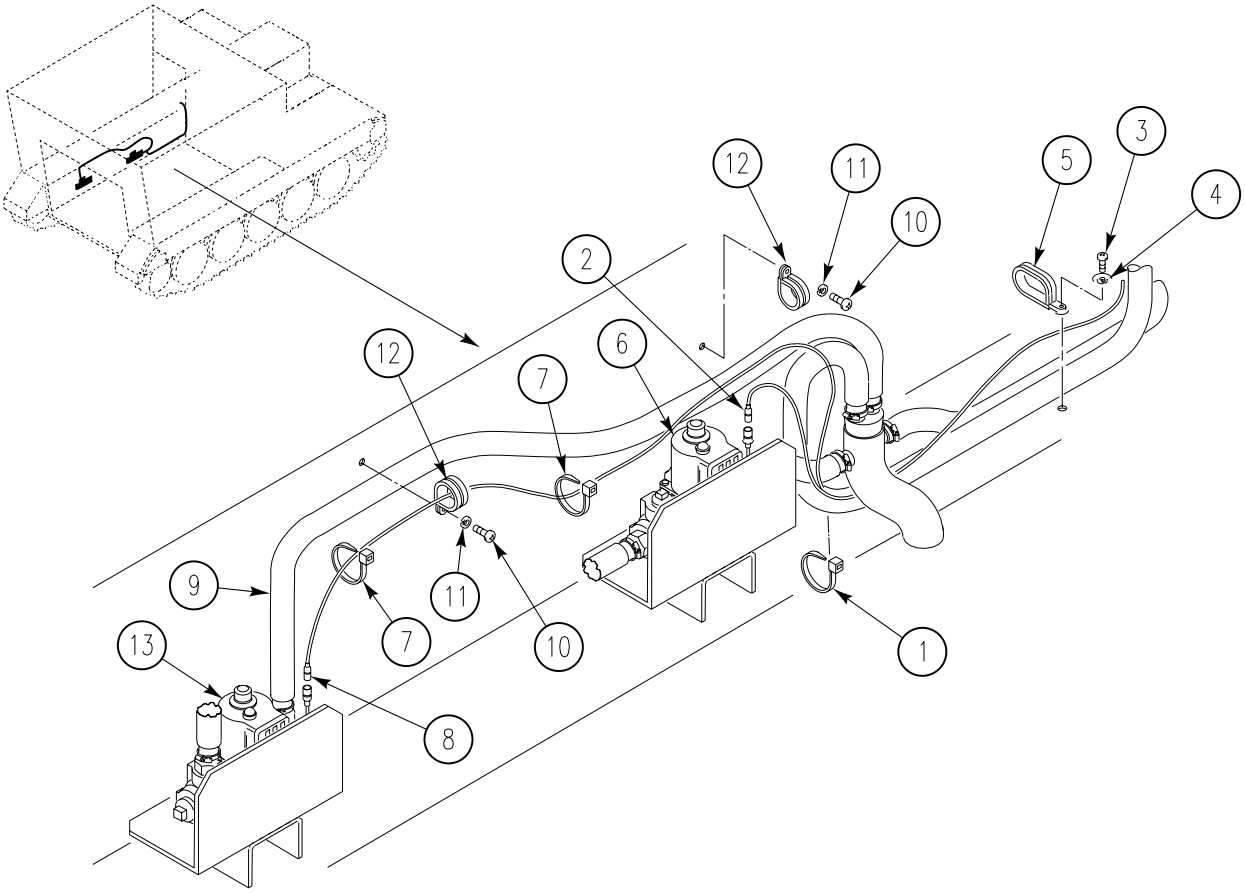


19. Cut tie straps (1) that secure circuit lead 537D (2) to adjacent hoses. Discard tie straps.
20. Remove screw (3), lockwasher (4), and clamp (5) from right sponson. Remove clamp from circuit lead 537D (2) and adjacent hoses. Discard lockwasher.
21. Remove circuit lead 537D (2) from front operator's heater (6).
22. Cut tie straps (7) that secure circuit lead 537E (8) to rear operator's heater inlet hose (9). Discard tie straps.
23. Remove two screws (10), lockwashers (11), and clamps (12) from right sponson. Remove clamps from circuit lead 537E (8) and rear operator's heater inlet hose (9). Discard lockwasher.
24. Remove circuit lead 537E (8) from rear operator's heater (13).



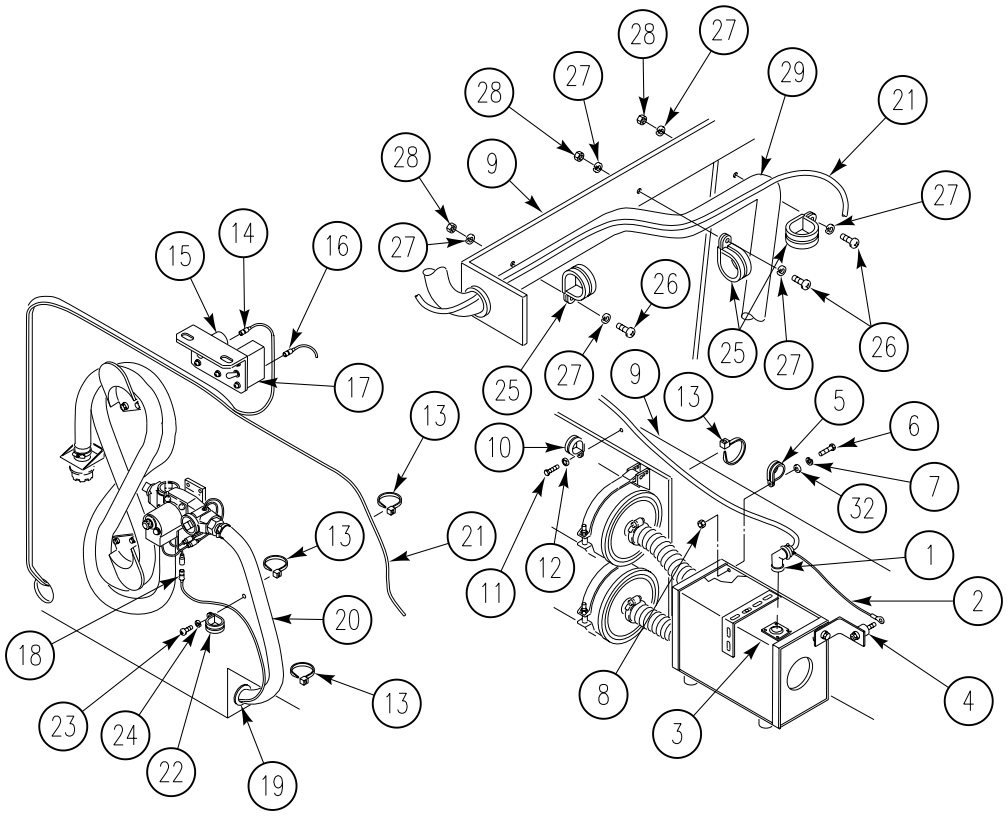
INSTALLATION

1. Install circuit lead 537E (8) on rear operator's heater (13).
2. Install two clamps (12) on circuit lead 537D (8) and rear operator's heater inlet hose (9). Secure clamps to right sponson with two screws (10) and new lockwashers (11).
3. Secure circuit lead 537E (8) to rear operator's heater inlet hose (9) with new tie straps (7).
4. Install circuit lead 537D (2) on front operator's heater (6).
5. Install clamp (5) on circuit lead 537D (2) and adjacent hoses. Secure with screw (3), new lockwasher (4), and clamp (5) on right sponson.
6. Secure circuit lead 537D (2) to adjacent hoses with new tie straps (1).



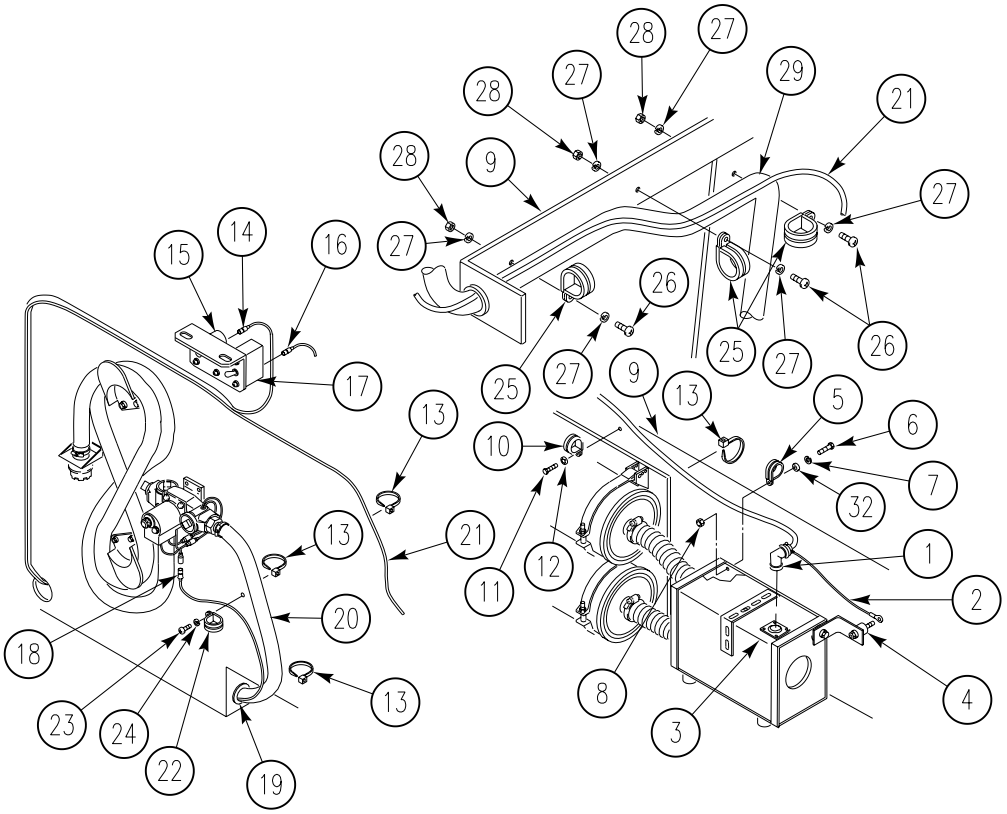
REPLACE M13 NBC HEATER WIRING HARNESS (M1068A3 ONLY) — Continued 0809 00

7. Install circuit lead 538A (1) with ground lead (2) on precleaner (3).
8. Install ground lead (2) on precleaner mount (4). Tighten nut.
9. Install clamp (5) on circuit lead 538A (1). Secure clamp with screw (6), washer (7), new lockwasher (32), and new locknut (8) on frame (9).
10. Install clamp (10) on circuit lead 538A (1). Secure clamp with screw (11) and new lockwasher (12) on right sponson.
11. Secure lead 538A (1) to adjacent wiring harnesses with new tie straps (13).
12. Install circuit lead 579C (14) on air filter ON lamp (15).

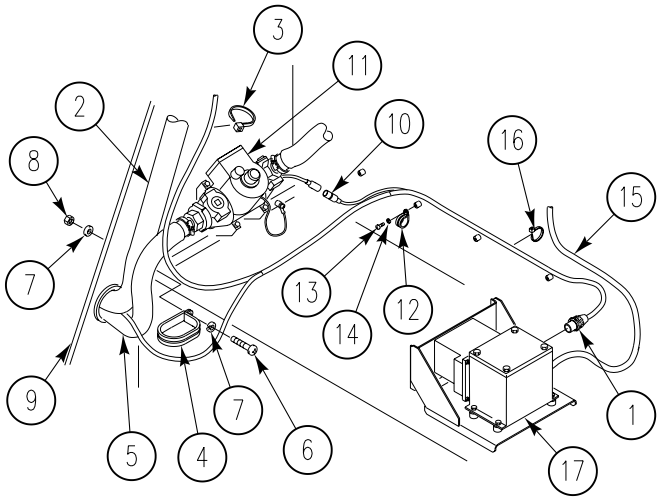


REPLACE M13 NBC HEATER WIRING HARNESS (M1068A3 ONLY) — Continued **0809 00**

13. Install circuit lead 537C (16) on air filter switch (17).
14. Push circuit lead 537B (18) through grommet (19) on commander's heater inlet hose (20).
15. Secure wiring harness (21) to adjacent wiring harnesses and hoses with new tie straps (13).
16. Install circuit lead 537B (18) through grommet (19) on hose (20).
17. Install clamp (22) on hose (20) and circuit lead 537B (18). Secure clamp with screw (23) and new lockwasher (24) on forward bulkhead.
18. Install three clamps (25) on hose (29) and wiring harness (21). Secure clamps with three screws (26), six washers (27), and three new locknuts (28) on frame (9) and crossbeam.



19. Secure wiring harness (1) to commander's heater inlet hose (2) with new tie straps (3).
20. Install clamp (4) on driver's heater inlet hose (5) and wiring harness (1). Secure clamp with screw (6), two washers (7), and new locknut (8) on frame (9).
21. Install circuit lead 537A (10) on driver's heater (11).
22. Install four clamps (12) on wiring harness (1). Secure clamps with four screws (13) and new lockwashers (14) on bulkhead weldnuts.
23. Secure cable (15) to wiring harness (1) with new tie strap (16).
24. Install wiring harness (1) on NBC control box (17).



FOLLOW-THROUGH STEPS

1. Connect battery ground lead (WP 0338 00).

END OF TASK

REPLACE WATER/RATION HEATER POWER CABLE (M113A3 ONLY) 0810 00

THIS WORK PACKAGE COVERS:

Removal (page 0810 00-1).
Installation (page 0810 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts

Grommet
Straps (as required)

Personnel Required

Unit Mechanic

References

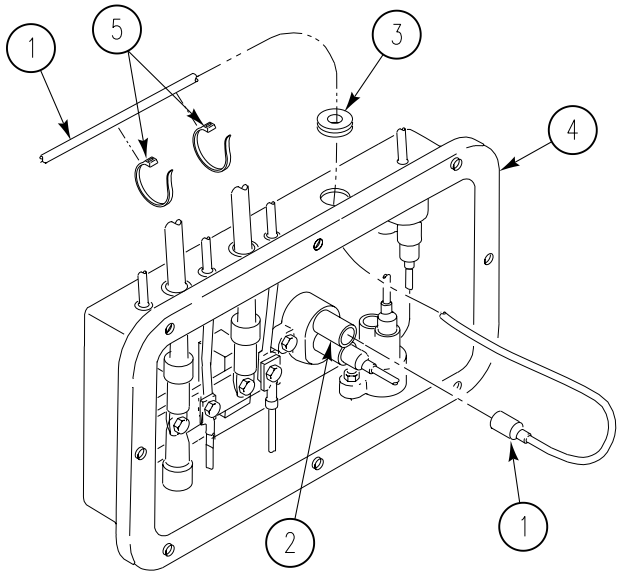
See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Battery ground strap disconnected (WP 0337 00)
Master switch panel assembly removed (WP 0260 00)

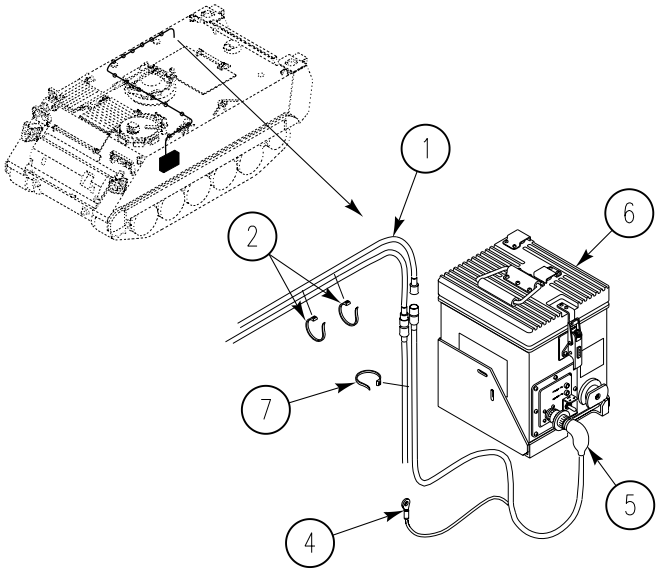
REMOVAL

1. Disconnect cable 222B (1) from water/ration heater circuit breaker (2).
2. Remove cable (1) and grommet (3) from distribution box (4). Remove grommet from cable. Discard grommet.
3. Cut straps (5) that secure cable (1) to adjacent wiring harness. Discard straps.

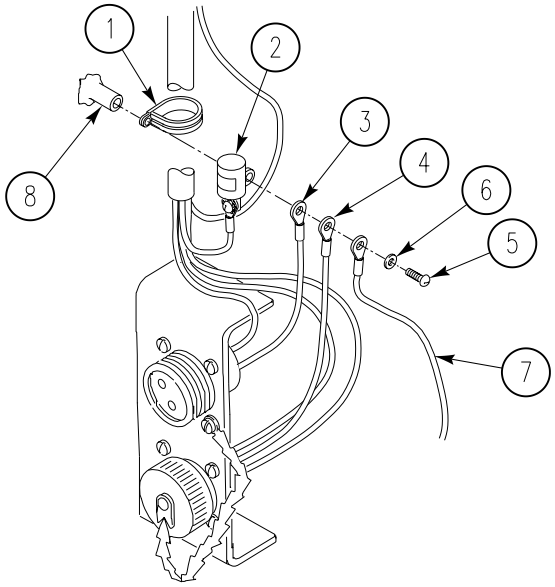


REPLACE WATER/RATION HEATER POWER CABLE (M113A3 ONLY) — Continued 0810 00

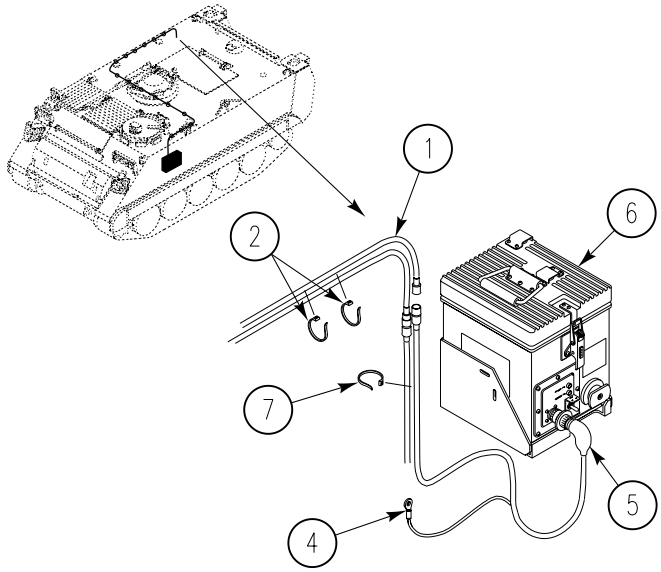
4. Disconnect cable (1) from heater power cable (5).
5. Cut straps (2) from cable (1) and adjacent wiring harness. Remove cable from cross channel and vehicle. Discard straps.



6. Remove screw (5), washer (6) and heater power cable ground lead (7) from weldnut (8).
7. Reinstall screw (5), washer (6), radio ground lead (3), radio ground lead (4), capacitor (2), and clamp (1) to the weldnut (8).

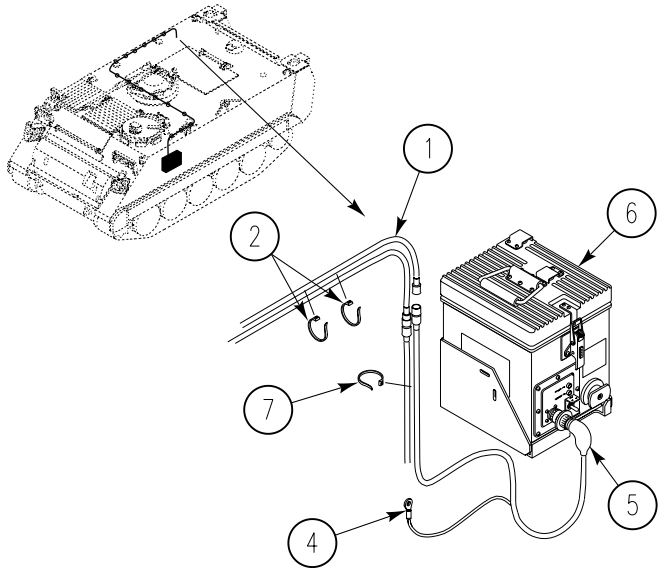


8. Cut strap (7) from heater power cable (5) and adjacent wiring harness. Discard strap.
9. Disconnect heater power cable (5) from water/ration heater(6). Remove power cable from carrier.



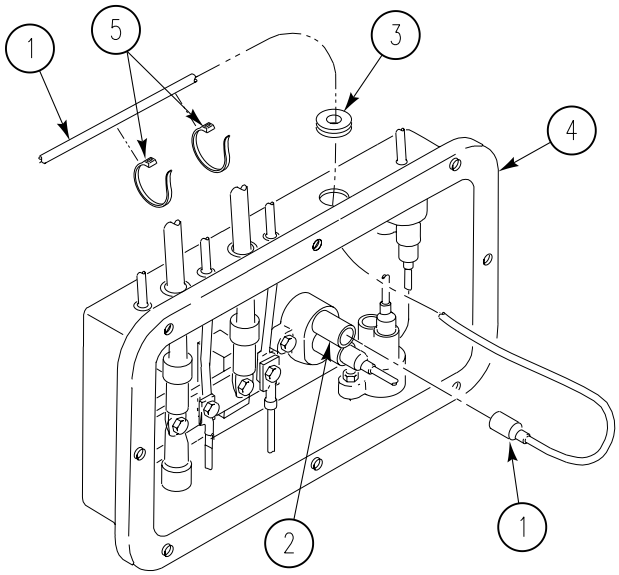
INSTALLATION

1. Route cable (1) through cross channel and behind driver's instrument panel.

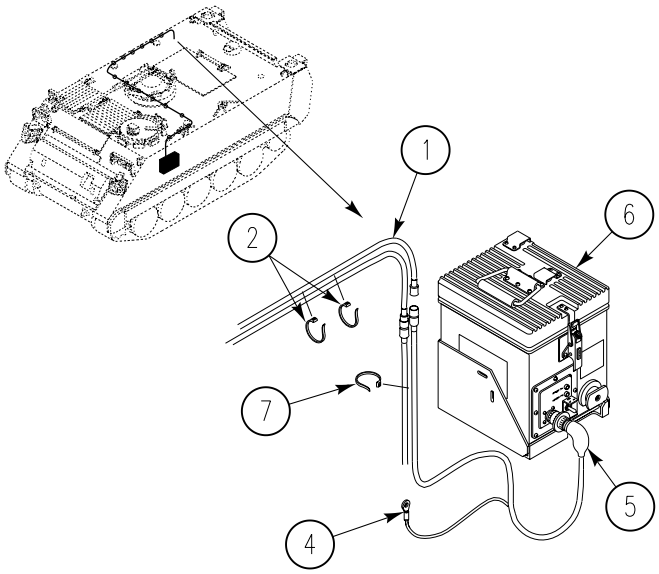


2. Install new grommet (3) on cable (1). Route cable into distribution box (4) and connect to circuit breaker (2). Install grommet in distribution box .

3. Secure cable (1) to adjacent wiring harness on driver's bulkhead with new straps (5).

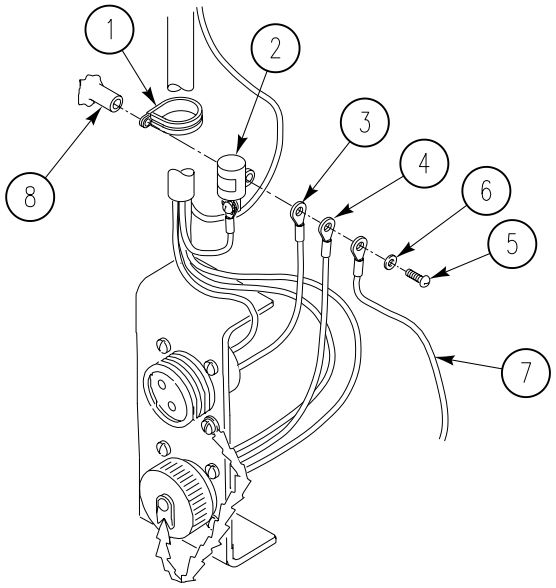


4. Secure cable (1) to adjacent wiring harness in crew compartment with new straps (2).



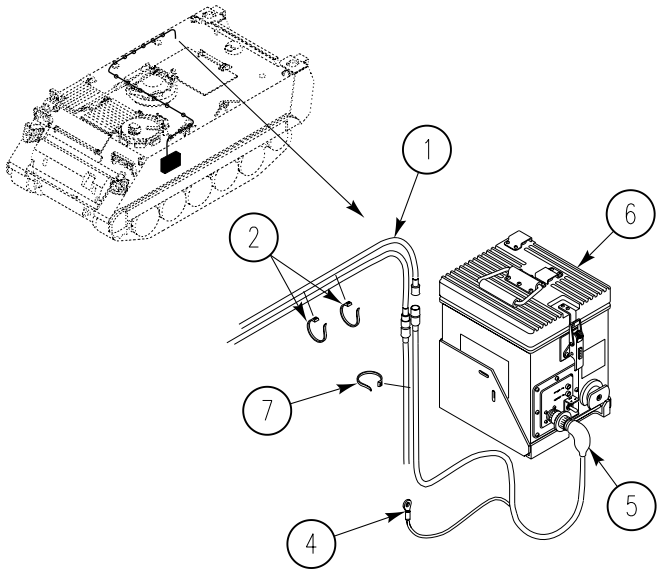
5. Remove screw (5), washer (6), radio ground lead (3), radio ground lead (4), capacitor (2), and clamp (1) from weldnut (8).

6. Reinstall clamp (1), capacitor (2), radio ground lead (3), radio ground lead (4), heater power cable ground lead (7), washer (6), and screw (5) on weldnut (8).



7. Connect heater power cable (5) to cable (1). Secure heater power cable (5) to adjacent wiring harness with new strap (7).

8. Connect heater power cable (5) to water ration heater (6).



FOLLOW-THROUGH STEPS

1. Install master switch panel (WP 0260 00).

2. Connect battery ground strap (WP 0337 00).

END OF TASK

REPLACE WATER/RATION HEATER MOUNT BRACKET (M113A3 ONLY) 0811 00

THIS WORK PACKAGE COVERS:

Removal (page 0811 00-1).
Installation (page 0811 00-2).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0926 00, Item 65)

Materials/Parts

Lockwasher (4)

Personnel Required

Unit Mechanic

References

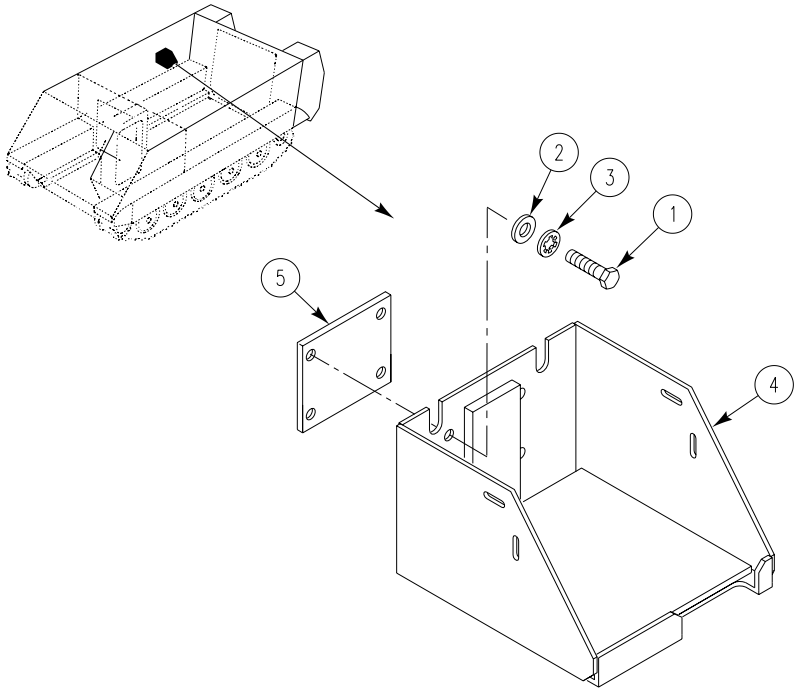
See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Water/ration heater removed (see your -10)

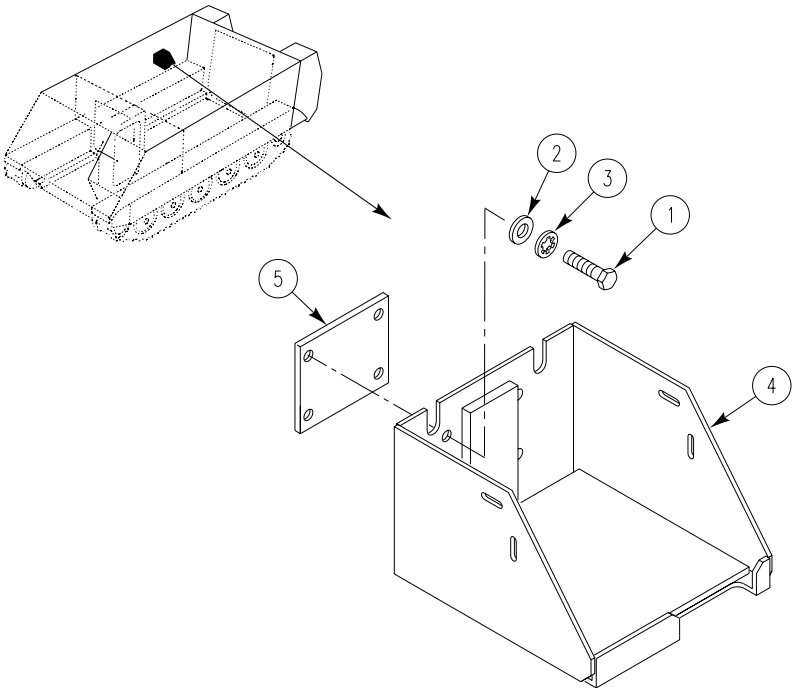
REMOVAL

1. Remove four screws (1), washers (2), lockwashers (3), and bracket (4) from mount plate (5). Discard lockwashers.



INSTALLATION

1. Place bracket (4) on mount plate (5). Secure with four new lockwashers (3), washers (2), and screws (1).



FOLLOW-THROUGH STEPS

1. Install water/ration heater, if desired (see your -10).

END OF TASK

INSTALL TOW PINTLE EXTENDER KIT (M113A3 ONLY) 0811 01

THIS WORK PACKAGE COVERS:

Installation (page 0811 01-1).
Adjustment (page 0811 01-3).
Stow (page 0811 01-3).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanics Tool Kit (WP 0926 00, Item 65)
Torque Wrench (WP 0926 00, Item 86)
Torque Wrench Set (WP 0926 00, Item 73)
Torque Wrench (WP 0926 00, Item 83)

Materials/Parts

Tow Pintle Extender Kit

Personnel Required

Unit Mechanic

References

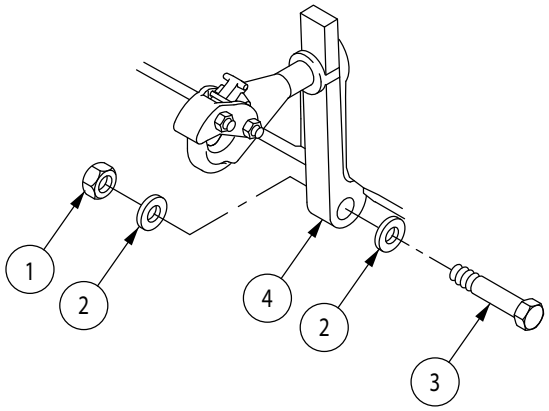
See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)

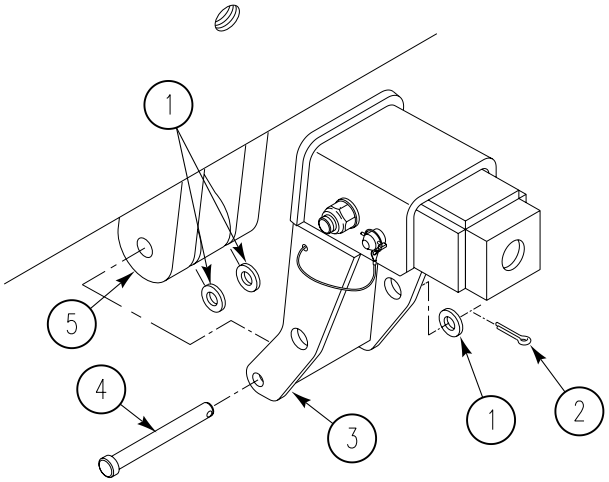
INSTALLATION

1. Remove pintle assembly from ramp (see wp 0433 00). Retain pintle and nut. Discard packing, three washers, and cotter pin.
2. Remove nut (1), screw (4), and two washers (2) from ramp center hinge (3). Discard screw and nut.

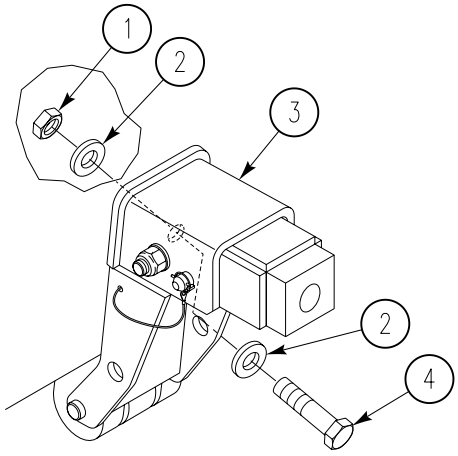


INSTALL TOW PINTLE EXTENDER KIT (M113A3 ONLY) — Continued 0811 01

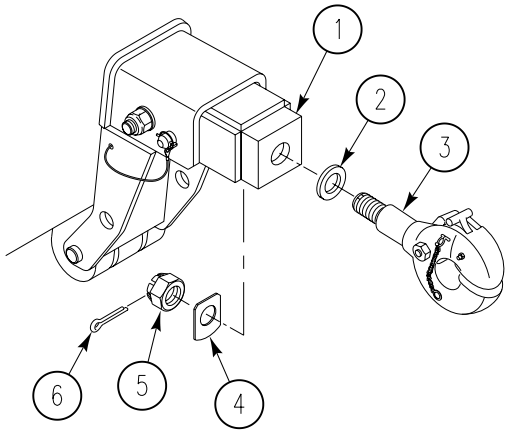
3. Install bottom of extender assembly to ramp center hinge (5) using pin (4).
4. Reinstall two washers (1) between ramp and hull portions of hinge (5). Install washer (1) on pin (4) and secure with cotter pin (2).



5. Rotate extender assembly (3) up against ramp rear surface and attach to ramp using screw (4), two washers (2), and nut (1). TORQUE NUT TO 300 LB-FT (407 N•m). Use torque wrench (WP 0926 00, Item 86) and torque wrench set (WP 0926 00, Item 73).



6. Install washer (2) to shank of pintle body. Insert pintle body (3) through extender assembly bracket (1). Install spacer (4) and nut (5) (removed in Step 1). TORQUE NUT TO 60–180 LB-IN (7–20 N•m) and secure with cotter pin (6). Use torque wrench (WP 0926 00, Item 83). After installation, pintle must be loose enough to be rotated manually.



ADJUSTMENT

1. After 50 miles of towing operation repeat step (5). Use torque wrench (WP 0926 00, Item 86) and torque wrench set (WP 0926 00, Item 73).

STOW

1. After towing operation is complete, put extender assembly (2) in stowed position by removing linchpin (1) and hitch pin (3). Rotate pintle and bracket assembly into downward position and reinstall hitch pin and linchpin.

END OF TASK

REPAIR TOW PINTLE EXTENDER ASSEMBLY (M113A3 ONLY) 0811 02

THIS WORK PACKAGE COVERS:

Removal (page 0811 02-1).
Disassembly (page 0811 02-3).
Assembly (page 0811 02-4).
Installation (page 0811 02-5).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0926 00, Item 65)
Torque Wrench (WP 0926 00, Item 86)
Torque Wrench Set (WP 0926 00, Item 73)
Torque Wrench (WP 0926 00, Item 83)

Materials/Parts
Cotter pin
Cotter pin
Self-locking nut
Self-locking nut

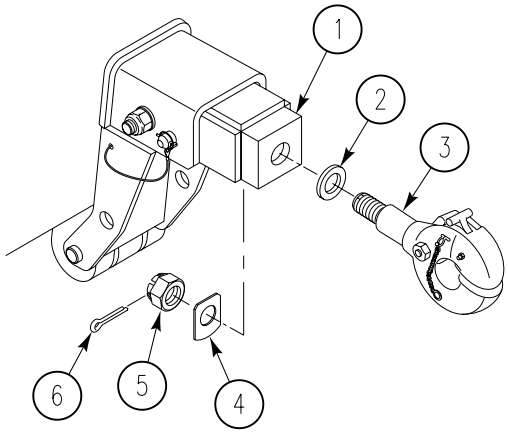
Personnel Required
Unit Mechanic

References
See your -10

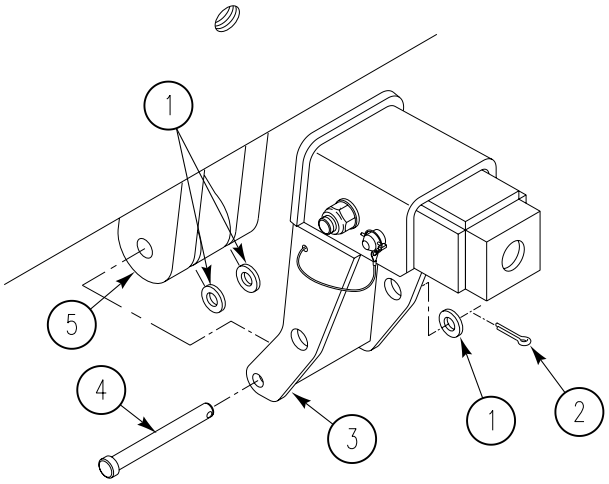
Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)

REMOVAL

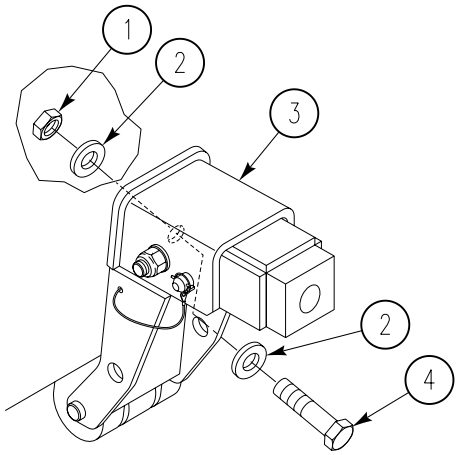
1. Remove cotter pin (6), slotted nut (5), spacer (4), washer (2) and towing pintle (3) from extender assembly (1).



