TM 9-2350-247-20-2

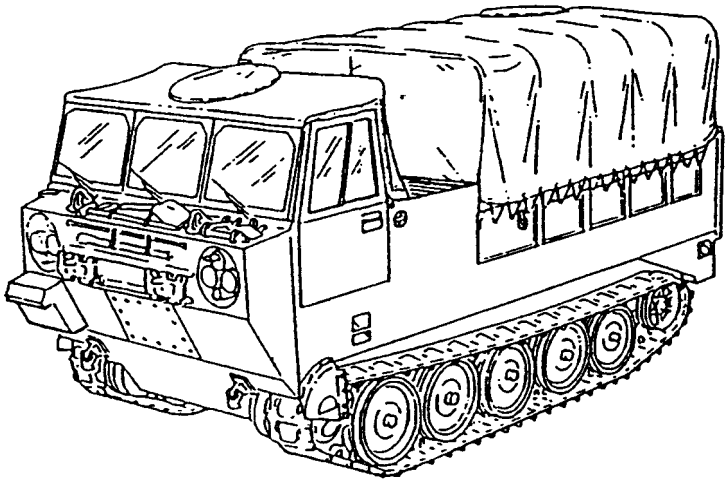
TECHNICAL MANUAL

UNIT MAINTENANCE MANUAL

FOR

CARRIER, CARGO TRACKED, 6–TON M548A1
2350–01–096–9356 (EIC AEU)

M548A3
2350–01–369–6081 (EIC AE9)



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DEPARTMENT OF THE ARMY
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ENGINE FUEL PUMP FLOW TEST 0147 00

THIS WORK PACKAGE COVERS:

Testing (page 0147 00-1).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts
Suitable container

Personnel Required
Unit Mechanic
Helper (H)

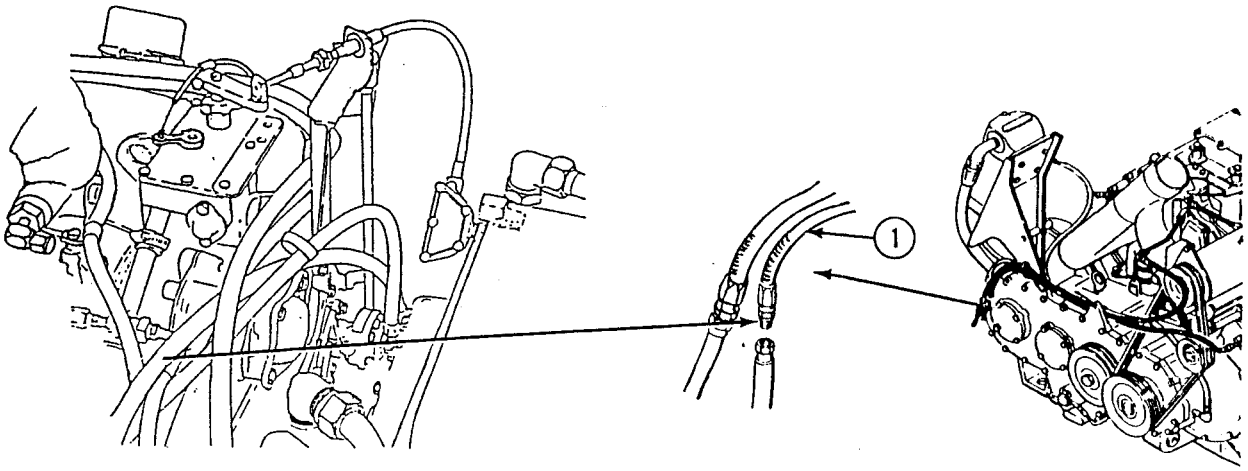
References
See your -10

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

TESTING

FLOW TEST

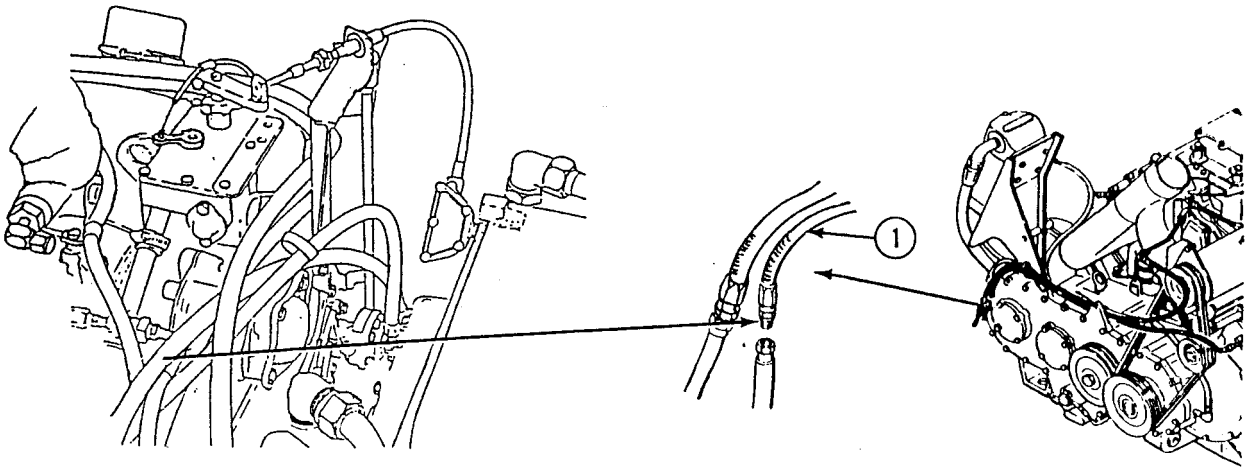
1. Disconnect fuel return hose (1) and hold over suitable container.
2. (H) Start engine (see your -10). Run engine at 1200 rpm.
3. Measure fuel return flow for one minute. Fuel return flow should be about 1/2 gallon per minute (2 lpm).
4. Put end of fuel return hose (1) into container of fuel. If air bubbles appear on the surface, there is an air leak on the suction side of the engine fuel pump. Tighten fuel hose connections.



M548A3 M548A1

5. If no air bubbles rise to the surface and fuel flow is not enough for good engine operation, replace primary fuel filter element (WP 0178 00 or WP 0179 00).
6. Measure fuel flow, see Step 2 and Step 3. If fuel flow is not enough for good engine operation, replace secondary fuel filter element (WP 0178 00 or WP 0179 00).
7. Measure fuel flow, see Step 3.

8. (H) Stop engine (see your -10).
9. Connect fuel return hose (1).
10. If fuel flow is still not enough, replace engine fuel pump (WP 0149 00 or WP 0150 00).



M548A3 M548A1

FOLLOW-THROUGH STEPS

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

END OF TASK

SERVICE PERSONNEL HEATER FUEL PUMP/ELECTRIC FUEL PUMPS FLOW TEST

0148 00

THIS WORK PACKAGE COVERS:

Disassembly (page 0148 00-2).
Cleaning (page 0148 00-2).
Assembly (page 0148 00-2).
Testing (page 0148 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts

Cleaning compound (WP 0542 00, Item 9)
Gasket
Suitable container

Personnel Required

Unit Mechanic
Helper (H)

References

See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Front cargo compartment floor plate raised (WP 0393 00)
Power plant rear access door/panel removed (see your -10)
Power plant lower rear access cover removed (see your -10)
Personnel heater fuel pump removed (WP 0430 00) (WP 0431 00) (WP 0432 00)

SERVICE PERSONNEL HEATER FUEL PUMP/ELECTRIC FUEL PUMPS FLOW TEST — Continued **0148 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.

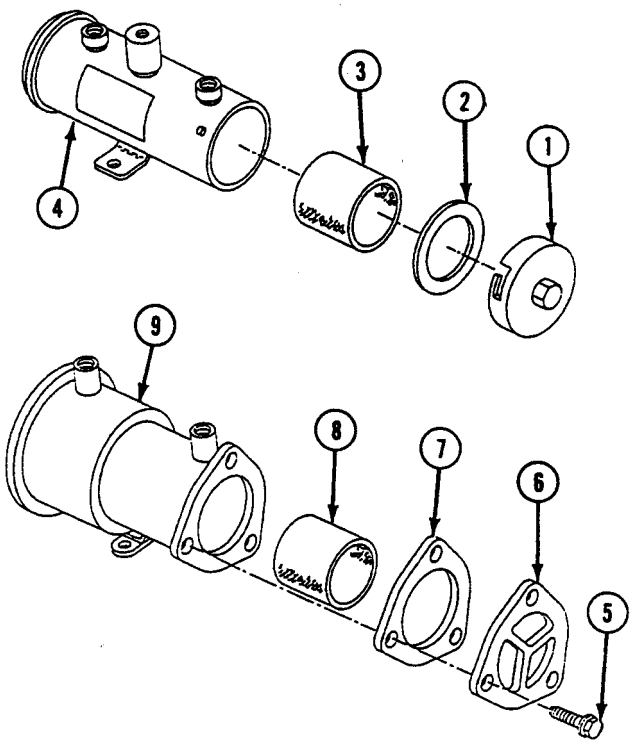
1. Remove cover (1) , gasket (2) , and strainer element (3) from fuel pump housing (4) . Discard gasket.
2. Remove three screws (5) , cover (6) , gasket (7) , and filter element (8) from fuel pump housing (9) . Discard gasket.

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) .



SERVICE PERSONNEL HEATER FUEL PUMP/ELECTRIC FUEL PUMPS FLOW TEST — Continued **0148 00**

TESTING

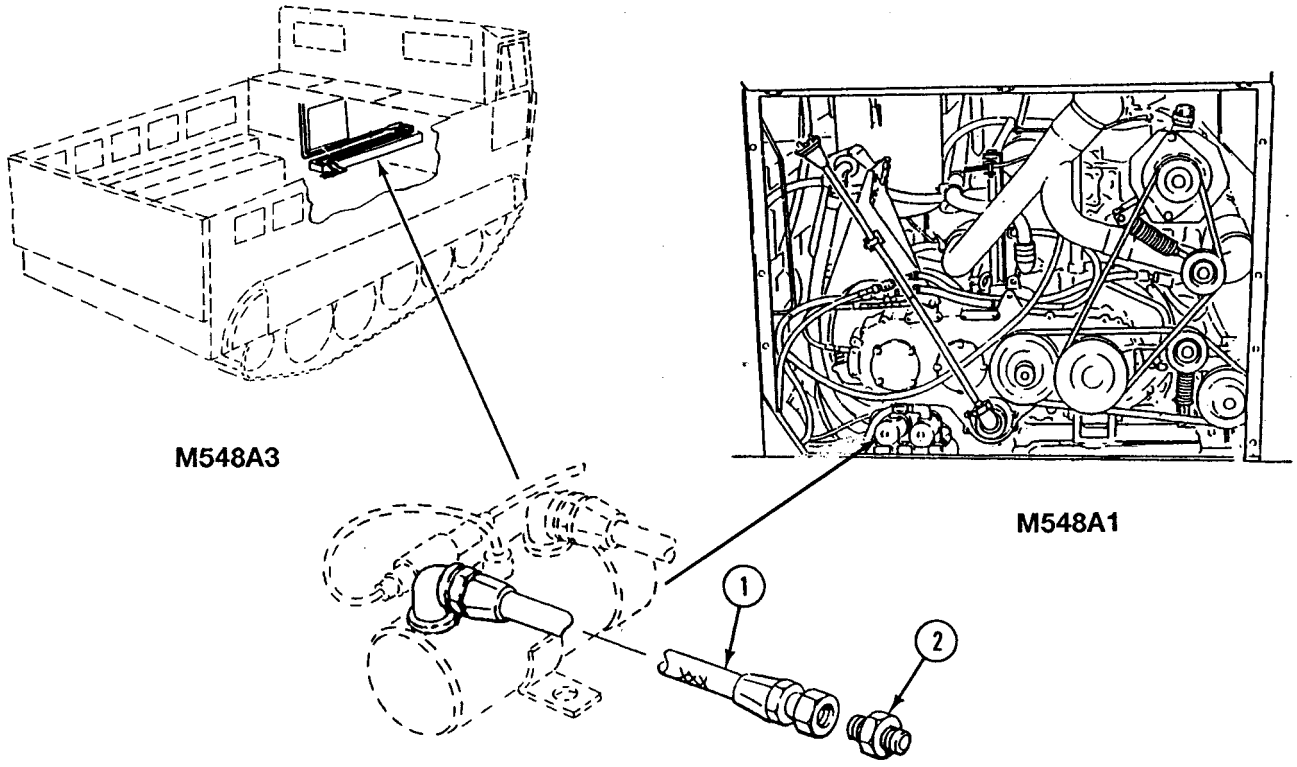
FLOW TEST

NOTE

M548A1 electric fuel pumps are located just inside power plant upper rear access door. M548A3 electric fuel pumps are located on left side box beam in engine compartment.

There are two types of electric fuel pumps: the Bendix/Facet and Walbro. Both models are tested the same way. The Bendix/Facet is shown.

1. Disconnect left fuel pump outlet hose (1) from fuel pump adapter (2) and hold hose over container.
2. (H) Turn MASTER SWITCH ON and fuel pump switch ON (see your -10).
3. Measure fuel flow for one minute. Fuel flow should be 1 1/4 to 2 1/2 quarts per minute (1.2 to 2.5 lpm).
4. Put end of outlet hose (1) into container of fuel. If air bubbles appear on surface, there is an air leak on suction side of fuel pump.



5. (H) Turn MASTER SWITCH OFF (see your -10). Tighten hose connections between fuel compartment and electric fuel pump if needed. Remove left rear and right forward fuel compartment access covers (WP 0163 00). Clean screens at end of each tube. Remove any blockage from pickup tubes. Use cleaning compound.
6. (H) Turn MASTER SWITCH ON (see your -10). Check fuel flow. Fuel flow should be 1 1/4 to 2 1/2 quarts per minute (1.2 to 2.5 lpm). If not, replace electric fuel pump (WP 0149 00).
7. (H) Turn MASTER SWITCH OFF and fuel pump switch OFF (see your -10).

SERVICE PERSONNEL HEATER FUEL PUMP/ELECTRIC FUEL PUMPS FLOW TEST — Continued **0148 00**

FOLLOW-THROUGH STEPS

1. Install personnel heater fuel pump (WP 0430 00) (WP 0431 00) (WP 0432 00).
2. Install power plant lower rear access cover (see your -10).
3. Install power plant rear access door/panel (see your -10).
4. Lower front cargo compartment floor plate (WP 0393 00).

END OF TASK

REPLACE ENGINE FUEL PUMP (M548A1) 0149 00

THIS WORK PACKAGE COVERS:

Removal (page 0149 00-2).
Cleaning (page 0149 00-2).
Installation (page 0149 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts

Cleaning compound (WP 0542 00, Item 9)
Sealing compound (WP 0542 00, Item 37)
Gasket
Suitable container

Personnel Required

Unit Mechanic

References

See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Battery negative lead disconnected (WP 0292 00)
Power plant rear access door removed (see your -10)

REMOVAL

NOTE

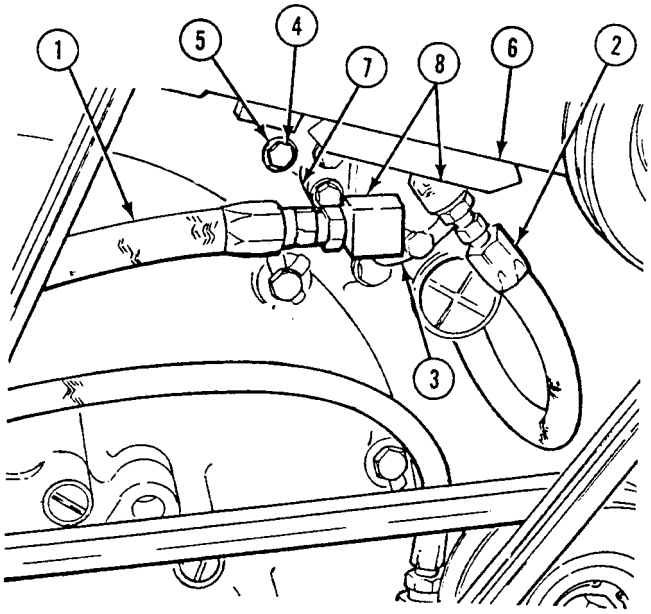
Before replacing engine fuel pump, do the fuel pump flow test (WP 0147 00).

1. Place suitable container under inlet hose (1) and outlet hose (2) to catch fuel.
2. Disconnect inlet hose (1) and outlet hose (2) from engine fuel pump (3) and place in container.
3. Remove three cap screws (4), washers (5), shield (6), gasket (7), and engine fuel pump (3) from engine. Discard gasket.

NOTE

If new engine fuel pump will be installed, do Step 4.

4. Remove two hose fittings (8) from old engine fuel pump (3) and save for installation on new engine fuel pump.



CLEANING

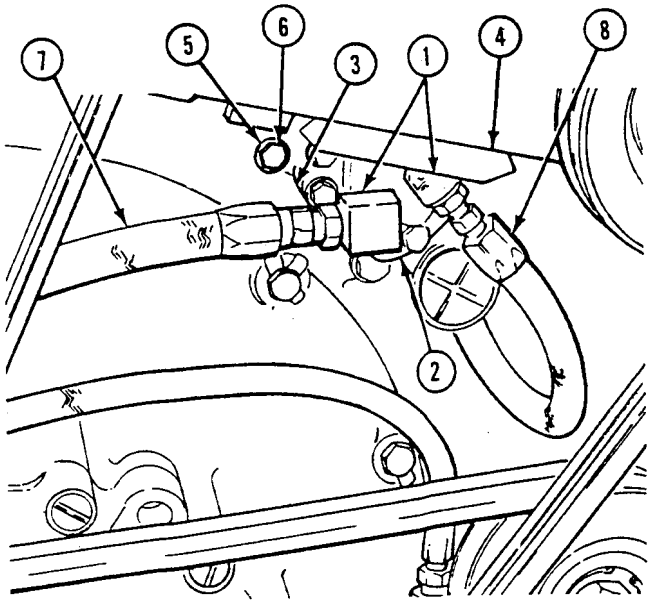
1. Replace engine fuel pump if any of the following defects are found:
   a. Fuel pump inlet or outlet ports are blocked and blockage cannot be removed.
   b. Fuel pump housing is cracked or mounting flange is warped.
   c. Fuel pump shaft is bent or twisted.

INSTALLATION

NOTE

If new engine fuel pump is being installed, do Step 1. If old engine fuel pump is being installed, go to Step 2.

1. Install two hose fittings (1) on new engine fuel pump (2) as follows:
   a. Clean tapered male threads on engine fuel pump (2) with cleaning compound.
   b. Put sealing compound on threads. Do not apply sealing compound beyond small end of threads.
   c. Install two hose fittings (1) on engine fuel pump (2).
2. Place new gasket (3) on engine.
3. Align fuel pump drive coupling with fuel pump drive adapter.
4. Install engine fuel pump (2) and shield (4) on engine with three washers (5) and cap screws (6). Tighten screws snugly.
5. Connect inlet hose (7) and outlet hose (8) to engine fuel pump (2).



FOLLOW-THROUGH STEPS

1. Connect battery negative lead (WP 0292 00).
2. Start engine (see your -10).
3. Check engine fuel pump for proper operation.
4. Stop engine (see your -10).
5. Install power plant rear access door (see your -10).

END OF TASK

REPLACE ENGINE FUEL PUMP (M548A3) 0150 00

THIS WORK PACKAGE COVERS:

Removal (page 0150 00-1).
Cleaning (page 0150 00-2).
Installation (page 0150 00-2).

INITIAL SETUP:

Maintenance Level

Unit

Personnel Required

Unit Mechanic

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)
Socket Wrench Set (WP 0541 00, Item 64)
Torque Wrench (WP 0541 00, Item 71)

References

See your -10

Materials/Parts

Cleaning compound (WP 0542 00, Item 9)
Sealing compound (WP 0542 00, Item 37)
Gasket

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Both battery negative leads disconnected (WP 0292 00)
Top access cover and grille removed (see your -10)
Center seat raised (see your -10)

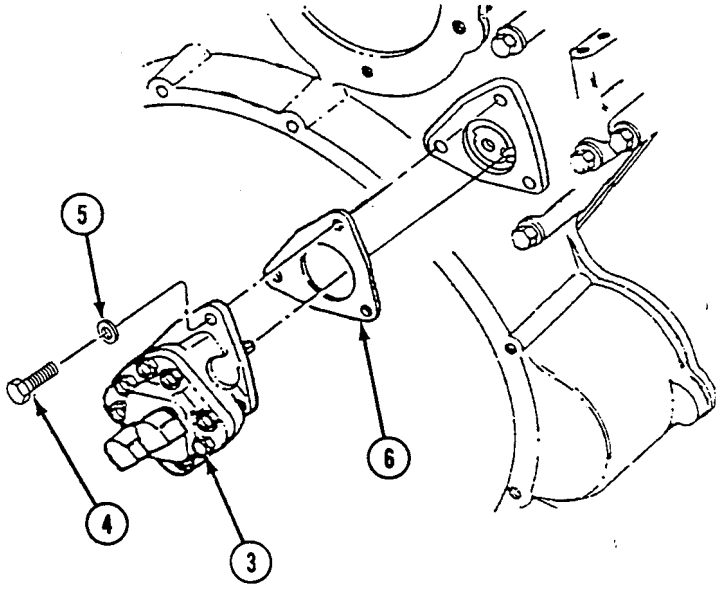
REMOVAL

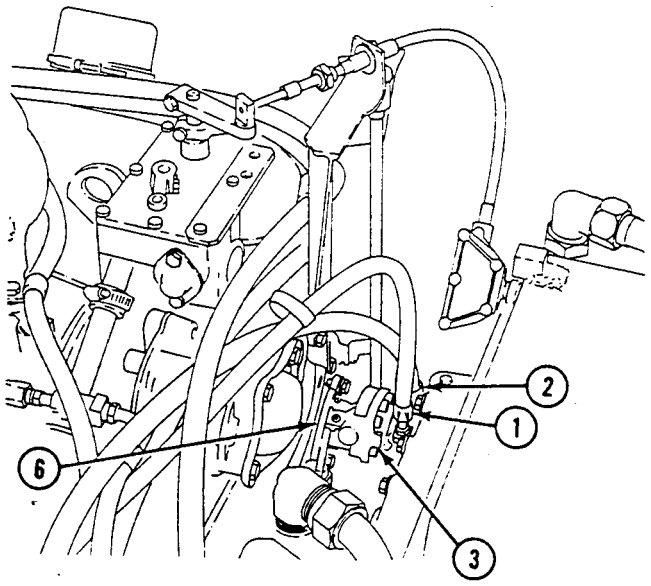
NOTE

Before replacing engine fuel pump, do fuel pump flow test (WP 0147 00).

If engine fuel pump is to be replaced, remove hose fittings and install on replacement pump.

1. Disconnect inlet hose (1) and outlet hose (2) from engine fuel pump (3).
2. Remove three cap screws (4), washers (5), engine fuel pump (3), and gasket (6) from engine. Discard gasket.



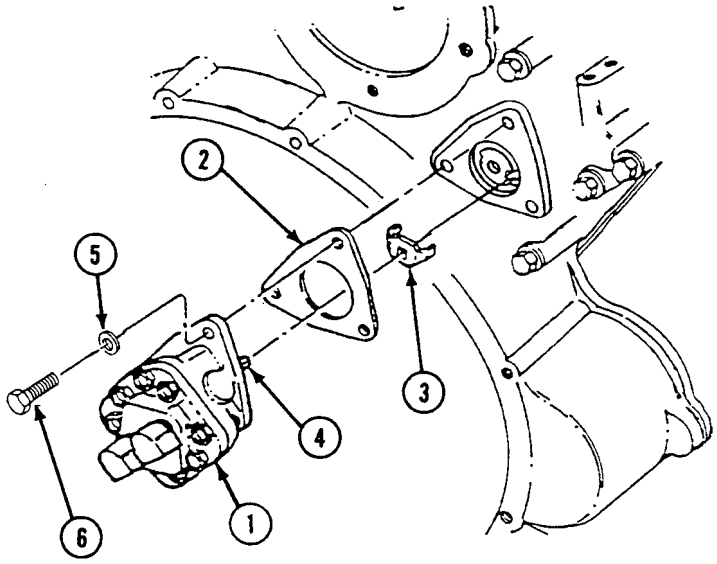


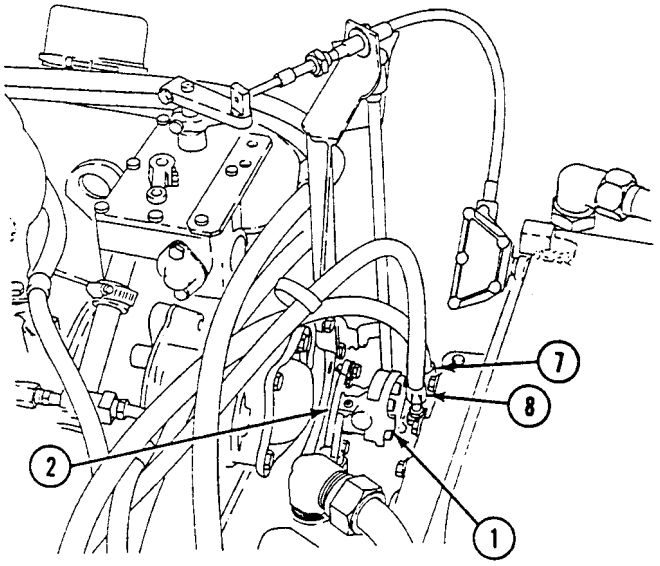
CLEANING

1. Clean tapered male threads on engine fuel pump with cleaning compound.
2. Apply sealing compound to threads on engine fuel pump. Do not apply sealing compound beyond end of threads.

INSTALLATION

1. Position engine fuel pump (1) and new gasket (2) on engine with fuel pump drive coupling (3) over square end of fuel pump drive shaft (4).
2. Install three washers (5) and screws (6) to secure engine fuel pump (1) to engine.
3. Torque screws (6) 156-204 in-lb (17.63-23.03 N•m).
4. Connect outlet hose (7) and inlet hose (8) to engine fuel pump (1).





FOLLOW-THROUGH STEPS

1. Lower center seat (see your -10).
2. Install top access cover and grille (see your -10).
3. Connect both battery negative leads (WP 0292 00).

END OF TASK

REPLACE ELECTRIC FUEL PUMPS 0151 00

THIS WORK PACKAGE COVERS:

Removal (page 0151 00-2).
Installation (page 0151 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts

Cleaning compound (WP 0542 00, Item 9)
Sealing compound (WP 0542 00, Item 37)
Lock washer (3)
Suitable container

Personnel Required

Unit Mechanic

References

See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Front cargo compartment floor plate raised (WP 0393 00)
Power plant rear access door/panel removed (see your -10)
Power plant lower rear access cover removed (see your -10)
Battery negative lead(s) disconnected (WP 0292 00)

REMOVAL

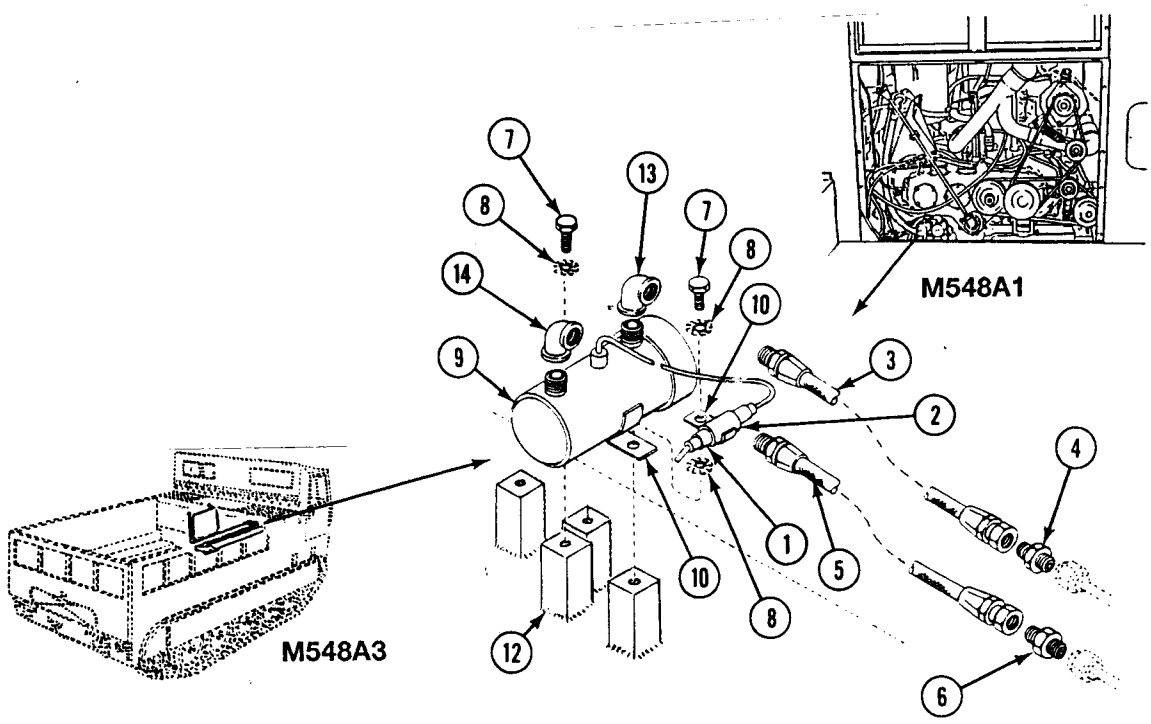
NOTE

Electric fuel pumps for M548A1 and M548A3 are removed and installed the same way. M548A1 electric fuel pumps are located just inside power plant rear access door. M548A3 electric fuel pumps are located on left side box beam in engine compartment.

There are two types of electric fuel pumps: the Bendix/Facet and Walbro. Both models are tested, removed, and installed the same way. The Bendix/Facet is shown. Before replacing electric fuel pump, do flow test (WP 0148 00).

Removal procedures for the left and right electric fuel pumps are the same. The left fuel pump is shown.

1. Disconnect circuit 77A lead (1) from left fuel pump capacitor (2).
2. Disconnect fuel inlet hose (3) from adapter (4) and fuel outlet hose (5) from adapter (6).
3. Remove two screws (7), three lock washers (8), left fuel pump (9) with capacitor (2) and bracket (10), and fuel pump bracket (11) from mounting blocks (12). Discard lock washers.
4. Remove elbow (13) and elbow (14) from left fuel pump (9).



INSTALLATION

NOTE

If your carrier's right electric fuel pump interferes with the rear engine compartment bulkhead, reverse the position of fuel pump. Reroute fuel pump hoses to be compatible with repositioned electric fuel pump.

NOTE

Installation procedures for left and right electric fuel pumps are the same. The left fuel pump is shown.

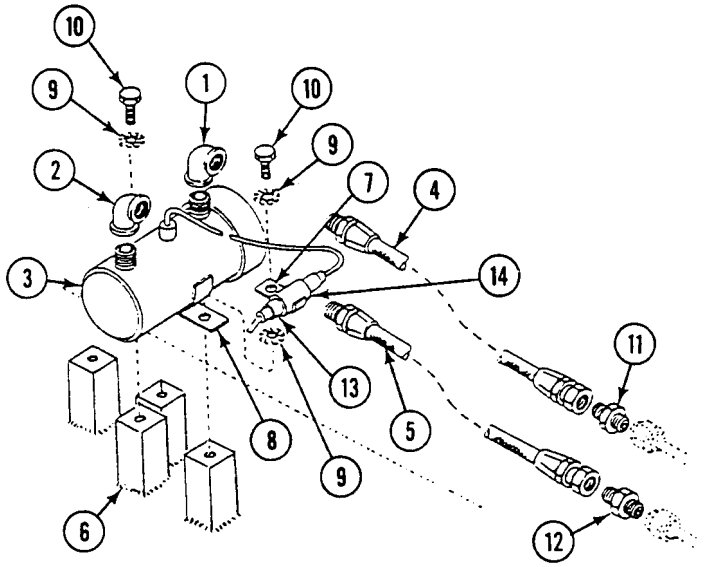
Replace faulty electric fuel pump with waterproof fuel pump.

1. Clean male threads of elbow (1) and elbow (2) with cleaning compound.
2. Put sealing compound on male threads of elbow (1) and elbow (2). Do not apply sealing compound beyond small end of threads.
3. Install elbow (1) and elbow (2) on left fuel pump (3). Connect fuel inlet hose (4) to elbow (1) and fuel outlet hose (5) to elbow (2).
4. Place left fuel pump (3) on mounting blocks (6).

NOTE

Place one lock washer (9) on each side of capacitor bracket (7).

5. Place capacitor bracket (7) over fuel pump bracket (8) and secure to mounting blocks (6) with three new lock washers (9) and two screws (10).
6. Connect fuel inlet hose (4) to adapter (11). Connect fuel outlet hose (5) to adapter (12).
7. Connect circuit 77A lead (13) to left fuel pump capacitor (14).



FOLLOW-THROUGH STEPS

1. Connect battery negative lead(s) (WP 0292 00).
2. Start engine (see your -10).
3. Check electric fuel pump for proper operation.
4. Stop engine (see your -10).
5. Install power plant lower rear access cover (see your -10).
6. Install power plant rear access door/panel (see your -10).
7. Lower cargo compartment front floor plate (WP 0393 00).

END OF TASK

REPLACE AIR CLEANER AND ELEMENT (M548A1) 0152 00

THIS WORK PACKAGE COVERS:

Removal (page 0152 00-2).
Installation (page 0152 00-3).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 18)

Materials/Parts
Key washer (4)

Personnel Required
Unit Mechanic

References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (WP 0513 00)
Top access cover and grilles removed (WP 0390 00)
Center seat raised (see your -10)

REPLACE AIR CLEANER AND ELEMENT (M548A1) — Continued 0152 00

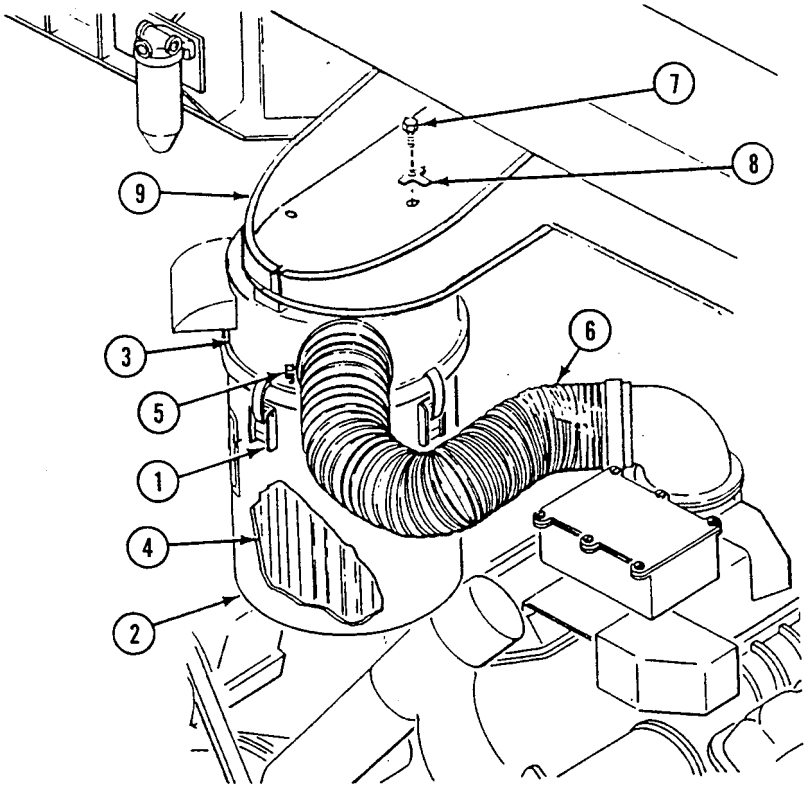
REMOVAL

1. Release four latches (1). Remove case (2) from head (3) with air cleaner element (4) inside case.
2. Remove air cleaner element (4) from case (2).

NOTE

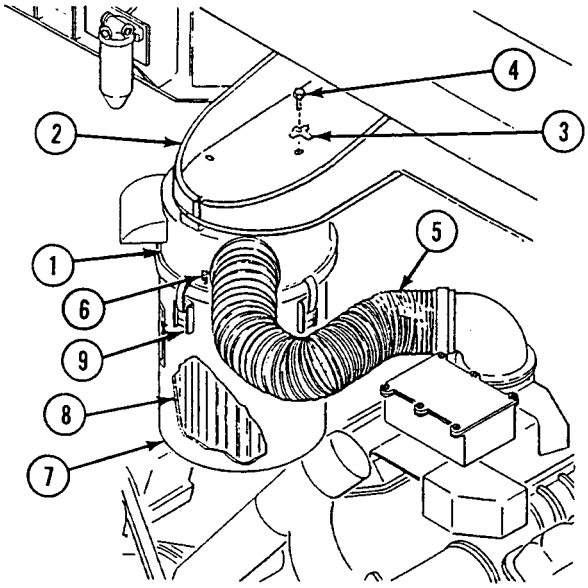
For maintenance of air cleaner element, see your -10.

3. Remove clamp (5) and hose (6) from head (3).
4. Remove four screws (7), key washers (8), and head (3) from bracket (9). Discard key washers.



INSTALLATION

1. Secure head (1) to bracket (2) with four new key washers (3) and screws (4).
2. Secure hose (5) to head (1) with clamp (6).
3. Place case (7) with air cleaner element (8) inside on head (1). Secure with four latches (9).



FOLLOW-THROUGH STEPS

1. Start engine (see your -10).
2. Check air cleaner and element for proper operation.
3. Stop engine (see your -10).
4. Lower center seat (see your -10).
5. Install top access cover and grilles (WP 0390 00).

END OF TASK

REPLACE AIR CLEANER HOSE AND CLAMPS (M548A1) 0153 00

THIS WORK PACKAGE COVERS:

Removal (page 0153 00-1).
Installation (page 0153 00-2).

INITIAL SETUP:

Maintenance Level

Unit

References

See your -10

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)

Personnel Required

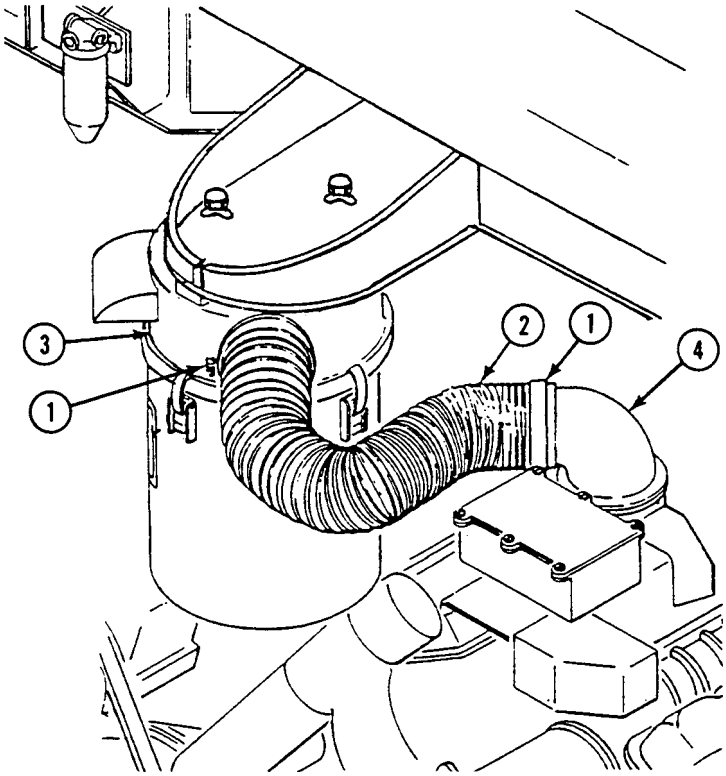
Unit Mechanic

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Top left access grille and center cover removed (WP 0390 00)

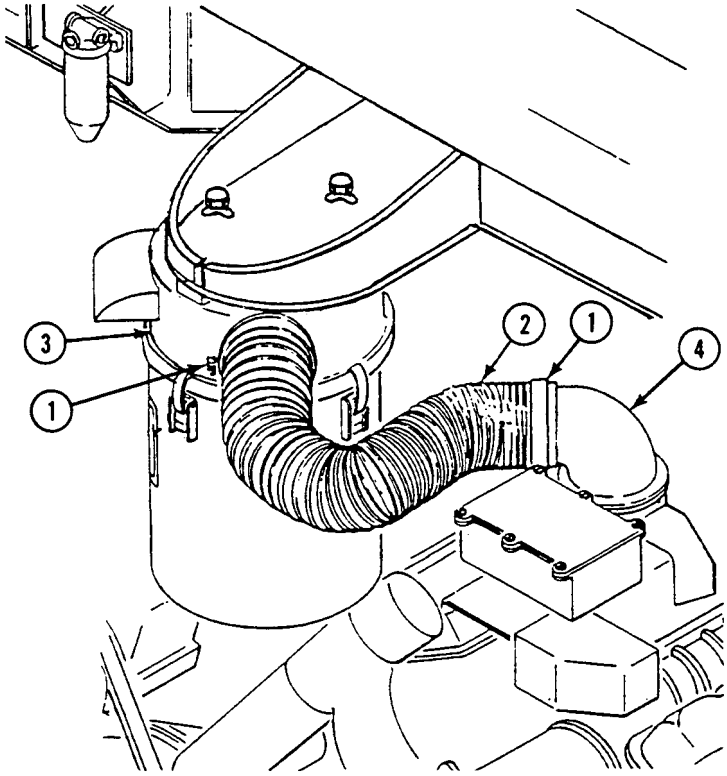
REMOVAL

1. Remove two clamps (1) and hose (2) from head (3) and engine air horn (4).



INSTALLATION

1. Secure hose (2) to engine air horn (4) and head (3) with two clamps (1).



FOLLOW-THROUGH STEPS

1. Start engine (see your -10).
2. Check air cleaner hose for proper operation.
3. Stop engine (see your -10).
4. Install top left access grille and center cover (WP 0390 00).

END OF TASK

REPLACE AIR CLEANER FILTER INDICATOR ASSEMBLY (M548A1) 0154 00

THIS WORK PACKAGE COVERS:

Removal (page 0154 00-2).
Installation (page 0154 00-4).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts

Sealing compound (WP 0542 00, Item 37)
Tiedown strap (5) (WP 0542 00, Item 43)
Grommet
Lock nut (3)
Lock washer

Personnel Required

Unit Mechanic

References

See your -10

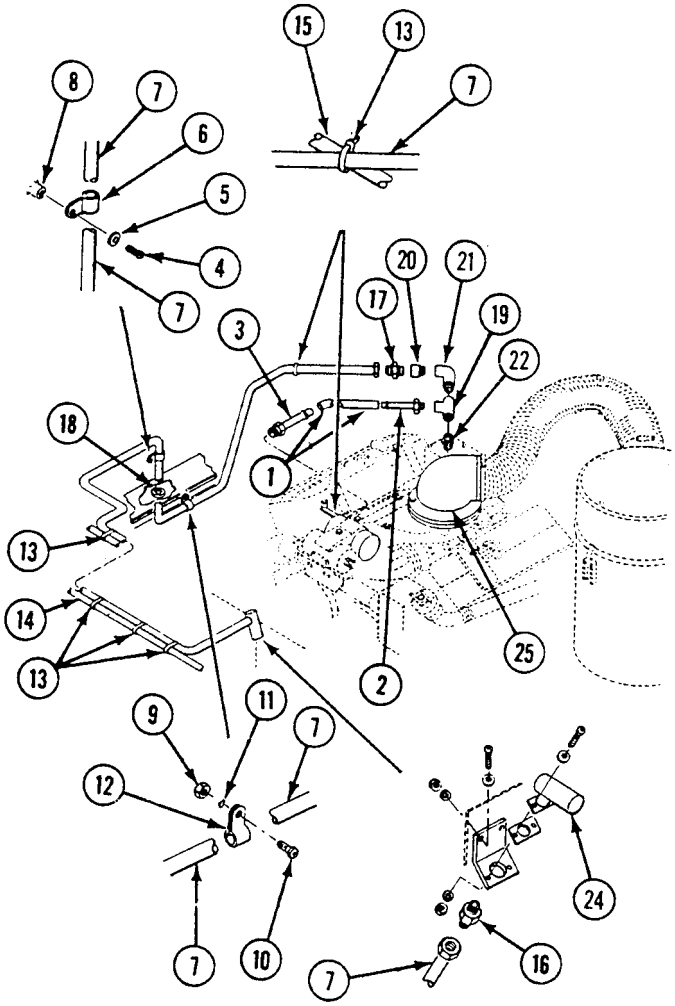
Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Top left access grille and center cover removed (WP 0390 00)

REPLACE AIR CLEANER FILTER INDICATOR ASSEMBLY (M548A1) — Continued 0154 00

REMOVAL

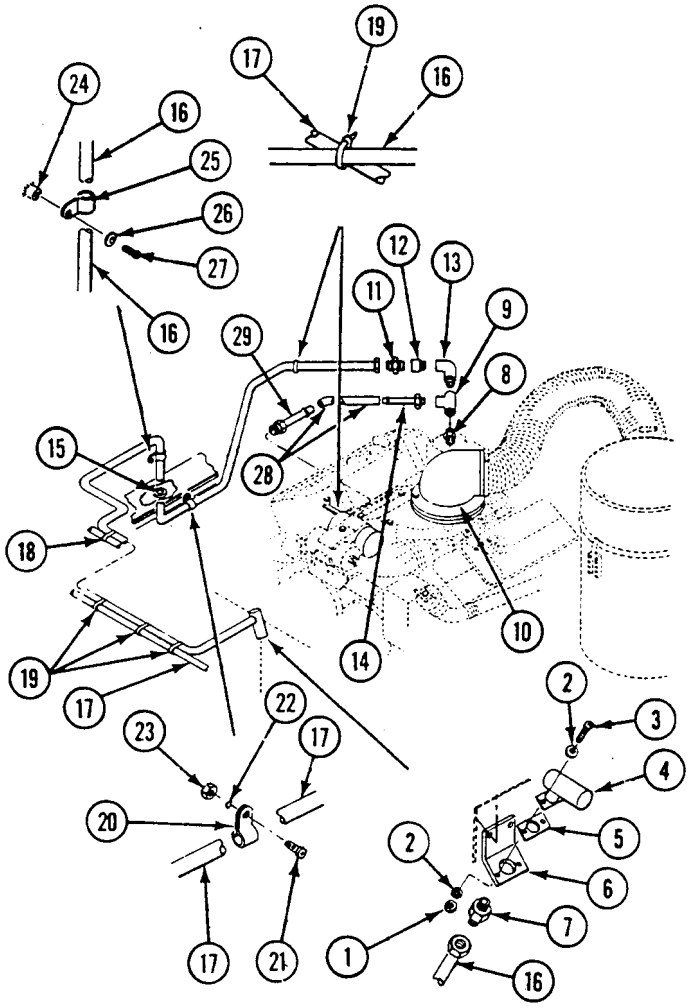
1. Disconnect hose (1) from adapter (2) and adapter (3).
2. Remove screw (4), lock washer (5), clamp (6), and hose (7) from weldnut (8). Discard lock washer.
3. Remove lock nut (9), screw (10), washer (11), clamp (12), and hose (7) from support. Discard lock nut.
4. Remove five straps (13) that secure hose (7) to wiring harness (14) and hose (15). Discard straps.
5. Disconnect hose (7) from adapter (16) and adapter (17).
6. Remove hose (7) and grommet (18) from floor. Discard grommet.
7. Remove adapter (2) from tee (19).
8. Remove adapter (17), bushing (20), and elbow (21) from tee (19).
9. Remove tee (19) and nipple (22) from engine air inlet (23).
10. Remove adapter (16) from indicator (24).



NOTE

Do not discard gasket unless indicator is being replaced. Gasket comes with indicator.

11. Remove two lock nuts (1), four washers (2), two screws (3), indicator (4) and gasket (5) from bracket (6). Discard lock nuts.

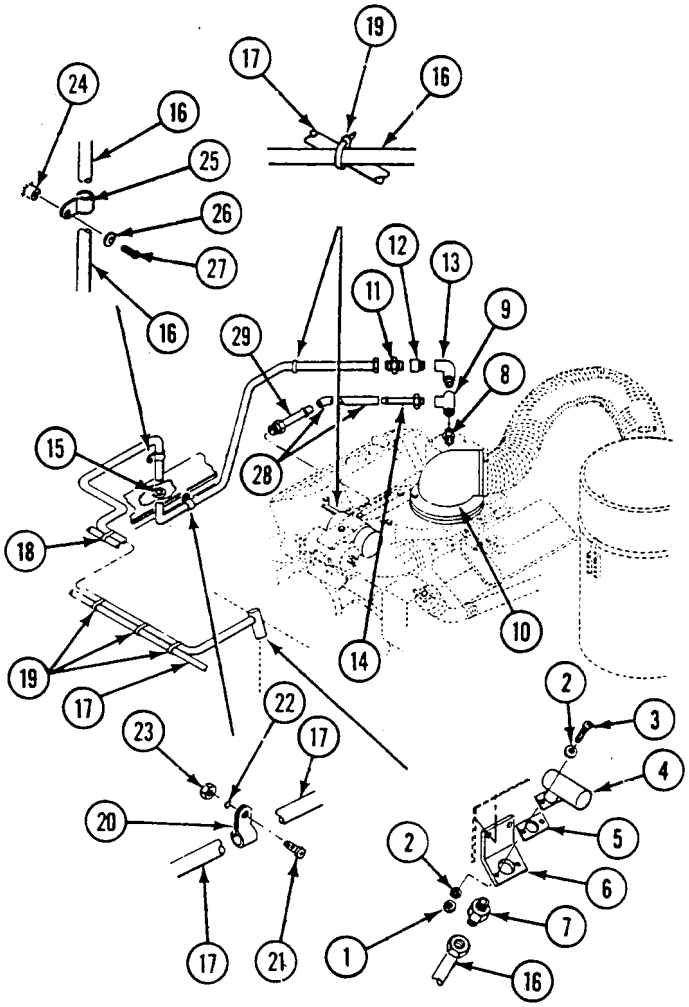


INSTALLATION

NOTE

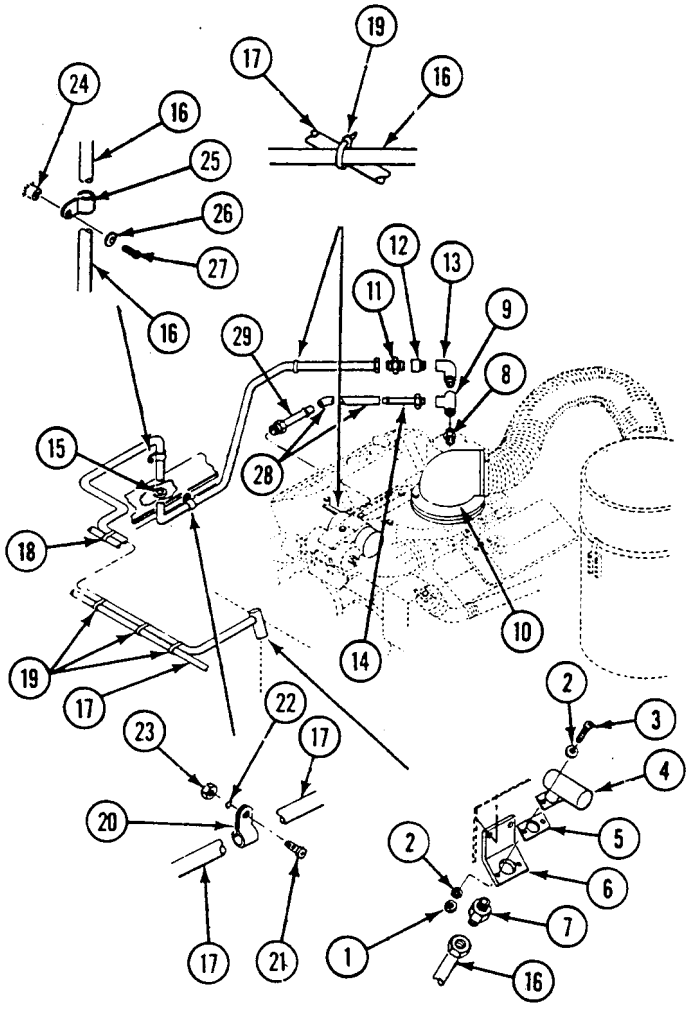
Apply sealing compound on threads of male fittings before installation. Do not apply beyond end of threads.

1. Place gasket (5) and indicator (4) on bracket (6). Secure with two screws (3), four washers (2), and two new lock nuts (1).
2. Install adapter (7) in indicator (4).
3. Install nipple (8) and tee (9) in engine air inlet (10).
4. Install adapter (11), bushing (12), and elbow (13) in tee (9).
5. Install adapter (14) in tee (9).
6. Install new grommet (15) in floor.



7. Route hose (16) through grommet (15). Connect hose to adapter (11) and adapter (7).
8. Secure hose (17) to wiring harness (18) and hose (16) with five new straps (19).
9. Secure hose (17) to support with clamp (20), screw (21), washer (22), and new lock nut (23).
10. Secure hose (16) to weldnut (24) with clamp (25), new lock washer (26), and screw (27).

11. Connect hose (28) to adapter (29) and adapter (14).



FOLLOW-THROUGH STEPS

1. Start engine (see your -10).
2. Check operation of air cleaner filter indicator (see your -10).
3. Stop engine (see your -10).
4. Install top left access grille and center cover (WP 0390 00).

END OF TASK

SERVICE AIR CLEANER FILTER ELEMENT (M548A3) 0155 00

THIS WORK PACKAGE COVERS:

Servicing (page 0155 00-1).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)
Industrial Goggles (WP 0541 00, Item 21)
Air Blow Gun (WP 0541 00, Item 22)

Materials/Parts

Detergent (WP 0542 00, Item 16)
Suitable container

Personnel Required

Unit Mechanic

References

See your -10

Equipment Condition

Engine stopped (see your -10)

Carrier blocked (see your -10)

Center seat raised (see your -10)

Air cleaner element removed (WP 0156 00)

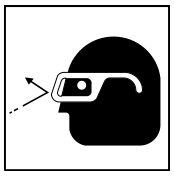
SERVICING

WARNING

Failure to decontaminate and wear protective clothing after NBC attack could result in serious health hazards to personnel. Do not service air cleaner or vent system after NBC attack until carrier has been decontaminated.

1. Inspect element for frayed or deformed condition. Replace frayed or deformed element.

WARNING



Air pressure in excess of 30 psi (207 kpa) can injure personnel. Do not direct pressurized air at yourself or others. Always wear goggles.

NOTE

Vee Pac element may be cleaned by either or both of the following methods.

2. Using air gun, blow out element with 30 psi (207 kpa) maximum compressed air from inside to outside of element (in direction opposite to normal air flow).

CAUTION

Do not use gasoline or solvents for cleaning.

3. Wash element in solution of nonsudsing or low sudsing detergent and water or soap and water.
   a. Prepare solution of 1 cup of dry detergent to 5 gallons (18.9 liters) of water in a container large enough to completely submerge the element. The temperature of the solution should not exceed 190°F. Make solution stronger if element is extremely dirty.
   b. Immerse element completely in the washing solution. Agitate element gently for 2 minutes.
   c. Allow element to soak in solution for a minimum of 15 minutes. Agitate element gently for an additional 3 to 5 minutes.
   d. Remove element from solution and allow to drain.
   e. Rinse element with cold water from a hose with a maximum 45 psi (311 kpa) water pressure from inside to outside of element. Continue rinsing until water runs clear and detergent or soap residue is removed from element.
   f. Allow element to air dry thoroughly.

FOLLOW-THROUGH STEPS

1. Install air cleaner element (WP 0156 00).
2. Lower center seat (see your -10).

END OF TASK

REPLACE AIR CLEANER FILTER ELEMENT (M548A3) 0156 00

THIS WORK PACKAGE COVERS:

Removal (page 0156 00-1).
Installation (page 0156 00-2).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)

Personnel Required
Unit Mechanic

References
See your -10

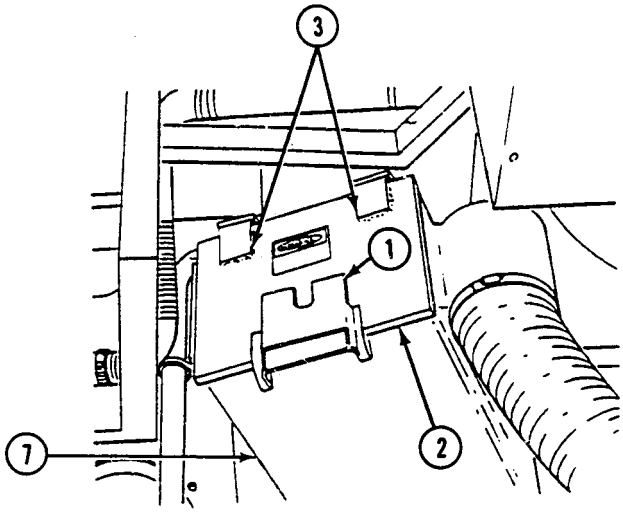
Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Center seat raised (see your -10)

REMOVAL

WARNING

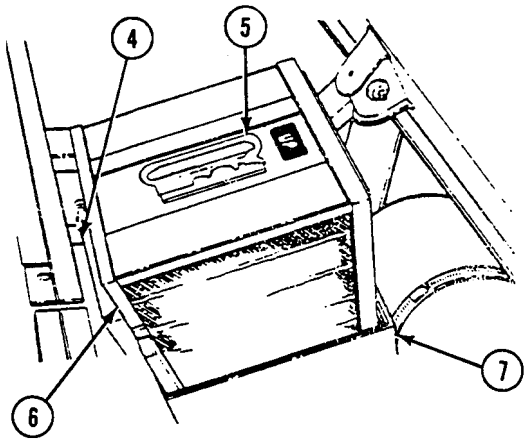
Failure to decontaminate and wear protective clothing after NBC attack could result in serious health hazards to personnel. Do not service air cleaner or vent system after NBC attack until carrier has been decontaminated.

1. Lift air cleaner door handle (1) and slide door (2) out of two retainers (3).
2. Lift latch (4), hold handle (5), and pull filter element (6) up and out of air cleaner housing (7).



INSTALLATION

1. Hold handle (5), lower filter element (6) into air cleaner housing (7), and close latch (4).
2. Position door (2) in two retainers (3) and lower air cleaner door handle (1).



FOLLOW-THROUGH STEPS

1. Lower center seat (see your -10).

END OF TASK

REPLACE AIR CLEANER INDICATOR AND HOSE (M548A3) 0157 00

THIS WORK PACKAGE COVERS:

Removal (page 0157 00-2).
Cleaning (page 0157 00-2).
Installation (page 0157 00-3).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts
Antiseize compound (WP 0542 00, Item 6)
Sealing compound (WP 0542 00, Item 37)

Personnel Required
Unit Mechanic

References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Center seat raised (see your -10)
Cab floor plates removed (WP 0395 00)

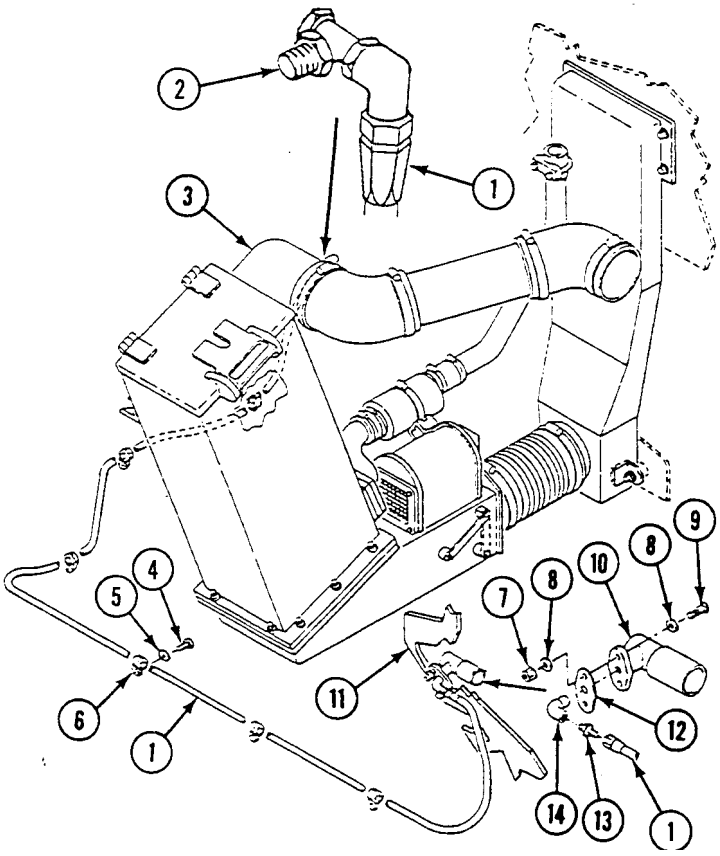
REMOVAL

1. Disconnect indicator hose (1) from tee (2) on outlet duct (3).
2. Remove six screws (4), washers (5), and clamps (6) from indicator hose (1).

NOTE

Do not discard gasket unless air cleaner indicator is being replaced.

3. Remove two nuts (7), four washers (8), and two screws (9) securing air cleaner indicator (10) to mounting plate (11). Remove gasket (12).
4. Disconnect indicator hose (1) from adapter (13) and remove adapter from elbow (14).
5. Remove elbow (14) from air cleaner indicator (10).

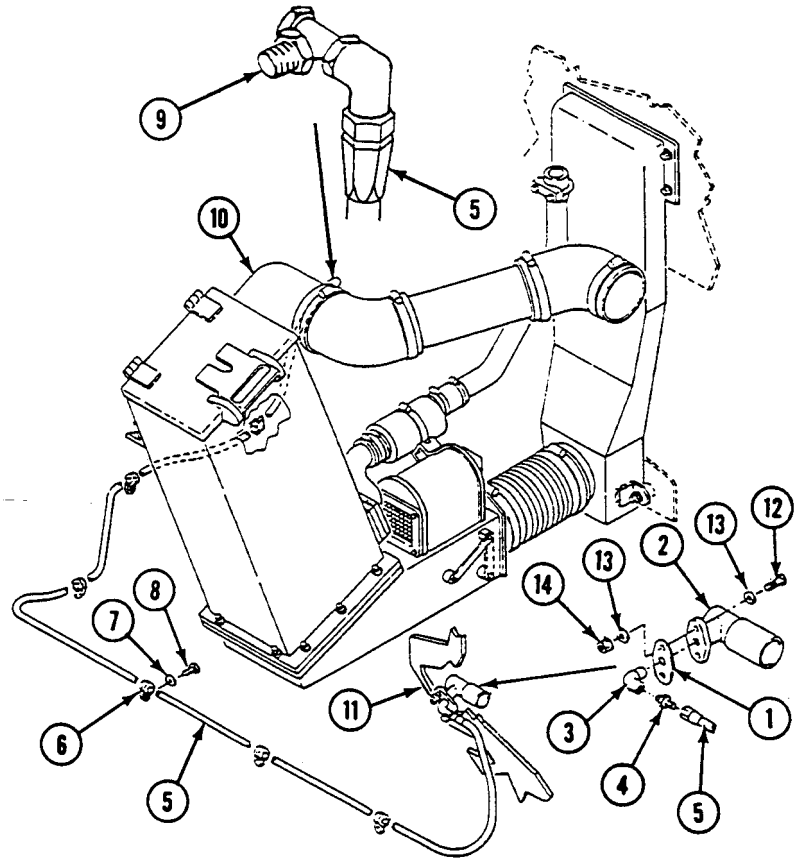


CLEANING

1. Clean tapered pipe threads and apply a light coat of sealing compound.
2. Clean external threads of elbow and apply a light coat of antiseize compound.
3. Inspect elbows for damaged threads, cracks, or deformation. Replace items that show any of these defects.
4. Inspect filter adapter for damaged threads and filter screen. Replace air cleaner indicator and adapter if adapter shows either of these defects.
5. Inspect indicator hose for cracks and indication of collapse. Replace hose that shows either of these defects.

INSTALLATION

1. Place gasket (1) on air cleaner indicator (2) and install elbow (3).
2. Install adapter (4) in elbow (3) on air cleaner indicator (2) and connect indicator hose (5) to adapter.
3. Install six clamps (6), washers (7), and screws (8) on indicator hose (5).
4. Connect indicator hose (5) to tee (9) on outlet duct (10).
5. Position air cleaner indicator (2) and gasket (1) on mounting plate (11) and secure with two screws (12), washers (13), and nuts (14).



FOLLOW-THROUGH STEPS

1. Lower center seat (see your -10).
2. Install cab floor plates (WP 0395 00).

END OF TASK

REPLACE AIR CLEANER DOOR GASKET (M548A3) 0158 00

THIS WORK PACKAGE COVERS:

Removal (page 0158 00-2).
Installation (page 0158 00-2).

INITIAL SETUP:

Maintenance Level

Unit

Personnel Required

Unit Mechanic

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)

References

See your -10

Materials/Parts

Adhesive (WP 0542 00, Item 2)
Cleaning compound (WP 0542 00, Item 9)
Gasket

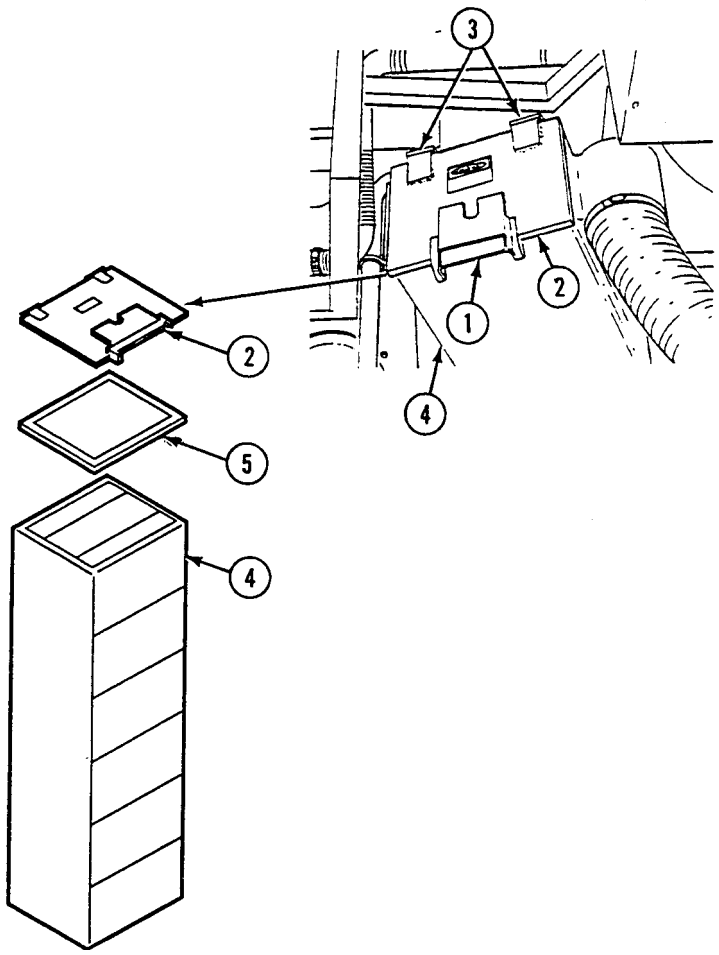
Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Center seat raised (see your -10)

REPLACE AIR CLEANER DOOR GASKET (M548A3) — Continued 0158 00

REMOVAL

1. Lift door handle (1) and slide door (2) out of two retainers (3) on air cleaner (4).
2. Remove defective gasket (5) from door (2). Discard gasket.



INSTALLATION

1. Clean mounting surfaces of door (2) with cleaning compound and blow dry.
2. Apply thin coat of adhesive to clean mounting surfaces of door (2) and new gasket (5). Install gasket on door.
3. Slide door (2) in two retainers (3) on air cleaner (4) and lower door handle (1).

FOLLOW-THROUGH STEPS

1. Lower center seat (see your -10).

END OF TASK

REPLACE AIR CLEANER ASSEMBLY AND RELATED PARTS (M548A3) 0159 00

THIS WORK PACKAGE COVERS:

Removal (page 0159 00-2).
Installation (page 0159 00-5).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)
Socket Wrench Set (WP 0541 00, Item 64)
Torque Wrench (WP 0541 00, Item 70)
Torque Wrench (WP 0541 00, Item 71)

Materials/Parts
Lock nut (10)
Lock nut (2)
Lock washer (4)
Mount (2)

Personnel Required
Unit Mechanic

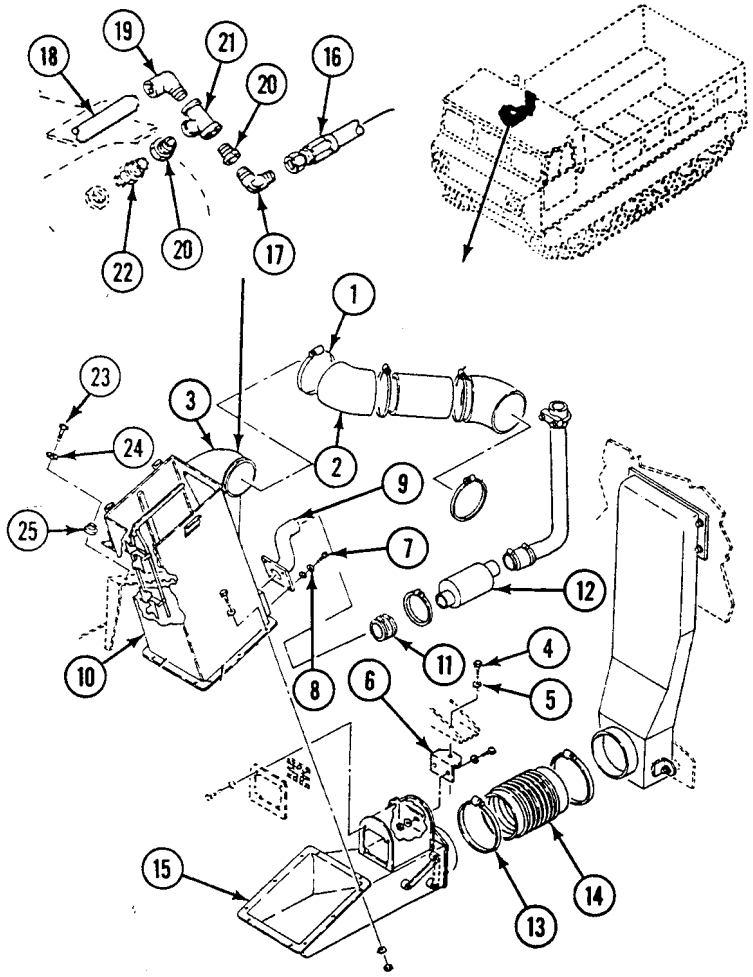
References
See your -10

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

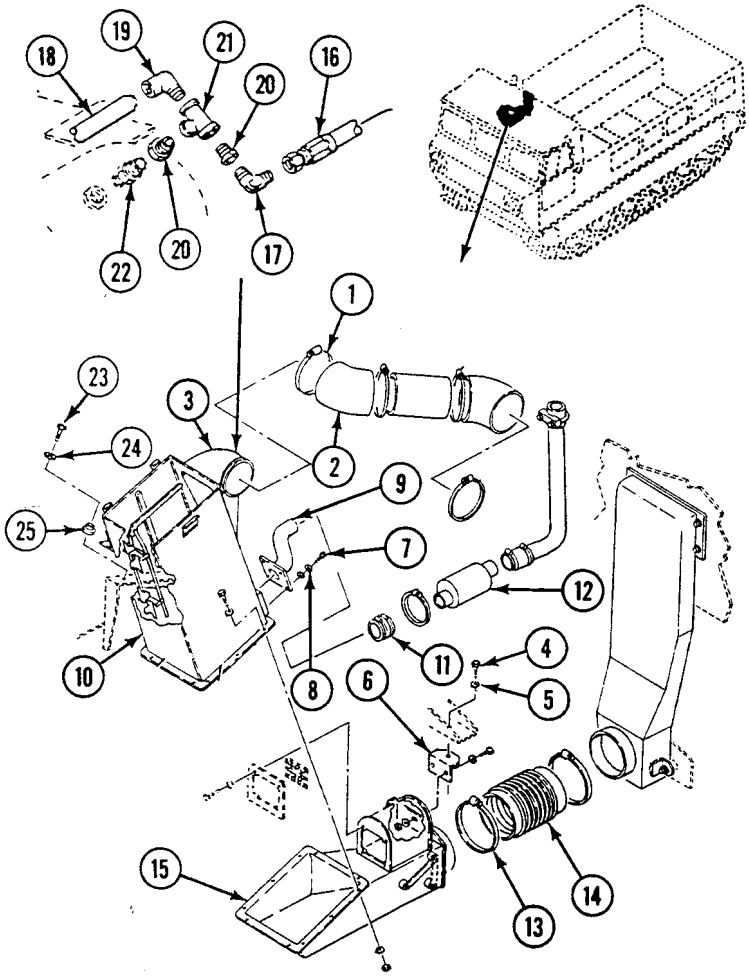
REPLACE AIR CLEANER ASSEMBLY AND RELATED PARTS (M548A3) — Continued 0159 00

REMOVAL

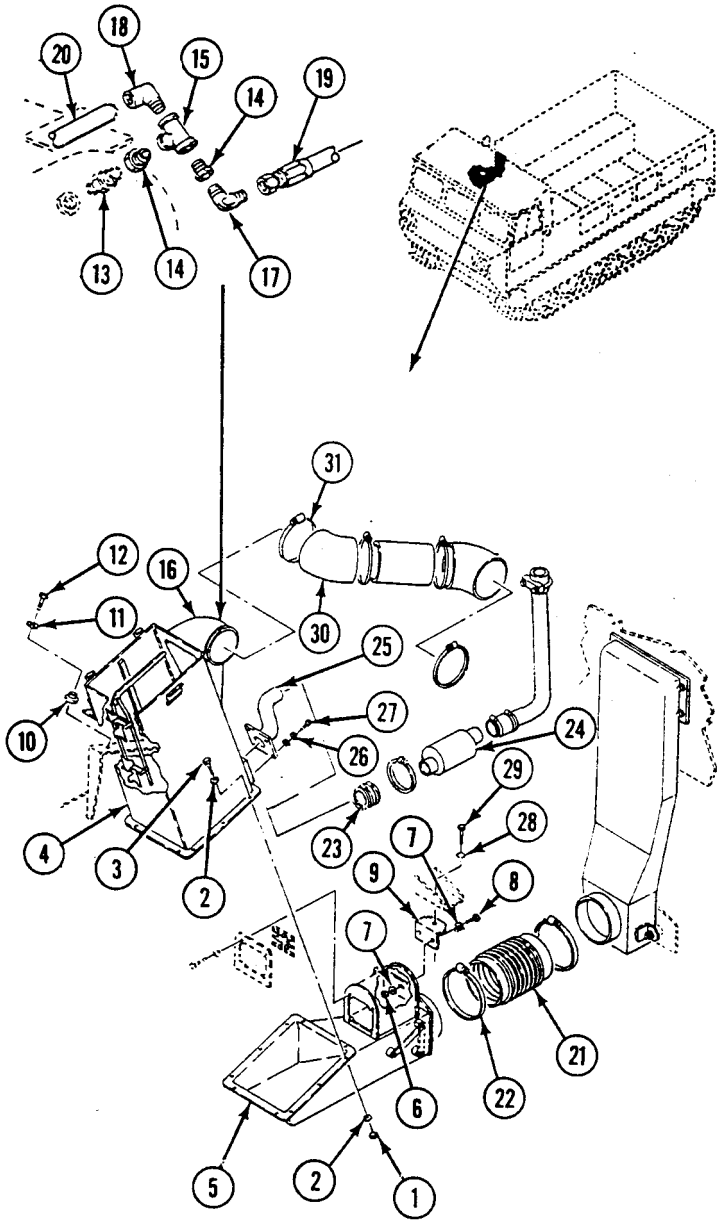
1. Loosen clamp (1) and separate elbow (2) from air cleaner head (3).
2. Remove screw (4) and washer (5) from mounting bracket (6).
3. Remove four screws (7) and lock washers (8) securing outlet exhaust tube (9) to air cleaner (10). Discard lock washers.
4. Loosen clamp (11) and remove from valve (12).



5. Loosen clamp (13) and remove duct (14) from duct assembly (15).
6. Disconnect air restrictor indicator hose (16) from elbow (17) and cold start air pump hose (18) from elbow (19).
7. Remove elbow (17), elbow (19), and reducer (20) from tee (21).
8. Remove tee (21), reducer (20), and filter (22) from air cleaner head (3).
9. Remove two screws (23), washers (24), and mounts (25). Support air cleaner case and remove from carrier. Discard mounts.



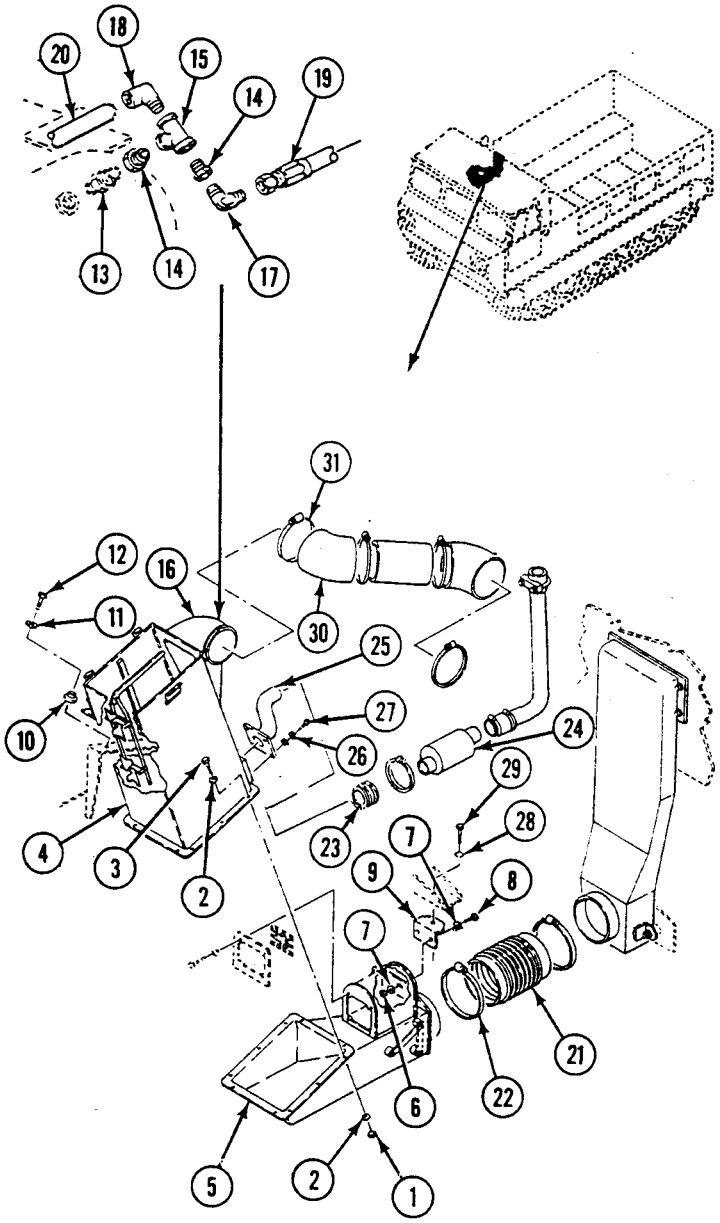
10. Remove 10 lock nuts (1), 20 washers (2), and 10 screws (3) and separate air cleaner (4) from duct assembly (5). Discard lock nuts.
11. Remove two lock nuts (6), four washers (7), two screws (8), and mounting bracket (9) from duct assembly (5). Discard lock nuts.



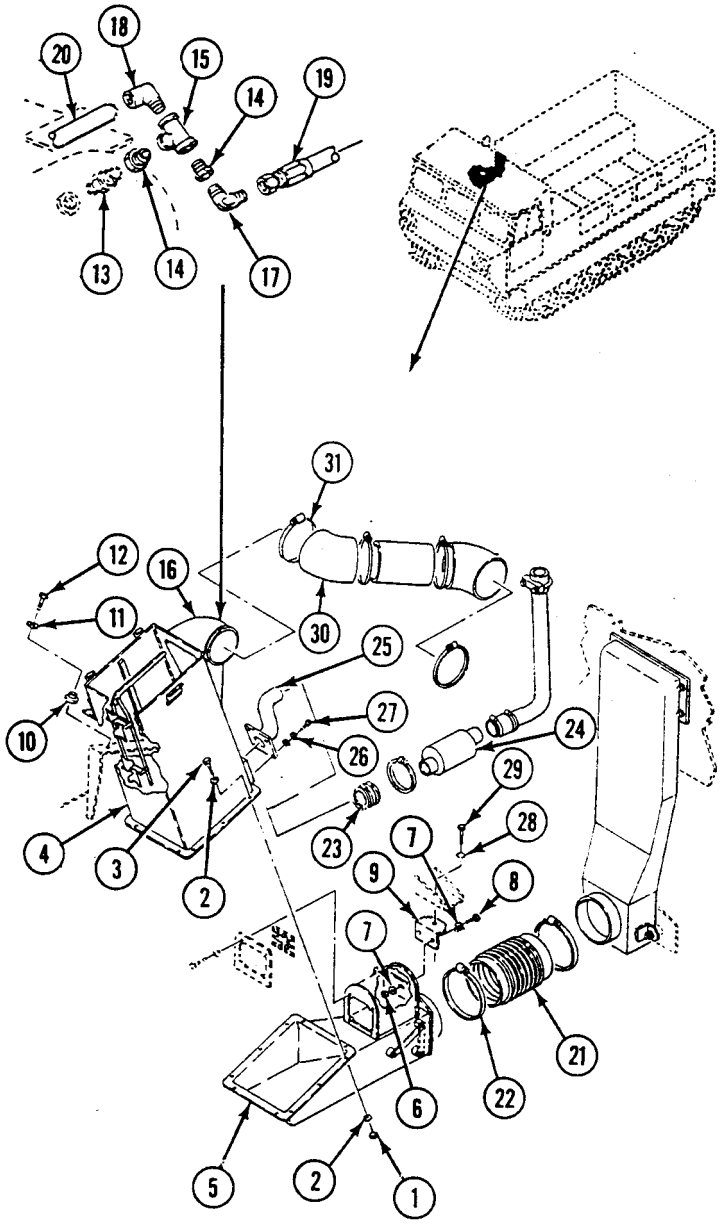
REPLACE AIR CLEANER ASSEMBLY AND RELATED PARTS (M548A3) — Continued 0159 00

INSTALLATION

1. Install mounting bracket (9) on duct assembly (5) and secure with two screws (8), four washers (7) and two new lock nuts (6). Tighten screws to 25 to 27 lb-ft (34 to 37 N•m) torque.
2. Position air cleaner (4) on duct assembly (5) and secure with 10 screws (3), 20 washers (2), and 10 new lock nuts (1). Tighten lock nuts to 81 to 91 lb-in (10 to 11 N•m) torque.
3. Position air cleaner (4) and duct assembly (5) in carrier and secure with two new water-lubricated mounts (10), washers (11), and screws (12).
4. Install filter (13), reducer (14), and tee (15) on air cleaner head (16).
5. Install reducer (14), elbow (17), and elbow (18) on tee (15).
6. Connect cold start air pump hose (19) to elbow (17) and air restrictor indicator hose (20) to elbow (18).



7. Install duct (21) on duct assembly (5) and tighten clamp (22).
8. Install clamp (23) on valve (24).
9. Position outlet exhaust tube (25) on air cleaner (4) and secure with four new lock washers (26) and screws (27).
10. Install washer (28) and screw (29) in mounting bracket (9).
11. Position elbow (30) on air cleaner head (16) and secure with clamp (31).



FOLLOW-THROUGH STEPS

1. Lower center seat (see your -10).

END OF TASK

REPLACE AIR CLEANER EXHAUST CHECK VALVE AND EJECTOR TUBE (M548A3) 0160 00

THIS WORK PACKAGE COVERS:

Removal (page 0160 00-2).
Inspection-Acceptance and Rejection Criteria (page 0160 00-2).
Installation (page 0160 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)

Personnel Required

Unit Mechanic

References

See your -10

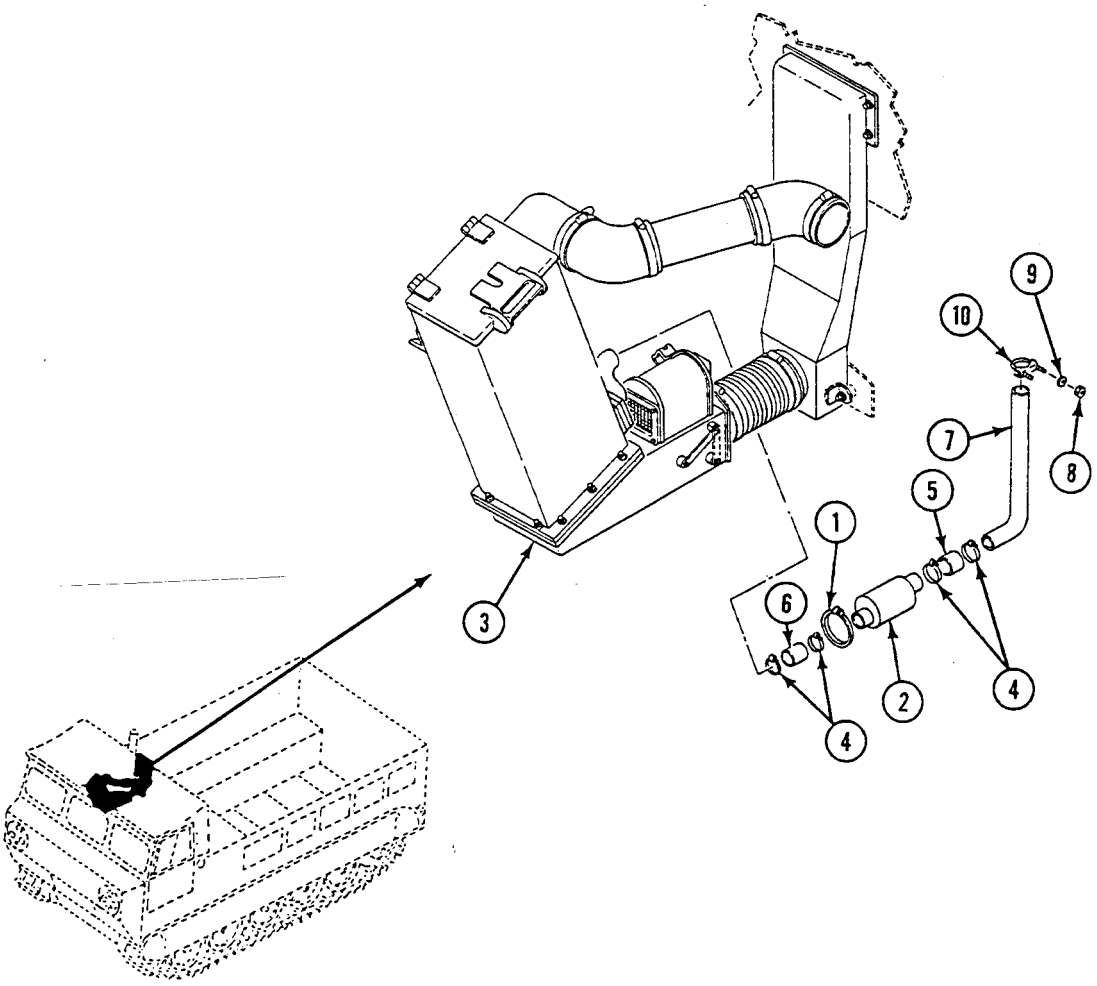
Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Center seat raised (see your -10)

REPLACE AIR CLEANER EXHAUST CHECK VALVE AND EJECTOR TUBE (M548A3) — Continued 0160 00

REMOVAL

1. Loosen clamp screw and remove clamp (1) from check valve (2) and duct assembly (3).
2. Loosen four clamps (4) on hose (5) and hose (6), slide back hoses, and remove check valve (2) from duct assembly (3).
3. Loosen two clamps (4) and slide hose (5) onto tube (7).
4. Remove two nuts (8), washers (9), and clamp (10) from tube (7). Remove tube from muffler. Remove clamps (4) and hose (5) from tube.



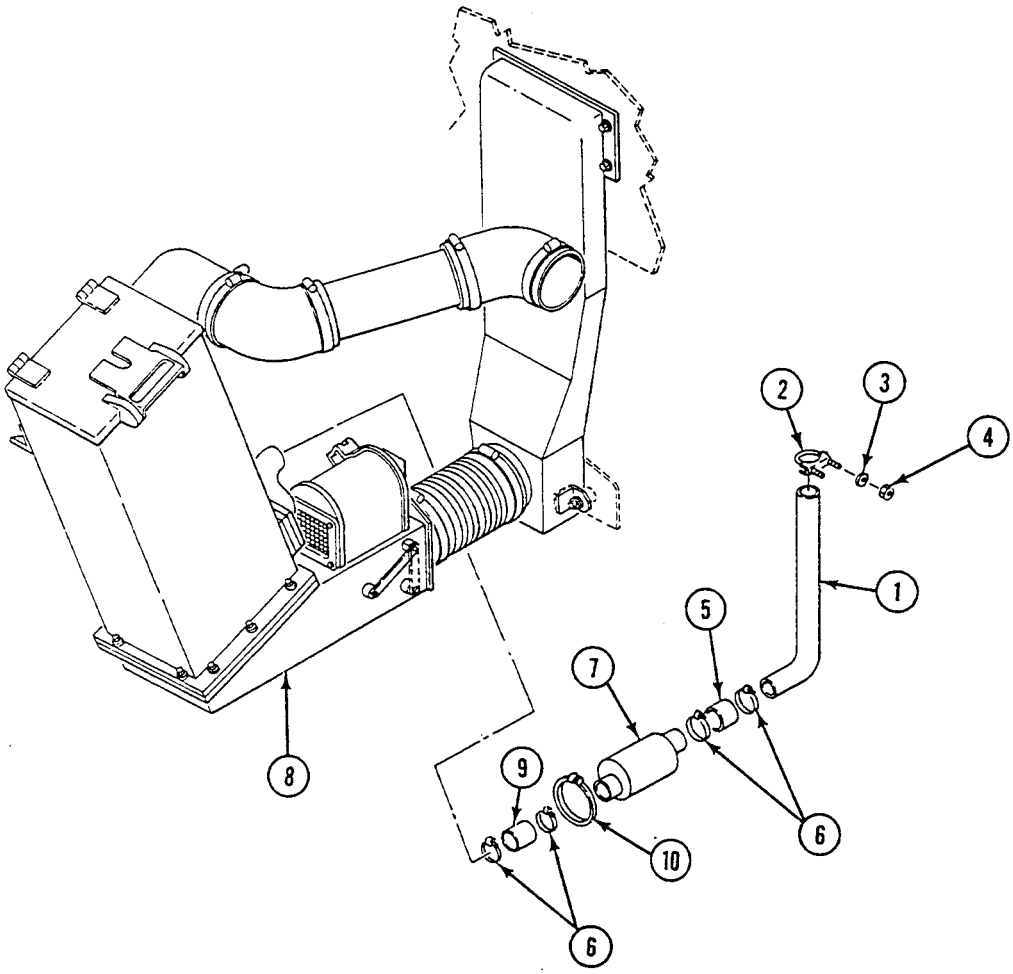
INSPECTION-ACCEPTANCE AND REJECTION CRITERIA

1. Inspect check valve and tube for dents, holes, cracks, and deformation. Replace tube or check valve that shows any of these defects.

REPLACE AIR CLEANER EXHAUST CHECK VALVE AND EJECTOR TUBE (M548A3) — Continued **0160 00**

INSTALLATION

1. Position tube (1) on muffler and install clamp (2), two washers (3), and nuts (4). Tighten nuts.
2. Position hose (5) and two clamps (6) on tube (1). Position tube on check valve (7), slide hose onto valve, and tighten the two clamps.
3. Position check valve (7) on duct assembly (8), noting exhaust flow direction. Slide hose (5) and hose (9) onto valve and secure with four clamps (6).
4. Install clamp (10) on check valve (7). Tighten clamp screw.



FOLLOW-THROUGH STEPS

1. Lower center seat (see your -10).

END OF TASK

REPLACE AIR CLEANER ELBOW AND INLET DUCT ASSEMBLIES (M548A3) 0161 00

THIS WORK PACKAGE COVERS:

Removal (page 0161 00-2).
Inspection-Acceptance and Rejection Criteria (page 0161 00-2).
Installation (page 0161 00-3).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)
Socket Wrench Set (WP 0541 00, Item 64)
Torque Wrench (WP 0541 00, Item 70)
Torque Wrench (WP 0541 00, Item 71)

Materials/Parts
Lock nut (10)
Lock nut (6)
Lock washer (2)

Personnel Required
Unit Mechanic

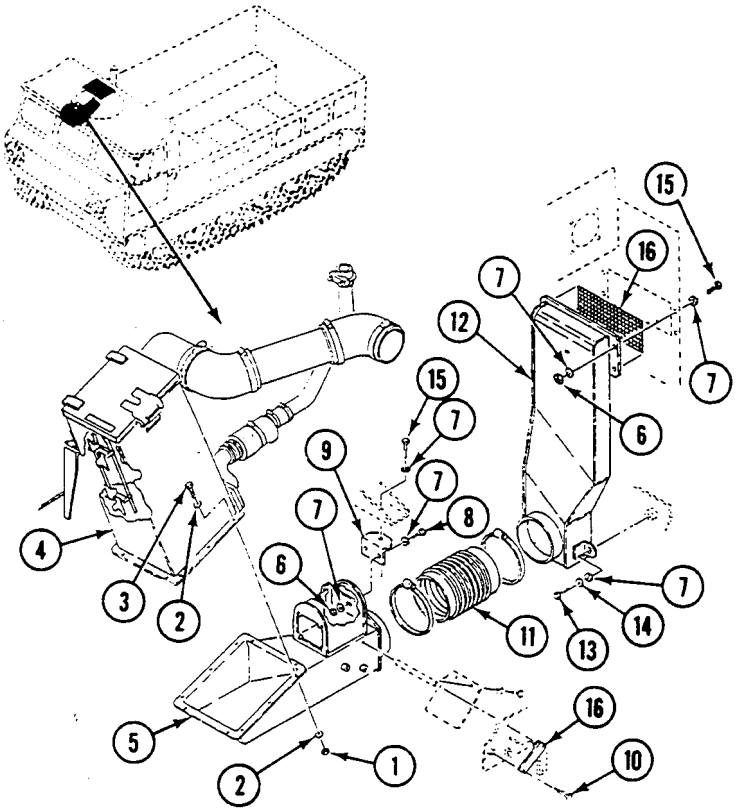
References
See your -10

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

REPLACE AIR CLEANER ELBOW AND INLET DUCT ASSEMBLIES (M548A3) — Continued 0161 00

REMOVAL

1. Remove 10 lock nuts (1), 20 washers (2), and 10 screws (3) and separate air cleaner (4) from duct assembly (5). Discard lock nuts.
2. Remove two lock nuts (6), four washers (7), two screws (8), and mounting bracket (9) from duct assembly (5). Discard lock nuts.
3. Remove damper lever screw (10).
4. Loosen clamp screw and remove flexible duct (11) from inlet duct (12).
5. Remove two screws (13), washers (7), and lock washers (14) from inlet duct (12). Discard lock washers.
6. Remove four lock nuts (6), eight washers (7), and four screws (15) from the upper end of inlet duct (12) and remove inlet duct and screen (16). Discard lock nuts.



INSPECTION-ACCEPTANCE AND REJECTION CRITERIA

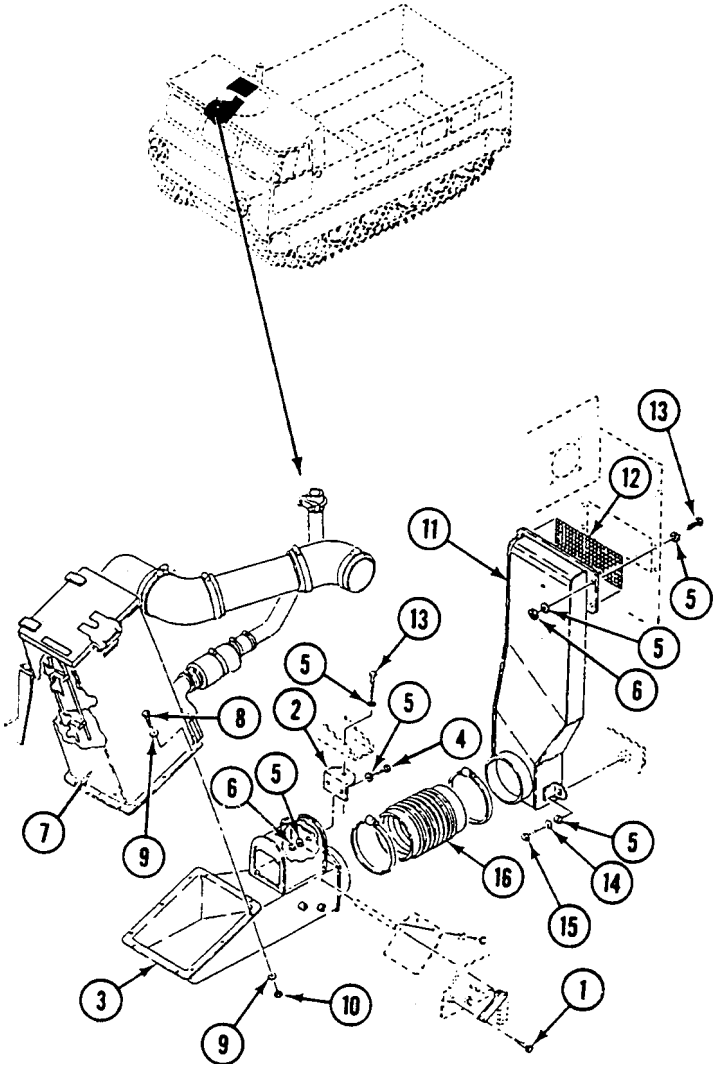
1. Inspect duct and case for dents, holes, cracks, or deformation. Straighten deformations and dents and weld cracks and small holes as required. Replace duct if defects cannot be repaired.
2. Inspect screens for tears. Repair or replace torn screens.
3. Inspect operation of damper from full open to full closed positions. Replace defective parts if damper binds or is distorted.

INSTALLATION

NOTE

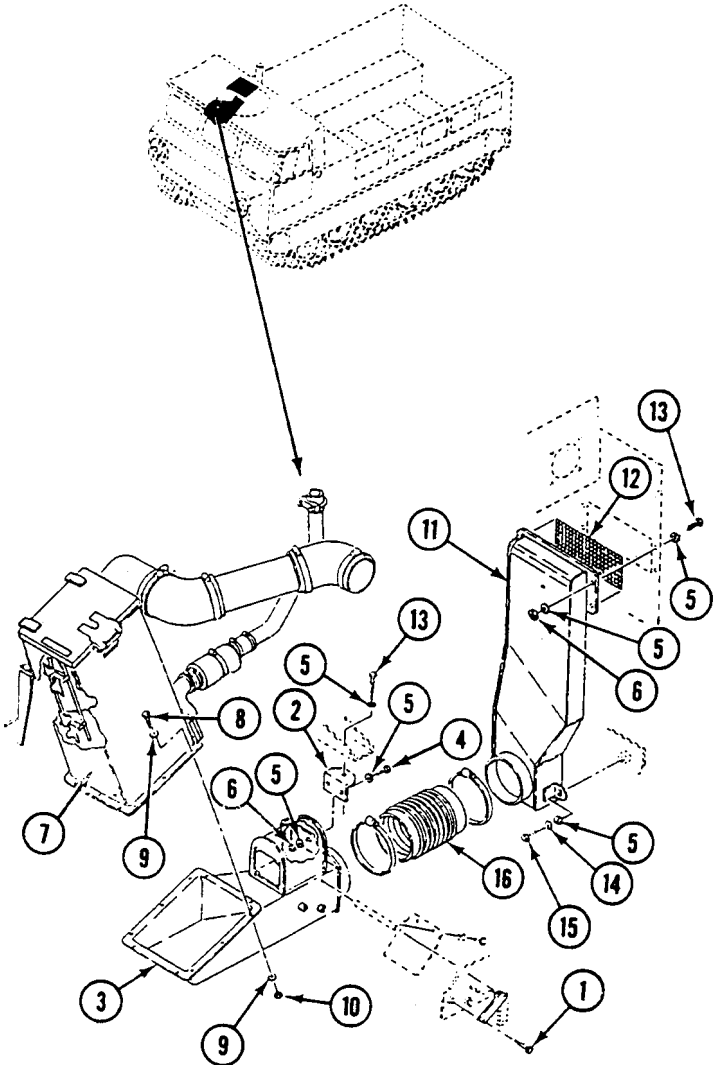
Upon installation of engine coolant heater the damper lever should be moved from open to closed (vertical) position. If the engine coolant heater is not installed, the damper lever should remain in the open position. The damper lever can be accessed only when the power plant is out of the carrier.

1. Install damper lever screw (1).
2. Install mounting bracket (2) on duct assembly (3) and secure with two screws (4), four washers (5), and two new lock nuts (6). Tighten screws to 25 to 27 lb-ft (34 to 37 N•m) torque.
3. Position air cleaner (7) on duct assembly (3) and secure with 10 screws (8), 20 washers (9), and 10 new lock nuts (10). Tighten lock nuts to 81 to 91 lb-in (10 to 11 N•m) torque.
4. Position inlet duct (11) and screen (12) in carrier and install four screws (13), eight washers (5), and four new lock nuts (6) to secure the upper end of inlet duct to carrier. Do not tighten.



REPLACE AIR CLEANER ELBOW AND INLET DUCT ASSEMBLIES (M548A3) — Continued **0161 00**

5. Install two washers (5), new lock washers (14), and screws (15) to secure inlet duct (11) to carrier. Tighten screws to 22 to 24 lb-ft (30 to 33 N•m) torque.
6. Tighten four lock nuts (6) on upper end of inlet duct (11) to 25 to 27 lb-ft (34 to 37 N•m) torque.
7. Position flexible duct (16) on inlet duct (11) and tighten clamp screw.



FOLLOW-THROUGH STEPS

1. Lower center seat (see your -10).

END OF TASK

DRAIN FUEL COMPARTMENT 0162 00

THIS WORK PACKAGE COVERS:

Servicing (page 0162 00-2).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts

Diesel fuel
Preformed packing
Suitable metal container

Personnel Required

Unit Mechanic

References

See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Battery negative lead(s) disconnected (WP 0292 00)

SERVICING

DRAIN

NOTE

To completely drain fuel compartment, park carrier on a 10 to 50 degree slope or ramp.

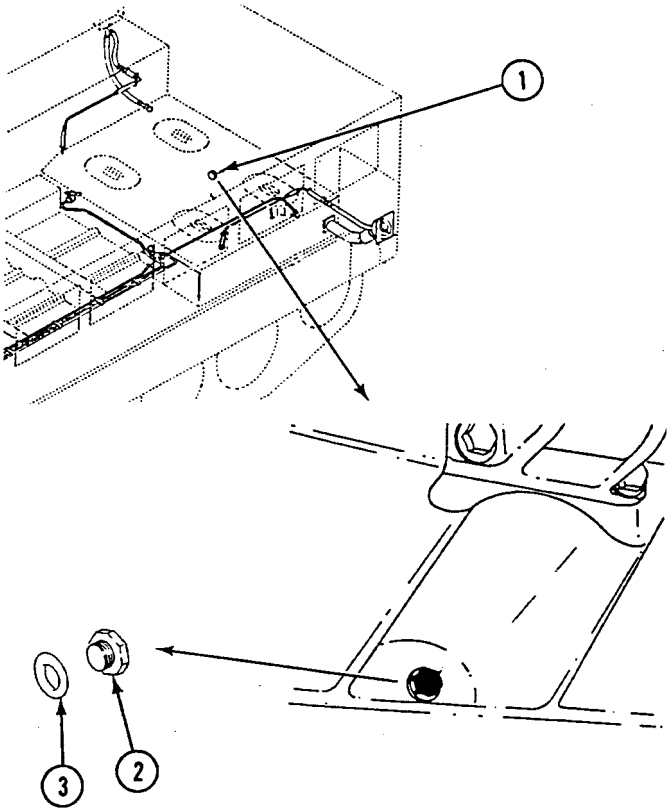
1. Place suitable metal container under drain (1) to catch fuel.

WARNING

Fuel flowing over a metal surface causes static electricity. This will cause a spark and possible fire unless surface is grounded. Provide a metal contact between carrier and container to ensure a ground.

2. Remove drain plug (2) with preformed packing (3). Drain fuel. Discard preformed packing.

3. When fuel is drained, install drain plug (2) with new preformed packing (3).



FOLLOW-THROUGH STEPS

1. Connect battery negative lead(s) (WP 0292 00).
2. Fill fuel compartment (see your -10).

END OF TASK

REMOVE/INSTALL FUEL COMPARTMENT ACCESS COVERS 0163 00

THIS WORK PACKAGE COVERS:

Removal (page 0163 00-1).
Installation (page 0163 00-2).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)
Socket Wrench Set (WP 0541 00, Item 64)
Torque Wrench (WP 0541 00, Item 70)

Materials/Parts

Sealing Compound WP 0542 00, Item 38
Gasket
Lock washer (22)

Personnel Required

Unit Mechanic

References

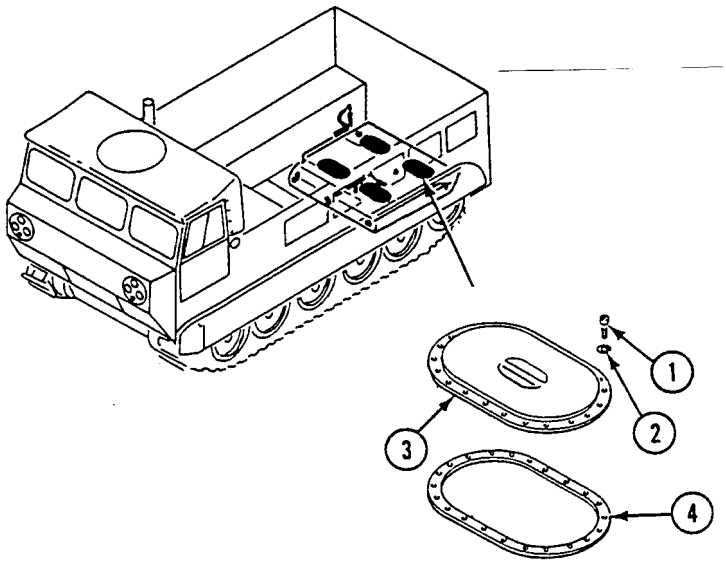
See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Battery negative lead(s) disconnected (WP 0292 00)
Fuel compartment drained (WP 0162 00)
Three rear cargo compartment floor plates removed (WP 0393 00)

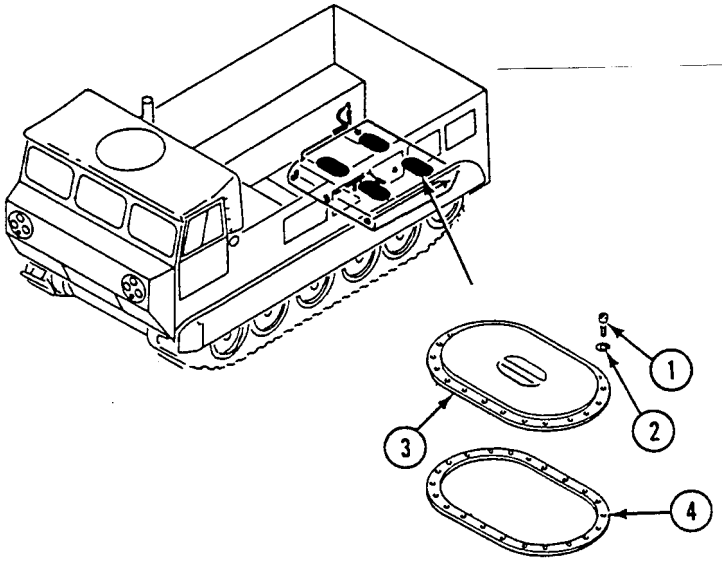
REMOVAL

1. Remove 22 screws (1), lock washers (2), access cover (3) and gasket (4) from fuel compartment. Discard gasket and lock washers.



INSTALLATION

1. Install new gasket (4) and access cover (3) with sealing compound on fuel compartment with 22 new lock washers (2) and screws (1). Tighten screws to 45-50 lb-in (5-6 N•m) torque.



FOLLOW-THROUGH STEPS

1. Fill fuel compartment (see your -10).
2. Install three rear cargo compartment floor plates (WP 0393 00).
3. Connect battery negative lead(s) (WP 0292 00).

END OF TASK

REPLACE FUEL FILLER CAP AND STRAINER 0164 00

THIS WORK PACKAGE COVERS:

Removal (page 0164 00-1).
Installation (page 0164 00-1).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)

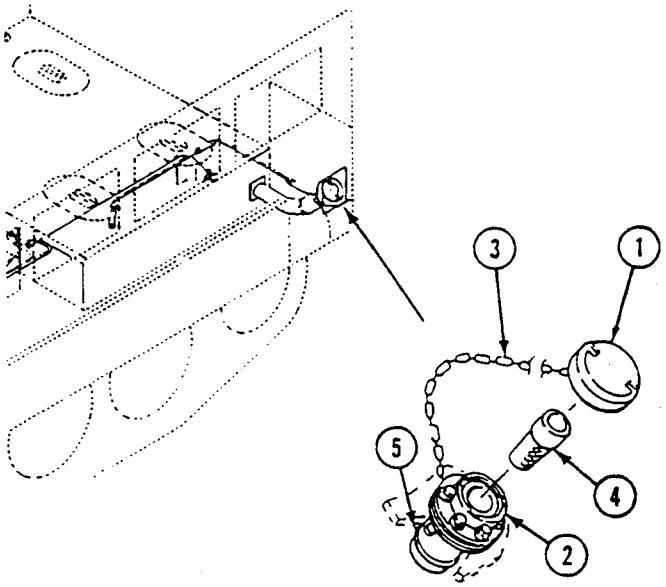
Personnel Required
Unit Mechanic

References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Battery negative lead(s) disconnected (WP 0292 00)

REMOVAL

1. Turn fuel filler cap (1) to the left to remove from attachment flange (2).
2. Remove cap retaining chain (3) from flange (2).
3. Remove strainer (4) from filler neck (5).



INSTALLATION

1. Install strainer (4) in filler neck (5).
2. Attach cap retaining chain (3) to flange (2).
3. Install cap (1) on flange (2) by turning it to the right.

FOLLOW-THROUGH STEPS

1. Connect battery negative lead(s) (WP 0292 00).

END OF TASK

REPLACE FUEL FILLER TUBES, HOSES, AND FITTINGS 0165 00

THIS WORK PACKAGE COVERS:

Removal (page 0165 00-2).
Installation (page 0165 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts

Gasket
Gasket (2)

Personnel Required

Unit Mechanic

References

See your -10

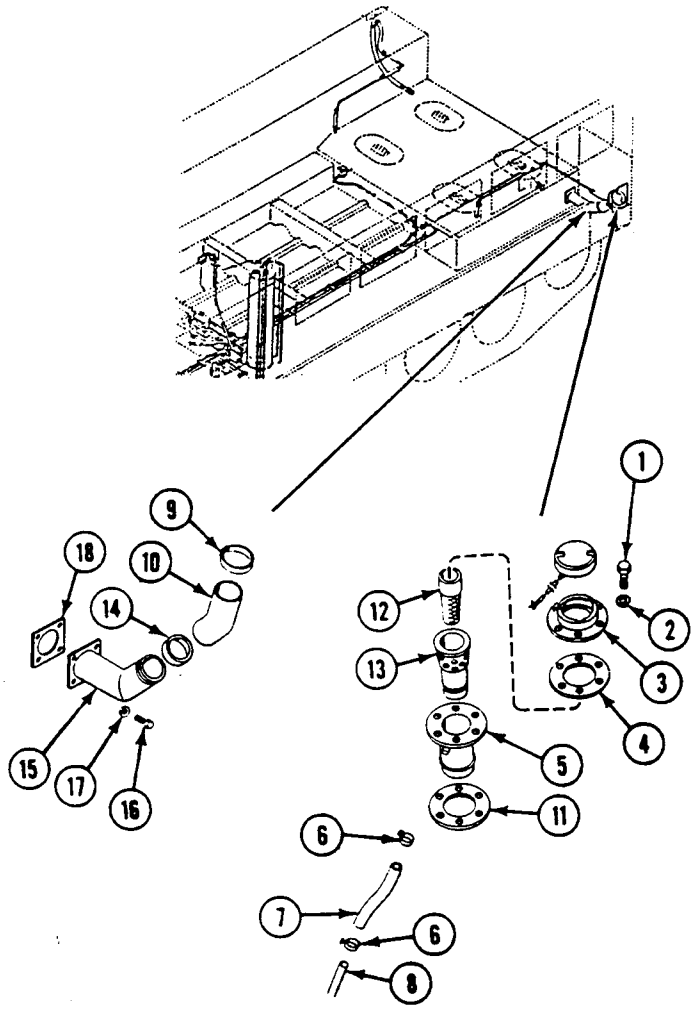
Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Battery negative lead(s) disconnected (WP 0292 00)
Fuel filler cap removed (WP 0164 00)
Left stoplight-taillight removed (WP 0278 00)
Fuel compartment drained (WP 0162 00)

REPLACE FUEL FILLER TUBES, HOSES, AND FITTINGS — Continued 0165 00

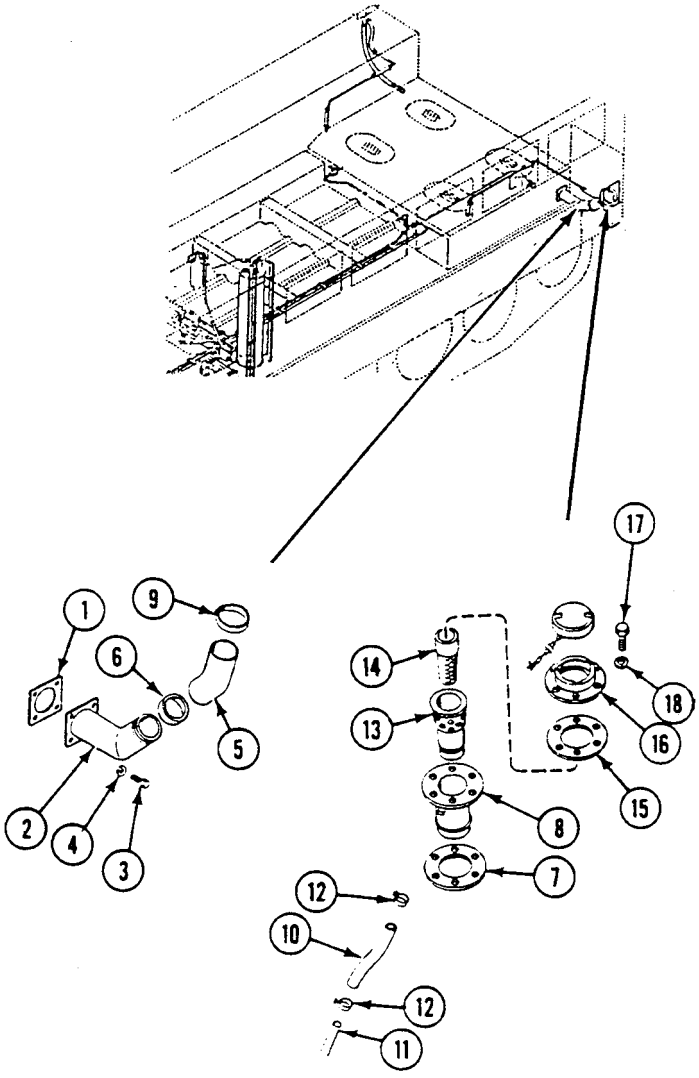
REMOVAL

1. Remove six screws (1) and washers (2) from filler neck flange (3).
2. Remove filler neck flange (3) and gasket (4) from upper filler neck (5). Discard gasket.
3. Loosen two clamps (6) that secure vent hose (7) to upper filler neck (5) and vent tube (8). Remove vent hose.
4. Loosen clamp (9) that secures hose (10) to upper filler neck (5).
5. Remove upper filler neck (5) and gasket (11) from hull. Discard gasket.
6. Remove strainer (12) and retainer (13) from upper filler neck (5).
7. Remove clamp (14) and hose (10) from lower filler neck (15).
8. Remove four screws (16), washers (17), one gasket (18), and lower filler neck (15) from fuel compartment. Discard gasket.



INSTALLATION

1. Place new gasket (1) and lower filler neck (2) on fuel compartment. Secure with four screws (3) and washers (4).
2. Install hose (5) and clamp (6) on lower filler neck (2).
3. Align new gasket (7) and upper filler neck (8) with hoses in hull. Connect hose (5) to upper filler neck (8). Secure with clamp (9).
4. Connect vent hose (10) to upper filler neck (8) and vent tube (11). Secure with two clamps (12).
5. Install retainer (13) and strainer (14) in upper filler neck (8).
6. Align new gasket (15) and filler neck flange (16) with upper filler neck (8). Secure with six screws (17) and washers (18).



FOLLOW-THROUGH STEPS

1. Connect battery negative lead(s) (WP 0292 00).
2. Install left stoplight-taillight (WP 0278 00).
3. Fill fuel compartment (see your -10).
4. Install fuel filler cap (WP 0164 00).

END OF TASK

REPLACE FUEL COMPARTMENT TUBES, HOSES, AND FITTINGS (M548A3) 0166 00

THIS WORK PACKAGE COVERS:

Removal (page 0166 00-1).
Installation (page 0166 00-6).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts
Sealing compound (WP 0542 00, Item 37)
Grommet (3)
Lock washer (14)
Preformed packing
Seal (2)
Suitable container

Personnel Required
Unit Mechanic

References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Both battery negative leads disconnected (WP 0292 00)
Cargo compartment floor plates removed (WP 0393 00)
Fuel compartment access covers removed (WP 0163 00)
Fuel compartment drained (WP 0162 00)
Power plant rear access panel removed (see your -10)
Top access cover and grilles removed (see your -10)

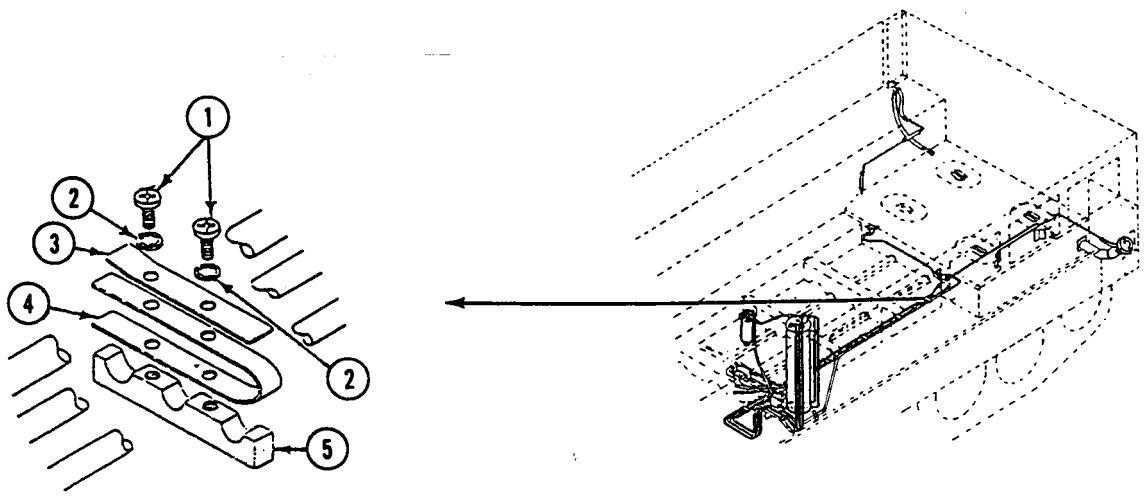
REMOVAL

NOTE

Removal of all tubes, hoses, and fittings is not usually needed for maintenance. Remove only those parts needed to do the task.

Remove tubes and hoses with clamps attached. Attach clamps to replacement tubes and hoses.

1. Remove eight screws (1), lock washers (2), four metal straps (3), and rubber strips (4) from four blocks (5) that secure tubes to hull. Discard lock washers.

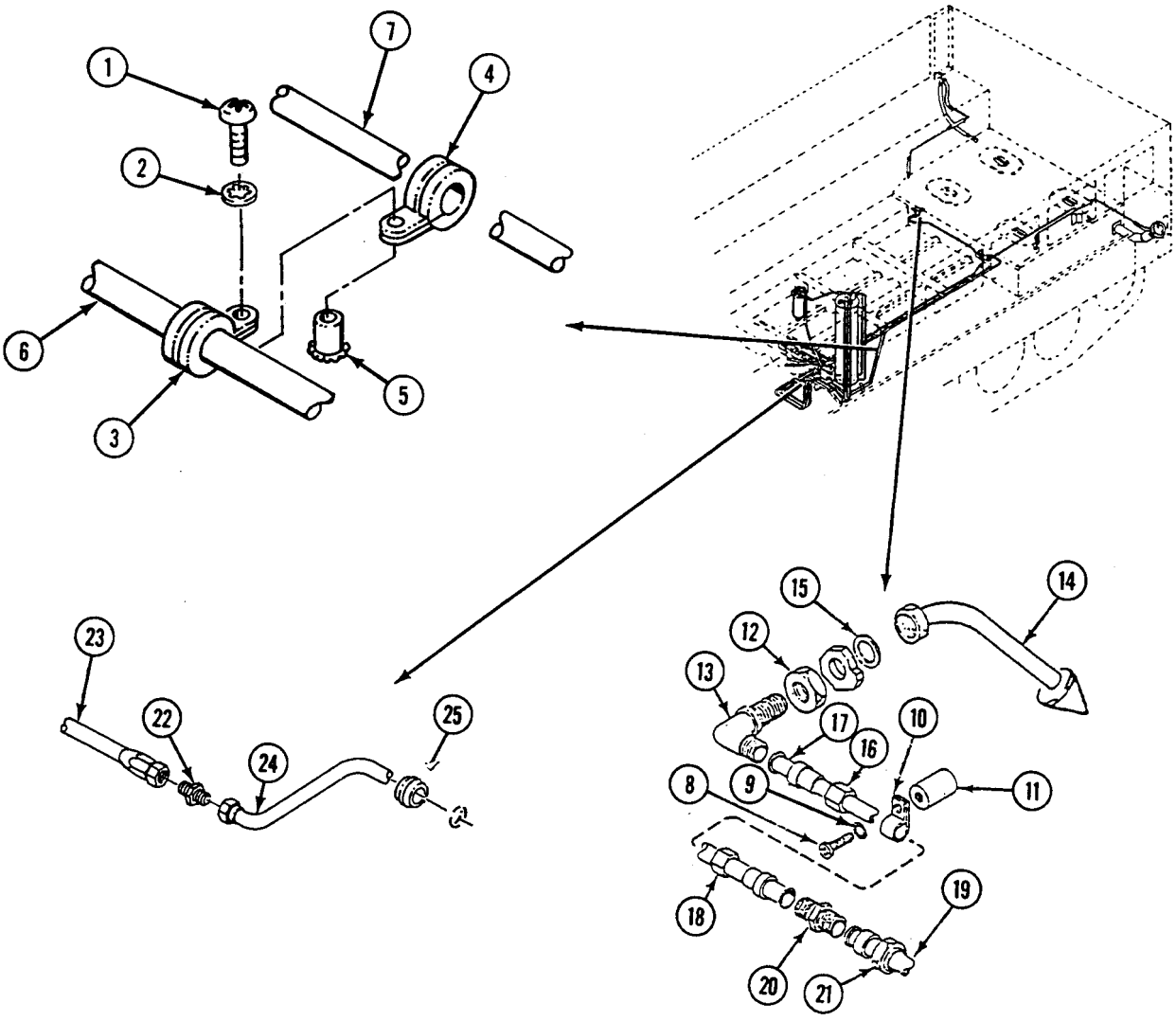


REPLACE FUEL COMPARTMENT TUBES, HOSES, AND FITTINGS (M548A3) — Continued **0166 00**

NOTE

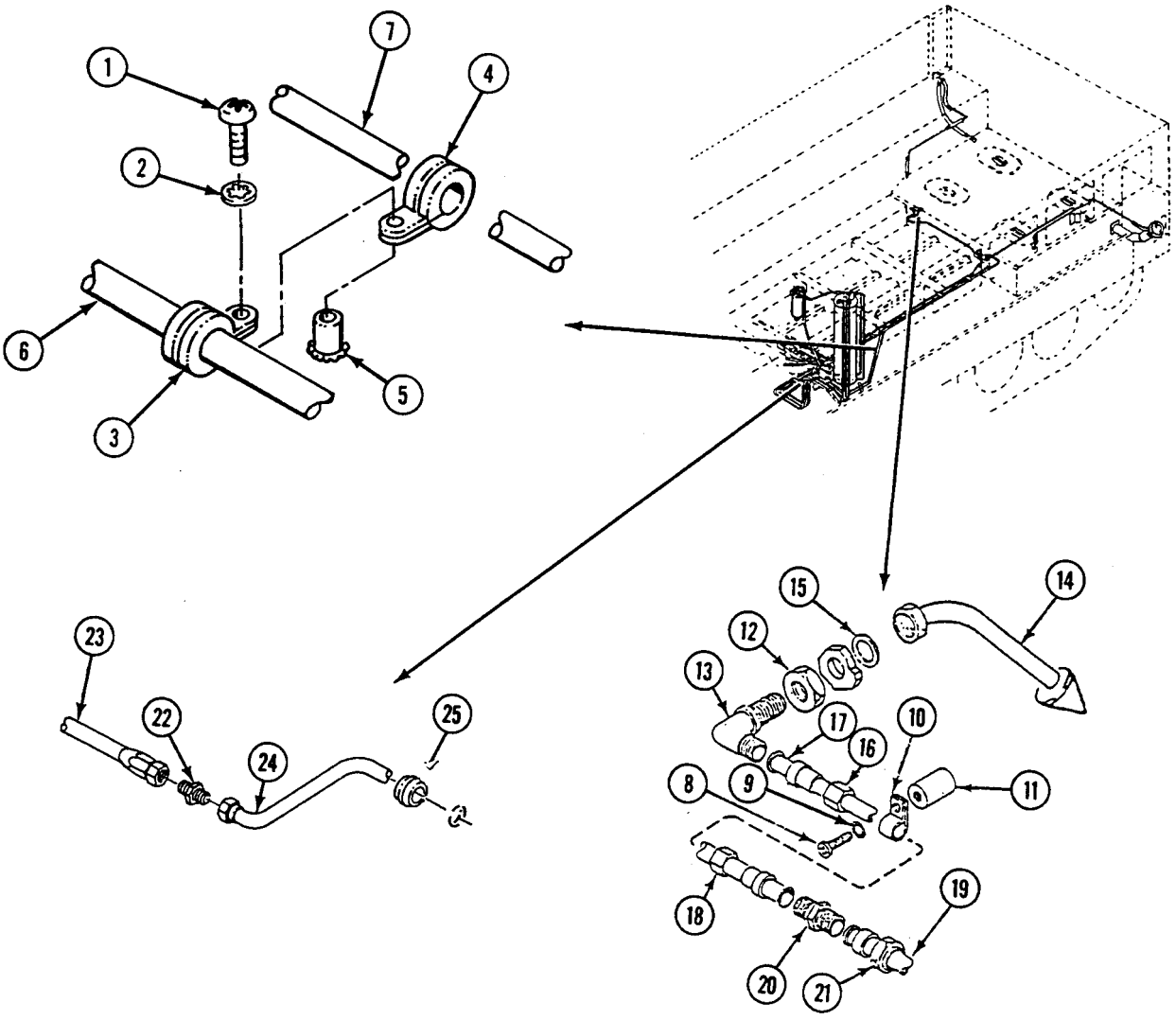
Use suitable container to catch fuel when tubes, hoses, and fittings are removed.

2. Remove two screws (1), lock washers (2), and two clamps (3) and two clamps (4) from two weld nuts (5) and fuel pump inlet hose (6) and inlet hose (7). Discard lock washers.
3. Remove four screws (8), lock washers (9), and four clamps (10) from four weld nuts (11). Discard lock washers.
4. Loosen nut (12) on elbow (13). Disconnect pickup tube (14) and seal (15) from elbow. Discard seal.



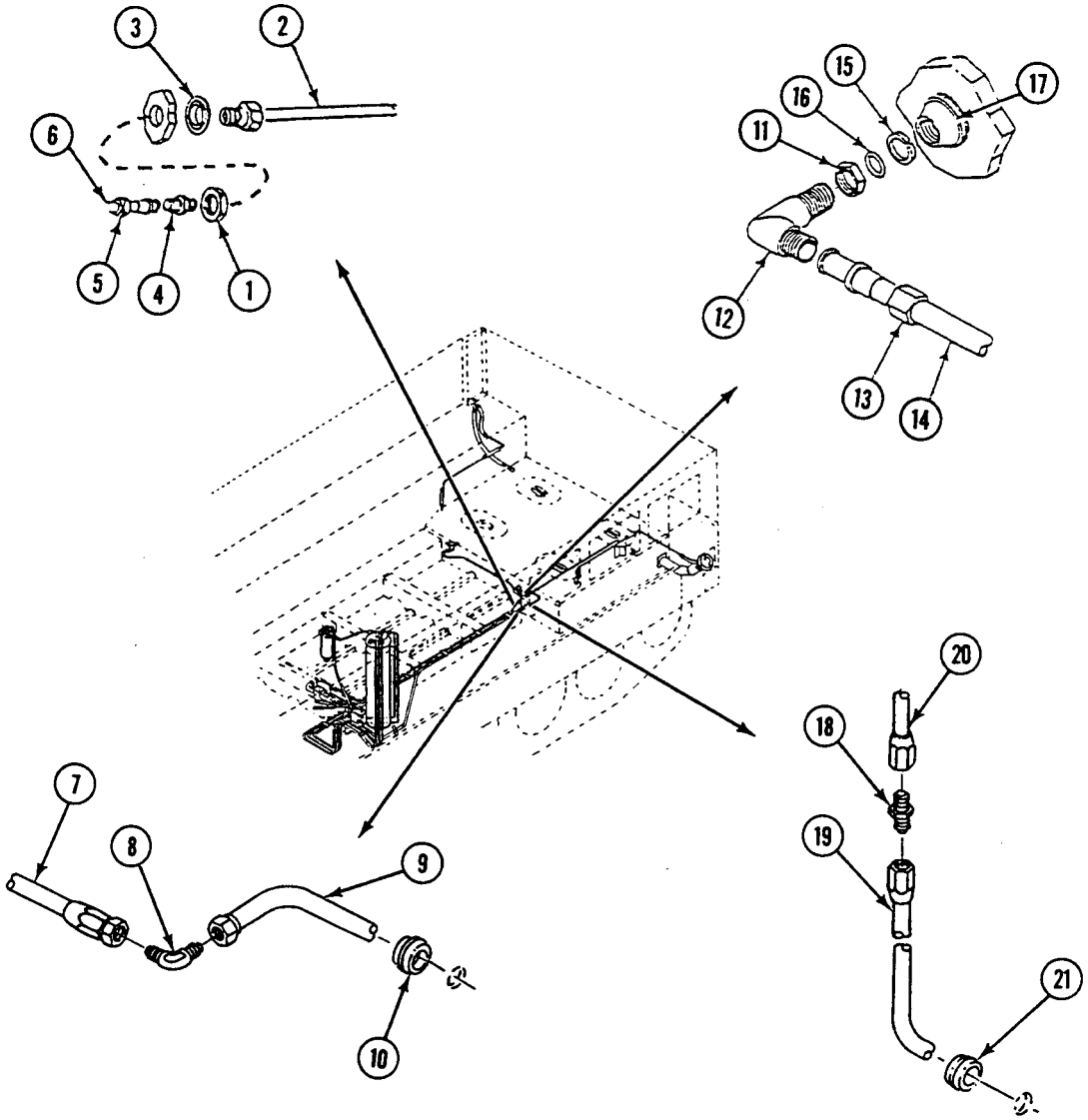
REPLACE FUEL COMPARTMENT TUBES, HOSES, AND FITTINGS (M548A3) — Continued **0166 00**

5. Loosen nut (16). Disconnect elbow (13) from tube (17). Loosen nut (18). Disconnect tube (17) from tube (19) at adapter (20).
6. Loosen nut (21). Remove adapter (20) from tube (19).
7. Remove nipple (22) securing hose (23) to fuel tube (24).
8. Remove grommet (25) and fuel tube (24) from carrier. Discard grommet.



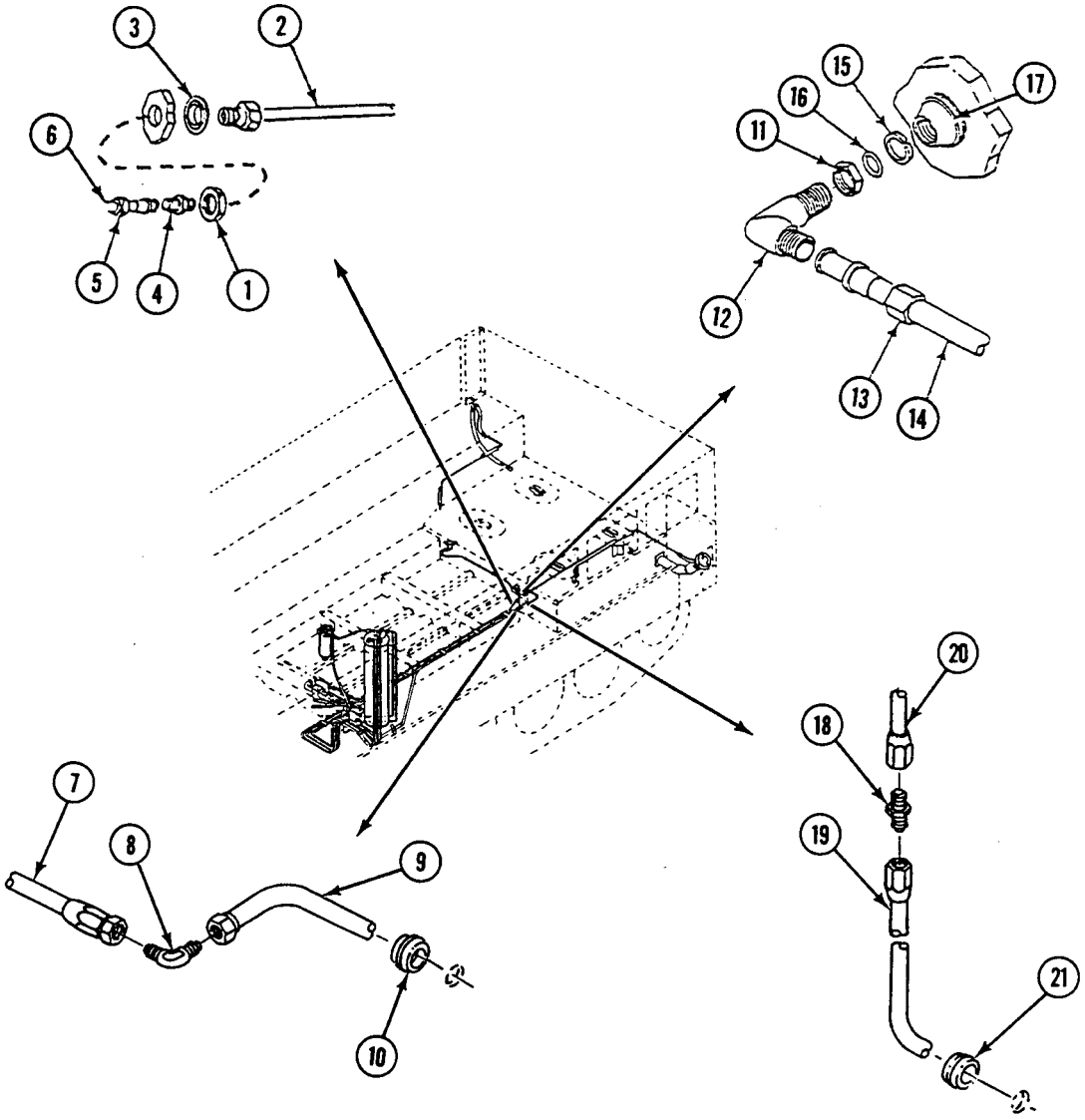
REPLACE FUEL COMPARTMENT TUBES, HOSES, AND FITTINGS (M548A3) — Continued **0166 00**

9. Loosen nut (1). Remove pickup tube (2) and seal (3) from adapter (4). Discard seal.
10. Loosen nut (5) on tube (6). Remove adapter (4) from tube.
11. Remove hose (7) from elbow (8). Remove elbow from tube (9).
12. Remove grommet (10) and tube (9) from carrier. Discard grommet.



REPLACE FUEL COMPARTMENT TUBES, HOSES, AND FITTINGS (M548A3) — Continued **0166 00**

13. Loosen nut (11) on elbow (12). Loosen nut (13) on tube (14). Remove tube from elbow.
14. Remove elbow (12), retaining ring (15), and preformed packing (16) from flange (17) in fuel compartment. Discard preformed packing.
15. Remove nipple (18) from tube (19) and tube (20).
16. Remove grommet (21) and tube (19) from carrier. Discard grommet.



REPLACE FUEL COMPARTMENT TUBES, HOSES, AND FITTINGS (M548A3) — Continued **0166 00**

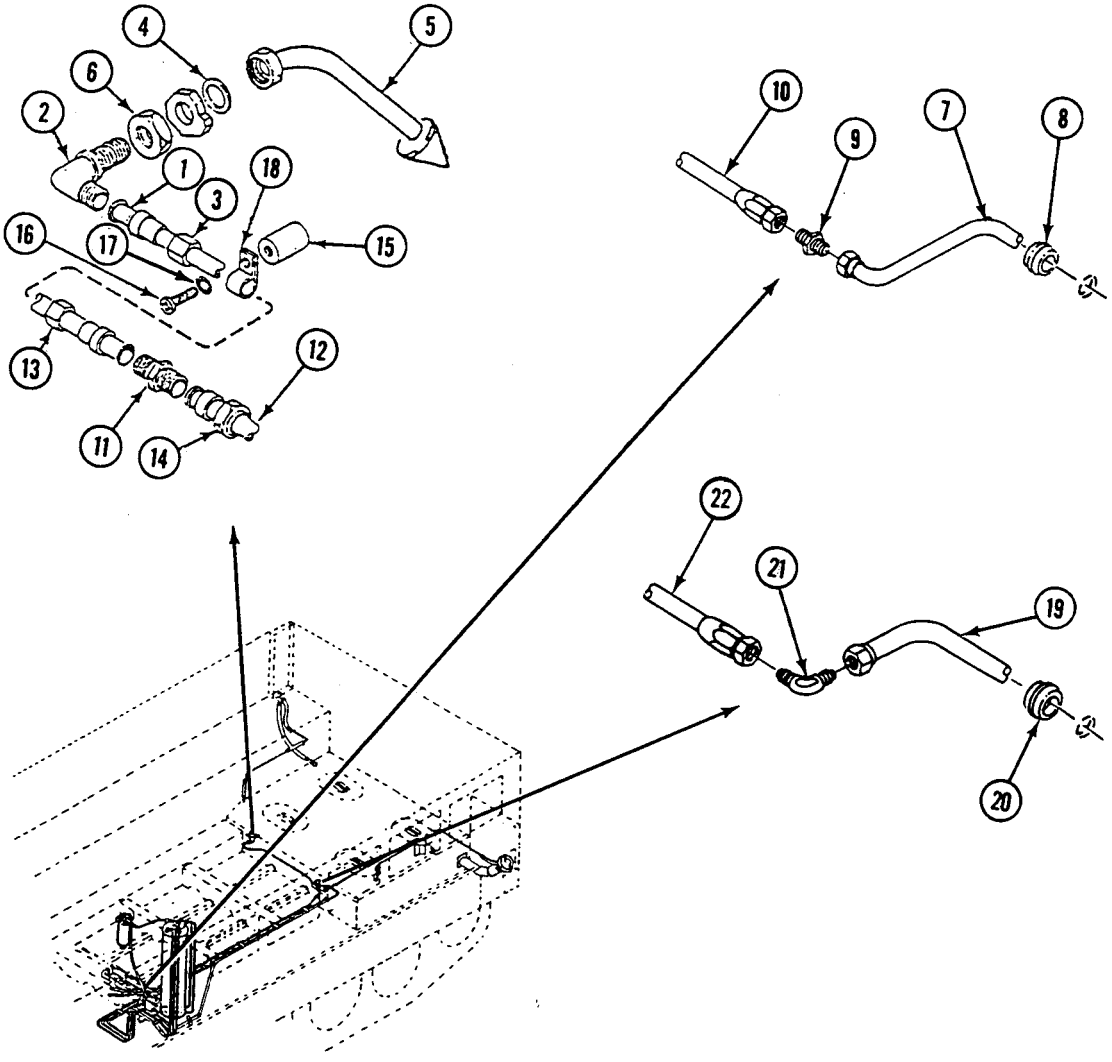
INSTALLATION

NOTE

Replacement hoses are cut to length from bulk stock. Remove clamps from hoses and tubes to be replaced. Attach clamps to new hoses and tubes.

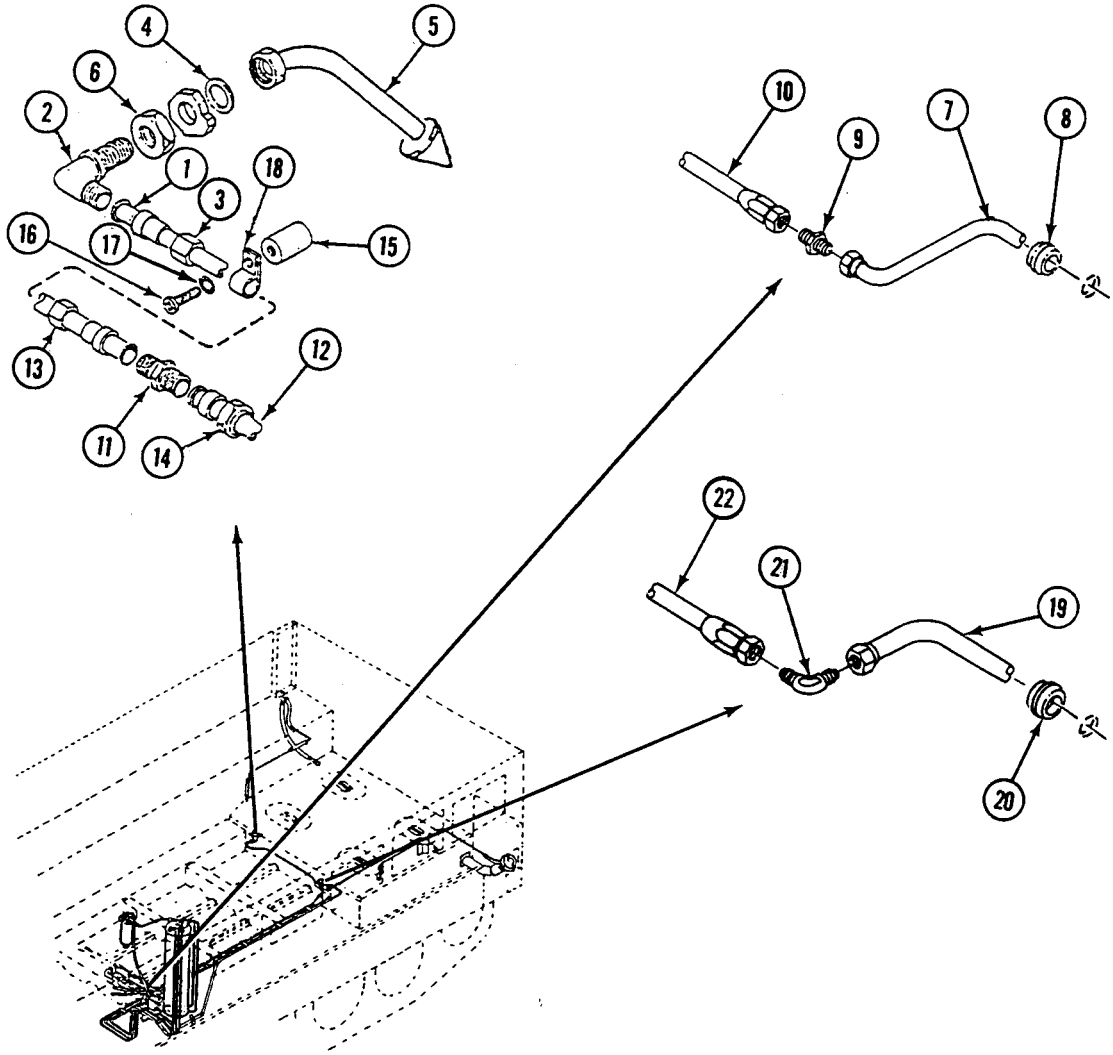
Put sealing compound on male threads. Do not put sealing compound beyond small end of tapered threads.

1. Attach tube (1) to elbow (2). Tighten nut (3).
2. Install new seal (4) and pickup tube (5) on elbow (2). Tighten nut (6).
3. Install fuel tube (7) and new grommet (8) in carrier.



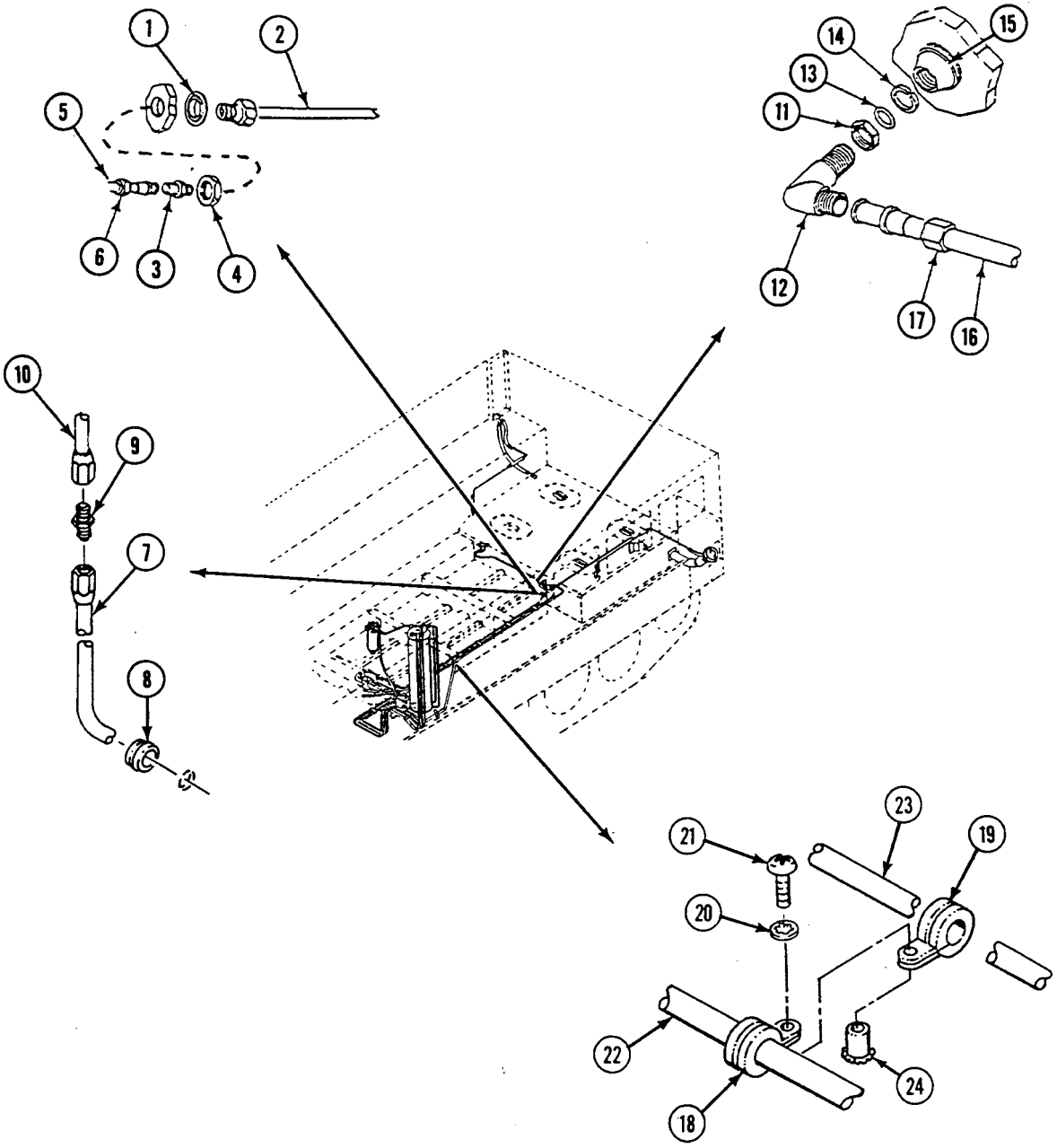
REPLACE FUEL COMPARTMENT TUBES, HOSES, AND FITTINGS (M548A3) — Continued **0166 00**

4. Attach nipple (9) to fuel tube (7) and hose (10).
5. Install adapter (11) on tube (12). Tighten nut (13) and nut (14). Secure tube (1) to four weld nuts (15) with four screws (16), new lock washers (17), and clamps (18).
6. Install tube (19) and new grommet (20) in carrier.
7. Attach elbow (21) to tube (19) and hose (22) to elbow.



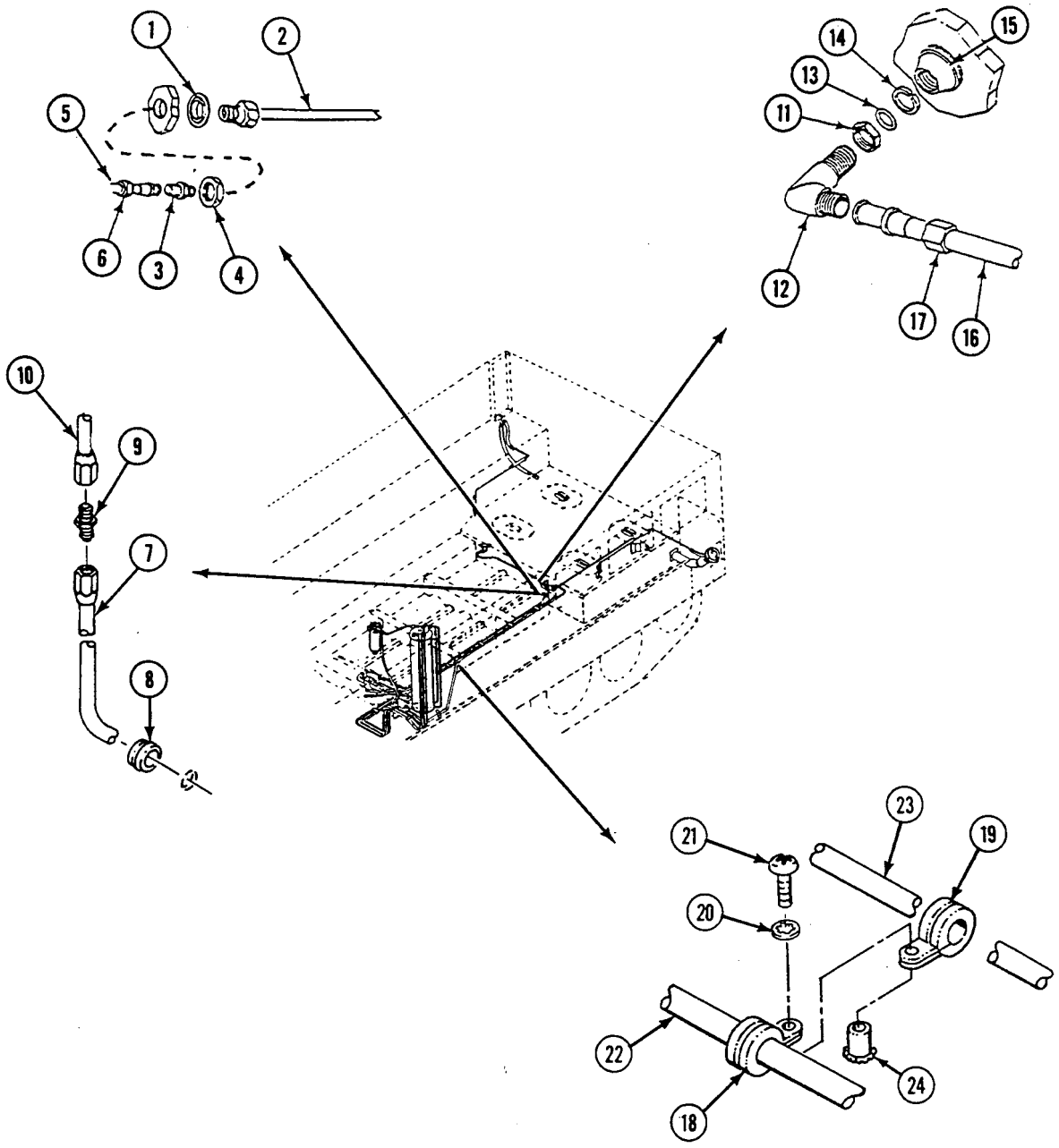
REPLACE FUEL COMPARTMENT TUBES, HOSES, AND FITTINGS (M548A3) — Continued **0166 00**

8. Install new seal (1) on tube (2) and push through bulkhead. Install adapter (3), nut (4), and tube (5) on tube (2). Tighten nut (4) and nut (6).
9. Install tube (7) and new grommet (8) in carrier.
10. Attach nipple (9) to tube (10) and join with tube (7).



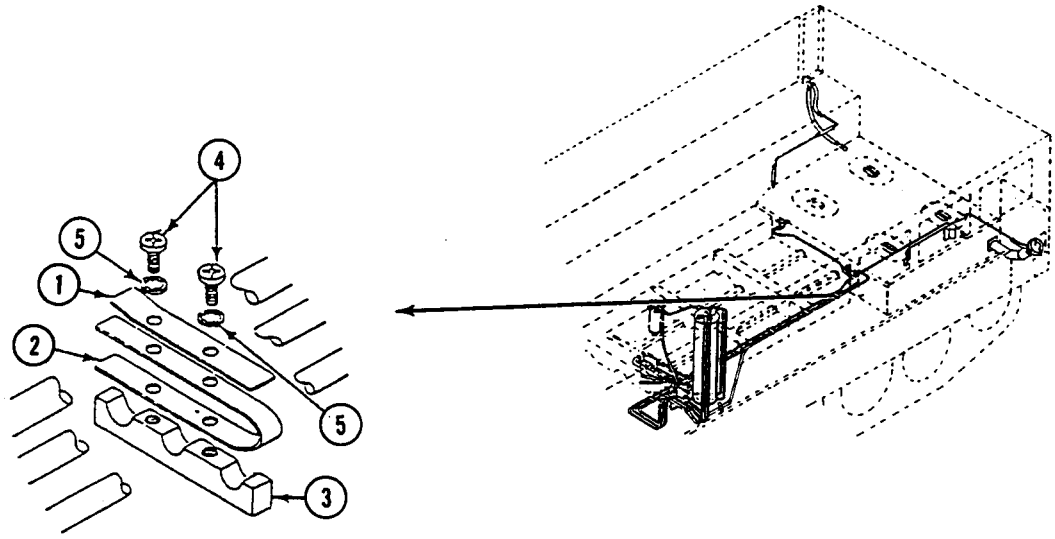
REPLACE FUEL COMPARTMENT TUBES, HOSES, AND FITTINGS (M548A3) — Continued **0166 00**

11. Install nut (11) on elbow (12). Install new preformed packing (13), retaining ring (14), and elbow on flange (15) in fuel compartment.
12. Install tube (16) on elbow (12). Tighten nut (17).
13. Install two clamps (18), two clamps (19), two new lock washers (20), and screws (21) on two fuel pump inlet hose (22) and inlet hose (23) and weld nuts (24).



REPLACE FUEL COMPARTMENT TUBES, HOSES, AND FITTINGS (M548A3) — Continued **0166 00**

14. Install four metal straps (1) and rubber strips (2) on four blocks (3) with eight screws (4) and new lock washers (5).



FOLLOW-THROUGH STEPS

1. Install fuel compartment access covers (WP 0163 00).
2. Install power plant rear access panel (see your -10).
3. Install cargo compartment floor plates (WP 0393 00).
4. Install top access cover and grilles (see your -10).
5. Connect both battery negative leads (WP 0292 00).
6. Refuel carrier (see your -10). Refuel carrier (see your -10).

END OF TASK

REPLACE ENGINE TO BULKHEAD FUEL LINES AND FITTINGS (M548A1) 0167 00

THIS WORK PACKAGE COVERS:

Removal (page 0167 00-2).
Installation (page 0167 00-4).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)
Open End Box Wrench (WP 0541 00, Item 60)

Materials/Parts

Sealing Compound (WP 0542 00, Item 37)
Lock nut (3)

Personnel Required

Unit Mechanic

References

See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Center seat raised (see your -10)
Both battery negative leads disconnected (WP 0292 00)
Exhaust pipe section in front of engine drive fuel pump removed (WP 0209 00)
Left grille removed (WP 0390 00)
Power plant rear access cover removed (see your -10)

REPLACE ENGINE TO BULKHEAD FUEL LINES AND FITTINGS (M548A1) — Continued 0167 00

REMOVAL

NOTE

Remove tubes and hoses with clamps attached. Attach clamps to replacement hoses and tubes.

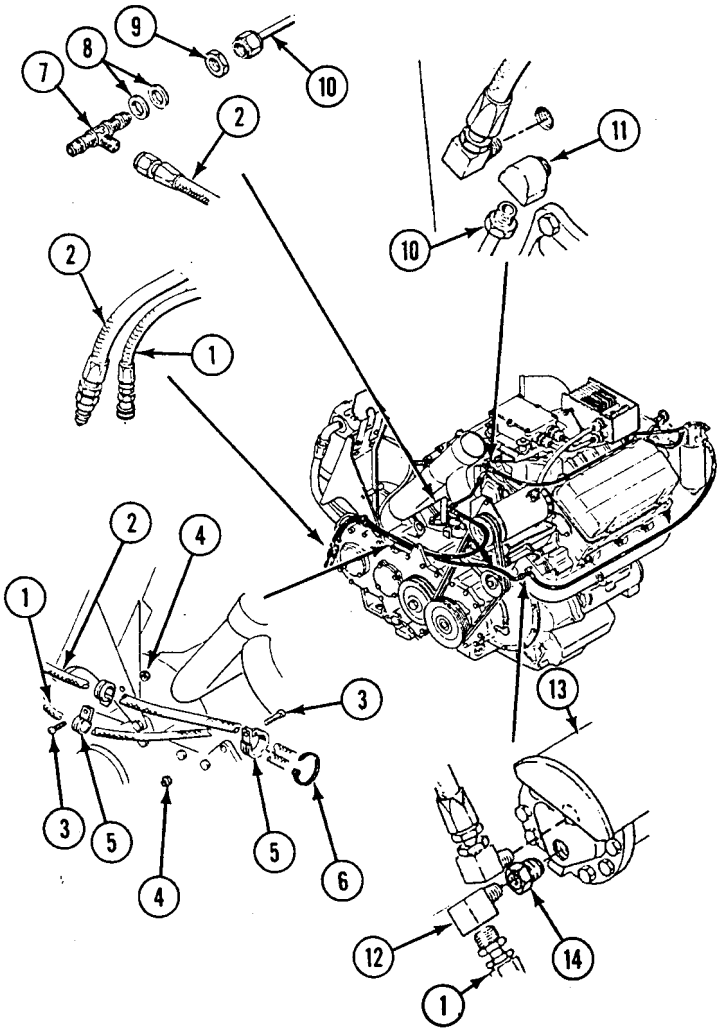
1. Disconnect fuel inlet hoses (1) and fuel return hoses (2) at rear bulkhead.

2. Remove two screws (3), lock nuts (4), three clamps (5), and strap (6) that secure fuel inlet hose (1) and fuel return hose (2) to engine. Discard lock nuts.

3. Use open end box wrench to disconnect fuel return hose (2) at tee (7). Remove tee, two washers (8), and lock nut (9) from fuel return tube (10). Discard lock nut.

4. Remove fuel return tube (10) from elbow (11). Remove elbow and tube from engine.

5. Disconnect and remove fuel inlet hose (1) from elbow (12) at fuel pump (13). Remove elbow and bushing (14) from fuel pump.

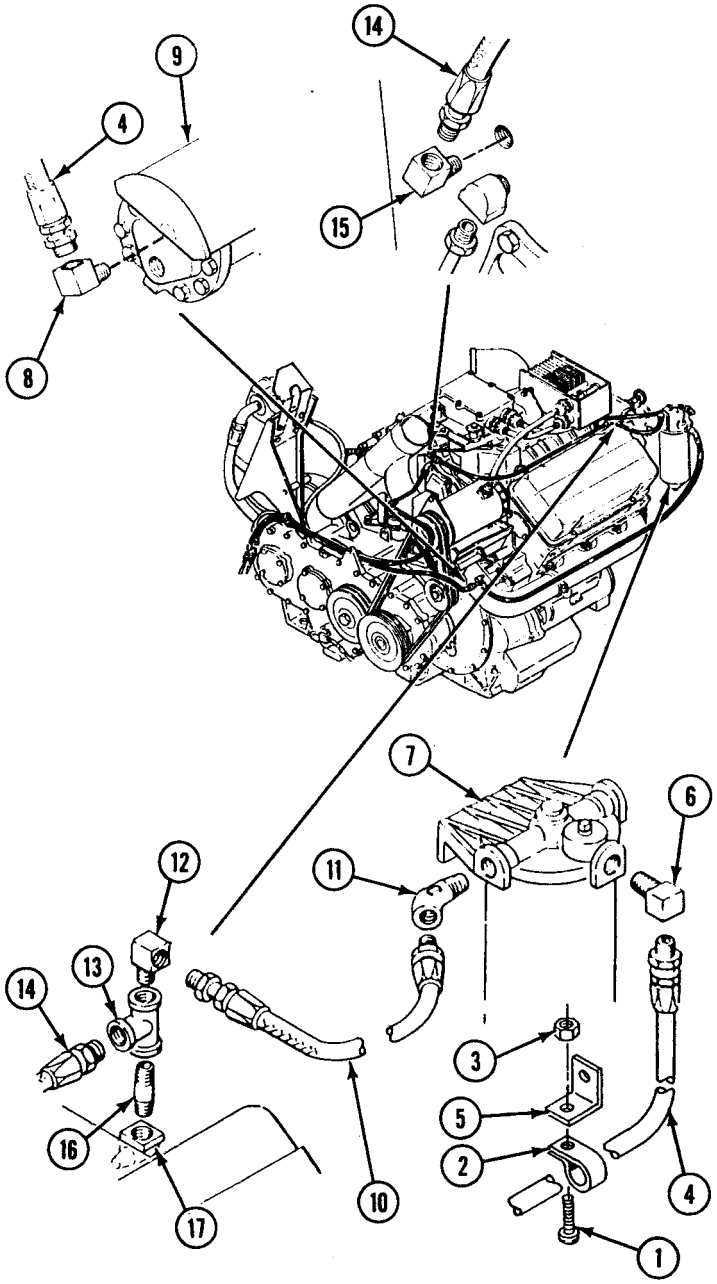


6. Remove screw (1), clamp (2), and nut (3) securing pump-to-filter hose (4) to bracket (5).

7. Remove pump-to-filter hose (4) from elbow (6) at secondary fuel filter (7) and from elbow (8) at fuel pump (9). Remove elbow (8) from fuel pump.

8. Disconnect fuel hose (10) at elbow (11) on secondary filter (7). Disconnect and remove fuel hose from elbow (12) on tee (13).

9. Disconnect hose (14) from tee (13) and elbow (15). Remove elbow (15) from engine. Disconnect elbow (12), tee (13), and nipple (16) from elbow (17).

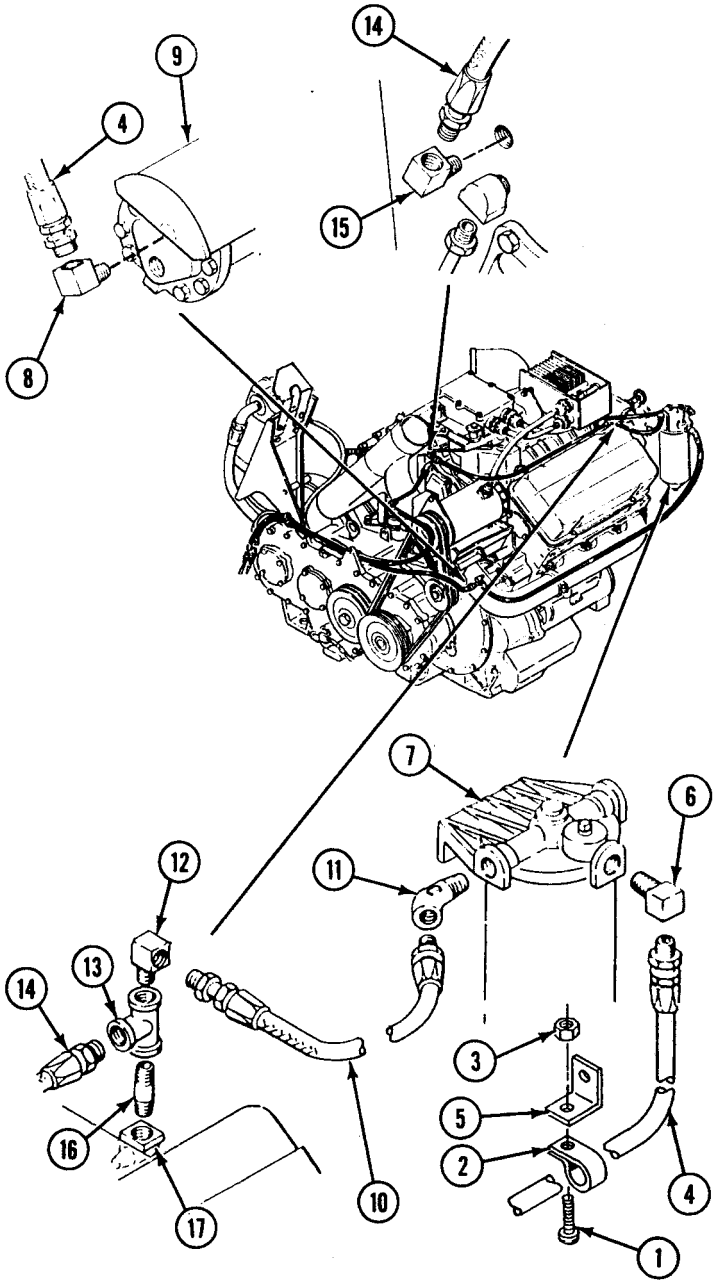


INSTALLATION

NOTE

Put sealing compound on male threads. Do not put sealing compound beyond small end of tapered threads.

1. Connect nipple (16), tee (13), and elbow (12) and install on elbow (17).
2. Install elbow (15) on engine. Connect hose (14) to elbow (15) and tee (13).
3. Install elbow (11) on secondary fuel filter (7). Connect fuel hose (10) to elbow (11) and elbow (12).
4. Install clamp (2) on pump-to-filter hose (4) and secure to bracket (5) with screw (1) and nut (3).
5. Install elbow (8) on fuel pump (9). Connect pump-to-filter hose (4) to elbow (8) on fuel pump and elbow (6) on secondary fuel filter (7).


14
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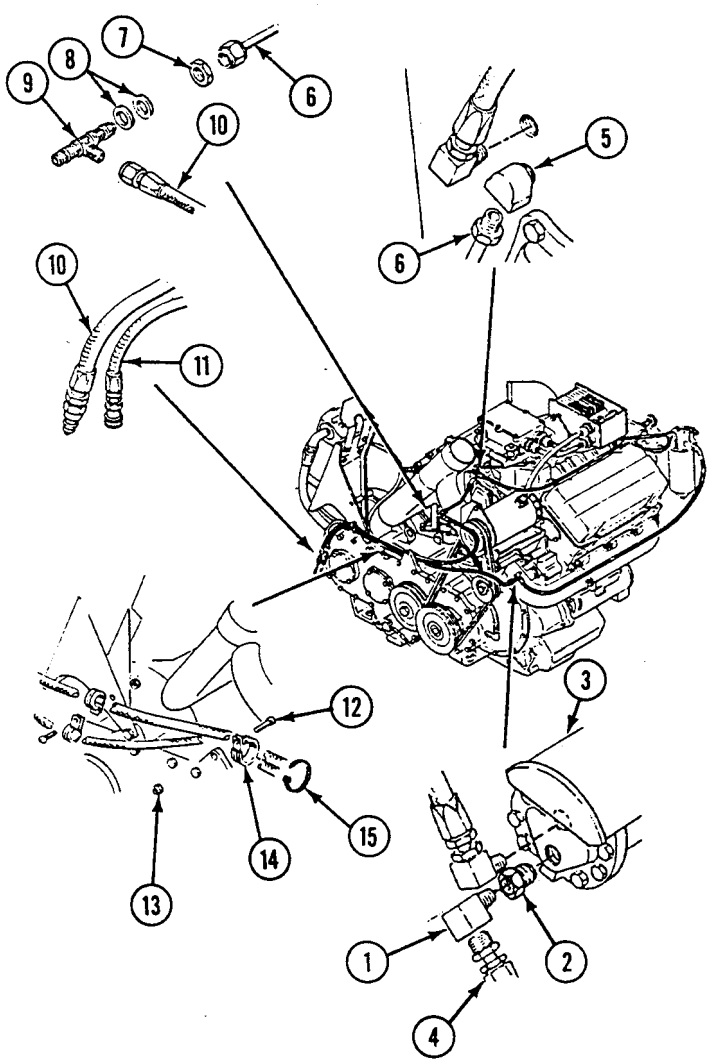
1

6. Install elbow (1) and bushing (2) on fuel pump (3). Connect fuel inlet hose (4) to elbow.
7. Install elbow (5) on engine. Connect fuel return tube (6) to elbow.
8. Connect fuel return tube (6), new lock nut (7), two washers (8), and tee (9) to fuel return hose (10).
9. Connect fuel inlet hoses (11) and fuel return hoses (10) at rear bulkhead. Use open end box wrench to tighten fuel return hose nut to tee (9).
10. Secure fuel return (10) and fuel inlet (11) hoses to engine with two screws (12), new lock nuts (13), three clamps (14), and strap (15).



FOLLOW-THROUGH STEPS

1. Connect battery negative lead(s) (WP 0292 00).
2. Start engine (see your -10).
3. Run engine. Check hoses, tubes, and fittings for leaks.
4. Stop engine (see your -10).
5. Install left grille (WP 0390 00).
6. Install exhaust pipe section in front of engine drive fuel pump (WP 0209 00).
7. Install power plant lower rear access cover (see your -10).
8. Lower center seat (see your -10).

END OF TASK

REPLACE ENGINE TO BULKHEAD FUEL LINES AND FITTINGS (M548A3) 0168 00

THIS WORK PACKAGE COVERS:

Removal (page 0168 00-1).
Cleaning (page 0168 00-2).
Installation (page 0168 00-3).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts
Antiseize compound (WP 0542 00, Item 6)
Sealing Compound (WP 0542 00, Item 36)
Lock nut (2)

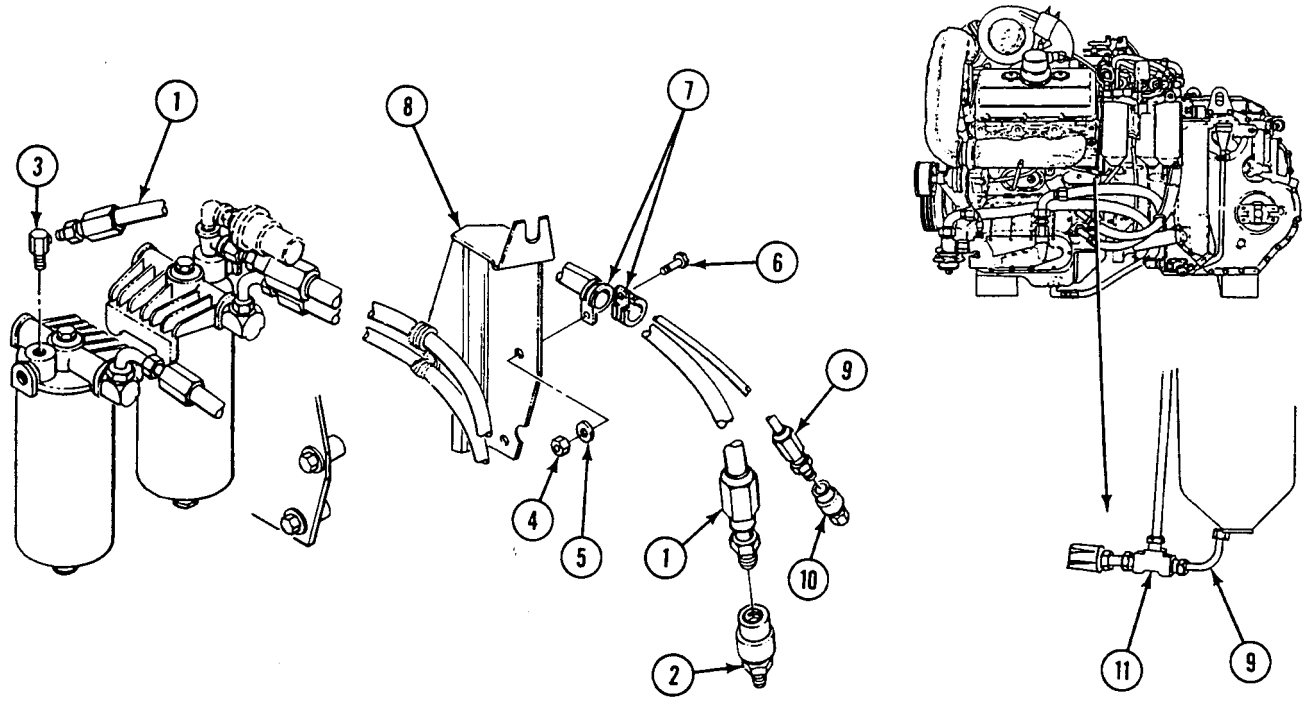
Personnel Required
Unit Mechanic

References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Both battery negative leads disconnected (WP 0292 00)
Top access cover and grilles removed (see your -10)
Power plant rear access panel removed (see your -10)

REMOVAL

1. Remove fuel supply hose (1) from separator tank quick disconnect (2).
2. Remove fuel supply hose (1) from primary filter elbow (3).
3. Remove lock nut (4), washer (5), screw (6), and two clamps (7) from bracket (8). Remove fuel supply hose (1) from carrier. Discard lock nut.
4. Remove fuel return hose (9) from separator tank disconnect (10).
5. Remove fuel return hose (9) from engine fuel spill tee (11).

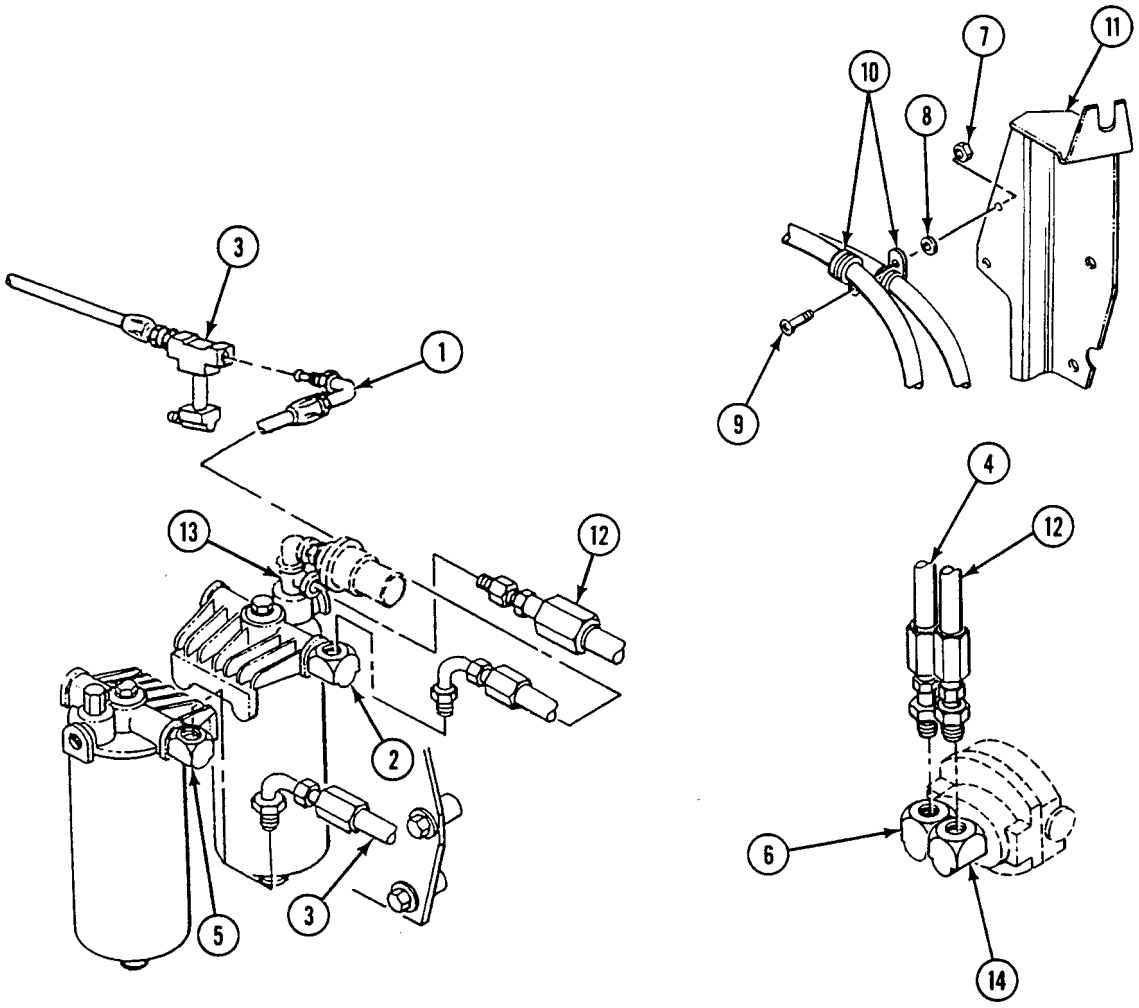


6. Remove fuel injector hose (1) from secondary filter elbow (2) and engine fuel inlet tee (3).

7. Remove engine fuel pump inlet hose (4) from primary filter elbow (5) and fuel pump elbow (6).

8. Remove lock nut (7), washer (8), screw (9), and two clamps (10) from bracket (11). Remove fuel pump inlet hose (4) from carrier. Discard lock nut.

9. Remove engine fuel pump outlet hose (12) from secondary filter tee (13) and fuel pump elbow (14). Remove engine fuel pump outlet hose from carrier.



CLEANING

1. Clean tapered hose fittings and apply a light coat of sealing compound.

2. Clean external threads of screws and fittings and apply a light coat of antiseize compound.

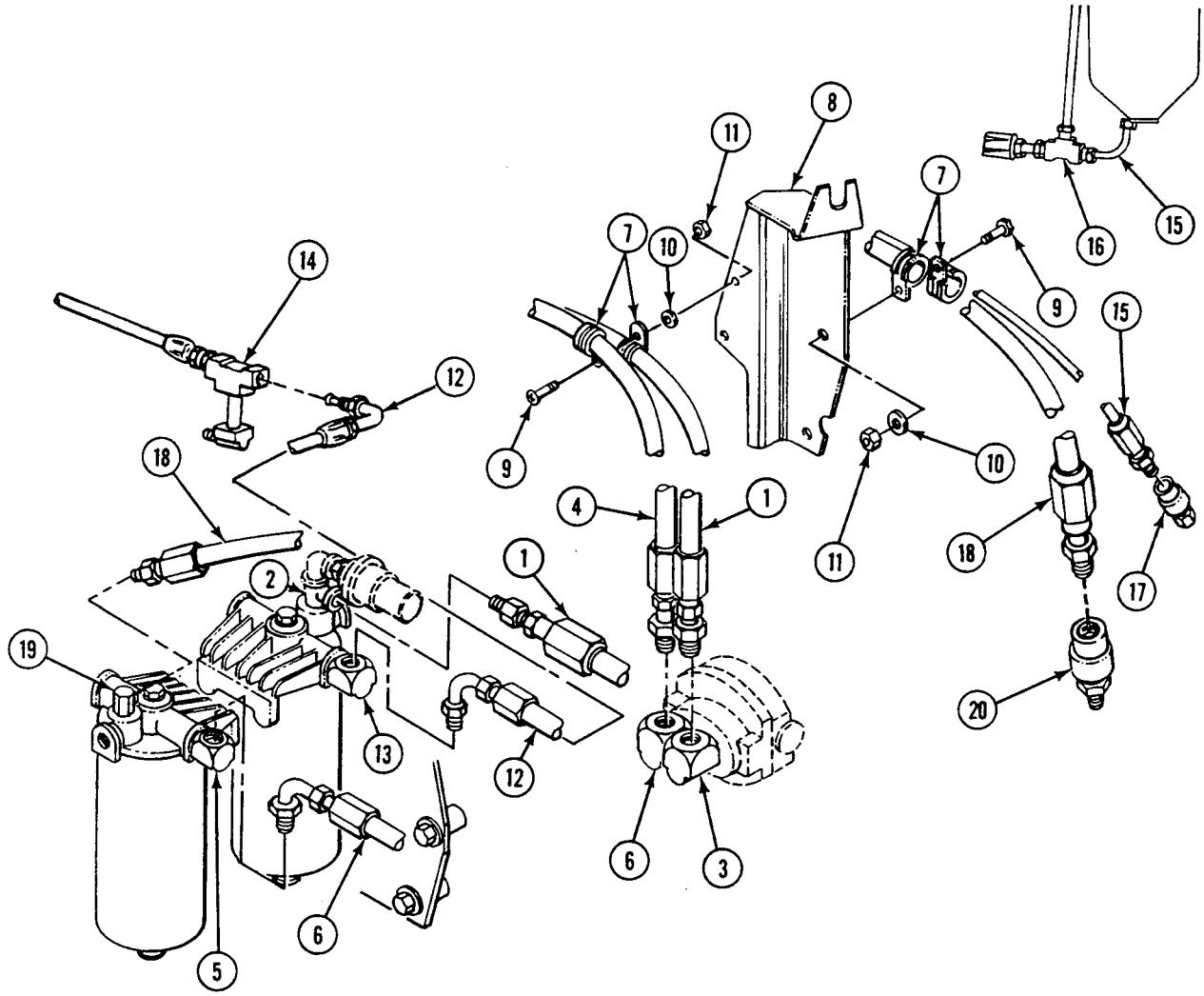
3. Inspect hoses for cracks, deterioration, and damaged ends. Replace hoses that show any of these defects.

4. Inspect fittings and connections for worn areas and damaged threads. Replace parts that show either of these defects.

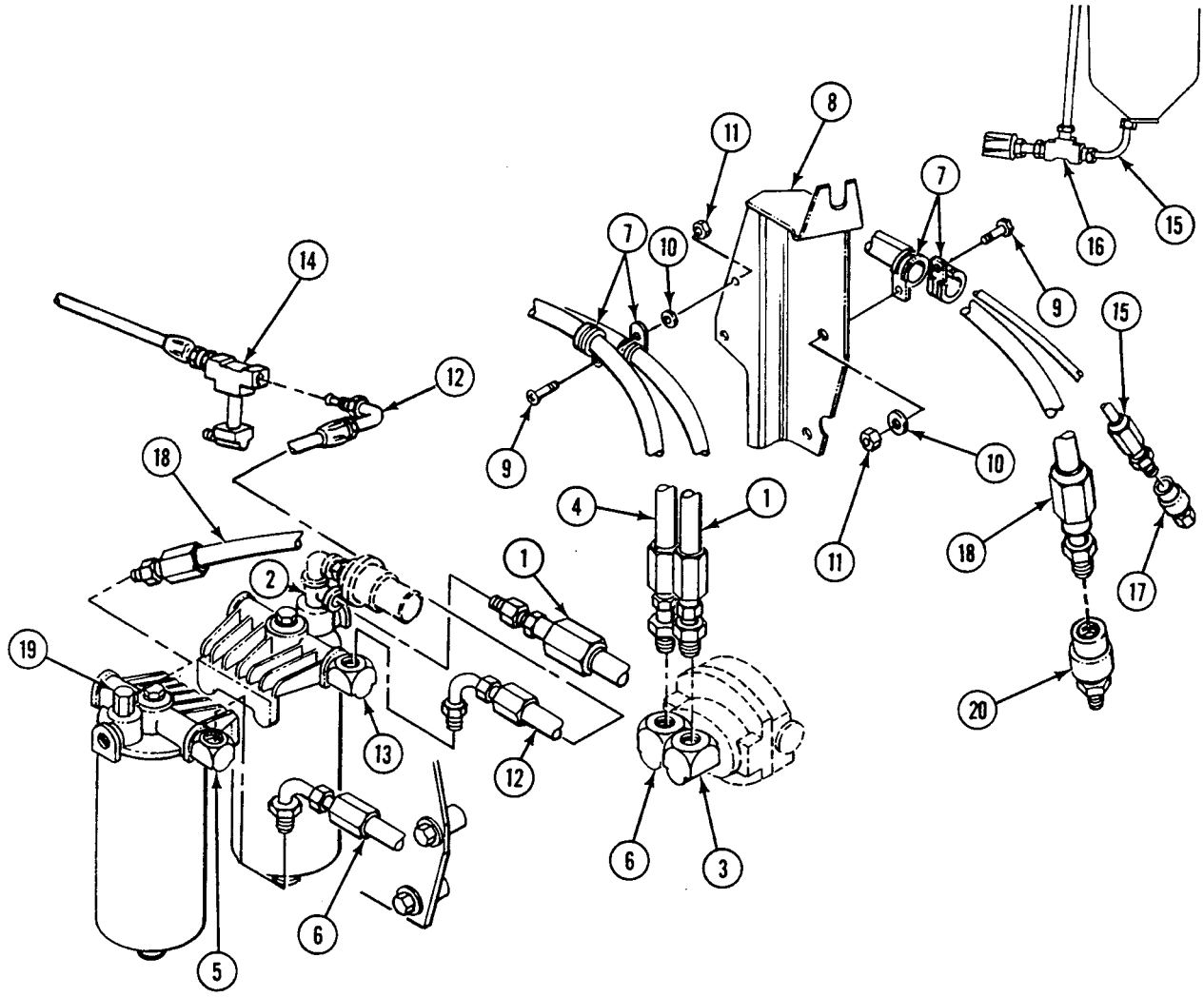
REPLACE ENGINE TO BULKHEAD FUEL LINES AND FITTINGS (M548A3) — Continued 0168 00

INSTALLATION

1. Connect engine fuel pump outlet hose (1) to secondary filter tee (2) and fuel pump elbow (3).
2. Connect engine fuel pump inlet hose (4) to primary filter elbow (5) and fuel pump elbow (6).
3. Place engine fuel pump outlet hose (1), engine fuel pump inlet hose (4), and two clamps (7) on bracket (8). Secure with screw (9), washer (10), and new lock nut (11).
4. Connect fuel injector hose (12) to secondary filter elbow (13) and engine fuel inlet tee (14).



5. Connect fuel return hose (15) to engine fuel spill tee (16) and separator tank quick disconnect (17).
6. Connect fuel supply hose (18) to primary filter elbow (19) and separator tank quick disconnect (20).
7. Place fuel return hose (15), fuel supply hose (18), and two clamps (7) on bracket (8). Secure with screw (9), washer (10), and new lock nut (11).



FOLLOW-THROUGH STEPS

1. Install power plant rear access panel (see your -10).
2. Install top access cover and grilles (see your -10).
3. Connect both battery negative leads (WP 0292 00).

END OF TASK

REPLACE FUEL LEVEL TRANSMITTER 0169 00

THIS WORK PACKAGE COVERS:

Removal (page 0169 00-2).
Cleaning (page 0169 00-2).
Installation (page 0169 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts

Nonelectrical wire (WP 0542 00, Item 27)
Sealing compound (WP 0542 00, Item 35)
Gasket (2)

Personnel Required

Unit Mechanic

References

See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Battery negative lead(s) disconnected (WP 0292 00)
Fuel compartment drained (WP 0162 00)
Three cargo compartment floor plates raised (WP 0393 00)
Right front fuel compartment access cover removed (WP 0163 00)
Rear crossover fuel tube assembly removed (WP 0172 00) or (WP 0173 00)

REPLACE FUEL LEVEL TRANSMITTER — Continued 0169 00

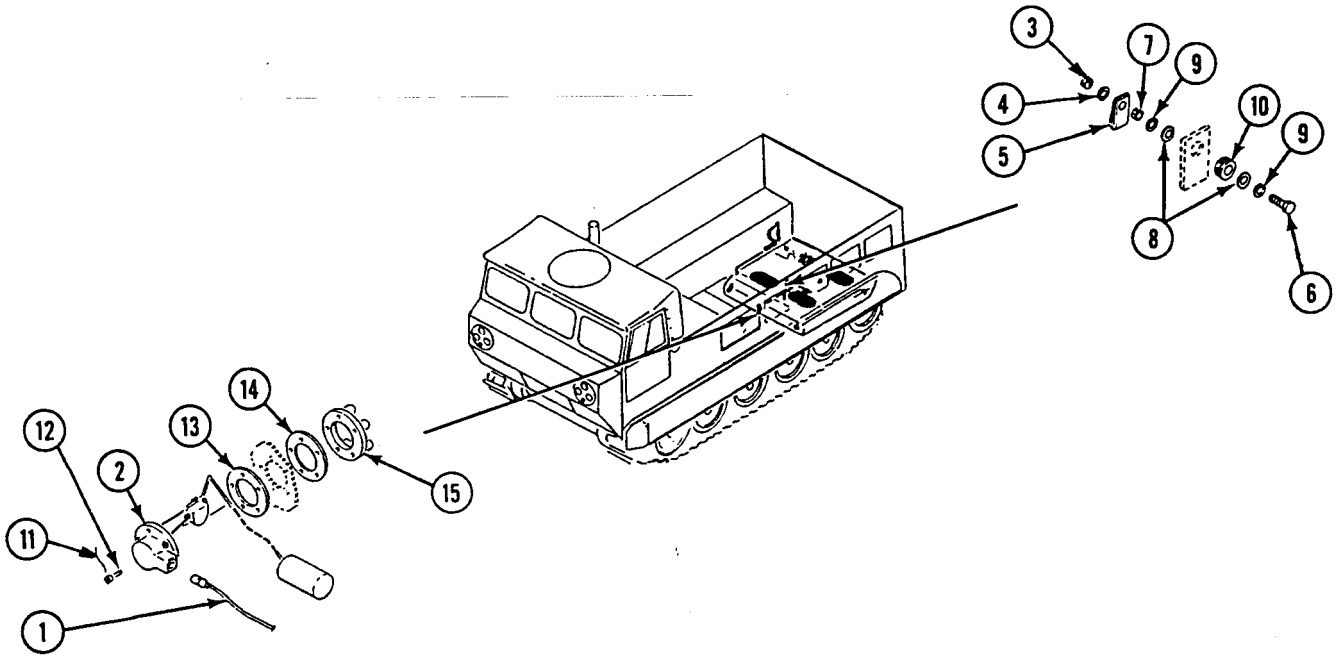
REMOVAL

1. Disconnect circuit 28 (1) from transmitter (2).
2. If transmitter (2) has rear support, remove nut (3), washer (4), and clamp (5) from screw (6).

NOTE

You do not need to remove screw (6), nut (7), two washers (8), two washers (9), or grommet (10) to replace transmitter (2).

3. Remove lock wire (11), five screws (12), and transmitter (2) from fuel tank. Discard lock wire.
4. Remove transmitter (2) and gasket (13) from outside of fuel compartment. Remove gasket (14) and bracket (15) from inside of fuel compartment. Discard gaskets.

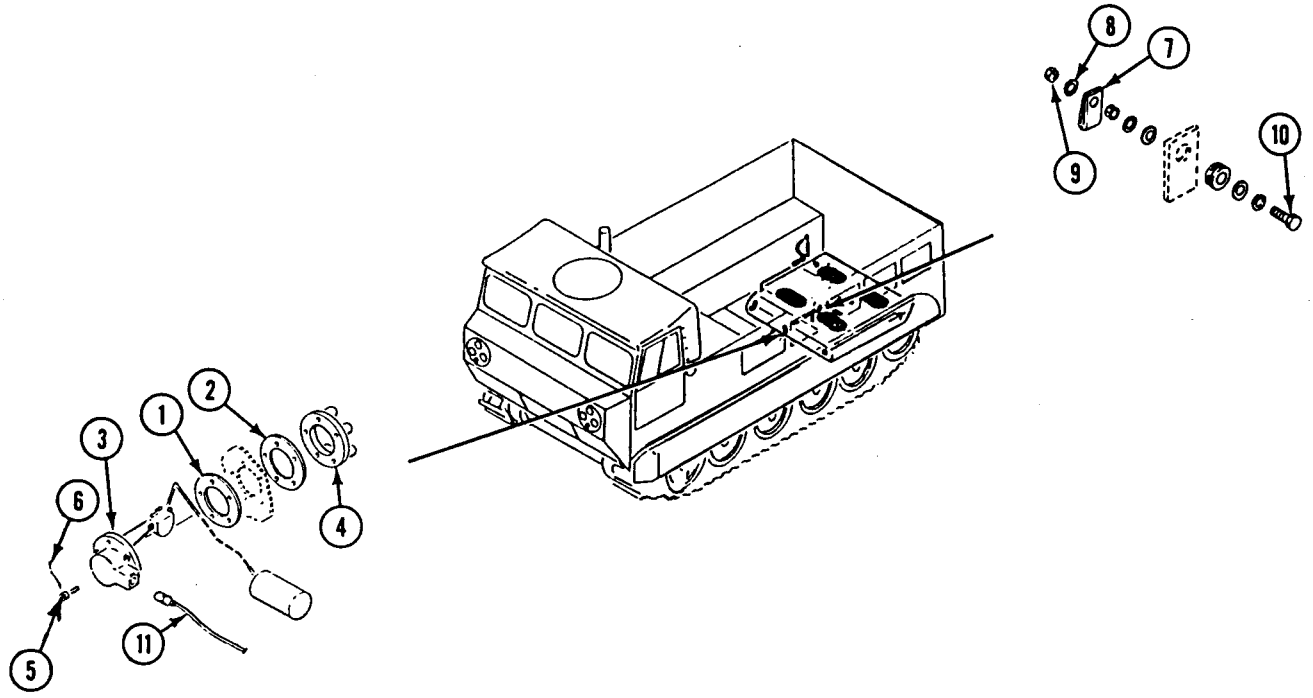


CLEANING

1. Make sure fuel is not leaking into float.
2. Make certain float arm is not bent.
3. Check transmitter fuel level gauge circuit (WP 0050 00).

INSTALLATION

1. Apply a light coat of sealing compound to both sides of new gasket (1) and new gasket (2).
2. Place new gasket (1) on transmitter (3) on outside of fuel compartment. Place new gasket (2) and bracket (4) on inside of fuel compartment.
3. Carefully install transmitter (3) in fuel tank with five screws (5) and new lock wire (6).
4. If transmitter (3) has rear support, install clamp (7), washer (8), and nut (9) on screw (10).
5. Connect circuit lead 28 (11) to transmitter (3).



FOLLOW-THROUGH STEPS

1. Connect battery negative lead(s) (WP 0292 00).
2. Start engine (see your -10).
3. Check fuel level transmitter for proper operation.
4. Stop engine (see your -10).
5. Install rear crossover fuel tube assembly (WP 0172 00) or (WP 0173 00).
6. Install right front fuel compartment access cover (WP 0163 00).
7. Lower three cargo compartment floor plates (WP 0393 00).
8. Fill fuel compartment (see your -10).

END OF TASK

REPLACE AIR SEPARATOR TANK (M548A1) 0170 00

THIS WORK PACKAGE COVERS:

Removal (page 0170 00-2).
Cleaning (page 0170 00-5).
Installation (page 0170 00-5).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)
Socket Wrench Set (WP 0541 00, Item 63)
Torque Wrench (WP 0541 00, Item 67)

Materials/Parts
Sealing compound (WP 0542 00, Item 37)
Cotter pin (4)
Preformed packing (10)

Personnel Required
Unit Mechanic

References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Left grille removed (WP 0390 00)
Power plant rear access door removed (see your -10)
Heater upper exhaust pipe removed, if installed (WP 0446 00) or (WP 0447 00)
Battery negative lead disconnected (WP 0292 00).

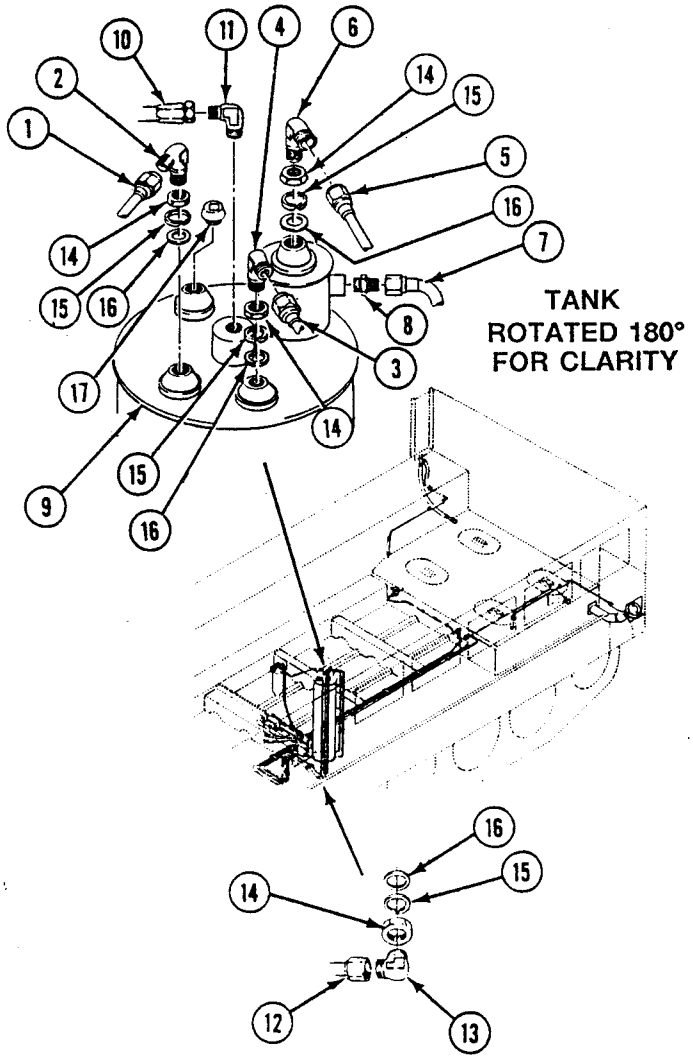
REPLACE AIR SEPARATOR TANK (M548A1) — Continued 0170 00

REMOVAL

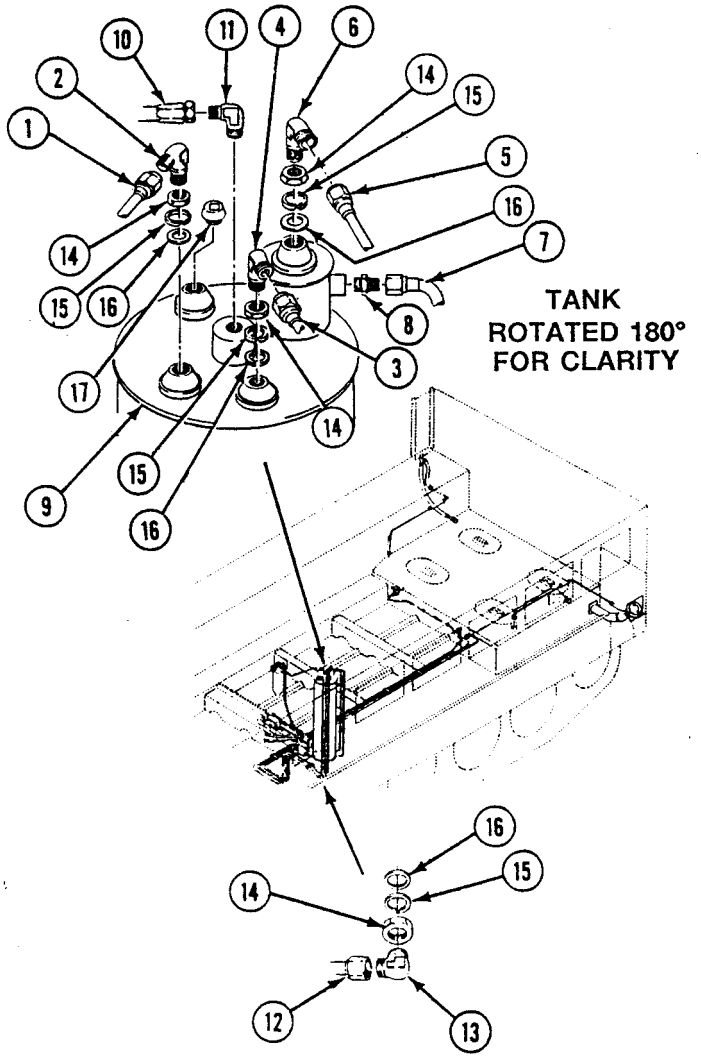
NOTE

Remove only those tubes, hoses, or fittings needed for maintenance.

1. Remove left fuel pump tube (1) from left inlet elbow (2).
2. Remove right fuel pump tube (3) from right inlet elbow (4).
3. Remove fuel return tube (5) from elbow (6).
4. Remove tube (7) and adapter (8) from tank (9).

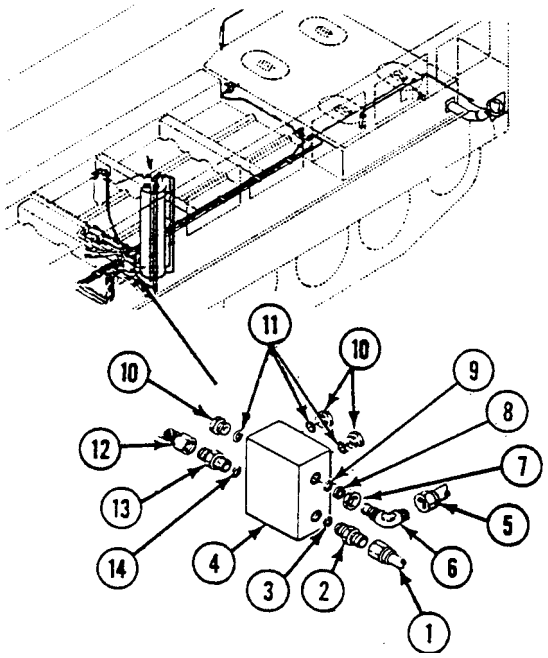


5. Remove filter inlet hose (10) and elbow (11) from tank (9).
6. Remove hose (12) from elbow (13).
7. Loosen four nuts (14) on elbow (2), elbow (4), elbow (6), and elbow (13). Remove elbows, retaining rings (15), and preformed packings (16) from tank (9). Discard preformed packings.
8. Remove plug (17) from top of tank (9).

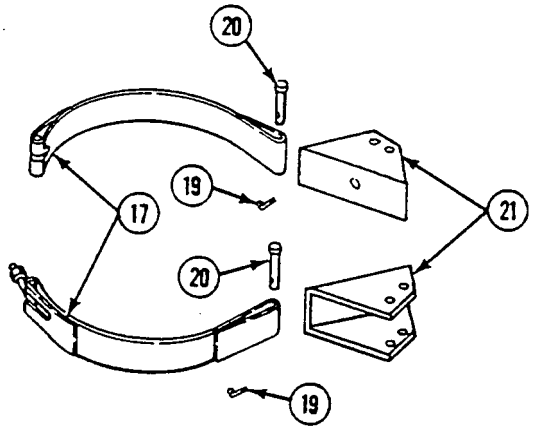


REPLACE AIR SEPARATOR TANK (M548A1) — Continued 0170 00

9. Remove hose (1), adapter (2), and preformed packing (3) from connector (4). Discard preformed packing.
10. Remove hose (5), elbow (6), nut (7), retaining ring (8), and preformed packing (9) from connector (4). Discard preformed packing.
11. Remove three plugs (10) and preformed packings (11). Discard preformed packings.
12. Remove hose (12), adapter (13), and preformed packing (14) from connector (4). Discard performed packing.



13. Remove two T-bolts (15) from two trunnions (16). Open clamps (17) and remove tank (18) from carrier.
14. Remove four cotter pins (19), pins (20), and clamps (17) from four mounts (21). Discard cotter pins.



CLEANING

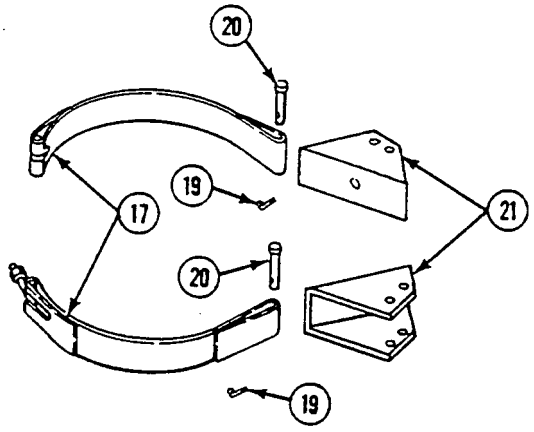
1. Check air separator tank for leaks with air pressure test as follows:
   a. Connect air line to left inlet port of tank. Seal off other tank openings.
   b. Submerge tank in water. Apply 2 psi (14 kPa) air pressure through air line. If any leaks are found, replace tank.

INSTALLATION

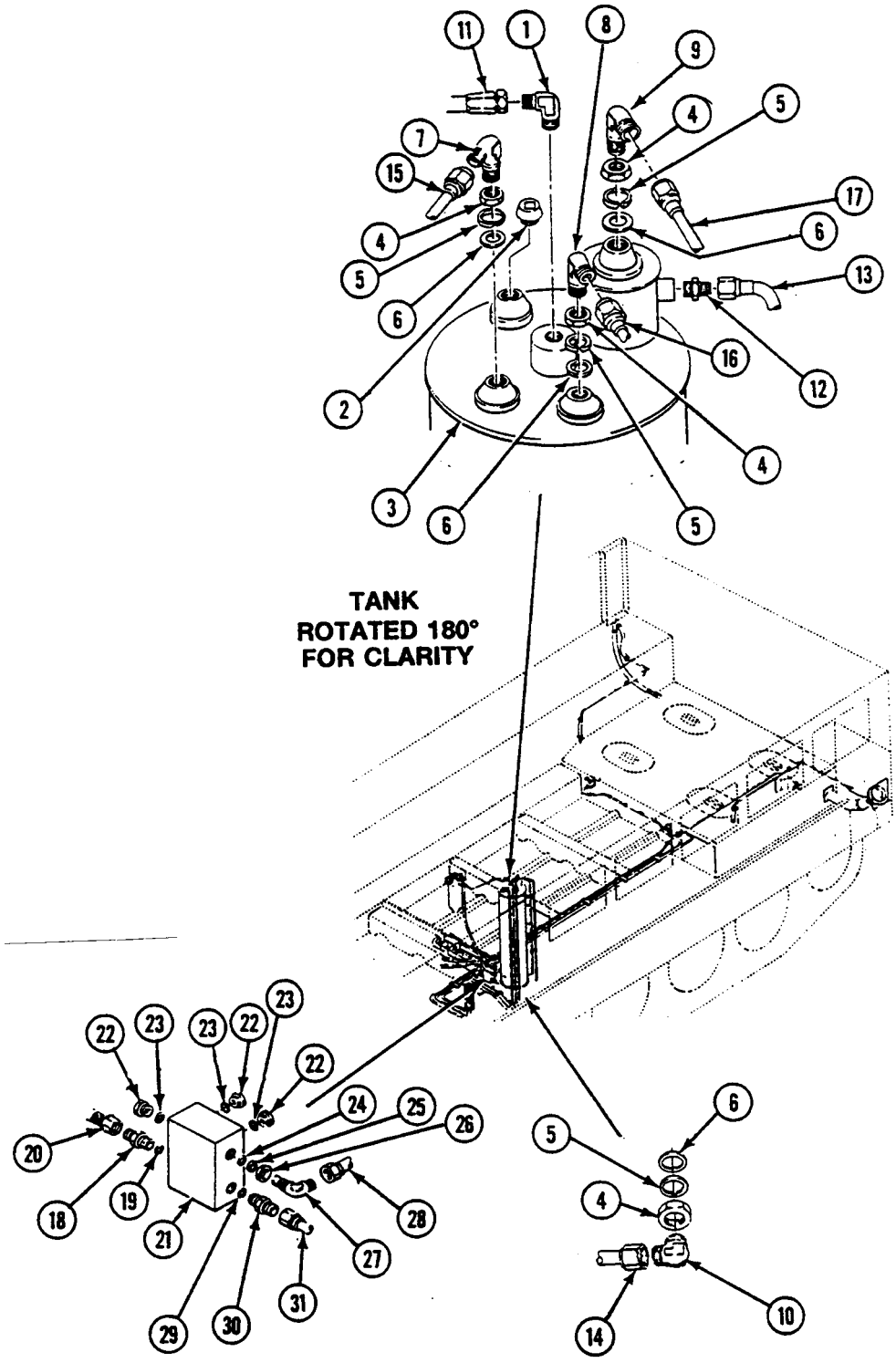
NOTE

For temporary or permanent repair of air separator tank, notify your supervisor.

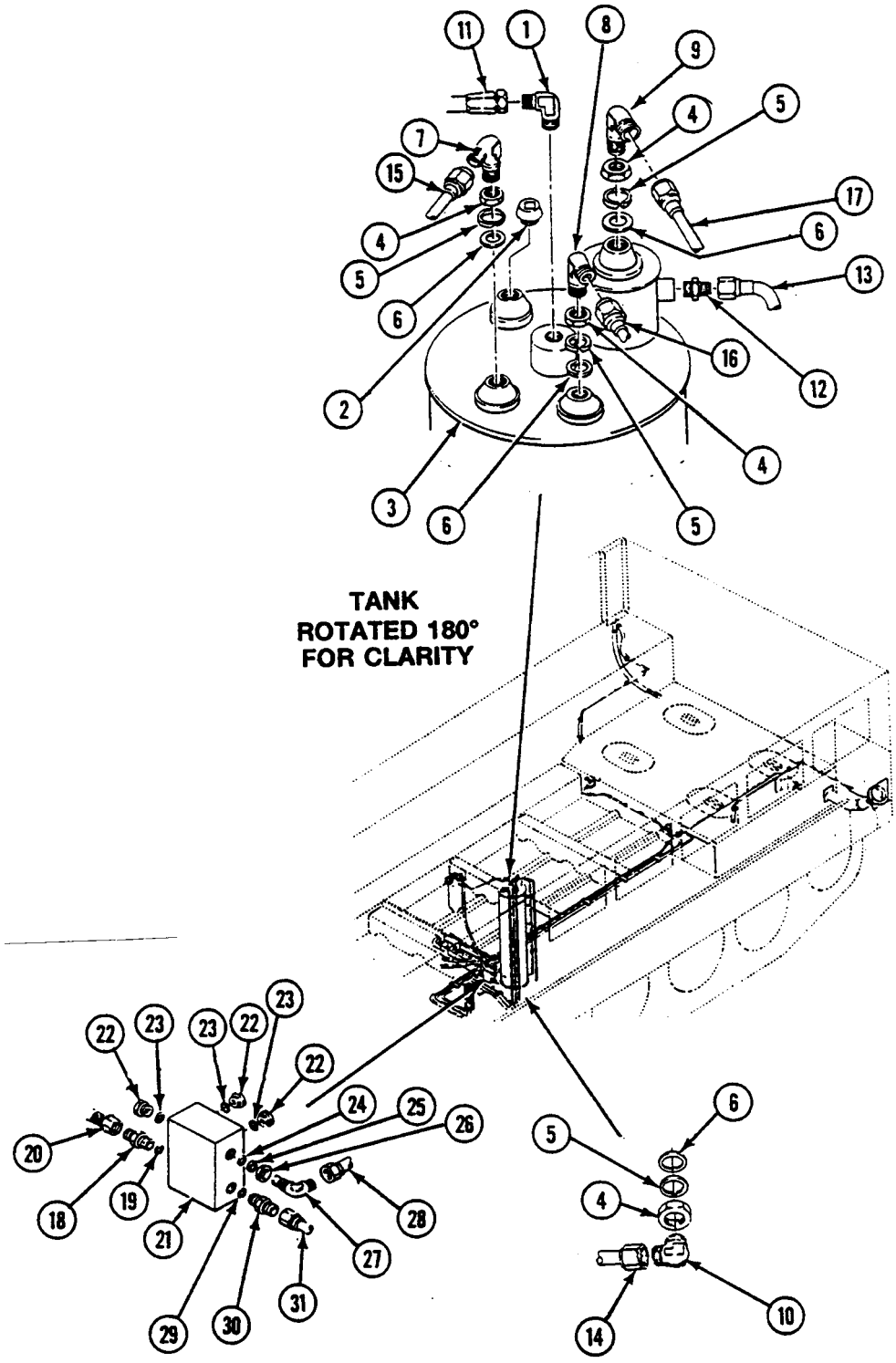
1. Put light coat of sealing compound on male pipe threads.
2. Install four clamps (17) on four mounts (21). Secure clamps with four pins (20) and new cotter pins (19).
3. Install tank (18) in carrier. Secure with two T-bolts (15) and trunnions (16). Tighten t-bolt nut 12-18 lb-ft (16-24 N•m) torque.



4. Install elbow (1) and plug (2) in tank (3).
5. Install four nuts (4), retaining rings (5), and new preformed packings (6) on elbow (7), elbow (8), elbow (9), and elbow (10). Install four elbows in tank (3). Tighten nuts.
6. Install filter inlet hose (11) on elbow (1). Install adapter (12) in tank (3). Connect tube (13) to adapter.
7. Install hose (14) on elbow (10). Install fuel pump tube (15), fuel pump tube (16), and fuel pump tube (17) on elbow (7), elbow (8), and elbow (9).


TANK
ROTATED 180°
FOR CLARITY

8. Install adapter (18), new preformed packing (19), and hose (20) to connector (21).
9. Install three plugs (22) and new preformed packings (23) on connector (21).
10. Install new preformed packing (24), retaining ring (25), and nut (26) on elbow (27). Install elbow with hose (28) on connector (21).
11. Install new preformed packing (29), adapter (30), and hose (31) on connector (21).


TANK
ROTATED 180°
FOR CLARITY

FOLLOW-THROUGH STEPS

1. Connect battery negative lead (WP 0292 00).
2. Start engine (see your -10).
3. Check air separator tank and electric fuel pumps for proper operation.
4. Stop engine (see your -10).
5. Install power plant rear access door (see your -10).
6. Install left grille (WP 0390 00).

END OF TASK

REPLACE AIR SEPARATOR TANK (M548A3) 0171 00

THIS WORK PACKAGE COVERS:

Removal (page 0171 00-1).
Cleaning (page 0171 00-2).
Installation (page 0171 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Personnel Required

Unit Mechanic

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)

References

See your -10

Materials/Parts

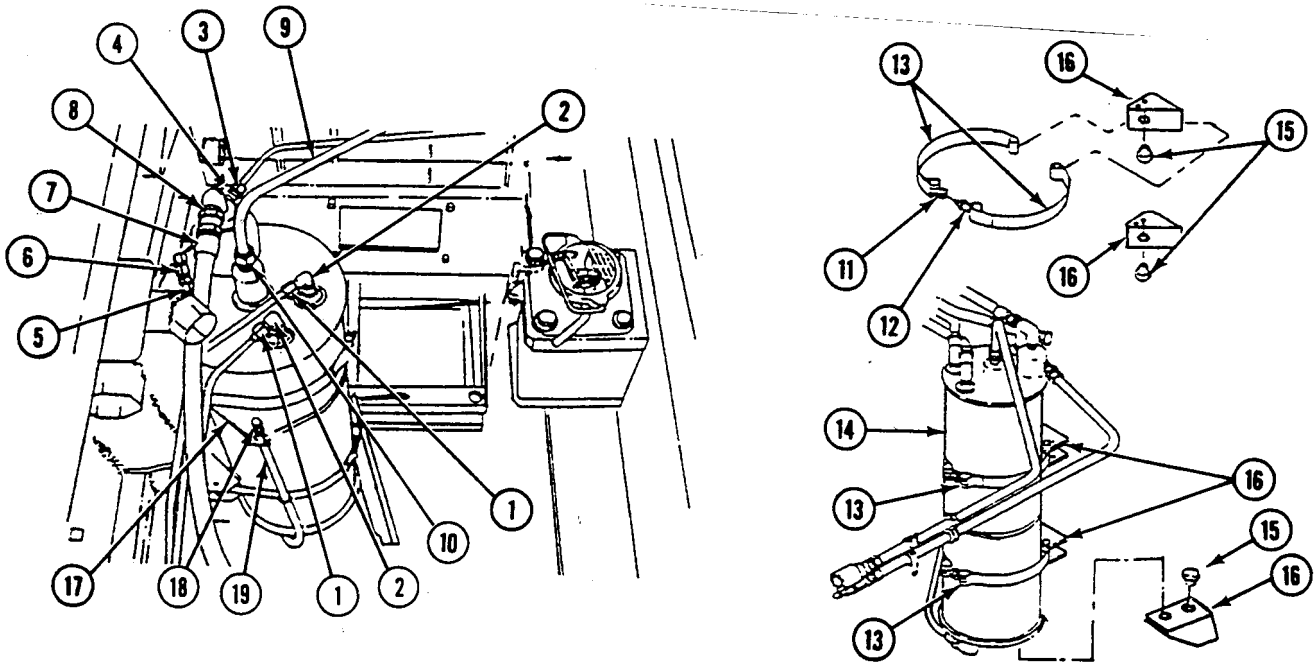
Antiseize compound (WP 0542 00, Item 6)
Sealing compound (WP 0542 00, Item 37)
Rubber spacer
Suitable container

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Both battery negative leads disconnected (WP 0292 00)
Top access cover and grilles removed (see your -10)

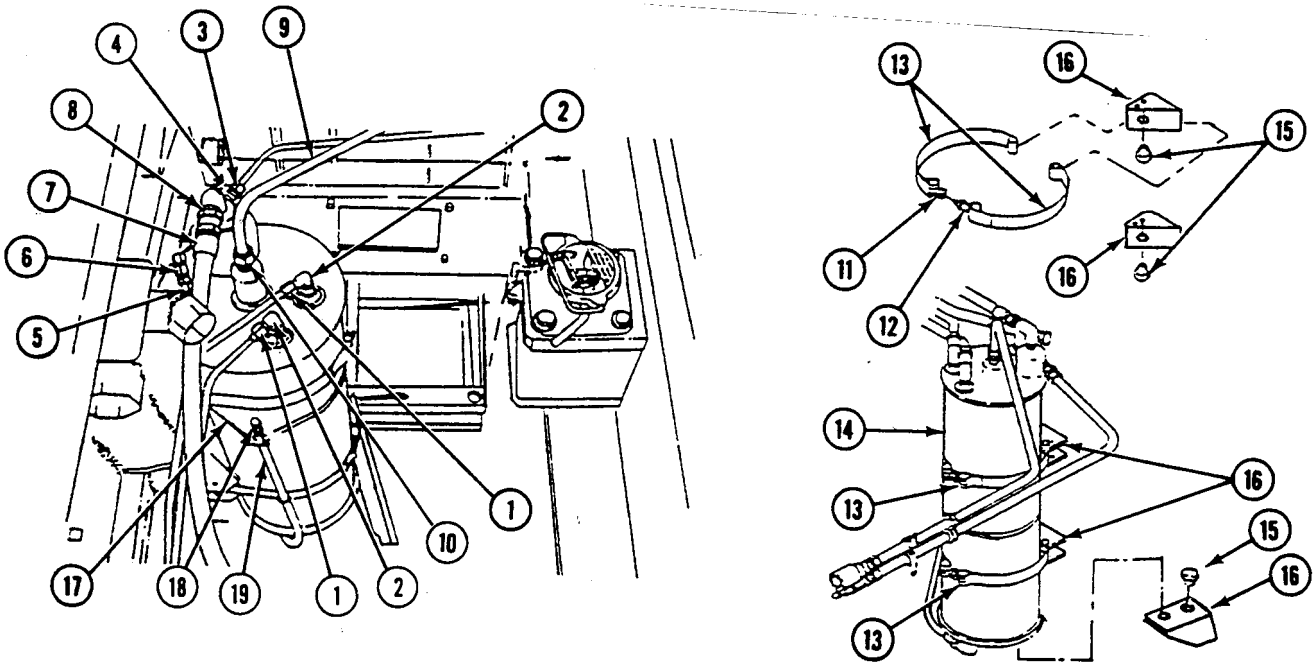
REMOVAL

1. Disconnect two fuel pump to air separator tank tubes (1) from two elbows (2).
2. Disconnect return tube (3) from adapter (4).
3. Disconnect vehicle compartment heater tube (5) from tee (6).
4. Disconnect engine to tank return tube (7) from adapter (8).



5. Disconnect tank to engine fuel pump tube (9) from adapter (10).
6. Remove two T-bolt assembly nuts (11) from trunnions (12). Separate bands (13) and remove tank (14) from carrier.

7. Remove six rubber spacers (15) from three brackets (16). Discard spacers if worn or damaged.
8. Loosen strap (17) and remove cap (18) from tube (19). Drain fuel into suitable container. Reinstall cap (18) and tighten strap (17).

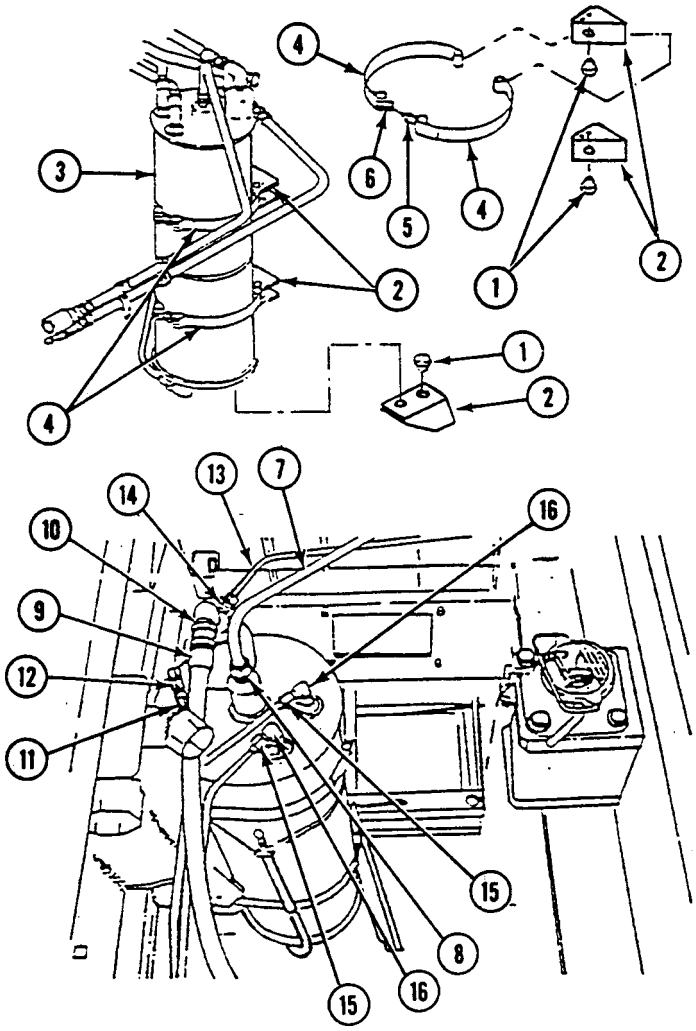


CLEANING

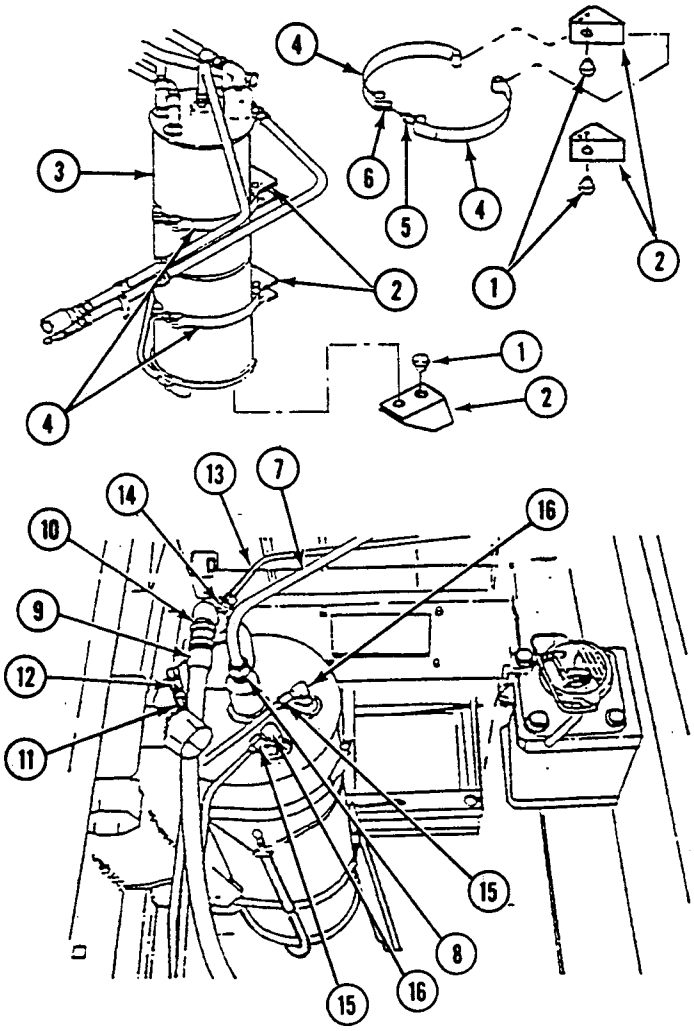
1. Clean external threads of screws and straight pipe fittings and apply a light coat of antiseize compound.
2. Clean tapered pipe fittings and apply a light coat of sealing compound.
3. Inspect fittings for distortion, damaged threads, and breaks. Replace fittings showing any of these defects.
4. Inspect T-bolt and trunnion assemblies for damaged threads and bands for cracks and breaks. Replace damaged parts.

INSTALLATION

1. Install new rubber spacers (1) as required on three brackets (2).
2. Install tank (3) in carrier. Secure with bands (4), two trunnions (5), and T-bolt assembly nuts (6).
3. Connect tank to engine fuel pump tube (7) to adapter (8).
4. Connect engine to tank tube (9) to adapter (10).



5. Connect vehicle compartment heater tube (11) to tee (12).
6. Connect return tube (13) to adapter (14).
7. Connect two fuel pump to air separator tank tubes (15) to two elbows (16).



FOLLOW-THROUGH STEPS

1. Connect both battery negative leads (WP 0292 00).
2. Start engine (see your -10).
3. Check hoses and fittings for fuel leaks.
4. Stop engine (see your -10).
5. Install top access cover and grilles (see your -10).

END OF TASK

REPLACE AIR SEPARATOR TO FUEL TANK TUBES, HOSES, AND FITTINGS (M548A1)

0172 00

THIS WORK PACKAGE COVERS:

Removal (page 0172 00-2).
Installation (page 0172 00-5).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts
Sealing compound (WP 0542 00, Item 37)
Lock washer (4)
Lock washer (14)
Preformed packing
Seal
Suitable container

Personnel Required
Unit Mechanic

References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Power plant lower rear access cover removed (see your -10)
Power plant rear access door removed (see your -10)
Cargo compartment floor plates raised (WP 0393 00)
Battery negative lead disconnected (WP 0292 00)
Fuel compartment access covers removed (WP 0163 00)
Fuel compartment drained (WP 0162 00)

REPLACE AIR SEPARATOR TO FUEL TANK TUBES, HOSES, AND FITTINGS (M548A1) — Continued

0172 00

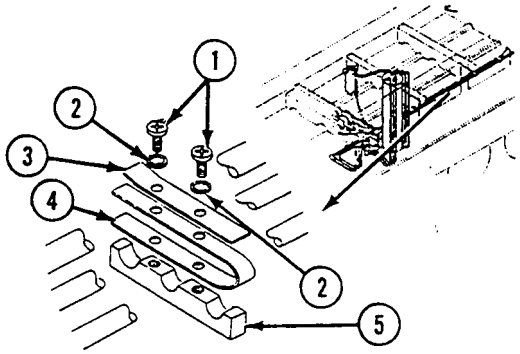
REMOVAL

NOTE

Removal of all tubes, hoses and fittings is not usually needed for maintenance. Remove only those parts needed to do task.

Remove tubes and hoses with clamps attached. Attach clamps to replacement hoses and tubes.

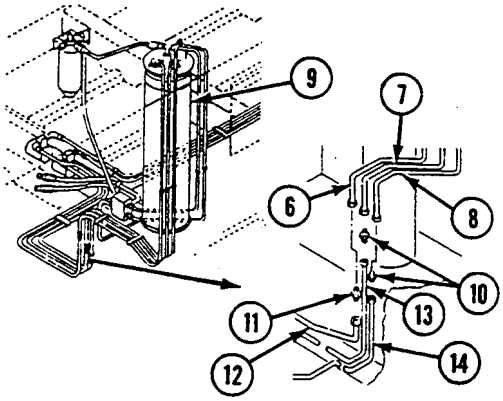
1. Remove 14 screws (1), lock washers (2), 7 straps (3), and rubber strips (4) from 7 blocks (5) that secure tubes to hull. Discard lock washers.



NOTE

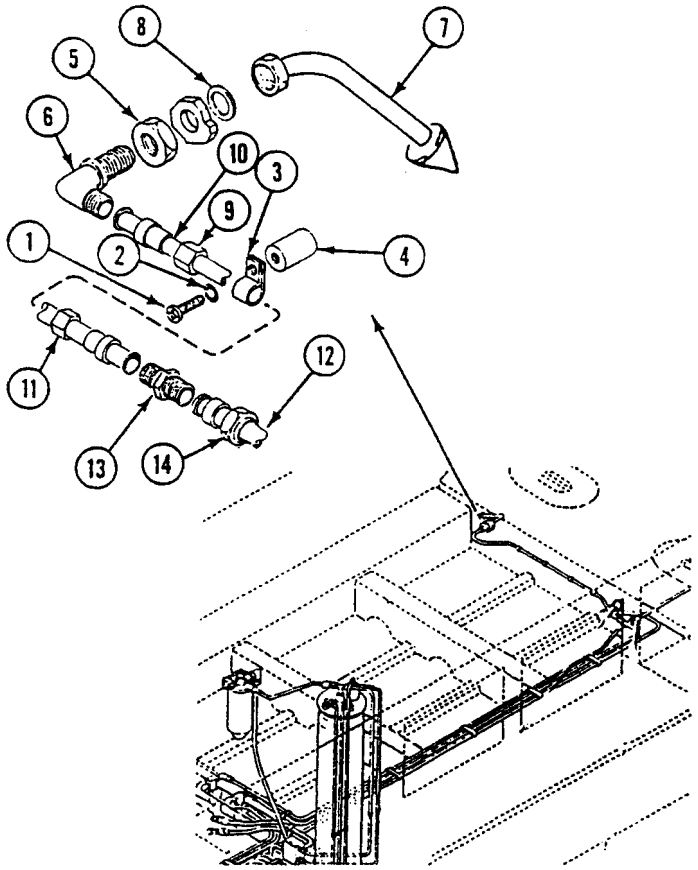
Use container to catch fuel when tubes, hoses, and fittings are removed.

2. Remove excess fuel return tube (6) and two pump to air separator tube (7) and air separator tube (8) from air separator (9).
3. Disconnect excess fuel return tube (6) and two pump to air separator tube (7) and air separator tube (8) at two nipples (10) and nipple (11). Remove upper tube (6), upper tube (7), and upper tube (8). Remove two nipples (10) and nipple (11) from lower tube (12), lower tube (13), and lower tube (14).



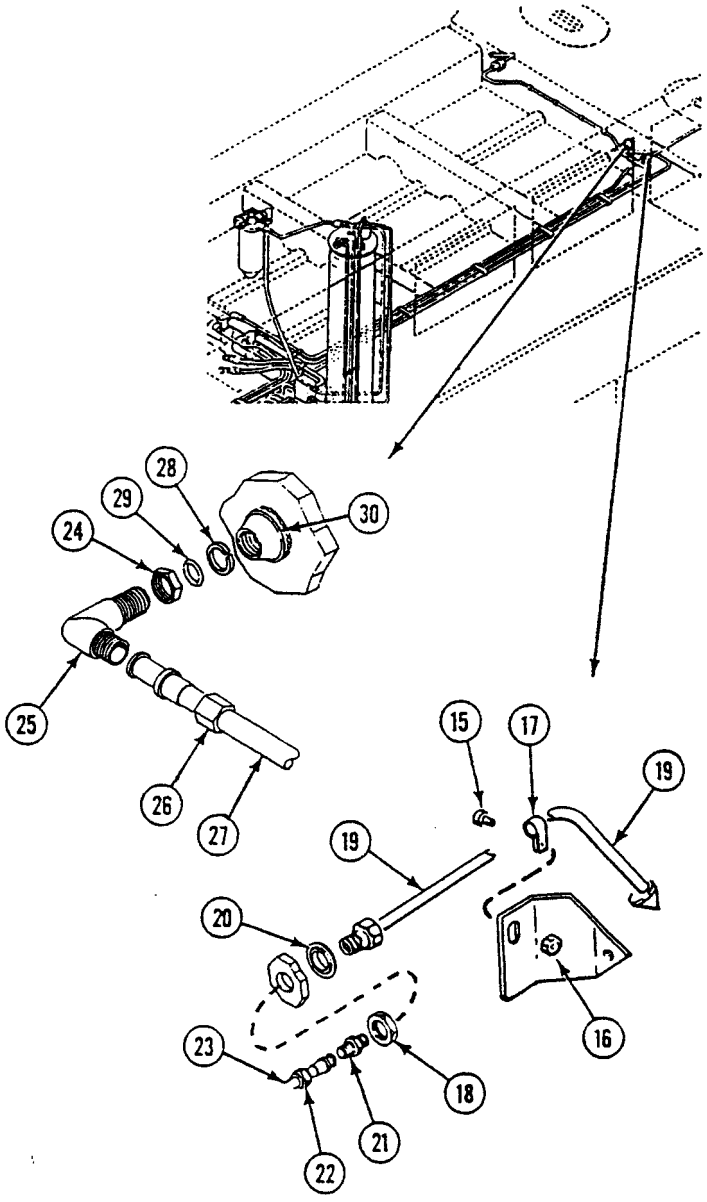
REPLACE AIR SEPARATOR TO FUEL TANK TUBES, HOSES, AND FITTINGS (M548A1) — Continued **0172 00**

4. Remove fuel inlet and outlet tubes from fuel pumps (WP 0151 00).
5. Remove four screws (1) and lock washers (2) from four clamps (3) secured to weld nuts (4). Discard lock washers.
6. Loosen nut (5) on elbow (6). Disconnect pick up tube (7) and seal (8) from elbow (6). Discard seal.
7. Loosen nut (9). Disconnect elbow (6) from crossover tube (10). Loosen nut (11). Disconnect crossover tube from crossover tube (12) at adapter (13).
8. Loosen nut (14). Remove adapter (13) from crossover tube (12). Remove crossover tube (10) and crossover tube (12) from hull.



REPLACE AIR SEPARATOR TO FUEL TANK TUBES, HOSES, AND FITTINGS (M548A1) — Continued **0172 00**

9. Remove two screws (15) and nuts (16) from clamps (17) secured to bracket.
10. Loosen nut (18). Remove pickup tube (19) and seal (20) from adapter (21). Discard seal.
11. Loosen nut (22) on tube (23). Remove adapter (21) from tube (23). Remove tube (19) and tube (23) from hull.
12. Loosen nut (24) on elbow (25). Loosen nut (26) on tube (27). Remove tube from elbow.
13. Remove elbow (25), retaining ring (28), and preformed packing (29) from flange in fuel compartment (30). Discard preformed packing.



REPLACE AIR SEPARATOR TO FUEL TANK TUBES, HOSES, AND FITTINGS (M548A1) — Continued **0172 00**

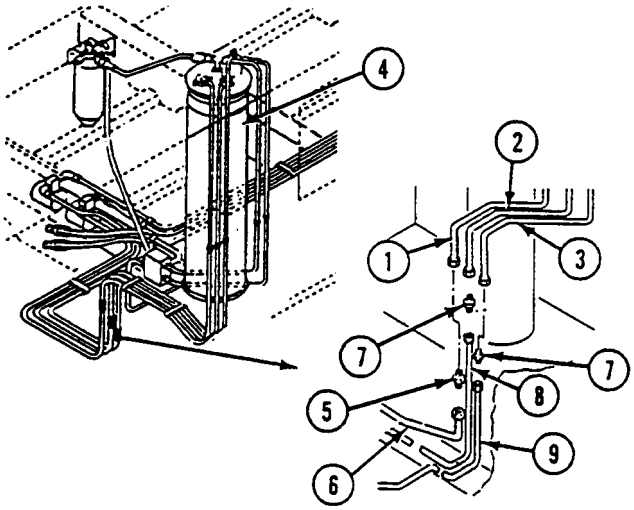
INSTALLATION

NOTE

Replacement hoses are cut to length from bulk stock. Remove clamps from hoses and tubes to be replaced. Attach clamps to new hoses and tubes.

Put sealing compound on male threads. Do not put sealing compound beyond small end of tapered threads.

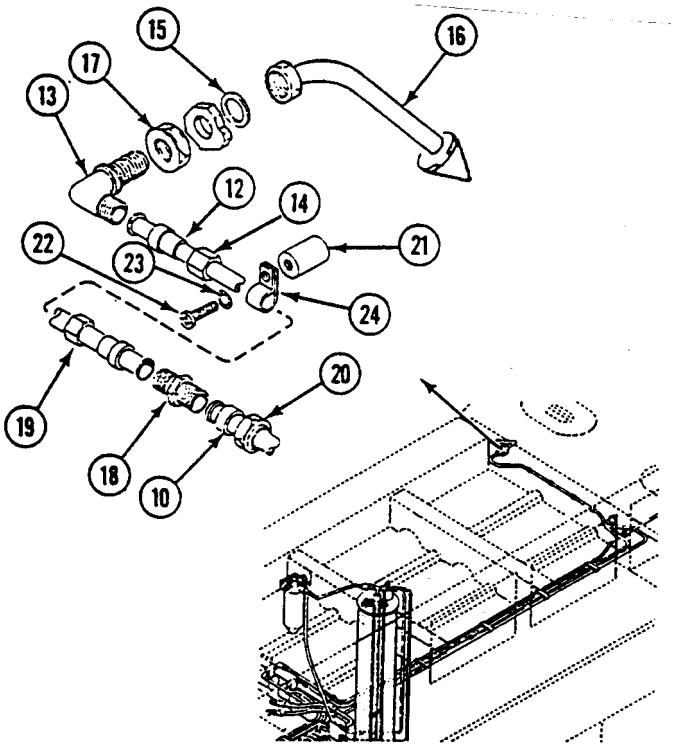
1. Install excess fuel return tube (1) and two pump to air separator tube (2) and air separator tube (3) on air separator (4).
2. Install nipple (5) on upper tube (1). Connect lower tube (6) to nipple (5).
3. Install two nipples (7) on upper tube (2) and upper tube (3). Connect lower tube (8) and lower tube (9) to nipples (7).
4. Install pump to air separator tube (2) and air separator tube (3) to fuel pumps (WP 0151 00).



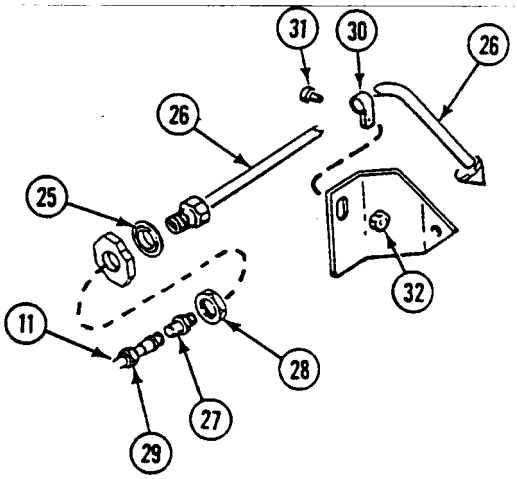
REPLACE AIR SEPARATOR TO FUEL TANK TUBES, HOSES, AND FITTINGS (M548A1) — Continued

0172 00

5. Install fuel tank to crossover tube (10) and pump tube (11).
6. Attach crossover tube (12) to elbow (13). Tighten nut (14).
7. Install new seal (15) and pickup tube (16) on elbow (13) and tighten nut (17).
8. Install adapter (18) on crossover tube (10). Tighten nut (19) and nut (20). Secure crossover tube (12) to four weld nuts (21) with four screws (22), new lock washers (23), and clamps (24).

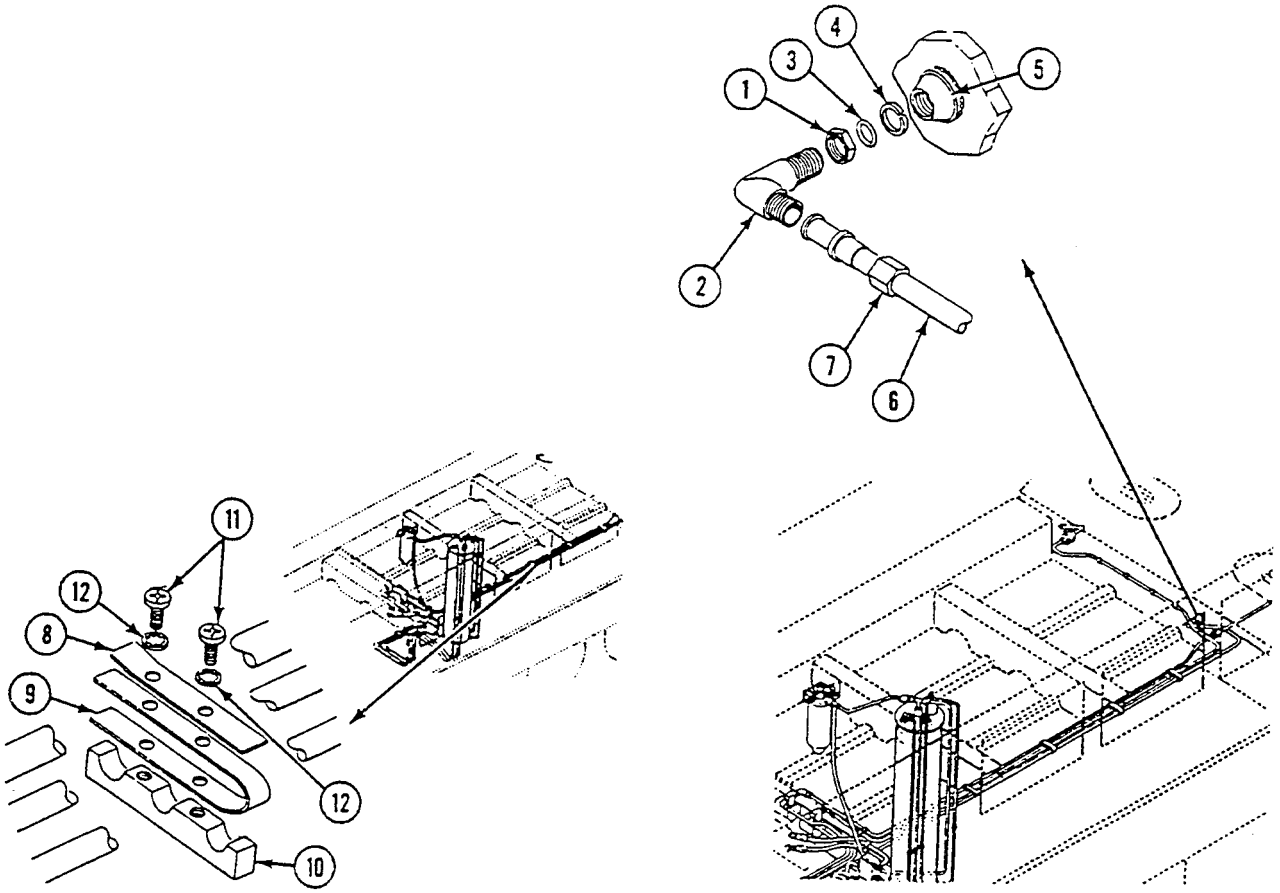


9. Install fuel outlet and inlet tubes on fuel pumps (WP 0151 00).
10. Install new seal (25) on tube (26), and push through bulkhead. Install adapter (27), nut (28), and hose (29) on tube (26). Tighten nut (28) and nut (29).
11. Attach tube (26) to bracket with two clamps (30), screws (31), and nuts (32).



REPLACE AIR SEPARATOR TO FUEL TANK TUBES, HOSES, AND FITTINGS (M548A1) — Continued **0172 00**

12. Install nut (1) on elbow (2). Install new preformed packing (3), retaining ring (4), and elbow (2) on flange in fuel compartment (5).
13. Install tube (6) on elbow (2). Tighten nut (7).
14. Install 7 straps (8) and rubber strips (9) on blocks (10) with 14 screws (11) and new lock washers (12).



FOLLOW-THROUGH STEPS

1. Refuel carrier (see your -10).
2. Connect battery negative lead (WP 0292 00).
3. Start engine (see your -10).
4. Check for leaks.
5. Stop engine (see your -10).
6. Install fuel compartment access covers (WP 0163 00).
7. Install power plant rear access door (see your -10).
8. Install power plant lower rear access cover (see your -10).
9. Install cargo compartment floor plates (WP 0393 00).

END OF TASK

REPLACE AIR SEPARATOR TO FUEL TANK TUBES, HOSES, AND FITTINGS (M548A3) 0173 00

THIS WORK PACKAGE COVERS:

Removal (page 0173 00-2).
Cleaning (page 0173 00-7).
Installation (page 0173 00-8).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts

Antiseize compound (WP 0542 00, Item 6)
Sealing compound (WP 0542 00, Item 37)
Grommet (6)
Lock nut (2)
Lock washer (7)
Preformed packing (2)
Preformed packing
Preformed packing
Suitable container

Personnel Required

Unit Mechanic

References

See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Both battery negative leads disconnected (WP 0292 00)
Top access cover and grilles removed (see your -10)
Power plant rear access panel removed (see your -10)
Fuel compartment drained (WP 0162 00)
Radiator and auxiliary tank removed (WP 0216 00) and (WP 0217 00)

REPLACE AIR SEPARATOR TO FUEL TANK TUBES, HOSES, AND FITTINGS (M548A3) — Continued **0173 00**

REMOVAL

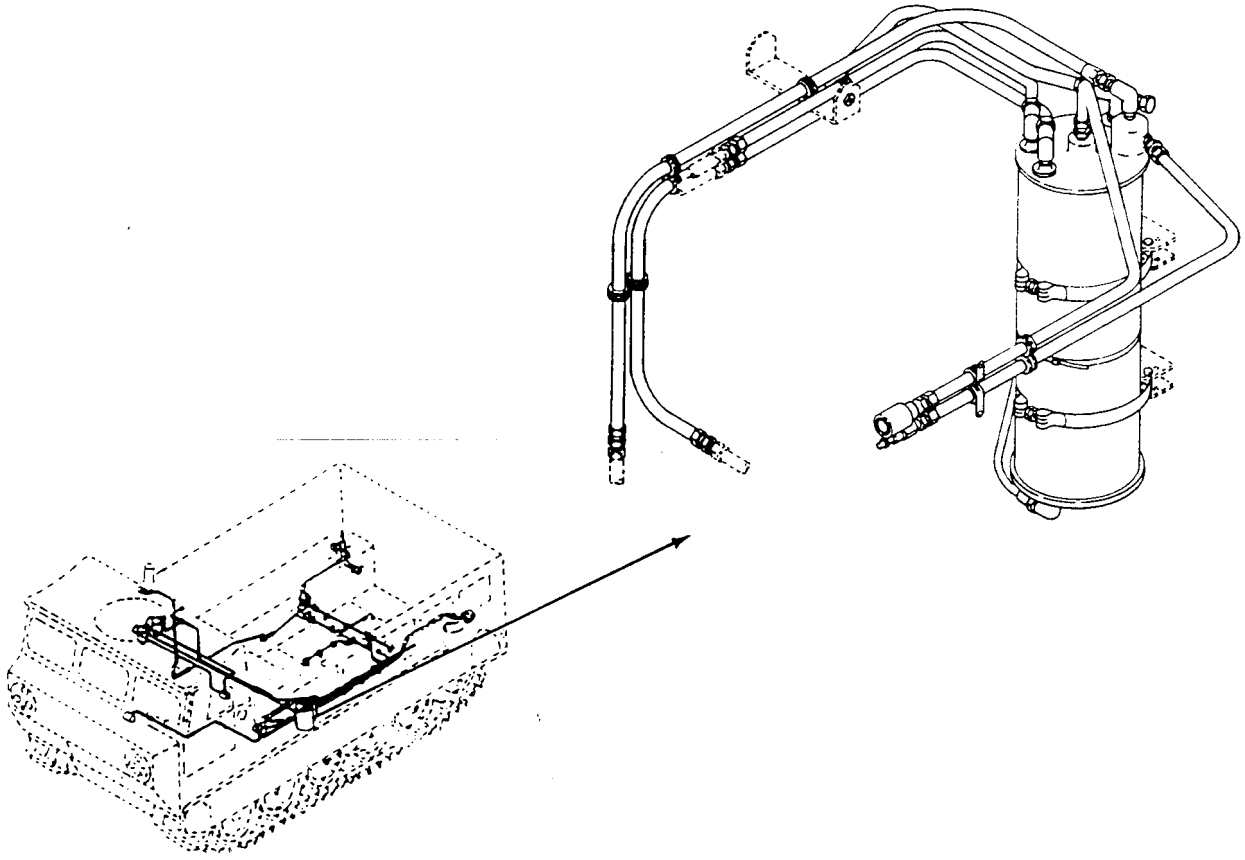
NOTE

Removal of all tubes, hoses, and fittings is not usually needed for maintenance. Remove only those parts needed to do task.

If tubes and hoses are removed with clamps attached, remove clamps and install on new hoses and tubes.

Use suitable clean container to catch fuel when tubes, hoses, and fittings are removed.

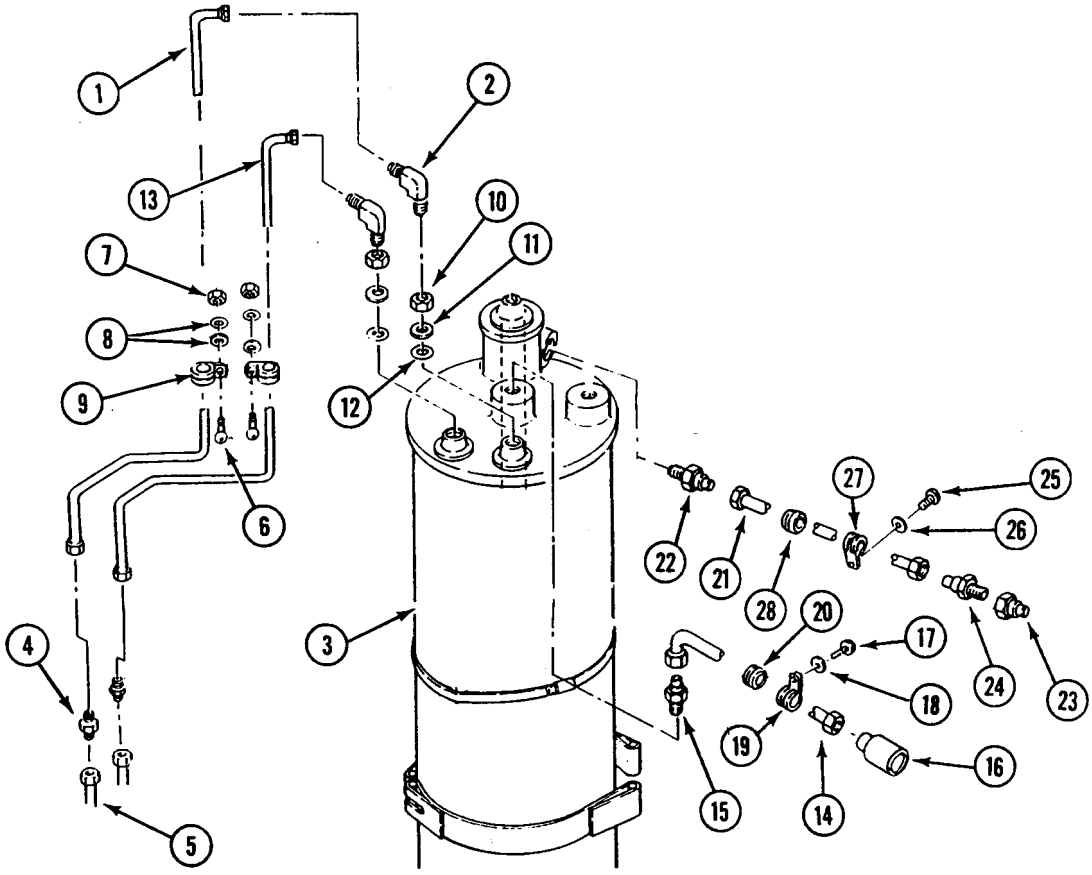
The upper and lower fuel to air separator tank tubes are removed the same way.



REPLACE AIR SEPARATOR TO FUEL TANK TUBES, HOSES, AND FITTINGS (M548A3) — Continued

0173 00

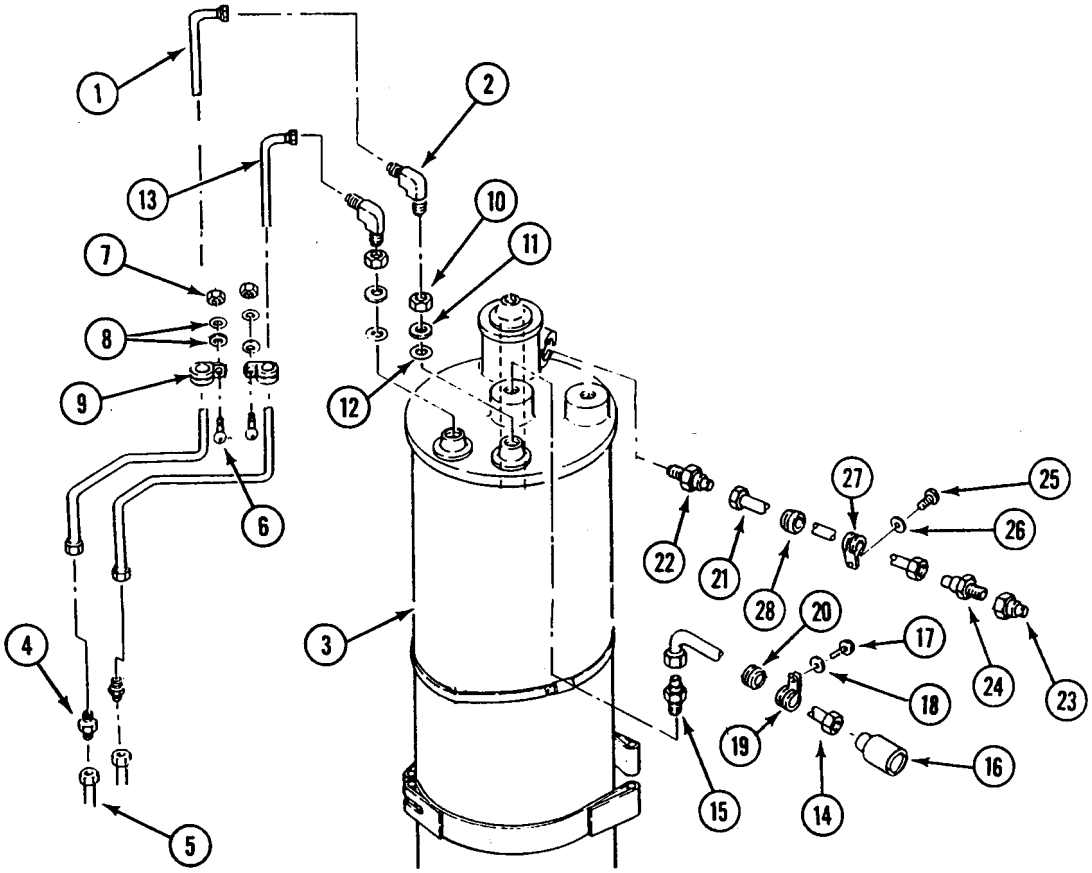
1. Disconnect upper fuel to air separator tank tube (1) from elbow (2) on air separator tank (3).
2. Disconnect upper fuel to air separator tank tube (1) from adapter (4).
3. Disconnect adapter (4) from fuel pump tube (5).
4. Remove screw (6), lock nut (7), two washers (8), clamp (9), and upper fuel to air separator tank tube (1) from bulkhead bracket. Discard lock nut.
5. Remove elbow (2), nut (10), ring (11), and preformed packing (12) from air separator tank (3). Discard preformed packing.
6. Repeat Steps 1 - 5 for lower fuel to air separator tank tube (13).
7. Disconnect air separator tank to engine tube (14) from adapter (15) on air separator tank (3).
8. Remove adapter (15) from air separator tank (3).
9. Disconnect quick connect coupler (16) from engine fuel line. Remove coupler (16) from air separator tank to engine tube (14).



