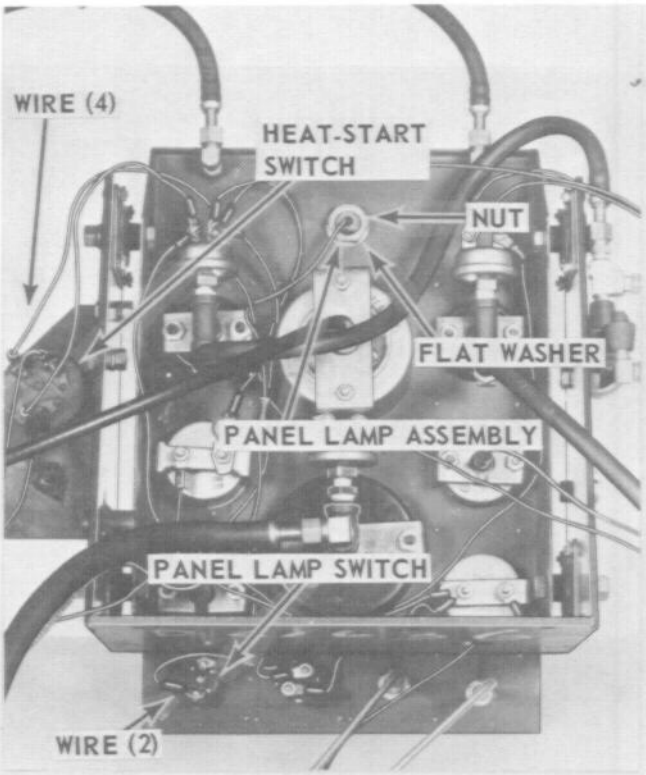
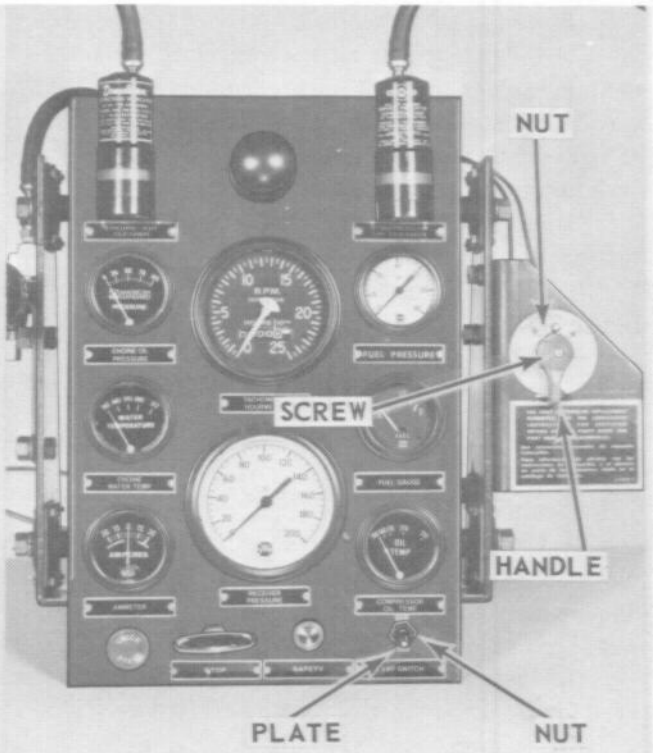




ME 4310-338-15/3-34 (8)

REMOVAL

STEP 1. DISCONNECT WIRES.

STEP 2. REMOVE SCREW, HANDLE, AND NUT. REMOVE SWITCH.

INSTALLATION

STEP 1. PLACE SWITCH IN MOUNTING POSITION AND SECURE WITH NUT. INSTALL HANDLE AND SECURE WITH SCREW.

STEP 2. CONNECT WIRES.

M **HEAT-START SWITCH; REMOVAL AND INSTALLATION.**

REMOVAL

STEP 1. DISCONNECT WIRES FROM SWITCH.

STEP 2. REMOVE NUT AND FLAT WASHER. REMOVE PANEL LAMP ASSEMBLY.

STEP 3. REMOVE NUT. REMOVE SWITCH AND PLATE.

INSTALLATION

STEP 1. PLACE SWITCH AND PLATE ON INSTRUMENT PANEL AND SECURE WITH NUT.

STEP 2. PLACE PANEL LAMP ASSEMBLY ON INSTRUMENT PANEL AND SECURE WITH NUT AND FLAT WASHER.

STEP 3. CONNECT WIRES TO SWITCH.

N **PANEL LAMP ASSEMBLY AND SWITCH; REMOVAL AND INSTALLATION.**

Figure 3-34. Instrument Panel Controls and Instruments, Removal and Installation (sheet 8 of 8).

b. Cleaning and Inspection.

(1) Clean gage using a clean cloth soaked in a cleaning solvent that is in accordance with Federal specification P-D-680. Dry thoroughly.

(2) Inspect gage face glass for damage. Inspect case for cracks, distortion, or any other defect.

(3) Inspect attaching hardware for cracks, distortion, damaged threads, or any other defect.

c. Installation. Install oil pressure gage as shown in figure 3-34.

3-47. Compressor Oil Temperature Gage

a. Removal. Remove oil temperature gage as shown in figure 3-34.

b. Cleaning and Inspection.

(1) Clean gage, line, and sensing bulb using a clean cloth soaked in a cleaning solvent that is in accordance with Federal specification P-D-680. Dry thoroughly.

(2) Inspect gage face glass for damage. Inspect case for cracks, distortion, or any other defect.

(3) Inspect sensing bulb and line for kinks, breaks, distortion, or any other defect.

(4) Inspect attaching hardware for cracks, distortion, damaged threads, or any other defect.

c. Installation. Install oil temperature gage as shown in figure 3-34.

3-48. Compressor Oil Level Gage

a. Removal.

CAUTION

If drained oil is to be reused, take necessary precautions to prevent contamination.

(1) Drain oil from oil separator assembly until level is below gage mounting hole. Catch oil in a clean container if it is to be reused.

(2) Remove oil level gage as shown in figure 3-35.

b. Cleaning and Inspection.

(1) Clean gage using a cleaning solvent that is in accordance with Federal specification P-D-680. Dry gage thoroughly.

(2) Inspect oil level gage for freedom of movement, distortion, cracks, breaks, or any other defect. Inspect condition of face glass.

(3) Inspect attaching hardware for damaged threads, distortion, cracks, or any other defect.

c. Installation.

(1) Install oil level gage as shown in figure 3-35.

(2) Replenish oil supply (refer to LO 5-4310-338-12). If drained oil is being reused, check carefully for any obvious contamination; then strain oil as it is being added, using clean, lint-free cloth.

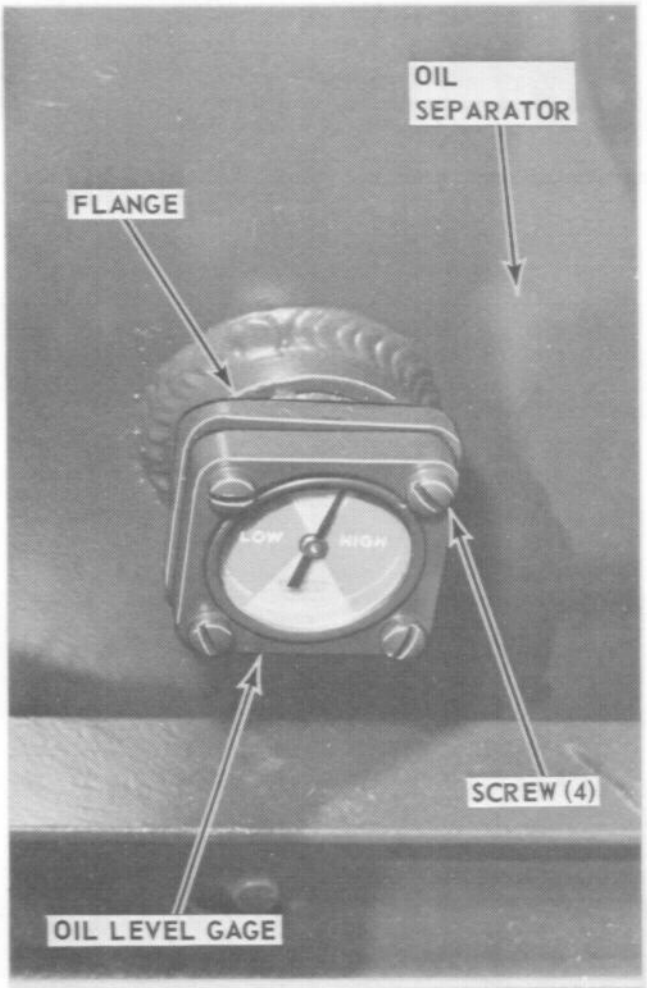


Figure 3-35. Compressor oil level gage; removal and installation.

3-49. Tachometer-Hourmeter

a. Removal. Remove tachometer-hourmeter as shown in figure 3-34.

b. Cleaning and Inspection.

(1) Clean tachometer-hourmeter using a clean cloth soaked in a cleaning solvent that is in accordance with Federal specification P-D-680. Dry thoroughly.

(2) Inspect tachometer-hourmeter face glass for damage. Inspect case for cracks, distortion, or any other defect.

(3) Inspect tachometer cable for kinks, breaks, or any other defect.

(4) Inspect attaching hardware for cracks, distortion, damaged threads, or any other defect.

c. Installation. Install tachometer-hourmeter as shown in figure 3-34.

3-50. Air Pressure Gage

a. Removal. Remove air pressure gage as shown in figure 3-34.

b. Cleaning and Inspection.

(1) Clean gage using a clean cloth soaked in a cleaning solvent that is in accordance with Federal specification P-D-680. Dry thoroughly.

(2) Inspect gage face glass for damage. Inspect case for cracks, distortion, or any other defect.

(3) Inspect attaching hardware for cracks, distortion, damaged threads, or any other defect.

c. Installation. Install air pressure gage as shown in figure 3-34.

3-51. Fuel Level Gage

a. Removal. Remove fuel level gage and sending unit as shown in figure 3-34.

b. Cleaning and Inspection.

(1) Clean gage and sending unit using a clean cloth soaked in a cleaning solvent that is in accordance with Federal specification P-D-680. Dry thoroughly.

(2) Inspect gage face glass for damage. Inspect case for cracks, distortion, or any other defect.

(3) Inspect sending unit float for freedom of movement. Inspect for cracks, breaks, distortion, or any other defect.

(4) Inspect attaching hardware for cracks, distortion, damaged threads, or any other defect.

c. Installation. Install fuel level gage and sending unit as shown in figure 3-34.

3-52. Fuel Pressure Gage

a. Removal. Remove fuel pressure gage as shown in figure 3-34.

b. Cleaning and Inspection.

(1) Clean gage using a clean cloth soaked in a cleaning solvent that is in accordance with Federal specification P-D-680. Dry thoroughly.

(2) Inspect gage face glass for damage. Inspect case for cracks, distortion, or any other defect.

(3) Inspect attaching hardware for cracks, distortion, damaged threads, or any other defect.

c. Installation. Install fuel pressure gage as shown in figure 3-34.

3-53. Water Temperature Gage

a. Removal. Remove water temperature gage as shown in figure 3-34.

b. Cleaning and Inspection.

(1) Clean gage, line, and sensing bulb using a clean cloth soaked in a cleaning solvent that is in accordance with Federal specification P-D-680. Dry thoroughly.

(2) Inspect gage face glass for damage. Inspect case for cracks, distortion, or any other defect.

(3) Inspect sensing bulb and line for kinks, breaks, distortion, or any other defect.

(4) Inspect attaching hardware for cracks, distortion, damaged threads, or any other defect.

c. Installation. Install water temperature gage as shown in figure 3-34.

3-54. Ammeter

a. Removal. Remove ammeter as shown in figure 3-34.

b. Cleaning and Inspection.

(1) Wipe ammeter clean using a clean, dry cloth.

(2) Inspect gage face glass for damage. Inspect case for cracks, distortion, or any other defect.

(3) Inspect attaching hardware for cracks, distortion, damaged threads, or any other defect.

c. Installation. Install ammeter as shown in figure 3-34.

NOTE

Be certain that ammeter terminals are tightened securely to provide a good charging circuit for the battery.

3-55. Air Cleaner Restriction Indicators

a. Removal. Remove air cleaner restriction indicators as shown in figure 3-34.

b. Installation. Install air cleaner restriction indicators as shown in figure 3-34.

3-56. Service Meter

a. Removal. Remove service meter from fuel transfer pump as shown in figure 3-36.

b. Cleaning and Inspection.

(1) Clean service meter using a clean cloth soaked in a cleaning solvent that is in accordance with Federal specification P-D-680. Dry thoroughly.

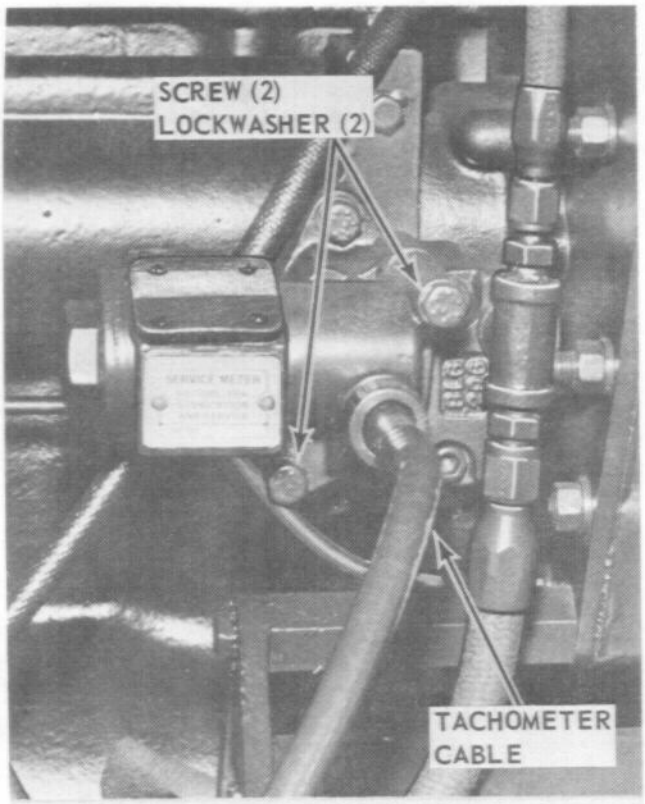
(2) Inspect service meter for cracks, breaks, distortion, or any other defect.

(3) Inspect attaching hardware for cracks, distortion, damaged threads, or any other defect.

c. Installation. Install service meter on fuel transfer pump as shown in figure 3-36.

3-57. Throttle RUN-START Lever

a. Removal. Remove throttle RUN-START lever as shown in figure 3-37.



ME 4310-338-15/3-36

REMOVAL

STEP 1. DISCONNECT TACHOMETER CABLE.

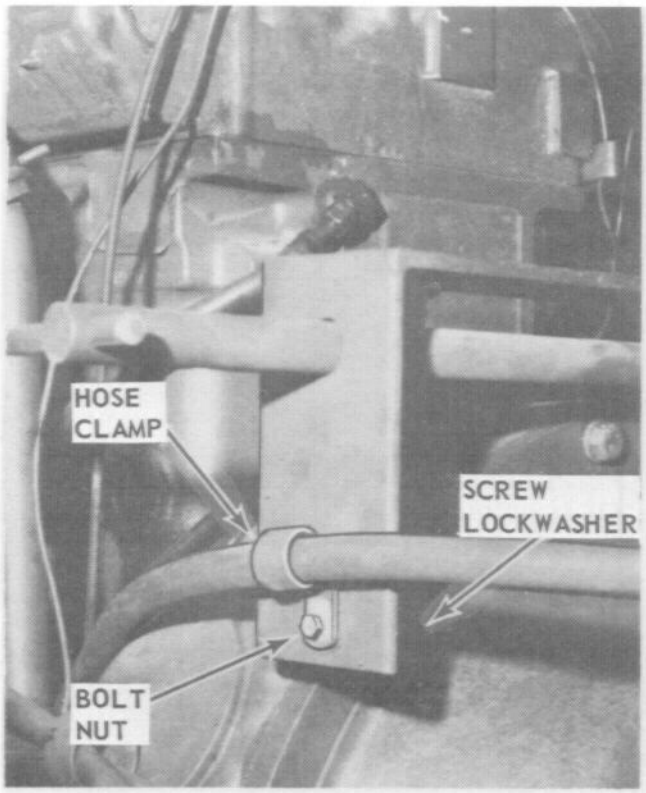
STEP 2. REMOVE SCREWS AND LOCKWASHERS. REMOVE SERVICE METER.

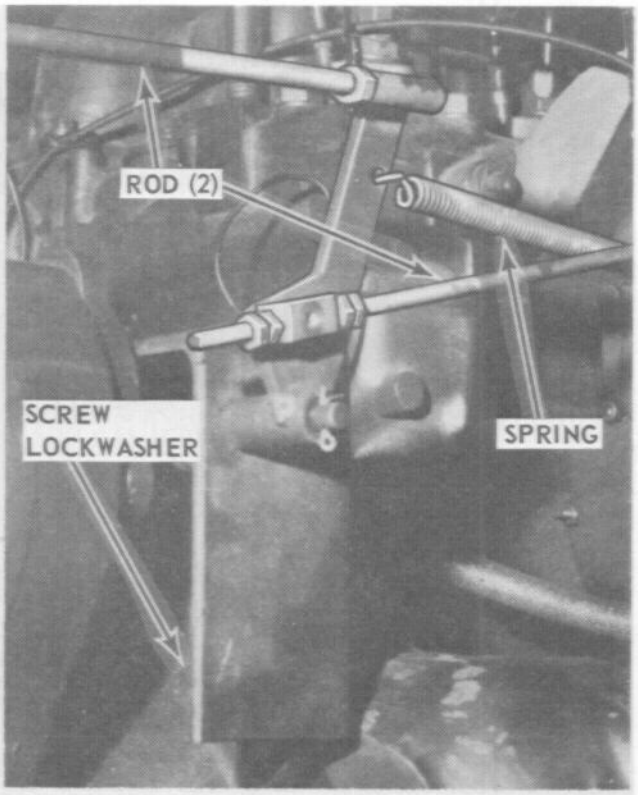
INSTALLATION

STEP 1. POSITION SERVICE METER AND INSTALL SCREWS AND LOCKWASHERS.

STEP 2. CONNECT TACHOMETER CABLE.

Figure 3-36. Service meter; removal and installation.





ME 4310-338-15/3-37

REMOVAL

STEP 1. REMOVE BOLT AND NUT SECURING HOSE CLAMP. REMOVE HOSE CLAMP.

STEP 2. DISCONNECT SPEED CONTROL RODS AND SPRING (FIGURE 3-68).

STEP 3. REMOVE MOUNTING SCREWS AND WASHERS. REMOVE RUN-START LEVER.

INSTALLATION

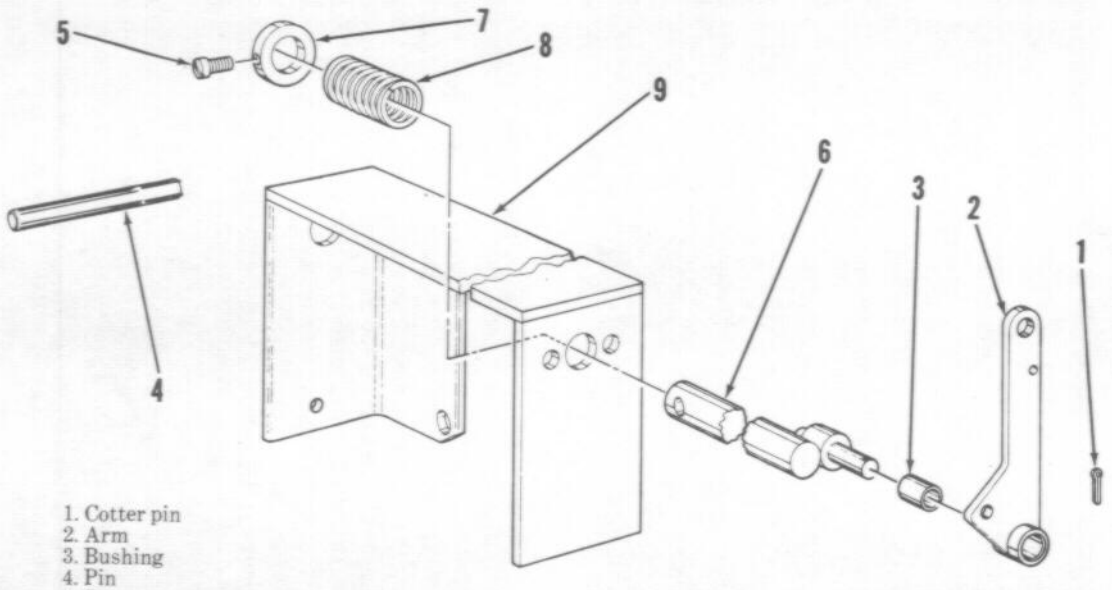
STEP 1. PLACE RUN-START LEVER IN MOUNTING POSITION AND SECURE WITH SCREWS AND WASHERS.

STEP 2. CONNECT SPEED CONTROL RODS AND SPRING (FIGURE 3-68).

STEP 3. POSITION HOSE CLAMP AND SECURE WITH BOLT AND NUT.

Figure 3-37. Throttle RUN-START lever; removal and installation.

b. Disassembly. Disassemble throttle RUN-START lever in numerical sequence shown in figure 3-38.



1. Cotter pin
2. Arm
3. Bushing
4. Pin
5. Screw
6 Shaft
7.Collar
8. Spring
9. Bracket

Figure 3-38. Throttle RUN-START lever; disassembly and reassembly.

c. Cleaning and Inspection.

(1) Clean all parts using a cleaning solvent that is in accordance with Federal specification P-D-680. Dry parts thoroughly.

(2) Inspect spring for cracked or broken coils, distortion, or any other defect.

(3) Inspect all other parts for cracks, breaks, distortion, or any other defects.

d. Reassembly. Reassemble throttle RUN-START lever in reverse numerical sequence shown in figure 3-38.

e. Installation. Install throttle RUN-START lever as shown in figure 3-37.

3-58. Fuel Rack Shutoff Solenoid

a. Removal. Remove fuel rack shutoff solenoid as shown in figure 3-39.

b. Installation. Install fuel rack shutoff solenoid as shown in figure 3-39.

3-59. Control Cables

a. Removal. Remove engine stop cable or cold weather starting aid cable as shown in figure 3-34.

b. Cleaning and Inspection.

(1) Clean control cables using a cleaning solvent that is in accordance with Federal specification P-D-680.

(2) Inspect cables for breaks, kinks, distortion, or any other defect.

(3) Inspect attaching hardware for cracks, distortion, damaged threads, or any other defect.

c. Installation. Install engine stop cable or cold weather starting aid cable as shown in figure 3-34.

3-60. HEAT-START Switch

a. Removal. Remove HEAT-START switch as shown in figure 3-34.

b. Cleaning and Inspection.

(1) Wipe HEAT-START switch clean using a clean, dry cloth.

(2) Check switch for proper operation. Inspect terminals for cracks, breaks, or any other defect.

(3) Inspect attaching hardware for cracks, distortion, damaged threads, or any other defect.

c. Installation. Install HEAT-START switch as shown in figure 3-34.

3-61. Panel Lamp Assembly and Switch

a. Removal. Remove panel lamp assembly and switch as shown in figure 3-34.

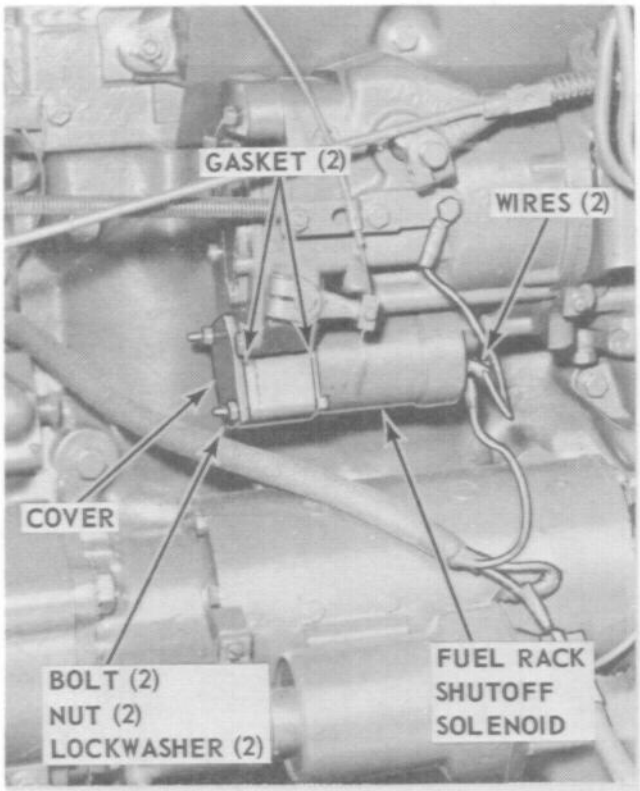
b. Cleaning and Inspection.

(1) Wipe panel lamp assembly and switch clean using a clean, dry cloth.

(2) Check switch for proper operation. Inspect terminals for cracks, breaks, or any other defect.

(3) Inspect panel lamp and bulb for breaks, cracks, distortion, or any other defect.

(4) Inspect attaching hardware for cracks, dis-



ME 4310-338-15/3-39

REMOVAL

STEP 1. DISCONNECT WIRING.

STEP 2. REMOVE BOLTS, NUTS, AND LOCKWASHERS.

STEP 3. REMOVE COVER AND GASKET.

STEP 4. TILT SOLENOID UP TO UNHOOK FROM LATCH AND REMOVE. REMOVE GASKET.

INSTALLATION

STEP 1. INSTALL SOLENOID AND GASKET. TILT UP AND HOOK SOLENOID ON LATCH.

STEP 2. INSTALL COVER AND GASKET.

STEP 3. INSTALL BOLTS, NUTS, AND LOCKWASHERS.

STEP 4. CONNECT WIRING.

Figure 3-39. Fuel rack shutoff solenoid, removal and installation.

tortion, damaged threads, or any other defect.

c. Installation. Install panel lamp assembly and switch as shown in figure 3-34.

3-62. Safety Pushbutton Switch

a. Removal. Remove safety pushbutton switch as shown in figure 3-34.

b. Cleaning and Inspection.

(1) Wipe safety switch clean using a clean, dry cloth.

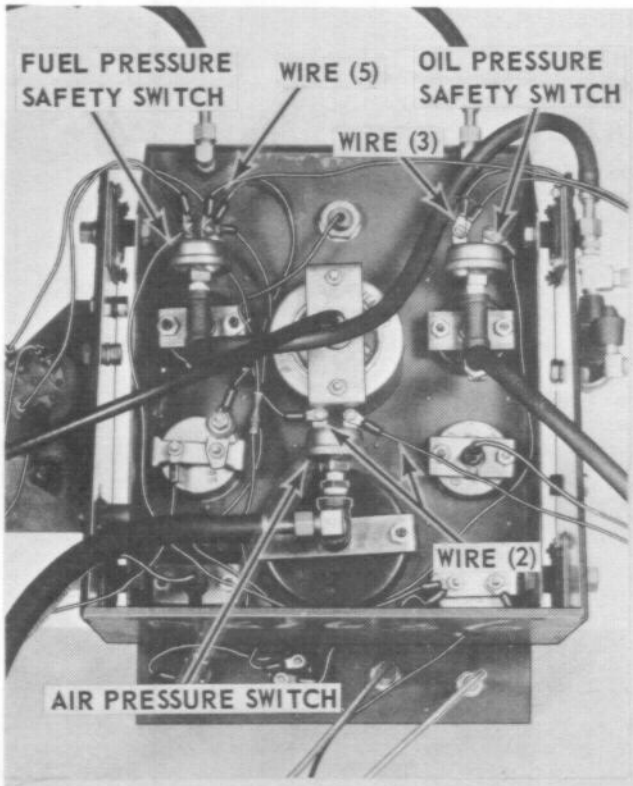
(2) Check switch for proper operation. Inspect terminals for cracks, breaks, or any other defect.

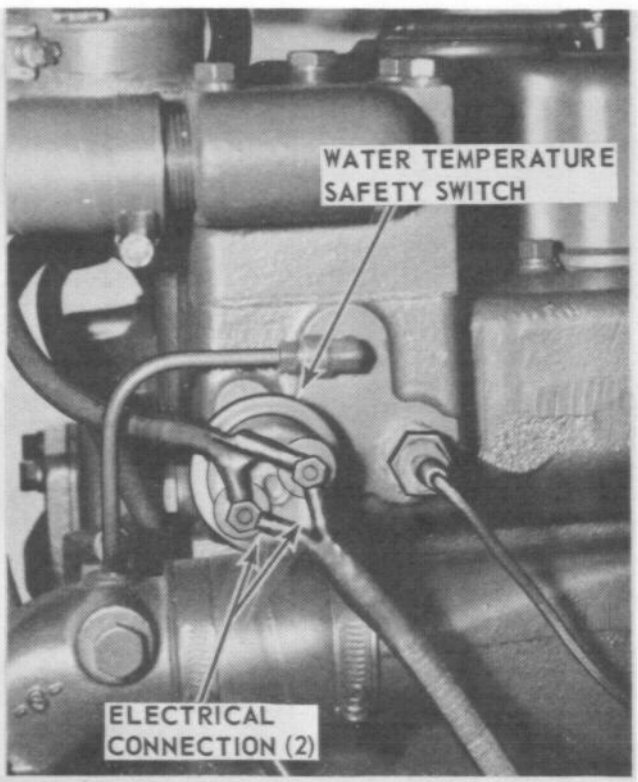
(3) Inspect attaching hardware for cracks, distortion, damaged threads, or any other defect.

c. Installation. Install safety pushbutton switch as shown in figure 3-34.

3-63. Fuel Pressure Safety Switch

a. Removal. Remove fuel pressure safety switch as shown in figure 3-40.





ME 4310-338-15/3-40

REMOVAL

STEP 1. DISCONNECT WIRES FROM SWITCH.

STEP 2. UNSCREW AND REMOVE SWITCH.

INSTALLATION

STEP 1. INSTALL AND TIGHTEN SWITCH.

STEP 2. CONNECT WIRES TO SWITCH (SEE FIGURE 1-3 FOR WIRING DIAGRAM).

A

REMOVAL

STEP 1. DISCONNECT ELECTRICAL CONNECTIONS.

STEP 2. UNSCREW AND REMOVE WATER TEMPERATURE SAFETY SWITCH.

INSTALLATION

STEP 1. INSTALL AND TIGHTEN WATER TEMPERATURE SAFETY SWITCH.

STEP 2. CONNECT ELECTRICAL CONNECTIONS.

B

Figure 3-40. Safety switches; removal and installation.

b. Installation. Install fuel pressure safety switch as shown in figure 3-40.

3-64. Air Pressure Switch

a. Removal. Remove air pressure switch as shown in figure 3-40.

b. Installation. Install air pressure switch as shown in figure 3-40.

3-65. Water Temperature Safety Switch

a. Removal. Remove water temperature safety switch as shown in figure 3-40.

b. Installation. Install water temperature safety switch as shown in figure 3-40.

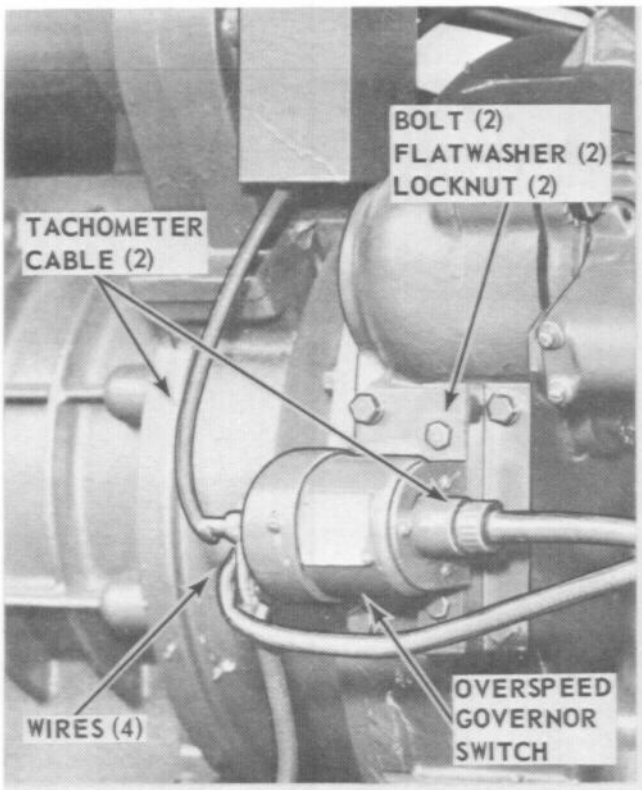
3-66. Oil Pressure Safety Switch

a. Removal. Remove oil pressure safety switch as shown in figure 3-40.

b. Installation. Install oil pressure safety switch as shown in figure 3-40.

3-67. Overspeed Governor Switch

a. Removal. Remove overspeed governor switch as shown in figure 3-41.



ME 4310-338-15/3-41

REMOVAL

STEP 1. DISCONNECT WIRES.

STEP 2. DISCONNECT TACHOMETER CABLES.

STEP 3. REMOVE BOLTS, FLATWASHERS, AND LOCKNUTS. REMOVE OVERSPEED SWITCH.

INSTALLATION

STEP 1. POSITION OVERSPEED SWITCH. INSTALL BOLTS, FLATWASHERS, AND LOCKNUTS.

STEP 2. CONNECT TACHOMETER CABLES.

STEP 3. CONNECT WIRES TO NORMALLY OPEN (NO) TERMINALS.

Figure 3-41. Overspeed governor switch; removal and installation.

b. Installation. Install overspeed governor switch as shown in figure 3-41.

c. Test and Adjustment.

(1) Make a test setup as shown in figure 3-42. Connect tachometer adapter so that overspeed governor switch rotates at same speed as engine. In addition, use a tachometer that indicates exact speed of engine (1:1 ratio).

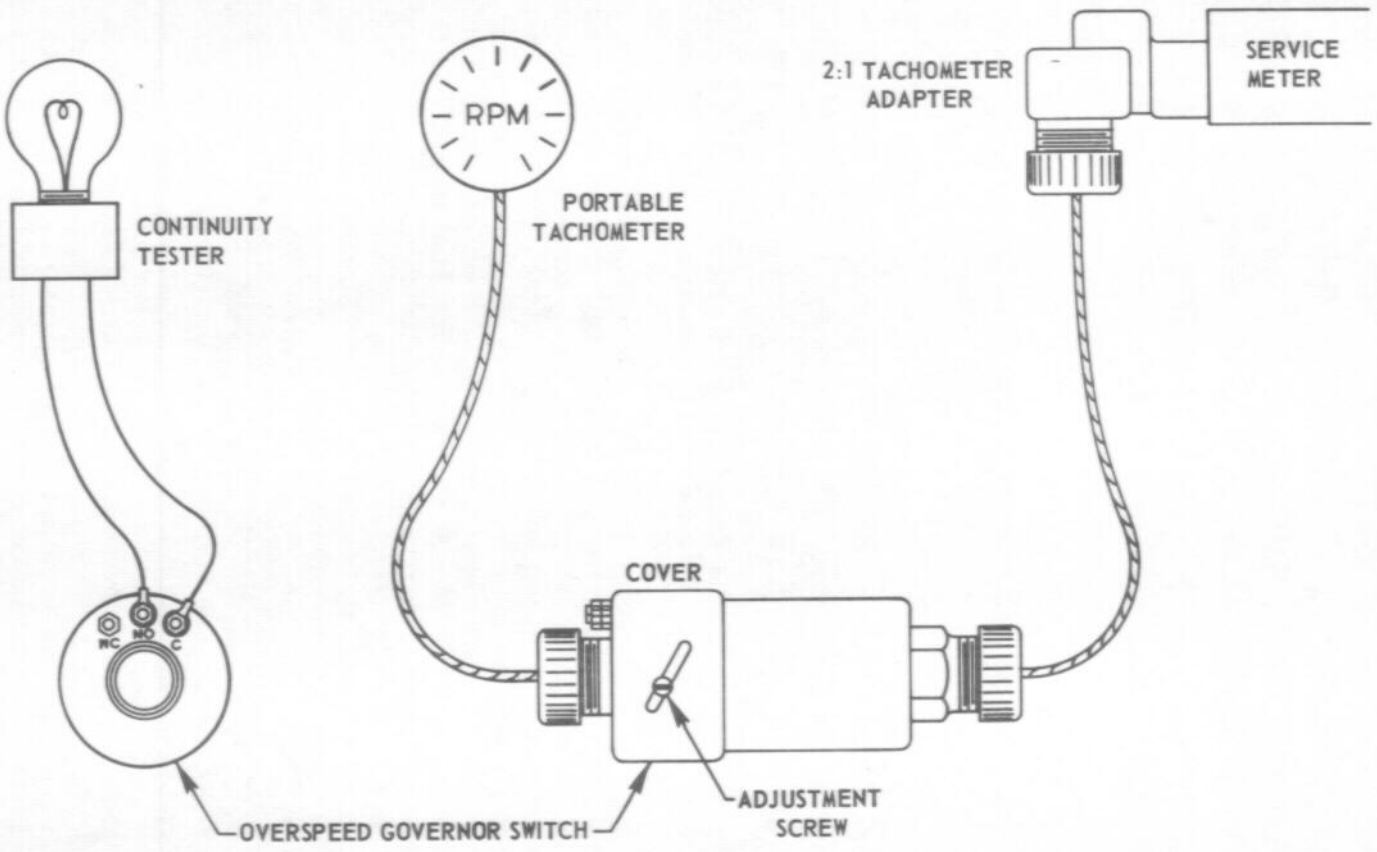


Figure 3-42. Overspeed governor switch adjustment setup.

(2) Start engine (para 2-9) and allow equipment to reach operating temperatures. Leave RUN-START lever in START position.

(3) Disconnect speed control linkage from governor control lever (fig. 3-68). Open 1 1/2" air discharge globe valve at rear of unit just enough to keep air pressure from exceeding 105 PSI, but not less than 80 PSI.

(4) Observe tachometer and manually increase engine speed until continuity tester lights. Lamp should light at 1000 -25 RPM (as indicated on the portable tachometer) if overspeed governor switch is properly adjusted. If switch is adjusted properly, proceed to step 7 below. If switch is not adjusted properly, proceed to step 5 below.

(5) Manually set engine speed to 1000 RPM indicated. Loosen lock screws on overspeed governor switch and turn cover to a position that just lights the continuity tester. Use reset button to open switch when necessary.

(6) Decrease engine speed to 900 RPM and depress reset button. Repeat step 4, above, to check switch setting. Tighten lock screws on cover.

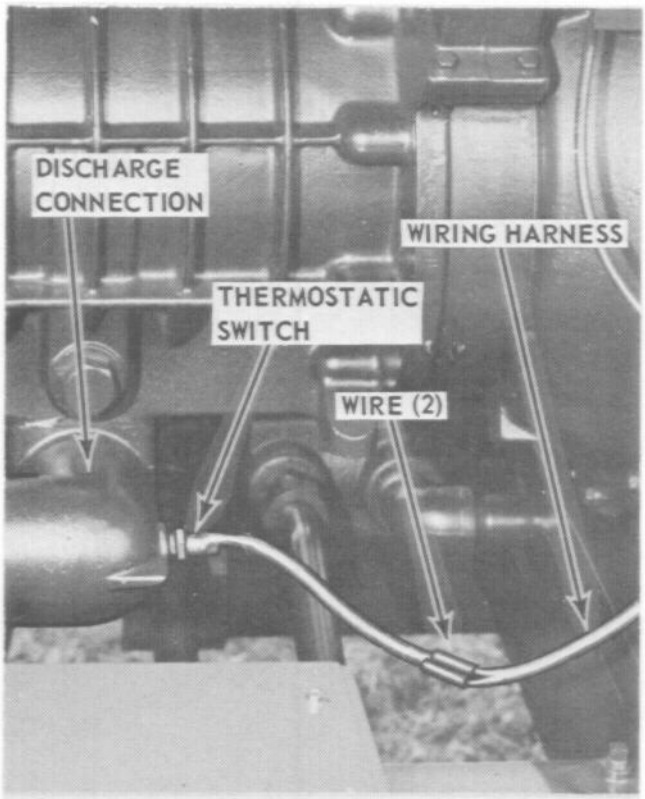
(7) When overspeed governor switch is adjusted properly, stop engine (fig. 2-9). Disconnect and remove portable tachometer, continuity tester, and tachometer adapter.

(8) Connect tachometer cables and wiring to overspeed governor switch. Connect speed control linkage (fig. 3-68).

3-68. Thermostatic Switch

a. Removal. Remove thermostatic switch as shown in figure 3-43.

b. Installation. Install thermostatic switch as shown in figure 3-43.



ME 4310-338-15/3-43

REMOVAL

DISCONNECT THERMOSTATIC SWITCH WIRES FROM HARNESS. UNSCREW AND REMOVE THERMOSTATIC SWITCH.

INSTALLATION

INSTALL AND TIGHTEN THERMOSTATIC SWITCH. CONNECT WIRES TO HARNESS.