2. Remove cotter pin (2), headed pin (4), washer (1), and two washers (1) from extender assembly (3) and carrier (5). Discard cotter pin.

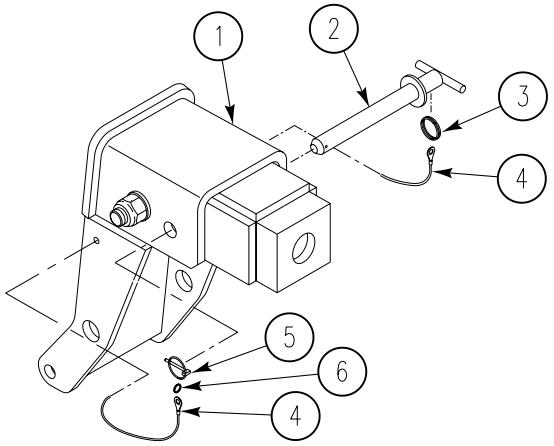


3. Remove locknut (1), screw (4), two washers (2), and extender assembly (3) from carrier. Discard locknut.

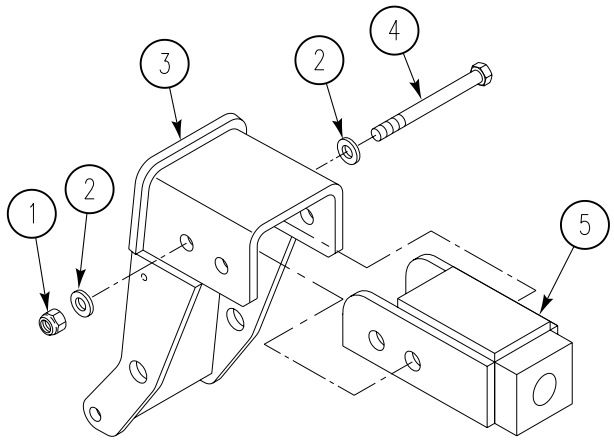


DISASSEMBLY

1. Remove linchpin (5) and hitch pin (2) from extender assembly (1).
2. Remove two rings (3), (6) with lanyard (4) from linchpin (5) and hitch pin (2).
3. Remove two rings (3), (6) from lanyard (4) and lanyard from extender assembly (1).

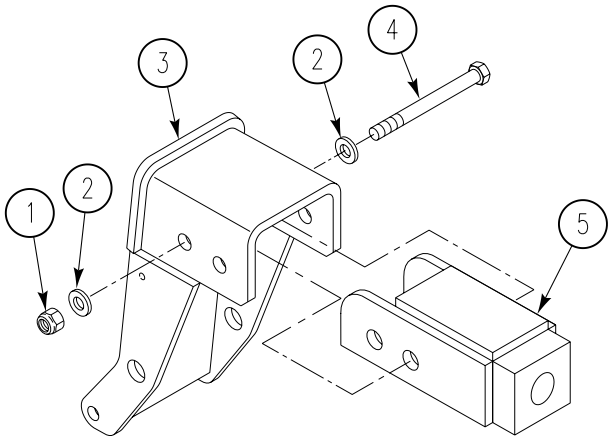


4. Remove locknut (1), screw (4), two washers (2) from extender assembly (3). Separate mount (3) and bracket (5). Discard locknut.

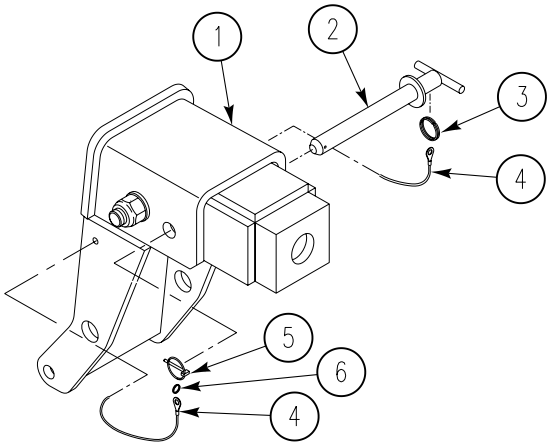


ASSEMBLY

1. Join mount (3) and bracket (5). Secure together with screw (4), two washers (2), and new locknut (1). TORQUE LOCKNUT TO 120–160 LB-IN (14–18 N•m). Use torque wrench (WP 0926 00, Item 83).

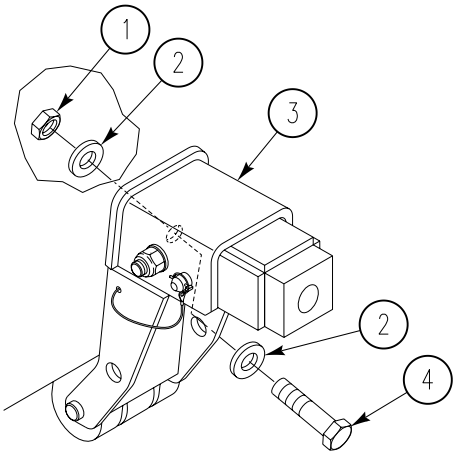


2. Install lanyard (4) on extender assembly (1). Install two rings (3), (6) on lanyard.
3. Install two rings (3), (6) on linchpin (5) and hitch pin (2).
4. Install linchpin (5) and hitch pin (2) on extender assembly (1).

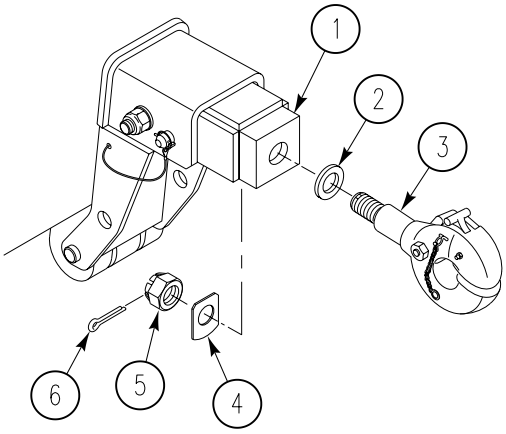


INSTALLATION

1. Install extender assembly (3) on carrier. Secure with two washers (2), screw (4), and new locknut (1). TORQUE LOCKNUT TO 300 LB-FT (407 N•m). Use torque wrench (WP 0926 00, Item 86) and torque wrench set (WP 0926 00, Item 73).

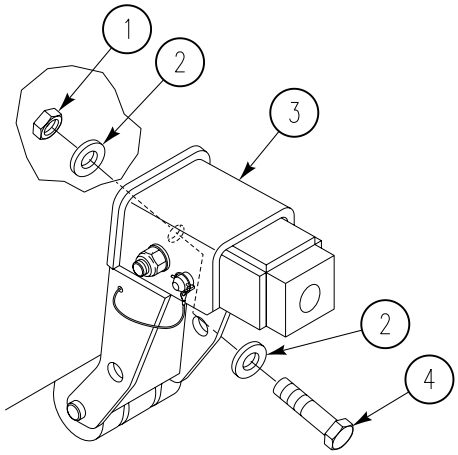


2. Install tow pintle (3), washer (2), and slotted nut (5) on extender assembly (1). TORQUE NUT TO 60–180 LB-IN (7–20 N•M). Use torque wrench (WP 0926 00, Item 83). Secure with new cotter pin (6).



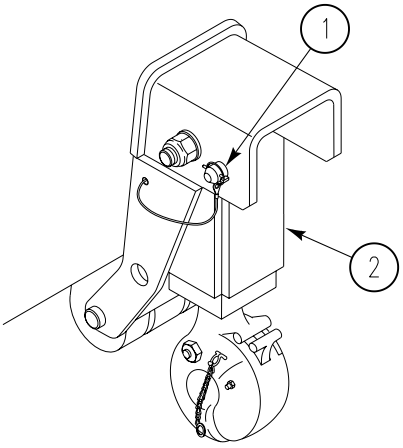
ADJUSTMENT

1. After 50 miles of towing operation RETORQUE NUT (1) TO 300 LB-FT (407 N•m). Use torque wrench (WP 0926 00, Item 86) and torque wrench set (WP 0926 00, Item 73).



STOW

1. After towing operation is complete, put extender assembly (2) in stowed position by removing linchpin (1) and hitch pin. Rotate pintle and bracket assembly into downward position and reinstall hitch pin and linchpin.



END OF TASK

CHAPTER 23

UNIT MAINTENANCE INSTRUCTIONS FOR MORTAR FIRE CONTROL SYSTEM

WORK PACKAGE INDEX

Title	Sequence No.
DELETED	0812 00
MORTAR FIRE CONTROL SYSTEM (MFCS), M95/M96 (M577A3 AND M1064A3)	0812 01
COMMANDER'S INTERFACE BRACKET ASSEMBLY MAINTENANCE (MFCS) (M577A3 ONLY)	0812 02
REPAIR/REPLACE COMMANDER'S INTERFACE BRACKET ASSEMBLY (MFCS) (M1064A3 ONLY)	0812 03
REPAIR/REPLACE POWER DISTRIBUTION ASSEMBLY (MFCS) (M577A3 ONLY)	0812 04
REPAIR/REPLACE POWER DISTRIBUTION ASSEMBLY (MFCS) (M1064A3 ONLY)	0812 05
REPAIR/REPLACE CABLE HANGER (MFCS) (M577A3 ONLY)	0812 06
REPAIR/REPLACE MORTAR FIRE CONTROL SYSTEM (MFCS) CABLES (M577A3 ONLY)	0812 07
REPAIR/REPLACE PRECISION LIGHTWEIGHT GPS RECEIVER (PLGR) AND BRACKET (MFCS) (M1064A3 ONLY)	0812 08
REPAIR/REPLACE PRECISION LIGHTWEIGHT GPS RECEIVER (PLGR) ANTENNA AND ANTENNA BRACKET (MFCS) (M1064A3 ONLY)	0812 09
REPAIR/REPLACE DRIVER'S DISPLAY ASSEMBLY (MFCS) (M1064A3 ONLY)	0812 10
REPAIR/REPLACE DRIVER'S DISPLAY EXTERIOR MOUNTING BALL (MFCS) (M1064A3 ONLY)	0812 11
REPAIR/REPLACE VEHICLE MOTION SENSOR ASSEMBLY (MFCS) (M1064A3 ONLY)	0812 12
REPAIR/REPLACE TRAVEL LOCK ADAPTER (MFCS) (M1064A3 ONLY)	0812 13
REPAIR/REPLACE MORTAR FIRE CONTROL SYSTEM CABLES (MFCS) (M1064A3 ONLY)	0812 14
REPLACE ALTERNATE LOCATION GUNNER'S DISPLAY BLOCK	0812 15
REPLACE DAGR HOLDER MOUNTING BRACKET AND/OR SHOCK ISOLATOR	0812 16

MORTAR FIRE CONTROL SYSTEM (MFCS), M95/M96 (M577A3 AND M1064A3) 0812 01

THIS WORK PACKAGE COVERS:

General Maintenance (page 0812 01-1).

INITIAL SETUP:

Maintenance Level
Unit

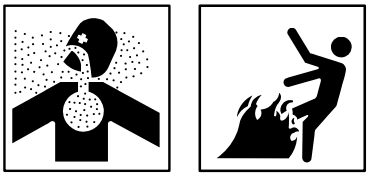
Materials/Parts
Sealing compound (WP 0928 00, Item 56.1)

Tools and Special Tools
Electronic Repairman Tool Kit (WP 0926 00, Item 64.1)

Personnel Required
Unit Mechanic

GENERAL MAINTENANCE

WARNING



Adhesive, primer, sealant compounds, and isopropyl alcohol are toxic and flammable. These compounds are toxic to eyes, skin, and respiratory tract. Continued exposure can make you dizzy and irritate your eyes and throat.

Always use in well ventilated areas, away from heat, sparks, and flames. Do not breathe fumes. Do not allow into contact with skin and eyes. Use goggles or face shield and protective gloves.

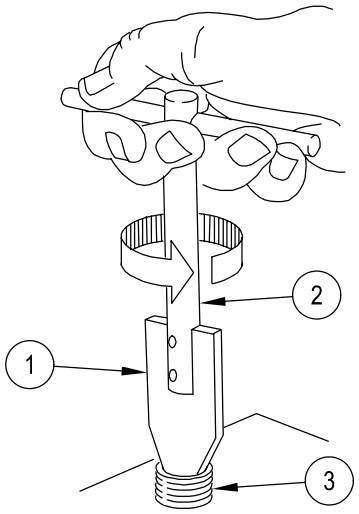
1. Apply sealing compound to threads of any screws which loosen in Mortar Fire Control System (MFCS) components or mounting hardware and tighten screws.

2. Inspect helicoil inserts for improper installation, breaks, and other damage. Remove and replace as necessary.
   a. To remove a helicoil insert:
      1) Position the blade (1) of the extracting tool (2) into the center of the helicoil insert (3).
      2) Tap the top of the extracting tool (2) with a hammer to seat the tool into the helicoil insert (3).
      3) Push down on the extracting tool (2) and turn counterclockwise to back the helicoil insert (3) from the hole.

NOTE

Never reuse an insert.

      4) Discard the helicoil insert (3).



b. To install a helicoil insert:

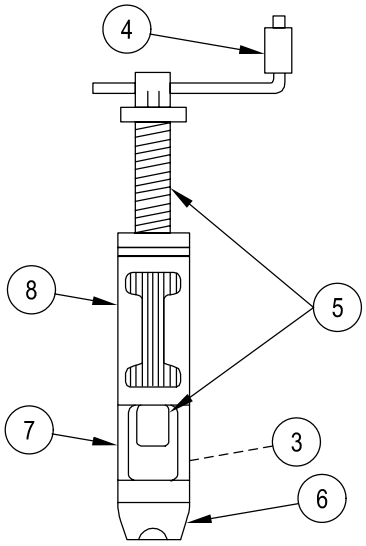
1) Retract the mandrel (5) of the helicoil inserting tool (8) and place a helicoil insert (3) into the chamber (7) with the insert tang (9) toward the chuck (6).

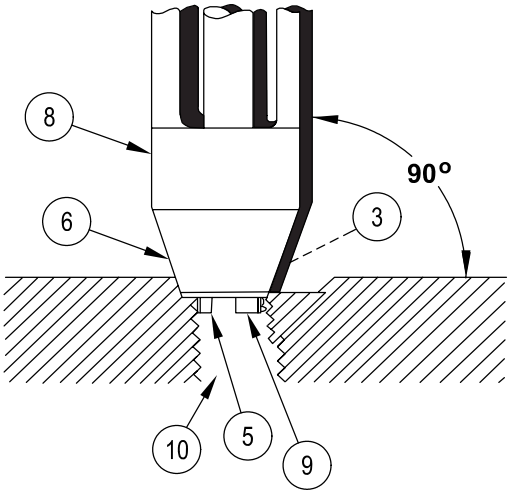
2) Advance the mandrel (5) until it fully engages the insert tang (9). Continue turning the mandrel, advancing the helicoil insert (3) into the chuck (6) until the mandrel and insert are flush with the tip of the chuck.

3) Hold the helicoil inserting tool (8) firmly and squarely against the work with the helicoil insert (3) aligned with the tapped hole (10).

4) Rotate the handle (4) clockwise at a slow uniform rate until the top coil of the helicoil insert (3) is 1/4 to 1/2 turn below the top work surface of the tapped hole (10).

5) Rotate the handle (4) counterclockwise to remove mandrel (5) from the tapped hole (10).

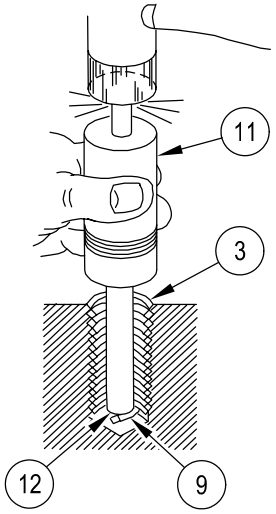




6) Place the punch end (12) of the tang break-off tool (11) into the center of the helicoil insert (3), resting the tool squarely on the insert tang (9).

7) Strike the top of the tang break-off tool (11) with a sharp blow (using a soft-faced hammer) to break insert tang (9) from installed helicoil insert (3).

8) If needed, use long narrow tweezers to remove the insert tang (9) from insert hole.



END OF TASK

COMMANDER'S INTERFACE BRACKET ASSEMBLY MAINTENANCE (MFCS) (M577A3 ONLY) 0812 02

THIS WORK PACKAGE COVERS:

Removal (page 0812 02-1).
Repair (page 0812 02-3).
Installation (page 0812 02-3).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

Electronic Equipment Tool Kit (WP 0926 00, Item 66)
Shop Set, Small Arms (WP 0926 00, Item 46.1)

Materials/Parts

Self-locking nut (3) (see TM 9-1220-248-23&P)

Personnel Required

Unit Mechanic
Helper

References

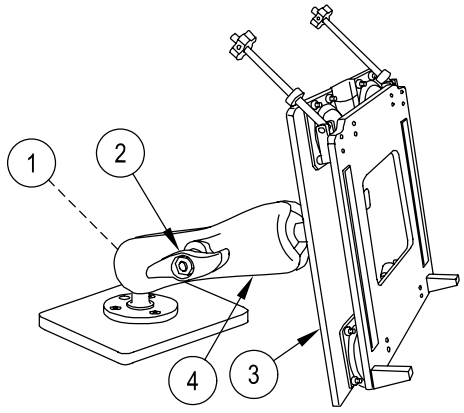
TM 9-1220-248-23&P
TM 9-2350-277-24P

Equipment Condition

Commander's interface removed from bracket assembly (TM 9-2350-277-10)

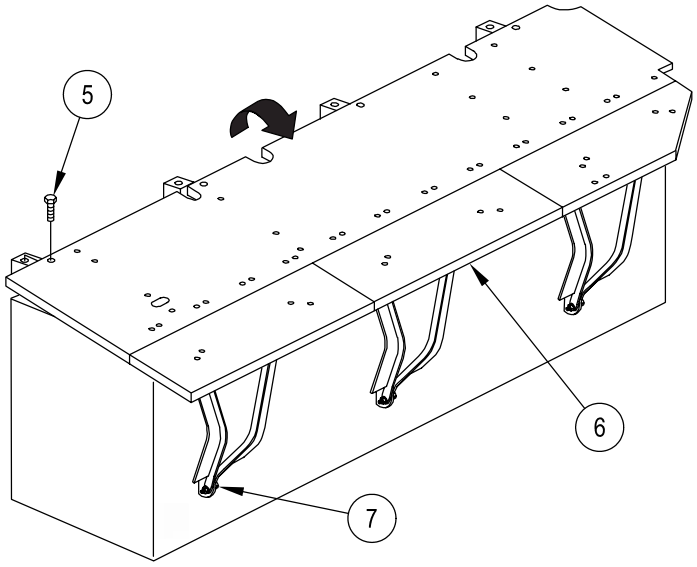
REMOVAL

1. Loosen locking handle (2) on ram arm (4) and remove bracket assembly (3).
2. Remove ram arm (4) from ball (1).

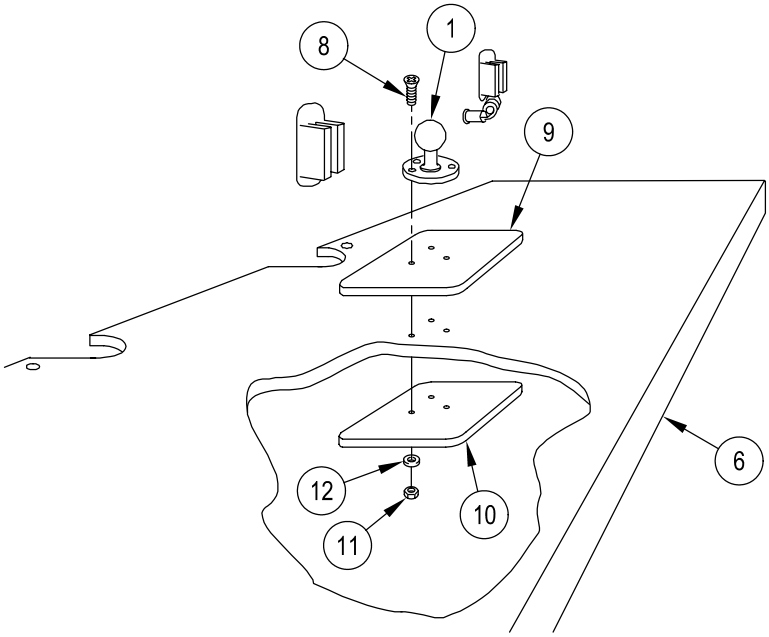


COMMANDER'S INTERFACE BRACKET ASSEMBLY MAINTENANCE (MFCS) (M577A3 ONLY) — Continued **0812 02**

3. If required to allow access, loosen attaching hardware at hinge points (7). Remove four bolts (5) and tilt table top (6).



4. Remove three self-locking nuts (11), flat washers (12), bottom mounting plate (10), top mounting plate (9), ball (1), and three countersunk capscrews (8) from table top (6). Discard self-locking nuts.



REPAIR

1. Replace defective parts as authorized by TM 9-1220-248-23&P and TM 9-2350-277-24P.

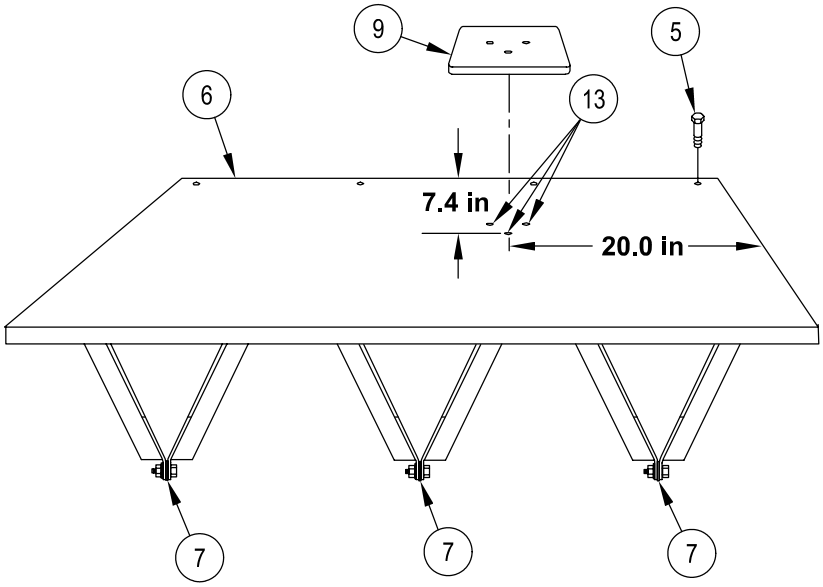
INSTALLATION

NOTE

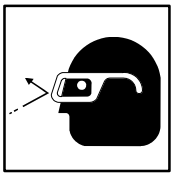
If computer table top mount is being installed in vehicle for the first time, proceed with Step 1.
If computer table top mount is being installed in previously-modified vehicle, proceed to Step 5.

Ensure that cable 4W7 will reach selected position of computer table top mount.

1. Position cable 4W7 to J3 connector on power distribution assembly (PDA) and selected table top position and verify that cable will reach position of commander's interface.
2. Using top mounting plate (9) as a template, mark locations for three holes (13) on table top (6). Position plate with single hole facing near edge of table top. Mark single hole position at approximately 20.0 in. (50.8 cm) from right edge of table and approximately 7.4 in. (18.8 cm) from rear of table.



WARNING



Metal chips and grinding dust can cause eye injury. Wear goggles and gloves.

NOTE

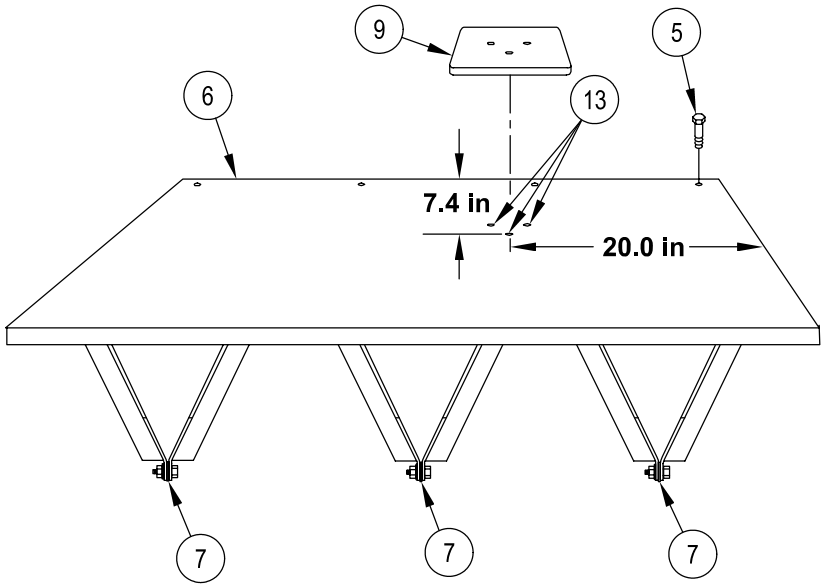
Use two persons to support table top when drilling holes.

3. Loosen attaching hardware at hinge points (7). Using 9/16 wrench and 9/16 socket, remove four bolts (5) from table top (6). Tilt table top forward.

WARNING

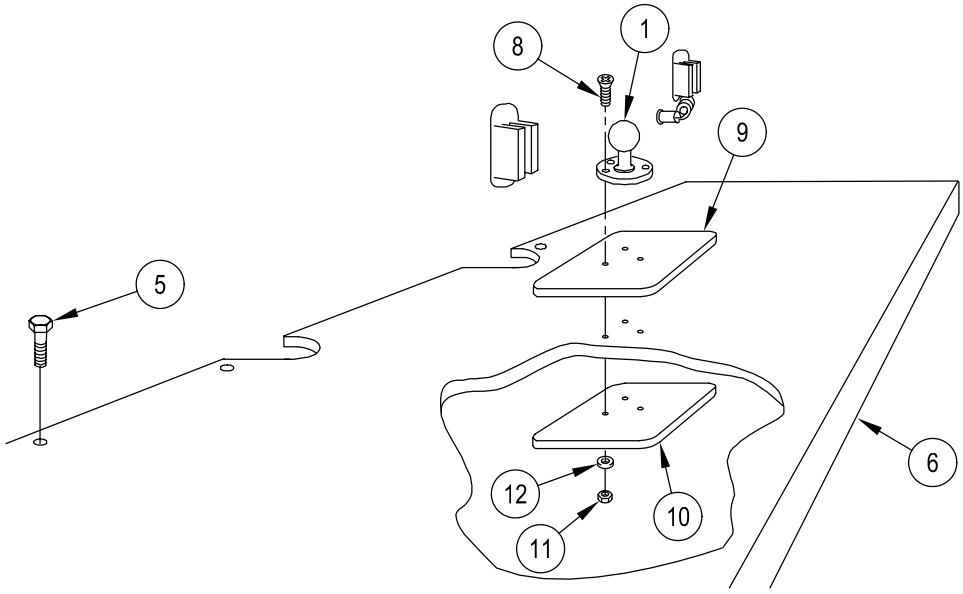
To avoid possible rupture of fuel tank and personnel injury, do not drill any holes prior to tilting of table top.

4. Using drill and 3/16 in. (0.48 cm) drill bit, drill three through holes (13) in table top (6). Use helper to support table top.

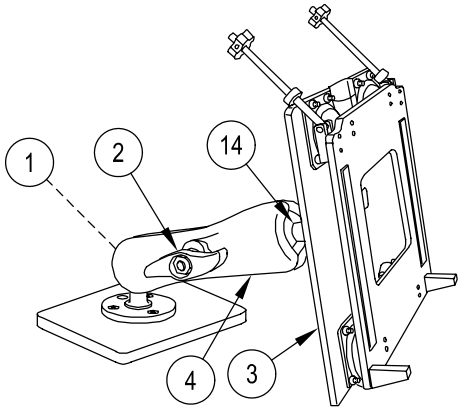


COMMANDER'S INTERFACE BRACKET ASSEMBLY MAINTENANCE (MFCS) (M577A3 ONLY) — Continued **0812 02**

5. Position bottom mounting plate (10), top mounting plate (9), and ball (1) on table top (6). Secure with three countersunk capscrews (8), flat washers (12), and new self-locking nuts (11).
6. Reposition table top (6). Install four bolts (5). Tighten attaching hardware at hinge points.



7. Install ram arm (4) on ball (1).
8. Position ball (14) on bracket assembly (3) in ram arm (4). Tighten locking handle (2).



END OF TASK

REPAIR/REPLACE COMMANDER'S INTERFACE BRACKET ASSEMBLY (MFCS) (M1064A3 ONLY) 0812 03

THIS WORK PACKAGE COVERS:

Removal (page 0812 03-2).
Repair (page 0812 03-3).
Installation (page 0812 03-3).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

Electronic Equipment Tool Kit (WP 0926 00, Item 66)
Shop Set, Small Arms (WP 0926 00, Item 46.1)

Materials/Parts

Sealing compound (WP 0928 00, Item 56.1)

Personnel Required

Unit Mechanic

References

WP 0812 01
TM 9-1220-248-23&P
TM 9-2350-277-24P

Equipment Condition

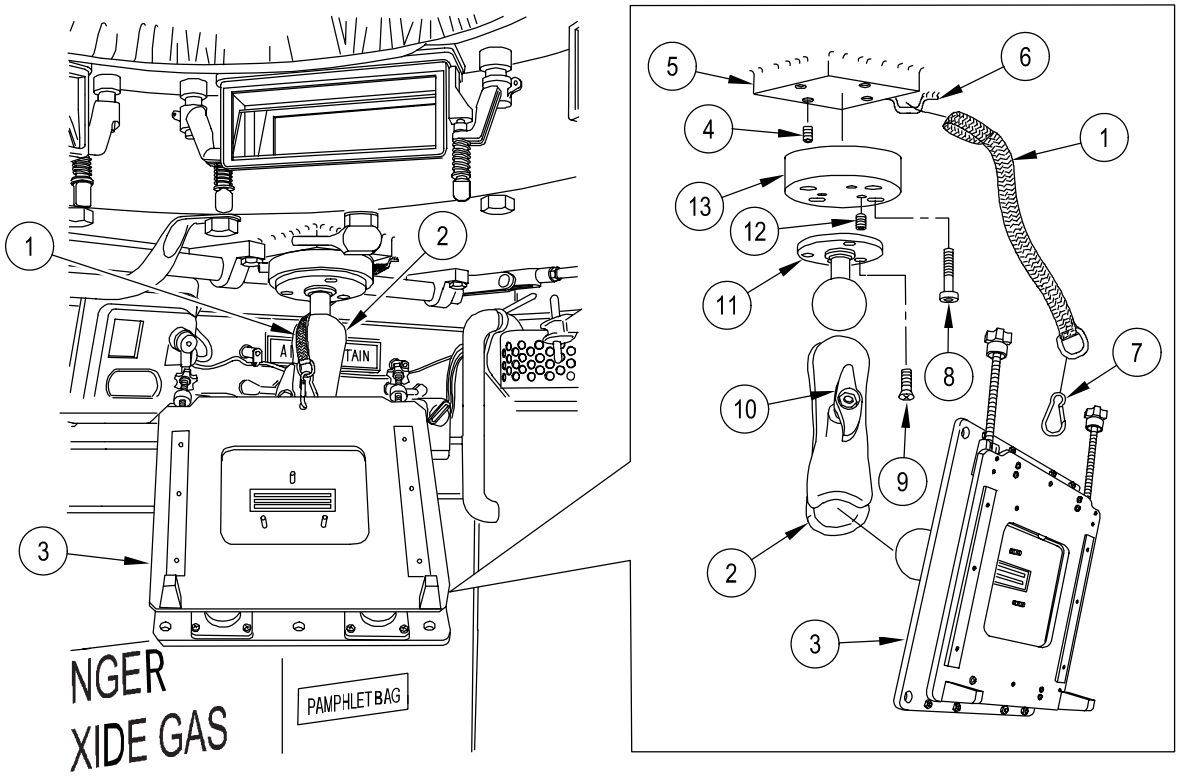
Commander's interface removed from bracket assembly (see your -10)

REPAIR/REPLACE COMMANDER'S INTERFACE BRACKET ASSEMBLY (MFCS) (M1064A3 ONLY) — Continued

0812 03

REMOVAL

1. Open spring hook (7) on safety lanyard (1) and remove from center hole of bracket assembly (3).
2. Loosen locking handle (10) on ram arm (2) and remove bracket assembly (3).
3. Remove ram arm (2) from ball (11).
4. If damaged, remove three countersunk capscrews (9) and ball (11) from bottom mounting block (13).
5. If damaged, remove four socket head capscrews (8) and bottom mounting block (13) from top mounting block (5).
6. If damaged, remove three threaded screw inserts (12) from bottom mounting block (13) (WP 0812 01).
7. If damaged, remove spring hook (7) from safety lanyard (1) and discard.
8. If damaged, remove safety lanyard (1) from weldment (6) and discard.
9. If damaged, remove four threaded screw inserts (4) from top mounting block (5) (WP 0812 01).



REPAIR/REPLACE COMMANDER'S INTERFACE BRACKET ASSEMBLY (MFCS) (M1064A3 ONLY) — Continued

0812 03

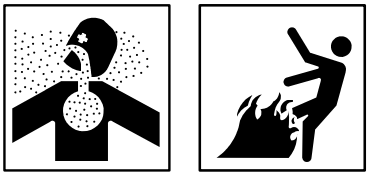
REPAIR

1. Replace defective parts as authorized by TM 9-1220-248-23&P and TM 9-2350-277-24P.

INSTALLATION

1. If removed, install four new threaded screw inserts (4) into top mounting block (5) (WP 0812 01).

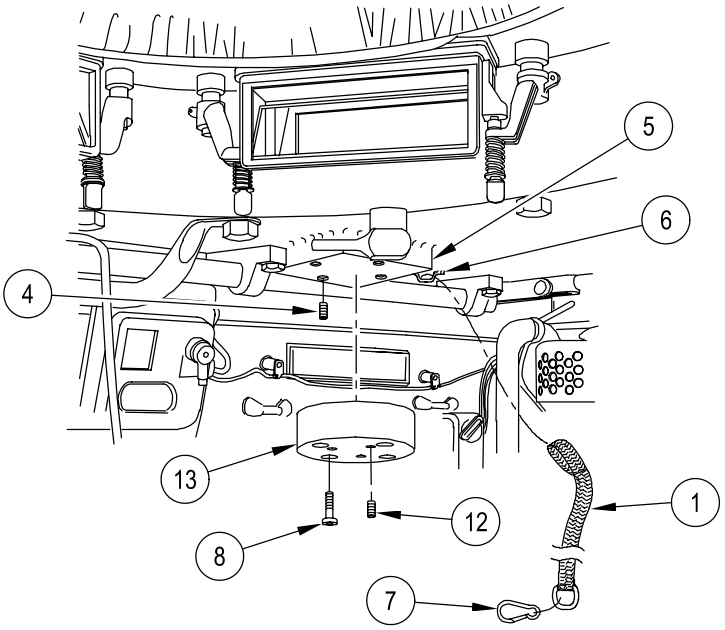
WARNING



Adhesive, primer, sealant compounds, and isopropyl alcohol are toxic and flammable. These compounds are toxic to eyes, skin, and respiratory tract. Continued exposure can make you dizzy and irritate your eyes and throat.

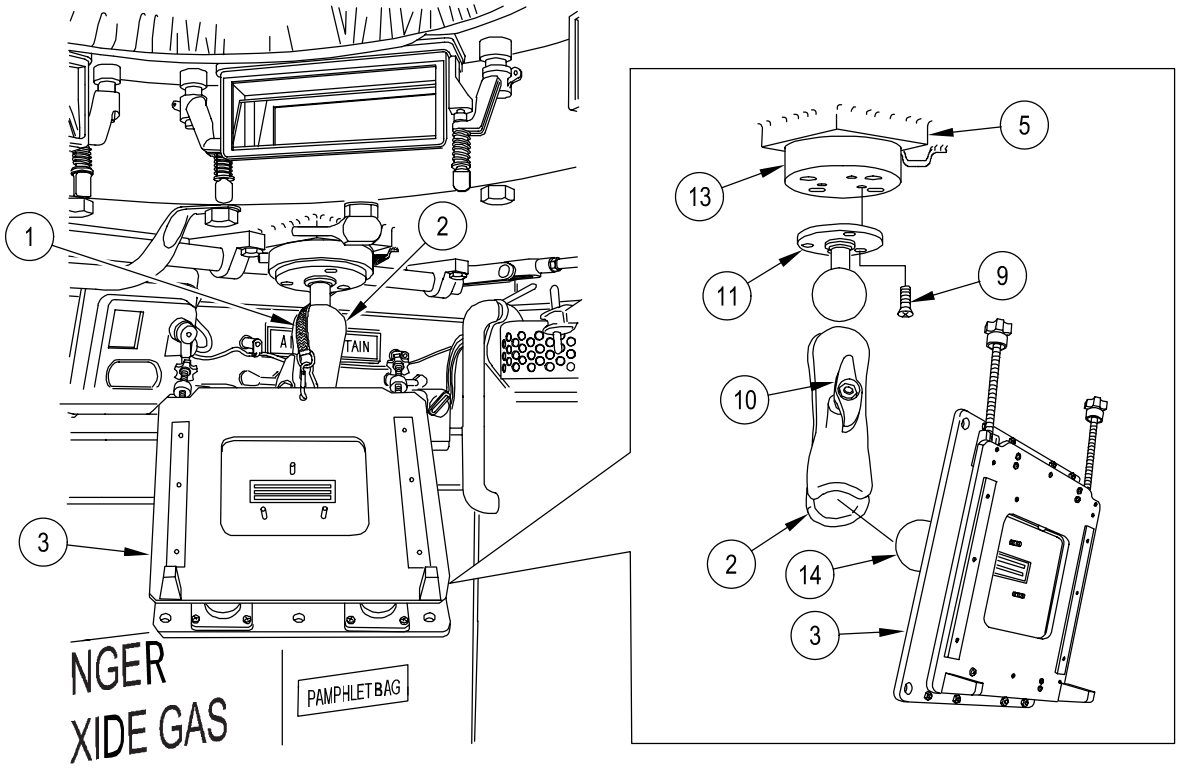
Always use in well ventilated areas, away from heat, sparks, and flames. Do not breathe fumes. Do not allow into contact with skin and eyes. Use goggles or face shield and protective gloves.

