Interim TM-5-4310-250-15

OPERATION, ORGANIZATIONAL FIELD AND DEPOT MAINTENANCE

INSTRUCTIONS AND REPAIR PARTS MANUAL

FOR

COMPRESSOR, ROTARY, AIR; DIESEL ENGINE DRIVEN; SKID MOUNTED, 250 CFM, 100 PSI

DAVEY COMPRESSOR CO. MODEL M250 RPV

SERIAL NUMBERS 2P155-10453 through 2P155-10859

Federal Stock Number (FSN) 4310-075-7064

Contract NR. DA-11-184-AMC-275(T)

Requistion NRS. 000C-23195-0000-2152-0965
000C-23195-0000-2158-0612

Purchase Order NR. 88-B-50457-CL

DAVEY COMPRESSOR COMPANY, KENT, OHIO

NOTE: This manual is Interim TM-5-4310-250-15. The official DA Manual will be made available through the Adjutant General Publication Channels.

1 MARCH 1965

SAFETY PRECAUTIONS

BEFORE OPERATION

Exercise care in handling fuel. Ground the fuel container when filling tank. Keep water and dirt out of fuel.

Do not allow flame or smoking around flammable material when servicing the air compressor and batteries.

Keep tread plates free of oil, grease, or any material that may cause injury by slipping or falling.

When using jacks to lift any part of the compressor, make certain that they are resting on solid footing and use wooden blocks above the jacks to prevent slipping.

DURING OPERATION

Do not clean, service, lubricate, remove, or make adjustments to the unit while engine is operating.

Do not disconnect any lines, hoses, or filter elements within the air system without first completely blowing down air pressure from the entire unit.

Do not remove the plug from the compressor oil separator until all air pressure has been blown down out of system.

Do not direct compressed air toward personnel, as it may cause serious injury.

Do not operate the compressor in a closed building without proper ventilation to the outside, as the exhaust contains carbon monoxide, a colorless, odorless, and poisonous gas.

Do not touch the exhaust pipe or the engine with bare hands while equipment is running. Shut down unit and allow to cool before making repairs or adjustments.

Stop operation of the unit immediately following the release of the safety valve. Correct any mechanical deficiencies before operation is continued.

Do not fill fuel tank with engine running.

AFTER OPERATION

Always relieve the air system of all air pressure and make certain the air valves are closed when unit is shut down.

Make certain the air valves are closed before disconnecting the air hoses from the equipment being supplied with compressed air.

Do not use flammable cleaning solvent to clean the compressor component parts. Use approved cleaning solvents only.

Correct or report any mechanical deficiencies that may result in damage to the equipment or injury to personnel if operation is to be continued.

TABLE OF CONTENTS

Chapter 1

INTRODUCTION

Section I. GENERAL

1. SCOPE

a. These instructions are published for the use of the personnel to whom the Rotary Air Compressor is issued. Chapters 1 through 4 provide information on the operation, preventive maintenance service, and organizational maintenance of the equipment, accessories, components, and attachments. Chapter 5 provides information for field and depot maintenance. Also included are descriptions of main units and their functions in relationship to other components.

b. Appendix I contains a list of publications applicable to this manual. Appendix II contains the Maintenance Allocation Chart. Appendix III contains the list of Basic Issue Items authorized the operator of this equipment. The Organizational Field, and Depot Maintenance Repair Parts and Special Tools are listed in Appendix IV.

c. Numbers in parentheses on illustrations indicate quantity. Numbers preceding nomenclature callouts on illustrations indicate preferred maintenance sequence.

d. The direct reporting of errors, omissions, and recommendations for improving this equipment manual by the individual user, is authorized and encouraged. DA Form 2028 will be used for reporting these improvements. This form may be completed using pencil, pen or typewriter. DA Form 2028 will be completed in triplicate forwarded by the individual using the manual. The original and one copy will be forwarded to the Commanding General, U. S. Army Mobility Equipment Center, ATTN: SMOME-MM, P. O. Drawer 58, St. Louis, Missouri, 63166. One information copy will be provided to the individuals immediate supervisor (e. g., officer, noncommissioned officer, supervisor, etc.).

e. Report all equipment improvement recommendations as prescribed by TM 38-750.

2. RECORD AND REPORT FORMS

For record and report forms applicable to the operator, crew, and organizational maintenance, refer to TM 38-750.

Note

Applicable forms, excluding standard Form 46 which is carried by the operator, shall be kept in a canvas bag mounted on the equipment.

Section II. DESCRIPTION AND DATA

3. DESCRIPTION

a. General. The compressor unit is a skid mounted, diesel engine driven, sliding vane type rotary air compressor. It furnishes 250 cubic feet of free air per minute at a discharge pressure of 100 pounds per square inch. This equipment is manufactured by Davey Compressor Company, Kent, Ohio as their Model M250 RPV, Part Number 45741. (See figures 1 and 2.)

b. COMPRESSOR ASSEMBLY. The air compressor assembly is a single stage, sliding vane, rotary type. It is oil cooled and incorporates the necessary operating accessories and gages to ensure proper operation. The air compressor delivers 250 cubic feet of free air per minute at a discharge pressure of 100 pounds per square inch.

c. ENGINE ASSEMBLY. The engine is a four cylinder, four cycle, liquid-cooled, diesel engine whose primary function is to drive the compressor assembly through a flexible coupling. It operates from a fuel injection pump and has a 24-volt electrical starting system. It is equipped with standard accessories and is governed at 1800 revolutions per minute.

d. THERMAL BYPASS VALVE. The thermal bypass valve, located beneath the compressor oil filter, serves two purposes.

(1) Rapid warming of compressor oil at initial start is provided by the normally open thermal bypass valve. The valve bypasses oil from the oil separator assembly around the oil cooler directly through the oil filter into the compressor. When oil temperature reaches approximately 150 degrees Fahrenheit, the bypass valve starts to close and part or all of the oil is circulated through the oil cooler before entering the filter and compressor. Unless the compressor is operating in extremely high ambient temperatures, the thermal bypass valve will mix the hot oil from the oil separator assembly and cool oil from the cooler to maintain a constant oil temperature.

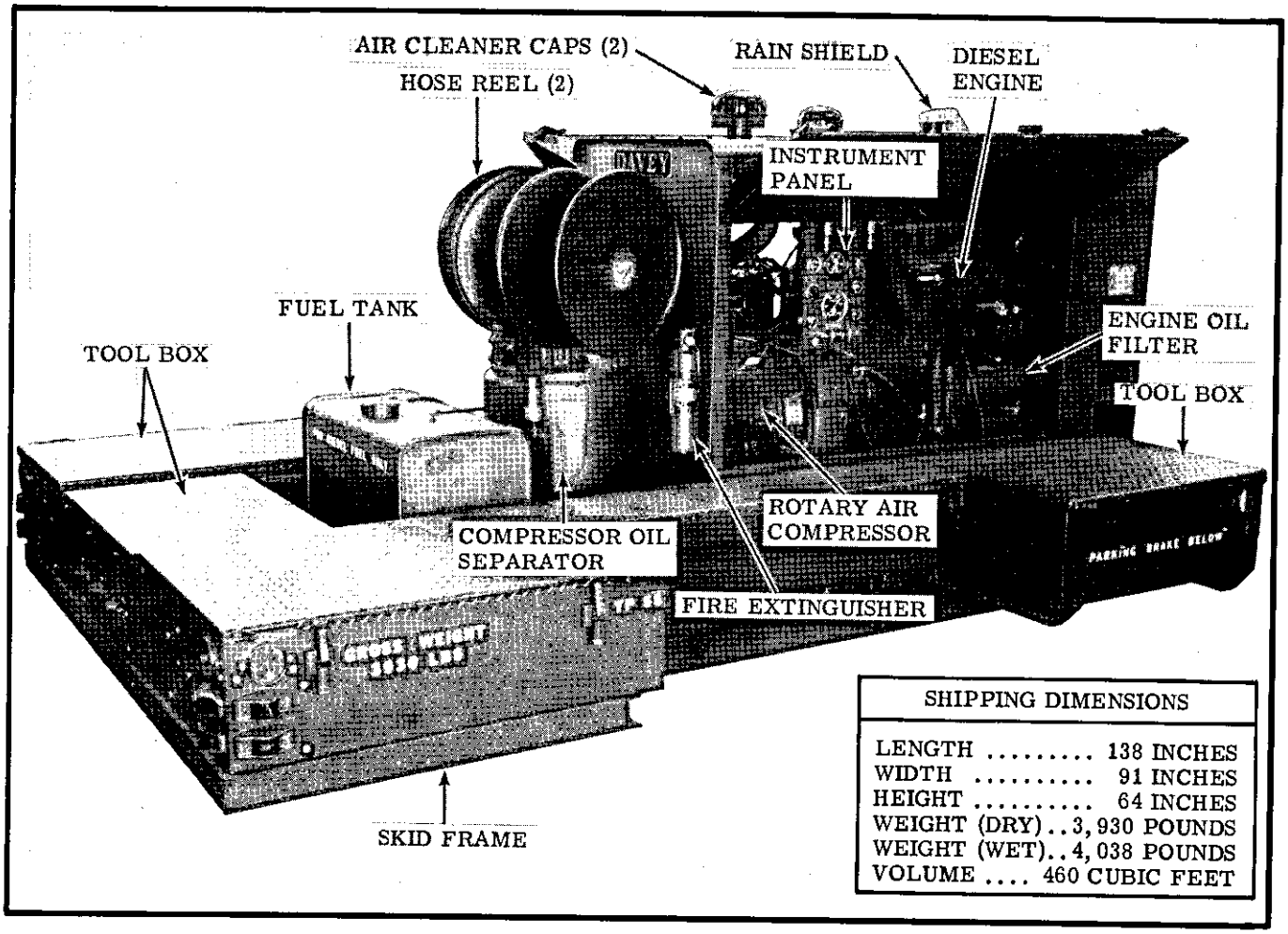


Figure 1. Rotary Air Compressor Skid, Diesel Engine Driven, Right-Rear, Three-Quarter View with Shipping Dimensions

(2) The thermal bypass valve thus maintains a relatively constant minimum operating temperature. This helps control temperature and also minimizes the formation of moisture condensate in the system, as well as providing slightly more energy to the air compressed.

e. THERMOSWITCH ASSEMBLY. The thermoswitch assembly, located in the compressor discharge, is an automatic shutdown control. If the discharge of the compressor assembly exceeds 230 degrees Fahrenheit, the thermoswitch actuates a solenoid located on the engine fuel pump shutting off the fuel. No action is required by the operator to open the thermoswitch. However, no restart should be attempted until reason for high temperature of the oil in the compressor assembly is determined. Do not attempt to restart until the oil has cooled.

4. IDENTIFICATION AND TABULATED DATA

a. IDENTIFICATION. The M250 RPV Rotary Air Compressor has 6 major identification plates. The information contained on these plates is listed below.

(1) Corps of Engineers plate. Located on the right front housing side panel. Specifies nomenclature, stock number, unit serial number, manufacturer, model, contract number, dimensions, capacity, weight, engine manufacturer, engine model, and engine serial number.

(2) Engine plate. Located on right-rear side of engine block above starter. Specifies model number, serial number, tappet clearance (intake and exhaust), recommended winter and summer grade oil to be used.

(3) Rotary compressor plate. Located on top of compressor end cover between stator and flywheel adapter. Specifies compressor model and serial numbers.

(4) Engine control plate. Located on engine control body. Specifies engine control model and serial number.

(5) Lifting instruction plate. Located on right side of the front housing side panel. Illustrates prescribed lifting method, location of lifting eyes, tie-downs, and center of gravity.

(6) Operating instruction plate. Located on right side of front housing side panel. Specifies unit nomen-

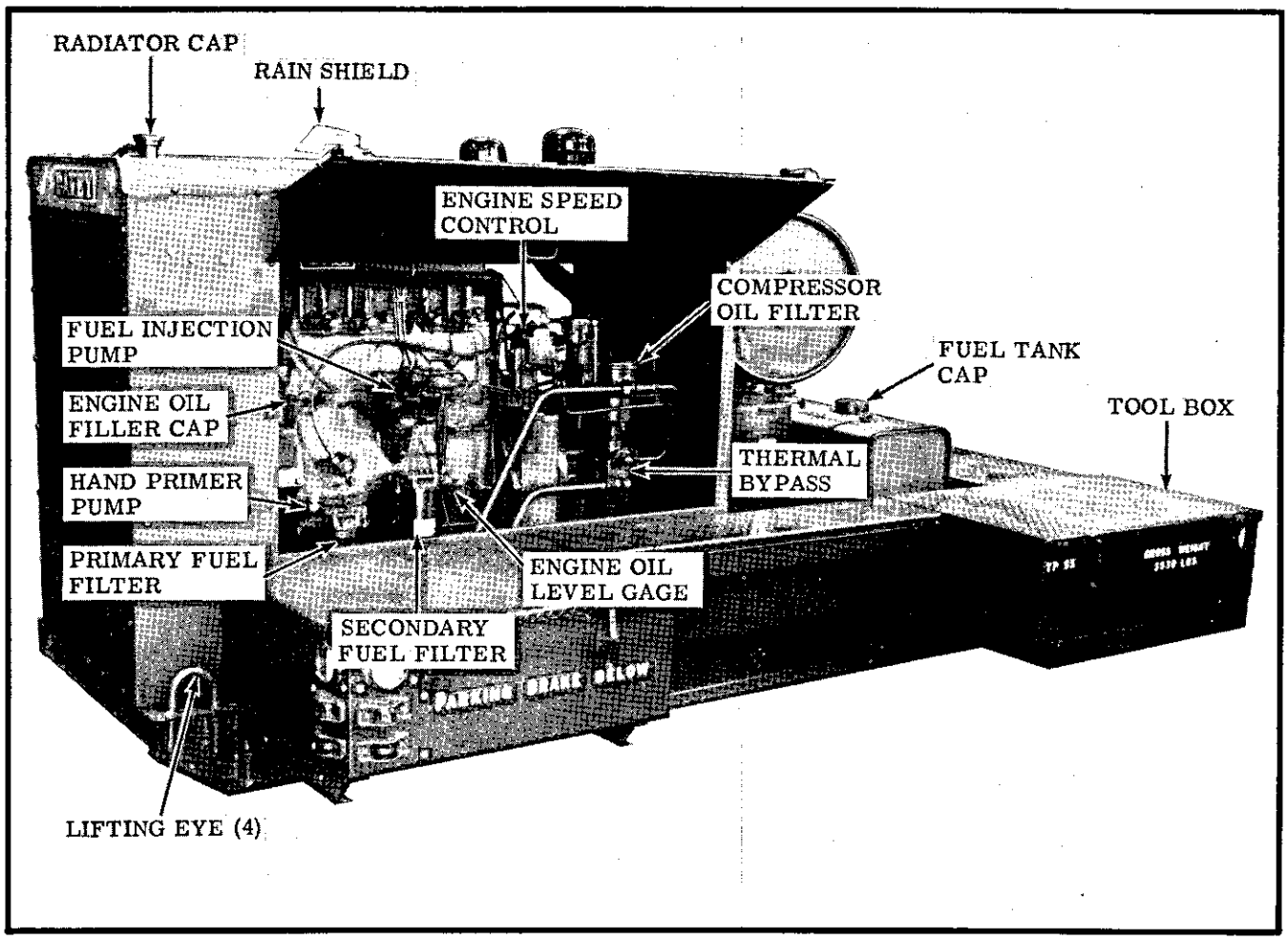


Figure 2. Rotary Air Compressor Skid, Diesel Engine Driven, Left-Front, Three-Quarter View

clature, model number, stock number, unit serial number, contract number, registration number, weight, and date of manufacture. Specifies before starting, and stopping instructions, and lists recommended lubricants.

b. TABULATED DATA.

(1) M250 RPV Rotary Compressor.

Manufacturer	Davey Compressor Co.
Model	M250 RPV
Type	Sliding Vane, Air, Rotary, DED
Part Number	45741
Serial Numbers	2P155-10453 thru 2P155-10859
Air Delivered	250 CFM
Air Pressure	100 PSI
Stages	one
Prime Mover	Diesel Engine
Oil Filter	Puralator Products, Inc., Model 62822
Air Cleaner	Donaldson Co., Inc., Dry type, Model FWG08-0030
Mounting	Skid
Federal Stock Number (FSN)	4310-075-7064

(2) Engine Assembly.

Manufacturer	Continental Motors Corp.
Model	JD403
Specification	6002
Type	Four Cycle Reciprocating Diesel
Number of Cylinders	4
Bore and Stroke	4-5/8 IN. by 6 IN.
Displacement	403 CU IN.
Compression Ratio	15.0 to 1
Oil Pressure Normal at 1800 RPM	30-40 LB
Oil Pressure Minimum at Idle	7 LB

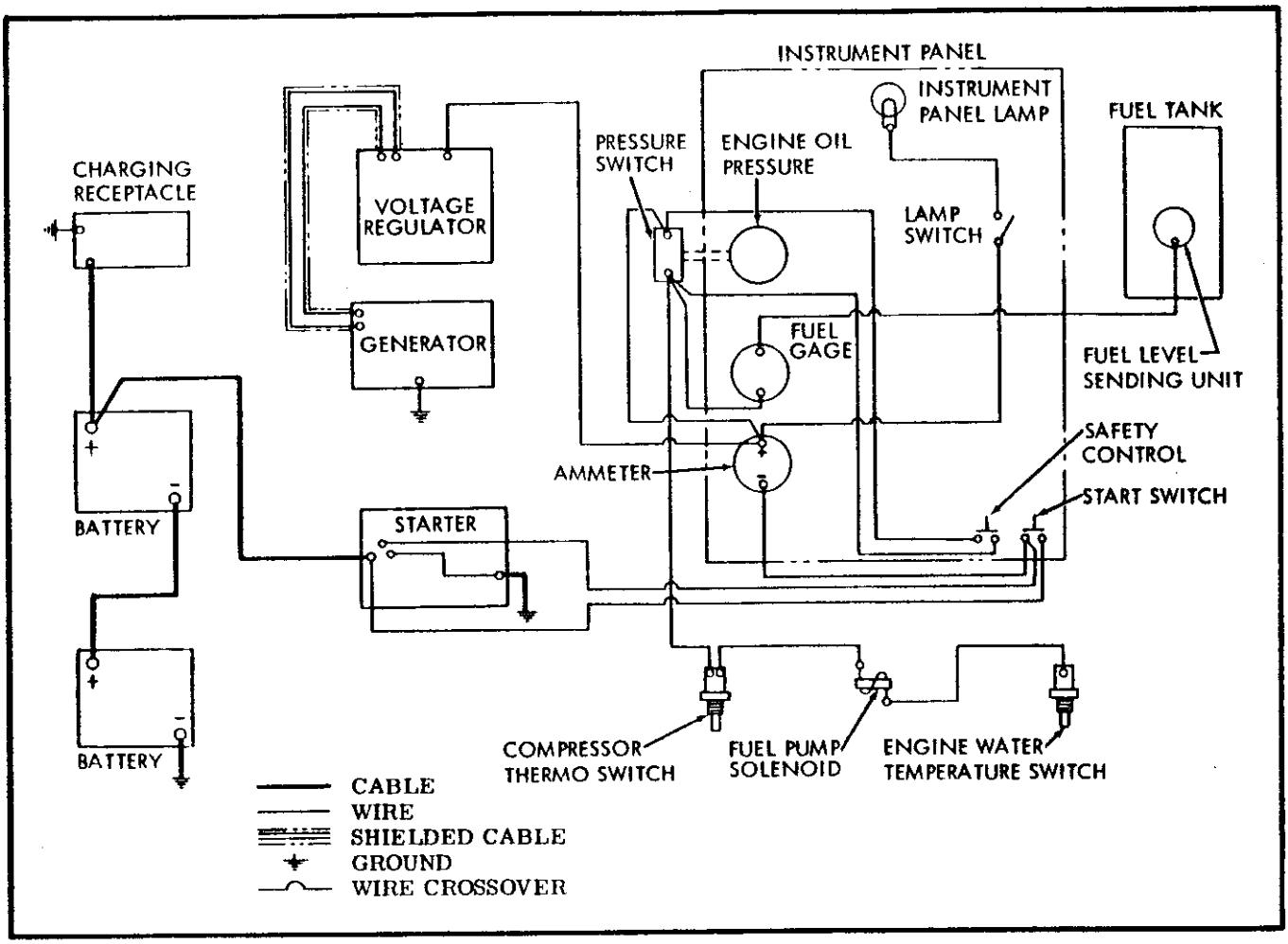


Figure 3. Pratical Wiring Diagram

Firing Order 1-3-4-2
Fuel Oil ..... No. 1-D (light Fuel) preferably No. 2-D (heavy fuel)
Governed Speed ..... 1800 RPM
Horsepower ..... 74 HP

(3) Engine Accessories.

(a) Starting Motor.

Manufacturer ..... Prestolite Div. of The Electric Autolite Co.
Assembly number MFY-8001AT
Type ..... Coaxial

(b) Generator.

Manufacturer..... Prestolite Div. of The Electric Autolite Co.
Assembly number GHS-6002GT
Type ..... Ventilated

(c) Voltage Regulator.

Manufacturer ..... Prestolite Div. of The Electric Autolite Co.
Assembly number VBU-4002UT

(d) Fuel Injection Pump.

Manufacturer ..... Roosa-Master Hartford Machine Screw Co.
Model ..... DBGVC 437-2AL

(e) Fuel Oil Filter, Primary.

Manufacturer ..... Fram Corp.
Model FBM1824
Cartridge 35070

(f) Fuel Oil Filter, Secondary.

Manufacturer ..... Fram Corp.
Model F1126-CON
Cartridge 121601

(g) Lubricating Oil Filter.

Manufacturer	Fram Corp.
Model	FHB33-PL
Cartridge	MS35802-3

(h) Air Cleaner.

Manufacturer	Donaldson Co., Inc.
Model	FWG06-5014
Type	Dry

(4) Capacities.

Fuel Tank	45 GAL
Engine lubricating System (with filter)	10-1/2 QT
Compressor lubricating system	24 QT
Cooling system	6 GAL
Engine control assembly	6 OZ

(5) Nut and Bolt Torque Data.

(a) Torque all screws, bolts, and nuts on the compressor as indicated on Compressor Torque Table.

(b) Torque all screws, studs, bolts, and nuts on engine assembly as indicated on Engine Torque Table.

(6) Adjustment data.

Valve clearance (Hot and Idling)-Intake	0.014 IN.
Exhaust	0.014 IN.

(7) Dimensions and weight (see figure 1).

Length	138 IN.
Width	91 IN.
Height	64 IN.
Weight (Dry)	3930 LB
Weight (Wet)	4038 LB
Volume	460 CU FT

(8) Wiring diagram (see figure 3).

(9) Base plan (see figure 4).

5. DIFFERENCE IN MODELS

This manual covers only the Davey Compressor Co. Model M250 RPV Diesel Engine Driven Rotary Air Compressor Skid. No known differences exist for the model covered by this manual.

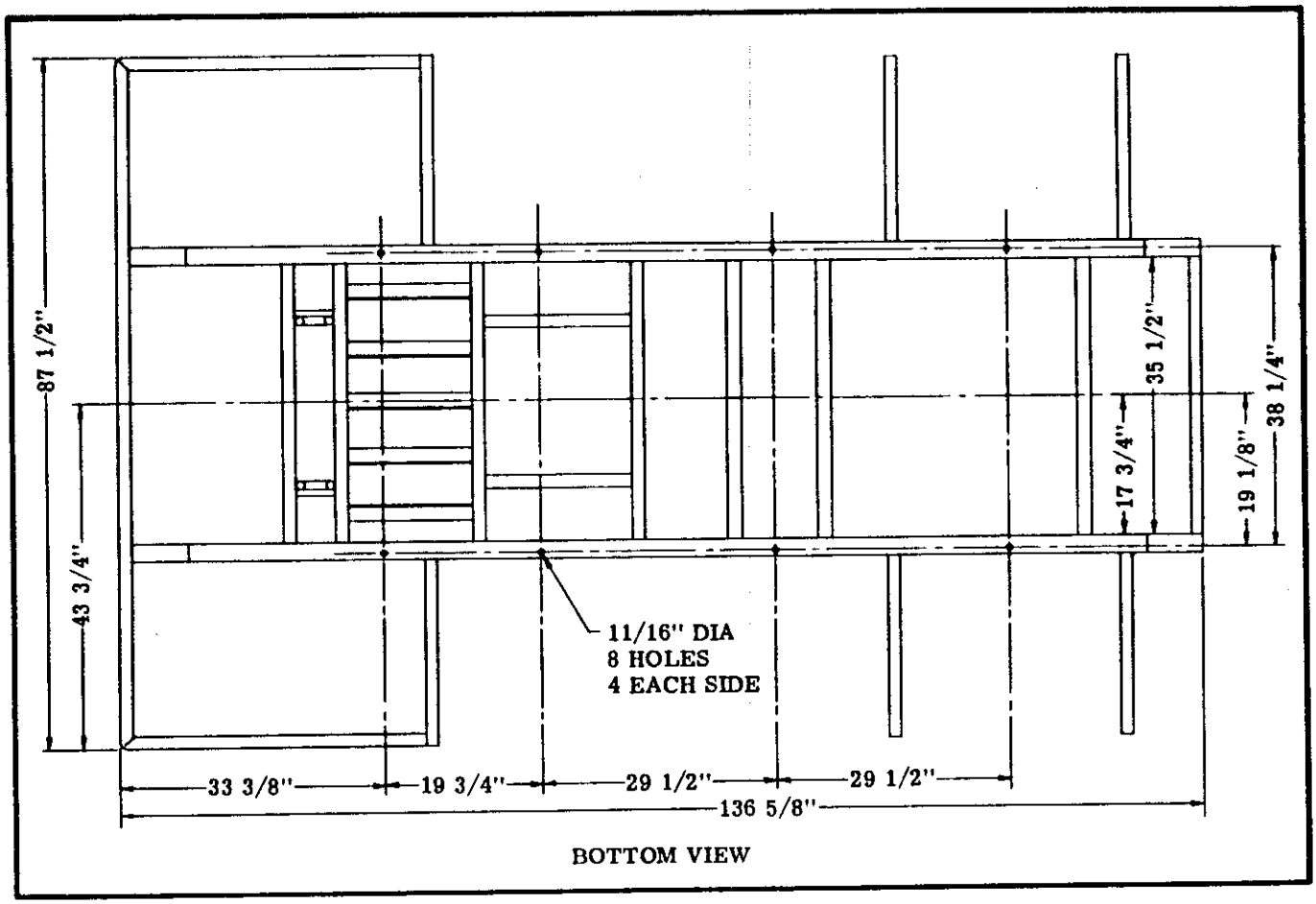


Figure 4. Base Plan

Table I. Compressor Torque Table

SIZE	FOOT-LBS	SIZE	FOOT-LBS
1/4-20	6	9/16-12	60
1/4-28	8	9/16-18	66
5/16-18	11	5/8-11	104
5/16-24	12	5/8-18	116
3/8-16	20	3/4-10	143
3/8-24	22	3/4-16	140
7/16-14	33	7/8-9	218
7/16-20	35	7/8-14	217
1/2-13	45	1-8	322
1/2-20	47	1-14	291

Table II. Engine Torque Table

SIZE-DIAMETER	1/4"	5/16"	3/8"	7/16"	1/2"	9/16"	5/8"
Cyl. Heads-C.I.			35-40	70-75	100-110	130-140	145-155
Main Brg. Caps			35-40	70-75	85-95	110-120	140-150
Connecting Rods		20-25	40-45	55-60	90-100	110-120	
Flywheels		20-25	35-40	70-75	85-95	100-110	145-155
Flywheel Housings		15-20	25-30	50-55	80-90	115-125	
Manifolds*		15-20	25-30	40-50	50-60	50-60	60-70
Gear Covers, Water Pumps, Front and Rear End Plates	8-10	15-20	25-30	50-55	80-90		
Oil Pans		12-16	12-16				
Rocker Supports and Die Castings	6-8	10-15	20-25	35-40	50-55		
Misc. Accessories and Brackets	8-10	15-20	25-30	50-55	80-90	115-125	
CAMSHAFT NUT							
Thread Size	3/4"	7/8"	1"	1-1/8"	1-1/4"		
Steel Camshafts		120-125	175-180				
Elastic Stop Nut		65-70					

* 7/16" & 5/8" Manifold End Nuts - 35 # Torque

Chapter 2

INSTALLATION AND OPERATING INSTRUCTIONS

Section I. SERVICE UPON RECEIPT OF EQUIPMENT

6. UNLOADING THE EQUIPMENT

a. GENERAL. The air compressor is shipped by the manufacturer as a completely assembled skid unit. Four lifting eyes are provided as an integral part of the skid frame (see figure 5).

Note

The method of attachment to the transportation equipment will be determined by the type of carrier used.

b. Unloading.

(1) Connect a hoist, crane or other suitable lifting device to the lifting eyes of the compressor (see figure 5 for lifting diagram.

WARNING

The lifting device shall be capable of lifting at least 4 tons.

(2) Remove all blocking and tie-downs that secure the compressor skid to the carrier.

(3) Lift the compressor from the carrier and lower onto trailer on which it will normally be mounted, or onto ground if to be used as a skid unit.

7. UNPACKING THE EQUIPMENT

a. Remove all crating, blocking, and protective material.

b. Carefully remove and unpack fire extinguisher and battery electrolyte. These items are packed separately and shipped in tool box.

c. Mount fire extinguisher on bracket provided on the outside of rear housing panel.

Note

Make certain fire extinguisher has full charge of 2-3/4 pounds. See paragraph 25 for charging instructions.

8. INSPECTING AND SERVICING EQUIPMENT

Note

Make certain equipment is completely deprocessed before servicing. Make certain preservatives have been removed from such items as crankcase, fuel tanks, and the like.

a. Inspecting Equipment.

(1) Check the identification plates for positive identification of the equipment.

(2) Check the equipment against the packing list.

(3) Inspect for and tighten any loose nuts or bolts.

(4) Inspect the controls, instruments, and gages for damage or loose mountings.

(5) Check all accessories for damage and loose or missing hardware.

(6) Inspect electrical wiring for frayed insulation or other damage (see wiring diagram figure 3).

(7) Inspect for leaks, paying particular attention to the fuel, lubricating, and cooling system.

(8) Check the fan belt tension (see paragraph 38). Make certain that the fan is securely mounted and that there is clearance between the fan blade and radiator core. See that the fan belts are in serviceable condition.

(9) Inspect all tubing and piping for loose connections or damage.

b. Servicing Equipment.

(1) Refer to paragraph 33 for daily preventive maintenance services.

(2) Lubricate equipment as indicated by current Lubrication Order (LO 5-4310-250-15).

(3) Perform the before-operation services (paragraph 33).

(4) Fill the fuel tank and cooling system (see

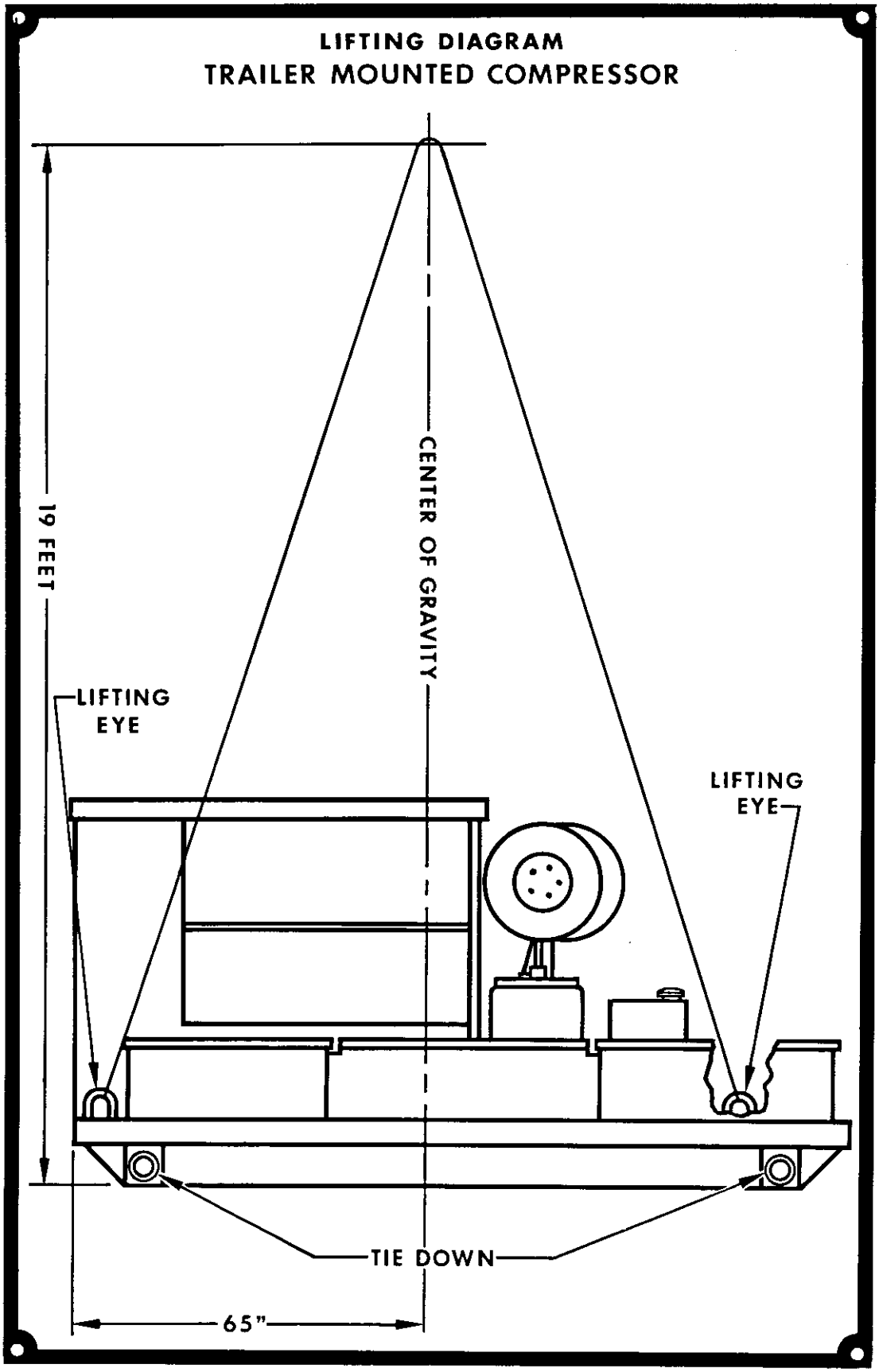


Figure 5. Lifting Instruction Plate

tabulated data paragraph 4.b. (4) for capacities).

(5) Fill batteries with electrolyte until 3/8 inch above plates. Specific gravity must be 1.250 or higher, checked with hydrometer.

WARNING

Take precautions against spilling electrolyte on clothing or allowing to come in contact with skin as burns may occur. Use rubber gloves when filling batteries.

(6) For cold-weather operation, lubricate equipment per current lubrication order(LO 5-4310-250-15). Service cooling system per Table III.

9. INSTALLATION OF SEPARATELY PACKED COMPONENTS

a. Install fully charged fire extinguisher on bracket provided on outside rear housing panel (see paragraph 25 for charging instructions).

b. Fill batteries with electrolyte as described in paragraph 8.b. (5) and observe warning.

10. INSTALLATION OR SETTING-UP INSTRUCTIONS

a. To set-up the skid-mounted air compressor unit, select a location which is as level as possible, firm, and clean. Out-of-level shall not exceed 15 degrees in either front-to-back or side-to-side. Locate the unit near the work site.

Note

The air compressor unit uses large quantities of air; therefore, provide a location as dust-free as possible.

b. Open side doors.

CAUTION

Make certain that the side doors are fully secured in UP position.

Table III. Freezing Points, Composition, and Specific Gravities of Military Antifreeze Materials

Lowest expected ambient temp. °F	Pints of inhibited glycol per gal. of coolant[1]	Compound, Antifreeze Arctic[2]	Ethylene glycol solution specific gravity at 68°F[3]
+20	1-1/2	Issued full strength and ready mixed for 0° to -65°F temperatures for both initial installation and replenishment of losses.	1.022
+10	2		1.036
0	2-3/4		1.047
-10	3-1/4		1.055
-20	3-1/2		1.062
-30	4		1.067
-40	4-1/4		1.073
-50	Arctic Antifreeze preferred	DO NOT DILUTE WITH WATER OR ANY OTHER SUBSTANCE	
-60			
-75			

1. Maximum protection is obtained at 60 percent by volume (4.8 pints of ethylene glycol per gallon of solution).

2. Military Specification MIL-C-11755 Arctic type, non-volatile antifreeze compound is intended for use in the cooling system of liquid-cooled internal combustion engines. It is used for protection against freezing primarily in Arctic regions where ambient temperature remains for extended periods close to -40°F or drops below, to as low as -90°F.

3. Use an accurate hydrometer. To test hydrometer, use 1 part ethylene glycol antifreeze to 2 parts water. This should produce a hydrometer reading of 0°F.

NOTE: Fasten a tag near the radiator filler cap indicating the type antifreeze.

c. Indoor set-up procedure is the same as described above except observe the following warning.

WARNING

Do not operate the air compressor unit in an enclosed area unless the exhaust gases are piped to the outside. Inhalation of exhaust fumes will result in serious illness or death.

d. Equipment Conversion.

(1) The skid-mounted air compressor unit is designed for conversion to a trailer-mounted unit (trailer M353). A trailer-mounting kit is provided for this conversion.

(2) Install the compressor skid assembly on the trailer using the hardware provided in the mounting kit. Mounting holes in the skid frame (reference figure 4) will match the mounting holes in the trailer crossmembers. Insert the 5/8-11 by 2 inch long bolts, with 5/8 inch channel washers under the head of the bolt, through the bottom flange of the skid. Install and tighten securely the 5/8-11 flexlock nuts under the trailer crossmembers.

(3) Disconnect existing wiring from rear taillights on trailer. Connect these wires to the wiring harness furnished installed on the compressor skid. Connect wire numbers 21 (two connectors), 22 (two connectors), 23 (one connector), and 24 (two connectors) of the trailer with the corresponding numbered wires of the skid wiring harness. Conversion to trailer mounting is now complete.

Section II. MOVEMENT TO NEW WORKSITE

11. DISMANTLING FOR MOVEMENT

a. Stop the air compressor (paragraph 17).

b. Roll the air hoses on the hose reels and secure.

c. Drain the fuel tank (paragraph 88).

d. Stow and secure all tools and equipment in tool boxes.

e. The air compressor unit is a self-contained unit and requires no disassembly for movement.

f. The skid-mounted air compressor unit may be lifted and secured to a common carrier and moved to a new worksite or towed for short distance as a skid.

g. Refer to paragraph 6 and figure 5 for lifting and tie-down instructions.

12. REINSTALLATION AFTER MOVEMENT

Refer to paragraph 10 for installation and setting-up instructions after movement to new worksite.

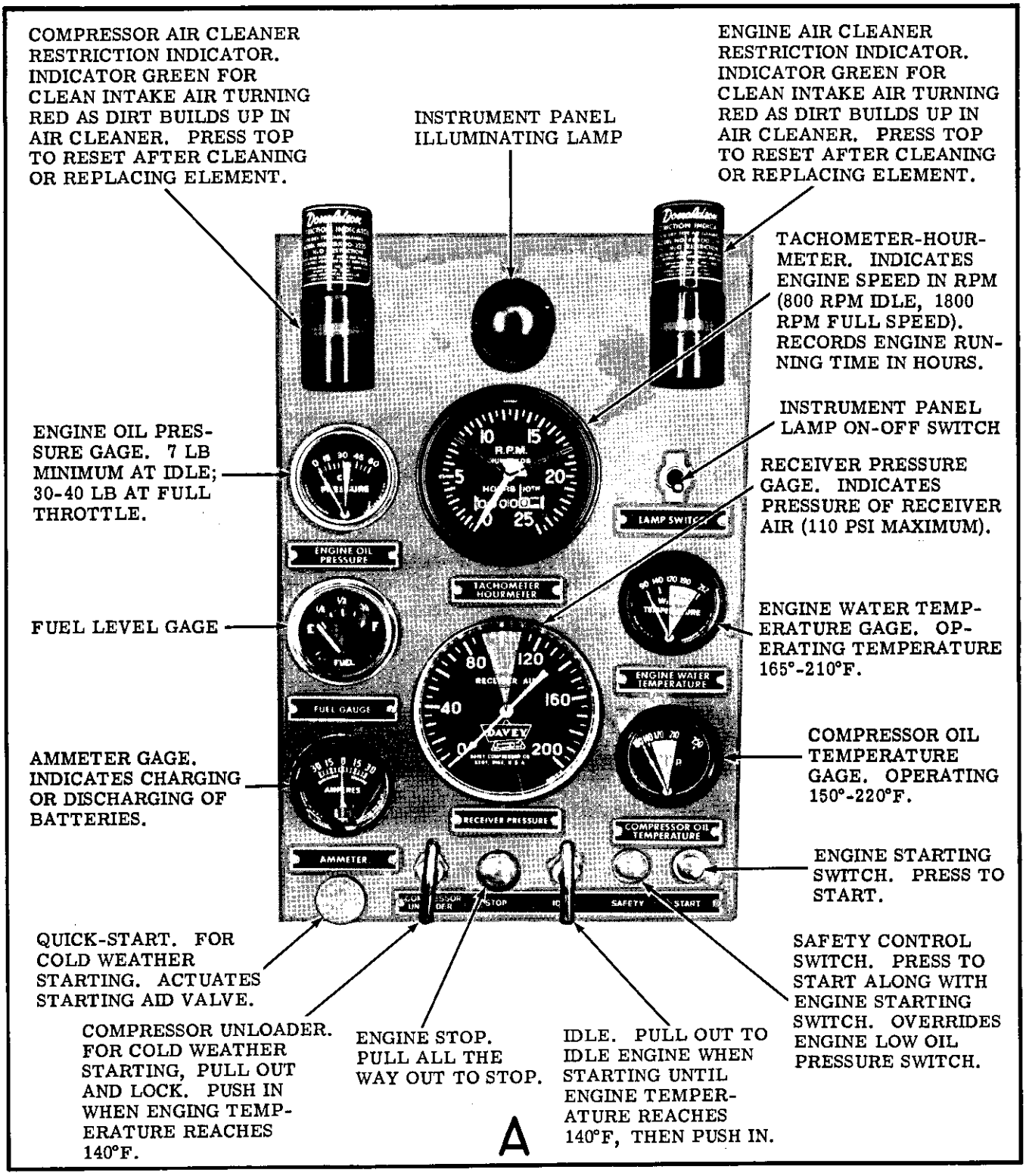
Section III. CONTROLS AND INSTRUMENTS

13. GENERAL

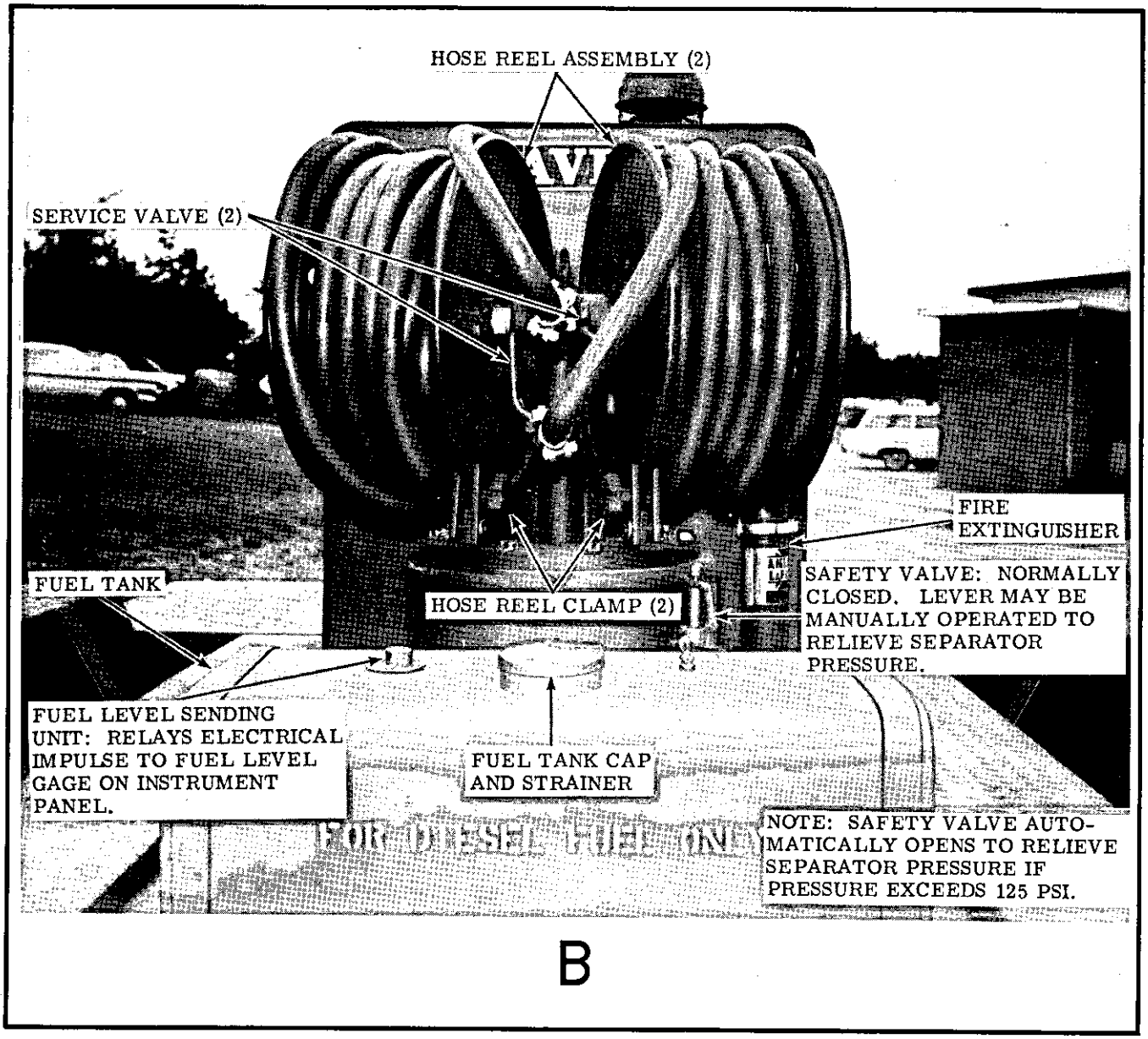
This section describes, locates, illustrates, and furnishes the operator, crew, or organizational maintenance personnel sufficient information about the various controls and instruments for proper operation of the air compressor unit.

14. CONTROLS AND INSTRUMENTS

The purpose of the controls and instruments and the normal and maximum reading of the instruments are illustrated in figure 6.

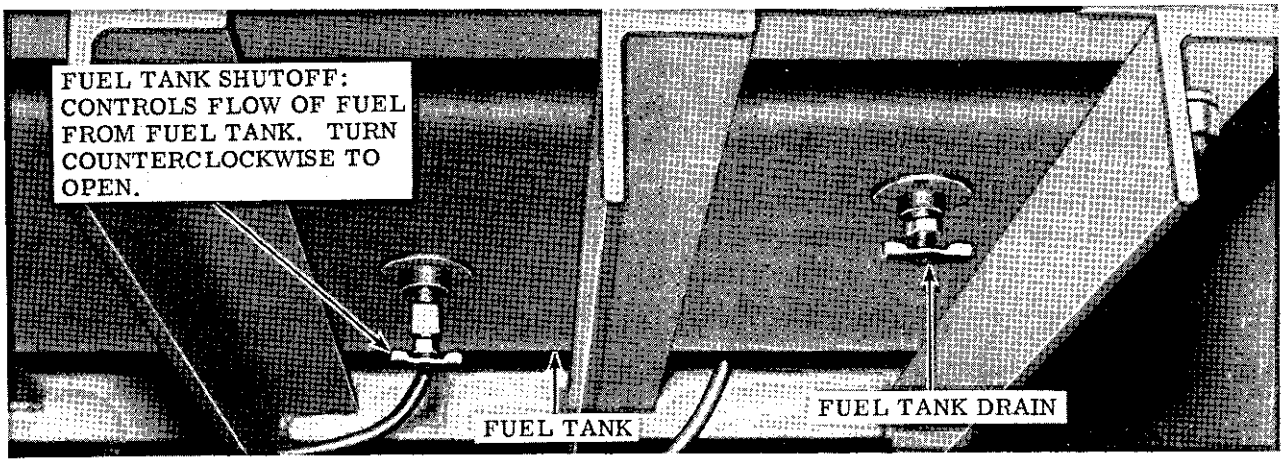


A - Instrument Panel
Figure 6. Controls and Instruments



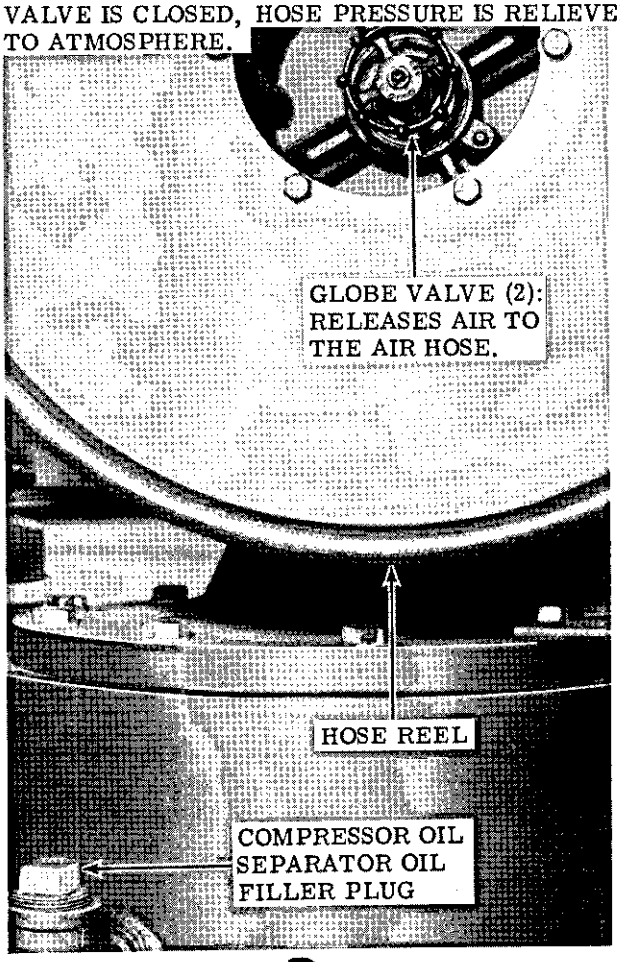
B - Service Valves, Hose Reels, Hose Reel Clamps, Safety Valve, Fire Extinguisher, and Fuel Tank

Figure 6. - Continued.



C

NOTE: GLOBE VALVE MUST BE OPENED COMPLETELY TO RELEASE AIR TO AIR HOSES. WHEN VALVE IS CLOSED, HOSE PRESSURE IS RELIEVED TO ATMOSPHERE.



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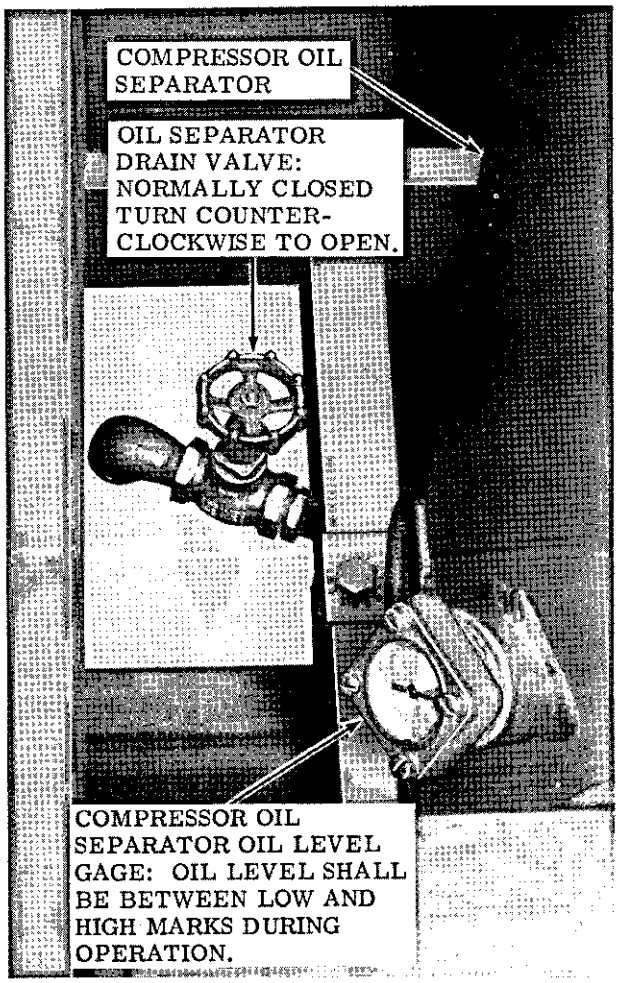


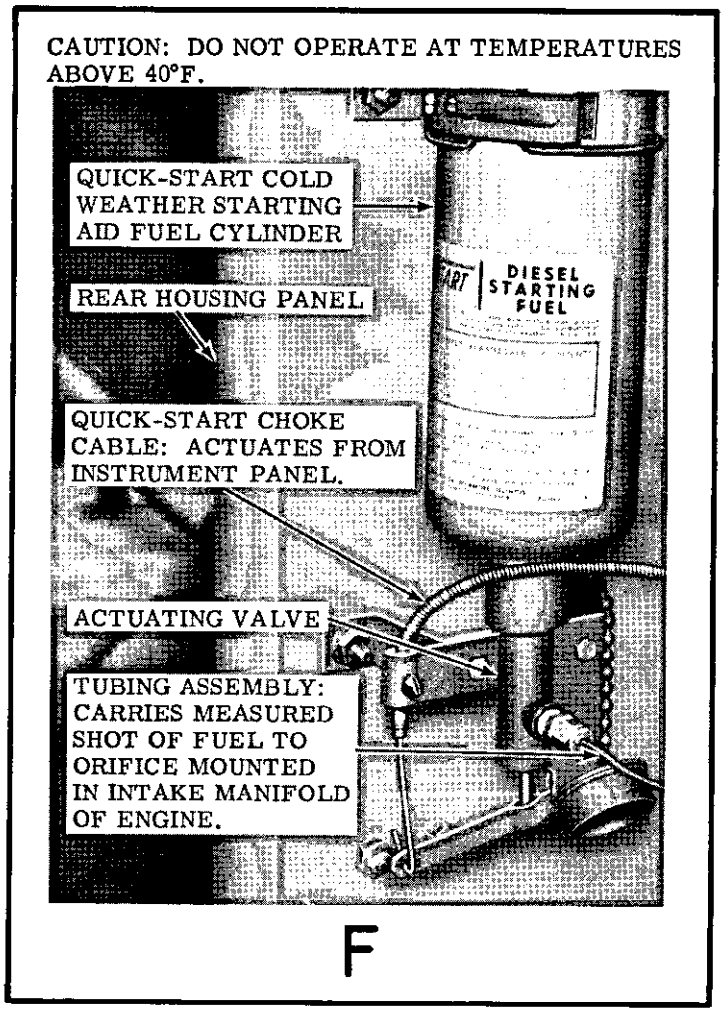
E

C - Fuel Tank Shutoff and Drain

D - Hose Reel Globe Valve and Compressor Oil Separator Oil Filler Plug

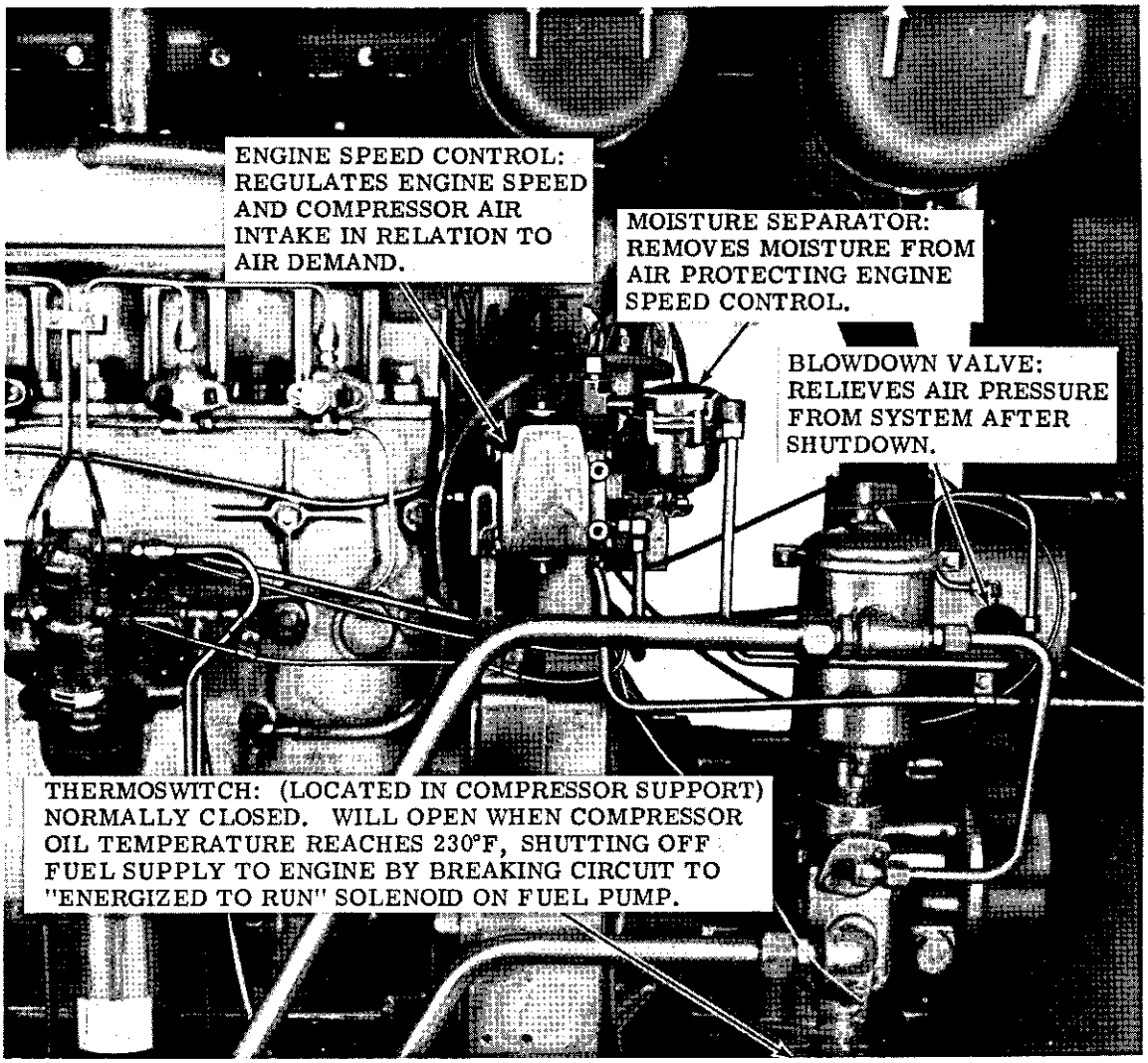
E - Compressor Oil Separator Drain Valve and Oil Level Gage

Figure 6. - Continued.



F - Cold Weather Starting Aid, Quick-Start

Figure 6. - Continued.



G - Engine Speed Control, Moisture Separator, Blowdown Valve, and Thermoswitch

Figure 6. - Continued.

Section IV. OPERATION OF EQUIPMENT

15. GENERAL

a. The instructions in this section are published for the information and guidance of the personnel responsible for operation of the air compressor unit.

b. The operator must know how to perform every operation of which the air compressor is capable. This section gives instructions on starting and stopping the air compressor, basic motions of the air compressor, and on coordinating the basic motions to perform the specific tasks for which the equipment is designed. Since nearly every job presents a difficult problem, the operator may have to vary given procedures to fit the individual job.

16. STARTING THE EQUIPMENT

a. Preparation for Starting.

(1) Perform the necessary daily preventive maintenance services (paragraph 32).

(2) Check air demand requirements.

b. Starting. Refer to figure 7 and start the air compressor.

17. STOPPING THE EQUIPMENT

a. Refer to figure 8 and stop the air compressor.

b. Perform the necessary daily preventive maintenance services (paragraph 32).

18. OPERATION UNDER USUAL CONDITION

a. Start the air compressor per paragraph 16.

b. Refer to figure 9 and operate the air compressor.

19. OPERATION IN EXTREME COLD (below 0°F)

a. See that antifreeze solution is correct for lowest temperature expected (refer to Table III.).

b. Inspect cooling system. Correct or report any leaks.

c. Keep batteries fully charged. After adding water to the batteries, run the engine for at least one hour.

d. Keep fuel tank full at all times. Make certain proper fuel is used (refer to paragraph 4.b.(2) for correct fuel).

e. Drain and service the fuel filters (paragraph 36).

f. Lubricate in accordance with the current lubrication order.

g. Allow engine to reach normal operating temperature of from 165 to 210°F before applying load.

h. Keep air compressor unit clean of all ice and snow.

i. Keep housing side doors open during operation to permit air circulation through radiator and oil cooler and around unit. Make periodic checks of instrument readings and general machine operation.

20. OPERATION IN EXTREME HEAT

a. Inspect cooling system. Correct or report any leaks. Keep cooling system clean and full of coolant.

b. Locate the air compressor in a well ventilated area, and keep all doors open during operation.

c. Lubricate the unit in accordance with current lubrication order.

21. OPERATION IN DUSTY OR SANDY AREAS

a. Locate air compressor unit in a sheltered area, if possible.

b. Keep entire unit as clean as possible.

c. Lubricate the unit in accordance with current lubrication order. Lubricate more often than under normal conditions.

d. Keep close check on air filter restriction indicators. Service air filters as required and service oil filters every five hours of operation.

e. Wet down surrounding area to help keep down dust.

22. OPERATION UNDER RAINY OR HUMID CONDITIONS

a. Wipe all exposed areas frequently.

b. Cover air compressor unit when not in operation.

c. Keep electrical components clean and dry.

d. Service air cleaners and oil filters frequently.

23. OPERATION IN SALT WATER AREAS

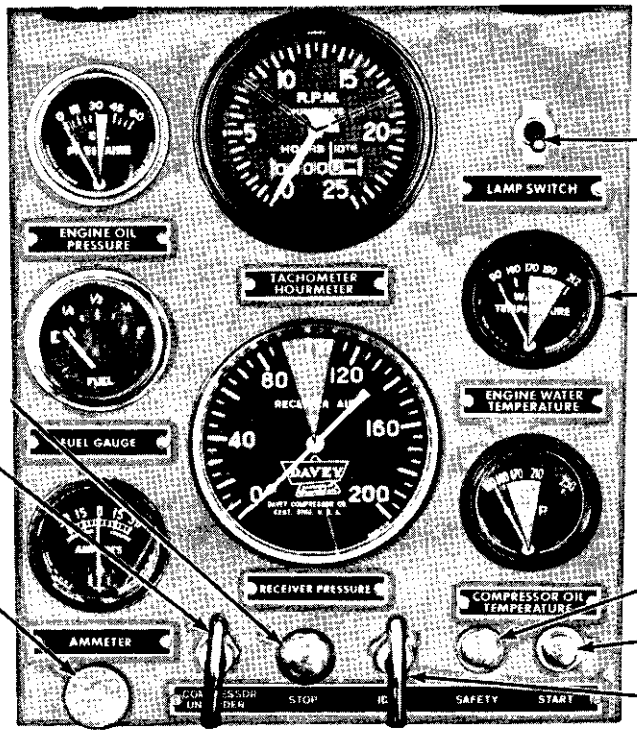
Follow same procedures as described in paragraph 22 above.

24. OPERATION IN HIGH ALTITUDES

This air compressor unit will operate satisfactorily at high altitudes. A slight loss of efficiency may be noticed at any altitude. This is a normal condition and cannot be prevented.

CAUTION

Check the unit frequently for overheating of the engine in high-altitude operation.



STEP 1. TURN INSTRUMENT PANEL LAMP SWITCH TO ON POSITION.

STEP 2. OPEN AIR OUTLET VALVE ON HOSE REEL OR SERVICE VALVE.

STEP 3. PULL ENGINE STOP CABLE OUT TO STOP POSITION.

STEP 4. PRESS START SWITCH BUTTON FOR THREE SECONDS TO CRANK OVER ENGINE.

STEP 5. PUSH ENGINE STOP CABLE ALL THE WAY IN.

STEP 6. PULL IDLE CONTROL CABLE TO OUT POSITION.

STEP 7. PRESS START SWITCH BUTTON AND SAFETY SWITCH BUTTON SIMULTANEOUSLY.

CAUTION: DO NOT CRANK ENGINE FOR MORE THAN 30 SECONDS CONTINUOUSLY WITHOUT ALLOWING A 2-MINUTE COOLING OFF PERIOD. IF ENGINE DOES NOT START AFTER A FEW TRIES, STOP CRANKING AND DETERMINE CAUSE. CORRECT OR REPORT CONDITION TO ORGANIZATIONAL MAINTENANCE.

STEP 8. WHEN ENGINE STARTS, ADJUST IDLE CONTROL CABLE TO FAST IDLE (1000 RPM).

STEP 9. ALLOW ENGINE TO RUN AT FAST IDLE UNTIL ENGINE WATER TEMPERATURE REACHES 140°F, THEN PUSH IDLE CONTROL CABLE IN AND CLOSE AIR OUTLET VALVE ON HOSE REEL OR SERVICE VALVE THAT WAS OPENED IN STEP 2.

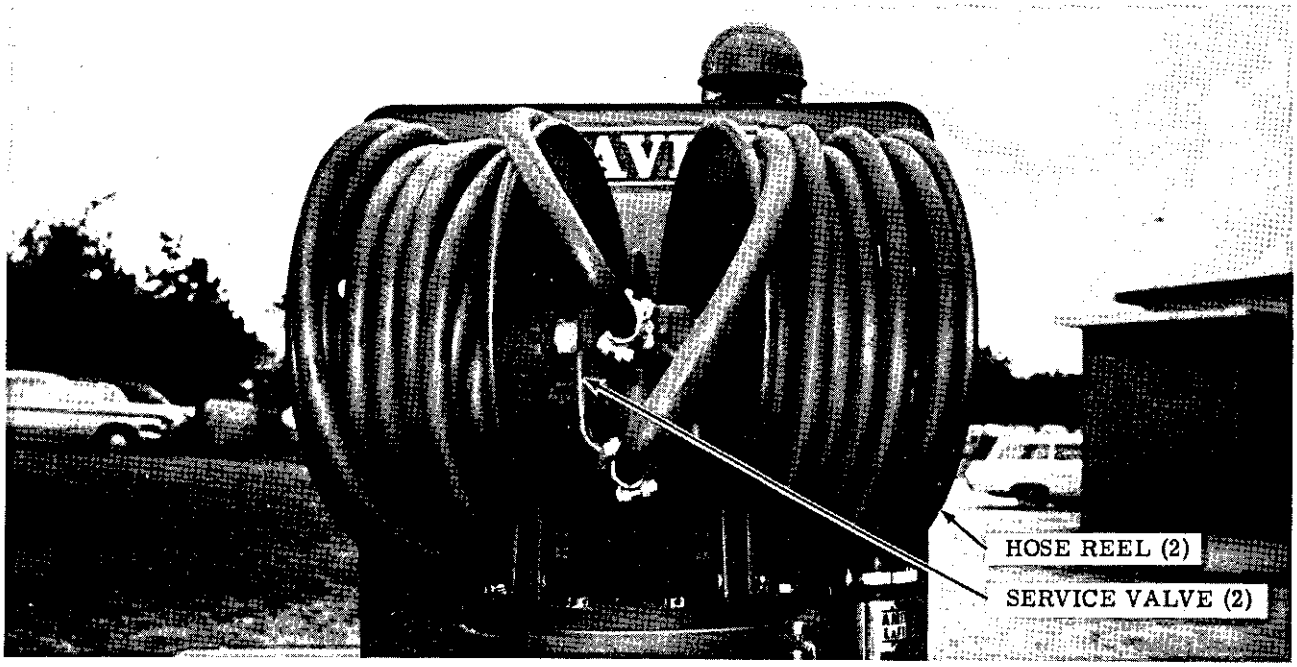
STEP 10. CHECK READINGS OF ALL ENGINE AND COMPRESSOR GAGES.

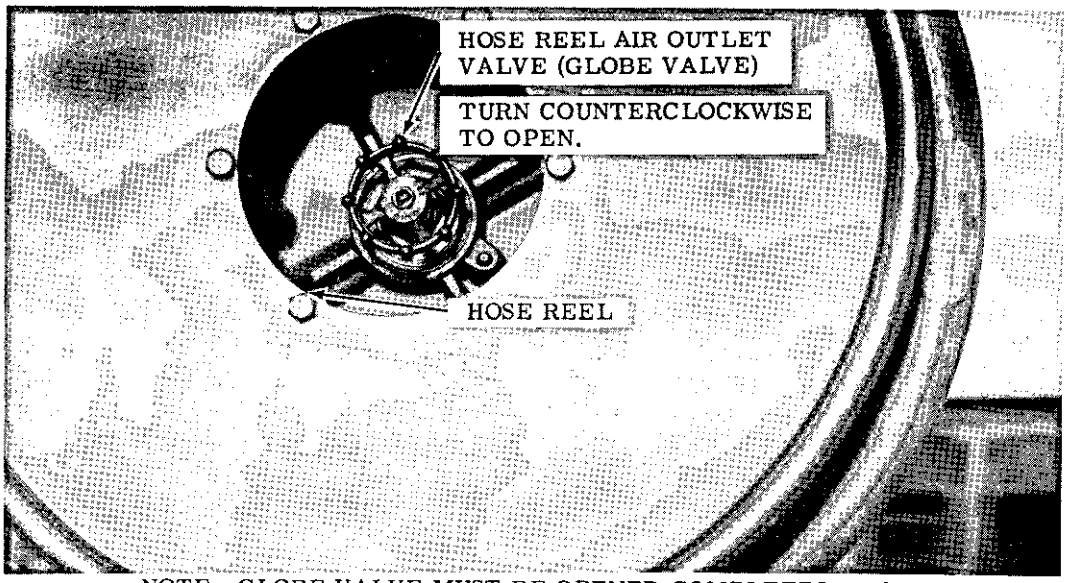
STEP 11. UNIT IS NOW READY FOR USE. NORMAL OPERATING PRESSURE RANGE IS FROM 90 TO 110 PSI.

NOTE: IF WEATHER IS COLD, PERFORM STEPS 1 THROUGH 6. PULL COMPRESSOR UNLOADER CABLE OUT AND LOCK. PULL QUICK-START CABLE OUT FOR 1 TO 2 SECONDS; THEN WHILE PERFORMING STEP 7, PUSH IN QUICK-START CABLE. DO NOT OPERATE QUICK-START UNTIL START AND SAFETY SWITCH BUTTONS ARE PRESSED. IF ENGINE DOES NOT START IMMEDIATELY, ACTUATE QUICK-START AGAIN. WHEN ENGINE REACHES OPERATING TEMPERATURE, REFERENCE STEP 9, UNLOCK COMPRESSOR UNLOADER AND PUSH IN. IF ENGINE FALTERS AFTER STARTING, ACTUATE QUICK-START CABLE TO KEEP ENGINE RUNNING.

A

A - Instrument Panel Controls
Figure 7. Starting the Compressor

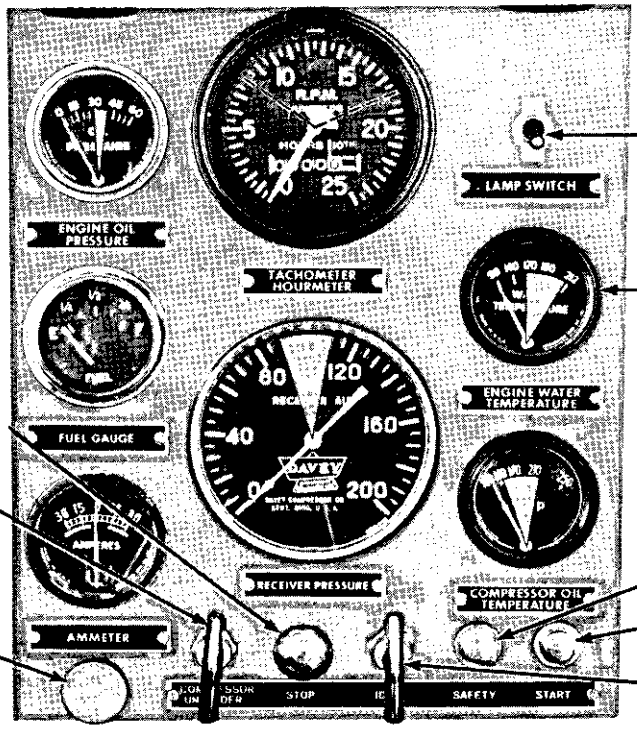




NOTE: GLOBE VALVE MUST BE OPENED COMPLETELY TO RELEASE AIR TO AIR HOSES. WHEN VALVE IS CLOSED, HOSE PRESSURE IS RELIEVED TO ATMOSPHERE.

B

B - Hose Reels and Service Valves
Figure 7. - Continued.



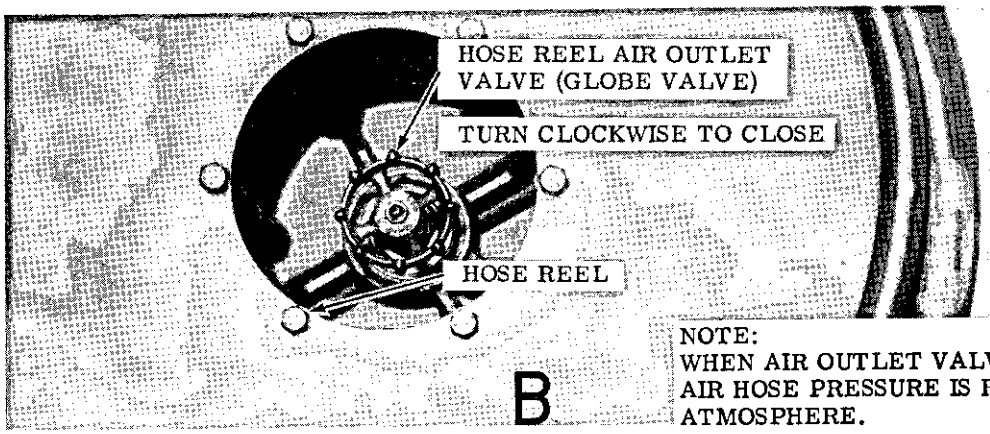
STEP 1. CLOSE AIR OUTLET VALVE AND ALLOW UNIT TO RUN UNLOADED FOR FIVE MINUTES.

STEP 2. PULL ENGINE STOP CABLE OUT.

STEP 3. SWITCH INSTRUMENT PANEL LAMP SWITCH TO OFF POSITION.

CAUTION: THIS UNIT IS FITTED WITH SAFETY DEVICES WHICH AUTOMATICALLY STOP THE ENGINE DUE TO HIGH TEMPERATURE COMPRESSOR OIL, HIGH TEMPERATURE ENGINE WATER, OR LOW ENGINE OIL PRESSURE.

A

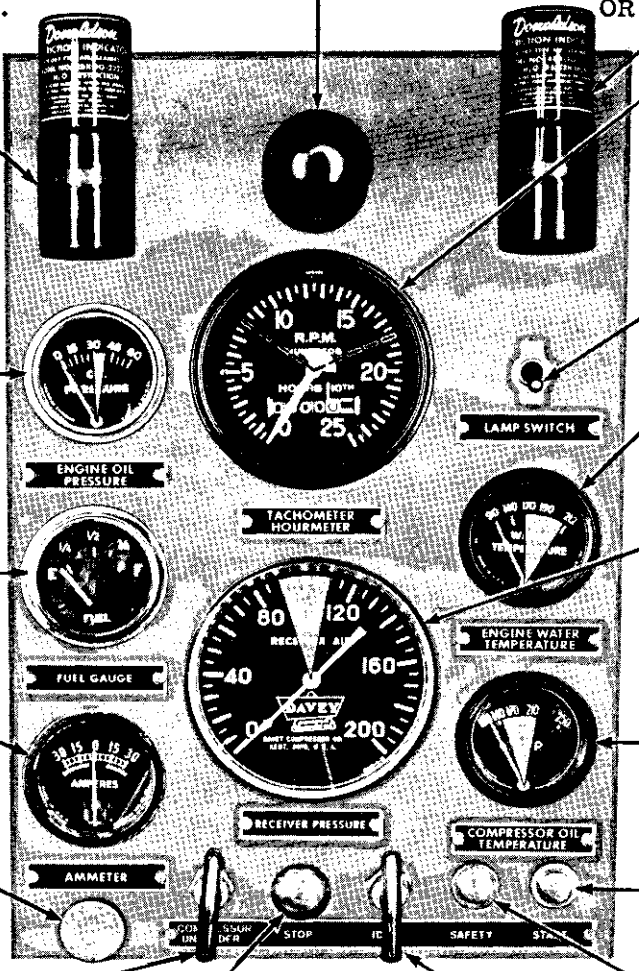


B

NOTE:
WHEN AIR OUTLET VALVE IS CLOSED, AIR HOSE PRESSURE IS RELIEVED TO ATMOSPHERE.

A - Instrument Panel Controls B - Hose Reel and Air Outlet Valve

Figure 8. Stopping the Air Compressor



COMPRESSOR AIR CLEANER RESTRICTION INDICATOR. INDICATOR GREEN FOR CLEAN INTAKE AIR TURNING RED AS DIRT BUILDS UP IN AIR CLEANER. PRESS TOP TO RESET AFTER CLEANING OR REPLACING ELEMENT.

INSTRUMENT PANEL ILLUMINATING LAMP

ENGINE AIR CLEANER RESTRICTION INDICATOR. INDICATOR GREEN FOR CLEAN INTAKE AIR TURNING RED AS DIRT BUILDS UP IN AIR CLEANER. PRESS TOP TO RESET AFTER CLEANING OR REPLACING ELEMENT.

TACHOMETER-HOURMETER. INDICATES ENGINE SPEED IN RPM (800 RPM IDLE, 1800 RPM FULL SPEED). RECORDS ENGINE RUNNING TIME IN HOURS.

INSTRUMENT PANEL LAMP ON-OFF SWITCH

ENGINE OIL PRESSURE GAGE. 7 LB MINIMUM AT IDLE; 30-40 LB AT FULL THROTTLE.

ENGINE WATER TEMPERATURE GAGE. OPERATING TEMPERATURE 165°-210°F.

FUEL LEVEL GAGE

RECEIVER PRESSURE GAGE. INDICATES PRESSURE OF RECEIVER AIR (110 PSI MAXIMUM).

AMMETER GAGE. INDICATES CHARGING OR DISCHARGING OF BATTERIES.

COMPRESSOR OIL TEMPERATURE GAGE. OPERATING 150°-220°F.

QUICK-START. FOR COLD WEATHER STARTING. ACTUATES STARTING AID VALVE.

ENGINE STARTING SWITCH. PRESS TO START.

COMPRESSOR UNLOADER. FOR COLD WEATHER STARTING, PULL OUT AND LOCK. PUSH IN WHEN ENGINE TEMPERATURE REACHES 140°F.

ENGINE STOP. PULL ALL THE WAY OUT TO STOP.

IDLE. PULL OUT TO IDLE ENGINE WHEN STARTING UNTIL ENGINE TEMPERATURE REACHES 140°F, THEN PUSH IN.

SAFETY CONTROL SWITCH. PRESS TO START ALONG WITH ENGINE STARTING SWITCH. OVERRIDES ENGINE LOW OIL PRESSURE SWITCH.

STEP 1. CHECK ALL GAGES FOR NORMAL READINGS. CONTINUE TO MAKE PERIODIC CHECKS OF GAGES WHILE UNIT IS OPERATING.

STEP 2. CONNECT AIR HOSE TO THE PNEUMATIC EQUIPMENT BEING SERVICED BY THE AIR COMPRESSOR AND TO THE HOSE REEL OR SERVICE VALVE.

STEP 3. OPEN AIR OUTLET VALVE ON HOSE REEL OR SERVICE VALVE WHICHEVER IS BEING USED.

STEP 4. UNIT IS NOW IN OPERATING CONFIGURATION.

NOTE: THE AIR COMPRESSOR WILL OPERATE AUTOMATICALLY, LOAD AND UNLOAD, IN RELATION TO AIR DEMAND.

Figure 9. Operating the Air Compressor

Section V. OPERATION OF MATERIAL USED IN CONJUNCTION WITH THE EQUIPMENT

This section contains detailed instructions on the operation of auxiliary material such as fire extinguishers and others which are supplied with this air compressor unit.

25. FIRE EXTINGUISHER (Dry Chemical Type)

a. Description. The dry chemical type fire extinguisher is suitable for use on all types of fires and is effective in areas where ambient temperature is -25°F and above. If winterized, (pressurized with nitrogen) the fire extinguisher may be used in temperatures below -25°F. The fire extinguisher is a 2-3/4 pound, stored pressure, lever-operated extinguisher.

b. Operation. Remove the fire extinguisher from its location, lift the handle, press lever, and direct the powder at the base of the flame using a side-to-side sweeping motion.

c. Maintenance. Weigh the fire extinguisher every 6 months and replace the extinguisher if weight is less than 4-1/2 pounds, or if pressure is below 125 pounds. Refer to SB 5-111. The dry chemical fire extinguisher will be serviced at installation level through Repair and Utilities facilities, with the filling agent supplied by local procurement through Troop Supply Channels.

26. DIESEL ENGINE COLD WEATHER QUICK-START

a. Description. This starting aid is a measured-shot Quick-Start unit designed for use with any diesel engine. The Quick-Start is comprised of a small fuel cylinder, actuating valve, actuating lever, dash control, and injection orifice.

b. Operation. For cold weather starting aid follow these procedures.

WARNING

Do not operate Quick-Start at temperatures above 40°F. Do not puncture or mishandle fuel cylinder. The cylinder contains an ether base mixture which is extremely toxic, volatile, and combustible.

(1) Pull out Quick-Start choke, located on instrument panel, for 1 to 2 seconds filling chamber in valve body.

(2) Push in choke, releasing measured shot of fuel into engine intake manifold, while simultaneously pressing safety switch button and start switch button also located on instrument panel (reference para 19).

(3) If engine does not start immediately, repeat steps (1) and (2) above.

(4) When started and engine falters or is dying out, give extra shot to keep engine running.

c. Replacement. Replace fuel cylinder when empty by loosening clamp attaching cylinder to rear wall of housing and unscrew cylinder from actuating valve. Assemble full fuel cylinder in the reverse of removal.

d. Maintenance. To remove dirt in orifice, loosen both ends of copper tube between actuating valve and engine manifold. Blow out copper tube through orifice end only. Tighten tube to actuator valve and check for fogging. Tighten tubing to manifold. Check fuel cylinder for hand tightness periodically.

e. Testing. Remove copper tube from engine intake manifold. Pull out and push in Quick-Start choke. A fine atomizing spray will be emitted from orifice. Place orifice tube back into manifold and tighten.

WARNING

Perform this test in a well ventilated area. Do not inhale spray vapor. Mixture is of an ether base and is extremely toxic, volatile and combustible.

Chapter 3

OPERATOR AND ORGANIZATIONAL MAINTENANCE INSTRUCTIONS

Section I. SPECIAL TOOLS AND EQUIPMENT

27. SPECIAL TOOLS AND EQUIPMENT

No special tools or equipment are required by the operator or organizational maintenance personnel for the maintenance of the air compressor.

28. BASIC ISSUE TOOLS AND EQUIPMENT

Tools and repair parts issued with or authorized for the air compressor are listed in the Basic Issue Items List, Appendix III of this manual.

29. ORGANIZATIONAL MAINTENANCE REPAIR PARTS

Organizational maintenance repair parts are listed and illustrated in Appendix IV.

Section II. LUBRICATION

30. GENERAL LUBRICATION INFORMATION

a. This section contains a reproduction of the lubrication order and lubrication instructions which are supplemental to, and not specifically covered in the lubrication order.

b. The lubrication order shown in figure 10 is an exact reproduction of the approved lubrication order for the air compressor. For the current lubrication order, refer to DA-PAM-310-4.

31. DETAILED LUBRICATION INFORMATION

a. Care of Lubricants. Keep all lubricants in closed containers and store in a clean, dry place away from external heat. Allow no dust, dirt, or other foreign matter to mix with lubricants. Keep all lubrication equipment clean and ready for use.

b. Cleaning. Keep all external parts not requiring lubrication clean of lubricants. Before lubricating the equipment, wipe all lubrication points free of dirt and grease. Clean all lubrication points after lubricating to prevent accumulation of foreign matter.

c. Points of Lubrication. Service the lubrication points at proper intervals as illustrated in figure 10.

CAUTION

Overlubrication may cause equipment failure or damage to working parts.

d. Operation Immediately After Lubrication. Inspect all oil lines, fittings and filters for leaks immediately after lubrication and during operation.

(1) OES Oil. The crankcase oil level must be checked frequently, as oil consumption may increase.

(2) The oil may require changing more frequently than usual because contamination by dilution and sludge formation will increase under cold weather operation conditions, under extreme heat conditions, and under dusty or sandy conditions.

e. Oil Filter Service. Service engine and compressor oil filters as instructed in figure 11.

f. Starter and Generator Service. The starter and generator have sealed bearings and require no service.

LUBRICATION ORDER

LO 5-4310-250-15

COMPRESSOR, ROTARY, AIR; DIESEL ENGINE DRIVEN; SKID MOUNTED,

250 CFM, 100 PSI (DAVEY MODEL M250 RPV) W/ENGINE,

CONTINENTAL MODEL JD403-6002

Reference C9100-IL

Intervals are based on normal hours of operation. Reduce to compensate for abnormal operation and severe conditions. During inactive periods sufficient lubrication must be performed for adequate preservation.

Clean fittings before lubricating.

Relubricate after washing or fording.

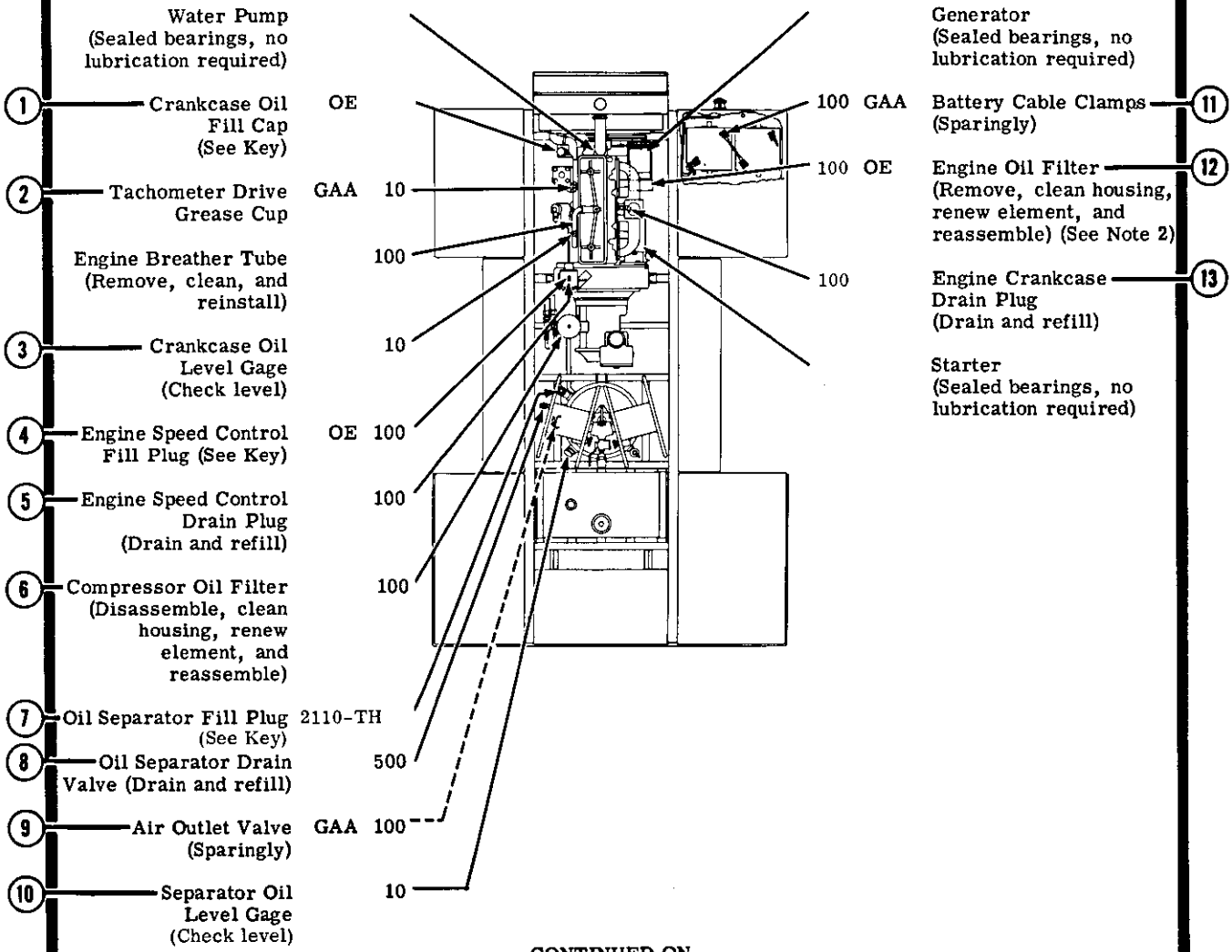
Clean parts with SOLVENT, dry-cleaning, or with OIL, fuel, Diesel. Dry before lubricating.

Lubricate points indicated by dotted arrow shaft on both sides of equipment.

Drain crankcase only when hot after operation; replenish and check level when cool.

LUBRICANT-INTERVAL

INTERVAL-LUBRICANT



CONTINUED ON FOLLOWING PAGE

Figure 10. Lubrication Order

CONTINUED FROM
PRECEDING PAGE

-KEY-

LUBRICANTS	CAPACITY	EXPECTED TEMPERATURES			INTERVALS
		Above +32°F	+40°F to -10°F	0°F to -65°F	
OE - OIL, Engine, Heavy Duty		OE 30	OE 10	OES	Intervals given are in hours of normal operation.
Crankcase, Engine	9 qt				
Engine Speed Control	1/5 qt				
Oil Can Points					
OES - OIL, Engine, Sub-zero					
2110-TH - LUBRICATING OIL, Steam Turbine.		2110-TH	2110-TH	OES	
Compressor Oil Separator	24 qt				
GAA - GREASE, Automotive and Artillery		All Temperatures			

NOTES:

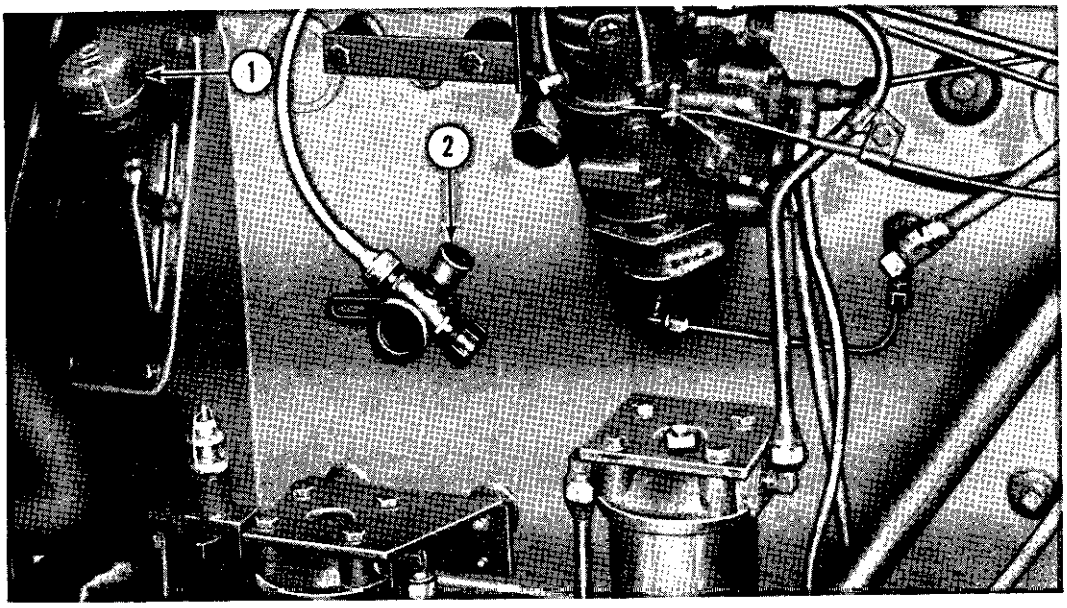
1. FOR OPERATION OF EQUIPMENT IN PROTRACTED COLD TEMPERATURES BELOW -10°F. Remove lubricants prescribed in the key for temperatures above -10°F. Clean parts with SOLVENT, dry-cleaning. Relubricate with lubricants specified in the key for temperatures below -10°F.