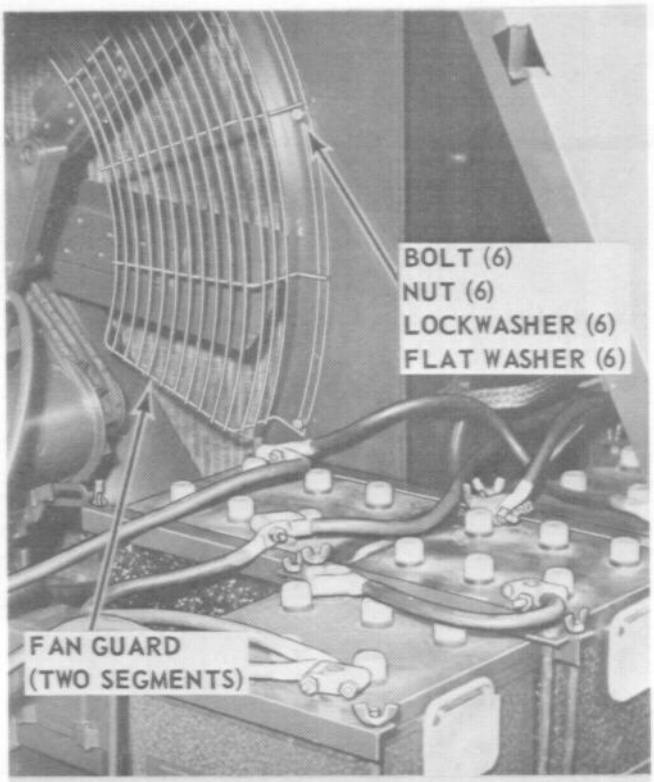
Figure 3-43. Thermostatic switch; removal and installation.

3-69. General

The air compressor unit cooling system consists of the radiator and oil cooler assembly, fan guard assembly, engine temperature regulator, fan assembly, fan drive group, drive belts, engine water pump, coolant lines, hoses, fittings and clamps. The engine has a pressure cooling system. An impeller-type pump circulates the coolant through the engine components and the radiator. Coolant temperature is reduced by ambient air which is drawn through the radiator core by the fan assembly. The engine temperature regulator controls the flow of coolant through the radiator. The ambient air pulled through the radiator also passes through an oil cooler which reduces the temperature of air compressor oil.

3-70. Fan Guard Assembly

a. Removal. Remove engine fan guard assembly as shown in figure 3-44.



ME 4310-338-15/3-44

REMOVAL

REMOVE BOLTS, NUTS, LOCKWASHERS, AND FLAT WASHERS. REMOVE BOTH SEGMENTS OF FAN GUARD.

INSTALLATION

PLACE EACH SEGMENT OF FAN GUARD IN MOUNTING POSITION. INSTALL AND TIGHTEN BOLTS, NUTS, LOCKWASHERS, AND FLAT WASHERS.

Figure 3-44. Fan guard assembly; removal and installation.

b. Cleaning and Inspection.

(1) Clean fan guard assembly using a cleaning solvent that is in accordance with Federal specification P-D-680. Dry thoroughly.

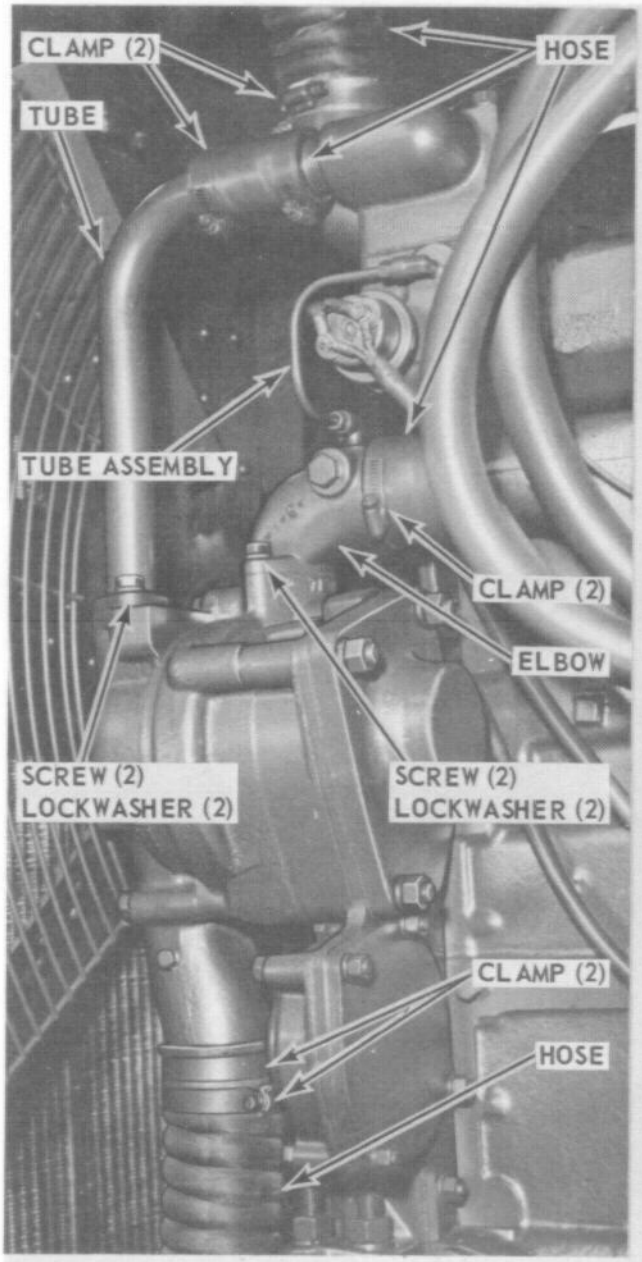
(2) Inspect fan guard for cracks, breaks, distortion, or any other defect.

(3) Inspect attaching hardware for damaged threads, cracks, distortion, or any other defect.

c. Installation. Install fan guard assembly as shown in figure 3-44.

3-71. Coolant Lines, Hoses, Fittings, and Clamps

a. Removal. Remove coolant lines, hoses, fittings, and clamps as shown in figure 3-45.



REMOVAL

STEP 1. REMOVE HOSE CLAMPS AND HOSES.

STEP 2. REMOVE TUBE ASSEMBLY FROM ELBOW AND CYLINDER HEAD.

STEP 3. REMOVE SCREWS AND LOCKWASHERS FROM ELBOW. REMOVE ELBOW.

STEP 4. REMOVE SCREWS AND LOCKWASHERS FROM TUBE AT FRONT OF WATER PUMP. REMOVE TUBE.

INSTALLATION

STEP 1. INSTALL TUBE TO FRONT OF WATER PUMP AND SECURE WITH SCREWS AND LOCKWASHERS.

STEP 2. INSTALL ELBOW AND SECURE WITH SCREWS AND LOCKWASHERS.

STEP 3. INSTALL TUBE ASSEMBLY TO ELBOW AND CYLINDER HEAD.

STEP 4. INSTALL HOSES AND SECURE WITH HOSE CLAMPS.

ME 4310-338-15/3-45

Figure 3-45. Coolant lines, hoses, and fittings, removal and installation.

b. Cleaning and Inspection.

(1) Clean all metal parts using a cleaning solvent that is in accordance with Federal specification P-D-680. Dry parts thoroughly.

(2) Inspect parts for inks, breaks, cracks, distortion, deterioration, or any other defect.

(3) Inspect attaching hardware for damaged threads, cracks, distortion, or any other defect.

c. Installation. Install coolant lines, hoses, fittings and clamps as shown in figure 3-45.

3-72. Drive Belts

a. Removal.

(1) Remove fan guard assembly (para 3-70).

(2) Remove drive belts as shown in figure 3-46.

REMOVAL

STEP 1. LOOSEN SCREW SECURING GENERATOR TO PIVOT.

STEP 2. LOOSEN BOLT SECURING GENERATOR TO ADJUSTING STRAP.

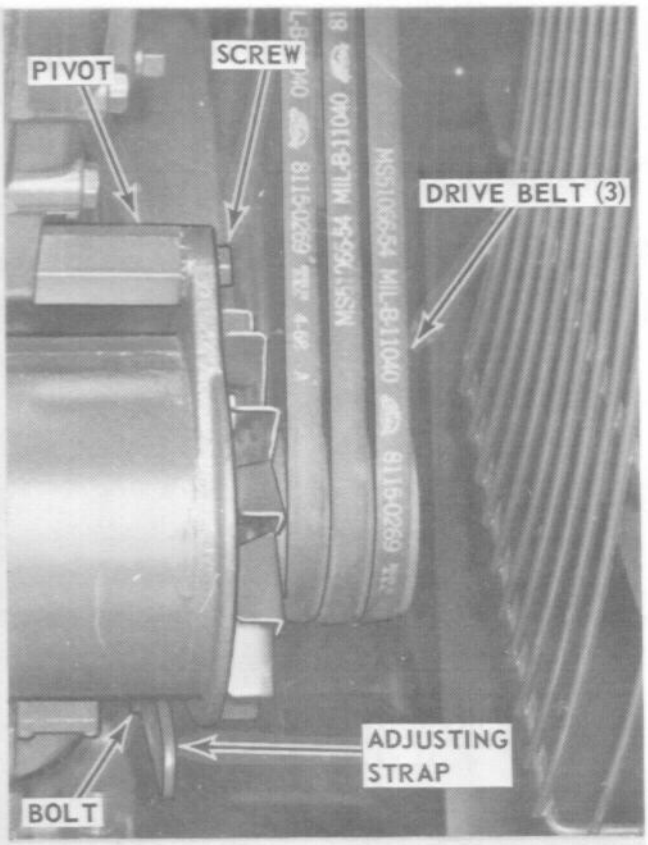
STEP 3. MOVE GENERATOR IN DIRECTION TO LOOSEN DRIVE BELTS. REMOVE DRIVE BELTS BY WEAVING THEM OVER FAN BLADES.

INSTALLATION

STEP 1. INSTALL DRIVE BELTS BY WEAVING THEM OVER FAN BLADES. POSITION BELTS ON PULLEYS.

STEP 2. MOVE GENERATOR IN DIRECTION TO TIGHTEN DRIVE BELTS AND SECURE BY TIGHTENING BOLT ON ADJUSTING STRAP.

STEP 3. TIGHTEN SCREW SECURING GENERATOR TO PIVOT.



ME 4310-338-15/3-46

NOTE

ADJUST DRIVE BELT TENSION AS INSTRUCTED IN FIGURE 3-47.

Figure 3-46. Drive belts; removal and installation.

b. Inspection. Inspect drive belts for cracks, breaks, fraying, excessive wear, or any other defect.

NOTE

Always replace drive belts in sets.

c. Installation.

(1) Install drive belts as shown in figure 3-46.

(2) Install fan guard assembly (para 3-70).

d. Adjustment. When tightening generator assembly, adjust drive belts as shown in figure 3-47.

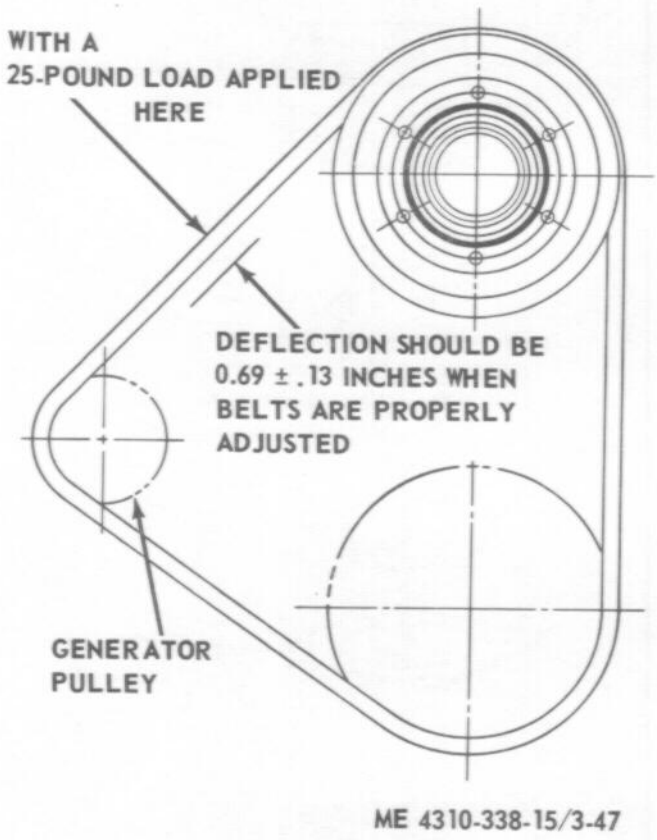


Figure 3-47. Drive belt tension adjustment.

3-73. Radiator and Oil Cooler Assembly

a. Removal.

(1) Remove housing components necessary for removal of radiator and oil cooler assembly (para 3-33).

(2) Remove fan guard assembly (para 3-70).

(3) Drain coolant from radiator.

(4) Remove coolant lines, hoses, fittings, and clamps (para 3-71).

(5) Remove radiator and oil cooler assembly as shown in figure 3-48.

b. Installation.

(1) Install radiator and oil cooler assembly as shown in figure 3-48.

(2) Install coolant lines, hoses, fittings, and clamps (para 3-71).

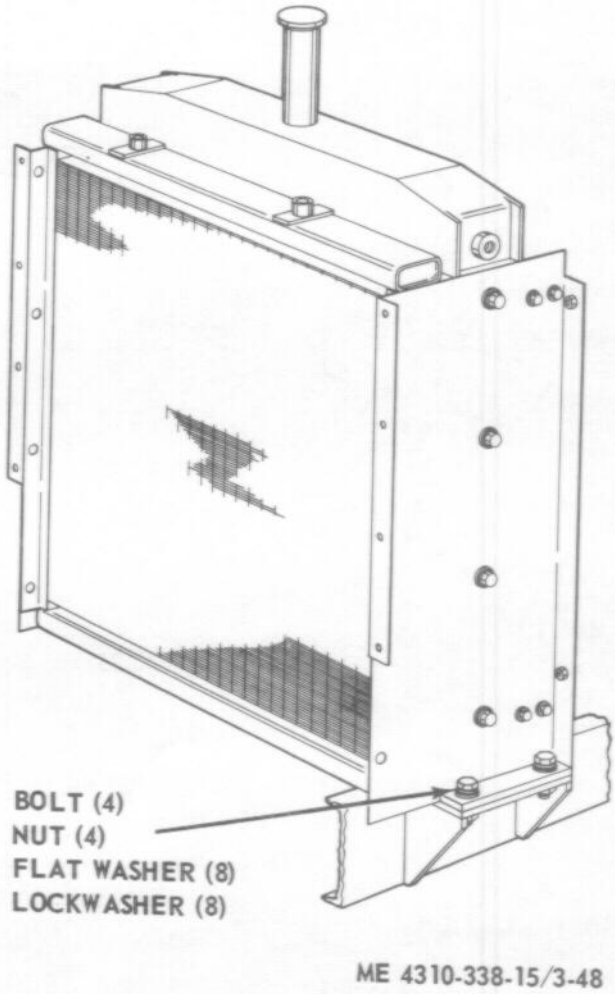


Figure 3-48. Radiator and oil cooler assembly; removal and installation.

(3) Install fan guard assembly (para 3-70).

(4) Install housing components (para 3-33).

(5) Replenish radiator coolant supply.

3-74. Fan Assembly

a. Removal.

(1) Remove fan guard assembly (para 3-70).

(2) Remove drive belts (para 3-72).

(3) Remove fan assembly as shown in figure 3-49.

b. Cleaning and Inspection.

(1) Clean fan assembly using a cleaning solvent that is in accordance with Federal specification P-D-680. Dry thoroughly.

(2) Inspect fan assembly for cracks, bent blades, or any other defect.

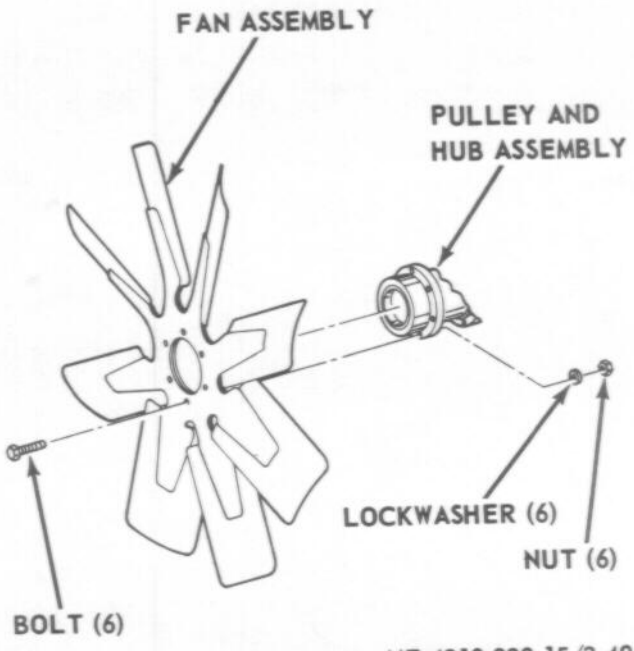
(3) Inspect attaching hardware for damaged threads, cracks, distortion, or any other defect.

c. Installation.

(1) Install fan assembly as shown in figure 3-49.

(2) Install drive belts (para 3-72). Adjust belts (fig. 3-47).

(3) Install fan guard assembly (para 3-70).



REMOVAL

REMOVE BOLTS, NUTS, AND LOCKWASHERS. REMOVE FAN ASSEMBLY FROM HUB.

INSTALLATION

PLACE FAN ASSEMBLY ON HUB AND SECURE WITH BOLTS, NUTS, AND LOCKWASHERS.

Figure 3-49. Fan assembly; removal and installation.

3-75. Engine Temperature Regulator

a. Removal.

(1) Drain engine cooling system.

(2) Remove hose and clamps from engine temperature regulator cover assembly (para 3-71).

(3) Remove engine temperature regulator by following numerical sequence shown in figure 3-50. Discard gasket and seal.

b. Testing.

(1) Make test setup as shown in figure 3-51.

(2) Apply heat to pan and stir water to maintain uniform water temperature.

(3) Observe temperature of water when regulator opens. The opening temperature should be 169° to 171 ° F. The regulator should be fully open at approximately 185° F.

c. Installation.

(1) Install engine temperature regulator by following reverse numerical sequence shown in figure 3-50. Install a new gasket and seal.

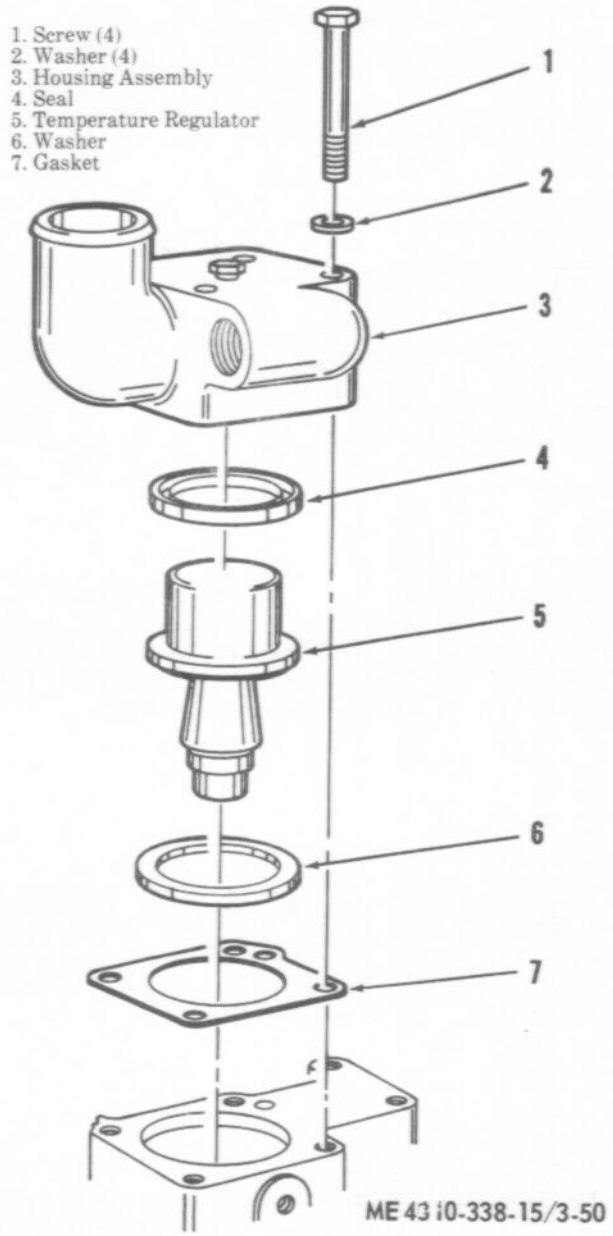


Figure 3-50. Engine temperature regulator; removal and installation.

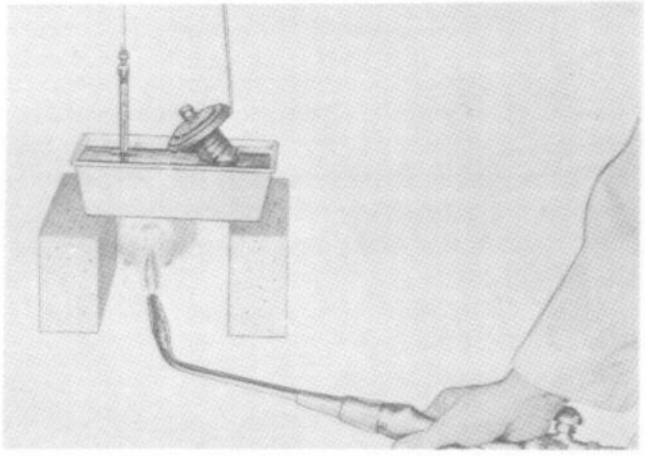


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Figure 3-51. Engine temperature regulator test setup.

NOTE

Clean sealing surfaces before installing gasket and cover assembly.

(2) Install radiator hose and clamps on temperature regulator cover assembly (para 3-71).

(3) Replenish engine coolant.

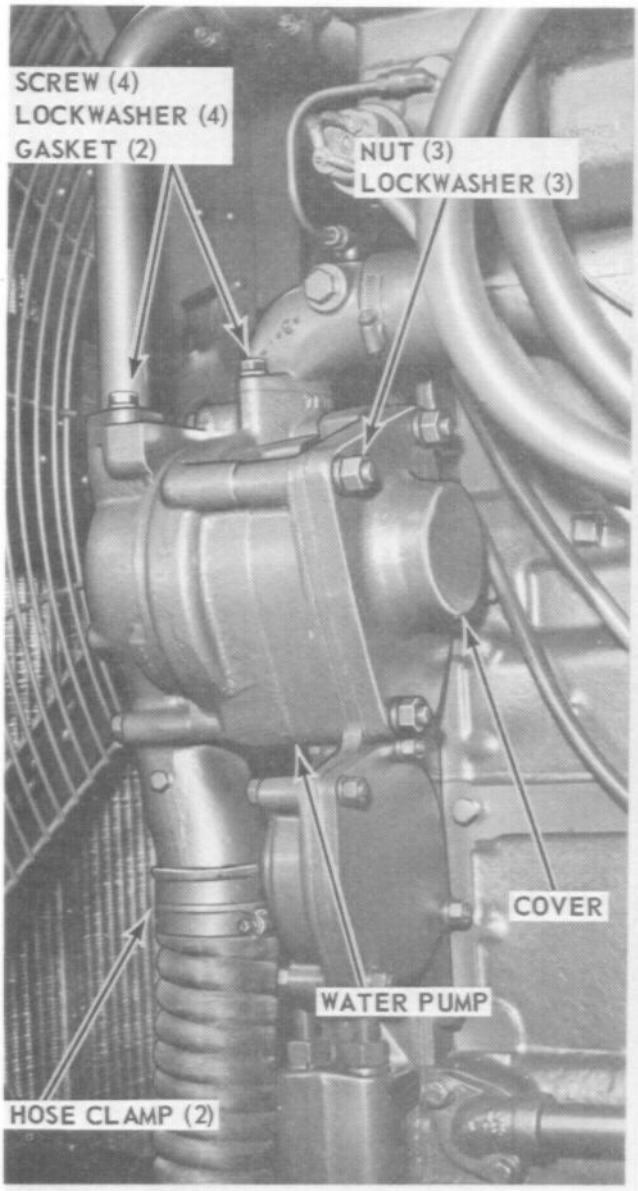
3-76. Water Pump Assembly

a. Removal.

(1) Drain cooling system.

(2) Remove fan guard assembly (para 3-70).

(3) Remove water pump assembly as shown in figure 3-52. Discard gaskets.



REMOVAL

STEP 1. LOOSEN HOSE CLAMPS AT THREE LOCATIONS ON WATER PUMP ASSEMBLY. DISCONNECT HOSES.

STEP 2. DISCONNECT WATER TUBE ASSEMBLY AT TOP OF ELBOW. REMOVE CONNECTOR.

STEP 3. REMOVE NUTS AND LOCKWASHERS. REMOVE COVER AND WATER PUMP ASSEMBLY.

INSTALLATION

STEP 1. INSTALL WATER PUMP ASSEMBLY AND COVER. INSTALL NUTS AND LOCKWASHERS.

STEP 2. CONNECT HOSES AND TIGHTEN HOSE CLAMPS AT THREE LOCATIONS ON WATER PUMP ASSEMBLY.

STEP 3. INSTALL CONNECTOR AT TOP OF ELBOW. CONNECT WATER TUBE ASSEMBLY.

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Figure 3-52. Water pump assembly; removal and installation.

b. Installation.

(1) Install water pump assembly as shown in figure 3-52. Install new gaskets.

(2) Install fan guard assembly (para 3-70).

(3) Replenish engine coolant.

3-77. Fan Drive Group

a. Removal.

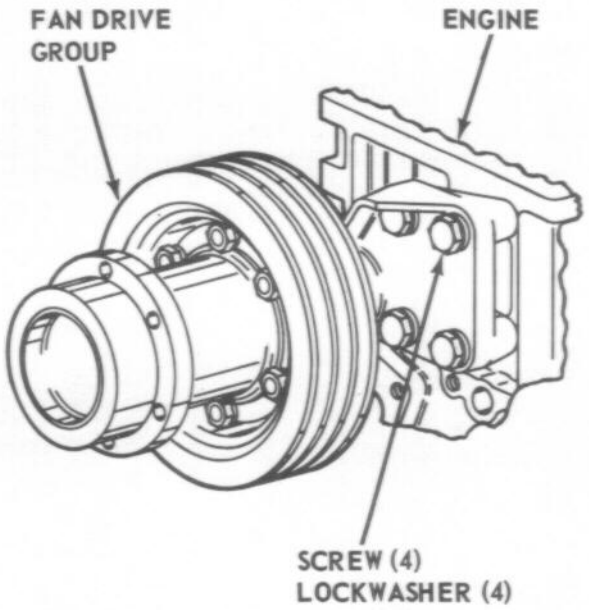
(1) Remove radiator and cooler assembly (para 3-73).

(2) Remove drive belts (para 3-72).

(3) Remove fan assembly (para 3-74).

(4) Remove fan drive group as shown in figure 3-53.

b. Disassembly. Disassemble fan drive group in numerical sequence shown in figure 3-54.



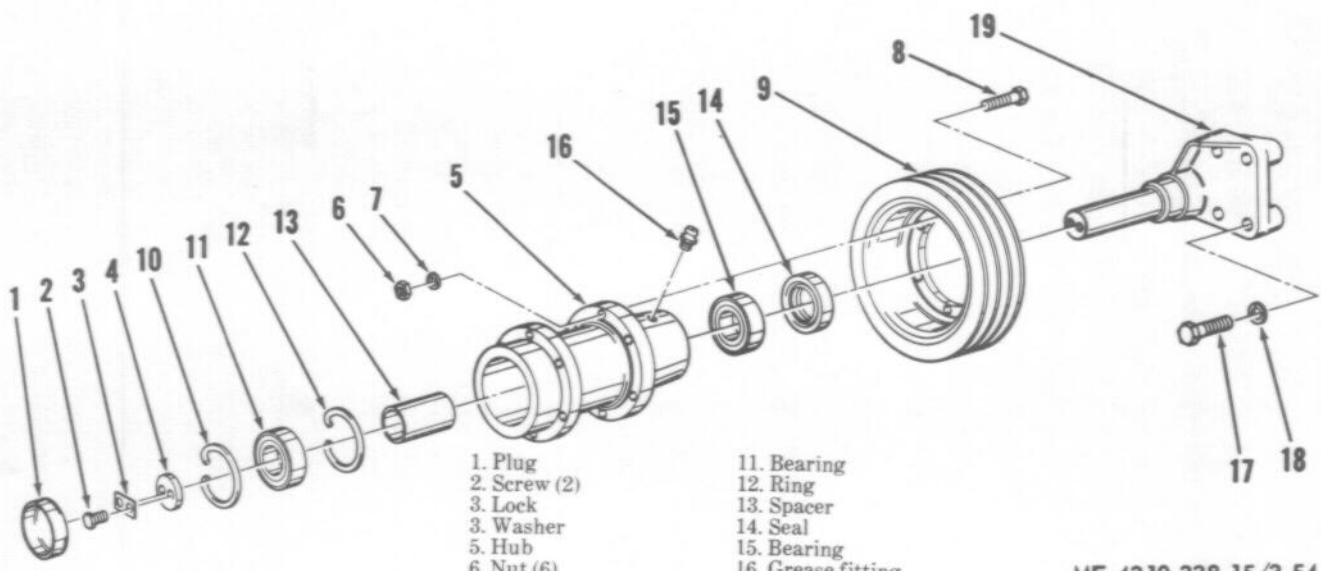
REMOVAL

REMOVE SCREWS AND LOCKWASHERS. REMOVE FAN DRIVE GROUP.

INSTALLATION

PLACE FAN DRIVE GROUP IN MOUNTING POSITION AND SECURE WITH SCREWS AND LOCKWASHERS.

Figure 3-53. Fan drive group; removal and installation.



1. Plug
2. Screw (2)
3. Lock
3. Washer
5. Hub
6. Nut (6)
7. Washer (6)
8. Bolt (6)
9. Pulley
10. Retaining ring
11. Bearing
12. Ring
13. Spacer
14. Seal
15. Bearing
16. Grease fitting
17. Screw (4)
18. Washer (4)
19. Shaft assembly

Figure 3-54. Fan drive group; disassembly and reassembly.

c. Cleaning and Inspection.

(1) Clean parts using a cleaning solvent that is in accordance with Federal specification P-D-680. Dry parts thoroughly.

(2) Inspect bearings for excessive wear, freedom of movement, distortion, or any other defect.

(3) Inspect seal for excessive wear, cracks, distortion, or any other defect.

(4) Inspect pulley for distortion, cracks, or any other defect.

(5) Inspect all other parts for cracks, breaks, distortion, or any other defects.

d. Reassembly. Reassemble fan drive group in reverse numerical sequence shown in figure 3-54.

e. Installation.

(1) Install fan drive group as shown in figure 3-53.

(2) Install fan assembly (para 3-74).

(3) Install drive belts (para 3-72).

(4) Install radiator and cooler assembly (para 3-73).

Section XIII. AIR COMPRESSOR SYSTEM

3-78. General

The air compressor system consists of the air cleaner, a single-stage air compressor assembly, oil separator assembly, blowdown valve assembly, minimum pressure valve, thermal bypass valve, speed control linkage, moisture separator, air pressure regulator, and oil filter. Free air is drawn through the air cleaner into the compressor intake control. A valve in the intake control opens and closes to allow air into the compressor stator according to the discharge air demand. When the valve is completely closed, the compressor is running unloaded. When the compressor is stopped, this same valve closes to prevent oil and air from the stator from being vented to the atmosphere. The speed control linkage is also connected to the intake control valve and moves the engine throttle to increase or decrease RPM as required to maintain the rated air output. A single-stage rotor-stator assembly develops an air output of 600 CFM at a discharge pressure of 100 PSI. The oil separator assembly contains a labyrinth and filter arrangement which separates the oil from the air before the air passes through the minimum pressure valve. The minimum pressure valve consists of a valve, spring, and piston arrangement which maintains a minimum air pressure of 40 PSI within the oil separator when the compressor is running. This minimum air pressure is necessary to produce proper oil circulation in the system and efficient air/oil separation. See figure 3-55. The valve is held closed by the piston and spring until air pressure reaches approximately 40 PSI, at which time the force of the air pressure moves the valve open and the piston upward, allowing compressed air to flow to the air discharge valves. When air pressure drops below 40 PSI, the force of the spring overcomes air pressure and moves the piston downward closing the valve. The blowdown valve automatically relieves air pressure from the system immediately after compressor shutdown. The safety valve opens automatically if the air pressure should exceed 125 PSI. The pressure regulator is connected between the oil separator and the intake-control. As the air load demand increases, the regulator controls a flow of air into the intake-control to open the valve. This action increases air input and engine speed. As the air pressure reaches the rated value, the pressure regulator causes the valve to close and the engine to return to the low idle speed. A moisture separator removes moisture from the air which controls the intake-control valve.

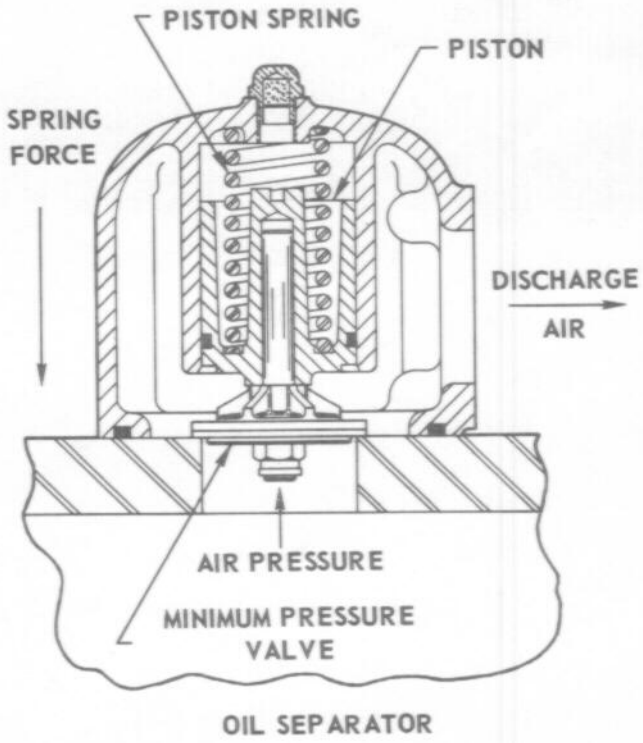
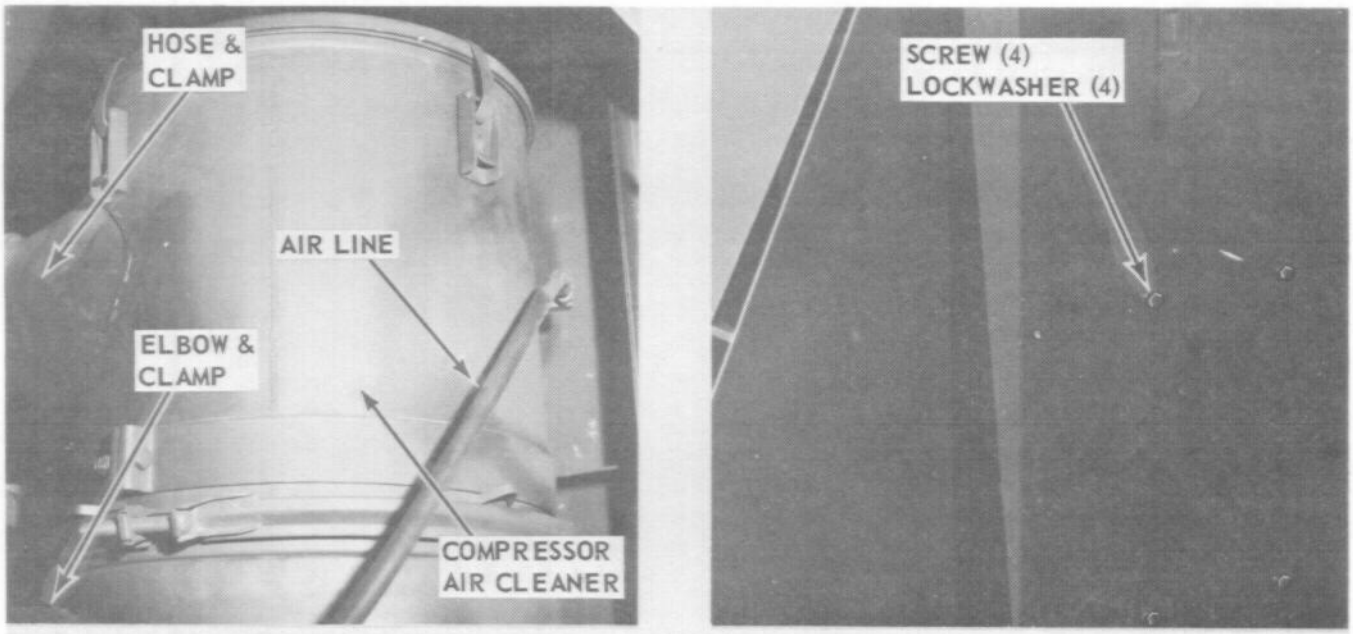


Figure 3-55. Operation of minimum pressure valve.

3-79. Compressor Air Cleaner Assembly

a. Removal. Remove compressor air cleaner as shown in figure 3-56.



REMOVAL

STEP 1. DISCONNECT RESTRICTION INDICATOR AIR LINE.

STEP 2. LOOSEN HOSE CLAMP AND DISCONNECT INTAKE ELBOW FROM LOWER SECTION OF AIR CLEANER.

STEP 3. LOOSEN HOSE CLAMP AND DISCONNECT INTAKE HOSE FROM UPPER SECTION OF AIR CLEANER.

STEP 4. REMOVE SCREWS AND LOCKWASHERS. REMOVE AIR CLEANER.

INSTALLATION

STEP 1. POSITION AIR CLEANER AND SECURE WITH SCREWS AND LOCKWASHERS.

STEP 2. CONNECT INTAKE ELBOW AND HOSE TO AIR CLEANER AND SECURE WITH HOSE CLAMPS.

STEP 3. CONNECT RESTRICTION INDICATOR AIR LINE.

Figure 3-56. Compressor air cleaner; removal and installation.

b. Disassembly. Disassemble compressor air cleaner in numerical sequence shown in figure 3-57.

c. Cleaning, Inspection, and Repair.

(1) Clean all metal parts using a cleaning solvent that is in accordance with Federal specification P-D-680. Dry parts thoroughly.

(2) Clean air cleaner element as follows:

CAUTION

Compressed air used in following step should not exceed 100 PSI.

(a) Direct dry, clean compressed air to inside of element so that dust is blown outside. Move air stream up and down along pleats while slowly rotating element. Continue until no more dust is being removed. If further cleaning is required, proceed to step *(b)* below; otherwise proceed to step (3).

(b) Mix a good nonsudsing detergent with lukewarm water in a suitable container. Soak element in detergent for at least 15 minutes, then agitate element for two minutes to loosen dirt.

CAUTION

Water pressure used in following step should not exceed 40 PSI.

(c) After cleaning element with detergent, use a fresh water source and flush clean water through element from inside to outside. Continue to rinse element until water coming through to outside is clear and free from any detergent. Repeat step *(a)* above to dry element.

(3) Inspect element for dirt, rupture, pin holes, or any other defect. A good method of inspection is to place a light inside element and look toward light from outside. Any hole in element, even the smallest, will pass dust and cause unnecessary equipment wear.

(4) Inspect cap for cracks, breaks, distortion, or any other damage.

(5) Inspect hoses for cracks, breaks, deterioration, or any other defect.

(6) Inspect gaskets and O-ring for cracks, breaks, deterioration, or any other defect.

(7) Inspect body and cup for cracks, dents, distortion, or any other defect.

(8) Inspect attaching hardware, including clamps, for damaged threads, distortion, cracks, or any other defect.

d. Reassembly. Reassemble compressor air cleaner in reverse numerical sequence shown in figure 3-57.

e. Installation. Install compressor air cleaner as shown in figure 3-56.

3-80. Air Discharge Connections, Service Valves, and Piping

a. Removal. Remove air discharge connections, service valves, and piping as shown in figure 3-58.