REPLACE AIR SEPARATOR TO FUEL TANK TUBES, HOSES, AND FITTINGS (M548A3) — Continued

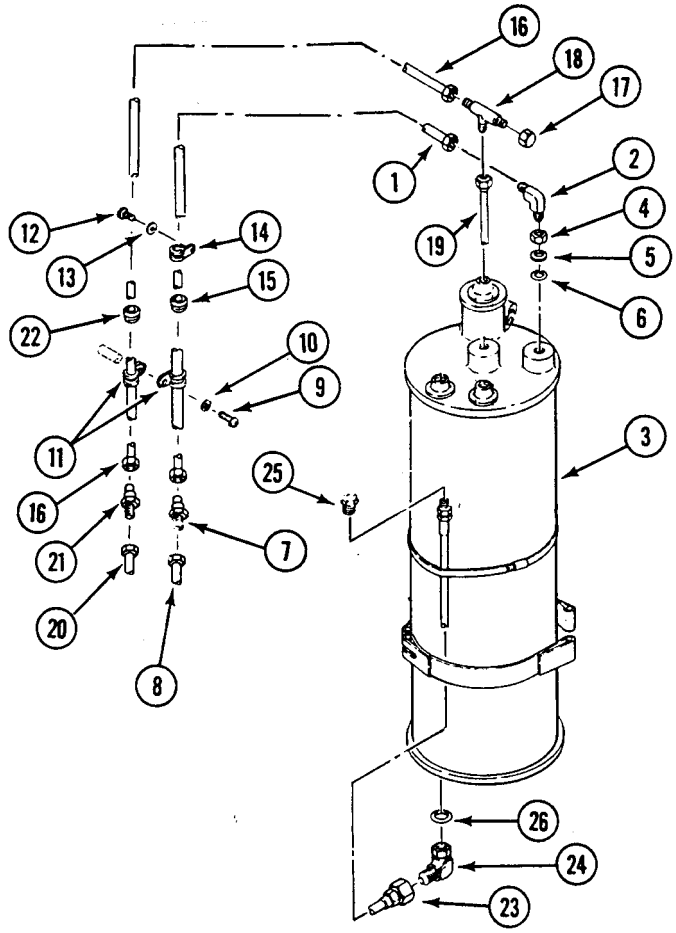
0173 00

10. Remove screw (17), lock washer (18), clamp (19), and air separator tank to engine tube (14) from transverse beam. Discard lock washer.
11. Remove air separator tank to engine tube (14) and grommet (20) from bulkhead. Discard grommet.
12. Disconnect engine to air separator tank tube (21) from adapter (22) on air separator tank (3).
13. Remove adapter (22) from air separator tank (3).
14. Disconnect coupler nose (23) from engine quick connect. Remove engine to air separator tank tube (21) and coupler nose (23) from adapter (24).
15. Remove screw (25), lock washer (26), clamp (27), and engine to air separator tank tube (21) from transverse beam. Discard lock washer.
16. Remove engine to air separator tank tube (21) and grommet (28) from bulkhead. Discard grommet.



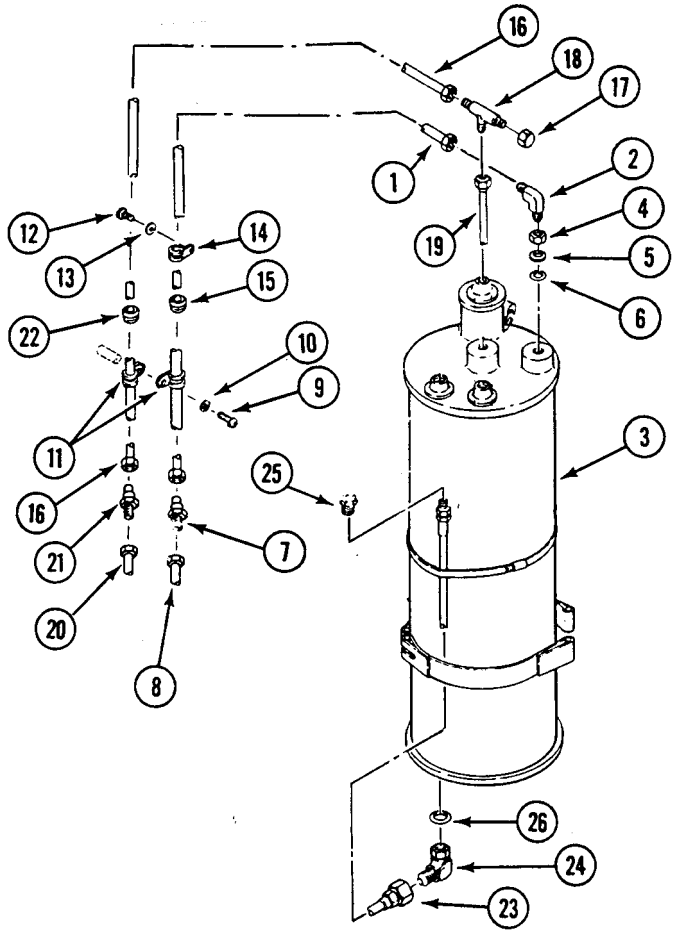
REPLACE AIR SEPARATOR TO FUEL TANK TUBES, HOSES, AND FITTINGS (M548A3) — Continued **0173 00**

17. Disconnect fuel return hose (1) from elbow (2) on air separator tank (3).
18. Remove elbow (2), nut (4), ring (5), and preformed packing (6) from air separator tank (3). Discard preformed packing.
19. Disconnect adapter (7) from fuel return line (8).
20. Remove adapter (7) from fuel return hose (1)
21. Remove screw (9), lock washer (10) and two clamps (11) bulkhead and hoses. Discard lock washer.
22. Remove screw (12), lock washer (13), clamp (14), and fuel return hose (1) from bulkhead bracket. Discard lock washer.
23. Remove fuel return hose (1) and grommet (15) from bulkhead. Discard grommet.
24. Disconnect vehicle compartment heater tube (16) and cap (17) from tee (18).
25. Remove tee (18) from fuel line (19).
26. Remove fuel line (19) from air separator tank (3).
27. Disconnect hose (20) from adapter (21).
28. Remove adapter (21) from vehicle compartment heater tube (16).



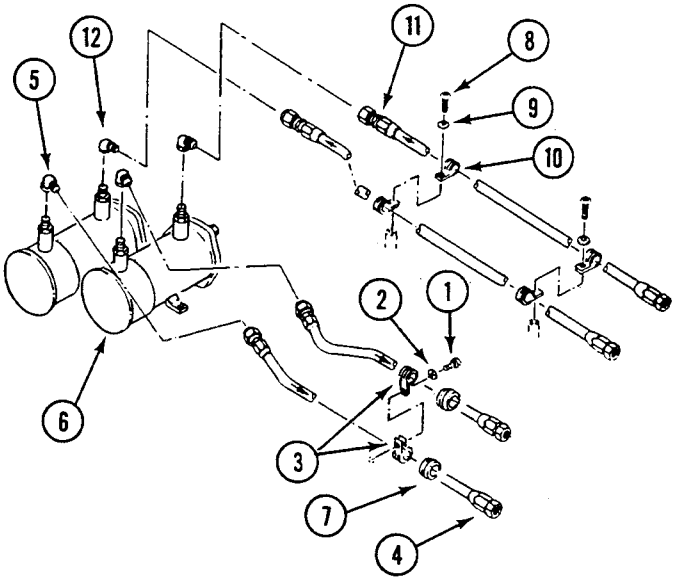
REPLACE AIR SEPARATOR TO FUEL TANK TUBES, HOSES, AND FITTINGS (M548A3) — Continued **0173 00**

29. Remove vehicle compartment heater tube (16) and grommet (22) from bulkhead. Discard grommet.
30. Remove and drain air separator tank (3) (WP 0171 00).
31. Disconnect drain hose (23) from elbow (24).
32. Remove cap (25) from drain hose (23).
33. Remove elbow (24) and preformed packing (26) from tank (3). Discard preformed packing.



REPLACE AIR SEPARATOR TO FUEL TANK TUBES, HOSES, AND FITTINGS (M548A3) — Continued **0173 00**

34. Remove screw (1), lock washer (2), and two clamps (3) from two fuel pump return hoses (4) and hull. Discard lock washer.
35. Disconnect two fuel pump return hoses (4) from two elbows (5) on two fuel pumps (6). Remove elbows from fuel pumps.
36. Remove two fuel pump return hoses (4) and grommets (7) from bulkhead. Discard grommets.
37. Remove two screws (8), lock washers (9), four clamps (10), and two fuel pump supply hoses (11) from hull. Discard lock washers.
38. Disconnect two fuel pump supply hoses (11) from two elbows (12) on two fuel pumps (6). Remove elbows from fuel pumps.



CLEANING

1. Inspect hoses for cracks and deformation. Replace hoses that show either of these defects.
2. Inspect tubes for crimps, cracks, or damaged ends. Replace tubes that show any of these defects.
3. Inspect fittings and connections for worn areas and damaged threads. Replace parts that show either of these defects.

NOTE

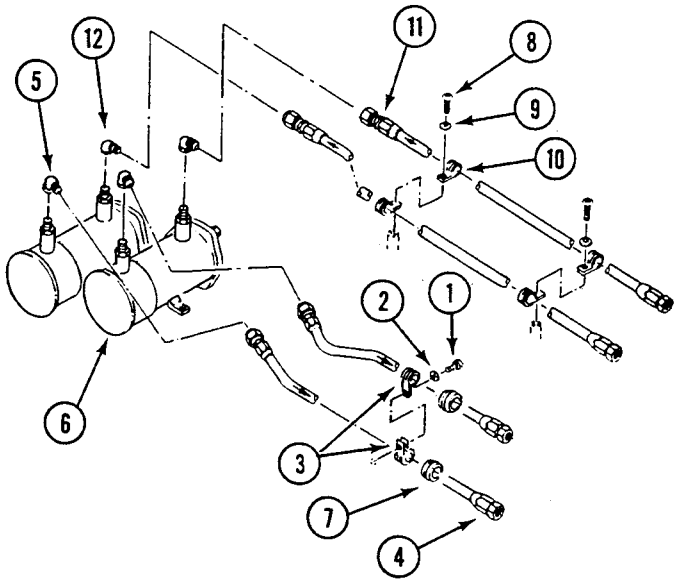
Apply sealing compound to threads of elbows. Do not apply compound beyond end of threads.

4. Clean external threads of screws and straight pipe fittings and apply a light coat of antiseize compound.
5. Clean tapered pipe threads and apply a light coat of sealing compound.

REPLACE AIR SEPARATOR TO FUEL TANK TUBES, HOSES, AND FITTINGS (M548A3) 0173 00
— Continued

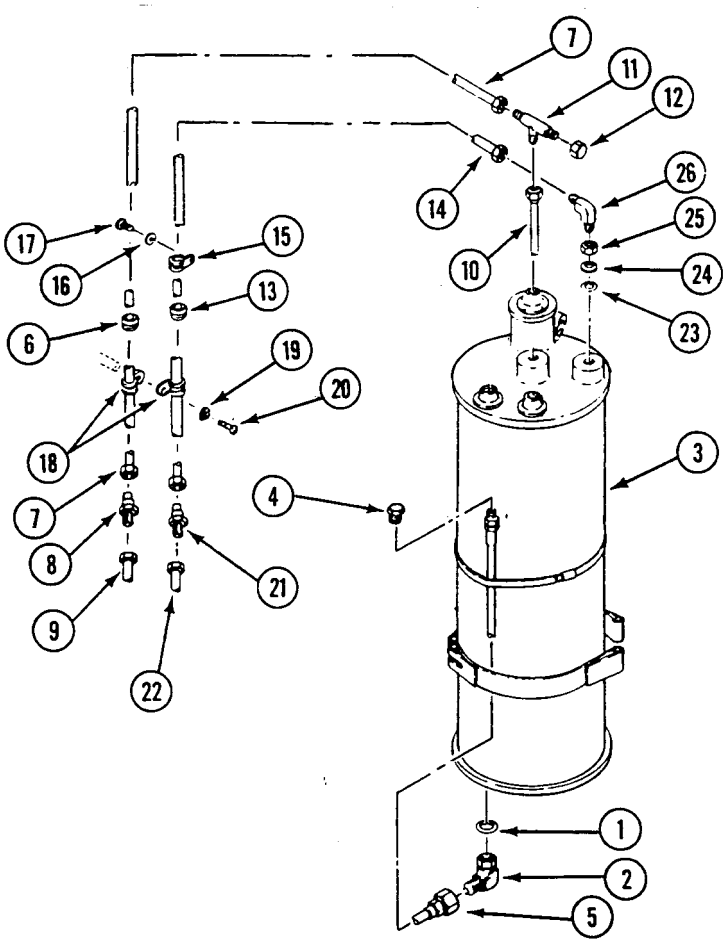
INSTALLATION

1. Install two elbows (12) on two fuel pumps (6). Connect two fuel pump supply hoses (11) to elbows.
2. Install two fuel pump supply hoses (11) and four clamps (10) on hull. Secure with two new lock washers (9) and screws (8).
3. Install two new grommets (7) in bulkhead. Route two fuel pump return hoses (4) through grommets.
4. Install two elbows (5) on two fuel pumps (6). Connect two fuel pump return hoses (4) to elbows.
5. Install two fuel pump return hoses (4) and clamps (3) on hull. Secure with new lock washer (2) and screw (1).



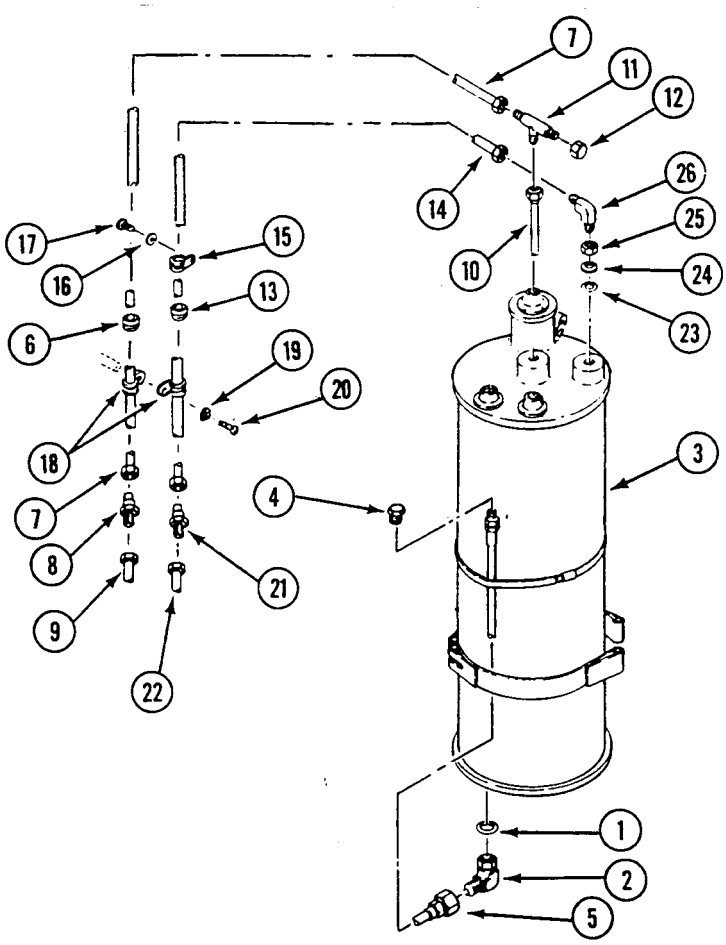
REPLACE AIR SEPARATOR TO FUEL TANK TUBES, HOSES, AND FITTINGS (M548A3) — Continued **0173 00**

6. Install new preformed packing (1) and elbow (2) in air separator tank (3).
7. Install cap (4) on drain hose (5).
8. Connect drain hose (5) to elbow (2).
9. Install air separator tank (3) in carrier (WP 0171 00).
10. Install new grommet (6) in bulkhead. Route vehicle compartment heater tube (7) through grommet.
11. Connect adapter (8) to fuel return line (9).
12. Connect vehicle compartment heater tube (7) to adapter (8).
13. Install fuel line (10) in air separator tank (3).
14. Install tee (11) on fuel line (10).
15. Connect vehicle compartment heater tube (7) and cap (12) to tee (11).
16. Install new grommet (13) in bulkhead. Route fuel return hose (14) through grommet.



REPLACE AIR SEPARATOR TO FUEL TANK TUBES, HOSES, AND FITTINGS (M548A3) — Continued **0173 00**

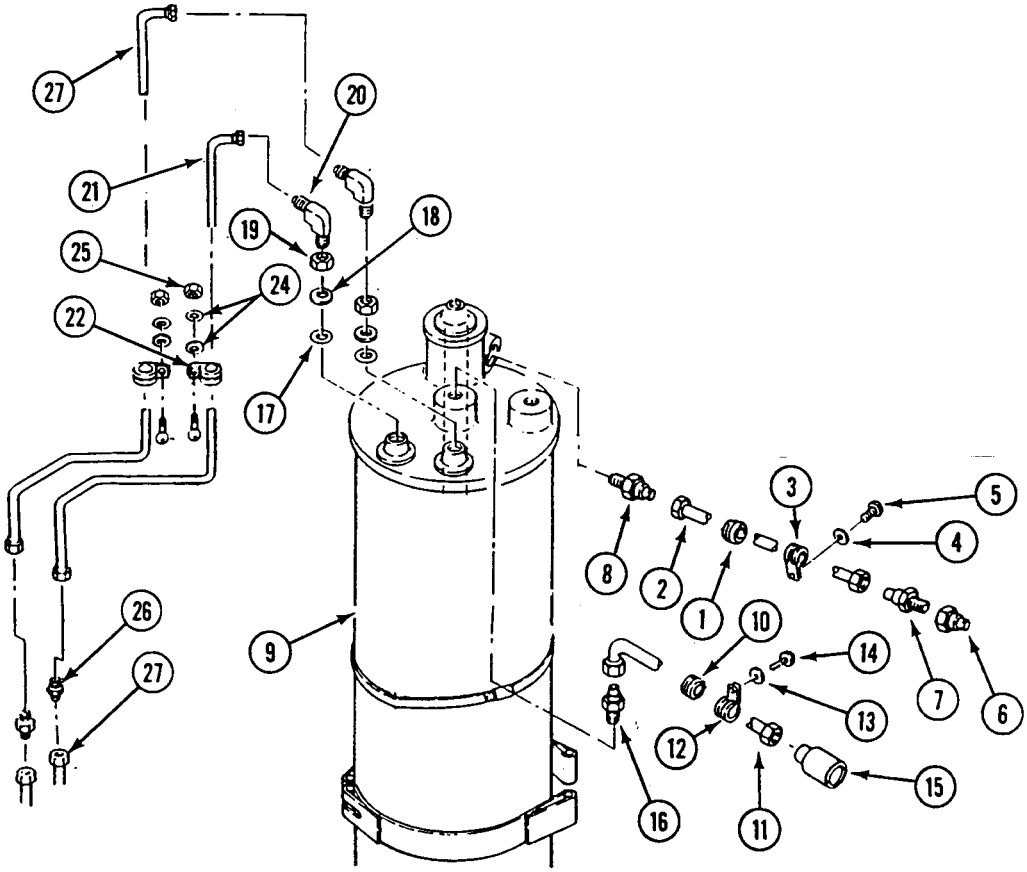
17. Install fuel return hose (14) and clamp (15) on bulkhead bracket. Secure with new lock washer (16) and screw (17).
18. Install two clamps (18) on hose (7) and hose (14). Secure to bulkhead with new lock washer (19) and screw (20).
19. Connect adapter (21) to hose (22).
20. Connect fuel return hose (14) to adapter (21).
21. Install new preformed packing (23), ring (24), nut (25), and elbow (26) on air separator tank (3).
22. Connect fuel return hose (14) to elbow (26).



REPLACE AIR SEPARATOR TO FUEL TANK TUBES, HOSES, AND FITTINGS (M548A3) — Continued

0173 00

23. Install new grommet (1) in bulkhead. Route engine to air separator tank tube (2) through grommet.
24. Install engine to air separator tank tube (2) and clamp (3) on transverse beam. Secure with new lock washer (4) and screw (5).
25. Connect engine to air separator tank tube (2) and coupler nose (6) to adapter (7).
26. Install coupler nose (6) to engine fuel line quick connect.
27. Install adapter (8) in tank (9).
28. Connect engine to air separator tank tube (2) to adapter (8).
29. Install new grommet (10) in bulkhead. Route air separator tank to engine tube (11) through grommet.
30. Install air separator tank to engine tube (11) and clamp (12) on transverse beam. Secure with new lock washer (13) and screw (14).
31. Connect quick connect coupler (15) to air separator tank to engine tube (11).
32. Connect quick connect coupler (15) to engine fuel line.
33. Install adapter (16) on air separator tank (9).
34. Install air separator tank to engine tube (11) on adapter (16).

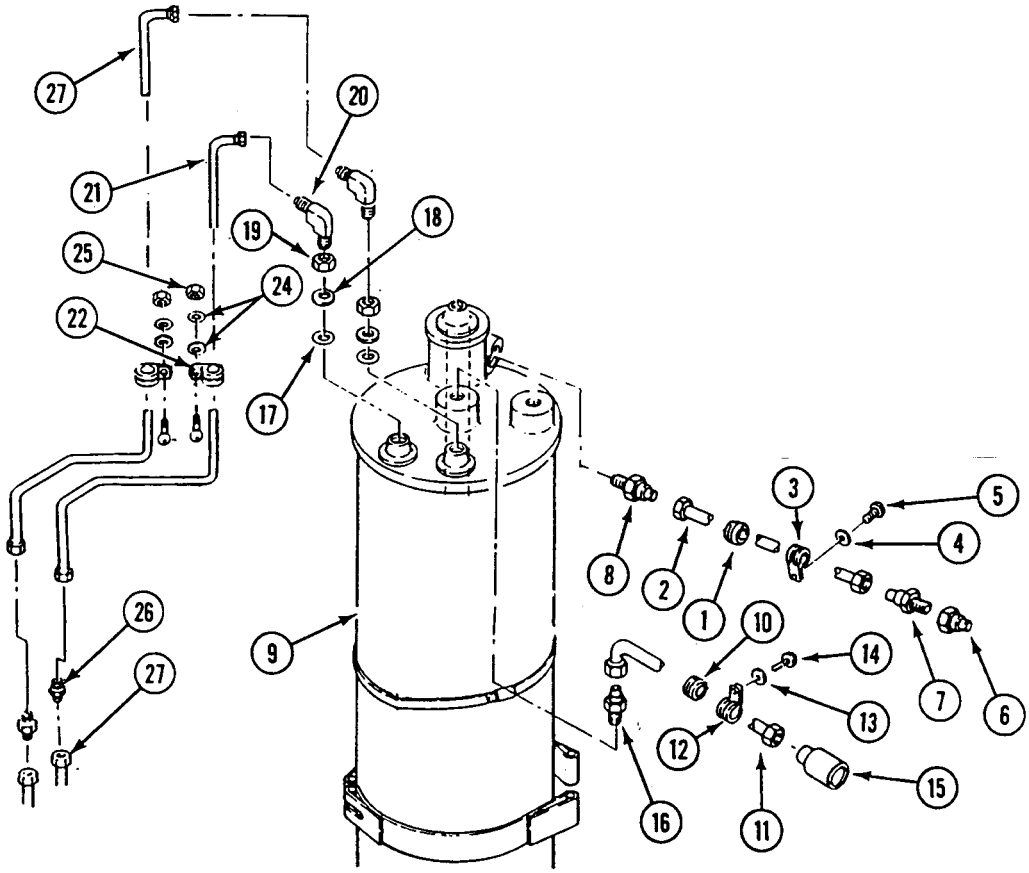


REPLACE AIR SEPARATOR TO FUEL TANK TUBES, HOSES, AND FITTINGS (M548A3) — Continued **0173 00**

NOTE

The lower and upper fuel to air separator tank tubes are installed the same way.

35. Install new preformed packing (17), ring (18), nut (19), and elbow (20) on air separator tank (9).
36. Install lower fuel to air separator tank tube (21) and clamp (22) on bulkhead bracket. Secure with screw (23), two washers (24) and new lock nut (25).
37. Connect adapter (26) to fuel pump tube (27).
38. Connect lower fuel to air separator tank tube (21) to adapter (26).
39. Connect lower fuel to air separator tank tube (21) to elbow (20).
40. Repeat Steps 35 - 39 for upper fuel to air separator tank tube (27).



FOLLOW-THROUGH STEPS

1. Install radiator and auxiliary tank (WP 0216 00) and (WP 0217 00).
2. Refuel carrier (see your -10).
3. Connect both battery negative leads (WP 0292 00).
4. Start engine (see your -10).
5. Check for leaks.
6. Stop engine (see your -10).
7. Install power plant rear access panel (see your -10).
8. Install top access cover and grilles (see your -10).

END OF TASK

REPLACE FUEL COMPARTMENT EXPANSION TANK VENT TUBES, HOSES, AND FITTINGS

0174 00

THIS WORK PACKAGE COVERS:

Removal (page 0174 00-2).
Installation (page 0174 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts

Sealing compound (WP 0542 00, Item 37)
Lock washer
Preformed packing

Personnel Required

Unit Mechanic

References

See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Cargo compartment floor plates raised (WP 0393 00)
Left stoplight-taillight removed (WP 0278 00)
Right stoplight-taillight removed (WP 0278 00)
Battery negative lead(s) disconnected (WP 0292 00)
Fuel compartment drained (WP 0162 00)

REPLACE FUEL COMPARTMENT EXPANSION TANK VENT TUBES, HOSES, AND FITTINGS — Continued

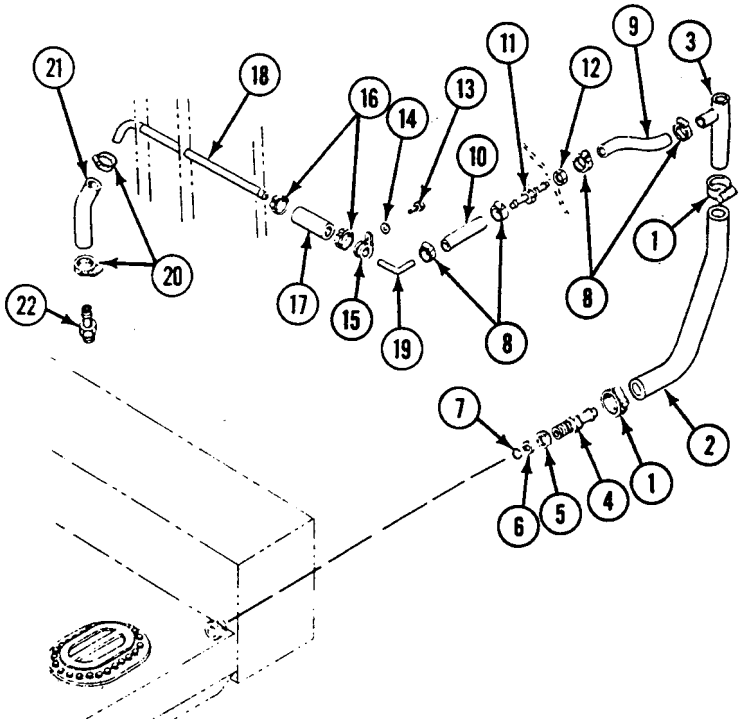
0174 00

REMOVAL

NOTE

Remove tubes and hoses with clamps attached. Attach clamps to replacement hoses and tubes. Right and left sides are the same

1. Loosen two clamps (1) from vent hose (2). Remove hose (2) from expansion tank tee (3) and tube adapter (4).
2. Remove tube adapter (4), nut (5), retaining ring (6), and preformed packing (7) from fuel tank. Discard preformed packing.
3. Loosen four clamps (8) on hose (9) and hose (10). Remove hose (9) from expansion tank tee (3).
4. Separate hose (9) and hose (10) from connector (11). Remove nut (12) from connector (11).
5. Remove screw (13), lock washer (14), and clamp (15) from hull. Discard lock washer.
6. Loosen two clamps (16). Remove tube (17) from tube (18) and tube (19). Separate tube (19) from hose (10).
7. Loosen two clamps (20). Remove hose (21) from tube (18). Remove adapter (22) from hose (21).



REPLACE FUEL COMPARTMENT EXPANSION TANK VENT TUBES, HOSES, AND FITTINGS — Continued

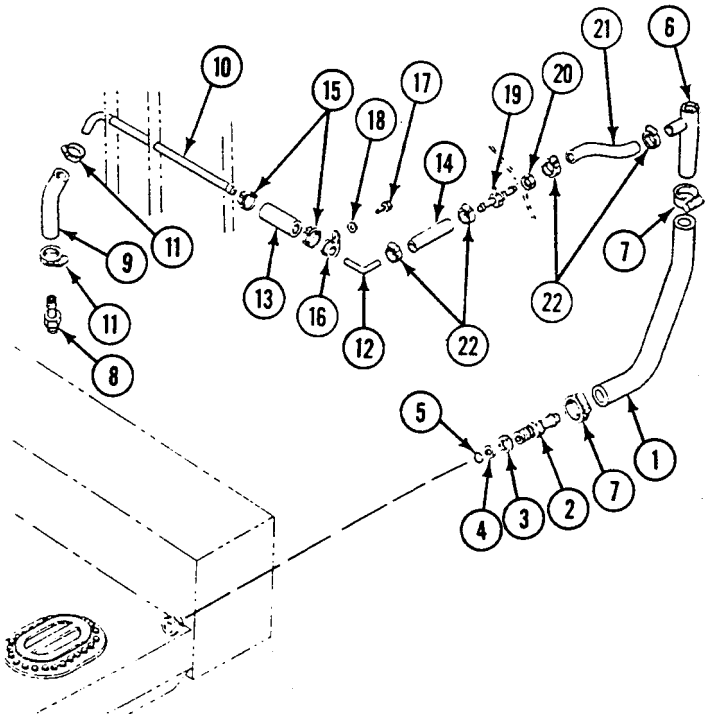
0174 00

INSTALLATION

NOTE

Put sealing compound on male threads. Do not put sealing compound beyond small end of tapered threads.

1. Install hose (1), adapter (2), nut (3), retaining ring (4), and new preformed packing (5) on fuel compartment.
2. Install end of hose (1) on bottom of expansion tank tee (6). Tighten two clamps (7).
3. Install adapter (8) on hose (9). Attach hose (9) to tube (10) with two clamps (11). Tighten clamps.
4. Attach tube (12) to hose (13) and hose (14). Install hose (13) on tube (10). Tighten two clamps (15).
5. Install clamp (16) to hull with screw (17) and new lock washer (18).
6. Install connector (19) on hose (14). Push connector through hull. Install nut (20) on connector.
7. Connect hose (21) to connector (19) and expansion tank tee (6).
8. Tighten four clamps (22) on hose (21) and hose (14).



REPLACE FUEL COMPARTMENT EXPANSION TANK VENT TUBES, HOSES, AND FITTINGS — Continued **0174 00**

FOLLOW-THROUGH STEPS

1. Fill fuel compartment (see your -10).
2. Connect battery negative lead(s) (WP 0292 00).
3. Start engine (see your -10). Check for leaks.
4. Stop engine (see your -10).
5. Install left stoplight-taillight (WP 0278 00).
6. Install right stoplight-taillight (WP 0278 00).
7. Lower cargo compartment floor plates (WP 0393 00).

END OF TASK

REPAIR FUEL COMPARTMENT EXPANSION CHAMBER (SEALING) 0175 00

THIS WORK PACKAGE COVERS:

Repair or Replacement (page 0175 00-2).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts

Polyurethane coating (WP 0542 00, Item 31)
Suitable container

Personnel Required

Unit Mechanic

References

See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Battery negative lead(s) disconnected (WP 0292 00)
Right rear taillight removed (WP 0278 00)
Fuel compartment drained to no more than 3/4 full (WP 0162 00)
Fuel vent hoses disconnected from expansion tank tee fitting (WP 0174 00)

REPAIR OR REPLACEMENT

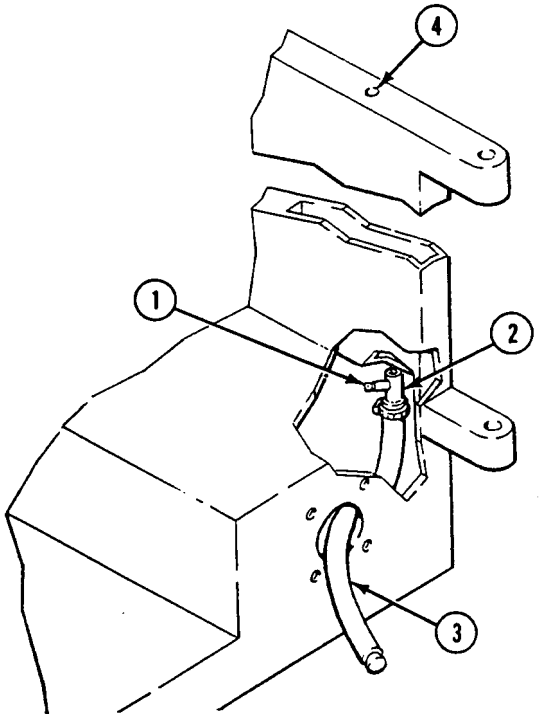
WARNING

Diesel fuel and polyurethane coating are flammable. The following task should be performed outdoors with no smoking.

NOTE

Allow polyurethane coating to dry completely before refilling fuel tank.

1. Plug small vent (1) on tee (2).
2. Connect hose (3), about 18 inches (46 cm) long, to bottom of tee (2). Allow hose to protrude through taillight hole.
3. Carefully plug open end of hose (3).
4. Pour 1 gallon (4 L) polyurethane coating through small hole (4) in top of hull wall.
5. Place container under end of hose (3). Remove plug and allow polyurethane coating to drain from expansion chamber.
6. Remove hose (3) from bottom of tee (2).
7. Unplug small vent (1) on tee (2).



FOLLOW-THROUGH STEPS

1. Connect fuel vent hoses on expansion tank tee fitting (WP 0174 00).
2. Install right rear taillight (WP 0278 00).
3. Connect battery negative lead(s) (WP 0292 00).
4. Fill fuel compartment (see your -10).

END OF TASK

REPLACE PRIMARY FUEL FILTER (M548A1) 0176 00

THIS WORK PACKAGE COVERS:

Removal (page 0176 00-2).
Installation (page 0176 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts

Cleaning compound (WP 0542 00, Item 9)
Sealing compound (WP 0542 00, Item 37)
Diesel fuel
Suitable container

Personnel Required

Unit Mechanic

References

See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Left grille removed (WP 0390 00)
Battery negative lead disconnected (WP 0292 00)

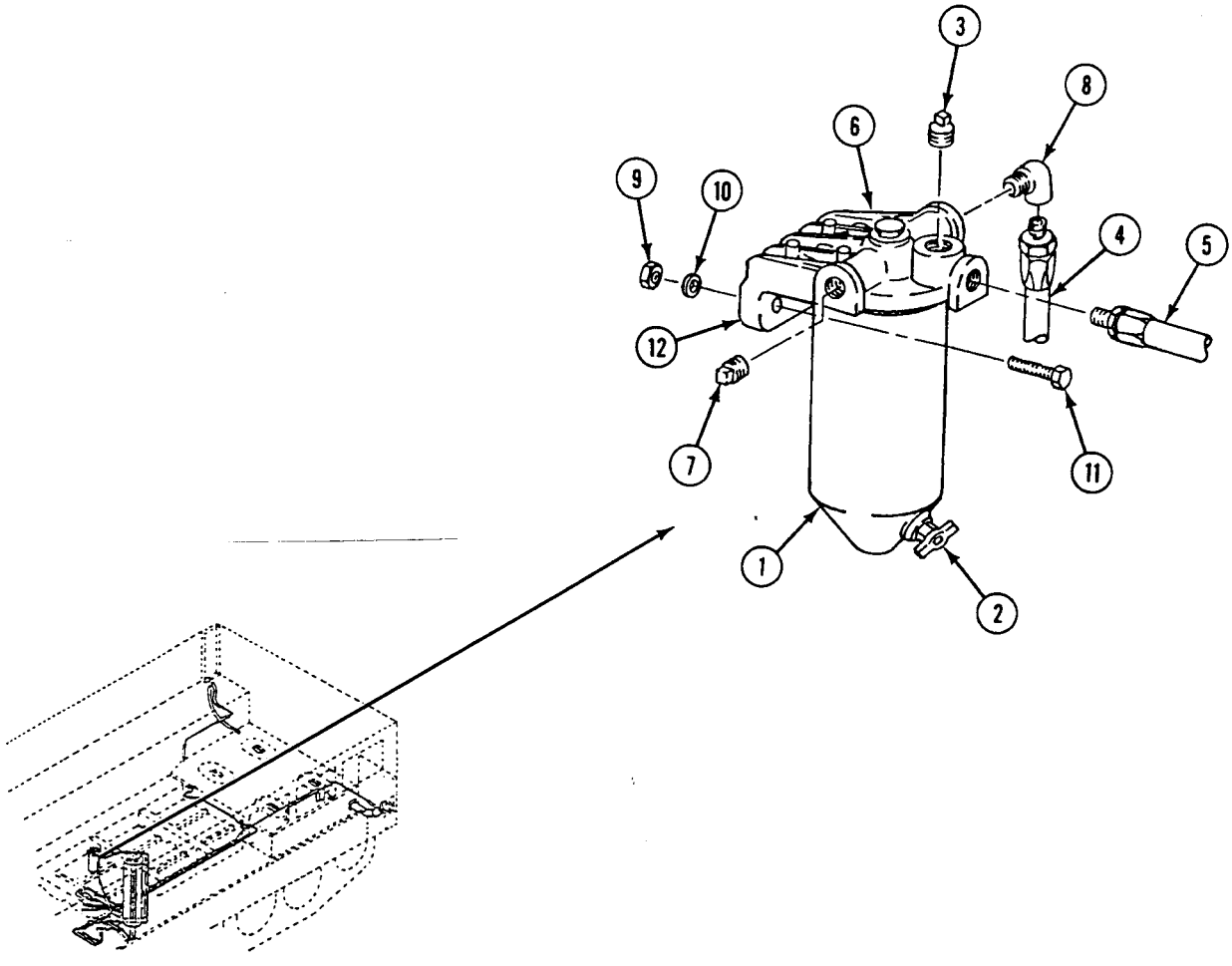
REPLACE PRIMARY FUEL FILTER (M548A1) — Continued 0176 00

REMOVAL

NOTE

Remove tubes and hoses with clamps attached. Attach clamps to replacement hoses and tubes.

1. Place container under primary filter shell (1). Open drain valve (2). Loosen filter plug (3) enough to allow fuel to flow freely from drain.
2. Disconnect primary filter outlet hose (4) and inlet hose (5) at filter cover (6).
3. Remove filter plug (3) and plug (7) from filter cover (6).
4. Remove elbow (8) from filter cover (6).
5. Remove two nuts (9), washers (10), and screws (11) that secure filter cover (6) to mounting bracket (12). Remove cover.



INSTALLATION

NOTE

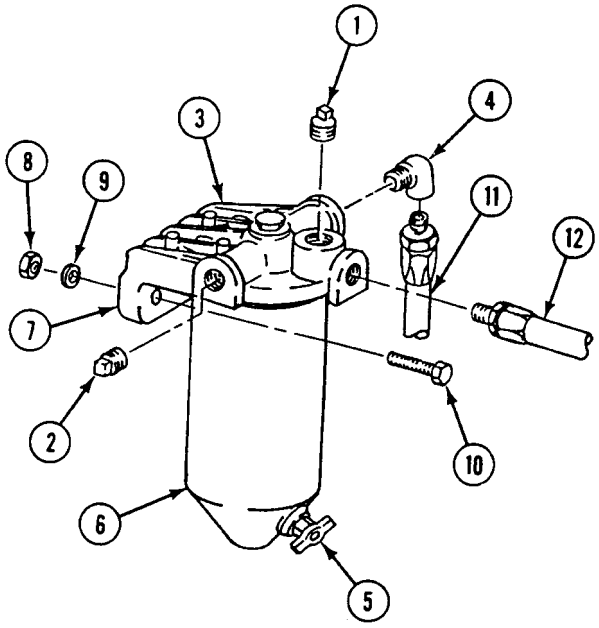
Before installing threaded hardware, clean male threads with cleaning compound. Put sealing compound on threads. Do not put sealing compound beyond small end of tapered threads.

1. Install filter plug (1) and plug (2) in filter cover (3).
2. Install elbow (4) in filter cover (3).
3. Close drain valve (5) at bottom of primary filter shell (6).

NOTE

If installing a new filter, you must fill filter shell with diesel fuel (WP 0179 00) to prevent air lock in fuel system.

4. Install filter cover (3) on mounting bracket (7) with two nuts (8), washers (9), and screws (10).
5. Connect primary filter outlet hose (11) to elbow (4). Connect inlet hose (12) to filter cover (3).



FOLLOW-THROUGH STEPS

1. Connect battery negative lead (WP 0292 00).
2. Start engine (see your -10).
3. Run engine at 1,200 rpm and check for leaks.
4. Stop engine (see your -10).
5. Install left grille (WP 0390 00).

END OF TASK

REPLACE SECONDARY FUEL FILTER (M548A1) 0177 00

THIS WORK PACKAGE COVERS:

Removal (page 0177 00-2).
Installation (page 0177 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts

Cleaning compound (WP 0542 00, Item 9)
Sealing compound (WP 0542 00, Item 37)
Diesel fuel
Suitable container
Lock nut (2)

Personnel Required

Unit Mechanic

References

See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Battery negative lead disconnected (WP 0292 00)
Center seat raised (see your -10)

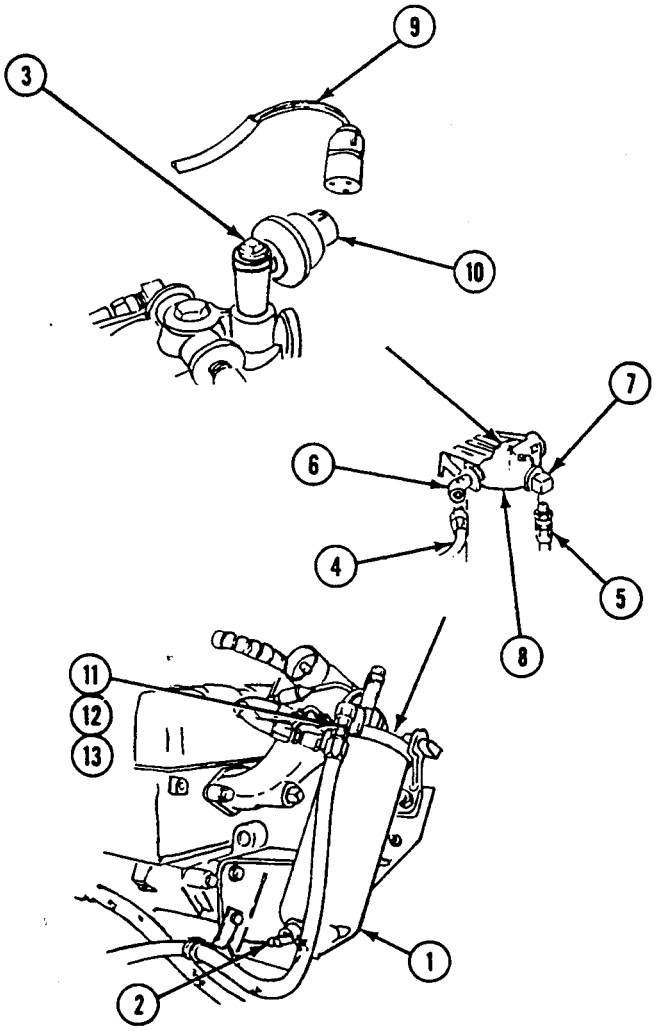
REPLACE SECONDARY FUEL FILTER (M548A1) — Continued 0177 00

REMOVAL

NOTE

Remove tubes and hoses with clamps attached. Attach clamps to replacement hoses and tubes.

1. Place container under filter (1). Open drain valve (2) and loosen filter plug (3) to allow fuel to drain.
2. Disconnect inlet hose (4) and outlet hose (5) from elbow (6) and elbow (7) on cover (8).
3. Disconnect circuit 1A and 1B plug (9) at connector on generator field switch (10).
4. Remove two screws (11), washers (12), lock nuts (13), and cover (8) with filter (1) attached. Discard lock nuts.



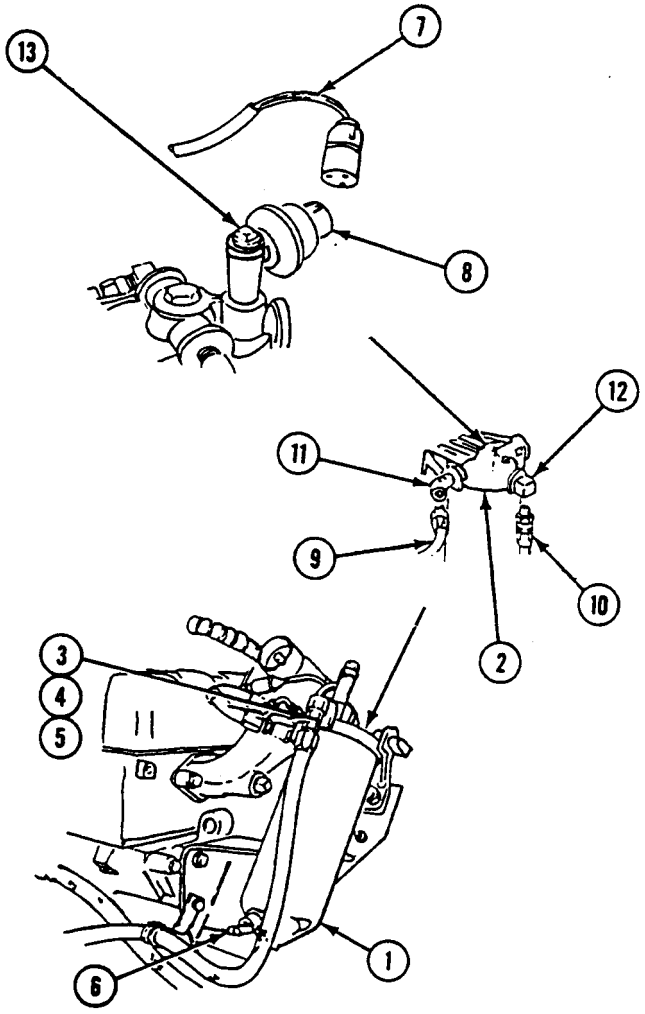
INSTALLATION

NOTE

Before installing threaded hardware, clean male threads with cleaning compound. Put sealing compound on threads. Do not put sealing compound beyond small end of tapered threads.

If installing a new filter, you must fill filter shell with diesel fuel (WP 0179 00) to prevent air lock in fuel system.

1. Install filter (1) and cover (2) with two screws (3), washers (4), and new lock nuts (5). Close drain valve (6).
2. Connect circuit 1A and 1B plug (7) at connector on generator field switch (8).
3. Connect hose (9) and hose (10) to elbow (11) and elbow (12) on cover (2).
4. Tighten filter plug (13).



FOLLOW-THROUGH STEPS

1. Connect battery negative lead (WP 0292 00).
2. Start engine (see your -10).
3. Run engine at 1,200 rpm and check for leaks.
4. Stop engine (see your -10).
5. Lower center seat (see your -10).

END OF TASK

REPLACE PRIMARY AND SECONDARY FUEL FILTERS/ELEMENTS (M548A3) 0178 00

THIS WORK PACKAGE COVERS:

Removal (page 0178 00-2).
Cleaning (page 0178 00-4).
Installation (page 0178 00-5).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts
Lock washer (2)
Sealing compound (WP 0542 00, Item 36)
Suitable container

Personnel Required
Unit Mechanic

References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Both battery negative leads disconnected (WP 0292 00)
Center seat raised (see your -10)

REPLACE PRIMARY AND SECONDARY FUEL FILTERS/ELEMENTS (M548A3) — Continued

0178 00

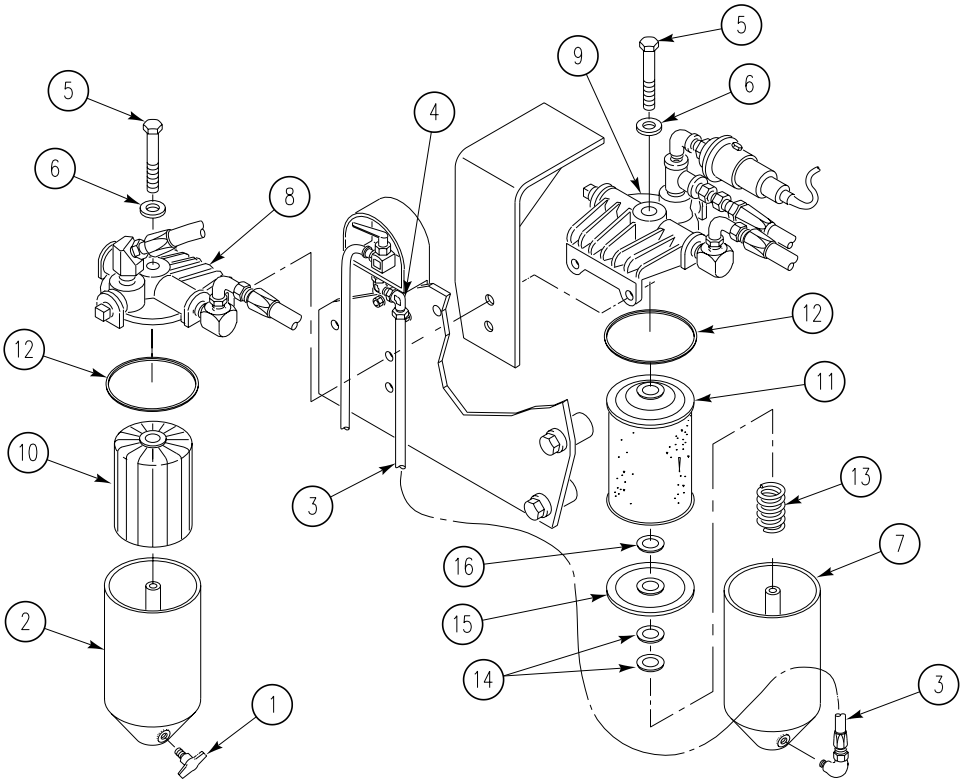
REMOVAL

NOTE

Removal of primary and secondary fuel filters requires removal of both filters at the same time.

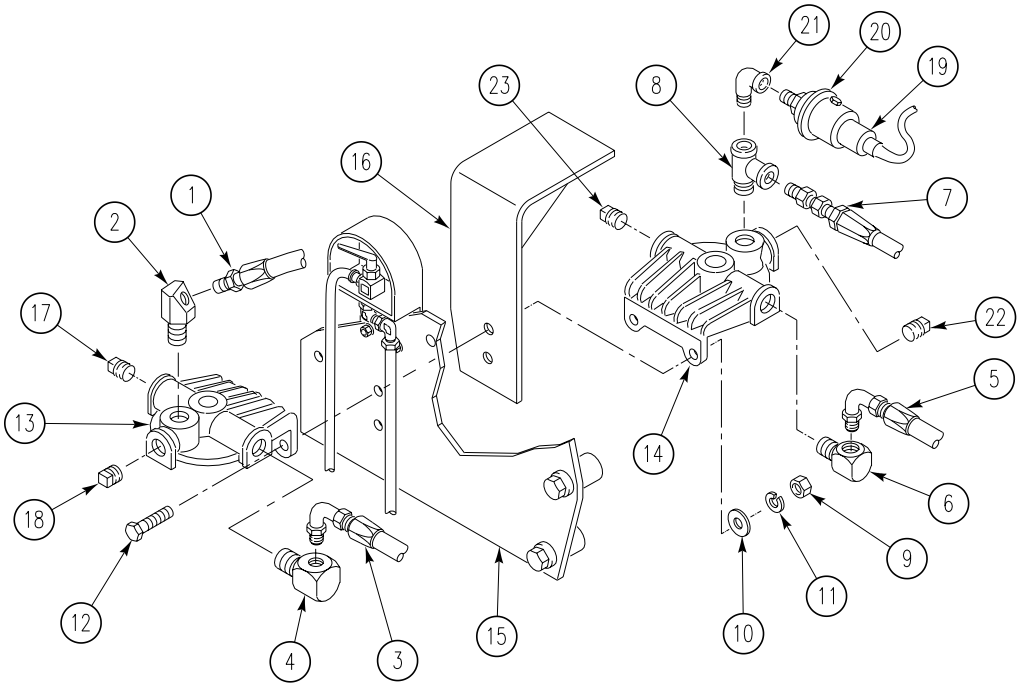
For element replacement only, do Steps 1 - 4 and Installation Steps 11 - 12.

1. Place suitable container under both filters, open drain valve (1) at bottom of primary filter shell (2) and drain filter.
2. Drain fuel from secondary filter through hose to suitable container.
3. Remove hose (3) from drain valve (4). Drain excess fuel from secondary filter through hose (3) into suitable container.
4. Remove cover retaining screws (5) and washers (6) securing primary filter shell (2) and secondary filter shell (7) to primary filter cover (8) and secondary filter cover (9). Remove shells, primary element (10), secondary element (11), gaskets (12), spring (13), spring retainers (14), seal (15), and seal retainer (16). Discard elements and gaskets.



REPLACE PRIMARY AND SECONDARY FUEL FILTERS/ELEMENTS (M548A3) — Continued **0178 00**

5. Disconnect separator tank-to-primary filter hose (1) from elbow (2) on top of filter.
6. Disconnect secondary filter-to-engine fuel pump hose (3) from elbow (4) on top of filter.
7. Disconnect secondary filter-to-fuel injector line hose (5) from elbow (6) on top of filter.
8. Disconnect engine fuel pump-to-secondary filter hose (7) from tee (8) on top of filter.
9. Remove two lock nuts (9), washers (10), lock washers (11), and screws (12) and guard (16) (if damaged) securing primary filter cover (13) and secondary filter cover (14) to bracket (15) and remove filter covers. Discard lock washers and lock nuts.
10. If primary filter replacement is to be installed, remove elbow (2) and elbow (4), pipe plug (17), and pipe plug (18) from defective filter.
11. If secondary filter replacement is to be installed, remove electrical connector (19) from fuel pressure switch (20), tee (8), elbow (21), fuel pressure switch, pipe plug (22), and pipe plug (23), and elbow and hose assembly from defective filter.



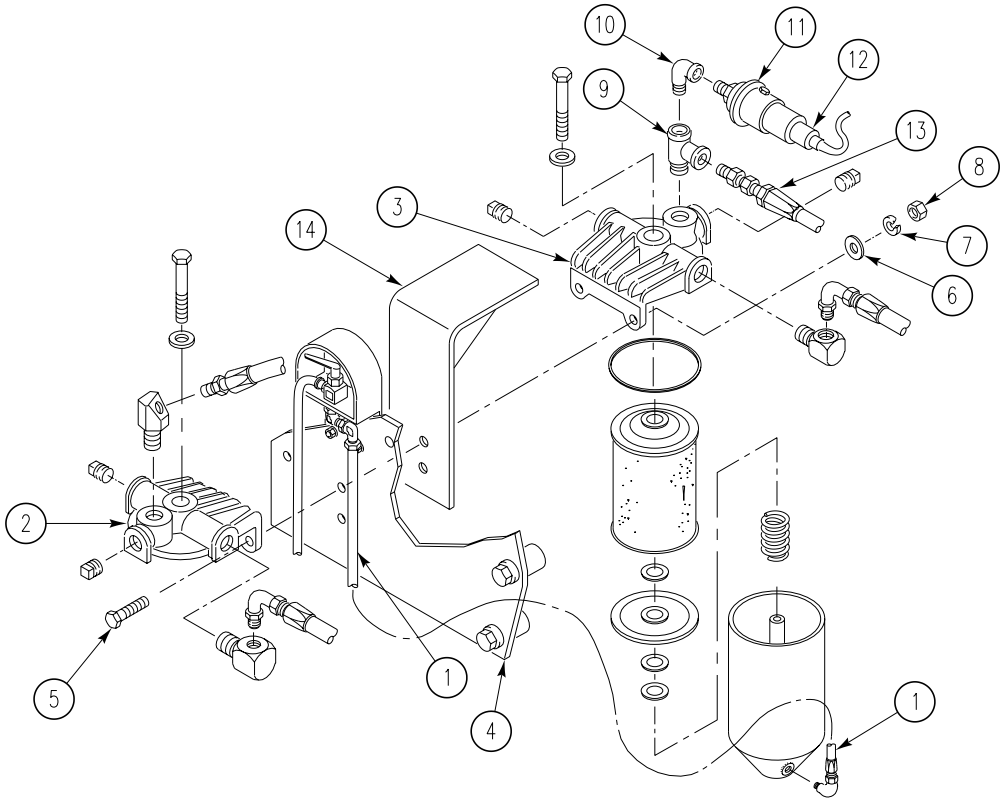
CLEANING

1. Clean all parts with clean fuel and blow dry.
2. Inspect primary and secondary filters for dents, nicks, and cracks that may cause fuel leaks. Replace filters that show any of these defects.
3. Inspect springs for distortion or loss of tension. Replace springs that show either of these defects.
4. Inspect drain valve for damaged threads and improper operation. Replace valves that show either of these defects.
5. Inspect fittings and connections for worn areas or damaged threads. Replace fittings that show either of these defects.

REPLACE PRIMARY AND SECONDARY FUEL FILTERS/ELEMENTS (M548A3) — Continued **0178 00**

INSTALLATION

1. If replacement filters are to be installed, clean elbows, tees, and plugs and apply a light coat of sealing compound to external tapered threads and install on replacement filters.
2. If secondary filter replacement is to be installed, connect elbow and hose assembly to replacement.
3. Place primary filter cover (2) and secondary filter cover (3) on bracket (4) and secure with two screws (5), washers (6), new lock washers (7), and nuts (8).
4. Install tee (9), elbow (10), and fuel pressure switch (11) on secondary filter cover and attach electrical connector (12) to switch.
5. Connect engine fuel pump-to-filter hose (13) to tee (9) on top of filter.
6. If removed, install secondary fuel filter guard bracket (14), with two screws (5), washers (6), lock washer (7) and two new lock nuts (8).



REPLACE PRIMARY AND SECONDARY FUEL FILTERS/ELEMENTS (M548A3) — Continued **0178 00**

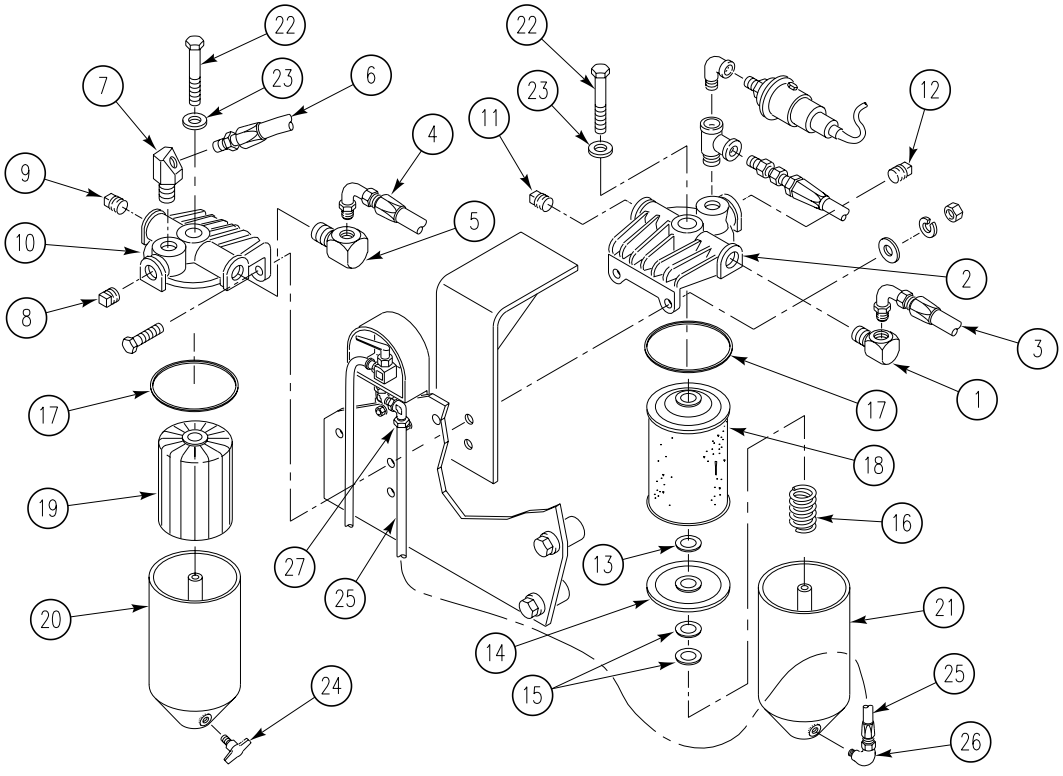
7. Install elbow (1) on secondary filter cover (2). Connect secondary filter-to-fuel injector hose (3) to elbow (1).
8. Connect primary filter-to-engine fuel pump hose (4) to elbow (5) on top of filter.
9. Connect separator tank-to-primary filter hose (6) to elbow (7) on top of filter.
10. Install pipe plug (8) and pipe plug (9) in primary filter cover (10), pipe plug (11), and pipe plug (12) in secondary filter cover (2).

NOTE

Before installing new filter element, you must add fuel to filter housing to prevent a vapor lock in the fuel system.

11. Assemble seal retainer (13), seal (14), spring retainers (15), spring (16), new gaskets (17), new secondary element (18), and new primary element (19) in primary filter shell (20) and secondary filter shell (21). Secure to cover (2) and cover (10) with two screws (22) and washers (23).
12. Install drain valve (24) in primary filter (20), if removed.

    Install drain hose (25) on bottom elbow and hose assembly (26) of secondary filter (21) and elbow (27).



FOLLOW-THROUGH STEPS

1. Connect both battery negative leads (WP 0292 00).
2. Lower center seat (see your -10).

END OF TASK

REPLACE PRIMARY AND SECONDARY FUEL FILTER ELEMENTS (M548A1) 0179 00

THIS WORK PACKAGE COVERS:

Removal (page 0179 00-1).
Installation (page 0179 00-2).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts

Cleaning compound (WP 0542 00, Item 9)
Sealing compound (WP 0542 00, Item 37)
Diesel fuel
Gasket

Personnel Required

Unit Mechanic

References

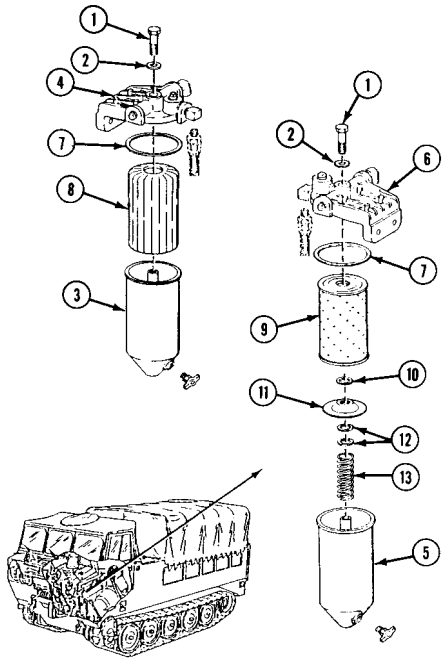
See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Battery negative lead disconnected (WP 0292 00)
Generator field switch removed (WP 0288 00)
Left grille removed (WP 0390 00)
Center seat raised (see your -10)

REMOVAL

1. Remove screw (1) and washer (2). Separate primary filter shell (3) from primary filter cover (4) or secondary filter shell (5) from secondary filter cover (6).
2. Remove gasket (7) and filter element (8) and filter element (9) from primary filter shell (3) or secondary filter shell (5). Discard gasket.
3. If needed, disassemble secondary filter shell (5) by removing retainer (10), seal (11), two washers (12), and spring (13).



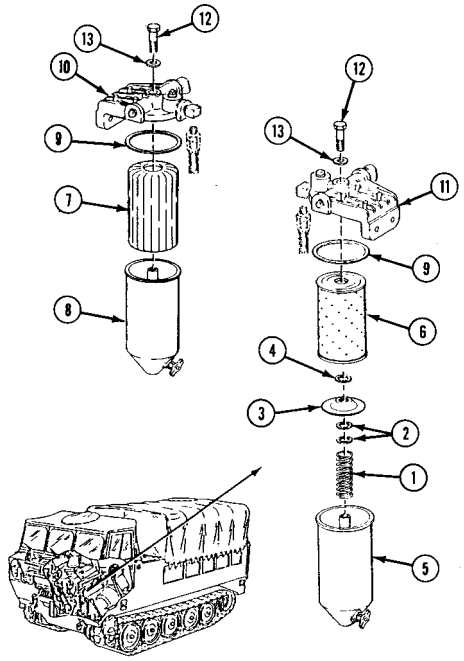
REPLACE PRIMARY AND SECONDARY FUEL FILTER ELEMENTS (M548A1) — Continued **0179 00**

INSTALLATION

NOTE

Before installing threaded hardware, clean male threads with cleaning compound. Put sealing compound Type II or III on threads. Do not put sealing compound beyond small end of tapered threads.

1. Install spring (1), two washers (2), seal (3), and retainer (4) in secondary filter shell (5).
2. Install filter element (6) and filter element (7) in secondary filter shell (5) or primary filter shell (8).
3. Fill primary filter shell (5) or secondary filter shell (8) 3/4 full with clean diesel fuel.
4. Install new gasket (9) in primary filter cover (10) or secondary filter cover (11). Secure element (6) and element (7) and primary filter shell (5) or secondary filter shell (8) to cover with screw (12) and washer (13).
5. Install field generator switch on secondary filter cover (WP 0288 00).



FOLLOW-THROUGH STEPS

1. Connect battery negative lead (WP 0292 00).
2. Start engine (see your -10).
3. Run engine at 1,200 rpm and check for leaks.
4. Stop engine (see your -10).
5. Install left grille (WP 0390 00).
6. Lower center seat (see your -10).

END OF TASK

REPLACE AIR BOX HEATER HOSES, TUBES, AND FITTINGS (M548A1) 0180 00

THIS WORK PACKAGE COVERS:

Removal (page 0180 00-1).
Installation (page 0180 00-3).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts
Sealing compound (WP 0542 00, Item 37)

Personnel Required
Unit Mechanic

References
See your -10

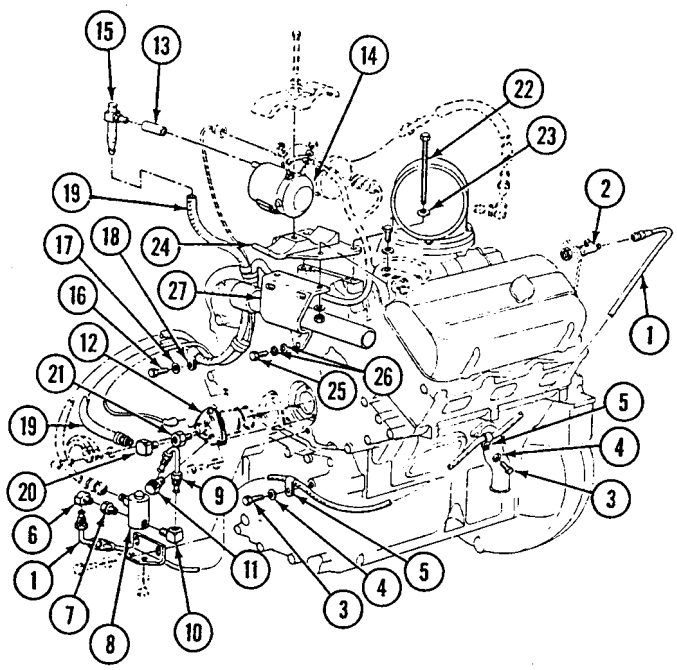
Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Battery negative lead disconnected (WP 0292 00)
Power plant rear access cover/door removed (see your -10)
Center seat raised (see your -10)

REMOVAL

NOTE

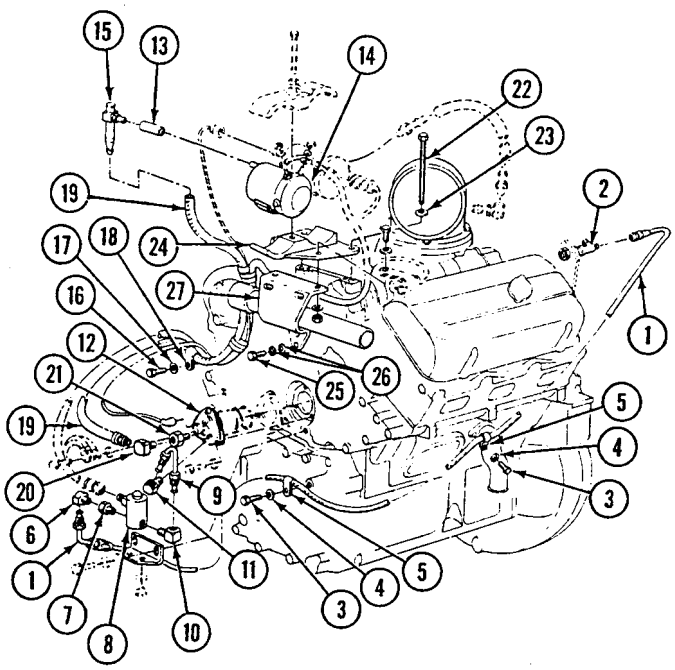
Remove tubes and hoses with clamps attached. Attach clamps to replacement hoses and tubes.

1. Remove hose (1) from fuel tee (2).
2. Remove two screws (3), washers (4), and clamps (5) that secure hose (1) to engine.
3. Disconnect hose (1) from solenoid valve elbow (6). Remove elbow (6) and adapter (7) from solenoid valve (8).
4. Remove fuel tube (9) from elbow (10) and elbow (11). Remove elbow (10) from solenoid valve (8) and elbow (11) from air box heater (12).



REPLACE AIR BOX HEATER HOSES, TUBES, AND FITTINGS (M548A1) — Continued 0180 00

5. Remove hose (13) between air pump (14) and air pump check valve (15).
6. Remove screw (16), washer (17), and clamp (18) from engine.
7. Remove hose (19) from air pump check valve (15) and elbow (20). Remove elbow (20) and adapter (21) from air box heater (12).
8. Remove air pump (WP 0191 00).
9. Remove air box ignition coil (WP 0184 00).
10. Remove two screws (22) and washers (23) that secure air pump (14) and bracket (24) to engine.
11. Remove screw (25) and two washers (26) from support (27). Remove bracket (24) with support (27) attached.

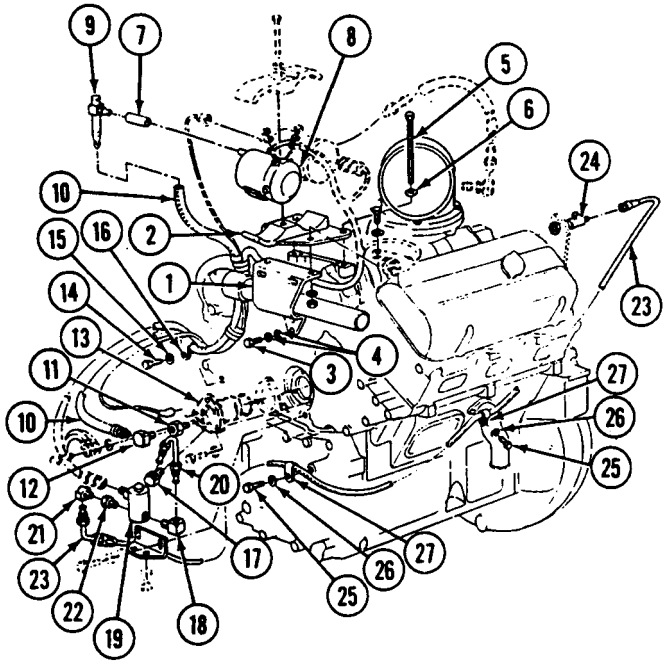


INSTALLATION

NOTE

Before installing threaded hardware, put sealing compound on all male threads. Do not put sealing compound beyond small end of tapered threads.

1. Place support (1) and bracket (2) on engine. Secure with screw (3), two washers (4), two more screws (5), and washers (6).
2. Install air box ignition coil (WP 0184 00).
3. Install air pump (WP 0191 00).
4. Connect hose (7) to air pump (8) and air pump check valve (9).
5. Connect hose (10) to air pump check valve (9). Connect adapter (11), elbow (12), and hose (10) to air box heater (13).
6. Install screw (14), washer (15), and clamp (16) to secure hose (10) to engine.
7. Connect elbow (17) to air box heater (13). Connect elbow (18) to solenoid valve (19).
8. Connect fuel tube (20) to elbow (17) and elbow (18).
9. Connect elbow (21) and adapter (22) to solenoid valve (19).
10. Connect hose (23) to elbow (21) and to tee (24).
11. Secure hose (23) to engine with two screws (25), washers (26), and clamps (27).



FOLLOW-THROUGH STEPS

1. Connect battery negative lead (WP 0292 00).
2. Start engine (see your -10).
3. Run engine at 1,200 rpm and check for leaks.
4. Stop engine (see your -10).
5. Install power plant rear access cover/door (see your -10).
6. Lower center seat (see your -10).

END OF TASK

REPLACE AIR BOX HEATER HOSES, TUBES, AND FITTINGS (M548A3) 0181 00

THIS WORK PACKAGE COVERS:

Removal (page 0181 00-1).
Inspection-Acceptance and Rejection Criteria (page 0181 00-2).
Installation (page 0181 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)

Personnel Required

Unit Mechanic

References

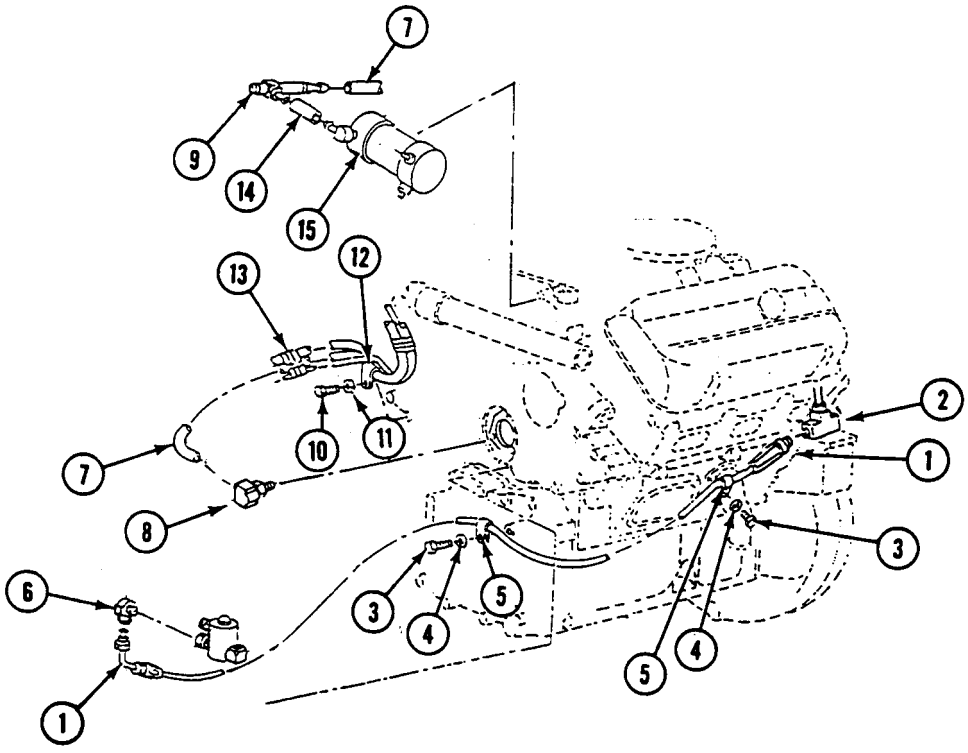
See your -10

Equipment Condition

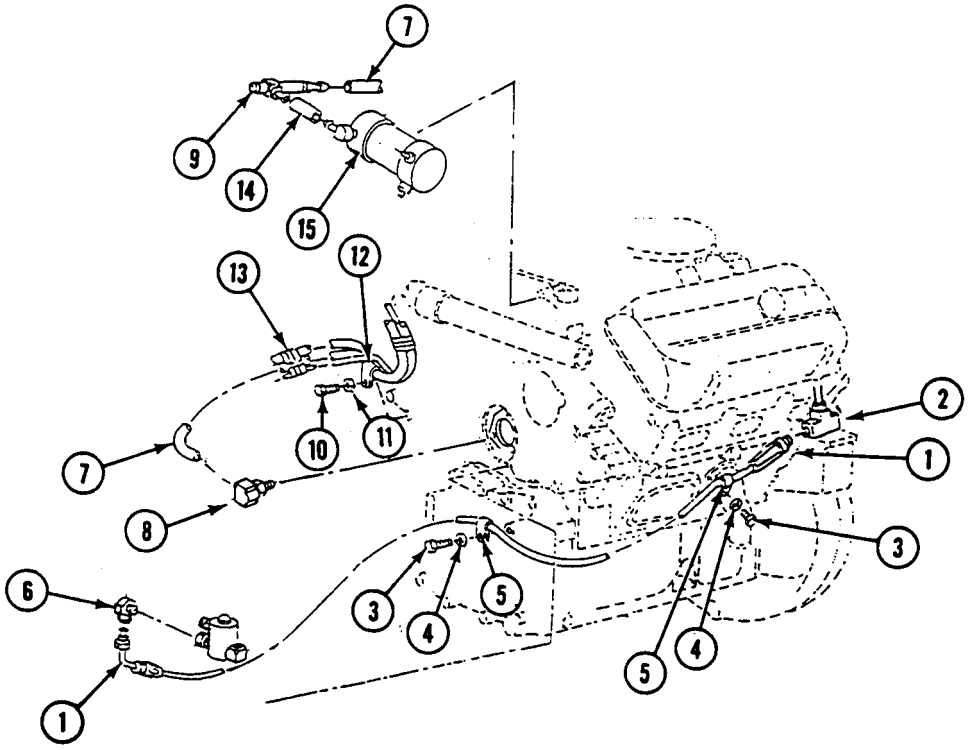
Engine stopped (see your -10)
Carrier blocked (see your -10)
Both battery negative leads disconnected (WP 0292 00)
Center seat raised (see your -10)
Fuel filters removed (WP 0178 00)
Power plant rear access panel removed (see your -10)

REMOVAL

1. Disconnect fuel hose (1) at fuel line tee (2).
2. Remove two screws (3), washers (4), and clamps (5) from engine.
3. Remove fuel hose (1) from elbow (6) and from engine.
4. Disconnect heater hose (7) from elbow (8) and check valve (9).



5. Remove screw (10), washer (11), and clamp (12) from heater hose (7) and engine.
6. Unwrap spiral tubing (13) from electric leads and heater hose (7) and remove heater hose from engine.
7. Remove hose (14) from air pump (15) and check valve (9).
8. Remove any damaged fittings.

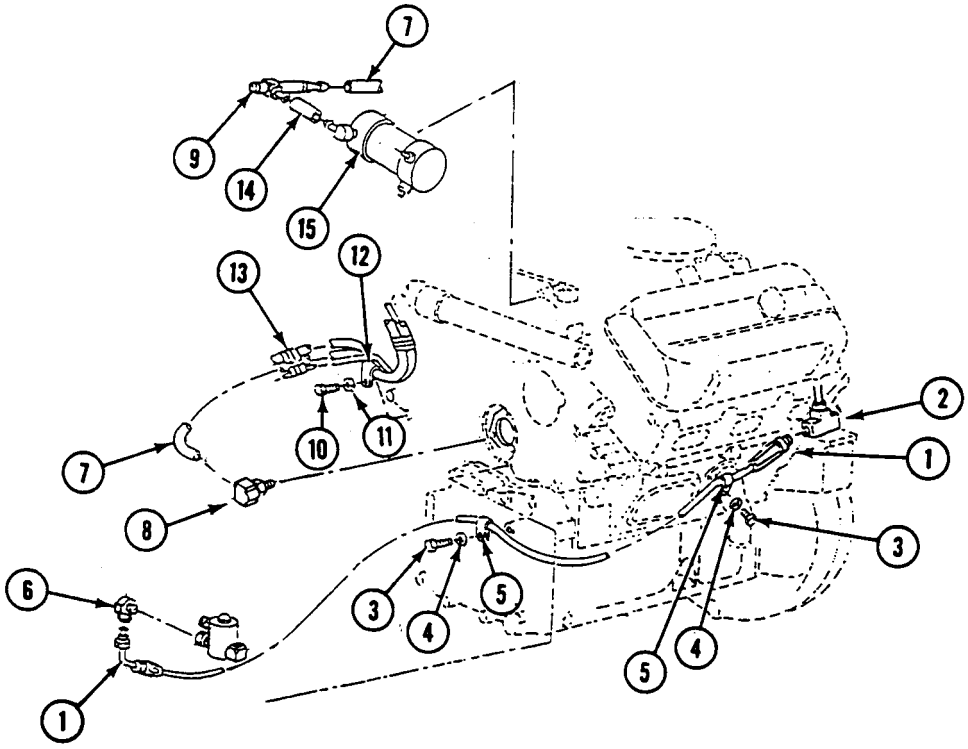


INSPECTION-ACCEPTANCE AND REJECTION CRITERIA

1. Inspect fuel hose and tubing for leaks and deformation. Replace defective hoses and tubing.
2. Inspect fittings for distortion and damaged threads. Replace defective fittings.

INSTALLATION

1. Install new fittings if needed.
2. Install hose (1) on check valve (2) and air pump (3).
3. Connect heater hose (4) on check valve (2) and elbow (5).
4. Place clamp (6) on heater hose (4). Install hose and clamp to engine with screw (7) and washer (8).
5. Wrap electric leads and heater hose (4) with spiral tubing (9) in two places.
6. Connect fuel hose (10) to elbow (11).
7. Connect fuel hose (10) to fuel line tee (12).
8. Install two clamps (13) on hose (10) with two screws (14) and washers (15).



FOLLOW-THROUGH STEPS

1. Install power plant rear access panel (see your -10).
2. Install fuel filters (WP 0178 00).
3. Connect both battery negative leads (WP 0292 00).
4. Lower center seat (see your -10).

END OF TASK

REPLACE AIR BOX HEATER HARNESS AND IGNITER CABLE (M548A1) 0182 00

THIS WORK PACKAGE COVERS:

Removal (page 0182 00-1).
Installation (page 0182 00-2).

INITIAL SETUP:

Maintenance Level

Unit

References

See your -10

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)

Personnel Required

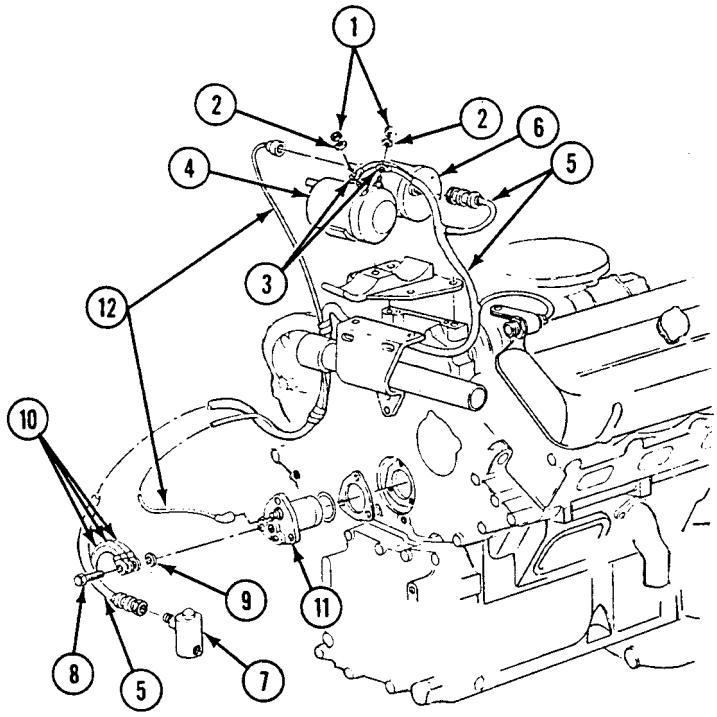
Unit Mechanic

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Battery negative lead(s) disconnected (WP 0292 00)
Center seat raised (see your -10)

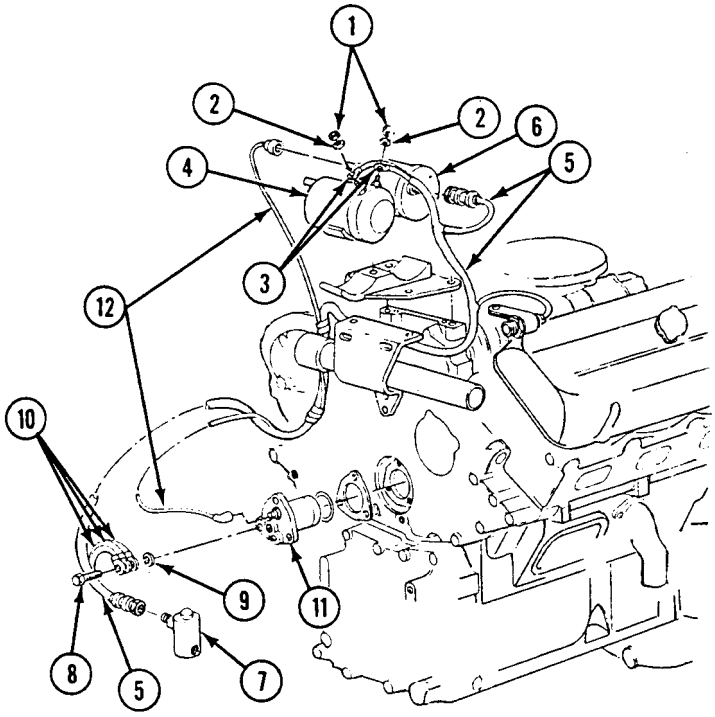
REMOVAL

1. Remove two nuts (1) and washers (2) that secure two leads (3) on air pump (4). Remove leads.
2. Disconnect wiring harness (5) from ignition coil (6) and solenoid valve (7).
3. Remove screw (8), washer (9), and three leads (10) from air box heater (11).
4. Disconnect igniter cable (12) from ignition coil (6) and air box heater (11).



INSTALLATION

1. Connect igniter cable (12) to air box heater (11) and ignition coil (6).
2. Secure three leads (10) to air box heater (11) with screw (8) and washer (9).
3. Connect wiring harness (5) to solenoid valve (7) and ignition coil (6).
4. Connect two leads (3) to air pump (4) with two nuts (1) and washers (2).



FOLLOW-THROUGH STEPS

1. Lower center seat (see your -10).
2. Connect battery negative lead(s) (WP 0292 00).

END OF TASK

REPLACE AIR BOX HEATER HARNESS AND IGNITION CABLE (M548A3) 0183 00

THIS WORK PACKAGE COVERS:

Removal (page 0183 00-2).
Installation (page 0183 00-2).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts
Copper washer

Personnel Required
Unit Mechanic

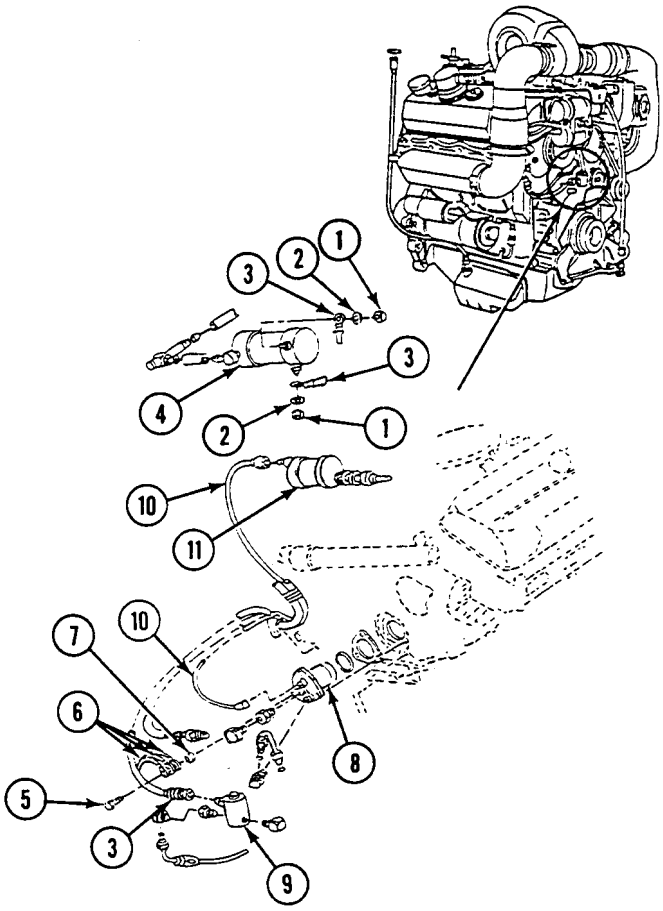
References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Both battery negative leads disconnected (WP 0292 00)
Center seat raised (see your -10)
Power plant rear access panel removed (see your -10)

REPLACE AIR BOX HEATER HARNESS AND IGNITION CABLE (M548A3) — Continued 0183 00

REMOVAL

1. Remove two nuts (1), washers (2), and wiring harness (3) from air pump (4).
2. Remove screw (5), three leads (6), and copper washer (7) from air box heater (8). Discard copper washer.
3. Remove wiring harness (3) from solenoid valve (9).
4. Disconnect ignition cable (10) from ignition coil (11) and air box heater (8).



INSTALLATION

1. Install wiring harness (3) with two washers (2) and nuts (1) to air pump (4).
2. Install new copper washer (7), three leads (6), and screw (5) on air box heater (8).
3. Connect wiring harness (3) to solenoid valve (9).
4. Connect ignition cable (10) to ignition coil (11) and air box heater (8).

FOLLOW-THROUGH STEPS

1. Install power plant rear access panel (see your -10).
2. Connect both battery negative leads (WP 0292 00).
3. Lower center seat (see your -10).

END OF TASK

REPLACE AIR BOX HEATER IGNITION COIL (M548A1) 0184 00

THIS WORK PACKAGE COVERS:

Removal (page 0184 00-1).
Installation (page 0184 00-1).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)

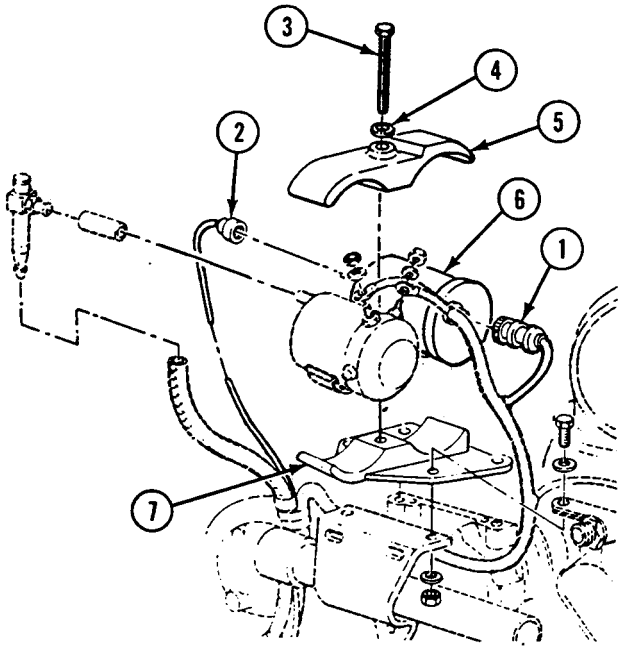
Personnel Required
Unit Mechanic

References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Battery negative lead(s) disconnected (WP 0292 00)
Center seat raised (see your -10)

REMOVAL

1. Disconnect circuit 406A lead (1) and circuit 406B lead (2).
2. Remove screw (3), washer (4), and clamp (5) that secure ignition coil (6) to bracket (7). Remove ignition coil.



INSTALLATION

1. Place ignition coil (6) and clamp (5) on bracket (7) and install washer (4) and screw (3).
2. Connect circuit 406A (1) and 406B (2) to ends of ignition coil (6).

FOLLOW-THROUGH STEPS

1. Connect battery negative lead(s) (WP 0292 00).
2. Lower center seat (see your -10).

END OF TASK

REPLACE AIR BOX HEATER IGNITION COIL, AIR PUMP, AND CHECK VALVE (M548A3) 0185 00

THIS WORK PACKAGE COVERS:

Removal (page 0185 00-2).
Cleaning (page 0185 00-3).
Installation (page 0185 00-4).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts

Cleaning compound (WP 0542 00, Item 9)

Personnel Required

Unit Mechanic

References

See your -10

Equipment Condition

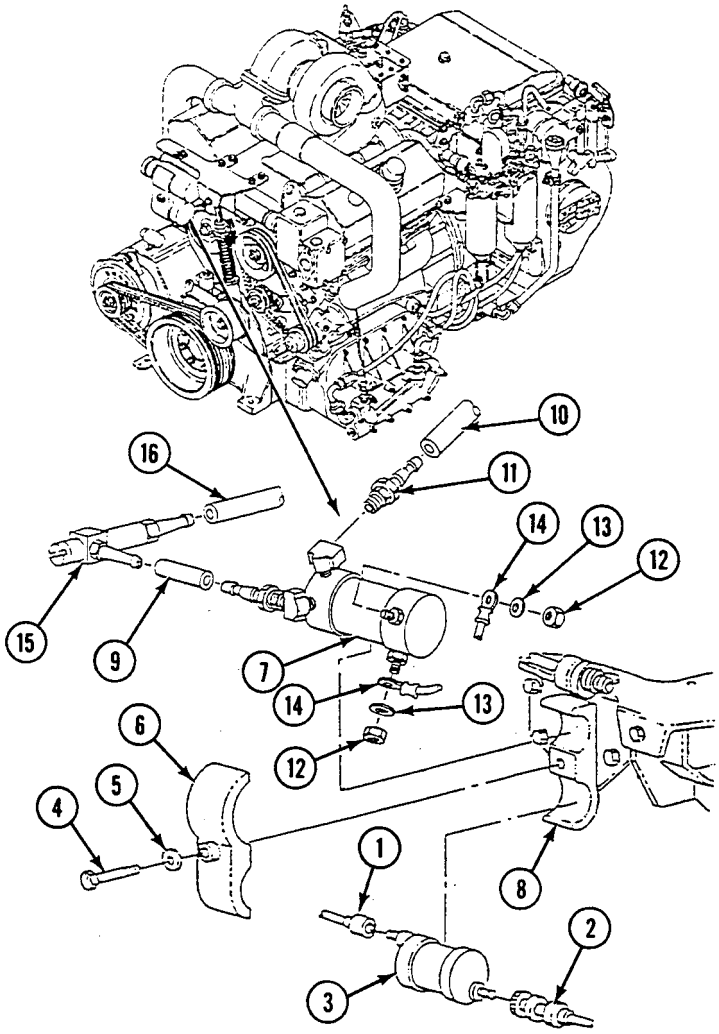
Engine stopped (see your -10)
Carrier blocked (see your -10)
Center seat raised (see your -10)
Both battery negative leads disconnected (WP 0292 00)
Power plant rear access panel removed (see your -10)

REPLACE AIR BOX HEATER IGNITION COIL, AIR PUMP, AND CHECK VALVE (M548A3) — Continued

0185 00

REMOVAL

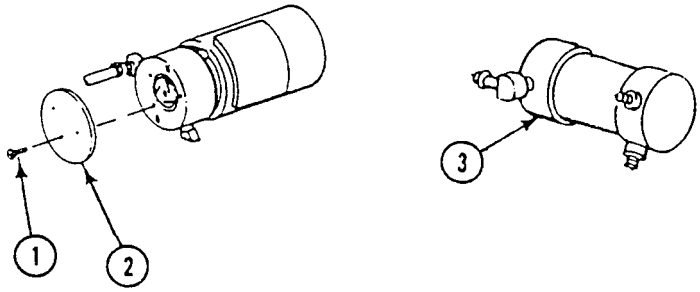
1. Disconnect ignition cable (1) and connector (2) from coil (3).
2. Remove screw (4), washer (5), clamp (6), coil (3), and air pump (7) from mounting bracket (8).
3. Remove outlet hose (9) from air pump (7).
4. Remove air hose (10) and adapter (11) from air pump (7).
5. Remove two nuts (12), washers (13), and leads (14) from air pump (7).
6. Note position of check valve (15) connected to outlet hose (9) and inlet hose (16) and pull free from each.



REPLACE AIR BOX HEATER IGNITION COIL, AIR PUMP, AND CHECK VALVE (M548A3) — Continued **0185 00**

CLEANING

1. Clean outside of pump assembly with cleaning compound. Do not submerge.
2. Inspect pump for cracks, dents, and general damage.
3. Remove three screws (1) and cover (2) from air pump (3).
4. Check for internal wear or damage. Replace air pump (3) if needed.
5. Install cover (2) with three screws (1) on air pump (3).

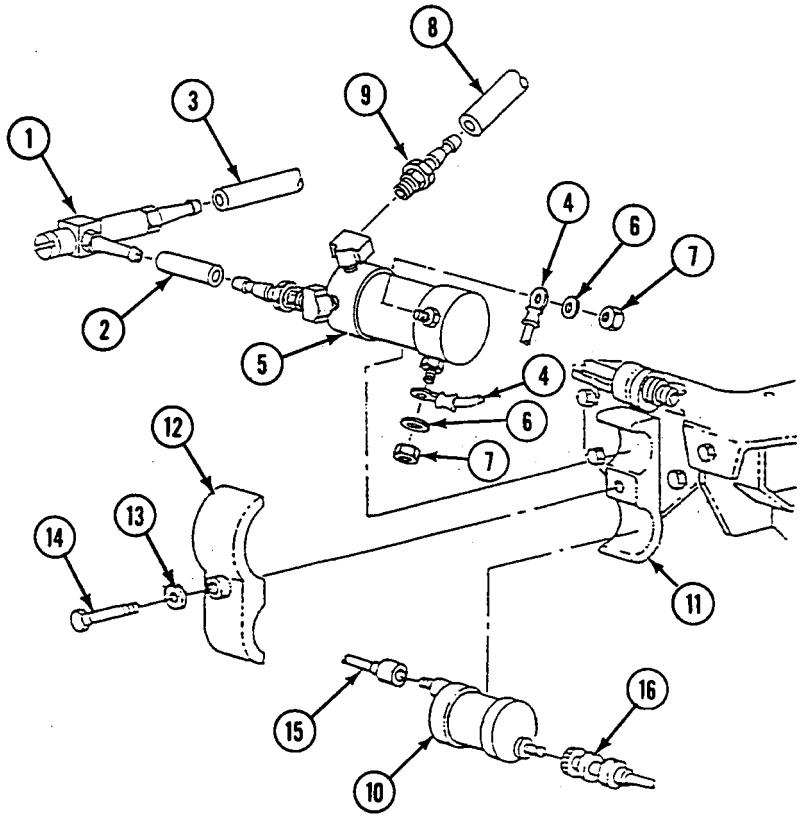


6. Check ignition coil as described in electrical troubleshooting (WP 0015 00). Replace ignition coil if defective.
7. Inspect clamps for breaks and excessive wear. Replace clamps that show either of these defects.

REPLACE AIR BOX HEATER IGNITION COIL, AIR PUMP, AND CHECK VALVE (M548A3) 0185 00
— Continued

INSTALLATION

1. Install check valve (1) by inserting valve in the same position as removed and pushing the outlet hose (2) and inlet hose (3) on valve connectors.
2. Place two leads (4) on two terminals on air pump (5) and secure with two washers (6) and nuts (7).
3. Connect air hose (8) and adapter (9) to air pump (5).
4. Install air pump (5) and coil (10) on mounting bracket (11). Secure with clamp (12), washer (13), and screw (14).
5. Connect ignition cable (15) and connector (16) to coil (10).



FOLLOW-THROUGH STEPS

1. Install power plant rear access panel (see your -10).
2. Connect both battery negative leads (WP 0292 00).
3. Lower center seat (see your -10).

END OF TASK

REPLACE AIR BOX HEATER SOLENOID VALVE (M548A1) 0186 00

THIS WORK PACKAGE COVERS:

Removal (page 0186 00-1).
Installation (page 0186 00-2).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts
Lock washer (2)

Personnel Required
Unit Mechanic

References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Battery negative lead disconnected (WP 0292 00)
Center seat raised (see your -10)

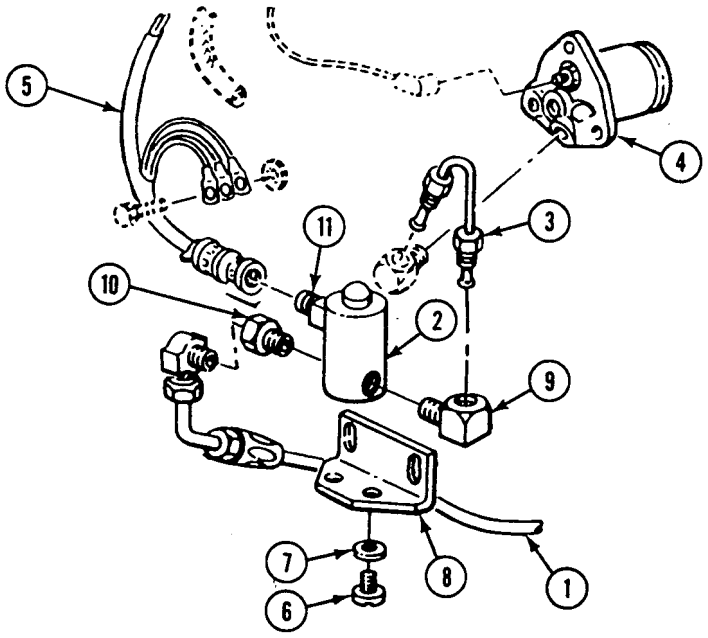
REMOVAL

1. Loosen fuel hose (1) at solenoid valve (2) to relieve fuel pressure and remove fuel hose from solenoid valve.
2. Remove fuel tube (3) from solenoid valve (2) and air box heater (4).
3. Disconnect wiring harness (5) at solenoid valve (2).
4. Remove two screws (6), lock washers (7), and solenoid valve (2) from bracket (8). Discard lock washers.

NOTE

If new solenoid valve is to be installed, do Step 5.

5. Remove elbow (9), fuel fitting (10), and connector (11) from faulty solenoid valve.

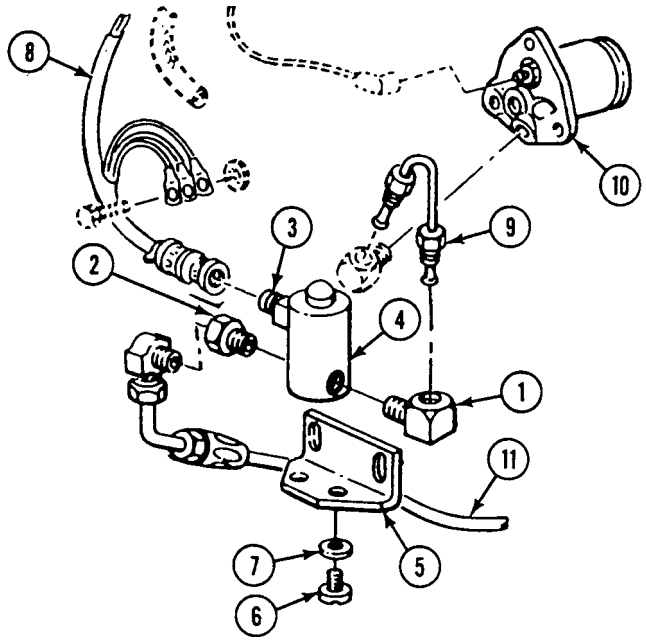


INSTALLATION

NOTE

If fittings were removed from old solenoid valve, do Step 1.

1. Install elbow (1), fuel fitting (2), and connector (3) on solenoid valve (4).
2. Install solenoid valve (4) on bracket (5) with two screws (6) and new lock washers (7).
3. Connect wiring harness (8) to solenoid valve (4).
4. Install fuel tube (9) on solenoid valve (4) and air box heater (10).
5. Connect fuel hose (11) to solenoid valve (4).



FOLLOW-THROUGH STEPS

1. Connect battery negative lead (WP 0292 00).
2. Lower center seat (see your -10).
3. Start engine (see your -10).
4. Run engine and check solenoid valve for proper operation (see your -10).
5. Stop engine (see your -10).

END OF TASK

REPLACE AIR BOX HEATER SOLENOID VALVE (M548A3) 0187 00

THIS WORK PACKAGE COVERS:

Removal (page 0187 00-1).
Cleaning (page 0187 00-2).
Installation (page 0187 00-2).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts

Lock washer (4)

Personnel Required

Unit Mechanic

References

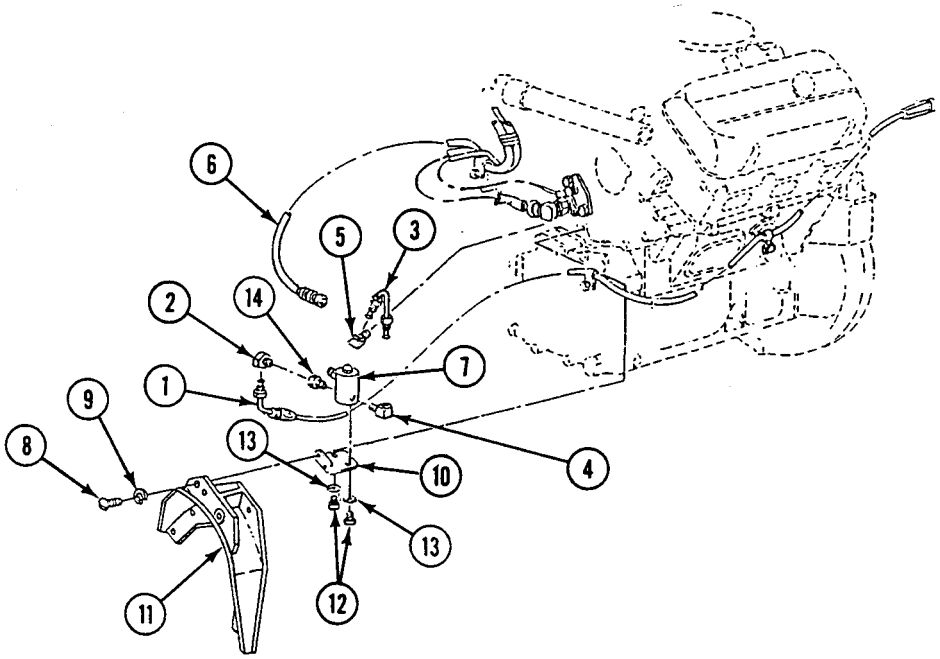
See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your 10)
Both battery negative leads disconnected (WP 0292 00)
Center seat raised (see your -10)
Power plant rear access panel removed (see your -10)

REMOVAL

1. Disconnect fuel hose (1) from elbow (2).
2. Remove fuel tube (3) from elbow (4) and elbow (5).
3. Disconnect wiring harness (6) at solenoid valve (7).
4. Remove two screws (8), lock washers (9), and bracket (10) from fan idler support (11). Discard lock washers.
5. Remove two screws (12), lock washers (13), and solenoid valve (7) from bracket (10). Discard lock washers.
6. If replacement solenoid valve is to be installed, remove elbow (4), elbow (2), and adapter (14) from defective valve.

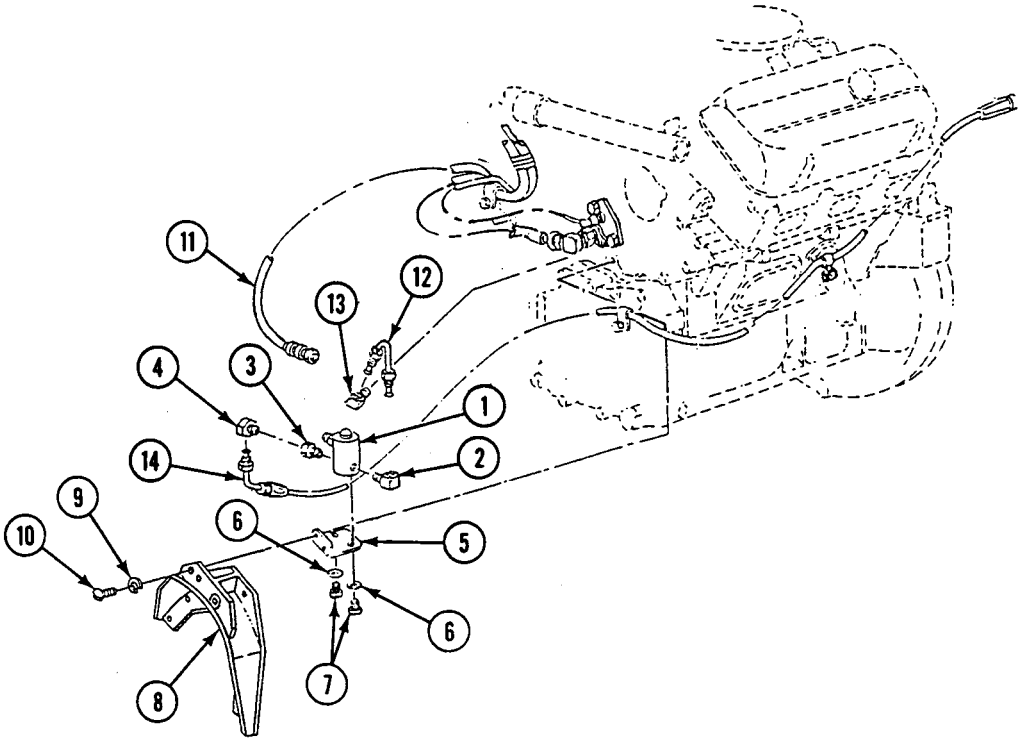


CLEANING

1. Inspect exterior of solenoid valve for cracks, deformation, damage, and fuel leaks. Replace solenoid valve that shows any of these defects.
2. Inspect solenoid valve for broken or damaged electrical connectors. Replace solenoid valve that shows either of these defects.

INSTALLATION

1. If replacement solenoid valve (1) is being installed, install elbow (2), adapter (3), and elbow (4) on solenoid valve.
2. Install solenoid valve (1) on bracket (5) with two new lock washers (6) and screws (7).
3. Install bracket (5) on fan idler support (8) with two new lock washers (9) and screws (10).
4. Connect wiring harness (11) to solenoid valve (1).
5. Connect fuel tube (12) at elbow (13) and elbow (2).
6. Connect fuel hose (14) at elbow (4).



FOLLOW-THROUGH STEPS

1. Connect both battery negative leads (WP 0292 00).
2. Lower center seat (see your -10).
3. Operate system and check for fuel leaks (see your -10).
4. Install power plant rear access panel (see your -10).

END OF TASK

REPLACE AIR BOX HEATER ELECTRODE (M548A3) 0188 00

THIS WORK PACKAGE COVERS:

Removal (page 0188 00-2).
Cleaning (page 0188 00-2).
Installation (page 0188 00-4).

INITIAL SETUP:

Maintenance Level

Unit

Personnel Required

Unit Mechanic

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)
Socket Wrench Set (WP 0541 00, Item 64)
Torque Wrench (WP 0541 00, Item 71)

References

See your -10

Materials/Parts

Copper washer (3)
Gasket
Preformed packing

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Both battery negative leads disconnected (WP 0292 00)
Center seat raised (see your -10)
Power plant rear access panel removed (see your -10)

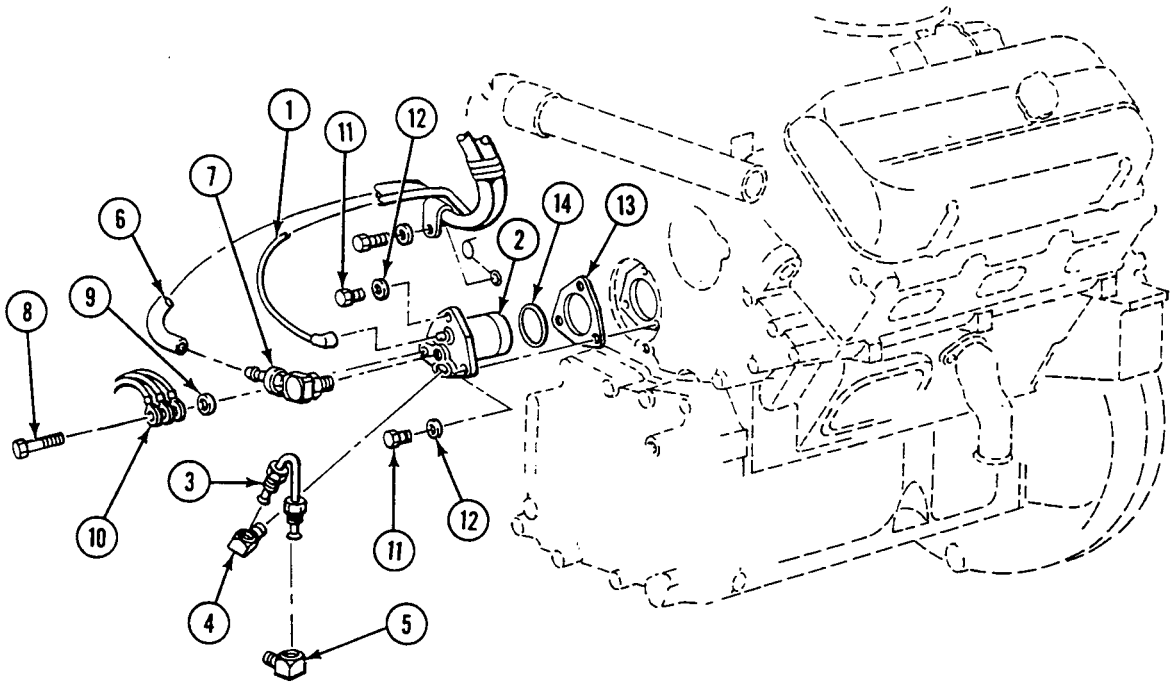
REMOVAL

1. Disconnect ignition cable (1) from air box heater (2).
2. Remove fuel tube (3) at elbow (4) and tube elbow (5).
3. Remove air hose (6) from fitting (7).

NOTE

Screw (8) is longer than screws (11).

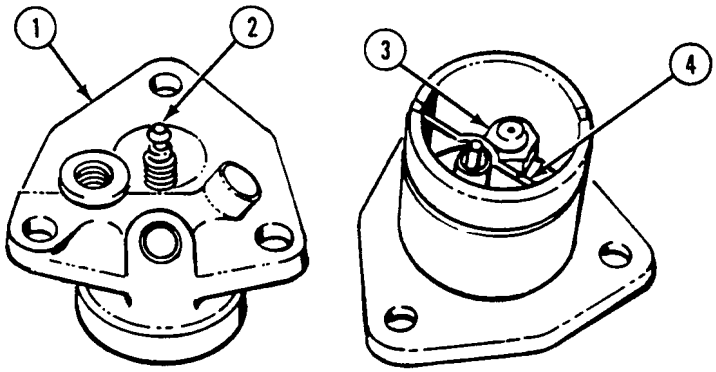
4. Remove screw (8), copper washer (9), ground lead of wiring harness (10) and one ear of air box heater (2) from engine. Discard washer.
5. Remove two screws (11), copper washers (12), air box heater (2), gasket (13), and preformed packing (14) from engine. Discard washers, gasket, and preformed packing.



CLEANING

1. Inspect air box heater assembly (1) for cracks, damaged threads, and damaged gasket surfaces.
2. Inspect end of ignition cable for pitting, corrosion, and cracked insulator.
3. Inspect fuel nozzle for clogging, damaged seating surfaces, and damaged threads. To check heater nozzle when assembly is installed in the engine, remove fuel supply hose at fuel solenoid valve (WP 0187 00). When air box heater system is activated, a slight suction can be felt on the finger at the open fitting.

4. Inspect electrode (2) for damaged threads, cracked insulator, and eroded or pitted electrode.
5. Using a suitable gauge, set nozzle (3) to wire (4) gap at 0.80 inch (2 cm).
6. Replace any air box heater assembly that shows any of these defects and cannot be repaired.



WARNING

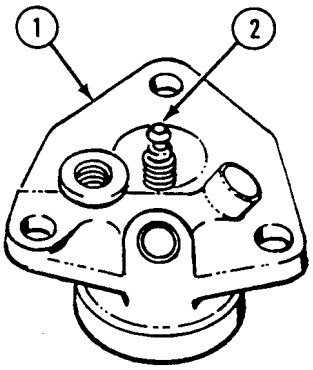
High voltages are involved in this test. This could cause injury to personnel. Do not touch the ignition coil, air heater body, electrode, or exposed leads during the test.

CAUTION

Do not apply voltage to ignition coil without connecting the output of ignition coil to electrode and without connecting air box heater body and ignition coil to a common ground.

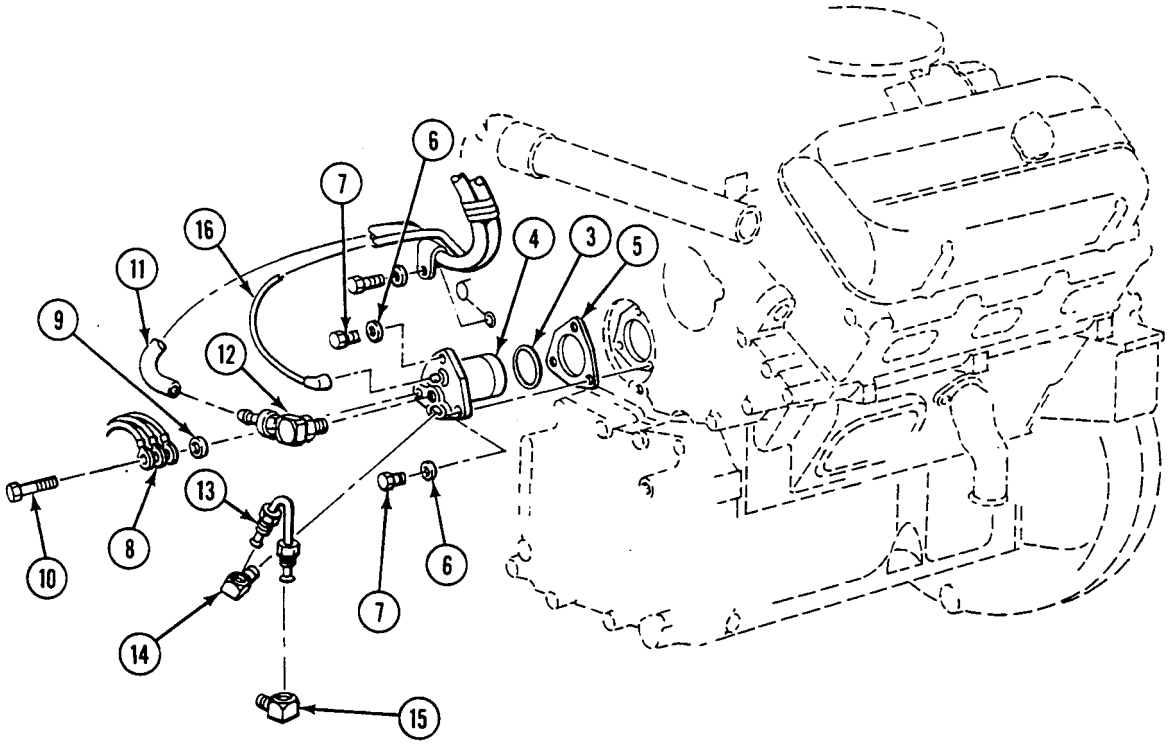
7. With air box heater assembly removed from engine, inspect ignition unit for damaged electrical connections.
8. Connect output of ignition exciter to electrode terminal.
9. Connect air box heater body and exciter to a common ground.
10. Connect a source of 24-volt direct current to input of exciter.
11. The electric arc generated between electrode tip and air box heater body should be steady with a slight crackling noise.
12. Remove harness boot end from electrode (1). Use a 5/8 inch (16 mm) deep well socket to remove socket from air box heater assembly (2).

13. Thread replacement electrode (1) into air box heater assembly (2). Torque 180 lb-in. (20 N•m). Check ignition cable and boot end for signs of wear, cracked insulation, or corrosion. Replace if necessary. Push ignition cable boot end onto electrode until positive engagement is felt.



INSTALLATION

1. Install new preformed packing (3) on air box heater (4).
2. Install new gasket (5) and air box heater (4) on engine with two new washers (6) and screws (7).

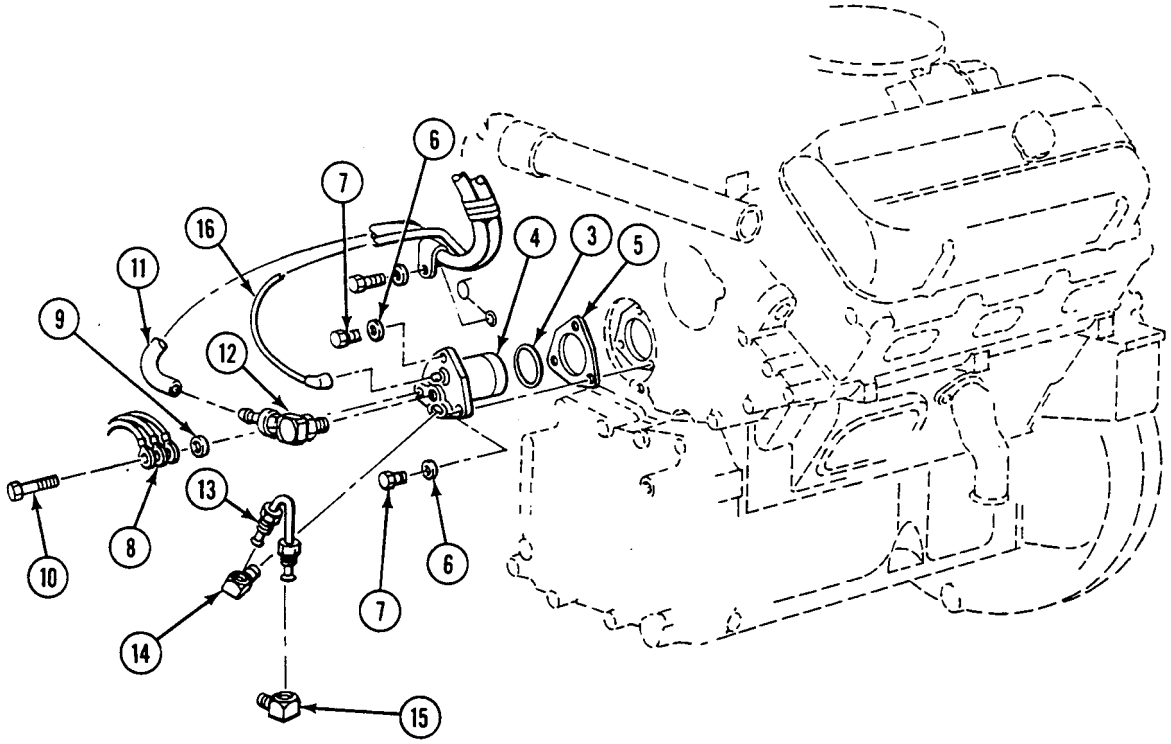


NOTE

Screw (10) is longer than screws (7).

3. Install ground lead of wiring harness (8) to air box heater with new copper washer (9) and screw (10). Tighten two screws (7) and screw (10).
4. Install air hose (11) on fitting (12).

5. Connect fuel tube (13) to elbow (14) and tube elbow (15).
6. Connect ignition cable (16) to air box heater (4).



FOLLOW-THROUGH STEPS

1. Install power plant rear access panel (see your -10).
2. Connect both battery negative leads (WP 0292 00).
3. Lower center seat (see your -10).

END OF TASK

REPLACE AIR BOX HEATER (M548A1) 0189 00

THIS WORK PACKAGE COVERS:

Removal (page 0189 00-1).
Installation (page 0189 00-2).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts
Gasket
Preformed packing

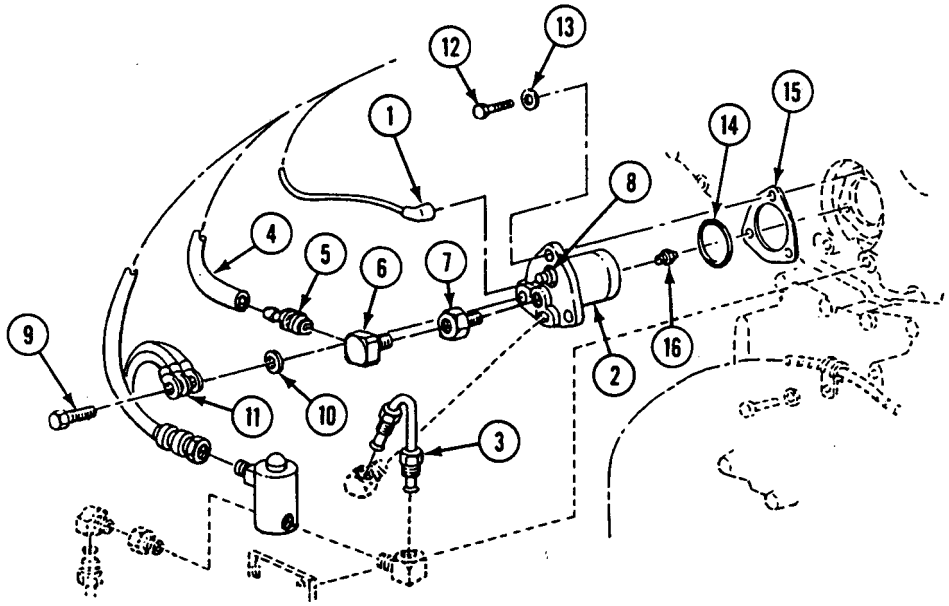
Personnel Required
Unit Mechanic

References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Battery negative lead disconnected (WP 0292 00)
Center seat raised (see your -10)

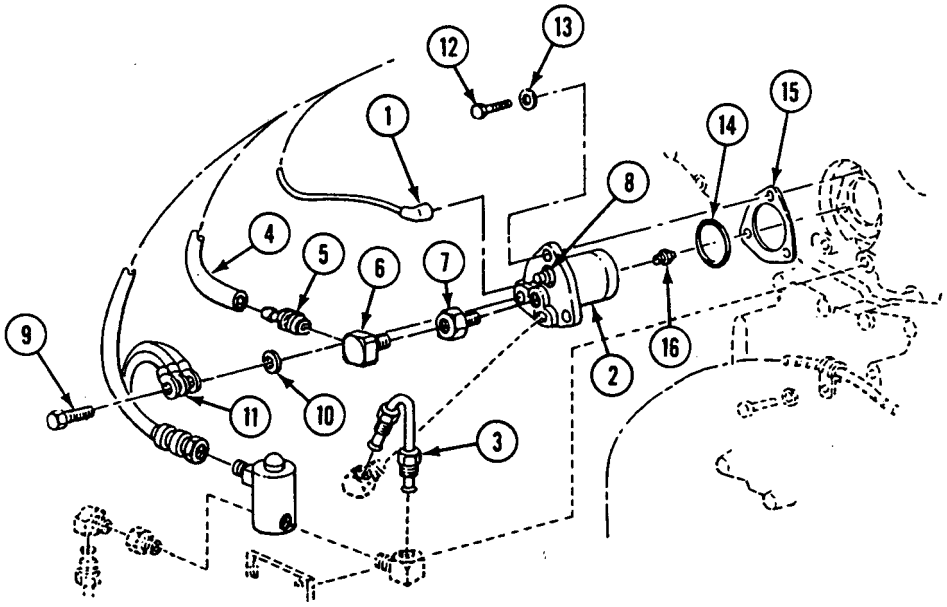
REMOVAL

1. Disconnect igniter cable (1) from air box heater (2).
2. Remove fuel supply tube (3) from air box heater (2).
3. Disconnect air supply hose (4) from adapter (5).
4. Remove adapter (5), elbow (6), and adapter (7) from air box heater (2).



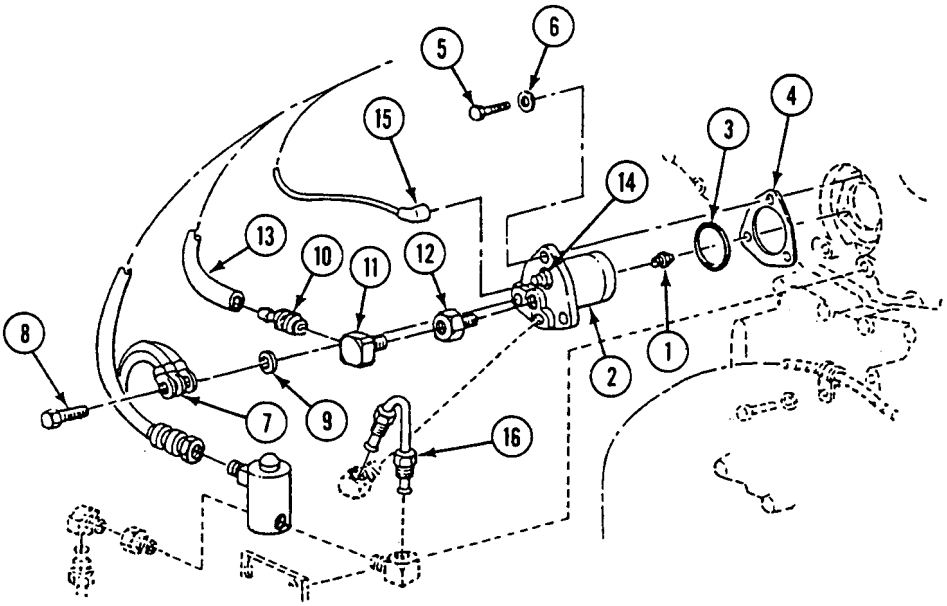
5. Remove spark igniter (8) from air box heater (2).
6. Remove screw (9), washer (10), and three ground leads (11) from air box heater (2).
7. Remove two screws (12), washers (13), and air box heater (2) from engine.
8. Remove air box heater (2), preformed packing (14), and gasket (15) from engine. Discard gasket and preformed packing.

9. Remove nozzle (16) from air box heater (2).



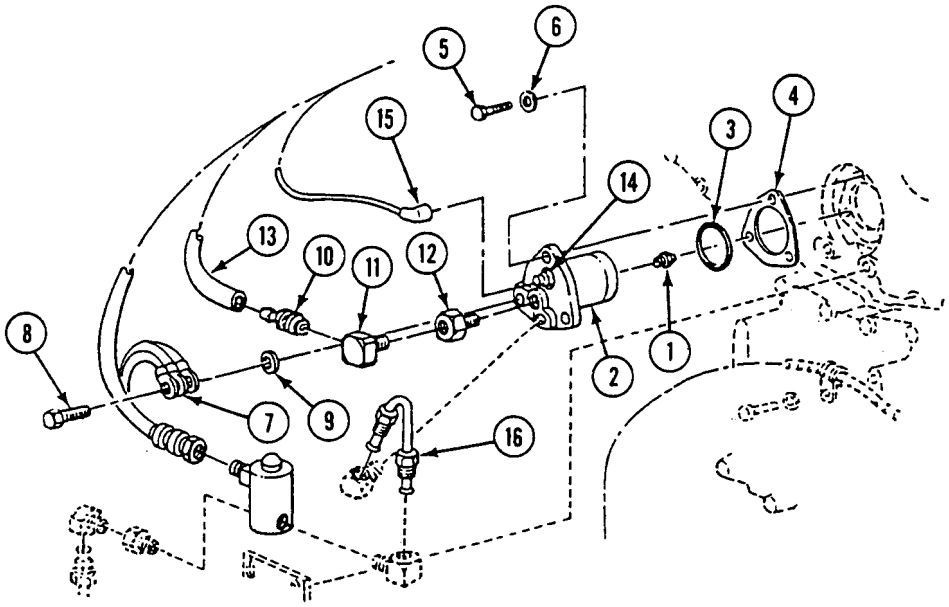
INSTALLATION

1. Install nozzle (1) in air box heater (2).
2. Install new preformed packing (3) and new gasket (4) on air box heater (2).
3. Install air box heater (2) on engine. Secure with two screws (5) and washers (6).
4. Install three ground leads (7) on air box heater (2). Secure with screw (8) and washer (9).
5. Install adapter (10), elbow (11), and adapter (12) in air box heater (2).



6. Connect air supply hose (13) to adapter (10).

7. Install spark igniter (14) in air box heater (2).
8. Connect igniter cable (15) to air box heater (2).
9. Install fuel supply tube (16) on air box heater (2).



FOLLOW-THROUGH STEPS

1. Connect battery negative lead (WP 0292 00).
2. Lower center seat (see your -10).
3. Start engine (see your -10).
4. Run engine and check air box heater for proper operation (see your -10).
5. Stop engine (see your -10).

END OF TASK

REPLACE AIR PUMP VANE KIT 0190 00

THIS WORK PACKAGE COVERS:

Removal (page 0190 00-1).
Installation (page 0190 00-2).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)

Personnel Required
Unit Mechanic

References
See your -10

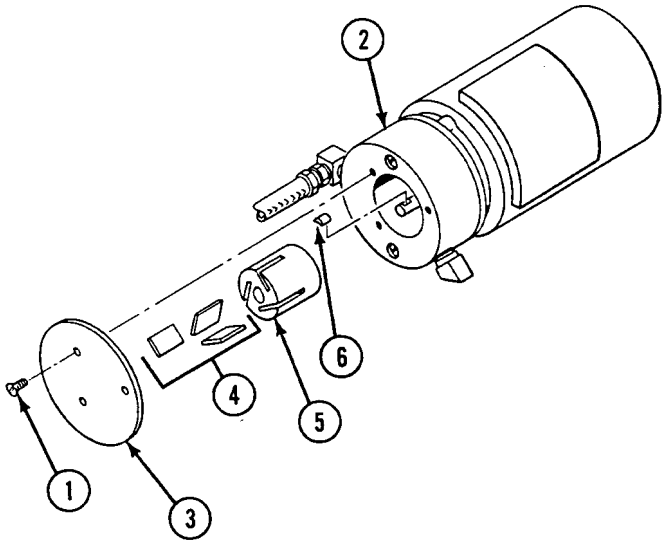
Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10
Air pump removed (WP 0191 00)

REMOVAL

NOTE

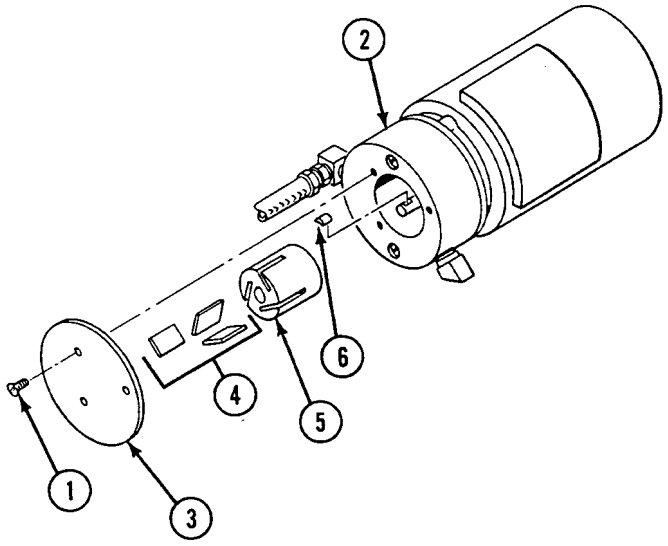
If numerous air pump failures are experienced, it is recommended that new vane kit 2540-01-105-3037 be installed. The vanes on this new improved kit are made of carbon and teflon for longer life.

1. Remove three machine screws (1) from air pump end cover (2).
2. Remove cover plate (3).
3. Remove old three-piece vane set (4), eccentric hub (5), and key (6). Discard vane set.



INSTALLATION

1. Clean air pump cavity of carbon dust.
2. Install eccentric hub (5) and key (6) in air pump cavity.
3. Install new vane set (4) into slots of eccentric hub (5).
4. Install cover plate (3) on air pump end cover (2) and secure with three machine screws (1).



FOLLOW-THROUGH STEPS

1. Install air pump on engine (WP 0191 00).
2. Check air pump for proper operation (see your -10).

END OF TASK

REPLACE AIR PUMP 0191 00

THIS WORK PACKAGE COVERS:

Removal (page 0191 00-1).
Installation (page 0191 00-2).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)

Personnel Required

Unit Mechanic

References

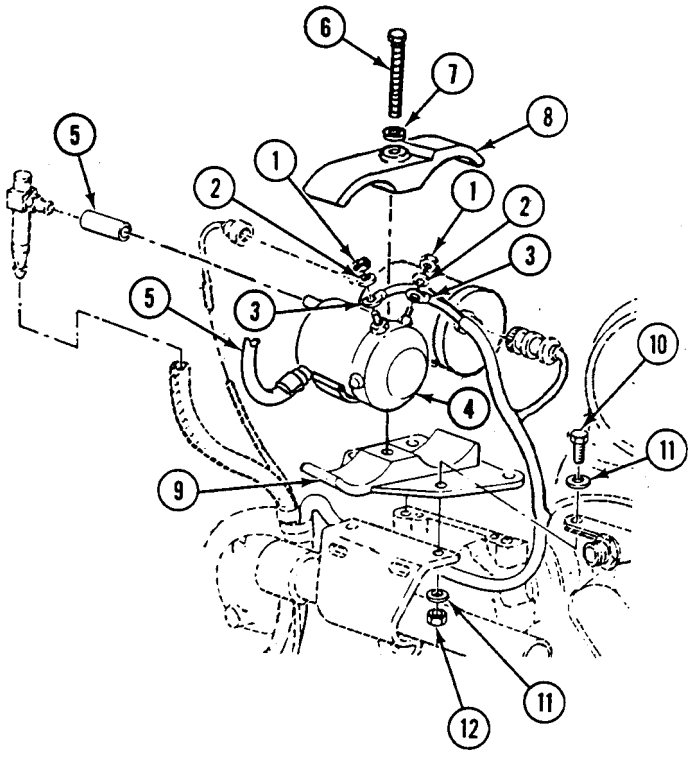
See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Battery negative lead(s) disconnected (WP 0292 00)
Top left grille removed (WP 0390 00)
Cab personnel seats raised (see your -10)

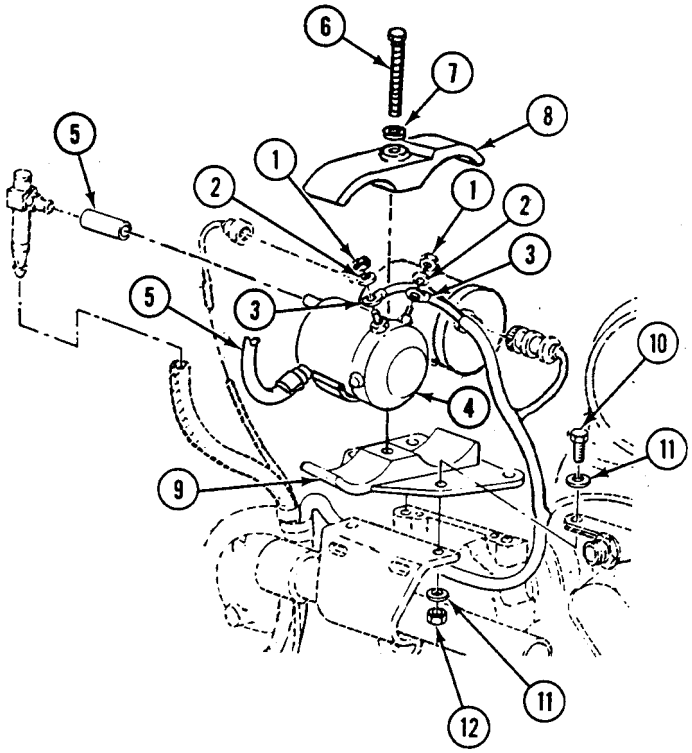
REMOVAL

1. Remove two nuts (1) and washers (2). Disconnect two electrical leads (3) from air pump (4).
2. Disconnect air hoses (5) from air pump (4).
3. Remove screw (6), washer (7), clamp (8), and air pump (4) from bracket (9).
4. Remove four screws (10), eight washers (11), and four nuts (12) from bracket (9). Remove bracket.



INSTALLATION

1. Install bracket (9) with four screws (10), eight washers (11), and four nuts (12).
2. Install air pump (4) on bracket (9). Secure with clamp (8), screw (6), and washer (7).
3. Connect two electrical leads (3) to air pump (4) with two nuts (1) and washers (2).
4. Connect air hoses (5) to air pump (4).



FOLLOW-THROUGH STEPS

1. Connect battery negative lead(s) (WP 0292 00).
2. Install top left grille (WP 0390 00).
3. Lower cab personnel seats (see your -10).
4. Check air pump for proper operation (see your -10).

END OF TASK

REPLACE HAND THROTTLE CONTROL 0192 00

THIS WORK PACKAGE COVERS:

Removal (page 0192 00-2).
Installation (page 0192 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts

Cotter pin
Lock nut (2)
Lock washer (3)

Personnel Required

Unit Mechanic

References

See your -10

Equipment Condition

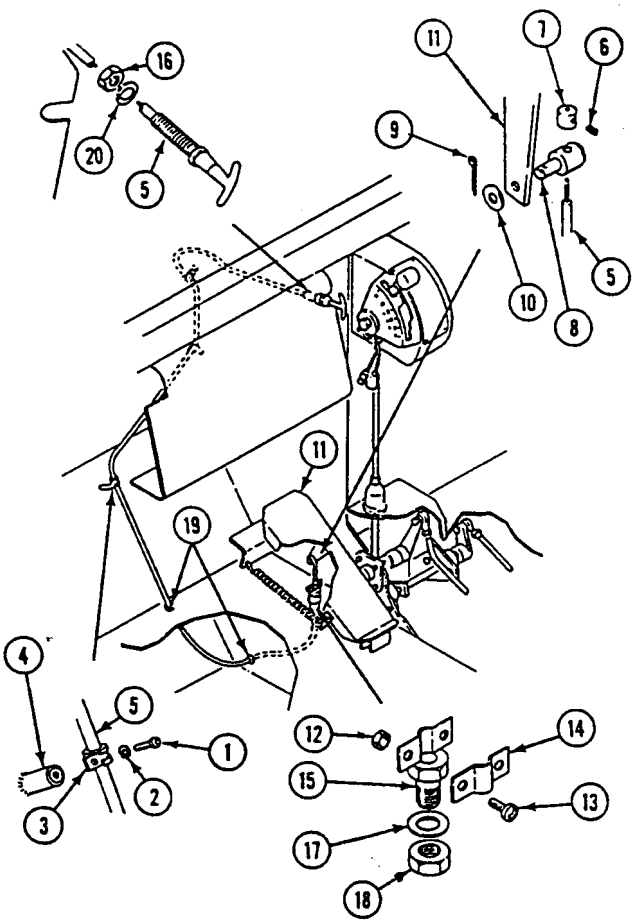
Engine stopped (see you -10)
Carrier blocked (see your -10)
Left center seat floor plate raised/removed (WP 0394 00) or (WP 0395 00)
Throttle floor plate removed (WP 0394 00) or (WP 0395 00)
Cab left floor plate removed (WP 0394 00) or (WP 0395 00)

REMOVAL

NOTE

Hand throttle control is removed and installed the same way for M548A1 and M548A3. M548A1 hand throttle control is shown.

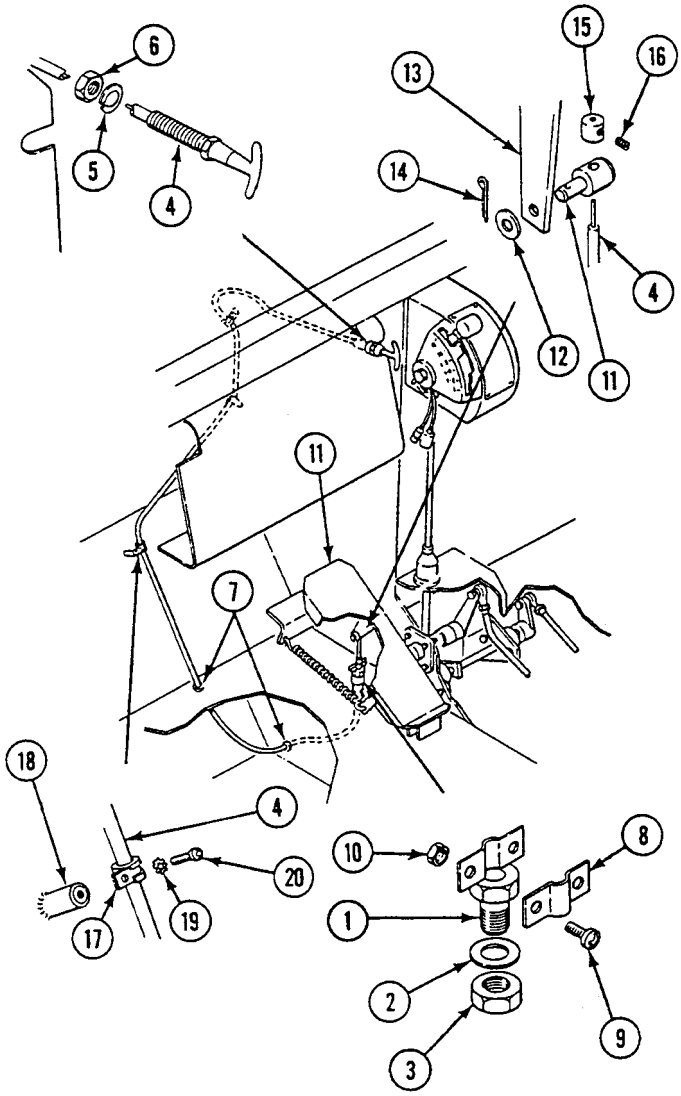
1. Remove three screws (1), lock washers (2), and clamps (3) from hull nuts (4). Remove clamps (3) from hand throttle control cable (5). Discard lock washers.
2. Loosen setscrew (6) from retainer collar (7). Remove hand throttle control cable (5) from link pin (8) and retainer collar (7).
3. Remove cotter pin (9), washer (10), and link pin (8) from accelerator pedal (11). Discard cotter pin.



4. Remove two lock nuts (12), screws (13), and clamp (14) from throttle control adapter (15). Discard lock nuts.
5. Loosen nut (16) securing hand throttle control cable (5) to instrument panel.
6. Pull hand throttle control cable (5) through throttle control adapter (15), bulkhead, adapter washer (17), adapter nut (18), two grommets (19), nut (16), and washer (20).
7. Remove adapter nut (18) and adapter washer (17) from throttle control adapter (15). Remove throttle control adapter from bulkhead.

INSTALLATION

1. Place throttle control adapter (1) on bulkhead. Secure with adapter washer (2) and adapter nut (3).
2. Insert hand throttle control cable (4) in instrument panel, through washer (5) and nut (6). Secure nut and washer to hold control cable in place.
3. Insert hand throttle control cable (4) through two grommets (7), adapter nut (3), adapter washer (2), bulkhead, and throttle control adapter (1).
4. Secure hand throttle control cable (4) to throttle control adapter (1) with clamp (8), two screws (9), and two new lock nuts (10).



5. Install link pin (11) and washer (12) on accelerator pedal (13). Secure with new cotter pin (14).
6. Install hand throttle control cable (4) in link pin (11) and retainer collar (15). Secure throttle control cable to retainer collar with setscrew (16).
7. Install three clamps (17) on hand throttle control cable (4).
8. Install three clamps (17) on hull nuts (18) with three new lock washers (19) and screws (20).

9. Adjust hand throttle control cable (WP 0193 00).

FOLLOW-THROUGH STEPS

1. Install/lower left center seat floor plate (WP 0394 00) or (WP 0395 00).
2. Install throttle floor plate (WP 0394 00) or (WP 0395 00).
3. Install cab left floor plate (WP 0394 00) or (WP 0395 00).

END OF TASK

ADJUST HAND THROTTLE CONTROL CABLE 0193 00

THIS WORK PACKAGE COVERS:

Adjustment (page 0193 00-2).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)

Personnel Required
Unit Mechanic

References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Left cab floor plate removed (WP 0394 00 or WP 0395 00)
Throttle floor plate removed (WP 0394 00 or WP 0395 00)
Left center seat floor plate raised/removed (WP 0394 00 or WP 0395 00)

ADJUSTMENT

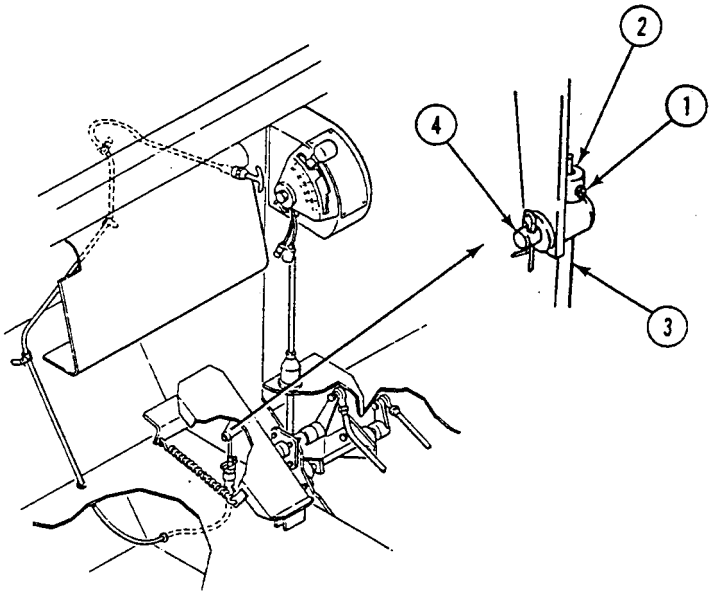
NOTE

Hand throttle control cable is adjusted the same way for M548A1 and M548A3. M548A1 control cable is shown.

NOTE

When accelerator pedal is against heel stop, accelerator is in idle position.

1. Adjust hand throttle control cable as follows:
   a. Loosen setscrew (1) in retainer collar (2).
   b. Push hand throttle control cable (3) flush against instrument panel.
   c. Place accelerator pedal in idle position.
   d. Place hand throttle control cable (3) through link pin (4) and into retainer collar (2). Tighten setscrew (1) in retainer collar to secure hand throttle control cable.
   e. Check accelerator pedal in full throttle position. Make sure hand throttle does not interfere.



2. Start engine (see your -10). Check hand throttle for proper operation.

FOLLOW-THROUGH STEPS

1. Install/lower left center seat floor plate (WP 0394 00 or WP 0395 00).
2. Install throttle floor plate (WP 0394 00 or WP 0395 00).
3. Install left cab floor plate (WP 0394 00 or WP 0395 00).

END OF TASK

REPLACE FUEL CUTOFF HAND CONTROL (M548A1) 0194 00

THIS WORK PACKAGE COVERS:

Removal (page 0194 00-2).
Installation (page 0194 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts

Cotter pin
Lock nut (2)
Lock washer (9)

Personnel Required

Unit Mechanic

References

See your -10

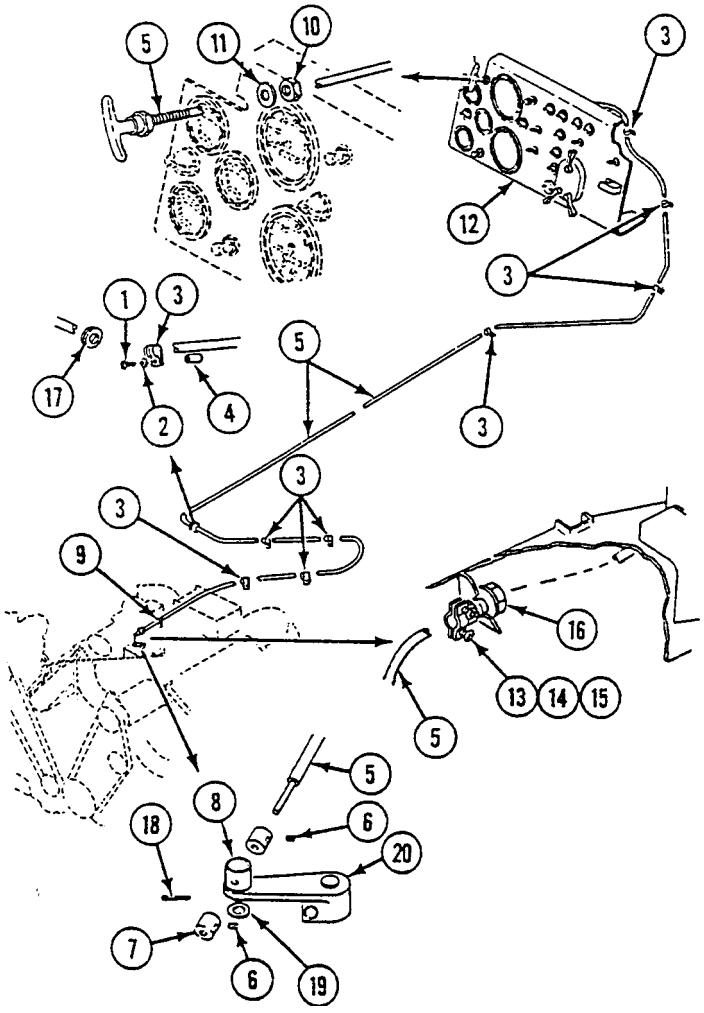
Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Left center seat floor plate raised (WP 0394 00)
Throttle floor plate removed (WP 0394 00)
Cab left floor plate removed (WP 0394 00)
Center seat raised (see your -10)
Top access cover removed (WP 0390 00)
Power plant rear access door removed (see your -10)

REPLACE FUEL CUTOFF HAND CONTROL (M548A1) — Continued 0194 00

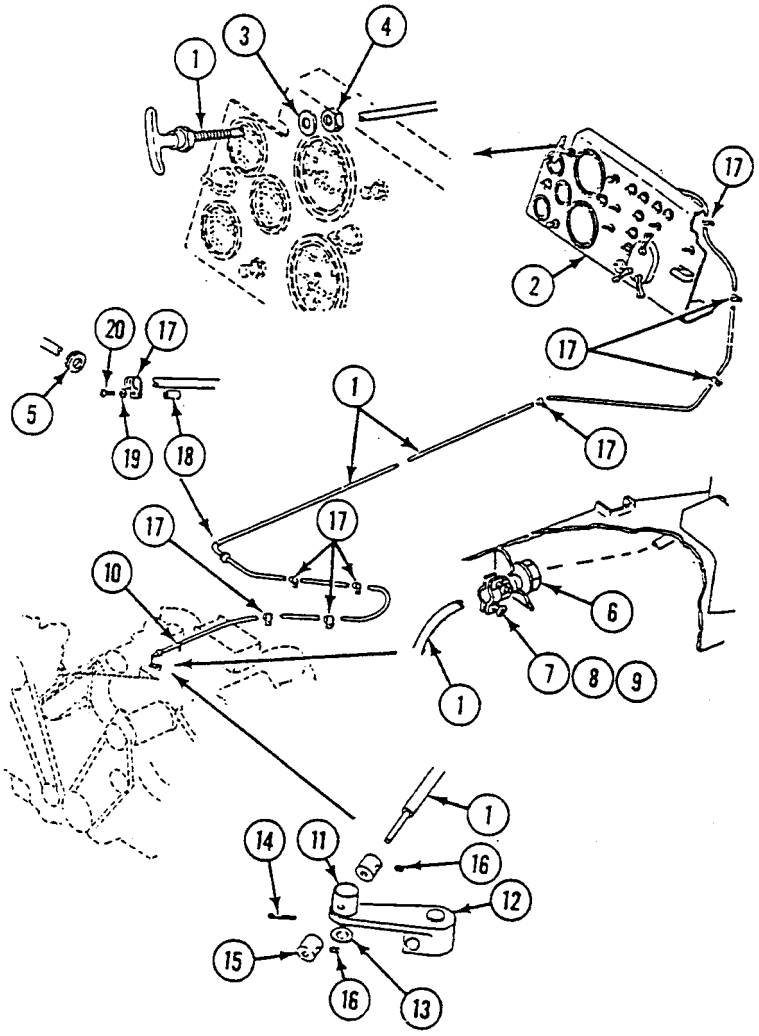
REMOVAL

1. Remove nine screws (1), lock washers (2), and clamps (3) from weld nuts (4). Discard lock washers.
2. Remove nine clamps (3) from fuel cutoff control cable (5).
3. Loosen two setscrews (6) in retainer collars (7). Remove fuel cutoff control cable (5) from collars and link pin (8).
4. Remove adjustable strap (9) from fuel cutoff control cable (5).
5. Loosen nut (10) securing fuel cutoff control cable (5) and washer (11) to instrument panel (12).
6. Remove two lock nuts (13), screws (14), and one clamp (15) from adapter (16). Discard lock nuts.
7. Pull fuel cutoff control cable (5) through nut (10), washer (11), adapter (16), and grommet (17).
8. Remove cotter pin (18), washer (19), and link pin (8) from engine stop lever (20). Discard cotter pin.



INSTALLATION

1. Insert fuel cutoff control cable (1) in instrument panel (2) through washer (3) and nut (4). Secure nut and washer to hold control cable in place on instrument panel.
2. Insert fuel cutoff control cable (1) through grommet (5) and adapter (6).
3. Secure fuel cutoff control cable (1) to adapter (6) with clamp (7), two screws (8), and new lock nuts (9).
4. Install adjustable strap (10) to secure fuel cutoff control cable (1).
5. Install link pin (11) in engine stop lever (12). Secure with washer (13) and new cotter pin (14).
6. Install fuel cutoff control cable (1) through retainer collars (15) and link pin (11). Secure control cable in collars with two setscrews (16).
7. Install nine clamps (17) on fuel cutoff control cable (1). Secure clamps to weld nuts (18) with nine new lock washers (19) and screws (20).



8. Adjust fuel cutoff hand control (WP 0195 00).

FOLLOW-THROUGH STEPS

1. Install top access cover (WP 0390 00).
2. Lower center seat (see your -10).
3. Install cab left floor plate (WP 0394 00).
4. Install throttle floor plate (WP 0394 00).
5. Lower left center seat floor plate (WP 0394 00).
6. Install power plant rear access door (see your -10).

END OF TASK

ADJUST FUEL CUTOFF HAND CONTROL 0195 00

THIS WORK PACKAGE COVERS:

Adjustment (page 0195 00-1).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)

Personnel Required
Unit Mechanic

References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Left center seat floor plate raised/removed (WP 0394 00 or WP 0395 00)
Cab personnel seats raised (see your -10)
Power plant rear access door/panel removed (see your -10)

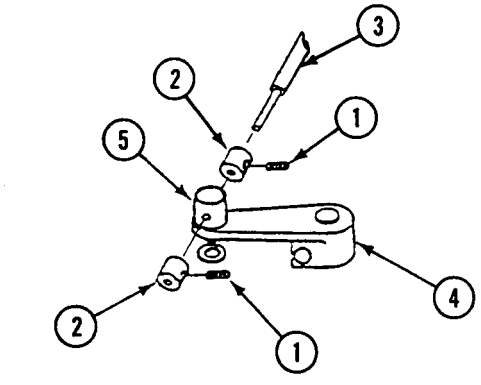
ADJUSTMENT

NOTE

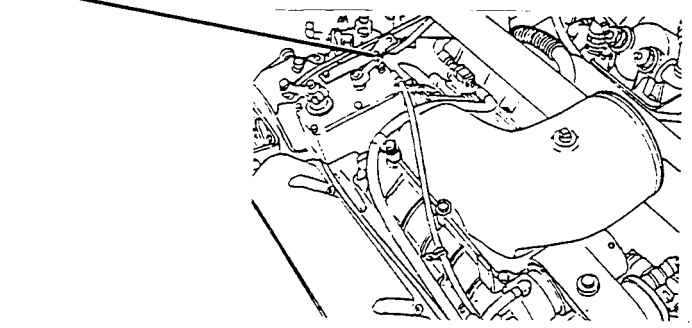
Fuel cutoff hand control is adjusted the same way for M548A1 and M548A3. M548A1 hand control is shown.

Orientation of power plant is different in M548A1 and M548A3.

1. Adjust fuel cutoff hand control as follows:
   a. Loosen two setscrews (1) in two retainer collars (2) to release fuel cutoff control cable (3).
   b. Pull fuel cutoff control cable (3) to full out position (engine off).
   c. Turn engine stop lever (4) to the right against stop in engine governor housing.
   d. Insert fuel cutoff control cable (3) through retainer collar (2), link pin (5), and retainer collar (2).
   e. Place two retainer collars (2) against link pin (5). Tighten two setscrews (1) in collars to secure fuel cutoff control cable (3).



REGULATOR AND MOUNTING BRACKET REMOVED FOR CLARITY.



FOLLOW-THROUGH STEPS

1. Start engine (see your -10).
2. Stop engine (see your -10).
3. Check fuel cutoff hand control for proper operation.
4. Lower cab personnel seats (see your -10).
5. Install/lower left center seat floor plate (WP 0394 00 or WP 0395 00).
6. Install power plant rear access door/panel (see your -10).

END OF TASK

REPLACE THROTTLE PEDAL CONTROL/DETENT (M548A1) 0196 00

THIS WORK PACKAGE COVERS:

Removal (page 0196 00-1).
Installation (page 0196 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Personnel Required

Unit Mechanic

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)

References

See your -10

Materials/Parts

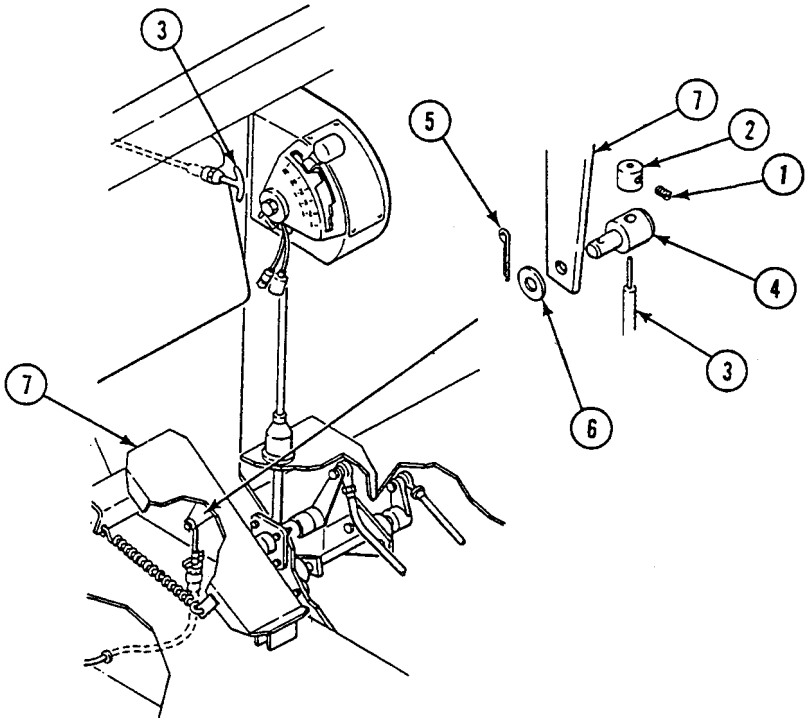
Cotter pin
Lock nut
Lock nut
Lock nut (4)
Lock nut (2)

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Center seat raised (see your -10)
Left center seat floor plate raised (WP 0394 00)
Throttle floor plate removed (WP 0394 00)

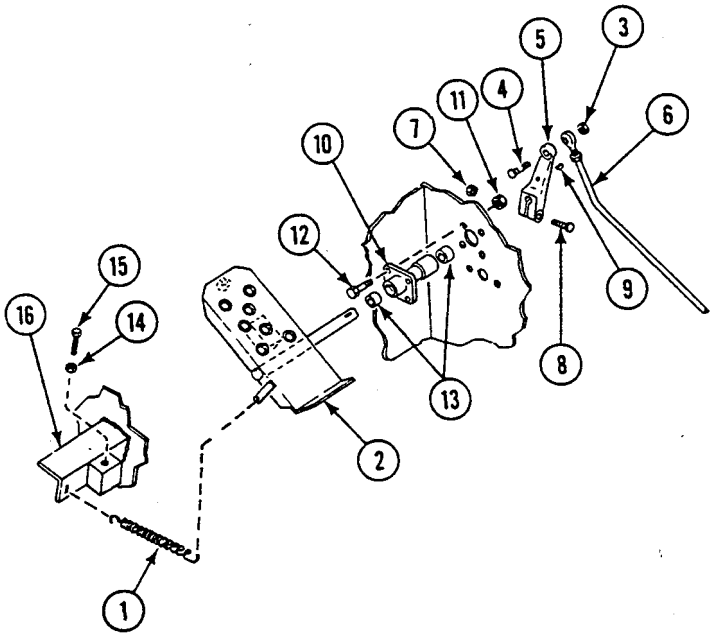
REMOVAL

1. Loosen setscrew (1) from retainer collar (2). Remove hand throttle control cable (3) from link pin (4) and collar (2).
2. Remove cotter pin (5), washer (6), and link pin (4) from throttle pedal (7). Discard cotter pin.

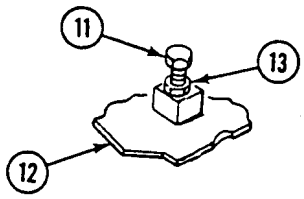


REPLACE THROTTLE PEDAL CONTROL/DETENT (M548A1) — Continued **0196 00**

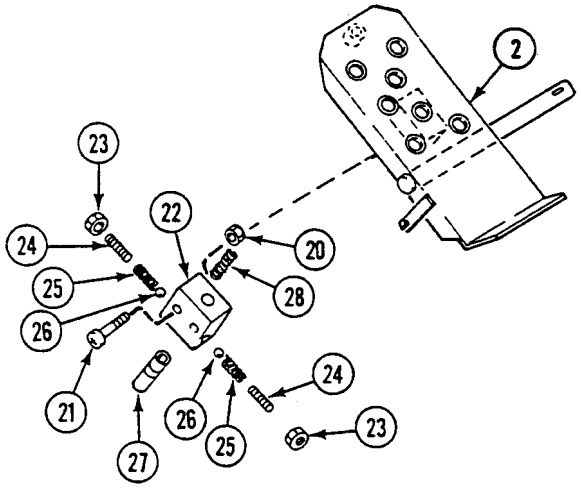
3. Remove return spring (1) from throttle pedal (2).
4. Remove lock nut (3) and screw (4) from throttle pedal arm (5) and throttle link (6). Separate arm (5) from link (6). Discard lock nut.
5. Remove lock nut (7), screw (8), throttle pedal arm (5), and key (9) from throttle pedal (2). Discard lock nut.
6. Remove throttle pedal (2) from guide assembly (10).
7. Remove four lock nuts (11) and screws (12) from guide assembly (10). Remove guide (10) from bulkhead. Remove two bearings (13) from guide (10). Discard lock nuts.
8. Loosen toe stop jam nut (14). Remove toe stop screw (15) from toe stop (16).



9. Loosen detent stop jam nut (13). Remove detent stop screw (11) from throttle floor plate (12).

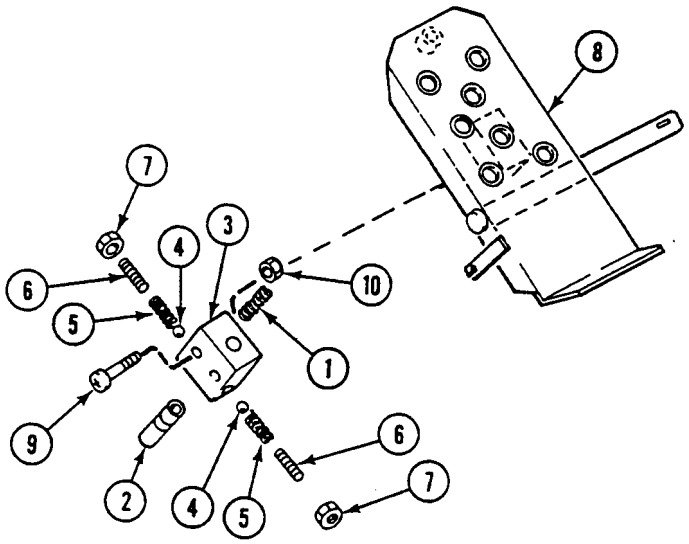


10. Remove two lock nuts (20) and screws (21) from detent block (22). Remove detent block (22) from throttle pedal (2). Discard lock nuts.
11. Remove two jam nuts (23), screws (24), springs (25), and balls (26) from detent block (22).
12. Remove detent plunger (27) and spring (28) from detent block (22).



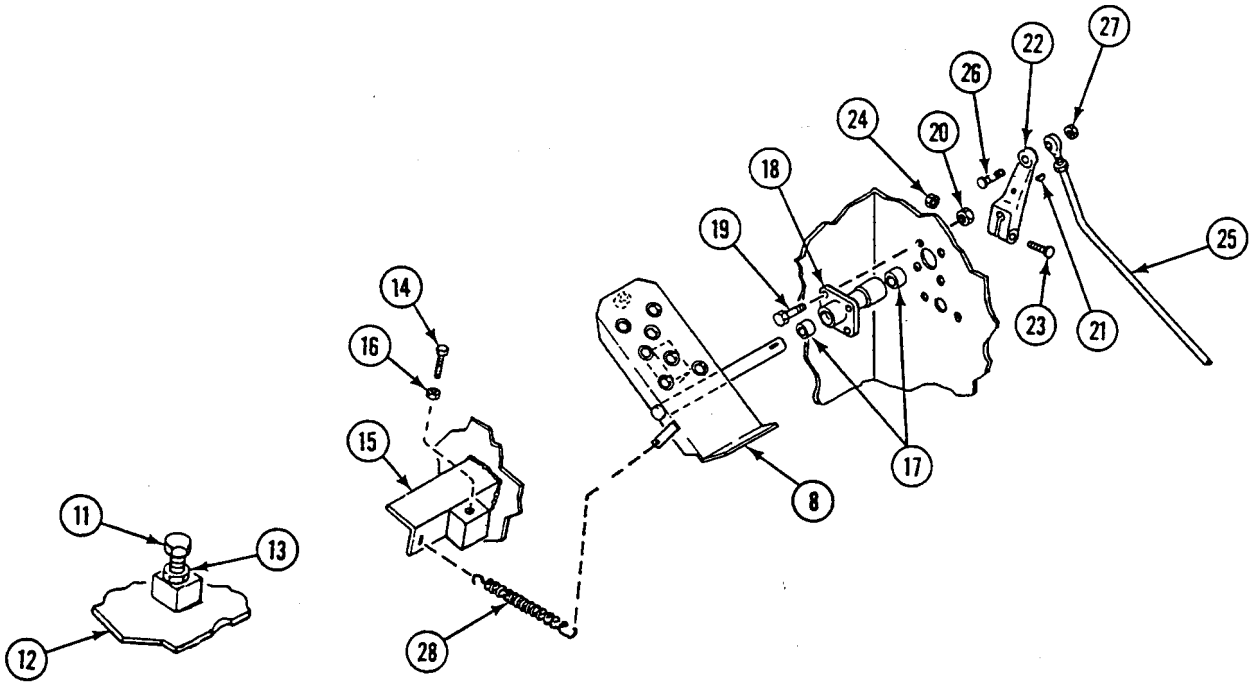
INSTALLATION

1. Install detent plunger spring (1) and detent plunger (2) in detent block (3).
2. Install two balls (4), springs (5), and screws (6) in detent block (3). Secure two screws with jam nuts (7).
3. Place detent block (3) in bracket on throttle pedal (8). Secure with two screws (9) and new lock nuts (10).

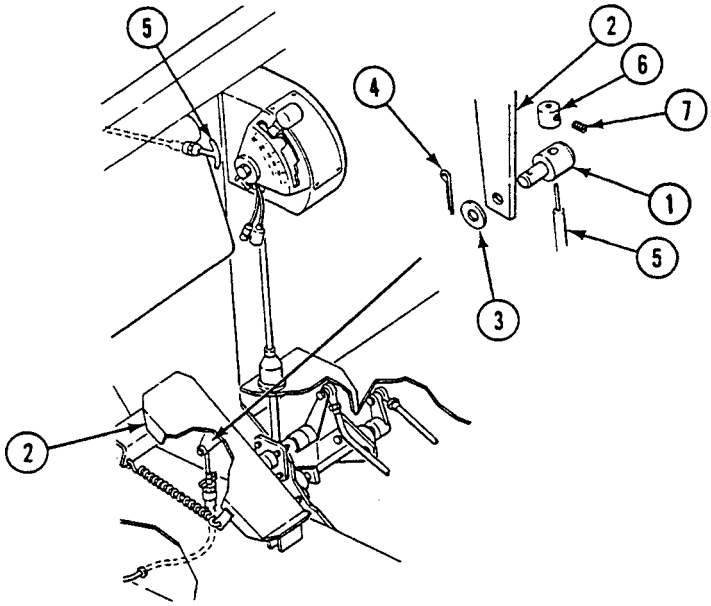


REPLACE THROTTLE PEDAL CONTROL/DETENT (M548A1) — Continued 0196 00

4. Install detent screw (11) in throttle floor plate (12). Secure with jam nut (13).
5. Install toe stop screw (14) in toe stop (15). Secure with toe stop jam nut (16).
6. Install two bearings (17) in guide assembly (18). Secure guide (18) to bulkhead with four screws (19) and new lock nuts (20).
7. Install throttle pedal (8) in guide assembly (18).
8. Install key (21) and arm (22) on throttle pedal (8). Secure arm (22) to throttle pedal (8) with screw (23) and new lock nut (24).
9. Install link (25) on throttle pedal arm (22). Secure with screw (26) and new lock nut (27).
10. Install return spring (28) on throttle pedal (8).



11. Install link pin (1) in throttle pedal (2). Secure with washer (3) and new cotter pin (4).
12. Install hand throttle control cable (5) through link pin (1) and into retainer collar (6). Secure cable in retainer with setscrew (7).



13. Adjust hand throttle (WP 0194 00).
14. Start engine (see your -10). Check throttle pedal control and detent for proper operation.

FOLLOW-THROUGH STEPS

1. Install throttle floor plate (WP 0394 00).
2. Lower left center seat floor plate (WP 0394 00).
3. Lower center seat (see your -10).

END OF TASK

REPLACE THROTTLE PEDAL LINKAGE (M548A1) 0197 00

THIS WORK PACKAGE COVERS:

Removal (page 0197 00-2).
Installation (page 0197 00-5).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts
GAA Grease (WP 0542 00, Item 14)
Cotter pin (3)
Lock nut (7)
Lock nut (2)
Lock nut (2)

Personnel Required
Unit Mechanic

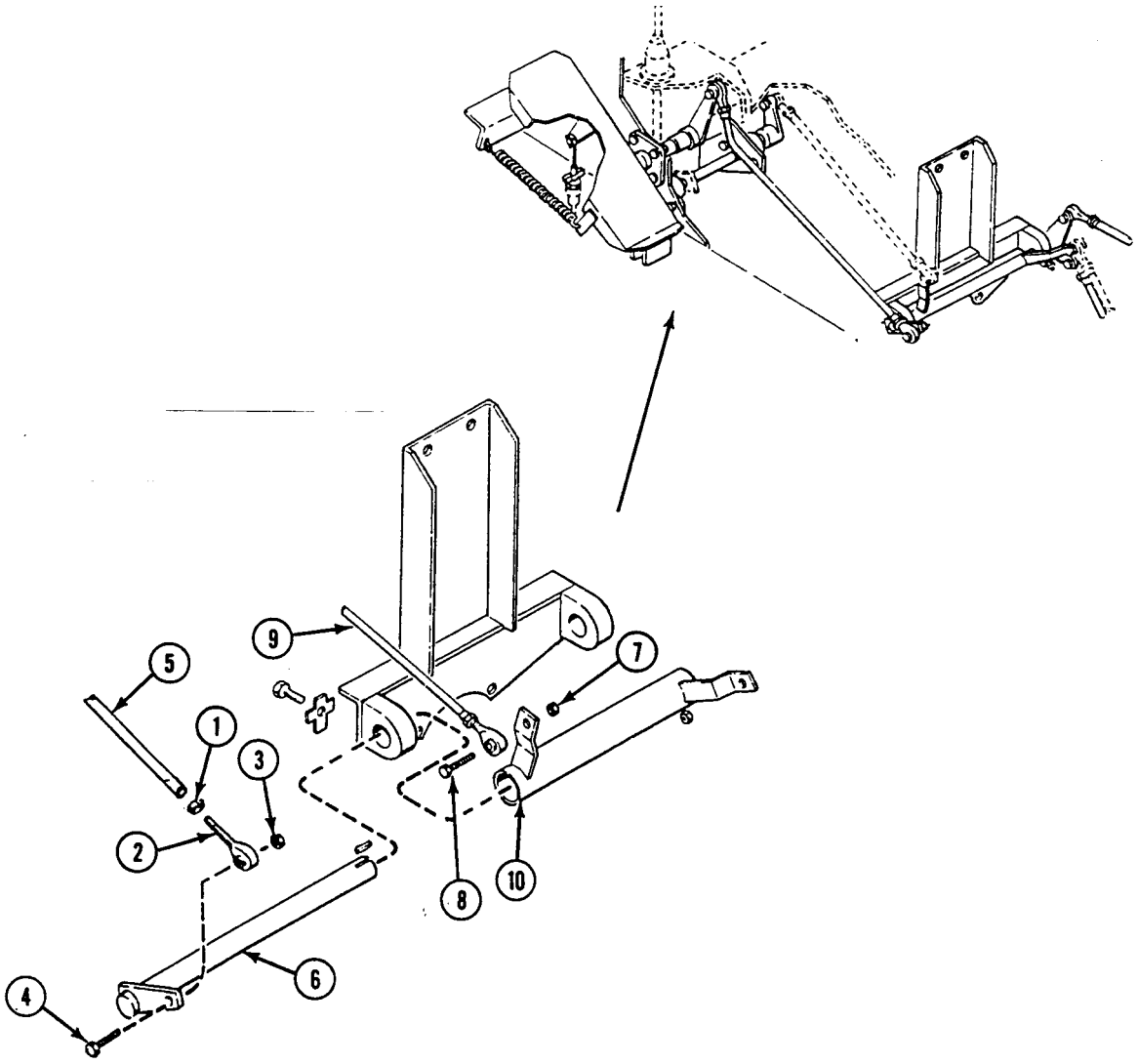
References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Center seat raised (see your -10)
Power plant rear access door removed (see your -10)
Differential oil filter removed (WP 0337 00)
Left center seat floor plate raised (WP 0391 00)

REPLACE THROTTLE PEDAL LINKAGE (M548A1) — Continued 0197 00

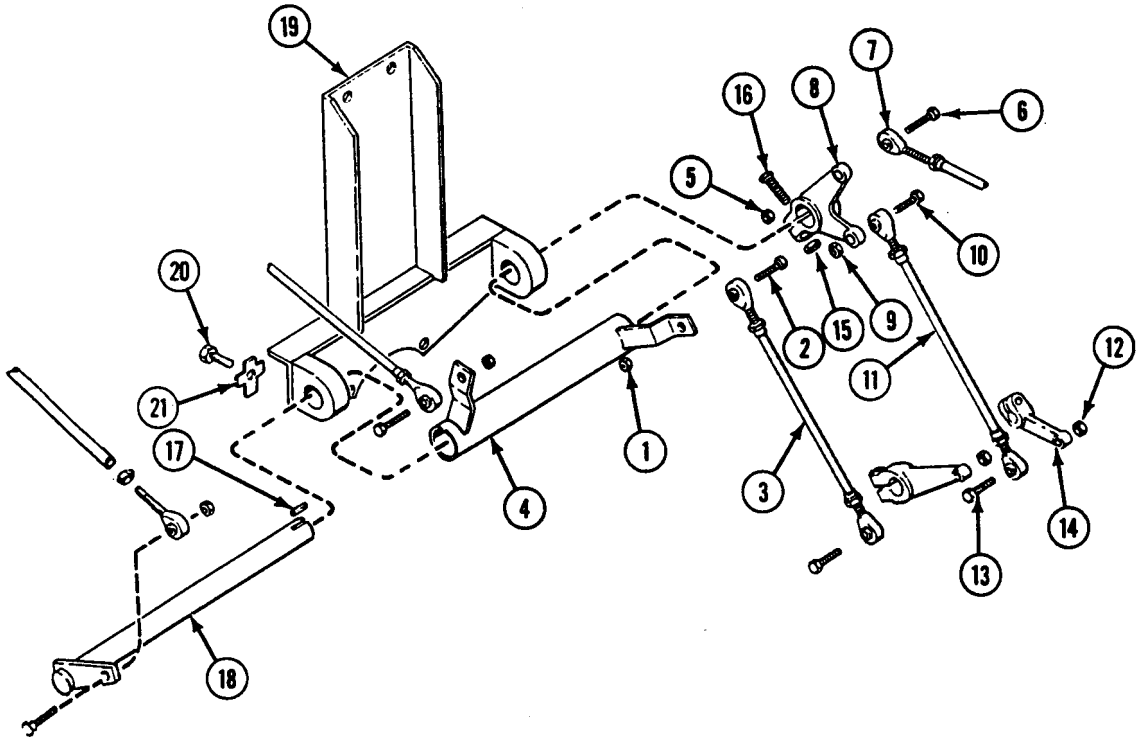
REMOVAL

1. Loosen jam nut (1) on bearing (2).
2. Remove lock nut (3) from screw (4). Discard lock nut.
3. Remove throttle pedal link (5), jam nut (1), and bearing (2) from inner cross shaft (6). Remove bearing and jam nut from throttle pedal link.
4. Remove lock nut (7) from screw (8). Remove range selector control link (9) from outer cross shaft (10). Discard lock nut.



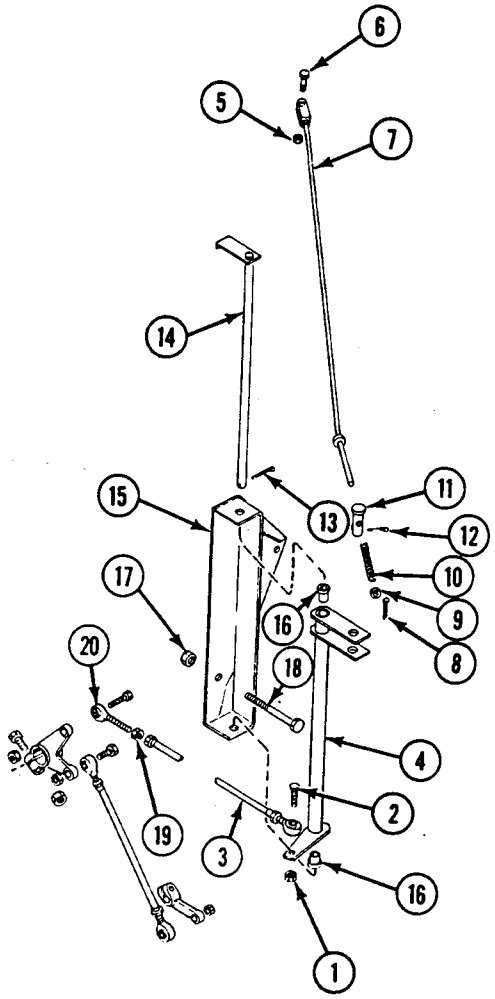
REPLACE THROTTLE PEDAL LINKAGE (M548A1) — Continued 0197 00

5. Remove lock nut (1) from screw (2). Remove range selector link (3) from outer cross shaft (4). Discard lock nut.
6. Remove lock nut (5) from screw (6). Remove throttle control link bearing (7) from bellcrank (8). Discard lock nut.
7. Remove lock nut (9) from screw (10). Separate bellcrank (8) from transmission throttle link (11). Discard lock nut.
8. Remove lock nut (12) from screw (13) Separate transmission throttle link (11) from transmission throttle valve arm (14). Discard lock nut.
9. Remove lock nut (15) from screw (16). Discard lock nut.
10. Remove bellcrank (8) and key (17) from inner cross shaft (18).
11. Remove inner cross shaft (18) from outer cross shaft (4) and cross shaft bracket (19).
12. Remove two screws (20) and key washers (21) from cross shaft bracket (19). Remove cross shaft bracket from transmission.



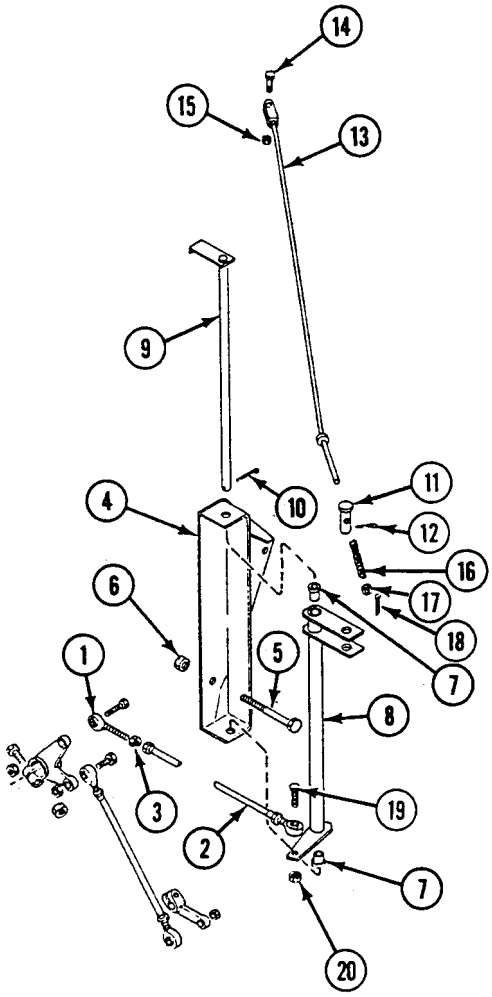
REPLACE THROTTLE PEDAL LINKAGE (M548A1) — Continued 0197 00

13. Remove lock nut (1) from screw (2). Remove throttle control link (3) from transfer shaft (4). Discard lock nut.
14. Remove lock nut (5) and screw (6) from governor control link (7). Remove governor control link from governor arm. Discard lock nut.
15. Remove cotter pin (8) from governor control link (7). Remove washer (9) and spring (10). Discard cotter pin.
16. Remove governor control link (7) from pin (11). Remove cotter pin (12) from pin. Remove pin from transfer shaft (4). Discard cotter pin.
17. Remove cotter pin (13) from pivot rod (14). Discard cotter pin.
18. Remove pivot rod (14) from transfer shaft (4).
19. Remove transfer shaft (4) from control bracket (15).
20. Remove two bearings (16) from transfer shaft (4).
21. Remove two lock nuts (17) and three screws (18) securing control bracket (15) to power plant. Discard lock nuts.
22. Remove engine fuel return elbow from control bracket (15) (WP 0167 00).
23. Loosen jam nut (19) from bearing (20). Remove bearing from throttle control link (3).



INSTALLATION

1. Install bearing (1) in throttle control link (2). Secure with jam nut (3).
2. Install control bracket (4) on power plant. Secure with three screws (5) and two new lock nuts (6).
3. Install engine fuel return elbow in control bracket (4) (WP 0167 00).
4. Install two bearings (7) in transfer shaft (8).
5. Install transfer shaft (8) in control bracket (4).
6. Install pivot rod (9) through transfer shaft (8). Secure with new cotter pin (10).
7. Install pin (11) in transfer shaft (8). Secure with new cotter pin (12).
8. Install governor control link (13) through pin (11). Secure link to governor arm with screw (14) and new lock nut (15).
9. Install spring (16) and washer (17) on governor control link (13). Secure with new cotter pin (18).
10. Install throttle control link (2) on transfer shaft (8). Secure with screw (19) and new lock nut (20).



11. Place cross shaft bracket (1) on transmission with holes aligned. Secure bracket to transmission with two key washers (2) and screws (3).

NOTE

If bearings are to be replaced in cross shaft bracket, notify your supervisor. These bearings require reaming after installation.

12. Install outer cross shaft (4) in cross shaft bracket (1).

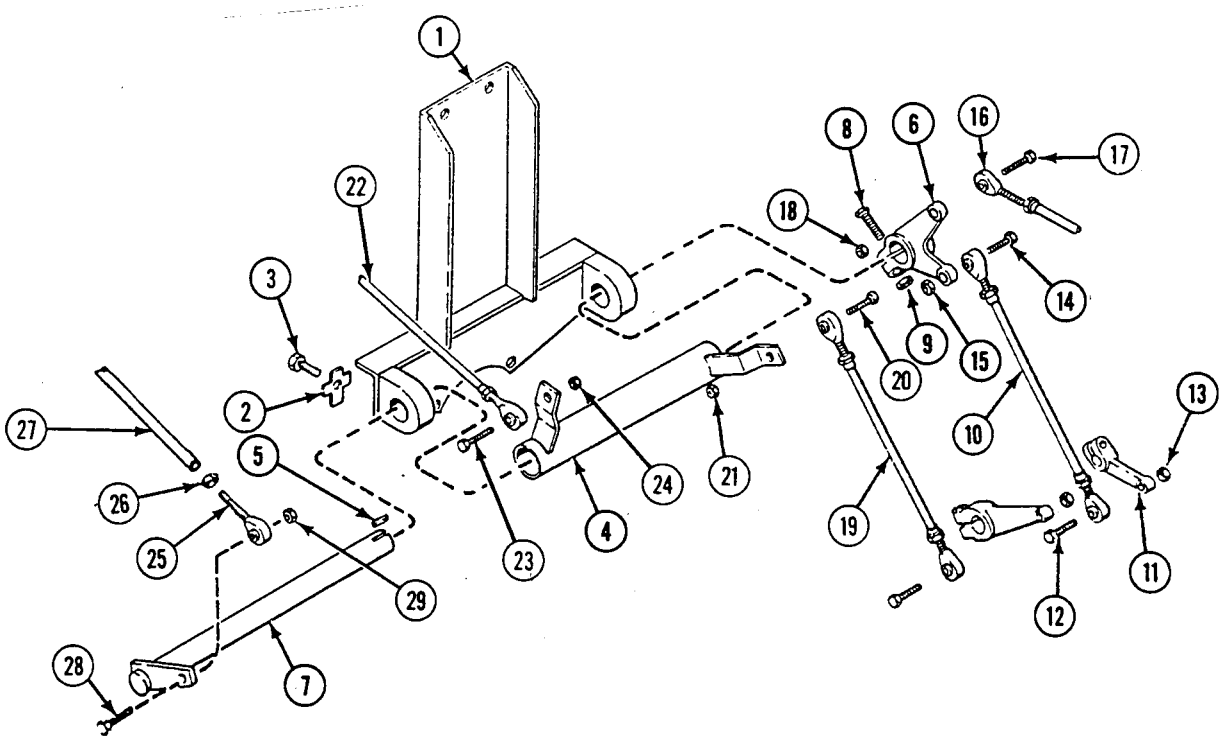
13. Install key (5) and bellcrank (6) on inner cross shaft (7).

14. Install screw (8) in bellcrank (6). Secure with new lock nut (9).

15. Install transmission throttle link (10) on transmission throttle valve arm (11). Secure with screw (12) and new lock nut (13).

16. Install transmission throttle link (10) on bellcrank (6). Secure with screw (14) and new lock nut (15).

17. Install throttle control link bearing (16) on bellcrank (6). Secure with screw (17) and new lock nut (18).



18. Install range selector link (19) on outer cross shaft (4). Secure with screw (20) and new lock nut (21).

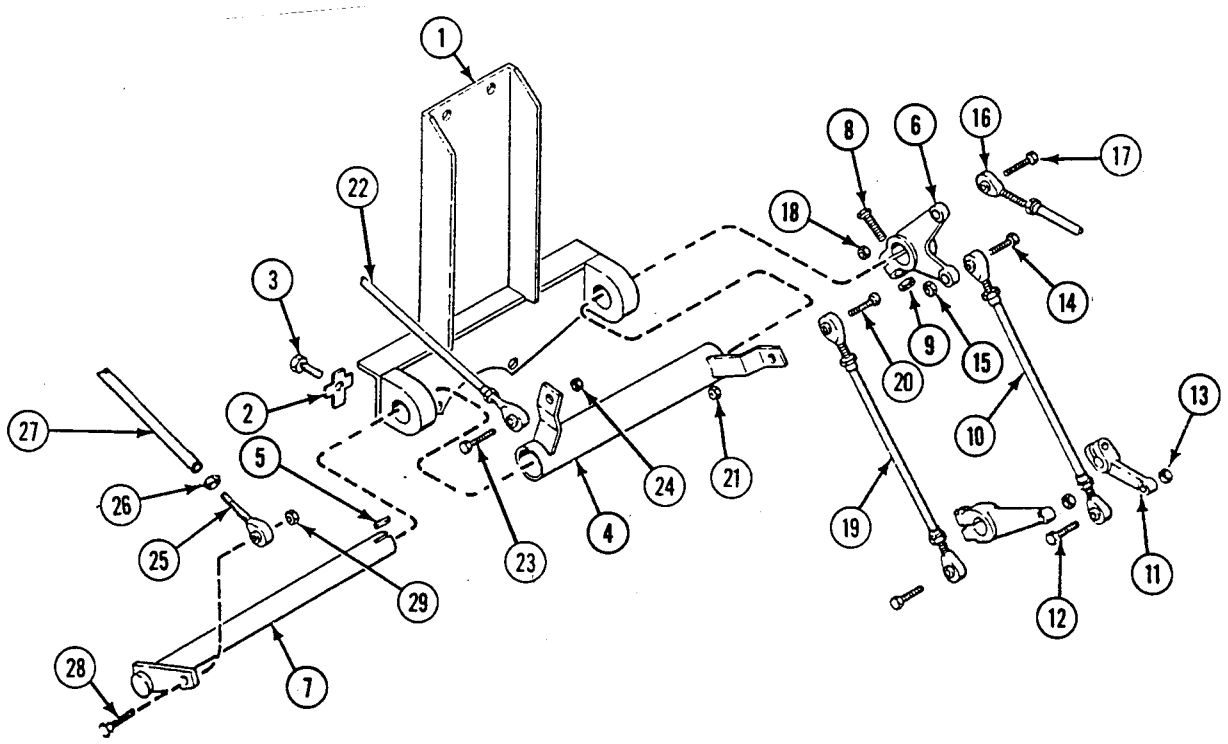
19. Install range selector control link (22) on outer cross shaft (4). Secure with screw (23) and new lock nut (24).

20. Install bearing (25) and jam nut (26) on throttle pedal link (27). Secure with jam nut.

21. Lubricate inner cross shaft (7) with grease before installing throttle pedal link (27) and bearing (25).

22. Install throttle pedal link (27) and bearing (25) on inner cross shaft (7).

23. Secure throttle pedal link (27) to inner cross shaft (7) with screw (28) and new lock nut (29).



24. Adjust engine governor throttle arm (WP 0198 00).
25. Adjust throttle pedal to full throttle and idle positions (WP 0199 00).

FOLLOW-THROUGH STEPS

1. Install differential oil filter element (WP 0337 00).
2. Start engine (see your -10).
3. Check throttle pedal linkage for proper operation, if not properly adjusted do Steps 24 - 25.
4. Stop engine (see your -10).
5. Lower left center seat floor plate (WP 0394 00).
6. Lower center seat (see your -10).
7. Install power plant rear access door (see your -10).

END OF TASK

ADJUST ENGINE GOVERNOR THROTTLE ARM (M548A1) 0198 00

THIS WORK PACKAGE COVERS:

Adjustment (page 0198 00-2).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts
Lock nut

Personnel Required
Unit Mechanic

References
See your -10

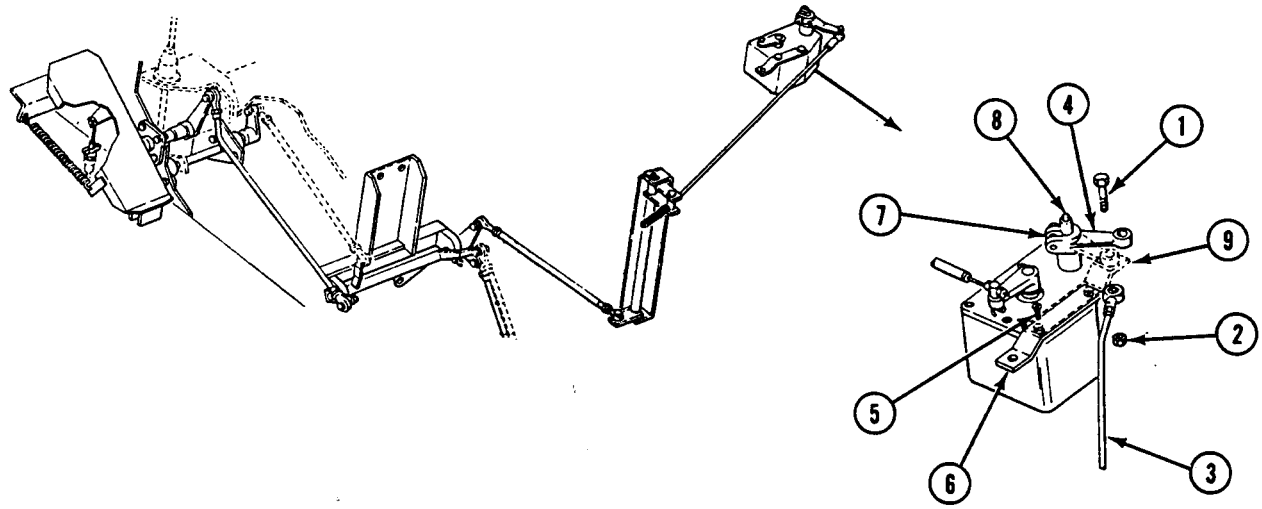
Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Center seat raised (see your -10)
Left center seat floor plate raised (WP 0394 00)

ADJUSTMENT

NOTE

Before adjusting throttle and governor throttle arm linkage, have direct support maintenance personnel set engine governor. Idle speed should be 550 to 600 rpm at engine no-load governed speed.

1. Adjust engine governor throttle arm as follows:
   a. Remove screw (1) and lock nut (2) from transfer throttle link (3). Remove link from governor throttle arm (4). Discard lock nut.
   b. Remove two screws (5) securing gauge (6) in stowed position.
   c. Remove gauge (6) and turn end-for-end. Secure with two screws (5).
   d. Loosen clamping screw (7) on governor throttle arm (4). Turn shaft (8) to the right against full throttle stop (9) in governor housing.
   e. Align governor throttle arm (4) and gauge (6). Secure with screw (1) while shaft (8) is held against full throttle stop (9) in governor housing.
   f. Tighten clamping screw (7) to secure governor throttle arm (4).
   g. Remove screw (1) from governor throttle arm (4) and gauge (6).
   h. Remove two screws (5) from gauge (6). Turn gauge end-for-end to stowed position. Secure gauge in stowed position with two screws.
   i. Align governor throttle arm (4) and transfer throttle link (3). Secure with new lock nut (2) and screw (1).



FOLLOW-THROUGH STEPS

1. Start engine (see your -10).
2. Check engine governor throttle arm for proper operation.
3. Stop engine (see your -10).
4. Lower left center seat floor plate (WP 0394 00).
5. Lower center seat (see your -10).

END OF TASK

ADJUST THROTTLE PEDAL TO FULL THROTTLE AND IDLE POSITIONS (M548A1) 0199 00

THIS WORK PACKAGE COVERS:

Adjustment (page 0199 00-1).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts
Lock nut (2)

Personnel Required
Unit Mechanic

References
See your -10

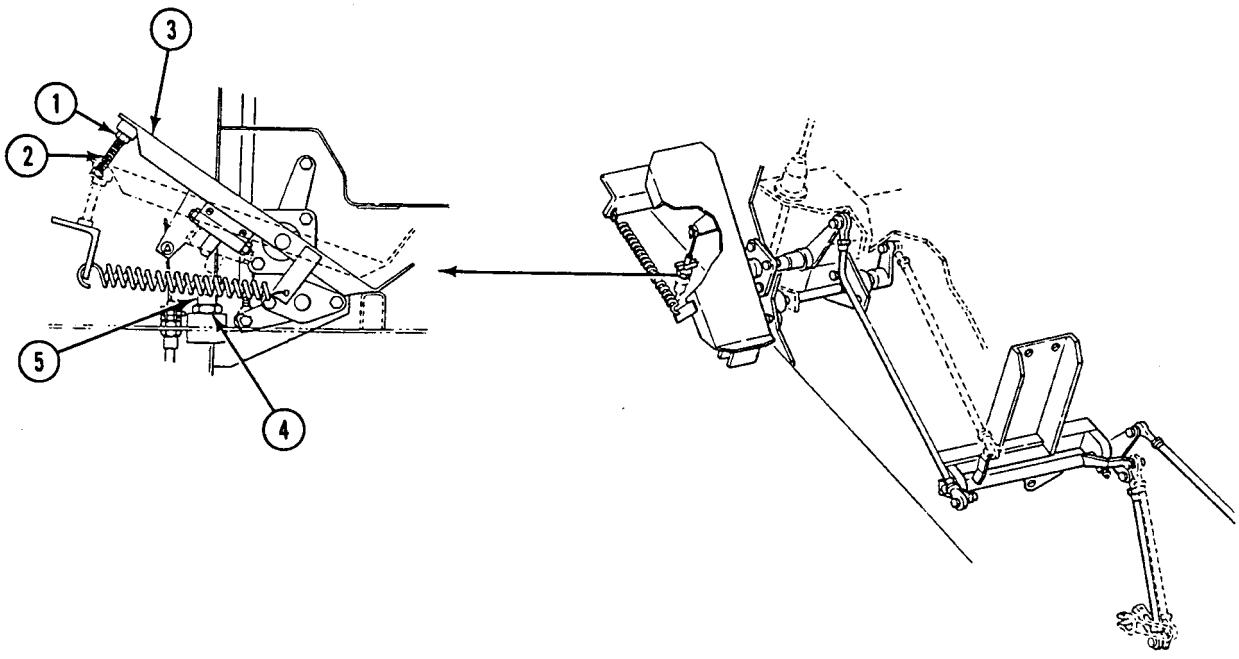
Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Governor throttle arm adjusted (WP 0198 00)
Center seat raised (see your -10)
Left center seat floor plate raised (WP 0394 00)

ADJUSTMENT

NOTE

Toe stop screw (2) may be mounted on hull or accelerator pedal. Loosen and adjust screw the same way in either location.

1. Adjust throttle pedal to full throttle and idle positions as follows:
   a. Loosen jam nut (1) on toe stop screw (2). Turn toe stop screw (2) in to allow free movement of throttle pedal (3).
   b. Loosen jam nut (4) on detent stop screw (5). Turn detent stop screw (5) in to allow free movement of throttle pedal (3).



ADJUST THROTTLE PEDAL TO FULL THROTTLE AND IDLE POSITIONS (M548A1) — Continued **0199 00**

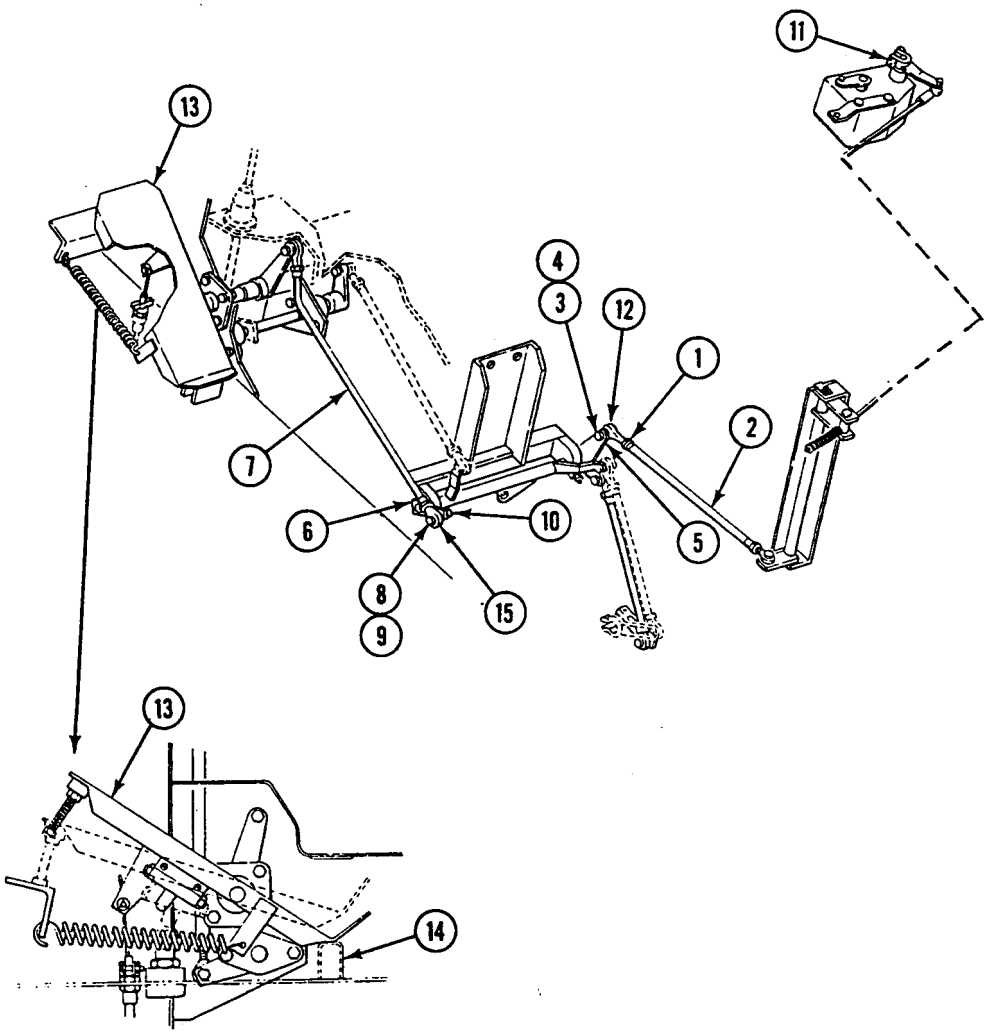
c. Loosen jam nut (1) on throttle control link (2).

d. Remove lock nut (3) and screw (4) from cross shaft bellcrank (5). Discard lock nut.

e. Loosen jam nut (6) on throttle pedal link (7).

f. Remove screw (8) and lock nut (9). Separate throttle pedal link (7) from cross shaft (10). Discard lock nut.

g. Hold governor throttle arm (11) and cross shaft bellcrank (5) in full throttle position. Align holes in throttle control link bearing (12) and cross shaft bellcrank (5) so screw (4) will pass through both freely. Shorten throttle control link (2) by turning throttle control link bearing (12) 11 turns. Secure jam nut (1).



ADJUST THROTTLE PEDAL TO FULL THROTTLE AND IDLE POSITIONS (M548A1) — Continued

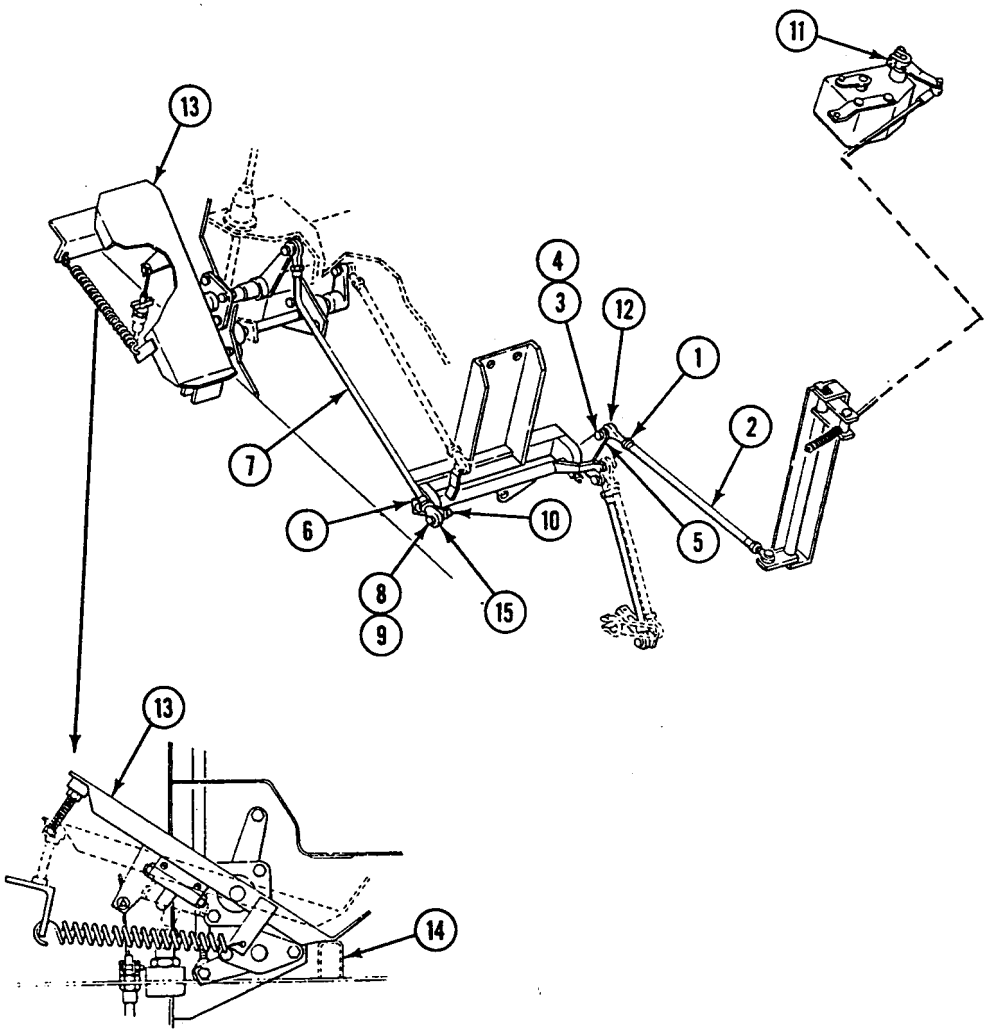
0199 00

h. Install screw (4) through throttle control link bearing (12) and cross shaft bellcrank (5). Secure with new lock nut (3).

i. Place governor throttle arm (11) in idle position and throttle pedal (13) against accelerator pedal heel stop (14).

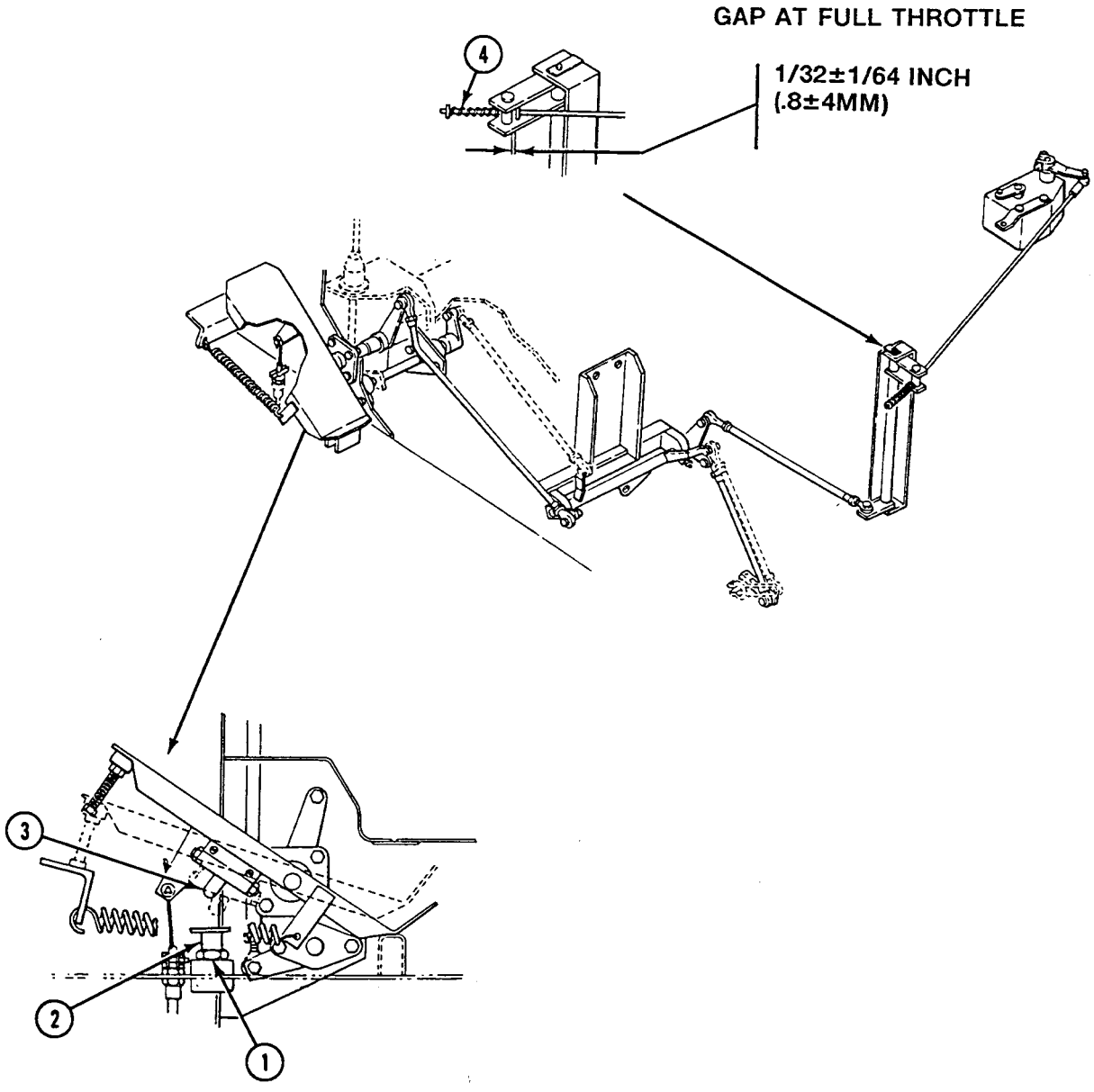
j. Align holes in throttle pedal link bearing (15) and cross shaft (10) so screw (8) will pass through both freely.

k. Turn throttle pedal link bearing (15) one full turn to lengthen throttle pedal link (7). Tighten jam nut (6) securely on throttle pedal link bearing (15). Install screw (8) through throttle pedal link (7) and cross shaft (10). Secure with new lock nut (9).



ADJUST THROTTLE PEDAL TO FULL THROTTLE AND IDLE POSITIONS (M548A1) — Continued **0199 00**

2. Adjust detent stop screws as follows:
   a. Loosen jam nut (1).
   b. At full throttle position, adjust detent stop screw (2) so detent plunger (3) will contact detent stop screw.
   c. At full throttle position, control link spring (4) will compress to 1/32 ± 1/64 inch (.8 ±.4 mm).
   d. Tighten jam nut (1).

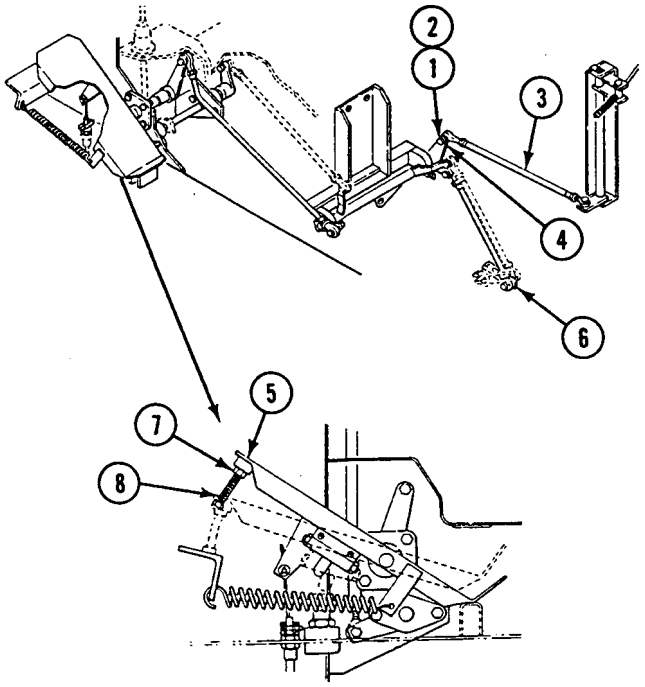


ADJUST THROTTLE PEDAL TO FULL THROTTLE AND IDLE POSITIONS (M548A1) — Continued **0199 00**

NOTE

Toe stop screw (2) may be mounted on hull or on throttle pedal. Adjust screw the same way in either location.

3. Adjust toe stop screw as follows:
   a. Remove jam nut (1) and toe stop screw (2) from throttle control link (3) and cross shaft bellcrank (4).
   b. Press throttle pedal (5) until transmission throttle arm (6) is in full throttle position. Loosen jam nut (7) and adjust stop screw (8) to 1/16 in (2 mm) gap between toe stop screw (8) and stop.
   c. Install throttle control link (3) on cross shaft bellcrank (4). Secure with toe stop screw (2) and jam nut (1).



ADJUST THROTTLE PEDAL TO FULL THROTTLE AND IDLE POSITIONS (M548A1) — Continued **0199 00**

NOTE

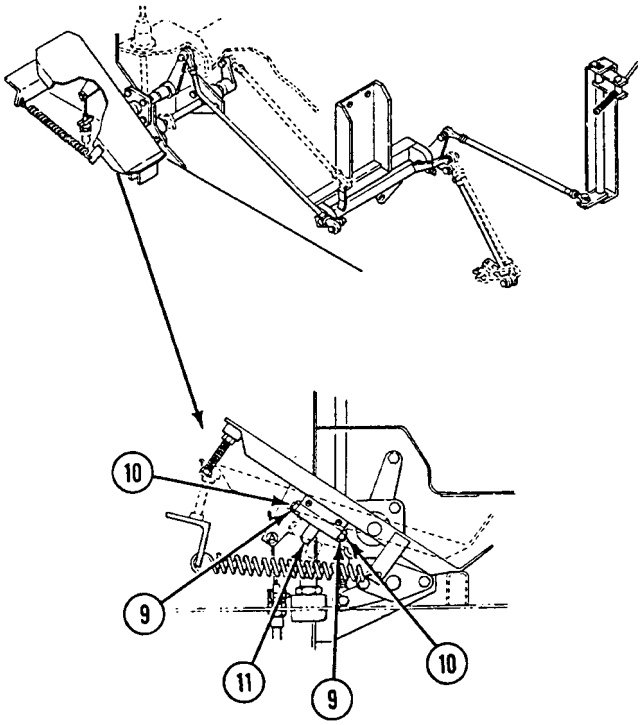
Adjustment is needed only after disassembly and assembly.

4. Adjust detent plunger as follows:

   a. Loosen two jam nuts (9) securing two detent adjusting screws (10).

   b. Turn two detent adjusting screws (10) right to increase pressure or left to decrease pressure. A force of 35 to 40 lb (16 to 18 kg) is needed to depress detent plunger (11).

   c. Secure two jam nuts (9) on two detent adjusting screws (10).



FOLLOW-THROUGH STEPS

1. Start engine (see your -10).
2. Check throttle pedal linkage for proper operation. If it fails to work properly, readjust.
3. Stop engine (see your -10).
4. Lower left center seat floor plate (WP 0394 00).
5. Lower center seat (see your -10).

END OF TASK

ADJUST ACCELERATOR LINKAGE (M548A3) 0200 00

THIS WORK PACKAGE COVERS:

Adjustment for idle (page 0200 00-2).
Adjustment for full throttle (page 0200 00-4).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts
Lock nut

Personnel Required
Unit Mechanic
Helper (H)

References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10
Center seat raised (see your -10)
Left center floor plate removed (WP 0395 00)
Bottom access cover removed (see your -10)
Power plant rear access panel removed (see your -10)

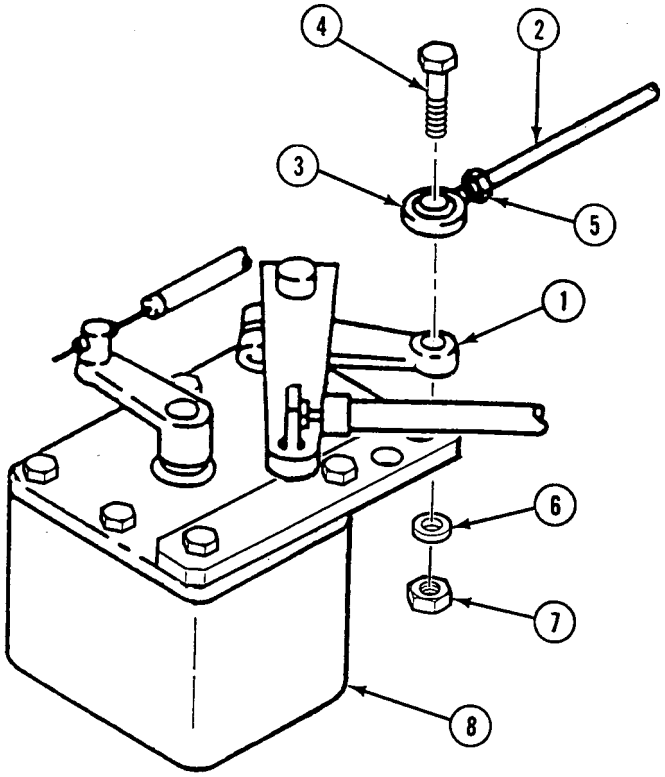
ADJUSTMENT

ADJUSTMENT FOR IDLE

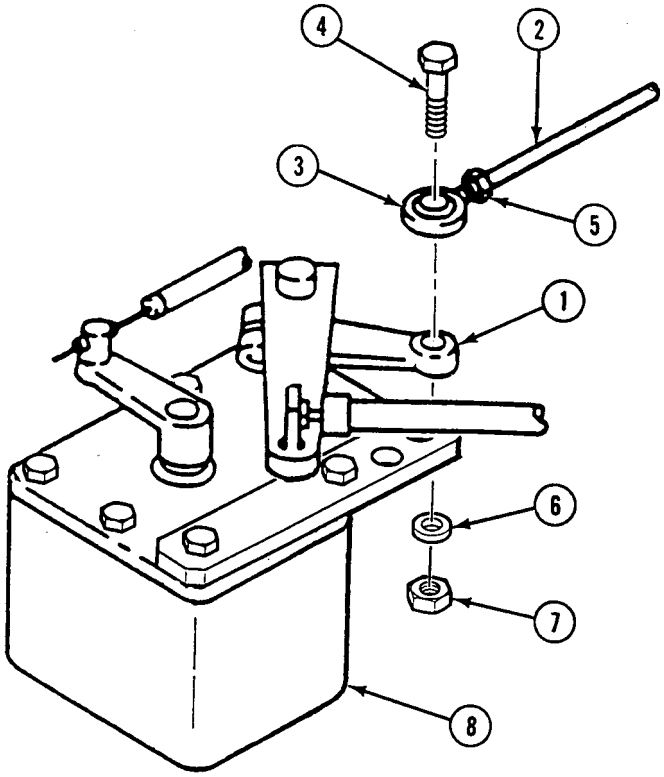
NOTE

Make sure all linkages are free moving and not binding. Make sure throttle pedal heel is touching the floor plate.

1. With throttle control lever (1) at idle position and accelerator pedal against heel stop, adjust connecting link (2), and rod end bearing (3) until screw (4) fits freely in throttle control lever (1) and rod end bearing.
2. Loosen jam nut (5) on connecting link (2).
3. Remove screw (4), washer (6), and lock nut (7) securing rod end bearing (3) to throttle control lever (1) on engine fuel governor (8). Discard lock nut.

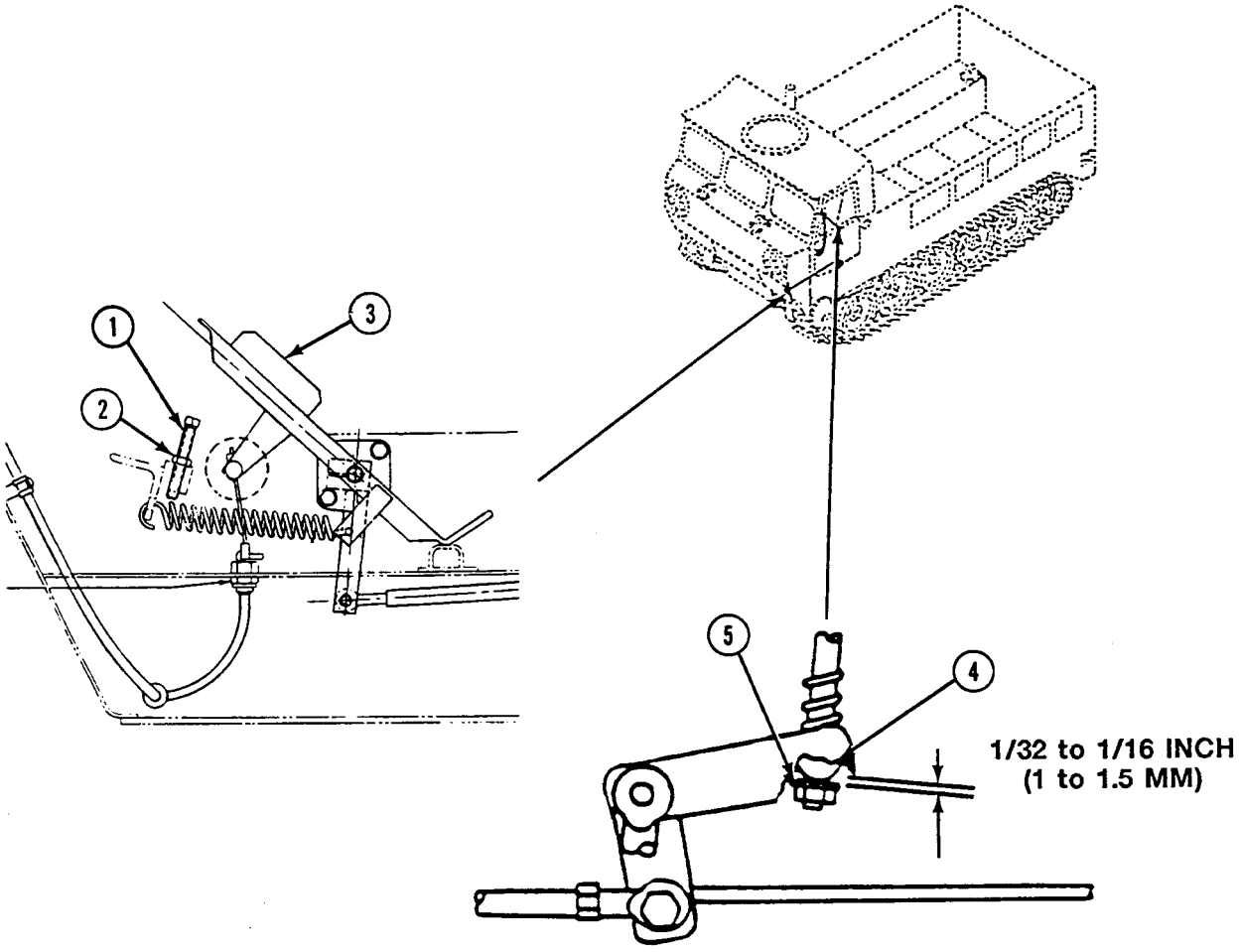


4. (H) Hold throttle pedal heel to stop. Check for free fit when installing screw (4) into rod end bearing (3) and throttle control lever (1). If there is any binding, turn rod bearing left to lengthen or right to shorten link, until screw fits freely.
5. Tighten jam nut (5) and check for free pin fit. If adjustment changed, loosen jam nut and tighten until adjustment is a free pin fit.
6. Secure rod end bearing (3) to throttle control lever (1) with screw (4), washer (6), and new lock nut (7).



ADJUSTMENT FOR FULL THROTTLE

1. Loosen pedal toe stop screw (1) and jam nut (2).
2. (H) Press accelerator pedal (3) until edge of connector pin (4) is 1/32 to 1/16 inch (1 to 1.5 mm) away from washer (5). Adjust pedal toe stop screw (1) and tighten jam nut (2).



FOLLOW-THROUGH STEPS

1. Start engine and check for proper idle and full power (see your -10).
2. Stop engine (see your -10).
3. Lower center seat (see your -10).
4. Install left center floor plate (WP 0395 00).
5. Install bottom access cover (see your -10).
6. Install power plant rear access panel (see your -10).

END OF TASK

REPLACE THROTTLE PEDAL CONTROL (M548A3) 0201 00

THIS WORK PACKAGE COVERS:

Removal (page 0201 00-1).
Installation (page 0201 00-3).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts
Cotter pin
Lock nut
Lock nut (4)

Personnel Required
Unit Mechanic

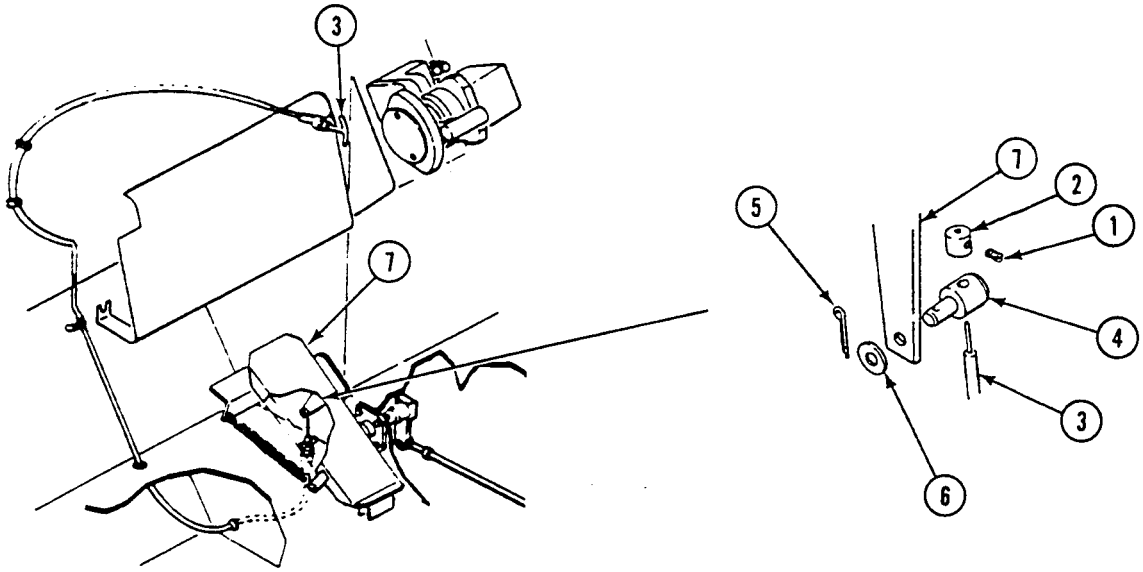
References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Both battery negative leads disconnected (WP 0292 00)
Left center floor plate removed (WP 0395 00)
Throttle floor plate removed (WP 0395 00)

REMOVAL

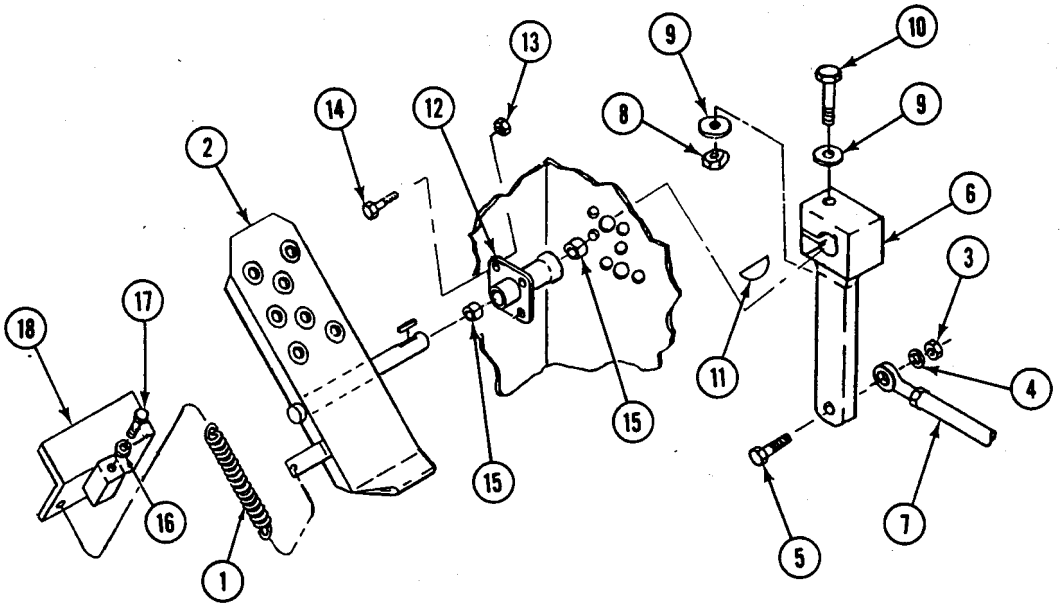
1. Loosen setscrew (1) from retainer collar (2). Remove hand throttle control cable (3) from link pin (4) and retainer collar (2).

2. Remove cotter pin (5), washer (6), and link pin (4) from throttle pedal (7). Discard cotter pin.



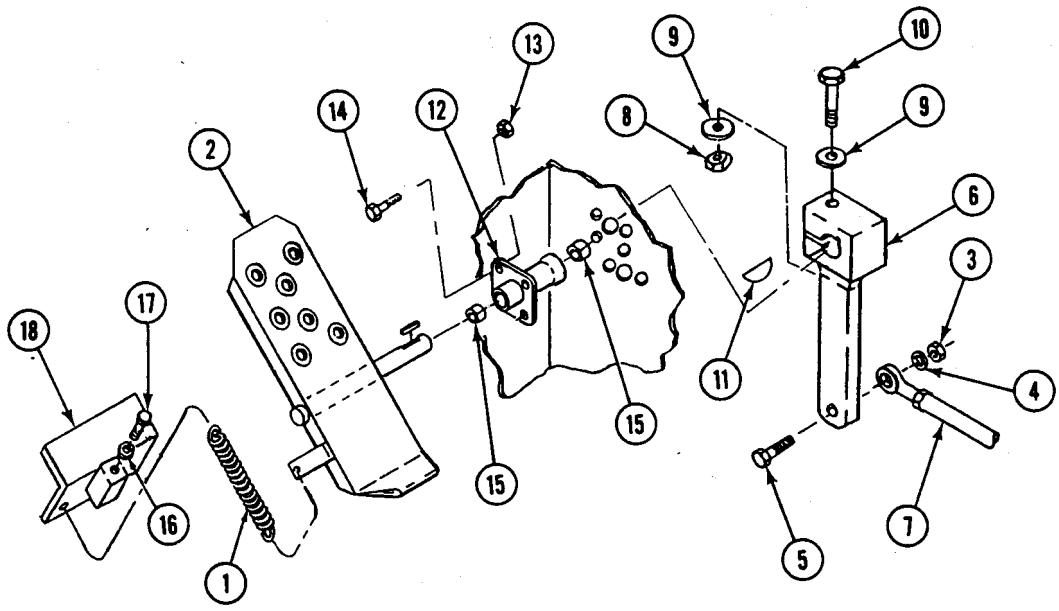
REPLACE THROTTLE PEDAL CONTROL (M548A3) — Continued 0201 00

3. Remove return spring (1) from throttle pedal (2).
4. Remove lock nut (3), washer (4), and screw (5) from connecting link (6) and control rod (7). Separate connecting link (6) from control rod (7). Discard lock nut.
5. Remove nut (8), two washers (9), screw (10), connecting link (6), and key (11) from throttle pedal (2).
6. Remove throttle pedal (2) from guide assembly (12).
7. Remove four lock nuts (13) and screws (14) from guide assembly (12). Remove guide assembly (12) from bulkhead. Remove two bearings (15) from guide assembly (12). Discard lock nuts.
8. Loosen toe stop jam nut (16). Remove toe stop screw (17) from toe stop (18).

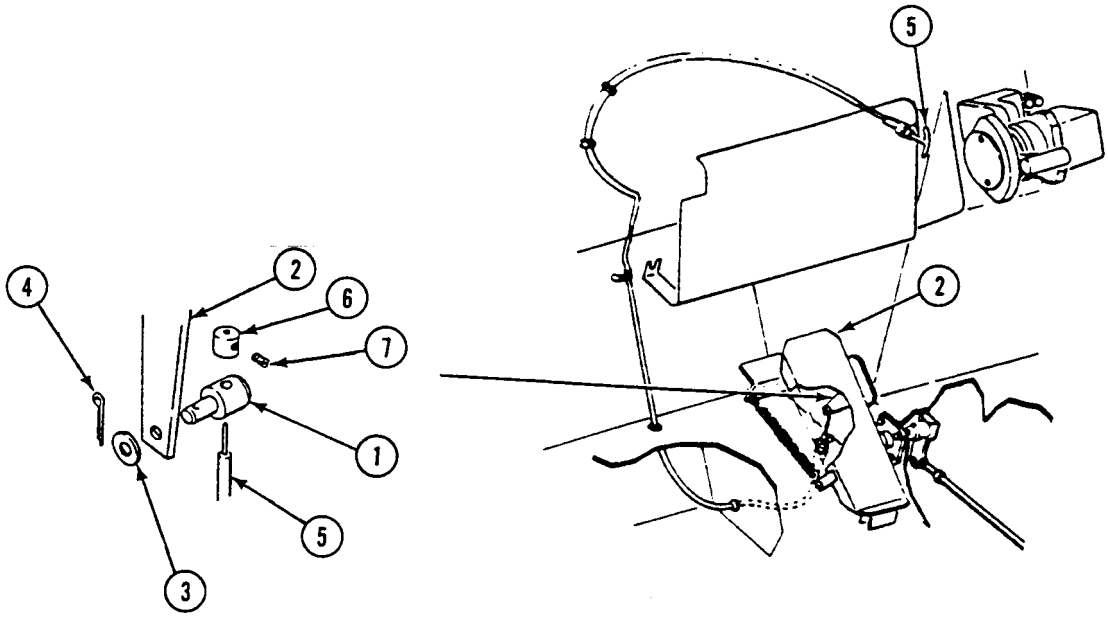


INSTALLATION

1. Install toe stop screw (17) in toe stop (18) Secure with toe stop jam nut (16).
2. Install two bearings (15) in guide (12). Secure guide (12) to bulkhead with four screws (14) and new lock nuts (13).
3. Install throttle pedal (2) in guide assembly (12).
4. Install key (11) and connecting link (6) on throttle pedal (2). Secure connecting link (6) to throttle pedal (2) with screw (10), two washers (9), and nut (8).
5. Install control rod (7) on connecting link (6). Secure with screw (5), washer (4), and new lock nut (3).
6. Install return spring (1) on throttle pedal (2).



7. Install link pin (1) in throttle pedal (2). Secure with washer (3) and new cotter pin (4).
8. Install hand throttle control cable (5) through link pin (1) and into retainer collar (6). Secure hand throttle control cable (5) in retainer collar (6) with setscrew (7).



FOLLOW-THROUGH STEPS

1. Connect both battery negative leads (WP 0292 00).
2. Adjust hand throttle (WP 0193 00).
3. Start engine. Check throttle pedal control and detent for proper operation (see your -10).
4. Install throttle floor plate (WP 0395 00)
5. Install left center floor plate (WP 0395 00).

END OF TASK

REPLACE FUEL CONTROL SHAFT AND LINKAGE (M548A3) 0202 00

THIS WORK PACKAGE COVERS:

Removal (page 0202 00-1).
Installation (page 0202 00-5).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts

Cotter pin
Lock nut
Lock nut
Lock nut (3)
Lock nut (6)
Lock washer (2)

Personnel Required

Unit Mechanic

References

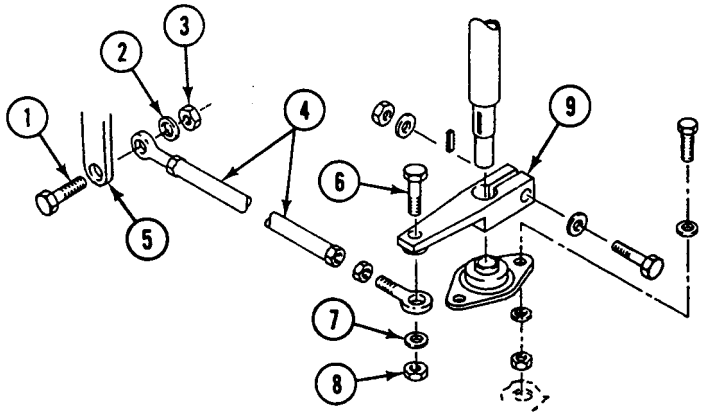
See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Center seat raised (see your -10)
Left center floor plate removed (WP 0395 00)
Top center access cover removed (see your -10)

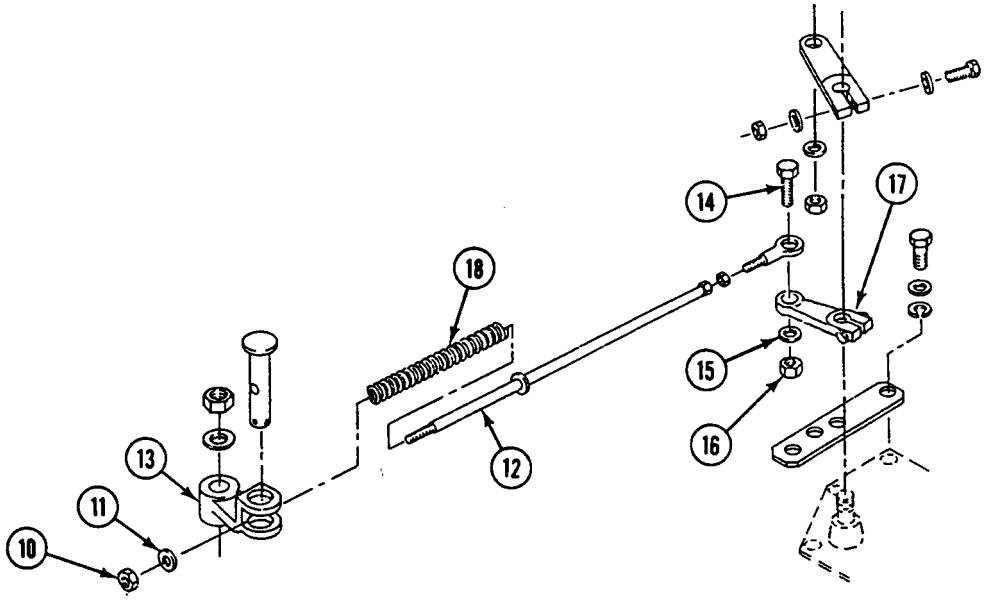
REMOVAL

1. Remove screw (1), washer (2), and lock nut (3) securing control rod (4) to throttle pedal link (5). Discard lock nut.
2. Remove screw (6), washer (7), and lock nut (8), securing control rod (4) to lower connecting link (9). Remove control rod from carrier. Discard lock nut.

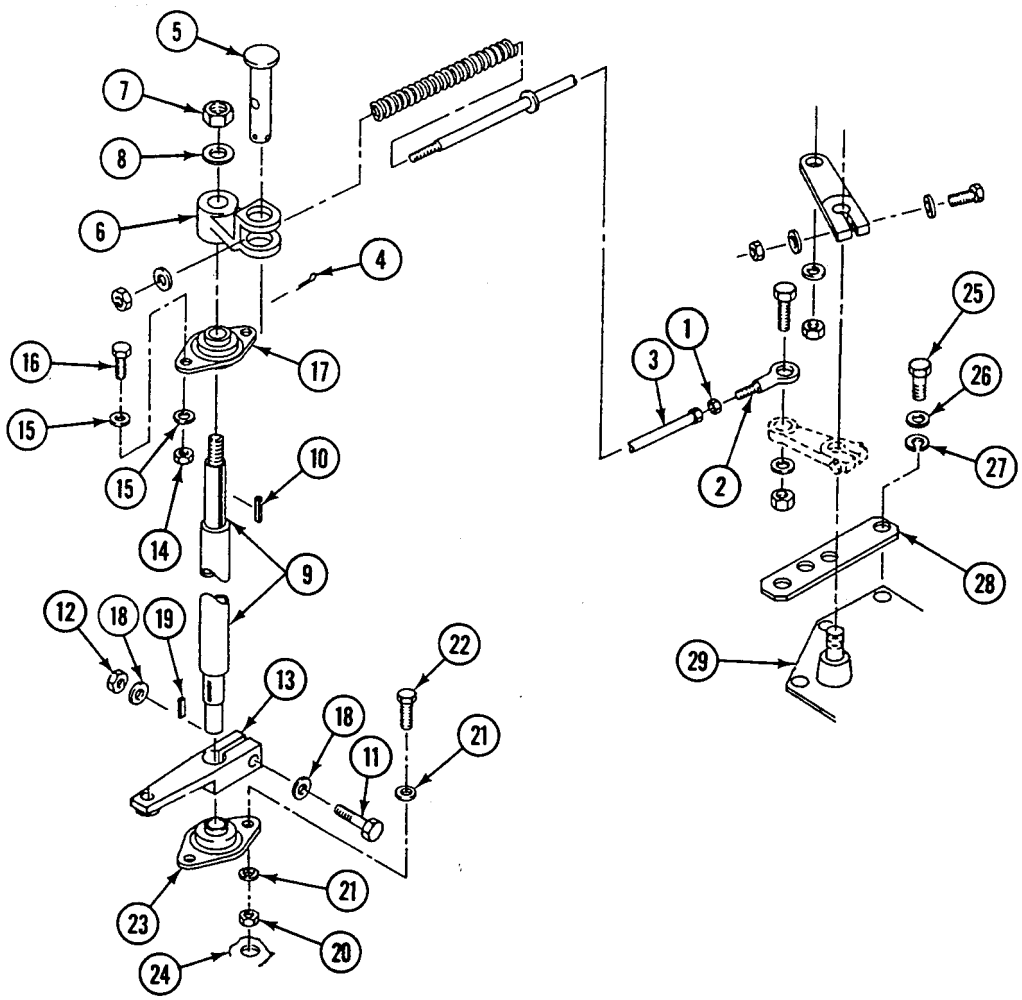


REPLACE FUEL CONTROL SHAFT AND LINKAGE (M548A3) — Continued 0202 00

3. Remove lock nut (10) and washer (11), securing connecting link (12) to upper connecting link (13). Discard lock nut.
4. Remove screw (14), washer (15), and lock nut (16), securing connecting link (12) to engine governor throttle shaft lever (17). Remove connecting link (12) with spring (18). Discard lock nut.

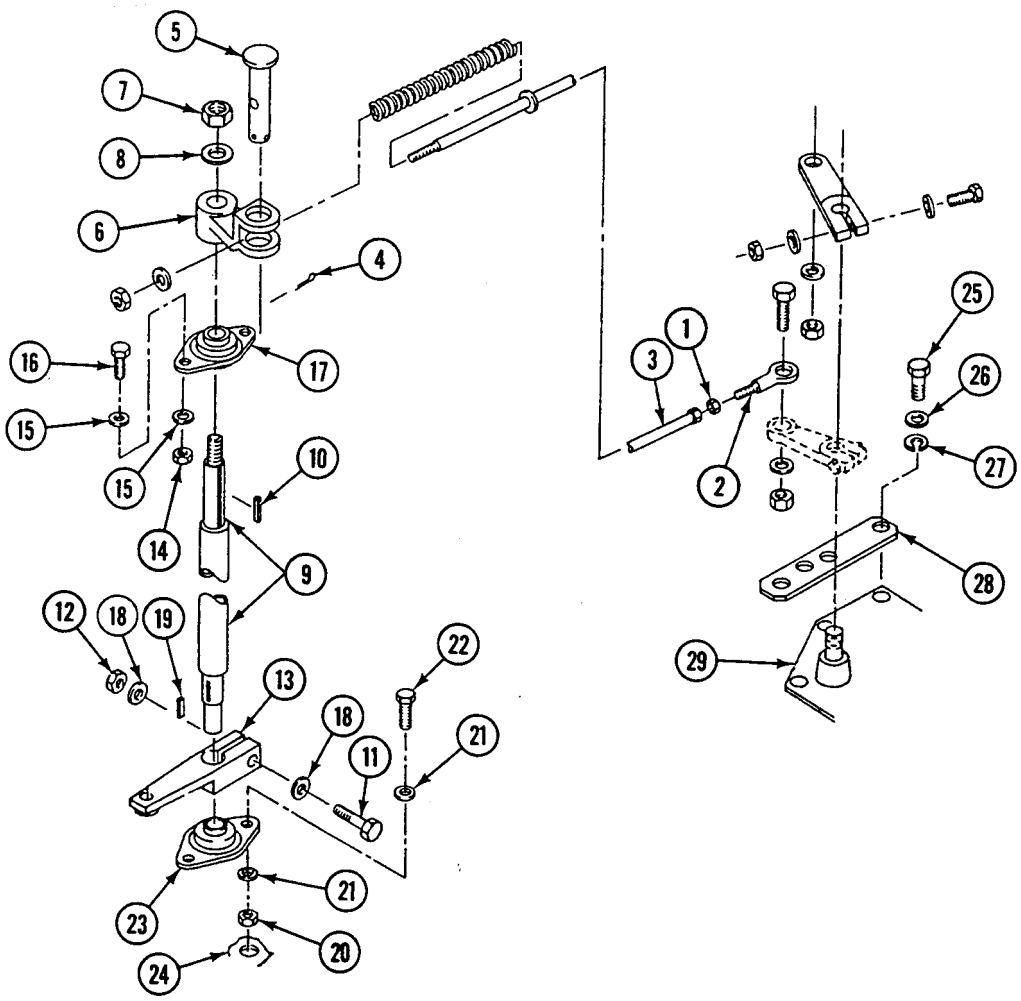


5. Loosen nut (1) and remove rod bearing (2) from connecting link (3).
6. Remove cotter pin (4) and headed pin (5) from upper connecting link (6), if damaged or worn out. Discard cotter pin.
7. Remove lock nut (7) and washer (8) securing upper connecting link (6) to shouldered shaft (9). Remove connecting link (6) and machine key (10) from shouldered shaft (9). Discard lock nut.
8. Loosen screw (11) and lock nut (12), securing lower connecting link (13) to shouldered shaft (9).
9. Remove two lock nuts (14), four washers (15), and two screws (16), securing upper sleeve bearing (17) to upper bracket. Remove upper sleeve bearing (17) from upper bracket and off shouldered shaft (9). Discard lock nuts.



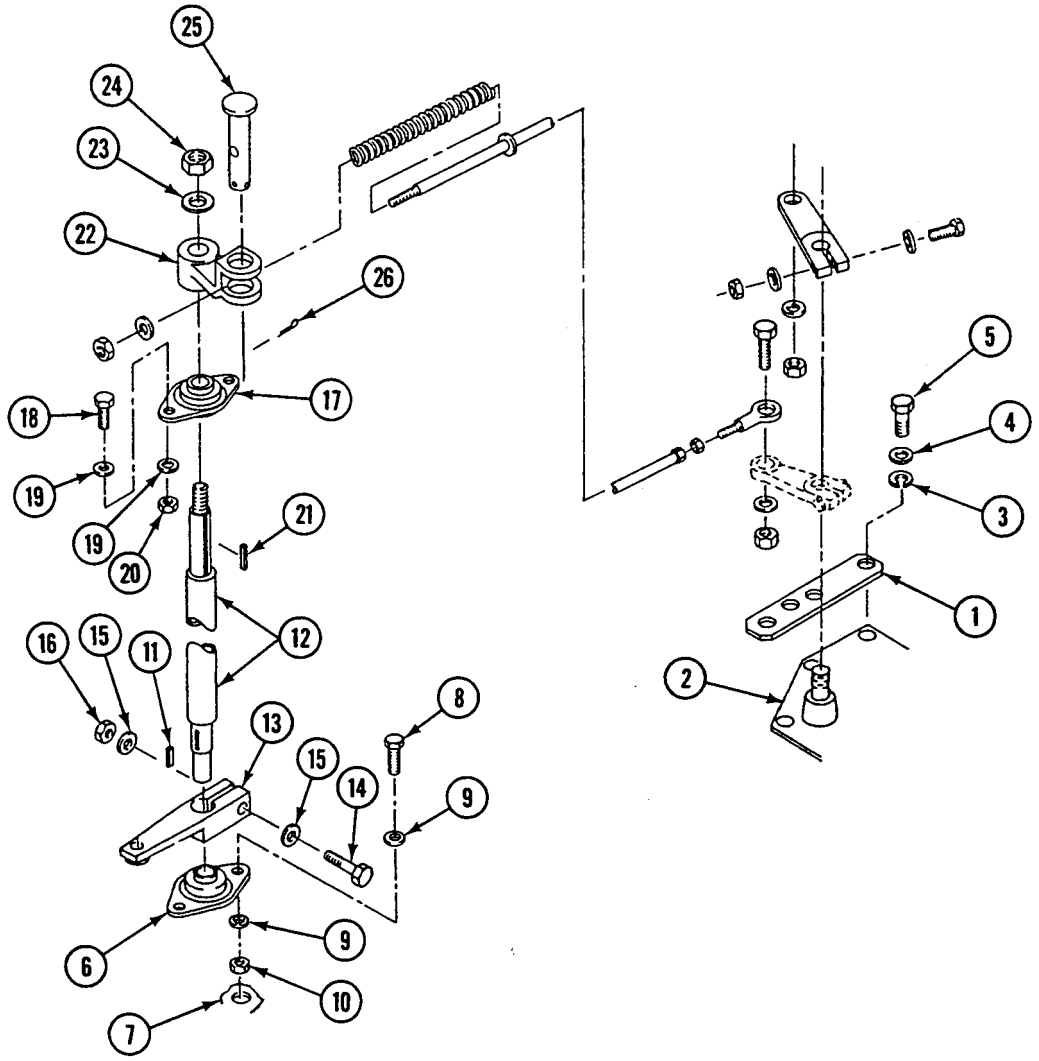
REPLACE FUEL CONTROL SHAFT AND LINKAGE (M548A3) — Continued 0202 00

10. Remove lock nut (12), two washers (18), and screw (11) securing lower connecting link (13) to shouldered shaft (9).
11. Lift shouldered shaft (9) up through upper bracket. Remove shouldered shaft (9) and lower connecting link (13). Remove machine key (19) from the lower end of the shouldered shaft (9).
12. Remove two lock nuts (20), four washers (21), and two screws (22), securing lower sleeve bearing (23) to lower bracket (24). Remove sleeve bearing (23) from lower bracket. Discard lock nuts.
13. Remove two screws (25), washers (26), and lock washers (27) that secure fixed gauge (28) to fuel governor housing (29). Remove fixed gauge and discard lock washers.

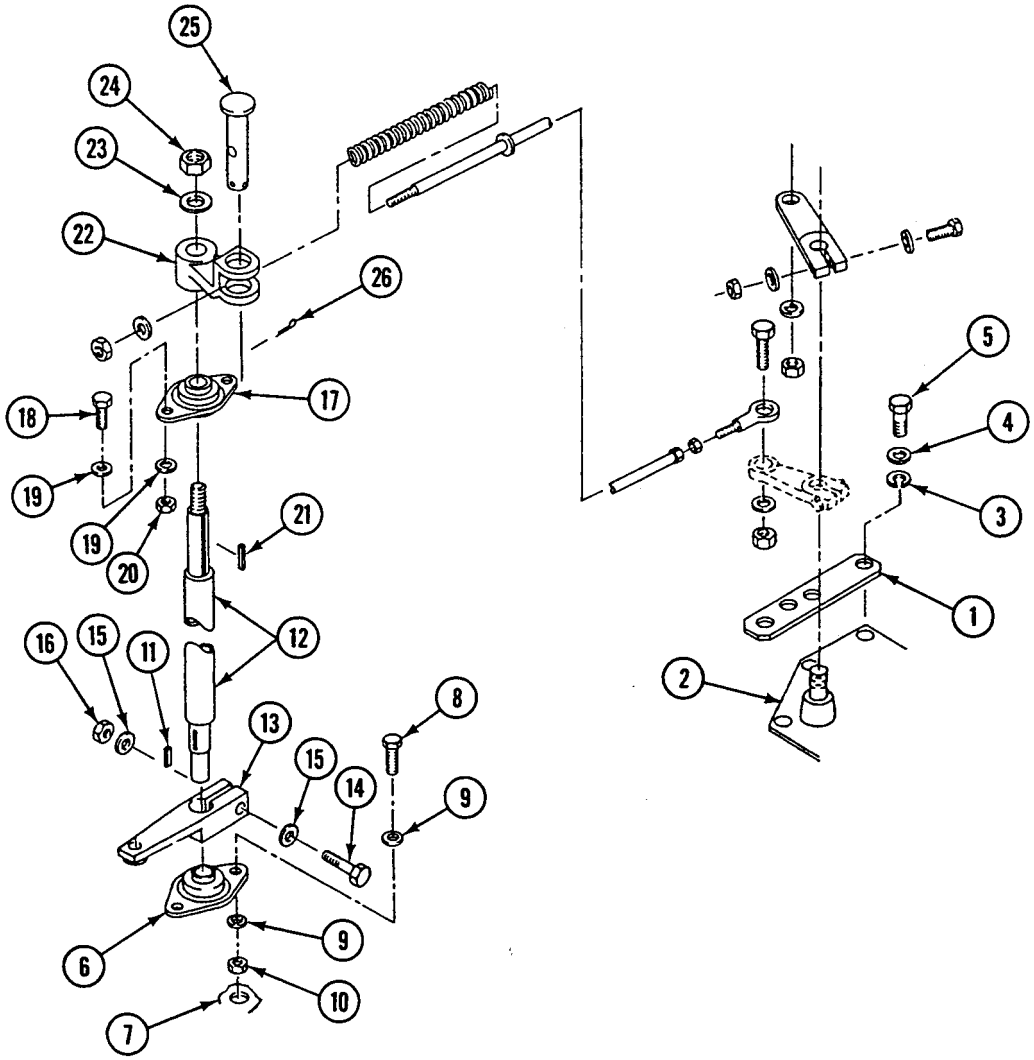


INSTALLATION

1. Install fixed gauge (1) on fuel governor housing (2). Secure with two new lock washers (3), washers (4) and screws (5).
2. Place sleeve bearing (6) under lower bracket (7). Secure with two screws (8), four washers (9), and two new lock nuts (10).
3. Install machine key (11) on the end of shouldered shaft (12) without threads.
4. Install shouldered shaft (12) with key through top bracket and slide lower connecting link (13) on the bottom of shouldered shaft (12). Slide shouldered shaft end with lower connecting link into lower sleeve bearing (6).



5. Secure lower connecting link (13) to shouldered shaft (12) with screw (14), two washers (15), and new lock nut (16).
6. Place upper sleeve bearing (17) over shouldered shaft (12) and secure to the upper bracket with two screws (18), four washers (19), and two new lock nuts (20).
7. Install machine key (21) into shaft (12) and place upper connecting link (22) on shouldered shaft (12). Secure upper connecting link (22) to shouldered shaft with washer (23) and new lock nut (24).
8. Install headed pin (25) into upper connecting link (22) and secure with a new cotter pin (26), if removed.

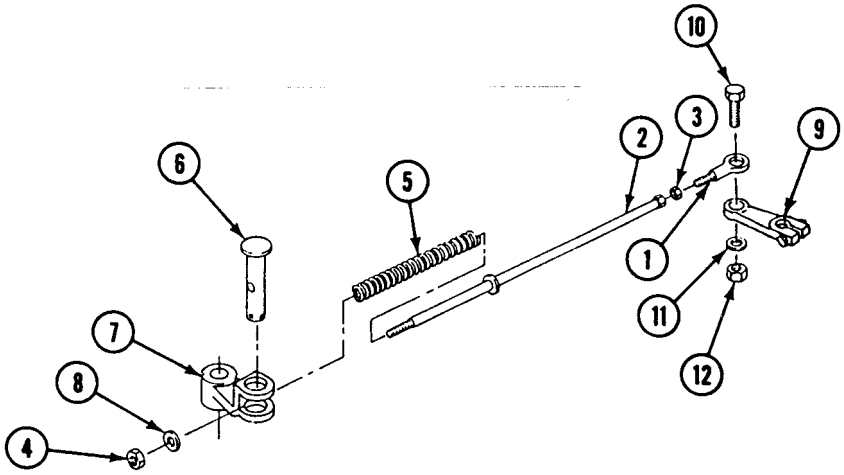


9. Install rod bearing (1) on connecting link (2) with at least half of its threads engaged and tighten nut (3) against connecting link (2).