2. OIL FILTER. Every 100 hours remove filter element, clean housing, install new element, fill crankcase, operate engine for five minutes, check for leaks, check crankcase oil level, and bring to full mark.

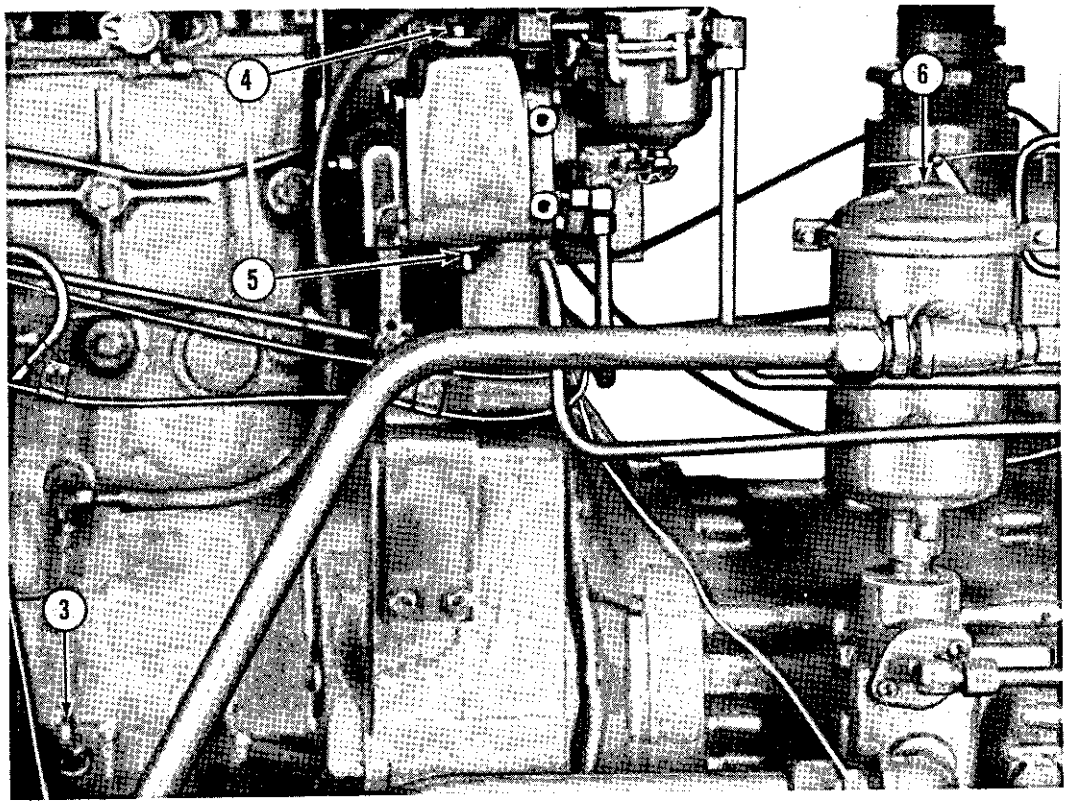
3. OIL CAN POINTS. Every 50 hours lubricate throttle and speed control linkage, pins and clevises, door hinges, and all exposed adjusting threads with OE.

Copy of this Lubrication Order will remain with the equipment at all times; instructions contained herein are mandatory.

Figure 10. - Continued.

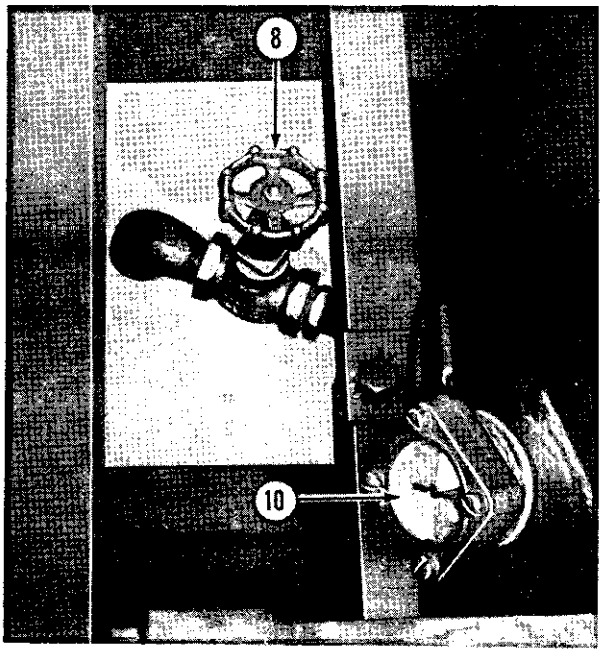


REF 1. CRANKCASE OIL FILL CAP
REF 2. TACHOMETER DRIVE GREASE CUP

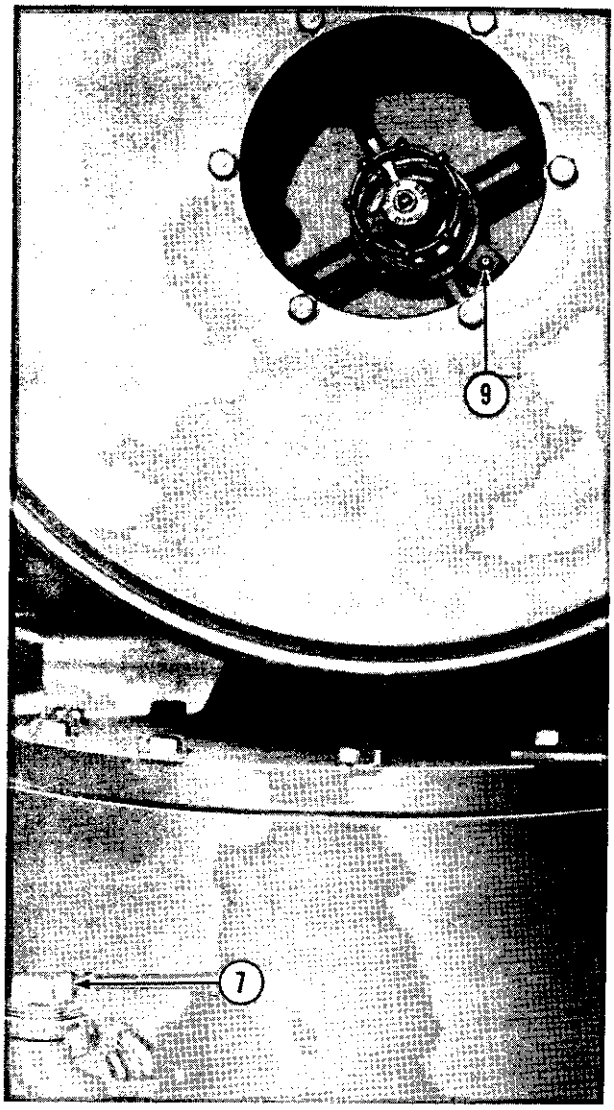


REF 3. CRANKCASE OIL LEVEL GAGE
REF 4. ENGINE SPEED CONTROL FILL PLUG
REF 5. ENGINE SPEED CONTROL DRAIN PLUG
REF 6. COMPRESSOR OIL FILTER

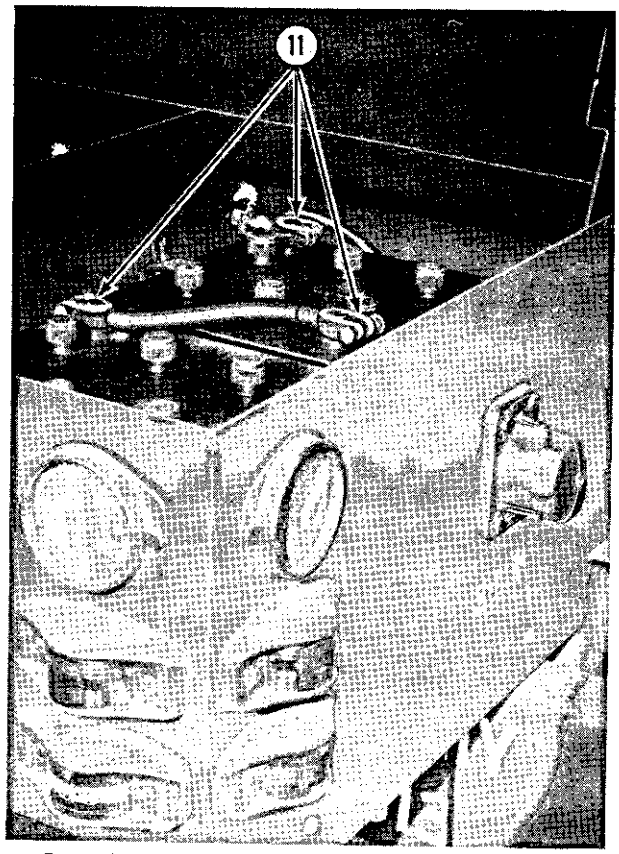
References 1 through 6
Figure 10. - Continued.



REF 8. OIL SEPARATOR DRAIN VALVE
REF 10. SEPARATOR OIL LEVEL GAGE

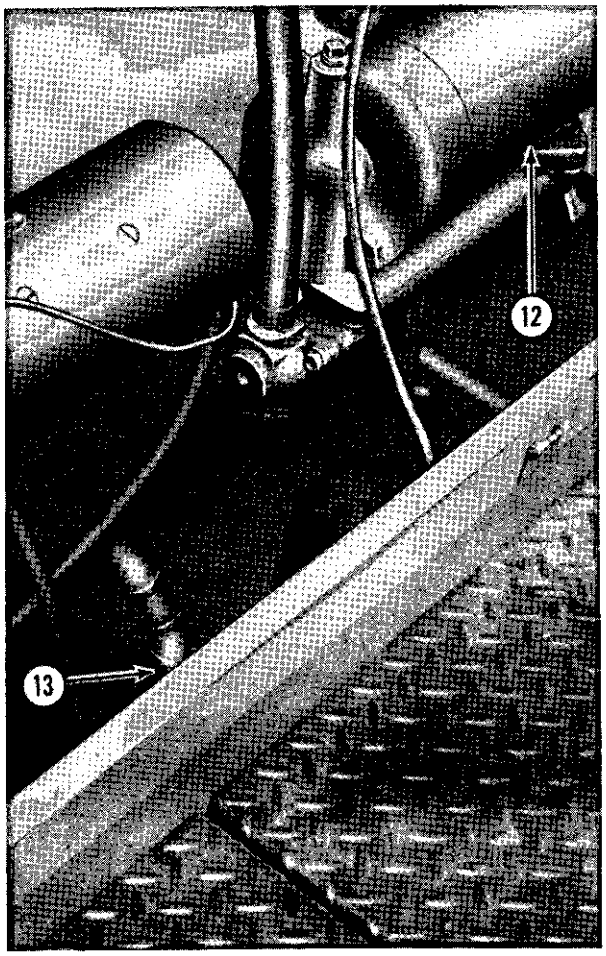


REF 7. OIL SEPARATOR FILL PLUG
REF 9. AIR OUTLET VALVE



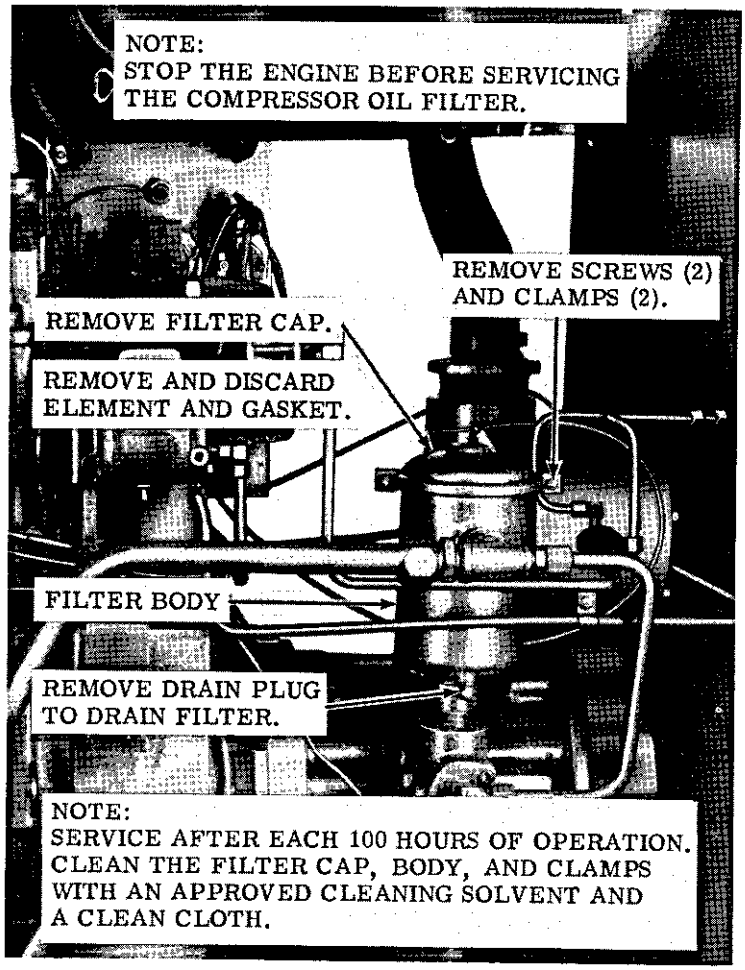
REF 11. BATTERY CABLE CLAMPS

References 7 through 11
Figure 10. - Continued.



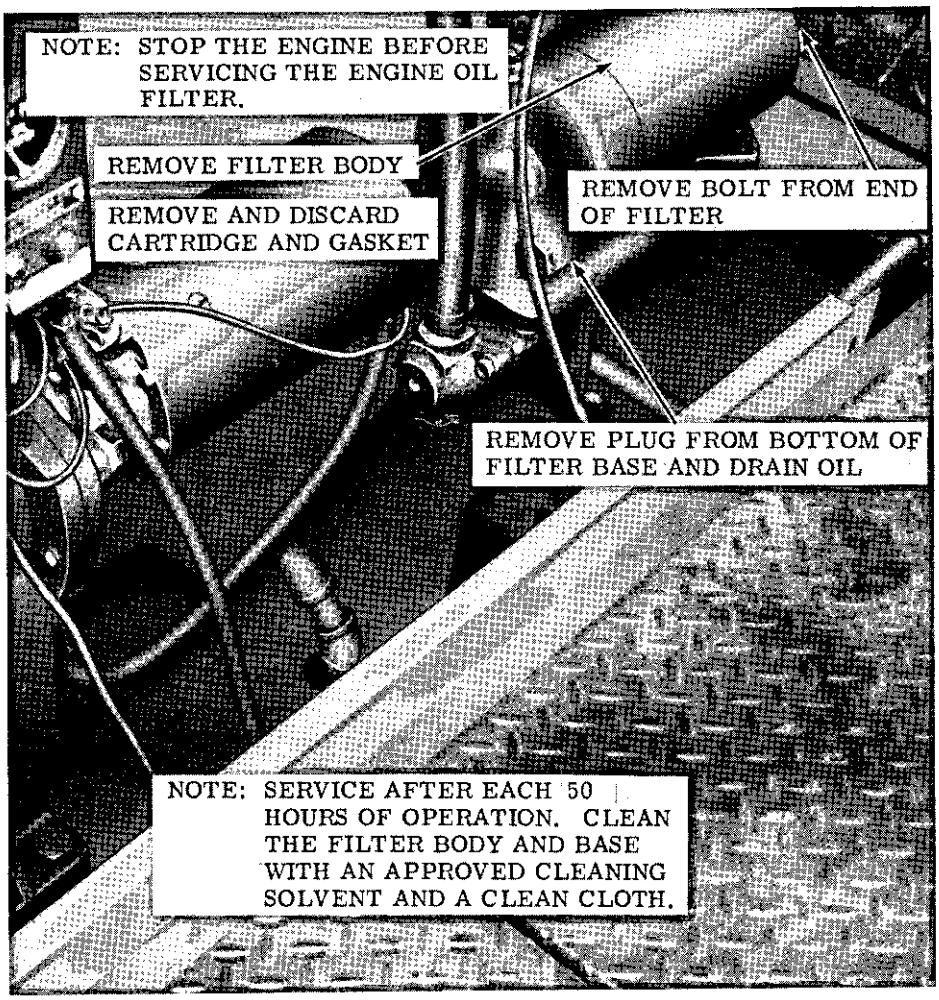
REF 12. ENGINE OIL FILTER
REF 13. ENGINE CRANKCASE DRAIN PLUG

References 12 and 13
Figure 10. - Continued.



A - Compressor Oil Filter Service

Figure 11. Oil Filter Service



B

B - Engine Oil Filter Service

Figure 11. - Continued.

Section III. PREVENTIVE MAINTENANCE SERVICE

32. GENERAL

To insure that the air compressor is ready for operation at all times, it must be inspected systematically, so that defects may be discovered and corrected before they result in serious damage or failure. The necessary Preventive Maintenance Services to be performed are listed and described in paragraphs 33 and 34. The item numbers indicate the sequence of minimum inspection requirements. Defects discovered during operation of the unit shall be noted for future correction, to be made as soon as operation has ceased. Stop operation immediately if a deficiency is noticed during operation which would damage the equipment if operation were continued. All deficiencies and shortcomings will be recorded together with the corrective action taken on DA Form 2404 at the earliest possible opportunity.

33. DAILY PREVENTIVE MAINTENANCE SERVICES

This paragraph contains an illustrated tabulated listing of preventive maintenance services which must be performed by the operator. The item numbers are listed consecutively and indicate the sequence of minimum requirements. Refer to figure 12 for the Daily Preventive Maintenance Services.

34. QUARTERLY PREVENTIVE MAINTENANCE SERVICES

a. This paragraph contains an illustrated tabulated listing of preventive maintenance services which must be performed by Organizational Maintenance personnel at quarterly intervals. A quarterly interval is equal to 3 calendar months, or 250 hours of operation, whichever occurs first.

b. The item numbers are listed consecutively and indicate the sequence of minimum requirements. Refer to figure 13 for Quarterly Preventive Maintenance Services.

Section IV. OPERATOR MAINTENANCE

35. GENERAL

The instructions in this section are published for the information and guidance of the operator to maintain the air compressor.

36. FUEL FILTER SERVICE

Service the fuel filters as illustrated in figure 14.

37. FUEL TANK CAP AND STRAINER SERVICE

Service fuel tank cap and strainer as illustrated in figure 15.

38. FAN V-BELT ADJUSTMENT

Adjust the fan V-belt as illustrated in figure 16.

39. OIL FILTER SERVICE

Service oil filters as illustrated in figure 17.

40. AIR CLEANER SERVICE

Service air cleaners as illustrated in figure 18.

41. LAMP REPLACEMENT

Replace lamp as illustrated in figure 19.

42. ENGINE STARTING AID SERVICE

Service engine starting aid as illustrated in figure 20.

43. BATTERY SERVICE

Service batteries as illustrated in figure 21.

44. TACHOMETER DRIVE SERVICE

Service tachometer drive as illustrated in figure 22.

45. COMPRESSOR SERVICE

Service the compressor as illustrated in figure 23.

46. ENGINE CONTROL SERVICE

Service the engine control as illustrated in figure 24.

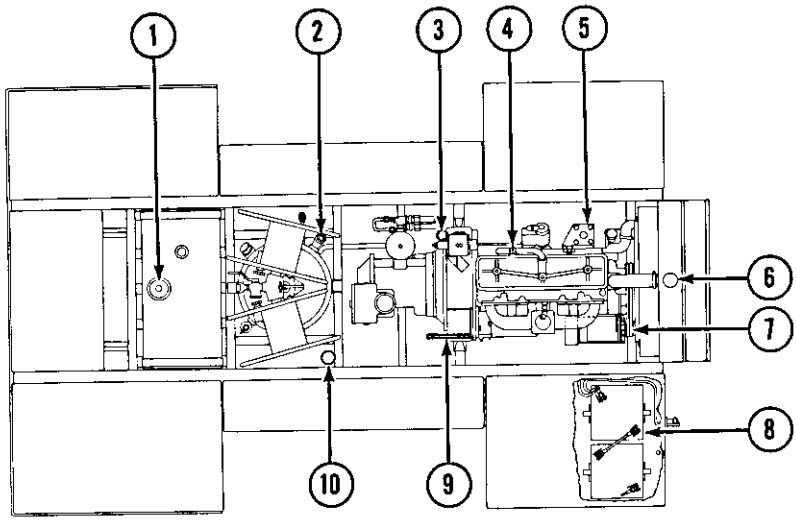
47. HOSE REEL SERVICE

Service hose reel as illustrated in figure 25.

PREVENTIVE MAINTENANCE SERVICES

DAILY

TM 5-4310-250-15 | DAVEY COMPRESSOR CO. MODEL M250 RPV | COMPRESSOR, AIR



ITEM	LUBRICATE IN ACCORDANCE WITH CURRENT LUBRICATION ORDER	PARA REF
1	FUEL TANK. Add fuel as required.	37
2	OIL SEPARATOR. Add oil as indicated by level gage. Reference current L.O.	45
3	MOISTURE SEPARATOR. Open drain cock and drain.	46
4	ENGINE OIL LEVEL GAGE. Add oil as indicated by level gage. Reference current L.O. (Change oil and oil filter element every 100 operating hours.)	
5	PRIMARY FUEL FILTER. Clean element every 50 operating hours.	36
6	RADIATOR. Proper coolant level is 2 inches below filler neck.	
7	BELTS. Proper adjustment is 1/2 inch deflection midway between pulleys. (Weekly)	38
8	BATTERIES. Tighten loose cables and mounting. Remove corrosion. Inspect for cracks and leaks. Fill to 3/8 inch above plates. Clean vent hole in filler caps before installing. In freezing weather run engine a minimum of 1 hour after adding water. (Weekly)	43
9	CONTROLS AND INSTRUMENTS. Inspect for damage and loose connections. With unit operating, check for proper operation. Normal operating readings are as follows: Restriction Indicators ..... Normally Green Engine Oil Pressure ..... 30-40 LBS Tachometer ..... 800 RPM Idle, 1800 RPM Full Speed Engine Water Temperature ..... 165°F - 210°F Compressor Oil Temperature ..... 150°F - 220°F Receiver Pressure ..... 90 - 110 PSI	

Figure 12. Daily Preventive Maintenance Services

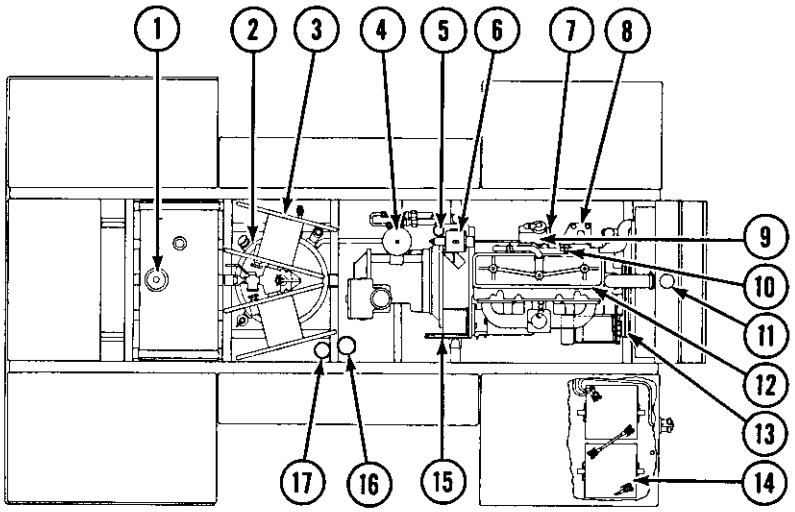
ITEM		PARA REF
10	FIRE EXTINGUISHER. Check for broken seal.	25
	ENGINE AIR CLEANER AND COMPRESSOR AIR CLEANER. Check restriction indicator on instrument panel. Clean elements or replace as required.	40
	NOTE 1. OPERATION. During operation observe for unusual noise or vibration.	

Figure 12. - Continued.

PREVENTIVE MAINTENANCE SERVICES

QUARTERLY

TM 5-4310-250-15 | DAVEY COMPRESSOR CO. MODEL M250 RPV | COMPRESSOR, AIR



ITEM	LUBRICATE IN ACCORDANCE WITH CURRENT LUBRICATION ORDER	PARA REF
1	FUEL TANK. Add fuel as required. Tighten loose mounting. Replace defective cap. Clean cap vent. Replace defective fuel level sending unit.	37
2	OIL SEPARATOR. Change oil. Reference current L. O. (Change oil every 500 operating hours.)	45
3	HOSE REELS. Lubricate. Reference current L. O.	47
4	COMPRESSOR OIL FILTER. Change filter element. (Change element every 100 operating hours.)	39
5	MOISTURE SEPARATOR. Open drain cock and drain.	46
6	ENGINE SPEED CONTROL. Change oil. Reference current L. O.	46
7	SECONDARY FUEL FILTER. Change element. (Change element every 500 operating hours.)	36
8	PRIMARY FUEL FILTER. Clean element. Replace as required.	36
9	FUEL INJECTION PUMP. Check timing to engine. (Check timing every 500 operating hours.)	92
10	TACHOMETER DRIVE. Lubricate. Reference current L. O.	44
11	RADIATOR. Proper coolant level is 2 inches below filler neck. Replace cracked or frayed hoses. Replace defective radiator. Remove obstructions in radiator core. Tighten mounting and leaking connections.	102

Figure 13. Quarterly Preventive Maintenance Services

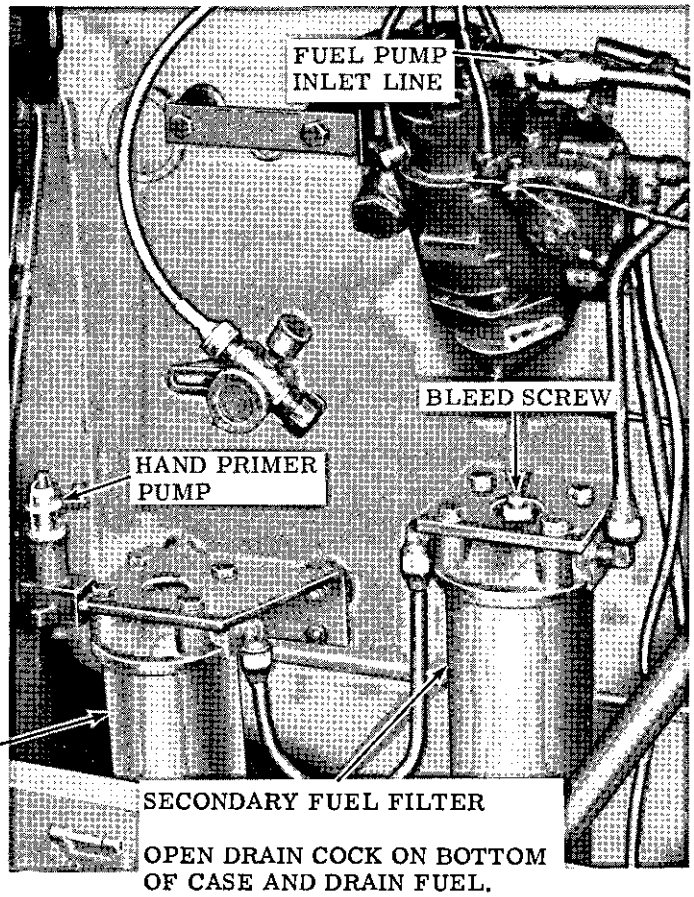
ITEM		PARA REF
12	ENGINE. Clean exterior of engine. Adjust valve tappet clearance, hot and idle, intake and exhaust clearance is 0.014 inch. Check even running and exhaust smoke for indication of poor combustion. Clean oil pump screen every 500 operating hours. Check mounting every 500 hours of operating. Check cylinder head nut torque every 500 operating hours. Check and clean injector nozzles every 500 operating hours. Check compression every 500 operating hours. Change oil and oil filter element. Reference current L. O.	117 212 209 207
13	BELTS. Proper adjustment is 1/2 inch deflection midway between pulleys. Replace worn, frayed, or cracked belts.	38
14	BATTERIES. Tighten loose cables and mounting. Remove corrosion. Fill to 3/8 inch above plates. Clean ventholes in filler caps before installing. In freezing weather run engine 1 hour after adding water. Replace a cracked or leaking battery.	43
15	CONTROLS AND INSTRUMENTS. Replace damaged instruments. Tighten loose mounting. With unit operating, check for proper operation. Normal operating readings for instruments are as follows: Restriction Indicators ..... Normally Green Engine Oil Pressure ..... 30 - 40 LBS Tachometer ..... 800 RPM Idle, 1800 RPM Full Speed Engine Water Temperature ..... 165°F - 210°F Compressor Oil Temperature ..... 150°F - 220°F Receiver Pressure ..... 90 - 110 PSI	118
16	COLD WEATHER QUICK-START. Check for dirty orifice and clean. Check cylinder for hand tightness.	26
17	FIRE EXTINGUISHER. Inspect for broken seal. Inspect for full charge by reading gage or by weight.	25
	ENGINE AIR CLEANER AND COMPRESSOR AIR CLEANER. Clean element. Replace damaged element and gaskets as required.	40
	NOTE 1. OPERATIONAL TEST. During operation observe for any unusual noise or vibration.	
	NOTE 2. ADJUSTMENTS. Make all necessary adjustments during operational test.	

Figure 13. - Continued.

NOTE:
CLEAN FOREIGN MATTER FROM FILTER CASES WITH AN APPROVED CLEANING SOLVENT. DISCARD GASKETS. CLEAN PRIMARY FILTER ELEMENT OR REPLACE IF DAMAGED. REPLACE SECONDARY FILTER ELEMENT. REPLACE GASKETS.

NOTE:
AFTER SERVICING FUEL FILTERS, BLEED AIR FROM FILTERS AND LINES AS FOLLOWS:

- OPEN BLEED SCREW ON SECONDARY FUEL FILTER.
- DISCONNECT FUEL PUMP INLET LINE AT PUMP.
- ACTUATE HAND PRIMER PUMP UNTIL AIR IS DISPELLED FROM FILTERS.
- CLOSE BLEED SCREW.
- CONTINUE HAND PRIMING UNTIL APPROX. ONE GALLON OF FUEL FLOWS "AIR-FREE" AT PUMP INLET LINE. (COLLECT FUEL IN AN APPROPRIATE CONTAINER.)
- CONNECT FUEL PUMP INLET LINE AND TIGHTEN.



PRIMARY FUEL FILTER

OPEN DRAIN COCK ON BOTTOM OF CASE AND DRAIN FUEL.

REMOVE HEX NUT FROM BOTTOM OF CASE.

REMOVE CASE, ELEMENT, AND GASKET. CLEAN OR REPLACE ELEMENT AS NECESSARY.

SECONDARY FUEL FILTER

OPEN DRAIN COCK ON BOTTOM OF CASE AND DRAIN FUEL.

REMOVE HEX NUT FROM BOTTOM OF CASE.

REMOVE CASE, ELEMENT, AND GASKET. REPLACE ELEMENT AND GASKET.

Figure 14. Fuel Filter Service

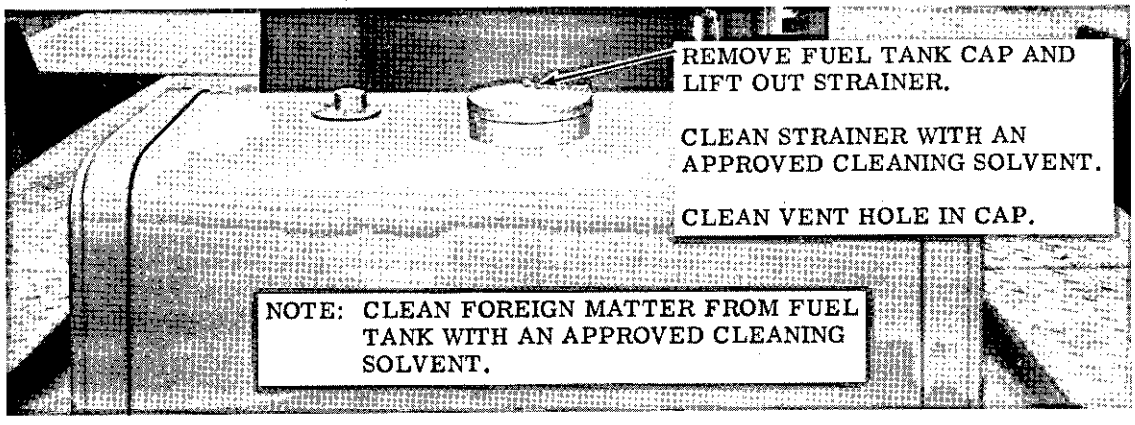
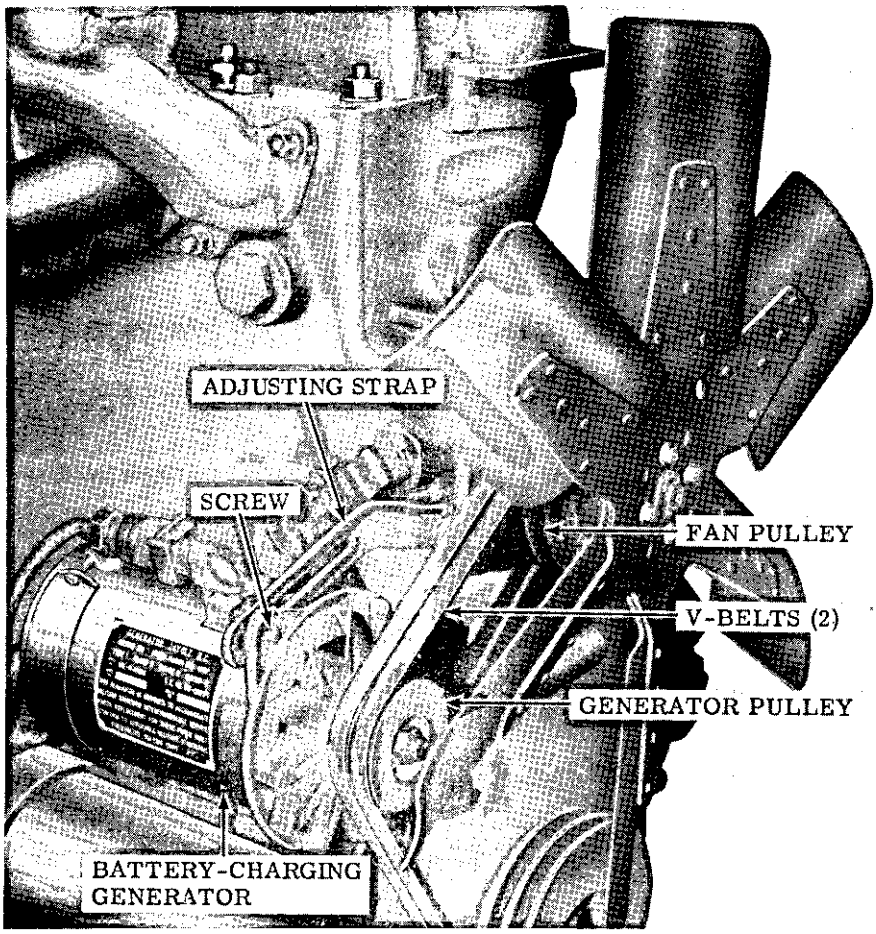


Figure 15. Fuel Tank Cap and Filter Service



STEP 1.
LOOSEN SCREW SECURING BATTERY-CHARGING GENERATOR TO THE ADJUSTING STRAP.

STEP 2.
LOOSEN THE NUT (2) AND SCREW (2) FROM BOTTOM OF GENERATOR SECURING THE GENERATOR TO THE MOUNTING BRACKET.

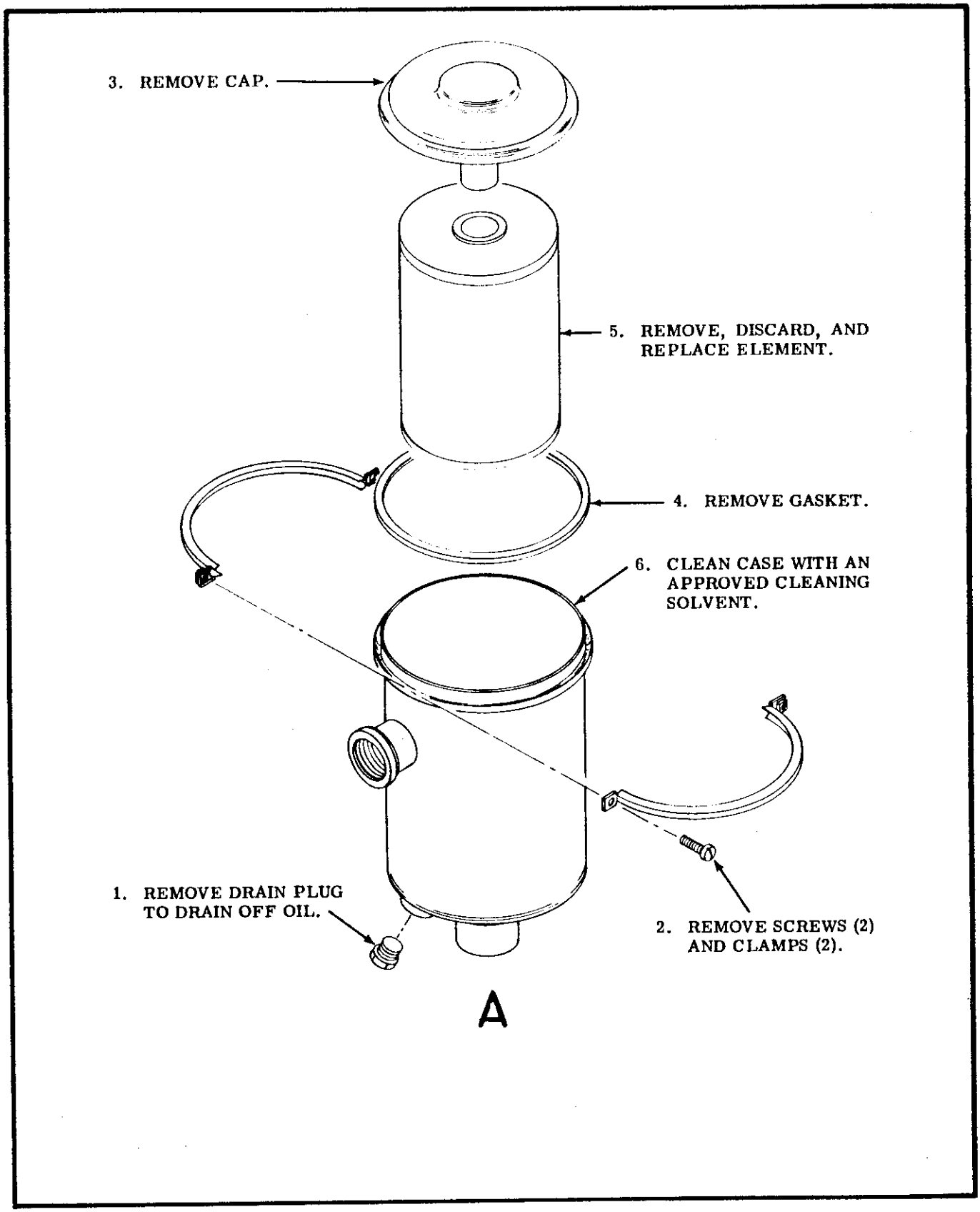
STEP 3.
MOVE THE GENERATOR AWAY FROM THE ENGINE, INCREASING THE TENSION ON THE V-BELTS.

STEP 4.
TIGHTEN SCREW SECURING ADJUSTING STRAP.

STEP 5.
DEPRESS THE V-BELTS BETWEEN THE PULLEYS. FOR PROPER TENSION, V-BELTS SHOULD DEPRESS 1/2 INCH.

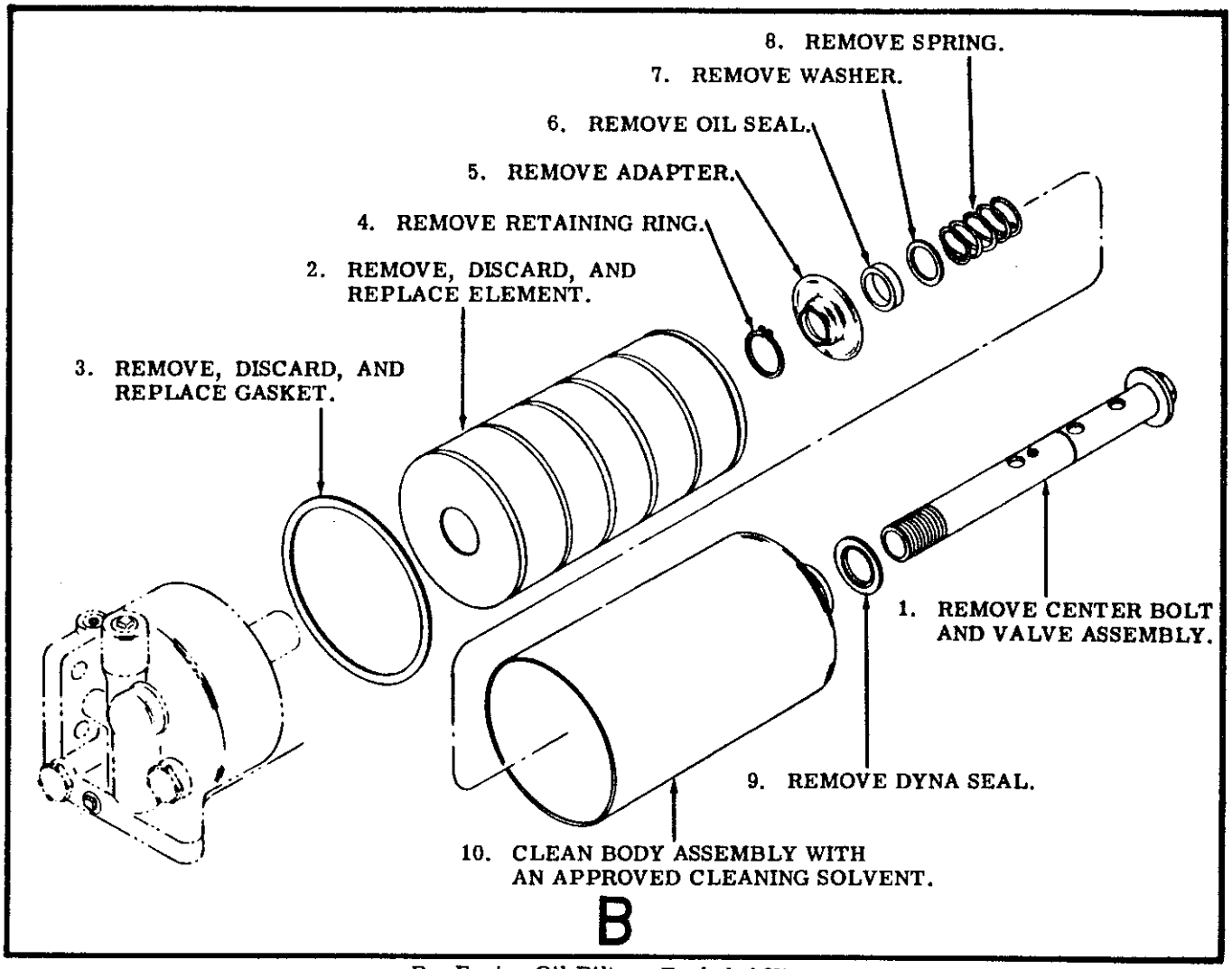
STEP 6.
TIGHTEN NUT (2) AND SCREW (2) ON MOUNTING BRACKET.

Figure 16. Fan V-Belt Adjustment



A - Compressor Oil Filter, Exploded View

Figure 17. Oil Filter Service



B - Engine Oil Filter, Exploded View
Figure 17. - Continued.

STEP 1: LOOSEN SCREW SECURING CUP ASSEMBLY TO BODY ASSEMBLY.

STEP 2: REMOVE ELEMENT BY PULLING OUTWARD.

STEP 3: CLEAN ELEMENT AS FOLLOWS:
DRY OR DUSTY ELEMENT: USE COMPRESSED AIR HOSE TO BLOW DRY AIR (100 PSI OR LESS) THROUGH THE ELEMENT OPPOSITE TO DIRECTION OF ARROW ON END OF ELEMENT.
OILY OR SOOTY ELEMENT: USE GARDEN HOSE (40 PSI OR LESS) AND NON-SUDSING HOUSEHOLD DETERGENT IF AVAILABLE. DRY THOROUGHLY.

CAUTION: DO NOT RUPTURE ELEMENT, DAMAGE FINS OR SEALING SURFACES, NOR ALLOW DUST TO DEPOSITE ON CLEAN AIR SIDE.

STEP 4: CLEAN CUP ASSEMBLY WITH AN APPROVED CLEANING SOLVENT.

STEP 5: INSERT ELEMENT INTO BODY ASSEMBLY. REPLACE GASKET AS NECESSARY.

STEP 6: SECURE CUP ASSEMBLY TO BODY ASSEMBLY BY TIGHTENING SCREW.

NOTE: ASSEMBLE CUP ASSEMBLY WITH ARROWS POINTING UPWARD.

STEP 7: DEPRESS TOP OF RESTRICTION INDICATORS ON INSTRUMENT PANEL TO RESET AFTER SERVICING FILTER ELEMENTS.

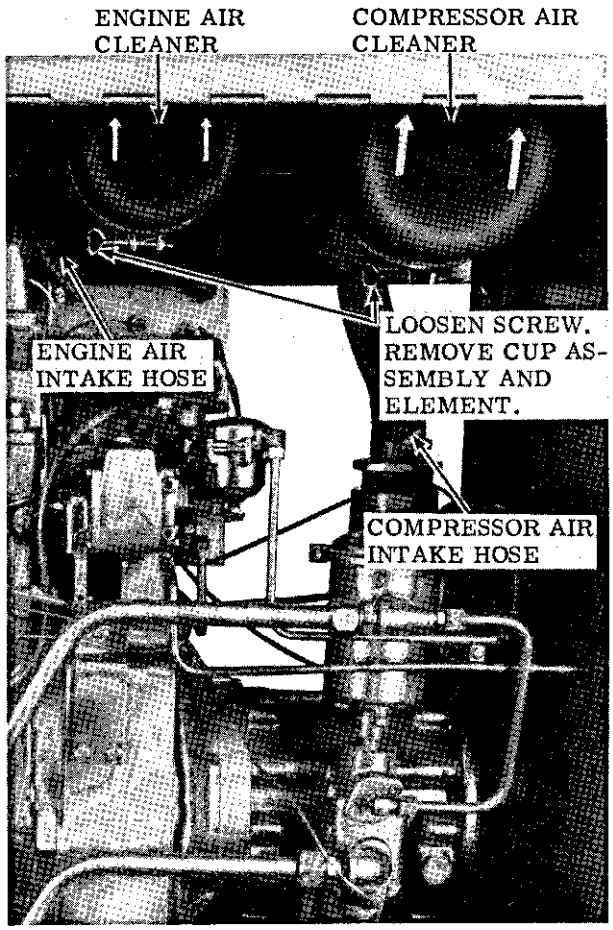


Figure 18. Air Cleaner Service

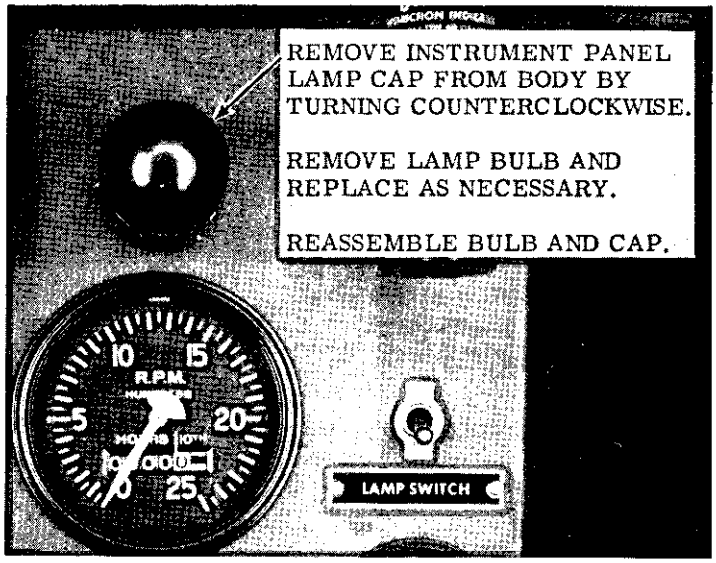
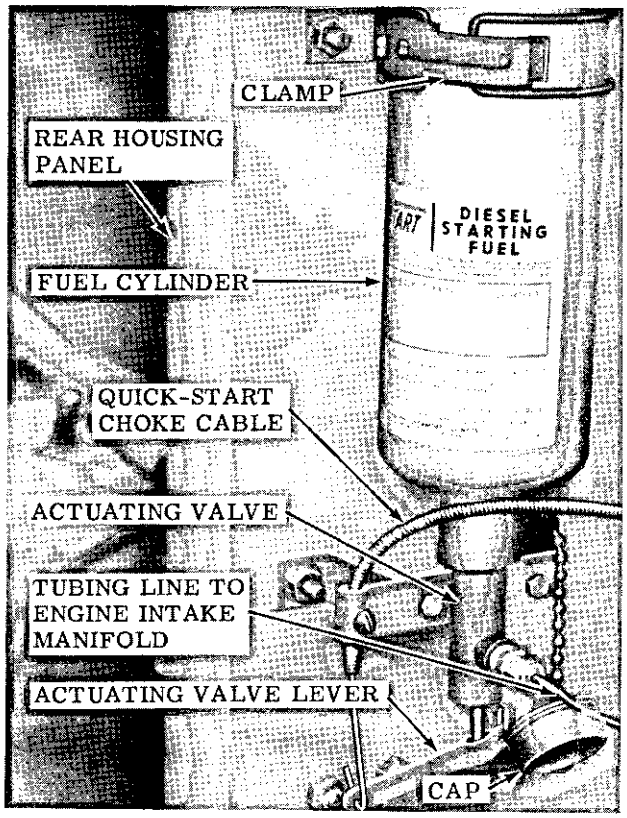


Figure 19. Lamp Replacement

WARNING: DO NOT PUNCTURE OR MISHANDLE FUEL CYLINDER. THE CYLINDER CONTAINS AN ETHER BASE MIXTURE WHICH IS EXTREMELY TOXIC, VOLATILE, AND COMBUSTIBLE.



STEP 1.
RELEASE CLAMP SECURING FUEL CYLINDER TO MOUNTING BRACKET.

STEP 2.
UNSCREW FUEL CYLINDER FROM ACTUATING VALVE AND COVER VALVE OPENING WITH CAP UNTIL READY TO INSTALL NEW FUEL CYLINDER.

STEP 3.
REMOVE ACTUATING VALVE CAP AND INSTALL NEW FUEL CYLINDER TO VALVE.

STEP 4.
SECURE CLAMP ATTACHING FUEL CYLINDER TO MOUNTING BRACKET.

STEP 5.
DISCONNECT TUBING LINE FROM ACTUATING VALVE AND ENGINE INTAKE MANIFOLD. BLOW OUT LINE WITH COMPRESSED AIR THROUGH ORIFICE END ONLY.

STEP 6.
CONNECT TUBING LINE TO ACTUATING VALVE AND OPERATE ACTUATING LEVER. CHECK ORIFICE END FOR FOGGING DISCHARGE OF FUEL.

STEP 7.
CONNECT TUBING LINE TO ENGINE INTAKE MANIFOLD.

Figure 20. Engine Starting Aid Service

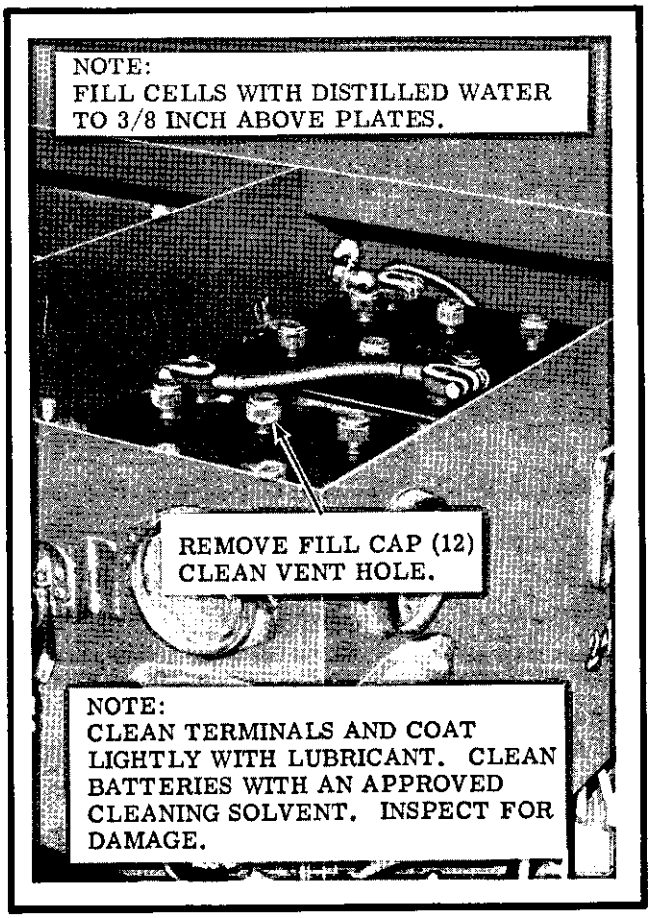


Figure 21. Battery Service

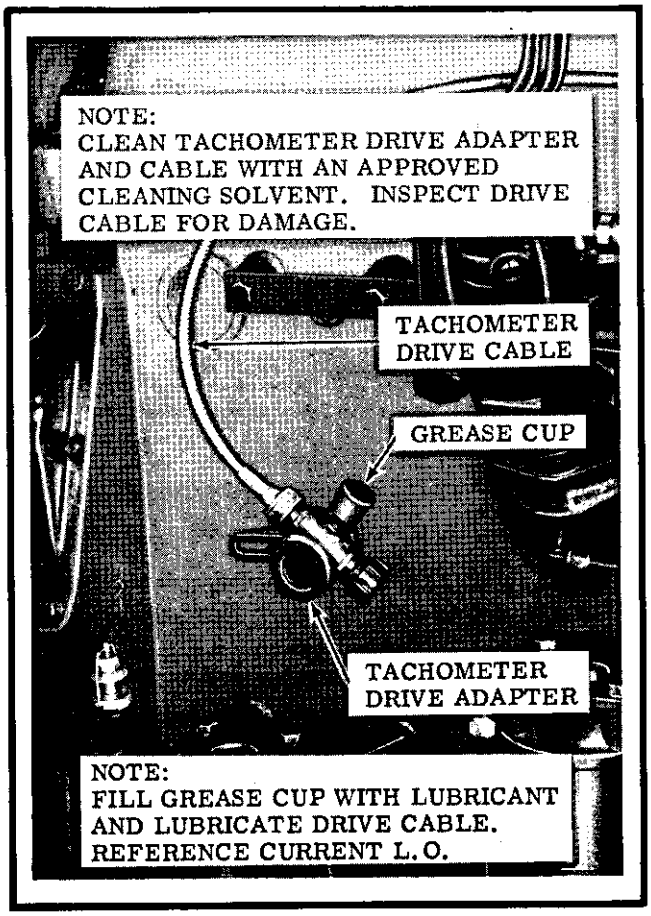


Figure 22. Tachometer Drive Service

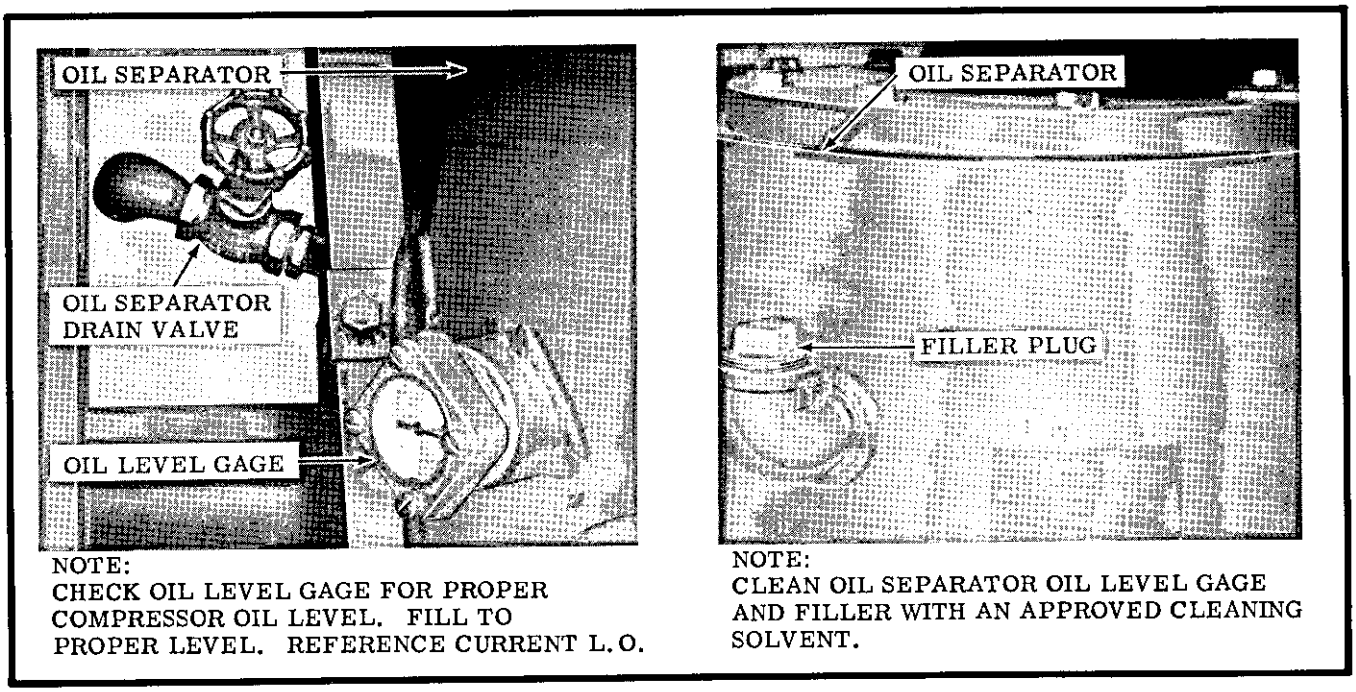
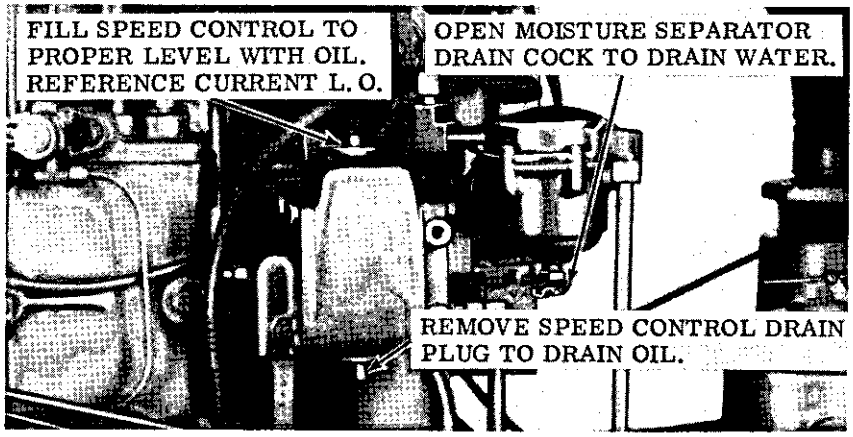


Figure 23. Compressor Service



NOTE:
REMOVE THE DRAIN PLUG FROM THE ENGINE SPEED CONTROL AND DRAIN THE OIL. REPLACE THE DRAIN PLUG. FILL THE SPEED CONTROL WITH SPECIFIED OIL. REFERENCE CURRENT L. O. START THE ENGINE AND WORK THE SPEED CONTROL SEVERAL TIMES BY OPENING AND CLOSING THE AIR OUTLET VALVE. STOP THE ENGINE AND CHECK OIL LEVEL IN THE SPEED CONTROL. FILL TO PROPER LEVEL AS NECESSARY.

Figure 24. Engine Speed Control Service

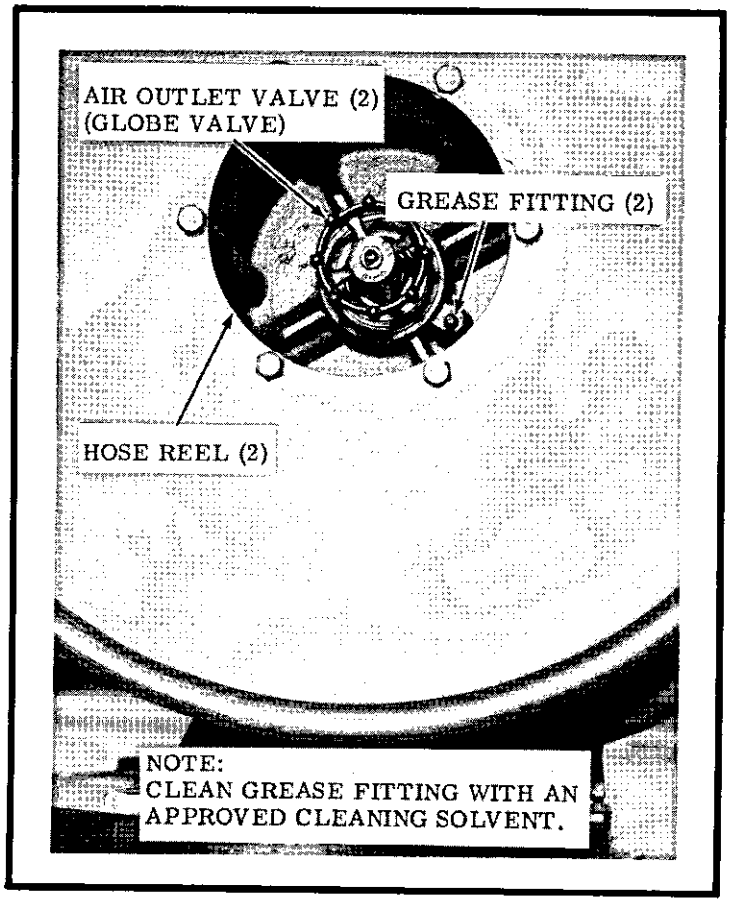


Figure 25. Hose Reel Service

48. GENERAL

This section provides information useful in diagnosing and correcting unsatisfactory operation or failure of the air compressor and its components. Each trouble symptom stated is followed by a list of probable causes of the trouble. The possible remedy recommended is described opposite the probable cause. Any trouble beyond the scope of organizational maintenance shall be reported to field maintenance, 3rd echelon.

49. ENGINE WILL NOT TURN OVER

Probable cause	Possible remedy
Dead or weak batteries	Recharge or replace batteries (para 97).
Poor ground connection	Inspect and tighten ground cable (para 97).
Loose or faulty wiring connections	Clean and tighten connections (para 97)
Starting switch faulty	Replace switch (para 128)
Starting motor defective	Replace starter (para 96)
Internal engine seizure	Turn engine manually, if unable to do this, refer trouble to field maintenance, 3rd echelon

50. ENGINE TURNS BUT WILL NOT START

Probable cause	Possible remedy
Stop control in stop position	Put control in operating position (para 16)
No fuel supply to injection pump	Fill fuel tank or open shut-off valve (para 37)
Air in fuel injection lines	Check connections and bleed fuel system (para 36)
Clogged or dirty fuel filters	Replace filter elements (para 36)
Cranking speed under 115 RPM	Recharge or replace batteries (para 97). Check starter, replace if defective (para 96)
Water in diesel fuel	Drain fuel system, refill with clean fuel or strain through chamois and bleed system (para 37)
Low atmospheric temperature	Use cold weather starting aid (para 19)

51. ENGINE MISSES OR RUNS ERRATICALLY

Probable cause	Possible remedy
Cylinder or cylinders missfiring	Loosen fuel line to nozzle one at a time, if no change is noticeable, that cylinder is missfiring. Refer trouble to field maintenance, 3rd echelon
Operating temperature too low, below 165°F	Check and replace thermostat (para 104)
Air in fuel lines	Check connections and bleed system (para 36)
Clogged engine air cleaner	Clean element, tighten connections (para 40)
Engine idling too slow	Increase to recommended speed of 800 RPM
Poor fuel	Use No. 2 Diesel engine fuel oil that meets specifications

52. ENGINE STOPS SUDDENLY

Probable cause	Possible remedy
No fuel	Refill fuel tank and bleed fuel system (para 37)
Restriction in fuel flow	Clogged or dirty filters. Check lines for obstructions or breaks. Replace dirty filter elements (para 36)
Air in fuel lines	Bleed fuel system (para 36)
Fuel pump faulty	Replace fuel pump (para 92)
Water in fuel	Drain system and refill with clean fuel or strain remaining fuel through chamois (para 36)
Internal engine seizure	Turn engine manually. If unable to do so, refer trouble to field maintenance, 3rd echelon

53. ENGINE FAILS TO STOP

Probable cause	Possible remedy
Stop cable out of adjustment	Adjust cable so that fuel is shut off when stop cable on instrument panel is pulled outward (para 126)
Defective injection pump governor	Report trouble to field maintenance, 3rd echelon

54. ENGINE OVERHEATS

Probable cause	Possible remedy
Lack of coolant	Add coolant. Tighten hose connections and repair leaks as required (para 100)
Fan belts slipping	Inspect belt condition and adjust tension (para 38)

Probable cause	Possible remedy
Engine overloaded	Reduce load. Keep engine speed up (para 16)
Thermostat sticking or inoperative	Remove, clean and check. Replace if required (para 104)
Fuel injection timing wrong	Retime injection pump (para 92)
Back pressure in exhaust line.	Inspect for restriction in exhaust system, remove or clean (para 115)

55. ENGINE RUNS TOO COLD

Probable cause	Possible remedy
Thermostat sticking open	Remove, clean and check. Replace if required (para 104)
Weather or climatic condition too cold to allow thermostat to hold temperature	Cover radiator sufficiently to bring water temperature into proper range

56. ENGINE LACKS POWER

Probable cause	Possible remedy
Wrong injection pump timing	Retime injection pump (para 92)
Air in fuel lines	Check connections and bleed fuel system (para 36)
Clogged or dirty filters	Replace filter elements as required (para 36)
Restriction in air flow	Service air cleaner as required (para 40)
Poor grade of fuel	Use recommended No. 2 Diesel Engine Fuel
Injection nozzle faulty	Report trouble to field maintenance, 3rd echelon
Energy cell faulty	Report trouble to field maintenance, 3rd echelon
Injection pump faulty	Replace injection pump (para 92)

57. POOR COMPRESSION (Under 325 LB at 150 RPM)

Probable cause	Possible remedy
Valves holding open, no tappet clearance	Adjust tappet clearance to 0.014 inch (para 117)
Leaky cylinder head gasket	Report trouble to field maintenance, 3rd echelon
Leaky energy cell	Clean or replace. Report trouble to field maintenance, 3rd echelon
Wrong valve timing	Check and correct as necessary (para 117)
Burned or sticking valves or incorrect valve timing	Report trouble to field maintenance, 3rd echelon
Broken or weak valve spring	Report trouble to field maintenance, 3rd echelon
Piston rings worn or broken	Report trouble to field maintenance, 3rd echelon
Worn pistons and sleeves	Report trouble to field maintenance, 3rd echelon

58. ENGINE KNOCKS OR DEVELOPS SUDDEN NOISE

Probable cause	Possible remedy
COMBUSTION KNOCKS (Excessive)	
"Lugging"	Reduce load or increase speed
Poor quality fuel	Use No. 2 Diesel Engine Fuel
Injection timed too early	Retime injection pump (para 92)
Injection nozzle sticking	Remove nozzle. Report trouble to field maintenance, 3rd echelon
MECHANICAL KNOCKS	
To locate knock	"Cut-out cylinders" by loosening fuel line to nozzle one at a time; if no change in sound, knock is not occuring in that cylinder
Main bearings	Heavy, dull knock when accelerating under load. Report trouble to field maintenance, 3rd echelon
Connecting rod bearings	Condition noted at idle or light load and disappears at full load. Report trouble to field maintenance, 3rd echelon
Loose piston pin	Sharp metallic rap at idling speed when starting cold. Report trouble to field maintenance, 3rd echelon
Broken piston ring or pin	Sharp, clicking noise that can be eliminated by "cutting-out cylinder". Report trouble to field maintenance, 3rd echelon
Tappet noise	Check tappet clearance (0.014 in.) With engine warmed up. Adjust tappet clearance (para 117)
Timing gear noise	Loose or worn gears rattle; tight gears whine. Report trouble to field maintenance, 3rd echelon

59. ENGINE HAS LOW OR NO OIL PRESSURE

Probable cause	Possible remedy
Oil level low	Check and add oil to dipstick level. Reference current L. O.
Oil pressure gage or line faulty	Replace faulty gage or line (para 124)
Oil grade too light, diluted	Change oil. Reference current L. O.
Dirt in relief valve or broken spring	Report trouble to field maintenance, 3rd echelon
Suction screen clogged	Report trouble to field maintenance, 3rd echelon
Worn bearings	Report trouble to field maintenance, 3rd echelon
Worn oil pump	Report trouble to field maintenance, 3rd echelon

60. ENGINE OIL CONSUMPTION HIGH

Probable cause	Possible remedy
Oil leaks	Locate and repair as required
Too high oil level maintained	Maintain oil level between high and low marks on dipstick
Incorrect grade of oil used	Refer to current L. O.
Clogged crankcase breather pipe	Clean thoroughly (para 116)
Oil pressure too high, relief valve stuck	Report trouble to field maintenance, 3rd echelon
Piston rings, not properly run-in	Report trouble to field maintenance, 3rd echelon
Worn, broken, or stuck piston rings and clogged oil control rings	Report trouble to field maintenance, 3rd echelon
Worn pistons and liners	Report trouble to field maintenance, 3rd echelon
Worn bearings and valve guides	Report trouble to field maintenance, 3rd echelon

61. ENGINE EXHAUST SMOKE EXCESSIVE

Probable cause	Possible remedy
WHITE SMOKE- Indicates misfiring	
Low engine temperature	Check and clean or replace thermostat (para 104)
Faulty injectors	"Cut-out" individual injectors with engine running to determine faulty injectors. Report trouble to field maintenance, 3rd echelon
Poor grade of fuel	Use No. 2 Diesel Engine Fuel
BLUE SMOKE - Indicates high oil consumption	
Worn or stuck rings	Report trouble to field maintenance, 3rd echelon
Low engine water temperature	Check and clean or replace thermostat (para 104)
BLACK SMOKE - Indicates excessive fuel rate	
Excessive fuel rate	Replace fuel pump (para 92)
Overloading engine	Reduce load
Restriction in air supply	Service air cleaner as required (para 40)
Low engine water temperature	Check and clean or replace thermostat (para 104)

62. POOR FUEL ECONOMY

Probable cause	Possible remedy
Operating with low water temperature	Maintain water temperature from 165°F to 185°F for maximum economy and performance
Wrong fuel oil	Use No. 2 Diesel Engine Fuel
Incorrect injection pump timing	Retime injection pump (para 92)
Nozzles faulty	"Cut-out" faulty nozzle. Report trouble to field maintenance, 3rd echelon
Energy cell carboned	Clean. Report trouble to field maintenance, 3rd echelon
Incorrect tappet clearance	Adjust tappet clearance to 0.014 inch (para 117)

63. COMPRESSOR OVERHEATS

Probable cause	Possible remedy
Dirty oil filter element	Replace filter element (para 39)
Dirty oil cooler	Clean the cooling fins (para 112)
Low oil level	Fill separator to proper level as indicated on level gage. Reference current L. O.
Thermal bypass valve stuck in open position	Remove and replace as necessary (para 111)
Oxidized (varnished) oil	Report trouble to field maintenance, 3rd echelon
Vane(s) damaged or stuck on rotor slot(s)	Report trouble to field maintenance, 3rd echelon

Probable cause	Possible remedy
Oil separator element clogged	Report trouble to field maintenance, 3rd echelon

64. NOISY COMPRESSOR OPERATION

Probable cause	Possible remedy
Lack of lubricant	Fill separator to proper level. Reference current L. O.
Loose, worn, or damaged internal or external parts	Tighten all accessible external attaching parts and components. If determined that internal parts are defective, report trouble to field maintenance, 3rd echelon

65. COMPRESSOR NOT OPERATING TO FULL CAPACITY OR PRESSURE

Probable cause	Possible remedy
Leak in tubing or piping	Carefully check tubing and piping for leaks while unit is operating. Use soapy water solution. Tighten, repair, or replace as required
Dirty or clogged air cleaner	Service air cleaner (para 40)
Clogged separator element	Report trouble to field maintenance, 3rd echelon
Safety valve leaking	Replace (para 141)
Speed control set below rated pressure	Adjust speed control (para 145)

66. COMPRESSOR FAILS TO LOAD OR UNLOAD

Probable cause	Possible remedy
Faulty speed control	Report trouble to field maintenance, 3rd echelon
Dirt on intake-unloader valve seat	Clean valve seat (para 137)
Unloading pressure too high or too low	Adjust speed control (para 145)
Line between speed control damaged or leaking	Repair as required or replace (para 138)

67. COMPRESSOR UNLOADS BUT ENGINE WILL NOT IDLE

Probable cause	Possible remedy
Dirt in speed control	Clean speed control (para 145)

68. CONDENSATE AND/OR EMULSION IN OIL SEPARATOR

Probable cause	Possible remedy
Unusually low oil temperature and high humidity	If this is a climatic condition, use non-detergent oil, reference current L. O.
Thermal bypass valve stuck in closed position	Remove bypass valve, and replace (para 111)

69. COMPRESSOR VIBRATES

Probable cause	Possible remedy
Vane(s) stuck in rotor slot(s)	Report trouble to field maintenance, 3rd echelon

70. OIL LEAKS AT DRIVE END SEAL

Probable cause	Possible remedy
Damaged oil seal faces due to dirt or extreme heat	Report trouble to field maintenance, 3rd echelon

71. EXCESSIVE COMPRESSOR OIL CONSUMPTION

Probable cause	Possible remedy
Element in separator damaged	Report trouble to field maintenance, 3rd echelon
Compressor oil system over-filled	Drain to proper oil level

72. ENGINE STALLS OR SHUTS DOWN IN OPERATION

Probable cause	Possible remedy
Oil safety switch cutting out due to low engine oil pressure	Check engine for oil leaks, repair as required. Add oil to proper level, reference current L. O.
Compressor discharge thermoswitch shutting down unit due to overheated discharge	Low oil level, reference current L. O. Dirty oil filter elements, replace element (para 39). Dirty oil cooler fins, clean (para 112)

73. ENGINE STALLS WHILE IDLING

Probable cause	Possible remedy
Engine or compressor not warmed up enough	Run at part load until equipment reaches operating temperature
Idle speed set too low	Adjust speed control (para 145)
Backlash in control linkage	Check control linkage and remove backlash (para 145)
Compressor intake valve stuck open	Report trouble to field maintenance, 3rd echelon

74. UNIT HUNTS

Probable cause	Possible remedy
No oil in speed control	Check and fill, refer-

Probable cause	Possible remedy
reservoir	ence current L. O.
Incorrect speed control adjustment	Adjust (para 145)

75. BATTERY-CHARGING AMMETER INDICATES LOW OR NO CHARGING RATE WHEN BATTERIES ARE LOW OR DISCHARGED

Probable cause	Possible remedy
Defective wiring	Check and repair or replace as required (para 121)
Defective ammeter gage	Replace gage (para 121)
Defective generator regulator	Replace regulator (para 95)

76. BATTERY-CHARGING AMMETER INDICATES CHARGE WHEN BATTERIES ARE FULLY CHARGED

Probable cause	Possible remedy
Defective wiring	Check and repair or replace as required (para 121)
Defective ammeter gage	Replace gage (para 121)
Defective generator regulator	Replace regulator (para 95)

77. ENGINE GENERATOR OVERHEATS

Probable cause	Possible remedy
Defective wiring	Check and repair or replace as required (para 94)
Defective generator regulator	Replace regulator (para 95)
Defective generator	Replace generator (para 94)

Section VI. RADIO INTERFERENCE SUPPRESSION

78. DEFINITIONS

a. Interference. The term "interference" as used herein, applies to electrical disturbances in the radio frequency range which are generated by the compressor assembly and which interfere with the proper operation of radio receivers or other electronic equipment.

b. Interference Suppression. The term "interference suppression" as used herein, applies to the method used to eliminate or effectively reduce radio interference generated by the air compressor.

79. GENERAL METHODS USED TO ATTAIN PROPER SUPPRESSION

Essentially, suppression is attained by providing a low resistance path to ground for the stray currents. The methods used include shielding the ignition and high-frequency wires, grounding the frame with bonding straps. and using capacitors and resistors.

80. INTERFERENCE SUPPRESSION COMPONENTS

a. Primary Suppression Components. The primary suppression components are those whose primary function is to suppress radio interference. These components are described and located in figure 26.

81. REPLACEMENT OF SUPPRESSION COMPONENTS

Refer to figure 26 and replace the radio interference suppression components.

82. TESTING OF RADIO SUPPRESSION COMPONENTS

Test the capacitors for leaks and shorts on a capacitor tester; replace defective capacitors. If test equipment is not available and interference is indicated, isolate the cause of interference by the trial-and-error method of replacing each capacitor in turn until the cause of interference is located and eliminated.

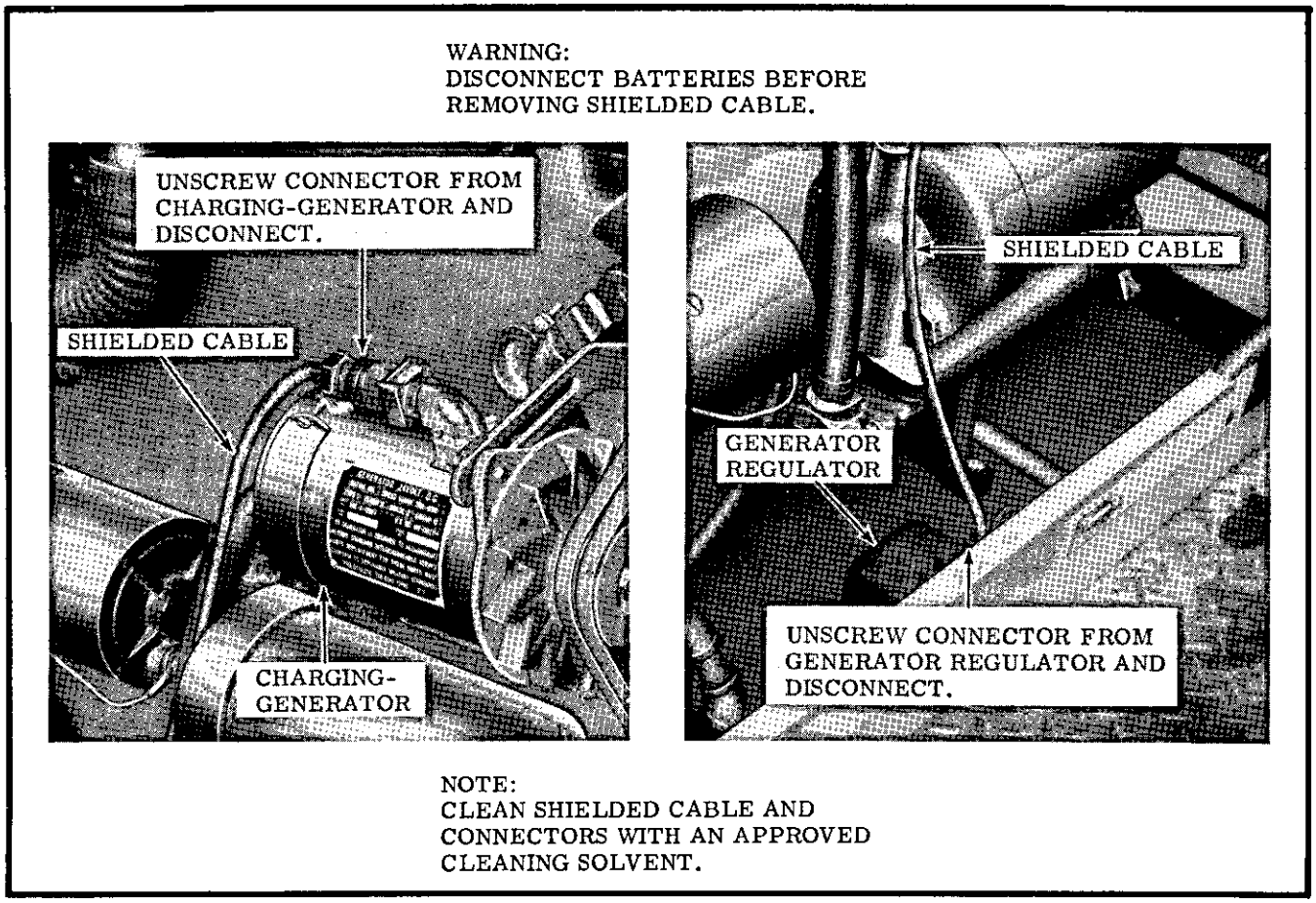


Figure 26. Interference Suppression Components, Location, Removal, and Installation

Section VII. HOUSING ASSEMBLY

83. GENERAL

The engine and compressor are enclosed in a sheet metal housing. Doors on both sides of the unit provide access to engine and compressor components. Sheet metal panels and a hood complete the housing assembly.

84. HOUSING, DOORS, HOOD, AND PANELS

a. Removal.

(1) Remove the engine and compressor air cleaner caps, air cleaners, exhaust pipe cap, engine starting aid, and fire extinguisher.

(2) Remove and disassemble the housing, doors, hood, and panels as illustrated in figure 27.

b. Cleaning and Inspection.

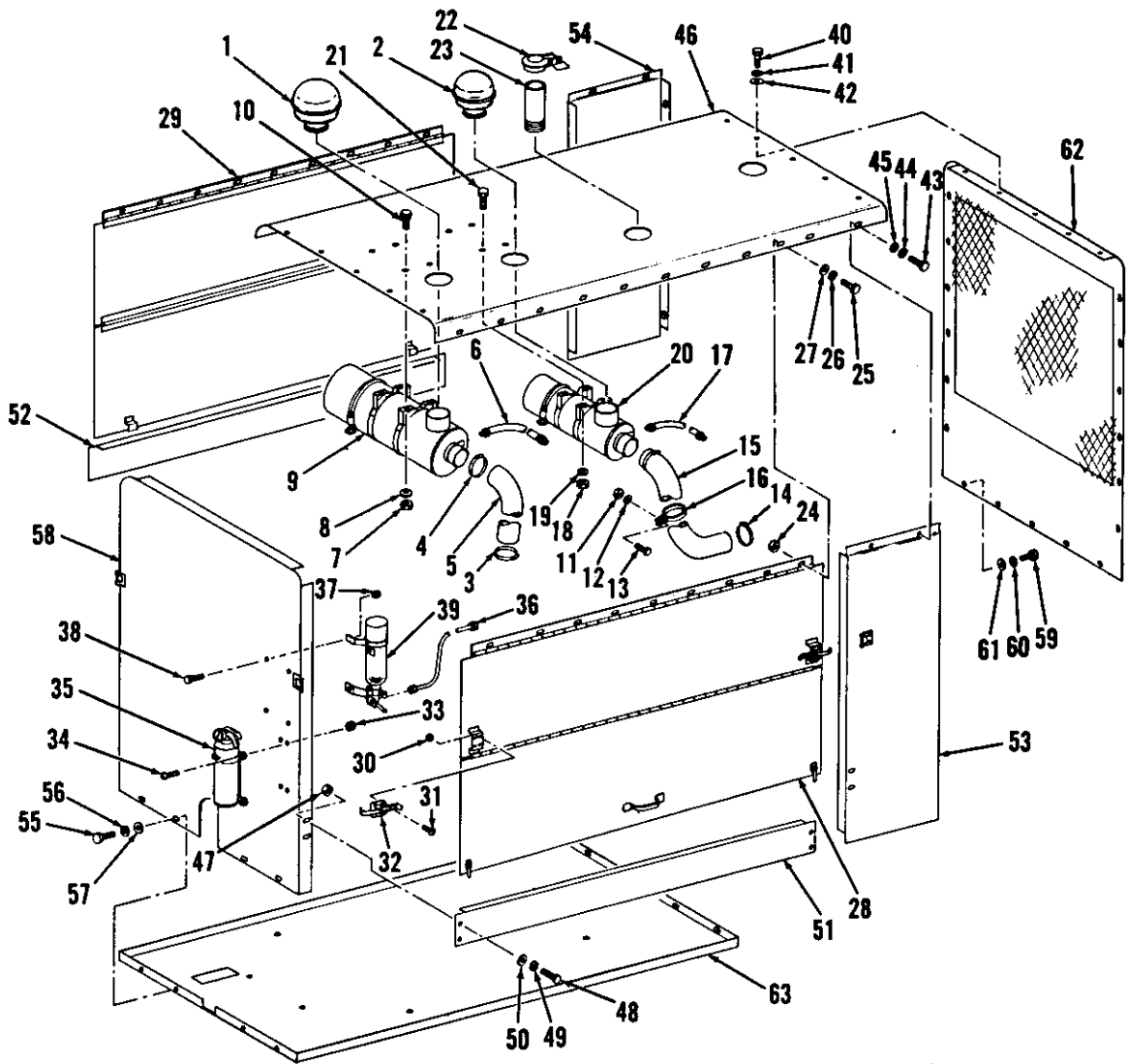
(1) Clean all parts with an approved cleaning solvent and dry thoroughly.

(2) Inspect for cracks, breaks, or other damage. Replace all defective parts.

c. Installation.

(1) Install the housing, doors, hood, and panels as illustrated on figure 27.

(2) Install the fire extinguisher, engine starting aid, exhaust pipe cap, air cleaners, and air cleaner caps.



1 Cap, compressor air cleaner
2 Cap, engine air cleaner
3 Clamp, hose
4 Clamp, hose
5 Hose, air intake
6 Hose, restriction indicator
7 Nut, lock, 1/4-20 (4 reqd)
8 Washer, flat,1/4 in. (4 reqd)
9 Air cleaner assembly
10 Screw, 1/4-20 x 5/8 in. (4 reqd)
11 Nut, lock, 1/4-20
12 Washer, 1/4 in.
13 Bolt, 1/4-20 x 3/4 in.
14 Clamp, hose (2 reqd)
15 Hose, air intake
16 Bracket
17 Hose, restriction indicator
18 Nut, lock, 1/4-20 (4 reqd)
19 Washer, flat, 1/4 in. (4 reqd)
20 Air cleaner assembly
21 Screw, 1/4-20 x 5/8 in. (4 reqd)
22 Rain shield
23 Pipe, exhaust
24 Nut, 5/16-18 (18 reqd)
25 Screw, 5/16-18 x 3/4 in. (18 reqd)
26 Washer, lock, 5/16 in. (18 reqd)
27 Washer, flat, 5/16 in. (18 reqd)
28 Door, right side
29 Door, left side
30 Nut, no. 5-40 (16 reqd)
31 Screw, pan hd., no. 5-40 x 1/2 (16 reqd)
32 Latch (4 reqd)
33 Nut, no. 10-32 (4 reqd)
34 Screw,no. 10-32 x 5/8 in. (4 reqd)
35 Fire extinguisher
36 Tubing assembly
37 Nut, lock, 1/4-20 (4 reqd)
38 Bolt, 1/4-20 x 3/4 in. (4 reqd)
39 Quick-Start assembly
40 Screw, 5/16-18 x 3/4 in. (10 reqd)
41 Washer, lock, 5/16 in. (10 reqd)
42 Washer, flat, 5/16 in. (10 reqd)
43 Screw, 5/16-18 x 3/4 in. (4 reqd)
44 Washer, lock, 5/16 in. (4 reqd)
45 Washer, flat, 5/16 in. (4 reqd)
46 Roof panel
47 Nut, 5/16-18 (8 reqd)
48 Screw, 5/16-18 x 3/4 in. (8 reqd)
49 Washer, lock, 5/16 in. (8 reqd)
50 Washer, flat, 5/16 in. (8 reqd)
51 Side panel, lower, right
52 Side panel, lower, left
53 Side panel, right
54 Side panel, left
55 Screw, 5/16-18 x 3/4 in. (4 reqd)
56 Washer, lock, 5/16 in. (4 reqd)
57 Washer, flat, 5/16 in. (4 reqd)
58 Support, rear
59 Screw, 5/16-18 x 3/4 in. (17 reqd)
60 Washer, lock, 5/16 in. (17 reqd)
61 Washer, flat, 5/16 in. (17 reqd)
62 Support, front
63 Pan, bottom

Figure 27. Housing, Doors, Hood, and Panels, Removal and Installation

85. GENERAL

The compressor skid unit is equipped with tool boxes on each side and rear for the stowage of tools.

86. TOOL BOXES

a. Removal.

(1) Remove battery cables, battery clamps, batteries, charging receptacle, tool straps, and disconnect wires from tail and clearance lights (paragraph 97).

(2) Remove and disassemble tool boxes as illustrated in figure 28.

b. Cleaning and Inspection.

(1) Clean all parts with an approved cleaning solvent and dry thoroughly.

(2) Inspect for cracks, breaks, or other damage. Replace all defective parts.

c. Installation.

(1) Install the tool boxes as illustrated on figure 28.

(2) Install tool straps, charging receptacle, batteries, battery clamps, battery cables, and make wiring connections to tail and clearance lights (paragraph 97).

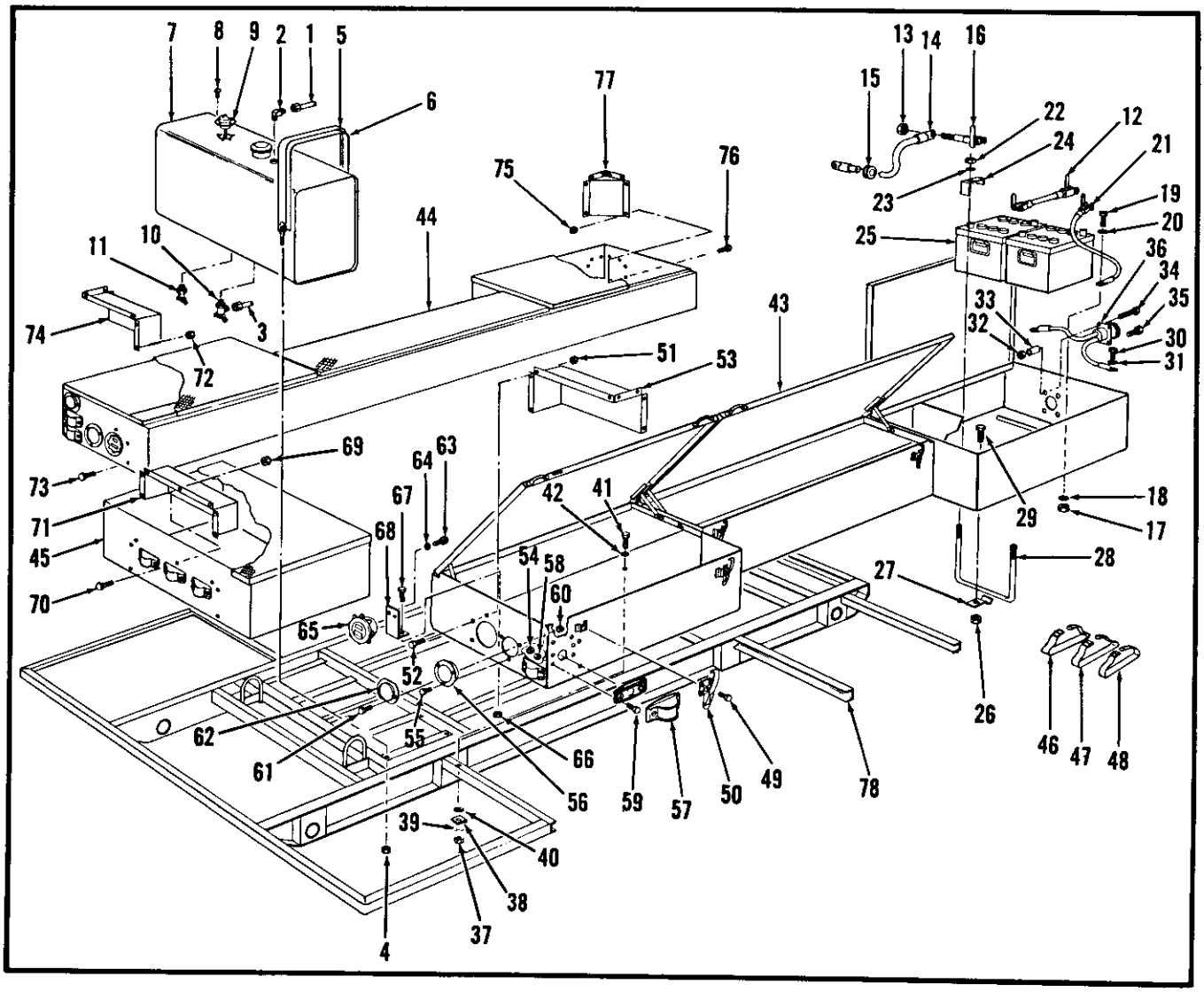


Figure 28. Tool Boxes and Fuel Tank, Removal and Installation

87. GENERAL

The fuel system is comprised of a fuel tank, hand primer pump, primary and secondary fuel filters, and fuel injection nozzles, lines and fittings.