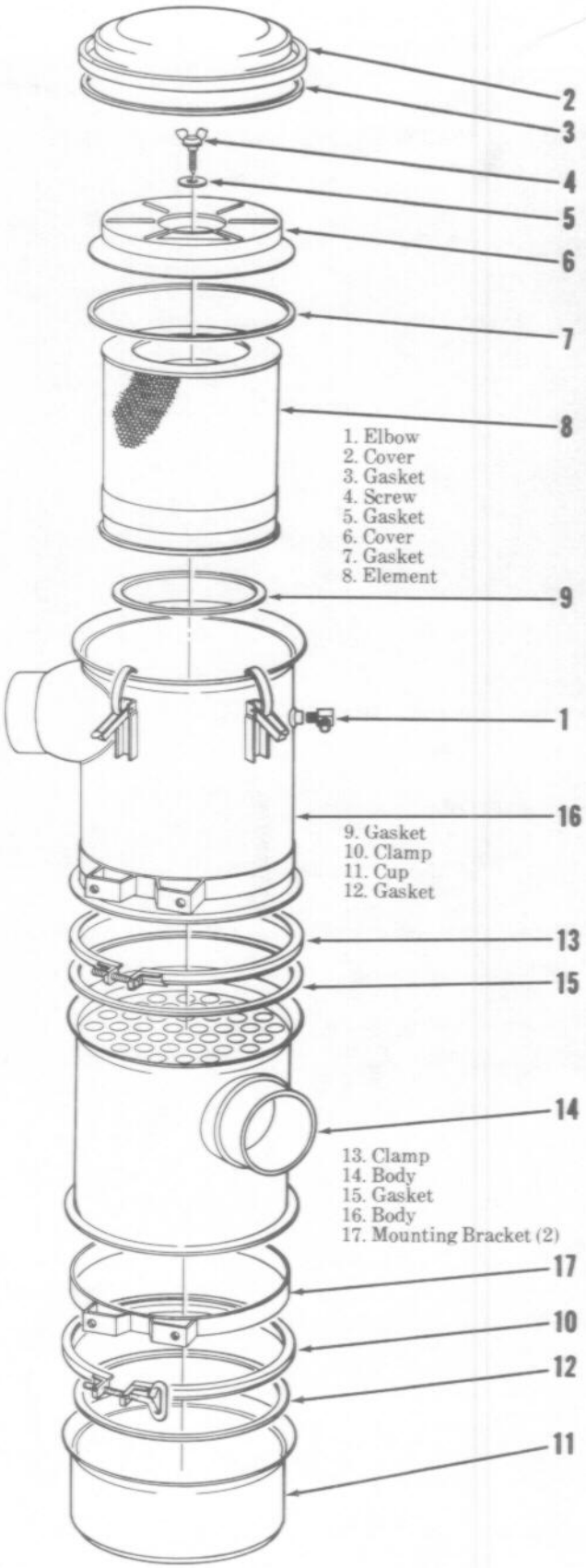
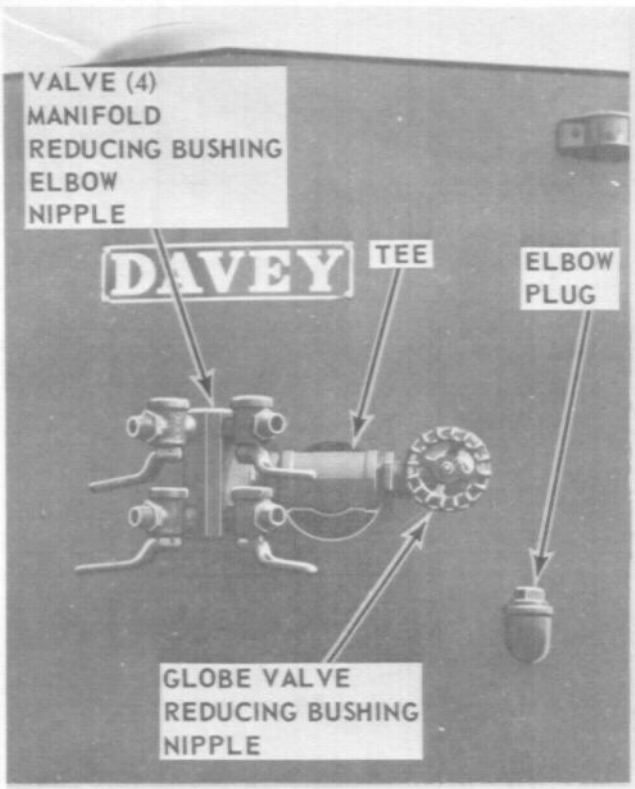
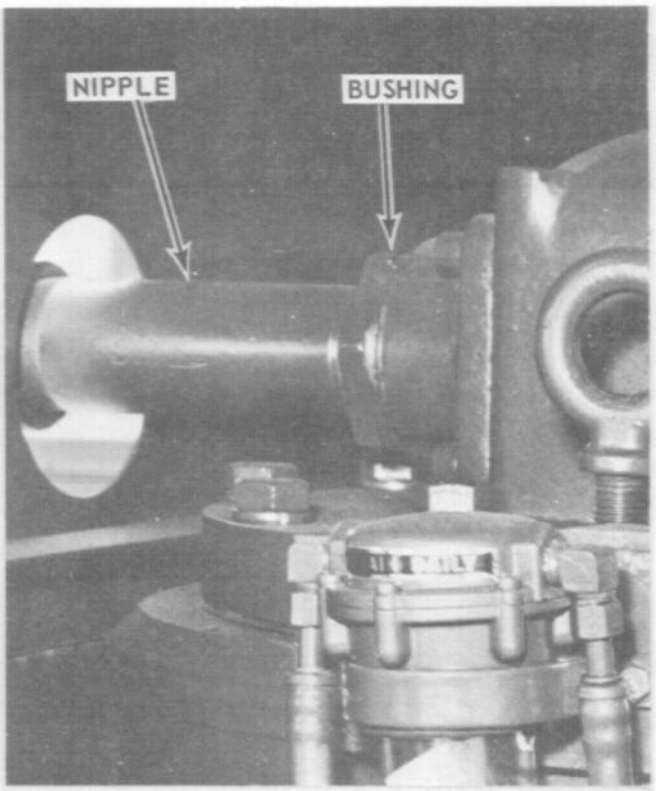


Figure 3-57. Compressor air cleaner; disassembly and reassembly.





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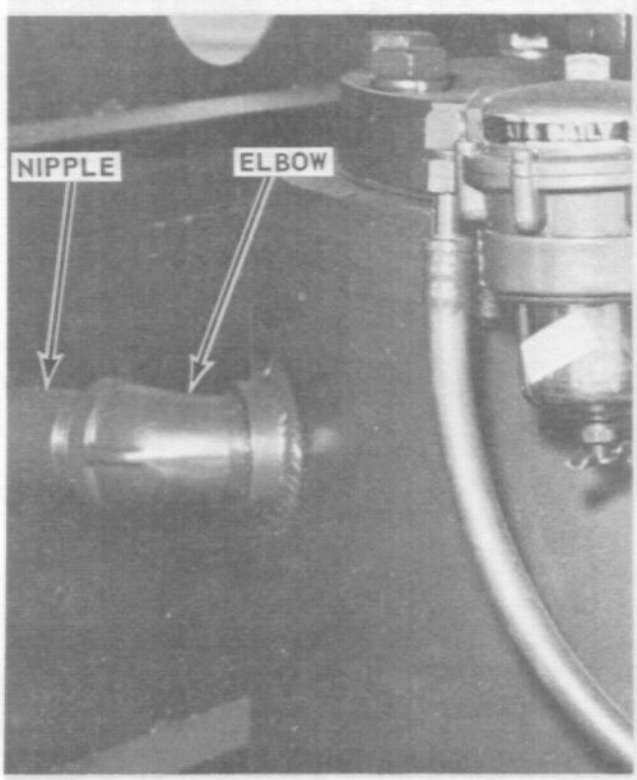


REMOVAL

STEP 1. REMOVE OIL FILLER PLUG, NIPPLE, AND ELBOWS FROM OIL SEPARATOR.

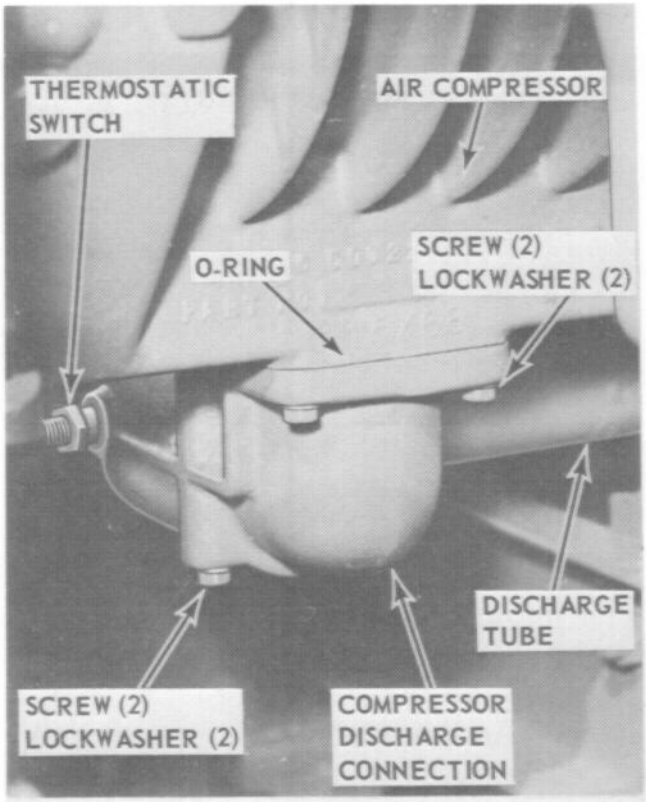
STEP 2. REMOVE ALL VALVES AND PIPING FROM AIR DISCHARGE CONNECTION.

INSTALLATION

STEP 1. INSTALL ALL VALVES AND PIPING TO AIR DISCHARGE CONNECTION.

STEP 2. INSTALL OIL FILLER ELBOWS, NIPPLE, AND PLUG TO OIL SEPARATOR.

Figure 3-58. Air Discharge Connections, Service Valves, and Piping, Removal and Installation (sheet 1 of 2).



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REMOVAL

STEP 1. REMOVE THERMOSTATIC SWITCH.

STEP 2. REMOVE SCREWS AND LOCKWASHERS. SLIDE DISCHARGE CONNECTION FROM DISCHARGE TUBE.

STEP 3. REMOVE O-RING FROM BETWEEN DISCHARGE CONNECTION AND BASE OF COMPRESSOR.

INSTALLATION

STEP 1. INSTALL O-RING BETWEEN DISCHARGE CONNECTION AND BASE OF COMPRESSOR.

STEP 2. SLIDE DISCHARGE CONNECTION ON DISCHARGE TUBE. POSITION DISCHARGE CONNECTION AGAINST BASE OF COMPRESSOR AND INSTALL SCREWS AND LOCKWASHERS.

STEP 3. INSTALL THERMOSTATIC SWITCH.

Figure 3-58. Air Discharge Connections, Service Valves, and Piping, Removal and Installation (sheet 2 of 2).

b. Cleaning and Inspection.

(1) Clean all parts using a cleaning solvent that is in accordance with Federal specification P-D-680. Dry parts thoroughly.

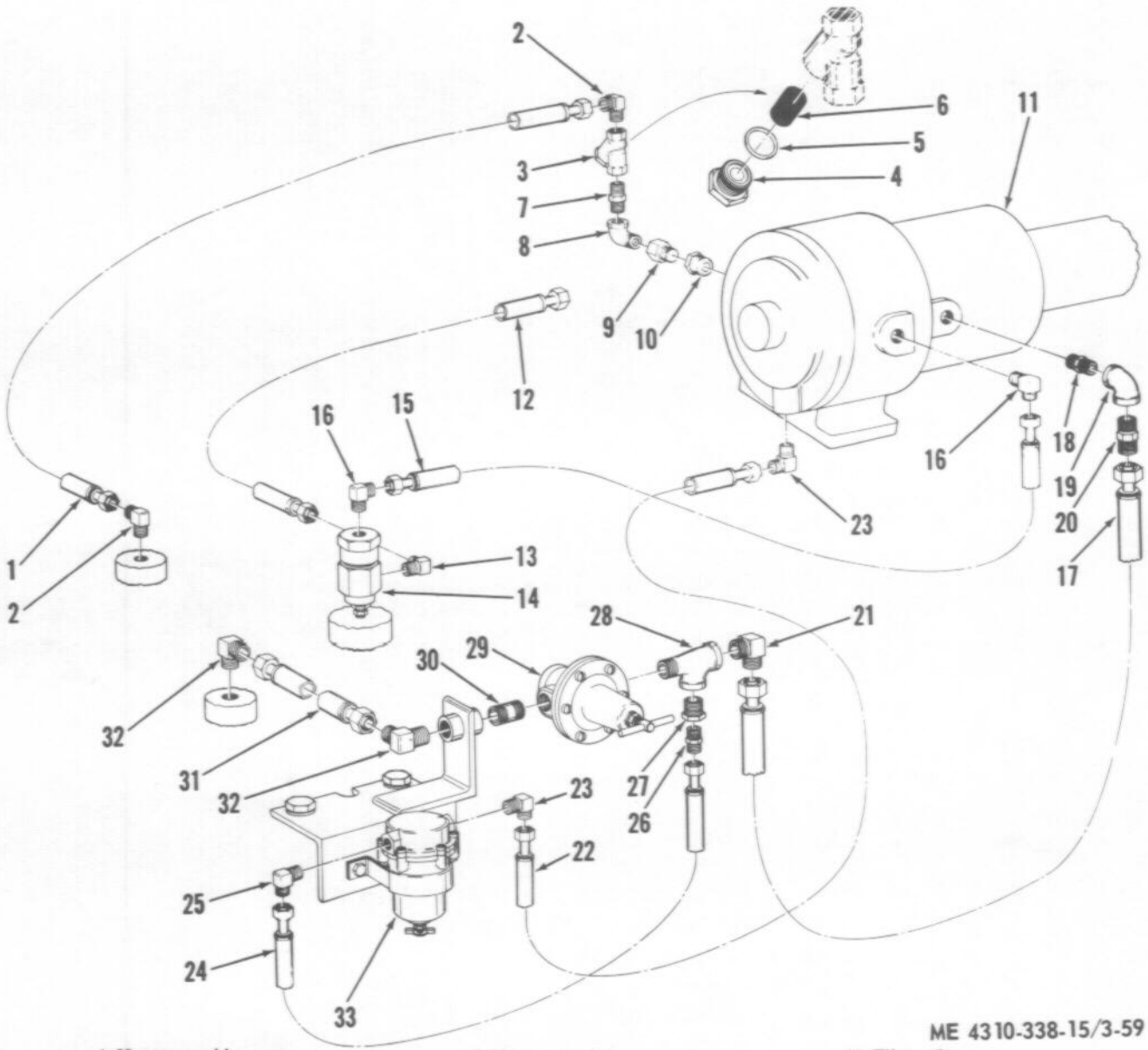
(2) Check valves for proper operation. Inspect parts for distortion, cracks, breaks, or any other defect.

(3) Inspect all threaded areas for cracks, distortion, raised metal, or any other defect.

c. Installation. Install air discharge connections, service valves, and piping as shown in figure 3-58.

3-81. Air Hoses, Strainer, and Fittings

a. Removal. Remove air hoses, strainer, and fittings by following numerical sequence shown in figure 3-59.



1. Hose assembly
2. Elbow (2)
3. Strainer
4. Plug
5. O-Ring
6. Element
7. Connector
8. Elbow
9. Orifice
10. Reducing bushing
11. Compressor intake-control
12. Hose assembly
13. Elbow
14. Blowdown valve assembly
15. Hose assembly
16. Elbow (2)
17. Hose assembly
18. Connector
19. Elbow
20. Connector
21. Elbow
22. Hose assembly
23. Elbow (2)
24. Hose assembly
25. Elbow
26. Connector
27. Reducing bushing
28. Tee
29. Air pressure regulator
30. Nipple
31. Hose assembly
32. Elbow (2)
33. Moisture separator

Figure 3-59. Air hoses, strainer, and fittings; removal and installation.

b. Disassembly. Disassemble strainer as shown in figure 3-59.

c. Cleaning and Inspection.

(1) Clean all metal parts using a cleaning solvent that is in accordance with Federal specification P-D-680. Clean hoses using a clean cloth soaked in solvent. Dry parts thoroughly.

(2) Inspect all hoses for cracks, breaks, deterioration, or any other defect.

(3) Inspect all fittings for damaged threads, cracks, distortion, or any other defect.

(4) Inspect strainer and element for cracks, breaks, distortion, or any other defect.

(5) Inspect attaching hardware for damaged threads, cracks, distortion, or any other defect.

d. Reassembly. Reassemble strainer as shown in figure 3-59.

e. Installation. Install air hoses, strainer, and fittings by following reverse numerical sequence shown in figure 3-59.

3-82. Minimum Pressure Valve Assembly

a. Disassembly.

CAUTION

Be sure all air is discharged from oil separator before attempting to replace minimum pressure valve.

(1) Disconnect air discharge piping from minimum pressure valve.

(2) Disassemble minimum pressure valve in numerical sequence shown in figure 3-60.

b. Cleaning, Inspection, and Repair.

(1) Clean all metal parts using a cleaning solvent that is in accordance with Federal specification P-D-680. Dry parts thoroughly. Discard gaskets and O-rings.

(2) Insepct spring for defective coils, cracks, distortion, or any defect. Refer to table 5-2 for spring free length.

(3) Inspect non-return valve for condition of washer facing, cracks, distortion, or any other defect.

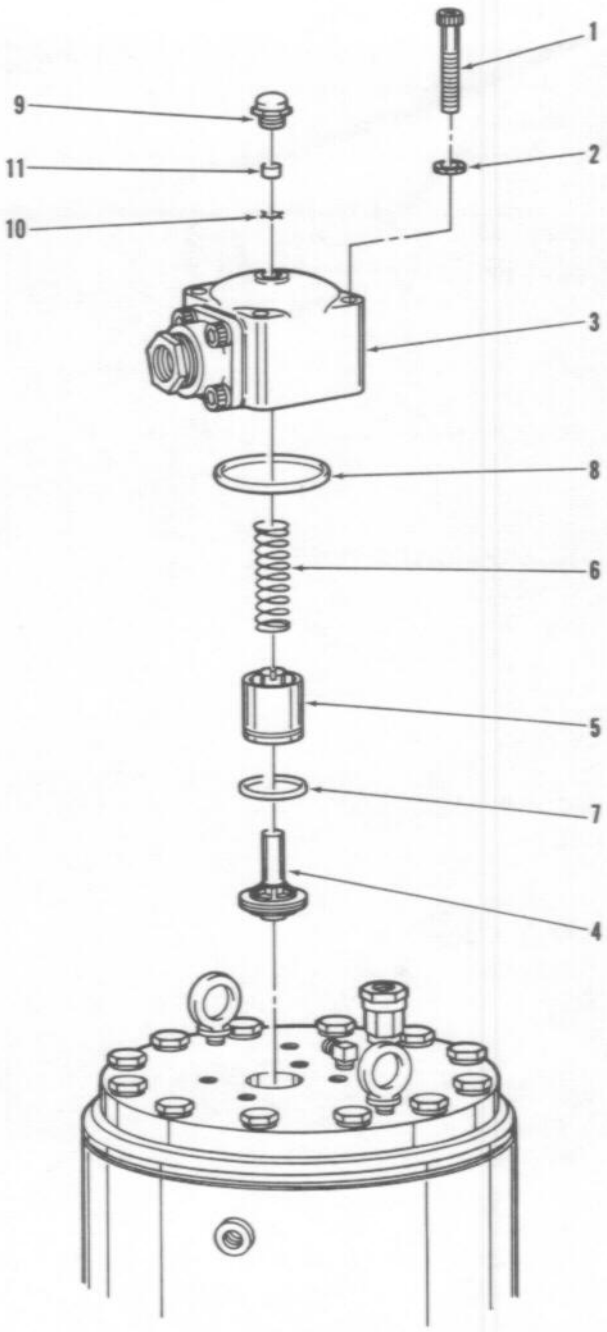
(4) Inspect all other parts for cracks, breaks, distortion, or any other defect.

(5) Inspect attaching hardware for damaged threads, cracks, breaks, distortion, or any other defect.

c. Reassembly.

(1) Reassemble minimum pressure valve in reverse numerical sequence shown in figure 3-60. Install new gaskets and O-rings.

(2) Connect air discharge piping to minimum pressure valve.



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1. Screw (4)
2. Washer (4)
3. Housing
4. Valve assembly
5. Piston
6. Spring
7. O-Ring
8. O-Ring
9. Breather
10. Retaining ring
11. Felt

Figure 3-60. Minimum pressure valve; disassembly and reassembly.

3-83. Safety Valve

CAUTION

Be sure all air pressure is discharged from oil separator before attempting to replace safety valve.

a. Removal. Remove safety valve as shown in figure 3-61.

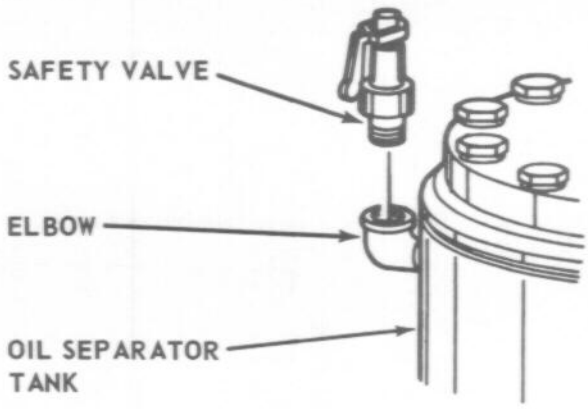


Figure 3-61. Safety valve; removal and installation.

b. Cleaning and Inspection.

(1) Clean safety valve using a cleaning solvent that is in accordance with Federal specification P-D-680. Dry thoroughly.

(2) Check lever operation. Inspect valve for cracks, breaks, distortion, damaged threads, or any other defect.

c. Installation. Install safety valve as shown in figure 3-61.

3-84. Blowdown Valve Assembly

CAUTION

Be sure all air pressure is discharged from oil separator before attempting to replace blowdown valve assembly.

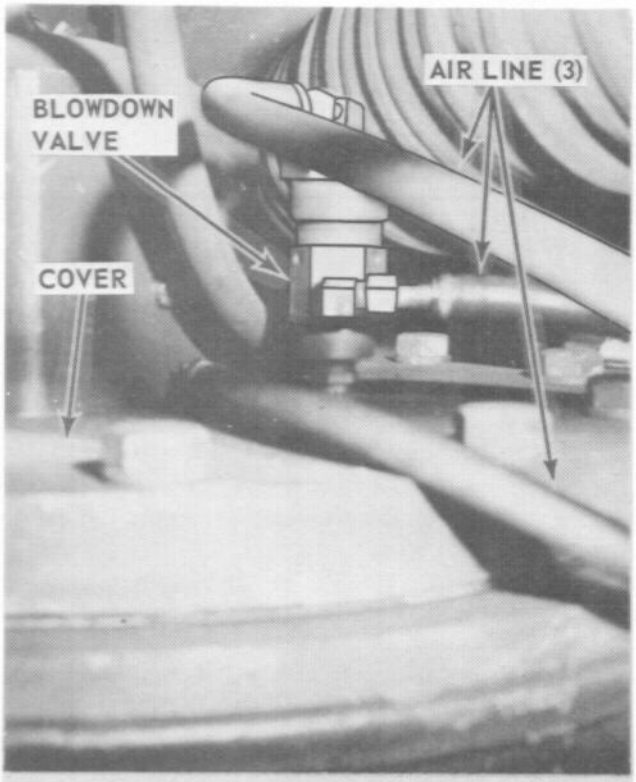


Figure 3-62. Blowdown valve assembly; removal and installation.

a. Removal. Remove blowdown valve assembly as shown in figure 3-62.

b. Disassembly. Disassemble blowdown valve assembly in numerical sequence shown in figure 3-63.

c. Cleaning, Inspection, and Repair.

(1) Clean all metal parts using a cleaning solvent that is in accordance with Federal specification P-D-680. Dry parts thoroughly. Discard O-ring.

(2) Inspect spring for defective coils, cracks, distortion, or any other defect. Refer to Table 5-2 for spring free length.

(3) Inspect ball for scoring, roughness, cracks, or any other defect.

(4) Inspect fittings, bushing, and all other parts for damaged threads, cracks, distortion, or any other defect.

d. Reassembly. Reassemble blowdown valve assembly in reverse numerical sequence shown in figure 3-63. Install a new O-ring.

e. Installation. Install blowdown valve assembly as shown in figure 3-62.

3-85. Thermal Bypass Valve Assembly

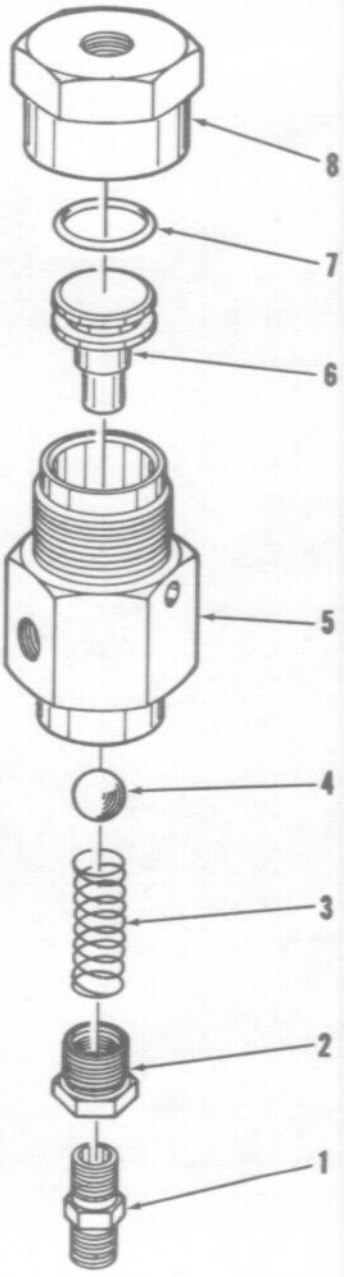
a. Removal.

CAUTION

If drained oil is to be reused, take necessary precautions to prevent contamination.

(1) Drain all oil from oil separator assembly.

(2) Remove thermal bypass valve assembly as shown in figure 3-64.



1. Connector
2. Bushing
3. Spring
4. Ball
5. Cap
6. Piston
7. O-Ring
8. Body

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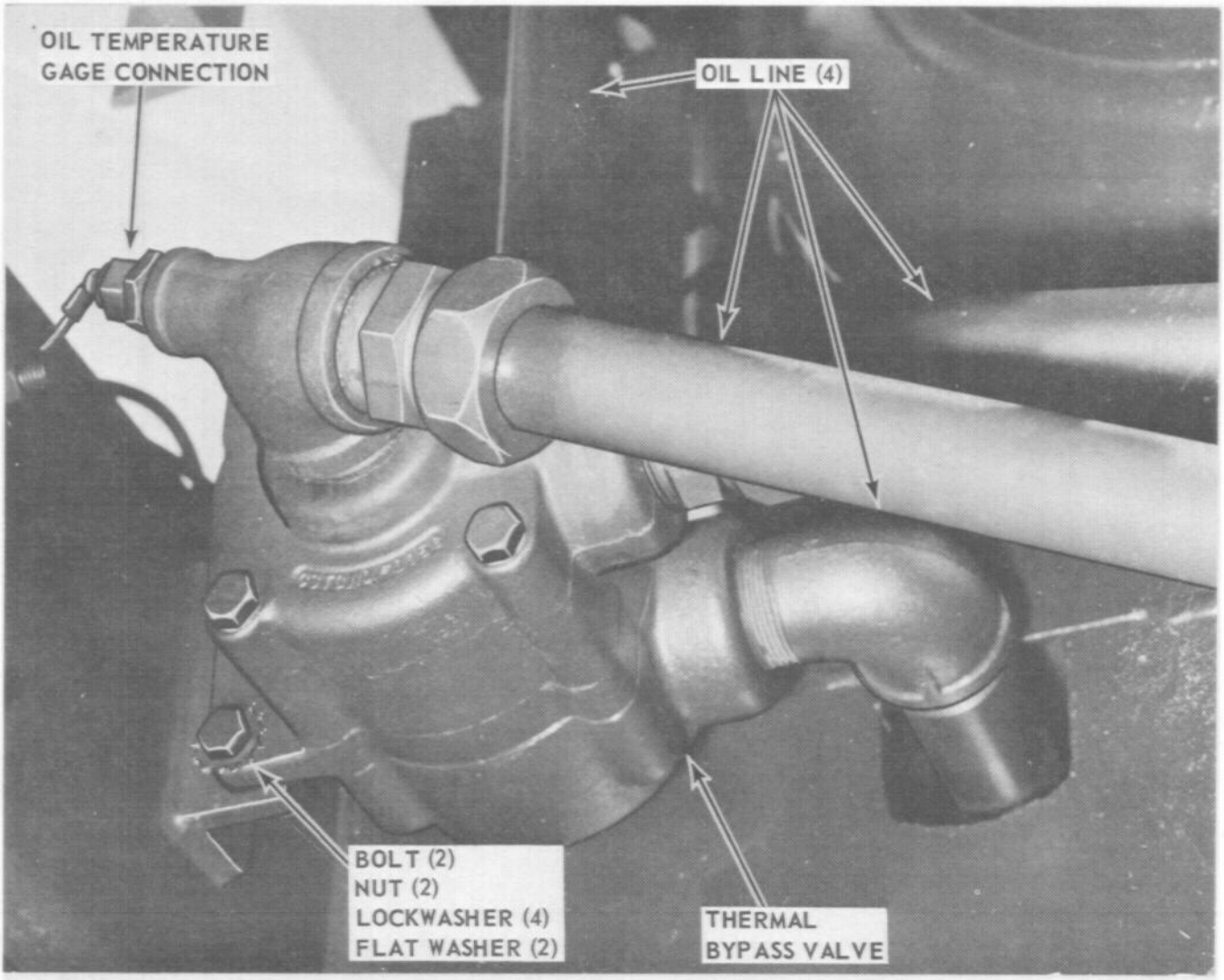
Figure 3-63. Blowdown valve assembly; disassembly and reassembly.



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REMOVAL

STEP 1. DISCONNECT OIL LINES.

STEP 2. DISCONNECT OIL TEMPERATURE GAGE CONNECTION.

STEP 3. REMOVE BOLTS, NUTS, AND WASHERS. REMOVE THERMAL BYPASS VALVE ASSEMBLY.

INSTALLATION

STEP 1. POSITION THERMAL BYPASS VALVE ASSEMBLY. INSTALL BOLTS, NUTS, AND WASHERS.

STEP 2. CONNECT OIL LINES.

STEP 3. CONNECT OIL TEMPERATURE GAGE CONNECTION.

Figure 3-64. Thermal bypass valve assembly; removal and installation.

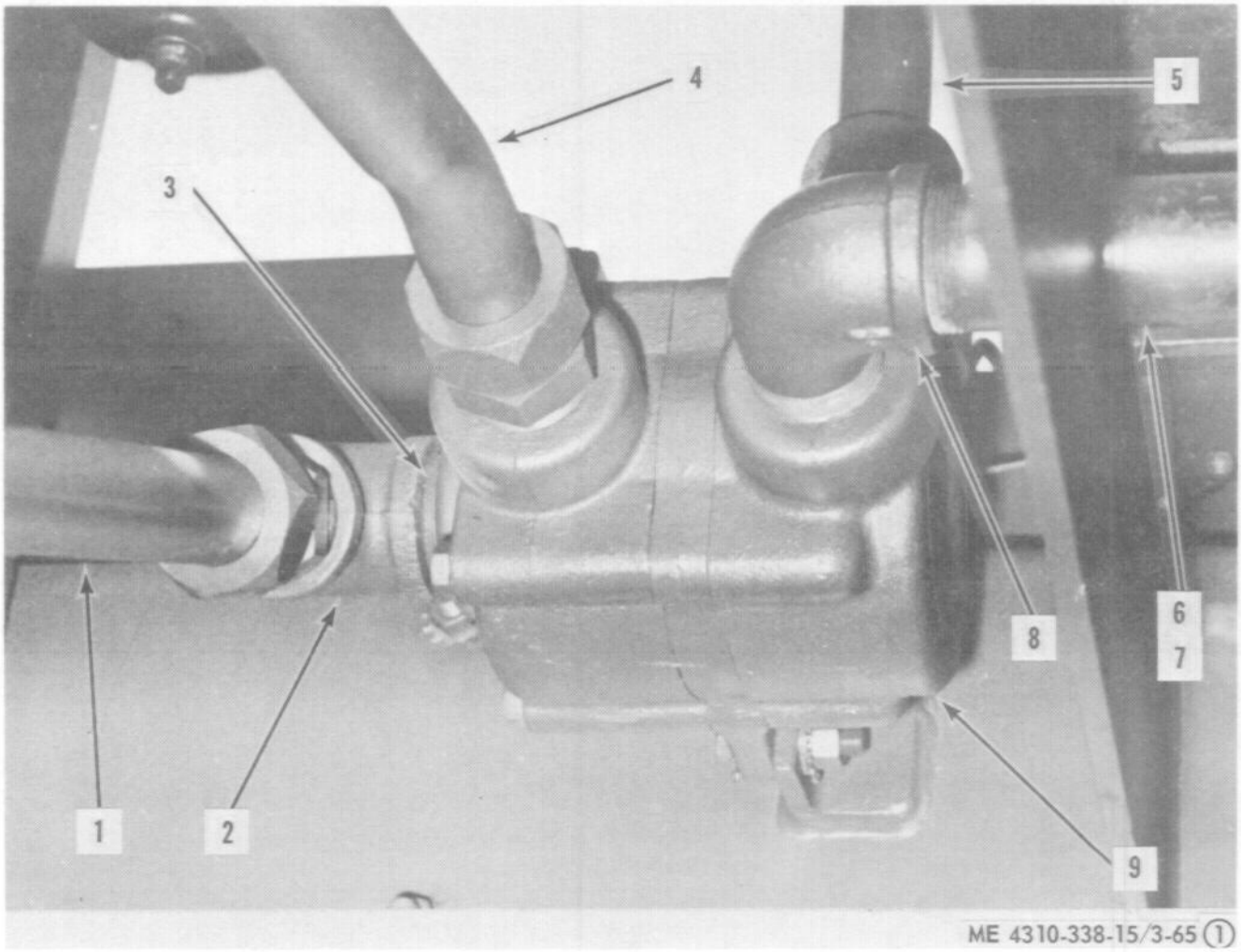
b. Installation.

(1) Install thermal bypass valve assembly as shown in figure 3-64.

(2) Replenish oil supply in oil separator assembly (refer to LO 5-4310-338-12). If drained oil is being reused, check carefully for any obvious contamination; then strain oil as it is being added, using clean, lint-free cloth.

3-86. Compressor Oil Lines and Fittings

a. Removal. Remove compressor oil lines and fittings as shown in figure 3-65.



1. Tube assembly
2. Tee
3. Nipple
4. Tube assembly
5. Tube assembly
6. Nipple
7. Coupling
8. Elbow
9. hermal bypass valve (ref)
10. Elbow
11. Nipple
12. Elbow
13. Nipple
14. Compressor oil filter (ref)
15. Oil separator tank (ref)
16. Tube assembly
17. Coupling (2)
18. Nipple (2)
19. Elbow (2)
20. Oil cooler (ref)
21. Plug
22. Elbow
23. Nipple
24. Elbow

Figure 3-65. Compressor oil lines and fittings, removal and installation (sheet 1 of 3).

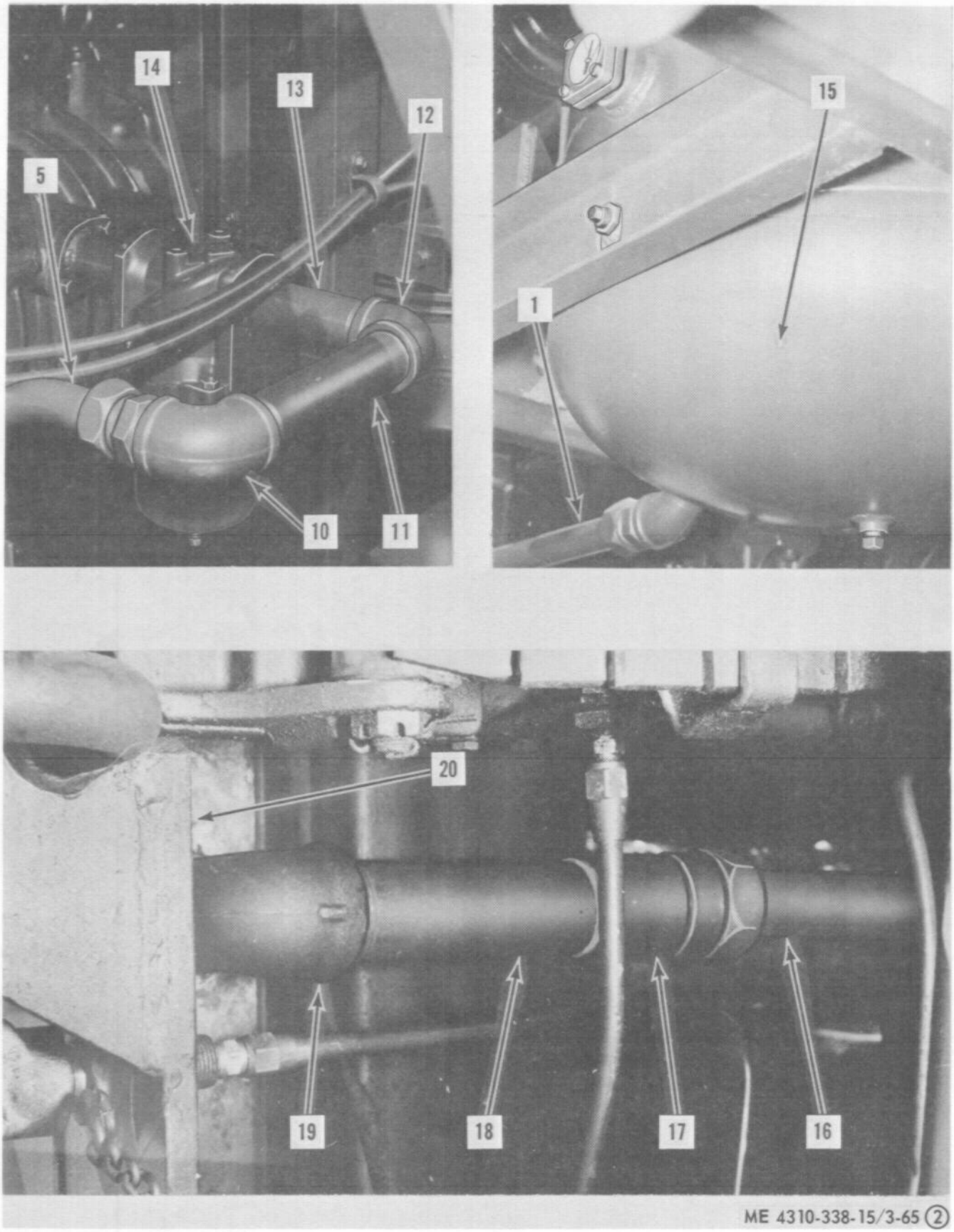


Figure 3-65. Compressor oil lines and fittings, removal and installation (sheet 2 of 3).

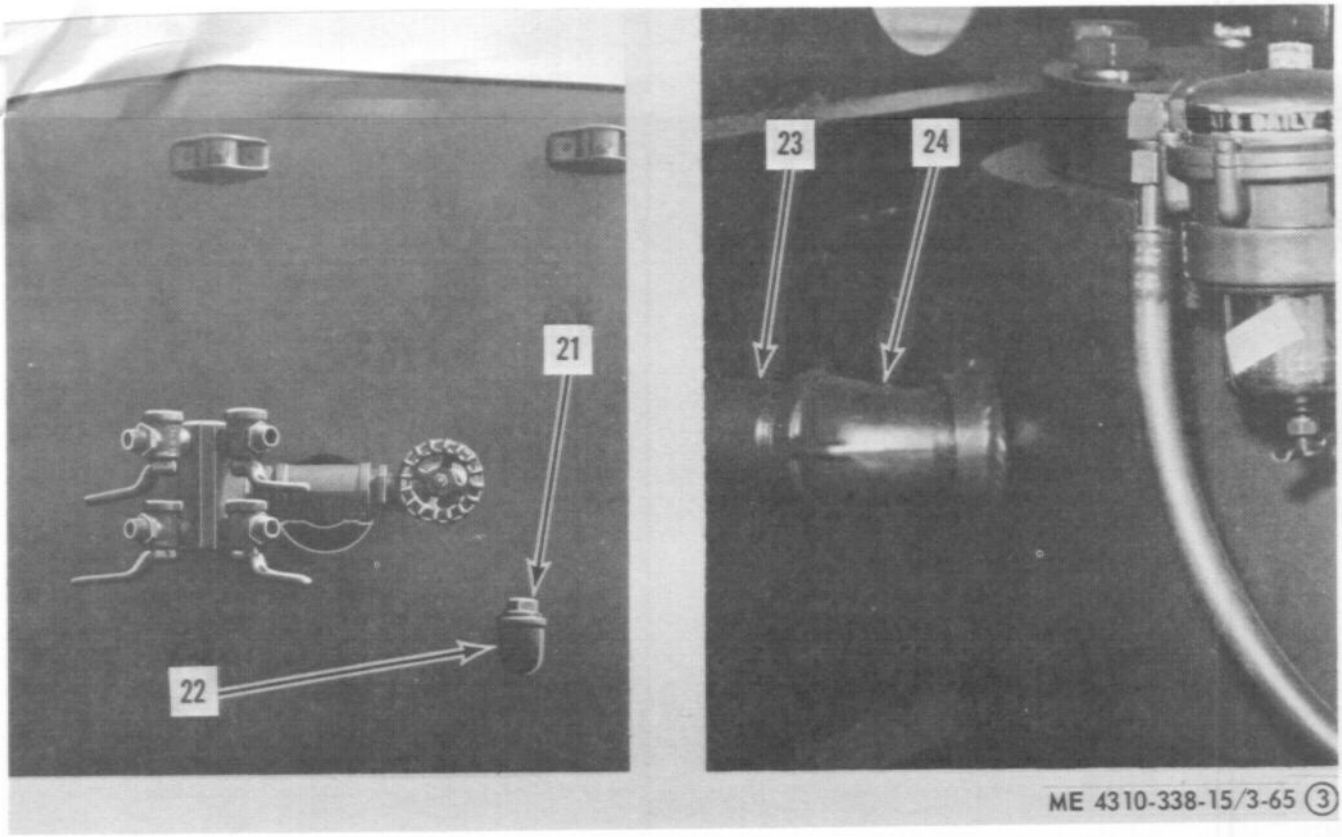


Figure 3-65. Compressor oil lines and fittings, removal and installation (sheet 3 of 3).

b. Cleaning and Inspection.

(1) Clean all parts using a cleaning solvent that is in accordance with Federal specification P-D-680. Dry parts thoroughly.

(2) Inspect oil tubes for cracks, breaks, distortion, or any other defect.

(3) Inspect fittings for cracks, damaged threads, distortion, or any other defect.

c. Installation. Install compressor oil lines and fittings as shown in figure 3-65.

3-87. Compressor Oil Filter Assembly

a. Removal.

(1) Drain all oil from filter assembly.

(2) Remove oil filter assembly as shown in figure 3-66.

b. Disassembly. Disassemble compressor oil filter assembly in numerical sequence shown in figure 3-67.

c. Cleaning and Inspection.

(1) Clean all metal parts and element using a cleaning solvent that is in accordance with Federal specification P-D-680. Dry parts thoroughly. Discard gasket.