2. If bottom mounting block (13) is removed, apply sealing compound to four socket head capscrews (8).
3. Install bottom mounting block (13) and four socket head capscrews (8) to top mounting block (5).
4. If removed, install new spring hook (7) to safety lanyard (1).
5. If removed, install safety lanyard (1) to weldment (6).
6. If removed, install three new threaded screw inserts (12) to bottom mounting block (13) (WP 0812 01).



REPAIR/REPLACE COMMANDER'S INTERFACE BRACKET ASSEMBLY (MFCS) (M1064A3 ONLY) — Continued **0812 03**

7. If ball (11) is removed, apply sealing compound to three countersunk capscrews (9). Install ball and three countersunk capscrews on bottom mounting block (13).
8. Install ram arm (2) on ball (11).
9. Position ball (14) on rear of bracket assembly (3) in ram arm (2). Tighten locking handle (10).
10. Attach safety lanyard (1) to center hole of bracket assembly (3).



END OF TASK

REPAIR/REPLACE POWER DISTRIBUTION ASSEMBLY (MFCS) (M577A3 ONLY) 0812 04

THIS WORK PACKAGE COVERS:

Removal (page 0812 04-2).
Repair (page 0812 04-3).
Installation (page 0812 04-3).

INITIAL SETUP:

Maintenance Level
Unit

Personnel Required
Unit Mechanic

Tools and Special Tools
Electronic Equipment Tool Kit (WP 0926 00, Item 66)
PDA mounting template (WP 0927 00)
Shop Set, Small Arms (WP 0926 00, Item 46.1)

References
TM 9-1220-248-23&P
TM 9-2350-277-24P

Materials/Parts
Self-locking nut (4)

REPAIR/REPLACE POWER DISTRIBUTION ASSEMBLY (MFCS) (M577A3 ONLY) — Continued **0812 04**

REMOVAL

CAUTION

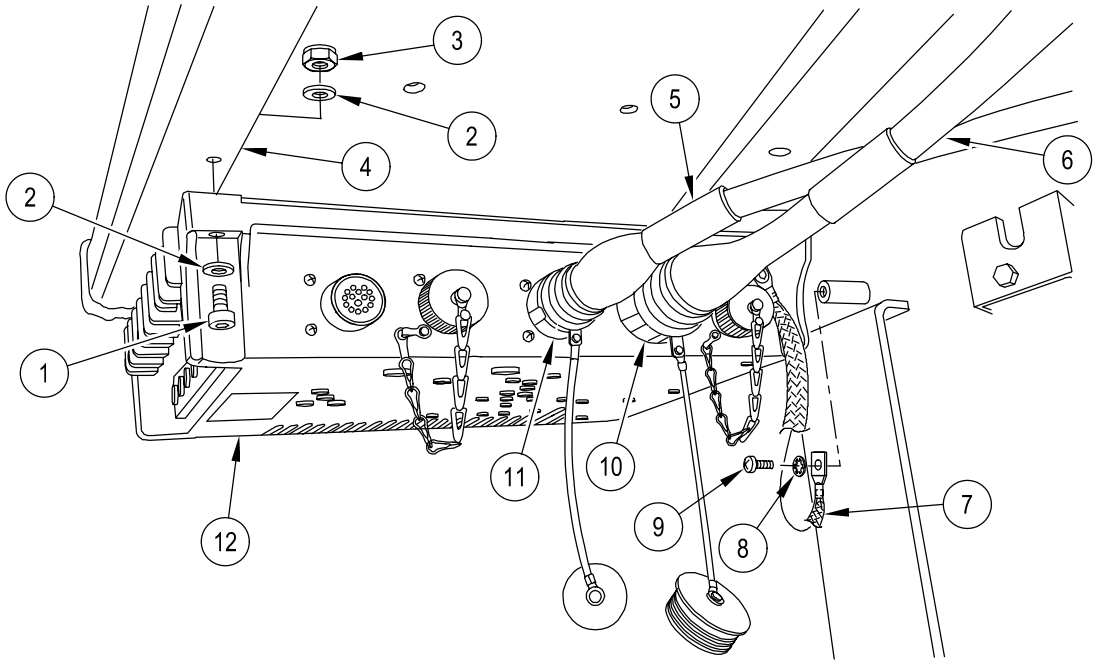
To prevent damage to system, ensure power is removed from system before power distribution assembly (PDA) is removed.

1. Disconnect power/data cable 4W7 (5) from J3 connector (11) on PDA (12).
2. Disconnect power cable 4W6 (6) from J4 connector (10) on PDA (12).
3. Remove machine screw (9), internal-tooth washer (8), and grounding strap (7) from vehicle standoff.
4. Remove screw and grounding strap (7) from PDA (12).

WARNING

To ease in the removal of power distribution assembly (PDA), use hand to support PDA. Use care to avoid injury to personnel or damage to equipment.

5. Remove four self-locking nuts (3), eight flat washers (2), four socket head capscrews (1), and PDA (12) from forward driver's side shelf (4). Discard self-locking nuts.



REPAIR/REPLACE POWER DISTRIBUTION ASSEMBLY (MFCS) (M577A3 ONLY) — Continued **0812 04**

REPAIR

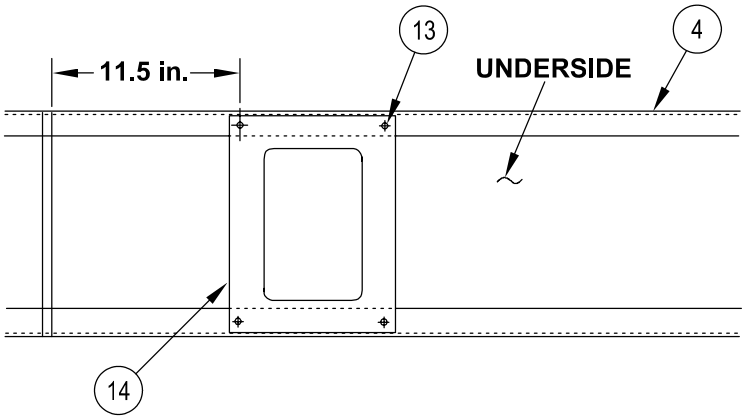
1. Replace defective parts as authorized by TM 9-1220-248-23&P and TM 9-2350-277-24P.

INSTALLATION

NOTE

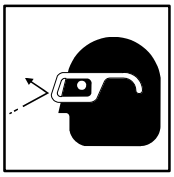
If power distribution assembly is being installed in vehicle for the first time, proceed with Step 1. If power distribution assembly is being installed in previously-modified vehicle, proceed to Step 3.

1. Using a PDA mounting template (14), mark locations for four holes (13) on underside of forward driver's side shelf (4). Position template so left holes will be approximately 11.5 in. (29.2 cm) from shelf hanger and will be centered between front and rear of shelf. Remove template after marking location.



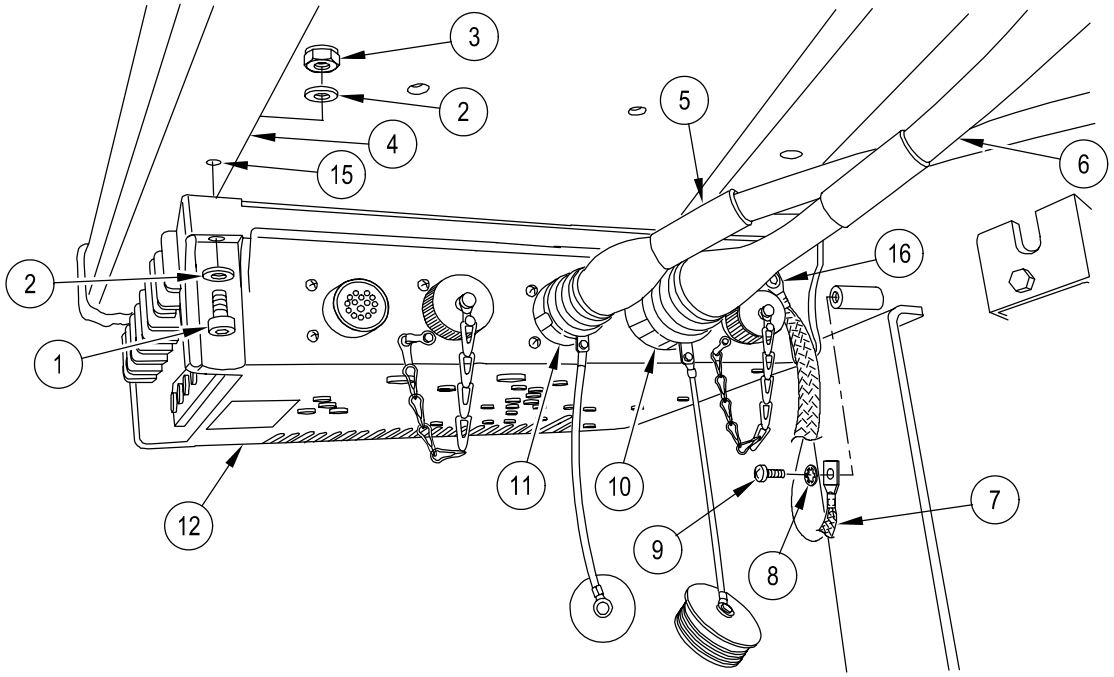
REPAIR/REPLACE POWER DISTRIBUTION ASSEMBLY (MFCS) (M577A3 ONLY) — Continued **0812 04**

WARNING



Metal chips and grinding dust can cause eye injury. Wear goggles and gloves.

2. Using drill and 3/8 in. (0.95 cm) drill bit, drill four through holes (15) in lower lip of forward driver's side shelf (4).
3. Position PDA (12) under forward driver's side shelf (4) and align holes. Install four socket head capscrews (1), eight flat washers (2), and four new self-locking nuts (3).
4. Using screw (16), install grounding strap (7) to PDA (12).
5. Install other end of grounding strap (7) to vehicle standoff, using internal-tooth washer (8) and machine screw (9).
6. Connect power cable 4W6 (6) to J4 connector (10) on PDA (12).
7. Connect power/data cable 4W7 (5) to J3 connector (11) on PDA (12).



END OF TASK

REPAIR/REPLACE POWER DISTRIBUTION ASSEMBLY (MFCS) (M1064A3 ONLY) 0812 05

THIS WORK PACKAGE COVERS:

Removal (page 0812 05-2).
Repair (page 0812 05-2).
Installation (page 0812 05-3).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

Electronic Equipment Tool Kit (WP 0926 00, Item 66)
Shop Set, Small Arms (WP 0926 00, Item 46.1)
Torque Wrench (WP 0926 00, Item 82)

Materials/Parts

Sealing compound (WP 0928 00, Item 56.1)
Lockwasher (4)

Personnel Required

Unit Mechanic

References

WP 0812 01
TM 9-1220-248-23&P

Equipment Condition

SINCGARS radios removed (TM 11-5820-890-10-7)

REPAIR/REPLACE POWER DISTRIBUTION ASSEMBLY (MFCS) (M1064A3 ONLY) — Continued

0812 05

REMOVAL

CAUTION

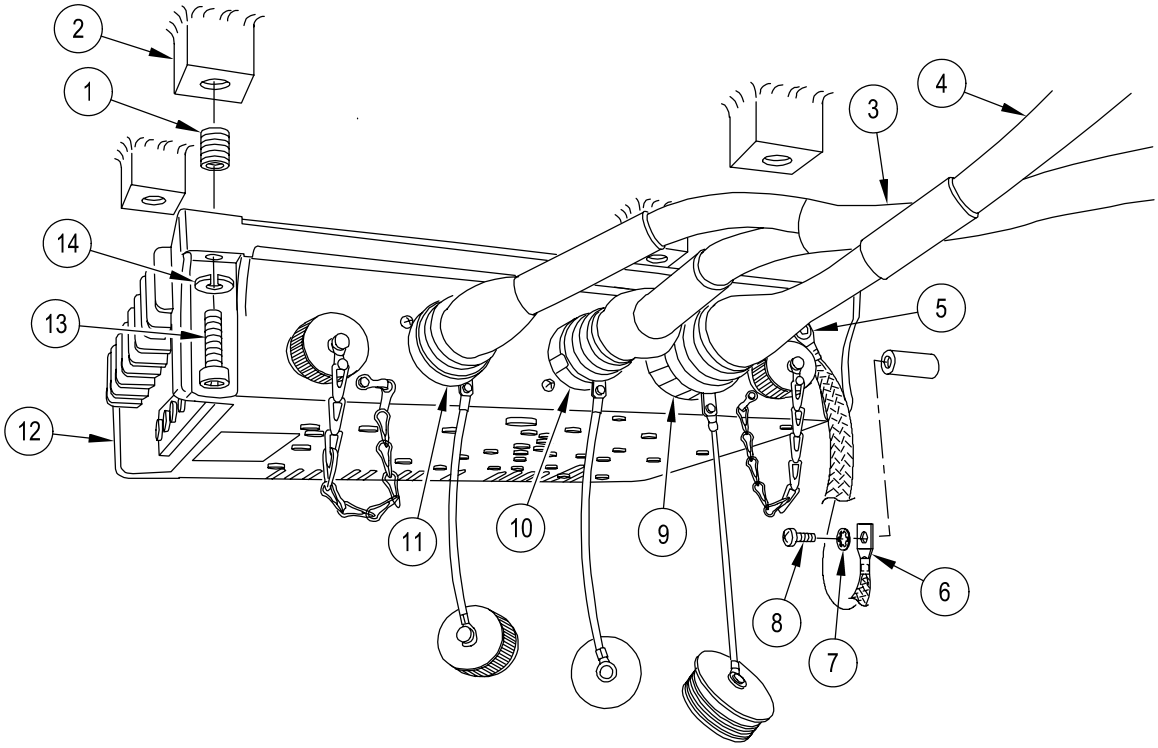
To prevent damage to equipment, ensure power is removed from system before power distribution assembly (PDA) is removed.

1. Disconnect power/data cable 3W17 (3) from J2 and J3 connectors (11) and (10) on power distribution assembly (PDA) (12).
2. Disconnect power cable 3W6 (4) from J4 connector (9) on PDA (12).
3. Remove machine screw (8), internal-tooth washer (7), and grounding strap (6) from vehicle standoff.
4. Remove screw (5) and grounding strap (6) from PDA (12).

WARNING

To ease in the removal of power distribution assembly (PDA), use hand to support PDA. Use care to avoid injury to personnel or damage to equipment.

5. Remove four socket head capscrews (13), lockwashers (14), and PDA (12) from four welded standoffs (2). Discard lockwashers.
6. If damaged, remove four helical coil inserts (1) from four welded standoffs (2) (WP 0812 01).



REPAIR

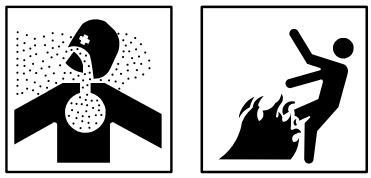
1. Replace defective parts as authorized by TM 9-1220-248-23&P.

REPAIR/REPLACE POWER DISTRIBUTION ASSEMBLY (MFCS) (M1064A3 ONLY) — Continued **0812 05**

INSTALLATION

1. If removed, install four new helical coil inserts (1) to welded standoffs (2) (WP 0812 01).

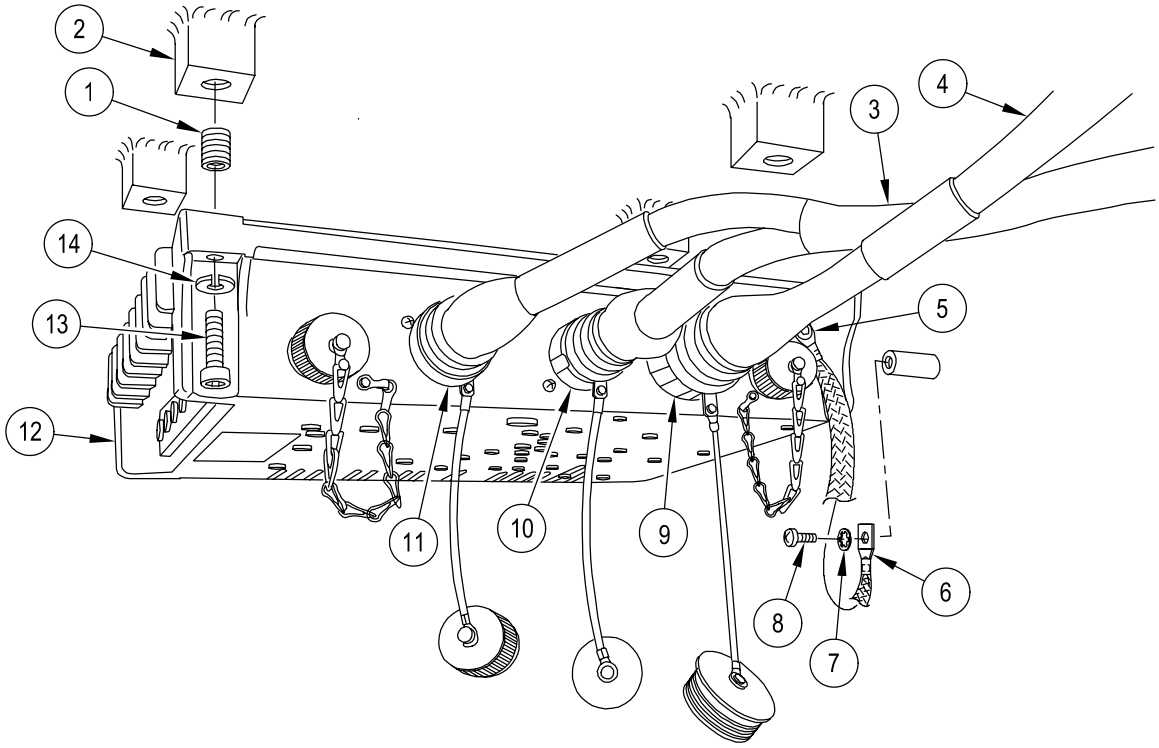
WARNING



Adhesive, primer, sealant compounds, and isopropyl alcohol are toxic and flammable. These compounds are toxic to eyes, skin, and respiratory tract. Continued exposure can make you dizzy and irritate your eyes and throat.

Always use in well ventilated areas, away from heat, sparks, and flames. Do not breathe fumes. Do not allow into contact with skin and eyes. Use goggles or face shield and protective gloves.

2. Position PDA (12) under four welded standoffs (2) and align holes. Apply sealing compound to four socket head capscrews (13) and install new lockwashers (14) and capscrews. TORQUE CAPSCREWS TO 32 FT-LB (43 N·M). Use torque wrench.
3. Using screw (5), install grounding strap (6) to PDA (12).
4. Install other end of grounding strap (6) to vehicle standoff, using internal-tooth washer (7) and machine screw (8).
5. Connect power cable 3W6 (4) to J4 connector (9) on PDA (12).
6. Connect power/data cable 3W17 (3) to J2 and J3 connectors (11) and (10) on PDA (12).



END OF TASK

REPAIR/REPLACE CABLE HANGER (MFCS) (M577A3 ONLY) 0812 06

THIS WORK PACKAGE COVERS:

Removal (page 0812 06-1).
Repair (page 0812 06-1).
Installation (page 0812 06-2).

INITIAL SETUP:

Maintenance Level
Unit

Personnel Required
Unit Mechanic

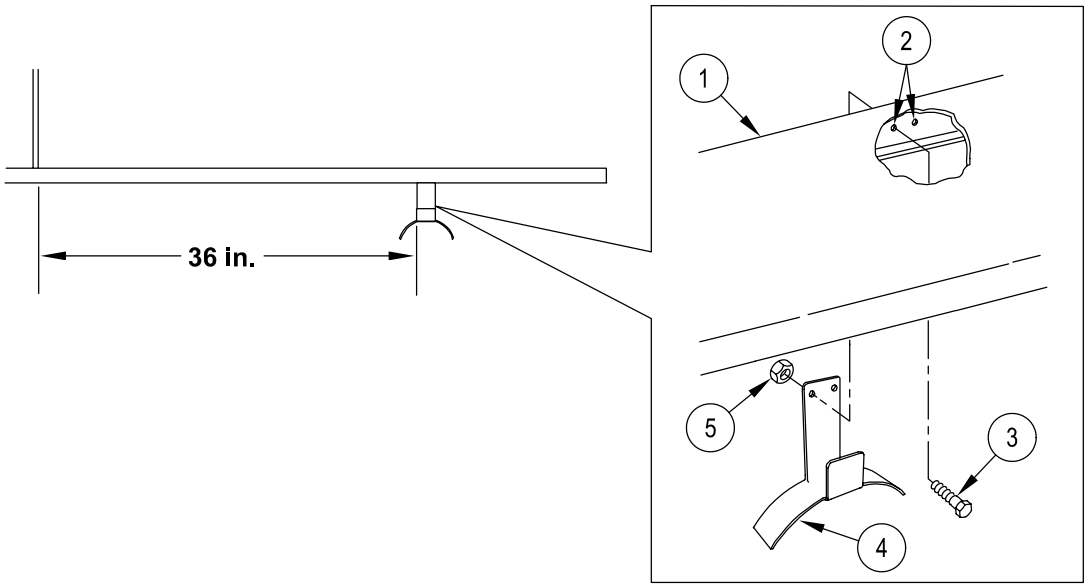
Tools and Special Tools
Electronic Equipment Tool Kit (WP 0926 00, Item 66)
Shop Set, Small Arms (WP 0926 00, Item 46.1)

References
TM 9-1220-248-23&P

Materials/Parts
Self-locking nut (2)

REMOVAL

1. Remove two self-locking nuts (5) , hexagon head screws (3), and cable hanger (4) from rear of forward driver's side shelf (1). Discard self-locking nuts.



REPAIR

1. Replace defective parts as authorized by TM 9-1220-248-23&P and TM 9-2350-277-24P.

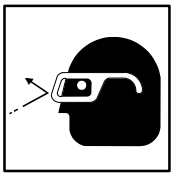
INSTALLATION

NOTE

If cable hanger is being installed in vehicle for the first time, proceed with Step 1. If cable hanger is being installed in previously-modified vehicle, proceed to Step 4.

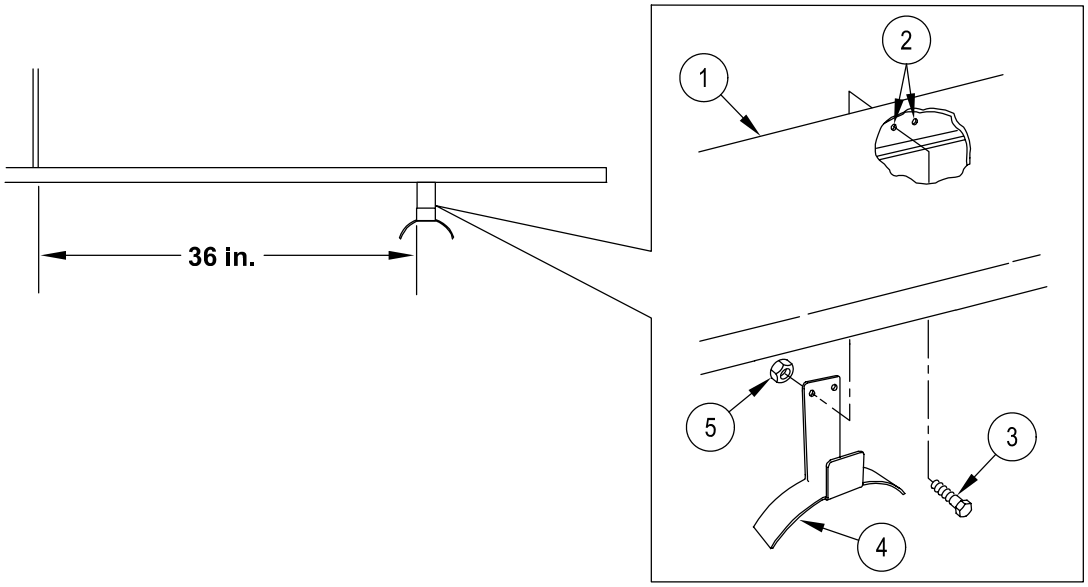
1. Place cable hanger (4) approximately 36 in. (91 cm) from shelf support, against rear lip of forward driver's side shelf (1).
2. Using cable hanger (4) as template, mark locations for two holes (2). Remove cable hanger.

WARNING



Metal chips and grinding dust can cause eye injury. Wear goggles and gloves.

3. Using drill and 1/4 in. (0.64 cm) drill bit, drill two through holes (2) in rear lip of forward driver's side shelf (1).
4. Position cable hanger (4) at rear of forward driver's side shelf (1) and align holes.
5. Install two hexagon head screws (3) and new self-locking nuts (5).



END OF TASK

REPAIR/REPLACE MORTAR FIRE CONTROL SYSTEM (MFCS) CABLES (M577A3 ONLY)

0812 07

THIS WORK PACKAGE COVERS:

Removal (page 0812 07-1).
Repair (page 0812 07-5).
Installation (page 0812 07-6).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
Electronic Equipment Tool Kit (WP 0926 00, Item 66)
Shop Set, Small Arms (WP 0926 00, Item 46.1)

Materials/Parts
Loop clamp (AR) (WP 0928 00, Item 14.1)
Tie strap (AR) (WP 0928 00, Item 61.1)
Tie strap (AR) (WP 0928 00, Item 61.2)
Tie strap (AR) (WP 0928 00, Item 61.3)

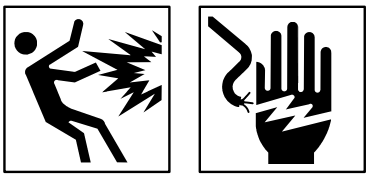
Personnel Required
Unit Mechanic

References
TM 9-1220-249-10
TM 11-5820-890-10-7
TM 9-1220-248-23&P

Equipment Condition
MASTER SWITCH OFF (see your -10)
Battery ground lead disconnected (WP 0338 00)

REMOVAL

WARNING



To avoid personnel injury or damage to equipment, when removing positive cable, avoid any contact of positive battery cable with surrounding metal surfaces. Contact can cause battery arcing or explosion. Wear safety glasses.

CAUTION

To prevent damage to equipment, ensure power is turned off at power distribution assembly (PDA) before disconnection of battery cable.

NOTE

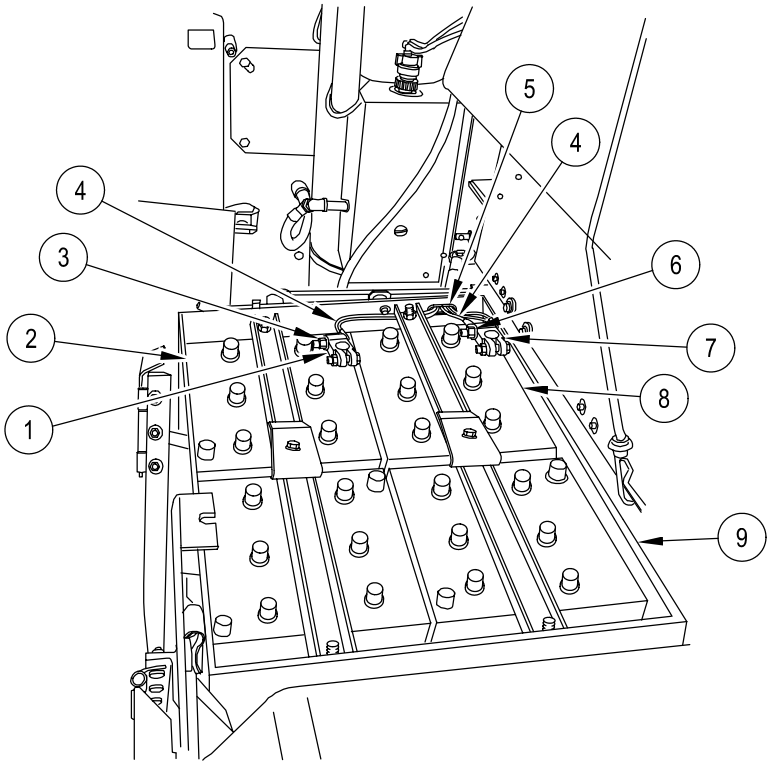
Refer to TM 9-1220-248-23&P for wiring diagram.

REPAIR/REPLACE MORTAR FIRE CONTROL SYSTEM (MFCS) CABLES (M577A3 ONLY) — Continued **0812 07**

NOTE

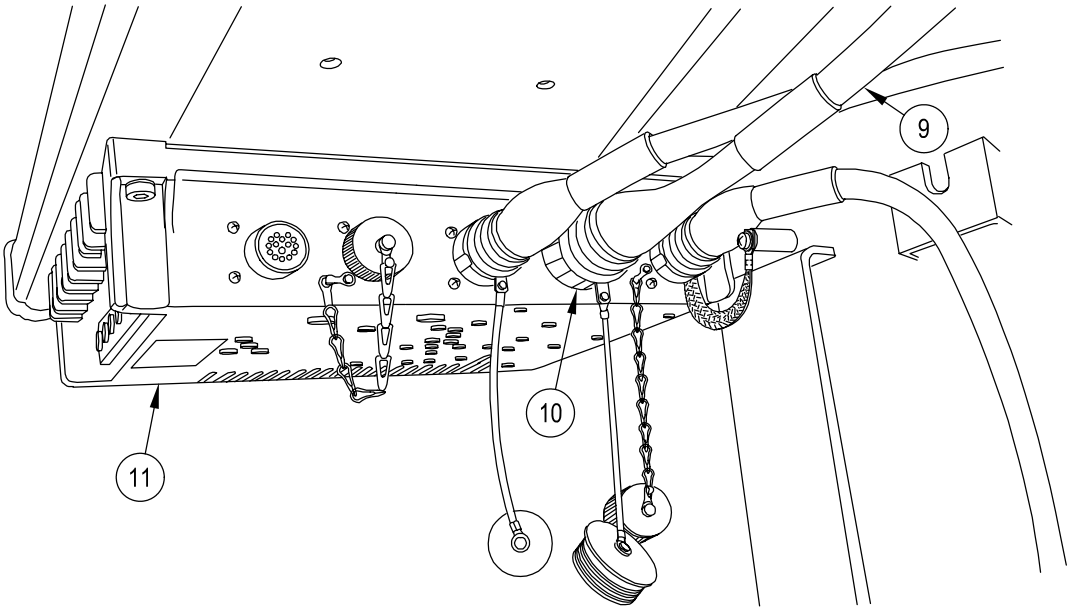
Steps 1 - 7 apply to cable 4W6, power connection cable to vehicle batteries.

1. Remove battery terminals from battery posts before removal of cable 4W6 (4).
2. Remove nut (3) and terminal lug (1) of cable 4W6 (4) from negative terminal of battery (2).
3. Remove nut (6) and terminal lug (7) of cable 4W6 (4) from positive terminal of battery (8).
4. Install battery terminals on battery posts.
5. Carefully pull cable 4W6 (4) through hole in side of battery box (9). Remove rubber grommet (5).
6. Follow route of cable 4W6 (4) behind personnel heater and along bulkhead of vehicle. Remove tie straps from cable.



REPAIR/REPLACE MORTAR FIRE CONTROL SYSTEM (MFCS) CABLES (M577A3 ONLY) — Continued **0812 07**

7. Disconnect cable 4W6 (9) from J4 connector (10) on power distribution assembly (PDA) (11). Remove cable from vehicle.



REPAIR/REPLACE MORTAR FIRE CONTROL SYSTEM (MFCS) CABLES (M577A3 ONLY) — Continued **0812 07**

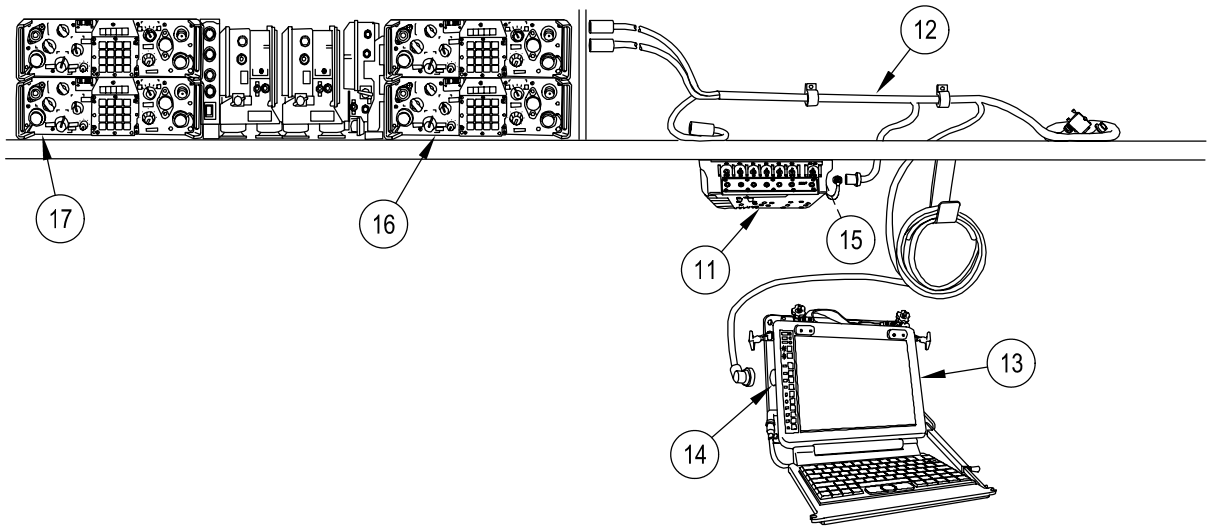
CAUTION

To prevent damage to equipment, ensure power is turned off at power distribution assembly (PDA) before disconnection of cable.

NOTE

Steps 8 - 11 apply to cable 4W7, power/data cable for commander's interface.

8. Disconnect P6 connector of cable 4W7 (12) from J3 connector (14) on commander's interface (CI) (13).
9. Disconnect P2 connector of cable 4W7 (12) from J3 connector (15) on PDA (11).
10. Disconnect P8 and P9 connectors of cable 4W7 (12) from connection points on two SINCGARS radios (17) and (16).
11. Remove tie straps from cable 4W7 (12) and remove cable from vehicle.



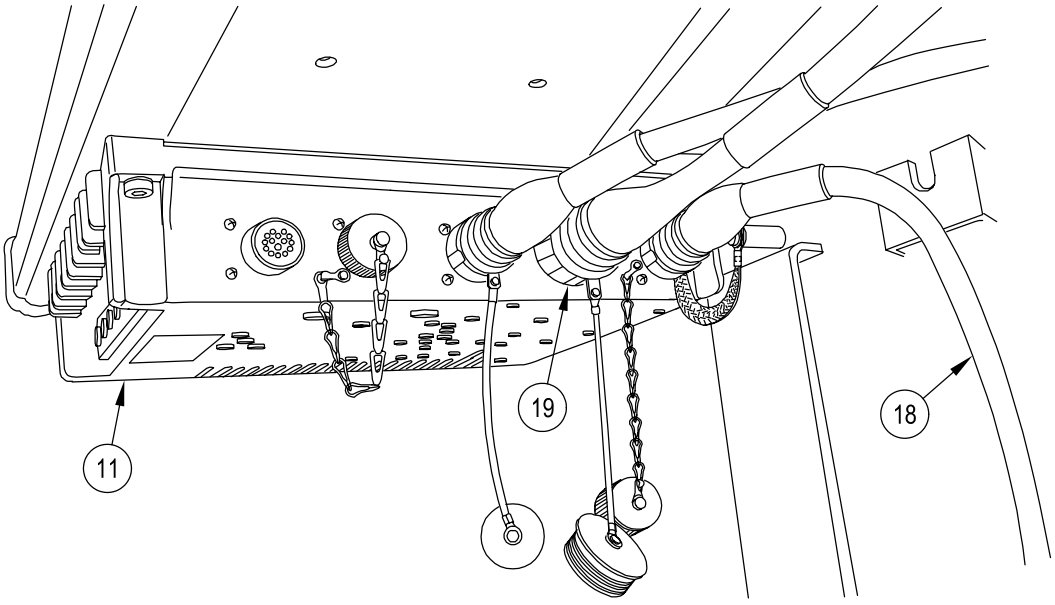
CAUTION

To prevent damage to equipment, ensure power is turned off at power distribution assembly (PDA) before disconnection of cable.

NOTE

Steps 12 - 13 apply to cable 34W4 for VAC power usage.

12. Disconnect cable 34W4 (18) from 120 VAC power source.
13. Disconnect cable 34W4 (18) from J5 connector (19) on PDA (11). Remove cable from vehicle.



REPAIR

1. Replace defective parts as authorized by TM 9-1220-248-23&P.

REPAIR/REPLACE MORTAR FIRE CONTROL SYSTEM (MFCS) CABLES (M577A3 ONLY) — Continued **0812 07**

INSTALLATION

NOTE

Refer to TM 9-1220-248-23&P for wiring diagram.

1. Position cables to ensure adequate lengths between connection points.

NOTE

Steps 2 - 8 apply to cable 4W7, power/data cable for commander's interface.

2. Locate P2 connector of cable 4W7 (12). Orient cable to right of PDA (11) on forward driver's side shelf (21).
3. Route P2 and P6 connectors of 4W7 (12) between forward driver's side shelf (21) and wall.

CAUTION

To prevent damage to equipment, ensure power is turned off at power distribution assembly (PDA) before connection of cable.

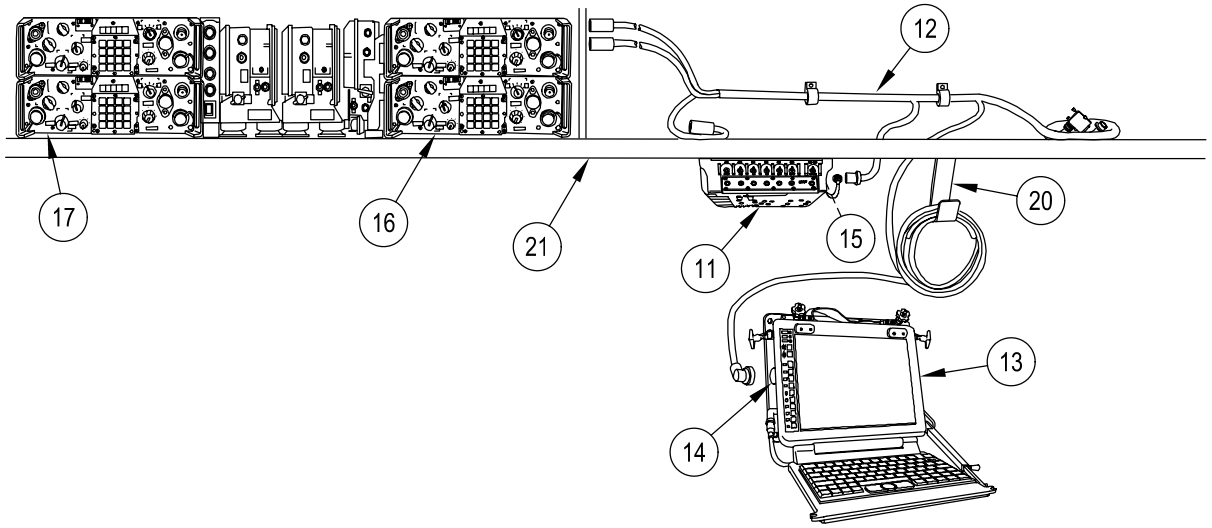
4. Connect P2 connector of cable 4W7 (12) to J3 connector (15) on PDA (11).
5. Connect P6 connector of cable 4W7 (12) to J1 connector (14) on CI (13).