88. FUEL TANK

a. Removal.

(1) Open drain cock and drain off fuel.

(2) Disconnect fuel pick-up and fuel return lines.

(3) Remove fuel gage sending unit from top of tank.

(4) Remove fuel tank from frame as illustrated in figure 28.

b. Cleaning and Inspection.

(1) Clean all parts with an approved cleaning solvent and dry thoroughly.

(2) Inspect all parts for cracks, breaks, thread damage, and other damage.

---

1 Tube assembly
2 Elbow
3 Tube assembly
4 Nut, lock, 1/4-20 (4 reqd)
5 Strap, fuel tank (2 reqd)
6 Webbing (2 reqd)
7 Tank, fuel
8 Screw, rd. hd., no. 10-32 x 1/2 in. (5 reqd)
9 Fuel level sending unit
10 Cock, shut-off
11 Cock, drain
12 Cable, jumper
13 Nut, 3/8-16
14 Wire assembly
15 Grommet
16 Terminal, battery
17 Nut, lock, 3/8-16
18 Washer, INT.-EXT. tooth, 3/8 in.
19 Screw, 3/8-16 x 1-1/4 in.
20 Washer, lock, 3/8 in.
21 Cable, ground
22 Nut, 3/8-16 (4 reqd)
23 Washer, flat, 3/8 in. (4 reqd)
24 Clamp, battery (4 reqd)
25 Battery (2 reqd)
26 Nut, lock, 1/4-20 (2 reqd)
27 Clip (2 reqd)
28 U-Bolt (2 reqd)
29 Screw, 1/4-20 x 3/4 in. (2 reqd)
30 Screw, 5/16-18 x 1-1/4 in.
31 Washer, INT.-EXT. tooth, 5/16 in.
32 Nut, lock, 1/4-20 (4 reqd)
33 Support, lid brace
34 Bolt, 1/4-20 x 2-1/2 in.
35 Bolt, 1/4-20 x 1 in. (3 reqd)
36 Receptacle, charging
37 Nut, lock, 5/16-18 (22 reqd)
38 Washer, channel, 5/16 in. (26 reqd)
39 Washer, lock, 5/16 in. (26 reqd)
40 Washer, INT.-EXT. tooth, 5/16 in. (26 reqd)
41 Screw, 5/16-18 x 1-1/4 in. (26 reqd)
42 Washer, INT.-EXT. tooth, 5/16 in. (22 reqd)
43 Tool box, right hand
44 Tool box, left hand
45 Tool box, rear
46 Strap, tool (23 reqd)
47 Strap, tool (8 reqd)
48 Strap, tool (14 reqd)
49 Screw, pan hd., no. 5-40 x 1/2 in. (56 reqd)
50 Latch (14 reqd)
51 Nut, spinlock, 1/4-20 (8 reqd)
52 Screw, spinlock, 1/4-20 x 1/2 in. (8 reqd)
53 Guard, light
54 Nut, lock, no. 10-24 (6 reqd)
55 Screw, no. 10-24 x 3/4 in. (6 reqd)
56 Light, Tail, stop and turn (2 reqd)
57 Light, red (7 reqd)
Light, red blackout (4 reqd)
Light, amber (4 reqd)
Light, amber blackout (4 reqd)
58 Nut, lock, no. 10-24 (76 reqd)
59 Screw, no. 10-24 x 3/4 in. (76 reqd)
60 Nut, lock, 1/4-20 (16 reqd)
61 Screw, 1/4-20 x 1/2 in. (16 reqd)
62 Reflector, red (4 reqd)
Reflector, amber (4 reqd)
63 Screw, 3/8-16 x 3/4 in. (4 reqd)
64 Washer, lock, 3/8 in. (4 reqd)
65 Light, tail, blackout (2 reqd)
66 Nut, lock, 1/4-20 (4 reqd)
67 Screw, 1/4-20 x 3/4 in. (4 reqd)
68 Bracket, tail light (2 reqd)
69 Nut, spinlock, 1/4-20 (7 reqd)
70 Screw, spinlock, 1/4-20 x 3/4 in. (7 reqd)
71 Guard, light
72 Nut, spinlock, 1/4-20 (8 reqd)
73 Screw, spinlock, 1/4-20 x 1/2 in. (8 reqd)
74 Guard, light
75 Nut, 1/4-20 (8 reqd)
76 Screw, 1/4-20 x 1/2 in. (8 reqd)
77 Guard (2 reqd)
78 Frame assembly

Figure 28. - Continued.

(3) Replace all damaged or defective parts.

c. Installation.

(1) Install fuel tank as illustrated on figure 28.

(2) Install fuel gage sending unit in top of tank.

(3) Connect fuel return and fuel pick-up line.

(4) Make certain fuel shut-off valve is open and fuel drain cock is closed. Refill tank with approved diesel fuel.

89. HAND PRIMER PUMP

a. Removal.

(1) Close fuel shut-off valve on bottom of fuel tank and disconnect fuel pick-up line from hand primer pump.

(2) Remove hand primer pump from primary fuel filter as illustrated in figure 29.

b. Cleaning and Inspection.

(1) Clean the pump with an approved cleaning solvent and dry thoroughly.

(2) Inspect pump for cracks, breaks, plunger operation, condition of threads, and any other damage.

(3) Replace hand primer pump assembly if damaged or defective.

c. Installation.

(1) Install hand primer pump to primary fuel filter as illustrated on figure 29.

(2) Connect fuel pick-up line to pump inlet and open fuel shut-off valve.

90. PRIMARY FUEL FILTER

a. Removal.

(1) Close fuel shut-off valve on bottom of fuel tank and remove hand primer pump (paragraph 89).

(2) Disconnect fuel line between primary and secondary filters.

(3) Open drain cock on bottom of body assembly.

(4) Remove primary fuel filter as illustrated in figure 29.

b. Cleaning and Inspection.

(1) Unscrew hex nut on bottom of body assembly; remove body assembly from head.

(2) Clean all parts in clean diesel fuel or approved solvent and dry thoroughly.

(3) Inspect all parts for cracks, breaks, condition of threads, and other damage.

(4) Inspect edges of element for damage.

(5) Replace gasket at each disassembly; replace all damaged parts. Remove filter retainer and filter element from center stud and replace damaged element.

c. Installation.

(1) Install primary fuel filter as illustrated on figure 29.

(2) Close drain cock on bottom of filter body assembly.

(3) Connect fuel line between primary filter outlet and secondary filter outlet.

(4) Install hand primer pump to primary filter (paragraph 89).

(5) Open fuel shut-off valve on bottom of fuel tank.

91. SECONDARY FUEL FILTER

a. Removal.

(1) Disconnect fuel lines between primary fuel filter outlet and secondary filter inlet; disconnect fuel line between secondary filter outlet and fuel injection pump inlet.

(2) Open drain plug in bottom of body assembly.

(3) Remove secondary fuel filter as illustrated in figure 29.

b. Cleaning and Inspection.

(1) Unscrew capscrew in center of head freeing body assembly and cartridge assembly from head.

(2) Clean all parts in clean diesel fuel or approved solvent and dry thoroughly.

(3) Replace cartridge assembly and gasket between body and head.

(4) Inspect all parts for cracks, breaks, condition of threads, and other damage.

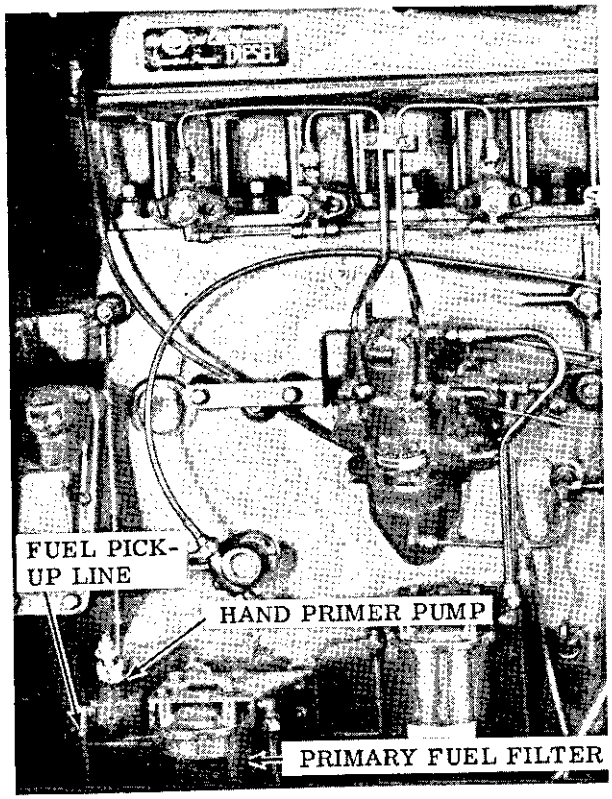
(5) Replace all damaged parts.

c. Installation.

(1) Reassemble secondary fuel filter as illustrated in figure 29.

(2) Close drain plug in bottom of body.

(3) Connect fuel lines between secondary filter outlet and fuel injection pump inlet; connect fuel line between secondary filter inlet and primary filter outlet.



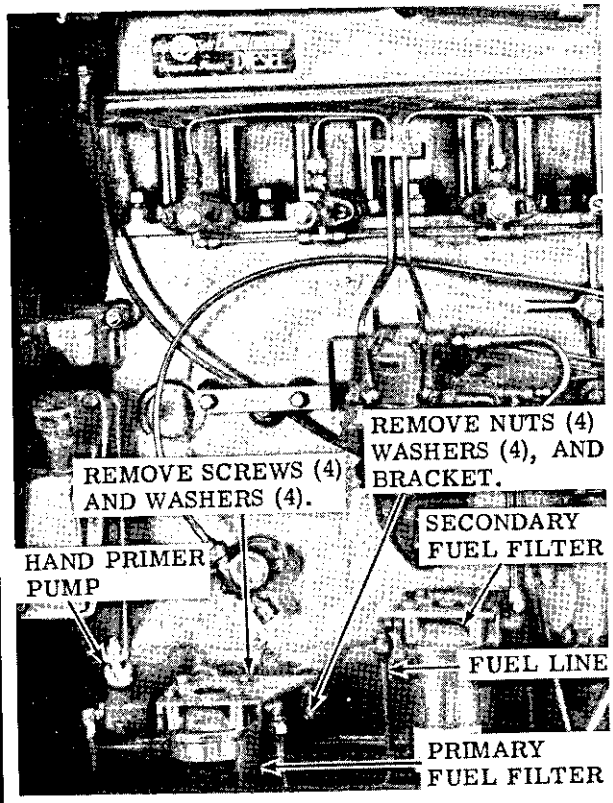
A

STEP 1: DISCONNECT FUEL PICK-UP LINE.

STEP 2: REMOVE HAND PRIMER PUMP FROM PRIMARY FUEL FILTER.

NOTE: CLEAN HAND PRIMER PUMP WITH AN APPROVED CLEANING SOLVENT.

CAUTION: HAND PRIMER PUMP IS INSTALLED WITH FLOW DIRECTION ARROW POINTING TOWARD PRIMARY FUEL FILTER.



B

STEP 1: REMOVE HAND PRIMER PUMP.

STEP 2: DISCONNECT FUEL LINE BETWEEN PRIMARY AND SECONDARY FILTER.

STEP 3: OPEN DRAIN COCK IN BOTTOM OF BODY AND DRAIN OFF FUEL.

STEP 4: REMOVE SCREWS (4) AND WASHERS (4) ATTACHING PRIMARY FILTER TO BRACKET.

STEP 5: REMOVE NUTS (4) AND WASHERS (4) ATTACHING BRACKET TO ENGINE BLOCK. REMOVE BRACKET.

NOTE: CLEAN PRIMARY FUEL FILTER AND BRACKET WITH AN APPROVED CLEANING SOLVENT.

A - Hand Primer Pump, Removal and Installation B - Primary Fuel Filter, Removal and Installation

Figure 29. Hand Primer Pump, Primary and Secondary Fuel Filters, and Fuel Injection Pump, Removal, Installation, Timing, and Fuel Line Flushing

92. FUEL INJECTION PUMP

a. Removal.

(1) Clean pump, fittings, and all connections to be broken to eliminate any chance of dirt entering system when lines are disconnected.

CAUTION

Temporarily plug all openings with masking tape as lines are disconnected.

(2) Disconnect fuel lines from inlet, return, nozzle leak-off, and high pressure lines. Plug all openings.

(3) Disconnect throttle and shut-off cables and engine control linkage.

(4) Disconnect wiring leads to solenoid.

(5) Remove injection pump from engine as illustrated in figure 29.

b. Installation.

(1) Install pump to engine as illustrated in figure 29.

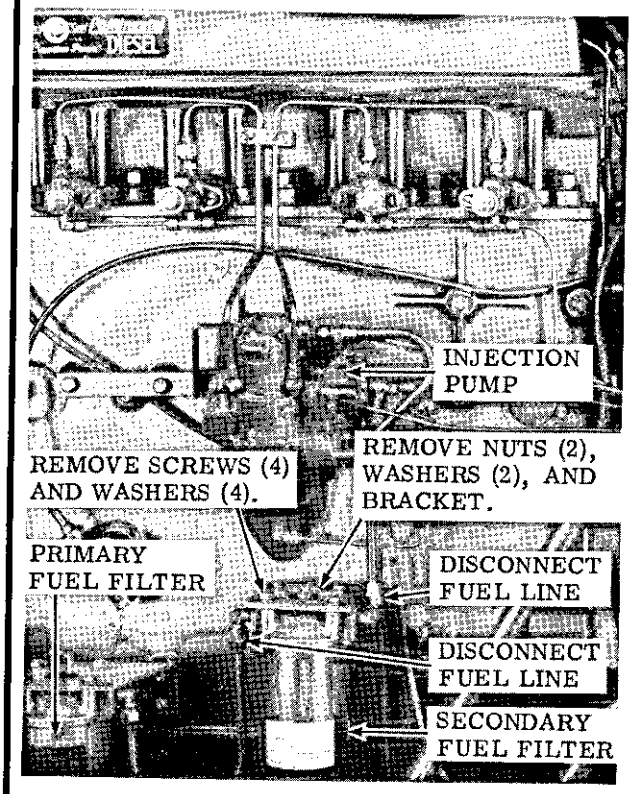
(2) Remove all opening plugs and/or tape prior to connecting all lines.

(3) Connect high pressure lines, nozzle leak-off lines, inlet and return lines.

(4) Connect wiring to solenoid terminals.

(5) Connect throttle and shut-off cables and engine control linkage. Set linkage and cables as illustrated in figure 29.

c. Fuel Line Flushing. Refer to figure 29 and flush fuel lines.



C

STEP 1: DISCONNECT FUEL LINE FROM PRIMARY FUEL FILTER TO SECONDARY FILTER.

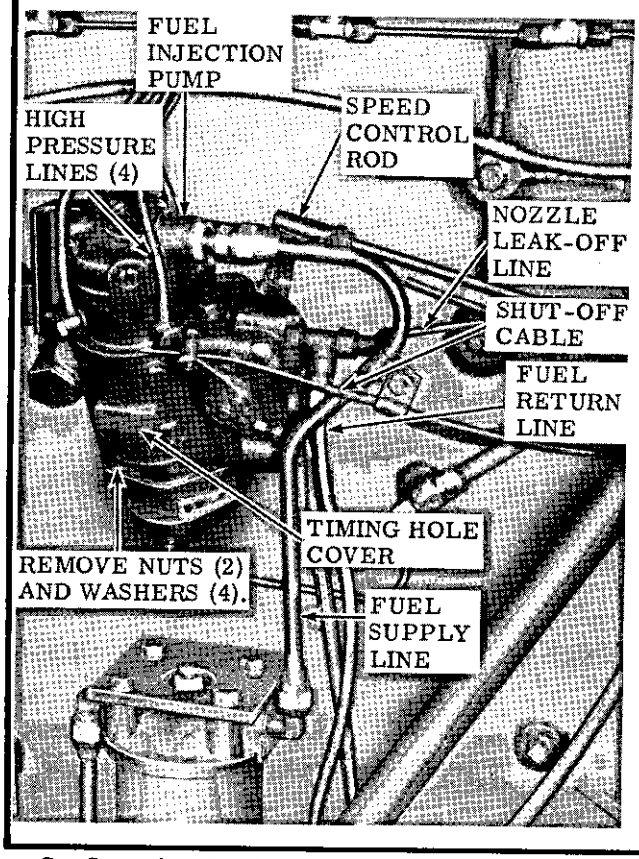
STEP 2: DISCONNECT FUEL LINE FROM SECONDARY FILTER TO FUEL INJECTION PUMP.

STEP 3: OPEN DRAIN ON BOTTOM OF FILTER BODY AND DRAIN OFF FUEL.

STEP 4: REMOVE SCREWS (4) AND WASHERS (4) ATTACHING FILTER TO BRACKET.

STEP 5: REMOVE NUTS (2) AND WASHERS (2) ATTACHING BRACKET TO ENGINE BLOCK. REMOVE BRACKET.

NOTE: CLEAN SECONDARY FUEL FILTER WITH AN APPROVED CLEANING SOLVENT.



D

STEP 1: CLEAN INJECTION PUMP, FITTINGS, AND ALL CONNECTIONS TO BE DISCONNECTED TO ELIMINATE CHANCE OF DIRT ENTERING SYSTEM.

CAUTION: PLUG ALL OPENINGS TEMPORAIRLY WITH MASKING TAPE AS LINES ARE DISCONNECTED.

STEP 2: REMOVE TIMING HOLE COVER AND CRANK THE ENGINE BY HAND IN THE DIRECTION OF ROTATION UNTIL TIMING LINES OF INJECTION PUMP ARE ALIGNED.

STEP 3: DISCONNECT FUEL SUPPLY LINE, FUEL RETURN LINE, NOZZLE LEAK-OFF LINE, ALL HIGH PRESSURE LINES (4), SHUT-OFF CABLE, AND SPEED CONTROL ROD.

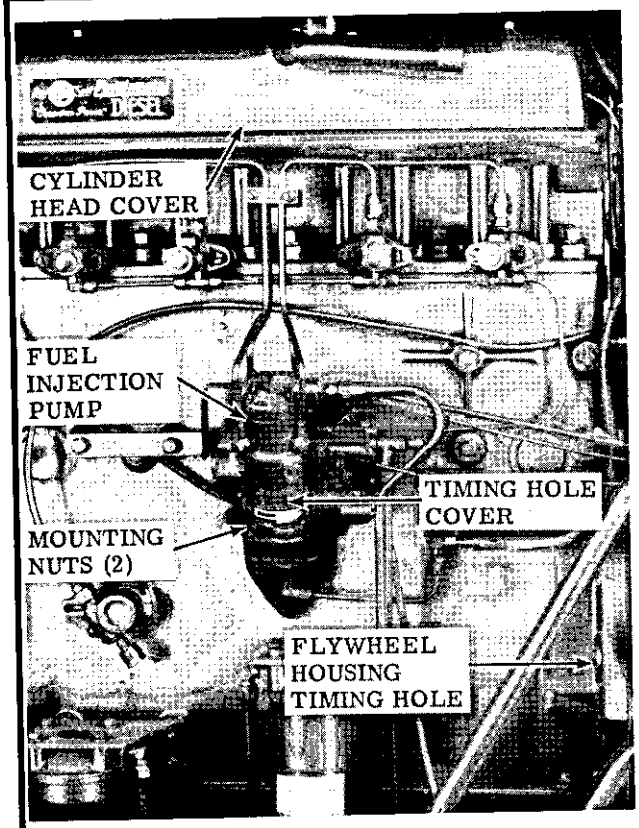
STEP 4: DISCONNECT WIRING LEADS FROM PUMP SOLENOID.

STEP 5: REMOVE NUTS (2) AND WASHERS (4) SECURING PUMP FLANGE TO ENGINE BLOCK.

STEP 6: LIFT PUMP GENTLY FROM MOUNTING STUDS (2) ON ENGINE BLOCK.

C - Secondary Fuel Filter, Removal and Installation D - Fuel Injection Pump, Removal and Installation

Figure 29. - Continued.



E

STEP1: REMOVE CYLINDER HEAD COVER.

STEP 2: CRANK ENGINE BY HAND UNTIL NO. 1 PISTON IS ON COMPRESSION STROKE AND POINTER, SEEN THROUGH FLYWHEEL HOUSING TIMING HOLE, IS AT THE 25°MARK ON THE FLYWHEEL RIM.

NOTE: MAKE CERTAIN THAT NO. 1 PISTON IS ON COMPRESSION STROKE BY TURNING BOTH PUSH RODS BY HAND INDICATING THAT BOTH VALVES ARE CLOSED.

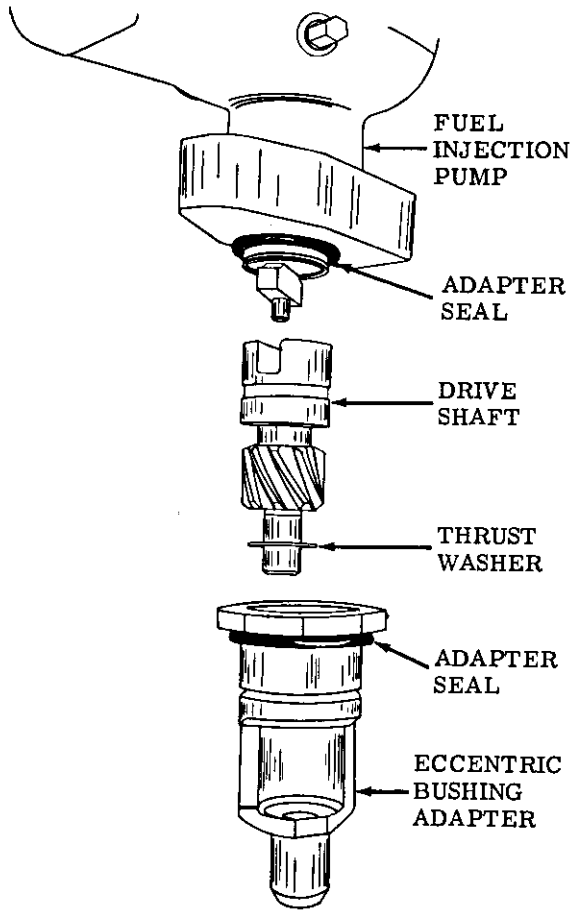
STEP 3: REMOVE INJECTION PUMP TIMING HOLE COVER AND CHECK IF THE TIMING LINE ON THE DRIVE PLATE LINES UP WITH TIMING LINE ON CAM RING.

STEP 4: IF ADJUSTMENT IS REQUIRED, LOOSEN INJECTION PUMP MOUNTING NUTS (2) AND TURN PUMP ASSEMBLY BY HAND UNTIL TIMING MARKS ARE ALIGNED. TIGHTEN MOUNTING NUTS (2) SECURELY.

STEP 5: CRANK ENGINE TWO REVOLUTIONS BY HAND AND RECHECK TIMING MARKS TO MAKE CERTAIN ALL BACKLASH IS ELIMINATED IN GEAR TRAIN.

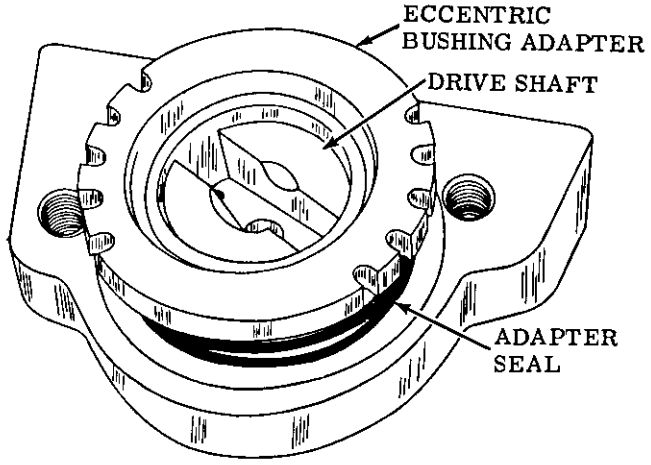
STEP 6: INSTALL TIMING HOLE COVER AND CYLINDER HEAD COVER.

E - Fuel Injection Pump, Timing (Without Removal)
Figure 29. - Continued.

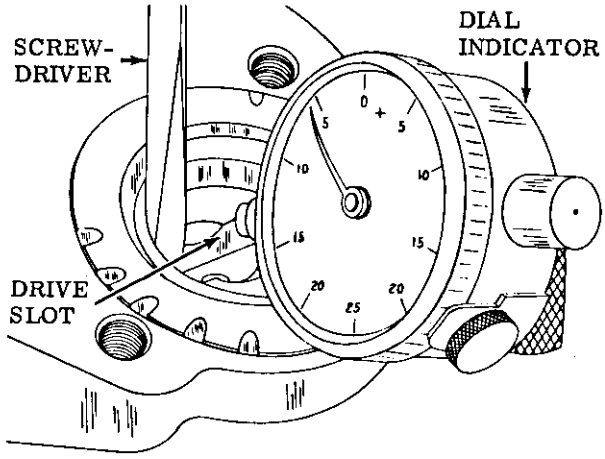


F

STEP 1: CRANK ENGINE BY HAND UNTIL NO. 1 PISTON IS ON THE COMPRESSION STROKE AND POINTER, SEEN THROUGH FLYWHEEL HOUSING TIMING HOLE, IS AT 25° MARK ON THE FLYWHEEL RIM.



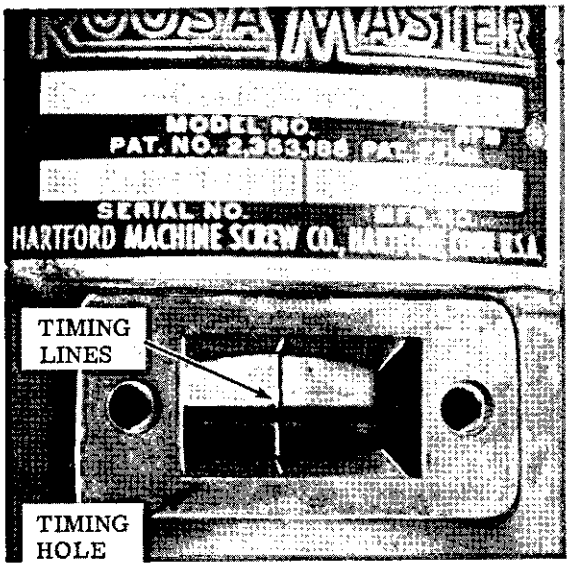
STEP 2: INSTALL THE DRIVE GEAR IN THE ECCENTRIC BUSHING ADAPTER WITH THE ADAPTER SEAL.



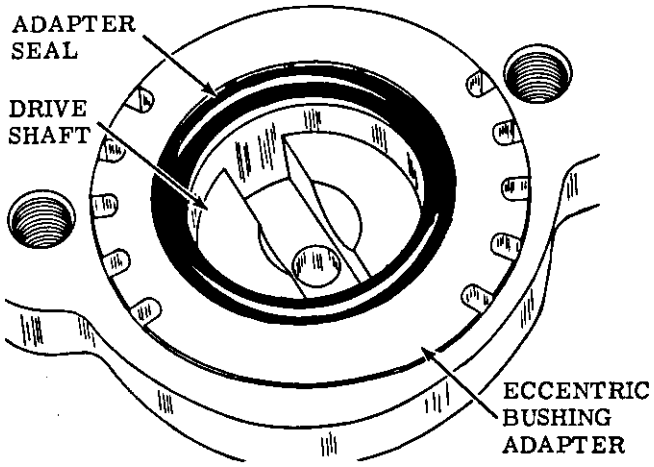
STEP 3: USE A DIAL INDICATOR TO CHECK BACKLASH OF THE PUMP DRIVE GEAR. MEASURE AT THE DRIVE SLOT WITH THE INDICATOR POSITIONED APPROX. AT THE PITCH DIAMETER OF THE GEAR. BACKLASH SHOULD BE 0.004 TO 0.006 INCH.

F - Fuel Injection Pump, Installation and Timing Procedure, Steps 1 through 3
Figure 29. - Continued.

F

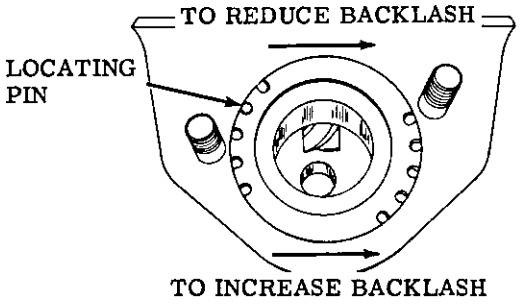


STEP 4: REMOVE TIMING LINE COVER FROM THE PUMP AND TURN THE DRIVE SHAFT SO THAT TIMING LINES ALIGN.

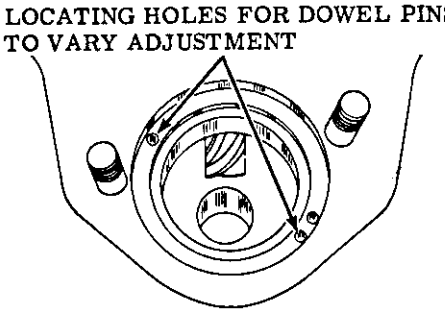


STEP 5: INSTALL THE SEAL RING ON THE ECCENTRIC BUSHING ADAPTER AND PLACE THE PUMP IN POSITION ON THE ENGINE.

NOTE: THE PUMP DRIVE SHAFT USING THE ECCENTRIC BUSHING AND DRIVE GEAR HAS AN OFF-CENTER TANG AND SLOT WHICH PREVENTS INSTALLATION OF PUMP 180° OUT OF TIME.



NOTE: TO REDUCE BACKLASH, LIFT THE ECCENTRIC BUSHING ADAPTER OFF THE LOCATING PIN AND TURN CLOCKWISE TO NEXT LOCATING HOLE. IF THIS DOES NOT PROVIDE CORRECT ADJUSTMENT, MOVE THE LOCATING PIN TO ONE OF THE OTHER HOLES PROVIDED IN THE ENGINE BLOCK. THERE MUST BE A MINIMUM OF 0.004 INCH BACKLASH.

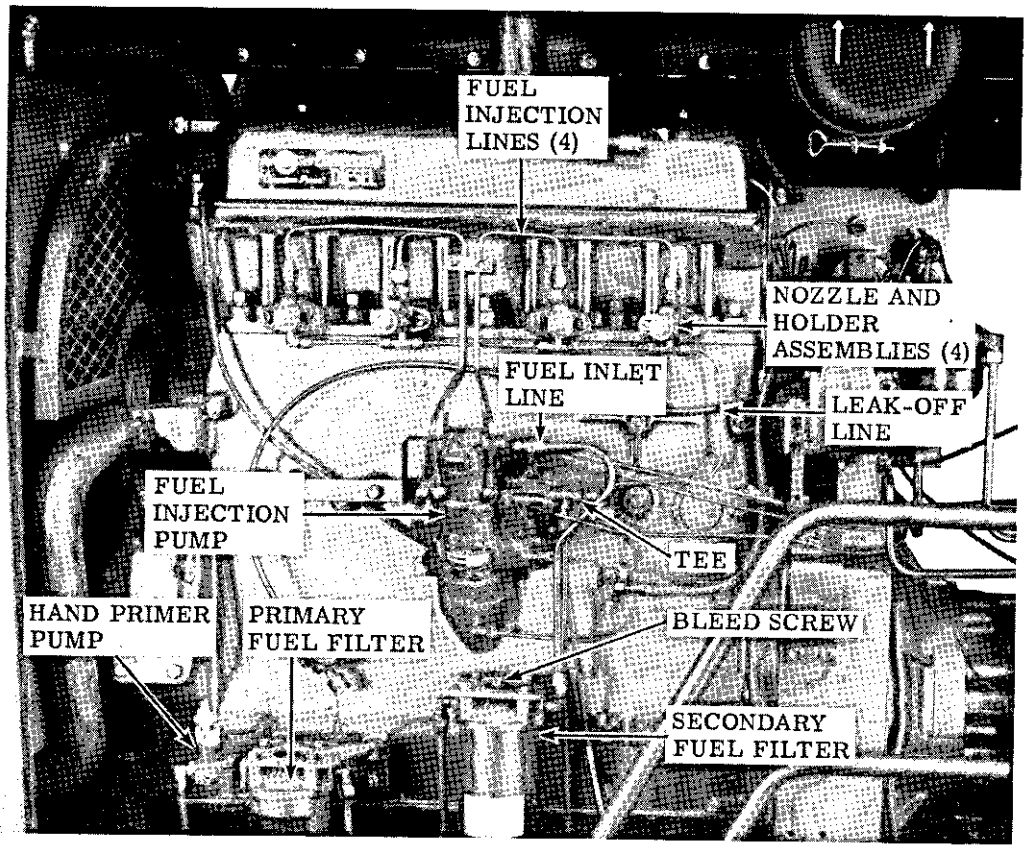


STEP 6: TURN THE PUMP AS NECESSARY TO BRING THE PUMP TIMING MARKS INTO PERFECT ALIGNMENT, THEN INSTALL AND TIGHTEN PUMP MOUNTING NUTS.

CAUTION: WHEN INSTALLING PUMP ON THE ENGINE, MAKE CERTAIN THAT THE TIMING LINES ARE ALIGNED. IF THE MARKS ARE NOT ALIGNED, INSERT A CLEAN, WIDE BLADED, SCREW DRIVER INTO THE DRIVE END OF THE PUMP AND ROTATE THE DISTRIBUTOR ROTOR UNTIL THE TIMING LINES ARE ALIGNED.

STEP 7: CRANK THE ENGINE BY HAND TWO REVOLUTIONS AND RECHECK THE TIMING MARKS. ADJUST THE PUMP AS NECESSARY AND INSTALL TIMING COVER ON PUMP.

F - Fuel Injection Pump, Installation and Timing Procedure, Steps 4 through 7
Figure 29. - Continued.



STEP 1: DISCONNECT FUEL INLET LINE AT INJECTION PUMP.

STEP 2: DRAIN SECONDARY FUEL FILTER.(REF FIG. 14.)

STEP 3: OPERATE HAND PRIMER PUMP TO FLUSH LINES AND FILTERS.

STEP 4: CONNECT FUEL INLET LINE AT INJECTION PUMP.

STEP 5: DISCONNECT FUEL INJECTION LINES AT NOZZLE AND HOLDER ASSEMBLIES.

STEP 6: PRESS START BUTTON AND SAFETY BUTTON ON INSTRUMENT PANEL SIMULTANEOUSLY. (MAKE CERTAIN THAT STOP CABLE ON INSTRUMENT PANEL IS ALL THE WAY IN.) OPERATE STARTER FOR 30 SECONDS.

STEP 7: CONNECT FUEL INJECTION LINES AT NOZZLE AND HOLDER ASSEMBLIES.

STEP 8: DISCONNECT LEAKOFF LINE AND INSTALL PLUG IN TEE.

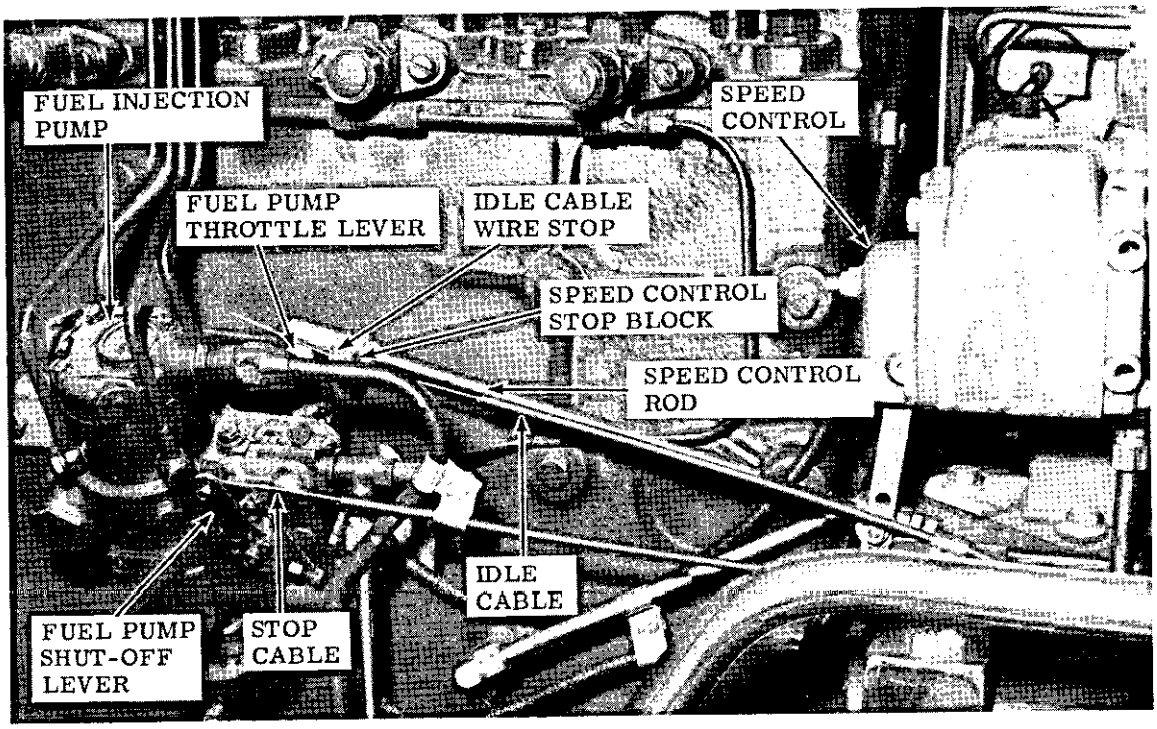
STEP 9: START ENGINE (REF FIGURE 7).

STEP 10: OPERATE ENGINE FOR FIVE MINUTES; COLLECT RETURNED FUEL IN A SUITABLE CONTAINER.

STEP 11: STOP ENGINE (REF FIGURE 8). REMOVE PLUG FROM TEE AND CONNECT LEAKOFF LINE.

G

G - Fuel Line Flushing
Figure 29. - Continued.



STEP 1: AFTER FUEL INJECTION PUMP IS INSTALLED, CONNECT SPEED CONTROL ROD TO PUMP THROTTLE LEVER.

STEP 2: WITH THROTTLE LEVER IN FULL THROTTLE POSITION, SET IDLE CABLE WIRE STOP AGAINST SPEED CONTROL STOP BLOCK AND TIGHTEN SCREW.

NOTE: MAKE CERTAIN IDLE CONTROL ON INSTRUMENT PANEL IS ALL THE WAY IN.

STEP 3: SET STOP CONTROL ON INSTRUMENT PANEL APPROXIMATELY 1/8 INCH AWAY FROM PANEL. WITH FUEL PUMP SHUT-OFF LEVER IN FULL RUN POSITION, SECURE STOP CABLE WIRE TO PUMP SHUT-OFF LEVER.

H

H - Throttle Cable, Shut-Off Cable, and Speed Control Setting
Figure 29. - Continued.

93. GENERAL

The engine 24-volt electrical system consists of a generator, generator regulator, starting motor, and batteries.

94. GENERATOR

a. Removal.

(1) Disconnect shielded cable assembly between generator and generator regulator.

WARNING

Disconnect battery cables before disconnecting shielded cable assemble.

(2) Remove generator drive belts (para 101).

(3) Remove generator from engine mounting as illustrated in figure 30.

b. Cleaning and Inspection.

(1) Clean the generator assembly with an approved cleaning solvent.

(2) Inspect housing and pulley for cracks, breaks, or any other damage. Replace a damaged generator assembly as necessary.

(3) Inspect all mounting hardware for damage. Replace all damaged hardware.

(4) Inspect mounting bracket for cracks, breaks, distortion, or other damage. Replace as necessary.

c. Testing. For testing the generator field coils and armature assembly for shorts, open circuits, and grounds, refer to TM-5-764.

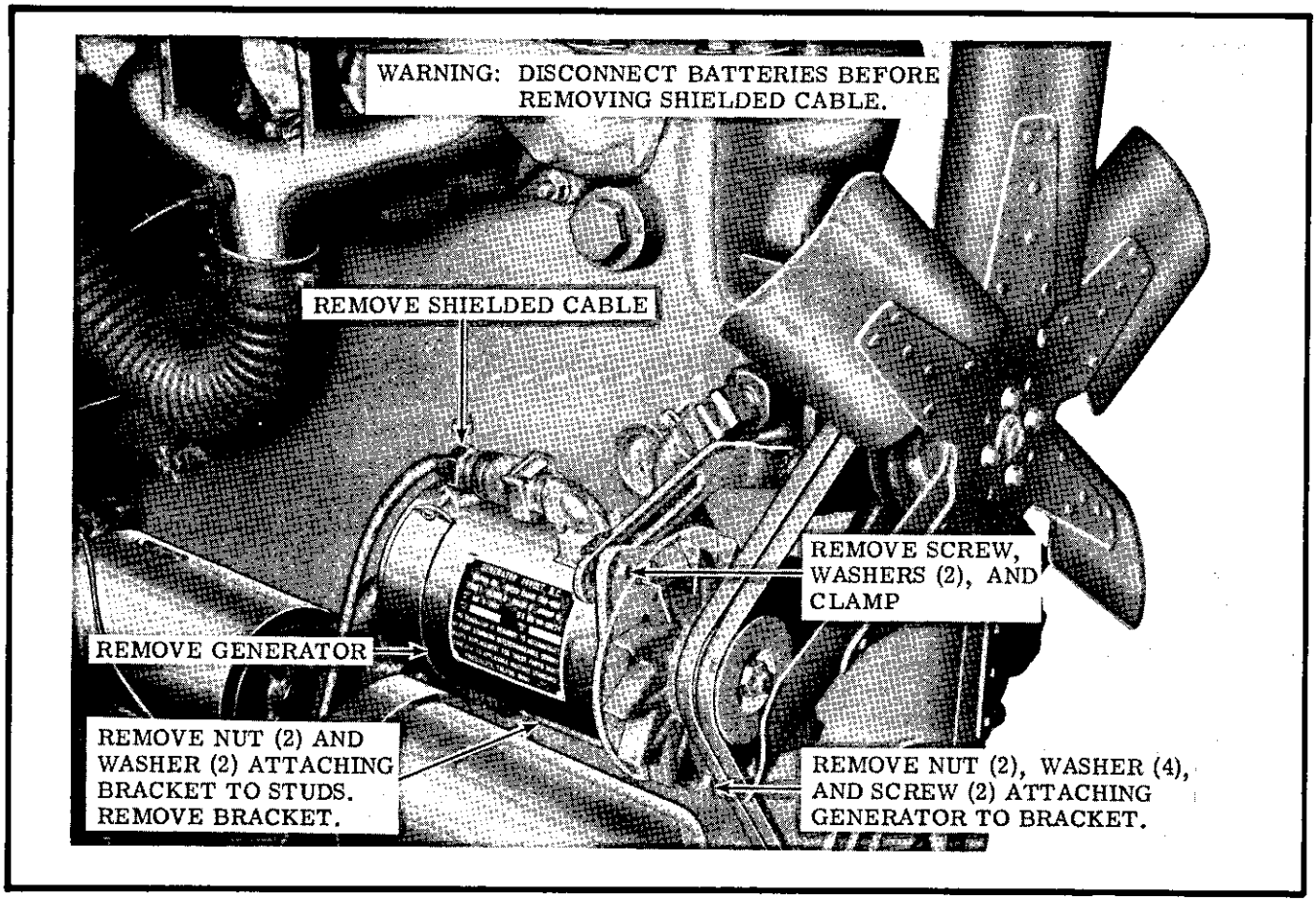
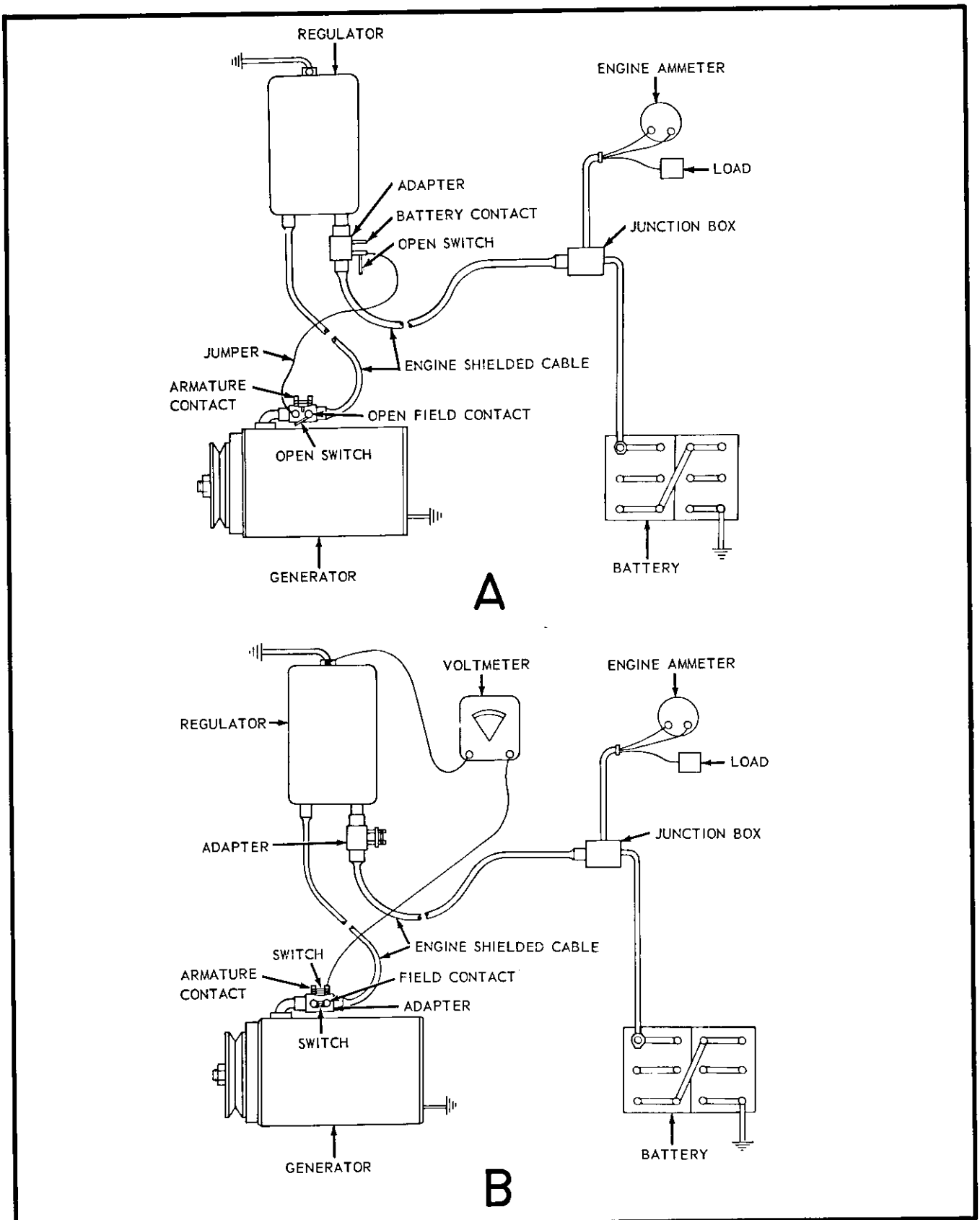


Figure 30. Generator, Removal and Installation



A - Connections for Polarizing Generator

B - Meter Connections for Checking Circuit Breaker Closing Voltage Test and Generator Test

Figure 31. Generator, On Engine Testing

d. Installation.

(1) Install generator as illustrated in figure 30.

(2) Install and adjust generator drive belts as illustrated in figure 39.

(3) Connect shielded cable assembly to generator.

(4) Connect battery cables.

(5) Polarize the generator before the engine is started. This is done by momentarily connecting a jumper lead between the generator and the battery terminals of the generator regulator. Failure to do this may result in damage to the generator regulator since reversed generator polarity causes arcing and burning of the cutout relay contact points.

e. Testing. (On Engine)

(1) Start the engine and run at operating speed.

(2) Observe the ammeter. If ammeter does not indicate 27.5 amps minimum, the generator is defective and must be replaced. (See figure 31.)

95. GENERATOR REGULATOR

a. On Engine Testing. Test generator regulator on the engine as illustrated in figures 31 and 32, and paragraphs 95d and 95e.

b. Removal. Remove generator regulator as instructed in figure 33.

c. Cleaning and Inspection.

(1) Clean the generator regulator with an approved cleaning solvent.

(2) Inspect the housing for damage. Replace a defective generator regulator.

(3) Inspect for broken or frayed electrical leads. Replace as necessary.

(4) Inspect mounting hardware for damage. Replace defective hardware.

d. Test and Electrical Adjustments.

(1) Circuit breaker unit testing and adjusting. Connect the generator regulator as illustrated in A, figure 32, and polarize the generator. Connect the generator regulator as illustrated in B, figure 32. Start the engine and run at operating speed for 20 minutes. From the idle speed, slowly increase the engine speed. The circuit breaker contact points should close at 26 volts. To adjust, remove the generator regulator cover and turn the circuit breaker unit adjusting screw clockwise to increase and counterclockwise to decrease closing voltage.

(2) Voltage regulator unit testing and adjusting. Connect the generator regulator as illustrated in A, figure 32. Start the engine and run at operating speed for 20 minutes. The voltage regulator should indicate 28 volts. To adjust, remove generator regulator cover and turn the voltage regulator screw clockwise to increase and counterclockwise to decrease voltage.

(3) Current regulator unit testing and adjusting. With the engine stop pulled OUT, operate starter for 10 seconds to partially discharge the batteries. Connect the generator regulator as illustrated in B, figure 32. Observe the ammeter, it should read 18 amperes. To adjust, remove generator regulator cover and turn the current regulator adjusting screw clockwise to increase and counterclockwise to decrease current setting.

Note

After adjustments are made, operate engine at low and high speeds several times and observe meters. Repeat adjustments until regulator is stabilized.

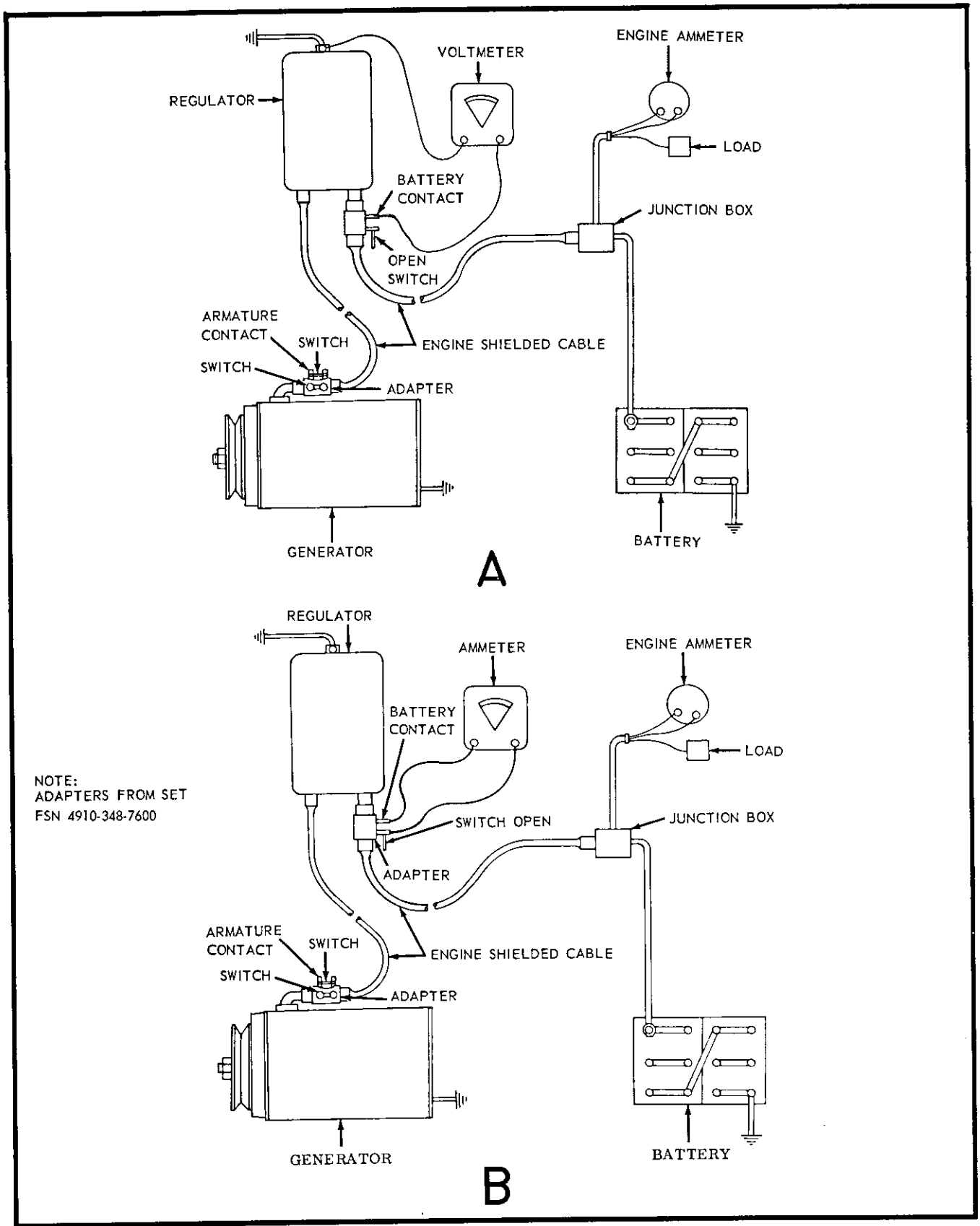
e. Mechanical Adjustments.

(1) Disconnect batteries (para 97).

(2) Adjust the armature air gap and contact spring and stop on the current regulator unit and voltage regulator unit, and the air gap and contact point adjustment on the circuit breaker as instructed on figure 34.

(3) Connect the batteries (para 97).

f. Installation. Install generator regulator as instructed in figure 33.



A - Meter Connections for Voltage Regulator Test B - Meter Connections for Current Regulator Test

Figure 32. Generator Regulator, On Engine Testing

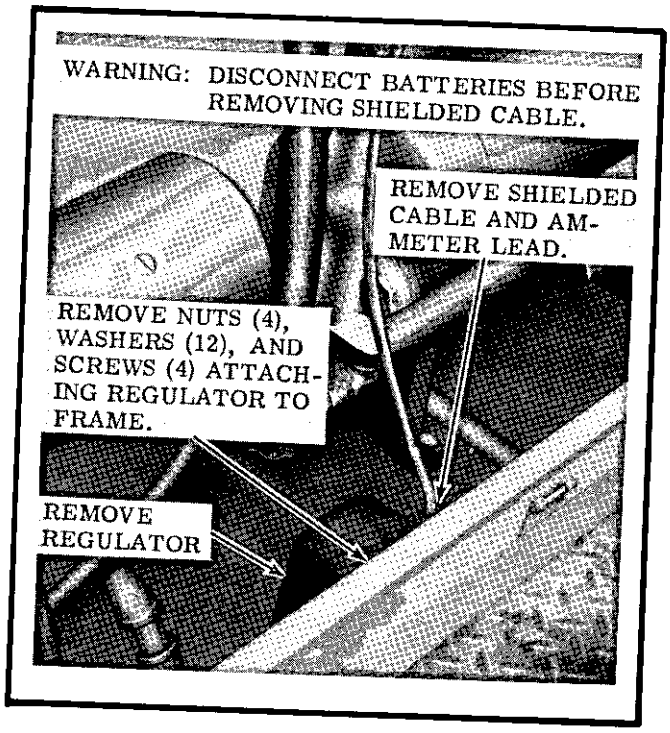


Figure 33. Generator Regulator, Removal and Installation

96. STARTING MOTOR

a. Removal. Remove starting motor as instructed in figure 35.

b. Cleaning and Inspection.

(1) Clean the starting motor with an approved cleaning solvent.

(2) Inspect housing for cracks, breaks, or any other damage. Replace damaged starter.

(3) Inspect mounting hardware for damage. Replace damaged hardware.

c. Installation. Install starting motor as instructed in figure 35.

97. BATTERIES AND CABLES

a. Removal. Remove batteries and cables as instructed in figure 36.

b. Cleaning and Inspection.

(1) Clean the batteries and cables with a clean cloth dampened with an approved cleaning solvent.

(2) Inspect batteries for cracks, breaks, loose terminals, and general condition. Replace batteries as necessary.

(3) Inspect battery cables for broken wires, frayed insulation, or any other damage. Replace cables as necessary.

c. Installation and Battery Lug Clamp Adjustment.

(1) Install the batteries and cables as instructed in figure 36.

(2) Loosen locknut on inside of lug clamp.

(3) Place lug with disconnect handle up, or at right angle to lug, on battery terminal.

(4) Tighten bushing nut on outside clamp to a friction fit between lug and battery post.

(5) Tighten locknut.

(6) Push disconnect handle down in parallel with clamp.

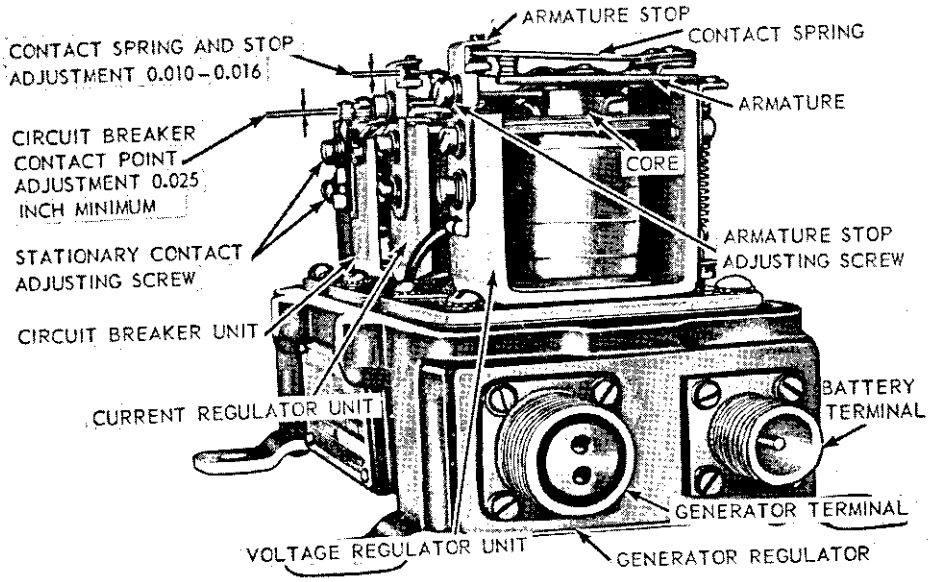
(7) Apply grease to lugs.

Note

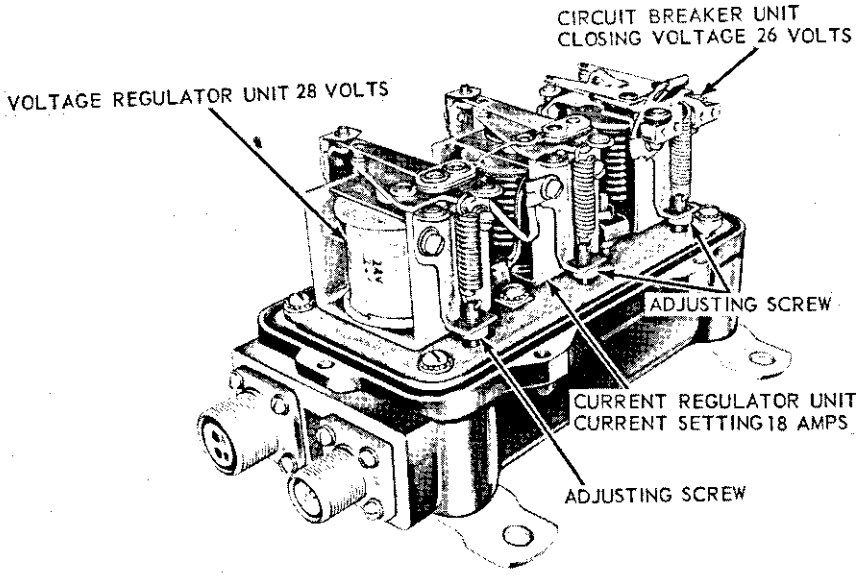
Do not take battery test reading immediately after adding electrolyte.

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



B

A - Mechanical Adjusting Points

B - Electrical Adjusting Points

Figure 34. Generator Regulator, Adjustments

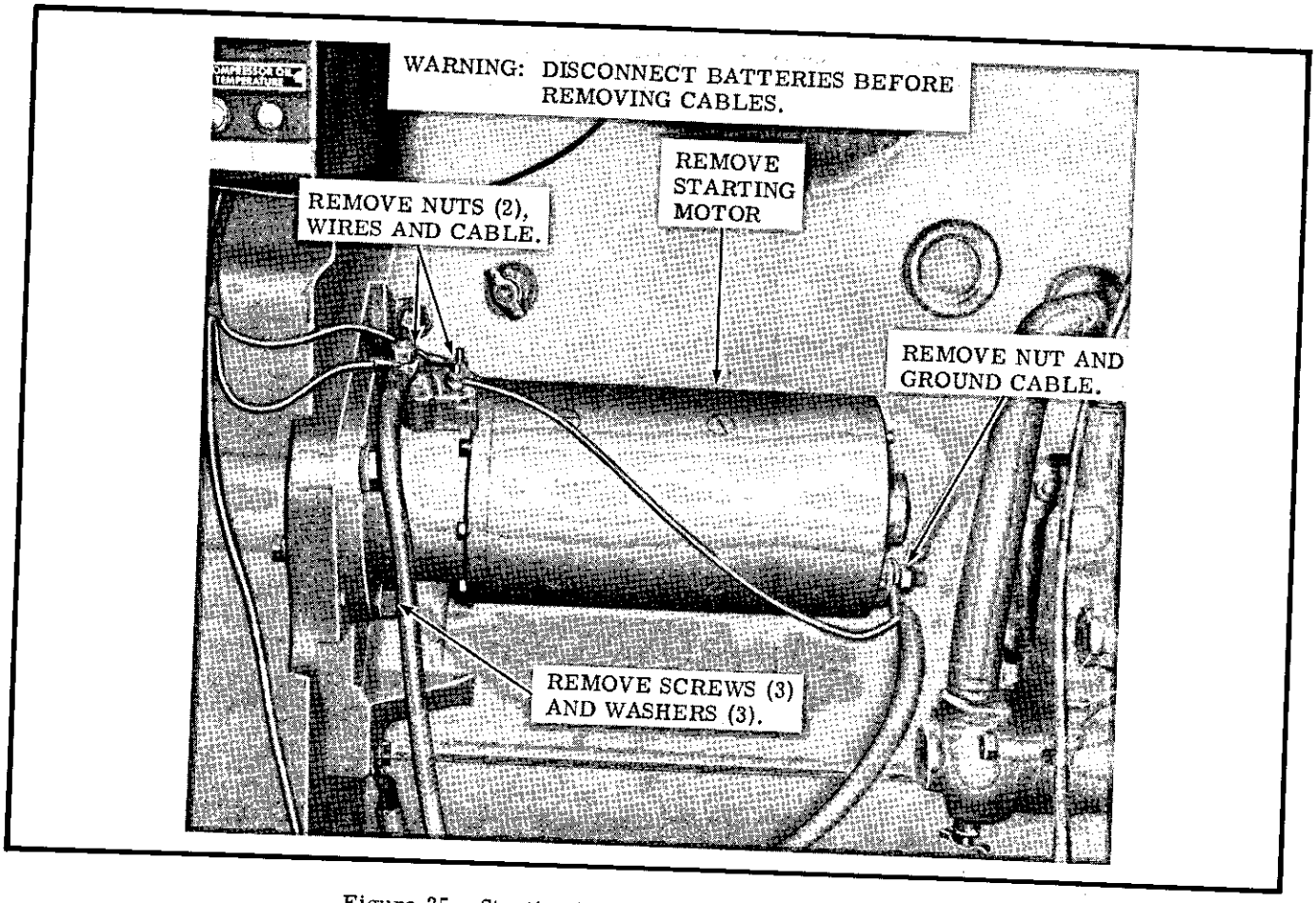


Figure 35. Starting Motor, Removal and Installation

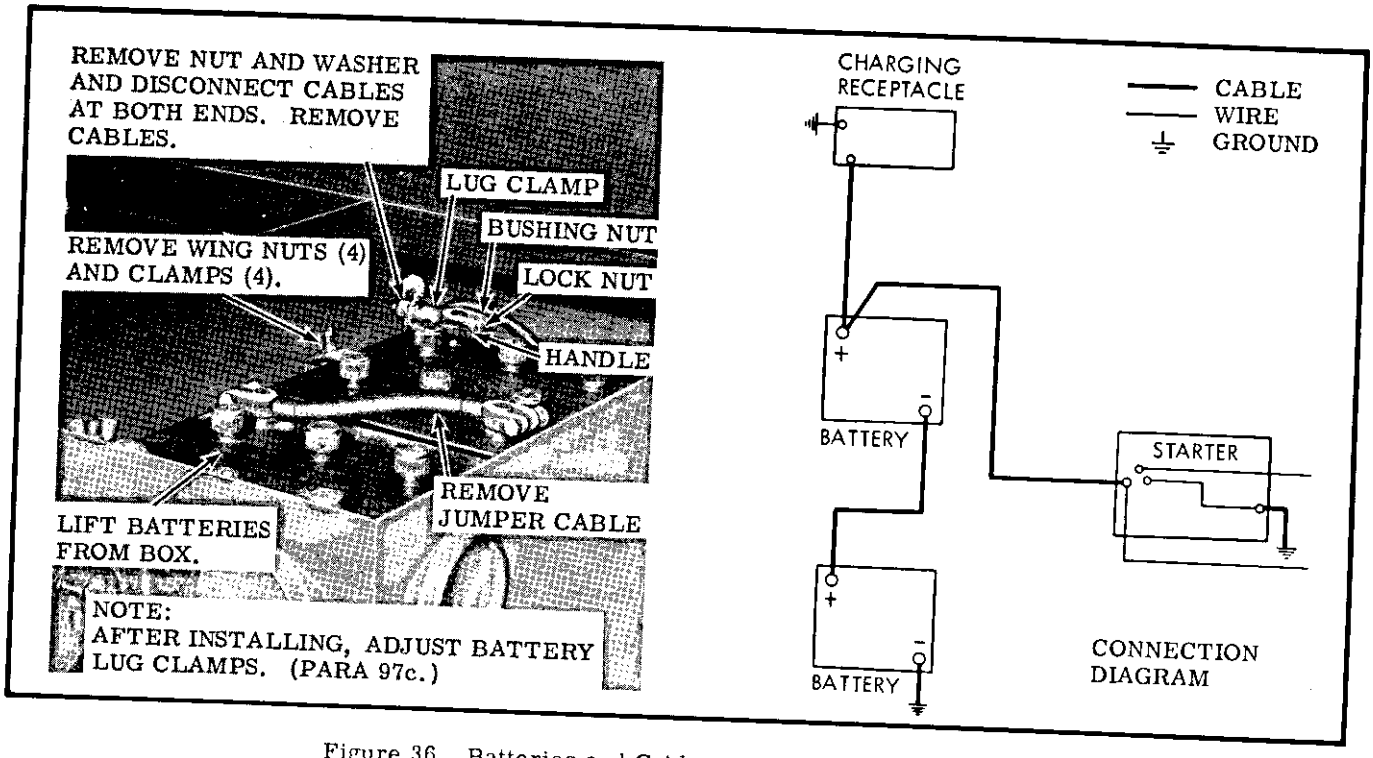


Figure 36. Batteries and Cables, Removal and Installation

98. GENERAL

The engine has a pressure cooling system. The cooling system maintains the engine at a safe operating temperature by the air drawn through the radiator core by the engine driven fan. The thermostat in the system permits the coolant to flow at a specified coolant temperature. An impeller-type pump circulates the coolant through the engine block, water jacket, and radiator. An engine water temperature gage is included in the system. A thermoswitch is provided which opens the circuit to the fuel injection pump solenoid when the coolant temperature reaches 225°F automatically shutting down the engine.

99. ENGINE FAN GUARD ASSEMBLY

a. Removal. Remove the engine fan guard assembly as instructed in figure 37.

b. Cleaning and Inspection.

(1) Clean the fan guard with an approved cleaning solvent and dry with compressed air.

(2) Inspect for cracks, breaks, distortion, or other damage. Straighten if possible. Replace as necessary.

(3) Inspect mounting hardware for damage. Replace as necessary.

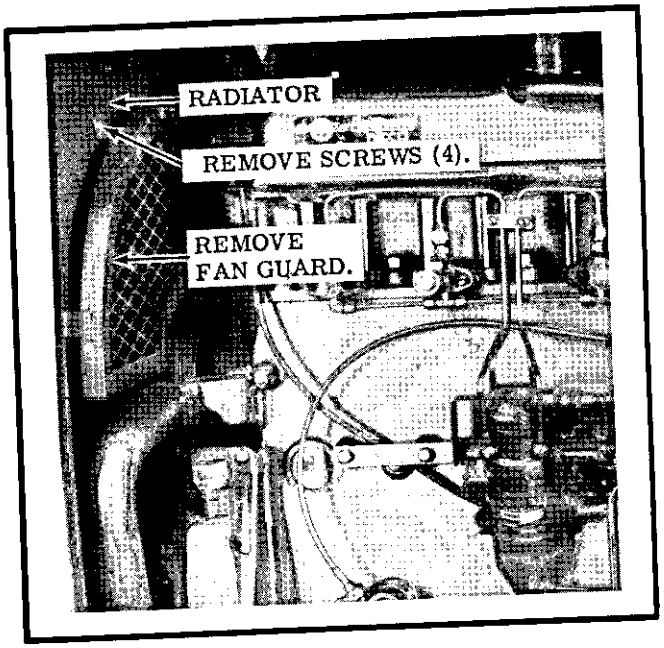


Figure 37. Engine Fan Guard, Removal and Installation

c. Installation. Install engine fan guard as instructed on figure 37.

100. COOLANT LINES, HOSE, FITTINGS, AND CLAMPS

a. Removal. Remove the coolant lines, hoses, fittings and clamps as instructed on figure 38.

b. Cleaning and Inspection.

(1) Clean the lines, hoses, fittings, and clamps with an approved cleaning solvent.

(2) Inspect for kinks, breaks, cracks, deterioration, or any other damage. Replace as necessary.

(3) Inspect mounting hardware for damage. Replace as necessary.

c. Installation.

(1) Install lines, hoses, fittings, and clamps as instructed on figure 38.

(2) Check for leaks.

101. ENGINE FAN BELTS

a. Removal.

(1) Remove fan guard assembly (para 99).

(2) Remove the engine fan belts as instructed in figure 39.

b. Inspect. Inspect the fan belts for cracks, breaks, fraying, excessive wear, or other damage. Replace as necessary.

c. Installation.

(1) Install the engine fan belts as instructed on figure 39.

(2) Install fan guard assembly (para 99).

d. Adjustment. Adjust fan belts as instructed on figure 39.

102. RADIATOR

a. Removal.

(1) Remove the housing doors and hood (para 84).

(2) Remove fan guard assembly (para 99).

(3) Remove hoses and clamps (para 100).

(4) Remove radiator as instructed on figure 40.

b. Cleaning and Inspection.

(1) Clean the radiator with an approved cleaning solvent or with compressed air.

(2) Inspect for cracks, broken tubes, crushed fins, or other damage. Replace as necessary.

(3) Inspect mounting hardware for damage. Replace as necessary.

c. Installation.

(1) Install radiator as instructed on figure 40.

(2) Install hoses and clamps (para 100).

(3) Install fan guard (para 99).

(4) Install housing hood and doors (para 84).

103. FAN ASSEMBLY

a. Removal.

(1) Remove fan guard (para 99).

(2) Remove fan assembly as instructed on figure 41.

b. Cleaning and Inspection.

(1) Clean fan assembly with an approved cleaning solvent.

(2) Inspect for cracks, breaks, bent blades, and other damage. Replace as necessary.

(3) Inspect mounting hardware for damage. Replace as necessary.

c. Installation.

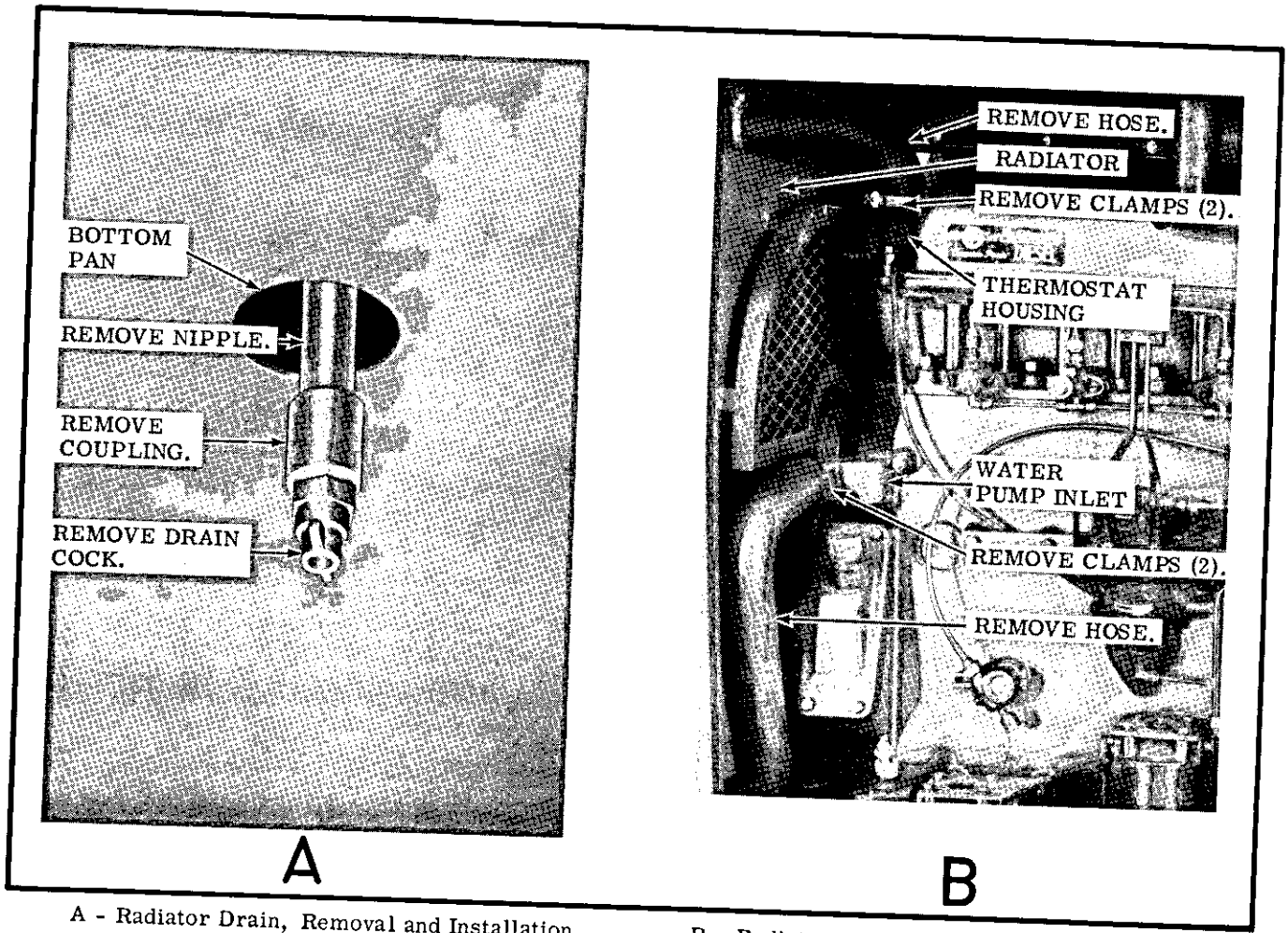
(1) Install fan assembly as instructed on figure 41.

(2) Install fan guard (para 99).

104. THERMOSTAT AND HOUSING

a. Removal.

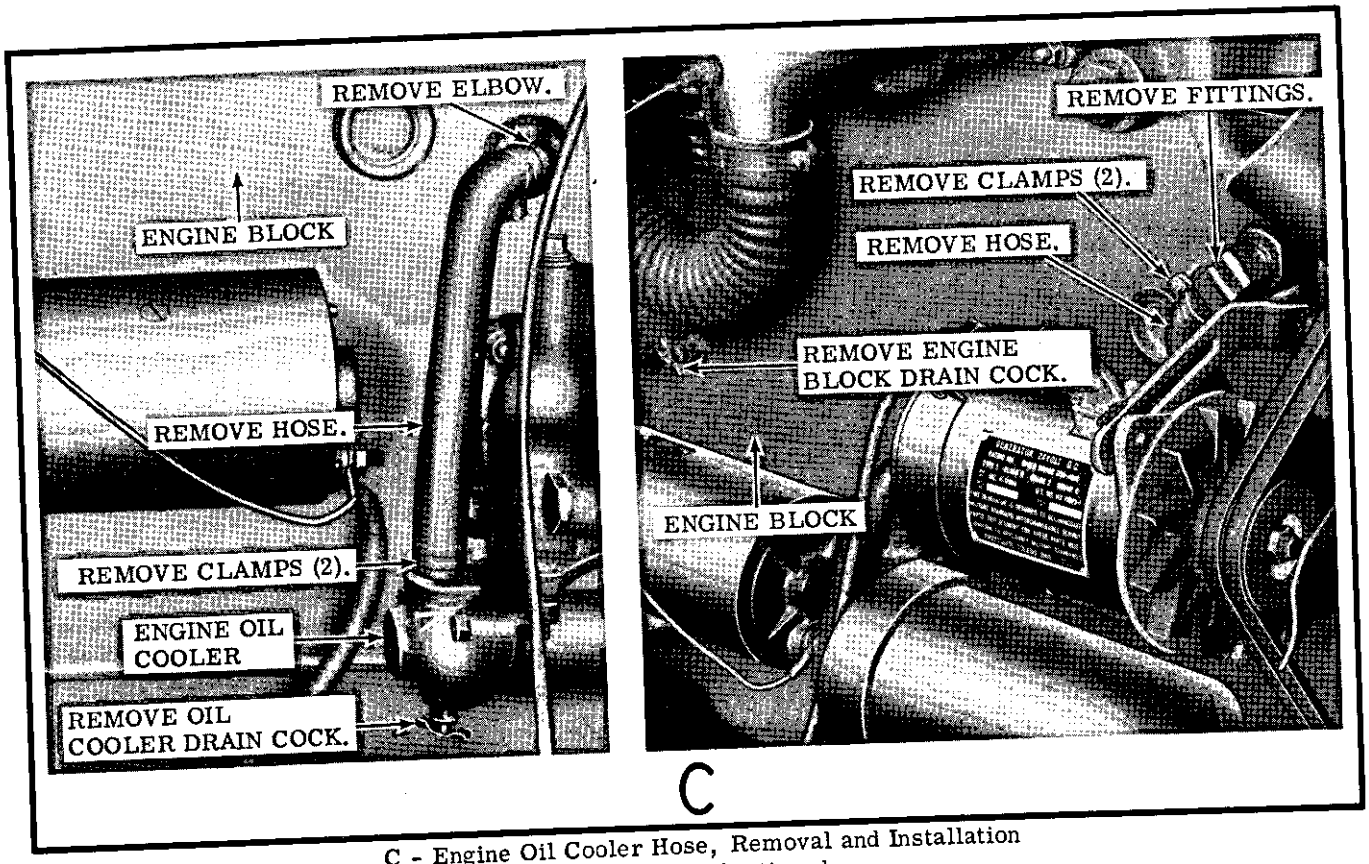
(1) Drain cooling system.



A - Radiator Drain, Removal and Installation

B - Radiator Hose, Removal and Installation

Figure 38. Coolant Lines, Hose, Fittings, and Clamps, Removal and Installation



C - Engine Oil Cooler Hose, Removal and Installation
Figure 38. - Continued.

(2) Remove hose and clamps (para 100).

(3) Remove housing and thermostat as instructed on figure 42.

b. Cleaning and Inspection.

(1) Clean the thermostat and housing with an approved cleaning solvent.

(2) Inspect the thermostat housing for cracks, breaks, or other damage. Replace as necessary.

(3) Check thermostat for proper operation. For testing procedure refer to c below.

(4) Inspect mounting hardware for damage. Replace as necessary.

(5) Replace gasket.

c. Testing Thermostat.

(1) Immerse the thermostat in a container of water so that it does not touch the bottom (approximately four inches of water depth). Place a thermometer in the water.

(2) Heat the water slowly and note the temperature at which the thermostat starts to open.

(3) Continue to heat the water until the thermostat is fully open. Note temperature. The thermostat should start to open at 165 ± 2-1/2°F and be completely open at 185°F.

(4) Replace the thermostat if it does not operate at the correct temperatures.

d. Installation.

(1) Install thermostat and housing as instructed on figure 42.

(2) Install hose and clamps (para 100).

(3) Fill cooling system.

105. WATER PUMP

a. Removal.

(1) Remove fan guard (para 99).

(2) Remove fan assembly (para 103).

(3) Remove fan belts (para 101).

(4) Remove water pump as instructed on figure 43.

b. Installation.

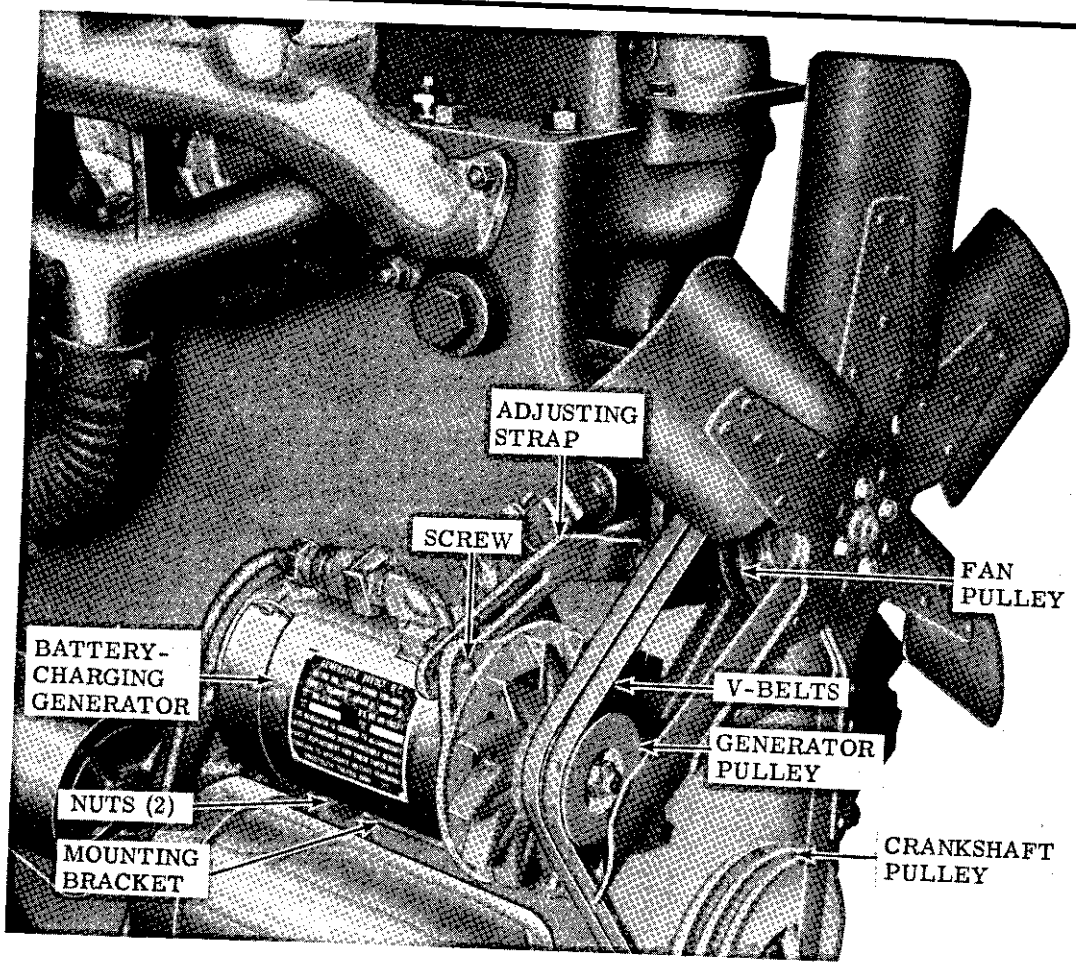
(1) Replace water pump gasket.

(2) Install water pump as instructed on figure 43.

(3) Install and adjust fan belts (para 101).

(4) Install fan assembly (para 103).

(5) Install fan guard (para 99).



STEP 1.
LOOSEN SCREW SECURING BATTERY-CHARGING GENERATOR TO THE ADJUSTING STRAP.

STEP 2.
LOOSEN NUTS (2) SECURING GENERATOR TO MOUNTING BRACKET.

STEP 3.
MOVE THE GENERATOR TOWARD THE ENGINE UNTIL V-BELTS ARE FREE OF GENERATOR PULLEY.

STEP 4.
REMOVE V-BELTS.

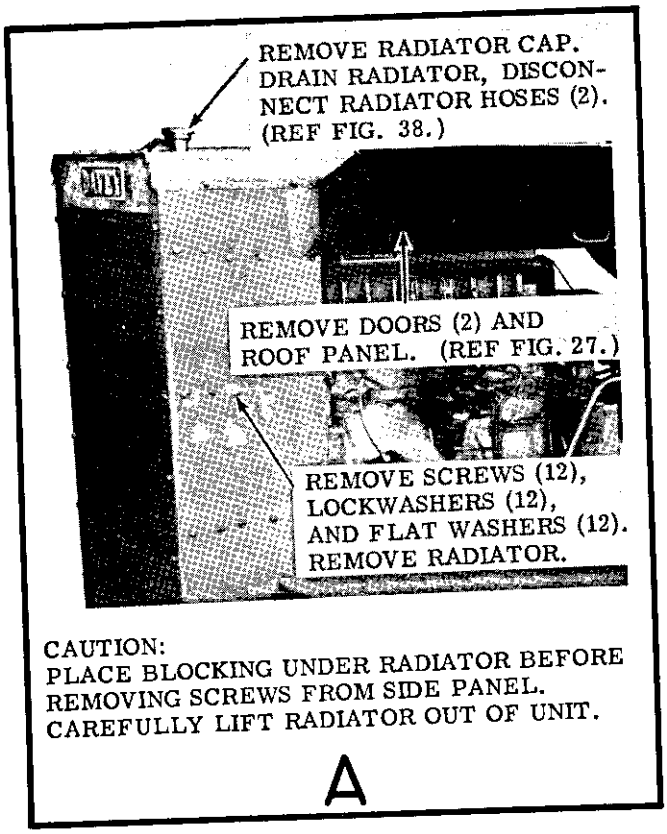
STEP 5.
INSTALL V-BELTS ON FAN PULLEY, CRANKSHAFT PULLEY, AND GENERATOR PULLEY.

STEP 6.
MOVE GENERATOR AWAY FROM THE ENGINE APPLYING TENSION TO V-BELTS.

STEP 7.
TIGHTEN SCREW ON ADJUSTING STRAP. DEPRESS THE V-BELTS BETWEEN THE PULLEYS. V-BELTS SHOULD DEPRESS 1/2 INCH FOR PROPER TENSION. ADJUST GENERATOR AS NECESSARY.

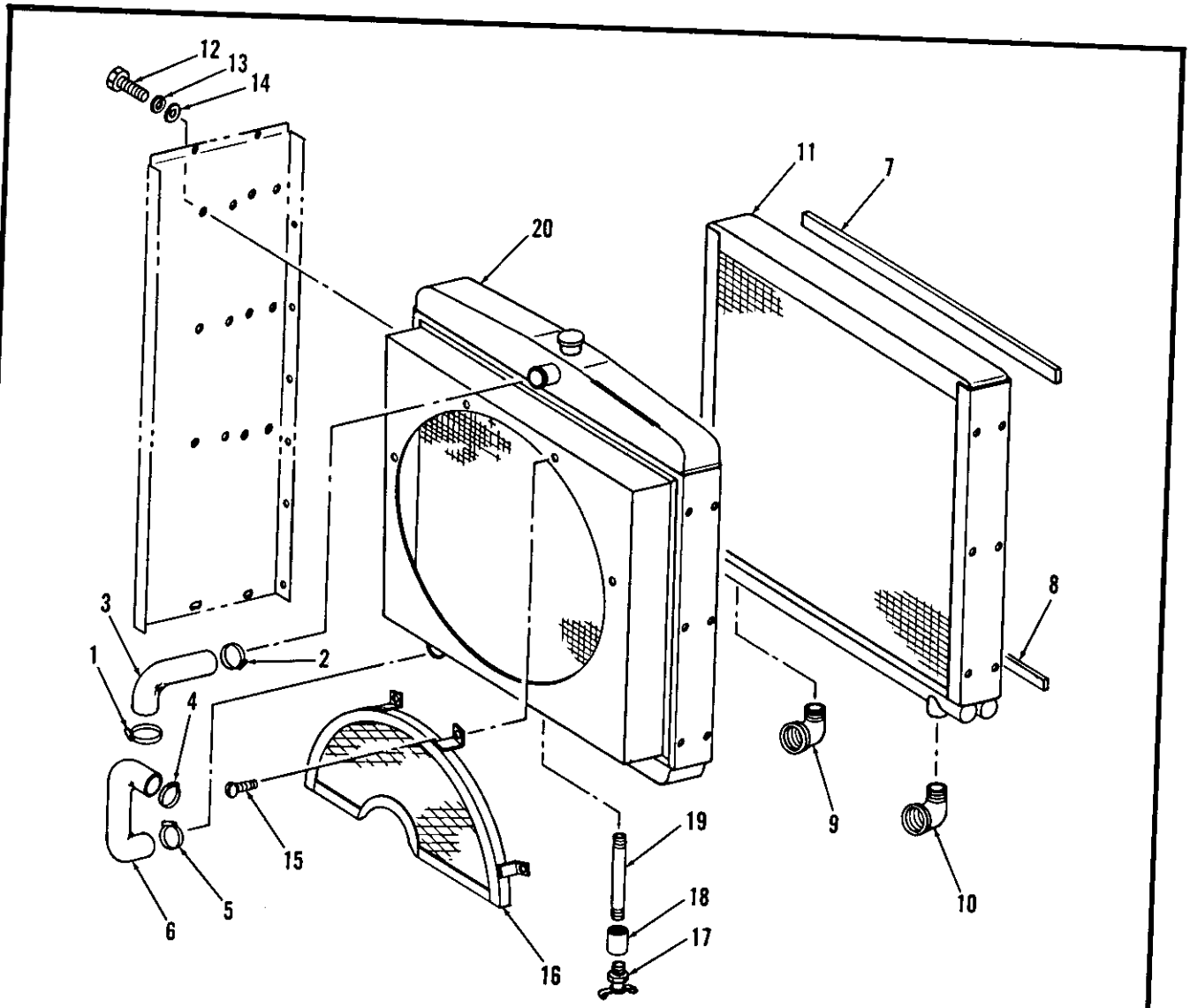
STEP 8.
TIGHTEN NUTS (2) SECURING GENERATOR TO MOUNTING BRACKET.