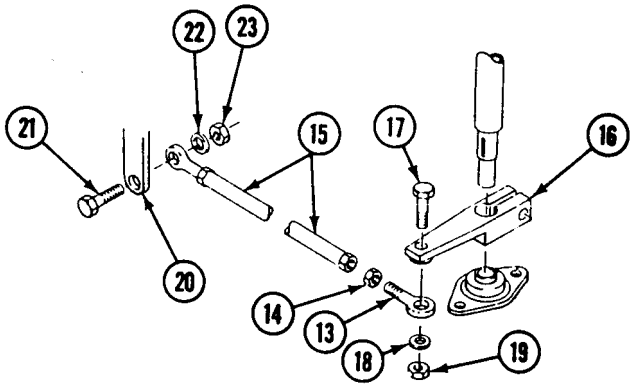
NOTE

Do not tighten new lock nut (4) on connecting link (2) end with spring. Just make sure it is engaged on the threads so it will not fall off.

10. Install spring (5) on connecting link (2). Place threaded end with spring into headed pin (6) on upper connecting link (7). Secure with washer (8) and new lock nut (4).
11. Install rod bearing on connecting link (2) on top of engine governor throttle shaft lever (9). Secure with screw (10), washer (11), and new lock nut (12).



12. Install rod bearing (13) with nut (14) on control rod (15). Engage half of the threads and tighten nut (14) against control rod (15).
13. Install control rod (15) with the rod bearing under the lower connecting link (16). Secure with screw (17), washer (18), and new lock nut (19).
14. Install control rod (15) on throttle pedal link (20). Secure with screw (21), washer (22), and new lock nut (23).



FOLLOW-THROUGH STEPS

1. Adjust accelerator linkage (WP 0200 00).
2. Start engine and check full throttle and rpm (see your -10).
3. Install left center floor plate (WP 0395 00).
4. Lower center seat (see your -10).
5. Install top center access cover (see your -10).
6. Road test carrier (WP 0128 00).

END OF TASK

REPLACE THROTTLE VALVE MODULATOR AND LEVER (M548A3) 0203 00

THIS WORK PACKAGE COVERS:

Removal (page 0203 00-1).
Installation (page 0203 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts

Sealing compound (WP 0542 00, Item 36)
Lock nut
Lock nut
Preformed packing
Self-locking bolt

Personnel Required

Unit Mechanic

References

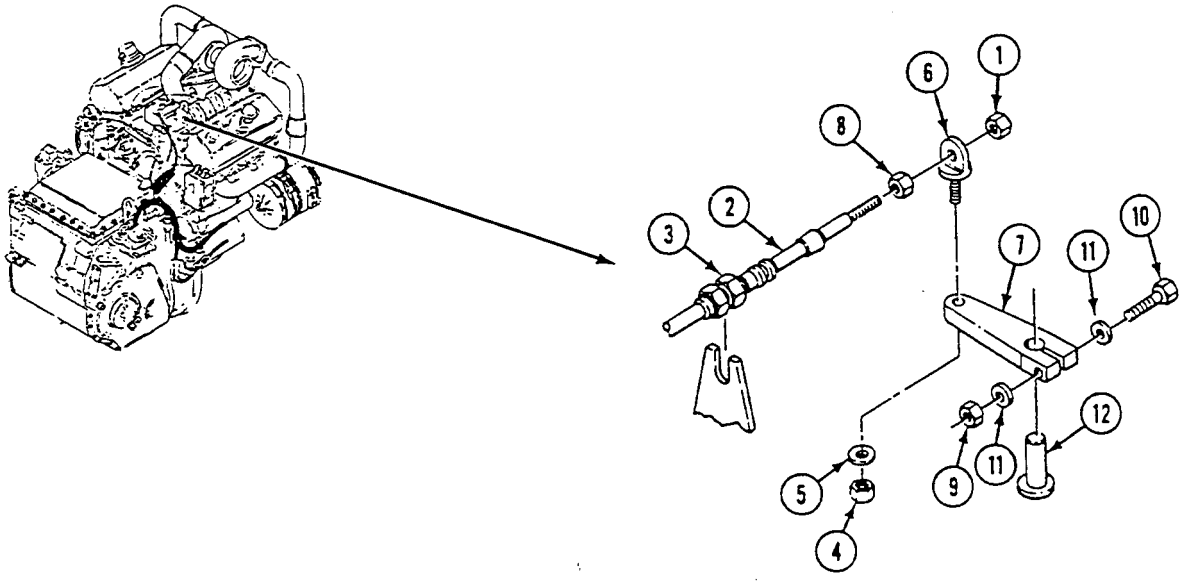
See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Center seat raised (see your -10)

REMOVAL

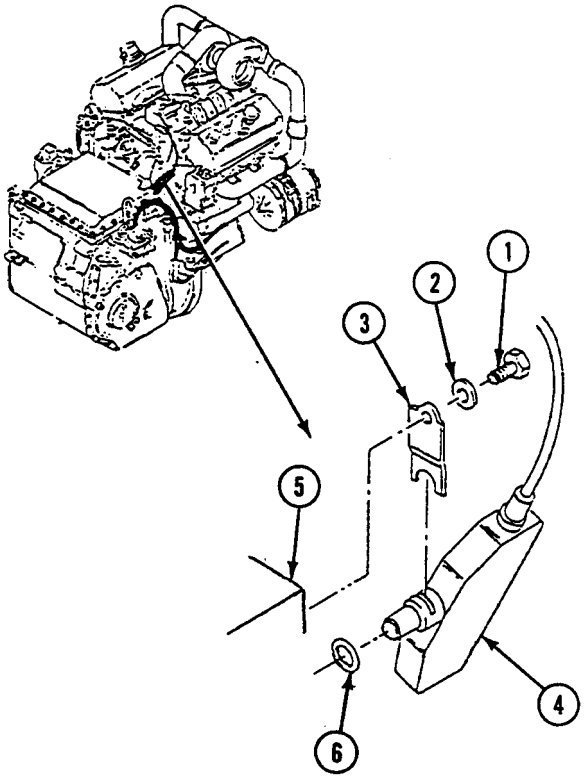
1. Remove nut (1) from cable (2).
2. Loosen jam nut (3) on cable (2). Remove lock nut (4) and washer (5) from anchor (6). Remove cable and anchor from lever (7). Discard lock nut.
3. Remove anchor (6) and nut (8) from cable (2).
4. Remove lock nut (9), screw (10), and two washers (11) from lever (7) and throttle shaft (12). Remove lever from throttle shaft. Discard lock nut.



NOTE

Make sure throttle modulator is in idle position before removing modulator from transmission.

5. Remove self-locking bolt (1), washer (2), modulator retainer (3), and throttle valve modulator (4) from transmission (5). Discard self-locking bolt.
6. Remove throttle valve modulator (4), and preformed packing (6) from transmission (5). Discard preformed packing.



INSTALLATION

NOTE

Apply light coat of sealing compound to male threads before installation. Do not coat leading thread.

1. Install new preformed packing (6) and throttle valve modulator (4) in transmission (5).

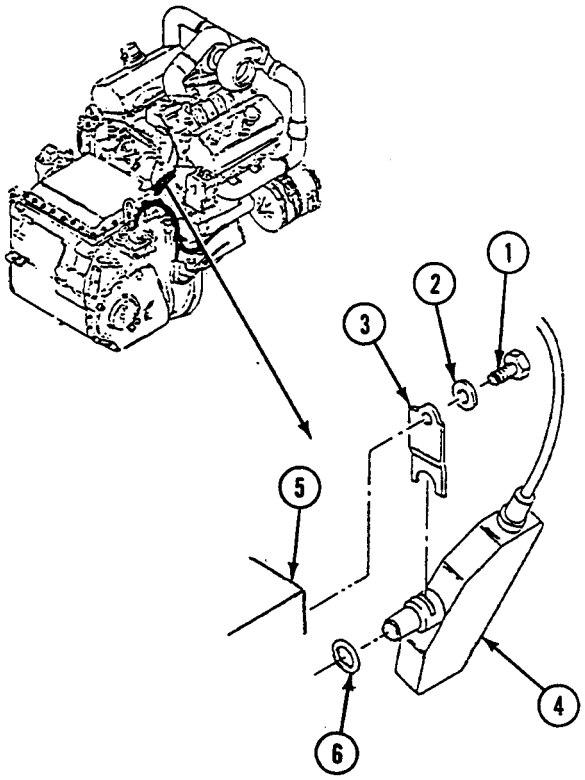
CAUTION

If preformed packing comes with throttle valve modulator, discard packing. The packing is not required because there is an oil seal already installed inside the transmission, and the packing does not allow for proper fit of the modulator into the transmission.

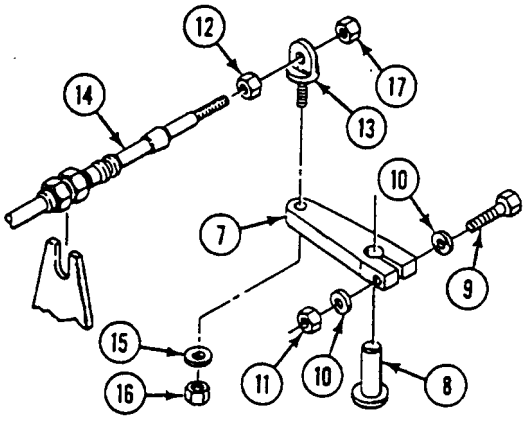
NOTE

Make sure modulator is in idle position before installing new modulator on transmission.

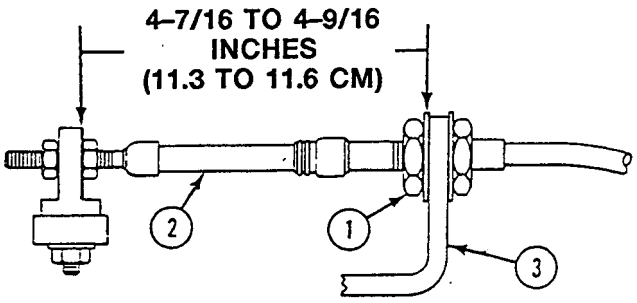
2. Install modulator retainer (3), washer (2), and new self-locking bolt (1) in transmission (5).



3. Install lever (7) in throttle shaft (8). Secure with screw (9), two washers (10), and new lock nut (11).
4. Install nut (12) and anchor (13) on cable (14).
5. Install anchor (13) with cable (14) in lever (7). Secure with washer (15) and new lock nut (16).
6. Install nut (17) on cable (14).



7. Tighten jam nut (1) on cable (2) 4-7/16 to 4-9/16 inch (11.3 to 11.6 cm) from bracket (3) to end of shield covering inner cable.
8. Adjust throttle valve modulator (WP 0204 00).



FOLLOW-THROUGH STEPS

1. Lower center seat (see your -10).

END OF TASK

ADJUST THROTTLE VALVE (TV) MODULATOR (M548A3) 0204 00

THIS WORK PACKAGE COVERS:

Adjustment (page 0204 00-2).
Field operational test (page 0204 00-5).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)
Oil Pressure Gauge Kit (WP 0541 00, Item 34)

Materials/Parts
Sealing compound (WP 0542 00, Item 39)
Sealing compound primer (WP 0542 00, Item 40)

Personnel Required
Unit Mechanic

References
See your -10

Equipment Condition
Engine warm
Parking brake set (see your -10)
Engine stopped (see your -10)
Carrier blocked (see your -10)
Center seat raised (see your -10)

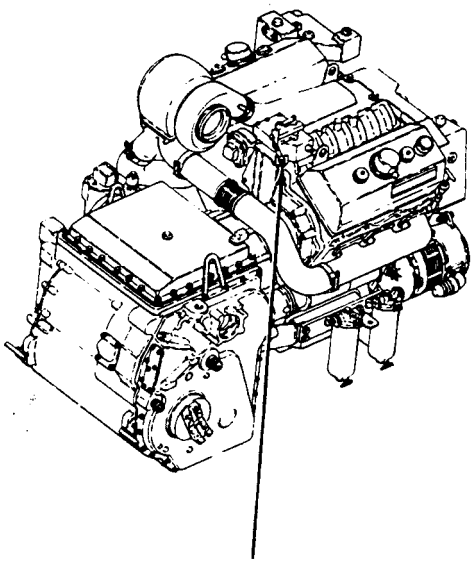
ADJUSTMENT

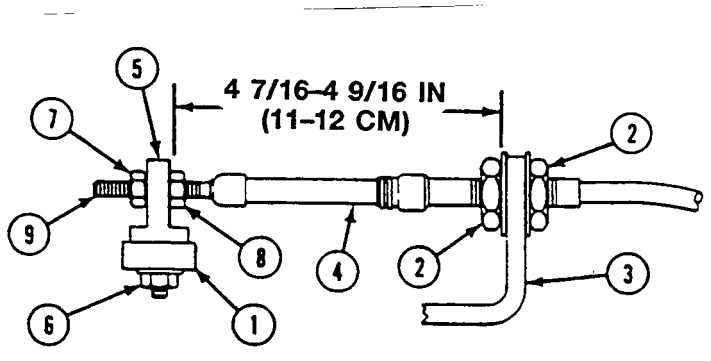
1. Make sure throttle valve modulator lever (1) is in idle position.
2. Adjust two nuts (2) until cable modulator bracket (3) is located near midrange of threaded portion of cable housing (4). Tighten nuts.

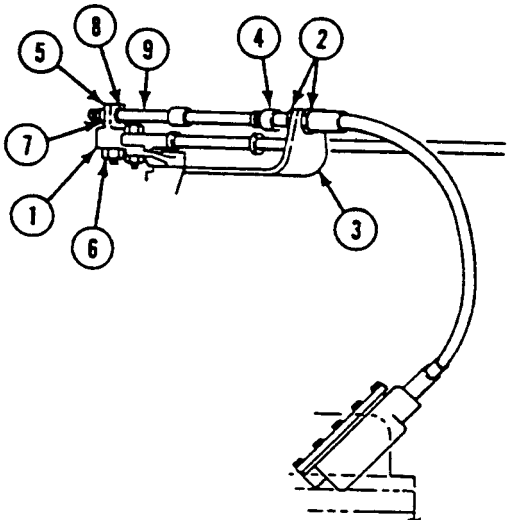
NOTE

Steps 3 - 15 are an initial adjustment prior to FIELD OPERATIONAL TEST.

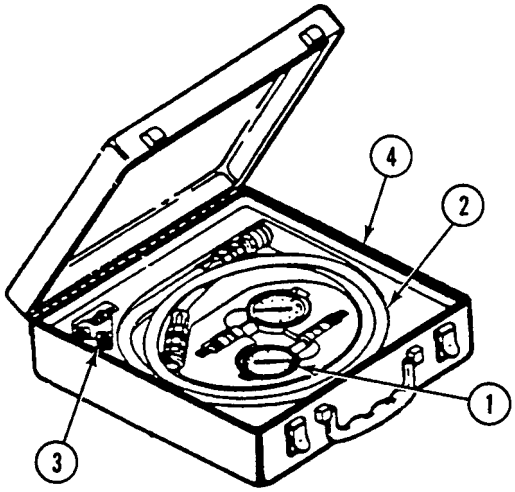
3. Make sure anchor (5) is 4 7/16-4 9/16 inches (11-12 cm) from cable modulator bracket (3). If adjustment is needed, loosen nut (6) and reposition throttle valve modulator lever (1) by adjusting nut (7) and nut (8) until anchor (5) is located near midrange of threaded portion of cable end (9). Tighten nut (6), nut (7), and nut (8).



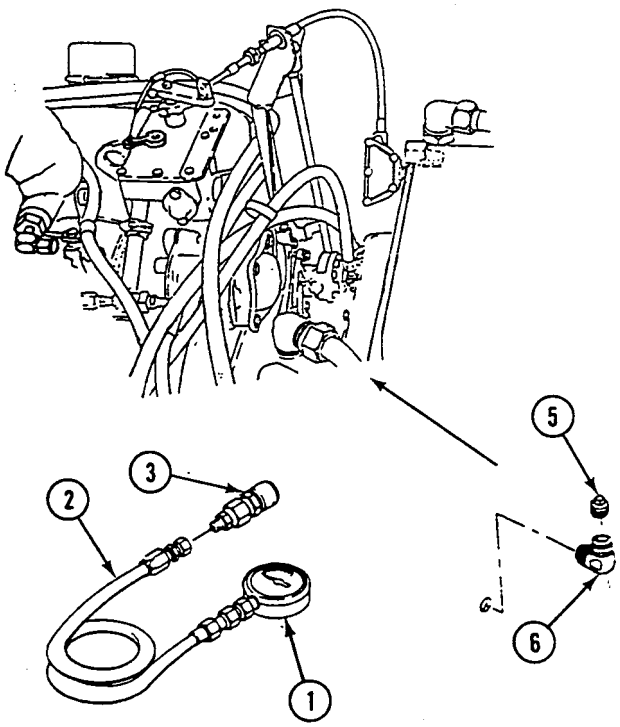




4. Remove 0-160 psi (0-7607 kPa) pressure gauge (1), hose (2), and quick-disconnect fitting (3) from pressure gauge kit (4).



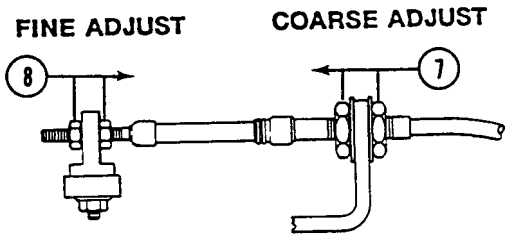
5. Remove pipe plug (5) from elbow (6) in throttle valve test port on transmission. Retain pipe plug.
6. Install quick-disconnect fitting (3) on elbow (6).
7. Install hose (2) on quick-disconnect fitting (3).
8. Install pressure gauge (1) on hose (2).



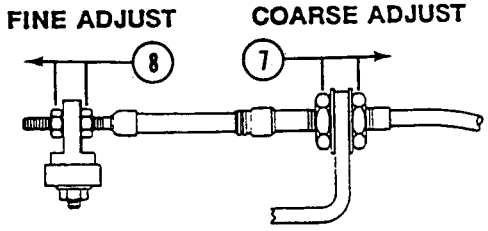
WARNING

Make sure parking brake is set before you start engine. Carrier could lurch and injure you.

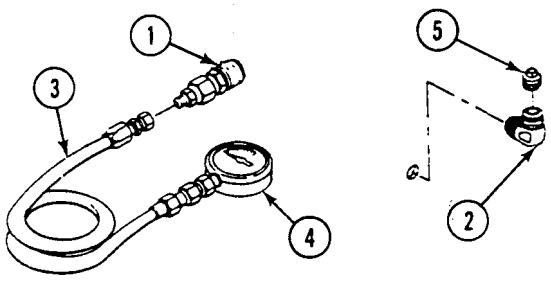
9. Start engine and let idle with shift lever in STEER LOCK (SL) position for 10 minutes or until engine reaches operating temperature (see your -10).
10. Press accelerator fully to increase engine speed to full governed RPM. Pressure gauge should read 94-98 psi (648-676 kPa).
11. If pressure reading is below 94 psi (648 kPa), COARSE adjust throttle valve modulator linkage first by turning two nuts (7), one turn at a time to the left, and then, FINE adjust throttle valve modulator linkage by turning two nuts (8), one turn at a time to the right.



12. If pressure reading is above 98 psi (676 kPa), COARSE adjust throttle valve modulator linkage first by turning two nuts (7), one turn at a time to the right, and then, FINE adjust throttle valve modulator linkage by turning two nuts (8), one turn at a time to the left.



13. Stop engine (see your -10).
14. Remove quick-disconnect fitting (1) from elbow (2), hose (3) from quick-disconnect fitting (1), and pressure gauge (4) from hose (3). Stow in kit.
15. Apply light coat of sealing compound primer and sealing compound to male threads of pipe plug (5), and install pipe plug in elbow (2).



TESTING

FIELD OPERATIONAL TEST

NOTE

Use judgment in evaluating speedometer readings by considering variables that may affect the speedometer.

A cable-driven speedometer can be affected by temperature and moisture, amount of bend in the cable, age, number of miles on the carrier, amount of lubricant used, and manufacturing tolerance error of ±5 percent. All of these possibilities can result in speedometer lag (a reading slower than the actual speed during acceleration).

The angle in which the driver looks at the speedometer can cause a 1-2 mph (2-3 km/h) error/ difference. The height of an individual, seat height, or angle could account for inconsistency in speedometer readings. The higher the driver's vantage point, the more the driver tends to read below the actual speed.

If the transmission shifts smoothly and reaches top speed (30-39 mph (48-63 km/h) without lagging during wide open throttle tests, consider the adjustment complete even if the speedometer reading is somewhat outside the limits shown in the following steps.

1. Operate carrier (see your -10). Drive carrier on straight, level terrain with shift lever in the 1-4 position. Accelerate carrier with accelerator pedal fully pressed (wide open throttle). Verify that the following transmission shifts occur at speeds shown: Upshift 1 to 2 7 mph (11 km/h) min Upshift 2 to 3 18 mph (29 km/h) max

NOTE

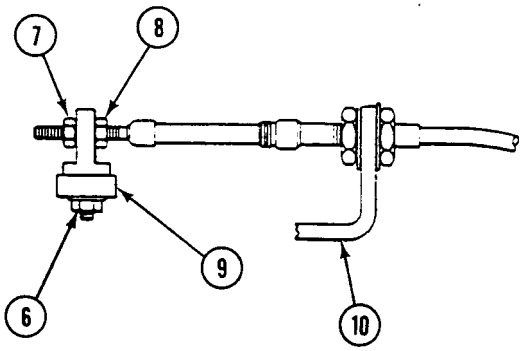
If shifts are within ranges, adjustment is complete. If not, do Step 2 and Step 3.

2. If upshift 1 to 2 is below 7 mph (11 km/h), do ADJUSTMENT Step 11 again.
3. If upshift 2 to 3 is above 18 mph (29 km/h), do ADJUSTMENT Step 12 again.

NOTE

Do Step 4 only if the minimum/maximum shift points in Step 1 have not been obtained.

4. If more adjustment is needed, reposition throttle valve modulator lever (6) as follows:
   a. Loosen nut (7), nut (8), and nut (9).
   b. Adjust throttle valve modulator lever (6) away from modulator bracket (10) if upshift 1 to 2 is below 7 mph (11 km/h).
   c. Adjust throttle valve modulator lever (6) toward modulator bracket (10) if upshift 2 to 3 is above 18 mph (29 km/h).
   d. Tighten nut (7), nut (8), and nut (9).



5. Repeat Steps 1 - 4 until shift ranges are met.

FOLLOW-THROUGH STEPS

1. Lower center seat (see your -10).

END OF TASK

REPLACE FUEL CUTOFF CONTROL CABLE ASSEMBLY (M548A3) 0205 00

THIS WORK PACKAGE COVERS:

Removal (page 0205 00-1).
Cleaning (page 0205 00-2).
Installation (page 0205 00-3).
Adjustment (page 0205 00-5).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts

Cotter pin
Lock washer (4)

Personnel Required

Unit Mechanic
Helper (H)

References

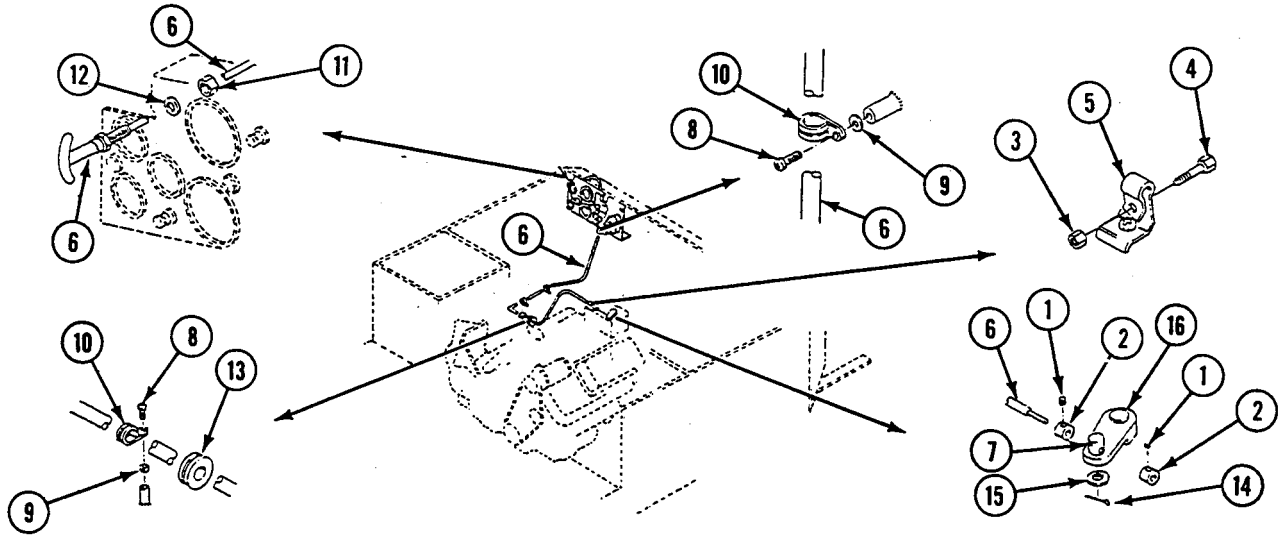
See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Both battery negative leads disconnected (WP 0292 00)
Center seat raised (see your -10)
Driver's left floor plate removed (WP 0395 00)
Forward battery under driver's seat removed (WP 0293 00)

REMOVAL

1. Loosen two setscrews (1) in two retainer collars (2).
2. Remove nut (3) and screw (4) from clamp (5).
3. Remove fuel cutoff control cable assembly (6) from clamp (5).
4. Remove fuel cutoff control cable assembly (6) and collars (2) from pin (7).
5. Remove four screws (8), lock washers (9), and clamps (10) securing fuel cutoff control cable assembly (6) to carrier. Discard lock washers.

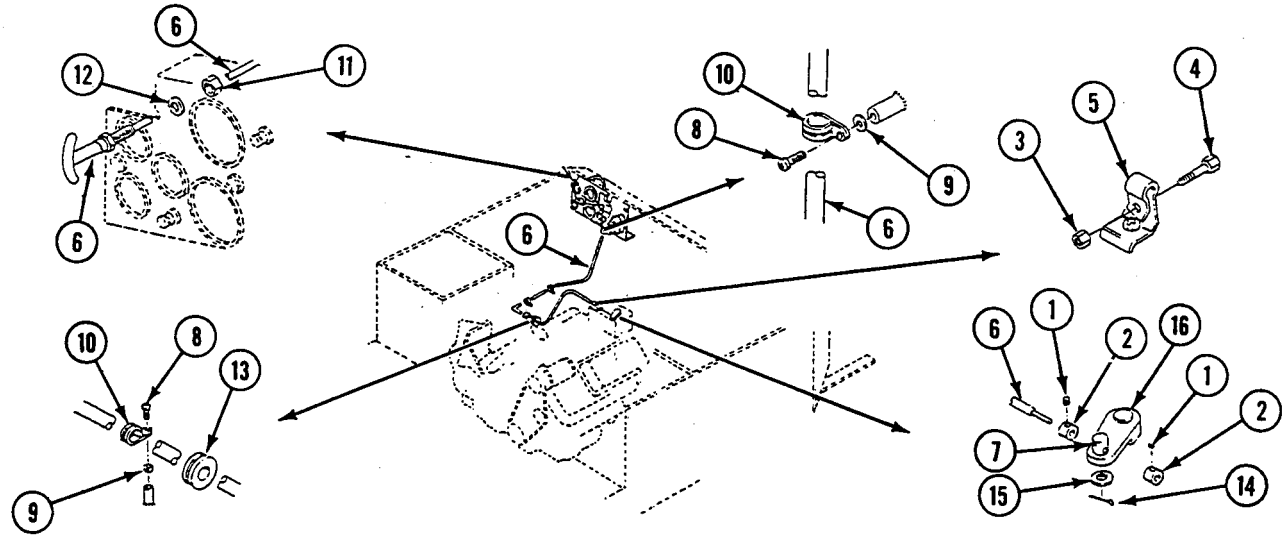


6. Loosen nut (11) on back of fuel cutoff control cable assembly (6).

NOTE

When pulling fuel cutoff control cable assembly through the instrument panel mounting hole, do not let the securing nut or washer fall off the end and get lost.

7. Remove fuel cutoff control cable assembly (6) from carrier by pulling it through the instrument panel mounting hole. Remove nut (11) and washer (12) from carrier. Remove grommet (13) from bulkhead if damaged.
8. Remove cotter pin (14) and washer (15) securing pin (7) to engine governor fuel cutoff lever (16). Remove pin (7). Discard cotter pin.



CLEANING

1. Inspect fuel cutoff control cable assembly for broken or binding cable and defective locking action. Replace fuel cutoff control cable assembly that shows these defects.

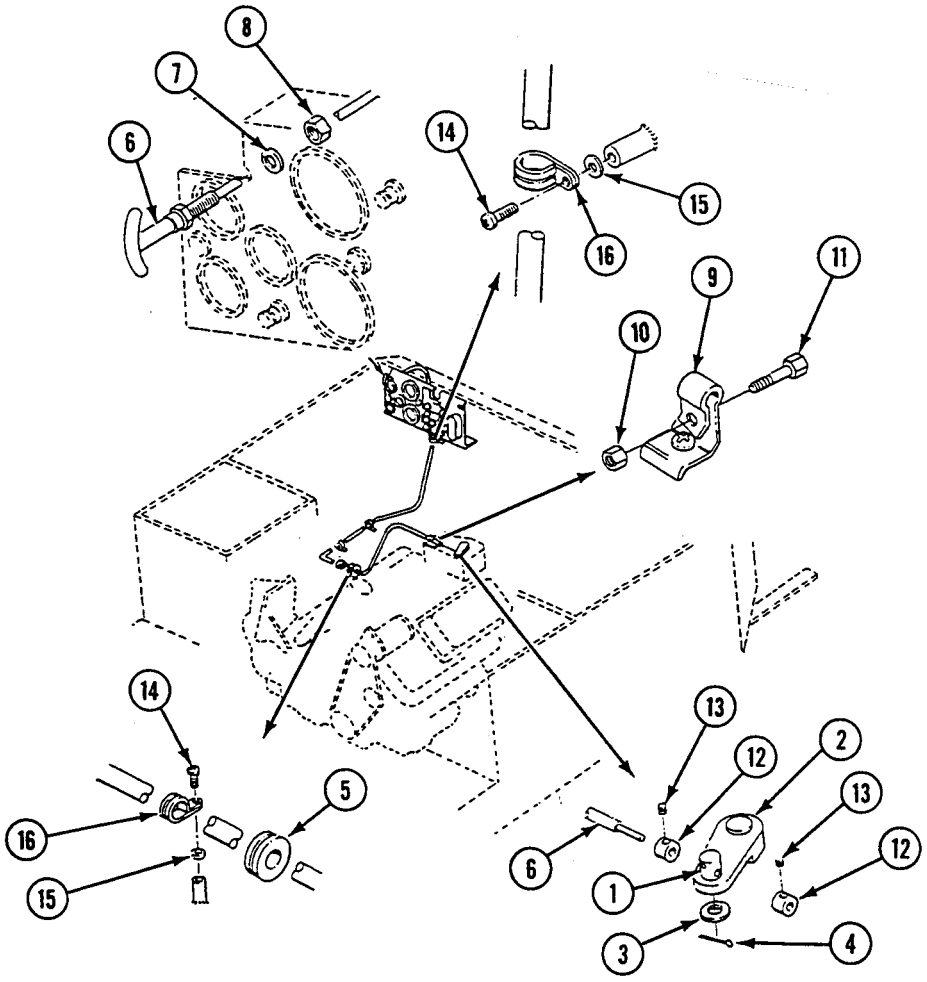
INSTALLATION

1. Install pin (1) on engine governor fuel cutoff lever (2). Secure with washer (3) and new cotter pin (4).
2. Install grommet (5) in bulkhead, if removed.

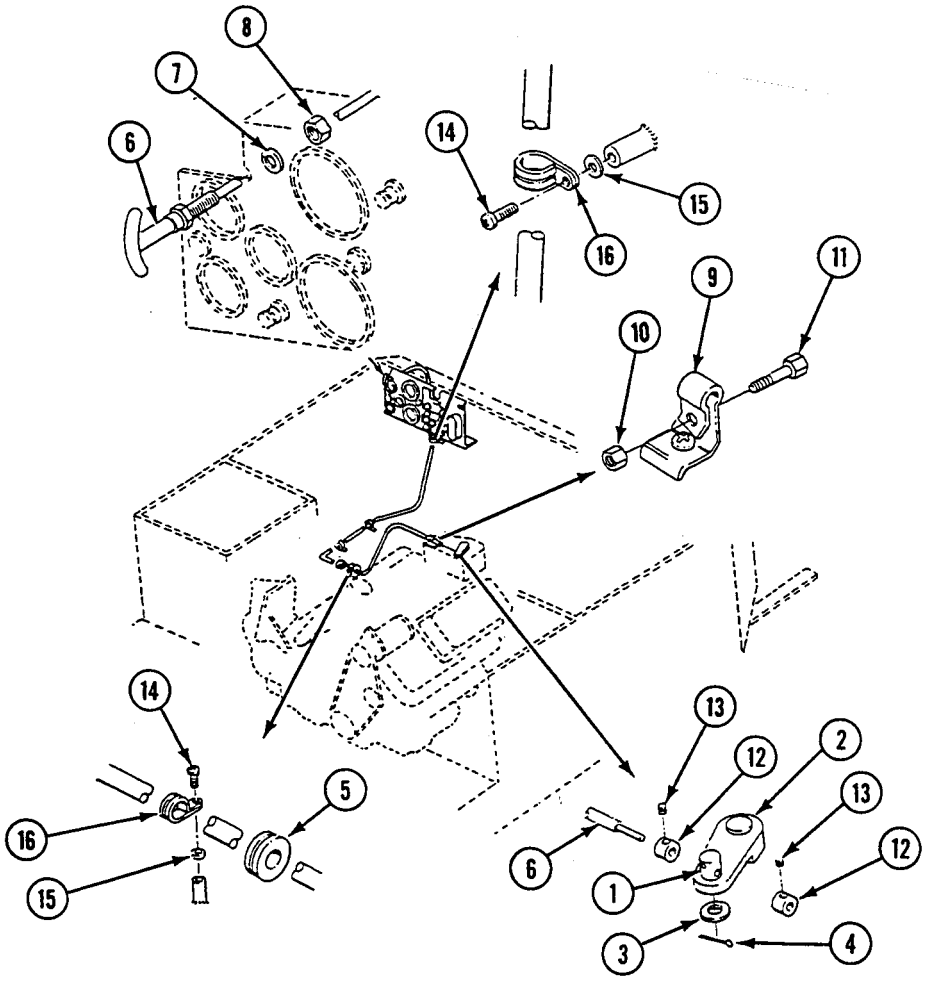
NOTE

When installing fuel cutoff control cable assembly, hold securing nut and washer behind mounting hole in instrument panel and insert fuel cutoff control cable assembly through hole, washer and nut at same time.

3. Install fuel cutoff control cable assembly (6) in instrument panel mounting hole. Secure with washer (7) and nut (8).
4. Route fuel cutoff control cable assembly (6) under the floor through battery compartment, through grommet (5).

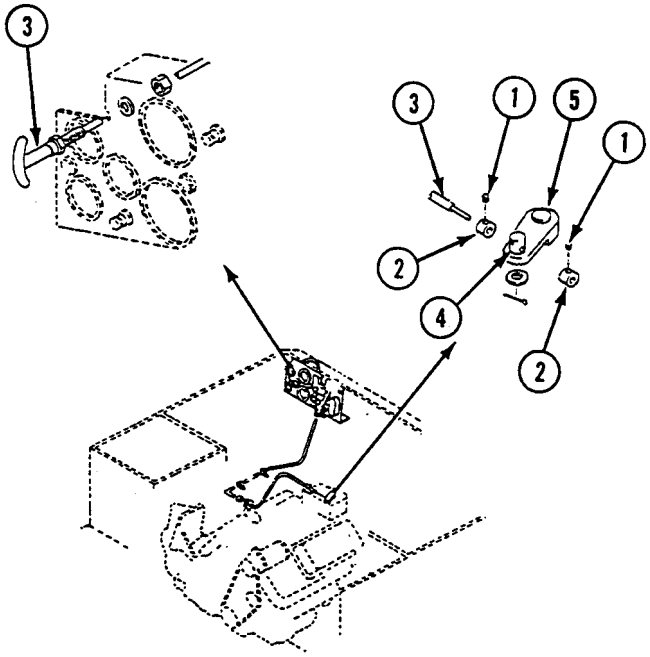


5. Secure fuel cutoff control cable assembly (6) in clamp (9) with nut (10) and screw (11).
6. Install retainer collar (12) with setscrew (13) on end of fuel cutoff control cable assembly (6).
7. Install fuel cutoff control cable assembly (6) through hole in pin (1).
8. Install second retainer collar (12) with setscrew (13) on end of fuel cutoff control cable assembly (6).
9. Secure fuel cutoff control cable assembly (6) to carrier with four screws (14), new lock washers (15), and clamps (16).



ADJUSTMENT

1. Loosen two setscrews (1) on two retainer collars (2) that secure fuel cutoff control cable assembly (3) to pin (4) on engine governor fuel cutoff lever (5).
2. (H) Pull fuel cutoff control cable assembly (3) to full OUT position.
3. Move engine governor fuel cutoff lever (5) to the full OFF position.
4. Position two retainer collars (2) against pin (4) and secure with two setscrews (1).



FOLLOW-THROUGH STEPS

1. Install forward driver’s side battery (WP 0194 00).
2. Connect both battery negative leads (WP 0292 00).
3. Start engine and check the fuel cutoff control assembly for complete engine stop when applied (see your -10).
4. Install driver’s left floor plate (WP 0392 00)
5. Lower center seat (see your -10).

END OF TASK

CHAPTER 6

UNIT MAINTENANCE INSTRUCTIONS FOR EXHAUST SYSTEM

WORK PACKAGE INDEX

Title	Sequence No.
REPLACE EXHAUST MUFFLER (M548A1)	0206 00
REPLACE EXHAUST MUFFLER (M548A3)	0207 00
REPLACE ENGINE EXHAUST PIPE GUARD (M548A1)	0208 00
REPLACE EXHAUST PIPES (M548A1)	0209 00
REPLACE EXHAUST PIPE (M548A3)	0210 00
REPLACE EXHAUST DUCTS (M548A3)	0211 00

REPLACE EXHAUST MUFFLER (M548A1) 0206 00

THIS WORK PACKAGE COVERS:

Removal (page 0206 00-1).
Installation (page 0206 00-2).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts
Lock nut (4)

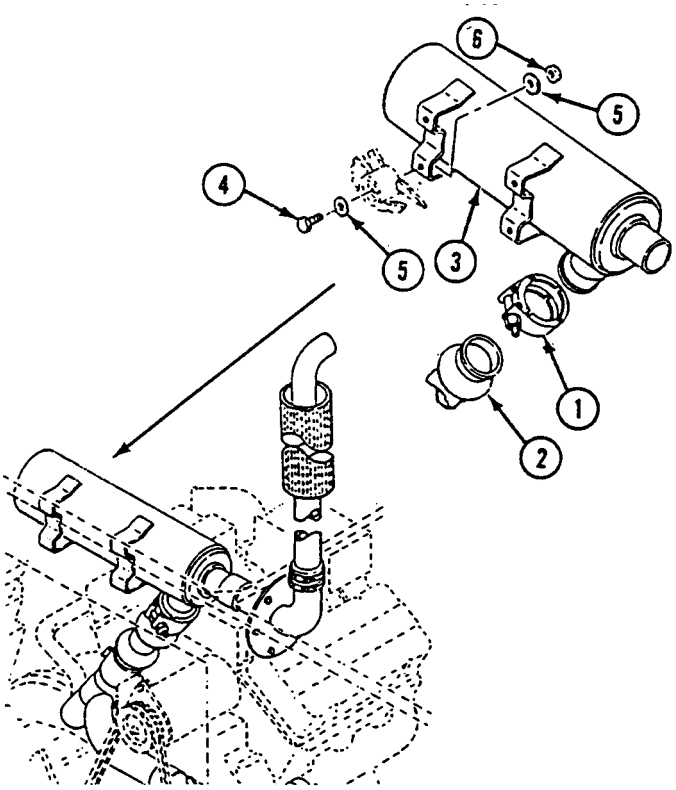
Personnel Required
Unit Mechanic

References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Top access cover removed (WP 0390 00)
Power plant rear access door removed (see your -10)

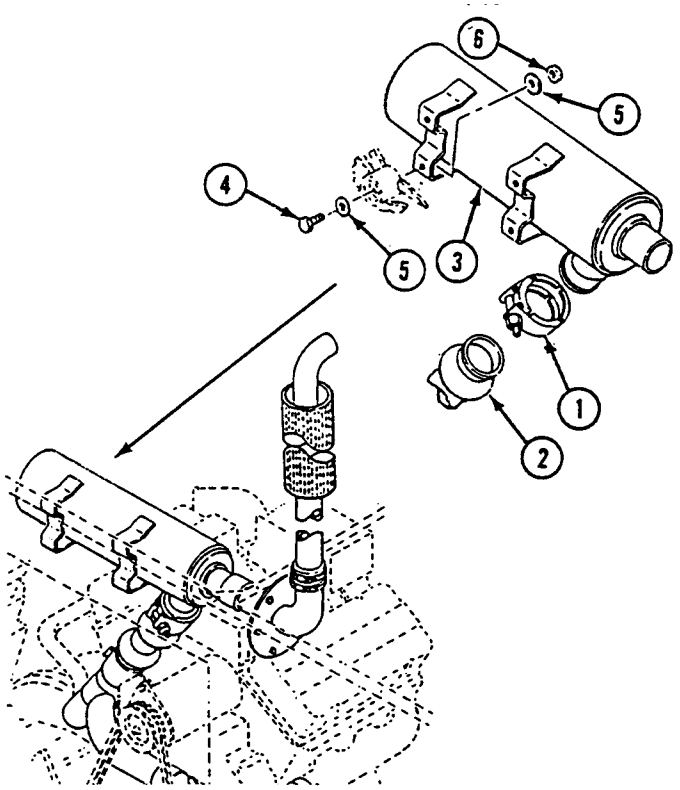
REMOVAL

1. Loosen clamp (1) that secures interior exhaust pipe (2) to muffler (3).
2. Clear interior exhaust pipe (2) from muffler (3) by turning interior exhaust pipe ball joint.
3. Remove four screws (4), eight washers (5), and four lock nuts (6) that secure muffler (3) to power plant compartment bulkhead. Remove muffler. Discard lock nuts.



INSTALLATION

1. Place muffler (3) on power plant compartment bulkhead. Secure with four screws (4), eight washers (5), and four new lock nuts (6). Tighten screws to 240-300 lb-in (27-34 N•m) torque.
2. Install interior exhaust pipe (2) on muffler (3). Secure with clamp (1). Tighten clamp to 200-220 lb-in (23-25 N•m) torque.



FOLLOW-THROUGH STEPS

1. Turn MASTER SWITCH ON (see your -10).
2. Start engine (see your -10).
3. Check for proper installation of muffler.
4. Stop engine (see your -10).
5. Install top access cover (WP 0390 00).
6. Install power plant rear access door (see your -10).

END OF TASK

REPLACE EXHAUST MUFFLER (M548A3) 0207 00

THIS WORK PACKAGE COVERS:

Removal (page 0207 00-1).
Installation (page 0207 00-2).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts

Lock nut (4)
Lock nut (4)

Personnel Required

Unit Mechanic

References

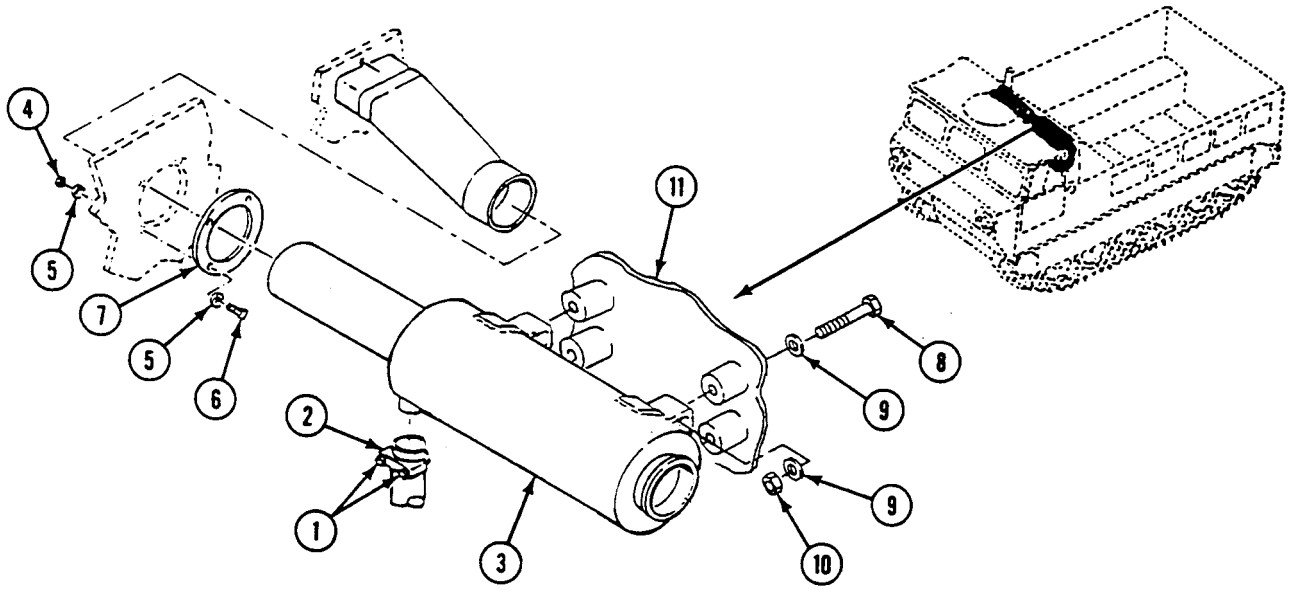
See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Rear compartment cover and bows removed (as required) (WP 0417 00)
Top access cover and grilles removed (see your -10)
Exhaust pipe removed (WP 0210 00)
Exhaust ducts removed (WP 0211 00)

REMOVAL

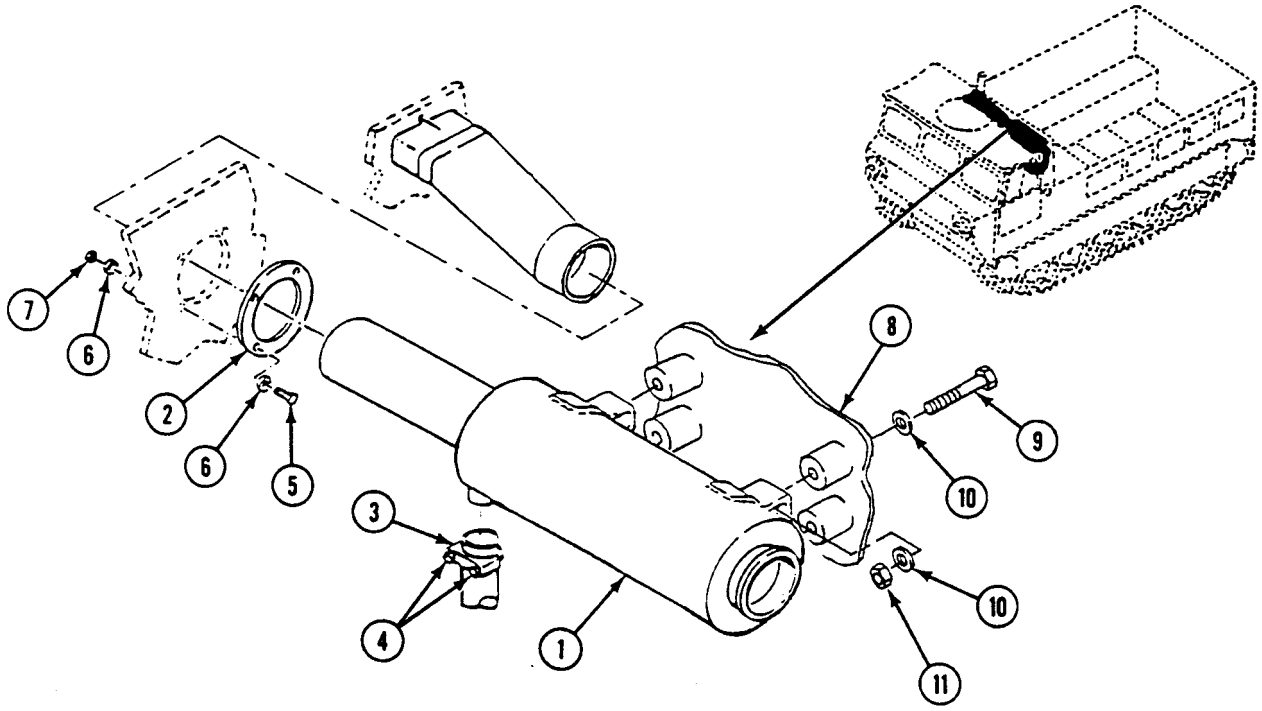
1. Loosen two nuts (1) on air filter duct clamp (2) and detach clamp from muffler (3).
2. Remove four lock nuts (4), eight washers (5), and four screws (6) from plate (7). Discard lock nuts.
3. Remove four screws (8), eight washers (9), and four lock nuts (10) securing muffler (3) to rear engine bulkhead (11). Discard lock nuts.
4. Remove muffler (3) from carrier.



REPLACE EXHAUST MUFFLER (M548A3) — Continued 0207 00

INSTALLATION

1. Install muffler (1) in carrier and align with plate (2).
2. Attach air filter duct clamp (3) to muffler (1) and tighten two nuts (4).
3. Secure plate (2) with four screws (5), eight washers (6), and four new lock nuts (7).
4. Secure muffler (1) to rear engine bulkhead (8) with four screws (9), eight washers (10), and four new lock nuts (11).



FOLLOW-THROUGH STEPS

1. Install top access cover and grilles (see your -10).
2. Install exhaust pipe (WP 0210 00).
3. Install exhaust ducts (WP 0211 00).
4. Install rear compartment cover and bows (as required) (WP 0417 00).

END OF TASK

REPLACE ENGINE EXHAUST PIPE GUARD (M548A1) 0208 00

THIS WORK PACKAGE COVERS:

Removal (page 0208 00-1).
Installation (page 0208 00-2).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts
Lock nut (12)

Personnel Required
Unit Mechanic

References
See your -10

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

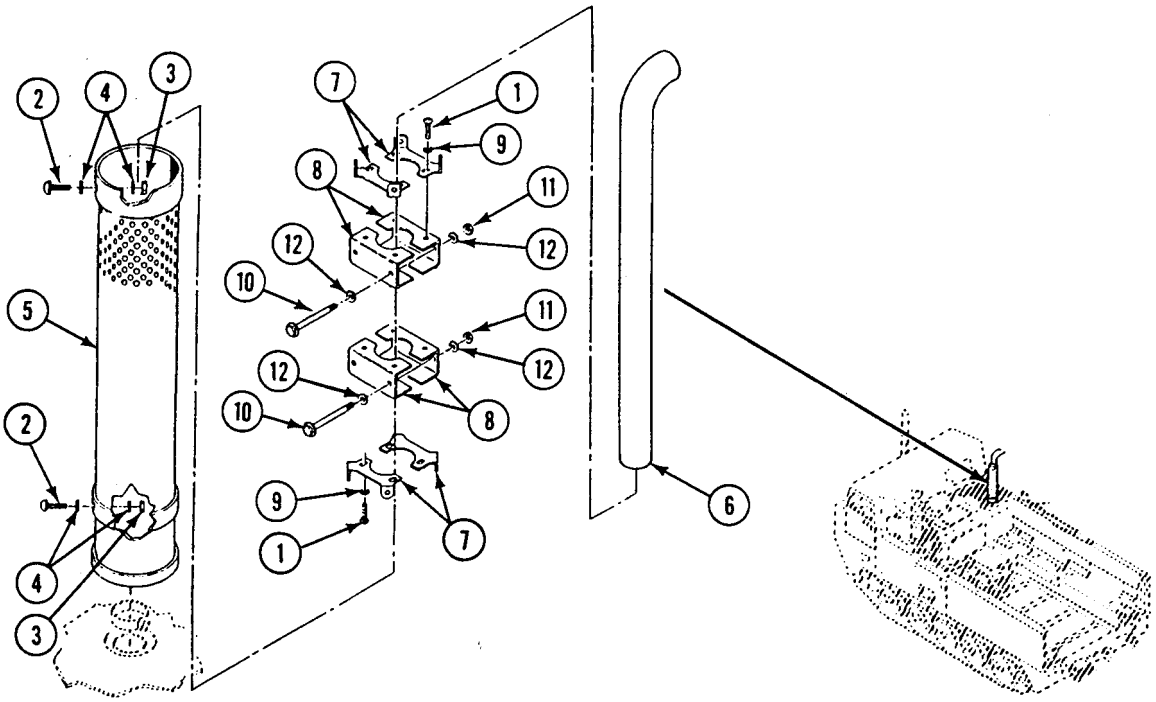
REMOVAL

1. Loosen eight screws (1).
2. Remove 8 screws (2), lock nuts (3), 16 washers (4), and slide guard (5) from exhaust pipe (6). Discard lock nuts.
3. Remove four brackets (7) from four bracket clamps (8) by removing eight screws (1) and washers (9).

NOTE

Mark position of bracket clamps on exhaust stack before removing for later installation.

4. Remove four bracket clamps (8) from exhaust pipe (6) by removing four screws (10), lock nuts (11), and eight washers (12). Discard lock nuts.



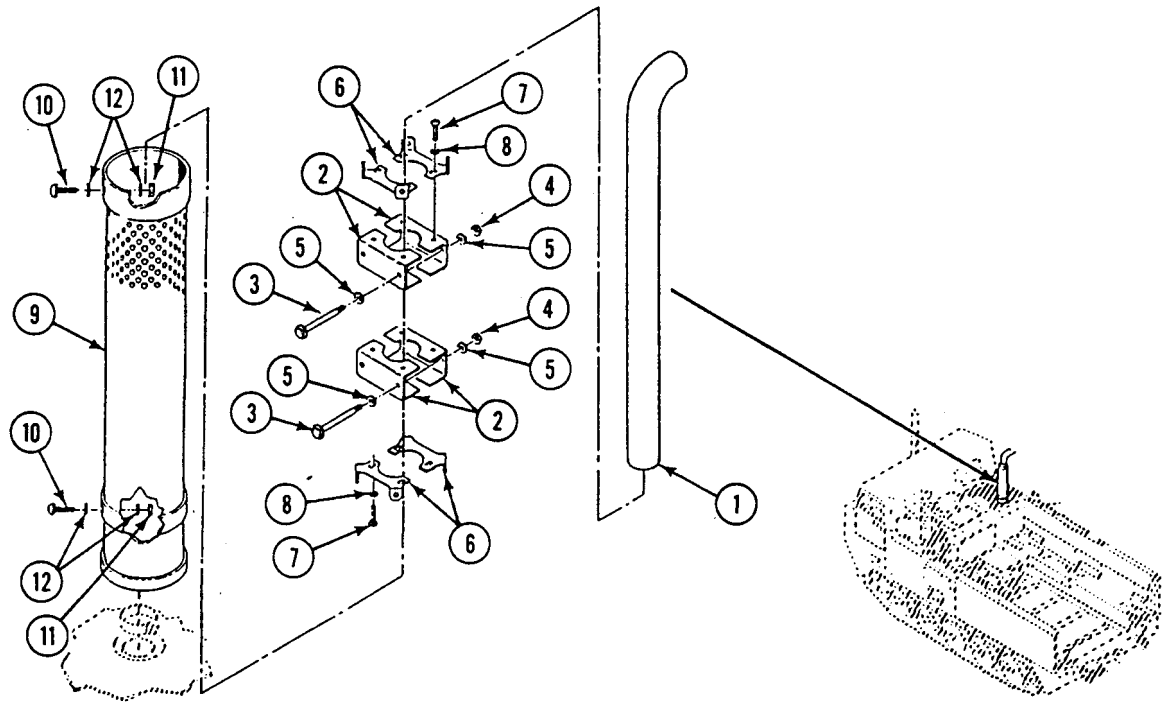
INSTALLATION

1. Mark exhaust pipe (1) 7 3/4 and 17 inches (19.68 and 43.18 cm) from the bottom.
2. Install two bottom bracket clamps (2) just above the 7 3/4 inch (19.68 cm) mark.
3. Install two top bracket clamps (2) just above the 17 inch (43.18 cm) mark.

NOTE

Be sure to install bracket clamps so that guard brackets are attached above top clamp and below bottom clamp.

4. Secure four bracket clamps (2) on exhaust pipe (1) with four screws (3), new lock nuts (4), and eight washers (5).
5. Attach four guard brackets (6) to bracket clamps (2) with eight screws (7) and washers (8). Do not tighten screws.
6. Slide guard (9) over exhaust pipe (1). Secure guard to guard brackets (6) with 8 screws (10), new lock nuts (11), and 16 washers (12).
7. Tighten eight screws (7).



END OF TASK

REPLACE EXHAUST PIPES (M548A1) 0209 00

THIS WORK PACKAGE COVERS:

Removal (page 0209 00-2).
Installation (page 0209 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)
Socket Wrench Set (WP 0541 00, Item 64)
Torque Wrench (WP 0541 00, Item 71)

Materials/Parts

Gasket
Lock nut (6)

Personnel Required

Unit Mechanic

References

See your -10

Equipment Condition

Engine stopped (see your -10)

Carrier blocked (see your -10)

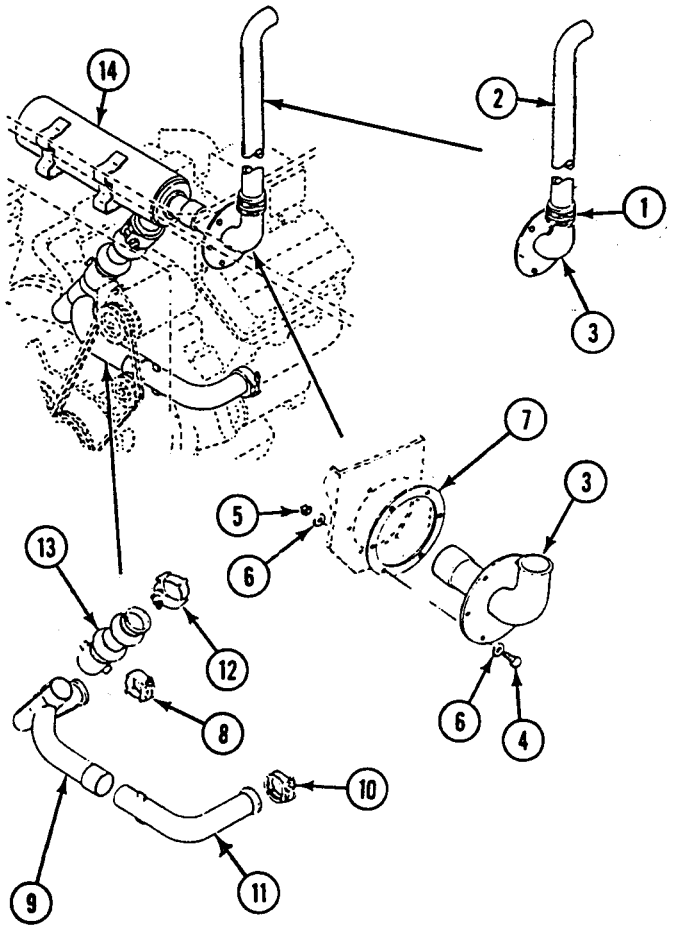
Power plant rear access door removed (see your -10)

Engine exhaust pipe guard removed (WP 0208 00)

REPLACE EXHAUST PIPES (M548A1) — Continued 0209 00

REMOVAL

1. Loosen two clamps (1) that secure exhaust pipe extension (2) to exterior exhaust pipe (3). Remove extension.
2. Remove top access cover and exhaust grille (WP 0383 00).
3. Remove 6 screws (4), lock nuts (5), and 12 washers (6) that secure exterior exhaust pipe (3) and gasket (7) to power plant bulkhead. Remove exhaust pipe. Discard gasket and lock nuts.
4. Remove clamp (8) that secures left crossover pipe (9) to left engine manifold.
5. Remove clamp (10) that secures right crossover pipe (11) to right engine manifold.
6. Remove clamp (12) that secures interior exhaust pipe (13) to muffler (14).
7. Remove left crossover pipe (9), right crossover pipe (11), and interior exhaust pipe (13) from power plant compartment.



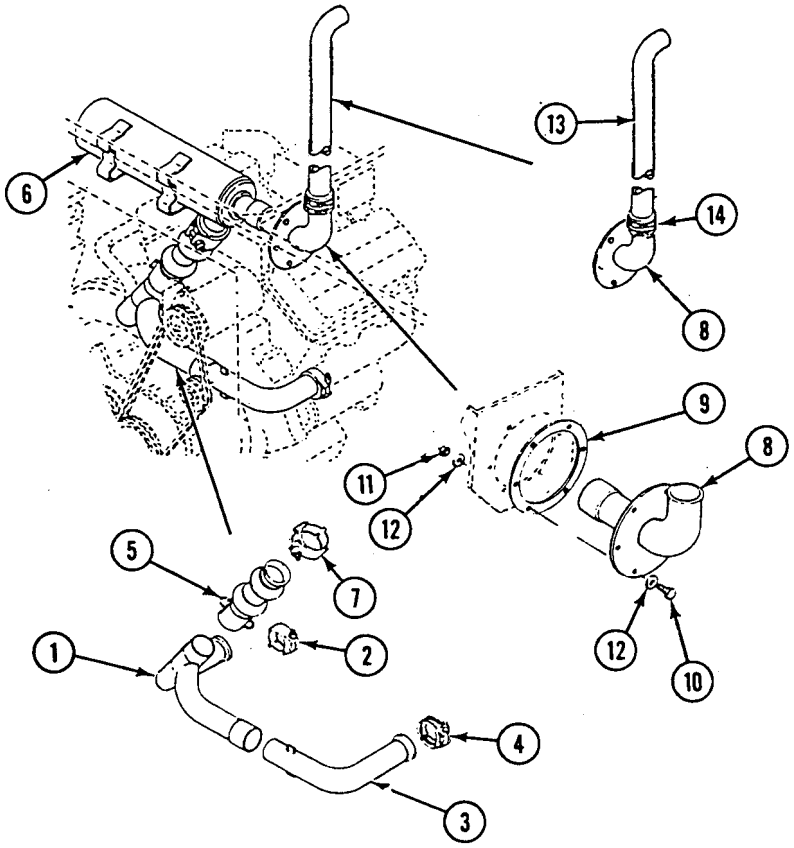
INSTALLATION

1. Place left crossover pipe (1) and clamp (2) on left engine manifold. Place right crossover pipe (3) and clamp (4) on right engine manifold. Do not tighten clamps.

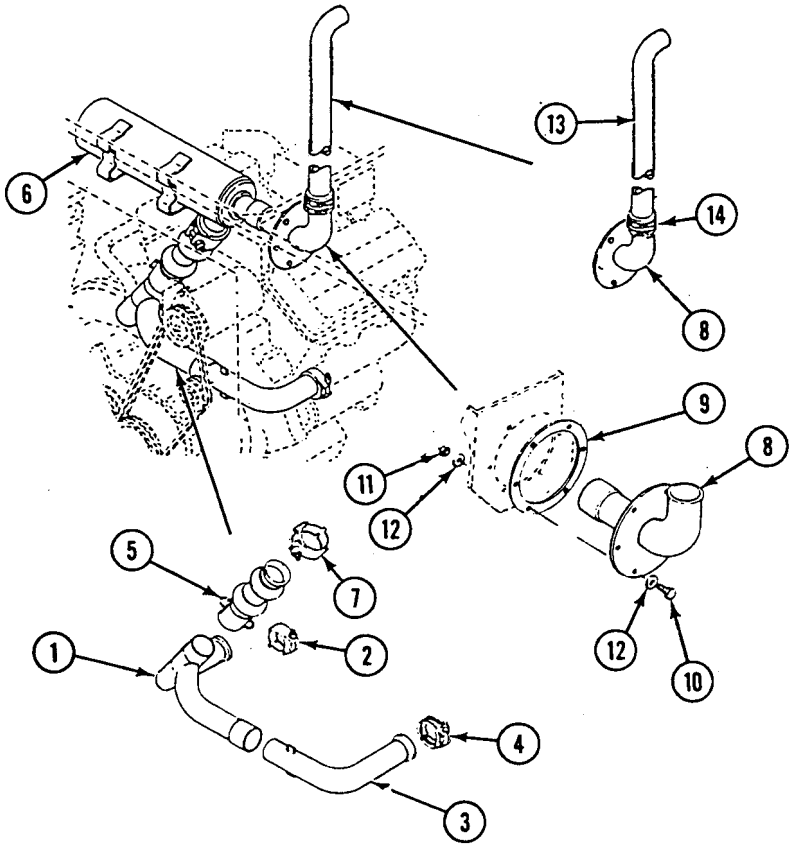
NOTE

Make sure ball sockets of exhaust pipe are aligned with left crossover pipe before tightening clamps.

2. Install interior exhaust pipe (5) on left crossover pipe (1) and muffler (6). Secure with clamp (7).
3. Tighten clamps (2, 4, and 7) to 200-220 lb-in (23-25 N•m) torque.



4. Place exterior exhaust pipe (8) and new gasket (9) on power plant bulkhead. Secure with 6 screws (10), new lock nuts (11), and 12 washers (12).
5. Turn MASTER SWITCH ON (see your -10).
6. Start engine (see your -10). Check for proper installation of exhaust pipes.
7. Stop engine (see your -10).
8. Install top access cover and exhaust grille (WP 0390 00).
9. Install exterior exhaust pipe extension (13) on exterior exhaust pipe (8). Secure with two clamps (14).



FOLLOW-THROUGH STEPS

1. Install engine exhaust pipe guard (WP 0208 00). Install power plant rear access door (see your -10).

END OF TASK

REPLACE EXHAUST PIPE (M548A3) 0210 00

THIS WORK PACKAGE COVERS:

Removal (page 0210 00-2).
Inspection (page 0210 00-2).
Installation (page 0210 00-3).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)
Socket Wrench Set (WP 0541 00, Item 64)
Torque Wrench (WP 0541 00, Item 70)

Materials/Parts
Nonelectrical wire (WP 0542 00, Item 27)
Gasket (2)

Personnel Required
Unit Mechanic

References
See your -10

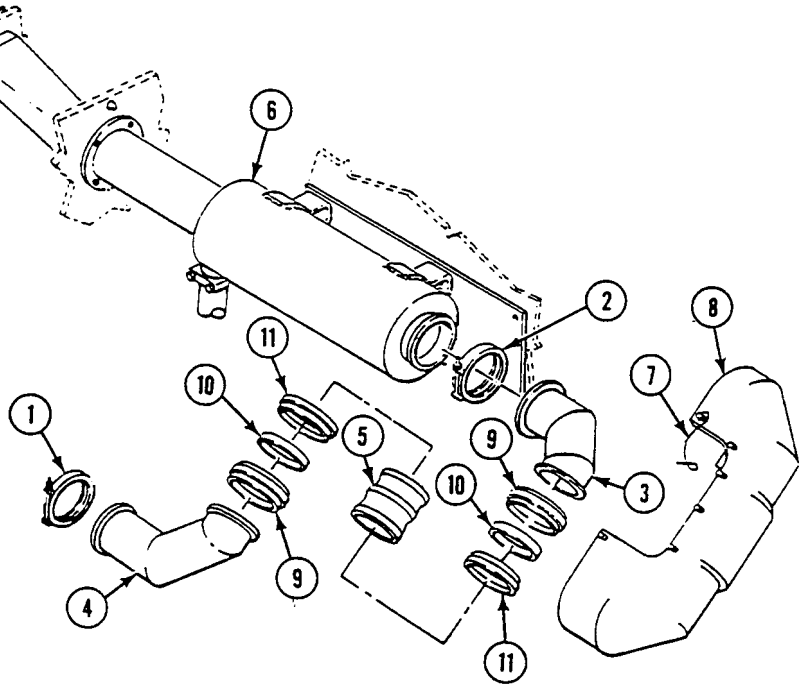
Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Top access cover and grilles removed (see your -10)
Rear compartment cover and bows removed (as needed) (WP 0417 00)

REMOVAL

CAUTION

Failure to replace gaskets may result in exhaust leaks.

1. Loosen lower clamp (1) and upper clamp (2). Remove upper elbow (3) and lower elbow (4) and joint (5) from muffler (6) and turbocharger exhaust.
2. Remove lock wire (7) and insulation (8) from exhaust pipe. Discard lock wire.
3. Loosen two V-clamps (9) on joint (5). Remove upper elbow (3) and lower elbow (4) from joint.
4. Remove two V-clamps (9), rings (10), and gaskets (11) from joint (5). Discard gaskets.

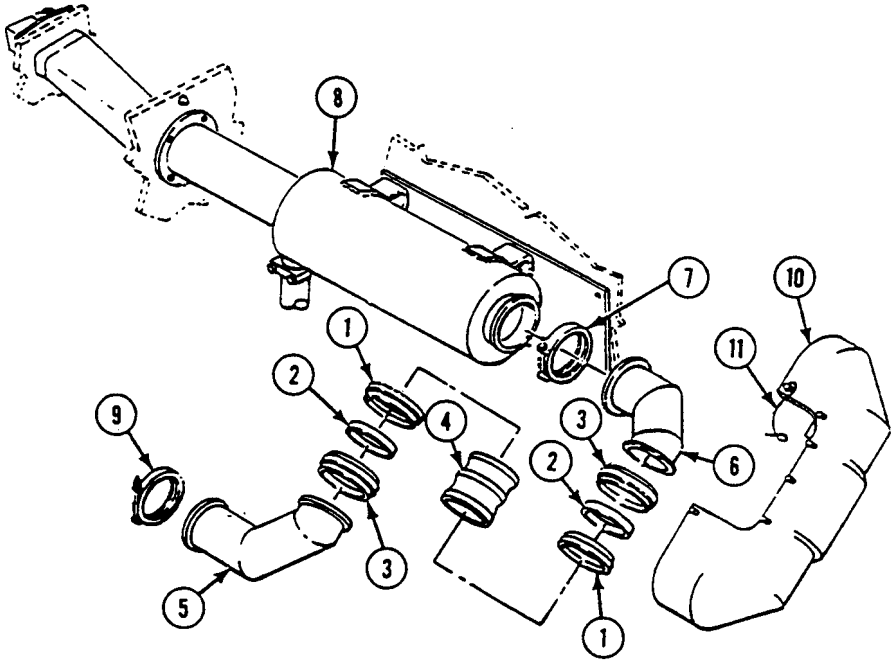


INSPECTION

1. Inspect lower and upper elbows for dents, cracks, and deformation. Straighten deformations and dents as needed. Replace elbows if defects cannot be repaired.
2. Inspect joint and V-clamps for breaks and deformation. Replace parts that show either of these defects.
3. Inspect insulation for tears and missing capstans. Replace insulation that shows either of these defects.
4. Inspect clamps for deformation and damaged threads. Replace clamps that show either of these defects.

INSTALLATION

1. Install two new gaskets (1), rings (2), and V-clamps (3) on joint (4).
2. Assemble joint (4), lower elbow (5), and upper elbow (6). Tighten two V-clamps (3) on joint.
3. Install upper clamp (7) and upper elbow (6) on muffler (8) and lower clamp (9) and lower elbow (5) on turbocharger. Torque upper clamp (7) 100 to 110 lb-in (12 to 13 N•m). Tighten two V-clamps (3) on joint (4) until V-clamp gap is 0.250-0.750 inches (6.35-19.05 mm).
4. Install insulation (10) and secure with new lock wire (11).



FOLLOW-THROUGH STEPS

1. Install rear compartment cover and bows (as needed) (WP 0417 00).
2. Install top access cover and grilles (see your -10).

END OF TASK

REPLACE EXHAUST DUCTS (M548A3) 0211 00

THIS WORK PACKAGE COVERS:

Removal (page 0211 00-1).
Inspection (page 0211 00-1).
Installation (page 0211 00-2).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)

Personnel Required

Unit Mechanic

References

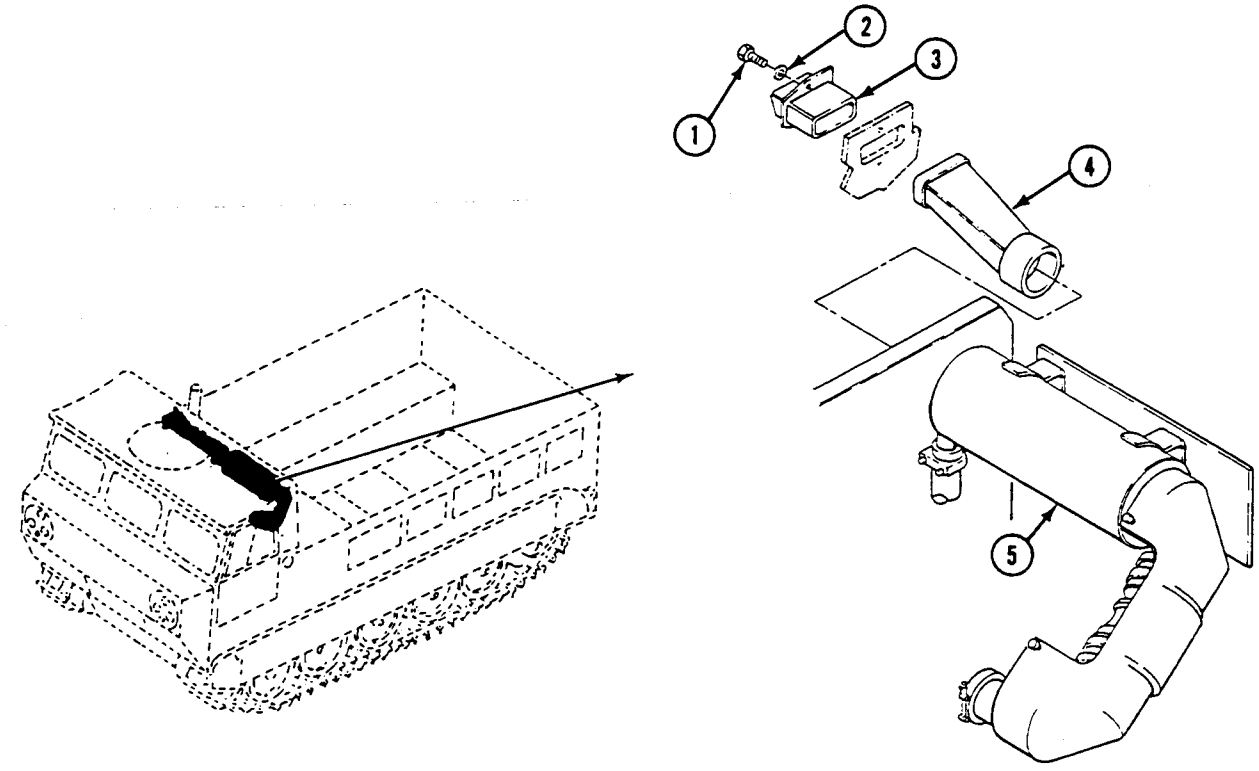
See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Rear compartment cover and bows removed (as needed) (WP 0417 00)
Top access cover and grilles removed (see your -10)

REMOVAL

1. Remove two screws (1) and washers (2) securing outlet duct (3). Remove outlet duct and exhaust duct (4) from muffler (5).

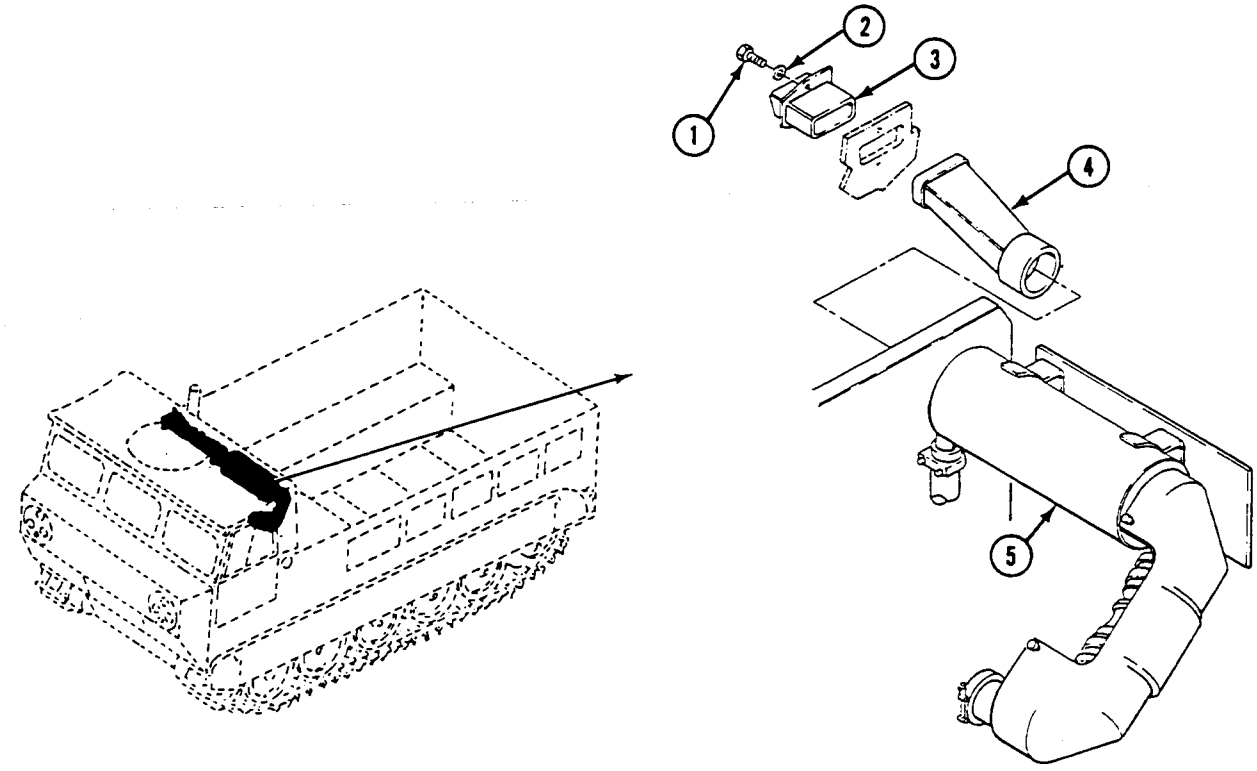


INSPECTION

1. Inspect ducts for cracks and deformation. Straighten deformations and dents as required.

INSTALLATION

1. Install exhaust duct (4) on muffler (5) and position outlet duct (3) on exhaust duct. Secure with two washers (2) and screws (1).



FOLLOW-THROUGH STEPS

1. Install top access cover and grilles (see your -10).
2. Install rear compartment cover and bows (as needed) (WP 0417 00)

END OF TASK

CHAPTER 7

UNIT MAINTENANCE INSTRUCTIONS FOR COOLING SYSTEM

WORK PACKAGE INDEX

Title	Sequence No.
FILL COOLING SYSTEM (M548A1)	0212 00
DRAIN COOLING SYSTEM (M548A1)	0213 00
DRAIN/FILL COOLING SYSTEM (M548A3)	0214 00
REPLACE RADIATOR AND SEAL (M548A1)	0215 00
REPLACE RADIATOR AND SEALS (M548A3)	0216 00
REPLACE RADIATOR AUXILIARY TANK (M548A3)	0217 00
REPLACE ENGINE THERMOSTAT (M548A1)	0218 00
REPLACE RADIATOR TUBES, HOSES, AND FITTINGS (M548A1)	0219 00
REPLACE COOLANT TUBES, HOSES, AND FITTINGS (M548A3)	0220 00
REPLACE COOLANT PUMP (M548A1)	0221 00
REPLACE COOLANT PUMP (M548A3)	0222 00
REPLACE ENGINE COOLANT PUMP DRIVE BELTS AND IDLER PULLEY (M548A1)	0223 00
REPLACE COOLANT PUMP DRIVE BELTS (M548A3)	0224 00
REPLACE COOLANT PUMP IDLER PULLEY AND ADJUSTING BRACKET (M548A3)	0225 00
REPLACE FAN DRIVE BELTS (M548A1)	0226 00
REPLACE COOLING FAN DRIVE BELT (M548A3)	0227 00
REPLACE FAN DRIVE BELT IDLER PULLEY (M548A1)	0228 00
REPLACE COOLING FAN IDLER PULLEY (M548A3)	0229 00
REPLACE FAN DRIVE BELT IDLER ADJUSTING LINKAGE (M548A1)	0230 00
REPLACE FAN JACKSHAFT PULLEYS (M548A1)	0231 00
REPLACE COOLING FAN IDLER ARM (M548A3)	0232 00
REPLACE COOLING FAN IDLER ARM SUPPORT (M548A3)	0233 00
REPLACE FAN PULLEY (M548A1)	0234 00
REPLACE COOLING FAN (M548A1)	0235 00
REPLACE COOLING FAN AND PULLEY (M548A3)	0236 00
REPLACE DRIVE SHAFT LUBRICATION HOSE, FITTINGS, AND BEARINGS (M548A1)	0237 00
REPLACE COOLING FAN DRIVE HOUSING AND SHAFT (M548A3)	0238 00
REPLACE DRAIN CAP AND SIGHT GAUGE (M548A3)	0239 00

FILL COOLING SYSTEM (M548A1) 0212 00

THIS WORK PACKAGE COVERS:

Fill Cooling System (page 0212 00-1).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)
Radiator Filling Can (WP 0541 00, Item 9)
Antifreeze and Battery Tester (WP 0541 00, Item 55)

Materials/Parts
Antifreeze (WP 0542 00, Item 4)
Antifreeze test kit (WP 0542 00, Item 5)

Personnel Required
Unit Mechanic

References
TB 750-651
See your -10
FM 9-207

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Center seat raised (see your -10)
Hull bottom access cover removed (WP 0383 00)

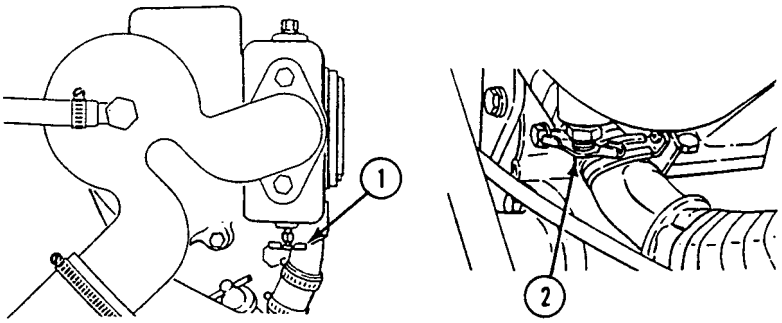
SERVICING

FILL COOLING SYSTEM

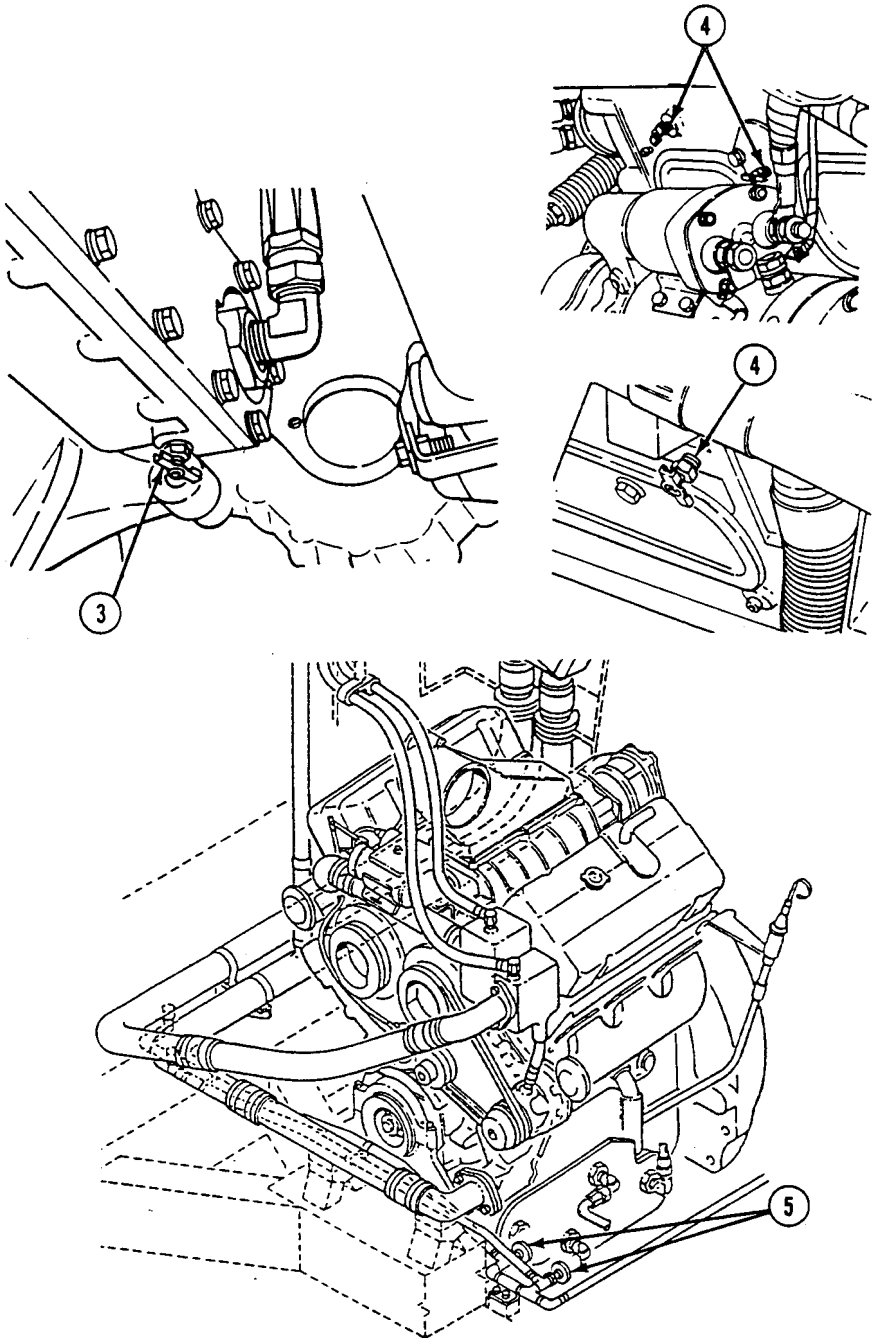
NOTE

All engine coolant drain valves and plugs can be reached through the center seat and hull bottom access cover.

1. Check that engine cooling system drain valves are closed or plugs installed:
   a. Drain valve (1) on thermostat housing.
   b. Drain valve (2) on outlet tube.
   c. Drain valve (3) on oil cooler.
   d. Three drain valves (4) on engine block.
   e. Two valves (5) on hoses.



FILL COOLING SYSTEM (M548A1) — Continued **0212 00**



CAUTION

Coolant must flow freely to help prevent overheating and engine damage. If rust, scale, or sediment prevent free flow of coolant, flush system per TB 750-651. This will be done only when needed.

NOTE

System coolant capacity is 9.5 gallons (36 liters). Use antifreeze in system at all times to reduce corrosion in engine block and cooling system. Coolant provides high and low temperature protection.

Coolant means the mixture of water and antifreeze.

2. Remove radiator cap (1) from filler neck (2). Add antifreeze and clean water mix based on protection chart label (on container).

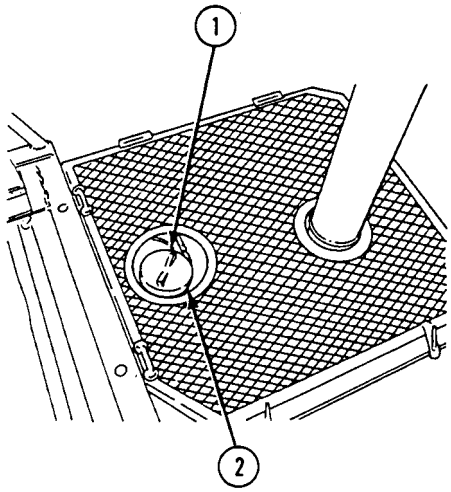
NOTE

During initial fill add coolant slowly, especially the last few quarts (liters), to permit trapped air to escape.

3. Fill system slowly with 9.5 gallons (36 liters) of coolant. Bring coolant level to within 1/2 inch (13mm) of bottom of filler neck (2).

4. Use antifreeze and battery tester or antifreeze test kit to check coolant for level of protection required for climate.

5. Install radiator cap (1) on filler neck (2).



CAUTION

Do not operate engine if temperature exceeds 230°F (110°C) or serious damage will occur. Stop engine and allow it to cool.

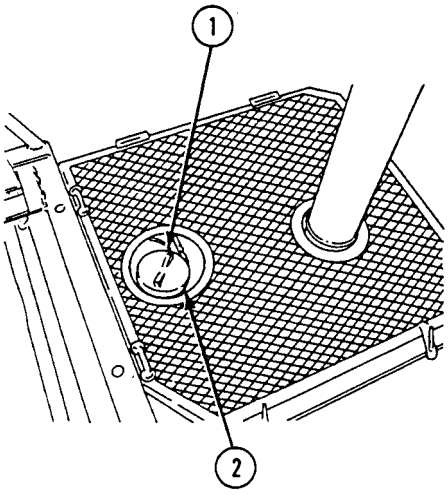
6. Start and run engine until it reaches 160°F to 200°F (71.1°C to 93.3°C) operating temperature. Check for leaks.

7. Stop engine and allow to cool.

WARNING

Hot radiator coolant can burn you. Remove cap only if cool to touch. Drain cocks may be hot. Turn cap slowly to release pressure.

8. Remove radiator cap (1) from filler neck (2) and check coolant level. Add coolant to within 1/2 inch (13 mm) of bottom of filler neck. Install radiator cap on filler neck.
9. Fill out coolant tag and secure to filler neck (2).



FOLLOW-THROUGH STEPS

1. Install hull bottom access cover (WP 0383 00).
2. Lower center seat (see your -10).

END OF TASK

DRAIN COOLING SYSTEM (M548A1) 0213 00

THIS WORK PACKAGE COVERS:

Drain Cooling System (page 0213 00-1).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts

Suitable container

Personnel Required

Unit Mechanic

References

See your -10
TB 750-651
FM 9-207

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Center seat raised (see your -10)
Hull bottom access cover removed (WP 0383 00)
Power plant lower rear access cover removed (see your -10).

SERVICING

DRAIN COOLING SYSTEM

WARNING

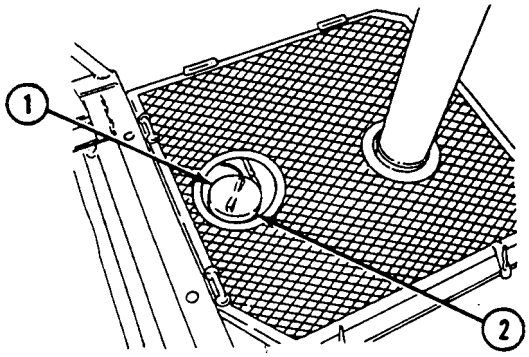
Hot radiator coolant can burn you. Remove cap when cool to touch. Drain cocks may be hot. Turn cap slowly to release pressure.

NOTE

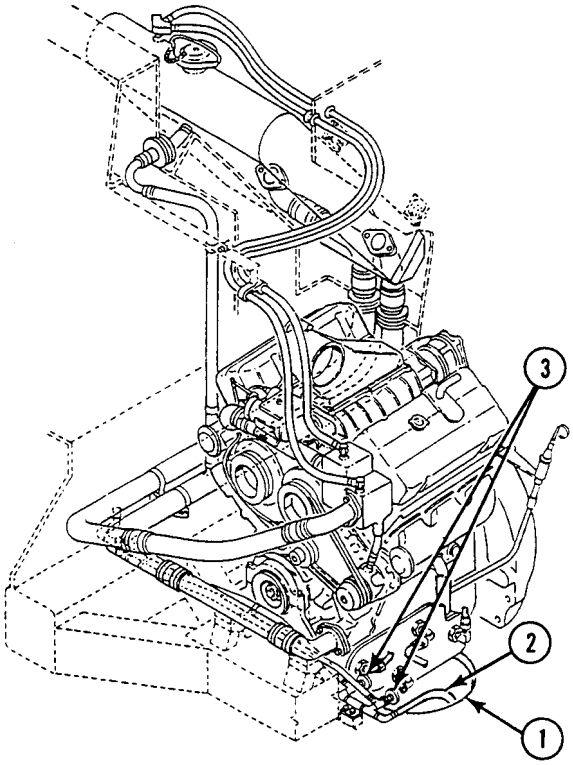
Coolant in the radiator, cylinder block, cylinder heads, oil cooler, coolant tubes and hoses must flow freely. When rust, scale, or other sediment keeps the coolant from flowing freely, flush per TB 750-651. The procedure will be performed only as necessary and not as a routine maintenance procedure.

1. Remove radiator cap (1) from filler neck (2).
2. Place container under hull bottom access hole (1).

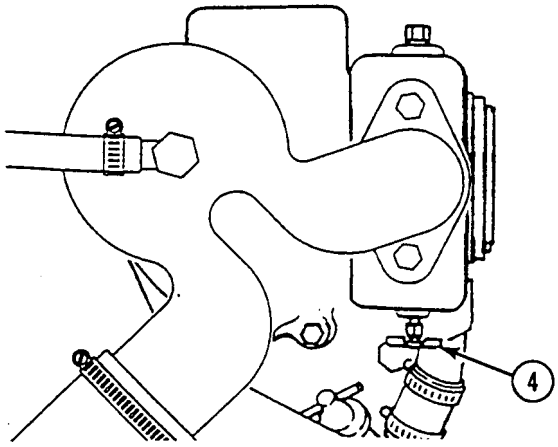
3. Place end of hose (2) into container.



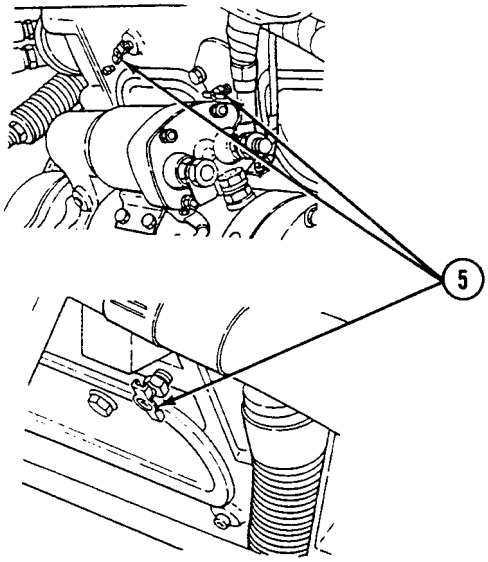
4. Open both drain valves (3).



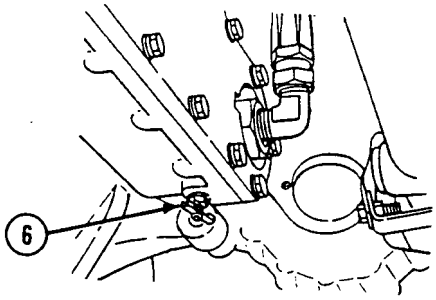
5. Place container under thermostat housing drain valve (4). Open drain valve.



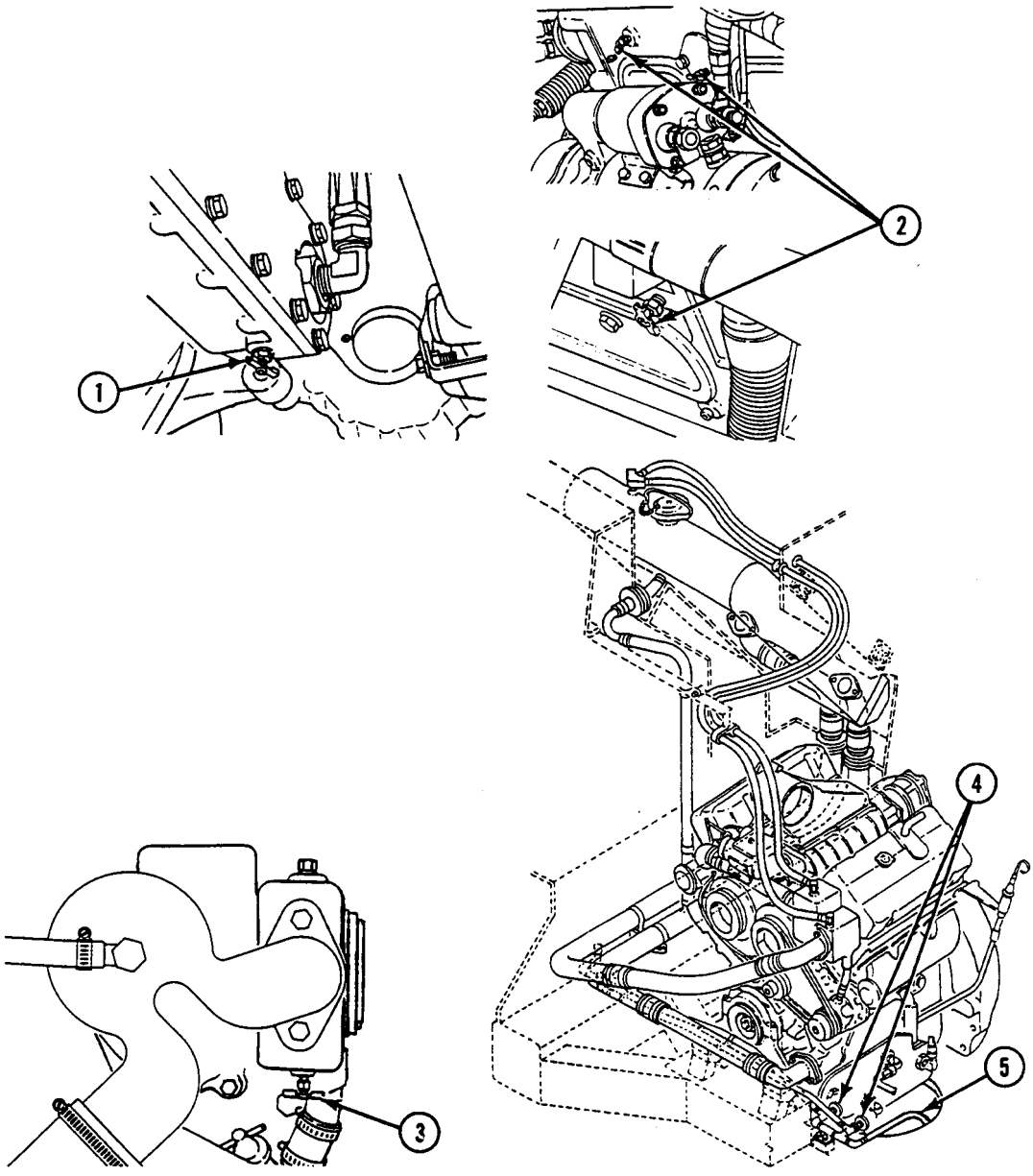
6. Place containers under three engine block drain valves (5). Open drain valves.



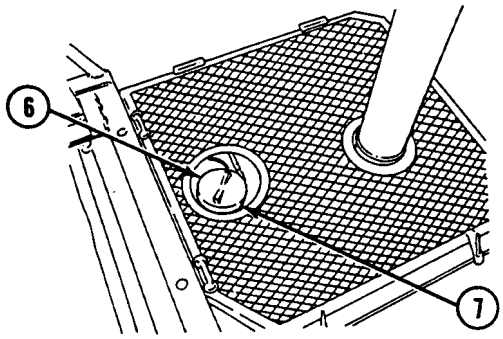
7. Place container under oil cooler drain valve (6). Open drain valve.



8. After cooling system is drained, close seven drain valves as follows:
   a. One drain valve (1) on oil cooler.
   b. Three drain valves (2) on engine block.
   c. One drain valve (3) on thermostat housing.
   d. Two drain valves (4) on coolant hoses.
9. Place hose (5) back inside engine compartment.



10. Cover containers if coolant is to be reused. If coolant is to be replaced, dispose of properly. Notify your supervisor.
11. Install radiator cap (6) on filler neck (7).
12. Attach a warning tag that coolant has been drained from carrier.



FOLLOW-THROUGH STEPS

1. Install hull bottom access cover (WP 0383 00).
2. Lower center seat (see your -10).
3. Install power plant lower rear access cover (see your -10).

END OF TASK

DRAIN/FILL COOLING SYSTEM (M548A3) 0214 00

THIS WORK PACKAGE COVERS:

Drain (page 0214 00-2).
Fill (page 0214 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Personnel Required

Unit Mechanic

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)
Radiator Filling Can (WP 0541 00, Item 9)
Radiator Test Kit (WP 0541 00, Item 54)
Antifreeze and Battery Tester (WP 0541 00, Item 55)

References

See your -10
TB 750-651
FM 9-207

Materials/Parts

Antifreeze (WP 0542 00, Item 4)
Sealing compound (WP 0542 00, Item 23)
Suitable container

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Hull bottom access cover removed (WP 0383 00)
Center seat raised (see your -10)

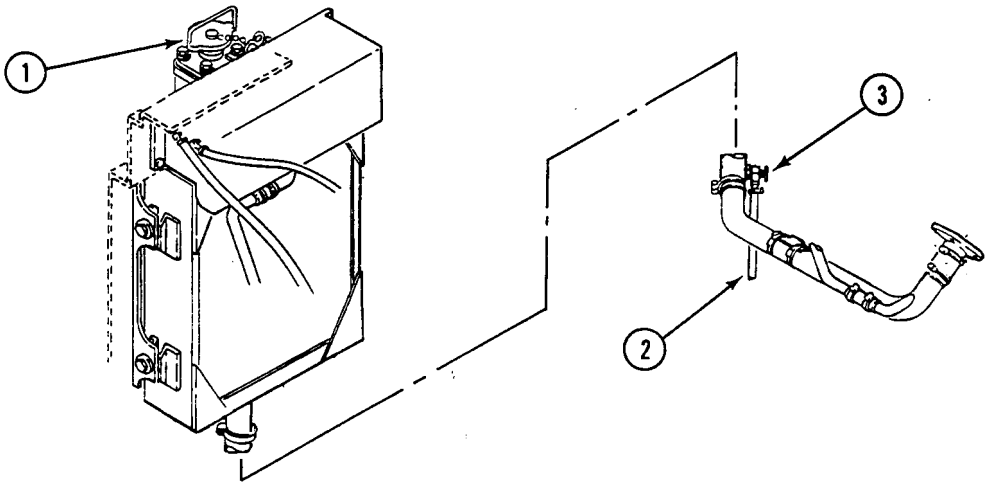
SERVICING

DRAIN

WARNING

Hot radiator coolant can burn you. Remove cap ONLY if cool to touch. Drain cocks may be hot. Turn cap slowly to release pressure.

1. Remove coolant filler cap (1).
2. Place end of hose (2) stowed outboard of lower access cover in suitable clean container.
3. Open drain cock (3) and allow cooling system to drain.
4. After cooling system has drained, close drain cock (3) and stow hose (2) outboard of lower access cover.



FILL

CAUTION

Coolant must flow freely to help prevent overheating and engine damage. If rust, scale, or sediment prevent free flow of coolant, flush system per TB 750-651. This will be done only when needed.

NOTE

Coolant in the radiator, cylinder block, cylinder heads, oil cooler, coolant tubes, and hoses must flow freely. When rust, scale, or other sediment keeps the coolant from flowing freely, flush per TB 750-651. The procedure will be performed only as necessary and not as a routine maintenance procedure.

NOTE

System coolant capacity is 14 gallons (53 liters). Use antifreeze in system at all times to reduce corrosion in engine block and cooling system. Coolant provides high and low temperature protection.

Coolant means the mixture of water and antifreeze.

1. Remove coolant filler cap (1). Add antifreeze and clean water mix based on protection chart label (on container).

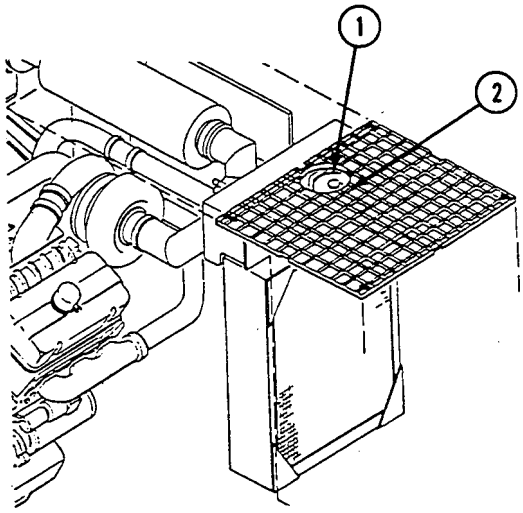
NOTE

During initial fill add coolant slowly, especially the last few quarts (liters), to permit trapped air to escape.

2. Fill system slowly with 14 gallons (53 liters) of coolant. Bring coolant level to within 1/2 inch (13 mm) of bottom of filler neck (2).

3. Use antifreeze and battery tester or radiator test kit to check coolant for level of protection required for climate.

4. Install coolant filler cap (1) on filler neck (2).



CAUTION

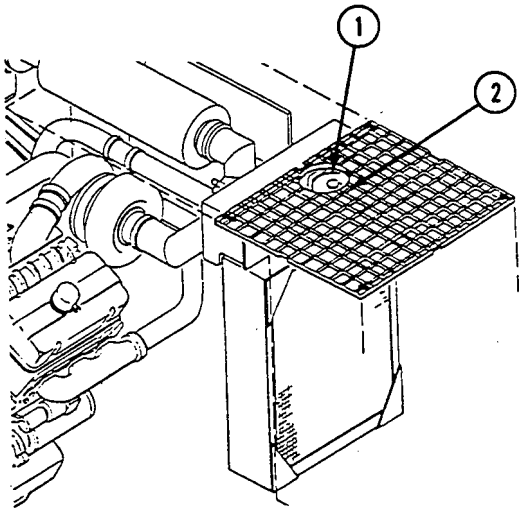
Do not operate engine if temperature exceeds 230°F (110°C) or serious damage will occur. Stop engine and allow it to cool.

5. Start and run engine until it reaches 160°F to 200°F (71.1°C to 93.3°C) operating temperature. Check for leaks.
6. Stop engine and allow to cool.

WARNING

Hot radiator coolant can burn you. Remove cap only if cool to touch. Drain cocks may be hot. Turn cap slowly to release pressure.

7. Remove coolant filler cap (1) from filler neck (2) and check coolant level. Add coolant to within 1/2 inch (13 mm) of bottom of filler neck. Install coolant filler cap on filler neck.
8. Fill out coolant tag and secure to filler neck (2).



FOLLOW-THROUGH STEPS

1. Install hull bottom access cover (WP 0383 00).
2. Lower center seat (see your -10).

END OF TASK

REPLACE RADIATOR AND SEAL (M548A1) 0215 00

THIS WORK PACKAGE COVERS:

Removal (page 0215 00-2).
Cleaning (page 0215 00-3).
Installation (page 0215 00-5).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)
Radiator Cleaning Tool (WP 0541 00, Item 10)
Suitable lifting device

Materials/Parts
Antifreeze (WP 0542 00, Item 4)
Cleaning compound (WP 0542 00, Item 9)
Detergent (WP 0542 00, Item 16)
Nonmetallic hose (WP 0542 00, Item 28)
Cleaning compound (WP 0542 00, Item 29)
Sealing compound (WP 0542 00, Item 37)
Gasket (2)
Lock nut (8)
Seal
Suitable container

Personnel Required
Unit Mechanic

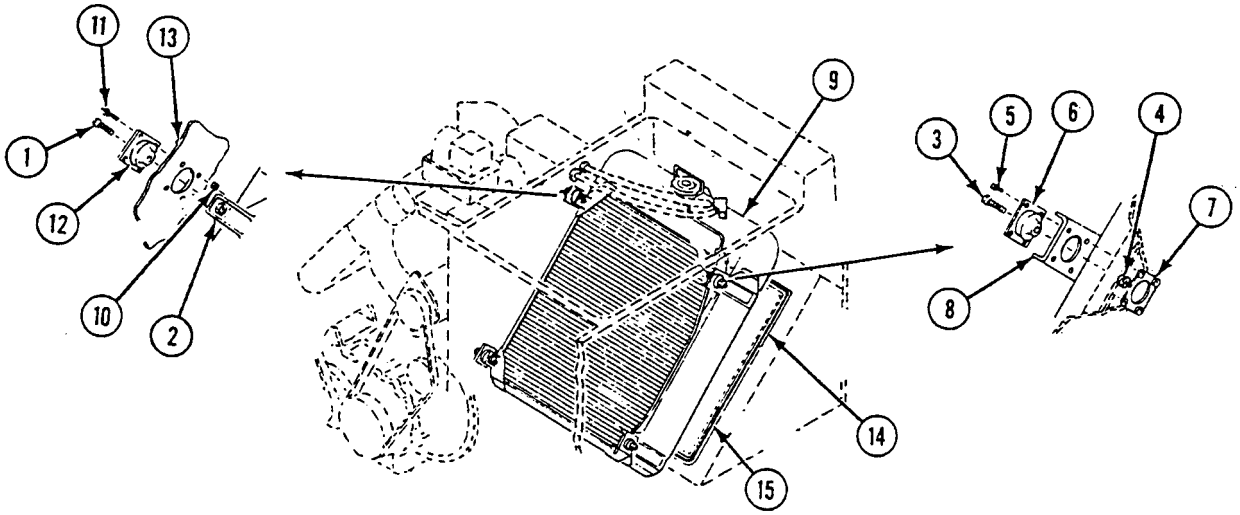
References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Center seat raised (see your -10)
Hull bottom access cover removed (WP 0383 00)
Power plant rear access cover/door removed (see your -10)
Top right access grille removed (WP 0390 00)
Cooling system drained (WP 0212 00)
Exhaust pipes removed (WP 0209 00)
Muffler removed (WP 0206 00)
Radiator tubes, hoses, and fittings removed (WP 0219 00)

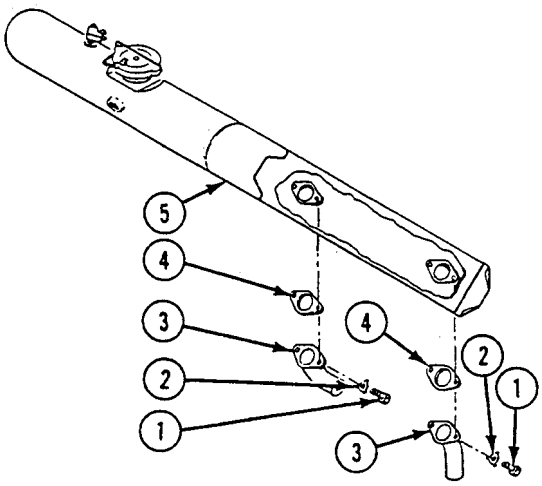
REPLACE RADIATOR AND SEAL (M548A1) — Continued 0215 00

REMOVAL

1. Remove two screws (1) from two radiator brackets (2) and two screws (3) from two inserts (4).
2. Remove eight screws (5), two mounts (6), and plates (7) from two radiator brackets (8).
3. Use suitable lifting device and remove radiator (9) from carrier.
4. Remove eight lock nuts (10), screws (11), and two mounts (12) from bulkhead (13). Discard lock nuts.
5. Remove seal (14) from retainer (15). Discard seal.

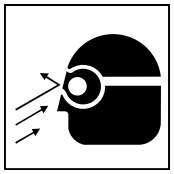


6. Remove four screws (1), washers (2), two elbows (3), and gaskets (4) from radiator (5). Discard gaskets.



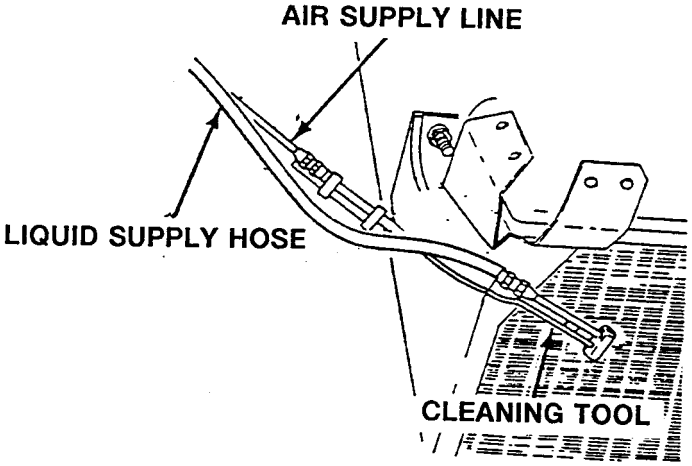
CLEANING

WARNING



Wear safety goggles while using compressed air. Don't take a chance on eye injury or blindness.

1. Clean radiator fins with special tool:
   a. The cleaning tool is designed to remove deposits of sand, oil, clay, and other debris from cooling fins of radiator while installed in carrier.
   b. It consists of two tubes connected to a mixing head which produces two high pressure jets of liquid and air mixture.
   c. The air supply tube has a push button valve with 3/8 inch (10 mm) female pipe thread for connection to a 5 cubic foot (2 m) 100-150 psig (7-11 kg/sq cm) air supply.
   d. The liquid supply tube is attached to a 3/8 inch x 20 feet (10 mm x 6 m) rubber hose for siphoning from a suitable clean container.
   e. Mix a solution of detergent and water or nontoxic nonflammable solvent and water. Mix one part of detergent or solvent to about five parts of water.
   f. Cover all exposed openings of engine.
   g. Connect tool to air supply and insert hose in container of solution.
   h. Saturate front and back of radiator with solution. Soak for about 10 minutes.
   i. Remove heavy deposit from face of radiator using a brush that will not damage fins.
   j. Blast radiator with air and liquid mixture, holding tool approximately 1/2 inch (13 mm) from face of radiator. Alternate from back to front until a good flow of liquid through radiator is seen over entire area. Use thumbscrew and steel strip to lock radiator cleaning tool in any configuration needed to reach all areas of radiator.



   k. Wash engine parts and radiator with clear water. Remove hose from container. Use air to remove excess water.
   l. Uncover engine openings. Place grille in place on hull.

m. Install top right access grille (WP 0383 00).

n. Make sure exhaust extension is securely fitted to muffler (WP 0207 00).

2. Flushing radiator:

a. Plug radiator fill opening.

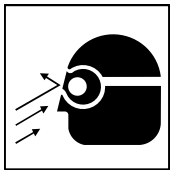
b. Direct water under pressure into outlet opening in lower tank. Allow water to circulate for 10 minutes.

3. Check radiator. Replace radiator that has cracks, dents, or shows signs of leaks.

4. Check mounts. Replace mounts that are cracked or worn.

5. If replacing seals or gaskets, scrape and clean mounting surfaces with cleaning compound.

WARNING



Wear safety goggles while using compressed air. Don't take a chance on eye injury or blindness.

6. Blow foreign material from outside of radiator core with 15 psi (103 kN/cm) compressed air.

7. Check radiator cap. Replace cap that is cracked, worn, or shows signs of leaks. Pressure valve portion of cap should open between 13 and 18 psi (90 and 124 kN/sq cm) pressure. Vacuum relief valve should open between 0 and 0.6 psi (0 and 4.1 kN/sq cm) below atmospheric pressure. Replace cap if valves do not open.

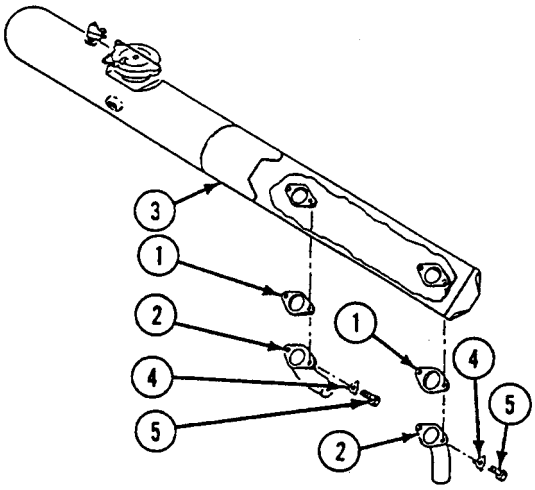
8. Check radiator mounting inserts. Notify your supervisor to replace loose inserts.

INSTALLATION

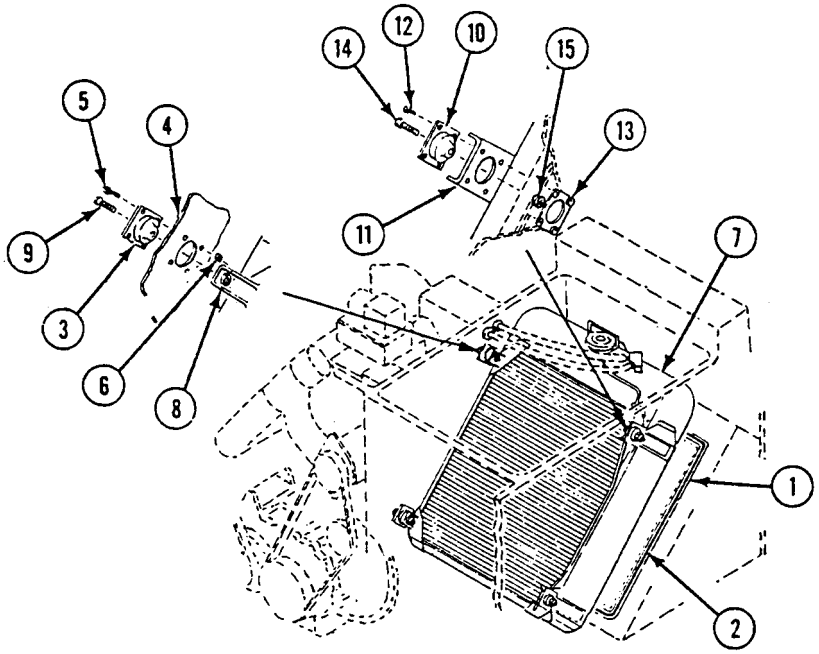
CAUTION

To prevent damage to carrier cooling system, be sure that all shipping plugs are removed from radiator. Before installing, check that all coolant passages in radiator are clear of obstructions.

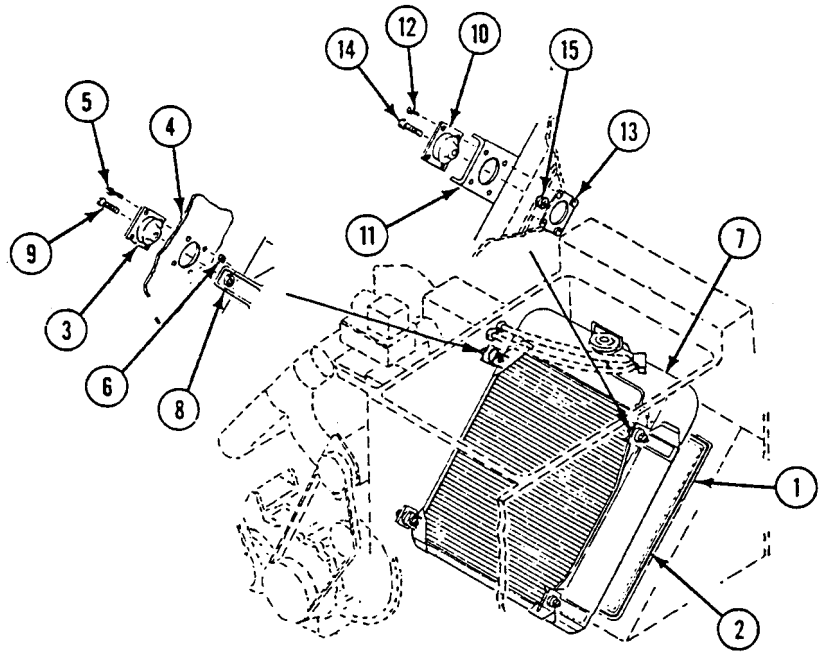
1. Put sealing compound on both sides of two new gaskets (1).
2. Place two new gaskets (1) and elbows (2) on radiator (3). Secure with four washers (4) and screws (5).



3. Install new seal (1) in retainer (2). Butt ends of seal together. Trim as needed.
4. Install two mounts (3) in bulkhead (4). Secure with eight screws (5) and new lock nuts (6).
5. Use suitable lifting device to lower radiator (7) into carrier. Keep device on radiator until secured in carrier.
6. Secure two mounts (3) to two radiator brackets (8) with two screws (9).



7. Secure two mounts (10) to two radiator brackets (11) with eight screws (12) and two plates (13).
8. Install two screws (14) through two mounts (10) into insert (15) to secure radiator (7) to hull.
9. Remove lifting device from radiator.



FOLLOW-THROUGH STEPS

1. Install exhaust pipes (WP 0209 00) and muffler (WP 0206 00).
2. Install radiator tubes, hoses, and fittings (WP 0219 00).
3. Fill cooling system (WP 0212 00).
4. Install hull bottom access cover (WP 0383 00).

CAUTION

Stop engine if coolant temperature gauge indicates above 230° F (110° C). Serious damage to engine may result.

5. Start engine (see your -10). Run engine until coolant temperature reaches 160°-230° F (71°-110° C).
6. Check radiator and hoses, tubes, and fittings for leaks.
7. Stop engine (see your -10). Remove radiator cap slowly and check coolant level.
8. Add coolant to bring level to bottom of filler neck (WP 0212 00).
9. Install power plant rear access cover/door (see your -10).
10. Lower center seat (see your -10).

END OF TASK

REPLACE RADIATOR AND SEALS (M548A3) 0216 00

THIS WORK PACKAGE COVERS:

Removal (page 0216 00-2).
Cleaning (page 0216 00-3).
Installation (page 0216 00-4).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)
Radiator Cleaning Tool (WP 0541 00, Item 10)
Endless Sling (WP 0541 00, Item 46)
Socket Wrench Set (WP 0541 00, Item 64)
Torque Wrench (WP 0541 00, Item 71)
Lifting device with rated lift capacity of at least 150 lb (68 kg)

Materials/Parts

Adhesive (WP 0542 00, Item 1)
Cleaning compound (WP 0542 00, Item 9)
Sealing compound (WP 0542 00, Item 36)
Gasket (2)
Lock nut (10)
Seal (4)
Tab washer (4)

Personnel Required

Unit Mechanic

Helper (H)

References

See your -10

Equipment Condition

Engine stopped (see your -10)

Carrier blocked (see your -10)

Exhaust pipe removed (WP 0210 00)

Radiator auxiliary tank removed (WP 0217 00)

REMOVAL

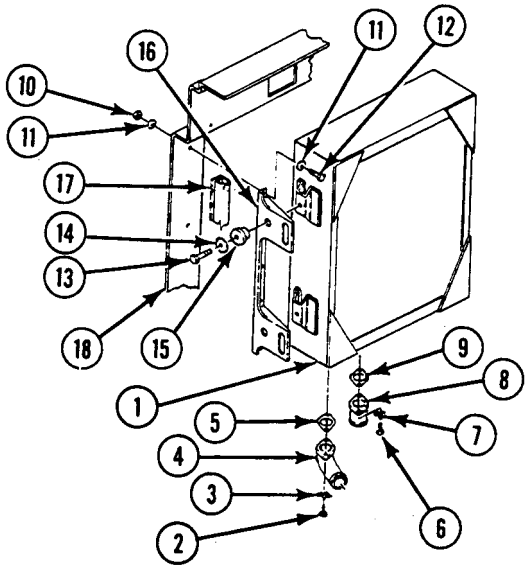
WARNING

Tubes, hoses, and fittings may contain hot coolant or pressure. Remove all parts carefully to avoid injury to personnel.

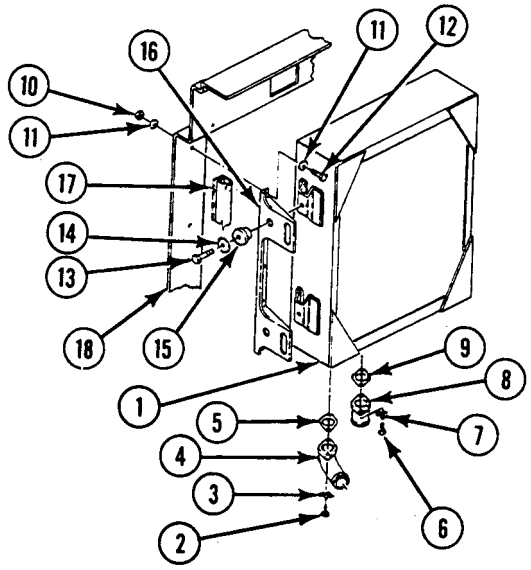
NOTE

Remove only tubes, hoses, and fittings necessary to perform maintenance. Mark all parts for easy identification before removing.

1. Cover both sides of radiator (1) with cardboard or similar material for protection.
2. Remove two screws (2), tab washers (3), elbow (4), and gasket (5) from radiator (1). Discard gasket and tab washers.
3. Remove two screws (6), tab washers (7), adapter (8), and gasket (9) from radiator (1). Discard gasket and tab washers.



4. Use lifting device with minimum capacity of 150 lb (68 kg) and endless sling to support radiator (1). Have helper assist. Remove 10 lock nuts (10), 20 washers (11), 10 screws (12), and radiator. Discard lock nuts.
5. Remove four screws (13), washers (14), mounts (15), and two supports (16) from radiator (1).
6. Remove four seals (17) from radiator bulkhead (18). Discard seals.



CLEANING

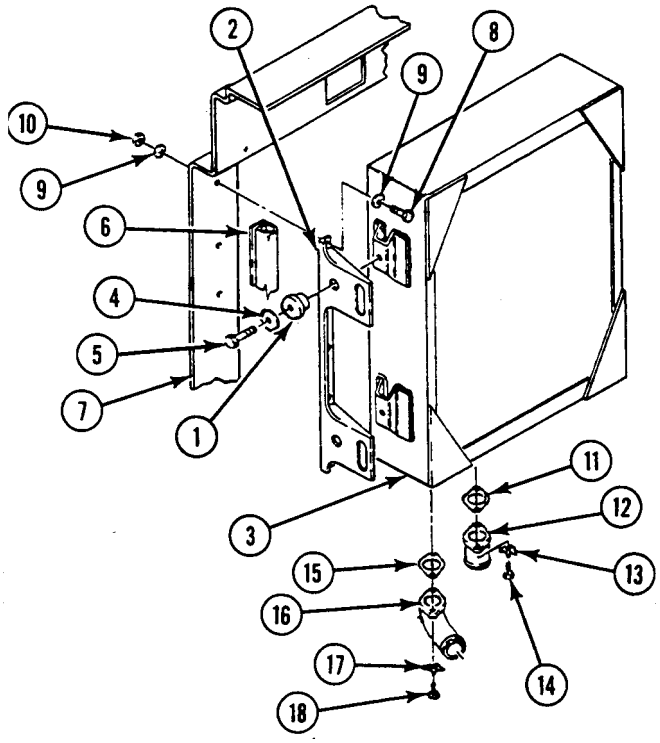
NOTE

Clean seal mounting surfaces with cleaning compound.

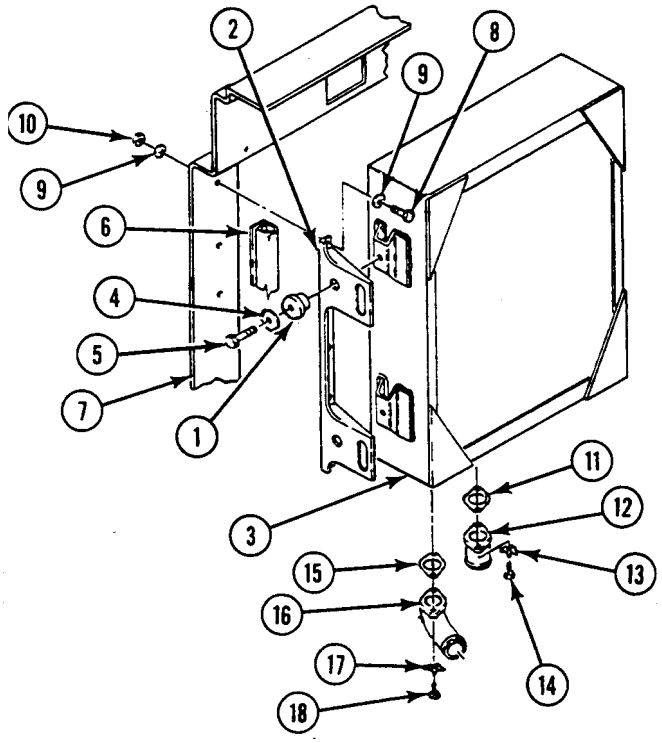
1. Inspect radiator for evidence of leaks. Replace radiator if it leaks.
2. Use radiator cleaning tool to remove deposits of sand, oil, clay, and other debris from radiator fins.
3. Inspect four mounts and seals for cracks, breaks, and loss of resiliency. Replace mounts and seals that show any evidence of these defects.

INSTALLATION

1. Lubricate four mounts (1) with water and install on radiator supports (2).
2. Install two radiator supports (2) on radiator (3) and secure with four washers (4) and screws (5). Tighten screws to 360-420 lb-in (41-47 N•m).
3. Install four new seals (6) as follows:
   a. Apply thin layer of adhesive to mounting surfaces of four seals (6) and radiator bulkhead (7). Allow to dry.
   b. Miter seals at corner for good fit. Join seals (6) and radiator bulkhead (7) surfaces together firmly.



4. Install radiator (3) on radiator bulkhead (7). Have helper assist. Secure with 10 screws (8), 20 washers (9), and 10 new lock nuts (10). Use endless sling and lifting device.
5. Apply sealing compound to both sides of new gasket (11). Install gasket and adapter (12) on radiator (3). Secure with two new tab washers (13) and screws (14).
6. Apply sealing compound to both sides of new gasket (15). Install gasket and elbow (16) on radiator (3). Secure with two new tab washers (17) and screws (18).



FOLLOW-THROUGH STEPS

1. Install exhaust pipes (WP 0210 00).
2. Install radiator auxiliary tank (WP 0217 00).

END OF TASK

REPLACE RADIATOR AUXILIARY TANK (M548A3) 0217 00

THIS WORK PACKAGE COVERS:

Removal (page 0217 00-2).
Cleaning (page 0217 00-3).
Installation (page 0217 00-4).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts

Cleaning compound (WP 0542 00, Item 9)
Sealing compound (WP 0542 00, Item 36)
Gasket
Lock nut (4)
Lock washer (4)

Personnel Required

Unit Mechanic
Helper (H)

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)
Top access cover and grilles removed (see your -10)
Cooling system drained (WP 0214 00)

REMOVAL

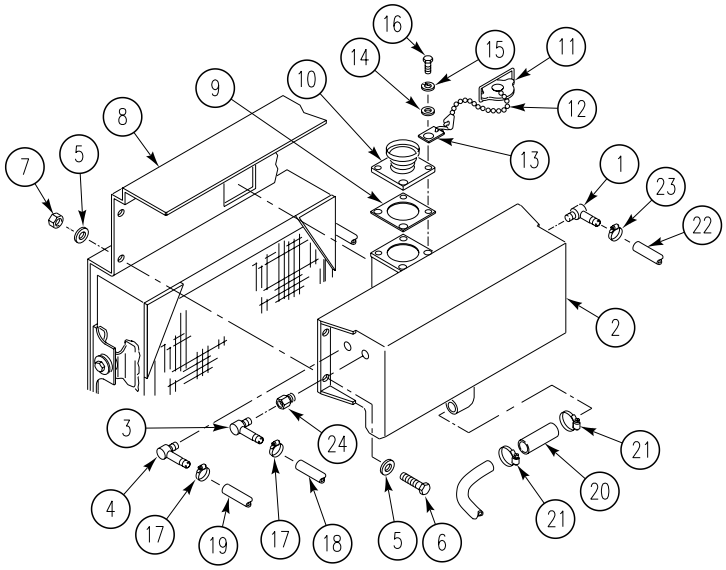
WARNING

Tubes, hoses, and fittings may contain hot coolant or pressure. Remove all parts carefully to avoid injury to personnel.

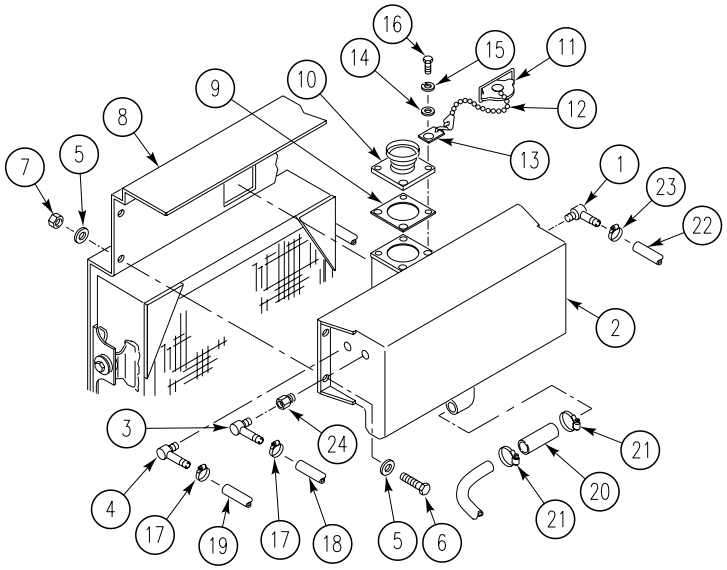
NOTE

Remove only tubes, hoses, and fittings necessary to perform maintenance. Mark all parts for easy identification before removing.

1. Loosen clamp (23) and disconnect hose (22) and clamp from elbow (1).
2. Loosen two clamps (21) and disconnect hose (20) from bottom of auxiliary tank (2).
3. Loosen two clamps (17). Disconnect hose (18), elbow (3) from adapter (24), and hose (19) from elbow (4).



4. Remove four screws (16), lock washers (15), washers (14), bracket (13), chain (12), coolant filler cap (11), filler neck (10), and gasket (9) from auxiliary tank (2). Discard gasket and lock washers.
5. Remove four screws (6), eight washers (5), four lock nuts (7), and auxiliary tank (2) from radiator bulkhead (8). Discard lock nuts.
6. Remove elbow (1), elbow (3), and elbow (4) from auxiliary tank (2).



CLEANING

NOTE

Replace auxiliary tank, elbows, and hoses that are defective.

1. Inspect auxiliary tank for holes and cracks.
2. Inspect for cracked, weak, worn, or collapsed hoses.
3. Inspect elbows for cracks and damaged threads.
4. Clean all elbows with cleaning compound.

INSTALLATION

1. Apply sealing compound to threads of elbow (3) and install elbow in auxiliary tank (6).

NOTE

Check to be sure elbow (9) and elbow (11) are installed in correct places in auxiliary tank (6).

2. Apply sealing compound to threads of adapter (24), elbow (9) and elbow (11). Install adapter elbows in auxiliary tank (6).

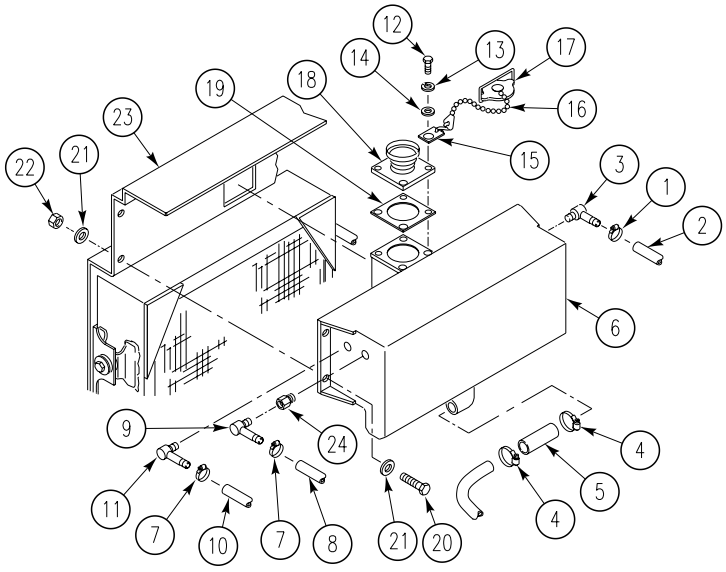
3. Install auxiliary tank (6), eight washers (21), four screws (20), and four new lock nuts (22) on radiator bulkhead (23).

4. Apply sealing compound to both sides of new gasket (19). Install gasket, filler neck (18), coolant filler cap (17), chain (16), and bracket (15) on auxiliary tank (6). Secure with four washers (14), new lock washers (13), and screws (12).

5. Install two clamps (7) on hose (8) and hose (10). Install hose (8) on elbow (9) and hose (10) on elbow (11). Tighten clamps.

6. Install hose (5) and two clamps (4) on bottom of auxiliary tank (6). Tighten clamps.

7. Install hose (2) and clamp (1) on elbow (3). Tighten clamp.



FOLLOW-THROUGH STEPS

1. Fill cooling system (WP 0214 00).

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

3. Install top access cover and grilles (see your -10).

END OF TASK

REPLACE ENGINE THERMOSTAT (M548A1) 0218 00

THIS WORK PACKAGE COVERS:

Removal (page 0218 00-2).
Cleaning (page 0218 00-2).
Installation (page 0218 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)
Socket Wrench Set (WP 0541 00, Item 64)
Torque Wrench (WP 0541 00, Item 71)

Materials/Parts

Cleaning compound (WP 0542 00, Item 9)
Sealing compound (WP 0542 00, Item 37)
Gasket
Lock washer (4)
Seal

Personnel Required

Unit Mechanic

References

See your -10

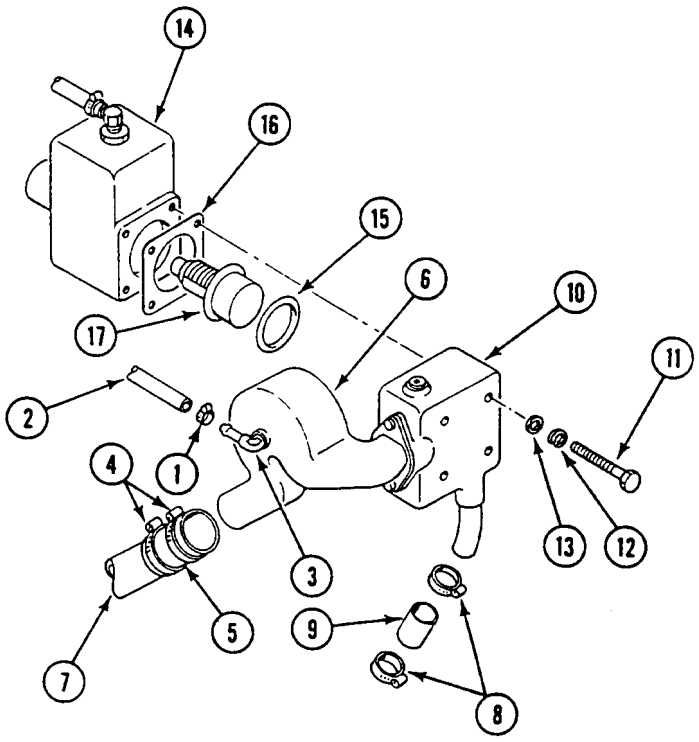
Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Center seat raised (see your -10)
Hull bottom access cover removed (WP 0383 00)
Thermostat housing drained (WP 0213 00)

REPLACE ENGINE THERMOSTAT (M548A1) — Continued 0218 00

REMOVAL

1. Loosen clamp (1) that secures thermostat vent hose (2) to elbow (3). Separate hose and clamp from elbow.
2. Loosen two clamps (4) that secure hose (5) to deaeration elbow (6) and tube (7). Slide hose and clamps off deaeration tube.
3. Loosen two clamps (8) that secure hose (9) to right thermostat housing (10). Separate hose from thermostat housing.
4. Remove four screws (11), lock washers (12), and flat washers (13) that secure right thermostat housing (10) and left thermostat housing (14). Discard lock washers.
5. Remove seal (15), gasket (16), and thermostat (17) from left thermostat housing (14). Discard seal and gasket.



CLEANING

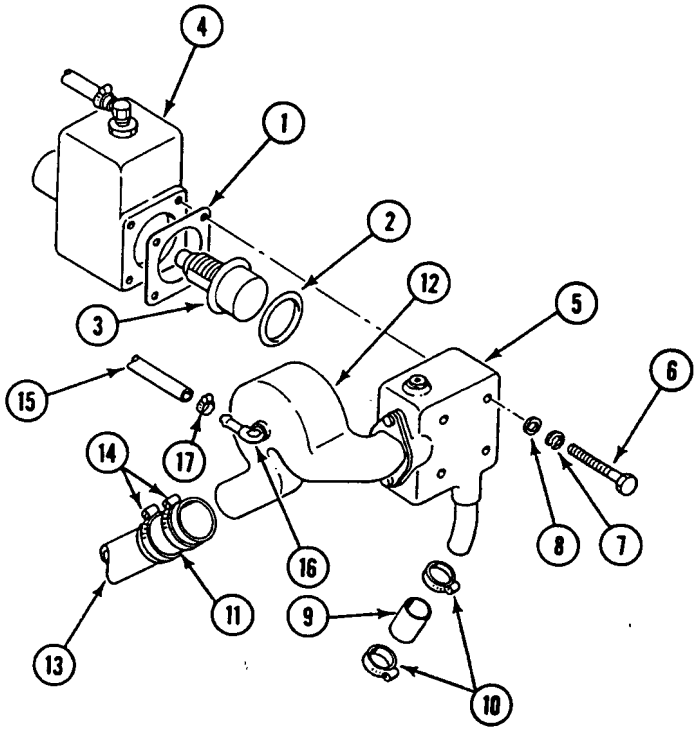
1. Clean thermostat housing with cleaning compound.

INSTALLATION

NOTE

Install thermostat in housing in position shown.

1. Put a thin coat of sealing compound on both sides of new gasket (1).
2. Install new seal (2), gasket (1), and thermostat (3) in left thermostat housing (4).
3. Secure left thermostat housing (4) and right thermostat housing (5) with four screws (6), new lock washers (7), and flat washers (8). Torque screws to 180-240 lb-in (20-27 N•m).
4. Install hose (9) on right thermostat housing (5). Secure with two clamps (10).
5. Install hose (11) on deaeration elbow (12). Secure hose on deaeration tube (13) and elbow (12) with two clamps (14).
6. Install hose (15) on elbow (16). Secure with clamp (17).



FOLLOW-THROUGH STEPS

1. Close thermostat housing drain valve (WP 0213 00).
2. Lower center seat (See your -10).
3. Install hull bottom access cover (WP 0383 00).
4. Fill cooling system (WP 0212 00).
5. Start engine (see your -10) and run until operating temperature of 160°-230° F (71°-110° C) is reached. Check for leaks.
6. Stop engine (see your -10). Check engine coolant level.
7. Add coolant (WP 0212 00) as needed to bring level to bottom of filler neck.

END OF TASK

REPLACE RADIATOR TUBES, HOSES, AND FITTINGS (M548A1) 0219 00

THIS WORK PACKAGE COVERS:

Removal (page 0219 00-2).
Installation (page 0219 00-8).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts

Antifreeze (WP 0542 00, Item 4)
Sealing compound (WP 0542 00, Item 37)
Tiedown strap (2) (WP 0542 00, Item 43)
Gasket (4)
Grommet (5)
Lock nut (3)
Lock washer (4)
Tab washer (8)

Personnel Required

Unit Mechanic

References

See your -10

Equipment Condition

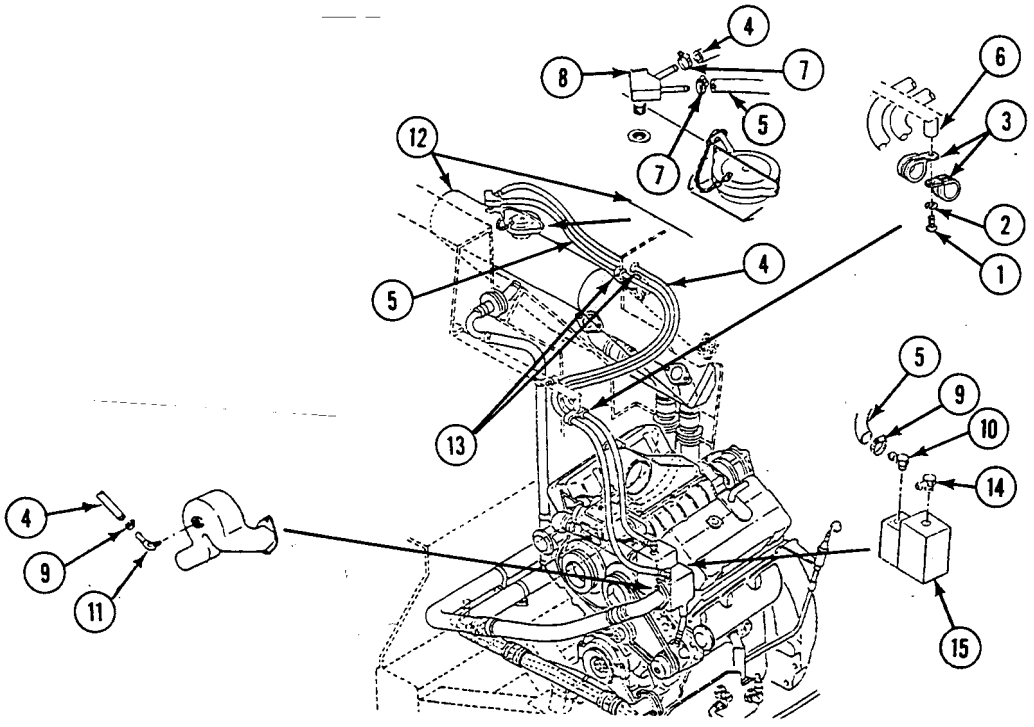
Engine stopped (see your -10)
Carrier blocked (see your -10)
Center seat raised (see your -10)
Hull bottom access cover removed (WP 0383 00)
Power plant rear access covers/door removed (see your -10)
Cooling system drained (WP 0213 00)

REMOVAL

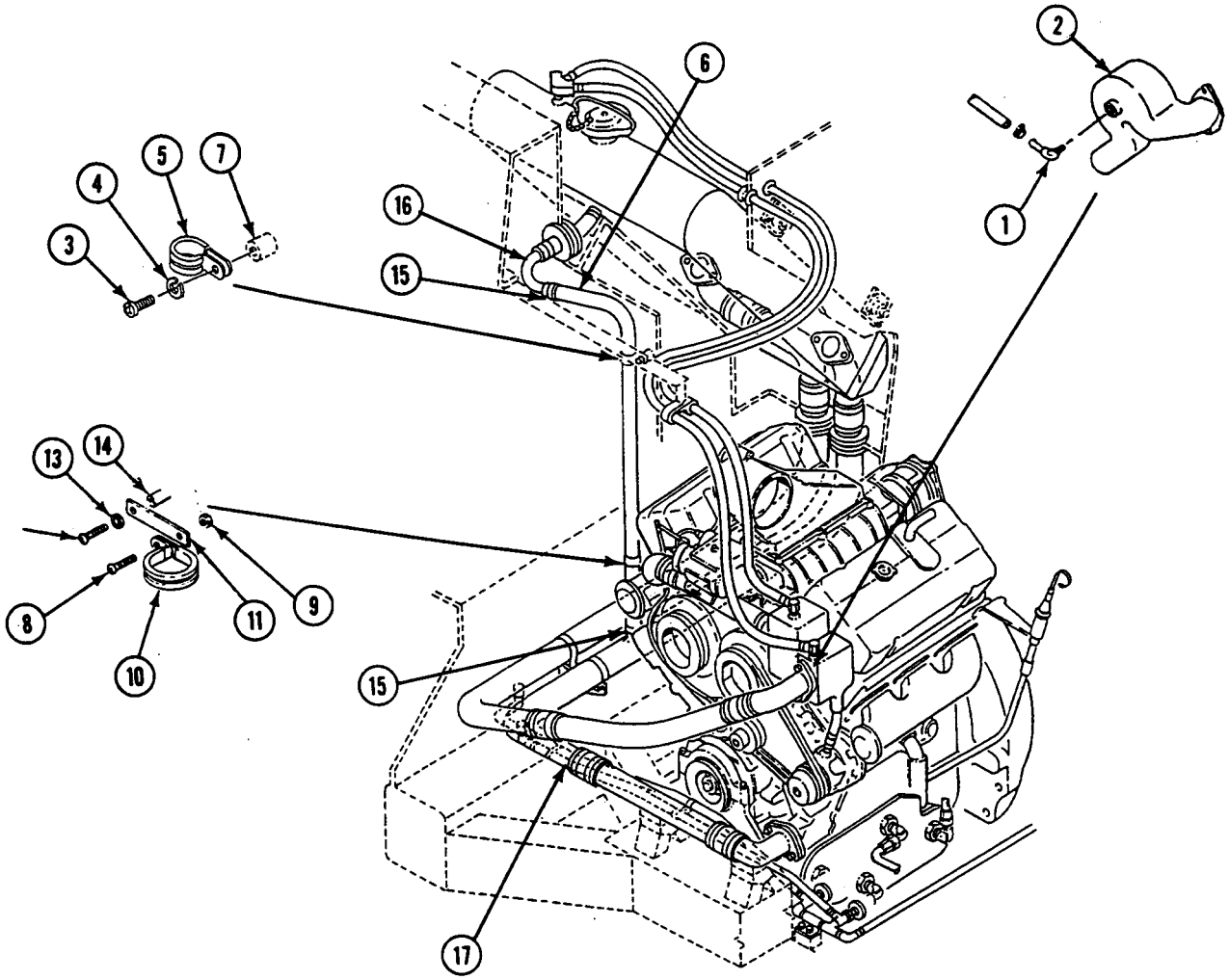
NOTE

Remove only those tubes, hoses, clamps, and fittings necessary to perform required maintenance.

1. Remove screw (1) and lock washer (2) that secure two clamps (3) and vent hose (4) and vent hose (5) to weldnut (6). Discard lock washer.
2. Loosen two clamps (7) that secure hose (4) and hose (5) to radiator manifold (8).
3. Loosen two clamps (9) that secure hose (4) and hose (5) to thermostat housing elbow (10) and vent hose elbow (11). Remove hoses and clamps.
4. Remove manifold (8) from radiator (12).
5. Remove two grommets (13) from hose (4) and hose (5). Discard grommets.
6. Remove plug (14) from thermostat housing (15).
7. Remove elbow (10) from thermostat housing (15).

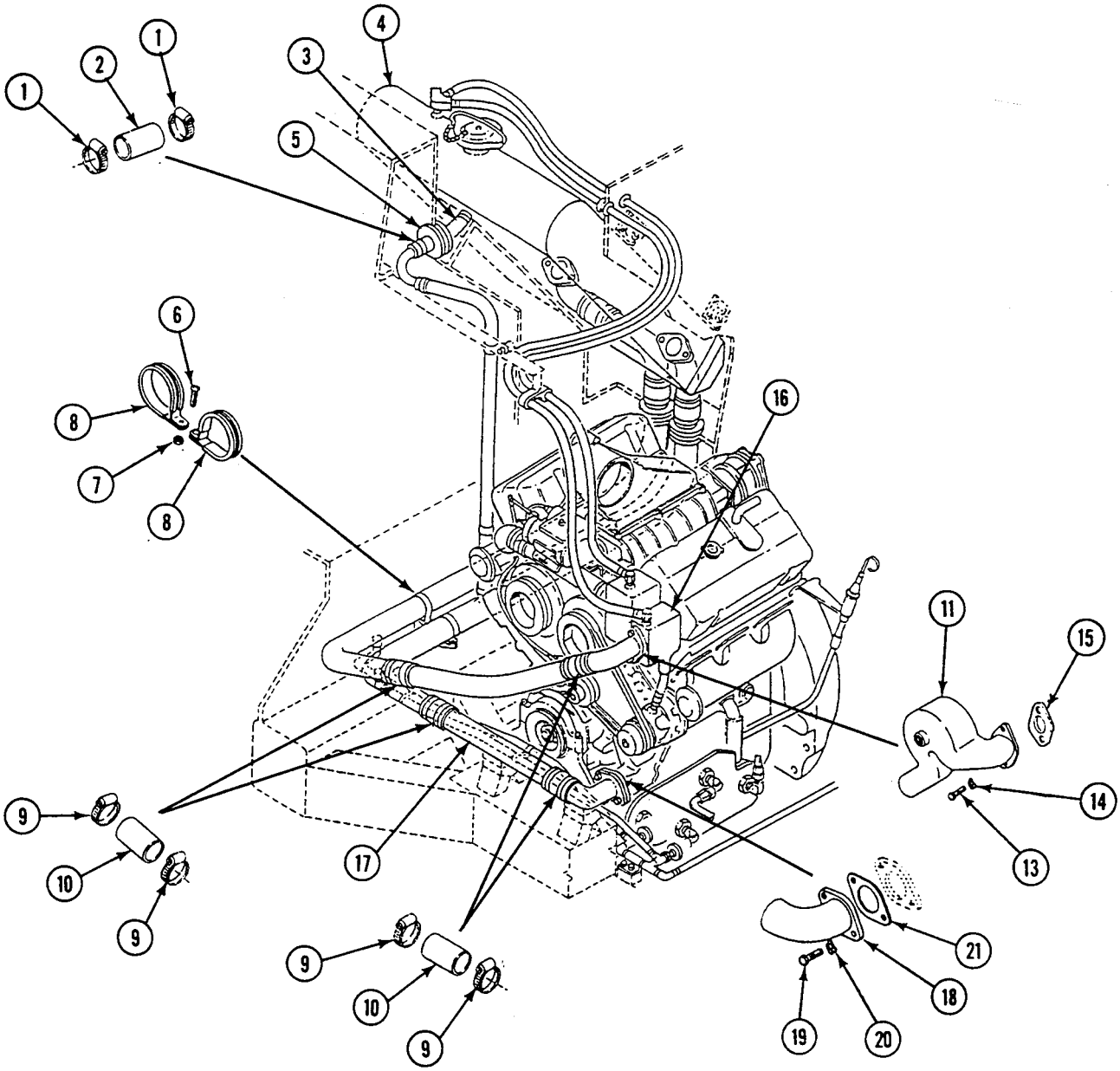


8. Remove elbow (1) from elbow (2).
9. Remove screw (3) and lock washer (4) that secure clamp (5) and radiator vent hose (6) to weldnut (7). Discard lock washer.
10. Remove screw (8) and lock nut (9) that secure clamp (10) to bracket (11). Discard lock nut.
11. Remove screw (12) and lock washer (13) that secure bracket (11) to weldnut (14). Discard lock washer.
12. Remove two clamps (15) that secure radiator vent hose (6) to vent elbow tube (16) and coolant outlet tube (17). Remove hose and clamps.

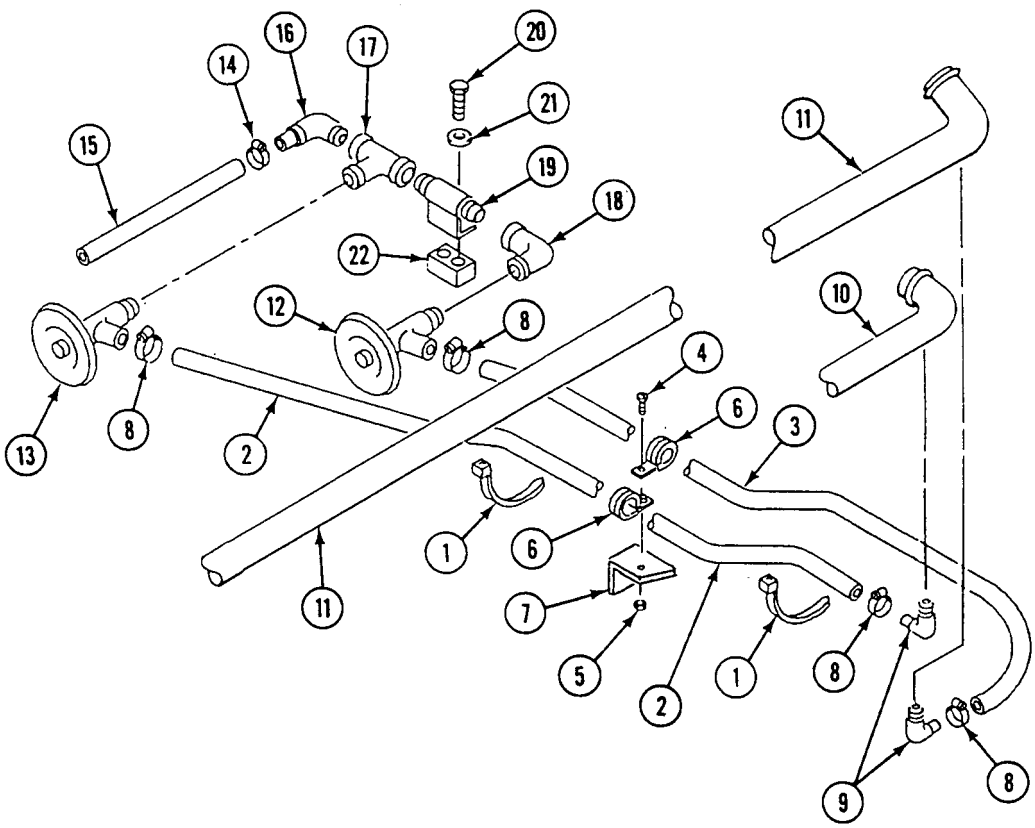


REPLACE RADIATOR TUBES, HOSES, AND FITTINGS (M548A1) — Continued 0219 00

13. Loosen two clamps (1) that secure hose (2) to elbow tube (3) and radiator (4). Remove tube, hose, and clamps.
14. Remove grommet (5) from hose (2). Discard grommet.
15. Remove two screws (6) and lock nuts (7) that secure two clamps (8) to hull. Discard lock nuts.
16. Loosen two clamps (9) that secure hose (10) to elbow (11) and outlet tube (12).
17. Remove two screws (13) and tab washers (14) that secure elbow (11) and gasket (15) to thermostat housing (16). Remove elbow, hose, and clamps. Discard tab washers and gasket.
18. Loosen two clamps (9) that secure hose (10) to oil cooler inlet tube (17) and inlet elbow (18).
19. Remove two screws (19) and tab washers (20) that secure inlet elbow (18) and gasket (21) to oil cooler housing. Remove elbow, hose, and clamps. Discard tab washers and gasket.

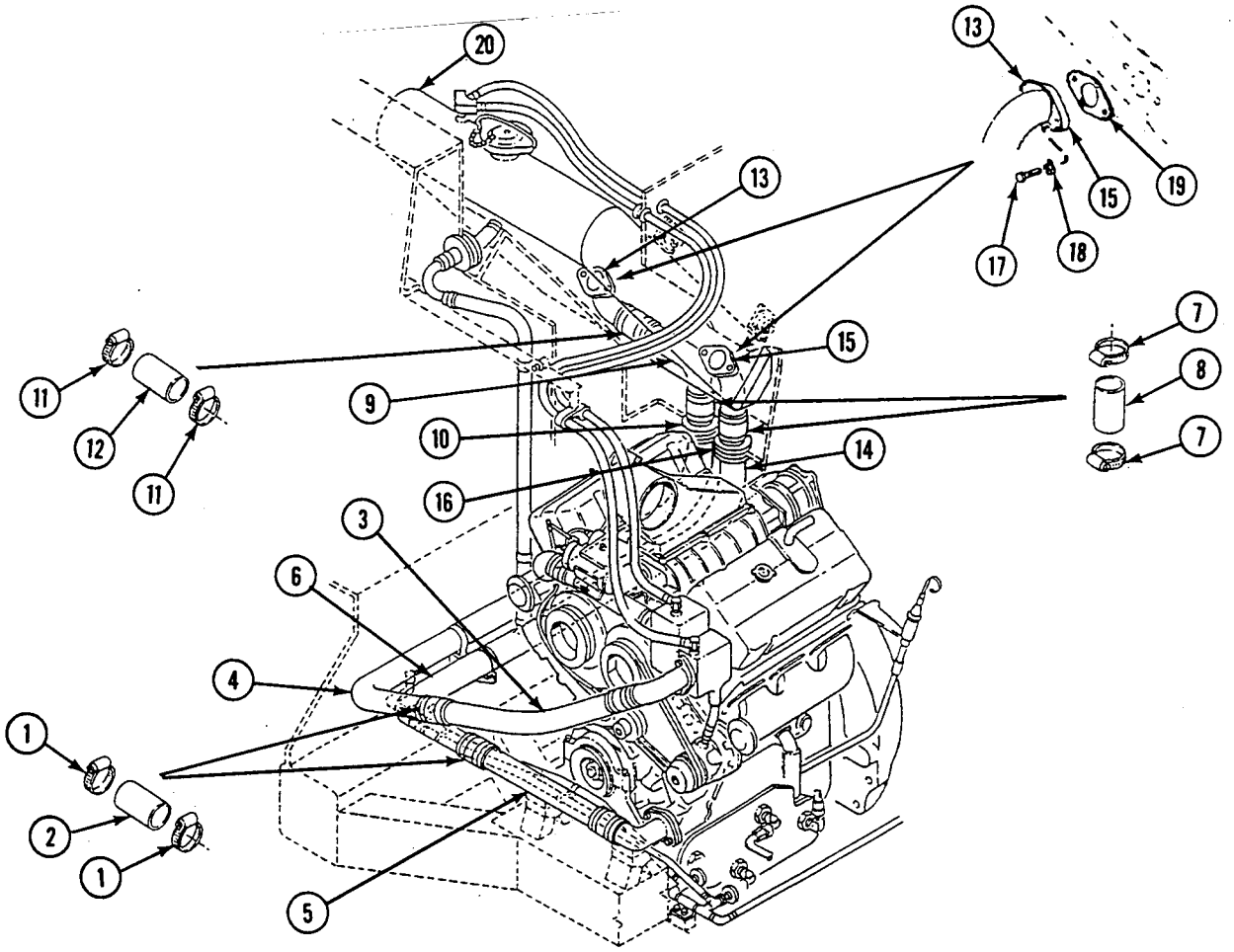


20. Remove two straps (1) from drain hose (2) and drain hose (3). Discard straps.
21. Remove screw (4), lock nut (5), and two clamps (6) from bracket (7). Discard lock nut.
22. Remove two clamps (8) from drain hose (2) and drain hose (3) and elbows (9).
23. Remove elbow (9) from coolant outlet tube (10).
24. Remove elbow (9) from coolant inlet tube (11).
25. Remove two clamps (8) from drain hose (2) and drain hose (3) and drain valve (12) and drain valve (13). Remove two hoses.
26. Remove clamp (14) and hose (15) from elbow (16).
27. Remove elbow (16) and drain valve (13) from tee (17).
28. Remove drain valve (12) from elbow (18).
29. Remove elbow (18) and tee (17) from nipple (19).
30. Remove two screws (20), washers (21), and nipple (19) from block (22).

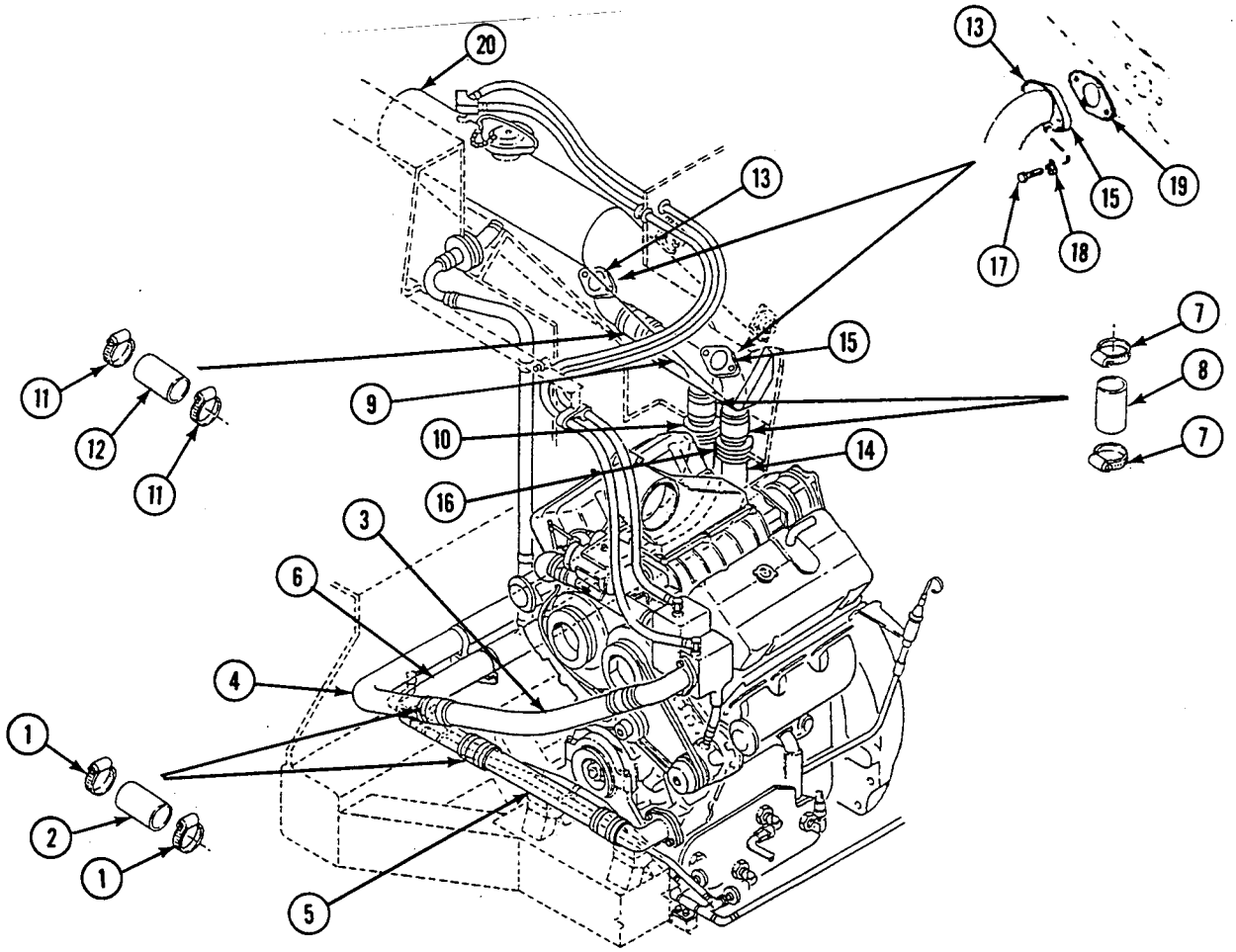


REPLACE RADIATOR TUBES, HOSES, AND FITTINGS (M548A1) — Continued 0219 00

31. Loosen two clamps (1) that secure hose (2) to thermostat outlet tube (3) and coolant inlet tube (4). Remove outlet tube, hose, and clamps.
32. Loosen two clamps (1) that secure hose (2) to inlet tube (5) and coolant outlet tube (6). Remove inlet tube, hose, and clamps.
33. Loosen two clamps (7) that secure hose (8) to coolant inlet tube (4) and radiator inlet tube (9). Remove coolant inlet tube, hose, and clamps.
34. Remove grommet (10) from inlet tube (4). Discard grommet.

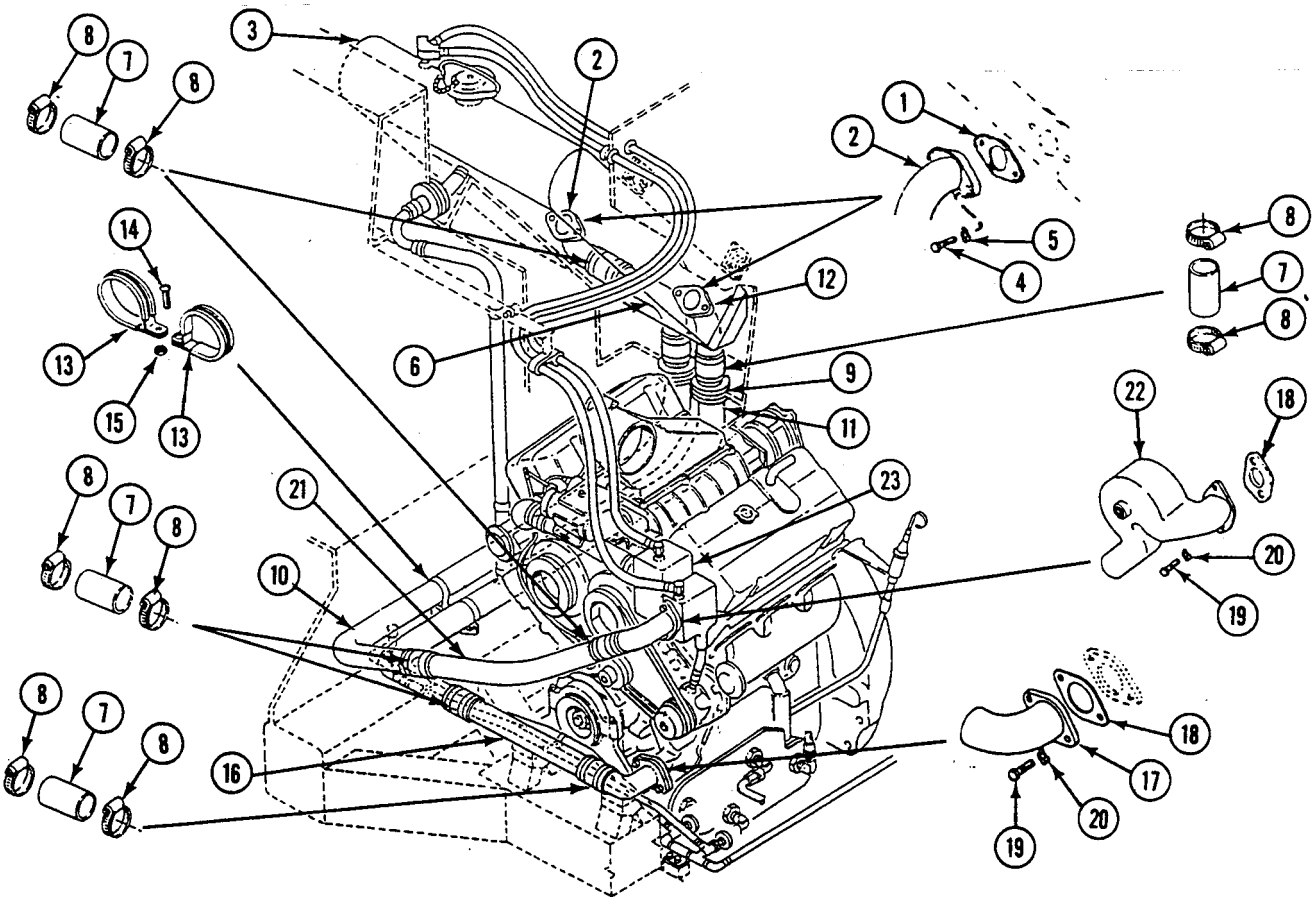


35. Loosen two clamps (11) that secure hose (12) to radiator inlet tube (9) to radiator inlet elbow (13). Remove inlet tube, hose, and clamps.
36. Loosen two clamps (7) that secure hose (8) to coolant outlet tube (14) and radiator outlet elbow (15). Remove outlet tube, hose, and clamps.
37. Remove grommet (16) from coolant outlet tube (14). Discard grommet.
38. Remove two screws (17) and tab washers (18) that secure radiator inlet elbow (13) and gasket (19) to radiator (20). Remove elbow. Discard gasket and tab washers.
39. Remove two screws (17) and tab washers (18) that secure radiator outlet elbow (15) and gasket (19) to radiator (20). Remove elbow. Discard gasket and tab washers.

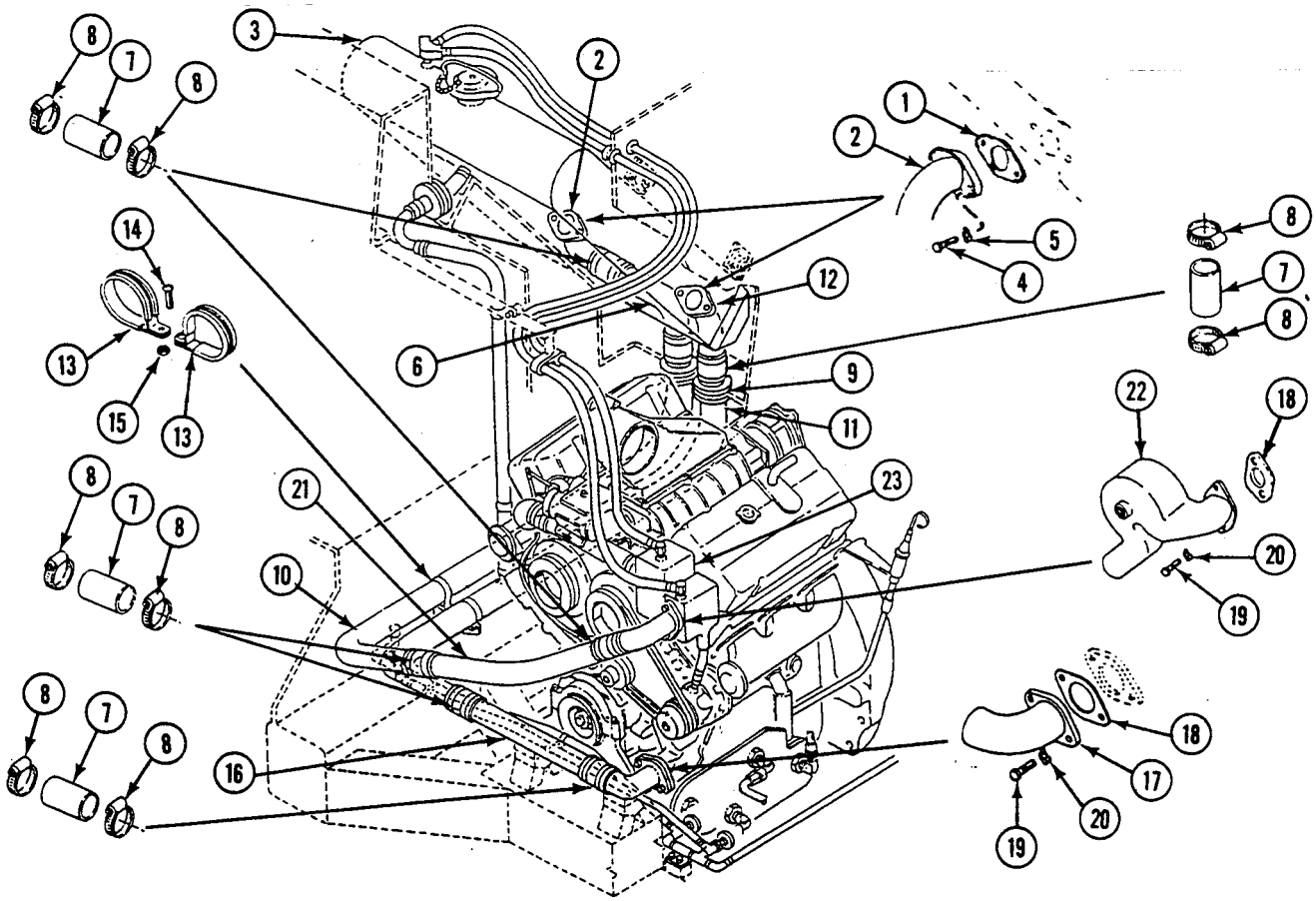


INSTALLATION

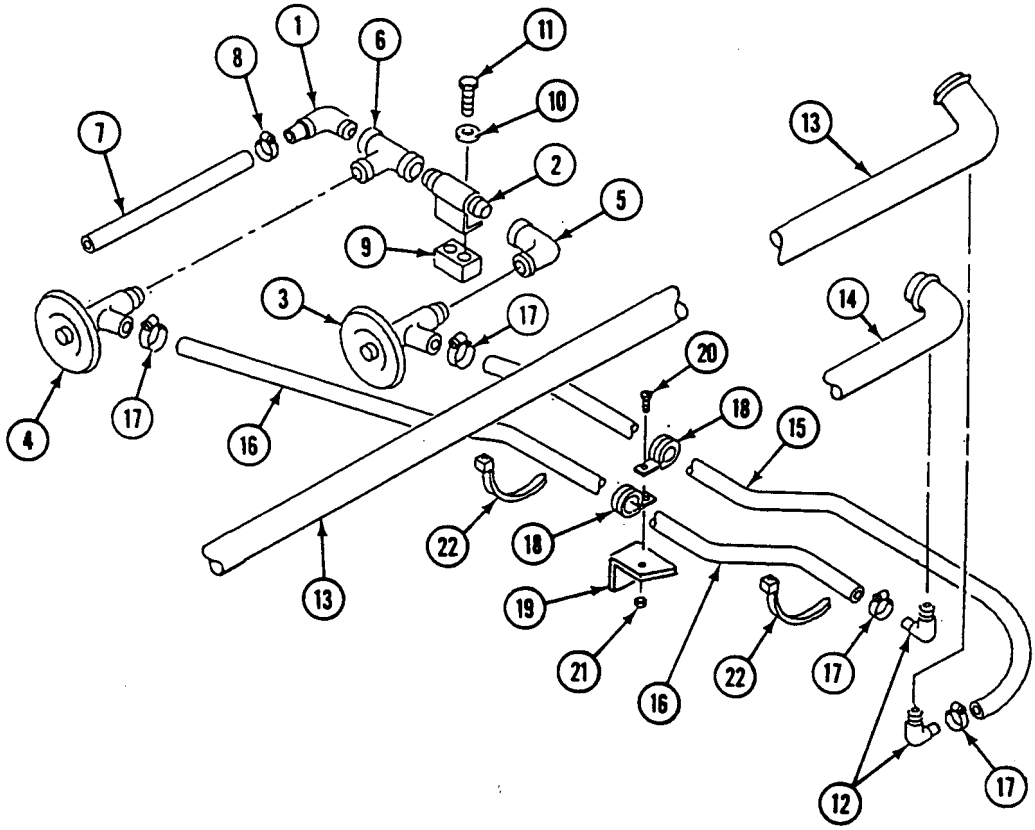
1. Put a thin coat of sealing compound on both sides of gaskets (19) and on threads of screws (17).
2. Install new gasket (19) and radiator outlet elbow (15) on radiator (20). Secure with two screws (17) and new tab washers (18).
3. Install new gasket (1) and radiator inlet elbow (2) on radiator (3). Secure with two screws (4) and new tab washers (5).
4. Connect radiator inlet tube (6) to radiator inlet elbow (2) with hose (7). Secure with two clamps (8).
5. Install new grommet (9) on coolant inlet tube (10).
6. Connect coolant inlet tube (10) to radiator inlet tube (6) with hose (7). Secure with two clamps (8).
7. Install new grommet (9) on coolant outlet tube (11).
8. Connect coolant outlet tube (11) to radiator outlet elbow (12) with hose (7). Secure with two clamps (8).
9. If removed, install one clamp (13) on coolant inlet tube (10) and one clamp (13) on coolant outlet tube (11). Secure clamps to hull with two screws (14) and lock nuts (15).



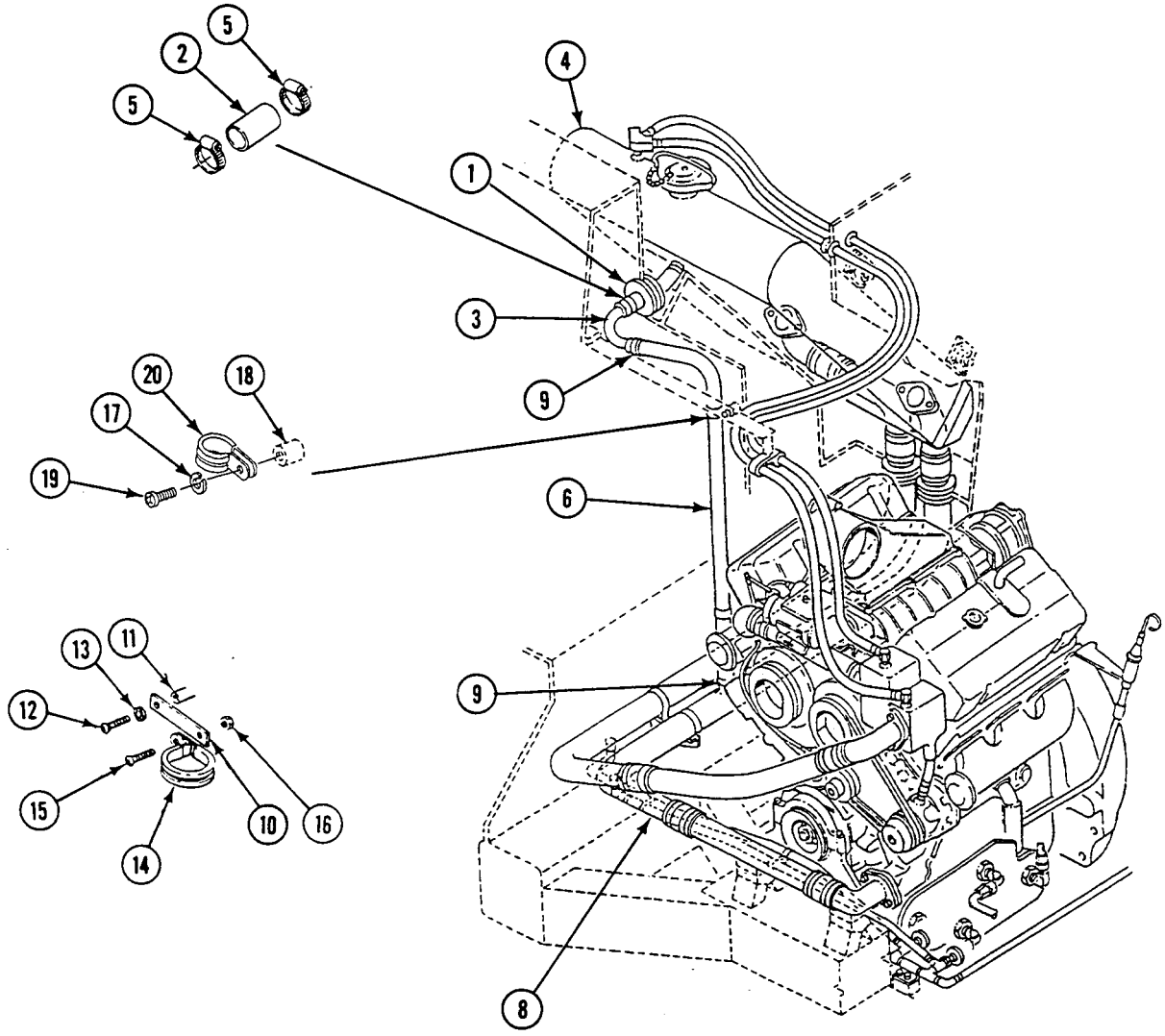
10. Connect coolant outlet tube (11) to oil cooler inlet tube (16) with hose (7). Secure with two clamps (8).
11. Connect inlet elbow (17) to oil cooler inlet tube (16) with hose (7) and two clamps (8). Do not tighten clamps.
12. Put thin coat of sealing compound on both sides of gaskets (18) and on threads of screws (19).
13. Install inlet elbow (17) and new gasket (18) on oil cooler. Secure with two screws (19) and new tab washers (20). Tighten clamps (8) on hose (7).
14. Connect coolant inlet tube (10) to thermostat outlet tube (21) with hose (7). Secure with two clamps (8).
15. Connect thermostat outlet tube (21) to elbow (22) with hose (7) and two clamps (8). Do not tighten clamps.
16. Install elbow (22) and new gasket (18) on thermostat housing (23). Secure with two screws (19) and new tab washers (20). Tighten clamps (8) on hose (7).



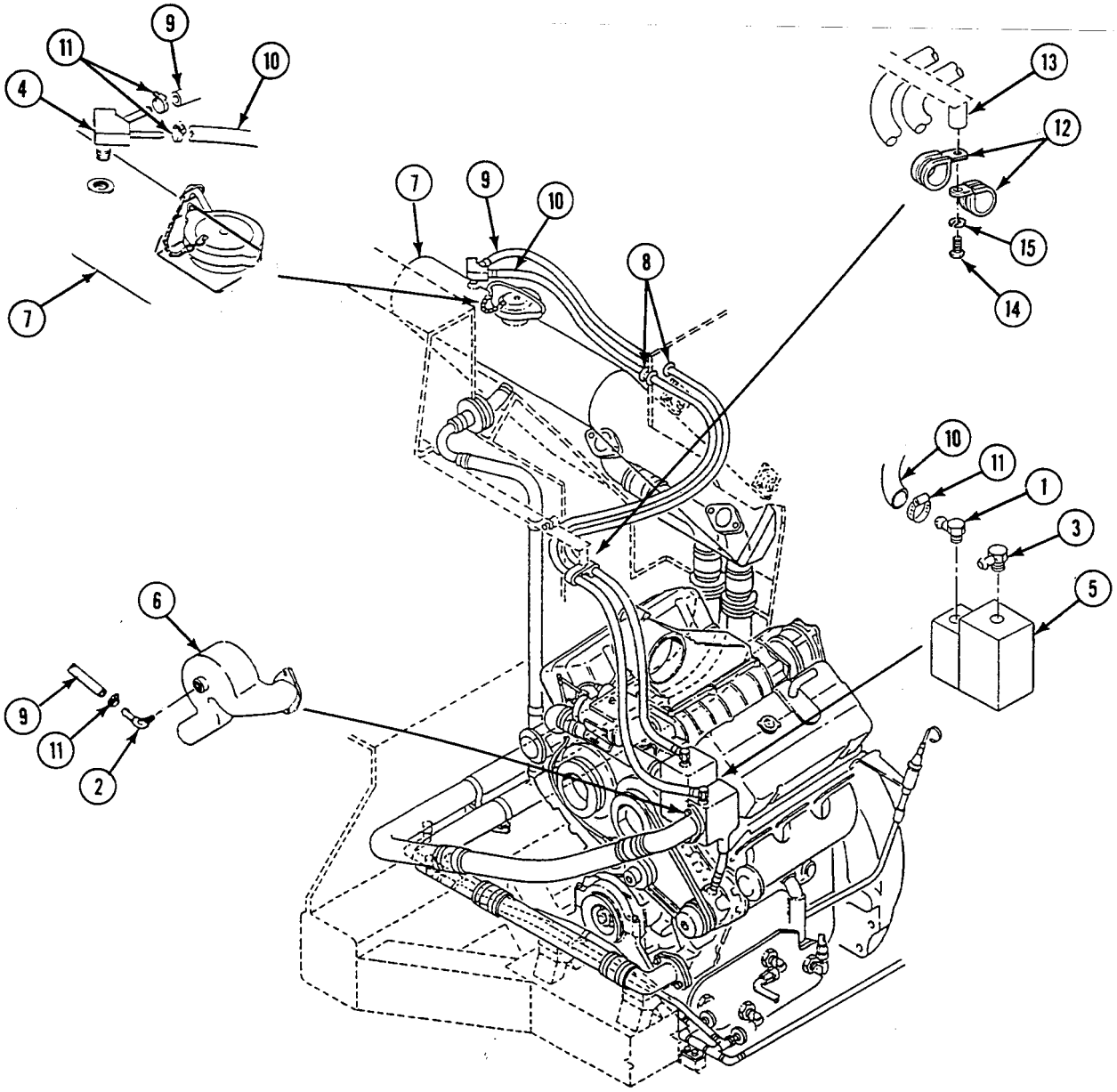
17. Put a thin coat of sealing compound on threads of elbow (1), nipple (2), drain valve (3), and drain valve (4).
18. Install elbow (5) and tee (6) on nipple (2).
19. Install drain valve (4) and elbow (1) on tee (6).
20. Install drain valve (3) on elbow (5).
21. Install hose (7) and clamp (8) on elbow (1).
22. Position nipple (2) over block (9) and install two washers (10) and screws (11).
23. Put a thin coat of sealing compound on threads of two elbows (12).
24. Install elbow (12) in coolant inlet tube (13).
25. Install elbow (12) in coolant outlet tube (14).
26. Install drain hose (15) and drain hose (16) and clamps (17) on drain valve (3) and drain valve (4).
27. Install drain hose (15) and drain hose (16) and clamps (17) on two elbows (12).
28. Install two clamps (18) on drain hose (15) and drain hose (16).
29. Install two clamps (18) on bracket (19) and secure with screw (20) and new lock nut (21).
30. Install two new straps (22) on drain hose (15) and drain hose (16).



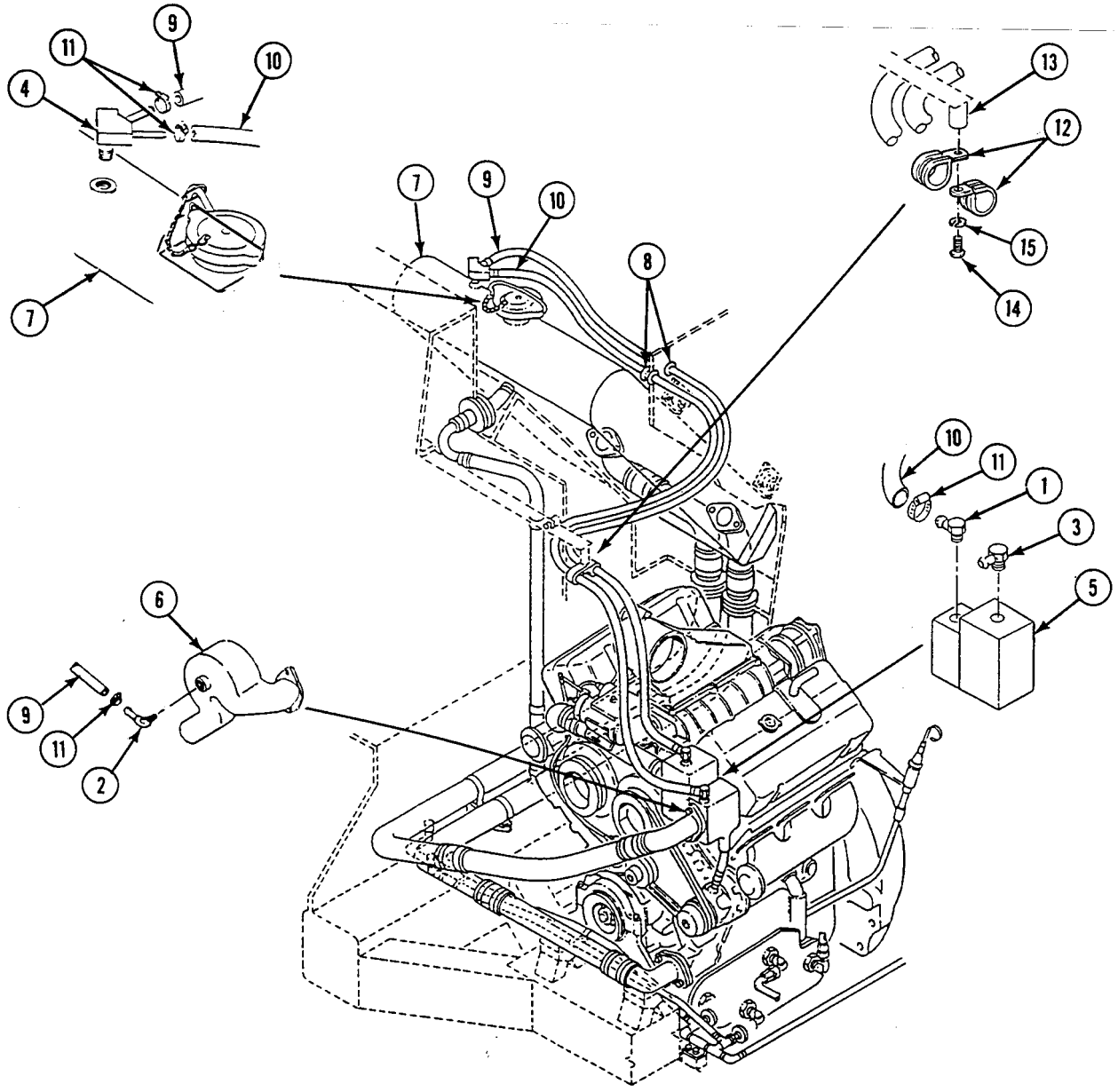
31. Install new grommet (1) on hose (2).
32. Connect elbow tube (3) to radiator (4) with hose (2). Secure with two clamps (5).
33. Install radiator vent hose (6) on elbow tube (7) and coolant outlet tube (8). Secure with two clamps (9).
34. Secure bracket (10) to weldnut (11) with screw (12) and new lock washer (13).
35. If removed, install clamp (14) on radiator vent hose (6).
36. Install clamp (14) on bracket (10). Secure with screw (15) and new lock nut (16).
37. If removed, install clamp (17) on radiator vent hose (6).
38. Secure clamp (17) to weldnut (18) with screw (19) and new lock washer (20).



39. Put a thin coat of sealing compound on threads of elbow (1), elbow (2), plug (3), and manifold (4).
40. Install plug (3) in thermostat housing (5).
41. Install elbow (2) in elbow (6).
42. Install elbow (1) in thermostat housing (5).
43. Install manifold (4) in radiator (7).



44. Install new grommets (8) on vent hose (9) and vent hose (10).
45. Install vent hose (9) on manifold (4) and elbow (2). Secure with two clamps (11).
46. Install vent hose (10) on manifold (4) and elbow (1). Secure with two clamps (11).
47. If removed, install two clamps (12) on vent hose (9) and vent hose (10). Secure clamps to weldnut (13) with screw (14) and new lock washer (15).



FOLLOW-THROUGH STEPS

1. Fill cooling system (WP 0212 00).
2. Start engine (see your -10) and run until operating temperature of 160° to 230° F (71° to 110° C) is reached. Check radiator and hoses, tubes, and fittings for leaks.
3. Stop engine (see your -10). Remove radiator cap slowly and check coolant level.
4. Add coolant (WP 0212 00) as needed to bring level to bottom of filler neck.
5. Install hull bottom access cover (WP 0383 00).
6. Install power plant rear access covers/door (see your -10).
7. Lower center seat (see your -10).

END OF TASK

REPLACE COOLANT TUBES, HOSES, AND FITTINGS (M548A3) 0220 00

THIS WORK PACKAGE COVERS:

Removal (page 0220 00-2).
Cleaning (page 0220 00-8).
Installation (page 0220 00-8).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts

Cleaning compound (WP 0542 00, Item 9)
Sealing compound (WP 0542 00, Item 36)
Gasket
Gasket (2)
Gasket
Lock nut (2)
Lock nut
Tab washer (4)

Personnel Required

Unit Mechanic
Helper (H)

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)
Top access cover and grilles removed (see your -10)
Cooling system drained (WP 0214 00)

REMOVAL

WARNING

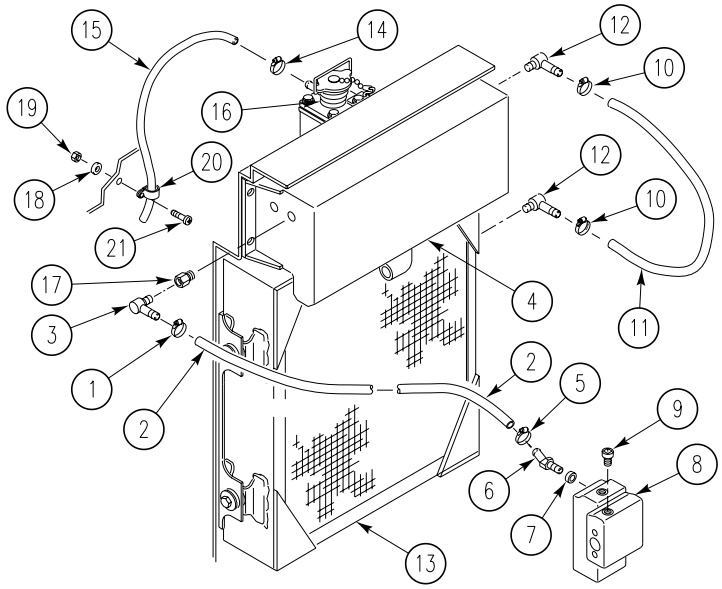
Tubes, hoses, and fittings may contain hot coolant or pressure. Remove all parts carefully to avoid injury to personnel.

NOTE

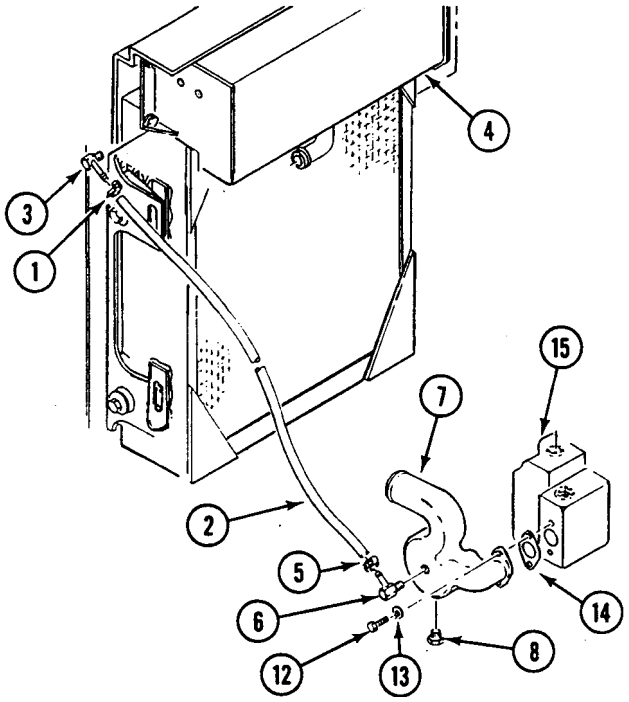
Mark all parts for easy identification before removing.

Remove only tubes, hoses, and fittings necessary to perform maintenance.

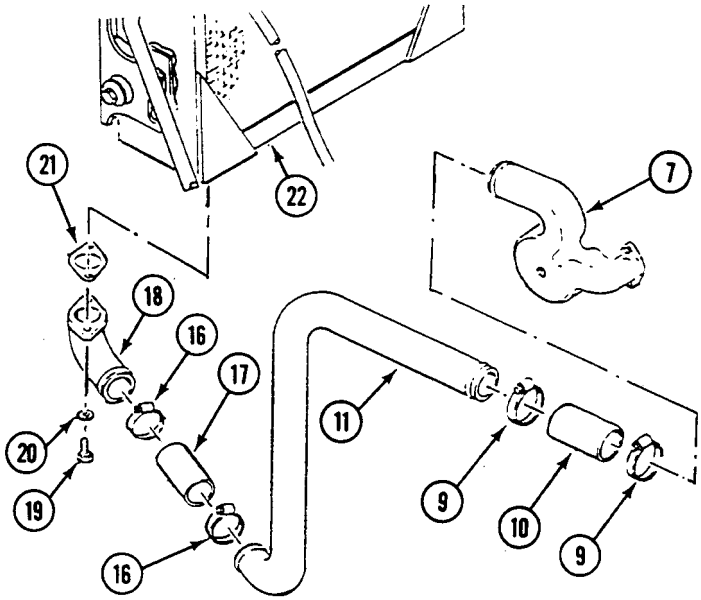
1. Loosen clamp (1) and remove hose (2) and clamp from elbow (3).
2. Remove elbow (3) and adapter (17) from auxiliary tank (4).
3. Loosen clamp (5) and remove hose (2) and clamp from elbow (6).
4. Remove elbow (6) and bushing (7) from thermostat housing (8).
5. Remove plug (9) from thermostat housing (8).
6. Loosen two clamps (10) and remove hose (11) and clamps from two elbows (12).
7. Remove two elbows (12) from auxiliary tank (4) and radiator (13).
8. Remove lock nut (19), washer (18), clamp (20) and screw (21) securing hose (15) to bulkhead. Discard lock nut.
9. Remove clamp (14) and hose (15) from filler neck (16).



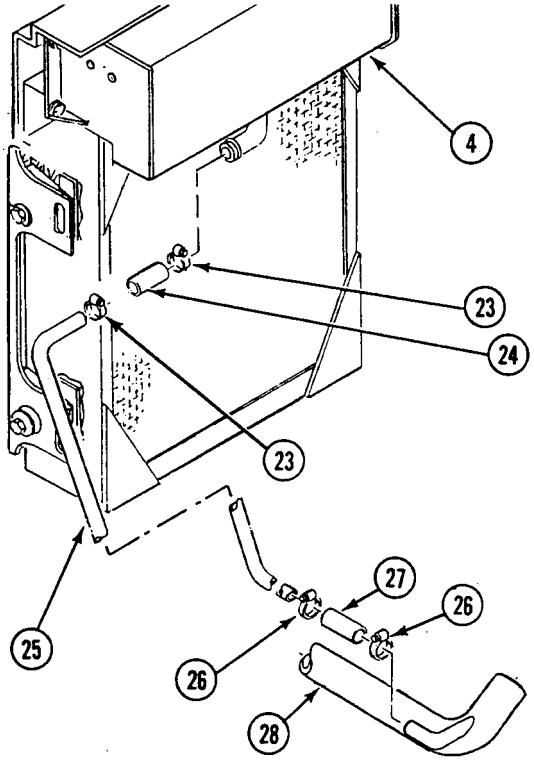
10. Loosen clamp (1) and remove hose (2) and clamp from elbow (3).
11. Remove elbow (3) from auxiliary tank (4).
12. Loosen clamp (5) and remove hose (2) and clamp from elbow (6).
13. Remove elbow (6) from air separator elbow (7).
14. Remove plug (8) from air separator elbow (7).
15. Loosen two clamps (9) and remove air separator elbow (7), hose (10), and two clamps from tube (11). Remove hose and clamps from air separator elbow.



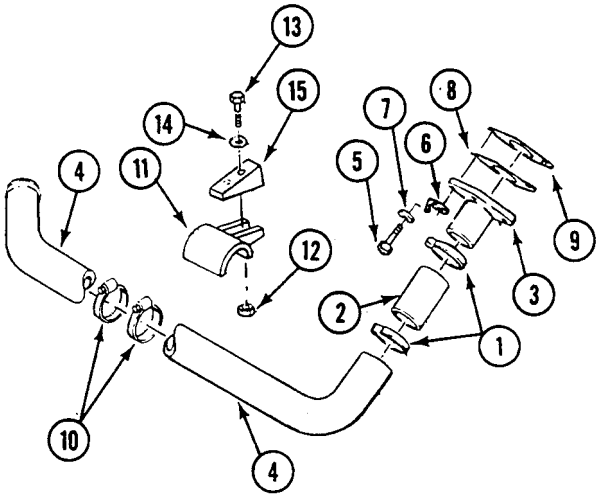
16. Remove two screws (12), washers (13), air separator elbow (7), and gasket (14) from thermostat housing (15). Discard gasket.
17. Loosen two clamps (16) and remove tube (11), hose (17), and two clamps from elbow (18). Remove hose and clamps from tube.
18. Remove two screws (19), washers (20), elbow (18), and gasket (21) from radiator (22). Discard gasket.



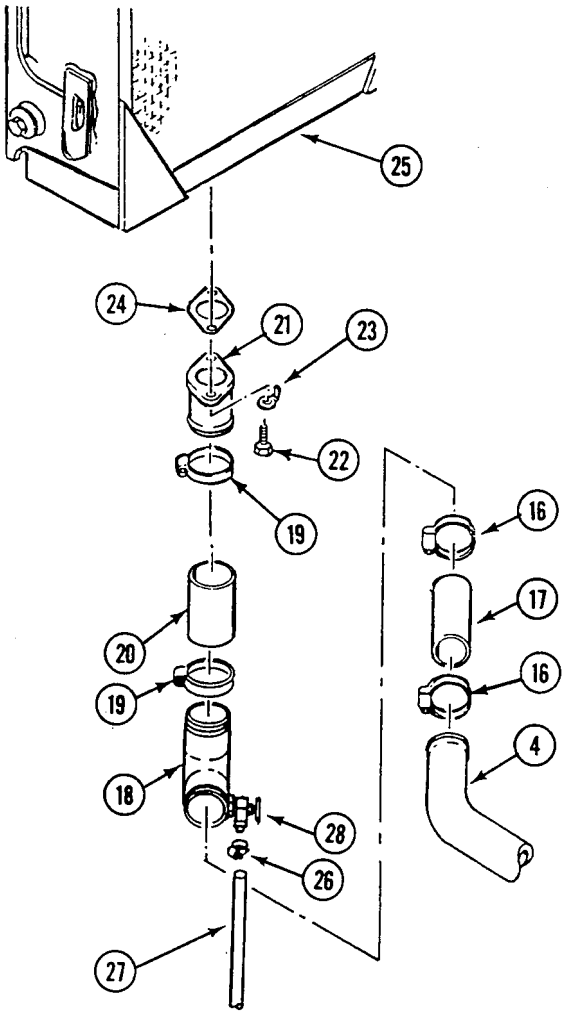
19. Loosen two clamps (23) and remove hose (24) from bottom of auxiliary tank (4).
20. Remove hose (24) and two clamps (23) from tube (25).
21. Loosen two clamps (26) and remove hose (27) from tube (28).
22. Remove hose (27) and two clamps (26) from tube (25).



23. Loosen two clamps (1) and slide hose (2) off adapter (3) and onto tube (4).
24. Remove tube (4) from adapter (3) and remove hose (2) and two clamps (1) from tube (4).
25. Remove two screws (5), tab washers (6), washers (7), and gasket (8) from oil cooler housing (9). Discard gasket and tab washers.



26. Remove two clamps (10) from support (11) and tube (4).
27. Remove two lock nuts (12), screws (13), and washers (14) from support (11). Remove support from alternator support (15) and tube (4). Discard lock nuts.
28. Loosen two clamps (16) and slide hose (17) off elbow (18) and onto tube (4).
29. Remove tube (4) from elbow (18) and remove hose (17) and two clamps (16) from tube (4).
30. Loosen two clamps (19) and slide hose (20) off adapter (21) and onto elbow (18).
31. Remove elbow (18) from adapter (21) and remove hose (20) and two clamps (19) from elbow.
32. Remove two screws (22), tab washers (23), adapter (21), and gasket (24) from radiator (25). Discard gasket and tab washers.
33. Remove clamp (26), hose (27), and drain cock (28) from elbow (18). Remove clamp and hose from drain cock.

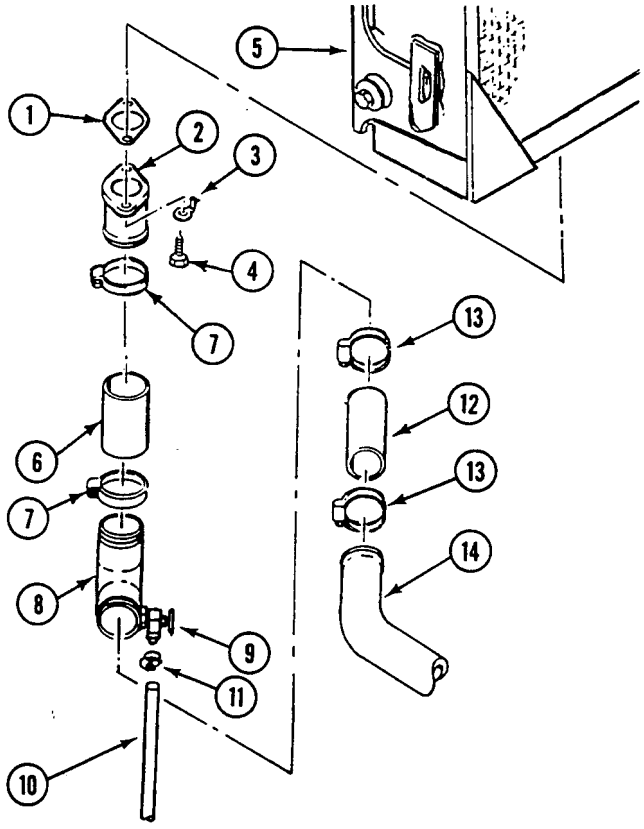


CLEANING

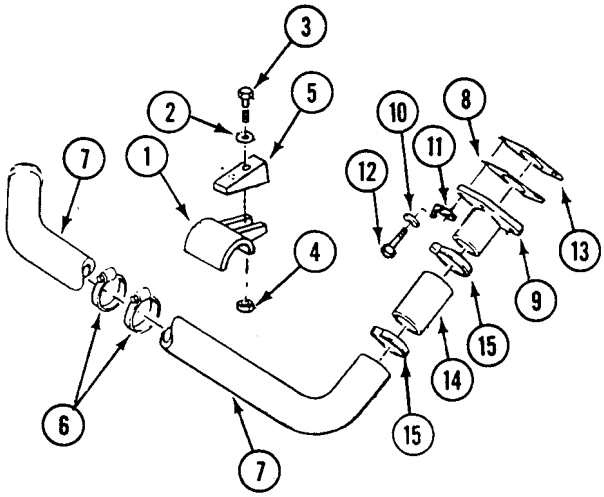
1. Inspect tubes for crushed areas and damaged ends. Replace tubes that show either of these defects.
2. Inspect hoses for cracks and indication of collapse. Replace hoses that show either of these defects.
3. Inspect clamps for cracks and excessive wear. Replace clamps that show either of these defects.
4. Inspect fittings for burs and damaged threads. Remove burs. Replace fittings that have damaged threads.
5. Clean metal surfaces where hoses attach. Use cleaning compound.

INSTALLATION

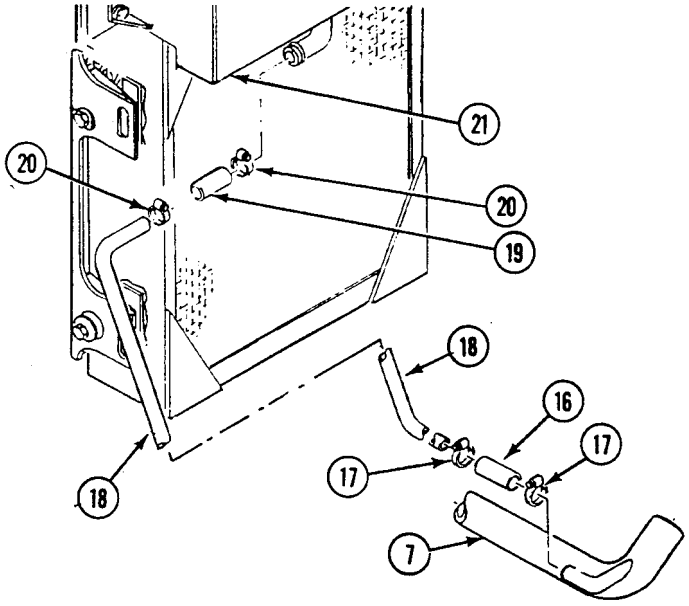
1. Apply sealing compound to both sides of four new gaskets and to threads of all elbows, bushing, and drain cock.
2. Install new gasket (1), adapter (2), two new tab washers (3), and screws (4) on radiator (5).
3. Slide hose (6) and two clamps (7) on elbow (8).
4. Install elbow (8) on adapter (2) and position hose (6), and two clamps (7) on tube and adapter. Tighten clamps.
5. Install drain cock (9) in elbow (8). Install hose (10) and clamp (11) on drain cock (9). Tighten clamp.
6. Slide hose (12) and two clamps (13) on tube (14).
7. Install tube (14) on elbow (8) and position hose (12) and two clamps (13) on both tubes. Tighten clamps.



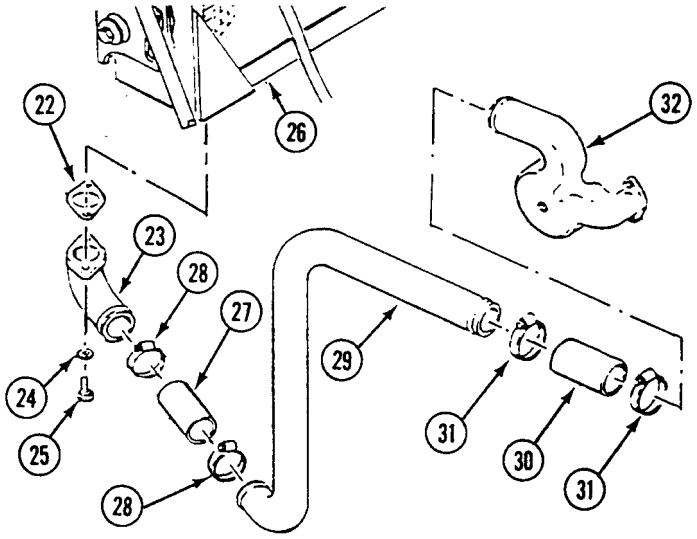
8. Install support (1), two washers (2), screws (3), and new lock nuts (4) on alternator support (5).
9. Install two clamps (6) on support (1) and tube (7). Tighten clamps.
10. Install new gasket (8), adapter (9), two washers (10), new tab washers (11), and screws (12) on oil cooler housing (13).
11. Slide hose (14) and two clamps (15) on tube (7).
12. Install tube (7) on adapter (9) and position hose (14) and two clamps (15) on tube and adapter. Tighten clamps.



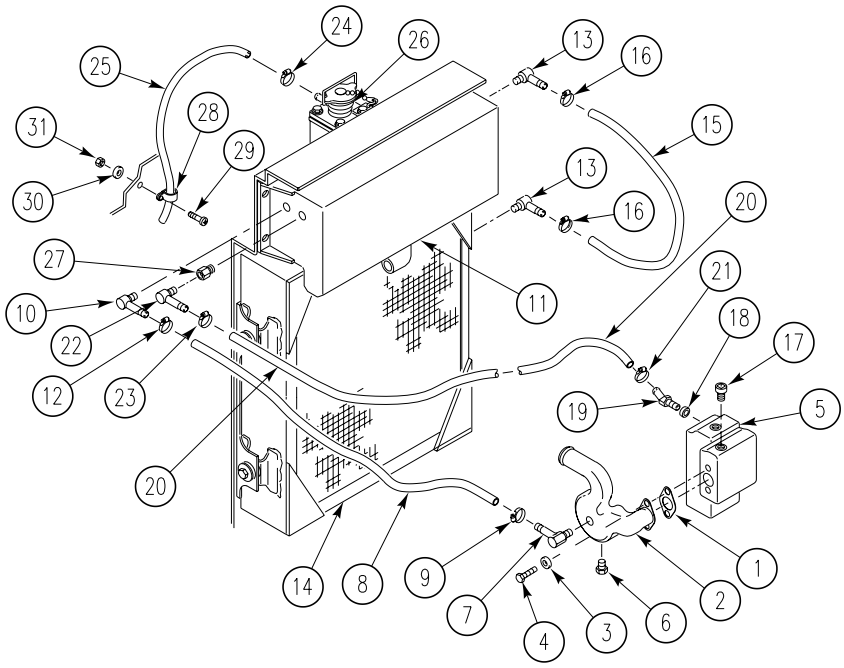
13. Install hose (16) and two clamps (17) on tube (18).
14. Install tube (18), hose (16), and two clamps (17) on tube (7). Tighten clamps.
15. Install hose (19) and two clamps (20) on tube (18).
16. Install tube (18), hose (19), and two clamps (20) on auxiliary tank (21). Tighten clamps.



17. Install new gasket (22), elbow (23), two washers (24), and screws (25) on radiator (26).
18. Slide hose (27) and two clamps (28) on tube (29).
19. Install tube (29) on elbow (23) and position hose (27) and two clamps (28) on elbow and tube. Tighten clamps.
20. Slide hose (30) and two clamps (31) on tube (29).
21. Install tube (29) on air separator elbow (32) and position hose (30) and two clamps (31) on tube and air separator elbow. Tighten clamps.



22. Install new gasket (1), air separator elbow (2), two washers (3), and screws (4) on thermostat housing (5).
23. Install plug (6) in air separator elbow (2).
24. Install elbow (7) in air separator elbow (2).
25. Install hose (8) and clamp (9) on elbow (7). Tighten clamp.
26. Install elbow (10) in auxiliary tank (11).
27. Install hose (8) and clamp (12) on elbow (10). Tighten clamp.
28. Install two elbows (13) in auxiliary tank (11) and radiator (14).
29. Install hose (15) and two clamps (16) on two elbows (13). Tighten clamps.
30. Install plug (17) in thermostat housing (5).
31. Install bushing (18) and elbow (19) in thermostat housing (5).
32. Install hose (20) and clamp (21) on elbow (19). Tighten clamp.
33. Install adapter (27) and elbow (22) in auxiliary tank (11).
34. Install hose (20) and clamp (23) on elbow (22). Tighten clamp.
35. Secure hose (25) to bulkhead with clamp (28), screw (29), washer (30), and nut (31).
36. Install new clamp (24) and hose (25) on filler neck (26).



FOLLOW-THROUGH STEPS

1. Fill cooling system (WP 0214 00).
2. Install power plant rear access panel (see your -10).
3. Install top access cover and grilles (see your -10).

END OF TASK

REPLACE COOLANT PUMP (M548A1) 0221 00

THIS WORK PACKAGE COVERS:

Removal (page 0221 00-1).
Installation (page 0221 00-2).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts

Gasket
Lock washer (4)

Personnel Required

Unit Mechanic

References

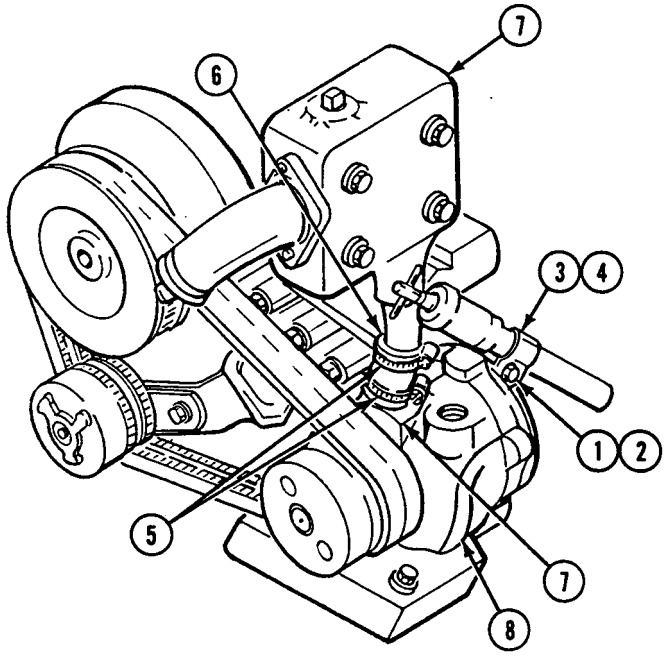
See your -10

Equipment Condition

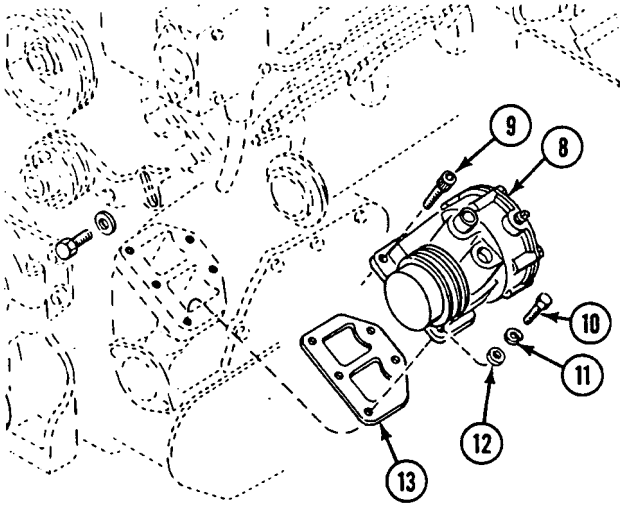
Engine stopped (see your -10)
Carrier blocked (see your -10)
Center seat raised (see your -10)
Hull bottom access cover removed (WP 0383 00)
Oil cooler housing coolant drained (WP 0213 00)
Drain valves closed (WP 0213 00)
Coolant pump drive belts removed (WP 0223 00)

REMOVAL

1. Remove screw (1) and nut (2) that secure dipstick housing clamp (3) to coolant pump bracket (4).
2. Loosen two clamps (5) that secure hose (6) to thermostat housing (7) and coolant pump (8). Remove clamps and hose.

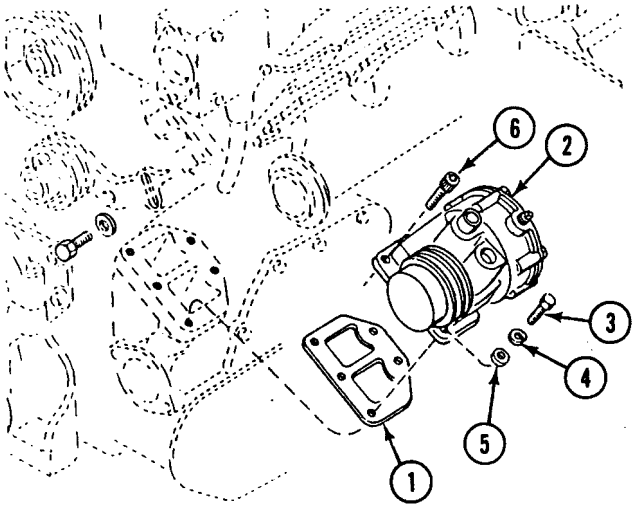


3. Remove socket head screw (9), four cap screws (10), lock washers (11), and flat washers (12) that secure coolant pump (8) and gasket (13) to engine block. Remove pump and gasket. Discard gasket and lock washers.

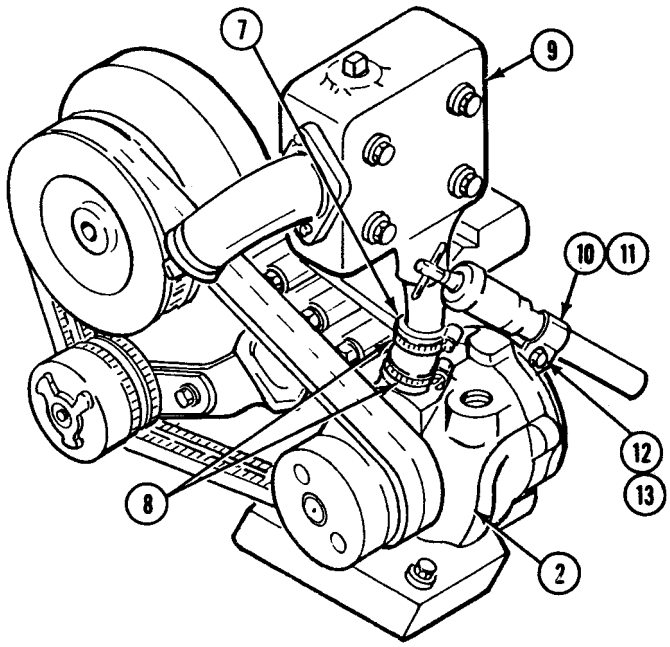


INSTALLATION

1. Place new gasket (1) and coolant pump (2) on engine block. Secure with four cap screws (3), new lock washers (4), flat washers (5) and one socket head screw (6).



2. Install hose (7) and two clamps (8) on thermostat housing (9) and coolant pump (2). Tighten two clamps.
3. Install dipstick housing clamp (10) on coolant pump bracket (11). Secure with screw (12) and nut (13).



FOLLOW-THROUGH STEPS

1. Install and adjust coolant pump drive belts (WP 0223 00).
2. Fill cooling system (WP 0212 00).
3. Check cooling fan for proper adjustment (WP 0226 00).
4. Ensure that drive pulleys are tight.
5. Check that air intake grille and radiator air passages are clean and free of debris.

CAUTION

Stop engine if coolant temperature gauge indicates 230°F (110°C) or above. Serious damage to engine may result.

6. Start engine (see your -10).
7. Check coolant pump for proper operation.
8. Stop engine (see your -10).
9. Install hull bottom access cover (WP 0383 00).
10. Lower center seat (see your -10).

END OF TASK

REPLACE COOLANT PUMP (M548A3) 0222 00

THIS WORK PACKAGE COVERS:

Removal (page 0222 00-1).
Cleaning (page 0222 00-2).
Installation (page 0222 00-2).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts
Lock washer (4)
Gasket

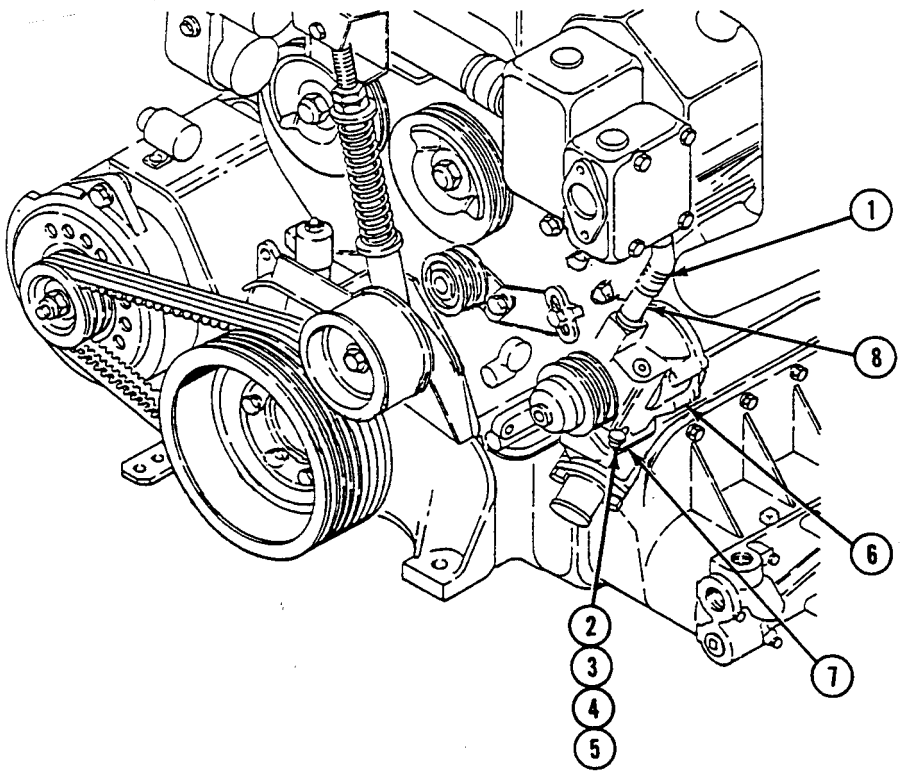
Personnel Required
Unit Mechanic

References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Both power plant rear access panel/cover removed (see your -10)
Coolant pump drive belts removed (WP 0222 00)
Cooling system drained (WP 0214 00)

REMOVAL

1. Loosen hose clamps (1).
2. Remove four cap screws (2), lock washers (3), flat washers (4), and one socket head screw (5). Remove coolant pump (6) and gasket (7) from oil cooler housing. Discard gasket and lock washers.
3. Remove hose clamps (1) and bypass tube hose (8) from coolant pump (6).

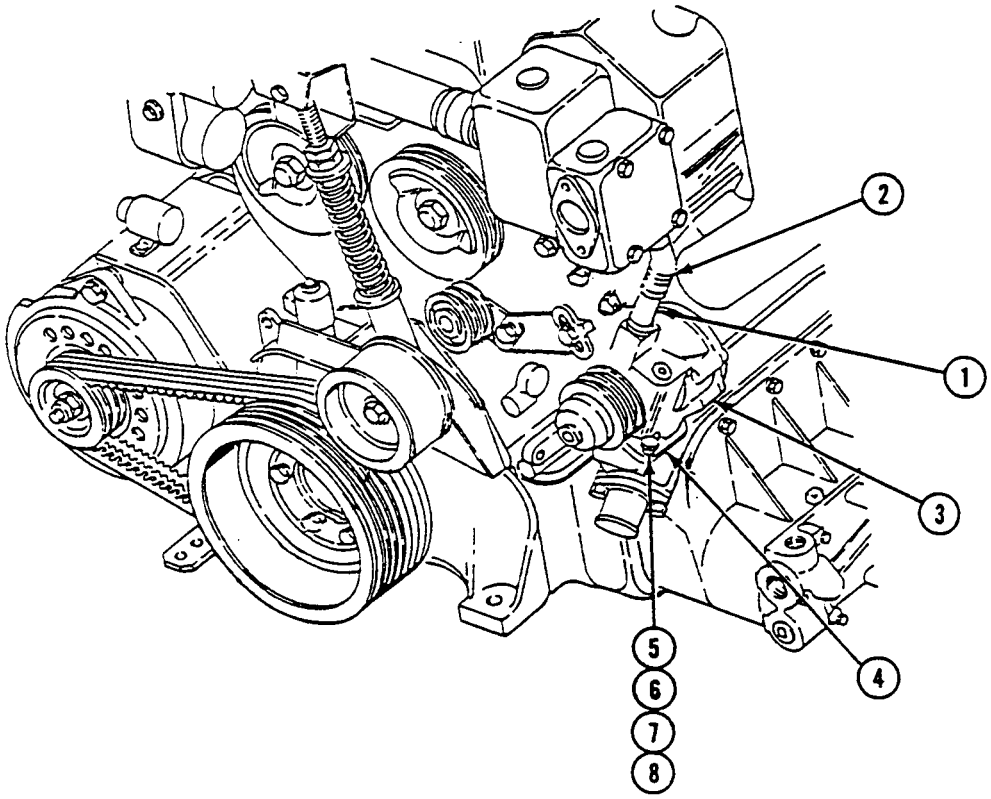


CLEANING

1. Inspect coolant pump for evidence of leaks and rough or binding shaft and pulley. Replace coolant pump that shows any of these defects.

INSTALLATION

1. Install bypass tube hose (1) and hose clamps (2) on coolant pump (3).
2. Install new gasket (4) and coolant pump (3) on oil cooler housing and secure with four flat washers (5), new lock washers (6), cap screws (7), and one socket head screw (8).
3. Tighten hose clamps (2).



FOLLOW-THROUGH STEPS

1. Fill cooling system (WP 0214 00).
2. Install coolant pump drive belts (WP 0224 00).
3. Adjust coolant pump drive belts (WP 0225 00).
4. Install both power plant rear access panel/cover (see your -10).

END OF TASK

REPLACE ENGINE COOLANT PUMP DRIVE BELTS AND IDLER PULLEY (M548A1) 0223 00

THIS WORK PACKAGE COVERS:

Removal (page 0223 00-1).
Cleaning (page 0223 00-1).
Installation (page 0223 00-2).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)
Socket Wrench (WP 0541 00, Item 64)
Torque Wrench (WP 0541 00, Item 71)

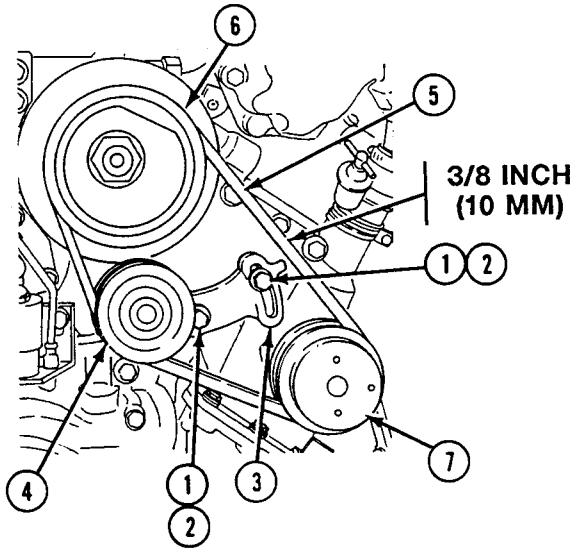
Personnel Required
Unit Mechanic

References
See your -10

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

REMOVAL

1. Remove two screws (1) and washers (2) that secure coolant pump idler adjusting bracket (3) and idler pulley (4) to engine. Remove bracket and idler pulley.
2. Remove two drive belts (5) from pulley (6) and pulley (7).



CLEANING

1. Check both drive belts. Replace both drive belts if either drive belt has breaks, cracks, or is frayed.

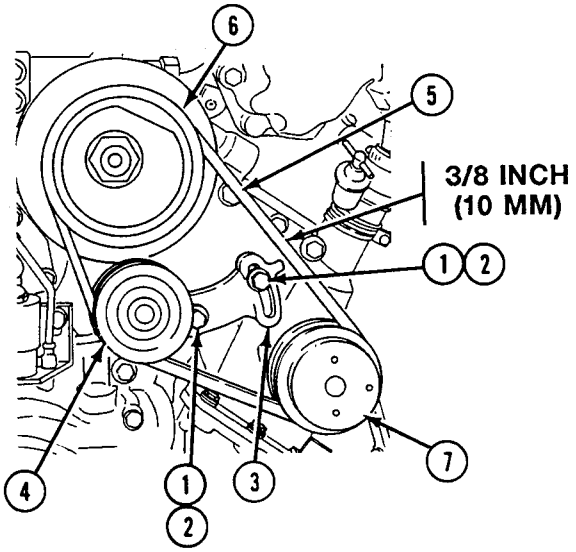
REPLACE ENGINE COOLANT PUMP DRIVE BELTS AND IDLER PULLEY (M548A1) — Continued **0223 00**

INSTALLATION

NOTE

Drive belts must always be replaced as a matched set.

1. Place drive belts (5) on pulley (6) and pulley (7).
2. Place idler pulley (4) with coolant pump idler adjusting bracket (3) on engine. Secure with two washers (2) and screws (1). Do not tighten.
3. Adjust slack in drive belts (5) with coolant pump idler adjusting bracket (3). When adjusted, drive belts will move 3/8 inch (10 mm) when pressed by thumb midway between pulley (6) and pulley (7).
4. Tighten two screws (1) to 360-420 lb-in (41-47 N•m) torque.



FOLLOW-THROUGH STEPS

1. Start engine (see your -10).
2. Check engine coolant pump drive belts for proper operation.
3. Stop engine (see your -10).
4. Lower center seat (see your -10).

END OF TASK

REPLACE COOLANT PUMP DRIVE BELTS (M548A3) 0224 00

THIS WORK PACKAGE COVERS:

Removal (page 0224 00-1).
Inspection (page 0224 00-2).
Installation (page 0224 00-2).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)
Torque Wrench (WP 0541 00, Item 71)

Personnel Required

Unit Mechanic

References

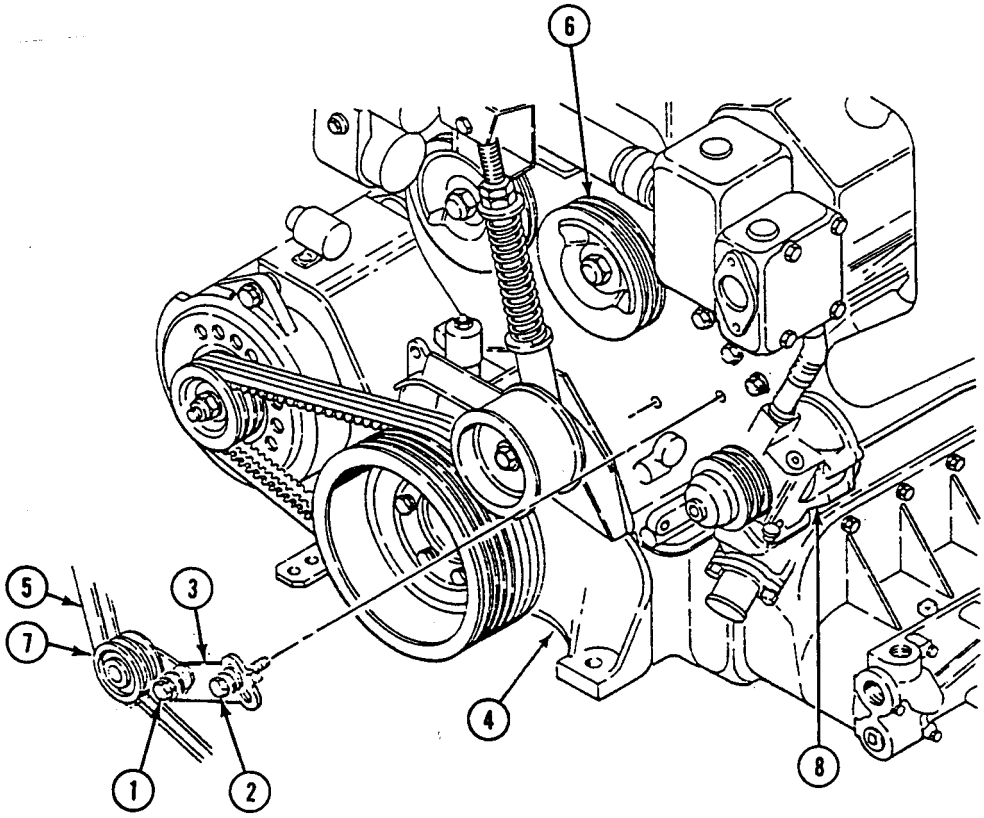
See your -10

Equipment Condition

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

REMOVAL

1. Loosen cap screw (1) and cap screw (2) securing coolant pump idler adjusting bracket (3) to engine (4).
2. Remove two drive belts (5) from pulley (6), pulley (7), and coolant pump (8).



INSPECTION

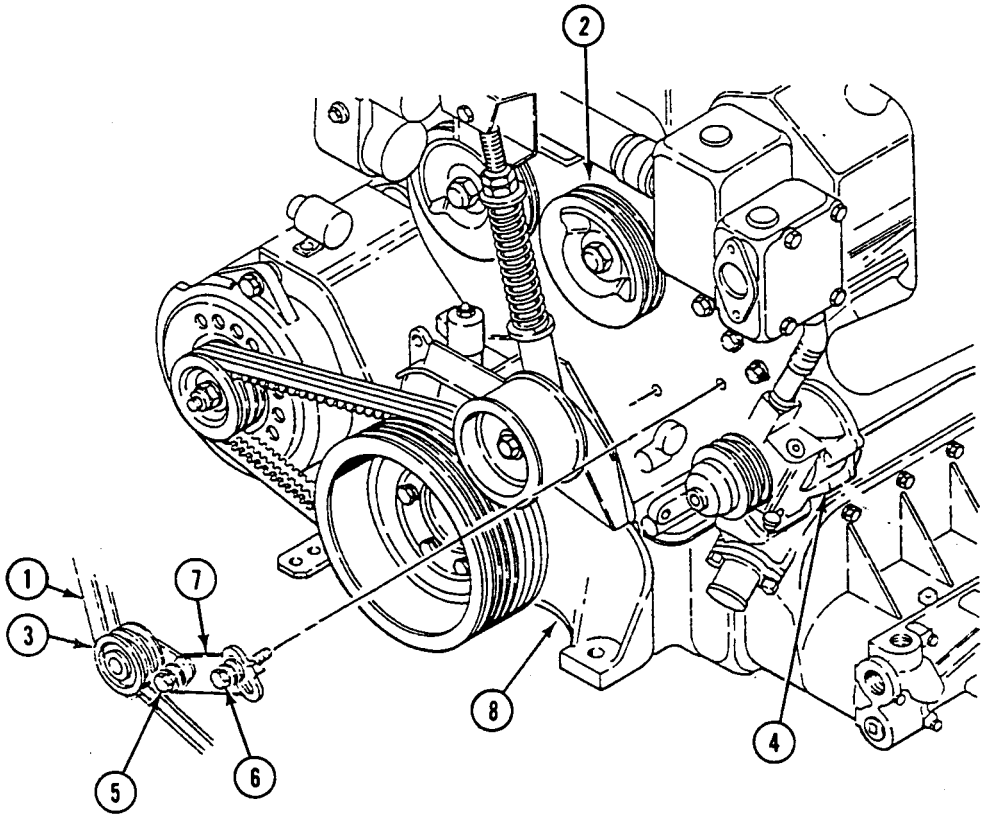
NOTE

Always replace both drive belts as a matched set.

1. Inspect both drive belts for broken, frayed, or cracked condition. Replace drive belts that show defects.

INSTALLATION

1. Install two drive belts (1) on pulley (2), pulley (3), and coolant pump (4).
2. Tighten two cap screws (5 and 6) to 30-35 lb-ft (40.7-47.5 N•m) securing coolant pump idler adjusting bracket (7) on engine (8).



FOLLOW-THROUGH STEPS

1. Adjust coolant pump idler pulley (WP 0225 00).
2. Install power plant rear access panel (see your -10).

END OF TASK

REPLACE COOLANT PUMP IDLER PULLEY AND ADJUSTING BRACKET (M548A3) 0225 00

THIS WORK PACKAGE COVERS:

Removal (page 0225 00-1).
Inspection (page 0225 00-2).
Installation (page 0225 00-3).
Adjustment (page 0225 00-4).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)
Tension Gauge (WP 0541 00, Item 18)
Dial Engine V-belt Tensiometer (WP 0541 00, Item 59)

Materials/Parts

Lock washer (2)

Personnel Required

Unit Mechanic

References

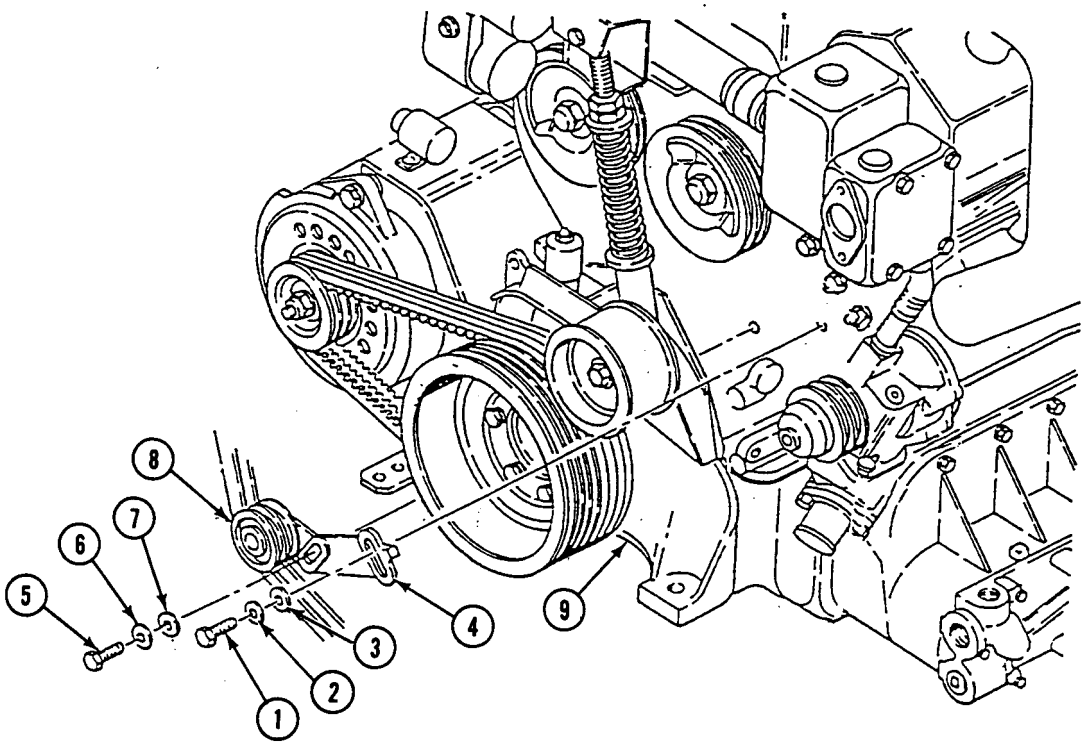
See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Remove power plant rear access panel (see your -10)
Coolant pump drive belts removed (WP 0224 00)

REMOVAL

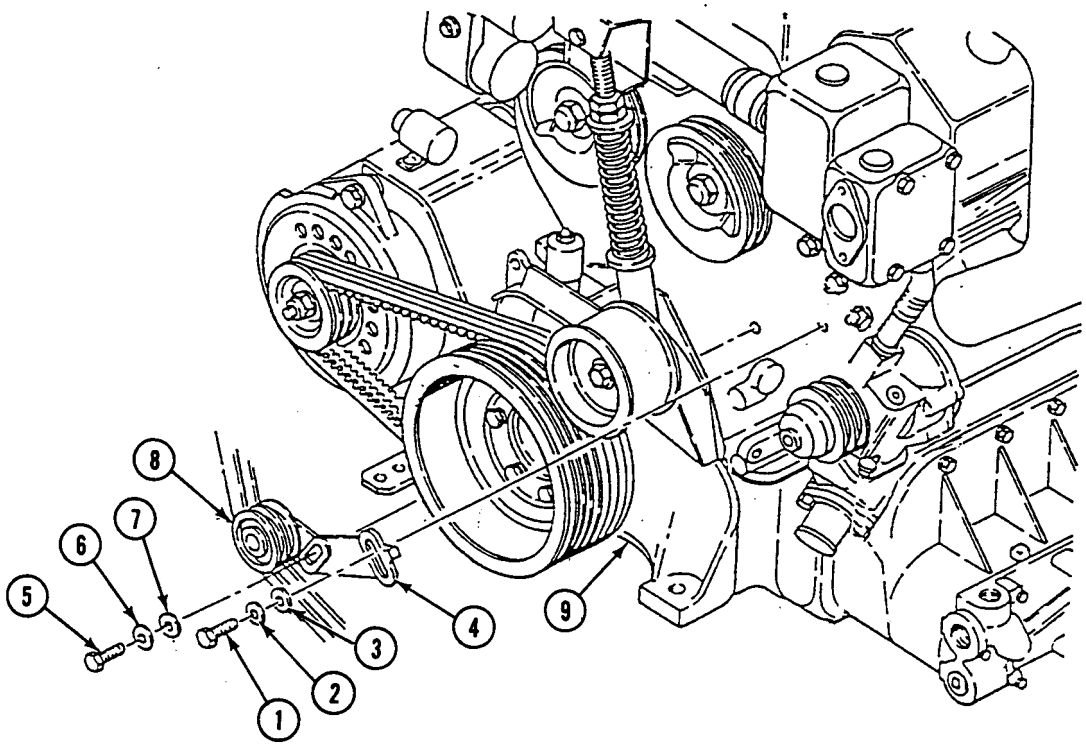
1. Remove cap screw (1), lock washer (2), and flat washer (3) from adjusting bracket (4). Discard lock washer.
2. Remove cap screw (5), lock washer (6), and flat washer (7). Discard lock washer.
3. Remove idler pulley (8) and adjusting bracket (4) from engine (9).



REPLACE COOLANT PUMP IDLER PULLEY AND ADJUSTING BRACKET (M548A3) — Continued **0225 00**

INSPECTION

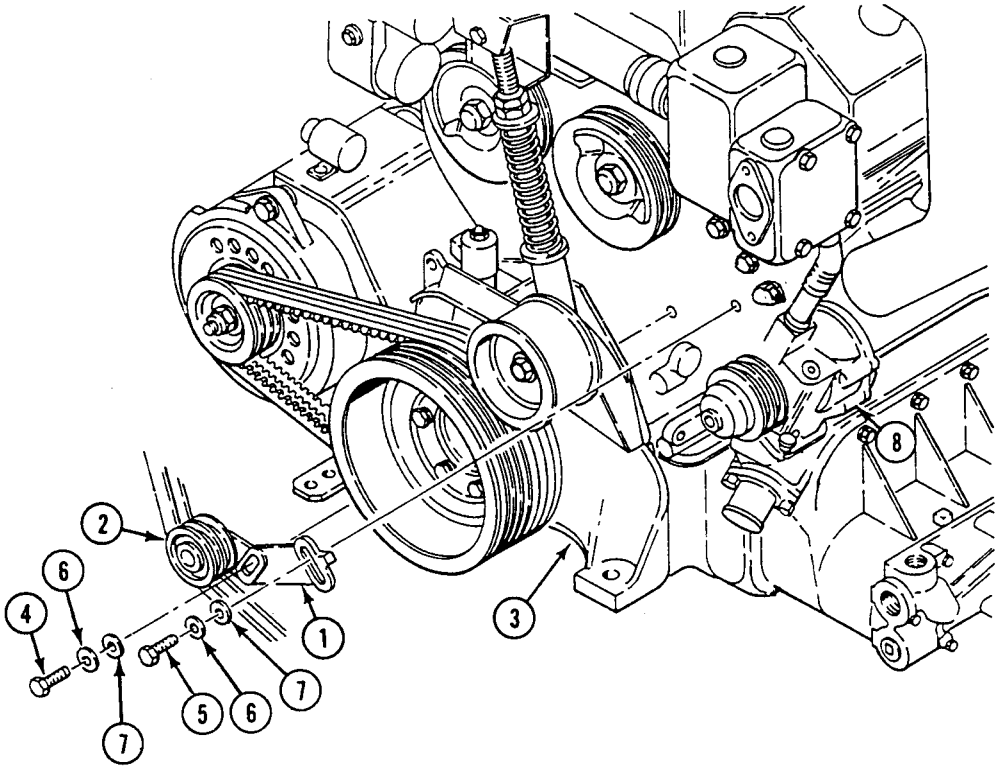
1. Inspect idler pulley (8) for rough or uneven rotation. Replace idler pulley and adjusting bracket that show defects.



REPLACE COOLANT PUMP IDLER PULLEY AND ADJUSTING BRACKET (M548A3) — Continued **0225 00**

INSTALLATION

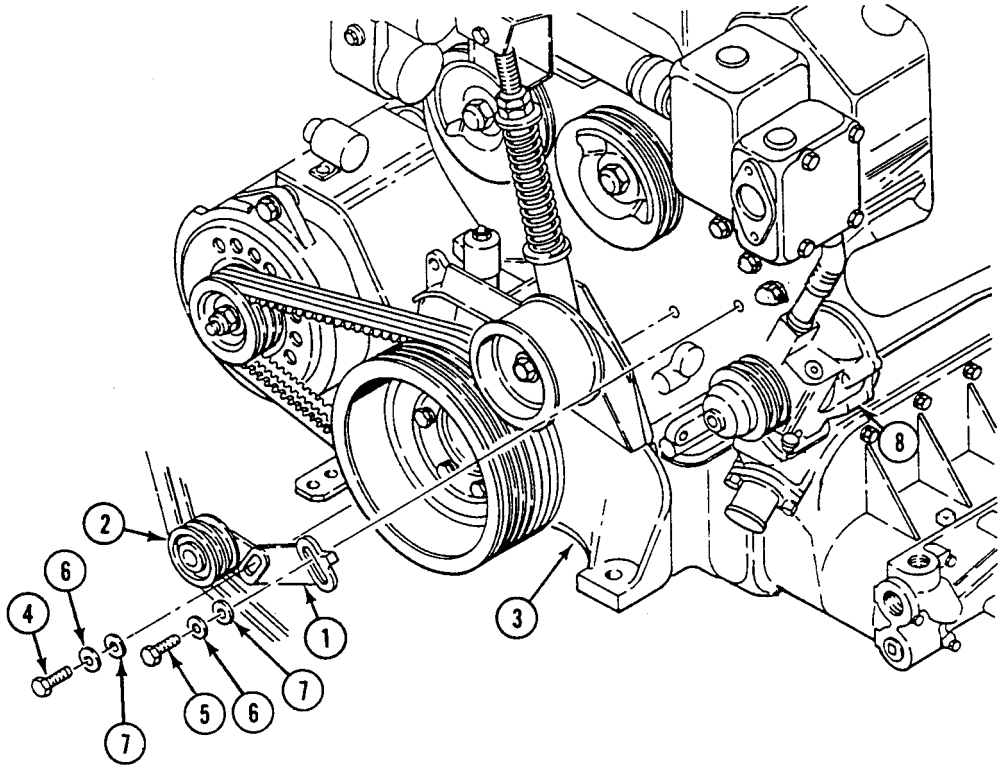
1. Install adjusting bracket (1) with idler pulley (2) attached on engine (3). Secure with cap screw (4), cap screw (5), new lock washers (6), and flat washers (7). Do not tighten cap screws.



REPLACE COOLANT PUMP IDLER PULLEY AND ADJUSTING BRACKET (M548A3) — Continued **0225 00**

ADJUSTMENT

1. Loosen cap screw (5) on adjusting bracket (1).



NOTE

Belts should be neither too loose nor too tight. Belts which are too tight impose excess loads on bearings, shortening life of bearing and belt. Loose belts may slip, causing overheating. Be sure idler pulley pivot and adjusting bolts are torqued to 30-35 lb-ft (40.7-47.5 N•m).

2. Loosen adjusting cap screw (5) on bracket slot. Adjust the belt tension so that a firm push with the thumb, at a midway point between the two pulleys, will depress the belt 1/2-3/4 inch (1.3-1.9 cm). If belt tension gauge J23600-B or equivalent is available, adjust the belt tension to 40-50 lb (18.2-22.7 kg) on the gauge. New drive belts stretch during the first few hours of operation. Run the engine 15 seconds to seat the belts, then readjust the tension. Check the belts and tighten them again in approximately 1/2 hour of operation and again after 8 additional hours of operation. Check the belt tension every 200 hours and adjust as necessary.

3. Tighten cap screw (4) and cap screw (5) to 30-35 lb-ft (40.7-47.5 N•m).

FOLLOW-THROUGH STEPS

1. Install coolant pump drive belts (WP 0224 00).

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

END OF TASK

REPLACE FAN DRIVE BELTS (M548A1) 0226 00

THIS WORK PACKAGE COVERS:

Removal (page 0226 00-1).
Installation (page 0226 00-2).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)

Personnel Required

Unit Mechanic

References

See your -10

Equipment Condition

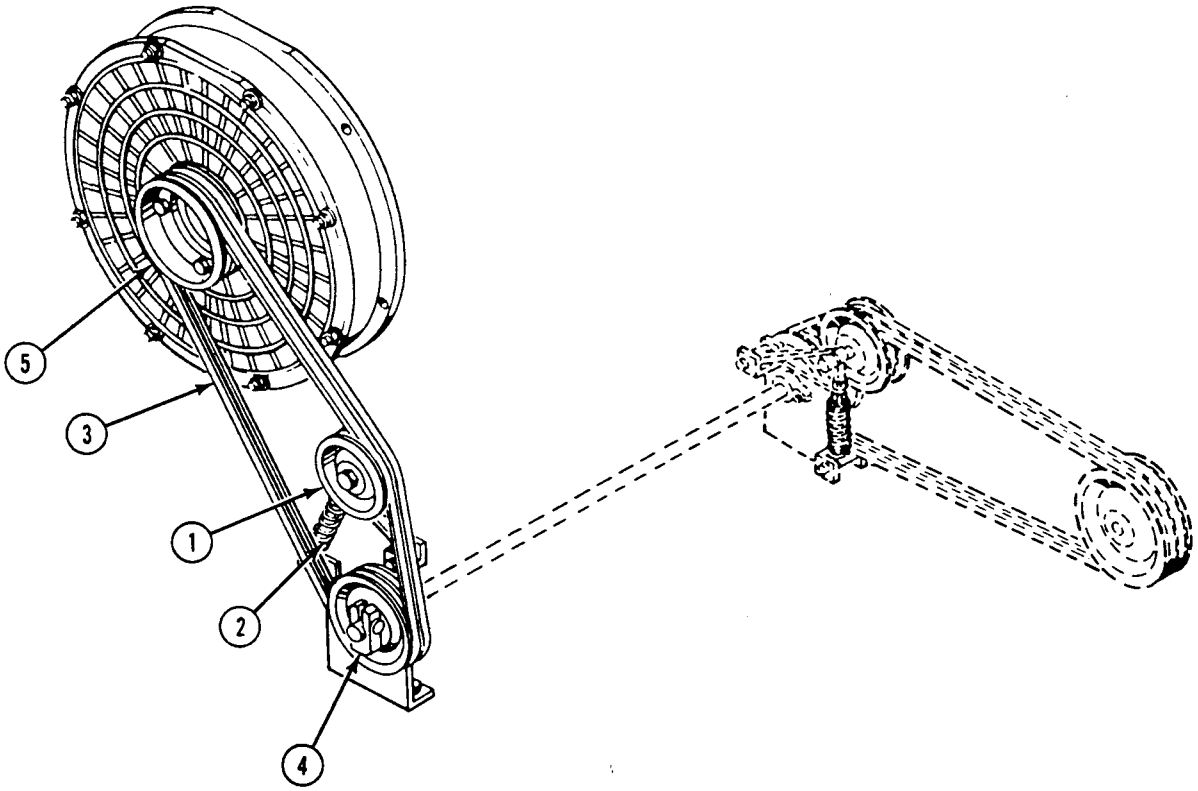
Engine stopped (see your -10)
Carrier blocked (see your -10)
Center seat raised (see your -10)
Right seat removed (WP 0400 00)
Power plant rear access door removed (see your -10)

REMOVAL

NOTE

Front and rear fan drive belts are removed the same way.

1. Press pulley (1) to compress spring (2) and remove two drive belts (3) from pulley (1), pulley (4), and pulley (5).



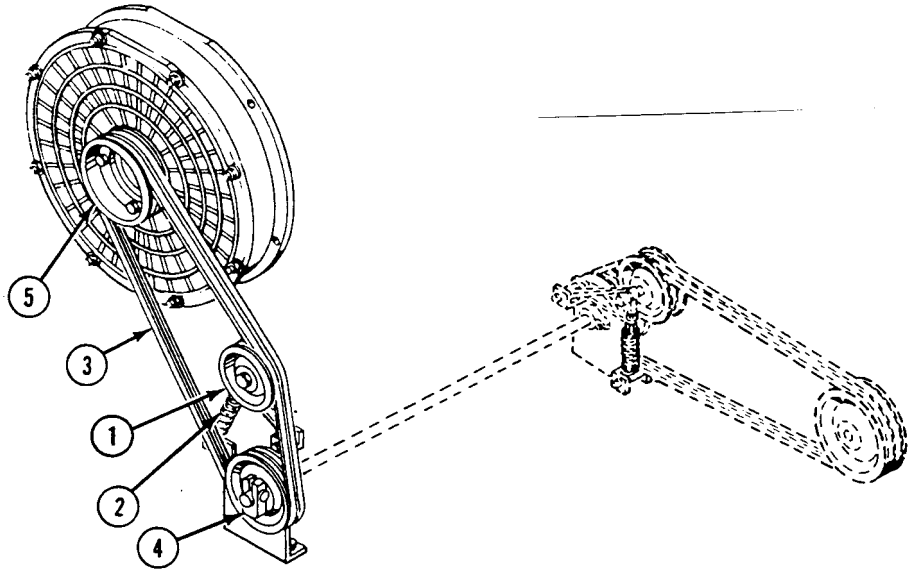
INSTALLATION

NOTE

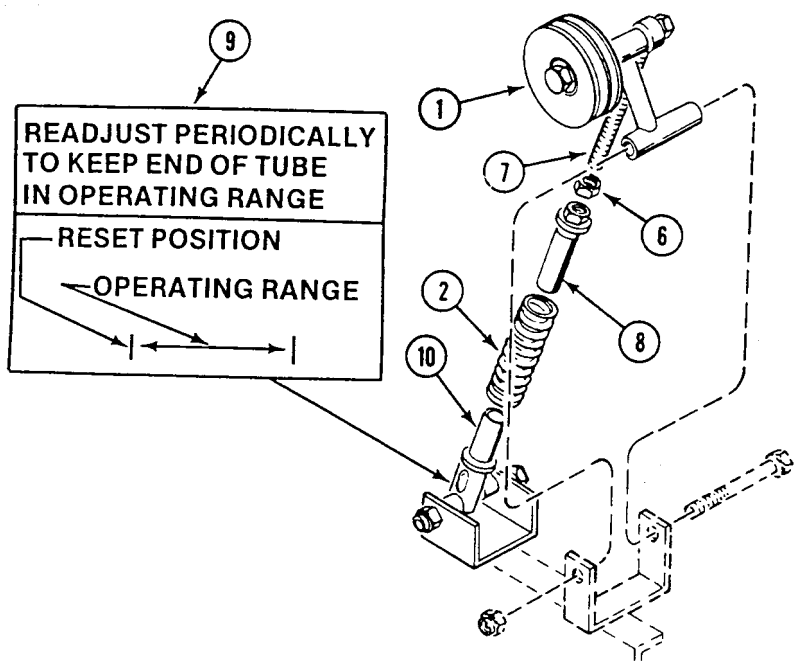
Fan drive belts must be replaced as matched sets.