NOTE

Refer to TM 9-1220-249-10 for radio setup procedures.

Refer to TM 11-5820-890-10-7 for information about the SINCGARS radio.

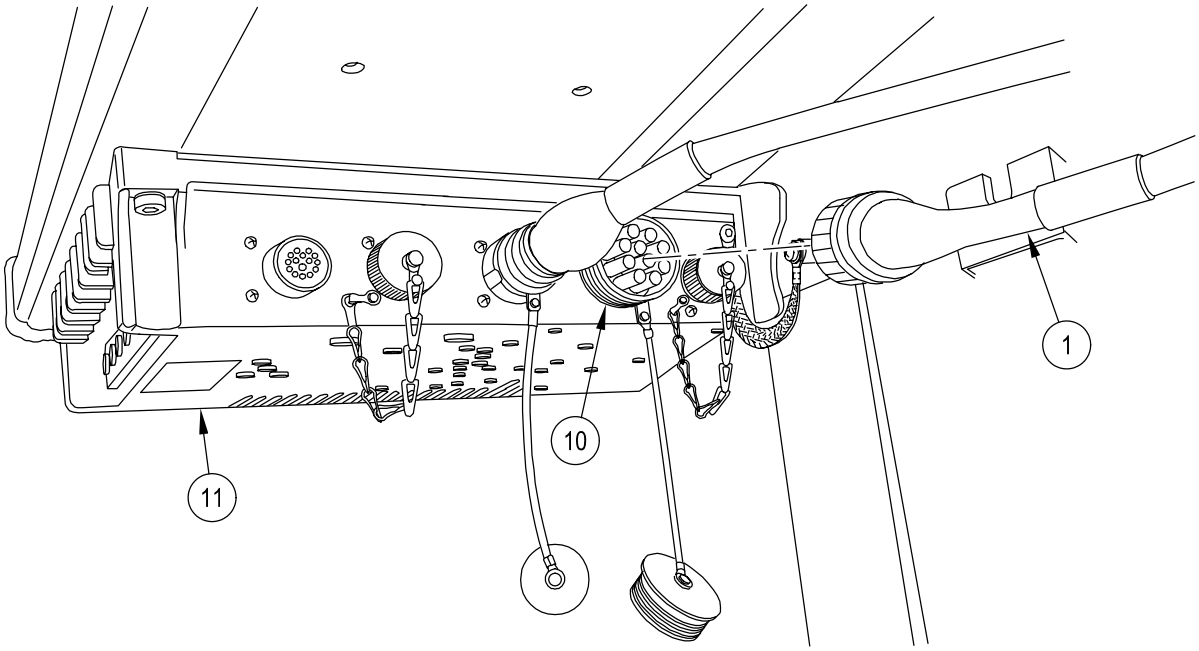
6. Connect P8 and P9 connectors of cable 4W7 (12) to connection points on two SINCGARS radios (17) and (16) as shown in TM 9-1220-248-23&P Block Diagram for Cable Installation. Coil P10 branch of cable 4W7 and place on radio rack.
7. Secure cable 4W7 (12) to existing vehicle wiring. When necessary, install longer cable fastener to secure cable. See TM 9-1220-248-23&P.
8. Coil P6 branch of cable 4W7 (12) and stow on cable hanger (20).



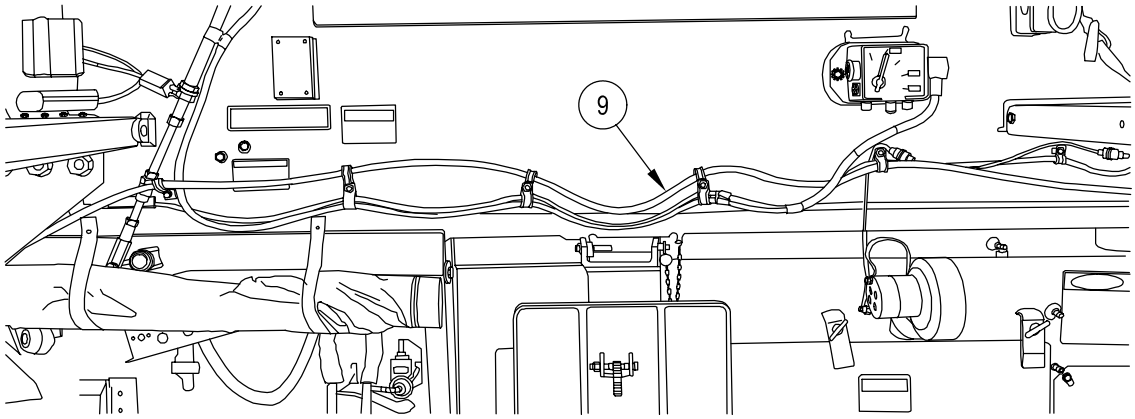
NOTE

Steps 9 - 18 apply to cable 4W6, power connection cable to vehicle batteries.

9. Position P1 connector of cable 4W6 (1) near J4 connector (10) on PDA (11).



10. Position cable 4W6 (9) by following route of existing cables along outside wall and bulkhead of vehicle.
11. Secure cable 4W6 (9) with appropriate length of cable fastener (TM 9-1220-248-23&P). Use existing hardware and standoffs, as available.

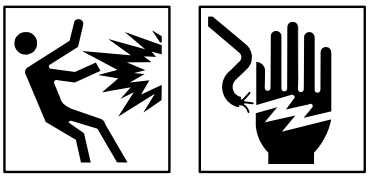


WARNING

To avoid personnel injury and damage to equipment, route cable 4W6 in position clear of personnel heater.

12. Route cable 4W6 (4) behind personnel heater (22). Install rubber grommet (5) in rear hole in side of battery box (9). Pass cable 4W6 through rubber grommet.

WARNING



To avoid personnel injury when installing positive cable, avoid any contact of positive battery cable with surrounding metal surfaces. Contact can cause battery arcing or explosion. Wear safety glasses.

CAUTION

To prevent damage to equipment, ensure power is turned off at power distribution assembly (PDA) before battery connections are made.

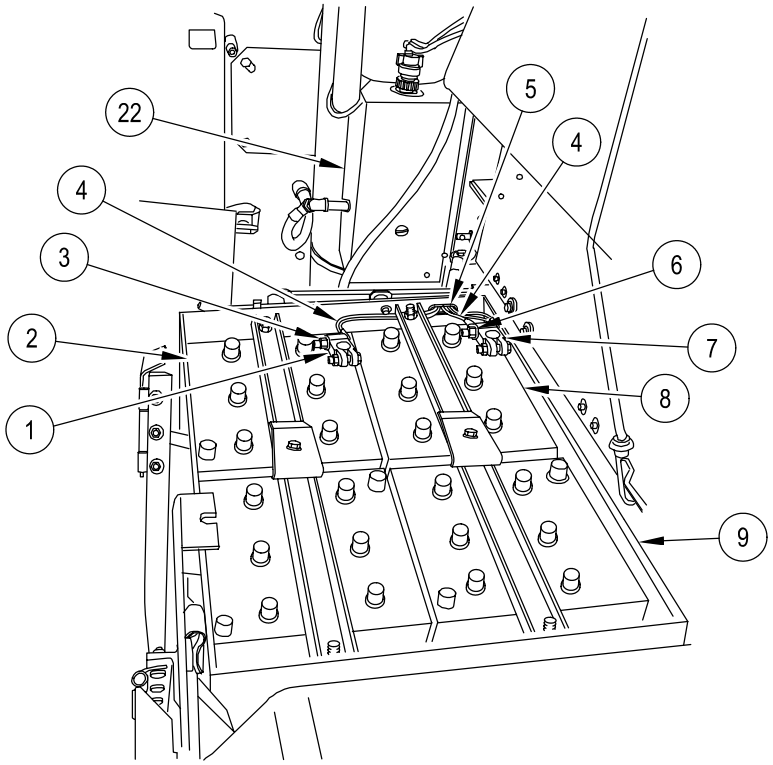
CAUTION

To avoid damage to power distribution assembly (PDA), do not connect cable 4W6 to PDA prior to installation of terminal lugs on battery terminals.

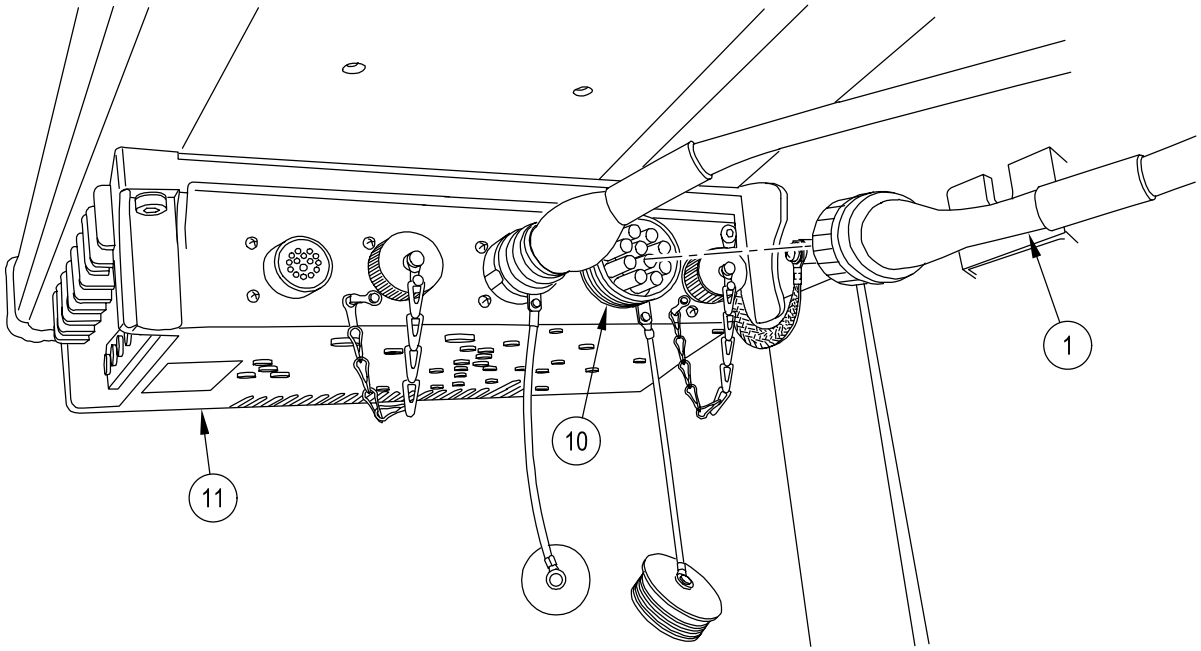
13. Remove battery terminals from battery posts before installation of cable 4W6 (4).
14. Install terminal lug (7) of cable 4W6 (4) and nut (6) on positive terminal of battery (8).
15. Install terminal lug (1) of cable 4W6 (4) and nut (3) on negative terminal of battery (2).
16. Install battery terminals on battery posts.

REPAIR/REPLACE MORTAR FIRE CONTROL SYSTEM (MFCS) CABLES (M577A3 ONLY) — Continued **0812 07**

17. Stow extra length of cable 4W6 (4) in battery box (9).



18. Connect P1 connector of cable 4W6 (1) to J4 connector (10) on PDA (11).



REPAIR/REPLACE MORTAR FIRE CONTROL SYSTEM (MFCS) CABLES (M577A3 ONLY) — Continued **0812 07**

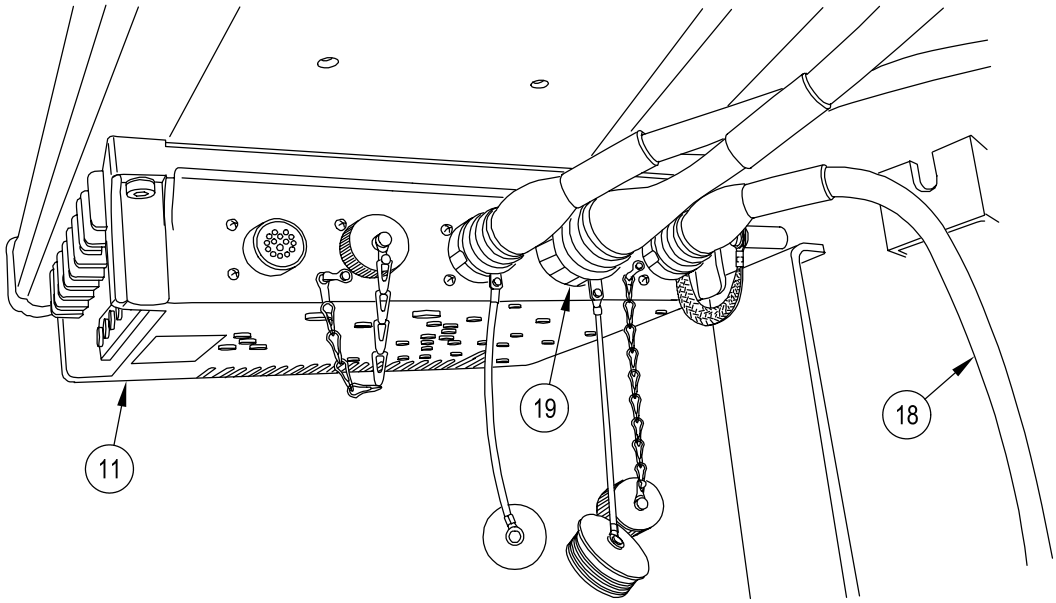
CAUTION

To prevent damage to equipment, ensure power is turned off at power distribution assembly (PDA) before connection of cable.

NOTE

Steps 19 - 20 apply to cable 34W4 for VAC power usage.

19. Connect P2 connector of cable 34W4 (18) to J5 connector (19) of PDA (11) and stow cable.
20. Connect cable 34W4 (18) to 120 VAC power source when AC use is desired.



FOLLOW THROUGH STEPS

1. Connect battery ground lead (WP 0338 00).

END OF TASK

REPAIR/REPLACE PRECISION LIGHTWEIGHT GPS RECEIVER (PLGR) AND BRACKET (MFCS) (M1064A3 ONLY)

0812 08

THIS WORK PACKAGE COVERS:

Removal (page 0812 08-1).
Repair (page 0812 08-2).
Installation (page 0812 08-3).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

Electronic Equipment Tool Kit (WP 0926 00, Item 66)
Shop Set, Small Arms (WP 0926 00, Item 46.1)

Materials/Parts

Self-locking nut (5)

Personnel Required

Unit Mechanic

References

TM 11-5825-291-13
TM 9-1220-248-23&P
TM 9-2350-277-24P
WP 0349 00

Equipment Condition

Batteries removed from left side battery tray (WP 0349 00)

REMOVAL

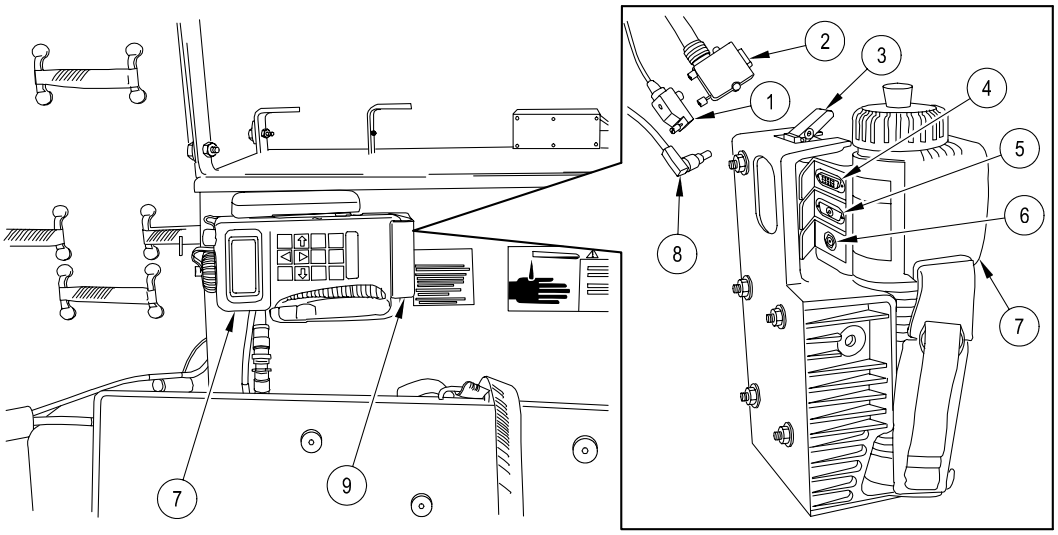
CAUTION

To prevent damage to equipment, ensure power is turned off at power distribution assembly (PDA) before components are removed.

CAUTION

To prevent damage to equipment, turn power switches on components to OFF before removal.

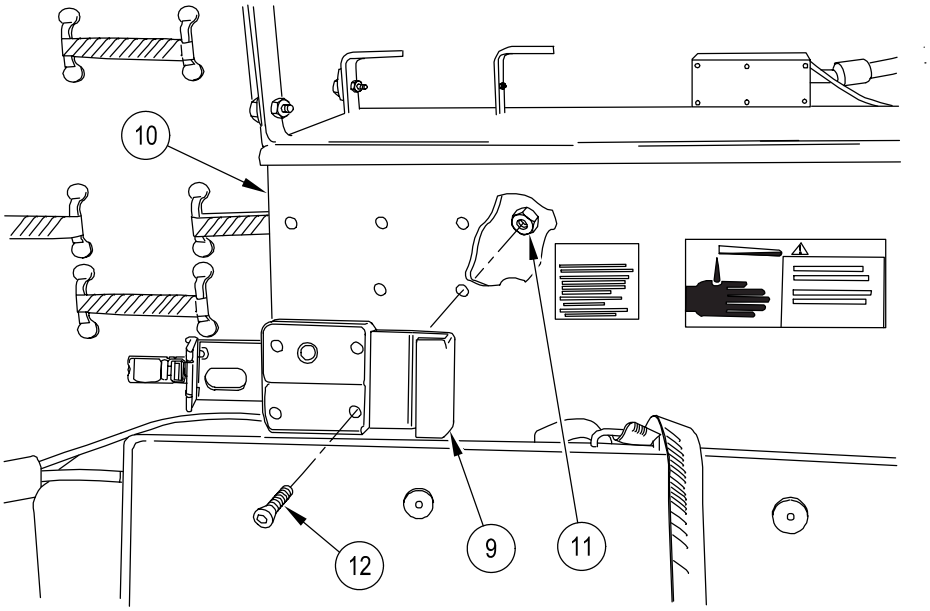
1. Lift and detach locking clamp (3) from rear of PLGR (7).
2. Remove PLGR (7) from plastic bracket (9).
3. Disconnect power cable (8) from bottom connector J4 (6) on rear of PLGR (7).
4. Disconnect antenna cable (1) from middle connector (5) on rear of PLGR (7).
5. Disconnect data cable (2) from top connector J2 (4) on rear of PLGR (7)



REPAIR/REPLACE PRECISION LIGHTWEIGHT GPS RECEIVER (PLGR) AND BRACKET (MFCS) (M1064A3 ONLY) — Continued

0812 08

6. Open battery box (10).
7. Remove five self-locking nuts (11), socket head capscrews (12), and plastic bracket (9) from battery box (10). Discard self-locking nuts.



REPAIR

1. Replace defective parts as authorized by TM 9-1220-248-23&P, TM 9-2350-277-24P, and TM 11-5825-291-13.

INSTALLATION

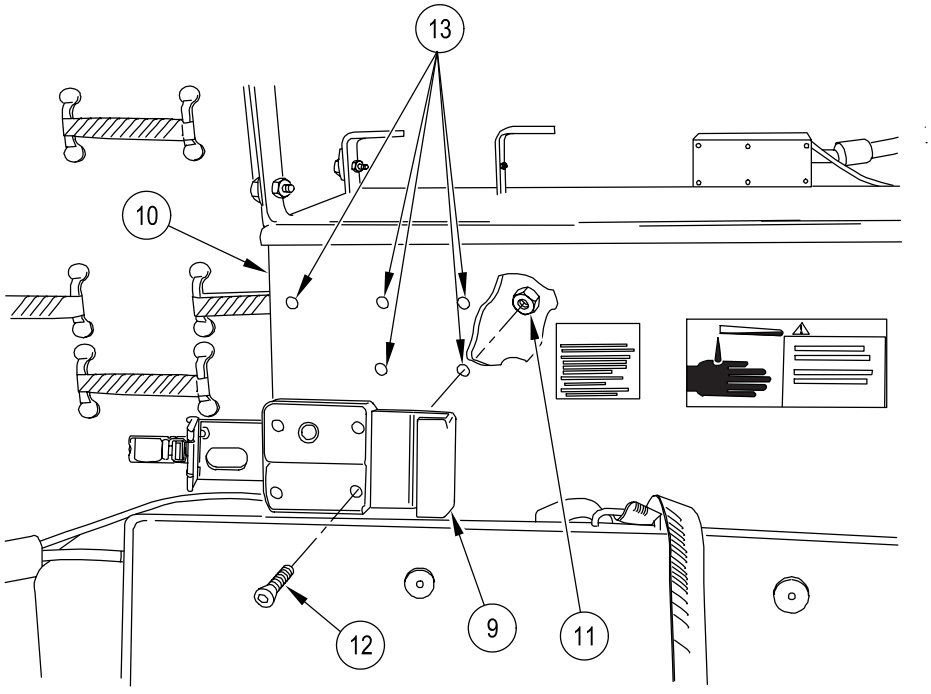
NOTE

If PLGR bracket is being installed in vehicle for the first time, go to Step 1. If PLGR bracket is being installed in previously-modified vehicle, go to Step 4.

NOTE

The preferred mount is a horizontal mount in upper left corner of battery box. If more appropriate, a vertical mount can be used.

1. Position plastic bracket (9) on battery box (10) so that single hole is approximately 4.0 in. (10.2 cm) from top of battery door and approximately 2.0 in. (5.1 cm) from left edge of battery door. Using plastic bracket as a template, mark locations for five holes (13). Remove bracket.
2. Using drill and 1/4 in. (0.64 cm) drill bit, drill five through holes (13) in battery box (10).
3. Install vehicle batteries into battery compartment (WP 0349 00).
4. Install plastic bracket (9), five socket head capscrews (12), and new self-locking nuts (11) on battery box (10).



REPAIR/REPLACE PRECISION LIGHTWEIGHT GPS RECEIVER (PLGR) AND BRACKET (MFCS) (M1064A3 ONLY) — Continued **0812 08**

CAUTION

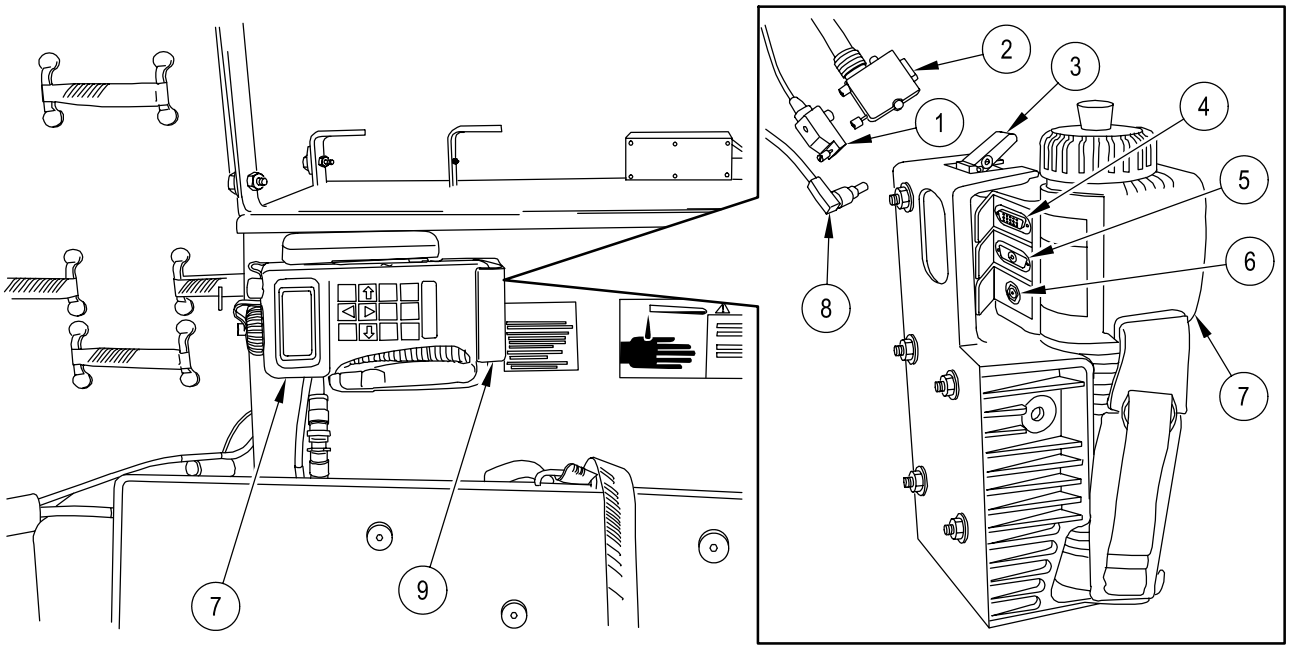
To prevent damage to equipment, ensure power is turned off at power distribution assembly (PDA) before connection of cable.

CAUTION

To avoid damage to PLGR, ensure all connections are hand-tight.

To avoid damage to PLGR, ensure that BA-5800 battery is removed from PLGR before connection to external power source.

5. Attach data cable (2) to top connector (4) on rear of PLGR (7).
6. Attach antenna cable (1) to middle connector (5) on rear of PLGR (7).
7. Attach power cable (8) to bottom connector (6) on rear of PLGR (7).
8. Position PLGR (7) in plastic bracket (9).
9. Position locking clamp (3) over edge of PLGR (7) and press locking clamp to secure.



END OF TASK

REPAIR/REPLACE PRECISION LIGHTWEIGHT GPS RECEIVER (PLGR) ANTENNA AND ANTENNA BRACKET (MFCS) (M1064A3 ONLY) 0812 09

THIS WORK PACKAGE COVERS:

Removal (page 0812 09-1).
Repair (page 0812 09-2).
Installation (page 0812 09-2).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

Shop Set, Small Arms (WP 0926 00, Item 46.1)

Materials/Parts

Sealing compound (WP 0928 00, Item 56.1)
Gasket (2)

Personnel Required

Unit Mechanic

References

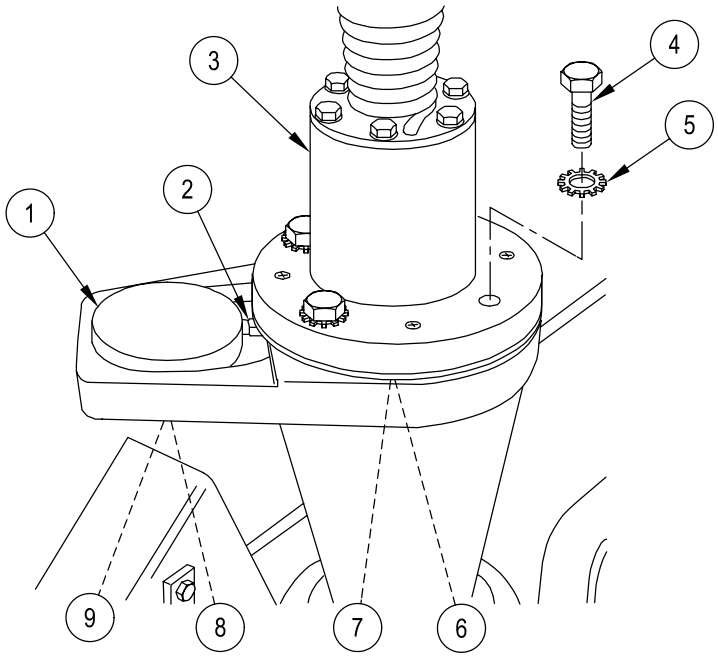
TM 11-5825-291-13
TM 9-1220-248-23&P
TM 11-5820-890-20P-1
TM 9-2350-277-24P
WP 0349 00

Equipment Condition

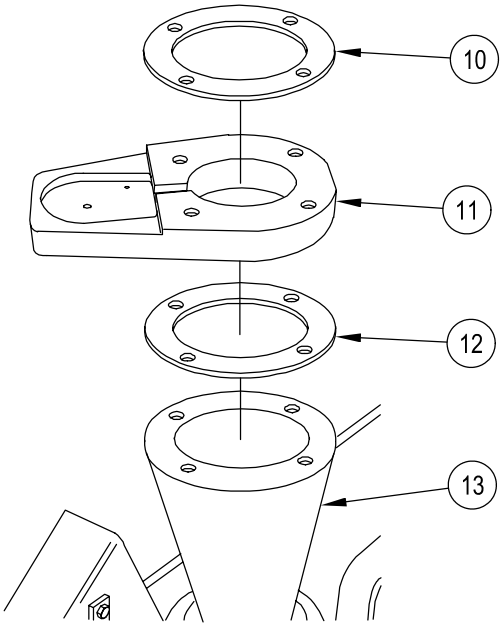
MASTER SWITCH OFF (see your -10)
SINCGARS radio OFF (TM 11-5820-890-10-7)
SINCGARS radio antenna removed from vehicle (TM 11-5820-890-20-1)

REMOVAL

1. If present, remove hex head screw (9) and lockwasher (8) from PLGR antenna (1).
2. Disconnect PLGR antenna (1) from PLGR antenna cable (2) and remove PLGR antenna.
3. Remove four hexagon head screws (4) and star washers (5) from vehicle antenna base (3).
4. Lift vehicle antenna base (3). Disconnect PLGR antenna cable (2) from vehicle antenna cable (7). Disconnect antenna ground wire (6).
5. Remove vehicle antenna base (3).



6. Remove gasket (10), PLGR antenna bracket (11), and gasket (12) from bracket support (13). Discard gaskets.



REPAIR

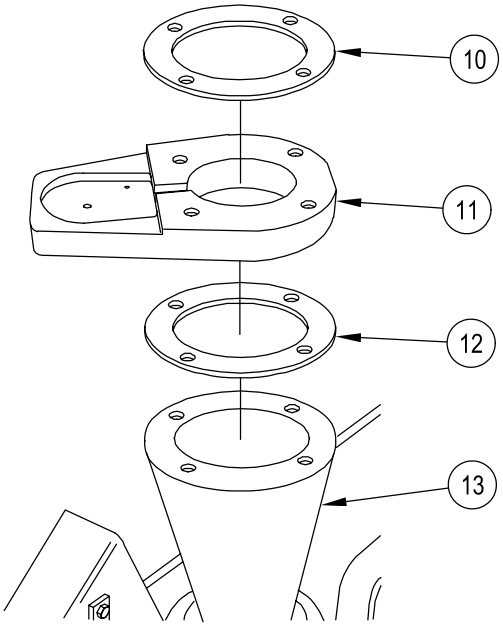
1. Replace defective parts as authorized by TM 11-5820-890-20P-1, TM 9-1220-248-23&P, TM 9-2350-277-24P, and TM 11-5825-291-13.

INSTALLATION

NOTE

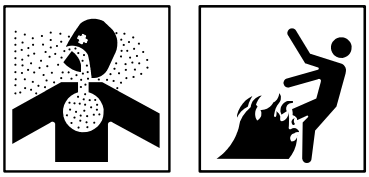
Place PLGR antenna bracket in position that does not interfere with driver's hatch.

1. Install new gasket (10), PLGR antenna bracket (11), and new gasket (12) on bracket support (13).



2. Lift vehicle antenna base (3) into position. Connect PLGR antenna cable (2) to vehicle antenna cable (7). Connect antenna ground wire (6).

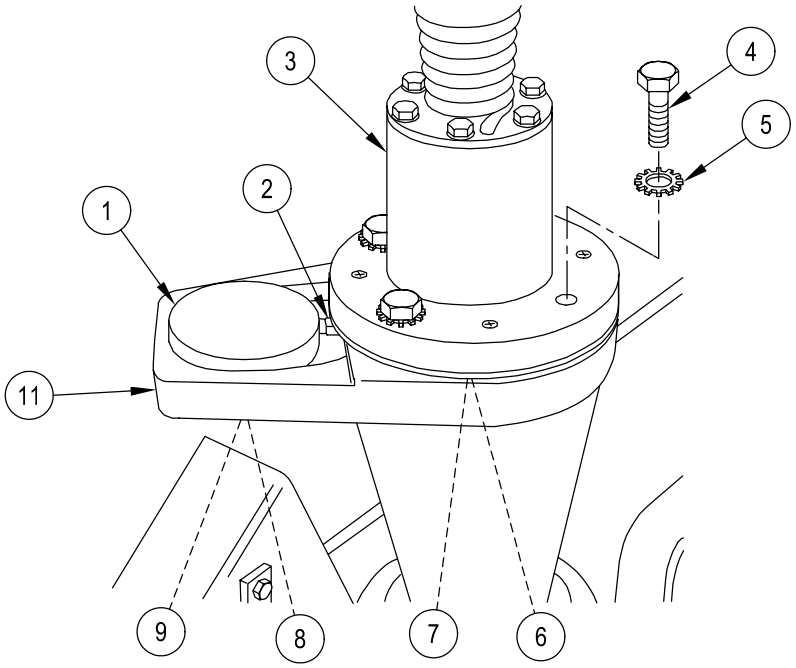
WARNING



Adhesive, primer, sealant compounds, and isopropyl alcohol are toxic and flammable. These compounds are toxic to eyes, skin, and respiratory tract. Continued exposure can make you dizzy and irritate your eyes and throat.

Always use in well ventilated areas, away from heat, sparks, and flames. Do not breathe fumes. Do not allow into contact with skin and eyes. Use goggles or face shield and protective gloves.

3. Apply sealing compound to threads of four hexagon head screws (4).
4. Install vehicle antenna base (3) using four star washers (5) and hexagon head screws (4).
5. Install PLGR antenna (1) into PLGR antenna bracket (11) and connect PLGR antenna cable (2).
6. If present, install lockwasher (8) and hex head screw (9) to PLGR antenna (1).



FOLLOW-THROUGH STEPS

1. Install SINCGARS radio antenna. See TM 11-5820-890-20-1.

END OF TASK

REPAIR/REPLACE DRIVER'S DISPLAY ASSEMBLY (MFCS) (M1064A3 ONLY) 0812 10

THIS WORK PACKAGE COVERS:

Removal (page 0812 10-1).
Disassembly (page 0812 10-2).
Repair (page 0812 10-3).
Assembly (page 0812 10-4).
Installation (page 0812 10-6).

INITIAL SETUP:

Maintenance Level
Unit

Personnel Required
Unit Mechanic

Tools and Special Tools
Electronic Equipment Tool Kit (WP 0926 00, Item 66)
Shop Set, Small Arms (WP 0926 00, Item 46.1)

References
TM 9-1220-248-23&P
TM 9-2350-277-24P

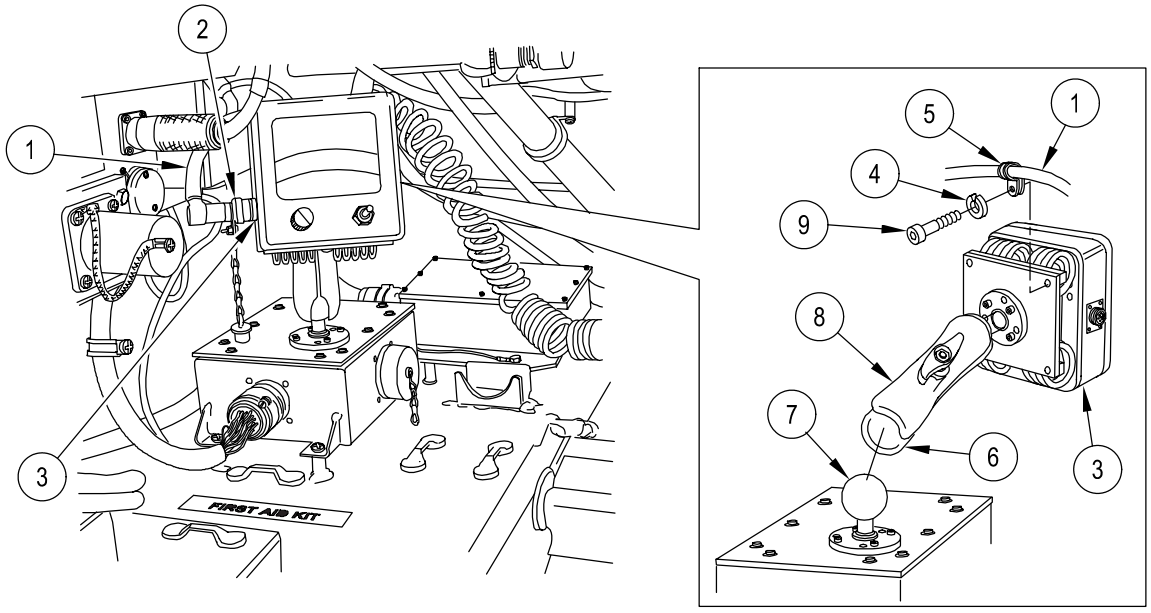
Materials/Parts
Gasket
Lockwasher (12) (See TM 9-1220-248-23&P)
Self-locking nut (4)

REMOVAL

CAUTION

To prevent damage to equipment, ensure power is removed from system before driver's display (DD) is removed.