(2) Inspect element for cracks, breaks, distortion, tears, or any other defect.

(3) Inspect all other parts for cracks, excessive wear, distortion, or any other defect.

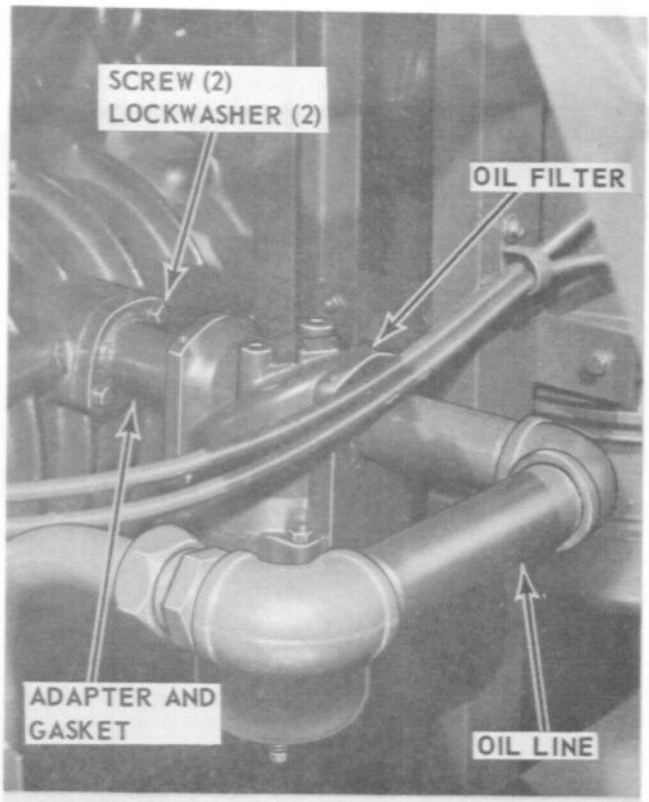
(4) Inspect attaching hardware for damaged threads, cracks, breaks, or any other defect.

d. Reassembly. Reassemble compressor oil filter assembly in reverse numerical sequence shown in figure 3-67. Install new O-ring and gasket.

e. Installation. Install compressor oil filter assembly as shown in figure 3-66.

3-88. Speed Control Linkage

a. Removal and Disassembly. Remove and disassemble speed control linkage as shown in figure 3-68.



ME 4310-338-15/3-66

REMOVAL

STEP 1. DISCONNECT OIL LINE FROM OIL FILTER.

STEP 2. REMOVE SCREWS AND LOCKWASHERS. REMOVE OIL FILTER, ADAPTER, AND GASKET.

STEP 3. REMOVE ADAPTER FROM OIL FILTER.

INSTALLATION

STEP 1. INSTALL ADAPTER TO OIL FILTER.

STEP 2. INSTALL GASKET. POSITION OIL FILTER AND ADAPTER AND SECURE WITH SCREWS AND LOCKWASHERS.

STEP 3. CONNECT OIL LINE TO OIL FILTER.

Figure 3-66. Compressor oil filter assembly; removal and installation.

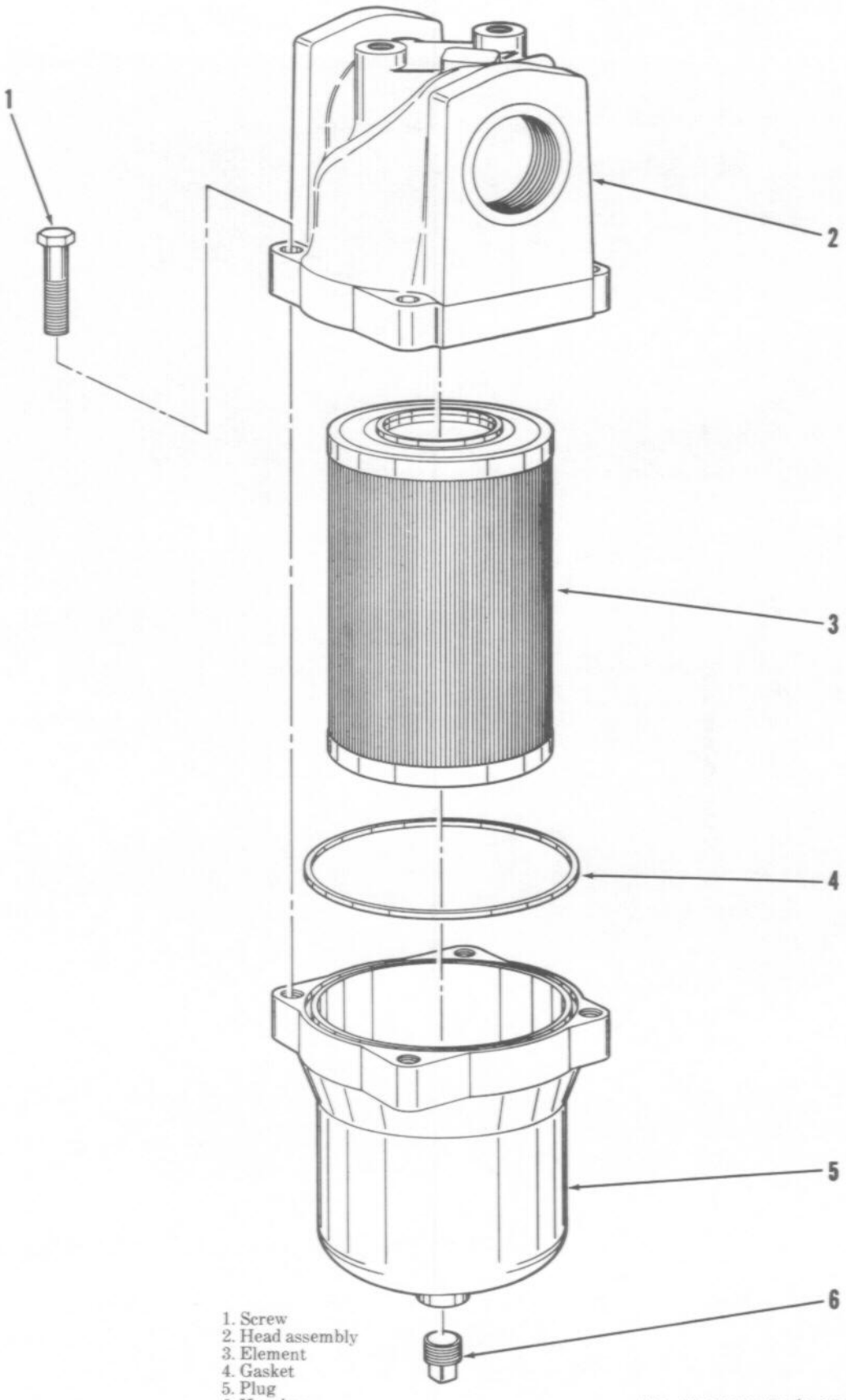
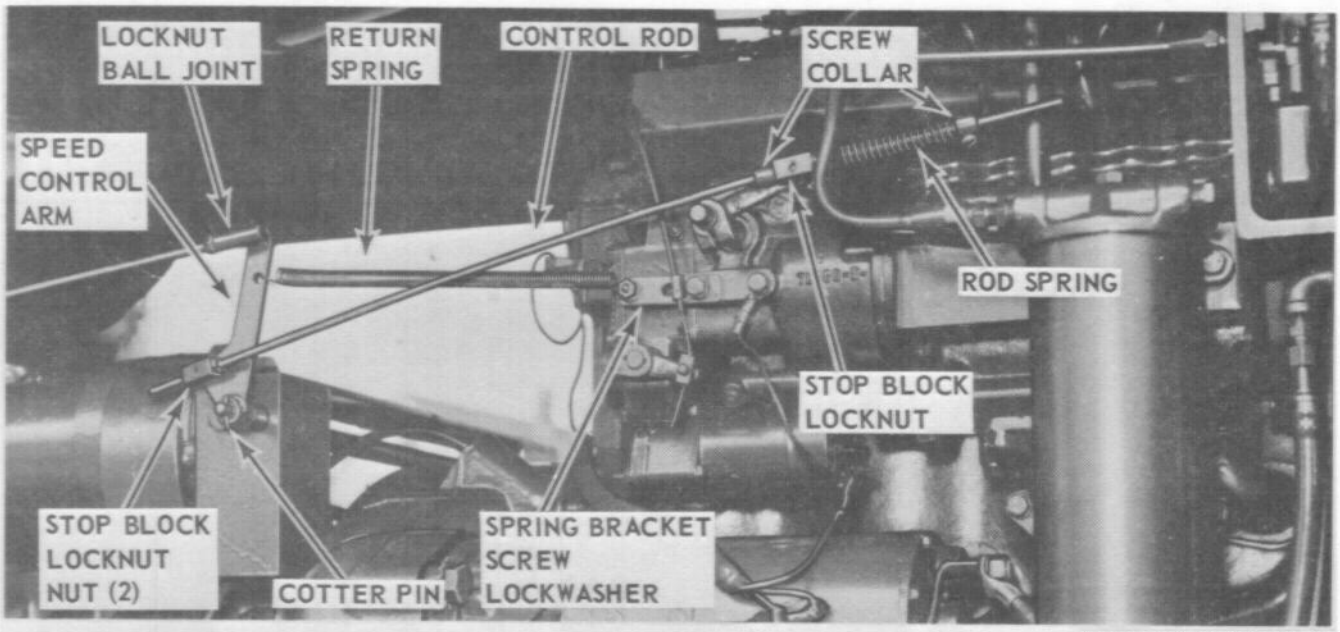
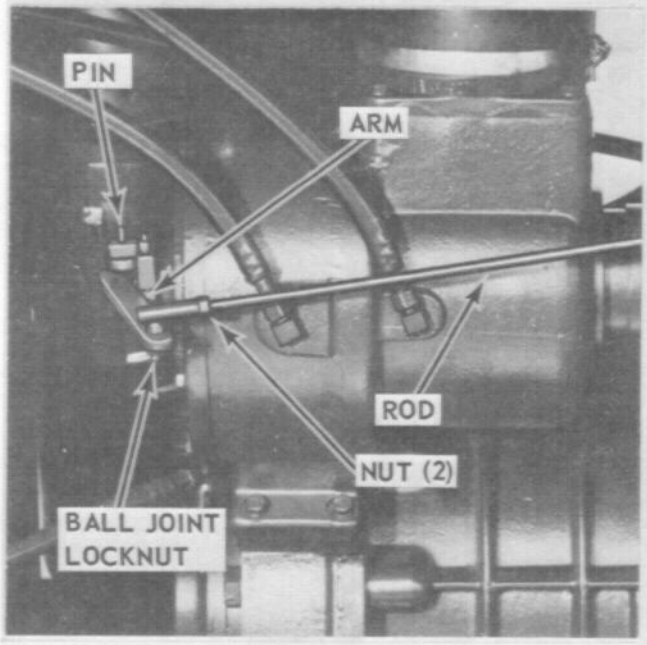


Figure 3-67. Compressor oil filter assembly; disassembly and reassembly.



ME 4310-338-15/3-68



REMOVAL

STEP 1. REMOVE LOCKNUTS AND DISCONNECT STOP BLOCKS FROM GOVERNOR CONTROL ARM AND SPEED CONTROL ARM.

STEP 2. LOOSEN SCREWS AND REMOVE COLLARS, SPRING, AND STOP BLOCK FROM FRONT CONTROL ROD.

STEP 3. REMOVE NUTS AND STOP BLOCK FROM FRONT CONTROL ROD.

STEP 4. REMOVE RETURN SPRING, SPRING BRACKET, SCREW, AND LOCKWASHER.

STEP 5. REMOVE LOCKNUTS AND DISCONNECT BALL JOINTS FROM ARMS. REMOVE NUTS AND BALL JOINTS FROM ROD.

STEP 6. REMOVE PIN, COTTER PIN, AND BOTH ARMS.

INSTALLATION

STEP 1. INSTALL BOTH SPEED CONTROL ARMS AND SECURE WITH PIN AND COTTER PIN.

STEP 2. INSTALL BALL JOINTS AND NUTS ON REAR CONTROL ROD. CONNECT BALL JOINTS TO ARMS AND SECURE WITH LOCKNUTS.

STEP 3. INSTALL STOP BLOCK AND NUTS ON REAR END OF FRONT CONTROL ROD.

STEP 4. INSTALL STOP BLOCK, COLLARS, SCREWS, AND SPRING ON FRONT CONTROL ROD.

STEP 5. INSTALL STOP BLOCKS ON GOVERNOR CONTROL ARM AND SPEED CONTROL ARM. INSTALL LOCKNUTS TO SECURE STOP BLOCKS.

STEP 6. INSTALL RETURN SPRING, SPRING BRACKET, SCREW, AND LOCKWASHER.

Figure 3-68. Speed control linkage; removal, disassembly, reassembly, and installation

b. Cleaning and Inspection.

(1) Clean all parts using a cleaning solvent that is in accordance with Federal specification P-D-680. Dry parts thoroughly.

(2) Inspect ball joints for freedom of movement. Inspect for distortion or any other defect.

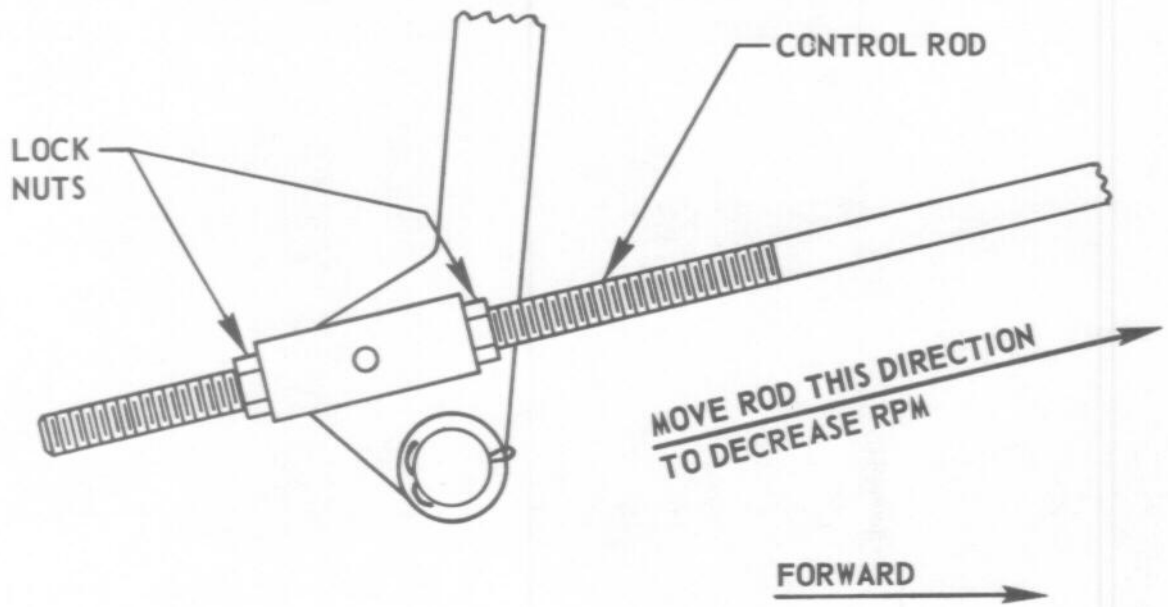
(3) Inspect rods for damaged threads, cracks, distortion, or any other defects.

(4) Inspect springs for distortion, cracks, breaks, or any other defect.

(5) Inspect all other parts for damaged threads, cracks, breaks, distortion, or any other defect.

c. Reassembly and Installation. Reassemble and install speed control linkage as shown in figure 3-68.

d. Adjustment. Adjust speed control linkage as shown in figure 3-69.



STEP 1. START ENGINE (PARA 2-9) AND ALLOW EQUIPMENT TO REACH OPERATING TEMPERATURES. PLACE RUN-START LEVER IN RUN POSITION.

STEP 2. KEEP ENGINE AT LOW IDLE (AIR DISCHARGE VALVES CLOSED). LOOSEN LOCK NUTS AND MOVE CONTROL ROD AS REQUIRED TO SET ENGINE SPEED AT 1000 RPM. TIGHTEN NUTS.

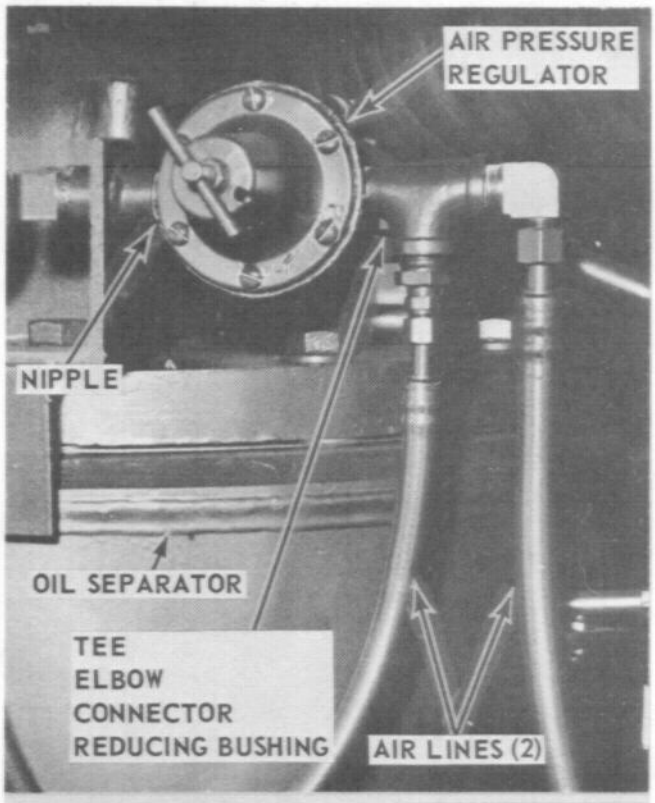
STEP 3. RECYCLE AIR COMPRESSOR UNIT SEVERAL TIMES BY OPENING AND CLOSING AIR DISCHARGE VALVE. OBSERVE TACHOMETER EACH TIME TO ENSURE ENGINE LOW IDLE REMAINS AT 1000 RPM.

STEP 4. STOP ENGINE (FIG. 2-9).

Figure 3-69. Speed control linkage adjustment.

3-89. Air Pressure Regulator Assembly

a. Removal. Remove air pressure regulator assembly as shown in figure 3-70.



ME 4310-338-15/3-70

REMOVAL

STEP 1. REMOVE AIR LINES. REMOVE TEE, ELBOW, CONNECTOR, AND REDUCING BUSHING.

STEP 2. UNSCREW AND REMOVE AIR PRESSURE REGULATOR FROM NIPPLE.

INSTALLATION

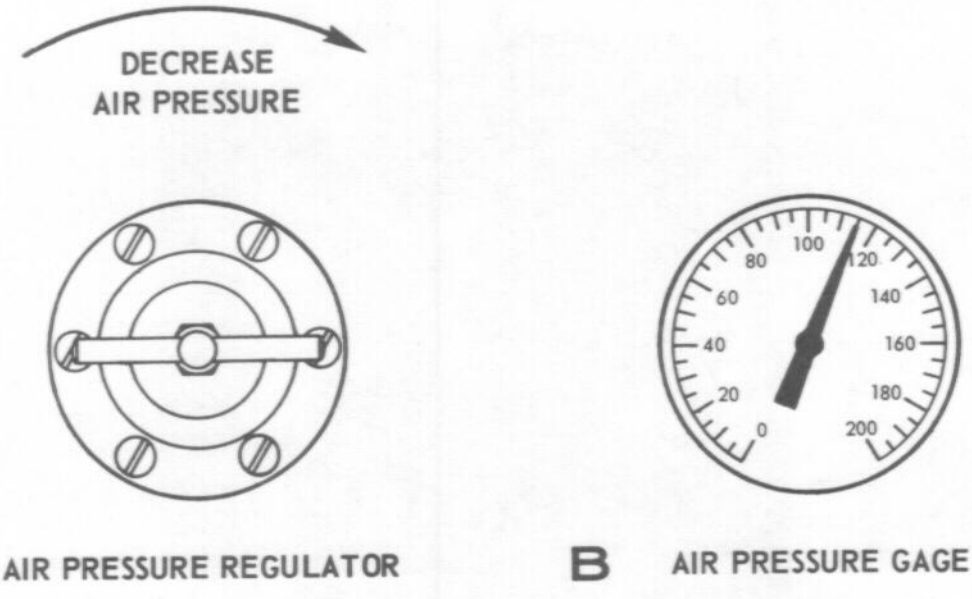
STEP 1. INSTALL AIR PRESSURE REGULATOR ON NIPPLE AND TIGHTEN.

STEP 2. INSTALL TEE, ELBOW, CONNECTOR, AND REDUCING BUSHING. INSTALL AIR LINES.

Figure 3-70. Air pressure regulator assembly; removal and installation.

b. Installation. Install air pressure regulator assembly as shown in figure 3-70.

c. Adjustment. Adjust air pressure regulator assembly as shown in figure 3-71.



A AIR PRESSURE REGULATOR

B AIR PRESSURE GAGE

ME 4310-338-15/3-71

STEP 1. START ENGINE (PARA 2-9) AND ALLOW EQUIPMENT TO REACH OPERATING TEMPERATURES. PLACE RUN-START LEVER IN RUN POSITION.

STEP 2. CLOSE ALL AIR DISCHARGE VALVES. ADJUST AIR PRESSURE REGULATOR TO OBTAIN A READING OF 115-117 PSI ON AIR PRESSURE GAGE WHEN ENGINE IS AT LOW IDLE (1000 RPM). IF AIR PRESSURE RISES ABOVE 117 PSI, TURN HANDLE ON AIR PRESSURE REGULATOR IN DIRECTION TO DECREASE AIR PRESSURE AND BLEED OFF EXCESS AIR BY OPENING AIR DISCHARGE VALVE. AFTER EXCESS AIR HAS BEEN DISCHARGED, CLOSE VALVE AND READJUST AIR PRESSURE REGULATOR TO OBTAIN 115-117 PSI.

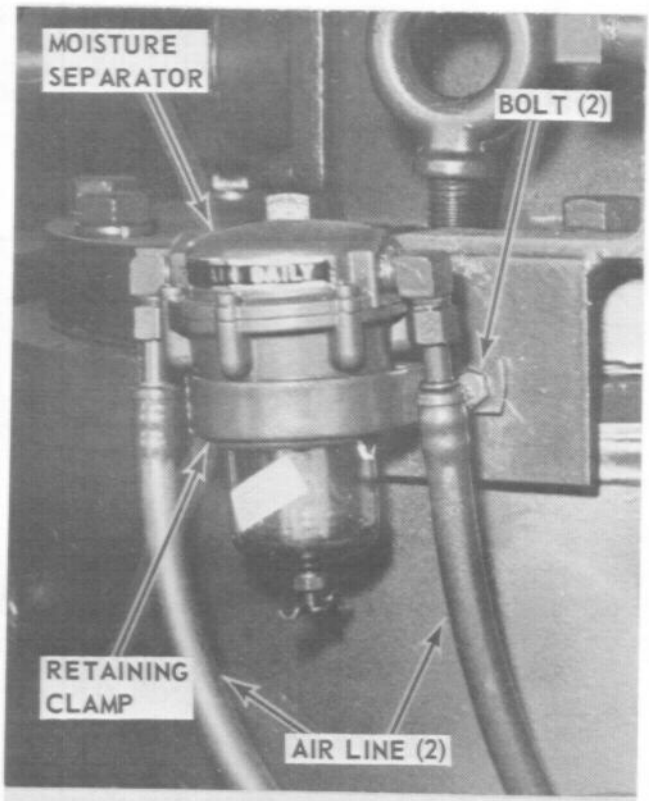
STEP 3. RECYCLE AIR COMPRESSOR UNIT SEVERAL TIMES BY OPENING AND CLOSING AIR DISCHARGE VALVE. OBSERVE AIR PRESSURE GAGE EACH TIME TO ENSURE PRESSURE SETTING REMAINS STABLE.

STEP 4. STOP ENGINE (FIG. 2-9).

Figure 3-71. Air pressure regulator adjustment.

3-90. Moisture Separator Assembly

a. Removal. Remove moisture separator assembly as shown in figure 3-72.



REMOVAL

STEP 1. DISCONNECT AIR LINES.

STEP 2. LOOSEN RETAINING CLAMP BY LOOSENING BOLTS. REMOVE MOISTURE SEPARATOR FROM CLAMP.

INSTALLATION

STEP 1. PLACE MOISTURE SEPARATOR IN RETAINING CLAMP. TIGHTEN BOLTS.

STEP 2. CONNECT AIR LINES.

Figure 3-72. Moisture separator assembly; removal and installation.

b. Disassembly. Disassemble moisture separator assembly in numerical sequence shown in figure 3-73.

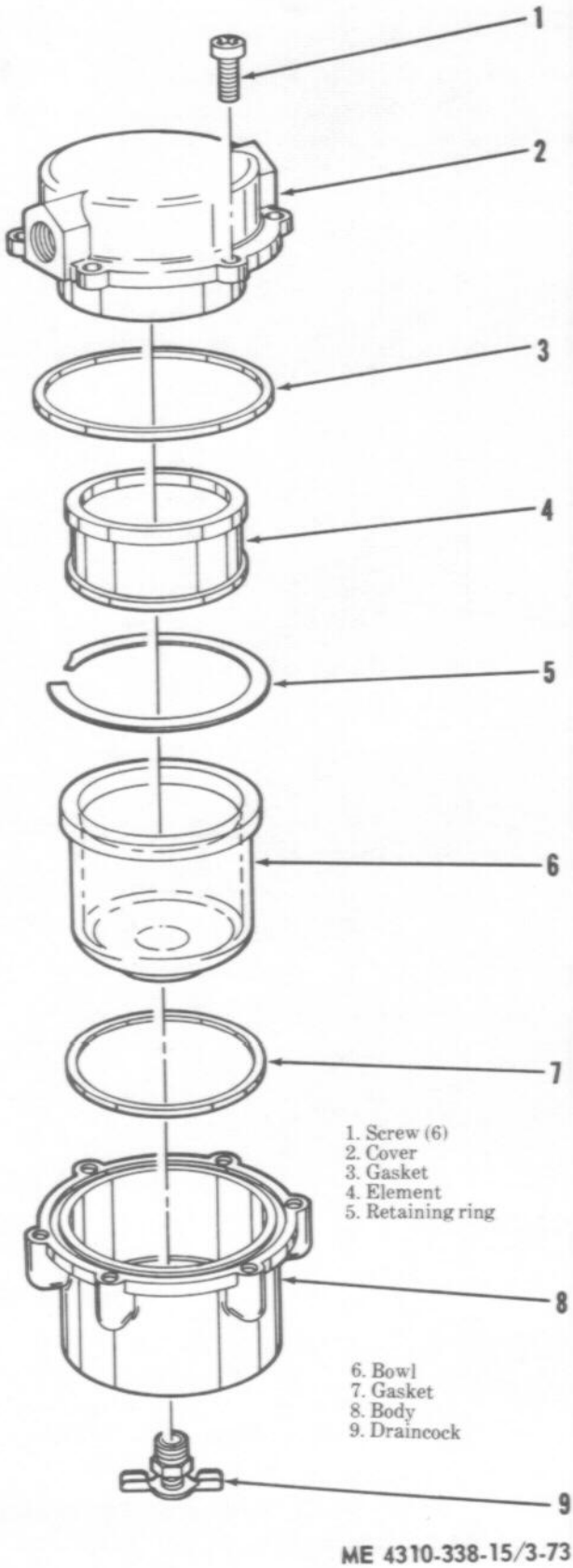


Figure 3-73. Moisture separator assembly; disassembly and reassembly.

c. Cleaning, Inspection, and Repair.

(1) Clean all metal parts using a cleaning solvent that is in accordance with Federal specification P-D-680. Dry parts thoroughly. Discard gasket.

CAUTION

If other than household type detergent is used in following step, be sure the cleaner is safe, since many types of cleaning agents are injurious to the polycarbonate bowl.

(2) Clean bowl using a household type detergent; rinse, and dry thoroughly.

(3) Clean filter with spirits or kerosene and dry with compressed air.

(4) Inspect bowl for cracks, chips, or any other defect.

(5) Inspect draincock for improper operation, damaged threads, or any other defect.

(6) Inspect all other parts for cracks, breaks, deterioration, or any other defect.

(7) Inspect attaching hardware for damaged threads, cracks, distortion, or any other defect.

d. Reassembly. Reassemble moisture separator assembly in reverse numerical sequence shown in figure 3-73. Install a new gasket.

e. Installation. Install moisture separator assembly as shown in figure 3-72, making sure arrow on top of unit is pointing in direction of air flow.

CAUTION

Pull stop cable out to STOP position to close the fuel injector rack before engine is rotated by pressing start button. If rack is not closed when start button is pressed, engine may start.

3-91. Not Applicable.

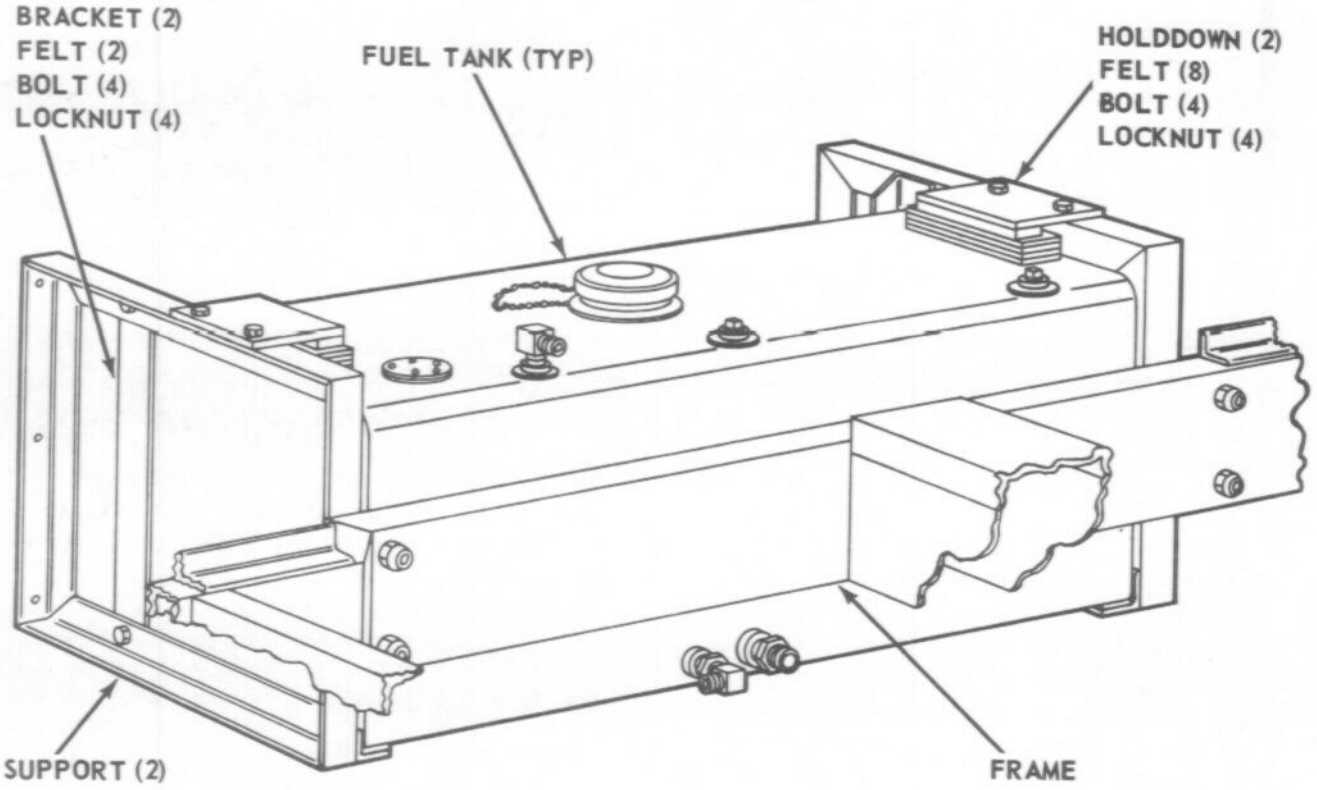
3-92. Fuel Tanks

a. Removal.

CAUTION

Use extreme caution when handling fuel.
Do not allow flame or smoking around fuel.
Keep fuel free of water or dirt.

(1) Drain all fuel from fuel tanks.
(2) Remove housing components as necessary to provide access to fuel tanks (para 3-33).
(3) Disconnect all fuel lines from fuel tanks.
(4) Remove fuel gage sending unit (para 3-51).
(5) Remove fuel tanks as shown in figure 3-74.



ME 4310-338-15/3-74

REMOVAL

STEP 1. REMOVE BOLTS AND LOCKNUTS FROM HOLDDOWNS. REMOVE HOLDDOWNS AND FELT.

STEP 2. REMOVE BOLTS AND LOCKNUTS FROM BRACKET. REMOVE BRACKET AND FELT.

STEP 3. LIFT FUEL TANK OFF SUPPORTS.

INSTALLATION

STEP 1. POSITION FUEL TANK IN MOUNTING POSITION ON SUPPORTS.

STEP 2. INSTALL BRACKETS AND FELT AND SECURE WITH BOLTS AND LOCKNUTS.

STEP 3. INSTALL HOLDDOWNS AND FELT AND SECURE WITH BOLTS AND LOCKNUTS.

Figure 3-74. Fuel tanks; removal and installation.

b. Cleaning and Inspection.

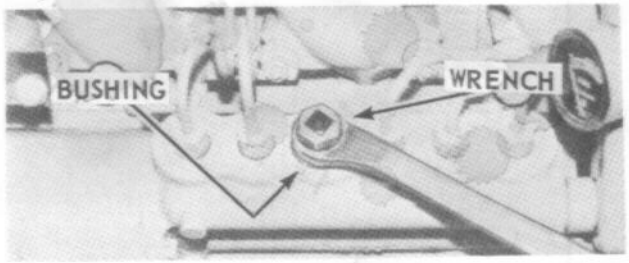
(1) Clean fuel tanks using a cleaning solvent that is in accordance with Federal specification P-D-680. Dry thoroughly.

(2) Inspect fuel tanks for cracks, holes, corrosion, or any other defect.

(3) Inspect attaching hardware for damaged threads, distortion, cracks, or any other defect.

c. Installation.

(1) Install fuel tanks as shown in figure 3-74.



(2) Install fuel gage sending unit (para 3-51).

(3) Connect all fuel lines to fuel tanks.

(4) Install housing components (para 3-33).

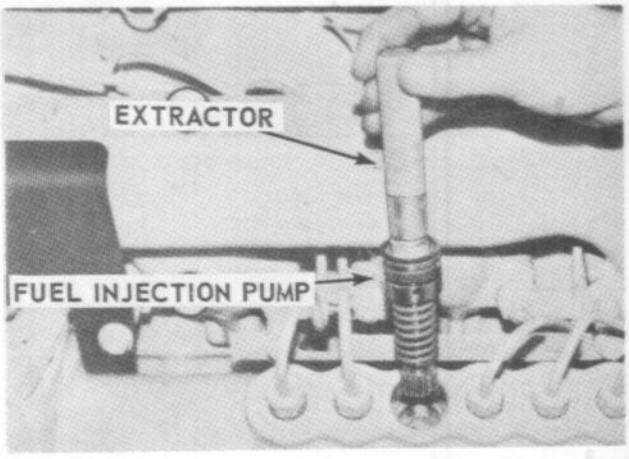
(5) Replenish fuel supply. Check for leaks.

3-93. Fuel Injection Pumps

a. Removal.

(1) Remove fuel line from fuel injection pump.

(2) Remove fuel injection pump as shown in figure 3-75.



ME 4310-338-15/3-75

STEP 1. LOOSEN AND REMOVE BUSHING.

STEP 2. ATTACH AN EXTRACTOR TOOL TO FUEL INJECTION PUMP. REMOVE PUMP.

Figure 3-75. Fuel injection pump; removal and installation

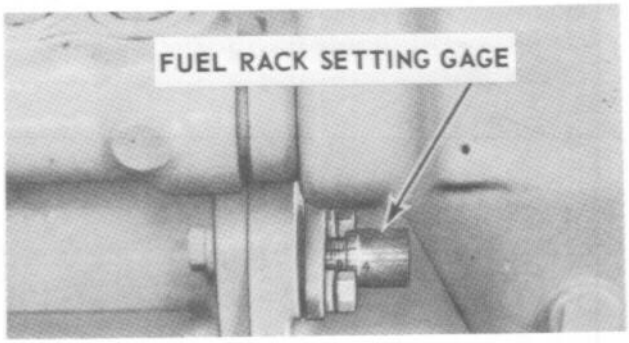
b. Installation.

CAUTION

The fuel rack must be held at the center or zero position when installing a fuel injection pump. An injection pump installed in the fuel on side of its gear segment can cause the engine to overspeed with resultant serious damage to the engine.

(1) Disconnect speed control rod from governor control lever.

(2) Remove cover and install a fuel rack setting gage on fuel injection pump housing, as shown in figure 3-76.



ME 4310-338-15/3-76

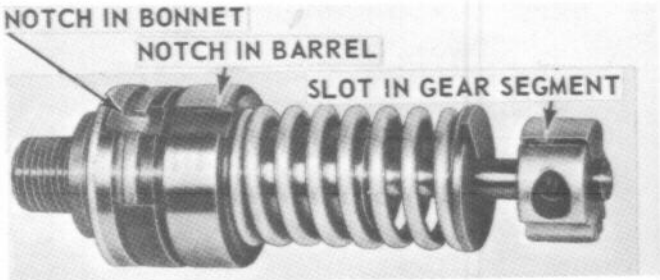
Figure 3-76. Fuel rack setting gage installation.

(3) Using governor control lever, position fuel rack until gage indicates .000" when resting against end of fuel rack.

NOTE

This step is essential because it aligns center notch on fuel rack so that it will recive center tooth of gear segment on injection pump plunger. IIt may be necessary to move the speed limiter plunger (fig. 6-17) in order to obtain unrestricted movement of the fuel rack.

(4) On fuel injection pump, align notches as shown in figure 3-77.



ME 4310-338-15/3-77

ALIGNING THE INJECTION PUMP

Figure 3-77. Alignment of notches on fuel injection pump.

(5) Using an extractor tool, insert fuel injection pump into bore in housing. Notches in bonnet and barrel must engage with two locating dowels in bore. These dowels align pump barrel fuel inlet port with fuel manifold outlet port.

(6) Place a new O-ring over bonnet and install retainer bushing. Finger-tighten bushing until it is flush with top of injection pump housing. If bushing cannot be finger turned flush with top of housing, notch in bonnet is not aligned with dowel in housing. Remove pump and repeat steps 3 through 6 until pump seats properly.

CAUTION

Fuel injection pump will leak if bushing is tightened to less than 140 foot-pounds. If bushing is tightened to more than 160 foot-pounds, the housing can be damaged.

(7) Tighten retainer bushing to a torque value of 140 to 160 foot-pounds.

(8) Install felt washer and fuel line. Tighten fuel line nut to a torque value of 25 to 35 foot-pounds.

(9) Remove fuel rack setting gage and install cover on housing.

(10) Connect speed control rod to governor control lever. Adjust speed control linkage (para 3-88).

3-94. Fuel Injection Valves

a. Removal. Remove fuel injection valve as shown in figure 3-78.

b. Disassembly. Disassemble fuel injection valve as shown in figure 3-79. Discard O-ring.

c. Cleaning and Inspection.

CAUTION

To prevent damage to the nozzle, do not remove carbon deposits from the orifice using a wire brush or wheel.

(1) Clean all metal parts using a cleaning solvent that is in accordance with Federal specification P-D-680. Inspect nozzle for carbon buildup and clean as necessary. If cleaning cannot be accomplished satisfactorily, replace nozzle.

(2) Inspect parts for cracks, breaks, distortion, damaged threads, or any other defect.

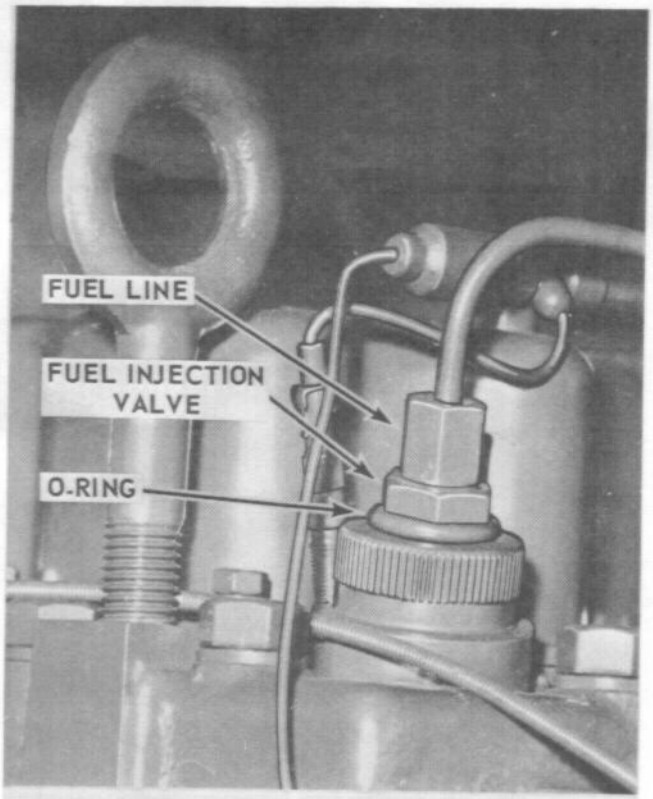
CAUTION

In following step, tighten nozzle finger tight only.

d. Reassembly. Reassemble fuel injection valve as shown in figure 3-79. Install a new O-ring.

e. Installation.

(1) Check tightness of precombustion chamber. Chamber should be seated to a torque value of 150 foot-pounds.