The fan drive belt from the transfer gearcase for the M548A1 is 64 inches.

1. Press pulley (1) to compress spring (2) and place two fan drive belts (3) on pulley (1), pulley (4), and pulley (5).



2. Adjust fan drive belts:
   a. Loosen lock nut (6) on adjusting rod (7).
   b. Turn adjusting nut (8) to the right or left to get proper belt tension as shown on decal (9) and/or sleeve (10).
   c. Tighten lock nut (6).



FOLLOW-THROUGH STEPS

1. Start engine (see your -10).
2. Check fan drive belts for proper operation.
3. Stop engine (see your -10).
4. Install right seat (WP 0400 00).
5. Lower center seat (see your -10).
6. Install power plant rear access door (see your -10).

END OF TASK

REPLACE COOLING FAN DRIVE BELT (M548A3) 0227 00

THIS WORK PACKAGE COVERS:

Removal (page 0227 00-1).
Inspection-Acceptance and Rejection Criteria (page 0227 00-1).
Installation (page 0227 00-2).
Adjustment (page 0227 00-2).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)

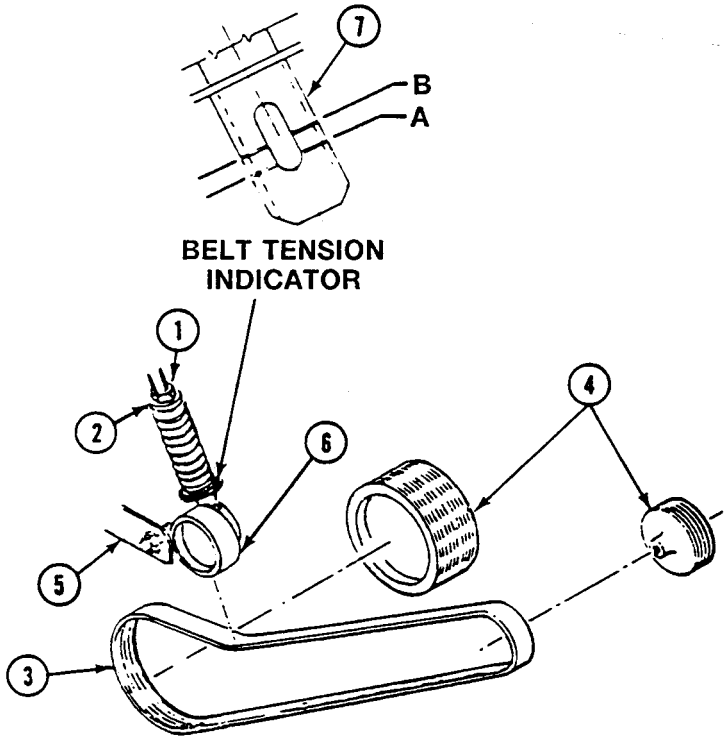
Personnel Required
Unit Mechanic

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)

REMOVAL

1. Loosen jam nut (1) that secures fan idler adjusting nut (2).
2. Turn fan idler adjusting nut (2) to loosen drive belt (3). Remove drive belt from pulleys (4).
3. Lift fan idler pulley bracket (5) and have helper slide belt (3) from under idler pulley (6).



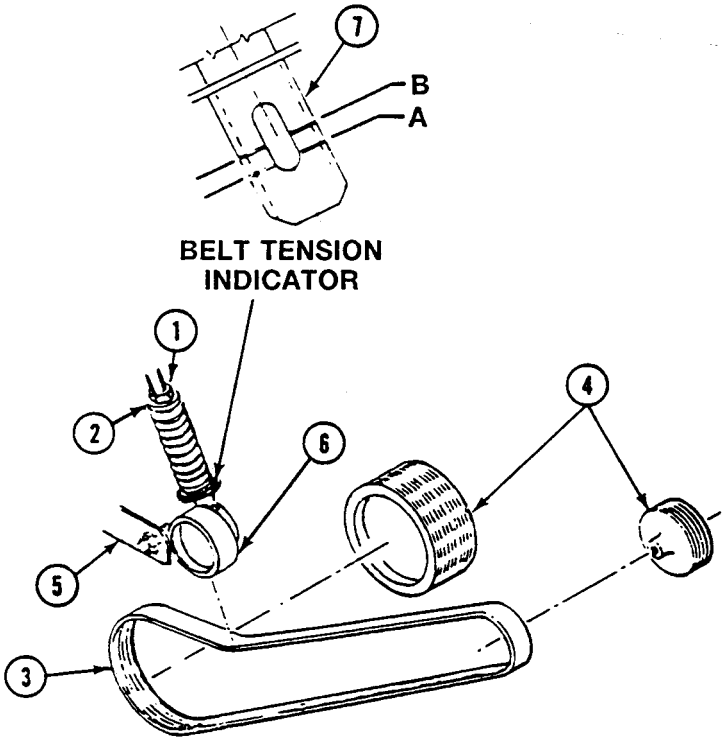
INSPECTION-ACCEPTANCE AND REJECTION CRITERIA

1. Inspect drive belt for broken, cracked, or frayed condition. Replace drive belt that shows any of these defects.

REPLACE COOLING FAN DRIVE BELT (M548A3) — Continued **0227 00**

INSTALLATION

1. Lift fan belt idler pulley bracket (5) and have helper slide drive belt (3) under idler pulley (6).



ADJUSTMENT

1. Loosen jam nut (1) securing fan idler adjusting nut (2).
2. Turn fan idler adjusting nut (2) until lower end of adjustment indicator (7) is in line with position A on belt tension indicator.
3. Tighten jam nut (1) snug against fan idler adjusting nut (2).

FOLLOW-THROUGH STEPS

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

END OF TASK

REPLACE FAN DRIVE BELT IDLER PULLEY (M548A1) 0228 00

THIS WORK PACKAGE COVERS:

Removal (page 0228 00-1).
Installation (page 0228 00-2).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)
Torque wrench (WP 0541 00, Item 68)

Materials/Parts
Lock nut

Personnel Required
Unit Mechanic

References
See your -10

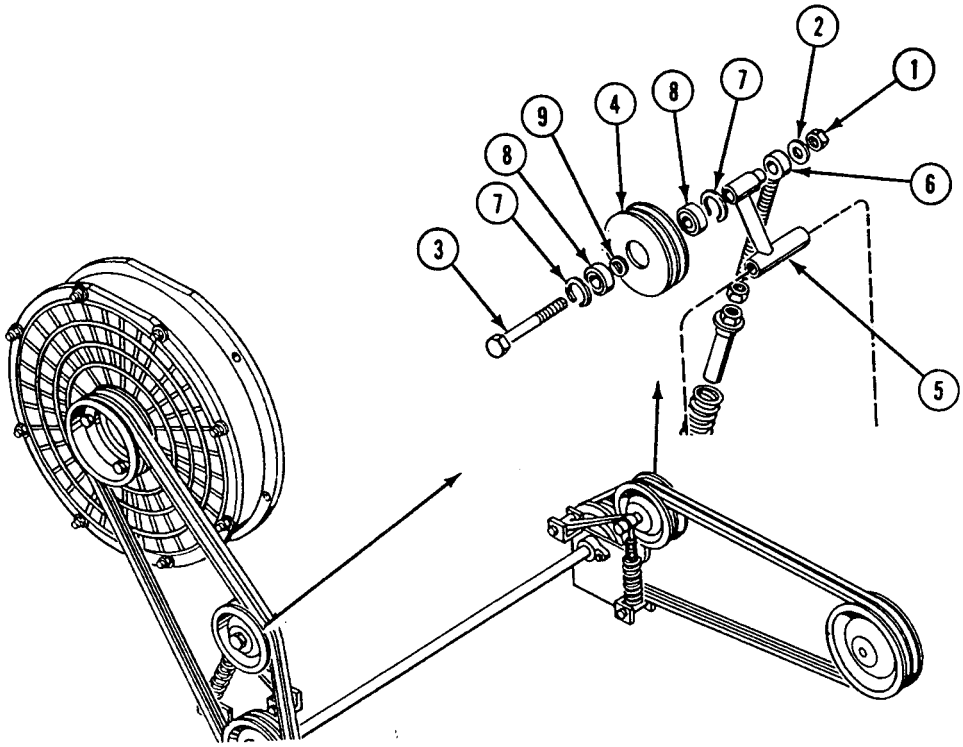
Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Center seat raised (see your -10)
Power plant rear access door removed (see your -10)
Fan drive belts removed (WP 0226 00)

REMOVAL

NOTE

Front and rear idler pulleys are removed the same way.

1. Remove lock nut (1), washer (2), screw (3), and idler pulley (4) from support arm (5) and rod end (6). Discard lock nut.
2. Remove two retainer rings (7), bearings (8), and spacer (9) from idler pulley (4).

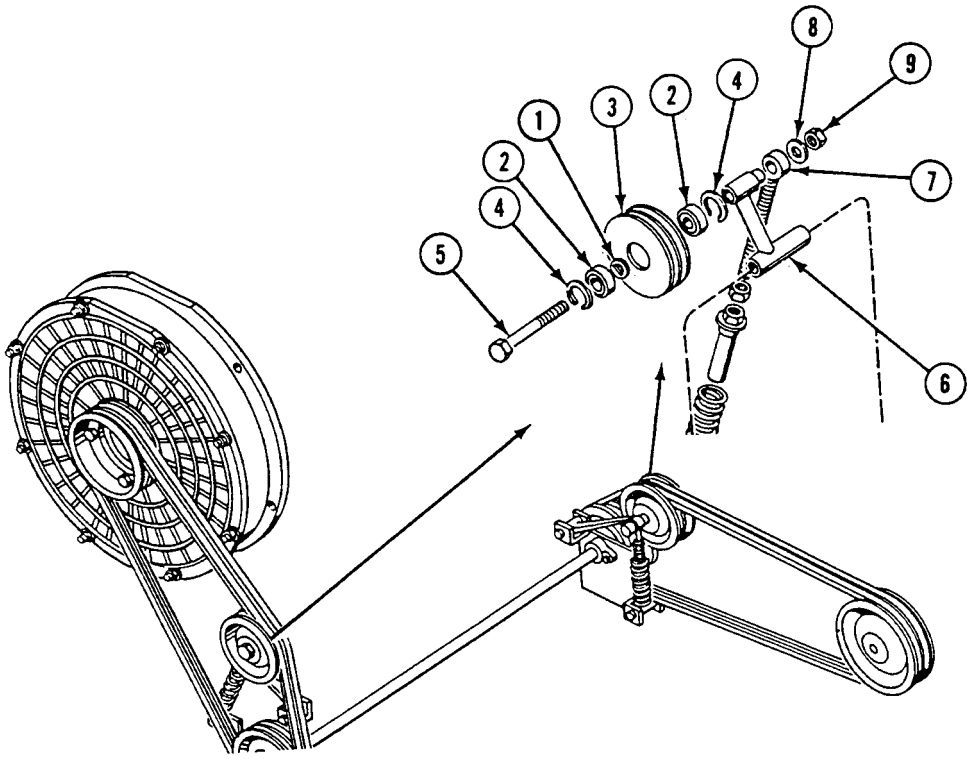


INSTALLATION

NOTE

Front and rear idler pulleys are installed the same way.

1. Install one spacer (1) and two bearings (2) in idler pulley (3). Secure with two retainer rings (4).
2. Install screw (5) through idler pulley (3), support arm (6), and rod end (7).
3. Install washer (8) and new lock nut (9) on screw (5). Tighten nut to 50-55 lb-ft (68-75 N•m) torque.



FOLLOW-THROUGH STEPS

1. Install and adjust fan drive belts (WP 0226 00).
2. Start engine (see your -10).
3. Check fan drive belt idler pulley for proper installation.
4. Stop engine (see your -10).
5. Lower center seat (see your -10).
6. Install power plant rear access door (see your -10).

END OF TASK

REPLACE COOLING FAN IDLER PULLEY (M548A3) 0229 00

THIS WORK PACKAGE COVERS:

Removal (page 0229 00-1).
Inspection (page 0229 00-2).
Installation (page 0229 00-2).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)
Retaining Ring Pliers (WP 0541 00, Item 31)
Torque Wrench (WP 0541 00, Item 68)

Materials/Parts
Lock nut

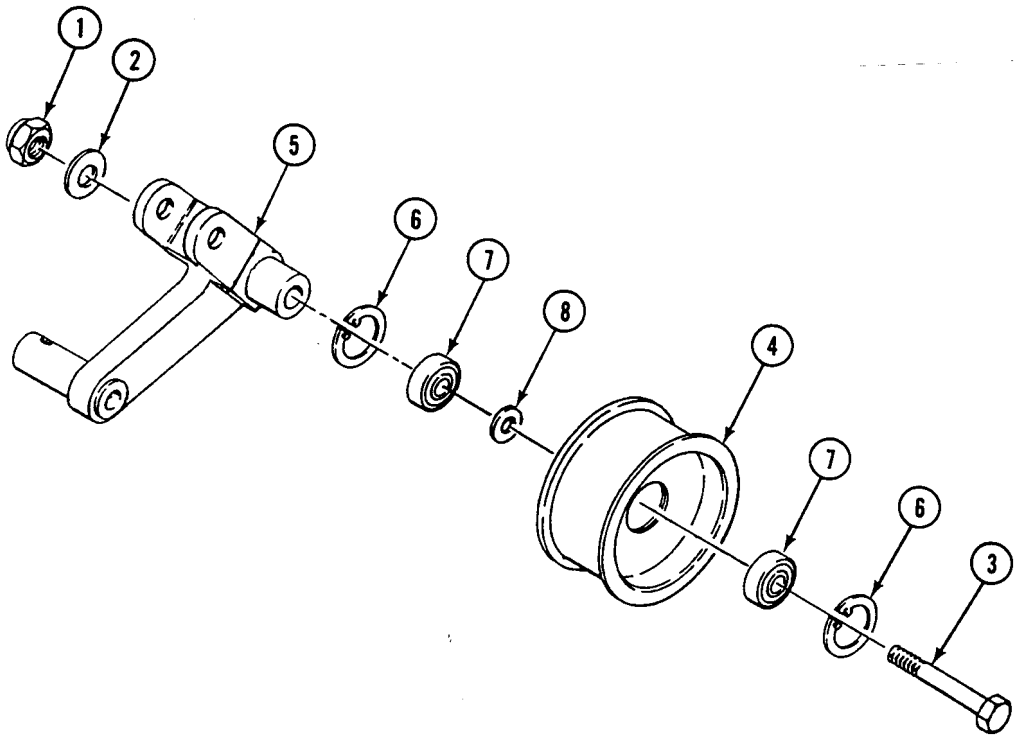
Personnel Required
Unit Mechanic

References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Both power plant rear access panel/cover removed (see your -10)
Cooling fan drive belt removed (WP 0227 00)
Top access cover and grilles removed (see your -10)

REMOVAL

1. Remove lock nut (1), washer (2), bolt (3), and pulley (4) from idler arm (5). Discard lock nut.
2. Remove two retaining rings (6), two bearings (7), and spacer (8) from pulley (4). Use retaining ring pliers.



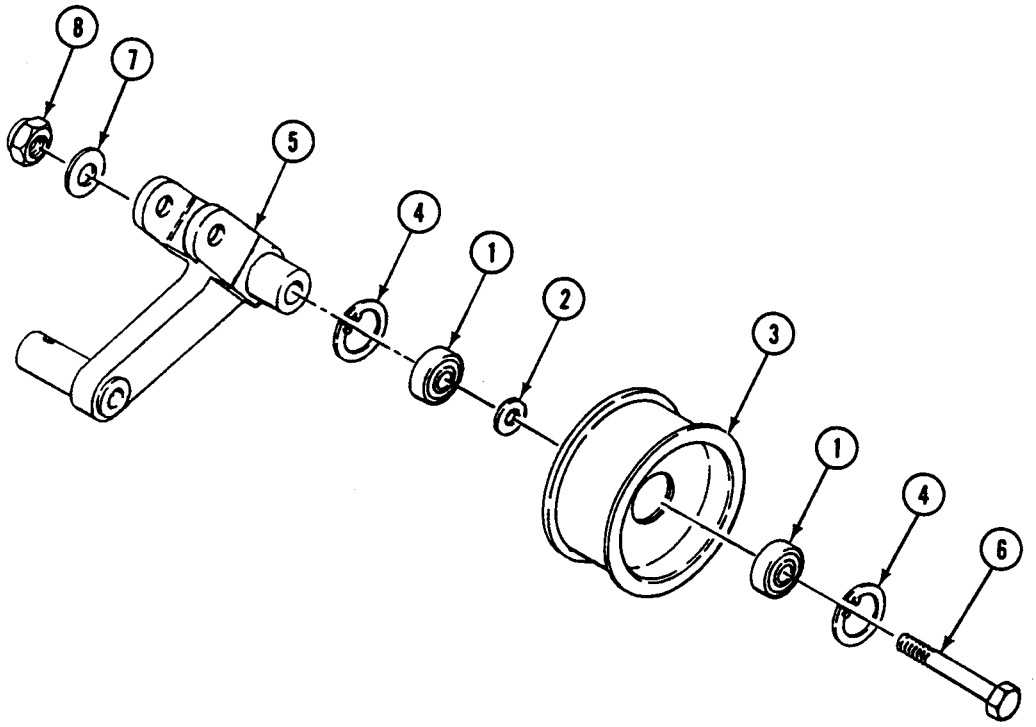
REPLACE COOLING FAN IDLER PULLEY (M548A3) — Continued 0229 00

INSPECTION

1. Inspect fan idler pulley for bent or cracked condition. Replace idler pulley that shows either of these defects.
2. Inspect bearings and pulley for rough or uneven rotation. Replace bearings and pulley if they show either of these defects.

INSTALLATION

1. Assemble two bearings (1) and spacer (2) in pulley (3) and secure with two retaining rings (4). Use retaining ring pliers.
2. Install pulley (3) on idler arm (5) and secure with bolt (6), washer (7), and new lock nut (8). Tighten lock nut to 50-55 lb-ft (68-75 N•m).



FOLLOW-THROUGH STEPS

1. Install and adjust cooling fan drive belt (WP 0227 00).
2. Install top access cover and grilles (see your -10).
3. Install both power plant rear access panel/cover (see your -10).

END OF TASK

REPLACE FAN DRIVE BELT IDLER ADJUSTING LINKAGE (M548A1) 0230 00

THIS WORK PACKAGE COVERS:

Removal (page 0230 00-1).
Installation (page 0230 00-3).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)
Torque Wrench, (WP 0541 00, Item 68)

Materials/Parts
Lock nut (2)

Personnel Required
Unit Mechanic

References
See your -10

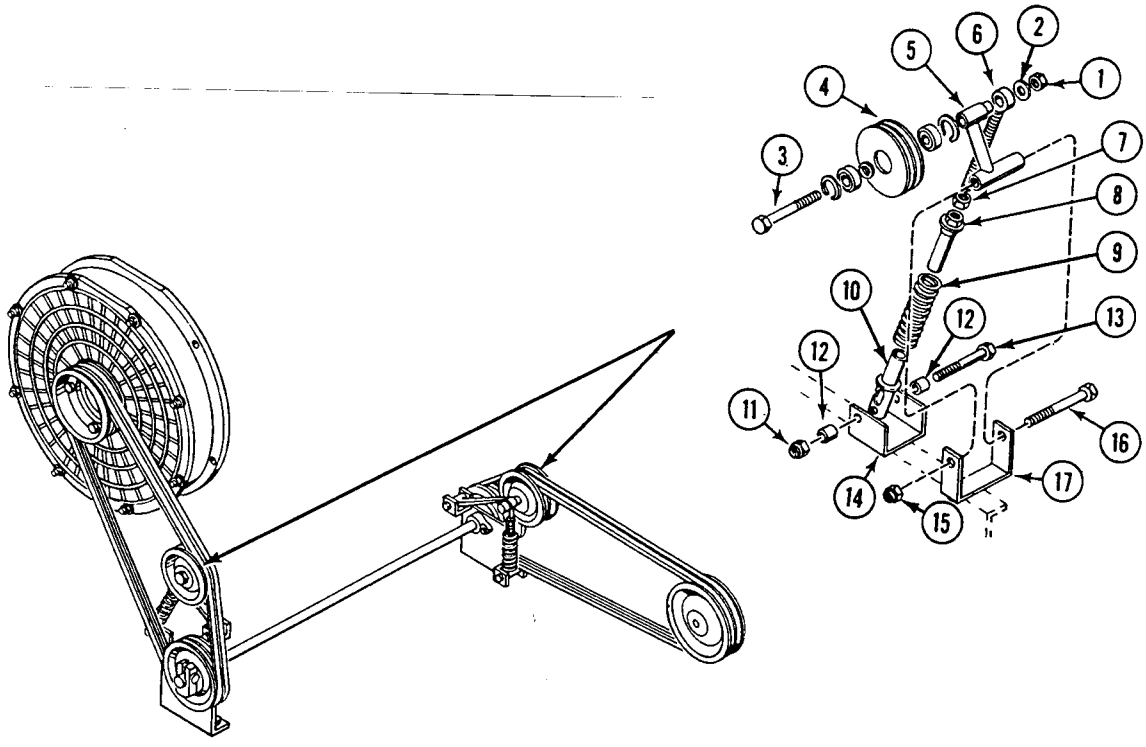
Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Center seat raised (see your -10)
Power plant rear access door removed (see your -10)
Fan drive belts removed (WP 0226 00)

REMOVAL

NOTE

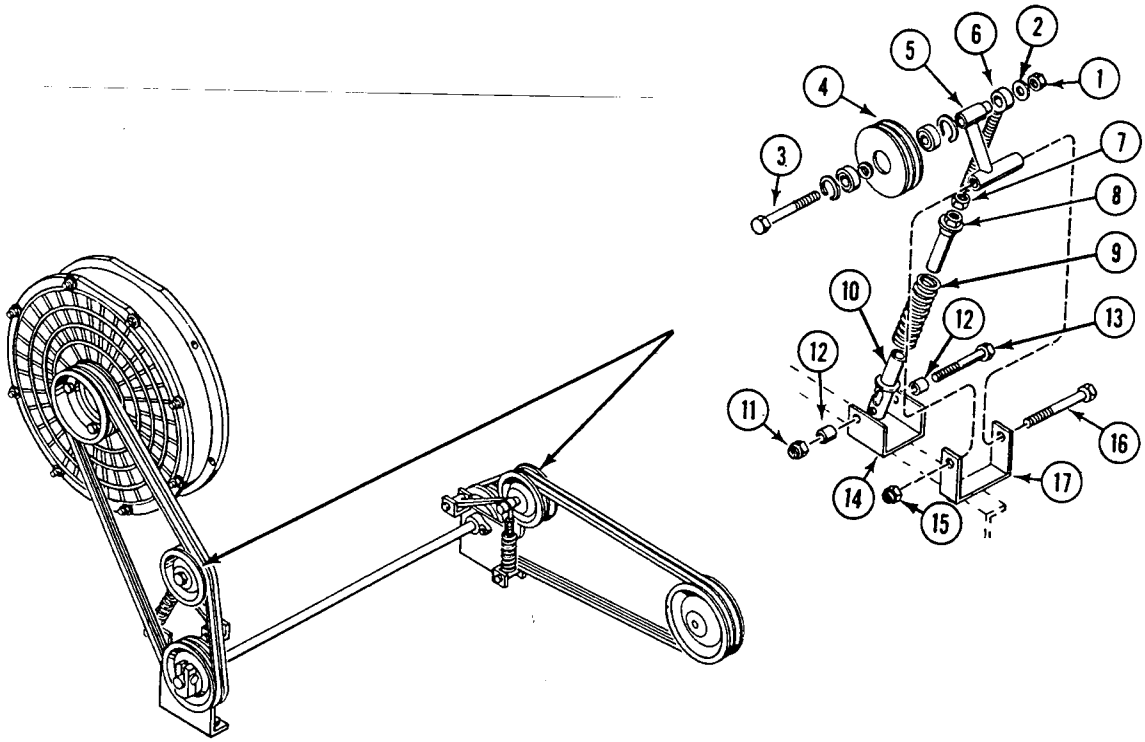
Front and rear idler adjusting linkages are removed the same way.

1. Remove lock nut (1), washer (2), screw (3), and idler pulley (4) from support arm (5) and rod end (6). Discard lock nut.
2. Remove rod end (6), jam nut (7), adjusting nut (8), and spring (9) from adjusting sleeve (10).



REPLACE FAN DRIVE BELT IDLER ADJUSTING LINKAGE (M548A1) — Continued 0230 00

3. Remove rod end (6) and jam nut (7) from adjusting nut (8).
4. Remove lock nut (11), two spacers (12), screw (13), and adjusting sleeve (10) from bracket (14). Discard lock nut.
5. Remove lock nut (15), screw (16), and support arm (5) from bracket (17). Discard lock nut.

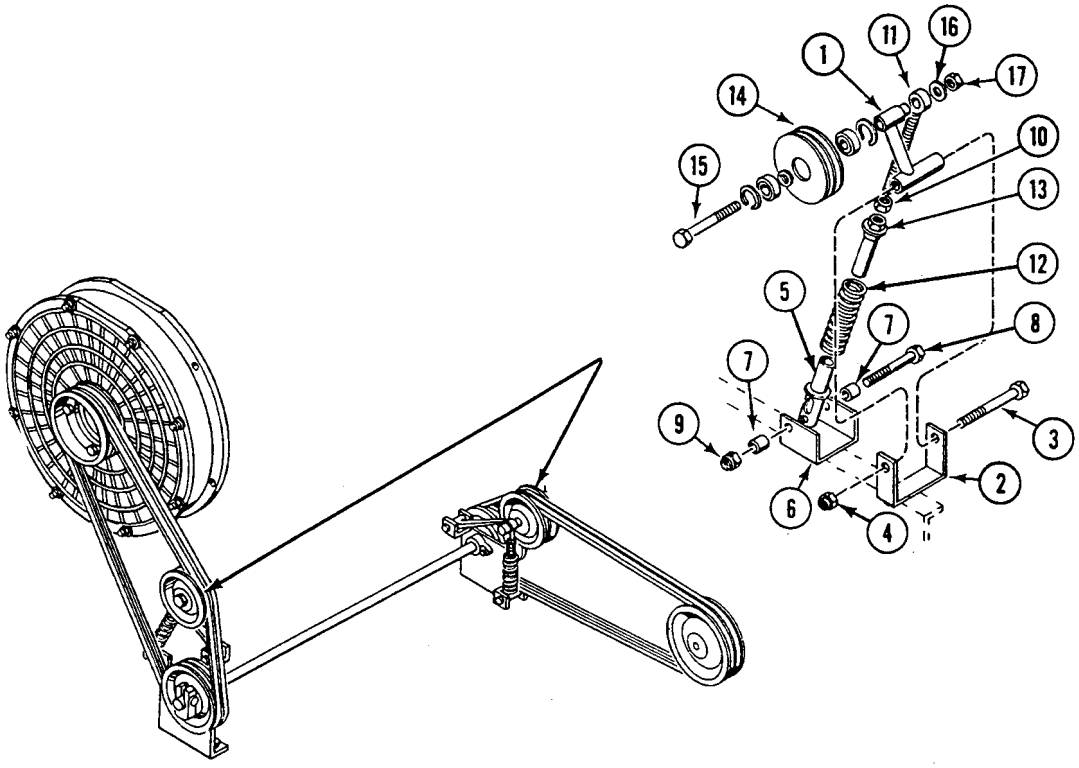


INSTALLATION

NOTE

Front or rear idler adjusting linkages are installed the same way.

1. Install support arm (1) in bracket (2). Secure with screw (3) and new lock nut (4).
2. Install adjusting sleeve (5) in bracket (6). Secure with two spacers (7), screw (8), and new lock nut (9).
3. Install new jam nut (10) on rod end (11).
4. Install spring (12), adjusting nut (13), jam nut (10), and rod end (11) on adjusting sleeve (5).
5. Secure idler pulley (14) to rod end (11) and support arm (1) with screw (15), washer (16), and new lock nut (17). Tighten nut to 50-55 lb-ft (68-75 N•m) torque.



FOLLOW-THROUGH STEPS

1. Install and adjust fan drive belts (WP 0226 00).
2. Start engine (see your -10).
3. Check fan drive belt adjusting linkage for proper installation.
4. Stop engine (see your -10).
5. Lower center seat (see your -10).
6. Install power plant upper rear access door (see your -10).

END OF TASK

REPLACE FAN JACKSHAFT PULLEYS (M548A1) 0231 00

THIS WORK PACKAGE COVERS:

Removal (page 0231 00-1).
Installation (page 0231 00-2).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts
Lock nut

Personnel Required
Unit Mechanic

References
See your -10

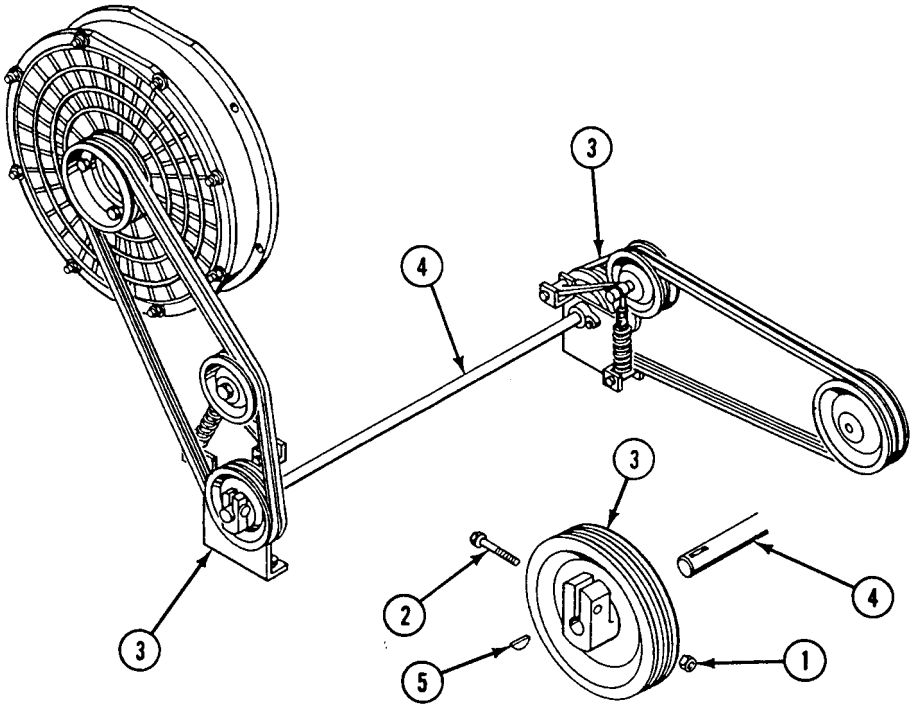
Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Center seat raised (see your -10)
Power plant rear access door removed (see your -10)
Fan drive belts removed (WP 0226 00)

REMOVAL

NOTE

Front and rear jackshaft pulleys are removed the same way.

1. Remove lock nut (1), screw (2), and jackshaft pulley (3) from shaft (4). Discard lock nut.
2. Remove key (5) from shaft (4).



INSTALLATION

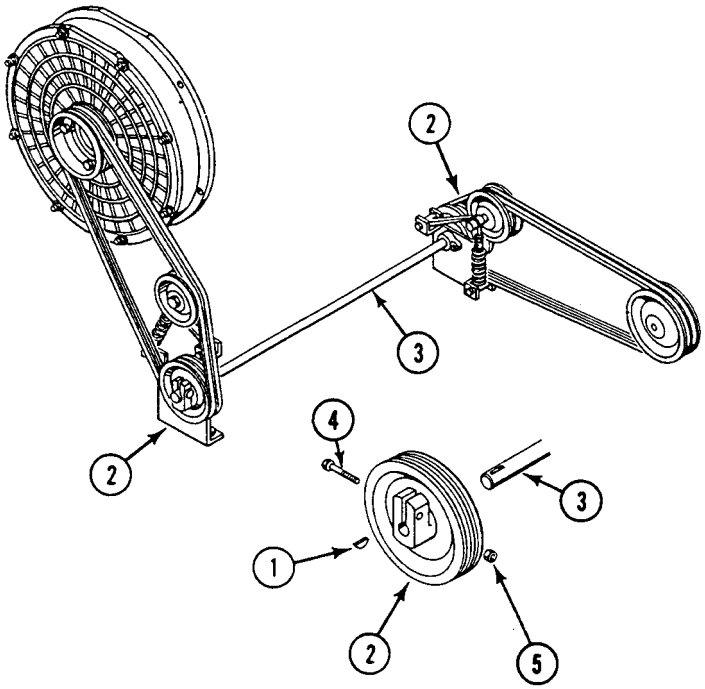
CAUTION

The M548A1 rear jackshaft pulley is smaller than the front jackshaft pulley. Do not mix.

NOTE

Front and rear jackshaft pulleys are installed the same way.

1. Install key (1) and jackshaft pulley (2) on shaft (3).
2. Align jackshaft pulley (2) within 1/8 inch (3 mm) of idler pulley. Secure to shaft with screw (4) and new lock nut (5).



FOLLOW-THROUGH STEPS

1. Install and adjust fan drive belts (WP 0226 00).
2. Start engine (see your -10).
3. Check fan jackshaft pulley for proper operation.
4. Stop engine (see your -10).
5. Lower center seat (see your -10).
6. Install power plant upper rear access door (see your -10).

END OF TASK

REPLACE COOLING FAN IDLER ARM (M548A3) 0232 00

THIS WORK PACKAGE COVERS:

Removal (page 0232 00-1).
Inspection (page 0232 00-2).
Installation (page 0232 00-2).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts

Lock nut
Grease fitting
Cotter pin

Personnel Required

Unit Mechanic

References

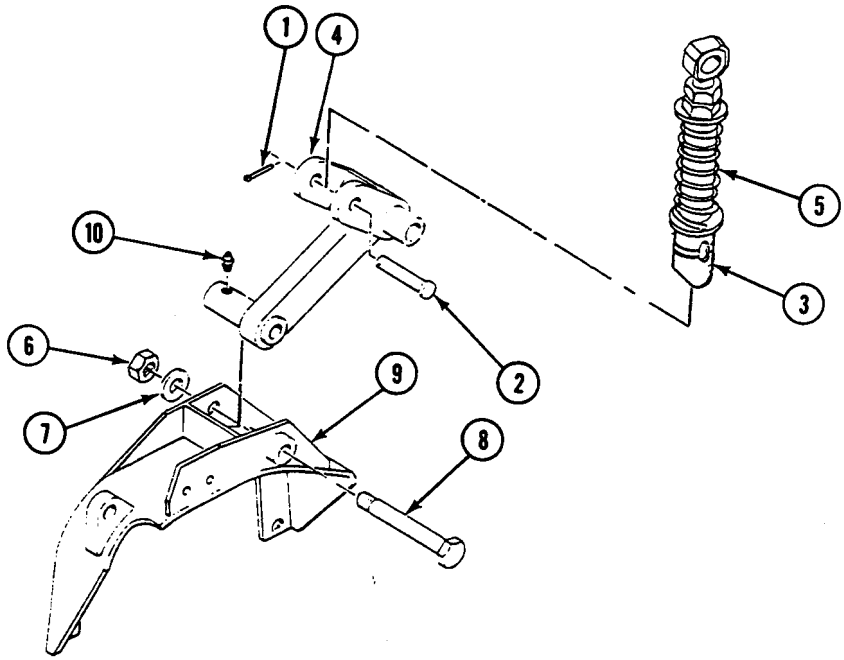
See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Power plant rear access panel removed (see your -10)
Top access cover and grilles removed (see your -10)
Cooling fan drive belt removed (WP 0227 00)
Cooling fan idler pulley removed (WP 0229 00)

REMOVAL

1. Remove cotter pin (1) and straight pin (2) from sleeve (3) and fan idler arm (4). Discard cotter pin.
2. Remove adjusting assembly (5) from fan idler arm (4).
3. Remove lock nut (6), washer (7), screw (8). and fan idler arm (4) from idler arm support (9).
4. Remove grease fitting (10) if required.

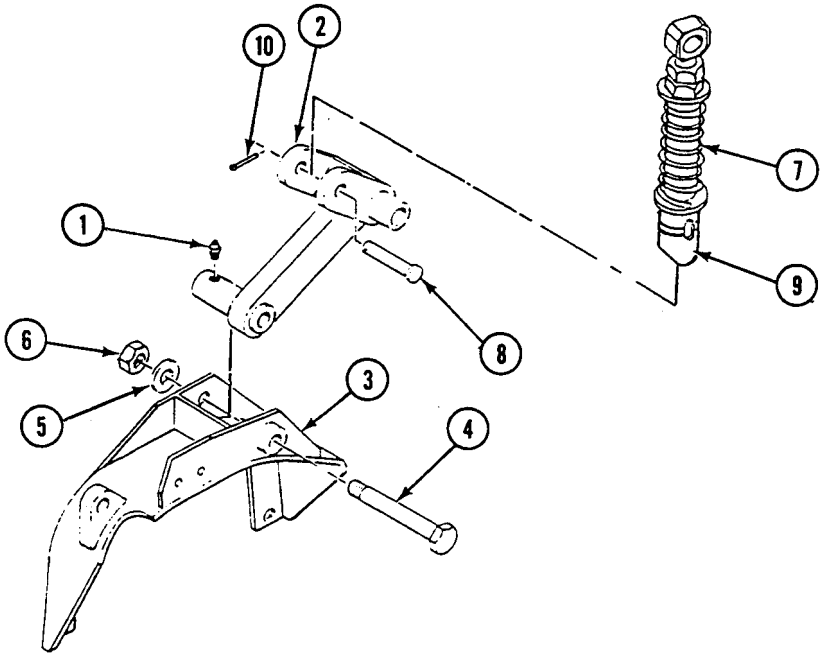


INSPECTION

1. Inspect fan idler arm for visible damage. Replace idler arm if damaged.

INSTALLATION

1. Install grease fitting (1) if missing.
2. Install fan idler arm (2) on idler arm support (3) and secure with screw (4), washer (5), and new lock nut (6).
3. Install adjusting assembly (7) on fan idler arm (2).
4. Insert straight pin (8) in fan idler arm (2) and sleeve (9) and secure straight pin with new cotter pin (10).



FOLLOW-THROUGH STEPS

1. Install fan idler pulley (WP 0229 00).
2. Install and adjust cooling fan drive belt (WP 0227 00).
3. Install top access cover and grilles (see your -10).
4. Install power plant rear access panel (see your -10).

END OF TASK

REPLACE COOLING FAN IDLER ARM SUPPORT (M548A3) 0233 00

THIS WORK PACKAGE COVERS:

Removal (page 0233 00-2).
Inspection (page 0233 00-2).
Installation (page 0233 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)
Wrench Socket Adapter (WP 0541 00, Item 1)
Torque wrench (WP 0541 00, Item 68)
Socket Wrench Set (WP 0541 00, Item 64)
Torque Wrench (WP 0541 00, Item 71)

Materials/Parts

Jack screw (3) (B1821BH038C100N)
Lock screw (6)
Lock washer (6)

Personnel Required

Unit Mechanic

References

See your -10

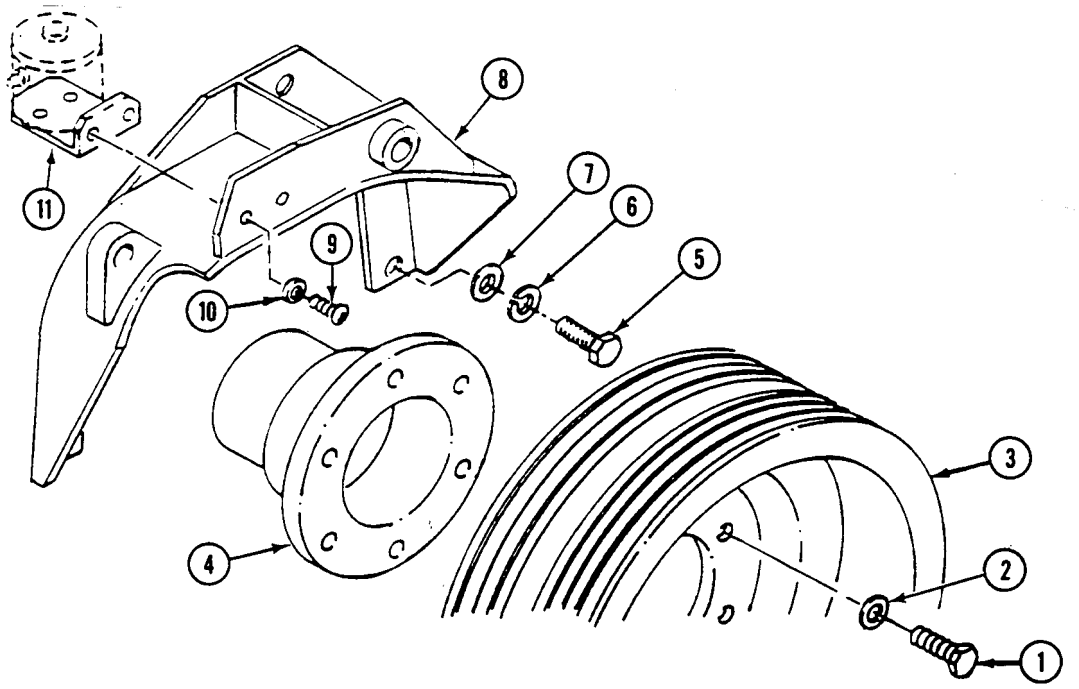
Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Power plant rear access panel removed (see your -10)
Top access cover and grilles removed (see your -10)
Cooling fan drive belt removed (WP 0227 00)
Cooling fan idler arm removed (WP 0232 00)

REPLACE COOLING FAN IDLER ARM SUPPORT (M548A3) — Continued 0233 00

REMOVAL

1. Remove six lock screws (1) and washers (2) securing pulley (3) to hub (4). Discard lock screws.
2. Install three jack screws (3/8 x 1 inch) in pulley (3) holes and progressively tighten screws to loosen pulley.
3. Remove pulley (3).
4. Remove four screws (5), lock washers (6), and washers (7) from idler arm support (8). Discard lock washers.
5. Remove two screws (9), lock washers (10), and idler arm support (8) from bracket (11). Discard lock washers.

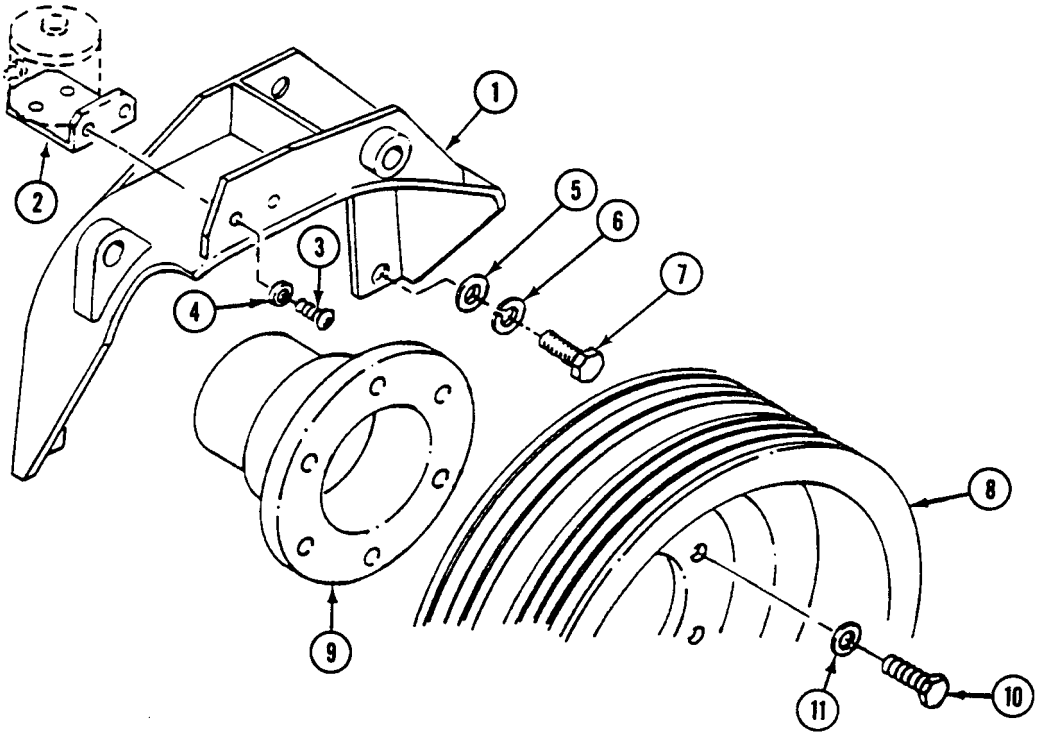


INSPECTION

1. Inspect fan idler arm support for bent or cracked condition. Replace support that shows either of these defects.

INSTALLATION

1. Install idler arm support (1) on bracket (2) and secure with two screws (3) and new lock washers (4).
2. Install four washers (5), new lock washers (6), and screws (7) in idler arm support (1). Tighten screws to 264-288 lb-in (30-32 N•m) torque.
3. Install pulley (8) on hub (9). Secure with six new lock screws (10) and washers (11). Tighten lock screws to 52-56 lb-ft (70-76 N•m) torque. Use wrench socket adapter.



FOLLOW-THROUGH STEPS

1. Install cooling fan idler arm (WP 0232 00).
2. Install and adjust cooling fan drive belt (WP 0227 00).
3. Install top access cover and grilles (see your -10).
4. Install power plant rear access panel (see your -10).

END OF TASK

REPLACE FAN PULLEY (M548A1) 0234 00

THIS WORK PACKAGE COVERS:

Removal (page 0234 00-1).
Installation (page 0234 00-2).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)

Personnel Required

Unit Mechanic

References

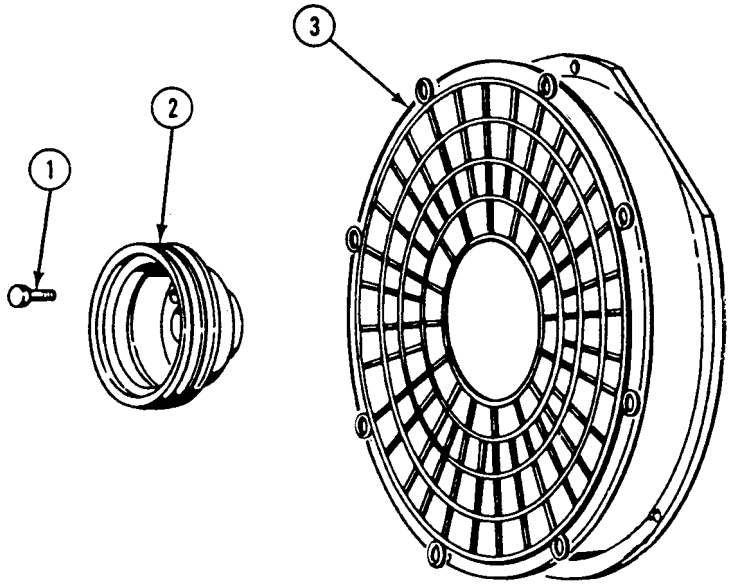
See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Center seat raised (see your -10)
Right seat removed (WP 0400 00)
Fan drive belts removed (WP 0226 00)

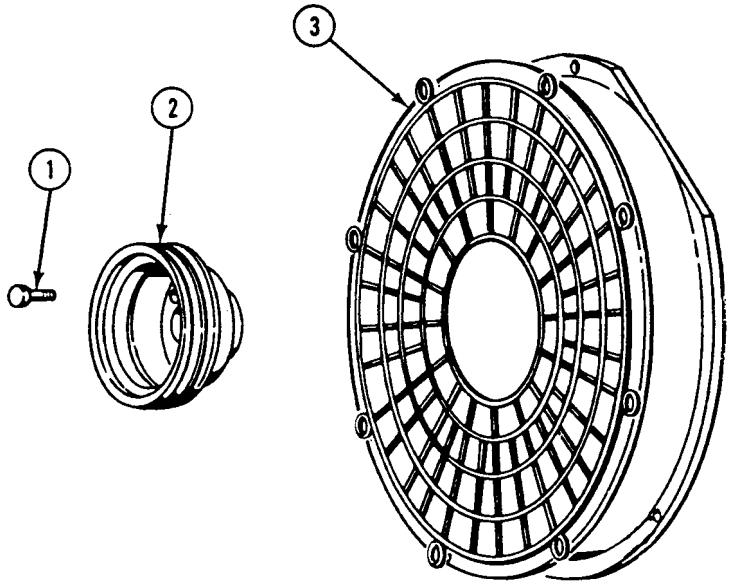
REMOVAL

1. Remove four screws (1) and fan pulley (2) from fan (3).



INSTALLATION

1. Secure fan pulley (2) to fan (3) with four screws (1).



FOLLOW-THROUGH STEPS

1. Install and adjust fan drive belts (WP 0226 00).
2. Start engine (see your -10).
3. Check fan pulley for proper operation.
4. Stop engine (see your -10).
5. Install right seat (WP 0400 00).
6. Lower center seat (see your -10).

END OF TASK

REPLACE COOLING FAN (M548A1) 0235 00

THIS WORK PACKAGE COVERS:

Removal (page 0235 00-1).
Installation (page 0235 00-3).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts
Lock nut (11)
Seal

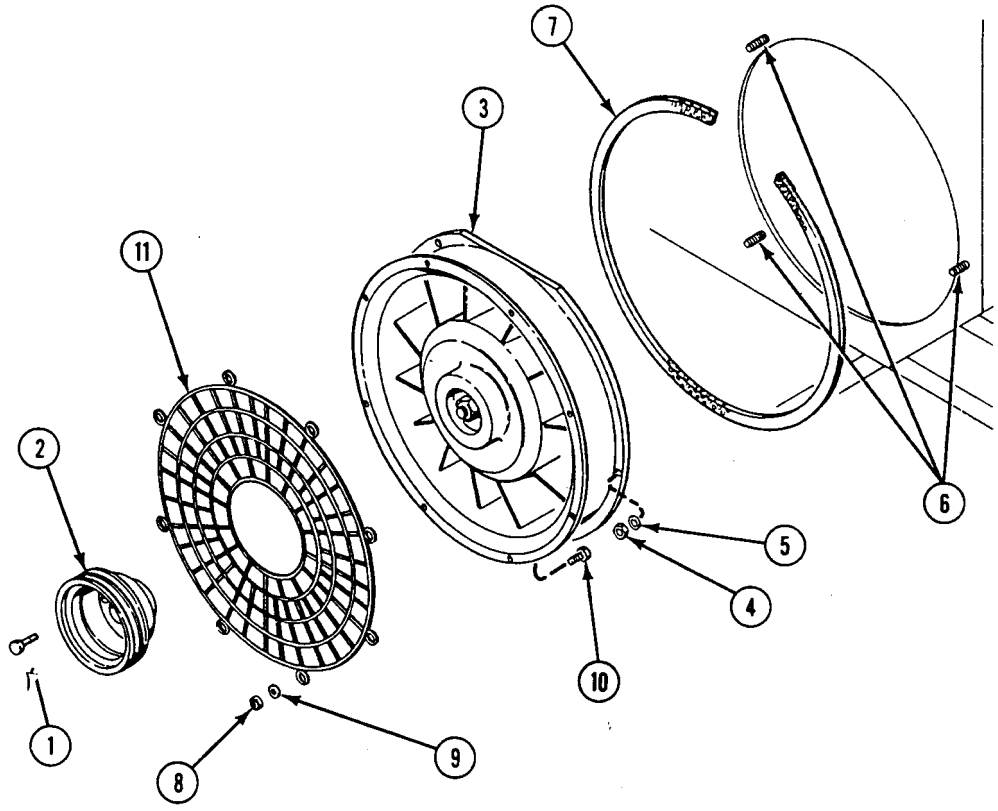
Personnel Required
Unit Mechanic

References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Center seat raised (see your -10)
Right seat removed (WP 0400 00)
Fan drive belts removed (WP 0226 00)

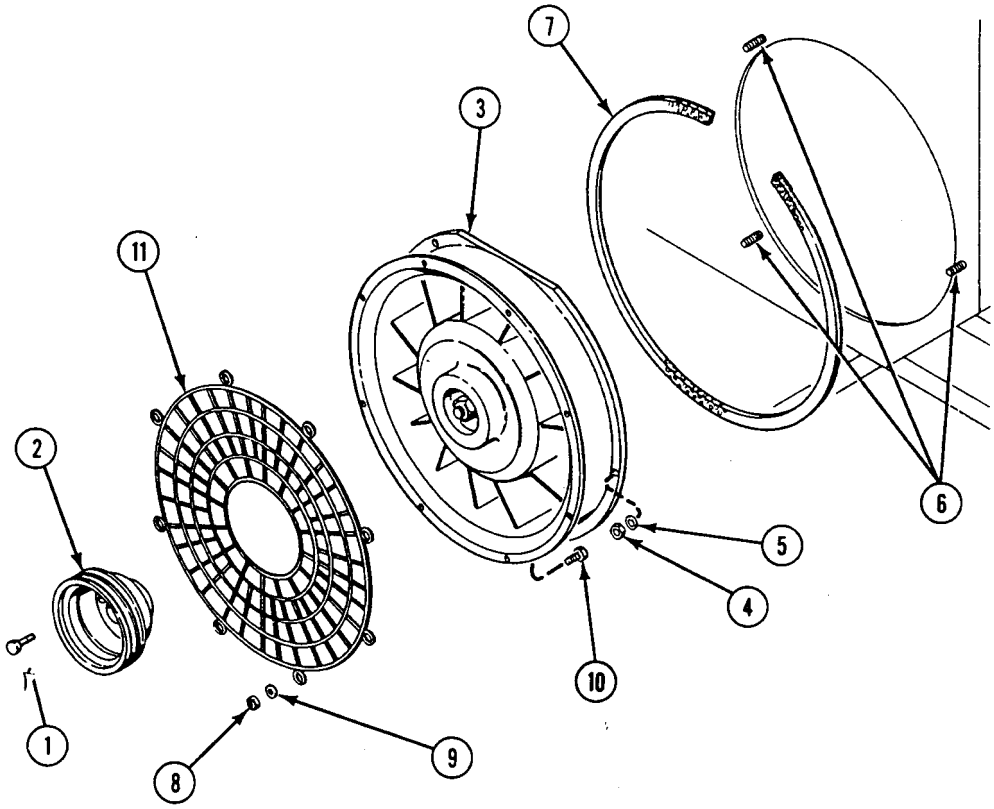
REMOVAL

1. Remove four screws (1) and fan pulley (2) from fan (3).
2. Remove three lock nuts (4) and washers (5) from three mounting studs (6). Discard lock nuts.



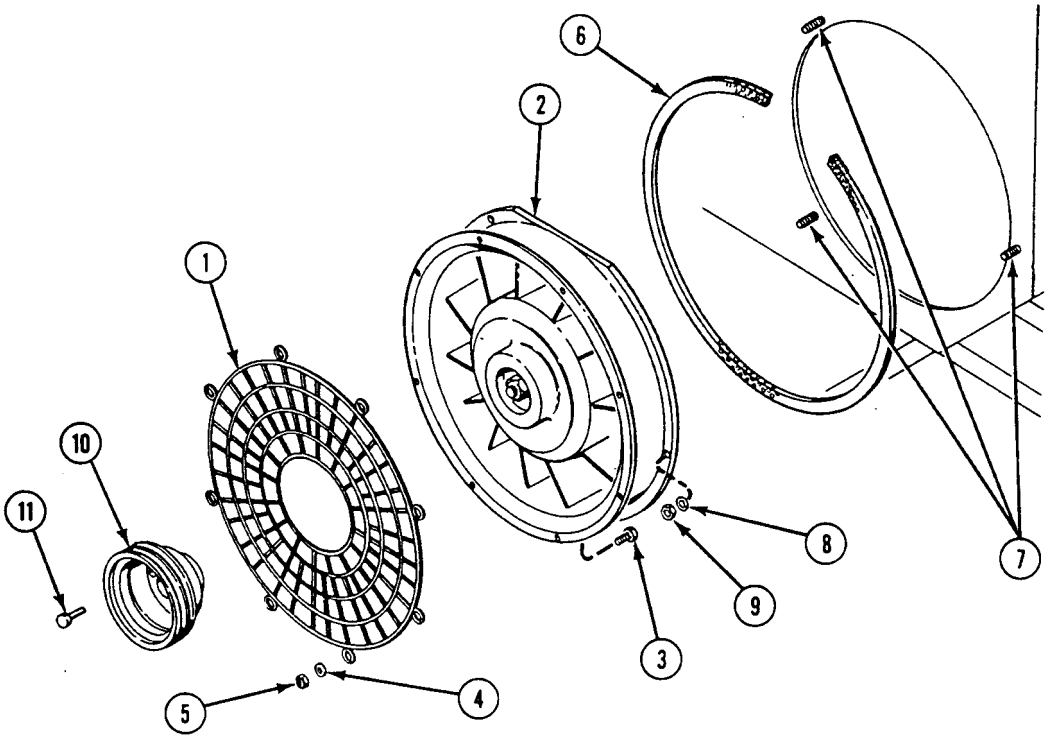
REPLACE COOLING FAN (M548A1) — Continued **0235 00**

3. Remove fan (3) from mounting studs (6) and turn fan so flat sides of housing are vertical. Lift fan through right seat opening.
4. Remove seal (7) from fan (3). Discard seal.
5. Remove eight lock nuts (8), washers (9), screws (10), and fan guard (11) from fan (3). Discard lock nuts.



INSTALLATION

1. Place fan guard (1) on fan (2). Secure with eight screws (3), washers (4), and new lock nuts (5).
2. Clean mounting surface of fan (2) and mating surface of hull.
3. Remove backing from new seal (6) and apply to fan (2) mounting surface.
4. Turn fan (2) so flat sides of housing are in vertical position.
5. Lower fan assembly (2) through right seat opening. Secure to three mounting studs (7) with three washers (8) and new lock nuts (9).
6. Secure fan pulley (10) to fan (2) with four screws (11).



FOLLOW-THROUGH STEPS

1. Install and adjust fan drive-belts (WP 0226 00).
2. Start engine (see your -10).
3. Check cooling fan for proper operation.
4. Stop engine (see your -10).
5. Install right seat (WP 0400 00).
6. Lower center seat (see your -10).

END OF TASK

REPLACE COOLING FAN AND PULLEY (M548A3) 0236 00

THIS WORK PACKAGE COVERS:

Removal (page 0236 00-2).
Inspection-Acceptance and Rejection Criteria (page 0236 00-2).
Installation (page 0236 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)
Wrench Socket Adapter (WP 0541 00, Item 1)
Mechanical Puller (WP 0541 00, Item 36)
Socket Wrench Set (WP 0541 00, Item 64)
Torque Wrench (WP 0541 00, Item 68)
Torque Wrench (WP 0541 00, Item 71)

Materials/Parts

Lock nut

Personnel Required

Unit Mechanic
Helper (H)

References

See your -10

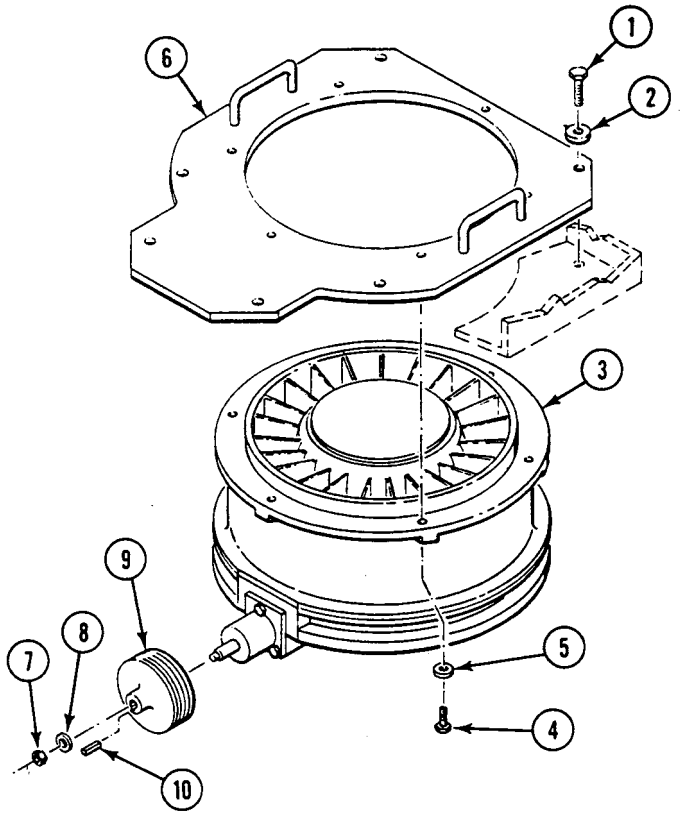
Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Both power plant rear access panel/cover removed (see your -10)
Top access cover and grilles removed (see your -10)
Exhaust ducts removed (WP 0211 00)
Exhaust pipe removed (WP 0210 00)
Exhaust muffler removed (WP 0207 00)
Heater exhaust metal hose assembly removed (WP 0437 00)
Cooling fan drive belt removed (WP 0227 00)

REPLACE COOLING FAN AND PULLEY (M548A3) — Continued 0236 00

REMOVAL

1. Remove six screws (1), washers (2), and cooling fan (3) from carrier. Have helper assist.
2. Remove six screws (4), washers (5), and flange (6) from cooling fan (3).
3. Remove lock nut (7) and washer (8). Discard lock nut.
4. Use mechanical puller to remove pulley (9) and key (10) from cooling fan (3).

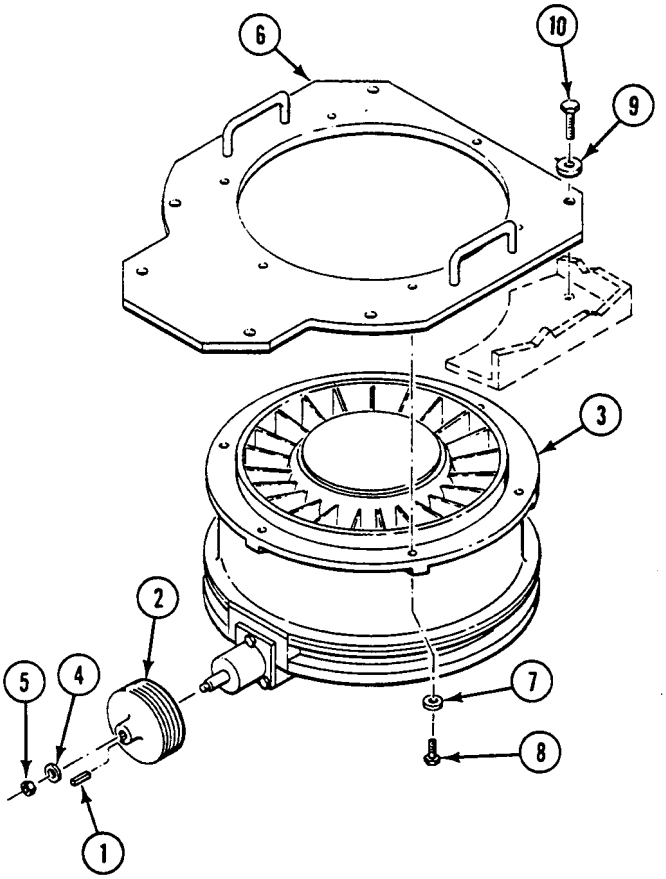


INSPECTION-ACCEPTANCE AND REJECTION CRITERIA

1. Inspect fan housing and blades for cracks and deformation. Replace fan that shows either of these defects.
2. Inspect fan gearbox for cracks, rough or uneven rotation, and oil leaks. Replace fan that shows any of these defects.
3. Inspect pulley for cracks and deformation. Replace pulley that shows either of these defects.

INSTALLATION

1. Install key (1) and pulley (2) on cooling fan (3) and secure with washer (4) and new lock nut (5). Tighten lock nut to 75-81 lb-ft (102-110 N•m) torque.
2. Install flange (6) on cooling fan (3). Secure with six washers (7) and screws (8). Tighten screws to 264-288 lb-in (30-32 N•m) torque.
3. Install cooling fan (3) in carrier and secure with six washers (9) and screws (10). Tighten screws to 264-288 lb-in (30-32 N•m) torque. Use wrench socket adapter.



FOLLOW-THROUGH STEPS

1. Install heater exhaust metal hose assembly (WP 0437 00).
2. Install exhaust ducts (WP 0211 00).
3. Install exhaust pipe (WP 0210 00).
4. Install exhaust muffler (WP 0207 00).
5. Install and adjust cooling fan drive belt (WP 0227 00).
6. Install both power plant rear access panel/cover (see your -10).
7. Install top access cover and grilles (see your -10).

END OF TASK

REPLACE DRIVE SHAFT LUBRICATION HOSE, FITTINGS, AND BEARINGS (M548A1) 0237 00

THIS WORK PACKAGE COVERS:

Removal (page 0237 00-2).
Installation (page 0237 00-4).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts
Grease (WP 0542 00, Item 14)
Sealing compound (WP 0542 00, Item 36)
Lock washer (5)

Personnel Required
Unit Mechanic

References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Center seat raised (see your -10)
Right seat removed (WP 0400 00)
Power plant rear access door removed (see your -10)

REPLACE DRIVE SHAFT LUBRICATION HOSE, FITTINGS, AND BEARINGS (M548A1) — Continued

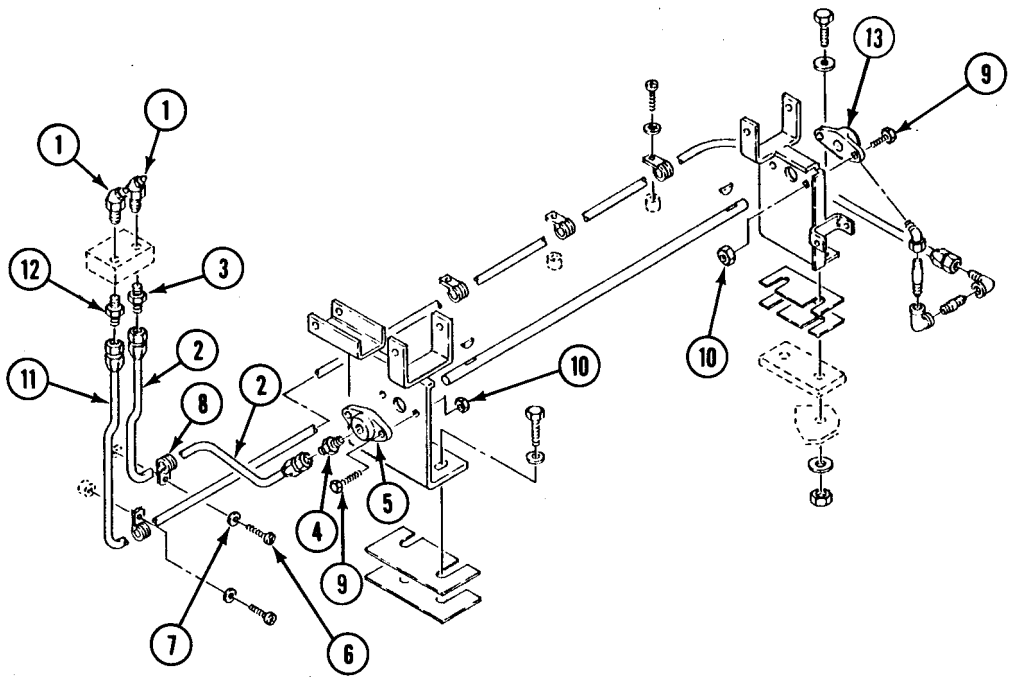
0237 00

REMOVAL

NOTE

Normally, removal of all tubes, hoses, and fittings is not required to perform maintenance. Remove only those tubes, hoses, and fittings necessary to perform required maintenance. Leave clamps on tubes and hoses unless tube or hose is being replaced.

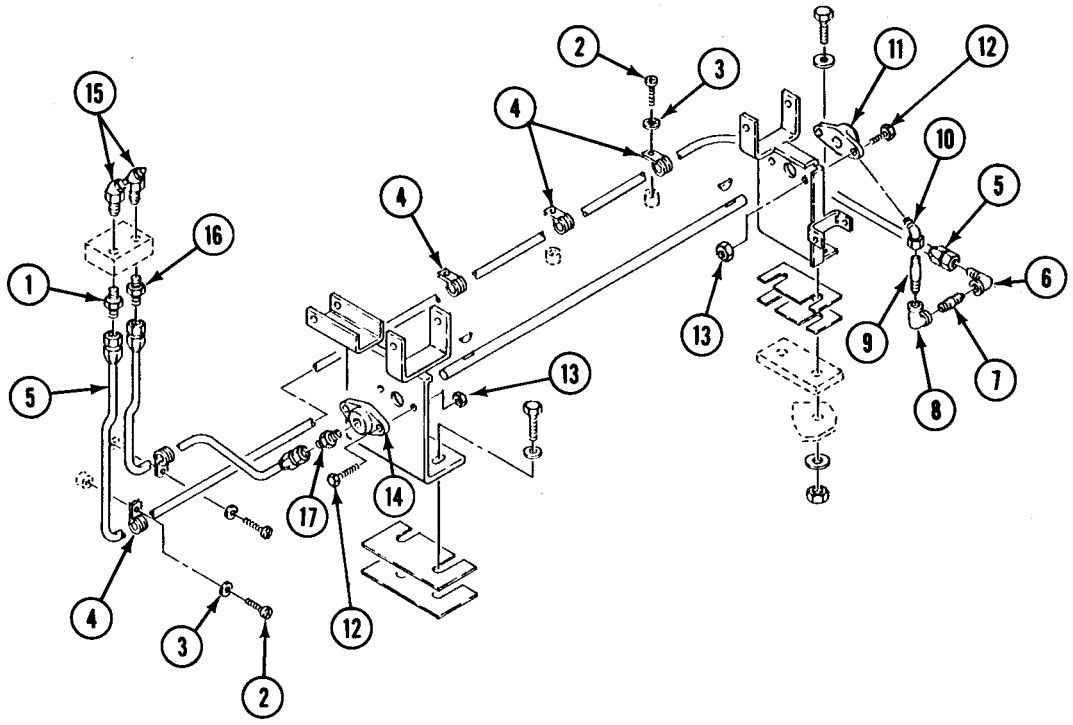
1. Remove two grease fittings (1) from block.
2. Disconnect hose (2) from adapter (3) and adapter (4) mounted on front bearing (5).
3. Remove screw (6), lock washer (7), clamp (8), and hose (2) from weld nut. Discard lock washer.
4. Remove adapter (4) from front bearing (5).
5. Remove two screws (9), nuts (10), and rear bearing (13), if required.
6. Remove adapter (3) from block.
7. Disconnect hose (11) from adapter (12).



REPLACE DRIVE SHAFT LUBRICATION HOSE, FITTINGS, AND BEARINGS (M548A1) — Continued

0237 00

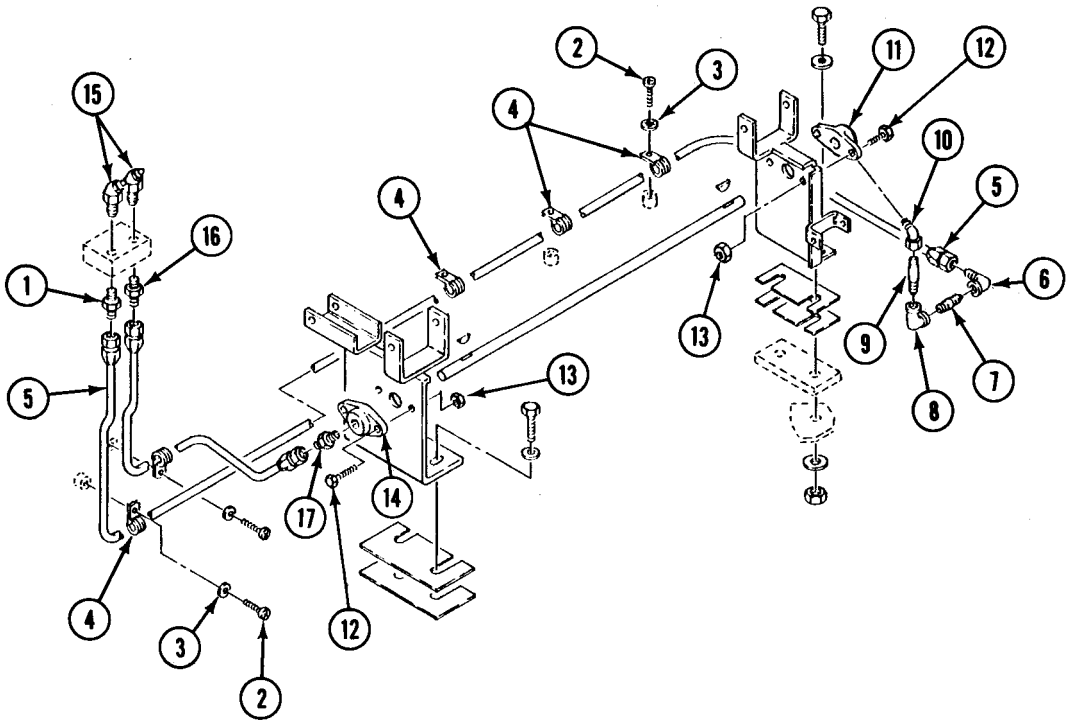
8. Remove adapter (1) from block.
9. Remove four screws (2), lock washers (3), and clamps (4) from four weld nuts. Discard lock washers.
10. Disconnect hose (5) from elbow (6) and remove hose.
11. Separate elbow (6), nipple (7), elbow (8), and nipple (9) from elbow (10).
12. Remove elbow (10) from rear bearing (11).
13. Remove two screws (12), nuts (13) and rear bearing (11), if required.



REPLACE DRIVE SHAFT LUBRICATION HOSE, FITTINGS, AND BEARINGS (M548A1) — Continued 0237 00

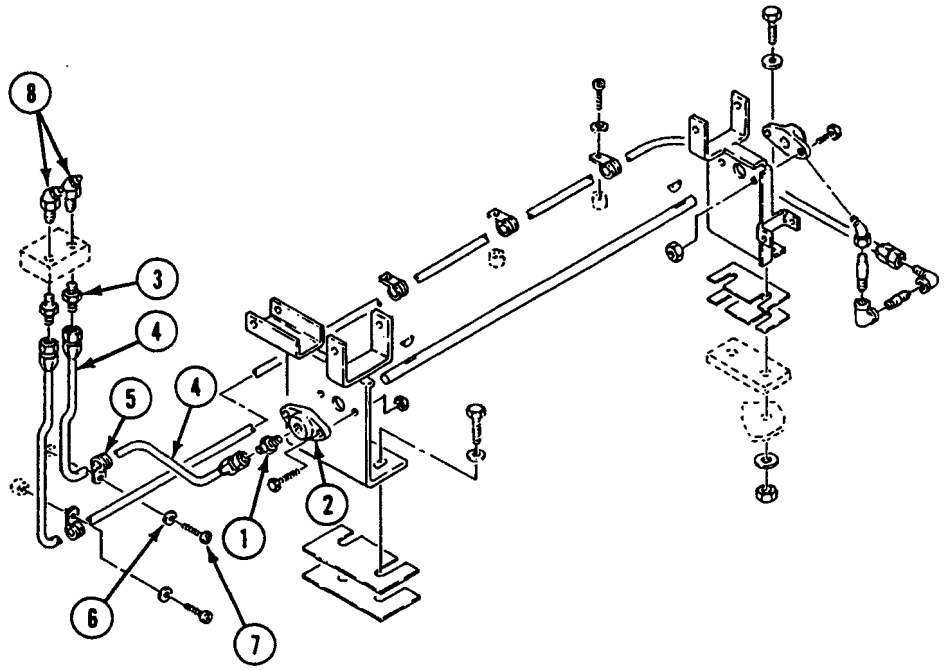
INSTALLATION

1. If front bearing (14) or rear bearing (11) was removed, install bearing (11) or (14) and secure with two nuts (13) and screws (12).
2. Put a thin coat of sealing compound on threads of elbow (8) and elbow (10), grease two fittings (12), nipple (7), nipple (9), adapter (16), adapter (17), and adapter (1).
3. Install elbow (10) in rear bearing (11).
4. Install nipple (9), elbow (8), nipple (7), and elbow (6) on elbow (10).
5. Connect hose (5) to elbow (6).
6. Secure hose (5) to four weld nuts with four clamps (4), new lock washers (3), and screws (2).
7. Install adapter (1) in block and connect hose (5) to adapter.



REPLACE DRIVE SHAFT LUBRICATION HOSE, FITTINGS, AND BEARINGS (M548A1) — Continued **0237 00**

8. Install adapter (1) in front bearing (2).
9. Install adapter (3) in block.
10. Connect hose (4) to adapter (1) and adapter (3).
11. Secure hose (4) to weld nut with clamp (5), new lock washer (6), and screw (7).
12. Install two grease fittings (8) in block.



FOLLOW-THROUGH STEPS

1. Install right seat (WP 0400 00).
2. Lower center seat (see your -10).
3. Install power plant rear access door (see your -10).

END OF TASK

REPLACE COOLING FAN DRIVE HOUSING AND SHAFT (M548A3) 0238 00

THIS WORK PACKAGE COVERS:

Removal (page 0238 00-1).
Cleaning (page 0238 00-2).
Installation (page 0238 00-2).

INITIAL SETUP:

Maintenance Level

Unit

Personnel Required

Unit Mechanic

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)
Socket Wrench Set (WP 0541 00, Item 64)
Torque Wrench (WP 0541 00, Item 71)

References

See your -10

Materials/Parts

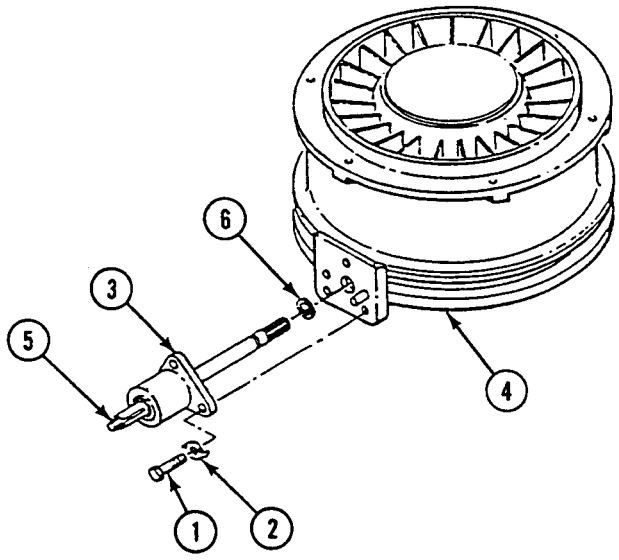
Antiseize compound (WP 0542 00, Item 6)
Cleaning compound (WP 0542 00, Item 9)
Molybdenum grease (WP 0542 00, Item 26)
Preformed packing
Tab washers (3)

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Power plant rear access panel removed (see your -10)
Top access cover and grilles removed (see your -10)
Cooling fan drive belt removed (WP 0227 00)
Cooling fan pulley removed (WP 0236 00)

REMOVAL

1. Remove three screws (1) and tab washers (2) securing housing (3) to cooling fan (4). Discard tab washers.
2. Remove housing (3), drive shaft (5), and preformed packing (6) from cooling fan (4) as an assembly. Discard preformed packing.

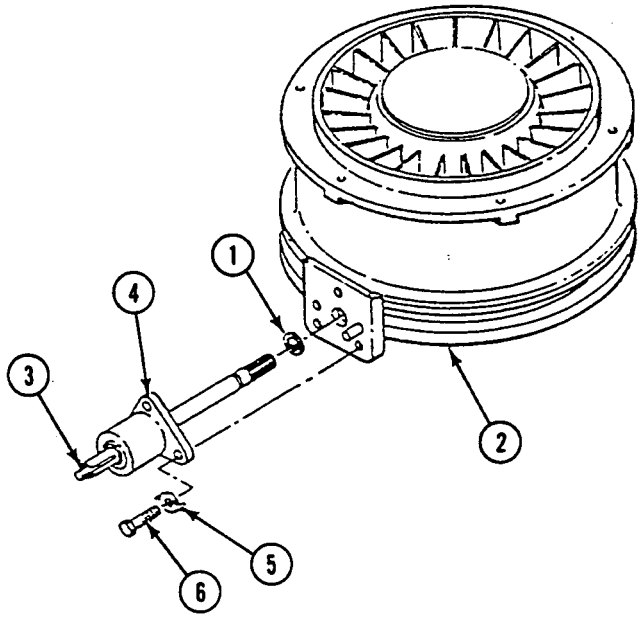


CLEANING

1. Clean screws with cleaning compound and apply antiseize compound to screw threads.
2. Inspect fan housing and drive shaft for cracks, wear, and spline damage. Replace assembly that shows any of these defects.

INSTALLATION

1. Install new preformed packing (1) in cooling fan (2).
2. Apply molybdenum grease to splines of drive shaft (3). Align drive shaft splines and install drive shaft assembly into cooling fan (2).
3. Secure housing (4) and drive shaft (3) to cooling fan (2) with three new tab washers (5) and screws (6).
4. Tighten screws (6) to 252-300 lb-in (28-34 N•m) torque.



FOLLOW-THROUGH STEPS

1. Install cooling fan pulley (WP 0236 00).
2. Install and adjust cooling fan drive belt (WP 0227 00).
3. Install power plant rear access panel (see your -10).
4. Install top access cover and grilles (see your -10).

END OF TASK

REPLACE DRAIN CAP AND SIGHT GAUGE (M548A3) 0239 00

THIS WORK PACKAGE COVERS:

Removal (page 0239 00-1).
Installation (page 0239 00-1).

INITIAL SETUP:

Maintenance Level

Unit

Personnel Required

Unit Mechanic

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)
Torque Wrench (WP 0541 00, Item 67)

References

See your -10

Materials/Parts

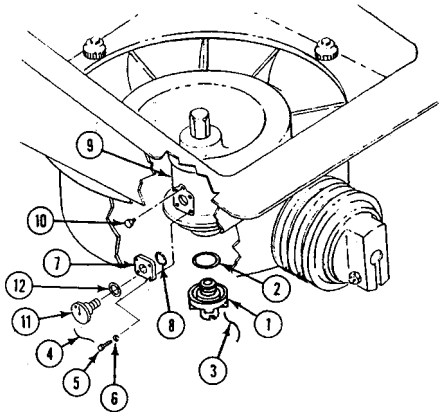
Antiseize compound (WP 0542 00, Item 6)
Non-electrical wire (WP 0542 00, Item 27)
Preformed packing (3)
Suitable container

Equipment Condition

Engine stopped/shutdown (see your -10)
Power plant right rear access covers removed (see your -10)
Carrier blocked (see your -10)

REMOVAL

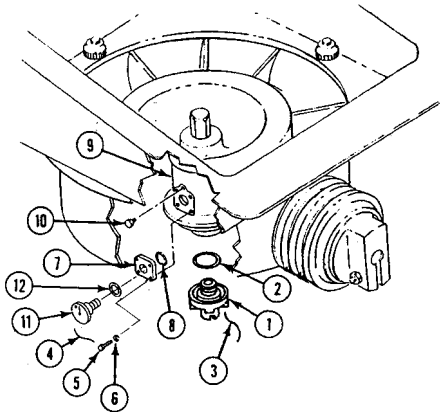
1. Place suitable container under drain cap (1). Remove cap, preformed packing (2) and lockwire (3), and drain oil. Discard wire and preformed packing.
2. Remove lockwire (4), four screws (5), washers (6), cover (7) and preformed packing (8) from fan gearbox (9). Discard lockwire and preformed packing.
3. Remove sight gauge (11) and preformed packing (12) from cover (7). Discard preformed packing.
4. Remove filler plug (10) from fan gearbox (9).



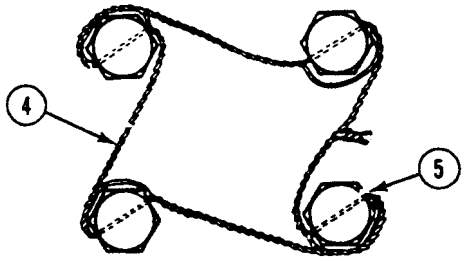
INSTALLATION

1. Install new preformed packing (2) in fan gearbox (9).
2. Install drain cap (1) on fan gearbox (9).
3. Install new lockwire (3) through drain cap (1) and fan gearbox (9). Twist lockwire.
4. Install new preformed packing (12) in cover (7).

5. Apply thin coat of antiseize compound to threads of sight glass (11) and install on cover (7).



6. Apply antiseize compound to threads of screws (5) and plug (10).
7. Fill fan gearbox with oil (WP 0128 00).
8. Install plug (10) in fan gearbox (9).
9. Install new preformed packing (8) and cover (7) on fan gearbox (9). Secure with four washers (6) and screws (5). Tighten screws to 42-48 in-lb (4.7-5.4 N•m) torque. Use torque wrench.
10. Secure four screws (5) with new lockwire (4). Double twist lockwire as shown below.



FOLLOW–THROUGH STEPS

WARNING

Start-up of equipment or moving parts could injure you or others. If other personnel are working on your carrier, be sure you know what they are doing. Place DO NOT OPERATE tags on MASTER SWITCH when needed to prevent start-up.

1. Start engine and check fan for proper operation (see your -10).
2. Stop/shutdown engine (see your -10).
3. Install power plant right rear access covers (see your -10).

END OF TASK

CHAPTER 8

UNIT MAINTENANCE INSTRUCTIONS FOR ELECTRICAL SYSTEM

WORK PACKAGE INDEX

Title	Sequence No.
REPLACE GENERATOR DRIVE BELTS (M548A1)	0240 00
ADJUST GENERATOR DRIVE BELTS (M548A1)	0241 00
REPLACE 100 AMP GENERATOR (M548A1)	0242 00
REPLACE GENERATOR DRIVE BELTS ADJUSTING LINKAGE (M548A1)	0243 00
REPLACE GENERATOR MOUNT (M548A1)	0244 00
REPLACE/ADJUST GENERATOR DRIVE BELT (M548A3)	0245 00
REPLACE GENERATOR (M548A3)	0246 00
REPLACE GENERATOR DRIVE BELT ADJUSTING LINKAGE (M548A3)	0247 00
REPLACE GENERATOR MOUNT (M548A3)	0248 00
ADJUST GENERATOR-REGULATOR	0249 00
REPLACE GENERATOR REGULATOR MOUNT (M548A1)	0250 00
REPLACE GENERATOR REGULATOR AND GROUND LEAD (M548A3)	0251 00
REPLACE GENERATOR REGULATOR MOUNT (M548A3)	0252 00
REPLACE STARTER (M548A1)	0253 00
REPLACE STARTER (M548A3)	0254 00
REPLACE STARTER RELAY (M548A3)	0255 00
REMOVE/INSTALL INSTRUMENT PANEL (PARTIAL)	0256 00
REPLACE HIGH BEAM INDICATOR LIGHT	0257 00
REPLACE HIGH BEAM INDICATOR LIGHT BULB	0258 00
REPLACE HORN AND START SWITCHES	0259 00
REPLACE AIR BOX HEATER, TRANSMISSION-DIFFERENTIAL TEST, INFRARED-BLACKOUT SELECTOR OR WINDSHIELD WIPER SWITCHES	0260 00
REPLACE BILGE AND FUEL PUMP SWITCHES	0261 00
REPLACE LIGHT SWITCH	0262 00
REPLACE INFRARED-BLACKOUT SELECT SWITCH	0263 00
REPLACE PANEL LIGHTS	0264 00
REPLACE UTILITY OUTLET	0265 00
REPLACE FUEL LEVEL, BATTERY-GENERATOR, OR COOLANT TEMPERATURE GAUGE	0266 00
REPLACE CIRCUIT BREAKER	0267 00
REPLACE BILGE PUMP CIRCUIT BREAKER	0268 00
REPLACE GENERATOR-REGULATOR CIRCUIT BREAKER	0269 00
REPLACE MASTER SWITCH TO BUS BAR ELECTRICAL LEAD (M548A3)	0270 00
REPLACE MASTER SWITCH ASSEMBLY	0271 00
REPLACE ELECTRIC FUEL PUMP CIRCUIT BREAKERS (M548A3)	0272 00
REPLACE BEAM SELECTOR SWITCH	0273 00
REPLACE STOPLIGHT SWITCH	0274 00

CHAPTER 8

UNIT MAINTENANCE INSTRUCTIONS FOR ELECTRICAL SYSTEM

WORK PACKAGE INDEX (Continued)

Title	Sequence No.
REPLACE BLACKOUT HEADLIGHTS	0275 00
REPLACE SERVICE HEADLIGHTS	0276 00
REPLACE INFRARED HEADLIGHTS	0277 00
REPLACE STOPLIGHT-TAILLIGHTS	0278 00
REPLACE CAB DOME LIGHT	0279 00
REPLACE BLACKOUT MARKER LIGHT	0280 00
REPLACE ENGINE OIL LOW PRESSURE SWITCH (M548A1)	0281 00
REPLACE ENGINE LOW OIL PRESSURE TRANSMITTER (M548A3)	0282 00
REPLACE ENGINE COOLANT TEMPERATURE TRANSMITTER (M548A1)	0283 00
REPLACE ENGINE COOLANT TEMPERATURE TRANSMITTER (M548A3)	0284 00
REPLACE DIFFERENTIAL OIL HIGH TEMPERATURE THERMOSTATIC SWITCH (M548A1)	0285 00
REPLACE TRANSMISSION OIL HIGH TEMPERATURE THERMOSTATIC SWITCH (M548A1)	0286 00
REPLACE TRANSMISSION OIL HIGH TEMPERATURE SWITCH (M548A3)	0287 00
REPLACE GENERATOR FIELD SWITCH	0288 00
REPLACE HORN	0289 00
REPLACE BATTERIES AND BATTERY COMPARTMENT (M548A1)	0290 00
REPLACE BATTERY COMPARTMENT BRACKET (M548A3)	0291 00
REMOVE/INSTALL BATTERY NEGATIVE LEAD(S)	0292 00
REPLACE CARRIER BATTERIES (M548A3)	0293 00
REPAIR WIRING HARNESS	0294 00
REPLACE GENERATOR-TO-REGULATOR WIRING HARNESS (M548A1)	0295 00
REPLACE GENERATOR TO REGULATOR WIRING HARNESS (M548A3)	0296 00
REPLACE TRANSMISSION WIRING HARNESS (M548A3)	0297 00
REPLACE POWER PLANT WIRING HARNESS (M548A3)	0298 00
REPLACE BATTERY TO REGULATOR CABLE JACK (M548A3)	0299 00
REPLACE ENGINE GROUND LEAD (M548A3)	0300 00
REPLACE TRAILER WIRING HARNESS	0301 00
REPLACE FUEL PUMP WIRING HARNESS (M548A3)	0302 00
REPLACE AUXILIARY POWER (SLAVE) RECEPTACLE	0303 00

REPLACE GENERATOR DRIVE BELTS (M548A1) 0240 00

THIS WORK PACKAGE COVERS:

Removal (page 0240 00-1).
Installation (page 0240 00-2).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)

Personnel Required

Unit Mechanic

References

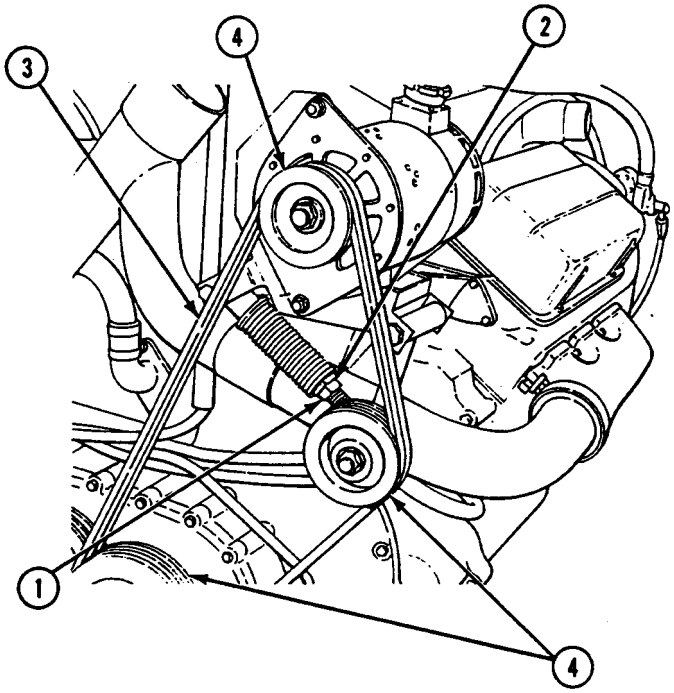
See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Power plant rear access covers/door removed (see your -10)
Battery negative lead disconnected (WP 0292 00)

REMOVAL

1. Loosen jam nut (1) from gauge nut (2).
2. Turn gauge nut to right until generator drive belts (3) can be removed from pulleys (4). Remove belts.

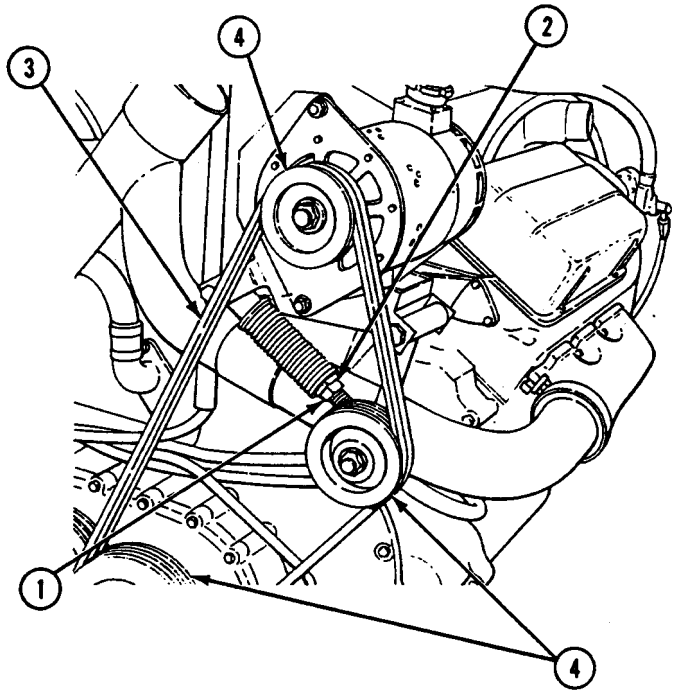


INSTALLATION

NOTE

Generator drive belts must be installed only in matched sets.

1. Install generator drive belts (3) on pulleys (4).
2. Adjust generator belts (WP 0241 00).
3. Tighten jam nut (1) against gauge nut (2) to lock in place.



FOLLOW-THROUGH STEPS

1. Connect battery negative lead (WP 0292 00).
2. Start engine (see your -10).
3. Check generator belts for proper operation.
4. Stop engine (see your -10).
5. Install power plant rear access covers/door (see your -10).

END OF TASK

ADJUST GENERATOR DRIVE BELTS (M548A1) 0241 00

THIS WORK PACKAGE COVERS:

Adjustment (page 0241 00-1).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)

Personnel Required

Unit Mechanic

References

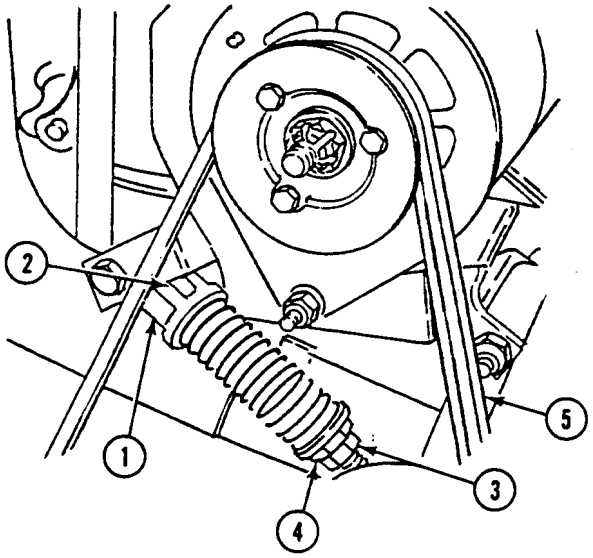
See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Power plant rear access covers/door removed (see your -10)
Battery negative lead disconnected (WP 0292 00)

ADJUSTMENT

1. Check position of sleeve gauge marker (1) on decal (2).
2. If sleeve gauge marker (1) is above the operating range on decal (2), loosen jam nut (3). Turn gauge nut (4) to the left until gauge marker is in operating range.
3. If sleeve gauge marker (1) is below operating range on decal (2), loosen jam nut (3). Turn gauge nut (4) to the right until gauge marker is in operating range.
4. Tighten jam nut (3) against gauge nut (4) to lock in place.



FOLLOW-THROUGH STEPS

1. Connect battery negative lead (WP 0292 00).
2. Start engine (see your -10).
3. Check generator belts for proper operation.
4. Stop engine (see your -10).
5. Install power plant rear access covers/doors (see your -10).

END OF TASK

REPLACE 100 AMP GENERATOR (M548A1) 0242 00

THIS WORK PACKAGE COVERS:

Removal (page 0242 00-1).
Installation (page 0242 00-2).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)
Socket Wrench (WP 0541 00, Item 64)
Torque Wrench (WP 0541 00, Item 70)

Materials/Parts
Lock nut (3)

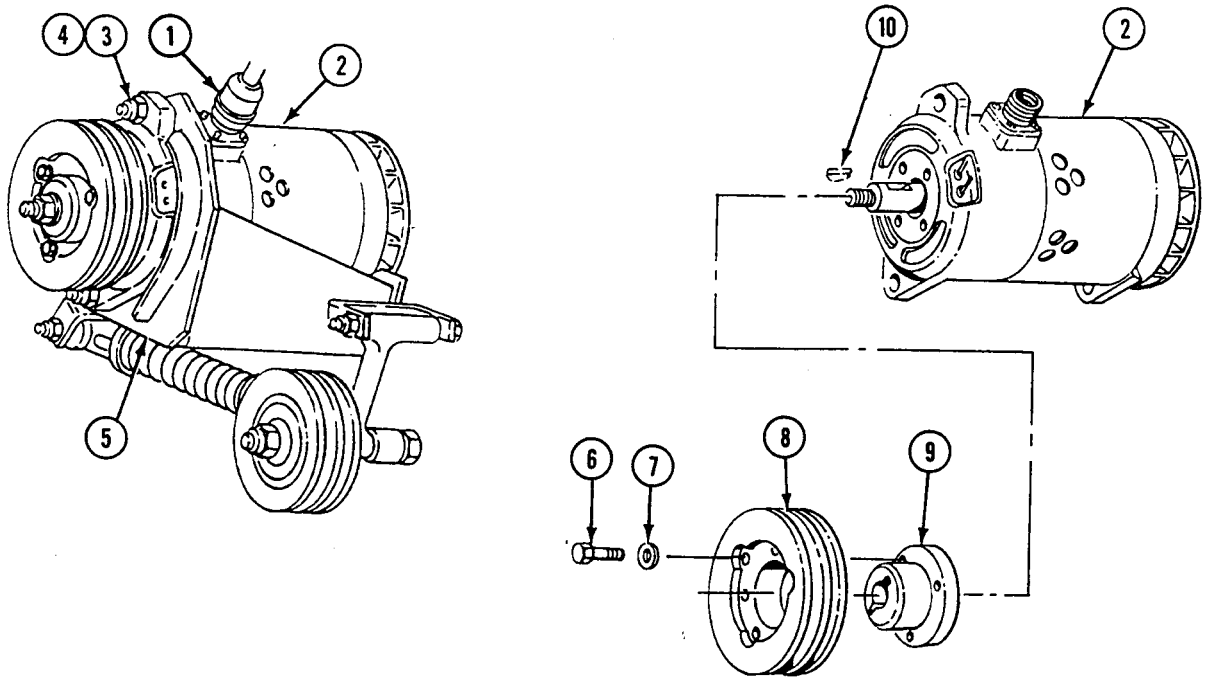
Personnel Required
Unit Mechanic

References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Power plant rear access covers/door removed (see your -10)
Battery negative lead disconnected (WP 0292 00)
Generator drive belts removed (WP 0240 00)

REMOVAL

1. Disconnect wiring harness (1) from generator (2).
2. Remove three cap screws (3) and lock nuts (4) from generator (2) and mounting bracket (5). Discard lock nuts.
3. Remove generator (2) from mounting bracket (5).
4. Remove three screws (6), washers (7), pulley (8), sleeve bushing (9) and key (10) from generator (2).

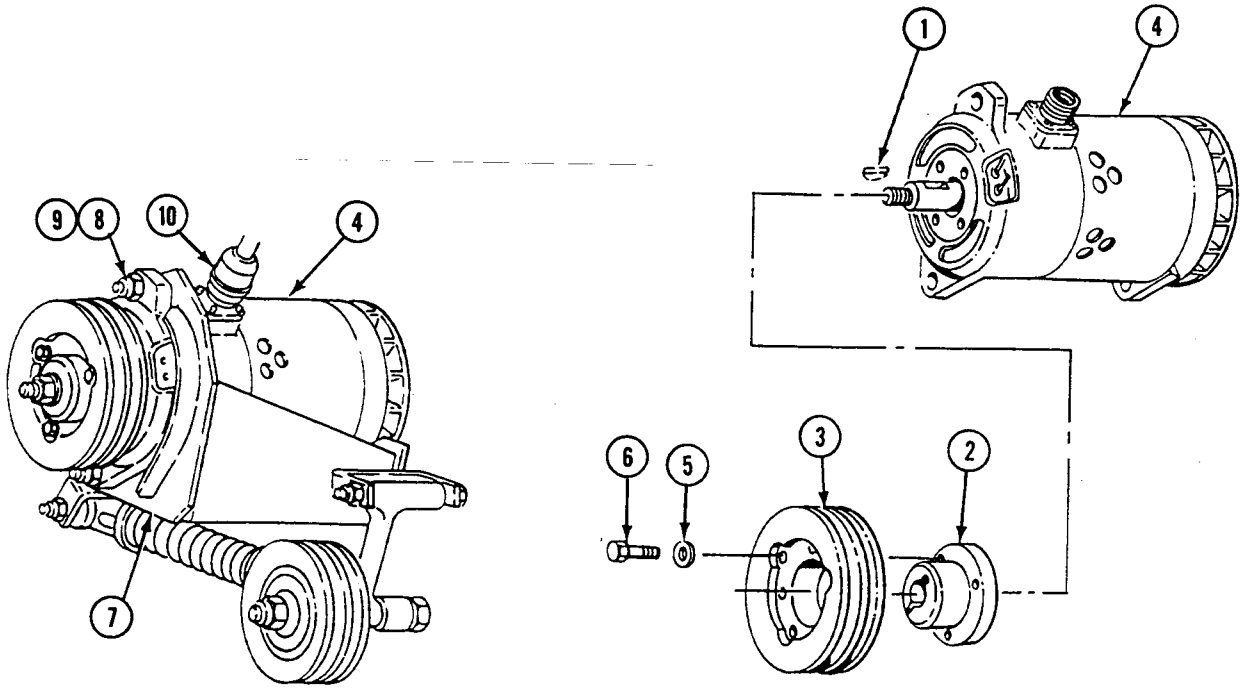


INSTALLATION

NOTE

Fill gaps between generator mounting lugs with shim washers before tightening screws and nuts. This will prevent damage to generator.

1. Place key (1) in generator shaft slot.
2. Install sleeve bushing (2) and pulley (3) on generator (4) shaft. Secure with three washers (5) and screws (6). Torque screws to 73-79 lb-in (8-9 N•m).
3. Place generator (4) with pulley (3) installed, on generator mount (7). Secure with three cap screws (8) and new lock nuts (9).
4. Connect wiring harness (10) to generator (4).



FOLLOW-THROUGH STEPS

1. Connect battery negative lead (WP 0292 00).
2. Install generator drive belts (WP 0240 00).
3. Adjust generator drive belts (WP 0241 00)
4. Start engine (see your -10).
5. Check generator output for proper operation.
6. Stop engine (see your -10).
7. Install power plant rear access covers/door (see your -10).

END OF TASK

REPLACE GENERATOR DRIVE BELTS ADJUSTING LINKAGE (M548A1) 0243 00

THIS WORK PACKAGE COVERS:

Removal (page 0243 00-2).
Installation (page 0243 00-3).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts
Antiseize compound (WP 0542 00, Item 6)
Lock nut (4)

Personnel Required
Unit Mechanic

References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Power plant rear access covers/door removed (see your -10)
Battery negative lead disconnected (WP 0292 00)
Generator removed (WP 0242 00)

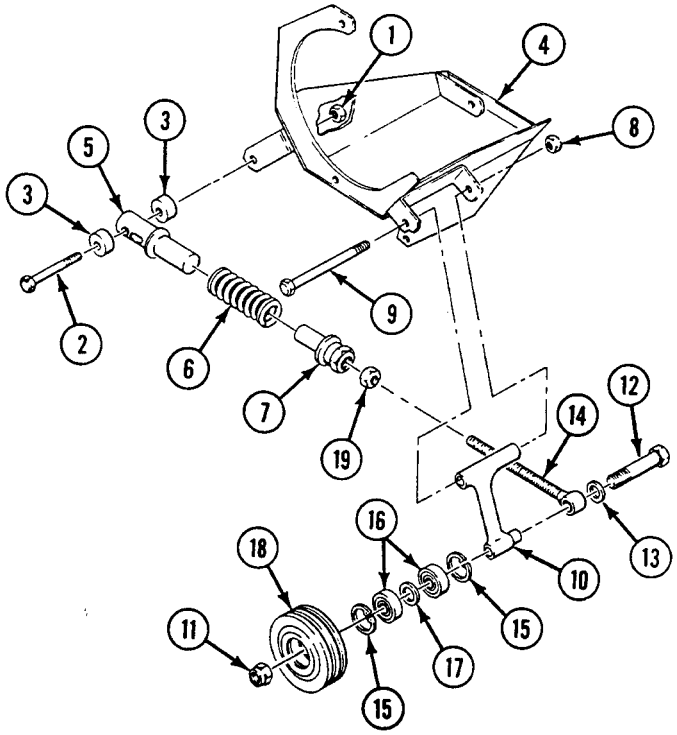
REMOVAL

1. Remove lock nut (1), cap screw (2), and two spacers (3) from generator mounting bracket (4) and idler sleeve (5). Discard lock nut.

NOTE

Hold compression spring in compressed position during disassembly of idler sleeve from generator mounting bracket.

2. Remove idler sleeve (5) from compression spring (6).
3. Remove compression spring (6) from idler adjusting nut (7).
4. Remove lock nut (8) and cap screw (9) from idler arm (10) and generator mounting bracket (4). Discard lock nut.
5. Remove idler arm (10) from generator mounting bracket (4).
6. Remove lock nut (11) from cap screw (12). Discard lock nut.
7. Remove cap screw (12) from washer (13), adjusting rod (14), two retainer rings (15), two bearings (16), spacer (17), and pulley (18).
8. Remove idler adjusting nut (7) and lock nut (19) from adjusting rod (14). Discard lock nut.

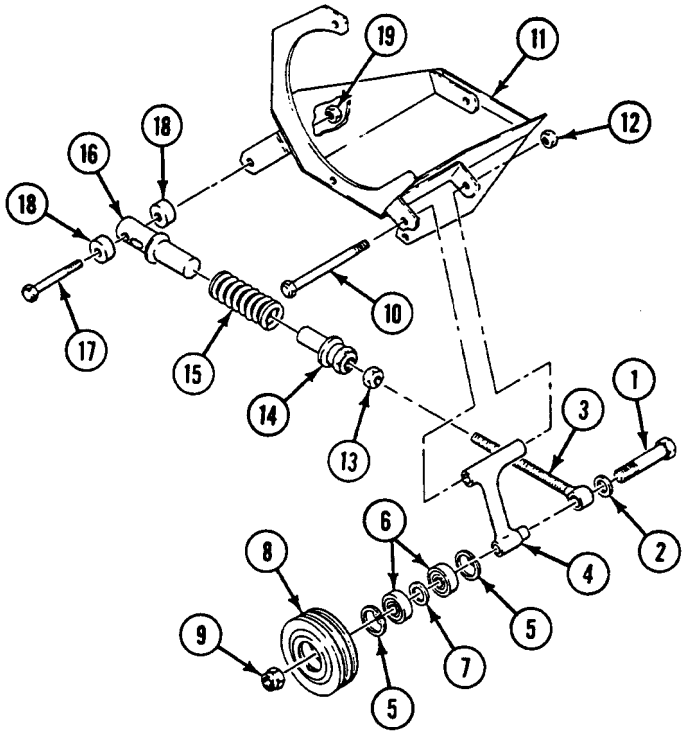


INSTALLATION

NOTE

Clean threads. Put antiseize compound sparingly on external threads at installation.

1. Install cap screw (1) through washer (2), adjusting rod (3), idler arm (4), two retainer rings (5), two bearings (6), spacer (7), and pulley (8). Install new lock nut (9) on cap screw (1). Torque lock nut to 50-55 lb-ft (68-75 N•m).
2. Install cap screw (10) through idler arm (4) and generator mounting bracket (11). Secure new lock nut (12) on cap screw (10).
3. Install new lock nut (13) and idler adjusting nut (14) on adjusting rod (3).
4. Install compression spring (15) on idler adjusting nut (14).
5. Install idler sleeve (16) on compression spring (15).
6. Install cap screw (17) through two spacers (18), idler sleeve (16), and generator mounting bracket (11). Install new lock nut (19) on cap screw (17).



FOLLOW-THROUGH STEPS

1. Install generator (WP 0242 00).
2. Connect battery negative lead (WP 0292 00).
3. Start engine (see your -10).
4. Check for proper operation of generator drive belts adjusting linkage.
5. Stop engine (see your -10).
6. Install power plant rear access covers/door (see your -10).

END OF TASK

REPLACE GENERATOR MOUNT (M548A1) 0244 00

THIS WORK PACKAGE COVERS:

Removal (page 0244 00-1).
Installation (page 0244 00-1).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts

Key washer (3)

Personnel Required

Unit Mechanic

References

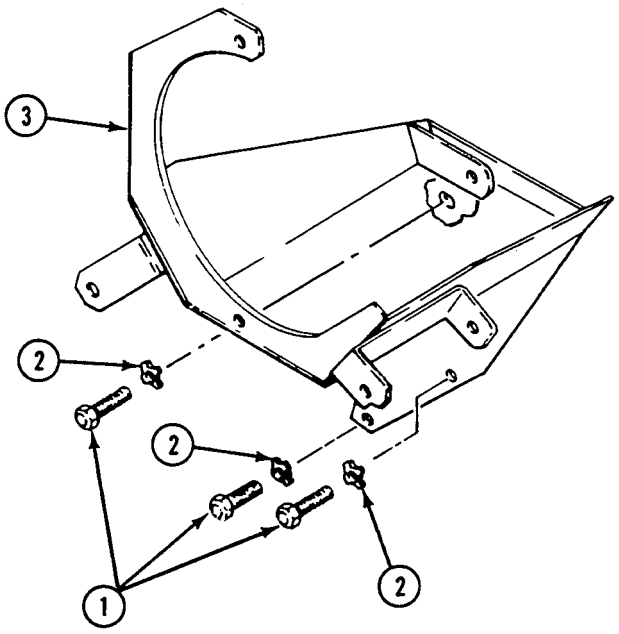
See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Power plant rear access covers/door removed (see your -10)
Battery negative lead disconnected (WP 0292 00)
Generator drive belts adjusting linkage removed (WP 0243 00)
Generator removed (WP 0242 00)

REMOVAL

1. Remove three cap screws (1) and key washers (2) from generator mount (3) and engine. Discard key washers.
2. Remove generator mount (3) from engine.



INSTALLATION

1. Place generator mount (3) on engine. Secure with three new key washers (2) and cap screws (1).

FOLLOW-THROUGH STEPS

1. Install generator (WP 0242 00).
2. Install generator drive belts adjusting linkage (WP 0243 00).
3. Connect battery negative lead (WP 0292 00).
4. Install power plant rear access covers/door (see your -10).

END OF TASK

REPLACE/ADJUST GENERATOR DRIVE BELT (M548A3) 0245 00

THIS WORK PACKAGE COVERS:

Removal (page 0245 00-1).
Inspection-Acceptance and Rejection Criteria (page 0245 00-1).
Installation (page 0245 00-2).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)
Straight Edge (WP 0541 00, Item 50)
V-belt Tensiometer (WP 0541 00, Item 59)
Socket Wrench Set (WP 0541 00, Item 64)
Torque Wrench (WP 0541 00, Item 71)

Personnel Required

Unit Mechanic

References

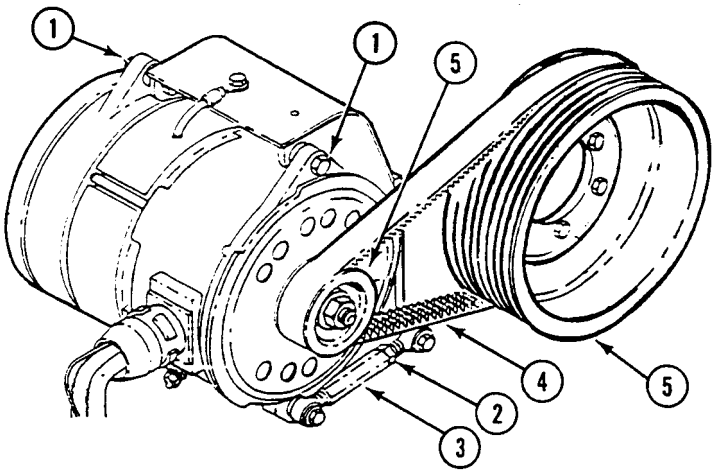
See your -10

Equipment Condition

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

REMOVAL

1. Loosen generator mounting screw (1) and locking nut (2) and rotate turnbuckle (3) clockwise to relieve tension on drive belt (4). Remove drive belt from two pulleys (5).



INSPECTION-ACCEPTANCE AND REJECTION CRITERIA

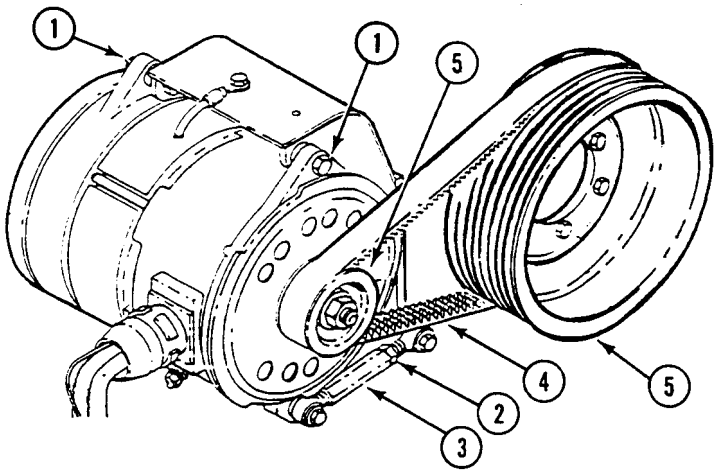
1. Inspect drive belt for broken, cracked, or frayed conditions. Replace drive belt that shows any of these defects.

INSTALLATION

NOTE

Recheck drive belt tension after 20-50 miles (30-80 kilometers) of operation. If less than 12 lb (5.4 kg), reset tension to 12-14 lb (5.4-6.4 kg) with 0.19-0.25 inch (4.8-6.4 mm) deflection.

1. Position drive belt (4) over two pulleys (5).
2. Adjust drive belt tension as follows:
   a. Loosen two generator mounting screws (1) and rotate turnbuckle (3) until drive belt deflection is 0.19-0.25 in (4.8-6.4 mm). Use V-belt tensiometer with a force of 15-17 lb (6.8-7.7 kg) and straight edge spanning both pulleys. Tighten locking nut (2) on turnbuckle (3) and torque mounting screws (1) to 36-38 lb-ft (49-52 N•m).



FOLLOW-THROUGH STEPS

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

END OF TASK

REPLACE GENERATOR (M548A3) 0246 00

THIS WORK PACKAGE COVERS:

Removal (page 0246 00-2).
Installation (page 0246 00-3).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)
Torque Wrench (WP 0541 00, Item 68)

Materials/Parts
Lock nut (3)
Lock washer

Personnel Required
Unit Mechanic
Helper (H)

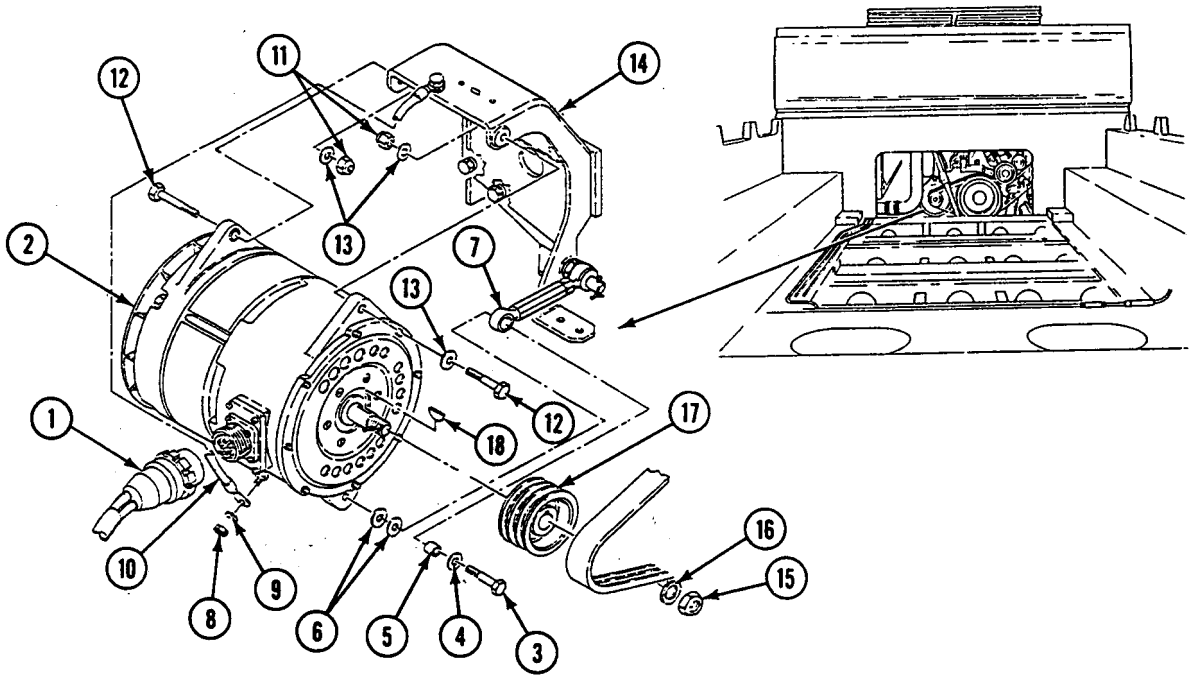
References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Power plant rear access panel removed (see your -10)
Both battery negative leads disconnected (WP 0292 00)
Hull bottom access cover removed (WP 0383 00)
Generator drive belts removed (WP 0245 00)

REPLACE GENERATOR (M548A3) — Continued 0246 00

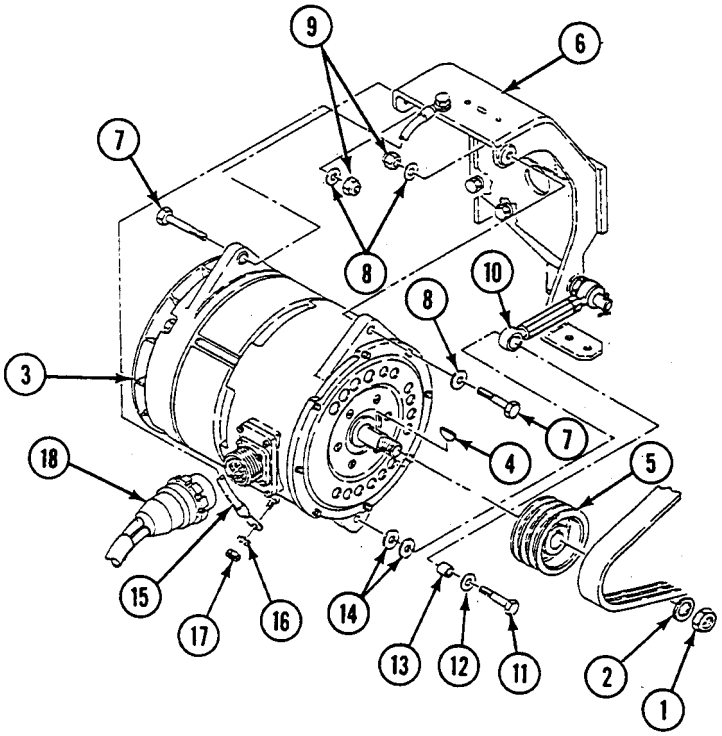
REMOVAL

1. Disconnect wiring harness (1) from generator (2).
2. Remove screw (3), washer (4), spacer (5), and two washers (6) securing turnbuckle (7) to generator (2).
3. Remove nut (8), lock washer (9), and ground lead (10) from generator (2) case. Discard lock washer.
4. Remove two lock nuts (11), screws (12), and three washers (13) securing generator (2) to mount (14). Discard lock nuts.
5. Remove generator (2) from mount (14). Have helper assist.
6. If replacement generator is to be installed, remove lock nut (15), washer (16), pulley (17), and key (18) from generator (2). Discard lock nut.



INSTALLATION

1. If installing replacement generator, remove lock nut (1) and washer (2) from generator (3). Install key (4), pulley (5), washer (2), and lock nut (1), in that sequence on generator shaft. Tighten lock nut to 70-75 lb-ft (95-102 N•m).
2. Position generator (3) on mount (6). Have helper assist. Secure with two screws (7), three washers (8), and two new lock nuts (9). Do not tighten until drive belt is adjusted.
3. Secure turnbuckle (10) to generator (3) with screw (11), washer (12), spacer (13), and two washers (14).
4. Connect ground lead (15) to generator (3). Secure with new lock washer (16) and nut (17).
5. Connect wiring harness (18) to generator (3).



FOLLOW-THROUGH STEPS

1. Install and adjust generator drive belts (WP 0245 00).
2. Connect both battery negative leads (WP 0292 00).
3. Start engine (see your -10).
4. Check generator output for proper operation.
5. Stop engine (see your -10).
6. Install hull bottom access cover (WP 0383 00).
7. Install power plant rear access panel (see your -10).

END OF TASK

REPLACE GENERATOR DRIVE BELT ADJUSTING LINKAGE (M548A3) 0247 00

THIS WORK PACKAGE COVERS:

Removal (page 0247 00-1).
Inspection-Acceptance and Rejection Criteria (page 0247 00-2).
Installation (page 0247 00-2).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)
Straight Edge (WP 0541 00, Item 50)
V-belt Tensiometer (WP 0541 00, Item 59)
Socket Wrench Set (WP 0541 00, Item 64)
Torque Wrench (WP 0541 00, Item 71)

Materials/Parts

Cotter pin

Personnel Required

Unit Mechanic

References

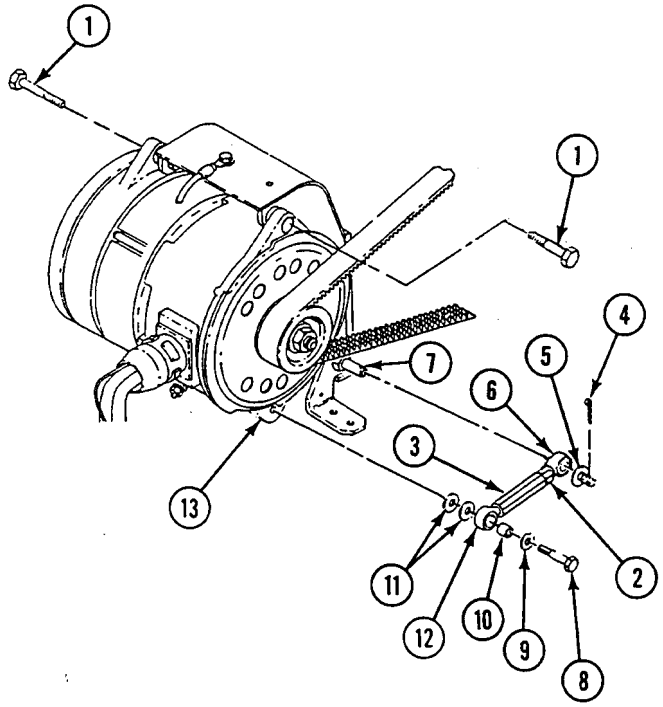
See your -10

Equipment Condition

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

REMOVAL

1. Loosen two generator mounting screws (1) and jam nut (2) and rotate turnbuckle (3) clockwise to relieve drive belt tension.
2. Remove cotter pin (4), washer (5), and eyebolt (6) of turnbuckle (3) from shoulder pin (7). Discard cotter pin.
3. Remove screw (8), washer (9), spacer (10), two washers (11) and eyebolt (12) of turnbuckle (3) from generator (13).

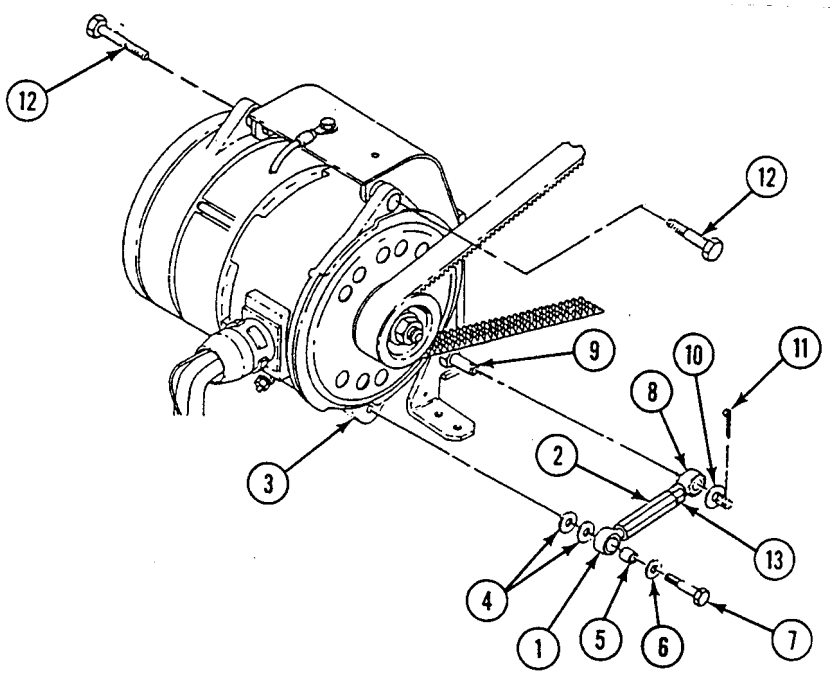


INSPECTION-ACCEPTANCE AND REJECTION CRITERIA

1. Inspect screw ends for damaged threads and turnbuckle and jam nut for dents and cracks. Replace turnbuckle assembly that shows any of these defects.

INSTALLATION

1. Position eyebolt (1) of turnbuckle (2) end on generator (3) and secure with two washers (4), spacer (5), washer (6), and screw (7).
2. Position other eyebolt (8) of turnbuckle (2) end on shoulder pin (9) and secure with washer (10) and new cotter pin (11).
3. Loosen two generator mounting screws (12) and rotate turnbuckle (2) until drive belt deflection is 0.19-0.25 in (4.8-6.4 mm). Use V-belt tensiometer with a force of 15-17 lb (6.81-7.72 kg) and straight edge spanning both pulleys. Tighten jam nut (13) on turnbuckle (2).
4. Torque generator mounting screws (12) to 36-38 ft-lb (49-52 N•m).



FOLLOW-THROUGH STEPS

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

END OF TASK

REPLACE GENERATOR MOUNT (M548A3) 0248 00

THIS WORK PACKAGE COVERS:

Removal (page 0248 00-1).
Inspection-Acceptance and Rejection Criteria (page 0248 00-2).
Installation (page 0248 00-2).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)
Socket Wrench Set (WP 0541 00, Item 64)
Torque Wrench (WP 0541 00, Item 71)

Materials/Parts

Lock washer (2)
Lock washer (2)

Personnel Required

Unit Mechanic

References

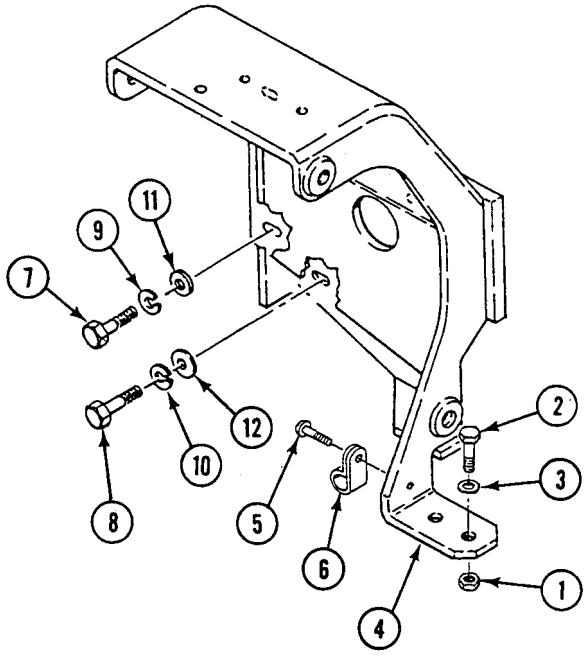
See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Both battery negative leads disconnected (WP 0292 00)
Generator drive belt removed (as required)(WP 0245 00)
Generator drive belt adjusting linkage removed (WP 0247 00)
Starter relay switch removed (WP 0255 00)
Generator removed (WP 0246 00)
Hull bottom access cover removed (WP 0383 00)

REMOVAL

1. Remove two nuts (1), screws (2), and washers (3) from lower part of generator mount (4).
2. Remove screw (5) and cable clamp (6) from generator mount (4).
3. Remove two screws (7), two screws (8), lock washers (9), lock washers (10), washers (11), washers (12), and generator mount (4) from engine. Discard lock washers.



INSPECTION-ACCEPTANCE AND REJECTION CRITERIA

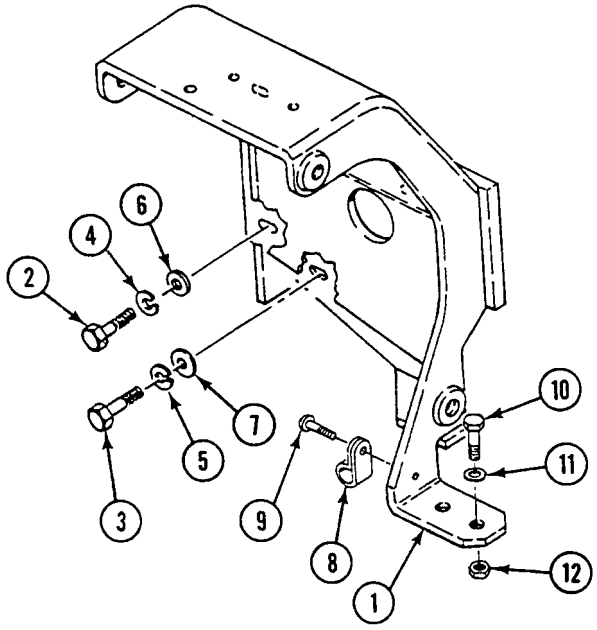
1. Inspect generator mount for cracks and distortion. Replace mount that shows either of these defects.

INSTALLATION

1. Position generator mount (1) on engine and secure with two screws (2), two screws (3), two new lock washers (4), two new lock washers (5), two washers (6), and two washers (7). Torque two screws (2) 12-15 lb-ft (17-21 N•m) and two screws (3) 22-24 lb-ft (30-33 N•m).

2. Install cable clamp (8) on generator mount (1) with screw (9).

3. Secure lower part of generator mount (1) with two screws (10), washers (11), and nuts (12).



FOLLOW-THROUGH STEPS

1. Install generator (WP 0246 00).

2. Install starter relay switch (WP 0255 00).

3. Install generator drive belt adjusting linkage (WP 0247 00)

4. Install generator drive belt (WP 0245 00)

5. Connect both battery negative leads (WP 0292 00)

6. Install hull bottom access cover (WP 0383 00)

END OF TASK

ADJUST GENERATOR-REGULATOR 0249 00

THIS WORK PACKAGE COVERS:

Adjustment (page 0249 00-2).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)
Multimeter (WP 0541 00, Item 29)

Personnel Required

Unit Mechanic

References

See your -10
TM 9-6140-200-14

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Center seat raised (see your -10)

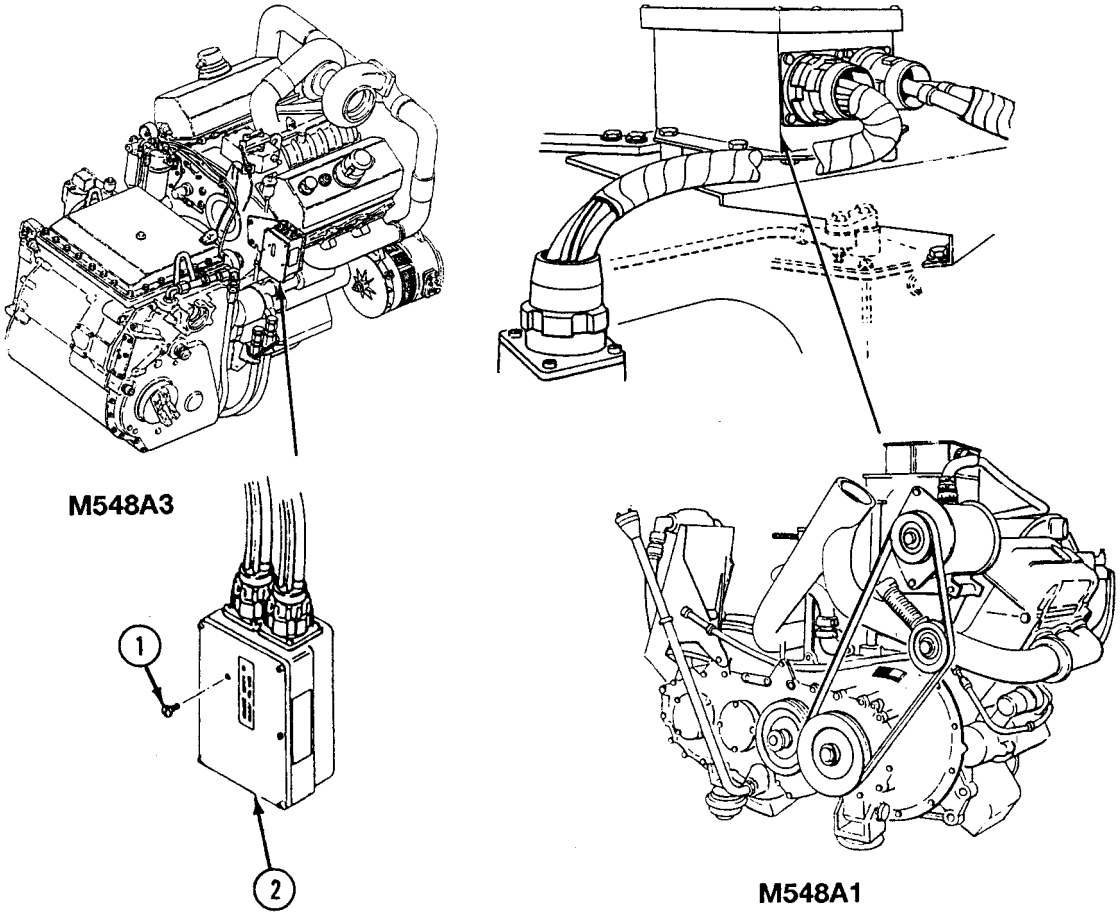
ADJUSTMENT

NOTE

Check batteries to make sure they are fully charge (see TM 9-6140-200-14).

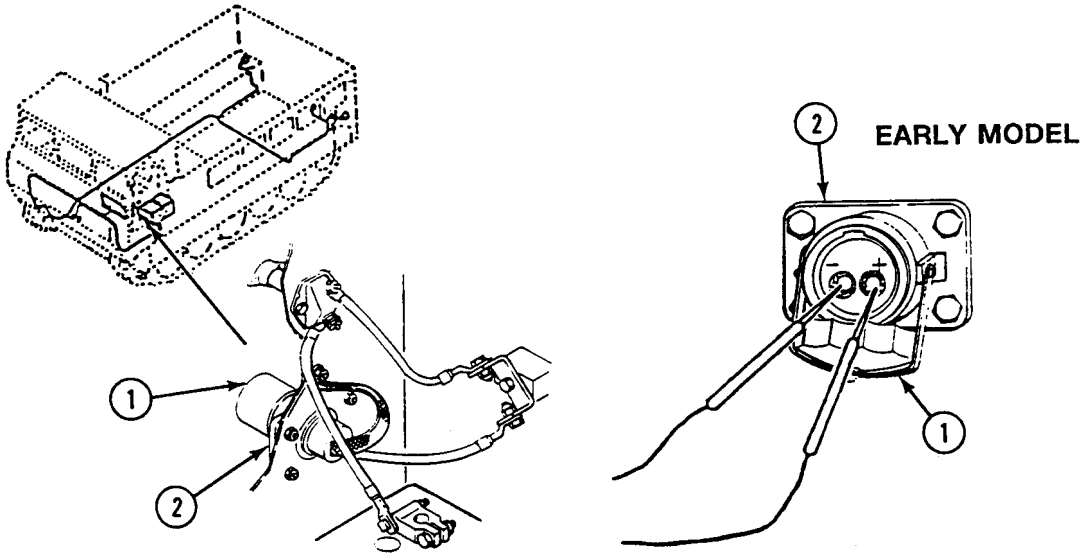
Access screw will be in various locations depending on the type of regulator found on your carrier. See illustrations after 9 for picture of regulator found on your carrier.

1. Remove access screw (1) from regulator (2) or cover, if required.



2. Start engine and allow to run for about 20 minutes with service headlights on (see your -10).
3. Turn off service headlights.
4. Set multimeter to read voltage on the 50 Vdc scale.

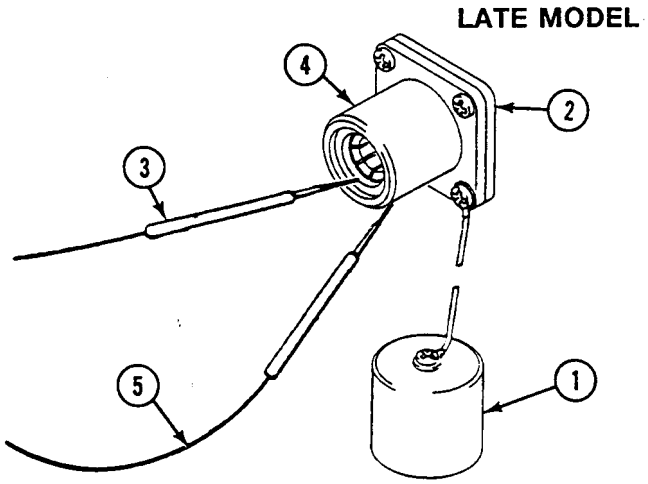
5. Remove receptacle cap (1) from auxiliary power (slave) receptacle (2).



NOTE

On carriers that have early model auxiliary power receptacles, touch red lead to positive and black lead to negative sockets in the receptacle.

6. Place red lead (3) in positive socket of plug (4) on late model auxiliary power (slave) receptacle (2). Touch negative lead (5) to outside of plug (2) of late model auxiliary power receptacle.



CAUTION

Battery can get overcharged and explode if the charging volts exceed 29. Adjust voltage regulator to 29 V.

NOTE

Do not force adjusting screw past stop. If regulator cannot be adjusted, replace bad regulator.

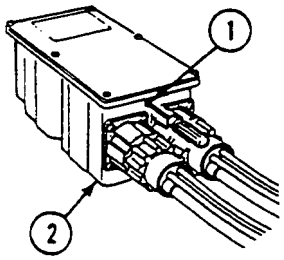
Use insulated cross-tip screw driver #1 to adjust voltage.

Adjust regulator output as follows:

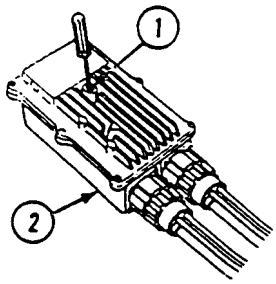
90° and above: 27 V
50° thru 89°: 28 V
49° and below: 29 V

On M548A1, idle carrier between 900–1100 rpm when adjusting regulator. On M548A3, idle carrier between 1000–1200 rpm when adjusting regulators.

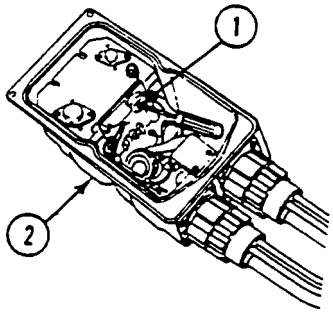
7. With engine running, turn adjusting screw (1) in regulator (2) until proper reading is achieved.
8. Install receptacle cap (1) on auxiliary power (slave) receptacle (2). (Refer to Step 5).
9. Install access screw (1) on regulator or access cover if removed.



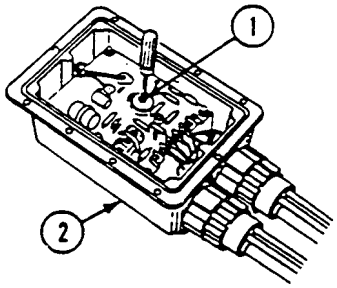
VAP–AIR MODEL 26440001–03 (PLUG REMOVED)



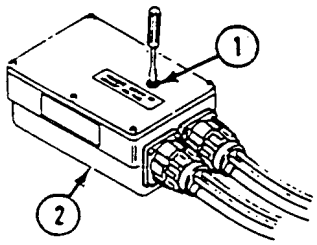
LEECE–NEVILLE MODEL 5027RC (PLUG REMOVED)



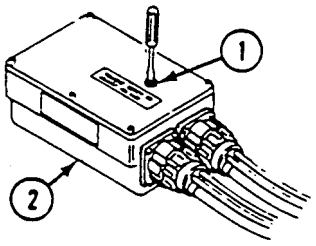
VAP–AIR MODEL 26440001–04 (COVER REMOVED)



LELAND MODEL 07639–CSV–2183–1 (COVER REMOVED)



F. C. E. NIEHOFF MODEL N3019 (PLUG REMOVED)



E. PRESTOLITE MODEL REG–4000 (PLUG REMOVED)

FOLLOW-THROUGH STEPS

1. Lower center seat (see your -10).

END OF TASK

REPLACE GENERATOR REGULATOR MOUNT (M548A1) 0250 00

THIS WORK PACKAGE COVERS:

Removal (page 0250 00-1).
Installation (page 0250 00-2).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts

Lock washer (8)
Lock washer (8)

Personnel Required

Unit Mechanic

References

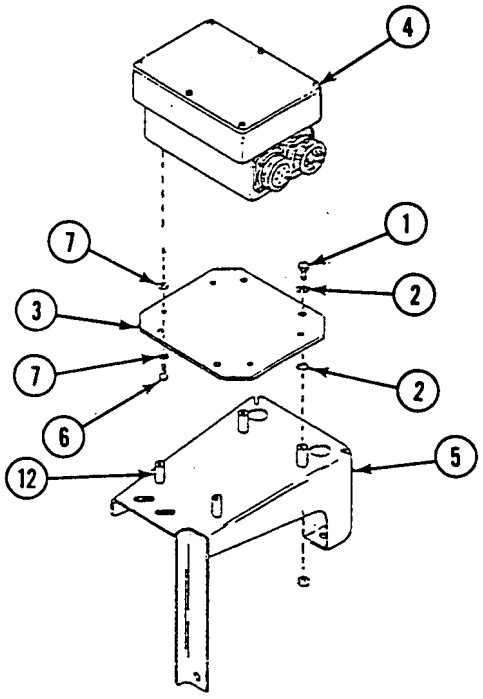
See your -10

Equipment Condition

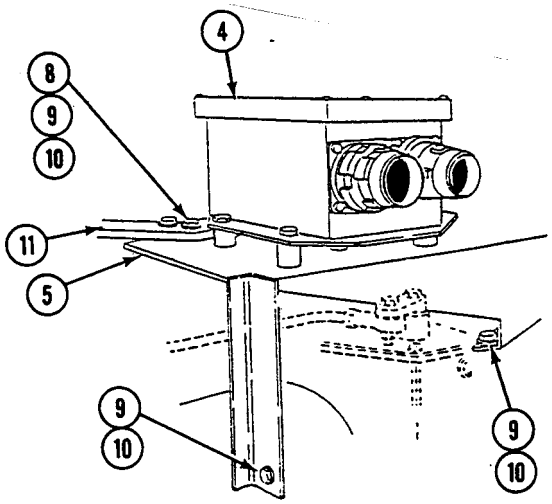
Engine stopped (see your -10)
Carrier blocked (see your -10)
Top access covers and grilles removed (WP 0390 00)
Battery negative lead disconnected (WP 0292 00)
Fuel cable cutoff removed from mount (WP 0194 00)
Battery cable and power plant wiring harness disconnected (WP 0295 00)

REMOVAL

1. Remove four cap screws (1), eight lock washers (2), and mounting plate (3) with generator regulator (4) from mounting bracket (5). Discard lock washers.
2. Remove four machine screws (6) and eight lock washers (7) from mounting plate (3) and generator regulator (4). Remove mounting plate from generator regulator. Discard lock washers.

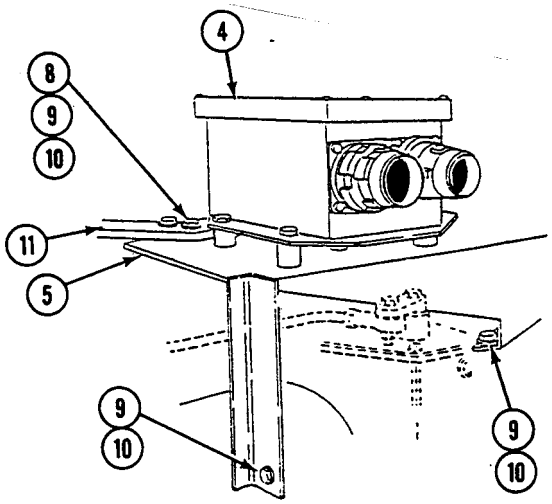


3. Remove two nuts (8), six washers (10), and four cap screws (9) from engine block (11) and mounting bracket (5). Remove mounting bracket from engine block.

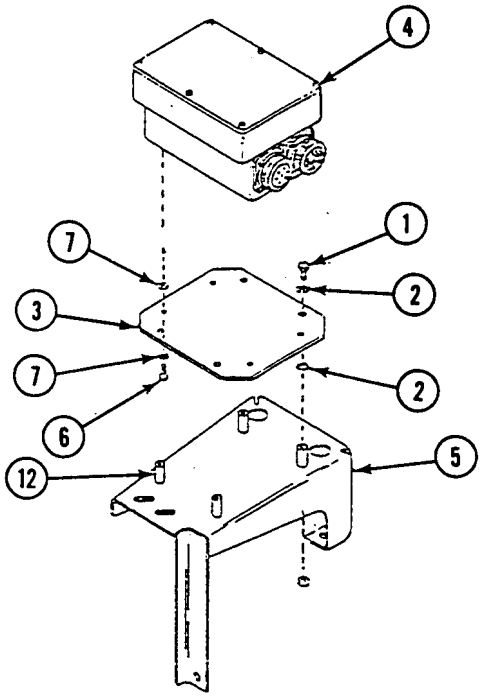


INSTALLATION

1. Install mounting bracket (5) on engine block (11) with four cap screws (10), six washers (9), and two nuts (8).



2. Align mounting plate (3) with generator regulator (4). Secure mounting plate (3) to generator regulator (4) with four machine screws (6) and eight new lock washers (7).
3. Align mounting plate (3) with four mounting bracket weld nuts (12). Secure mounting plate (3) to mounting bracket (5) with four cap screws (1) and eight new lock washers (2).



FOLLOW-THROUGH STEPS

1. Connect battery cable and power plant wiring harness to generator regulator (WP 0295 00).
2. Install fuel cable cutoff on mount (WP 0194 00).
3. Connect battery negative lead (WP 0292 00).
4. Start engine (see your -10).
5. Check for proper operation of generator regulator.
6. Stop engine (see your -10).
7. Install top access cover and grilles (WP 0390 00).

END OF TASK

REPLACE GENERATOR REGULATOR AND GROUND LEAD (M548A3) 0251 00

THIS WORK PACKAGE COVERS:

Removal (page 0251 00-1).
Installation (page 0251 00-2).

INITIAL SETUP:

Maintenance Level

Unit

Personnel Required

Unit Mechanic

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)

References

See your -10

Materials/Parts

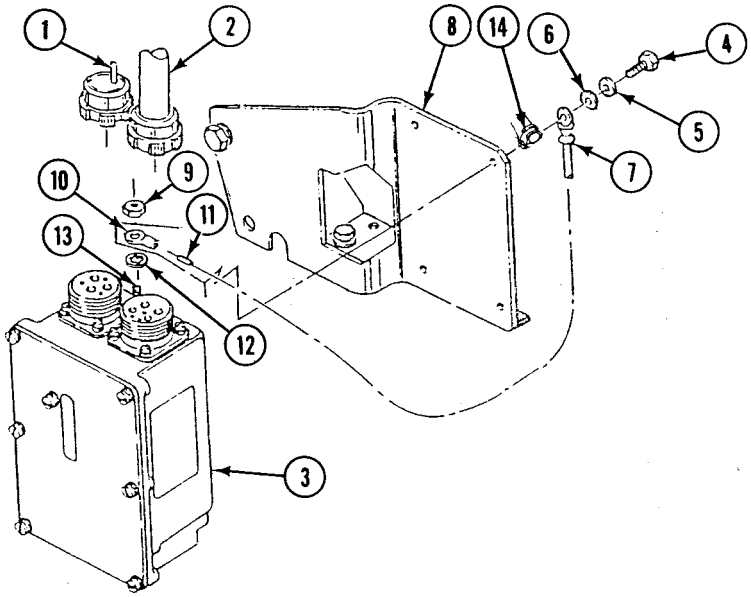
Lock washer (4)
Lock washer
Sealing compound (WP 0542 00, Item 47)
Sealing compound primer (WP 0542 00, Item 48)

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Center seat raised (see your -10)
Both battery negative leads disconnected (WP 0292 00)

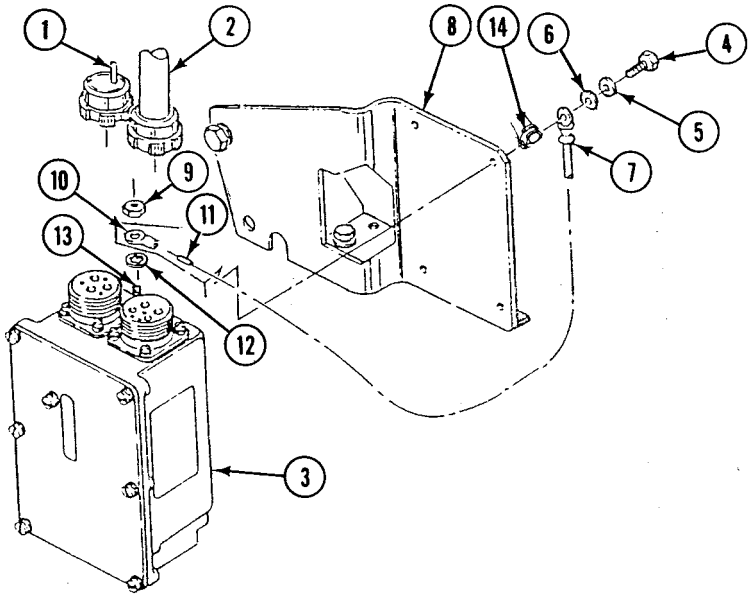
REMOVAL

1. Disconnect power cable (1) and regulator cable (2) from regulator (3).
2. Remove four screws (4), lock washers (5), clamp (14), washers (6), regulator (3), and ground lead (7) from bracket (8). Discard lock washers.
3. Remove nut (9), terminal lead (10) of cable (11), and lock washer (12) from post (13). Discard lock washer. Replace cable if damaged.



INSTALLATION

1. Attach new lock washer (12) and terminal lead (10) of cable (11) to post (13). Secure with nut (9).
2. Apply sealing compound and sealing compound primer to screws (4).
3. Position regulator (3), clamp (14) and ground lead (7) and secure to bracket (8) with four washers (6), new lock washers (5), and screws (4).
4. Connect power cable (1) and regulator cable (2) to regulator (3).



FOLLOW-THROUGH STEPS

1. Connect both battery negative leads (WP 0292 00).
2. Lower center seat (see your -10).

END OF TASK

REPLACE GENERATOR REGULATOR MOUNT (M548A3) 0252 00

THIS WORK PACKAGE COVERS:

Removal (page 0252 00-1).
Installation (page 0252 00-2).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)
Socket Wrench Set (WP 0541 00, Item 64)
Torque Wrench (WP 0541 00, Item 71)

Personnel Required

Unit Mechanic

References

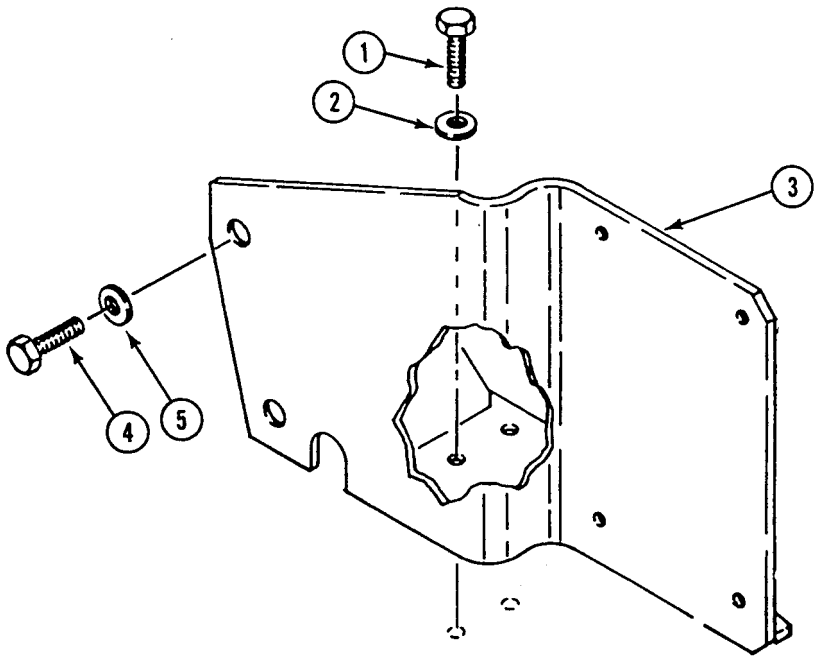
See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Center seat raised (see your -10)
Generator regulator and ground lead removed (WP 0251 00)

REMOVAL

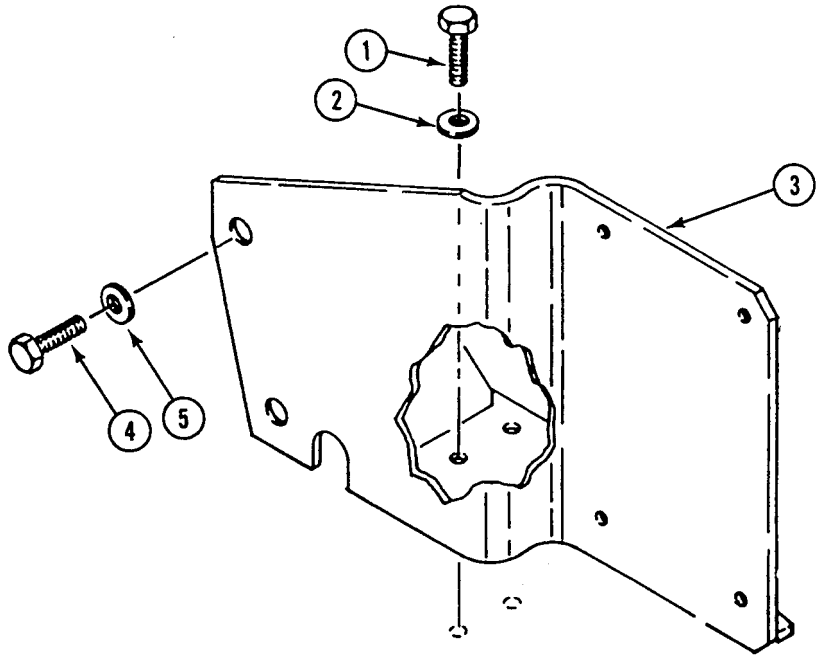
1. Remove two screws (1) and washers (2) from bracket (3).
2. Remove two screws (4) and washers (5) from bracket (3). Remove bracket from carrier.



REPLACE GENERATOR REGULATOR MOUNT (M548A3) — Continued **0252 00**

INSTALLATION

1. Position bracket (3) on engine and secure with two screws (4) and washers (5). Torque screws 31-33 lb-ft (42-45 N•m).
2. Install two screws (1) and washers (2) on bracket (3). Torque screws 22-24 lb-ft (30-33 N•m).



FOLLOW-THROUGH STEPS

1. Install generator regulator and ground lead (WP 0251 00).
2. Lower center seat (see your -10).

END OF TASK

REPLACE STARTER (M548A1) 0253 00

THIS WORK PACKAGE COVERS:

Removal (page 0253 00-2).
Installation (page 0253 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)
Torque Wrench (WP 0541 00, Item 69)

Materials/Parts

Gasket
Lock washer (3)
Lock washer (3)

Personnel Required

Unit Mechanic
Helper (H)

References

See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10
Power plant removed (WP 0130 00)

REPLACE STARTER (M548A1) — Continued 0253 00

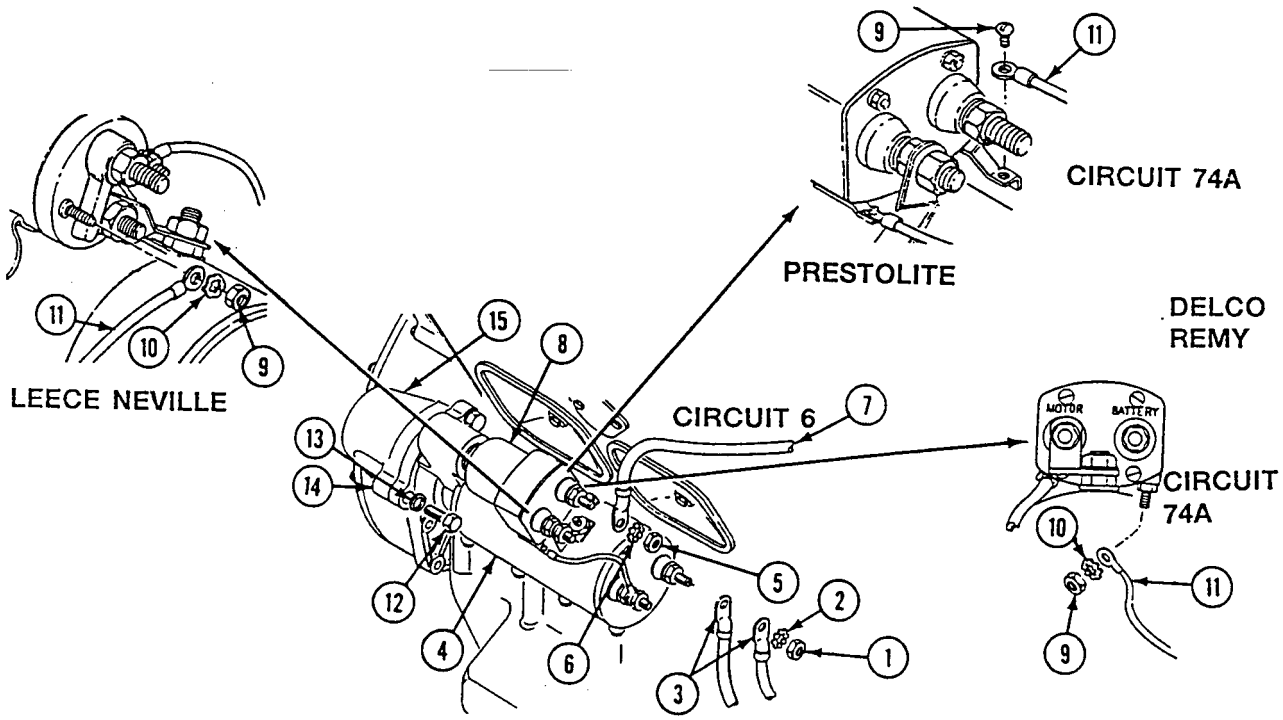
REMOVAL

1. Remove nut (1), lock washer (2), and two ground leads (3) from terminal on starter (4). Discard lock washer.
2. Remove nut (5), lock washer (6), and circuit 6 lead (7) from terminal on starter solenoid (8). Discard lock washer.
3. Remove nut (9) (screw on Prestolite), lock washer (10) (Delco and Leece Neville only) and circuit 74A lead (11) from terminal on solenoid (8). Discard lock washer.

WARNING

Avoid injury. Get an assistant to help you lift the starter or use a hoist. Starter weighs about 75 lb (34 kg).

4. Remove three bolts (12), lock washers (13), and starter (4) with solenoid (8) and gasket (14) (if installed) from engine (15). Discard lock washers. Have helper assist.

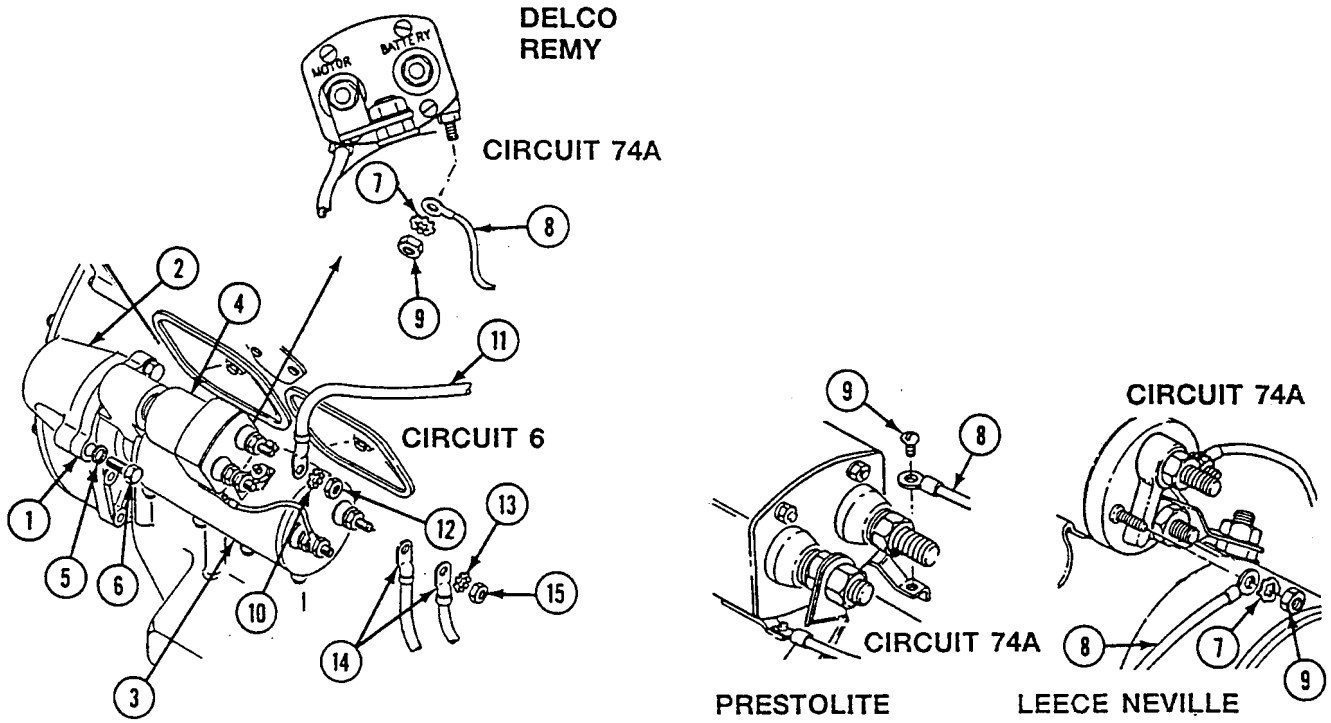


INSTALLATION

NOTE

Check that starter-to-engine housing gasket is in place. Gasket is necessary to keep water out of starter.

1. Install gasket (1) on engine (2).
2. Place starter (3) with solenoid (4) on engine (2). Secure with three new lock washers (5) and bolts (6). Tighten bolts to 137-147 lb-ft (186-199 N•m) torque. Have helper assist.
3. Install new lock washer (7) (Delco and Leece Neville only) and circuit 74A lead (8) on terminal of starter solenoid (4). Secure with nut (9) (screw on Prestolite).
4. Install new lock washer (10) and circuit 6 lead (11) on terminal of solenoid (4). Secure with nut (12).
5. Install new lock washer (13) and two ground leads (14) on terminal of starter (3). Secure with nut (15).



FOLLOW-THROUGH STEPS

1. Install power plant (WP 0130 00).

END OF TASK

REPLACE STARTER (M548A3) 0254 00

THIS WORK PACKAGE COVERS:

Removal (page 0254 00-2).
Cleaning (page 0254 00-3).
Installation (page 0254 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)
Torque Wrench (WP 0541 00, Item 69)

Materials/Parts

Insulating compound (WP 0541 00, Item 10)
Gasket
Lock washer (3)
Lock washer (3)

Personnel Required

Unit Mechanic
Helper (H)

References

See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Both battery negative leads disconnected (WP 0292 00)
Center seat raised (see your -10)
Hull bottom access cover removed (WP 0383 00)

REMOVAL

WARNING

Avoid injury. Get an assistant to help you lift the starter or use a hoist. Starter weighs about 75 lb (34 kg).

NOTE

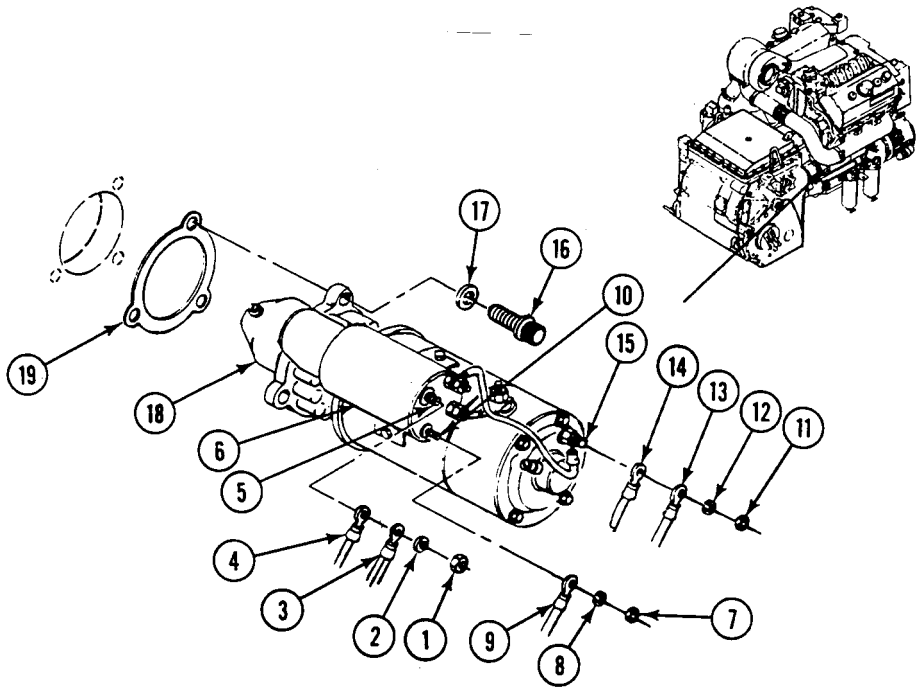
Mark all leads before removal to assure correct installation.

1. Remove nut (1), lock washer (2), circuit 6 lead (3), and circuit 74C lead (4) from battery terminal (5) on starter solenoid (6). Discard lock washer.

2. Remove nut (7), lock washer (8), and circuit 74B lead (9) from switch terminal (10) on starter solenoid (6). Discard lock washer.

3. Remove nut (11), lock washer (12), circuit 7 lead (13), and ground lead (14) from starter ground terminal (15). Discard lock washer.

4. Remove three bolts (16), lock washers (17), starter (18), and gasket (19) from engine. Discard lock washers and gasket. Have helper assist.



CLEANING

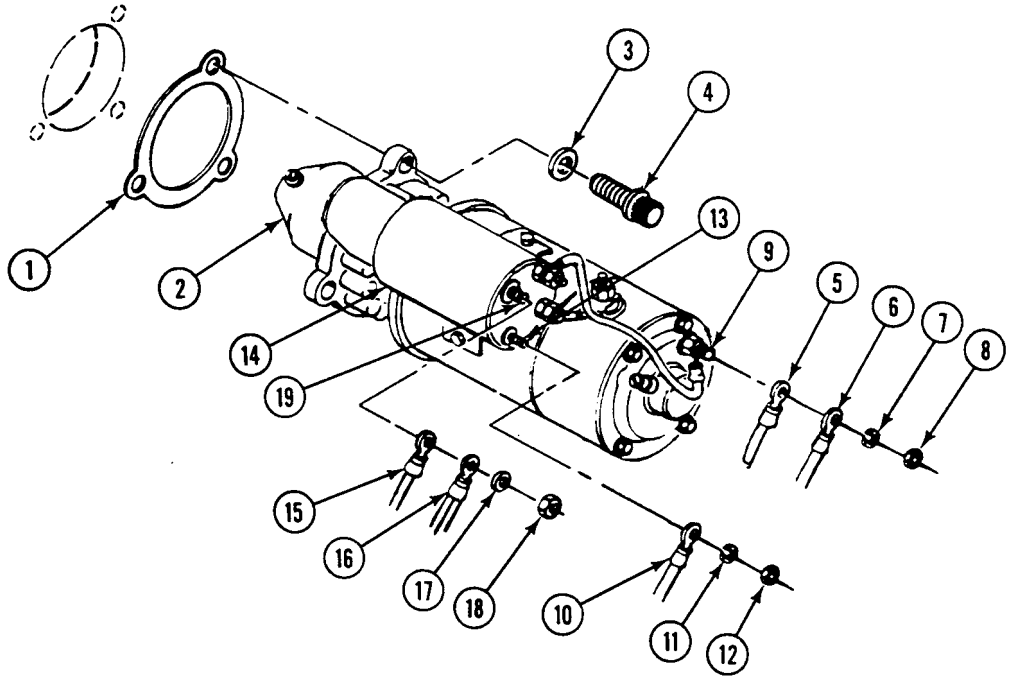
1. Use a wire brush to remove any corrosion from terminal ends.
2. Inspect electrical leads for cracks through the insulation and damage to the terminals.
3. Apply insulating compound to all terminals and connectors.

INSTALLATION

NOTE

Check that gasket is in place. Gasket is necessary to keep water out of starter.

1. Install new gasket (1) on starter (2).
2. Install starter (2) on engine. Secure with three new lock washers (3) and bolts (4). Tighten bolts to 95-105 lb-ft (129-142 N•m) torque. Have helper assist.
3. Install ground lead (5), circuit 7 lead (6), new lock washer (7), and nut (8) on starter ground terminal (9).
4. Install circuit 74B lead (10), new lock washer (11) and nut (12) on switch terminal (13) of solenoid (14).
5. Install circuit 74C lead (15), circuit 6 lead (16), new lock washer (17) and nut (18) on battery terminal (19) of solenoid (14).



FOLLOW-THROUGH STEPS

1. Install hull bottom access cover (WP 0383 00).
2. Connect both battery negative leads (WP 0292 00).
3. Lower center seat (see your -10).

END OF TASK

REPLACE STARTER RELAY (M548A3) 0255 00

THIS WORK PACKAGE COVERS:

Removal (page 0255 00-1).
Cleaning (page 0255 00-2).
Installation (page 0255 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Personnel Required

Unit Mechanic

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)

References

See your -10

Materials/Parts

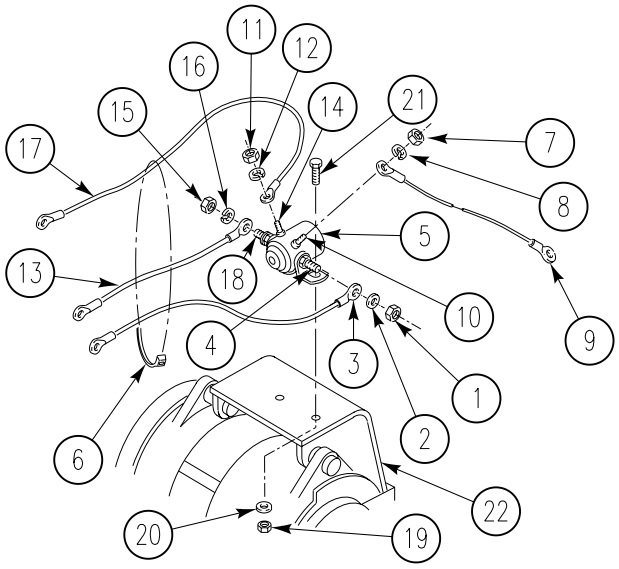
Insulating compound (WP 0542 00, Item 10)
Lock nut (2)
Lock washer (2)
Lock washer (2)
Strap

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Both battery negative leads disconnected (WP 0292 00)
Power plant rear access panel removed (see your -10)

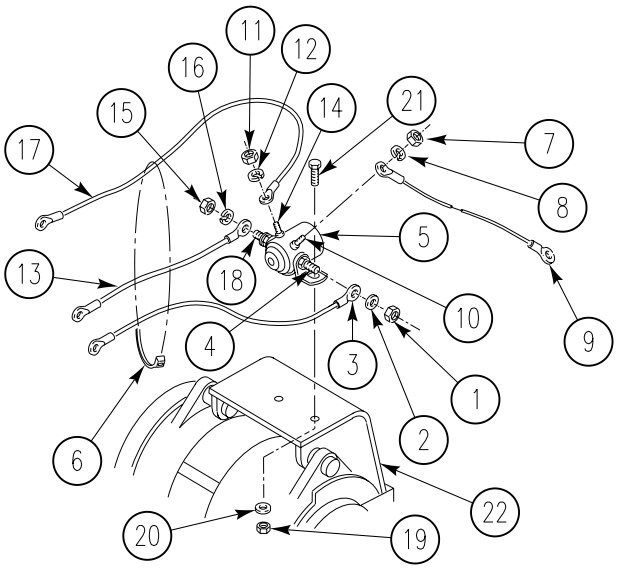
REMOVAL

1. Remove nut (1), lock washer (2), and lead 2 (3) from terminal (4) on starter relay (5). Discard lock washer.
2. If necessary, remove strap (6) from lead (17), lead (13), and lead (3). Discard strap.



REPLACE STARTER RELAY (M548A3) — Continued **0255 00**

3. Remove nut (7), lock washer (8), and circuit 74A lead (9) from terminal (10) on starter relay (5). Discard lock washer.
4. Remove nut (11), lock washer (12), and lead 1 (17) from terminal (14) on starter relay (5). Discard lock washer.
5. Remove nut (15), lock washer (16), and lead 3 (13) from terminal (18) on starter relay (5). Discard lock washer.
6. Remove two lock nuts (19), washers (20), screws (21), and relay (5) from generator mounting bracket (22). Discard lock nuts.

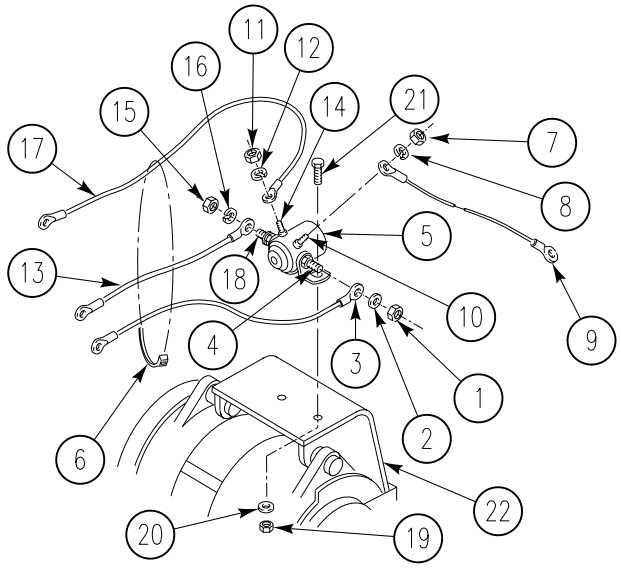


CLEANING

1. Use a wire brush to remove any corrosion from terminal ends.
2. Inspect electrical leads for cracks through the insulation and damage to the terminals.
3. Apply insulating compound to all terminals and connectors.

INSTALLATION

1. Align starter relay (5) on generator mounting bracket (22). Secure with two screws (21), washers (20), and new locknuts (19).
2. Install lead 3 (21), new lock washer (16), and nut (15) on terminal (18).
3. Install lead 1 (17), new lock washer (11), and nut (12) on terminal (14).
4. Install circuit 74A lead (9), new lock washer (8), and nut (7) on terminal (10).
5. Install lead 2 (3), new lock washer (2), and nut (1) on terminal (4).
6. If ground leads have been removed, install new strap (6) around ground lead (13), ground lead (17), and ground lead (3).



FOLLOW-THROUGH STEPS

1. Install power plant rear access panel (see your -10).
2. Connect both battery negative leads (WP 0292 00).

END OF TASK

REMOVE/INSTALL INSTRUMENT PANEL (PARTIAL) 0256 00

THIS WORK PACKAGE COVERS:

Removal (page 0256 00-1).
Installation (page 0256 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Personnel Required

Unit Mechanic

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)
Multimeter (WP 0541 00, Item 29)

References

See your -10

Materials/Parts

Locknut (4)
Lock washer

Equipment Condition

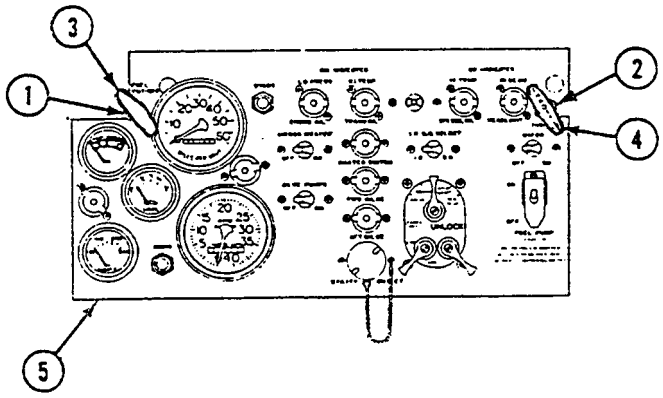
Engine stopped (see your -10)
Carrier blocked (see your -10)
Battery negative lead(s) disconnected (WP 0292 00)

REMOVAL

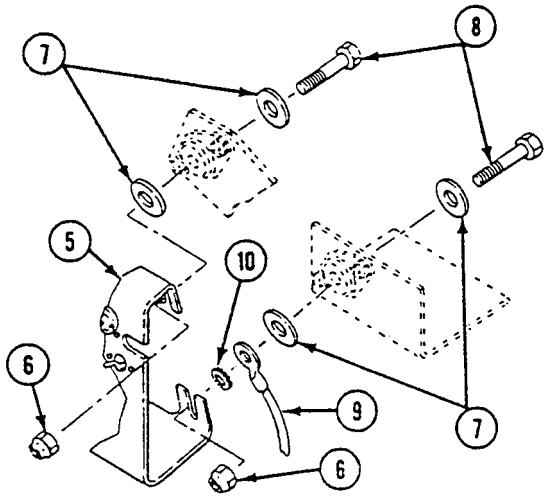
NOTE

Instrument panels for M548A1 and M548A3 are installed and removed the same way. Only the appearance and location of some switches are different. M548A1 instrument panel is shown.

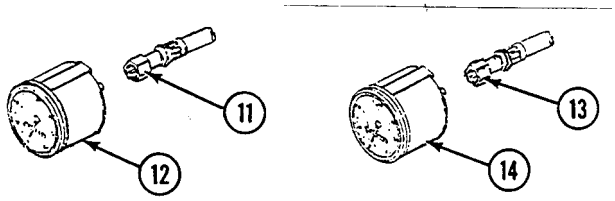
1. Loosen nut (1) and nut (2). Slide fuel cutoff control (3) and throttle control (4) from slots in instrument panel (5).



2. Remove four locknuts (6), eight washers (7), four screws (8), negative lead (9), and lock washer (10) from instrument panel (5) and four bulkhead mounts. Discard locknuts and lock washer.



3. Disconnect speedometer flexible shaft (11) from speedometer (12).
4. Disconnect tachometer flexible shaft (13) from tachometer (14).



NOTE

If more clearance is needed behind instrument panel, loosen wiring harness clamps.

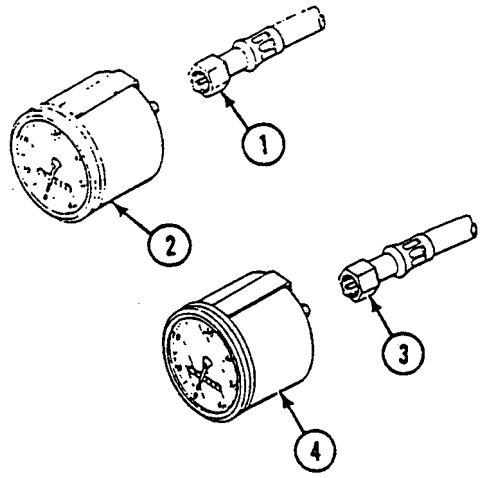
5. Pull instrument panel (5) away from bulkhead to get to rear of instrument panel.

INSTALLATION

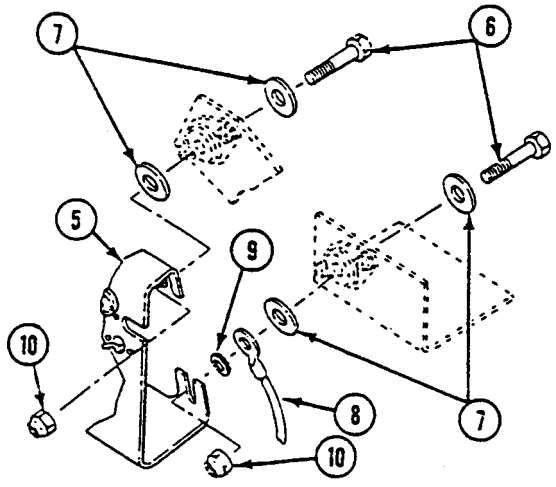
NOTE

If wiring harness clamps were loosened behind instrument panel, tighten clamps.

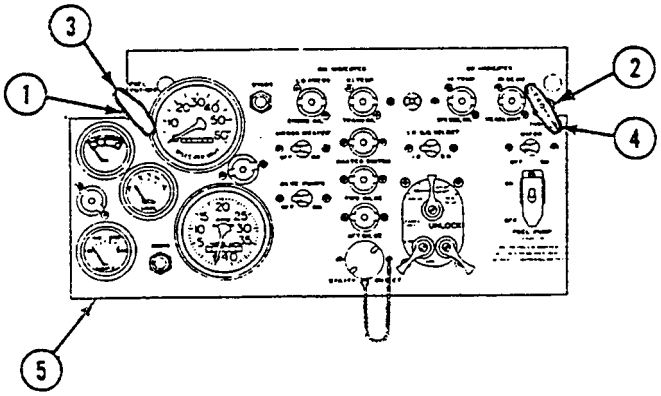
1. Connect tachometer flexible shaft (1) at back of tachometer (2).
2. Connect speedometer flexible shaft (3) at back of speedometer (4).



3. Place instrument panel (5) on four bulkhead mounts. Secure with four screws (6), eight washers (7), negative lead (8), new lock washer (9), and four new lock nuts (10).



4. Install throttle control (4) and fuel cutoff control (3) in panel slots on instrument panel (5). Secure with nut (1) and nut (2).



FOLLOW-THROUGH STEPS

1. Connect battery negative lead(s) (WP 0292 00).
2. Start engine (see your -10).
3. Check instruments for proper operation.
4. Stop engine (see your -10).

END OF TASK

REPLACE HIGH BEAM INDICATOR LIGHT 0257 00

THIS WORK PACKAGE COVERS:

Removal (page 0257 00-1).
Installation (page 0257 00-1).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)

Personnel Required

Unit Mechanic

References

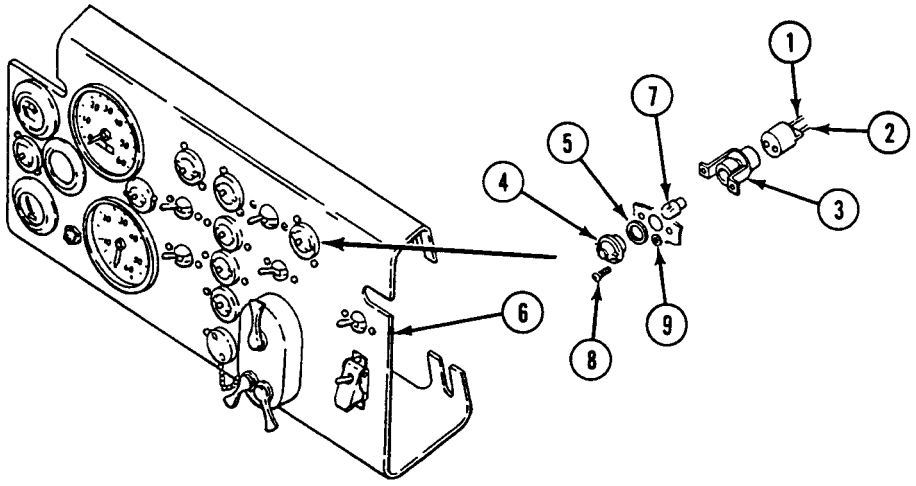
See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Battery negative lead(s) disconnected (WP 0292 00)
Instrument panel partially removed (WP 0256 00)

REMOVAL

1. Disconnect circuit 519 lead (1) and circuit 519A lead (2) from light body (3).
2. Press and turn light lens (4) to the left and remove with gasket (5) from instrument panel (6).
3. Press and turn light bulb (7) to the left and remove from light body (3).
4. Remove two screws (8) and washers (9) from light body (3) and instrument panel (6). Remove light body from panel.



INSTALLATION

1. Install light body (3) in instrument panel (6). Install two washers (9) and screws (8) to secure light body to panel.
2. Place light bulb (7) in light body (3). Press and turn light bulb to the right to secure.
3. Place light lens (4) with gasket (5) on instrument panel (6). Press and turn light lens to the right.
4. Connect circuit 519A lead (2) and circuit 519 lead (1) light body (3).

FOLLOW-THROUGH STEPS

1. Install instrument panel (WP 0256 00).
2. Connect battery negative lead(s) (WP 0292 00).

END OF TASK

REPLACE HIGH BEAM INDICATOR LIGHT BULB 0258 00

THIS WORK PACKAGE COVERS:

Removal (page 0258 00-1).
Installation (page 0258 00-1).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)

Personnel Required

Unit Mechanic

References

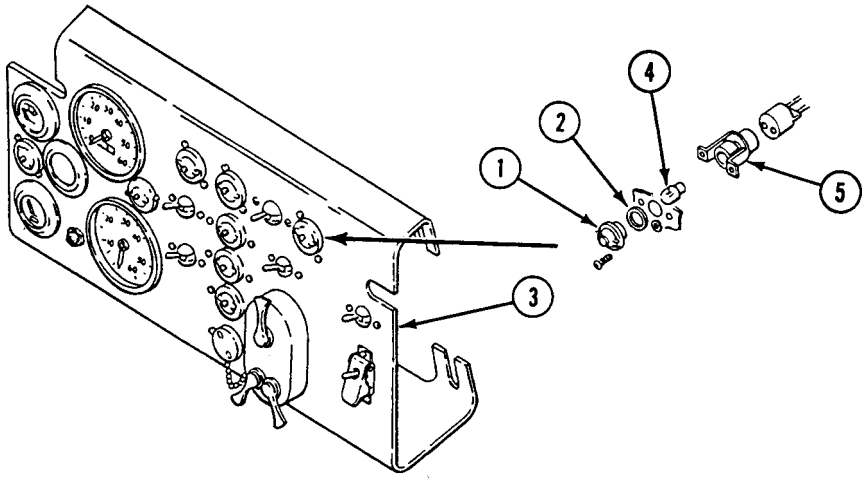
See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Battery negative lead(s) disconnected (WP 0292 00)

REMOVAL

1. Press and turn light lens (1) to the left and remove with gasket (2) from instrument panel (3).
2. Press and turn high beam indicator light bulb (4) to the left and remove from light body (5).



INSTALLATION

1. Place high beam indicator light bulb (4) in light body (5). Press and turn indicator light bulb (4) to the right to secure.
2. Place light lens (1) with gasket (2) on panel (3). Press and turn lens to the right to secure.

FOLLOW-THROUGH STEPS

1. Connect battery negative lead(s) (WP 0292 00).

END OF TASK

REPLACE HORN AND START SWITCHES 0259 00

THIS WORK PACKAGE COVERS:

Removal (page 0259 00-1).
Installation (page 0259 00-2).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)

Personnel Required
Unit Mechanic

References
See your -10

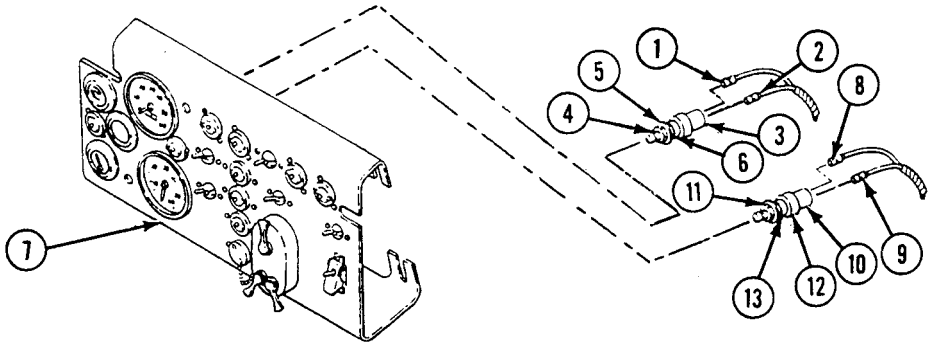
Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Instrument panel partially removed (WP 0256 00)

REMOVAL

NOTE

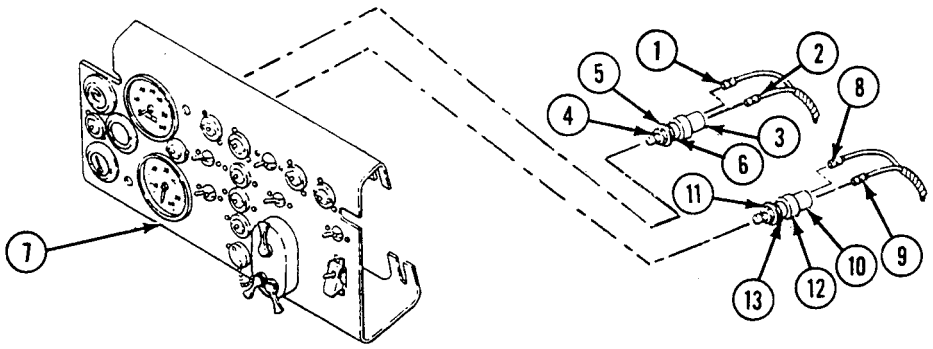
Do not remove more than one switch at a time. See carrier electrical circuit diagram (FO-1 and FO-2) for circuit number or wiring leads. Horn and start switches are removed the same way.

1. Disconnect circuit leads 25 (1) and 25A (2) from horn switch (3).
2. Remove nut (4), washer (5), lock nut (6), and horn switch (3) from instrument panel (7).
3. Disconnect circuit leads 14 (8) and 14A (9) from start switch (10).
4. Remove nut (11), washer (12), lock nut (13), and start switch (10) from instrument panel (7).



INSTALLATION

1. Place start switch (10) in instrument panel (7). Secure with washer (12), nut (11), and lock nut (13).
2. Install horn switch (3) in instrument panel (7) with washer (5), nut (4), and lock nut (6).
3. Connect circuit leads 14 (8) and 14A (9) to start switch (10).
4. Connect circuit leads 25 (1) and 25A (2) to horn switch (3).



FOLLOW-THROUGH STEPS

1. Install instrument panel (WP 0256 00).
2. Turn MASTER SWITCH ON (see your -10).
3. Check horn and start switches for proper operation.
4. Turn MASTER SWITCH OFF (see your -10).

END OF TASK

REPLACE AIR BOX HEATER, TRANSMISSION-DIFFERENTIAL TEST, INFRARED-BLACKOUT SELECTOR OR WINDSHIELD WIPER SWITCHES

0260 00

THIS WORK PACKAGE COVERS:

Removal (page 0260 00-2).
Installation (page 0260 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)

Personnel Required

Unit Mechanic

References

See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Instrument panel partially removed (WP 0256 00)

REPLACE AIR BOX HEATER, TRANSMISSION-DIFFERENTIAL TEST, INFRARED-BLACKOUT SELECTOR OR WINDSHIELD WIPER SWITCHES — Continued **0260 00**

REMOVAL

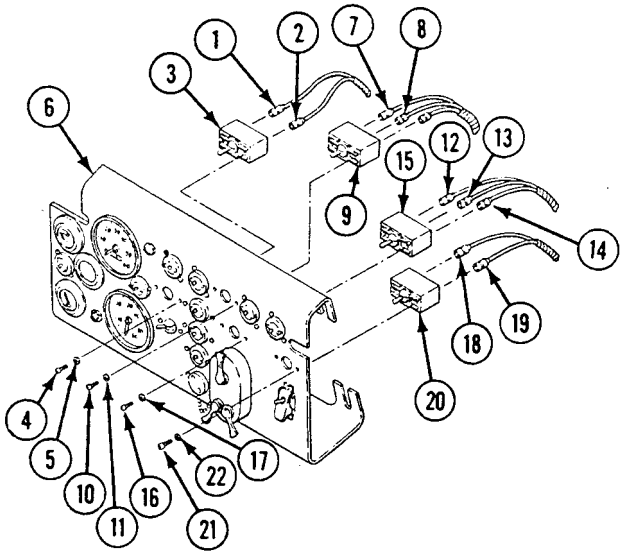
NOTE

Instrument panel switches, indicators, and controls will vary between the M548A1 and M548A3. M548A1 instrument panel is shown.

Do not remove more than one switch at a time. The four switches above are removed the same way.

For M548A1, do Step 3. For M548A3, do Step 5.

1. Disconnect circuit leads 400B (1) and 406 (2) from air box heater switch (3).
2. Remove two screws (4), washers (5), and air box heater switch (3) from instrument panel (6).
3. Disconnect circuit leads 327A (7) and 328A (8) from transmission-differential test switch (9).
4. Remove two screws (10), washers (11), and transmission-differential test switch (9) from instrument panel (6).
5. Disconnect circuit leads 19 (12), 520 (13), and 514-515 (14) from infrared-blackout selector switch (15).
6. Remove two screws (16), washers (17), and infrared-blackout selector switch (15) from instrument panel (6).
7. Disconnect circuit leads 71 (18) and 71A (19) from windshield wiper switch (20).
8. Remove two screws (21), washers (22), and windshield wiper switch (20) from instrument panel (6).

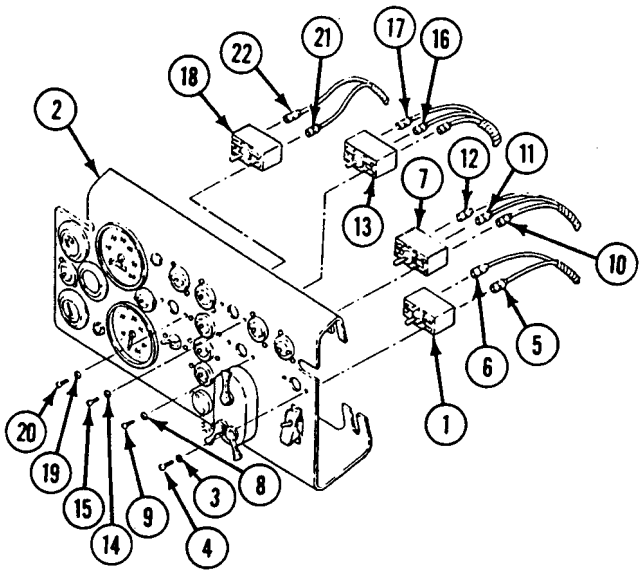


INSTALLATION

NOTE

For M548A1, do Step 5 and Step 6. For M548A3, do Step 4.

1. Place windshield wiper switch (1) in instrument panel (2). Secure with two washers (3) and screws (4).
2. Connect circuit leads 71A (5) and 71 (6) to windshield wiper switch (1).
3. Place infrared-blackout selector switch (7) in instrument panel (2). Secure with two washers (8) and screws (9).
4. Connect circuit leads 514-515 (10), 520 (11), and 19 (12) to infrared-blackout selector switch (7).
5. Place transmission-differential test switch (13) in instrument panel (2). Secure with two washers (14) and screws (15).
6. Connect circuit leads 328A (16) and 327A (17) to transmission-differential test switch (13).
7. Place air box heater switch (18) in instrument panel (2). Secure with two washers (19) and screws (20).
8. Connect circuit leads 406 (21) and 400B (22) to air box heater switch (18).



FOLLOW-THROUGH STEPS

1. Install instrument panel (WP 0256 00).
2. Turn MASTER SWITCH ON (see your -10).
3. Check switches for proper operation.
4. Turn MASTER SWITCH OFF (see your -10).

END OF TASK

REPLACE BILGE AND FUEL PUMP SWITCHES 0261 00

THIS WORK PACKAGE COVERS:

Removal (page 0261 00-2).
Installation (page 0261 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)

Personnel Required

Unit Mechanic

References

See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Instrument panel partially removed (WP 0256 00)

REPLACE BILGE AND FUEL PUMP SWITCHES — Continued 0261 00

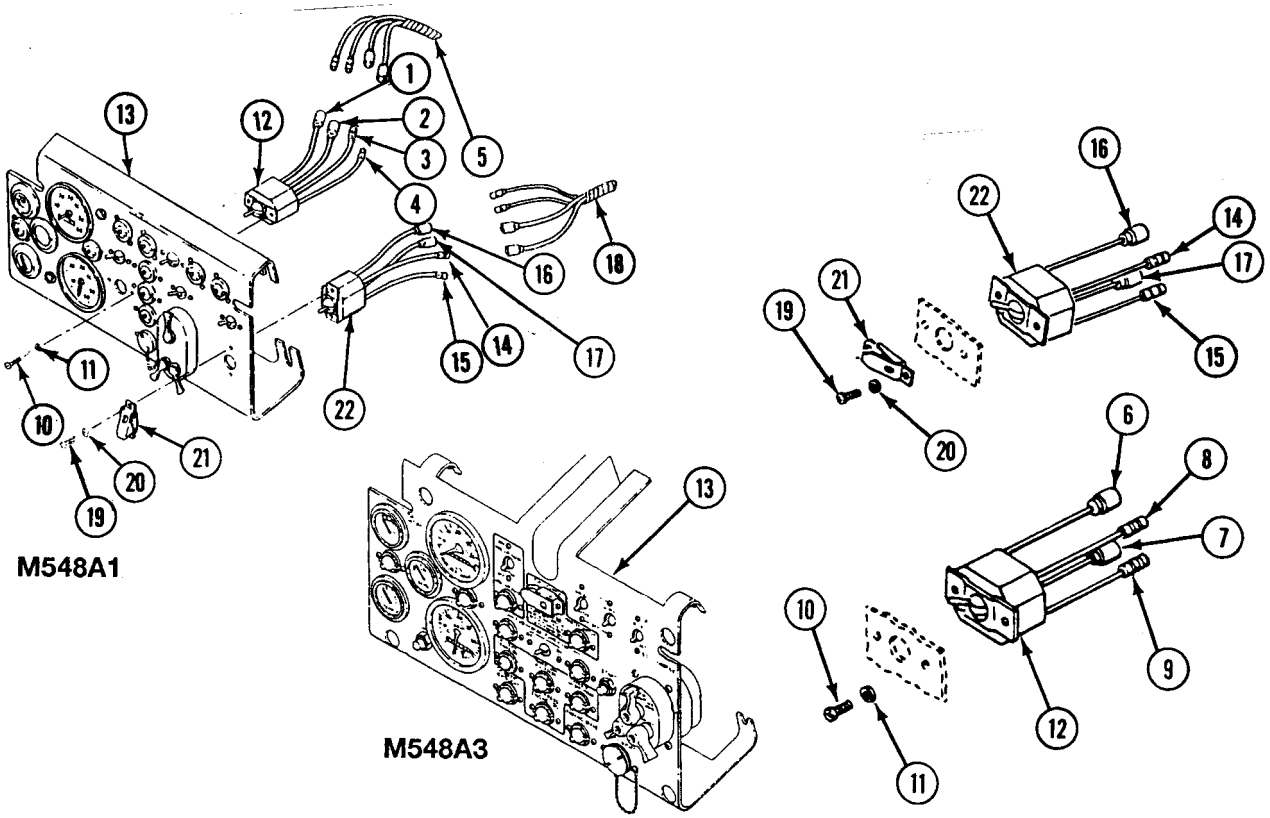
REMOVAL

NOTE

Instrument panel switches, indicators, and controls will vary between the M548A1 and the M548A3. Both M548A1 and M548A3 instrument panels are shown.

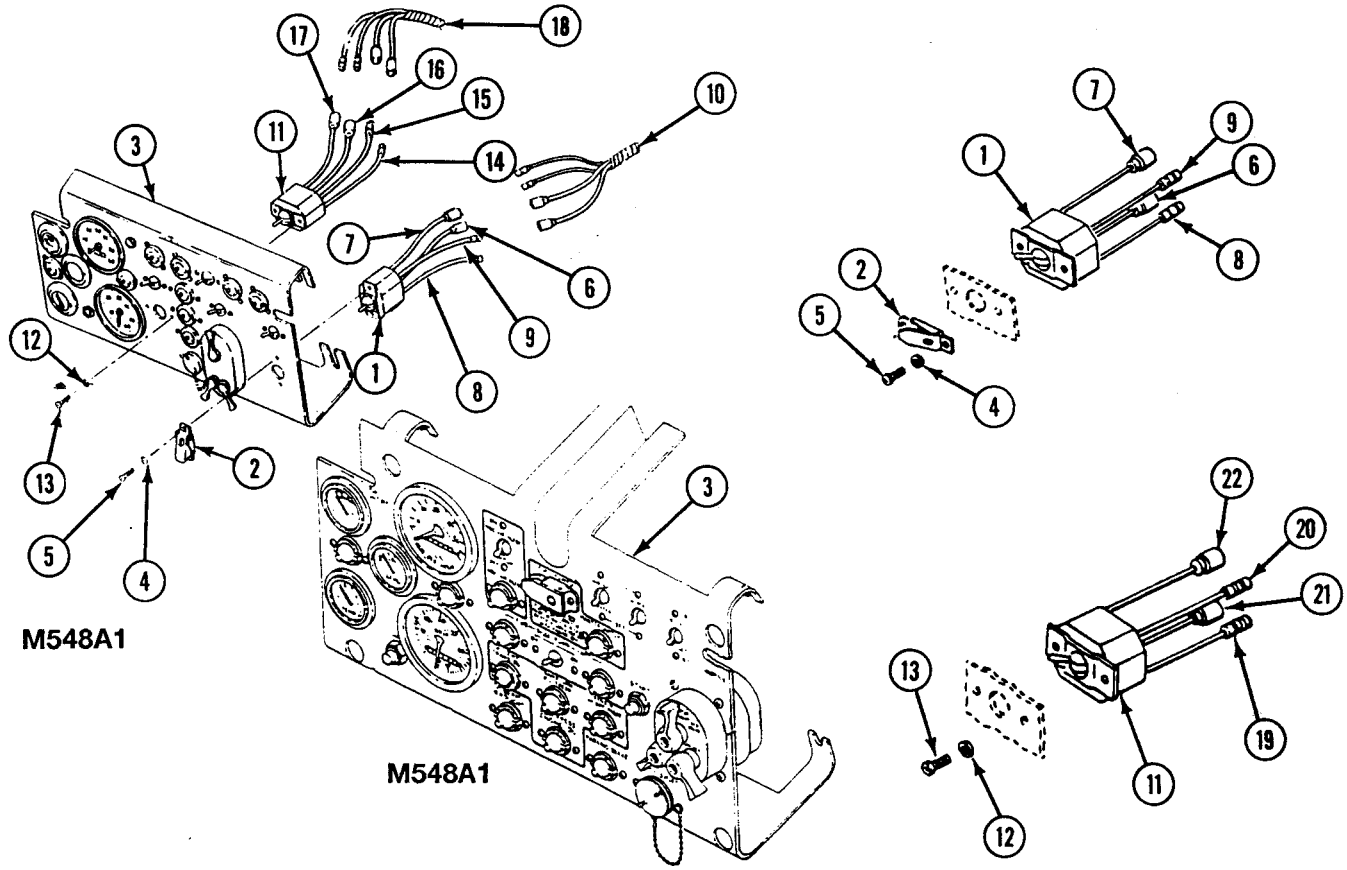
Do not remove more than one switch at a time. Bilge and fuel pump switches are removed the same way.

1. Disconnect circuit leads 450 (1), 450B (2), 451 (3), and 452 (4) from wiring harness (5). For 548A3, disconnect leads 450 (6), 450B (7), 451A (8), and 452A (9).
2. Remove two screws (10), washers (11), and bilge pump switch (12) from instrument panel (13).
3. Disconnect circuit leads 74 (14), 77-78 (15), 14A (16), and 76 (17) from wiring harness (18).
4. Remove two screws (19), washers (20), guard (21), and fuel pump switch (22) from instrument panel (13).



INSTALLATION

1. Place fuel pump switch (1) and guard (2) on instrument panel (3). Secure with two washers (4) and screws (5).
2. Connect circuit leads 76 (6), 14A (7), 77-78 (8), and 74 (9) to wiring harness (10).
3. Place bilge pump switch (11) in instrument panel (3). Secure with two washers (12) and screws (13).
4. Connect circuit leads 452 (14), 451 (15), 450B (16), and 450 (17), to wiring harness (18). For M548A3, connect 452A (19), 451A (20), 450B (21), and 450 (22).



FOLLOW-THROUGH STEPS

1. Install instrument panel (WP 0256 00).
2. Turn MASTER SWITCH ON (see your -10).
3. Check bilge and fuel pump switches. If pumps go on, switches are OK.
4. Turn MASTER SWITCH OFF (see your -10).

END OF TASK

REPLACE LIGHT SWITCH 0262 00

THIS WORK PACKAGE COVERS:

Removal (page 0262 00-1).
Installation (page 0262 00-2).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)

Personnel Required
Unit Mechanic

References
See your -10

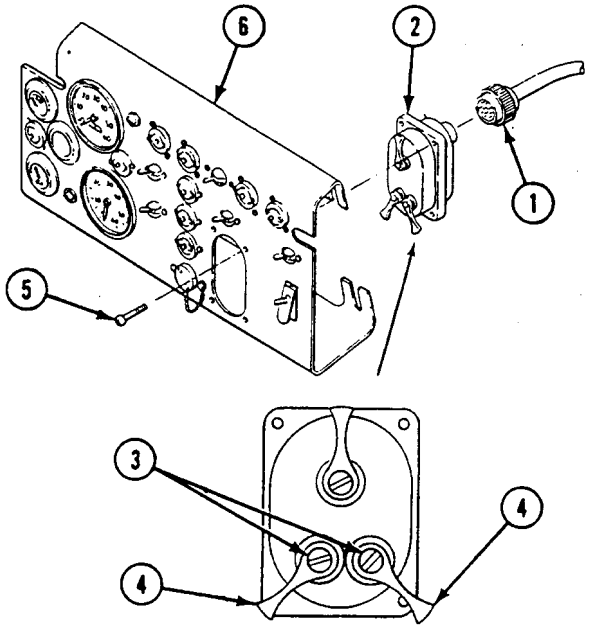
Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Instrument panel partially removed (WP 0256 00)

REMOVAL

NOTE

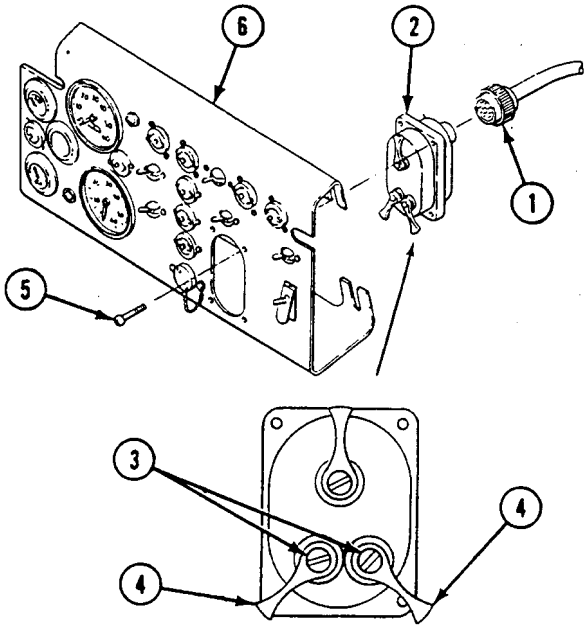
Instrument panel switches, indicators, and controls will vary between the M548A1 and M548A3. M548A1 instrument panel is shown.

1. Disconnect wiring harness connector (1) from light switch (2).
2. Remove two screws (3) from two selector handles (4) and light switch (2). Remove handles from light switch.
3. Remove four screws (5) and light switch (2) from instrument panel (6).



INSTALLATION

1. Place light switch (2) in instrument panel (6). Secure with four screws (5).
2. Connect wiring harness connector (1) to light switch (2).
3. Install two selector handles (4) on light switch (2). Secure with two screws (3).



FOLLOW-THROUGH STEPS

1. Install instrument panel (WP 0256 00).
2. Turn MASTER SWITCH ON (see your -10).
3. Check light switch for proper operation.
4. Turn MASTER SWITCH OFF (see your -10).

END OF TASK

REPLACE INFRARED-BLACKOUT SELECT SWITCH 0263 00

THIS WORK PACKAGE COVERS:

Removal (page 0263 00-1).
Installation (page 0263 00-1).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)

Personnel Required

Unit Mechanic

References

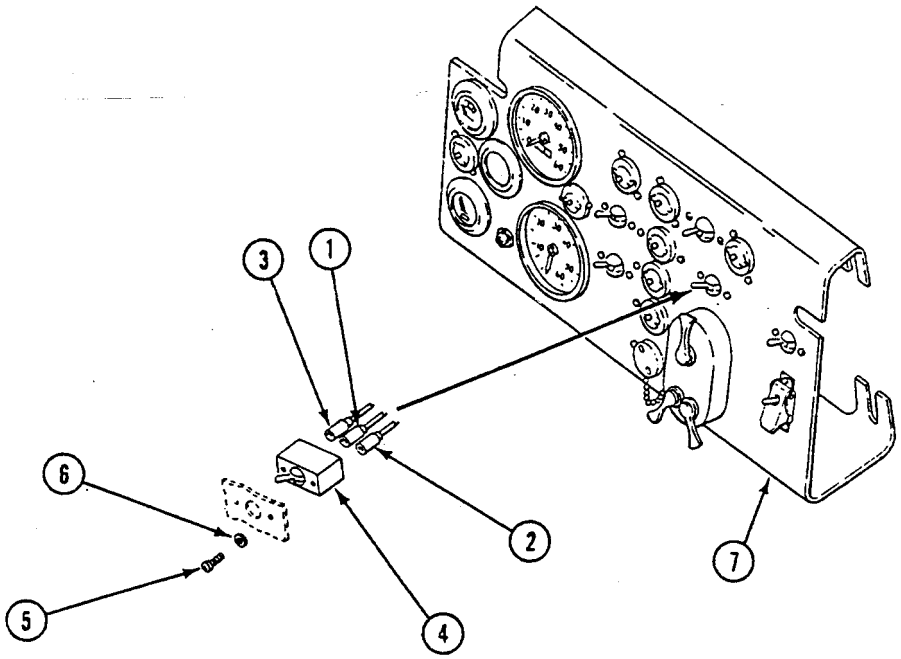
See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Battery negative lead(s) disconnected (WP 0292 00)
Instrument panel partially removed (WP 0256 00)

REMOVAL

1. Disconnect circuit 520 lead (1), circuit 19 lead (2), and circuit 514-515 lead (3) from infrared-blackout select switch (4).
2. Remove two screws (5) and washers (6) from instrument panel (7) and infrared-blackout select switch (4).
3. Remove infrared-blackout select switch (4) from instrument panel (7).



INSTALLATION

1. Install infrared-blackout select switch (4) on instrument panel (7). Secure with two washers (6) and screws (5).
2. Connect circuit 514-515 lead (3), circuit 19 lead (2), and circuit 520 lead (1) to infrared-blackout select switch (4).

FOLLOW-THROUGH STEPS

1. Install instrument panel (WP 0256 00).
2. Connect battery negative lead(s) (WP 0292 00).

END OF TASK

REPLACE PANEL LIGHTS 0264 00

THIS WORK PACKAGE COVERS:

Removal (page 0264 00-2).
Installation (page 0264 00-4).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)

Personnel Required
Unit Mechanic

References
See your -10

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

REMOVAL

NOTE

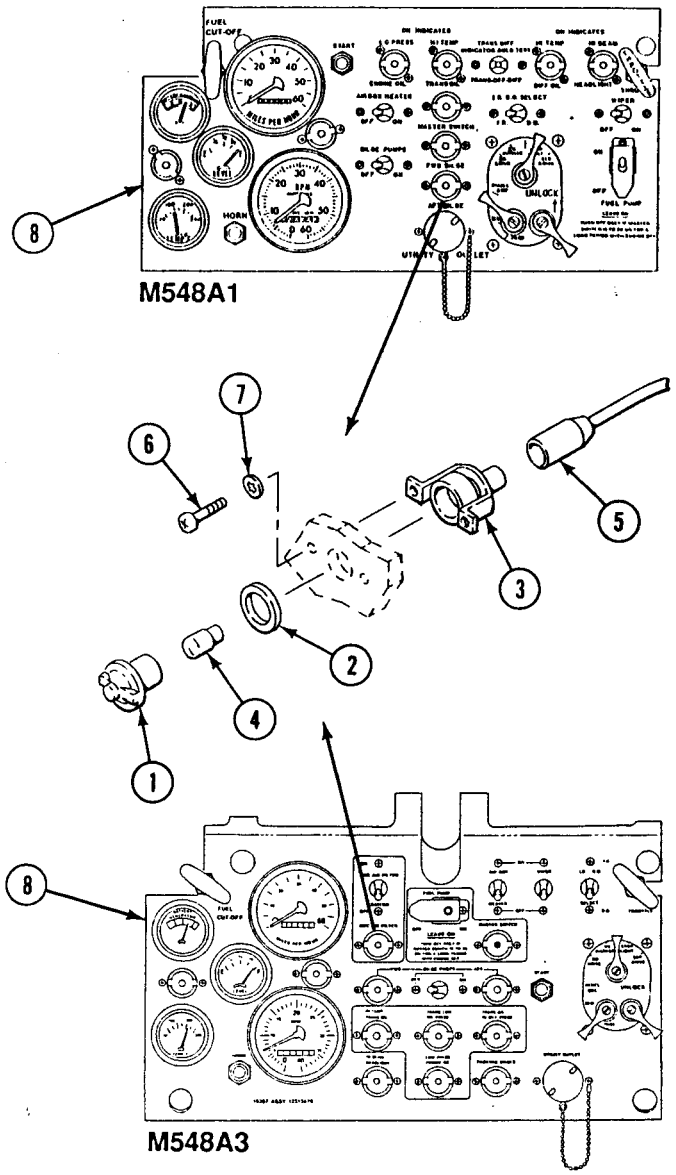
Instrument panel switches, indicators and controls will vary between M548A1 and M548A3. Both M548A1 and M548A3 instrument panels are shown.

All panel lights and warning lights are removed the same way. The following procedure is typical for all panel and warning lights.

1. Remove instrument panel lens and lamp:

   a. Turn instrument panel lens (1) to the left and remove lens and gasket (2) from socket (3).

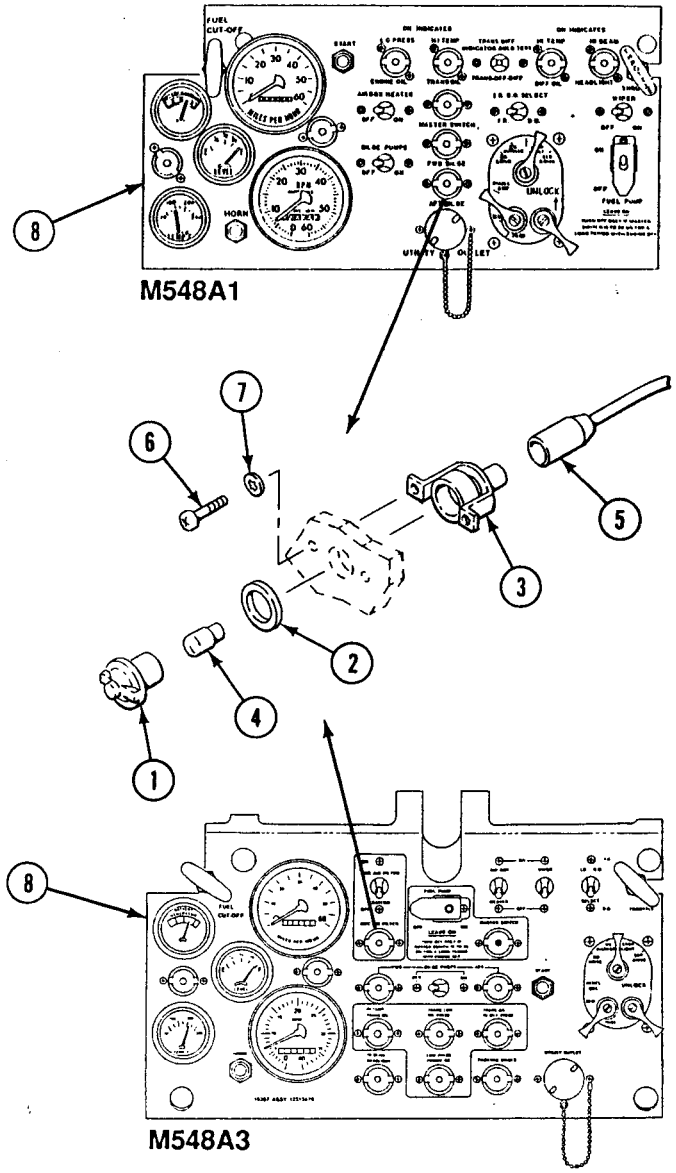
   b. Push lamp (4) and turn it to the left to remove from socket (3).



NOTE

If lamp assembly is to be replaced, do Steps 2 - 5.

2. Partially remove instrument panel (WP 0256 00).
3. Remove instrument panel lens (1) and lamp (4) from socket (3).
4. Disconnect lead (5) from socket (3).
5. Remove two screws (6) and washers (7) from instrument panel (8) and socket (3). Remove socket from panel.

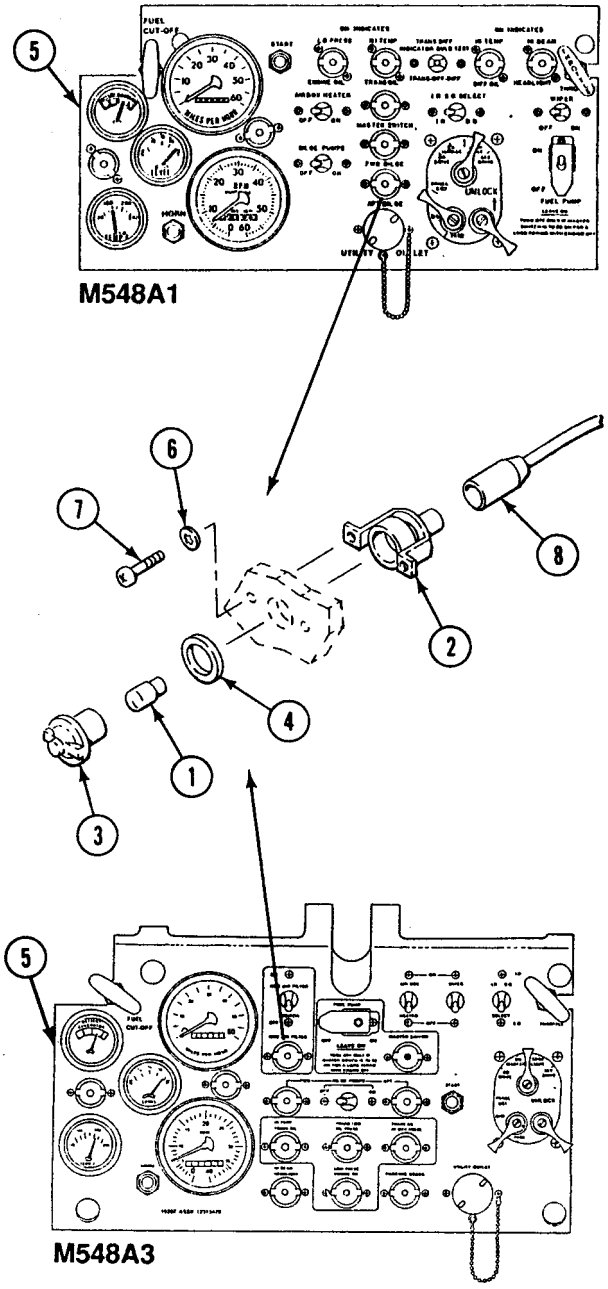


INSTALLATION

NOTE

All panel lights and warning lights are installed the same way. The following procedure is typical for all panel and warning lights.

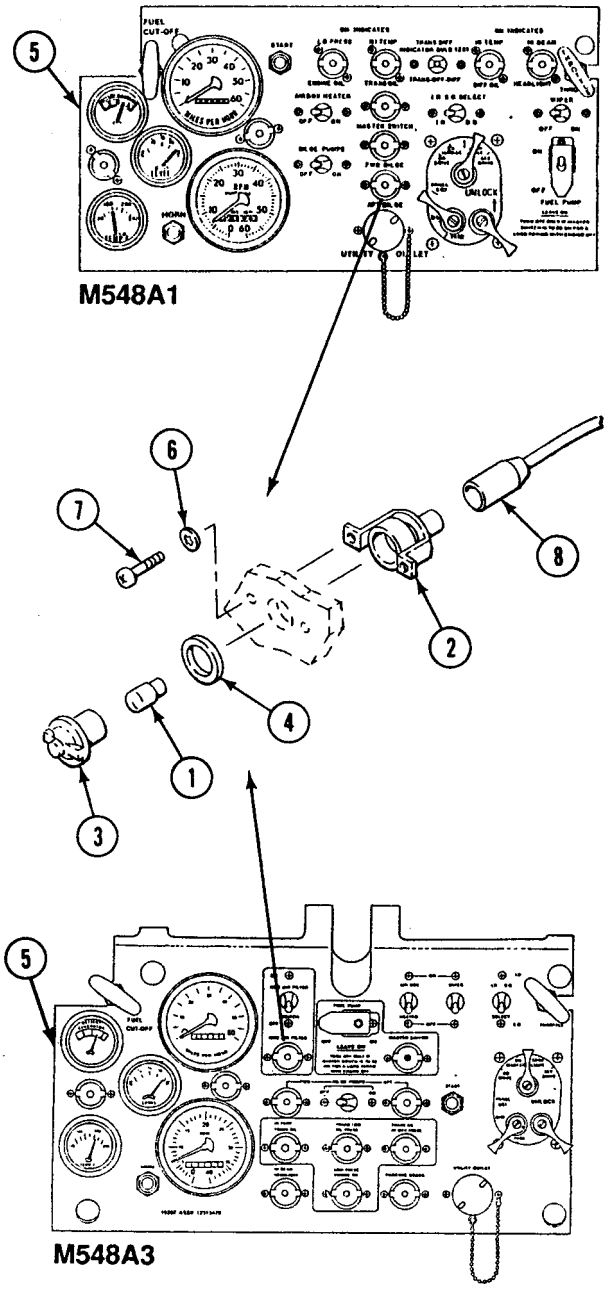
1. Install instrument panel lens and lamp.
   a. Push lamp (1) into socket (2) and turn right to install.
   b. Push instrument panel lens (3) and gasket (4) in socket (2) and turn right to install.



NOTE

If lamp assembly is to be installed, do Steps 2 - 4.

2. Align socket (2) to instrument panel (5) and secure with two washers (6) and screws (7).
3. Connect lead (8) to socket (2).
4. Install instrument panel lens (3) and lamp (1) in socket (2).



FOLLOW-THROUGH STEPS

1. Install instrument panel (WP 0256 00).
2. Start engine (see your -10).
3. Check instrument lights for proper operation.
4. Stop engine (see your -10).

END OF TASK

REPLACE UTILITY OUTLET 0265 00

THIS WORK PACKAGE COVERS:

Removal (page 0265 00-1).
Installation (page 0265 00-2).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)

Personnel Required
Unit Mechanic

References
See your -10

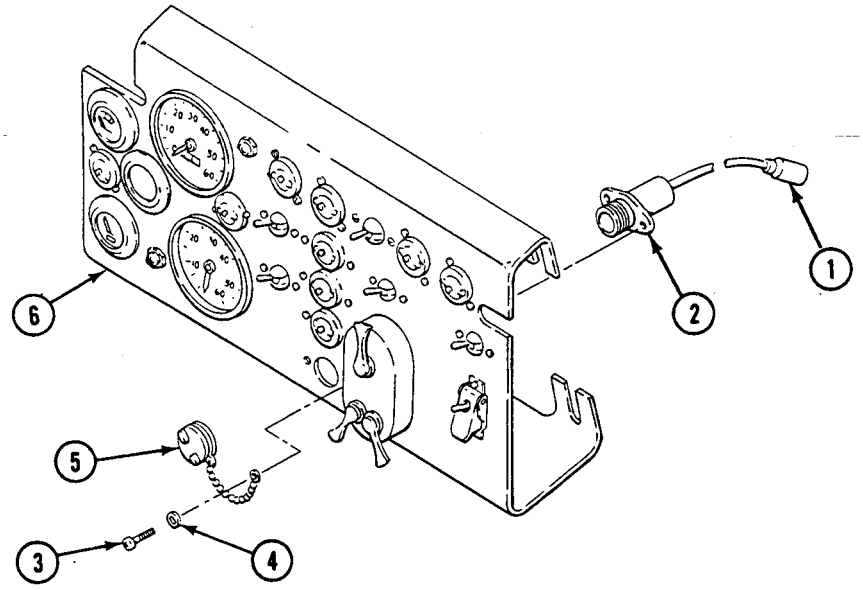
Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Instrument panel partially removed (WP 0256 00)

REMOVAL

NOTE

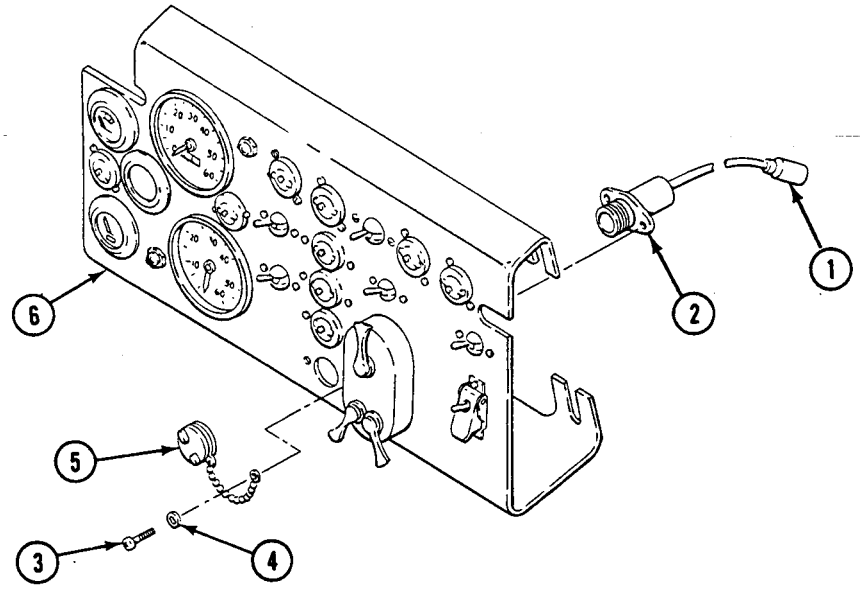
Instrument panel switches, indicators, and controls will vary between the M548A1 and M548A3. M548A1 instrument panel is shown.

1. Disconnect circuit 37 lead (1) from utility outlet (2).
2. Remove two screws (3) and washers (4) from receptacle cover and chain (5), instrument panel (6), and utility outlet (2).
3. Remove utility outlet (2) from instrument panel (6).



INSTALLATION

1. Place utility outlet (2) on back side of instrument panel (6). Secure utility outlet with receptacle cover and chain (5), two washers (4), and screws (3).
2. Connect circuit 37 lead (1) to utility outlet (2).



FOLLOW-THROUGH STEPS

1. Install instrument panel (WP 0256 00).

END OF TASK

REPLACE FUEL LEVEL, BATTERY-GENERATOR, OR COOLANT TEMPERATURE GAUGE

0266 00

THIS WORK PACKAGE COVERS:

Removal (page 0266 00-1).
Installation (page 0266 00-2).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)

Personnel Required
Unit Mechanic

References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Instrument panel partially removed (WP 0256 00)

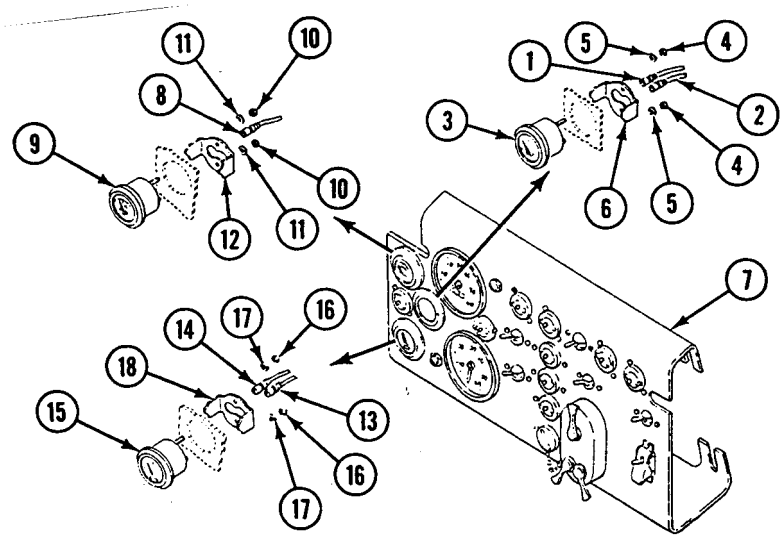
REMOVAL

NOTE

Instrument panel switches, indicators, and controls will vary between the M548A1 and M548A3. The M548A1 instrument panel is shown.

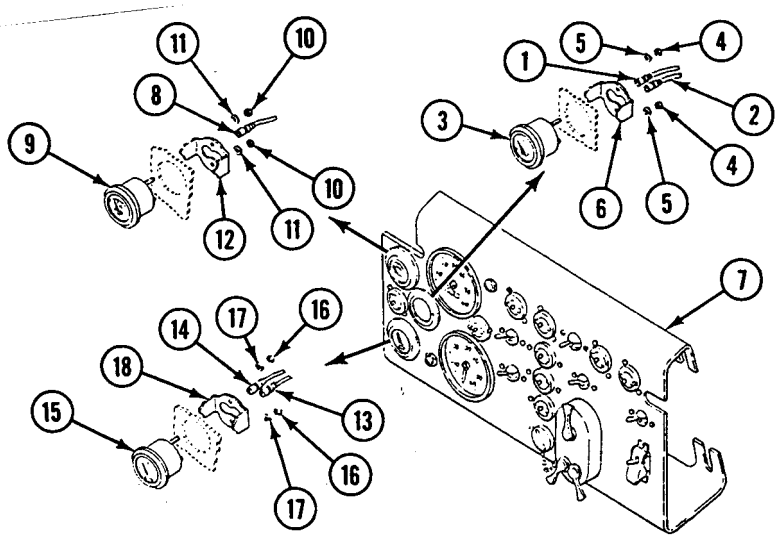
Do not remove more than one gauge at a time. See carrier electrical circuit diagrams (FO-1 and F0-2) M548A1 and M548A3 for circuit number of wiring leads. Battery-generator, fuel level, and coolant temperature gauges are removed and installed the same way.

1. Disconnect circuit leads 27A (1) and 28 (2) from fuel level gauge (3).
2. Remove two nuts (4), washers (5), bracket (6) and fuel level gauge (3) from instrument panel (7).
3. Disconnect circuit lead 27E (8) from battery-generator gauge (9).



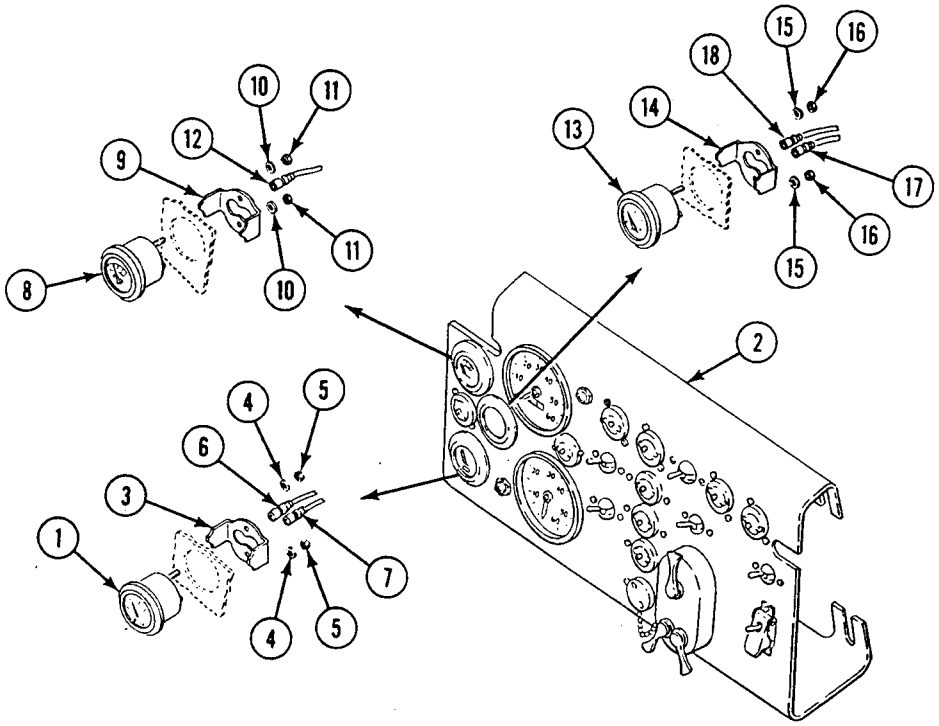
4. Remove two nuts (10), washers (11), bracket (12), and battery-generator gauge (9) from instrument panel (7).
5. Disconnect circuit leads 27 (13) and 33 (14) from coolant temperature gauge (15). For M548A3, disconnect leads 27B (13) and 33 (14) from gauge (15).

6. Remove two nuts (16), washers (17), bracket (18) and coolant temperature gauge (15) from instrument panel (7).



INSTALLATION

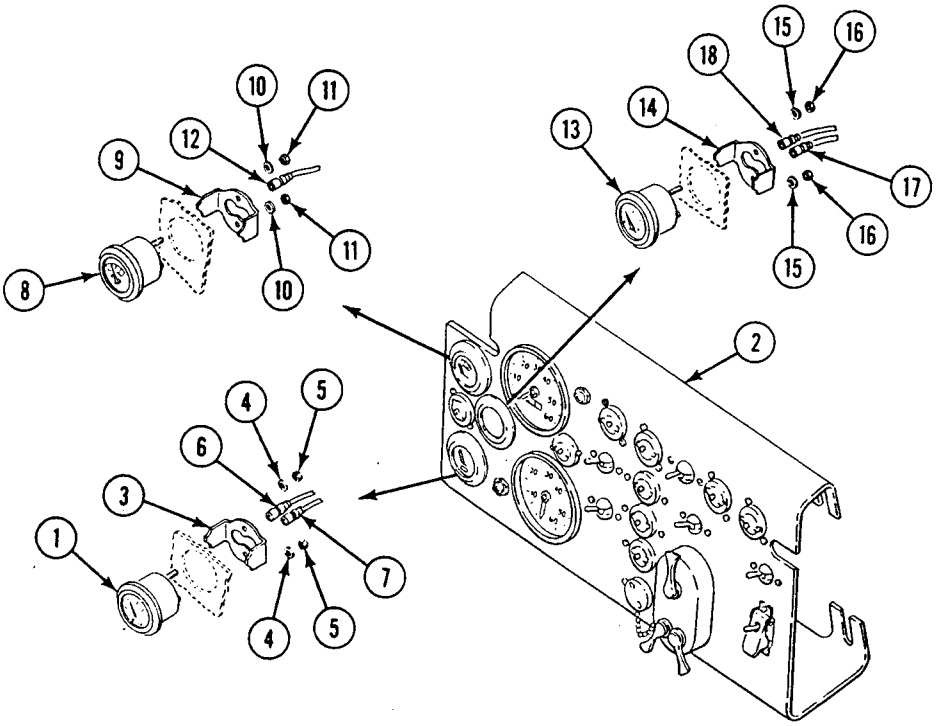
1. Place coolant temperature gauge (1) in instrument panel (2). Secure with bracket (3), two washers (4), and nuts (5).
2. Connect circuit leads 33 (6) and 27 (7) to coolant temperature gauge (1). For M548A3, connect leads 33 (6) and 27B (7), to gauge (1).



3. Place battery-generator gauge (8) in instrument panel (2). Secure with bracket (9), two washers (10), and nuts (11).
4. Connect circuit lead 27E (12) to battery-generator gauge (8).

REPLACE FUEL LEVEL, BATTERY-GENERATOR, OR COOLANT TEMPERATURE GAUGE — Continued **0266 00**

5. Place fuel level gauge (13) in instrument panel (2). Secure with bracket (14), two washers (15), and nuts (16).
6. Connect circuit leads 28 (17) and 27A (18) to fuel level gauge (13).



FOLLOW-THROUGH STEPS

1. Install instrument panel (WP 0256 00).
2. Start engine (see your -10).
3. Check fuel level, battery-generator, or coolant temperature gauge for proper operation.
4. Stop engine (see your -10).

END OF TASK

REPLACE CIRCUIT BREAKER 0267 00

THIS WORK PACKAGE COVERS:

Removal (page 0267 00-1).
Installation (page 0267 00-1).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)

Personnel Required

Unit Mechanic

References

See your -10

Equipment Condition

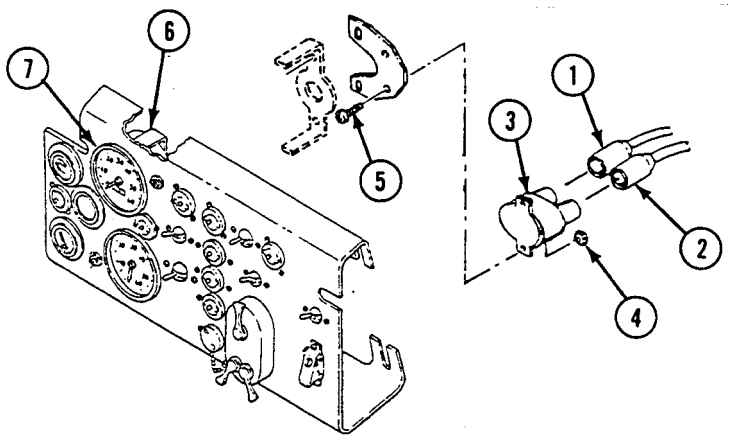
Engine stopped (see your -10)
Carrier blocked (see your -10)
MASTER SWITCH OFF (see your -10)
Instrument panel partially removed (WP 0256 00)

REMOVAL

NOTE

Instrument panel switches, indicators, and controls will vary between the M548A1 and M548A3. M548A1 instrument panel is shown.

1. Disconnect circuit 10 lead (1) and circuit 27 lead (2) from circuit breaker (3).
2. Remove two nuts (4) and screws (5) that secure circuit breaker (3) to bracket mount (6) on back of speedometer (7). Remove circuit breaker (3) from bracket mount (6).



INSTALLATION

1. Place circuit breaker (3) on bracket mount (6) on back of speedometer (7). Secure with two screws (5) and nuts (4).
2. Connect circuit 27 lead (2) and circuit 10 lead (1) to circuit breaker (3).

FOLLOW-THROUGH STEPS

1. Install instrument panel (WP 0256 00).
2. Turn MASTER SWITCH ON (see your -10). If panel lights work, circuit breaker is OK.
3. Turn MASTER SWITCH OFF (see your -10).

END OF TASK

REPLACE BILGE PUMP CIRCUIT BREAKER 0268 00

THIS WORK PACKAGE COVERS:

Removal (page 0268 00-1).
Installation (page 0268 00-2).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts

Lock nut (2)

Personnel Required

Unit Mechanic

References

See your -10

Equipment Condition

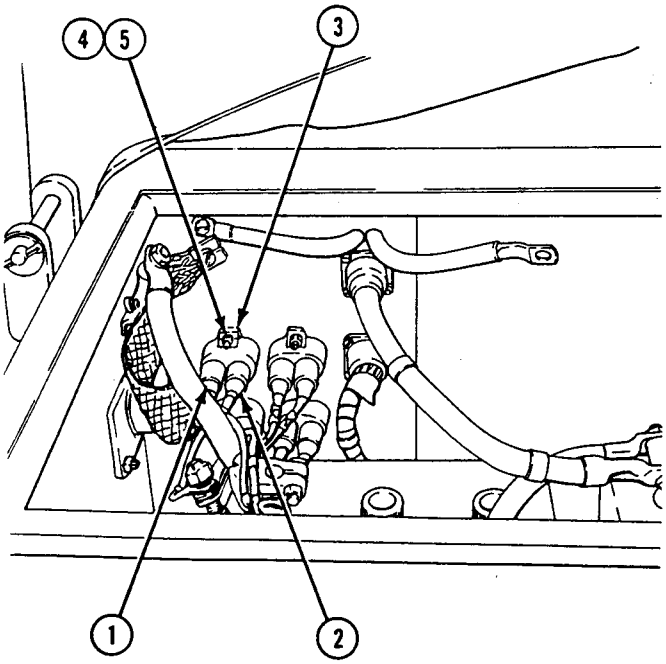
Engine stopped (see your -10)
Carrier blocked (see your -10)
Driver's seat raised (see your -10)
Center seat raised (see your -10)
Battery negative lead(s) disconnected (WP 0292 00)
Left front battery removed (WP 0290 00) or (WP 0293 00)

REMOVAL

NOTE

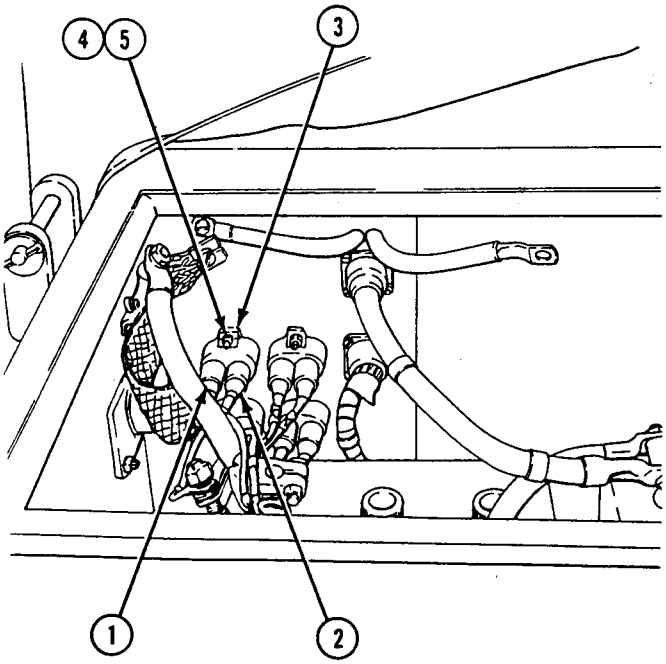
Circuits 450, 450A, and related circuit breaker are inactive.

1. Disconnect circuit 450B (1) and 450C (2) leads from bilge pump circuit breaker (3).
2. Remove two screws (4), lock nuts (5), and circuit breaker (3) from bulkhead. Discard lock nuts.



INSTALLATION

1. Install circuit breaker (3) on bulkhead with two screws (4) and new lock nuts (5).
2. Connect circuit 450C (2) and 450B (1) to circuit breaker (3).



FOLLOW-THROUGH STEPS

1. Install left front battery (WP 0290 00) or (WP 0293 00).
2. Connect battery negative lead(s) (WP 0292 00).
3. Lower center seat (see your -10).
4. Lower driver’s seat (see your -10).

END OF TASK

REPLACE GENERATOR-REGULATOR CIRCUIT BREAKER 0269 00

THIS WORK PACKAGE COVERS:

Removal (page 0269 00-1).
Installation (page 0269 00-1).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)

Personnel Required

Unit Mechanic

References

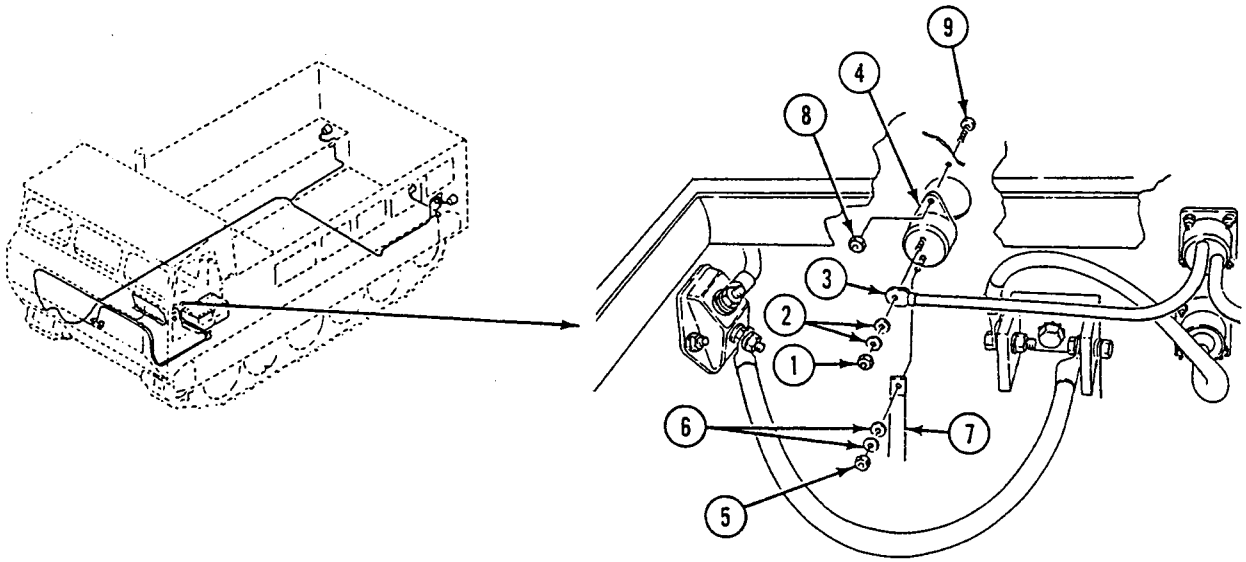
See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Driver's seat raised (see your -10)
Battery ground lead(s) disconnected (WP 0292 00)
Center seat raised (see your -10)

REMOVAL

1. Remove nut (1), two washers (2), and circuit 3 lead (3) from top terminal of circuit breaker (4).
2. Remove nut (5), two washers (6), and circuit breaker ground lead (7) from bottom terminal of circuit breaker (4).
3. Remove two nuts (8) and cap screws (9) from circuit breaker (4) and bulkhead. Remove circuit breaker from bulkhead.



INSTALLATION

1. Place circuit breaker (4) on bulkhead. Secure with two caps screws (9) and nuts (8).
2. Connect circuit breaker ground lead (7) to bottom terminal of circuit breaker (4). Secure with two washers (6) and nut (5).
3. Connect circuit 3 lead (3) on top terminal of circuit breaker (4). Secure with two washers (2) and nut (1).

FOLLOW-THROUGH STEPS

1. Connect battery ground lead(s) (WP 0292 00).
2. Lower driver's seat (see your -10).
3. Lower center seat (see your -10).

END OF TASK

REPLACE MASTER SWITCH TO BUS BAR ELECTRICAL LEAD (M548A3) 0270 00

THIS WORK PACKAGE COVERS:

Removal (page 0270 00-2).
Installation (page 0270 00-3).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts
Lock nut
Lock washer

Personnel Required
Unit Mechanic

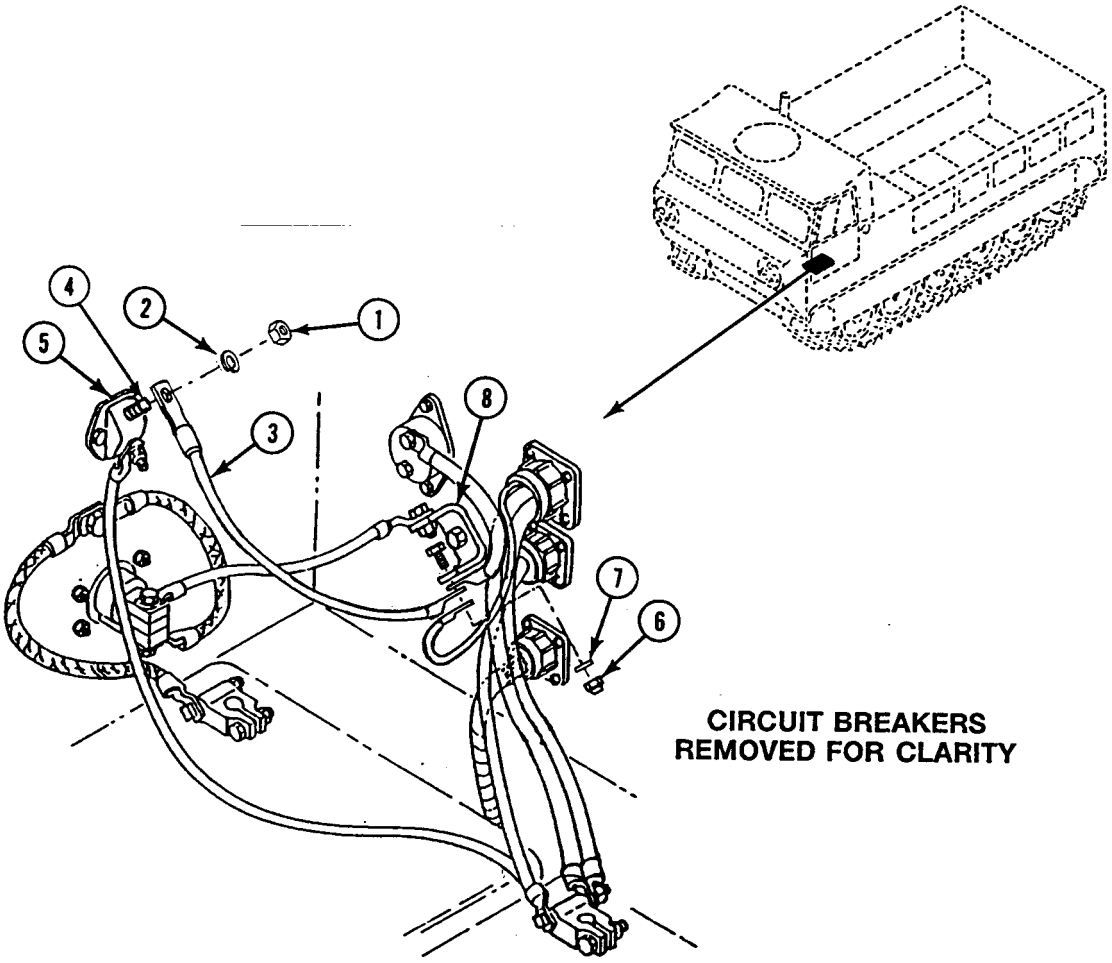
References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Driver's seat raised (see your -10)
Both battery negative leads disconnected (WP 0292 00)

REPLACE MASTER SWITCH TO BUS BAR ELECTRICAL LEAD (M548A3) — Continued 0270 00

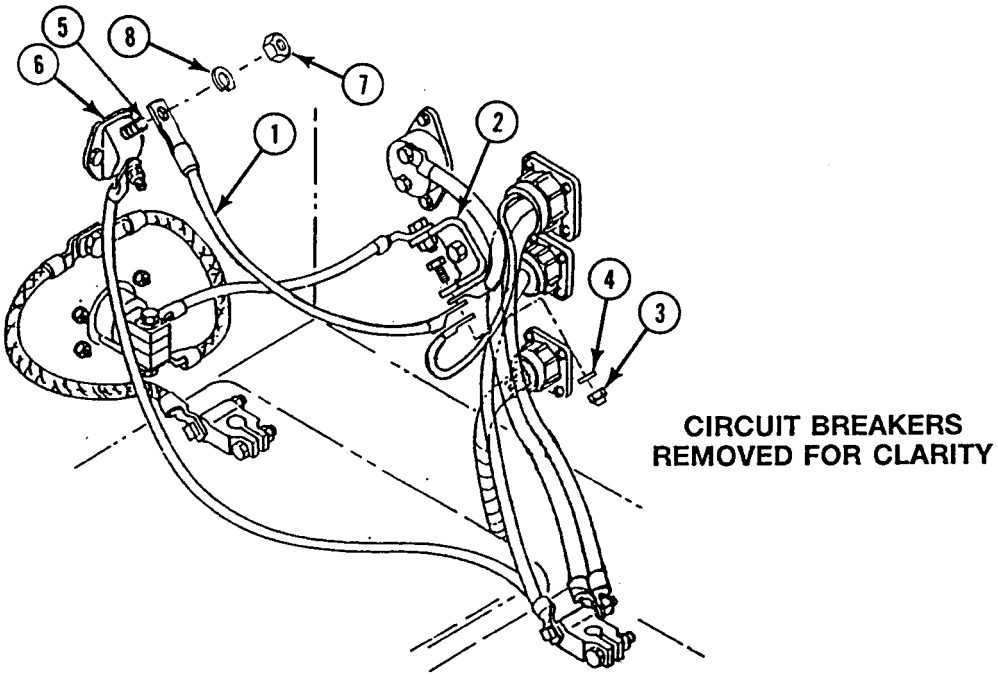
REMOVAL

1. Remove nut (1), lock washer (2), and circuit 6 lead (3) from top post (4) of master power switch (5). Discard lock washer.
2. Remove lock nut (6), washer (7), and other end of circuit 6 lead (3) from bus bar (8). Remove circuit 6 lead (3) from carrier. Discard lock nut.



INSTALLATION

1. Install circuit 6 lead (1) in carrier.
2. Attach one end of circuit 6 lead (1) to bus bar (2) and secure with new lock nut (3) and washer (4).
3. Attach other end of circuit 6 lead (1) to top post (5) of master power switch (6). Secure with nut (7) and new lock washer (8).