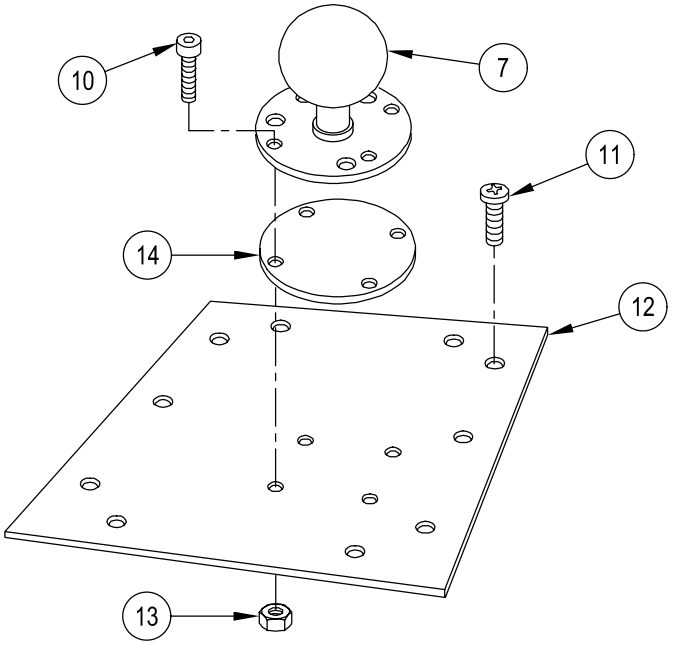
1. Disconnect power/data cable 3W17 (1) from J1 connector (2) on driver's display (DD) (3).
2. Remove socket head capscrew (9), lockwasher (4), and loop clamp (5) to free power/data cable 3W17 (1). Replace hardware on driver's display (3).
3. Loosen locking handle (8) on ram arm (6). Remove DD (3) with ram arm from ball (7).



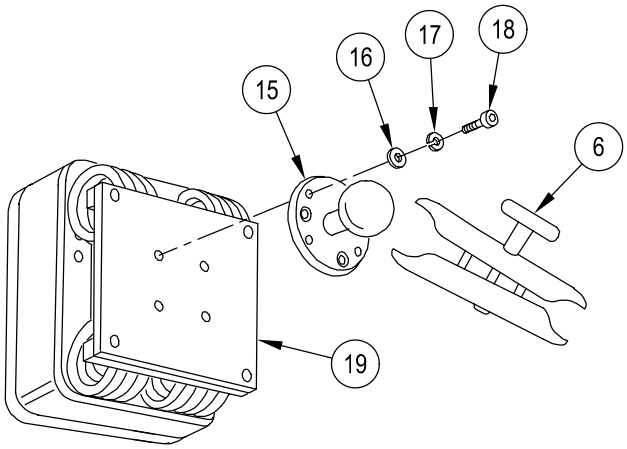
REPAIR/REPLACE DRIVER'S DISPLAY ASSEMBLY (MFCS) (M1064A3 ONLY) — Continued **0812 10**

DISASSEMBLY

1. Remove 10 screws (11) and electrical box lid (12).
2. Remove four self-locking nuts (13), socket head screws (10), gasket (14), and ball (7) from electrical box lid (12). Discard self-locking nuts and gasket.



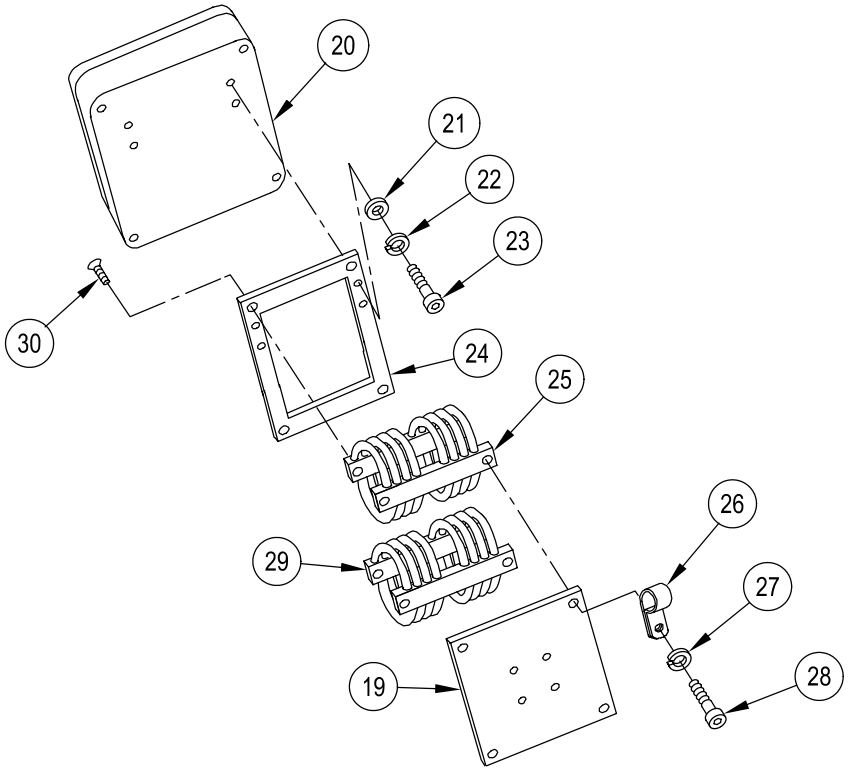
3. Remove ram arm (6) from ball (15).
4. Remove four socket head capscrews (18), lockwashers (17), flat washers (16), and ball (15) from back plate (19). Discard lockwashers.



REPAIR/REPLACE DRIVER'S DISPLAY ASSEMBLY (MFCS) (M1064A3 ONLY) — Continued

0812 10

5. Remove four socket head capscrews (28), lockwashers (27), one loop clamp (26), and two isolators (29) from back plate (19). Discard lockwashers.
6. Remove four socket head capscrews (23), lockwashers (22), flat washers (21), and front plate (24) from DD (20). Discard lockwashers.
7. Remove four flat head screws (30) and two isolators (25) from front plate (24).



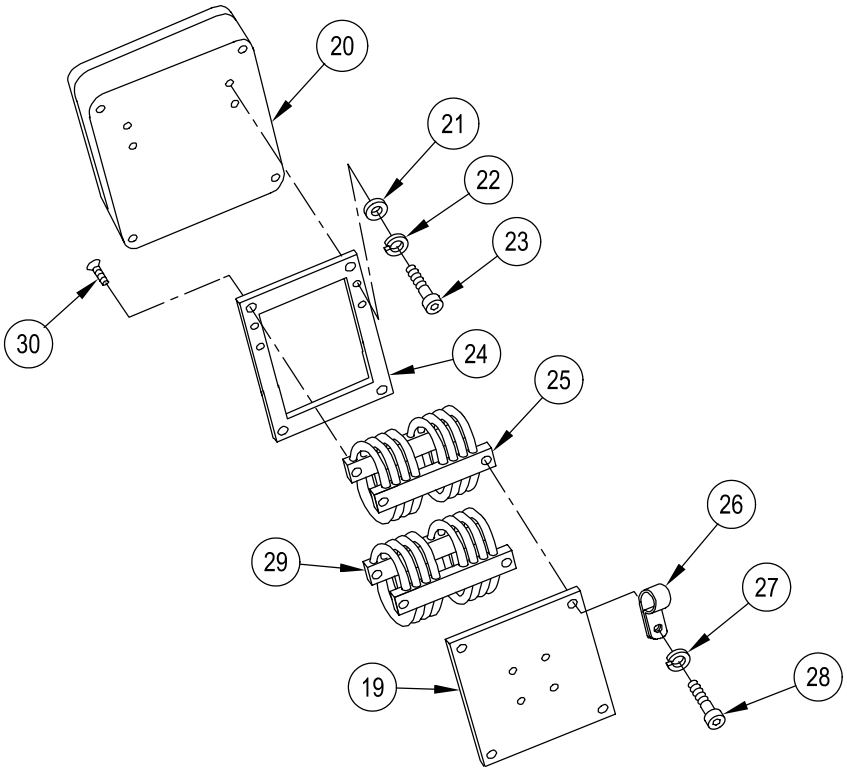
REPAIR

1. Replace defective parts as authorized by TM 9-1220-248-23&P and TM 9-2350-277-24P.

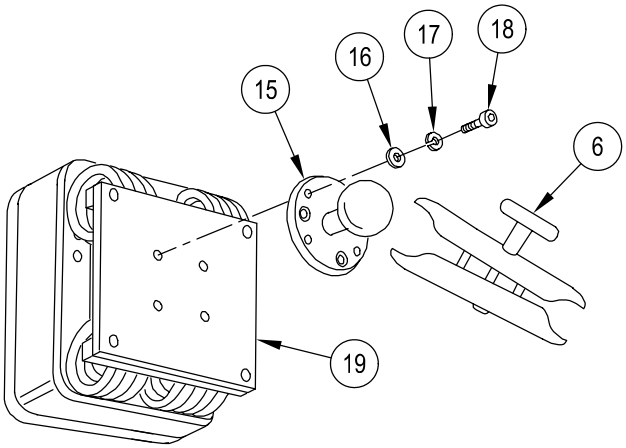
REPAIR/REPLACE DRIVER'S DISPLAY ASSEMBLY (MFCS) (M1064A3 ONLY) — Continued **0812 10**

ASSEMBLY

1. Install two isolators (25) and four flat head screws (30) on front plate (24).
2. Install front plate (24), four flat washers (21), new lockwashers (22), and socket head capscrews (23) on DD (20).
3. Install back plate (19), one loop clamp (26), four new lockwashers (27), and socket head capscrews (28) on two isolators (29).



4. Install ball (15), four flat washers (16), new lockwashers (17), and socket head capscrews (18) on back plate (19).
5. Install ram arm (6) on ball (15).



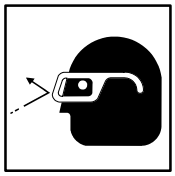
6. Remove 10 screws (11) and electrical box lid (12) in driver's compartment.

NOTE

If driver's display bracket is being installed in vehicle for the first time, proceed with Step 7. If driver's display bracket is being installed in previously-modified vehicle, go to Step 9.

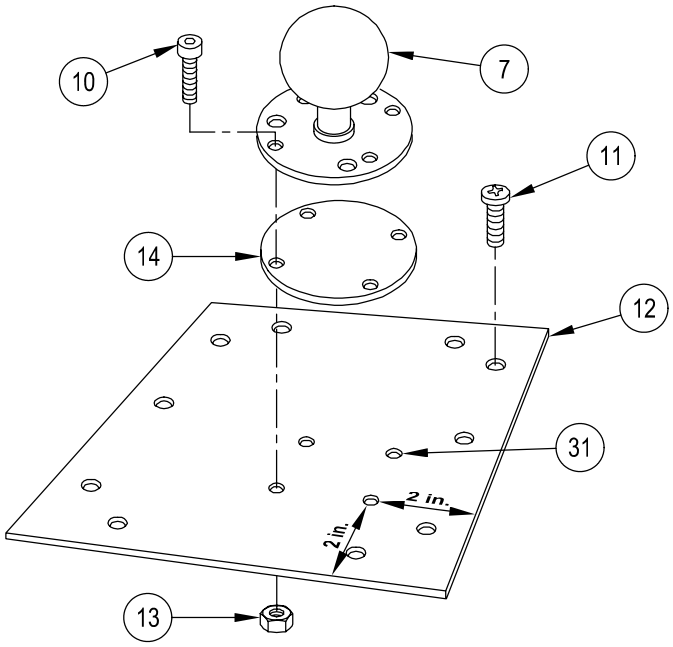
7. Position ball (7) near corner of electrical box lid (12) approximately 2 in. (5.1 cm) from each side. Using ball as a template, mark position for four holes (31). Remove ball.

WARNING



Metal chips and grinding dust can cause eye injury. Wear goggles and gloves.

8. Using drill and 1/4 in. (0.64 cm) drill bit, drill four through holes (31) in electrical box lid (12).
9. Position ball (7) and new gasket (14) on electrical box lid (12) and align holes.
10. Install four socket head screws (10) and new self-locking nuts (13).
11. Install electrical box lid (12) and 10 screws (11).



REPAIR/REPLACE DRIVER'S DISPLAY ASSEMBLY (MFCS) (M1064A3 ONLY) — Continued **0812 10**

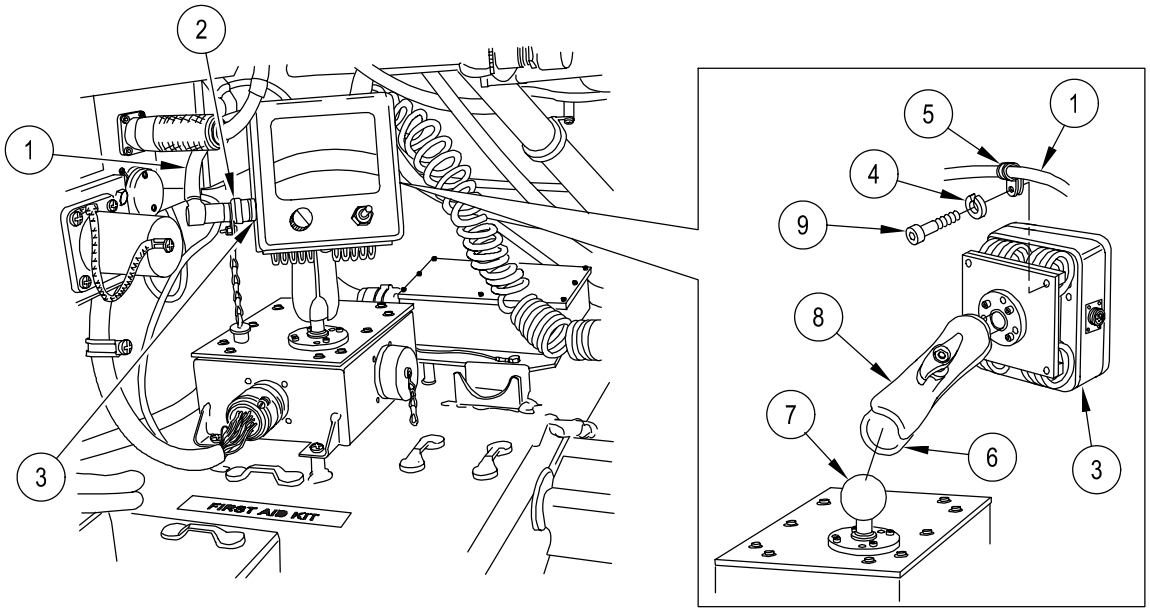
INSTALLATION

1. Install ram arm (6) with DD (3) on ball (7). Tighten locking handle (8).
2. Remove socket head capscrew (9), lockwasher (4), and loop clamp (5) from DD (3). Place loop clamp around power/data cable 3W17 (1) and secure to DD (3) with lockwasher and socket head capscrew.

CAUTION

To prevent damage to equipment, ensure power is removed from system before connecting cable to driver's display (DD).

3. Connect power/data cable 3W17 (1) to J1 connector (2) on DD (3).



END OF TASK

REPAIR/REPLACE DRIVER'S DISPLAY EXTERIOR MOUNTING BALL (MFCS) (M1064A3 ONLY) 0812 11

THIS WORK PACKAGE COVERS:

Removal (page 0812 11-1).
Repair (page 0812 11-1).
Installation (page 0812 11-2).

INITIAL SETUP:

Maintenance Level
Unit

Personnel Required
Unit Mechanic

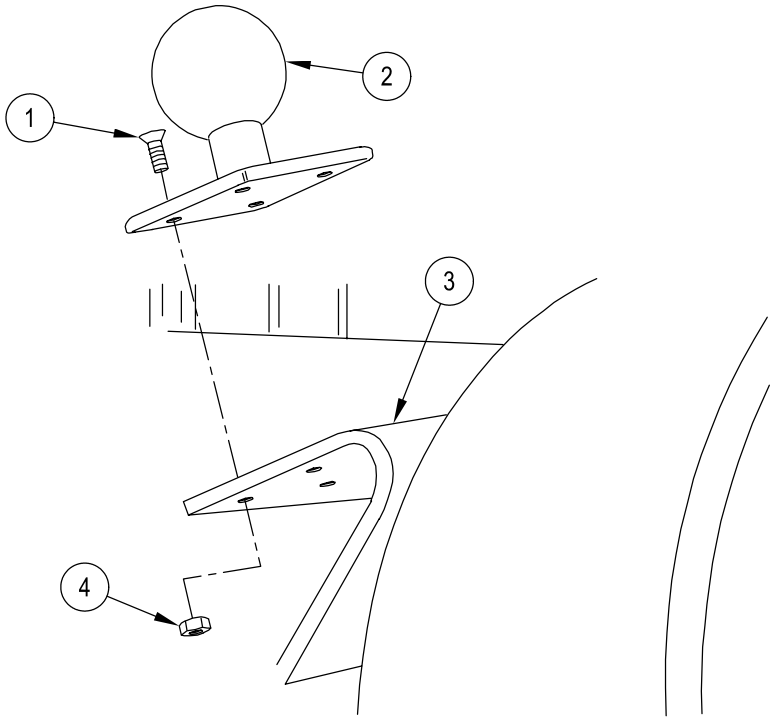
Tools and Special Tools
Electronic Equipment Tool Kit (WP 0926 00, Item 66)
Shop Set, Small Arms (WP 0926 00, Item 46.1)

References
TM 9-1220-248-23&P
TM 9-2350-277-24P

Materials/Parts
Self-locking nut (4)

REMOVAL

1. Remove four self-locking nuts (4) and countersunk screws (1) from mounting ball (2). Discard self-locking nuts.
2. Remove mounting ball (2) from angle bracket (3) on hull.



REPAIR

1. Replace defective parts as authorized by TM 9-1220-248-23&P and TM 9-2350-277-24P.

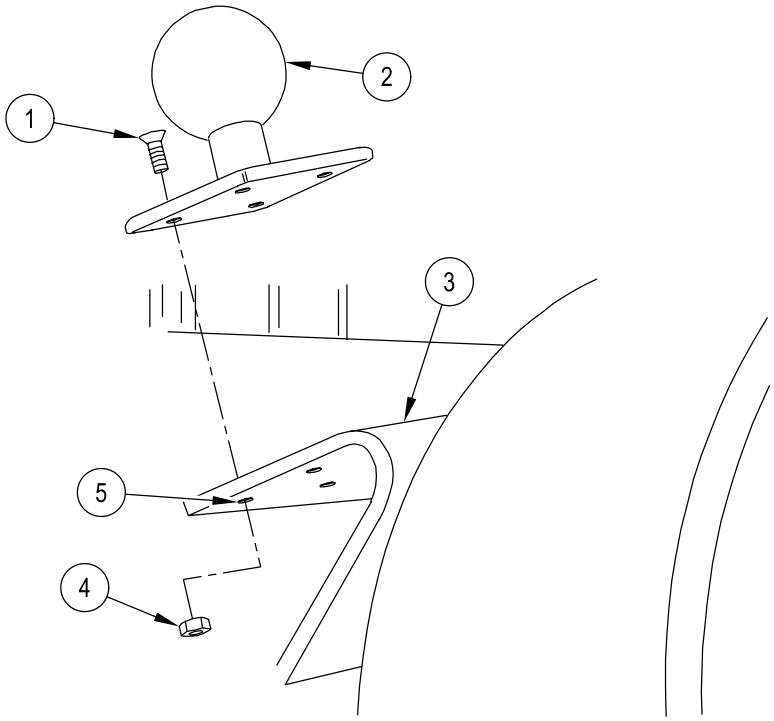
REPAIR/REPLACE DRIVER'S DISPLAY EXTERIOR MOUNTING BALL (MFCS) (M1064A3 ONLY) — Continued **0812 11**

INSTALLATION

NOTE

If exterior mounting ball is being installed on the vehicle for the first time, proceed to Step 1. If exterior mounting ball is being installed in previously-modified vehicle, go to Step 5.

1. On outside of vehicle, locate front driver's side lamps. Locate angle bracket (3) behind blackout light.
2. Position mounting ball (2) on angle bracket (1) near center of bracket.
3. Using mounting ball (2) as a template, mark position for four holes (5). Remove mounting ball.
4. Using drill and 1/4 in. (0.64 cm) drill bit, drill four through holes (5) in flat portion of angle bracket (3). Remove any sharp edges after drilling.
5. Install mounting ball (2) on angle bracket (3) on hull.
6. Install four countersunk screws (1) and new self-locking nuts (4) on mounting ball (2).



END OF TASK

REPAIR/REPLACE VEHICLE MOTION SENSOR ASSEMBLY (MFCS) (M1064A3 ONLY) 0812 12

THIS WORK PACKAGE COVERS:

Removal (page 0812 12-1).
Repair (page 0812 12-2).
Installation (page 0812 12-3).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

Electronic Equipment Tool Kit (WP 0926 00, Item 66)
Shop Set, Small Arms (WP 0926 00, Item 46.1)
Socket Wrench Handle (WP 0926 00, Item 24.1)
Socket Wrench Set (WP 0926 00, Item 71)

Materials/Parts

Aircraft grease (WP 0928 00, Item 9.1)
Self-locking nut (4)

Personnel Required

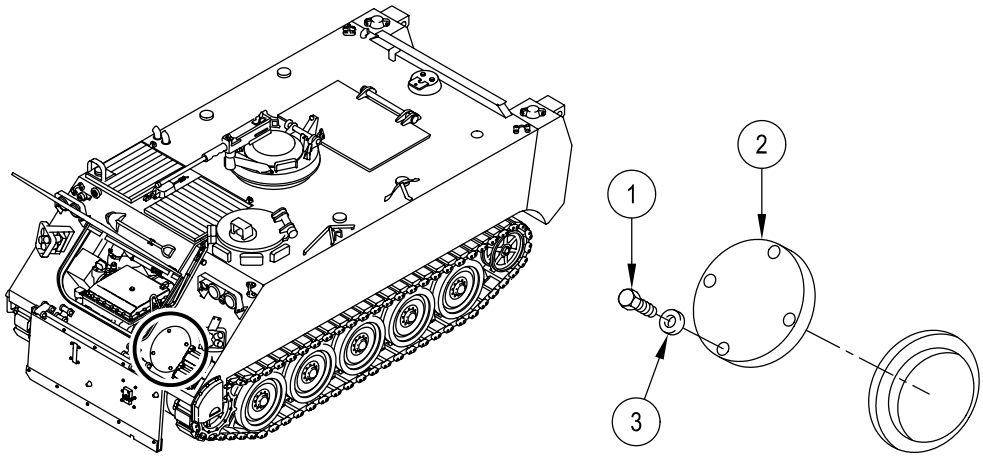
Unit Mechanic
Helper

References

TM 9-1220-248-23&P
TM 9-2350-277-24P

REMOVAL

1. To gain access to mounting hardware, remove four screws (1), washers (3), and front access cover (2) from hull. Use socket wrench handle and 3/4 inch socket.

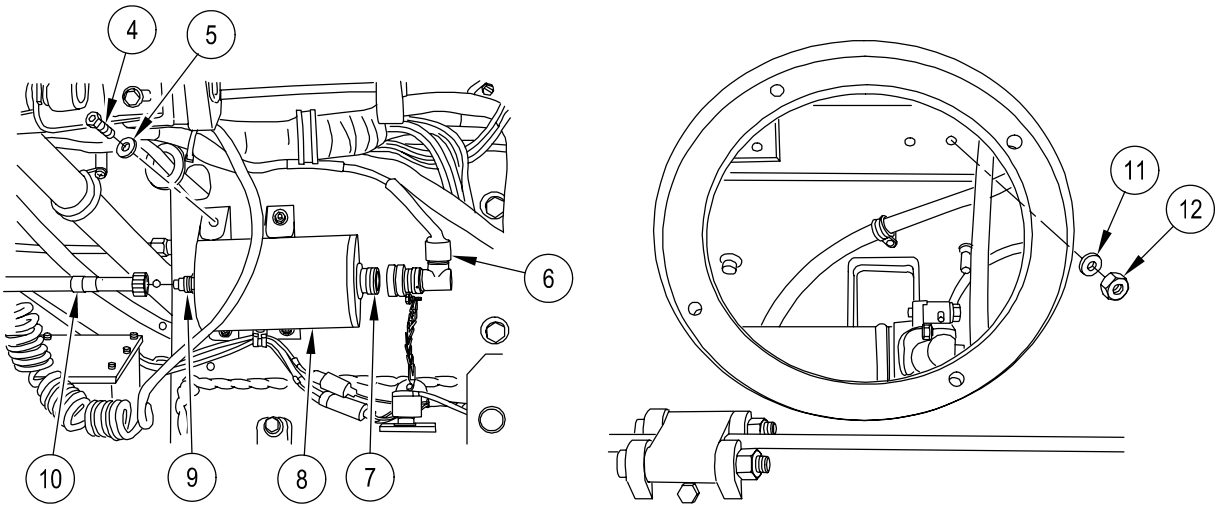


REPAIR/REPLACE VEHICLE MOTION SENSOR ASSEMBLY (MFCS) (M1064A3 ONLY) — Continued **0812 12**

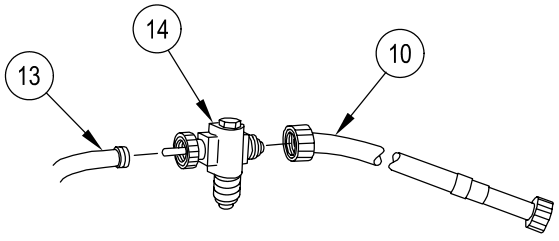
CAUTION

To prevent damage to equipment, ensure power is removed from system before vehicle motion sensor (VMS) is removed.

2. Disconnect power/data cable 3W17 (6) from J1 connector (7) on vehicle motion sensor (VMS) (8).
3. Disconnect mechanical odometer cable (10) from connector (9).
4. Remove four self-locking nuts (12), flat washers (11), socket head capscrews (4), flat washers (5), and VMS (8) from vehicle. Have helper assist. Discard self-locking nuts.



5. If damaged, disconnect mechanical odometer cable (10) and remove from odometer coupler (14).
6. If damaged, remove coupler (14) from odometer cable (13).



REPAIR

1. Replace defective parts as authorized by TM 9-1220-248-23&P and TM 9-2350-277-24P.

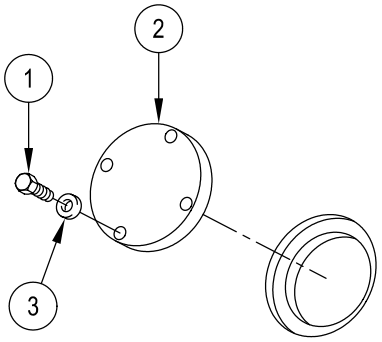
REPAIR/REPLACE VEHICLE MOTION SENSOR ASSEMBLY (MFCS) (M1064A3 ONLY) — Continued **0812 12**

INSTALLATION

NOTE

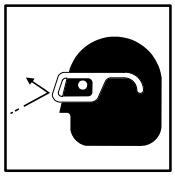
If VMS is being installed in vehicle for the first time, proceed to Step 1. If VMS is being installed in previously-modified vehicle, go to Step 5.

1. Choose location on driver's bulkhead.
2. Remove four screws (1), washers (3) , and front access cover (2) from hull. Use socket wrench handle and 3/4 inch socket.



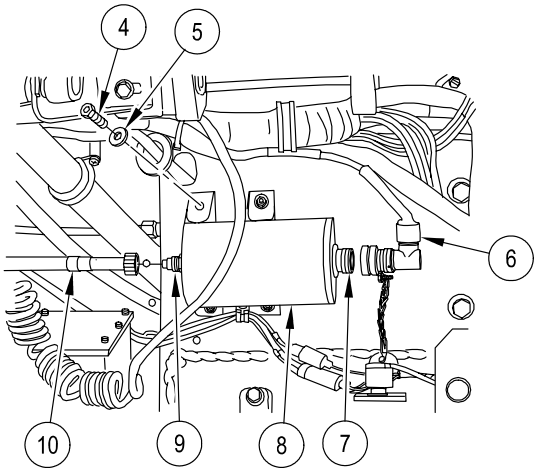
3. Place VMS (8) at desired position and mark locations of four holes (15).

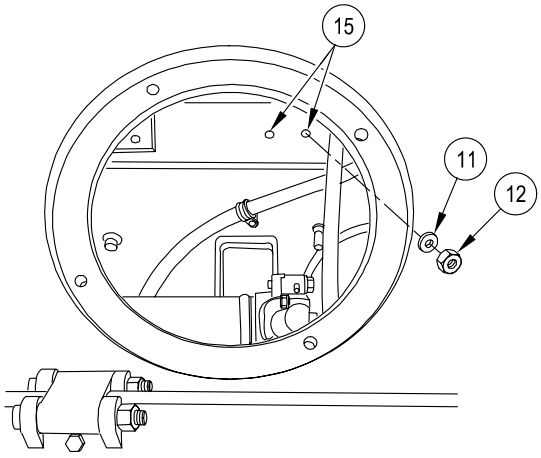
WARNING



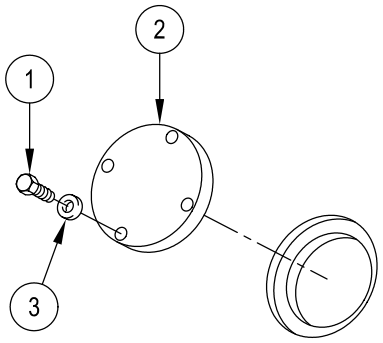
Metal chips and grinding dust can cause eye injury. Wear goggles and gloves.

4. Using drill and 1/4 in. (0.64 cm) drill bit, drill four through holes (15).
5. Install VMS (8), four socket head capscrews (4), flat washers (5), flat washers (11), and new self-locking nuts (12) on vehicle. Have helper assist.

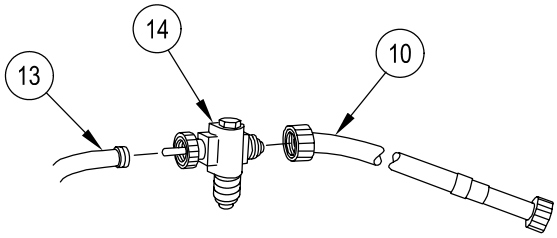




6. Install front access cover (2) and secure with four screws (1) and washers (3). Use socket wrench handle and 3/4” socket.



7. If removed, install coupler (14) on odometer cable (13).
8. If removed, install mechanical odometer cable (10) to coupler (14).

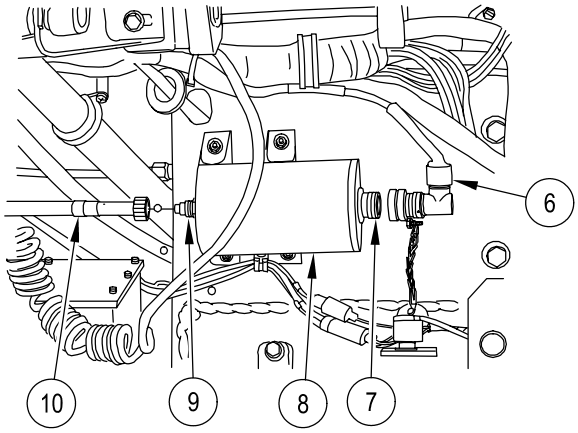


9. Connect mechanical odometer cable (10) to connector (9).

CAUTION

To prevent damage to equipment, ensure power is removed from system before power/data cable is connected.

10. Connect power/data cable 3W17 (6) to J1 connector (7) on VMS (8).



END OF TASK

REPAIR/REPLACE TRAVEL LOCK ADAPTER (MFCS) (M1064A3 ONLY) 0812 13

THIS WORK PACKAGE COVERS:

Removal (page 0812 13-1).
Repair (page 0812 13-2).
Installation (page 0812 13-2).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

Shop Set, Small Arms (WP 0926 00, Item 46.1)

Materials/Parts

Nonelectrical wire (WP 0928 00, Item 42.1)

Self-locking nut (4)

Personnel Required

Unit Mechanic

References

TM 9-1220-248-23&P
WP 0812 01

Equipment Condition

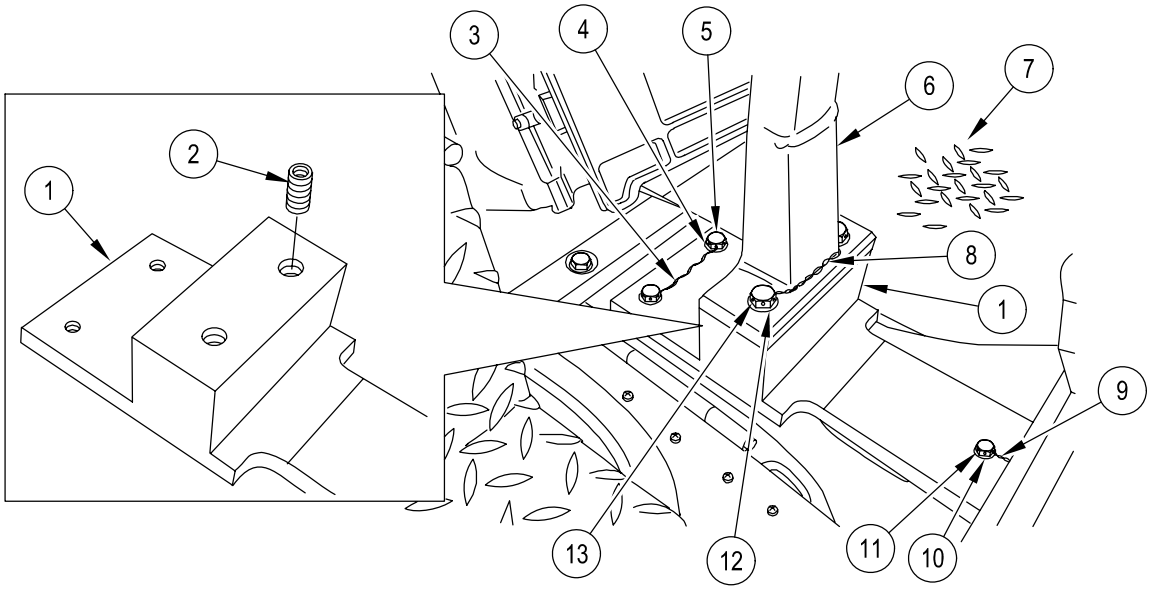
Cannon removed from vehicle (TM 9-1220-248-23&P)

Bipod assembly removed from vehicle (TM 9-1015-250-10)

Bipod support removed from vehicle (TM 9-1015-232-23&P)

REMOVAL

1. Cut and remove nonelectrical wire (8). Remove two hexagon head capscrews (13) and flat washers (12) from travel lock (6). Remove travel lock from travel lock adapter (1). Discard nonelectrical wire.
2. Cut and remove nonelectrical wire (3). Remove two hexagon head capscrews (5) and flat washers (4) from travel lock adapter (1). Discard nonelectrical wire.
3. Cut and remove nonelectrical wire (9). Remove two hexagon head capscrews (11) and flat washers (10) from travel lock adapter (1). Discard nonelectrical wire.
4. If damaged, remove two helical coil inserts (2) (WP 0812 01).
5. Remove travel lock adapter (1) from center beam of turntable (7).



REPAIR

1. Replace defective parts as authorized by TM 9-1220-248-23&P.

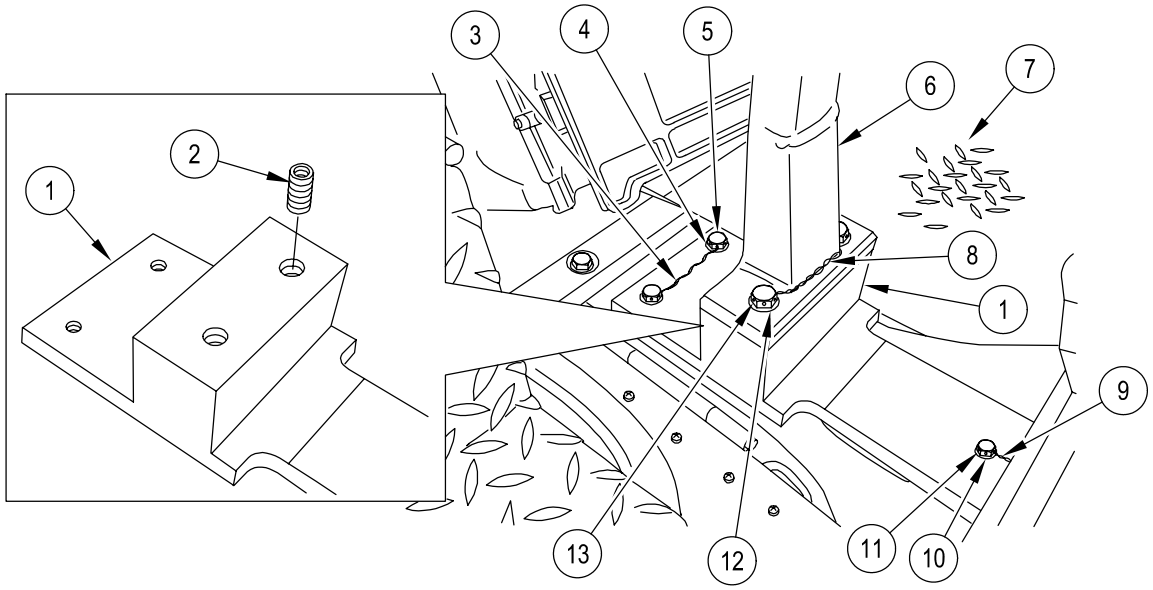
INSTALLATION

1. If removed, install two new helical coil inserts (2) (WP 0812 01).

CAUTION

Pitch of hexagon head capscrews is different. To prevent damage to equipment, ensure capscrews are matched correctly with turntable holes.

2. Align travel lock adapter (1) with holes in center beam of turntable (7).
3. Install two flat washers (10) and hexagon head capscrews (11) to travel lock adapter (1).
4. Install two flat washers (4) and hexagon head capscrews (5) to travel lock adapter (1).
5. Align travel lock (6) with holes in travel lock adapter (1) and secure with two flat washers (12) and hexagon head capscrews (13).
6. Install new nonelectrical wires (8), (3), and (9).



END OF TASK

REPAIR/REPLACE MORTAR FIRE CONTROL SYSTEM CABLES (MFCS) (M1064A3 ONLY) 0812 14

THIS WORK PACKAGE COVERS:

Removal (page 0812 14-1).
Repair (page 0812 14-13).
Installation (page 0812 14-14).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
Electronic Equipment Tool Kit (WP 0926 00, Item 66)
Shop Set, Small Arms (WP 0926 00, Item 46.1)

Materials/Parts
Loop clamp (AR) (WP 0928 00, Item 14.5)
Loop clamp (AR) (WP 0928 00, Item 14.1)
Loop clamp (AR) (WP 0928 00, Item 14.2)
Loop clamp (AR) (WP 0928 00, Item 14.4)
Loop clamp (AR) (WP 0928 00, Item 14.3)
Tie strap (AR) (WP 0928 00, Item 61.2)
Tie strap (AR) (WP 0928 00, Item 61.1)

Materials/Parts
Tie strap (AR) (WP 0928 00, Item 61.3)
Lockwasher (2)
Self-locking nut (2)

Personnel Required
Unit Mechanic

References
TM 9-1015-232-23&P
TM 9-1220-248-10
TM 11-5820-890-10-7
TM 9-1220-248-23&P
WP 0197 00
WP 0543 00

Equipment Condition
MASTER SWITCH OFF (see your -10)

REMOVAL

CAUTION

To prevent damage to equipment, ensure power is turned off at power distribution assembly (PDA) before disconnection of battery cable.