ME 4310-338-15/3-78

REMOVAL

STEP 1. REMOVE FUEL LINE.

STEP 2. UNSCREW AND REMOVE VALVE ASSEMBLY. REMOVE O-RING.

INSTALLATION

STEP 1. INSTALL NEW O-RING. INSTALL AND TIGHTEN VALVE ASSEMBLY.

STEP 2. INSTALL AND TIGHTEN FUEL LINE.

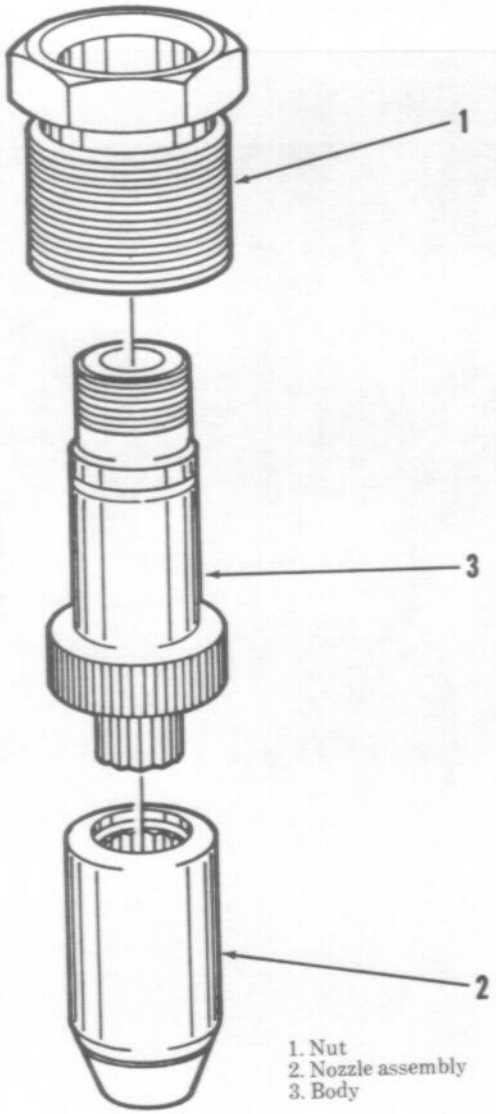
Figure 3-78. Fuel injection valve; removal and installation.

CAUTION

It is extremely important that nut torque be maintained at the specified valve in the following step. Excessive torque will damage nozzle, whereas insufficient torque will allow nozzle to leak, causing case to bulge or split.

(2) Install fuel injection valve as shown in figure 3-78. Tighten nut to a torque value of 100 to 110 foot-pounds.

(3) Install fuel line and tighten nut to a torque value of 25 to 35 foot-pounds.



1. Nut
2. Nozzle assembly
3. Body

ME 4310-338-15/3-79

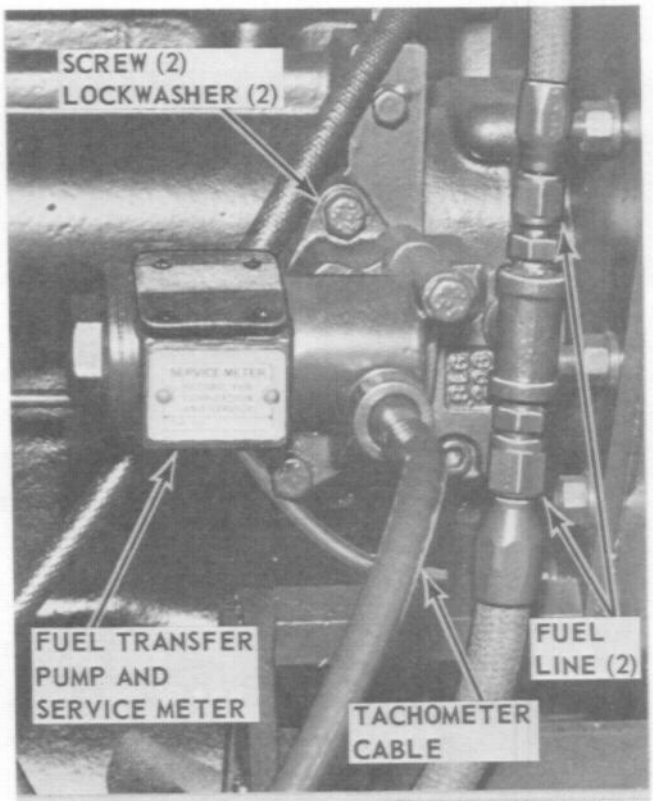
Figure 3-79. Fuel injection valve; disassembly and reassembly.

3-95. Fuel Transfer Pump

a. Removal.

(1) Remove service meter (para 3-56).

(2) Remove fuel transfer pump assembly as shown in figure 3-80.



ME 4310-338-15/3-80

REMOVAL

STEP 1. REMOVE FUEL LINES.

STEP 2. DISCONNECT TACHOMETER CABLE.

STEP 3. REMOVE SCREWS AND LOCKWASHERS. REMOVE FUEL TRANSFER PUMP AND GASKET.

INSTALLATION

STEP 1. POSITION FUEL TRANSFER PUMP AND GASKET. INSTALL SCREWS AND LOCKWASHERS.

STEP 2. INSTALL FUEL LINES.

STEP 3. CONNECT TACHOMETER CABLE.

Figure 3-80. Fuel transfer pump; removal and installation.

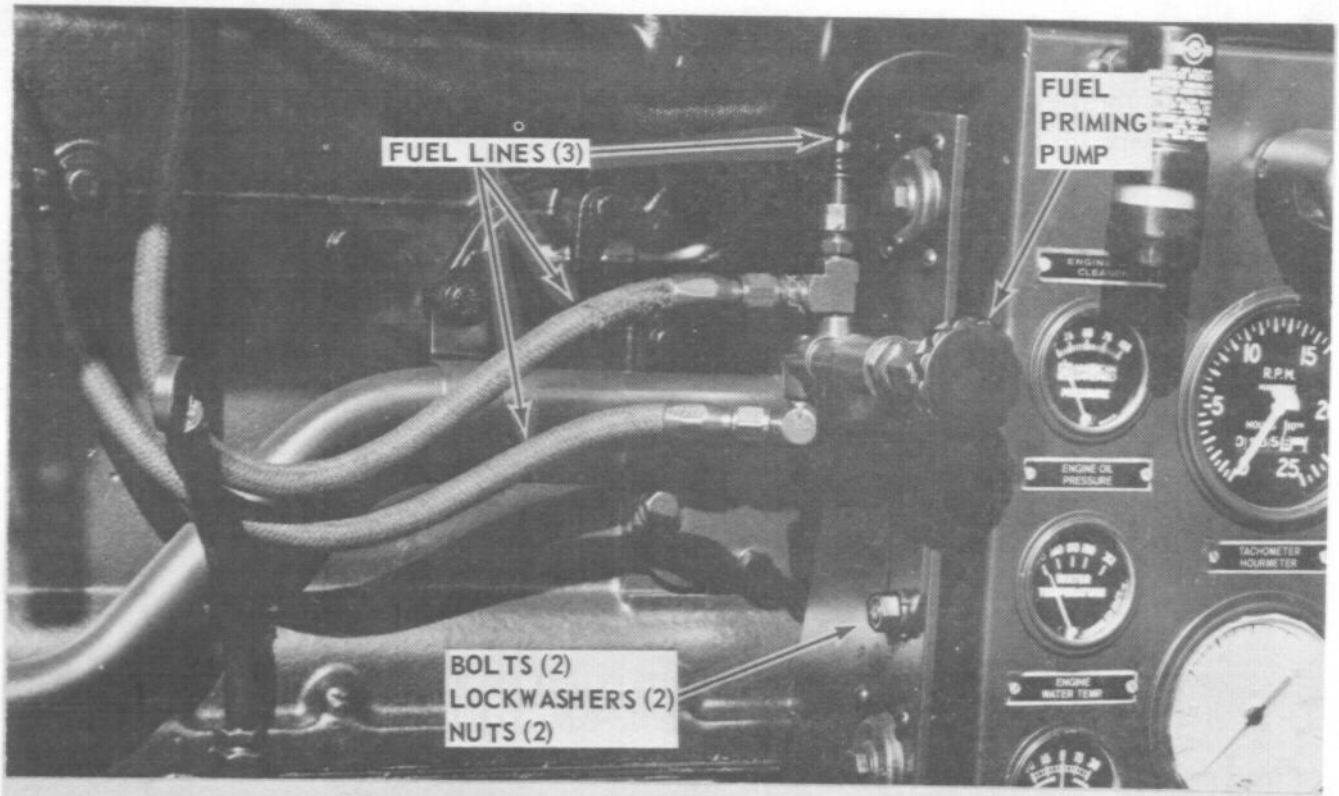
b. Installation.

(1) Install fuel transfer pump assembly as shown in figure 3-80.

(2) Install service meter (para 3-56).

3-96. Fuel Priming Pump

a. Removal. Remove fuel priming pump as shown in figure 3-81.



ME 4310-338-15/3-81

REMOVAL

STEP 1. REMOVE FUEL LINES.

STEP 2. REMOVE BOLTS, LOCKWASHERS, AND NUTS. REMOVE PRIMING PUMP.

INSTALLATION

STEP 1. POSITION PRIMING PUMP. INSTALL BOLTS, LOCKWASHERS, AND NUTS.

STEP 2. INSTALL FUEL LINES.

Figure 3-81. Fuel priming pump; removal and installation.

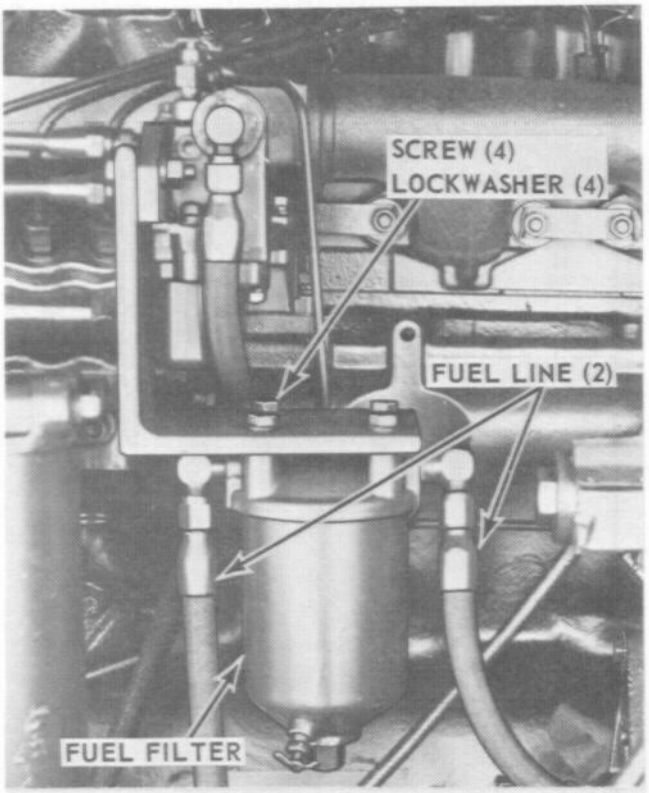
b. Installation. Install fuel priming pump as shown in figure 3-81.

3-97. Primary Fuel Filter Assembly

a. Removal.

(1) Open draincock and drain all fuel from primary fuel filter assembly.

(2) Remove primary fuel filter assembly as shown in figure 3-82.



ME 4310-338-15/3-82

REMOVAL

STEP 1. DISCONNECT FUEL LINES.

STEP 2. REMOVE SCREWS AND LOCKWASHERS. REMOVE FUEL FILTER.

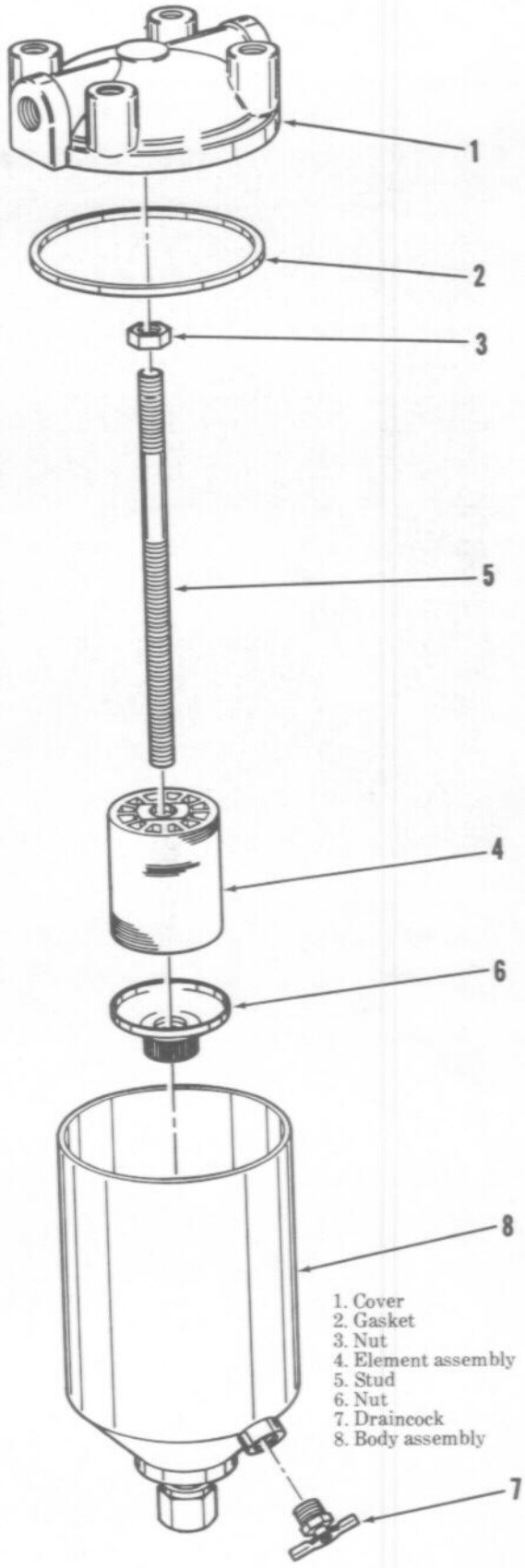
INSTALLATION

STEP 1. POSITION FUEL FILTER. INSTALL SCREWS AND LOCKWASHERS.

STEP 2. CONNECT FUEL LINES.

Figure 3-82. Primary fuel filter assembly; removal and installation.

b. Disassembly. Disassemble primary fuel filter assembly in numerical sequence shown in figure 3-83. Discard gasket.



ME 4310-338-15/3-83

Figure 3-83. Primary Fuel Filter Assembly; Disassembly and Reassembly.

c. Cleaning, Inspection, and Repair.

(1) Clean all parts using a cleaning solvent that is in accordance with Federal specification P-D-680. Dry parts thoroughly.

(2) Inspect element for cracks, breaks, distortion, or any other defect.

(3) Inspect all other parts for cracks, distortion, excessive wear, or any other defect.

(4) Inspect attaching hardware for damaged threads, distortion, cracks, or any other defect.

d. Reassembly. Reassemble primary fuel filter assembly in reverse numerical sequence shown in figure 3-83. Install new gasket.

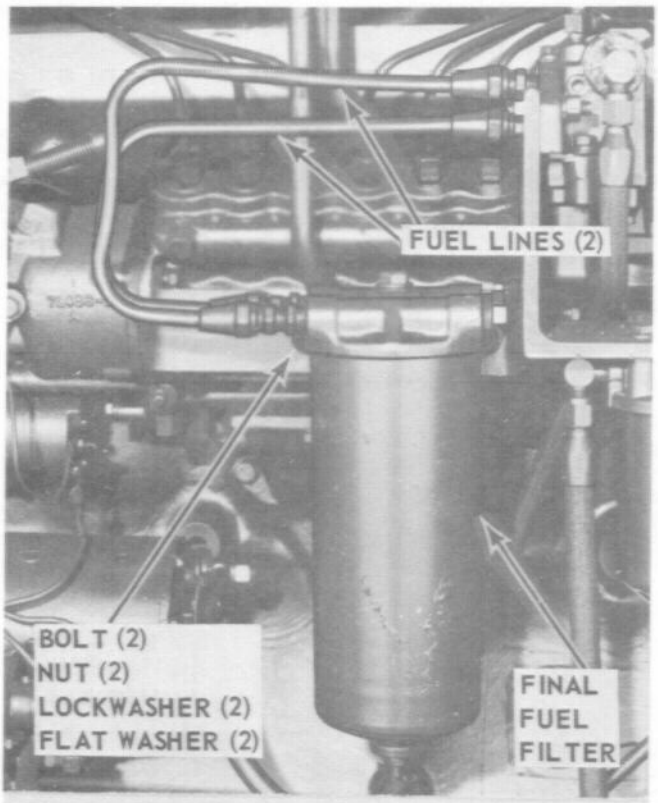
e. Installation. Install primary fuel filter assembly as shown in figure 3-82.

3-98. Final Fuel Filter Assembly

a. Removal.

(1) Open draincock and drain all fuel from final fuel filter assembly.

(2) Remove final fuel filter assembly as shown in figure 3-84.



ME 4310-338-15/3-84

REMOVAL

STEP 1. REMOVE FUEL LINES.

STEP 2. REMOVE BOLTS, NUTS, LOCKWASHERS AND FLAT WASHERS. REMOVE FUEL FILTER.

INSTALLATION

STEP 1. POSITION FUEL FILTER AND INSTALL BOLTS, NUTS, LOCKWASHERS, AND FLAT WASHERS.

STEP 2. INSTALL FUEL LINES.

Figure 3-84. Final Fuel Filter Assembly; Removal and Installation.

b. Disassembly. Disassemble final fuel filter assembly in numerical sequence shown in figure 3-85.

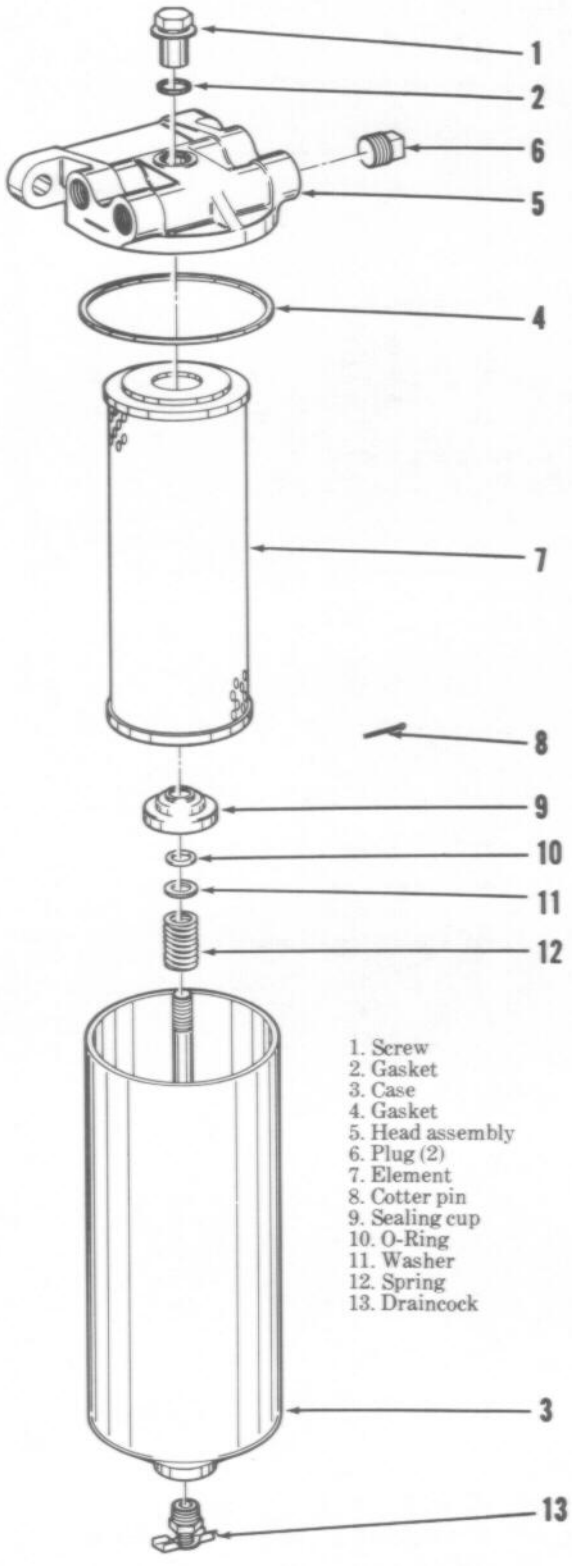


Figure 3-85. Final fuel filter assembly; disassembly and reassembly.

c. Cleaning and Inspection.

(1) Clean all metal parts using a cleaning solvent that is in accordance with Federal specification P-D-680. Dry parts thoroughly. Discard element and gasket.

(2) Inspect spring, cotter pin, and retainers for cracks, breaks, distortion, or any other defect.

(3) Inspect cover for distortion, cracks, damaged threads, or any other defect.

(4) Inspect all other parts, including attaching hardware, for damaged threads, cracks, distortion, or any other defect.

d. Reassembly. Reassemble final fuel filter assembly in reverse numerical sequence shown in figure 3-85. Install new element and gasket.

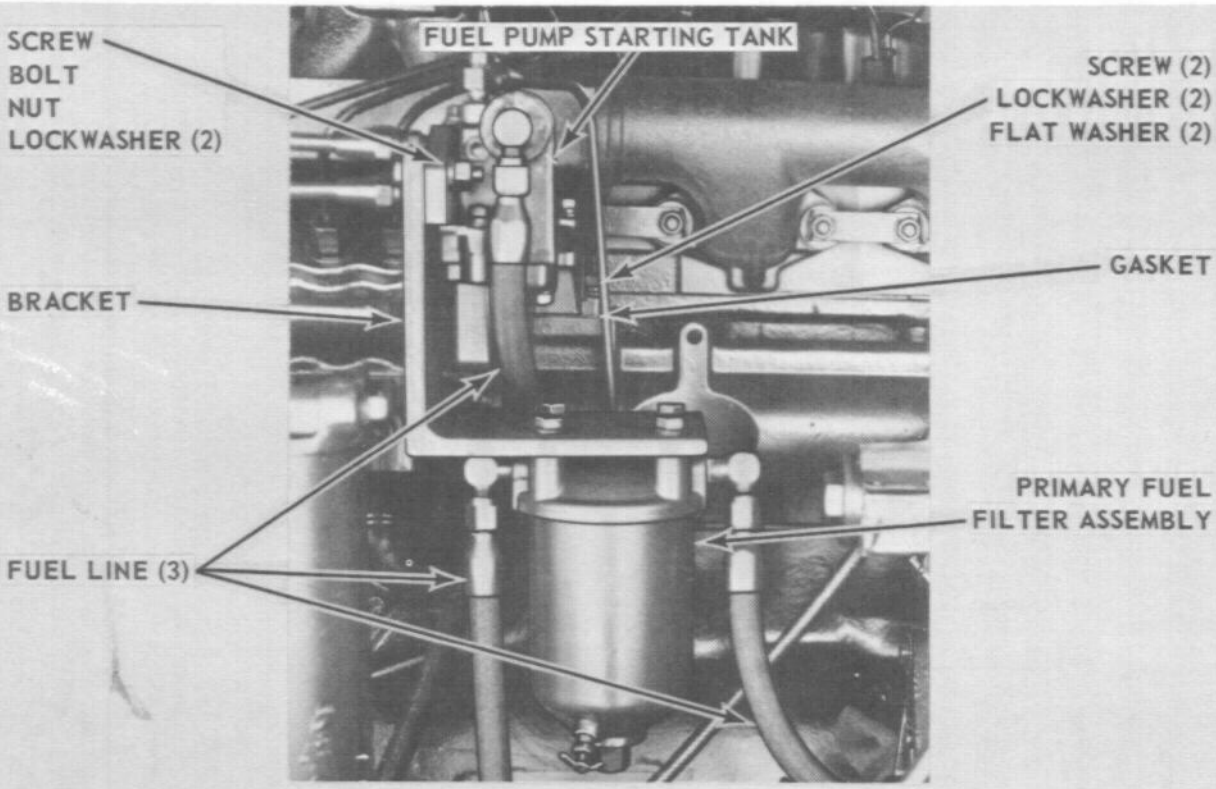
e. Installation. Install final fuel filter assembly as shown in figure 3-84.

3-99. Fuel Pump Starting Tank and Fuel Bypass Valve

a. Removal.

(1) Remove primary fuel filter assembly (para 3-97).

(2) Remove fuel pump starting tank as shown in figure 3-86.



REMOVAL

STEP 1. REMOVE PRIMARY FUEL FILTER BRACKET BY REMOVING SCREW, BOLT, NUT, AND LOCKWASHERS.

STEP 2. REMOVE FUEL LINES FROM FUEL PUMP STARTING TANK.

STEP 3. REMOVE SCREWS, LOCKWASHERS, AND FLAT WASHERS. REMOVE FUEL PUMP STARTING TANK AND GASKET.

INSTALLATION

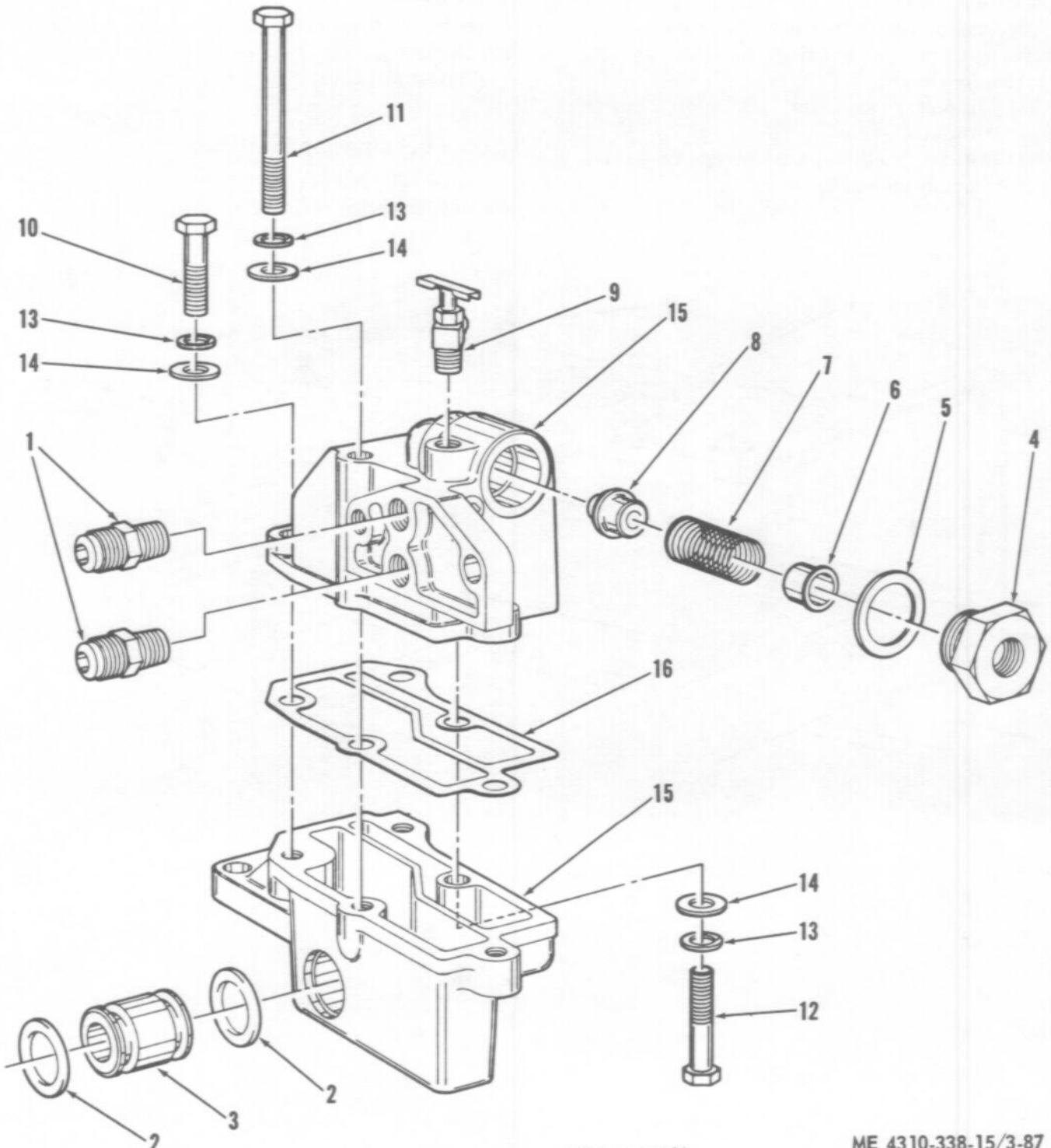
STEP 1. INSTALL A NEW GASKET. PLACE FUEL PUMP STARTING TANK IN MOUNTING POSITION AND SECURE WITH SCREWS. LOCKWASHERS, AND FLAT WASHERS.

STEP 2. INSTALL FUEL LINES TO FUEL PUMP STARTING TANK.

STEP 3. PLACE PRIMARY FUEL FILTER BRACKET IN MOUNTING POSITION AND SECURE WITH SCREW, BOLT, NUT, AND LOCKWASHERS.

Figure 3-86. Fuel pump starting tank; removal and installation.

b. Disassembly. Disassemble fuel pump starting tank and fuel bypass valve in numerical sequence shown in figure 3-87. Discard gasket.



ME 4310-338-15/3-87

1. Connector (2)
2. O-ring (2)
3. Sleeve
4. Fitting
5. Gasket
6. Stop
7. Spring
8. Plunger
9. Valve assembly
10. Screw (3)
11. Screw
12. Screw
13. Washer (5)
14. Washer (5)
15. Tank assembly
16. Gasket

Figure 3-87. Fuel Pump Starting Tank and Fuel Bypass Valve; Disassembly and Reassembly.

c. Cleaning and Inspection.

(1) Clean fuel bypass valve parts using a cleaning solvent that is in accordance with Federal specification P-D-680. Dry parts thoroughly.

(2) Inspect spring for defective coils, cracks, distortion, or any other defect. Refer to table 5-2 for spring free length.

(3) Inspect valve for distortion, cracks, breaks, or any other defect.

(4) Inspect all other parts for cracks, breaks, distortion, or any other defects.

d. Reassembly. Reassemble fuel pump starting tank and fuel bypass valve in reverse numerical sequence shown in figure 3-87. Install a new gasket.

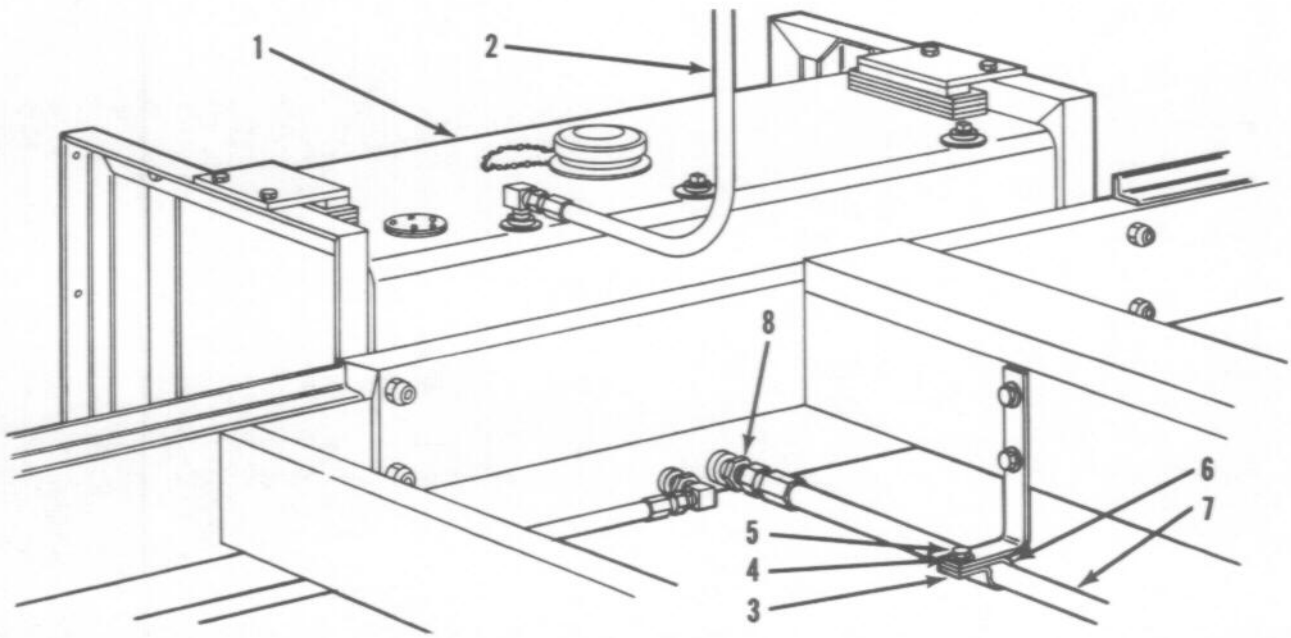
e. Installation.

(1) Install fuel pump starting tank as shown in figure 3-86.

(2) Install primary fuel filter assembly (para 3-97).

3-100. Fuel Lines and Fittings

a. Removal. Remove fuel lines and fittings by following numerical sequence shown in figure 3-88.



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1.Fuel tank (ref)
3. Hose assembly
3. Nut
4. Washer
5. Bolt
6. Hose clip
7. Hose assembly
8. Connector (2)
9. dscrew (2)
10. Lockwasher (2)
11. Hose clip (2)
12. Hose assembly
13. Hose assembly
14. Connector
15. Elbow
16. Fuel priming pump (ref)
17. Hose assembly
8. Hose assembly
19. Primary fuel filter (ref)
20. Elbow (2)
21. Fuel transfer pump (ref)
22. Connector (2)
23. Connector
24. Bolt (4)
25. Nut (4)
26. Lockwasher (4)
27. Clip (4)
28. Fuel line (6)
29. Fuel injection valve (ref)
30. Fuel injection pump housing (ref)
31. Elbow
32. Hose assembly
33. Tube assembly (2)
34. Connector (4)
35. Final fuel filter (ref)

Figure 3-88. Fuel lines and fittings, removal and installation (sheet 1 of 4).

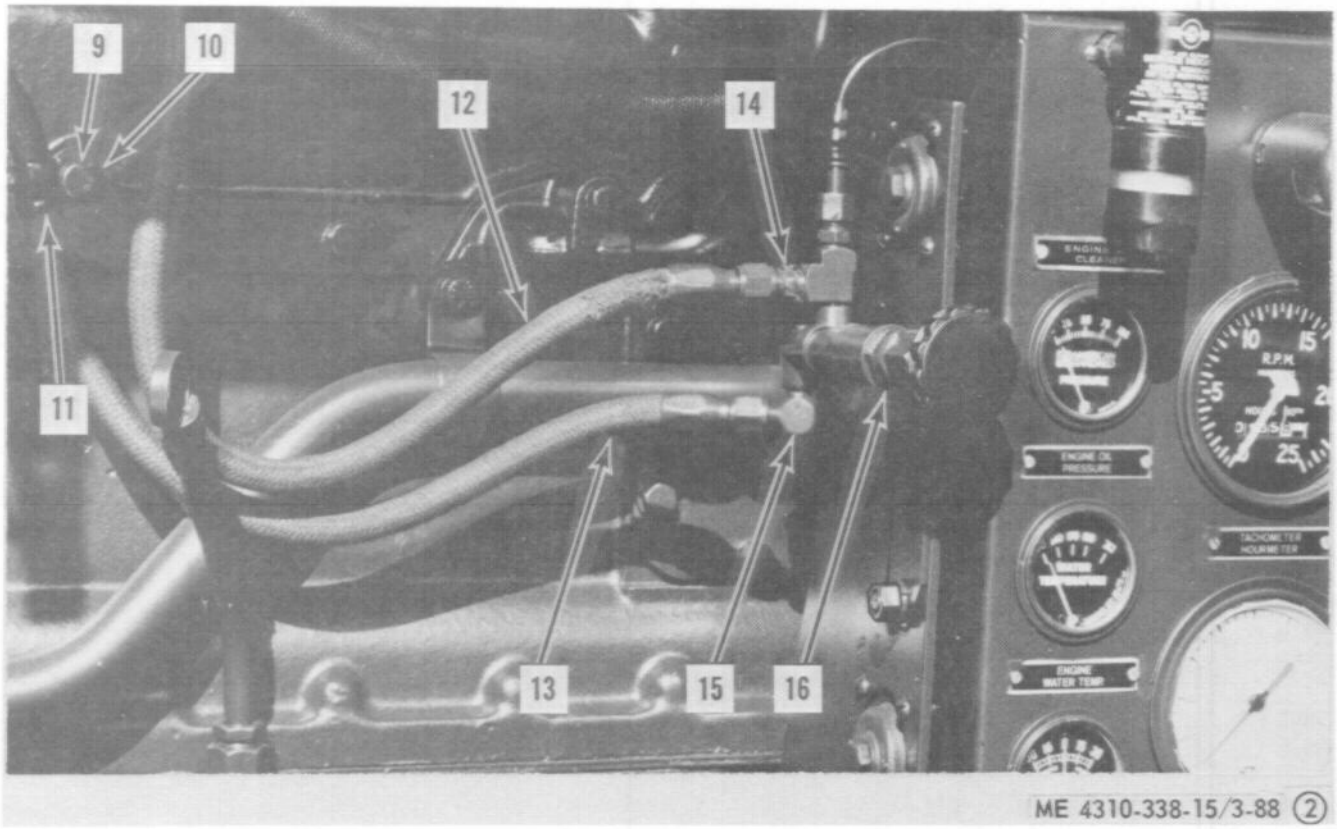


Figure 3-88. Fuel lines and fittings, removal and installation (sheet 2 of 4).