Figure 39. Engine Fan Belts, Removal, Installation, and Adjustment



A - Radiator, Removal and Installation

Figure 40. Radiator, Removal and Installation



1 Clamp, Hose
2 Clamp, Hose
3 Hose
4 Clamp, Hose
5 Clamp, Hose
6 Hose
7 Rubber Strip
8 Rubber Strip
9 Elbow, Street, 1 in.
10 Elbow, Street, 1 in.
11 Cooler Assy, Compressor Oil
12 Screw, 3/8-16 x 3/4 in. (24 reqd)
13 Washer, Lock, 3/8 in. (24 reqd)
14 Washer, Flat, 3/8 in. (24 reqd)
15 Screw, Sheet Metal, No. 10 x 1/2 in. (4 reqd)
16 Guard, Fan
17 Drain Cock
18 Coupling, 3/8 NPT
19 Nipple, 3/8 NPT x 12 in.
20 Radiator Assembly

B

B - Radiator, Compressor Oil Cooler, Fan Guard, Hoses, and Fittings, Exploded View

Figure 40. - Continued.

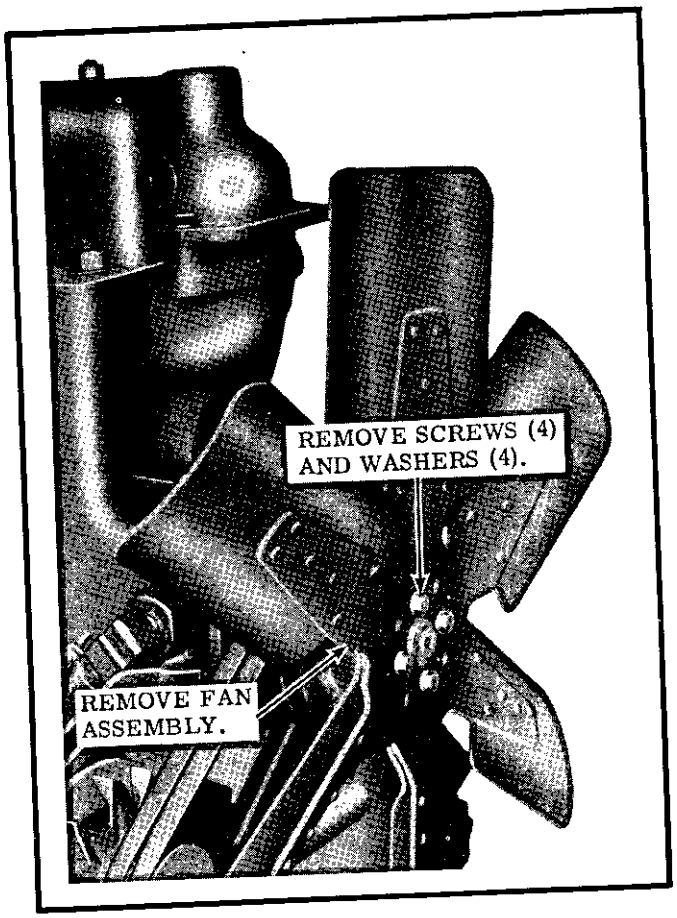


Figure 41. Fan Assembly, Removal and Installation

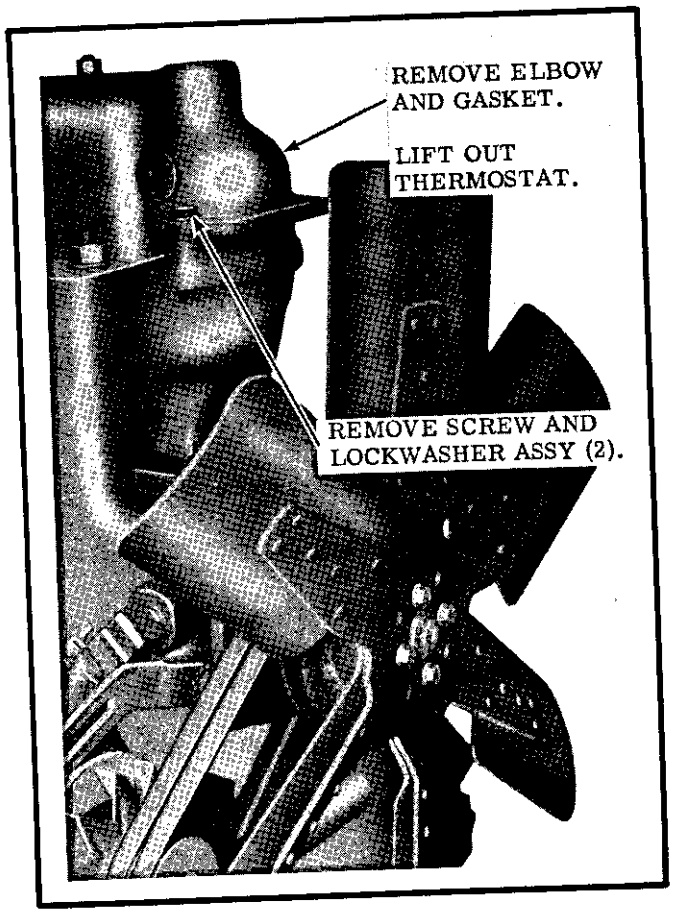


Figure 42. Thermostat and Housing, Removal and Installation

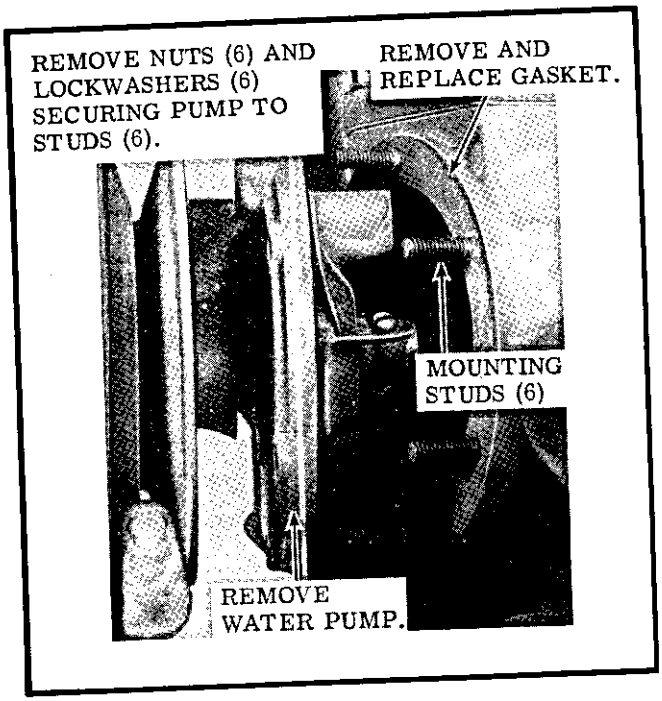


Figure 43. Water Pump, Removal and Installation

106. GENERAL

Engine lubrication is provided by a gear-type oil pump which is an integral part of the Lanchester Balancer assembly. This assembly is mounted to the engine crankcase and is driven off the crankshaft gear. The oil is forced from the crankcase, through the oil filter and cooler assembly, to the critical parts of the engine and back into the crankcase. The oil filter is furnished with a replaceable element.

The compressor lubrication system consists of the oil filter, thermal bypass assembly, oil cooler, and the necessary lines to complete the system. The oil filter assembly filters the compressor oil before it enters the unit and is furnished with a replaceable element. The thermal bypass assembly regulates the flow of oil either directly to the compressor when oil temperature is at or below operating temperature or to the compressor oil cooler when temperature of the oil is above operating temperature. The oil cooler is the finned tube type. The oil flowing through these tubes is cooled by the flow of air over the tubes created by the engine fan.

107. ENGINE OIL FILTER

a. Removal. Remove the engine oil filter as instructed on figure 44.

b. Disassembly. Disassemble the engine oil filter as illustrated on figure 45.

c. Cleaning and Inspection.

(1) Clean the engine oil filter with an approved cleaning solvent.

(2) Inspect all parts for cracks, breaks, dents, or other damage. Replace parts as necessary.

(3) Replace gaskets.

(4) Inspect mounting hardware for damage. Replace as necessary.

d. Reassembly. Reassemble engine oil filter as illustrated on figure 45.

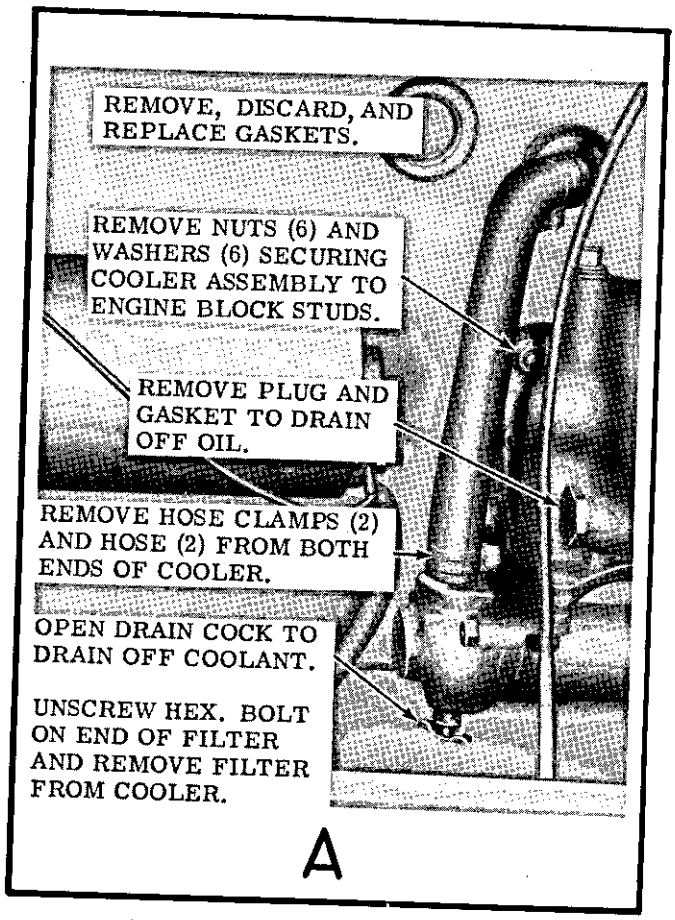
e. Installation. Install the engine oil filter as instructed on figure 44.

108. ENGINE OIL COOLER

a. Removal.

(1) Remove the engine oil filter (para 107).

(2) Remove the engine oil cooler as instructed on figure 44.



A - Engine Oil Filter and Cooler, Removal and Installation

Figure 44. Engine Oil Filter and Cooler, Removal and Installation

b. Cleaning and Inspection.

(1) Clean the engine oil cooler with an approved cleaning solvent.

(2) Inspect the engine oil cooler for cracks, breaks, or other damage. Replace as necessary.

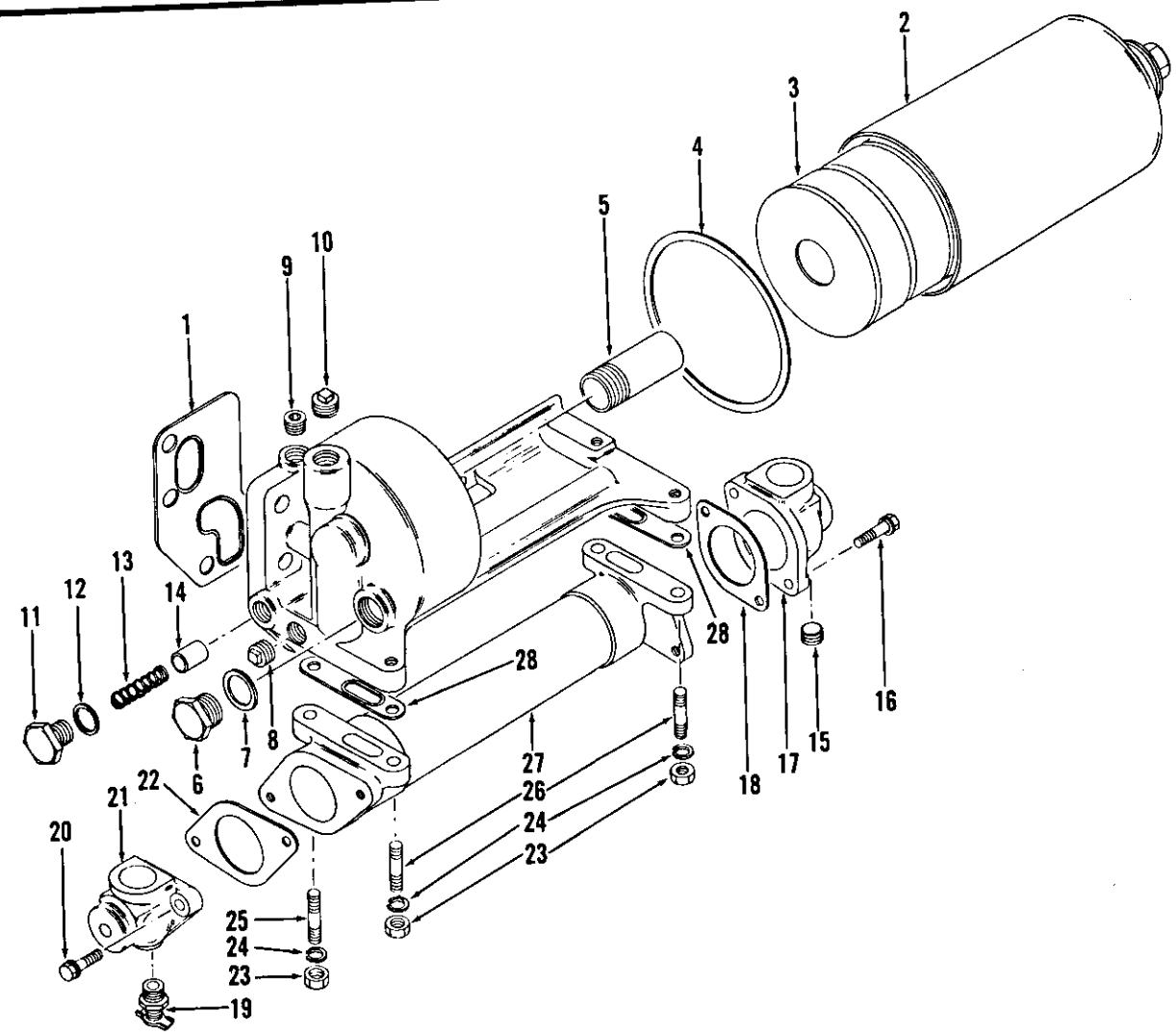
(3) Inspect mounting hardware for damage. Replace as necessary.

(4) Replace gaskets.

c. Installation.

(1) Install the engine oil cooler as instructed on figure 44.

(2) Install engine oil filter (para 107).



1 Gasket
2 Body assembly
3 Cartridge, filter
4 Gasket
5 Adapter
6 Plug, magnetic
7 Gasket
8 Plug, pipe, 3/8 in.
9 Plug, pipe, 1/4 in.
10 Plug, pipe, 3/8 in.
11 Plug, bypass valve
12 Gasket
13 Spring, bypass valve
14 Valve, bypass
15 Plug, pipe, 1/4 in.
16 Screw and Lockwasher assembly, 5/16-18 x 1 in. (2 reqd)
17 Elbow
18 Gasket
19 Cock, drain
20 Screw and Lockwasher assembly, 5/16-18 x 1 in. (2 reqd)
21 Elbow
22 Gasket
23 Nut, 3/8 in. (4 reqd)
24 Washer, lock, 3/8 in. (4 reqd)
25 Stud, 3/8-16 x 1-5/8 in., nylock
26 Stud, 3/8-16 x 1-5/8 in. (3 reqd)
27 Cooler, oil
28 Gasket (2 reqd)

B

B - Engine Oil Filter and Cooler, Exploded View

Figure 44. - Continued.

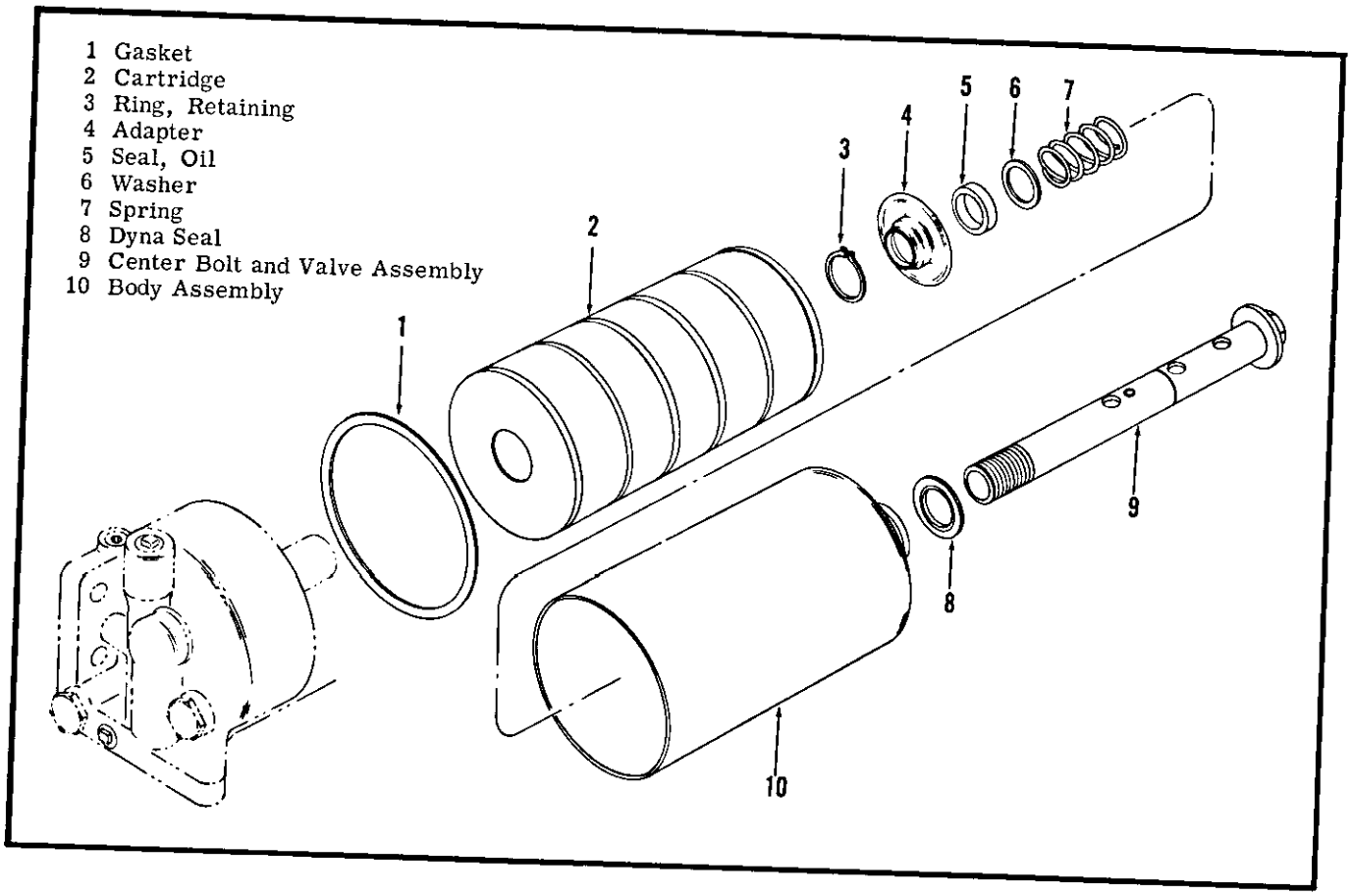


Figure 45. Engine Oil Filter, Disassembly and Reassembly

109. EXTERNAL OIL LINES AND FITTINGS

a. Removal.

(1) Remove compressor oil cooler-to-compressor oil filter line, thermal bypass-to-compressor oil cooler line, and thermal bypass-to-compressor oil filter line as instructed on figure 46.

(2) Remove engine oil pressure-to-engine oil pressure gage line (para 113).

(3) Remove compressor oil thermoswitch-to-injection pump solenoid line.

(4) Remove compressor oil separator-to-compressor line and oil separator-to-thermal bypass line as instructed on figure 46.

(5) Remove compressor oil temperature-to-temperature gage line (para 123).

b. Cleaning and Inspection.

(1) Clean the external oil lines and fittings with an approved cleaning solvent and dry thoroughly.

(2) Inspect for kinks, cracks, breaks, crushed condition or any other damage. Replace as necessary.

c. Installation.

(1) Install compressor oil temperature-to-temperature gage line (para 123).

(2) Install compressor oil separator-to-compressor line and oil separator-to-thermal bypass line as instructed on figure 46.

(3) Install compressor oil thermoswitch-to-injection pump solenoid line.

(4) Install engine oil pressure-to-engine oil presure gage line (para 124).

(5) Install thermal bypass-to-compressor oil filter line, thermal bypass-to-compressor oil cooler line, and compressor oil cooler-to-compressor oil filter line as instructed on figure 46.

110. COMPRESSOR OIL FILTER

a. Removal.

(1) Remove compressor oil cooler-to-compressor oil filter line and thermal bypass-to-compressor oil filter line as instructed on figure 46.

(2) Unscrew oil filter assembly to remove from top of thermal bypass assembly.

b. Disassembly. Disassemble compressor oil filter as illustrated on figure 47.

c. Cleaning and Inspection.

(1) Clean the compressor oil filter with an approved cleaning solvent.

(2) Inspect all parts for cracks, breaks, dents, or any other damage. Replace parts as necessary.

(3) Replace gaskets.

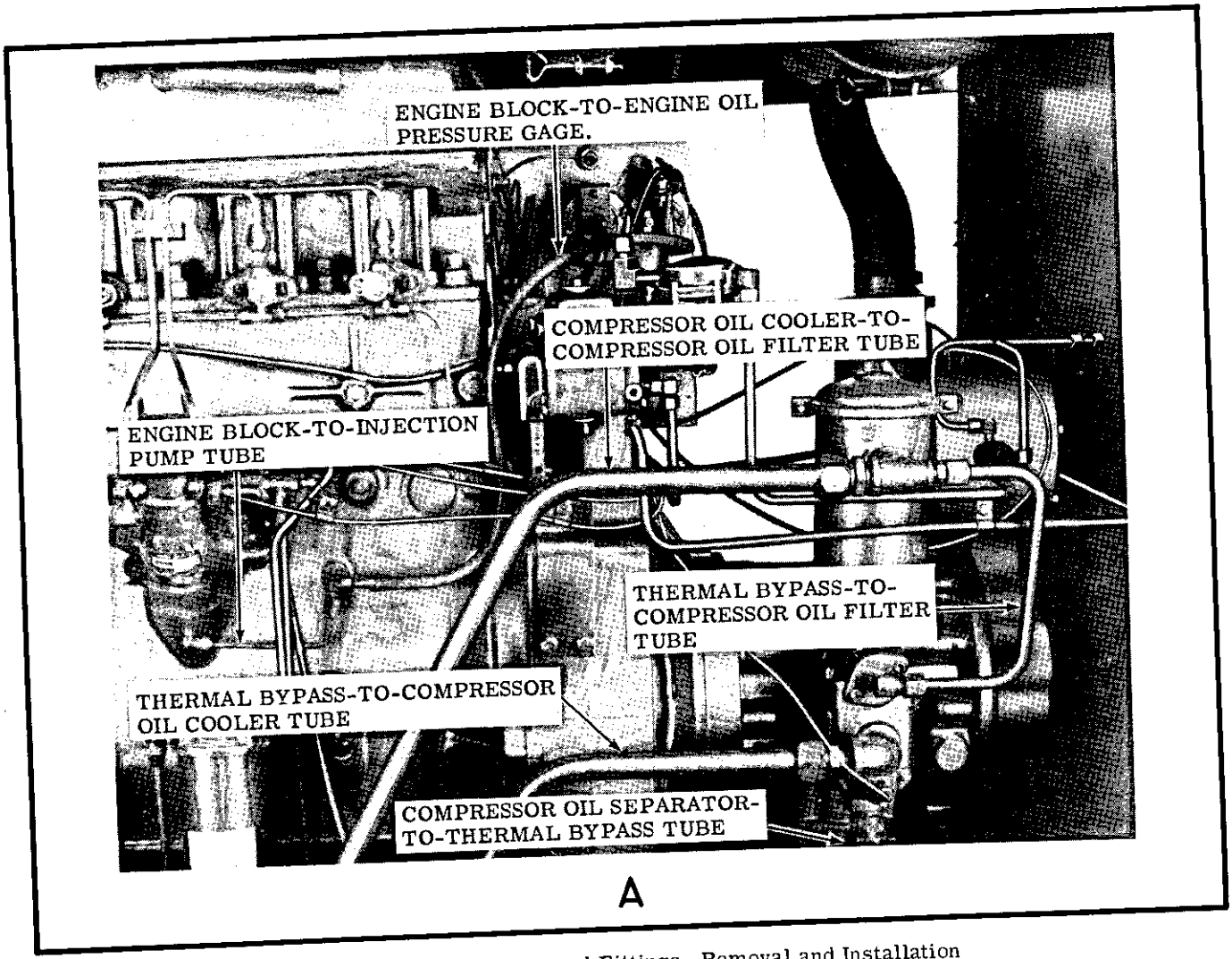
(4) Inspect hardware for damage. Replace as necessary.

d. Reassembly. Reassemble compressor oil filter as illustrated on figure 47.

e. Installation.

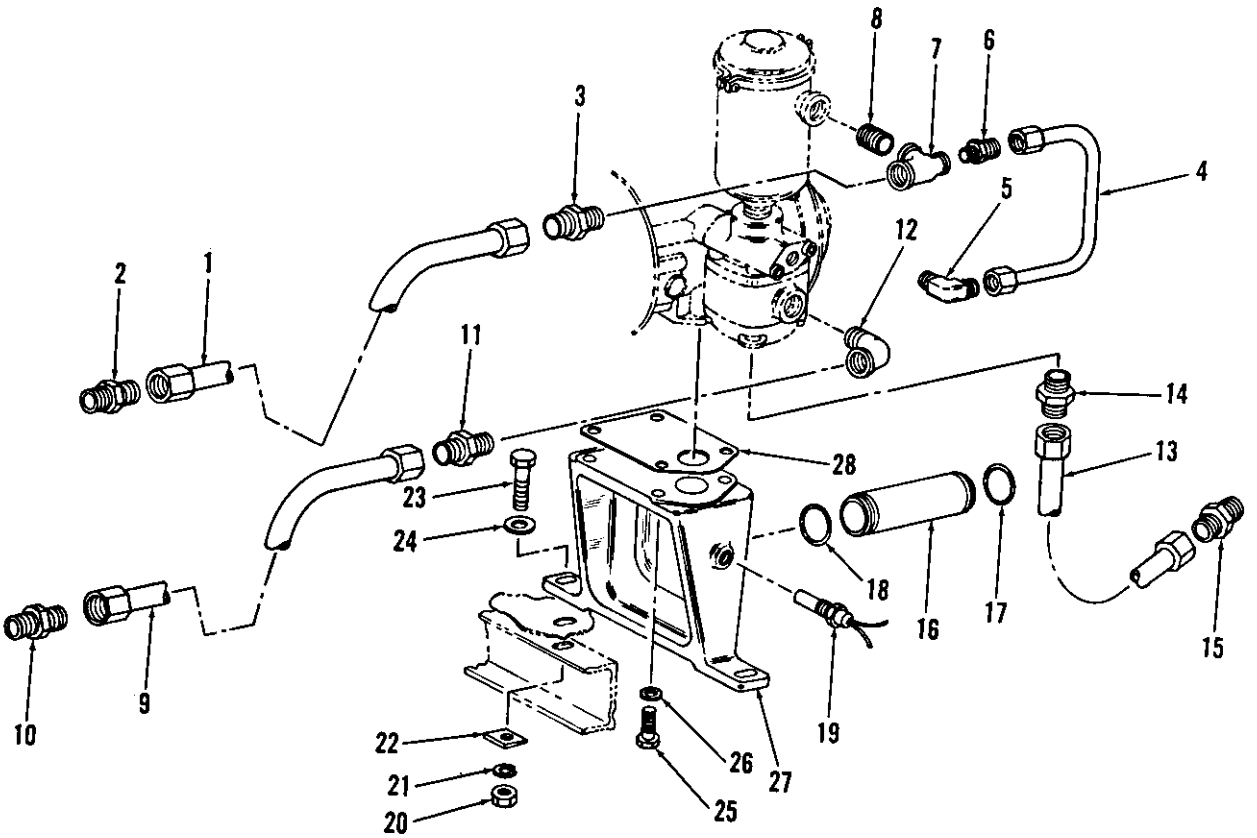
(1) Install compressor oil filter on top of thermal bypass assembly.

(2) Install thermal bypass-to-compressor oil filter line and compressor oil cooler-to-compressor oil filter line as instructed on figure 46.



A - External Oil Lines and Fittings, Removal and Installation

Figure 46. External Oil Lines and Fittings, Removal and Installation



1 Tube Assembly, Compressor Oil Cooler-to-Compressor Oil Filter
2 Connector
3 Connector
4 Tube Assembly, Thermal Bypass-to-Compressor Oil Filter
5 Elbow, Tubing
6 Connector
7 Tee, 3/4 NPT x 3/8 x 3/4 in.
8 Nipple, Close, 3/4 NPT
9 Tube Assembly, Thermal Bypass-to-Compressor Oil Cooler
10 Connector
11 Connector
12 Elbow, Street, 1 in. NPT
13 Tube Assembly, Compressor Oil Separator-to-Thermal Bypass
14 Connector
15 Connector
16 Tube, Compressor Discharge
17 O-Ring
18 O-Ring
19 Thermoswitch
20 Nut, Hex., 1/2-13 (2 reqd)
21 Washer, Lock, 1/2 in. (2 reqd)
22 Washer, Channel, 1/2 in. (2 reqd)
23 Screw, 1/2-13 x 2 in. (2 reqd)
24 Washer, Flat, 1/2 in. (2 reqd)
25 Screw, 3/8-16 x 1-1/4 in. (4 reqd)
26 Washer, Lock, 3/8 in. (4 reqd)
27 Support, Compressor
28 Gasket, Support

B

B - External Oil Lines and Fittings, Exploded View
Figure 46. - Continued.

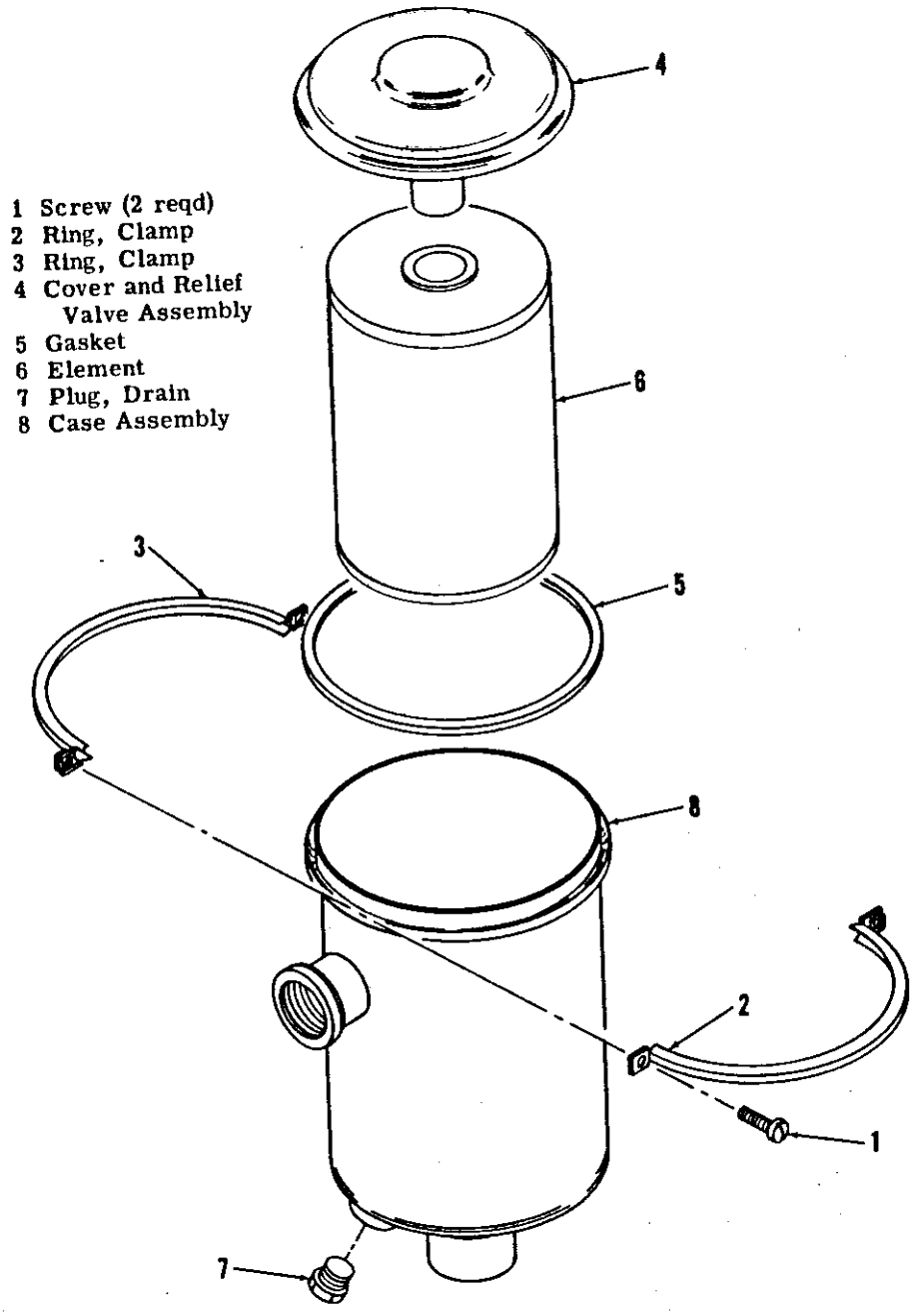


Figure 47. Compressor Oil Filter, Disassembly and Reassembly

111. THERMAL BYPASS ASSEMBLY

a. Removal.

(1) Remove compressor oil filter (para 110).

(2) Remove thermal bypass-to-compressor oil cooler line as instructed on figure 46.

(3) Remove thermal bypass-to-compressor oil separator line as instructed on figure 46.

(4) Remove thermal bypass from compressor assembly as instructed on figure 48.

b. Cleaning and Inspection.

(1) Clean the thermal bypass assembly with an approved cleaning solvent and dry thoroughly.

(2) Inspect assembly for cracks, breaks, nicks, burrs, and any other damage. Replace assembly as necessary.

(3) Replace gasket.

(4) Inspect mounting hardware for damage. Replace as necessary.

c. Installation.

(1) Install thermal bypass-to-compressor assembly as instructed on figure 48.

(2) Install thermal bypass-to-compressor oil separator line as instructed on figure 46.

(3) Install thermal bypass-to-compressor oil cooler line as instructed on figure 46.

(4) Install compressor oil filter (para 110).

112. COMPRESSOR OIL COOLER

a. Removal.

(1) Remove thermal bypass-to-compressor oil cooler line and compressor oil cooler-to-compressor oil filter line as instructed on figure 46.

(2) Remove the housing hood, door panels, and front panel (para 84).

(3) Remove elbows from bottom of compressor oil cooler as illustrated on figure 40.

(4) Remove compressor oil cooler as instructed on figure 49.

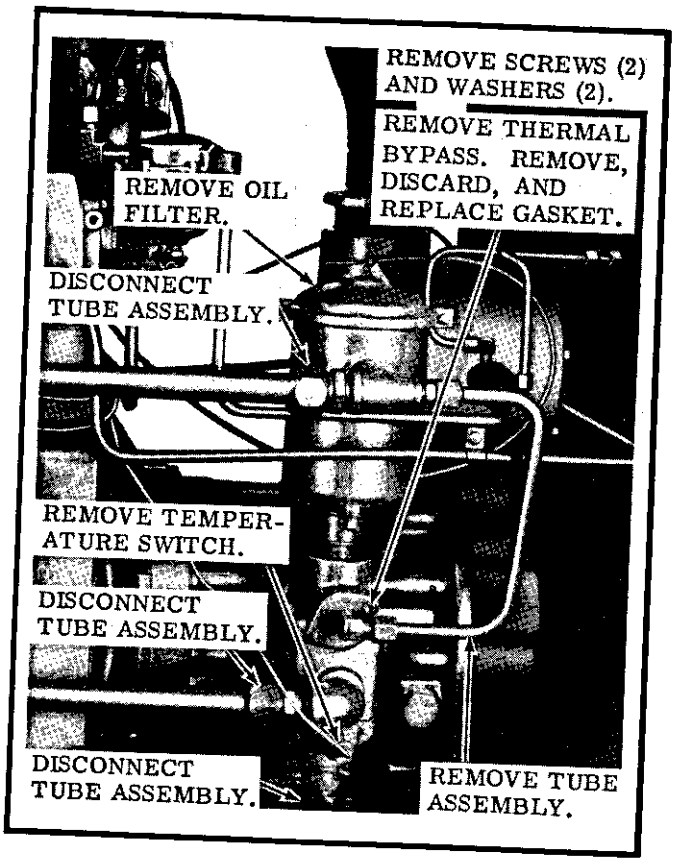


Figure 48. Thermal Bypass, Removal and Installation

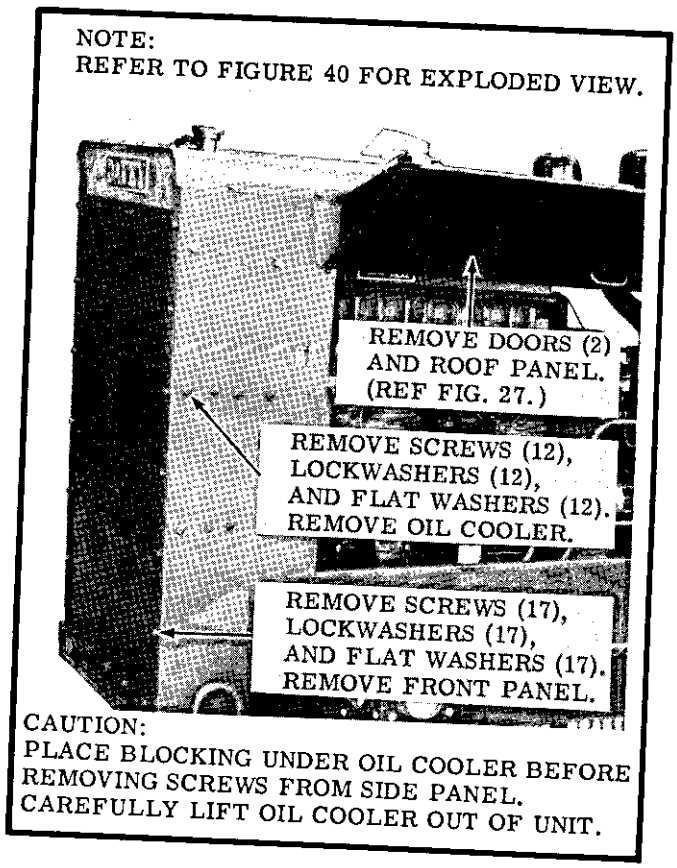


Figure 49. Compressor Oil Cooler, Removal and Installation

(5) Remove rubber strips.

(6) Remove screws and washers attaching oil cooler to side panels and remove compressor oil cooler from unit.

b. Cleaning and Inspection.

(1) Clean the compressor oil cooler with an approved cleaning solvent and dry thoroughly.

(2) Inspect for cracks, broken tubes, crushed fins, or other damage. Replace as necessary.

(3) Inspect mounting hardware for damage. Replace as necessary.

c. Installation.

(1) Install compressor oil cooler as illustrated on figure 49.

(2) Install rubber strips.

(3) Install elbows in bottom of oil cooler.

(4) Install front panel, door panels, and housing hood (para 84).

(5) Install compressor oil cooler-to-compressor oil filter line and thermal bypass-to-compressor oil cooler line as instructed on figure 46.

113. OIL PRESSURE GAGE

a. Removal.

(1) Remove engine oil pressure hose line as instructed on figure 50.

(2) Disconnect wiring from pressure switch. Remove pressure switch and tee from back of oil pressure gage and remove oil pressure gage. (Figure 50.)

b. Cleaning and Inspection.

(1) Clean parts with an approved cleaning solvent and dry thoroughly.

(2) Inspect oil pressure gage for broken face glass, stripped threads, and any other damage. Replace as necessary.

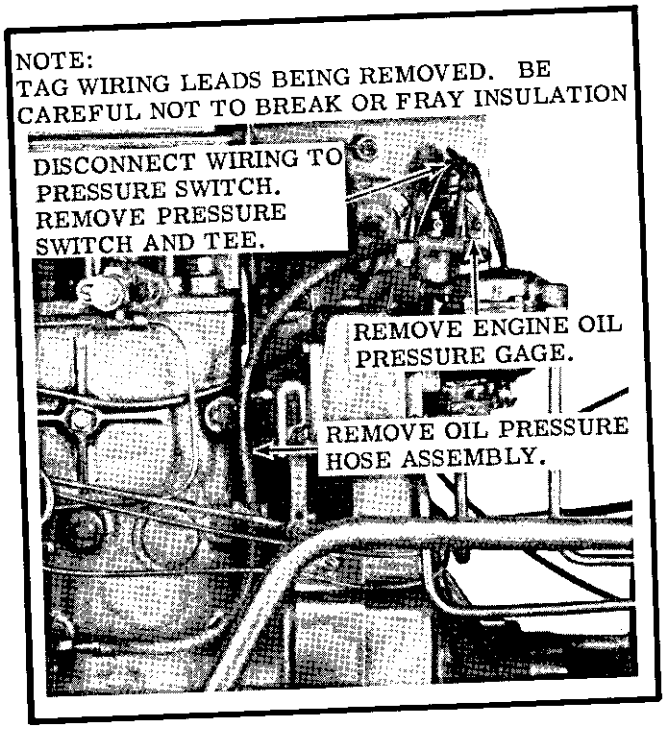


Figure 50. Engine Oil Pressure Gage, Removal and Installation

(3) Inspect pressure switch for stripped threads, condition of terminals, and any other damage. Replace as necessary.

(4) Inspect hose assembly for stripped threads, ruptured hose, or any other damage. Replace as necessary.

c. Installation.

(1) Install oil pressure gage on instrument panel, assemble tee and oil pressure switch as instructed on figure 50.

(2) Install engine oil pressure hose line and make wiring connections to oil pressure switch. (Reference wiring diagram, figure 3.)

114. GENERAL

The engine exhaust system is comprised of a single intake and exhaust manifold casting and an exhaust pipe equipped with a rain shield.

115. INTAKE AND EXHAUST MANIFOLD

a. Removal.

(1) Remove rain shield from exhaust pipe, and unscrew exhaust pipe from manifold as instructed on figure 51.

(2) Remove quick-start orifice and fitting and intake hose and clamp from intake of manifold.

(3) Remove intake and exhaust manifold as instructed on figure 51.

b. Cleaning and Inspection.

(1) Clean intake and exhaust manifold with an approved cleaning solvent.

(2) Inspect manifold for cracks, breaks, or any other damage. Replace as necessary.

(3) Inspect exhaust pipe adapter for cracks, breaks, stripped threads, or any other damage. Replace as necessary.

(4) Inspect manifold crabs for cracks, breaks, or any other damage. Replace as necessary.

(5) Inspect mounting hardware for damage. Replace as necessary.

(6) Replace manifold gasket.

c. Installation.

(1) Install intake and exhaust manifold as illustrated on figure 51.

(2) Install intake hose and clamp and quick-start orifice and fitting.

(3) Screw exhaust pipe into exhaust pipe adapter and install rain shield.

116. CYLINDER HEAD COVER

a. Removal. Remove cylinder head cover as instructed on figure 52.

b. Cleaning and Inspection.

(1) Clean the cylinder head cover with an approved cleaning solvent.

(2) Inspect the cover for cracks, breaks, condition of breather pipe, condition of gasket flange, and for any other damage. Replace as necessary.

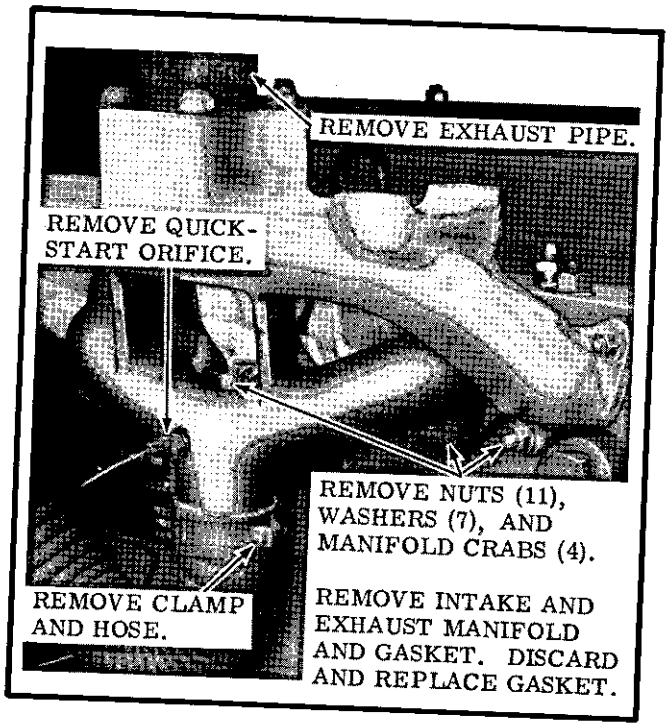


Figure 51. Intake and Exhaust Manifold, Removal and Installation

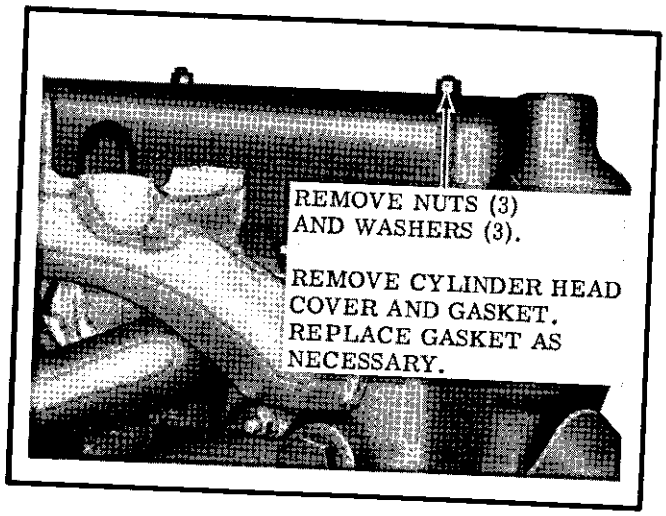


Figure 52. Cylinder Head Cover, Removal and Installation

(3) Replace cylinder head cover gasket.

(4) Inspect mounting hardware for damage. Replace as necessary.

c. Installation. Install cylinder head cover as illustrated on figure 52.

117. INTAKE AND EXHAUST VALVES

Adjustment. Adjust intake and exhaust valves as instructed on figure 53.

NOTE:
START THE ENGINE AND ALLOW TO RUN UNTIL NORMAL OPERATING TEMPERATURE IS REACHED. WITH ENGINE RUNNING AT IDLE SPEED, CHECK INTAKE AND EXHAUST VALVE TAPPET CLEARANCE WITH A 0.014 INCH FEELER GAGE. ADJUST TO PROPER CLEARANCE BY TURNING ROCKER ARM ADJUSTING SCREW CLOCKWISE TO DECREASE CLEARANCE AND COUNTERCLOCKWISE TO INCREASE CLEARANCE. CLEARANCE IS CORRECT WHEN A SLIGHT DRAG IS FELT AS FEELER GAGE IS MOVED. ADJUST ALL INTAKE AND EXHAUST VALVES IN THE SAME MANNER. WHEN PROPER ADJUSTMENT IS OBTAINED, LOCK THE ROCKER ARM ADJUSTING SCREW BY TIGHTENING LOCK NUT.

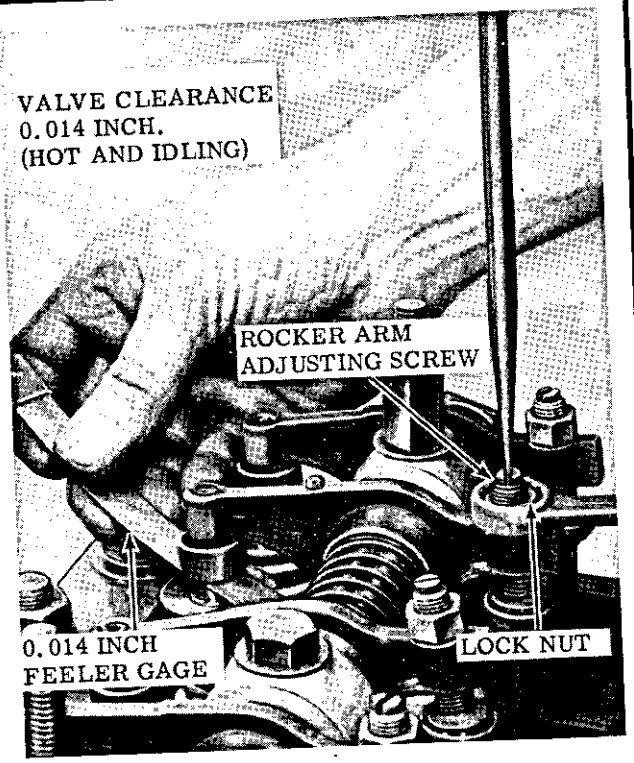


Figure 53. Intake and Exhaust Valves, Adjustment

Section XIV. CONTROLS AND INSTRUMENTS

118. GENERAL

The controls and instruments necessary for proper operation of the air compressor, with exception of the compressor oil separator oil level gage, are mounted on the instrument panel. The instrument panel is mounted to the engine flywheel housing on the right-hand side of the unit. The compressor oil level gage is located on the left-hand side of the oil separator tank.

119. FUEL GAGE

a. Removal. Remove fuel gage and fuel gage sending unit as instructed on figure 54.

b. Cleaning and Inspection.

(1) Clean the fuel gage and sending unit with an approved cleaning solvent.

(2) Inspect fuel gage for cracked or broken face glass, condition of terminals, and any other damage. Replace as necessary.

(3) Inspect sending unit for cracks, breaks, condition of terminals, operation of float, bending of float rod, or any other damage. Replace as necessary.

(4) Inspect mounting hardware for damage. Replace as necessary.

c. Installation. Install fuel gage and sending unit as instructed on figure 54. (Refer to wiring diagram, figure 3.)

120. TACHOMETER-HOURMETER

a. Removal. Remove tachometer-hourmeter as instructed on figure 55.

b. Cleaning and Inspection.

(1) Clean tachometer-hourmeter and drive cable with an approved cleaning solvent.

(2) Inspect tachometer-hourmeter for cracked or broken face glass. Inspect for case cracks, breaks, or any other damage. Replace as necessary.

(3) Inspect drive cable for breaks, crushed condition, condition of threads, and any other damage. Replace cable as necessary.

(4) Inspect mounting hardware for damage. Replace as necessary.

c. Installation. Install tachometer-hourmeter as instructed on figure 55.

121. AMMETER

a. Removal. Remove ammeter as instructed on figure 55.

b. Cleaning and Inspection.

(1) Clean ammeter with an approved cleaning solvent.

(2) Inspect for cracked or broken face glass. Inspect case for cracks, breaks, condition of terminals and any other damage. Replace as necessary.

(3) Inspect mounting hardware for damage. Replace as necessary.

c. Installation. Install ammeter as illustrated on figure 55.

122. ENGINE WATER TEMPERATURE GAGE

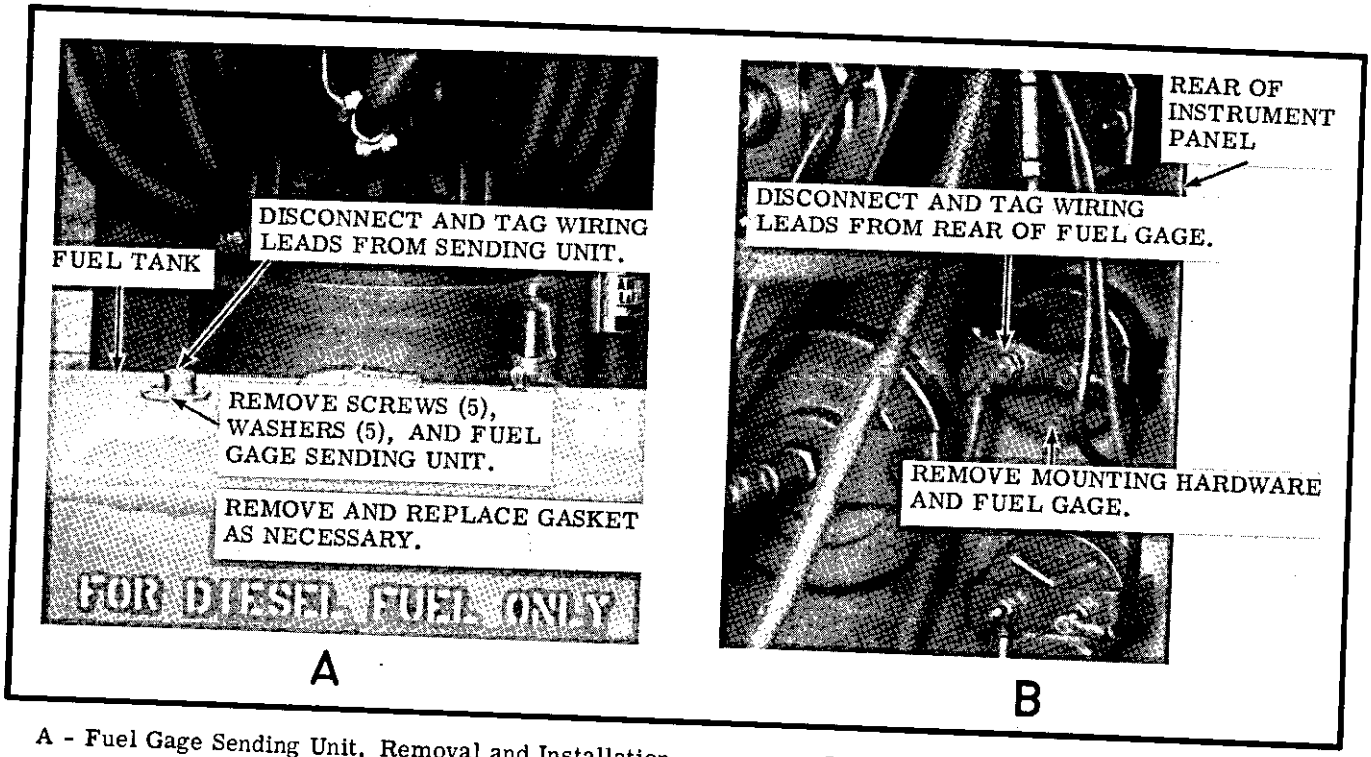
a. Removal. Remove engine water temperature gage as instructed on figure 55.

b. Cleaning and Inspection.

(1) Clean engine water temperature gage with an approved solvent.

(2) Inspect gage face glass for cracks, or breaks. Inspect case for cracks, breaks, or any other damage. Check for proper operation. Replace gage as necessary.

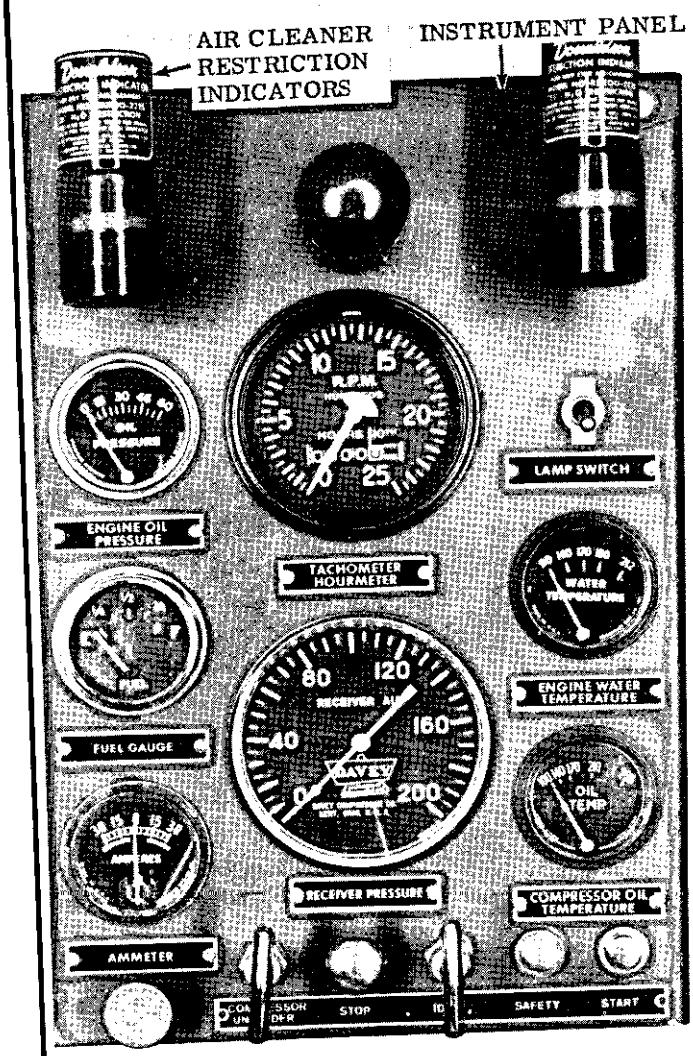
(3) Inspect mounting hardware for damage. Replace as necessary.



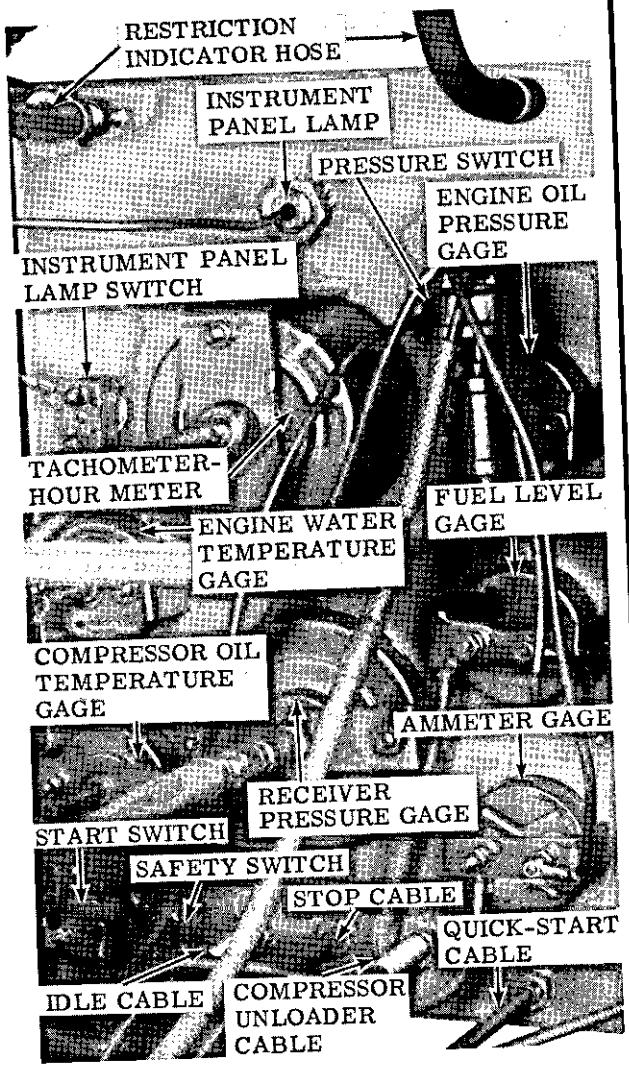
A - Fuel Gage Sending Unit, Removal and Installation

B - Fuel Gage, Removal and Installation

Figure 54. Fuel Gage and Sending Unit, Removal and Installation



Instrument Panel, Front View



Instrument Panel, Rear View

NOTE:
TO REMOVE ENGINE WATER TEMPERATURE AND COMPRESSOR OIL TEMPERATURE GAGES, FIRST DISCONNECT THE RESPECTIVE SENSING UNITS AND REMOVE THE THERMOCOUPLES FROM ALL NECESSARY CLAMPS.

NOTE:
REMOVE THE ELECTRICAL LEADS AT THE GENERATOR, GENERATOR REGULATOR, AND STARTER. DISCONNECT OIL AND AIR PRESSURE HOSES FROM GAGES.

NOTE:
DISCONNECT BATTERIES BEFORE REMOVING ELECTRICAL LEADS.

NOTE:
REMOVE MOUNTING HARDWARE AS NECESSARY TO REMOVE COMPONENTS.

NOTE:
TAG WIRING LEADS, PRESSURE HOSE, SWITCH, OR CONTROL BEING REMOVED. BE CAREFUL NOT TO BEND CABLES OR BREAK OR FRAY INSULATION OF ELECTRICAL LEADS. REMOVE CABLE AND WIRING CLAMPS AS NECESSARY.

NOTE:
MAKE CERTAIN AIR PRESSURE IS RELIEVED BEFORE DISCONNECTING PRESSURE GAGE HOSE.

Figure 55. Controls and Instruments, Removal and Installation

c. Installation. Install engine water temperature gage as instructed on figure 55.

123. COMPRESSOR OIL TEMPERATURE GAGE

a. Removal. Remove compressor oil temperature gage as instructed on figure 55.

b. Cleaning and Inspection.

(1) Clean compressor oil temperature gage with an approved cleaning solvent.

(2) Inspect gage face glass for cracks and breaks. Inspect case for cracks, breaks, and any other damage. Replace as necessary.

(3) Check for proper operation. Replace as necessary.

c. Installation. Install compressor oil temperature gage as instructed on figure 55.

124. ENGINE OIL PRESSURE GAGE

a. Removal. Remove as instructed in paragraph 113.

b. Cleaning and Inspection. Clean and inspect as instructed in paragraph 113.

c. Installation. Install as instructed in paragraph 113.

125. IDLE CABLE

a. Removal. Remove idle cable as instructed on figure 55.

b. Cleaning and Inspection.

(1) Clean the idle cable with an approved cleaning solvent.

(2) Inspect cable for kinks, breaks, or other damage. Replace as necessary.

(3) Inspect mounting hardware for damage. Replace as necessary.

c. Installation. Install idle cable as instructed on figure 55.

126. STOP CABLE

a. Removal. Remove stop cable as instructed on figure 55.

b. Cleaning and Inspection.

(1) Clean stop cable with an approved cleaning solvent.

(2) Inspect cable for kinks, breaks, or other damage. Replace as necessary.

(3) Inspect mounting hardware for damage. Replace as necessary.

c. Installation. Install stop cable as instructed on figure 55.

127. COMPRESSOR UNLOADER CABLE

a. Removal. Remove compressor unloader cable as instructed on figure 55.

b. Cleaning and Inspection.

(1) Clean unloader cable with an approved cleaning solvent.

(2) Inspect cable for kinks, breaks, or other damage. Replace as necessary.

(3) Inspect mounting hardware for damage. Replace as necessary.

c. Installation. Install compressor unloader cable as instructed on figure 55.

128. START SWITCH

a. Removal. Remove start switch as instructed on figure 55.

b. Cleaning and Inspection.

(1) Clean the start switch with a clean dry cloth.

(2) Inspect the start switch terminals for damage and the switch for proper operation. Replace as necessary.

(3) Inspect mounting hardware for damage. Replace as necessary.

c. Installation. Install start switch as instructed on figure 55.

129. SAFETY SWITCH

a. Removal. Remove safety switch as instructed on figure 55.

b. Cleaning and Inspection.

(1) Clean the safety switch with a clean dry cloth.

(2) Inspect safety switch terminals for damage and switch for proper operation. Replace as necessary.

(3) Inspect mounting hardware for damage. Replace as necessary.

c. Installation. Install safety switch as instructed on figure 55.

130. RECEIVER PRESSURE GAGE

a. Removal. Remove receiver pressure gage as instructed on figure 55.

b. Cleaning and Inspection.

(1) Clean the receiver pressure gage with an approved cleaning solvent and dry thoroughly.

(2) Inspect face glass for cracks and breaks. Inspect case for cracks, breaks, or other damage. Replace as necessary.

(3) Inspect mounting hardware for damage. Replace as necessary.

c. Installation. Install receiver pressure gage as instructed on figure 55.

131. LAMP SWITCH

a. Removal. Remove lamp switch as instructed on figure 55.

b. Cleaning and Inspection.

(1) Clean the lamp switch with a clean dry cloth.

(2) Inspect lamp switch terminals for damage and switch for proper operation. Replace as necessary.

(3) Inspect mounting hardware for damage. Replace as necessary.

c. Installation. Install the lamp switch as instructed on figure 55.

132. INSTRUMENT PANEL LAMP

a. Removal. Remove instrument panel lamp as instructed on figure 55.

b. Cleaning and Inspection.

(1) Clean the instrument panel with a clean dry cloth.

(2) Inspect lamp bulb for breakage and proper operation. Replace as necessary.

(3) Inspect instrument panel lamp terminals for damage and unit for proper operation. Replace as necessary.

(4) Inspect mounting hardware for damage. Replace as necessary.

c. Installation. Install instrument panel lamp as instructed on figure 55.

133. AIR CLEANER RESTRICTION INDICATORS

a. Removal. Remove air cleaner restriction indicators (compressor and/or engine) as instructed on figure 55.

b. Cleaning and Inspection.

(1) Clean restriction indicators with a clean dry cloth.

(2) Inspect restriction indicator for cracks, breaks, damaged threads, or any other damage. Replace as necessary.

(3) Depress rubber reset button on top of restriction indicator to reset prior to installation.

(4) Inspect mounting hardware for damage. Replace as necessary.

c. Installation. Install air cleaner restriction indicators as instructed on figure 55.

134. QUICK-START CABLE

a. Removal. Remove quick-start cable as instructed on figure 55.

b. Cleaning and Inspection.

(1) Clean quick-start cable with an approved cleaning solvent.

(2) Inspect cable for kinks, breaks, or other damage. Replace as necessary.

(3) Inspect mounting hardware for damage. Replace as necessary.

c. Installation. Install quick-start cable as instructed on figure 55.

135. GENERAL

The air compressor system consists of the air cleaner, air intake-unloader assembly, a single-stage rotor stator assembly, oil separator assembly, minimum pressure valve assembly, hose reels, and necessary safety devices and switches required for completion of the system and safe operation of the equipment. Free air passes through the air cleaner into the air intake-unloader assembly. The air intake-unloader assembly is regulated by the discharge air demand. It also closes off the intake when the unit is shut down preventing oil and air mixture from the compressor being vented to the atmosphere. A single-stage rotor stator assembly develops an air flow of 250 cubic feet per minute at a discharge pressure of 100 pounds per square inch. The oil separator assembly contains a filter which filters the oil out of the air before the air passes through the minimum pressure valve assembly, located on top of the oil separator assembly, and on to the hose reels. The minimum pressure valve assembly maintains approximately 40 pounds per square inch pressure in the system. This pressure aids in preventing a carryout of oil with the discharge air; also, it maintains sufficient pressure in the system to provide oil circulation. The discharge air passes from the minimum pressure valve assembly to the hose reel assemblies and service valves attached to the minimum pressure valve assembly housing casting. The oil separator assembly is equipped with a safety valve, oil level gage, and drain valve. A blowdown valve assembly is installed in the system on the discharge side of the oil separator. This valve automatically relieves air pressure from the system after shutdown. A speed control is also provided. The speed control is a pneumatic device of the modulating type. It is capable of selecting an engine speed and compressor intake opening to suit any discharge air demand within the capacity of the compressor.

136. COMPRESSOR AIR CLEANER

a. Removal. Remove compressor air cleaner as instructed on figure 56.

b. Disassembly. Disassemble compressor air cleaner as instructed on figure 57.

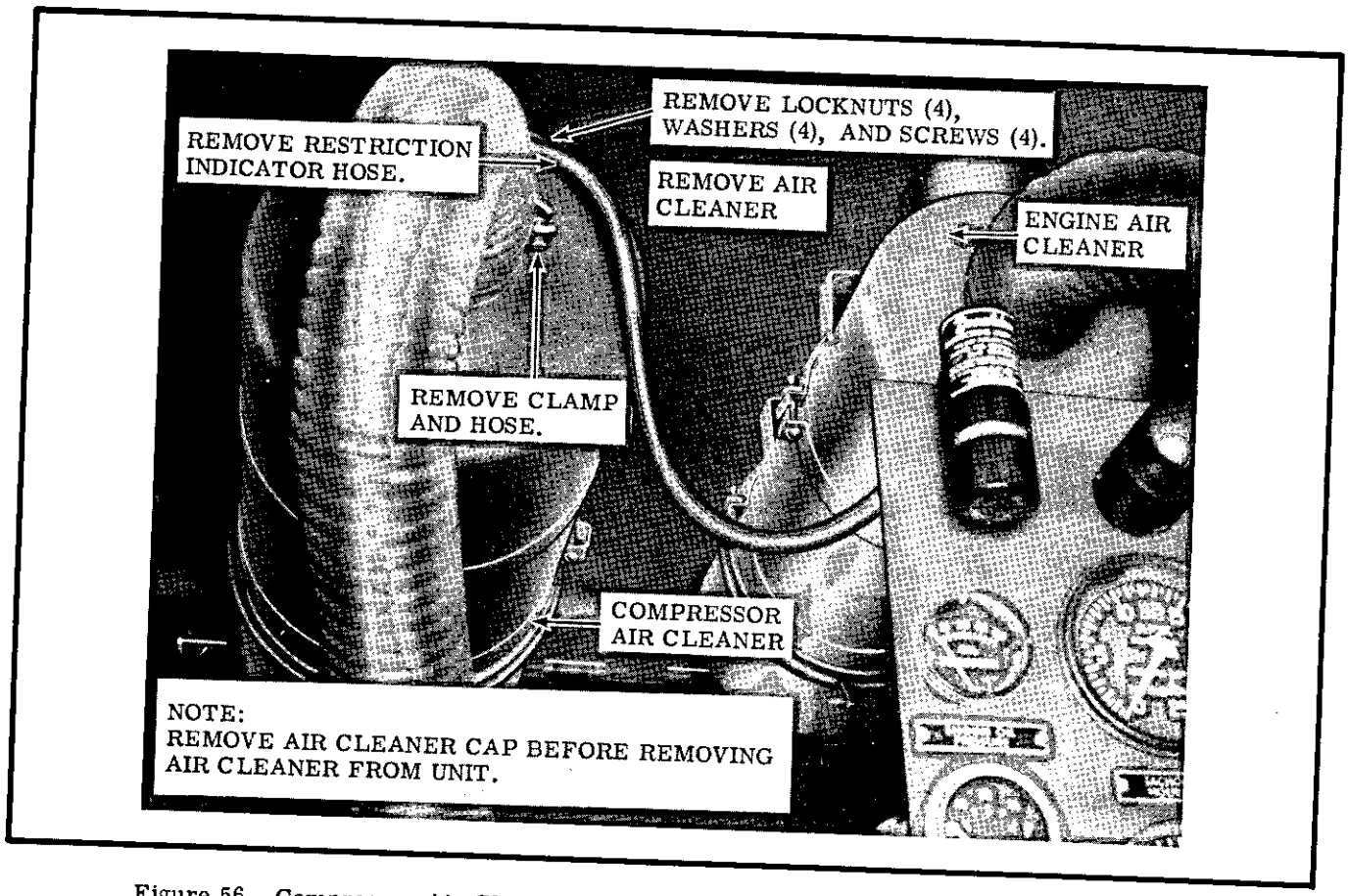


Figure 56. Compressor Air Cleaner and/or Engine Air Cleaner, Removal and Installation

c. Cleaning and Inspection.

(1) Clean compressor air cleaner as instructed on figure 18.

(2) Inspect element for damage. Replace as necessary.

(3) Inspect compressor air cleaner housing for cracks, breaks, or other damage. Replace as necessary.

(4) Inspect mounting hardware for damage. Replace as necessary.

d. Reassembly. Reassemble compressor air cleaner as instructed on figure 57.

e. Installation. Install compressor air cleaner as instructed on figure 56.

137. COMPRESSOR AIR INTAKE-UNLOADER ASSEMBLY

a. Removal.

(1) Remove two air intake-unloader assembly-to-speed control lines (para 138).

(2) Remove blowdown valve from air intake-unloader assembly (para 142).

(3) Remove air intake-unloader assembly as instructed on figure 58.

b. Cleaning and Inspection.

(1) Clean air intake-unloader assembly with an approved cleaning solvent and dry thoroughly.

(2) Inspect for cracks, breaks, and other damage. Replace damaged parts as necessary.

(3) Inspect mounting hardware for damage. Replace as necessary.

(4) Replace gaskets.

c. Installation.

(1) Install air intake-unloader assembly as instructed on figure 58.

(2) Install blowdown valve to air intake-unloader assembly (para 142).

(3) Install two air intake-unloader assembly-to-speed control lines (para 138).

138. LINES AND FITTINGS

a. Removal. (See figure 59.)

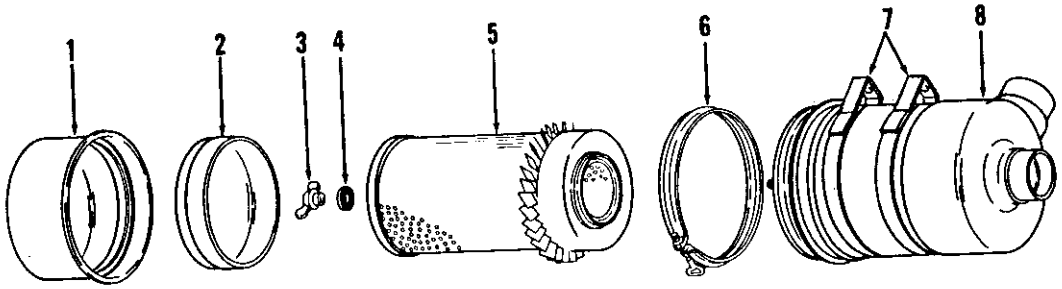
(1) Remove minimum pressure valve-to-blowdown valve line (connection to elbow on outboard end of blowdown valve).

(2) Remove minimum pressure valve-to-blowdown valve line (connection to tee on inboard end of blowdown valve).

(3) Remove blowdown valve-to-moisture separator line.

(4) Remove air intake-unloader assembly-to-speed control line (aft end of intake-unloader-to-under side of speed control).

NOTE:
DISASSEMBLE IN NUMERICAL SEQUENCE.
REASSEMBLE IN THE REVERSE OF NUMERICAL SEQUENCE.



1 Cup assembly
2 Baffle
3 Wing nut
4 Gasket
5 Element
6 Clamp assembly
7 Bracket (2 reqd)
8 Body assembly

Figure 57. Compressor Air Cleaner and/or Engine Air Cleaner, Disassembly and Reassembly

(5) Remove air intake-unloader assembly-to-speed control line (right side of intake-unloader to aft end of speed control).

(6) Remove hose assembly from speed control-to-receiver pressure gage on instrument panel.

b. Cleaning, Inspection, and Repair.

(1) Clean lines and fittings with an approved cleaning solvent and dry thoroughly.

(2) Inspect lines and fittings for kinks, breaks, cracks, bends, or crushed condition. Replace as necessary.

(3) Inspect connectors for damaged threads. Replace as necessary.

(4) Inspect mounting hardware for damage.

(5) Replace all damaged parts as necessary.

c. Installation.

(1) Install hose assembly from speed control-to-receiver pressure gage on instrument panel.

(2) Install air intake-unloader assembly-to-speed control line (right side of intake-unloader to aft end of speed control). (See figure 59.)

(3) Install air intake-unloader assembly-to-speed control line (aft end of intake-unloader-to-under side of speed control).

(4) Install blowdown valve-to-moisture separator line.

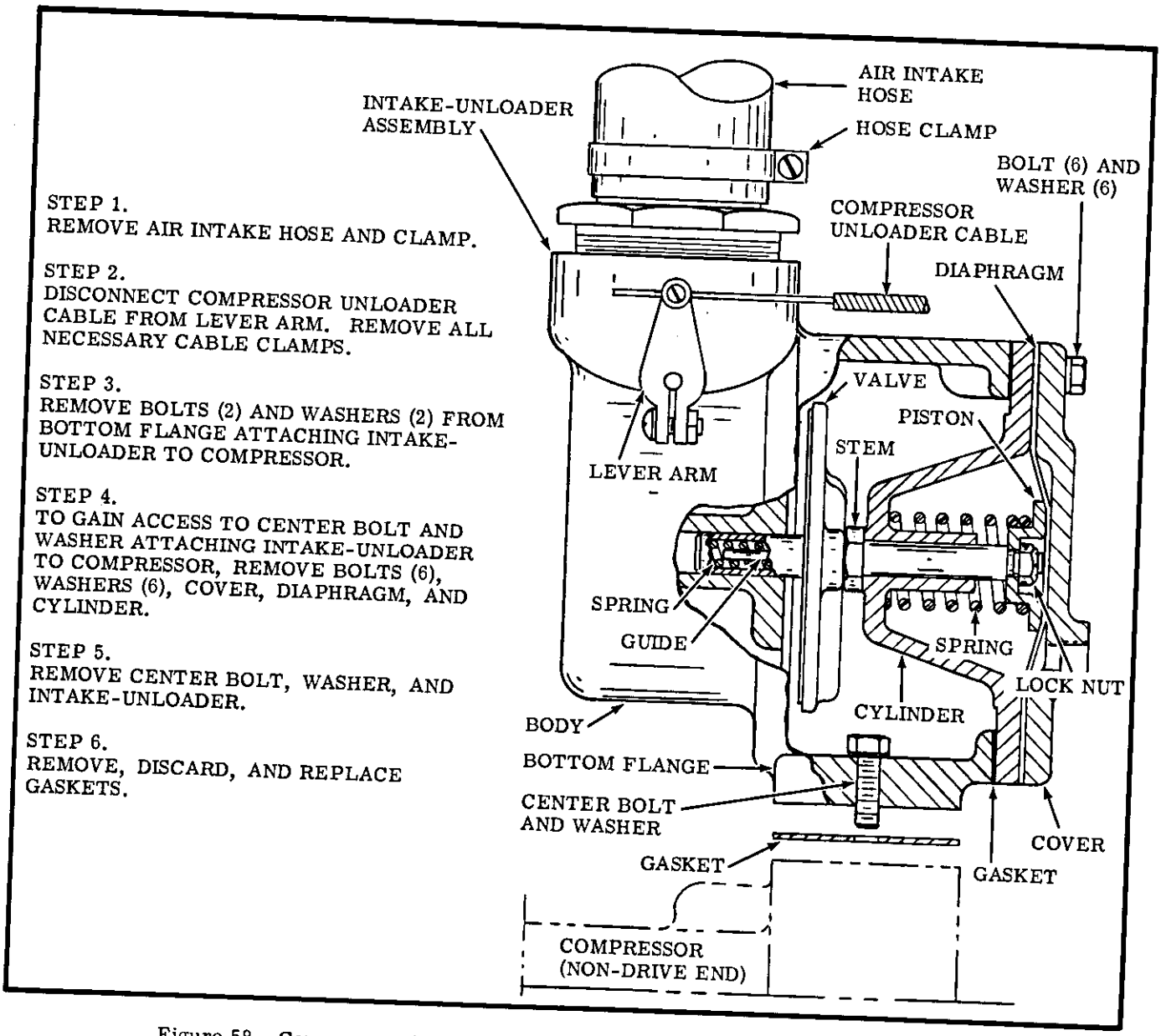


Figure 58. Compressor Air Intake-Unloader Assembly, Removal and Installation

(5) Install minimum pressure valve-to-blowdown valve line (connection to tee on inboard end of blowdown valve).

(6) Install minimum pressure valve-to-blowdown valve line (connection to elbow on outboard end of blowdown valve).

139. MINIMUM PRESSURE VALVE

a. Removal.

(1) Remove hose reels (para 140).

(2) Remove two minimum pressure valve-to-blowdown valve lines (para 138).

(3) Remove minimum pressure valve assembly as instructed on figure 60.

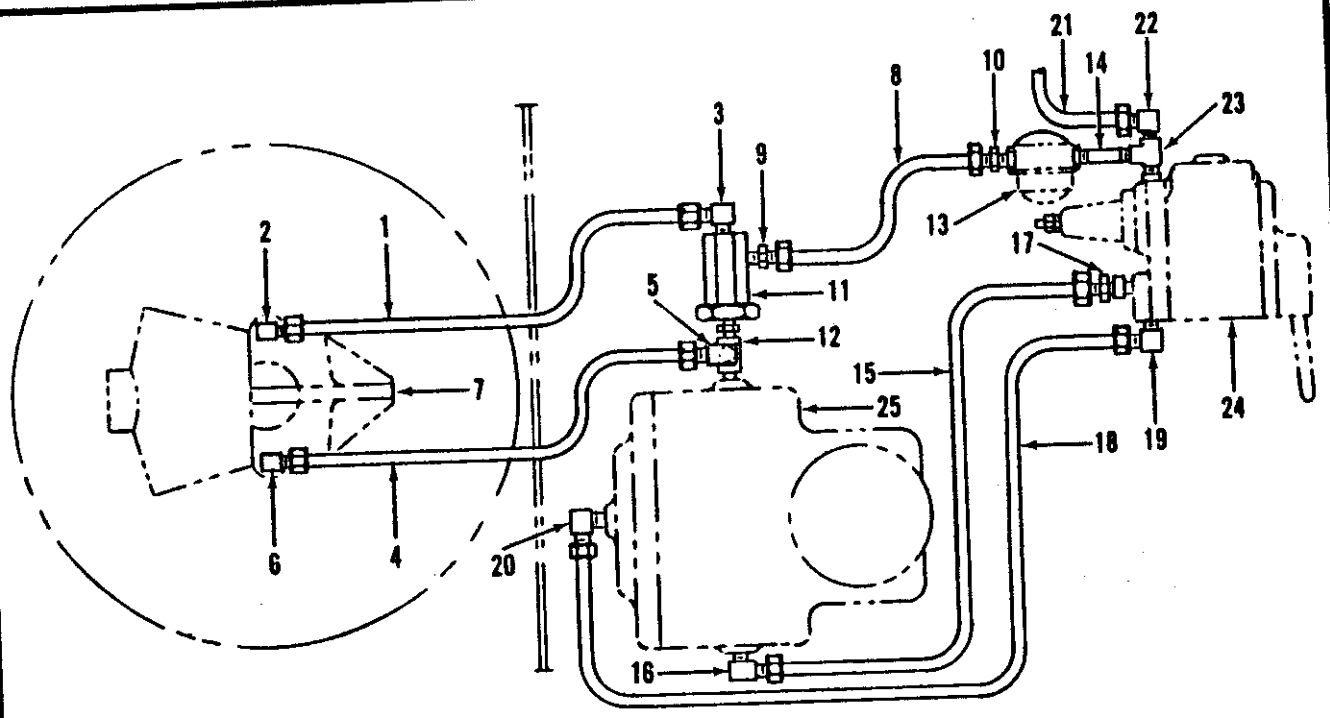
b. Cleaning, Inspection, and Repair.

(1) Clean minimum pressure valve assembly with an approved cleaning solvent.

(2) Replace gasket.

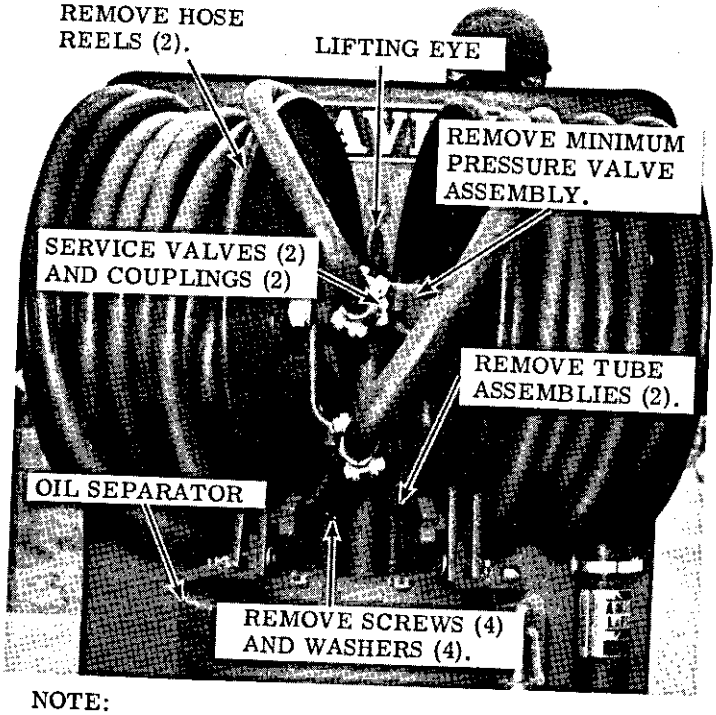
(3) Inspect assembly parts for cracks, breaks, or other damage. Replace as necessary.

(4) Inspect mounting hardware for damage. Replace as necessary.



1 Tube Assembly, Minimum Pressure Valve-to-Blowdown Valve
2 Elbow
3 Elbow
4 Tube Assembly, Minimum Pressure Valve-to-Blowdown Valve
5 Elbow
6 Elbow, Restricted
7 Minimum Pressure Valve (Reference)
8 Tube Assembly, Blowdown Valve-to-Moisture Separator
9 Connector
10 Connector
11 Blowdown Valve (Reference)
12 Tee
13 Moisture Separator (Reference)
14 Nipple, 1/4 NPT x 2 in.
15 Tube Assembly, Intake-Unloader Assembly-to-Speed Control
16 Elbow
17 Connector
18 Tube Assembly, Intake-Unloader Assembly-to-Speed Control
19 Elbow
20 Elbow
21 Hose Assembly, Speed Control-to-Pressure Gage
22 Elbow
23 Tee
24 Speed Control (Reference)
25 Intake-Unloader Assembly (Reference)

Figure 59. Lines and Fittings, Removal and Installation



NOTE:
USING LIFTING EYE, CAREFULLY LIFT MINIMUM PRESSURE VALVE ASSEMBLY OFF OIL SEPARATOR.

NOTE:
SERVICE VALVES AND COUPLINGS NEED NOT BE REMOVED.

Figure 60. Minimum Pressure Valve Assembly, Removal and Installation

c. Installation.

(1) Install minimum pressure valve as instructed on figure 60.

(2) Install two minimum pressure valve-to-blow-down valve lines (para 138).

(3) Install hose reels (para 140).

140. HOSE REELS

a. Removal. Remove hose reels as instructed on figure 61.

b. Disassembly. Disassemble hose reels as instructed on figure 61.

c. Cleaning, Inspection, and Repair.

(1) Clean all parts with an approved cleaning solvent and dry thoroughly.

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

(3) Inspect valve for proper operation and seating. Replace as necessary.

(4) Inspect mounting hardware for damage. Replace as necessary.

d. Reassembly. Reassemble hose reels as instructed on figure 61.

e. Installation. Install hose reels as instructed on figure 61.

141. SAFETY VALVE

a. Removal. Remove safety valve as instructed on figure 62.

b. Cleaning and Inspection.

(1) Clean safety valve with an approved cleaning solvent and dry thoroughly.

(2) Inspect safety valve for proper operation. Replace as necessary.

(3) Inspect for damaged threads. Replace as necessary.

c. Installation. Install safety valve as instructed on figure 62.

142. BLOWDOWN VALVE

a. Removal.

(1) Remove blowdown valve-to-moisture separator line (para 138).

(2) Remove two minimum pressure valve-to-blowdown valve lines (para 138).

(3) Remove blowdown valve assembly from air intake-unloader assembly as instructed on figure 63.

b. Cleaning and Inspection.

(1) Clean blowdown valve assembly with an approved cleaning solvent and dry thoroughly.

(2) Inspect assembly for cracks, breaks, damaged threads, or any other damage. Replace a damaged blowdown valve assembly.

(3) Inspect all connectors for damaged threads. Replace as necessary.

c. Installation.

(1) Install blowdown valve to air intake-unloader assembly as instructed on figure 63.

(2) Install two minimum pressure valve-to-blowdown valve lines (para 138).

(3) Install blowdown valve-to-moisture separator line (para 138).

143. OIL LEVEL GAGE

a. Removal. Remove the oil separator oil level gage as instructed on figure 64.

b. Cleaning and Inspection.

(1) Clean the oil level gage with an approved cleaning solvent and dry thoroughly.

(2) Inspect oil level gage face glass for cracks, or breakage, condition of threads, and proper operation. Replace as necessary.

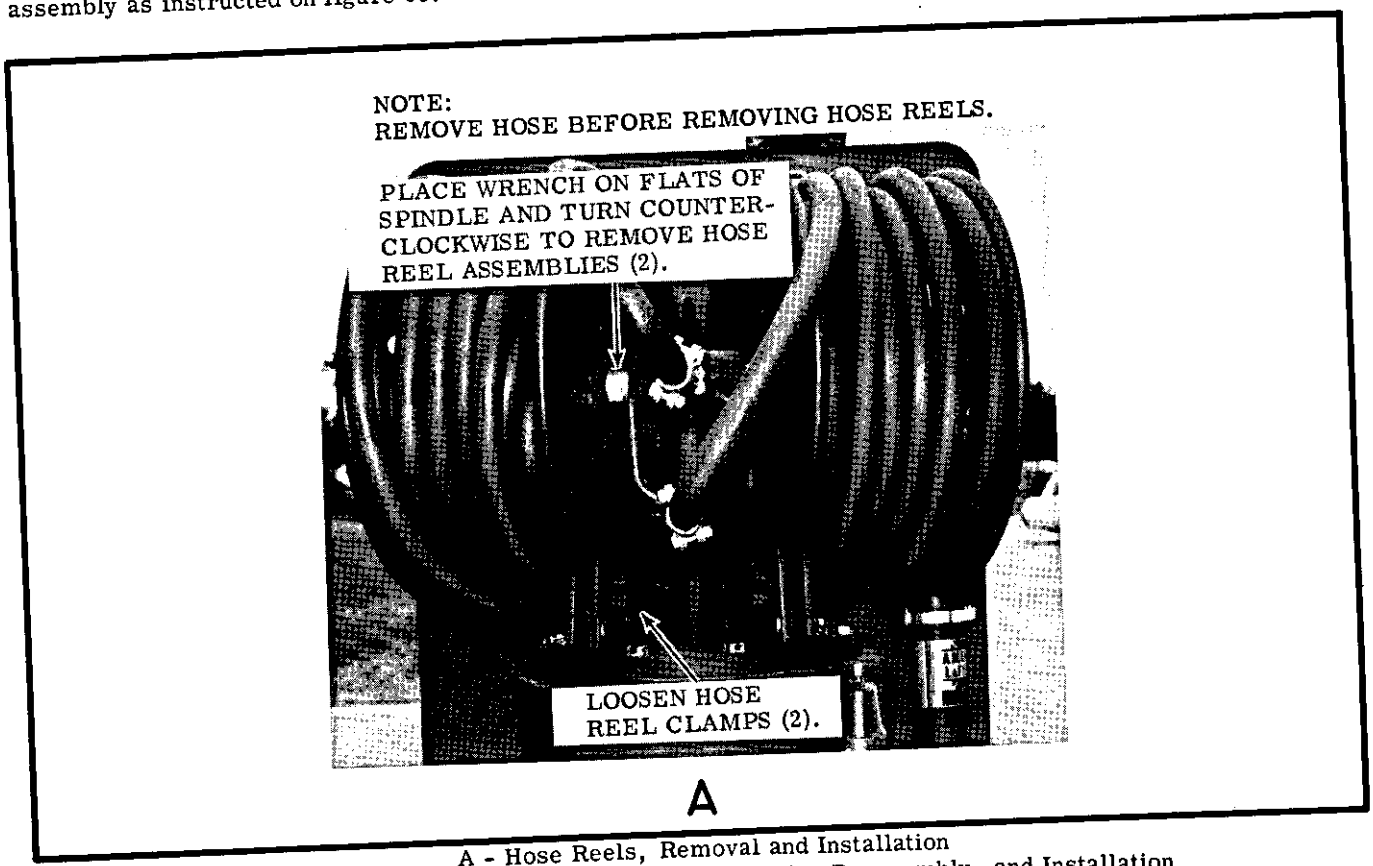
c. Installation. Install oil separator oil level gage as instructed on figure 64.

144. MOISTURE SEPARATOR

a. Removal.

(1) Remove blowdown valve-to-moisture separator line (para 138).