NOTE

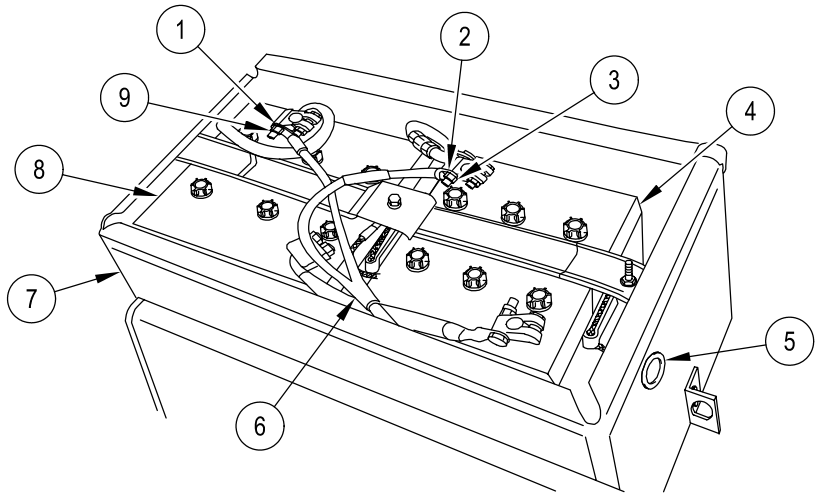
Refer to TM 9-1220-248-23&P for wiring diagram.

REPAIR/REPLACE MORTAR FIRE CONTROL SYSTEM CABLES (MFCS) (M1064A3 ONLY) — Continued **0812 14**

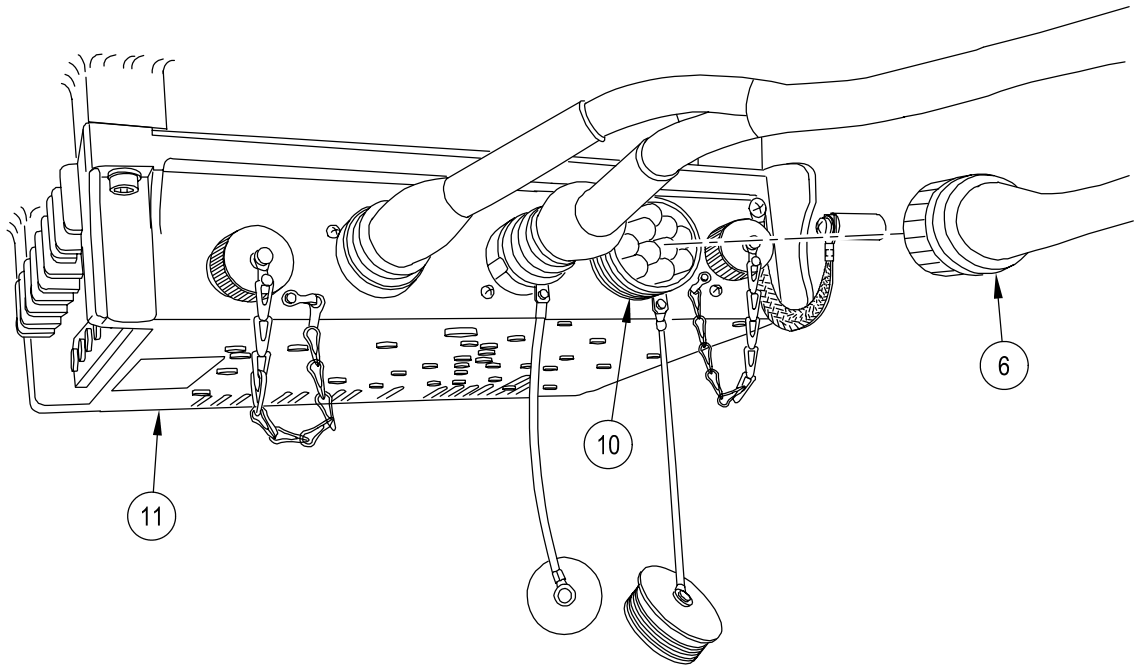
NOTE

Steps 1 - 7 apply to cable 3W6, power connection cable to vehicle batteries.

1. Remove battery terminals from battery posts before removal of cable 3W6 (6).
2. Remove nut (3) and terminal lug (2) of cable 3W6 (6) from negative terminal of battery (4).
3. Remove nut (9) and terminal lug (1) of cable 3W6 (6) from positive terminal of battery (8).
4. Install battery terminals on battery posts.
5. Carefully pull cable 3W6 (6) through hole in side of battery box (7). Remove rubber grommet (5).
6. Follow route of cable 3W6 (6) along radio rack. Remove tie straps from cable.



7. Disconnect cable 3W6 (6) from J4 connector (10) on power distribution assembly (PDA) (11). Remove cable from vehicle.



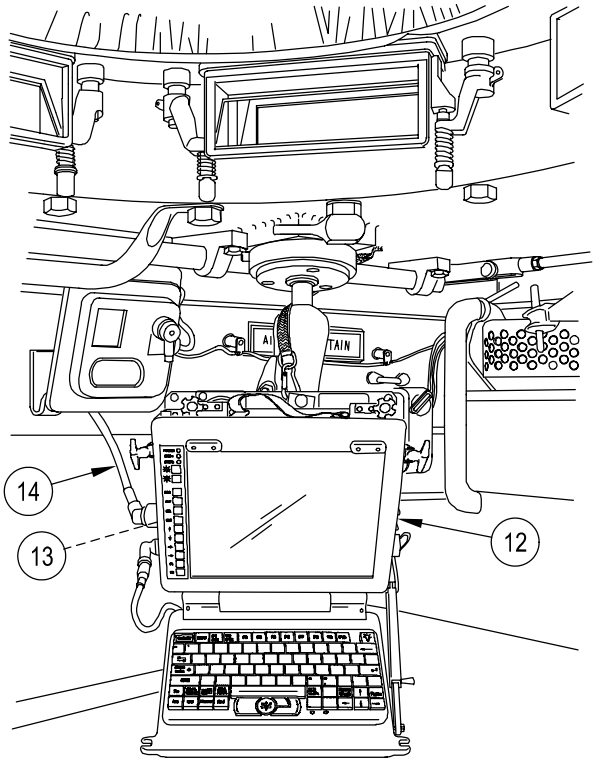
CAUTION

To prevent damage to equipment, ensure power is turned off at power distribution assembly (PDA) before disconnection of cable.

NOTE

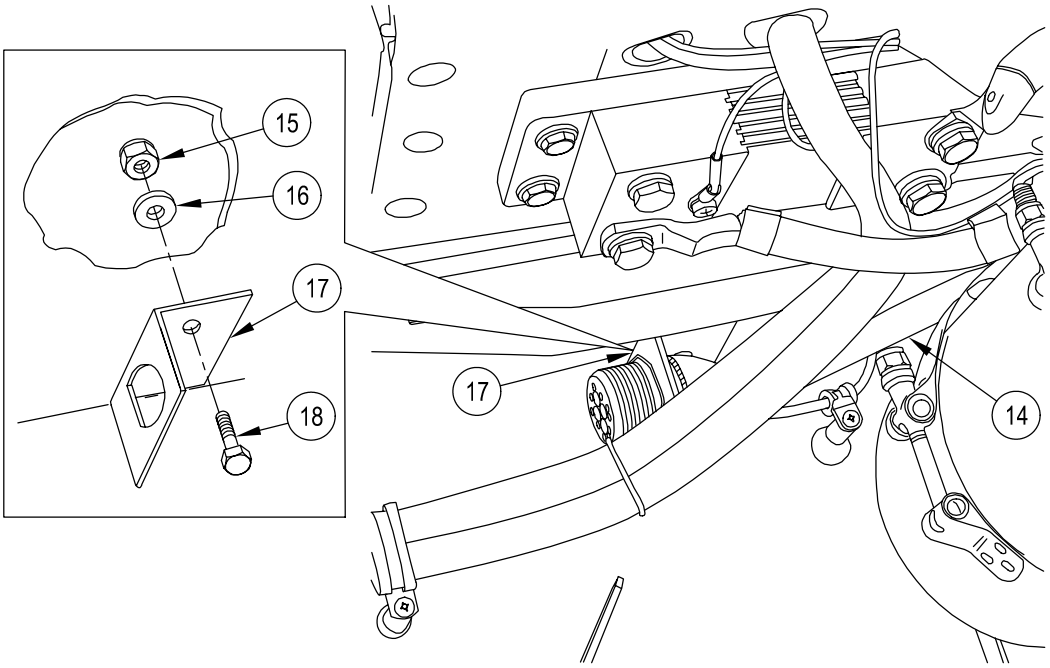
Steps 8 - 15 apply to cable 3W17, power/data cable for commander's interface.

8. Disconnect P6 connector of cable 3W17 (14) from J1 connector (13) on commander's interface (CI) (12).

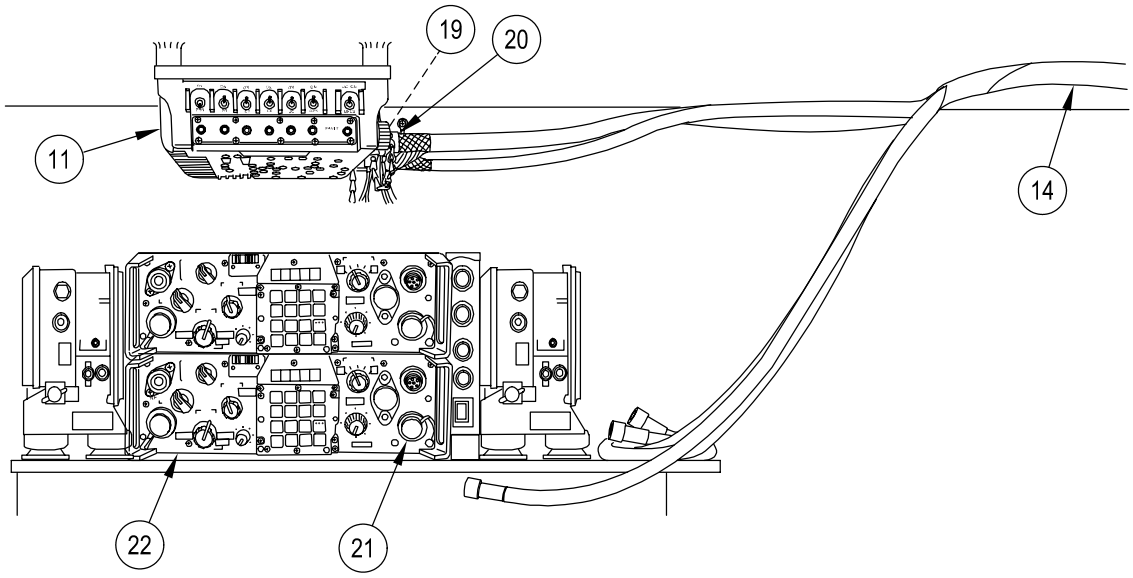


REPAIR/REPLACE MORTAR FIRE CONTROL SYSTEM CABLES (MFCS) (M1064A3 ONLY) — Continued **0812 14**

9. Remove J1 connector of cable 3W17 (14) from cable bracket (17).
10. If damaged, remove two self-locking nuts (15), flat washers (16), hexagon head capscrews (18), and cable bracket (17). Discard self-locking nuts.

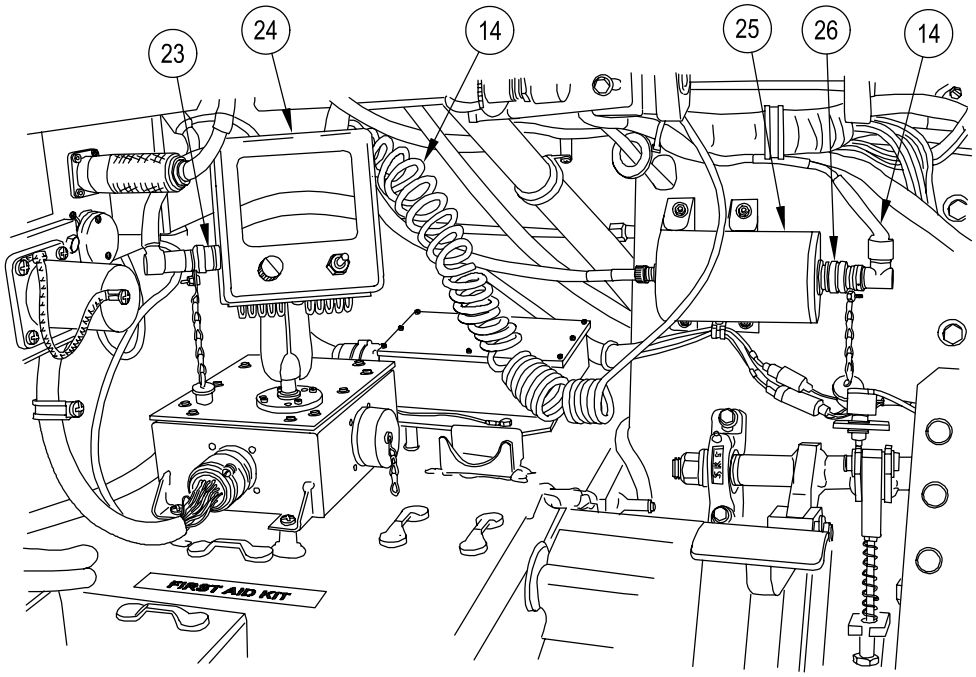


11. Disconnect P1 connector of cable 3W17 (14) from J4 connector (21) on SINCGARS radio (22).
12. Remove P4 and P5 connectors of cable 3W17 (14) from J2 connector (20) and J3 connector (19) on PDA (11).



REPAIR/REPLACE MORTAR FIRE CONTROL SYSTEM CABLES (MFCS) (M1064A3 ONLY) — Continued **0812 14**

13. Disconnect P8 connector of cable 3W17 (14) from J1 connector (23) on driver's display (DD) (24).
14. Disconnect P3 connector of cable 3W17 (14) from J1 connector (26) on vehicle motion sensor (VMS) (25).
15. Remove tie straps from cable 3W17 (14) and remove cable from vehicle.



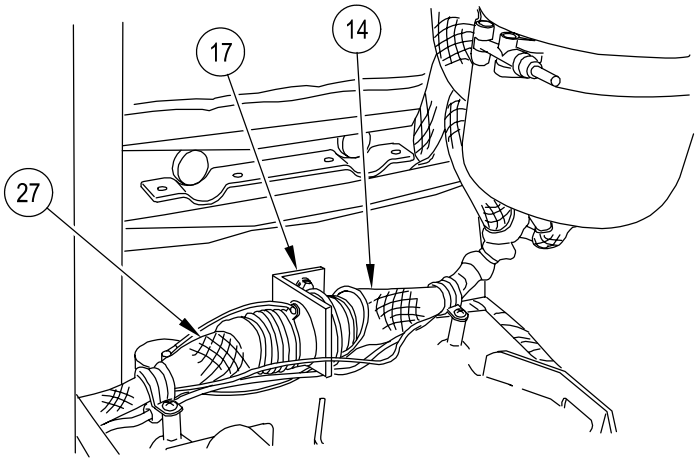
CAUTION

To prevent damage to equipment, ensure power is turned off at power distribution assembly (PDA) before disconnection of cable.

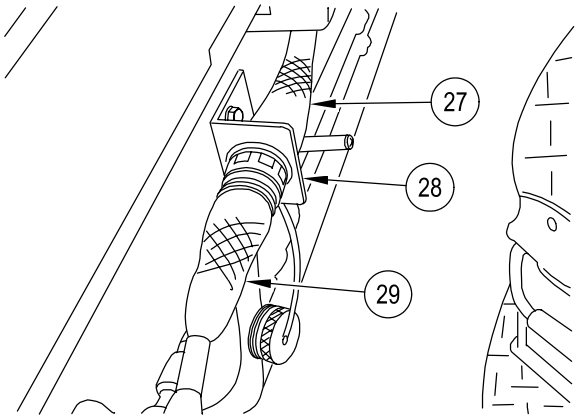
NOTE

Steps 16 - 22 apply to cable 3W7, power/data cable for precision lightweight GPS receiver (PLGR).

16. Disconnect P3 connector of cable 3W7 (27) from J1 connector of cable 3W17 (14) at cable bracket (17) on battery box.

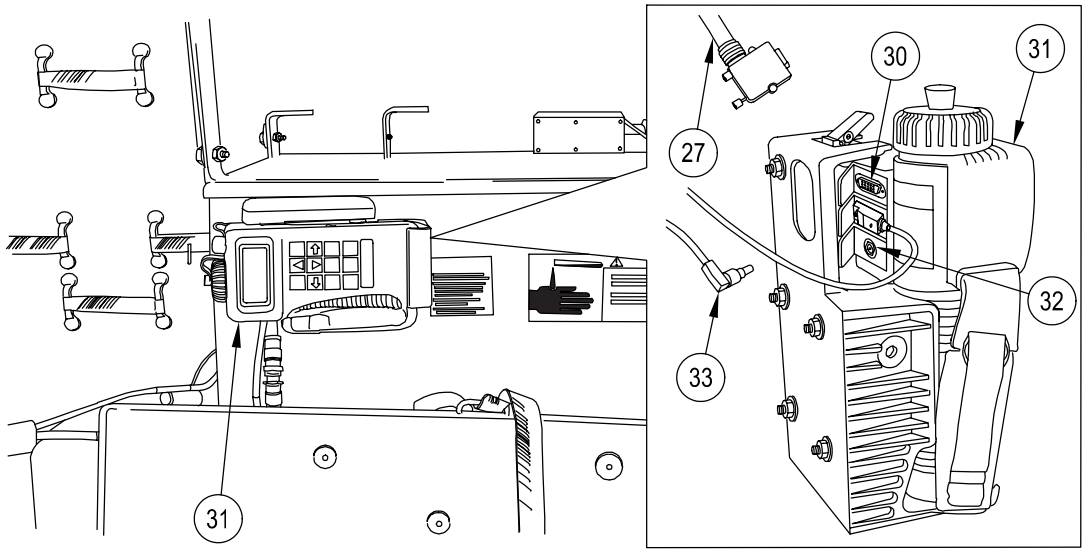


17. Follow route of cable 3W7 (27) from battery box to cable bracket (28) on driver's side sponson. Remove loop clamps and tie straps as necessary to release cable.
18. Disconnect J4 connector of cable 3W7 (27) from P4 connector of cable 3W5 (29) at cable bracket (28) on driver's side sponson.

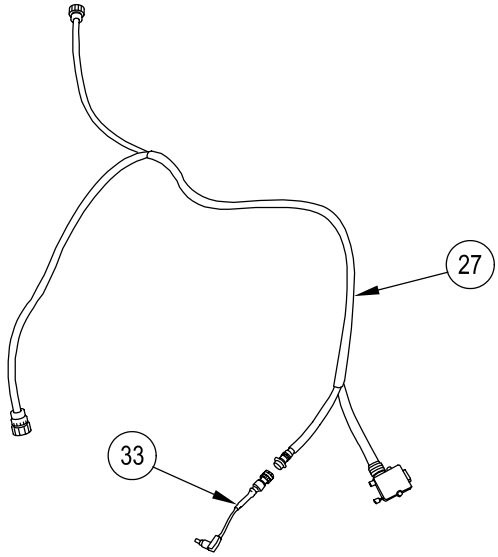


REPAIR/REPLACE MORTAR FIRE CONTROL SYSTEM CABLES (MFCS) (M1064A3 ONLY) — Continued **0812 14**

19. Disconnect P1 connector of cable 34W7 (33) from J4 connector (32) on precision lightweight GPS receiver (PLGR) (31).
20. Disconnect P2 connector of cable 3W7 (27) from J2 connector (30) on PLGR (31).



21. Lift cable 3W7 (27) from position under troop seat and remove from vehicle.
22. Disconnect J4 connector of cable 34W7 (33) from P1 connector of cable 3W7 (27).



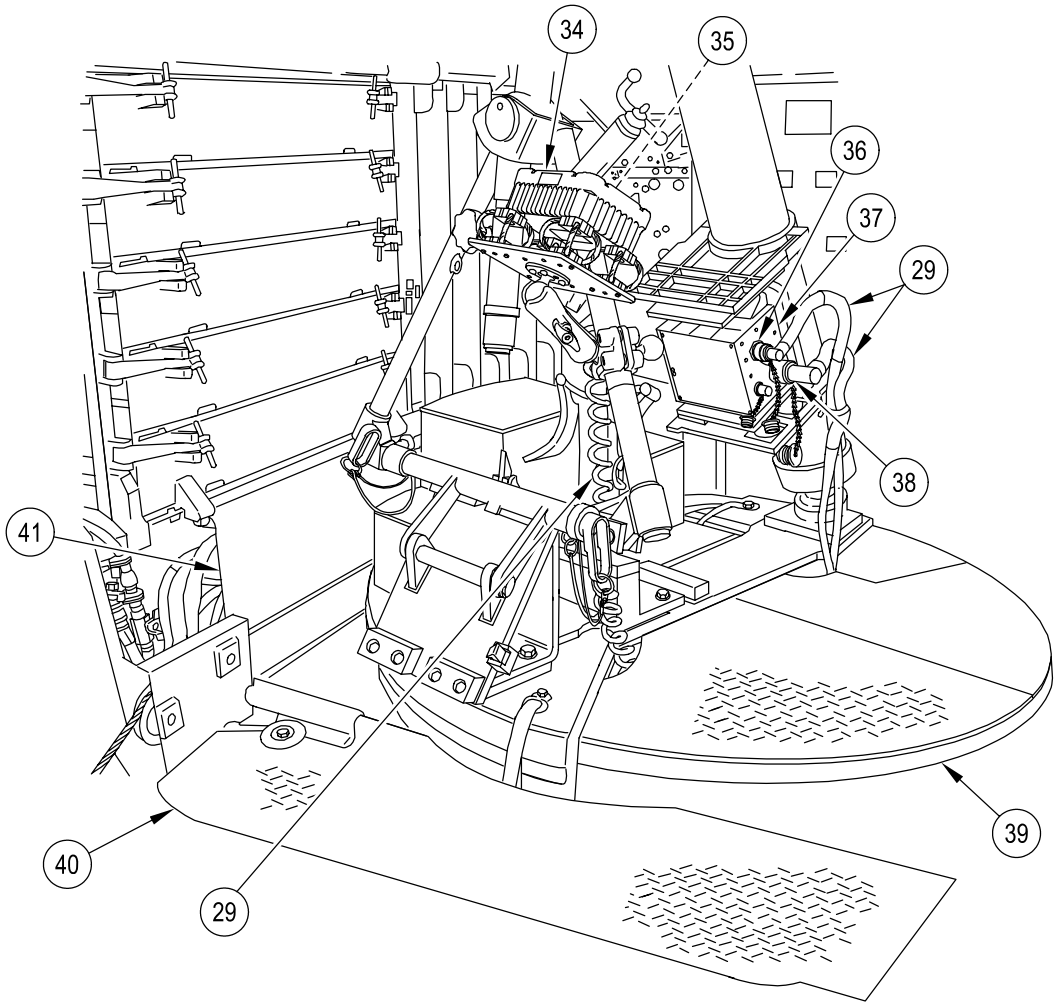
CAUTION

To prevent damage to equipment, ensure power is turned off at power distribution assembly (PDA) before disconnection of cable.

NOTE

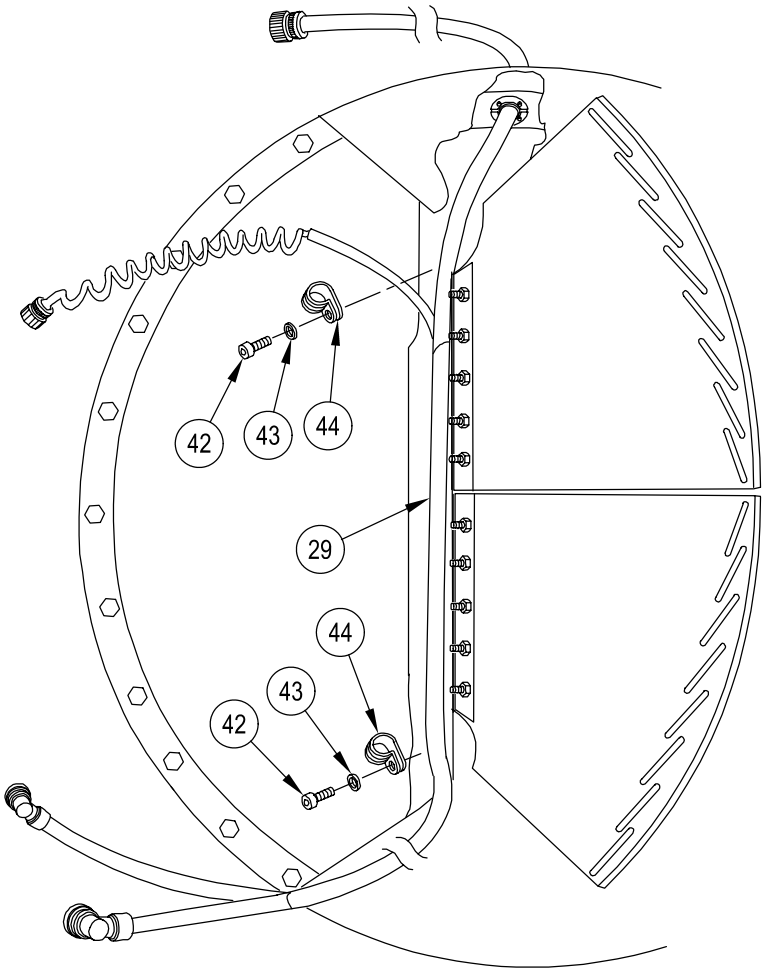
Steps 23 - 36 apply to cable 3W5, power/data cable for pointing device (PD) and gunner's display (GD).

23. Disconnect P1 connector of cable 3W5 (29) from J1 connector (36) on pointing device (PD) (37).
24. Disconnect P2 connector of cable 3W5 (29) from J2 connector (38) on PD (37).
25. Disconnect P3 connector of cable 3W5 (29) from J1 connector (35) on gunner's display (GD) (34).
26. Lift and secure two gunner's side turntable access covers (39). Refer to TM 9-1015-232-23&P.
27. Remove bilge pump floor plate (40) (WP 0543 00) and fuel valve panel (41) (WP 0197 00).



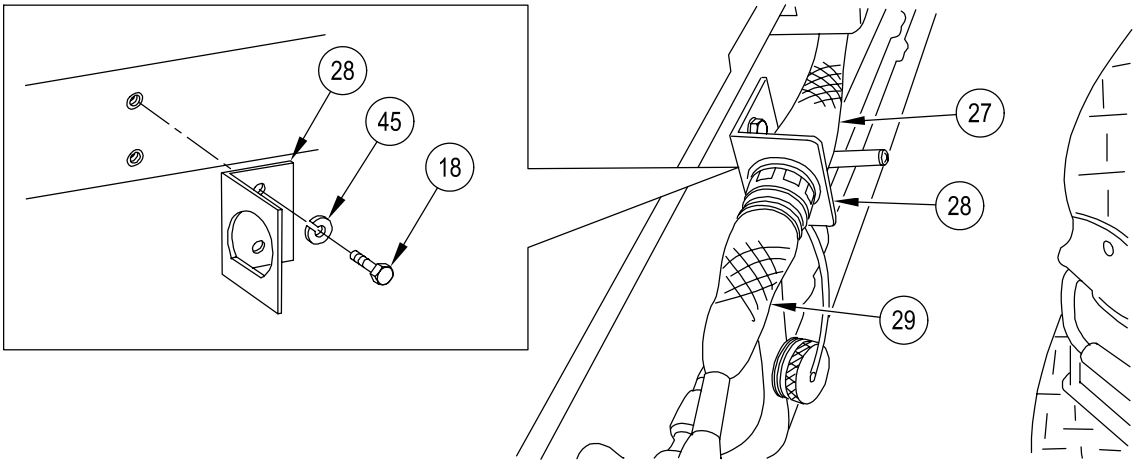
REPAIR/REPLACE MORTAR FIRE CONTROL SYSTEM CABLES (MFCS) (M1064A3 ONLY) — Continued **0812 14**

28. Remove two socket head capscrews (42), flat washers (43), loop clamps (44), and cable 3W5 (29) from center beam of turntable.



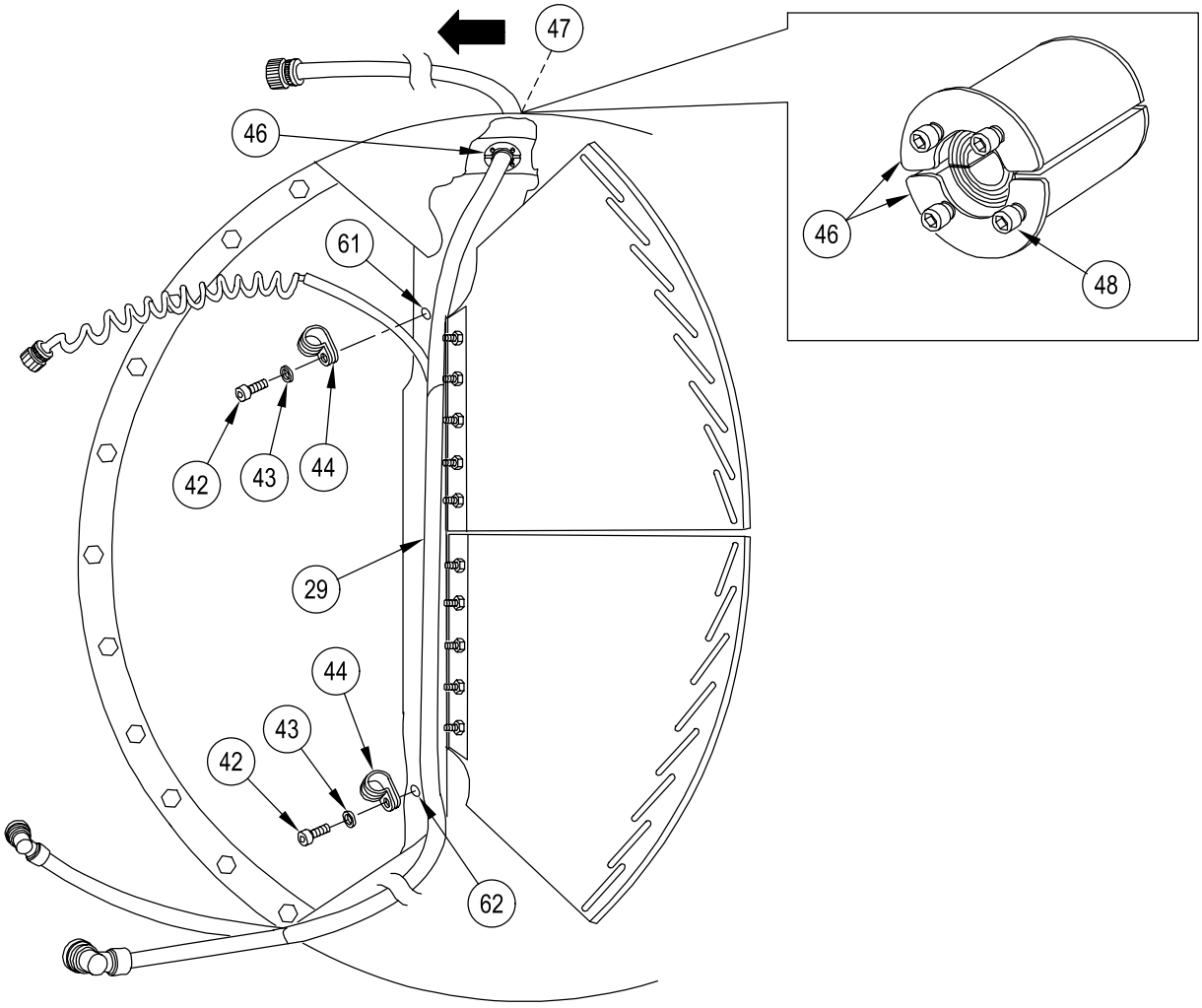
29. Disconnect P4 connector of cable 3W5 (29) from J4 connector of cable 3W7 (27) at cable bracket (28) on driver's side sponson.

30. If damaged, remove two hexagon head capscrews (18), lockwashers (45), and cable bracket (28).



REPAIR/REPLACE MORTAR FIRE CONTROL SYSTEM CABLES (MFCS) (M1064A3 ONLY) — Continued **0812 14**

31. Follow route of cable 3W5 (29) to rear of vehicle. Remove loop clamps and tie straps as necessary to release cable.
32. Loosen four capscrews (48) on cable clamp (46) and remove cable clamp from sleeve (47) in turntable wall.
33. Remove cable 3W5 (29) from bilge area of vehicle.
34. Carefully pull P4 branch of cable 3W5 (29) through sleeve (47) in turntable wall.
35. Lift cable 3W5 (29) from well of turntable and remove from vehicle.



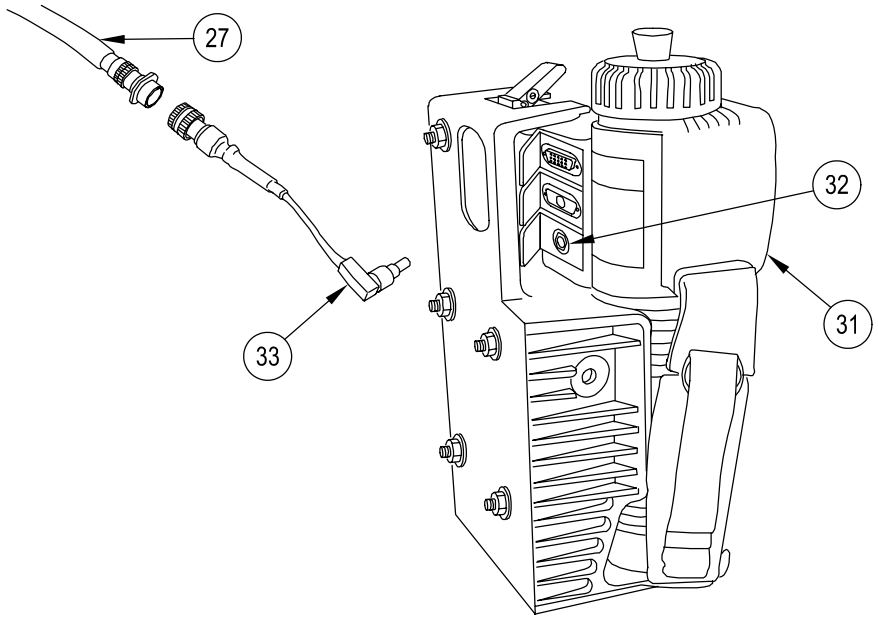
CAUTION

To prevent damage to equipment, ensure power is turned off at power distribution assembly (PDA) before disconnection of cable.

NOTE

Steps 36 - 38 apply to cable 34W7, power adapter cable for precision lightweight GPS receiver (PLGR).

36. Disconnect cable 34W7 (33) from P1 connector of cable 3W7 (27).
37. Disconnect cable 34W7 (33) from J4 connector (32) on PLGR (31).
38. Remove cable from vehicle.



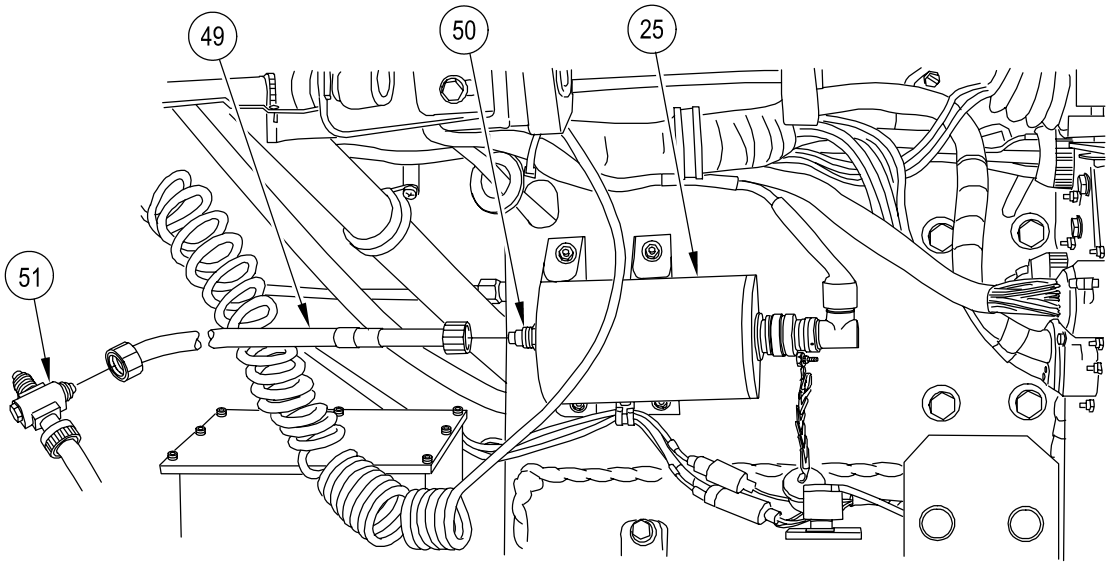
CAUTION

To prevent damage to equipment, ensure power is turned off at power distribution assembly (PDA) before disconnection of cable.

NOTE

Steps 39 - 41 apply to the mechanical odometer cable.

39. Disconnect mechanical odometer cable (49) from J2 connector (50) on VMS (25).
40. Disconnect mechanical odometer cable (49) from odometer coupler (51).
41. Remove cable from vehicle.