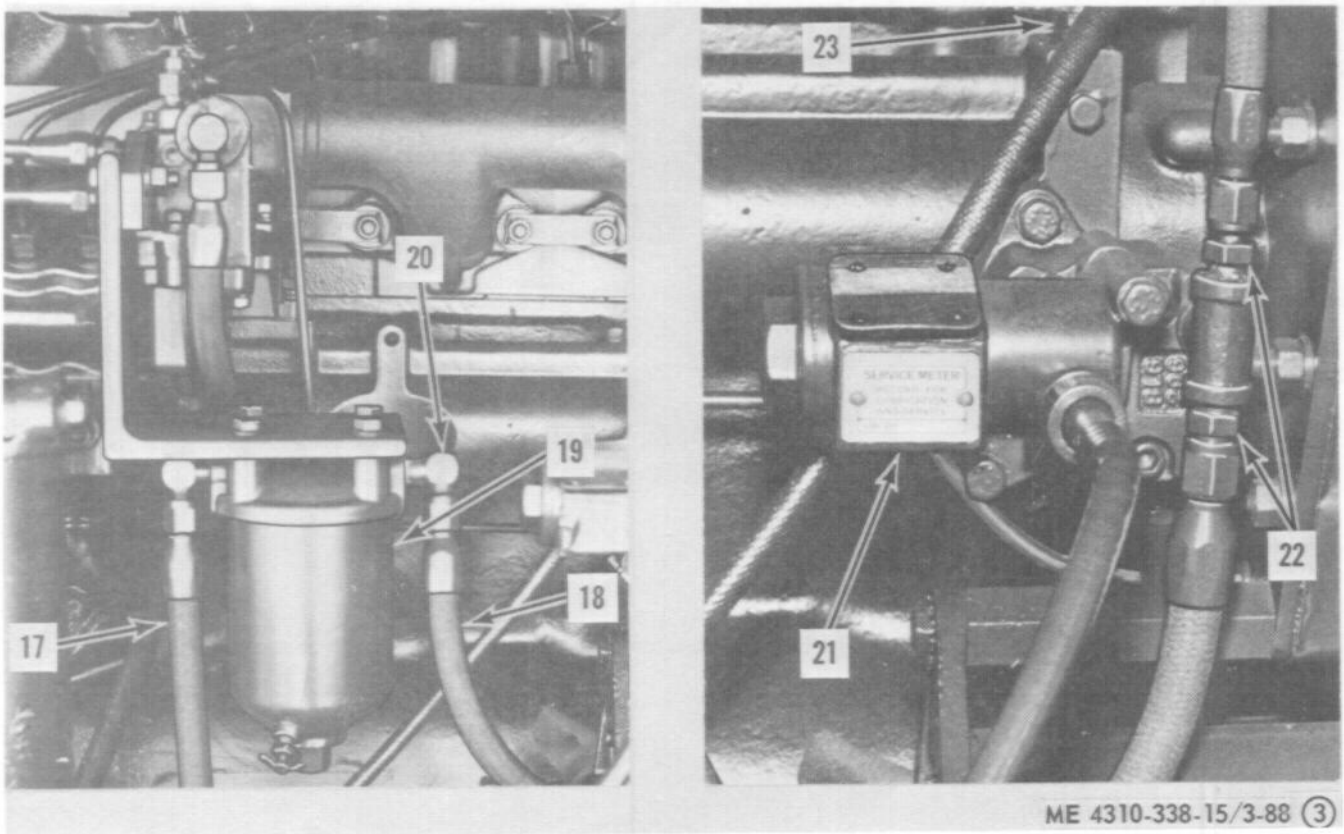
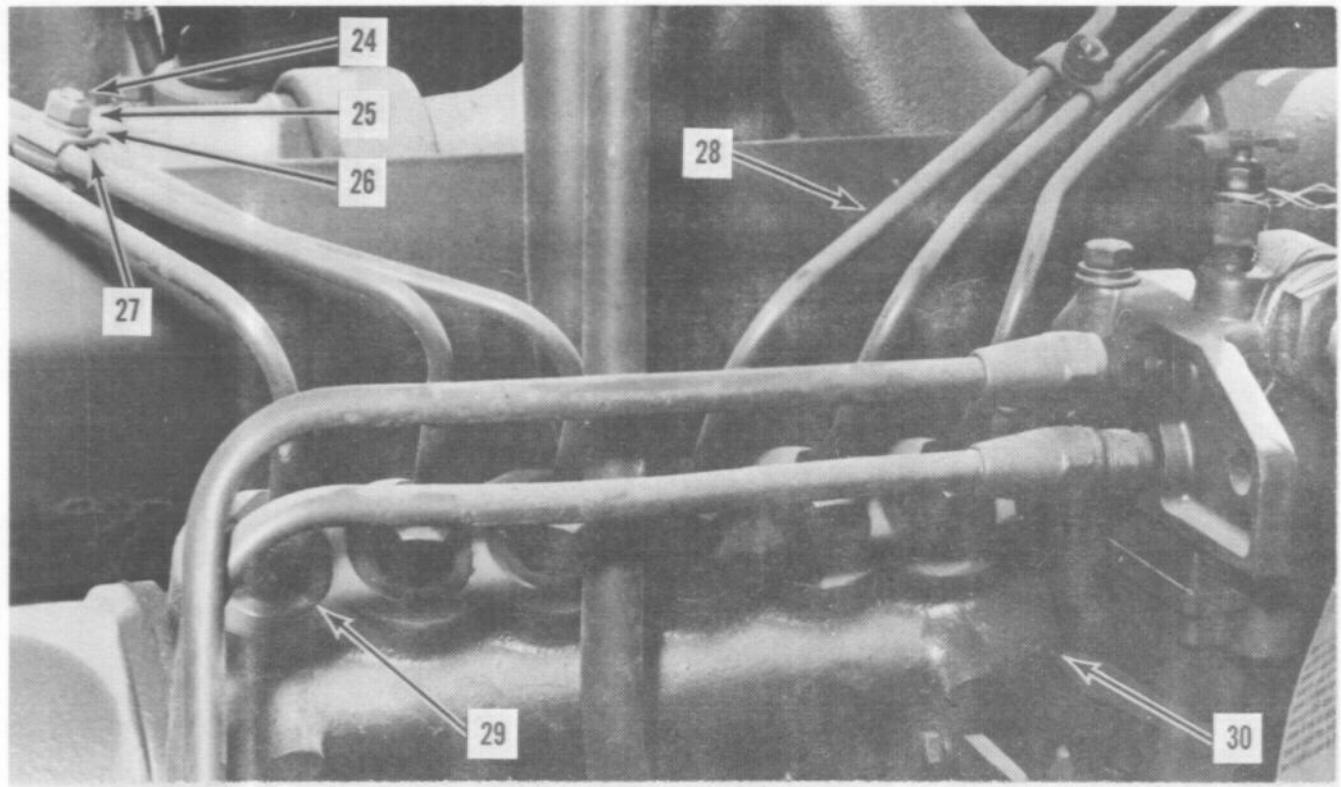
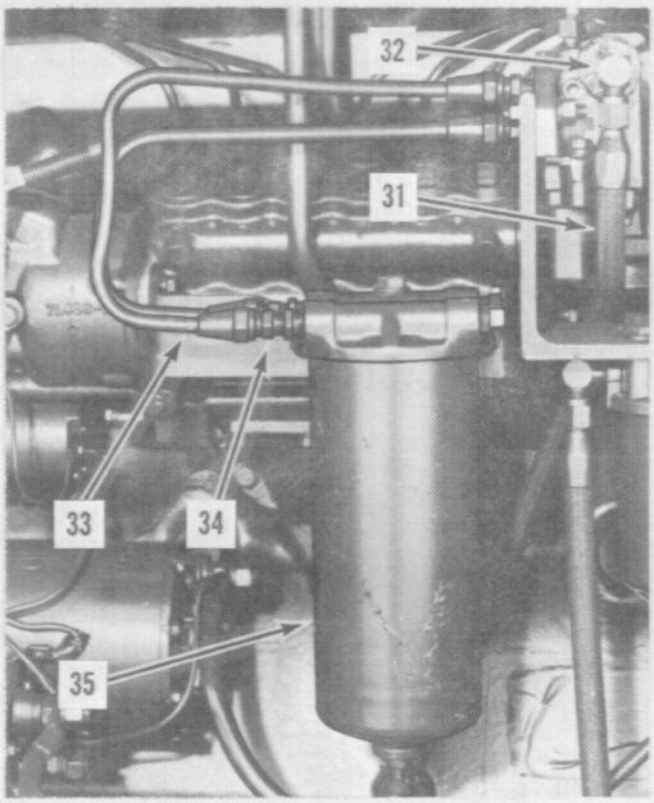


Figure 3-88. Fuel lines and fittings, removal and installation (sheet 3 of 4).





ME 4310-338-15/3-88 (4)

Figure 3-88. Fuel lines and fittings, removal and installation (sheet 4 of 4).

b. Cleaning and Inspection.

(1) Clean all parts using a cleaning solvent that is in accordance with Federal specification P-D-680. Dry parts thoroughly.

(2) Inspect lines and fittings for cracks, breaks, distortion, kinks, or any other defect.

(3) Inspect all other attaching hardware and threaded parts for damaged threads, cracks, breaks, distortion, or any other defect.

c. Installation. Install fuel lines and fittings by following reverse numerical sequence shown in figure 3-88.

Section XV. ENGINE ELECTRICAL SYSTEM

3-101. General

The engine 24-volt electrical system consists of a generator, generator regulator, starting motor, and four batteries. The generator restores electrical energy to the batteries and supplies electrical power to meet the load demands of the engine and accessories when the air compressor unit is operating. The batteries supply power to the starting motor and to the electrical accessories when the unit is not operating. The generator regulator opens and closes the charging circuit, prevents overcharging of the batteries and damaging high voltage in the system, and maintains the generator output within its rated limits. The starting motor engages the gear ring on the flywheel and turns the engine over for starting.

3-102. Generator Assembly

a. Removal.

(1) Disconnect battery cables.

(2) Remove shielded cable from generator assembly.

(3) Remove generator assembly as shown in figure 3-89.

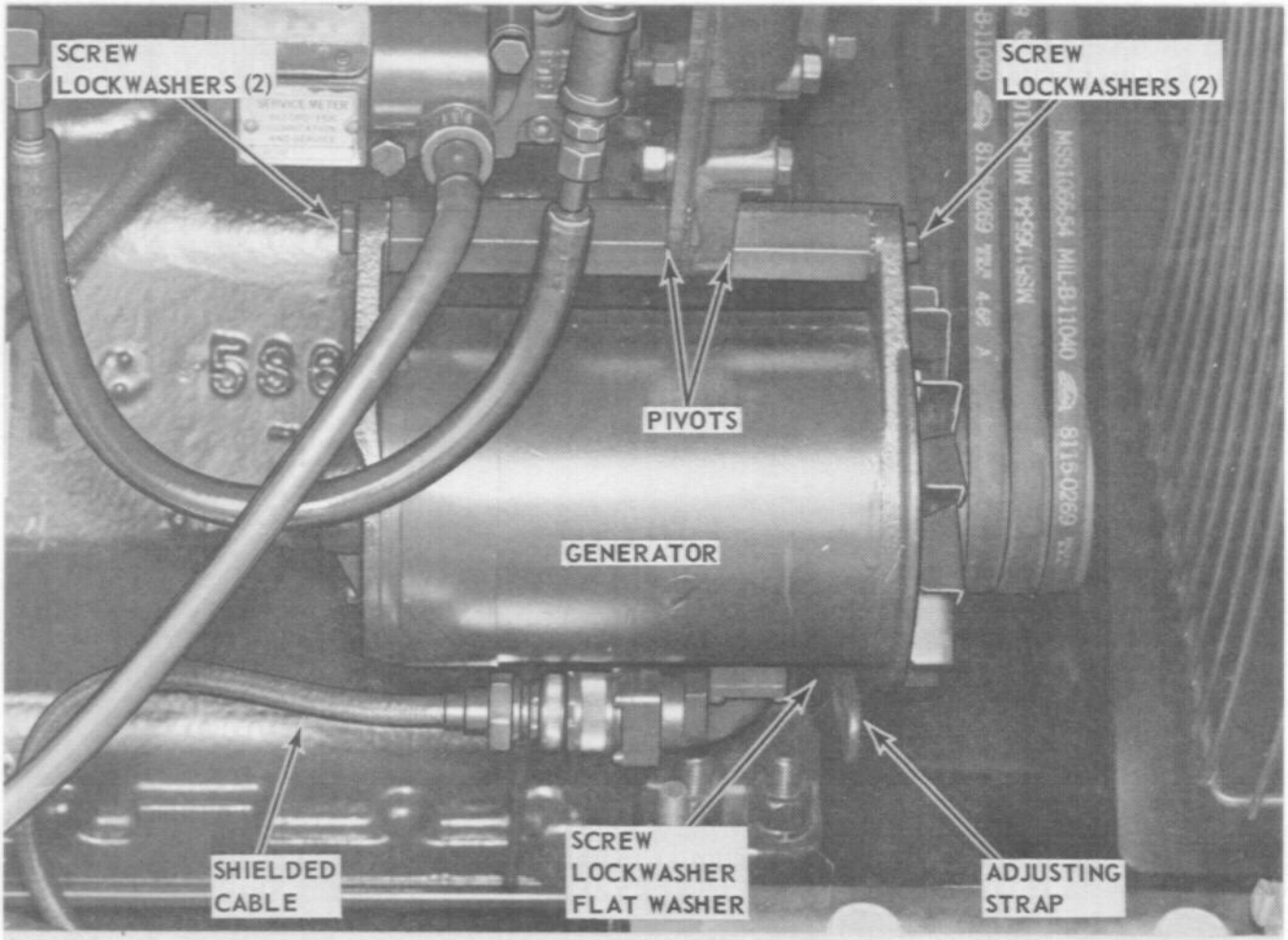
b. Cleaning and Inspection.

(1) Clean exterior surfaces of generator assembly using a cleaning solvent that is in accordance with Federal specification P-D-680. Dry generator thoroughly. Blow dust and dirt out of inside of generator using dry compressed air.

(2) Inspect brushes for excessive wear, cracks, or any other defect. Replace brushes as a set.

(3) Inspect drive belts for cracks, wear, or any other defect.

(4) Inspect attaching hardware for damaged threads, cracks, distortion, or any other defect.



ME 4310-338-15/3-89

REMOVAL

STEP 1. DISCONNECT SHIELDED CABLE.

STEP 2. REMOVE SCREW, LOCKWASHER, AND FLAT WASHER FROM ADJUSTING STRAP.

STEP 3. REMOVE SCREWS AND LOCKWASHERS FROM PIVOTS. REMOVE GENERATOR.

INSTALLATION

STEP 1. POSITION GENERATOR ON PIVOTS AND INSTALL SCREWS AND LOCKWASHERS.

STEP 2. INSTALL SCREW, LOCKWASHER, AND FLAT WASHER ON ADJUSTING STRAP.

STEP 3. CONNECT SHIELDED CABLE.

Figure 3-89. Generator assembly; removal and installation.

c. Installation.

(1) Install generator assembly as shown in figure 3-89.

(2) Adjust drive belt tension (fig. 3-47).

(3) Connect shielded cable to generator assembly.

(4) Connect battery cables.

CAUTION

Failure to polarize generator may result in damage to generator and generator regulator since reversed generator polarity causes arcing and burning of cutout relay contact points and subsequent generator motoring.

(5) Polarize generator before engine is started. To achieve polarization, disconnect cable from generator. Momentarily touch a jumper wire from positive side of batteries to field terminal (B) on generator. Reconnect cable to generator.

3-103. Generator Pulley

a. Removal.

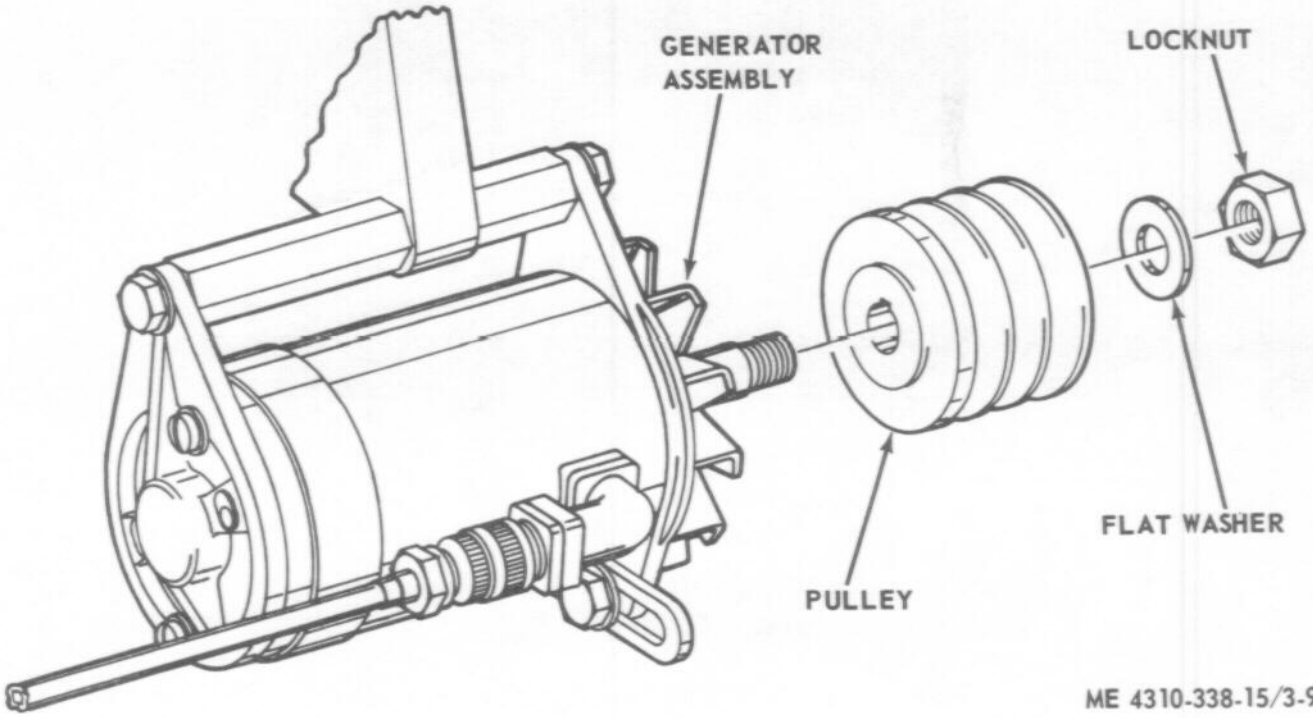
(1) Remove drive belts (para 3-72).

(2) Remove generator pulley as shown in figure 3-90.

b. Installation.

(1) Install generator pulley as shown in figure 3-90.

(2) Install and adjust drive belts (para 3-72).



REMOVAL

REMOVE LOCKNUT AND FLAT WASHER AND REMOVE GENERATOR PULLEY.

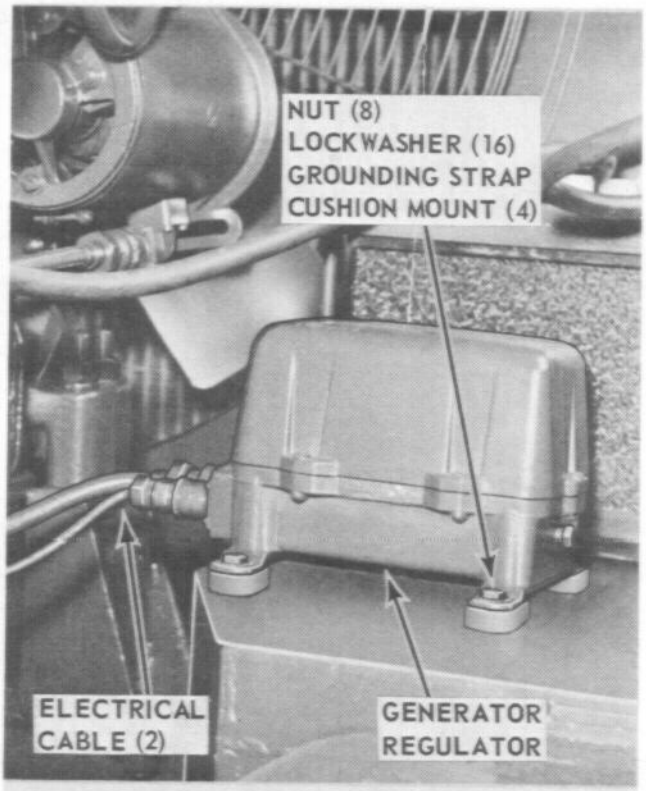
INSTALLATION

PLACE GENERATOR PULLEY IN MOUNTING POSITION AND SECURE WITH LOCKNUT AND FLAT WASHER.

Figure 3-90. Generator pulley; removal and installation.

3-104. Generator Regulator Assembly

a. Removal. Remove generator regulator assembly as shown in figure 3-91.



REMOVAL

STEP 1. DISCONNECT ELECTRICAL CABLES.

STEP 2. REMOVE NUTS, LOCKWASHERS, GROUNDING STRAP, AND CUSHION MOUNTS. REMOVE GENERATOR REGULATOR.

INSTALLATION

STEP 1. POSITION GENERATOR REGULATOR. INSTALL NUTS, LOCKWASHERS, GROUNDING STRAP, AND CUSHION MOUNTS.

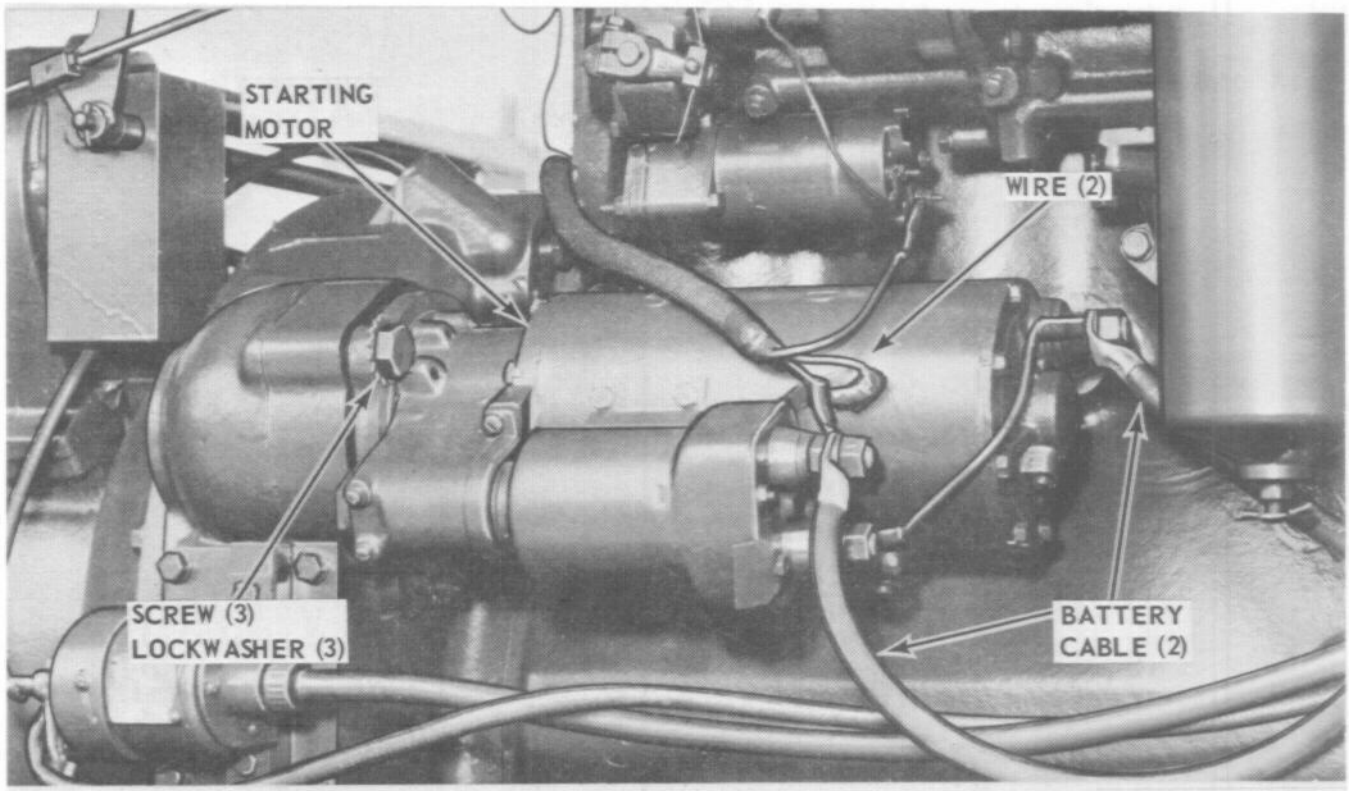
STEP 2. CONNECT ELECTRICAL CABLES.

Figure 3-91. Generator regulator assembly; removal and installation.

b. Installation. Install generator regulator assembly as shown in figure 3-91.

3-105. Starting Motor Assembly

a. Removal. Remove starting motor assembly as shown in figure 3-92.



ME 4310-338-15/3-92

REMOVAL

STEP 1. DISCONNECT GROUND CABLE FROM BATTERY.

STEP 2. DISCONNECT WIRING HARNESS WIRES.

STEP 3. DISCONNECT BATTERY CABLES.

STEP 4. REMOVE SCREWS AND LOCKWASHERS. REMOVE STARTING MOTOR.

INSTALLATION

STEP 1. PLACE STARTING MOTOR IN MOUNTING POSITION AND SECURE WITH SCREWS AND LOCKWASHERS.

STEP 2. CONNECT BATTERY CABLES.

STEP 3. CONNECT WIRING HARNESS WIRES.

STEP 4. CONNECT BATTERY GROUND CABLE.

Figure 3-92. Starting motor assembly; removal and installation

b. Cleaning and Inspection.

(1) Clean exterior surfaces of starting motor using a cleaning solvent that is in accordance with Federal specification P-D-680. Dry starting motor thoroughly. Blow dust or dirt out of inside of starting motor using dry compressed air. Discard mounting gasket.

(2) Inspect clutch for chipped or cracked teeth, distortion, or any other defect.

(3) Inspect attaching hardware for damaged threads, distortion, breaks, or any other defect.

(4) Inspect brushes and springs for excessive wear, cracks, or any other defect.

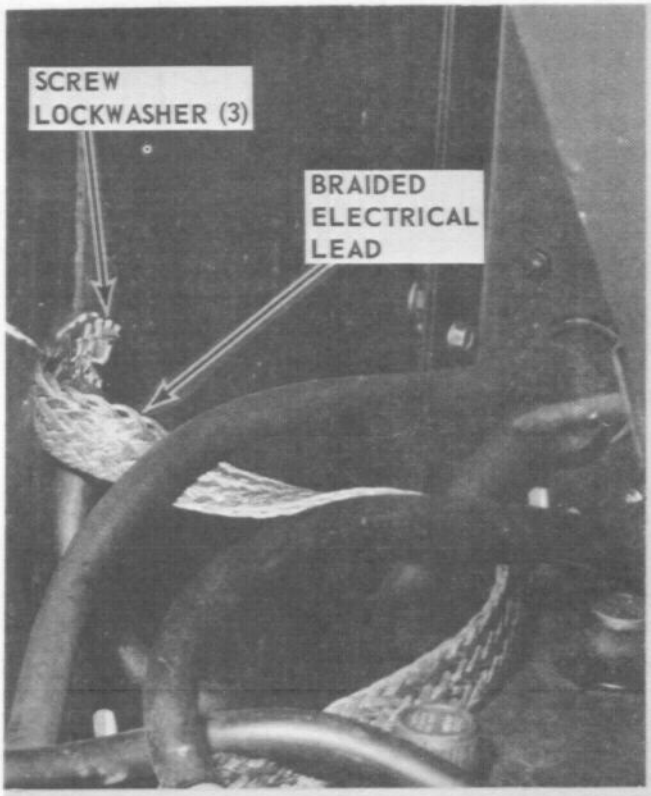
c. Installation. Install starting motor assembly as shown in figure 3-92. Install new gasket.

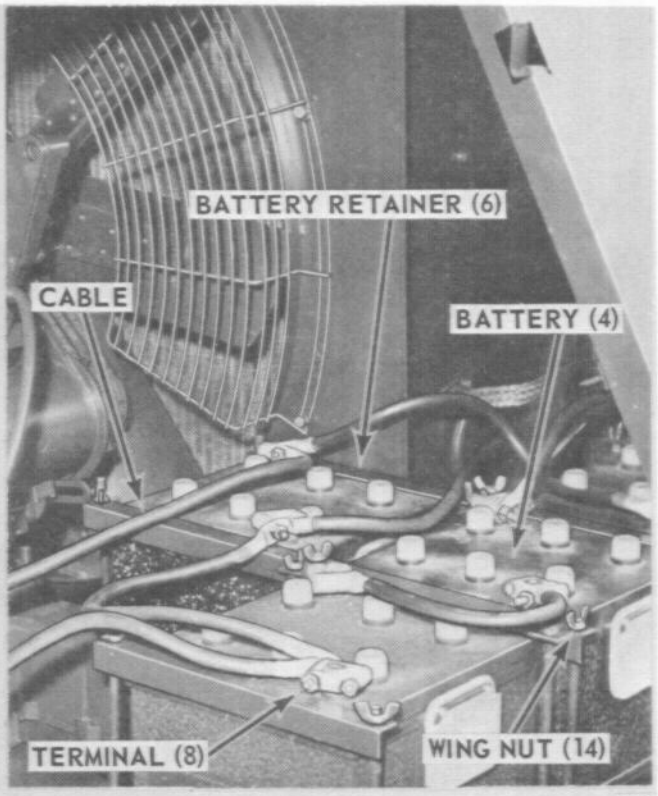
3-106. Batteries and Cables

WARNING

Do not smoke or allow open flames near charging batteries. Serious injury from explosion and acid may result. Avoid spilling electrolyte on clothing or flesh; acid causes severe burns.

a. Removal. Remove batteries and cables as shown in figure 3-93.





ME 4310-338-15/3-93 (1)

REMOVAL

STEP 1. REMOVE SCREW AND LOCKWASHERS FROM BRAIDED ELECTRICAL LEAD. REMOVE LEAD.

STEP 2. LOOSEN BATTERY TERMINAL BOLTS AND NUTS. REMOVE CABLES AND TERMINALS FROM BATTERIES. REMOVE CABLES FROM TERMINALS.

STEP 3. REMOVE NUTS AND WASHERS FROM STARTING MOTOR. REMOVE CABLES.

STEP 4. REMOVE WING NUTS AND BATTERY RETAINERS. REMOVE BATTERIES.

INSTALLATION

STEP 1. INSTALL BATTERIES ON TRAY. INSTALL BATTERY RETAINERS AND SECURE WITH WING NUTS.

STEP 2. INSTALL CABLES AND TERMINALS ON BATTERY POSTS (SEE FIG. 1-3). SECURE WITH BOLTS AND NUTS.

STEP 3. INSTALL CABLES ON STARTING MOTOR AND SECURE WITH NUTS AND WASHERS.

STEP 4. SECURE BRAIDED ELECTRICAL LEAD AND BATTERY CHARGING RECEPTACLE LEAD TO GROUND USING SCREW AND LOCKWASHERS.

Figure 3-93. Batteries and cables, removal and installation (sheet 1 of 2)

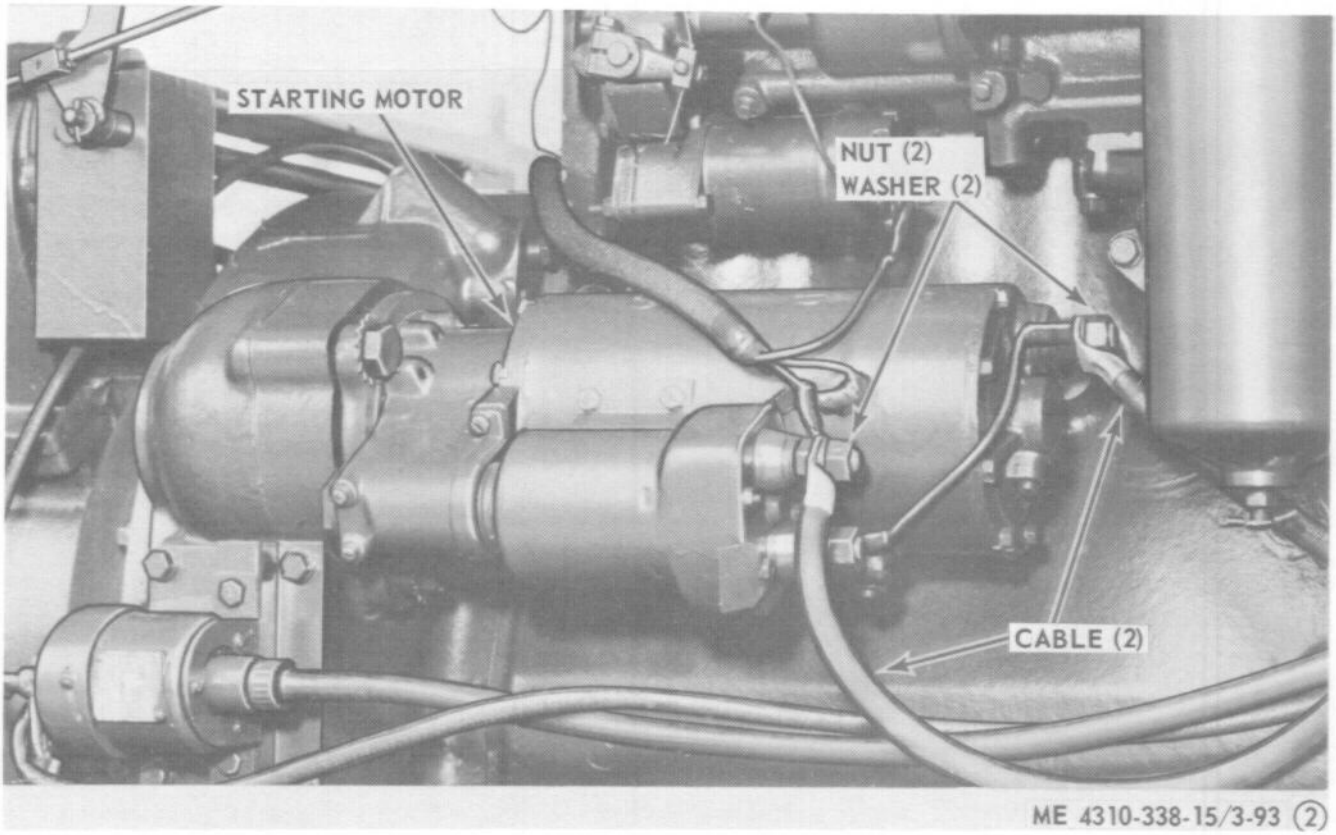


Figure 3-93 Batteries and cables; removal and installation (sheet 2 of 2).

b. Cleaning, Inspection, and Testing.

(1) Clean batteries and cables using a clean cloth dampened with a cleaning solvent that is in accordance with Federal specification P-D-680. Dry parts thoroughly.

(2) Refer to TM 9-6140-200-15 and test batteries.

(3) Inspect batteries for cracks, loose posts, or any other defect.

(4) Inspect cables for wear, loose lugs, corrosion, or any other defect.

(5) Perform hydrometer test (para 2-1).

c. Installation. Install batteries and cables as shown in figure 3-93.

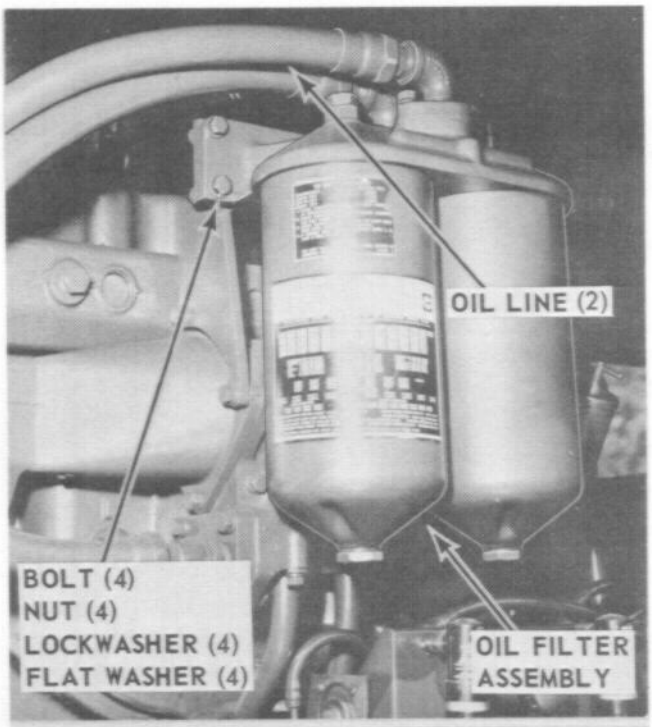
Section XVI. ENGINE LUBRICATING SYSTEM

3-107. General

The engine lubricating system consists of a gear-type oil pump, the oil filter assembly, oil cooler, oil filler and crankcase breather, and associated lines and fittings. The oil pump draws oil from the oil pan and supplies lubrication, under pressure, throughout the engine. Most of the contamination that is picked up by the oil as it passes through the engine is removed by the oil filter. Depending on oil temperature, the oil coming out of the filter is routed either into the engine, or through the oil cooler, then into the engine. Engine lubricant flowing through the oil cooler serves to cool the lubricating oil. When the engine is running, the crankcase breather permits air movement within the lubricating system. Fumes from the crankcase are dispersed to the atmosphere through a tube connected to the breather.

3-108. Engine Oil Filter Assembly

a. Removal. Remove engine oil filter assembly as shown in figure 3-94.



REMOVAL

STEP 1. DISCONNECT OIL LINES.

STEP 2. REMOVE BOLTS, FLAT WASHERS, LOCKWASHERS, AND NUTS. REMOVE OIL FILTER.

INSTALLATION

STEP 1. POSITION OIL FILTER AND INSTALL BOLTS, FLAT WASHERS, LOCKWASHER, AND NUTS.

STEP 2. CONNECT OIL LINES.

Figure 3-94. Engine oil filter assembly; removal and installation

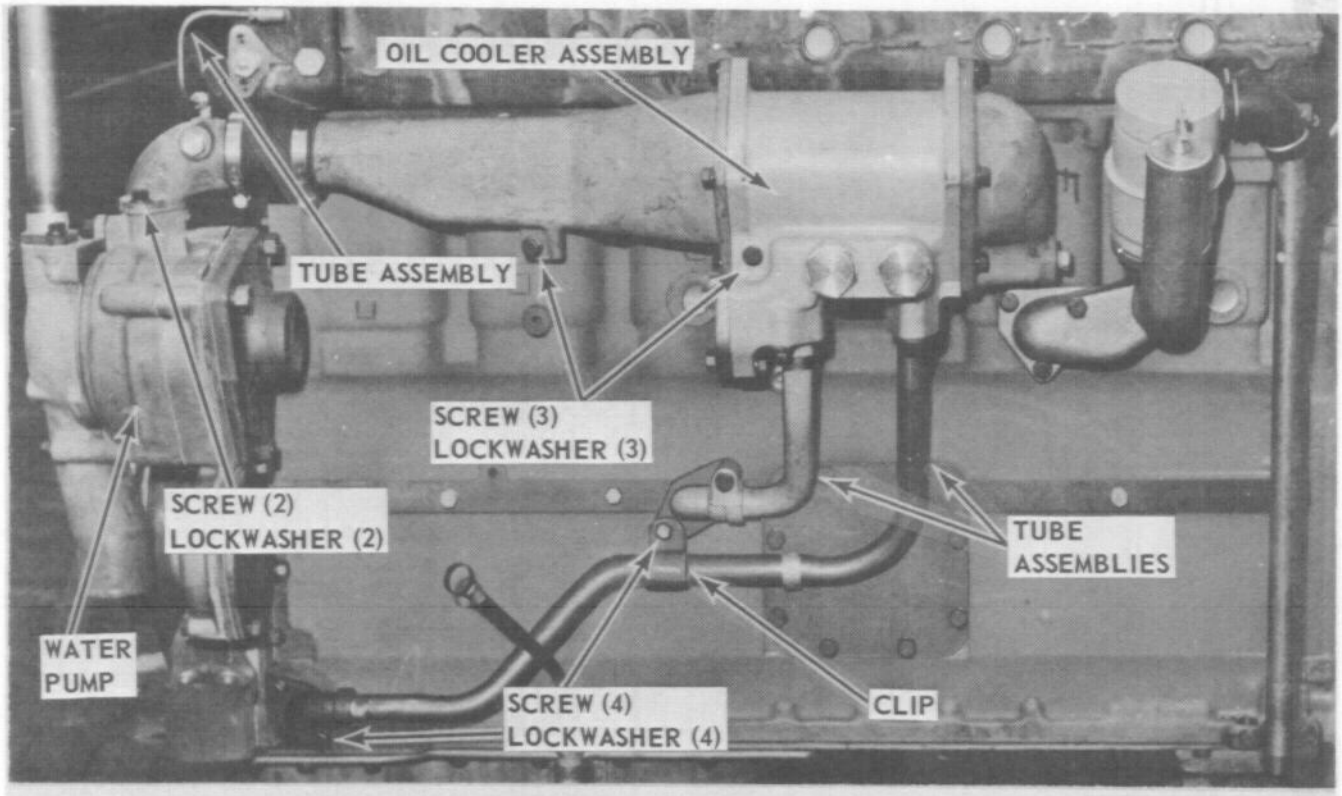
b. Installation. Install engine oil filter assembly as shown in figure 3-94.

3-109. Engine Oil Cooler Assembly

a. Removal.

(1) Remove engine oil filter assembly (para 3-108).

(2) Remove engine oil cooler assembly as shown in figure 3-95.



ME 4310-338-15/3-95

REMOVAL

STEP 1. REMOVE TUBE ASSEMBLY FROM ELBOW AND ENGINE.

STEP 2. REMOVE SCREWS AND LOCKWASHERS SECURING ELBOW TO WATER PUMP.

STEP 3. REMOVE SCREWS AND LOCKWASHERS SECURING TUBE ASSEMBLIES TO ENGINE. REMOVE CLIP.

STEP 4. REMOVE SCREWS AND LOCKWASHERS SECURING OIL COOLER TO ENGINE. REMOVE OIL COOLER.

INSTALLATION

STEP 1. PLACE OIL COOLER IN MOUNTING POSITION AND SECURE WITH SCREWS AND LOCKWASHERS.

STEP 2. INSTALL CLIP. SECURE TUBE ASSEMBLIES USING SCREWS AND LOCKWASHERS.

STEP 3. SECURE ELBOW TO WATER PUMP USING SCREWS AND LOCKWASHERS.

STEP 4. INSTALL TUBE ASSEMBLY.

Figure 3-95. Engine oil cooler assembly; removal and installation

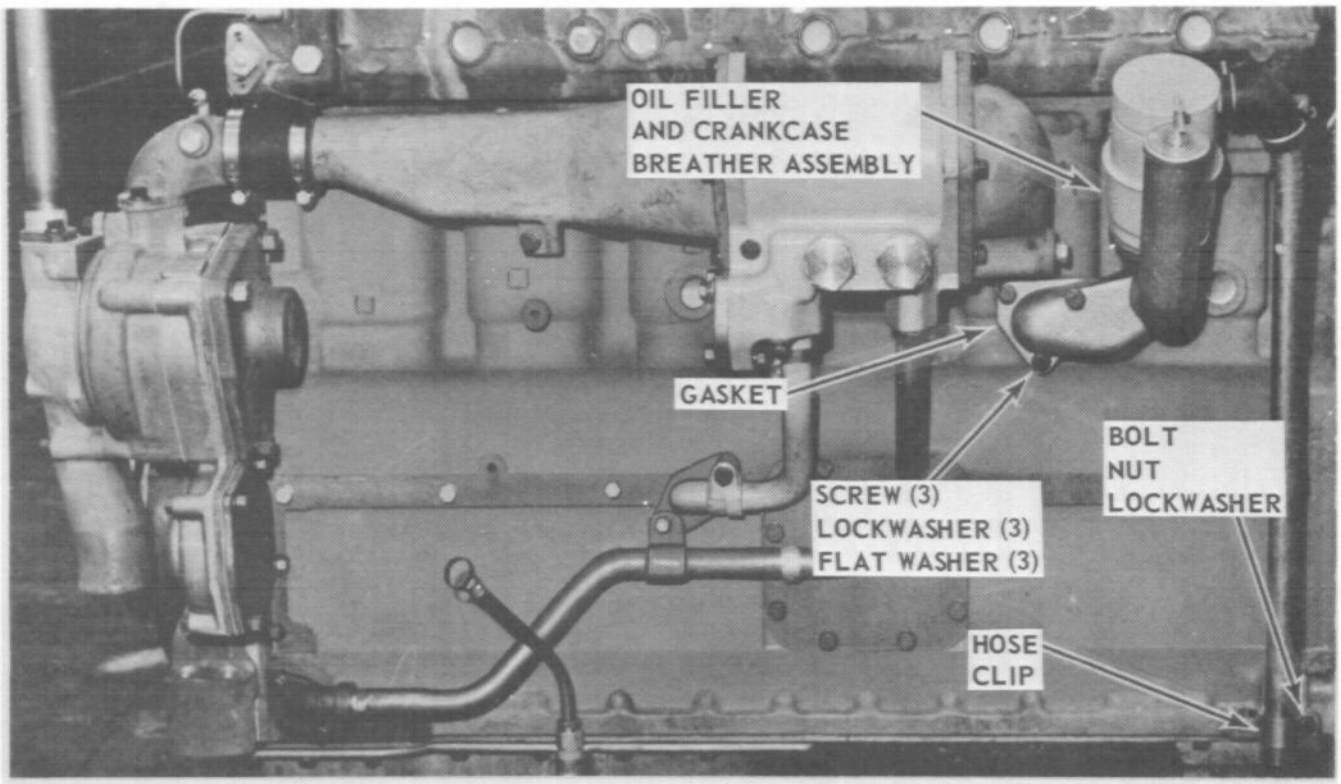
b. Installation.