FOLLOW-THROUGH STEPS

1. Connect both battery negative leads (WP 0292 00).
2. Lower driver's seat (see your -10).

END OF TASK

REPLACE MASTER SWITCH ASSEMBLY 0271 00

THIS WORK PACKAGE COVERS:

Removal (page 0271 00-2).
Installation (page 0271 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts

Lock nut (2)
Lock nut

Personnel Required

Unit Mechanic

References

See your -10

Equipment Condition

Engine stopped (see your -10)

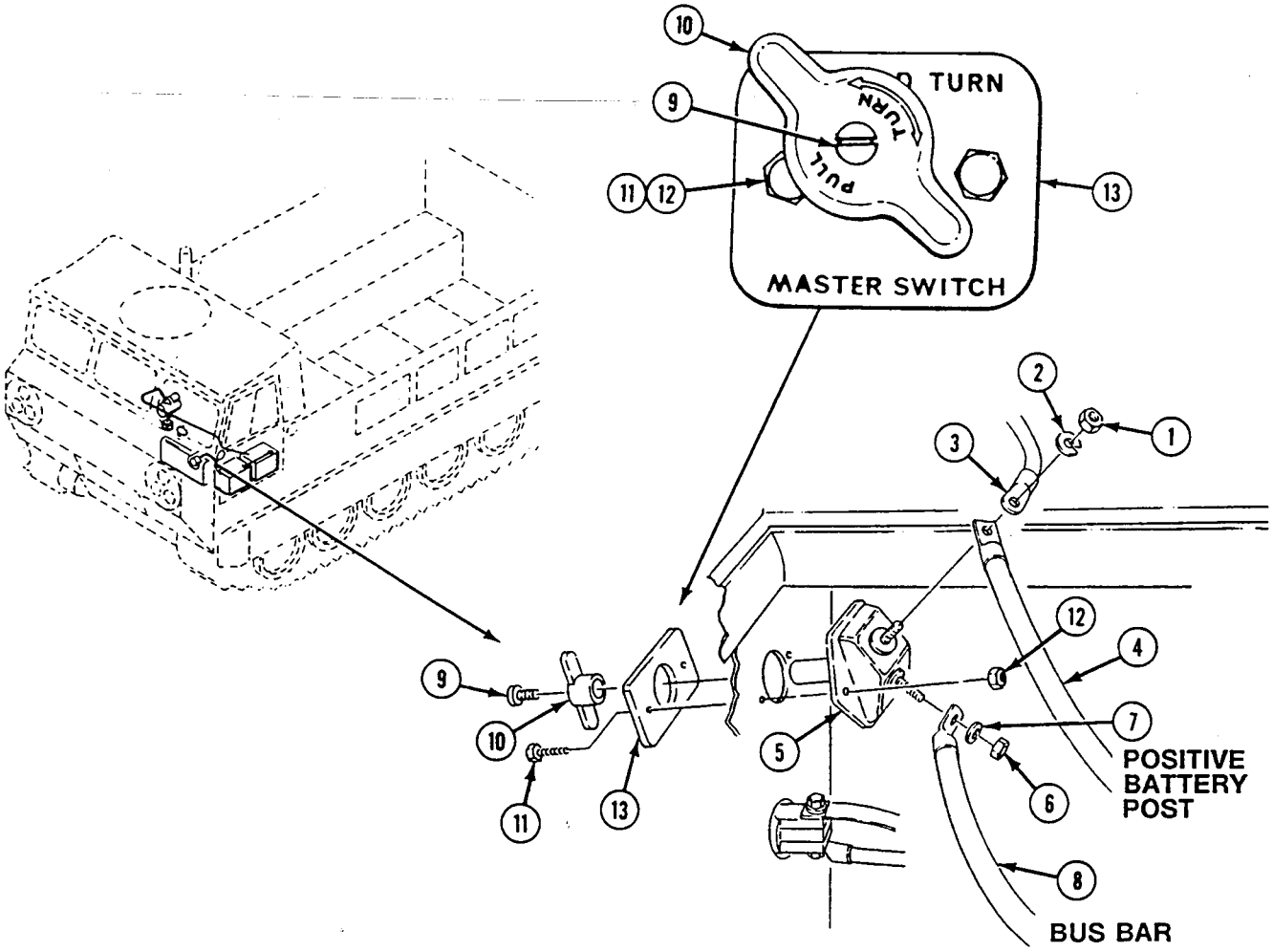
Carrier blocked (see your -10)

Battery negative lead(s) disconnected (WP 0292 00)

REPLACE MASTER SWITCH ASSEMBLY — Continued 0271 00

REMOVAL

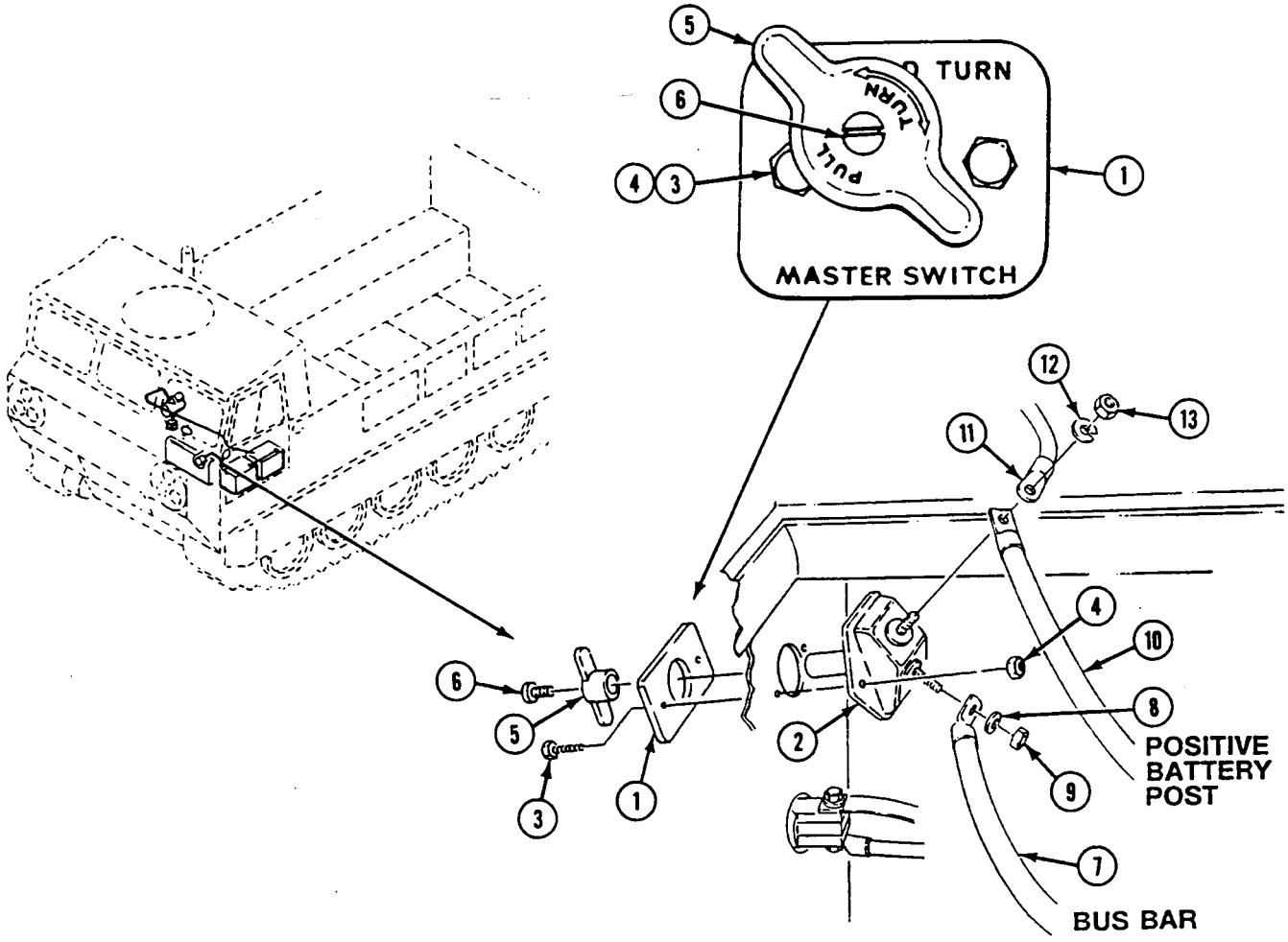
1. Remove lock nut (1) and lock washer (2) from circuit 48 lead (3) and lead (4). Remove lead (3) and lead (4) from MASTER SWITCH (5). Tag leads.
2. Remove nut (6), lock washer (7), and lead (8) from MASTER SWITCH (5). Tag lead.
3. Remove screw (9) and knob (10) from MASTER SWITCH (5).
4. Remove two screws (11), lock nuts (12), plate (13), and MASTER SWITCH (5) from bulkhead. Discard lock nuts.



REPLACE MASTER SWITCH ASSEMBLY — Continued **0271 00**

INSTALLATION

1. Align plate (1) and MASTER SWITCH (2) with holes in bulkhead.
2. Install two screws (3) through plate (1) and MASTER SWITCH (2). Secure two new lock nuts (4) on screws (3).
3. Secure knob (5) on MASTER SWITCH (2) with screw (6).
4. Install lead (7), lock washer (8), and nut (9) on MASTER SWITCH (2).
5. Install lead (10), circuit 48 lead (11), new lock washer (12), and new lock nut (13) on MASTER SWITCH (2).



FOLLOW-THROUGH STEPS

1. Connect battery negative lead(s) (WP 0292 00).

END OF TASK

REPLACE ELECTRIC FUEL PUMP CIRCUIT BREAKERS (M548A3) 0272 00

THIS WORK PACKAGE COVERS:

Removal (page 0272 00-1).
Installation (page 0272 00-2).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts
Lock nut (2)

Personnel Required
Unit Mechanic

References
See your -10

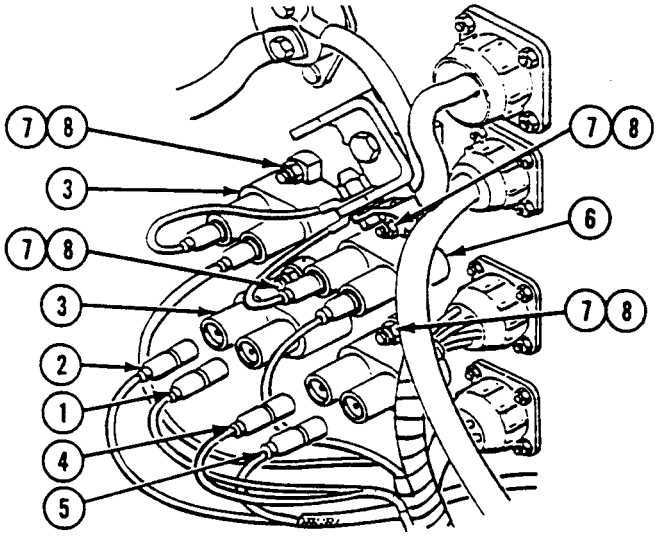
Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Cab personnel seats raised (see your -10)
Both battery negative leads disconnected (WP 0292 00)
Left side batteries removed (WP 0293 00)

REMOVAL

WARNING

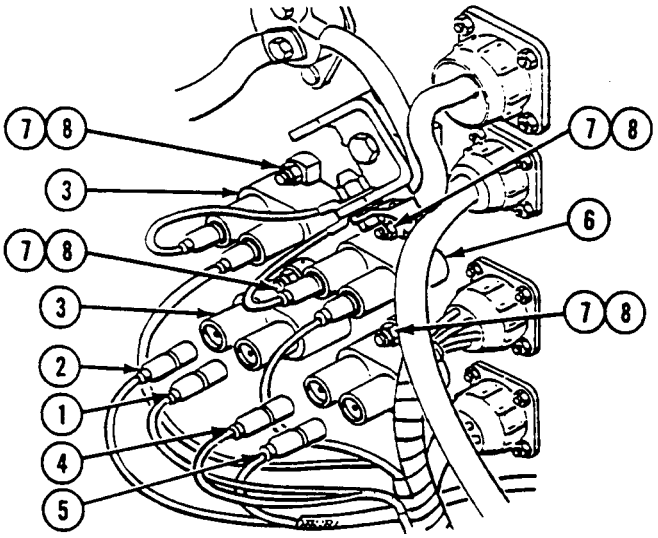
Energized systems and equipment can burn you. If MASTER SWITCH is ON, electrical system and equipment will be energized. Make sure MASTER SWITCH is OFF when you work on electrical systems or equipment.

1. Disconnect circuit 78 (1) and 78A (2) leads from circuit breaker (3) or circuit 77 (4) and 77A (5) leads from circuit breaker (6).
2. Remove two screws (7), lock nuts (8), circuit breaker (3), and circuit breaker (6) from bulkhead. Discard lock nuts.



INSTALLATION

1. Position circuit breaker (3) and circuit breaker (6) on bulkhead and secure with two screws (7) and new lock nuts (8).
2. Connect circuit 77 (4) and 77A (5) leads to circuit breaker (6) or circuit 78 (1) and 78A (2) leads to circuit breaker (3).



FOLLOW-THROUGH STEPS

1. Install left side batteries (WP 0293 00).
2. Connect both battery negative leads (WP 0292 00).
3. Lower cab personnel seats (see your -10).

END OF TASK

REPLACE BEAM SELECTOR SWITCH 0273 00

THIS WORK PACKAGE COVERS:

Removal (page 0273 00-1).
Installation (page 0273 00-1).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts
Lock washer (2)

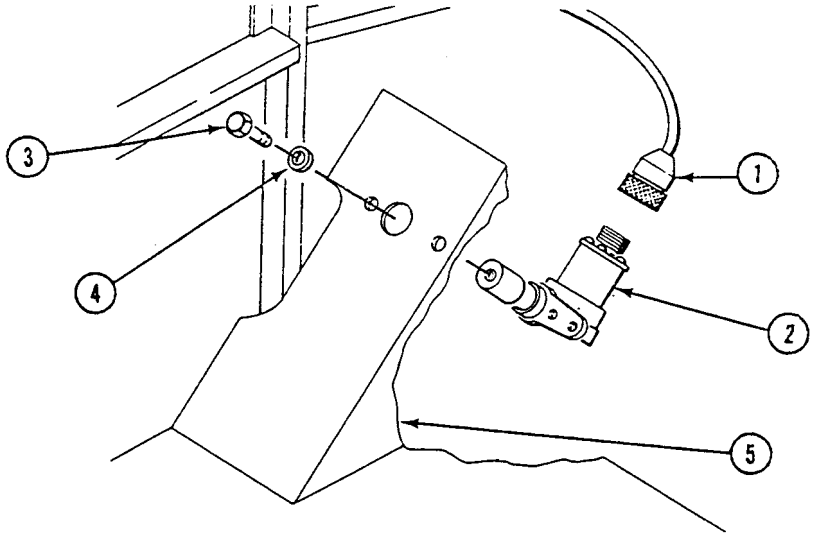
Personnel Required
Unit Mechanic

References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Battery negative lead(s) disconnected (WP 0292 00)

REMOVAL

1. Disconnect electrical cable (1) from beam selector switch (2).
2. Remove two screws (3) and lock washers (4) from beam selector switch (2) and floor mount (5). Discard lock washers.
3. Remove beam selector switch (2) from behind floor mount (5).



INSTALLATION

1. Align beam selector switch (2) with floor mount (5).
2. Install two new lock washers (4) and screws (3) to secure beam selector switch (2) to floor mount (5).
3. Connect electrical cable (1) to beam selector switch (2).

FOLLOW-THROUGH STEPS

1. Connect battery negative lead(s) (WP 0292 00).

END OF TASK

REPLACE STOPLIGHT SWITCH 0274 00

THIS WORK PACKAGE COVERS:

Removal (page 0274 00-1).
Installation (page 0274 00-1).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts
Lock nut (2)

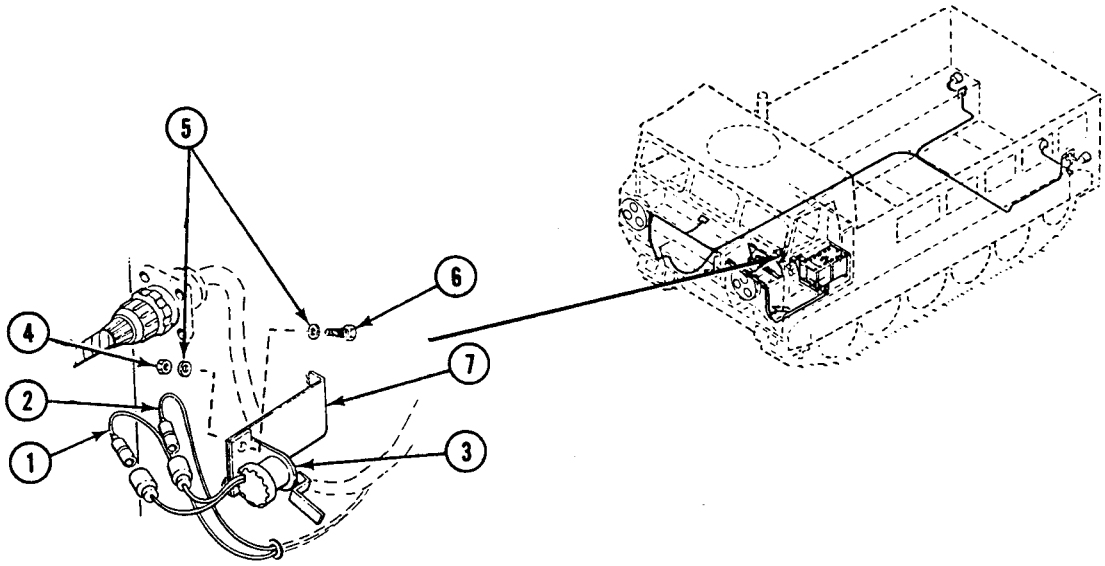
Personnel Required
Unit Mechanic

References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Battery negative lead(s) disconnected (WP 0292 00)

REMOVAL

1. Disconnect circuit 75 lead (1) and circuit 75A lead (2) from stoplight switch (3).
2. Remove two lock nuts (4), four flat washers (5), and two cap screws (6) from stoplight switch (3) and mounting bracket (7). Discard lock nuts.
3. Remove stoplight switch (3) from mounting bracket (7).



INSTALLATION

1. Align stoplight switch (3) with mounting bracket (7).
2. Secure stoplight switch (3) to mounting bracket (7) with two cap screws (6), four flat washers (5), and two new lock nuts (4).
3. Connect circuit 75A lead (2) and circuit 75 lead (1) to stoplight switch (3).

FOLLOW-THROUGH STEPS

1. Connect battery negative lead(s) (WP 0292 00).

END OF TASK

REPLACE BLACKOUT HEADLIGHTS 0275 00

THIS WORK PACKAGE COVERS:

Removal (page 0275 00-1).
Installation (page 0275 00-2).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts
Lock washer

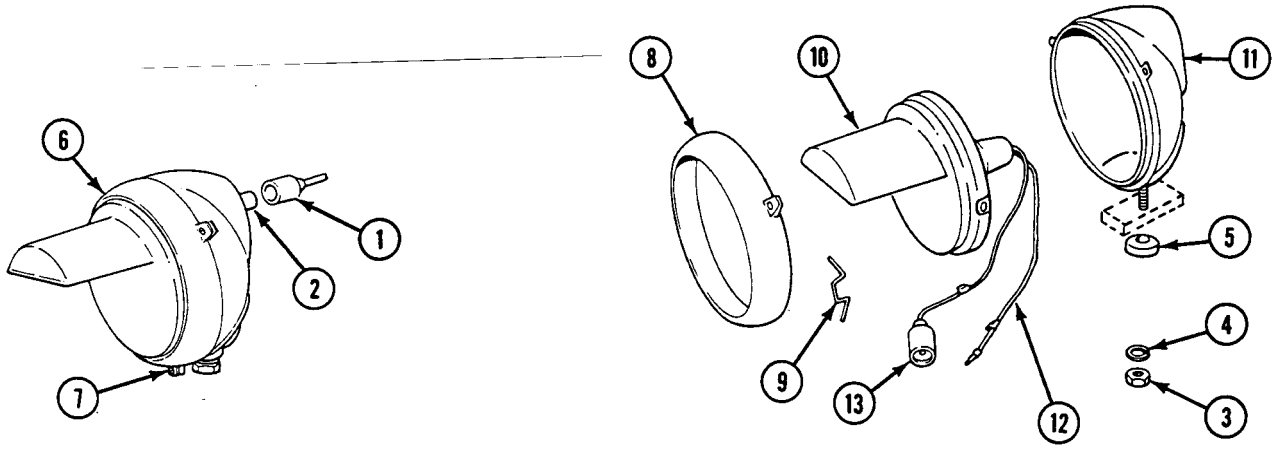
Personnel Required
Unit Mechanic

References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Battery negative lead(s) disconnected (WP 0292 00)

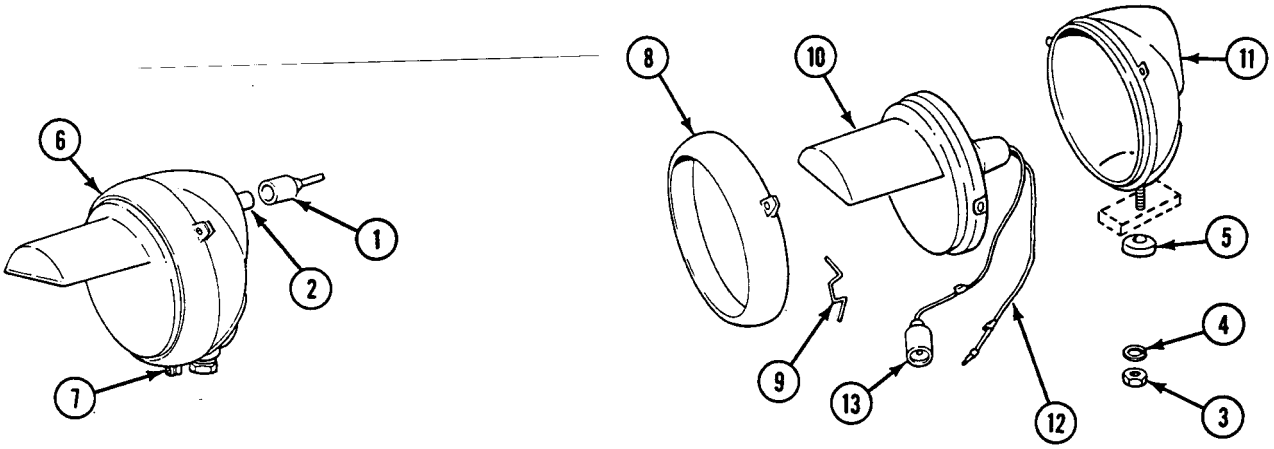
REMOVAL

1. Disconnect circuit 19 lead (1) from lamp connector (2).
2. Remove nut (3), lock washer (4), and washer (5) from blackout headlight (6). Discard lock washer.
3. Remove blackout headlight (6) from mounting bracket.
4. Loosen three captive screws (7) on lens retainer (8). Remove lens retainer (8) and three springs (9) from lamp unit (10) and body (11).
5. Remove lamp unit (10) from body (11). Remove negative lead (12) and positive lead (13) from body (11).



INSTALLATION

1. Install positive lead (13) and negative lead (12) in body (11).
2. Install lamp unit (10) in body (11).
3. Install three springs (9) and lens retainer (8) on lamp unit (10). Secure lens retainer (8) to body (11) with three captive screws (7).
4. Install blackout headlight (6) on mounting bracket with washer (5), new lock washer (4), and nut (3).
5. Connect circuit 19 lead (1) to lamp connector (2).



FOLLOW-THROUGH STEPS

1. Connect battery negative lead(s) (WP 0292 00).
2. Check blackout headlights for proper operation (see your -10).

END OF TASK

REPLACE SERVICE HEADLIGHTS 0276 00

THIS WORK PACKAGE COVERS:

Removal (page 0276 00-1).
Installation (page 0276 00-3).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts
Lock washer

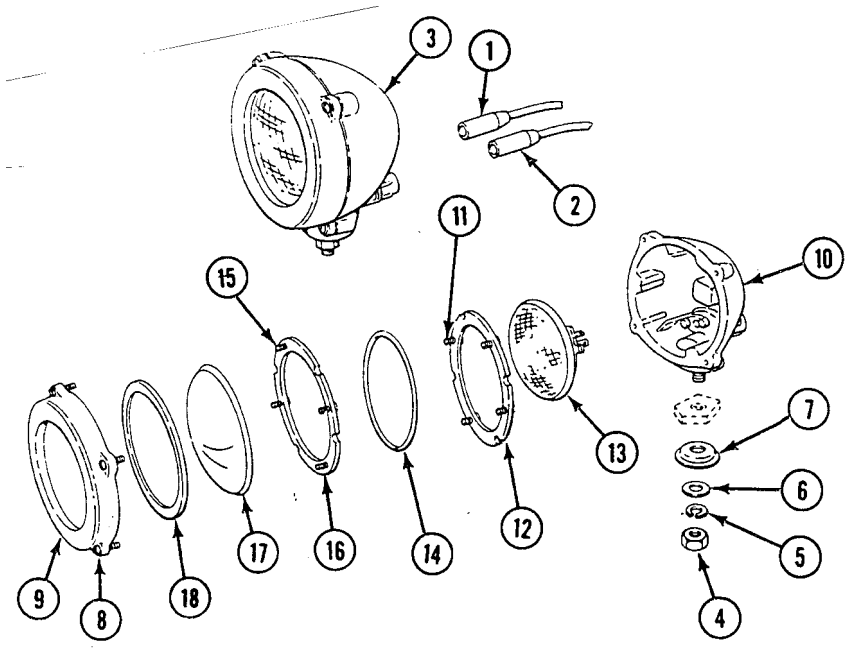
Personnel Required
Unit Mechanic

References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Battery negative lead(s) disconnected (WP 0292 00)

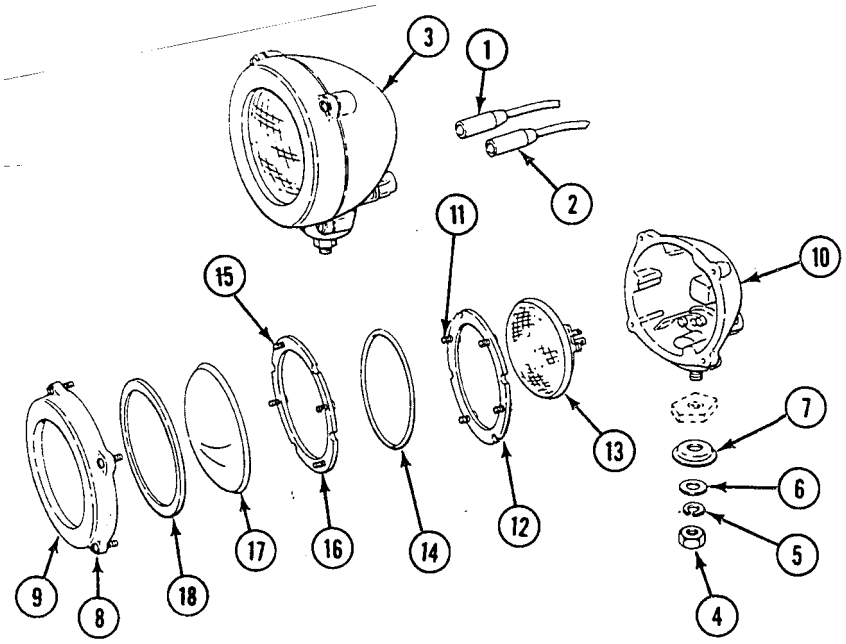
REMOVAL

1. Remove service headlight from carrier.
   a. Disconnect circuit 17 lead (1) and circuit 18 lead (2) from service headlight (3).
   b. Remove nut (4), lock washer (5), small beveled washer (6), and large beveled washer (7) from service headlight (3) and carrier mount. Discard lock washer.
   c. Remove service headlight (3) from carrier mount.
2. Remove lamp unit from headlamp.
   a. Loosen four captive screws (8). Remove lens retainer (9) from body (10).
   b. Loosen three captive screws (11) on retainer bracket (12). Remove retainer bracket from body (10).
   c. Remove lamp unit (13) from body (10).



REPLACE SERVICE HEADLIGHTS — Continued **0276 00**

3. Remove lens from lens retainer.
   a. Remove preformed packing (14) from lens retainer (9).
   b. Loosen four captive screws (15) from headlamp bracket (16). Remove headlamp bracket from lens retainer (9).
   c. Remove lens (17) from lens retainer (9).
   d. Remove gasket (18) from lens retainer (9).

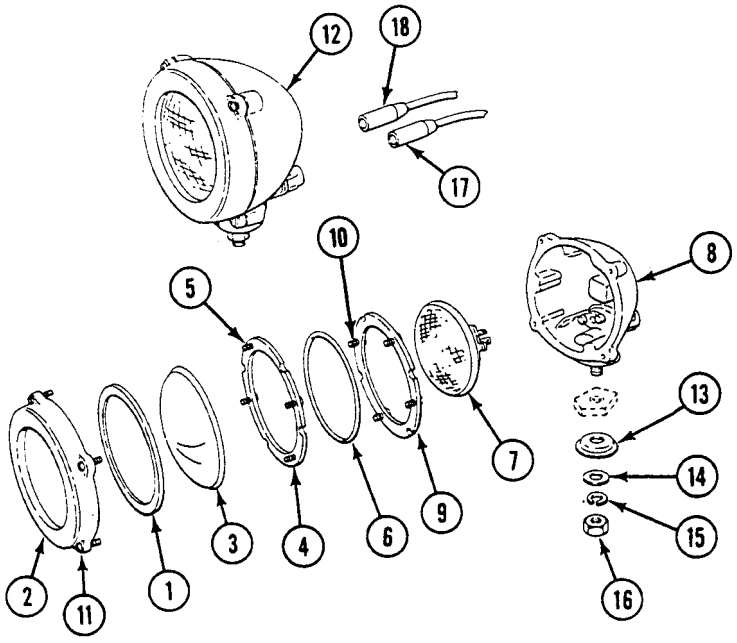


INSTALLATION

NOTE

Retainer and headlamp brackets are not replacement parts. If these parts are damaged, replace the complete headlight.

1. Install lens in lens retainer.
   a. Install gasket (1) in lens retainer (2).
   b. Install lens (3) in lens retainer (2).
   c. Install headlamp bracket (4) in lens retainer (2). Secure with four captive screws (5).
   d. Install preformed packing (6) in lens retainer (2).
2. Install lamp unit in headlamp.
   a. Install lamp unit (7) in body (8).
   b. Install retainer bracket (9) in lens retainer (2). Secure with three captive screws (10).
   c. Install lens retainer (2) on body (8). Secure with four captive screws (11).
3. Install service headlight on carrier.
   a. Install service headlight (12) on carrier mount.
   b. Secure service headlight (12) to carrier mount with large beveled washer (13), small beveled washer (14), new lock washer (15), and nut (16).
   c. Connect circuit 18 lead (17) and circuit 17 lead (18) to service headlight (12).



FOLLOW-THROUGH STEPS

1. Connect battery negative lead(s) (WP 0290 00).
2. Check service headlights for proper operation (see your -10).

END OF TASK

REPLACE INFRARED HEADLIGHTS 0277 00

THIS WORK PACKAGE COVERS:

Removal (page 0277 00-1).
Installation (page 0277 00-3).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts
Lock washer

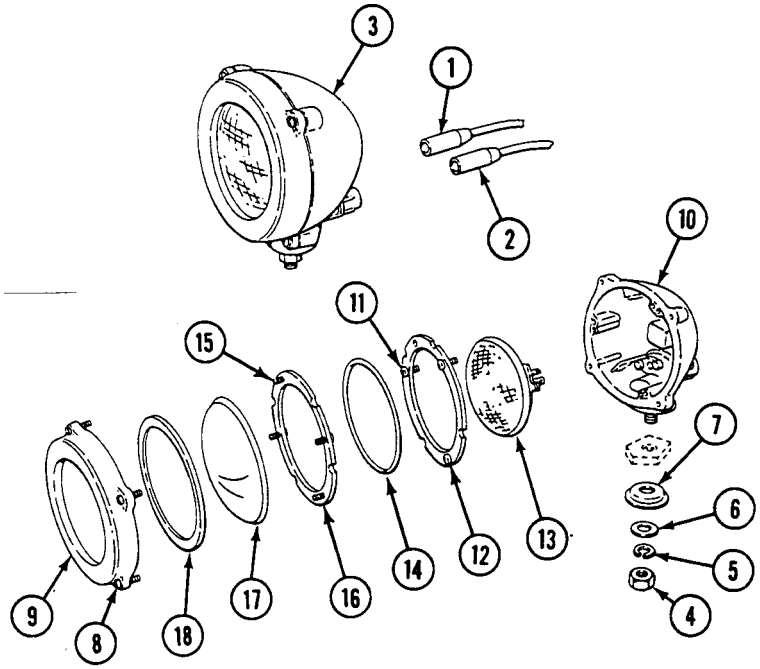
Personnel Required
Unit Mechanic

References
See your -10

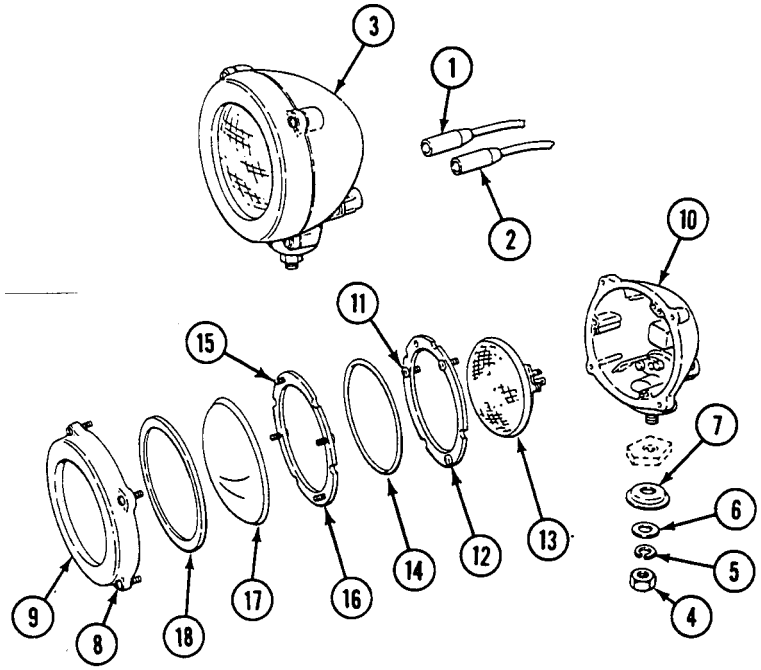
Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Battery negative lead(s) disconnected (WP 0292 00)

REMOVAL

1. Remove infrared headlights from carrier.
   a. Disconnect circuit 514 lead (1) and circuit 515 lead (2) from infrared headlight (3).
   b. Remove nut (4), lock washer (5), small beveled washer (6), and large beveled washer (7) from infrared headlight (3) and carrier mount. Discard lock washer.
   c. Remove infrared headlight (3) from carrier mount.
2. Remove lamp unit from headlamp.
   a. Loosen four captive screws (8). Remove lens retainer (9) from body (10).
   b. Loosen three captive screws (11) from retainer bracket (12). Remove retainer bracket from body (10).
   c. Remove lamp unit (13) from body (10).



3. Remove lens from lens retainer.
   a. Remove preformed packing (14) from lens retainer (9).
   b. Loosen four captive screws (15) on headlamp bracket (16). Remove headlamp bracket from lens retainer (9).
   c. Remove lens (17) from lens retainer (9).
   d. Remove gasket (18) from lens retainer (9).

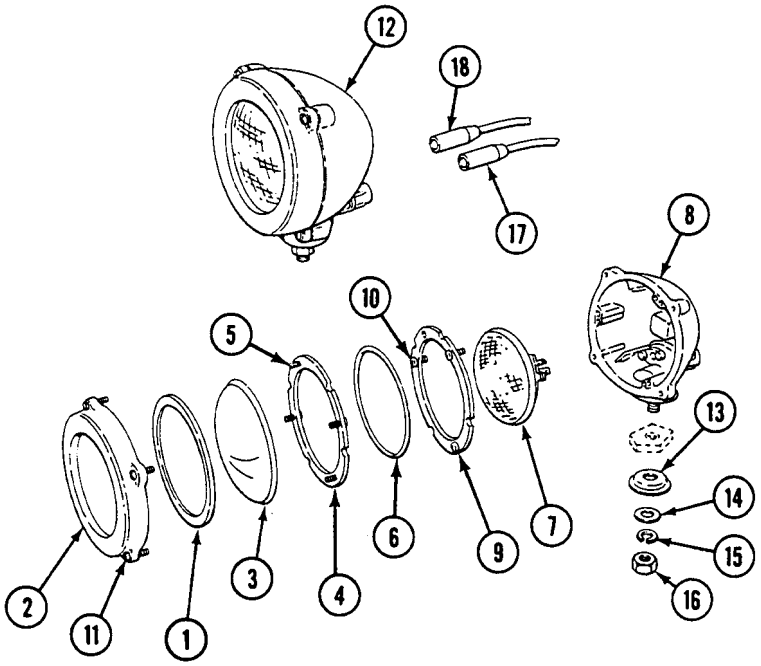


INSTALLATION

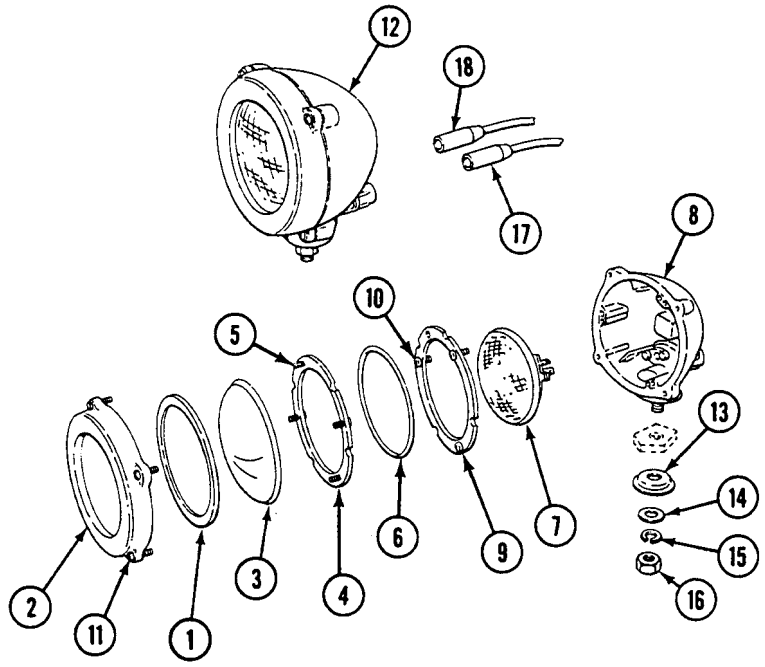
NOTE

Retainer and headlamp brackets are not replacement parts. If these parts are damaged, replace the complete headlight.

1. Install lens in lens retainer.
   a. Install gasket (1) in lens retainer (2).
   b. Install lens (3) in lens retainer (2).
   c. Install headlamp bracket (4) in lens retainer (2). Secure with four captive screws (5).
   d. Install preformed packing (6) in lens retainer (2).
2. Install lamp unit in headlamp.
   a. Install lamp unit (7) in body (8).
   b. Install retainer bracket (9) in body (8). Secure with three captive screws (10).
   c. Install lens retainer (2) on body (8). Secure with four captive screws (11).



3. Install infrared headlight on carrier.
   a. Install infrared headlight (12) on carrier mount.
   b. Secure infrared headlight (12) to carrier mount with large beveled washer (13), small beveled washer (14), new lock washer (15), and nut (16).
   c. Connect circuit 515 lead (17) and circuit 514 lead (18) to infrared headlight (12).



FOLLOW-THROUGH STEPS

1. Connect battery negative lead(s) (WP 0292 00).
2. Check infrared headlights for proper operation (see your -10).

END OF TASK

REPLACE STOPLIGHT-TAILLIGHTS 0278 00

THIS WORK PACKAGE COVERS:

Removal (page 0278 00-1).
Installation (page 0278 00-3).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts
Lock washer (6)
Preformed packing

Personnel Required
Unit Mechanic

References
See your -10

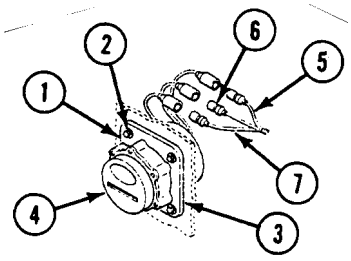
Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Battery negative lead(s) disconnected (WP 0292 00)

REMOVAL

NOTE

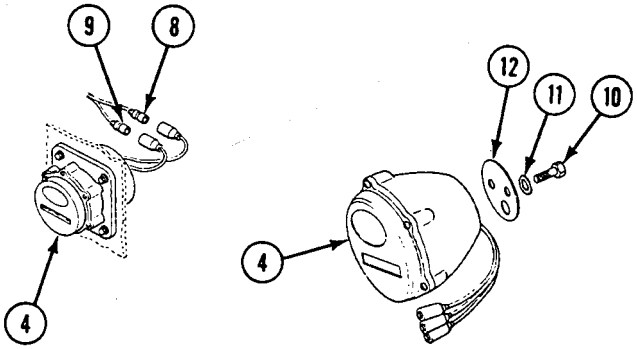
Removal of left and right side stoplight-taillights are similar. Unless noted, each step applies to both left and right side.

1. Remove four screws (1) and lock washers (2) from mounting bracket (3). Discard lock washers.
2. Remove mounting bracket (3) and stoplight-taillight (4) from carrier.
3. Disconnect circuit 21 lead (5), circuit 22 lead (6), and circuit 24 lead (7) from left stoplight-taillight (4).

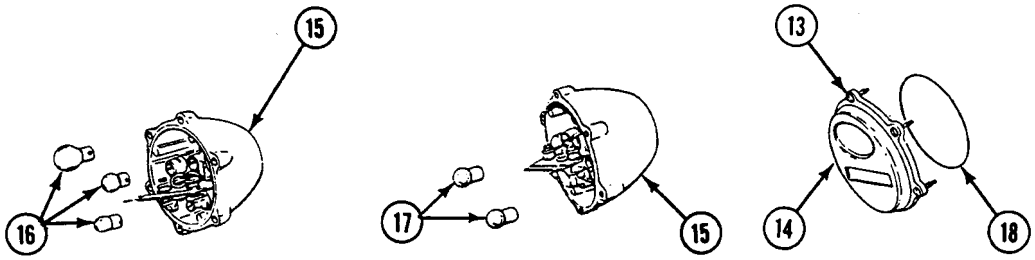


REPLACE STOPLIGHT-TAILLIGHTS — Continued **0278 00**

4. Disconnect circuit 23 lead (8) and circuit 22 lead (9) from right stoplight-taillight (4).
5. Remove two screws (10), lock washers (11), and gasket (12) from left stoplight-taillight (4). Remove stoplight-taillight from bracket (3). Discard lock washers.



6. Loosen six captive screws (13) and remove light lens (14) from body (15).
7. On left stoplight-taillight (4), press three bulbs (16) in, turn left, and remove from body (15).
8. On right stoplight-taillight (4), press two bulbs (17) in, turn left, and remove from body (15).
9. Remove preformed packing (18) from light lens (14). Discard preformed packing.

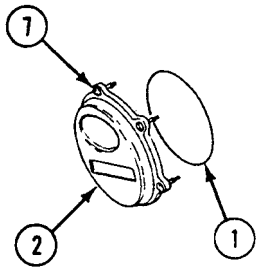


INSTALLATION

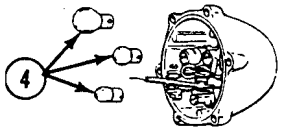
NOTE

Installation of left and right side stoplight-taillights are similar. Unless noted, each step applies to both left and right side.

1. Install new preformed packing (1) in light lens (2).

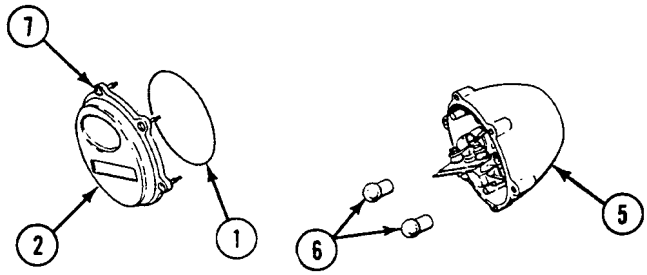


2. On left stoplight-taillight (3), press three bulbs (4) in body (5) and turn left.

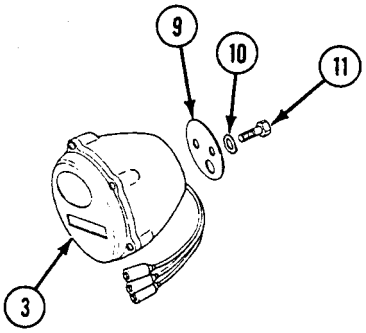


3. On right stoplight-taillight (3), press two bulbs (6) in body (5) and turn right.

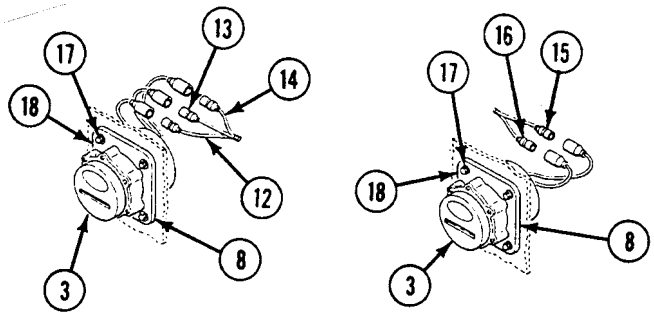
4. Install light lens (2) on body (5) with six captive screws (7).



5. Install stoplight-taillight (3) in mounting bracket (8). Install gasket (9) on base of bracket. Secure gasket to bracket with two new lock washers (10) and screws (11).



6. Connect circuit 24 lead (12), circuit 22 lead (13), and circuit 21 lead (14) to left stoplight-taillight (3).
7. Connect circuit 23 lead (15) and circuit 22 lead (16) to right stoplight-taillight (3).
8. Install mounting bracket (8) and stoplight-taillight (3) on carrier with four new lock washers (17) and screws (18).



FOLLOW-THROUGH STEPS

1. Connect battery negative lead(s) (WP 0292 00).
2. Check stoplight-taillights for proper operation (see your -10).

END OF TASK

REPLACE CAB DOME LIGHT 0279 00

THIS WORK PACKAGE COVERS:

Removal (page 0279 00-1).
Installation (page 0279 00-2).

INITIAL SETUP:

Maintenance Level

Unit

Personnel Required

Unit Mechanic

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)

References

See your -10

Materials/Parts

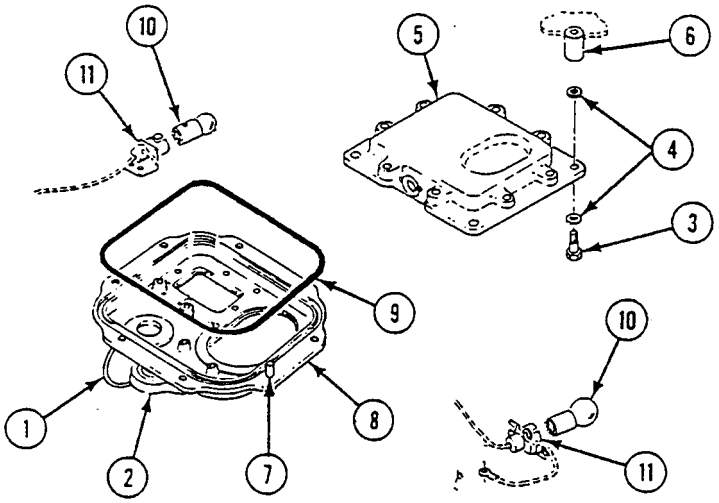
Lock washer (8)
Seal

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Battery negative lead(s) disconnected (WP 0292 00)

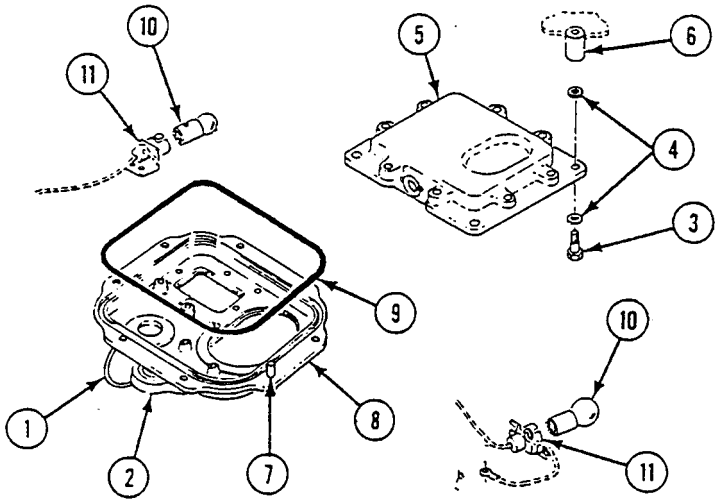
REMOVAL

1. Disconnect circuit 38 lead (1) from connector (2).
2. Remove four screws (3) and eight lock washers (4) from dome light body (5) and four weld nuts (6). Discard lock washers.
3. Remove dome light body (5) from four weld nuts (6).



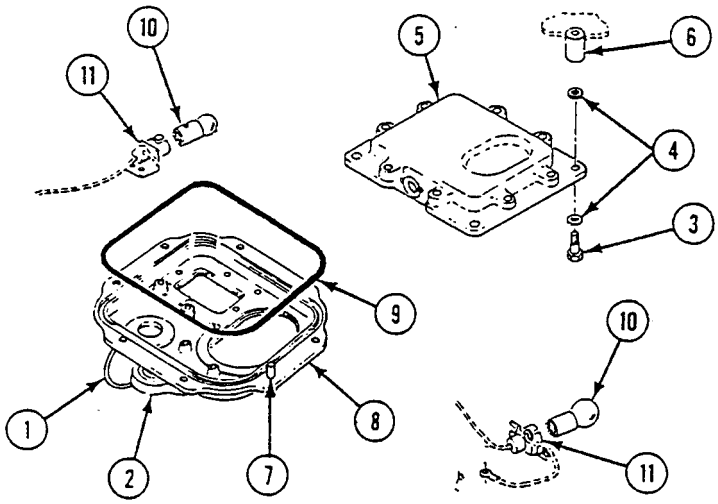
4. Loosen eight captive screws (7) from lens retainer (8) and dome light body (5).
5. Remove lens retainer (8) from dome light body (5).
6. Remove seal (9) from lens retainer (8). Discard seal.

7. Turn two bulbs (10) to the left and remove from two sockets (11).



INSTALLATION

1. Install two bulbs (10) in two sockets (11) and turn to the right to secure.
2. Install new seal (9) in lens retainer (8).
3. Align lens retainer (8) with dome light body (5).
4. Tighten eight captive screws (7) in lens retainer (8) and dome light body (5).
5. Align dome light body (5) with four weld nuts (6).
6. Install eight new lock washers (4) and four screws (3) in dome light body (5) and secure to four weld nuts (6).
7. Connect circuit 38 lead (1) to connector (2).



FOLLOW-THROUGH STEPS

1. Connect battery negative lead(s) (WP 0292 00).
2. Check cab dome light for proper operation (see your -10).

END OF TASK

REPLACE BLACKOUT MARKER LIGHT 0280 00

THIS WORK PACKAGE COVERS:

Removal (page 0280 00-1).
Installation (page 0280 00-2).

INITIAL SETUP:

Maintenance Level
Unit

Personnel Required
Unit Mechanic

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)

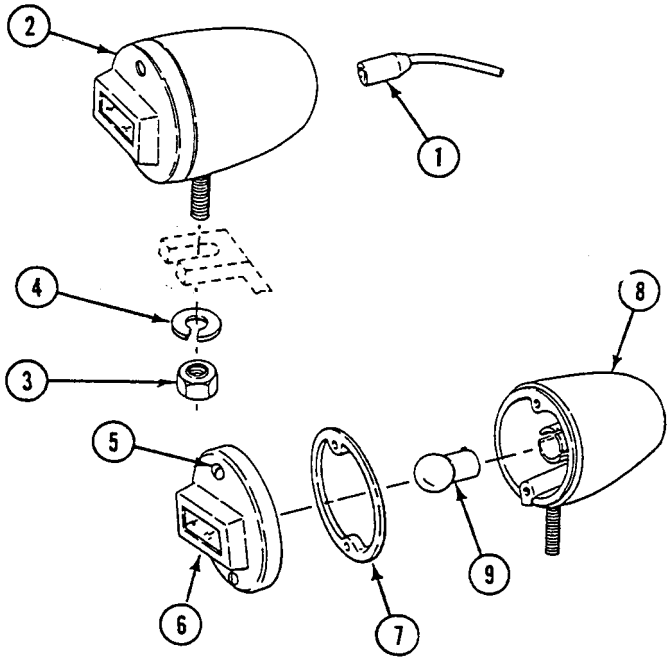
References
See your -10

Materials/Parts
Gasket
Lock washer
Lock nut

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Battery negative lead(s) disconnected (WP 0292 00)

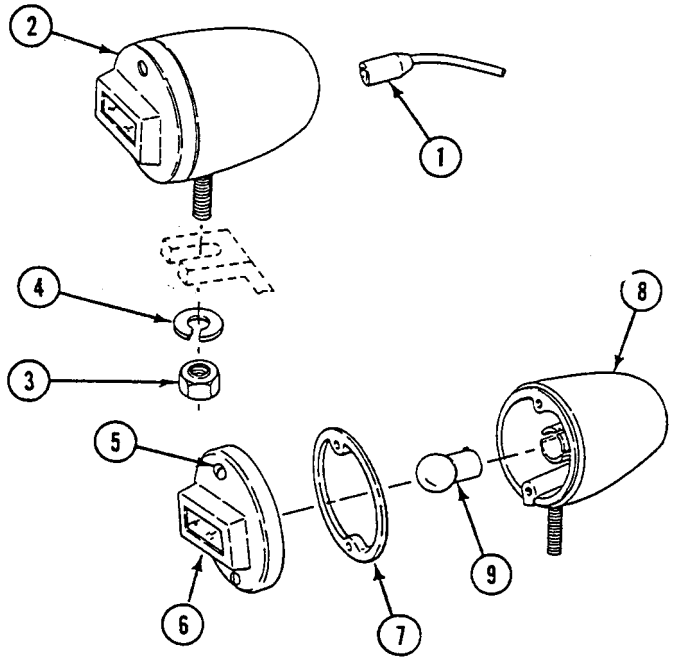
REMOVAL

1. Disconnect circuit 20 lead (1) from blackout marker light (2).
2. Remove lock nut (3) and lock washer (4) from blackout marker light (2). Discard lock nut and lock washer.
3. Remove blackout marker light (2) from carrier.
4. Loosen two captive screws (5) from lens retainer (6).
5. Remove lens retainer (6) and gasket (7) from light housing (8). Discard gasket.
6. Press lamp (9) in, turn to the left, and remove from light housing (8).



INSTALLATION

1. Press lamp (9) in light housing (8) and turn to the right to install.
2. Install new gasket (7) on lens retainer (6).
3. Install lens retainer (6) on light housing (8). Secure with two captive screws (5).
4. Install blackout marker light (2) in carrier.
5. Secure blackout marker light (2) in carrier with new lock washer (4) and new lock nut (3).
6. Connect circuit 20 lead (1) to blackout marker light (2).



FOLLOW-THROUGH STEPS

1. Connect battery negative lead(s) (WP 0292 00).
2. Check blackout marker light for proper operation (see your -10).

END OF TASK

REPLACE ENGINE OIL LOW PRESSURE SWITCH (M548A1) 0281 00

THIS WORK PACKAGE COVERS:

Removal (page 0281 00-1).
Installation (page 0281 00-1).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)

Personnel Required

Unit Mechanic

References

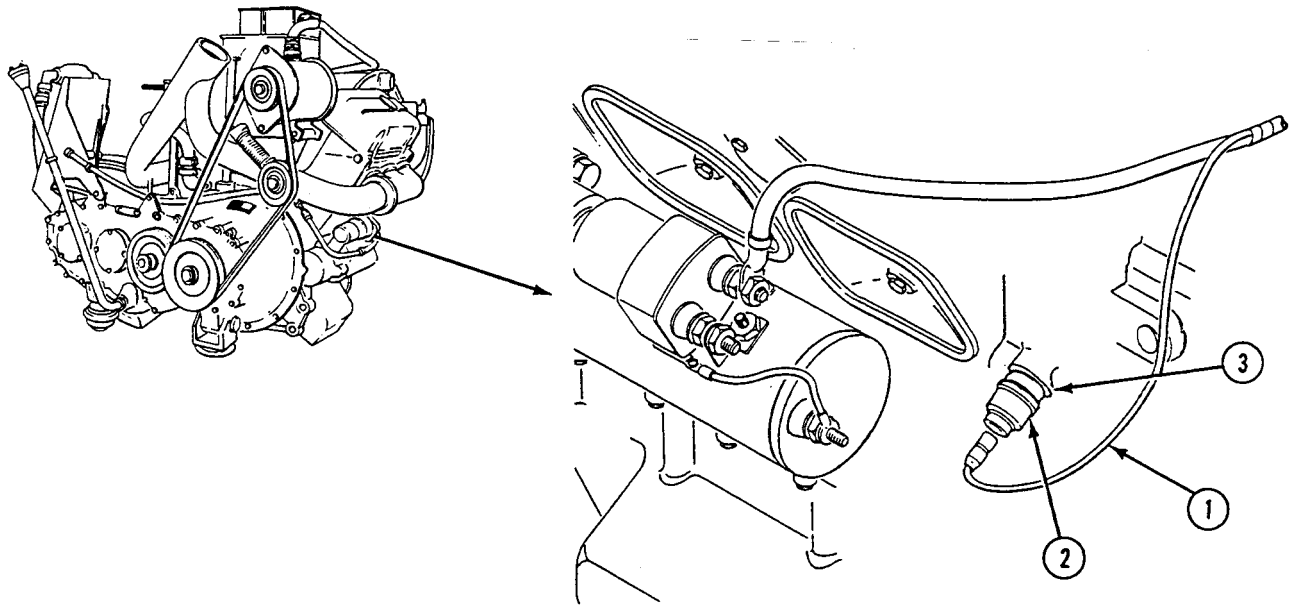
See your -10
See your PMCS

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Center seat raised (see your -10)
Right seat removed (WP 0400 00)

REMOVAL

1. Disconnect circuit 34 lead (1) from switch (2).
2. Remove switch (2) from engine block (3).



INSTALLATION

NOTE

If engine oil low pressure switch is to be replaced, use switch 5930-00-944-1660. It has an operating pressure of 4 to 8 psi (28 to 55 kN sq cm).

1. Install switch (2) in engine block (3).
2. Connect circuit 34 lead (1) to switch (2).

FOLLOW-THROUGH STEPS

1. Lower center seat (see your -10).
2. Install right seat (WP 0400 00).
3. Check oil level (see your -PMCS). Replace oil as necessary.

END OF TASK

REPLACE ENGINE LOW OIL PRESSURE TRANSMITTER (M548A3) 0282 00

THIS WORK PACKAGE COVERS:

Removal (page 0282 00-2).
Cleaning (page 0282 00-2).
Inspection-Acceptance and Rejection Criteria (page 0282 00-3).
Installation (page 0282 00-3).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts
Cleaning compound (WP 0542 00, Item 9)
Sealing compound (WP 0542 00, Item 39)
Sealing compound primer (WP 0542 00, Item 40)

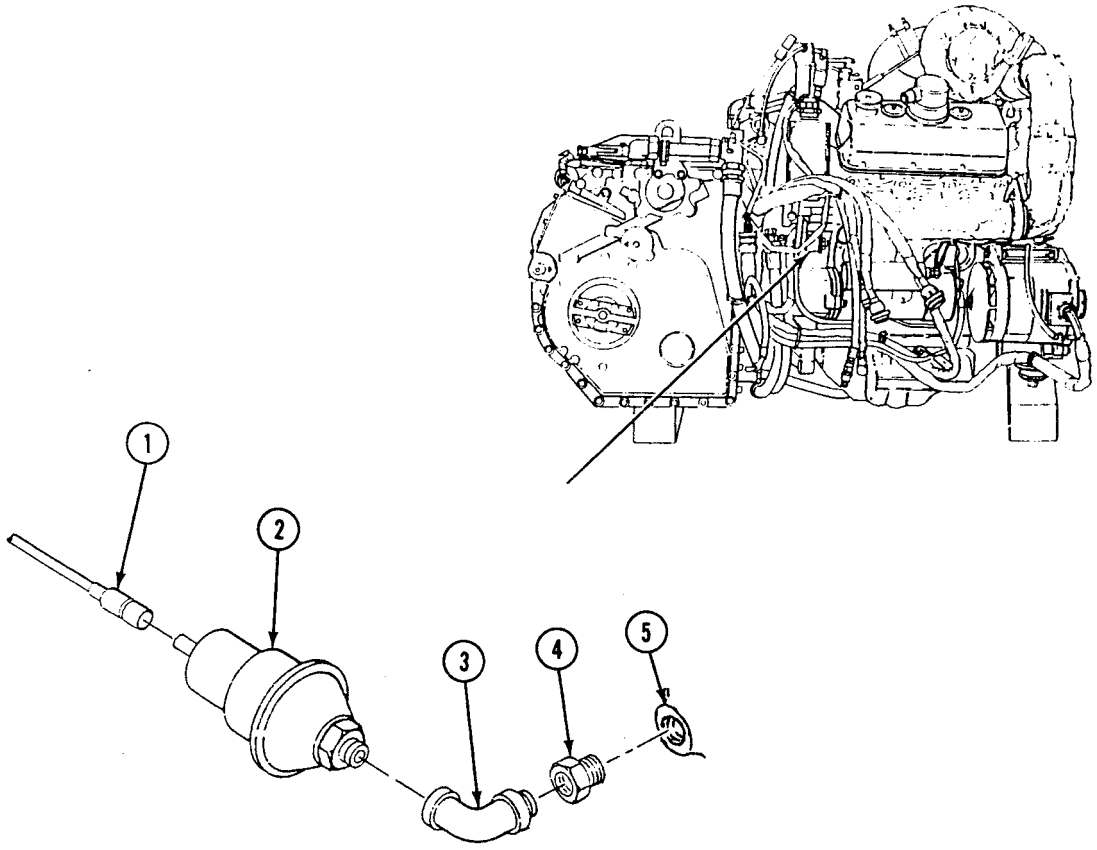
Personnel Required
Unit Mechanic

References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Center seat raised (see your -10)
Both battery negative leads disconnected (WP 0292 00)
Hull bottom access cover removed (WP 0383 00)

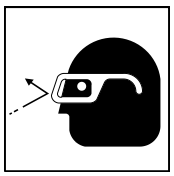
REMOVAL

1. Disconnect circuit 34 lead (1) from engine low oil pressure transmitter (2).
2. Remove engine low oil pressure transmitter (2) from elbow (3).
3. Remove elbow (3) from reducer (4).
4. Remove reducer (4) from engine (5).



CLEANING

WARNING



Compressed air can injure you and others. Do not aim air at people. Do not use more than 30 psi (207 kPa). Always wear goggles.

1. Clean parts with cleaning compound. Dry with clean cloth or compressed air.

INSPECTION-ACCEPTANCE AND REJECTION CRITERIA

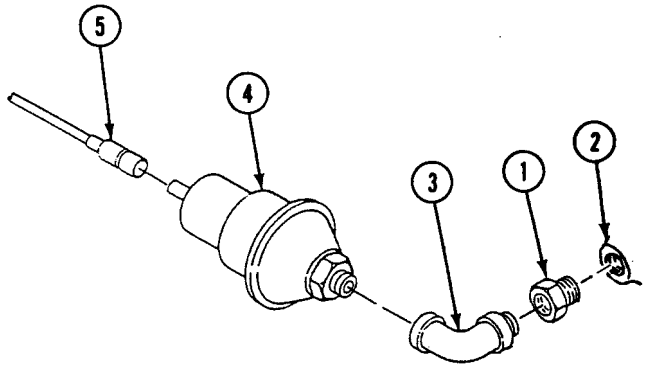
1. Inspect engine oil low pressure transmitter for cracks, dents, damaged threads, and loose, broken, or missing terminals. Replace transmitter that shows any of these defects.

INSTALLATION

NOTE

Coat male tapered threads with sealing compound and sealing compound primer.

1. Install reducer (1) on engine (2).
2. Install elbow (3) on reducer (1).
3. Install engine low oil pressure transmitter (4) on elbow (3).
4. Connect circuit 34 lead (5) to engine low oil pressure transmitter (4).



FOLLOW-THROUGH STEPS

1. Connect both battery negative leads (WP 0292 00).
2. Start engine (see your -10).
3. Check for oil leaks at engine oil low pressure transmitter.
4. Stop engine (see your -10).
5. Lower cab personnel seat (see your -10).
6. Install hull bottom access cover (WP 0383 00).

END OF TASK

REPLACE ENGINE COOLANT TEMPERATURE TRANSMITTER (M548A1) 0283 00

THIS WORK PACKAGE COVERS:

Removal (page 0283 00-1).
Installation (page 0283 00-1).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts
Antifreeze (WP 0542 00, Item 4)
Suitable container

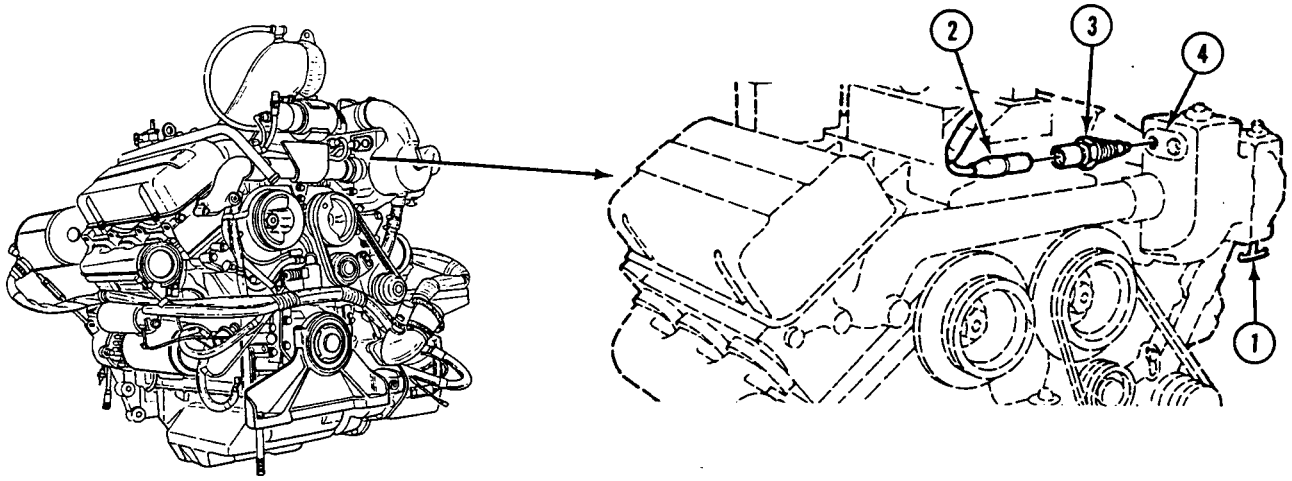
Personnel Required
Unit Mechanic

References
See your -10

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

REMOVAL

1. Place suitable container under thermostat valve (1). Open valve and drain coolant. Close valve.
2. Disconnect circuit 33 lead (2) from temperature transmitter (3).
3. Remove temperature transmitter (3) from thermostat housing (4).



INSTALLATION

1. Install temperature transmitter (3) in thermostat housing (4) and secure.
2. Connect circuit 33 lead (2) to temperature transmitter (3).
3. Remove suitable container from under thermostat valve (1).

FOLLOW-THROUGH STEPS

1. Check fluid levels (see your -10).
2. Fill cooling system (WP 0212 00).
3. Lower center seat (see your -10).

END OF TASK

REPLACE ENGINE COOLANT TEMPERATURE TRANSMITTER (M548A3) 0284 00

THIS WORK PACKAGE COVERS:

Removal (page 0284 00-2).
Cleaning (page 0284 00-2).
Inspection-Acceptance and Rejection Criteria (page 0284 00-3).
Installation (page 0284 00-3).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts
Cleaning compound (WP 0542 00, Item 9)
Sealing compound (WP 0542 00, Item 36)

Personnel Required
Unit Mechanic

References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Both battery negative leads disconnected (WP 0292 00)
Power plant rear access panel removed (see your -10)
Partially drained coolant system (WP 0214 00)

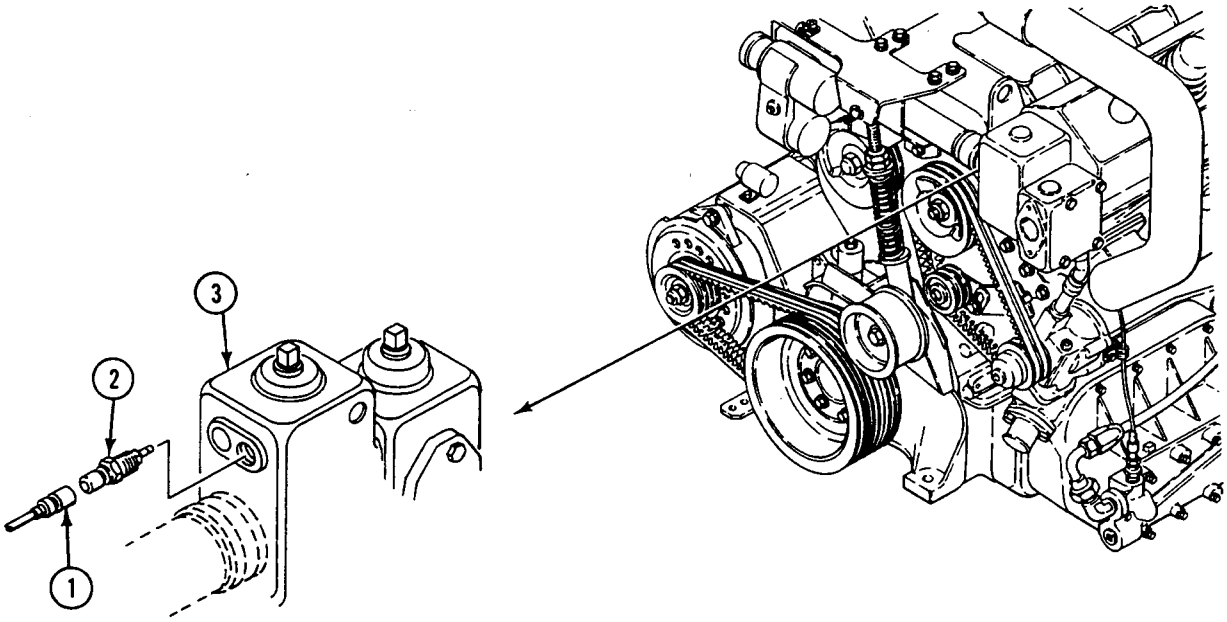
REPLACE ENGINE COOLANT TEMPERATURE TRANSMITTER (M548A3) — Continued 0284 00

REMOVAL

WARNING

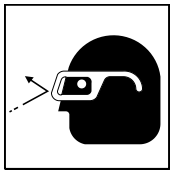
Energized systems and equipment can burn you. If MASTER SWITCH is ON, electrical system and equipment will be energized. Make sure MASTER SWITCH is OFF when you work on electrical systems or equipment.

1. Disconnect electrical circuit 33 lead (1) from engine coolant temperature transmitter (2).
2. Remove engine coolant temperature transmitter (2) from thermostat housing (3).



CLEANING

WARNING



Compressed air can injure you and others. Do not aim air at people. Do not use more than 30 psi (207 kPa). Always wear goggles.

1. Clean parts with cleaning compound or by steam cleaning. Dry with clean cloth or compressed air.

INSPECTION-ACCEPTANCE AND REJECTION CRITERIA

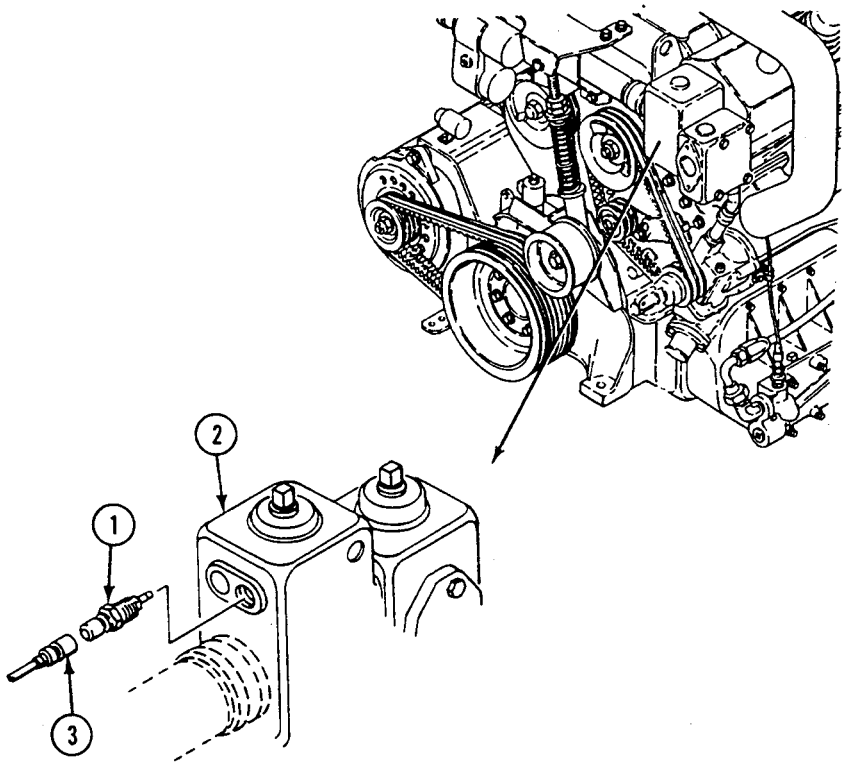
1. Inspect engine coolant temperature switch for cracks, dents, damaged threads, and loose, broken, or missing terminals. Replace switch that shows any of these defects.

INSTALLATION

WARNING

Energized systems and equipment can burn you. If MASTER SWITCH is ON, electrical system and equipment will be energized. Make sure MASTER SWITCH is OFF when you work on electrical systems or equipment.

1. Clean engine coolant temperature transmitter (1) threads and apply sealing compound to threads.
2. Install engine coolant temperature transmitter (1) on thermostat housing (2).
3. Connect circuit 33 lead (3) to engine coolant temperature transmitter (1).



FOLLOW-THROUGH STEPS

1. Fill cooling system (WP 0214 00).
2. Connect both battery negative leads (WP 0292 00).
3. Install power plant rear access panel (see your -10).

END OF TASK

REPLACE DIFFERENTIAL OIL HIGH TEMPERATURE THERMOSTATIC SWITCH (M548A1) 0285 00

THIS WORK PACKAGE COVERS:

Removal (page 0285 00-1).
Installation (page 0285 00-2).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)
Torque Wrench (WP 0541 00, Item 70)

Personnel Required

Unit Mechanic

References

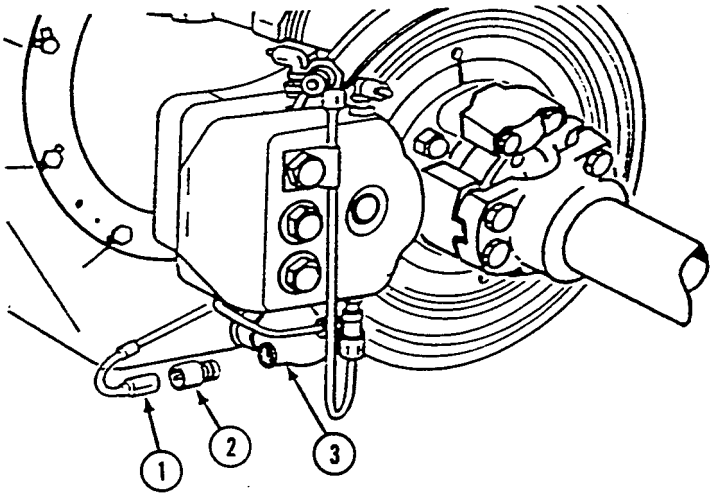
See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Hull bottom access cover removed (WP 0383 00)
Center seat raised (see your -10)

REMOVAL

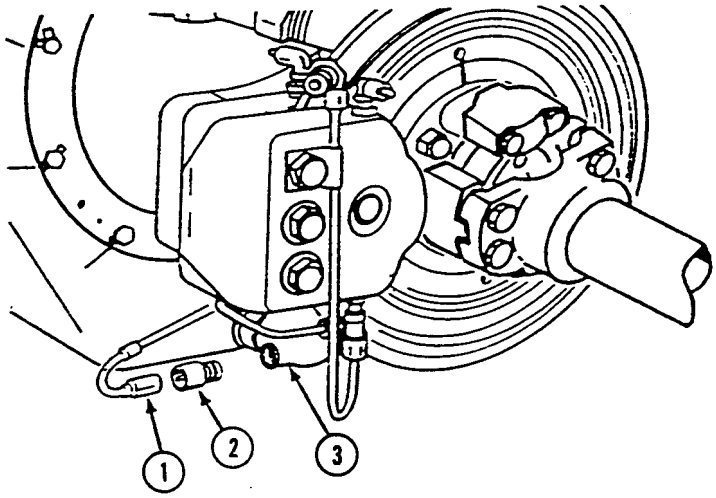
1. Disconnect circuit 328 lead (1) from thermostatic switch (2).
2. Remove thermostatic switch (2) from adapter (3).



REPLACE DIFFERENTIAL OIL HIGH TEMPERATURE THERMOSTATIC SWITCH (M548A1) — Continued **0285 00**

INSTALLATION

1. Install thermostatic switch (2) in adapter (3).
2. Tighten thermostatic switch (2) to 20-25 lb-ft (27-34 N•m) torque.
3. Connect circuit 328 lead (1) to thermostatic switch (2).



FOLLOW-THROUGH STEPS

1. Install hull bottom access cover (WP 0383 00).
2. Lower center seat (see your -10).

END OF TASK

REPLACE TRANSMISSION OIL HIGH TEMPERATURE THERMOSTATIC SWITCH (M548A1) 0286 00

THIS WORK PACKAGE COVERS:

Removal (page 0286 00-1).
Installation (page 0286 00-1).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)
Socket Wrench Set (WP 0541 00, Item 64)
Torque Wrench (WP 0541 00, Item 70)

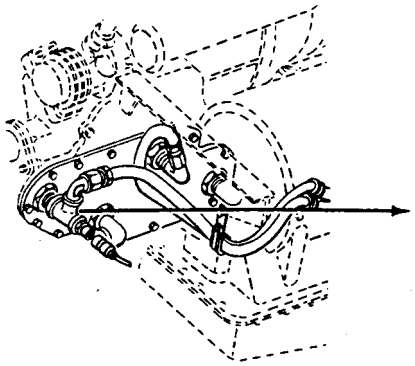
Personnel Required
Unit Mechanic

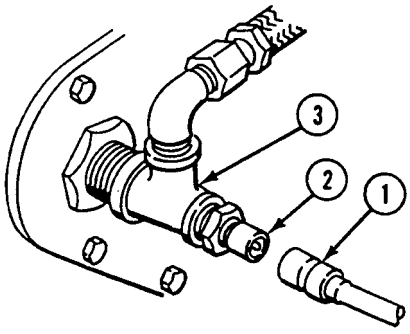
References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Center seat raised (see your -10)
Hull bottom access cover removed (WP 0383 00)

REMOVAL

1. Disconnect circuit 327 lead (1) from thermostatic switch (2).
2. Remove thermostatic switch (2) from oil cooler tee (3).





INSTALLATION

1. Install thermostatic switch (2) in oil cooler tee (3).
2. Tighten thermostatic switch (2) to 20-25 lb-ft (27-34 N•m) torque.
3. Connect circuit 327 lead (1) to thermostatic switch (2).

FOLLOW-THROUGH STEPS

1. Install hull bottom access cover (WP 0383 00).
2. Lower center seat (see your -10).

END OF TASK

REPLACE TRANSMISSION OIL HIGH TEMPERATURE SWITCH (M548A3) 0287 00

THIS WORK PACKAGE COVERS:

Removal (page 0287 00-1).
Cleaning (page 0287 00-2).
Inspection-Acceptance and Rejection Criteria (page 0287 00-2).
Installation (page 0287 00-2).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts
Cleaning compound (WP 0542 00, Item 9)
Sealing compound (WP 0542 00, Item 39)
Sealing compound primer (WP 0542 00, Item 40)

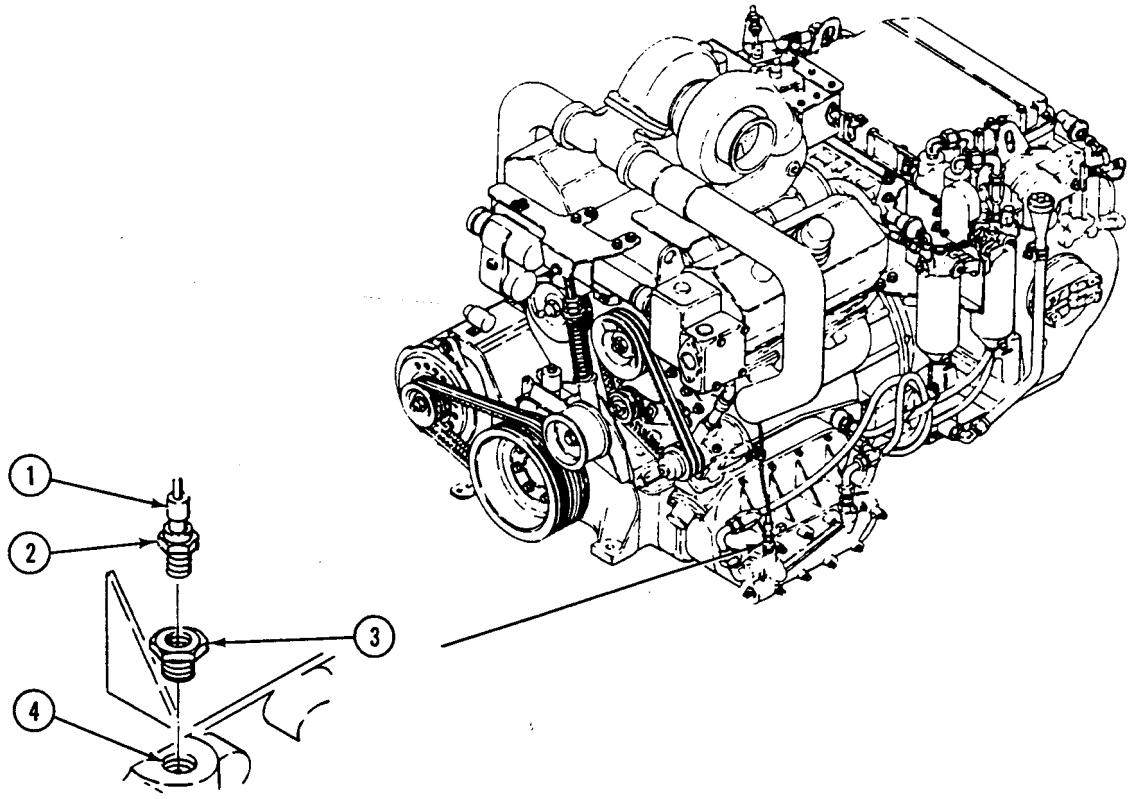
Personnel Required
Unit Mechanic

References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Both battery negative leads disconnected (WP 0292 00)
Power plant rear access panel removed (see your -10)
Transmission oil partially drained (WP 0128 00)

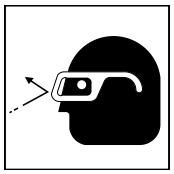
REMOVAL

1. Disconnect circuit 327 lead (1) from transmission oil high temperature switch (2).
2. Remove transmission oil high temperature switch (2) from adapter (3).
3. Remove adapter (3) from transmission oil cooler (4).



CLEANING

WARNING



Compressed air can injure you and others. Do not aim air at people. Do not use more than 30 psi (207 kPa). Always wear goggles.

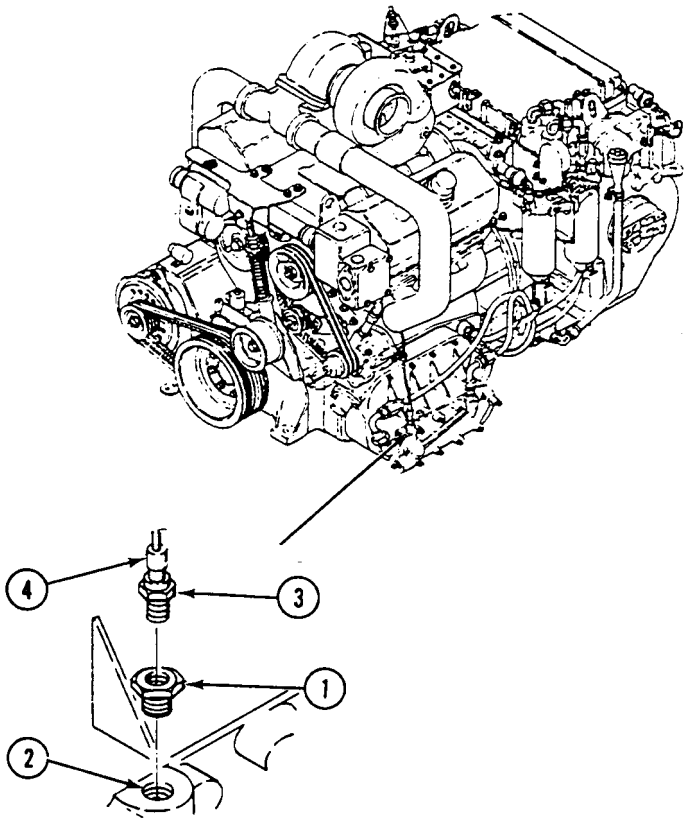
1. Clean parts with cleaning compound or by steam cleaning. Dry with clean cloth or compressed air.

INSPECTION-ACCEPTANCE AND REJECTION CRITERIA

1. Inspect transmission oil high temperature switch for cracks, dents, damaged threads, and loose, broken, or missing terminals. Replace switch that shows any of these defects.

INSTALLATION

1. Install adapter (1) in transmission oil cooler (2).
2. Apply sealing compound primer and sealing compound primer to threads of transmission oil high temperature switch (3).
3. Install transmission oil high temperature switch (3) in adapter (1).
4. Connect circuit 327 lead (4) to transmission oil high temperature switch (3).



FOLLOW-THROUGH STEPS

1. Refill Transmission oil (WP 0128 00).
2. Connect both battery negative leads (WP 0292 00).
3. Start engine (see your -10).
4. Check that transmission oil high temperature light comes on briefly.
5. Check for oil leaks at transmission oil high temperature switch.
6. Stop engine (see your -10).
7. Install power plant rear access panel (see your -10).

END OF TASK

REPLACE GENERATOR FIELD SWITCH 0288 00

THIS WORK PACKAGE COVERS:

Removal (page 0288 00-2).
Inspection-Acceptance and Rejection Criteria (page 0288 00-3).
Installation (page 0288 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)
Multimeter (WP 0541 00, Item 29)

Personnel Required

Unit Mechanic

Materials/Parts

Sealing compound (WP 0542 00, Item 39)
Leads and connectors, as required

References

See your -10

Equipment Condition

Engine stopped (see your -10)

Carrier blocked (see your -10)

Battery ground lead(s) disconnected (WP 0292 00)

Cab personnel seats raised (see your -10)

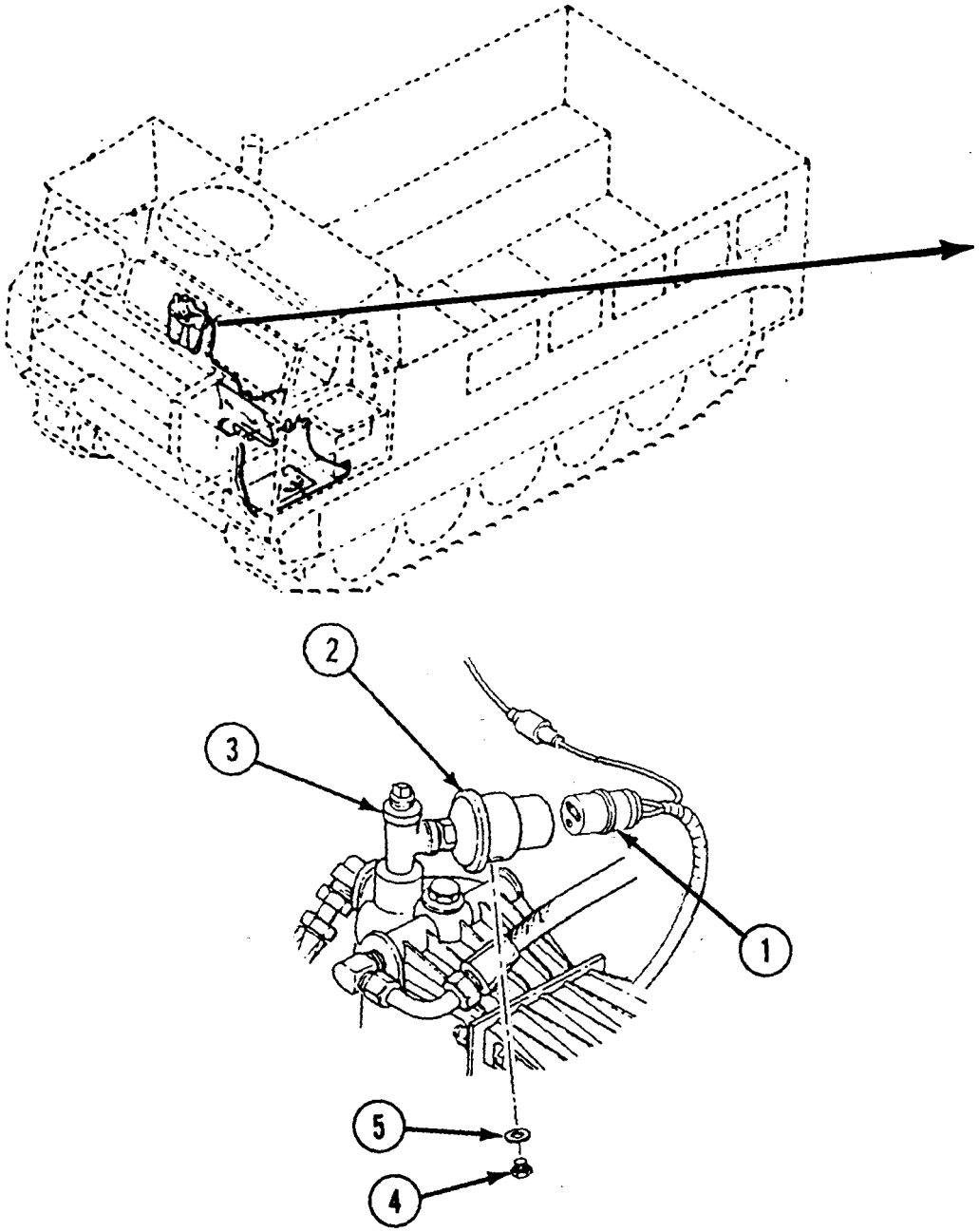
REMOVAL

1. Disconnect circuit 1A and 1B lead plug (1) from generator field switch (2).
2. Remove generator field switch (2) from tee (3).

NOTE

Earlier switches may have a threaded pipe plug without a head or no plug at all. Discard the pipe plug with the switch. Do not reuse pipe plug because it can be installed too deeply and short out the new switch.

3. Remove plug (4) and washer (5) from side of switch (2).

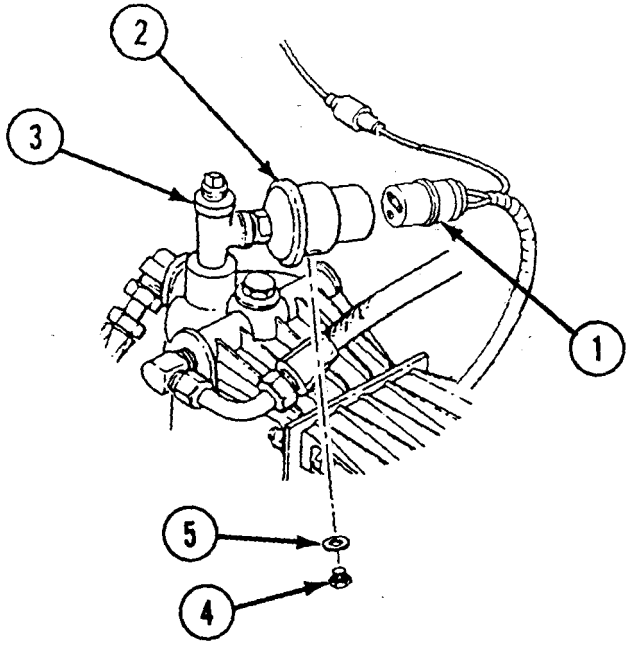


INSPECTION-ACCEPTANCE AND REJECTION CRITERIA

1. Check circuit lead. Replace worn or cracked lead and damaged connector (WP 0294 00). Use multimeter to check leads and generator field switch.

INSTALLATION

1. Coat threads on plug (4) with sealing compound. Install washer (5) and plug (4) on side of switch (2).
2. Install generator field switch (2) in tee (3).
3. Connect circuit 1A and 1B lead plug (1) in generator field switch (2).



FOLLOW-THROUGH STEPS

1. Connect battery ground lead(s) (WP 0292 00).
2. Lower cab personnel seats (see your -10).

END OF TASK

REPLACE HORN 0289 00

THIS WORK PACKAGE COVERS:

Removal (page 0289 00-1).
Installation (page 0289 00-2).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts
Lock washer (2)

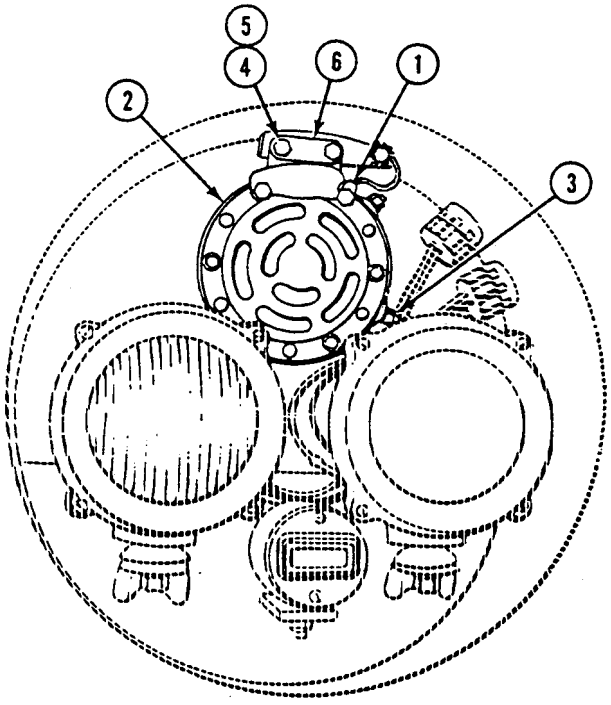
Personnel Required
Unit Mechanic

References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Battery negative lead(s) disconnected (WP 0292 00)

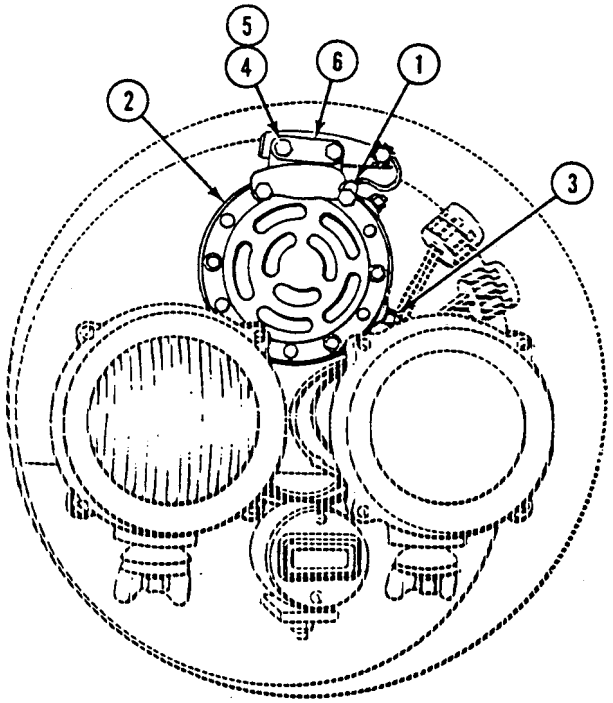
REMOVAL

1. Disconnect ground lead (1) from horn (2).
2. Disconnect circuit 25 lead (3) from horn (2).
3. Remove two screws (4) and lock washers (5) from bracket (6) and horn (2). Discard lock washers.
4. Remove horn (2) from carrier.



INSTALLATION

1. Install horn (2) on bracket (6). Secure with two new lock washers (5) and screws (4).
2. Connect circuit 25 lead (3) to horn (2).
3. Connect ground lead (1) to horn (2).



FOLLOW-THROUGH STEPS

1. Connect battery negative lead(s) (WP 0292 00).

END OF TASK

REPLACE BATTERIES AND BATTERY COMPARTMENT (M548A1) 0290 00

THIS WORK PACKAGE COVERS:

Removal (page 0290 00-2).
Cleaning (page 0290 00-4).
Inspection-Acceptance and Rejection Criteria (page 0290 00-4).
Installation (page 0290 00-5).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)
Battery Terminal Puller (WP 0541 00, Item 35)
Antifreeze/Battery Tester (WP 0541 00, Item 55)
Torque Wrench (WP 0541 00, Item 67)

Materials/Parts
Adhesive (WP 0542 00, Item 1)
Antifreeze test kit (WP 0542 00, Item 5)
Cleaning compound (WP 0542 00, Item 9)
Electrolyte sulfuric acid (WP 0542 00, Item 11)
Electrolyte sulfuric acid (WP 0542 00, Item 12)
Sodium bicarbonate (WP 0542 00, Item 41)
Wiping rag (WP 0542 00, Item 45)

Personnel Required
Unit Mechanic
Helper (H)

References
See your -10
TM 9-6140-200-14

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Driver's seat raised (see your -10)

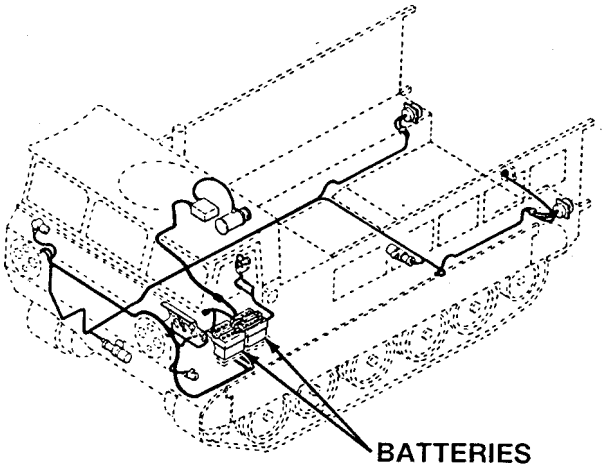
REMOVAL

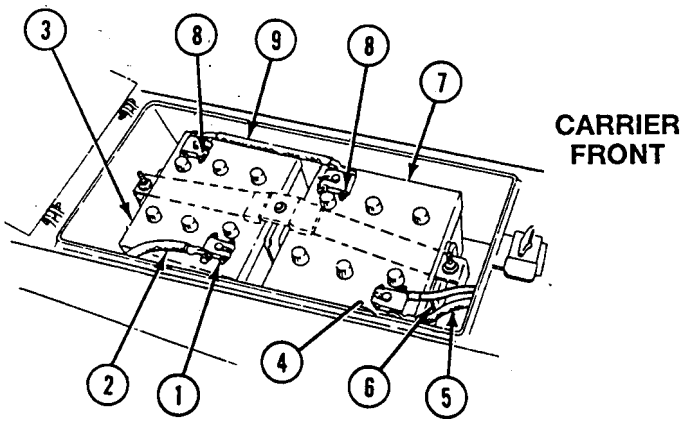
WARNING

Ventilate battery compartment before you connect or remove battery cables. Always disconnect negative lead first and connect it last. Don't cause sparks. Hydrogen explosions can cause serious injury.

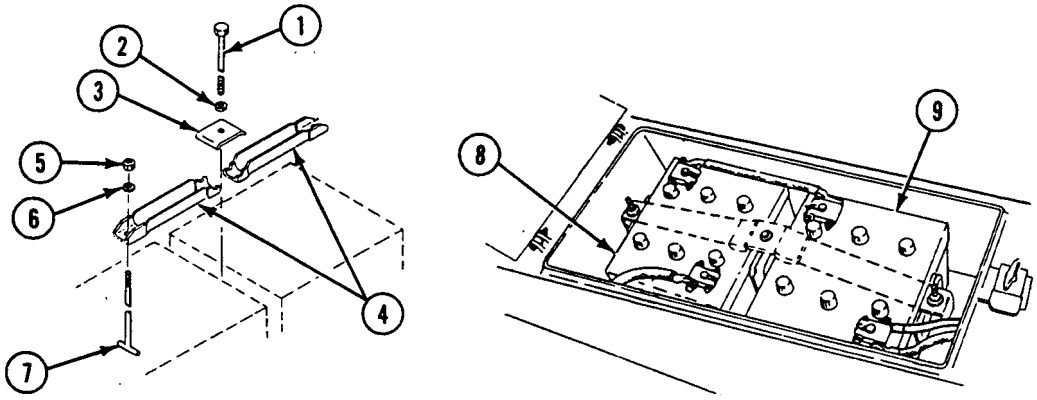
Do not wear jewelry. It can get caught, cause electrical burns, or may cause electrocution.

1. Loosen nut (1). Remove circuit 7 lead (2) from battery (3) negative post.
2. Loosen nut (4). Remove circuit 2 lead (5) and circuit lead (6) from battery (7) positive post.
3. Loosen two nuts (8). Remove battery jumper lead (9) from battery (3), and battery (7).

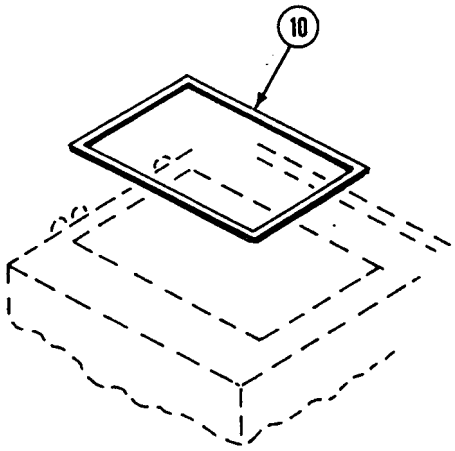




4. Remove battery hold-down device:
   a. Remove bolt (1) and washer (2) from battery retainer (3).
   b. Remove battery retainer (3) from two battery retainers (4).
   c. Remove two nuts (5) and washers (6) from two bolts (7). Remove bolts.
   d. Remove two battery retainers (4) from battery (8), and battery (9).
5. Remove battery (8), and battery (9) from carrier. Have helper assist.



6. If seal is damaged, remove battery compartment seal (10).



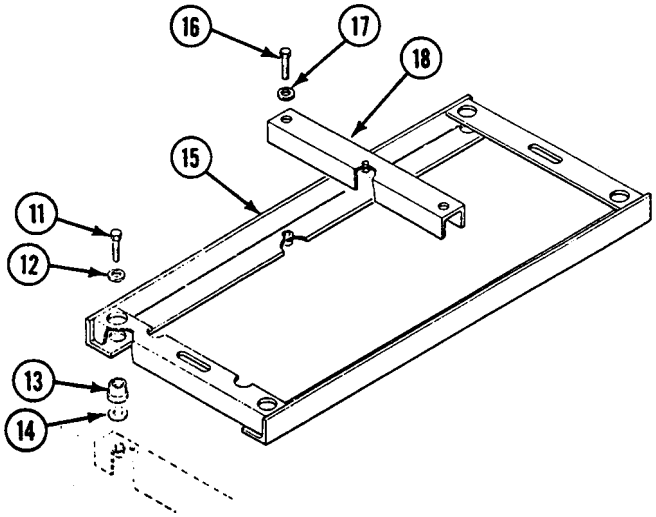
7. Remove battery frame from carrier:

   a. Remove four cap screws (11), flat washers (12), battery frame mounts (13), and flat washers (14) from battery frame (15).

   b. Remove battery frame (15) from carrier.

   c. Remove two cap screws (16) and washers (17) from channel (18).

   d. Remove channel (18) from battery frame (15).



CLEANING

1. Tighten vent plugs. Clean batteries and terminals. See TM 9-6140-200-14.

2. Clean all parts removed from well and battery well with a solution of baking soda and water. Flush with clean water. Wipe dry with a clean cloth.

INSPECTION-ACCEPTANCE AND REJECTION CRITERIA

1. Check leads, clamps, and mountings. Replace parts that are corroded.

2. Check batteries. Replace batteries that have damaged terminals, cracked cases, or are corroded.

3. Check specific gravity of each battery cell. See TM 9-6140-200-14. Use antifreeze/battery tester or antifreeze test kit.

4. Check battery frame and battery frame channel. Replace parts that are corroded or distorted.

5. Check battery retainers. Replace retainers that are corroded or distorted.

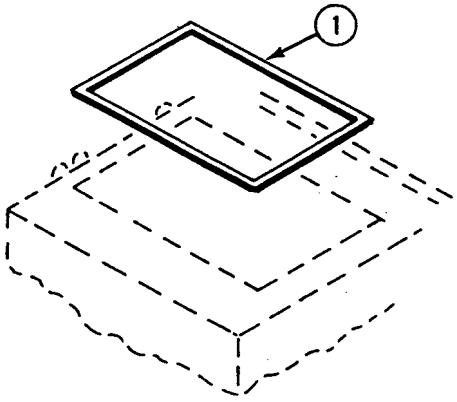
6. Check threaded parts. Replace parts that are corroded or have damaged threads.

7. Check battery compartment seal. Replace seal that is cracked, worn, or hardened.

8. If battery compartment seal was removed, clean mating surfaces with cleaning compound.

INSTALLATION

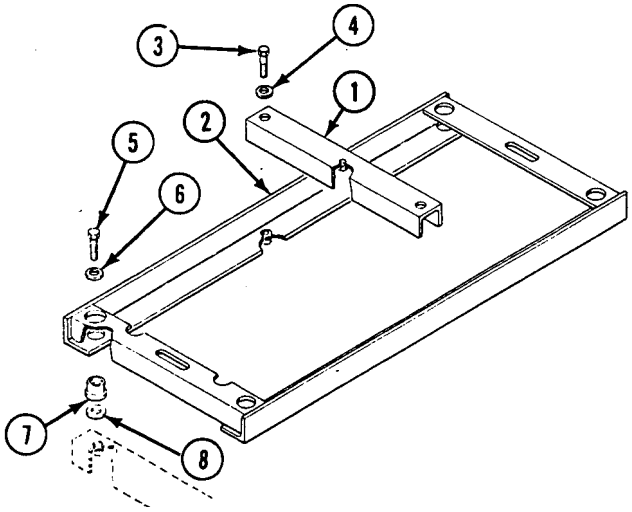
1. If battery compartment seal was removed, apply light coat of adhesive to all surfaces. Allow to dry until tacky. Press new seal (1) firmly in place in battery compartment.



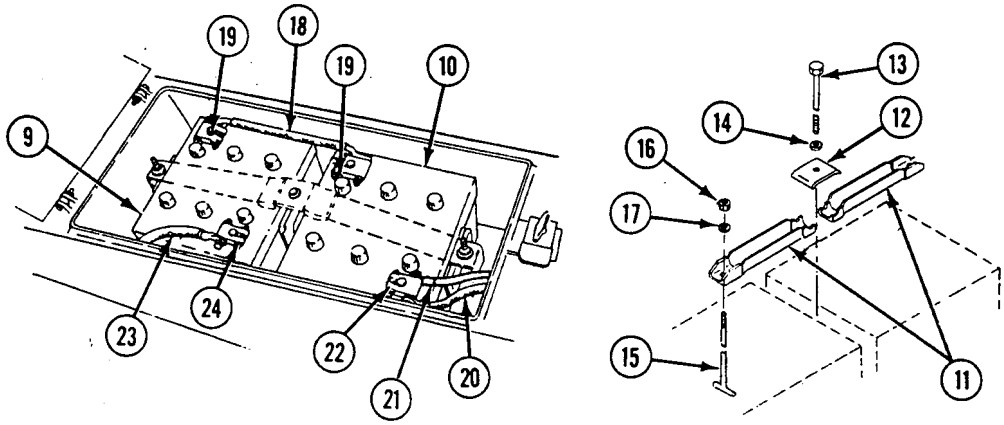
2. Install battery frame in carrier:

   a. Install channel (1) on battery frame (2). Secure with two cap screws (3) and washers (4). Tighten screws to 20-25 lb-ft (27-34 N•m) torque.

   b. Install battery frame (2) in carrier. Secure with four cap screws (5), washers (6), battery frame mounts (7), and washers (8). Tighten screws to 10-16 lb-ft (14-22 N•m) torque.



3. Install battery (9) and battery(10) in battery compartment. Have helper assist.
4. Install battery hold-down device:
   a. Place two battery retainers (11), retainer (12) on battery (9), and battery (10). Secure with bolt (13) and washer (14). Tighten bolt to 8-10 ft-lb (11-14 N•m) torque.
   b. Install two bolts (15) in two batteries retainers (11) and battery frame (2). Secure with two nuts (16) and washers (17). Tighten nuts to 8-10 ft-lb (11-14 N•m) torque.

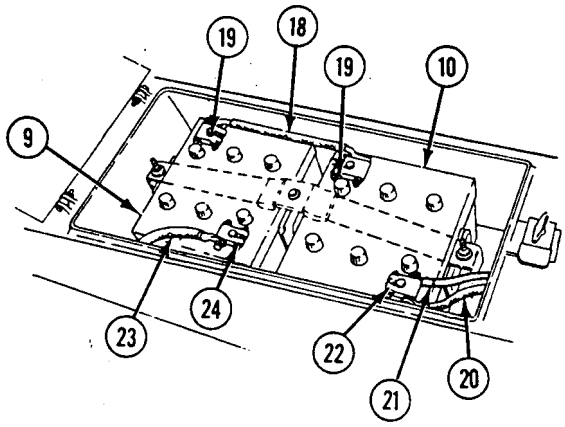


WARNING

Ventilate battery compartment before you connect or remove battery cables. Always disconnect or connect negative lead first. Don't cause sparks. Hydrogen explosions can cause serious injury.

Do not wear jewelry. It can get caught, cause electrical burns, or may cause electrocution.

5. Connect battery jumper lead (18) to battery (9) positive post and battery (10) negative post. Tighten two nuts (19) to secure lead.
6. Connect circuit 2 lead (20) and circuit lead (21) to battery (10) positive post. Tighten nut (22) to secure leads.
7. Connect circuit 7 lead (23) to battery (9) negative post. Tighten nut (24) to secure lead.



FOLLOW-THROUGH STEPS

1. Lower driver's seat (see your -10).
2. Turn MASTER SWITCH ON to check that battery is installed correctly. Master switch light should come on (see your -10).
3. Start engine (see your -10).
4. Stop engine (see your -10).

END OF TASK

REPLACE BATTERY COMPARTMENT BRACKET (M548A3) 0291 00

THIS WORK PACKAGE COVERS:

Removal (page 0291 00-2).
Installation (page 0291 00-3).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)
Torque Wrench (WP 0541 00, Item 71)

Materials/Parts
Resilient mounts (4)

Personnel Required
Unit Mechanic

References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Both battery negative leads disconnected (WP 0292 00)
Carrier batteries removed (WP 0293 00)

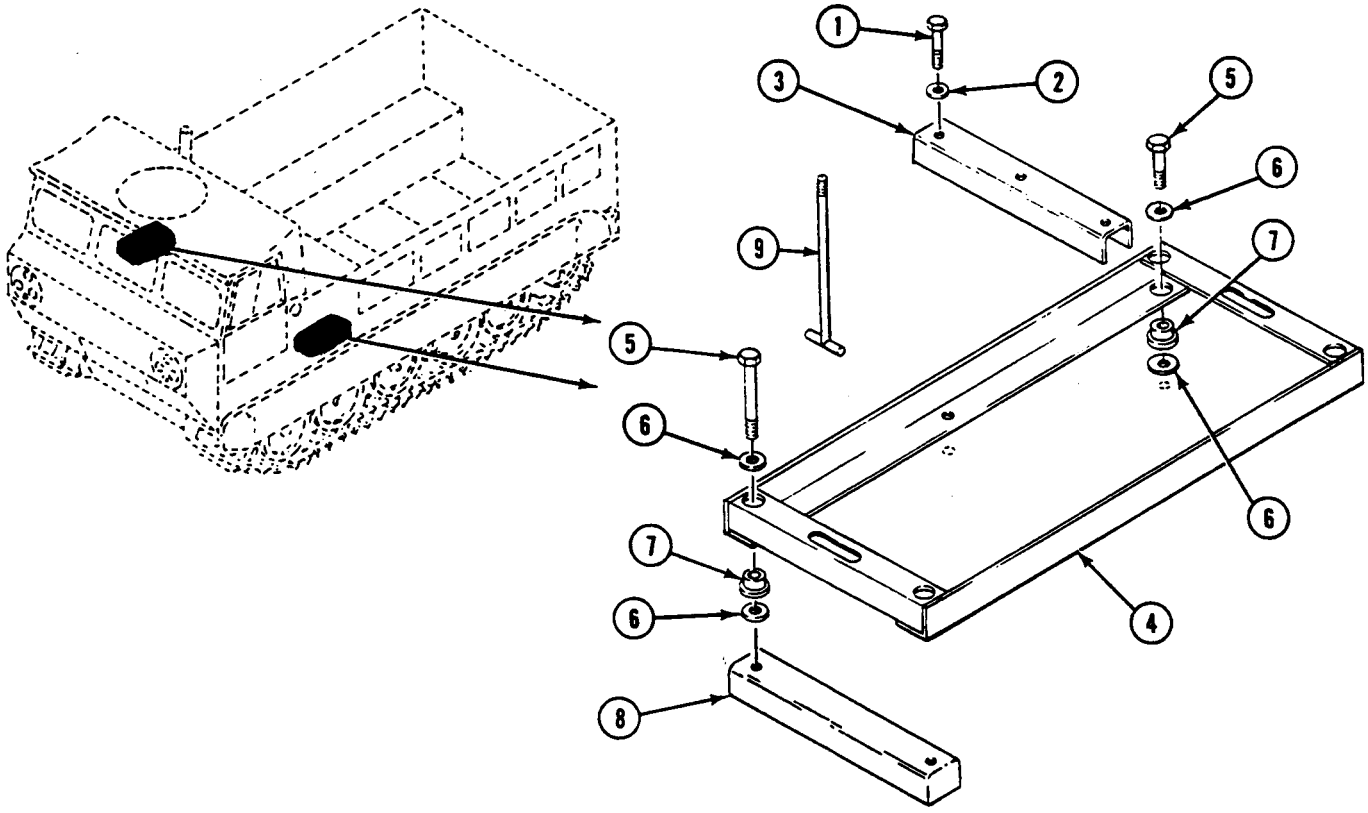
REPLACE BATTERY COMPARTMENT BRACKET (M548A3) — Continued 0291 00

REMOVAL

NOTE

Carriers have four batteries. Two batteries are located on driver's side. Two batteries are located on passenger's side. Battery brackets are removed the same way for both sides. The driver's side bracket has two spacers under the bottom frame.

1. Remove two bolts (1), washers (2), and channel (3) from frame (4).
2. Remove four screws (5), eight washers (6), four resilient mounts (7), and two spacers (8) from frame (4). Discard resilient mounts.
3. Remove two T-Bolts (9) and frame (4) from battery compartment.

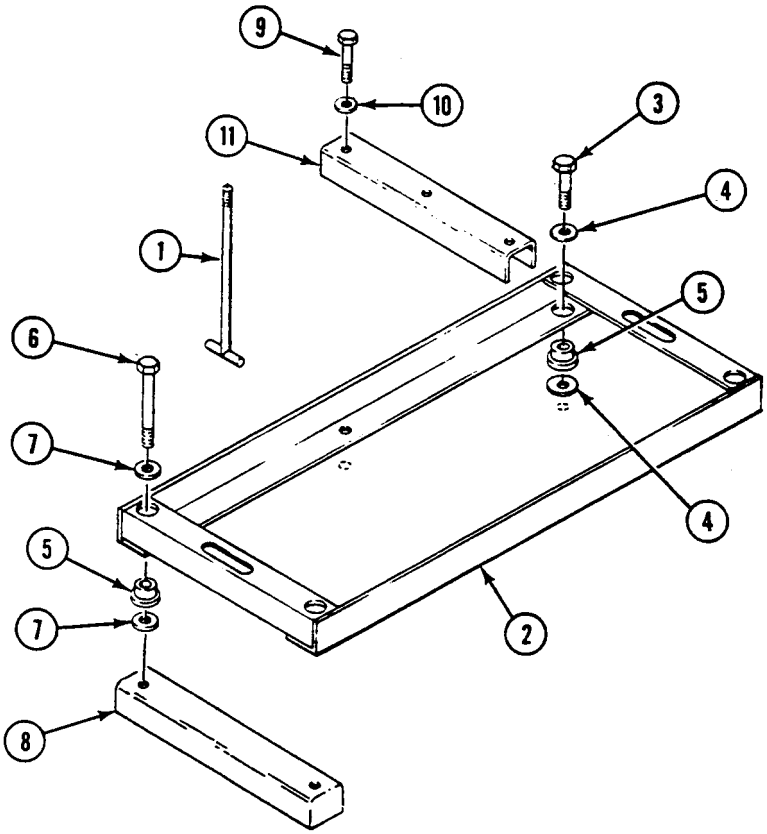


INSTALLATION

NOTE

Carriers have four batteries. Two batteries are located on driver's side. Two batteries are located on passenger's side. Battery brackets are removed the same way for both sides. The driver's side bracket has two spacers under the bottom frame.

1. Install two T-Bolts (1) and frame (2) in battery compartment.
2. Install two screws (3), four washers (4), and two new resilient mounts (5) in back holes of frame (2). Torque screws to 10-16 lb-ft (14-22 N•m).
3. Install two screws (6). four washers (7), two new resilient mounts (5), and spacers (8) in front of frame (2). Torque screws to 10-16 lb-ft (14-22 N•m).
4. Install two bolts (9), washers (10), and channel (11) on frame (2). Torque screws to 20-25 lb-ft (27-34 N•m).



FOLLOW-THROUGH STEPS

1. Install carrier batteries (WP 0293 00).
2. Connect both battery negative leads (WP 0292 00).

END OF TASK

REMOVE/INSTALL BATTERY NEGATIVE LEAD(S) 0292 00

THIS WORK PACKAGE COVERS:

Removal (page 0292 00-1).
Installation (page 0292 00-3).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)

Personnel Required
Unit Mechanic

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

REMOVAL

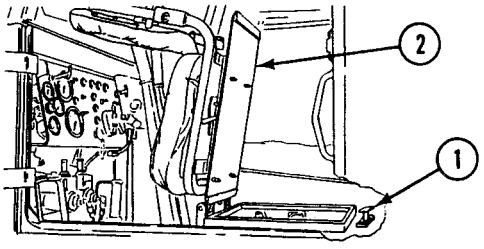
WARNING

Battery post and cables touched by metal objects can short circuit and burn you. Do not wear jewelry when you work on electrical systems. Use caution when you work near battery or electrical systems with tools or other metal objects. Do not get acid on your skin or in your eyes. Do not allow sparks near batteries.

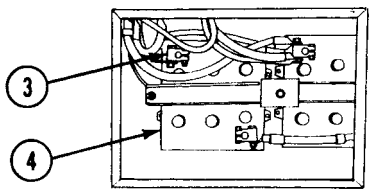
NOTE

M548A1 have two batteries and M548A3 has four batteries. For M548A1 do Step 1 and Step 2. Do Steps 1 - 4 for M548A3.

1. Release T-bolt (1) behind driver's seat (2) and open seat.



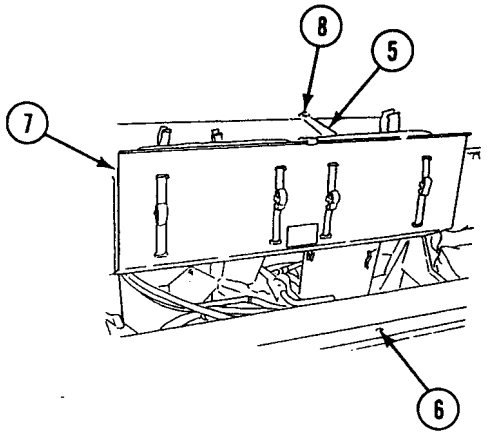
2. Disconnect negative lead (3) from battery (4).



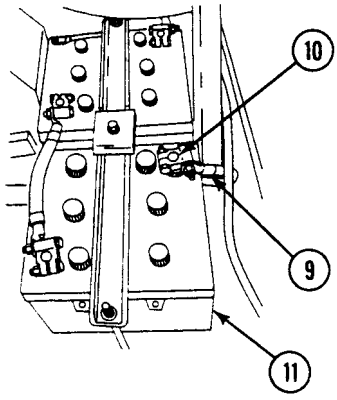
WARNING

M548A3 requires both negative leads disconnected before maintenance. Each side provides power that may kill or injure personnel if both negative leads are not completely disconnected.

3. Remove strap (5) from loop (6). Raise cab personnel seat (7) and secure with strap (5) to loop (8).



4. Remove negative lead (9) from negative battery post (10) on battery (11) under personnel seat.



INSTALLATION

WARNING

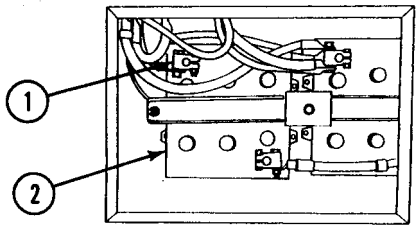
Battery post and cables touched by metal objects can short circuit and burn you. Do not wear jewelry when you work on electrical systems. Use caution when you work near battery or electrical systems with tools or other metal objects. Do not get acid on your skin or in your eyes. Do not allow sparks near batteries.

NOTE

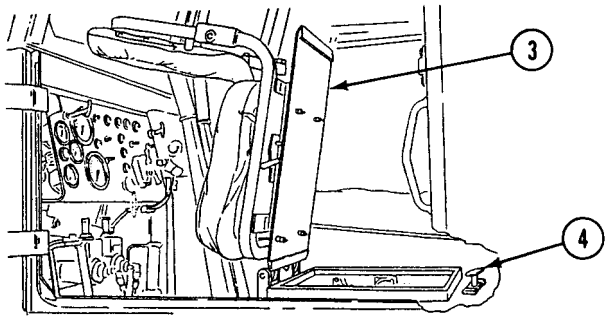
M548A1 have two batteries and M548A3 has four batteries. For M548A1 do Step 1 and Step 2. Do Steps 1 - 4 for M548A3.

Make sure lead and battery posts are clean before installation.

1. Connect negative lead (1) to battery (2).



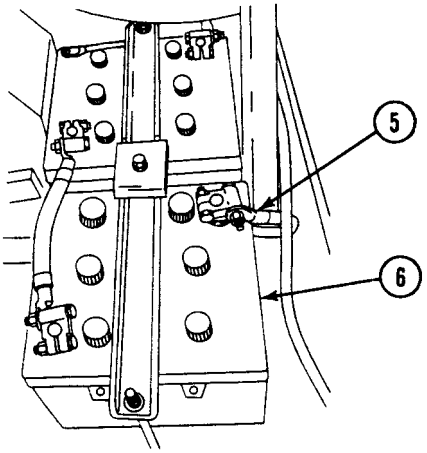
2. Close driver's seat (3) and secure with T-bolt (4).



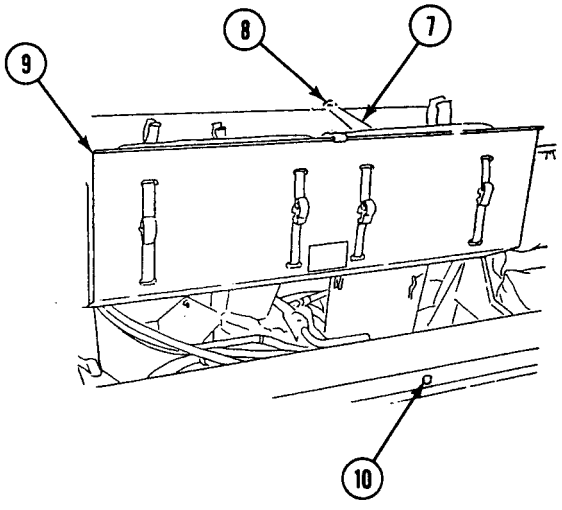
WARNING

M548A3 requires both negative leads disconnected before maintenance. Each side provides power that may kill or injure personnel if both negative leads are not completely disconnected.

3. Connect negative lead (5) to battery (6).



4. Remove strap (7) from loop (8) and lower cab personnel seat (9). Secure seat with strap (7) through loop (10).



END OF TASK

REPLACE CARRIER BATTERIES (M548A3) 0293 00

THIS WORK PACKAGE COVERS:

Removal (page 0293 00-2).
Cleaning (page 0293 00-4).
Inspection-Acceptance and Rejection Criteria (page 0293 00-4).
Installation (page 0293 00-5).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)
Terminal Battery Puller (WP 0541 00, Item 35)

Materials/Parts

Adhesive (WP 0542 00, Item 1)
Cleaning compound (WP 0542 00, Item 9)
Electrolyte sulfuric acid (WP 0542 00, Item 11)
Electrolyte sulfuric acid (WP 0542 00, Item 12)
Sodium bicarbonate (WP 0542 00, Item 41)

Personnel Required

Unit Mechanic
Helper (H)

References

See your -10
TM 9-6140-200-14

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Both battery negative leads disconnected (WP 0292 00)

REMOVAL

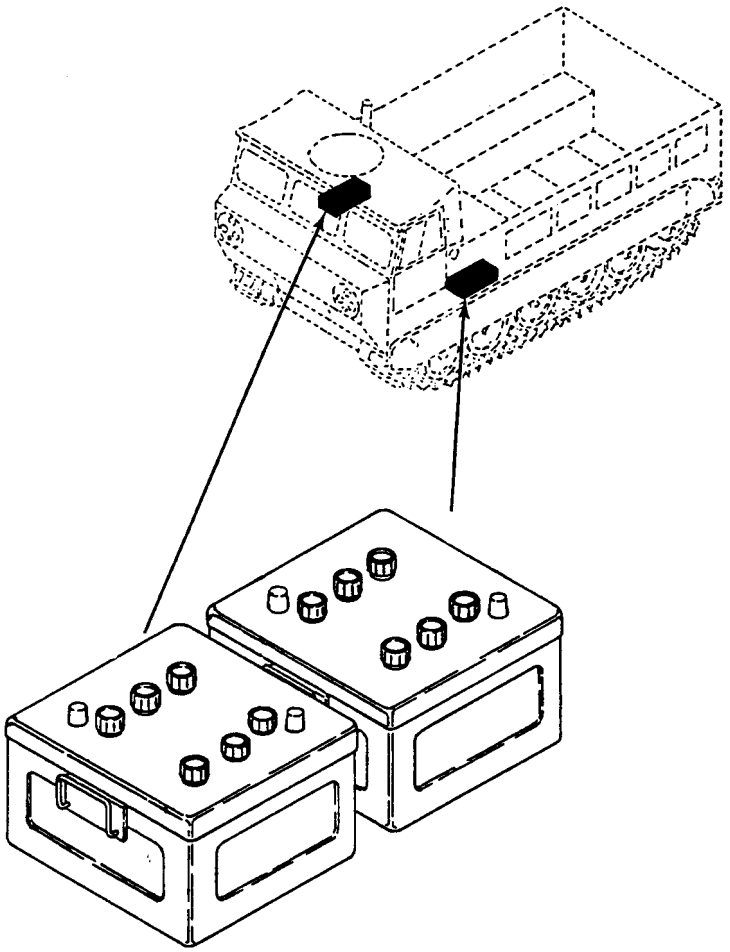
WARNING

Ventilate battery compartments before connecting or disconnecting battery terminal leads. When disconnecting or connecting terminal leads, always disconnect negative lead first or connect negative lead last. Do not cause sparks. Hydrogen explosions can cause serious injury.

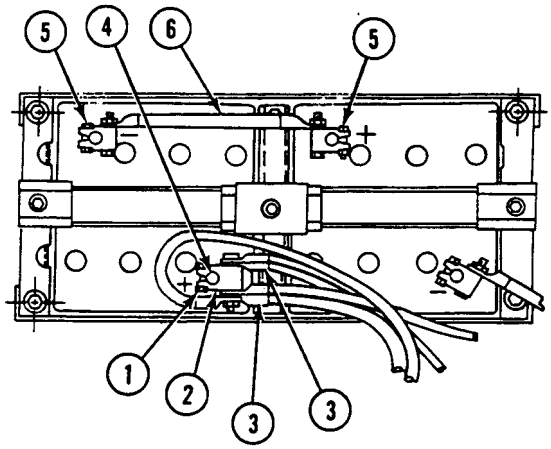
NOTE

Carriers have four batteries. Two batteries are located on driver's side. Two batteries are located on passenger's side. The procedures to disconnect and remove batteries for both sides are the same.

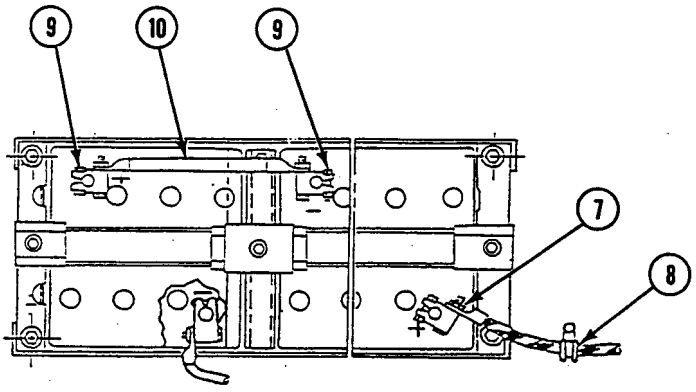
Note position of batteries when removing for later installation.



1. To disconnect batteries on driver's side:
   a. Loosen nut (1).
   b. Remove terminal lug (2) and five leads (3) from positive terminal (4).
   c. Loosen two nuts (5) and remove jumper lead (6) between batteries.



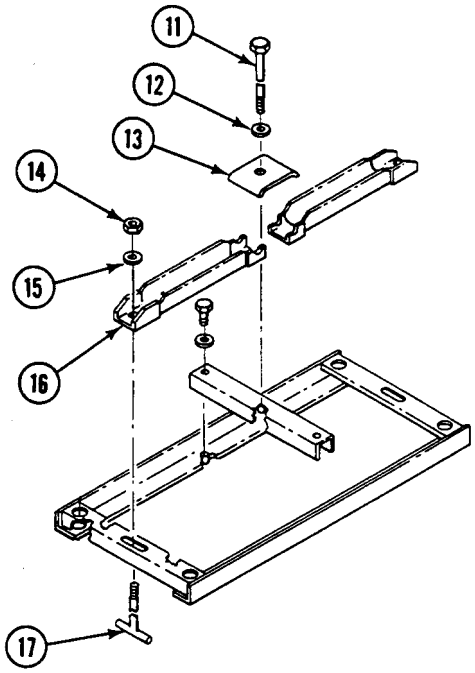
2. To disconnect batteries on passenger's side:
   a. Loosen nut (7). Remove lead (8).
   b. Remove two nuts (9) and battery jumper with terminals (10) between batteries.



WARNING

Battery is heavy and can cause back injury if handled improperly. Be sure to have helper assist you to remove and replace battery. Battery weighs about 75 lb (34 kg).

3. To remove batteries from either driver's or passenger's side of carrier:
   a. Remove center bolt (11), washer (12), and center clamp (13).
   b. Remove two end nuts (14), washers (15), and retainers (16) from T-Bolts (17).
   c. Remove batteries from carrier. Have helper assist.



CLEANING

1. Before cleaning batteries, tighten battery vent plugs.
2. Clean batteries and terminals.
   a. Clean all parts removed from battery well with a sodium bicarbonate and water solution. Rinse and flush with clean water. Dry with a clean cloth.

INSPECTION-ACCEPTANCE AND REJECTION CRITERIA

1. Inspect the following parts for cracks, corrosion, distortion, or hardening. Replace all parts that are corroded or damaged:
   a. Leads, clamps, and mountings
   b. Battery terminals, cases, and compartment seals

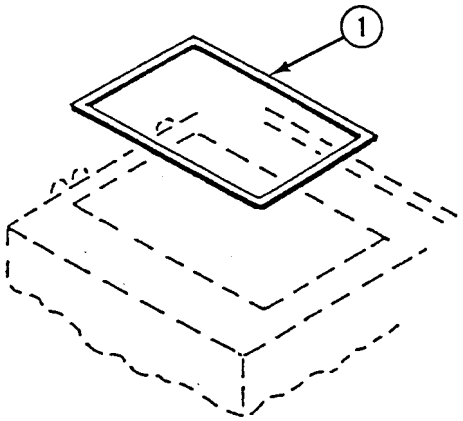
c. Battery frames, frame channels, and retainers

d. All threaded parts.

2. Check specific gravity of each battery cell. See TM 9-6140-200-14. Replace batteries having bad cells.

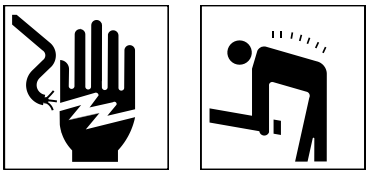
3. If battery compartment seal (1) was removed, clean mating surfaces with cleaning compound. Apply light coat of adhesive to all surfaces. Let adhesive dry until tacky.

4. Press new seal (1) firmly in place in battery compartment.



INSTALLATION

WARNING



Ventilate battery compartments before connecting or disconnecting battery terminal leads. When disconnecting or connecting terminal leads, always disconnect or connect negative lead first. Do not cause sparks. Hydrogen explosions can cause serious injury.

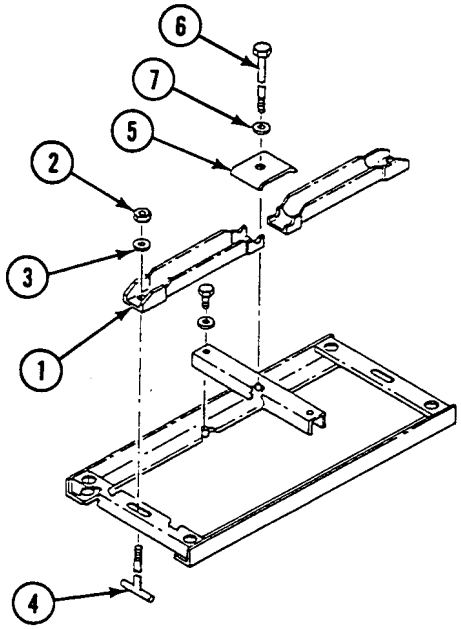
Battery is heavy and can cause back injury if handled improperly. Be sure to have helper assist you to remove and replace battery. Battery weighs about 75 lb (34 kg).

NOTE

Position battery so the negative and positive posts are as disconnected.

1. Install batteries in carrier. Have helper assist.

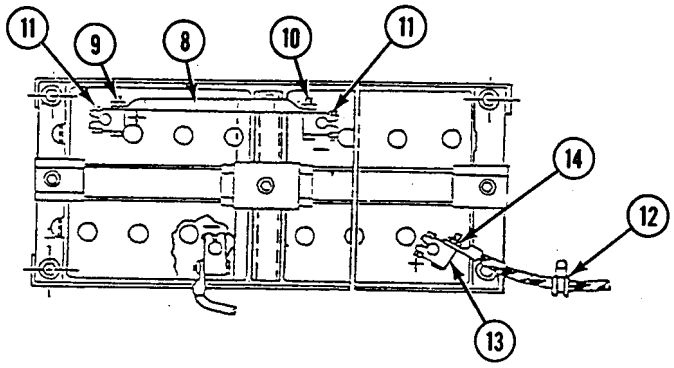
2. Place retainers (1) over batteries. Attach two end nuts (2) and washers (3) on T-Bolts (4). Do not tighten.
3. Attach center clamp (5) to retainers (1). Align holes for center bolt (6) and washer (7).
4. Tighten two nuts (2) and center bolt (6).



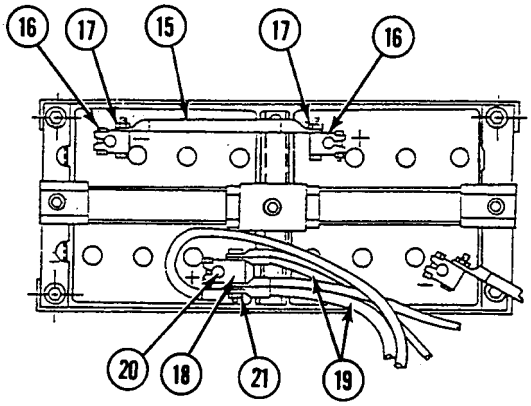
NOTE

Carriers have four batteries. Two batteries are located on driver's side. Two batteries are located on passenger's side. The procedures to install and connect batteries for both sides are the same.

5. To connect batteries on passenger's side:
   a. Attach jumper lead with terminals (8) to positive battery post (9) and negative battery post (10). Secure with two nuts (11).
   b. Attach lead (12) to terminal lug on positive battery post (13). Secure with nut (14).



6. To connect batteries on driver's side:
   a. Attach jumper lead (15) to terminal lugs (16) on batteries. Secure with two nuts (17).
   b. Attach terminal lug with terminals (18) and five leads (19) to battery positive terminal (20). Secure with nut (21).



FOLLOW-THROUGH STEPS

1. Connect both battery negative leads (WP 0292 00).

END OF TASK

REPAIR WIRING HARNESS 0294 00

THIS WORK PACKAGE COVERS:

Removal (page 0294 00-1).
Installation (page 0294 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)
Hacksaw Blade (WP 0541 00, Item 8)
Terminal Crimping Tool (WP 0541 00, Item 11)
Hacksaw Frame (WP 0541 00, Item 17)
Soldering Gun (WP 0541 00, Item 23)
Heater Gun (WP 0541 00, Item 25)
Multimeter (WP 0541 00, Item 29)
Hand Wire Stripper (WP 0541 00, Item 51)
Electrical Tool Kit (WP 0541 00, Item 56)

Materials/Parts

Insulation sleeving (WP 0542 00, Item 20)
Solder (WP 0542 00, Item 42)
Tin Alloy Solder (WP 0542 00, Item 44)

Personnel Required

Unit Mechanic

References

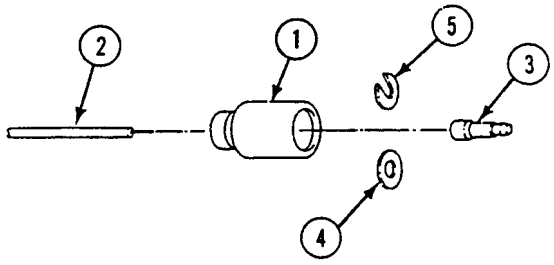
See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Battery negative lead(s) disconnected (WP 0292 00)

REMOVAL

1. Remove male connector from harness lead.
   a. Slide shell (1) back on lead (2).
   b. Clip contact pin (3) from lead (2). Discard pin.
   c. Remove washer (4) or slotted washer (5) and shell (1) from lead (2).



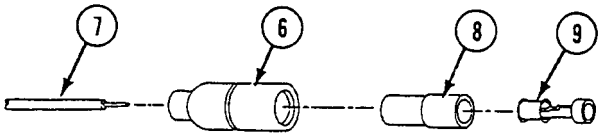
2. Remove female connector from harness lead.

   a. Slide shell (6) back on lead (7).

   b. Slide sleeve (8) back from contact socket (9).

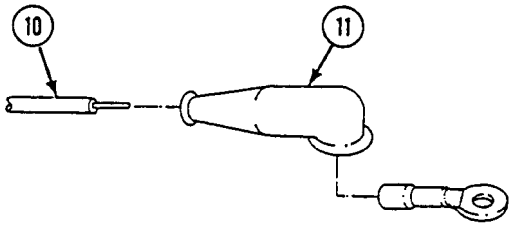
   c. Clip socket (9) from lead (7). Discard socket.

   d. Remove sleeve (8) and shell (6) from lead (7).

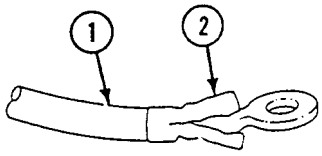


3. Remove terminal connector from harness lead.

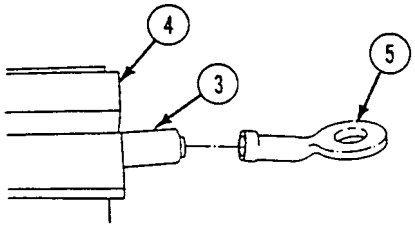
   a. If lead (10) has nipple (11), slide nipple back on lead.



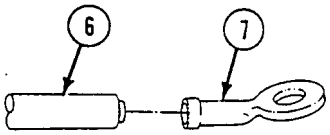
   b. If lead (1) has insulated sleeving (2), cut and discard sleeving from lead.



   c. If lead (3) is of large diameter, place in vise (4). Cut lead as close as possible to terminal (5). Discard terminal.



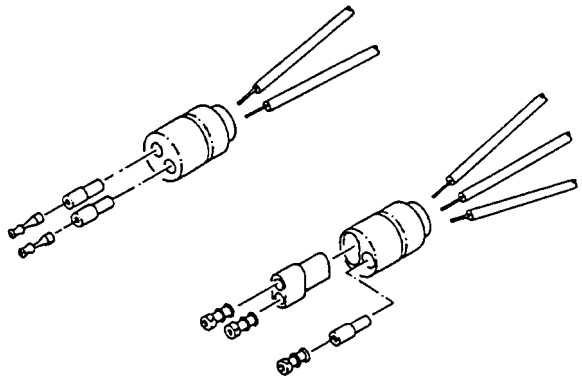
   d. If lead (6) is of small diameter, cut lead as close as possible to terminal (7). Discard terminal.



NOTE

Unit Maintenance can only repair multipin plugs with up to three sockets. For plugs with more than three sockets, notify your supervisor.

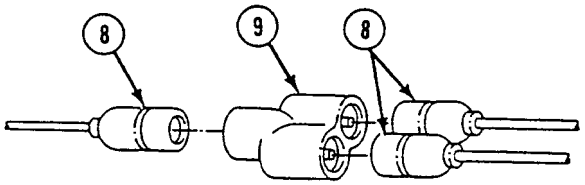
4. Remove multiple connectors the same way as single connectors. Be sure to tag leads to ensure correct installation. See Removal Procedure Step 1 and Step 2.



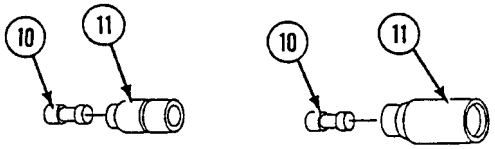
NOTE

For wiring harness repair, it may be necessary to remove Y-adapters and dummy plugs.

5. Remove Y-type adapter or dummy plug from harness lead.
   a. Pull harness leads (8) from Y-type adapter (9). Remove adapter.



   b. Pull dummy plug (10) from male or female connector (11).



INSTALLATION

CAUTION

Crimping lower part of pin may damage pin and it will not hold lead. Crimp only middle part of contact pin with correct size die.

Install female connector on harness lead.

NOTE

If replacing lead, cut new wire from bulk supply. Measure original length, gauge, and type of wire.

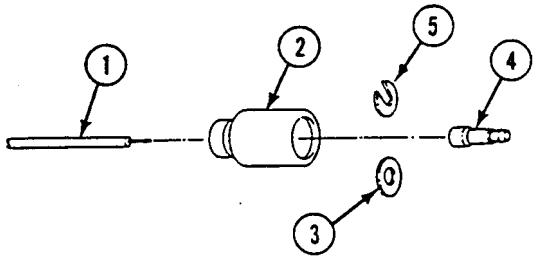
1. Install male connector on harness lead.

a. Strip insulation from lead (1) to uncover just enough wire to fill contact pin well.

b. Slide shell (2) and washer (3), if removed, over lead (1).

c. Insert lead (1) into new pin (4) and crimp.

d. If removed, place slotted washer (5) on lead (1) under pin (4) and pull shell (2) over washer (3) or washer (5) and pin.



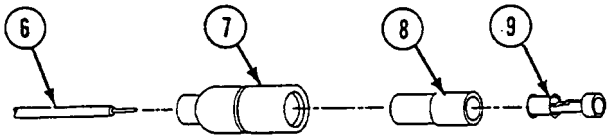
2. Install female connector on harness lead.

a. Strip insulation from lead (6) to uncover just enough wire to fill contact socket well.

b. Slide shell (7) and sleeve (8) over lead (6).

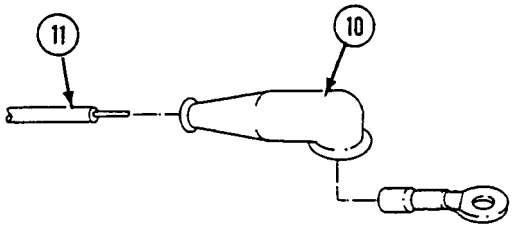
c. Insert lead (6) in new socket (9) and crimp or solder.

d. Slide sleeve (8) and shell (7) over socket (9).

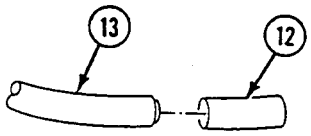


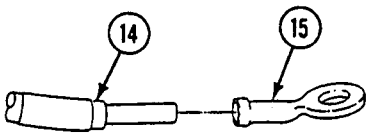
3. Install terminal connector on harness lead.

a. If nipple (10) was removed from lead (11), strip insulation from lead to uncover just enough wire to fill terminal well. Slide nipple over lead.

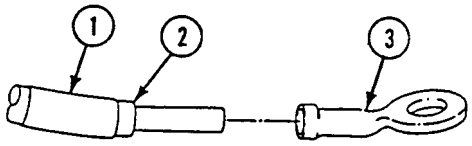


b. If insulated sleeving (12) was removed from lead (13), slide new insulated sleeving on lead. Strip insulation from lead to same length as crimp (14) on terminal (15).

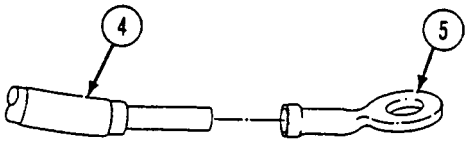




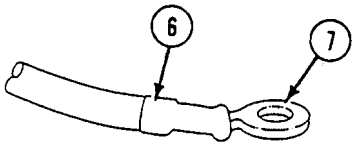
c. If large diameter lead (1), fill crimp (2) on terminal (3) with solder. Use soldering gun. Insert lead into melted solder in crimp. Allow to cool.



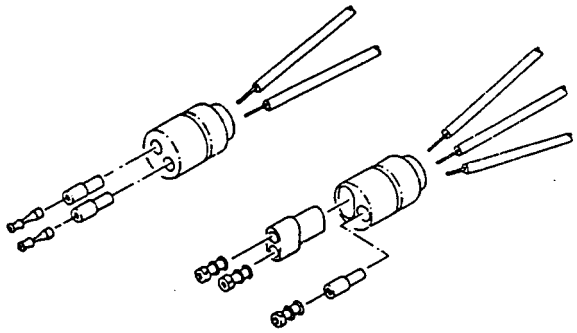
d. If small diameter lead (4), position terminal (5) on lead. Crimp terminal on lead. Use crimping tool from electrical tool kit.



e. Heat shrink those leads with insulated sleeving (6) on terminal (7). Use heat gun.

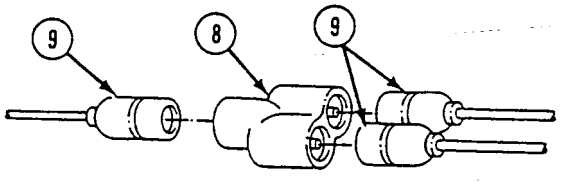


4. Install multiple connectors the same way as single connectors. See Installation Procedure Step 2 and Step 3.

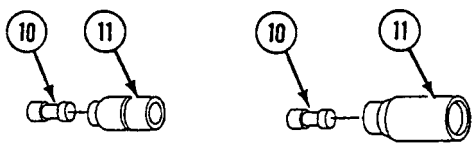


5. If removed, install Y-type adapters and dummy plugs.

a. Install Y-type adapter (8) on harness leads (9).



b. Install dummy plugs (10) in male or female connector (11).



FOLLOW-THROUGH STEPS

1. Perform continuity check before connecting batteries.
2. Connect battery negative lead(s) (WP 0292 00).

END OF TASK

REPLACE GENERATOR-TO-REGULATOR WIRING HARNESS (M548A1) 0295 00

THIS WORK PACKAGE COVERS:

Removal (page 0295 00-1).
Installation (page 0295 00-1).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)

Personnel Required

Unit Mechanic

References

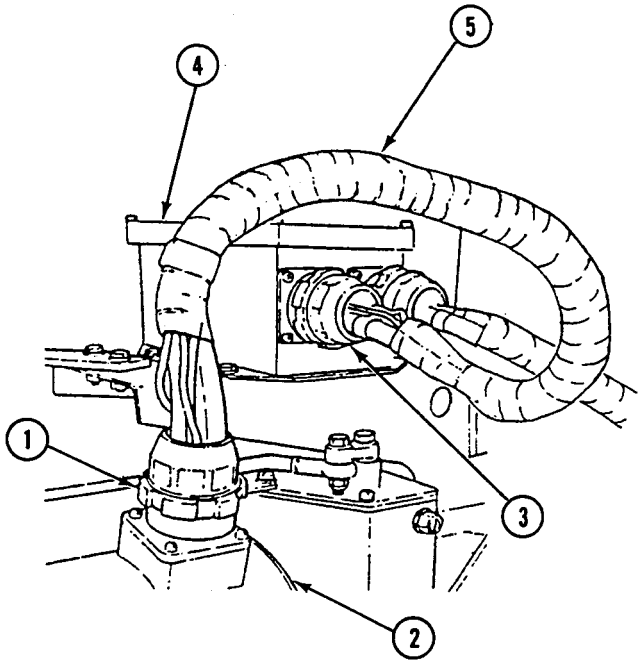
See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Battery negative lead(s) disconnected (WP 0292 00)
Power plant rear access door removed (see your -10)

REMOVAL

1. Disconnect generator-to-regulator connector (1) from generator (2).
2. Disconnect regulator-to-generator connector (3) from regulator (4).
3. Remove generator-to-regulator wiring harness (5) from power plant.



INSTALLATION

1. Install generator-to-regulator wiring harness (5) in power plant.
2. Connect generator-to-regulator connector (1) to generator (2).
3. Connect regulator-to-generator connector (3) to regulator (4).

FOLLOW-THROUGH STEPS

1. Connect battery negative lead(s) (WP 0292 00)
2. Install power plant rear access door (see your -10).

END OF TASK

REPLACE GENERATOR TO REGULATOR WIRING HARNESS (M548A3) 0296 00

THIS WORK PACKAGE COVERS:

Removal (page 0296 00-1).
Installation (page 0296 00-3).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts
Tiedown strap (WP 0542 00, Item 43)
Lock nut (3)

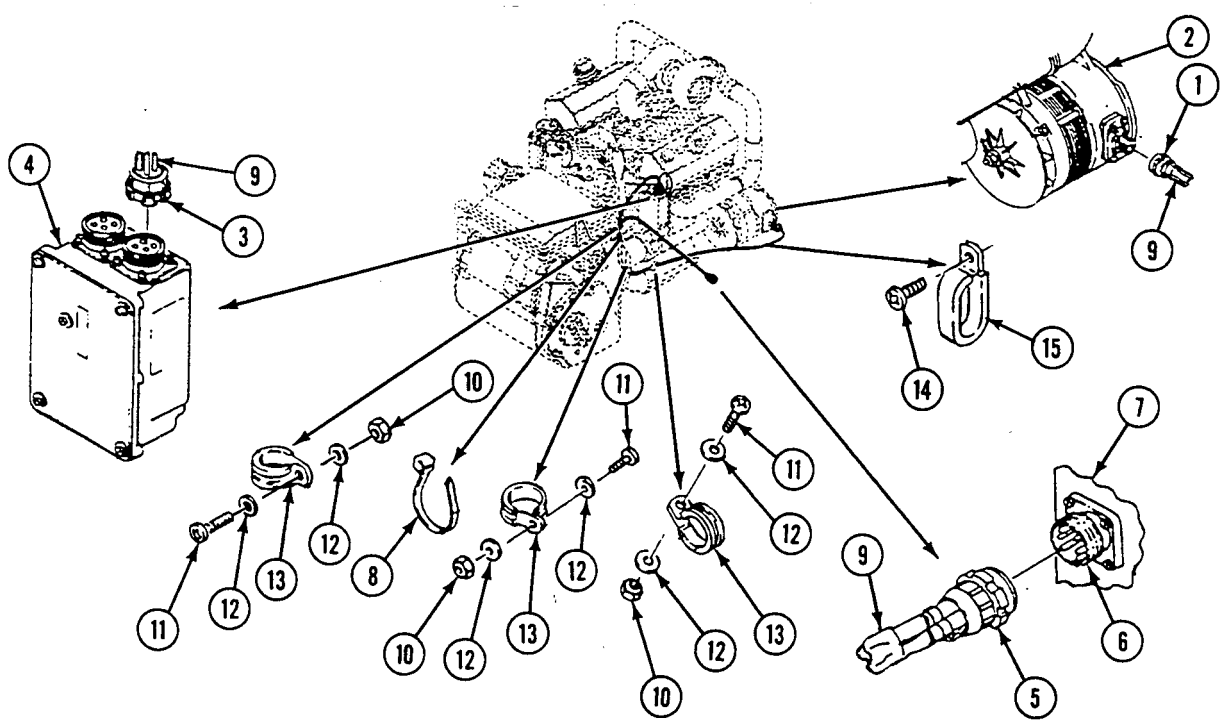
Personnel Required
Unit Mechanic
Helper (H)

References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Both battery negative leads disconnected (WP 0292 00)
Center seat raised (see your -10)
Power plant rear access panel removed (see your -10)

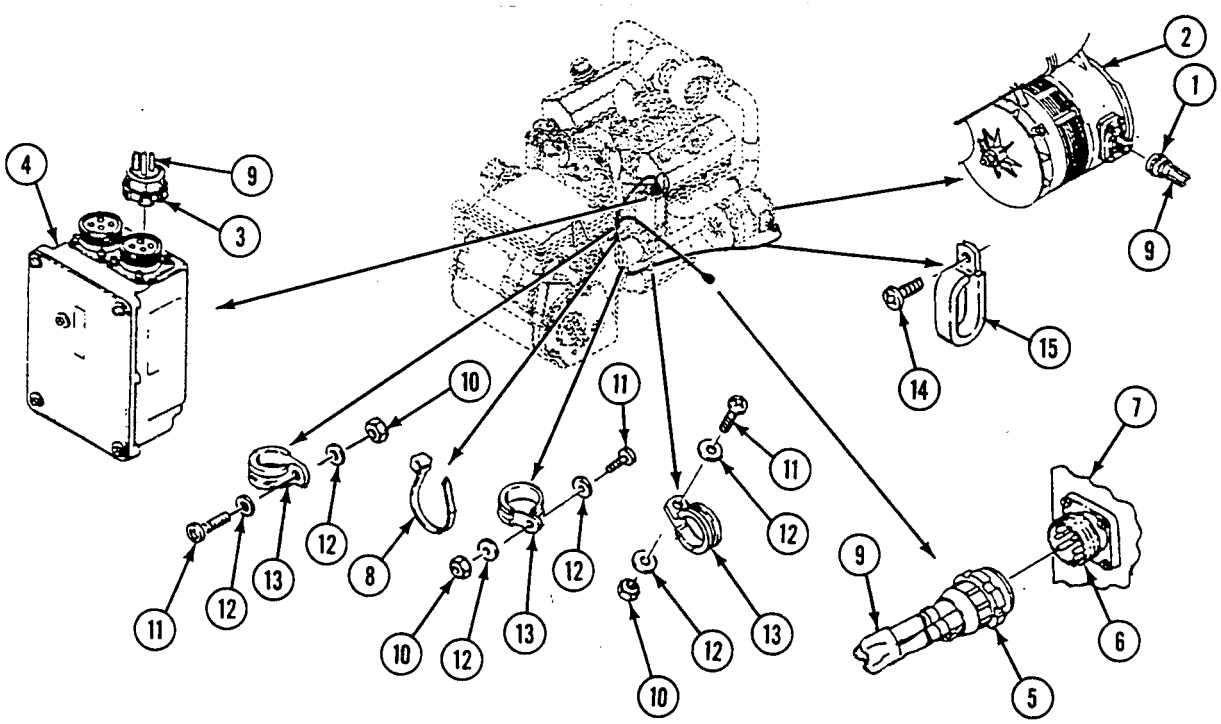
REMOVAL

1. Disconnect wiring harness connector (1) from generator (2).
2. Disconnect wiring harness connector (3) from regulator (4).
3. Disconnect wiring harness connector (5) from connector (6) on battery box bulkhead (7).
4. Cut tiedown strap (8) and remove from wiring harness (9) and other wiring harnesses. Discard tiedown strap.



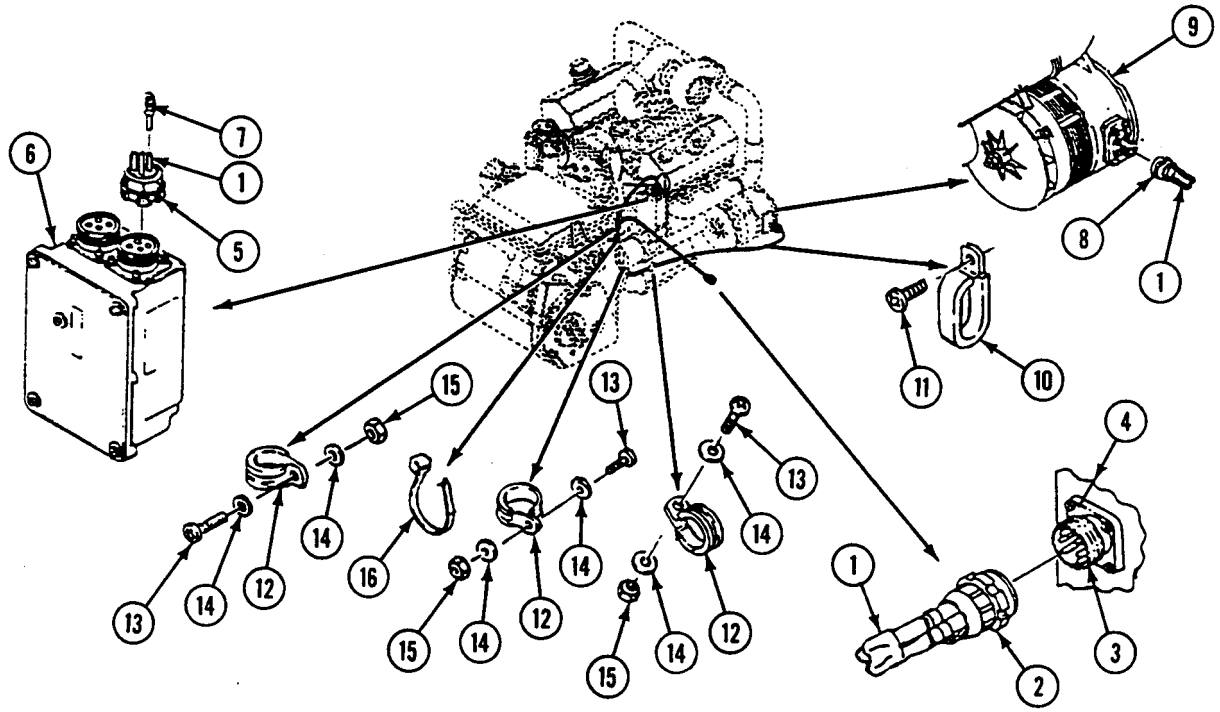
REPLACE GENERATOR TO REGULATOR WIRING HARNESS (M548A3) — Continued 0296 00

5. Remove three lock nuts (10), screws (11), six washers (12), and three clamps (13) from wiring harness (9). Discard lock nuts.
6. Remove screw (14) and clamp (15) from wiring harness (9).
7. (H) Remove wiring harness (9) from carrier.



INSTALLATION

1. (H) Install wiring harness (1) in carrier.
2. Connect wiring harness connector (2) to connector (3) on battery box bulkhead (4).
3. Connect wiring harness connector (5) to regulator (6). Wrap ground lead (7) with tape.
4. Connect wiring harness connector (8) to generator (9).
5. Install clamp (10) and screw (11) to secure wiring harness (1) to power plant.
6. Install three clamps (12), screws (13), six washers (14), and three new lock nuts (15) to secure wiring harness (1) to power plant.
7. Secure wiring harness (1) and other wiring harnesses with new tiedown strap (16).



FOLLOW-THROUGH STEPS

1. Connect both battery negative leads (WP 0292 00).
2. Lower center seat (see your -10).
3. Install power plant rear access panel (see your -10).

END OF TASK

REPLACE TRANSMISSION WIRING HARNESS (M548A3) 0297 00

THIS WORK PACKAGE COVERS:

Removal (page 0297 00-2).
Inspection-Acceptance and Rejection Criteria (page 0297 00-3).
Installation (page 0297 00-4).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)
Socket Wrench Set (WP 0541 00, Item 64)
Torque Wrench (WP 0541 00, Item 71)

Materials/Parts

Lock nut (5)

Personnel Required

Unit Mechanic

References

See your -10

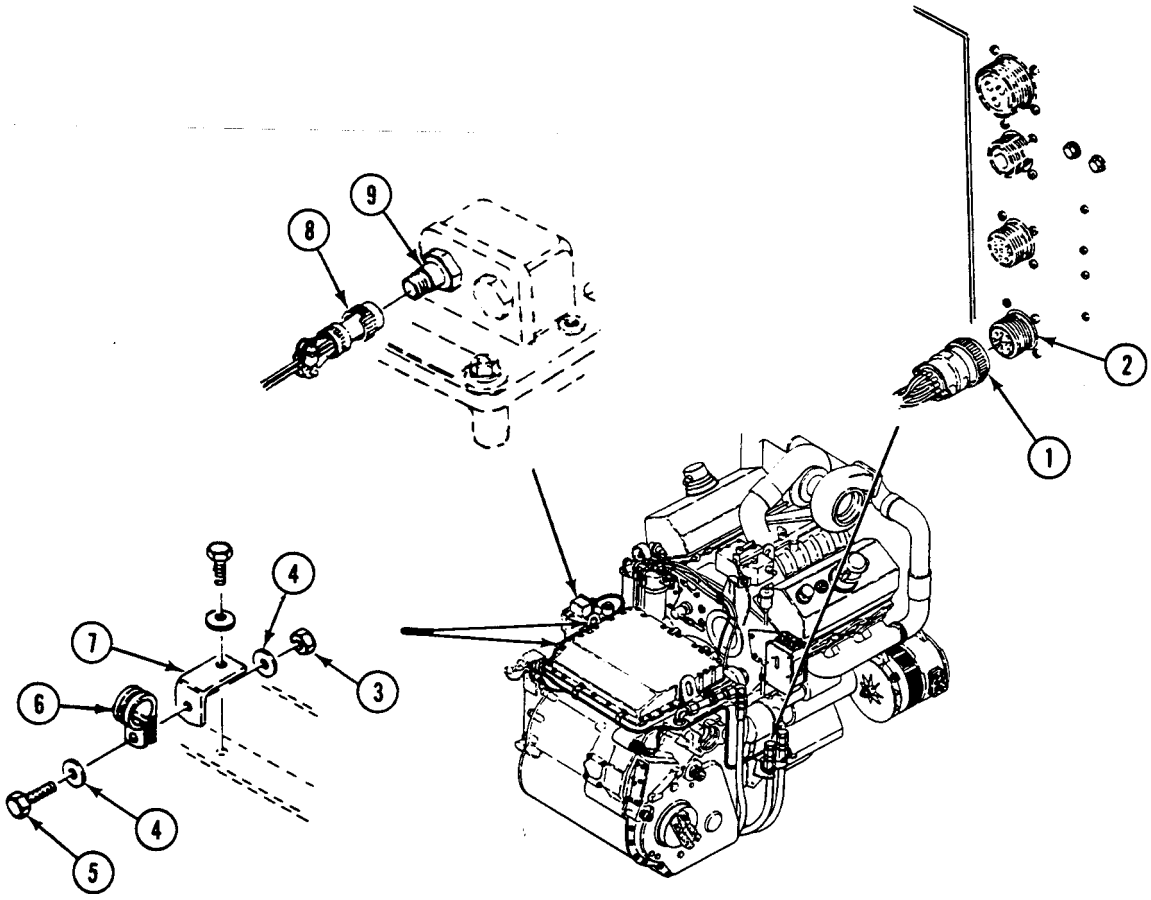
Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Center seat raised (see your -10)
Center floor plates removed (WP 0395 00)

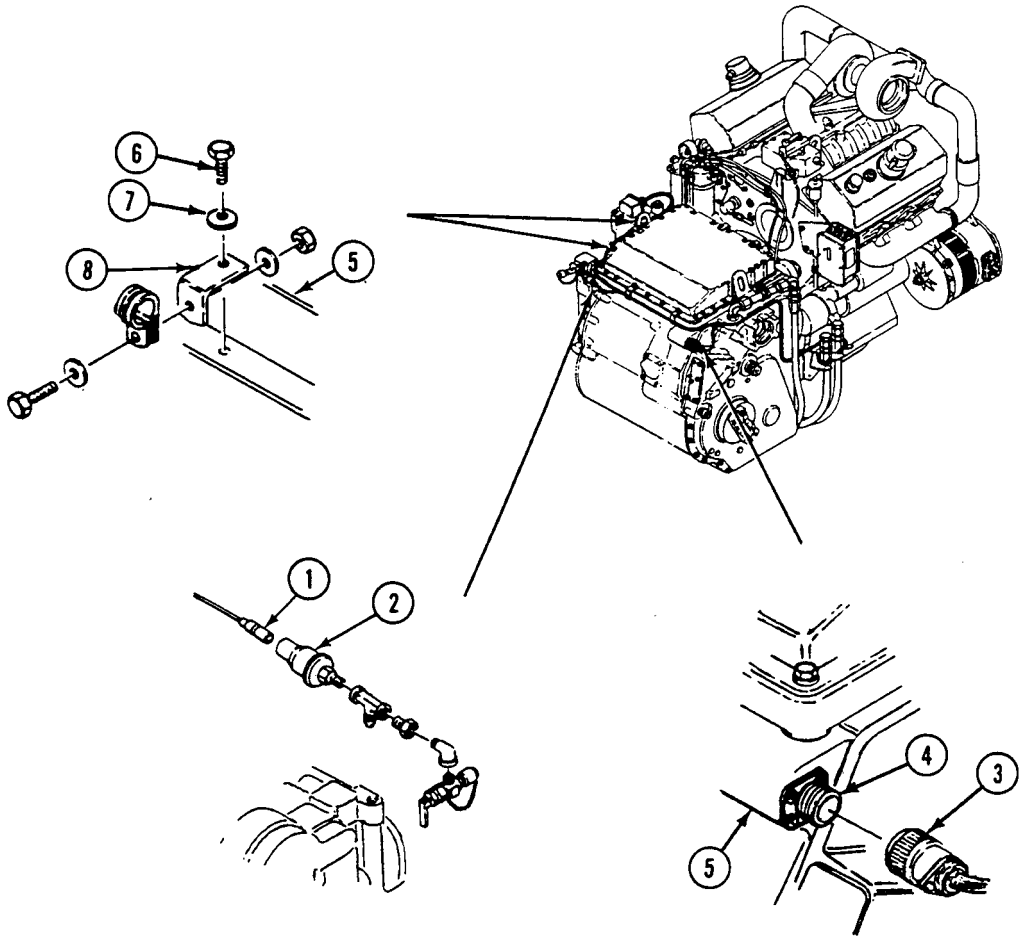
REPLACE TRANSMISSION WIRING HARNESS (M548A3) — Continued 0297 00

REMOVAL

1. Disconnect transmission wiring harness connector (1) from receptacle (2) on engine compartment bulkhead.
2. Remove 5 lock nuts (3), 10 washers (4), 5 screws (5), and clamps (6) from 5 brackets (7). Discard lock nuts.
3. Disconnect circuit 323 lead (8) from transmission high differential pressure switch (9) on transmission oil filter.



4. Disconnect circuit 366 connector (1) from transmission low oil pressure switch (2).
5. Disconnect wiring harness connector (3) from receptacle (4) on transmission (5). Remove transmission wiring harness.
6. Remove five screws (6), washers (7), and brackets (8) from transmission (5).

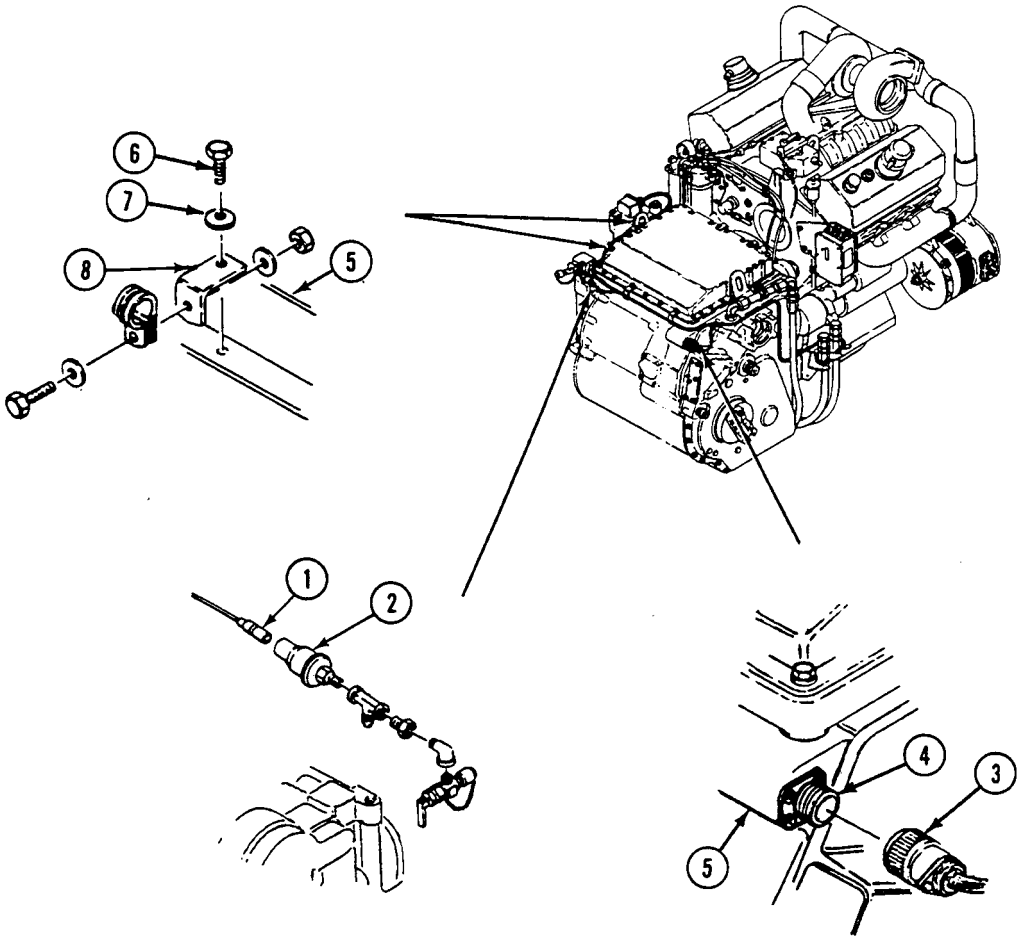


INSPECTION-ACCEPTANCE AND REJECTION CRITERIA

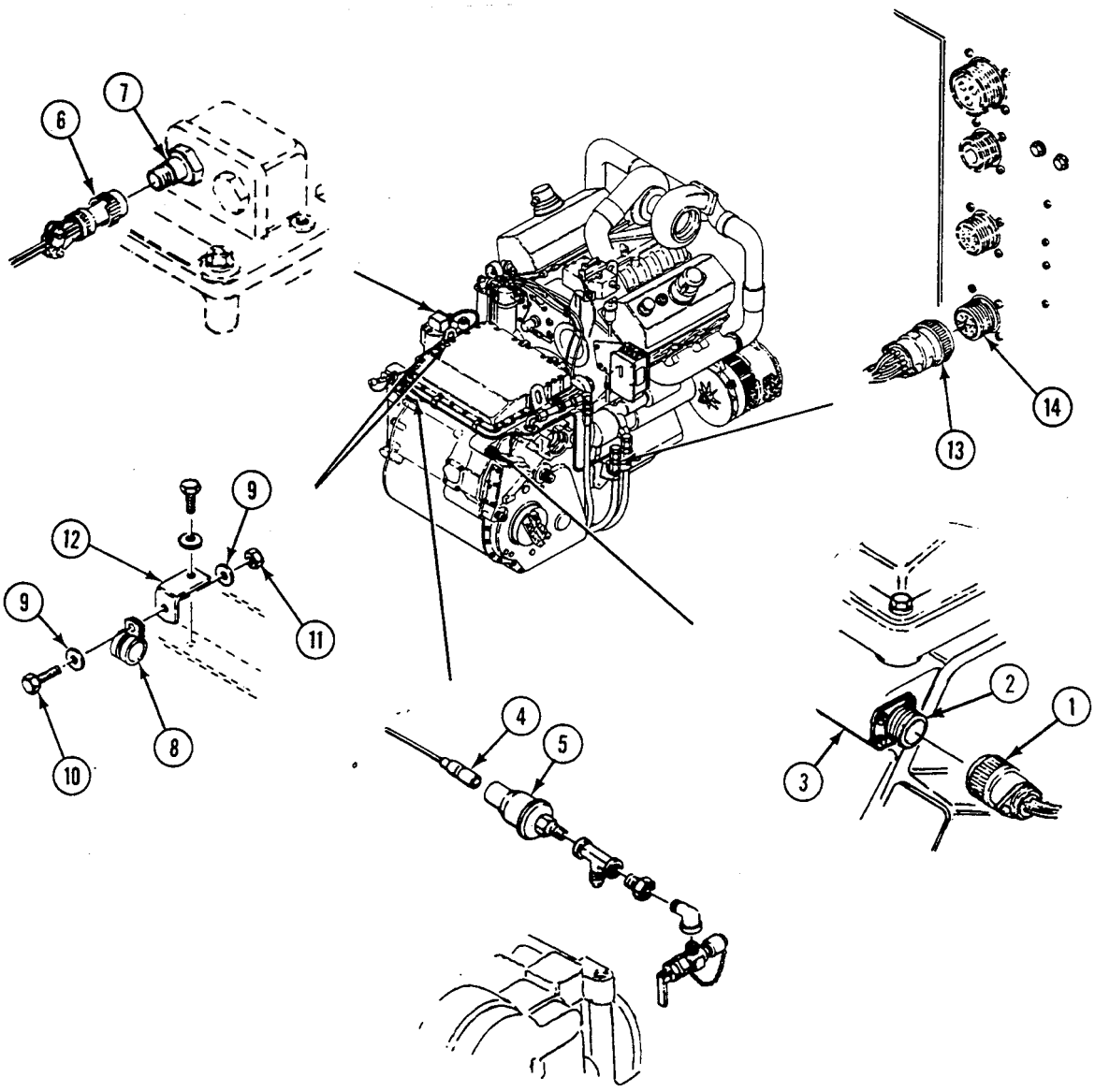
1. Inspect transmission wiring harness for broken leads, frayed insulation, missing terminals lugs, connectors, and circuit number bands and receptacles. Repair of wiring harness includes plugs and receptacles on lead ends. Replace wiring harness if broken leads or frayed insulation exists.

INSTALLATION

1. Install five brackets (8), washers (7), and screws (6) on transmission (5). Tighten screws to 156 to 180 lb-in (18 to 20 N•m).
2. Place transmission wiring harness on transmission (5) with connectors and leads near mating components.



3. Connect wiring harness connector (1) to receptacle (2) on transmission (3).
4. Connect circuit 366 connector (4) to transmission low oil pressure switch (5).
5. Connect circuit 323 lead (6) to transmission high differential pressure switch (7) on transmission oil filter.
6. Install 5 clamps (8), 10 washers (9), 5 screws (10), and new lock nuts (11) on 5 brackets (12).
7. Connect transmission wiring harness connector (13) to receptacle (14) on engine compartment bulkhead.



FOLLOW-THROUGH STEPS

1. Install center floor plates (WP 0395 00).
2. Lower center seat (see your -10).

END OF TASK

REPLACE POWER PLANT WIRING HARNESS (M548A3) 0298 00

THIS WORK PACKAGE COVERS:

Removal (page 0298 00-2).
Installation (page 0298 00-8).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts
Tiedown strap (3) (WP 0542 00, Item 43)
Lock nut (10)
Lock washer

Personnel Required
Unit Mechanic

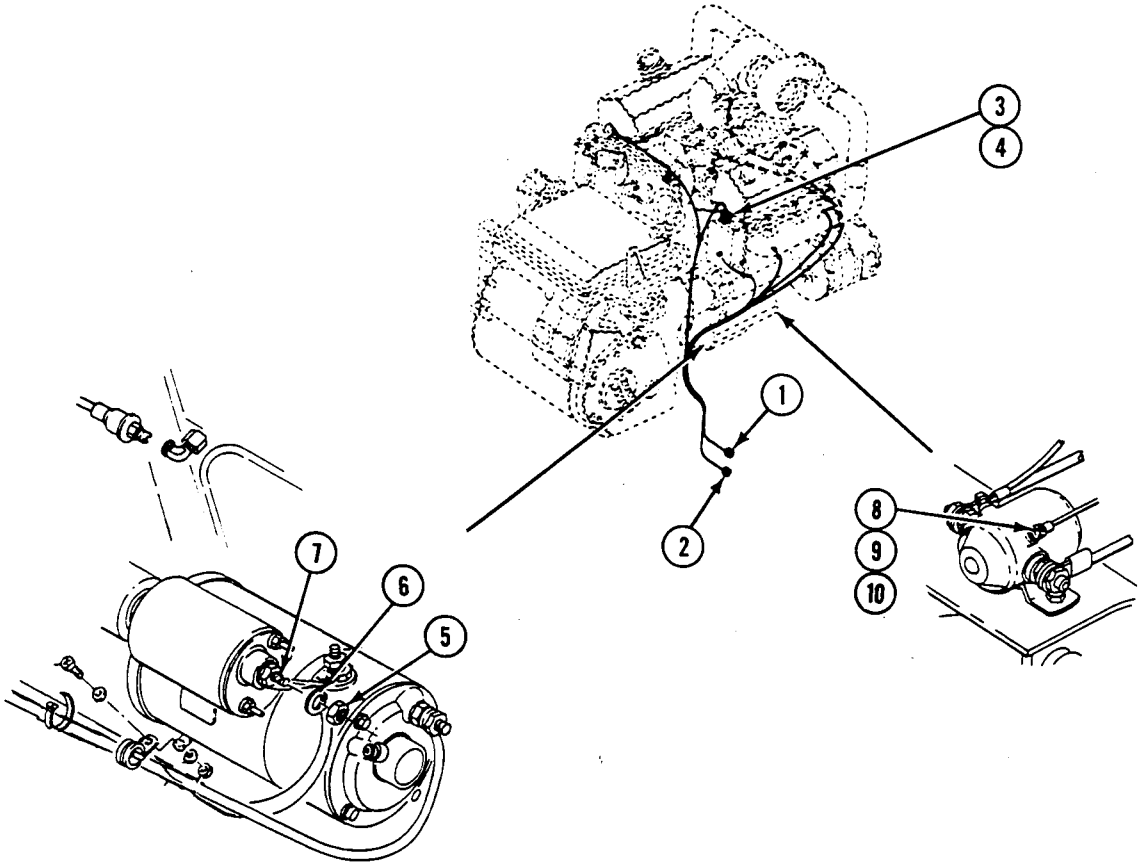
References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Center seat raised (see your -10)
Center floor plates removed (WP 0395 00)
Both battery negative leads disconnected(WP 0292 00)
Hull bottom access cover removed (WP 0383 00)

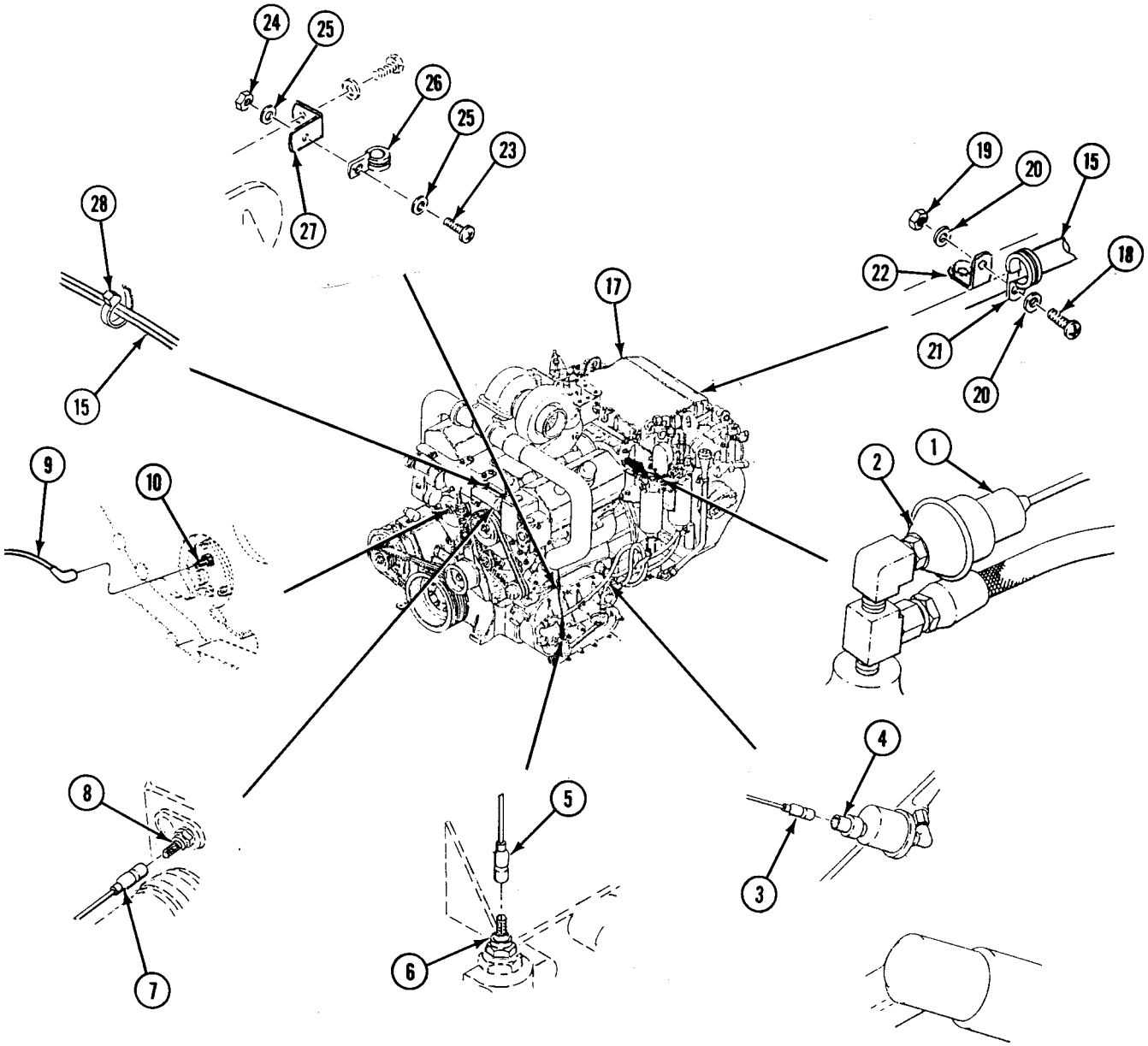
REPLACE POWER PLANT WIRING HARNESS (M548A3) — Continued 0298 00

REMOVAL

1. Disconnect wiring harness connector P2 (1) and wiring harness connector P3 (2) from receptacles on battery box bulkhead in carrier.
2. Disconnect circuit 1B (3) from voltage regulator receptacle (4).
3. Remove nut (5) and circuit 6 lead (6) from starter solenoid terminal (7).
4. Remove nut (8) and circuit 74A lead (9) from start relay terminal X2 (10).

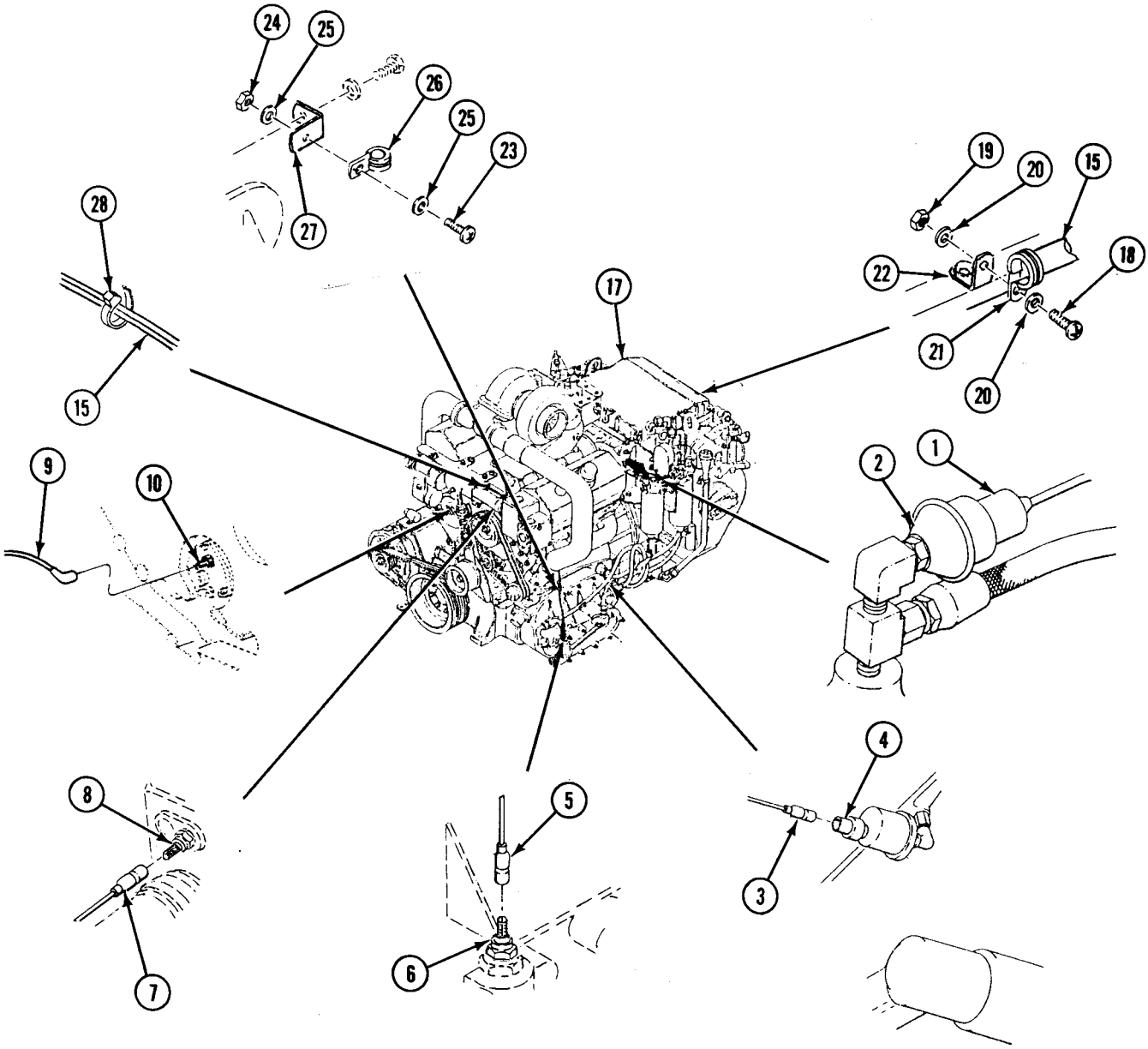


5. Remove circuit 1A, 1B connector (1) from fuel pressure switch receptacle (2).
6. Remove circuit 34 connector (3) from engine low oil pressure switch receptacle (4).
7. Remove circuit 327 connector (5) from transmission high oil pressure switch receptacle (6).
8. Remove circuit 33 connector (7) from engine coolant temperature transmitter receptacle (8).
9. Remove circuit 406, 406A connector (9) from air box heater receptacle (10).

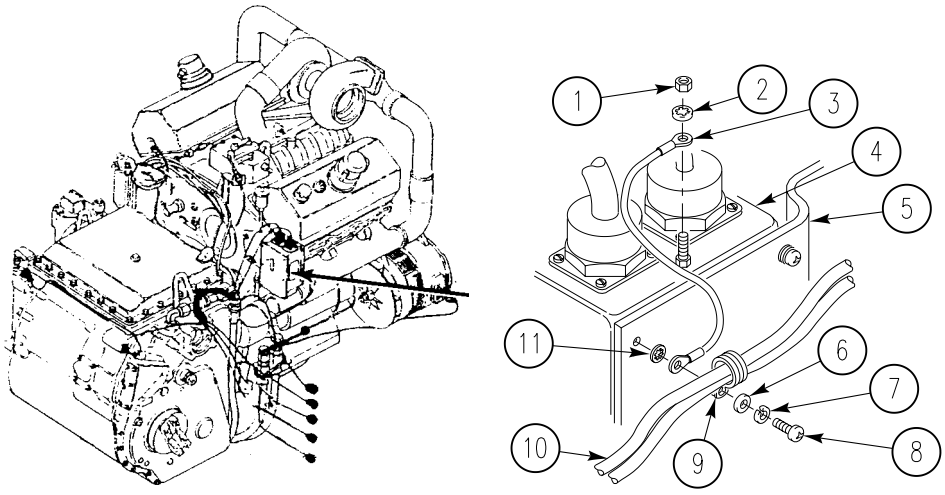


REPLACE POWER PLANT WIRING HARNESS (M548A3) — Continued 0298 00

10. Remove screw (18), lock nut (19), two washers (20), clamp (21), and wiring harness (15) from bracket (22) on transmission (17). Discard lock nut.
11. Remove two screws (23), lock nuts (24), four washers (25), and two clamps (26) from bracket (27). Discard lock nuts.
12. Remove two tiedown straps (28) from wiring harness (15). Discard straps.



13. Remove nut (1), washer (2), and lead (3) from regulator (4).
14. Remove screw (8), lock washer (7), washer (6), lead (3), washer (11), clamp (9), and 1A/1B leads (10) from regulator bracket (5). Discard lock washer.



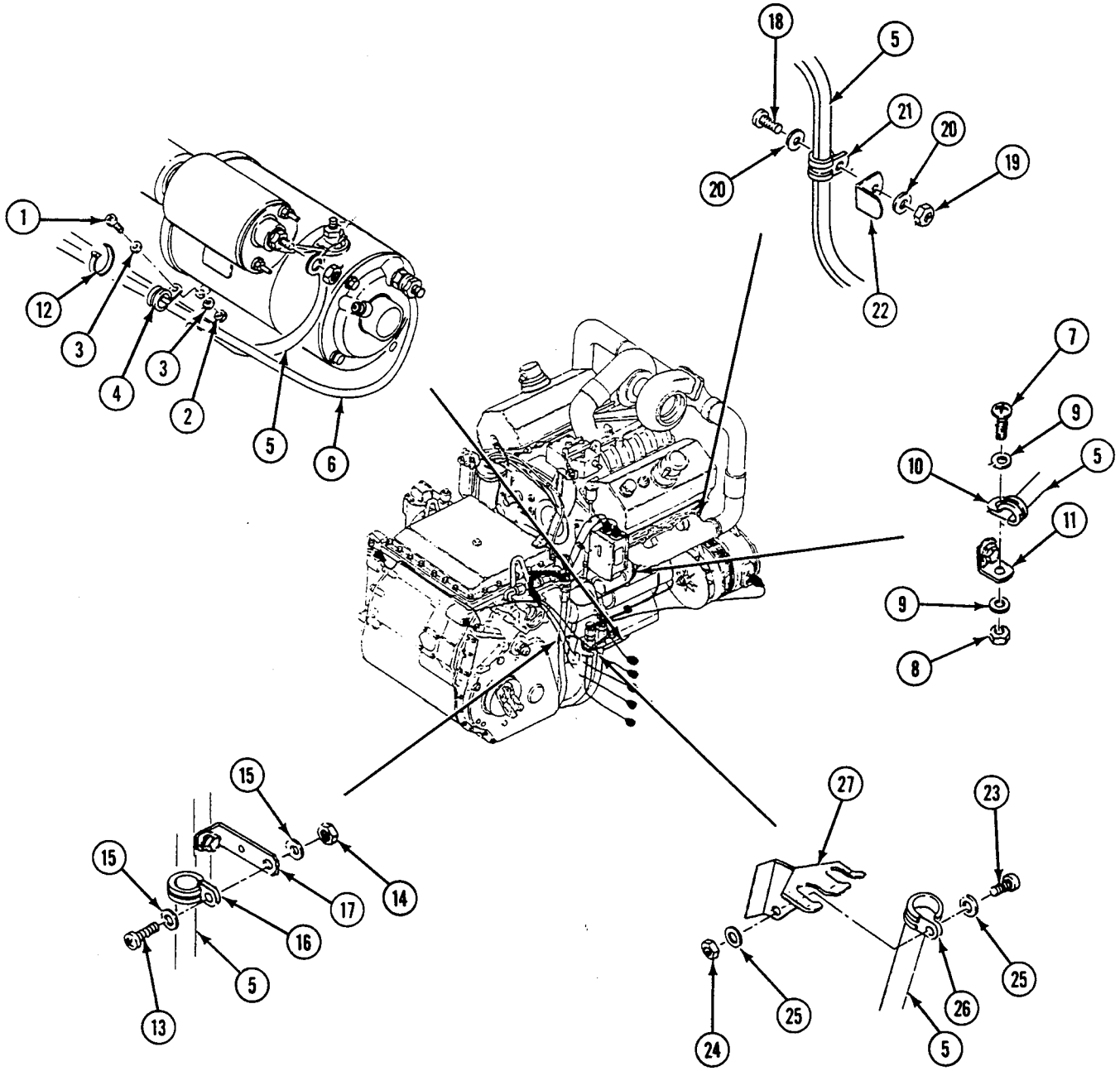
REPLACE POWER PLANT WIRING HARNESS (M548A3) — Continued 0298 00

15. Remove screw (1), lock nut (2), two washers (3), and clamp (4) from wiring harness (5) and electrical cable (6). Discard lock nut.

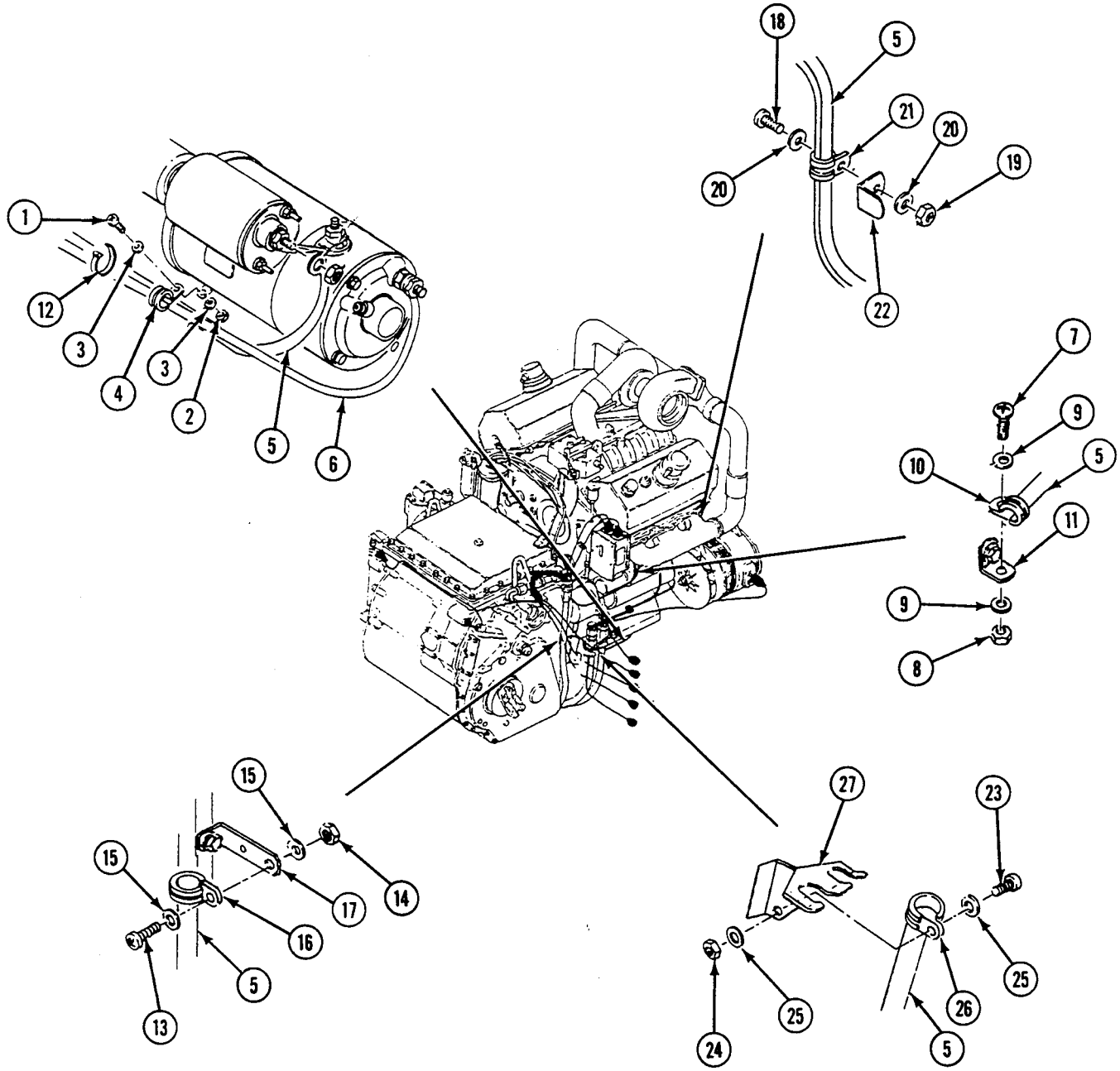
16. Remove two screws (7), lock nuts (8), four washers (9), two clamps (10), and wiring harness (5) from brackets (11). Discard lock nuts.

17. Remove tiedown strap (12) from wiring harness (5) and electrical cable (6). Discard strap.

18. Remove two screws (13), lock nuts (14), four washers (15), two clamps (16), and wiring harness (5) from brackets (17). Discard lock nuts.

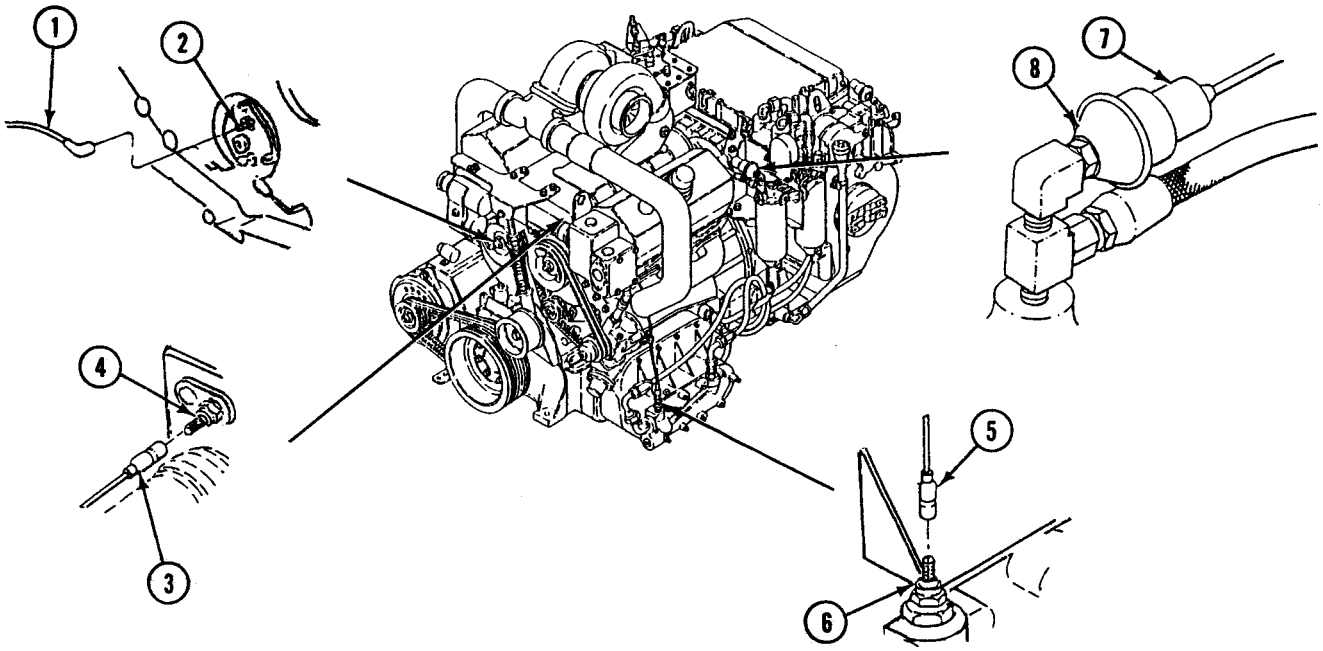


19. Remove screw (18), lock nut (19), two washers (20), clamp (21), and wiring harness (5) from bracket (22). Discard lock nut.
20. Remove screw (23), lock nut (24), two washers (25), clamp (26), and wiring harness (5) from bracket (27). Discard lock nut.
21. Remove wiring harness (5) from power plant and carrier.

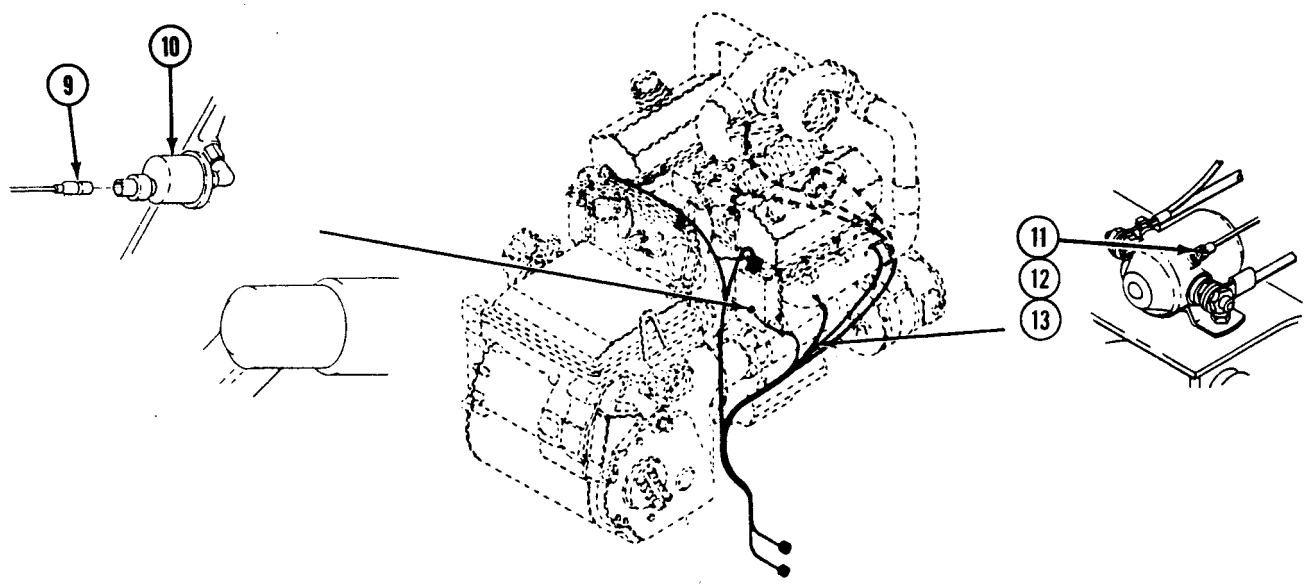


INSTALLATION

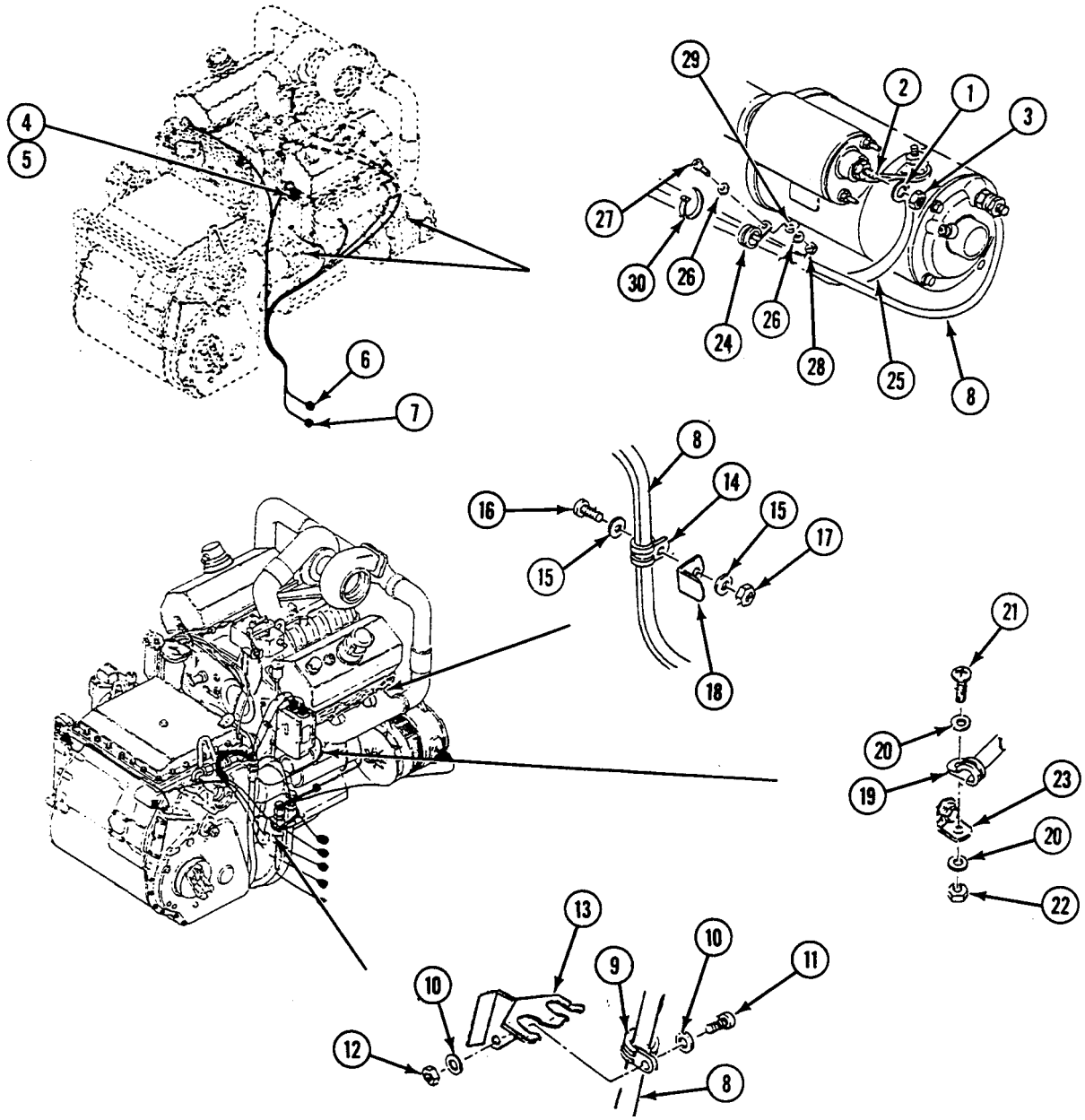
1. Arrange power plant wiring harness on power plant with branches and connectors arranged near mating receptacles.
2. Connect circuit 406, 406A connector (1) to air heater box receptacle (2).
3. Connect circuit 33 connector (3) to engine coolant temperature transmitter receptacle (4).
4. Connect circuit 327 connector (5) to transmission high oil temperature switch receptacle (6).
5. Connect circuit 1A, 1B connector (7) to fuel pressure switch receptacle (8).



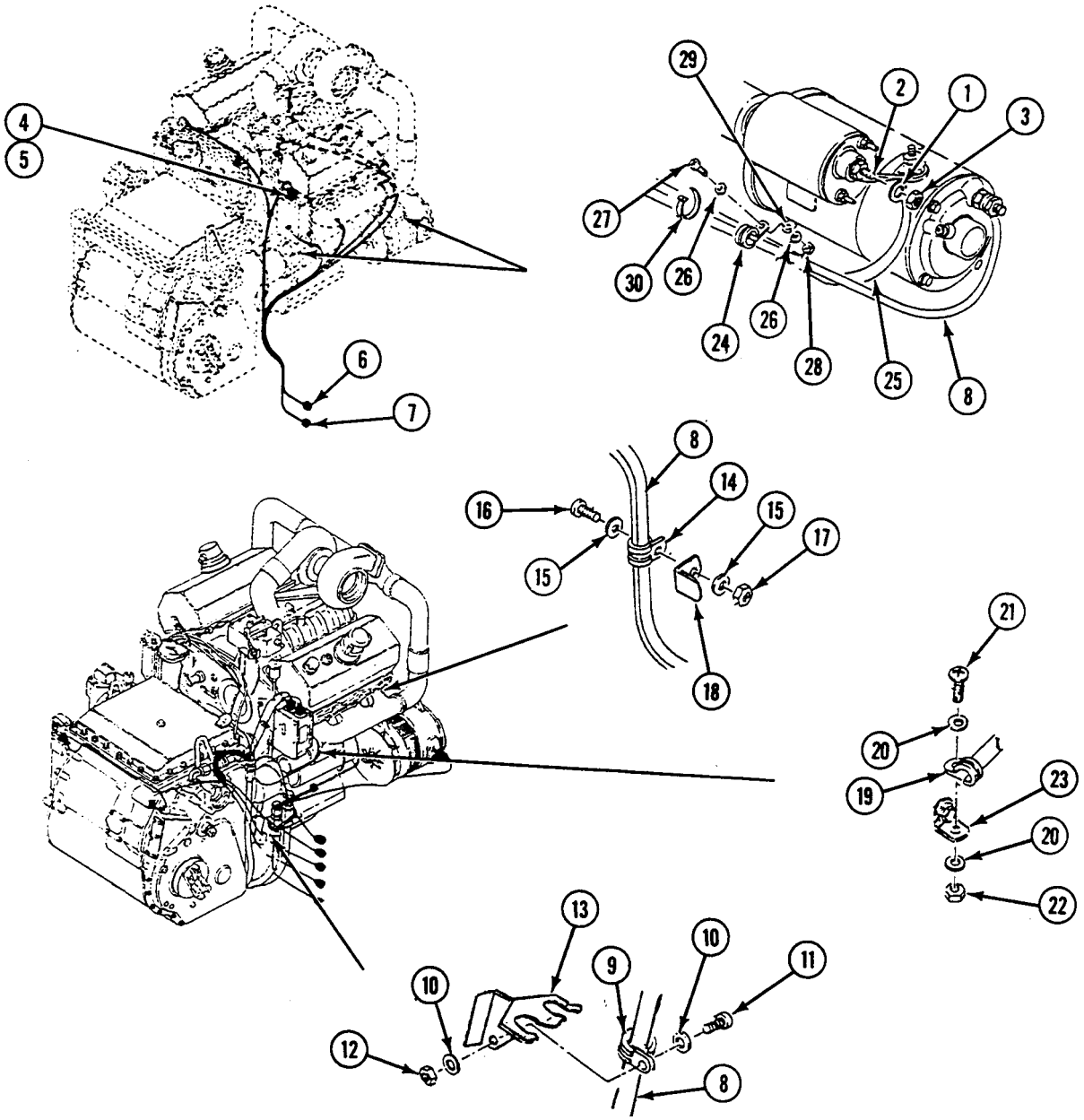
6. Connect circuit 34 connector (9) to transmission low oil pressure switch receptacle (10).
7. Connect circuit 74A lead (11) to start relay terminal X2 (12). Secure with nut (13).



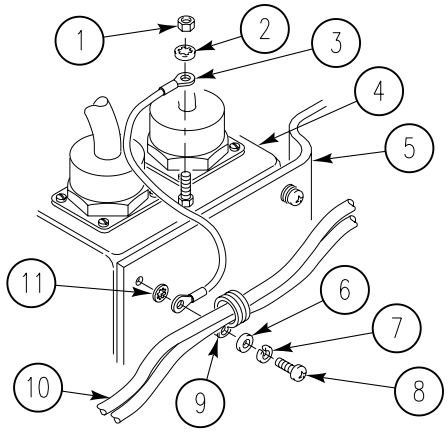
8. Connect circuit 6 lead (1) to starter solenoid terminal (2). Secure with nut (3).
9. Connect circuit 1B lead (4) to voltage regulator receptacle (5).
10. Connect wiring harness connector P2 (6) and wiring harness connector P3 (7) to receptacles on battery box bulkhead in carrier.
11. Install wiring harness (8), clamp (9), two washers (10), screw (11), and new lock nut (12) on bracket (13) on power plant.



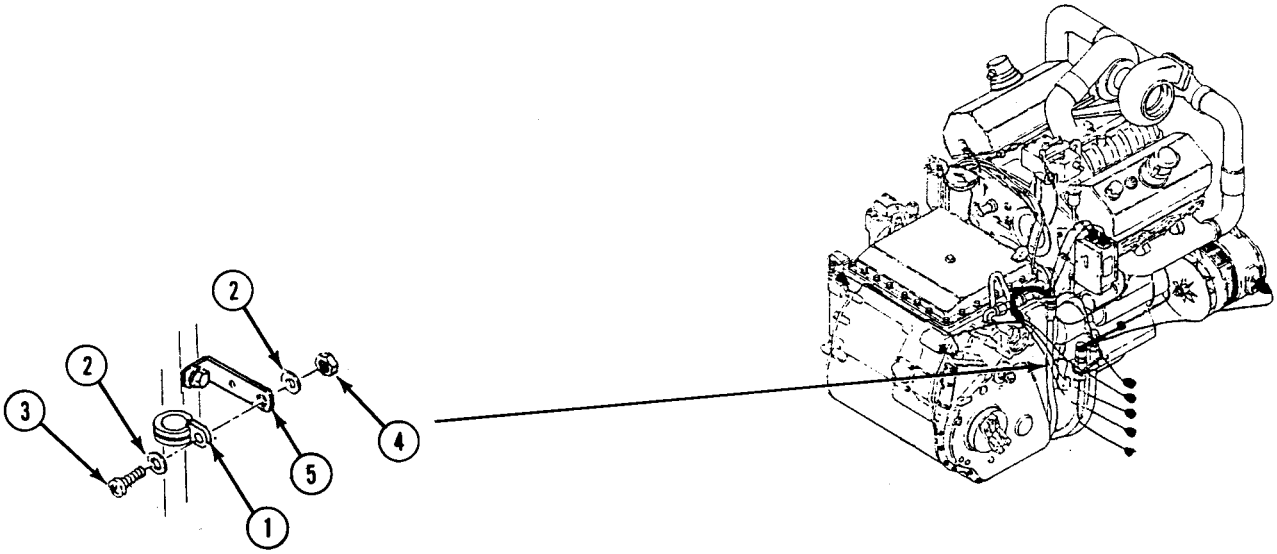
12. Install clamp (14), two washers (15), screw (16), new lock nut (17), and wiring harness (8) on bracket (18).
13. Install two clamps (19), four washers (20), two screws (21), and new lock nuts (22) on brackets (23).
14. Install clamp (24), wiring harness (8), electrical cable (25), two washers (26), screw (27), new lock nut (28) on bracket (29).
15. Install new strap (30) on wiring harness (8) and electrical cable (25).



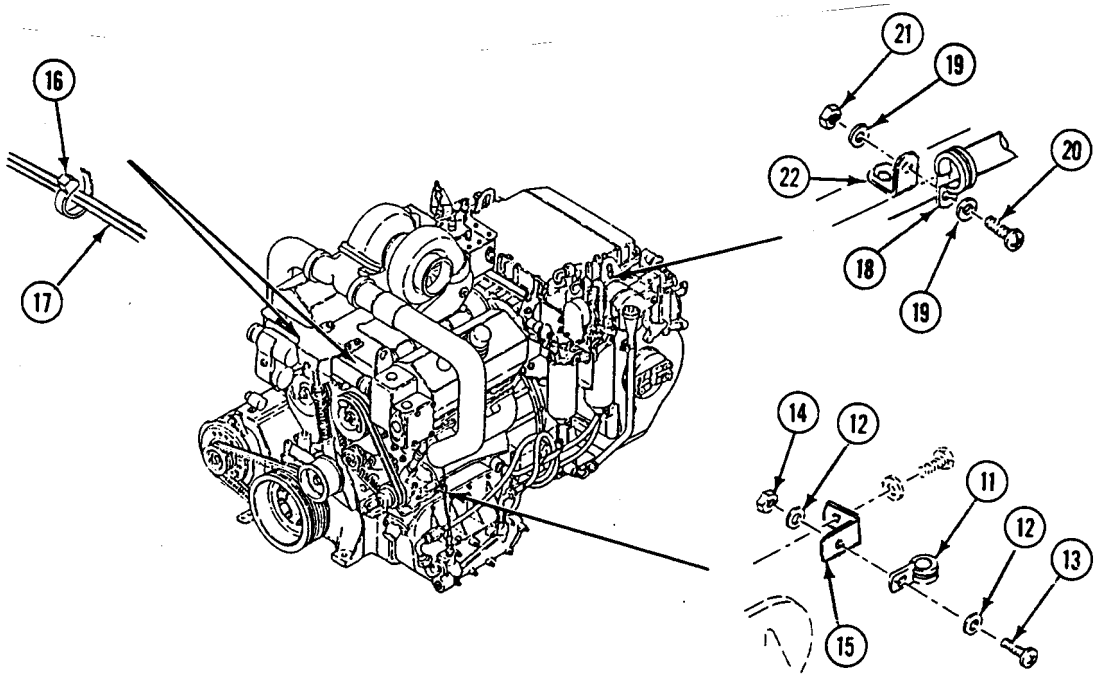
16. Install washer (11), clamp (9) with 1A/1B leads (10), washer (6), new lock washer (7), and screw (8) to regulator bracket (5).
17. Install lead (3), washer (2), nut (1) to regulator (4).



18. Install two clamps (1), four washers (2), two screws (3), and new lock nuts (4) on bracket (5) on transmission.



19. Install two clamps (11), four washers (12), two screws (13), and new lock nuts (14) on brackets (15).
20. Install two new straps (16) on wiring harness (17).
21. Install clamp (18), two washers (19), screw (20), and new lock nut (21) on bracket (22) on transmission.



FOLLOW-THROUGH STEPS

1. Install center floor plates (WP 0395 00).
2. Install hull botton access cover (WP 0383 00).
3. Connect both battery negative leads (WP 0292 00).
4. Lower center seat (see your -10).

END OF TASK

REPLACE BATTERY TO REGULATOR CABLE JACK (M548A3) 0299 00

THIS WORK PACKAGE COVERS:

Removal (page 0299 00-2).
Installation (page 0299 00-4).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts
Lock nut
Lock nut (4)

Personnel Required
Unit Mechanic

References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Center seat raised (see your -10)
Both battery negative leads disconnected (WP 0292 00)
Power plant rear access panel removed (see your -10)

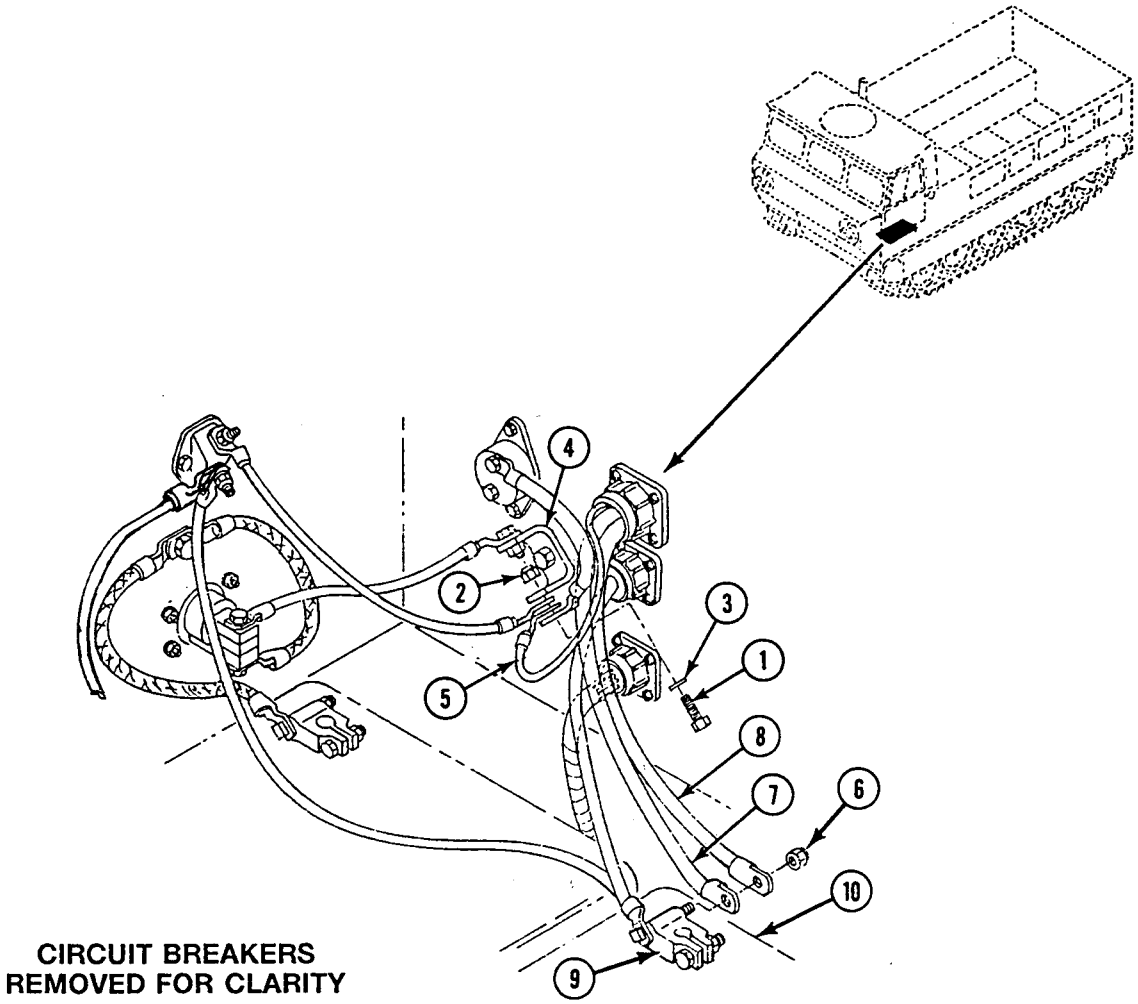
REPLACE BATTERY TO REGULATOR CABLE JACK (M548A3) — Continued 0299 00

REMOVAL

NOTE

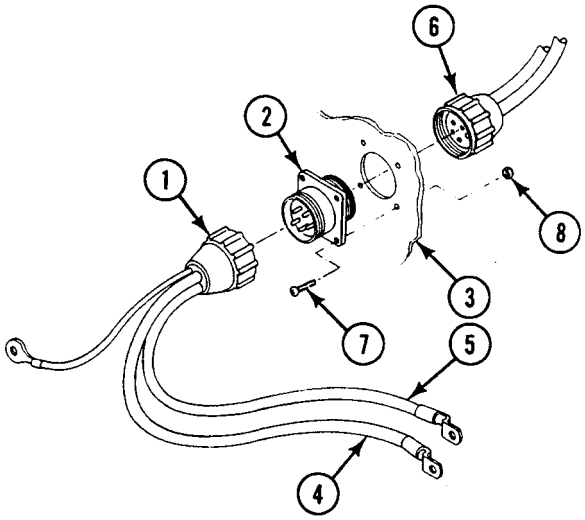
Tag all leads before removing.

1. Remove screw (1), lock nut (2), and washer (3) from bus bar (4) and disconnect circuit 567 lead (5) from bus bar (4). Discard lock nut.
2. Remove nut (6) and disconnect circuit lead 2 (7) and 2A (8) from positive battery terminal (9) on rear battery (10).



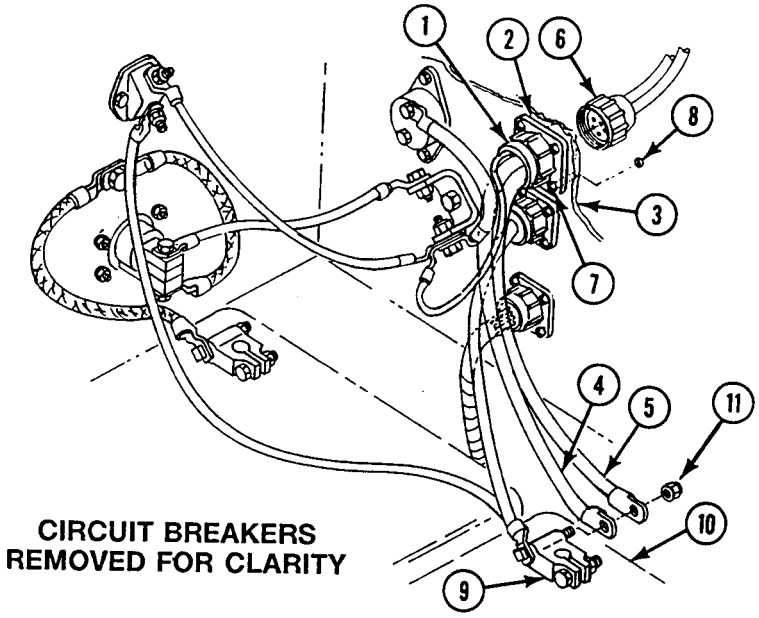
REPLACE BATTERY TO REGULATOR CABLE JACK (M548A3) — Continued 0299 00

3. Disconnect battery to regulator plug (1) from battery to regulator cable jack (2) on inside of battery box bulkhead (3).
4. Remove circuit leads 2 (4) and 2A (5) from inside battery box.
5. Disconnect generator to regulator harness connector (6) from battery to regulator cable jack (2) on battery box bulkhead (3).
6. Remove four screws (7) and lock nuts (8) from battery to regulator cable jack (2) and remove jack from battery box bulkhead (3). Discard lock nuts.

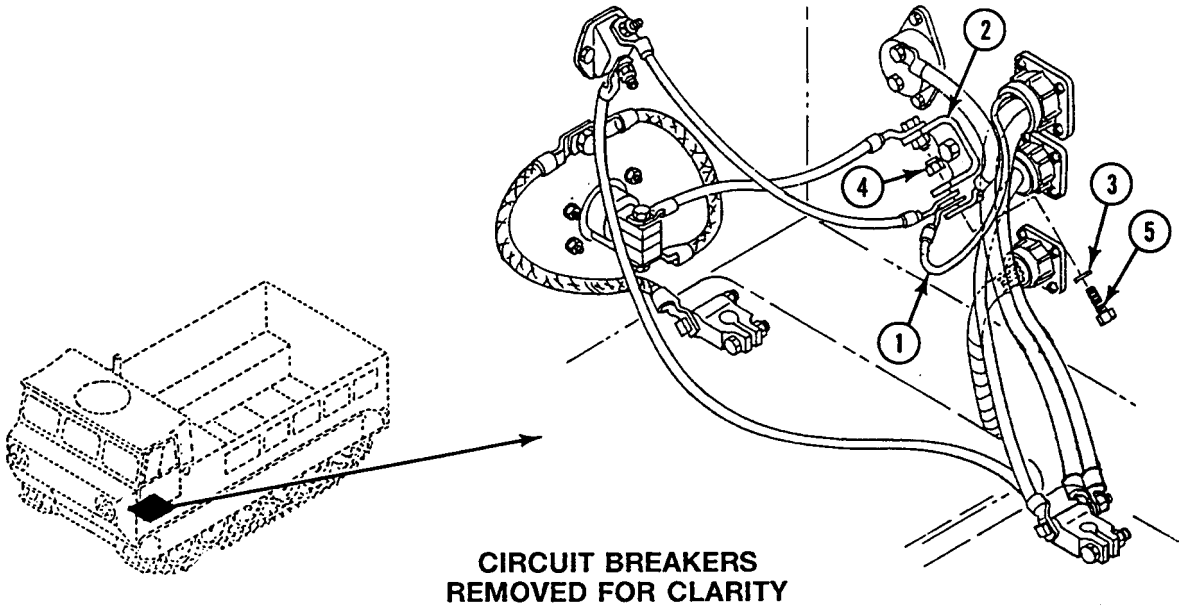


INSTALLATION

1. Install battery to regulator cable jack (2) on inside of battery box bulkhead (3). Secure with four new lock nuts (8) and screws (7).
2. Connect battery to regulator plug (1) to battery to regulator cable jack (2) on battery box bulkhead (3).
3. Connect generator to regulator harness connector (6) to jack (2) on battery box bulkhead (3).
4. Connect circuit lead 2 (4) and 2A (5) to positive battery terminal (9) on rear battery (10). Secure with nut (11).



5. Connect circuit 567 lead (1) to bus bar (2). Secure with washer (3), new lock nut (4), and screw (5).



FOLLOW-THROUGH STEPS

1. Install power plant rear access panel (see your -10).
2. Connect both battery negative leads (WP 0292 00).
3. Lower center seat (see your -10).

END OF TASK

REPLACE ENGINE GROUND LEAD (M548A3) 0300 00

THIS WORK PACKAGE COVERS:

Removal (page 0300 00-2).
Installation (page 0300 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts

Tiedown strap (WP 0542 00, Item 43)
Lock nut
Lock washer

Personnel Required

Unit Mechanic

References

See your -10

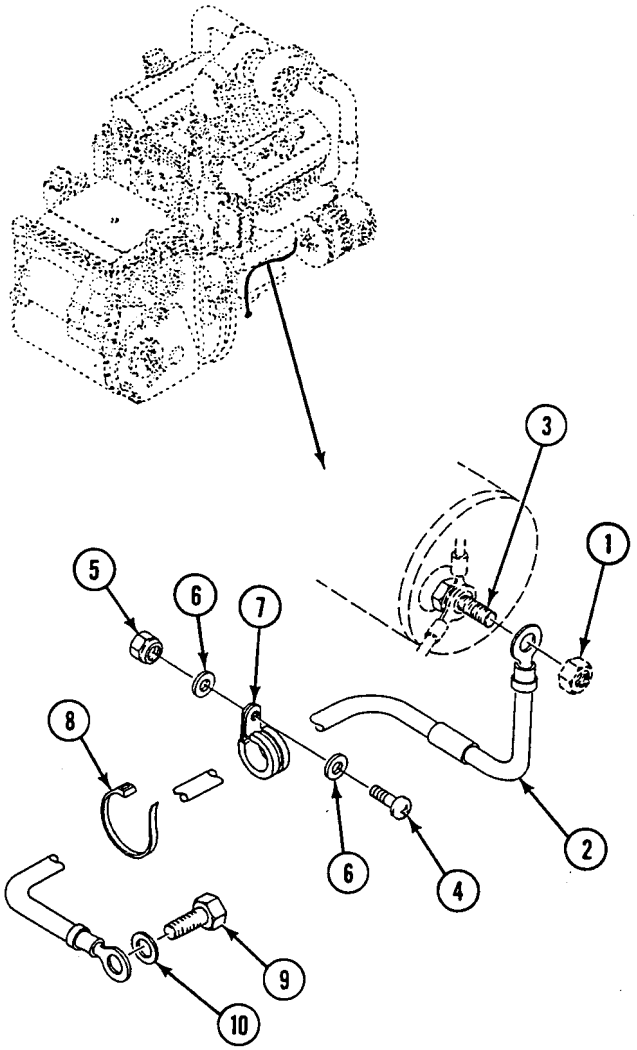
Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Hull bottom access cover removed (WP 0383 00)
Both battery negative leads disconnected (WP 0292 00)

REPLACE ENGINE GROUND LEAD (M548A3) — Continued 0300 00

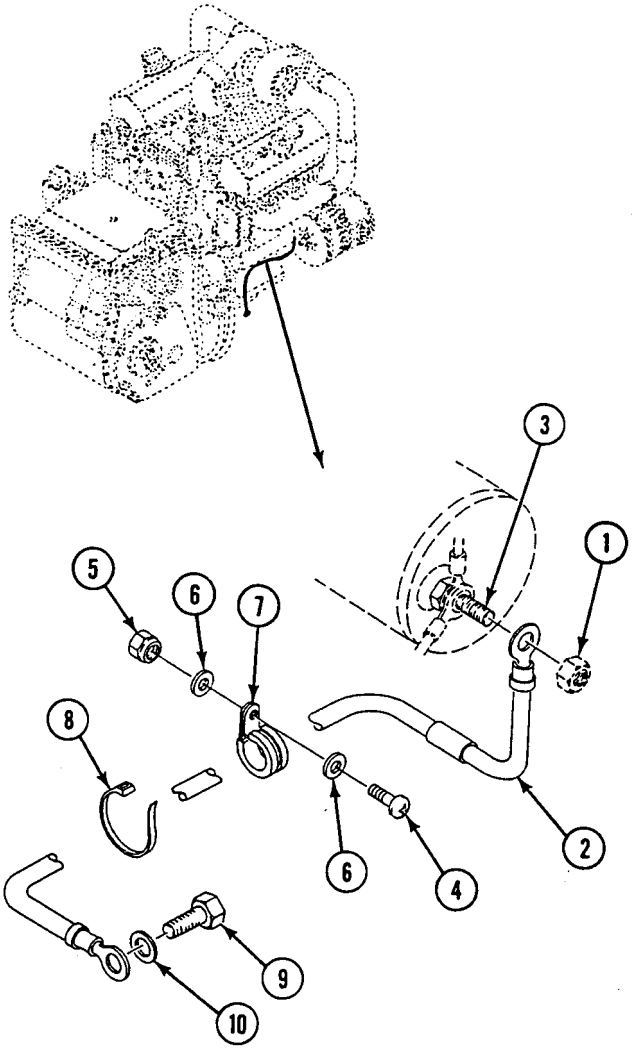
REMOVAL

1. Remove nut (1) and engine ground lead (2) from terminal (3) on starter.
2. Remove screw (4), lock nut (5), two washers (6), and clamp (7). Discard lock nut.
3. Remove tiedown strap (8) from ground lead (2) and engine wiring harness. Discard strap.
4. Remove screw (9), lock washer (10), and engine ground lead (2) from the carrier. Discard lock washer.



INSTALLATION

1. Attach engine ground lead (2) to the carrier hull and secure with screw (9) and new lock washers (10).
2. Attach other end of engine ground lead (2) to terminal (3) on starter. Secure with nut (1).
3. Secure engine ground lead (2) to engine wiring harness with new tiedown strap (8).
4. Secure excess length of engine ground lead (2) with clamp (7), screw (4), new lock nut (5), and two washers (6).



FOLLOW-THROUGH STEPS

1. Install hull bottom access cover (WP 0383 00).
2. Connect both battery negative leads (WP 0292 00).

END OF TASK

REPLACE TRAILER WIRING HARNESS 0301 00

THIS WORK PACKAGE COVERS:

Removal (page 0301 00-1).
Installation (page 0301 00-4).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts

Lock nut (5)
Lock washer (5)

Personnel Required

Unit Mechanic

References

See your -10

Equipment Condition

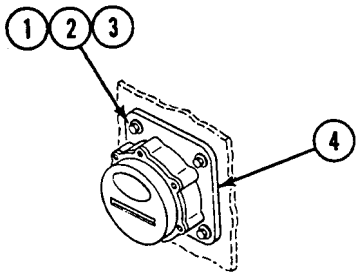
Engine stopped (see your -10)

Carrier blocked (see your -10)

Battery negative lead(s) connected (WP 0292 00)

REMOVAL

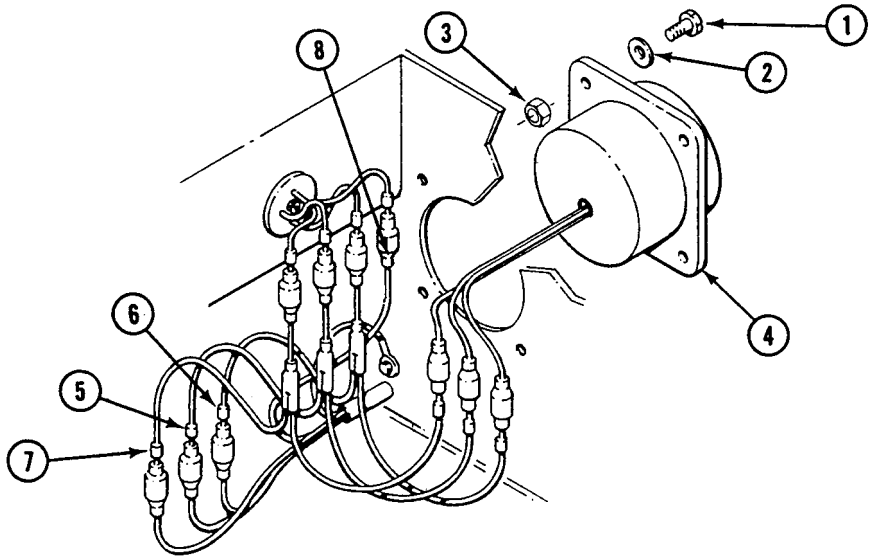
1. Remove four screws (1), lock washers (2), and lock nuts (3) that secure left taillight and bracket (4) to carrier. Discard lock nuts and lock washers.
2. Pull left taillight and bracket (4) from carrier until you can see five leads that go to trailer wiring harness.



CAUTION

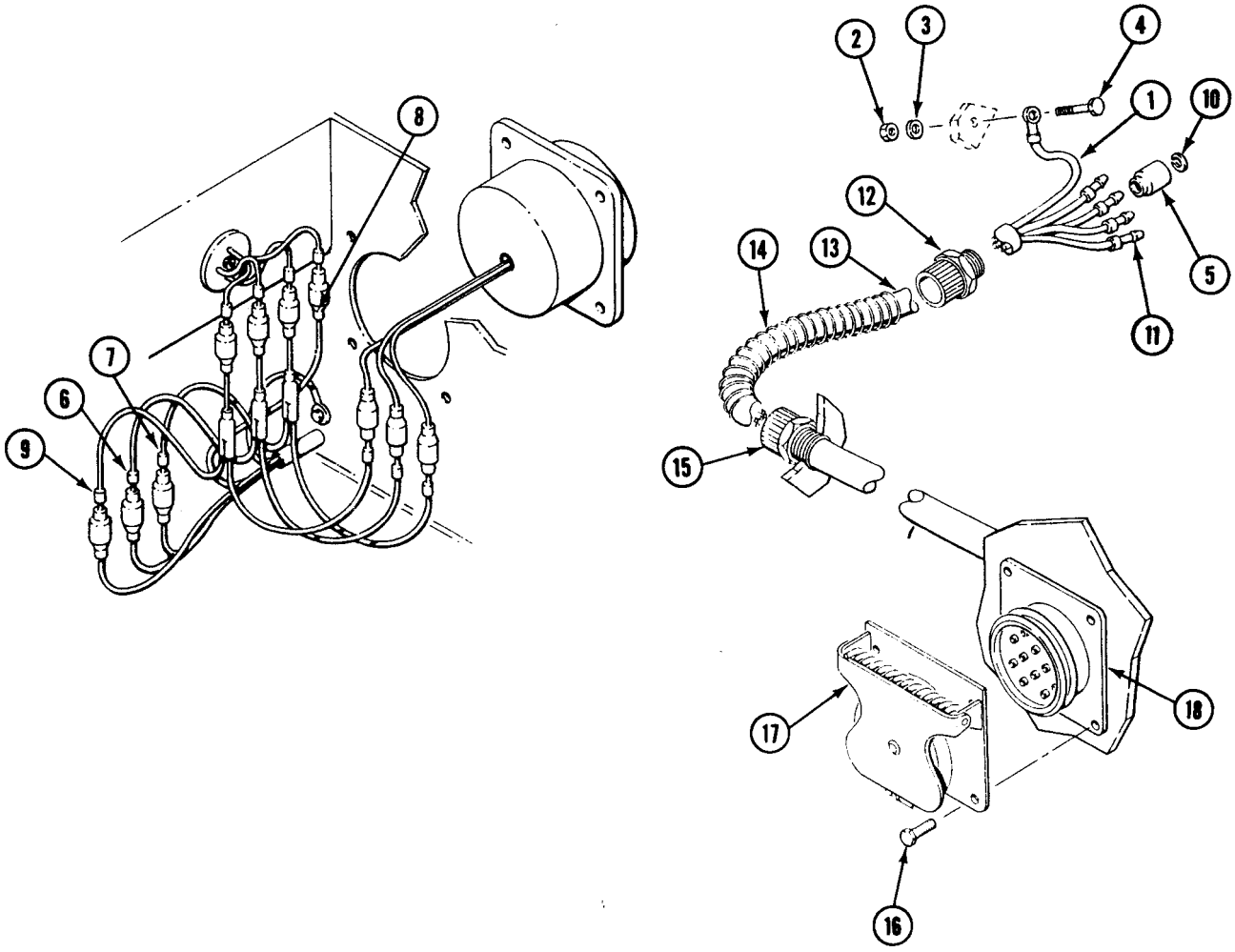
Circuit numbers are identified by marker bands on each lead. Circuits 21 (5), 22 (6), and 24 (7) are split. One lead from each circuit feeds the taillight. The other lead feeds the trailer wiring harness. Circuit 23 (8) feeds only the trailer wiring harness. Do not disconnect taillight leads when removing trailer wiring harness.

3. Disconnect circuit 21 (5), 22 (6), and 24 (7) leads that go to trailer wiring harness. Disconnect circuit 23 (8). Do not disconnect taillight leads.



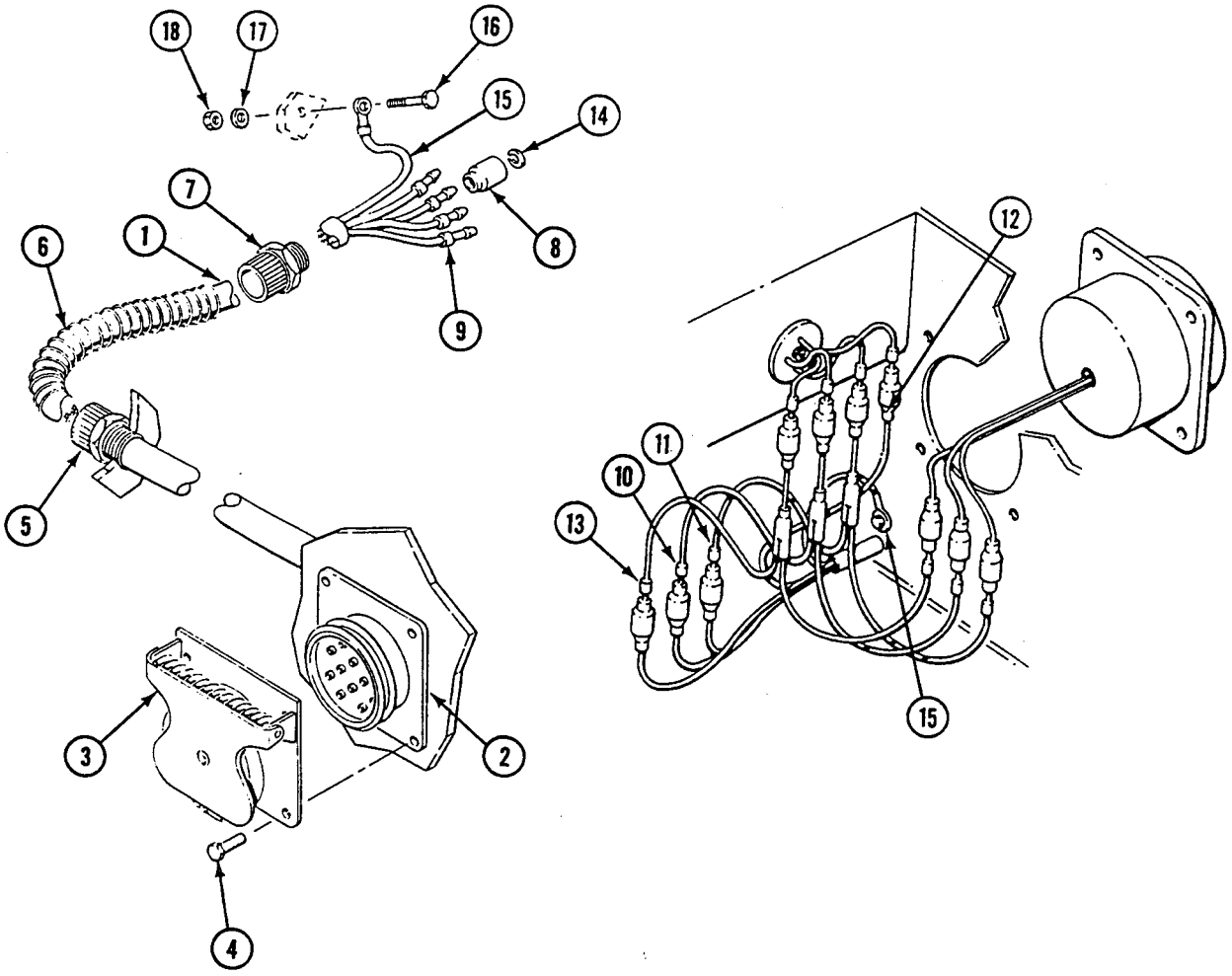
REPLACE TRAILER WIRING HARNESS — Continued **0301 00**

4. Disconnect circuit 90 ground terminal (1) from bulkhead. Remove lock nut (2), lock washer (3), and screw (4) from bulkhead below taillight mounting hole on carrier. Discard lock nut and lock washer.
5. Remove four connector shells (5) from circuit leads 21 (6), 22 (7), 23 (8), and 24 (9). Remove four washers (10) and pull shells from four contacts (11) on circuit leads.
6. Disconnect connector (12) from bulkhead. Pull trailer wiring harness (13) through bulkhead. Remove spring (14).
7. Disconnect connector (15) from tailgate.
8. Remove four screws (16) that secure cover (17) and receptacle (18) to tailgate. Remove cover from tailgate.
9. Pull trailer wiring harness (13) through tailgate.



INSTALLATION

1. Thread trailer wiring harness (1) with receptacle (2) attached through tailgate.
2. Place cover (3) over end of receptacle (2). Attach cover to tailgate with four screws (4).
3. Place connector (5), thread end first, on trailer wiring harness (1). Install connector in tailgate.
4. Place spring (6) on trailer wiring harness (1). Place connector (7), knurled end first, on harness. Push harness through bulkhead. Install connector in bulkhead.
5. Place four connector shells (8), one on each lead, over contacts (9) on ends of circuit leads 21 (10), 22 (11), 23 (12), and 24 (13). Secure shells to leads with four washers (14).

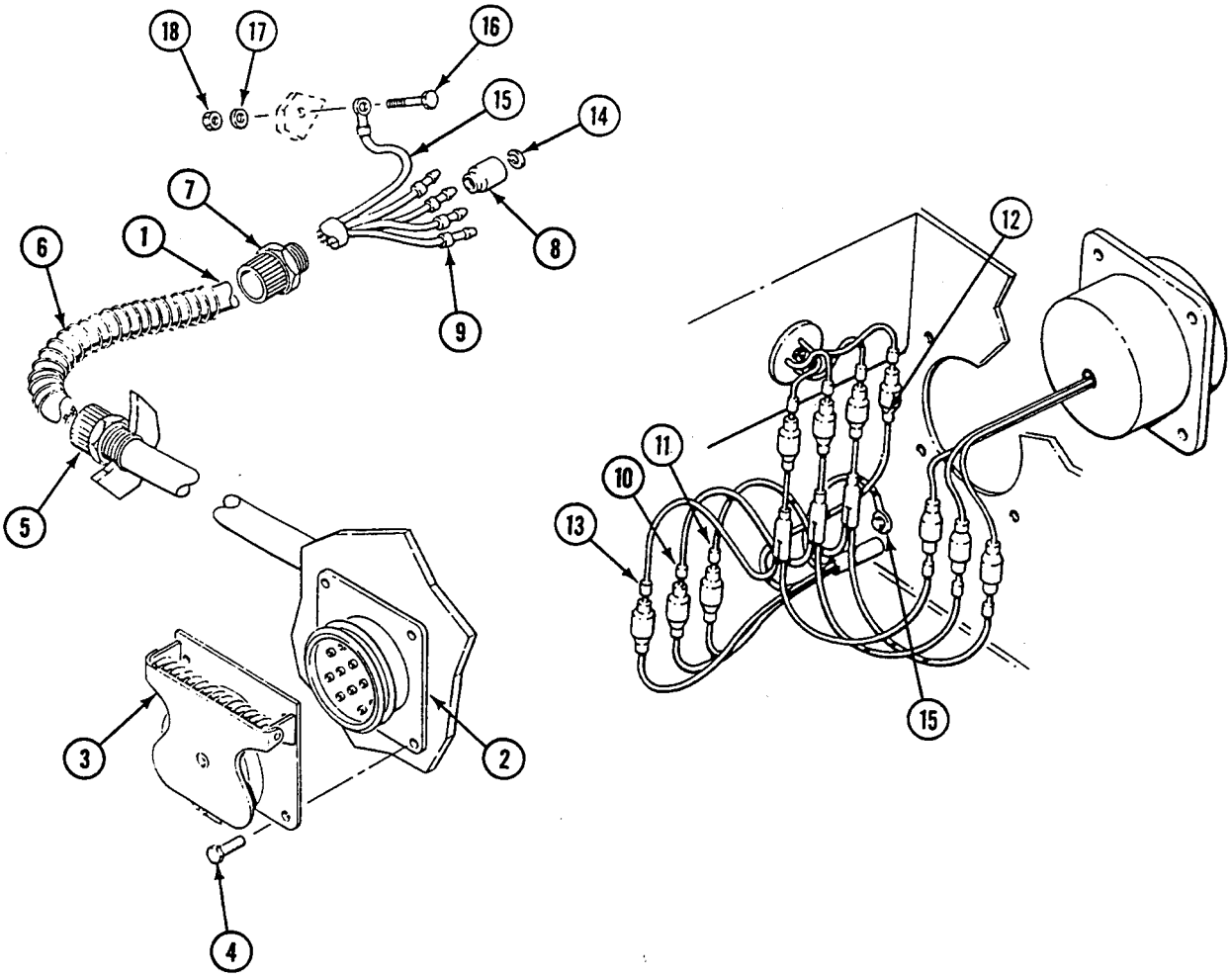


NOTE

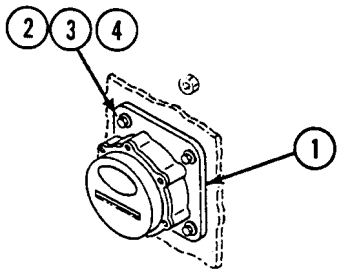
Circuit numbers are identified by marker bands on each lead.

6. Connect trailer wiring harness (1) leads 21 (10), 22 (11), 23 (12), and 24 (13) to their matching leads on taillight wiring harness.

7. Connect circuit 90 ground terminal (15) to bulkhead below taillight mounting hole on carrier with screw (16), new lock washer (17), and new lock nut (18).



8. Attach left taillight and bracket (1) to carrier with four new lock washers (2), new lock nuts (3), and screws (4).



FOLLOW-THROUGH STEPS

1. Connect battery negative lead(s) (WP 0292 00).
2. Check trailer wiring harness for proper operation.

END OF TASK

REPLACE FUEL PUMP WIRING HARNESS (M548A3) 0302 00

THIS WORK PACKAGE COVERS:

Removal (page 0302 00-1).
Installation (page 0302 00-3).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts
Grommet

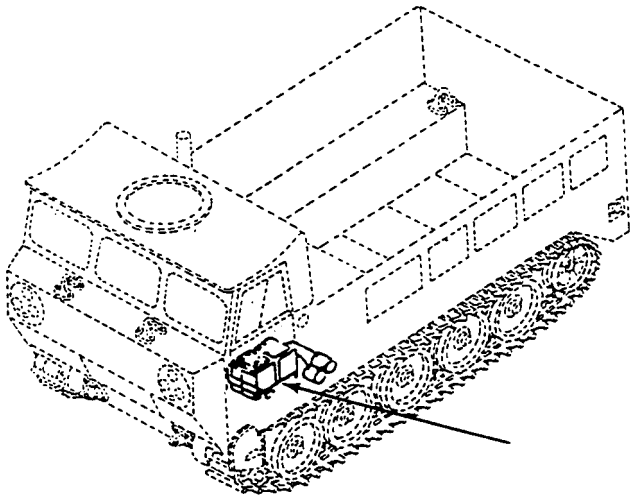
Personnel Required
Unit Mechanic
Helper (H)

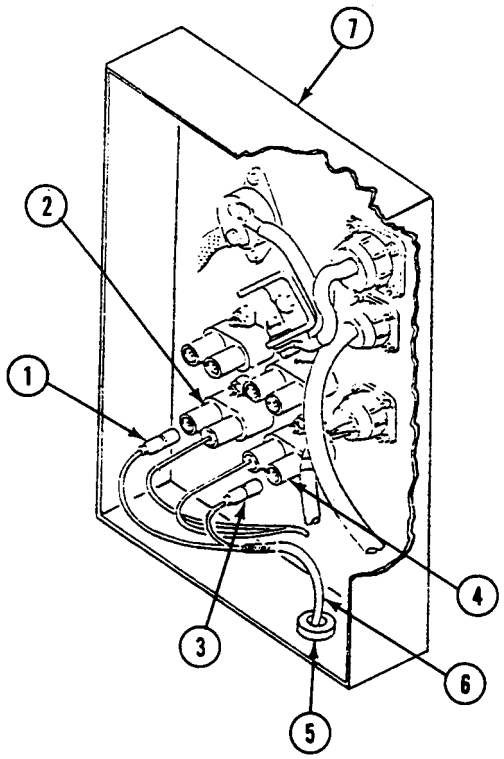
References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Both battery negative leads disconnected (WP 0292 00)
Driver's side front battery removed (WP 0293 00)
Hull bottom access cover removed (WP 0383 00)

REMOVAL

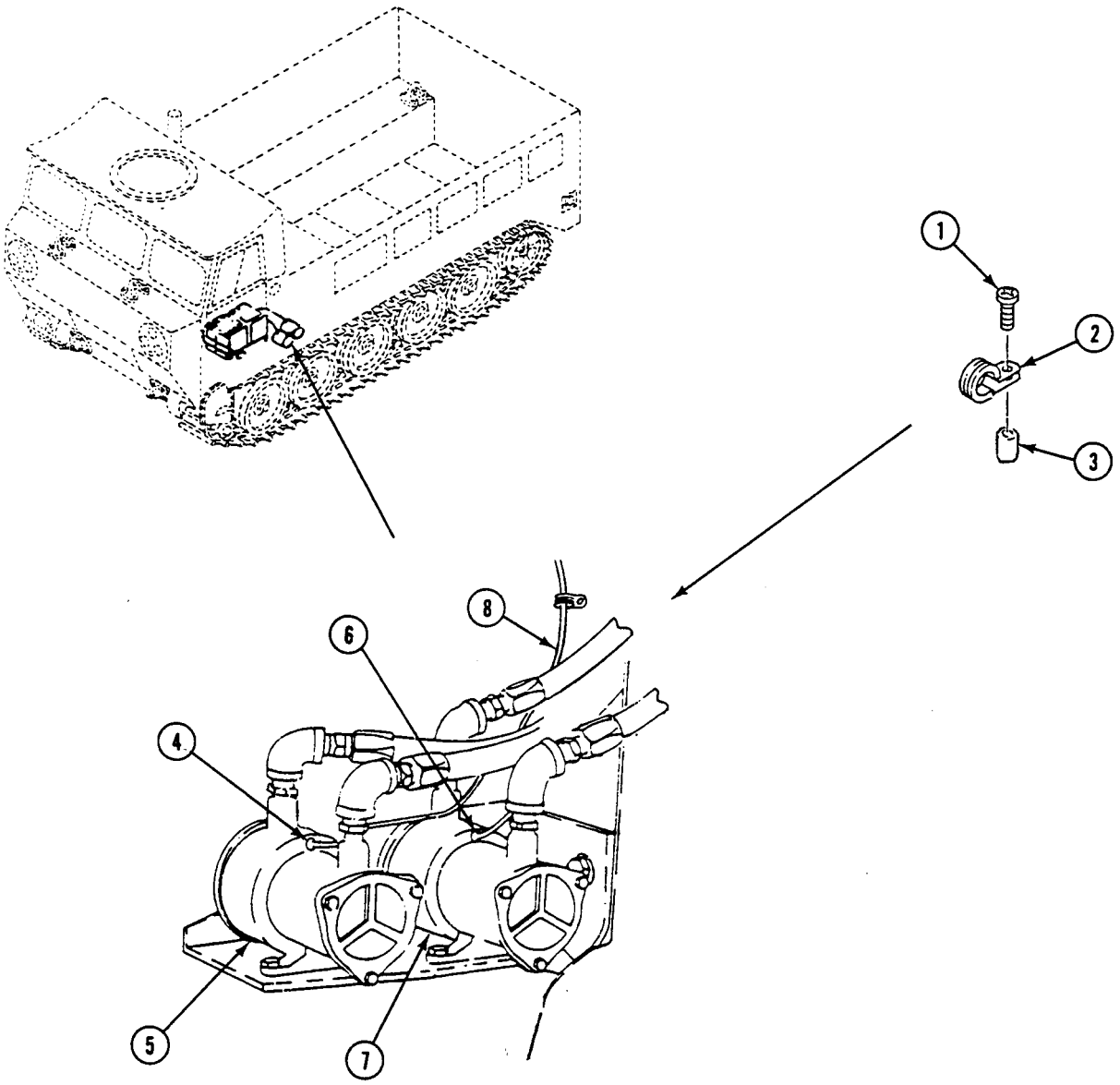
1. Disconnect lead 77A (1) from circuit breaker (2) and lead 78A (3) from circuit breaker (4).
2. Remove grommet (5) and harness (6) from bottom of battery box (7). Have helper assist. Discard grommet.





REPLACE FUEL PUMP WIRING HARNESS (M548A3) — Continued **0302 00**

3. Remove screw (1) and clamp (2) from weld nut (3) on hull.
4. Disconnect opposite end of circuit 77A lead (4) from front fuel pump (5).
5. Disconnect opposite end of circuit 78A lead (6) from rear fuel pump (7).
6. Remove fuel pump wiring harness (8) from carrier. Have helper assist.

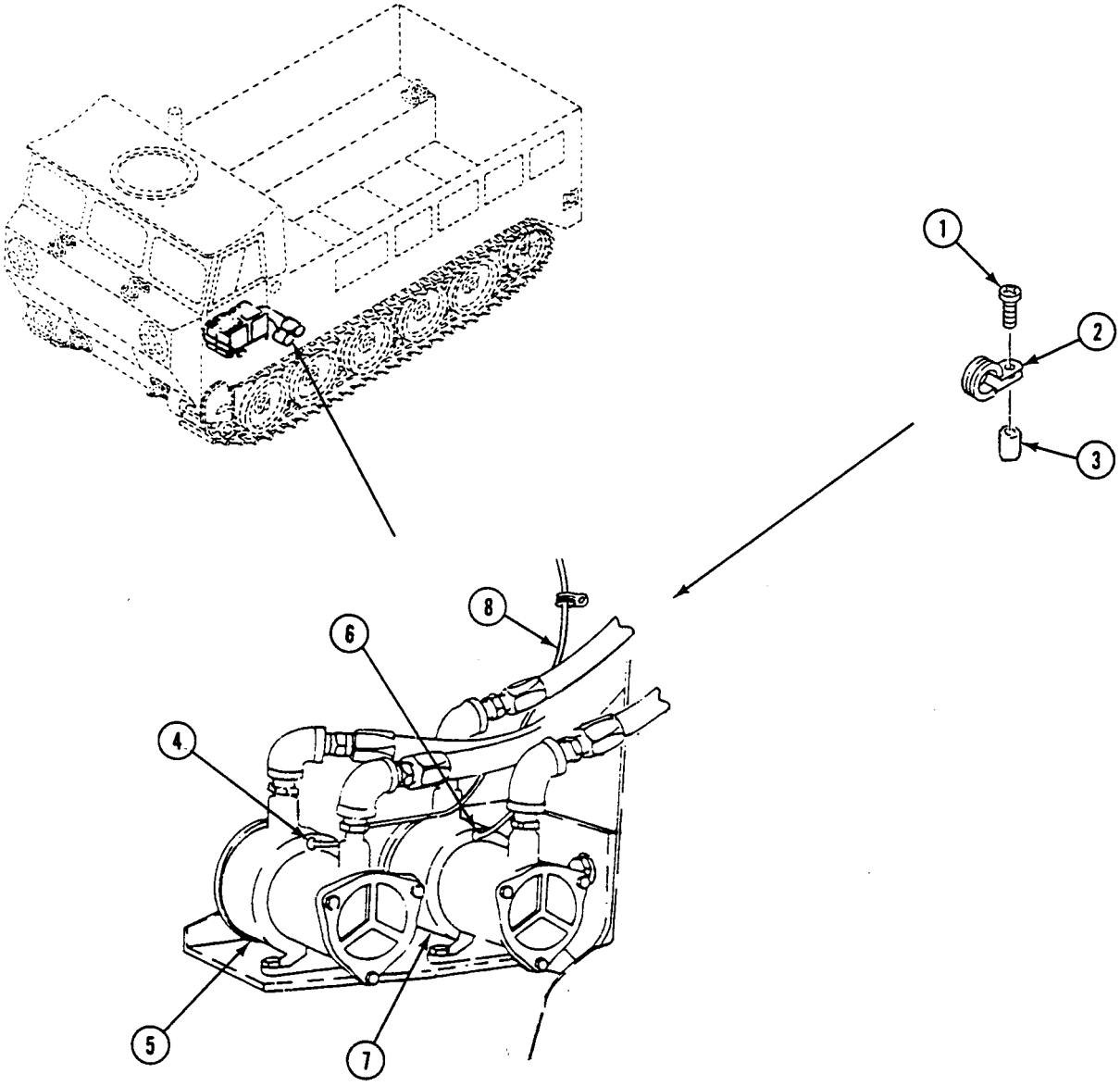


INSTALLATION

NOTE

Circuits 77, 77A, 78, and 78A are attached to fuel pump circuit breakers. They can be attached to either circuit breaker as long as 77 and 77A are paired together and 78 and 78A are attached to the other circuit breaker.