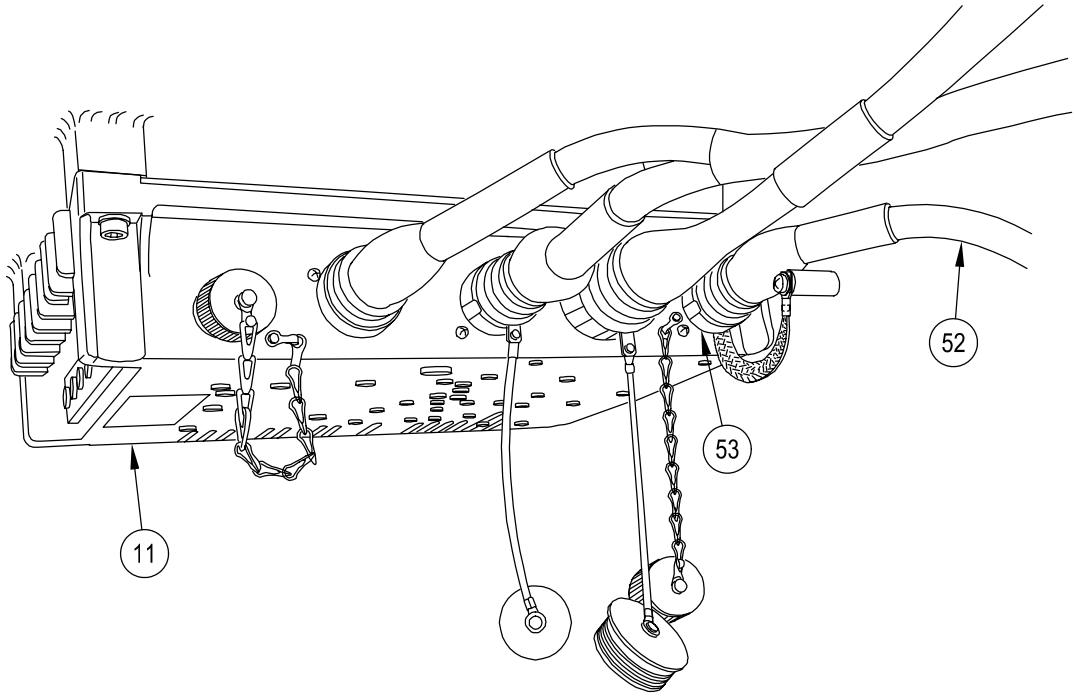
CAUTION

To prevent damage to equipment, ensure power is turned off at power distribution assembly (PDA) before disconnection of cable.

NOTE

Steps 42 - 43 apply to cable 34W4, cable for VAC power usage.

42. Disconnect cable 34W4 (52) from 120 VAC power source.
43. Disconnect cable 34W4 (52) from J5 connector (53) on PDA (11). Remove cable from vehicle.



REPAIR

1. Replace defective parts as authorized by TM 9-1220-248-23&P.

REPAIR/REPLACE MORTAR FIRE CONTROL SYSTEM CABLES (MFCS) (M1064A3 ONLY) — Continued **0812 14**

INSTALLATION

CAUTION

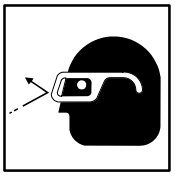
To avoid possible battery rupture, ensure that battery box drawer is pulled out before drilling.

NOTE

If MFCS cables are being installed in vehicle for the first time, proceed with Step 1. If cables are being installed in previously-modified vehicle, go to Step 7

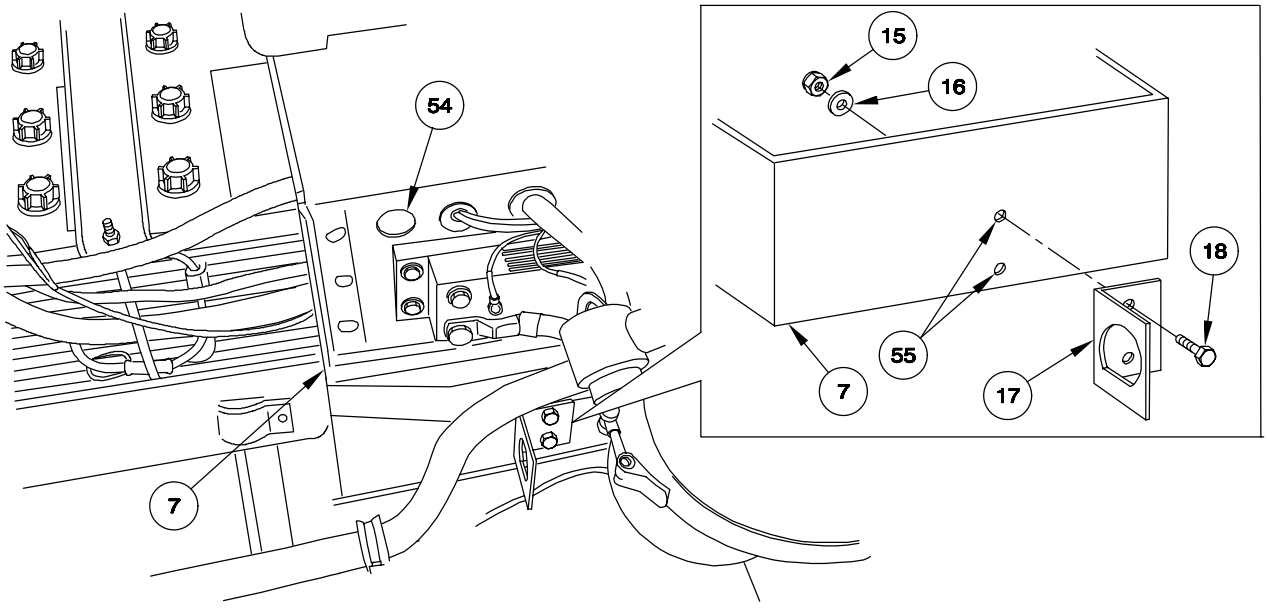
1. Open door of battery box (7) and pull drawer out as far as possible.
2. Locate an area on the right side of battery box (7), behind the driver's seat. Choose a location approximately 8 in. (20 cm) from vehicle wall and approximately 1 in. (2.5 cm) from bottom of battery box.
3. Using cable bracket (17) as a template, mark locations for two holes on side wall of battery box (7).

WARNING



Metal chips and grinding dust can cause eye injury. Wear goggles and gloves.

4. Using drill and 9/32 in. (0.71 cm) drill bit, drill two through holes (55) in battery box (7).
5. Install cable bracket (17), two hexagon head capscrews (18), flat washers (16), and new self-locking nuts (15) on battery box (7).
6. Choose a position approximately 10-1/2 in. (26.7 cm) from vehicle wall and approximately 2.0 in. (5.1 cm) from top on the side of the battery box (7), behind the driver's seat. Drill 1-3/8 in. (3.5 cm) through hole (54) into side of battery box.

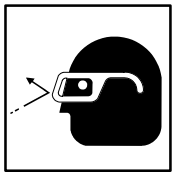


NOTE

Steps 7 - 28 apply to cable 3W5, power/data cable for pointing device (PD) and gunner's display (GD).

7. If installed, lift and secure two gunner's side turntable access covers. Refer to TM 9-1015-232-23&P.
8. If missing, install two turntable stops. Refer to TM 9-1015-232-23&P.
9. If installed, remove bilge pump floor plate (WP 0543 00) and fuel valve panel (WP 0197 00).

WARNING

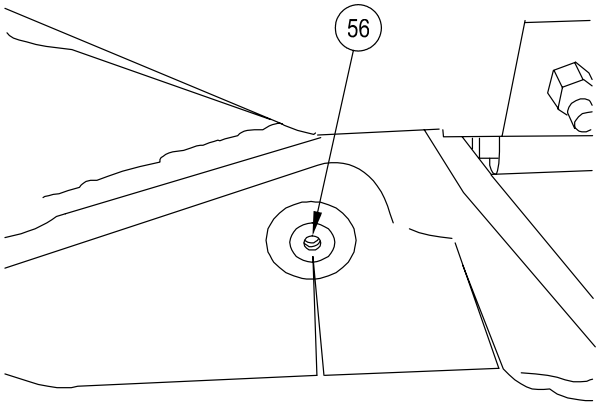


Metal chips and grinding dust can cause eye injury. Wear goggles and gloves.

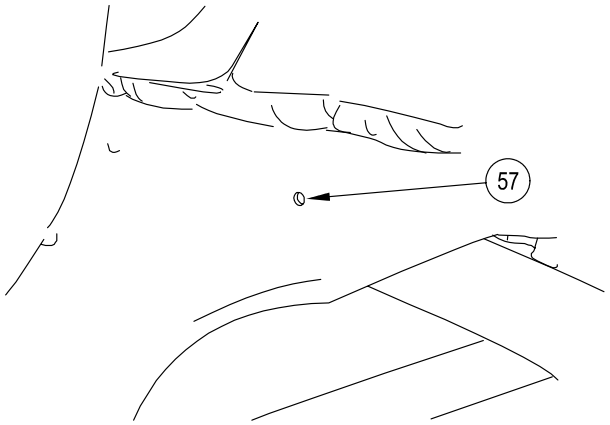
NOTE

If cable 3W5 is being installed in vehicle for the first time, proceed with Step 10. Also notify direct support maintenance for preparation of turntable wall. If cable is being installed in previously-modified vehicle, go to Step 16.

10. Near rear of center beam of turntable, locate the "I" beam support pin. Measure 3.75 in. (9.5 cm) back and 2.0 in. (5.1 cm) from bottom of support beam. Mark location and drill a 0.159 in. (0.4 cm) through hole (56). Thread hole with 10-32 tap.



11. Locate front engine side of turntable center beam. Measure 3.625 in. (9.2 cm) to right of center beam and 2.125 in. (5.4 cm) from bottom of support beam. Mark location and drill 0.159 in. (0.4 cm) hole (57) to 1.0 in. (2.54 cm) depth. Thread hole with 10-32 tap.

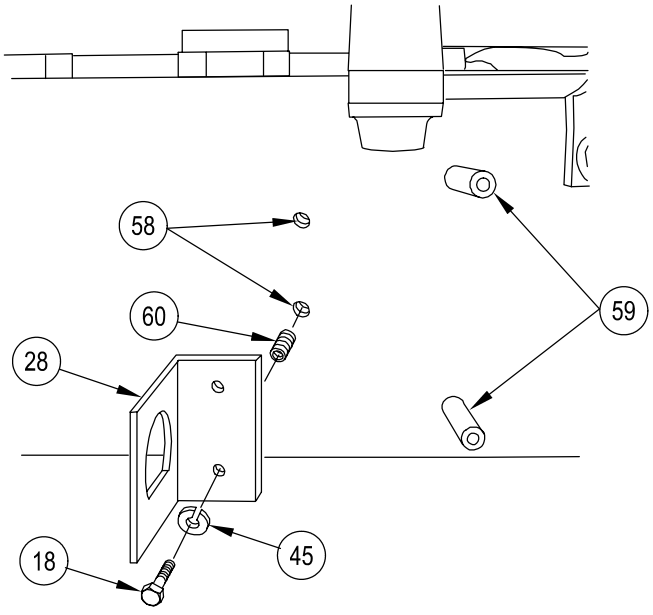


12. Locate rear gunner's side turntable access cover. Measure 12.125 in. (30.8 cm) from center front edge and mark location. Measure 1.5 in. (3.8 cm) from first point and mark location. Scribe a half circle, which is 1.0 in. (2.54 cm) deep, to connect both points. Notch out piece. File rough edges to remove burrs.

NOTE

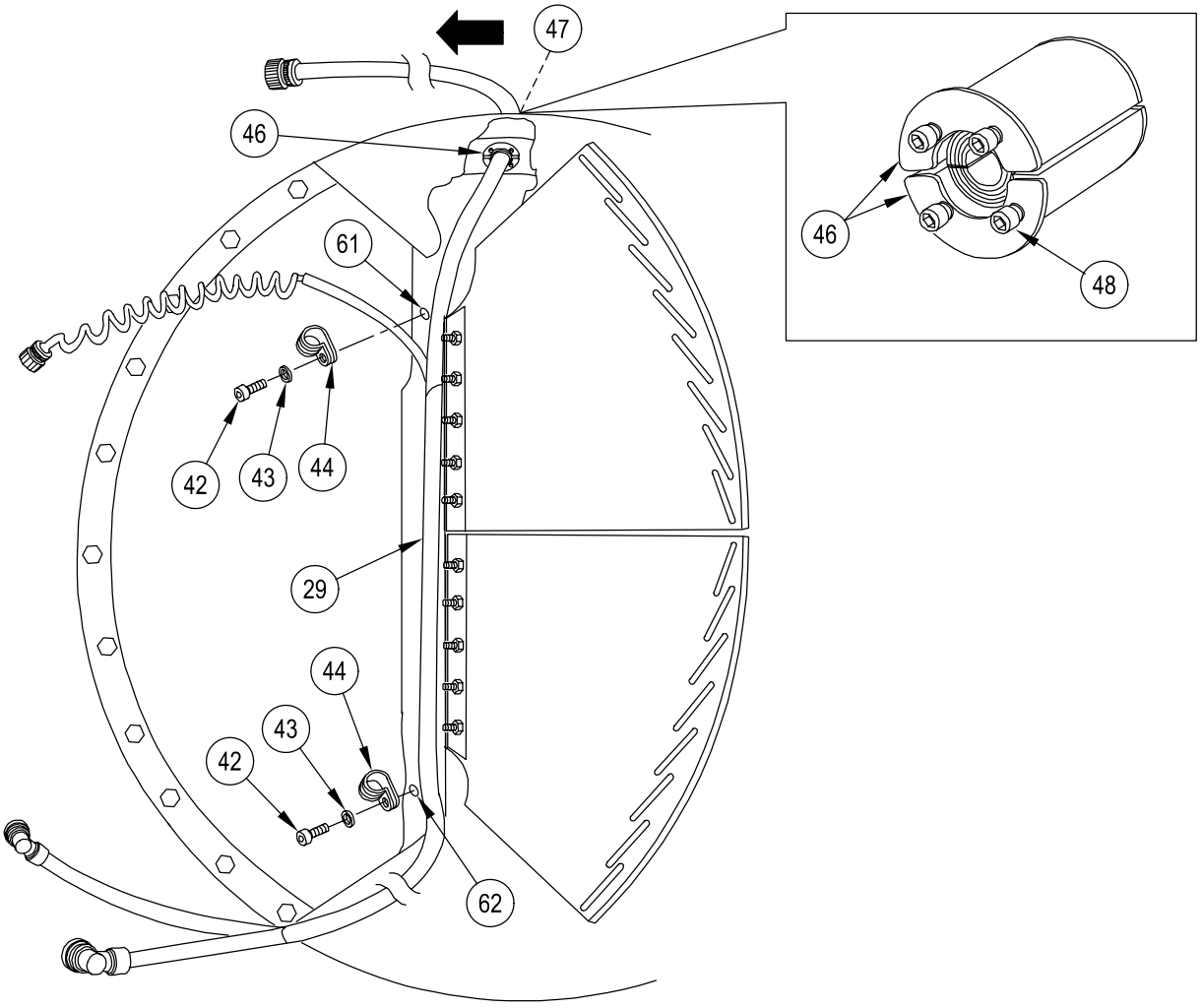
Step 13 is written for original installation of cable bracket. If, after use, locking threaded inserts are damaged, drill new holes approximately 0.5 in. (1.27 cm) to left of original holes and install new locking threaded inserts.

13. Place a straight edge to the right of two standoffs (59) for the fuel valve cover. Pencil a vertical line between the two standoffs. Measure 3.0 in. (7.6 cm) to left of vertical line and pencil another line. Measure up 3.0 in. (7.6 cm) from sponson plate and mark point of intersection with second vertical line. Measure up 1.75 in. (4.45 cm) and mark second intersection point. Drill a 0.201 in. (0.51 cm) hole (58) at both points, to a depth of 1.0 in. (2.54 cm).
14. Install two locking threaded inserts (60) in two holes (58).
15. Install cable bracket (28), two lockwashers (45), and two hexagon head capscrews (18) in two holes (58).



REPAIR/REPLACE MORTAR FIRE CONTROL SYSTEM CABLES (MFCS) (M1064A3 ONLY) — Continued **0812 14**

16. Position cable 3W5 (29) in turntable well with P4 branch facing rear of vehicle. Route P4 connector through sleeve (47) in turntable wall. Extend cable 3W5 approximately 5.5 ft. (1.68 m).
17. Carefully install two halves of cable clamp (46) around cable 3W5 (29) and push into sleeve (47) in turntable wall. Tighten four capscrews (48).
18. Install loop clamp (44), flat washer (43), and socket head capscrew (42) to secure P3 branch of cable 3W5 (29) to tapped hole (61).
19. Install loop clamp (44), flat washer (43), and socket head capscrew (42) to secure P1/P2 branch of cable 3W5 (29) to tapped hole (62).



NOTE

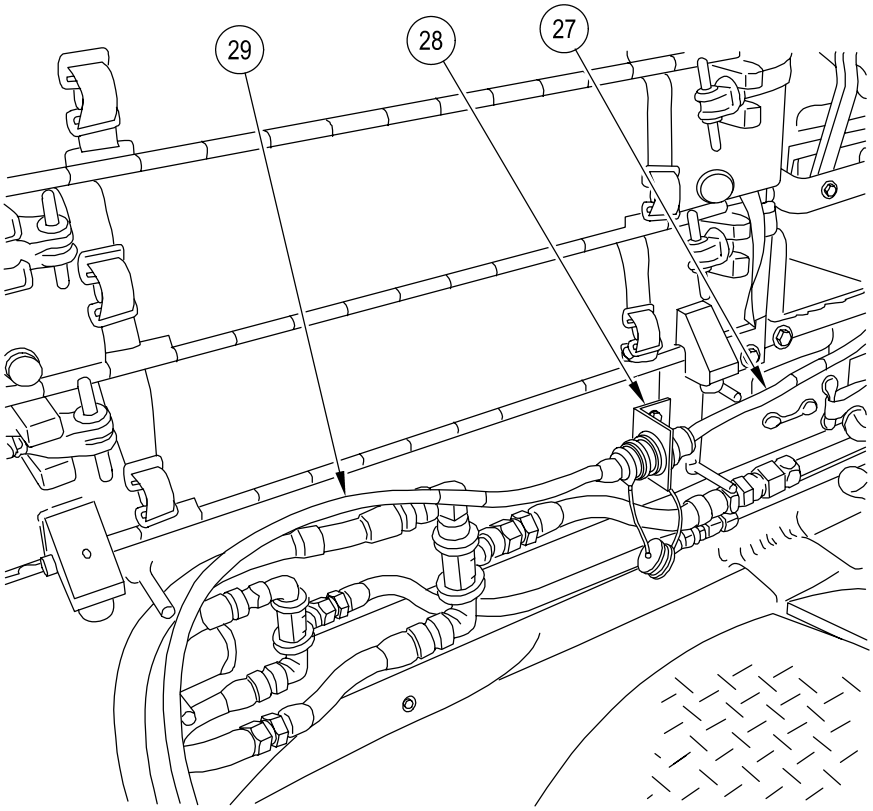
If fuel lines are under floor plate support, cable 3W5 may be routed above floor plate support.

20. Position P4 branch of cable 3W5 (29) under bilge pump floor plate support and along fuel valve panel. Route away from areas where hazards for pinching exist.

CAUTION

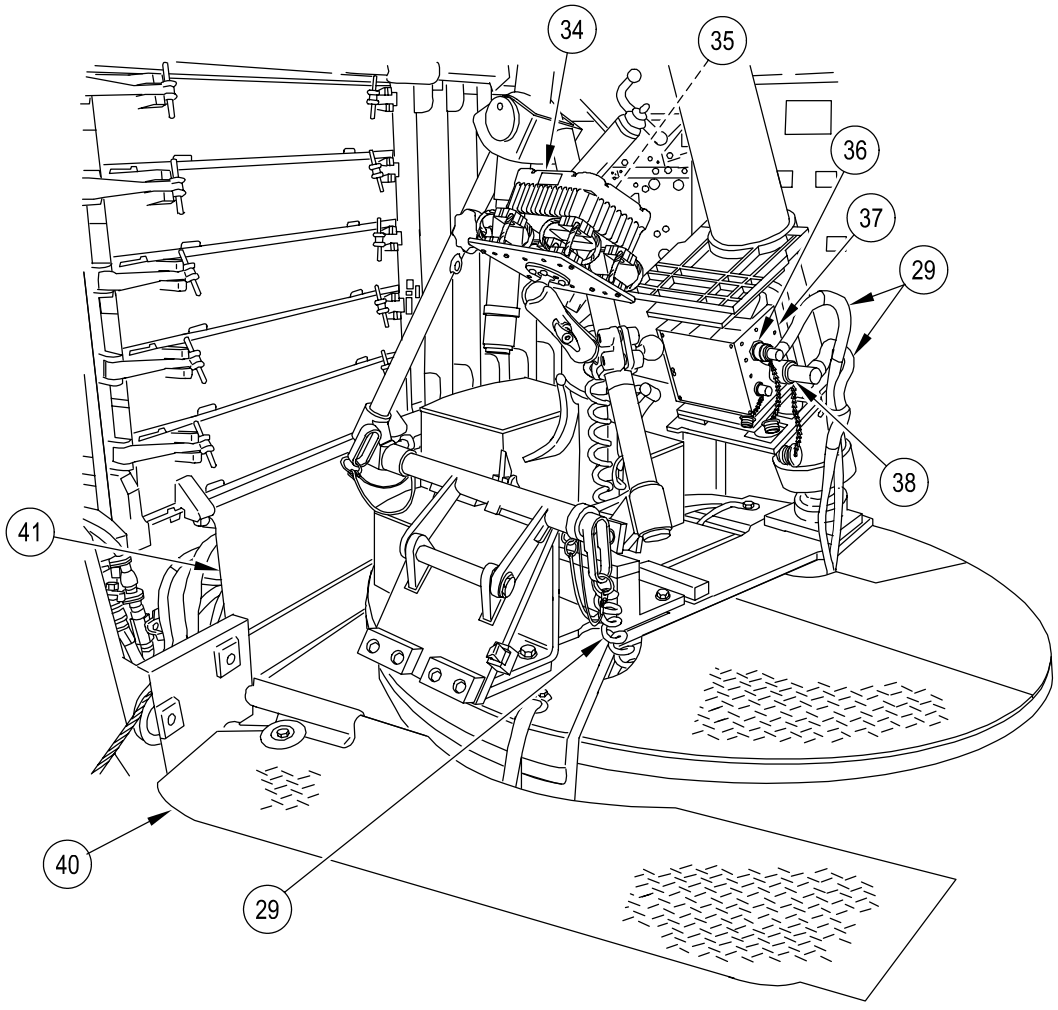
To prevent damage to equipment, ensure power is turned off at power distribution assembly (PDA) before connection of cable.

21. Connect P4 connector of cable 3W5 (29) to J4 connector of cable 3W7 (27) at cable bracket (28) on driver's side sponson.
22. Secure P4 branch of cable 3W5 (29) in bilge pump and fuel valve areas with loop clamps and tie straps as required.



REPAIR/REPLACE MORTAR FIRE CONTROL SYSTEM CABLES (MFCS) (M1064A3 ONLY) — Continued **0812 14**

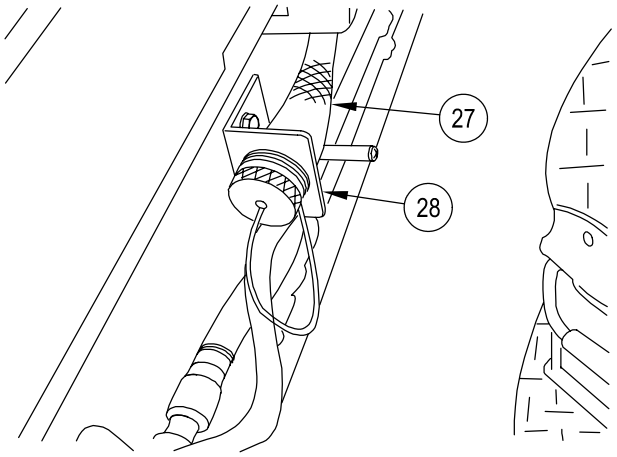
23. Connect P3 connector of cable 3W5 (29) to J1 connector (35) on GD (34).
24. Connect P2 connector of cable 3W5 (29) to J2 connector (38) on PD (37).
25. Connect P1 connector of cable 3W5 (29) to J12 connector (36) on PD (37).
26. Stow excess cable in turntable well. Secure with tie straps as necessary.
27. Lower two gunner's side turntable access covers. Refer to TM 9-1015-232-23&P. Ensure that P3 branch of cable 3W5 (29) is positioned in notch in access cover and that P1/P2 branch of cable 3W5 is not pinched by access cover.
28. Install bilge pump floor plate (40) (WP 0197 00) and fuel valve panel (41) (WP 0543 00).



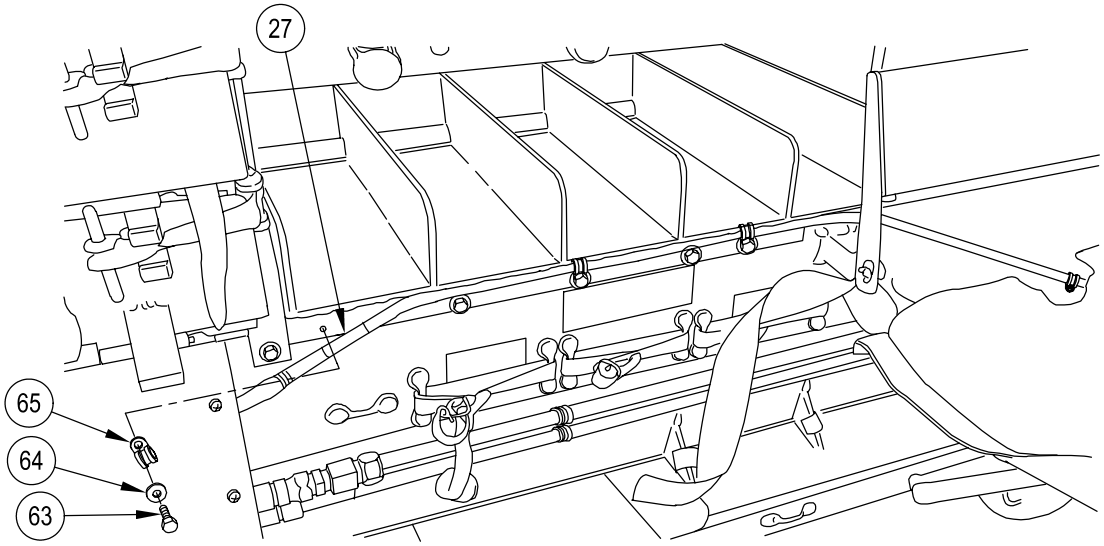
NOTE

Steps 29 - 35 apply to cable 3W7, power/data cable for precision lightweight GPS receiver (PLGR).

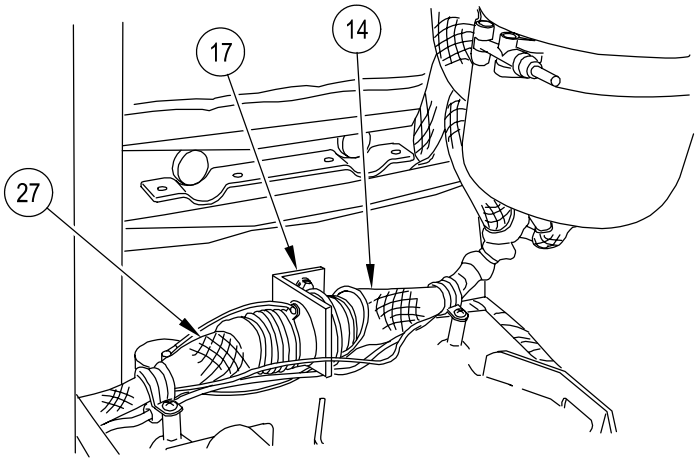
29. Install J4 connector of cable 3W7 (27) to cable bracket (28) on driver's side sponson.



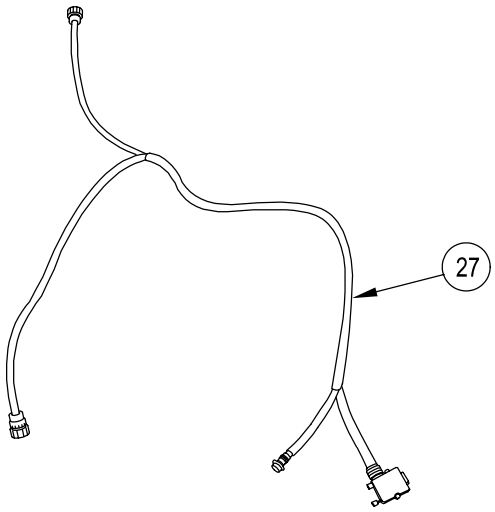
30. Route P3 branch of cable 3W7 (27) along driver's side wall of vehicle, beneath the vertical ammo racks and the troop seat. Attach cable to existing hardware using loop clamps (65) (WP 0928 00, Item 14.4) with flat washers (64), socket head capscrews (63), and tie straps as required.



31. Connect P3 connector of cable 3W7 (27) to J1 connector of cable 3W17 (14) at cable bracket (17) on battery box.

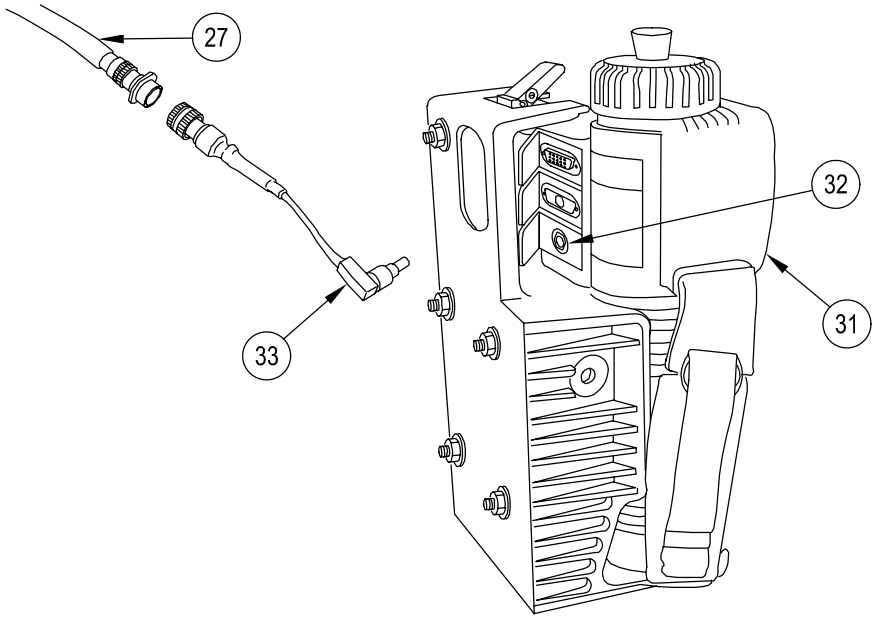


32. Route P1/P2 branch of cable 3W7 (27) behind troop seat. If desired, coil cable and secure with loop clamps and tie straps as required.



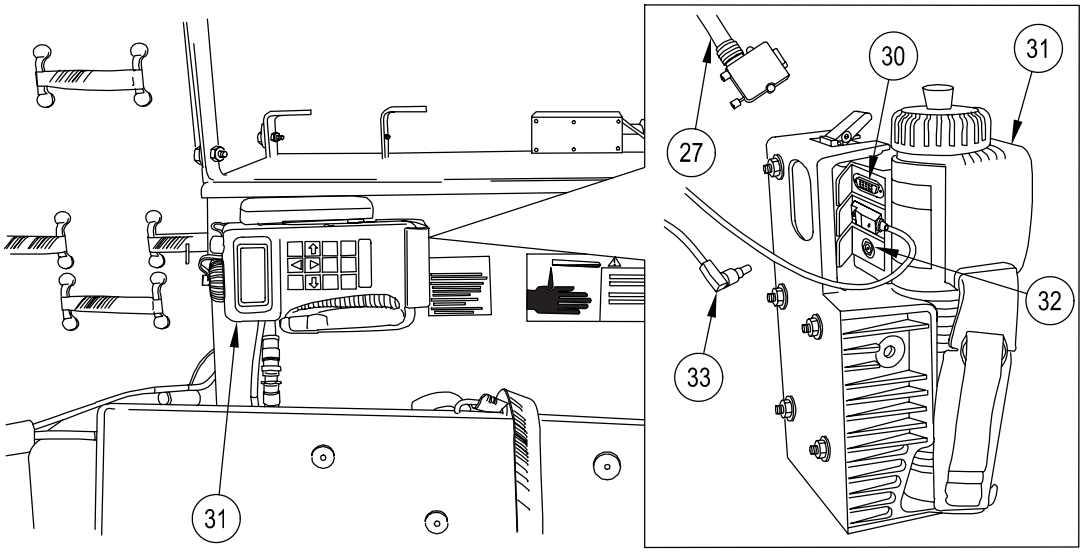
REPAIR/REPLACE MORTAR FIRE CONTROL SYSTEM CABLES (MFCS) (M1064A3 ONLY) — Continued **0812 14**

33. Connect cable 34W7 (33) to cable 3W7 (27).



34. Connect P2 connector of cable 3W7 (27) to J2 connector (30) on PLGR (31).

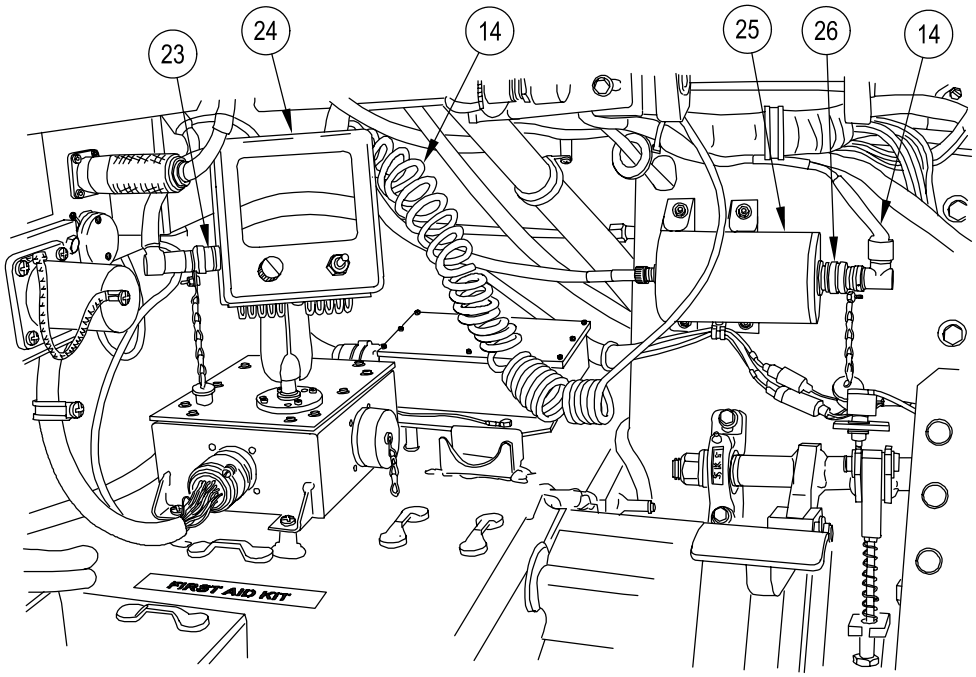
35. Connect P1 connector of cable 34W7 (33) to J4 connector (32) on PLGR (31).



NOTE

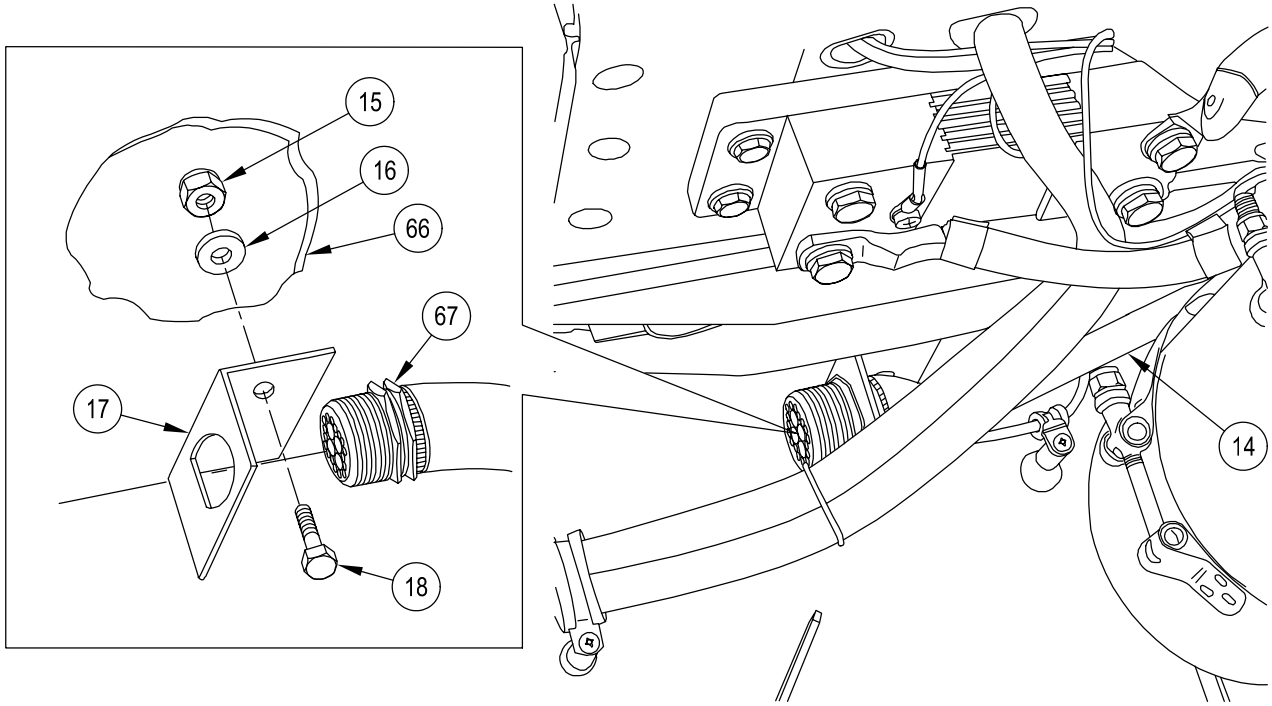
Steps 36 - 52 apply to cable 3W17, power/data cable for commander's interface (CI).

36. Position cable 3W17 (14) with P1, P2, P4, P5, and P7 connectors placed on radio rack. Ensure that cable is positioned to allow adequate length to reach MFCS components. Bundle P2 and P7 branches using loop clamps and tie straps as required.
37. Route P3 and P8 connectors of cable 3W17 (14) along top of driver's side wall.
38. Route P3 branch of cable 3W17 (14) behind fire extinguisher hard line and at a clear distance from line.
39. Connect P3 connector of cable 3W17 (14) to J1 connector (26) on VMS (25).
40. Connect P8 connector of cable 3W17 (14) to J1 connector (23) on DD (24).
41. Secure branch of cable 3W17 (14) to existing vehicle cables using loop clamps and tie straps as required.