(a) Install engine oil cooler assembly as shown in figure 3-95.

(2) Install engine oil filter assembly (para 3-108).

3-110. Oil Filler and Crankcase Breather Assembly

a. Removal. Remove oil filler and crankcase breather assembly as shown in figure 3-96.



ME 4310-338-15/3-96

REMOVAL

STEP 1. REMOVE BOLT, NUT, AND LOCKWASHER FROM HOSE CLIP. REMOVE HOSE CLIP.

STEP 2. REMOVE SCREWS, LOCKWASHERS, AND FLAT WASHERS FROM ASSEMBLY. REMOVE OIL FILLER AND CRANKCASE BREATHER ASSEMBLY. REMOVE GASKET.

INSTALLATION

STEP 1. INSTALL A NEW GASKET. PLACE OIL FILLER AND CRANKCASE BREATHER ASSEMBLY IN MOUNTING POSITION. SECURE ASSEMBLY WITH SCREWS, LOCKWASHERS, AND FLAT WASHERS.

STEP 2. INSTALL HOSE CLIP AND SECURE WITH BOLT, NUT, AND LOCKWASHER.

Figure 3-96. Oil filler and crankcase breather assembly; removal and installation.

b. Disassembly. Disassemble oil filler and crankcase breather assembly in numerical sequence shown in figure 3-97.

c. Cleaning and Inspection.

(1) Clean all metal parts using a cleaning solvent that is in accordance with Federal specification P-D-680. Dry parts thoroughly.

(2) Clean breather element in clean diesel fuel and dry thoroughly.

(3) Inspect all parts for cracks, breaks, distortion, or any other defect.

d. Reassembly. Reassemble oil filler and crankcase breather assembly in reverse numerical sequence shown in figure 3-97.

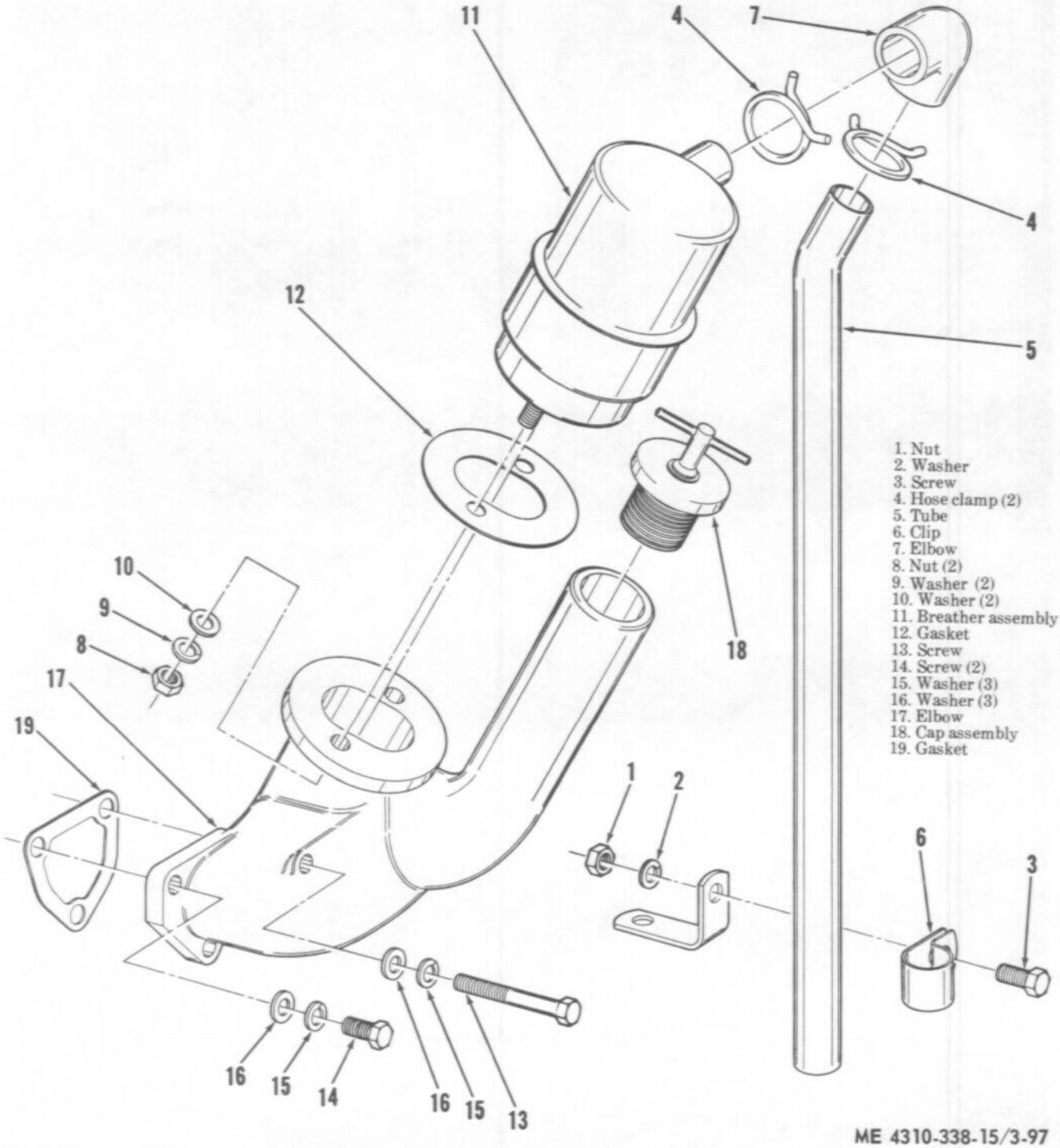


Figure 3-97. Oil filler and crankcase breather assembly; Disassembly and reassembly.

e. Installation. Install oil filler and crankcase breather assembly as shown in figure 3-96.

3-111. Engine Oil Lines and Fittings

a. Removal. Remove engine oil lines and fittings by following numerical sequence shown in figure 3-98.

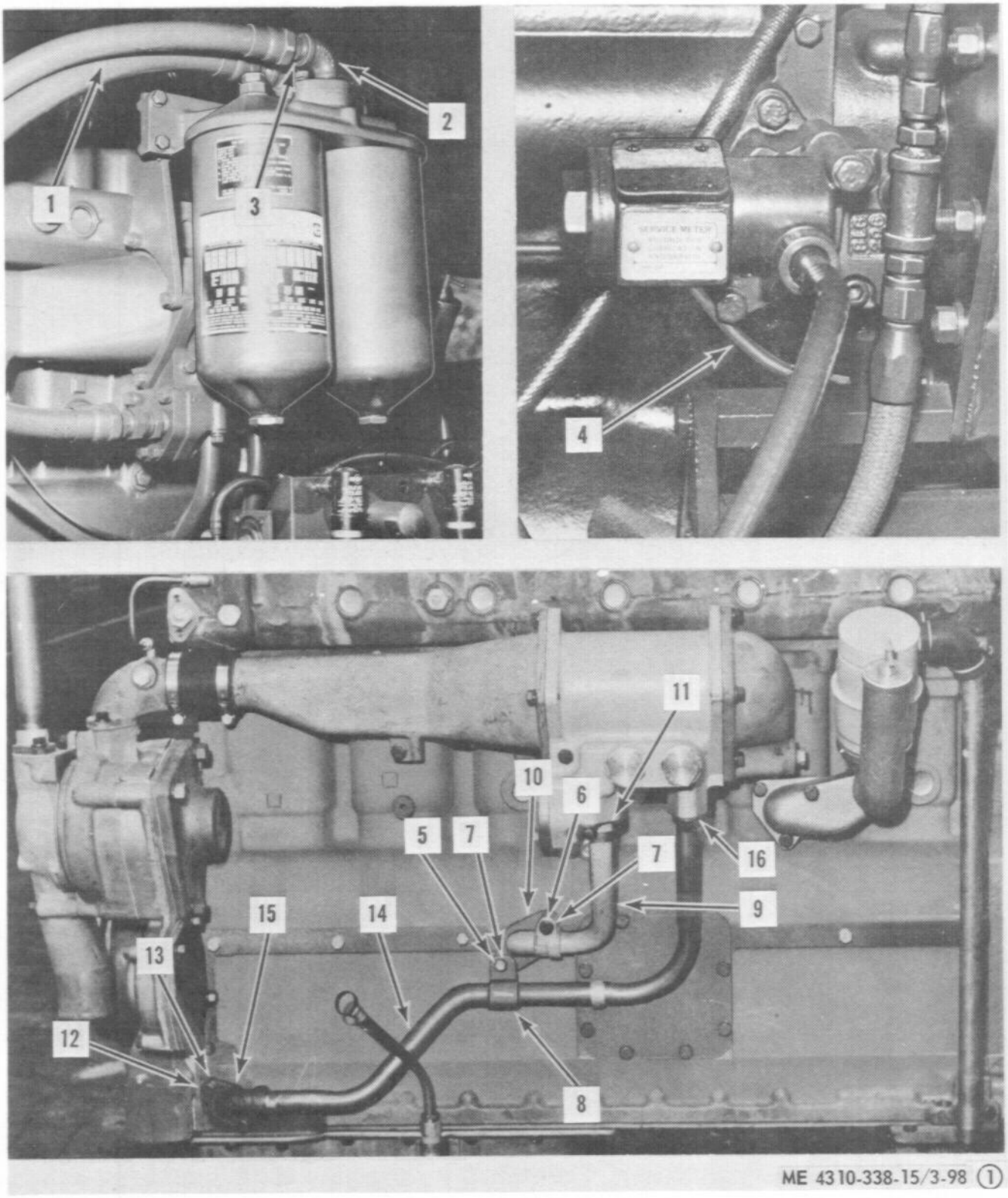
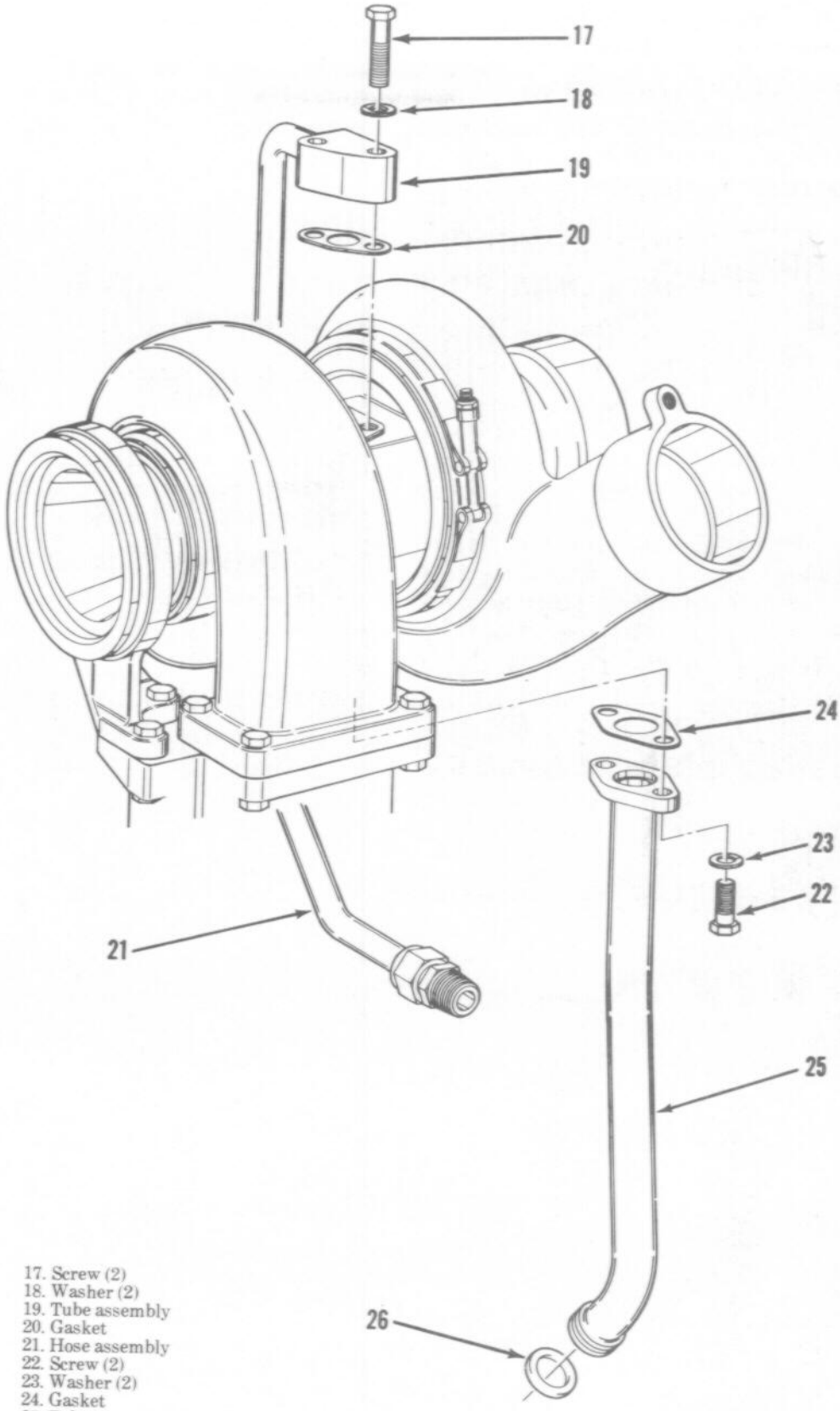


Figure 3-98. Engine oil lines and fittings removal and installation (sheet 1 of 2).



1. Hose assembly (2)
2. Elbow (2)
3. Connector (2)
4. Tube assembly
5. Screw
6. Screw
7. Washer (2)
8. Hose clip
9. Tube assembly
10. Gasket
11. O-Ring
12. Screw (2)
13. Washer (2)
14. Tube assembly
15. Gasket
16. O-Ring
17. Screw (2)
18. Washer (2)
19. Tube assembly
20. Gasket
21. Hose assembly
22. Screw (2)
23. Washer (2)
24. Gasket
25. Tube assembly
26. O-Ring

Figure 3-98. Engine oil lines and fitting, removal and installation (sheet 2 of 2).

b. Cleaning and Inspection.

(1) Clean all parts using a cleaning solvent that is in accordance with Federal specification P-D-680. Dry parts thoroughly.

(2) Inspect lines and fittings for cracks, breaks, distortion, kinks, or any other defects.

(3) Inspect all other attaching hardware and threaded parts for damaged threads, cracks, breaks, distortion, or any other defect.

c. Installation. Install oil lines and fittings by following reverse numerical sequence shown in figure 3-98.

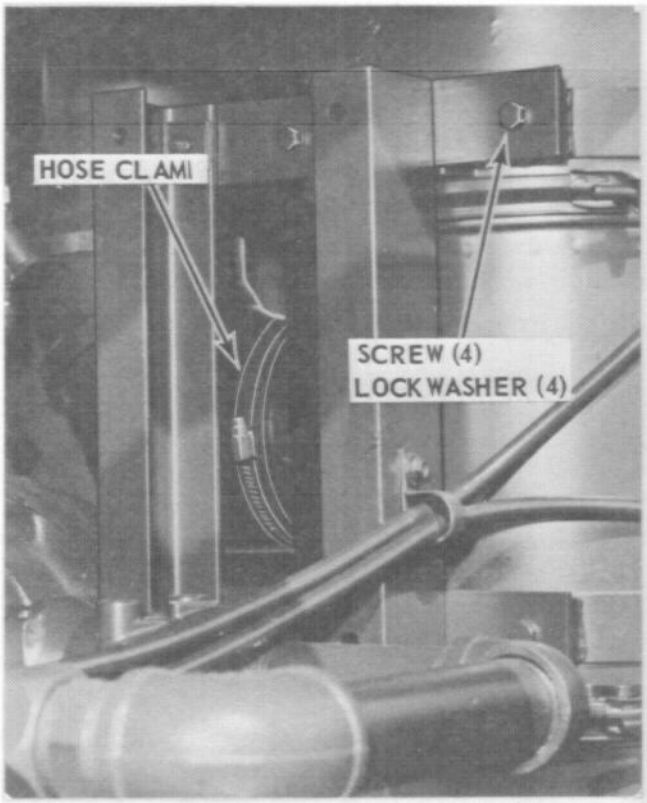
Section XVII. ENGINE INTAKE, EXHAUST, AND VALVE GROUP

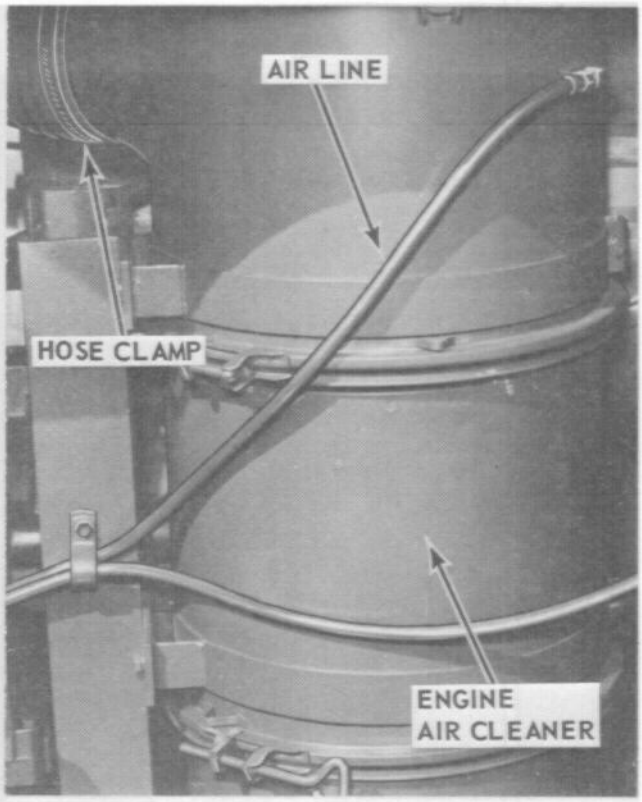
3-112. General

This group consists of the turbocharger assembly, engine air cleaner assembly, exhaust manifold, glow plugs, valve cover, valves, and associated hoses, piping, and caps. The turbocharger, which is driven by the engine exhaust gases, draws ambient air in through the air cleaner, compresses the air, and directs it into the engine intake manifold. The gases from the turbocharger are exhausted through a pipe to atmosphere. The glow plugs preheat the air in the precombustion chambers to promote easier engine starting when the ambient temperature is below $+60^{\circ}$ F. The valves open and close to allow fuel and air into, or exhaust gases out of, each cylinder. The valve cover seals and protects the valves and mechanisms on top of the cylinder head.

3-113. Engine Air Cleaner Assembly

a. Removal. Remove engine air cleaner assembly and cap as shown in figure 3-99.





ME 4310-338-15/3-99

REMOVAL

STEP 1. DISCONNECT RESTRICTION INDICATOR AIR LINE.

STEP 2. LOOSEN HOSE CLAMP AND DISCONNECT INTAKE ELBOW FROM LOWER SECTION OF AIR CLEANER.

STEP 3. LOOSEN HOSE CLAMP AND DISCONNECT INTAKE HOSE FROM UPPER SECTION OF AIR CLEANER.

STEP 4. REMOVE SCREWS AND LOCKWASHERS. REMOVE AIR CLEANER.

INSTALLATION

STEP 1. POSITION AIR CLEANER AND SECURE WITH SCREWS AND LOCKWASHERS.

STEP 2. CONNECT INTAKE ELBOW TO LOWER SECTION OF AIR CLEANER AND SECURE WITH HOSE CLAMP.

STEP 3. CONNECT INTAKE HOSE TO UPPER SECTION OF AIR CLEANER AND SECURE WITH HOSE CLAMP.

STEP 4. CONNECT RESTRICTION INDICATOR AIR LINE.

Figure 3-99. Engine air cleaner assembly; removal and installation.

b. Disassembly, Cleaning, Inspection, and Reassembly. Disassemble, clean, inspect, and reassemble engine air cleaner assembly in the same manner described for the compressor air cleaner assembly (para 3-79).

c. Installation. Install engine air cleaner assembly as shown in figure 3-99.

3-114. Exhaust Pipe and Rain Shield

a. Removal. Remove exhaust pipe and rain shield as shown in figure 3-100.

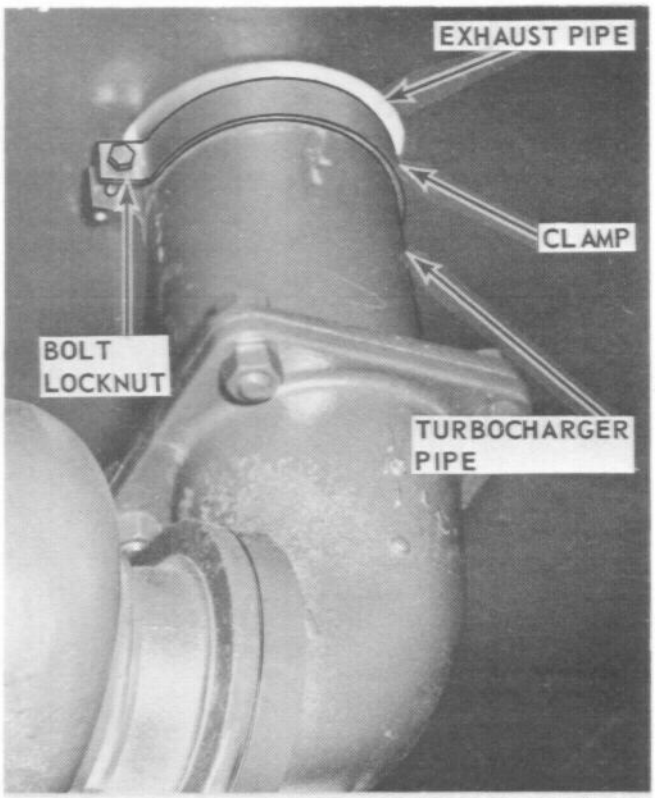
b. Installation. Install exhaust pipe and rain shield as shown in figure 3-100.

3-115. Turbocharger Assembly

a. Removal.

(1) Remove exhaust pipe and rain shield (para 3-114).

(2) Remove turbocharger assembly by following numerical sequence shown in figure 3-101.



ME 4310-338-15/3-100

REMOVAL

STEP 1. REMOVE BOLT, LOCKNUT, AND CLAMP.

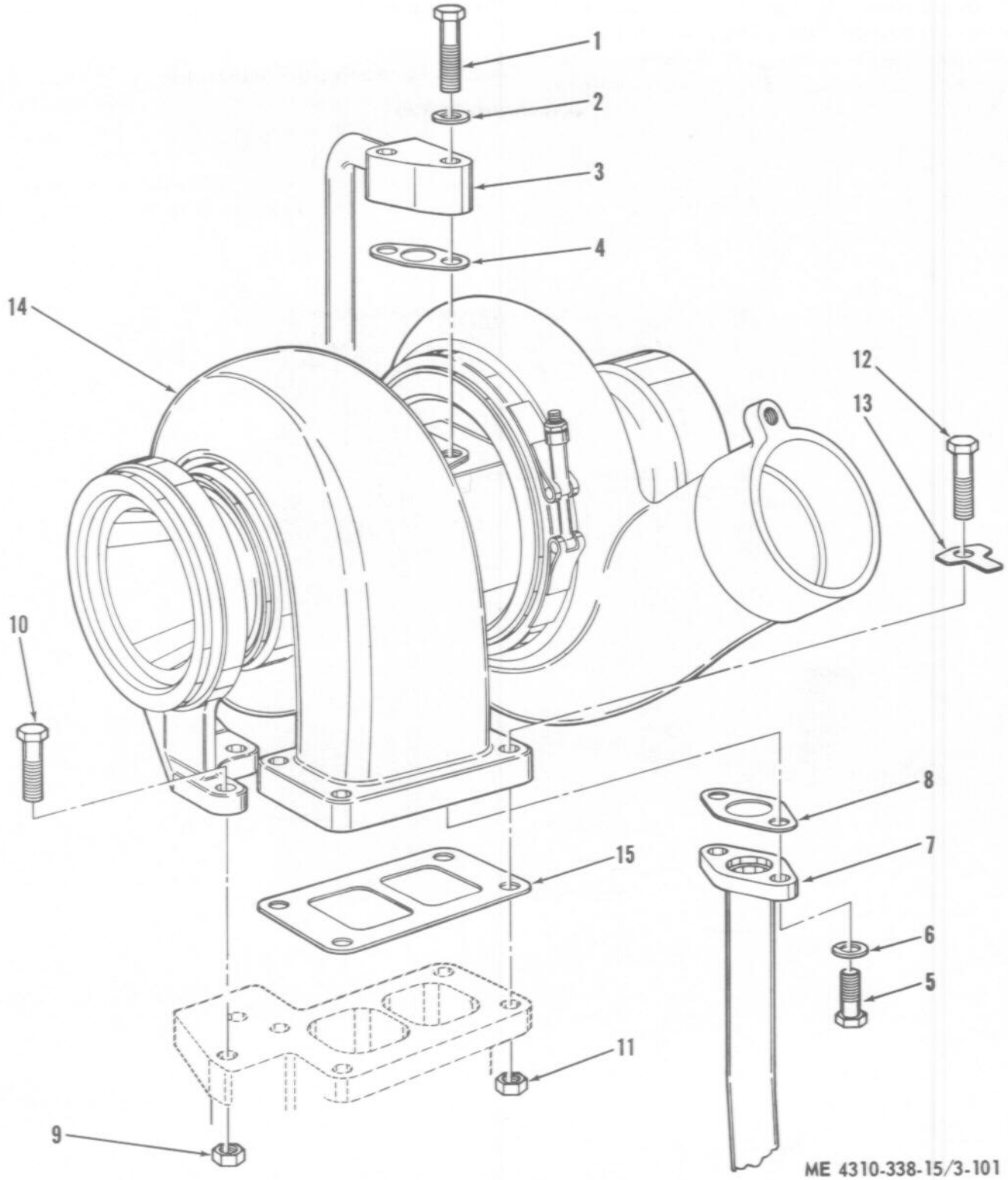
STEP 2. REMOVE EXHAUST PIPE AND RAIN SHIELD FROM TURBOCHARGER PIPE.

INSTALLATION

STEP 1. PLACE EXHAUST PIPE AND RAIN SHIELD ON TURBOCHARGER PIPE.

STEP 2. INSTALL CLAMP AND SECURE WITH BOLT AND LOCKNUT.

Figure 3-100. Exhaust pipe and rain shield; removal and installation.



1. Screw (2)
2. Lockwasher (2)
3. Tube assembly (ref)
4. Gasket
5. Screw (2)
6. Lockwasher (2)
7. Tube assembly (ref)
8. Gasket
9. Nut (2)
10. Bolt (2)
11. Nut (4)
12. Bolt (4)
13. Lock (4)
14. Turbocharger assembly
15. Gasket

Figure 3-101. Turbocharger assembly; removal and installation

b. Installation.

(1) Install turbocharger assembly by following reverse numerical sequence shown in figure 3-101.

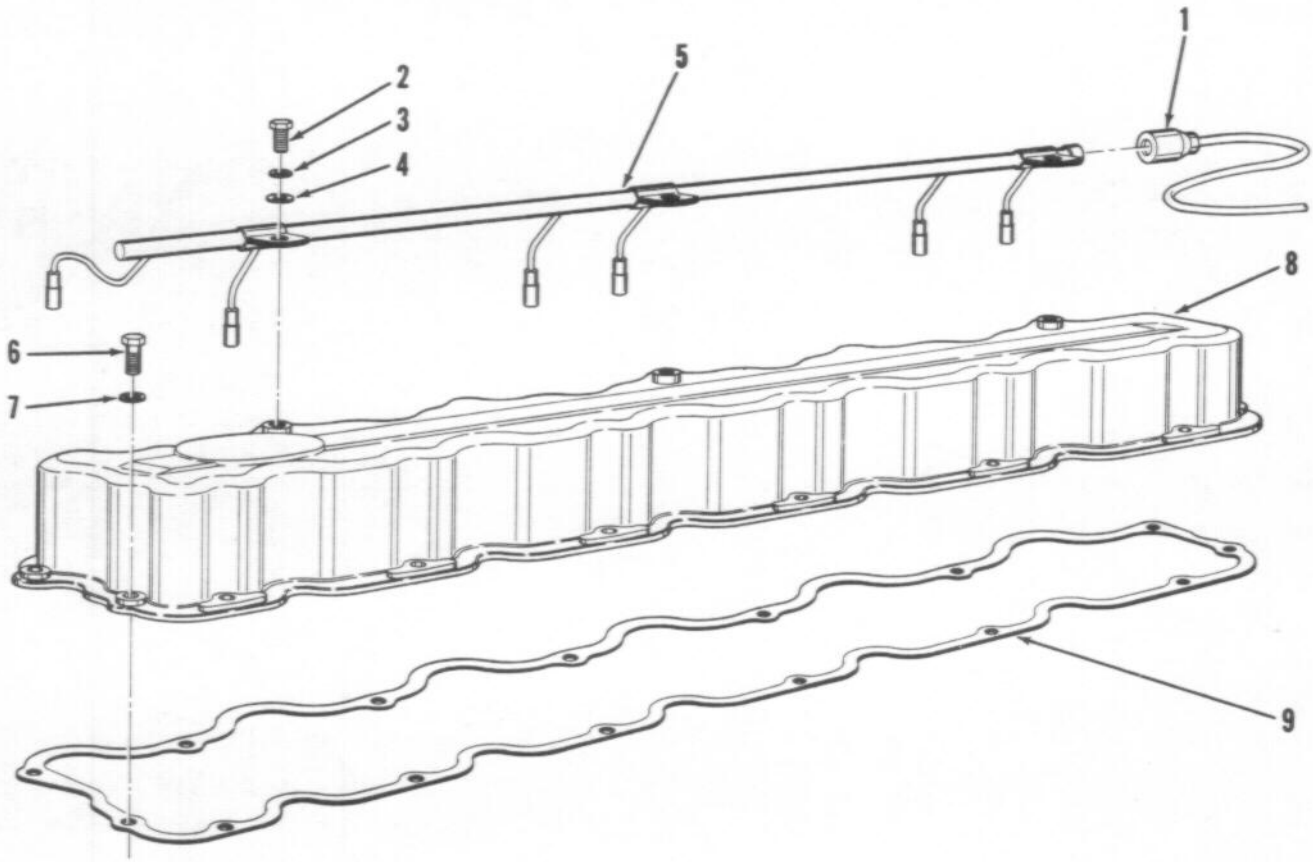
(2) Install exhaust pipe and rain shield (para 3-114).

3-116. Valve Cover

a. Removal.

(1) Remove turbocharger assembly (para 3-115).

(2) Remove valve cover by following numerical sequence shown in figure 3-102. Discard gasket.



1. Plug
2. Screw (3)
3. Lockwasher (3)
4. Flat washer (3)
5. Wire Assembly
6. Screw (15)
7. Lockwasher (15)
8. Valve cover
9. Gasket

Figure 3-102. Valve Cover; Removal and Installation.

b. Cleaning and Inspection.

(1) Clean valve cover using a cleaning solvent that is in accordance with Federal specification P-D-680. Dry cover thoroughly.

(2) Inspect cover for cracks, breaks, distortion or any other defect.

(3) Inspect attaching hardware for damaged threads, cracks, distortion, or any other defect.

c. Installation.

(1) Install valve cover by following reverse numerical sequence shown in figure 3-102. Install a new gasket.

(2) Install turbocharger assembly (para 3-115).

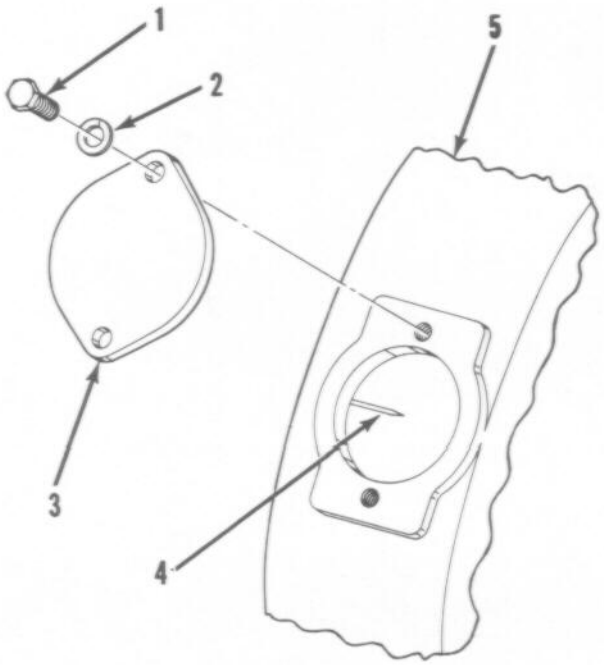
3-117. Intake and Exhaust Valve Adjustment

NOTE

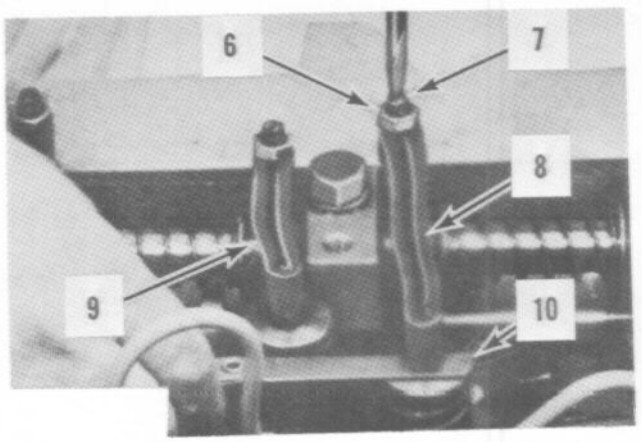
Valve adjustment must be made when engine is cold and not running.

a. Remove valve cover (para 3-116).

b. Remove timing pointer cover from flywheel housing as shown in figure 3-103.



A



ME 4310-338-15/3-103

B

1. Screw (2)
2. Washer (2)
3. Cover
4. Timing pointer
5. Flywheel housing
6. Locknut
7. Adjusting screw
8. Rocker arm (exhaust)
9. Rocker arm (inlet)
10. Thickness gauge

Figure 3-103. Adjusting valve clearance.

c. Rotate crankshaft counterclockwise (as viewed from flywheel end) at least 60°. Continue rotating crankshaft counterclockwise until TC1-6 CYL mark on flywheel is aligned with timing pointer and both the inlet and exhaust valves of cylinder No. 1 are closed.

d. Adjust valves as shown in figure 3-103 and as follows:

(1) Adjust inlet valve clearances for cylinders No. 1, 2 and 4 and exhaust valve clearances for cylinders No. 1, 3 and 5.

(2) Loosen each locknut. Adjust screw and set each inlet valve clearance to 0.015" and each exhaust valve clearance to 0.025".

(3) Tighten each locknut and recheck clearance settings.

e. Rotate crankshaft counterclockwise until TC1-6 CYL mark on flywheel is again aligned with timing pointer but inlet and exhaust valves of cylinder No. 6 are both closed.

f. Adjust valves as shown in figure 3-103 and as follows:

(1) Adjust inlet valve clearances for cylinders No. 3, 5 and 6 and exhaust valve clearances for cylinders No. 2, 4 and 6.

(2) Loosen each locknut. Adjust screw and set each inlet valve clearance to 0.015" and each exhaust valve clearance to 0.025".

(3) Tighten each locknut and recheck clearance settings.

g. Install timing pointer cover on flywheel housing as shown in figure 3-103.

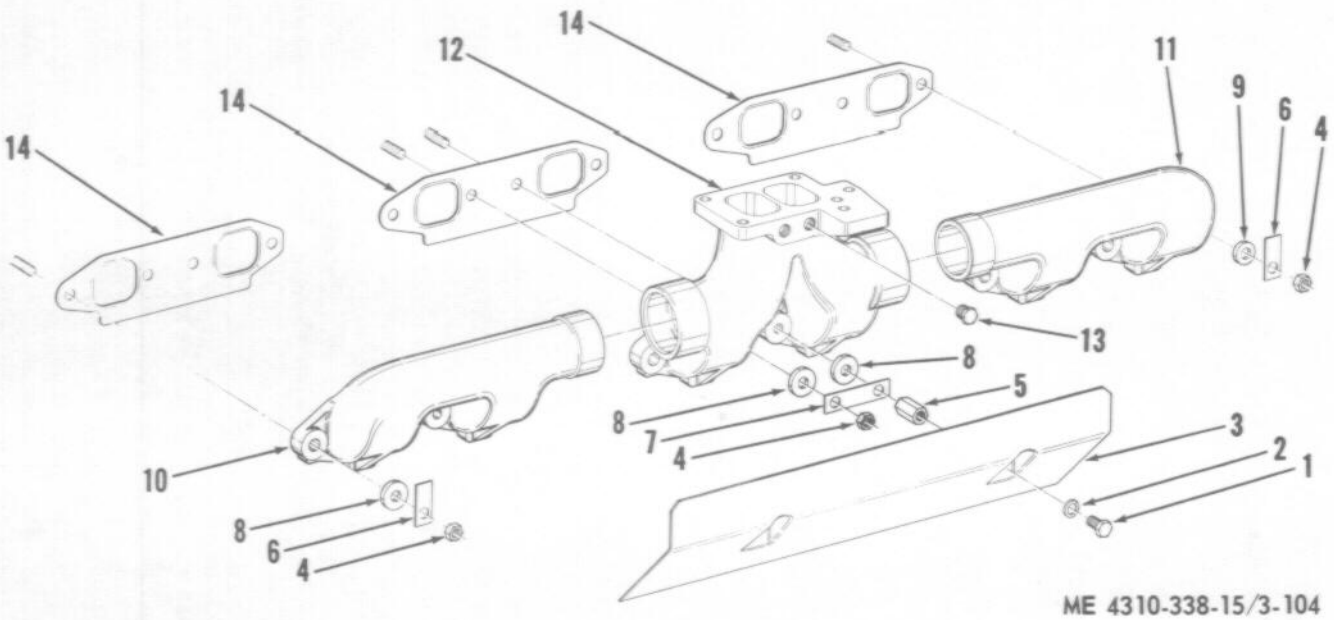
h. Install valve cover (para 3-116).

3-118. Exhaust Manifold

a. Removal.

(1) Remove turbocharger assembly (para 3-115).

(2) Remove exhaust manifold as shown in figure 3-104.



ME 4310-338-15/3-104

1. Screw (2)
2. Washer (2)
3. Shield
4. Nut (10)
5. Nut (2)
6. Lock (10)
7. Lock (2)
8. Washer (11)
9. Washer
10. Manifold — rear section
11. Manifold — front section
12. Manifold — center section
13. Plug (2)
14. Gasket (3)

Figure 3-104. Exhaust manifold; removal and installation.

b. Cleaning and Inspection.

(1) Clean parts using a wire brush and scrape to remove all scale deposits. Clean parts using a cleaning solvent that is in accordance with Federal specification P-D-680.

(2) Inspect parts for cracks, breaks, distortion, or any other defect.

(3) Inspect attaching hardware for damaged threads, cracks, distortion, or any other defect.

c. Installation.

(1) Install exhaust manifold as shown in figure 3-104.

(2) Install turbocharger assembly (para 3-115).

3-119. Glow Plugs

a. Removal. Remove glow plugs as shown in figure 3-105.

b. Cleaning and Inspection.

(1) Clean glow plugs using a cleaning solvent that is in accordance with Federal specification P-D-680. Dry plugs thoroughly.

(2) Inspect glow plugs for cracks, breaks, distortion, or any other defect. Inspect for damaged threads.

(3) Inspect wiring connection at top of glow plugs for cracks, corrosion, or any other defect.

c. Installation. Install glow plugs as shown in figure 3-105.

d. Testing. The following procedure provides a way for isolating a faulty glow plug.

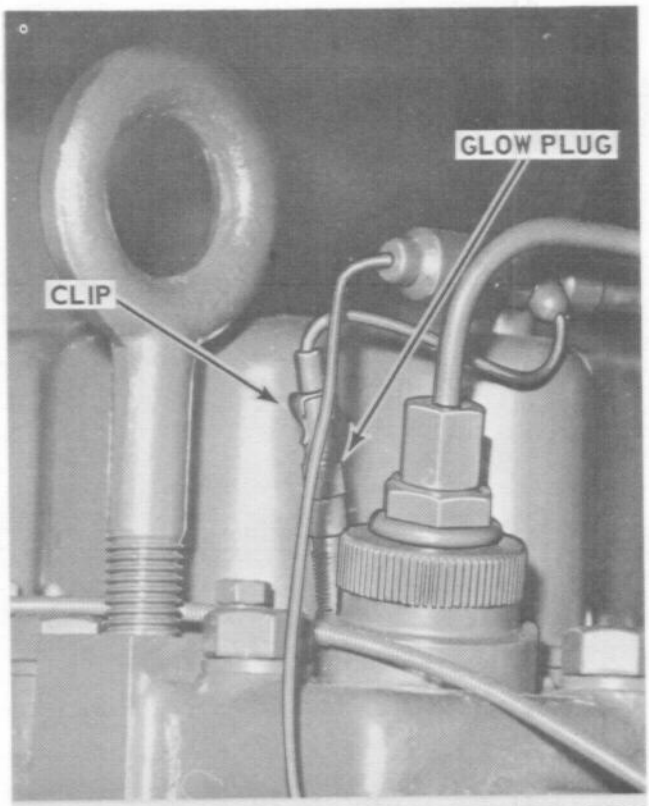
(1) Connect an ammeter as shown in figure 3-106.