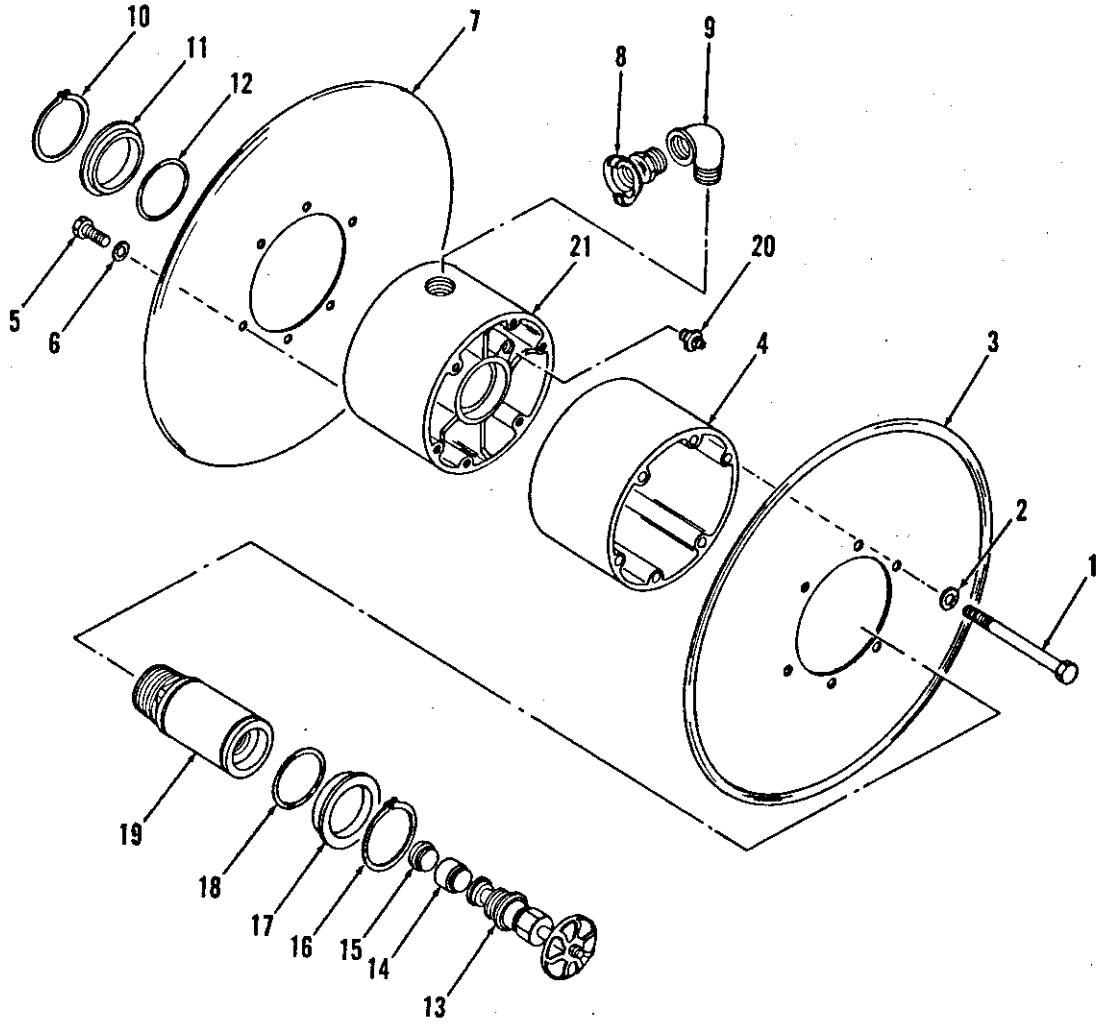
(2) Remove moisture separator as instructed on figure 65.



A - Hose Reels, Removal and Installation

Figure 61. Hose Reels, Removal, Disassembly, Reassembly, and Installation

NOTE:
DISASSEMBLE IN NUMERICAL SEQUENCE.
REASSEMBLE IN THE REVERSE OF NUMERICAL SEQUENCE.



1 Bolt, 5/16-18 x 4-3/4 in. (6 reqd)
2 Washer, Lock, Int. Tooth, 5/16 in. (6 reqd)
3 End, Hose Reel
4 Extender, Body
5 Bolt, 5/16-18 x 3/4 in. (6 reqd)
6 Washer, Lock, Int. Tooth, 5/16 in. (6 reqd)
7 End, Hose Reel
8 Connector, Male, Hose
9 Elbow, Street, 3/4 NPT
10 Ring, Retaining
11 Plate, Retaining
12 Packing, O-Ring
13 Air Valve Assembly
14 Spacer
15 Valve
16 Ring, Retaining
17 Plate, Retaining
18 Packing, O-Ring
19 Spindle
20 Fitting, Grease
21 Body Assembly

B

B - Hose Reels, Exploded View
Figure 61. - Continued.

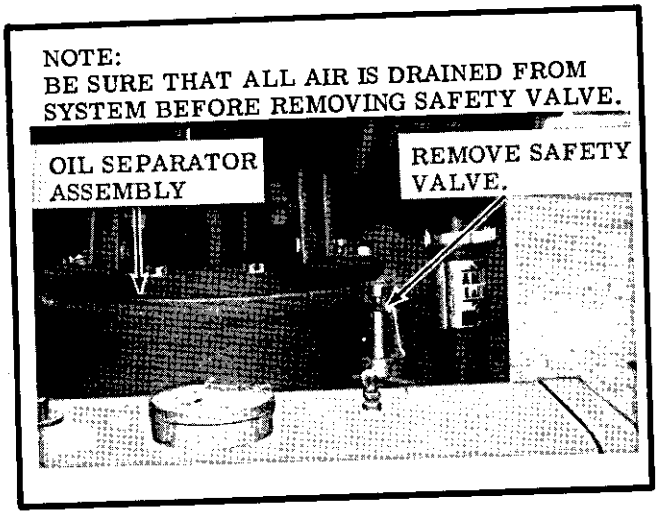


Figure 62. Safety Valve, Removal and Installation

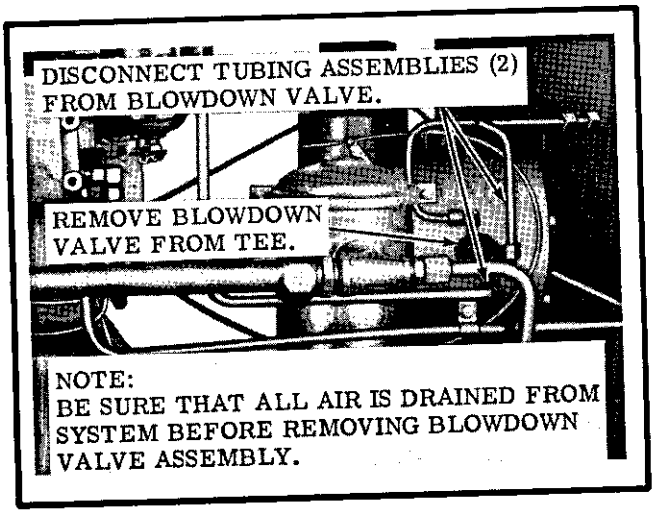


Figure 63. Blowdown Valve Assembly, Removal and Installation

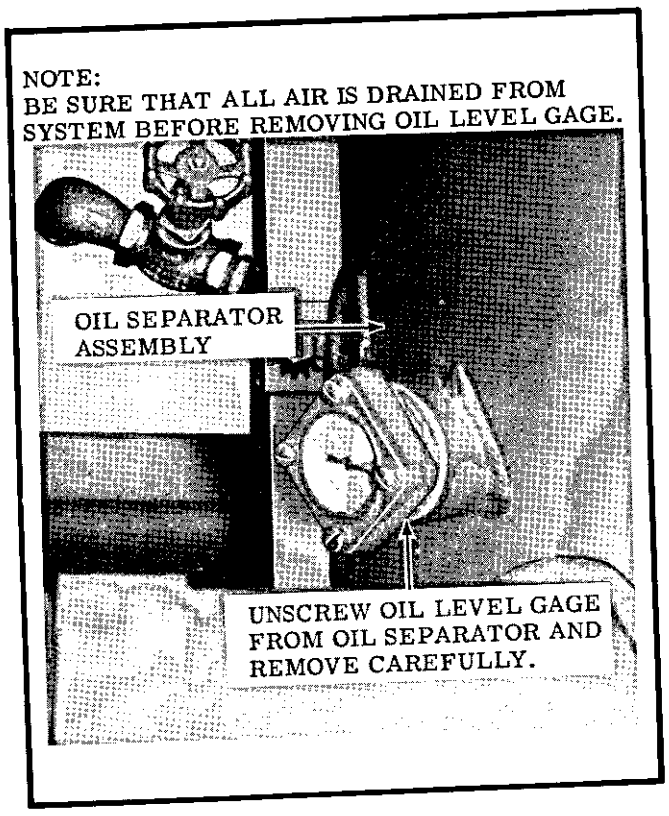
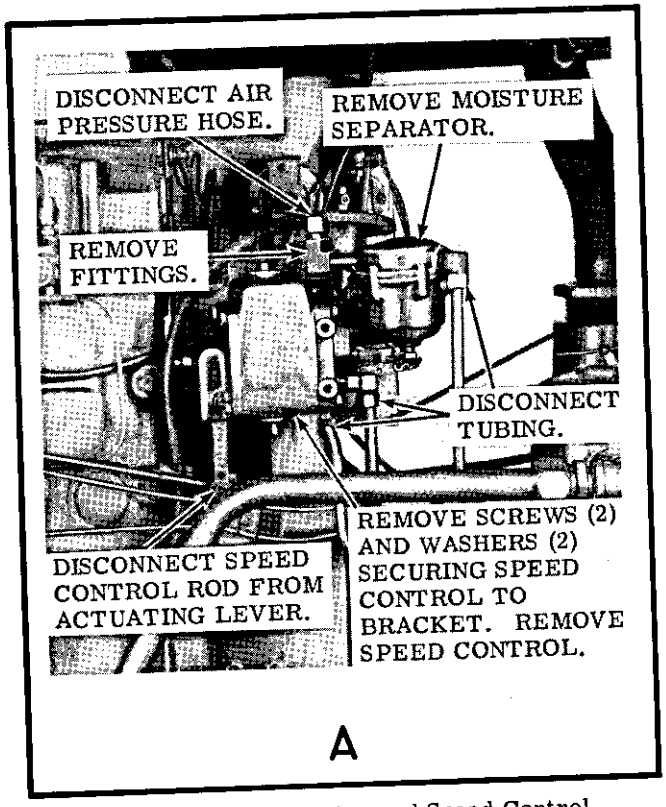
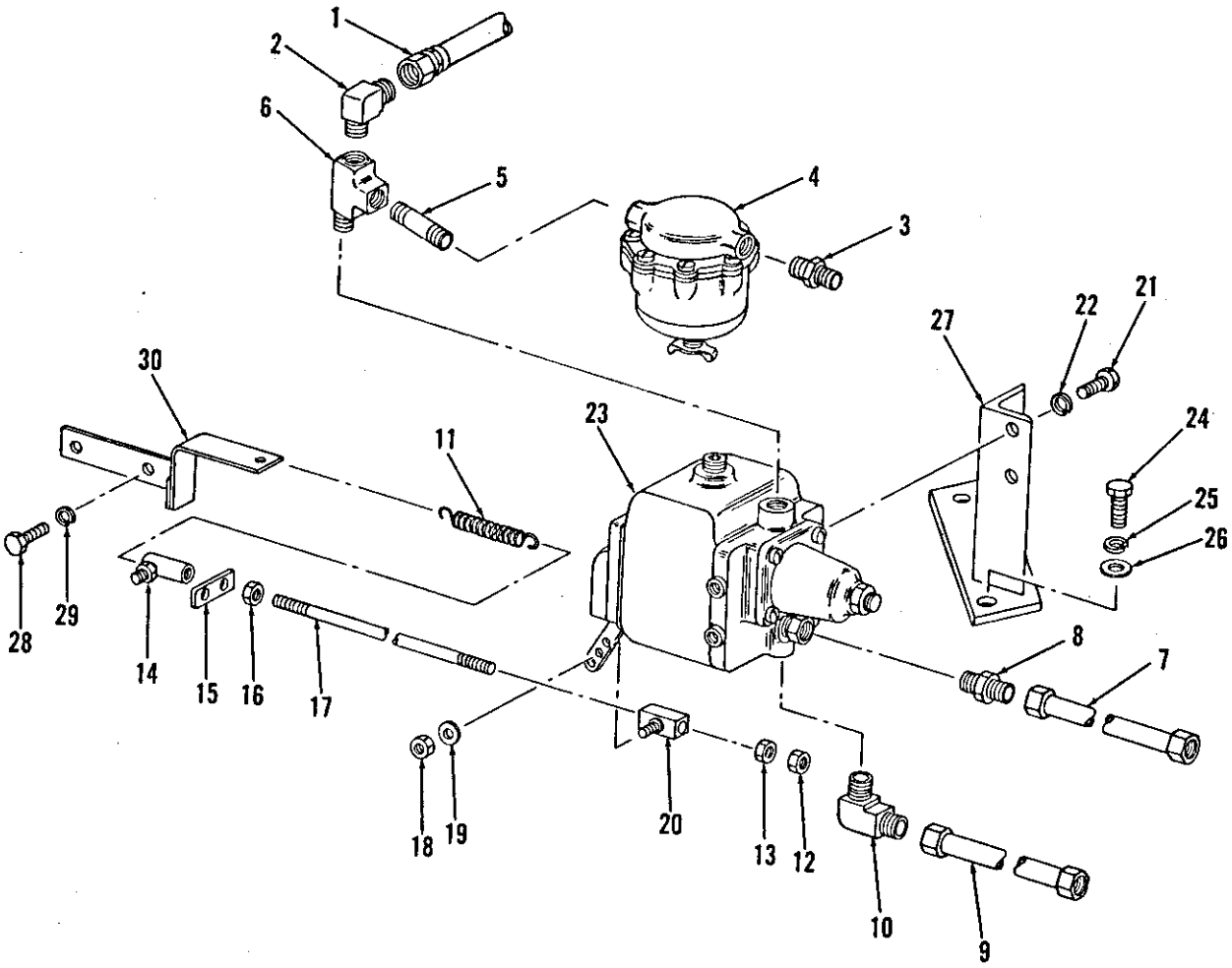


Figure 64. Oil Separator Oil Level Gage, Removal and Installation



A - Moisture Separator and Speed Control, Removal and Installation

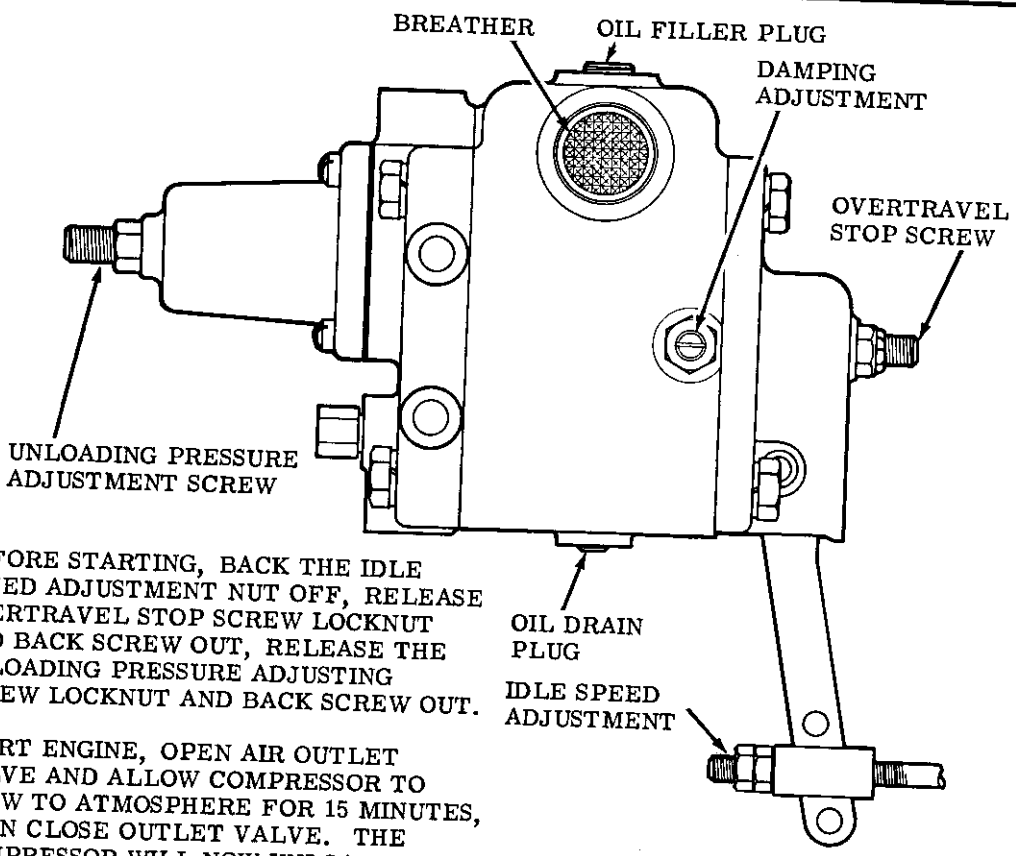
Figure 65. Moisture Separator and Speed Control Removal and Installation



1 Hose assembly, air pressure
2 Elbow
3 Connector
4 Moisture Separator
5 Nipple, 1/4 NPT x 2 in.
6 Tee
7 Tube assembly, Intake-Unloader assembly-to-Speed Control
8 Connector
9 Tube assembly, Intake-Unloader assembly-to-Speed Control
10 Elbow
11 Spring, speed control rod
12 Nut, 1/4-28
13 Nut, 1/4-28
14 Ball joint
15 Stop, wire
16 Nut, 1/4-28
17 Rod, speed control
18 Nut, 1/4-28
19 Washer, flat, 1/4 in.
20 Block
21 Screw, 3/8-16 x 3/4 in. (2 reqd)
22 Washer, lock, 3/8 in. (2 reqd)
23 Speed Control
24 Screw, 3/8-16 x 3/4 in. (2 reqd)
25 Washer, lock, 3/8 in. (2 reqd)
26 Washer, flat, 3/8 in. (2 reqd)
27 Bracket, speed control
28 Bolt, 3/8-16 x 3/4 in. (2 reqd)
29 Washer, lock, 3/8 in. (2 reqd)
30 Bracket, spring

B

B - Moisture Separator, Speed Control, and Mounting Hardware, Exploded View
Figure 65. - Continued.



STEP 1: BEFORE STARTING, BACK THE IDLE SPEED ADJUSTMENT NUT OFF, RELEASE OVERTRAVEL STOP SCREW LOCKNUT AND BACK SCREW OUT, RELEASE THE UNLOADING PRESSURE ADJUSTING SCREW LOCKNUT AND BACK SCREW OUT.

STEP 2: START ENGINE, OPEN AIR OUTLET VALVE AND ALLOW COMPRESSOR TO BLOW TO ATMOSPHERE FOR 15 MINUTES, THEN CLOSE OUTLET VALVE. THE COMPRESSOR WILL NOW UNLOAD BUT THE ENGINE WILL.NOT SLOW DOWN.

STEP 3: SCREW THE UNLOADING PRESSURE ADJUSTMENT SCREW IN UNTIL THE PRESSURE GAGE ON THE INSTRUMENT PANEL INDICATES 102 - 105 PSI, THEN TIGHTEN LOCKNUT.

STEP 4: ADJUST THE IDLE SPEED NUT TO THE CORRECT IDLE SPEED, 800 RPM.

STEP 5: SCREW IN THE OVERTRAVEL STOP SCREW UNTIL IT JUST TOUCHES THE LEVER AND THEN TIGHTEN LOCKNUT. IT IS VERY IMPORTANT THAT THIS ADJUSTMENT BE MADE PROPERLY. IF THE SCREW IS TOO FAR FROM THE LEVER, THE UNIT MAY STALL ON DECELERATION. IF THE SCREW IS NOT ALLOWING THE LEVER TO TRAVEL ITS FULL AMOUNT, THE UNIT MAY STALL ON ACCELERATION.

STEP 6: OPEN AIR OUTLET VALVE TO BRING THE ENGINE UP TO FULL SPEED AND THEN CLOSE VALVE. IF UNIT DOES NOT RETURN TO SAME IDLE, BACK OFF OVERTRAVEL STOP SCREW, READJUST IDLE SPEED ADJUSTMENT NUT AND THEN RESET OVERTRAVEL STOP SCREW.

STEP 7: RELEASE THE DAMPING ADJUSTMENT LOCKNUT AND BACK SCREW OUT ABOUT THREE TURNS. OPEN AND CLOSE AIR OUTLET VALVE ABOUT 10 TIMES, EACH TIME ALLOWING COMPRESSOR TO REACH FULL SPEED OF 1800 RPM WHEN THE VALVE IS OPEN, AND IDLE SPEED OF 800 RPM WHEN VALVE IS CLOSED. THIS WILL WORK THE AIR OUT OF THE DAMPING DASHPOT AND CYLINDERS. DURING THIS OPERATION SOME OIL MAY SPILL OUT OF THE BREATHER DUE TO THE OIL RESERVOIR BEING OVER FILLED. AFTER THE EXCESS OF OIL IS PUMPED OUT, NO FURTHER OIL WILL BE SPILLED.

STEP 8: OPEN THE AIR OUTLET VALVE SO THAT APPROXIMATELY 1/4 OF FULL FLOW RATE OF THE MACHINE IS DISCHARGED. IF THE MACHINE HUNTS, SCREW IN THE DAMPING ADJUSTMENT SCREW UNTIL HUNTING STOPS. NOW TRY VARIOUS FLOW RATES FROM FULL LOAD TO FULL UNLOAD AND SEE IF CONTROL IS STABLE OVER FULL RANGE. IF THE CONTROL HUNTS AT ANY PART OF THE RANGE, READJUST DAMPING ADJUSTMENT SCREW. THE CONTROL IS NOW FULLY ADJUSTED AND THE UNIT IS READY FOR OPERATION.

C

C - Engine Speed Control, Adjustments
Figure 65. - Continued.

b. Cleaning and Inspection.

(1) Clean the moisture separator with an approved cleaning solvent and dry thoroughly.

(2) Inspect moisture separator for cracks, breaks, condition of threads, proper operation of drain cock, and other damage. Replace as necessary.

(3) Inspect mounting hardware for damage. Replace as necessary.

c. Installation.

(1) Install the moisture separator as instructed on figure 65.

(2) Install blowdown valve-to-moisture separator line (para 138).

145. SPEED CONTROL

a. Removal.

(1) Disconnect blowdown valve-to-moisture separator line at moisture separator fitting as instructed on figure 65.

(2) Remove moisture separator from speed control (para 144).

(3) Disconnect speed control-to-receiver pressure gage hose at speed control fitting.

(4) Remove elbow, tee and nipple from top of speed control.

(5) Disconnect two air intake-unloader assembly-to-speed control lines and remove fittings from speed control.

(6) Disconnect speed control rod from speed control actuating lever.

(7) Remove speed control from mounting bracket as instructed on figure 65.

b. Cleaning and Inspection.

(1) Clean the speed control with an approved cleaning solvent.

(2) Inspect for cracks, breaks, damaged threads, and other damage. Replace as necessary.

(3) Inspect mounting hardware for damage. Replace as necessary.

c. Installation.

(1) Install speed control on mounting bracket as instructed on figure 65.

(2) Connect speed control rod to speed control actuating lever.

(3) Install tee, elbow, and nipple in top of speed control (figure 65).

(4) Install moisture separator on nipple.

(5) Attach hose assembly to tee.

(6) Install elbow and connector in speed control and connect two air intake-unloader assembly lines.

(7) Connect blowdown valve-to-moisture separator line.

d. Adjustment. Adjust the engine speed control as instructed on figure 65C.

146. GENERAL

The unit is equipped with a "Quick-Start" cold weather starting aid. The quick-start unit is a measured shot type. It consists of a fuel cylinder containing an ether base mixture with 790 cubic centimeter capacity. The fuel cylinder is 95 percent usable. This cylinder mounts on a valve assembly which is actuated by the Quick-Start cable mounted on the instrument panel. Each actuation of the valve lever injects a measured shot of 2-3 cubic centimeter of fuel mixture. The fuel mixture is introduced into the engine intake manifold by means of tubing from the quick-start valve assembly to an orifice fitting in the engine manifold. Actuating the Quick-Start cable on the instrument panel sprays a fine mist of fuel mixture into the intake manifold fogging the entire manifold with quick-start fuel. As the engine is cranked, immediate ignition will ordinarily occur.

147. QUICK-START FUEL CYLINDER

a. Removal. Remove quick-start fuel cylinder as instructed on figure 66.

b. Installation. Install quick-start fuel cylinder as instructed on figure 66.

148. QUICK-START VALVE AND ORIFICE

a. Removal. Remove quick-start actuating valve and orifice as instructed on figure 66.

b. Cleaning and Inspection.

(1) Clean actuating valve with an approved cleaning solvent and dry thoroughly.

(2) Clean actuating valve-to-orifice line and orifice with an approved cleaning solvent and dry thoroughly.

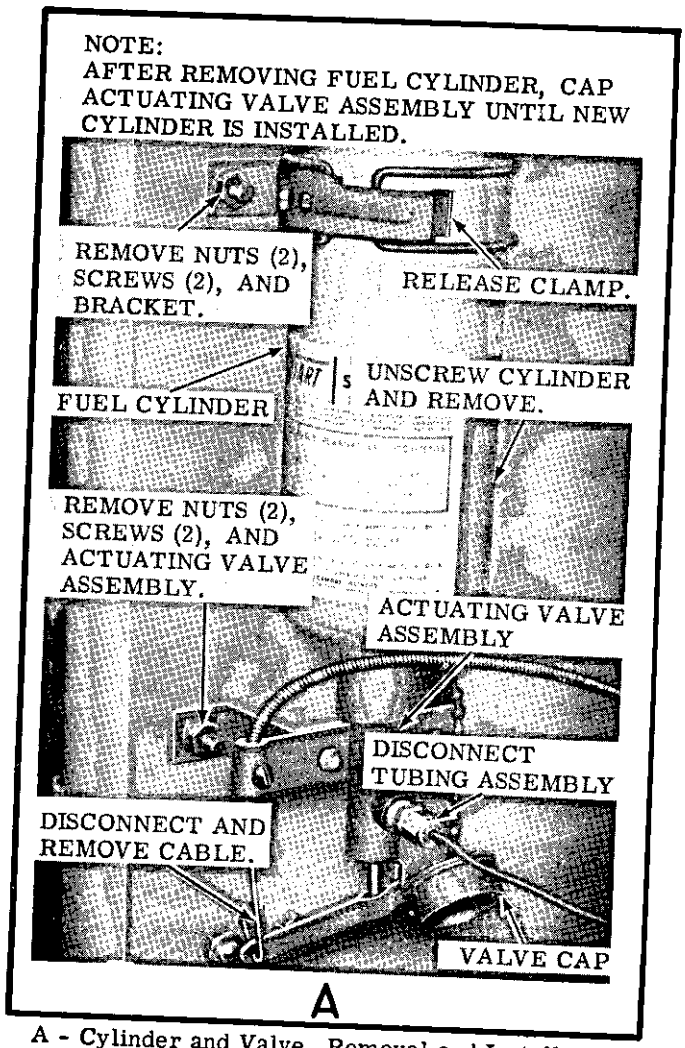
(3) Inspect actuating valve for cracks, breaks, proper operation, and any other damage. Replace as necessary.

(4) Inspect actuating valve-to-orifice line for kinks, breaks, and crushed condition. Replace as necessary.

(5) Inspect orifice for cracks, condition of orifice holes, and damaged threads. Replace as necessary.

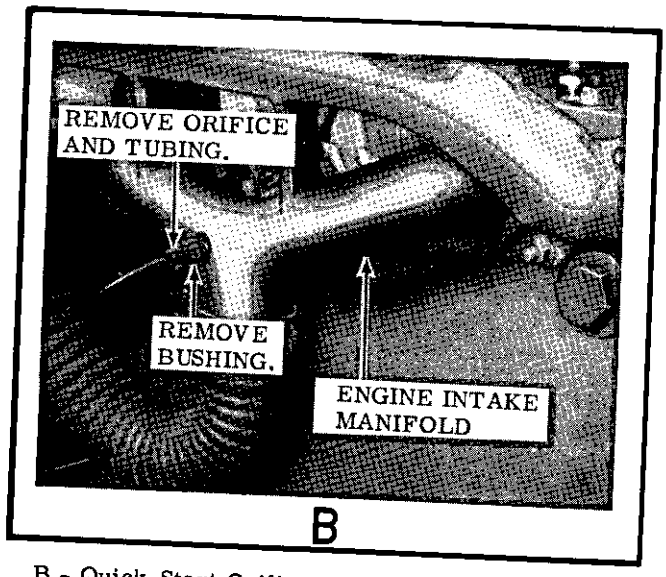
(6) Inspect mounting hardware for damage. Replace as necessary.

c. Installation. Install quick-start valve and orifice as instructed on figure 66.



A - Cylinder and Valve, Removal and Installation

Figure 66. Quick-Start Starting Aid, Removal and Installation



B - Quick-Start Orifice, Removal and Installation

Figure 66. - Continued.

Chapter 4

DEMOLITION, SHIPMENT, AND LIMITED STORAGE

Section I. DEMOLITION OF THE AIR COMPRESSOR TO PREVENT ENEMY USE

149. GENERAL

When capture or abandonment of the air compressor to an enemy is imminent, the responsible unit commander must make the decision either to destroy the equipment or to render it inoperative. Based on this decision, orders are issued which cover the desired extent of destruction. Whatever method is employed, it is essential to destroy the same vital parts of all compressors and all corresponding repair parts.

150. DEMOLITION TO RENDER THE EQUIPMENT INOPERATIVE

a. Mechanical Means. Use sledge hammers, crowbars, picks, axes, or any other heavy tools which may be available to destroy the following:

(1) All controls and instruments.

(2) Engine block and manifold.

(3) Main compressor assembly.

Note

The above steps are minimum requirements for this method.

(4) Speed control, fuel injection pump, and water pump.

(5) Radiator, oil cooler, starting motor, and generator.

b. Misuse. Perform the following steps to render the equipment inoperative.

(1) Drain the radiator, engine crankcase, and compressor oil separator. Place sand, gravel, nuts, bolts, screws, or broken glass in the oil filler tube.

(2) Disconnect the radiator fan and run the engine at full throttle until it fails.

151. DEMOLITION BY EXPLOSIVES OR WEAPONS FIRE

a. Explosives. Place as many of the following charges (figure 67) as the situation permits and detonate them simultaneously with a detonating cord and a suitable detonator.

(1) One 1/2-pound charge between generator and engine block.

(2) One 1/2-pound charge between fuel injection pump and engine block.

(3) One 1/2-pound charge between air intake control assembly and rotor stator assembly.

(4) One 1/2-pound charge between oil separator and fuel tank.

(5) One 1/2-pound charge between speed control and flywheel housing.

b. Weapons Fire. Fire on the air compressor with the heaviest practical weapons available.

152. OTHER DEMOLITION METHODS

a. Scattering and Concealment. Remove all easily accessible parts such as the fuel injection pump, starting motor, motor, generator. Scatter them through dense foliage, bury them in dirt or sand, or throw them in a lake, stream, or other body of water.

b. Burning. Pack rags, clothing, or canvas under, around, and inside the air compressor. Saturate this packing with gasoline, oil, or diesel fuel and ignite.

c. Submersion. Totally submerge the air compressor in a body of water to provide water damage and concealment. Salt water will damage metal parts more than fresh water.

153. TRAINING

All operators should receive thorough training in the destruction of the air compressor. Refer to FM 5-25. Simulated destruction, using all of the methods listed above, should be included in the operator training program. It must be emphasized in training, that demolition operations are usually necessitated by critical situations when time available for carrying out destruction is limited. For this reason, it is necessary that operators be thoroughly familiar with all methods of destruction of equipment, and be able to carry out demolition instructions without reference to this or any other manual.

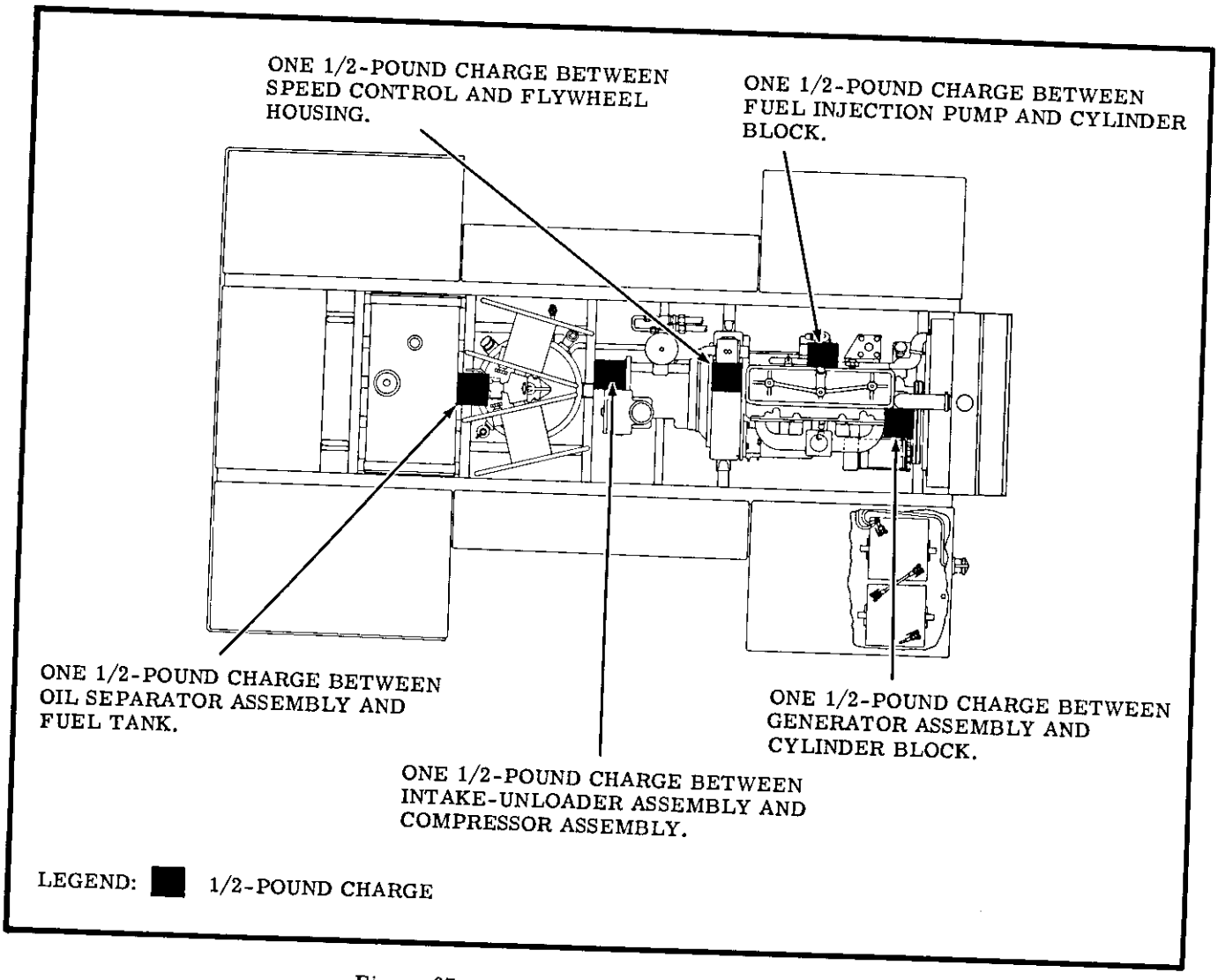


Figure 67. Placement of Demolition Charges

Section II. SHIPMENT AND LIMITED STORAGE

154. PREPARATION OF EQUIPMENT FOR SHIPMENT

a. General. Detailed instructions for the preparation of the air compressor skid unit for domestic shipment are outlined within this paragraph. Preservation will be accomplished in sequence that will not require the operation of previously preserved components.

b. Inspection. The air compressor skid will be inspected for any unusual conditions such as damage, rusting, accumulation of water, and pilferage. Inspection of the individual components and assemblies will be outlined on the "Preventive Maintenance Service, Quarterly" in this manual.

c. Cleaning and Drying. All contamination shall be removed from the air compressor skid by an approved method. Approved methods of cleaning, drying, types of preservatives, and methods of application are described in TM 38-230.

d. Painting. Paint all surfaces where the paint has been removed or damaged. Refer to TB ENG 60 for detailed cleaning and painting instructions.

e. Depreservation Guide. DA Form 2258, (Depreservation Guide of Engineer Equipment).

(1) A properly annotated depreservation guide will be completed concurrently with preservation for each item of mechanical equipment. Any peculiar requirements will be outlined in the blank spaces on the form. The completed depreservation guide will be placed with the equipment in a waterproof envelope

marked "Depreservation Guide", and fastened in a conspicuous location on or near the operator's controls.

(2) Prior to placing equipment in operation or to the extent necessary for inspection, depreservation of the item shall be performed as outlined on the depreservation guide.

f. Cooling System, Boxed or Crated. Completely drain the cooling system including radiator, engine block, or other accessories through which the coolant has circulated. Flush with clean water. Leave draincock open.

g. Lubrication System (Wet Sump), Boxed or Crated. Check level of lubricant in engine and in oil separator assembly. Operate the unit at fast idle until lubricants have been circulated throughout the systems, engine and compressor. The crankcase and oil separator will then be drained and the drain plugs reinstalled.

h. Sealing of Openings. Openings that will permit the direct entry of water into the interior of diesel engine driven equipment, starting motor, generator, electrical enclosures, compressor and so on, shall be sealed with pressure-sensitive tape conforming to Specification PPP-T-60, Type III, Class I.

i. Fuel Tank, Boxed or Crated. Drain fuel tank after engine preservation and fog interior with preservative oil, Type P-10, Grade 2, conforming to Specification MIL-L-21260.

j. Air Cleaners. Seal all openings of compressor and engine air cleaners that permit entry of water. Use Type III, Class I, Pressure-sensitive tape conforming to Specification PPP-T-60.

k. Exterior Surface. Coat exposed machined ferrous metal surfaces with Type P-6 preservative conforming to Specification MIL-C-11796, Class 3. If preservative is not available, cup grease may be used.

l. Marking. Marking shall conform to Military Standard MIL-STD-129.

m. Batteries and Cables. Batteries shall be filled, fully charged, and secured in the battery compartment. Cables shall be disconnected, vent holes sealed, and all terminals wrapped and secured with Type III, Class I, pressure-sensitive tape conforming to Specification PPP-T-60.

n. Disassembly, Disassembled Parts, and Basic Issue Items.

(1) Disassembly shall be limited to the removal of parts and projecting components that tend to increase the profile of the air compressor skid unit and that which is subject to pilferage.

(2) Disassembled items shall be packed with the publications in the toolbox if possible. Otherwise, items will be packed in a suitable container and secured to the air compressor unit to prevent loss or pilferage.

Note

If packing is required to provide adequate protection against damage during shipment, refer to TM 38-230 for guidance in crate fabrication.

155. LOADING EQUIPMENT FOR SHIPMENT

Use appropriate materials handling equipment of sufficient capacity to lift the air compressor skid unit onto the carrier. Block and tie the unit to the carrier to assure that it will not move during transit.

156. PREPARATION OF EQUIPMENT FOR STORAGE

a. Detailed instructions for preparation of the air compressor skid unit for limited storage are provided in paragraph 154. Limited storage is defined as storage not to exceed six (6) months. Refer to AR 743-505.

b. Every effort should be made to provide covered storage for the air compressor skid unit. If this is impossible, select a firm, level, well-drained storage location, protected from prevailing winds. Position the air compressor skid unit on heavy planking. Cover the air compressor skid unit with a tarpaulin or other suitable waterproof covering and secure in a manner that will provide the air compressor skid unit maximum protection from the elements.

157. INSPECTION AND MAINTENANCE OF EQUIPMENT IN STORAGE

Every 90 days the air compressor skid unit will be inspected as outlined on the "Preventive Maintenance Services, Quarterly" and operated long enough to assure complete lubrication of bearings. After each inspection period the air compressor skid unit shall be preserved as outlined in paragraph 156.

Chapter 5

FIELD AND DEPOT MAINTENANCE INSTRUCTIONS

Section I. GENERAL

158. SCOPE

a. These instructions are published for the use of field and depot maintenance personnel maintaining the Davey Model M250 RPV Rotary Air Compressor Skid Unit. They provide information on the maintenance of the equipment, which is beyond the scope of the tools, equipment, personnel, or supplies normally available to using organizations.

b. The direct reporting of errors, omissions, and recommendations for improving this equipment manual by the individual user, is authorized and encouraged. DA Form 2028 will be used for reporting these improvements. This form may be completed using pencil, pen, or typewriter. DA Form 2028 will be completed in triplicate and forwarded by the individual using the manual. The original and one copy will be forwarded direct to the Commanding General, U. S. Army Mobility Equipment Center, ATTN: SMOME-MM, P. O. Drawer 58, St. Louis, Missouri, 63166. One information copy will be provided to the individual's immediate supervisor (e. g. officer, non-commissioned officer, supervisor, etc.).

c. Report all equipment improvement recommendations as prescribed by TM 38-750.

159. RECORD AND REPORT FORMS

For record and report forms applicable to field and depot maintenance, refer to TM 38-750.

Note

Applicable forms, excluding standard Form 46 which is carried by the operator, shall be kept in a canvas bag mounted on the equipment.

Section II. DESCRIPTION AND DATA

160. DESCRIPTION

For complete description of the air compressor skid unit see paragraph 3.

161. TABULATED DATA

a. General. This paragraph contains all overhaul data pertinent to field and depot maintenance personnel. A schematic wiring diagram (figure 68), compressor air system schematic diagram (figure 69), compressor air system tubing schematic diagram (figure 70), and compressor oil cycle schematic diagram (figure 71) is also included.

b. Engine Classification and Rating.

Type	Four Cycle Reciprocating Diesel
Model	Continenatal Motors Corp. JD403
Specification (Continental)	6002
No. of Cylinders	4
Bore and Stroke	4-5/8 in. by 6 in.
Displacement	403 cu. in.
Compression Ratio	15.0 to 1
Firing Order	1-3-4-2
Governed Speed	1800 RPM
Horsepower	74 HP

c. Compressor Classification and Rating.

Type	Sliding Vane, Air, Rotary, DED
Model	Davey Compressor Co. M250 RPV
Part No.	45741
Stages	One
Air Delivered	250 CFM
Air Pressure	100 PSI

d. Fuel Injection Pump Classification and Rating.

Type	Single Cylinder, Opposed Plunger, Inlet Metering, Distributor
Model	Roosa Master DBGVC 437-2AL
Mounting	Vertical
Governor	Mechanical or Flyweight
Rotation	Clockwise
Operating Speed	Half Engine Speed
Electrical Shut-Off	24 Volts
Engine Fuel Consumption	29-32#/hr. @ 1200 RPM 43.5-46.5#/hr. @ 1800 RPM

e. Repair and Replacement Standards. Table IV

lists manufacturers sizes, tolerances, desired clearances, and maximum allowable wear and clearances.

f. Adjustment Data.

Valve clearance (Hot and Idling)	Intake	0.014 IN.
	Exhaust ..	0.014 IN.

Generator Regulator:

Circuit breaker armature core gap	0.066 to 0.070 IN.
Voltage regulator armature core gap	0.053 to 0.056 IN.
Current regulator armature core gap	0.053 to 0.056 IN.

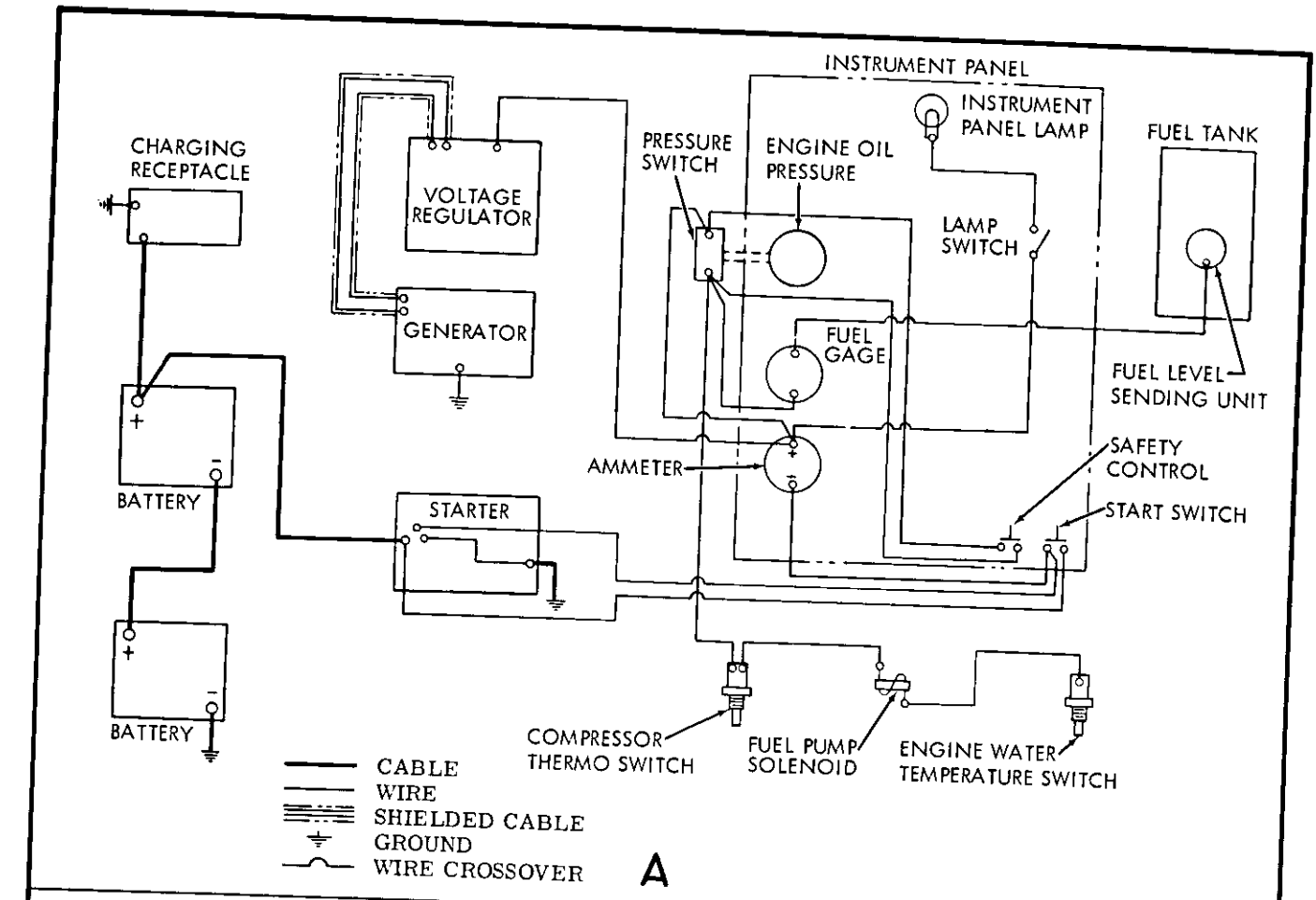
g. Nut and Bolt Torque Data. See tables I and II.

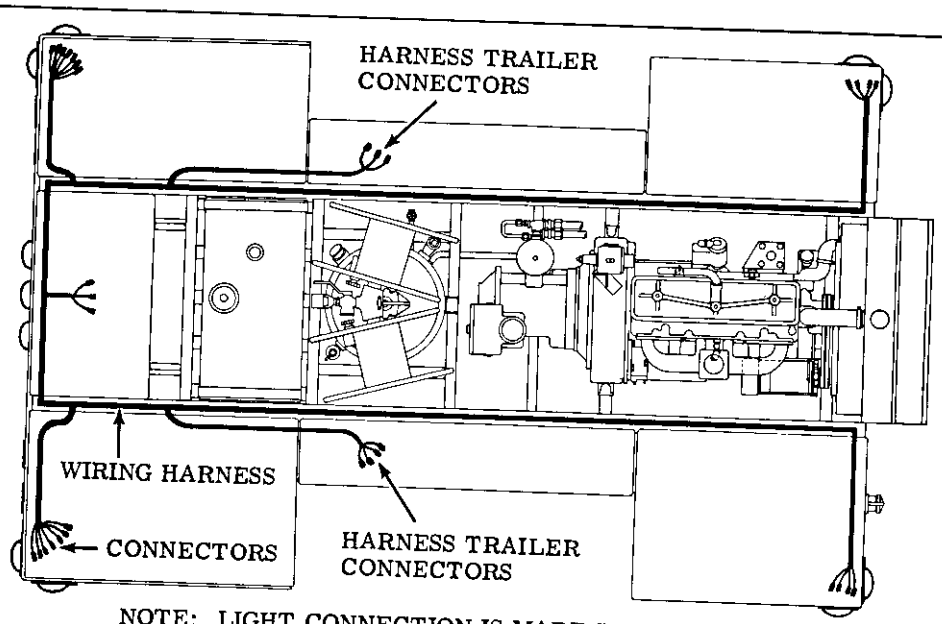
h. Wiring Diagram. See figure 68.

i. Compressor Air System. See figure 69.

j. Compressor Air System Tubing. See figure 70.

k. Compressor Oil Cycle. See figure 71.





NOTE: LIGHT CONNECTION IS MADE BY CONNECTING NUMBERED CONNECTORS OF HARNESS WITH LIKE NUMBERED CONNECTORS OF LIGHTS.

B

A - Engine and Compressor Wiring

B - Tool Box Light Wiring

Figure 68. Schematic Wiring Diagram

Table IV. Repair and Replacement Standards

Component	Manufacturer's dimensions and tolerances in inches		Desired clearance		Maximum allowable wear and clearance
	Min.	Max.	Min.	Max.	
ENGINE:					
Intake valve guide:					
Outside diameter	0.751	0.752			
Stem inside diameter	0.4360	0.4365			0.438
Exhaust valve guide:					
Outside diameter	0.751	0.752			
Stem inside diameter	0.4360	0.4365			0.438
Intake valve:					
Overall length		7.26			
Stem diameter	0.4344	0.4352			0.4324
Head diameter		1.695			
Stem clearance limits	0.0008	0.0021	0.0015		0.0041
Exhaust valve:					
Overall length		6.02			
Stem diameter	0.4315	0.4325			0.4295
Head diameter		1.510			
Stem clearance limits	0.0035	0.005	0.004		0.007
Valve spring:					
Free length		2.375			
Outside diameter	1.282	1.302			
Wire diameter		0.162			
Length-valve closed		1.875			
Length-valve open	1.521				
Camshaft:					
No. 1 brg journal dia	2.1215	2.1225			0.001
No. 2 brg journal dia	1.7455	1.7465			0.001
No. 3 brg journal dia	1.6830	1.6840			0.001
Cam lift-intake					0.336
Cam lift-exhaust					0.336
Camshaft bush. clearance			0.0025	0.0045	0.006
Tappet diameter	0.9975	0.9985			0.9965
End play			0.005	0.009	
Crankshaft:					
Crankpin diameter	2.7475	2.7485			2.7465
Main brg journal dia	3.250	3.251			3.249
End play			0.005	0.008	
Connecting rod:					
Length-center to center	10.498	10.502			
Bush. hole dia	1.6239	1.6249			
Bearing hole dia	2.8740	2.8745			
Bearing thickness	0.0616	0.0621			0.0611
Clearance limits	0.0013	0.0038	0.0025		0.0048
Width at brg end	1.802	1.804			
Side play	0.0065	0.0105	0.0065		
Main bearings:					
Dia of brg bore in block	3.4992	3.5000			
Brg shell thickness	0.12365	0.12390			0.12290
Clearance limits	0.0027	0.004	0.002		0.0037
Piston pin:					
Length	3.703	3.718			
Diameter	1.4998	1.5000			1.4995
Bush. hole dia-fin.	1.5003	1.5005			1.5015
Pin clearance in bush.	0.0003	0.0007	0.0005		0.0017
Piston:					
Piston pin hole dia	1.4998	1.5000			
No. 1 ring groove dia	4.105	4.115			

Table IV. Repair and Replacement Standards, Continued.

Component	Manufacturer's dimensions and tolerances in inches		Desired clearance		Maximum allowable wear and clearance
	Min.	Max.	Min.	Max.	
Piston: (cont)					
No. 2 ring groove dia	4.181	4.191			
No. 3 ring groove dia	4.181	4.191			
No. 4 ring groove dia	4.141	4.151			
No. 5 ring groove dia	4.141	4.151			
Ring groove width:					
Number 1	0.128	0.129			0.002
Number 2	0.127	0.128			0.002
Number 3	0.127	0.128			0.002
Number 4	0.252	0.253			0.002
Number 5	0.1895	0.1905			0.002
Ring land dia:					
Number 1	4.590	4.595			
Number 2	4.590	4.595			
Number 3	4.590	4.595			
Number 4	4.576	4.581			
Piston fit-feeler gage			0.006		
Ring width:					
Number 1	0.1235	0.1240			0.002
Number 2	0.1235	0.1240			0.002
Number 3	0.1235	0.1240			0.002
Number 4	0.2485	0.2490			0.002
Number 5	0.1860	0.1865			0.002
Ring thickness:					
Number 1	0.221	0.231			
Number 2	0.176	0.186			
Number 3	0.176	0.186			
Number 4	0.176	0.186			
Number 5	0.176	0.186			
Ring gap clearance:					
Number 1			0.013	0.023	
Number 2			0.013	0.023	
Number 3			0.013	0.023	
Number 4			0.013	0.023	
Number 5			0.013	0.023	
Ring side clearance:					
Number 1			0.004	0.0055	0.0025
Number 2			0.003	0.0045	0.0025
Number 3			0.003	0.0045	0.0025
Number 4			0.003	0.0045	0.0025
Number 5			0.003	0.0045	0.0025
Lanchester balance:					
Oil pump:					
Gear backlash			0.001	0.003	
Gears to pump body				0.003	
Thrust collar end play			0.003	0.005	
Idler gear-counterweight drive gear-backlash			0.004	0.007	
COMPRESSOR:					
Intake-Unloader:					
Valve spring free length	3-1/4				
Piston spring free length	3-1/2				
Piston spring rating in inch-pounds	90				

Table IV. Repair and Replacement Standards, Continued.

Component	Manufacturer's dimensions and tolerances in inches		Desired clearance		Maximum allowable wear and clearance
	Min.	Max.	Min.	Max.	
End covers:					
Non-drive end cover bearing bore	3.9370	3.9384			
Non-drive end cover depth of brg bore	2.495	2.500			
Drive-end cover bearing bore	3.9370	3.9384			
Drive-end cover depth of brg bore	2.495	2.500			
Bearing retainer covers:					
Mtg flange to face	0.930	0.935			
Stator length	10.506	10.508			
Rotor:					
Length	10.498	10.500			
Outside diameter	6.873	6.875			
Bore	2.230	2.231			
Blade slot width	0.250	0.255			
Rotor to end cover clearance			0.006	0.010	0.015
Rotor shaft:					
Bearing journals	1.7719	1.7723			
Oil seal journals	1.749	1.750			0.002
Coupling journal	1.623	1.625			
Rotor journal	2.228	2.229			
Rotor blades:					
Length	10.485	10.487			
Width	1.810	1.812			1.790
Thickness	0.2465	0.2495			
Rotor blades to rotor slot clearance			0.0005	0.0085	
FUEL INJECTION PUMP:					
Roller-to-Roller dim.	1.9940	1.9945			
Control arm fork where it contacts thrust sleeve					0.003
Governor linkage gap	0.125	0.165			
Distributor rotor dia		0.920			
Plunger diameter		0.370			
Drive shaft tang-across flats	0.305				
Transfer pump blades-length	1.0930				

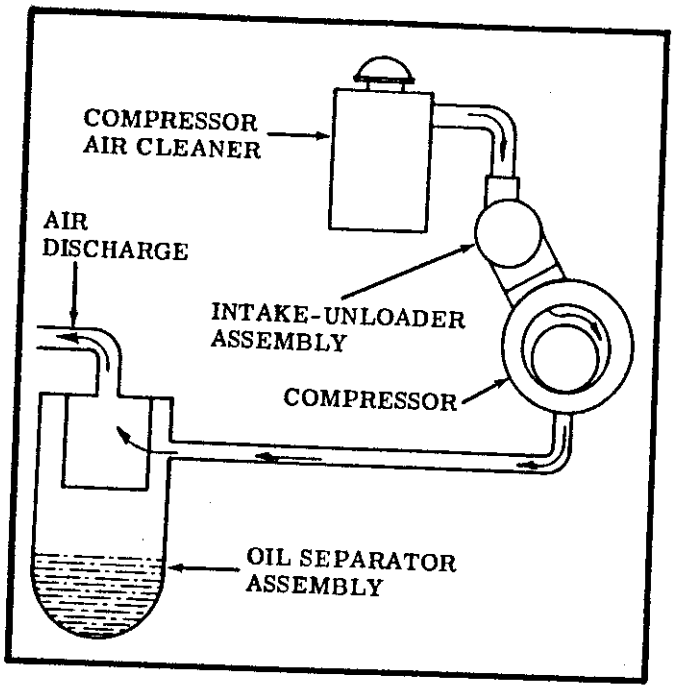


Figure 69. Compressor Air System Schematic Diagram

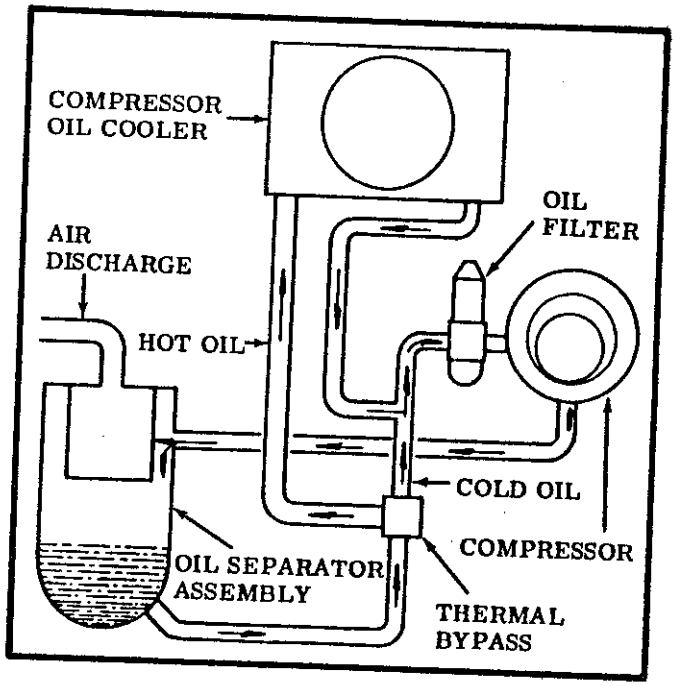


Figure 71. Compressor Oil Cycle Schematic Diagram

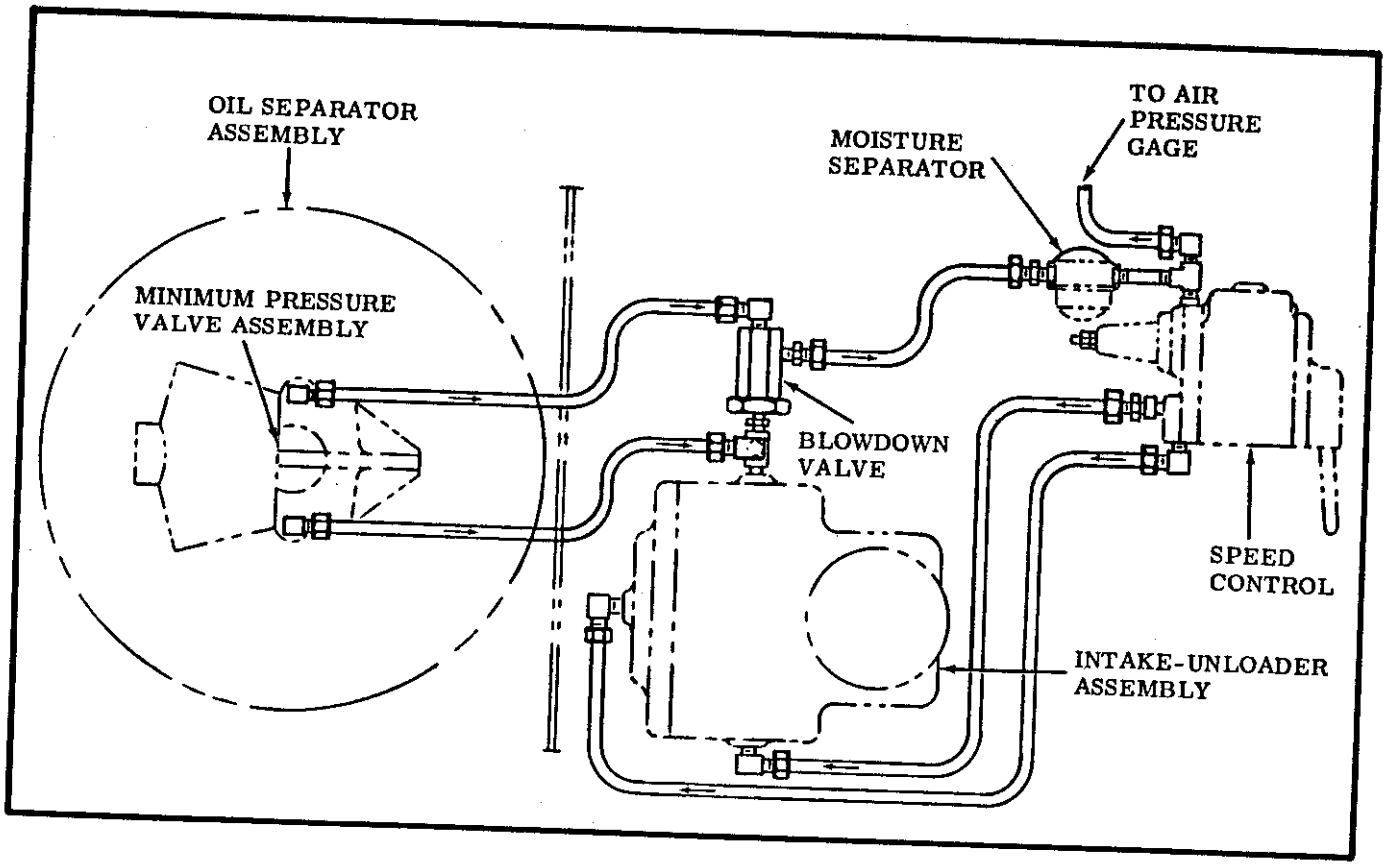


Figure 70. Compressor Air System Tubing, Schematic Diagram

Chapter 6

GENERAL MAINTENANCE INSTRUCTIONS

Section I. SPECIAL TOOLS AND EQUIPMENT

162. SPECIAL TOOLS AND EQUIPMENT

There are no special tools or equipment required to perform the repair and overhaul operations of the air compressor skid unit.

163. FIELD AND DEPOT MAINTENANCE REPAIR PARTS

Field and Depot Maintenance Repair Parts are listed and illustrated in Appendix IV.

164. SPECIALLY DESIGNED TOOLS AND EQUIPMENT

There are no specially designed tools or equipment required to perform the repair operations described in this manual.

Section II. TROUBLESHOOTING

165. GENERAL

This section provides information useful in diagnosing and correcting unsatisfactory operation or failure to the air compressor skid unit or any of its components. Each trouble symptom stated is followed by a list of probable causes of trouble. The possible remedy is described opposite the probable cause.

166. ENGINE FAILS TO START

Probable cause	Possible remedy
Defective starter	Replace or repair defective starter (para 193)
Loss of compression	Replace piston rings (para 214)
Wrong injection pump timing	Retime pump to engine (para 92)
Hand primer installed backwards	Install properly (para 89)
Seizure in injection pump	Repair or replace injection pump (para 195)
Broken injection pump transfer pump blades	Repair or replace injection pump (para 195)

167. LOW OR NO ENGINE OIL PRESSURE

Probable cause	Possible remedy
Clogged oil pump screen	Clean screen (para 212)
Defective oil pump	Repair or replace oil pump (para 212)
Clogged or defective relief valve	Remove and clean or repair (para 212)
Loose or worn main or connecting rod bearings	Replace main or connecting rod bearings (para 223 and 214)
Oil dilution	Change oil. Refer to current L. O.

168. EXCESSIVE OIL CONSUMPTION

Probable cause	Possible remedy
Oil leaks	Check and repair as necessary
Oil pressure too high-relief valve stuck	Clean or repair relief valve (para 212)
Worn, broken, or stuck piston rings and clogged oil control rings	Replace piston rings (para 214)
Worn pistons and liners	Replace liners and pistons (para 225)
Worn bearings and valve guides	Check and repair or replace (para 223 and 202)

169. ENGINE KNOCKS

Probable cause	Possible remedy
COMBUSTION KNOCKS (Excessive)	
Injection timed too early	Retime injection pump to engine (para 92)
Injection nozzle sticking	Remove nozzle, check opening pressure, clean and adjust (para 201b(6) and 207)
MECHANICAL KNOCKS	
Worn main bearings or connecting rod bearings	Replace main bearings or connecting rod bearings (para 223 and 214)
Loose piston pin	Replace piston pin (para 214)
Broken piston rings or pin	Replace piston rings or pin (para 214)
Tappets incorrectly set	Adjust (para 117)
Timing gears worn or defective gear teeth	Refit new set of gears (para 217)

170. ENGINE MISSES OR RUNS ERRATICALLY

Probable cause	Possible remedy
Cylinder or cylinders misfiring due to sticking injection nozzle	Remove nozzle, clean or replace as necessary (para 201b(6) and 207)
Operating temperature too low, below 165°F	Defective thermostat, replace (para 104)
Worn valve guides	Replace valve guides (para 201 and 202)
Injection pump transfer blades worn or broken	Replace transfer pump blades (para 195)
Injection pump delivery valve retainer screw loose or incorrectly installed	Repair or replace as necessary (para 195)
Injection pump plunger sticking	Disassemble injection pump and inspect plunger, replace as necessary (para 195)
Injection pump metering valve sticking closed	Check injection pump governor linkage for binding burrs, etc, (para 195)
Injection pump governor spring worn or broken	Replace governor spring (para 195)
Injection pump cam roller shoes sticking	Remove, check for size and burrs, reassemble (para 195)
Injection pump timed incorrectly	Retime pump to engine (para 92)
Faulty injection pump transfer pump	Remove and inspect parts. Replace as necessary (para 195)
Injection pump governor linkage out of adjustment	Adjust (para 195)
Injection pump end plate regulating piston sticking	Remove piston and sleeve, inspect, replace as necessary (para 195)

171. ENGINE OVERHEATS

Probable cause	Possible remedy
Thermostat sticking or inoperative	Remove, clean, check, and replace as necessary (para 104)
Incorrect fuel injection timing	Retime injection pump to engine (para 92)
Defective water pump	Replace or repair defective water pump (para 105)
Engine cylinder block assembly cracked	Replace defective engine block assembly (para 225)

172. ENGINE LACKS POWER

Probable cause	Possible remedy
Injection pump timed incorrectly	Retime injection pump to engine (para 92)
Low compression (under 325 LB at 150 RPM)	Replace burned valves, worn or broken piston rings (para 201, 204, and 214)
Injection pump transfer pump blades worn or broken	Replace blades (para 195)
Injection pump delivery valve retainer screw loose or incorrectly installed	Inspect valve stop seat, tighten retainer screw or replace head and rotor assembly as necessary (para 195)
Injection pump plunger sticking	Disassemble pump, inspect, repair or replace as necessary (para 195)
Injection pump metering valve sticking	Check governor linkage for binding, burrs, etc, repair or replace defective parts (para 195)
Injection pump cam, shoes, or rollers sticking	Remove and replace as necessary (para 195)
Governor linkage out of adjustment	Adjust (para 195)
Shut-off device interfering with governor linkage	Check and adjust governor linkage (para 195)
Governor high-idle adjustment incorrect	Adjust (para 195)
Torque screw adjustment incorrect	Adjust (para 195)
Throttle arm travel not sufficient	Adjust throttle linkage (para 195)
Injection pump rotor badly scored	Replace hydraulic head and rotor assembly (para 195)
Defective piston rings	Replace piston rings (para 214)
Defective valves, springs, or seat inserts	Repair or replace (para 201, 203, 204, and 205)

173. ENGINE SMOKES EXCESSIVELY

Probable cause	Possible remedy
WHITE SMOKE (Indicates misfiring)	
Low engine temperature	Check thermostat, replace as necessary (para 104)
Faulty injectors	Repair or replace (para 201b(6) and 207)
Poor compression	Adjust valves (para 117). Leaky cylinder head gasket, replace (para 201). Leaky energy cell, clean or replace (para 206). Burned or sticking valves, clean, repair or replace (para 203 and 204). Broken valve springs, replace (para 205). Broken or worn piston rings, replace (para 214). Worn cylinder sleeves, replace (para 225).

Probable cause	Possible remedy
BLUE SMOKE (Indicates high oil consumption)	
Worn or stuck piston rings	Replace piston rings (para 214)
Low engine temperature	Check thermostat, replace as necessary (para 104)
Worn pistons and liners	Replace liners and pistons (para 214 and 225)
Worn bearings and valve guides	Check and replace defective parts (para 202 and 223)
BLACK SMOKE (Indicates excessive fuel rate)	
Injection pump timed incorrectly	Retime pump to engine (para 92)
Faulty nozzles	Repair or replace as necessary (para 201b (6) and 207)
Valves faulty or out of adjustment	Adjust valve (para 117), repair or replace valves as necessary (para 201 and 204)
Injection pump cam, shoes, or rollers worn	Replace defective parts (para 195)
Torque screw adjusted incorrectly	Adjust (para 195)
Maximum fuel setting too high	Reset (para 195)
Engine overheating	Check coolant level (para 33)and thermostat (para 104) correct as necessary

174. ENGINE STOPS SUDDENLY

Probable cause	Possible remedy
Safety device functions because of low oil pressure or high temperature	Check oil level. Repair or replace defective oil pump (para 212) Check coolant level (para 33) and thermostat (para 104). Check compressor oil level (para 30). Repair or replace compressor as necessary (para 229)
Fuel filters clogged	Remove and clean or replace elements (para 36)
Failure of injection pump electrical shut-off	Remove, inspect, adjust, repair or replace as necessary (para 195)
Injection pump failure	Remove, repair or replace as necessary (para 195)

175. ENGINE GENERATOR DOES NOT CHARGE

Probable cause	Possible remedy
Open circuits in field	Replace a defective generator (para 191)
Generator armature defective	Repair armature or replace generator (para 191)
Generator bearings worn	Replace bearings (para 191)
Weak or broken brush springs	Replace generator brush springs (para 191)
Worn generator brushes	Replace brushes (para 191)

176. COMPRESSOR INOPERATIVE

Probable cause	Possible remedy
Defective rotor blades	Replace rotor blades (para 229)
Defective rotor	Replace rotor (para 229)
Defective stator	Replace stator (para 229)

177. COMPRESSOR OVERHEATS

Probable cause	Possible remedy
Low oil level in oil separator	Check and fill to proper level (para 30)
Thermal bypass valve stuck	Remove, clean, repair or replace as necessary (para 111)
Oil separator element clogged	Remove and replace element (para 186)
Blades damaged or stuck in rotor slots	Disassemble compressor, clean or replace blades as necessary (para 229)
Oxidized (varnished) oil	Disassemble compressor and oil separator. Clean parts and replace oil separator element (para 229 and 231)

178. NOISY COMPRESSOR OPERATION

Probable cause	Possible remedy
Defective rotor bearings	Replace rotor bearings (para 229)
Broken rotor blades	Replace rotor blades (para 229)

179. COMPRESSOR FAILS TO BUILD UP PROPER AIR PRESSURE

Probable cause	Possible remedy
Ruptured bellofram in speed control assembly	Replace bellofram (para 189)
Defective air intake-unloader assembly	Repair or replace air intake-unloader assembly (para 227)
Defective governor in fuel injection pump	Repair or replace fuel injection pump governor parts (para 195)
Incorrect setting of speed control	Adjust (para 189)
Blades sticking in rotor	Clean and free or replace rotor blades (para 229)

180. COMPRESSOR FAILS TO LOAD OR UNLOAD

Probable cause	Possible remedy
Ruptured bellofram in speed control assembly	Replace bellofram (para 189)
Defective air intake-unloader assembly	Repair or replace air intake-unloader assembly (para 227)
Incorrect setting of speed control	Adjust (para 189)
Defective speed control	Repair or replace speed control (para 189)
Dirt on intake-unloader valve seat	Clean valve seat (para 227)
Unloading pressure too high or too low	Adjust speed control (para 189)

181. COMPRESSOR UNLOADS BUT ENGINE WILL NOT IDLE

Probable cause	Possible remedy
Dirt in speed control	Disassemble, clean, and reinstall speed control (para 189)

182. COMPRESSOR VIBRATES AND METALLIC NOISE IN COMPRESSOR

Probable cause	Possible remedy
Stuck or broken rotor blades	Clean or replace rotor blades as necessary (para 229)
Defective rotor bearings	Replace rotor bearings (para 229)
Damaged rotor or stator	Replace damaged rotor or stator (para 229)

Section III. REMOVAL AND INSTALLATION OF MAJOR COMPONENTS OR AUXILLIARIES

183. GENERAL

The major components covered in this section are the engine assembly, air compressor assembly, and the compressor oil separator assembly.

184. ENGINE ASSEMBLY

a. Removal.

(1) Drain lubricating oil from engine oil pan (para 30 and current L. O.).

(2) Drain coolant from radiator and engine block.

(3) Remove housing, doors, hood, and panels. Refer to figure 27.

(4) Remove tool boxes. Refer to figure 28.

(5) Remove engine fan guard. Refer to figure 37.

(6) Remove coolant lines, hose, fittings, and clamps. Refer to figure 38.

(7) Remove radiator and oil cooler. Refer to figures 40 and 49.

(8) Remove instrument panel. Refer to figure 72.

(9) Remove engine control assembly. Refer to figure 65.

(10) Remove necessary lines and fittings. Refer to figure 59.

(11) Remove the engine assembly from the frame as instructed on figure 72.

b. Installation.

(1) Install the engine assembly on the frame in the reverse of the instructions on figure 72.

(2) Install the lines and fittings. Refer to figure 59.

(3) Install engine control assembly. Refer to figure 65.

(4) Install instrument panel. Refer to figure 72.

(5) Install radiator and oil cooler. Refer to figures 40 and 49.

(6) Install coolant lines, hose, fittings, and clamps. Refer to figure 38.

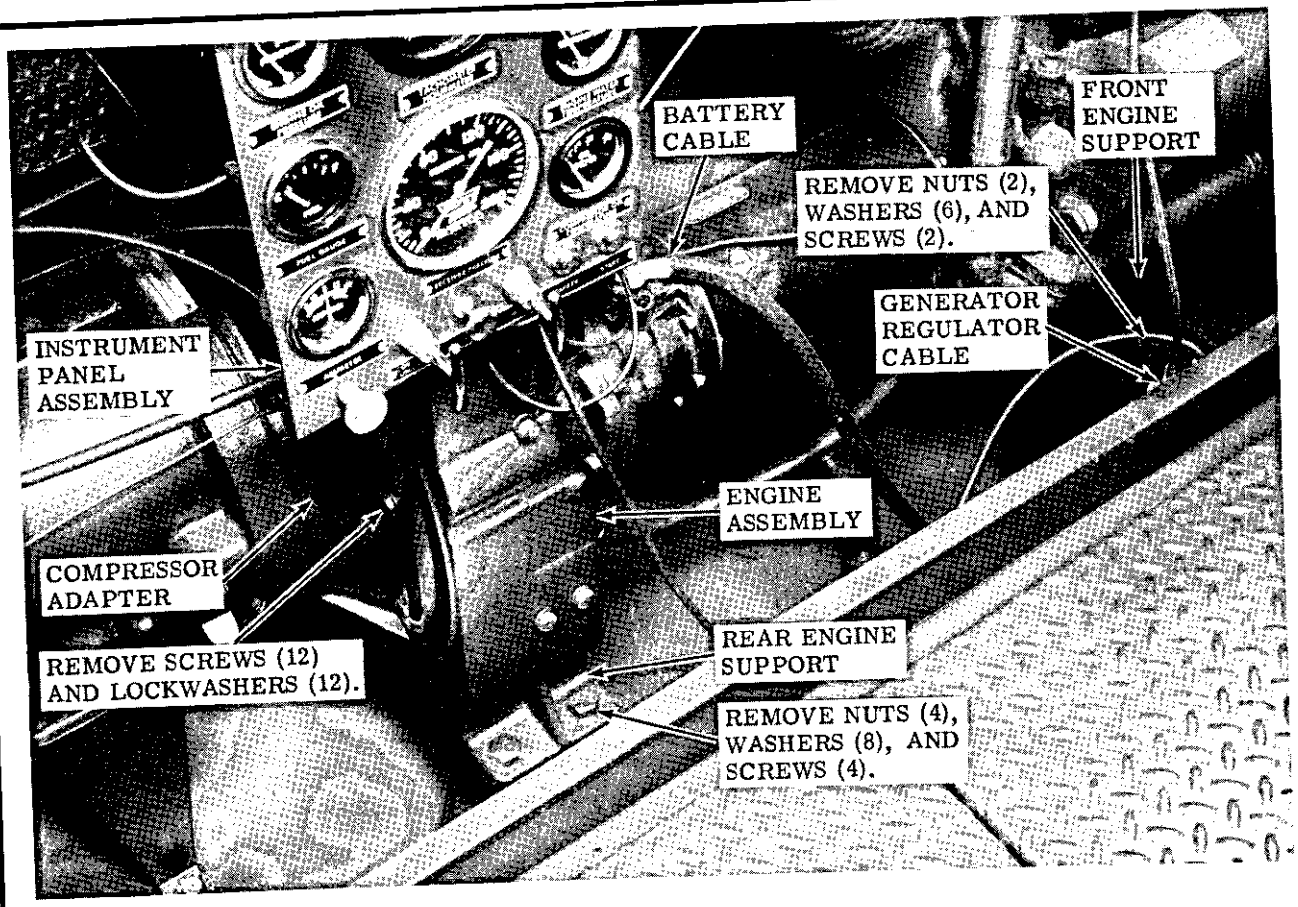
(7) Install engine fan guard. Refer to figure 37.

(8) Install tool boxes. Refer to figure 28.

(9) Install housing, doors, hood, and panels. Refer to figure 27.

(10) Fill radiator with coolant (para 33).

(11) Service the engine (refer current L. O.).



STEP 1.
DISCONNECT ALL NECESSARY WIRES AND LINES, REMOVE LOCKNUTS (3), WASHERS (3), AND INSTRUMENT PANEL ASSEMBLY.

STEP 2.
DISCONNECT BATTERY CABLE AND GENERATOR REGULATOR CABLE.

NOTE: MAKE CERTAIN BATTERIES ARE DISCONNECTED BEFORE REMOVING ENGINE.

STEP 3.
REMOVE FRONT ENGINE SUPPORT NUTS (2), FLAT WASHERS (2), LOCKWASHERS (2), CHANNEL WASHERS (2) AND SCREWS (2).

STEP 4.
REMOVE REAR ENGINE SUPPORT NUTS (4), FLAT WASHERS (4), LOCKWASHERS (4), AND SCREWS (4).

STEP 5.
REMOVE COMPRESSOR ADAPTER SCREWS (12) AND LOCKWASHERS (12).

STEP 6.
WITH SUITABLE LIFTING DEVICE ATTACHED TO ENGINE, CAREFULLY MOVE ENGINE FORWARD, AWAY FROM COMPRESSOR, TO DISENGAGE COUPLING PINS FROM COUPLING. REMOVE ENGINE.

CAUTION: WHEN INSTALLING ENGINE, MAKE CERTAIN COUPLING PINS ENGAGE WITH COUPLING BEFORE ATTACHING ENGINE TO COMPRESSOR ADAPTER. TAKE CARE NOT TO DAMAGE COUPLING PIN BUSHINGS.

Figure 72. Engine Assembly, Removal and Installation

185. AIR COMPRESSOR ASSEMBLY

a. Removal.

(1) Drain the oil from the oil separator assembly (current L.O.).

(2) Remove the housing doors and hood. Refer to figure 27.

(3) Remove lines and fittings as necessary. Refer to figures 46 and 59.

(4) Remove compressor thermoswitch. Refer to figure 48.

(5) Disconnect compressor unloader cable. Refer to figure 55.

(6) Remove rear panel. Refer to figure 27.

(7) Remove the compressor assembly as instructed on figure 73.

b. Installation.

(1) Install the air compressor assembly in the reverse of the instructions on figure 73.

(2) Install the rear panel. Refer to figure 27.

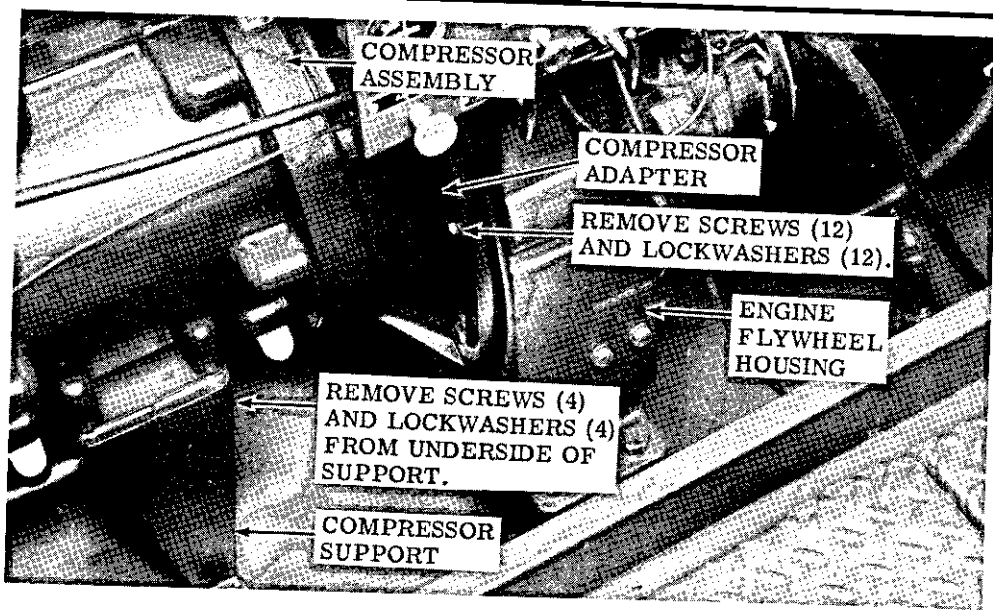
(3) Connect compressor unloader cable. Refer to figure 55.

(4) Install compressor thermoswitch. Refer to figure 48.

(5) Install lines and fittings. Refer to figures 46 and 59.

(6) Install the housing hood and doors. Refer to figure 27.

(7) Service the air compressor assembly (current L.O.).



STEP 1.
REMOVE COMPRESSOR ADAPTER SCREWS (12) AND LOCKWASHERS (12).

STEP 2.
REMOVE SCREWS (4) AND LOCKWASHERS (4), FROM UNDERSIDE OF SUPPORT, SECURING COMPRESSOR ASSEMBLY TO COMPRESSOR SUPPORT.

STEP 3.
USING SUITABLE LIFTING DEVICE AND LIFTING EYE PROVIDED ON COMPRESSOR ASSEMBLY, CAREFULLY MOVE COMPRESSOR TO THE REAR, AWAY FROM ENGINE FLYWHEEL HOUSING, TO DISENGAGE COUPLING FROM COUPLING PINS. REMOVE COMPRESSOR. REMOVE, DISCARD, AND REPLACE GASKET BETWEEN COMPRESSOR AND SUPPORT.

CAUTION: WHEN INSTALLING COMPRESSOR, MAKE CERTAIN COUPLING PINS AND COUPLING ENGAGE BEFORE ATTACHING COMPRESSOR ADAPTER TO ENGINE FLYWHEEL HOUSING. TAKE CARE NOT TO DAMAGE COUPLING PIN BUSHINGS.

Figure 73. Air Compressor Assembly, Removal and Installation

186. COMPRESSOR OIL SEPARATOR ASSEMBLY

a. Removal.

(1) Drain the oil from the oil separator (current L.O.).

(2) Remove the hose reel assemblies. Refer to figure 61.

(3) Remove oil lines and fittings as necessary. Refer to figures 46 and 59.

(4) Remove the compressor oil separator assembly from the frame as instructed on figure 74.

b. Installation.

(1) Install the compressor oil separator assembly in the reverse of the instructions on figure 74.

(2) Install oil lines and fittings. Refer to figures 46 and 59.

(3) Install the hose reel assemblies. Refer to figure 61.

(4) Service the oil separator (current L.O.).

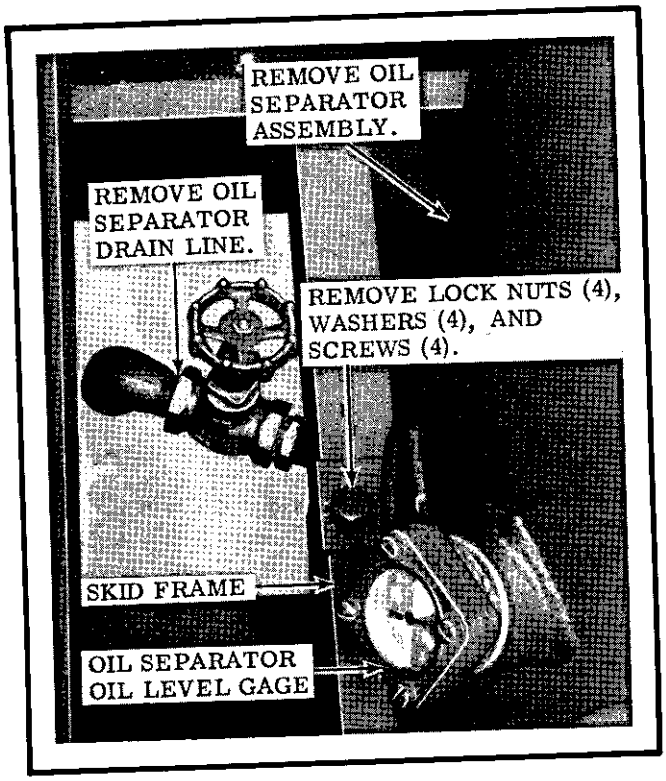


Figure 74. Compressor Oil Separator Assembly, Removal and Installation

Chapter 7

ENGINE REPAIR INSTRUCTIONS

Section I. FUEL TANK AND SPEED CONTROL

187. GENERAL

The fuel tank is mounted on the main frame to the rear of the oil separator. It incorporates a filler cap, filter screen, and fuel level sending unit. The tank is equipped with a drain cock and a fuel shutoff cock. The speed control is mounted on a bracket which is attached to the engine flywheel housing on the left side of the unit. The speed control selects an engine speed and compressor intake opening to suit any air demand within the capacity of the compressor.

188. FUEL TANK

a. Removal. Refer to paragraph 88 for fuel tank removal.

b. Cleaning, Inspection, and Repair. Refer to paragraph 88 for cleaning, inspection, and repair.

c. Installation. Refer to paragraph 88 for installation of fuel tank.

189. SPEED CONTROL

a. Removal. Refer to paragraph 145 for removal of speed control.

b. Disassembly. Disassemble the engine speed control in numerical sequence as illustrated on figure 75.

c. Cleaning, Inspection, and Repair.

(1) Clean all speed control parts with an approved cleaning solvent and dry thoroughly.

(2) Inspect the bellofram, orifice, valve spring, valve stem, and valve seat for cracks, breaks, or any other damage. Replace defective parts.

(3) Inspect the operating cylinder valve, spring, and adjusting screw for any defects. Replace defective parts.

(4) Inspect all other parts for wear or any other defects. Replace as necessary.

Note

No repairs to the individual parts are necessary and none should be attempted. Replace any and all damaged parts.

d. Reassembly and Installation.

(1) Reassemble speed control in reverse of numerical sequence as illustrated on figure 75.

(2) Install speed control as instructed in paragraph 145.

e. Adjustment. After installation, adjust speed control as instructed on figure 65C.

Section II. GENERATOR

190. GENERAL

The engine generator is a 24 volt, two-pole, shunt-type unit with sealed ball bearings on both ends and negative ground polarity. The generator is driven by two V-belts off the engine crankshaft pulley. The generator serves to supply electrical energy to recharge the batteries. The generated current is discharged to the batteries through a voltage regulator. The generator is cooled by a fan mounted on the drive end of the generator.

191. GENERATOR

a. Removal and Disassembly.

(1) Refer to paragraph 94 for generator removal from engine.

(2) Disassemble the generator in the numerical sequence as illustrated on figure 76.

b. Cleaning, Inspection, Repair, and Testing.

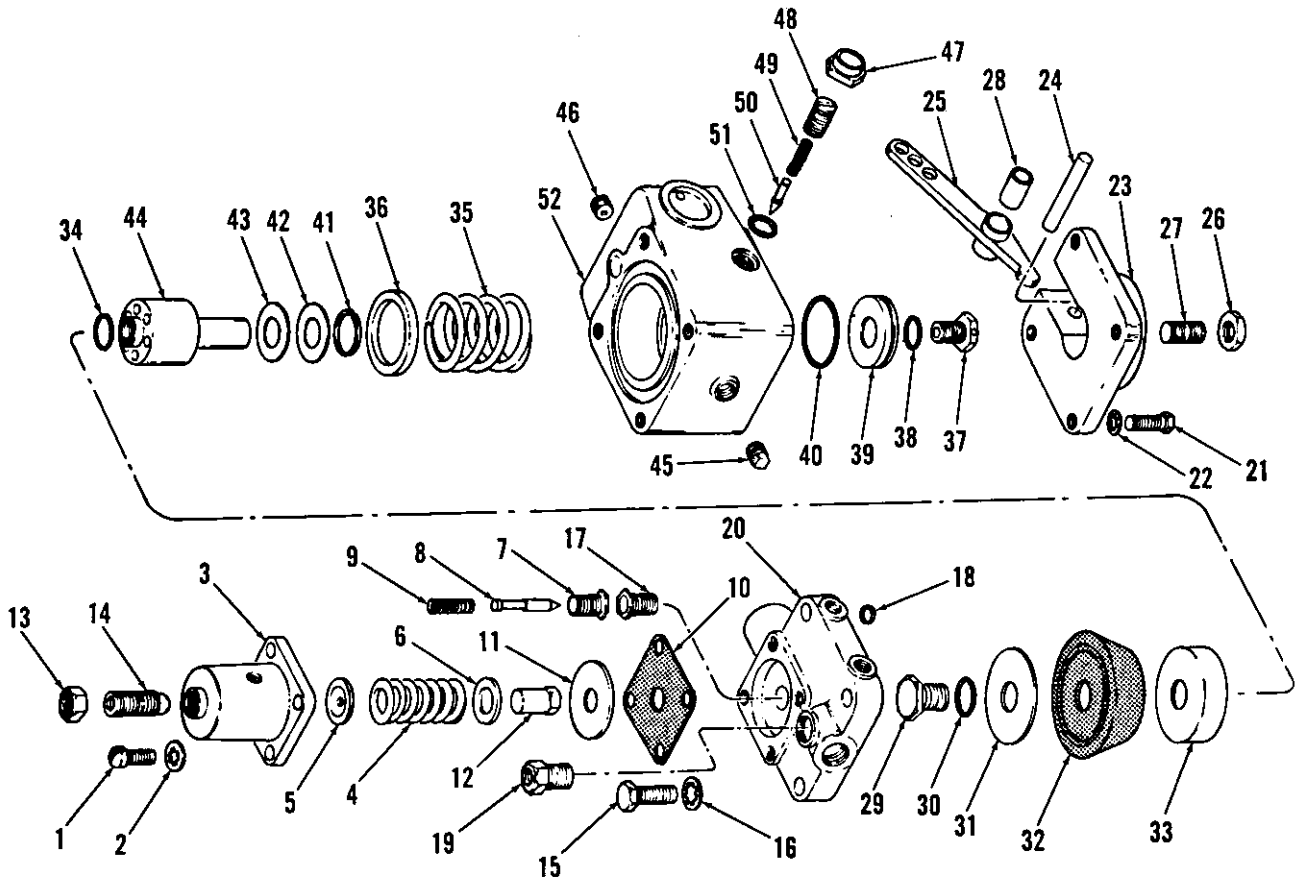
(1) Clean the outside of the generator with an approved cleaning solvent.

(2) Clean internal parts with clean dry compressed air.