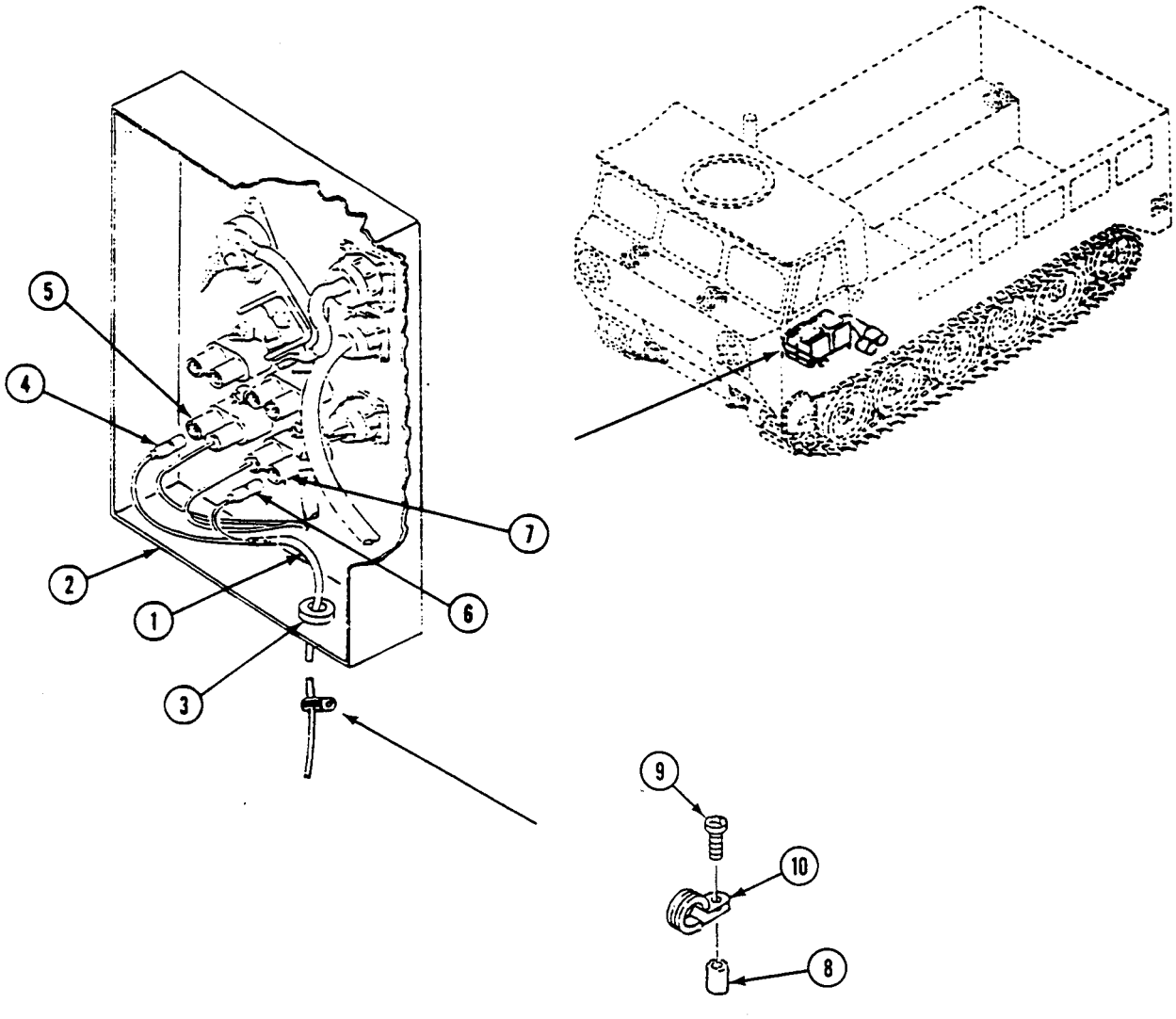
1. Connect end of circuit 78A lead (6) to rear fuel pump (7).
2. Connect end of circuit 77A lead (4) to front fuel pump (5).



3. Route fuel pump wiring harness (1) from fuel pumps through bottom of battery box (2) with new grommet (3). Have helper assist.

4. Connect opposite end of lead 77A (4) to circuit breaker (5) and lead 78A (6) to circuit breaker (7).

5. Secure fuel pump wiring harness (1) to weld nut (8) on hull with screw (9) and clamp (10).



FOLLOW-THROUGH STEPS

1. Install driver's side front battery (WP 0293 00).

2. Connect both battery negative leads (WP 0292 00).

3. Install hull bottom access cover (WP 0383 00).

END OF TASK

REPLACE AUXILIARY POWER (SLAVE) RECEPTACLE 0303 00

THIS WORK PACKAGE COVERS:

Removal (page 0303 00-2).
Installation (page 0303 00-4).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)
Socket Wrench (WP 0541 00, Item 64)

Materials/Parts

Gasket
Lock nut (4) (late model)
Lock washer (2) (late model)

Personnel Required

Unit Mechanic

References

See your -10

Equipment Condition

Engine stopped (see your -10)

Carrier blocked (see your -10)

Drivers seat raised (see your -10)

Battery negative lead(s) disconnected (WP 0292 00)

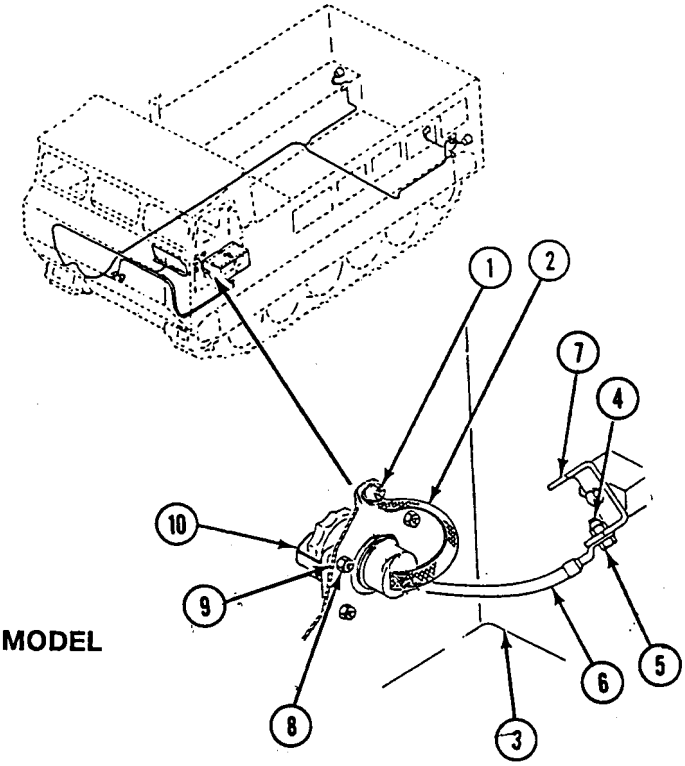
REPLACE AUXILIARY POWER (SLAVE) RECEPTACLE — Continued 0303 00

REMOVAL

NOTE

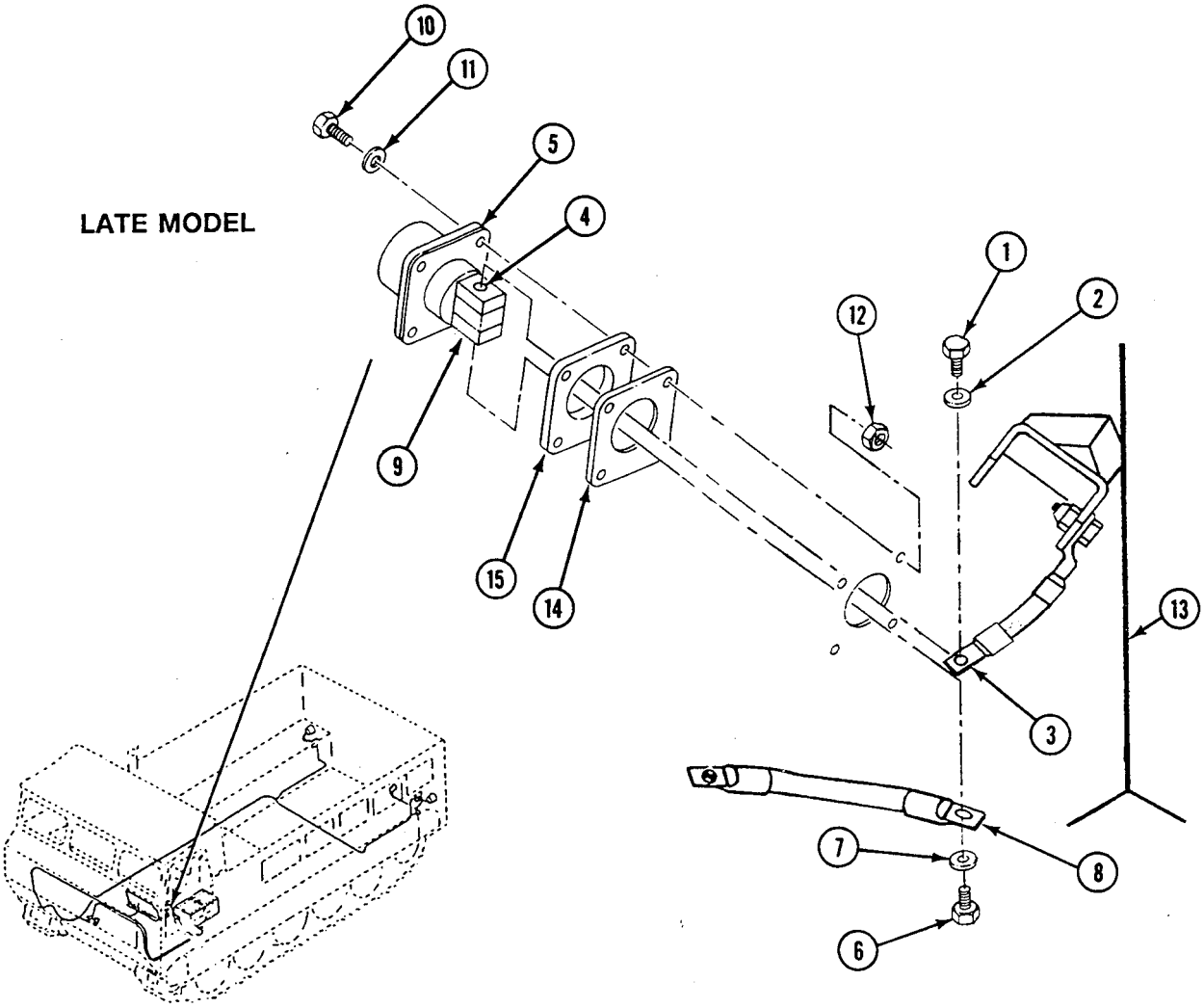
Steps 1 - 3 tell you how to remove the early model auxiliary power receptacles. Steps 4 - 7 tell you how to remove the late model auxiliary power receptacles.

1. Remove nut (1). Remove auxiliary power receptacle ground lead (2) from bulkhead (3).
2. Remove nut (4) from screw (5). Remove screw (5) and auxiliary power receptacle circuit 49 lead (6) from bus bar (7).
3. Remove four nuts (8) from screws (9). Remove auxiliary power receptacle (10) from bulkhead (3).



EARLY MODEL

4. Remove screw (1), lock washer (2), and circuit 50 lead (3) from positive post (4) of auxiliary power receptacle (5). Discard lock washer.
5. Remove screw (6), lock washer (7), and ground lead (8) from negative post (9) of auxiliary power receptacle (5). Discard lock washer.
6. Remove four screws (10), washers (11), lock nuts (12), and auxiliary power receptacle (5) from bulkhead (13). Discard lock nuts.
7. Remove gasket (14) and insulator (15) from bulkhead (13). Discard gasket.



INSTALLATION

NOTE

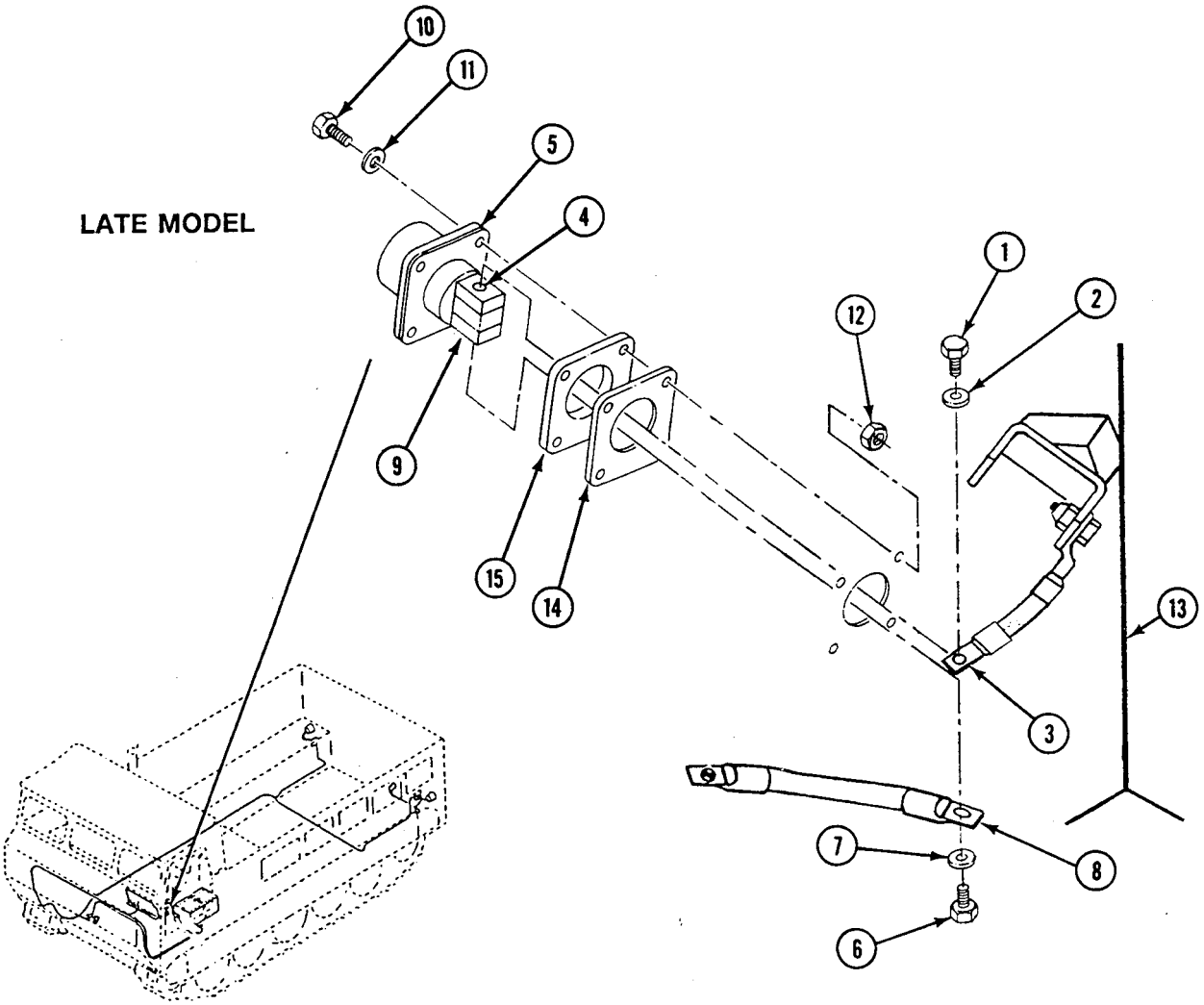
Steps 1 - 3 tell you how to install the late model auxiliary power receptacles. Steps 5 - 7 tell you how to install the early model auxiliary power receptacles.

Make sure protective cap retaining cord is attached to receptacle lower mount screw.

1. Install insulator (15), new gasket (14), and auxiliary power receptacle (5) in bulkhead (13). Secure with four screws (10), washers (11), and new lock nuts (12).

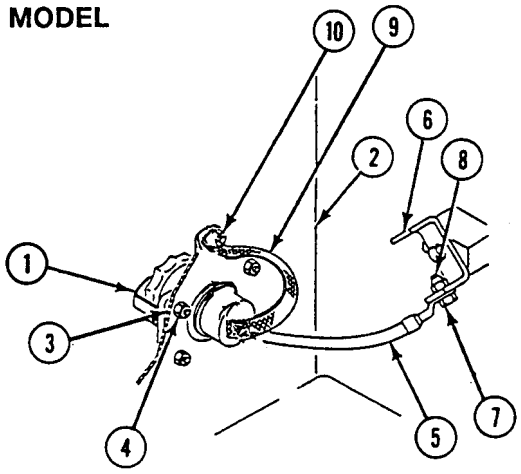
2. Install ground lead (8) on negative post (9) of auxiliary power receptacle (5). Secure with screw (6) and new lock washer (7).

3. Install circuit 50 lead (3) on positive post (4) of auxiliary power receptacle (5). Secure with screw (1) and new lock washer (2).



4. Align four holes in auxiliary power receptacle (1) with holes in bulkhead (2).
5. Install four screws (3) through auxiliary power receptacle (1) and bulkhead (2). Secure with four nuts (4).
6. Install auxiliary power receptacle circuit 49 lead (5) on bus bar (6). Secure with screw (7) and nut (8).
7. Install auxiliary power receptacle ground lead (9) on bulkhead (2). Secure with nut (10).

EARLY MODEL



FOLLOW-THROUGH STEPS

1. Connect battery negative lead(s) (WP 0292 00).
2. Turn MASTER SWITCH ON (see your -10).
3. Start engine (see your -10).
4. Lower driver's seat (see your -10).

END OF TASK

CHAPTER 9

UNIT MAINTENANCE INSTRUCTIONS FOR TRANSMISSION

WORK PACKAGE INDEX

Title	Sequence No.
REPLACE TRANSMISSION VENT TUBE, GAUGE ROD, AND FILLER NECK (M548A1)	0304 00
REPLACE TRANSMISSION OIL LEVEL GAUGE ROD, FILLER TUBE, AND ADAPTER (M548A3)	0305 00
REPLACE TRANSMISSION SHIFT CONTROL (M548A3)	0306 00
REPLACE TRANSMISSION SHIFT CONTROL LAMP (M548A3)	0307 00
REPLACE NEUTRAL START SWITCH	0308 00
REPLACE TRANSMISSION SHIFT CONTROL SWITCH (M548A3)	0309 00
REPLACE TOW START CABLE/COVER (M548A3)	0310 00
ADJUST TOW START CONTROL CABLE ASSEMBLY (M548A3)	0311 00
ADJUST TRANSMISSION STEERING (M548A3)	0312 00
CHECK TRANSMISSION BRAKE ADJUSTMENT (M548A3)	0313 00
ADJUST TRANSMISSION BRAKES (M548A3)	0314 00
REPLACE TRANSMISSION RANGE SELECTOR LINKAGE (M548A1)	0315 00
ADJUST TRANSMISSION RANGE SELECTOR CONTROL AND LINKAGE (M548A1)	0316 00
REPLACE GOVERNOR ASSEMBLY (M548A3)	0317 00
REPLACE TRANSMISSION OIL HOSES AND FITTINGS (M548A1)	0318 00
REPLACE TRANSMISSION OIL HOSES AND FITTINGS (M548A3)	0319 00
REPLACE TRANSMISSION OIL FILTER ELEMENT (M548A1)	0320 00
REPLACE TRANSMISSION OIL FILTER ELEMENT (M548A3)	0321 00
REPLACE TRANSMISSION AOAP VALVE, HOSE, AND BRACKET (M548A1)	0322 00
REPLACE TRANSMISSION OIL SAMPLING VALVE, GUARD, AND PRESSURE SWITCH (M548A3)	0323 00
REPLACE DIFFERENTIAL PRESSURE SWITCH AND BYPASS PLUG (M548A3)	0324 00

REPLACE TRANSMISSION VENT TUBE, GAUGE ROD, AND FILLER NECK (M548A1) 0304 00

THIS WORK PACKAGE COVERS:

Removal (page 0304 00-2).
Installation (page 0304 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts

Cleaning compound (WP 0542 00, Item 9)
Lock nut
Tab washer

Personnel Required

Unit Mechanic

References

See your -10

Equipment Condition

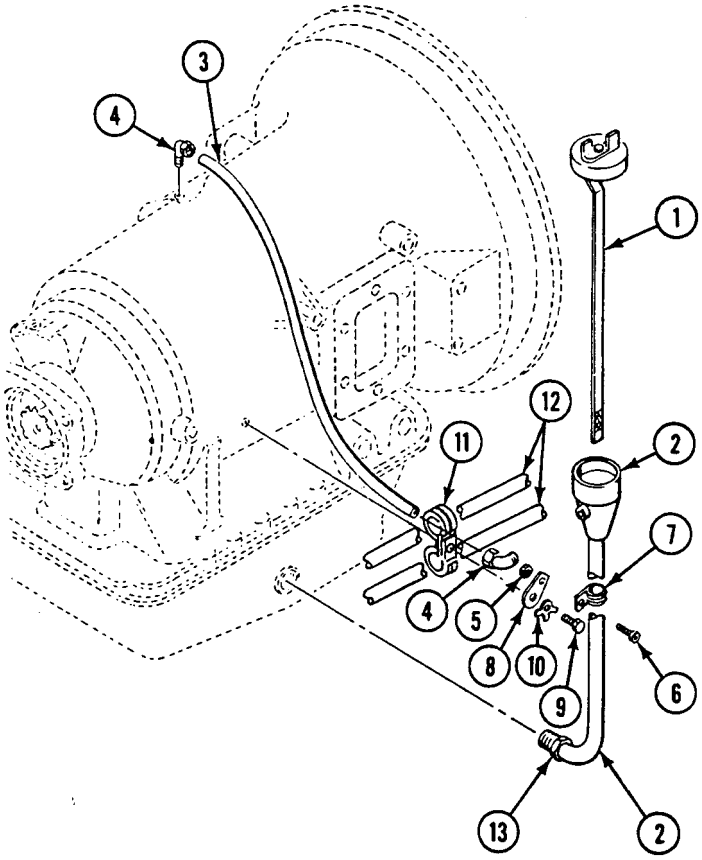
Engine stopped (see your -10)
Carrier blocked (see your -10)
Center seat raised (see your -10)
Transmission drained (WP 0128 00)
Left grille removed (WP 0372 00)
Air cleaner removed (WP 0152 00)
Battery negative lead disconnected (WP 0292 00)
Power plant lower rear access cover removed (see your -10)

REPLACE TRANSMISSION VENT TUBE, GAUGE ROD, AND FILLER NECK (M548A1) — Continued

0304 00

REMOVAL

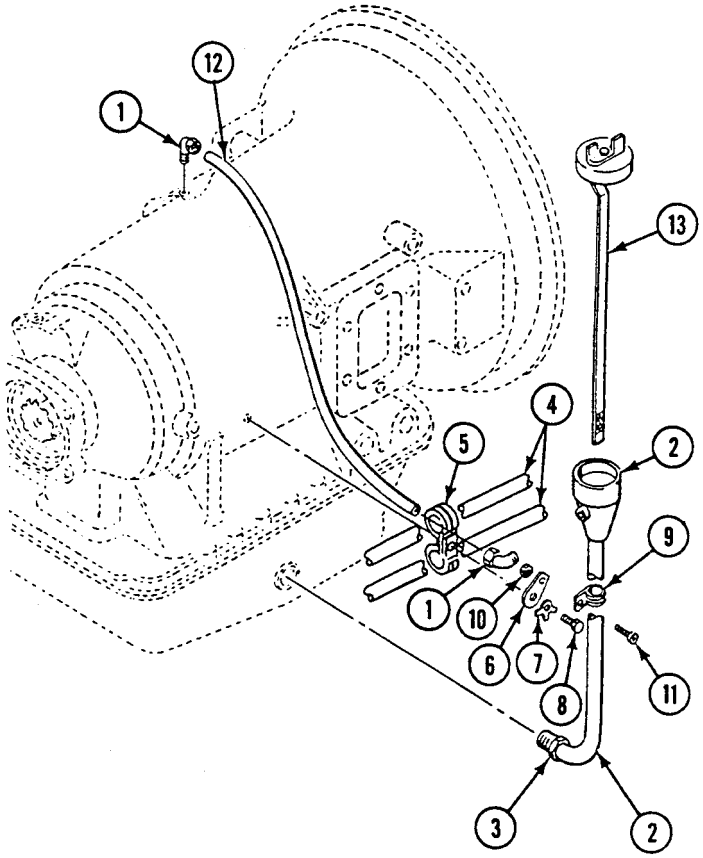
1. Turn cap and gauge rod (1) to the left and remove from filler neck (2).
2. Disconnect vent tube (3) at two elbows (4).
3. Remove lock nut (5), screw (6), and clamp (7) that secure filler neck (2) to bracket (8). Discard lock nut.
4. Remove screw (9), tab washer (10), bracket (8), two clamps (11), and hoses (12) from transmission. Remove bracket. Discard tab washer.
5. Loosen nut (13) and remove filler neck (2) from transmission.
6. Remove two elbows (4) from transmission and filler neck (2).



REPLACE TRANSMISSION VENT TUBE, GAUGE ROD, AND FILLER NECK (M548A1) — Continued **0304 00**

INSTALLATION

1. Install two elbows (1) in transmission and filler neck (2).
2. Install filler neck (2) on transmission and tighten nut (3).
3. Install two hoses (4), clamps (5), and bracket (6) on transmission with new tab washer (7) and screw (8).
4. Install clamp (9) on bracket (6) with new lock nut (10) and screw (11).
5. Connect vent tube (12) at two elbows (1).
6. Insert cap and gauge rod (13) in filler neck (2) and turn right to secure.



FOLLOW-THROUGH STEPS

1. Fill transmission (WP 0128 00).
2. Lower center seat (see your -10).
3. Install left grille (WP 0372 00).
4. Install air cleaner (WP 0152 00).
5. Connect battery negative lead (WP 0292 00).
6. Install power plant lower rear access cover (see your -10).

END OF TASK

REPLACE TRANSMISSION OIL LEVEL GAUGE ROD, FILLER TUBE, AND ADAPTER (M548A3) 0305 00

THIS WORK PACKAGE COVERS:

Removal (page 0305 00-1).
Installation (page 0305 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)
Socket Wrench Set (WP 0541 00, Item 64)
Torque Wrench (WP 0541 00, Item 71)

Materials/Parts

Gasket
Lock washer
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)

Power plant removed (WP 0131 00)

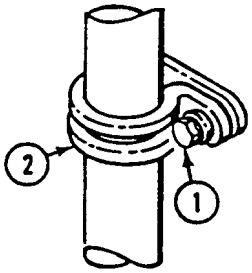
Transmission oil drained (see your PMCS)

REMOVAL

NOTE

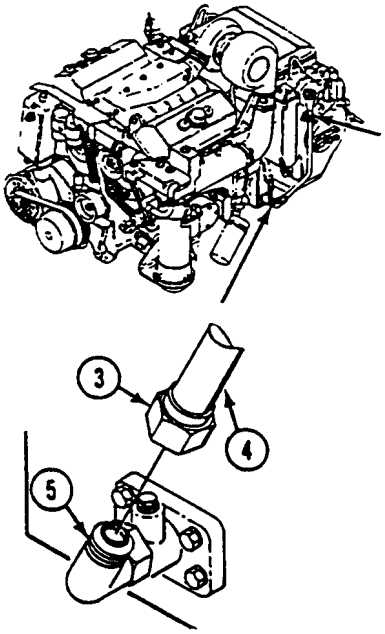
Transmission must be drained before starting task.

1. Loosen screw (1) on clamp (2). Do not remove screw.

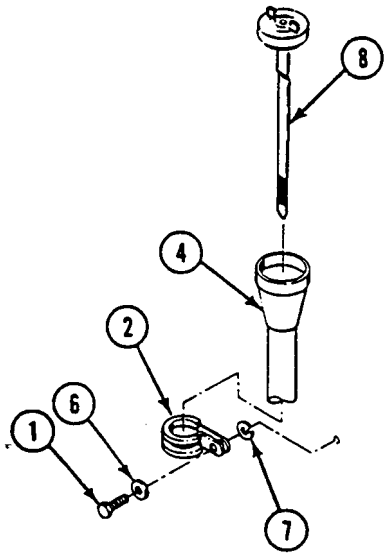


REPLACE TRANSMISSION OIL LEVEL GAUGE ROD, FILLER TUBE, AND ADAPTER (M548A3) — Continued **0305 00**

2. Remove coupling nut (3) and filler tube (4) from elbow (5).



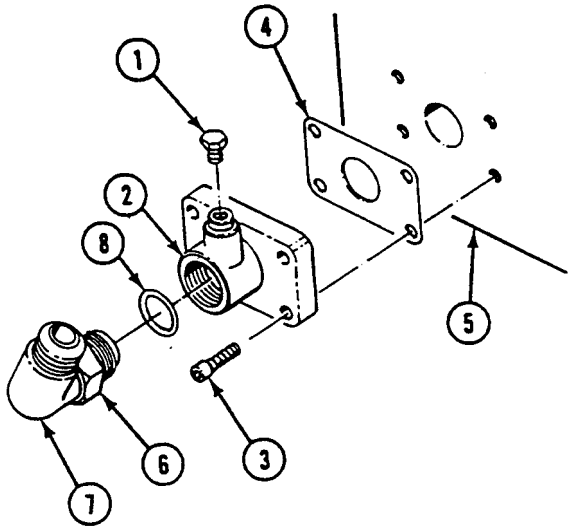
3. Remove screw (1), washer (6), lock washer (7), clamp (2), and filler tube (4) from engine compartment. Discard lock washer. Remove gauge rod (8) from tube.



REPLACE TRANSMISSION OIL LEVEL GAUGE ROD, FILLER TUBE, AND ADAPTER (M548A3) — Continued

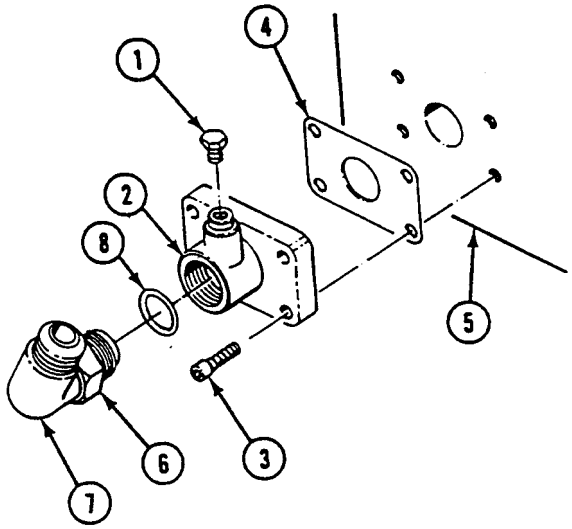
0305 00

4. Remove plug (1) from transmission adapter (2).
5. Remove four screws (3), transmission adapter (2), and gasket (4) from transmission (5). Discard gasket.
6. Loosen jam nut (6) on elbow (7). Remove elbow and preformed packing (8) from transmission adapter (2). Discard preformed packing.



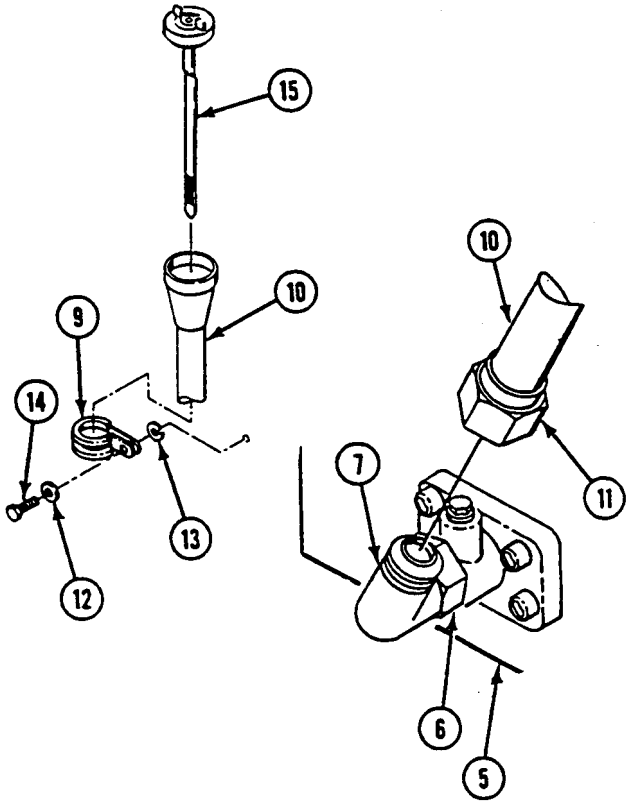
INSTALLATION

1. Install new preformed packing (8) on elbow (7). Install elbow on transmission adapter (2) and thread jam nut (6). Do not tighten jam nut.
2. Install new gasket (4) and transmission adapter (2) on transmission (5). Secure with four screws (3). Tighten screws to 240-300 lb-in (27-34 N•m) torque.
3. Install plug (1) on transmission adapter (2).



REPLACE TRANSMISSION OIL LEVEL GAUGE ROD, FILLER TUBE, AND ADAPTER (M548A3) — Continued **0305 00**

4. Slide clamp (9) on filler tube (10). Position tube on elbow (7) and coupling nut (11). Do not tighten nut. Secure clamp to transmission (5) with washer (12), new lock washer (13), and screw (14).
5. Tighten jam nut (6). Tighten coupling nut (11).
6. Install gauge rod (15) in filler tube (10).



FOLLOW-THROUGH STEPS

1. Fill transmission with oil (see your PMCS).
2. Install power plant (WP 0131 00).

END OF TASK

REPLACE TRANSMISSION SHIFT CONTROL (M548A3) 0306 00

THIS WORK PACKAGE COVERS:

Removal (page 0306 00-1).
Installation (page 0306 00-2).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)

Personnel Required

Unit Mechanic

References

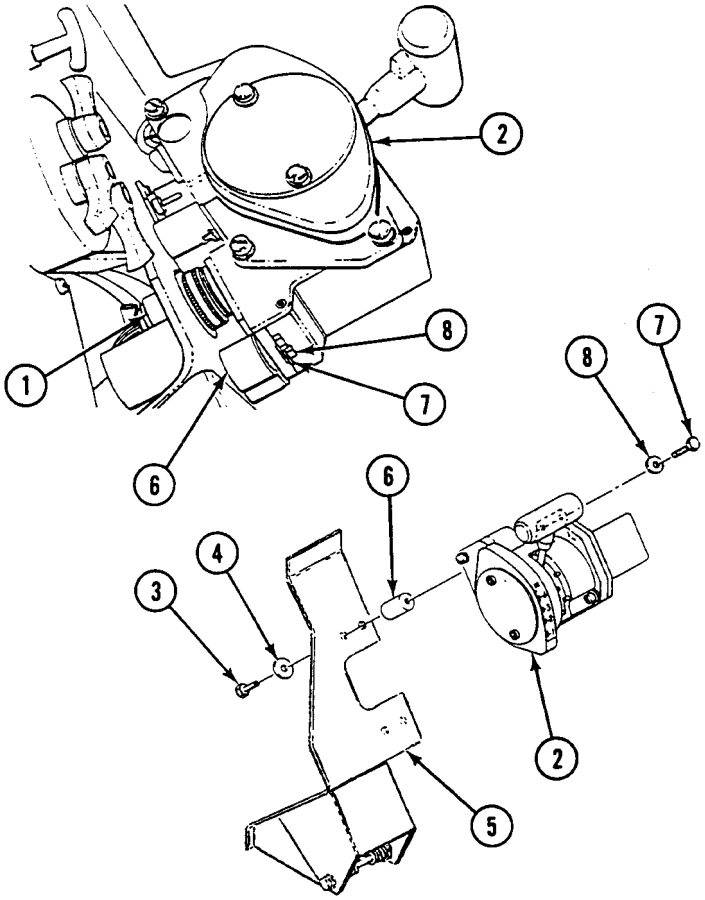
See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Both battery ground leads disconnected (WP 0292 00)

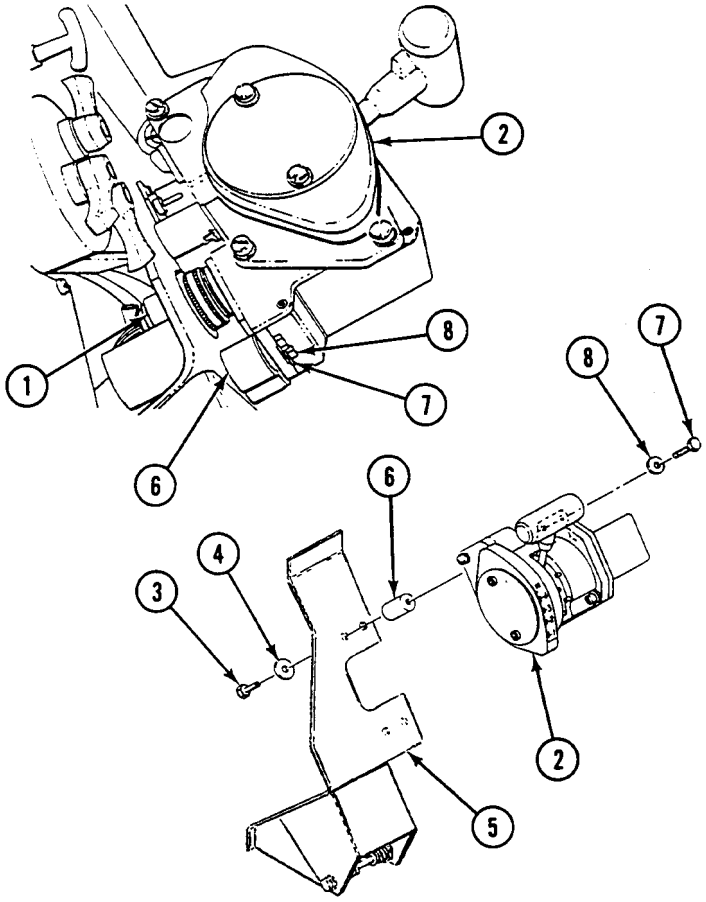
REMOVAL

1. Disconnect wiring harness (1) from transmission shift control (2).
2. Remove four screws (3) and washers (4) that secure transmission shift control (2) to bracket (5). Remove transmission shift control from carrier.
3. If mounts (6) are damaged, remove four screws (7) and washers (8) from under bracket (5) and remove mounts.



INSTALLATION

1. If removed, install four mounts (6) on bracket (5). Secure with four washers (8) and screws (7).
2. Install transmission shift control (2) on mounts (6). Secure with four washers (4) and screws (3).
3. Connect wiring harness (1) to transmission shift control (2).



FOLLOW-THROUGH STEPS

1. Connect both battery ground leads (WP 0292 00).

END OF TASK

REPLACE TRANSMISSION SHIFT CONTROL LAMP (M548A3) 0307 00

THIS WORK PACKAGE COVERS:

Removal (page 0307 00-1).
Installation (page 0307 00-2).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts
Preformed packing

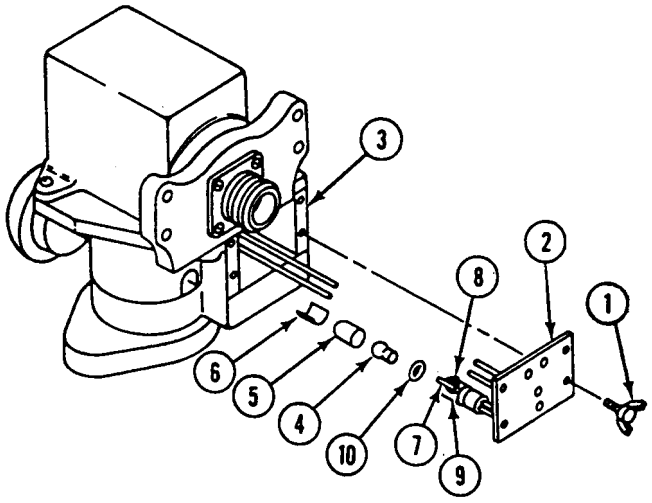
Personnel Required
Unit Mechanic

References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Both battery ground leads disconnected (WP 0292 00)
Transmission shift control motor removed (WP 0306 00)

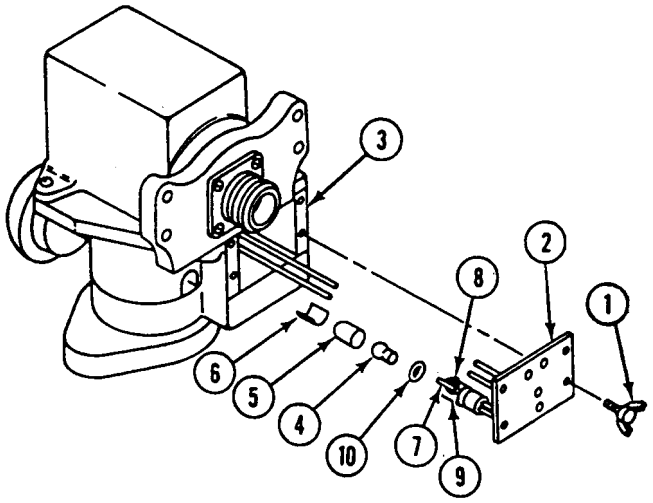
REMOVAL

1. Remove two wing screws (1) from cover (2) of shift control (3). Carefully pull cover (2) away from shift control (3) until lamp (4), filter (5), and shield (6) are accessible.
2. Loosen screw (7) and nut (8) until lamp (4), filter (5), and shield (6) can be removed from clamp (9). Remove filter shield and lamp.
3. Remove preformed packing (10) from lamp (4). Discard preformed packing.



INSTALLATION

1. Install new preformed packing (10) on lamp (4).
2. Install lamp (4) into clamp (9).
3. Install filter (5) and shield (6) properly over lamp (4). Secure by tightening screw (7) and nut (8) on clamp (9).
4. Install cover (2) on shift control (3). Secure with two wing screws (1).



FOLLOW-THROUGH STEPS

1. Install transmission shift control motor (WP 0306 00).
2. Connect both battery ground leads (WP 0292 00).

END OF TASK

REPLACE NEUTRAL START SWITCH 0308 00

THIS WORK PACKAGE COVERS:

Remove (page 0308 00-2).
Installation (page 0308 00-3).
Adjustment (page 0308 00-4).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic’s Tool Kit (WP 0541 00, Item 57)

Materials/Parts

Lock nut (2)
Lock washer (2)

Personnel Required

Unit Mechanic

References

See your -10

Equipment Condition

Engine stopped (see your -10)

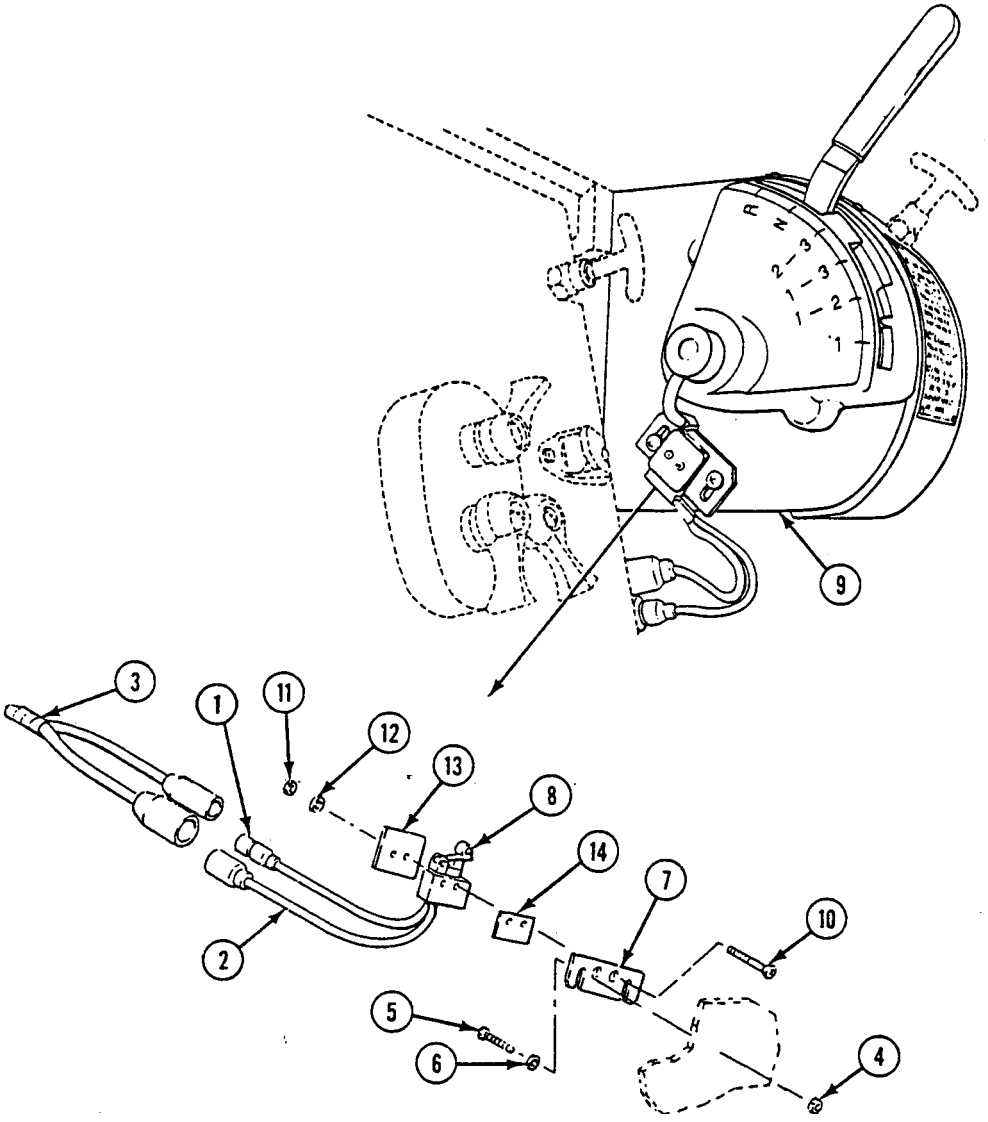
Carrier blocked (see your -10)

Battery negative lead(s) disconnected (WP 0292 00)

REPLACE NEUTRAL START SWITCH — Continued 0308 00

REMOVAL

1. Disconnect circuits 74 lead (1) and 74A lead (2) from wiring harness (3).
2. Remove two lock nuts (4), machine screws (5), and flat washers (6). Discard lock nuts.
3. Remove switch mounting plate (7) and switch assembly (8) from range selector mount (9).
4. Remove two machine screws (10), nuts (11), and lock washers (12) from switch mounting plate (7), switch guard (13), switch assembly (8), and shim (14). Discard lock washers.
5. Separate switch mounting plate (7), shim (14), switch assembly (8), and switch guard (13).



INSTALLATION

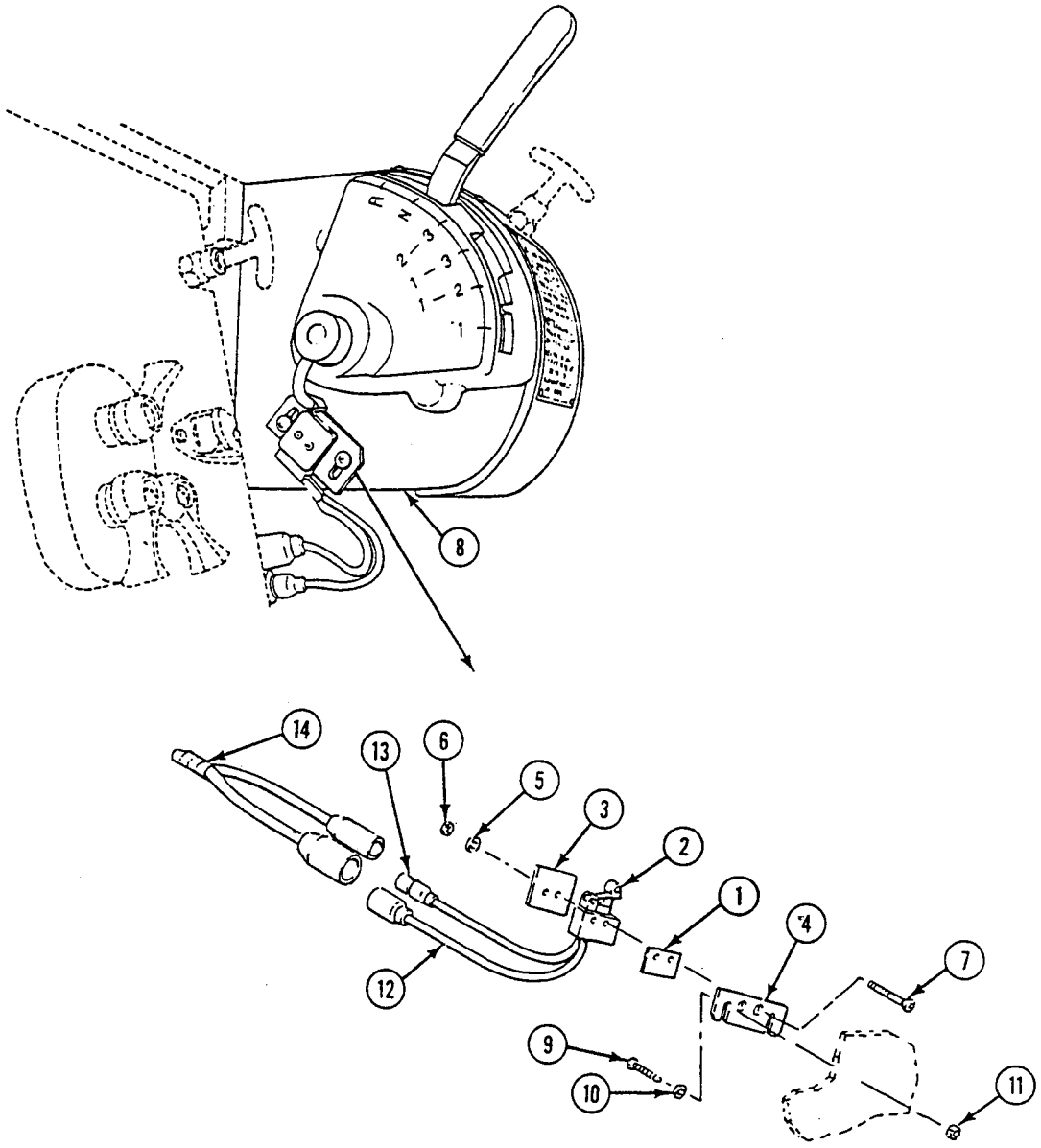
1. Install shim (1), switch assembly (2), and switch guard (3) on switch mounting plate (4). Secure with two new lock washers (5), nuts (6), and machine screws (7).

2. Place switch mounting plate (4) on range selector mount (8). Secure with two machine screws (9), flat washers (10), and new lock nuts (11).

3. Connect circuits 74A lead (12) and 74 lead (13) to wiring harness (14).

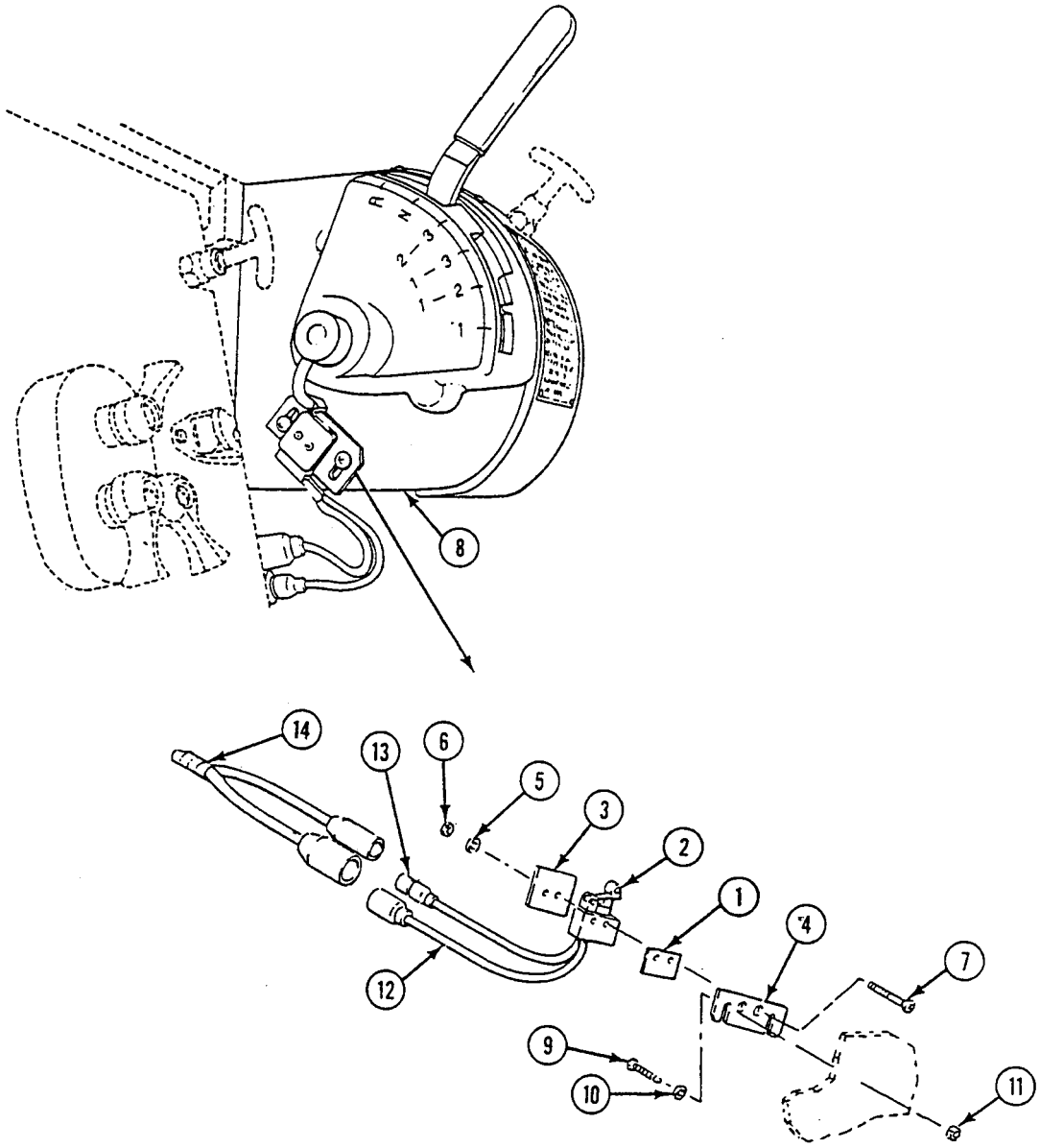
4. Connect battery negative lead(s) (WP 0292 00).

5. Start engine with range selector lever in N (see your -10).



ADJUSTMENT

1. If engine does not start with range selector lever in N, release start switch.
2. Loosen two lock nuts (11). Adjust switch mounting plate (4) to position switch assembly (2) correctly. Tighten nuts (11).
3. If starter is energized when transmission is in any gear, adjustment is needed. Repeat Steps 1 - 3, until engine will start with range selector lever in N only.
4. Turn engine off (see your -10).



END OF TASK

REPLACE TRANSMISSION SHIFT CONTROL SWITCH (M548A3) 0309 00

THIS WORK PACKAGE COVERS:

Removal (page 0309 00-1).
Installation (page 0309 00-2).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)
Multimeter (WP 0541 00, Item 29)

Personnel Required
Unit Mechanic

References
See your -10

Equipment Condition
Engine stopped/shutdown (see your -10)
Carrier blocked (see your -10)
Transmission shift control removed (WP 0309 00)

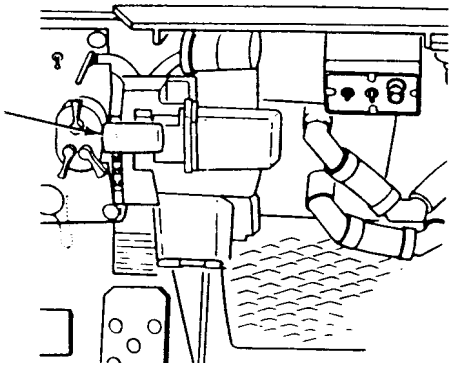
REMOVAL

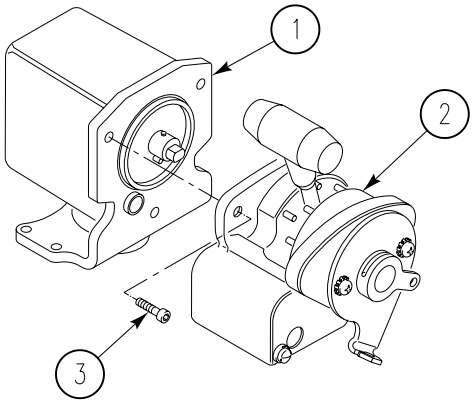
1. Remove three socket head screws (3) securing switch assembly (1) to transmission shift control body (2).

NOTE

Do not bend the switch bracket too much until it is clear of the transmission control body.

2. Separate switch assembly (1) from transmission shift control body (2).



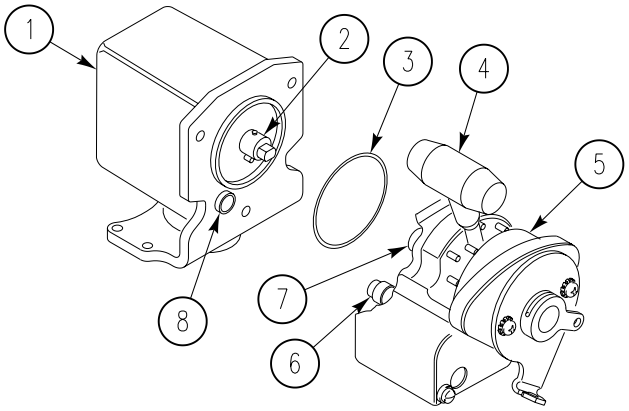


INSTALLATION

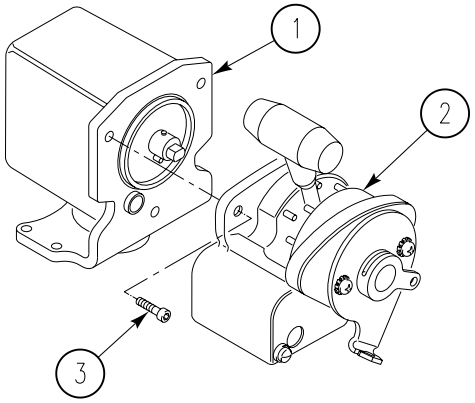
CAUTION

Handle the new switch assembly with care to avoid damaging the wires or switch. A damaged transmission shift control will prevent the engine from starting or shifting to the range needed.

1. If necessary, install preformed packing (3) on switch assembly (1).
2. Adjust shaft handle (4) on transmission shift control body (5) to align tab (2) with slot (7) before closing the switch assembly (1).
3. Align the pins (6) on transmission shift control body (5) with socket (8) on switch assembly (1).



4. Clean three socket head screws (1) and apply sealing compound to screw threads.
5. Install three socket head screws (1).



6. Use multimeter and continuity check table to check transmission shift control for proper operation.

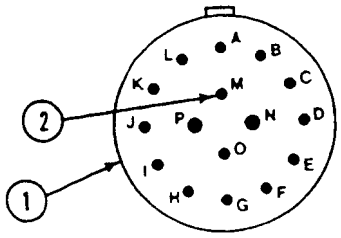
NOTE

Off indicate infinity (high resistance).

On indicate continuity (no resistance).

Table 1. Transmission shift control pin to pin continuity check

Ranges Pins	SL	R	PV	1-4	1-3	1-2	1
A	Off	Off	Off	On	On	On	On
B	On	On	On	Off	Off	Off	Off
C	Off	On	Off	On	On	On	On
D	On	Off	On	Off	Off	Off	Off
E	On	On	On	Off	On	On	On
F	Off	Off	Off	Off	On	Off	Off
G	Off	Off	Off	Off	On	On	On
N	On	Off	Off	Off	Off	Off	Off



(1) Transmission shift control jack.
(2) Power in pin.

FOLLOW-THROUGH STEPS

1. Install transmission shift control (WP 0309 00).

END OF TASK

REPLACE TOW START CABLE/COVER (M548A3) 0310 00

THIS WORK PACKAGE COVERS:

Removal (page 0310 00-1).
Installation (page 0310 00-5).

INITIAL SETUP:

Maintenance Level

Unit

Personnel Required

Unit Mechanic

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)

References

See your -10

Materials/Parts

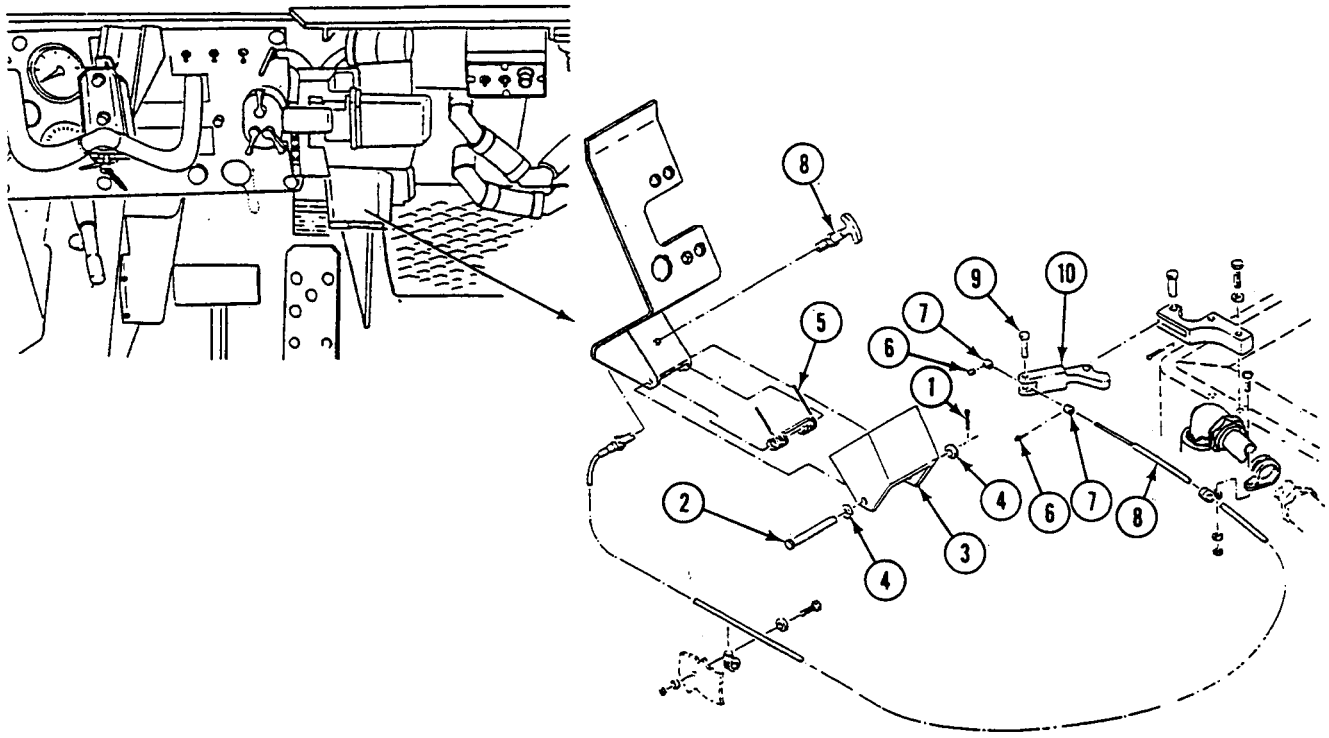
Cotter pin
Cotter pin
Lock nut (2)

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Center seat raised (see your -10)
Left center floor plate raised (WP 0395 00)

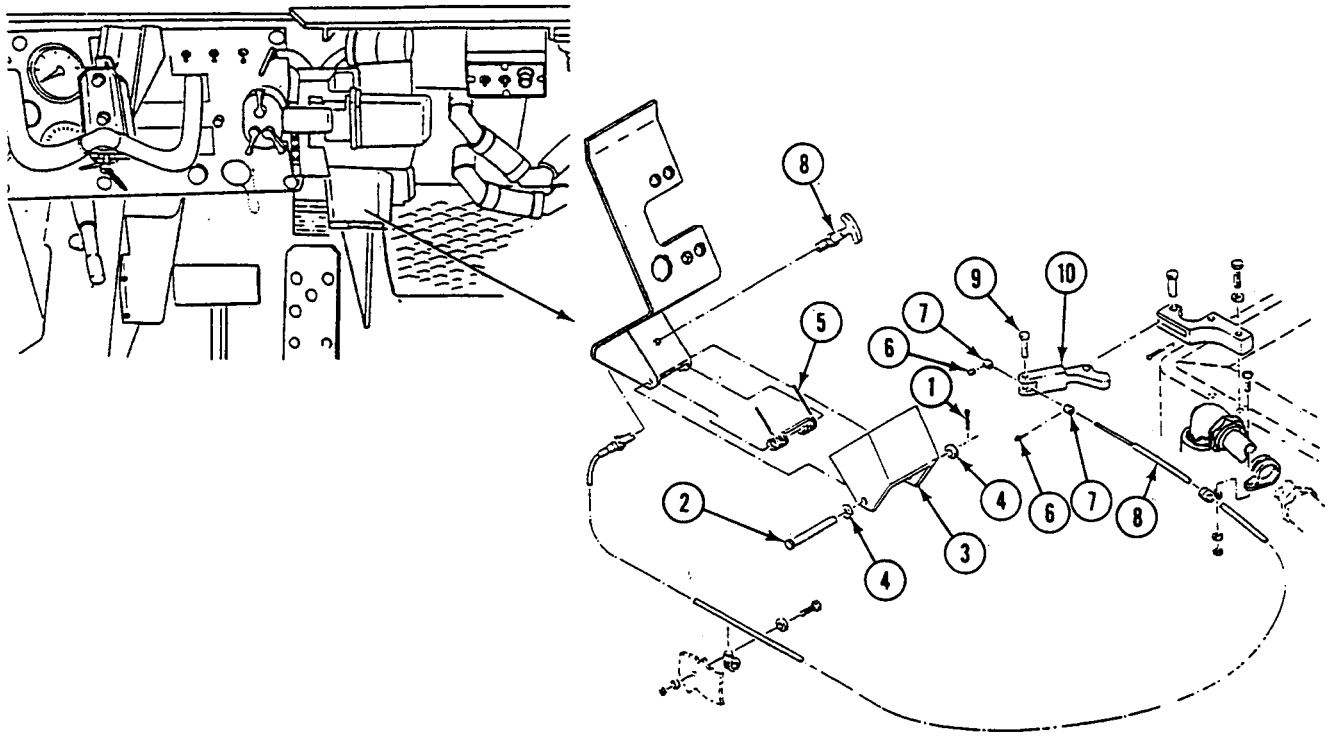
REMOVAL

1. Remove cotter pin (1) from headed pin (2) on tow start cover assembly (3). Discard cotter pin.
2. Remove headed pin (2), two washers (4), and spring (5) from tow start cover assembly (3). Remove cover from carrier.
3. Loosen two setscrews (6) on retainer collars (7).

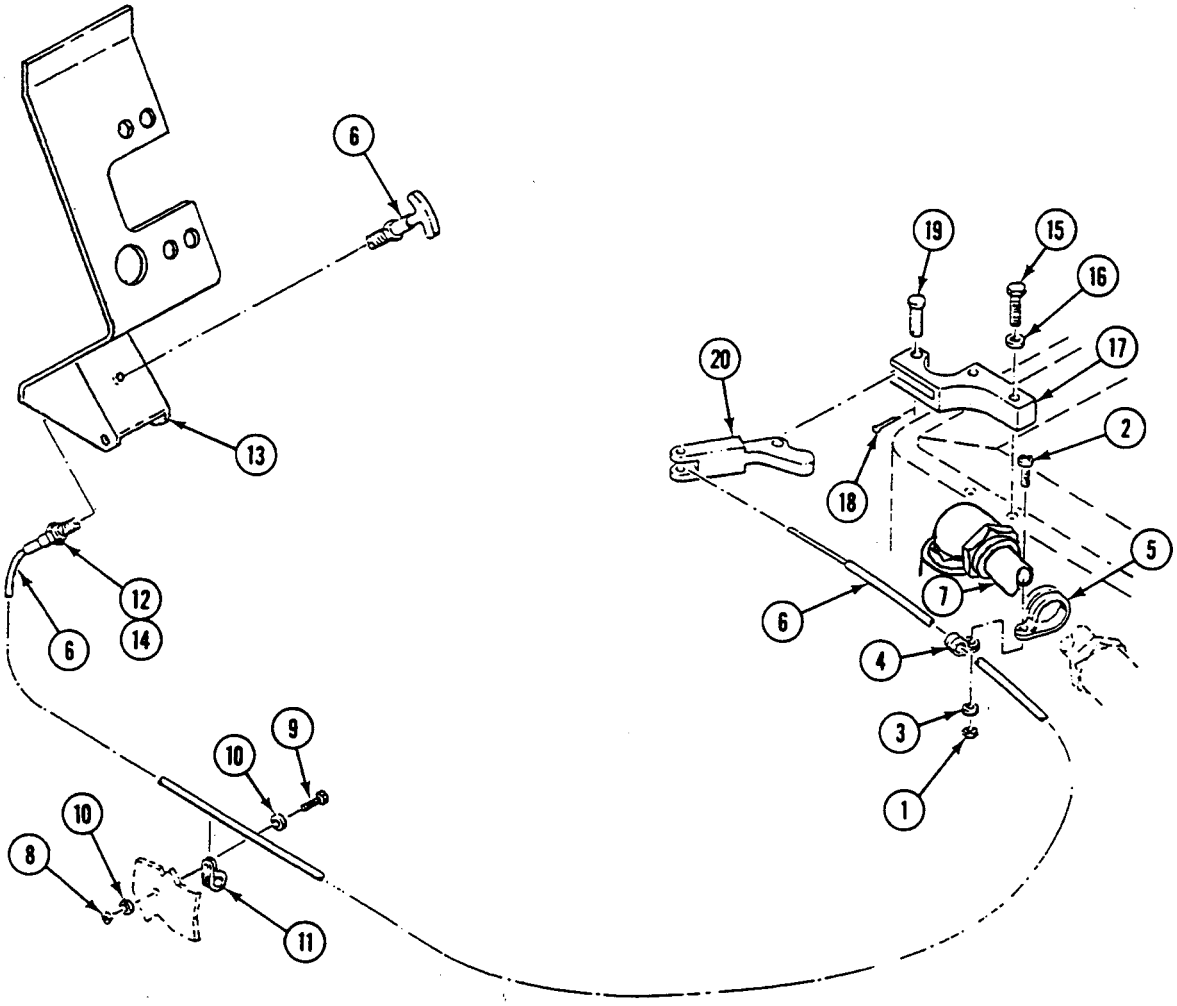


REPLACE TOW START CABLE/COVER (M548A3) — Continued **0310 00**

4. Remove one retainer collar (7) with setscrew (6) from tow start cable assembly (8) cable end.
5. Remove tow start cable assembly (8) and second retainer collar (7) from headed pin (9).
6. Remove headed pin (9) from remote control lever (10).



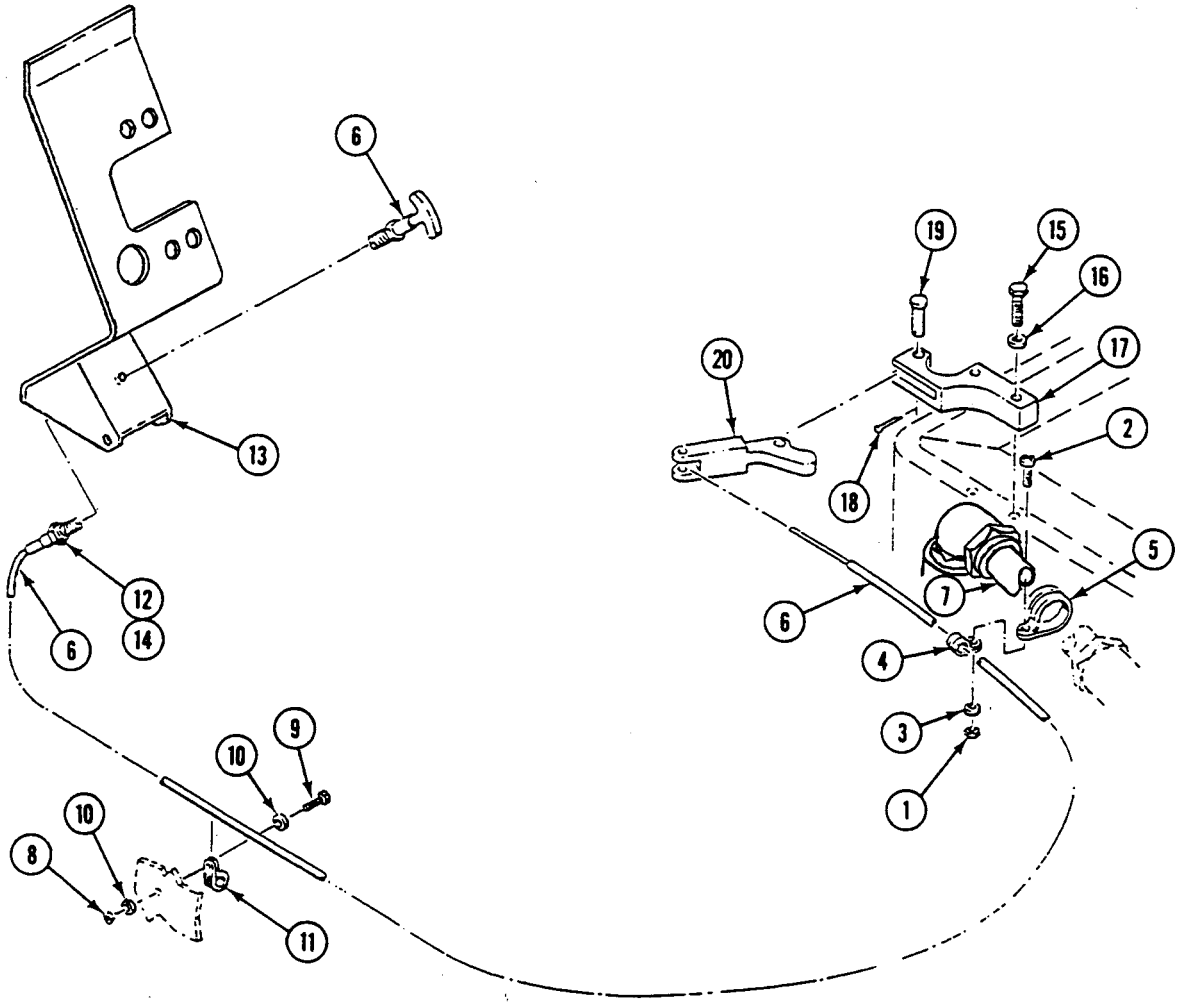
7. Remove lock nut (1), screw (2), washer (3), clamp (4), and clamp (5) that secure tow start cable assembly (6) to transmission tube (7). Discard lock nut.
8. Remove lock nut (8), screw (9), two washers (10), and clamp (11) from bulkhead. Discard lock nut.
9. Loosen nut (12) on back of tow start cable assembly (6).



NOTE

When pulling tow start cable assembly through the mounting hole in the bracket, do not let the securing nut or washer fall off the end and get lost.

10. Pull tow start cable assembly (6) through the mounting hole in bracket (13). Remove nut (12), washer (14), and tow start cable assembly (6) from carrier.
11. Remove two screws (15) and washers (16) that secure remote control lever (17) to transmission. Remove remote control lever from carrier.
12. Remove cotter pin (18) from headed pin (19). Discard cotter pin.
13. Remove remote control lever (20) from remote control lever (17).



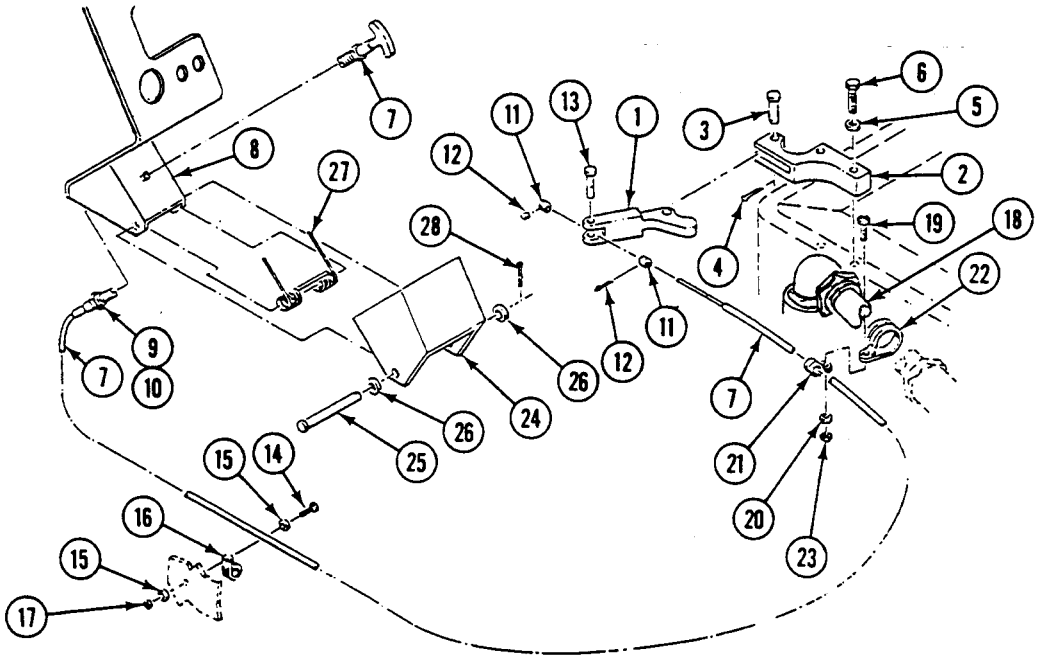
INSTALLATION

1. Install remote control lever (1) on remote control lever (2). Secure with headed pin (3) and new cotter pin (4).
2. Install remote control lever assembly (2) on transmission. Secure with two washers (5) and screws (6). Torque screws to 216 to 240 lb-in (24 to 27 N•m).

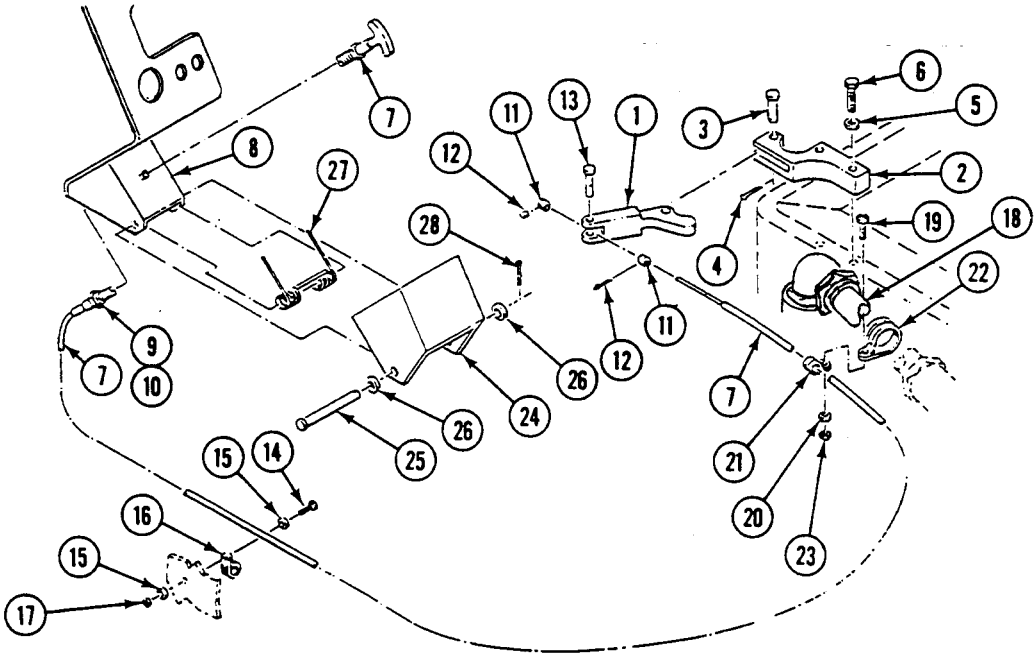
NOTE

When installing tow start cable assembly, hold securing nut and washer behind mounting hole in bracket and insert tow start cable assembly through hole, washer and nut at same time.

3. Install tow start cable assembly (7) through mounting hole in bracket (8). Secure with washer (9) and nut (10).
4. Route tow start cable assembly (7) to transmission.
5. Install one retainer collar (11) with setscrew (12) on end of tow start cable assembly (7).
6. Install headed pin (13) in remote control lever (1) and insert end of tow start cable assembly (7) through hole in pin (13).
7. Secure tow start cable assembly (7) to bulkhead with screw (14), two washers (15), clamp (16), and new lock nut (17).



8. Secure tow start cable assembly (7) to transmission tube (18) with screw (19), washer (20), clamp (21), clamp (22), and new lock nut (23).
9. Install second retainer collar (11) with setscrew (12) on end of tow start cable assembly (7). Position two retainer collars (11) against headed pin (13) and tighten set screws (12).
10. Install tow start cover assembly (24), headed pin (25), two washers (26), and spring (27) on bracket (8). Secure headed pin (25) with new cotter pin (28).



FOLLOW-THROUGH STEPS

1. Adjust tow start cable assembly (WP 0311 00).
2. Install driver's left floor plate (WP 0395 00).
3. Lower center seat (see your -10).

END OF TASK

ADJUST TOW START CONTROL CABLE ASSEMBLY (M548A3) 0311 00

THIS WORK PACKAGE COVERS:

Adjustment (page 0311 00-1).

INITIAL SETUP:

Maintenance Level

Unit

References

See your -10

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)

Personnel Required

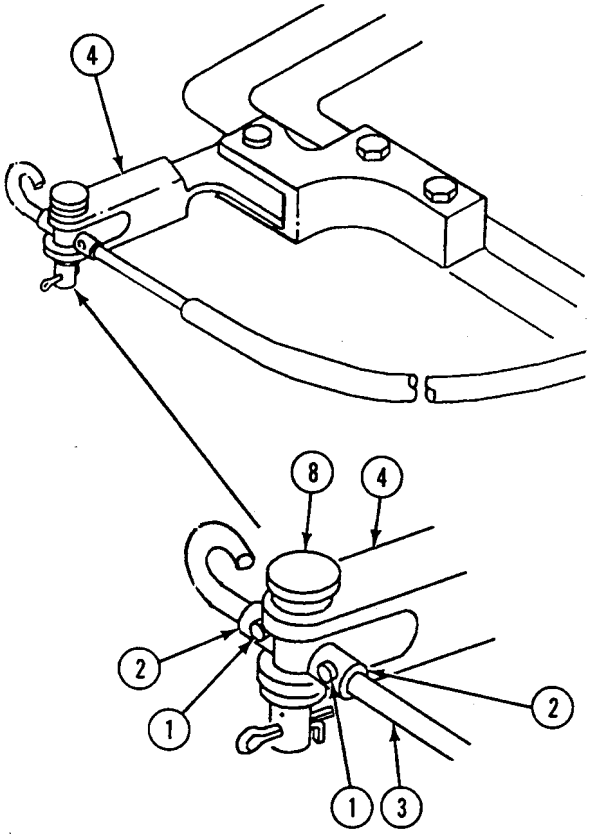
Unit Mechanic

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Center seat raised (see your -10)
Center floor plates removed (WP 0395 00)

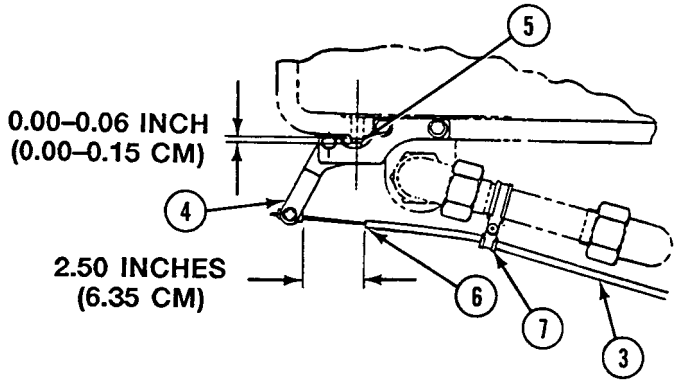
ADJUSTMENT

1. Loosen two setscrews (1) that secure two collars (2) on control cable (3).

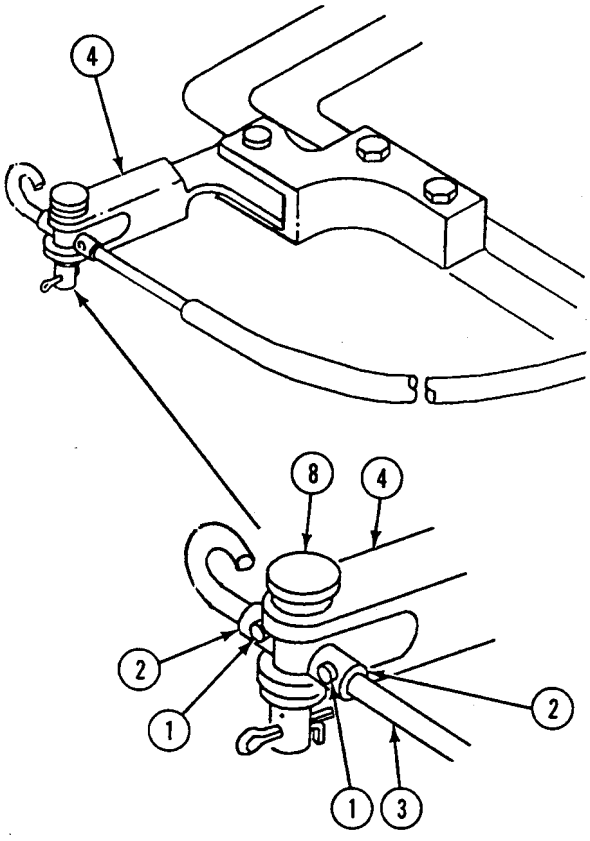


ADJUST TOW START CONTROL CABLE ASSEMBLY (M548A3) — Continued 0311 00

2. Push control cable assembly handle to full in position. Move control lever (4) to obtain 0.00 - 0.06 inch (0.00 - 0.15 cm) clearance between contact surface of lever and transmission tow start button (5). Make sure cable housing end (6) to lever (4) distance is a minimum of 2.50 inches (6.35 cm). Loosen clamp (7) and adjust as required.



3. Position two collars (2) against clevis pin (8) and tighten two setscrews (1).



FOLLOW-THROUGH STEPS

1. Install center floor plates (WP 0395 00).
2. Lower center seat (see your -10).

END OF TASK

ADJUST TRANSMISSION STEERING (M548A3) 0312 00

THIS WORK PACKAGE COVERS:

Inspection of Installed Items (page 0312 00-1).
Adjustment (page 0312 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)
Steer Centering Adjusting Tool (WP 0541 00, Item 5)
Socket Wrench Set (WP 0541 00, Item 64)
Torque Wrench (WP 0541 00, Item 69)
Torque Wrench (WP 0541 00, Item 70)

Materials/Parts

Preformed packing

Personnel Required

Unit Mechanic
Helper (H)

References

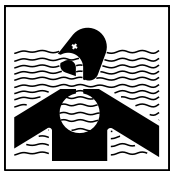
See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Cab floor plates removed (WP 0395 00)
Seat support removed (WP 0395 00)

INSPECTION OF INSTALLED ITEMS

WARNING



Breathing carbon monoxide fumes from engine exhaust could kill you or injure you. Perform tests outdoors or in well ventilated area.

WARNING

Clear the area before checking adjustment. Carrier may pivot steer and injure personnel. Place transmission controller in SL before checking adjustment.

NOTE

See your -10 for all operating procedures.

1. (H) Place transmission controller in SL position. Start engine and allow to reach operating temperature.
2. (H) Release parking brake and let engine run at idle.

3. Watch both tracks. If there is no track tension, adjustment is correct.

WARNING

If steering wheel is turned while engine is running at 1000 rpm or greater, the carrier will pivot and personnel could be killed or equipment damaged.

4. (H) Place transmission controller in PV position.
5. (H) Turn steering wheel left and right at idle speed.
6. Watch both tracks. There will be some change in track tension, but carrier will not move.
7. (H) Place transmission controller in SL position.
8. (H) With steering wheel in center position, increase engine speed to 1000 rpm.
9. Watch both tracks. There must be no change in track tension or transmission sound.

WARNING

If steering wheel is turned while engine is running at 1000 rpm or greater, the carrier will pivot and personnel could be killed or equipment damaged.

10. (H) Slowly increase engine speed to 2800 rpm.
11. Watch both tracks. There must be no change in track tension or transmission sound.

ADJUSTMENT

WARNING

Stop engine before making adjustment (see your -10).

CAUTION

Care must be taken to keep tools from falling into transmission during adjustment procedures.

NOTE

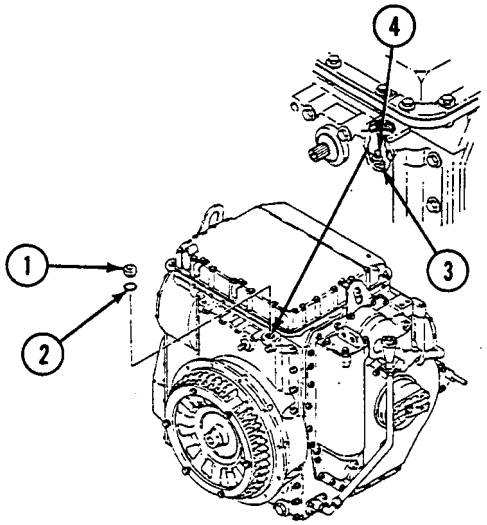
If there is any change in track tension or if there is any hydrostatic noise from the transmission at any speed, the steering unit needs adjustment.

1. Remove access plug (1) and preformed packing (2) from steering centering adjustment on left rear of transmission. Discard preformed packing.

NOTE

Be careful not to turn adjusting screw when loosening jam nut.

2. Loosen jam nut (3) on adjusting screw (4). Use steer centering adjusting tool.

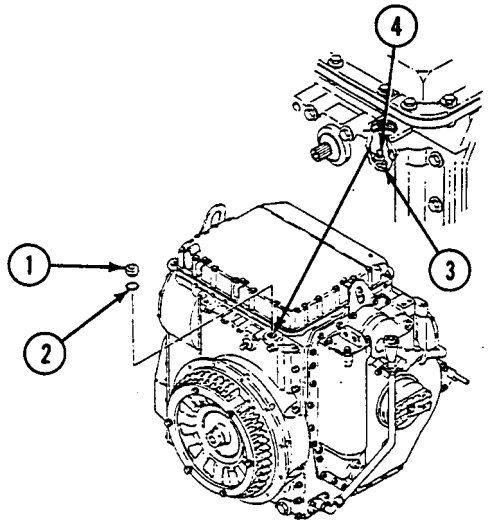


3. Turn adjusting screw (4) 1/8 turn at a time. Use steer centering adjusting tool. If right track had forward tension, turn adjusting screw to the right. If left track had forward tension, turn adjusting screw to the left.

NOTE

Be careful not to turn adjusting screw when tightening jam nut.

4. Tighten jam nut (3) to 140-150 lb-in (16-18 N•m) torque.
5. Install access plug (1). Finger tighten and check adjustment by repeating Steps 1 - 11 above.
6. Repeat Steps 1 - 3 above as needed until both tracks remain slack at all engine speeds.
7. Remove access plug (1) and install new preformed packing (2) in access plug.
8. Install access plug (1) in transmission. Tighten plug to 50-60 lb-ft (68-81 N•m) torque.



FOLLOW-THROUGH STEPS

1. Install seat support (WP 0395 00).
2. Install cab floor plates (WP 0395 00).

END OF TASK

CHECK TRANSMISSION BRAKE ADJUSTMENT (M548A3) 0313 00

THIS WORK PACKAGE COVERS:

Inspection of Installed Items (page 0313 00-1).
Check with Torque Wrench (page 0313 00-2).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)
Splined Socket (WP 0541 00, Item 48)
Torque Wrench (WP 0541 00, Item 68)

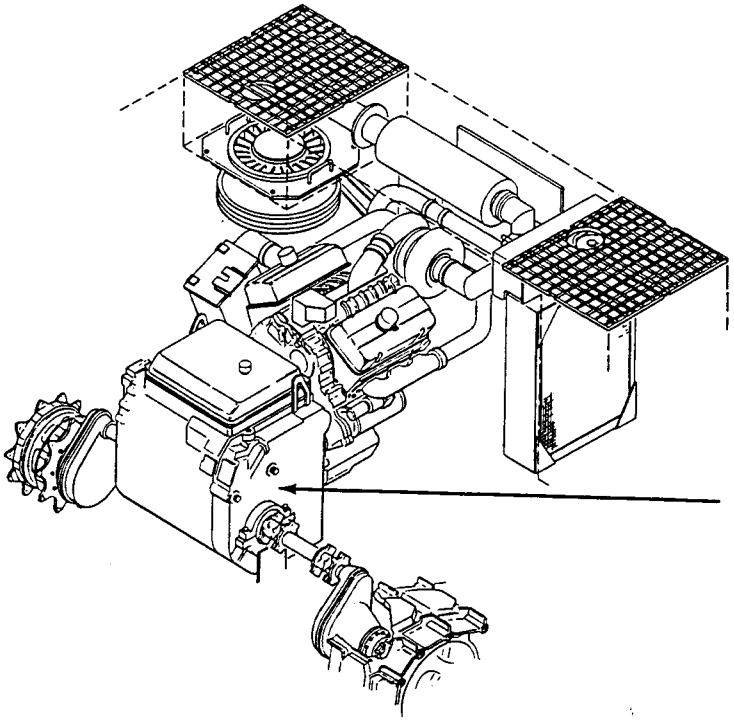
Personnel Required
Unit Mechanic
Helper (H)

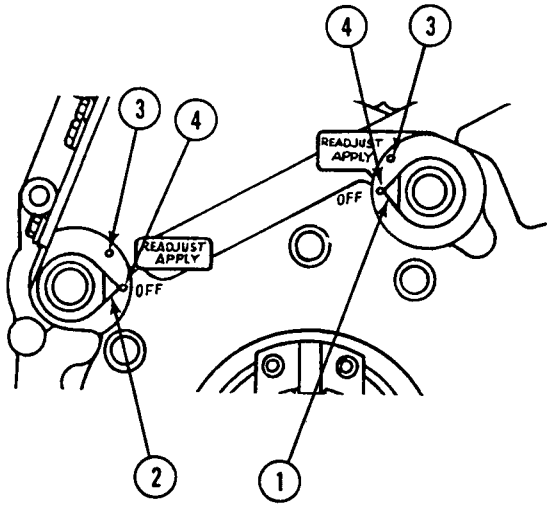
References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Center seat raised (see your -10)
Left center floor plate removed (WP 0395 00)

INSPECTION OF INSTALLED ITEMS

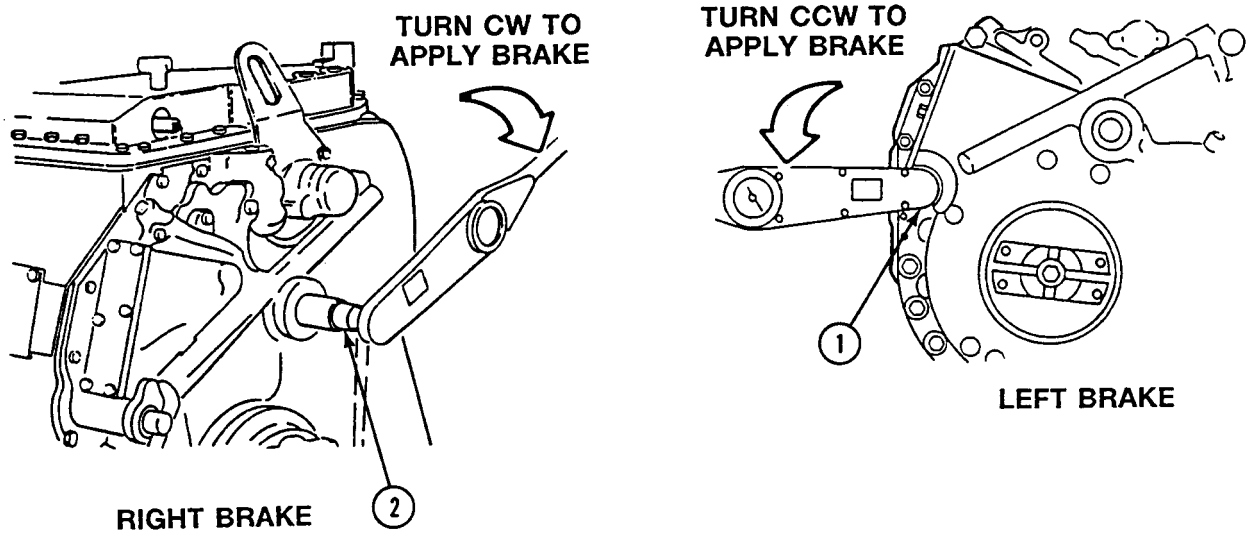
1. Release parking brake. Start engine and allow to warm up. (see your -10)
2. Apply brakes. Have helper watch movement of right (1) and left (2) brake shaft indicators as brakes are applied. Note position of indicators. Release the brake pedal.
3. Stop engine (see your -10). Apply parking brake. Note position of indicator (1) and indicator (2).
4. If indicator (1) and indicator (2) go to or past the READJUST mark (3), adjust transmission brakes (WP 0314 00).
5. If indicator stops before the APPLY mark (4), carrier linkage may be binding or out of adjustment, or transmission brakes may be adjusted too tight. Check transmission brakes with torque wrench and splined socket.



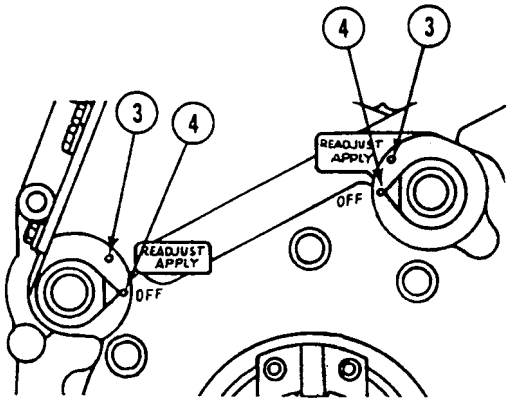


CHECK WITH TORQUE WRENCH

1. Disconnect brake levers from transmission brake shafts (WP 0348 00).
2. Apply 40 lb-ft (54 N•m) to turn left (1) or right (2) brake shafts in direction shown.



3. If indicator goes to or past the READJUST (3) mark on the transmission or if it does not reach the APPLY (4) mark, adjust transmission brake (WP 0314 00).



4. Install brake levers on transmission brake shafts (WP 0348 00).

FOLLOW-THROUGH STEPS

1. Install left center floor plate (WP 0395 00).
2. Lower center seat (see your -10).

END OF TASK

ADJUST TRANSMISSION BRAKES (M548A3) 0314 00

THIS WORK PACKAGE COVERS:

Adjustment (page 0314 00-1).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)
Socket Wrench Set (WP 0541 00, Item 64)
Torque Wrench (WP 0541 00, Item 70)

Materials/Parts
Gasket
Gasket
Self-locking screw (4)
Self-locking screw (6)

Personnel Required
Unit Mechanic

References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Cab floor plates removed (WP 0395 00)
Seat support removed (WP 0395 00)

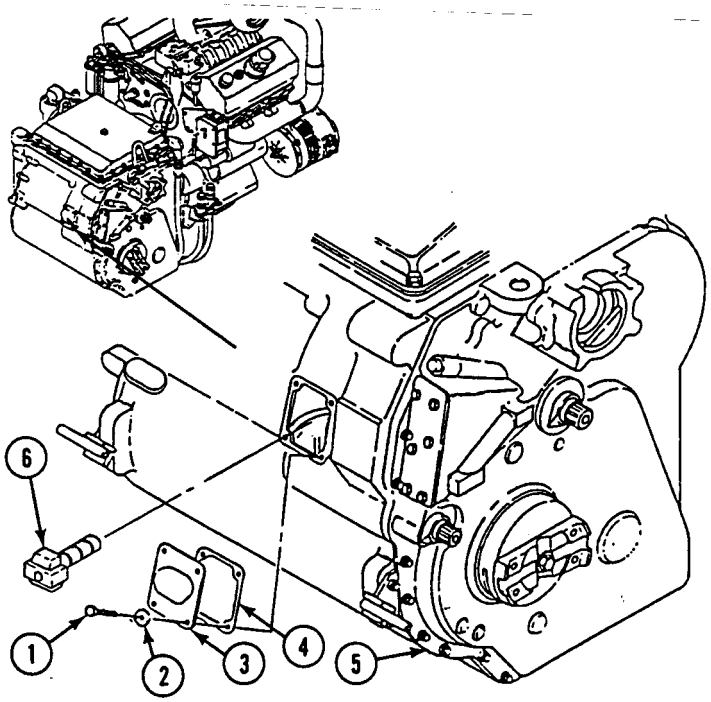
ADJUSTMENT

NOTE

Release parking brake before adjustment.

Adjustment for left hand brake.

1. Remove four self-locking screws (1), four washers (2), cover (3), and gasket (4) from transmission (5). Discard gasket and self-locking screws.
2. Remove governor assembly (6), turning clockwise to disengage gear teeth.



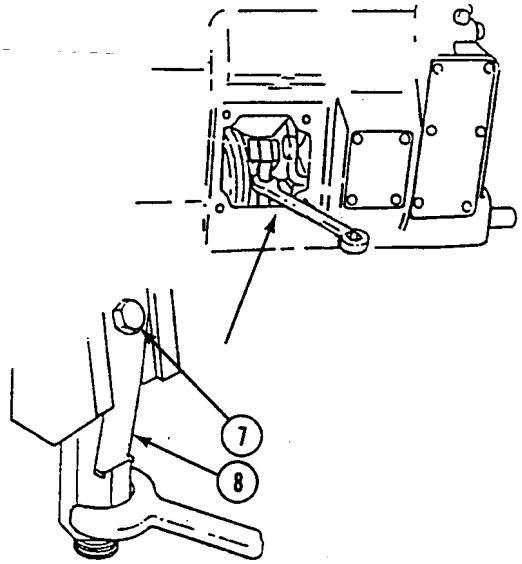
CAUTION

Cap screw does not require removal. Removal of cap screw may cause damage to equipment.

NOTE

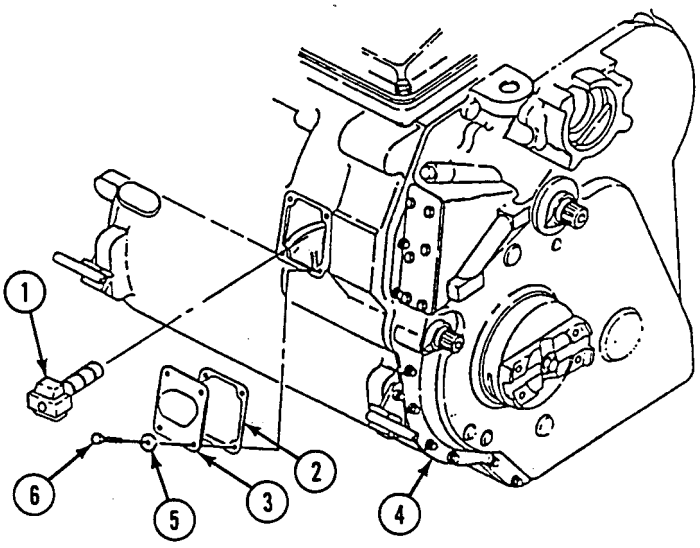
If indicator stopped before APPLY mark, brakes are too tight. If indicator stopped past APPLY mark, brakes need to be tightened.

3. Loosen cap screw (7) to release spring tension on brake adjustment sleeve (8). Turn brake adjustment sleeve inside transmission. If indicator has passed READJUST mark, turn wrench to the right to tighten. If indicator did not reach APPLY mark, turn wrench to left to loosen.



4. Check transmission brake adjustment (WP 0313 00).
5. Repeat Step 3 and as needed until indicator stops at APPLY mark.

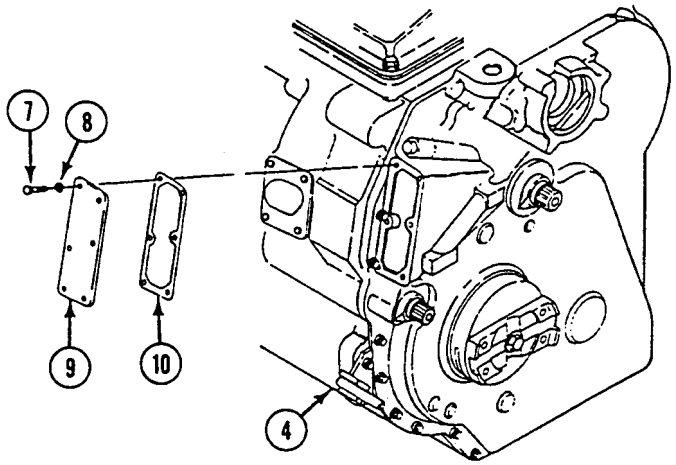
6. Install governor assembly (1), engaging gear counterclockwise.
7. Install new gasket (2) and cover (3) on transmission (4). Secure with four washers (5) and new self-locking screws (6). Tighten screws to 204-240 lb-in (23-27 N•m) torque.



NOTE

Adjustment for right hand brake.

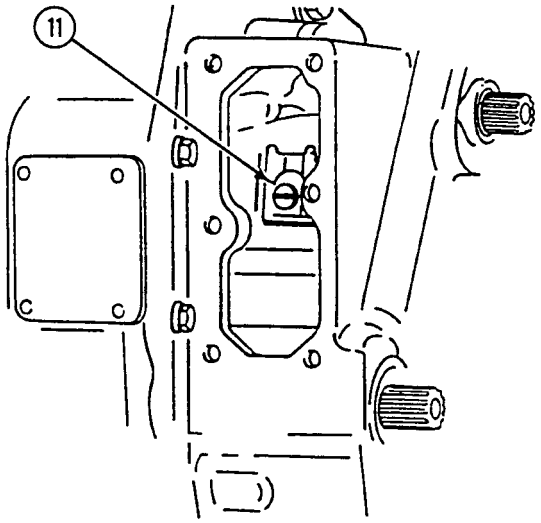
8. Remove six self-locking screws (7), washers (8), cover (9), and gasket (10) from transmission (4). Discard gasket and self-locking screws.



NOTE

If indicator stopped before APPLY mark, brakes are too tight. If indicator stopped past APPLY mark, brakes need to be tightened.

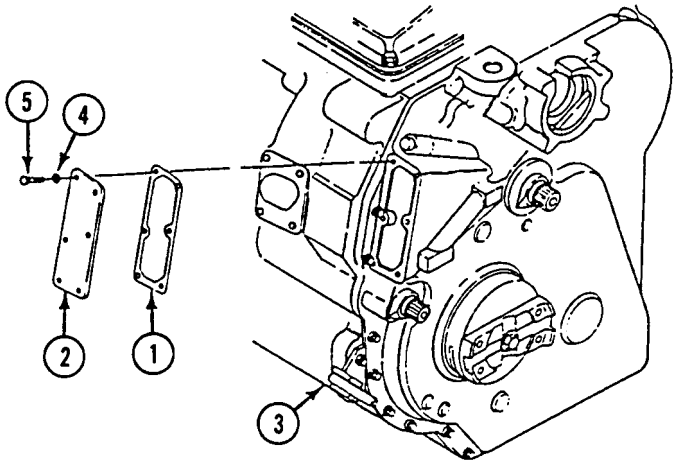
9. Turn brake adjustment screw (11) inside transmission to adjust brakes. If indicator passed READJUST mark, turn to left to tighten. If indicator did not reach APPLY mark, turn to right to loosen.



10. Check transmission brake adjustment (WP 0313 00)

11. Repeat Step 9 and Step 10 as needed until indicator stops at APPLY mark.

12. Install new gasket (1) and cover (2) on transmission (3). Secure with six washers (4) and new self-locking screws (5). Tighten screws to 156-180 lb-in (18-20 N•m) torque.



FOLLOW-THROUGH STEPS

1. Install seat support (WP 0395 00).

2. Install cab floor plates (WP 0395 00).

END OF TASK

REPLACE TRANSMISSION RANGE SELECTOR LINKAGE (M548A1) 0315 00

THIS WORK PACKAGE COVERS:

Removal (page 0315 00-1).
Installation (page 0315 00-5).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts

Headless grooved pin
Lock nut (4)
Lock nut (4)
Lock nut (7)
Lock washer (2)
Spring pin (2)

Personnel Required

Unit Mechanic

References

See your -10

Equipment Condition

Engine stopped (see your -10)

Carrier blocked (see your -10)

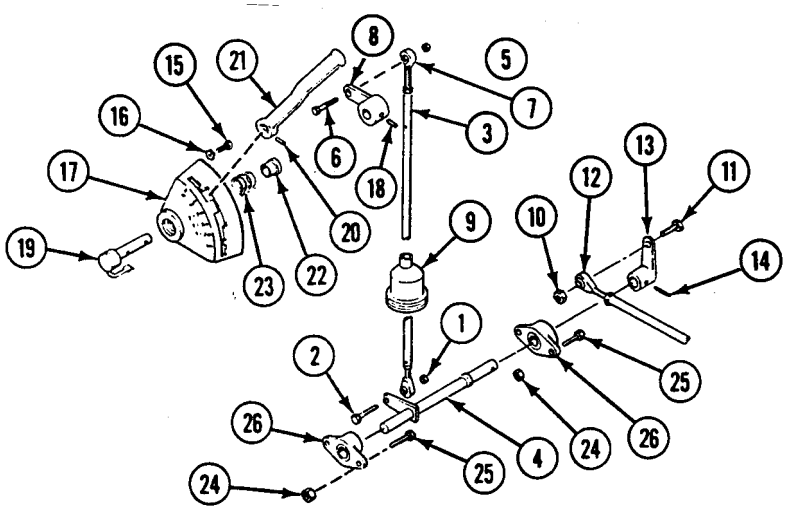
Center seat raised (see your -10)

Left center seat floor plate raised (WP 0394 00)

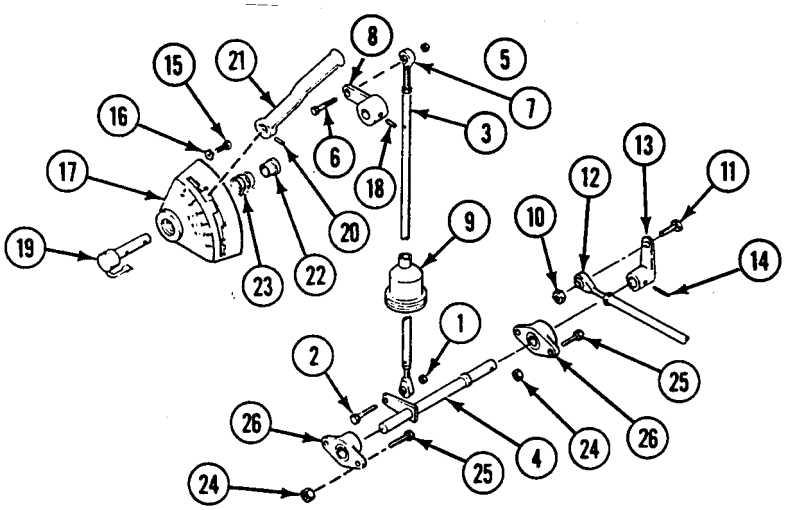
Wiring for neutral start switch disconnected (WP 0308 00)

REMOVAL

1. Remove lock nut (1) and screw (2) from range selector link (3) and gear selector shaft (4). Remove link from shaft. Discard lock nut.
2. Remove lock nut (5) and screw (6) from range selector link bearing (7) and range selector control arm (8). Separate range selector link (3) from link boot (9). Discard lock nut.
3. Remove lock nut (10) and screw (11) from range selector control link (12) and gear selector arm (13). Discard lock nut.
4. Remove gear selector arm headless grooved pin (14) from gear selector arm (13) and gear selector shaft (4). Remove arm from shaft. Discard headless grooved pin.

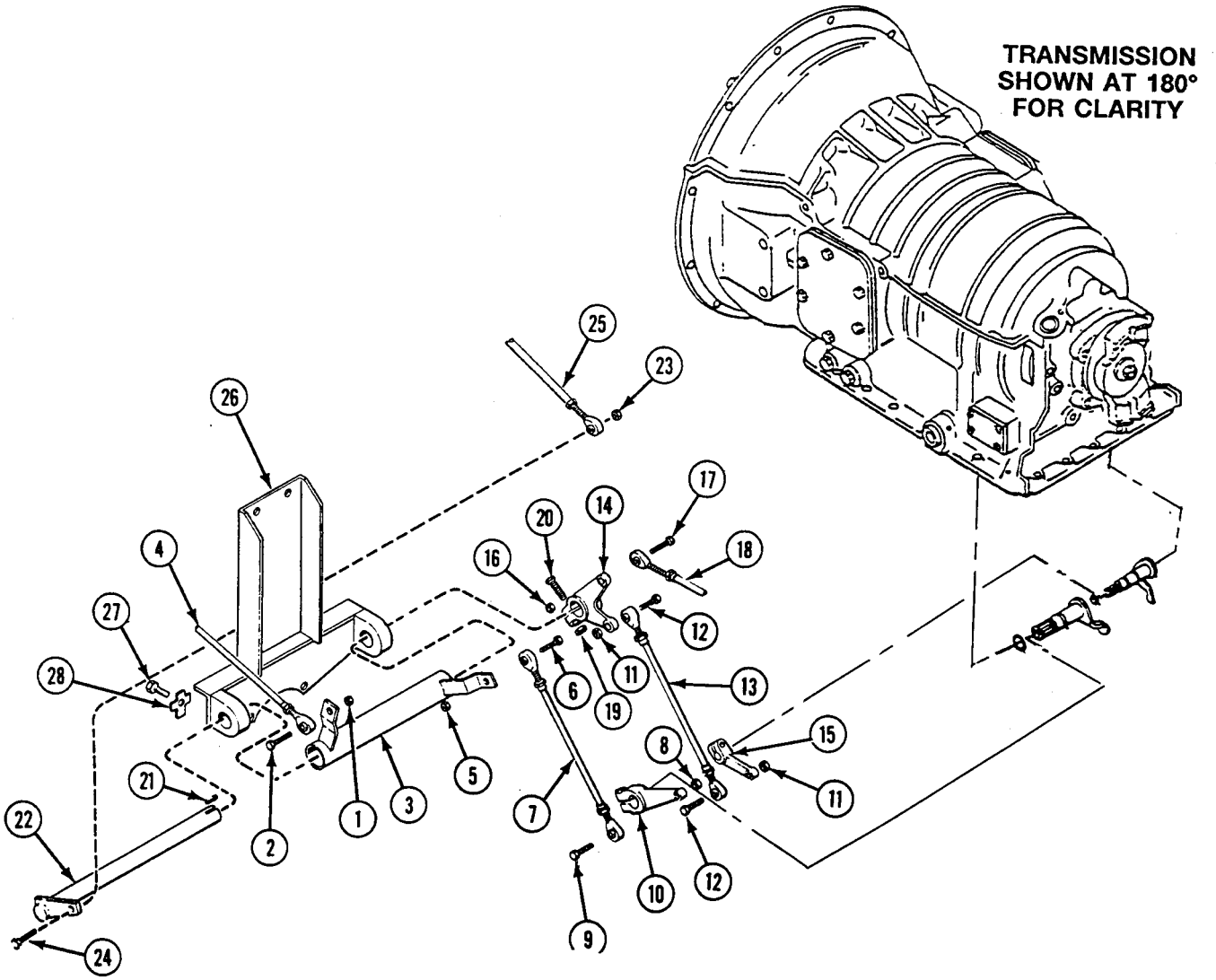


5. Remove two screws (15) and lock washers (16) from range selector control (17). Remove control from bulkhead. Discard lock washers.
6. Remove selector arm spring pin (18) from range selector control arm (8) and range selector control shaft (19). Discard spring pin.
7. Remove spring pin (20) from range selector control shaft (19) and selector control shift lever (21). Remove shaft from bearing (22), spring (23), lever, and range selector control (17). Discard spring pin.
8. Remove four lock nuts (24) from screws (25). Remove two gear selector shaft bearings (26) from bulkhead. Separate two bearings from gear selector shaft (4). Discard lock nuts.

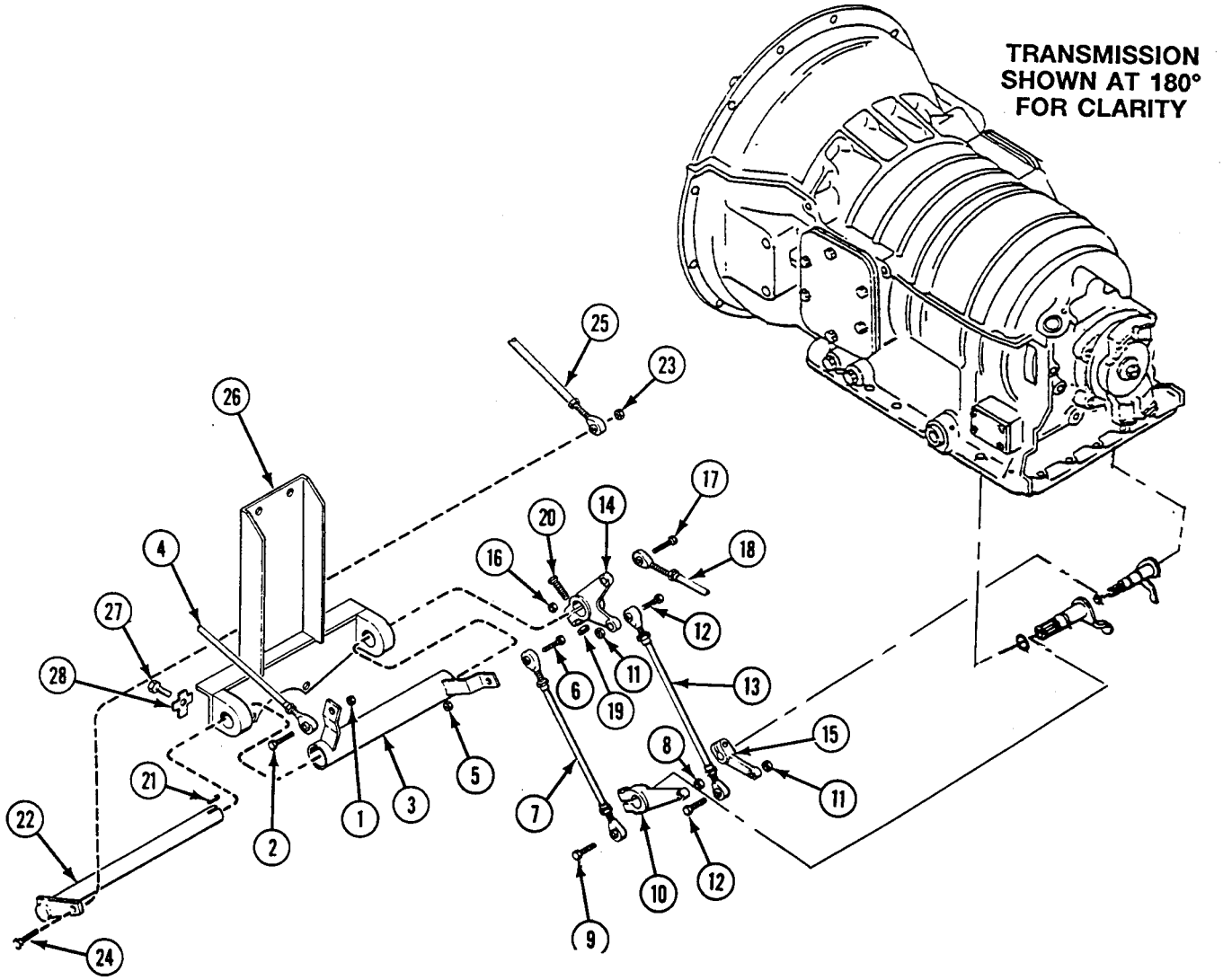


REPLACE TRANSMISSION RANGE SELECTOR LINKAGE (M548A1) — Continued 0315 00

9. Remove lock nut (1) from screw (2). Remove outer cross shaft (3) from range selector control link (4). Discard lock nut.
10. Remove lock nut (5) and screw (6) from range selector link (7) and outer cross shaft (3). Remove link from cross shaft. Discard lock nut.
11. Remove lock nut (8) and screw (9) from range selector link (7) and transmission shift lever (10). Remove link from shift lever. Discard lock nut.
12. Remove two lock nuts (11) from screws (12). Remove transmission throttle link (13) from cross shaft bellcrank (14) and transmission throttle valve arm (15). Discard lock nuts.
13. Remove lock nut (16) from screw (17). Remove throttle control link (18) from cross shaft bellcrank (14). Discard lock nut.

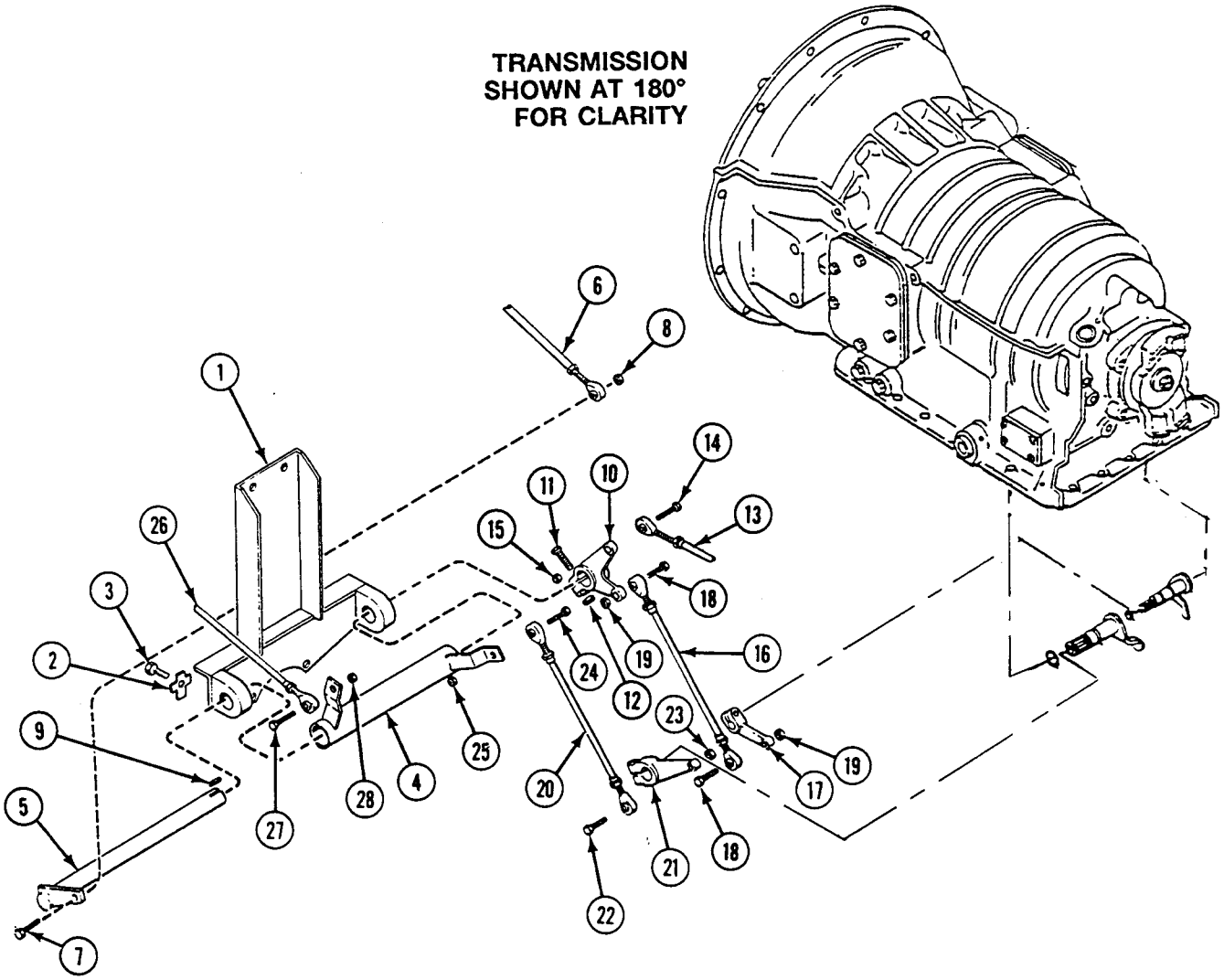


14. Remove lock nut (19) from screw (20). Remove screw from cross shaft bellcrank (14). Discard lock nut.
15. Remove cross shaft bellcrank (14) and key (21) from inner shaft (22).
16. Remove lock nut (23) from screw (24). Remove screw from inner shaft (22) and throttle pedal link (25). Separate inner shaft and throttle pedal link. Discard lock nut.
17. Remove inner shaft (22) from outer cross shaft (3) and cross shaft bracket (26).
18. Remove two screws (27) and key washers (28) from cross shaft bracket (26). Remove bracket from transmission.



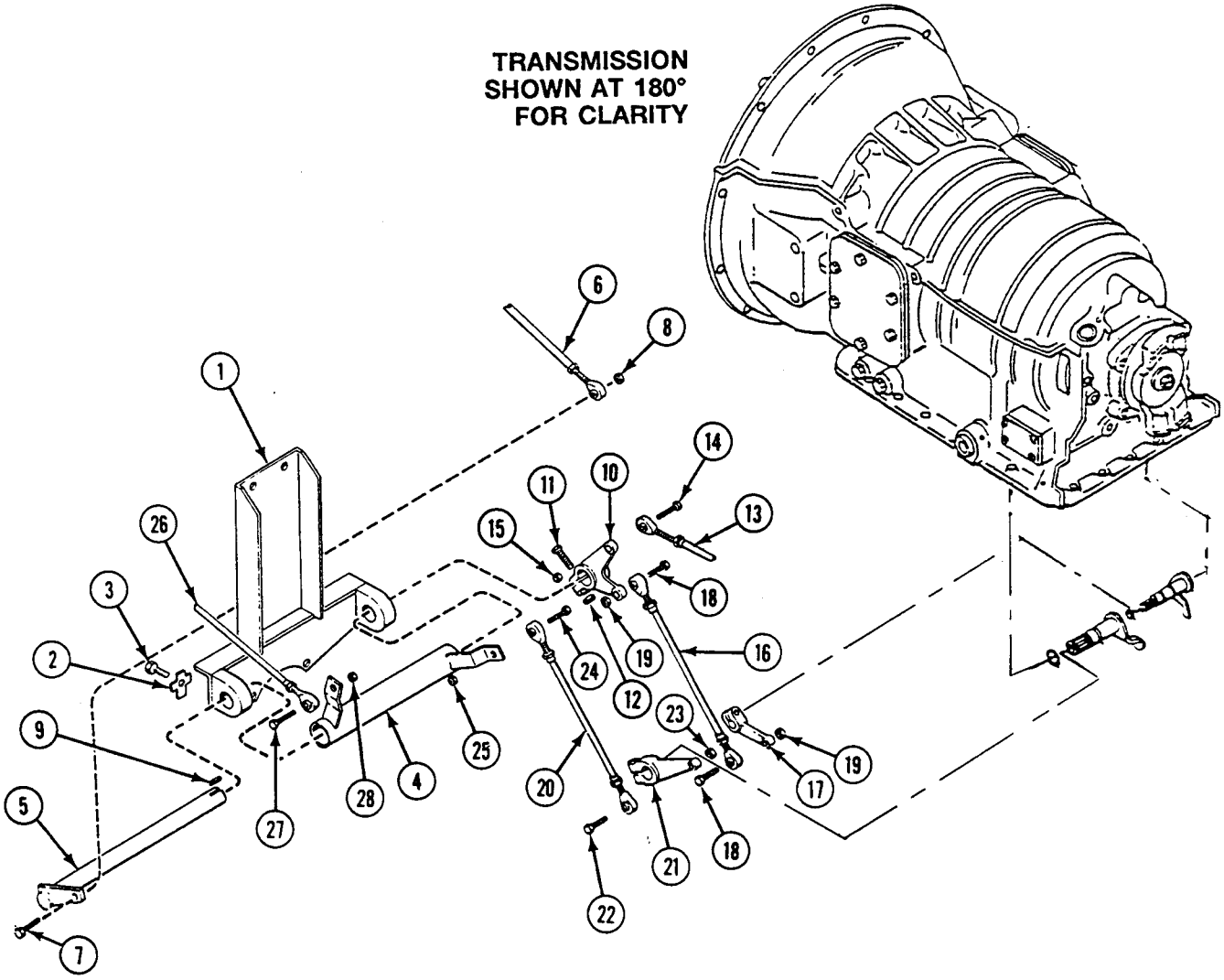
INSTALLATION

1. Install cross shaft bracket (1) on transmission. Secure in place with two key washers (2) and screws (3).
2. Install outer cross shaft (4) and inner shaft (5) on cross shaft bracket (1).
3. Install throttle pedal link (6) on inner shaft (5). Secure with screw (7) and new lock nut (8).
4. Install key (9) and cross shaft bellcrank (10) on inner shaft (5). Secure bellcrank (10) to shaft (5) with screw (11) and new lock nut (12).
5. Install throttle control link (13) on cross shaft bellcrank (10). Secure with screw (14) and new lock nut (15).

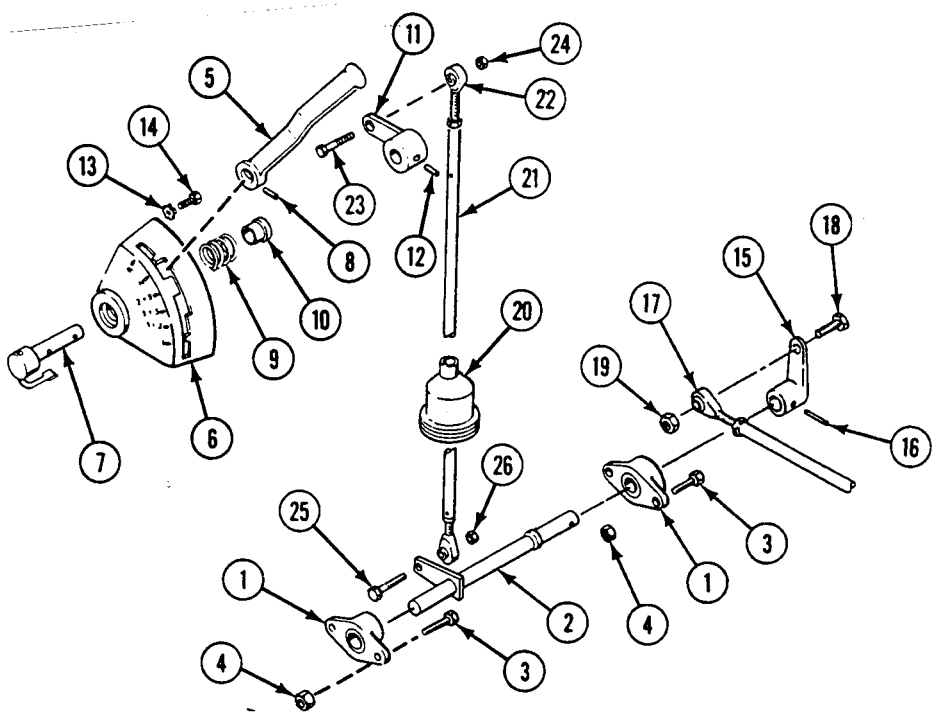


REPLACE TRANSMISSION RANGE SELECTOR LINKAGE (M548A1) — Continued 0315 00

6. Install transmission throttle link (16) on transmission throttle valve arm (17) and cross shaft bellcrank (10). Secure in place with two screws (18) and new lock nuts (19).
7. Install range selector link (20) on transmission shift lever (21) with screw (22) and new lock nut (23).
8. Install range selector link (20) on outer cross shaft (4) with screw (24) and new lock nut (25).
9. Install range selector control link (26) on outer cross shaft (4). Secure with screw (27) and new lock nut (28).



10. Install two gear selector shaft bearings (1) with gear selector shaft (2) on bulkhead. Secure with four screws (3) and new lock nuts (4).
11. Place selector control shift lever (5) in range selector control (6). Install range selector control shaft (7) through range selector control and shift lever. Secure shift lever to shaft with new spring pin (8).
12. Install spring (9) and bearing (10) on range selector control shaft (7). Install range selector control arm (11) on shaft. Secure with new spring pin (12).
13. Install range selector control (6) on bulkhead. Secure with two new lock washers (13) and screws (14).
14. Install gear selector arm (15) on gear selector shaft (2). Secure with new headless grooved pin (16).
15. Install range selector control link (17) between bearing (1) and gear selector arm (15). Secure with screw (18) and new lock nut (19).
16. Install link boot (20) on range selector link (21). Install range selector link bearing (22) on range selector control arm (11) and secure with screw (23) and new lock nut (24).
17. Install range selector link (21) on gear selector shaft (2). Secure with screw (25) and new lock nut (26).



FOLLOW-THROUGH STEPS

1. Adjust transmission range selector control and linkage (WP 0315 00).
2. Connect wiring for neutral start switch. Adjust as required (WP 0308 00).
3. Start engine (see your -10).
4. Check selector control shift lever for proper operation.
5. Stop engine (see your -10).
6. Install left center seat floor plate (WP 0394 00).
7. Lower center seat (see your -10).

END OF TASK

ADJUST TRANSMISSION RANGE SELECTOR CONTROL AND LINKAGE (M548A1) 0316 00

THIS WORK PACKAGE COVERS:

Adjustment (page 0316 00-2).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts
Lock nut (2)

Personnel Required
Unit Mechanic

References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Center seat raised (see your -10)
Left center seat floor plate raised (WP 0394 00)
Wiring for neutral start switch disconnected (WP 0308 00)

ADJUST TRANSMISSION RANGE SELECTOR CONTROL AND LINKAGE (M548A1) — Continued

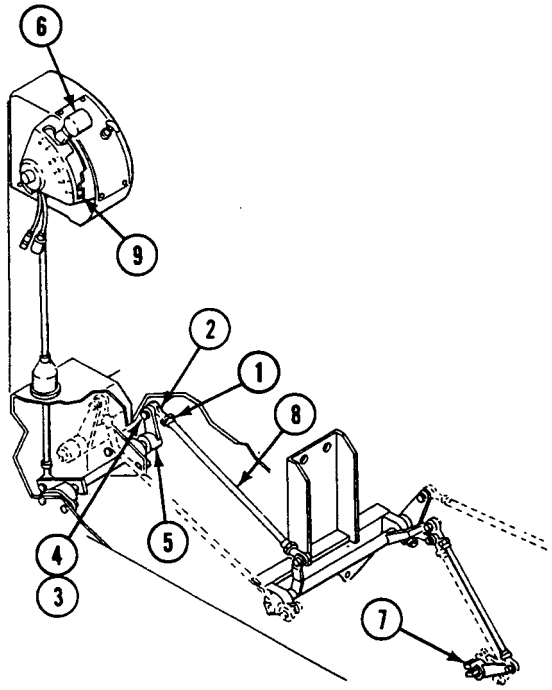
0316 00

ADJUSTMENT

NOTE

Adjust length of range selector link after adjustment of range selector control link, as needed, to align shift lever in range selector control.

1. Adjust transmission range selector control and linkage as follows:
   a. Loosen jam nut (1) on link bearing (2). Remove lock nut (3) from screw (4). Remove link bearing (2) from gear selector arm (5). Discard lock nut.
   b. Place range selector shift lever (6) in drive position 1.
   c. Press transmission shift arm (7) downward to end of travel to place transmission in drive position 1.
   d. Adjust length of range selector control link (8) so screw (4) will pass freely through link bearing (2) and gear selector arm (5). Turn link bearing (2) to the right to lengthen or to the left to shorten range selector control link (8).
   e. Check alignment of range selector control link (8) with gear selector arm (5). Check alignment in all transmission shift arm (7) positions and range selector control (9) positions.
   f. When proper alignment is completed, tighten jam nut (1) on link bearing (2) to secure adjustment of range selector control link (8).
   g. Secure link bearing (2) to gear selector arm (5) with screw (4) and new lock nut (3).



h. Loosen jam nut (1) on link bearing (2). Remove lock nut (3) from screw (4). Remove link bearing (2) from range selector control arm (5). Discard lock nut.

Place range selector shift lever (6) in drive position 1.

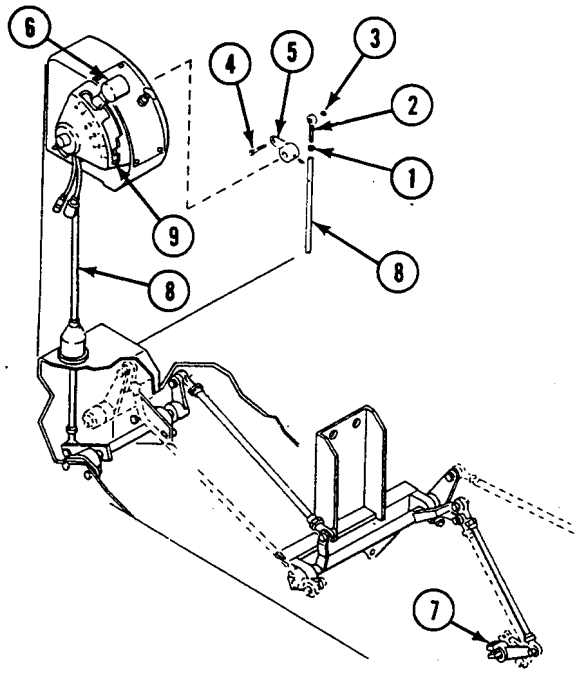
i. Press transmission shift arm (7) downward to end of travel to place transmission in drive position 1.

j. Adjust length of range selector link (8) so screw (4) will pass freely through link bearing (2) and range selector control (5). Turn link bearing (2) to the right to lengthen or to the left to shorten range selector link (8).

k. Check alignment of range selector link (8) with range selector control arm (5). Check alignment in all transmission shift arm (7) positions and range selector control (9) positions.

l. When proper alignment is completed, tighten jam nut (1) on link bearing (2) to secure adjustment of range selector link (8).

m. Secure link bearing (2) to gear selector control arm (5) with screw (4) and new lock nut (3).



FOLLOW-THROUGH STEPS

1. Connect wiring for neutral start switch (WP 0308 00).
2. Start engine (see your -10).
3. Check transmission range selector control and linkage for proper operation.
4. Stop engine (see your -10).
5. Lower center floor plate (WP 0394 00).
6. Lower center seat (see your -10).

END OF TASK

REPLACE GOVERNOR ASSEMBLY (M548A3) 0317 00

THIS WORK PACKAGE COVERS:

Removal (page 0317 00-2).
Installation (page 0317 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)
Socket Wrench Set (WP 0541 00, Item 64)
Torque Wrench (WP 0541 00, Item 70)

Materials/Parts

Gasket
Self-locking bolt (4)

Personnel Required

Unit Mechanic

References

See your -10

Equipment Condition

Engine stopped (see your -10)

Carrier blocked (see your -10)

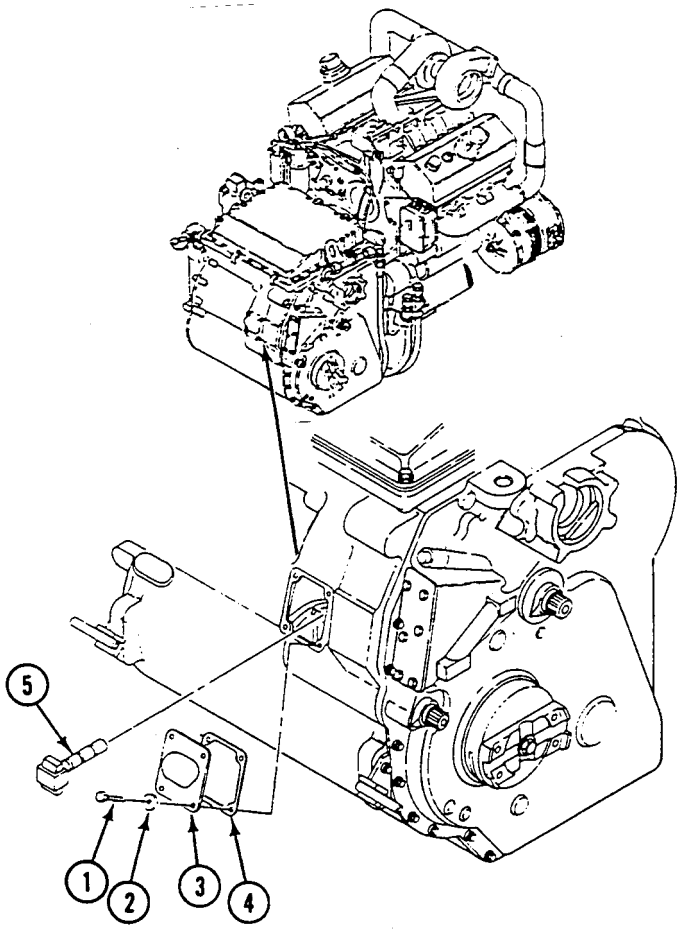
Cab floor plates removed (WP 0395 00)

Seat support removed (WP 0395 00)

REPLACE GOVERNOR ASSEMBLY (M548A3) — Continued 0317 00

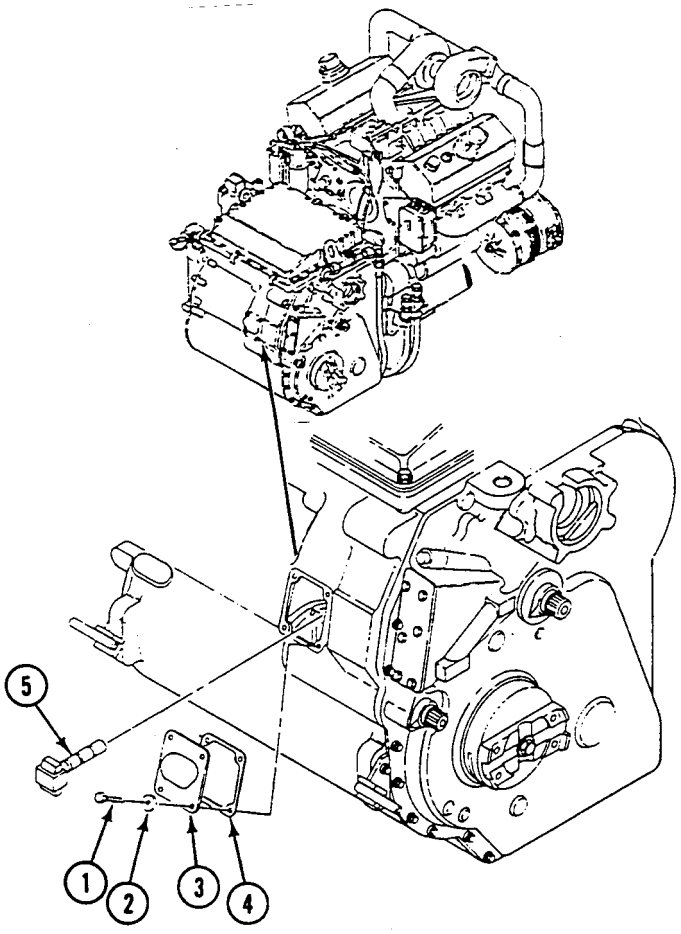
REMOVAL

1. Remove four self-locking bolts (1) and washers (2) from brake adjustment cover (3). Remove brake adjustment cover and gasket (4) from rear of transmission. Discard gasket and bolts.
2. Remove governor assembly (5) from transmission. No repair is authorized. Replace a defective governor.



INSTALLATION

1. Install new governor assembly (5) in transmission. Twist governor slightly to the right while inserting it into bore inside transmission.
2. Install brake adjustment cover (3) and new gasket (4) on transmission. Secure with four washers (2) and new self-locking bolts (1). Tighten bolts to 204-240 lb-in (23-27 N•m) torque.



FOLLOW-THROUGH STEPS

1. Install seat support (WP 0395 00).
2. Install cab floor plates (WP 0395 00).

END OF TASK

REPLACE TRANSMISSION OIL HOSES AND FITTINGS (M548A1) 0318 00

THIS WORK PACKAGE COVERS:

Removal (page 0318 00-2).
Installation (page 0318 00-4).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts

Lubricating oil (WP 0542 00, Item 13)
Sealing compound (WP 0542 00, Item 37)
Lock nut
Preformed packing (2)
Tab washer

Personnel Required

Unit Mechanic

References

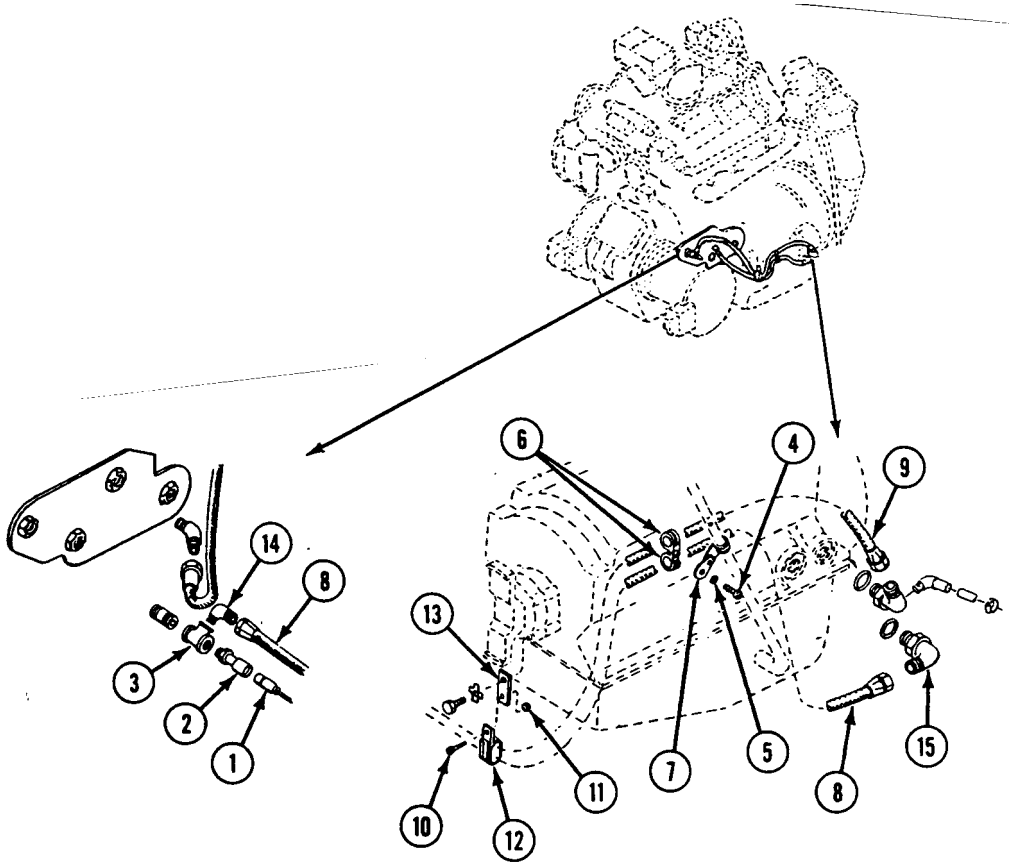
See your -10
See your PMCS

Equipment Condition

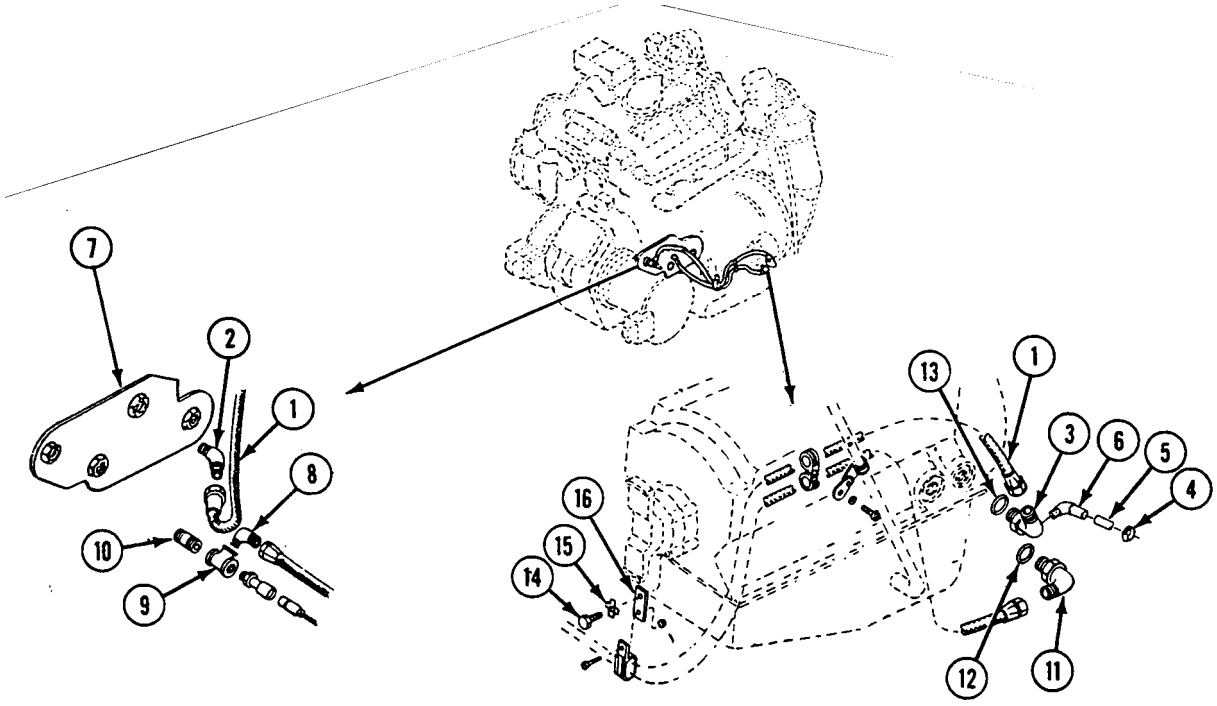
Engine stopped (see your -10)
Carrier blocked (see your -10)
Battery negative lead disconnected (WP 0292 00)
Power plant bottom access cover removed (see your -10)
Center seat raised (see your -10)
Transmission oil drained (see your PMCS)
Left grille removed (WP 0390 00)
Air cleaner removed (WP 0152 00)

REMOVAL

1. Disconnect circuit 327 lead (1) from oil high temperature switch (2). Remove switch from cooler inlet tee (3).
2. Remove screw (4) and washer (5) that secure two hose clamps (6) and filler tube bracket (7) to transmission. Remove clamps from transmission-to-cooler hose (8) and cooler-to-transmission hose (9).
3. Remove screw (10) and lock nut (11) that secure double hose clamp (12) to front hose bracket (13). Remove clamp from bracket. Discard lock nut.
4. Disconnect transmission-to-cooler hose (8) from tee inlet elbow (14) and transmission outlet adapter (15). Remove hose.

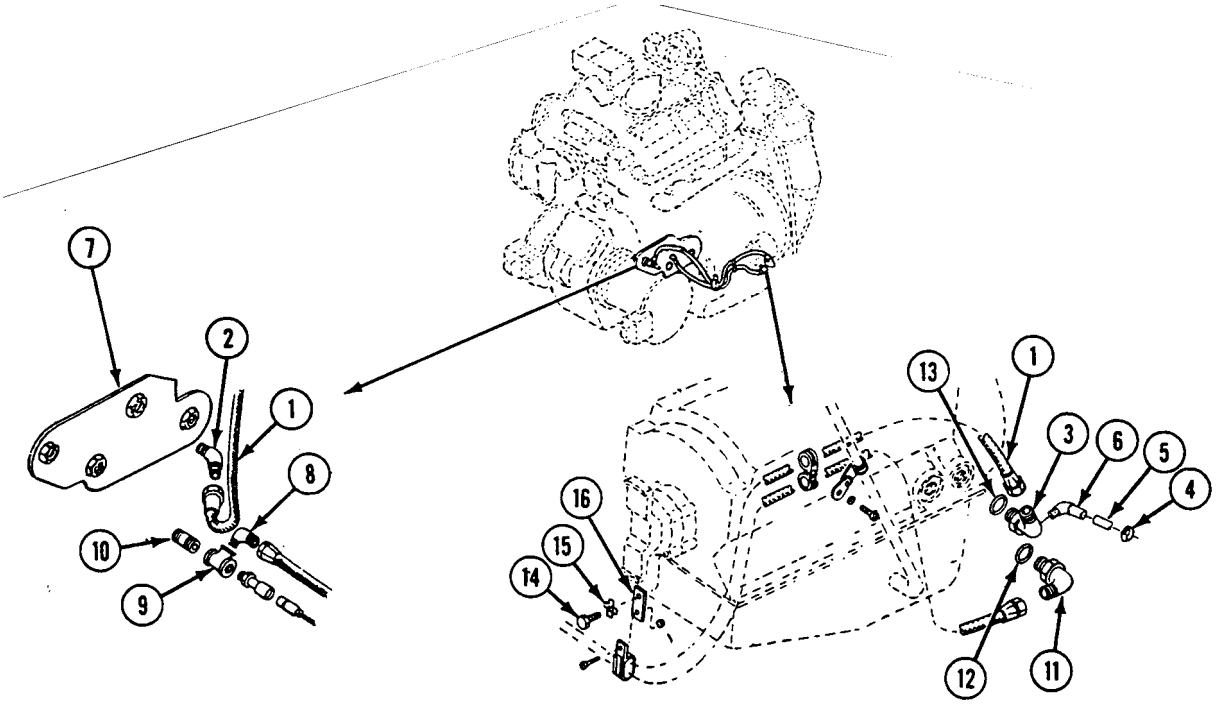


5. Disconnect cooler-to-transmission hose (1) from cooler outlet elbow (2) and transmission inlet adapter (3). Remove hose.
6. Loosen clamp (4) and remove hose (5) from elbow (6). Remove elbow from transmission inlet adapter (3).
7. Remove cooler outlet elbow (2) from oil cooler (7).
8. Remove tee inlet elbow (8), cooler inlet tee (9), and cooler inlet nipple (10) from oil cooler (7).
9. Remove transmission outlet adapter (11) and preformed packing (12) from transmission. Discard preformed packing.
10. Remove transmission inlet adapter (3) and preformed packing (13) from transmission. Discard preformed packing.
11. Remove screw (14) and tab washer (15) that secure front hose bracket (16) to transmission. Remove bracket. Discard tab washer.

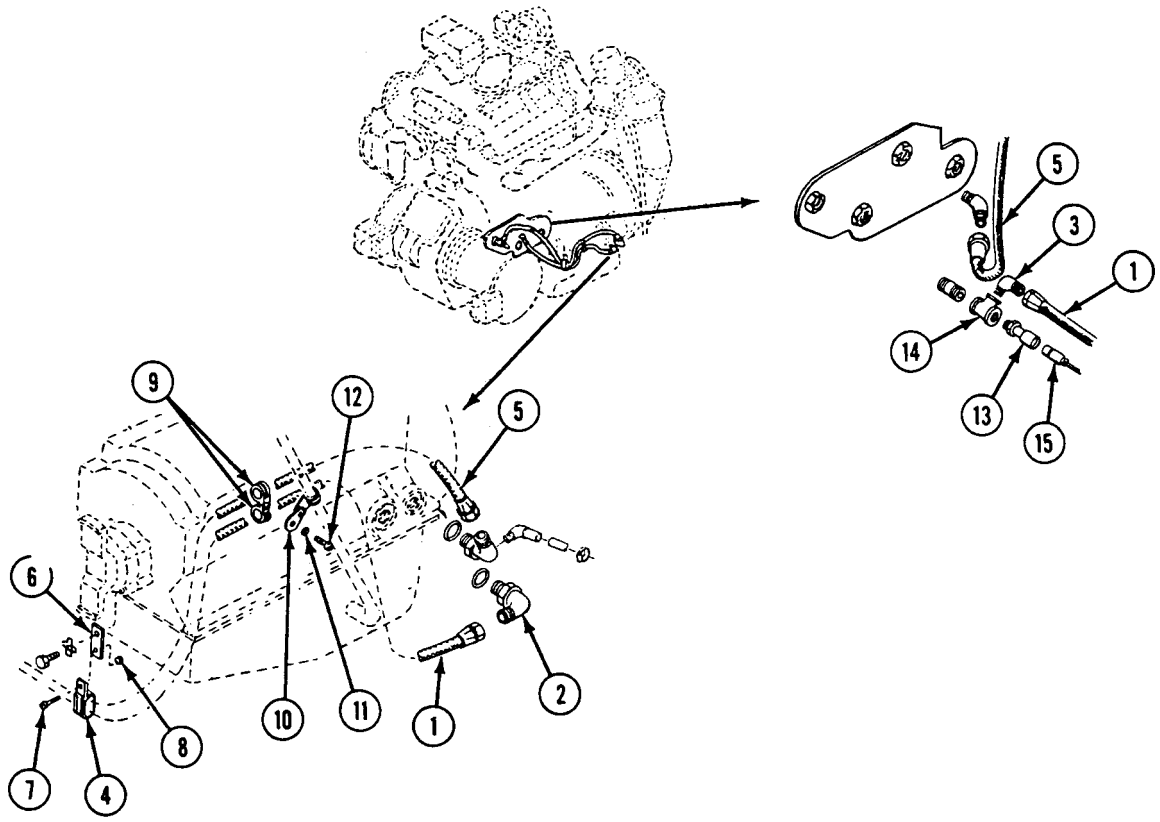


INSTALLATION

1. Put a light coat of sealing compound on outside straight and tapered pipe thread fittings.
2. Install front hose bracket (16) on transmission. Secure with new tab washer (15) and screw (14).
3. Install new preformed packing (13) and transmission inlet adapter (3) on transmission.
4. Install new preformed packing (12) and transmission outlet adapter (11) on transmission.
5. Install cooler inlet nipple (10), cooler inlet tee (9), and tee inlet elbow (8) on oil cooler (7).
6. Install cooler outlet elbow (2) on oil cooler (7).
7. Connect cooler-to-transmission hose (1) to transmission inlet adapter (3) and cooler outlet elbow (2).
8. Apply a thin coat of sealing compound to threads of elbow (6).
9. Install elbow (6) on transmission inlet adapter (3).
10. Connect hose (5) with clamp (4) to elbow (6). Tighten clamp.



11. Connect transmission-to-cooler hose (1) to transmission outlet adapter (2) and tee inlet elbow (3).
12. Install double hose clamp (4) on transmission-to-cooler hose (1) and cooler-to-transmission hose (5). Place clamp on front hose bracket (6). Secure clamp to bracket with screw (7) and new lock nut (8).
13. Install two clamps (9) on hose(1) and hose(5). Place clamps and filler tube bracket (10) on transmission. Secure clamps and bracket with washer (11) and screw (12).
14. Install oil high temperature switch (13) in cooler inlet tee (14). Connect circuit 327 lead (15) to switch.



FOLLOW-THROUGH STEPS

1. Fill transmission with oil (see your PMCS).
2. Connect battery negative lead (WP 0292 00).
3. Start and run engine (see your -10).
4. Check for leaks.
5. Stop engine (see your -10).
6. Install power plant bottom access cover (see your -10).
7. Lower center seat (see your -10).
8. Install left grille (WP 0390 00).
9. Install air cleaner (WP 0152 00).

END OF TASK

REPLACE TRANSMISSION OIL HOSES AND FITTINGS (M548A3) 0319 00

THIS WORK PACKAGE COVERS:

Removal (page 0319 00-1).
Installation (page 0319 00-5).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)
Torque Wrench (WP 0541 00, Item 68)

Materials/Parts
Sealing compound (WP 0542 00, Item 37)
Tiedown strap (2) (WP 0542 00, Item 43)
Lock nut (2)
Lock screw (4)
Preformed packing
Preformed packing
Preformed packing

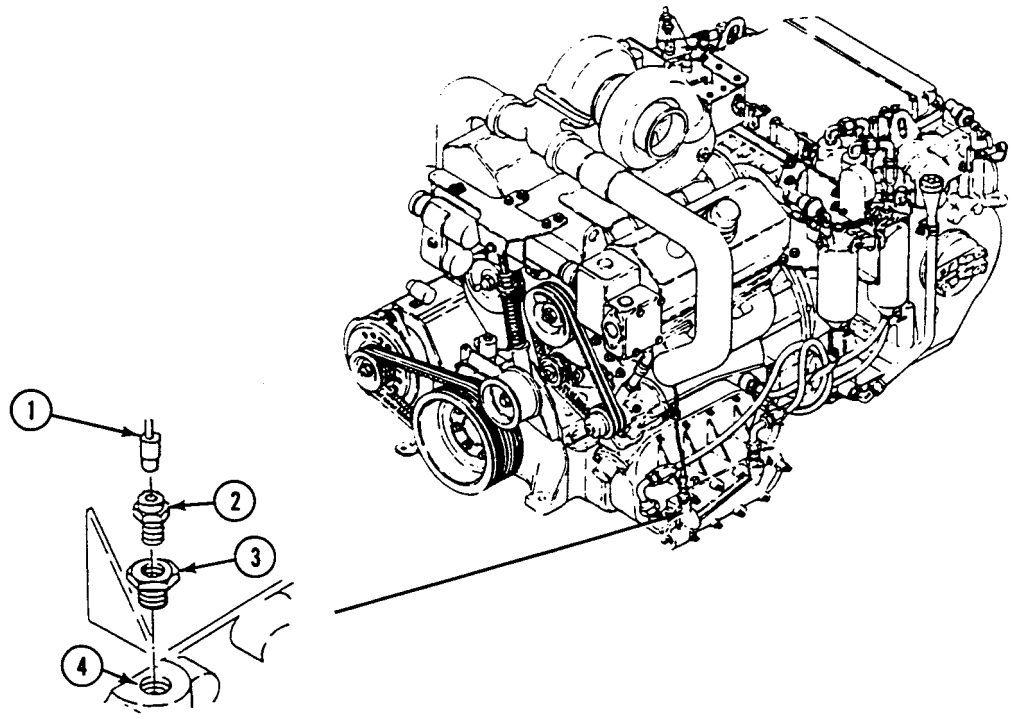
Personnel Required
Unit Mechanic

References
See your -10

Equipment Condition
Air cleaner assembly and related parts removed (WP 0159 00)
Transmission oil drained (WP 0128 00)
Power plant rear access panel removed (see your -10)
Hull bottom access cover removed (WP 0383 00)

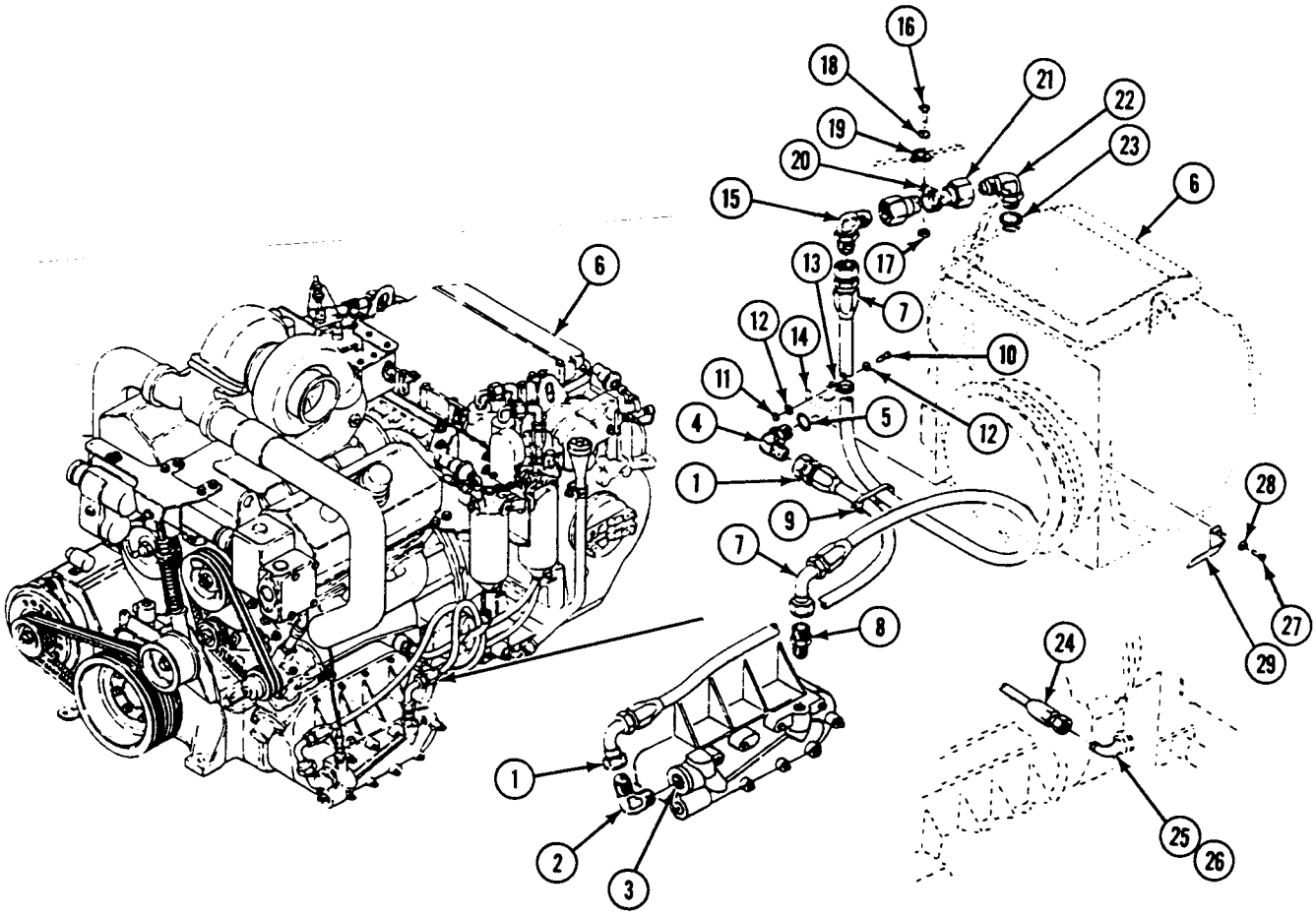
REMOVAL

1. Disconnect power plant wiring harness circuit 327 lead (1) from transmission high oil temperature switch (2).
2. Remove transmission high oil temperature switch (2) and bushing (3) from transmission oil cooler (4).

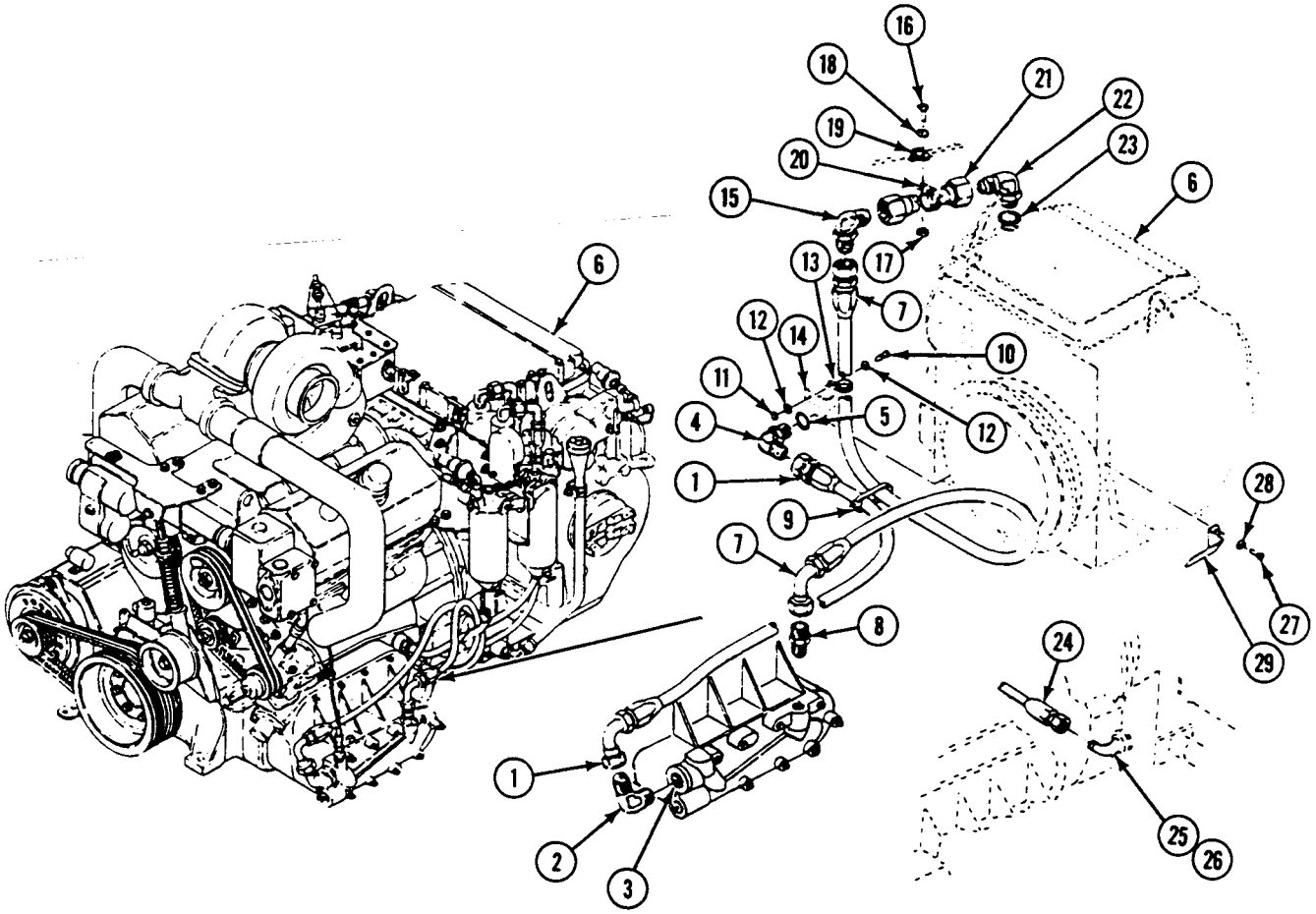


REPLACE TRANSMISSION OIL HOSES AND FITTINGS (M548A3) — Continued 0319 00

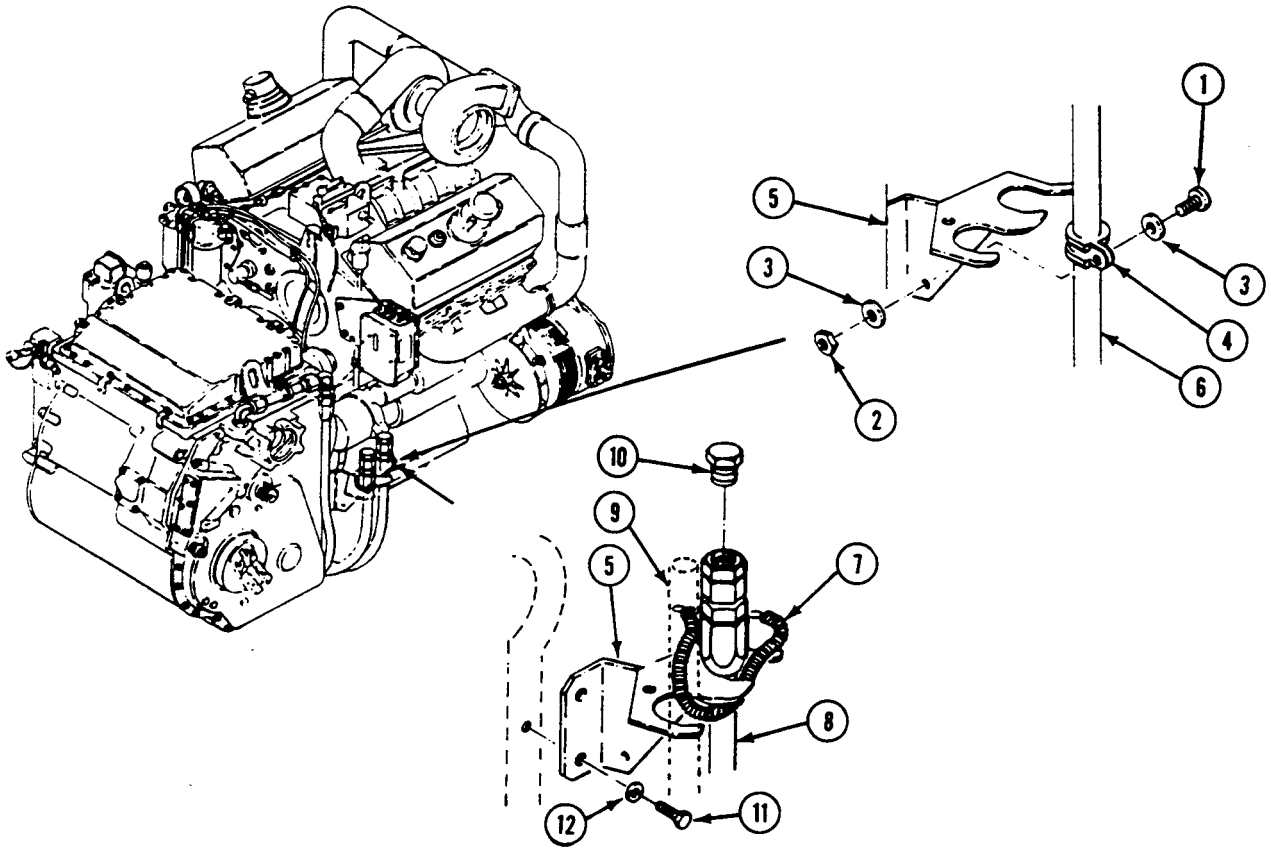
3. Remove transmission-to-oil cooler hose (1) and elbow (2) from transmission oil cooler (3).
4. Remove transmission-to-oil cooler hose (1), elbow (4), and preformed packing (5) from bottom edge of transmission (6). Discard preformed packing.
5. Remove oil cooler-to-transmission hose (7) and adapter (8) from transmission oil cooler (3).
6. Cut two tiedown straps (9) from oil cooler-to-transmission hose (7) and transmission-to-oil cooler hose (1). Discard tiedown straps.
7. Remove screw (10), lock nut (11), two washers (12), and clamp (13) from bracket (14) and oil cooler-to-transmission hose (7). Discard lock nut.
8. Remove oil cooler-to-transmission hose (7) from elbow (15).



9. Remove screw (16), lock nut (17), washer (18), clamp (19), and clamp (20) from transmission (6). Discard lock nut.
10. Remove transmission inlet tube (21), elbow(15), elbow(22), and preformed packing (23)from transmission (6). Discard preformed packing.
11. Remove transmission drain hose (24) from elbow (25) on transmission (6).
12. Remove elbow (25) and preformed packing (26) from transmission (6). Discard preformed packing.
13. Remove two lock screws (27), washers (28), and support (29) from transmission (6). Discard lock screws.

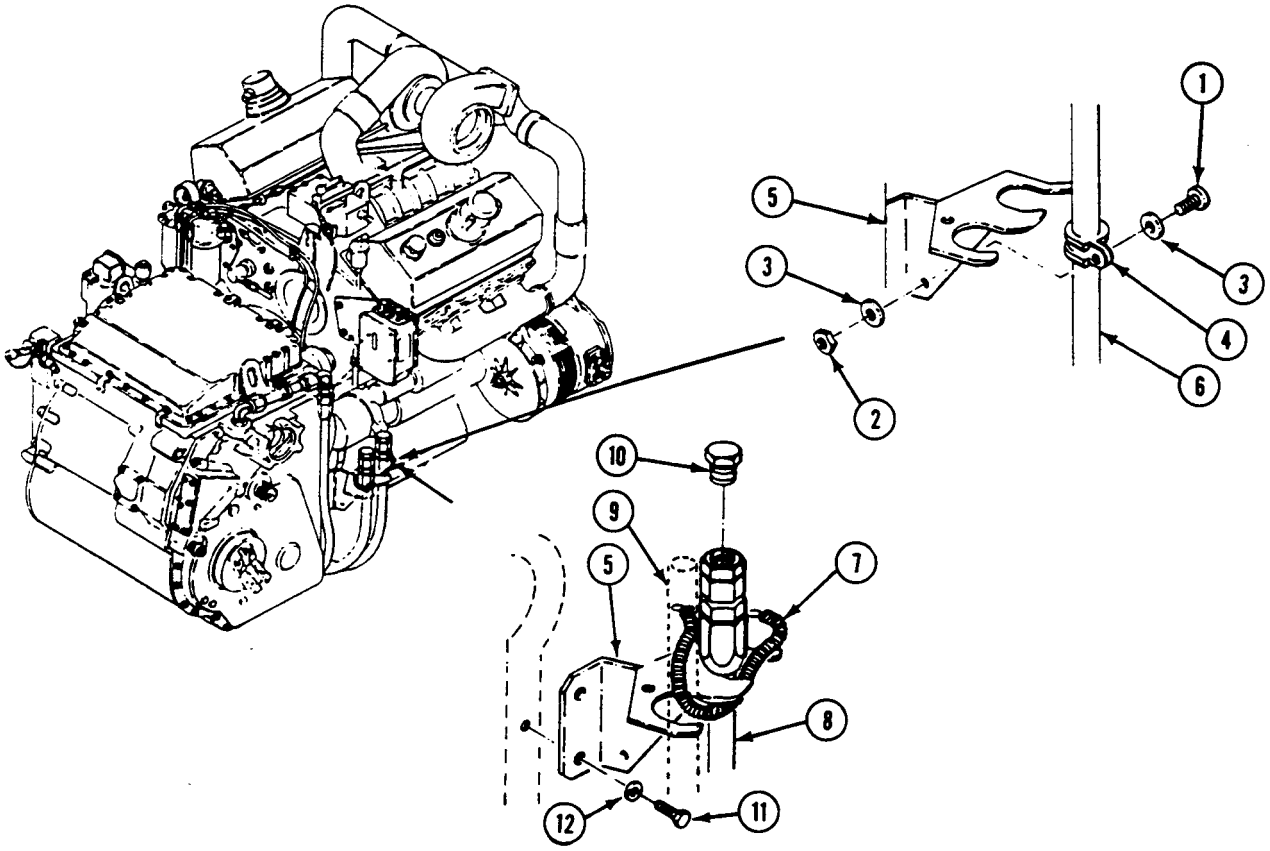


14. Remove screw (1), lock nut (2), two washers (3), and clamp (4) from bracket (5) and oil cooler-to-transmission hose (6). Discard lock nut.
15. Unlatch spring (7) and remove engine drain hose (8) and transmission oil drain hose (9) with plug (10) from bracket (5).
16. Remove two lock screws (11), washers (12), and bracket (5) with spring (7) from transmission. Discard lock screws.

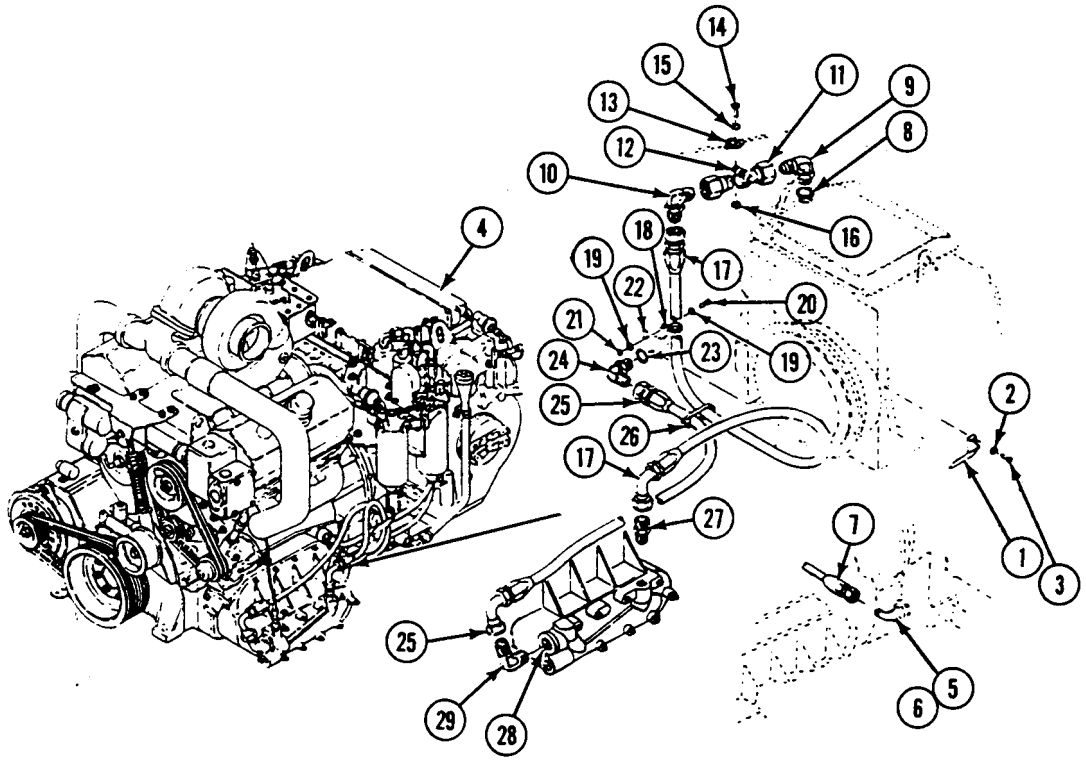


INSTALLATION

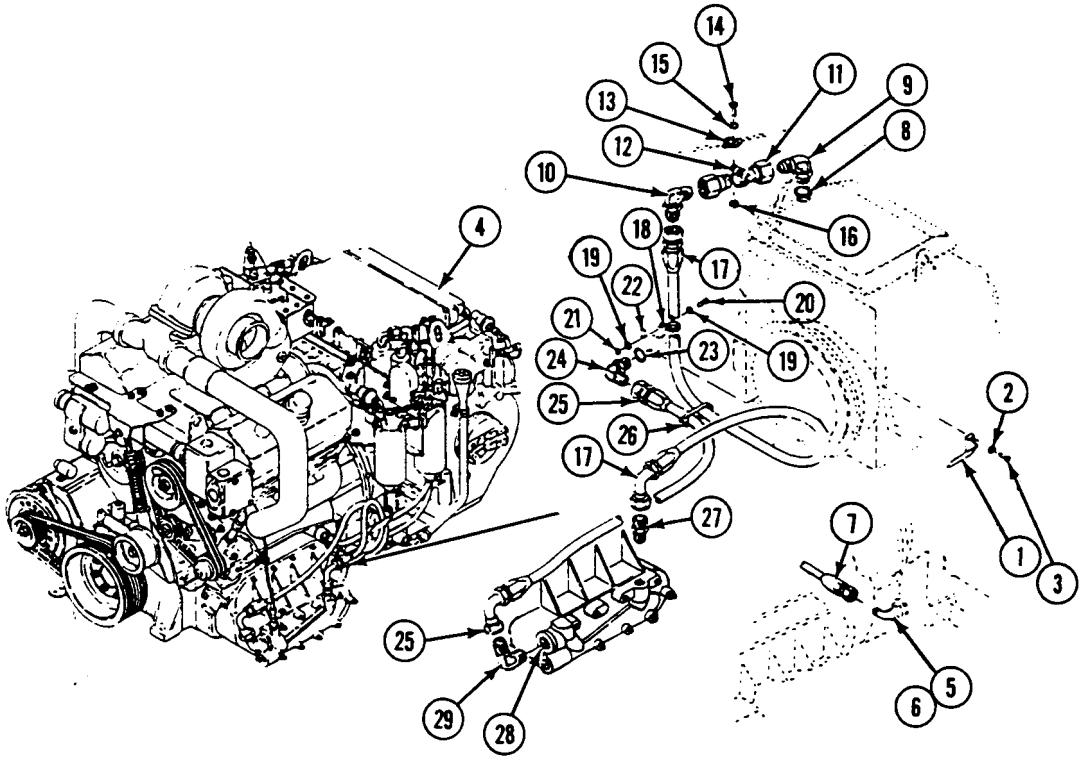
1. Install bracket (5) with spring (7), two washers (12), and new lock screws (11) on transmission. Tighten lock screws to 38-41 lb-ft (54-56 N•m) torque.
2. Install transmission oil drain hose (9) with plug (10) and engine drain hose (8) on bracket (5) and secure with spring (7).
3. Install oil cooler-to-transmission hose (6), clamp (4), two washers (3), screw (1), and new lock nut (2) on bracket (5).



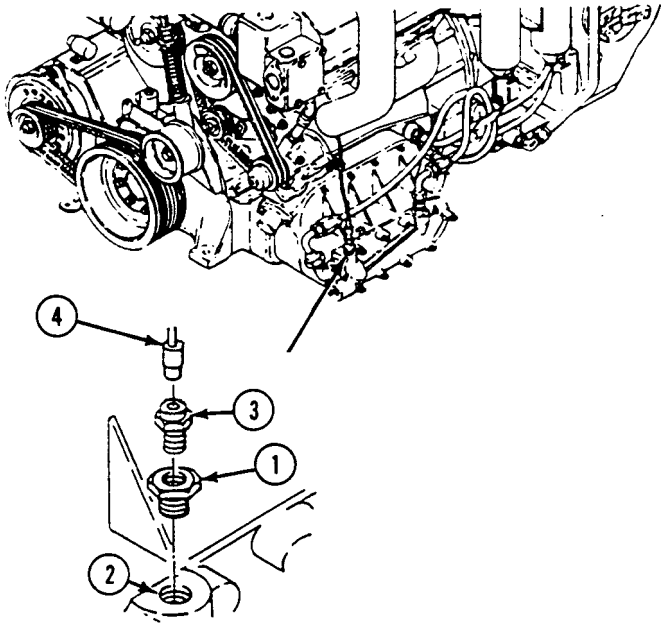
4. Install support (1), two washers (2), and new lock screws (3) on transmission (4). Tighten lock screws to 300-324 lb-in (34-37 N•m) torque.
5. Install new preformed packing (5) and elbow (6) on transmission (4). Turn open end of elbow toward left side and keep parallel with bottom edge.
6. Install transmission oil drain hose (7) on elbow (6).
7. Install new preformed packing (8) and elbow (9) on transmission (4). Turn elbow approximately 45 degrees out, facing to the rear.
8. Install elbow (10) on transmission inlet tube (11).
9. Install transmission inlet tube (11) on elbow (9).
10. Place large clamp (12) on transmission inlet tube (11). Install small clamp (13), screw (14), washer (15), and new lock nut (16) on clamp (12).
11. Install oil cooler-to-transmission hose (17) on elbow (10).



12. Install clamp (18), two washers (19), screw (20), and new lock nut (21) on bracket (22).
13. Install new preformed packing (23) and elbow (24) on transmission (4). Turn elbow opening to the right.
14. Install transmission-to-oil cooler hose (25) and oil cooler-to-transmission hose (17).
15. Install two new tiedown straps (26) on transmission-to-oil cooler hose (25) and oil cooler-to-transmission hose (17).
16. Apply light coat of sealing compound to tapered threads. Do not apply beyond small end of taper. Install adapter (27) in transmission oil cooler (28).
17. Install oil cooler-to-transmission hose (17) on adapter (27).
18. Apply light coat of sealing compound to tapered threads. Do not apply beyond small end of taper. Install elbow (29) on transmission oil cooler (28).
19. Install transmission-to-oil cooler hose (25) on elbow (29).



20. Apply light coat of sealing compound to tapered threads. Do not apply beyond small end of taper. Install bushing (1) in transmission oil cooler (2).
21. Install transmission high oil temperature switch (3) in bushing (1).
22. Connect power plant wiring harness circuit 327 lead (4) to switch (3).



FOLLOW THROUGH STEPS

1. Fill transmission (WP 0128 00).
2. Install air cleaner assembly and related parts (WP 0159 00).
3. Install power plant rear access panel (see your -10).
4. Install hull bottom access cover (WP 0383 00).

END OF TASK

REPLACE TRANSMISSION OIL FILTER ELEMENT (M548A1) 0320 00

THIS WORK PACKAGE COVERS:

Removal (page 0320 00-1).
Installation (page 0320 00-2).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts
Fluid filter element kit
Preformed packing
Preformed packing
Preformed packing
Suitable container

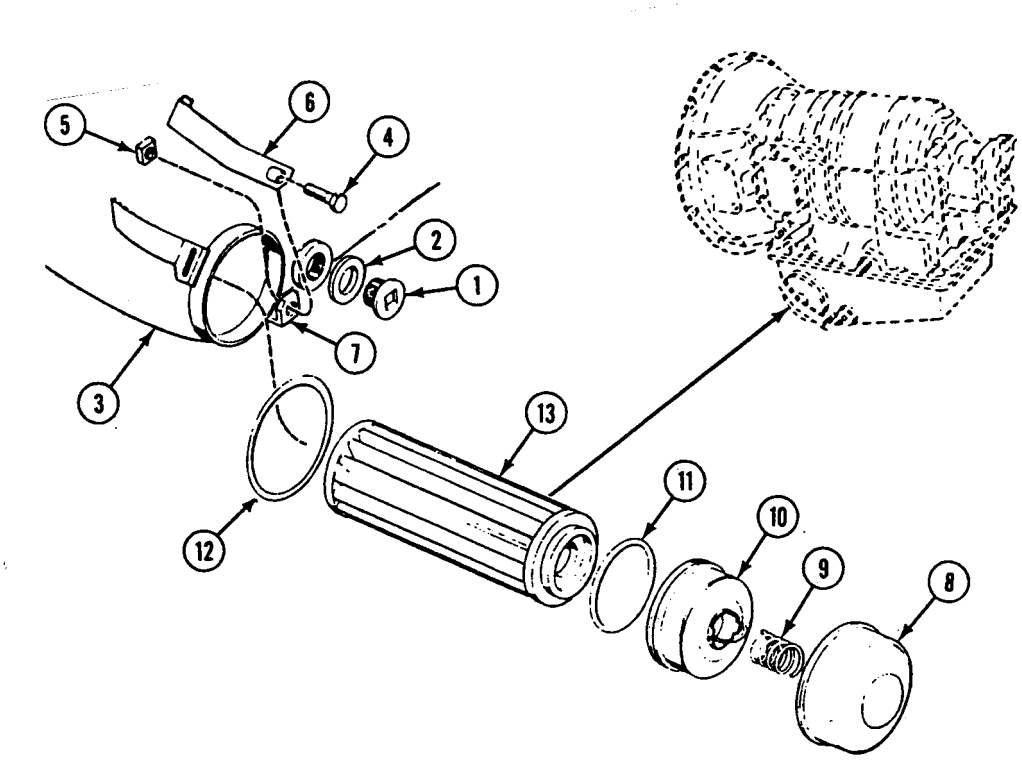
Personnel Required
Unit Mechanic

References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Hull bottom access cover removed (WP 0383 00)

REMOVAL

1. Place suitable container under drain plug (1). Remove plug and preformed packing (2) from transmission (3). Allow oil to drain. Discard preformed packing.
2. Loosen screw (4) from nut (5). Rotate strap (6) and unhook from weldment (7).
3. Remove cover (8), spring (9), retainer (10), preformed packing (11), preformed packing (12), and oil filter element (13) from transmission (3). Discard filter element and preformed packings.

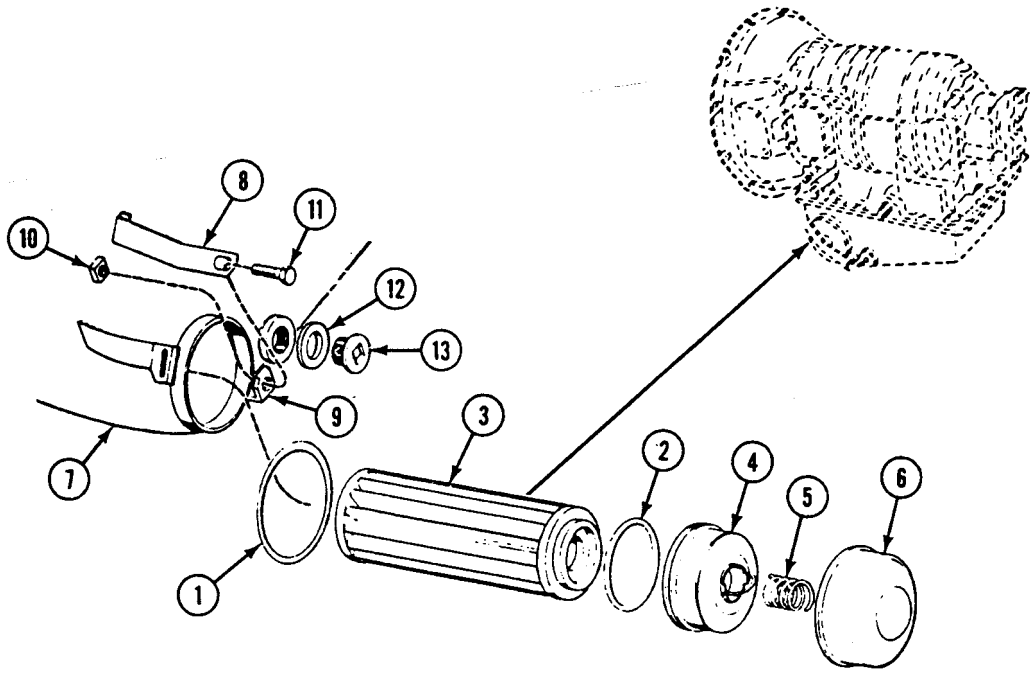


INSTALLATION

NOTE

Fluid filter element kit consists of 2 different preformed packings and element.

1. Install new preformed packing (1) and new preformed packing (2) on new oil filter element (3).
2. Install retainer (4), spring (5), and cover (6) on oil filter element (3).
3. Install oil filter element (3) in transmission (7).
4. Hook strap (8) on weldment (9). Secure with nut (10) and screw (11).
5. Install new preformed packing (12) and drain plug (13) on transmission (7).



FOLLOW-THROUGH STEPS

1. Add oil to transmission (WP 0128 00).
2. Start engine (see your -10). Check oil filter for leaks.
3. Stop engine (see your -10).
4. Install hull bottom access cover (WP 0383 00).

END OF TASK

REPLACE TRANSMISSION OIL FILTER ELEMENT (M548A3) 0321 00

THIS WORK PACKAGE COVERS:

Removal (page 0321 00-2).
Inspection-Acceptance and Rejection Criteria (page 0321 00-2).
Installation (page 0321 00-3).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)
Socket Wrench Set (WP 0541 00, Item 64)
Torque Wrench (WP 0541 00, Item 71)

Materials/Parts
Engine oil (see your -10)
Container (12 gallons)
Fluid filter element kit
Jack screw (2)
Preformed packing (2)
Screw (3)
Transmission parts list

Personnel Required
Unit Mechanic

References
See your -10
Standard Operating Procedures

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Cab floor plates removed (WP 0395 00)
Seat support removed (WP 0395 00)

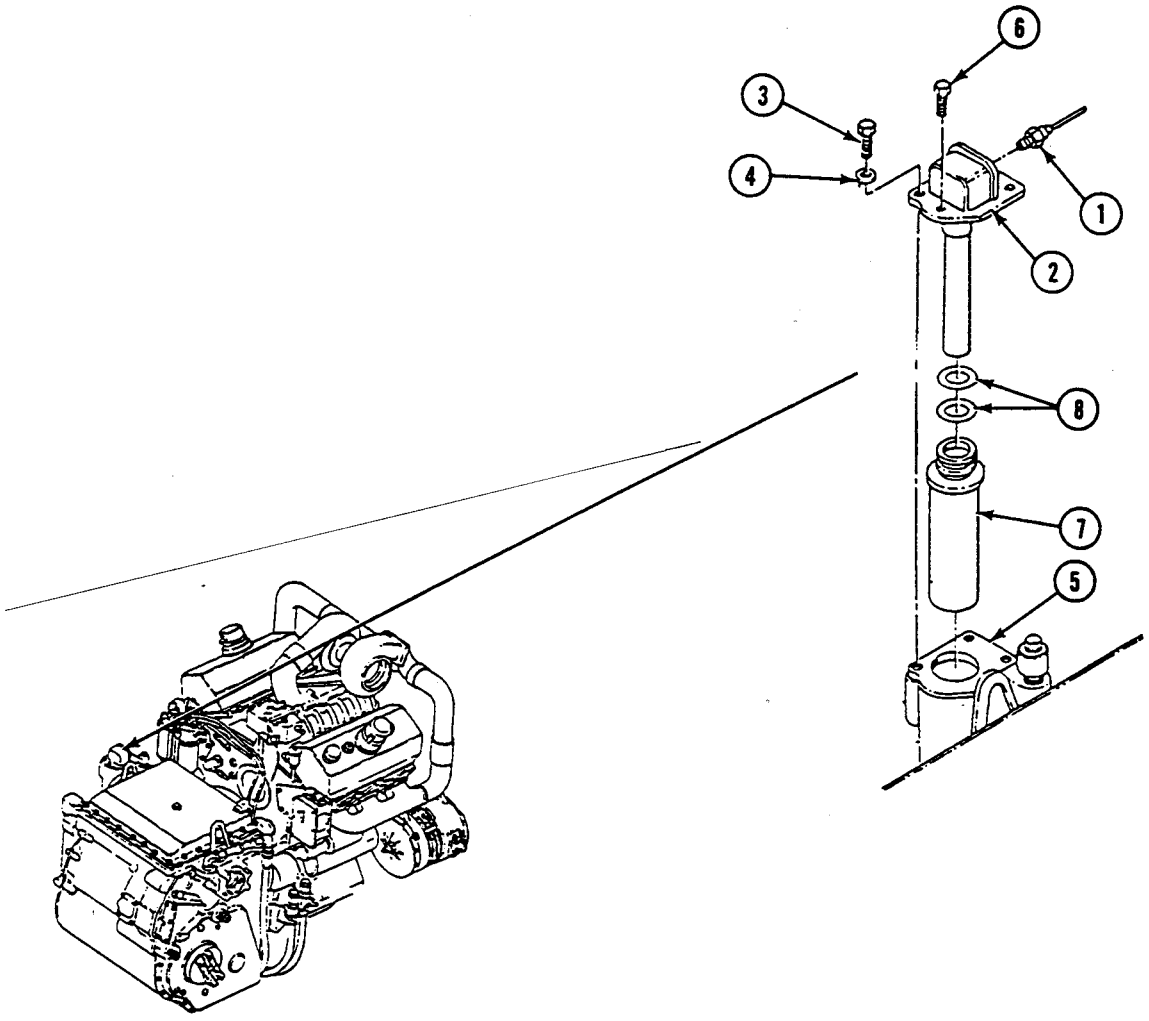
REPLACE TRANSMISSION OIL FILTER ELEMENT (M548A3) — Continued 0321 00

REMOVAL

NOTE

Oil filter element MUST be replaced when transmission oil is drained.

1. Disconnect lead (1) from filter head (2).
2. Remove three screws (3), washers (4), and filter head (2) from filter body (5). Use two screws as jack screws (6). Discard three screws.
3. Remove filter element (7) and two preformed packings (8) from filter head (2). Discard preformed packings. Discard filter element in accordance with local Standard Operating Procedures.



INSPECTION-ACCEPTANCE AND REJECTION CRITERIA

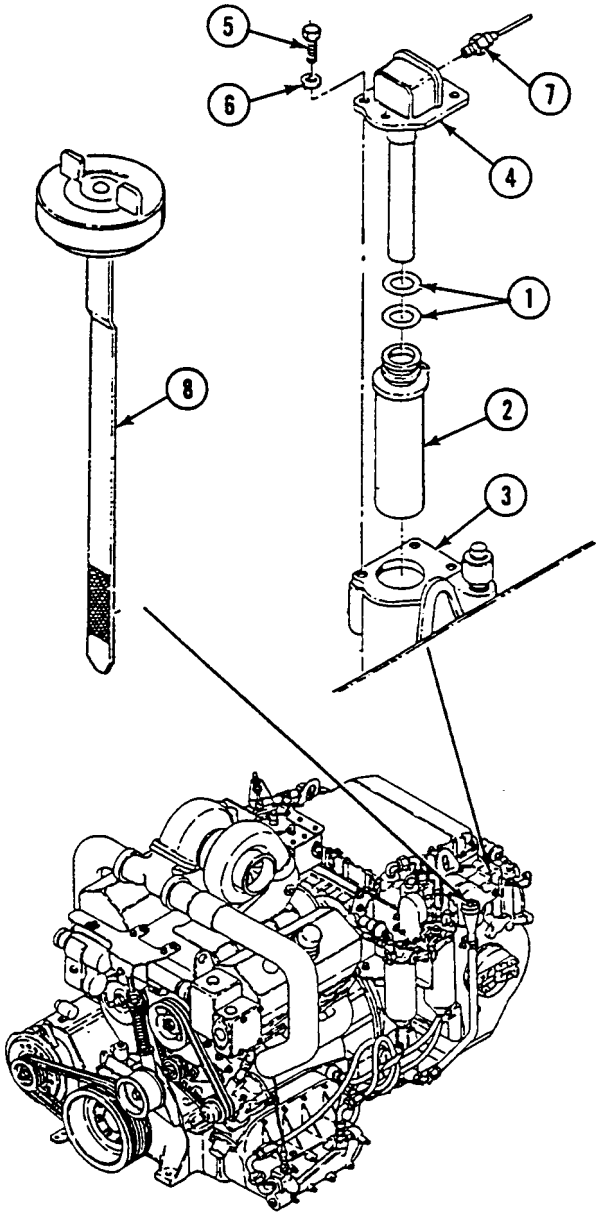
1. Inspect filter head for damage. Replace filter head, if damaged.

INSTALLATION

NOTE

Fluid filter element kit consists of 2 different preformed packings and element.

1. Lubricate two new preformed packings (1) with grease (WP 0128 00).
2. Install new preformed packing on new filter element (2). Install filter element in filter body (3).
3. Install two new preformed packings (1) on filter head (4). Install filter head on filter body (3). Secure with three new screws (5) and washers (6). Tighten screws to 276-300 lb-ft (31-34 N•m) torque.
4. Connect lead (7) to filter head (4).



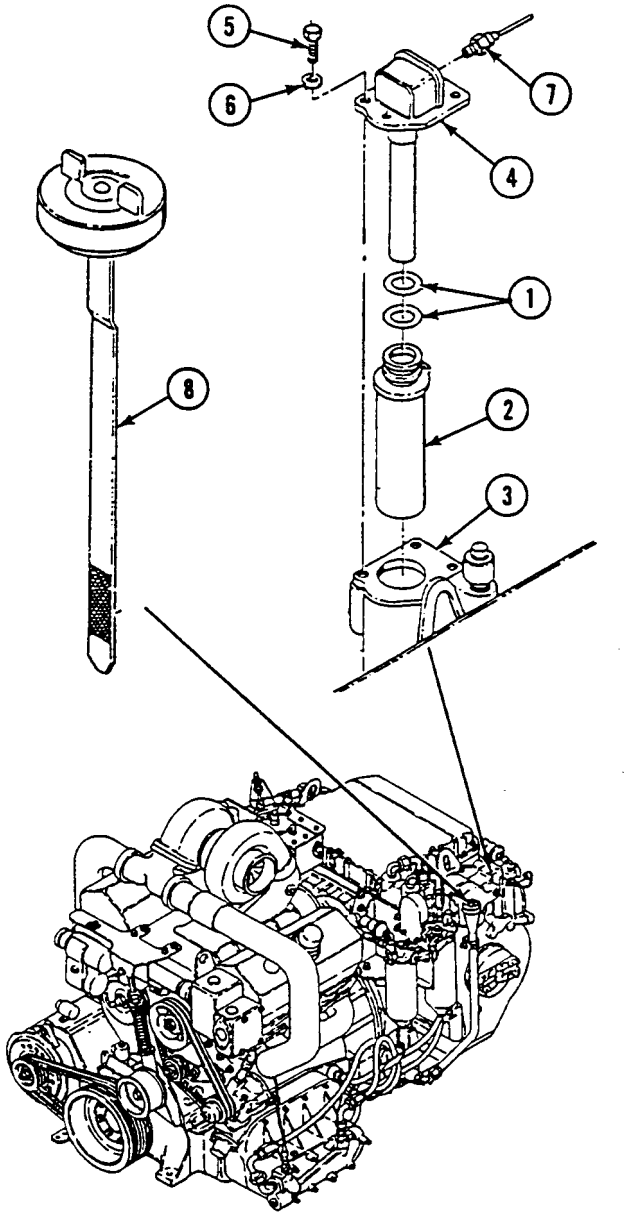
NOTE

Transmission must be serviced with operational lubricant in accordance with transmission tag on filler neck and (WP 0128 00).

5. Fill transmission with oil to bring level between ADD and FULL mark on dipstick (8). See transmission tag on filler neck and (WP 0128 00).

6. Turn MASTER SWITCH ON (see your -10).

7. Run engine for 3 to 5 minutes (see your -10). Check fluid level. Transmission oil level should be between ADD and FULL on dipstick (8). Check for leaks.



FOLLOW-THROUGH STEPS

1. Stop engine (see your -10).
2. Install seat support (WP 0395 00).
3. Install cab floor plates (WP 0395 00).

END OF TASK

REPLACE TRANSMISSION AOAP VALVE, HOSE, AND BRACKET (M548A1) 0322 00

THIS WORK PACKAGE COVERS:

Removal (page 0322 00-2).
Installation (page 0322 00-3).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts
Sealing compound (WP 0542 00, Item 39)
Lock nut (2)
Suitable container

Personnel Required
Unit Mechanic

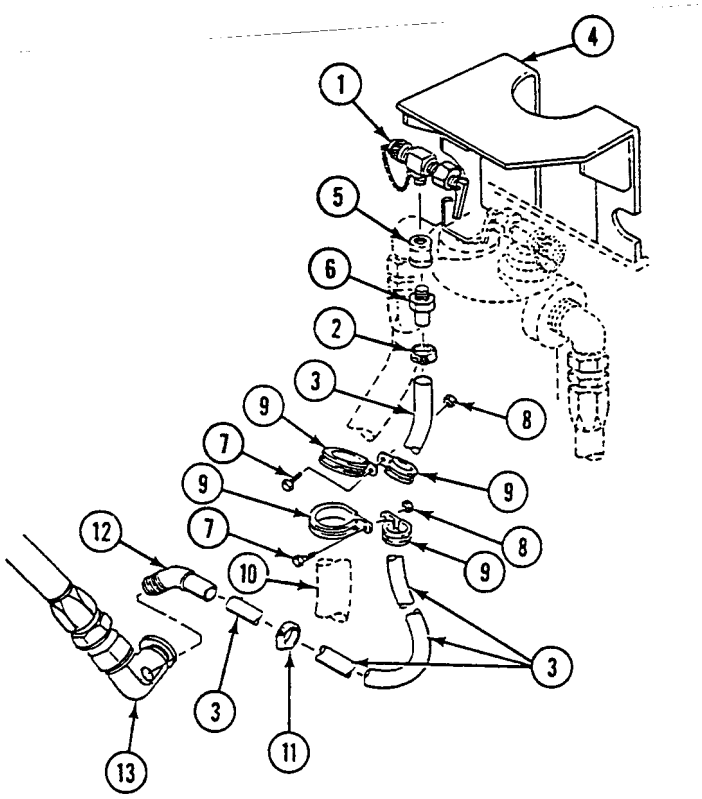
References
See your -10
TB 43-0211

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Power plant rear access door removed (see your -10)
Top access cover and grilles removed (WP 0390 00)

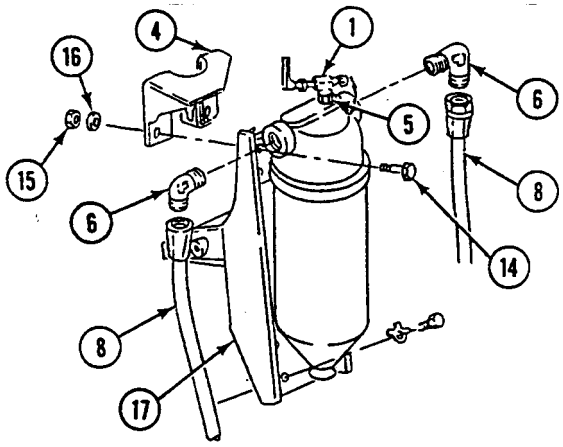
REPLACE TRANSMISSION AOAP VALVE, HOSE, AND BRACKET (M548A1) — Continued 0322 00

REMOVAL

1. Place a suitable container under transmission AOAP valve (1).
2. Remove clamp (2) and hose (3) from AOAP valve (1). Allow oil to drain from hose.
3. Remove AOAP valve (1) from bracket (4).
4. Separate coupling (5), adapter (6), and AOAP valve (1).
5. Remove two screws (7), nuts (8), and four clamps (9) from hose (3) and engine oil filter outlet hose (10).
6. Remove clamp (11) and hose (3) from adapter (12).
7. Remove adapter (12) from elbow (13).

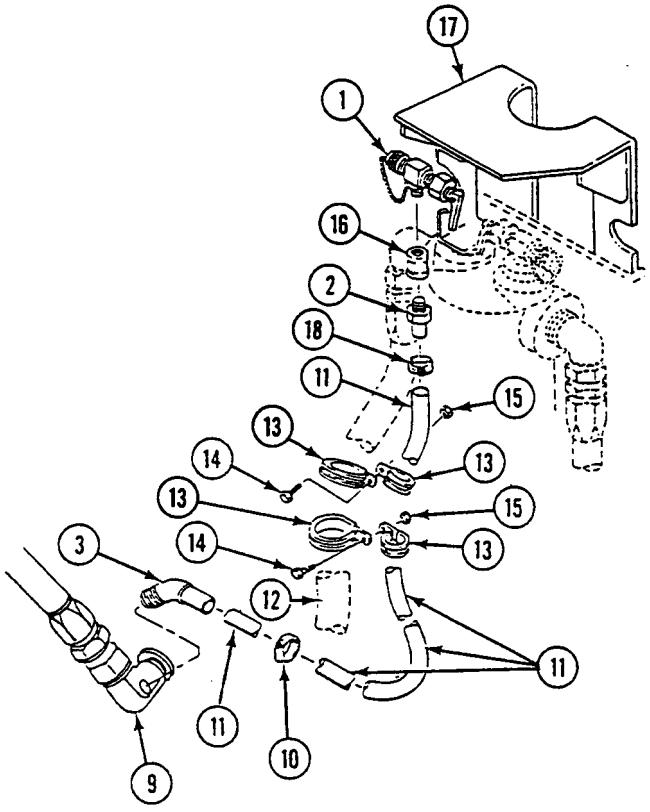


8. Remove two screws (14), lock nuts (15), washers (16), and bracket (4) from bracket (17). Discard lock nuts.

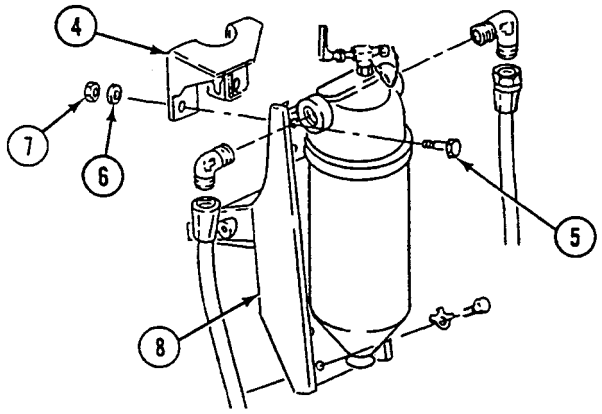


INSTALLATION

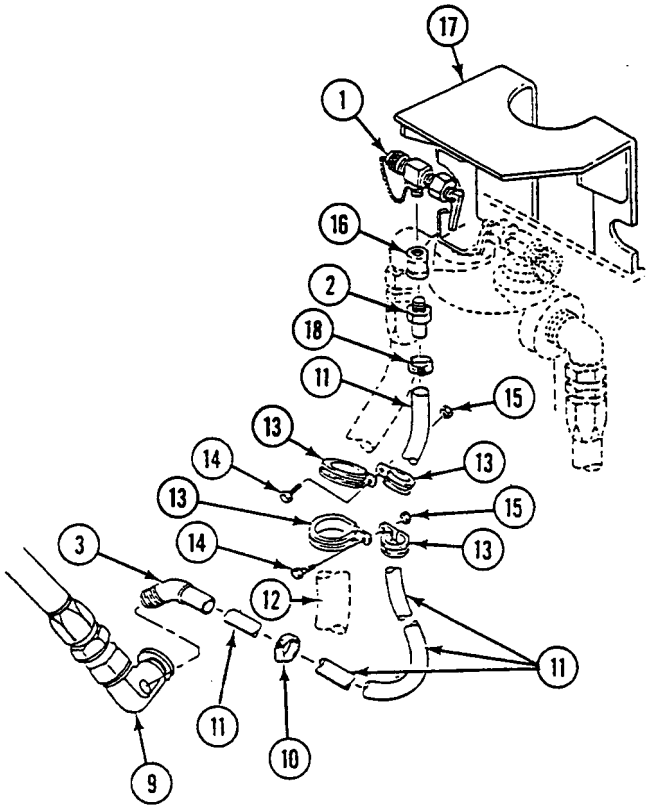
1. Apply a thin even coat of sealing compound to cleaned external threads of AOAP valve (1), adapter (2), and adapter (3) before installation.



2. Install bracket (4), two screws (5), washers (6), and new lock nuts (7) on bracket (8).



3. Install adapter (3) in elbow (9).
4. Install clamp (10) and hose (11) on adapter (3).
5. Install hose (11) on engine oil filter outlet hose (12) with four clamps (13), screws (14), and nuts (15).
6. Connect adapter (2) and AOAP valve (1) with coupling (16).
7. Install AOAP valve (1) in bracket (17).
8. Install hose (11) and clamp (18) on AOAP valve (1).



FOLLOW-THROUGH STEPS

1. Install power plant rear access door (see your -10).
2. Start engine (see your -10).
3. Check for oil leaks.
4. Install top access cover and grilles (WP 0390 00).
5. Stop engine (see your -10).
6. Wait about 20 minutes for oil to drain back into oil pan. Check transmission oil level. Add oil if needed (WP 0128 00).

END OF TASK

REPLACE TRANSMISSION OIL SAMPLING VALVE, GUARD, AND PRESSURE SWITCH (M548A3)

0323 00

THIS WORK PACKAGE COVERS:

Removal (page 0323 00-1).
Cleaning (page 0323 00-2).
Installation (page 0323 00-2).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts

Cleaning compound (WP 0542 00, Item 9)
Sealing compound (WP 0542 00, Item 36)
Preformed packing
Retainer

Personnel Required

Unit Mechanic

References

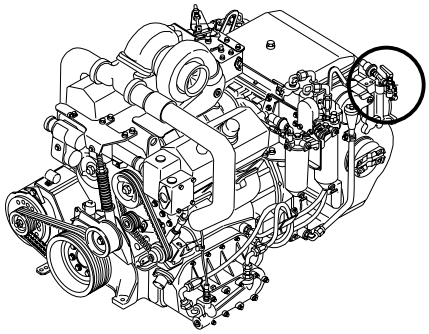
See your -10

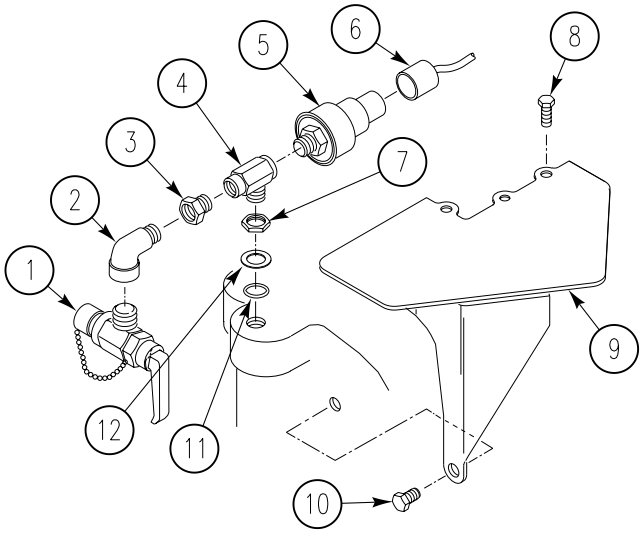
Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Center seat raised (see your -10)
Center and right floor plate removed (WP 0395 00)

REMOVAL

1. Remove three transmission cover screws (8) securing pressure switch guard (9) to transmission.
2. Remove left side transmission screw (10) and pressure switch guard (9) from transmission.
3. Remove transmission oil sampling valve (1) and elbow (2) from bushing (3).
4. Remove elbow (2) from transmission oil sampling valve (1).
5. Remove bushing (3) from tee (4).
6. Disconnect circuit 366 lead (6) from pressure switch (5).
7. Remove pressure switch (5) from tee (4).
8. Remove tee (4) with tube nut (7), retainer (11), and preformed packing (12) from transmission. Discard preformed packing and retainer.





REPLACE TRANSMISSION OIL SAMPLING VALVE, GUARD, AND PRESSURE SWITCH (M548A3) — Continued

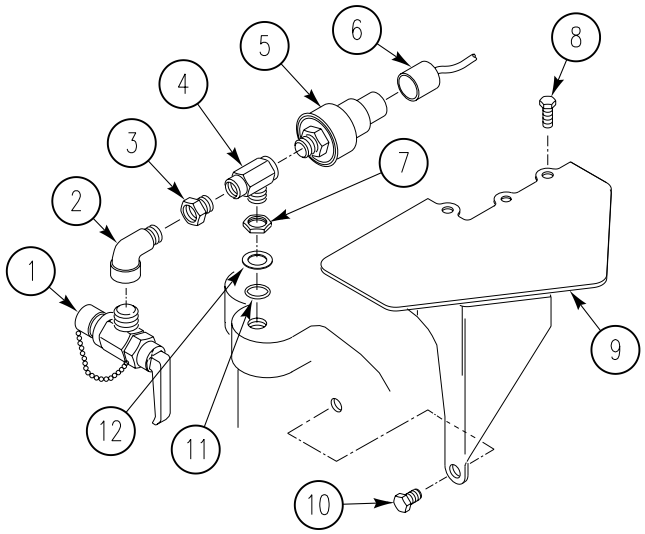
0323 00

CLEANING

1. Clean male threads of elbow with cleaning compound and apply sealing compound to male threads of elbow.

INSTALLATION

1. Install elbow (2) on transmission oil sampling valve (1) and place it as shown.
2. Install new preformed packing (12), new retainer (11), and tee (4) with tube nut (7) on transmission.
3. Apply sealing compound to male threads of pressure switch (5) and install switch in tee (4).
4. Connect circuit 366 lead (6) to pressure switch (5).
5. Apply sealing compound to male threads of bushing (3) and install bushing in tee (4).
6. Install transmission oil sampling valve (1) with elbow (2) in bushing(3).
7. Install pressure switch guard (9) and secure with three transmission cover screws (8). Tighten three screws to 13-15 lb-ft (18-20 N•m).
8. Install left side transmission screw (10) in transmission. Tighten screw to 27-32 lb-ft (37-43 N•m)



FOLLOW-THROUGH STEPS

1. Install center and right floor plate(WP 0395 00).
2. Lower center seat (see your -10).

END OF TASK

REPLACE DIFFERENTIAL PRESSURE SWITCH AND BYPASS PLUG (M548A3) 0324 00

THIS WORK PACKAGE COVERS:

Removal (page 0324 00-1).
Installation (page 0324 00-2).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts

Preformed packing (2)
Preformed packing
Preformed packing

Personnel Required

Unit Mechanic

References

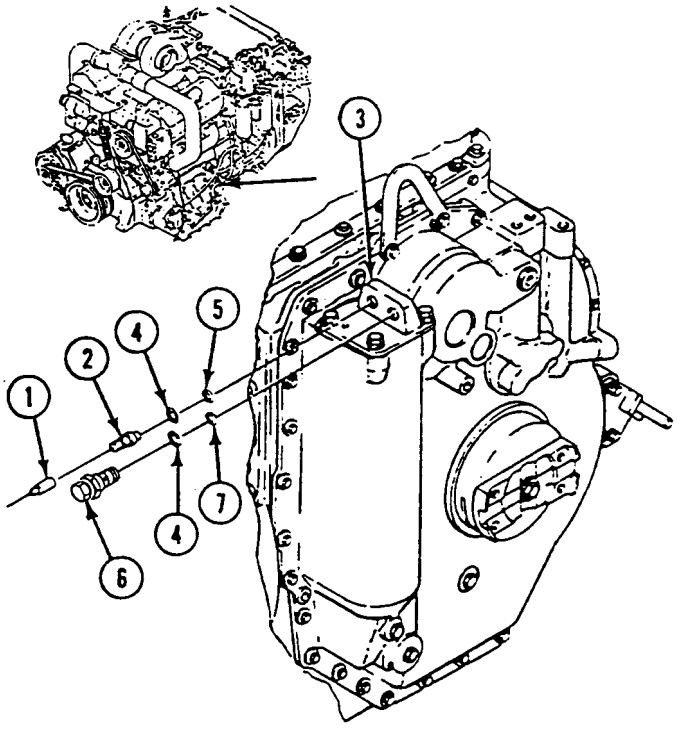
See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Cab floor plates removed (WP 0395 00)
Seat support removed (WP 0395 00)

REMOVAL

1. Disconnect electrical connector (1) from switch (2) on filter head (3).
2. Remove switch (2), preformed packing (4), and preformed packing (5) from filter head (3). Discard preformed packings.
3. Remove plug (6), preformed packing (4), and preformed packing (7) from filter head (3). Discard preformed packings.

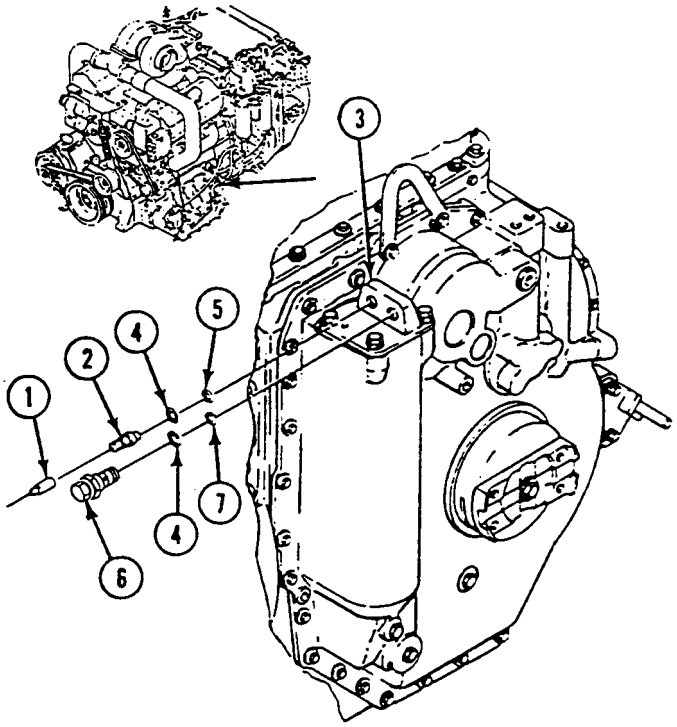


REPLACE DIFFERENTIAL PRESSURE SWITCH AND BYPASS PLUG (M548A3) — Continued

0324 00

INSTALLATION

1. Install new preformed packing (7), new preformed packing (4), and plug (6) in filter head (3).
2. Install new preformed packing (5), new preformed packing (4), and switch (2) in filter head (3).
3. Connect electrical lead (1) to switch (2) on filter head (3).



FOLLOW-THROUGH STEPS

1. Install seat support (WP 0395 00).
2. Install cab floor plates (WP 0395 00).

END OF TASK

CHAPTER 10

UNIT MAINTENANCE INSTRUCTIONS FOR TRANSFER GEARCASE FINAL DRIVE

WORK PACKAGE INDEX

Title	Sequence No.
REPLACE TRANSFER GEARCASE MOUNTS (M548A1)	0325 00
REPLACE FINAL DRIVE	0326 00
REPLACE FINAL DRIVE PINION OIL SEAL	0327 00
REPLACE FINAL DRIVE GAUGE ROD	0328 00
REPLACE FINAL DRIVE VENT, FILLER TUBE, AND FITTINGS (RIGHT SIDE)	0329 00
REPLACE FINAL DRIVE VENT, FILLER TUBE, AND FITTINGS (LEFT SIDE)	0330 00
REPLACE TRANSFER GEARCASE OIL LEVEL GAUGE ROD AND FILLER NECK (M548A1)	0331 00

REPLACE TRANSFER GEARCASE MOUNTS (M548A1) 0325 00

THIS WORK PACKAGE COVERS:

Removal (page 0325 00-1).
Installation (page 0325 00-2).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)
Sealant Dispenser (WP 0541 00, Item 12)
Remover and Replacer (WP 0541 00, Item 40)
Torque Wrench (WP 0541 00, Item 68)

Materials/Parts
Caulking compound (WP 0542 00, Item 7)
Lock nut

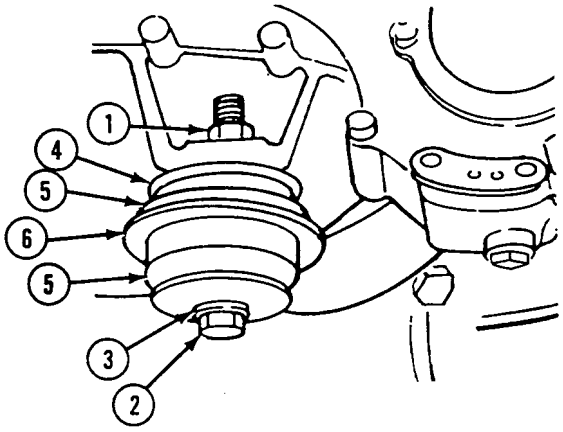
Personnel Required
Unit Mechanic

References
See your -10

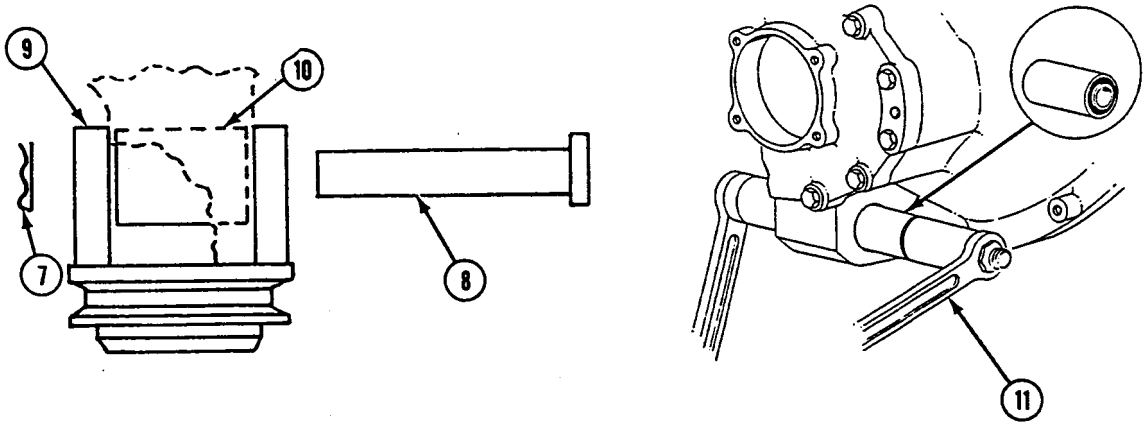
Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Power plant removed (WP 0130 00)

REMOVAL

1. Remove lock nut (1), screw (2), two washers (3), washers (4), left rubber mounts (5), and left mount block (6) from between hull and transfer gearcase. Discard lock nut.

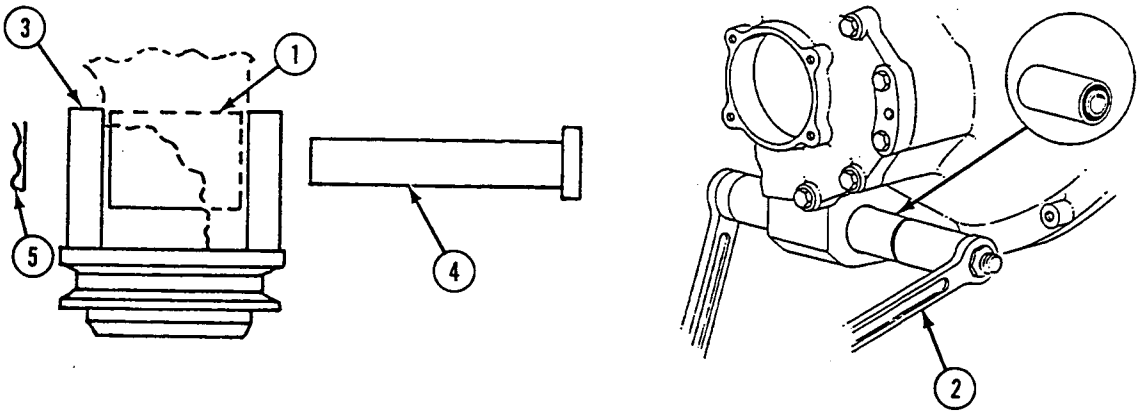


2. Remove lock pin (7), pin (8), and right rubber mount (9) from transfer gearcase.
3. If resilient mount (10) is to be replaced, use remover and replacer (11).

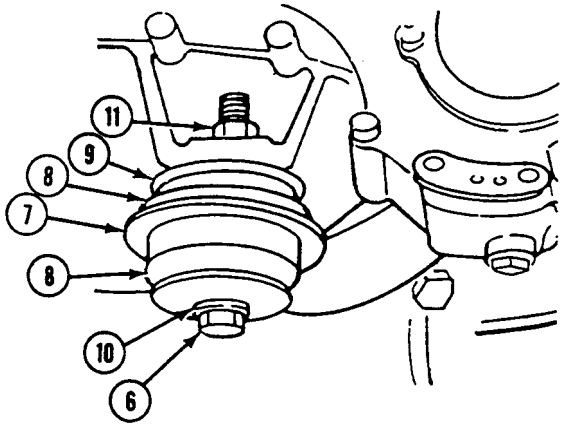


INSTALLATION

1. If resilient mount (1) is being replaced, use remover and replacer (2).
2. Install right rubber mount (3) on transfer gearcase with pin (4) and lock pin (5).



3. Put caulking compound on threads of screw (6).
4. Install left mount block (7), two left rubber mounts (8), and washers (9) between transfer gearcase and hull with screw (6), two washers (10), and new lock nut (11). Tighten lock nut to 75-80 lb-ft (102-108 N•m).



FOLLOW-THROUGH STEPS

1. Install power plant (WP 0130 00).

END OF TASK

REPLACE FINAL DRIVE 0326 00

THIS WORK PACKAGE COVERS:

Removal (page 0326 00-2).
Installation (page 0326 00-2).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)
Final Drive Lifting Bar (WP 0541 00, Item 7)
Torque Wrench (WP 0541 00, Item 68)

Materials/Parts

Antiseize compound (WP 0542 00, Item 6)
Engine lubricating oil (WP 0542 00, Item 13)

Personnel Required

Unit Mechanic
Helper (H)

References

See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Left and right center floor plates removed (WP 0394 00) or (WP 0395 00)
Track removed from final drive sprocket (WP 0358 00)
Drive sprocket assembly removed (WP 0357 00)
Left or right final drive shaft removed (WP 0333 00), (WP 0334 00), or (WP 0335 00)
Left final drive speedometer adapter removed (WP 0517 00)
Final drive drained (WP 0128 00)

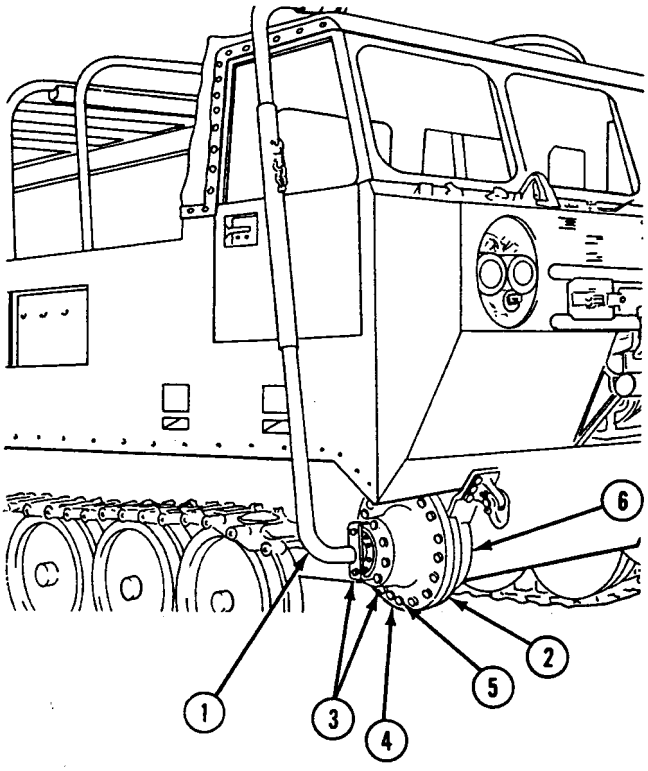
REMOVAL

1. Secure lifting bar (1) to final drive (2) with two sprocket mounting screws (3).

WARNING

Final drive is top heavy. Be careful when removing final drive lifting bar after removal. Use helper to remove final drive.

2. Attach lifting device to final drive lifting bar (1).
3. Remove 17 screws (4) and washers (5). Remove final drive (2) from hull (6). Have helper assist.



INSTALLATION

NOTE

Due to failure of output shaft seal, final drive oil quantity must be increased. To measure correct amount of oil, both final drive gauge rods must be modified as follows:

1. Remove 3 5/8 inches (9 cm) from end of gauge rod.
2. Measure from end of gauge rod towards cap 1 5/16 inches (3 cm) and scribe a line across rod.

3. Measure from first line towards end of the rod 1/2 inch (13 mm) and scribe a line across rod.
4. Stamp or mark FULL, 1 PT, and ADD on rod.
5. If replacement final drive is being installed, do the following before installation:
   a. Check final drive drain plug for tightness.
   b. Fill final drive with 3 1/2 quarts (3.31 liters) of OE/HDO oil (WP 0128 00).

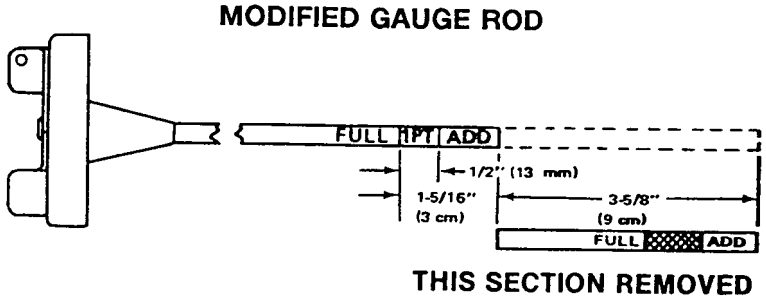
CAUTION

Make sure each final drive contains 3 1/2 quarts (3.31 liters) of oil. Less oil will cause severe damage.

NOTE

After filling final drive with 3 1/2 quarts (3.31 liters) of oil, old gauge rod will show oil level over ADD-FULL mark. New gauge rod will show correct level.

6. If left final drive is being replaced, remove speedometer shaft adapter from replaced final drive. Install speedometer shaft adapter in new final drive (WP 0517 00).

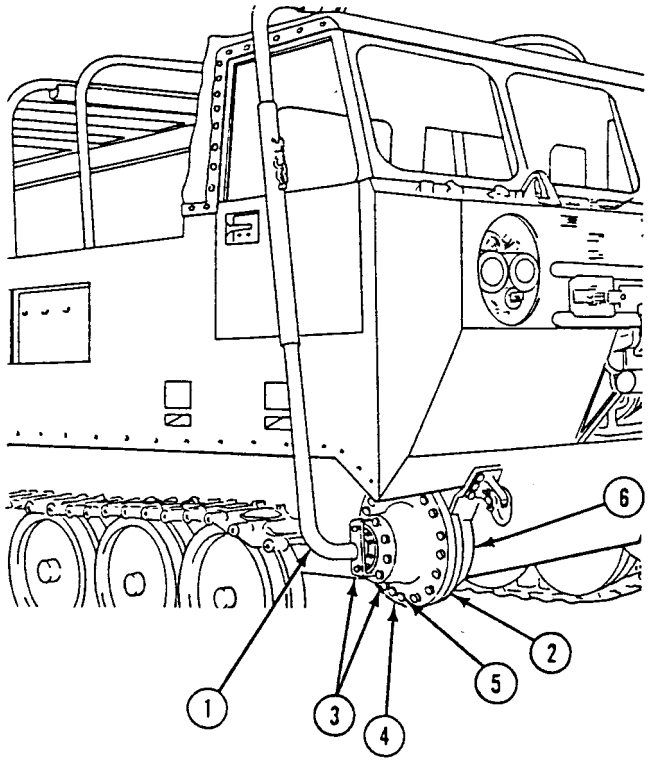


7. Secure final drive lifting bar (1) to final drive (2) with two sprocket mounting screws (3).

WARNING

Final drive is top heavy. Be careful when removing final drive lifting bar after installation. Use helper to install final drive.

8. Attach lifting device to final drive lifting bar (1). Place final drive (2) on hull (6). Have helper assist.
9. Put antiseize compound on threads of 17 screws (4). Secure final drive (2) to hull (6) with 17 screws and washers (5).
10. Tighten 17 screws (4) to 75-85 lb-ft (102-115 N•m) torque.
11. Remove final drive lifting bar (1). Install drive sprocket assembly (WP 0357 00).



FOLLOW-THROUGH STEPS

1. Connect track (see your -10).
2. Install left or right final drive shaft (WP 0333 00), (WP 0334 00), or (WP 0335 00).
3. Install left or right center floor plate (WP 0394 00) or (WP 0395 00).
4. Road test carrier (WP 0128 00) to check final drive for proper operation.

END OF TASK

REPLACE FINAL DRIVE PINION OIL SEAL 0327 00

THIS WORK PACKAGE COVERS:

Removal (page 0327 00-1).
Installation (page 0327 00-2).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts
Antiseize compound (WP 0542 00, Item 6)
Sealing compound (WP 0542 00, Item 37)
Gasket
Seal

Personnel Required
Unit Mechanic

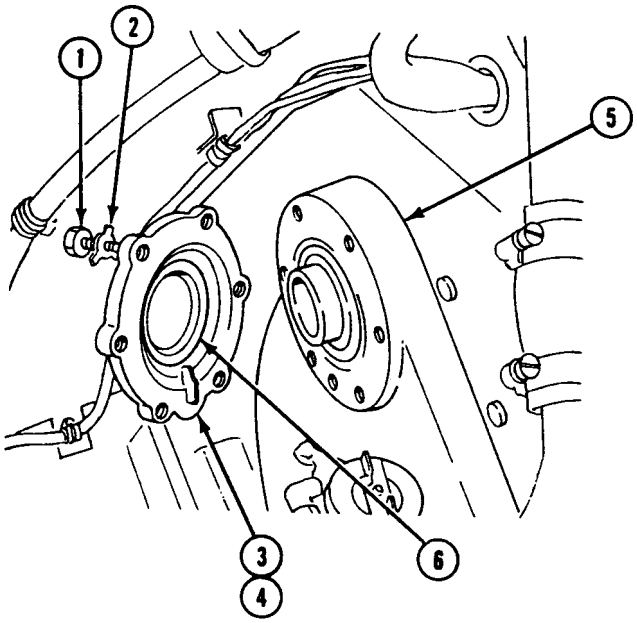
References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Left or right center floor plate removed (WP 0394 00) or (WP 0395 00)
Final drive yoke removed (WP 0333 00), (WP 0334 00), or (WP 0335 00)

REMOVAL

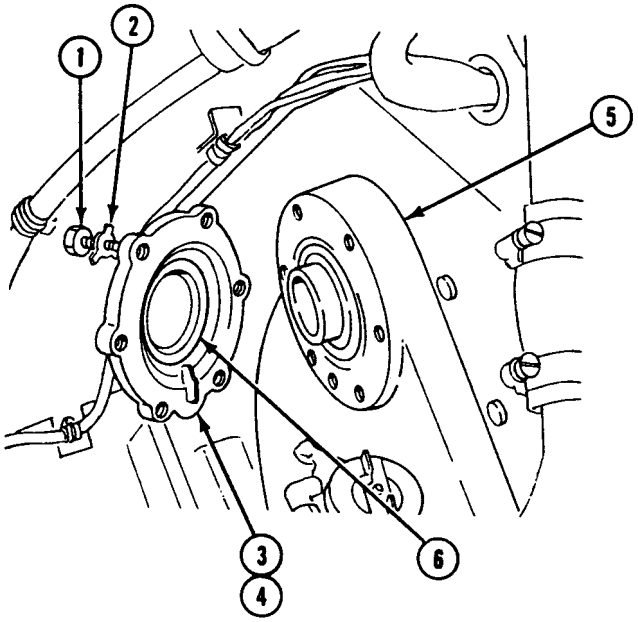
1. Remove seven screws (1), washers (2), cover (3), and gasket (4) from final drive (5). Discard gasket.

2. Remove seal (6) from cover (3). Discard seal.



INSTALLATION

1. Put sealing compound on outer surface of new seal (6). Install seal in cover (3).
2. Put a light coat of antiseize compound on threads of seven screws (1).
3. Place new gasket (4) and cover (3) on final drive (5). Secure with seven screws (1) and washers (2).
4. Tighten seven screws (1) to 40-42 lb-ft (54-58 N•m) torque.



FOLLOW-THROUGH STEPS

1. Install final drive yoke (WP 0333 00), (WP 0334 00), or (WP 0335 00).
2. Install left or right center floor plate (WP 0394 00) or (WP 0395 00).
3. Road test carrier (WP 0128 00) to check final drive pinion oil seal for leaks.

END OF TASK

REPLACE FINAL DRIVE GAUGE ROD 0328 00

THIS WORK PACKAGE COVERS:

Removal (page 0328 00-1).
Installation (page 0328 00-2).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)

Personnel Required

Unit Mechanic

References

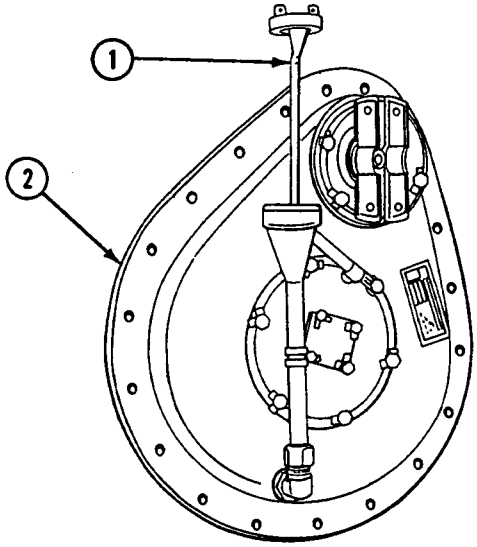
See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10
Left or right center floor plate removed (WP 0394 00) or (WP 0395 00)

REMOVAL

1. Turn cap on gauge rod (1) to the left and remove from final drive (2).

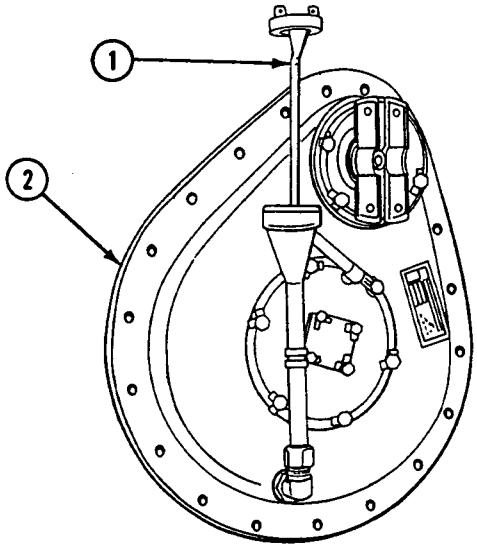


INSTALLATION

NOTE

Due to failure of output shaft seal, final drive oil quantity must be increased. To measure correct amount of oil, both final drive gauge rods must be modified as shown in WP 0326 00.

1. Insert gauge rod (1) into final drive (2) and turn to the right to lock.



FOLLOW-THROUGH STEPS

1. Install left or right center floor plate (WP 0394 00) or (WP 0395 00).

END OF TASK

REPLACE FINAL DRIVE VENT, FILLER TUBE, AND FITTINGS (RIGHT SIDE) 0329 00

THIS WORK PACKAGE COVERS:

Removal (page 0329 00-2).
Installation (page 0329 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts

Antiseize compound (WP 0542 00, Item 6)
Cleaning compound (WP 0542 00, Item 9)
Preformed packing
Tab washer

Personnel Required

Unit Mechanic

References

See your -10

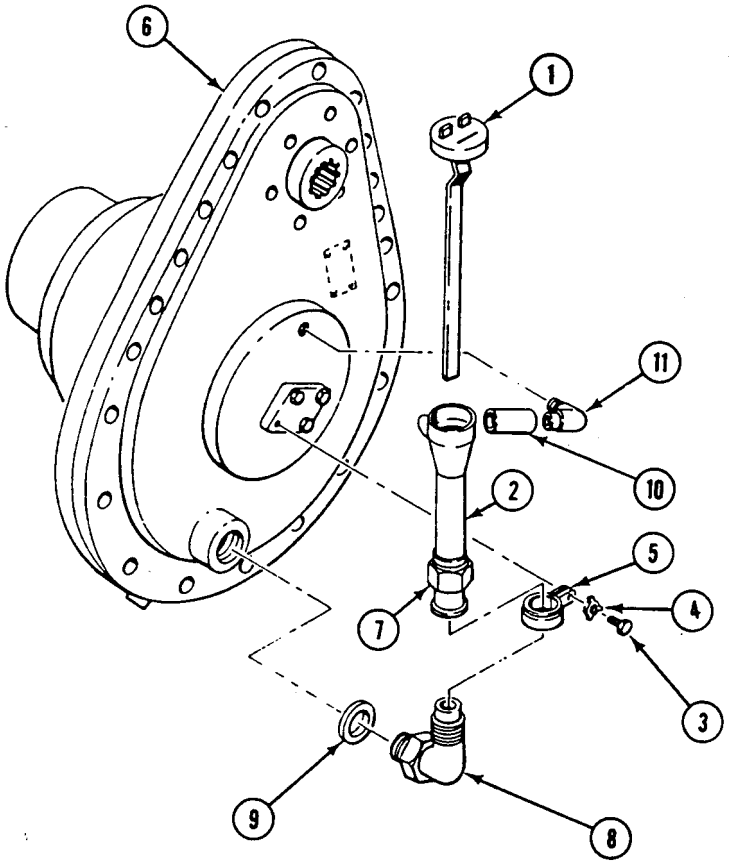
Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Right final drive removed (WP 0326 00)

REPLACE FINAL DRIVE VENT, FILLER TUBE, AND FITTINGS (RIGHT SIDE) — Continued 0329 00

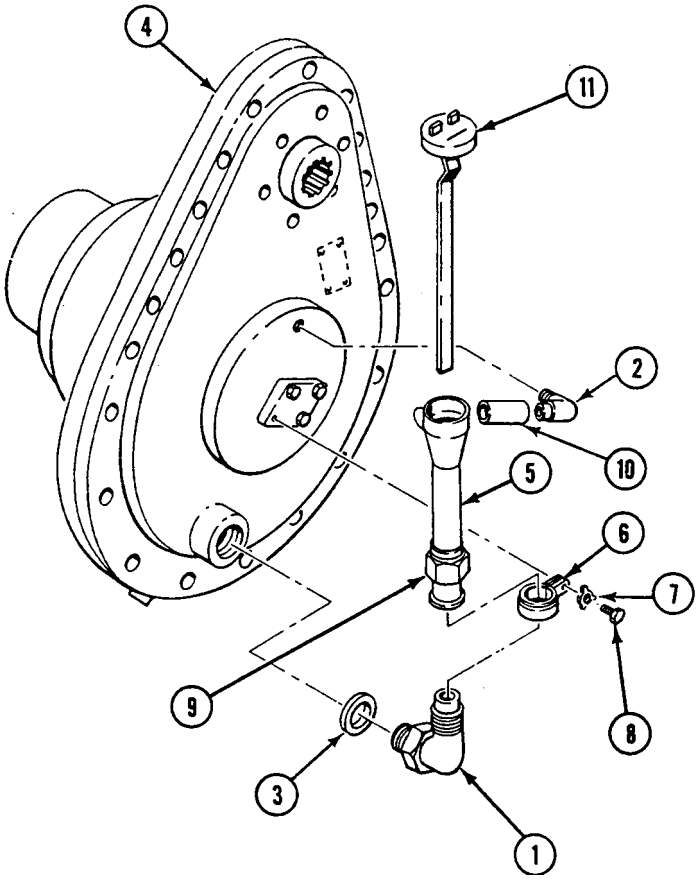
REMOVAL

1. Turn gauge rod (1) to the left and remove from filler tube (2).
2. Remove screw (3) and tab washer (4). Loosen clamp (5) that secures filler tube (2) to final drive (6). Discard tab washer.
3. Loosen nut (7) that secures filler tube (2) to elbow (8).
4. Remove elbow (8) and preformed packing (9) from final drive (6). Discard preformed packing.
5. Remove vent tube (10) from elbow (11).
6. Remove elbow (11) from final drive (6).
7. Remove filler tube (2) from final drive (6).



INSTALLATION

1. Clean elbow (1) and elbow (2) with cleaning compound.
2. Coat threads of elbow (1) with antiseize compound. Install elbow (1) with new preformed packing (3) in final drive (4).
3. Install filler tube (5) on elbow (1). Secure to final drive (4) with clamp (6), new tab washer (7), and screw (8). Tighten nut (9) on elbow (1).
4. Coat threads of elbow (2) with antiseize compound. Install elbow in final drive (4).
5. Install vent tube (10) between elbow (2) and filler tube (5).
6. Insert gauge rod (11) in filler tube (5) and turn to the right to lock in tube.



FOLLOW-THROUGH STEPS

1. Install right final drive (WP 0326 00).

END OF TASK

REPLACE FINAL DRIVE VENT, FILLER TUBE, AND FITTINGS (LEFT SIDE) 0330 00

THIS WORK PACKAGE COVERS:

Removal (page 0330 00-2).
Installation (page 0330 00-3).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts
Antiseize compound (WP 0542 00, Item 6)
Cleaning compound (WP 0542 00, Item 9)
Lock nut
Preformed packing
Tab washer

Personnel Required
Unit Mechanic

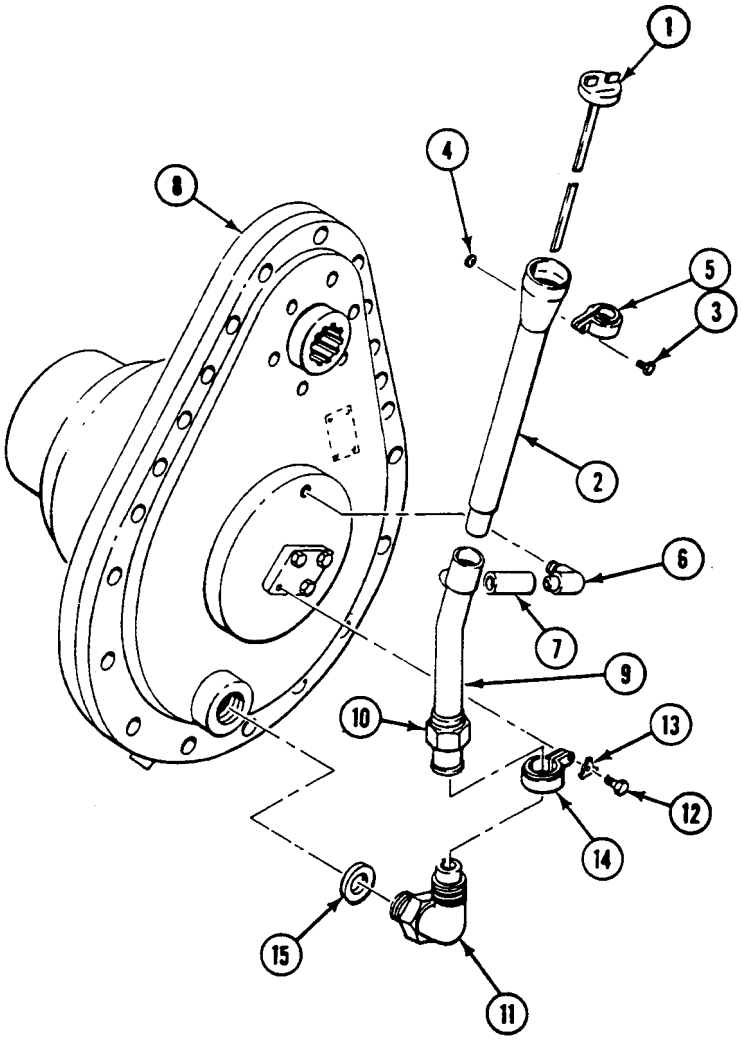
References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Left final drive removed (WP 0326 00)

REPLACE FINAL DRIVE VENT, FILLER TUBE, AND FITTINGS (LEFT SIDE) — Continued 0330 00

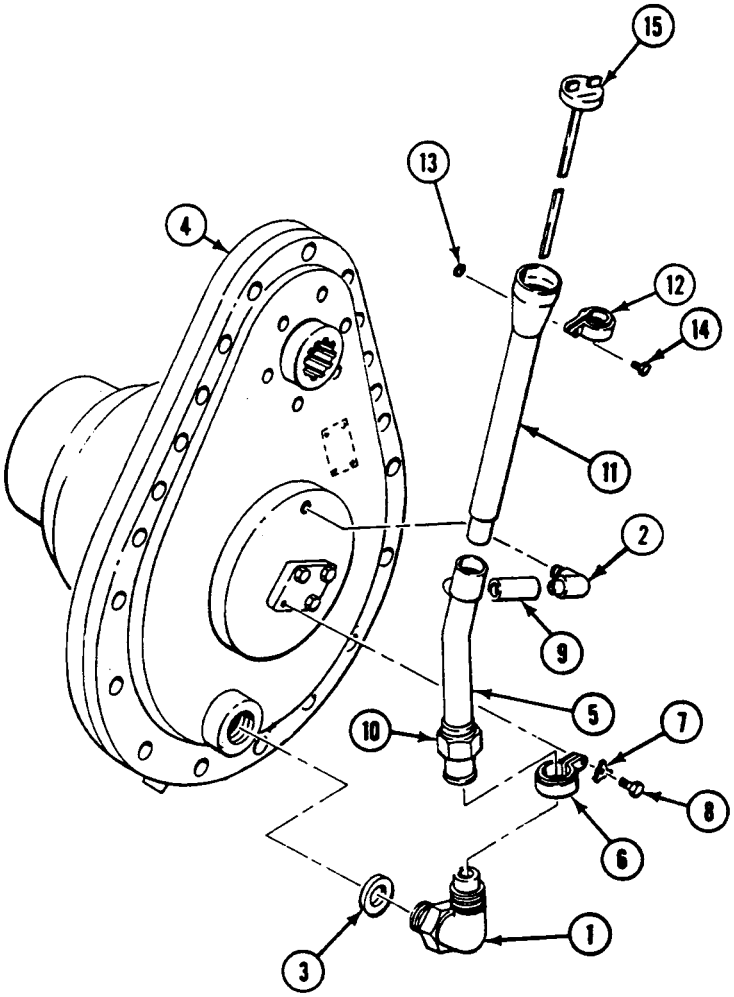
REMOVAL

1. Turn gauge rod (1) to the left and remove from filler neck (2).
2. Remove screw (3), lock nut (4), and clamp (5) from filler neck (2). Discard lock nut.
3. Remove elbow (6) and vent tube (7) from final drive (8) and extension tube (9).
4. Loosen nut (10) on elbow (11).
5. Remove screw (12), tab washer (13), and clamp (14). Remove extension tube (9) from elbow (11). Discard tab washer.
6. Remove elbow (11) and preformed packing (15) from final drive (8). Discard preformed packing.



INSTALLATION

1. Clean elbow (1) and elbow(2) with cleaning compound.
2. Coat threads of elbow(1) and elbow(2) with antiseize compound.
3. Install elbow (1) with new preformed packing (3) in final drive (4).
4. Install elbow (2) in final drive (4).
5. Install extension tube (5) on elbow (1). Secure to final drive (4) with clamp (6), new tab washer (7), and screw (8).
6. Install vent tube (9) between elbow (2) and extension tube (5).
7. Tighten nut (10) on elbow (1).
8. Install filler neck (11) in extension tube (5).
9. Install clamp (12), new lock nut (13), and screw (14) to secure filler neck (11) to final drive (4).
10. Insert gauge rod (15) in filler neck (11) and turn to the right to lock in filler neck.