(2) Place HEAT-START switch in HEAT position. Observe reading on ammeter.

(3) Hold switch in HEAT position; disconnect, then reconnect wire on each glow plug, one at a time. A good glow plug will cause the ammeter to fluxuate when the wire is removed and reconnected. The ammeter will fluxuate very little or not at all if glow plug is defective.

NOTE

Each glow plug draws approximately five to seven amperes when energized.



ME 4310-338-15/3-105

REMOVAL

STEP 1. DISCONNECT CLIP FROM TOP OF GLOW PLUG.

STEP 2. UNSCREW AND REMOVE GLOW PLUG.

INSTALLATION

STEP 1. INSTALL GLOW PLUG. TIGHTEN TO A TORQUE VALUE OF 96 TO 144 FOOT-POUNDS.

STEP 2. CONNECT CLIP TO TOP OF GLOW PLUG.

Figure 3-105. Glow plugs; removal and installation.

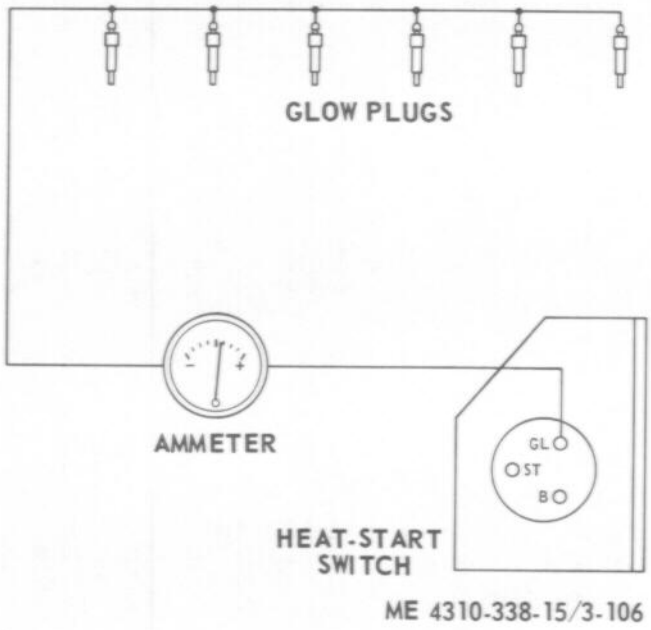


Figure 3-106. Glow plug test setup.

Section XVIII. WHEEL AND BRAKE GROUP

3-120. General

The wheel and brake group consists of size 9:00x20 pneumatic tires, 20-inch wheels, wedge-actuated service air brakes, spring-actuated mechanical parking brakes, service chambers, an emergency relay valve, and an air reservoir tank. A hand lever and actuating mechanism is provided to manually operate the parking brakes. The service brakes are operated by air from the towing vehicle via a service air line and an emergency air line. During normal operation, air from the towing vehicle is channeled through the emergency relay valve to the service chamber on each wheel. The service chambers actuate the wedge brakes. Should the intervehicular air lines break away, the emergency relay valve channels air from the reservoir tank to the service chambers and the brakes on all four wheels will engage. This air will bleed off in approximately 20 minutes and the vehicle can then be moved.

3-121. Wheels, Tires, and Tubes

NOTE

Refer to TM 9-1870-1 for care and maintenance of pneumatic tires.

a. Removal. Remove wheel assembly as shown in figure 3-107.

WARNING

Be sure all air is removed from tire before attempting to disassemble wheel.

b. Disassembly. Disassemble tube, tire, and wheel as shown in figure 3-108.

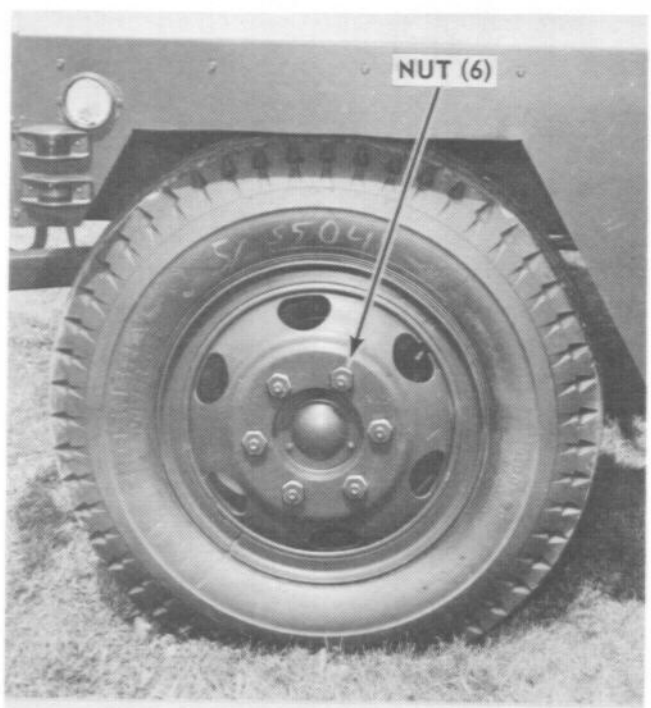
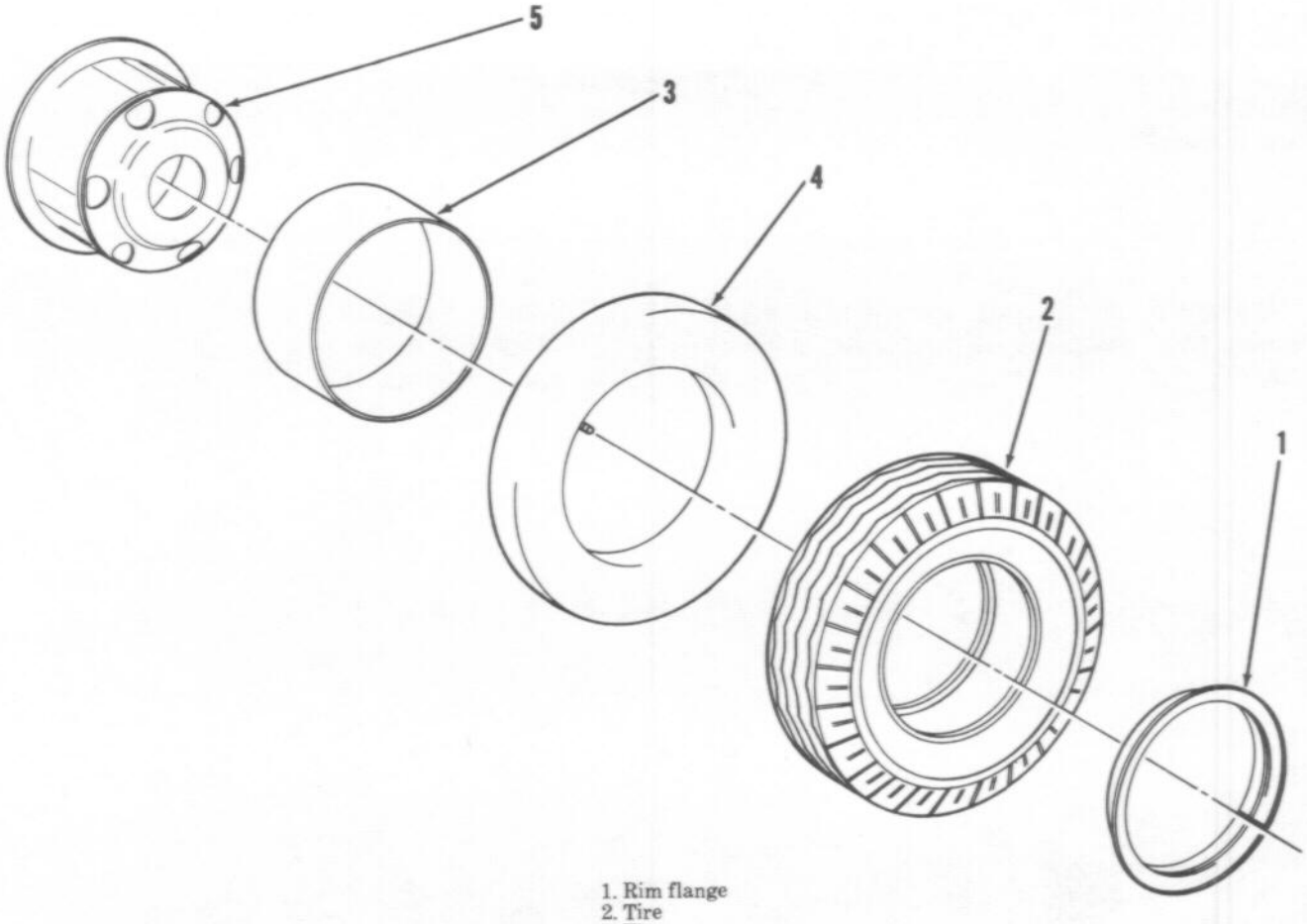


Figure 3-107. Wheel assembly; removal and installation.



1. Rim flange
2. Tire
3. Flap
4. Inner tube
5. Rim

Figure 3-108. Wheel assembly; disassembly and reassembly.

c. Cleaning, Inspection, and Repair.

(1) Clean all metal parts using a cleaning solvent that is in accordance with Federal specification P-D-680. Dry parts thoroughly.

(2) Inspect all metal parts for cracks, breaks, distortion, or any other defect.

(3) Inflate inner tubes and submerge them in water to detect presence of leaks. Leaks will show up as air bubbles in the water.

(4) Inspect tires for cuts, holes, and excessive or uneven tread wear. Inspect side walls for radial cracks.

(5) Inspect mounting hardware for damaged threads, cracks, distortion, or any other defect.

d. Reassembly. Reassemble tube, tire, and wheel as shown in figure 3-108. Inflate each tire to 45 PSI.

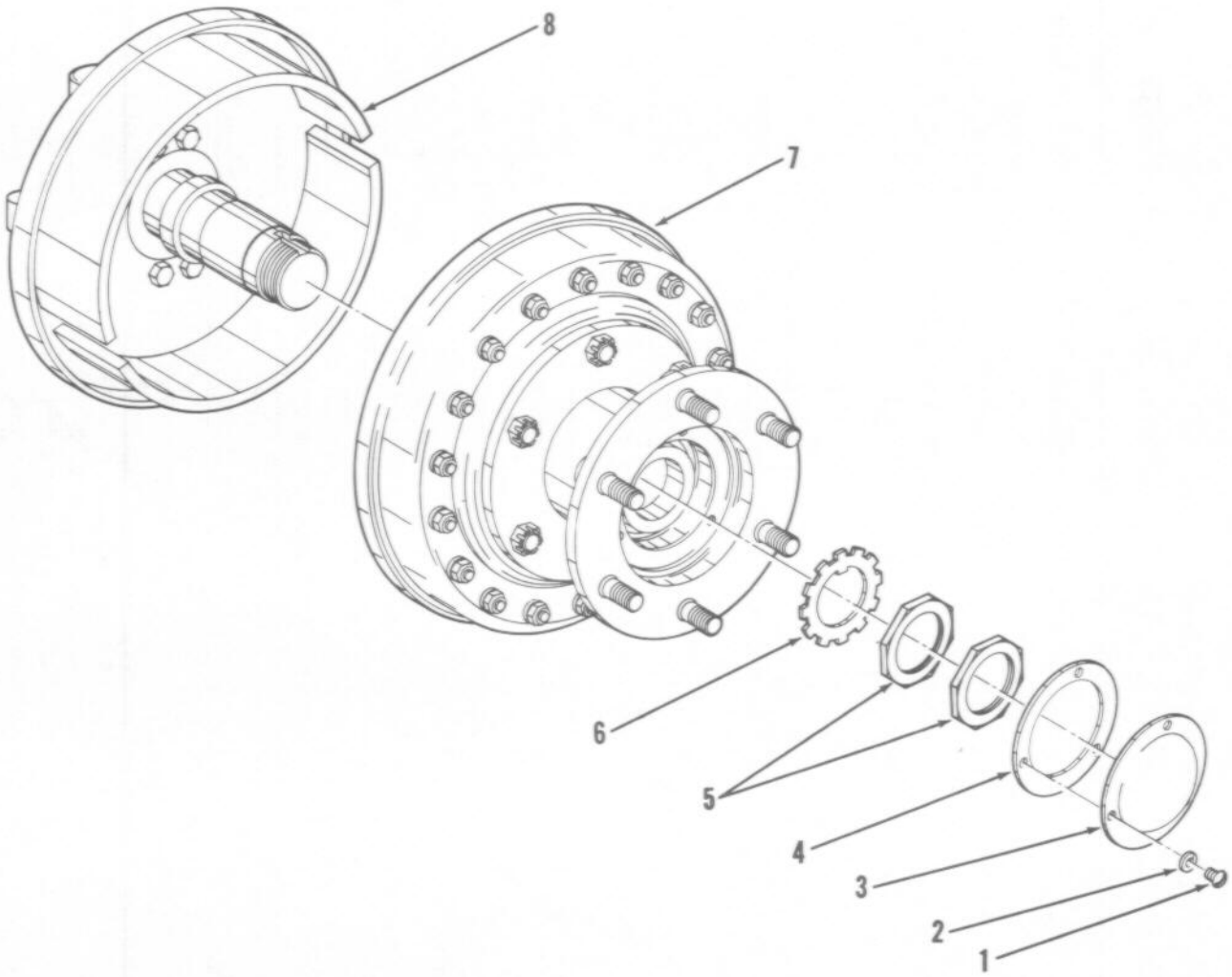
e. Installation. Install wheel assembly as shown in figure 3-107.

3-122. Hub and Brake Drum Assemblies

a. Removal.

(1) Remove wheel (para 3-121).

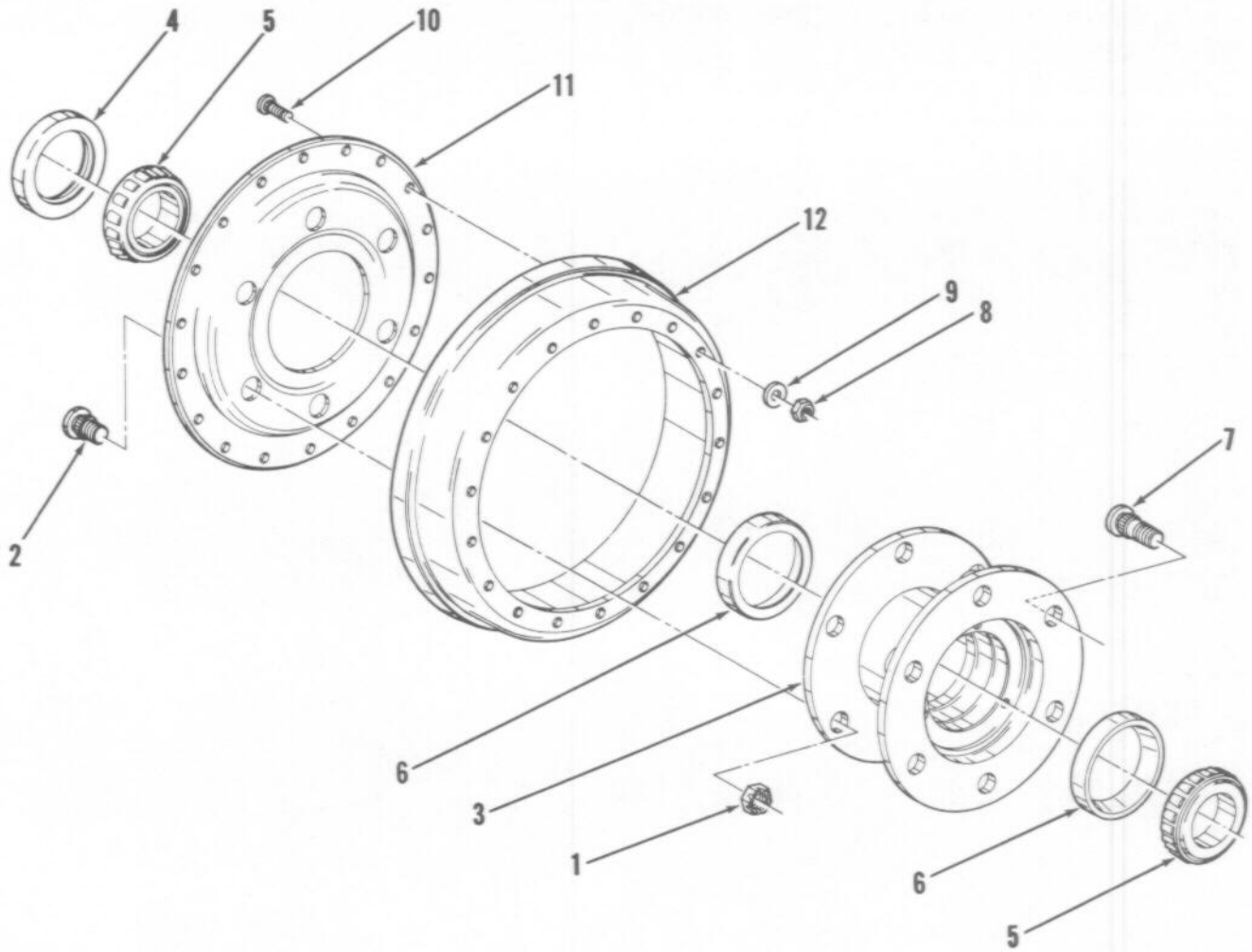
(2) With unit on jacks, remove hub and brake drum assembly as shown in figure 3-109.



1. Screw (3)
2. Lockwasher (3)
3. Cover
4. Gasket
5. Nut (2)
6. Lock
7. Hub and brake drum assembly
8. Wedge brake assembly and axle (ref)

Figure 3-109. Hub and brake drum assembly; removal and installation.

b. Disassembly. Disassemble hub and brake drum assembly in numerical sequence shown in figure 3-110.



1. Nut (6)
2. Bolt (6)
3. Hub
4. Seal
5. Bearing cone (2)
6. Bearing cup (2)
7. Bolt (6)
8. Nut (18)
9. Washer (18)
10. Bolt (18)
11. Adapter
12. Brake drum

Figure 3-110. Hub and brake drum assembly; disassembly and reassembly.

c. Cleaning and Inspection.

(1) Clean all metal parts using a cleaning solvent that is in accordance with Federal specification P-D-680. Dry parts thoroughly. Discard all gaskets and seal.

(2) Inspect bearings, cones, and caps for cracks, breaks, distortion, excessive wear, or any other defect.

(3) Inspect inside diameter surface of brake drum for scoring or any other defect. If drum is scored, turn drum on lathe to just remove scoring.

(4) Inspect all other parts for excessive wear, damage, distortion, or any other defect.

(5) Inspect attaching hardware for damaged threads, distortion, cracks, or any other defect.

d. Reassembly. Reassemble hub and brake drum assembly in reverse numerical sequence shown in figure 3-110. Install new gaskets and seal. Lubricate wheel bearing cones in accordance with Lubrication Order (LO) 5-4310-338-12.

e. Installation.

(1) With unit on jacks, install hub and brake drum

assembly as shown in figure 3-109.

(2) Install wheel (para 3-121).

3-123. Spring Brake-Service Chamber Assembly (Rear Wheels)

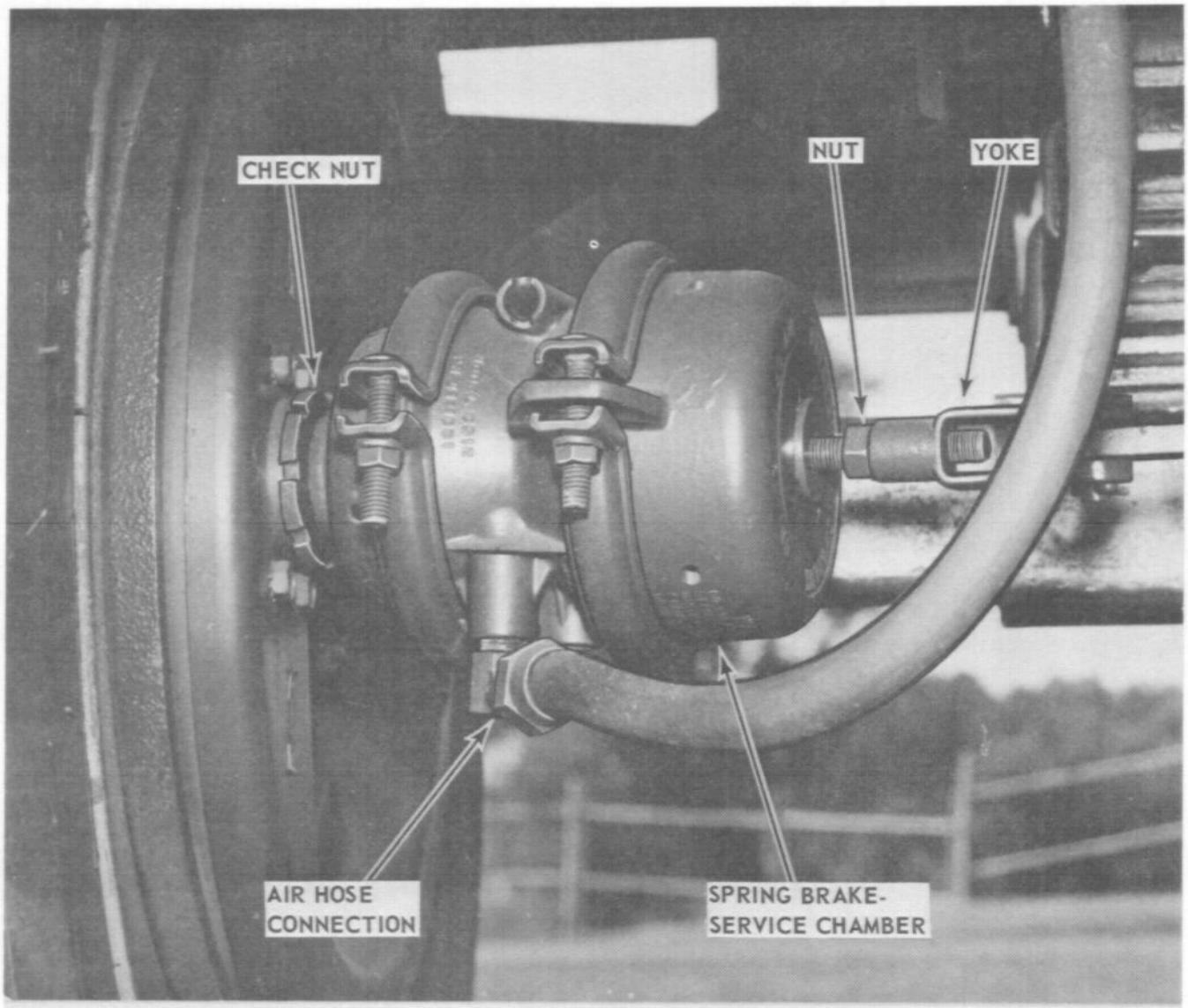
a. Removal.

(1) Place parking brake lever in up (brakes disengaged) position.

(2) Turn nut on release stud down against brake chamber so that compression spring will be held in the caged position.

(3) Disconnect air line. Disconnect parking brake lever linkage as shown in figure 3-118.

(4) Remove spring brake-service chamber assembly as shown in figure 3-111.



ME 4310-338-15/3-111

REMOVAL	INSTALLATION
STEP 1. DISCONNECT AIR HOSE AND YOKE PIN.	STEP 1. SCREW SPRING BRAKE-SERVICE CHAMBER INTO BRAKE ACTUATOR UNTIL TUBE IS TIGHT AGAINST WEDGE STOP WASHER.
STEP 2. LOOSEN AND BACK OFF CHECK NUT.	STEP 2. TIGHTEN CHECK NUT.
STEP 3. UNSCREW AND REMOVE SPRING BRAKE-SERVICE CHAMBER.	STEP 3. CONNECT AIR HOSE AND YOKE PIN.

Figure 3-111. Spring brake-service chamber assembly; removal and installation.

b. Installation.

(1) Install spring brake-service chamber assembly as shown in figure 3-111.

NOTE

Be sure compression spring is caged before installing spring brake-air chamber assembly. See step 2 under removal instructions, above.

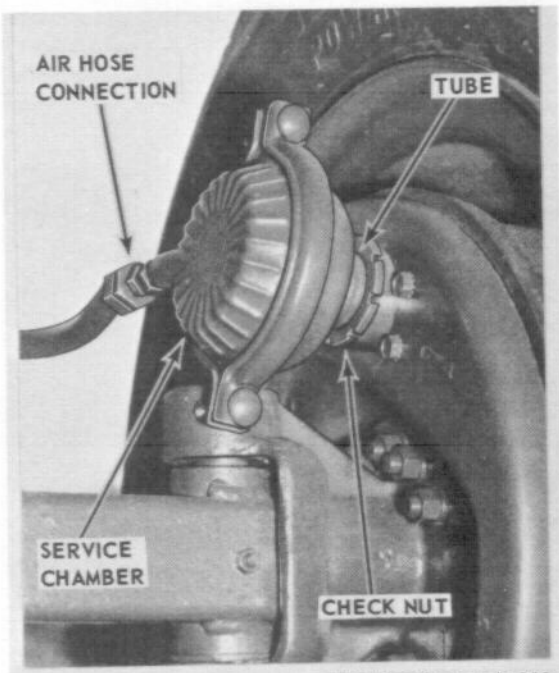
(2) Connect air line. Connect parking brake lever linkage as shown in figure 3-118.

(3) With parking brake lever in up position, turn nut on release stud tight against clevis.

(4) Adjust parking brake linkage (fig. 3-119).

3-124. Service Chamber Assemblies (Front Wheels)

a. Removal. Remove each service chamber as shown in figure 3-112.



ME 4310-338-15/3-112

REMOVAL

STEP 1. REMOVE AIR HOSE CONNECTION.

STEP 2. LOOSEN AND BACK OFF CHECK NUT.

STEP 3. UNSCREW AND REMOVE SERVICE CHAMBER.

INSTALLATION

STEP 1. SCREW SERVICE CHAMBER INTO BRAKE ACTUATOR UNTIL TUBE IS TIGHT AGAINST WEDGE STOP WASHER.

STEP 2. TIGHTEN CHECK NUT.

STEP 3. INSTALL AIR HOSE CONNECTION.

Figure 3-112. Service chamber assembly; removal and installation

b. Installation. Install each service chamber as shown in figure 3-112.

3-125. Wedge Brake Assemblies

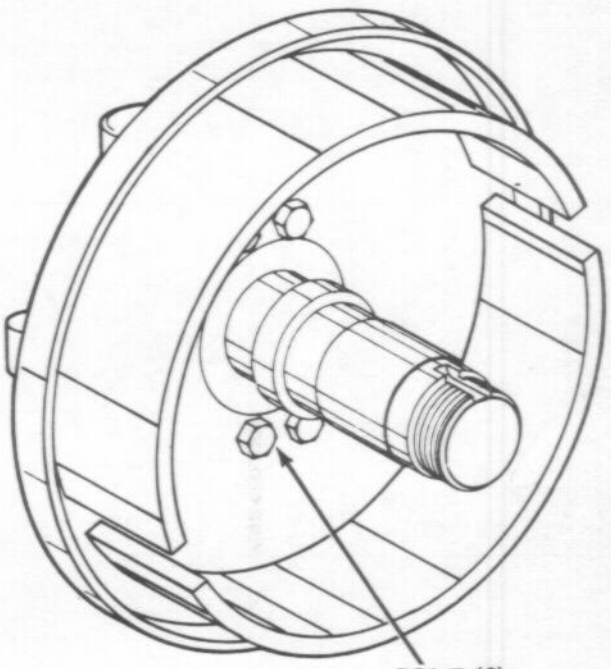
a. Removal.

(1) Remove wheel (para 3-121).

(2) Remove hub and brake drum assembly (para 3-122).

(3) Remove service chamber assembly (para 3-124) or spring brake-service chamber assembly (para 3-123) as applicable.

(4) Remove wedge brake assembly as shown in figure 3-113.



ME 4310-338-15/3-113

REMOVAL

REMOVE BOLTS, NUTS, AND LOCKWASHERS. REMOVE WEDGE BRAKE ASSEMBLY.

INSTALLATION

PLACE WEDGE BRAKE ASSEMBLY IN MOUNTING POSITION AND SECURE WITH BOLTS, NUTS, AND LOCKWASHERS.

Figure 3-113. Wedge brake assembly; removal and installation.

b. Installation.

(1) Insstall wedge brake assembly as shown in figure 3-113.

(3) Install service chamber assembly (para 3-124) or spring brake-service chamber assembly (para 3-123) as applicable.

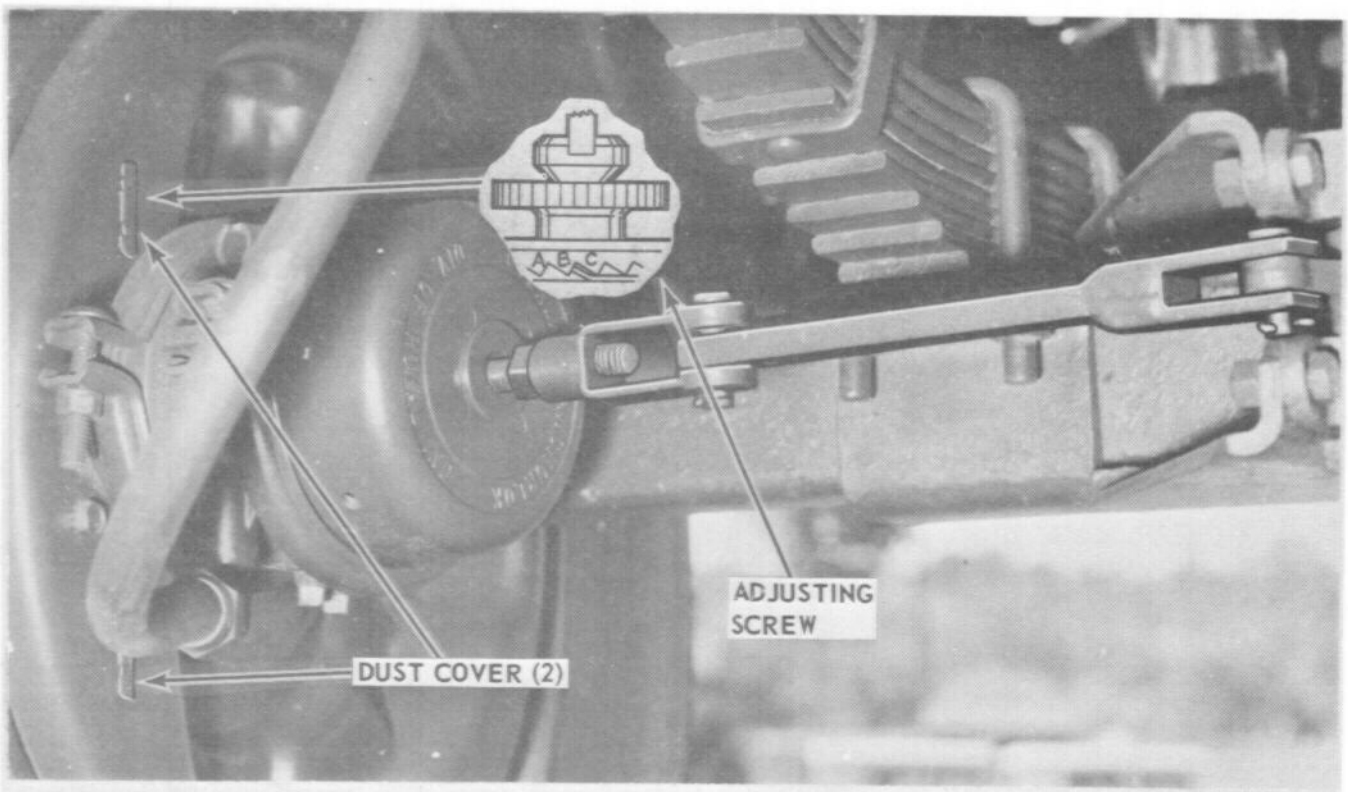
(3) Install hub and brake drum assembly (para 3-122).

(4) Install wheel (para 3-121).

c. Adjustment. The rear sheel brake shoes require adjustment periodically to compensate for normal lining wear. Adjustment must also be made following replacement of the wedge brake assemblies or to eliminate brake chatter. The front wheel brakes adjust automatically and should not require manual adjustment. Adjust rear wheel brakes as shown in figure 3-114.

NOTE

Do not adjust brake shoes when brake drums are hot.



STEP 1. RELEASE PARKING BRAKES. JACK UP UNIT UNTIL WHEEL JUST CLEARS GROUND.

STEP 2. REMOVE DUST COVERS.

STEP 3. TURN ONE ADJUSTING SCREW UNTIL SHOE DRAGS SLIGHTLY ON BRAKE DRUM WHEN WHEEL IS TURNED BY HAND. BACK OFF ADJUSTING SCREW JUST ENOUGH TO ALLOW WHEEL TO ROTATE FREELY.

STEP 4. REPEAT STEP 3, ABOVE, FOR OTHER ADJUSTING SCREW AND BRAKE SHOE. MAKE BOTH SHOE ADJUSTMENTS AS UNIFORM AS POSSIBLE.

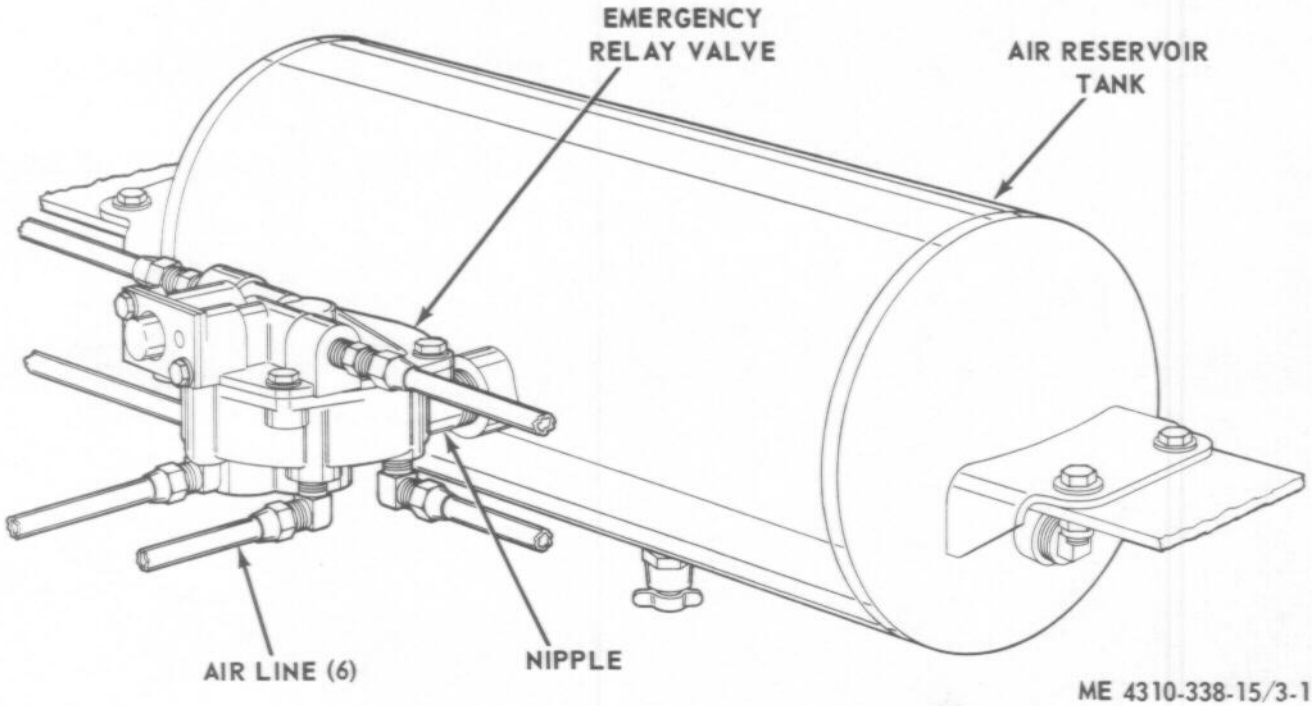
STEP 5. INSTALL DUST COVERS.

STEP 6. REMOVE JACK AND ENGAGE PARKING BRAKES.

Figure 3-114. Wedge brake assembly adjustment.

3-126. Emergency Relay Valve

a. Removal. Remove emergency relay valve as shown in figure 3-115.



REMOVAL

STEP 1. DISCONNECT AIR LINES FROM EMERGENCY RELAY VALVE.

STEP 2. UNSCREW AND REMOVE EMERGENCY RELAY VALVE FROM AIR RESERVOIR TANK. LEAVE NIPPLE IN TANK.

INSTALLATION

STEP 1. INSTALL EMERGENCY RELAY VALVE TO NIPPLE ON AIR RESERVOIR TANK.

STEP 2. CONNECT AIR LINES TO EMERGENCY RELAY VALVE.

Figure 3-115. Emergency relay valve; removal and installation.

b. Installation. Install emergency relay valve as shown in figure 3-115.

3-127. Air Reservoir Tank

a. Removal.

(1) Remove all air lines from emergency relay valve (fig. 3-117).

(2) Remove air reservoir tank by following numerical sequence shown in figure 3-116.

(3) Remove emergency relay valve from air reservoir tank.

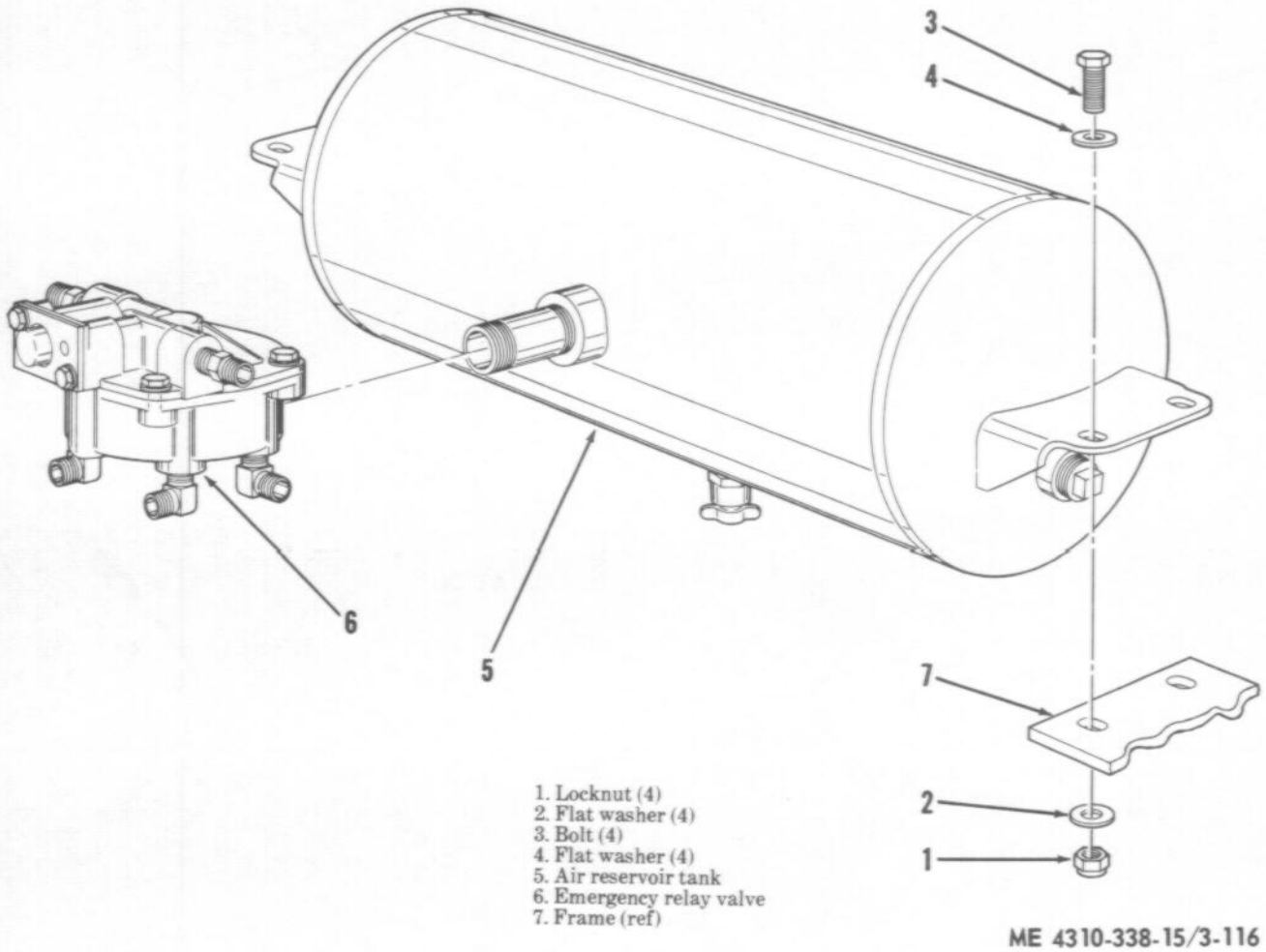


Figure 3-116. Air reservoir tank; removal and installation.

b. Installation.

(1) Install emergency relay valve on air reservoir tank.

(2) Install air reservoir tank by following reverse numerical sequence shown in figure 3-116.

(3) Install all air lines on emergency relay valve (fig. 3-117).

3-128. Brake Air Lines, Fittings, and Couplings

a. Removal. Remove brake air lines, fittings, and couplings by following numerical sequence shown in figure 3-117.

b. Cleaning and Inspection.

(1) Clean all parts using a cleaning solvent that is in accordance with Federal specification P-D-680. Dry parts thoroughly.

(2) Inspect lines for cracks, kinks, distortion, or any other defect.

(3) Inspect fittings and couplings for cracks, breaks, damaged threads, or any other defect.

c. Installation. Install brake air lines, fittings, and couplings by following reverse numerical sequence shown in figure 3-117.