Note

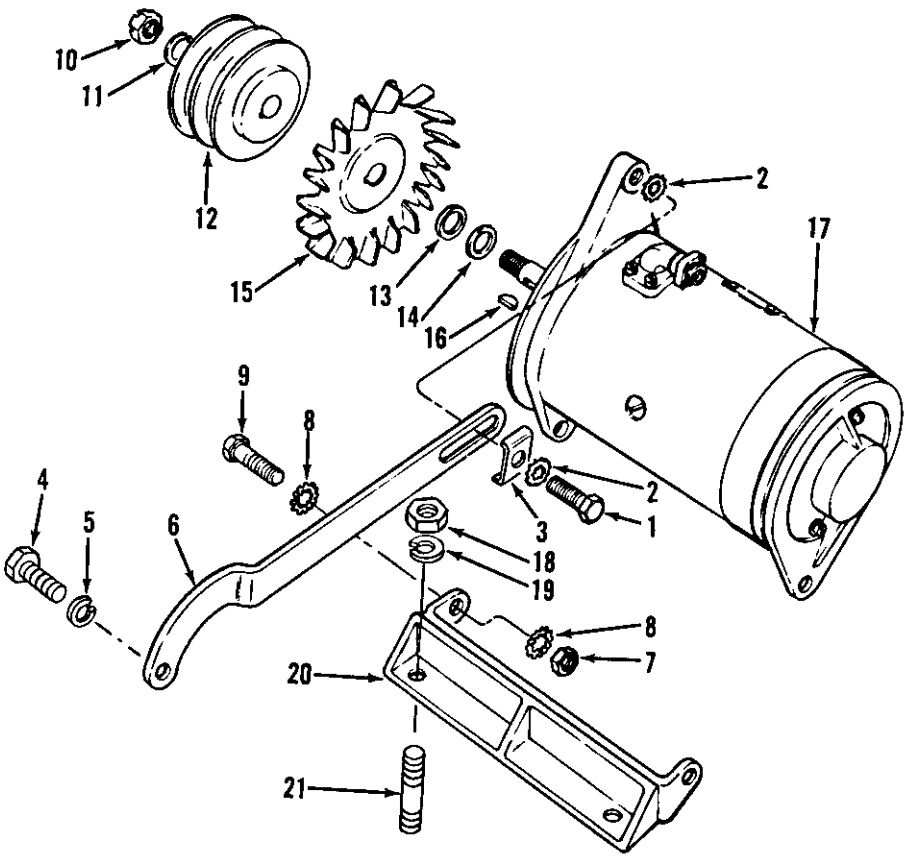
Do not soak the assembly in solvent.

(3) Inspect the brush springs and brushes for distortion, cracks, breaks, or wear. Replace defective parts as necessary.



1 Screw, 1/4-20 x 5/8 in. (4 reqd)
2 Washer, lock, 1/4 in. (4 reqd)
3 Housing, control valve
4 Spring
5 Seat
6 Washer, special
7 Screw, special
8 Stem, valve
9 Spring
10 Diaphragm
11 Plate
12 Nut, retaining
13 Nut, 3/8-20
14 Screw, adjusting
15 Bolt, 5/16-18 x 1-1/4 in. (4 reqd)
16 Washer, IT., 5/16 in. (4 reqd)
17 Seat
18 O-Ring
19 Orifice
20 Cover
21 Bolt, 5/16-18 x 1 in. (4 reqd)
22 Washer, lock, 5/16 in. (4 reqd)
23 Cover
24 Pin
25 Lever
26 Nut, 5/16-18
27 Setscrew, 5/16-18 x 1 in.
28 Bushing
29 Screw, special
30 O-Ring
31 Washer, special
32 Bellofram
33 Piston
34 O-Ring
35 Spring
36 Spacer
37 Screw, special
38 O-Ring
39 Seal, disc
40 O-Ring
41 Ring, retaining
42 Ring, spring
43 Valve
44 Piston
45 Plug, 1/8 in. NPT
46 Plug, 1/8 in. NPT
47 Nut, 5/16-24
48 Screw, adjusting
49 Spring
50 Valve
51 O-Ring
52 Cylinder, operating

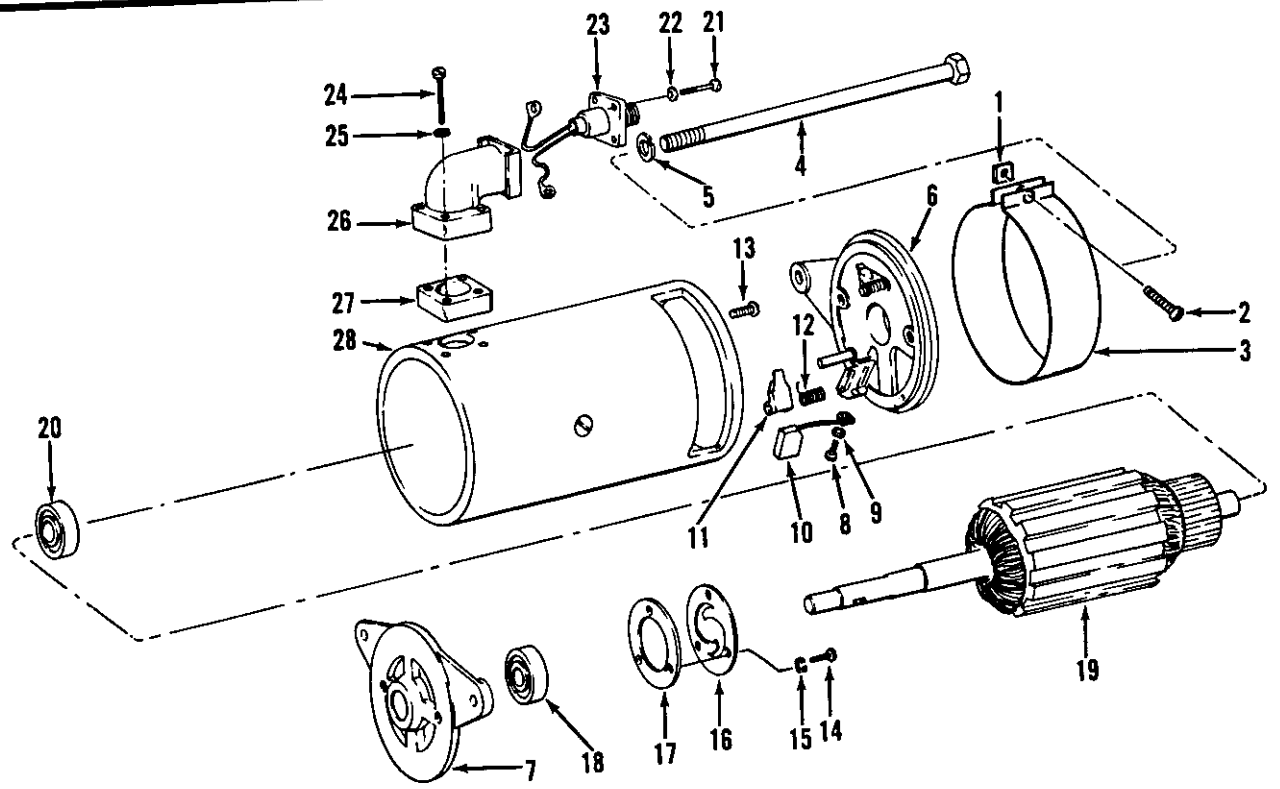
Figure 75. Speed Control, Disassembly and Reassembly



1 Screw, 3/8-16 x 1-1/4 in.
2 Washer, lock, IT., ET., 3/8 in. (2 reqd)
3 Clip
4 Screw, 3/8-16 x 1-1/4 in.
5 Washer, lock, 3/8 in.
6 Strap, adjusting
7 Nut, 7/16-14 (2 reqd)
8 Washer, lock, IT., ET., 7/16 in. (4 reqd)
9 Screw, 7/16-14 x 1-1/2 in. (2 reqd)
10 Nut, 1/2-20
11 Washer, lock, 1/2 in.
12 Pulley
13 Spacer
14 Spacer
15 Fan
16 Key
17 Generator assembly
18 Nut, 1/2-13 (2 reqd)
19 Washer, lock, 1/2 in. (2 reqd)
20 Bracket
21 Stud, 1/2-13 x 1-3/4 in. (2 reqd)

A

A - Generator and Mounting Hardware, Exploded View
Figure 76. Generator, Disassembly and Reassembly



1 Nut, no. 10-32
2 Screw, machine, no. 10-32 x 1/2 in.
3 Cover band
4 Bolt, through, 5/16 x 7-3/4 in. (2 reqd)
5 Washer, lock, 5/16 in. (2 reqd)
6 Head assembly
7 Head
8 Screw, machine, no. 8-32 x 1/4 in. (2 reqd)
9 Washer, lock, no. 8 (2 reqd)
10 Brush (2 reqd)
11 Arm, brush (2 reqd)
12 Spring, brush (2 reqd)
13 Screw, machine, rd. hd., no. 8-32 x 3/8 in.
14 Screw, machine, no. 10-32 x 1/2 in. (3 reqd)
15 Washer, lock, no. 10 (3 reqd)
16 Spring plate
17 Retainer
18 Bearing
19 Armature
20 Bearing
21 Screw, machine, fill. hd., no. 6-32 x 3/8 in. (4 reqd)
22 Washer, lock, no. 6 (4 reqd)
23 Receptacle and lead assembly
24 Screw, machine, fill. hd., no. 8-32 x 1 in. (4 reqd)
25 Washer, lock, no. 8 (4 reqd)
26 Elbow
27 Spacer
28 Frame-field assembly

B

B - Generator Assembly, Exploded View
Figure 76. - Continued.

(4) Inspect the head and head assembly for cracks, breaks, or warpage. If defective, replace the generator assembly.

(5) Inspect the bearings for wear, scoring, or pitting. If defective, replace bearings.

(6) Inspect armature winding to see if they are properly pressed in the core slots and tightly soldered to commutator risers. Resolder as necessary.

(7) Inspect commutator for rough spots, discoloration, pitting, scoring, and high mica. If commutator is rough, pitted, or worn, mount the armature in a lathe and turn commutator. Take light cuts until pits are removed. Remove all burrs by holding No. 00 Sandpaper lightly against the commutator while the armature is turning in the lathe. Undercut the mica after turning the commutator. The mica must be undercut to a depth of 1/32 to 3/64 inch.

(8) Inspect commutator for out-of-round. Out-of-round shall not exceed 0.001 inch.

(9) Inspect bearing journals on both ends of armature shaft for wear, scoring, or pitting. If armature is defective, replace the generator assembly.

c. Testing.

(1) For testing of generator field coils and armature assembly for shorts, open circuit, and grounds, refer to TM 5-764.

(2) For testing of generator on the engine, refer to paragraph 94.

d. Reassembly and Installation.

(1) Reassemble generator in the reverse of the numerical sequence as illustrated on figure 76.

(2) Install the generator assembly to the engine as instructed in paragraph 94.

Section III. STARTER

192. GENERAL

The starter converts electrical energy from the batteries into mechanical energy to turn the engine crankshaft at a speed sufficient to start the engine. The starter consists of the frame and field assembly, armature, commutator end head, intermediate bearing assembly, pinion housing containing the solenoid winding, solenoid contacts and solenoid core, and the over-running clutch. The over-running clutch has a pinion which is shifted by solenoid action to engage the starter with the engine flywheel ring gear. When the engine starts, the clutch releases and allows the pinion to turn faster than the armature shaft until the starter switch is released and the return spring action retracts the pinion from the flywheel.

193. STARTER

a. Removal and Disassembly.

(1) Refer to paragraph 96 for removal of starter from engine.

(2) Disassemble starter in the numerical sequence as illustrated on figure 77.

b. Cleaning, Inspection, and Repair.

(1) Clean the outside of the starter with an approved cleaning solvent.

Note

Do not soak the starter assembly in solvent.

(2) Clean internal parts with clean, dry, compressed air.

(3) Inspect brushes for wear, chipping or less than one-half inch length. Replace all damaged, defective, or excessively worn brushes.

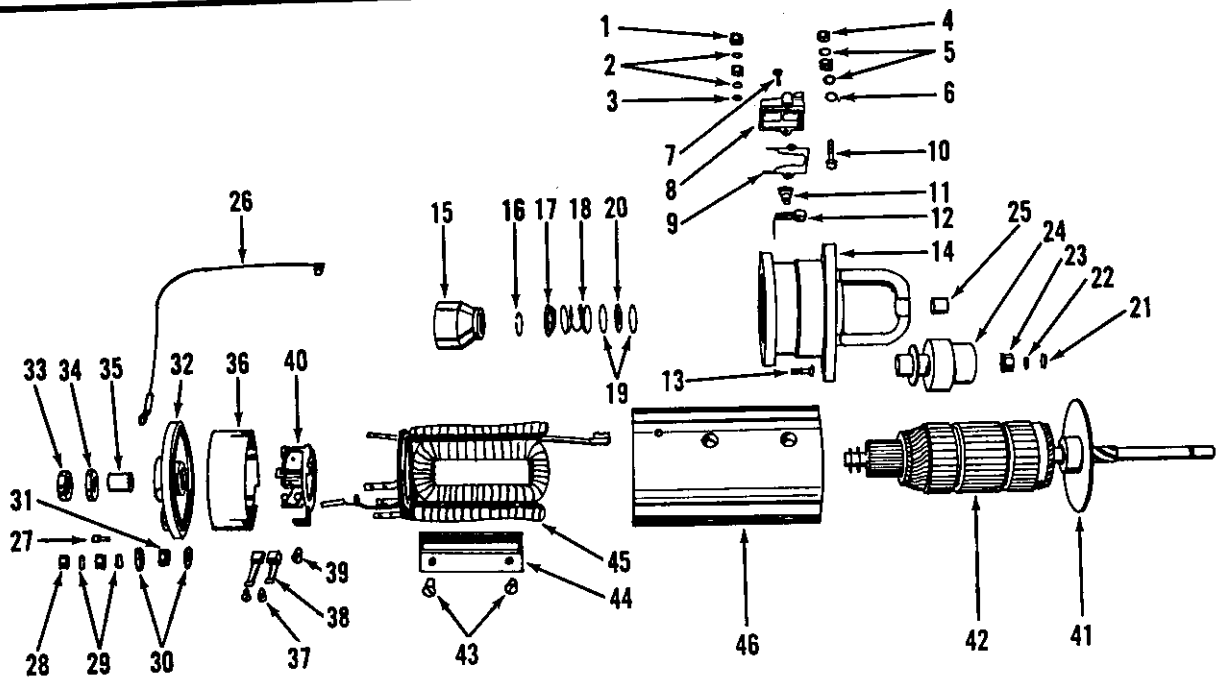
(4) Inspect bearings for scoring, pitting, or excessive wear. Replace defective bearings.

(5) Inspect brush springs for cracks, breaks, bending, or other damage. Replace damaged or defective brush springs.

(6) Use a dial indicator to check commutator for out-of-round. Out-of-round shall not exceed 0.001 inch. Turn commutator on a lathe to remove flat spots.

(7) Inspect commutator for rough spots, discoloration, scoring, pitting, and high mica. If defective, replace starter assembly.

(8) Inspect armature shaft for pitting, scoring, or excessive wear. Inspect the drive assembly for broken teeth on the pinion. Check to see that the clutch assembly moves on the shaft and that the pinion spring compresses. Slide the drive assembly on the armature



1 Nut, no. 10-32 (4 reqd)
2 Washer, lock, no. 10 (2 reqd)
3 Washer, flat, no. 10 (2 reqd)
4 Nut, 3/8-16 (3 reqd)
5 Washer, lock, 3/8 in. (3 reqd)
6 Washer, flat, 3/8 in. (2 reqd)
7 Screw, machine, no. 10-32 x 13/16 in. (2 reqd)
8 Cover
9 Gasket
10 Stud, terminal
11 Spring, retaining
12 Disc, contact
13 Screw, machine, no. 10-32 x 1 in. (3 reqd)
14 Housing, pinion
15 Moving core
16 Washer, stop
17 Sleeve
18 Spring, pinion shift
19 Washer, flat
20 Washer, thrust
21 Washer, thrust
22 Washer, lock
23 Bearing, bronze
24 Clutch
25 Bearing
26 Lead assembly
27 Screw, machine, fill. hd., no. 10-32 x 5/8 in. (4 reqd)
28 Nut, 3/8-16
29 Washer, lock, 3/8 in. (2 reqd)
30 Washer, insulating
31 Bushing, insulating
32 Head, C.E.
33 Cap, dust
34 Washer, felt
35 Bearing
36 Gasket
37 Screw, machine, rd. hd., no. 8-32 x 5/16 in. (8 reqd)
38 Brushes
39 Screw, machine, rd. hd., no. 8-32 x 3/8 in. (3 reqd)
40 Brush plate
41 Bearing, intermediate
42 Armature
43 Screw, pole shoe
44 Pole shoe
45 Coil, field
46 Frame

Figure 77. Starter, Disassembly and Reassembly

shaft to see if the splines fit properly. If damaged or defective, replace the starter assembly.

(9) Inspect all parts for cracks, breaks, or any other damage. Replace all damaged or defective parts.

c. Testing. For testing of the armature and field coils for shorts, open circuits, and grounds, refer to TM 5-764.

d. Reassembly. Reassemble the starter in reverse of the numerical sequence as illustrated on figure 77.

e. Bench Testing.

(1) No Load Test.

(a) Make no load current test setup in accordance with figure 78.

(b) No load draw shall be: 20.0 volts; 65 maximum amperes; 5000 minimum rpm.

(c) If current is too high, check the bearing alignment end play. Two or three sharp raps with a rawhide hammer while motoring will often help align the bearings and free the armature. If no difficulty is indicated proceed with stall torque test. If difficulty is indicated, inspect and repair or replace as necessary.

(2) Stall Torque Test.

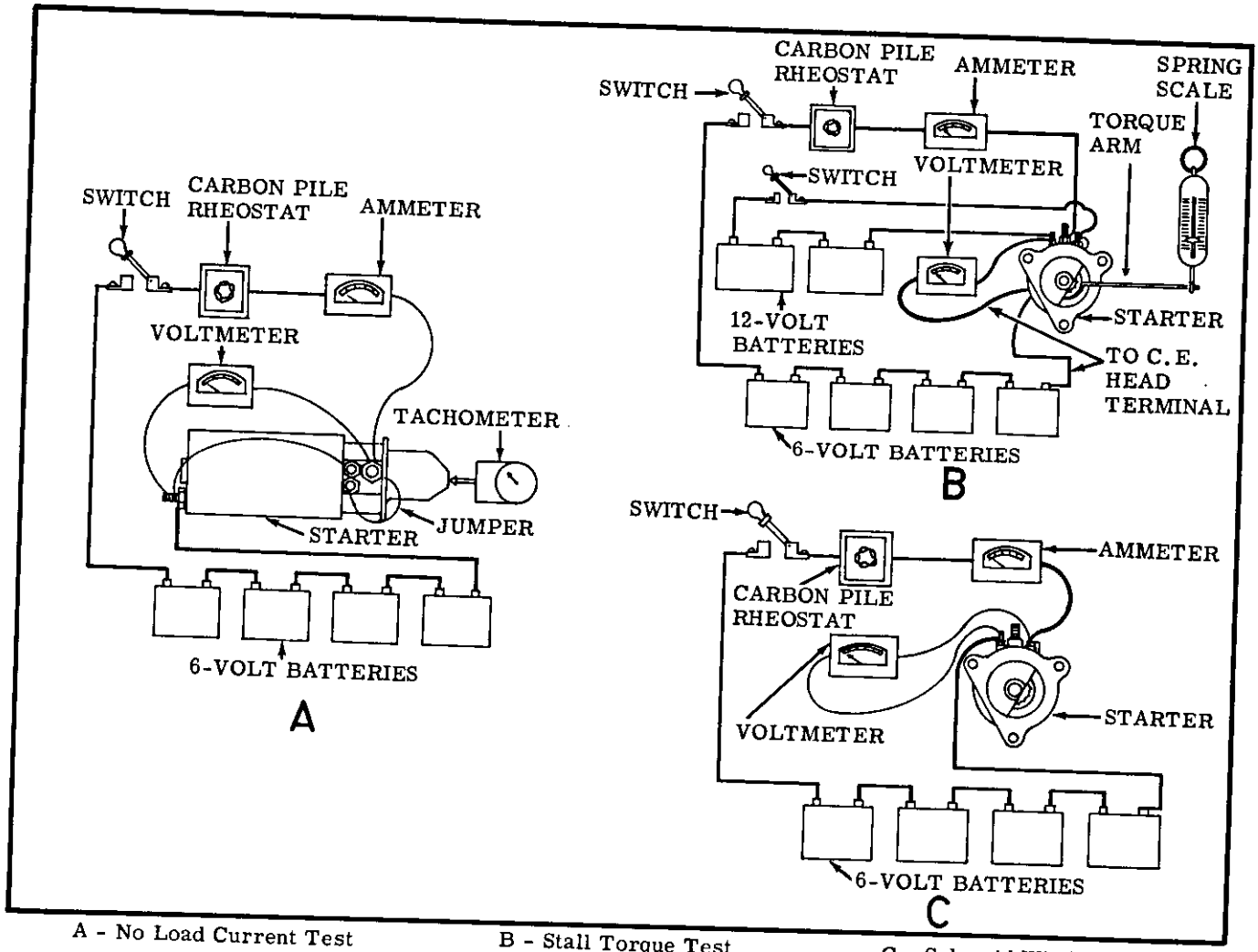
(a) Make stall torque test setup in accordance with figure 78.

(b) The solenoid winding shall be activated with a separate battery.

(c) Stall torque test valves shall be 4.0 volts; 400 maximum amperes; 22.0 minimum pounds feet.

(d) If torque is too low, check the armature, brush spring tension, contact area, and switch contacts. If torque is still low, replace the starter.

f. Installation. Refer to paragraph 96 for installation of starter on engine.



A - No Load Current Test B - Stall Torque Test C - Solenoid Winding Test

Figure 78. Starter, Bench Test

194. GENERAL

The fuel injection pump is a single cylinder, opposed plunger, inlet metering, distributor type. The fuel injection pumps function is to meter fuel accurately to each injection nozzle and to inject the fuel at high pressure into the combustion chamber at precisely timed intervals.

195. FUEL INJECTION PUMP

a. Removal and Disassembly.

(1) Refer to paragraph 92 for removal of injection pump from engine.

(2) Disassemble fuel injection pump in the numerical sequence as illustrated on figure 79.

b. Cleaning, Inspection, and Repair.

(1) Clean all parts with an approved cleaning solvent and dry thoroughly.

(2) Inspect all springs for cracks, wear, distortion or breakage. Replace as necessary. Replace all o-rings, seals, and gaskets.

(3) Inspect transfer pump blades for chipping on edges, pitting, wear on the rounded edges, and wear

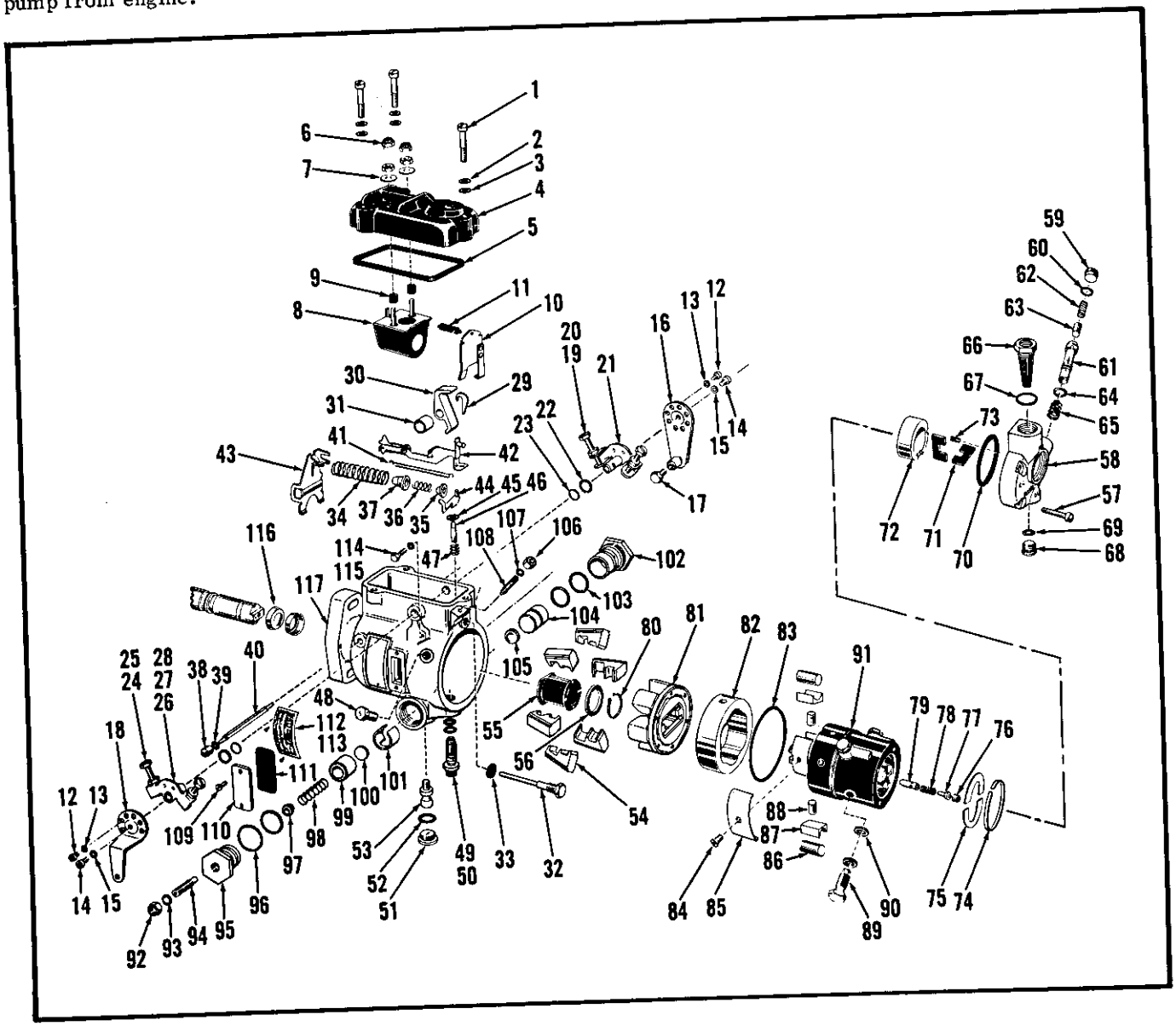


Figure 79. Fuel Injection Pump, Disassembly and Reassembly

in length. Blade length shall not be less than 1.0930 inches. Replace both blades if any discrepancies are noted.

(4) Inspect rotor plungers as follows: While holding the rotor under clean fuel oil, insert the plungers into their bore. With thumb and forefinger over the guide slots, tilt from side to side several times to insure complete freedom of movement. Interchanging or reversing their individual position may be necessary as these are matched parts. If the plungers were sticking, but not visibly damaged, clean both plungers and bore with a soft brush and lacquer-removing solvent such as lacquer thinner or acetone. Do not force plungers into their bore and do not handle rotor shank.

(5) Distributor Rotor. Examine the radii contacted by the leaf spring, the tang slot, and the weight retainer drive on the large end for excessive wear. Check all slots, charging and discharged parts for chipping of edges or dirt, and the rotor shank for scratches. If damaged or excessive wear is apparent, replace the head and rotor as a mated unit.

(6) Cam Rollers and Shoes. Check each roller in its shoe for freedom of rotation, and the top edge of the shoe, where retained by the leaf spring, for chipping or excessive wear. Replace as necessary.

(7) Leaf Spring. Check for wear at points where the spring contacts the radii on the rotor, and along the steps that retain the roller shoes. Replace damaged or worn springs as necessary.

(8) Governor Weights and Retainer. Examine drive shaft pilot tabs in retainer hub, retainer sockets where weights pivot, and pivot points of all weights for wear. Check springs for breakage or distortion. Replace all damaged parts.

(9) Governor Linkage. Inspect the pivot points of the governor control arm and pivot shaft. Examine

1 Screw (3 reqd)
2 Washer, lock (3 reqd)
3 Washer, flat (3 reqd)
4 Cover
5 Gasket
6 Nut, lock (4 reqd)
7 Washer, flat (2 reqd)
8 Frame assembly, solenoid
9 Tube, insulating (2 reqd)
10 Arm assembly
11 Spring
12 Screw (2 reqd)
13 Washer, flat (2 reqd)
14 Screw (2 reqd)
15 Washer, flat (2 reqd)
16 Arm assembly
17 Screw
18 Arm Assembly
19 Screw (2 reqd)
20 Nut, plain hex. (2 reqd)
21 Shaft assembly
22 Washer (2 reqd)
23 Seal (2 reqd)
24 Screw, low idle adj.
25 Nut, low idle adj.
26 Shaft assembly
27 Nut, high idle adj.
28 Screw, high idle adj.
29 Cam
30 Lever
31 Spacer
32 Stud
33 Washer, flat
34 Spring
35 Guide
36 Spring
37 Retainer
38 Nut, special (2 reqd)
39 Seal (2 reqd)
40 Shaft
41 Spring
42 Hook, linkage
43 Arm
44 Arm assembly
45 Shim
46 Valve
47 Spring
48 Screw
49 Screw assembly
50 Seal (2 reqd)
51 Plug
52 Seal
53 Screw, special
54 Weight (6 reqd)
55 Sleeve
56 Washer, special
57 Screw (4 reqd)
58 Plate, end
59 Plug
60 Seal
61 Sleeve
62 Spring
63 Piston
64 Seal
65 Spring
66 Cap, filter element assembly
67 Seal
68 Plug
69 Seal
70 Seal
71 Blade (2 reqd)
72 Liner
73 Rollpin
74 Retainer
75 Retainer (2 reqd)
76 Screw
77 Stop
78 Spring
79 Valve
80 Retainer
81 Retainer assembly
82 Cam ring
83 Seal
84 Screw
85 Spring, leaf
86 Roller, cam (2 reqd)
87 Shoe (2 reqd)
88 Plunger (2 reqd)
89 Screw, special (4 reqd)
90 Washer, flat (8 reqd)
91 Head and rotor
92 Nut, plain hex.
93 Seal
94 Screw, adjusting
95 Plug
96 Seal (2 reqd)
97 Guide
98 Spring
99 Piston
100 Washer, special
101 Retainer
102 Plug
103 Seal (2 reqd)
104 Piston
105 Washer, special
106 Nut, plain hex.
107 Seal
108 Screw, adjusting
109 Screw (4 reqd)
110 Cover (2 reqd)
111 Gasket (2 reqd)
112 Screw (2 reqd)
113 Plate, name
114 Screw
115 Washer, flat
116 Seal (2 reqd)
117 Housing assembly

Figure 79. - Continued.

the control fork where it contacts the thrust sleeve. If wear exceeds 0.003 inch, replace thrust sleeve. Examine the metering valve pin hole in the linkage hook, spring retainer, throttle shaft lever, shut-off cam, and especially the throttle and shut-off shaft assemblies where joined, for looseness. Replace all defective parts.

(10) Metering Valve and Arm Assembly. Check the metering valve body for wear. Be sure metering valve arm is well seated and that there is no radial movement of the arm on the valve. Check metering valve spring for breakage or distortion, and the metering valve arm pin for wear at its point of contact with the linkage hook. Replace all defective parts.

(11) Cam. Inspect inside diameter and edges of all flat surfaces. If there is evidence of spalling or flaking out, replace the cam.

(12) Inspect the tang of the drive shaft, being sure that distance across flats is not less than 0.305 inch. Check shaft diameter where governor thrust sleeve slides. Replace a damaged drive shaft.

(13) End Plate. Check the regulating piston for freedom of movement in the sleeve. Check all threads for damage and the face of the end plate for excessive wear due to thrust of the transfer pump rotor. Inspect inlet screen for damage. Do not attempt to remove liner locating pin unless obviously damaged. Replace all defective parts.

(14) Inspect all parts for cracks, breaks, excessive wear, distortion, or any other damage. Replace all defective parts.

c. Reassembly. Reassemble the fuel injection pump in reverse of the numerical sequence as illustrated on figure 79.

Note

Torque injection pump fasteners as illustrated on figure 80.

d. Testing.

(1) All tests must be conducted using heated calibrating oil (110°-115°F), and 12SD12 nozzles set to open at 2500 pounds per square inch. Change oil as often as excessive foam is noted.

(2) Mount the pump securely with appropriate adapter to commercial test bench such as American Bosch TSE 7664, TSE 4600, or equivalent.

(3) If pump employs a bronze pilot tube, the shaft supplied with the pump must be removed and the pump mounted on the test stand using the shaft provided by the test stand manufacturer. (No support bearing is required.) Pumps employing steel pilot tubes do not support the shaft in the housing and must be tested using an intermediate support bearing. Check intermediate coupling disc for freedom of movement. Connect supply and return fuel lines securely. Install high pressure injection lines using new copper gaskets. Leave fuel line connector screws at pump, and injection line nuts and nozzles loose.

(4) Determine proper direction of rotation from pump name plate ("C"-clockwise, "CC"-counterclockwise). Rotation is determined as viewed from drive end of pump.

(5) Start test stand at lowest speed. Move throttle to "full load" position. When transfer pump picks up suction, allow fuel to bleed for several seconds from loosened connector screws. Allow fuel to bleed from loosened injection line nuts; then, tighten securely.

(6) Operate pump at full load rated speed of 1800 rpm for several minutes. Dry off completely with solvent and compressed air. Observe for leaks and correct as necessary.

(7) Close supply line valve. Transfer pump must pull at least 18" HG. If it does not, check for air leaks on suction side or malfunction of end-plate and transfer pump parts.

(8) Fill graduates to bleed air from test stand to wet glass.

(9) Observe return oil. Return should be at rate of 100-450 CC/Min. @ 35 psi transfer pump pressure.

(10) Operate test stand at full load speed of 1800 rpm. Set counter for 1000 revolutions. Divert fuel to graduates. Record reading. Difference between cylinders should not exceed 5%. Record transfer pump pressure.

(11) Check and record full load fuel delivery and transfer pump pressure. Delivery shall be 43.5 to 46.5 #/hr. at 1800 rpm; transfer pump pressure 56-61 psi.

(12) While operating at full load governed speed, set torque screw to specified delivery.

(13) Check electrical shut-off at low idle of 600 rpm, full load of 1800 rpm, and high idle of 1920 rpm.

(14) Adjust test stand to high idle of 1920 rpm and adjust high idle screw.

(15) Set low idle at 600 rpm.

(16) Check speed responsive automatic advance cam movement and reset, if necessary. Advance movement is 3° (1° advance to 4° advance). Cam movement start - 800 to 1000 rpm; finish 1550 to 1750 rpm.

Note

Advance must not move at 700 rpm.

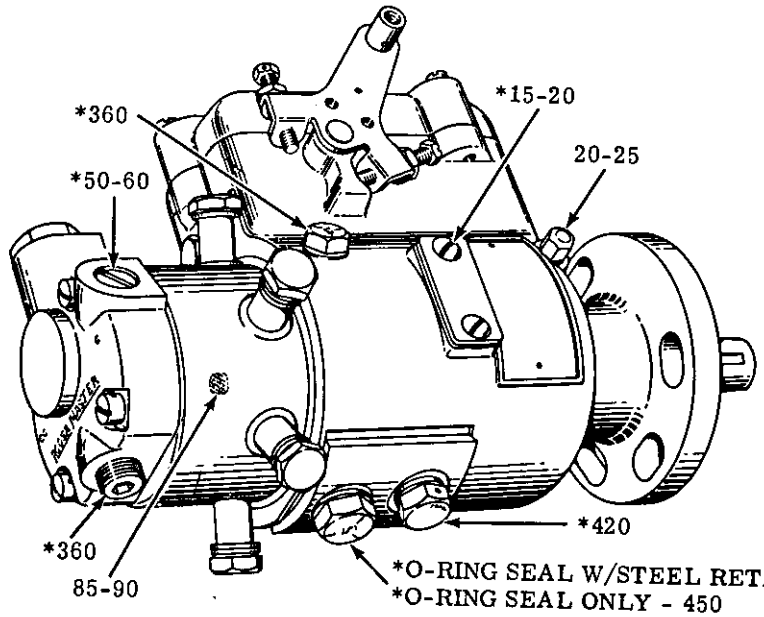
(17) Assemble all sealing wires. Pump is now ready for installation to engine.

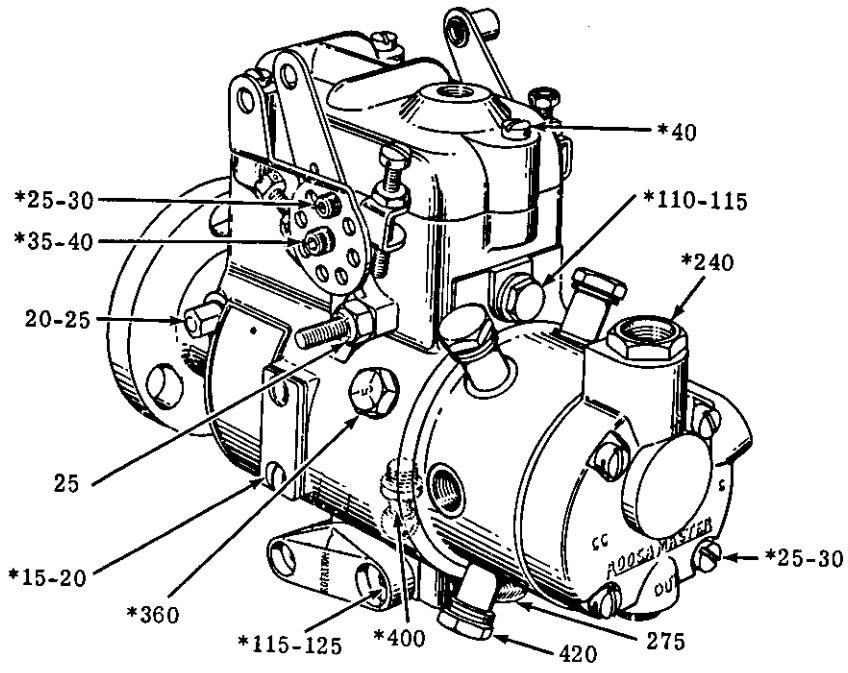
Note

Wire throttle lever to "full fuel" position for shipment or until installed on engine.

e. Installation. Refer to paragraph 92 for installation of fuel injection pump on engine.

NOTE: ALL VALUES IN INCH/POUNDS





*1. Cadmium plated screws (silver colored) tightened against blackened or aluminum parts should have this torque specification derated 30% because of reduced friction between plated parts.

2. Cadmium plated screws (silver colored) tightened against cadmium plated parts should have this torque specification derated 40% because of reduced friction between plated parts.

Figure 80. Fuel Injection Pump Fasteners, Torque Settings

196. GENERAL

The radiator assembly is mounted in front of the engine and is bolted to the housing side panels. It consists of an upper tank, lower tank, side members, and finned core assembly. These are soldered together to provide a rigid, leak-resistant assembly. The compressor oil cooler is mounted in front of the radiator and is also bolted to the housing side panels. The oil cooler consists of a bottom tank, side members, and finned tube core assembly. These are soldered together to provide a rigid, leak-resistant assembly. The water pump is mounted on the front, center of the engine block. The water pump is the impeller type with permanently sealed bearings. The pump is driven by the fan belts from the crankshaft pulley.

197. RADIATOR

a. Removal. Refer to paragraph 102 for radiator removal.

b. Cleaning, Inspection, and Repair.

(1) Clean dirt and foreign matter from the radiator core by using compressed air directed at the front of the radiator.

(2) With inlet and outlet plugged, and radiator filled, inspect radiator core for leaks. A deposit of scale at a connection or on the core indicates a leak.

(3) Solder or braze leaks in the core or tanks. If the radiator is beyond repair, replace with new assembly.

(4) Straighten bent core fins.

c. Testing.

(1) If a leak in the radiator cannot be located, plug all outlets except the overflow opening.

(2) Apply an air hose connected to a low pressure, 3 to 5 pound, air source and connect the hose to the overflow opening.

(3) Submerge the radiator in a tank of water. Apply the air pressure and observe for leaks. Leaks will be indicated by air bubbling up through the water. Mark the leak and repair or replace radiator as necessary.

d. Installation. Refer to paragraph 102 for radiator installation.

198. OIL COOLER

a. Removal. Refer to paragraph 112 for compressor oil cooler removal.

b. Cleaning, Inspection, and Repair.

(1) Clean the oil cooler with an approved cleaning solvent and dry thoroughly.

(2) Inspect the oil cooler for leaks and core distortion. Straighten bent fins.

(3) Inspect the oil cooler for cracked or broken line connections, condition of threads, or other damage. Repair or replace oil cooler as necessary.

c. Testing. Plug the outlet connection and fill the oil cooler with oil. Apply air pressure of from 4 to 10 pounds to the inlet connection and observe for leaks. If leaks are observed repair or replace the oil cooler as necessary.

d. Installation. Refer to paragraph 112 for oil cooler installation.

199. WATER PUMP

a. Removal and Disassembly.

(1) Refer to paragraph 105 for water pump removal from engine.

(2) Disassemble water pump in the numerical sequence as illustrated on figure 81.

b. Cleaning, Inspection, and Repair.

(1) Clean all metal parts with an approved cleaning solvent and dry thoroughly.

(2) Remove all gasket residue.

(3) Inspect the pump body for cracks, breaks, warpage, or other damage. Replace as necessary.

(4) Inspect impeller for cracks, corrosion, and chipped or broken blades. Replace a damaged impeller.

(5) Inspect shaft and bearing assembly for cracks, scoring, freedom of bearings, and any other damage. Replace assembly as necessary.

(6) Inspect bushing for wear, cracks, breakage, or any other damage. Replace as necessary.

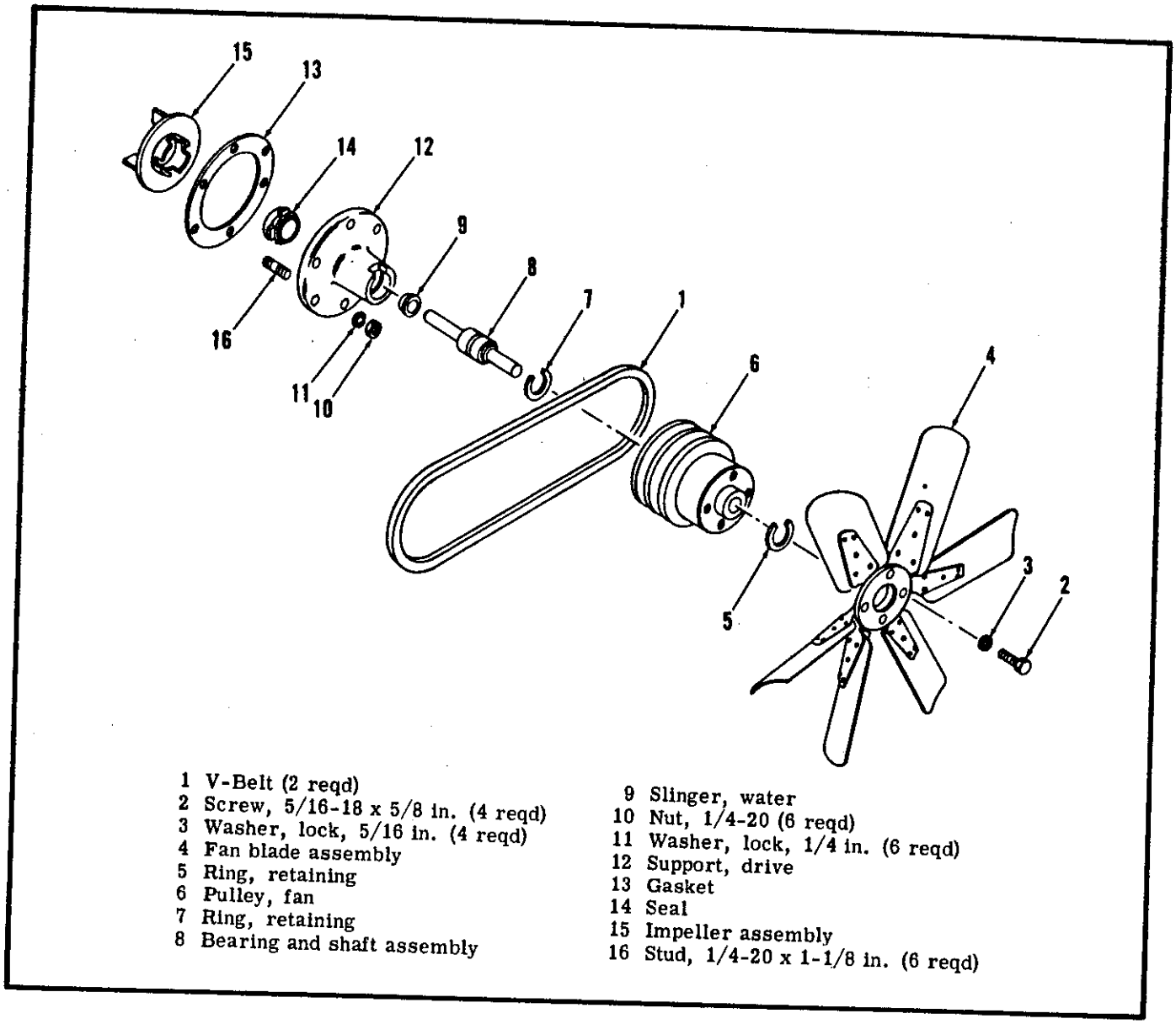
(7) Inspect seal assembly for wear and defective condition. Replace as necessary.

(8) Inspect mounting hardware for damage. Replace as necessary.

c. Reassembly and Installation.

(1) Reassemble the water pump in the reverse of numerical sequence as illustrated on figure 81.

(2) Refer to paragraph 105 for water pump installation on engine.



1 V-Belt (2 reqd)
2 Screw, 5/16-18 x 5/8 in. (4 reqd)
3 Washer, lock, 5/16 in. (4 reqd)
4 Fan blade assembly
5 Ring, retaining
6 Pulley, fan
7 Ring, retaining
8 Bearing and shaft assembly
9 Slinger, water
10 Nut, 1/4-20 (6 reqd)
11 Washer, lock, 1/4 in. (6 reqd)
12 Support, drive
13 Gasket
14 Seal
15 Impeller assembly
16 Stud, 1/4-20 x 1-1/8 in. (6 reqd)

Figure 81. Water Pump and Fan Assembly, Disassembly and Reassembly

200. GENERAL

The engine cylinder head assembly contains the complete combustion chamber including valves, valve guides, valve seats, fuel injector nozzles, rocker arm shaft assembly, energy cells, and cored passages for air, exhaust, and water flow.

201. CYLINDER HEAD REMOVAL AND DISASSEMBLY

a. Removal.

(1) Remove cylinder head cover (para 116).

(2) Remove thermostat and housing (para 104).

(3) Remove intake and exhaust manifold (para 115).

(4) Remove the rocker arm shaft assembly and push rods. Grip the push rods and snap them sideways out of the tappet sockets. This method serves to break the hydraulic connection and permits lifting the push rods out and leaving the tappets in place. (If tappets are lifted out of the guides, they will have to be reassembled through the openings in the block if only the cylinder head is removed for servicing.) Refer to figure 82.

(5) Disconnect the injection and leak-off lines at both the nozzle and injection pump connections and immediately cap the fittings to prevent dirt from entering.

(6) Loosen and remove the nuts and washers holding the cylinder head to the block.

(7) Lift cylinder head assembly off the engine and place on a clean bench for further disassembly.

b. Disassembly.

(1) Remove all carbon from combustion areas using a scraper and wire brush.

(2) Remove valve spring retainer lock, retainers, and springs using a "C" type valve spring compressor, or equivalent. Place all parts in a container of an approved solvent.

(3) Remove the valves in order and place them in a rack with holes numbered for both intake and exhaust so they will not be mixed in handling.

(4) Clean the cylinder head thoroughly with an approved solvent and dry thoroughly with compressed air. Inspect for cracks.

(5) Remove hex-head plug holding the energy cell retainer against the cap and the energy cell firmly against the seat; remove the cap.

(6) Remove the injection nozzle assemblies by removing the slotted nuts and clamps and pull the nozzle holder assemblies as follows:

(a) Remove No. 1 nozzle holder assembly first. Remove the nuts from the leak-off fitting on No. 1 and No. 2 nozzles. Rotate the No. 1 nozzle clockwise and remove the leak-off tube. Remove the nozzle assembly from cylinder head.

CAUTION

Do not strike nozzle tips against hard surfaces or damage will result.

(b) Remove remaining nozzle in the same manner.

(7) Pull the energy cell with a tool equal to that illustrated on figure 82.

Note

Should difficulty be experienced in pulling the energy cell due to being firmly embedded in the counterbore and held there by carbon, use a brass drift with a spherical head inserted through the nozzle opening and give it a sharp rap with a hammer while tension is applied with the puller. Never use a steel or similar metal drift or one without a spherical nose as damage will result to the conical entrance of the metered opening.

202. VALVE GUIDES

a. Removal and Installation.

(1) Clean the valve stem guides, removing lacquer or other deposits by running a valve guide cleaner or wire brush through the guides.

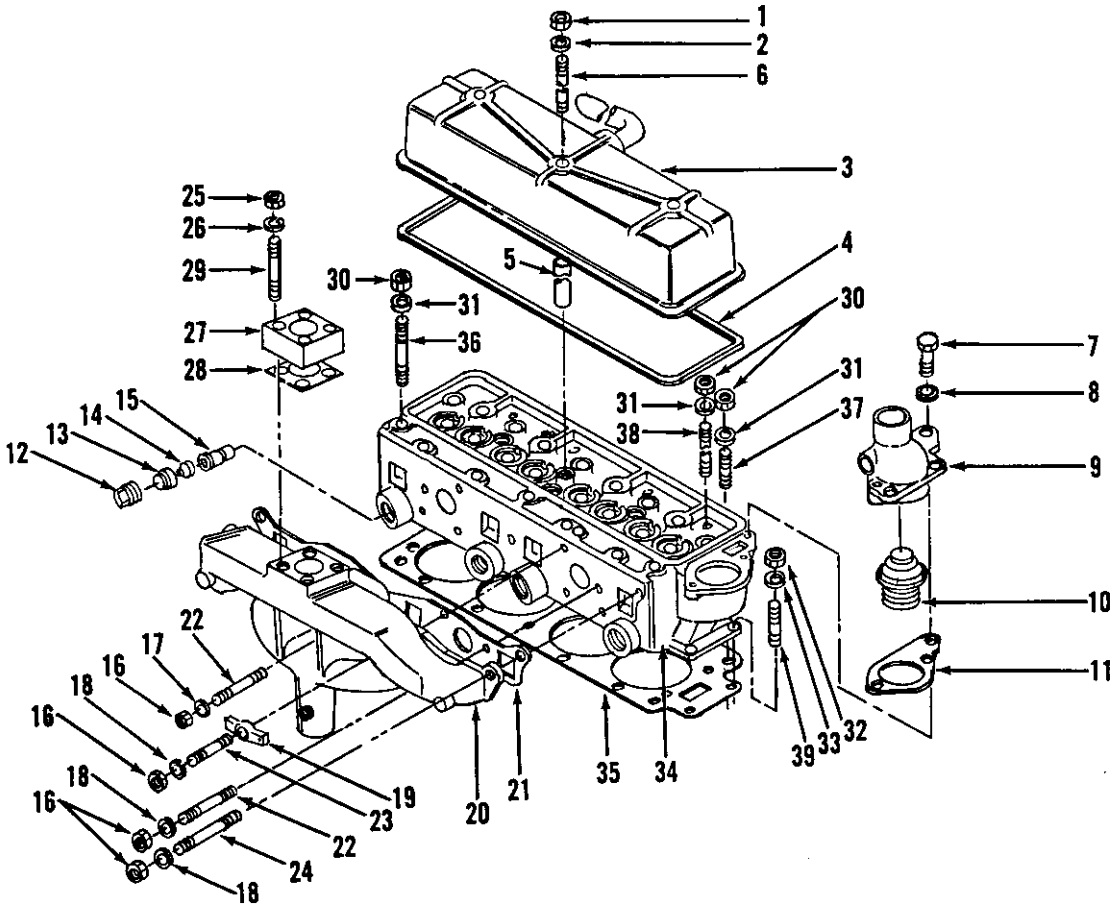
(2) Check guides for wear by using "Go and No-Go" plug gage or a telescope gage and 1 inch micrometer. Replace all guides that are worn bellmouthed and have increased 0.0015 in diameter. See Table IV for maximum permissible diameter.

(3) Remove all valve guides when necessary by pressing them out from the combustion chamber side. Refer to figure 83.

(4) Replace worn guides as required by pressing in new guides from the combustion side to the correct depth as follows:

(a) Intake Valve Guide-Distance from cylinder head contact face to guide - 2-25/32 in.

(b) Exhaust Valve Outside-Distance from cylinder head contact face to guide - 3-1/8 in.

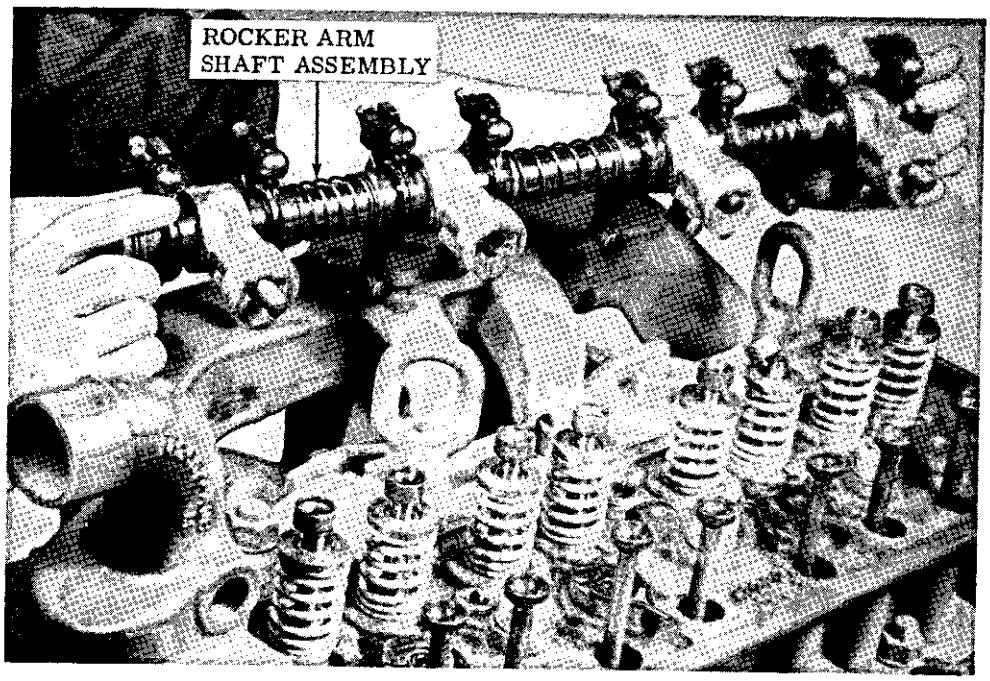


1 Nut, 3/8-16 (3 reqd)
2 Gasket, copper asbestos (3 reqd)
3 Cover, cylinder head
4 Gasket, cover
5 Spacer
6 Stud, 3/8-16 x 5-1/2 in.
7 Screw, 3/8-16 x 1-3/4 in. (3 reqd)
8 Washer, lock, 3/8 in. (3 reqd)
9 Elbow, water outlet
10 Thermostat
11 Gasket
12 Plug, energy cell retainer (4 reqd)
13 Retainer, energy cell (4 reqd)
14 Cap, energy cell (4 reqd)
15 Body assembly, energy cell (4 reqd)
16 Nut, 3/8-16 (11 reqd)
17 Washer, 3/8 x 1/4 in. (2 reqd)
18 Washer, plain, 3/8 in. (5 reqd)
19 Crab, manifold
20 Manifold, intake and exhaust
21 Gasket, manifold
22 Stud, 3/8-16 x 1-7/8 in. (5 reqd)
23 Stud, 3/8-16 x 2-1/4 in. (4 reqd)
24 Stud, 3/8-16 x 2 in. (2 reqd)
25 Nut, 1/2-13 (4 reqd)
26 Washer, plain, 1/2 in. (4 reqd)
27 Flange, exhaust
28 Gasket
29 Stud, 1/2-13 x 1-3/4 in. (4 reqd)
30 Nut, 9/16-18 (16 reqd)
31 Washer, plain, 9/16 in. (17 reqd)
32 Nut, 3/8-16 (2 reqd)
33 Washer, lock, 3/8 in. (2 reqd)
34 Cylinder head assembly
35 Gasket, cylinder head
36 Stud, 9/16-18 x 7-1/8 in. (6 reqd)
37 Stud, 9/16-18 x 6-13/16 in. (2 reqd)
38 Stud, 9/16-18 x 7-1/8 in. (4 reqd)
39 Stud, 3/8-16 x 1-11/16 in. (2 reqd)

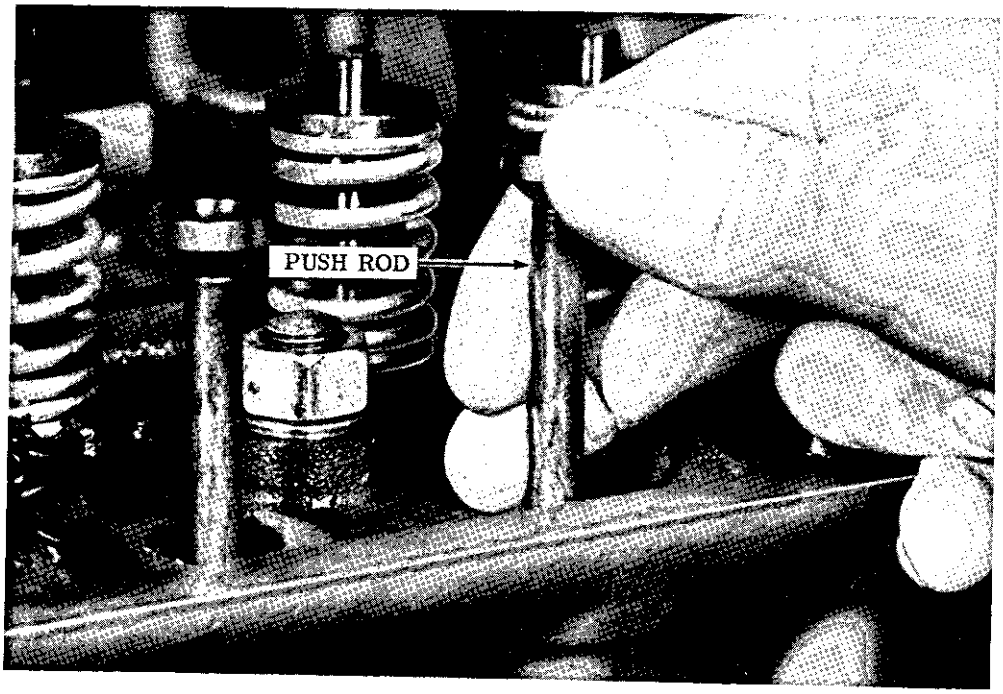
A

A - Cylinder Head Assembly, Exploded View

Figure 82. Cylinder Head Assembly, Removal, Disassembly, Reassembly, and Installation



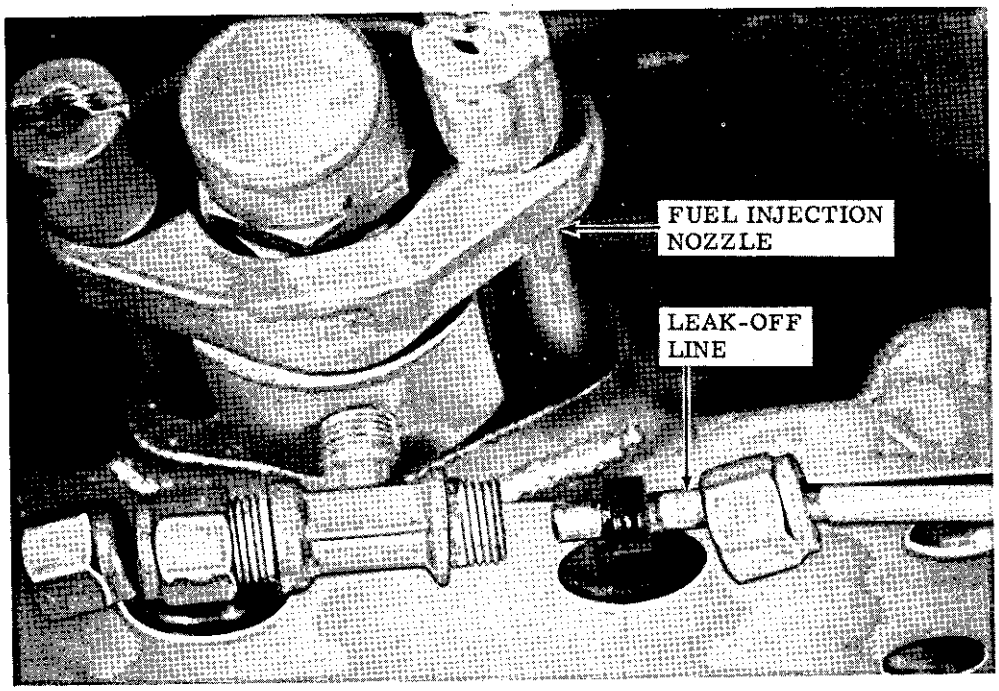
B



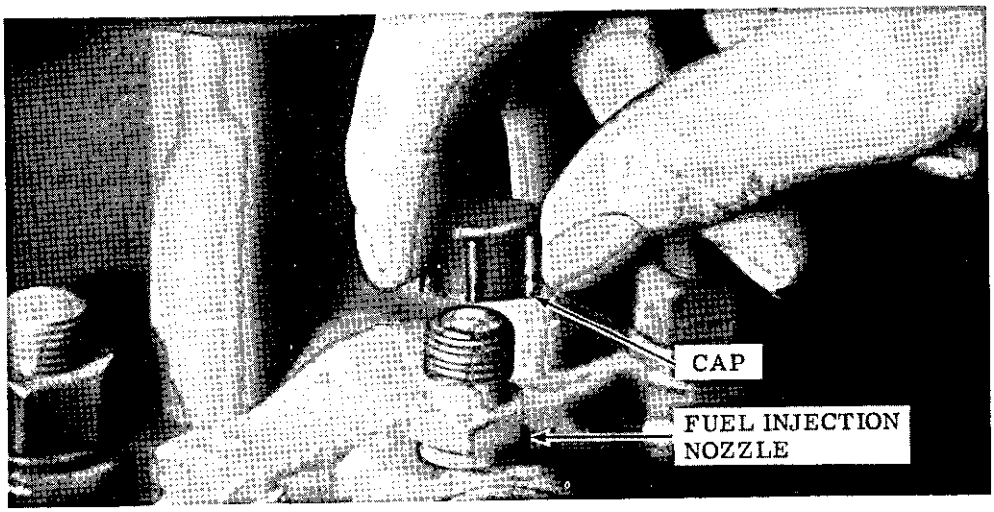
C

B - Removing Rocker Arm Shaft Assembly C - Snapping Push Rod Out of Ball Socket

Figure 82. - Continued.



D

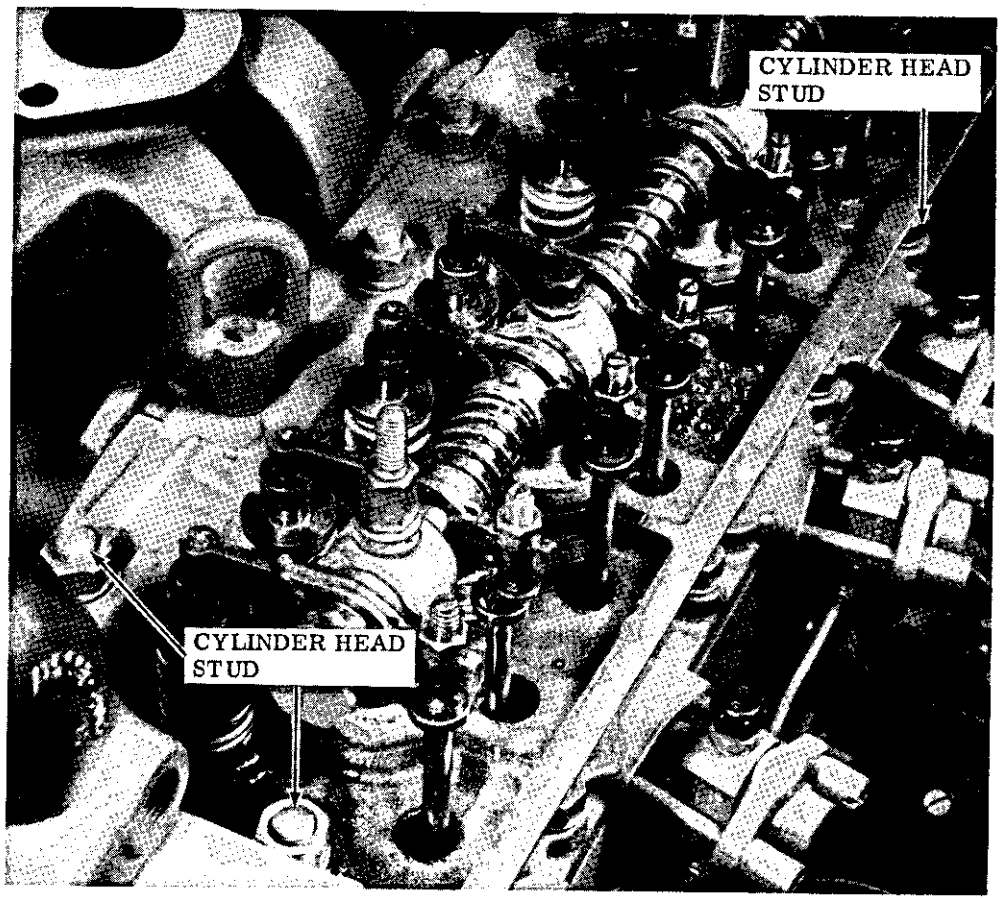


E

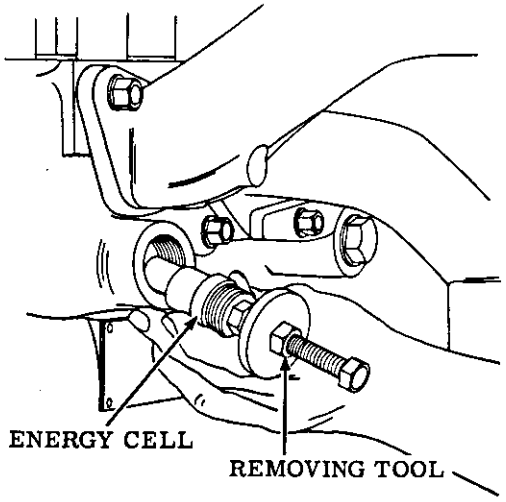
D - Disconnecting Nozzle Leak-Off Lines

E - Capping Nozzle Connections

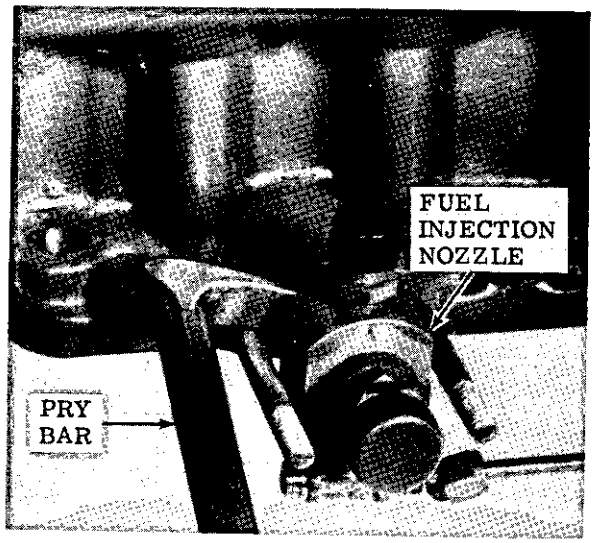
Figure 82. - Continued.



F



G



H

F - Cylinder Head Showing Studs G - Pulling Energy Cell H - Removing Injection Nozzles

Figure 82. - Continued.

(5) Ream new valve stem guides to size given in Table IV, using a straight reamer ground to correct size and having a pilot which will properly locate it and keep it from wandering from the original reamed hole.

203. VALVE SEAT INSERTS

a. Inspection and Repair.

(1) The exhaust valve seat insert is held in place by a shrink fit. Inspect all exhaust valve inserts in the head and replace any that are loose, cracked, or otherwise damaged. Use a puller for removing inserts. Refer to figure 83.

(2) When required to replace with new insert, clean the head and counterbore for 0.010 inch larger insert using counterbore tool with correct fitting pilot. Press in oversized inserts.

204. VALVES

a. Inspection and Repair.

(1) Inspect valves for condition and replace any that are "necked", cracked, or burned, also any on which valve stems are bent or worn more than 0.002 inch. Reface or replace all valves.

(2) All valves having less than 50% margin thickness (outer edge of valve head) after refacing, shall be replaced. To check this dimension, compare the refaced valve with a new valve.

(3) Check all refaced or new valves in V-blocks with indicator to determine if the contact face is true with the stem within 0.002 inch. If not, repeat the refacing operation.

(4) Grind the intake and exhaust valve seats in the head and before removing the arbor, indicate the seat. Total indicator reading shall not be more than 0.002 inch.

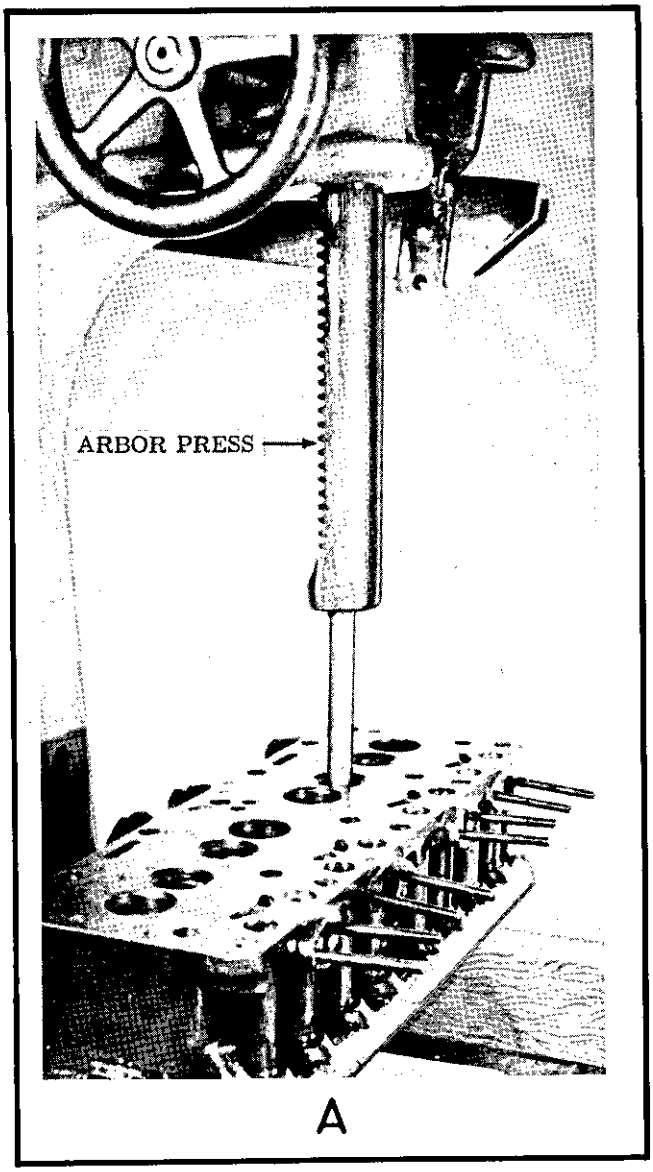
(5) After valves and seats have been refaced and reground, coat the seat lightly with Prussion blue and drop the valve into position, oscillating it slightly to transfer the blue pattern to the valve face. This should show a contact width of 1/16 to 3/32 inch and should fall well within the width of the valve face, leaving at least 1/64 inch on either side where the blue does not show.

(6) Coat the valve stem with a light film of engine oil.

205. VALVE SPRINGS

a. Inspection and Repair.

(1) Check all valve springs on a spring tester to make certain they meet specifications regarding weight and length. Springs, when compressed to "valve open" length of 1.521 inches must not show load of less than 103 pounds. When compressed to "valve closed" length of 1.875 inches, load must not be less than 52 pounds.



A - Removing Valve Guides From Combustion Chamber Side of Cylinder Head.

Figure 83. Valve Guides and Valve Seats, Removal and Installation

(2) Replace all defective valve springs, valve spring retainers, and valve spring retainer locks.

206. ENERGY CELLS

a. Cleaning, Inspection, and Repair.

(1) Clean all carbon and any other deposit from the energy cell counterbore with an approved solvent. Be careful not to damage the large diameter angular seat on which the energy cell body makes contact.

(2) Clean the energy cell body exterior as you would any exhaust or intake valve on the outside. Clean

the inside chambers and passages using a small scraper to restore it as nearly as possible to new condition.

(3) Inspect for cracks, breaks, scratches, or any other damage. Replace defective parts.

(4) Lap the cap to the body with valve grinding compound so that it makes an air tight seat.

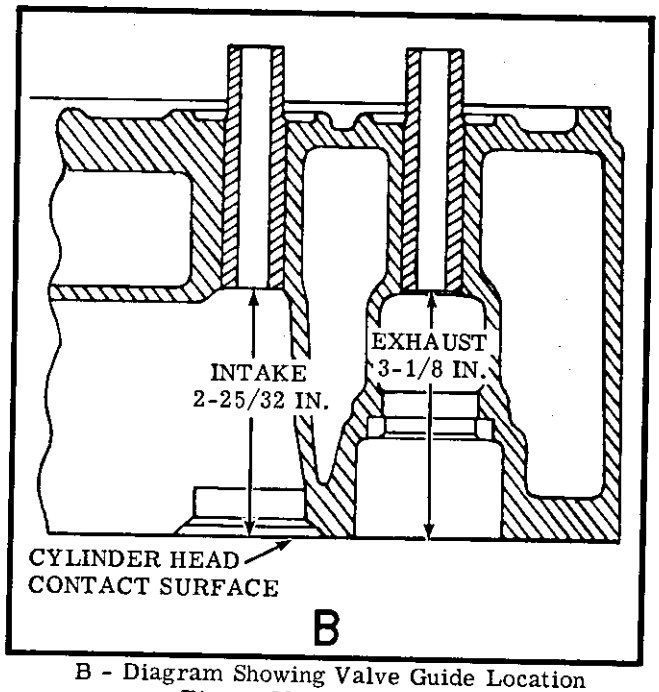
(5) Lap the energy cell body into the cylinder head with valve grinding compound in the same manner as lapping a valve in valve seat.

207. INJECTION NOZZLES

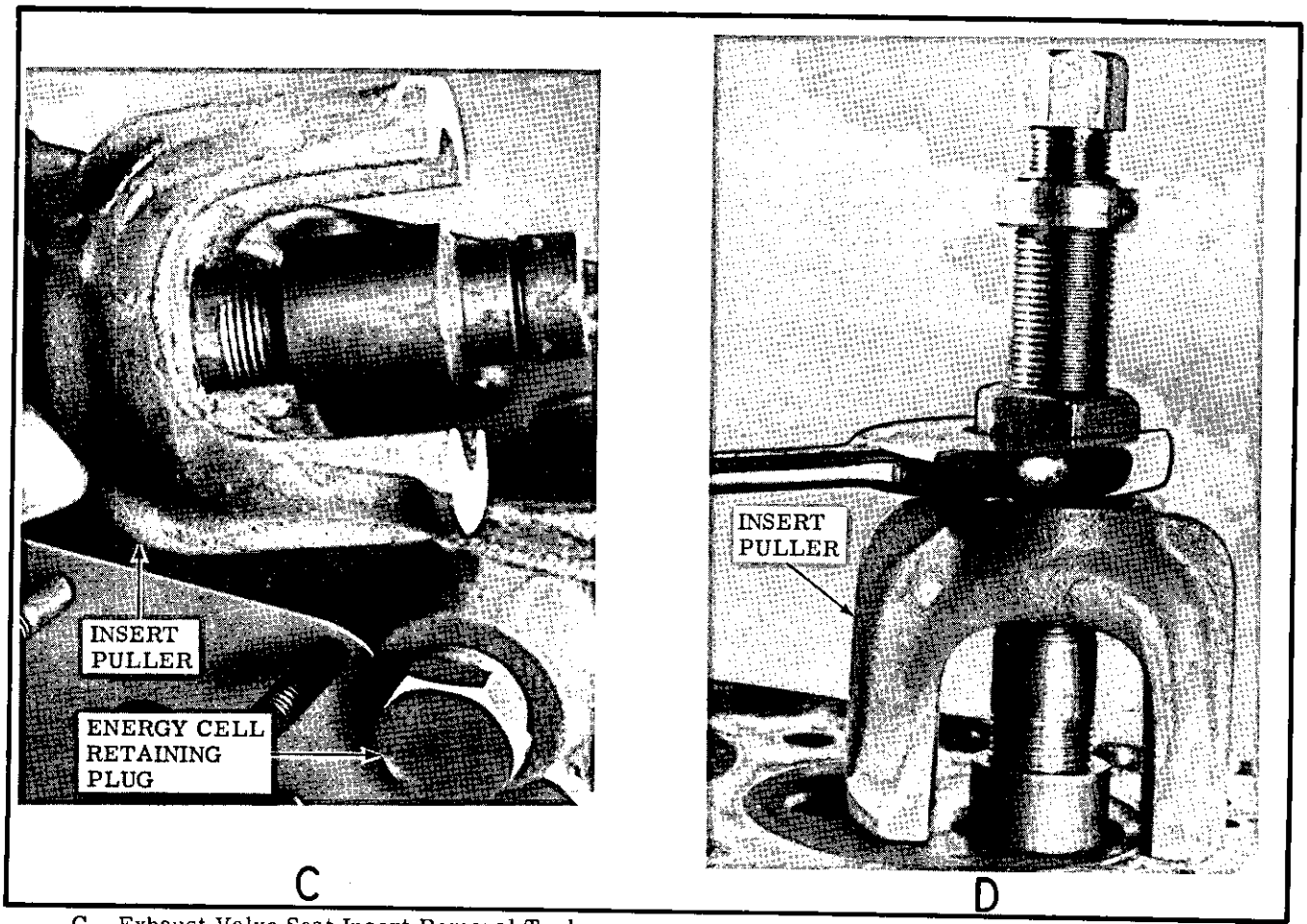
a. Disassembly.

(1) Clamp nozzle holder body in a soft-jawed vise, remove nozzle cap nut and remove nozzle assembly.

(2) Remove nozzle valve from nozzle body. If valve cannot be pulled from body with the fingers, heat in water or soak in solvent until it can be easily removed. Refer to figure 84.



B - Diagram Showing Valve Guide Location
Figure 83. - Continued.



C - Exhaust Valve Seat Insert Removal Tool

D - Exhaust Valve Seat Insert Removal

Figure 83. - Continued.

CAUTION

Do not permit the polished nozzle surfaces to contact any hard substance.

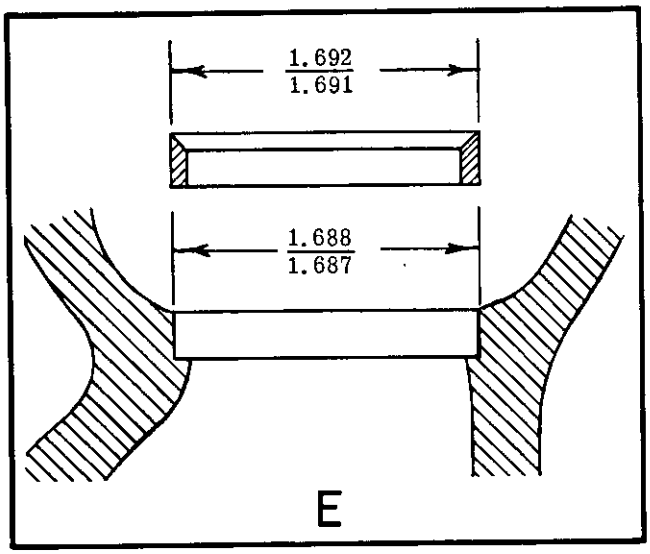
(3) Remove spring and spindle from nozzle holder body. Refer to figure 84.

b. Cleaning, Inspection, and Repair.

(1) Clean the nozzle valve with mutton tallow used on a soft cloth or felt pad or an approved solvent. Hard or sharp tools, emery cloth, crocus cloth, or abrasives of any kind shall not be used.

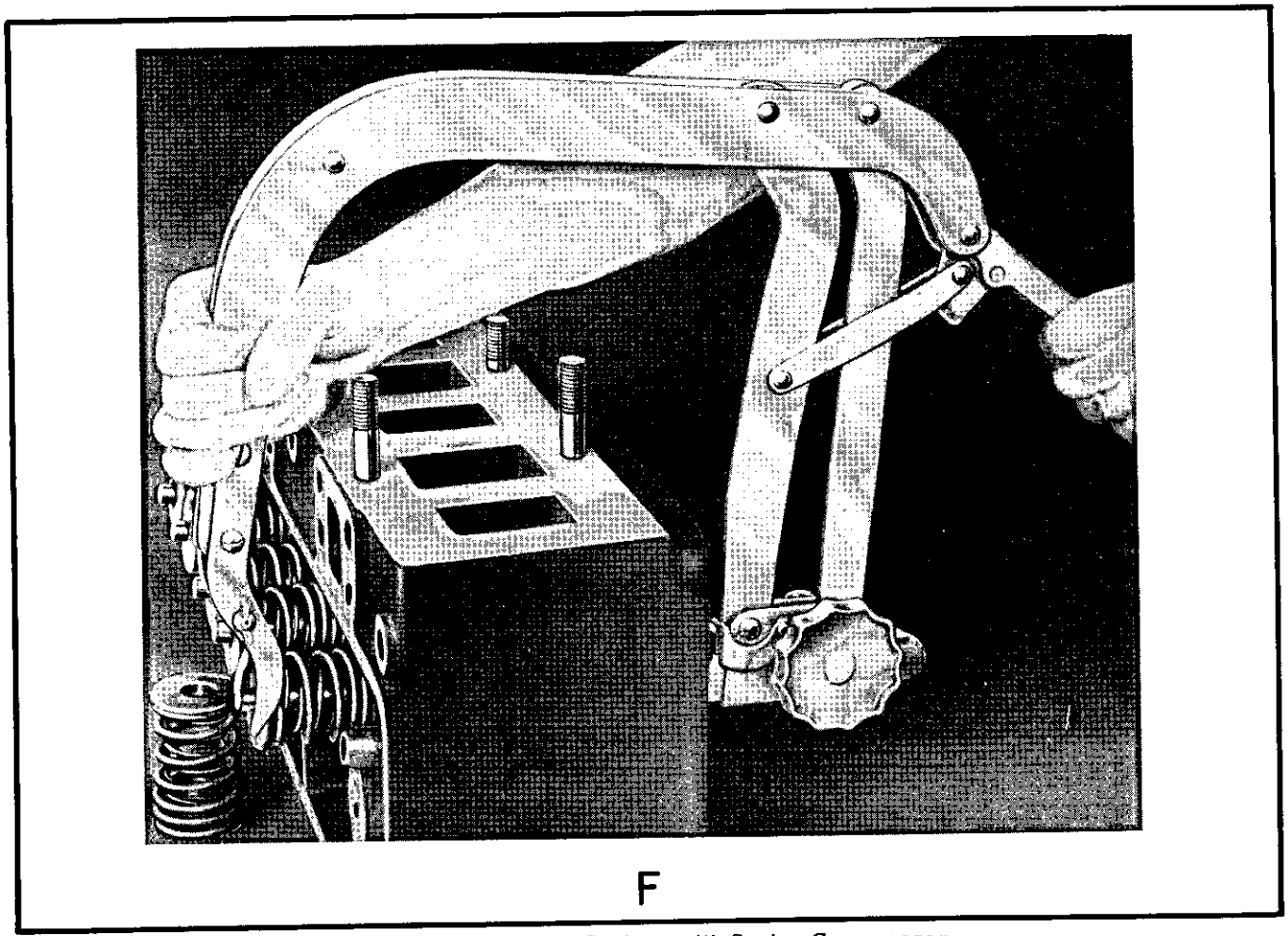
(2) Clean inside of nozzle body with smallbrass scraper or soft wood, soaked in oil, with a point corresponding to the nozzle valve seat angle. Clean the nozzles with a wood splinter. (Figure 84.)

(3) Clean outer surfaces (except area which contacts the holder) of the nozzle body with a fine brass wire brush. Do not use any hard tool to scrape carbon from area around orifice.

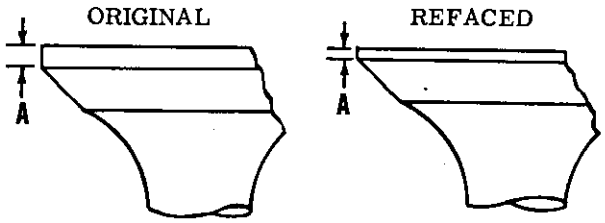


E - Insert and Counterbore
Figure 83. - Continued.

(4) Clean lapped surface of the nozzle body on a lapping plate as follows:

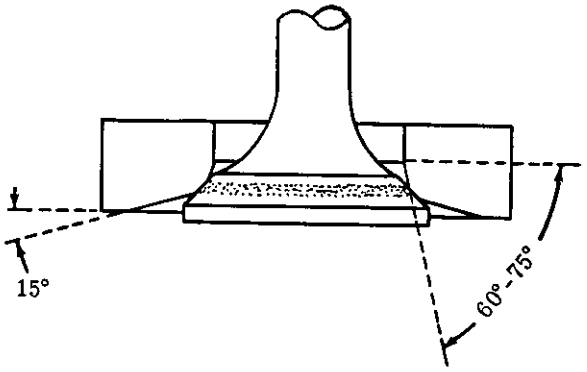


F - Removing Valve Springs with Spring Compressor
Figure 83. - Continued.

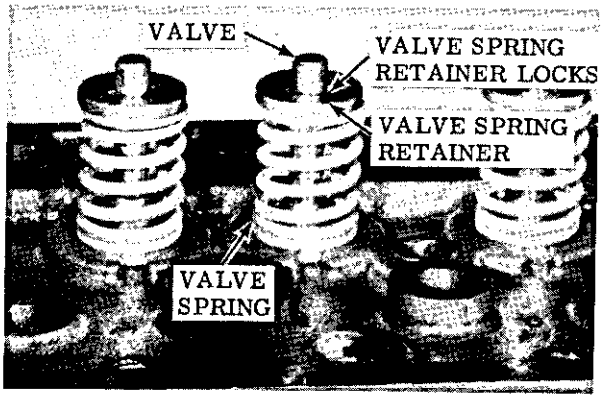


IF AREA "A" IS LESS THAN 50% OF ORIGINAL, DISCARD VALVE.

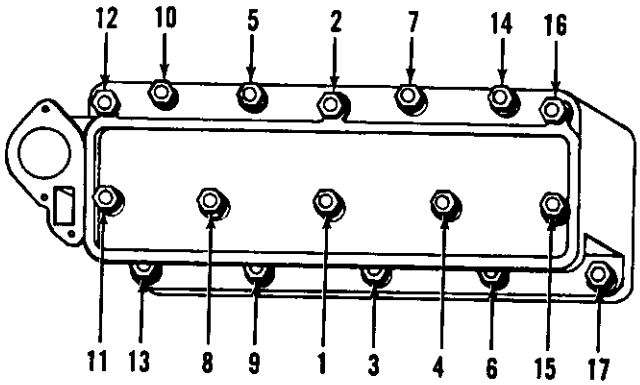
G - Allowable head thickness of refaced valves.



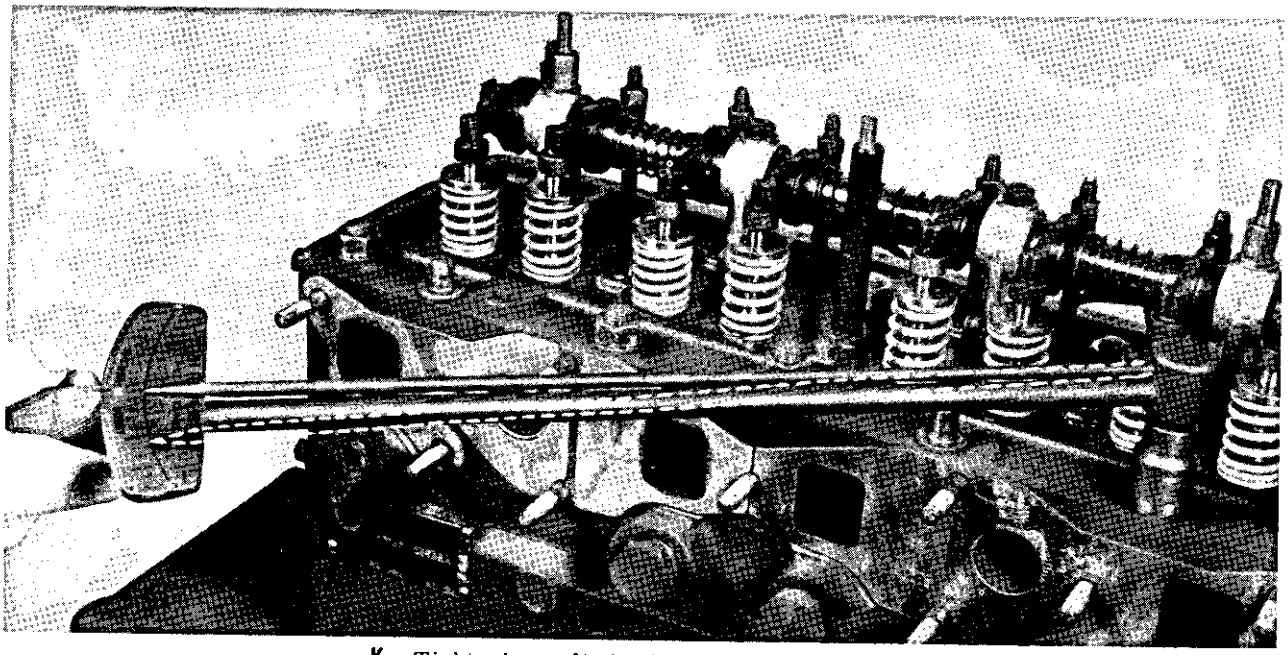
H - Method of narrowing valve seats.



I - Valve assembly (note close wound coils of springs contact head).

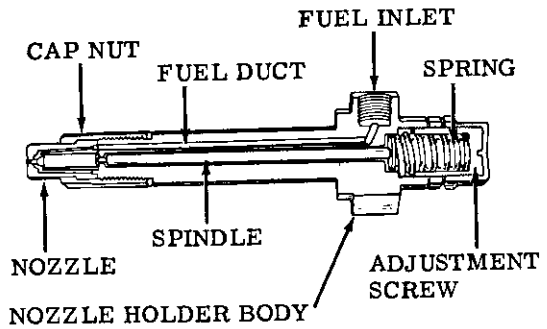


J - Cylinder head tightening sequence.

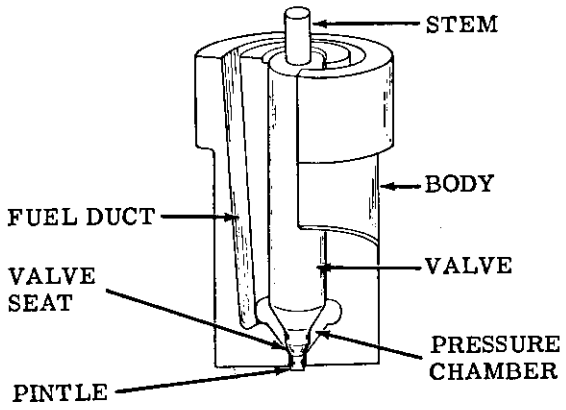


K - Tightening cylinder head studs with torque wrench.

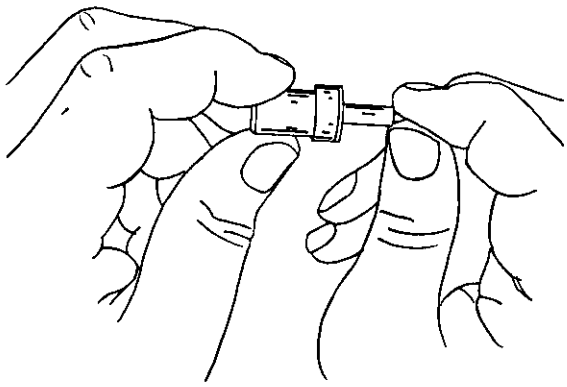
G - Allowable Head Thickness of Refaced Valves through K - Tightening Cylinder Head Studs
Figure 83. - Continued.