FOLLOW-THROUGH STEPS

1. Install left final drive (WP 0326 00).

END OF TASK

REPLACE TRANSFER GEARCASE OIL LEVEL GAUGE ROD AND FILLER NECK (M548A1) 0331 00

THIS WORK PACKAGE COVERS:

Removal (page 0331 00-2).
Installation (page 0331 00-3).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts
Sealing compound (WP 0542 00, Item 37)
Preformed packing
Suitable container

Personnel Required
Unit Mechanic

References
See your -10

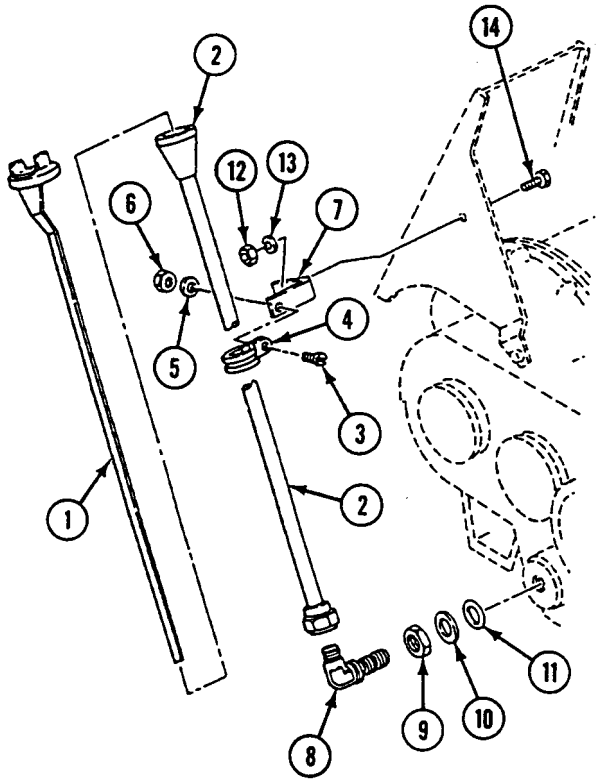
Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Battery negative lead disconnected (WP 0292 00)
Power plant rear access cover/door removed (see your -10)
Oil drained (WP 0128 00)

REPLACE TRANSFER GEARCASE OIL LEVEL GAUGE ROD AND FILLER NECK (M548A1) — Continued

0331 00

REMOVAL

1. Remove gauge rod (1) from filler neck (2).
2. Remove screw (3), clamp (4), washer (5), and nut (6) from angle bracket (7) and filler neck (2).
3. Remove filler neck (2) from elbow (8).
4. Remove elbow (8), nut (9), washer (10), and preformed packing (11) from transfer gearcase. Discard preformed packing.
5. Remove nut (12), washer (13), and screw (14) from angle bracket (7) and fuel filter bracket. Remove angle bracket.

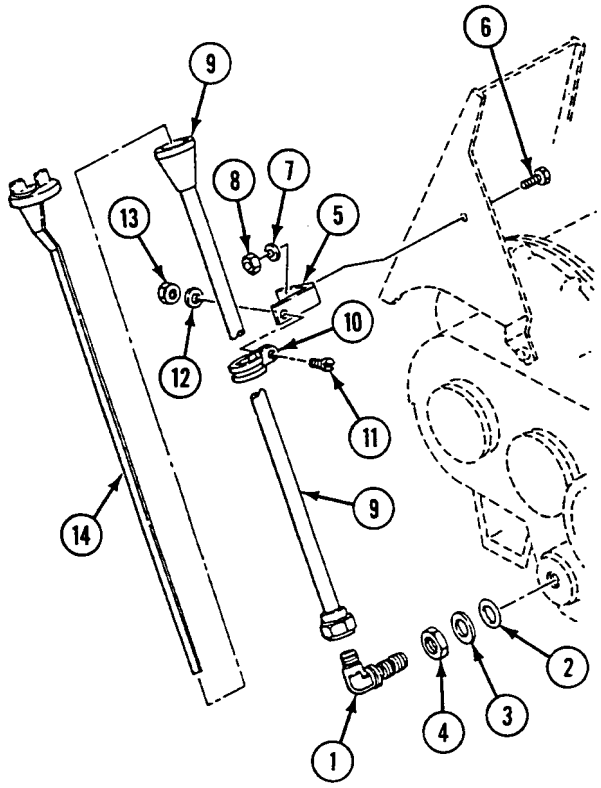


REPLACE TRANSFER GEARCASE OIL LEVEL GAUGE ROD AND FILLER NECK (M548A1) — Continued

0331 00

INSTALLATION

1. Coat outside threads of elbow (1) with sealing compound.
2. Install new preformed packing (2), washer (3), and nut (4) on elbow (1). Install elbow in transfer gearcase.
3. Install angle bracket (5) on fuel filter bracket with screw (6), washer (7), and nut (8)
4. Install filler neck (9) on elbow (1). Secure to angle bracket (5) with clamp (10), screw (11), washer (12), and nut (13).
5. Install gauge rod (14) in filler neck (9).



FOLLOW-THROUGH STEPS

1. Connect battery negative lead (WP 0292 00).
2. Add oil (WP 0128 00).
3. Start engine (see your -10).
4. Check for oil leaks.
5. Stop engine (see your -10).
6. Install power plant rear access cover/door (see your -10).

END OF TASK

CHAPTER 11

UNIT MAINTENANCE INSTRUCTIONS FOR PROPELLER SHAFTS AND UNIVERSAL JOINTS

WORK PACKAGE INDEX

Title	Sequence No.
REPLACE TRANSMISSION-TO-DIFFERENTIAL SHAFT (M548A1)	0332 00
REPLACE LEFT FINAL DRIVE SHAFT (M548A1)	0333 00
REPLACE RIGHT FINAL DRIVE SHAFT (M548A1)	0334 00
REPLACE FINAL DRIVE SHAFTS (M548A3)	0335 00

REPLACE TRANSMISSION-TO-DIFFERENTIAL SHAFT (M548A1) 0332 00

THIS WORK PACKAGE COVERS:

Removal (page 0332 00-2).
Installation (page 0332 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)
Torque Wrench Adapter (WP 0541 00, Item 2)
Torque Wrench (WP 0541 00, Item 68)

Materials/Parts

Screw (16)

Personnel Required

Unit Mechanic

References

See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Right and left center floor plates removed (WP 0394 00)
Center seat raised (see your -10)

REMOVAL

NOTE

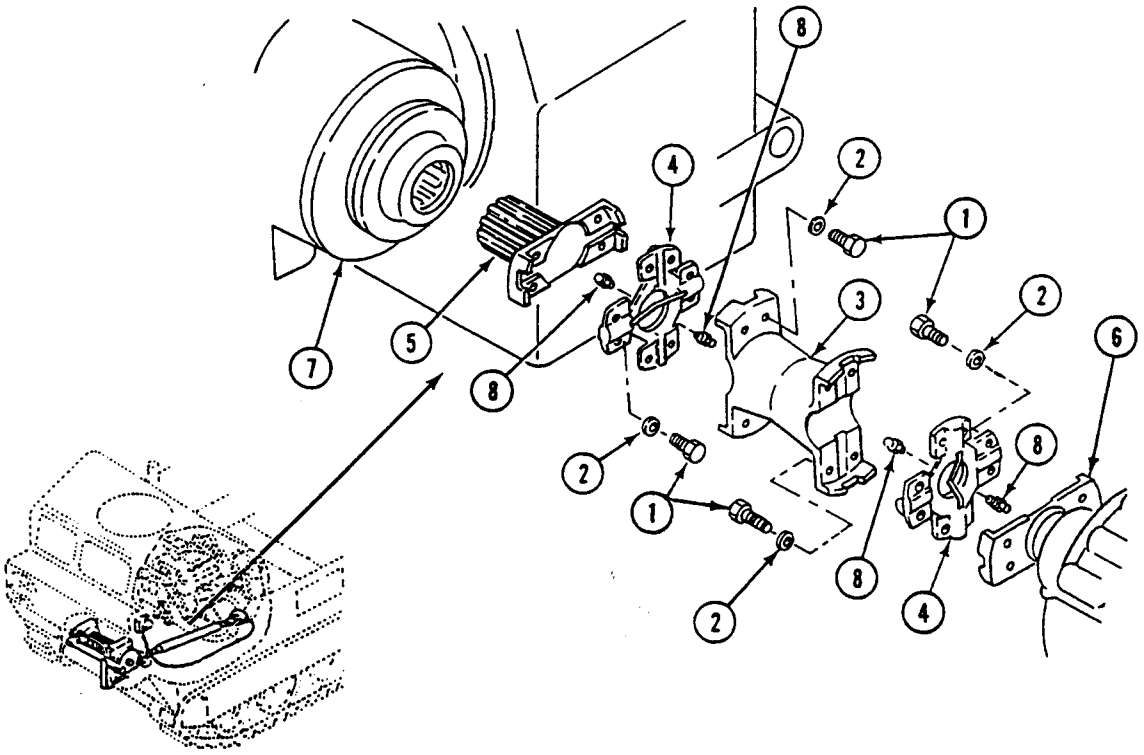
Place gear range selector in neutral position. Set or release differential steering brakes as needed to rotate or lock shaft during removal and installation.

1. Remove eight screws (1), flat washers (2), and shaft (3) from two universal joints (4). Discard screws.
2. Remove eight screws (1), flat washers (2), and two universal joints (4) from differential yoke (5) and transmission yoke (6). Discard screws.
3. Remove differential yoke (5) from differential (7).

NOTE

Some universal joints do not have lubrication fittings. They are lubed for life type universal joints.

4. Remove four lubrication fittings (8) from two universal joints (4) if needed.



INSTALLATION

NOTE

New style universal joints do not have lubrication fittings.

1. If removed, install four lubrication fittings (1) in two universal joints (2).
2. Install differential yoke (3) in differential (4).

CAUTION

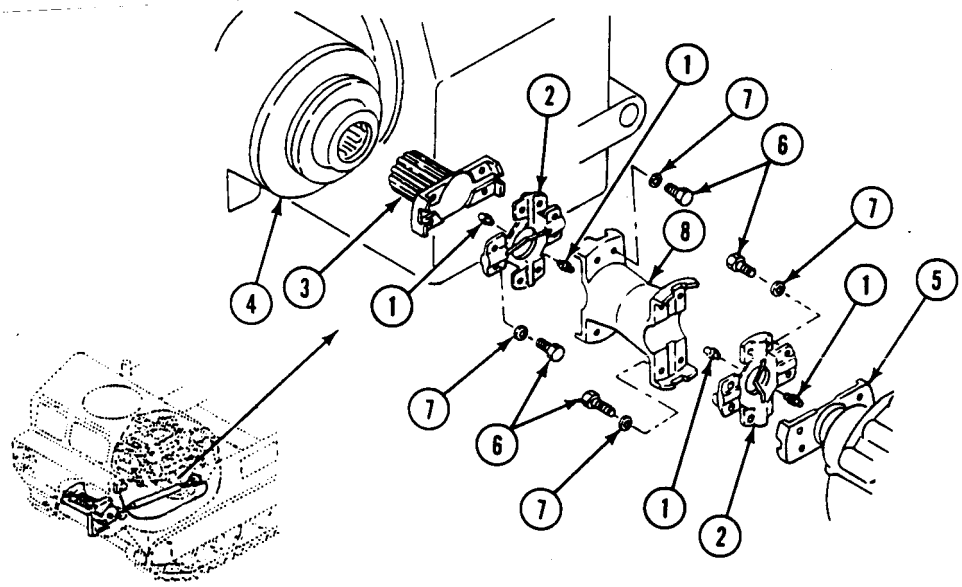
Make sure universal joint and shaft are properly secured, or transmission will be damaged.

NOTE

Screws (6) and flat washers (7) must be clean, dry, and free of lubricants and paint. Washers must be 5/32 inch (4 mm) hardened flat steel only. Screw (6) size for 7C universal joints is 1/2-20 X 2.

Use 7C universal joints only. Replace 6C universal joints, transmission yoke, and differential yoke with 7C universal joints and matching yokes.

3. Install two universal joints (2), one on transmission yoke (5) and the other on differential yoke (3). Secure with eight new screws (6) and flat washers (7).
4. Place shaft (8) on two universal joints (2). Secure with eight new screws (6) and flat washers (7).
5. Use torque wrench and adapter to tighten screws (6) to 86-94 lb-ft (117-127 N•m) torque. Loosen and retighten to 86-94 lb-ft (117-127 N•m) torque. See WP 0127 00 for torque wrench reading with adapter.



FOLLOW-THROUGH STEPS

1. Lube universal joints (WP 0128 00).
2. Lower center seat (see your -10).
3. Install right and left center floor plates (WP 0394 00).
4. Road test carrier (WP 0128 00) to check transmission-to-differential shaft for proper operation.

END OF TASK

REPLACE LEFT FINAL DRIVE SHAFT (M548A1) 0333 00

THIS WORK PACKAGE COVERS:

Removal (page 0333 00-1).
Installation (page 0333 00-2).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)
Torque Wrench (WP 0541 00, Item 68)

Materials/Parts

Screw (16)

Personnel Required

Unit Mechanic

References

See your -10

Equipment Condition

Engine stopped (see your -10)

Carrier blocked (see your -10)

Left center floor plates removed (WP 0394 00)

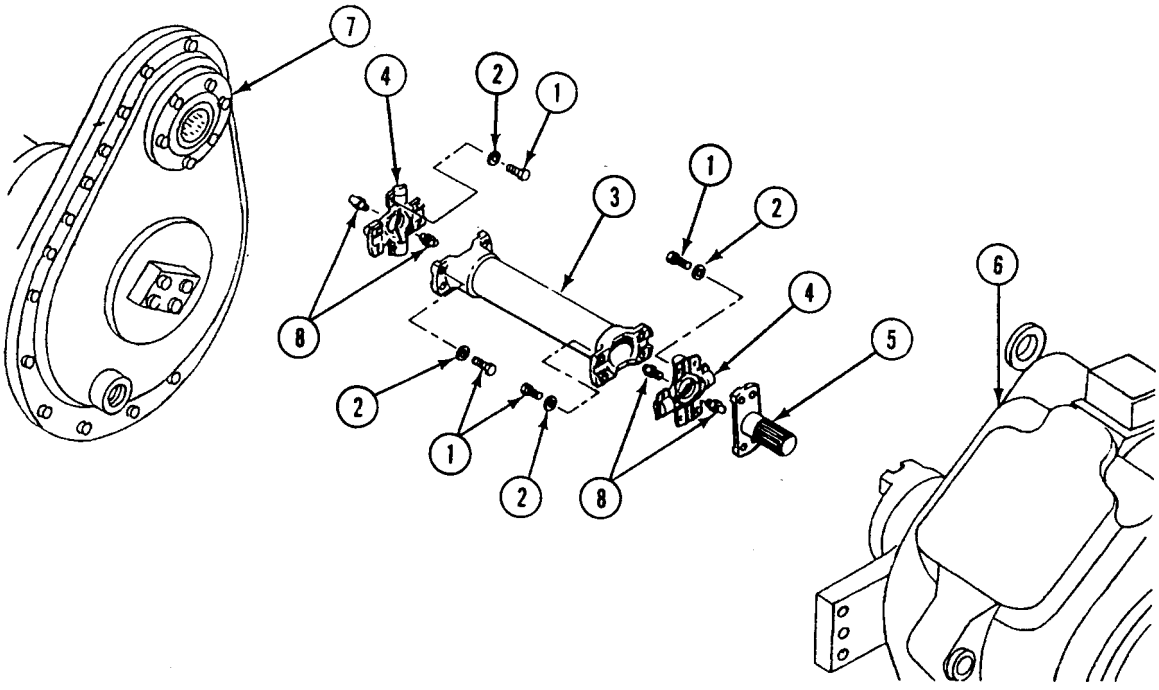
REMOVAL

1. Remove eight screws (1), flat washers (2), and connector (3) from two universal joints (4). Discard screws.
2. Remove eight screws (1), flat washers (2), and two universal joints (4) from yoke (5) and differential (6). Discard screws.
3. Remove yoke (5) from final drive (7).

NOTE

Some universal joints do not have lubrication fittings.

4. Remove four lubrication fittings (8) from two universal joints (4) if needed.



INSTALLATION

NOTE

Some universal joints do not have lubrication fittings.

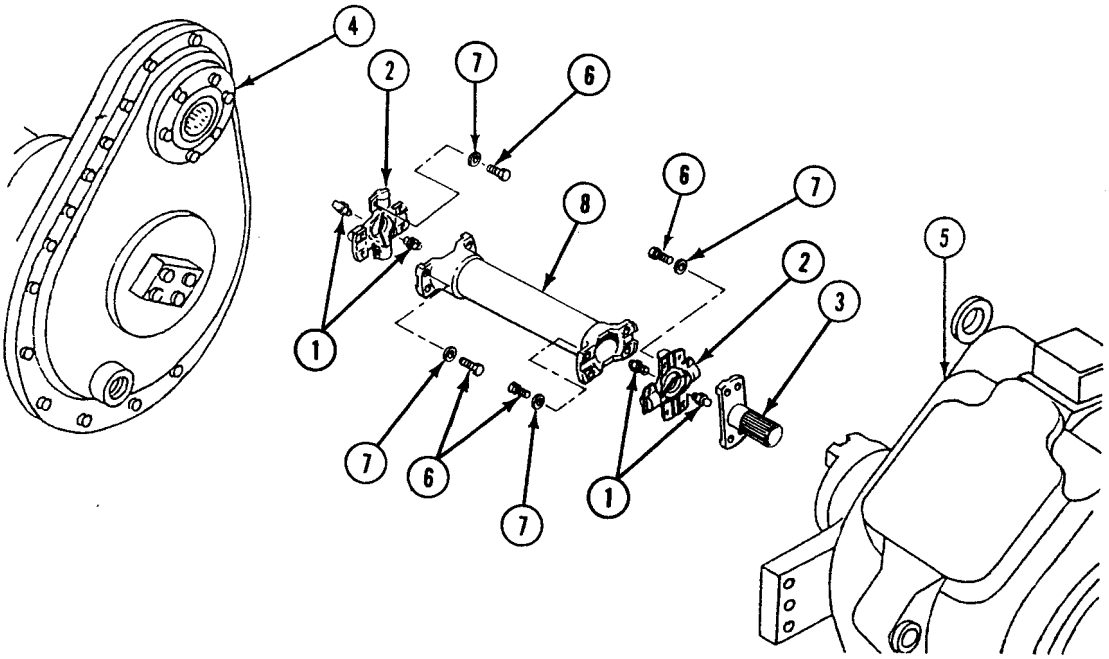
1. If removed, install four lubrication fittings (1) in two universal joints (2).
2. Install yoke (3) in final drive (4).

NOTE

Use 5/32 inch (4 mm) thick, hardened steel flat washers only.

These are 6C universal joints only.

3. Install two universal joints (2), one on yoke (3) and the other on differential (5). Secure with eight new screws (6) and flat washers (7).
4. Place connector (8) on two universal joints (2). Secure with eight new screws (6) and flat washers (7).
5. Tighten 16 screws (6) to 35-40 lb-ft (47-54 N•m) torque. Loosen and retighten screws to 35-40 lb-ft (47-54 N•m) torque.



FOLLOW-THROUGH STEPS

1. Lube two universal joints (WP 0128 00).
2. Install left center floor plates (WP 0394 00).
3. Road test carrier (WP 0128 00) to check left final drive shaft for proper operation.

END OF TASK

REPLACE RIGHT FINAL DRIVE SHAFT (M548A1) 0334 00

THIS WORK PACKAGE COVERS:

Removal (page 0334 00-1).
Installation (page 0334 00-2).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)
Torque Wrench (WP 0541 00, Item 68)

Materials/Parts

Screw (16)

Personnel Required

Unit Mechanic

References

See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Right center cab floor plate removed (WP 0394 00)
Right seat removed (WP 0400 00)

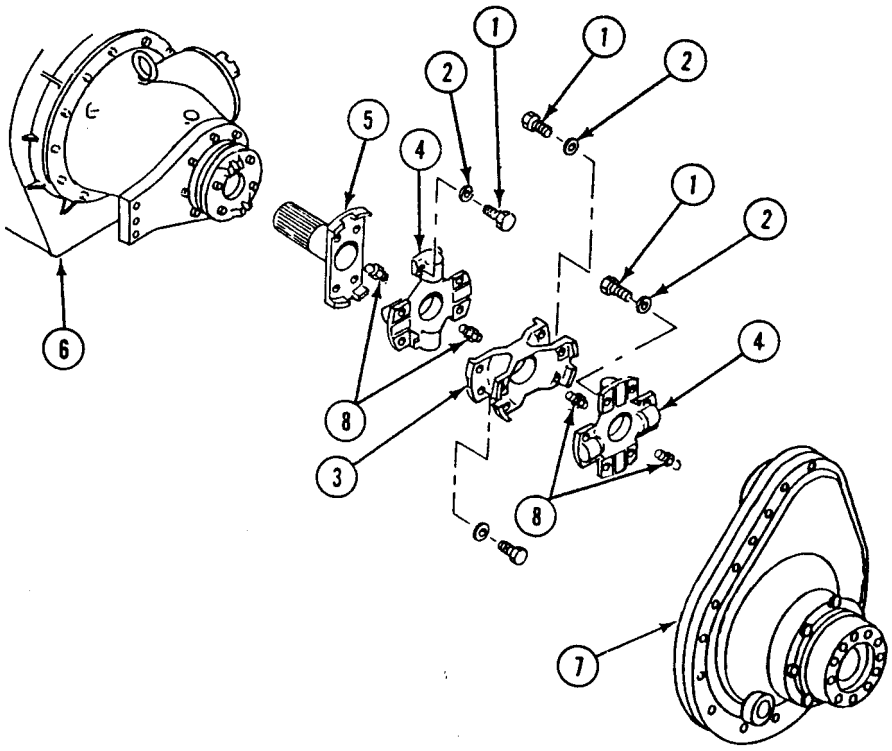
REMOVAL

1. Remove eight screws (1), flat washers (2), and shaft (3) from two universal joints (4). Discard screws.
2. Remove eight screws (1), flat washers (2), and two universal joints (4) from yoke (5) and differential (6). Discard screws.
3. Remove yoke (5) from final drive (7).

NOTE

Some universal joints do not have lubrication fittings.

4. Remove four lubrication fittings (8) from two universal joints (4) if needed.



INSTALLATION

NOTE

Some universal joints do not have lubrication fittings.

1. If removed, install four lubrication fittings (1) in two universal joints (2).

2. Install yoke (3) in final drive (4).

NOTE

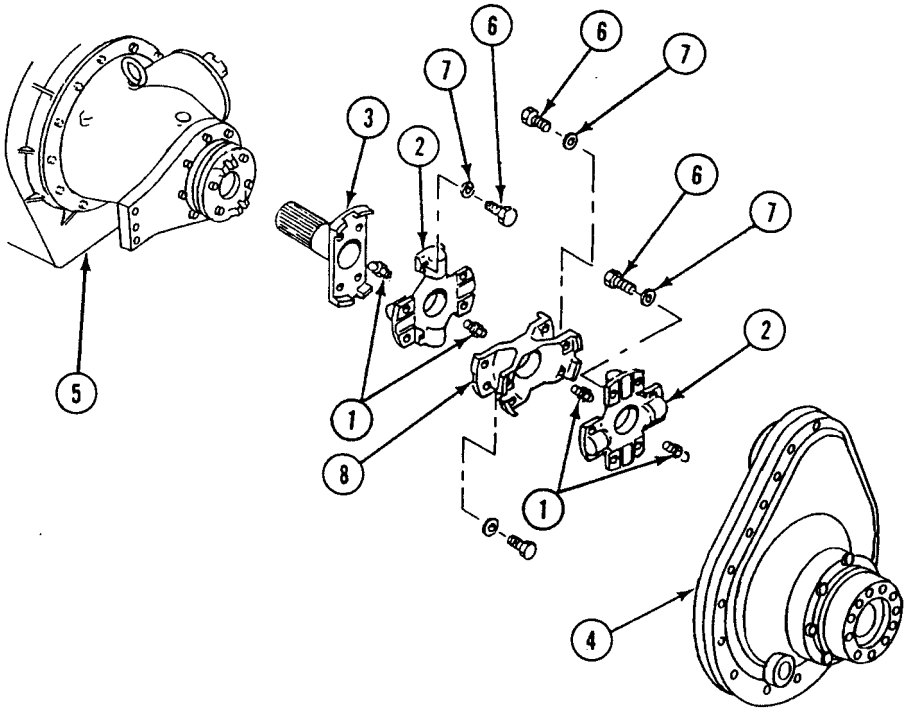
Use 5/32 inch (4 mm) thick, hardened steel flat washers only.

These are 6C universal joints only.

3. Install two universal joints (2), one on yoke (3) and the other on differential (5). Secure with eight new screws (6) and flat washers (7).

4. Place shaft (8) on two universal joints (2). Secure with eight new screws (6) and flat washers (7).

5. Tighten 16 screws (6) to 86-94 lb-ft (117-127 N•m) torque. Loosen screws and retighten to 86-94 lb-ft (117-127 N•m) torque.



FOLLOW-THROUGH STEPS

1. Lube two universal joints (WP 0128 00).
2. Install right floor plate (WP 0394 00).
3. Install right seat (WP 0400 00).
4. Road test carrier (WP 0128 00) to check right final drive shaft for proper operation.

END OF TASK

REPLACE FINAL DRIVE SHAFTS (M548A3) 0335 00

THIS WORK PACKAGE COVERS:

Removal (page 0335 00-2).
Installation (page 0335 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)
Torque Wrench Adapter (WP 0541 00, Item 2)
Torque Wrench (WP 0541 00, Item 68)

Materials/Parts

Screw (16)

Personnel Required

Unit Mechanic

References

See your -10

Equipment Condition

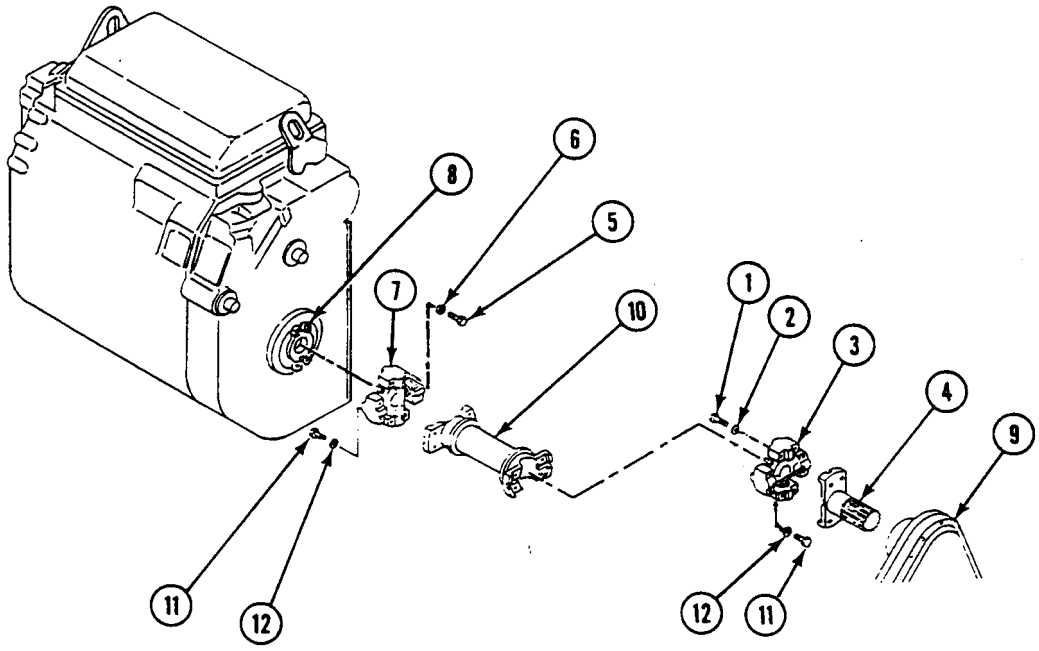
Engine stopped (see your -10)
Carrier blocked (see your -10)
Cab floor plates removed (WP 0395 00)

REMOVAL

NOTE

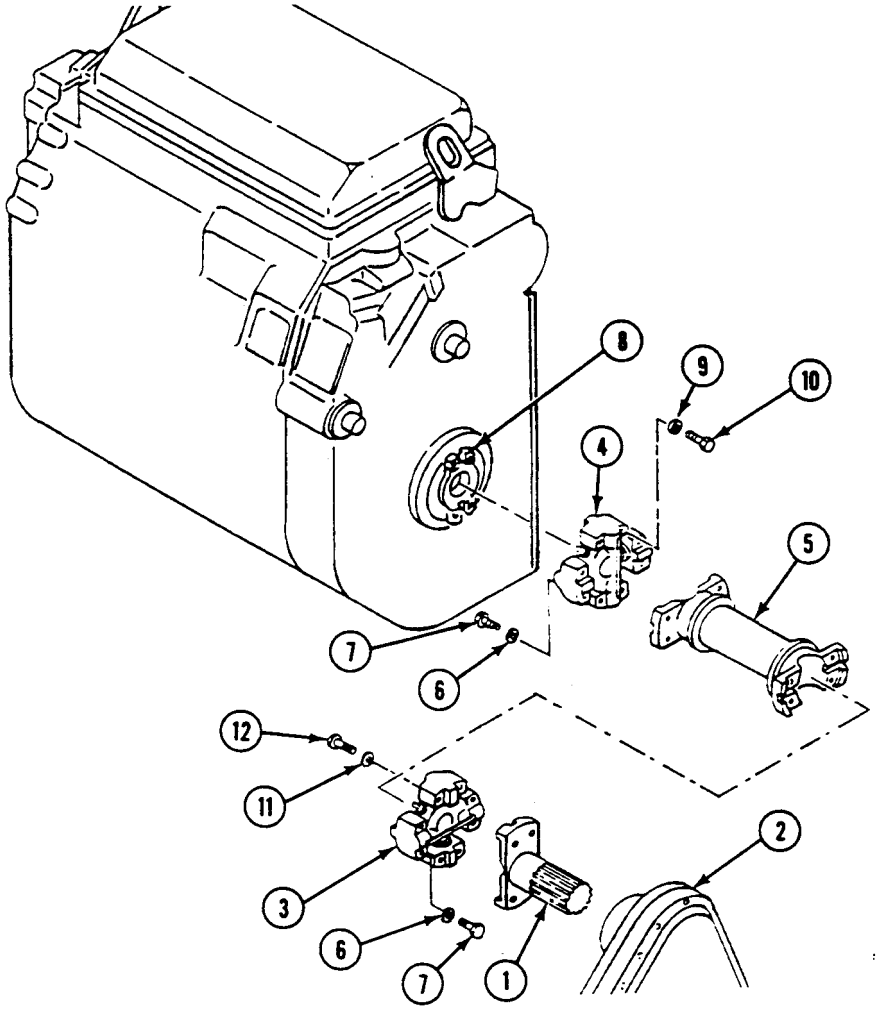
Left and right final drive shafts are removed and installed the same way.

1. Remove four screws (1) and washers (2) securing spider (3) to yoke (4). Discard screws.
2. Remove four screws (5) and washers (6) securing spider (7) to yoke (8). Discard screws.
3. Insert yoke (4) in final drive (9) and remove spider (3) and spider (7) with final drive shaft (10).
4. Remove yoke (4) from final drive (9).
5. Remove eight screws (11) and washers (12) from spider (3) and spider (7). Separate spiders from final drive shaft (10). Discard screws.



INSTALLATION

1. Insert yoke (1) in final drive (2).
2. Install spider (3) and spider (4) on final drive shaft (5) with eight washers (6) and new screws (7).
3. Torque screws (7) to 86-94 ft-lb (117-127 N•m). Loosen screws and torque again to 86-94 lb-ft (117-127 N•m).
4. Install spider (4) with final drive shaft (5) on yoke (8) with four washers (9) and new screws (10).
5. Torque screws (10) to 86-94 ft-lb (117-127 N•m). Loosen screws and torque again to 86-94 lb-ft (117-127 N•m).
6. Install spider (3) to yoke (1) with four washers (11) and new screws (12).
7. Torque screws (12) to 86-94 ft-lb (117-127 N•m). Loosen screws and torque again to 86-94 lb-ft (117-127 N•m).



FOLLOW-THROUGH STEPS

1. Install cab floor plates (WP 0395 00).

END OF TASK

CHAPTER 12

UNIT MAINTENANCE INSTRUCTIONS FOR DIFFERENTIAL-RELATED COMPONENTS (M548A1)

WORK PACKAGE INDEX

Title	Sequence No.
REPLACE DIFFERENTIAL OIL PUMP (M548A1)	0336 00
REPLACE DIFFERENTIAL OIL FILTER AND OIL FILTER ELEMENT (M548A1)	0337 00
REPLACE DIFFERENTIAL BREATHER (M548A1)	0338 00
REPLACE DIFFERENTIAL OIL LEVEL GAUGE ROD (M548A1)	0339 00
REPLACE DIFFERENTIAL OIL HOSES AND FITTINGS (M548A1)	0340 00
ADJUST DIFFERENTIAL BRAKES (M548A1)	0341 00
REPLACE DIFFERENTIAL AND MOUNTS (M548A1)	0342 00
REPLACE DIFFERENTIAL SWITCH LEAD (M548A1)	0343 00
REPLACE DIFFERENTIAL GASKET (M548A1)	0344 00

REPLACE DIFFERENTIAL OIL PUMP (M548A1) 0336 00

THIS WORK PACKAGE COVERS:

Removal (page 0336 00-2).
Installation (page 0336 00-3).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)
Torque wrench (WP 0541 00, Item 68)

Materials/Parts
Antiseize compound (WP 0542 00, Item 6)
Cotter pin
Gasket
Key washer (2)
Key washer (2)
Retaining ring
Suitable container

Personnel Required
Unit Mechanic

References
See your -10

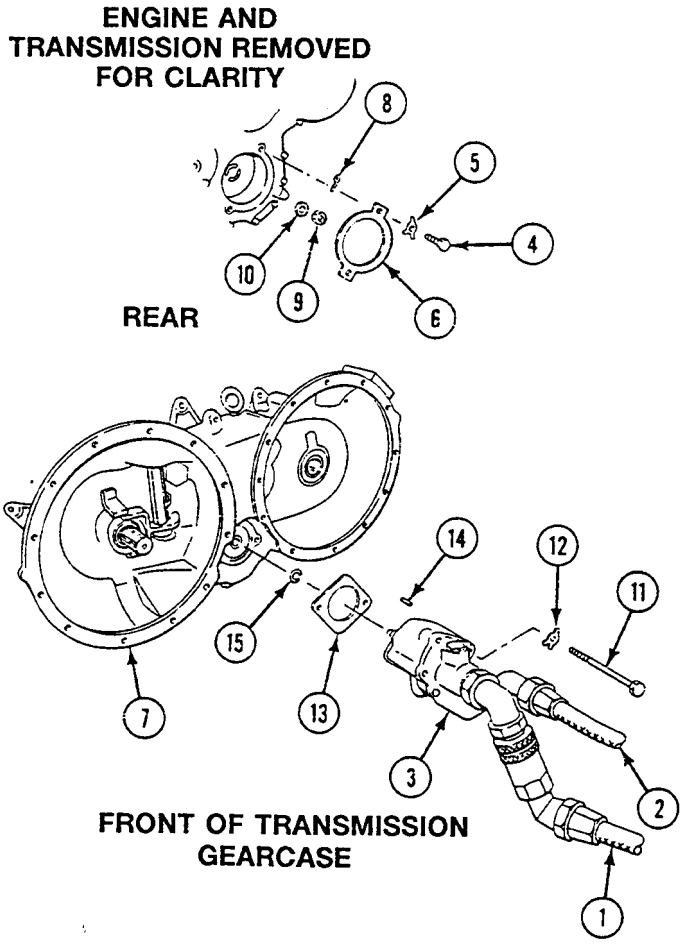
Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Hull bottom access cover removed (WP 0383 00)
Power plant rear access cover/door removed (see your -10)

REMOVAL

NOTE

If material handling kit is installed, remove bulkhead protector (WP 0487 00).

1. Disconnect inlet hose (1) and outlet hose (2) from pump (3).
2. Remove two screws (4) and key washers (5). Remove cover (6) with spacer from transfer gearcase (7). Discard key washers.
3. Remove cotter pin (8), slotted nut (9), and washer (10) from pump (3). Discard cotter pin.
4. Remove two screws (11) and key washers (12). Remove pump (3) and gasket (13) from transfer gearcase (7). Discard key washers and gasket.
5. Remove pump drive key (14) and retaining ring (15) from shaft of pump (3). Discard retaining ring.

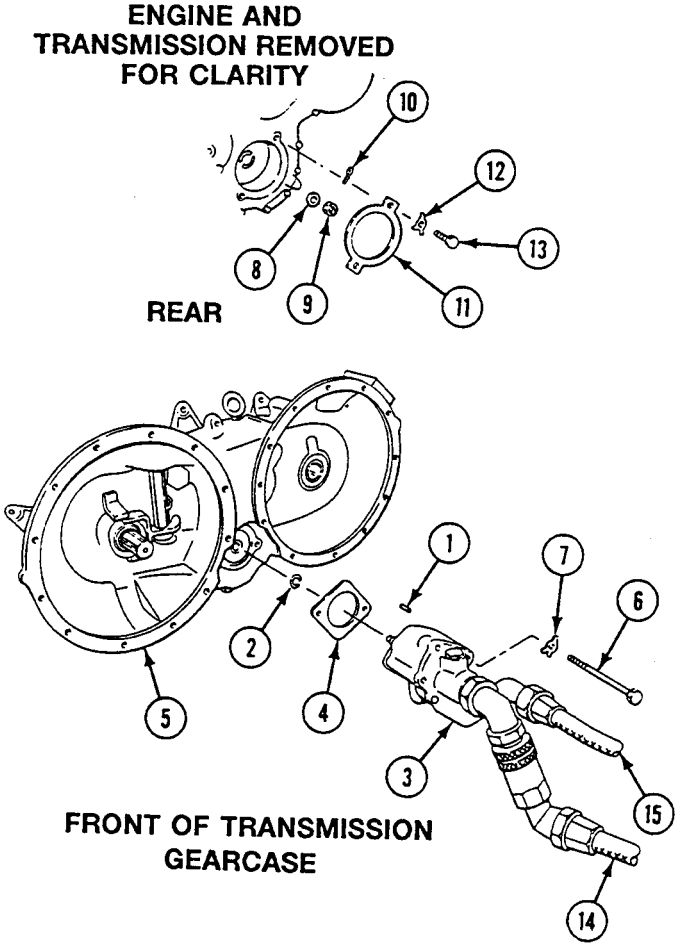


INSTALLATION

NOTE

If new pump is installed, remove hose fittings from old pump and put them on new one.

1. Install pump drive key (1) and new retaining ring (2) on pump (3).
2. Place pump (3) with new gasket (4) on transfer gearcase (5). Make sure key (1) mates with slot in oil pump drive gear in gearcase.
3. Put a light coat of antiseize compound on threads of two screws (6). Secure pump (3) to transfer gearcase (5) with two screws (6) and new key washers (7). Tighten screws to 35 - 40 pound-feet (47 - 54 N•m) torque. Bend tabs of key washers to secure screws.
4. Install one or more washers (8) as needed to secure differential pump drive gear against retaining ring (2) on shaft of pump (3). Install slotted nut (9) and secure with new cotter pin (10).
5. Install cover and spacer (11) on transfer gearcase (5). Secure with two new key washers (12) and screws (13).
6. Connect inlet hose (14) and outlet hose (15) to pump (3).
7. Tighten all hose and bracket connections.



FOLLOW-THROUGH STEPS

1. Start engine (see your -10). Bring engine up to 1,500 rpm for about 1 minute to charge system.
2. Check for oil leaks.
3. Stop engine (see your -10).
4. Install hull bottom access cover (WP 0383 00).
5. Install power plant rear access cover/door (see your -10).

END OF TASK

REPLACE DIFFERENTIAL OIL FILTER AND OIL FILTER ELEMENT (M548A1) 0337 00

THIS WORK PACKAGE COVERS:

Removal (page 0337 00-2).
Installation (page 0337 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts

Antiseize compound (WP 0542 00, Item 6)
Sealing compound (WP 0542 00, Item 36)
Preformed packing
Suitable container

Personnel Required

Unit Mechanic

References

See your -10

Equipment Condition

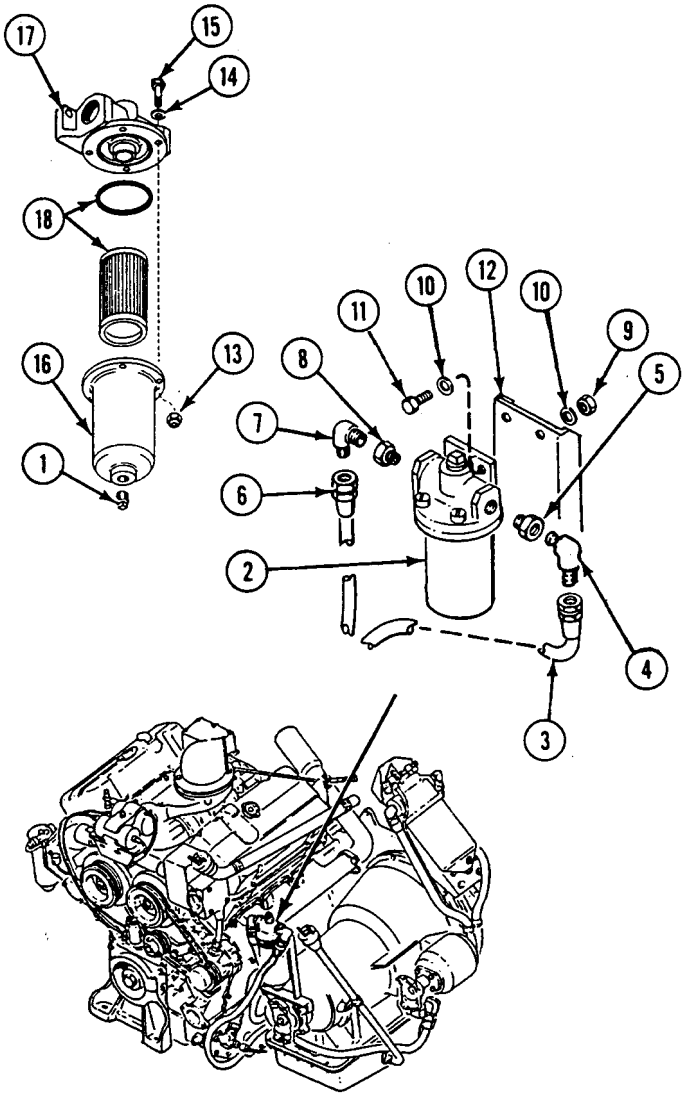
Engine stopped (see your -10)
Carrier blocked (see your -10)
Center seat raised (see your -10)

REPLACE DIFFERENTIAL OIL FILTER AND OIL FILTER ELEMENT (M548A1) — Continued

0337 00

REMOVAL

1. Remove drain plug (1). Let oil drain from oil filter (2) into container.
2. Disconnect hose (3) from elbow (4).
3. Remove elbow (4) from reducer (5).
4. Disconnect hose (6) from elbow (7). Remove elbow (7) from reducer (8).
5. Remove reducer (5) and reducer (8)from oil filter (2).
6. Remove two nuts (9), washers (10), screws (11), and oil filter (2) from mounting bracket (12).
7. Remove four nuts (13), washers (14), screws (15), and oil filter body (16) from oil filter head (17).
8. Remove oil filter element with preformed packing (18) from oil filter body (16). Discard element and preformed packing.



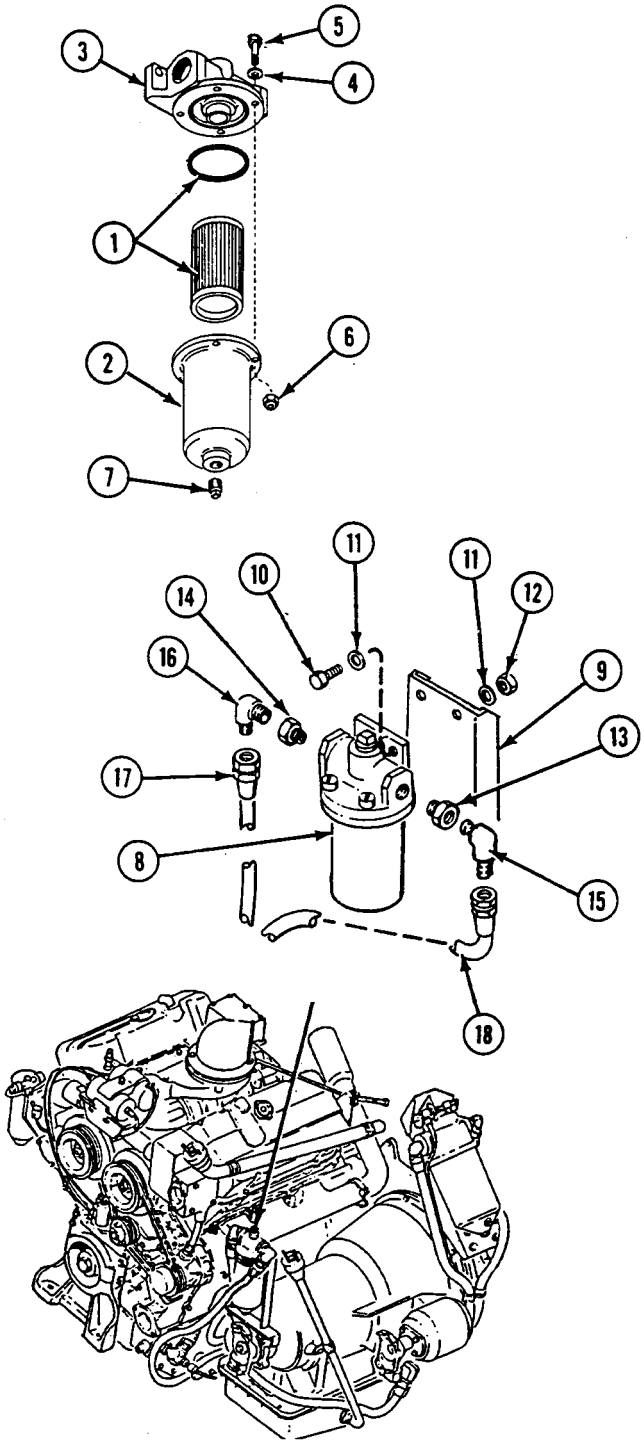
INSTALLATION

NOTE

Fill oil filter body with oil (WP 0128 00) after oil filter element has been installed and prior to installing oil filter head.

1. Install new oil filter element with preformed packing (1) in oil filter body (2).
2. Install oil filter body (2) on oil filter head (3) with four washers (4), screws (5), and nuts (6). Tighten screws to 4-6 lb-ft (5-8 N•m) torque.
3. After cleaning threads of drain plug (7), put a light coat of sealing compound on threads. Install drain plug in oil filter body (2).
4. Install oil filter (8) on mounting bracket (9) with two screws (10), washers (11), and nuts (12).
5. Put antiseize compound on outside threads of reducer (13) and reducer (14). Install reducers in oil filter (8).
6. Put antiseize compound on outside threads of elbow(15) and elbow(16). Install elbows in reducer (13) and reducer (14).
7. Connect hose (17) to elbow (16). Connect hose (18) to elbow (15).
8. Check differential oil level. Add oil if needed (WP 0128 00).

REPLACE DIFFERENTIAL OIL FILTER AND OIL FILTER ELEMENT (M548A1) — Continued **0337 00**



REPLACE DIFFERENTIAL OIL FILTER AND OIL FILTER ELEMENT (M548A1) — Continued **0337 00**

FOLLOW-THROUGH STEPS

1. Start and run engine at 1,500 rpm (see your -10).
2. Check connections on differential oil filter for oil leaks.
3. Stop engine (see your -10).
4. Lower center seat (see your -10).

END OF TASK

REPLACE DIFFERENTIAL BREATHER (M548A1) 0338 00

THIS WORK PACKAGE COVERS:

Removal (page 0338 00-1).
Installation (page 0338 00-1).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)

Personnel Required

Unit Mechanic

References

See your -10

Equipment Condition

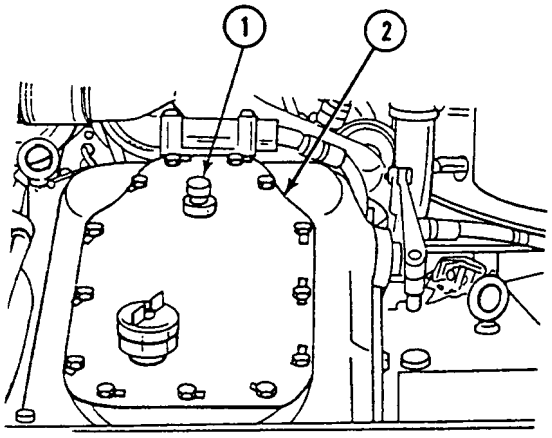
Engine stopped (see your -10)
Carrier blocked (see your -10)
Center cab floor plate removed (WP 0394 00)

REMOVAL

NOTE

Front heater duct may interfere with access to the breather. The duct can be moved out of the way without removing it.

1. Unscrew breather (1) from differential housing (2).



INSTALLATION

1. Screw breather (1) into differential housing (2).

FOLLOW-THROUGH STEPS

1. Install center cab floor plate (WP 0394 00).

END OF TASK

REPLACE DIFFERENTIAL OIL LEVEL GAUGE ROD (M548A1) 0339 00

THIS WORK PACKAGE COVERS:

Removal (page 0339 00-1).
Installation (page 0339 00-1).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)

Personnel Required
Unit Mechanic

References
See your -10

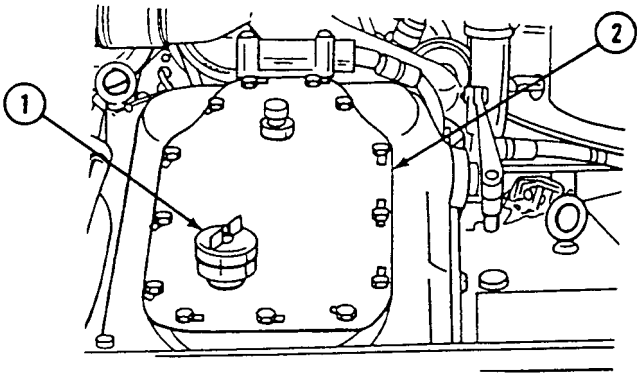
Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Center cab floor plate removed (WP 0394 00)

REMOVAL

NOTE

Front heater duct may interfere with access to the gauge rod. The duct can be moved out of the way without removing it.

1. Turn gauge rod (1) left to release and lift out of differential housing (2).



INSTALLATION

1. Insert gauge rod (1) in differential housing (2) and turn right to secure.

FOLLOW-THROUGH STEPS

1. Install center cab floor plate (WP 0394 00).

END OF TASK

REPLACE DIFFERENTIAL OIL HOSES AND FITTINGS (M548A1) 0340 00

THIS WORK PACKAGE COVERS:

Removal (page 0340 00-2).
Installation (page 0340 00-7).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)
Pipe Wrench (WP 0541 00, Item 61)

Materials/Parts

Antiseize compound (WP 0542 00, Item 6)
Sealing compound (WP 0542 00, Item 39)
Sealing compound primer (WP 0542 00, Item 40)
Lock nut (3)
Preformed packing (3)
Suitable container

Personnel Required

Unit Mechanic

References

See your -10

Equipment Condition

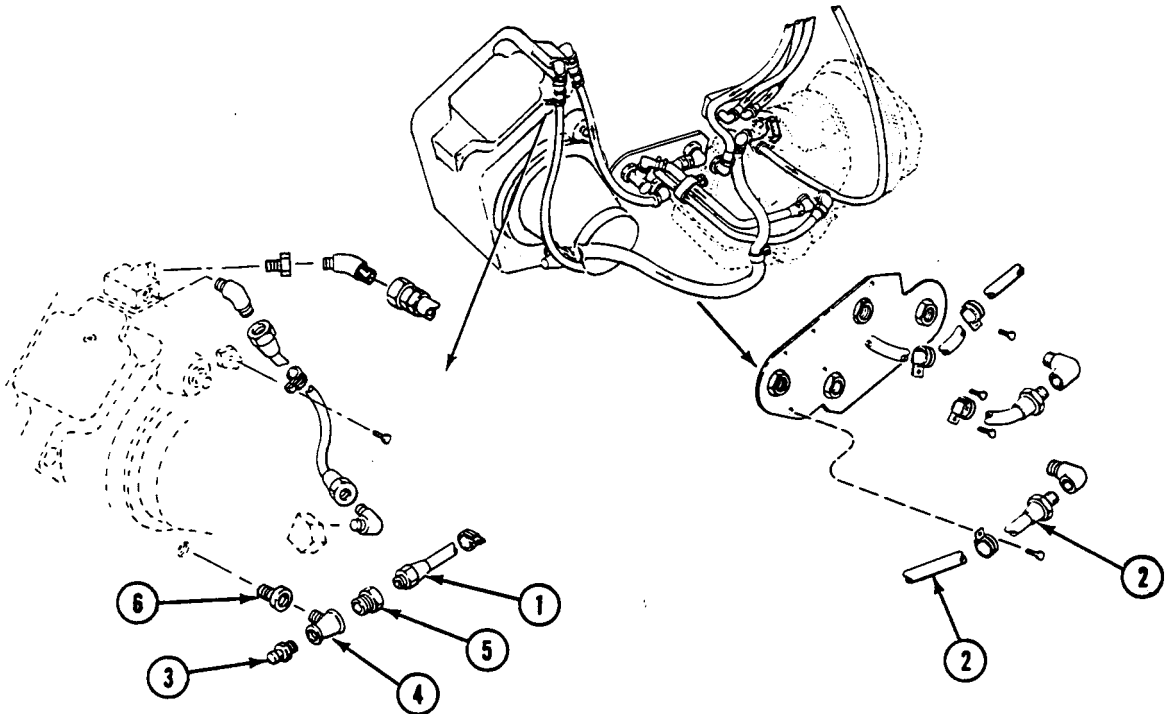
Engine stopped (see your -10)
Carrier blocked (see your -10)
Center cab floor plate removed (WP 0394 00)
Center seat raised (see your -10)
Hull bottom access cover removed (WP 0383 00)
Air cleaner and element removed (WP 0152 00)

REMOVAL

NOTE

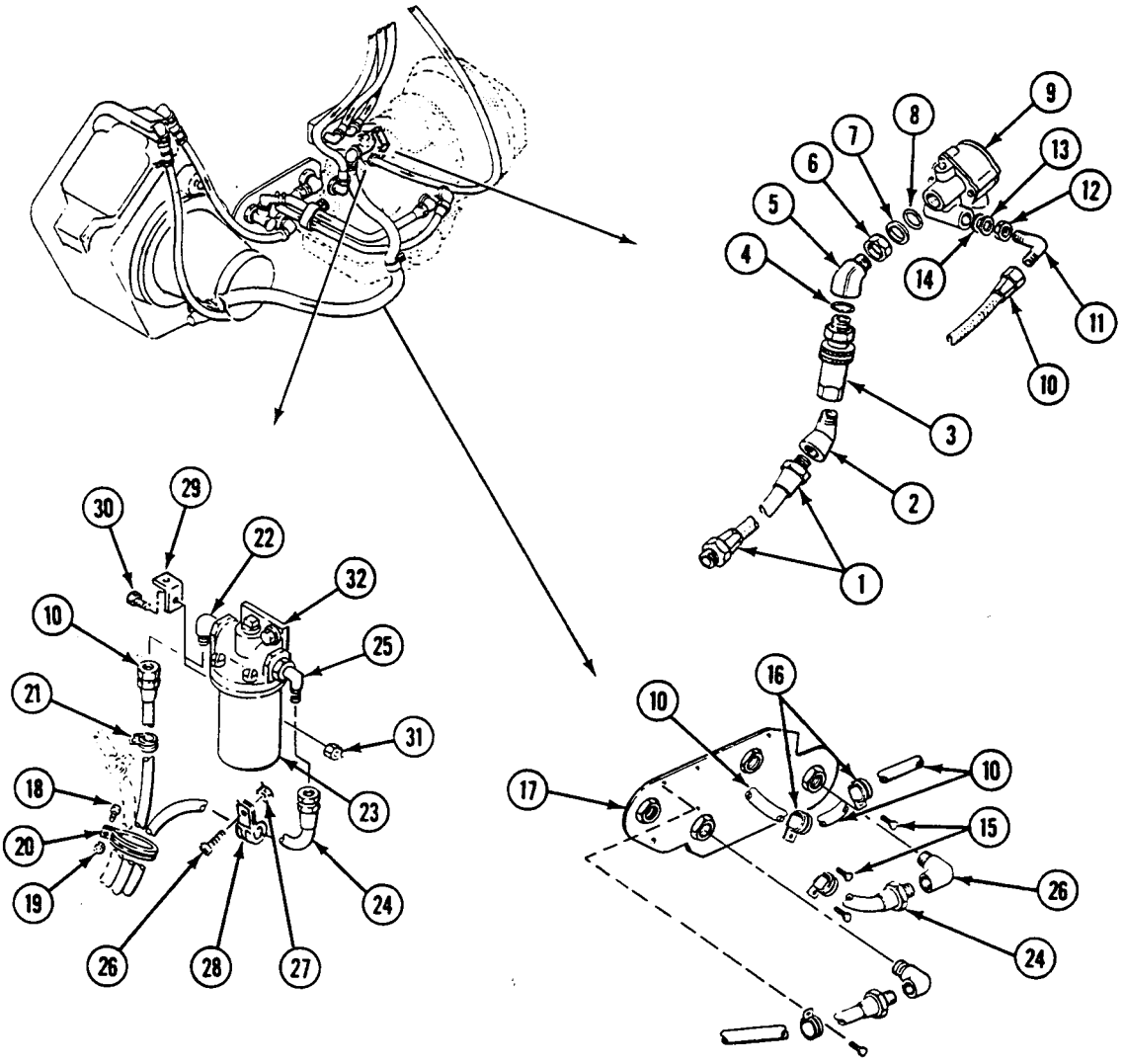
Remove, unfasten, or disconnect only those items needed to make repair.

1. If outlet hose (1) and outlet hose (2) is to be removed, drain differential (WP 0128 00).
2. Remove differential oil high temperature switch (3) from tee (4) on differential.
3. Disconnect outlet hose (1), tee (4), adapter (5), and nipple (6) from differential.

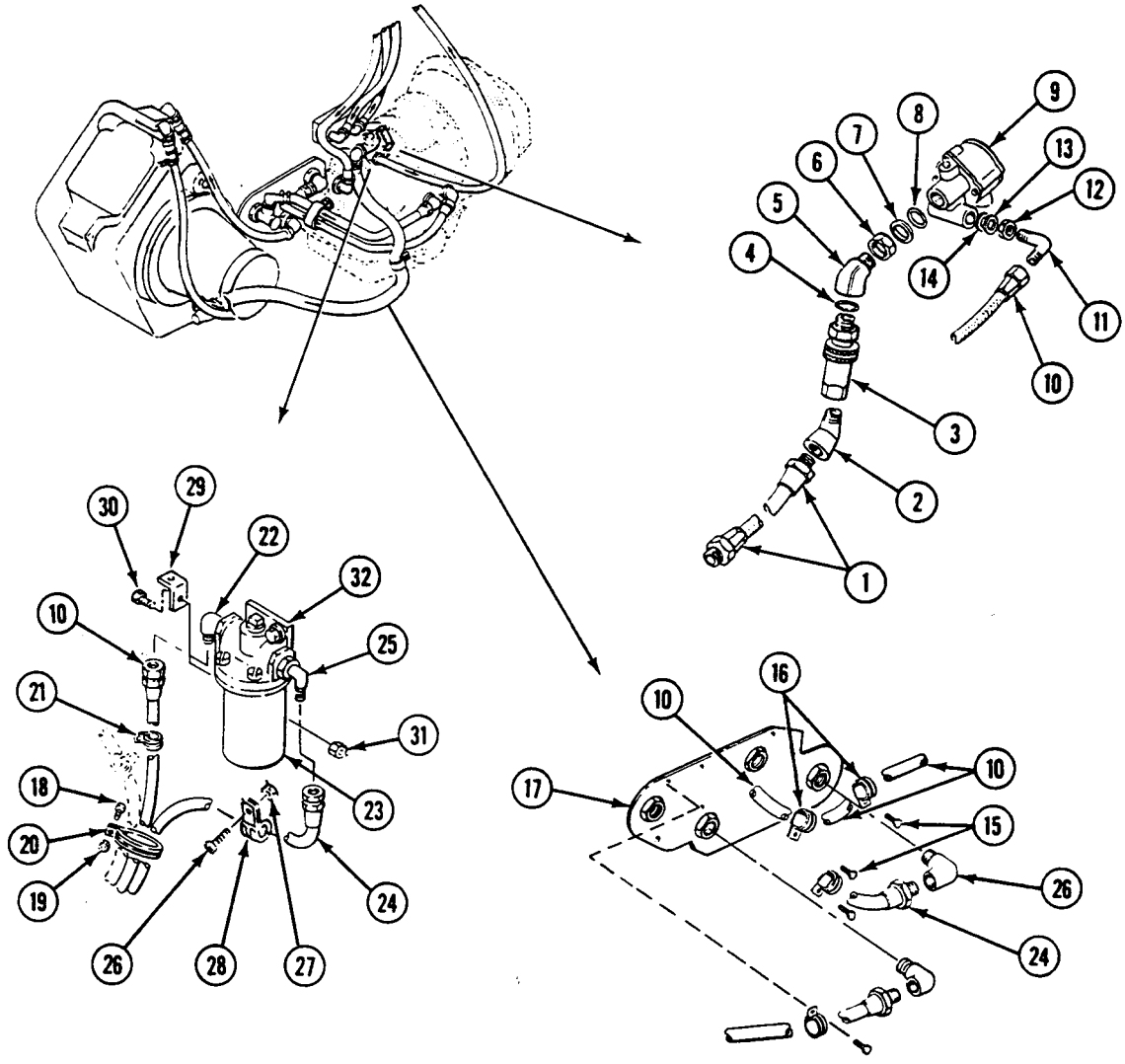


REPLACE DIFFERENTIAL OIL HOSES AND FITTINGS (M548A1) — Continued 0340 00

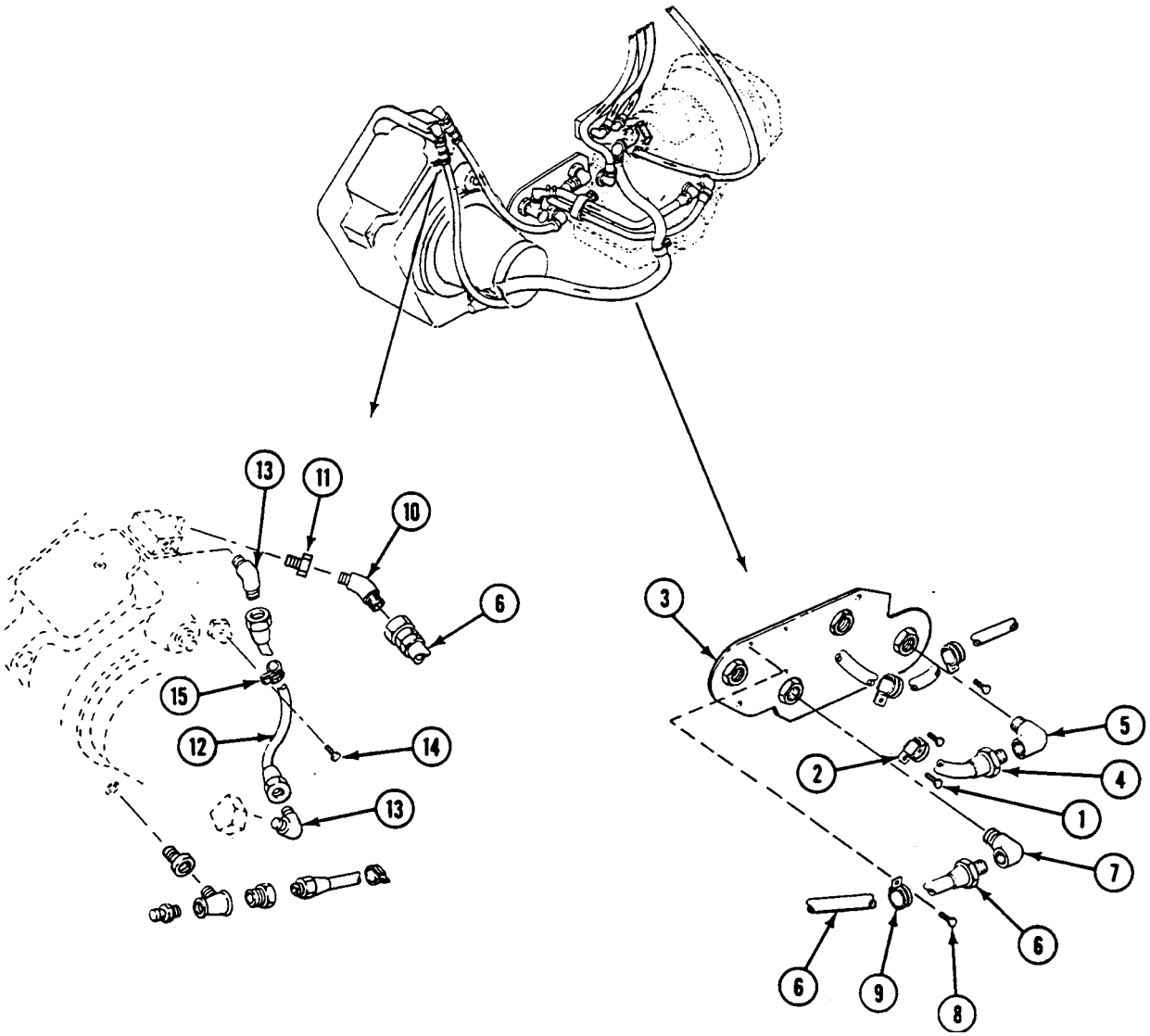
4. Remove outlet hose (1) from elbow (2).
5. Remove elbow (2), coupling (3), preformed packing (4), elbow (5), lock nut (6), washer (7), and preformed packing (8) from oil pump (9). Discard preformed packings and lock nut.
6. Disconnect hose (10) from elbow (11) on oil pump (9).
7. Remove elbow (11), nut (12), retainer (13), and preformed packing (14) from oil pump (9). Discard preformed packings.
8. Remove two screws (15) and clamps (16) from oil cooler (17).



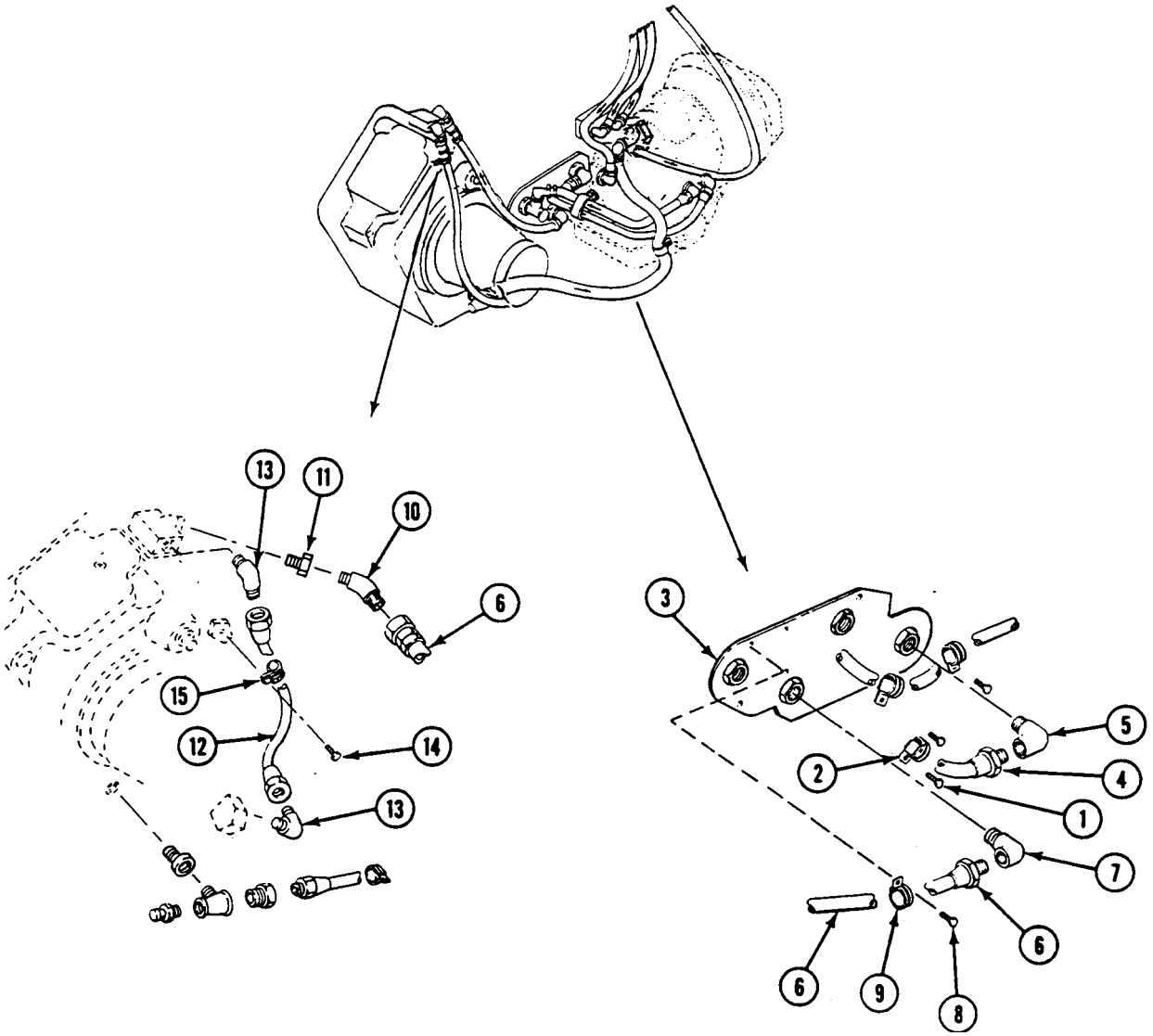
9. Remove screw (18), nut (19), clamp (20), and clamp (21) from hoses and wiring harness.
10. Disconnect hose (10) from elbow (22) on differential oil filter (23).
11. Remove hose (10) from carrier.
12. Disconnect hose (24) from elbow (25) on differential oil filter (23).
13. Remove screw (26), lock nut (27), clamp (28), and hose (24) from bracket (29).
14. Remove screw (30), lock nut (31), and bracket (29) from bracket (32).
15. If not already removed from hose (10), remove clamps and screws per Step 9.



16. Remove screw (1) and clamp (2) from oil cooler (3).
17. Disconnect hose (4) from elbow (5).
18. Remove hose (4) and elbow (5) from oil cooler (3).
19. Disconnect hose (6) from elbow (7).
20. Remove elbow (7) from oil cooler (3).
21. Remove screw (8) and clamp (9) from oil cooler (3).



22. Disconnect hose (6) from elbow (10).
23. Remove elbow (10) and bushing (11) from differential.
24. Disconnect hose (12) from two elbows (13), and remove elbows (13) from differential.
25. Remove screw (14) and clamp (15) from differential right angle gearbox. Remove hose (12) from carrier.

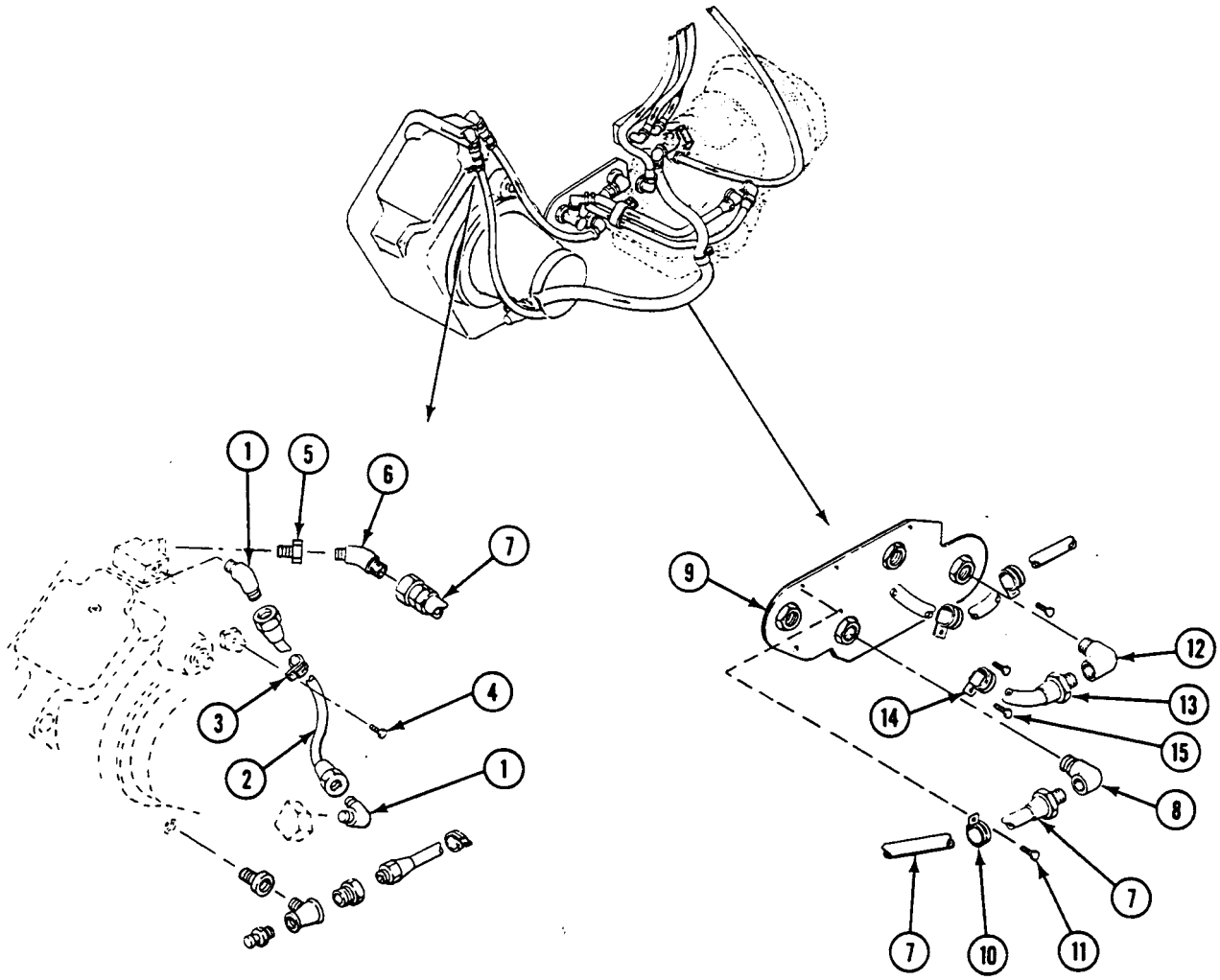


INSTALLATION

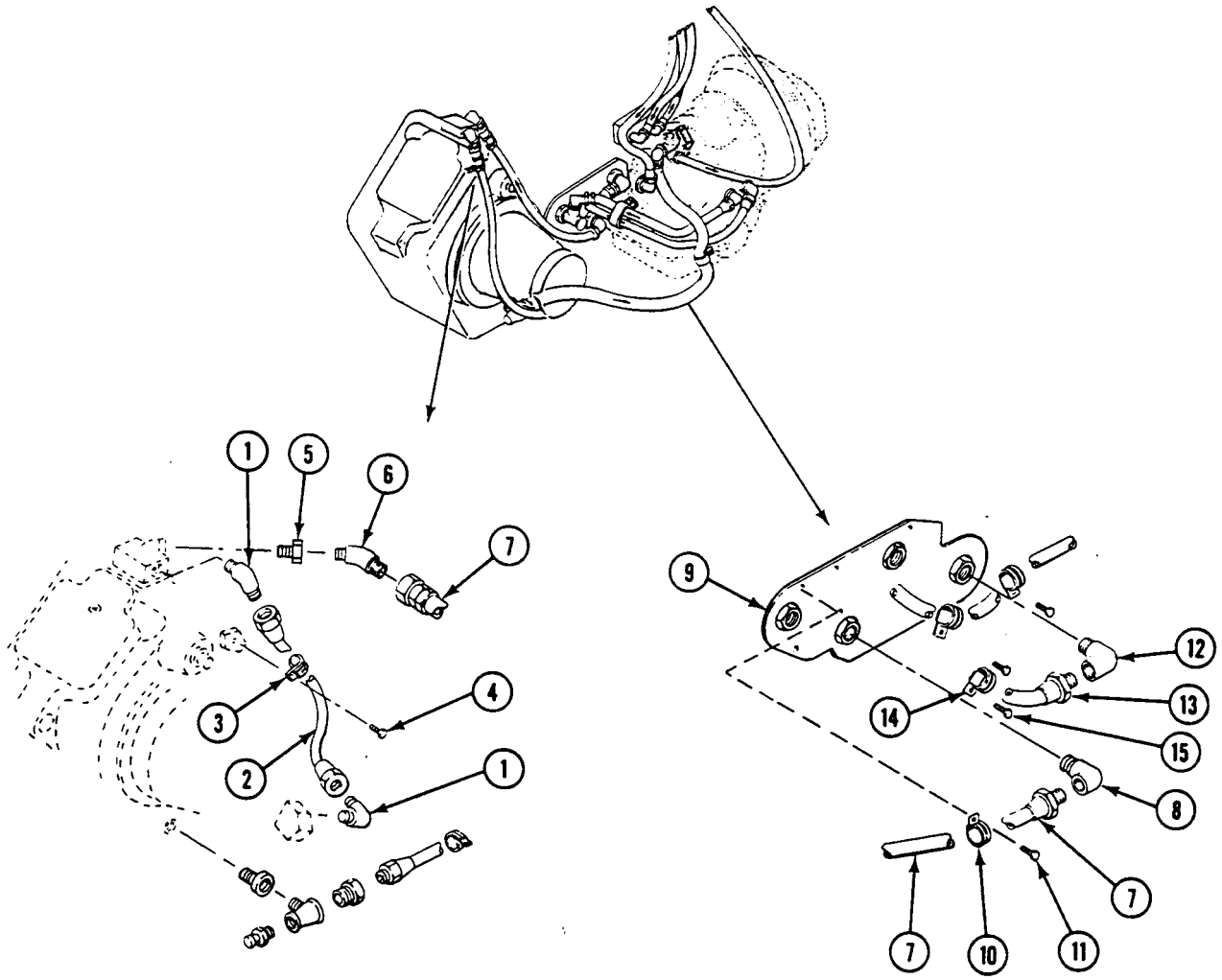
NOTE

Put a light coat of sealing compound primer and sealing compound on outside tapered pipe threads of fittings at assembly. Put a light coat of antiseize compound on outside straight threads of fittings at assembly.

1. Install two elbows (1) in differential.
2. Install hose (2) on two elbows (1).
3. Secure hose (2) to differential with clamp (3) and screw (4).
4. Install bushing (5) and elbow (6) in differential.

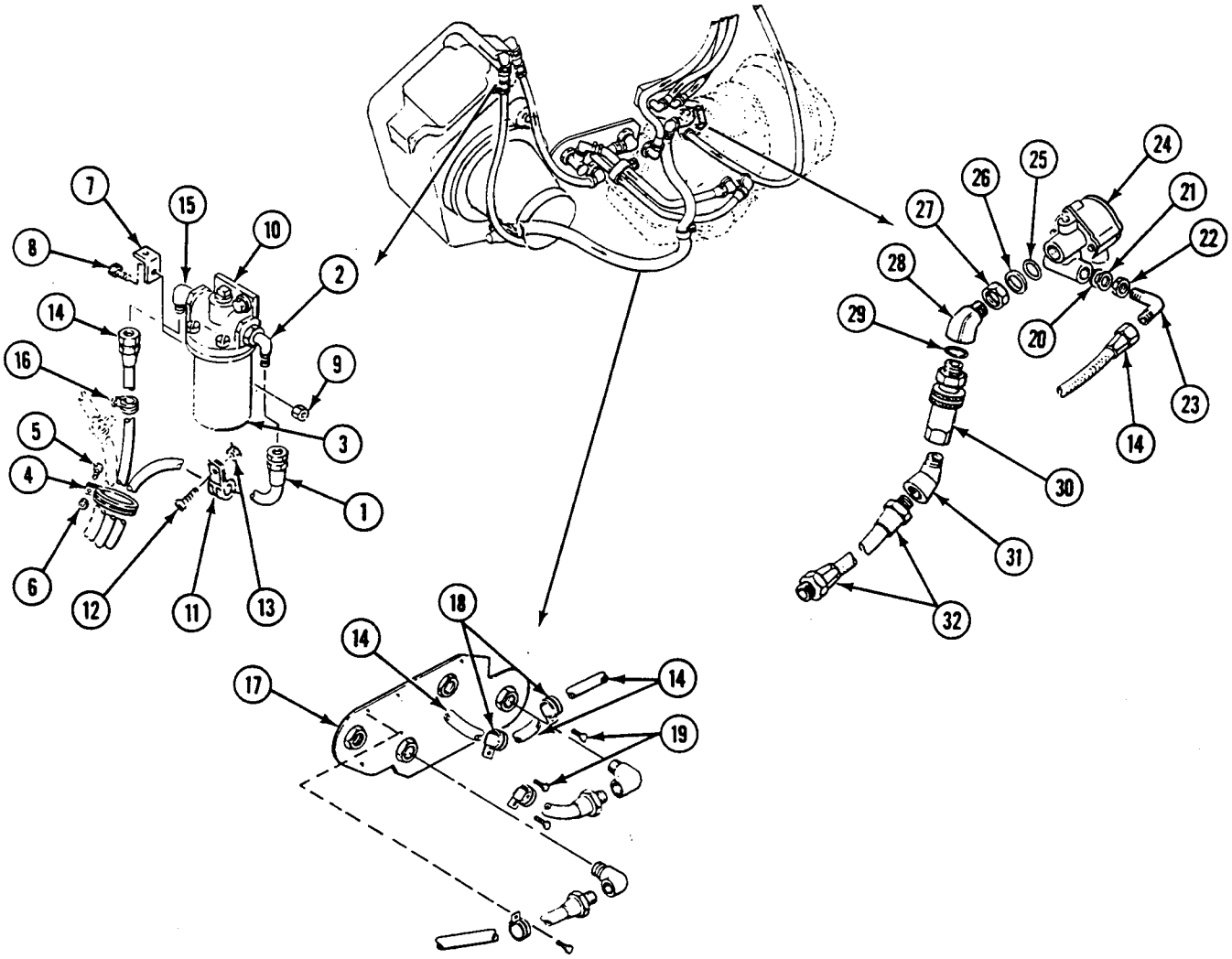


5. Connect hose (7) to elbow (6).
6. Install elbow (8) in oil cooler (9).
7. Install clamp (10) and screw (11) to secure hose (7) to oil cooler (9).
8. Connect hose (7) to elbow (8).
9. Install elbow (12) in oil cooler (9).
10. Connect hose (13) to elbow (12).
11. Secure hose (13) to oil cooler (9) with clamp (14) and screw (15).



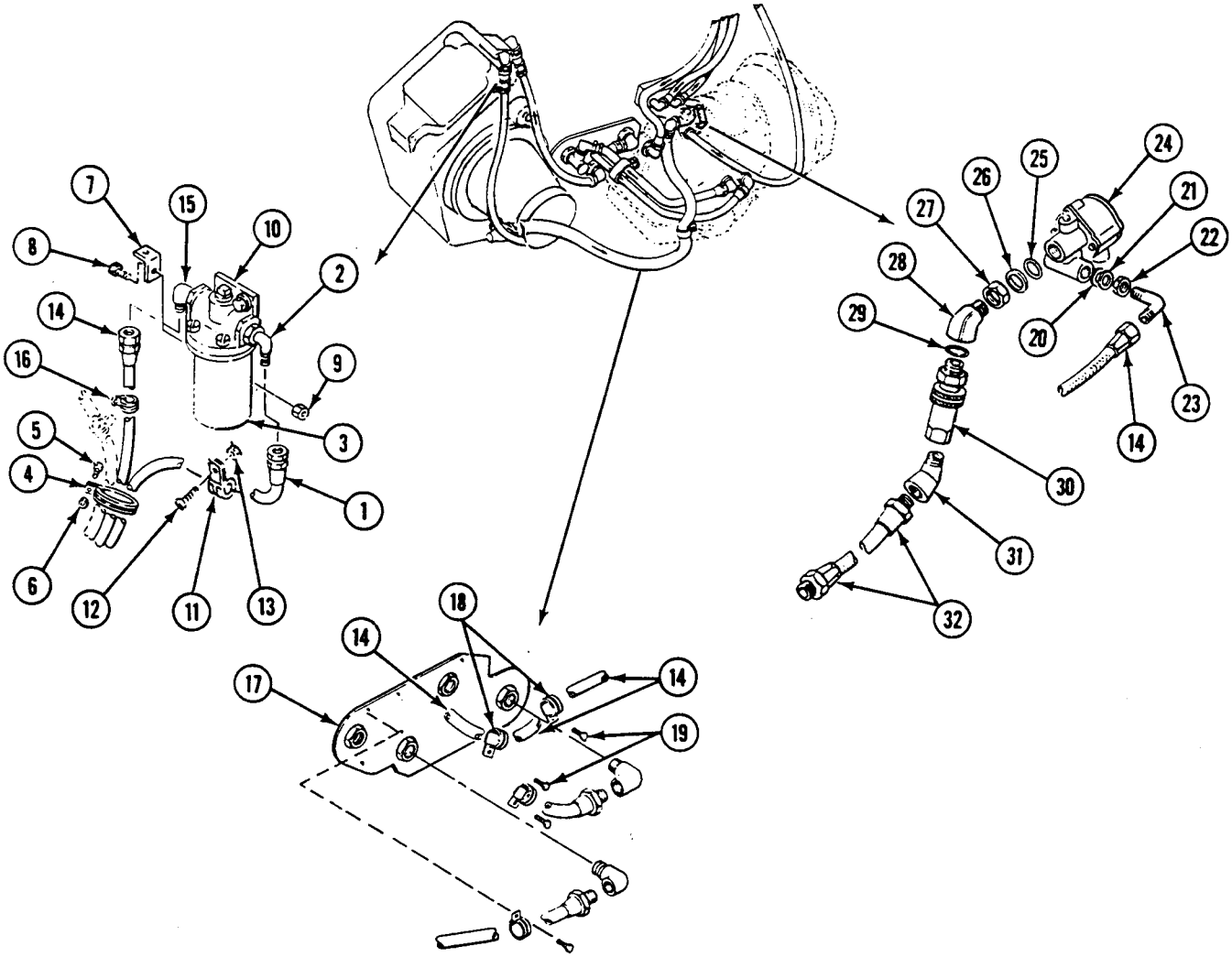
REPLACE DIFFERENTIAL OIL HOSES AND FITTINGS (M548A1) — Continued 0340 00

12. Connect hose (1) to elbow (2) on differential oil filter (3).
13. Secure hose (1) to hull and wiring harness with clamp (4), screw (5), and nut (6).
14. Install bracket (7), screw (8), and nut (9) on bracket (10).
15. Secure hose (1) to bracket (7) with clamp (11), screw (12), and nut (13).
16. Connect hose (14) to elbow (15) on differential oil filter (3).
17. Secure hose (14) to hull and wiring harness with clamp (16), screw (5), and nut (6).
18. Secure hose (14) to oil cooler (17) with two clamps (18) and screws (19).

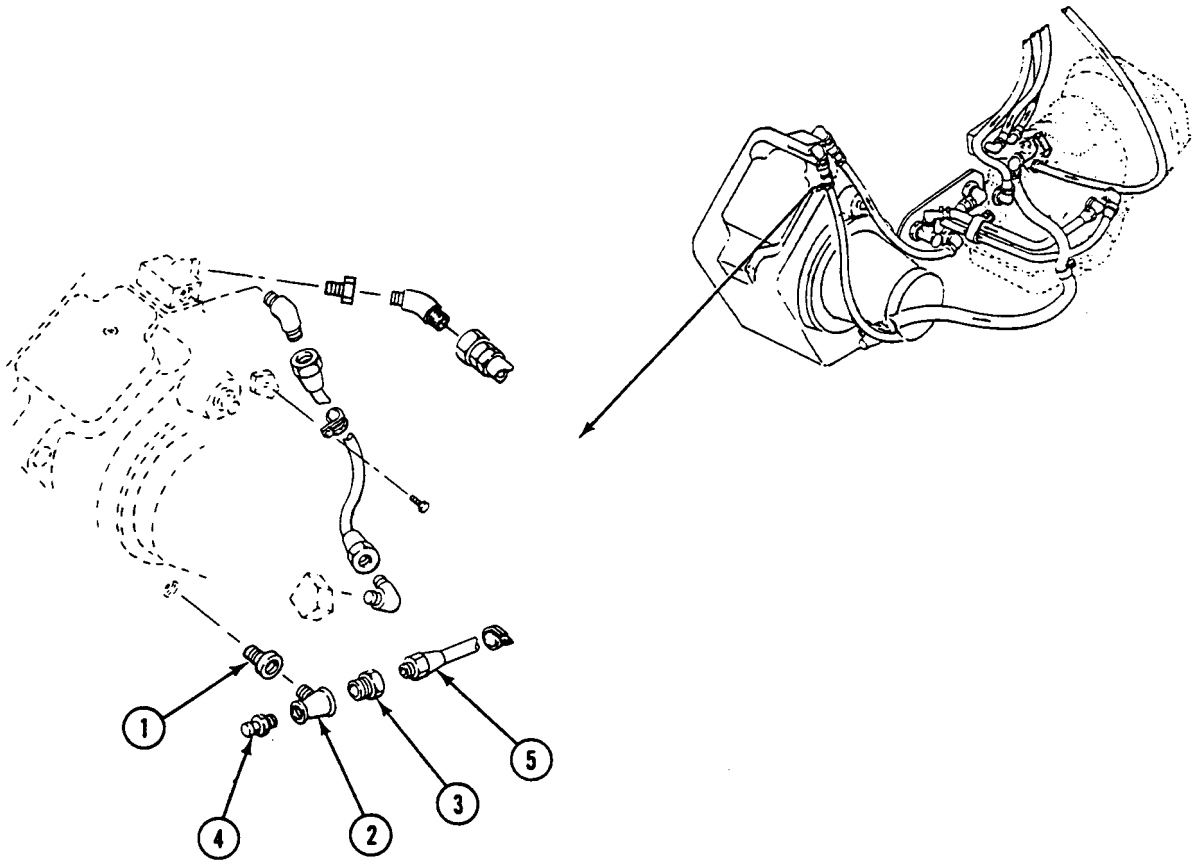


REPLACE DIFFERENTIAL OIL HOSES AND FITTINGS (M548A1) — Continued 0340 00

19. Install new preformed packing (20), retainer (21), lock nut (22), and elbow (23) in oil pump (24).
20. Connect hose (14) to elbow (23).
21. Install new preformed packing (25) in oil pump (24).
22. Install retainer (26), lock nut (27), and elbow (28) in oil pump (24).
23. Install new preformed packing (29) in elbow (28).
24. Install coupling (30) and elbow (31) in elbow (28).
25. Connect hose (32) to elbow (31).



26. Install nipple (1) in differential.
27. Install tee (2) in nipple (1).
28. Install adapter (3) in tee (2).
29. Install switch (4) in tee (2).
30. Connect hose (5) to adapter (3).



FOLLOW-THROUGH STEPS

1. Install air cleaner and element (WP 0152 00).
2. Start engine (see your -10). Run engine at 1,500 rpm for one minute.
3. Check for oil leaks.
4. Stop engine (see your -10).
5. Install hull bottom access cover (WP 0383 00).
6. Install center cab floor plate (WP 0394 00).
7. Lower center seat (see your -10).

END OF TASK

ADJUST DIFFERENTIAL BRAKES (M548A1) 0341 00

THIS WORK PACKAGE COVERS:

Adjustment (page 0341 00-1).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)
Weighing Scale (WP 0541 00, Item 43)

Materials/Parts

Antiseize compound (WP 0542 00, Item 6)
Strap/rope

Personnel Required

Unit Mechanic
Helper (H)

References

See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Center seat raised (see your -10)

ADJUSTMENT

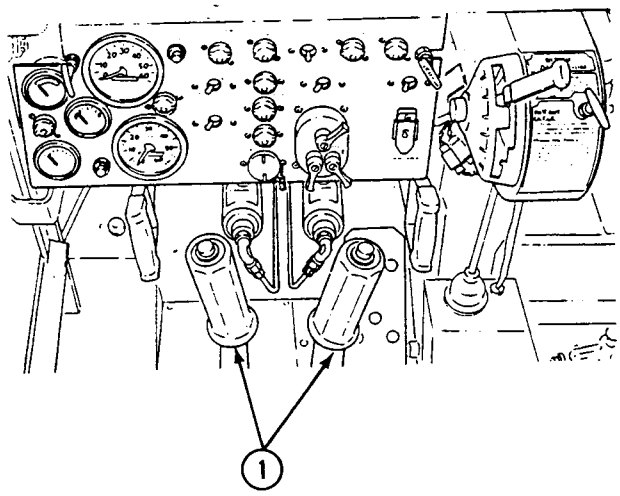
NOTE

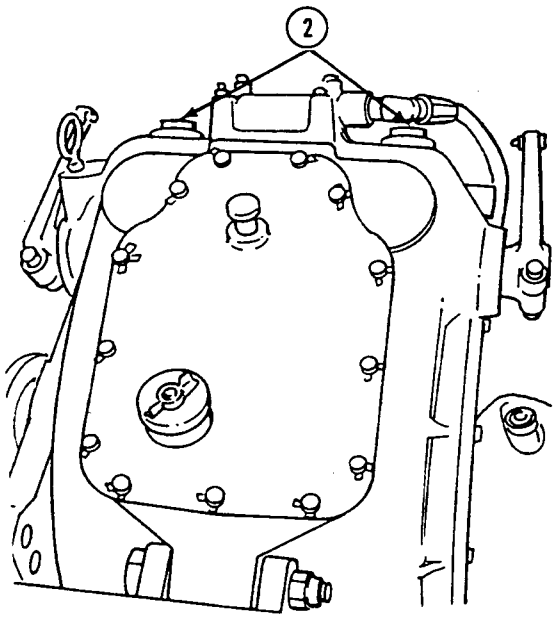
Carrier must be on level surface.

Do not attempt to adjust steering linkage to compensate for brake band wear. Uneven steering lever pull would result.

Adjust brake bands while differential is cool. Proper adjustment cannot be obtained with hot differential.

1. Check adjust steering controls (WP 0367 00) before making differential brake adjustment.
2. Place right and left steering levers (1) forward (released position).
3. Remove two access plugs (2) from differential housing.





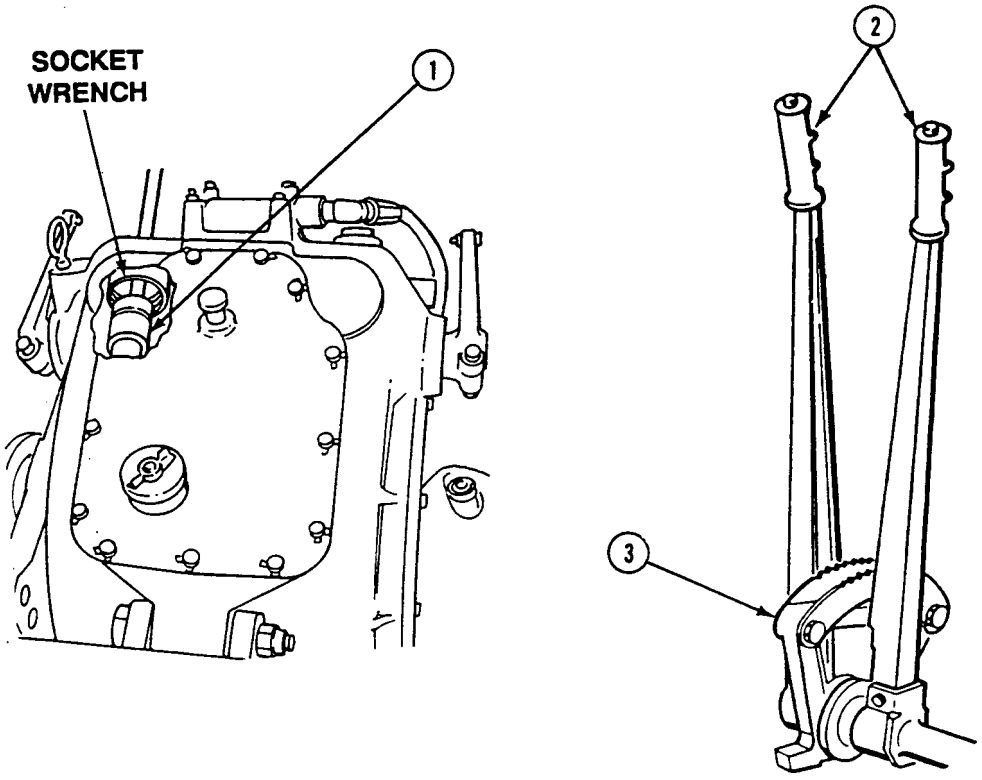
CAUTION

Make sure socket is taped to extension so socket won't drop into differential.

NOTE

Turn brake band adjusting nut to the right to tighten band and to the left to loosen band.

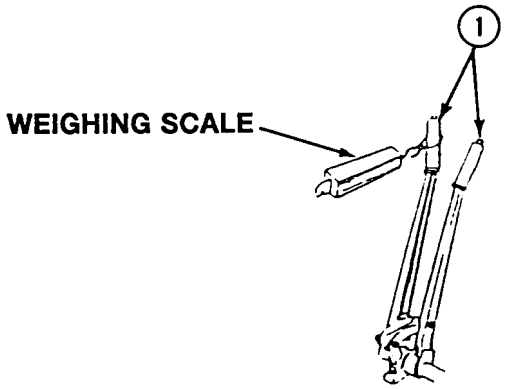
4. Turn each brake band adjusting nut (1) one detent to right or left, depending on type of adjustment needed.
5. Position right and left steering levers (2) to lock in second notch from front in steering lever quadrant (3).



NOTE

A weighing scale is not the only scale capable of successfully accomplishing this maintenance task. Any serviceable spring scale having a 0-50 lb (0-23 kg) minimum range, graduated in 1-2 lb (0.5-1kg) increments, is suitable for use.

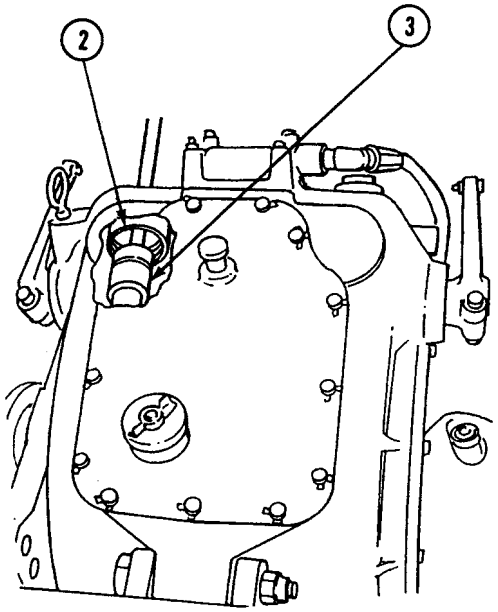
6. Using a strap or rope, connect weighing scale to hand grip on right or left steering lever (1) and measure pressure required to release steering lever. A pull of 10-30 lb (4-13 kg) should be obtained.
   a. (H) Attach weighing scale to right or left steering levers (1) at center hand grip finger notch.
   b. (H) After pulling back on weighing scale attached to right or left steering lever (1), locking pawl must release from second notch of quadrant within range of 10-30 lb (4-13 kg).



NOTE

If right or left steering levers do not release within above cited range and after attempting steering differential brake adjustment, notify your supervisor.

7. Repeat Steps 2 - 6 until correct right or left steering lever release pressure is obtained. If adjustment cannot be obtained, notify your supervisor.
8. Remove socket (2) from adjusting nut (3) through differential access hole.



9. Apply antiseize compound sparingly to threads of access plugs and install plugs in differential housing.

FOLLOW-THROUGH STEPS

1. Lower center seat (see your -10).
2. Start engine (see your -10).
3. Road test carrier (WP 0128 00).
4. Check for proper brake adjustment.
5. Stop engine (see your -10).

END OF TASK

REPLACE DIFFERENTIAL AND MOUNTS (M548A1) 0342 00

THIS WORK PACKAGE COVERS:

Removal (page 0342 00-1).
Installation (page 0342 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)
Beam Type Sling (WP 0541 00, Item 45)
Remover and Replacer (WP 0541 00, Item 40)
Lifting Device, 500 lb (227 kg) capacity

Personnel Required

Unit Mechanic
Helper (H)

References

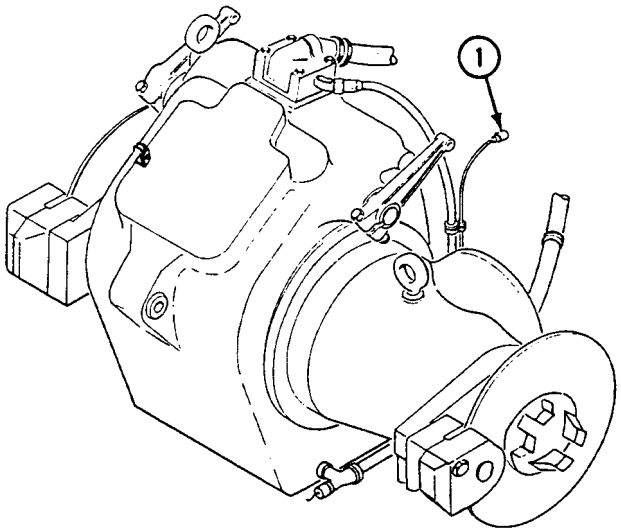
See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Battery negative lead disconnected (WP 0292 00)
Differential drained (WP 0128 00)
Machine gun mount kit removed, if installed (WP 0513 00), (WP 0514 00), or (WP 0515 00)
Cab cover or fiberglass cab cover removed, if installed (WP 0418 00) or (WP 0456 00)
Cab floor plates removed (WP 0394 00)
Center seat raised (see your -10)
Winch propeller shaft removed (WP 0412 00)
Winch transfer gearcase removed (WP 0413 00)
Hull bottom access cover removed (WP 0383 00)
Pivot steering brakes and brake disks removed (WP 0373 00), (WP 0374 00)
Heater to defroster duct removed, if personnel heater is installed (WP 0453 00)
Fuel shutoff cable from engine disconnected (WP 0194 00)
Accelerator pedal link from control arm and cross-shaft disconnected and link removed (WP 0197 00)
Transmission range selector link from range selector arm and cross-shaft disconnected and link removed (WP 0315 00)

REMOVAL

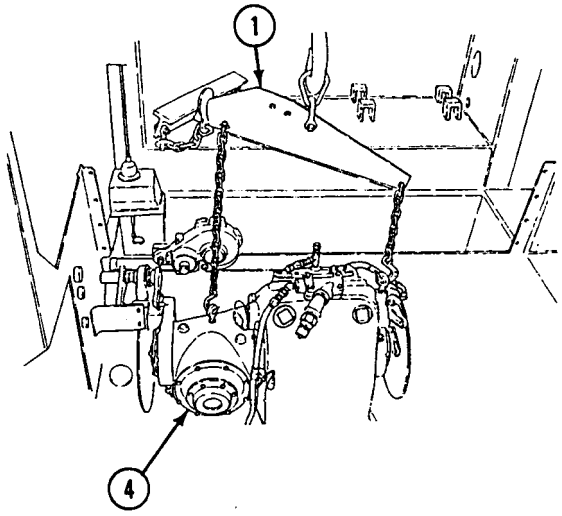
1. Disconnect differential high oil temperature switch lead (1) from main wiring harness.



WARNING

The differential is heavy. Use helper and lifting device of at least 500 lb (227 kg) capacity with a beam type sling.

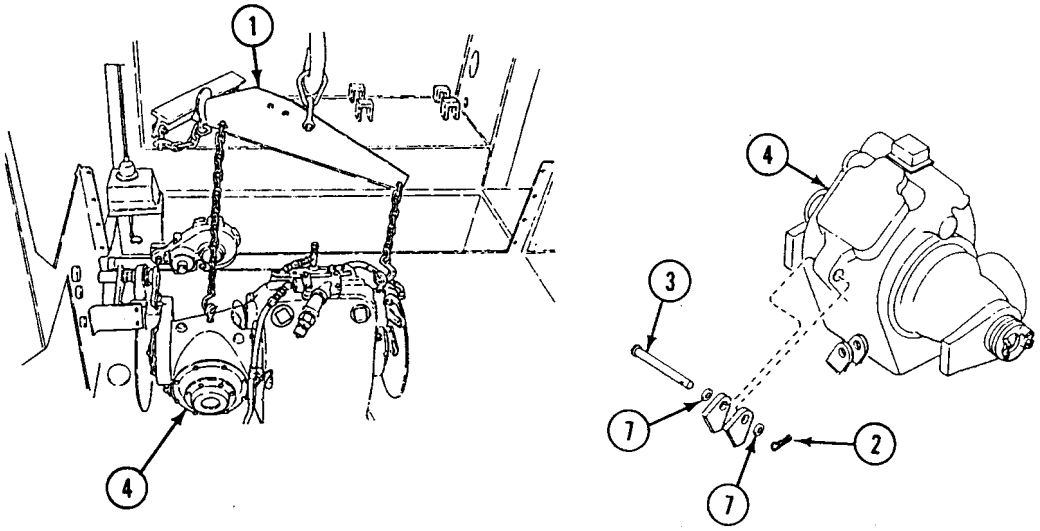
2. Attach a lifting device of at least 500 lb (227 kg) capacity and beam type sling (1) to two differential lifting eyes.

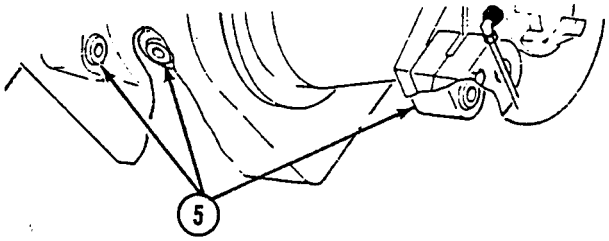


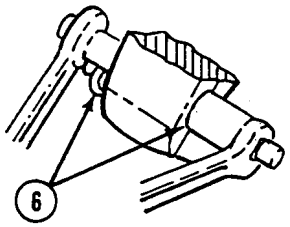
3. Remove three lock pins (2), three pins (3), and six bushings (7) from differential hull mounts.

4. Remove differential (4) from carrier (WP 0413 00).

5. Remove three mounts (5) from differential (4). Use remover and replacer (6).







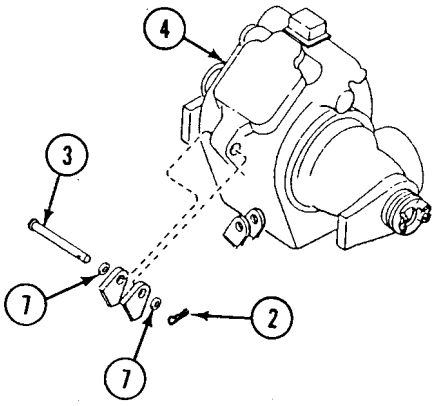
INSTALLATION

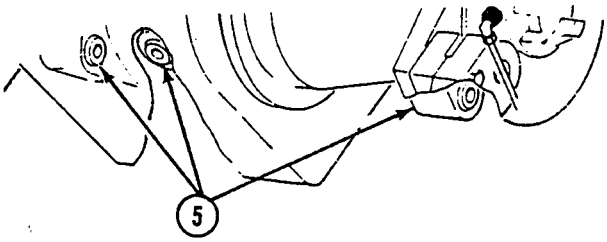
1. Install three mounts (5) in differential (4). Use remover and replacer (6).

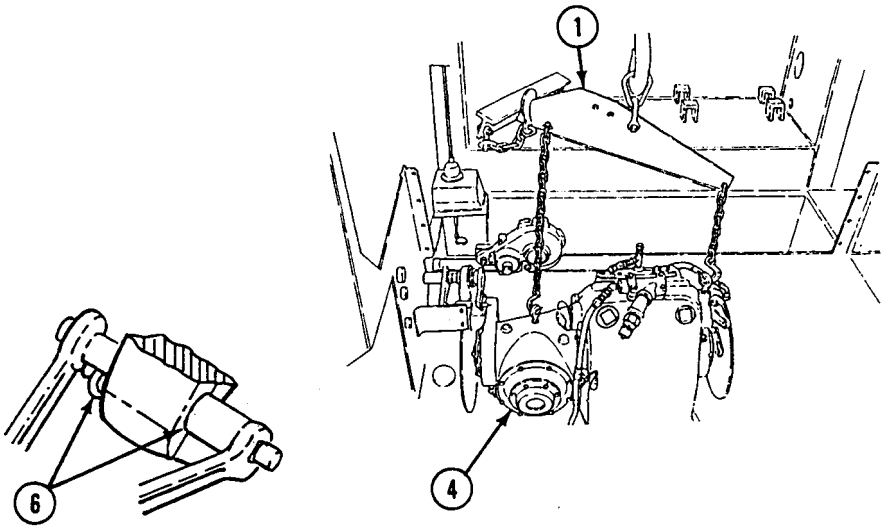
WARNING

The differential is heavy. Use helper and lifting device of at least 500 lb (227 kg) capacity with beam type sling.

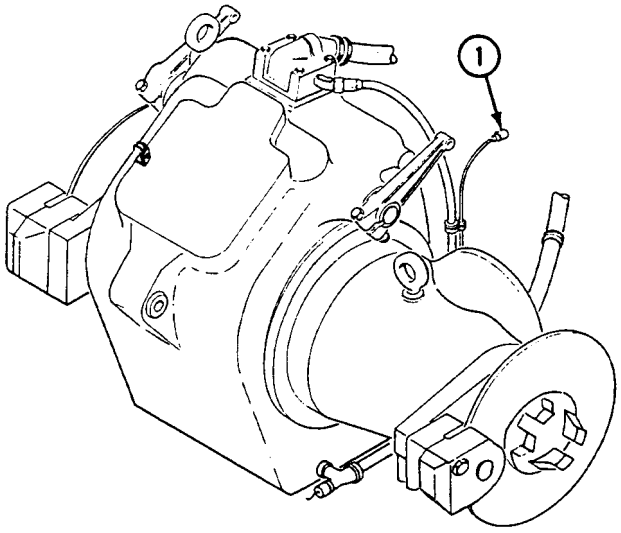
2. Attach a lifting device of at least 500 lb (227 kg) capacity and beam type sling (1) to two differential lifting eyes.
3. Use helper to lower differential (4) into carrier.
4. Install six bushings (7), three pins (3) through differential and hull mounts. Secure with three lock pins (2).
5. Remove beam type sling (1) from differential (4).







6. Connect differential high oil temperature switch lead (1) to main wiring harness.



FOLLOW-THROUGH STEPS

1. Connect transmission range selector link from range selector arm and cross-shaft and install link (WP 0315 00).
2. Connect accelerator pedal link from control arm and cross-shaft and install link (WP 0197 00).
3. Connect fuel shutoff cable to engine (WP 0194 00).
4. Install heater to defroster duct, if personnel heater is installed (WP 0453 00).
5. Install pivot steering brakes and brake disks (WP 0373 00), (WP 0374 00).
6. Install hull bottom access cover (WP 0383 00).
7. Install winch transfer gearcase (WP 0413 00).
8. Install winch propeller shaft (WP 0412 00).
9. Lower center seat (see your -10).
10. Install cab floor plates (WP 0394 00).

11. Install cab cover or fiberglass cab cover, if installed (WP 0418 00 or WP 0456 00).
12. Install machine gun mount kit, if removed (WP 0513 00), (WP 0514 00 or WP 0515 00).
13. Fill differential with oil (WP 0128 00).
14. Connect battery negative lead (WP 0292 00).
15. Start engine (see your -10).
16. Operate carrier (see your -10). Check that differential is operating correctly.
17. Stop engine (see your -10).

END OF TASK

REPLACE DIFFERENTIAL SWITCH LEAD (M548A1) 0343 00

THIS WORK PACKAGE COVERS:

Removal (page 0343 00-1).
Installation (page 0343 00-2).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts
Lock nut

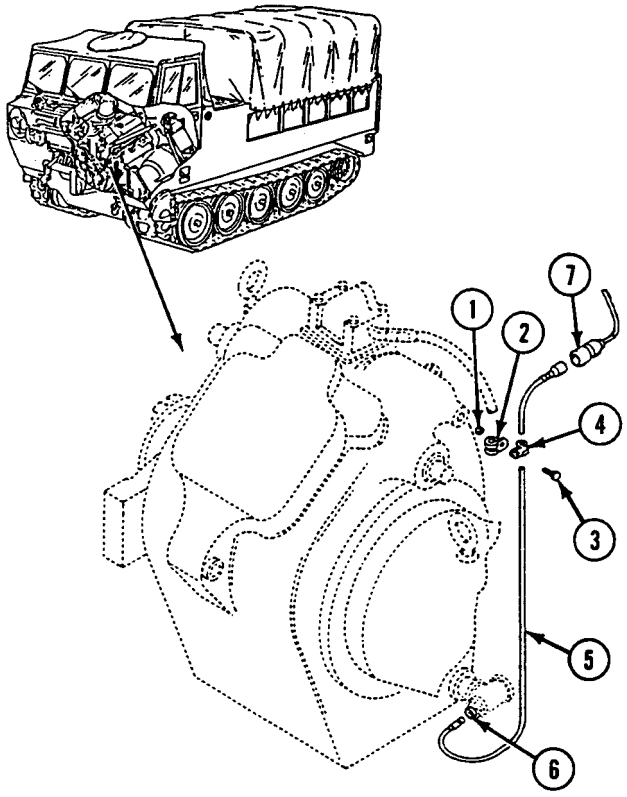
Personnel Required
Unit Mechanic

References
See your -10

Equipment Condition
Engine stopped (see your -10)
Center floor plates removed (WP 0394 00)
Center seat raised (see your -10)
Hull bottom access cover removed (WP 0383 00)

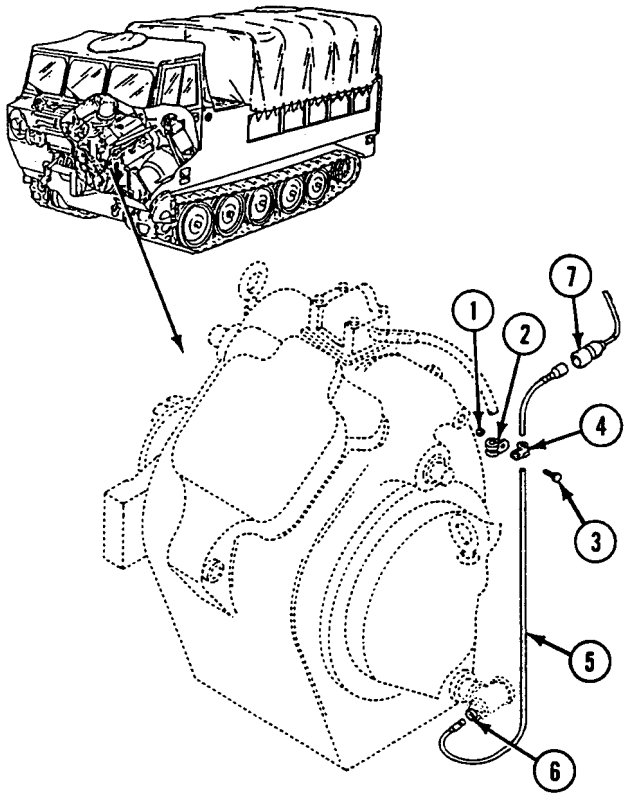
REMOVAL

1. Remove lock nut (1), clamp (2), and screw (3) from clamp (4). Discard lock nut.
2. Disconnect circuit 328 lead (5) from differential high oil temperature switch (6) and power plant wiring harness (7). Remove lead.
3. If replacing circuit 328 lead (5), remove clamp (2) from lead.



INSTALLATION

1. If removed, install clamp (2) on circuit 328 lead (5).
2. Route circuit 328 lead (5) along differential and connect lead to power plant wiring harness (7) and switch (6).
3. Place clamp (2) on clamp (4). Secure with screw (3) and new lock nut (1).



FOLLOW-THROUGH STEPS

1. Install center floor plates (WP 0394 00).
2. Lower center seat (see your -10).
3. Install hull bottom access cover (WP 0383 00).

END OF TASK

REPLACE DIFFERENTIAL GASKET (M548A1) 0344 00

THIS WORK PACKAGE COVERS:

Removal (page 0344 00-2).
Installation (page 0344 00-3).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)
Socket (WP 0541 00, Item 64)
Torque Wrench (WP 0541 00, Item 71)

Materials/Parts
Antiseize compound (WP 0542 00, Item 6)
Cleaning compound (WP 0542 00, Item 9)
Key washer (14)
Wiping rag (WP 0542 00, Item 45)
Gasket

Personnel Required
Unit Mechanic

References
See your -10

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

REPLACE DIFFERENTIAL GASKET (M548A1) — Continued 0344 00

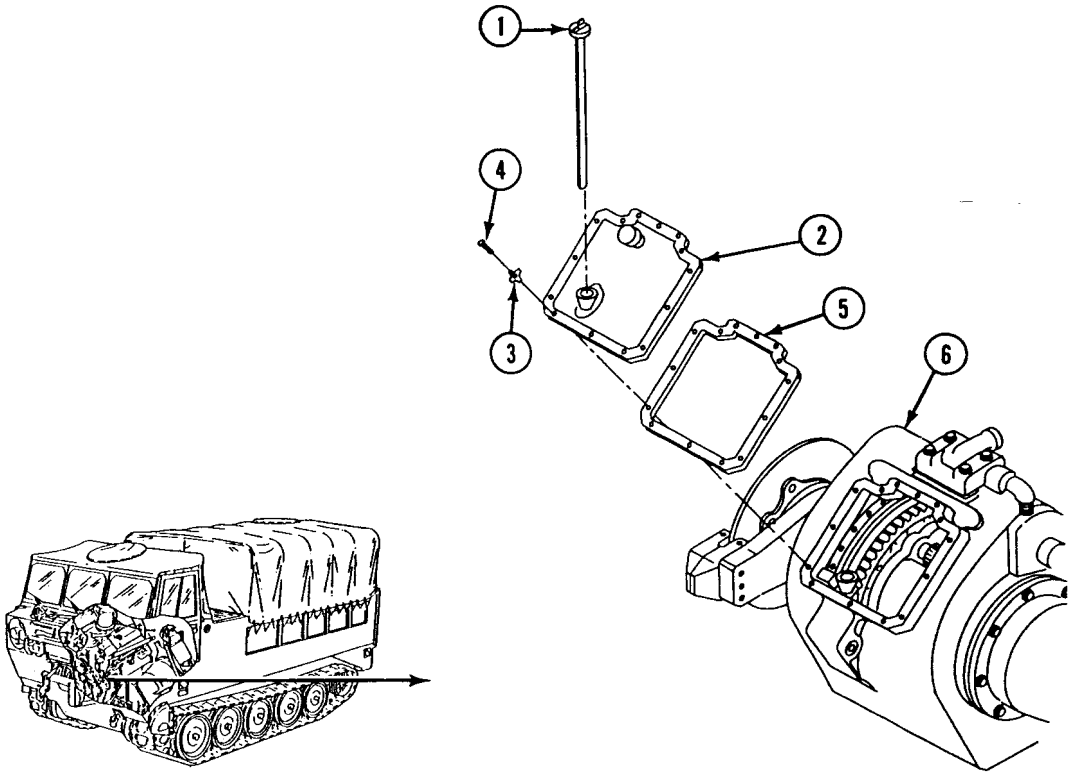
REMOVAL

1. Remove dipstick (1) from differential cover (2).

NOTE

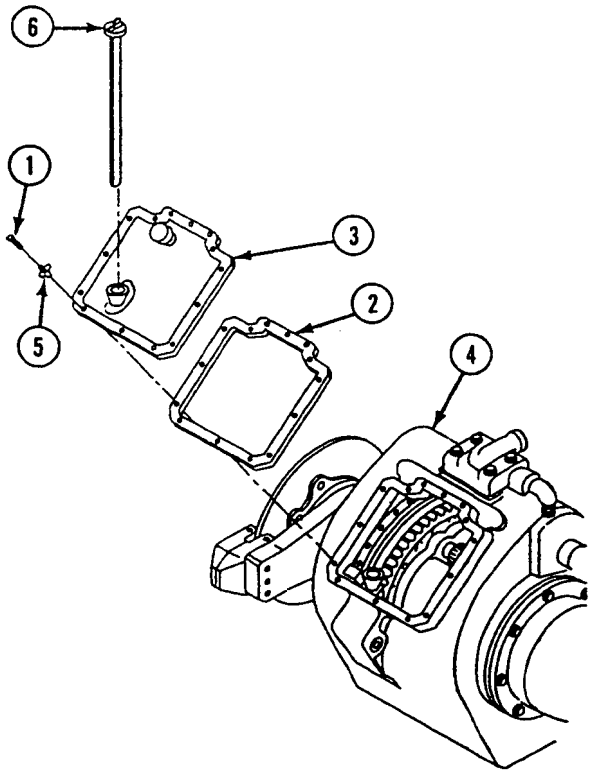
Damage to differential may occur if dirt or debris falls into it while cover is off. Before differential cover is removed, all dirt and debris must be removed from around it and power plant door.

2. Remove all dirt and debris from around and above differential cover (2).
3. Straighten tabs on 14 key washers (3).
4. Remove 14 screws(4), key washers (3), differential cover (2), and gasket (5) from differential gearbox (6). Discard gasket and key washers.



INSTALLATION

1. Clean threads of 14 screws (1) with cleaning compound.
2. Apply light coat of antiseize compound to threads of 14 screws (1).
3. Place new gasket (2) and new differential cover (3) on differential gearbox (4).
4. Secure differential cover (3) in place with 14 new key washers (5) and screws (1). Tighten screws to 252-300 lb-in (29-34 N•m) torque. Bend tabs on key washers.
5. Install dipstick (6) through differential cover (3).



FOLLOW-THROUGH STEPS

1. Check oil level in differential gearbox (WP 0128 00).
2. Lower center seat (see your -10).

END OF TASK

CHAPTER 13

UNIT MAINTENANCE INSTRUCTIONS FOR BRAKES

WORK PACKAGE INDEX

Title	Sequence No.
ADJUST PARKING BRAKE (M548A3)	0345 00
REPLACE PARKING BRAKE CONTROL LEVER/CABLE ASSEMBLY (M548A3)	0346 00
ADJUST BRAKE CONTROL LINKAGE (M548A3)	0347 00
REPLACE BRAKE CONTROL LINKAGE (M548A3)	0348 00

ADJUST PARKING BRAKE (M548A3) 0345 00

THIS WORK PACKAGE COVERS:

Adjustment (page 0345 00-1).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)

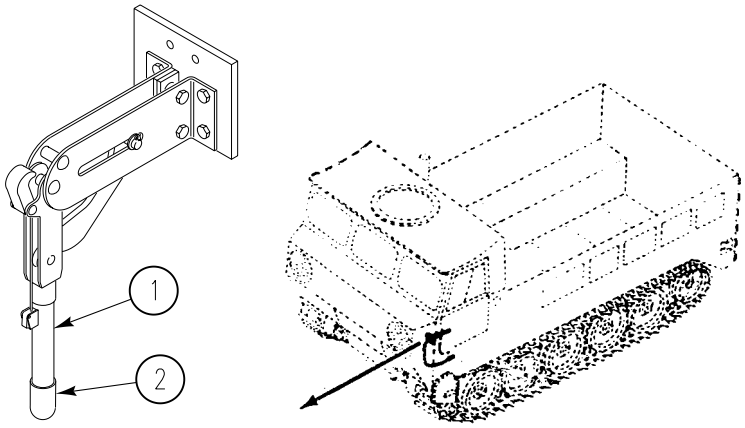
Personnel Required
Unit Mechanic
Helper (H)

References
See your -10

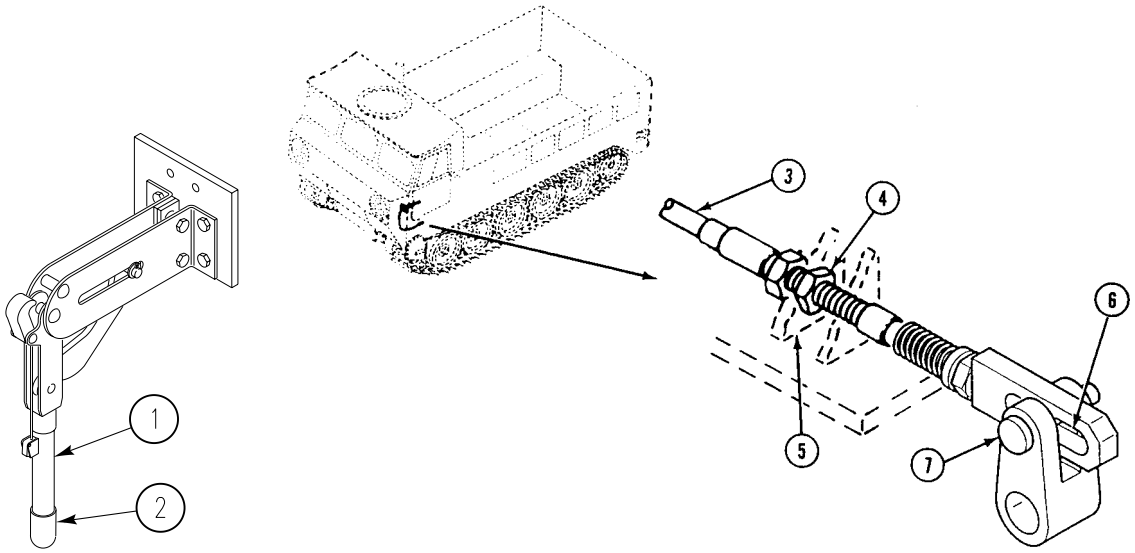
Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Driver's floor plate removed (WP 0395 00)
Transmission brake adjustment checked (WP 0313 00)

ADJUSTMENT

1. Position parking lever (1) in full off position by pushing lever handle down.

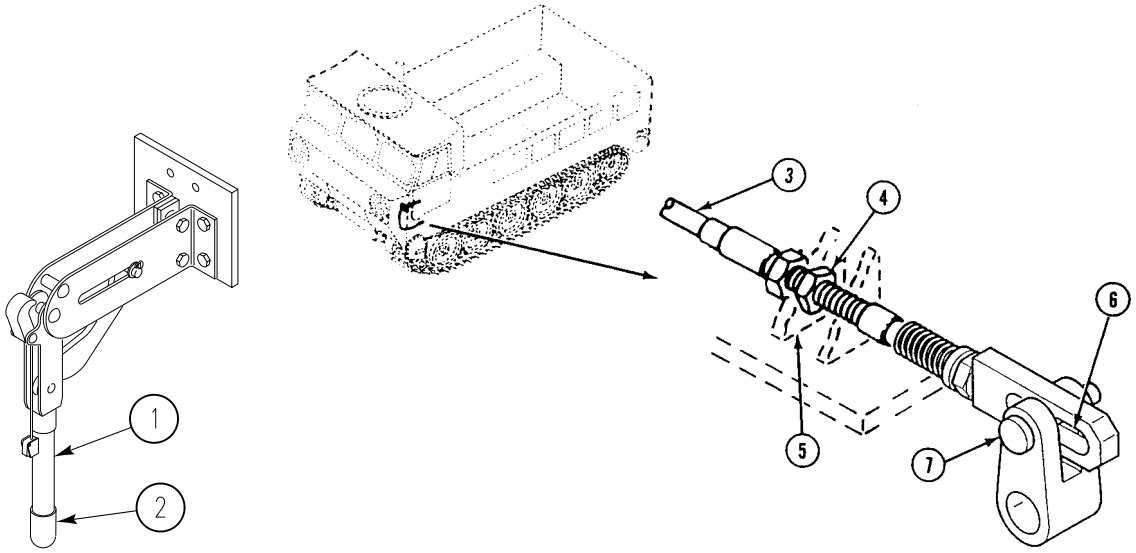


2. Turn brake lever adjustment knob (2) on end of lever (1) counterclockwise to allow full slack in control assembly cable (3).



ADJUST PARKING BRAKE (M548A3) — Continued **0345 00**

3. Hold brake pedal down until it stops. Have helper assist.
4. Loosen jam nut (4). Adjust control assembly cable (3) in bracket (5) until end of slot in stop (6) is against clevis pin (7).
5. Turn brake lever adjustment knob (2) on parking lever (1) clockwise to remove remaining slack in control assembly cable (3). Pull lever up until it locks in place.



6. Release brake pedal. Brake pedal should not move. If pedal does move, repeat Steps 2 - 6 until brake pedal does not move when parking brake is applied ON.

FOLLOW-THROUGH STEPS

1. Apply parking brake (see your -10).
2. Install driver's floor plate (WP 0395 00).

END OF TASK

REPLACE PARKING BRAKE CONTROL LEVER/CABLE ASSEMBLY (M548A3) 0346 00

THIS WORK PACKAGE COVERS:

Removal (page 0346 00-1).
Installation (page 0346 00-4).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts

Cotter pin
Cotter pin
Lock nut (2)

Personnel Required

Unit Mechanic
Helper (H)

References

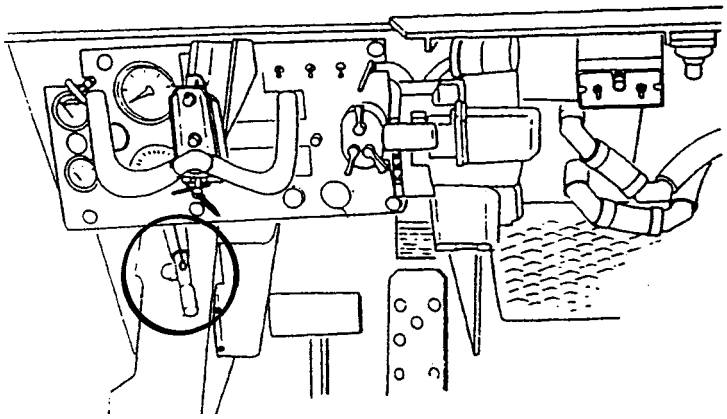
See your -10

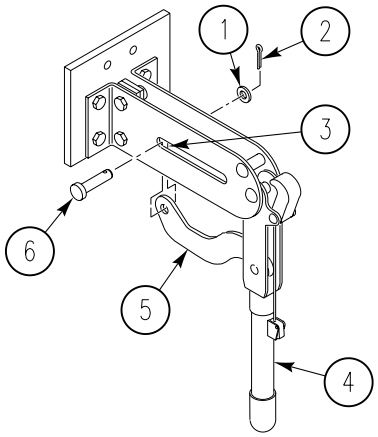
Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Driver's floor plate under brake pedal removed (WP 0395 00)

REMOVAL

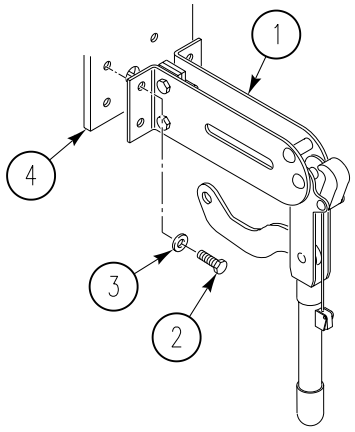
1. Push parking brake lever (4) down into OFF position.
2. Remove cotter pin (2), washer (1), and pin (6) from cable clevis (3) and lever link (5). Disconnect lever link from cable. Discard cotter pin.



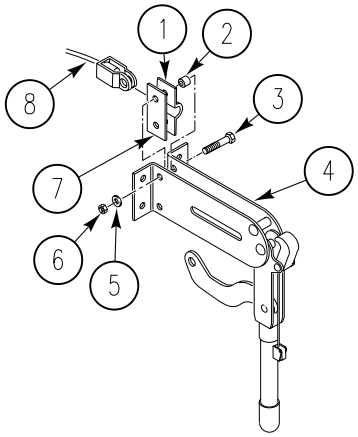


REPLACE PARKING BRAKE CONTROL LEVER/CABLE ASSEMBLY (M548A3) — Continued **0346 00**

3. Remove four screws (2) and washers (3) from mounting bracket (4). Remove parking brake lever (1) from mounting bracket.

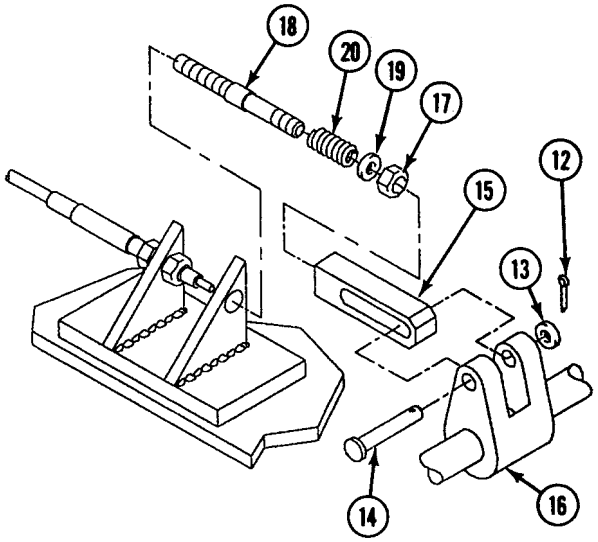


4. Remove two screws (3), washers (5), lock nuts (6), cable (8), spacer (7), two spacers (2), and clamp (1) from parking brake lever (4). Discard lock nuts.

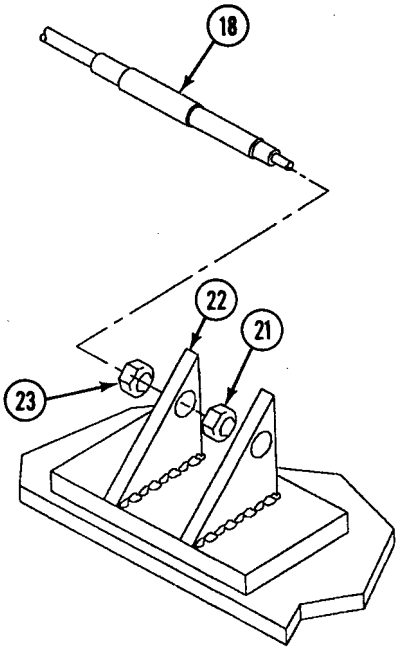


REPLACE PARKING BRAKE CONTROL LEVER/CABLE ASSEMBLY (M548A3) — Continued **0346 00**

5. Remove cotter pin (12), washer (13), and pin (14) from cable stop (15) and brake shaft clevis link (16). Discard cotter pin.
6. Loosen jam nut (17) under cable stop (15) on cable (18). Remove cable stop (15), washer (19), jam nut (17), and spring (20) from cable (18).



7. Remove top jam nut (21) from cable (18). Remove cable from lower mounting bracket (22).
8. Remove jam nut (23) from cable (18).

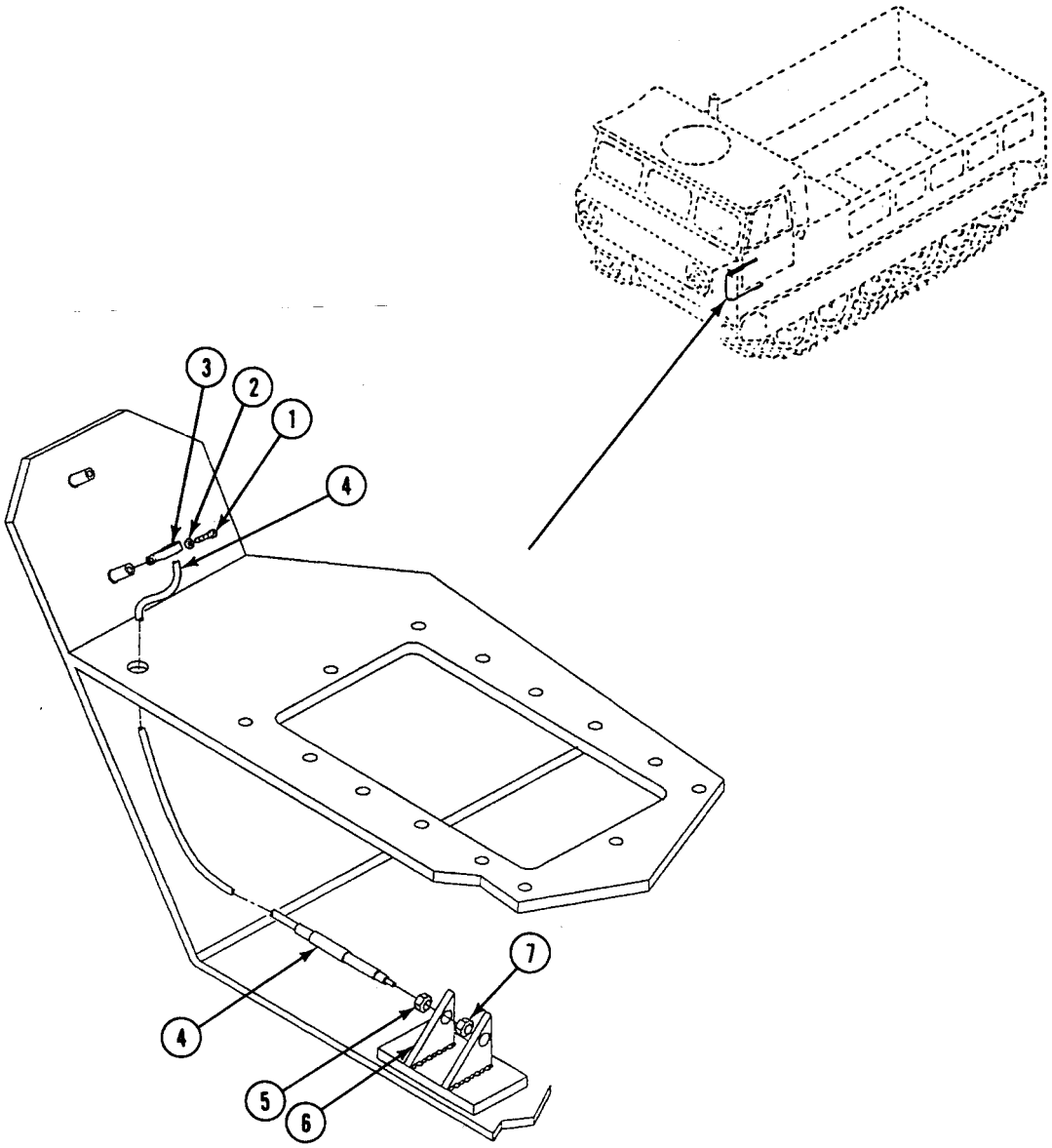


REPLACE PARKING BRAKE CONTROL LEVER/CABLE ASSEMBLY (M548A3) — Continued **0346 00**

9. Remove two screws (1), washers (2), clamps (3) and cable (4) from carrier. Have helper assist.

INSTALLATION

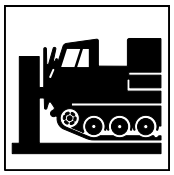
1. Route cable through hole in driver's compartment bulkhead, two clamps (3), and driver's compartment floor plate access hole. Have helper assist.
2. Install two clamps (3), washers (2), and screws (1) on carrier.
3. Install jam nut (5) on cable (4).
4. Install cable (4) in hole of lower mounting bracket (6).
5. Install jam nut (7) on cable (4). Thread jam nut on cable until tight against lower mounting bracket (6).



REPLACE PARKING BRAKE CONTROL LEVER/CABLE ASSEMBLY (M548A3) — Continued **0346 00**

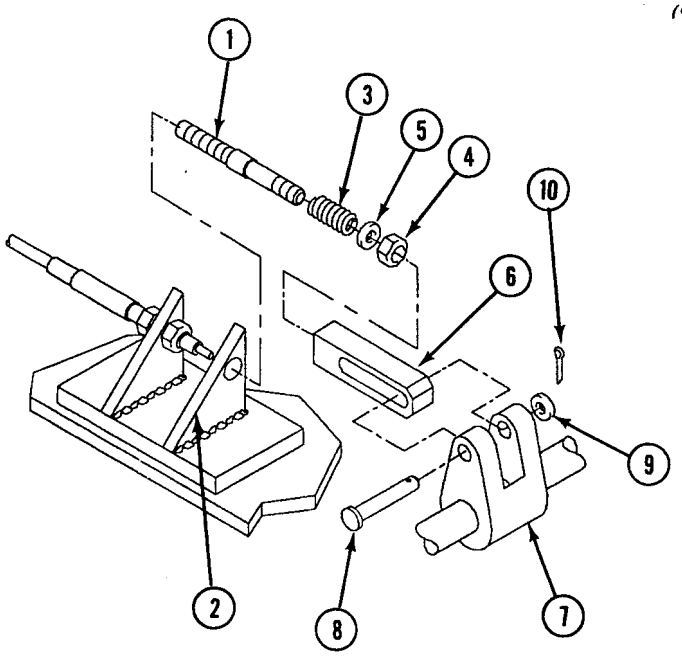
6. Install cable (1) in hole in upper mounting bracket (2).
7. Install spring (3), jam nut (4) and washer (5) on cable (1). Install brake stop (6) on cable end. Allow 3/4 inch (1.9 cm) minimum thread engagement.

WARNING



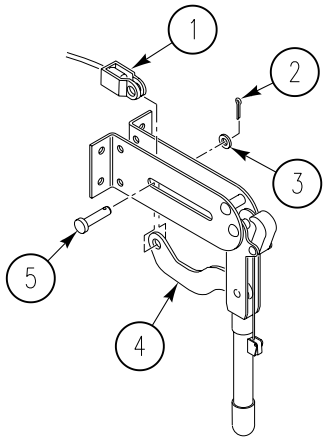
Failure of control linkage can cause carrier to crash. Crash could kill or injure personnel. Install NEW cotter pins and lock nuts.

8. Install brake stop (6) on brake shaft clevis link (7). Secure with pin (8), washer (9), and new cotter pin (10).

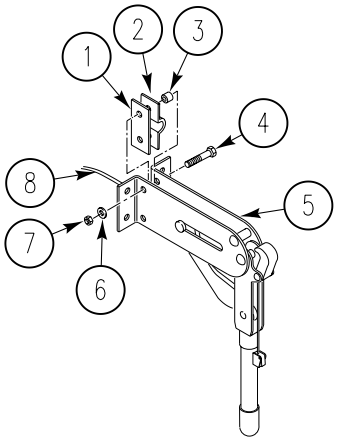


REPLACE PARKING BRAKE CONTROL LEVER/CABLE ASSEMBLY (M548A3) — Continued **0346 00**

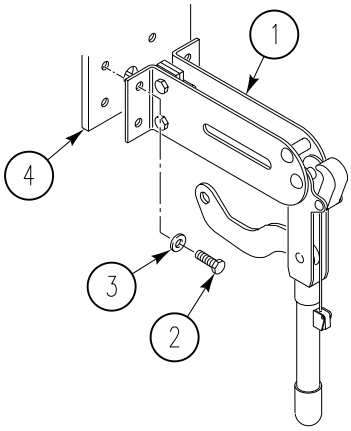
9. Install cable clevis (1) in lever link (4). Secure with pin (5), washer (3), and new cotter pin (2).



10. Install cable (8), spacer (1), clamp (2), and two spacers (3) on parking brake lever (5). Secure with two screws (4), washers (6), and new lock nuts (7).



11. Install parking brake lever (1) on mounting bracket (4). Secure with four screws (2) and washers (3).



FOLLOW-THROUGH STEPS

1. Adjust parking brake (WP 0345 00).
2. Install driver’s floor plate (WP 0395 00).

END OF TASK

ADJUST BRAKE CONTROL LINKAGE (M548A3) 0347 00

THIS WORK PACKAGE COVERS:

Adjustment (page 0347 00-2).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts
Cotter pin

Personnel Required
Unit Mechanic
Helper (H)

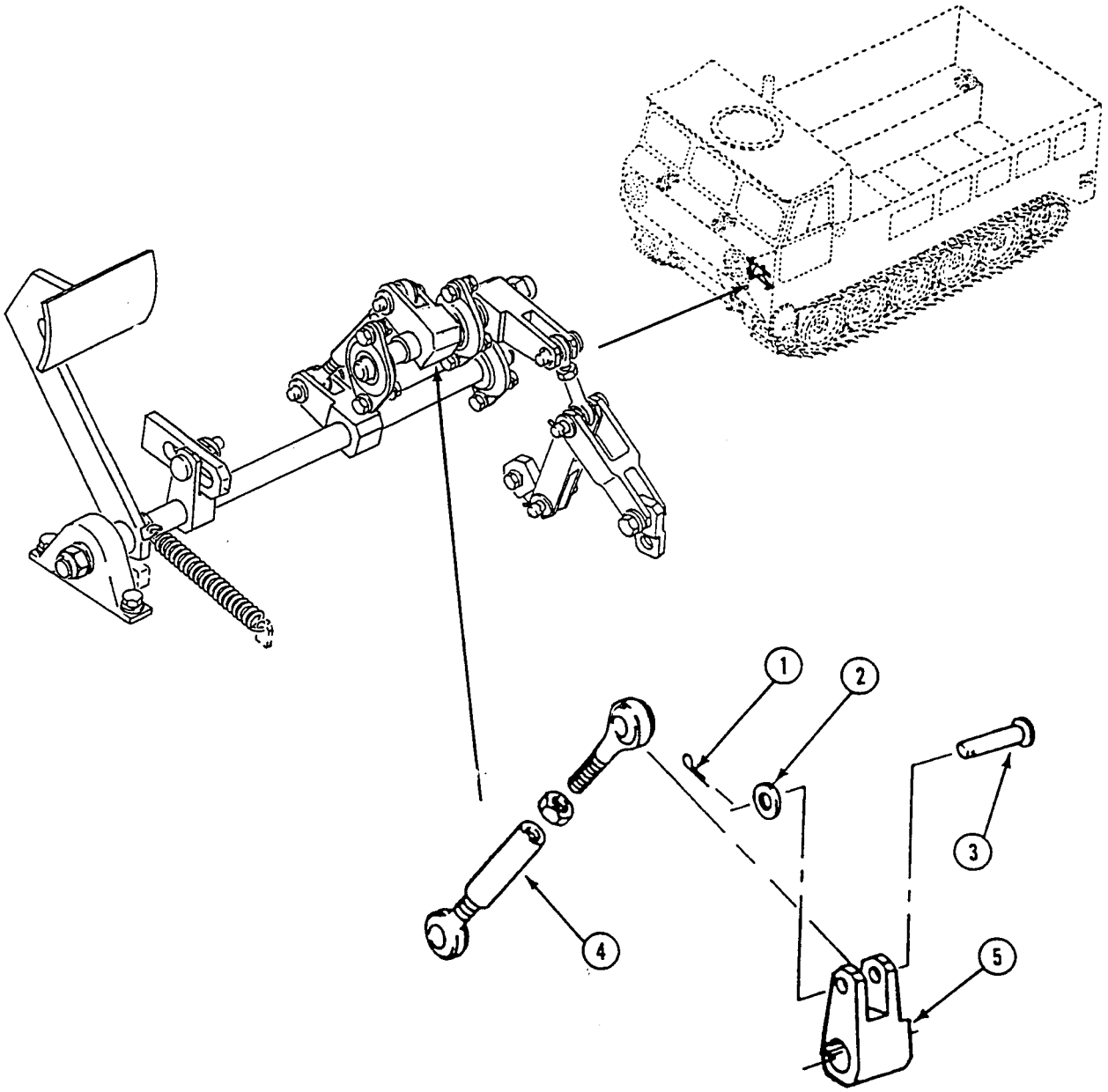
References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Left center floor plate raised (WP 0395 00)
Center seat raised (see your -10)
Transmission brake adjustment checked (WP 0313 00)

ADJUST BRAKE CONTROL LINKAGE (M548A3) — Continued 0347 00

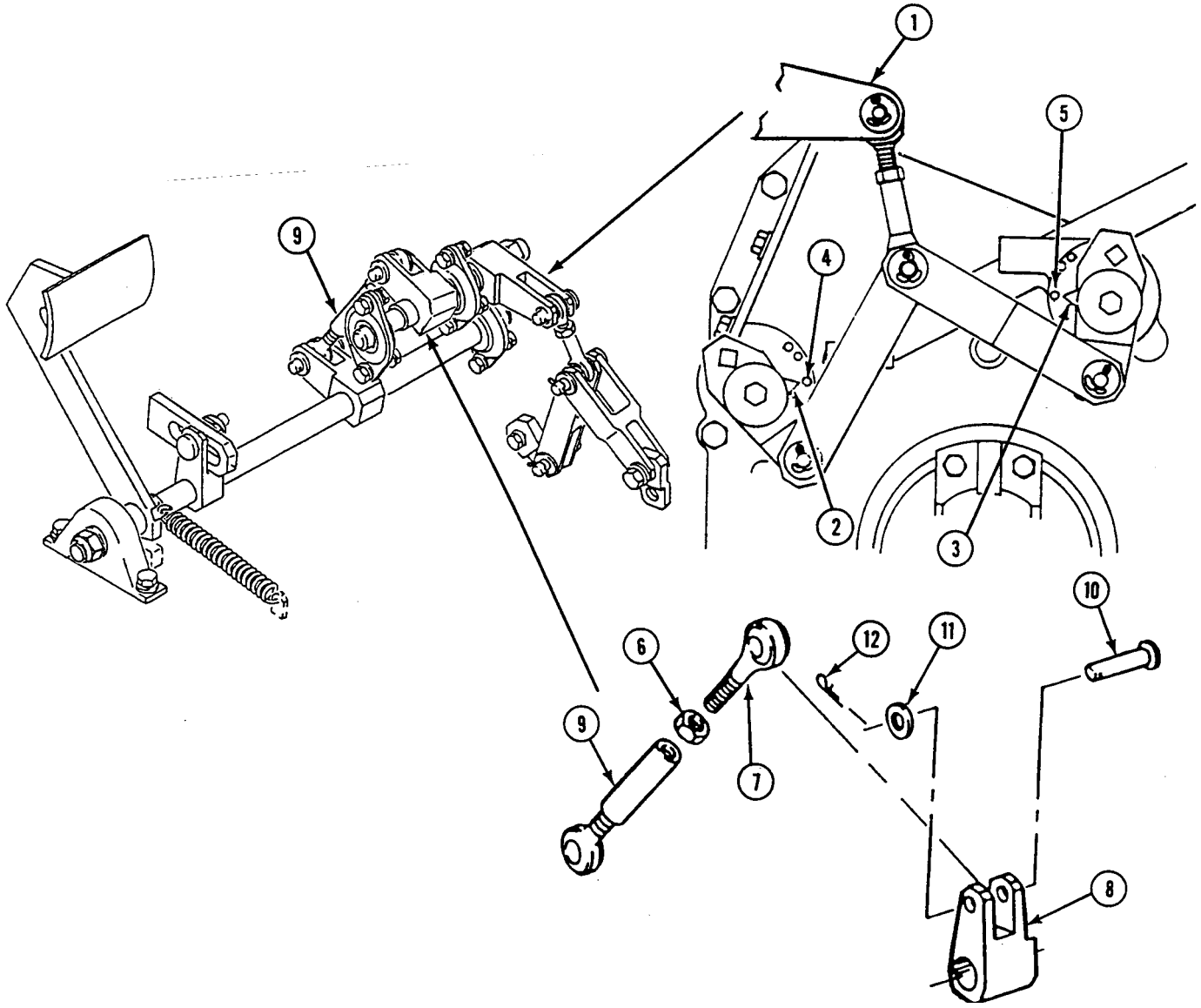
ADJUSTMENT

1. Remove cotter pin (1), washer (2), pin (3), and connecting link (4), from link (5). Discard cotter pin.



ADJUST BRAKE CONTROL LINKAGE (M548A3) — Continued 0347 00

2. Move link (1) until left hand brake apply shaft indicator (2) point to lowest mark (4) on transmission casing and the right hand brake apply shaft indicator (3) point to lowest mark (5) on transmission casing. Have helper assist.
3. Loosen jam nut (6) on rod end bearing (7). Install rod end bearing on link (8).

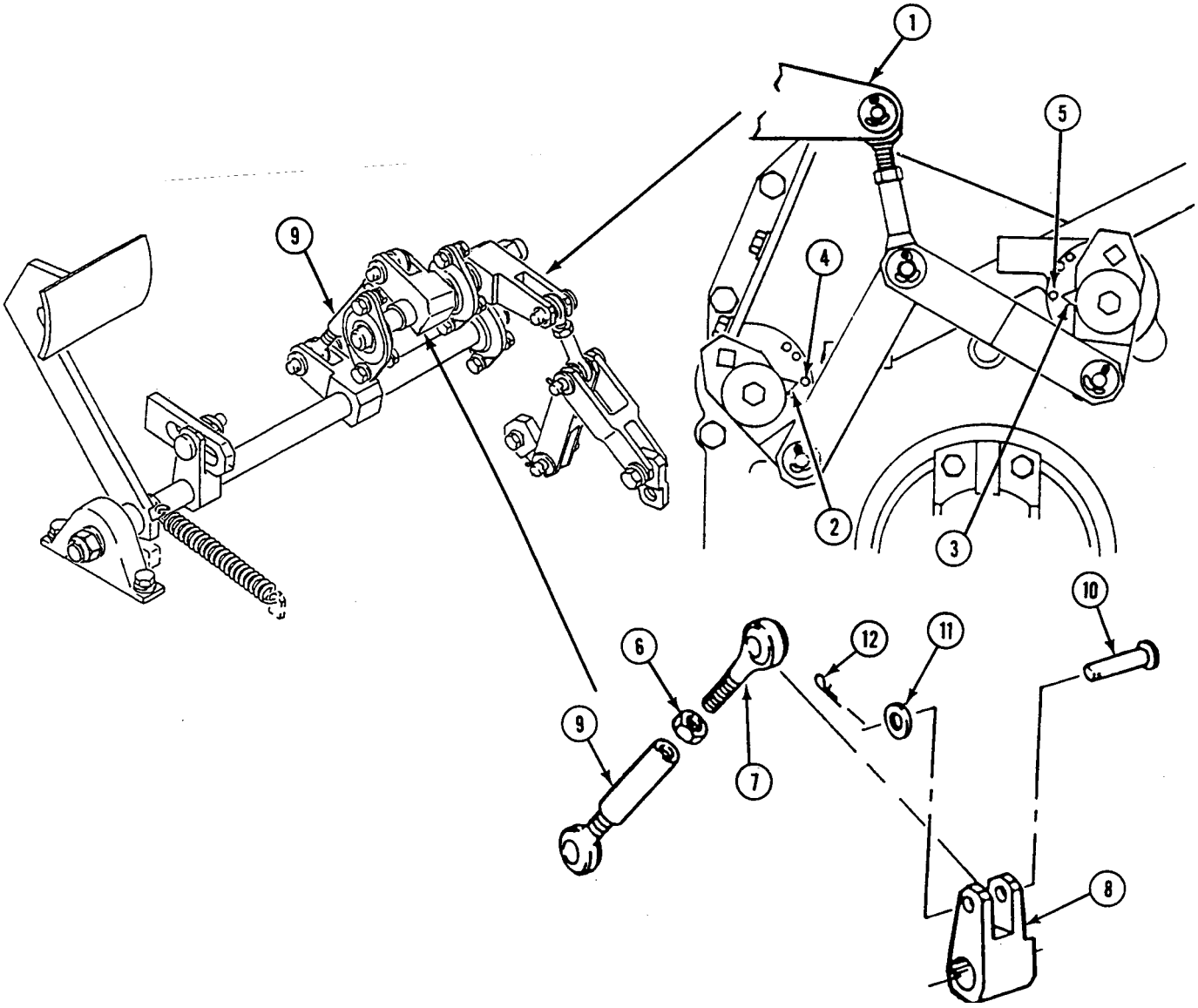


WARNING

Failure of control linkage can cause carrier to crash. Crash could kill or injure personnel. Install NEW cotter pin.

4. Adjust length of connecting link (9) by turning rod end bearing (7) until pin (10) inserts freely into rod end bearing and link (8). Tighten jam nut (6).

5. Secure connecting link (9) to link (8) with washer (11), pin (10), and new cotter pin (12).



FOLLOW-THROUGH STEPS

1. Lower left center floor plates (WP 0395 00).
2. Lower center seat (see your -10).

END OF TASK

REPLACE BRAKE CONTROL LINKAGE (M548A3) 0348 00

THIS WORK PACKAGE COVERS:

Removal (page 0348 00-2).
Inspection-Acceptance and Rejection Criteria (page 0348 00-4).
Installation (page 0348 00-5).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)
Soft Head Hammer (WP 0541 00, Item 24)
Torque Wrench (WP 0541 00, Item 64)
Socket Wrench Set (WP 0541 00, Item 71)

Materials/Parts

Cotter pin (8)
Lock nut (2)
Lock nut (2)
Lock nut (4)
Lock washer (2)

Personnel Required

Unit Mechanic
Helper (H)

References

See your -10

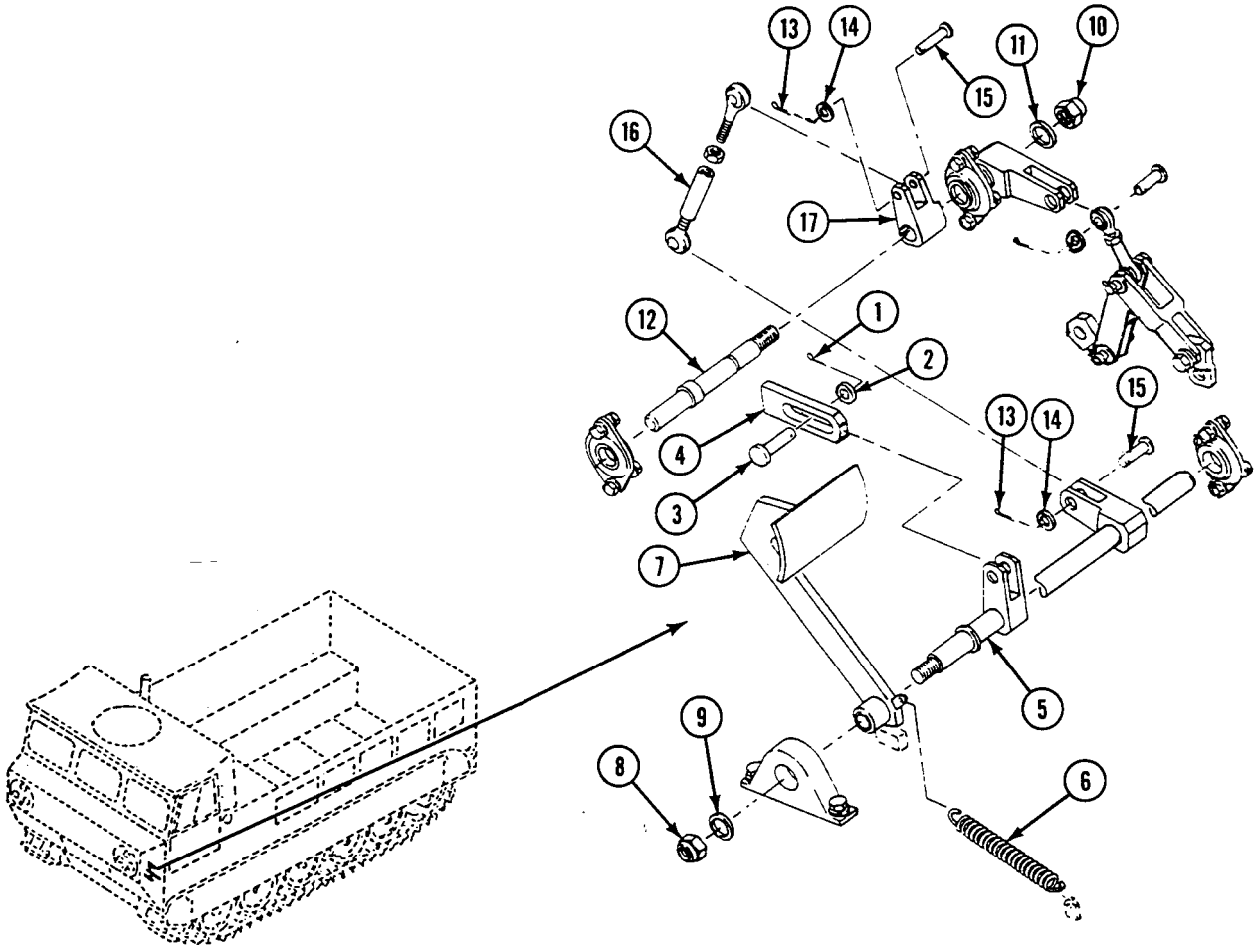
Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Center seat raised (see your -10)
Left center floor plate raised (WP 0395 00)
Driver's floor plates removed (WP 0395 00)

REPLACE BRAKE CONTROL LINKAGE (M548A3) — Continued 0348 00

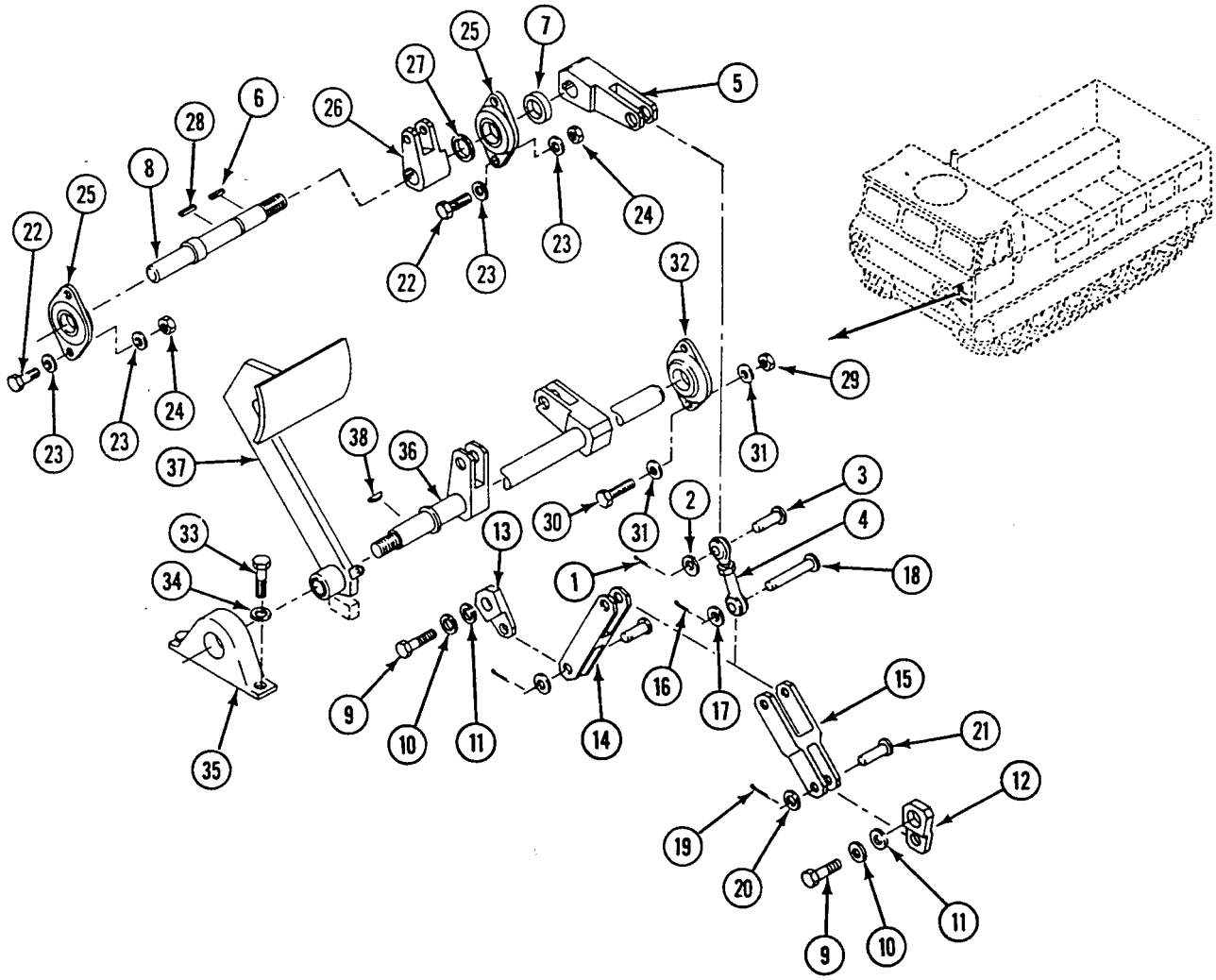
REMOVAL

1. Remove cotter pin (1), washer (2), and pin (3) from parking brake cable stop (4) on shaft (5). Discard cotter pin.
2. Remove spring (6) from hull bracket and brake pedal (7).
3. Remove lock nut (8) and washer (9) from end of shaft (5). Discard lock nut.
4. Remove lock nut (10) and washer (11) from end of shouldered shaft (12) in power plant compartment. Discard lock nut.
5. Remove two cotter pins (13), washers (14), and pins (15) securing link (16) to connecting link (17) and shaft (5). Discard cotter pins.



REPLACE BRAKE CONTROL LINKAGE (M548A3) — Continued 0348 00

6. Remove cotter pin (1), washer (2), and pin (3) securing connecting link (4) to connecting link (5). Discard cotter pin.
7. Remove connecting link (5), key (6), and spacer (7) from shouldered shaft (8).
8. Remove two screws (9), washers (10), lock washers (11), first remote control lever (12) with link (14), second remote control lever (13) with link (15) and connecting link (4) from carrier. Discard lock washers.
9. Remove cotter pin (16), washer (17), and pin (18) securing connecting link (4) to link (14) and to link (15). Discard cotter pin.
10. Remove two cotter pins (19), washers (20), and pins (21) securing link (14) and securing link (15) to remote control lever (12) and remote control lever (13). Discard cotter pins.
11. Remove four screws (22), eight washers (23), and four lock nuts (24) securing two bearings (25) with shouldered shaft (8). Slide left bearing off shaft. Slide shaft from hull brackets and remove link (26) from shaft. Remove link, shaft, spacer (27), and bearing from carrier. Discard lock nuts.



12. Remove key (28) from shouldered shaft (8).

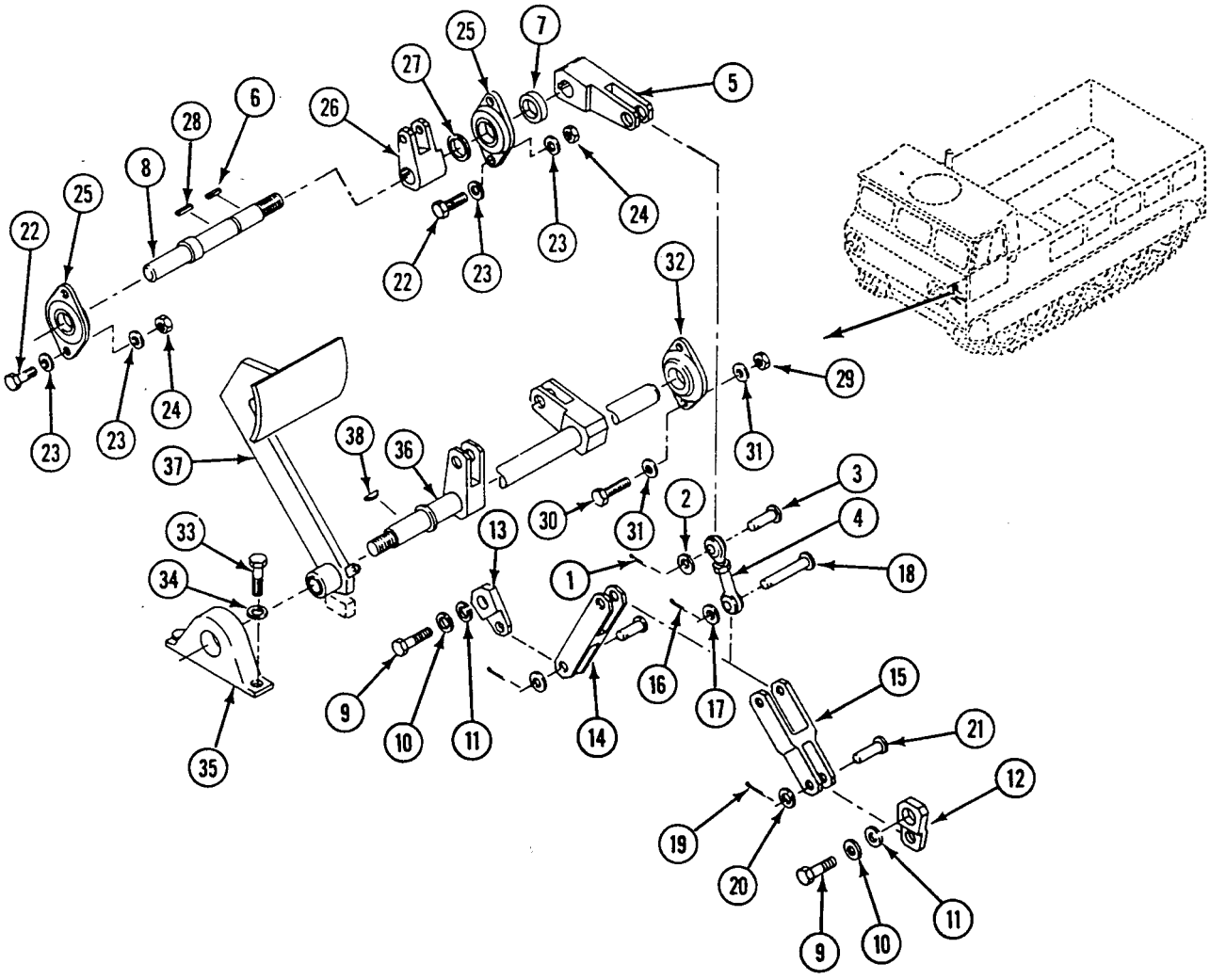
13. Remove two lock nuts (29), screws (30), four washers (31), and bearing (32) secured to hull. Discard lock nuts.

NOTE

If two setscrews are on bearing, loosen setscrews.

14. Remove two screws (33), washers (34), and bearing (35) from hull floor and shaft (36).

15. Remove pedal (37) and key (38) from shaft (36). Remove shaft from carrier.



INSPECTION-ACCEPTANCE AND REJECTION CRITERIA

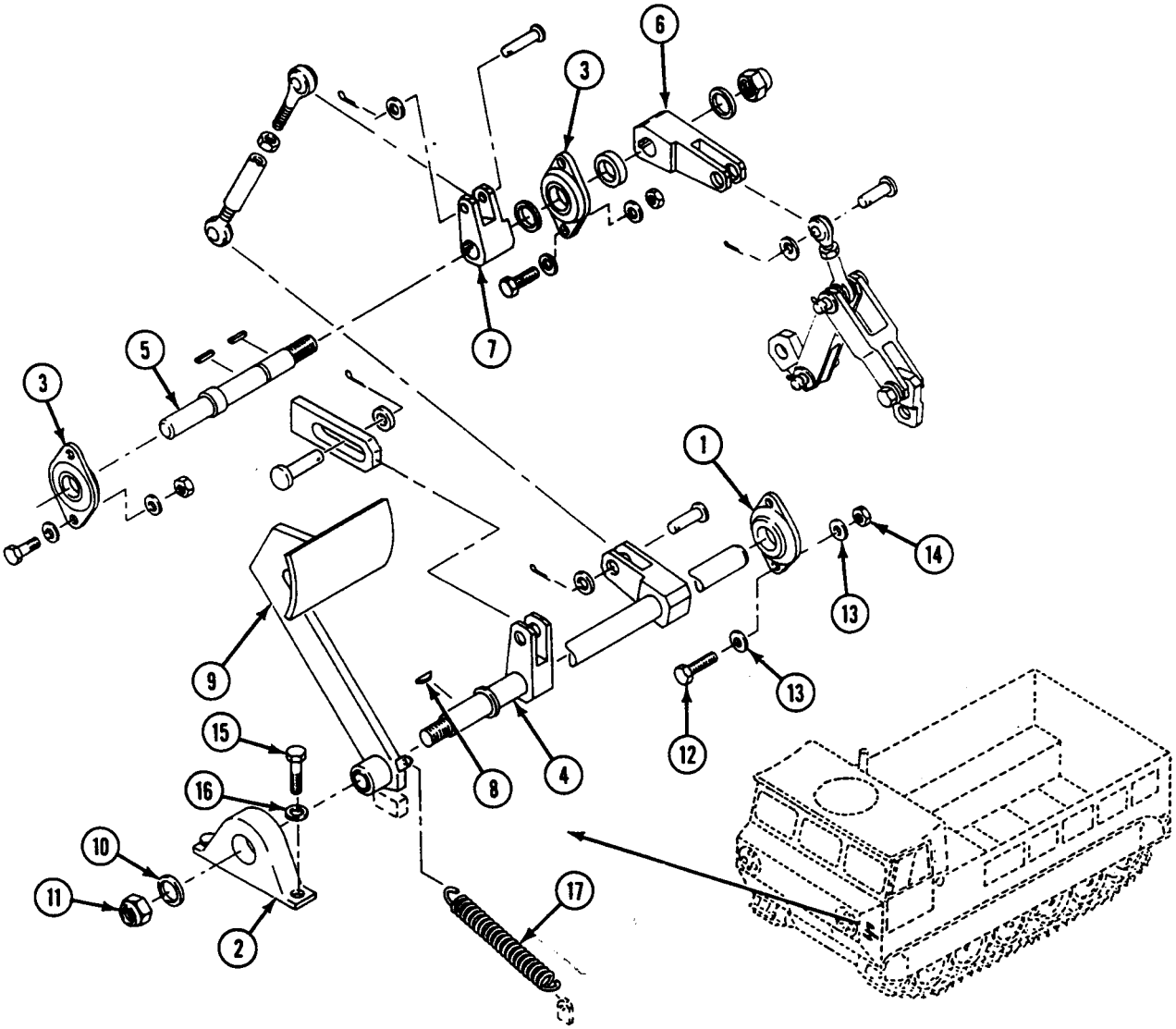
1. Inspect links and link pins for broken condition and excessive wear. Inspect pedal shafts and levers for cracked, broken, and excessively worn condition. Replace any parts that show any of these defects.

INSTALLATION

NOTE

Do not tighten screws to bearing (1), bearing (2) or bearing (3) until shaft (4), shaft (5), link (6). and link (7) are installed and aligned for proper operation.

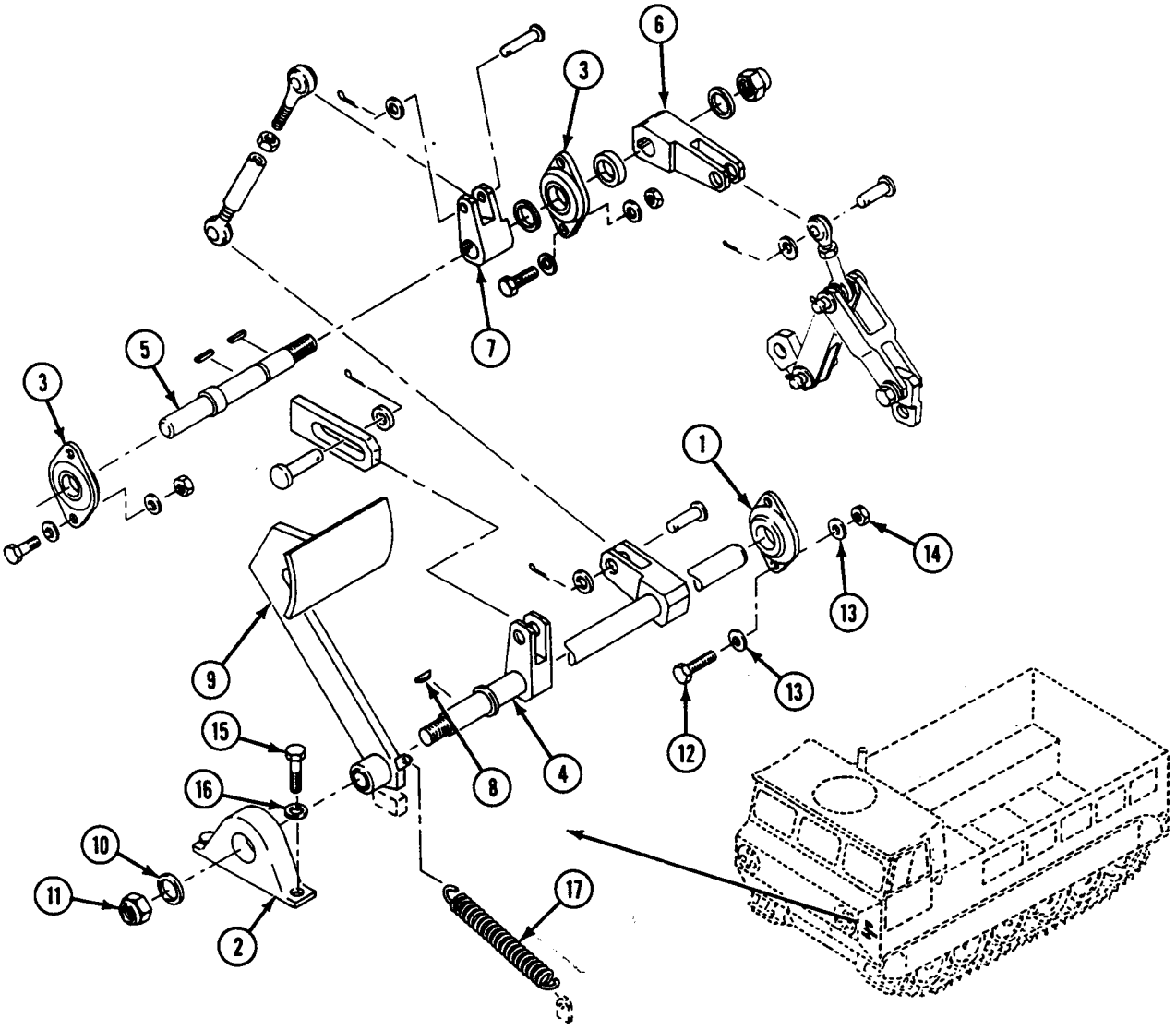
1. Position shaft (4) into hull opening under floor plate. Slide bearing (1) over shaft right side.
2. Install key (8), pedal (9), and bearing (2) on shaft (4). Secure with washer (10) and new lock nut (11).



NOTE

Tighten two setscrews, if present.

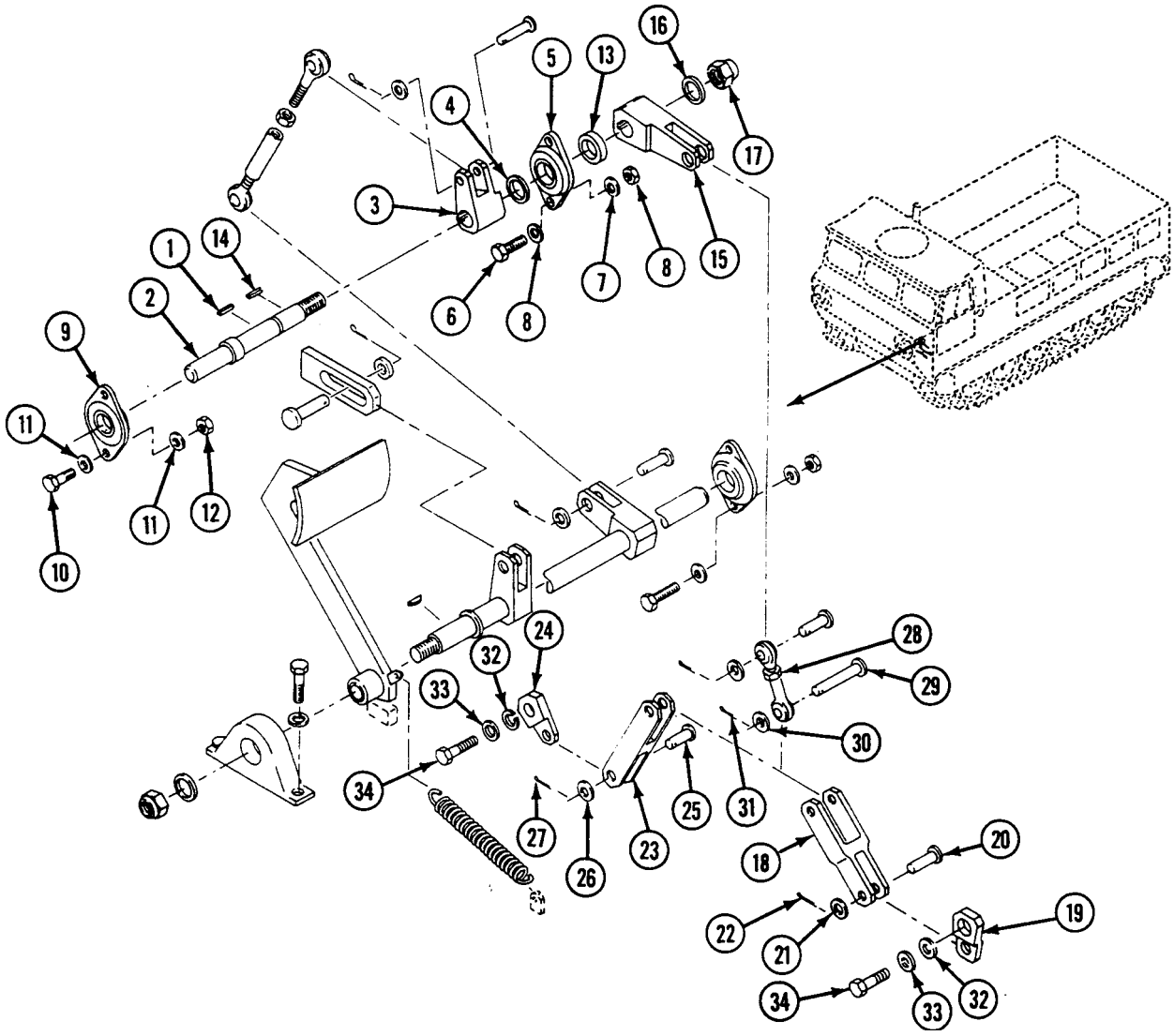
3. Position bearing (1) on mount and secure with two screws (12), four washers (13), and two new lock nuts (14).
4. Position bearing (2) on hull plate and install two screws (15) and washers (16). Do not tighten screws.
5. Connect spring (17) to pedal (9) and bracket.



NOTE

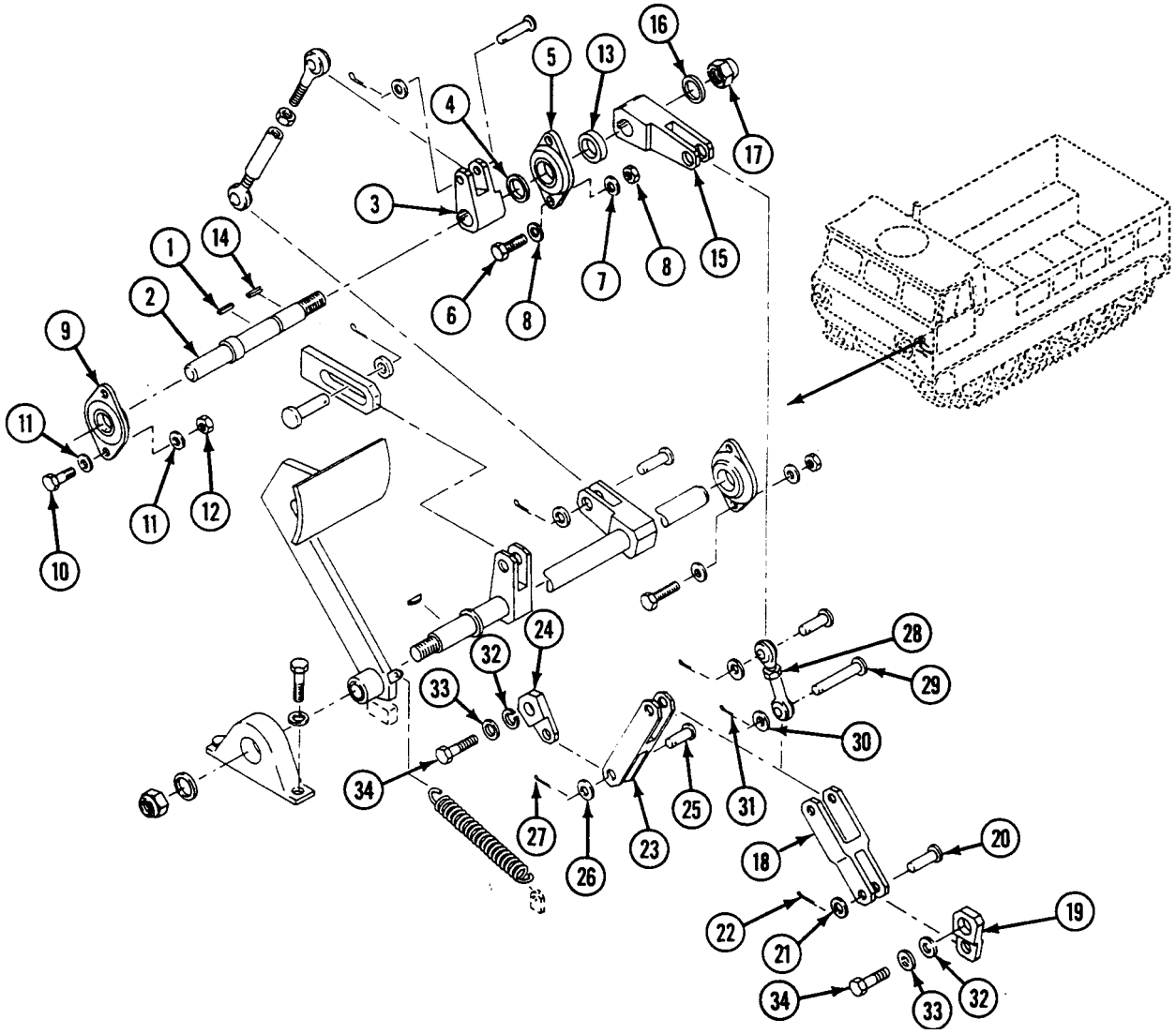
Position bearings and heads of screws as shown to avoid binding of the linkage.

6. Install key (1) in the middle of shouldered shaft (2), connecting link (3), spacer (4), and bearing (5) on shouldered shaft. Position shouldered shaft between two mounts. Secure bearing to mount with two screws (6), four washers (7), and two new lock nuts (8).
7. Install bearing (9) on shouldered shaft (2) and secure to right mount with two screws (10), four washers (11), and two new lock nuts (12).
8. Install spacer (13), key (14), and connecting link (15) on shouldered shaft (2) and secure with washer (16) and new lock nut (17).



REPLACE BRAKE CONTROL LINKAGE (M548A3) — Continued **0348 00**

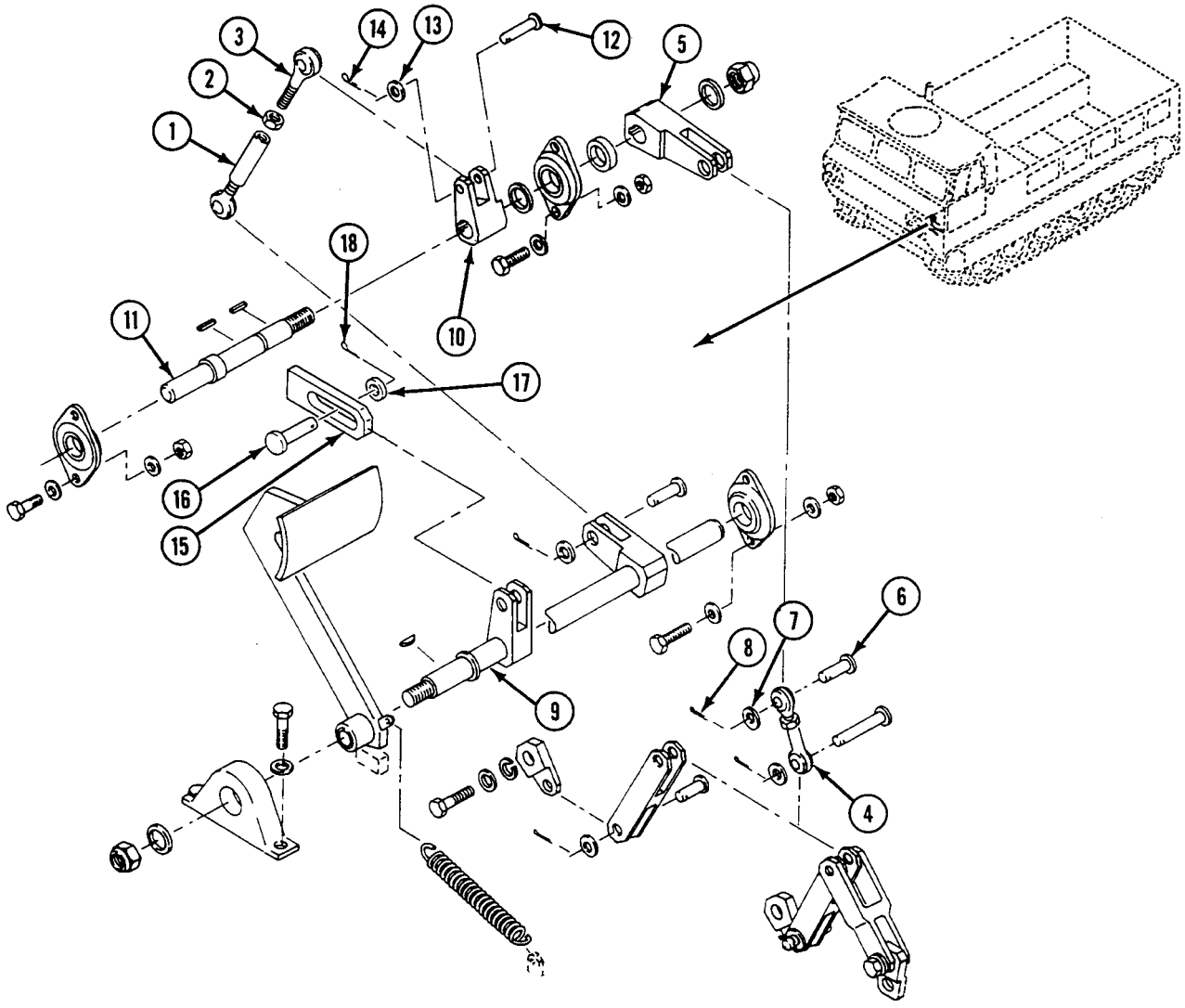
9. Install link (18) on remote control lever (19) and secure with pin (20), washer (21), and new cotter pin (22).
10. Install link (23) on remote control lever (24) and secure with pin (25), washer (26), and new cotter pin (27).
11. Install connecting link (28) with link (23) and link(18) than secure with pin (29), washer (30), and new cotter pin (31).
12. Position remote control lever (24) and remote control lever (19) on transmission brake shafts than secure with two new lock washers (32), washers (33), and screws (34). Torque screws to 300-324 lb-in (34-37 N•m).



NOTE

If connecting link (1) is disassembled, make sure that the threads of the bearing rod can be seen in the inspection hole of the link. If no threads can be seen, remove link from upper shaft. Loosen jam nut (2) and screw bearing rod (3) into link until threads can be seen in the inspection hole.

13. Install connecting link (4) in connecting link (5) and secure with pin (6), washer (7), and new cotter pin (8).
14. Install connecting link (1) in clevis on shaft (9) and link (10) on shaft (11) and secure with two pins (12), washers (13), and new cotter pins (14).
15. Connect parking brake cable stop (15) to clevis on shaft (9) and secure with pin (16), washer (17), and new cotter pin (18).



FOLLOW-THROUGH STEPS

1. Check brake adjustment (WP 0347 00).
2. Install driver’s floor plates (WP 0395 00).
3. Install center floor plates (WP 0395 00).
4. Lower center seat (see your -10).

END OF TASK

CHAPTER 14

UNIT MAINTENANCE INSTRUCTIONS FOR WHEELS AND TRACKS

WORK PACKAGE INDEX

Title	Sequence No.
REPLACE TORSION BAR	0349 00
REPLACE TORSION BAR ANCHOR	0350 00
REPLACE ROAD WHEEL SUPPORT ARM, HOUSING, BEARINGS, AND SEALS	0351 00
REPLACE ROAD WHEEL HUB	0352 00
REPLACE ROAD WHEEL SUPPORT ARM BUMPER STOP/SUPPORT	0353 00
REPLACE IDLER WHEEL ARM ASSEMBLY	0354 00
REPLACE IDLER WHEEL HUB/BEARINGS AND SEALS	0355 00
REPLACE TRACK TENSION ADJUSTER AND MOUNT	0356 00
REPLACE DRIVE SPROCKETS, CUSHIONS, AND CARRIER ASSEMBLY	0357 00
REPLACE TRACK	0358 00
REPLACE TRACK SHOE AND PAD ASSEMBLY	0359 00
REPLACE IDLER WHEEL	0360 00
REPLACE ROAD WHEEL	0361 00

REPLACE TORSION BAR 0349 00

THIS WORK PACKAGE COVERS:

Removal (page 0349 00-2).
Installation (page 0349 00-4).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)
Adapter (WP 0541 00, Item 4)
Road Wheel Lifter (WP 0541 00, Item 27)
Slide Puller (WP 0541 00, Item 37)
Socket Head Cap Screw (WP 0541 00, Item 44)
Socket Attachment Wrench (WP 0541 00, Item 66)
Torque Wrench (WP 0541 00, Item 69)

Materials/Parts
GAA Grease (WP 0542 00, Item 14)

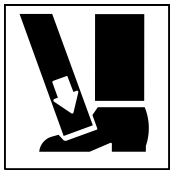
Personnel Required
Unit Mechanic
Helper (H)

References
See your -10

Equipment Condition
Carrier on level surface
Engine stopped (see your -10)
Carrier blocked (see your -10)
Road wheel removed (WP 0361 00)
Shock absorber removed from first, second or fifth road wheel (WP 0379 00)
Power plant for first and second torsion bar removed (WP 0130 00)
Floor plates removed for third, fourth, and fifth torsion bar (WP 0393 00)

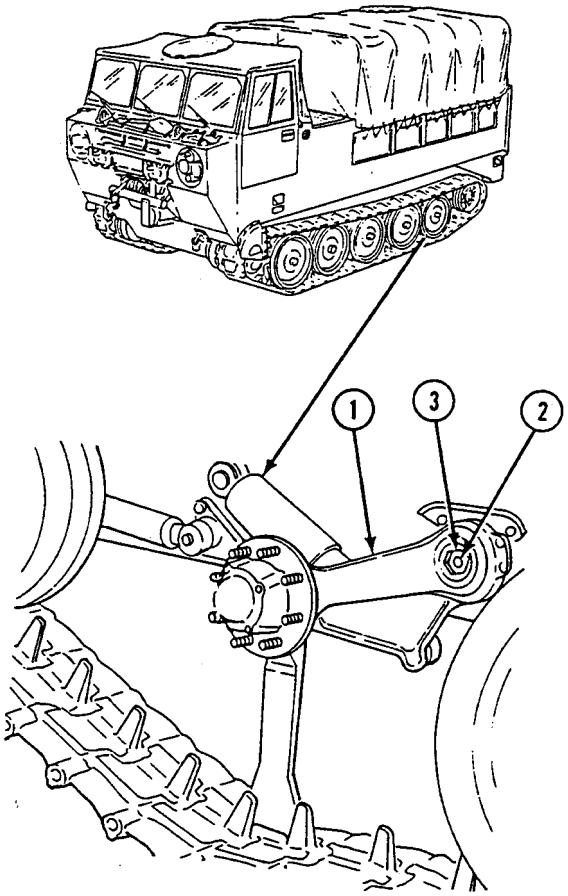
REMOVAL

WARNING

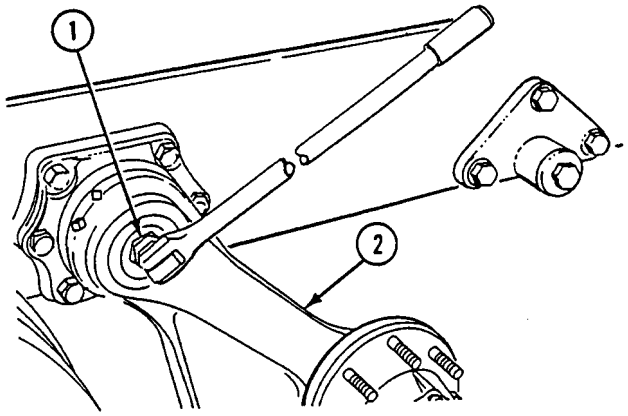


If road wheel lifter slips while lowering road arm, it could injure you. Stand clear before you lower or raise road arm.

1. With road wheel removed and road arm raised on lifter, start engine (see your -10). Place range selector in 1. Slowly drive carrier forward off lifter so that road wheel support arm (1) hangs freely.
2. Remove screw (2) from plug (3).



3. Remove plug (1) from road wheel support arm (2). Use socket attachment wrench.



NOTE

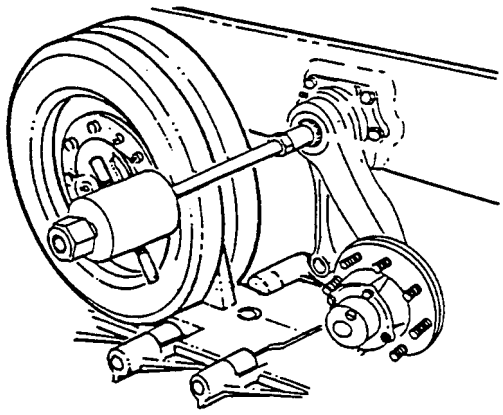
Special socket head cap screw is used with adapter.

4. Thread special screw through adapter.

NOTE

Screw is installed with head inside adapter.

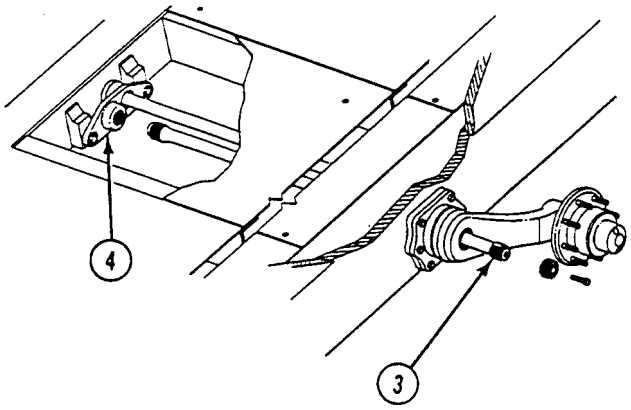
5. Thread adapter on slide puller, then thread adapter with screw into torsion bar.



CAUTION

When removing or installing torsion bars, the index or missing tooth on the anchor end of torsion bar must align with index on spline in road wheel arm, to allow bar to pass through (WP 0349 00).

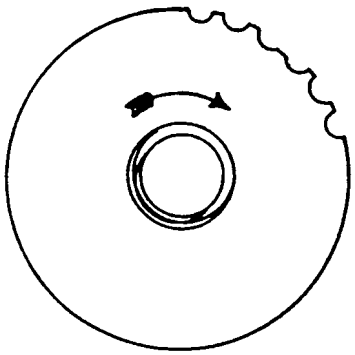
6. Pull torsion bar (3) from torsion bar anchor (4). Use slide puller.
7. Remove slide puller and adapter from torsion bar.
8. If torsion bar (3) is broken, remove as follows:
   a. Remove road wheel end of torsion bar in the same way as unbroken torsion bar.
   b. Pull or drive end of broken bar from its splined seat in torsion bar anchor (4).



INSTALLATION

CAUTION

When removing or installing torsion bars, the index or missing tooth on the anchor end of torsion bar must align with index on spline in road wheel arm, to allow bar to pass through. Align index or missing tooth on end of torsion bar with index on road wheel arm and torsion bar anchor before installing.



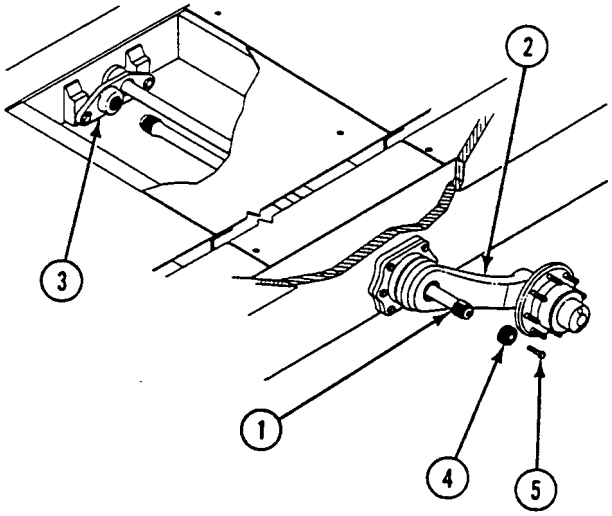
Handle torsion bar with care. Do not tear or cut wrapping.

NOTE

Left and right torsion bars are not interchangeable. To determine correct bar, place arrow on end of torsion bar outboard, with arrow at top. Arrow must point toward front of carrier.

1. Thread slide puller with adapter and screw into torsion bar.

2. Install torsion bar (1) through road wheel arm (2) and anchor (3). (H) Guide torsion bar into anchor to ensure proper alignment. Use slide puller to seat torsion bar.
3. Remove slide puller and adapter from torsion bar.
4. Put a light coat of grease on threads of plug (4) (WP 0128 00). Install plug in road wheel arm (2).
5. Tighten plug (4) to 50-75 lb-ft (68-102 N•m) torque. Use socket attachment wrench.
6. Install screw (5) in plug (4).



NOTE

You may need to jack carrier up, to raise road arm, before positioning road wheel lifter.

7. Position road wheel lifter (WP 0361 00).

FOLLOW-THROUGH STEPS

1. Install floor plates for third, fourth, and fifth torsion bars (WP 0393 00).
2. Install power plant for first and second torsion bar (WP 0130 00).
3. If removed, install shock absorber (WP 0379 00).
4. Install road wheel (WP 0361 00).
5. Road test carrier (WP 0128 00) to check that torsion bar is installed properly.
6. Stop engine (see your -10).

END OF TASK

REPLACE TORSION BAR ANCHOR 0350 00

THIS WORK PACKAGE COVERS:

Removal (page 0350 00-1).
Installation (page 0350 00-2).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)
Socket Wrench Set (WP 0541 00, Item 65)
Torque Wrench (WP 0541 00, Item 72)

Personnel Required

Unit Mechanic

References

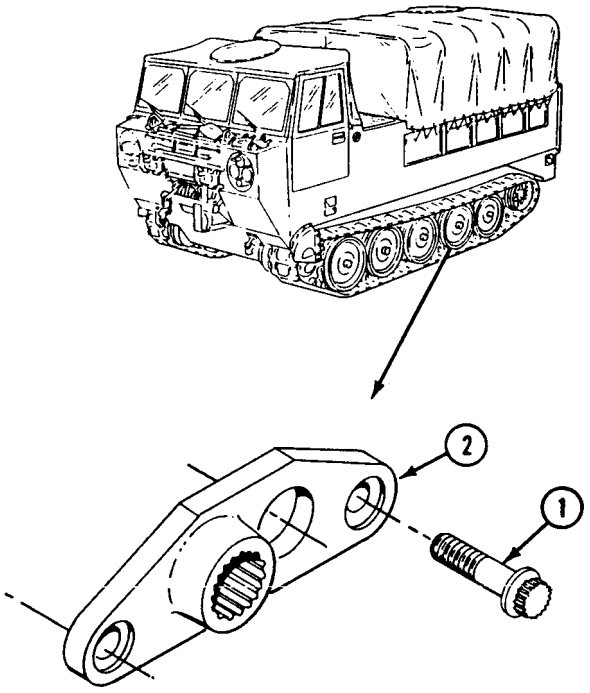
See your -10

Equipment Condition

Carrier on level surface
Engine stopped (see your -10)
Carrier blocked (see your -10)
Road wheel removed (WP 0361 00)
Torsion bar removed (WP 0349 00)
Power plant removed for first and second torsion bar anchor (WP 0130 00) or (WP 0131 00)

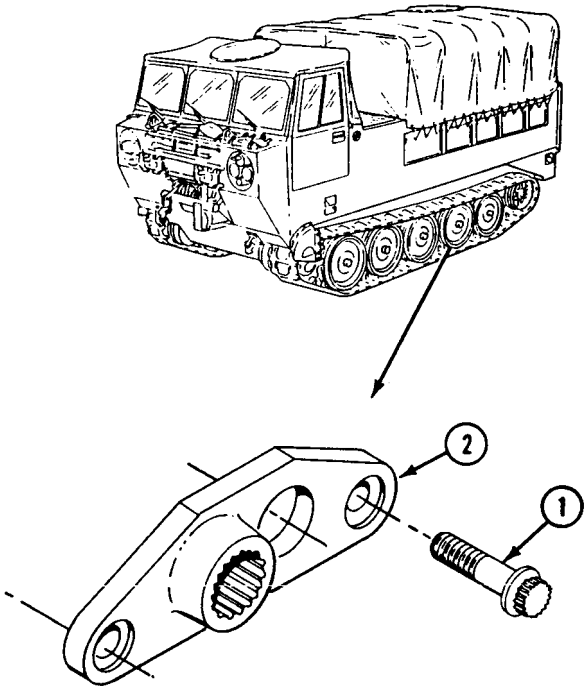
REMOVAL

1. Remove two screws (1) from anchor (2).
2. Remove anchor (2) from hull mount.



INSTALLATION

1. Place torsion bar anchor (2) on hull mount.
2. Install two screws (1) in anchor (2). Tighten screws to 320-330 lb-ft (434-447 N•m) torque.



FOLLOW-THROUGH STEPS

1. Install torsion bar (WP 0349 00).
2. Install power plant for first and second torsion bar anchor (WP 0130 00 or WP 0131 00).
3. Install road wheel (WP 0361 00).
4. Road test carrier (WP 0128 00) to check that torsion bar anchor is installed properly.

END OF TASK

REPLACE ROAD WHEEL SUPPORT ARM, HOUSING, BEARINGS, AND SEALS 0351 00

THIS WORK PACKAGE COVERS:

Removal (page 0351 00-2).
Inspection-Acceptance and Rejection Criteria (page 0351 00-3).
Installation (page 0351 00-4).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)
Remover and Replacer (WP 0541 00, Item 39)
Socket Wrench Set (WP 0541 00, Item 64)
Torque Wrench (WP 0541 00, Item 69)
Torque Wrench (WP 0541 00, Item 71)

Materials/Parts

GAA grease (WP 0542 00, Item 14)
Sealing compound (WP 0542 00, Item 35)
Bearing (2)
Gasket
Nut locking plate (3)
Preformed packing (2)
Seal (2)

Personnel Required

Unit Mechanic

References

See your -10
TM 9-214

Equipment Condition

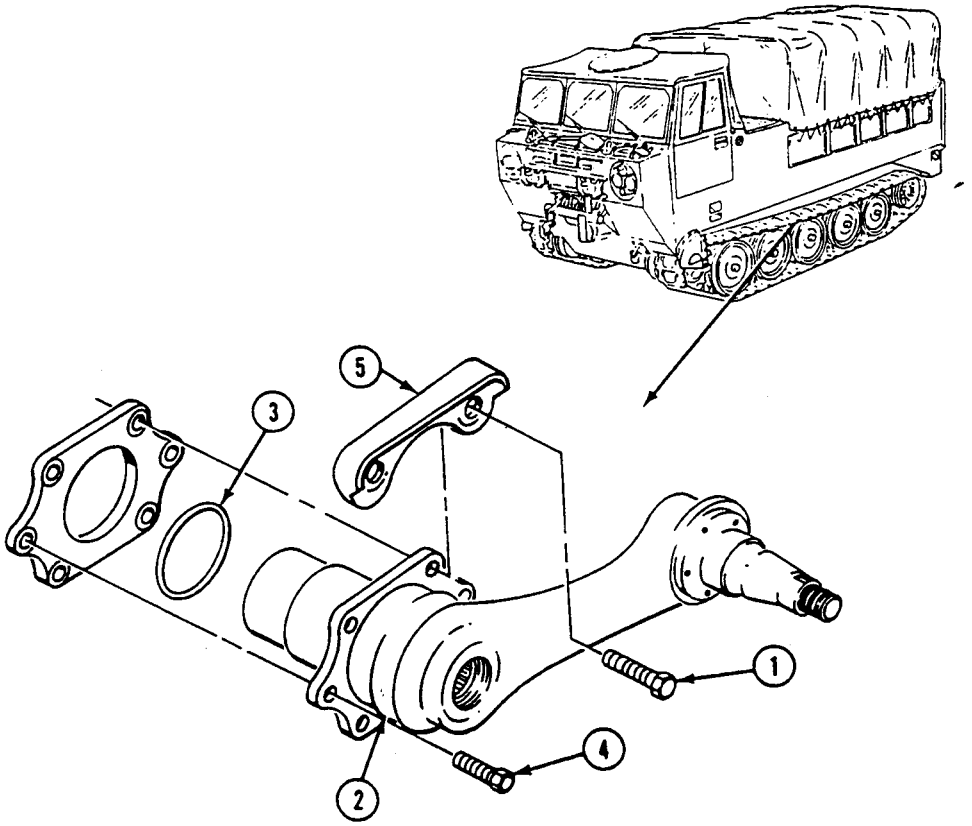
Carrier on level surface
Engine stopped (see your -10)
Carrier blocked (see your -10)
Road wheel removed (WP 0361 00)
Road wheel hub removed (WP 0352 00)
Shock absorber removed from first, second, or fifth road wheel (WP 0379 00)
Torsion bar removed (WP 0349 00)

REPLACE ROAD WHEEL SUPPORT ARM, HOUSING, BEARINGS, AND SEALS — Continued

0351 00

REMOVAL

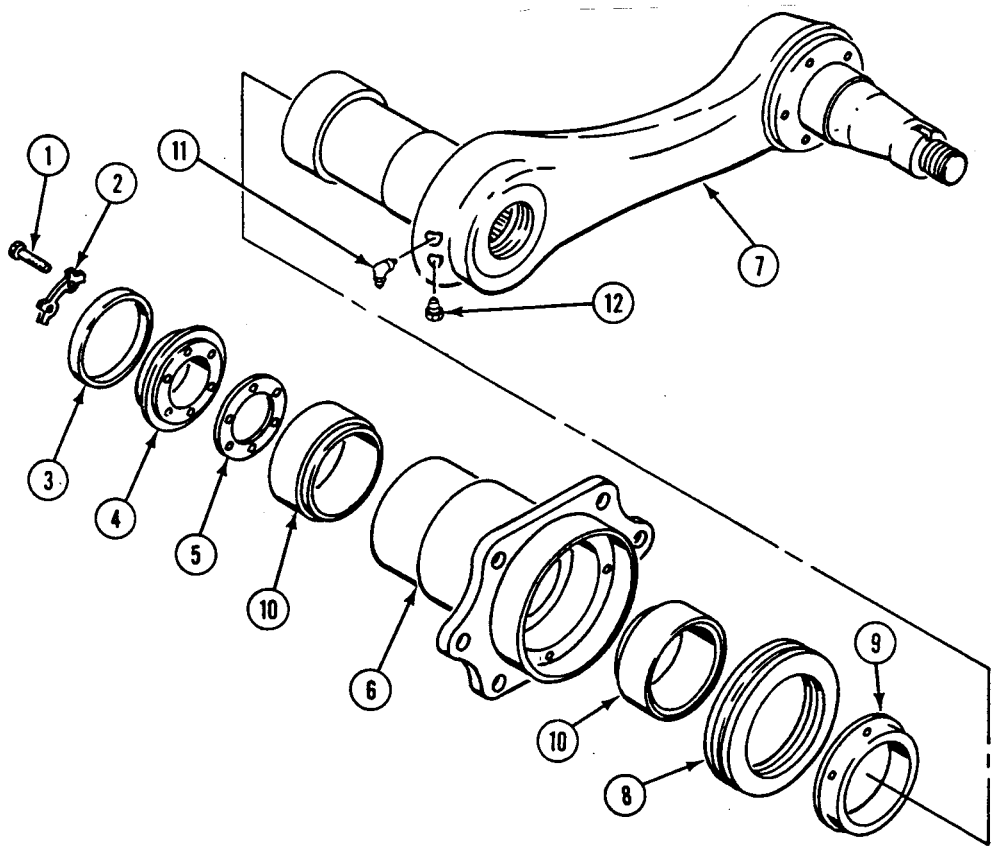
1. Remove two screws (1), road wheel support arm assembly (2) (number one and two positions) and guard (5).
2. Remove six screws (4), road wheel support arm assembly (2), preformed packing (3), and guard (5) from hull (number three and four position). Discard preformed packing.



REPLACE ROAD WHEEL SUPPORT ARM, HOUSING, BEARINGS, AND SEALS — Continued

0351 00

3. Remove six screws (1), three nut locking plates (2), seal (3), retainer (4), and gasket (5) from housing (6). Discard nut locking plates, seal and gasket. Use remover and replacer.
4. Remove support arm (7), seal (8), and spacer (9) from housing (6). Discard seal.
5. If needed, remove two bearings (10) from housing (6). Use remover and replacer.
6. Remove lubrication fitting (11) and relief valve (12) from support arm (7).



INSPECTION-ACCEPTANCE AND REJECTION CRITERIA

1. Check fittings and relief valve for wear and damage.
2. Check bearing. See TM 9-214.

REPLACE ROAD WHEEL SUPPORT ARM, HOUSING, BEARINGS, AND SEALS — Continued

0351 00

INSTALLATION

1. If removed, install two bearings (10) in housing (6). Use remover and replacer.

NOTE

Make sure shoulders on bearings point toward center of housing.

2. Coat threads of relief valve (12) and lubrication fitting (11) with sealing compound. Install valve and fitting in support arm (7).

3. Put light coat of grease on bearing surface of support arm (7) and cork-rubber face of new seal (8). Place spacer (9) and seal, with pins facing housing, on shaft of support arm.

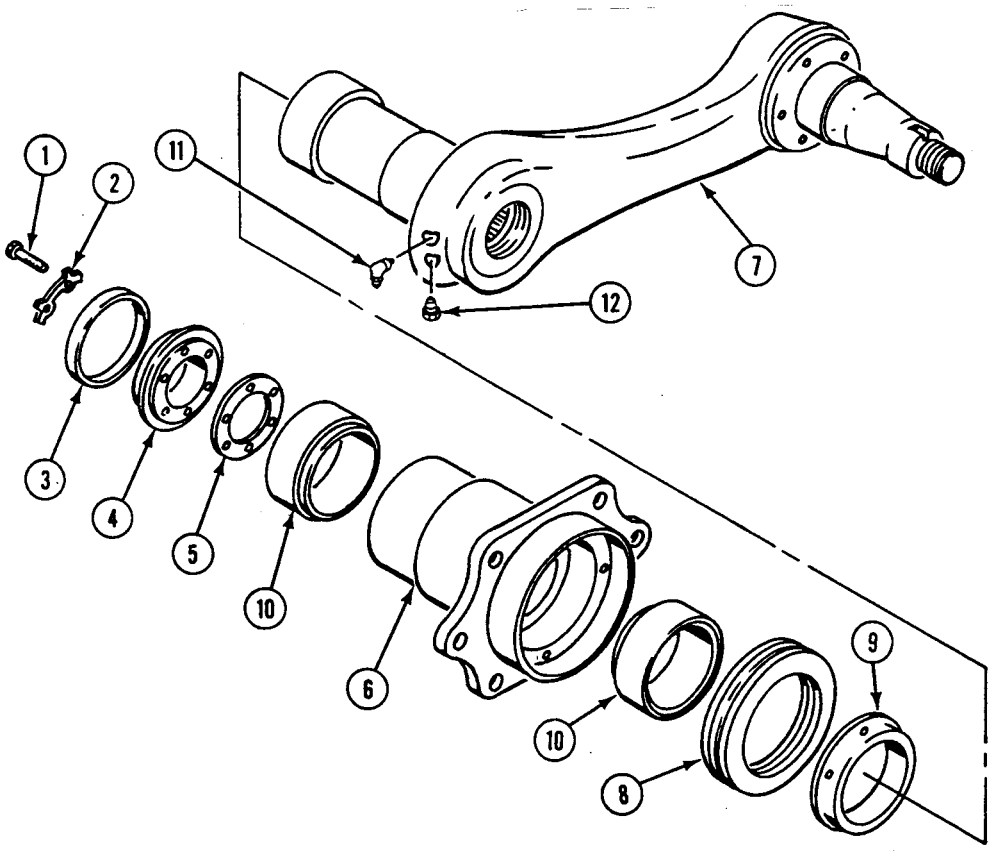
4. Install support arm (7) in housing (6). Align pins on seal (8) with holes in housing.

5. Put light coat of sealing compound on outer surface of new seal (3).

6. Install new gasket (5), retainer (4), and seal (3) in rear of housing (6). Use remover and replacer. Secure with three new nut locking plates (2) and six screws (1). Do not tighten screws at this time.

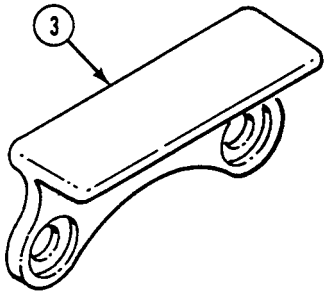
7. Fill housing (6) with grease until grease appears around retainer (4).

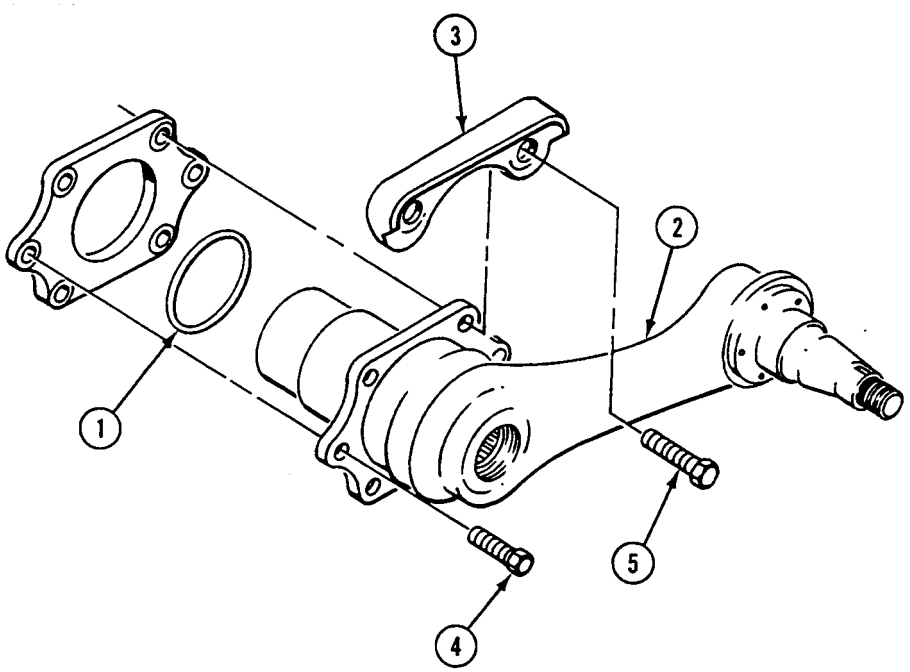
8. Tighten six screws (1) to 168-228 lb-in (19-26 N•m) torque. Bend tabs on nut locking plates (2).



REPLACE ROAD WHEEL SUPPORT ARM, HOUSING, BEARINGS, AND SEALS — Continued **0351 00**

9. Install new preformed packing (1) on road wheel support arm assembly (2).
10. Secure guard (3), preformed packing (1), and road wheel support arm assembly (2) to hull (number three and four positions) with four screws (4) and two screws (5). Tighten six screws to 130-140 lb-ft (176-190 N•m) torque.
11. Secure road wheel support arm assembly (2) to hull (number one, two and five positions) with six screws (5). Tighten screws to 130-140 lb-ft (176-190 N•m) torque.





FOLLOW-THROUGH STEPS

1. Install torsion bar (WP 0349 00).
2. If removed, install shock absorber (WP 0379 00).
3. Install road wheel hub (WP 0352 00).
4. Install road wheel (WP 0361 00).
5. Lube road wheel supports (WP 0361 00).
6. Road test carrier (WP 0128 00) to check that road wheel support arm assembly is installed properly.

END OF TASK

REPLACE ROAD WHEEL HUB 0352 00

THIS WORK PACKAGE COVERS:

Removal (page 0352 00-2).
Inspection-Acceptance and Rejection Criteria (page 0352 00-3).
Installation (page 0352 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)
Grease Cap Replacer (WP 0541 00, Item 41)
Ring Spacer (WP 0541 00, Item 49)
Torque Wrench (WP 0541 00, Item 69)

Materials/Parts

GAA grease (WP 0542 00, Item 14)
Sealing compound (WP 0542 00, Item 35)
Cotter pin
Hub cap gasket
Hub-to-arm seal
Inner bearing (as needed)
Inner bearing cup (as needed)
Outer bearing (as needed)
Outer bearing cup (as needed)
Ribbed shoulder bolt (as needed)

Personnel Required

Unit Mechanic

References

See your -10
TM 9-214

Equipment Condition

Carrier on level surface

Engine stopped (see your -10)

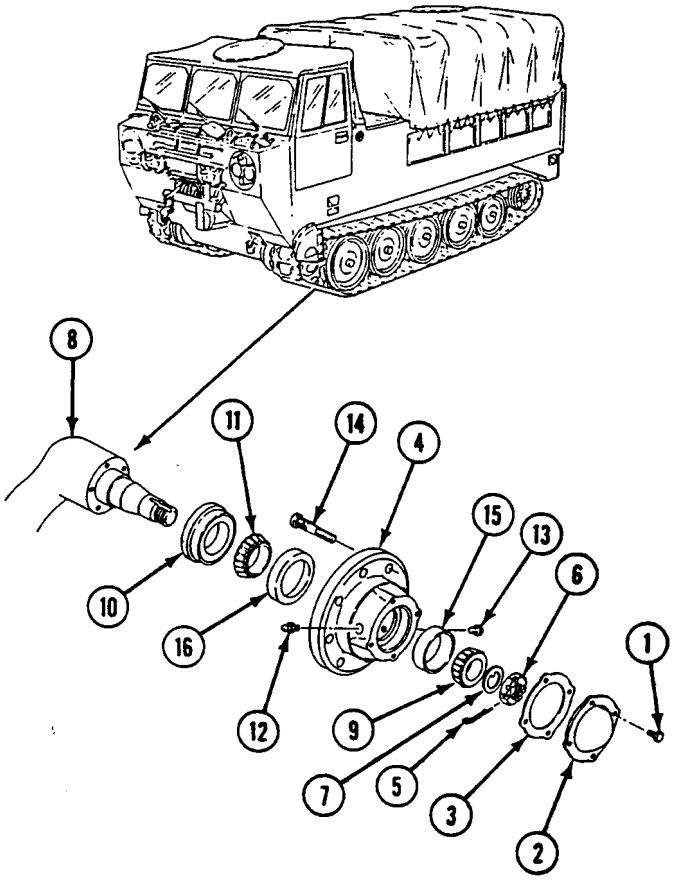
Carrier blocked (see your -10)

Road wheel removed (WP 0361 00)

REPLACE ROAD WHEEL HUB — Continued 0352 00

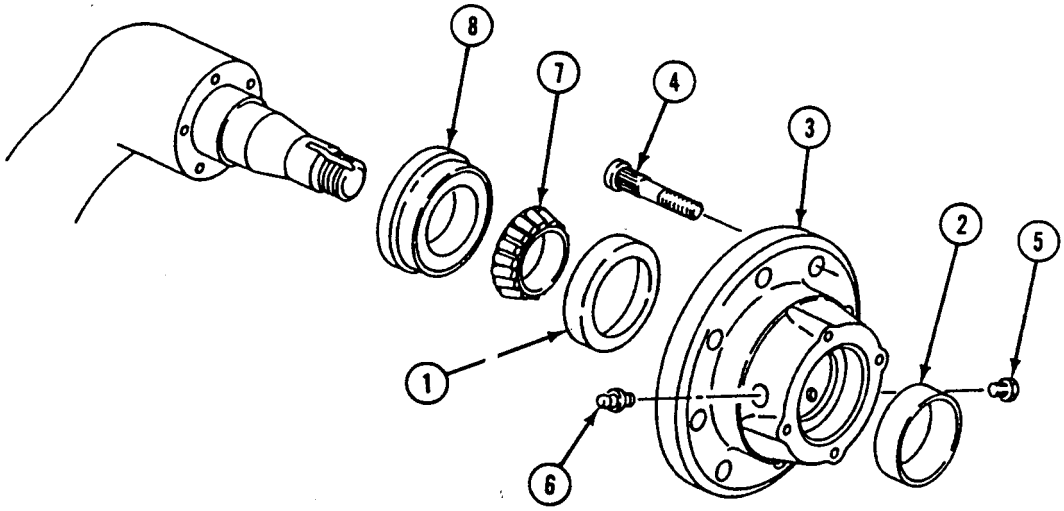
REMOVAL

1. Remove four screws (1), access cover (2), and gasket (3) from road wheel hub (4). Discard gasket.
2. Remove cotter pin (5), nut (6), and washer (7) from road wheel support arm (8). Discard cotter pin.
3. Remove outer bearing (9) and road wheel hub (4) from road wheel support arm (8). Remove seal (10) and inner bearing (11) from hub. Discard seal.
4. Remove grease fitting (12) and relief valve (13) from road wheel hub (4).
5. If damaged, remove bolt(s) (14) from road wheel hub (4). Discard bolt(s).
6. If damaged, remove bearing cup (15) and bearing cup (16) from road wheel hub (4). Discard cups.



INSPECTION-ACCEPTANCE AND REJECTION CRITERIA

1. Check fittings (6) and relief valve (5) for obvious wear or damage. Replace if necessary.

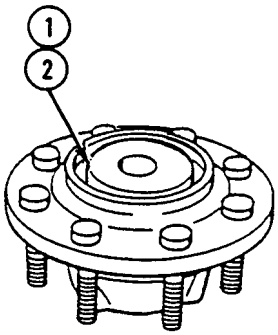


INSTALLATION

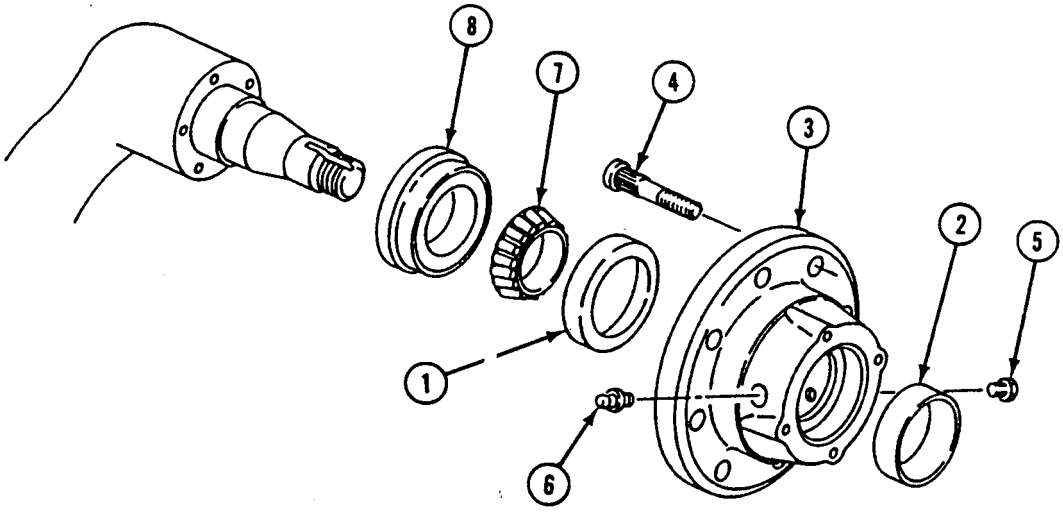
CAUTION

Bearings must be replaced as assemblies. Do not mix cups and bearings.

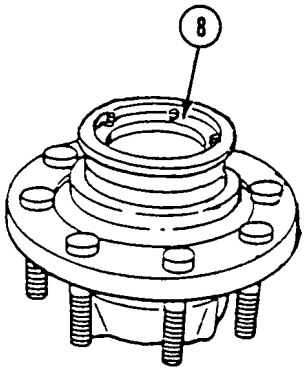
1. If removed, install new bearing cup (1) and new bearing cup (2) in road wheel hub (3). Use grease cap replacer.



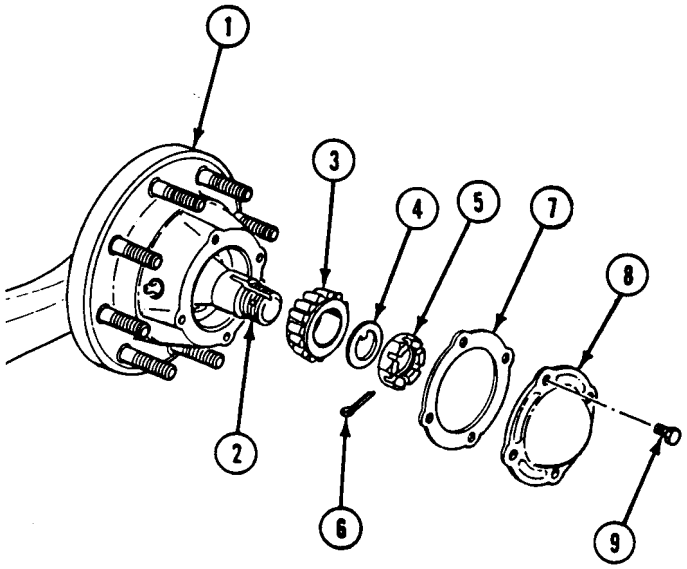
2. If removed, install new bolt(s) (4) in road wheel hub (3).
3. Apply a light coat of sealing compound to threads of relief valve (5) and grease fitting (6). Install valve and fitting in road wheel hub (3).
4. Pack inner bearing (7) with grease (see your PMCS). Install bearing in rear of road wheel hub (3).



5. Apply a light coat of sealing compound to external surface of new seal (8).



6. Install new seal (8) in road wheel hub (3) Use ring spacer.
7. Place road wheel hub (1) on road wheel support arm (2). Completely pack cavity in hub with grease (WP 0128 00).
8. Pack outer bearing (3) with grease (see your PMCS). Install in road wheel hub (1).
9. Install washer (4) and nut (5) on road wheel support arm (2). Tighten nut to adjust bearing as follows:
   a. Tighten nut (5) to 140-150 lb-ft (190-203 N•m) torque.
   b. Back off nut (5) until there is no torque.
   c. Tighten nut (5) to 70-75 lb-ft (95-102 N•m) torque.
   d. Back off nut to align nearest cotter pin hole in nut with cotter pin hole in road wheel support arm (2).
10. Install new cotter pin (6) in road wheel support arm (2).
11. Install new gasket (7), access cover (8), and four screws (9) in road wheel hub (1).
12. Fill road wheel hub (1) with grease (see your PMCS).



FOLLOW-THROUGH STEPS

1. Install road wheel (WP 0356 00).
2. Check track tension (see your -10).
3. Road test carrier (see your -10) to check that road wheel hub is installed properly.

END OF TASK

REPLACE ROAD WHEEL SUPPORT ARM BUMPER STOP/SUPPORT 0353 00

THIS WORK PACKAGE COVERS:

Removal (page 0353 00-2).
Installation (page 0353 00-2).

INITIAL SETUP:

Maintenance Level

Unit

Personnel Required

Unit Mechanic

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)
Socket Wrench Set (WP 0541 00, Item 65)
Torque Wrench (WP 0541 00, Item 72)

References

See your -10

Materials/Parts

Lock nut (2)

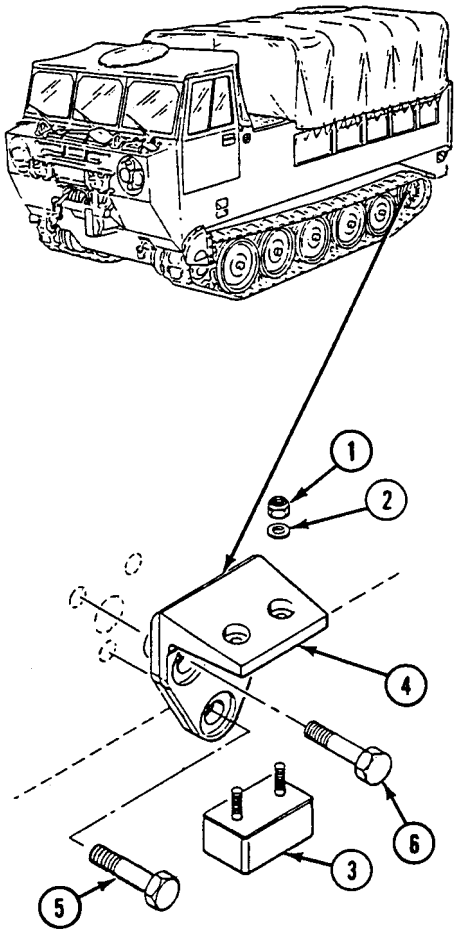
Equipment Condition

Carrier on level surface
Carrier blocked (see your -10)
Engine stopped (see your -10)

REPLACE ROAD WHEEL SUPPORT ARM BUMPER STOP/SUPPORT — Continued 0353 00

REMOVAL

1. Remove two lock nuts (1), washers (2), and bumper (3) from bumper stop/support (4). Discard lock nuts.
2. Remove screw (5), two screws (6), and bumper stop/support (4) from hull.



INSTALLATION

1. Install bumper stop/support (4), two screws (6) and screw (5) on hull. Torque screws to 315-325 lb-ft (427-441 N•m) torque.
2. Place bumper (3) on bumper stop/support (4).
3. Secure bumper (3) with two washers (2) and new lock nuts (1).

END OF TASK

REPLACE IDLER WHEEL ARM ASSEMBLY 0354 00

THIS WORK PACKAGE COVERS:

Removal (page 0354 00-2).
Installation (page 0354 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)
Torque Wrench (WP 0541 00, Item 69)

Materials/Parts

GAA grease (WP 0542 00, Item 14)
Sealing compound (WP 0542 00, Item 39)
Sealing compound primer (WP 0542 00, Item 40)
Preformed packing
Seal

Personnel Required

Unit Mechanic
Helper (H)

References

See your -10

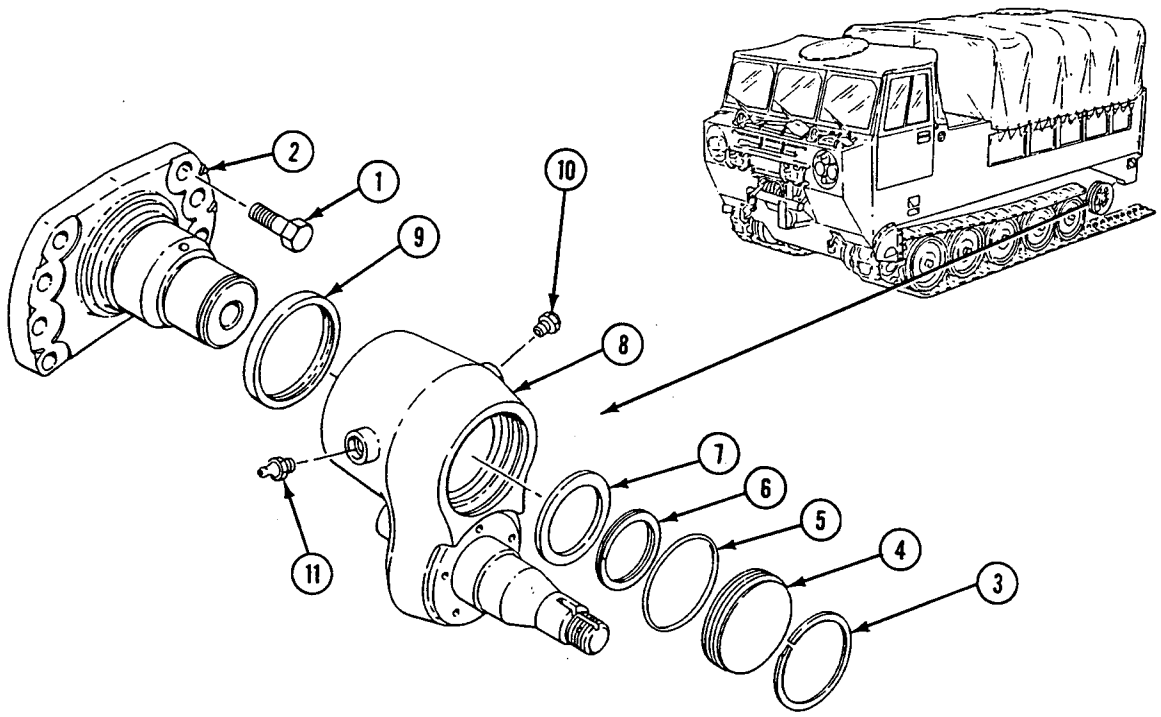
Equipment Condition

Carrier on level surface
Engine stopped (see your -10)
Carrier blocked (see your -10)
Track disconnected (see your -10)
Road wheel hub removed (WP 0352 00)
Track tension adjuster disconnected from idler wheel arm (WP 0356 00)

REPLACE IDLER WHEEL ARM ASSEMBLY — Continued 0354 00

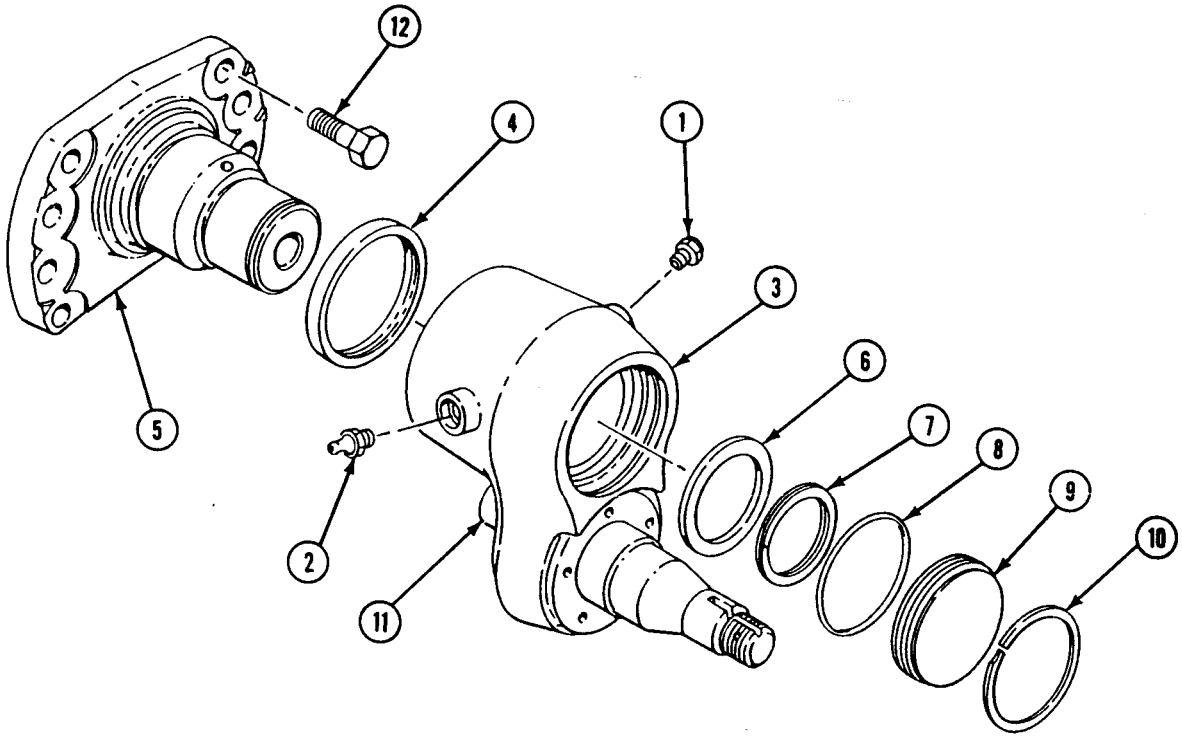
REMOVAL

1. Remove eight screws (1) and spindle (2) from hull.
2. Remove retaining ring (3) and access cover (4) from spindle (2).
3. Remove preformed packing (5), retaining ring (6), and spacer (7) from spindle (2). Discard preformed packing.
4. Remove idler wheel arm (8) and seal (9) from spindle (2). Discard seal.
5. Remove safety relief valve (10) and lubrication fitting (11) from idler wheel arm (8).



INSTALLATION

1. Apply light coat of sealing compound primer and sealing compound on threads of safety relief valve (1) and lubrication fitting (2).



NOTE

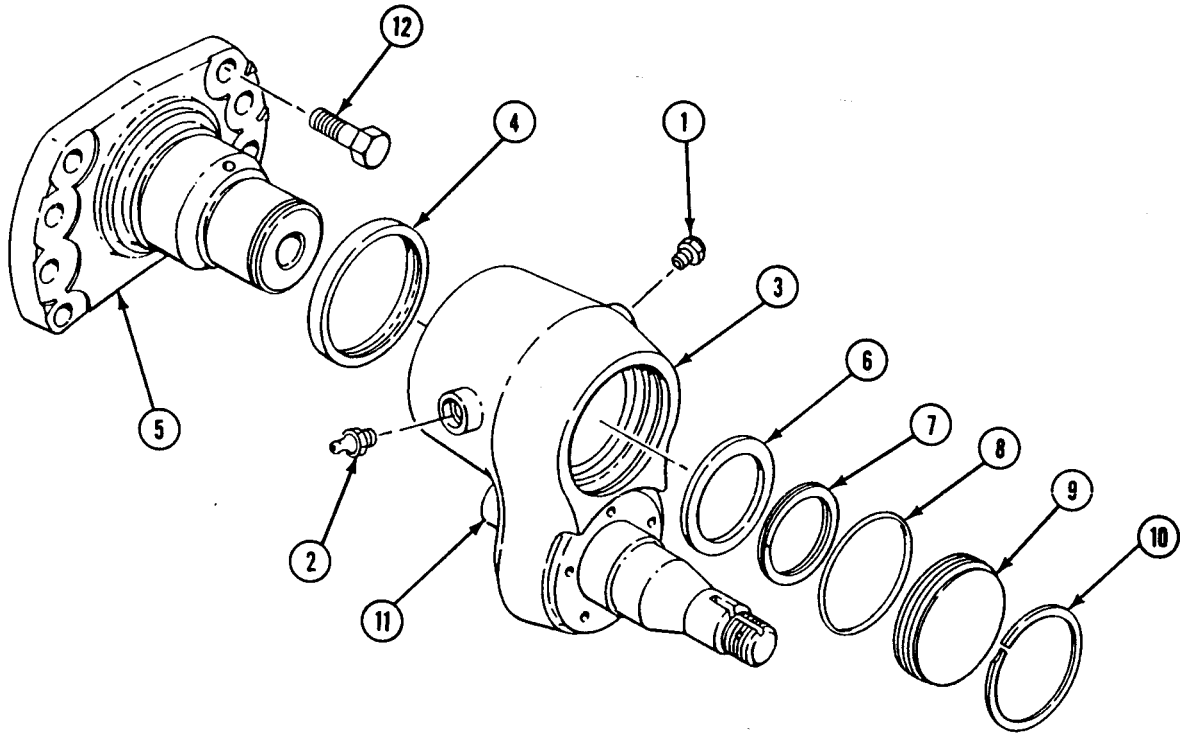
Install lubrication fitting (2) on the forward side of idler wheel arm (WP 0128 00).

2. Install safety relief valve (1) and lubrication fitting (2) in idler wheel arm (3).
3. Install new seal (4) and idler wheel arm (3) on spindle (5).

NOTE

When installing retaining ring (7), have helper push spindle (5) slightly to compress seal (4). This will make installation of retaining ring easier.

4. Install spacer (6), retaining ring (7), and new preformed packing (8) in idler wheel arm (3).
5. Install access cover (9) and retaining ring (10) in idler wheel arm (3).
6. Place track tension adjuster on shaft (11) at rear of idler arm (3). Align spindle (5) with holes on hull. Secure with eight screws (12). Tighten screws to 315-325 lb-ft (427-441 N•m) torque.
7. Fill idler wheel arm (3) with grease (WP 0128 00).



FOLLOW-THROUGH STEPS

1. Connect track tension adjuster to idler wheel arm (WP 0356 00).
2. Install road wheel hub (WP 0352 00).
3. Connect track and adjust tension (see your -10).
4. Road test carrier (WP 0128 00) to check that idler wheel arm is installed properly.

END OF TASK

REPLACE IDLER WHEEL HUB/BEARINGS AND SEALS 0355 00

THIS WORK PACKAGE COVERS:

Remove (page 0355 00-2)
Installation (page 0355 00-3)

.

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)
Grease Cap Replacer (WP 0541 00, Item 41)
Ring Spacer (WP 0541 00, Item 49)
Torque Wrench (WP 0541 00, Item 69)

Materials/Parts
GAA grease (WP 0542 00, Item 14)
Sealing compound (WP 0542 00, Item 39)
Sealing compound primer (WP 0542 00, Item 40)
Bolt (as needed)
Cotter pin
Gasket
Key washer
Seal

Personnel Required
Unit Mechanic
Helper (H)

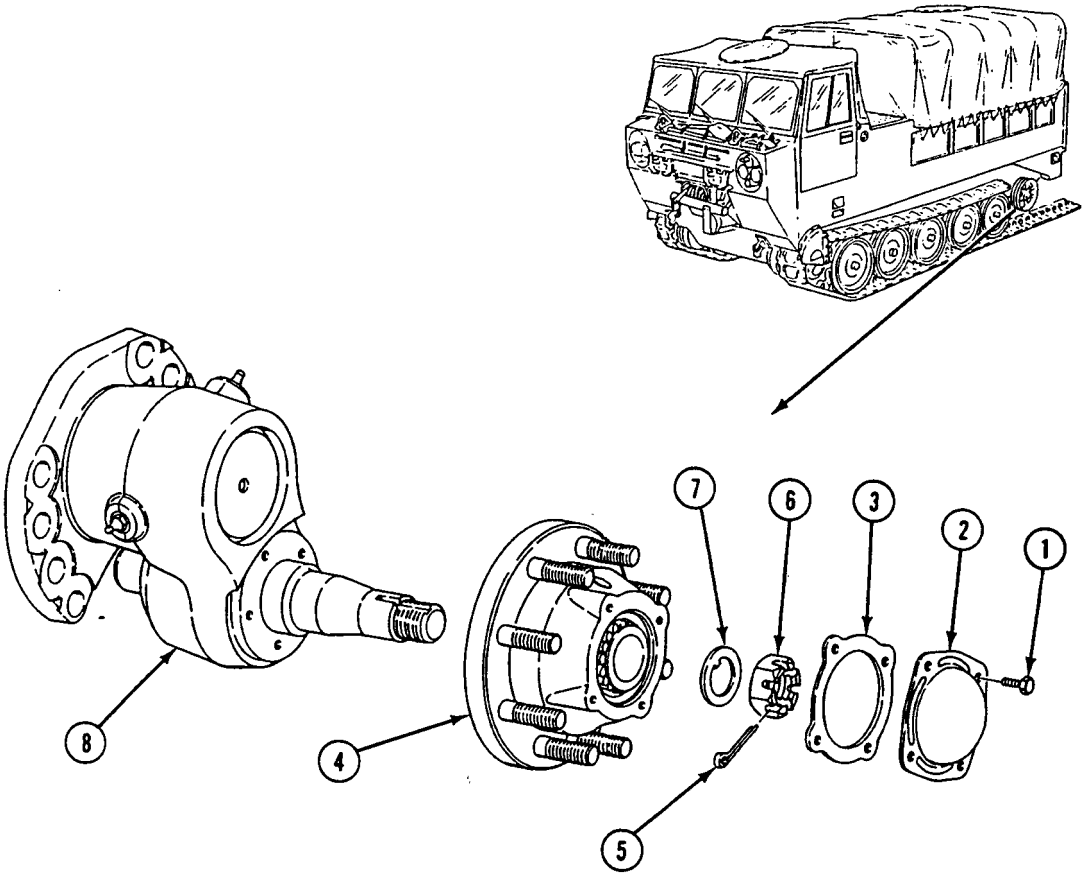
References
See your -10
TM 9-214

Equipment Condition
Carrier on level surface
Engine stopped (see your -10)
Carrier blocked (see your -10)
Track disconnected (see your -10)
Idler wheel removed (WP 0360 00)

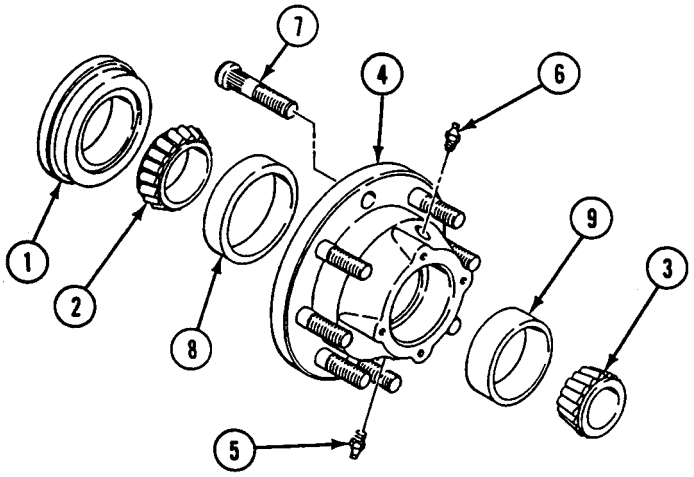
REPLACE IDLER WHEEL HUB/BEARINGS AND SEALS — Continued 0355 00

REMOVAL

1. Remove four screws (1), access cover (2), and gasket (3) from idler wheel hub (4). Discard gasket.
2. Remove cotter pin (5), nut (6), key washer (7), and idler wheel hub (4) from idler wheel arm (8). Discard key washer and cotter pin.



3. Remove seal (1), inner bearing (2), and outer bearing (3) from idler wheel hub (4). Discard seal.
4. Remove grease fitting (5) and relief valve (6) from idler wheel hub (4).
5. If damaged, remove bolt(s) (7) from idler wheel hub (4). Discard damaged bolt(s).
6. If damaged, remove bearing cup (8) bearing cup (9) from idler wheel hub (4).

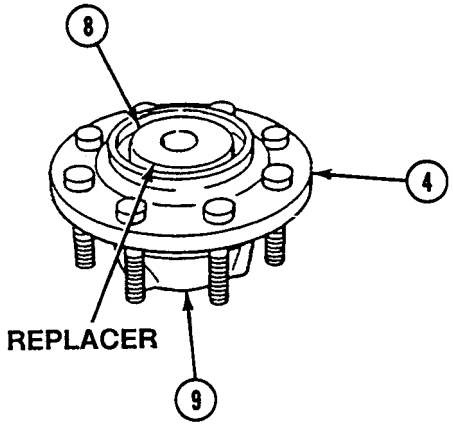


INSTALLATION

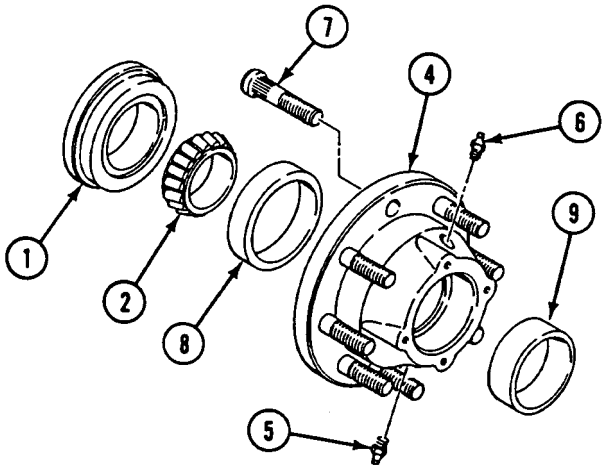
NOTE

Bearings and cups are replaced as a set.

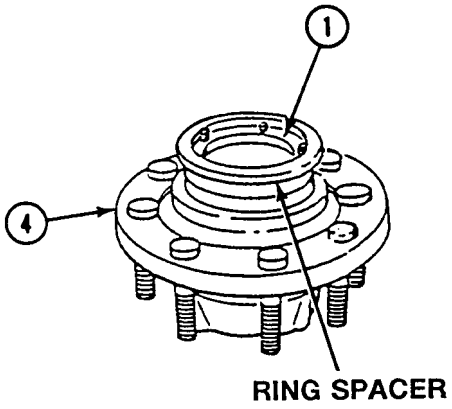
1. If removed, install bearing cup (8) and bearing cup(9) in idler wheel hub (4). Use replacer.



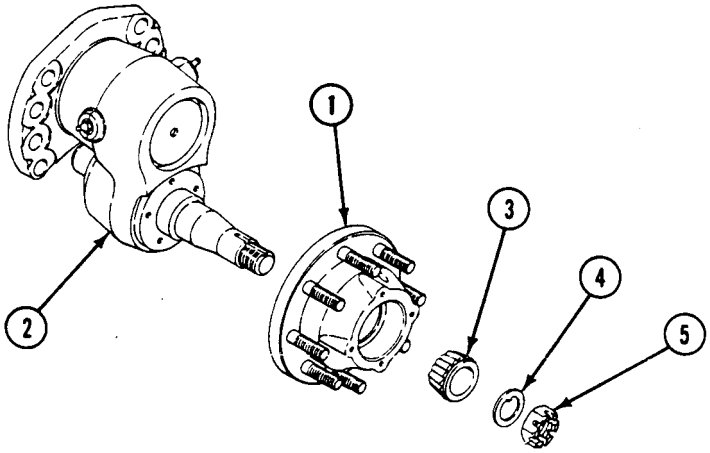
2. If removed, install new bolt(s) (7) in idler wheel hub (4).
3. Apply light coat of sealing compound primer and sealing compound to threads of relief valve (6) and grease fitting (5). Install valve and fitting in idler wheel hub (4).
4. Pack inner bearing (2) with grease. Install inner bearing in rear of idler wheel hub (4).
5. Apply light coat of sealing compound primer and sealing compound to outer surface of new seal (1).



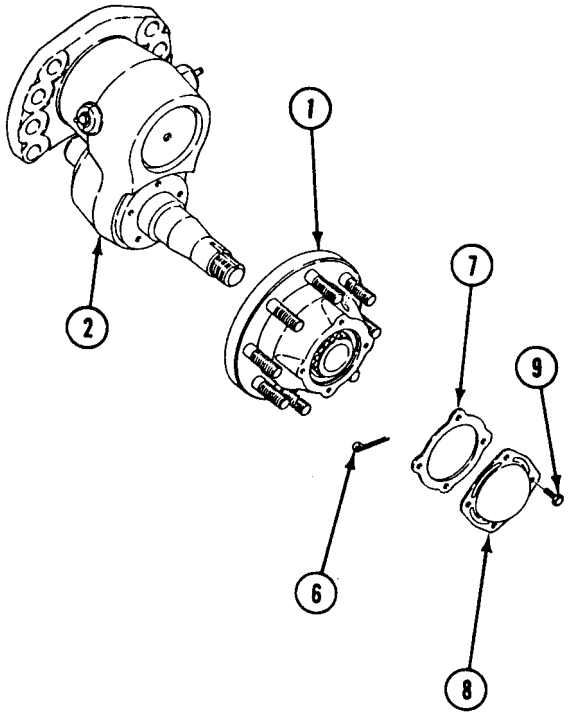
6. Install seal (1) in idler wheel hub (4). Use ring spacer.



7. Place idler wheel hub (1) on idler wheel arm (2). Completely pack cavity in hub with grease (WP 0128 00).
8. Pack outer bearing (3) with grease. Install outer bearing in idler wheel hub (1).
9. Install new key washer (4) and nut (5) on idler wheel arm (2). Tighten nut to adjust bearings as follows:
   a. Tighten nut (5) to 140-150 lb-ft (190-203 N•m) torque.
   b. Back off nut (5) until there is no torque.
   c. Tighten nut (5) to 70-75 lb-ft (95-102 N•m) torque.
   d. Back off nut (5) to align nearest cotter pin hole in nut with cotter pin hole in idler wheel arm (2).



10. Install new cotter pin (6) in idler wheel arm (2).
11. Install new gasket (7), access cover (8), and four screws (9) in idler wheel hub (1).
12. Fill idler wheel hub (1) with grease (WP 0128 00).



FOLLOW-THROUGH STEPS

1. Install idler wheel (WP 0360 00).

NOTE

Use a helper when removing and installing tracks.

2. Connect track and adjust tension (see your -10).
3. Road test carrier (WP 0128 00) to check that idler wheel hub is installed properly.

END OF TASK

REPLACE TRACK TENSION ADJUSTER AND MOUNT 0356 00

THIS WORK PACKAGE COVERS:

Removal (page 0356 00-2).
Installation (page 0356 00-3).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)
Torque Wrench Adapter (WP 0541 00, Item 3)
Torque Wrench (WP 0541 00, Item 69)

Personnel Required
Unit Mechanic

References
See your -10

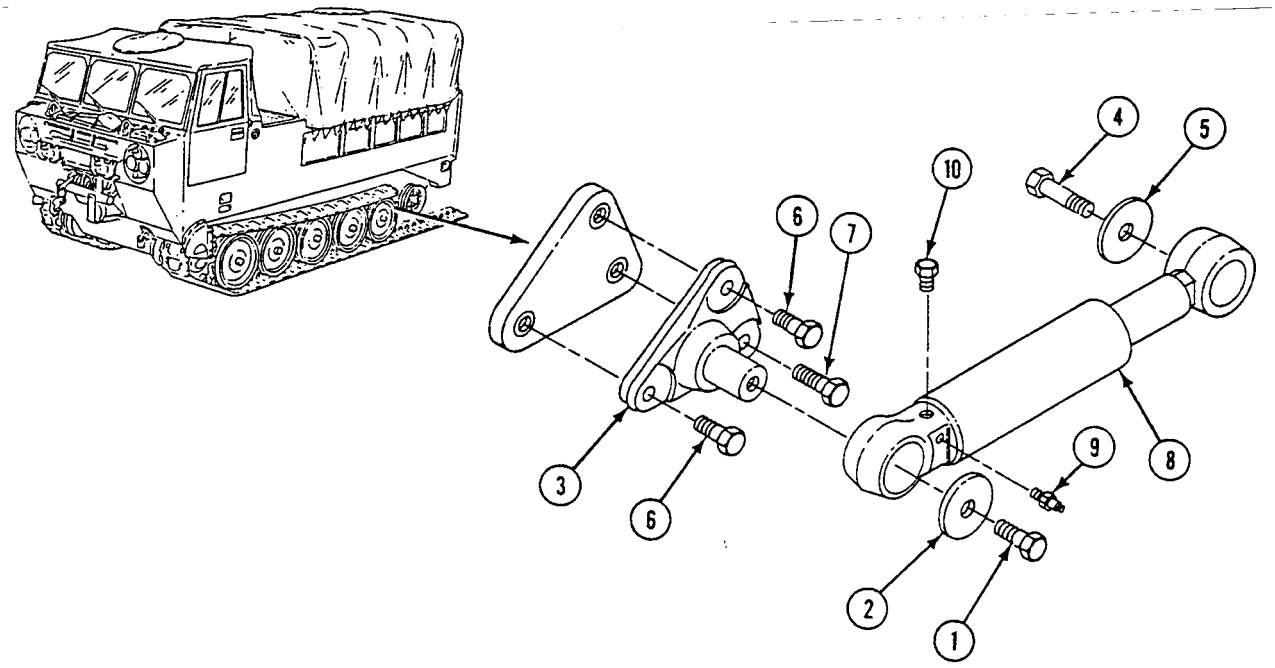
Equipment Condition
Carrier on level surface
Engine stopped (see your -10)
Carrier blocked (see your -10)
Track disconnected (see your -10)

REMOVAL

NOTE

If carrier has new type spindle, omit Step 1 and Step 3.