REPAIR/REPLACE MORTAR FIRE CONTROL SYSTEM CABLES (MFCS) (M1064A3 ONLY) — Continued **0812 14**

42. Route J1 connector of cable 3W17 (14) to right rear corner, behind fire extinguisher, and down side of battery box (66) to cable bracket (17).
43. If removed, install cable bracket (17), two hexagon head capscrews (18), flat washers (16), and new self-locking nuts (15) on battery box (66).
44. Install J1 connector (67) in cable bracket (17).



CAUTION

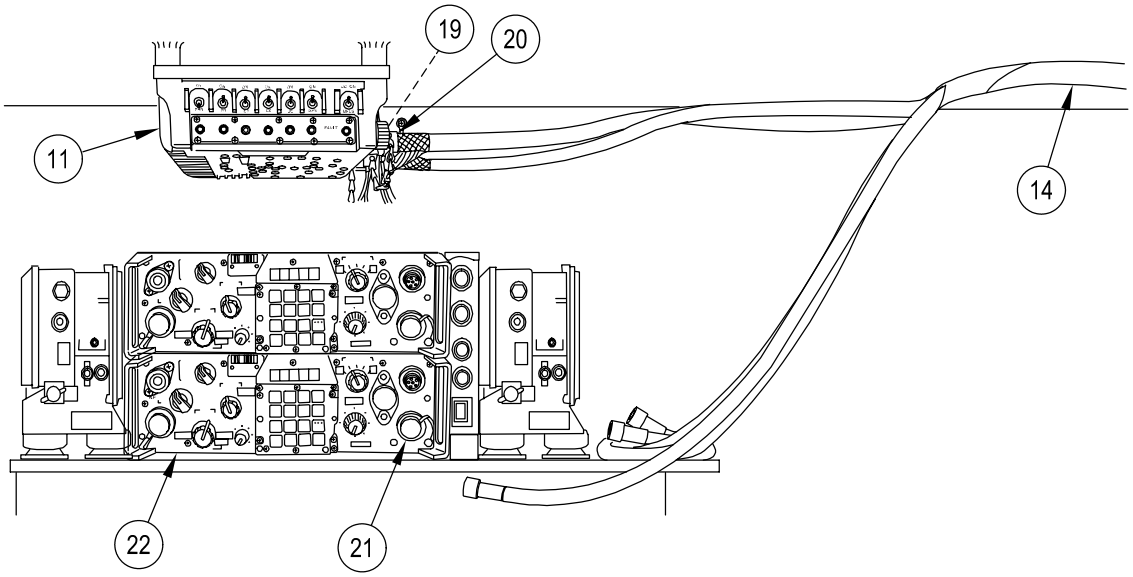
To prevent damage to equipment, ensure power is turned off at power distribution assembly (PDA) before connection of battery cable.

NOTE

Refer to TM 9-1220-248-10 for radio setup procedures.

Refer to TM 11-5820-890-10-7 for information about the SINCGARS radio.

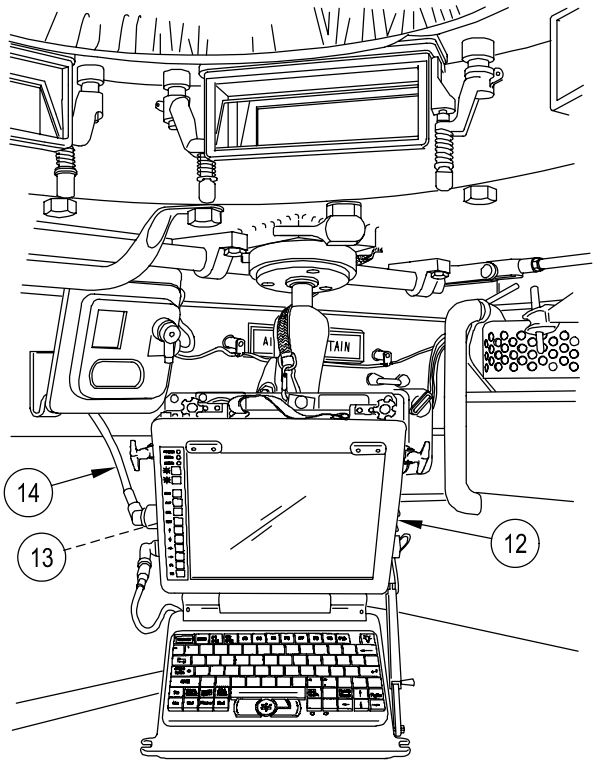
45. Route Y-joint of cable 3W17 (14) above AM1780 on radios.
46. Connect P1 connector of cable 3W17 (14) to J4 connector (21) on SINCGARS radio (22).
47. Connect P5 connector of cable 3W17 (14) to J3 connector (19) of PDA (11).
48. Connect P45 connector of cable 3W17 (14) to J2 connector (20) of PDA (11).



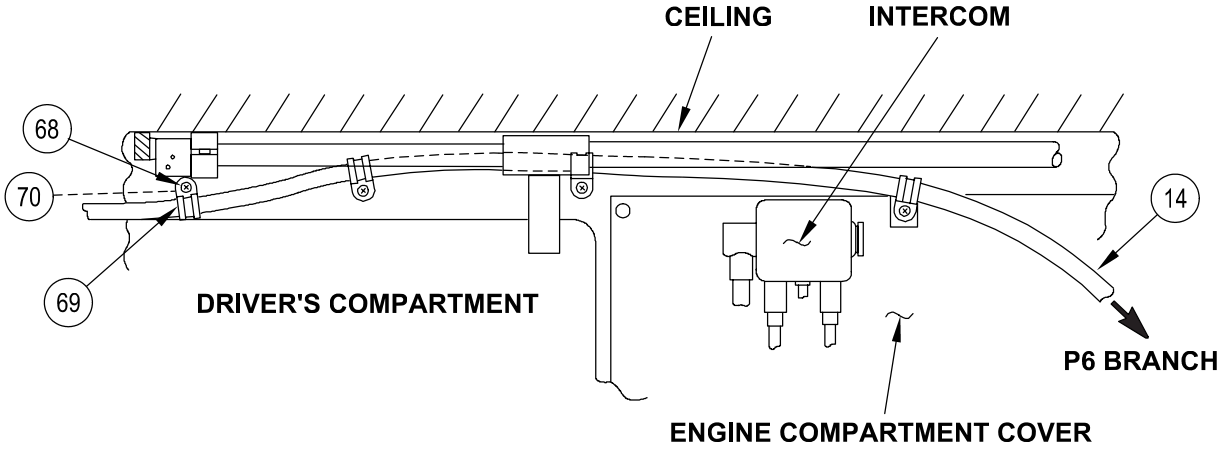
REPAIR/REPLACE MORTAR FIRE CONTROL SYSTEM CABLES (MFCS) (M1064A3 ONLY) — Continued **0812 14**

49. Route P6 branch of cable 3W17 (14) along top of bulkhead wall of vehicle toward mounted ram mount. Route above intercom box.

50. Connect P6 connector of cable 3W17 (14) to J1 connector (13) of CI (12).



51. Secure cable 3W17 (14) to existing standoffs with four loop clamps (69) (WP 0928 00, Item 14.5), internal-tooth washers (70), and machine screws (68).



52. Install two loop clamps (WP 0928 00, Item 14.2) to support cable at points at right edge of driver's compartment and left wall of driver's compartment.

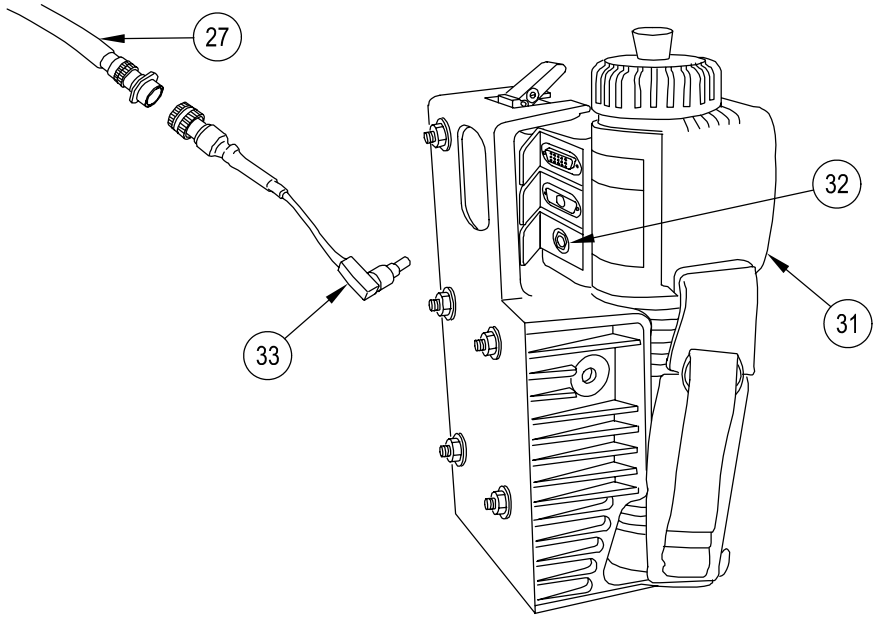
CAUTION

To prevent damage to equipment, ensure power is turned off at power distribution assembly (PDA) before connection of cable.

NOTE

Steps 53 - 54 apply to cable 34W7, power adapter cable for PLGR.

53. Connect cable 34W7 (33) to J4 connector (32) on PLGR (31).
54. Connect cable 34W7 (33) to P4 connector on cable 3W7 (27).



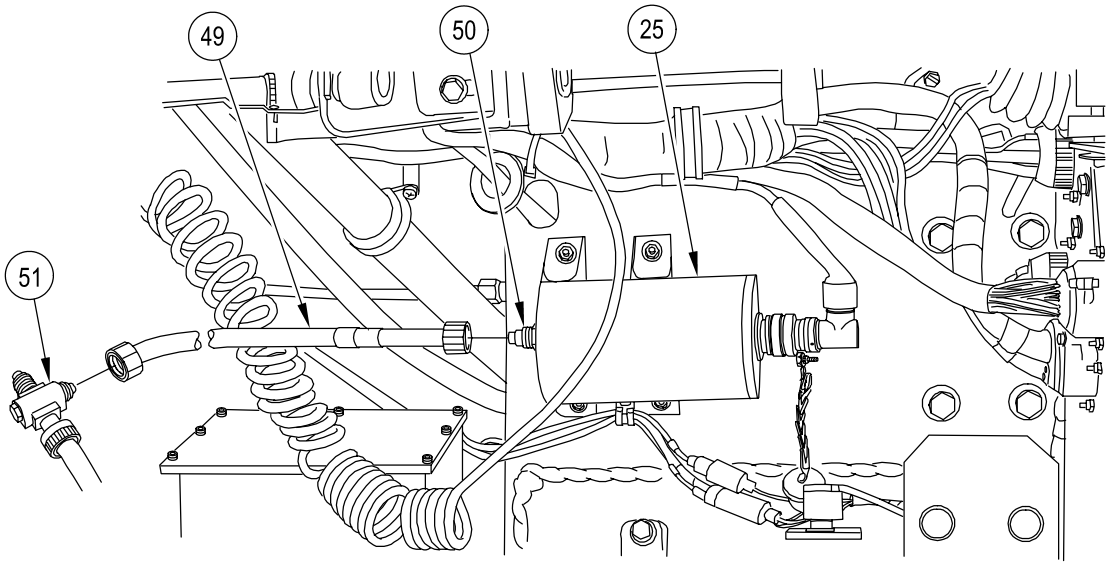
CAUTION

To prevent damage to equipment, ensure power is turned off at power distribution assembly (PDA) before connection of cable.

NOTE

Steps 55 - 56 apply to the mechanical odometer cable.

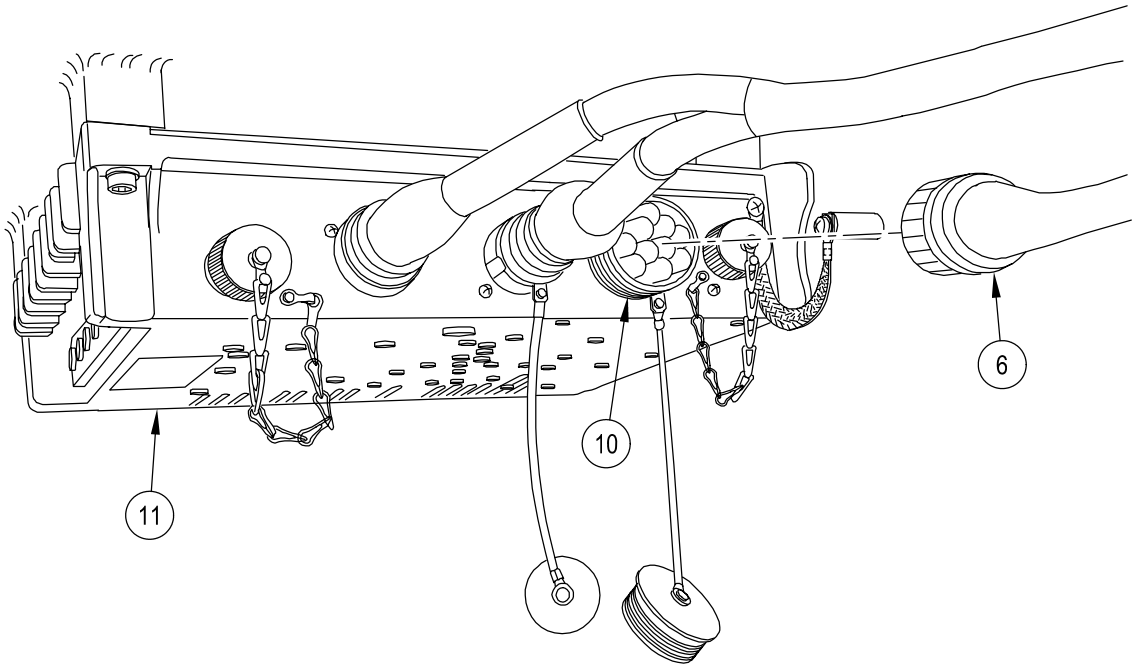
55. Connect mechanical odometer cable (49) to odometer coupler (51).
56. Connect mechanical odometer cable (49) to J2 connector (50) on VMS (25).



NOTE

Steps 57 - 65 apply to cable 3W6, power connection cable to vehicle batteries.

57. Position P1 connector of cable 3W6 (6) near J4 connector (10) on PDA (11).



58. Route cable 3W6 (6) to vehicle wall, beside radio rack, and down to side of battery box (7). Thread cable 3W6 into rubber grommet (5) and install rubber grommet into hole in side of battery box.

WARNING

To avoid personnel injury when installing positive cable, avoid any contact of positive battery cable with surrounding metal surfaces. Contact can cause battery arcing or explosion. Wear safety glasses.

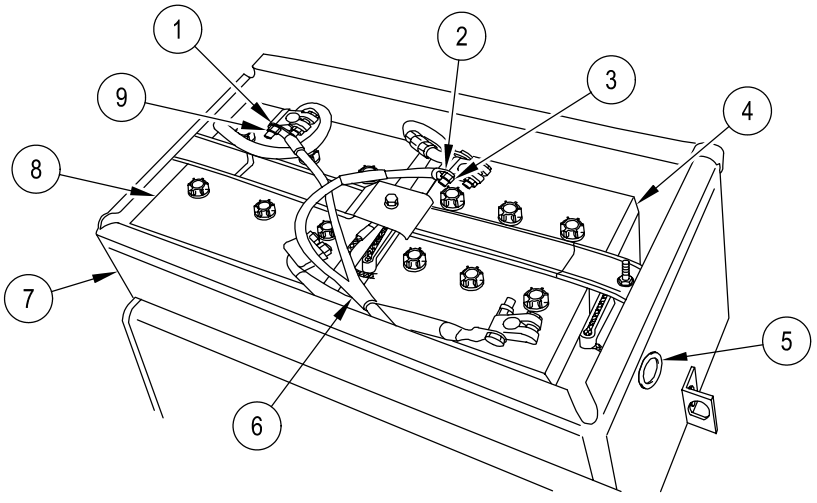
CAUTION

To prevent damage to equipment, ensure power is turned off at power distribution assembly (PDA) before battery connections are made.

CAUTION

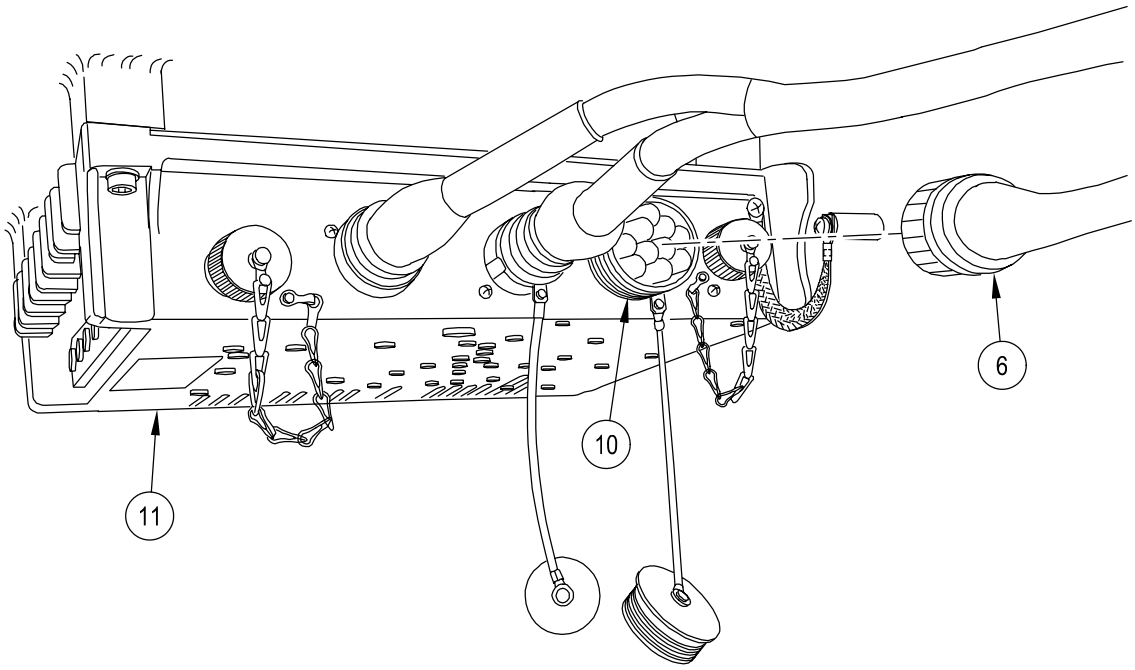
To avoid damage to power distribution assembly (PDA), do not connect cable 3W6 to PDA prior to installation of terminal lugs on battery terminals.

59. Remove battery terminals from battery posts before installation of cable 3W6 (6).
60. Install terminal lug (1) of cable 3W6 (6) and nut (9) on positive terminal of battery (8).
61. Install terminal lug (2) of cable 3W6 (6) and nut (3) on negative terminal of battery (4).
62. Install battery terminals on battery posts.
63. Stow extra length of cable 3W6 (6) in battery box (7).
64. Secure cable 3W6 (6) with loop clamps and tie straps as required. Use existing hardware and standoffs, as available.



REPAIR/REPLACE MORTAR FIRE CONTROL SYSTEM CABLES (MFCS) (M1064A3 ONLY) — Continued **0812 14**

65. Connect P1 connector of cable 3W6 (6) to J4 connector (10) on PDA (11).



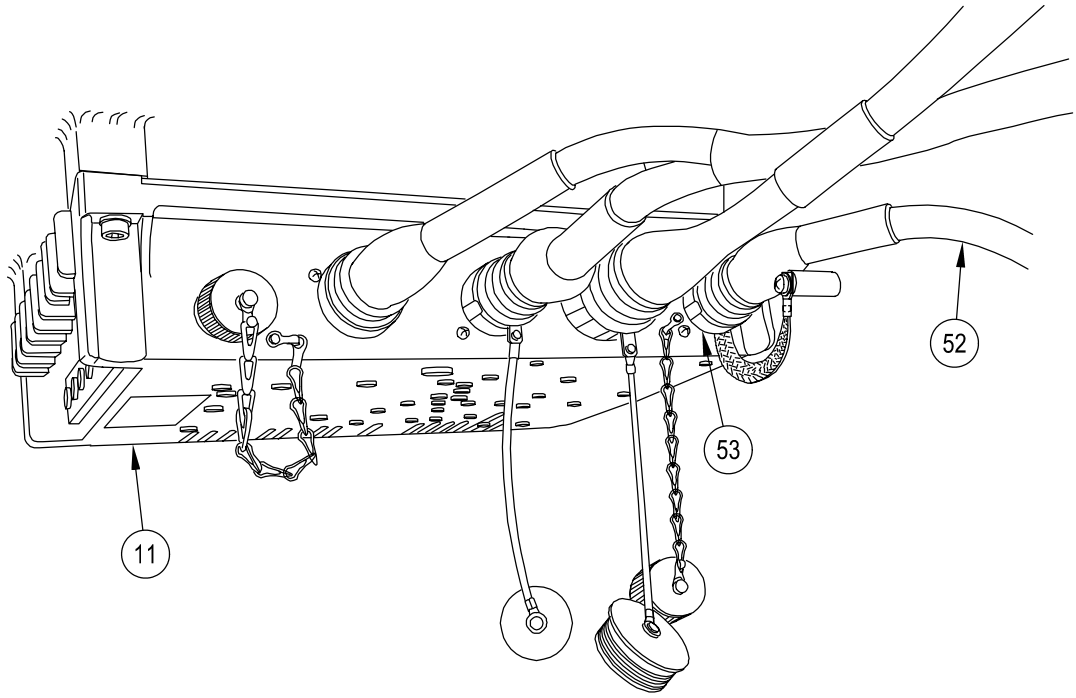
CAUTION

To prevent damage to equipment, ensure power is turned off at power distribution assembly (PDA) before connection of cable.

NOTE

Steps 66 - 67 apply to cable 34W4, cable for VAC power usage.

66. Connect P2 connector of cable 34W4 (52) to J5 connector (53) on PDA (11) and stow cable.
67. Connect cable 34W4 (52) to 120 VAC power source when AC use is desired.



END OF TASK

REPLACE ALTERNATE LOCATION GUNNER'S DISPLAY BLOCK 0812 15

THIS WORK PACKAGE COVERS:

Removal (page 0812 15-1).
Installation (page 0812 15-2).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0926 00, Item 65)

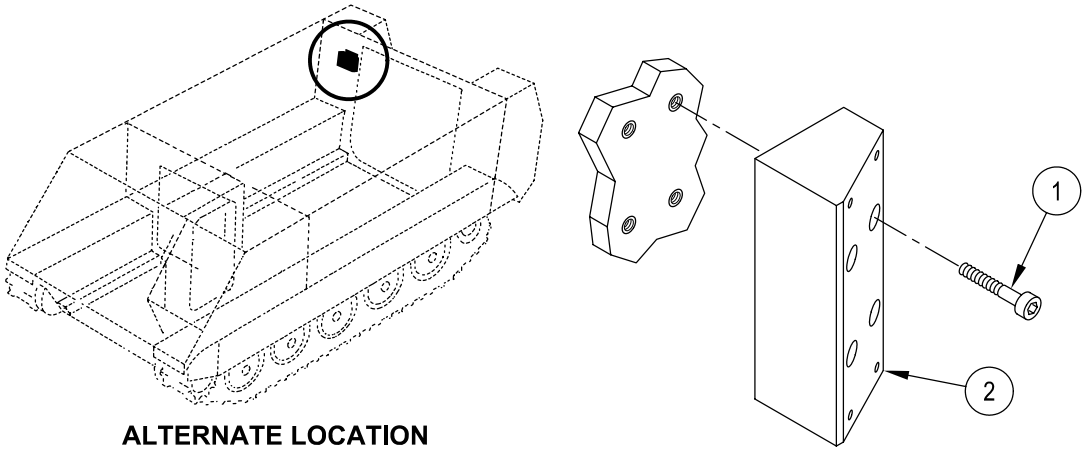
Personnel Required
Unit Mechanic

References
TM 9-1220-248-10
See your -10

Equipment Condition
Ramp lowered (see your -10)
Engine stopped (see your -10)
Carrier blocked (see your -10)
Gunner's display removed TM 9-1220-248-10

REMOVAL

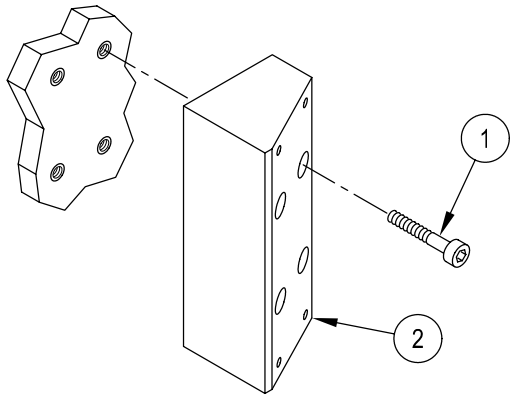
1. Remove four socket head cap screws (1) and gunner's display block (2) from carrier.



ALTERNATE LOCATION

INSTALLATION

1. Position gunner's display block over helicoil inserts so that the angle face is outward and short edge is on the ramp side.
2. Install four socket head screws (1) through the gunner's display block (2) and tighten.



FOLLOW-THROUGH STEPS

1. Install gunner's display. See TM 9-1220-248-10.
2. Start engine (see your -10).
3. Raise and lock ramp (see your -10).
4. Stop engine (see your -10).

END OF TASK

REPLACE DAGR HOLDER MOUNTING BRACKET AND/OR SHOCK ISOLATOR

0812 16

THIS WORK PACKAGE COVERS:

Removal (page 0812 16-1).
Installation (page 0812 16-2).

INITIAL SETUP:

Maintenance Level
Unit

Personnel Required
Unit Mechanic

Tools and Special Tools
General Mechanic's Tool Kit (WP 0926 00, Item 65)

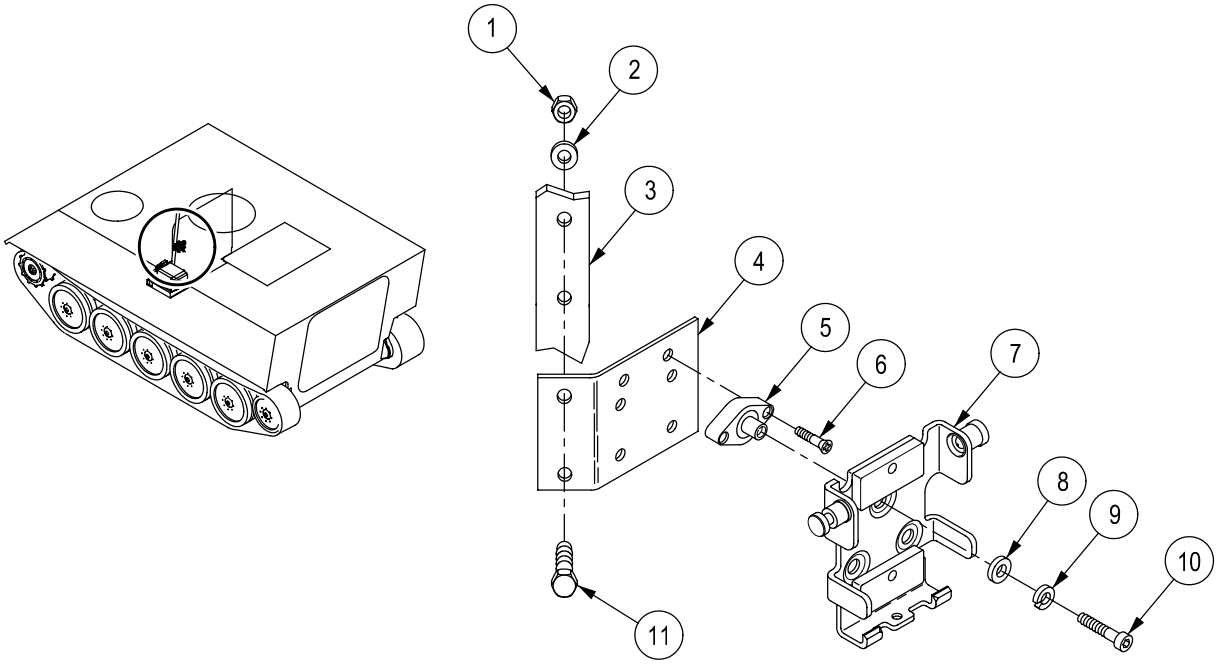
References
TM 11-5820-1172-13

Materials/Parts
Lockwasher (3) (TM 11-5820-1172-13)

Equipment Condition
DAGR removed (TM 11-5820-1172-13)

REMOVAL

1. Remove three screws (10), lockwashers (9), washers (8), and DAGR installation mount (7) from shock isolators (5). Discard lockwashers.
2. Remove six screws (6) and three shock isolators (5) from DAGR mounting bracket (4).
3. Remove two nuts (1), washers (2), screws (11), and DAGR mounting bracket (4) from SINCGARS radio shelf support arm (3).



REPLACE DAGR HOLDER MOUNTING BRACKET AND/OR SHOCK ISOLATOR — Continued **0812 16**

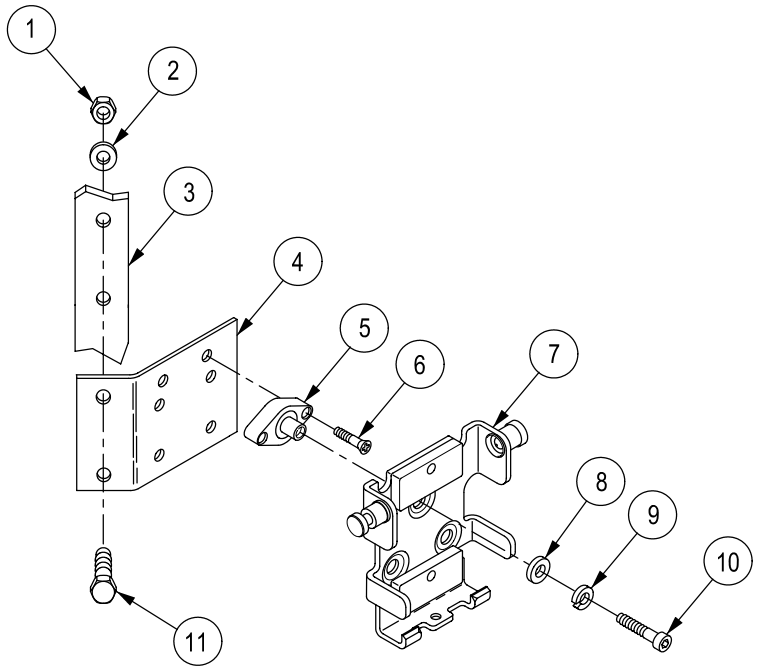
INSTALLATION

1. Install DAGR mounting bracket (4) to SINCGARS radio shelf support arm (3) using two screws (11), washers (2), and nuts (1).
2. Install three shock isolators (5) onto DAGR mounting bracket (4) and secure with six screws (6).

NOTE

Reference TM 11-5820-1172-13 for DAGR installation mount repair parts.

3. Install DAGR installation mount (7) to shock isolators (5) with three screws (10), new lockwashers (9), and washers (8).



FOLLOW-THROUGH STEPS

1. Install DAGR. See TM 11-5820-1172-13.

END OF TASK

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RECOMMENDED CHANGES TO PUBLICATIONS AND BLANK FORMS For use of this form, see AR 25–30; the proponent agency is ODISC4.	Use Part II (*reverse)* for Repair Parts and Special Tools Lists (RPSTL) and Supply Catalogs/Supply Manuals (SC/SM).	Date 23 JUL 01
TO: (*Forward to proponent of publication or form) (Include ZIP Code)*	FROM: *(Activity and location) (include ZIP code)* COMMANDER COMPANY A, 216 CAV FORT KNOX, KY 40121	

PART I – ALL PUBLICATIONS (EXCEPT RPSTL AND SC/SM) AND BLANK FORMS

PUBLICATION/FORM NUMBER	DATE	TITLE
TM 9–2350–277–20–5	02 JAN 01	Unit Maintenance Manual for M113A3 FOV

ITEM	PAGE	PARA	LINE	FIGURE NO.	TABLE	RECOMMENDED CHANGES AND REASON
	0014 00-2					STEP b. THE SCREWS (4) ON BRACKET (2) MUST BE TORQUED. PLEASE ADD TORQUE INFORMATION.
	0023 00-34			5 (SH15)		THERE ARE FOUR CLAMPS (144) ON WIRING HARNESS (217), NOT THREE AS SHOWN. PLEASE CORRECT.

*Reference to line numbers within the paragraph or subparagraph.

TYPED NAME, GRADE OR TITLE	TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION	SIGNATURE

DA FORM 2028 , FEB 74 REPLACES DA FORM 2028, 1 DEC 68, WHICH WILL BE USED. USAPPC V1.00

SAMPLE

TO: *(Forward direct to addressee listed in publication)*	FROM: *(Activity and location) (Include Zip Code)*	DATE

PART II – REPAIR PARTS AND SPECIAL TOOL LISTS AND SUPPLY CATALOGS/SUPPLY MANUALS

PUBLICATION NUMBER	DATE	TITLE

PAGE NO.	COLM NO.	LINE NO.	NATIONAL STOCK NUMBER	REFERENCE NO.	FIGURE NO.	ITEM NO.	TOTAL NO. OF MAJOR ITEMS SUPPORTED	RECOMMENDED ACTION

PART III – REMARKS *(Any general remarks or recommendations, or suggestions for improvement of publications and blank forms. Additional blank sheets may be used if more space is needed.)*

SAMPLE

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TO: (*Forward to proponent of publication or form) (Include ZIP Code)*	**FROM:** *(Activity and location) (include ZIP code)*	

PART I – ALL PUBLICATIONS (EXCEPT RPSTL AND SC/SM) AND BLANK FORMS

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ITEM	PAGE	PARA	LINE	FIGURE NO.	TABLE	RECOMMENDED CHANGES AND REASON

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PUBLICATION/FORM NUMBER	DATE	TITLE
TM 9–2350–277–20–5	02 JAN 01	Unit Maintenance Manual for M113A3 FOV

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By Order of the Secretary of the Army:

ERIC K. SHINSEKI
General, United States Army
Chief of Staff

Official:

JOEL B. HUDSON
Administrative Assistant to the
Secretary of the Army
0026302

DISTRIBUTION: To be distributed in accordance with the initial distribution requirements for IDN: 371205, requirements for TM 9-2350-277-20-5.

THE METRIC SYSTEM AND EQUIVALENTS

LINEAR MEASURE
1 Centimeter = 10 Millimeters = 0.01 Meters = 0.3937 Inches
1 Meter = 100 Centimeters = 1000 Millimeters = 39.37 Inches
1 Kilometer = 1000 Meters = 0.621 Miles

WEIGHTS

1 Gram = 0.001 Kilograms = 1000 Milligrams = 0.035 Ounces
1 Kilogram = 1000 Grams = 2.2 Lb.
1 Metric Ton = 1000 Kilograms = 1 Megagram = 1.1 Short Tons

LIQUID MEASURE
1 Milliliter = 0.001 Liters = 0.0338 Fluid Ounces
1 Liter = 1000 Milliliters = 33.82 Fluid Ounces

SQUARE MEASURE
1 Sq. Centimeter = 100 Sq. Millimeters = 0.155 Sq. Inches
1 Sq. Meter = 10,000 Sq. Centimeters = 10.76 Sq. Feet
1 Sq. Kilometer = 1,000 Sq. Meters = 0.386 Sq. Miles

CUBIC MEASURE

1 Cu. Centimeter = 1000 Cu. Millimeters = 0.06 Cu. Inches
1 Cu. Meter = 1,000,000 Cu. Centimeters = 35.31 Cu. Feet

TEMPERATURE

5/9 (ºF - 32) = ºC
212º Fahrenheit is equivalent to 100º Celsius
90º Fahrenheit is equivalent to 32.2º Celsius
32º Fahrenheit is equivalent to 0º Celsius
(9/5 x ºC) + 32 = ºF

TO CHANGE	TO	MULTIPLY BY
Inches	Centimeters	2.540
Feet	Meters	0.305
Yards	Meters	0.914
Miles	Kilometers	1.609
Square Inches	Square Centimeters	6.451
Square Feet	Square Meters	0.093
Square Yards	Square Meters	0.836
Square Miles	Square Kilometers	2.590
Acres	Square Hectometers	0.405
Cubic Feet	Cubic Meters	0.028
Cubic Yards	Cubic Meters	0.765
Fluid Ounces	Milliliters	29.573
Pints	Liters	0.473
Quarts	Liters	0.946
Gallons	Liters	3.785
Ounces	Grams	28.349
Pounds	Kilograms	0.454
Short Tons	Metric Tons	0.907
Pound-Feet	Newton-Meters	1.356
Pounds per Square Inch	Kilopascals	6.895
Miles per Gallon	Kilometers per Liter	0.425
Miles per Hour	Kilometers per Hour	1.609

TO CHANGE	TO	MULTIPLY BY
Centimeters	Inches	0.394
Meters	Feet	3.280
Meters	Yards	1.094
Kilometers	Miles	0.621
Square Centimeters	Square Inches	0.155
Square Meters	Square Feet	10.764
Square Meters	Square Yards	1.196
Square Kilometers	Square Miles	0.386
Square Hectometers	Acres	2.471
Cubic 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
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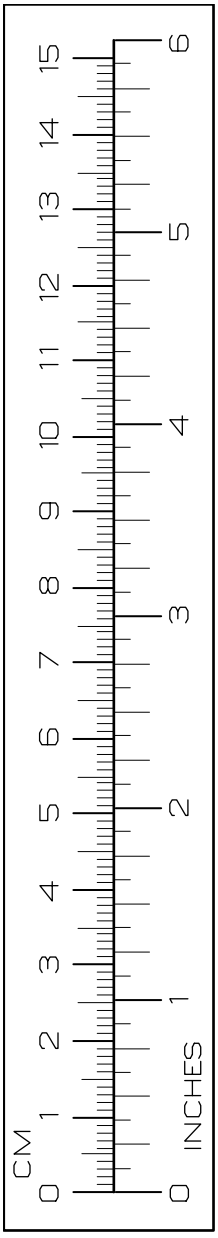
Kilopascals	Pounds per Square Inch	0.145
Kilometers per Liter	Miles per Gallon	2.354
Kilometers per Hour	Miles per Hour	0.621



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