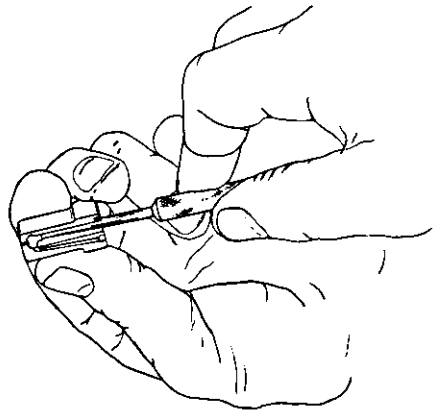
A - Sectional view of Nozzle and Nozzle Holder.



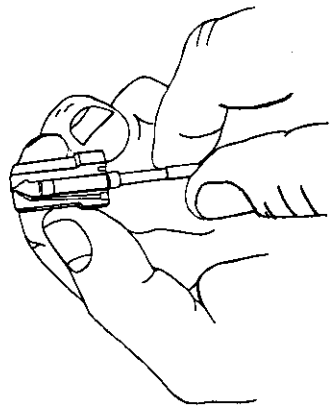
B - Sectional view of Pintle Type Nozzle.



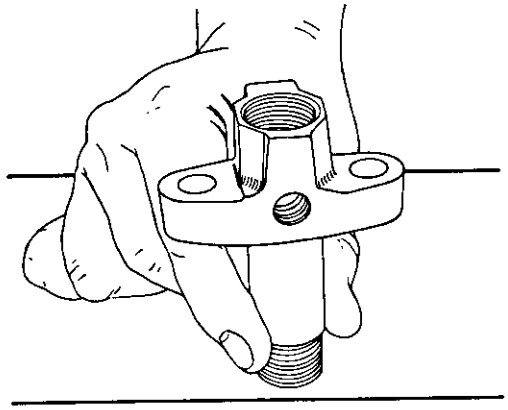
C - Removing the nozzle valve from nozzle body.



D - Cleaning nozzle cavity.

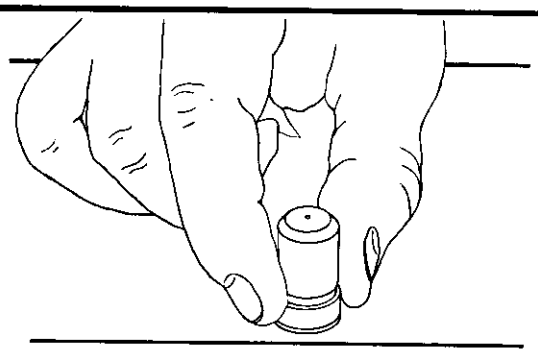


E - Cleaning nozzle orifice.

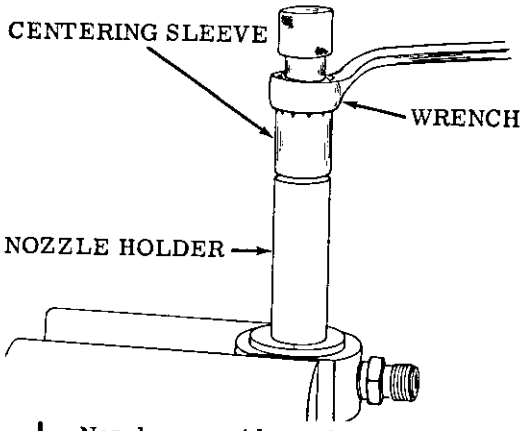


F - Cleaning lapped surface of nozzle holder.

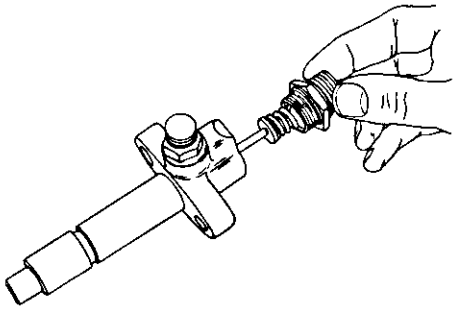
A - Sectional View of Nozzle and Nozzle Holder through F - Cleaning Lapped Surface of Nozzle Holder
Figure 84. Injection Nozzles, Disassembly, Cleaning, Reassembly, and Testing



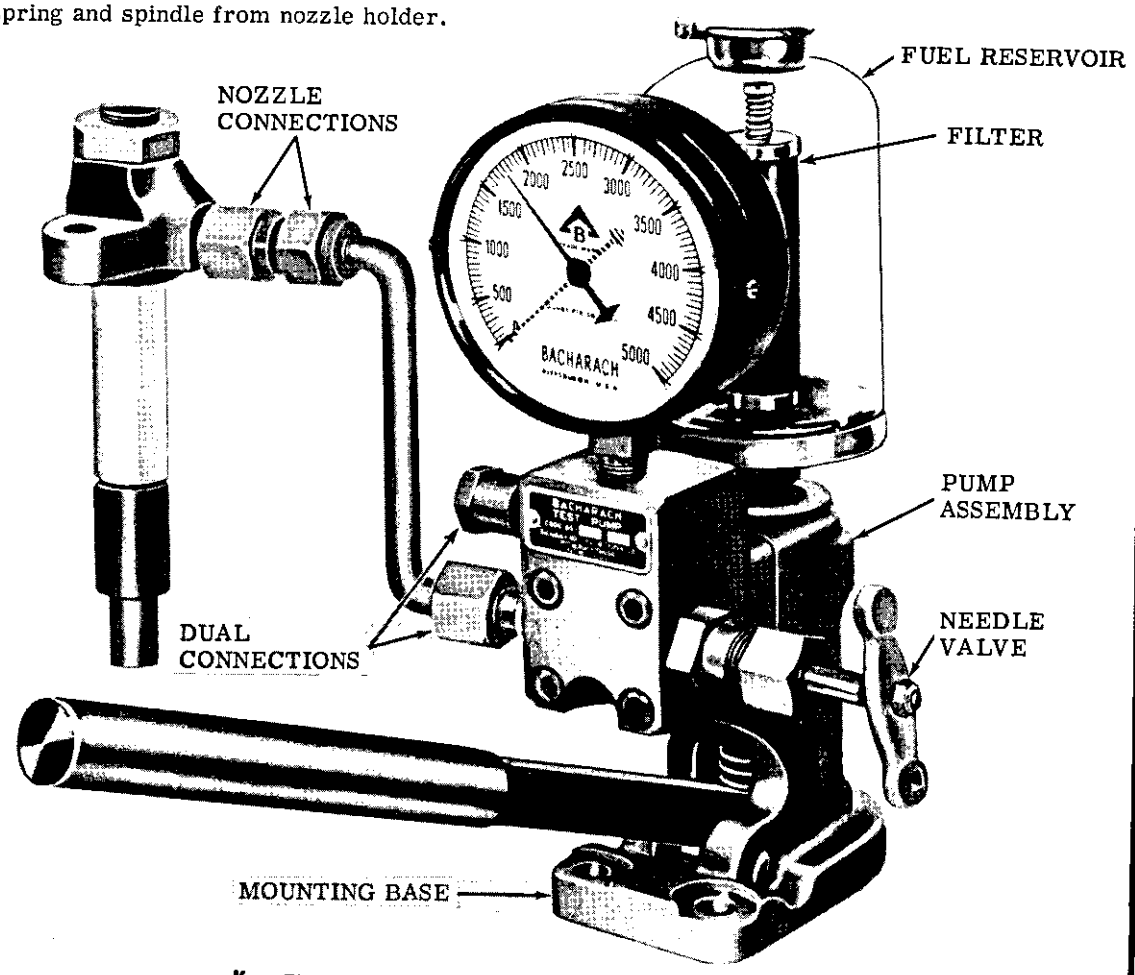
G - Cleaning lapped surface of nozzle body



J - Nozzle assembly, using centering sleeve.



H - Removing spring and spindle from nozzle holder.



K - Checking nozzle opening pressure.

G - Cleaning Lapped Surface of Nozzle Body through K - Checking Nozzle Opening Pressure
Figure 84. - Continued.

CAUTION

Do not use abrasives of any kind.

(a) Clean the lapping plate with a clean cloth.

(b) Coat lapping plate surface with clean mutton tallow. Be sure entire surface is coated.

(c) Wipe the nozzle body with a clean soft cloth and coat the lapped surface with clean mutton tallow.

(d) Place lapped surface of nozzle body on lapping plate, see figure 84, and move in a circular motion being careful to hold even pressure on the nozzle body so that entire surface will make contact.

(5) Clean exterior of nozzle holder with nozzle cap nut in place to protect the lapped surface, figure 84.

(6) Clean lapped surface of nozzle in the same manner as procedure used to clean lapped surface of nozzle body.

(7) Inspect all parts for cracks, breaks, nicks, scratches, or any other damage. Replace all damaged parts.

c. Reassembly. Reassemble as illustrated on figure 84. Torque the nozzle cap nut to 60 to 65 foot pounds.

CAUTION

Do not touch any polished (lapped) surface with the fingers after cleaning. Moisture from the fingers is very corrosive.

d. Testing.

(1) Use hydraulic nozzle tester, bolted to a bench, and include a small fuel oil supply tank with filter. (See figure 84.

(2) Use high pressure injection line to connect outlet of nozzle tester to the inlet of nozzle.

WARNING

Keep hands away from nozzle spray. The high Velocity of fuel may puncture the skin and cause blood poisoning. The nozzle test gage shall not be subjected to shock pressure so keep the gage valve open only when reading pressure.

(3) Close gage valve and work pump handle several sharp strikes to dislodge any carbon or dirt in nozzle cavities.

(4) Open gage valve, work pump slowly and observe opening pressure. If not between 1750-1850 pounds per square inch, remove holder cap, loosen locknut and turn adjusting screw IN to raise opening pressure and OUT to lower. (New springs should be set 1950-2000 pounds per square inch to allow for set.)

(5) Maintain a pressure of 1450-1500 pounds per square inch and watch for dribble from spray orifice, indicating a bad seat. Observe for "weeping" around cap nut, indicating a leak between the holder and valve body lapped surfaces.

(6) Close gage valve and observe spray while working tester about 100 strokes per minute. "Flags", heavy ends, deflected core, or spray pattern not symmetrical, require repair or replacement of faulty parts.

208. ROCKER ARMS AND PUSH RODS

a. Disassembly. Disassemble in the sequence of numbers as illustrated on figure 85.

b. Cleaning, Inspection, and Repair.

(1) Clean all parts with an approved cleaning solvent and dry thoroughly.

(2) Inspect rocker arm shaft for wear. If shaft has "shoulders" due to wear, replace shaft. Blow out oil holes with compressed air.

(3) Inspect rocker arms for cracks, condition of valve contact surface and worn bushings. Replace all defective parts.

(4) Inspect rocker arm bracket for cracks or other damage. Replace defective brackets.

(5) Inspect push rods for bending or twisting, examine ball and cup ends for excessive wear. Replace defective parts.

209. CYLINDER HEAD REASSEMBLY AND INSTALLATION

a. Reassembly.

(1) Assemble energy cells and hex-head plugs in head. (Refer to figure 82.)

(2) Assemble injector nozzle assemblies, leak-off fittings, and slotted nuts and clamps in the reverse of disassembly.

(3) Assemble valves in head in the same order as they were removed.

(4) Assemble valve springs, valve spring retainers, and valve spring retainer locks in the reverse of disassembly.

(5) Make certain gasket contact surfaces on head and engine block are clean, smooth, and flat. Check flatness with straight edge and feeler gage in three positions lengthwise and five crosswise. Maximum permissible is 0.004 inch low in center lengthwise and

0.003 inch crosswise. Cylinder head or block must be resurfaced if these limits are exceeded.

b. Installation.

(1) Install cylinder head assembly on block. Use new cylinder head gasket. Install head evenly over studs and install cylinder head washers and nuts, tightening to snug fit. (Refer to figure 82.)

(2) Torque cylinder head nuts to 130-140 pounds.

(3) Connect the injection and leak-off lines to nozzles and injection pump.

(4) Install push rods and rocker arm assembly.

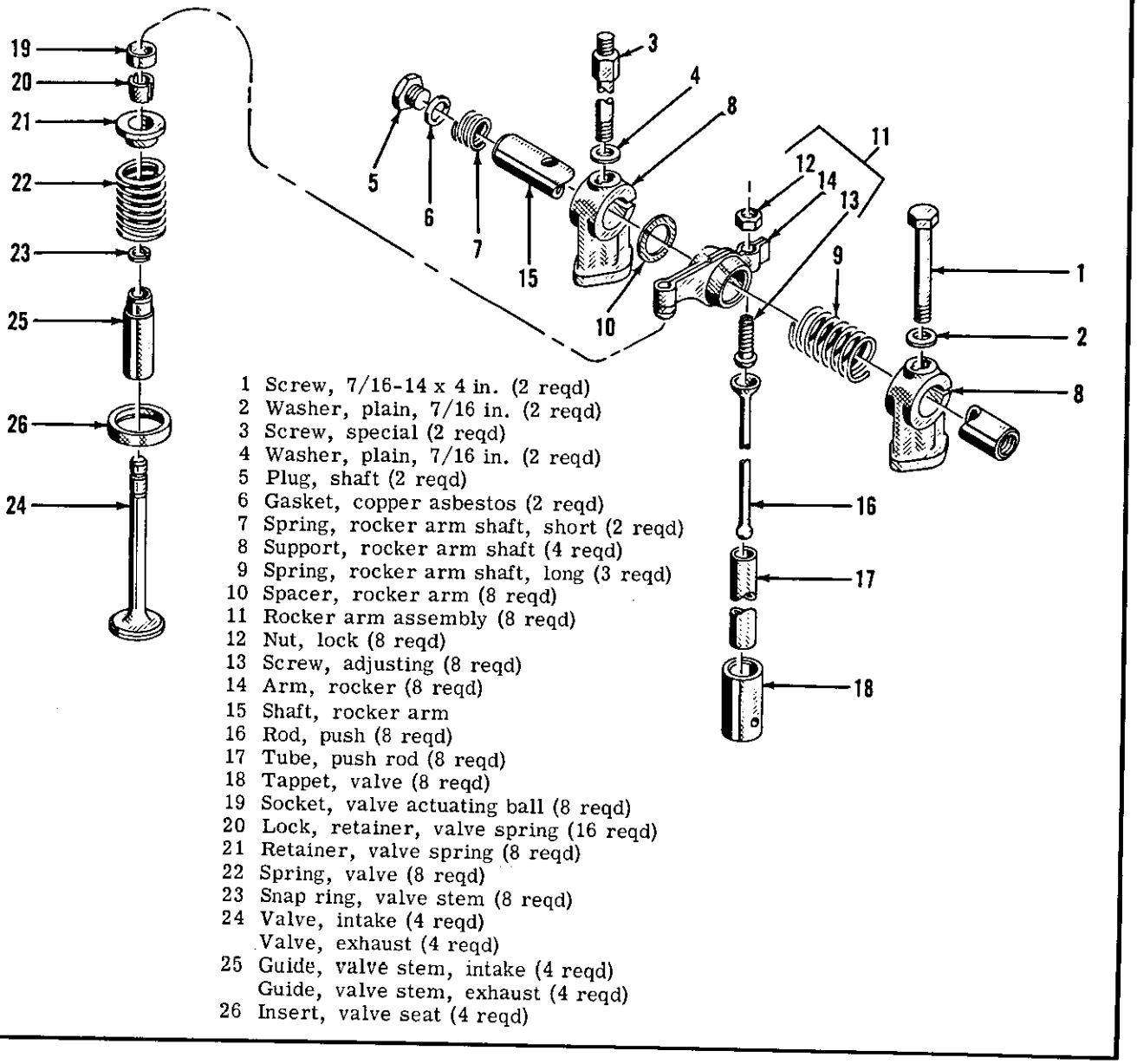
(5) Adjust valves (see paragraph 117).

(6) Install intake and exhaust manifold (para 115).

(7) Install thermostat and housing (para 104).

(8) Install cylinder head cover (para 116).

(9) Service the engine (current L.O.).



1 Screw, 7/16-14 x 4 in. (2 reqd)
2 Washer, plain, 7/16 in. (2 reqd)
3 Screw, special (2 reqd)
4 Washer, plain, 7/16 in. (2 reqd)
5 Plug, shaft (2 reqd)
6 Gasket, copper asbestos (2 reqd)
7 Spring, rocker arm shaft, short (2 reqd)
8 Support, rocker arm shaft (4 reqd)
9 Spring, rocker arm shaft, long (3 reqd)
10 Spacer, rocker arm (8 reqd)
11 Rocker arm assembly (8 reqd)
12 Nut, lock (8 reqd)
13 Screw, adjusting (8 reqd)
14 Arm, rocker (8 reqd)
15 Shaft, rocker arm
16 Rod, push (8 reqd)
17 Tube, push rod (8 reqd)
18 Tappet, valve (8 reqd)
19 Socket, valve actuating ball (8 reqd)
20 Lock, retainer, valve spring (16 reqd)
21 Retainer, valve spring (8 reqd)
22 Spring, valve (8 reqd)
23 Snap ring, valve stem (8 reqd)
24 Valve, intake (4 reqd)
Valve, exhaust (4 reqd)
25 Guide, valve stem, intake (4 reqd)
Guide, valve stem, exhaust (4 reqd)
26 Insert, valve seat (4 reqd)

Figure 85. Rocker Arms, Push Rods, and Valves, Disassembly and Reassembly

210. GENERAL

The oil pan serves as a cover to the bottom of the crankcase and also serves as an oil reservoir. A gasket is provided between the oil pan and cylinder block to assure a perfect seal and to avoid loss of engine oil. The balancer is a balancing mechanism that is used on the engine to provide smooth operation. The balancer consists of two counterweight gears mounted on a shaft, which is driven off the crankshaft gear at twice engine speed. The assembly is mounted on the engine crankcase and is timed in relation to the engine firing order. The balancer assembly incorporates an integral oil pump, oil relief valve, and oil pump strainer screen.

211. OIL PAN

a. Removal.

(1) Drain the lubricating oil from the oil pan (current L.O.).

(2) Remove the engine assembly (para 184).

(3) Remove the engine oil pan as instructed on figure 86.

b. Cleaning, Inspection, and Repair.

(1) Clean the oil pan with an approved solvent and dry thoroughly.

(2) Inspect the oil pan for cracks, breaks, dents, holes, or other damage. Replace oil pan as necessary. Replace oil pan gasket.

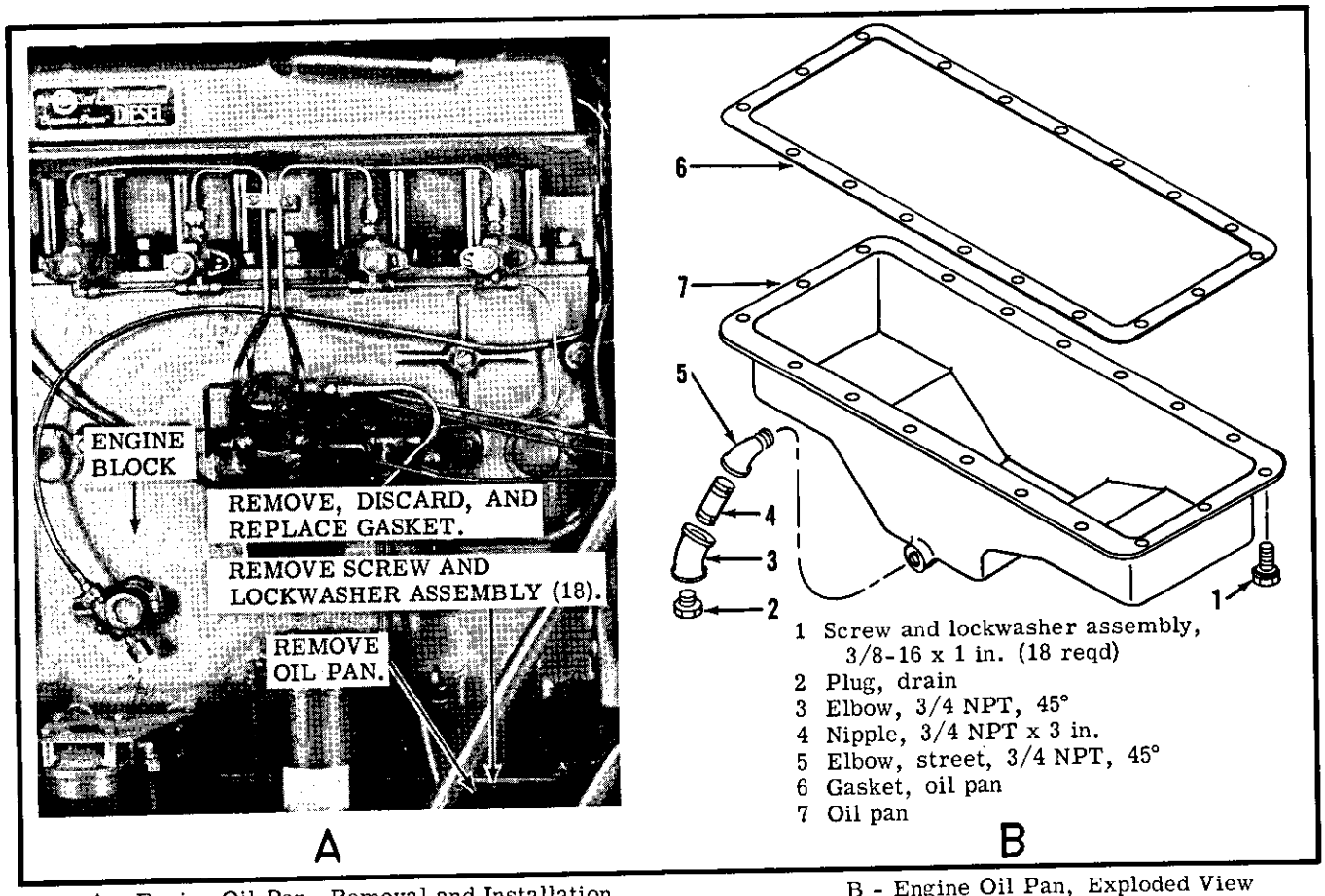
(3) Inspect mounting hardware for damage. Replace as necessary.

c. Installation.

(1) Install the engine oil pan in reverse of the instructions on figure 86.

(2) Install the engine assembly (para 184).

(3) Service the engine (current L.O.).



A - Engine Oil Pan, Removal and Installation B - Engine Oil Pan, Exploded View

Figure 86. Engine Oil Pan, Removal and Installation

212. BALANCER

a. Removal.

(1) Drain the lubricating oil from the engine (current L. O.).

(2) Remove the engine assembly (para 184).

(3) Remove the oil pan from the engine (para 211).

(4) Remove the balancer assembly from the engine as instructed on figure 87.

b. Disassembly. Disassemble balancer assembly as instructed on figure 88.

c. Cleaning, Inspection, and Repair.

(1) Clean all parts with an approved cleaning solvent and dry thoroughly.

(2) Steam clean all gallery lines in housing.

(3) Wash all gears, fittings, oil strainer, and oil pump cover with an approved solvent.

(4) Inspect all gears for broken or chipped teeth, cracks, excessive wear, or any other damage. Replace defective gears as necessary.

(5) Inspect housing for cracks, breaks and any other damage. Replace housing as necessary.

(6) Inspect bearings for freedom of rotation, excessive wear or any other damage. Replace all defective bearings.

(7) Inspect bushings and thrust washers for cracks, breaks, excessive wear, or any other damage. Replace defective parts as necessary.

(8) Inspect all fittings for cracks, damaged threads, or any other damage. Replace all defective parts.

(9) Inspect all other parts for cracks, breaks, bending, distortion, or any other damage. Replace all defective parts.

(10) Inspect mounting hardware for damage. Replace all damaged parts.

d. Reassembly. Reassemble in the reverse of disassembly. Refer to figure 88.

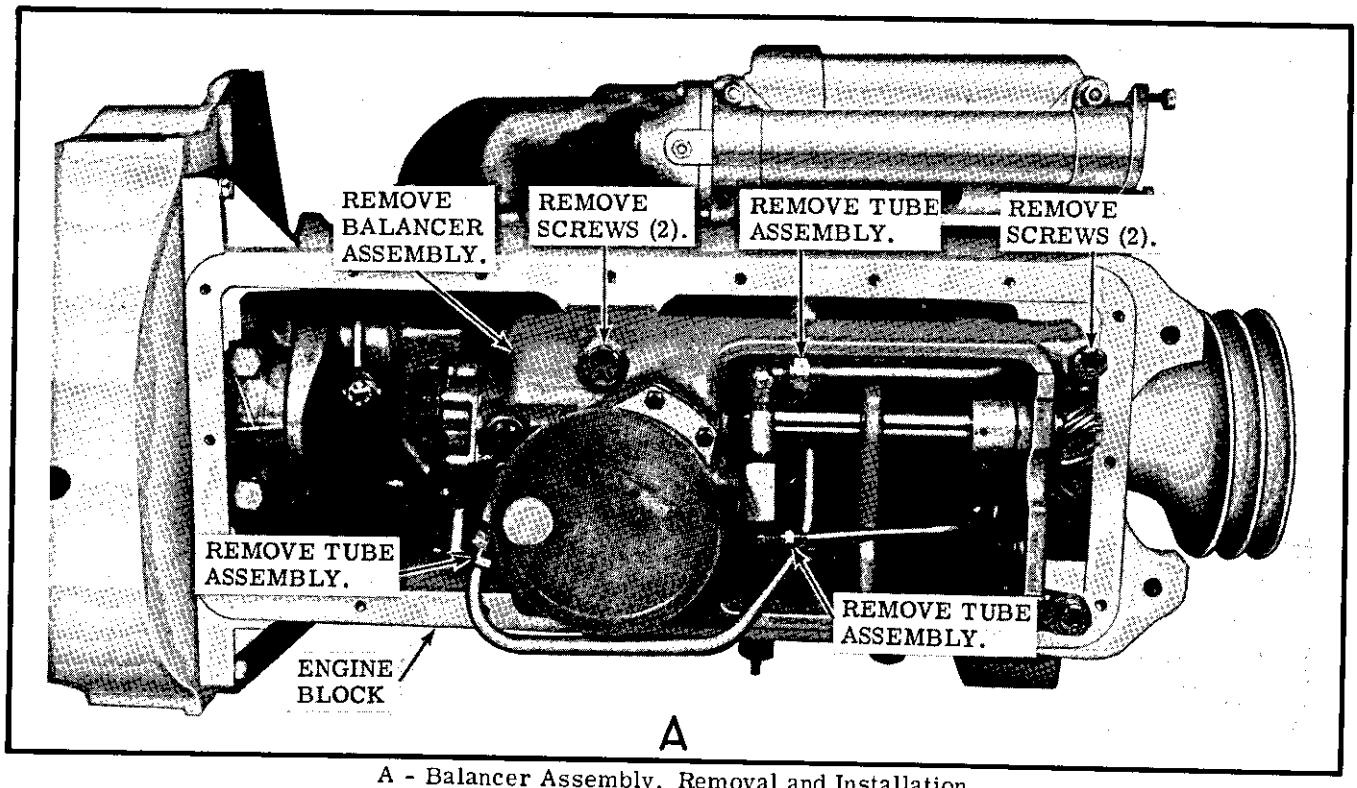
e. Installation.

(1) Install the balancer assembly to the engine in the reverse of the instructions on figure 87.

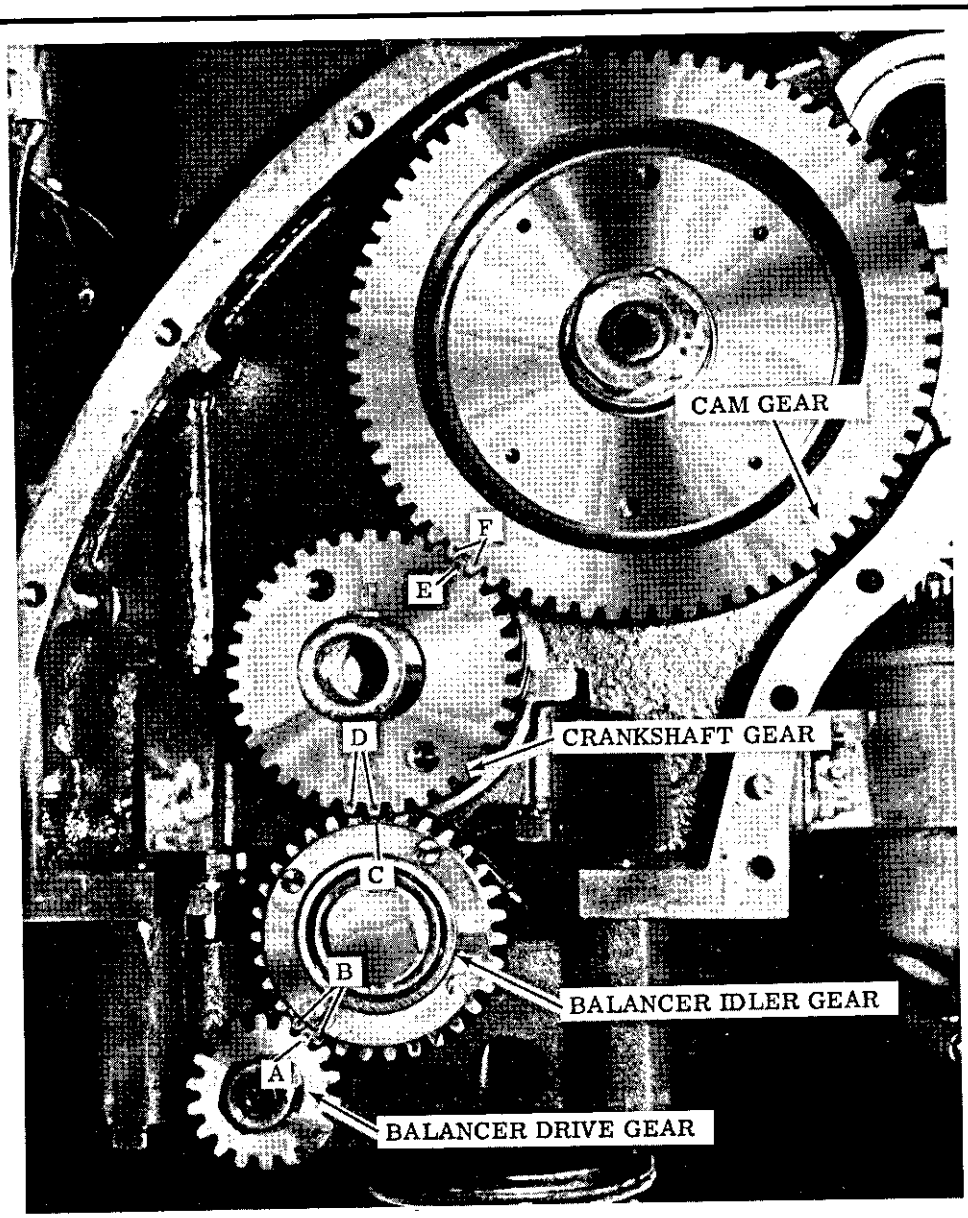
(2) Install the oil pan to engine (para 211).

(3) Install the engine assembly (para 184).

(4) Service the engine (current L. O.).



A - Balancer Assembly, Removal and Installation
Figure 87. Balancer Assembly, Removal and Installation



B

B - Timing Gear Train
Figure 87. - Continued.

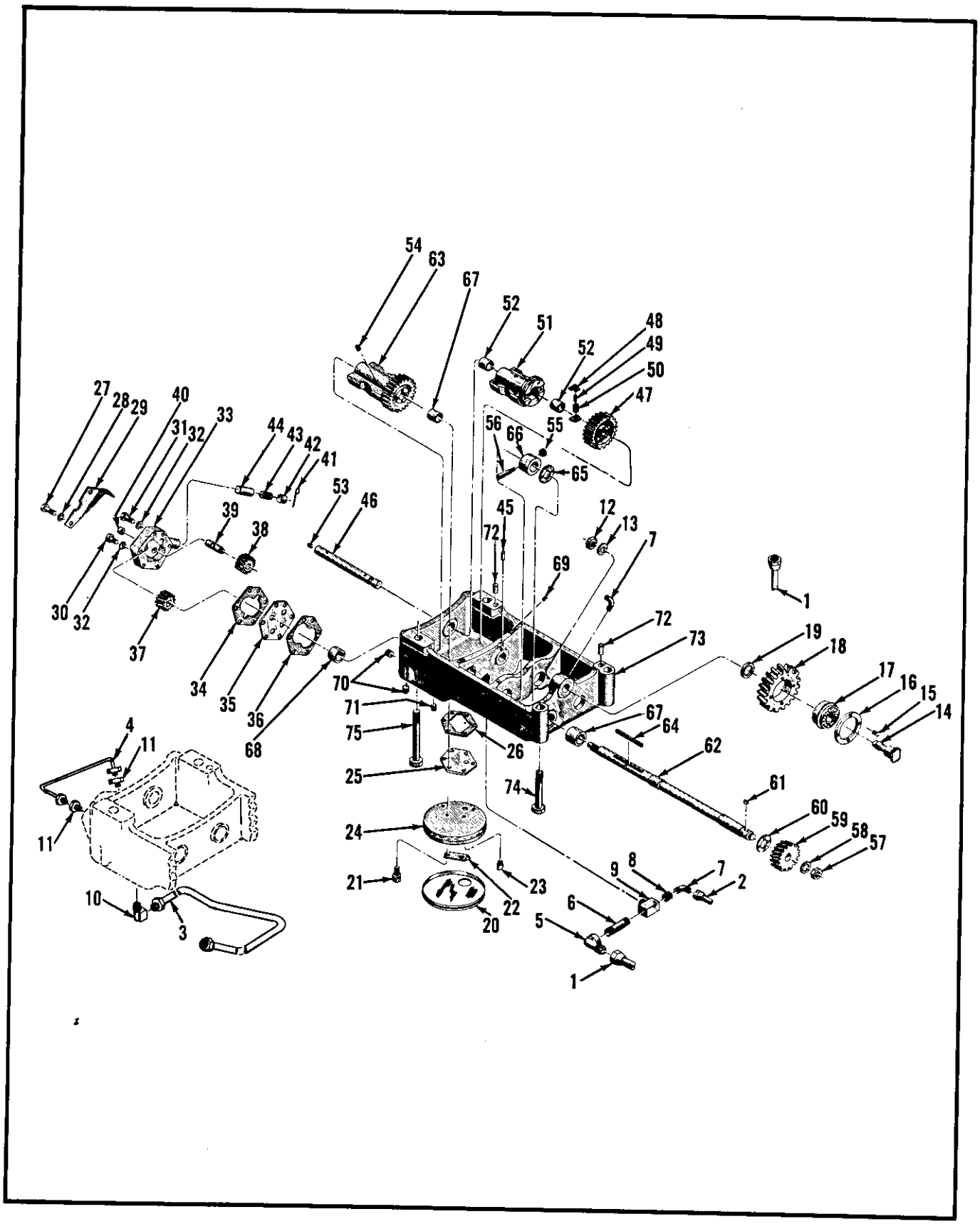


Figure 88. Balancer Assembly, Disassembly and Reassembly

1 Tube assembly, housing to front brg. cap
2 Tube assembly, housing to idler gear boss
3 Tube assembly, housing to crankcase
4 Tube assembly, housing to housing
5 Elbow
6 Nipple, 3/8 pipe
7 Elbow (2 reqd)
8 Bushing, reducing
9 Tee, 3/8 pipe
10 Elbow
11 Connector (2 reqd)
12 Nut, 5/8-18
13 Washer, lock, 5/8 in.
14 Stud, idler gear
15 Screw, machine, no. 10-24 x 1/2 in. (4 reqd)
16 Plate, bearing retainer
17 Bearing
18 Gear, idler
19 Spacer
20 Screen assembly, oil strainer
21 Screw and lockwasher assembly (6 reqd)
22 Spacer, inlet strainer
23 Tube, suction
24 Frame, inlet strainer
25 Cover, oil inlet
26 Gasket, cover
27 Screw, 1/4-20 x 1-5/8 in. (3 reqd)
28 Washer, lock, 1/4 in. (3 reqd)
29 Shield, oil relief
30 Screw, 1/4-20 x 1-1/4 in.
31 Screw, 1/4-20 x 1-3/8 in. (2 reqd)
32 Washer, lock (2 reqd)
33 Body, oil pump
34 Gasket, cover
35 Cover, oil pump body
36 Gasket, cover
37 Gear, oil pump drive
38 Gear, oil pump driven
39 Stud, oil pump gear
40 Bushing
41 Cotter pin
42 Retainer, oil relief spring
43 Spring, oil relief
44 Valve, oil pressure relief
45 Roll pin
46 Shaft, counterweight driven gear
47 Gear, counterweight driven
48 Seat, spring
49 Bumper
50 Spring, idler
51 Counterweight
52 Bushing (2 reqd)
53 Plug, pipe
54 Setscrew, 5/16-18 (2 reqd)
55 Nut, hex., no. 10-32 x 1/8 in.
56 Pin, tapered
57 Nut, 5/8-18
58 Nut lock
59 Gear, counterweight drive shaft
60 Washer, thrust
61 Key, woodruff no. 8
62 Shaft, oil pump and counterweight drive
63 Gear, counterweight driver
64 Key, square
65 Washer, thrust
66 Collar, drive shaft
67 Bushing (2 reqd)
68 Bushing
69 Plug, pipe
70 Plug, 3/8 pipe (2 reqd)
71 Plug, 1/4 pipe
72 Dowel. 3/8 x 3/4 in. (2 reqd)
73 Housing
74 Screw, 5/8-11 x 4 in. (2 reqd)
75 Screw, 5/8-11 x 5-1/4 in. (2 reqd)

Figure 88. - Continued.

DISASSEMBLY PROCEDURE:

STEP 1:
Remove tube assemblies (1, 2, 3, and 4, figure 88). Remove fittings (5 through 11).

STEP 2:
Remove nut (12), washer (13) and press out idler gear stud (14). Remove screws (15), plate (16) and bearing (17) from idler gear (18). Remove spacer (19).

STEP 3:
Remove oil pump strainer screen (20), screws (21), spacer (22), tube (23), frame (24), cover (25), and gasket (26).

STEP 4:
Remove screws (27), washers (28), and shield (29).

STEP 5:
Remove screws (30, 31), washers (32), oil pump body (33), gasket (34), cover (35), and gasket (36).

STEP 6:
Remove drive gear (37), driven gear (38), stud (39), and bushing (40). Remove cotter pin (41), spring retainer (42), spring (43), and relief valve (44) from pump body (33).

STEP 7:
Mark end of counterweight idler shaft (46) and housing (73) with a scribe line to locate proper radial positioning of idler shaft to housing at reassembly.

STEP 8:
Drive out pin (45). Drive out idler shaft (46). Remove driven gear (47), spring seats (48), bumper (49), and idler spring (50). Remove counterweight (51) and bushings (52). Remove plug (53) from shaft (46).

STEP 9:
Remove staked setscrews (54). Remove nut (55) and drive out tapered pin (56). Remove nut (57), washer (58), drive shaft gear (59), thrust washer (60), and key (61) only if service is necessary.

STEP 10:
Drive shaft (62) out by tapping lightly with a brass or aluminum drift, or by using an arbor press. Remove drive gear (63), key (64), thrust washer (65), and collar (66). Press out bushings (67 and 68) using an arbor press.

STEP 11:
Plugs (69, 70, 71) and dowels (72) need not be removed from housing (73) unless replacement is necessary.

REASSEMBLY PROCEDURE:

STEP 1:
Press bushing (68) into rear of housing (73) using a driver and an arbor press. It is important to line up bushing hole radially with hole in housing before pressing into place.

CAUTION: Bushing (68) must be pressed in with the chamfered end contacting the housing (73). DO NOT HAMMER AGAINST END OF BUSHING. Make certain that end of bushing does not project past thrust face of housing.

STEP 2:
After assembling bushing (68), check alignment of bushing oil hole with housing oil hole by using compressed air blown into oil passage, from which tee (9) was removed, and checking for air pressure at bushing.

STEP 3:
Press bushings (67) into housing (73) using a driver and an arbor press.

STEP 4:
Assemble oil plugs (67, 68, 69) in housing using an approved sealer. Tighten securely.

STEP 5:
Reassemble fittings (5 through 11).

STEP 6:
Assemble keys (64 and 61) to drive shaft (62) and place shaft in a freezer. If freezer is not available, heat gear (59) to 200°F before assembling to shaft (62). Assemble thrust washer (60), gear (59), nut lock (58), and nut (57) on shaft (62). Torque nut to 75 foot pounds and bend nut lock (58) against flat of nut (57).

STEP 7:
Assemble shaft (62) in housing (73) with thrust washer (65), collar (66), tapered pin (56), nut (55), and driver gear (63) positioned on shaft (62) as illustrated.

CAUTION: Use a pilot sleeve over the splined end of the shaft when assembling to prevent damage to rear bushing.

Disassembly and Reassembly Procedure

Figure 88. - Continued.

STEP 8:
Place a 0.005 - 0.007 inch shim between driver gear (63) and rear housing wall when shaft is assembled through gear (63).

STEP 9:
Check thrust collar (66) for 0.003 - 0.005 inch end play.

STEP 10:
If thrust collar (66), with tapered pin (56) assembled, does not have 0.003 - 0.005 inch end play, remove pin, place 0.003 shim between collar and housing, and drill a new tapered pin hole through collar and shaft at right angles to original hole and offset toward front approximately 1/4 inch so as not to intersect with original hole. Use a no. 5 taper pin reamer for new hole.

STEP 11:
When replacing bushings (52), press in with a driver with chamfered end of bushing toward gear.
CAUTION: In order to keep the oil slots open on the hub, install bushing 1/32 inch below hub of gear. Split bushings must be pressed in with split in down position in gear.

STEP 12:
Install a wooden wedge between bottom of gear (63) and housing, install setscrews (54) and tighten securely. Stake each screw in four places and remove wedge.

STEP 13:
To prevent a mismatch of hole in shaft (46) with groove in the bushing (52), press in shaft (46) with end of shaft 11/32 inch from finished face of oil pump mounting pad on housing. If when mounting, the 11/32 inch dimension does not bring the front shaft hole in line with housing hole for inserting pin (45), use a new shaft (46). Drill a 1/4 inch hole through the present 3/16 inch hole in the housing and drive in a 1/4 by 1-3/4 inch tempered steel roll pin.

STEP 14:
Press shaft (46), with gear assembled, into housing. Align scribe mark on end of shaft with mark on housing. (Reference disassembly step 7.) Position counterweight (51) so that edges of both counterweights (51 and 63) are in the same plane.

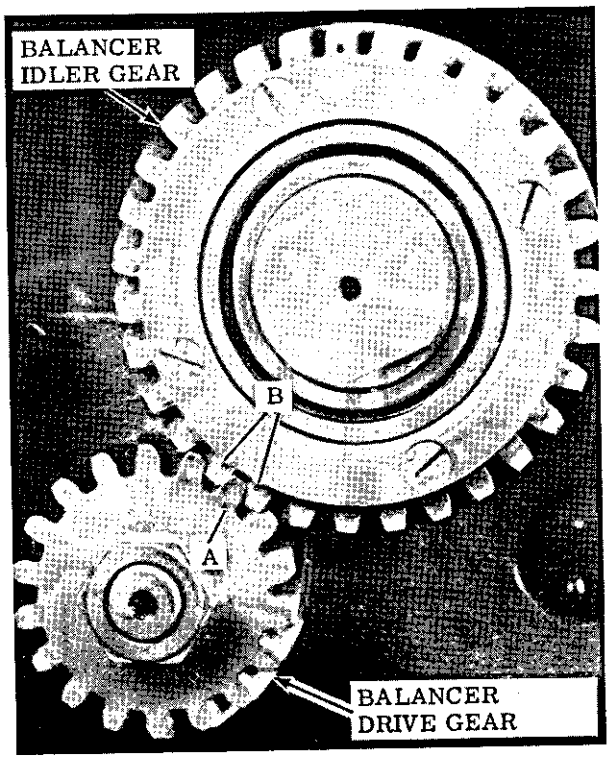
STEP 15:
Assemble two aligning studs to balancer oil pump mounting pad. Assemble relief valve parts (44, 43, 42, and 41) in pump body (33). (If oil pressure is below 40 pounds at full load, add washers in cavity of oil pressure relief valve (44) to increase pressure.) Assemble bushing (40), stud (39) and gears (38 and 37). Assemble items (34 through 36) as illustrated. Check pump gear backlash by rocking the gears through the centerline connecting the two shafts. Backlash shall be 0.001 to 0.003 inch. Check pump gear clearance in pump body. This should be 0.003 inch. Use new gaskets. Assemble pump to housing. Torque pump mounting screws to 12 foot pounds. Check pump for freedom of rotation.

STEP 16:
Assemble idler gear parts (12 through 19) as illustrated. Stake screws (15) to gear (18).

NOTE: Idler gear (18) and counterweight drive shaft gear (59) are matched sets and are to be replaced as such.

Position drive gear (59) and idler gear (18) as shown below when assembling idler gear (18).

STEP 17:
All other reassembly of balancer is the reverse of disassembly.



Positioning of Balancer Gears at Reassembly

Reassembly Procedure
Figure 88. - Continued.

213. GENERAL

The piston and connecting rod assemblies include the pistons, piston rings, piston pins, and retainers, and connecting rods with bushings at the piston end and bearing shells at the crankshaft end. The pistons are cooled by a spray of lubricating oil directed at the underside of the piston head from a nozzle at the top of the connecting rod and by the conventional water jacket around the cylinder liners. Each piston is fitted with five piston rings. The connecting rods and caps are marked on the crankshaft end with the number of the cylinder in which they are used. Connecting rods and caps are matched and must be kept paired together.

214. PISTON AND CONNECTING ROD ASSEMBLIES

a. Removal and Disassembly.

(1) Remove the engine assembly (para 184).

(2) Remove the cylinder head assembly (para 201).

(3) Remove the oil pan (para 211).

(4) Remove the balancer assembly (para 212).

(5) Remove the engine piston and connecting rod assemblies from the engine as instructed on figure 89.

Note

Use a ridge reamer to remove ridges in cylinder bore before removing pistons.

(6) Disassemble the piston and connecting rod assemblies in the numerical sequence as illustrated on figure 90.

b. Cleaning, Inspection, and Repair.

(1) Clean all parts with an approved cleaning solvent.

(2) Remove carbon deposits from all parts. Remove all loose carbon particles with compressed air or a lint-free cloth.

(3) Inspect the pistons for wear, galling, scoring, and burned condition. Replace defective pistons.

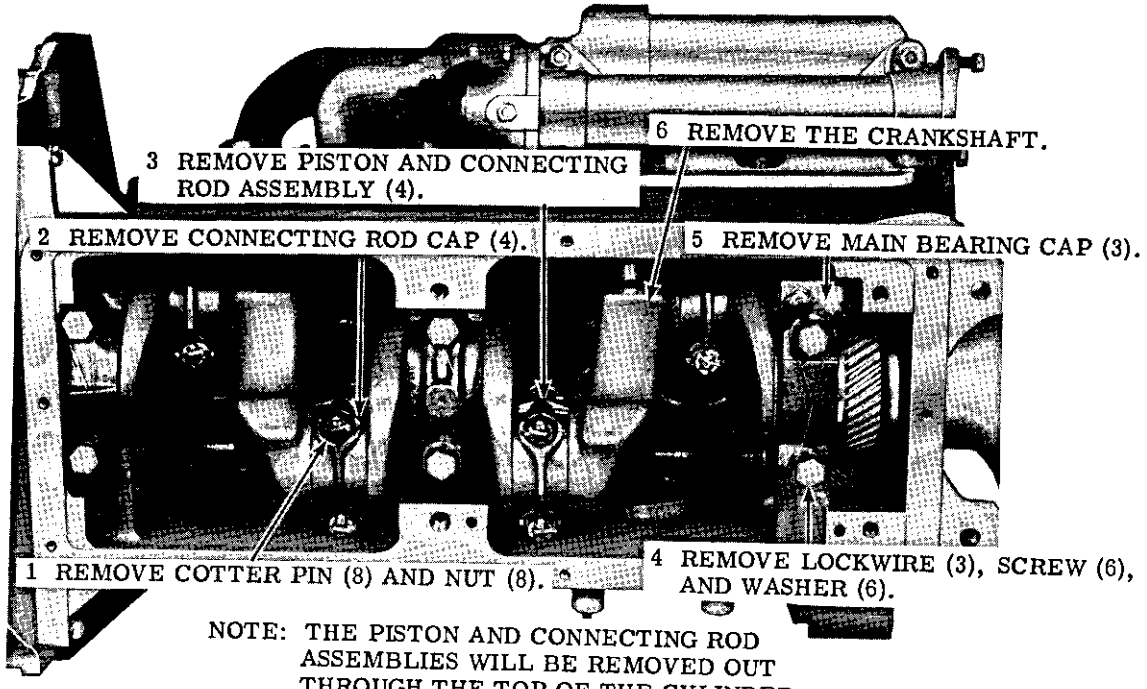


Figure 89. Engine Piston, Connecting Rod Assemblies, Crankshaft, and Main Bearings, Removal and Installation

(4) Inspect pistons for cylinder bore fit and clearance. Pistons should be fitted with cylinder bore of the liners at room temperature (68°-70°F). (Refer to Table IV.)

(5) Inspect the connecting rods for alignment. Straighten or replace all defective connecting rod assemblies.

(6) Inspect piston pin bushings for oil openings and turning in the connecting rod. Replace all defective bushings. If a new bushing is used, a light push with the hand should install the pin in the bushing at room temperature (68°-70°F).

(7) Inspect the piston rings for wear, cracks, breaks, and ring end gap clearance in the cylinder bore. The gap clearance should be 0.012 to 0.023 inch between the ring ends with the ring installed in the cylinder bore. To check the ring clearance insert a piston in the cylinder bore in the inverted position. Insert each ring one at a time about two inches down in the cylinder bore and bring the bottom edge of the piston up against the ring to square the ring in the cylinder bore. Check gap with a feeler gage. If the ring end gap clearance is not as specified, the ring must be filed or honed to specification, or replaced.

(8) Refer to Table IV and check the clearance between the connecting rod bearings and the throws of the crankshaft. If the connecting rod bearing clearance is not as specified, replace connecting rod bearing or replace the crankshaft.

c. Reassembly and Installation.

(1) Reassemble the piston and connecting rod assemblies in the reverse of numerical sequence as illustrated on figure 90.

(2) Install the piston and connecting rod assemblies in the engine in reverse of the instructions on figure 89.

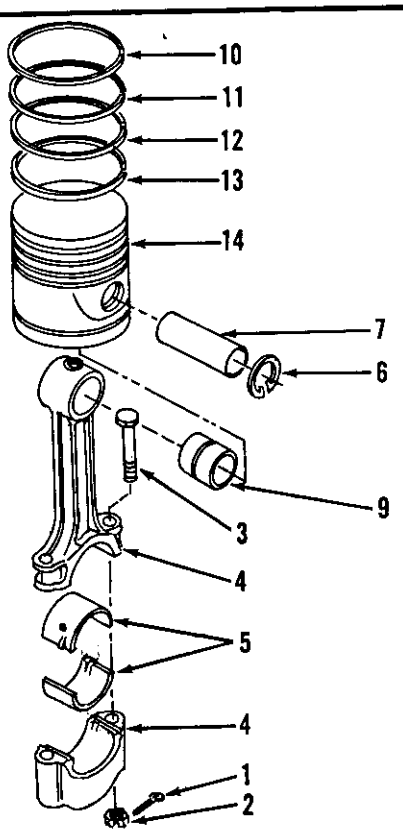
(3) Install the balancer assembly (para 212).

(4) Install the oil pan (para 211).

(5) Install the cylinder head assembly (para 209).

(6) Install the engine assembly (para 184).

(7) Service the engine (current L.O.).



1 Pin, cotter, 3/32 x 1 in.
2 Nut, castellated
3 Bolt, connecting rod cap
4 Connecting Rod and Cap assembly
5 Bearing
6 Ring, retaining
7 Pin, piston
8 Deleted
9 Bushing, piston pin
10 Ring, compression, taper face, chrome 1/8 in., top groove
11 Ring, compression, taper face, 1/8 in., 2nd and 3rd groove (2 reqd) Expander spring, 2nd and 3rd groove
12 Ring, oil control, 1/4 in., 4th groove Expander spring, 4th groove
13 Ring, oil control, 3/16 in., 5th groove
14 Piston

Figure 90. Piston and Connecting Rod Assemblies, Disassembly and Reassembly

Section IX. CRANKSHAFT PULLEY, TIMING GEAR COVER, AND TIMING GEARS

215. GENERAL

The crankshaft pulley is installed on the front end of the engine crankshaft and, by means of V-belts, drives the generator, engine cooling fan, and engine cooling water pump. The timing gear train is a set of four gears inclosed in a housing on the front end of the engine. The crankshaft gear is keyed and is pressed fit on the crankshaft. As the crankshaft rotates, the crankshaft gear drives the camshaft gear and the balancer idler gear. The balancer idler gear drives the balancer drive gear. The balancer idler gear is mounted on the balancer housing by means of a stud and nut and runs on a ball bearing which is pressure lubricated. The balancer drive gear is mounted on the front end of the oil pump and counterweight drive shaft. This shaft is supported in the balancer housing by bushings and drives the counterweight drive gear and the oil pump, which is mounted on the rear end of the balancer housing. The camshaft gear is keyed to the front end of the camshaft and secured with a nut. The camshaft is supported in the crankcase by three bushings. The camshaft operates the valves by means of tappets and pushrods actuating the rocker-arm assembly mounted on the top of the cylinder head assembly. The timing of the camshaft and crankshaft gears requires no check of valve position. It is only necessary to line up the punch marks on the two gears. However, timing of the balancer must be done by aligning all punch marks of balancer drive gear, balancer idler gear, crankshaft gear, and camshaft gear with number four piston at top dead center when on compression stroke.

216. CRANKSHAFT PULLEY

a. Removal.

(1) Remove the compressor oil cooler (para 112).

(2) Remove the radiator (para 102).

(3) Remove the engine fan belts (para 101).

(4) Remove the crankshaft pulley from the engine as instructed on figure 91.

b. Cleaning, Inspection, and Repair.

(1) Clean the engine crankshaft pulley with an approved cleaning solvent.

(2) Inspect the crankshaft pulley for cracks, breaks, and other damage. Replace a damaged crankshaft pulley.

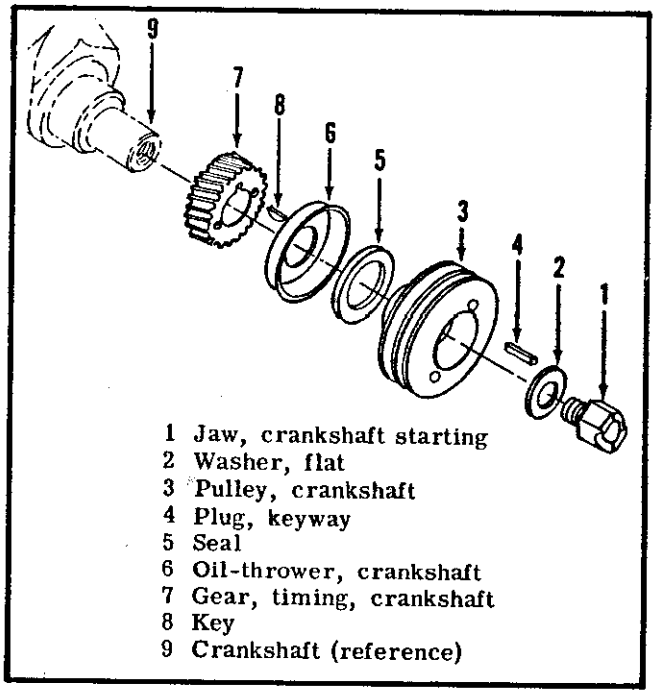
c. Installation.

(1) Install the engine crankshaft pulley on the engine in reverse of the instructions on figure 91.

(2) Install the engine fan belts (para 101).

(3) Install the radiator (para 102).

(4) Install the compressor oil cooler (para 112).



1 Jaw, crankshaft starting
2 Washer, flat
3 Pulley, crankshaft
4 Plug, keyway
5 Seal
6 Oil-thrower, crankshaft
7 Gear, timing, crankshaft
8 Key
9 Crankshaft (reference)

Figure 91. Crankshaft Pulley, Removal and Installation

217. TIMING GEAR COVER AND TIMING GEARS

a. Removal.

(1) Remove the engine assembly (para 184).

(2) Remove the engine fan assembly and water pump (para 103 and 105).

(3) Remove the generator (para 94).

(4) Remove the engine crankshaft pulley (para 216).

(5) Remove the oil pan (para 211).

(6) Remove the engine timing gear cover and timing gears as instructed on figure 92.

b. Disassembly. Disassemble the engine timing gear cover in the numerical sequence as illustrated on figure 93.

c. Cleaning, Inspection, and Repair.

(1) Clean all parts with an approved cleaning solvent and dry thoroughly.

(2) Inspect the timing gear cover for cracks, breaks, distortion, or other damage. Replace damaged timing gear cover.

(3) Inspect the timing gears for cracks, broken or chipped teeth or any other damage. Replace damaged timing gears.

(4) Replace timing gear cover gasket.

(5) Inspect mounting hardware for damage. Replace all damaged hardware.

d. Reassembly. Reassemble the engine timing gear cover in the reverse of numerical sequence as illustrated on figure 93.

e. Installation.

(1) Install the engine timing gears and timing gear cover in reverse of instructions on figure 92.

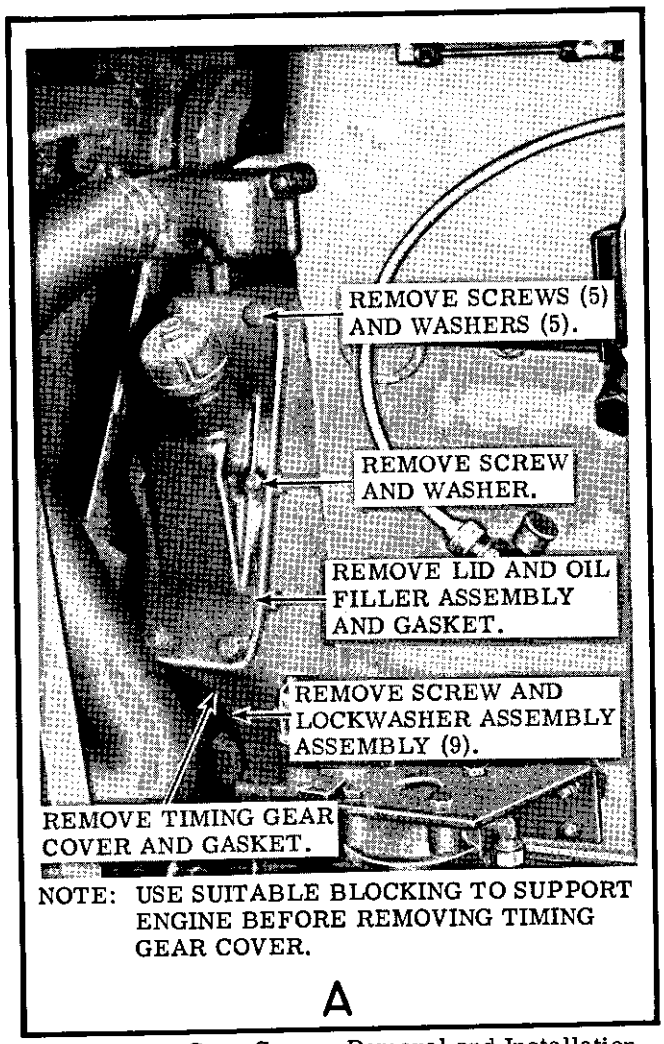
(2) Install the oil pan (para 211).

(3) Install the engine crankshaft pulley (para 216).

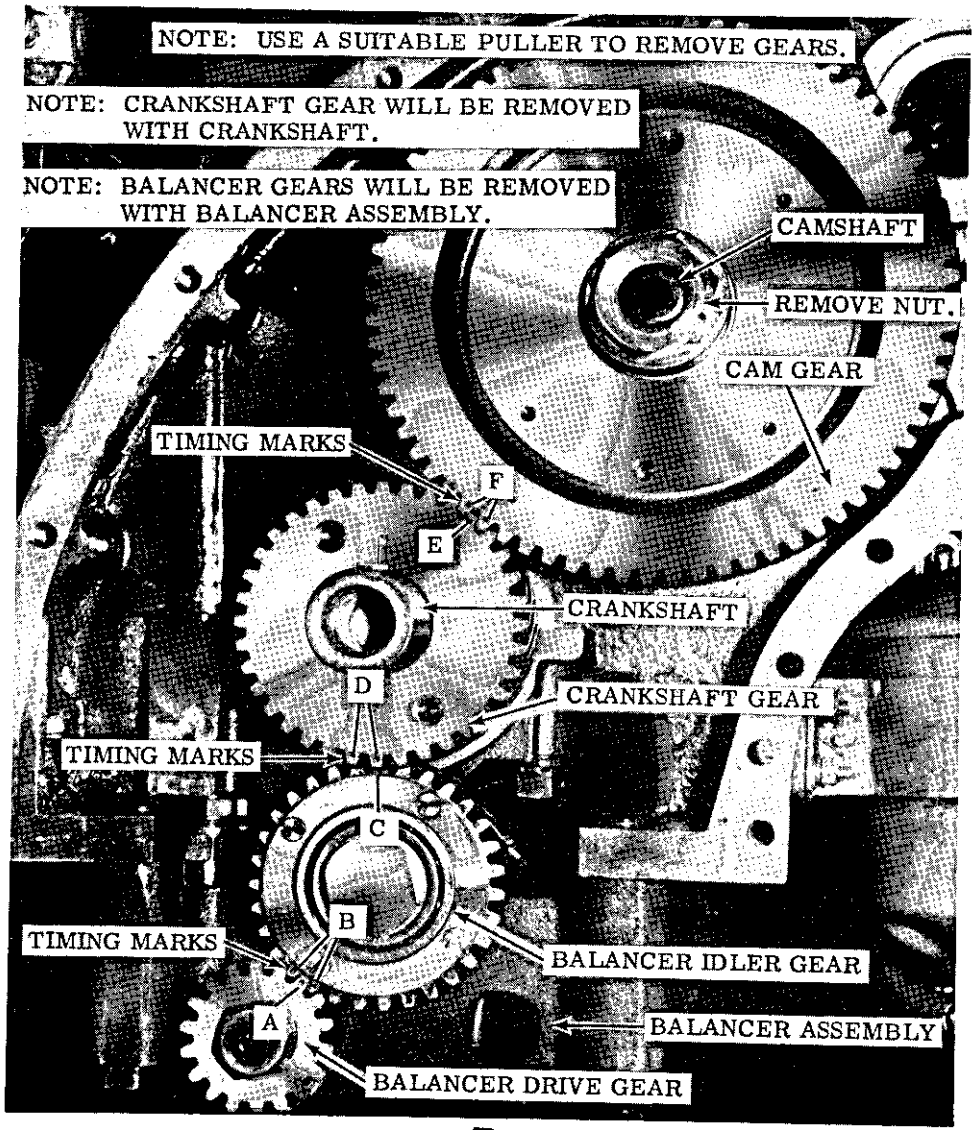
(4) Install the generator (para 94).

(5) Install the engine water pump and fan assembly (para 105 and 103).

(6) Install the engine assembly (para 184).

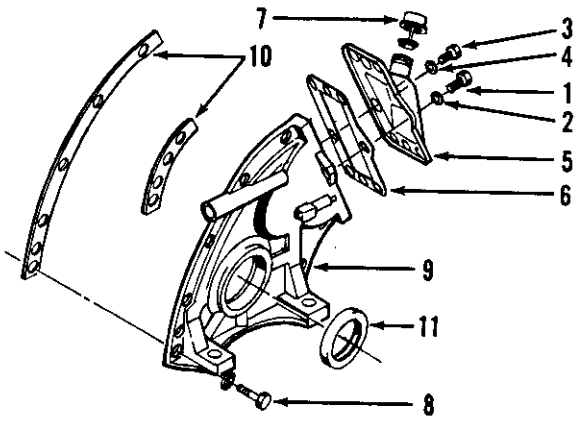


A - Timing Gear Cover, Removal and Installation
Figure 92. Engine Timing Gear Cover and Timing Gears, Removal and Installation



B

B - Timing Gears, Removal and Installation
Figure 92. - Continued.



1 Screw, 3/8-16 x 5/8 in. (5 reqd)
2 Washer, lock, 3/8 in. (5 reqd)
3 Screw, 1/4-20 x 5/8 in.
4 Washer, lock, 1/4 in.
5 Lid and oil filler assembly
6 Gasket
7 Cap assembly, oil filler
8 Screw and lockwasher assembly, 3/8-16 x 1 in. (9 reqd)
9 Cover, timing gear
10 Gasket
11 Seal, oil

Figure 93. Engine Timing Gear Cover, Disassembly and Reassembly

218. GENERAL

The engine flywheel is securely bolted to a flange on the rear of the crankshaft. The starter ring gear is shrink fitted on the rim of the flywheel. The flywheel serves to maintain an evenly rotating crankshaft speed, and with the starter assembly, provides a means of cranking the engine. The compressor coupling pins and bushings are securely attached to the flywheel. The flywheel is housed in the flywheel housing which is mounted to the rear end of the cylinder block. The flywheel housing also serves as the rear engine support.

219. FLYWHEEL AND FLYWHEEL HOUSING

a. Removal and Disassembly.

(1) Remove the engine assembly (para 184).

(2) Remove the engine flywheel and flywheel housing from the engine as instructed on figure 94.

(3) Disassemble the engine flywheel and flywheel housing in the numerical sequence as illustrated on figure 95.

b. Cleaning, Inspection, and Repair.

(1) Clean the engine flywheel and flywheel housing parts with an approved cleaning solvent and dry thoroughly.

(2) Inspect the flywheel for elongated holes or any other damage. Replace a defective flywheel.

(3) Inspect the flywheel ring gear for wear or broken teeth. Replace a defective flywheel ring gear or flywheel.

(4) Inspect the flywheel housing for cracks, breaks, elongated holes, or other damage. Replace a damaged flywheel housing.

(5) Inspect coupling pins and bushings for wear, bending, or any other damage. Replace damaged pins and bushings.

(6) Inspect mounting hardware for damage. Replace defective hardware.

(7) Using a dial indicator check the face of the flywheel housing. The normal reading should not exceed 0.008 inch out-of-square with the crankshaft pushed to the rear of the engine to offset end play.

(8) Relocate dial indicator and check the housing bore in the same manner. Run-out limit is 0.008 inch.

c. Reassembly and Installation.

(1) Reassemble the engine flywheel housing and flywheel in the reverse of the numerical sequence as illustrated on figure 95.

(2) Install the engine flywheel housing and flywheel on the engine in reverse of the instructions on figure 94.

(3) Install the engine assembly (para 184).

NOTE: MAKE CERTAIN FLYWHEEL IS PROPERLY SUPPORTED BEFORE REMOVING SCREWS. USE SUITABLE PULLER TO REMOVE FLYWHEEL..

NOTE: AFTER FLYWHEEL IS REMOVED, REMOVE SCREWS (8) AND WASHERS (8) ATTACHING FLYWHEEL HOUSING TO ENGINE BLOCK.

NOTE: WHEN ASSEMBLING COUPLING PINS (8), BEND ENDS OF LOCKING STRAPS (4) AGAINST COUPLING PIN HEX. FLAT TO SECURE IN PLACE. REPLACE LOCKWIRE (3) ON FLYWHEEL SCREWS (6).

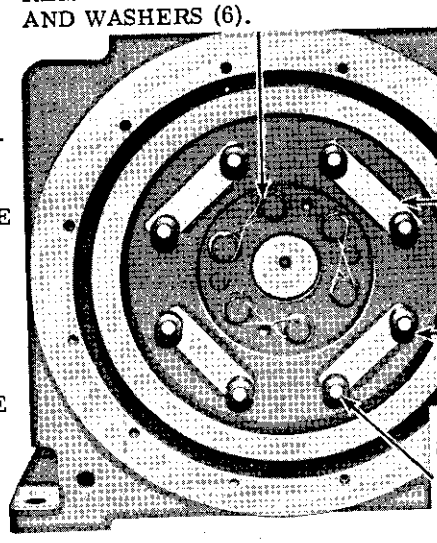


Figure 94. Engine Flywheel and Flywheel Housing, Removal and Installation

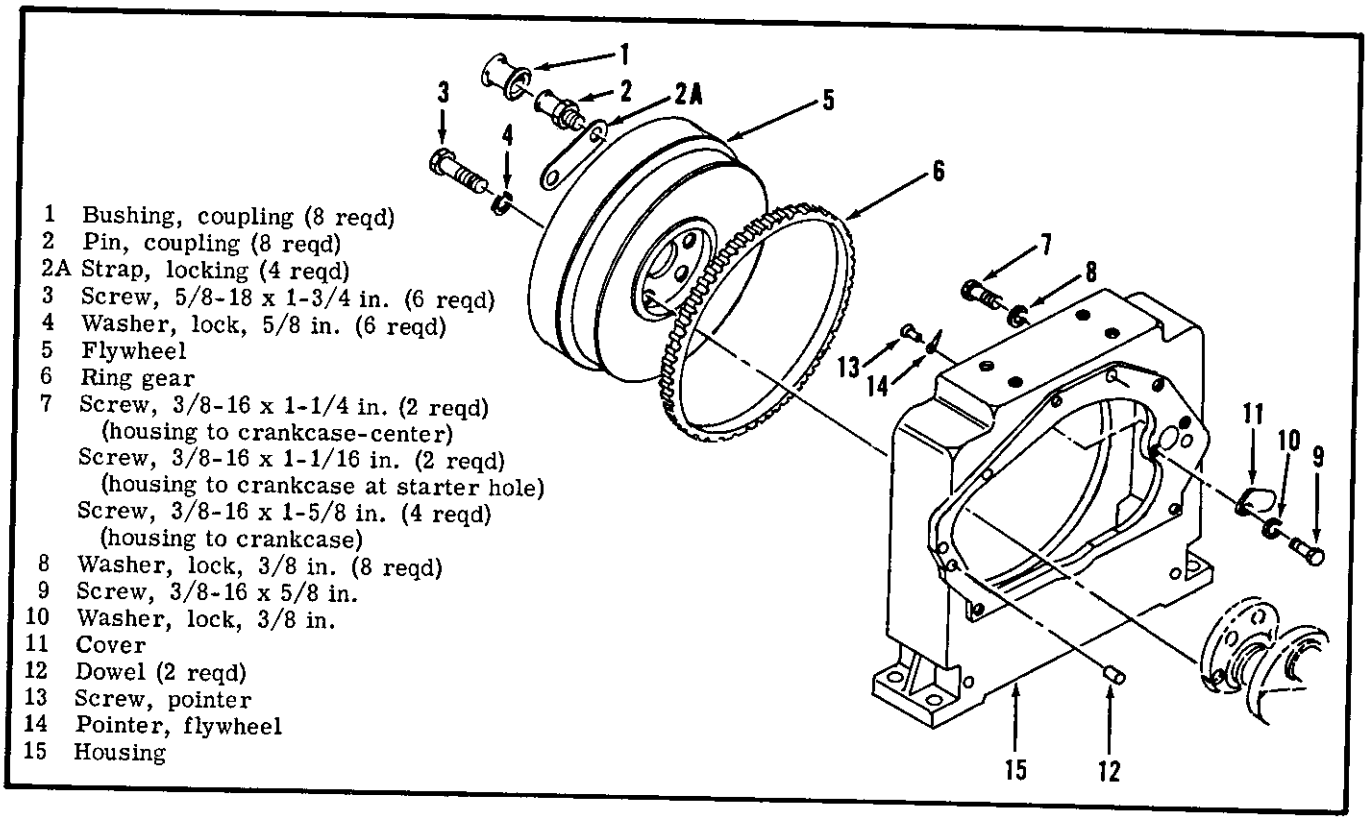


Figure 95. Engine Flywheel and Flywheel Housing, Disassembly and Reassembly

Section XI. CAMSHAFT

220. GENERAL

The camshaft is supported in the cylinder block on three bushings and secured in the cylinder block by a thrust plate. The camshaft is driven by the camshaft gear in mesh with the crankshaft gear. The camshaft operates the valves by means of tappets and pushrods actuating the rockerarm assembly mounted on the top of the cylinder head assembly. Timing of the camshaft gear and crankshaft gear requires no check of valve position. It is only necessary to align the punch marks on the two gears.

221. CAMSHAFT

a. Removal.

(1) Remove the engine assembly (para 184).

(2) Remove the cylinder head assembly (para 201).

(3) Remove the timing gear cover (para 217).

(4) With magnetized rod or other means, remove the tappets from the cylinder block.

(5) Remove camshaft in the numerical sequence as illustrated on figure 96.

b. Cleaning, Inspection, and Repair.

(1) Clean all parts with an approved cleaning solvent and dry.

(2) Inspect camshaft for cracks, breaks, chipping, and excessive wear. Replace camshaft if damaged or excessively worn.

(3) Inspect bushings for scoring and excessive wear. Replace with service bushings if damaged or worn excessively.

(4) Inspect tappets for pitting, scoring, excessive wear, or other damage. Replace defective tappets.

(5) Inspect all other parts for wear, damage, or defective condition. Replace all worn, damaged or defective parts.

c. Installation.

(1) Install camshaft in reverse of numerical se-

quence as illustrated on figure 96 except camshaft gear and nut.

(2) Install camshaft gear and crankshaft gear. Gear fit clearance should not be greater than 0.002 inch checked with feeler gage. Camshaft gear shall be timed with crankshaft gear by aligning punch marks.

(3) Secure camshaft gear with nut and new lock.

(4) Install tappets in cylinder block.

(5) Install timing gear cover (para 217).

(6) Install cylinder head (para 209).

(7) Install the engine assembly (para 184).

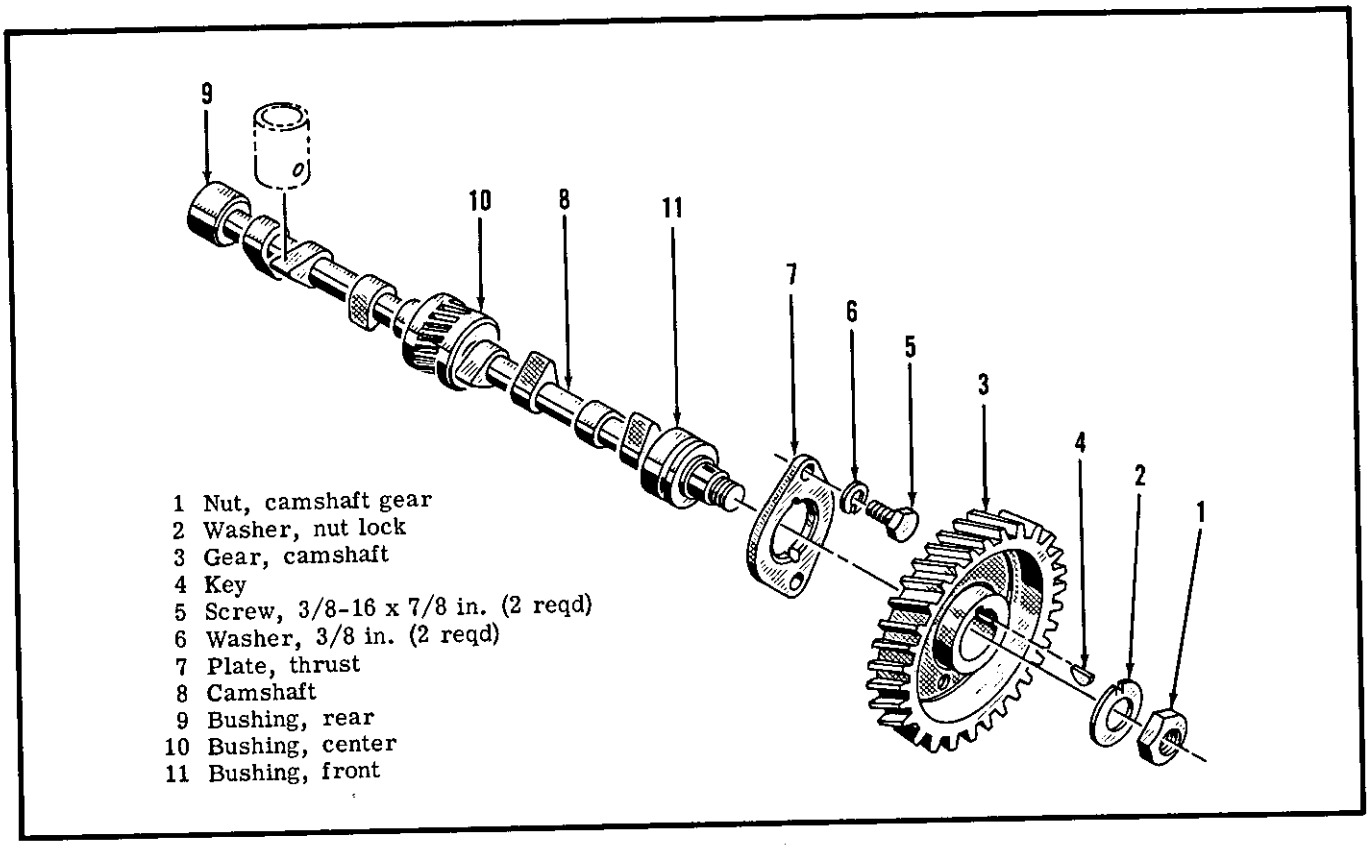


Figure 96. Engine Camshaft, Removal and Installation

222. GENERAL

The engine crankshaft assembly consists of the crankshaft pulley, crankshaft gear, and the crankshaft. Positioned at regular intervals along the crankshaft are three main bearing assemblies and four connecting rod journals. Counterbalancing is accomplished by a gear driven balancer assembly mounted to the bottom of the cylinder block timed to the crankshaft gear. Crankshaft end play is automatically controlled by the center thrust flange bearing and no shims are used. The main bearings are of two-piece replaceable type. The upper half is carried on the main bearing supports of the crankcase and the lower half is seated in the main bearing caps. The bearing halves are bolted to the crankcase by means of bearing caps and screws. Each main bearing half has an oil hole which aligns with a hole in the cylinder block. The holes provide a means of lubricating the main bearings. The upper and lower main bearing halves are not interchangeable. The rear main bearing cap incorporates an oil seal and acts as a filler block as well.

223. CRANKSHAFT AND BEARINGS

a. Removal.

(1) Remove the engine assembly (para 184).

(2) Remove the cylinder head assembly (para 201).

(3) Remove the oil pan (para 211).

(4) Remove the balancer assembly (para 212).

(5) Remove the piston and connecting rod assemblies (para 214).

(6) Remove the crankshaft pulley (para 216).

(7) Remove the timing gear cover and timing gears (para 217).

(8) Remove the flywheel and flywheel housing (para 219).

(9) Remove the main bearings and crankshaft from the engine as instructed on figure 89.

b. Disassembly. Disassemble the engine main bearings and crankshaft in the numerical sequence as illustrated on figure 97.

c. Cleaning, Inspection, and Repair.

(1) Clean all parts with an approved cleaning solvent and dry thoroughly.

(2) Clean drilled oil passages in the crankshaft with a wire brush dipped in an approved cleaning solvent.

(3) Inspect the bearing caps for breaks, cracks, chipping, or other damage. Replace a damaged bearing cap.

(4) Inspect the connecting rod bearings and crankshaft main bearings for scores, cracks, breaks or excessive wear. Replace defective or excessively worn bearings. Clearance between main bearings and crankshaft should be 0.002 inch minimum to 0.004 inch maximum.

(5) Inspect the crankshaft for scored or damaged bearing journals, cracks, or other damage. Replace a damaged crankshaft.

(6) Inspect oil seals for condition. Replace oil seals if found to be defective.

(7) Inspect the mounting hardware for damage. Replace all damaged hardware.

d. Reassembly. Reassemble the crankshaft and main bearings in the reverse of the numerical sequence as illustrated on figure 97.

e. Installation.

(1) Install the crankshaft and main bearings on the engine in the reverse of the instructions on figure 89.

(2) Install the flywheel and flywheel housing (para 219).

(3) Install the timing gears and timing gear cover (para 217).

(4) Install the crankshaft pulley (para 216).

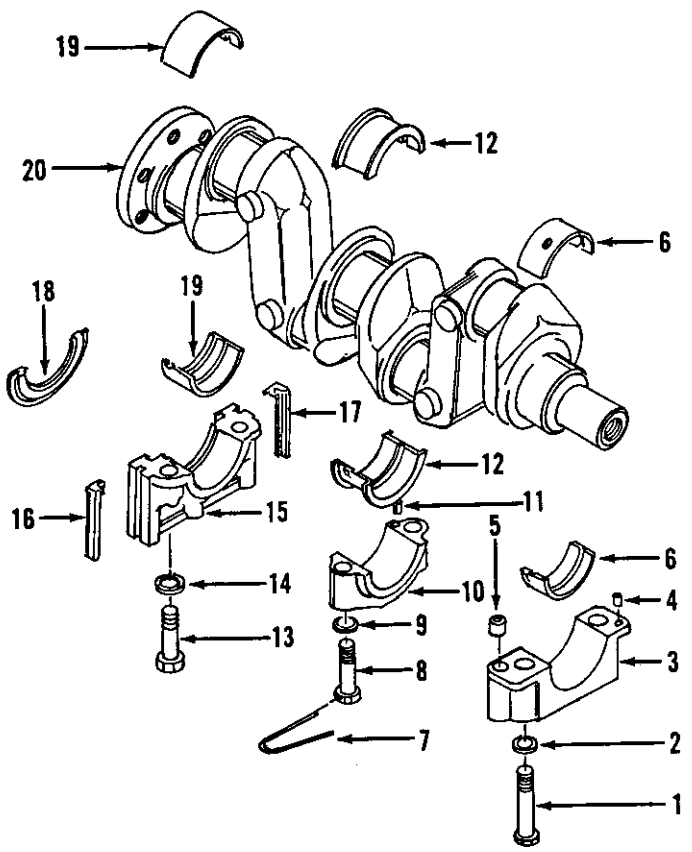
(5) Install the piston and connecting rod assemblies (para 214).

(6) Install the balancer assembly (para 212).

(7) Install the oil pan (para 211).

(8) Install the cylinder head assembly (para 209).

(9) Install the engine assembly (para 184).



1 Screw, 5/8-11 x 3-1/4 in. (2 reqd)
2 Washer, flat, 5/8 in. (2 reqd)
3 Cap, bearing, front
4 Pin, straight
5 Dowel, ring
6 Bearing assembly, front
7 Lockwire (3 reqd)
8 Screw, 5/8-11 x 3-1/4 in. (2 reqd)
9 Washer, flat, 5/8 in. (2 reqd)
10 Cap, bearing, center
11 Pin, straight
12 Bearing assembly, center
13 Screw, 5/8-11 x 3-3/8 in. (2 reqd)
14 Washer, special (2 reqd)
15 Cap, bearing, rear
16 Seal, side, R.H.
17 Seal, side, L.H.
18 Seal, oil
19 Bearing assembly, rear
20 Crankshaft assembly

Figure 97. Engine Main Bearings and Crankshaft, Disassembly and Reassembly

Section XIII. CYLINDER AND CYLINDER BLOCK ASSEMBLY

224. GENERAL

The cylinder and cylinder block assembly consists of a cast cylinder block, which forms the main structural part of the engine, and replaceable cylinder sleeves. These sleeves are commonly termed the "wet-type", meaning that they complete the water jacket of the cylinder block when they are assembled in place. Seals are provided on the cylinder sleeves to prevent water leakage. The cylinder block has drilled passages to carry lubricating oil to all moving parts and cored passages to carry cooling water to and around the cylinder sleeves. The flywheel housing attaches to the rear of the cylinder block assembly and the timing gear cover and oil filler lid assembly attach to the front end. The balancer and oil pan attach to the bottom of the cylinder block assembly. A compression gasket is used to form a tight seal between the cylinder block and the cylinder head assembly.

225. CYLINDER AND CYLINDER BLOCK ASSEMBLY

a. Removal and Disassembly.

(1) Remove the engine assembly (para 184).

(2) Remove the engine fan assembly (para 103).

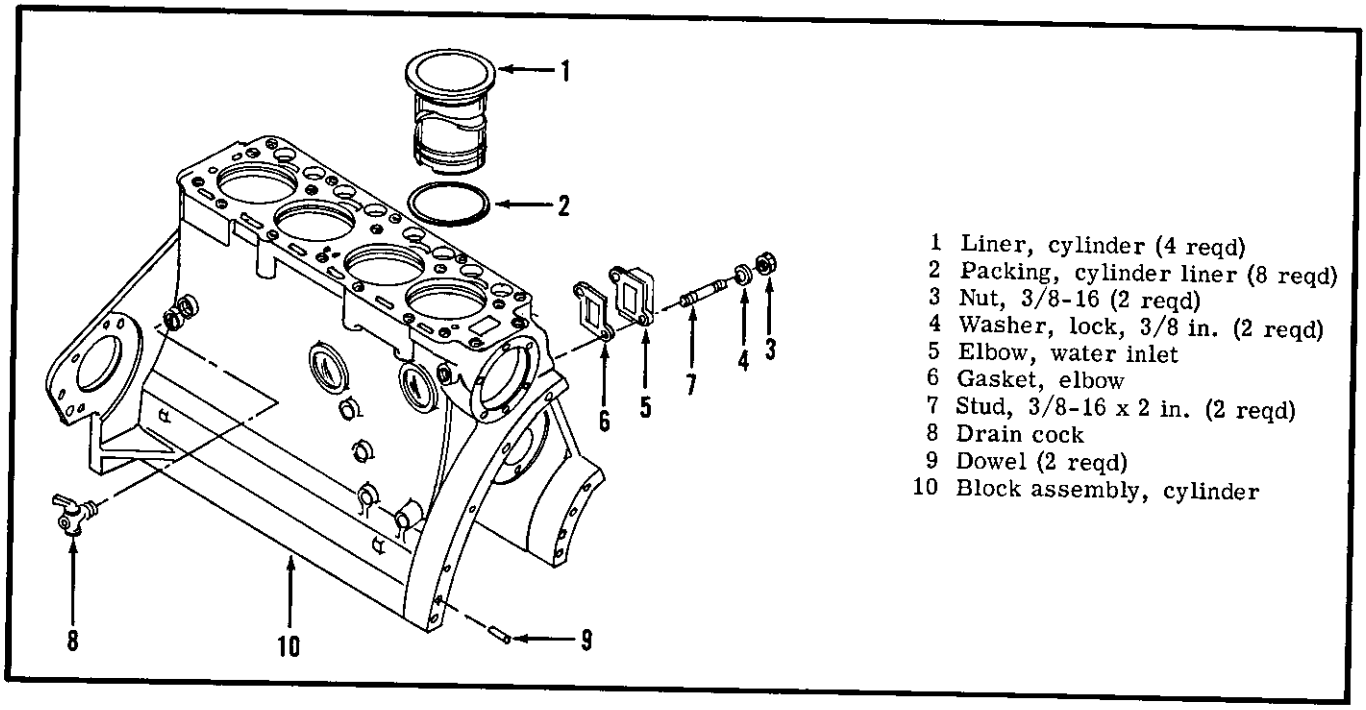
(3) Remove the engine water pump assembly (para 105).

(4) Remove the generator assembly (para 94).

(5) Remove the starter assembly (para 96).

(6) Remove the engine oil filter and cooler assembly (para 107 and 108).

(7) Remove the hand primer pump (para 89).



1 Liner, cylinder (4 reqd)
2 Packing, cylinder liner (8 reqd)
3 Nut, 3/8-16 (2 reqd)
4 Washer, lock, 3/8 in. (2 reqd)
5 Elbow, water inlet
6 Gasket, elbow
7 Stud, 3/8-16 x 2 in. (2 reqd)
8 Drain cock
9 Dowel (2 reqd)
10 Block assembly, cylinder

Figure 98. Cylinder and Cylinder Block Assembly, Disassembly and Reassembly

(8) Remove the primary fuel filter assembly (para 90).

(9) Remove the secondary fuel filter assembly (para 91).

(10) Remove the fuel injection pump assembly (para 92).

(11) Remove the cylinder head assembly (para 201).

(12) Remove the oil pan (para 211).

(13) Remove the balancer assembly (para 212).

(14) Remove the piston and connecting rod assemblies (para 214).

(15) Remove the crankshaft pulley (para 216).

(16) Remove the timing gear cover and timing gears (para 217).

(17) Remove the flywheel and flywheel housing (para 219).

(18) Remove the camshaft (para 221).

(19) Remove the crankshaft and bearings (para 223).

(20) Disassemble the engine cylinder and cylinder block assembly in the numerical sequence as illustrated on figure 98.

b. Cleaning, Inspection, and Repair.

(1) Clean all parts with an approved cleaning solvent and dry thoroughly.

(2) Remove gasket residue, carbon scale, and other hardened deposits from the outside of the cylinder block and clean with compressed air.

(3) Clean the ring of carbon from around the top of the cylinder sleeve bore formed above the travel of the top ring.

(4) Determine original diameter of cylinder sleeve bore by checking the unworn area with inside micrometers.

(5) Determine diameter of worn portion of cylinder sleeve bore by checking with inside micrometers approximately 1/4 inch below unworn area.

(6) The maximum difference between worn and unworn diameter of cylinder sleeve bore is indicated by this check. If less than 0.008 inch re-ringing of pistons will be suitable. If difference is greater than 0.008 inch, re-sleeve cylinder block.

(7) Inspect cylinder bore for scoring or other damage. Replace cylinder sleeve if scored or damaged.

(8) When cylinder block is re-sleeved, use new piston and connecting rod assembly with new sleeve.

(9) Clean cylinder sleeve counterbore in cylinder block thoroughly, removing all rust and scale. Clean the lower sleeve seal contact of all rust, corrosion, and dirt to prevent seal damage.

(10) When installing new sleeve, first drop sleeve in place in cylinder block without seals to determine amount it protrudes above top of cylinder block. This amount should be from 0.001 to 0.004 inch permitting pressure build-up where cylinder head gasket contacts sleeve. Shim under cylinder sleeve flange to obtain the specified projection. Remove sleeve and install seals. Thoroughly lubricate seals with either petroleum jelly or hydraulic brake fluid, then install sleeve in cylinder block.

CAUTION

Seals must not be twisted during assembly; otherwise leakage is likely to occur.

(11) Inspect inside and outside of cylinder block for cracks, breaks, or other damage. Replace cylinder block as necessary.

(12) Inspect top of cylinder block for grooving or roughness. Replace or repair as necessary.

(13) Inspect all studs for stretching and damaged threads. Replace as necessary.

(14) Check main bearing bore inside diameters with main bearings in place. Refer to Table IV for standard diameters.

c. Reassembly and Installation.

(1) Reassemble engine cylinder and cylinder block assembly in the reverse of numerical sequence as illustrated on figure 98.

(2) Install the crankshaft and bearings (para 223).

(3) Install the camshaft (para 221).

(4) Install the flywheel and flywheel housing (para 219).

(5) Install the piston and connecting rod assemblies (para 214).

(6) Install balancer assembly (para 212).

(7) Install timing gears and timing gear cover (para 217).

(8) Install the crankshaft pulley (para 216).

(9) Install the oil pan (para 211).

(10) Install the cylinder head assembly (para 209).

(11) Install the fuel injection pump assembly (para 92).

(12) Install the secondary fuel filter assembly (para 91).

(13) Install the primary fuel filter assembly (para 90).

(14) Install the hand primer pump (para 89).

(15) Install the engine oil cooler and filter assembly (para 108 and 107).

(16) Install the starter assembly (para 96).

(17) Install the generator assembly (para 94).

(18) Install the engine water pump assembly (para 105).

(19) Install the engine fan assembly (para 103).

(20) Install the engine assembly (para 184).

Chapter 8

AIR COMPRESSOR REPAIR INSTRUCTIONS

Section I. AIR INTAKE-UNLOADER ASSEMBLY

226. GENERAL

The compressor air intake-unloader assembly unloads the air entering the compressor when a pressure of 100 pounds per square inch is reached in the oil separator assembly. The unit also closes off the intake when the machine is shutdown, preventing oil and air mixture from the rotor stator assembly of the compressor assembly being vented to the atmosphere.

227. AIR INTAKE-UNLOADER ASSEMBLY

a. Removal. Remove the air intake-unloader assembly from the compressor (para 137).

b. Disassembly. Disassemble the air intake-unloader assembly in numerical sequence as illustrated on figure 99.

c. Cleaning, Inspection, and Repair.