1. Remove idler wheel (WP 0360 00).
2. Remove screw (1) and washer (2) from mount (3).
3. Remove idler wheel arm assembly, with track tension adjuster attached (WP 0354 00).
4. Remove screw (4) and washer (5) from shaft on idler arm.
5. Remove two screws (6) from mount (3). Loosen screw (7). Rotate mount and remove screw (7).
6. Pull track tension adjuster (8) down. Remove mount (3) from adjuster.
7. Remove track tension adjuster (8) from shaft on idler arm.
8. Remove grease fitting (9) and relief valve (10) from track tension adjuster (8).



INSTALLATION

1. Install relief valve (1) and grease fitting (2) in track tension adjuster (3).

NOTE

Grease fitting and relief valve of track tension adjuster should be toward front of carrier. Make sure grease fitting is pointing out.

2. Install track tension adjuster (3) on shaft of idler wheel arm. Secure with screw (4) and washer (5). Tighten screw to 130-140 lb-ft (176-190 N•m) torque.

NOTE

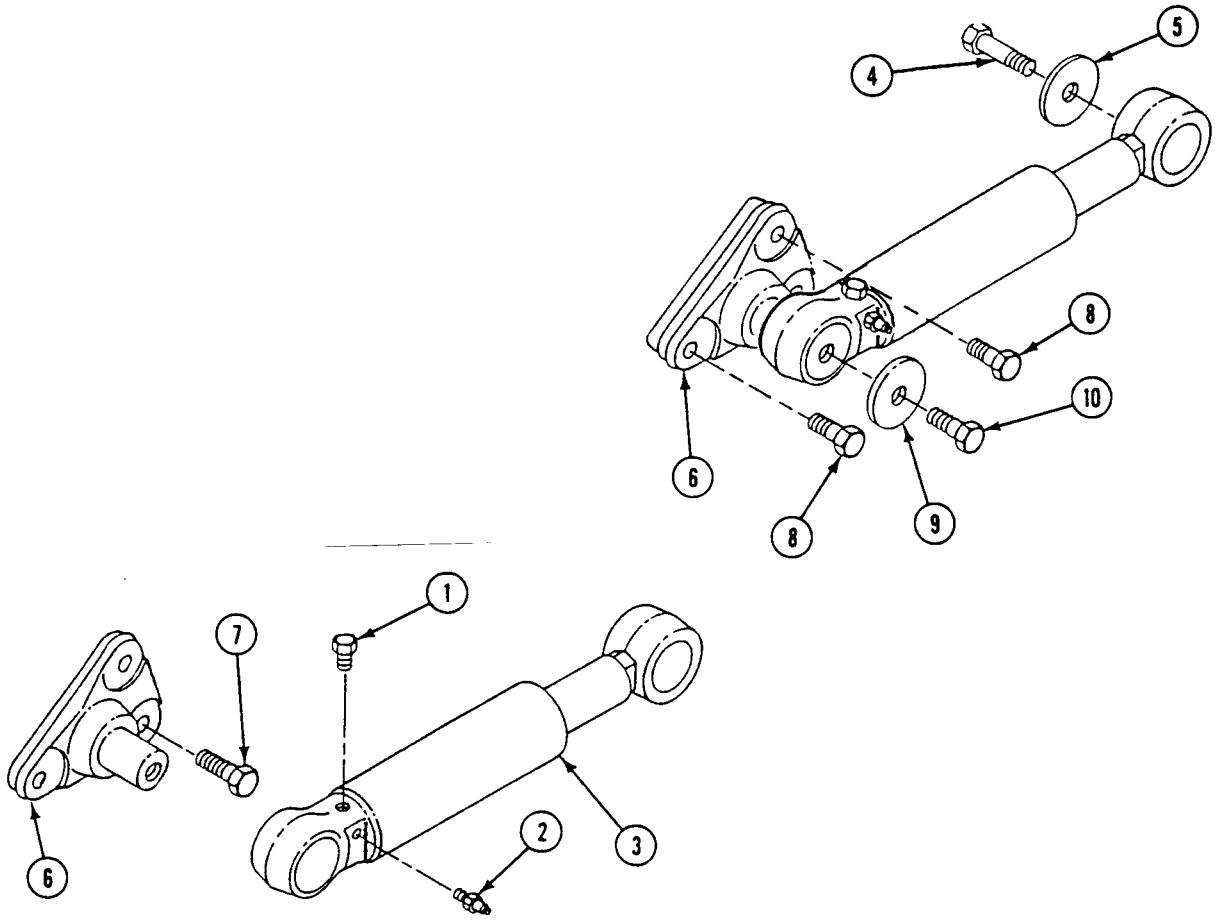
If carrier has new type spindle, omit Step 3 and Step 5.

3. Install idler wheel arm with track tension adjuster attached (WP 0354 00).

4. Install mount (6) in front of track tension adjuster (3). Raise adjuster and mount. Align hole in mount with hole in hull for screw (7).

5. Install idler wheel (WP 0360 00).

6. Install screw (7) in mount (6). Tighten until snug.



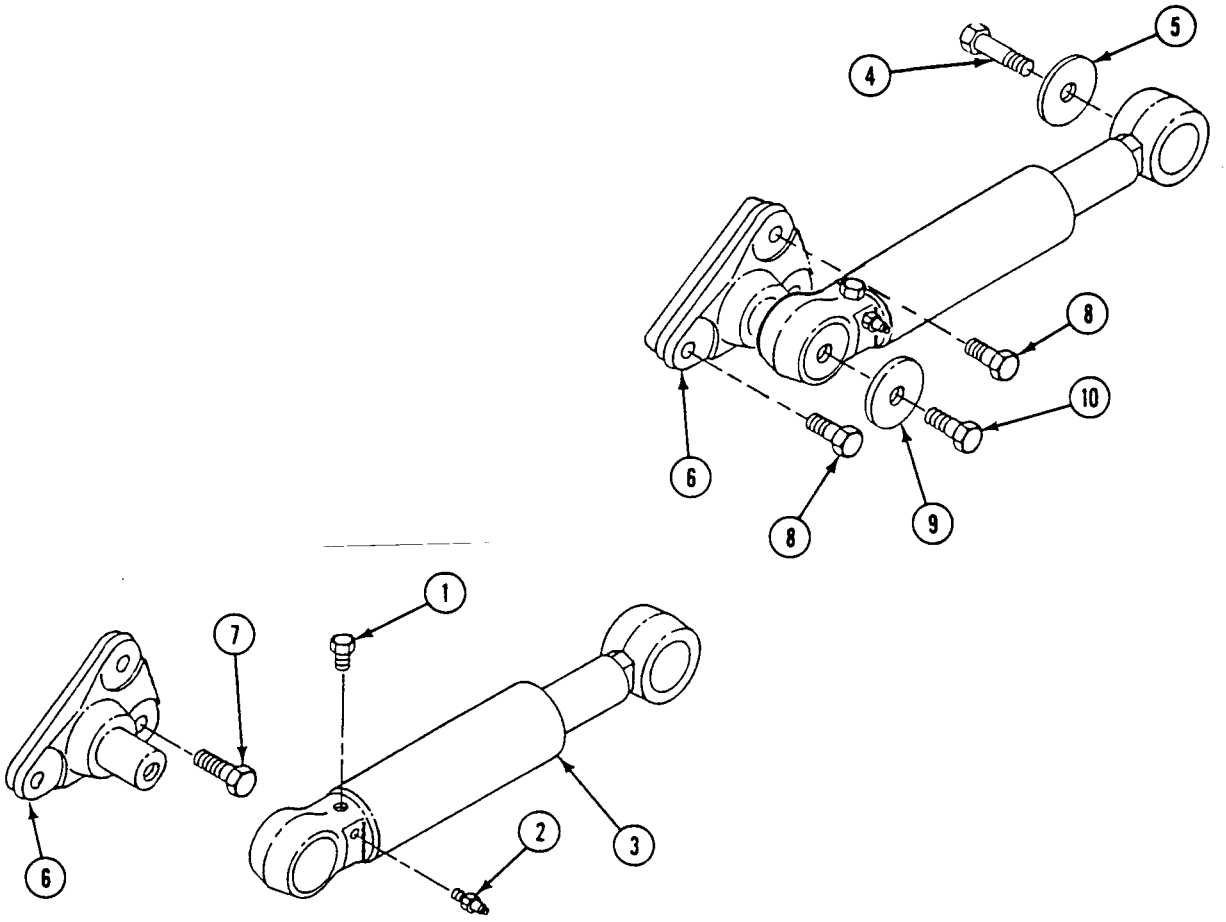
7. Rotate mount (6). Install two screws (8).

NOTE

When using torque wrench with torque wrench adapter, torque value must be corrected. Procedure for converting torque value is on (WP 0001 00).

8. Tighten screw (7) and two screws (8) to 130-140 lb-ft (176-190 N•m) torque. Use adapter.

9. Install washer (9) and screw (10) on mount (6). Tighten screw to 130-140 lb-ft (176-190 N•m) torque.



FOLLOW THROUGH STEPS

1. Connect and adjust track (see your -10).

2. Start engine (see your -10).

3. Road test carrier (WP 0128 00) to check that adjuster is installed properly.

4. Stop engine (see your -10).

END OF TASK

REPLACE DRIVE SPROCKETS, CUSHIONS, AND CARRIER ASSEMBLY 0357 00

THIS WORK PACKAGE COVERS:

Removal (page 0357 00-1).
Installation (page 0357 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)
Socket Wrench Set (WP 0541 00, Item 65)
Torque Wrench (WP 0541 00, Item 72)

Materials/Parts

Self-locking bolt (10)
Self-locking bolt (20)

Personnel Required

Unit Mechanic

References

See your -10

Equipment Condition

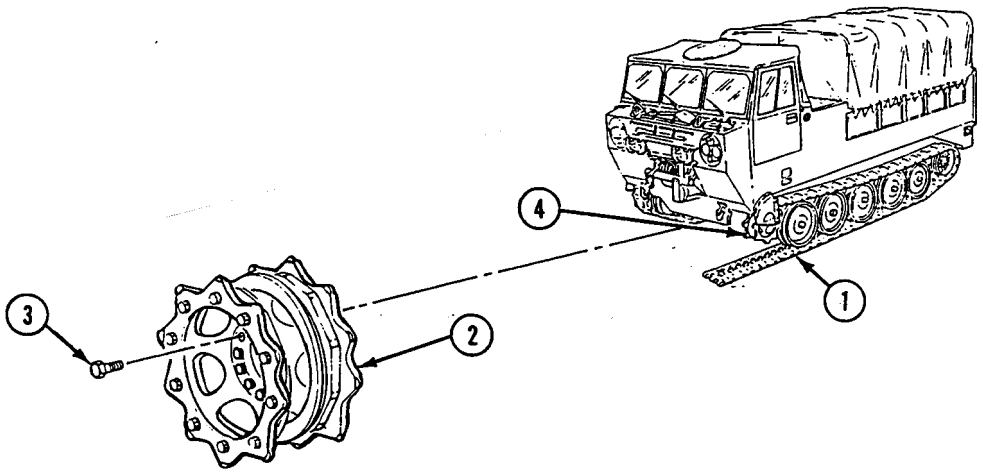
Carrier on level surface
Engine stopped (see your -10)
Carrier blocked (see your -10)
Track disconnected (see your -10)
Front step removed (WP 0419 00)

REMOVAL

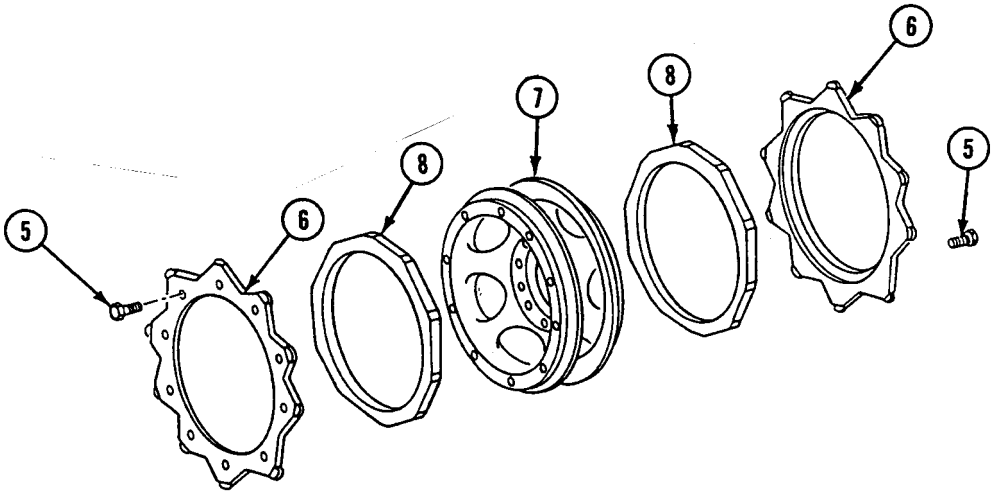
NOTE

The following maintenance procedure applies to one sprocket carrier assembly only.

1. Remove track (1) from drive sprocket carrier assembly (2).
2. Remove 10 bolts (3) securing drive sprocket carrier assembly (2) to final drive (4). Remove drive sprocket carrier assembly. Discard lock bolts.



3. Remove 20 lock bolts (5) and 2 drive sprockets (6) from carrier (7). Discard lock bolts.
4. Remove two rubber cushions (8) from carrier (7).
5. If needed, repeat Steps 1 - 4 for other drive sprocket carrier assembly.



INSTALLATION

1. Place two cushions (1) on carrier (2). Center short flat areas between mounting holes in carrier rim. Press on cushion until firmly seated against flange of carrier.

NOTE

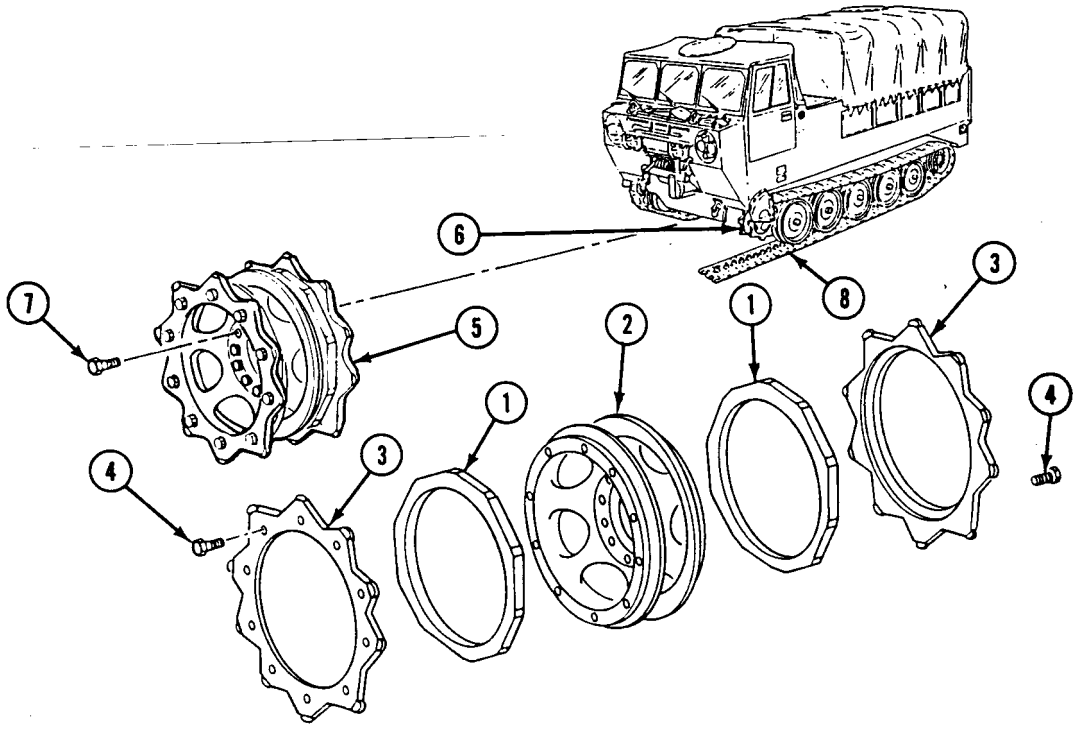
Ensure that new lock bolts are the short ones, not to be confused with others removed or installed.

2. Place two drive sprockets (3) on carrier (2). Secure with 20 new lock bolts (4). Tighten lock bolts to 110-115 lb-ft (149-156 N•m) torque.

CAUTION

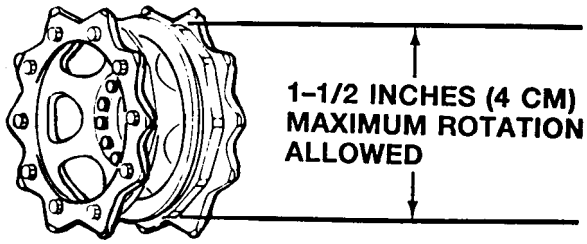
Drive sprocket mounting bolts must be proper length, or final drive output seal will be damaged.

3. Place drive sprocket carrier assembly (5) on final drive (6). Secure with 10 new lock bolts (7) (bolt length 1 3/4 in (4 cm)). Tighten lock bolts to 170-190 lb-ft (230-258 N•m) torque.
4. Mark drive sprockets (3) and cushions (1) for rotation check after road test.
5. Place track (8) on drive sprocket carrier assembly (5).



FOLLOW-THROUGH STEPS

1. Connect track (WP 0358 00).
2. Adjust tension (see your -10).
3. Road test carrier (WP 0128 00) to check that drive sprocket and carrier assembly are installed properly.
4. After road test, check rotation of cushion with respect to drive sprockets. Measure from the outer edge of the cushion. Replace cushion that rotates beyond 1-1/2 inches (4 cm) of initial position.



5. Install front step. (WP 0419 00).

END OF TASK

REPLACE TRACK 0358 00

THIS WORK PACKAGE COVERS:

Removal (page 0358 00-1).
Installation (page 0358 00-2).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)
Track Connecting Fixture (2) (WP 0541 00, Item 16)
Track and Sprocket Gauge (WP 0541 00, Item 19)
Industrial Goggles (WP 0541 00, Item 21)
Torque Wrench (WP 0541 00, Item 69)

Personnel Required

Unit Mechanic
Helper (H)

References

See your -10

Equipment Condition

Carrier on level surface

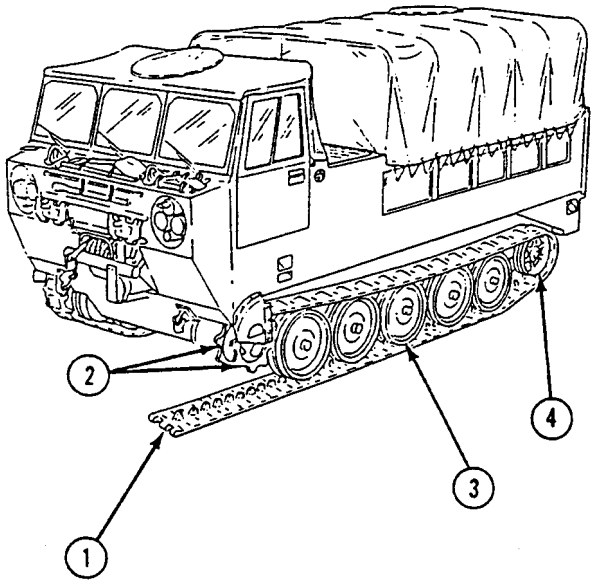
Engine stopped (see your -10)

Carrier blocked (see your -10)

Relieve tension and break track (see your -10)

REMOVAL

1. Unblock carrier (see your -10).
2. Start engine (see your -10). Place range selector in R position. Slowly back carrier (see your -10).
3. (H) Guide track (1) over drive sprockets (2), road wheels (3), and idler wheel (4).
4. After carrier clears track (1), lock right and left steering levers (M548A1) or apply parking brake (M548A3) (see your -10). Place range selector in N position (M548A1) or SL position (M548A3). Stop engine (see your -10).



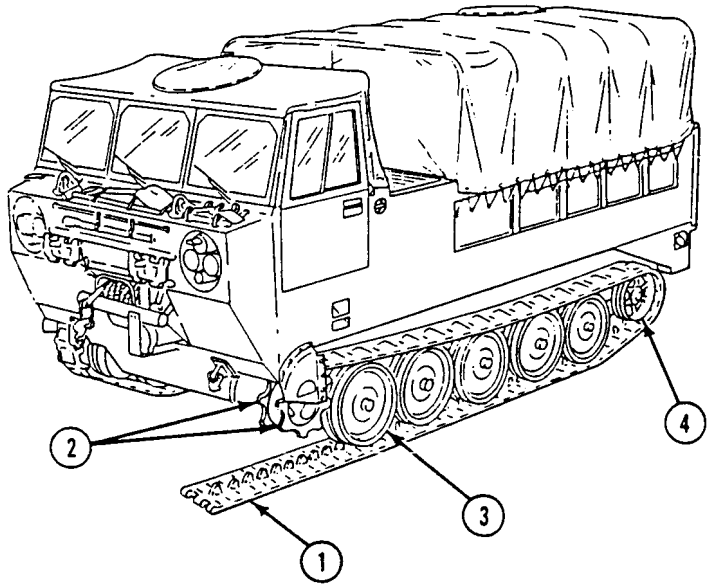
WARNING

Failure to lock right and left steering levers (M548A1) or apply parking brake (M548A3) and block the road wheels can allow the carrier to move and could result in injury or death. Always lock right and left steering levers (M548A1) or apply parking brake (M548A3) and block road wheels before working on the carrier.

5. Block carrier (see your -10).

INSTALLATION

1. (H) Lay track (1) out flat in front of carrier so that track guides are aligned between first pair of road wheels (3).
2. Unblock carrier (see your -10).
3. Start engine (see your -10). Place range selector in RANGE 1. Slowly drive carrier forward (see your -10).

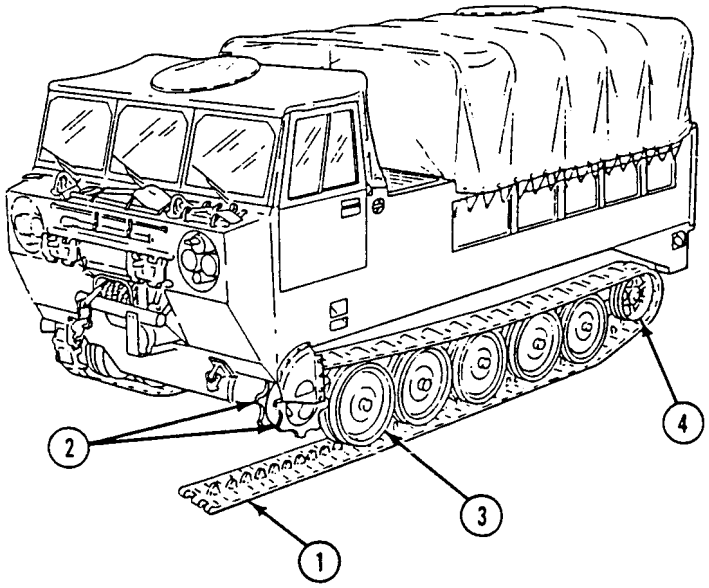


4. (H) Pull track (1) up and over idler wheel (4), road wheels (3), and drive sprocket (2).
5. Stop carrier when hub of first road wheel (3) is directly over third track shoe from the end of the track (1).
6. Place range selector in N (M548A1) or SL (M548A3). Stop engine (see your -10).

WARNING

Failure to lock right and left steering levers (M548A1) or apply parking brake (M548A3) and block the road wheels can allow the carrier to move and could result in injury or death. Always lock right and left steering levers (M548A1) or apply parking brake (M548A3) and block road wheels before working on the carrier.

7. Block carrier (see your -10).
8. Connect track (1) and torque track pin nut to 115-135 lb-ft (156-183 N•m).



FOLLOW-THROUGH STEPS

1. Adjust tension (see your -10).
2. Road test carrier (WP 0128 00) to check that track is installed properly.

END OF TASK

REPLACE TRACK SHOE AND PAD ASSEMBLY 0359 00

THIS WORK PACKAGE COVERS:

Removal (page 0359 00-1).
Installation (page 0359 00-2).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)
Torque Wrench (WP 0541 00, Item 69)

Materials/Parts
Lock nut

Personnel Required
Unit Mechanic

References
See your -10

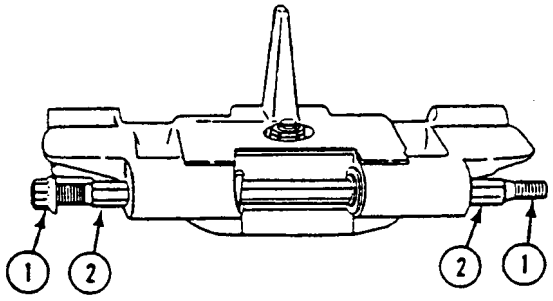
Equipment Condition
Carrier on level ground
Carrier positioned with track pad accessible
Engine stopped (see your -10)
Carrier blocked (see your -10)
Front step removed (WP 0419 00)

REMOVAL

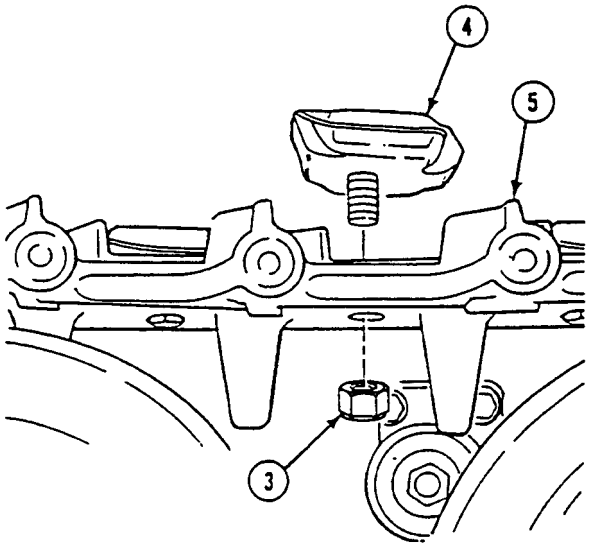
NOTE

Track shoe pin should not extend outside shoe.

1. See your -10 for instructions on replacing the track shoe.
2. Tighten either lock nut (1) on track shoe pin (2) until approximately 1-2 threads extend through lock nut. Tighten opposite lock nut (1) to 115-135 lb-ft (155-183 N•m).



3. Remove lock nut (3) and pad (4) from track shoe (5). Discard lock nut.



INSTALLATION

1. Install track shoe pad (4) in track shoe (5). Secure with new lock nut (3). Tighten lock nut to 135-155 lb-ft (183-210 N•m) torque.

FOLLOW-THROUGH STEPS

1. Install front step (WP 0419 00).

END OF TASK

REPLACE IDLER WHEEL 0360 00

THIS WORK PACKAGE COVERS:

Removal (page 0360 00-1).
Installation (page 0360 00-2).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)
Torque Wrench (WP 0541 00, Item 69)

Materials/Parts

Lock nut per wheel (8)

Personnel Required

Unit Mechanic

References

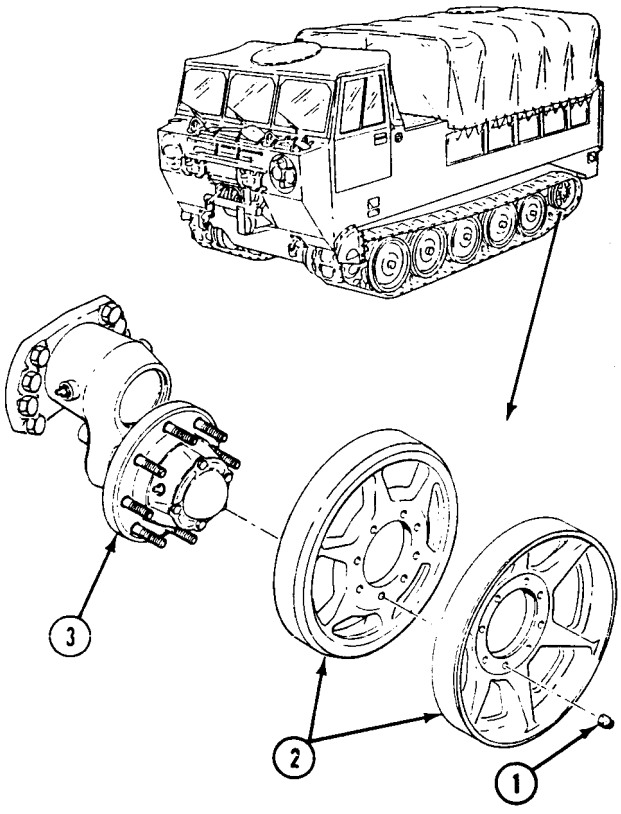
See your -10

Equipment Condition

Carrier on level surface
Engine stopped (see your -10)
Carrier blocked (see your -10)
Track disconnected (see your -10)

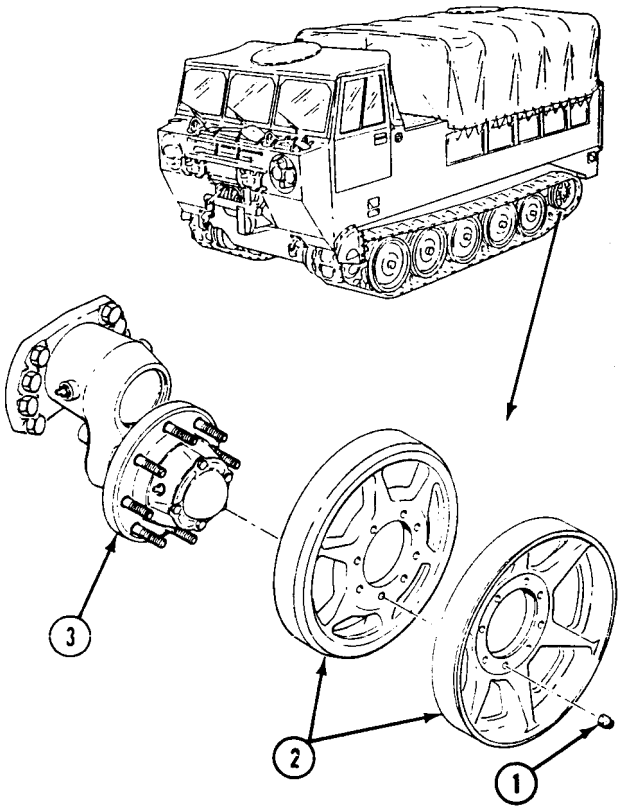
REMOVAL

1. Loosen idler wheel lock nuts (1).
2. Remove track from idler wheels (2).
3. Remove eight idler wheel lock nuts (1) and two idler wheels (2) from idler wheel hub (3). Discard lock nuts.



INSTALLATION

1. Place two idler wheels (2) on idler wheel hub (3) with spokes of idler wheels not aligned.
2. Secure two idler wheels (2) to idler wheel hub (3) with eight new idler wheel lock nuts (1). Tighten lock nuts to 150-170 lb-ft (203-230 N•m) torque.
3. Install track over idler wheels (2).



FOLLOW-THROUGH STEPS

1. Connect track and adjust tension (see your -10).
2. Remove blocks used to keep carrier from moving (see your -10).
3. Start engine (see your -10).
4. Road test carrier (WP 0128 00) to check that idler wheel is installed properly.
5. Stop engine (see your -10).

END OF TASK

REPLACE ROAD WHEEL 0361 00

THIS WORK PACKAGE COVERS:

Removal (page 0361 00-1).
Installation (page 0361 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)
Road Wheel Lifter (WP 0541 00, Item 27)
Torque Wrench (WP 0541 00, Item 69)
Crowbar (part of BII, see your -10)

Materials/Parts

Lock nut per wheel (8)

Personnel Required

Unit Mechanic
Helper (H)

References

See your -10
TM 9-2530-200-24

Equipment Condition

Carrier on level surface

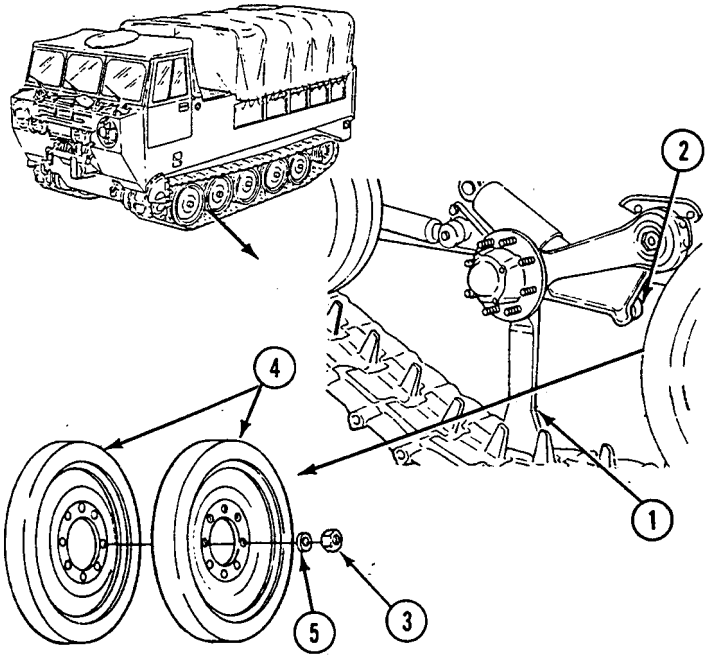
Engine stopped (see your -10)

Carrier blocked (see your -10)

Track tension released (see your -10)

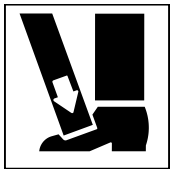
REMOVAL

1. (H) Place lifter (1) under road wheel arm (2). Keep lower tips of lifter in track link just rearward to road wheel being removed.
2. Loosen eight lock nuts (3) on road wheel (4). Do not remove lock nuts.



3. Unblock carrier (see your -10).

WARNING



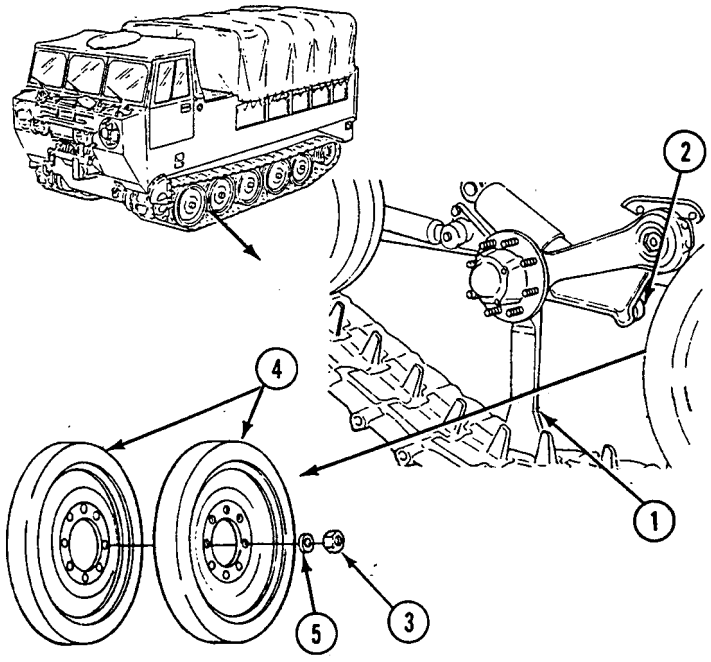
If road wheel lifter slips while raising road arm, it could injure you. Stand clear before you raise road arm.

4. Start engine (see your -10). Place gear selector in R position. Slowly back carrier until lifter (1) is vertical and road wheel (4) clears ground.

WARNING

Failure to lock right and left steering levers and block road wheels can allow carrier to move and could result in injury or death.

5. Stop engine and lock right and left steering levers (see your -10).
6. Block carrier (see your -10).
7. Remove eight lock nuts (3) and washers (5) from road wheel (4). Discard lock nuts.
8. With helper, lift track with crowbar until track clears road wheel (4). Remove two road wheels.



INSTALLATION

NOTE

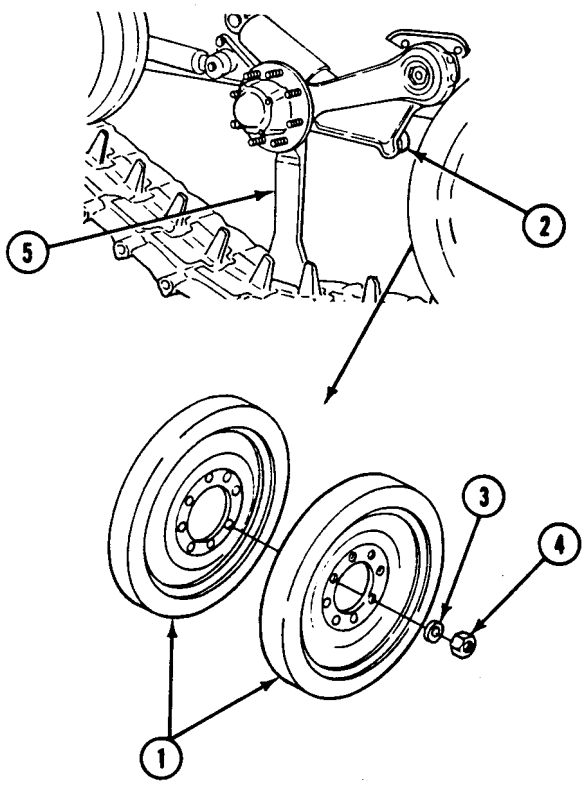
Do not mix aluminum and steel roadwheels. Use same type of roadwheels to provide equal wear.

1. Lift track assembly with crowbar. Place two road wheels (1) on road wheel arm (2). Secure loosely with eight washers (3) and new lock nuts (4).
2. Unblock carrier (see your -10).

WARNING

You can be hurt if road wheel lifter slips while road arm is being lowered. Stand clear.

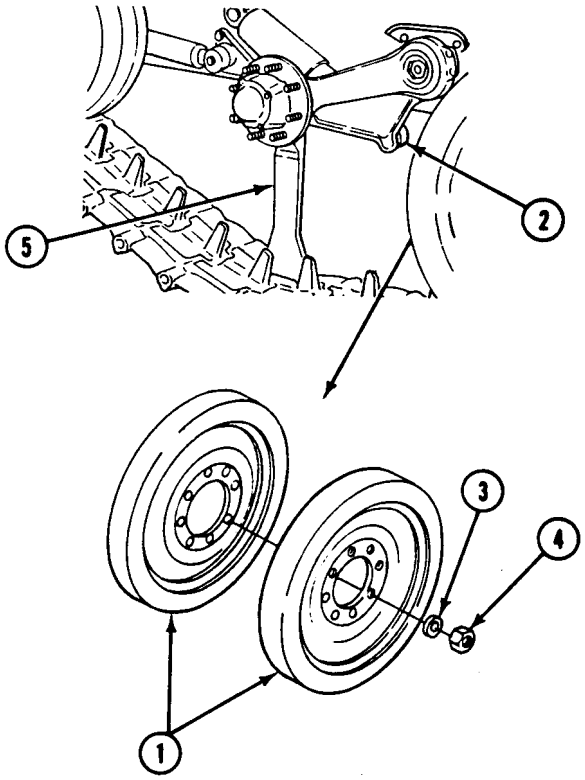
3. Start engine (see your -10). Place range selector in RANGE 1. Slowly drive carrier forward off lifter (5). Remove lifter.



WARNING

Failure to lock right and left steering levers and block road wheels can allow carrier to move and could result in injury or death.

4. Stop engine (see your -10) and lock right and left steering levers.
5. Block carrier (see your -10).
6. Tighten eight lock nuts (4) to 150-170 lb-ft (203-230 N•m) torque.



FOLLOW-THROUGH STEPS

1. Adjust track tension (see your -10).
2. Road test carrier (WP 0128 00) to check that road wheel is installed properly.

END OF TASK

CHAPTER 15

UNIT MAINTENANCE INSTRUCTIONS FOR STEERING

WORK PACKAGE INDEX

Title	Sequence No.
ADJUST STEERING WHEEL LINKAGE (M548A3)	0362 00
REPLACE STEERING WHEEL QUICK RELEASE PIN AND BRACKET (M548A3)	0363 00
REPLACE STEERING WHEEL LINKAGE (M548A3)	0364 00
REPLACE STEERING WHEEL, COLUMN, HOUSING, AND SHAFT (M548A3)	0365 00
REPLACE STEERING CONTROL/LINKAGE (M548A1)	0366 00
ADJUST STEERING CONTROLS (M548A1)	0367 00
REPLACE ENGINE DISCONNECT CONTROL (M548A1)	0368 00
REPLACE PIVOT STEERING BRAKE CONTROLS/LINKAGE (M548A1)	0369 00
ADJUST PIVOT STEERING BRAKE CONTROLS/LINKAGE (M548A1)	0370 00
REPLACE PIVOT STEERING BRAKE MASTER CYLINDER (M548A1)	0371 00
REPLACE PIVOT STEERING BRAKE HOSES/TUBES/FITTINGS (M548A1)	0372 00
REPLACE PIVOT STEERING BRAKE ASSEMBLY (M548A1)	0373 00
REPLACE PIVOT STEERING CLUTCH DISK (M548A1)	0374 00
REPLACE PIVOT STEERING BRAKE LINING (M548A1)	0375 00

ADJUST STEERING WHEEL LINKAGE (M548A3) 0362 00

THIS WORK PACKAGE COVERS:

Adjustment (page 0362 00-2).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)
Tape Measure (WP 0541 00, Item 52)

Materials/Parts

Locknut (2)
Lock washer (4)

Personnel Required

Unit Mechanic
Helper (H)

References

See your -10

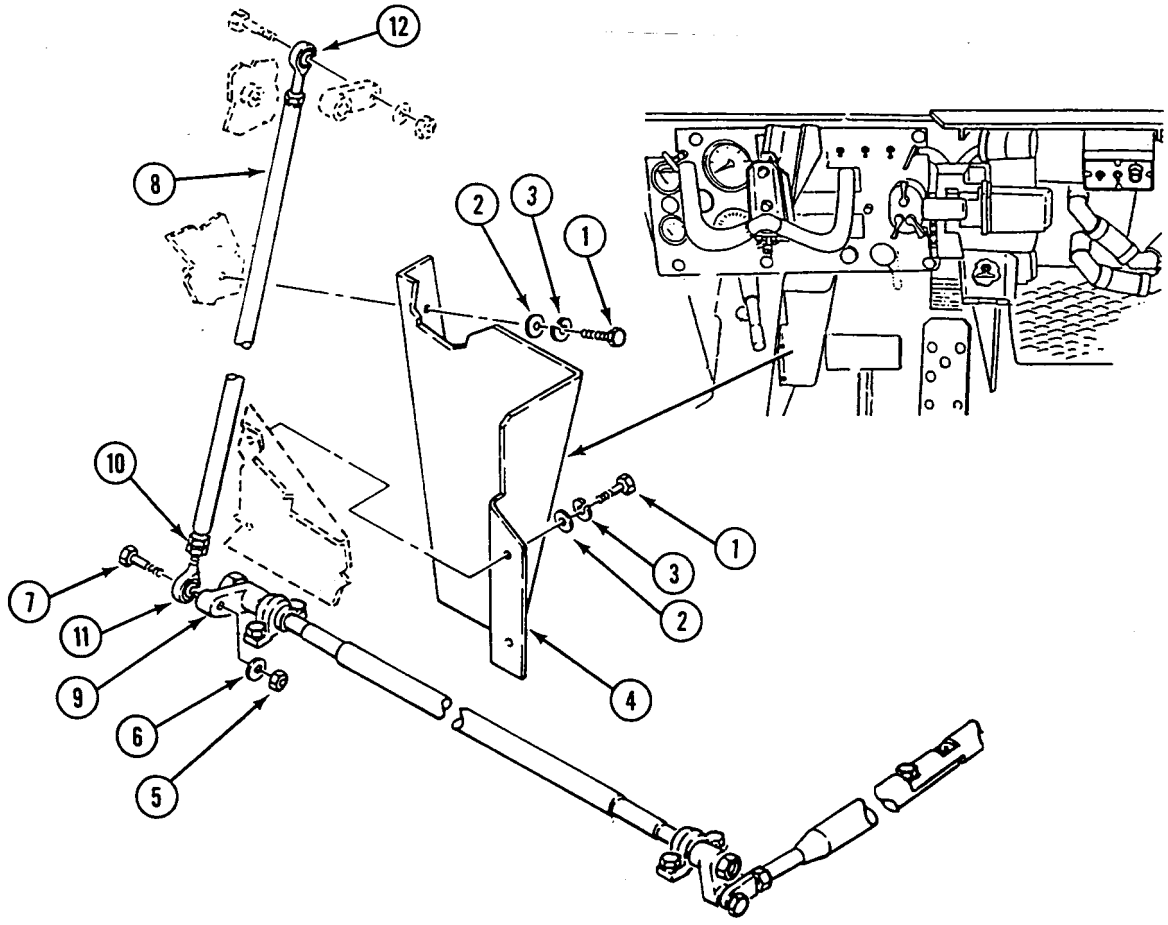
Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Driver's side front battery removed (WP 0293 00)
Center driver's floor plate removed (WP 0395 00)

ADJUST STEERING WHEEL LINKAGE (M548A3) — Continued **0362 00**

ADJUSTMENT

1. Remove four screws (1), washers (2), lock washers (3), and bracket (4) from hull. Discard lock washers.
2. Remove locknut (5), washer (6), screw (7), and link (8) from lever (9). Discard locknut.
3. Loosen nut (10) and unscrew bearing end (11) to a length of 32.5 inches (82.55 cm) from rod end bearing (12). Have helper assist.
4. Tighten nut (10) to hold bearing end (11) with rod end bearing (12).
5. Secure lever (9) to link (8) with new locknut (5), washer (6), and screw (7).

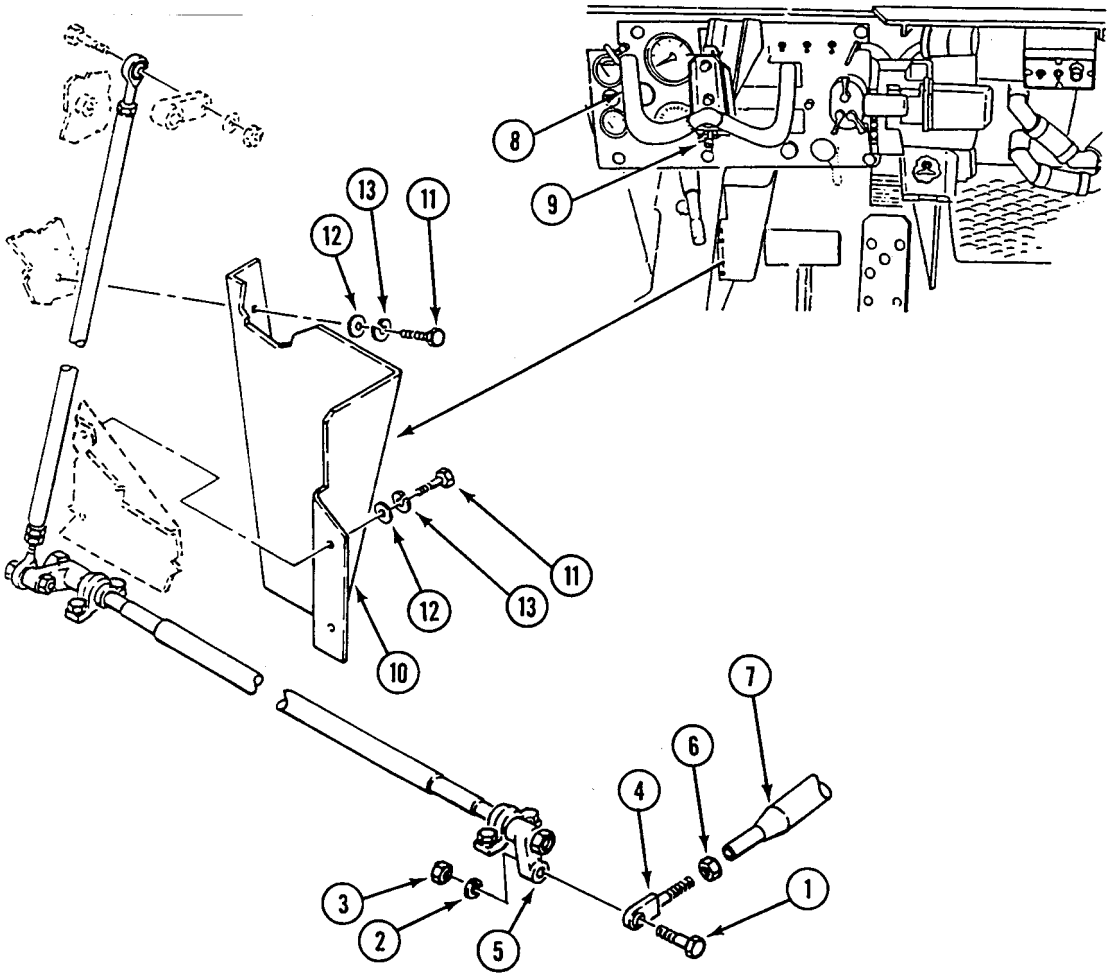


6. Remove screw (1), washer (2), locknut (3), and rod end bearing (4) from steering lever (5).
7. Loosen nut (6) on rod end bearing (4) and connecting link (7).
8. Center steering wheel (8) and lock steering wheel in position with steering wheel lock pin (9).

NOTE

Do not push or pull connecting links when adjusting linkage.

9. Place rod end bearing (4) on steering lever (5). Adjust rod end bearing until screw (1) fits freely into steering lever.
10. Secure rod end bearing (4) to steering lever (5) with screw (1), washer (2), and new locknut (3).
11. Tighten nut (6) against connecting link (7).
12. Release steering wheel lock pin (9). Check linkage for binding. Steering wheel (8) should rotate about the same distance in both directions.
13. Install bracket (10) on hull. Secure with four screws (11), washers (12), and new lock washers (13).



FOLLOW-THROUGH STEPS

1. Install center driver's floor plate (WP 0395 00).
2. Install driver's side front battery (WP 0293 00).

END OF TASK

REPLACE STEERING WHEEL QUICK RELEASE PIN AND BRACKET (M548A3) 0363 00

THIS WORK PACKAGE COVERS:

Removal (page 0363 00-1).
Installation (page 0363 00-2).

INITIAL SETUP:

Maintenance Level

Unit

Personnel Required

Unit Mechanic

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)

References

See your -10

Materials/Parts

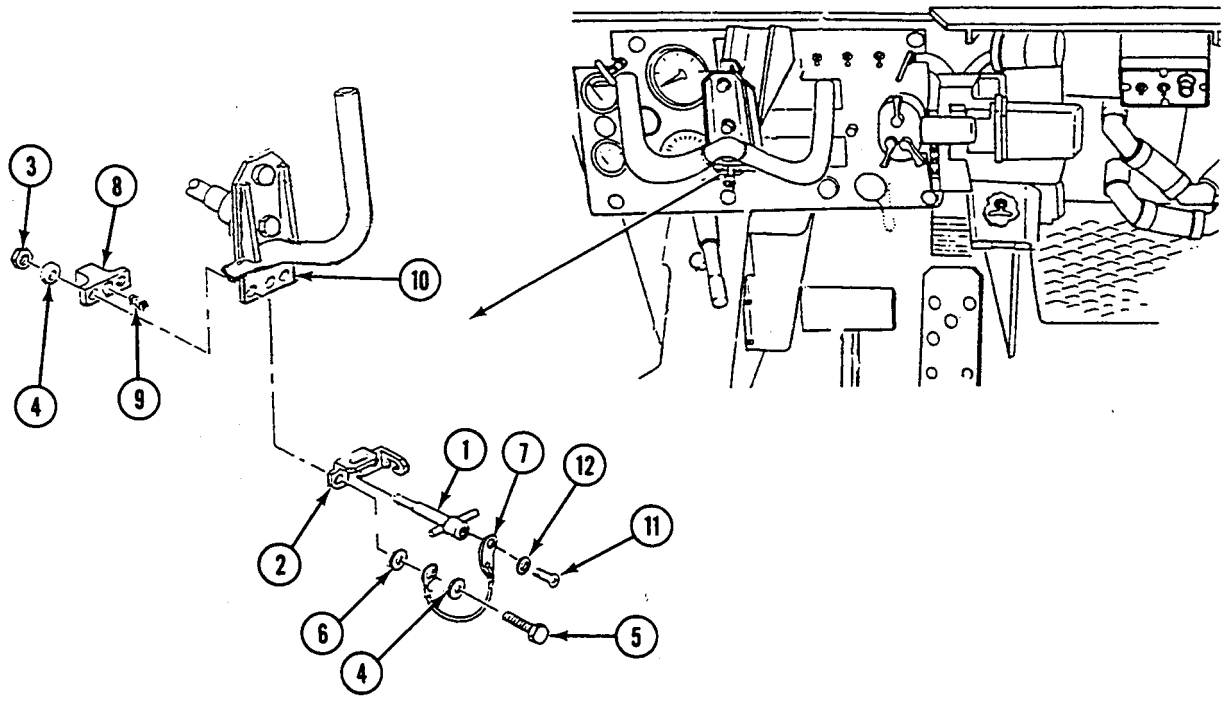
Lock nut (2)
Spring

Equipment Condition

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

REMOVAL

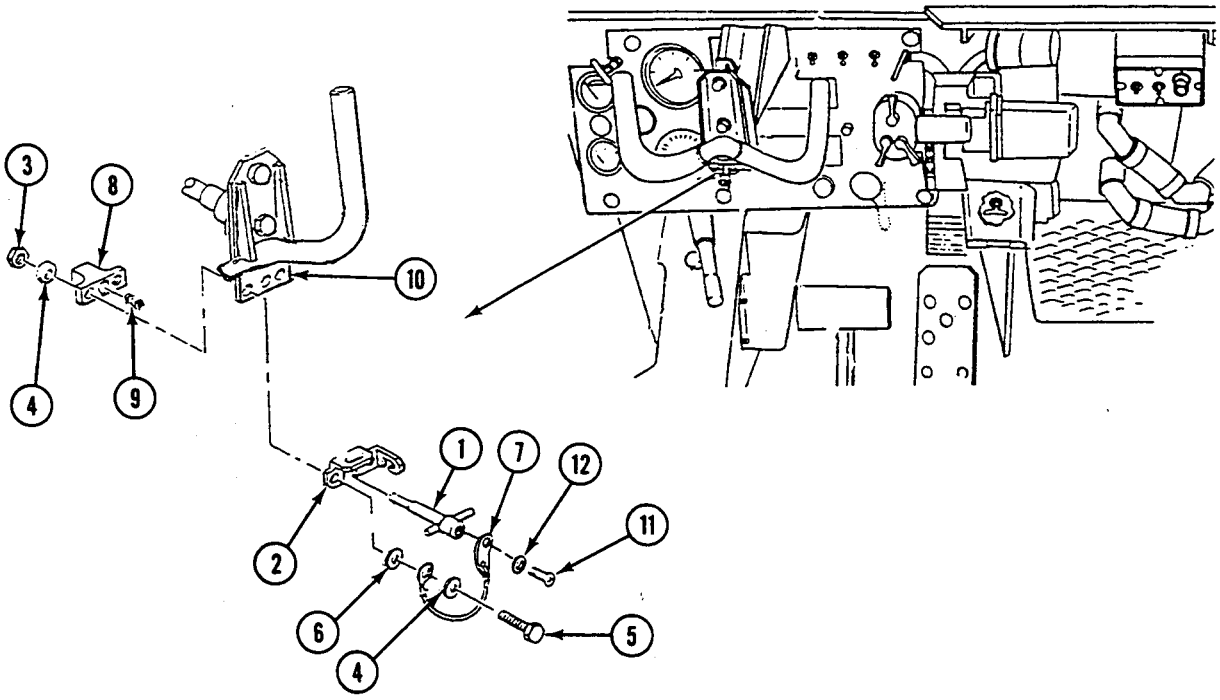
1. Remove quick release pin (1) from steering lock bracket (2).
2. Remove two lock nuts (3), four washers (4), two screws (5), washers (6), wire rope assembly (7), steering lock bracket (2), steering lock housing (8), and spring (9) from steering column housing (10). Discard lock nuts and spring.
3. Remove screw (11), washer (12), and wire rope assembly (7) from quick release pin (1).



REPLACE STEERING WHEEL QUICK RELEASE PIN AND BRACKET (M548A3) — Continued **0363 00**

INSTALLATION

1. Install wire rope assembly (7) on quick release pin (1). Secure with washer (12) and screw (11).
2. Install new spring (9), steering lock housing (8), steering lock bracket (2), two washers (6), and wire rope assembly (7) on steering column housing (10). Secure with four washers (4), two screws (5), and new lock nuts (3).
3. Install quick release pin (1) in steering lock bracket (2).



END OF TASK

REPLACE STEERING WHEEL LINKAGE (M548A3) 0364 00

THIS WORK PACKAGE COVERS:

Removal (page 0364 00-1).
Installation (page 0364 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts

Lock nut (8)
Lock washer (6)

Personnel Required

Unit Mechanic

References

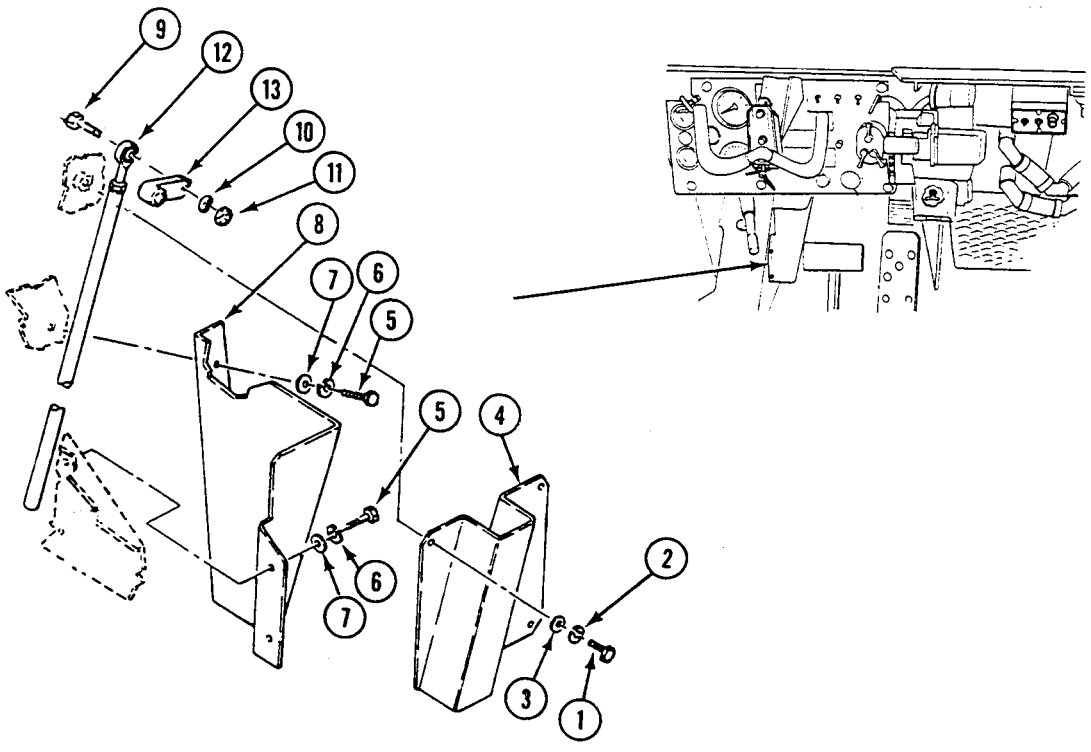
See your -10

Equipment Condition

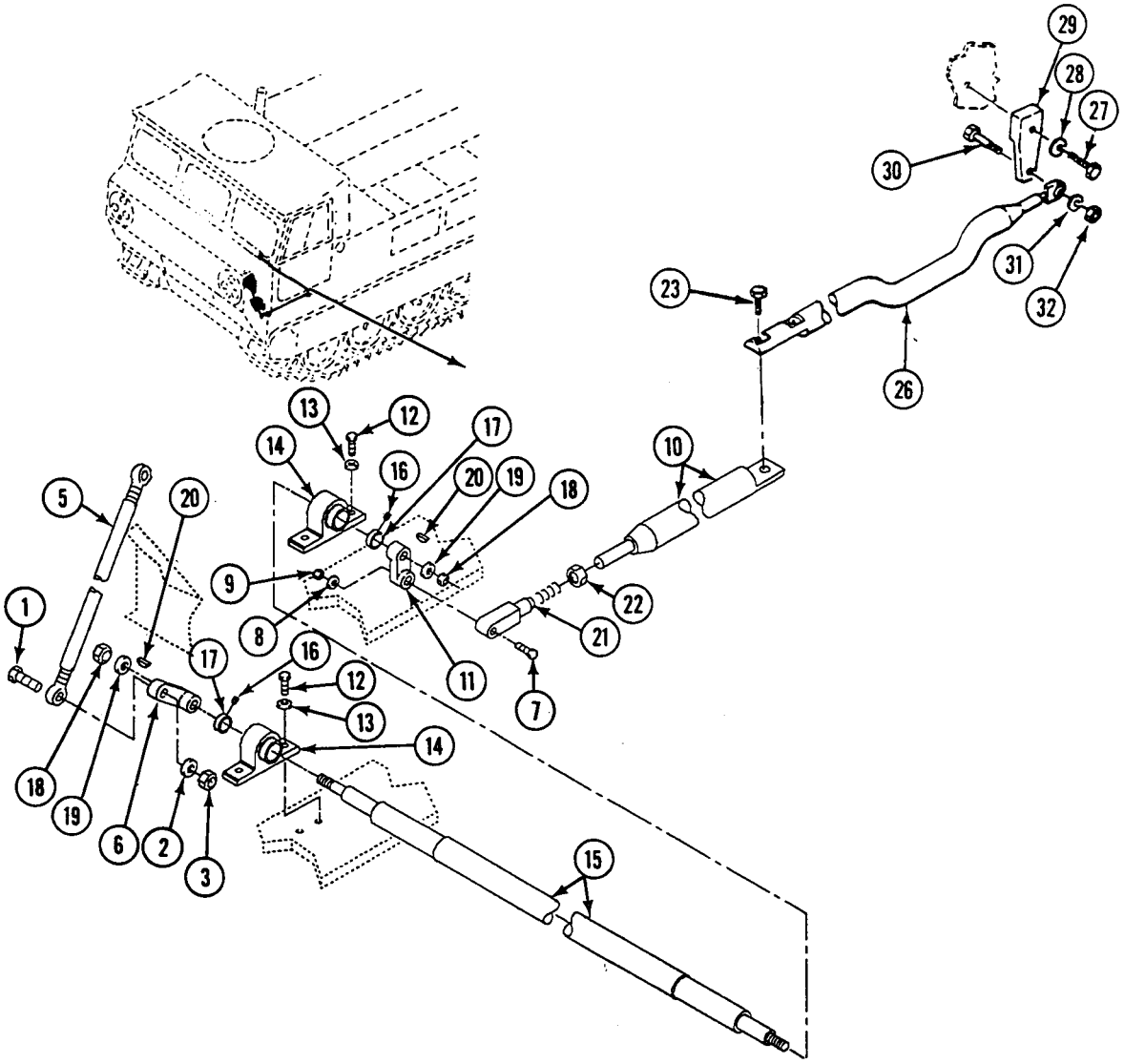
Engine stopped (see your -10)
Carrier blocked (see your -10)
Instrument panel removed (WP 0254 00)
Cab personnel seat raised (see your -10)
Driver's side batteries removed (WP 0291 00)
Driver's side battery box removed (WP 0289 00)
Floor plates removed (WP 0390 00)

REMOVAL

1. Remove three screws (1), lock washers (2), washers (3), and guard (4) from light well. Discard lock washers.
2. Remove three screws (5), lock washers (6), washers (7), and guard (8) from stiffener. Discard lock washers.
3. Remove screw (9), washer (10), lock nut (11), and connecting link (12) from shaft lever (13). Discard lock nut.



4. Remove screw (1), washer (2), lock nut (3), and connecting link (4) with rod end bearing (5) from shaft lever (6). Discard lock nut.
5. Remove screw (7), washer (8), lock nut (9), and connecting link (10) from shaft lever (11). Discard lock nut.
6. Remove four screws (12) and washers (13) from two bearings (14) and plate. Remove shaft (15) and bearings from carrier.
7. Remove two screws (16) from two spacers (17). Remove two lock nuts (18), washers (19), shaft lever (6), shaft lever(11), keys(20), spacers, and bearings (14) from shaft (15). Discard lock nuts.
8. Remove rod end bearing (21) and jam nut (22) from connecting link (10).
9. Remove two screws (23), washers (24), lock nuts (25), and separate connecting link (10) from connecting link (26). Discard lock nuts.
10. Remove screw (27), washer (28), and shaft lever (29) from transmission.
11. Remove screw (30), washer (31), lock nut (32), and connecting link (26) from lever (29). Discard lock nut.



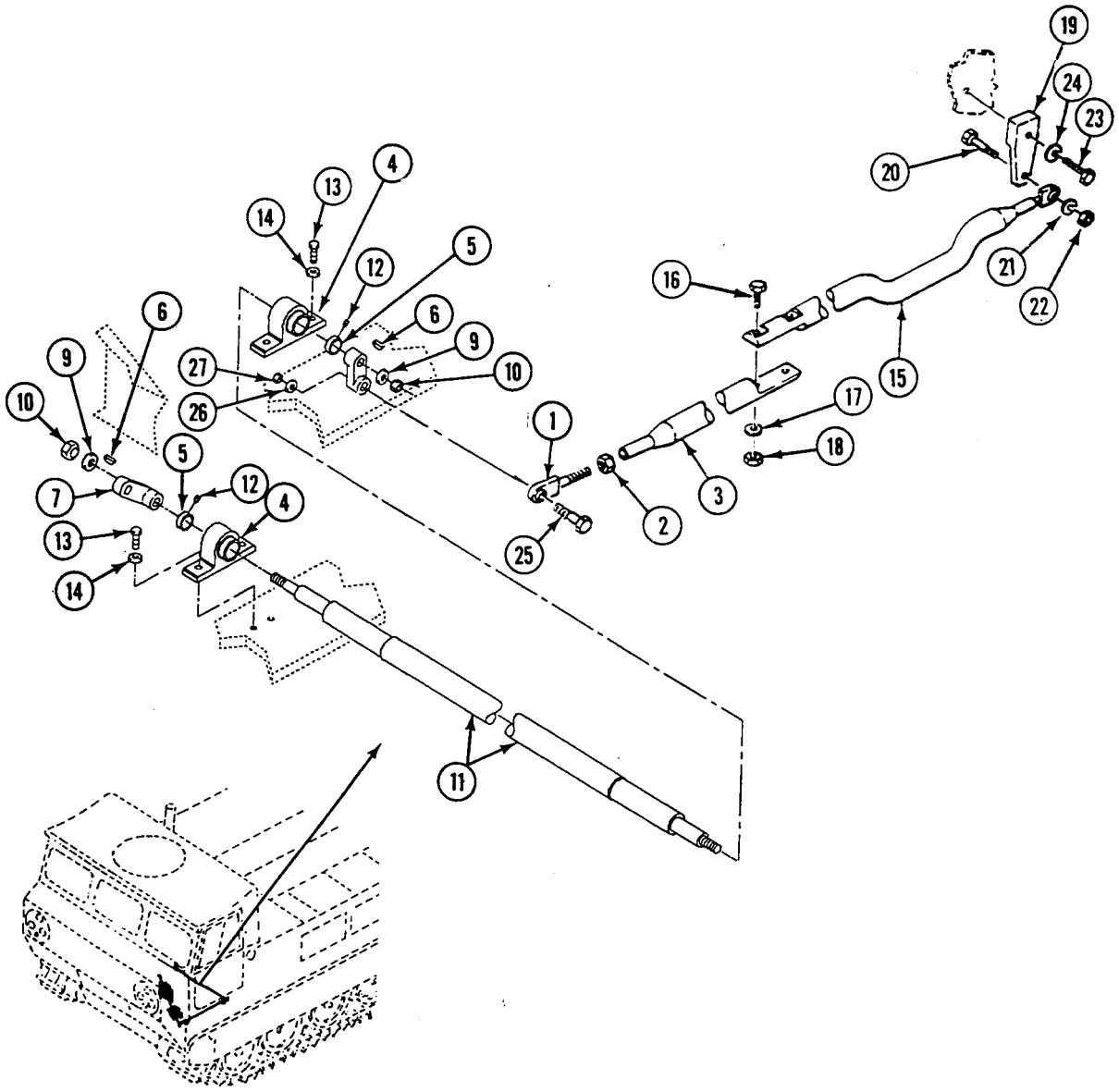
INSTALLATION

1. Install rod end bearing (1) and jam nut (2) on connecting link (3).
2. Install two bearings (4), spacers (5), keys (6), shaft levers (7 and 8), washers (9), and new lock nuts (10) on ends of shaft (11). Install two screws (12) in two spacers.

NOTE

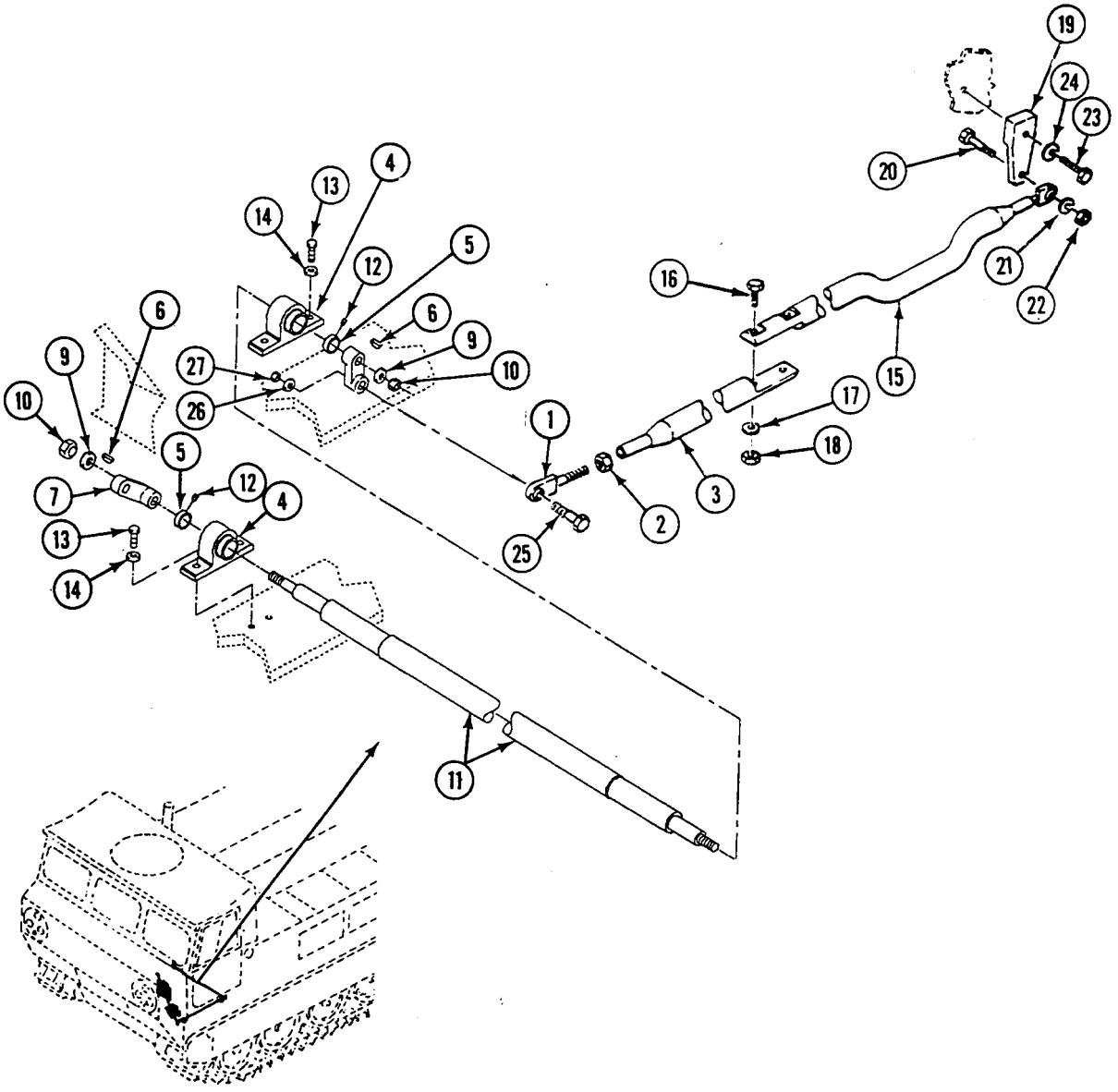
Make sure the shaft is not touching the bulkhead after tightening the two bearings.

3. Install two bearings (4) and shaft (11) on plate. Secure with four screws (13) and washers (14). Tighten two screws (12) to secure shaft (11) in two spacers (5) and bearings.
4. Join connecting link (3), connecting link(15), together with two screws (16), washers (17), and new lock nuts (18).
5. Install lever (19), on connecting link (15) with screw (20), washer (21), and new lock nut (22).
6. Install lever (19) on transmission with screw (23), and washer (24).

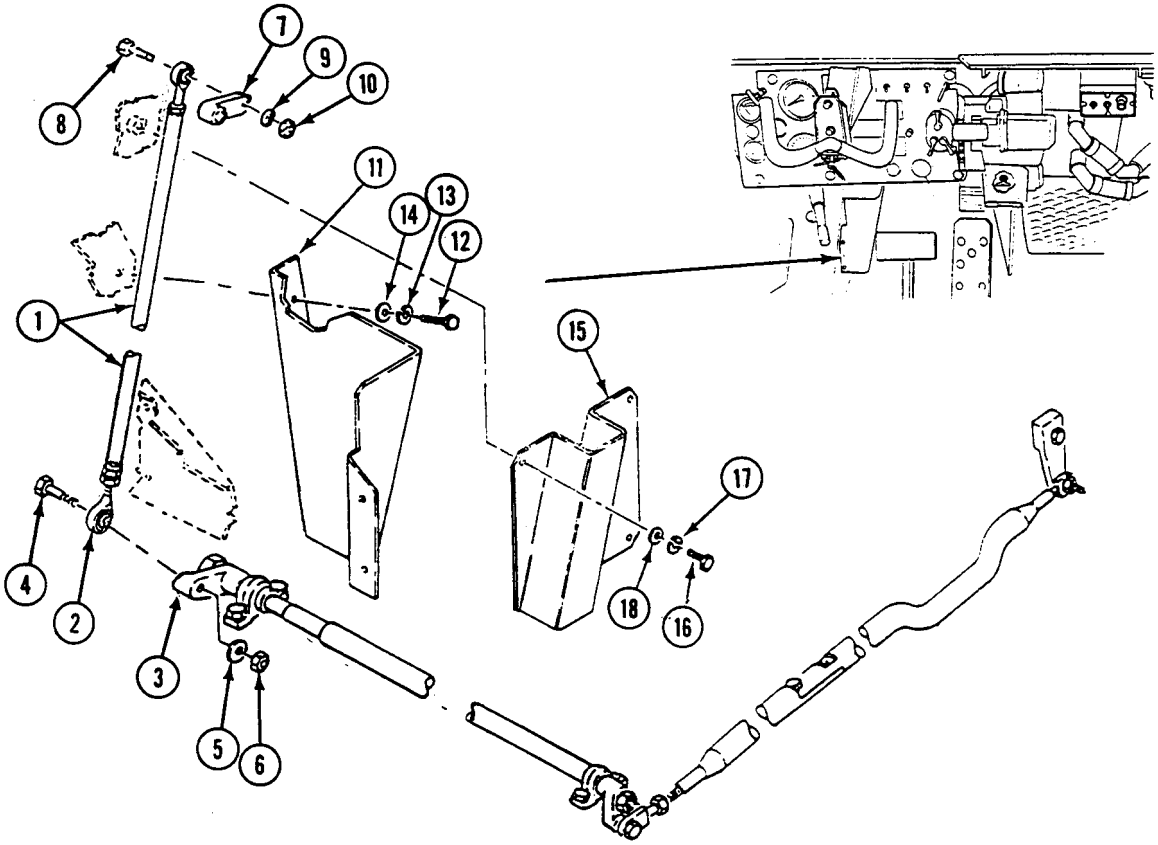


REPLACE STEERING WHEEL LINKAGE (M548A3) — Continued **0364 00**

7. Install rod end bearing (1) on shaft lever (8) with screw (25), washer (26), and new lock nut (27).
8. Install connecting link (1) with rod end bearing (2) on shaft lever (3) with screw (4), washer (5), and new lock nut (6).
9. Install connecting link (1) on shaft lever (7) with screw (8), washer (9), and new lock nut (10).
10. Install guard (11) on stiffener. Secure with three screws (12), new lock washers (13), and washers (14).



11. Install guard (15) on light well. Secure with three screws (16), new lock washers (17), and washers (18).



FOLLOW-THROUGH STEPS

1. Adjust steering wheel linkage (WP 0357 00).
2. Install instrument panel (WP 0254 00).
3. Install floor plates(WP 0390 00).
4. Install driver’s side battery box (WP 0289 00).
5. Install driver’s side batteries (WP 0291 00).
6. Lower cab personnel seat (see your -10).

END OF TASK

REPLACE STEERING WHEEL, COLUMN, HOUSING, AND SHAFT (M548A3) 0365 00

THIS WORK PACKAGE COVERS:

Removal (page 0365 00-2).
Installation (page 0365 00-4).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)
Retaining Ring Pliers (WP 0541 00, Item 30)

Materials/Parts
Lock nut (2)
Lock washer (8)
Retaining ring

Personnel Required
Unit Mechanic

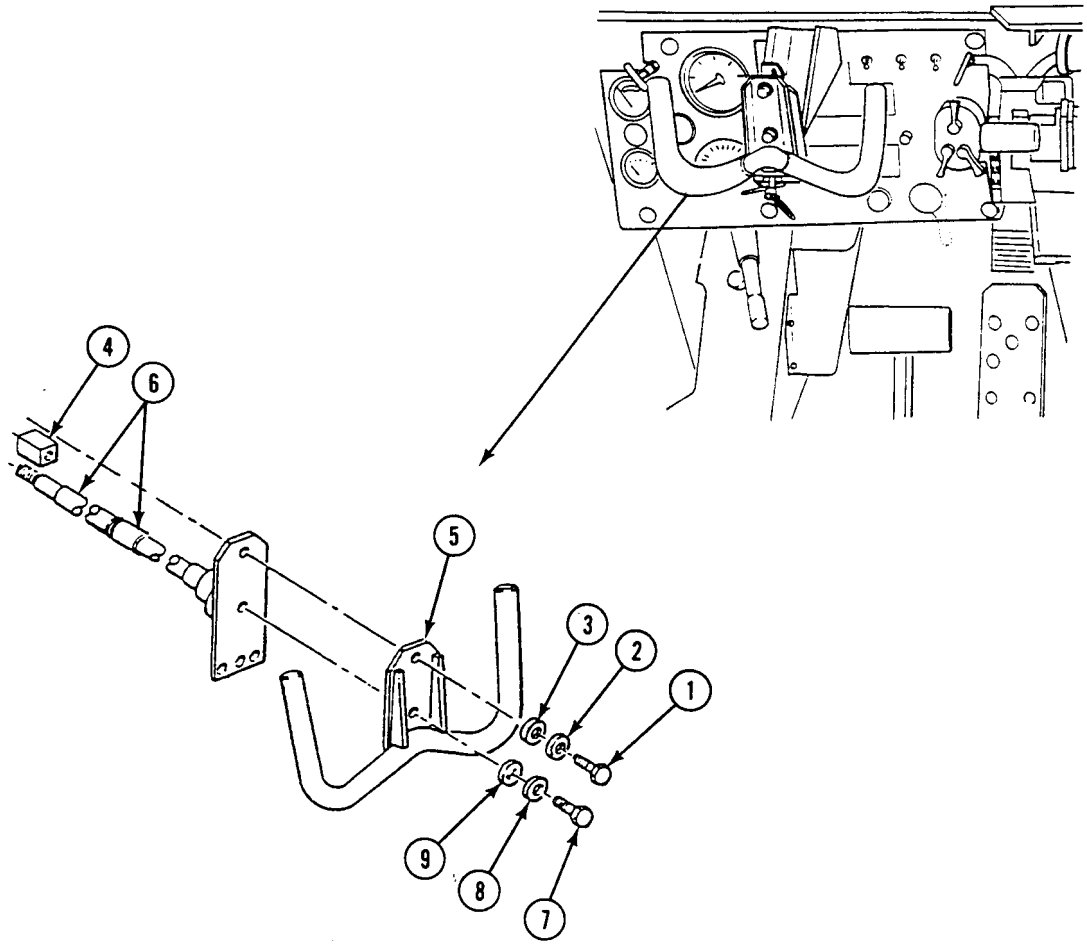
References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Both battery negative leads disconnected (WP 0292 00)
Instrument panel removed (WP 0256 00)
Steering wheel quick release pin and bracket removed (WP 0363 00)

REPLACE STEERING WHEEL, COLUMN, HOUSING, AND SHAFT (M548A3) — Continued 0365 00

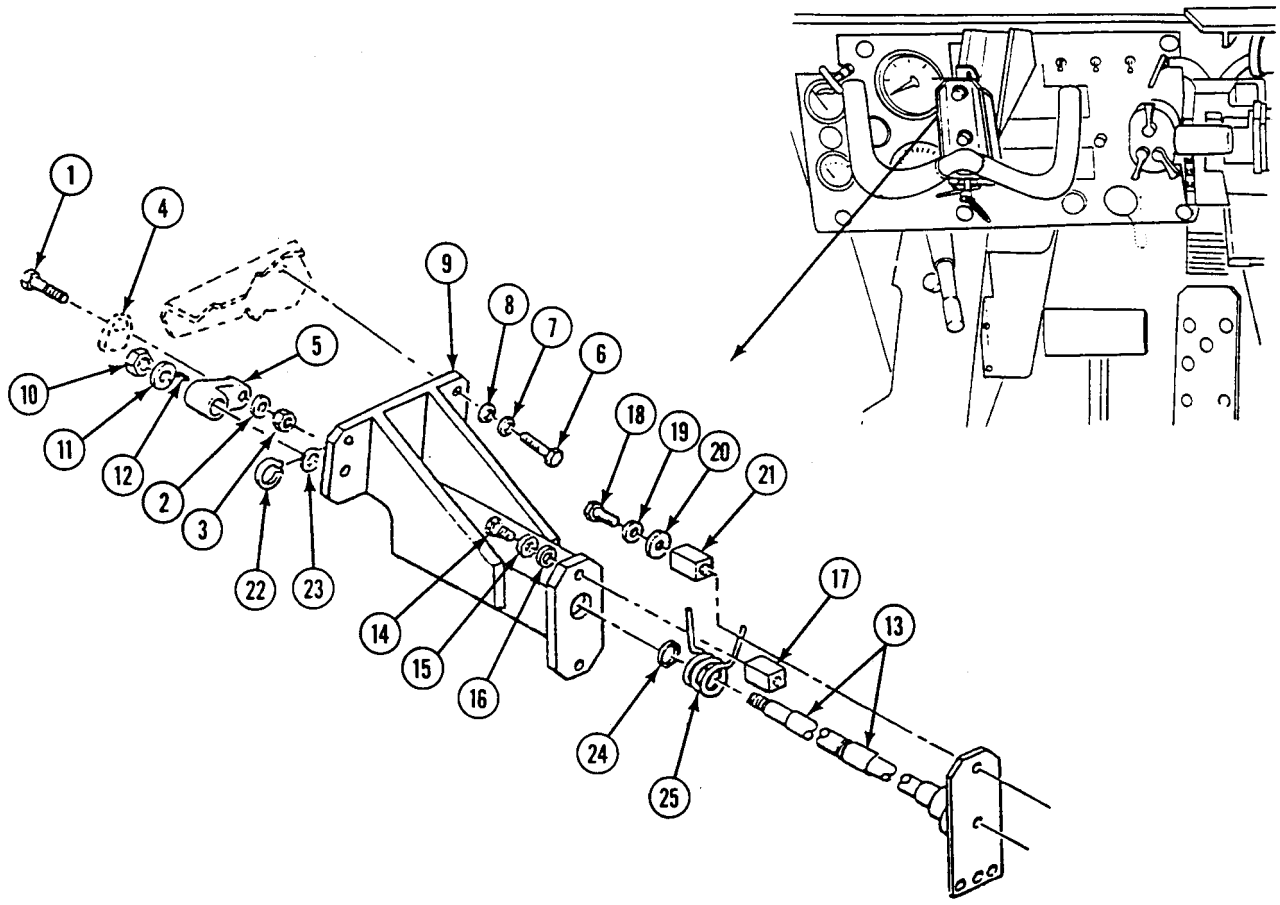
REMOVAL

1. Remove screw (1), lock washer (2), washer (3), and nut (4) from steering wheel (5) and steering column (6). Discard lock washer.
2. Remove screw (7), lock washer (8), washer (9), and steering wheel (5) from steering column (6). Discard lock washer.



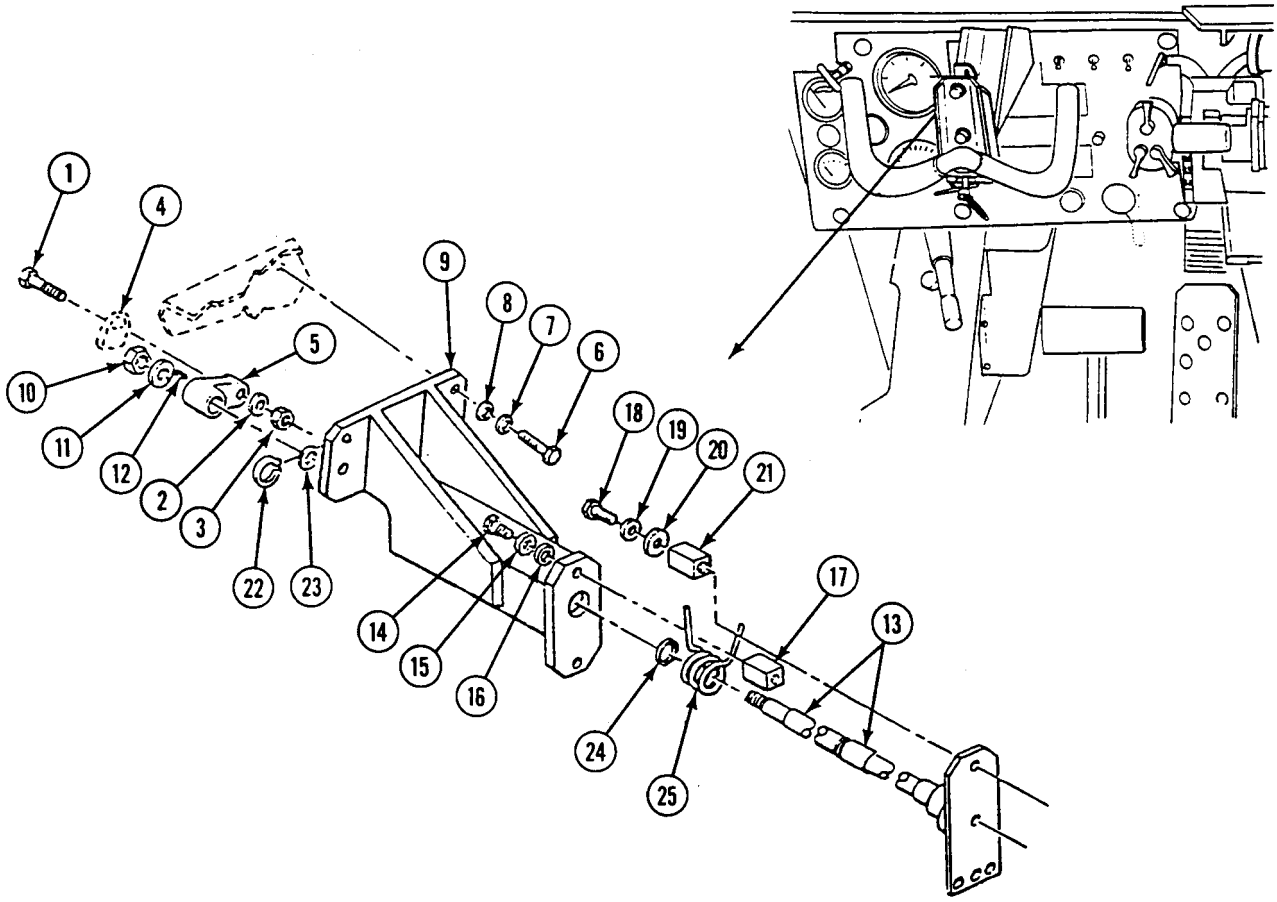
REPLACE STEERING WHEEL, COLUMN, HOUSING, AND SHAFT (M548A3) — Continued 0365 00

3. Remove screw (1), washer (2), lock nut (3), and connecting link (4) from shaft lever (5). Discard lock nut.
4. Remove four screws (6), lock washers (7), washers (8), and housing (9) from cowl assembly. Discard lock washers.
5. Remove lock nut (10), washer (11), shaft lever (5), and key (12) from steering column (13). Discard lock nut.
6. Remove screw (14), lock washer (15), washer (16), and nut (17) from housing (9). Discard lock washer.
7. Remove screw (18), lock washer (19), and washer (20) from nut (21). Discard lock washer.
8. Remove retaining ring (22), washer (23), and steering column (13) from housing (9). Discard retaining ring.
9. Remove washer (24) and spring (25) from steering column (13).

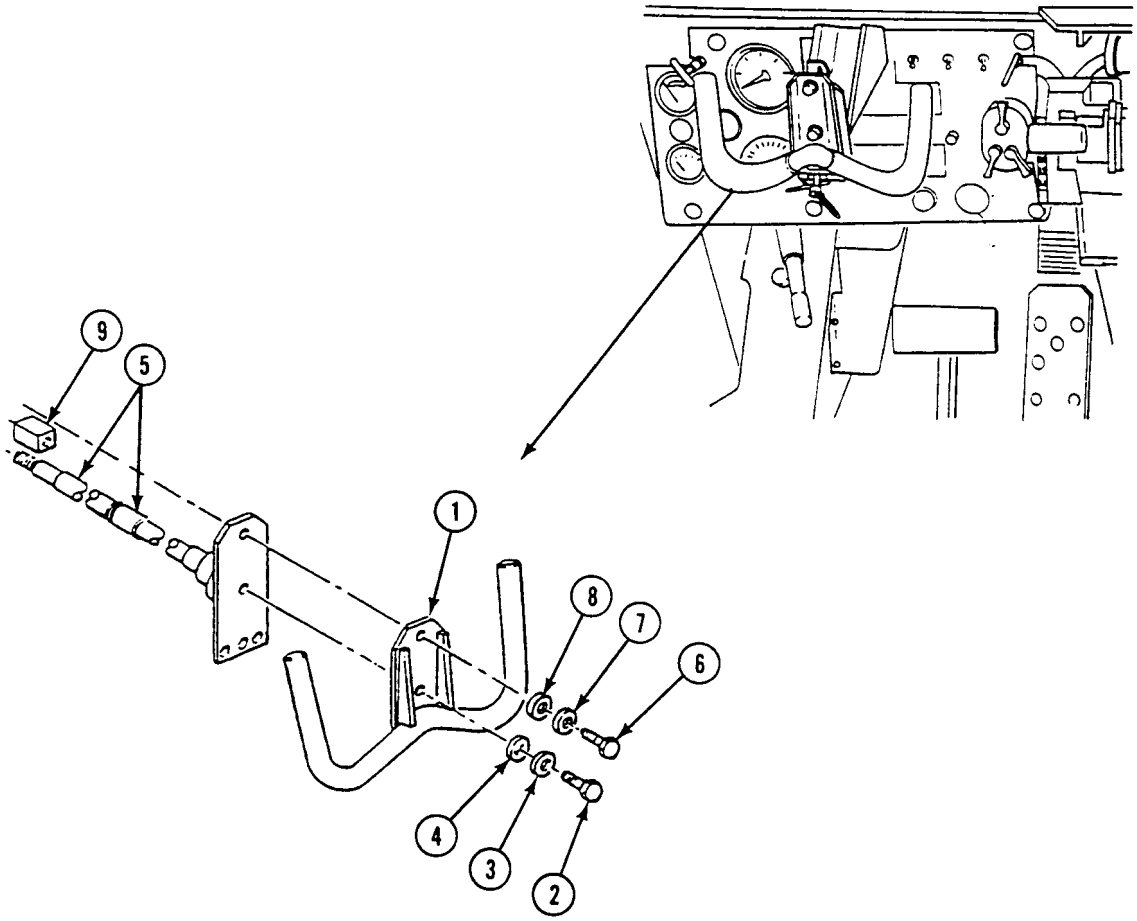


INSTALLATION

1. Install spring (25) and washer (24) on steering column (13).
2. Install steering column (13) in housing (9). Secure with washer (23) and new retaining ring (22).
3. Install shaft lever (5), key (12), washer (11), and new lock nut (10) on steering column (13).
4. Install nut (17), screw (14), new lock washer (15), and washer (16) on housing (9).
5. Install screw (18), new lock washer (19), and washer (20) in nut (21).
6. Install steering housing (9) on cowl assembly. Secure with four screws (6), new lock washers (7), and washers (8).
7. Install connecting link (4) on shaft lever (5). Secure with screw (1), washer (2), and new lock nut (3).



8. Install steering wheel (1), screw (2), new lock washer (3), and washer (4) on steering column (5).
9. Install screw (6), new lock washer (7), washer (8), and nut (9) on steering wheel (1) and steering column (5).



FOLLOW-THROUGH STEPS

1. Install steering wheel quick release pin and bracket (WP 0363 00).
2. Install instrument panel (WP 0256 00).
3. Connect both battery negative leads (WP 0292 00).

END OF TASK

REPLACE STEERING CONTROL/LINKAGE (M548A1) 0366 00

THIS WORK PACKAGE COVERS:

Removal (page 0366 00-1).
Installation (page 0366 00-7).

INITIAL SETUP:

Maintenance Level

Unit

Personnel Required

Unit Mechanic

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)
Socket Wrench Set (WP 0541 00, Item 64)
Torque Wrench (WP 0541 00, Item 71)

References

See your -10

Materials/Parts

Cotter pin (8)
Grooved pins (2)
Lock nut
Lock nut (4)
Lock nut (8)

Equipment Condition

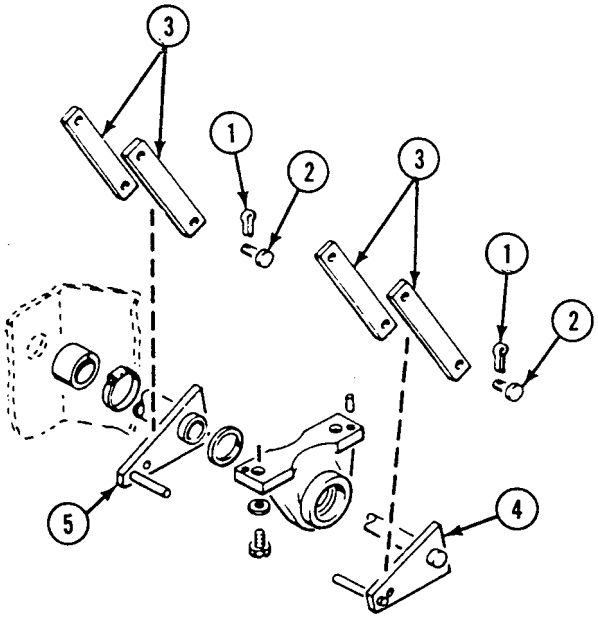
Engine stopped (see your -10)
Carrier blocked (see your -10)
Battery negative lead disconnected (WP 0292 00)
Center seat raised (see your -10)
Right and left center seat floor plates raised (WP 0394 00)
Throttle floor plate removed (WP 0394 00)

REMOVAL

NOTE

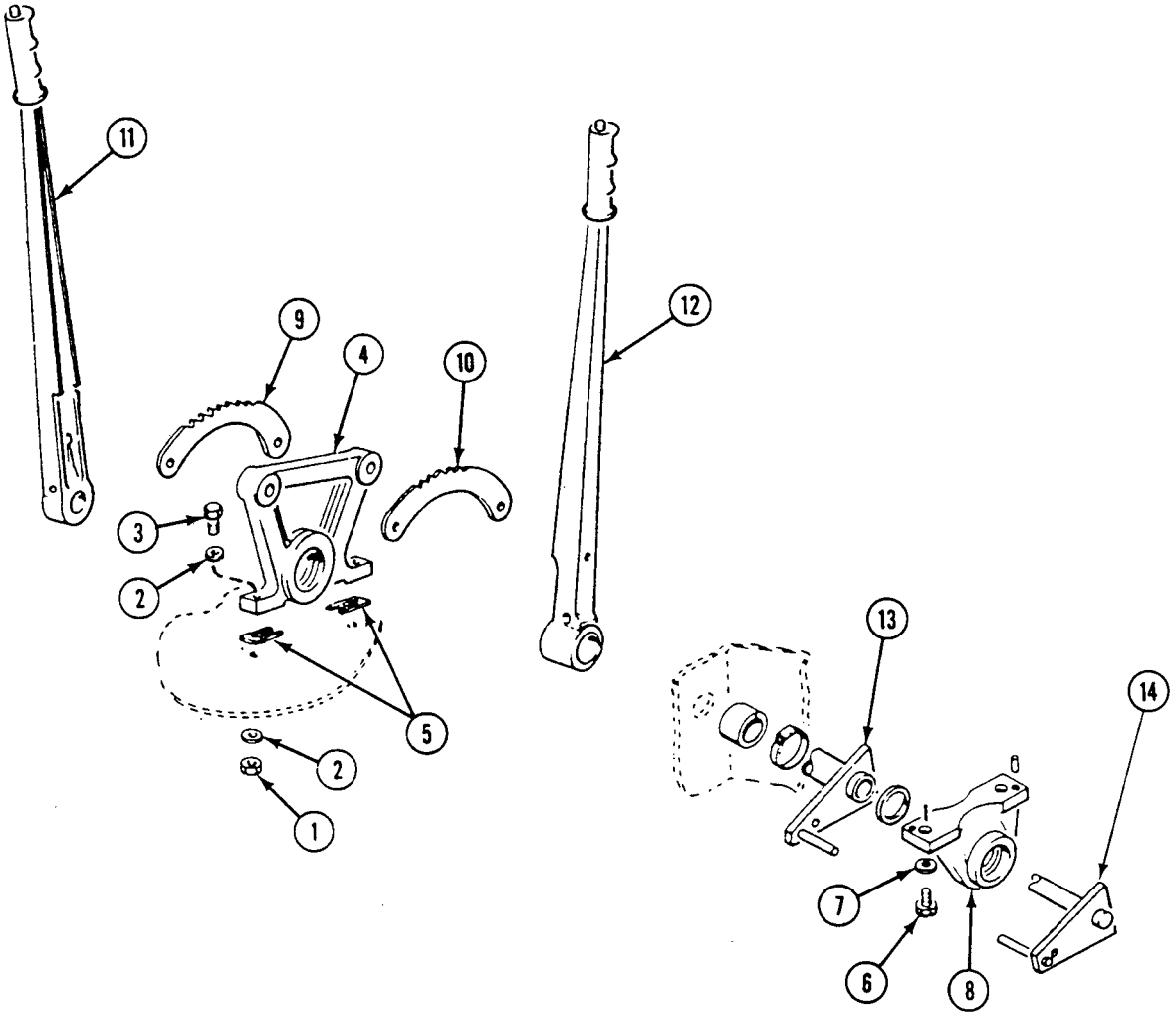
Remove or disassemble only those parts needed to perform maintenance.

1. Remove two cotter pins (1) and clevis pins (2) from four links (3). Discard cotter pins.
2. Remove links (3) from left control shaft (4) and right control shaft (5).



REPLACE STEERING CONTROL/LINKAGE (M548A1) — Continued **0366 00**

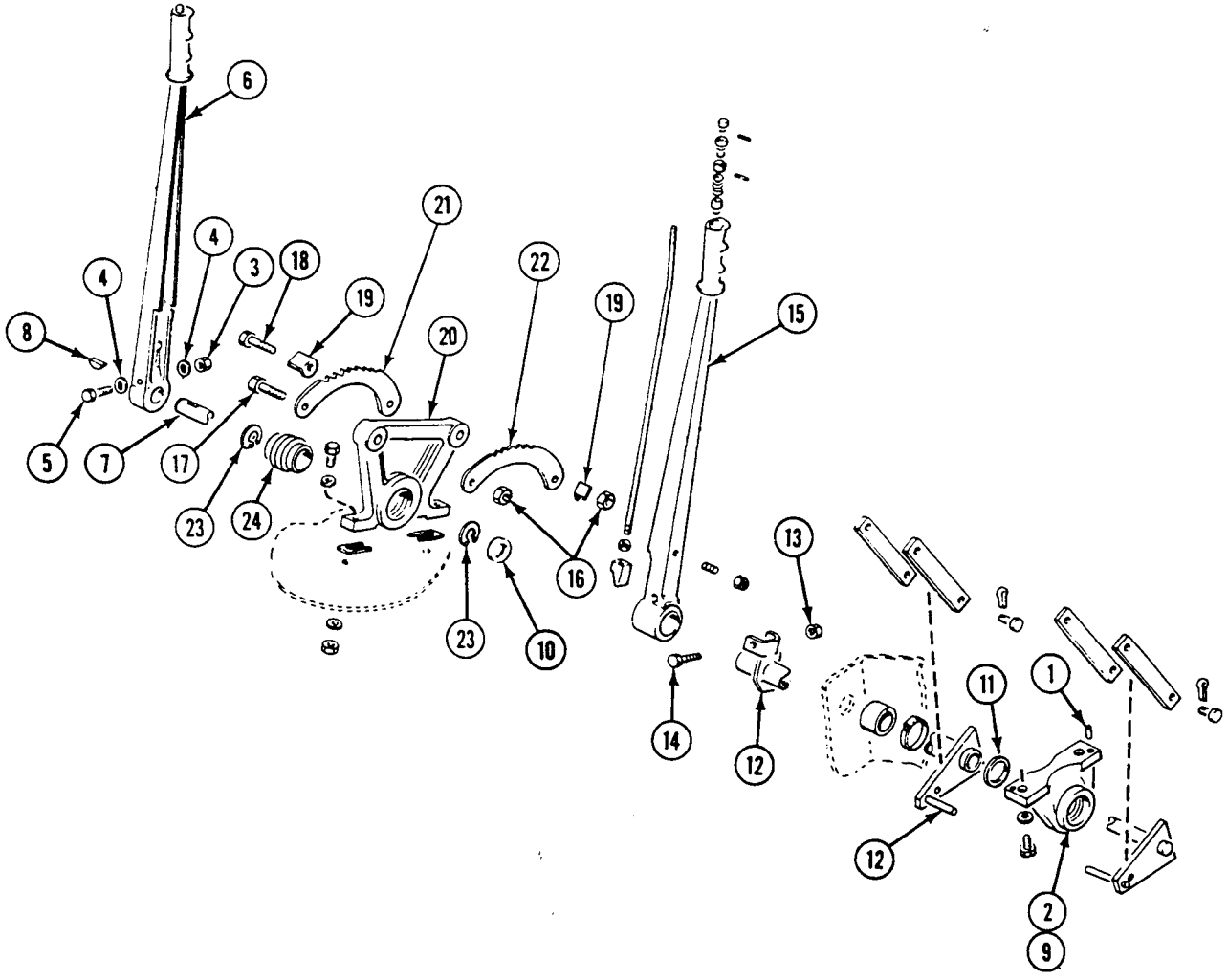
3. Remove two lock nuts (1), four washers (2), and two screws (3) from quadrant bracket (4) and hull floor. Remove shims (5) from under quadrant bracket (4). Discard lock nuts.
4. Remove two screws (6), washer (7), and bearing (8) from hull.
5. Remove as a unit from carrier, bearing (8), quadrant bracket (4), quadrant (9), quadrant (10), left steering lever (11), right steering lever (12), control shaft (13), and control shaft (14).



NOTE

Check left and right steering levers to determine, by part number, which disassembly procedure to use. For left and right steering levers with part numbers 11589025 and 11589024, respectively, do Steps 6 - 17 to disassemble, then go to Step 25. For left and right steering levers with part numbers 12269205 and 12269206, respectively, do Steps 6 - 11, then go to Step 18 to disassemble.

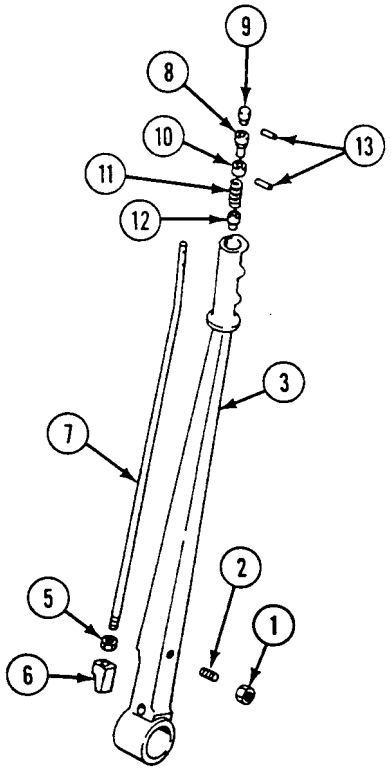
6. Remove two aligning pins (1) from bearing (2) or hull.
7. Remove lock nut (3), two washers (4), and screw (5) from left steering lever (6). Remove left control shaft (7) from steering lever (6). Remove key (8) from control shaft. Discard lock nut.
8. Loosen setscrew (9) on bearing (2). Remove left control shaft (7), spacer washer (10), spacer washer (11), and bearing unit (2) from right steering control shaft (12).
9. Remove lock nut (13) and screw (14) from right steering control shaft (12). Remove right steering lever (15) from right steering control shaft.
10. Remove two lock nuts (16), screw (17), stop screw (18), and two quadrant stops (19) from quadrant bracket (20). Remove steering lever quadrant(21) and steering lever quadrant (22) from quadrant bracket. Discard lock nuts.
11. Remove two bearing retainer rings (23) and bracket bearing (24) from quadrant bracket (20).



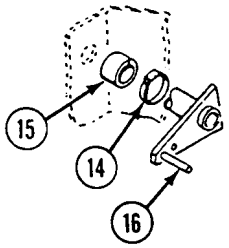
NOTE

Left and right steering levers are alike and are disassembled in the same way.

12. Remove jam nut (1) and screw (2) from left steering lever(3) and right steering lever (4) to be disassembled.
13. Loosen jam nut (5). Remove steering lever pawl (6) and jam nut from steering lever rod (7).
14. Unscrew guide (8). Remove steering lever rod (7) with button (9), guide and collar (10).
15. Remove spring (11) and bushing (12).
16. Remove two grooved pins (13). Remove button (9), guide (8), and collar (10) from steering lever rod (7). Discard grooved pins.



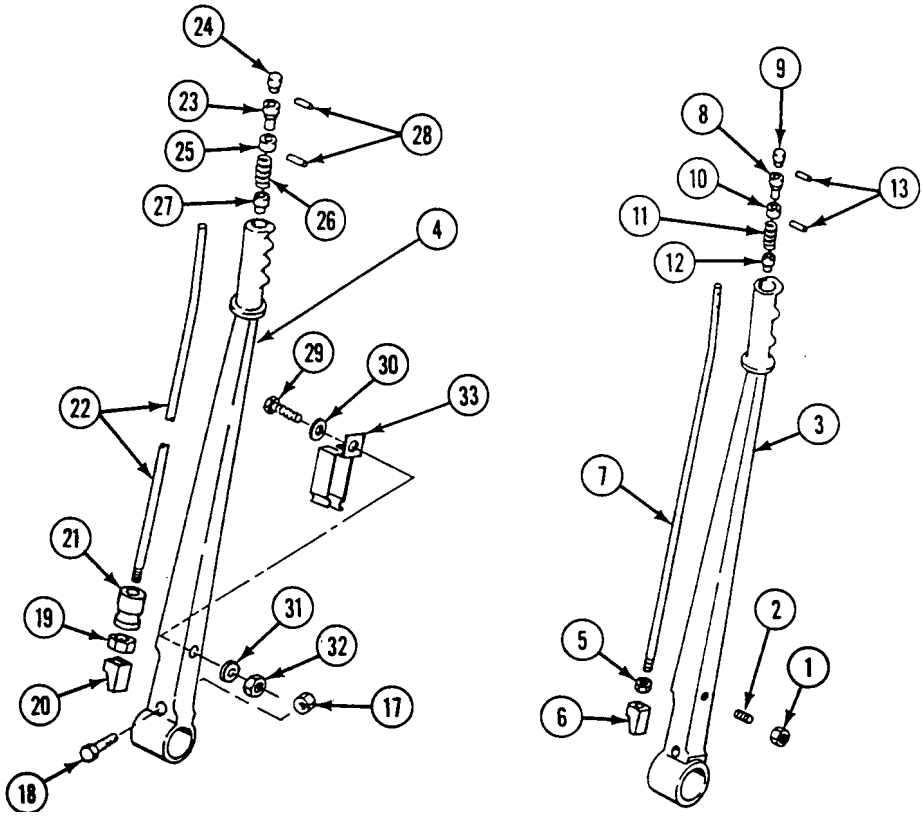
17. Remove seal clamp (14) securing shaft flexible seal (15) to right steering control shaft (16). Remove seal. Go to Step 25.



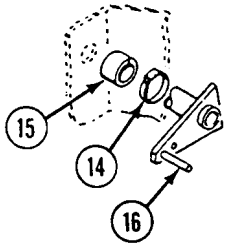
NOTE

Steps 18 - 23 apply only to the disassembly of steering levers with part numbers 12269205 and 12269206.

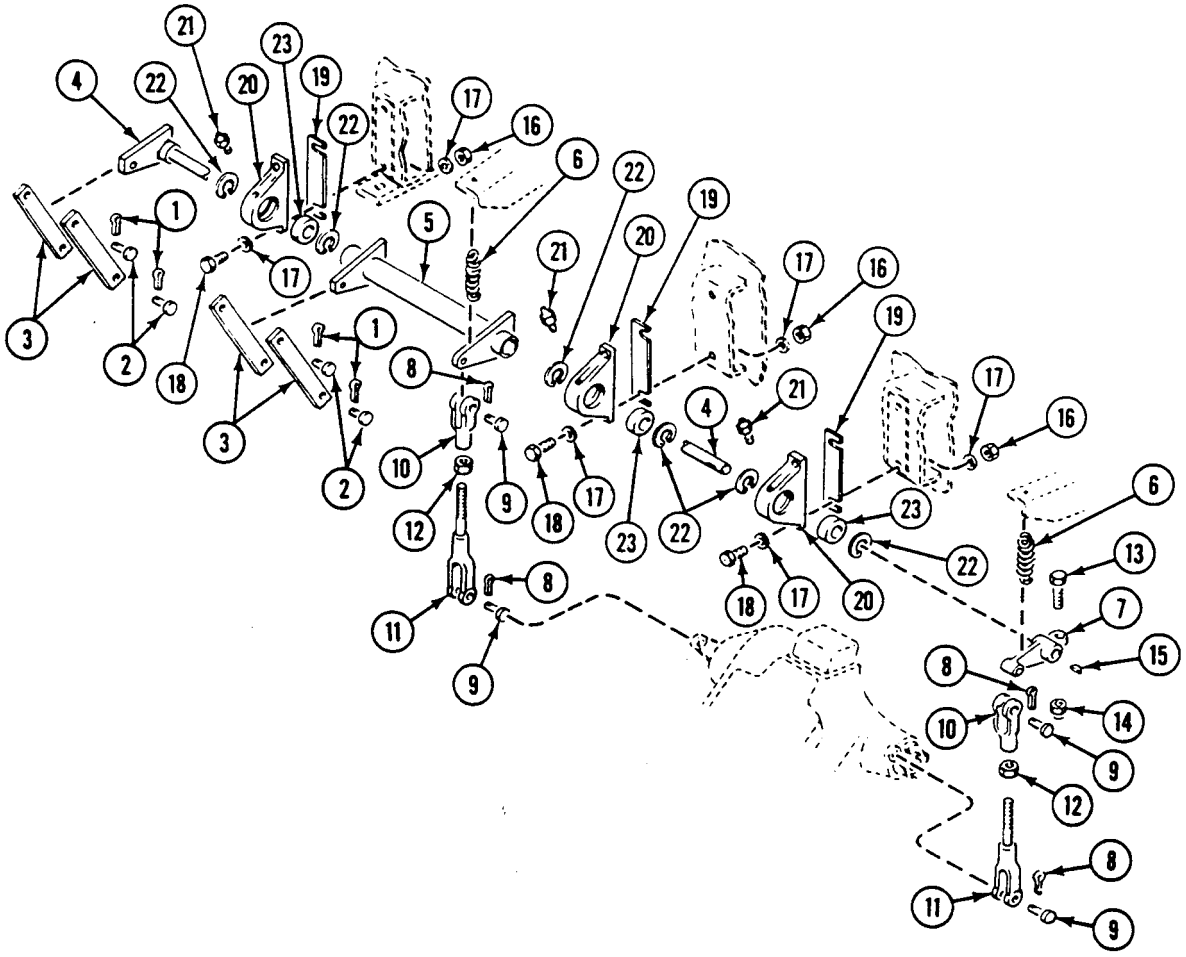
18. Remove jam nut (17) and screw (18) from left steering lever (3) and right steering lever (4) to be disassembled.
19. Loosen jam nut (19). Remove steering lever pawl (20), jam nut, and detent nut (21) from steering lever rod (22).
20. Unscrew guide (23). Remove steering lever rod (22) with button (24), guide, and collar (25).
21. Remove spring (26) and bushing (27).
22. Remove two grooved pins (28). Remove button (24), guide (23), and collar (25) from steering lever rod (22). Discard grooved pins.
23. Remove bolt (29), spring washer (30), washer (31), and lock nut (32) securing rod clip (33) to steering lever(3) and steering lever(4). Remove rod clip. Discard lock nut.



24. Remove seal clamp (14) securing shaft flexible seal (15) to right steering control shaft (16). Remove seal.

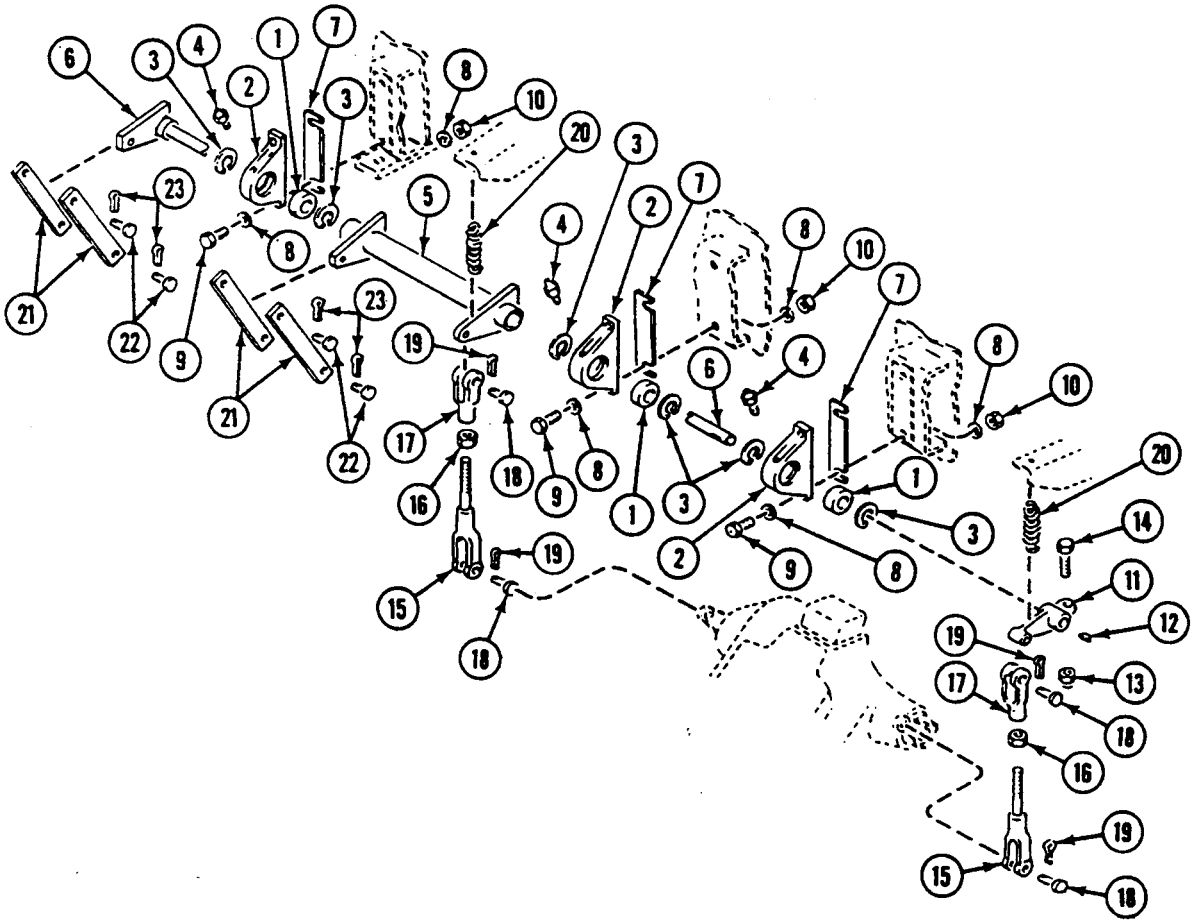


25. Remove two cotter pins (1) and clevis pins (2) from four connecting links (3). Remove links from inner shaft (4) and outer shaft (5). Discard cotter pins.
26. Remove two return springs (6) from hull brackets, outer shaft (5), and actuator arm (7).
27. Remove four cotter pins (8) and clevis pins (9) from two upper clevises (10) and two lower clevises (11). Remove two pairs of assembled clevises from differential arms, actuator arm (7), and outer shaft (5). Discard cotter pins.
28. Loosen two jam nuts (12). Remove two upper clevises (10) from two lower clevises (11).
29. Loosen screw (13) from lock nut (14) securing actuator arm (7) and key (15) to inner shaft (4). Remove actuator arm and key from shaft. Discard lock nut.
30. Remove 6 lock nuts (16), 12 washers (17), 6 screws (18), and bearing shims (19) from 3 bearing housings (20). Remove inner shaft (4) with outer shaft (5) and 3 bearing housings (20). Discard lock nuts.
31. Remove two bearing housings (20) and outer shaft (5) from inner shaft (4).
32. Remove bearing housing (20) from inner shaft (4).
33. Remove three lubrication fittings (21) from three bearing housings (20).
34. Remove six retainer rings (22) from three bearing housings (20). Remove three bearings (23) from three bearing housings (20).



INSTALLATION

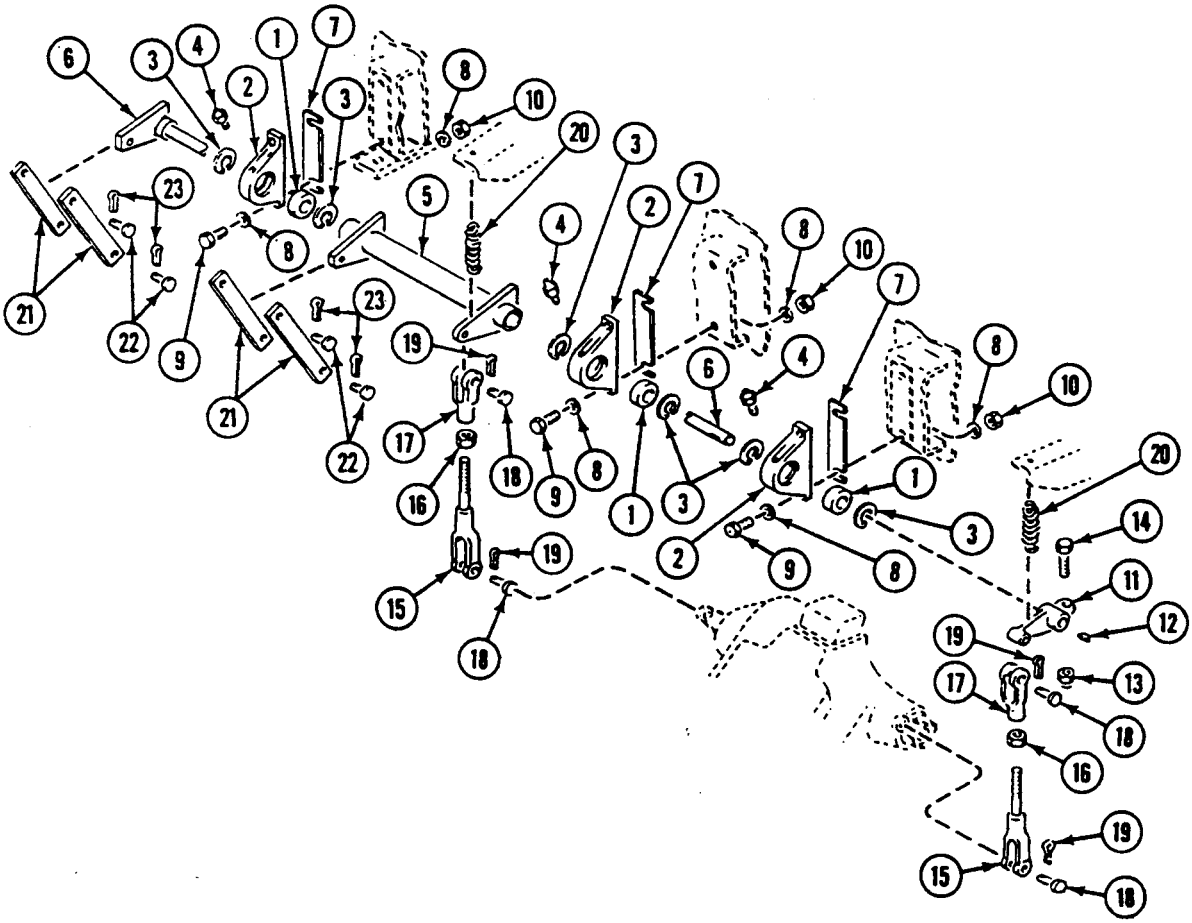
1. Install three bearings (1) in three bearing housings (2). Secure with six retainer rings (3).
2. Install three lubrication fittings (4) on three bearing housings (2).
3. Install one bearing housing (2), outer shaft (5), and two bearing housings (2) on inner shaft (6).
4. Place inner shaft (6) assembled with one bearing housing (2) and outer shaft (5) on center seat support.
5. Align two bearing housings (2) with mounting plates.
6. Place three bearing housings (2) in place using shims (7), as needed, so shaft (6) and shaft (5) will turn freely.
7. Secure 3 bearing housings (2) to center seat support with 12 washers (8), 6 screws (9), and new lock nuts (10).
8. Install actuator arm (11) on inner shaft (6). Install key (12) in inner shaft (6). Secure arm (11), and key (12) with new lock nut (13) and screw (14). Tighten screw to 240 to 300 lb-in (28 to 34 N•m) torque.



NOTE

Make sure rod end shows at hole in lower clevis (15).

9. Install two jam nuts (16) and upper clevises (17) on two lower clevises (15). Secure clevises with jam nuts (16).
10. Place assembled clevis pair (15) and assembled clevis pair (17) in carrier with lower clevises (15) on two differential arms.
11. Secure clevises (15) to differential arms with two clevis pins (18) and new cotter pins (19). Secure upper clevises (17) to actuator arm (11) and outer shaft (5) with two clevis pins (18) and new cotter pins (19).
12. Install return spring (20) from actuator arm (11) to hull bracket. Install return spring from outer shaft (5) to hull bracket.
13. Install four connecting links (21) to inner shaft (6) and outer shaft (5) with two clevis pins (22) and new cotter pins (23).



NOTE

For left and right steering levers with part numbers 11589025 and 11589024, respectively, go to Step 14 to install. For left and right steering levers with part numbers 12269205 and 12269206, respectively, go to Step 21 to install.

Left and right steering levers are alike and are assembled the same way.

14. Install collar (1), guide (2), and button (3) on steering lever rod (4). Secure collar and button with two new grooved pins (5).

15. Install bushing (6) and spring (7).

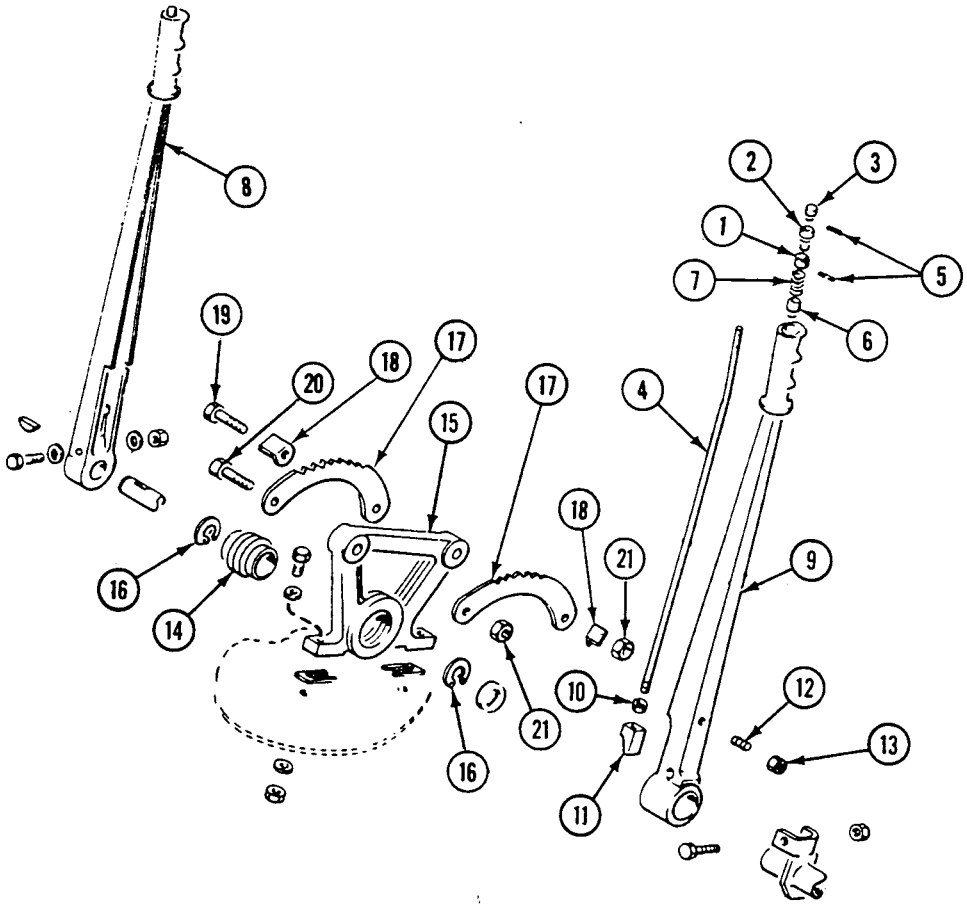
16. Install steering lever rod (4) with button (3), guide (2), and collar (1) in left steering lever (8) and right steering lever (9). Screw guide into two steering levers to secure.

17. Install jam nut (10) and steering lever pawl (11) on steering lever rod (4). Secure pawl with jam nut.

18. Install screw (12). Secure with jam nut (13).

19. Install bracket bearing (14) in quadrant bracket (15). Secure with two bearing retainer rings (16).

20. Place two steering lever quadrants (17) and quadrant stops (18) on quadrant bracket (15). Secure with stop screw (19), screw (20), and two new lock nuts (21). Go to Step 29.



NOTE

The following steps are for left and right steering levers with part numbers 12269205 and 12269206, used in later models.

21. Position rod clip (1) in left steering lever (2) and right steering lever (3) and secure with bolt (4), spring washer (5), washer (6), and new lock nut (7).

22. Install collar (8), guide (9), and button (10) on steering lever rod (11). Secure collar and button with two new grooved pins (12).

23. Install bushing (13) and spring (14).

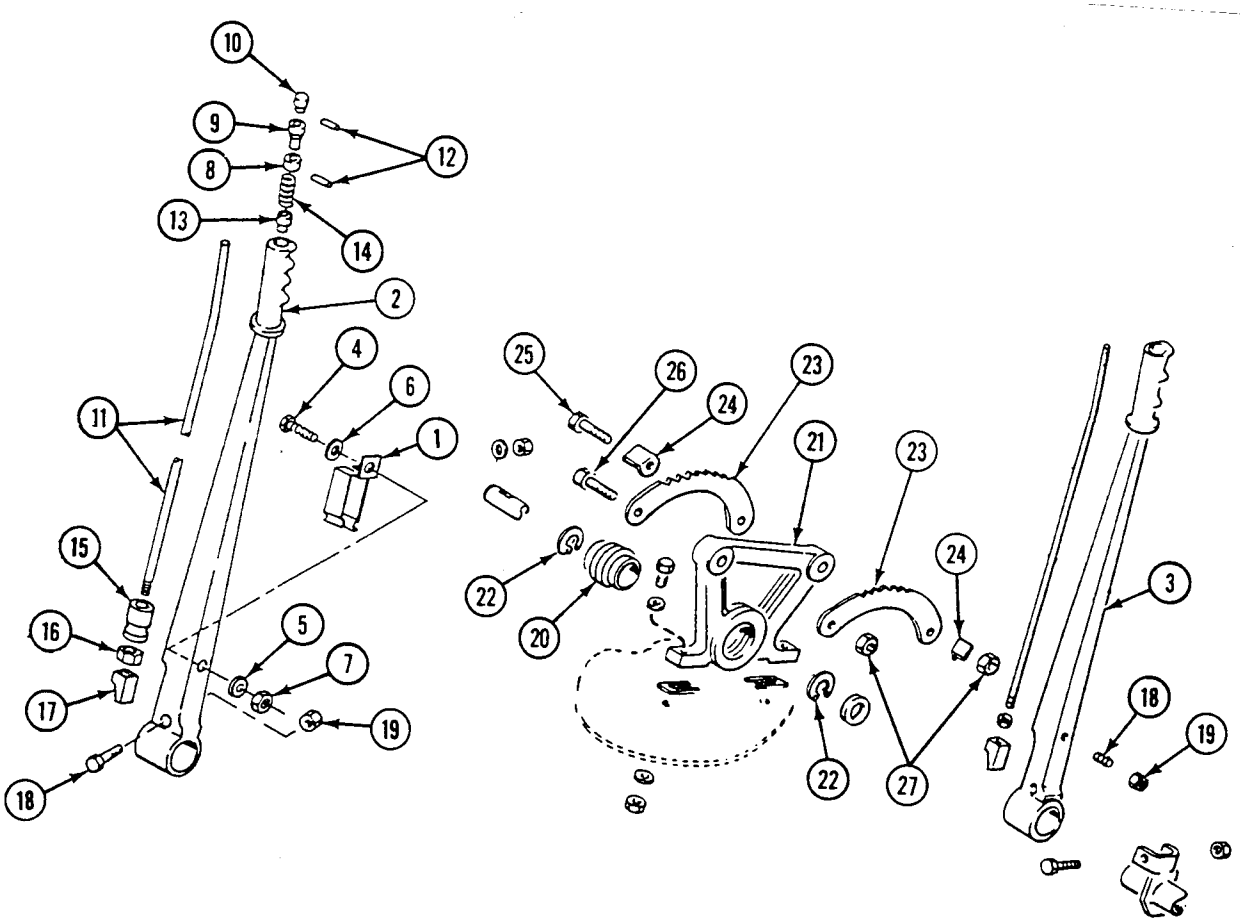
24. Install steering lever rod (11) with button (10), guide (9), and collar (8) in left steering lever (2) and right steering lever (3). Screw guide into steering levers to secure.

25. Install detent nut (15), jam nut (16) and steering lever pawl (17) on steering lever rod (11). Secure pawl with jam nut.

26. Install screw (18). Secure with jam nut (19).

27. Install bracket bearing (20) in quadrant bracket (21). Secure with two bearing retainer rings (22).

28. Place two steering lever quadrants (23) and quadrant stops (24) on quadrant bracket (21). Secure with stop screw (25), screw (26), and two new lock nuts (27).



NOTE

Mount steering lever quadrant on bracket with teeth pointing in opposite direction of arrow on bracket. Mount stops on bracket end, in direction of arrow.

29. Place right steering lever (1) on right control shaft (2). Secure with screw (3) and new lock nut (4).

30. Install bearing (5) on left control shaft (6) so setscrew (7) is adjacent to shaft lever. Secure setscrew on bearing.

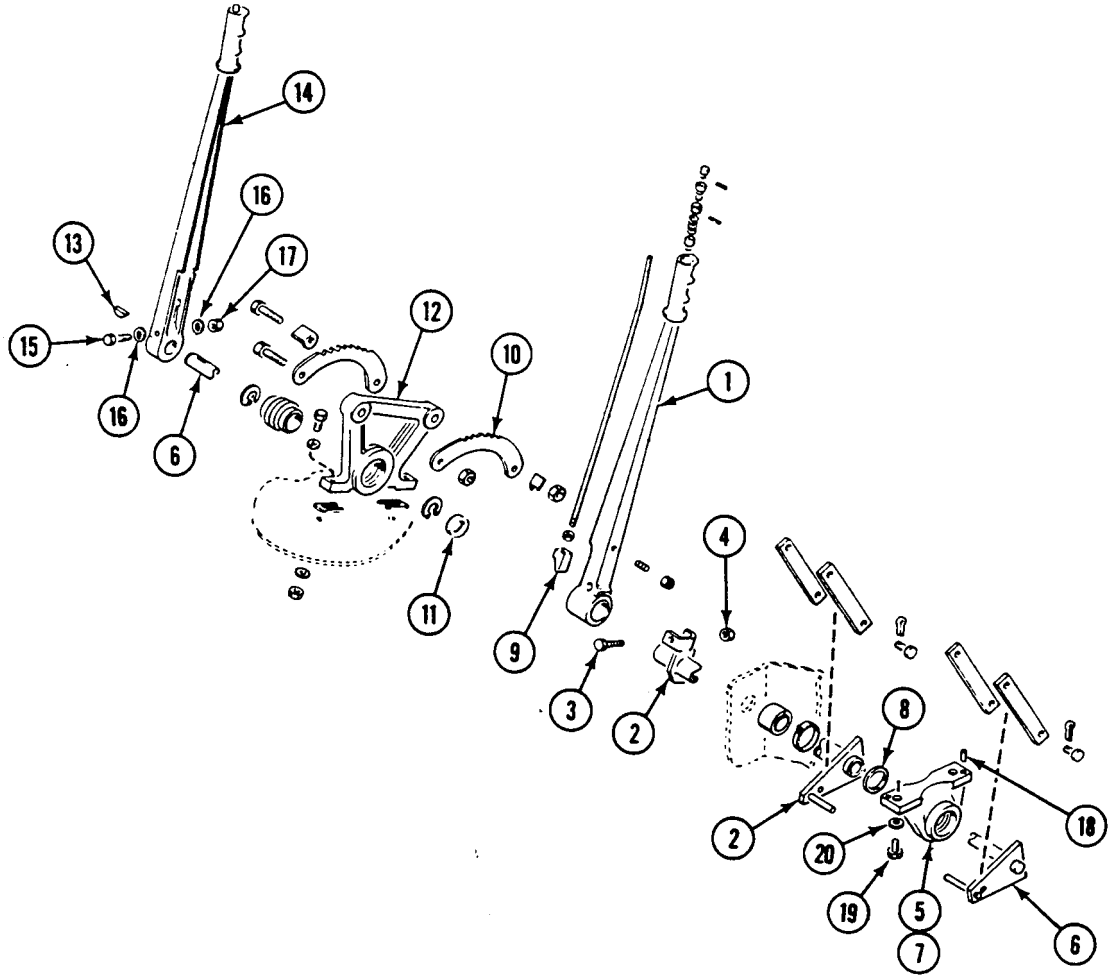
31. Install spacer washer (8) on left control shaft (6) to obtain proper engagement of right steering lever (1), steering lever pawl (9), and steering lever quadrant (10). Insert left control shaft through right control shaft (2). Install one spacer washer (11) and quadrant bracket (12) on left control shaft.

32. Place key (13) on left steering lever (14) on left control shaft (6). Obtain proper engagement of steering lever pawl (9) and quadrant (10). Secure with screw (15), two washers (16), and new lock nut (17). Tighten nut to 204 - 240 lb-in (24 - 27 N•m) torque.

33. Place bearing (5) and quadrant bracket (12) with left control shaft (6) and right control shaft (2) and right steering lever (1) and left steering lever (14) attached in carrier.

34. Install two aligning pins (18) in bearing (5).

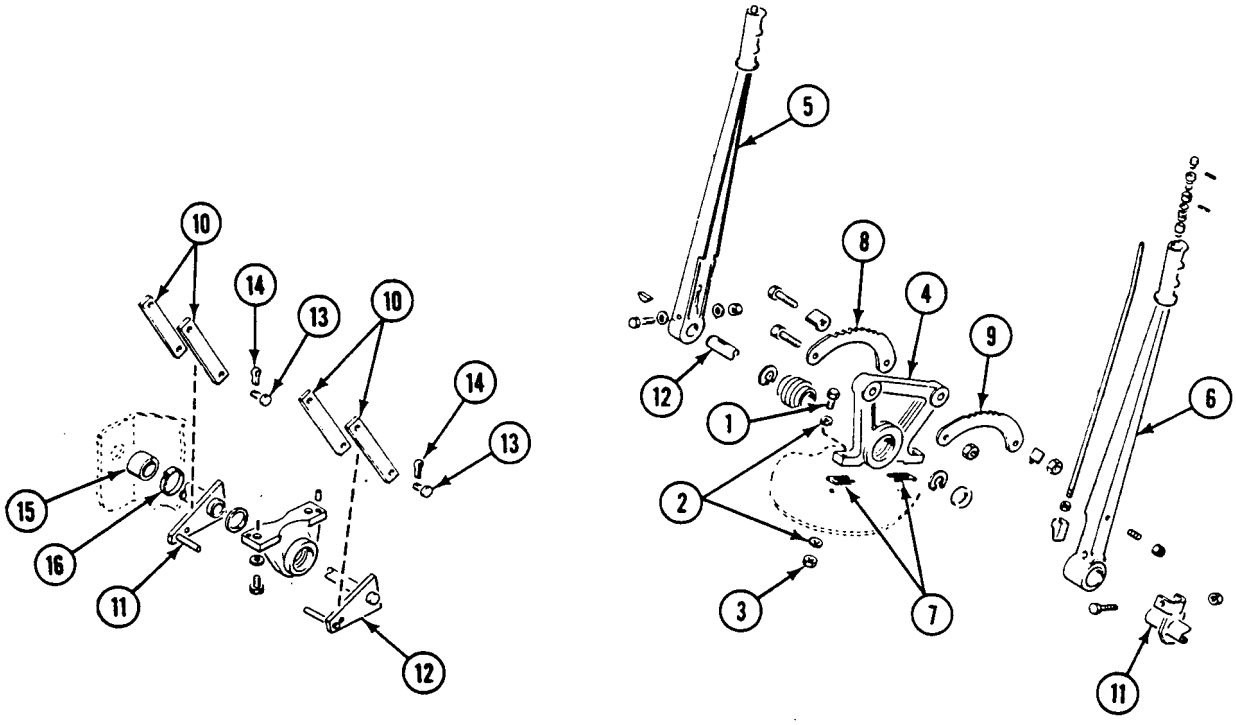
35. Install two screws (19) and washers (20) to secure bearing (5).



NOTE

Add washers, as needed, to front screw only on bearing to make sure screw does not extend beyond top of mounting bracket.

36. Install two screws (1), four washers (2), and two new lock nuts (3) to secure quadrant bracket (4) to driver's floor. Do not tighten nuts.
37. Adjust quadrant bracket (4) as follows:
    a. Place left steering lever (5) and right steering lever (6) fully forward. Install shims (7) under front of quadrant bracket (4) so steering levers clear instrument panel by 2-1/8 to 2-3/8 in (5 to 6 cm) at point of nearest approach.
    b. Pull left steering lever (5) and right steering lever (6) to last notch in steering lever quadrant (8) and steering lever quadrant (9). Install shims (7) under rear of quadrant bracket (4) so steering levers clear driver's seat.
    c. Tighten two screws (1) and lock nuts (3).
38. Place four connecting links (10) on right control shaft (11) and left control shaft (12). Secure with two clevis pins (13) and new cotter pins (14).
39. Place shaft flexible seal (15) on right control shaft (11). Push seal tight against bulkhead. Place seal clamp (16) 1/8 to 3/8 in (3 to 10 mm) from right end of flexible seal. Tighten seal clamp until flexible seal is snug on shaft.



FOLLOW-THROUGH STEPS

1. Install throttle floor plate (WP 0394 00).
2. Lower right and left center seat floor plates (WP 0394 00).
3. Lower center seat (see your -10).
4. Adjust steering controls (WP 0367 00).
5. Connect battery negative lead (WP 0292 00).
6. Start engine (see your -10). Check steering controls for proper operation.

END OF TASK

ADJUST STEERING CONTROLS (M548A1) 0367 00

THIS WORK PACKAGE COVERS:

Adjustment (page 0367 00-2).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts
Cotter pin (3)
Lock nut (2)

Personnel Required
Unit Mechanic

References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Center seat raised (see your -10)
Right and left center seat floor plates raised (WP 0394 00)

ADJUSTMENT

NOTE

Adjustment of the differential brake linkage is needed only when the differential or a part of the control linkage has been repaired or replaced.

1. Adjust steering controls as follows:

   a. Disconnect two return springs (1) from hull brackets.

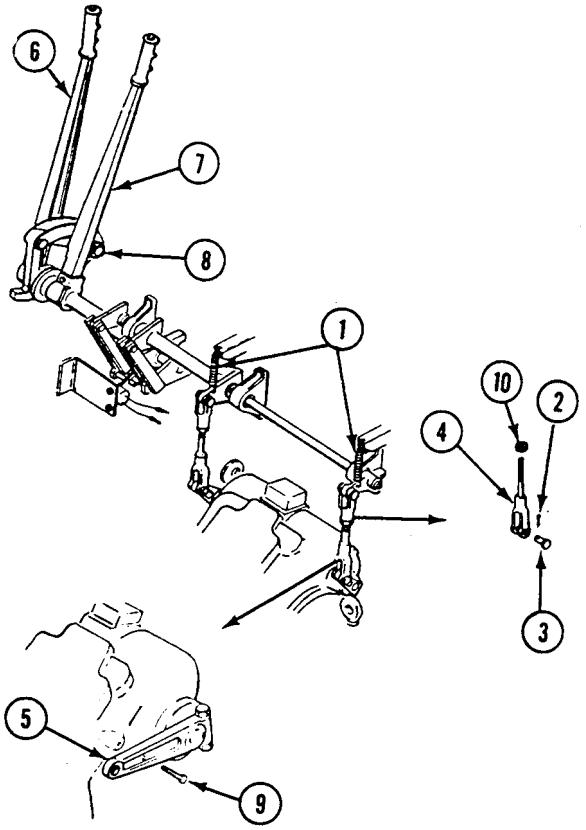
   b. Remove cotter pin (2) and clevis pin (3). Disconnect lower clevis (4) from each brake at differential brake arm (5). Discard cotter pin.

   c. Lock left steering lever (6) and right steering lever (7) in first notch of steering lever quadrant (8).

NOTE

If indexing holes cannot be aligned, loosen pivot steering brake adjustment (WP 0370 00).

   d. Align indexing holes in differential brake arms (5) with tapped indexing holes in differential housing. Secure with index screws (9).

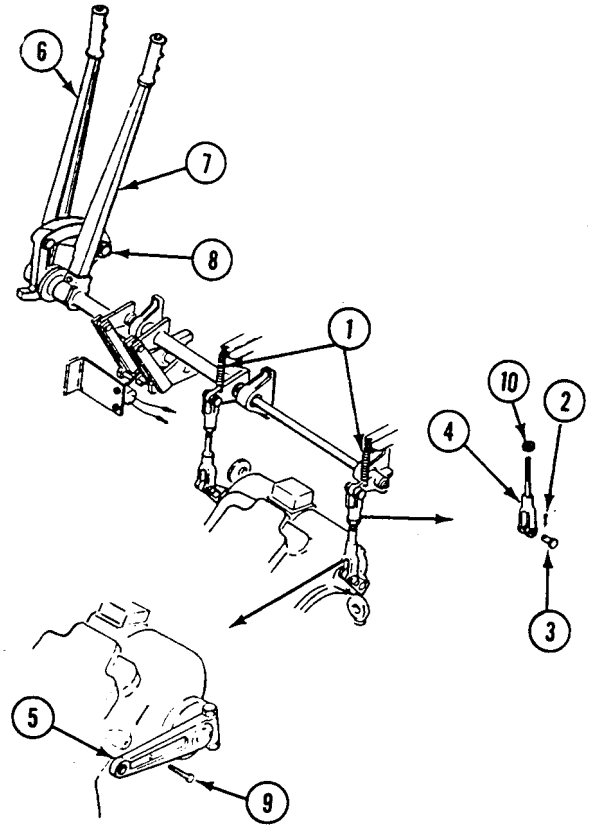


   e. Loosen jam nut (10). Turn lower clevis (4) until hole in differential brake arm (5) aligns with holes in clevis (4).

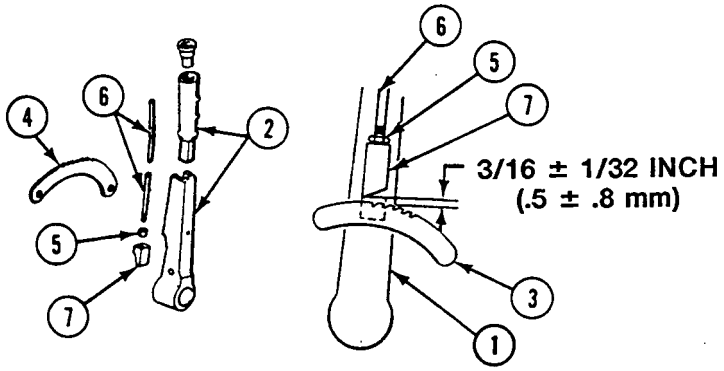
   f. Install clevis pin (3) in lower clevis (4) and differential brake arm (5). Secure with new cotter pin (2). Tighten jam nut (10).

   g. Remove index screw (9) from differential brake arm (5).

h. Connect two return springs (1) to hull brackets.



i. Adjust left steering lever (1) and right steering lever (2) as follows: 1) lock steering levers in first notch of steering lever quadrant (3) and steering lever quadrant (4); 2)Loosen jam nut (5) on steering lever rod (6); and 3) adjust clearance between steering lever pawl (7) and steering lever quadrants to 3/16 ± 1/32 in (5 ±.8 mm) through full arc. Tighten jam nut (5).



2. Adjust pivot steering brake control/linkage (WP 0370 00).

3. Adjust stoplight switch (WP 0274 00).

4. Adjust brake locking pawls as follows:

NOTE

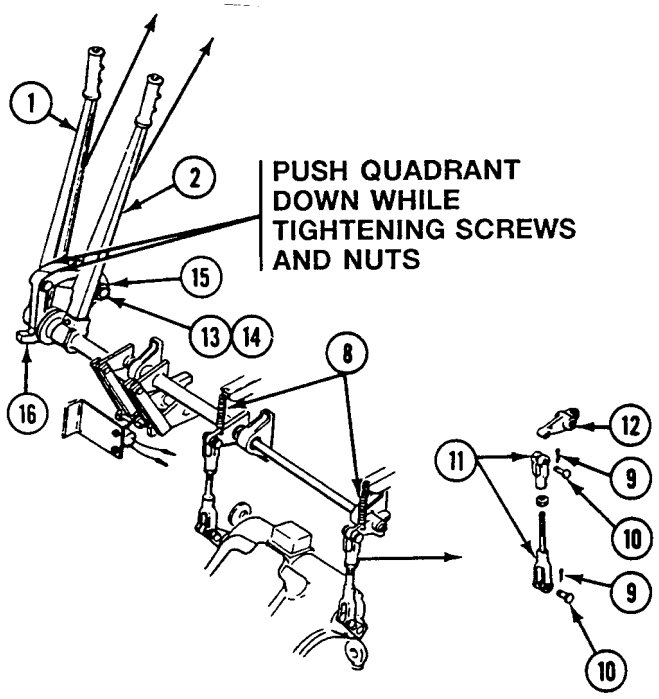
Improperly adjusted brake locking pawls in left and right steering levers can cause the steering levers to momentarily lock during carrier operation. This can cause loss of carrier control. To overcome this, clearance between pawl and brake quadrant must be properly adjusted. Sides of quadrant teeth must be inspected for protrusions. To correct this, do the following:

a. Unlock left steering lever (1) and right steering lever (2).

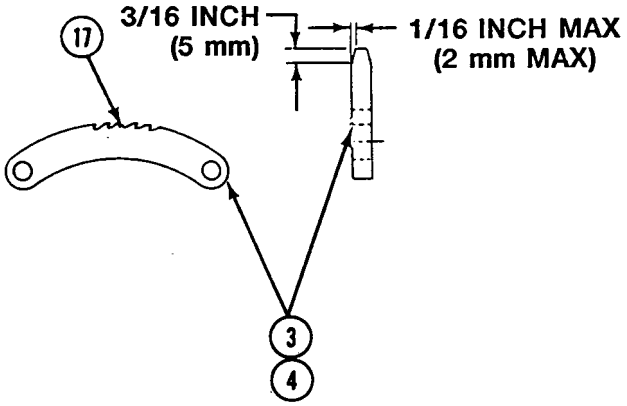
b. Remove two return springs (8) from hull brackets.

c. Remove two cotter pins (9) and shoulder pins (10) securing steering control rod clevises (11) to actuator arm levers (12). Discard cotter pins.

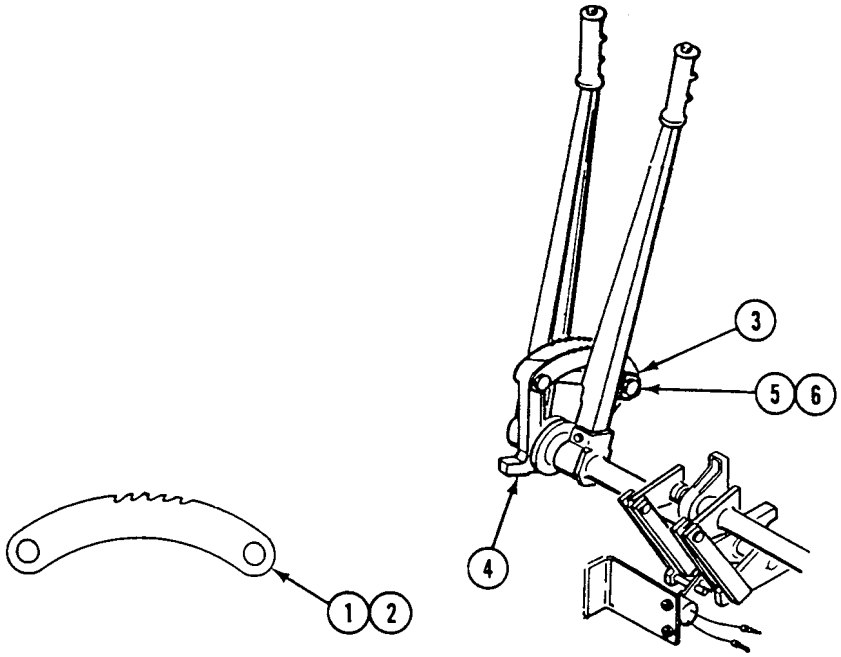
d. Remove two screws (13) and lock nuts (14) securing steering lever quadrant (3) and steering lever quadrant (4) and stops (15) to bracket (16). Remove quadrants and stops. Discard lock nuts.



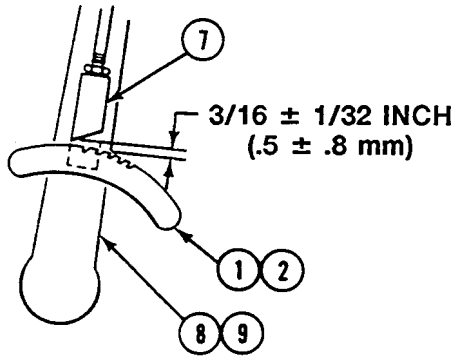
e. Check both sides of the quadrant teeth (17) for protrusions. If tips of teeth protrude to the side, grind excess metal off to form a slight taper.



f. Place quadrant (1) and quadrant (2) and stops (3) on bracket (4). Push down on quadrants while tightening two screws (5) and new lock nuts (6).



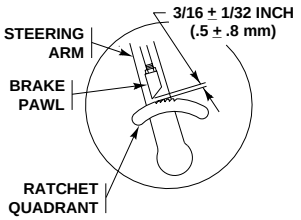
g. Use a 5/32 in (4 mm) diameter rod, screw, or drill bit shank to check gap between steering lever pawls (7) and tops of quadrant(1) and quadrant (2) while moving left steering lever (8) and right steering lever (9) from front to back.



If gap is not 5/32 in. (4 mm) through entire range of travel, find correct gap by using column A on drill chart. If gap is wrong, do steps h through o. If gap is right, go to step n.

INSTRUCTIONS

1. SEE WHICH DRILL FITS GAP - SEE CHART COL. A
2. READ NUMBER OF FULL TURNS TO GET 3/16 (.5 MM) GAP - SEE CHART COL. B
3. ADJUST PAWL BY TURNING
4. CHECK GAP FOR 3/16



A			B
DRILL DIA IN	METRIC DIA mm		MOVE PAWL
1/32	0.8		5
1.16	2.0		4
3.32	2.0		3
1/8	3.0		2
5.32	4.0		1
3/16	5.0		0

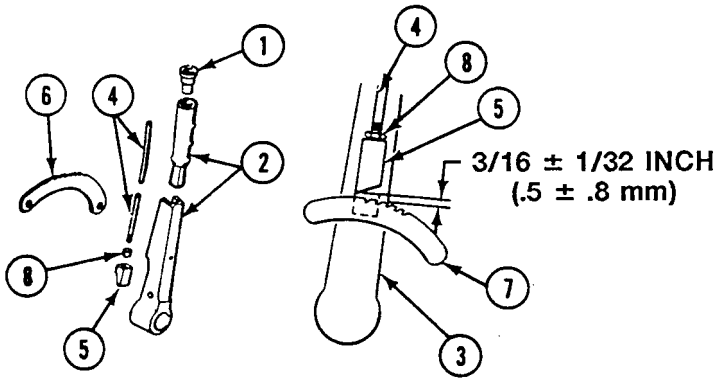
h. Loosen guide nuts (1) in tops of left steering lever (2) and right steering lever (3). Pull plunger rods (4) up until pawls (5) clear steering lever quadrant (6) and steering lever quadrant (7).

i. Loosen steering lever pawl jam nuts (8) to adjust panel quadrant clearance.

j. One complete turn will move pawl 1/32 in. (.8 mm). Clearance should be between 5/32 in (4 mm) and 7/32 in. (6 mm). Tighten jam nuts (8).

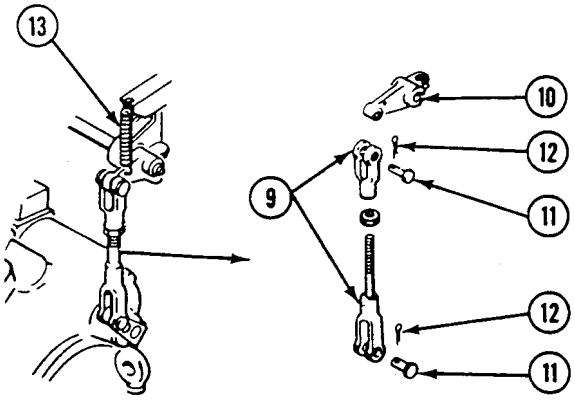
k. Install plunger rods (4) into left steering lever (2) and right steering lever (3). Tighten guide nuts (1).

l. Use a 5/32 in (4 mm) rod, screw, or drill bit shank to check gap between steering lever pawl (5) and quadrant (6) and quadrant (7). Gauge should fit while moving left steering lever (2) and right steering lever (3). Use a 15/64 in. (6 mm) rod, screw, or drill bit shank. Gauge should not fit.

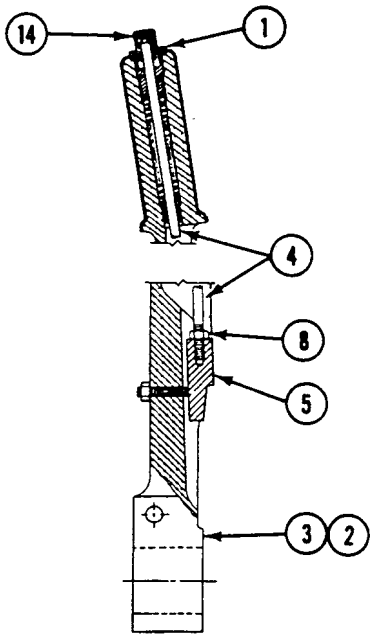


m. Install steering control rod clevises (9) on actuator arm (10). Secure with two pins (11) and two new cotter pins (12).

n. Install two return springs (13) on two hull brackets, outer shaft, and actuator arm levers (10).



o. Make sure button (14) on top of steering lever works freely. Steering lever pawl (5) must fully engage ratchet with lever back and button pressed. Button must pop up after pawl engagement with slight rearward pressure on lever. Plunger rod (4) must move freely without binding.



FOLLOW-THROUGH STEPS

1. Lower right and left center seat floor plates (WP 0394 00).
2. Lower center seat (see your -10).
3. Start engine (see your -10). Check steering controls for proper operation.

END OF TASK

REPLACE ENGINE DISCONNECT CONTROL (M548A1) 0368 00

THIS WORK PACKAGE COVERS:

Removal (page 0368 00-1).
Installation (page 0368 00-2).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts
Cotter pin
Lock nut (4)
Lock washer

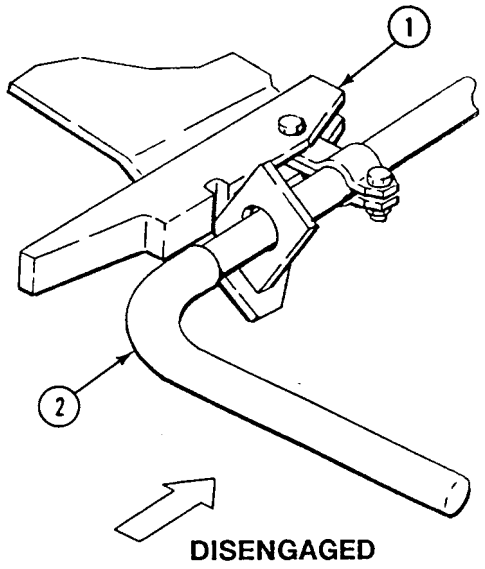
Personnel Required
Unit Mechanic

References
See your -10

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Center seat raised (see your -10)
Power plant rear access door removed (see your -10)

REMOVAL

1. Disengage engine disconnect as follows:
   a. Lift lock control (1).
   b. Push engine control rod (2) as far as it will go. This disconnects engine from rest of power plant so starter does not have to work so hard.



2. Remove lock nut (1) and screw (2) from control rod lock (3), spring (4), bushing (5), and two control rod clamps (6). Discard lock nut.

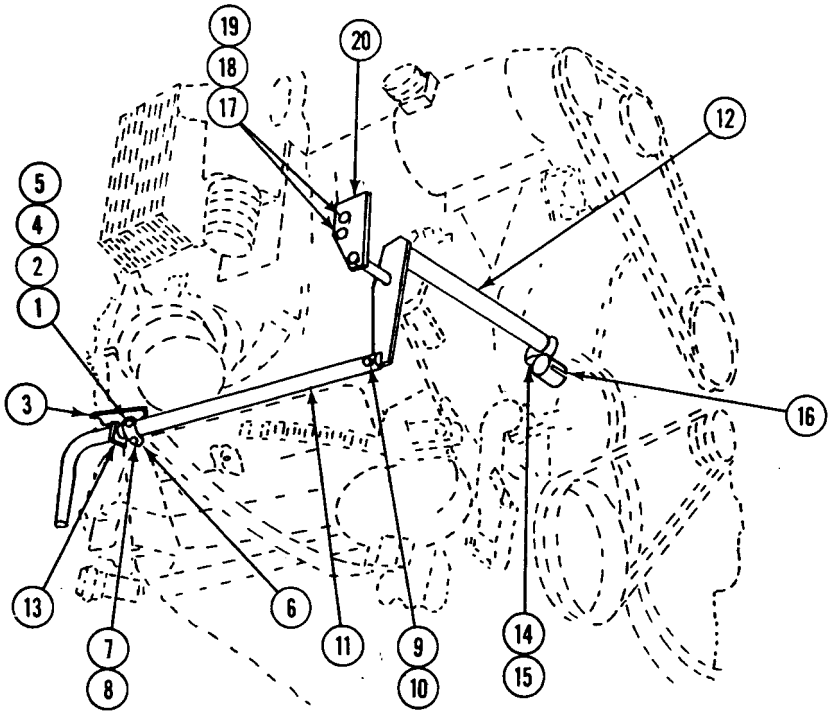
3. Remove lock nut (7) from screw (8). Remove two control rod clamps (6) from control rod lock (3). Separate control rod lock (3) from spring (4) and bushing (5). Discard lock nut.

4. Remove cotter pin (9) from clevis pin (10). Remove clevis pin (10) from control rod (11) and remote control lever (12). Discard cotter pin.

5. Remove control rod (11) from control rod support guide (13).

6. Remove screw (14) and lock washer (15) from remote control lever (12) and engine transfer gearcase shaft (16). Discard lock washer.

7. Remove two lock nuts (17), four washers (18), and two screws (19) securing rear support (20) to power plant. Remove rear support (20) and remote control lever (12) from power plant. Discard lock nuts.



INSTALLATION

1. Place rear support (20) on power plant. Secure with two screws (19), four washers (18), and two new lock nuts (17).

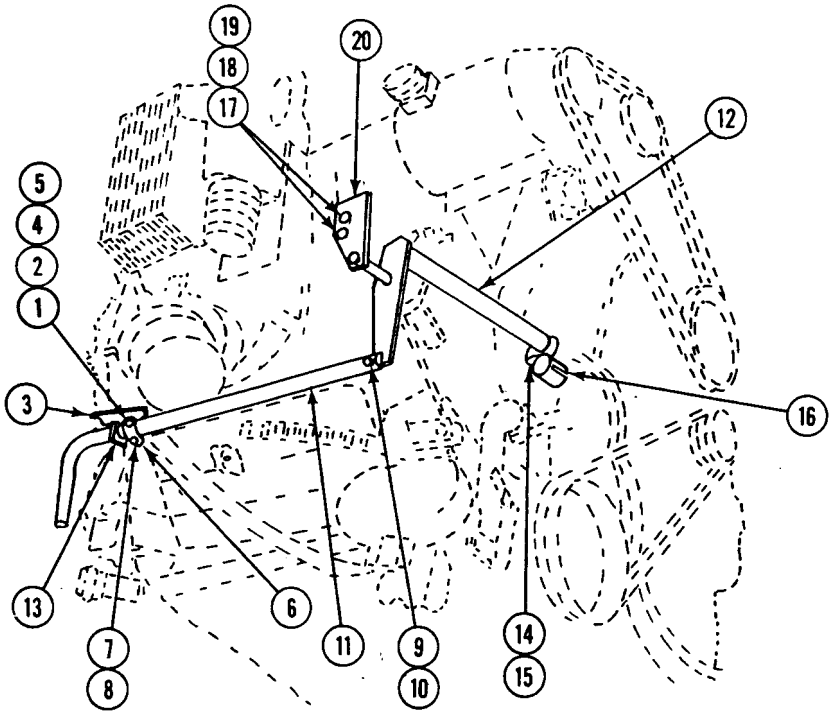
2. Place remote control lever (12) to engage rear support (20) and engine transfer gearcase shaft (16).

3. Secure remote control lever (12) to engine transfer gearcase shaft (16) with new lock washer (15) and screw (14).

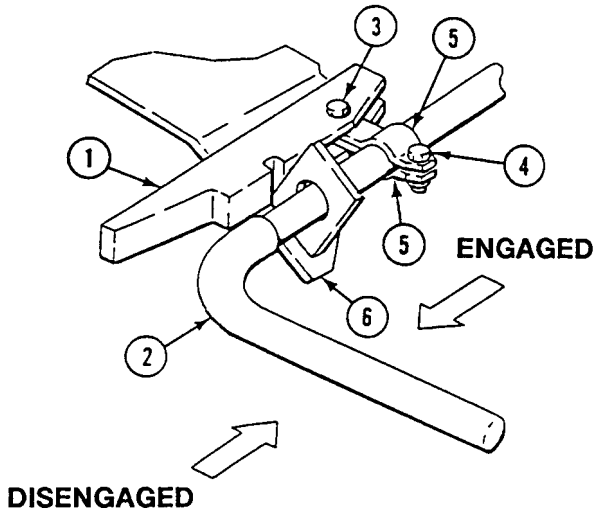
4. Install control rod (11) in control rod support guide (13). Secure control rod (11) to remote control lever (12) with clevis pin (10) and new cotter pin (9).

5. Place two control rod clamps (6) on control rod (11). Secure with screw (8) and new lock nut (7).

6. Place bushing (5) and spring (4) in control rod lock (3). Install lock (3) on two control rod clamps (6). Secure with screw (2) and new lock nut (1).



7. Adjust control rod lock as follows:
   a. Release control rod lock (1). Push engine control rod (2) in to fully disengaged position.
   b. Loosen two screws (3, 4) securing two control rod clamps (5) to engine control rod (2).
   c. Place two control rod clamps (5) to maintain gap of 1/32-3/32 in (.8-2 mm) between control rod lock (1) and engine control rod support guide (6).
   d. Tighten two screws (3, 4) to secure two control rod clamps (5) to engine control rod (2).
   e. Release control rod lock (1). Pull engine control rod (2) to fully engaged position.



FOLLOW-THROUGH STEPS

1. Install power plant rear access door (see your -10).
2. Lower center seat (see your -10).
3. Check engine disconnect control for proper operation.

END OF TASK

REPLACE PIVOT STEERING BRAKE CONTROLS/LINKAGE (M548A1) 0369 00

THIS WORK PACKAGE COVERS:

Removal (page 0369 00-2).
Installation (page 0369 00-6).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts

Hydraulic fluid (WP 0542 00, Item 18)
Nonelectrical wire (WP 0542 00, Item 27)
Bellows (2)
Cotter pin
Cotter pin (2)
Cotter pin (2)
Cotter pin (4)
Lock nut (2)
Lock nut (6)
Preformed packing (2)
Suitable container

Personnel Required

Unit Mechanic

References

See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Battery negative lead disconnected (WP 0292 00)

REMOVAL

NOTE

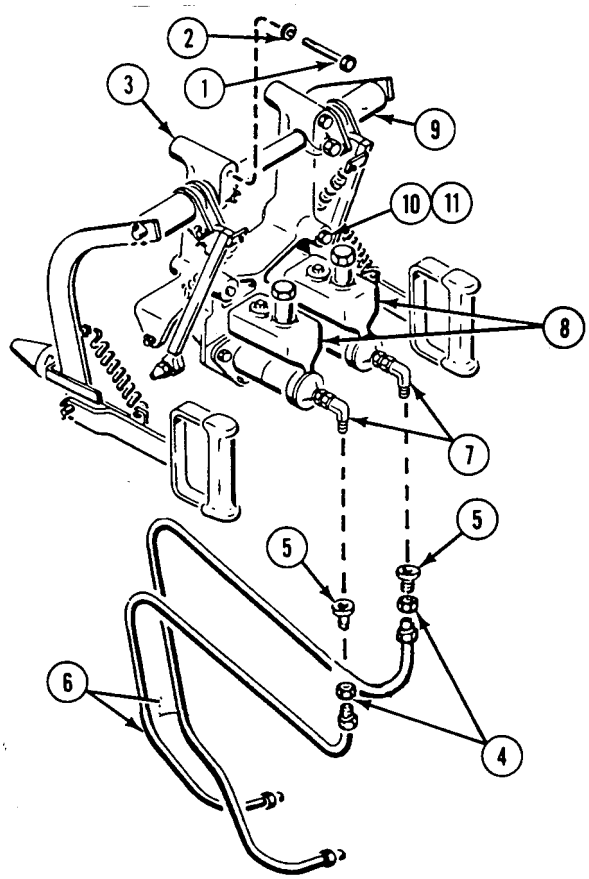
Be careful in partially removing instrument panel. Do not disconnect instrument or light connectors. Connect any lead immediately if connector is disconnected.

1. Partially remove instrument panel (WP 0256 00).
2. Remove two screws (1) and washers (2) from pivot steering support (3) from upper mounting holes on mounting.
3. Temporarily install instrument panel (WP 0256 00).

NOTE

Place container under master cylinders to catch hydraulic fluid.

4. Remove two tube nuts (4) securing two sleeves (5) and tubes (6) to two elbows (7) on master cylinders (8).
5. Support pivot steering assembly (9) while removing two screws (10) and washers (11) from lower mounting holes on mounting.
6. Remove pivot steering assembly (9) from mounting by turning assembly downward and backward.



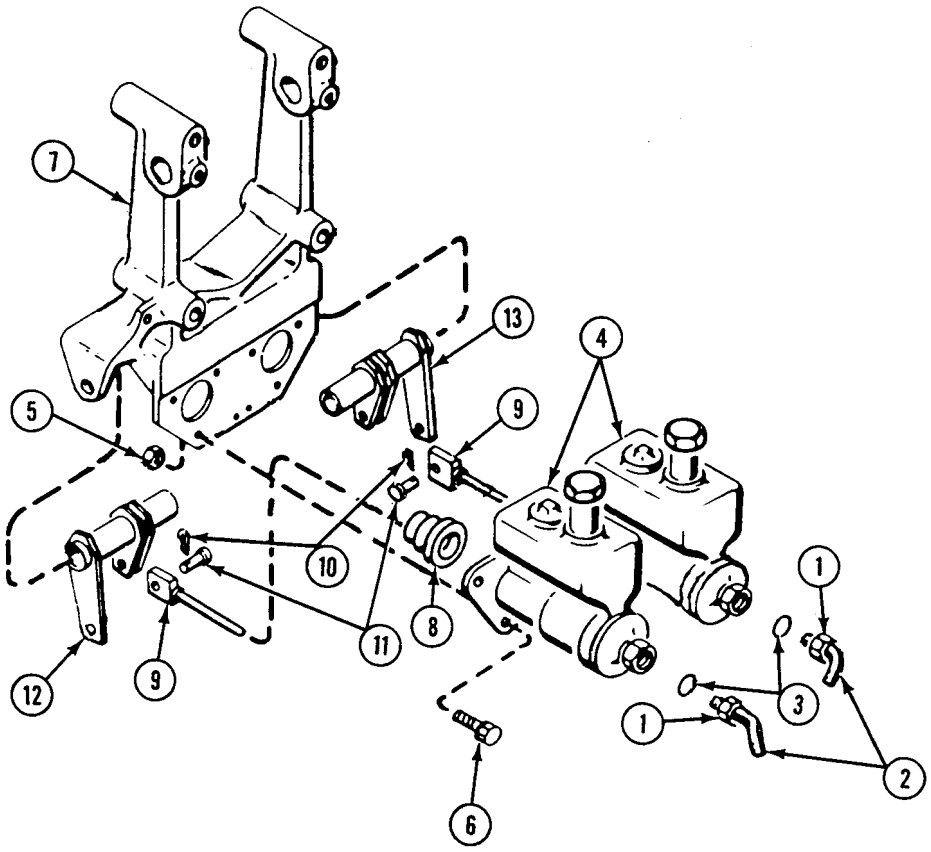
7. Remove master cylinders from pivot steering assembly as follows:

   a. Loosen two jam nuts (1) and remove two elbows (2) and two preformed packings (3) from two master cylinders (4). Discard preformed packings.

   b. Remove six lock nuts (5) and screws (6) securing two master cylinders (4) to pivot steering support (7). Discard lock nuts.

   c. Remove two master cylinders (4) from pivot steering support (7). Remove two bellows (8) from two master cylinder clevises (9). Discard bellows.

   d. Remove two cotter pins (10) from two outer shaft clevis pins (11). Remove two outer shaft pins from two master cylinder clevises (9) and left outer shaft lever (12) and right outer shaft lever (13). Discard cotter pins.



NOTE

Disassembly of pivot steering assembly may be done on a work bench. Right and left sides of pivot steering assembly are identical. Only right side is shown.

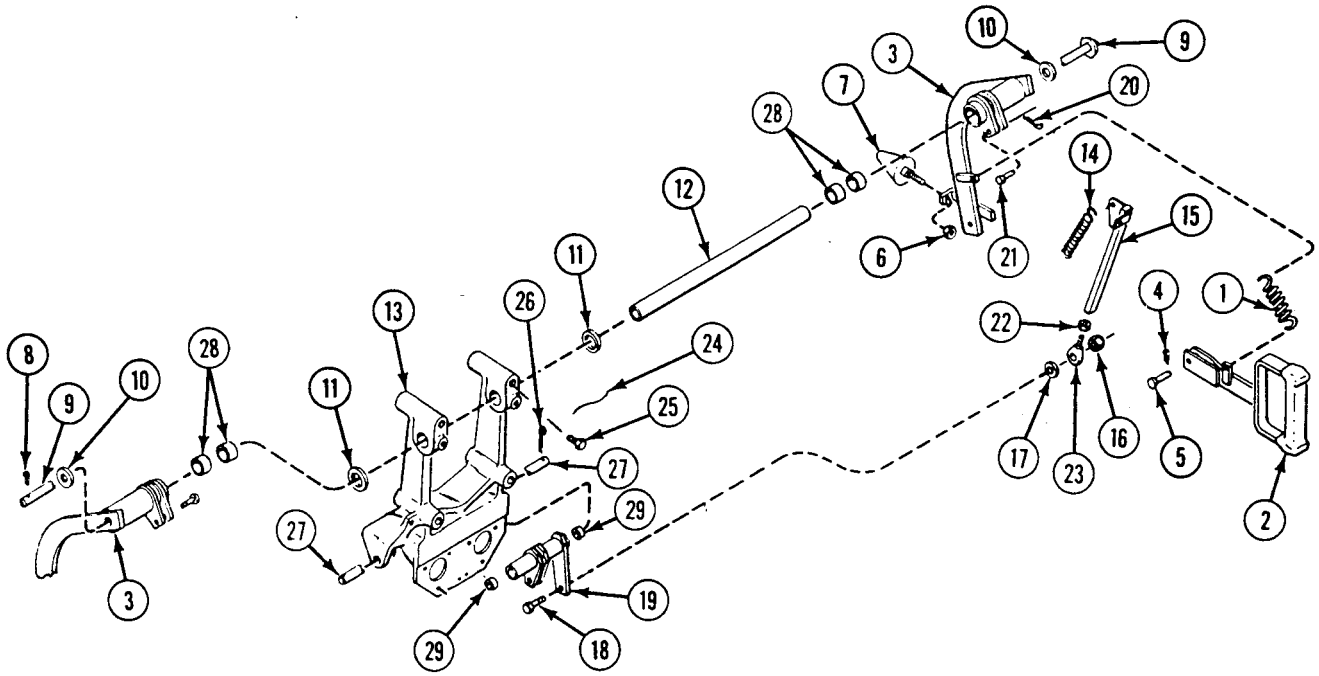
8. Disassemble pivot steering assembly as follows:

   a. Remove two springs (1) from right and left hand levers (2). Remove two springs from right and left arms (3).

   b. Remove two cotter pins (4) from two clevis pins (5). Remove two clevis pins from two hand levers (2) and arms (3). Separate hand levers from arms. Discard cotter pins.

   c. Remove two jam nuts (6) securing two rubber bumpers (7) to two arms (3). Remove bumpers from arms.

   d. Remove cotter pin (8) from left inner cross shaft (9) and pull from right side to remove two inner cross shafts. Remove two washers (10) from inner cross shafts. Remove left and right arms (3) and two washers (11) from outer cross shaft (12) and pivot steering support (13). (There is no outer cross shaft on left side.) Discard cotter pin.



   e. Remove two springs (14) from pivot steering support (13) and two connecting links (15).

   f. Remove two lock nuts (16), washers (17), and screws (18) securing two connecting links (15) to right and left outer shaft levers (19). Discard lock nuts.

   g. Remove two cotter pins (20) from two clevis pins (21). Remove two clevis pins from two arms (3) and connecting links (15). Remove two connecting links from right and left arms. Discard cotter pins.

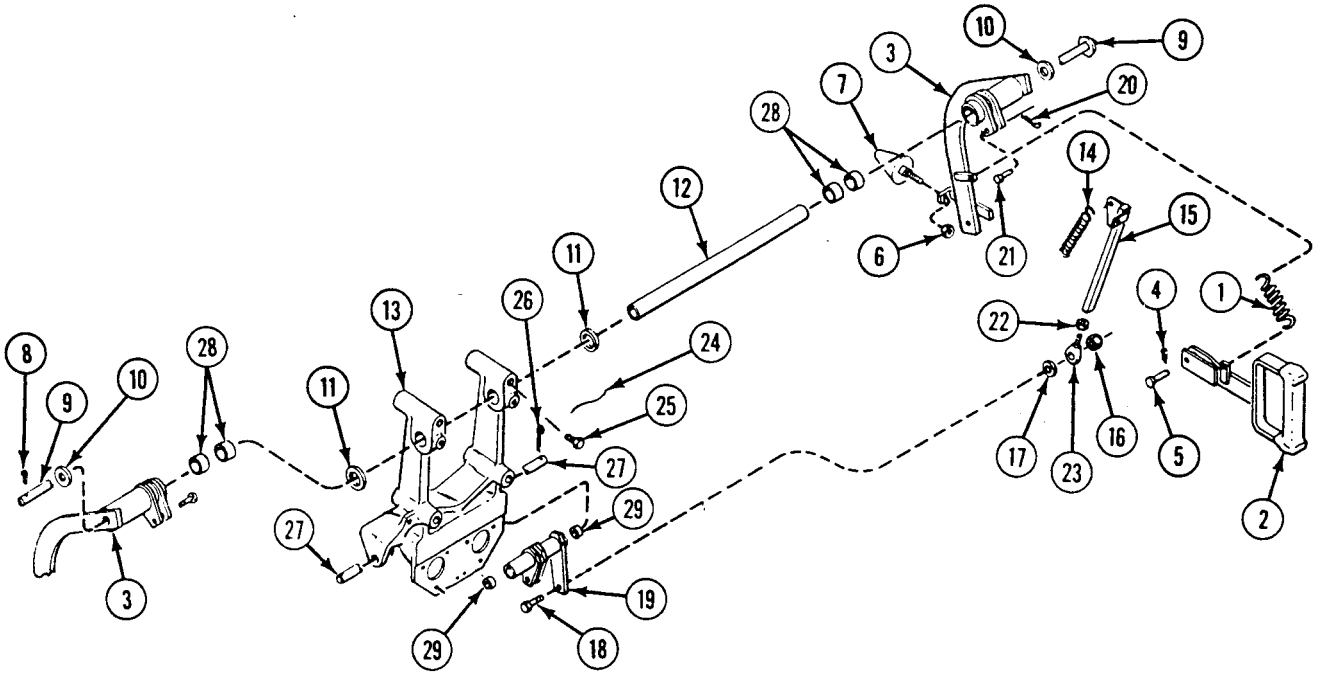
   h. Loosen two jam nuts (22). Remove two rod end bearings (23) and jam nuts from two connecting links (15).

i. Remove lock wire (24), two screws (25), and outer cross shaft (12) from pivot steering support (13). Discard lock wire.

j. Remove two cotter pins (26) from two cross shafts (27). Remove two cross shafts and left and right outer shaft levers (19) from pivot steering support (13). Discard cotter pins.

k. If sleeve bearings need to be replaced in right and left arms (3), remove four sleeve bearings (28) from arms.

l. If sleeve bearings need to be replaced in right and left outer shaft levers (19), remove four sleeve bearings (29) from two outer shaft levers.

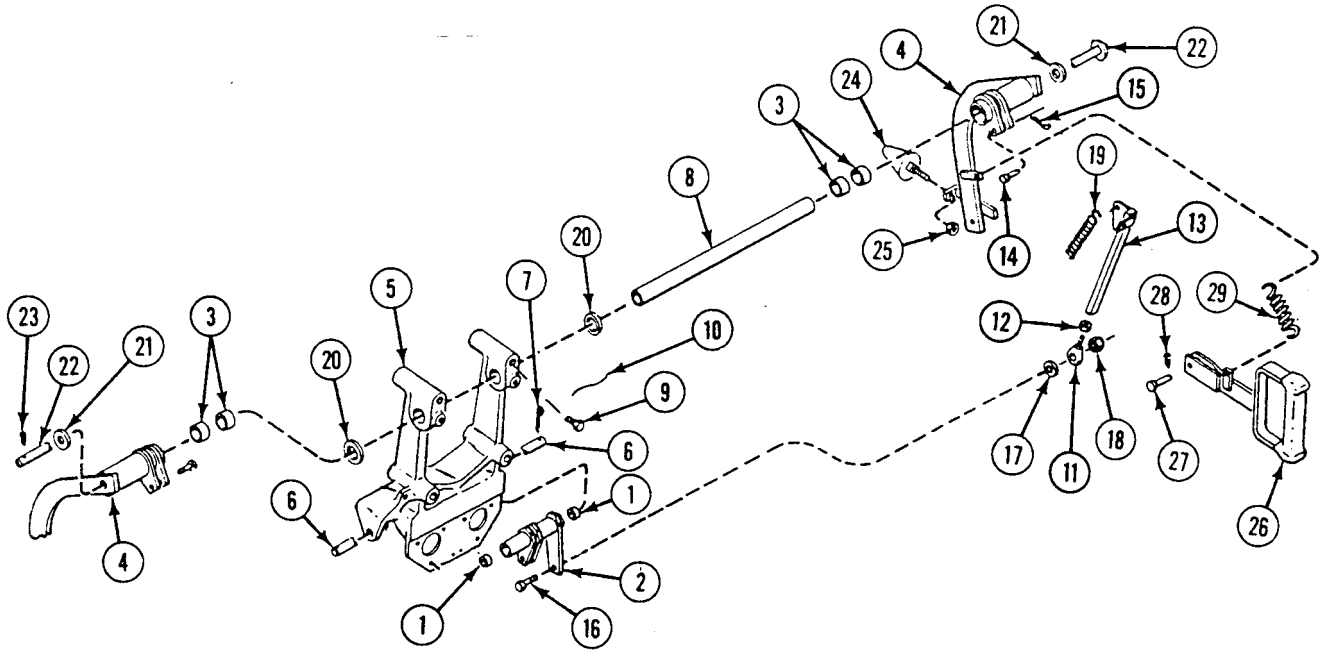


INSTALLATION

NOTE

Assembly of pivot steering assembly may be done on a work bench. Right and left sides of pivot steering assembly are identical. Only right hand side is shown.

1. Assemble pivot steering assembly as follows:
   a. Install four sleeve bearings (1) in right and left outer shaft levers (2) if replacement is needed.
   b. Install four sleeve bearings (3) in right and left arms (4) if replacement is needed.
   c. Install two outer shaft levers (2) on pivot steering support (5) with cross shaft (6) and two new cotter pins (7).
   d. Install outer cross shaft (8) on pivot steering support (5) with two screws (9) securing outer cross shaft. Install new lock wire (10) in screws.
   e. Install two rod end bearings (11) and jam nuts (12) on two connecting links (13).



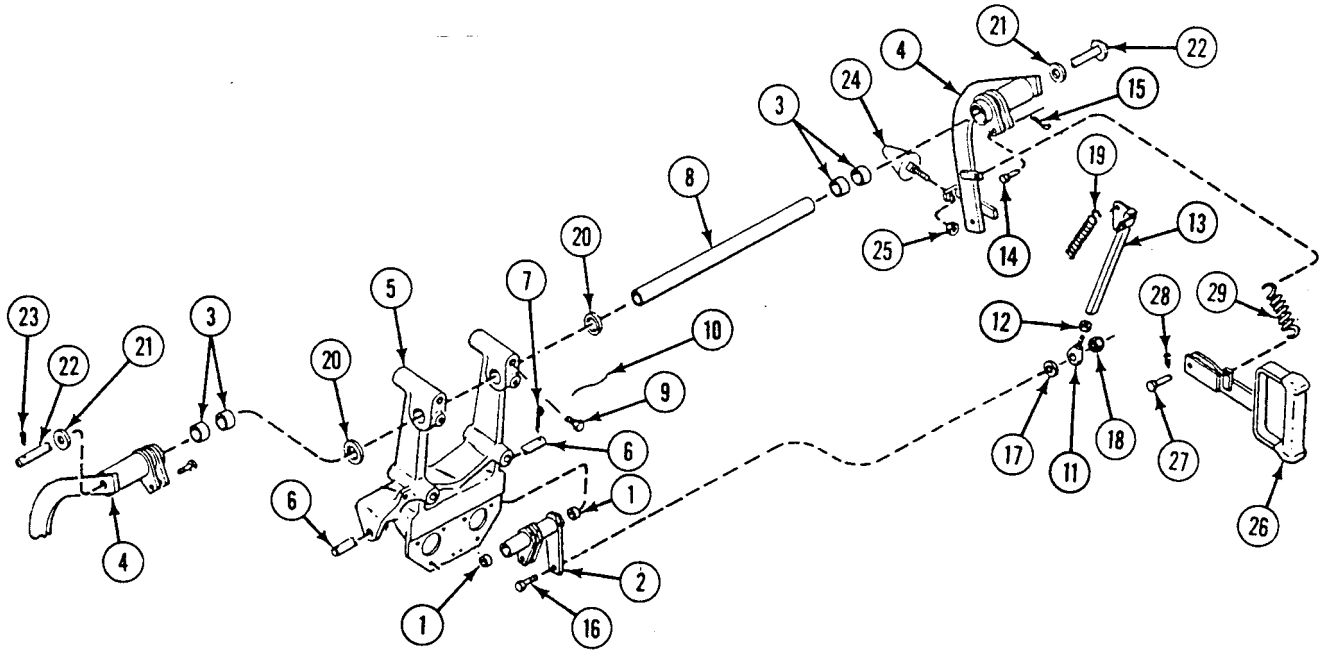
   f. Install two connecting links (13) on right and left arms (4). Secure connecting links to two arms with two clevis pins (14) and new cotter pins (15).
   g. Install two screws (16), washers (17), and new lock nuts (18) to secure two connecting links (13) to two outer shaft levers (2).
   h. Install two springs (19) on pivot steering support (5) and two connecting links (13).

i. Install right and left arms (4) and two washers (20) on outer cross shaft (8). (There is no outer cross shaft on left side.) Install two washers (21) on two inner cross shafts (22). Install inner cross shaft from right side and secure to pivot steering support (5) with new cotter pin (23) in left inner cross shaft.

j. Install two rubber bumpers (24) on right and left arms (4). Secure bumpers to arms with two jam nuts (25).

k. Install right and left hand levers (26) on right and left arms (4). Install two clevis pins (27) to secure hand levers to arms. Install two new cotter pins (28) through two clevis pins (27).

l. Install two springs (29) on right and left arms (4). Install two springs on right and left hand levers (26).



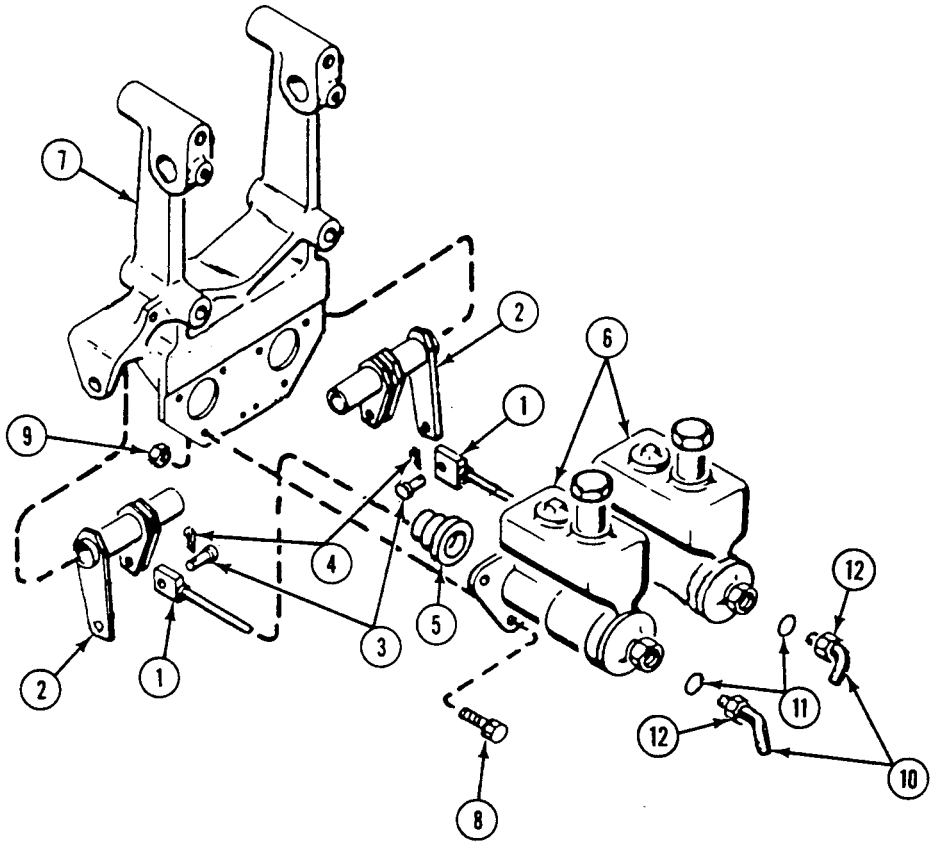
2. Install master cylinders on pivot steering assembly as follows:

   a. Align two master cylinder clevises (1), with left and right outer shaft levers (2). Install two outer shaft clevis pins (3) to secure clevises to right and left outer shaft levers. Install two new cotter pins (4) through two outer shaft clevis pins.

   b. Install two new bellows (5) on two master cylinder clevises (1).

   c. Install two master cylinders (6) on pivot steering support (7). Install six screws (8) and new lock nuts (9) to secure two master cylinders to pivot steering support (7).

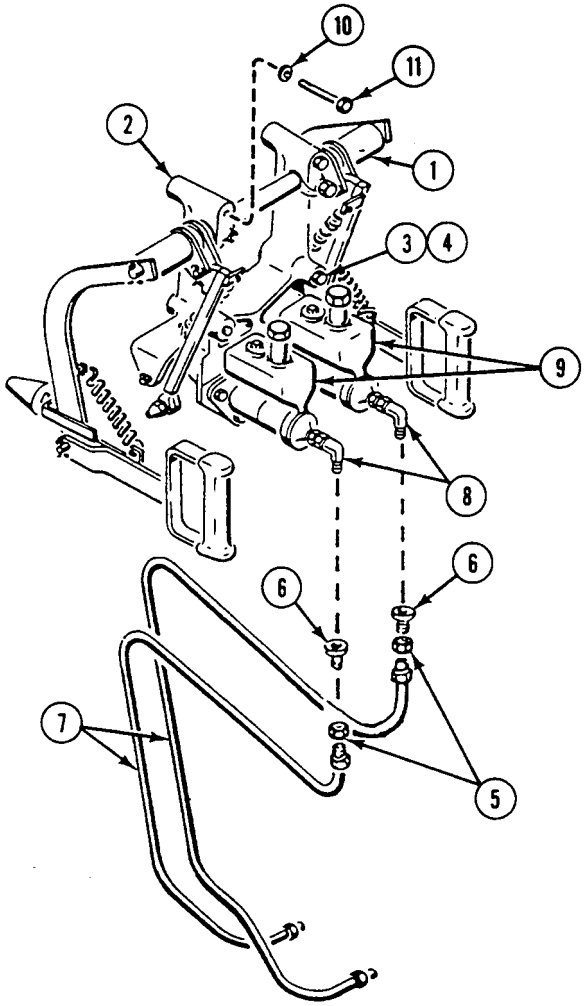
   d. Install two elbows (10) and new preformed packings (11) on two master cylinders (6). Tighten two jam nuts (12) to secure elbows to master cylinders.



NOTE

Be careful in partially removing instrument panel. Do not disconnect instrument or light connectors. Connect any lead immediately if connector is disconnected.

3. Partially remove instrument panel (WP 0256 00).
4. Install pivot steering assembly (1) on mounting by rotating assembly upward and forward.
5. Support pivot steering assembly (1). To secure pivot steering support (2) to mounting, install two washers (3) and screws (4) through lower mounting holes.
6. Install two tube nuts (5) and sleeves (6) to connect two tubes (7) to two elbows (8) on two master cylinders (9).
7. Install two washers (10) and screws (11) through upper mounting holes to secure pivot steering support (2) to mounting.



FOLLOW-THROUGH STEPS

1. Install instrument panel (WP 0256 00).
2. Connect battery negative lead (WP 0292 00).

END OF TASK

ADJUST PIVOT STEERING BRAKE CONTROLS/LINKAGE (M548A1) 0370 00

THIS WORK PACKAGE COVERS:

Adjustment (page 0370 00-1).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts
Hydraulic fluid (WP 0542 00, Item 18)
Lock nut (2)

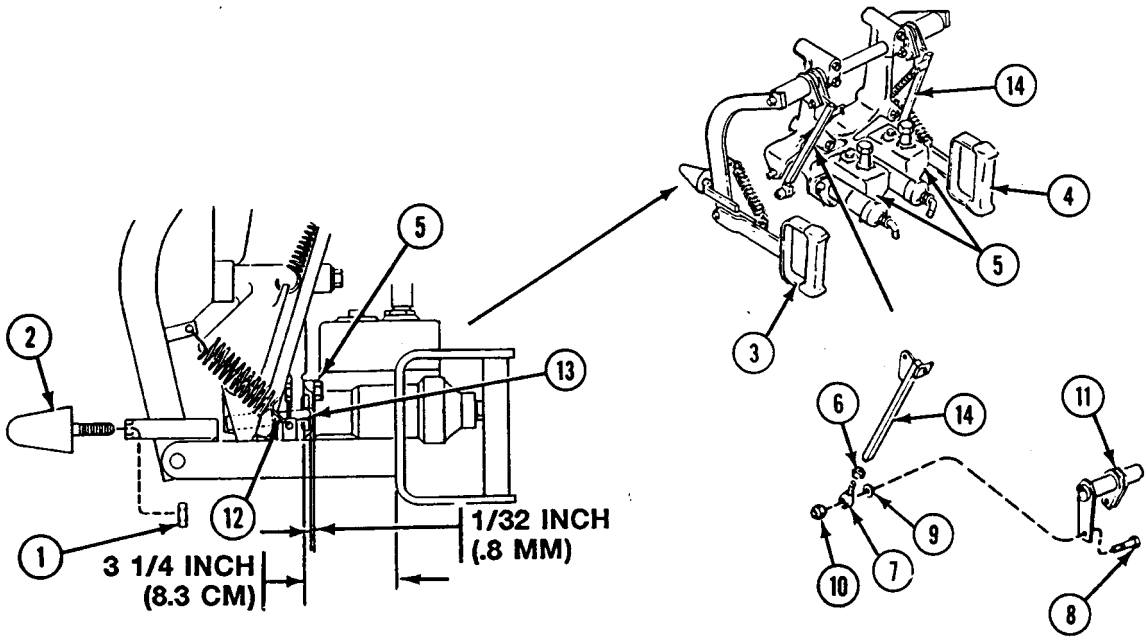
Personnel Required
Unit Mechanic

References
See your -10
See your PMCS

Equipment Condition
Engine stopped (see your-10)
Carrier blocked (see your-10)
Center floor plates raised (WP 0394 00)

ADJUSTMENT

1. Adjust pivot steering brake controls and linkage adjustment as follows:
   a. Loosen jam nut (1). Adjust rubber bumper (2). Turn rubber bumper so front edges of hand levers (3) and hand lever (4) are 3 1/4 inch (8.3 cm) behind front edges of two master cylinders (5). Tighten jam nut (1).
   b. Loosen two jam nuts (6) on two rod end bearings (7).
   c. Remove two screws (8), washers (9), and lock nuts (10) securing two rod end bearings (7) to two outer shaft levers (11). Discard lock nuts.
   d. Push hand lever (3) and hand lever (4) completely forward. Pull two outer shaft levers (11) rearward until ends of master cylinder clevises (12) just contact master cylinder pistons (13).

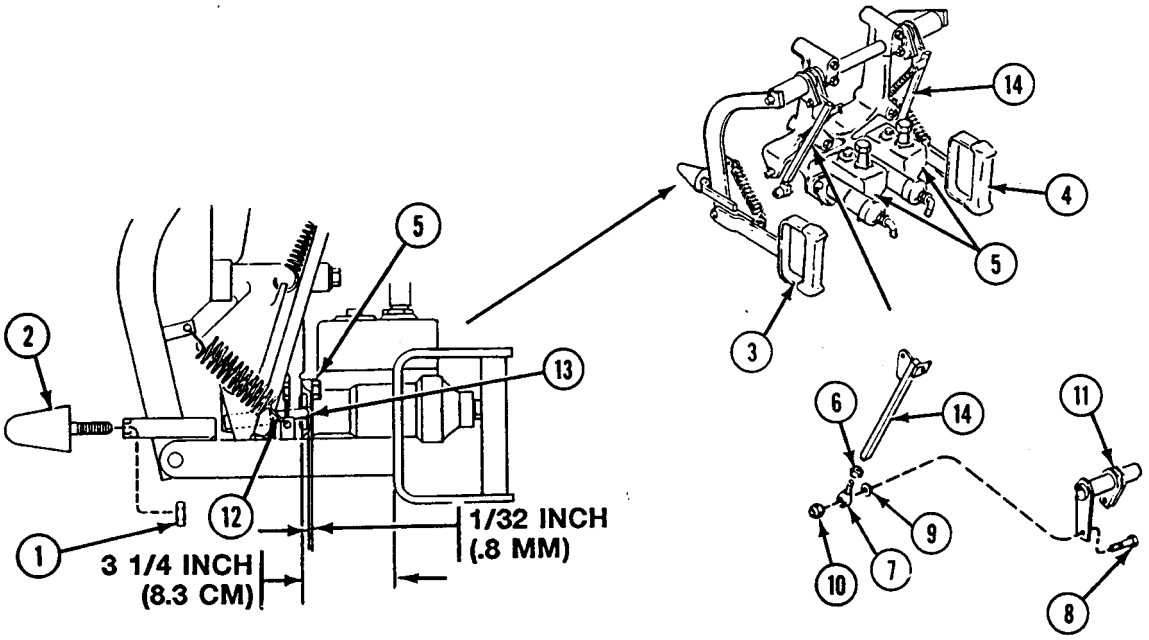


   e. Adjust length of connecting links (14) so two screws (8) will pass freely through two rod end bearings (7) and outer shaft levers (11).

f. Turn two rod end bearings (7) out, one full turn. One full turn will provide a minimum of 1/32 in (.8 mm) play between master cylinder clevises (12) and master cylinder pistons (13).

g. Secure two rod end bearings (7) to two outer shaft levers (11) with two screws (8), washers (9), and new lock nuts (10). Tighten two jam nuts (6) on rod end bearings.

h. Remove filler cap on two master cylinders (5). Check fluid level. Add hydraulic fluid as needed (see your PMCS)(WP 0128 00).



NOTE

Right and left brake assemblies are bled the same way, one at a time.

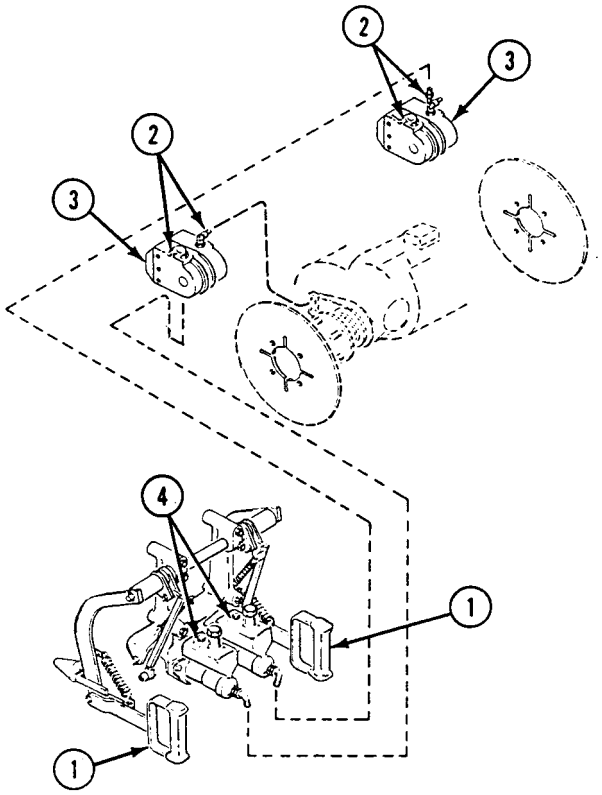
Do not release handle while brake bleeders are open.

2. Bleed pivot steering brake control lines as follows:

   a. Pull right or left hand lever (1) back hard and hold in applied position.

   b. Open two brake bleeders (2) on right or left brake assembly (3), one at a time. Leave each bleeder open until discharge is free of bubbles, then close bleeders.

   c. Recheck fluid level in two master cylinders (4) (see your PMCS) (WP 0128 00).



FOLLOW-THROUGH STEPS

1. Start engine (see your -10).

2. Check pivot steering brake controls/linkage for proper operation.

3. Stop engine (see your -10).

4. Lower center floor plates (WP 0394 00).

END OF TASK

REPLACE PIVOT STEERING BRAKE MASTER CYLINDER (M548A1) 0371 00

THIS WORK PACKAGE COVERS:

Removal (page 0371 00-2).
Installation (page 0371 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts

Hydraulic fluid (WP 0542 00, Item 18)
Lock nut (3)
Preformed packing
Suitable container

Personnel Required

Unit Mechanic

References

See your -10
See your PMCS

Equipment Condition

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

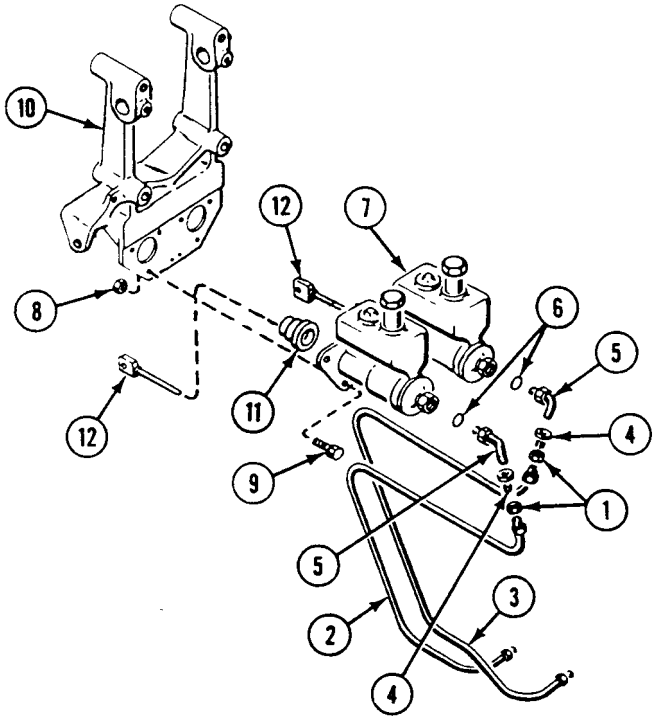
REPLACE PIVOT STEERING BRAKE MASTER CYLINDER (M548A1) — Continued 0371 00

REMOVAL

NOTE

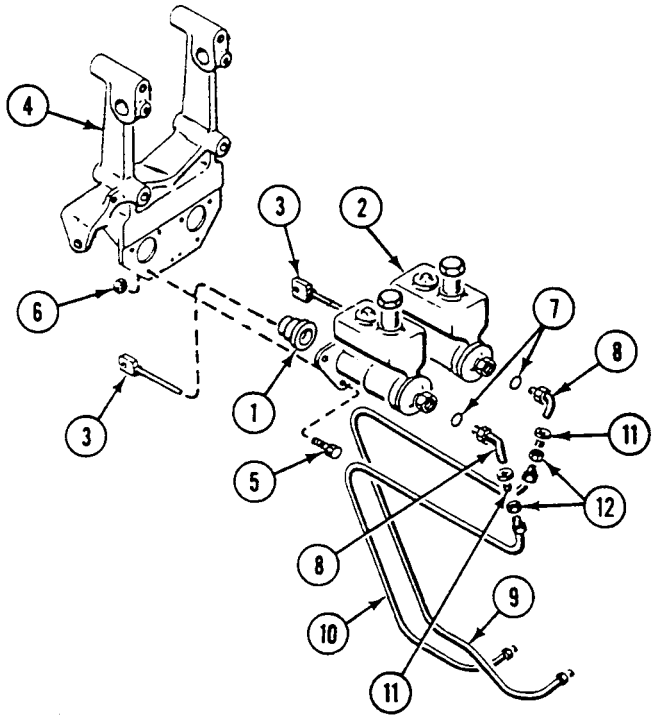
Right and left master cylinders are removed and installed the same way.

1. Place container under master cylinders to catch hydraulic fluid. Loosen nut (1) on tube and (2) tube (3) to drain hydraulic brake fluid.
2. Remove nut (1), reducer (4), elbow (5), and preformed packing (6) from master cylinder (7). Discard preformed packing.
3. Remove three lock nuts (8) and screws (9) securing master cylinder (7) to pivot steering support (10). Discard lock nuts.
4. Remove master cylinder (7) and bellow (11) from pivot steering support (10) and master cylinder clevis (12).



INSTALLATION

1. Install bellow (1) on master cylinder (2). Align shaft of master cylinder clevis (3) to master cylinder. Align three mounting holes in master cylinder with three holes in pivot steering support (4). Secure master cylinder to pivot steering support with three screws (5) and new lock nuts (6).
2. Install new preformed packing (7) and elbow (8) on master cylinder (2).
3. Install tube (9) and tube (10) on reducer (11). Install reducer on elbow (8). Secure with nut (12).
4. Fill pivot steering hydraulic system (see your PMCS) (WP 0128 00).
5. Bleed pivot steering brake control lines (WP 0370 00).
6. Recheck fluid level in master cylinder (see your PMCS) (WP 0128 00).



FOLLOW-THROUGH STEPS

1. Start engine (see your -10).
2. Check pivot steering brake system for proper operation.
3. Stop engine (see your -10).

END OF TASK

REPLACE PIVOT STEERING BRAKE HOSES/TUBES/FITTINGS (M548A1) 0372 00

THIS WORK PACKAGE COVERS:

Removal (page 0372 00-1).
Installation (page 0372 00-5).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)

Materials/Parts
Hydraulic fluid (WP 0542 00, Item 18)
Sealing compound (WP 0542 00, Item 33)
Lock washer (2)
Preformed packing
Preformed packing
Preformed packing (2)
Preformed packing (2)
Preformed packing (4)
Suitable container

Personnel Required
Unit Mechanic

References
See your -10
See your -PMCS

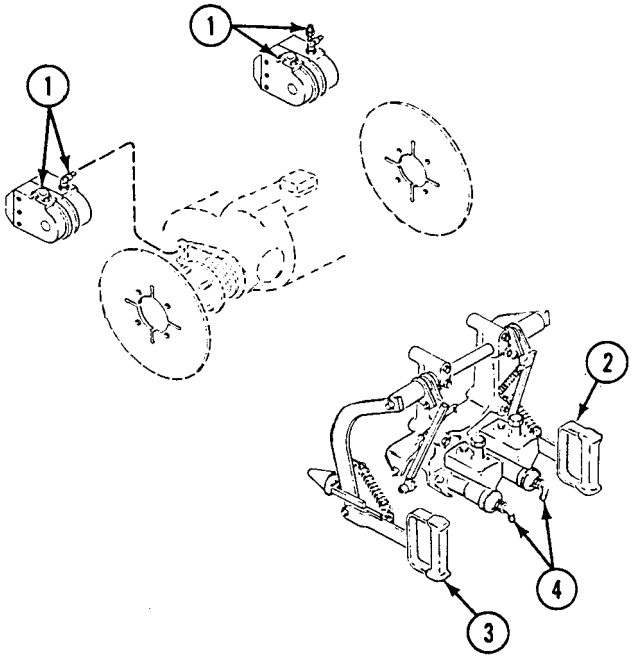
Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Right and left center seat floor plates raised (WP 0394 00)
Throttle floor plate removed (WP 0394 00)
Cab left floor plate removed (WP 0394 00)

REMOVAL

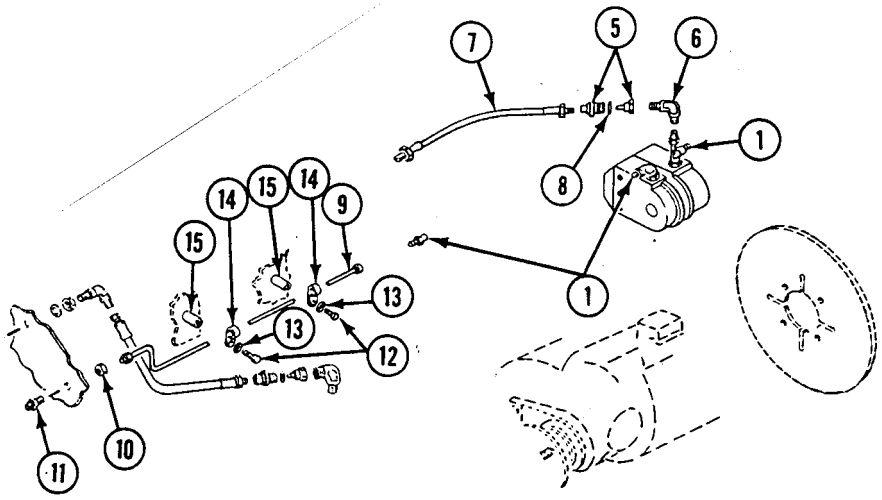
NOTE

Place containers under brake bleeders.

1. Open four brake bleeders (1), one at a time. Operate hand lever (2) and hand lever (3) until two hydraulic cylinders (4) have been drained.

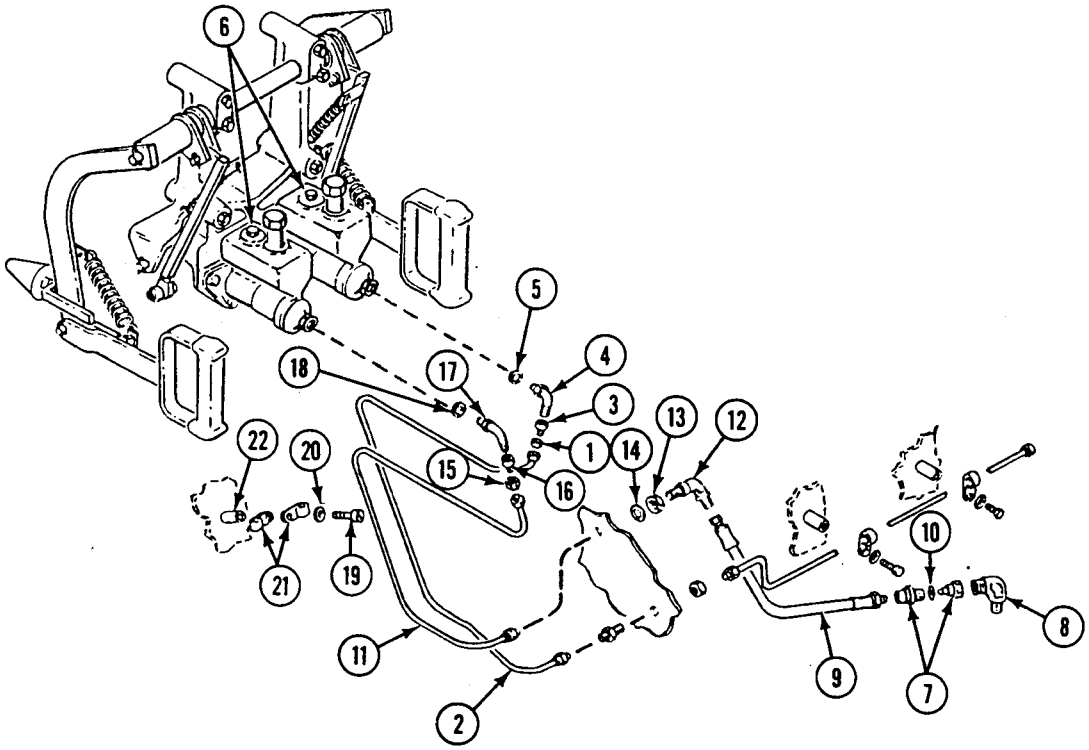


2. Remove quick disconnect coupler (5) from elbow (6) and hose (7). Disconnect coupler and remove preformed packing (8). Discard preformed packing.
3. Remove hose (7) from tube (9).
4. Remove nut (10) from union (11).
5. Remove two screws (12), lock washers (13), and clamps (14) from two weld nuts (15). Discard lock washers.
6. Remove tube (9) from union (11).

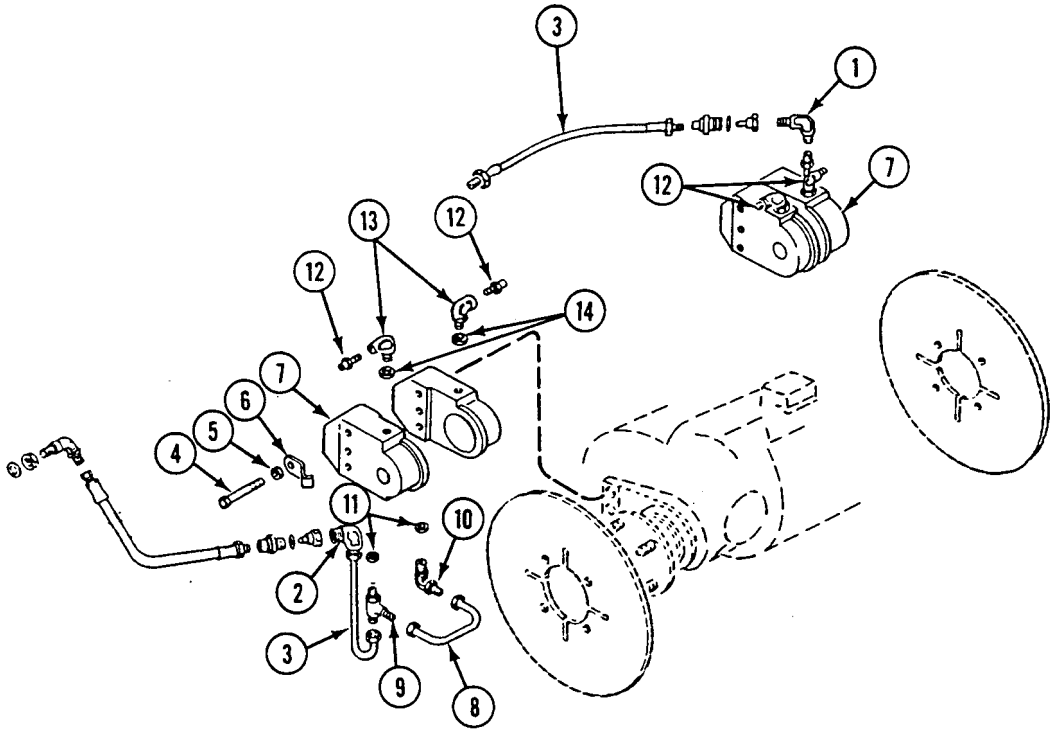


REPLACE PIVOT STEERING BRAKE HOSES/TUBES/FITTINGS (M548A1) — Continued 0372 00

7. Loosen nut (1) securing tube (2).
8. Remove nut (1), reducer (3), elbow (4), and preformed packing (5) from master cylinder (6). Discard preformed packing.
9. Remove quick disconnect coupler (7) from elbow (8) and hose (9). Disconnect coupler and remove preformed packing (10). Discard preformed packing.
10. Disconnect hose (9) from elbow (12).
11. Remove elbow (12), nut (13), and washer (14) from hose (9).
12. Loosen nut (15) securing tube (11).
13. Remove nut (15), reducer (16), elbow (17), and preformed packing (18) from master cylinder (6). Discard preformed packing.
14. Remove screw (19), washer (20), and two clamps (21) from weld nut (22).



15. Remove elbows (1) and elbow (2) from tubes (3).
16. Remove screw (4) and washer (5) from tubing strap (6) and brake (7).
17. Loosen nuts on brake crossover tube (8). Remove tube (8) from inlet tee (9) and elbow (10). Remove tube (3) from inlet tee and preformed packing (11) from brake (7). Remove elbow and preformed packing from brake. Discard preformed packings.
18. Remove four brake bleeders (12) from four elbows (13). Remove four elbows and preformed packings (14) from two brakes (7). Discard preformed packing.

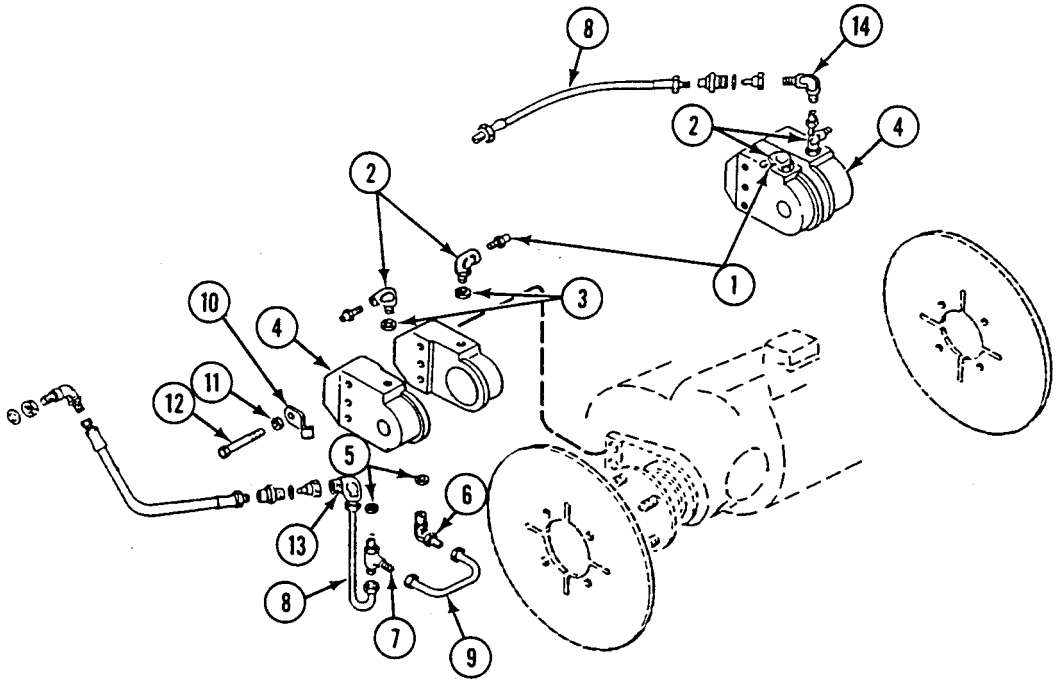


INSTALLATION

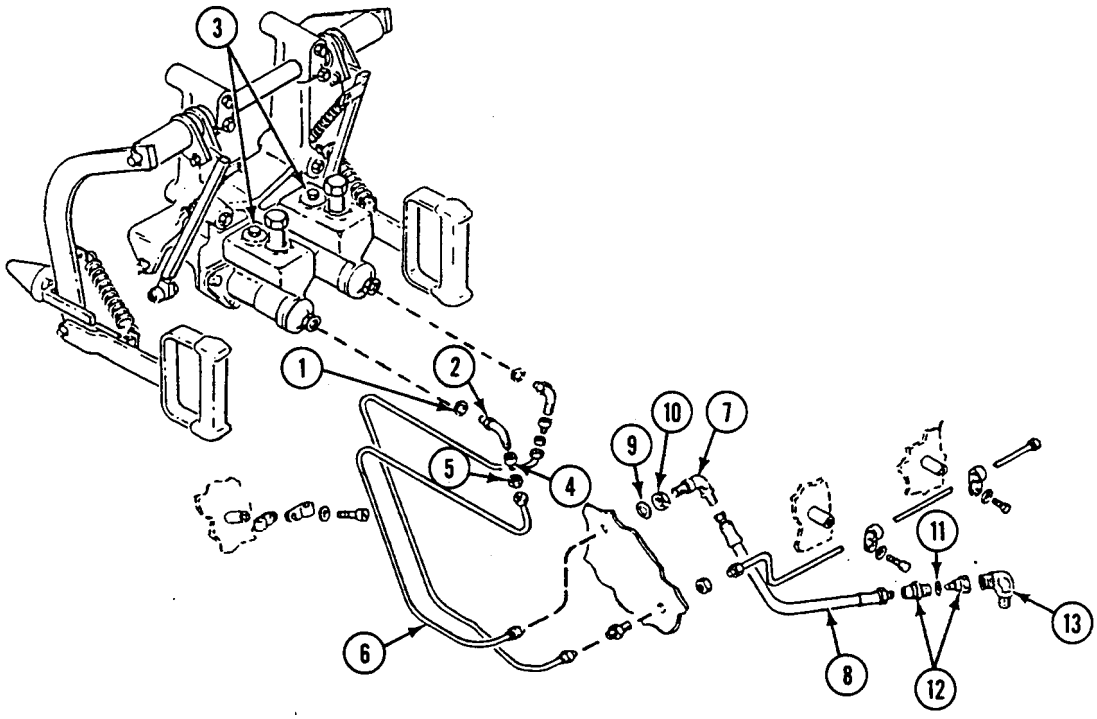
NOTE

Clean threads. Put sealing compound sparingly on outside tapered threads at assembly.

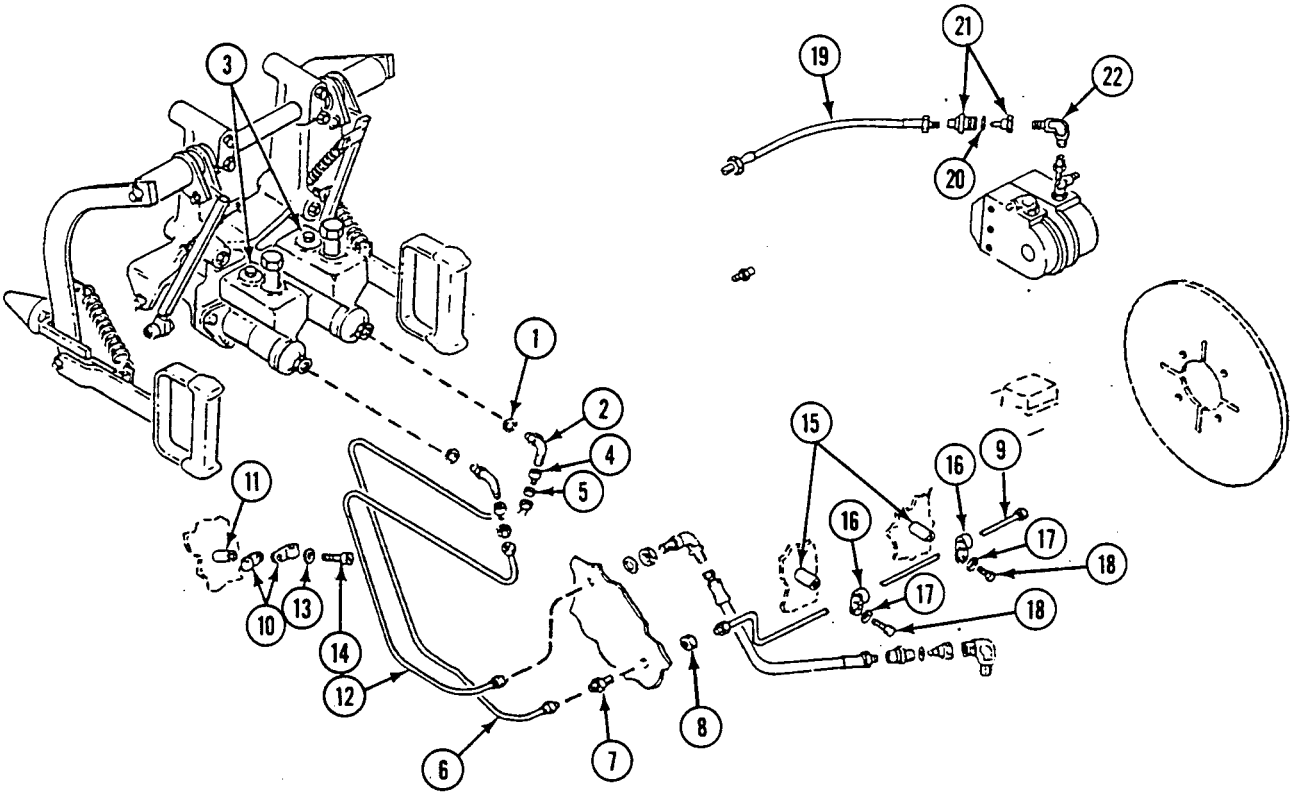
1. Install four brake bleeders (1) in four elbows (2). Install four elbows and new preformed packings (3) in two brakes (4).
2. Install new preformed packing (5) and elbow (6) in brake (4). Install new preformed packing and inlet tee (7) in brake. Install tube (8) on inlet tee. Install brake crossover tube (9) on inlet tee and elbow.
3. Install tubing strap (10) on brake (4). Secure tube (8) with washer (11) and screw (12).
4. Install elbow (13) and elbow (14) on tubes (8).



5. Install new preformed packing (1) and elbow (2) on master cylinder (3).
6. Install reducer (4) on elbow (2). Install nut (5) on reducer. Install tube (6) on reducer and secure with nut.
7. Install elbow (7) on hose (8). Install washer (9) on elbow. Install elbow and washer through bulkhead. Secure with nut (10).
8. Install tube (6) on elbow (7).
9. Install new preformed packing (11) in quick disconnect coupler (12). Install coupler on hose (8) and elbow (13). Connect quick disconnect coupler.



10. Install new preformed packing (1) and elbow (2) on master cylinder (3).
11. Install reducer (4) on elbow (2). Install nut (5) on reducer. Install tube (6) on reducer and secure with nut.
12. Install union (7) through bulkhead. Secure with nut (8). Connect tube (6) to union. Connect tube (9) to union.
13. Install two clamps (10) on weld nut (11) and secure tube (12) and tube (6) with new lock washer (13) and screw (14).
14. Secure tube (9) to two weld nuts (15) with two clamps (16), new lock washers (17), and screws (18).
15. Connect tube (9) to hose (19).
16. Install new preformed packing (20) in quick disconnect coupler (21). Install coupler on hose (19) and elbow (22). Connect quick disconnect coupler.



17. Fill pivot steering hydraulic system (see your PMCS) (WP 0128 00). Check for leaks.
18. Bleed pivot steering brake control lines (WP 0370 00).

FOLLOW-THROUGH STEPS

1. Start engine (see your -10).
2. Check pivot steering brake system for proper operation.
3. Stop engine (see your -10).
4. Install cab left floor plate (WP 0394 00)).
5. Install throttle floor plate (WP 0394 00).
6. Lower right and left center seat floor plates (WP 0394 00).

END OF TASK

REPLACE PIVOT STEERING BRAKE ASSEMBLY (M548A1) 0373 00

THIS WORK PACKAGE COVERS:

Removal (page 0373 00-1).
Installation (page 0373 00-3).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)
Torque Wrench (WP 0541 00, Item 69)

Materials/Parts
Hydraulic fluid (WP 0542 00, Item 18)
Sealing compound (WP 0542 00, Item 36)
Preformed packing (2)
Preformed packing (6)
Suitable container

Personnel Required
Unit Mechanic

References
See your -10
See your -PMCS

Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)
Right and left center seat floor plates raised (WP 0394 00)
Throttle floor plate removed (WP 0394 00)
Cab left floor plate removed (WP 0394 00)

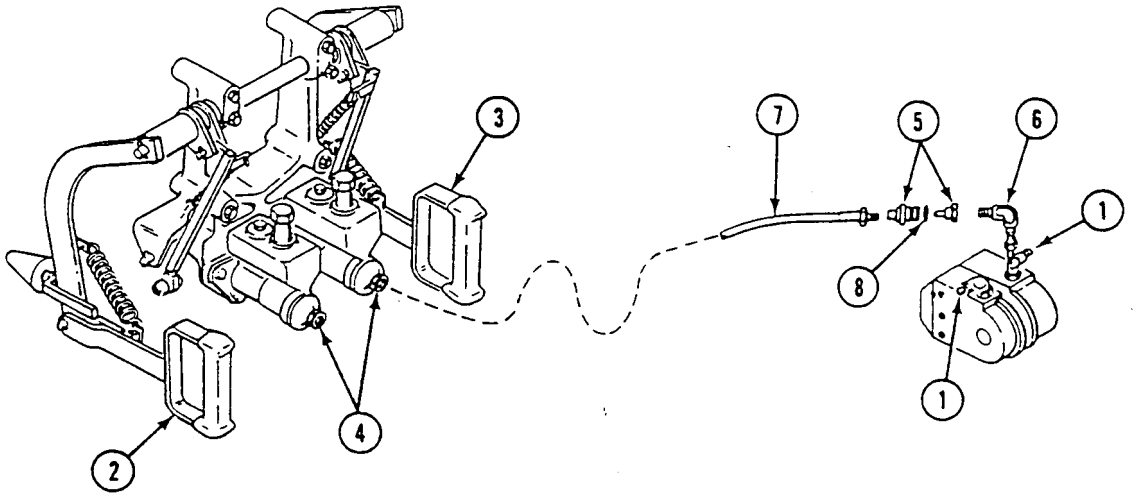
REMOVAL

NOTE

Place containers under brake bleeders.

1. Open four brake bleeders (1). Operate hand lever (2) and hand lever (3) until two hydraulic cylinders (4) have been drained.

2. Remove quick disconnect coupler (5) from elbow (6) and hose (7). Disconnect coupler and remove preformed packing (8). Discard preformed packing.



3. Remove quick disconnect coupler (1) from elbow (2) and hose (3). Disconnect coupler and remove preformed packing (4). Discard preformed packing.

NOTE

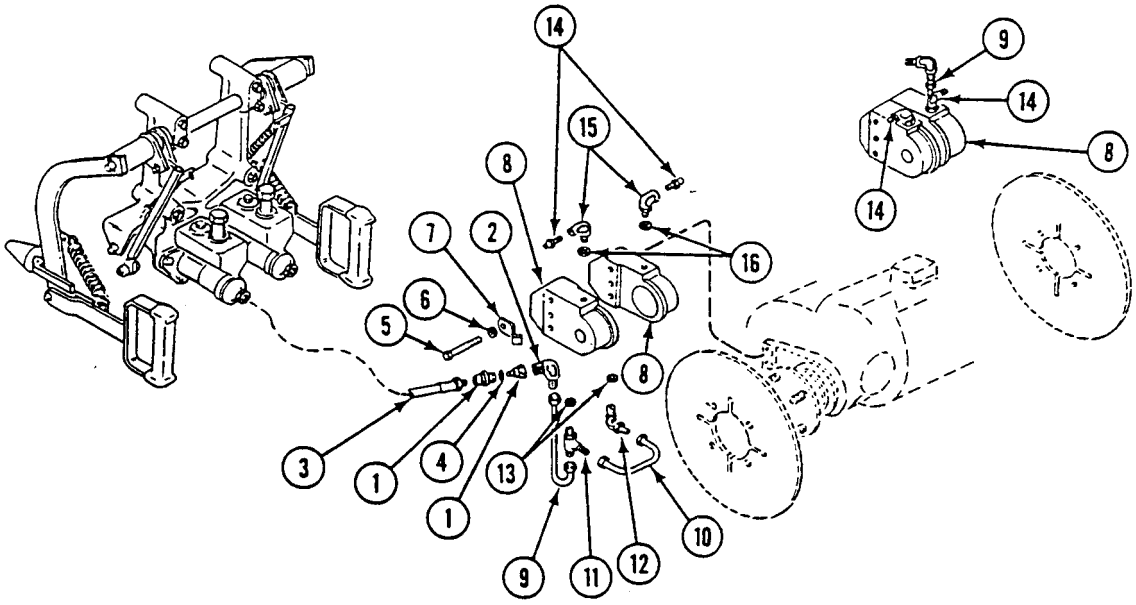
Screws must be used to hold both halves of brake together.

4. Loosen six screws (5), washers (6), and two tubing straps (7) from differential and two brakes (8).

NOTE

Both brakes have similarly installed parts. Lift each brake from differential to disassemble it.

5. Remove elbow (2) from tube (9). Loosen nuts on brake crossover tube (10). Remove tube (10) from inlet tee (11) and elbow (12).
6. Remove inlet tee (11) and preformed packing (13) from brake (8). Discard preformed packing.
7. Remove elbow (12) and preformed packing (13) from brake (8). Discard preformed packing.
8. Remove four brake bleeders (14) from four elbows (15). Remove four elbows and preformed packings (16) from two brakes (8). Discard preformed packings.
9. Remove six screws (5) and washers (6) from two brakes (8). Separate brake halves of each brake.

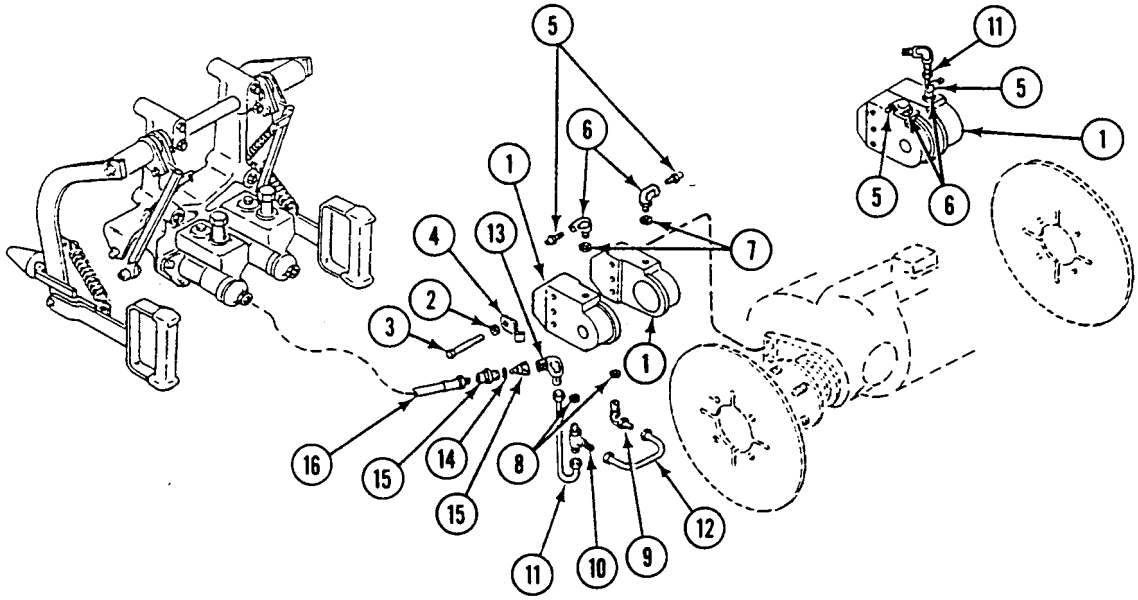


INSTALLATION

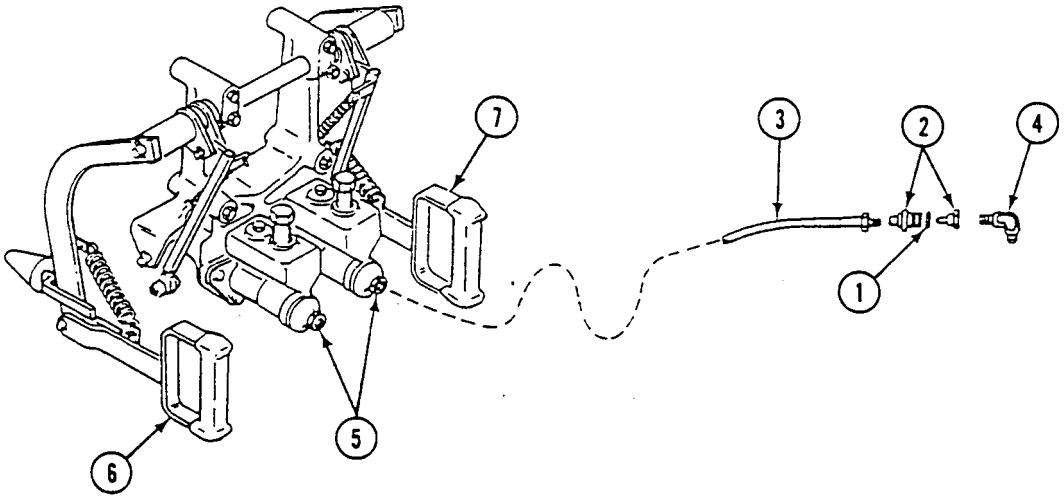
NOTE

Clean threads. Put sealing compound sparingly on outside tapered threads at assembly.

1. Secure two brake halves of each brake (1) with six washers (2), screws (3), and two tubing straps (4).
2. Install four brake bleeders (5) in four elbows (6). Install four new preformed packings (7) and elbows in two brakes (1).
3. Install new preformed packing (8) and elbow (9) in brake (1). Install new preformed packing and inlet tee (10) in brake. Install tube (11) on inlet tee. Install brake crossover tube (12) on inlet tee and elbow (9).
4. Install two brakes (1) on differential. Tighten six screws (3) to 100 to 110 lb-ft (136 to 149 N•m).
5. Install elbow (13) on tube (11).
6. Install new preformed packing (14) in quick disconnect coupler (15). Install coupler on hose (16) and elbow (13). Connect quick disconnect coupler.



7. Install new preformed packing (1) in quick disconnect coupler (2). Install coupler on hose (3) and elbow (4). Connect quick disconnect coupler.
8. Fill hydraulic cylinders (5) and hydraulic system with hydraulic fluid (see your PMCS) (WP 0128 00). Check for leaks.
9. Operate hand lever (6) and hand lever (7) and bleed pivot steering brake control lines (WP 0370 00).



FOLLOW-THROUGH STEPS

1. Start engine (see your -10).
2. Check pivot steering brake assembly for proper operation.
3. Stop engine (see your -10).
4. Install cab left floor plate (WP 0394 00).
5. Install throttle floor plate (WP 0394 00).
6. Lower right and left center seat floor plates (WP 0394 00).

END OF TASK

REPLACE PIVOT STEERING CLUTCH DISK (M548A1) 0374 00

THIS WORK PACKAGE COVERS:

Removal (page 0374 00-1).
Installation (page 0374 00-1).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)
Torque Wrench (WP 0541 00, Item 69)

Materials/Parts

Lock nut (8)

Personnel Required

Unit Mechanic

References

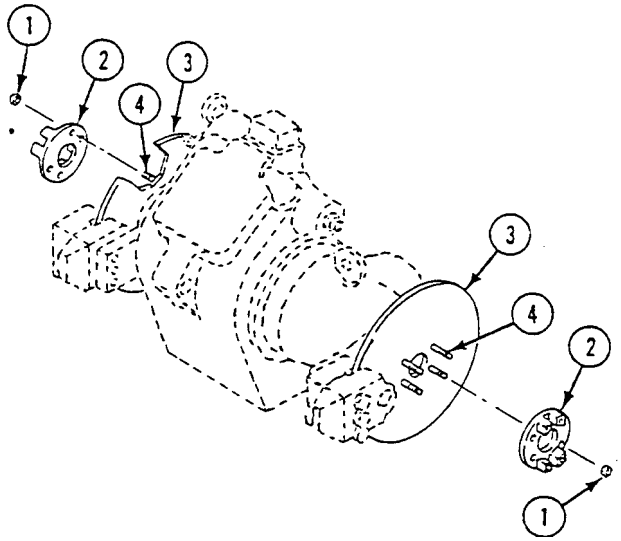
See your -10

Equipment Condition

Engine stopped (see your -10)
Carrier blocked (see your -10)
Right and left center seat floor plates raised (WP 0394 00)
Throttle floor plate removed (WP 0394 00)
Cab left floor plate removed (WP 0394 00)
Pivot steering brakes removed (WP 0373 00)
Propeller shafts and universal joints removed (WP 0332 00)

REMOVAL

1. Remove eight lock nuts (1), two adapters (2), and clutch disks (3) from four differential studs (4). Discard lock nuts.



INSTALLATION

1. Place two clutch disks (3) and adapters (2) on four differential studs (4). Secure with eight new lock nuts (1). Tighten lock nuts to 75 to 80 lb-ft (102 to 108 N•m) torque.

FOLLOW-THROUGH STEPS

1. Install propeller shafts and universal joints (WP 0332 00).
2. Install pivot steering brakes (WP 0373 00).
3. Start engine (see your -10).
4. Check pivot steering clutch disk for proper operation.
5. Stop engine (see your -10).
6. Install cab left floor plate (WP 0394 00).
7. Install throttle floor plate (WP 0394 00).
8. Lower right and left center seat floor plates (WP 0394 00).

END OF TASK

REPLACE PIVOT STEERING BRAKE LINING (M548A1) 0375 00

THIS WORK PACKAGE COVERS:

Removal (page 0375 00-1).
Inspection-Acceptance and Rejection Criteria (page 0375 00-1).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)

Personnel Required

Unit Mechanic

References

See your -10

Equipment Condition

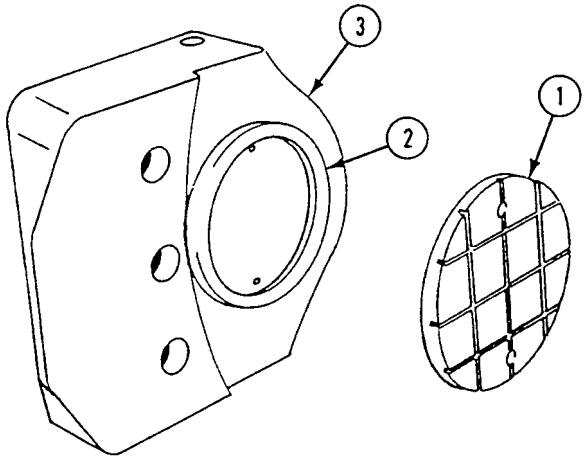
Engine stopped (see your -10)
Carrier blocked (see your -10)
Pivot steering brake removed (WP 0373 00)

REMOVAL

NOTE

Some brake linings have two clips and rivets.

1. Remove brake lining (1) from piston (2) in housing (3).



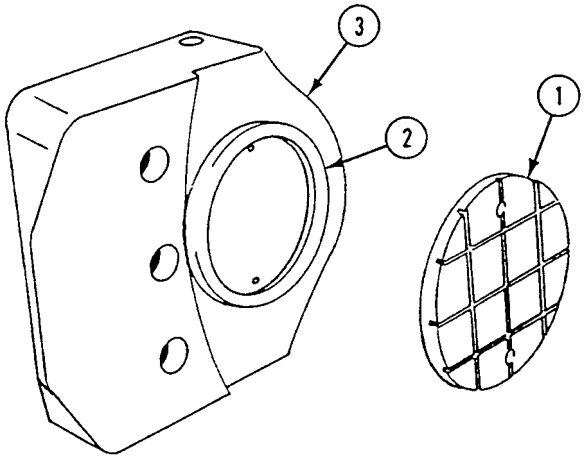
INSPECTION-ACCEPTANCE AND REJECTION CRITERIA

1. Inspect brake lining material. If worn down to rivets, if only 1/8 inch (.32 cm) material is left on rivet, or if worn down until any wear grooves are gone, replace brake lining.

NOTE

One brake assembly parts kit is needed for each brake assembly. Discard two clips and two rivets supplied with each kit.

2. Press piston (2) and brake lining (1) into housing (3) until flush with housing surface.



FOLLOW-THROUGH STEPS

1. Install pivot steering brake (WP 0368 00).

END OF TASK

CHAPTER 16

UNIT MAINTENANCE INSTRUCTIONS FOR TIEDOWN AND TOWING ATTACHMENTS

WORK PACKAGE INDEX

Title	Sequence No.
REPLACE TOWING EYE AND HOOK	0376 00
REPAIR/REPLACE TOWING PINTLE	0377 00
REPLACE REAR TIEDOWN PLATES	0378 00

REPLACE TOWING EYE AND HOOK 0376 00

THIS WORK PACKAGE COVERS:

Removal (page 0376 00-1).
Installation (page 0376 00-1).

INITIAL SETUP:

Maintenance Level
Unit

Tools and Special Tools
General Mechanic's Tool Kit (WP 0541 00, Item 57)
Torque Wrench (WP 0541 00, Item 69)

Personnel Required
Unit Mechanic

References
See your -10

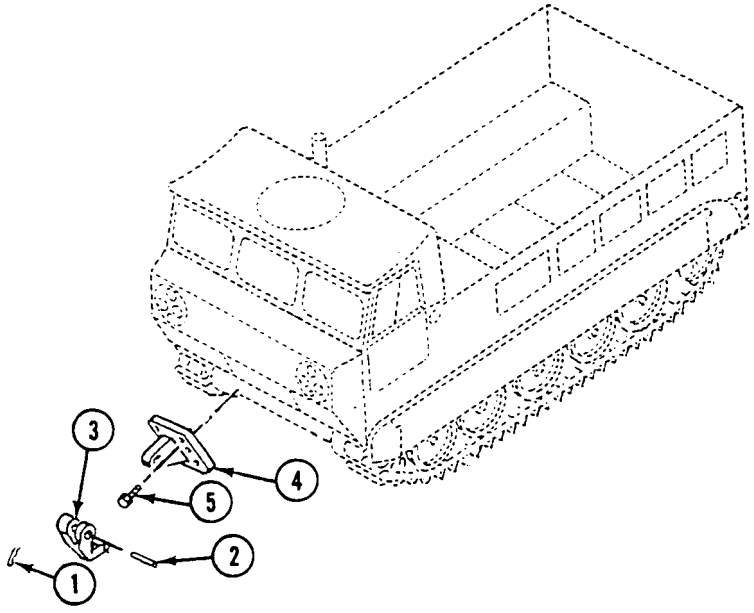
Equipment Condition
Engine stopped (see your -10)
Carrier blocked (see your -10)

REMOVAL

NOTE

There are four towing eyes on the carrier, two in front and two in the rear. Clip, pin, and hook are installed on front towing eyes only.

1. Remove clip (1) and pin (2) that secure hook (3) in towing eye (4). Remove hook.
2. Remove six screws (5) that secure towing eye (4) to carrier. Remove eye.



INSTALLATION

1. Place towing eye (4) on carrier. Secure with six screws (5). Tighten screws to 130-140 lb-ft (176-190 N•m) torque.
2. Install hook (3) in towing eye (4). Secure with pin (2) and clip (1).

END OF TASK

REPAIR/REPLACE TOWING PINTLE 0377 00

THIS WORK PACKAGE COVERS:

Removal (page 0377 00-1).
Disassembly (page 0377 00-2).
Assembly (page 0377 00-2).
Installation (page 0377 00-3).

INITIAL SETUP:

Maintenance Level

Unit

Personnel Required

Unit Mechanic

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)

References

See your -10
See your LO

Materials/Parts

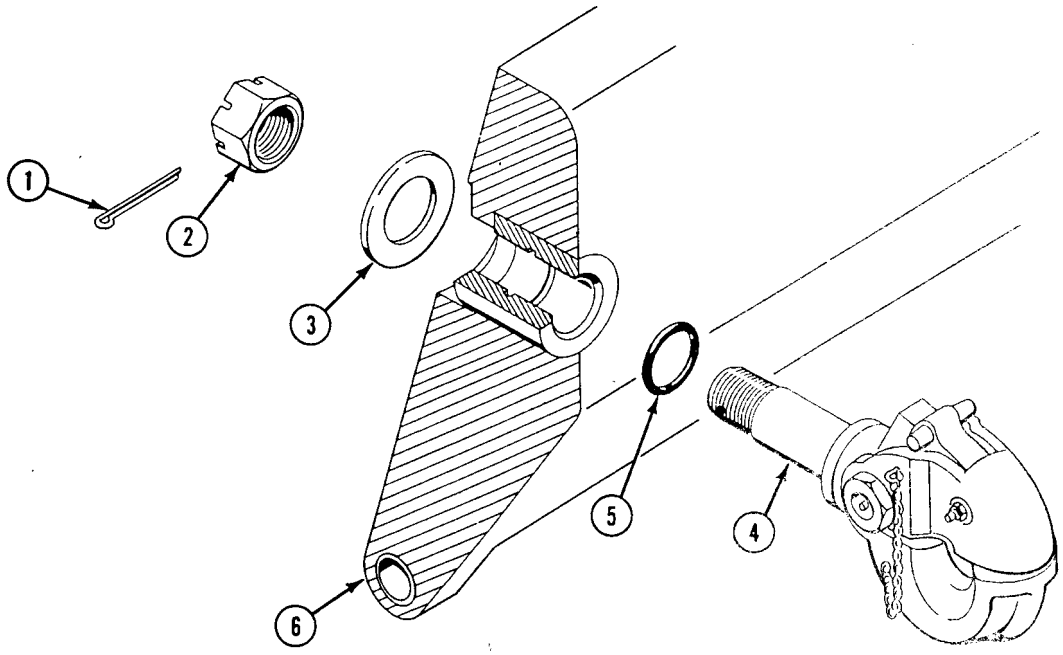
GAA grease (WP 0542 00, Item 14)
Cotter pin
Cotter pin
Preformed packing

Equipment Condition

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

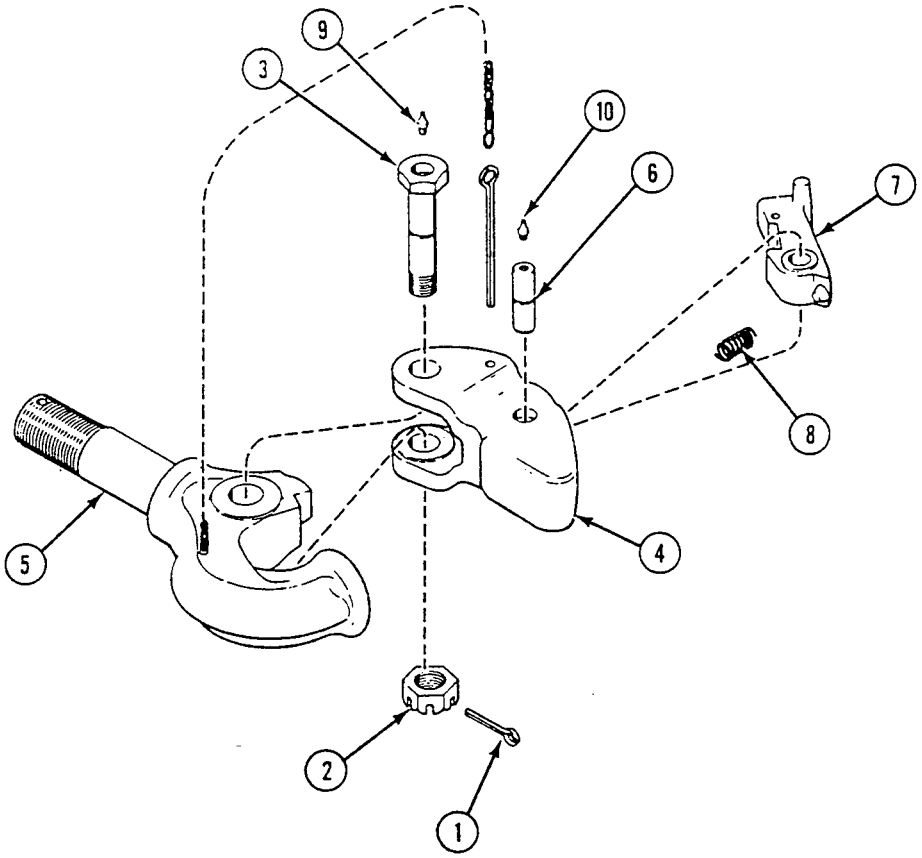
REMOVAL

1. Remove cotter pin (1), nut (2), and washer (3) from pintle (4). Discard cotter pin.
2. Remove pintle (4) and preformed packing (5) from tailgate (6). Remove preformed packing from pintle. Discard preformed packing.



DISASSEMBLY

1. Remove cotter pin (1), nut (2), and bolt (3) that secure pintle lock (4) to pintle hook (5). Remove lock from hook. Discard cotter pin.
2. Remove lock pin (6) from pintle lock (4).
3. Remove pintle latch (7) and latch spring (8) from pintle lock (4).
4. Remove grease fitting (9) from bolt (3). Remove grease fitting (10) from lock pin (6).

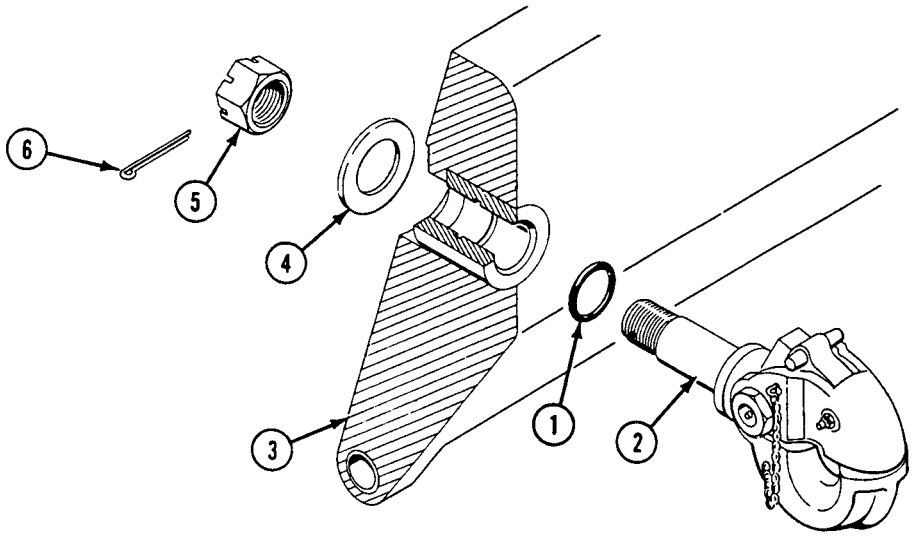


ASSEMBLY

1. Install latch spring (8) and pintle latch (7) in pintle lock (4). Secure with lock pin (6).
2. Secure lock pin (6) in pintle lock (4) by staking both ends at three equally spaced points.
3. Install grease fitting (10) in lock pin (6). Install grease fitting (9) in bolt (3).
4. Install pintle lock (4) in pintle hook (5). Secure with bolt (3), nut (2), and new cotter pin (1).
5. Lube pintle (see your PMCS).

INSTALLATION

1. Put a light coat of grease on shaft of pintle.
2. Install new preformed packing (1) on pintle (2). Install pintle in tailgate (3).
3. Secure pintle (2) in tailgate (3) with washer (4), nut (5), and new cotter pin (6).



END OF TASK

REPLACE REAR TIEDOWN PLATES 0378 00

THIS WORK PACKAGE COVERS:

Removal (page 0378 00-1).
Installation (page 0378 00-1).

INITIAL SETUP:

Maintenance Level

Unit

Tools and Special Tools

General Mechanic's Tool Kit (WP 0541 00, Item 57)
Socket Wrench Set (WP 0541 00, Item 65)
Torque Wrench (WP 0541 00, Item 72)

Materials/Parts

Sealing compound primer (WP 0542 00, Item 40)
Sealing compound (WP 0542 00, Item 47)

Personnel Required

Unit Mechanic

References

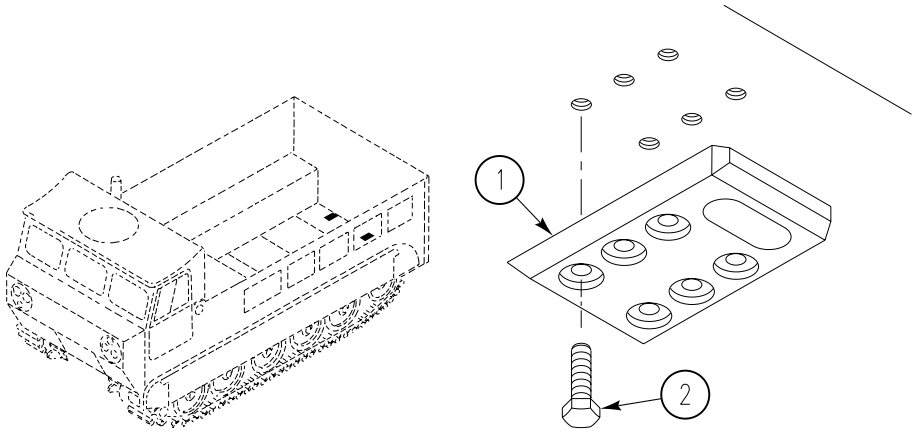
See your -10

Equipment Condition

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

REMOVAL

1. Remove 12 screws (2) and two plates (1) from bottom of carrier.



INSTALLATION

1. Install two plates (1) to bottom of carrier.
   a. Apply a light coat of sealing compound primer and sealing compound to the threads of the 12 screws (2).
   b. Install two plates (1) and coated screws (2) to bottom of carrier.
2. Tighten 12 screws (2) to 268-295 lb-ft (363-400 N•m) torque. Use torque wrench and socket wrench set.

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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
0105108

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METRIC CONVERSION CHART

APPROXIMATE CONVERSION FACTORS

TO CHANGE	TO	MULTIPLY BY
Inches	Centimeters	2.540
Feet	Meters	0.305
Yards	Meters	0.914
Miles	Kilometers	1.609
Square Inches	Square Centimeters	6.451
Square Feet	Square Meters	0.093
Square Yards	Square Meters	0.836
Square Miles	Square Kilometers	2.590
Acres	Square Hectometers	0.405
Cubic Feet	Cubic Meters	0.028
Cubic Yards	Cubic Meters	0.765
Fluid Ounces	Milliliters	29.573
Pints	Liters	0.473
Quarts	Liters	0.946
Gallons	Liters	3.785
Ounces	Grams	28.349
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 Centimeters	Cubic Inches	0.060
Cubic Meters	Cubic Feet	35.315
Cubic Meters	Cubic Yards	1.308
Milliliters	Fluid Ounces	0.034
Liters	Pints	2.113
Liters	Quarts	1.057
Liters	Gallons	0.264
Grams	Ounces	0.035
Kilograms	Pounds	2.205
Metric Tons	Short Tons	1.102
Newton-Meters	Pound-Feet	0.738
Kilopascals	Pounds per Square Inch	0.145
Kilometers per Liter	Miles per Gallon	2.354
Kilometers per Hour	Miles per Hour	0.621

TEMPERATURE CONVERSIONS

$5/9\ (^{\circ}F - 32) = {}^{\circ}C$
212° Fahrenheit is equivalent to 100° Celsius
90° Fahrenheit is equivalent to 32.2° Celsius
32° Fahrenheit is equivalent to 0° Celsius
$9/5\ C^{\circ} + 32 = F^{\circ}$

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