(1) Clean all parts with an approved cleaning solvent and dry thoroughly.

(2) Inspect springs for defective coils. Refer to Table IV for free length. Replace defective springs.

(3) Inspect diaphragm for rupture or any defects. Replace a defective diaphragm.

(4) Inspect valve for cracks, breaks, condition of seat, or any other damage. Replace a damaged valve.

(5) Inspect all parts for cracks, breaks, wear, distortion, or other damage. Replace all defective parts.

(6) Inspect mounting hardware for damage. Replace damaged hardware.

d. Reassembly. Reassemble air intake-unloader assembly in the reverse of the numerical sequence as illustrated on figure 99.

e. Installation. Install air intake-unloader assembly (para 137).

Section II. AIR COMPRESSOR ASSEMBLY

228. GENERAL

The air compressor assembly consists of a cast single stage stator, compressor rotor, rotor blades, end covers, flywheel housing adapter, and coupling. The stator incorporates a spring loaded drain valve which drains off excessive air-oil mixture to the compressor discharge passage. The rotor is mounted in the stator housing by the end covers and rotates on two roller bearings. A mechanical oil seal is housed in the end cover on the drive end. Air and oil mixture is introduced into the stator and compressed by the rotor blades. The compressed air-oil mixture is discharged to the compressor oil separator which separates the oil from the air by means of a filter. The air is passed on to the service valves and hose reel assemblies and the oil is recirculated through the system. The air compressor developes an air flow of 250 cubic feet per minute at a discharge pressure of 100 pounds per square inch.

229. AIR COMPRESSOR ASSEMBLY

a. Removal and Disassembly.

(1) Remove the air compressor assembly from the unit (para 185).

(2) Remove the compressor oil filter assembly (para 110).

(3) Remove the thermal bypass assembly (para 111).

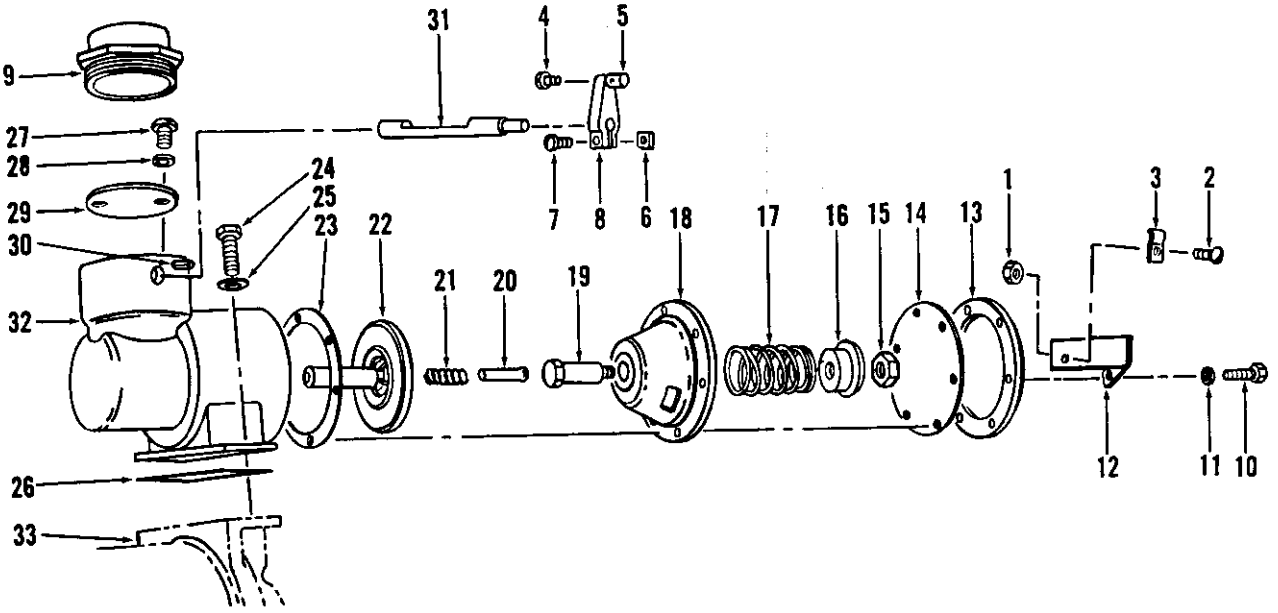
(4) Remove the air intake-unloader assembly (para 137).

(5) Disassemble the air compressor assembly in the numerical sequence as illustrated on figure 100.

b. Cleaning, Inspection, and Repair.

(1) Clean all parts with an approved cleaning solvent and dry thoroughly.

(2) Inspect stator for cracks, breaks, excessive wear, or other damage. Replace stator as necessary.



1 Nut, spinlock, 1/4-20
2 Screw, spinlock, 1/4-20 x 1/2 in.
3 Clip, cable
4 Screw, machine, rd. hd., no. 8-32 x 3/8 in.
5 Stop, wire
6 Nut, square, no. 10-32
7 Screw, pan hd., no. 10-32 x 3/4 in.
8 Arm, lever
9 Adapter
10 Bolt, 3/8-16 x 1-1/2 in. (6 reqd)
11 Washer, lock, 3/8 in. (6 reqd)
12 Bracket, cable
13 Cover
14 Diaphragm
15 Nut, lock, 3/8-16
16 Piston
17 Spring
18 Cylinder
19 Stem
20 Guide
21 Spring
22 Valve
23 Gasket
24 Screw, 3/8-16 x 1-1/4 in. (3 reqd)
25 Washer, lock, 3/8 in. (3 reqd)
26 Gasket
27 Screw, machine, no. 8-32 x 1/4 in. (2 reqd)
28 Washer, lock, no. 8 (2 reqd)
29 Plate, valve
30 Pin, spring
31 Shaft, valve
32 Body
33 Compressor assembly (reference)

Figure 99. Air Intake-Unloader Assembly, Disassembly and Reassembly

(3) Inspect rotor for cracks, breaks, chipping, excessive wear, or other damage. Replace as necessary.

(4) Inspect rotor blades for cracks, breaks, chipping, excessive wear, or other damage. Replace defective rotor blades in sets.

(5) Inspect bearings for freedom of rotation, excessive wear, or other damage. Replace defective bearings as necessary.

(6) Inspect mechanical seal for spring condition, excessive wear, cracks, breaks, or other damage. Replace seal as necessary.

(7) Replace all gaskets and o-rings.

(8) Inspect all parts for cracks, breaks, or other damage. Replace all damaged or defective parts.

(9) Inspect mounting hardware for damage. Replace all damaged hardware.

c. Reassembly and Installation.

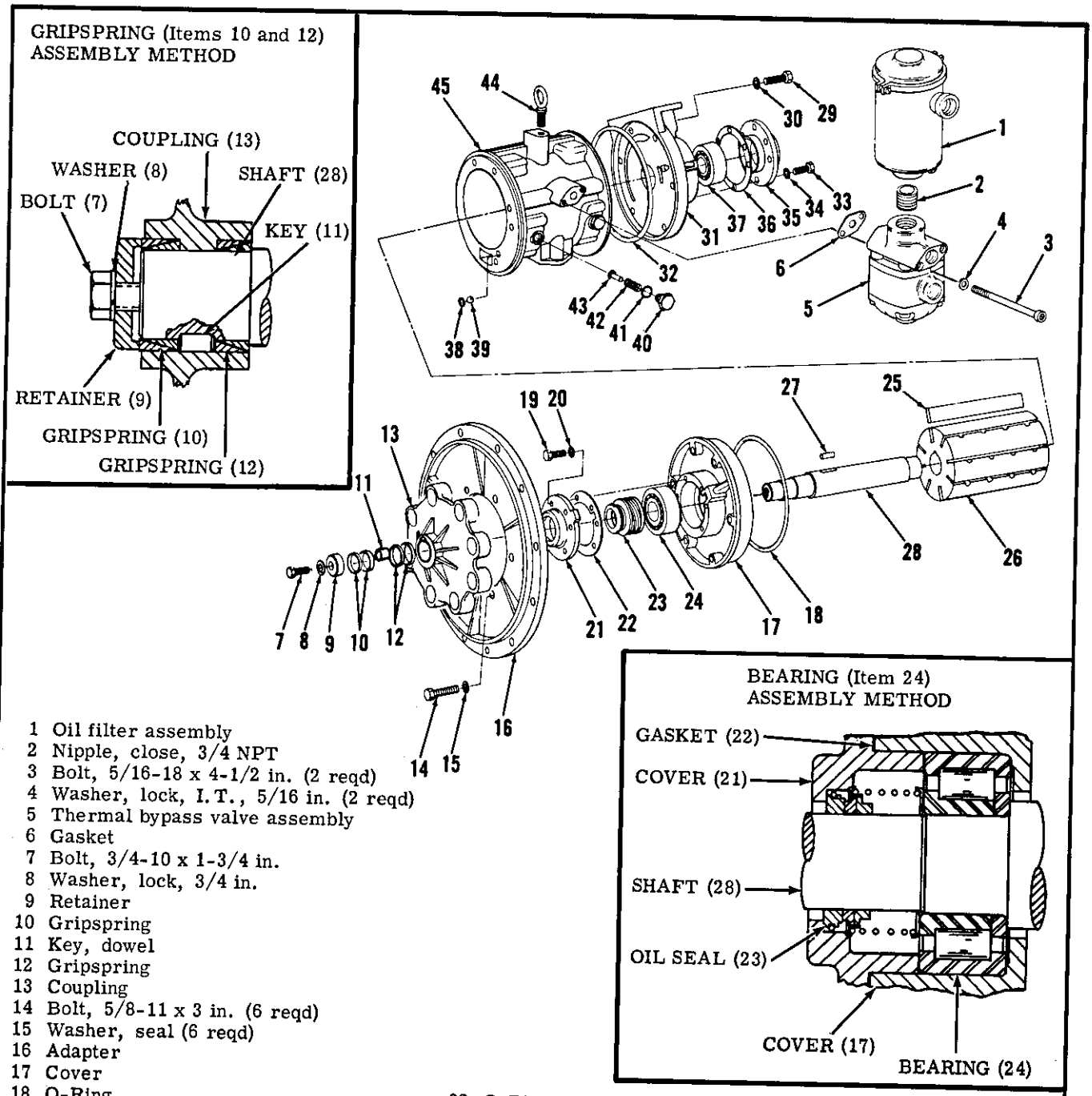
(1) Reassemble air compressor assembly in reverse of the numerical sequence as illustrated on figure 100.

(2) Install the air intake-unloader assembly (para 137).

(3) Install the thermal bypass assembly (para 111).

(4) Install the compressor oil filter assembly (para 110).

(5) Install the air compressor assembly on the unit (para 185).



1 Oil filter assembly
2 Nipple, close, 3/4 NPT
3 Bolt, 5/16-18 x 4-1/2 in. (2 reqd)
4 Washer, lock, I.T., 5/16 in. (2 reqd)
5 Thermal bypass valve assembly
6 Gasket
7 Bolt, 3/4-10 x 1-3/4 in.
8 Washer, lock, 3/4 in.
9 Retainer
10 Gripspring
11 Key, dowel
12 Gripspring
13 Coupling
14 Bolt, 5/8-11 x 3 in. (6 reqd)
15 Washer, seal (6 reqd)
16 Adapter
17 Cover
18 O-Ring
19 Bolt, 5/16-18 x 1-1/4 in. (6 reqd)
20 Washer, lock, 5/16 in. (6 reqd)
21 Cover
22 Gasket
23 Seal, oil
24 Bearing
25 Blade (8 reqd)
26 Rotor
27 Dowel, key
28 Shaft
29 Bolt, 5/8-11 x 4 in.
30 Washer, seal (5 reqd)
31 Cover
32 O-Ring
33 Bolt, 5/16-18 x 1-1/4 in. (5 reqd)
34 Washer, lock, 5/16 in. (5 reqd)
35 Cover
36 Gasket
37 Bearing
38 Plug
39 Ball, steel
40 Plug
41 O-Ring (2 reqd)
42 Spring (2 reqd)
43 Valve (2 reqd)
44 Bolt, eye
45 Stator

Figure 100. Air Compressor Assembly, Disassembly and Reassembly

Section III. OIL SEPARATOR ASSEMBLY

230. GENERAL

The compressor oil separator assembly is mounted on the skid frame and located to the rear of the housing assembly. The minimum pressure valve assembly is mounted on the top cover of the oil separator assembly. Compressed air-oil mixture passes from the air compressor to the oil separator assembly. A filter is incorporated in the oil separator assembly to separate the oil from the air before the air is passed through the minimum pressure valve and on to the service valves and hose reel assemblies. The minimum pressure valve assembly maintains a pressure within the oil separator assembly to aid in air-oil separation and recirculation of oil from the separator through the compressor oil system.

231. OIL SEPARATOR ASSEMBLY

a. Removal and Disassembly.

(1) Remove oil separator assembly from unit. Refer to paragraph 186.

(2) Disassemble oil separator assembly in the numerical sequence as illustrated on figure 101.

b. Cleaning, Inspection, and Repair.

(1) Clean the oil separator assembly parts with an approved cleaning solvent, except for o-rings and gaskets.

(2) Replace o-rings and gaskets.

(3) Inspect filter element for condition and replace as necessary.

(4) Inspect minimum pressure valve spring, piston, and valve for cracks, breaks, distortion, or any other damage. Replace all defective parts.

(5) Inspect element cap spring for cracks, breaks, distortion, or any other damage. Replace spring as necessary.

(6) Inspect oil level gage for breakage and proper operation. Replace gage as necessary.

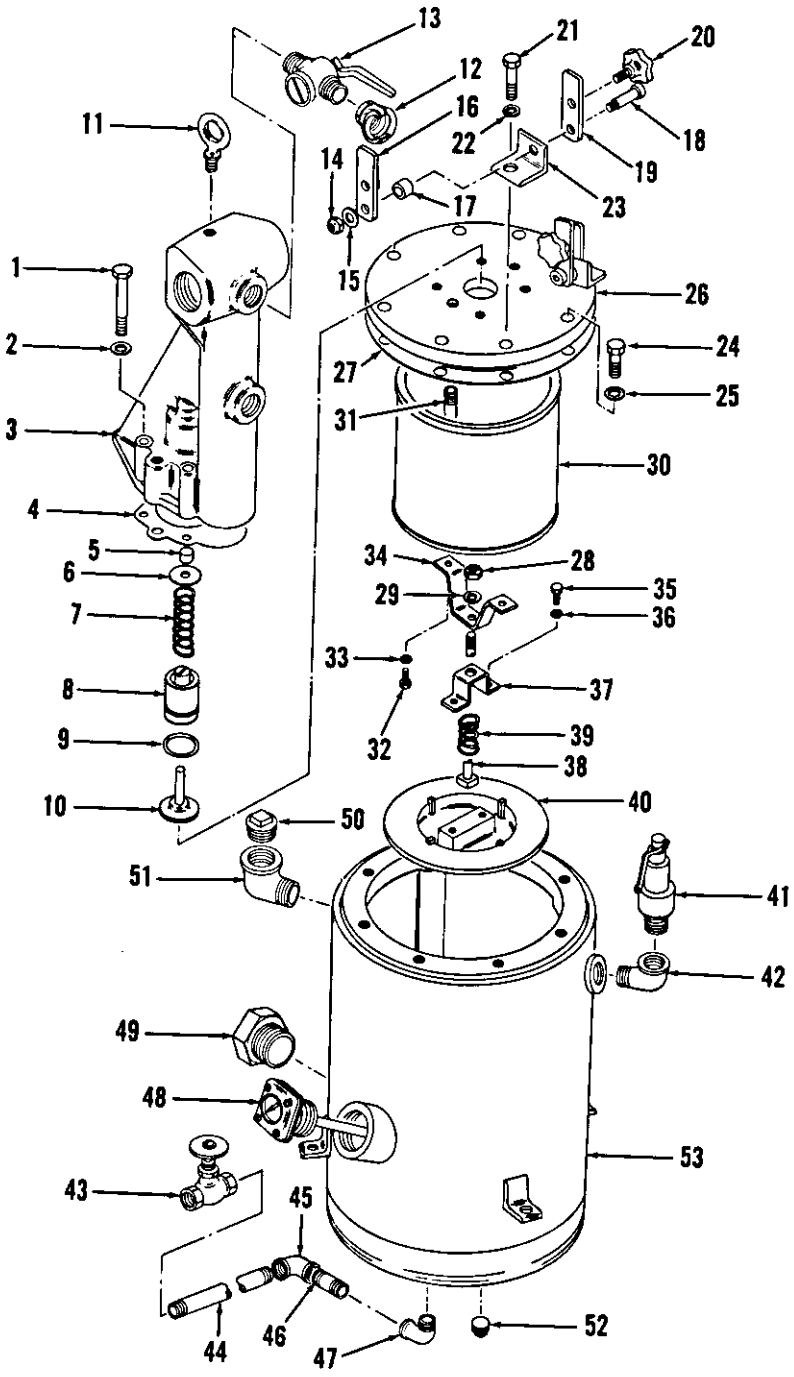
(7) Inspect all parts for cracks, breaks, bending, distortion, or any other damage. Replace all defective parts.

(8) Inspect mounting hardware for damage. Replace all damaged hardware.

c. Reassembly and Installation.

(1) Reassemble oil separator assembly in the reverse of the numerical sequence as illustrated on figure 101.

(2) Install the oil separator assembly on the unit. Refer to paragraph 186.



1 Bolt, 3/8-16 x 3 in. (4 reqd)
2 Washer, lock, I.T., 3/8 in. (4 reqd)
3 Housing
4 Gasket
5 Felt
6 Washer, special
7 Spring
8 Piston
9 O-Ring
10 Valve assembly
11 Bolt, eye
12 Connector, female (2 reqd)
13 Valve, service (2 reqd)
14 Nut, lock, 3/8-16 (2 reqd)
15 Washer, flat, 1/2 in. (4 reqd)
16 Clamp (2 reqd)
17 Spacer (2 reqd)
18 Bolt, special (2 reqd)
19 Clamp (2 reqd)
20 Knob (2 reqd)
21 Screw, 5/8-11 x 1-3/4 in. (2 reqd)
22 Washer, lock, I.T., 5/8 in. (2 reqd)
23 Bracket, R.H.
Bracket, L.H.
24 Screw, 5/8-11 x 1-3/4 in. (6 reqd)
25 Washer, lock, I.T., 5/8 in. (6 reqd)
26 Cover
27 Gasket
28 Nut, lock, 3/8-16
29 Washer, flat, 3/8 in.
30 Element, separator
31 Pipe
32 Bolt, 1/4-20 x 1/2 in. (2 reqd)
33 Washer, lock, I.T., 1/4 in. (2 reqd)
34 Hanger
35 Bolt, 1/4-20 x 5/8 in. (2 reqd)
36 Washer, lock, I.T., 1/4 in. (2 reqd)
37 Retainer
38 Stud
39 Spring
40 Cover
41 Valve, relief
42 Elbow, street, 3/4 NPT, 90°
43 Valve, globe
44 Pipe
45 Elbow, 1/2 NPT, 90°
46 Nipple, 1/2 NPT x 2 in.
47 Elbow, street, 1/2 NPT, 90°
48 Gage, oil level
49 Adapter
50 Plug, pipe, 1-1/4 in., sq. hd.
51 Elbow, street, 1-1/4 NPT, 90°
52 Plug, pipe, magnetic
53 Tank, separator

Figure 101. Oil Separator Assembly, Disassembly and Reassembly

232. GENERAL

The thermal bypass valve assembly is a normally open valve which bypasses the compressor oil from the separator assembly around the oil cooler directly through the oil filter into the compressor. When the oil temperature reaches approximately 150°F, the bypass valve starts to close and part or all of the oil is then circulated through the oil cooler before entering the filter and compressor. Unless the compressor is operating in extremely hot ambient temperatures, the thermal bypass valve will mix the hot oil from the separator and the cool oil from the cooler to maintain a constant oil temperature.

233. THERMAL BYPASS VALVE ASSEMBLY

a. Removal and Disassembly.

(1) Remove the thermal bypass valve assembly from the unit (para 111).

(2) Disassemble the thermal bypass valve assembly in the numerical sequence as illustrated on figure 102.

b. Cleaning, Inspection, and Repair.

(1) Clean all parts with an approved cleaning solvent and dry thoroughly.

(2) Inspect cover, bypass connection, and body for cracks, breaks, damaged threads, or any other damage. Replace damaged parts.

(3) Inspect springs for cracks, breaks, and distortion. Replace all damaged springs.

(4) Inspect power element assembly for any damage. Replace if damaged in any way.

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

(6) Replace all o-rings.

c. Reassembly and Installation.

(1) Reassemble thermal bypass valve assembly in reverse of the numerical sequence as illustrated on figure 102.

(2) Install the thermal bypass valve assembly (para 111).

1 Screw, 5/16-18 x 3-1/4 in. (4 reqd)
2 Washer, lock, 5/16 in. (4 reqd)
3 Cover
4 O-Ring
5 Bypass connection
6 O-Ring
7 Spring
8 Bolt, 1/4-20 x 1 in.
9 Guide
10 Plunger
11 Spring
12 O-Ring
13 Shuttle
14 Nut, 1/4-28
15 Washer, lock, 1/4 in.
16 Power element assembly
17 O-Ring
18 Ring, retaining
19 Washer, flat, no. 6
20 Spring
21 Ball, steel
22 Body

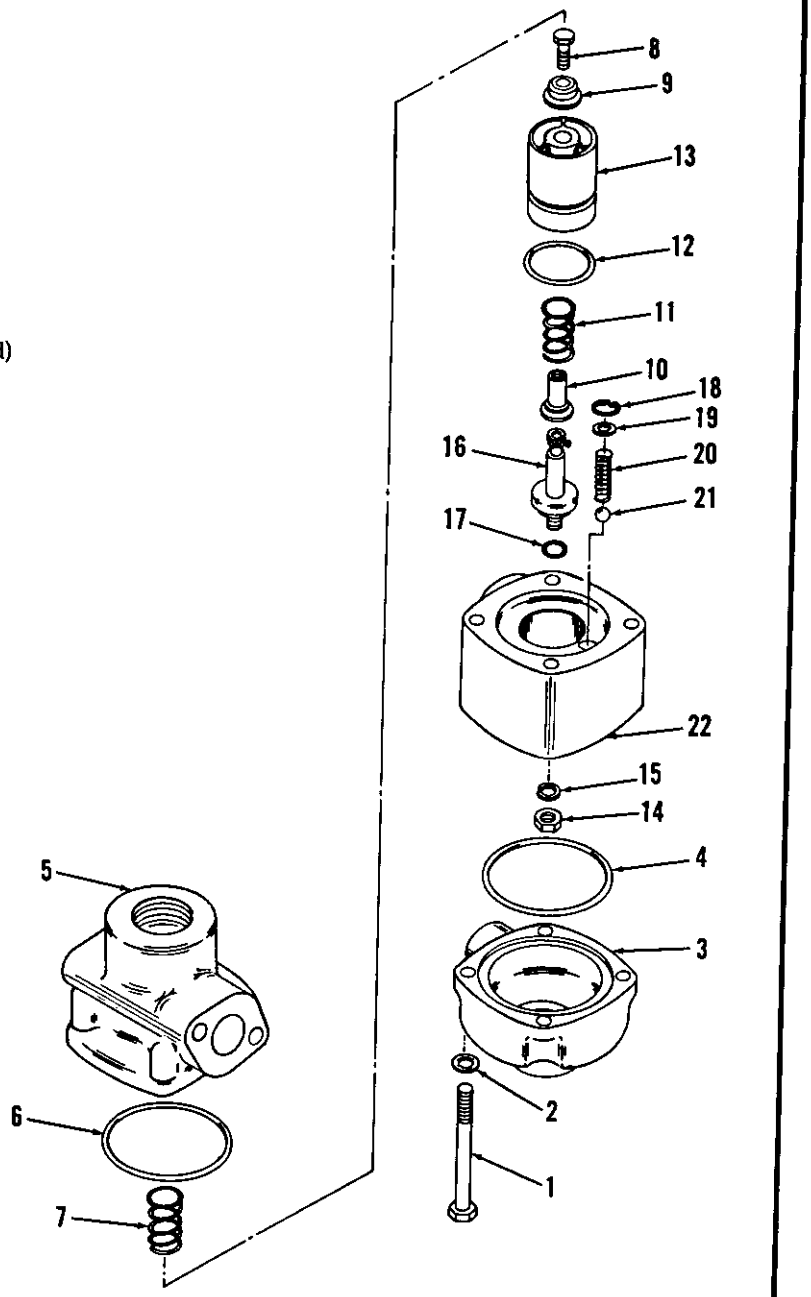


Figure 102. Thermal Bypass Valve Assembly, Disassembly and Reassembly

APPENDIX I

REFERENCES

1. DICTIONARIES OF TERMS AND ABBREVIATIONS

AR 320-5	Dictionary of United States Army Terms
AR 320-50	Authorized Abbreviations and Brevity Codes

2. FIRE PROTECTION

SB 5-111	Supply of DA Approved Fire Extinguishers to Army Troop Users
TM 5-687	Repair and Utilities: Fire Protection Equipment and Appliances: Inspections, Operations, and Preventive Maintenance
TM 9-1799	Ordnance Maintenance; Fire Extinguishers

3. LUBRICATION

LO 5-4310-250-15

4. OPERATING INSTRUCTIONS

5. PAINTING

TM 9-213	Painting Instructions for Field Use

6. PREVENTIVE MAINTENANCE

AR 750-5	Organization, Policies and Responsibilities for Maintenance Operation
TB ENG 347	Winterization Techniques for Engineer Equipment
TM 5-764	Electric Motor and Generator Repair
TM 9-207	Operation and Maintenance of Army Material in Extreme Cold Weather (0° to -65°F)
TM 9-6140-200-15	Operation and Organizational, Field and Depot Maintenance: Storage Batteries, Lead-Acid Type
TM 38-750	Army Equipment Record Procedures
TB 742-93-1	Inspection and Test of Air and Other Gas Compressors

7. PUBLICATION INDEXES

DA Pam 108-1	Index of Army Motion Pictures, Film Strips, Slides, and Phono-Recordings
DA Pam 310-1	Index of Administrative Publications
DA Pam 310-2	Index of Blank Forms
DA Pam 310-3	Index of Training Publication
DA Pam 310-4	Index of Technical Manuals, Technical Bulletins, Supply Manuals (Types 4, 6, 7, 8, and 9) Supply Bulletins, Lubrication Orders, and Modification Work Order
DA Pam 310-5	Index of Graphic Training Aids and Devices
DA Pam 310-25	Index of Supply Manuals - Corps of Engineers

8. RADIO INTERFERENCE SUPPRESSION

TM 11-483	Radio Interference Suppression

9. SHIPMENT AND LIMITED STORAGE

AR 743-505	Limited Storage of Corps of Engineers Mechanical Equipment
TM 9-200	General Packaging Instructions for Ordnance General Supply
TM 38-230	Preservation, Packaging, and Packing of Military Supplies and Equipment

10. SUPPLY PUBLICATIONS

C-9100IL	Petroleum, Petroleum-Base Products and Related Material
C 6800-IL	Chemicals and Chemical Products
	Organizational Maintenance Repair Parts and Special Tool List

11. TRAINING AIDS

FM 5-25	Explosive and Demolition
FM 21-5	Military Training
FM 21-6	Techniques of Military Instruction
FM 21-30	Military Symbols

APPENDIX II

MAINTENANCE ALLOCATION CHART

Section I. INTRODUCTION

1. GENERAL

This Appendix contains explanations of all maintenance and repair functions authorized the various echelons. Section II contains the Maintenance Allocation Chart.

2. MAINTENANCE

Maintenance is any action taken to keep material in a serviceable condition or to restore it to serviceability when it is unserviceable. Maintenance of material includes the following:

a. Service. To clean, preserve, and replenish fuel and lubricants.

b. Adjust. To regulate periodically to prevent malfunction.

c. Inspect. To verify serviceability and detect incipient electrical or mechanical failure by scrutiny.

d. Test. To verify serviceability and detect incipient electrical or mechanical failure by use of special equipment such as gages, meters, and the like.

e. Replace. To substitute serviceable assemblies, subassemblies, and parts for unserviceable components.

f. Repair. To restore an item to serviceable condition through correction of a specific failure or unserviceable condition. This function includes, but is not limited to, inspecting, cleaning, preserving, adjusting, replacing, welding, riveting, and straightening.

g. Align. To adjust two or more components of an electrical system so that their functions are properly synchronized.

h. Calibate. To determine, check, or rectify the graduation of an instrument, weapon, or weapons system, or components of a weapons system.

i. Overhaul. To restore an item to completely serviceable condition as prescribed by serviceability standards developed and published by heads of technical services. This is accomplished through employment of the technique of "Inspect and Repair Only as Necessary" (IROAN). Maximum utilization of diagnostic and test equipment is combined with minimum disassembly of the item during overhaul process.

3. EXPLANATIONS OF COLUMNS

a. Functional Group. The functional group is a numerical group set up on a functional basis. The applicable Functional Grouping Indexes (obtained from the Corps of Engineers Functional Grouping Indexes) are listed on the MAC in the appropriate numerical sequence. These indexes are normally set up in accordance with their function and proximity to each other.

b. Components and Related Operation. This column contains the Functional Grouping Index heading, subgroup headings, and a brief description of the part starting with the noun name. It also designates the operations to be performed such as service, adjust, inspect, test, replace, repair, and overhaul.

c. Echelons of Maintenance. This column contains the various echelons of maintenance by number designation. An "X" placed in the appropriate echelon column in line with an indicated maintenance function authorizes that echelon to perform the function. The "X" indicates the lowest echelon responsible for performing the function, but does not necessarily indicate repair parts stockage at that level. Higher echelons are authorized to perform the indicated functions of lower echelons.

d. Remarks. This column lists specific maintenance functions, special tools, cross-references, instructions, and the like pertinent to the operation being performed.

Section II. DRAFT MAINTENANCE ALLOCATION CHART

FUNC-TIONAL GROUP	COMPONENTS AND RELATED OPERATION	ECHELONS OF MAINTENANCE					REMARKS
		1	2	3	4	5	
	COMPRESSOR, ROTARY, AIR; DIESEL ENGINE DRIVEN; SKID MOUNTED, 250 CFM FREE AIR DELIVERED, 100 PSI DISCHARGE PRESSURE, DAVEY COMPRESSOR CO. MODEL M250 RPV						
	P.O. 88-B-50457-CL						
	NOTE: This Draft Maintenance Allocation Chart is subject to prooftesting by disassembly and reassembly of the equipment.						
01	ENGINE						
0100	ENGINE ASSEMBLY						
	Engine Assembly						
	Service	X					
	Inspect	X					
	Test			X			
	Replace			X			
	Repair			X			
	Overhaul				X		
0101	CRANKCASE, BLOCK, CYLINDER HEAD						
	Block, Engine						
	Replace				X		
	Repair				X		
	Head, Cylinder						
	Replace			X			
	Repair			X			
	Sleeve, Assembly, Cylinder						
	Replace				X		
0102	CRANKSHAFT						
	Crankshaft						
	Replace				X		
	Repair					X	
	Bearings						
	Replace				X		
	Pulley, Crankshaft						
	Replace			X			
	Dampener, Vibration						
	Replace			X			
0103	FLYWHEEL ASSEMBLY						
	Flywheel						
	Replace			X			
	Repair			X			
	Housing						
	Replace			X			
0104	PISTONS, CONNECTING RODS						
	Pistons, Rings, Pins and Retainers						
	Replace				X		
	Bearing, Sleeve						
	Replace				X		
	Rod, Connecting						
	Replace				X		
	Repair				X		

FUNC-TIONAL GROUP	COMPONENTS AND RELATED OPERATION	ECHELONS OF MAINTENANCE					REMARKS
		1	2	3	4	5	
0105	VALVES, CAMSHAFT AND TIMING SYSTEM						
	Valves						
	Replace			X			
	Repair			X			
	Guides, Springs and Locks						
	Replace			X			
	Seats, Valve						
	Replace			X			
	Repair			X			
	Rocker Arm Assembly						
	Adjust		X				
	Replace			X			
	Repair			X			
	Cover and Gasket						
	Replace		X				
	Camshaft						
	Replace				X		
	Bearing, Camshaft						
	Replace				X		
	Timing Gears						
	Replace				X		
	Repair				X		
0106	ENGINE LUBRICATION SYSTEM						
	Pump Assembly						
	Replace				X		
	Repair				X		
	Regulator, Oil Pressure						
	Replace				X		
	Repair				X		
	Filter, Oil						
	Service	X					
	Replace		X				
	Repair		X				
	Element, Filter						
	Replace		X				
	Cooler, Oil						
	Service	X					
	Replace		X				
	Repair		X				
	Breather, Valve Cover						
	Replace		X				
	Pan, Oil						
	Replace				X		
	Repair				X		
	Lines						
	Replace		X				
	Gage, Oil Level, Bayonet						
	Replace	X					
0108	MANIFOLDS						
	Manifold, Exhaust and Intake						
	Replace		X				
	Repair		X				
03	FUEL SYSTEM						
0301	CARBURETOR: FUEL INJECTOR						
	Injector Assembly, Fuel						
	Test				X		

FUNC-TIONAL GROUP	COMPONENTS AND RELATED OPERATION	ECHELONS OF MAINTENANCE					REMARKS
		1	2	3	4	5	
0301	CARBURETOR: FUEL INJECTOR, (CONT'D)						
	Replace		X				
	Repair			X			
	Transfer Pump						
	Replace		X				
	Repair			X			
0304	AIR CLEANER						
	Air Cleaner						
	Service	X					
	Replace		X				
	Repair		X				
0306	TANKS, LINES, FITTINGS						
	Tank						
	Service	X					
	Test			X			
	Replace		X				
	Repair			X			
	Lines and Fittings						
	Replace		X				
	Repair		X				
	Cap, Fuel						
	Replace		X				
0309	FUEL FILTERS						
	Filter						
	Service						
	Replace	X					
	Repair		X				
	Elements, Filter		X				
	Replace	X					
0310	ENGINE STARTING AID						
	Starting Aid, Ether						
	Service						
	Replace	X					
	Repair		X				
			X				

FUNC-TIONAL GROUP	COMPONENTS AND RELATED OPERATION	ECHELONS OF MAINTENANCE					REMARKS
		1	2	3	4	5	
04	EXHAUST SYSTEM						
0401	MUFFLER AND PIPES						
	Muffler & Pipes						
	Replace		X				
	Clamps						
	Replace		X				
	Cap, Rain						
	Replace		X				
05	COOLING SYSTEM						
0501	RADIATOR						
	Radiator						
	Service	X					
	Test			X			
	Replace			X			
	Repair			X			
	Cap						
	Replace	X					
0502	COWLING, DEFLECTORS, AIR DUCT, SHROUD						
	Shroud and Guards						
	Replace		X				
	Repair		X				
0503	WATER MANIFOLDS, HEADERS, THERMOSTATS AND HOUSING						
	Lines and Fittings						
	Replace		X				
	Hose and Clamps						
	Replace		X				
	Manifold						
	Replace		X				
	Thermostat						
	Test		X				
	Replace		X				
	Housing						
	Replace		X				
0504	WATER PUMP						
	Pump						
	Replace		X				
	Repair				X		
0505	FAN ASSEMBLY						
	Fan						
	Service	X					
	Replace			X			
	Repair			X			
	Belts						
	Adjust			X			
	Replace			X			
06	ELECTRICAL SYSTEM (ENGINE AND VEHICULAR)						
0601	GENERATOR						
	Generator						
	Test			X			

FUNC-TIONAL GROUP	COMPONENTS AND RELATED OPERATION	ECHELONS OF MAINTENANCE					REMARKS
		1	2	3	4	5	
0601	GENERATOR (CONT'D)						
	Replace		X				
	Repair			X			
	Belt						
	Adjust		X				
	Replace		X				
0602	GENERATOR REGULATOR						
	Regulator						
	Adjust		X				
	Test		X				
	Replace		X				
0603	STARTER						
	Starter						
	Service						
	Replace						
	Repair		X				
	Solenoid			X			
	Replace						
	Switches		X				
	Replace		X				
0607	INSTRUMENT OR ENGINE CONTROL PANEL						
	Ammeter						
	Replace		X				
	Switches & Gages						
	Replace		X				
	Panel						
	Replace		X				
	Wiring						
	Replace		X				
	Lights, Panel						
	Replace		X				
	Lamps						
	Replace	X					
0612	BATTERIES						
	Batteries						
	Service	X					
	Test		X				
	Replace		X				
	Box and Holddown Clamps						
	Replace		X				
	Repair		X				
	Cables						
	Replace		X				
	Repair		X				
0615	RADIO SUPPRESSION						
	Radio Suppression						
	Test		X				
	Replace		X				
15	FRAME						
1501	FRAME ASSEMBLY						
	Frame, Mounting						
	Replace			X			
	Frame, Lifting						

FUNC-TIONAL GROUP	COMPONENTS AND RELATED OPERATION	ECHELONS OF MAINTENANCE					REMARKS
		1	2	3	4	5	
1501	FRAME, ASSEMBLY, (CONT'D)						
	Replace		X				
18	BODY; CAB; HOOD; HULL						
1801	DOORS AND PANELS						
	Hood, Engine & Compressor						
	Replace		X				
	Cowl, Front and Rear						
	Replace		X				
	Doors and Panels						
	Replace		X				
1808	STOWAGE RACKS AND BOXES						
	Boxes, Tool						
	Repair		X				
	Holder, Manual						
	Replace		X				
22	MISCELLANEOUS BODY, CHASSIS OR HULL AND ACCESSORY ITEMS						
2210	DATA PLATES						
	Plates, name						
	Replace		X				
	Plates, Identification (COE)						
	Replace			X			
47	GAGES (NON ELECTRICAL)						
4710	INSTRUMENTS, SPEED AND DISTANCE						
	Tachometer, Hourmeter						
	Replace		X				
	Drive, Tachometer						
	Service		X				
	Replace		X				
	Adapter, Tachometer						
	Replace		X				
4702	GAGES, LINES AND FITTINGS						
	Gages, Oil Pressure						
	Replace		X				
	Gages, Temperature						
	Replace		X				
	Gage, Liquid Level						
	Replace		X				
	Gage, Air Pressure						
	Replace		X				
50	PNEUMATIC EQUIPMENT						
5000	COMPRESSOR ASSEMBLY						
	Compressor, Assembly		X				
	Service		X				
	Inspect				X		
	Replace				X		
	Repair					X	
	Overhaul						
5001	CRANKCASE, BLOCK, CYLINDER HEAD						
	Rotor Housing						
	Replace					X	
	Rotors and Stators						

FUNC-TIONAL GROUP	COMPONENTS AND RELATED OPERATION	ECHELONS OF MAINTENANCE					REMARKS
		1	2	3	4	5	
5001	CRANKCASE, BLOCK, CYLINDER HEAD, (CONT'D)						
	Replace				X		
	Repair				X		
	Vanes						
	Replace				X		
	Bearings; Seals; Gaskets						
	Replace				X		
5006	LUBRICATION SYSTEM						
	Separator, Oil and Air						
	Service		X				
	Replace			X			
	Valve, Minimum Pressure						
	Replace		X				
	Manifold, Oil Return						
	Repair		X				
	Filter, Oil						
	Service		X				
	Repair		X				
	Cooler, Oil						
	Service	X					
	Repair			X			
	Lines and Fittings						
	Replace		X				
	Repair		X				
5007	COMPRESSOR DRIVE						
	Adapter, Housing Assembly						
	Repair				X		
	Spline, Coupling						
	Replace				X		
5008	AIR INTAKE						
	Cleaner, Air						
	Service	X					
	Replace		X				
	Brackets; Hoses; Clamps						
	Replace		X				
5009	UNLOADER SYSTEM COMPONENTS						
	Pilot, Regulator						
	Replace		X				
	Repair			X			
	Unloader Assembly						
	Replace			X			
	Repair			X			
	Valve, Safety		X				
	Replace		X				
5010	COMPRESSOR COOLING						
	Hose and Fittings						
	Replace		X				
5012	THROTTLING DEVICES						
	Control Assembly						
	Service	X					
	Replace		X				
	Repair			X			

FUNC-TIONAL GROUP	COMPONENTS AND RELATED OPERATION	ECHELONS OF MAINTENANCE					REMARKS
		1	2	3	4	5	
5013	HOSE REEL						
	Reel, Hose						
	Repair		X				
5014	AIR RECEIVER						
	Receiver, Air	X					
	Service		X				
	Replace						
	Filler, Oil		X				
	Replace						
5015	AIR DISCHARGE SYSTEM						
	Hose and Fittings		X				
	Replace						
	Manifold		X				
	Replace						
76	FIREFIGHTING EQUIPMENT						
7603	FIRE EXTINGUISHER	X					
	Service		X				
	Replace						

APPENDIX III

BASIC ISSUE ITEMS LIST AND MAINTENANCE AND OPERATING SUPPLIES

Section I. INTRODUCTION

1. GENERAL

Section II lists the accessories, tools, and publications required for maintenance and operation by the operator, initially issued with, or authorized for the (air compressor). Section III lists the maintenance and operating supplies required for initial operation.

2. EXPLANATION OF COLUMNS CONTAINED IN SECTION II

a. Source Codes. The information provided in each column is as follows:

(1) Material. This column lists the basic material code number of the supply service assigned responsibility for the part. Blank spaces denote supply responsibility of the preparing agency. General Engineer Supply parts are identified by the letters "GE" in parentheses, following the nomenclature in the description column. Other basic material code numbers are:

3 - Chemical Material
5 - Engineer Material
9 - Ordnance Material
10 - Quartermaster Material

(2) Source. The selection status and source of supply for each part are indicated by one of the following code symbols:

(a) P - applied to high-mortality repair parts which are stocked in or supplied from the supply service depot system, and authorized for use at indicated maintenance level.

(b) P1 - applied to repair parts which are low-mortality parts, stocked in or supplied from supply service depots, and authorized for installation at indicated maintenance level.

(c) M - applied to repair parts which are not procured or stocked but are to be manufactured at indicated maintenance level.

(d) X2 - applied to repair parts which are not stocked. The indicated maintenance level requiring such repair parts will attempt to obtain them through cannibalization; if not obtainable through cannibalization, such repair parts will be requisitioned with supporting justification through normal supply channels.

(3) Maintenance. The lowest maintenance level authorized to use, stock, install, or manufacture the part is indicated by the following code symbol:

O - Organizational Maintenance

(4) Recoverability. Repair parts and/or tool and equipment items that are recoverable are indicated by one of the following code symbols:

(a) R - applied to repair parts and assemblies which are economically repairable at direct and general support maintenance activities and normally are furnished by supply on an exchange basis.

(b) T - applied to high-dollar value recoverable repair parts which are subject to special handling and are issued on an exchange basis. Such repair parts normally are repaired or overhauled at depot maintenance facilities.

(c) U - applied to repair parts specifically selected for salvage by reclamation units because of precious metal content, critical materials, high-dollar value reusable casings, castings, and the like.

Note

When no code is shown in the recoverability column the part is considered expendable.

b. Federal Stock Number. When a Federal stock number is available for a part, it will be shown in this column, and will be used for requisitioning purposes.

c. Description.

(1) The item name and a brief description of the part are shown.

(2) A five-digit Federal supply code for manufacturers and/or other supply services is shown in parentheses followed by the manufacturer's part number. This number shall be used for requisitioning purposes when no Federal stock number is indicated in the Federal stock number column.

Example: (08645) 86543

(3) The letters "GE", shown in parentheses immediately following the description, indicates General Engineer supply responsibility for the part.

d. Unit of Issue. If no abbreviation is shown in this column, the unit of issue is "each".

e. Quantity Authorized. This column lists the quantities of repair parts, accessories, tools, or publications authorized for issue to the equipment operator or crew as required.

f. Quantity Issued with Equipment. This column lists the quantities of repair parts, accessories, tools, or publications that are initially issued with each item of equipment. Those indicated by an asterisk are to be requisitioned through normal supply channels as required.

g. Illustrations. This column is subdivided into two columns which provide the following information:

(1) Figure number. Provides the identifying number of the illustration.

(2) Item number. Provides the referenced number for the parts shown in the illustration.

3. INDEX TO FEDERAL SUPPLY CODE OF MANUFACTURERS

4. EXPLANATION OF COLUMNS CONTAINED IN SECTION III.

a. Item. This column contains numerical sequenced item numbers, assigned to each component application, to facilitate reference.

b. Component Application. This column identifies the component application of each maintenance or operating supply item.

c. Source of Supply. This column lists the basic material code number of the supply service assigned responsibility for the item. Blank spaces denote supply responsibility of the preparing agency. Other basic material code numbers are:

3 - Chemical Material
5 - Engineer Material
9 - Ordnance Material
10 - Quartermaster Material

d. Federal Stock Number. The Federal stock number will be shown in this column and will be used for requisitioning purposes.

e. Description. The item and a brief description are shown.

f. Quantity Required for Initial Operation. This column lists the quantity of each maintenance or operating supply item required for initial operation of the equipment.

g. Quantity Required for 8 Hours Operation. Quantities listed represent the estimated requirements for an average eight hours of operation.

h. Notes. This column contains informative notes keyed to date appearing in the preceding column.

Section II. BASIC ISSUE ITEMS LIST

SOURCE CODES				FEDERAL STOCK NUMBER	DESCRIPTION	Unit of Issue	Quantity Authorized	Quantity Issued with Equipment	ILLUSTRATION	
Material	Source	Maintenance	Recoverability						FIG.	ITEM
					3100 BASIC ISSUE ITEMS MANUFACTURER INSTALLED					
9	P	O		6140-057-2554	BATTERY, STORAGE 12V	ea	2	2		
10	P	O		7520-559-9618	CASE: Operations and maintenance publications, cotton duck, water repellent and mildew resistant	ea	1	1		
	P	O		4210-893-1092	EXTINGUISHER, FIRE, Dry Powder	ea	1	1		
12					MANUAL, operation, maintenance and all parts TM-5-4310-250-15	ea	2	2		
3	P	O		6810-249-9354	SULFURIC ACID: electrolyte	gal	4	4		
					3200 BASIC ISSUE ITEMS TROOP INSTALLED OR AUTHORIZED					
10	P	O		4930-360-2801	GREASE GUN, HAND 16 oz.	ea	1	*		
10	P	O		4930-273-3644	OILER, HAND 8 oz.	ea	1	*		
10	P	O		5120-277-9491	SCREWDRIVER, FLAT TIP: 1/4 in. tip, 9 in. lg.	ea	1	*		
10	P	O		5120-449-8083	WRENCH, OPEN END: adjustable, 10 in.	ea	1	*		
10	P	O		5120-223-7396	PLIERS, SLIP JOINT, 6 in.	ea	1	*		
5	P	O		4720-202-6948	HOSE ASSEMBLY, Rubber, 0.750 in. I.D. X 50 ft. lg W/2 ea. universal couplings	ea	4	*		

Section III. MAINTENANCE AND OPERATING SUPPLIES

Item	Component application	Source of supply	Federal stock No.	Description	Quantity required for initial operation	Quantity required for 8 hours operation	Notes
1	0101 CRANKCASE, ENGINE (1)			OIL, LUBRICATING: 5-gal pail as follows:			(1) Includes qty of oil to fill engine oil system as follows: 9 qt - Crankcase 1-1/2 qt - oil filter
		10	9150-265-9428	OE-10	10-1/2 qts (1)	10 oz.	
		10	9150-265-9435	OE-30	10-1/2 qts (1)	10 oz.	
		10	9150-242-7603	OES	10-1/2 qts (1)	10 oz.	
2	0306 FUEL TANK			FUEL OIL, DIESEL: bulk as follows:			(2) Tank capacity.
		10	9140-286-5294	Regular grade (DF2)	45 gal (2)	45 gal (7)	
		10	9140-286-5286	Winter grade (DF1)	45 gal (2)	45 gal (7)	(3) Cooling system capacity.
		10	9140-286-5283	Artic grade (DF-A)	45 gal (2)	45 gal (7)	
3	0501 RADIATOR			WATER	6 gal (3)	1/2 pt	(4) Compressor capacity.
				ANTIFREEZE:			
		9	6850-893-8636	55-gal drum, Ethylene glycol	(8)	(8)	(5) Speed control capacity.
		9	6850-174-1806	Antifreeze Compound, artic	(8)	(8)	
4	5000 COMPRESSOR			OIL, LUBRICATING, General purpose, 5-gal pail as follows:			(6) See current LO for grade application and replenishment intervals.
		10	9150-985-7234	2110-TH	24 qts (4)	1-1/2 oz.	
		10	9150-242-7603	OES	24 qts (4)	1-1/2 oz.	
5	5012 SPEED CONTROL			OIL, LUBRICATING, ENGINE:			(7) Average fuel consumption is 5.625 gal per hour of continuous operation.
		10	9150-265-9428	OE-10	1/5 qt (5)	None	
		10	9150-265-9435	OE-30	1/5 qt (5)	None	
		10	9150-242-7603	OES	1/5 qt (5)	None	
6	LUBRICATION POINTS			GREASE, AUTOMOTIVE AND ARTILLERY: 5-pound can as follows:			(8) See table III for quantity, specific gravity, and replenishment data.
		10	9150-190-0905	GAA	as reqd (6)	(6)	

APPENDIX IV

REPAIR PARTS

Section I. INTRODUCTION

1. GENERAL

a. This manual lists repair parts for organizational, direct and general support, and depot maintenance. It indicates the quantity of repair parts required to be stocked by organizational maintenance as their prescribed load. It indicates the guide quantity factors to be used for initial repair parts stockage by direct and general support, and recommends quantities of repair parts for depot maintenance. Information and data contained herein serve as requisitioning reference material, and as a guide to determine stockage of repair parts.

b. Price information for stock-type repair parts may be obtained from applicable DA SM type-2 series supply manuals and/or Supply Management Data and Price List (ML) of the Department of Defense Section of the Federal Supply Catalog.

c. Repair parts lists are arranged as follows:

(1) Individual parts and major assemblies are listed alphabetically by item name within the functional groups.

(2) Assembly components and subassemblies are indented and listed alphabetically by item name under major assemblies.

(3) Bulk material and parts peculiar with more than one application are listed in functional groups 9501 and 9901 respectively.

d. Allowances are based on 3000 hours operational per year.

2. Explanation of Repair Parts and Prescribed Load Listing (Table 1).

a. Source Codes. This column is subdivided into four columns. The titles and information provided in each column are as follows:

(1) Material. This column lists the basic material code number of the supply service assigned responsibility for the part. Blank spaces denote supply responsibility of the preparing agency. General Engineer Supply parts are identified by the letters "GE" in parentheses, following the nomenclature in the description column. Other basic material code numbers are:

3 - Chemical Material
5 - Engineer Material
9 - Ordnance Material
10 - Quartermaster Material

(2) Source. The selection status and source of supply for each part are indicated by one of the following code symbols:

(a) P - applied to high-mortality repair parts which are stocked in or supplied from the supply service depot system and authorized for use at indicated maintenance levels.

(b) P1 - applied to repair parts which are low-mortality parts, stocked in or supplied from supply service depots, and authorized for installation at indicated maintenance levels.

(c) M - applied to repair parts which are not procured or stocked but are to be manufactured at indicated maintenance levels.

(d) A - applied to assemblies which are not procured or stocked as such but made up of two or more units, each of which carry individual stock numbers and descriptions and are procured and stocked and can be assembled by units at indicated maintenance levels.

(e) X - applied to parts and assemblies which are not procured or stocked, the mortality of which is normally below that of the applicable end item, and the failure of which should result in the retirement of the end item from service.

(f) X1 - applied to repair parts which are not procured or stocked, the requirement for which will be supplied by use of next higher assembly or components.

(g) X2 - applied to repair parts which are not stocked. The indicated maintenance level requiring such repair parts will attempt to obtain them through cannibalization; if not obtainable through cannibalization, such repair parts will be requisitioned with supporting justification through normal supply channels.

(h) C - applied to repair parts authorized for local procurement. If not obtainable from local procurement, such repair parts will be requisitioned through normal supply channels with a supporting statement of nonavailability from local procurement.

(i) G - applied to major assemblies that are procured with PEMA (Procurement Equipment Missile Army) funds for initial issue only to be used as exchange assemblies at direct and general support maintenance levels. These assemblies will not be stocked above direct and general support maintenance levels or returned to depot supply level.

(j) Z - applied to obsolete repair parts no longer stocked or procured.

(3) Maintenance.

(a) The lowest maintenance level authorized to manufacture, assemble, and/or install the part is indicated by one of the following code symbols:

O - Organizational Maintenance
F - Direct Support Maintenance (DS)
H - General Support Maintenance (GS)
D - Depot Maintenance

(b) This column is left blank when components of kits or sets are listed that are not applicable to the item of equipment, or when an item is source coded X1.

(4) Recoverability. Repair parts and/or tool and equipment items that are recoverable are indicated by one of the following code symbols:

(a) R - applied to repair parts and assemblies which are economically repairable at direct and general support maintenance activities and normally are furnished by supply on an exchange basis.

(b) T - applied to high-dollar value recoverable repair parts which are subject to special handling and are issued on an exchange basis. Such repair parts normally are repaired or overhauled at depot maintenance activities.

(c) U - applied to repair parts specifically selected for salvage by reclamation units because of precious metal content, critical materials, high-dollar value reusable casings, castings, and the like.

Note

When no code is shown in the recoverability column the part is considered expendable.

b. Federal Stock Number. When a Federal stock number is available for a part, it will be shown in this column and will be used for requisitioning purposes.

c. Description.

(1) The item name and a brief description of the part are shown.

(2) A five-digit Federal supply code for manufacturers and/or other supply service is shown in parentheses, followed by the manufacturer's part number. This number will be used for requisitioning purposes when no Federal stock number is indicated in the Federal stock number column. Example: (08645) 86453

(3) Repair part quantities included in kits, sets, and assemblies, that differ from the actual quantity used in this specific end item, are listed in parentheses.

(4) When repair parts are source coded "C", the manufacturer's part number will be used for local procurement.

Note

When a minimum stockage sufficient to repair one item and/or assembly is authorized, this quantity will be indicated in the description column with the notation "minimum stockage of is authorized.

d. Unit of Issue. If no abbreviation is shown in this column, the unit of issue is "each".

e. Quantity Incorporated in Unit. The actual number of parts used in the application indicated is shown in this column. A zero (0) is shown when components of kits or sets are listed that are not applicable to this specific end item.

f. 15-Day Organizational Maintenance Allowance. Shown for each repair part is either a quantity or an asterisk allocation which indicates the following:

(1) A guide quantity factor is shown for each repair part authorized to be stocked by organizational maintenance. This quantity is based on past experience with similar items and the latest mortality data for 3000 hours operation per year. It is the average quantity required to provide one prescribed load for 1-5 and/or 6-10 items of equipment for a 15-day period under average combat conditions.

Note

Combat essential items which must be stocked or on order at organizational maintenance at all times, regardless of demand, will be identified in the allowance column by a quantity in parentheses.

(2) The quantity of repair parts authorized for stockage in accordance with the number of prescribed loads authorized by the major commander are determined by using Table 1.

(3) Table 1 is a consolidation of items quantitatively allocated in this manual. Quantities listed are for one prescribed load for a 15-day period. A minimum stockage sufficient to repair one item and/or assembly is authorized (e.g., if 3 belts are required, then 3 belts are allocated as the minimum stockage). This quantity will be indicated in the minimum stockage authorization column.

(4) Units and organizations authorized more than one prescribed load will multiply the quantity listed in the appropriate end item density spread column of 1-5 or 6-10 by the number of prescribed loads.

(5) When more than 10 equipments require support, multiply the quantity listed in the 6-10 column by the number of equipments and the number of authorized prescribed loads, divide by 10, and round to the nearest whole number.

Example: If the quantity listed in the 6-10 column is 4, the number of equipments is 17, and the number of

authorized prescribed loads is 1, the following formula would be used:

$$4 \times 17 \times 1 \div 10 = 6.8$$

The resulting fraction is 0.8; therefore the authorized stockage is 7.

Example: If the quantity listed in the 6-10 column is 4, the number of equipments is 17, and the number of authorized prescribed loads is 3, the following formula would be used:

$$4 \times 17 \times 3 \div 10 = 20.4$$

The resulting fraction is 0.4; therefore the authorized stockage is 20.

Note

An exception is made for those units and organizations required to have on hand, boxed or packaged prescribed load(s) pursuant to a special mission assignment. Such prescribed load(s) will be computed or selected separately from quantities authorized for stockage at permanent station.

(6) Repair parts required to perform organizational maintenance, which are not authorized for stockage are identified by an asterisk, and are to be requisitioned for immediate use only.

(7) Subsequent changes to allowances will be limited as follows:

(a) No decrease in the stated quantity of Combat Essential Items is authorized.

(b) No change in the range of items is authorized. If exception to the Prescribed Load Listing or revision to allowances is considered necessary, a recommendation should be forwarded to the U. S. Army Mobility Equipment Center (see para. 6).

(c) Decreases in the stated quantity of items other than Combat Essential Items are authorized to a minimum quantity sufficient to repair one item and/or assembly and increases in the stated quantity are authorized for all items when justified by demand and usage experience. Detailed procedures for performing these adjustments are prescribed in AR 735-35.

g. Guide Quantities Per 100 Equipments. Shown for each repair part applicable direct and general support, and/or depot maintenance is either an allowance factor or an asterisk allocation which indicates the following:

(1) A guide quantity factor is shown for each part authorized to be stocked by direct and general support maintenance and supply support activities, and the number of repair parts recommended for depot maintenance. This factor is based on the latest mortality data for 3000 hours operation per year and is the average quantity required by the various maintenance activities to provide maintenance and supply support for 100 items of equipment for a 15-day period under average combat conditions.

(2) The quantities of repair parts authorized for stockage are determined using the following mathematical formula:

$$\frac{\text{Quantity of equipment to be supported, multiplied by the listed allowance factor,}}{\text{divided by 100.}}$$

Fractions derived from the use of the above formula will be rounded to whole numbers as follows: If the result is 1 or more and includes a fraction that is 0.5 or more, the quantity is rounded to the next higher number.

Example: If the number of equipment supported is 30 and the allowance factor for 100 equipments is 5, the following formula would be used:

$$30 \times 5 \div 100 = 1.5$$

The resulting fraction is 0.5; therefore, the stockage is 2. If the result is 1 or more and includes a fraction of less than 0.5, the quantity is rounded to the next lower number. When the computed result is less than 0.5, no quantity is authorized for direct and general support, and depot maintenance. However, if the item is combat essential, a quantity of 1 is authorized.

Example: If the number of equipment supported is 30 and the allowance factor for 100 equipments is 28, the following formula would be used:

$$30 \times 28 \div 100 = 8.4$$

The resulting fraction is less than 0.5; therefore, the stockage is 8.

(3) In the guide quantity columns for direct and general support maintenance, additional repair parts authorized for use but not for initial stockage, are listed without a guide quantity factor. These items are identified by an asterisk and may be added to or deleted from stock when recorded demand experience justifies a change in stockage objective.

(4) Parts that may be required for depot maintenance, in addition to those allocated, are identified by an asterisk. These parts are to be requisitioned, when required, if not obtainable from reclamation, fabrication, or local procurement.

(5) Combat essential items of a critical nature which must be stocked at direct and general support maintenance at all times, regardless of demand are identified in the allowance column by inclosing the allowance factor in parentheses.

h. Direct and General Support Maintenance 15-Day Level.

(1) Direct Support (DS). This column lists the

initial guide quantity allowance factors of repair parts authorized for initial stockage by direct support maintenance activities to provide direct support maintenance for Mobility Command equipment and to provide organizational maintenance repair parts for supported units for a 15-day period. Additional repair parts identified by an asterisk are explained in g above. Upon establishment of supply records, recorded demand experience will be used to compute stockage objectives on authorized repair parts. Review of stockage objectives will be performed in the time cycle prescribed by major commanders.

(2) General Support (GS). This column lists initial guide quantity allocation factors of repair parts authorized for initial stockage by general support maintenance activities to provide general support maintenance for Mobility Command equipment for a 15-day period. Additional repair parts identified by an asterisk are explained in g above. Upon establishment of supply records, recorded demand experience will be used to compute stockage objectives on authorized repair parts. Review of the stockage objectives will be performed in the time cycle prescribed by major commanders.

(3) Units with TOE capability of performing partial or complete Direct and General Support maintenance for organic Mobility Command equipment. Units with the TOE capability of performing partial or complete direct and general support maintenance for organic Mobility Command equipment will be authorized to stock direct and/or general support repair parts only when specific agreements are made between the commander of the designated parts supply activity, normally Direct Support Units (DSU) and using unit. Parts so furnished are in addition to the prescribed load and will be adjusted as demands indicate.

(4) Units with TOE Mission to provide maintenance for Mobility Command equipment of supported units. Units organized under TOE's with the assigned mission to provide direct and general support maintenance for Mobility Command equipment of supported units are authorized to stock direct and general support repair parts. These repair parts will be issued from the appropriate parts supply activity (parts depot and/or DSU). Such stocakge is in addition to the prescribed load and will be adjusted as demand indicates.

i. Depot Maintenance. This column lists the quantity of repair parts recommended for depot maintenance shops (non-TOE) to provide depot maintenance for 100 equipments. Additional repair parts are allocated by an asterisk, for immediate use only. Explanation of the asterisk allowance is contained in g above.

j. Illustrations. This column is subdivided into two columns as follows:

(1) Figure number. Indicates the number of the illustration in which the part is shown.

(2) Item number. Indicates the reference number used to point out the part in the illustration.

3. Index to Federal Stock Numbers and Manufacturers' Part Numbers Listed alpha-numerically in the back of this manual are the requisitioning numbers shown in the Federal Stock number and/or description column. The alphabetical O is listed as numerical 0 (zero). This index also lists manufacturers' codes (as applicable) and page numbers.

Example of index sequence:

A	BX5-27	38.50
AA	T295	3838-141-4957
A1/2X3	0124	388 212
A1-950	1-77	389/100.2
A1A22	2530-048-7342	389/100-18
B	2815-097-5429	3895-128-7642

4. Abbreviations

5. Index to Federal Supply Code for Manufacturers

6. Reporting of Equipment Manual Improvements

The direct reporting, by the individual user, of errors, omissions, and recommendations for improving this manual is authorized and encouraged. DA Form 2028 (Recommended changes to Technical Manual Parts Lists or Supply Manual 7, 8, or 9) will be used for reporting these improvements. This form will be completed in triplicate using pencil, pen, or typewriter. The original and one copy will be forwarded direct to the Commanding General, U. S. Army Mobility Equipment Center, ATTN: SMOME-MMP, P. O. Drawer 58, St. Louis, Missouri, 63166. One information copy will be provided to the individual's immediate supervisor (e.g., officer, noncommissioned officer, supervisor, etc.).

CODES	FEDERAL STOCK NUMBER	DESCRIPTION	MANUFACTURER'S CODE	MANUFACTURER'S PART NO.	UNIT OF ISSUE	QTY INCORPORATED IN UNIT	GUIDE QTY(S) PER MAJOR EQUIPS: 15 DAYS MAINT. ORGANIZATIONAL 1-5	15 DAYS MAINT. ORGANIZATIONAL 6-10	DS	GS	DEPOT MAINT. 100 EQUIPMENTS	ILLUST FIGURE NO.	ILLUST ITEM NO.
		SECTION II. REPAIR PARTS LIST											
		GROUP 01 - ENGINE											
		0100 - ENGINE ASSEMBLY											
P1FR		ENGINE ASSEMBLY: fan through flywheel	(16004)	47122		1			*	*	2		
X1		ENGINE: Continental	(14351)	JD403-6002		1							
X20		EYE, LIFTING	(14351)	T427A-201		1	*	*	*	*	*		
P H		GASKET SET, ENGINE OVERHAUL (Includes components of GASKET SET, Stock No. (14351) (JD403U-113)	(14351)	JD403U-111		1				3	100		
X1		GASKET: body to cover	(14351)	N62L-210		1							
X1		GASKET: cover	(14351)	JD382L-211		1							
X1		GASKET: cover housing	(14351)	C400L-231		1							
X1	5330-197-8116	GASKET: cylinder cover	(14351)	X-211-A		3							
X1		GASKET: cylinder head	(14351)	JD402A-402		1							
X1		GASKET: cylinder head cover	(14351)	JD82A-304		1							
X1	2815-313-7645	GASKET: cylinder water inlet	(14351)	H260K-203		1							
X1	2930-313-7646	GASKET: cylinder water outlet	(14351)	H260K-209		1							
X1	2930-171-6575	GASKET: elbow to oil cooler	(14351)	K600L-206		2							
X1	2815-870-9536	GASKET: exhaust flange	(14351)	JD403E-200		1							
X1		GASKET: filter base to crankcase	(14351)	JD382L-309		1							
X1		GASKET: gear cover	(14351)	J382B-306		1							
X1	2815-507-2381	GASKET: lid gear cover	(14351)	H260B-321		1							
X1		GASKET: magnetic plug	(14351)	W4B-108		1							
X1		GASKET: manifold	(14351)	J382E-302		2							
X1		GASKET: oil cooler	(14351)	JD382L-217		1							
X1		GASKET: oil pan	(14351)	J382B-403		1							
X1	2805-527-7244	GASKET: plug	(14351)	X-336		2							
X1	2930-298-5321	GASKET: support	(14351)	H260K-204		1							
X1		PACKING: cylinder liner	(14351)	J382A-200		8							
X1	2910-646-6816	SEAL: adapter	(14351)	X-1583		1							
X1	5330-374-4058	SEAL: dust	(14351)	H260K-213		2							
X1		SEAL: injection pump	(14351)	X-1587		1							
X1	5310-579-3039	SEAL: oil	(14351)	M600L-214		1							
X1	2815-646-6267	SEAL: oil rear	(14351)	H260B-339		1							
X1	2815-347-3782	SEAL: side left hand	(14351)	H260B-333		1							
X1	2815-347-3738	SEAL: side right hand	(14351)	H260B-340		1							
X1		SEAL: water pump	(14351)	N62K-211		1							
PF		GASKET SET: VALVE GRINDING	(14351)	JD403U113		1		3	*		100		
X1		GASKET: body to cover	(14351)	N62L-210		1							
X1		GASKET: cover to housing	(14351)	C400L-231		1							
X1	5330-197-8116	GASKET: cylinder cover	(14351)	X-211-A		3							
X1		GASKET: cylinder head	(14351)	JD402A-402		1							
X1		GASKET: cylinder head cover	(14351)	J382A-304		1							
X1	2930-313-7646	GASKET: cylinder water outlet	(14351)	H260K-209		1							
X1	2930-171-6575	GASKET: elbow to oil cooler	(14351)	K600L-206		2							
X1	2815-870-9536	GASKET: exhaust flange	(14351)	JD403E-200		1							
X1		GASKET: filter base to crankcase	(14351)	JD382L-309		1							
X1		GASKET: magnetic plug	(14351)	W4B-108		1							
X1		GASKET: manifold	(14351)	J382E-202		2							
X1		GASKET: oil cooler	(14351)	JD382L-217		1							
X1	2805-527-7244	GASKET: plug	(14351)	X-336		2							

CODES	FEDERAL STOCK NUMBER	DESCRIPTION	MANUFACTURER'S CODE	MANUFACTURER'S PART NO.	UNIT OF ISSUE	QTY INCORPORATED IN UNIT	GUIDE QTY(S) PER MAJOR EQUIPS: 15 DAYS MAINT. ORGANIZATIONAL 1-5	15 DAYS MAINT. ORGANIZATIONAL 6-10	DS	GS	DEPOT MAINT. 100 EQUIPMENTS	ILLUST FIGURE NO.	ILLUST ITEM NO.
		0100 - ENGINE ASSEMBLY (CONT)											
X2H	5310-021-8440	NUT, PLAIN, HEXAGON: front support mtg				4				*	*		
X2H	5310-021-8440	NUT, PLAIN, HEXAGON: rear support mtg				2				*	*		
X2H	5310-012-1574	NUT, PLAIN, HEXAGON: rear support mtg				4				*	*		
X2H	5305-017-9891	SCREW, CAP, HEXAGON: front support mtg				4				*	*		
X2H	5305-017-9889	SCREW, CAP, HEXAGON HEAD: rear support mtg				2				*	*		
X2H		SCREW, CAP, HEXAGON HEAD: rear support mtg				4				*	*		
X2H		SUPPORT, ENGINE, front mtg	(16004)	45862		1				*	*		
X2H		SUPPORT, ENGINE, rear mtg	(16004)	45861		2				*	*		
X2H	5310-012-0384	WASHER, CHANNEL, front support mtg				4				*	*		
X2H	5310-012-0384	WASHER, CHANNEL, rear support mtg				2				*	*		
X2H		WASHER, FLAT, front support mtg				4				*	*		
X2H		WASHER, FLAT, rear support mtg				2				*	*		
X2H		WASHER, FLAT, rear support mtg				4				*	*		
X2H	5310-584-5272	WASHER, LOCK, front support mtg				4				*	*		
X2H	5310-584-5272	WASHER, LOCK, rear support mtg				2				*	*		
X2H	5310-012-1574	WASHER, LOCK, rear support mtg				4				*	*		
		0101 - CRANKCASE, BLOCK, CYLINDER HEAD											
X2H		BLOCK ASSEMBLY - CYLINDER	(14351)	JD403C-5003A		1				*	*	98	10
X2H		BEARING CAP & BLOCK	(14351)	J382B-414		1				*	*	97	15
X2H		CAP: center bearing	(14351)	J382B-311		1				*	*	97	10
X2H		CAP: front bearing	(14351)	JD382B-419		1				*	*	97	3
P1H	2815-709-0686	CYLINDER LINER KIT	(14351)	JD403T-104		1				*	100		
X1		CYLINDER LINER & PISTON ASSEMBLY	(14351)	JD403A-4012		4							
X1		LINER, cylinder	(14351)	JD403A-401		1							
X1		PACKING, cylinder liner (Component of GASKET SET, Stock No. (14351) JD403U-111	(14351)	J382A-200		2							
		PISTON ASSEMBLY	(14351)	JD403A-4001-A		1							
X1		DOWEL: rear brg cap to crankcase	(14351)	X-7093		2				*	*		
X2H		DOWEL, RING: front cap to crankcase	(14351)	8TC-200		1				*	*	97	5
X2H		HEAD ASSEMBLY, CYLINDER	(14351)	JD403A-6025		1			*	*	*	82	34
X2F		GASKET: cylinder head (Component of GASKET SET, Stock No. (14351) JD403U-111, See Group 0100)				1						82	35
X1		NUT, PLAIN, HEXAGON: stud	(14351)	X-1890		16				*	*	82	30
X2F		NUT, PLAIN, HEXAGON: stud	(14351)	X-1802-G		14				*	*	82	1
X2F		PLUG, CORE HOLE, cylinder head	(14351)	S749A-203		1				*	*		
X2F		PLUG, FUSE: , cylinder head	(14351)	E600A-215		1				*	*		
X2F		PLUG, PIPE: cylinder head	(14351)	X-2593		1				*	*		
X2F		PLUG, PIPE: cylinder head	(14351)	X-102		1				*	*		
X2F		PLUG, PIPE: cylinder head	(14351)	X-112		3				*	*		
X2F		STUD: cylinder head to crankcase	(14351)	X-4200		2				*	*	82	39
X2F		STUD: cylinder head to crankcase	(14351)	X-4395		4				*	*	82	38

CODES				FEDERAL STOCK NUMBER	DESCRIPTION	MANUFACTURER'S CODE	MANUFACTURER'S PART NO.	UNIT OF ISSUE	QTY INCORPORATED IN UNIT	GUIDE QTY(S) PER MAJOR EQUIPS				ILLUST	
MATERIEL	SOURCE	MAINT	RECOVBLTY							15 DAYS MAINT. ORGANIZATIONAL 1-5	15 DAYS MAINT. ORGANIZATIONAL 6-10	DS	GS	DEPOT MAINT. 100 EQUIPMENTS	FIGURE NO.	ITEM NO.
					0101 - CRANKCASE, BLOCK, CYLINDER HEAD (CONT)											
X2F					STUD: cylinder head to crankcase	(14351)	X-20000		6			*	*	*	82	36
X2F					STUD: cylinder head to crankcase	(14351)	X-20029		2			*	*	*	82	37
X2F					STUD: cylinder head to crankcase	(14351)	X-4704		5			*	*	*		
X2F					WASHER; FLAT: stud	(14351)	X-14457		17			*	*	*	82	31
X2F					WASHER, LOCK: stud	(14351)	X-203		2			*	*	*	82	33
X1					LINER, CYLINDER (Component of CYLINDER LINER KIT, Stock No. (14351) JD403T-104,	(14351)	JD403A-401		4						98	1
X2H					LOCKWIRE, 11"lg: bearing cap bolts	(14351)	X13004		6				*	*	97	7
X1					PACKING: cylinder liner (Component of GASKET SET, Stock No. (14351) JD403U-111, See Group 0100)	(14351)	J382A-200		8						98	2
X2H					PIN, STRAIGHT: bearing caps to crankcase	(14351)	X-1756		5				*	*	97	4
X2H	2805-339-1403				PLUG: 1 5/8, cylinder & crankcase heater holes	(14351)	X-2279		2				*	*		
X2H	5340-797-4860				PLUG; 2" hubbard				4				*	*		
X2H					PLUG; KNOCKOFF: cylinder block oil gallery	(14351)	X-2594		1				*	*		
X2H	4730-289-0814				PLUG, PIPE: cylinder block oil gallery	(14351)	X-137-A		2				*	*		
X2H					PLUG, PIPE	(14351)	X-101		4				*	*		
X2H					PLUG, WOOD: heat indicator hole	(14351)	X-180		1				*	*		
X2H	5305-017-9835				SCREW, CAP, HEXAGON HEAD	(14351)	X-3940		8				*	*		
X2H					SCREW, CAP, HEXAGON HEAD: rear, bearing cap to crankcase	(14351)	X-6863		2				*	*	97	13
X2H					SCREW, CAP, HEXAGON HEAD: front main bearing cap to crankcase	(14351)	X-6618		1				*	*		
X2H					SCREW, CAP, HEXAGON HEAD:	(14351)	X-5949		3				*	*	97	1
X1	2815-646-6267				SEAL: oil, rear (Component of GASKET SET, Stock No. (14351) JD403U-111, See Group 0100)	(14351)	H260B-339		1						97	18
X1	2815-347-3782				SEAL: side, left hand (Component of GASKET SET, Stock No. (14351) JD403U-111, See Group 0100)	(14351)	H260B-333		1						97	17
X1	2815-347-3783				SEAL: side, right hand (Component of GASKET SET, Stock No. (14351) JD403U-111, See Group 0100)	(14351)	H260B-340		1						97	16
X2H					WASHER, COPPER	(14351)	X-14134		8				*	*		
X2H	5310-785-8060				WASHER, FLAT:	(14351)	X-14375		4				*	*	97	2
X2H	5310-785-8059				WASHER, SPECIAL: bearing cap to crankcase rear	(14351)	X-14374		2				*	*	97	14
					0102 - CRANKSHAFT											
X1					BEARING, CRANKSHAFT; CENTER: (Component of BEARING KIT, Stock No. (14351) JD382T-135)	(14351)	JD382G-3091		1						97	12

CODES MATERIEL	CODES SOURCE	CODES MAINT	CODES RECOVBLTY	FEDERAL STOCK NUMBER	DESCRIPTION	MANUFACTURER'S CODE	MANUFACTURER'S PART NO.	UNIT OF ISSUE	QTY INCORPORATED IN UNIT	GUIDE QTY(S)PER MAJOR EQUIPS 15 DAYS MAINT. ORGANIZATIONAL 1-5	6-10	DS	GS	DEPOT MAINT. 100 EQUIPMENTS	ILLUST FIGURE NO.	ILLUST ITEM NO.
					0102 - CRANKSHAFT (CONT)											
X1					BEARING, CRANKSHAFT, FRONT: (Component of BEARING KIT, Stock No. (14351) JD382T-135)	(14351)	JD382G-3001		1						97	6
X1					BEARING, CRANKSHAFT, REAR (Component of BEARING KIT, Stock No. (14351) JD382T-135)	(14351)	JD382G-3041		1						97	19
P1H				2815-709-0685	BEARING KIT, CRANKSHAFT	(14351)	JD382T-135		1				*	100		
X1					BEARING, CRANKSHAFT, CENTER	(14351)	JD382G-3091		1							
X1					BEARING, CRANKSHAFT, FRONT	(14351)	JD382G-3001		1							
X1					BEARING, CRANKSHAFT, REAR	(14351)	JD382G-3041		1				*	*	97	20
X2H				2815-055-5947	CRANKSHAFT ASSEMBLY	(14351)	JD382C-2242		1				*	*	91	1
X2H				2990-374-3996	JAW, START	(14351)	B600-0-201		1				*	*		
X2H				5315-255-2360	PIN	(14351)	6TG-101		1							
X1					PLUG, KEYWAY	(14351)	X-664		1			*	*	*	91	3
X2F					PULLEY, CRANKSHAFT	(14351)	JD403C-407		1							
X1				5330-374-4058	SEAL: dust (Component of GASKET SET, Stock No. (14351) JD403U-111	(14351)	H260K-213		1						91	5
P1H				2805-363-4663	SHIM, 0.002"	(14351)	20RC-215		AR				*	10		
P1H				2805-597-9210	SHIM, 0.008"	(14351)	20RC-216		AR				*	10		
X2H				2815-293-1589	THROWER, OIL	(14351)	H260C-201		1				*	*	91	6
X2H					WASHER, FLAT	(14351)	14206		1				*	*	91	2
P1H				2805-661-3757	WASHER, THRUST	(14351)	R600C-201		1				*	100		
P1H					WASHER, THRUST	(14351)	JD382C-228		1				*	100		
					0103 - FLYWHEEL ASSEMBLY											
X2F					COVER: flywheel housing	(14351)	8FC-205		1			*	*	*	95	11
X2F					DOWEL	(14351)	R600C-219		2			*	*	*		
X2F					FLYWHEEL ASSEMBLY	(14351)	JD403C-4080		1			*	*	*	95	5
X2FR					FLYWHEEL	(14351)	JD403C-408		1			*	*	*	95	6
P1F				2815-270-3575	GEAR, RING	(14351)	HD260C-302		1			*	*	3	95	15
X2F					HOUSING, flywheel	(14351)	JD382B-600		1			*	*	*	95	15
X2F					LOCKWIRE	(14351)	X-1333M		1			*	*	*		
X2F				5315-298-1514	PIN, DOWEL	(14351)	X-17003		2			*	*	*	95	12
X2F				5305-017-9835	SCREW, CAP, HEXAGON HEAD	(14351)	X-3940		1			*	*	*	95	9
X2F					SCREW, CAP, HEXAGON HEAD	(14351)	X-6856		2			*	*	*		
X2F					SCREW, CAP, HEXAGON HEAD	(14351)	X-3063		2			*	*	*	95	7
X2F					SCREW, CAP, HEXAGON HEAD	(14351)	X-3063		14			*	*	*		
X2F					SCREW, CAP, HEXAGON HEAD	(14351)	X-3253		4			*	*	*		
X2F					SCREW, CAP, HEXAGON HEAD	(14351)	X-3569		6			*	*	*	95	3
X2F					SCREW, DRIVE	(14351)	X-3043-A		1			*	*	*		
X2F					WASHER, LOCK	(14351)	X-203		20			*	*	*	95	8
X2F					WASHER, LOCK	(14351)	X-273		6			*	*	*	95	4

CODES MATERIEL	SOURCE	MAINT	RECOVBLTY	FEDERAL STOCK NUMBER	DESCRIPTION	MANUFACTURER'S CODE	MANUFACTURER'S PART NO.	UNIT OF ISSUE	QTY INCORPORATED IN UNIT	GUIDE QTY(S) PER MAJOR EQUIPS 15 DAYS MAINT. ORGANIZATIONAL 1-5	6-10	DS	GS	DEPOT MAINT. 100 EQUIPMENTS	ILLUST FIGURE NO.	ITEM NO.
					0104 - PISTONS, CONNECTING RODS											
P1H				2815-709-0684	BEARING KIT, CONNECTING ROD	(14351)	JD382T-102		4				*	100		
P1H					BEARING, SLEEVE, rod	(14351)	JD382G-306		8				*	100		
X1					PISTON ASSEMBLY (Component of CYLINDER LINER KIT, Stock No. (14351) JD403T-104, See Group 0101)	(14351)	JD403A-4001-A		4							
X2H					PISTON	(14351)	JD403A-300		4				*	*	90	14
X2H					PIN	(14351)	JD382A-400		4				*	*	90	7
X2H				5340-447-7399	RING, RETAINING	(14351)	22RA-224		8				*	*	90	6
X1					RING: top groove (Component of RE-RING KIT, Stock No. 2815-225-4787)	(14351)	J403A-300		4						90	10
X1					RING: 2nd & 3rd groove (Component of RE-RING KIT, Stock No. 2815-225-4787)	(14351)	J403A-301		8						90	11
X1					RING: 4th groove (Component of RE-RING KIT, Stock No. 2815-225-4787)	(14351)	J403A-302		4						90	12
APH				2815-225-4787	RING: 5th groove (Component of RE-RING KIT, Stock No. 2815-225-4787)	(14351)	JD403A-300		4						90	13
					RE-RING KIT	(14351)	JD403T-105C		4				*	100		
X1					RING: top groove	(14351)	J403A-300		4							
X1					RING: 2nd & 3rd groove	(14351)	J403A-301		8							
X1					SPRING, EXPANDER	(14351)	J403A-304		8							
X1					RING: 4th groove	(14351)	J403A-302		4							
X1					SPRING, EXPANDER	(14351)	L478A-308		4							
X1					RING, OIL: 5th groove	(14351)	JD403A-300		4							
X2H					ROD & CAP ASSEMBLY	(14351)	J382D-4003		4				*	*		
X1					BEARING, SLEEVE: rod, (set) (Component of BEARING KIT, Stock No. 2815-709-0684)	(14351)	JD382G-306		8						90	5
X2H				5306-374-4191	BOLT: connecting rod cap	(14351)	22RD-208		8				*	*	90	3
P1H				2815-709-0680	BUSHING: connecting rod	(14351)	J382G-200		4				*	100	90	9
X2H				5310-268-7270	NUT, CASTELLATED, HEXAGON	(14351)	X-1830		8				*	*	90	2
X2H				5315-010-3374	PIN, COTTER	(14351)	X-602		8				*	*	90	1
X1					ROD & CAP	(14351)	J382D-4000		4						90	4
X2H					ROD & CAP ASSEMBLY	(14351)	J382D-4002		4				*	*		
					0105 - VALVES, CAMSHAFTS AND TIMING SYSTEM											
X2F				2815-651-2773	BALL ASSEMBLY, Rocker arm	(14351)	X6001-2350		8		*	*	*	*	85	11
P1H					BUSH KIT, CAMSHAFT	(14351)	JD382T-174		1				*	25		
X1					BUSHING, CENTER	(14351)	JD382G-220		1						96	10
X1					BUSHING, FRONT	(14351)	JD382G-219		1						96	11
X1					BUSHING, REAR	(14351)	JD382G-221		1						96	9
X2H					CAMSHAFT	(14351)	JD3821-305		1				*	*	96	8
X20					COVER, CYLINDER HEAD	(14351)	JD382A-5010		1						82	3
X2H					COVER, GEAR	(14351)	JD382B-417		1				*	*	93	9
X2H					DOWEL	(14351)	X-17025		2				*	*	98	9
X1				5330-197-8116	GASKET, COPPER: cylinder cover (Component of GASKET KIT, Stock No. (14351) JD403U-111, See Group 0100)	(14351)	X-211-A		3						82	2

CODES MATERIEL	SOURCE	MAINT	RECOVRBLTY	FEDERAL STOCK NUMBER	DESCRIPTION	MANUFACTURER'S CODE	MANUFACTURER'S PART NO.	UNIT OF ISSUE	QTY INCORPORATED IN UNIT	GUIDE QTY(S) PER MAJOR EQUIPS 16 DAYS MAINT. ORGAN-IZATIONAL 1-5	6-10	DS	GS	DEPOT MAINT. 100 EQUIPMENTS	ILLUST FIGURE NO.	ITEM NO.
					0105 - VALVES, CAMSHAFTS AND TIMING SYSTEM (CONT)											
X1					GASKET: cylinder head cover (Component of GASKET KIT, Stock No. (14351) JD403U-111, See Group 0100)	(14351)	J382A-304		1						82	4
X1					GASKET: gear cover (Component of GASKET KIT, Stock No. (14351) JD403U-111, See Group 0100)	(14351)	J382B-306		1						93	10
X1				2815-507-2381	GASKET: lid gear cover (Component of GASKET KIT, Stock No. (14351) JD403U-111, See Group 0100)	(14351)	H260B-321		1						93	6
X1				2805-527-7244	GASKET: plug (Component of GASKET KIT, Stock No. (14351) JD403U-111, See Group 0100)	(14351)	X-336		2						85	6
					GEAR, CAMSHAFT	(14351)	JD382H-401		1				*	*	96	3
X2H					GEAR, CRANKSHAFT	(14351)	JD382H-324		1				*	*	91	7
X2H				2815-055-7353	GUIDE, VALVE STEM	(14351)	H260I-200		4			*	*	25	85	25
P	F			2815-325-4720	GUIDE, VALVE STEM	(14351)	J382I-200		4			*	*	25	85	25
P	F			2815-030-0850	INSERT, VALVE SEAT	(14351)	M600A-256		4			*	*	25	85	26
P	F			2815-675-1450	KEY	(14351)	X-528-A		1				*	*	91	8
X2H				5315-325-4739	KEY, WOODRUFF	(14351)	X-507		1				*	*	96	4
X2H				5315-363-4666	LOCK, RETAINING	(14351)	E6041-202		16			*	*	100	85	20
P	F			2805-383-7592	NUT, PLAIN, HEXAGON	(14351)	X1802-G		3	*	*	*	*	*		
X20					NUT, PLAIN, HEXAGON	(14351)	M6001-214		1				*	*	96	1
X2H				5310-579-3039	NUT-LOCK	(14351)	M6001-215		1				*	*	96	2
X2H				5310-264-4060	PLATE, THRUST	(14351)	B6001-216		1				*	*	96	7
X2H				2815-507-3983	PLUG: rocker arm shaft	(14351)	TD6001-204		2			*	*	*	85	5
X2F					RETAINER, VALVE SPRING	(14351)	H2601-203		8			*	*	*	85	21
X2F				2815-324-0284	RING, SNAP: valve stem	(14351)	15RI-220		8			*	*	10	85	23
P	F			5340-266-1975	ROD, PUSH	(14351)	JD382I-203		8			*	*	*	85	16
X2F					SCREW, CAP, HEXAGON HEAD	(14351)	X-3056		1				*	*	93	3
X2H					SCREW, CAP, HEXAGON HEAD	(14351)	X-3940		5				*	*	93	1
X2H				5305-017-9835	SCREW, CAP, HEXAGON HEAD	(14351)	X-6808		2				*	*	96	5
X2H					SCREW, CAP, HEXAGON HEAD	(14351)	X-3384		2			*	*	*	85	1
X2F					SCREW, SPECIAL	(14351)	H2601-206		2			*	*	*	85	3
X2F				2815-886-2870	SCREW & LOCKWASHER ASSEMBLY	(14351)	X-5790		7				*	*	93	8
X2H					SEAL, OIL (Component of GASKET KIT, Stock No. (14351) JD403U-111, See Group 0100)	(14351)	M600L-214		1						93	11
X1				5310-579-3039	SHAFT, ROCKER ARM	(14351)	J382I-400		1				*	*	85	15
					SOCKET, BALL	(14351)	R600I-213		8				*	*	85	19
X2F					SPACER, COVER	(14351)	H260A-204		1	*	*	*	*	*	82	5
X2F				2805-362-0525	SPACER, ROCKER ARM	(14351)	JD382I-201		8				*	*	85	10
X20				2815-322-0550	SPRING, ROCKER ARM SHAFT: long	(14351)	R600I-218		2				*	*	85	9
X2F					SPRING, ROCKER ARM SHAFT: short	(14351)	R600I-205		3				*	*	85	7
X2F				2805-575-5826	SPRING, VALVE	(14351)	A600I-338		8				*	*	85	22
X2F					SUPPORT, SHAFT	(14351)	J382I-300		8				*	*	85	8
X2F				2805-691-7800	TAPPET, VALVE	(14351)	D600I-269		4				*	*	85	18
P	F			2805-363-8658	TUBE, PUSH ROD	(14351)	H260A-209		8				*	*	85	17
X2F					VALVE, EXHAUST	(14351)	JD382I-301		8				*	*	85	18
X2F				2815-512-7894	VALVE, INTAKE	(14351)	JD382I-300		4				*	*	85	24
P	F			2815-709-0683					4				*	*	85	24
P	F			2815-709-0682												

CODES	FEDERAL STOCK NUMBER	DESCRIPTION	MANUFACTURER'S CODE	MANUFACTURER'S PART NO.	UNIT OF ISSUE	QTY INCORPORATED IN UNIT	GUIDE QTY(S) PER MAJOR EQUIPS				ILLUST	
							15 DAYS MAINT.			DEPOT MAINT.	FIGURE NO.	ITEM NO.
							ORGANIZATIONAL		DS	GS		
							1-5	6-10	100 EQUIPMENTS			
		0105 - VALVES, CAMSHAFTS AND TIMING SYSTEM (CONT)										
X2H	5310-220-6449	WASHER, FLAT	(14351)	UB-110		2				*	96	6
X2F		WASHER, FLAT	(14351)	X-14221		4			*	*	85	2
X2H	5310-894-9407	WASHER, LOCK	(14351)	X-14373		1				*	93	4
X2H		WASHER, LOCK	(14351)	X-226		5				*	93	2
		0106 - ENGINE LUBRICATION SYSTEM										
X2H		BALANCER ASSEMBLY	(14351)	JD382B-4234		1				5	88	
X2H		COLLAR, SHAFT	(14351)	JD382B-218		1				*	88	66
X2H		CONNECTOR	(14351)	X-5309		2				*	88	11
X2H		CONNECTOR	(14351)	X-5035		1				*		
X2H		COVER ASSEMBLY, INLET	(14351)	17EL-2001		1				*		
X1		COVER	(14351)	17EL-200		1					88	25
X2H		TUBE, SUCTION	(14351)	10EL-204		1				*	88	23
X2H		DRIVE HOUSING ASSEMBLY	(14351)	JD382B-4231		1				*		
X2H		HOUSING ASSEMBLY	(14351)	JD382B-4230		1				*	88	73
X2H		PIN	(14351)	JD382B-225		1				*		
X2H		PLUG, PIPE	(14351)	X-110		2				*	88	70
X2H		PLUG, PIPE	(14351)	X-2291		1				*		
X2H		SPRING	(14351)	JD382B-226		1				*		
X2H		STUD	(14351)	JD382L-209		1				*	88	39
X2H		ELBOW	(14351)	X-12489		1				*	88	7
X2H		ELBOW ASSEMBLY	(14351)	X-12701-1		1				*	88	
X2H		BUSHING, REDUCING	(14351)	X-12419		1				*	88	8
X2H		ELBOW	(14351)	X-12489		1				*	88	7
X2H		ELBOW	(14351)	X-12048		1				*	88	5
X2H		NIPPLE	(14351)	X-12709		1				*	86	6
X2H		TEE	(14351)	X-12701		1				*	88	9
X2H		FRAME, STRAINER	(14351)	M600L-301		1				*	88	24
X1		GASKET: cover to housing (Component of GASKET KIT, Stock No. (14351) JD403U-113, See Group 0100)	(14351)	C400L-231		1					88	26
X2H		GEAR ASSEMBLY	(14351)	JD403H-3011		1				*	88	
X2H		BUMPER, SPRING	(14351)	JD403B-202		2				*	88	49
X2H		GEAR ASSEMBLY	(14351)	JD403H-3010		1				*	88	47
X2H		SEAT, SPRING	(14351)	JD403B-200		4				*	88	48
X2H		SPRING	(14351)	JD403B-201		2				*	88	50
X2H		GEAR, DRIVER	(14351)	JD382H-319		1				*	88	63
X2H		IDLER ASSEMBLY	(14351)	JD403B-3010		1				*	88	
X2H		NUT, PLAIN, HEXAGON	(14351)	X-18487		1				*	88	55
X2H		OIL, PUMP ASSEMBLY	(14351)	JD382L-2151		1				*	88	
X2H		BODY ASSEMBLY	(14351)	JD382L-2150		1				*	88	33
X2H		COVER, OIL PUMP BODY	(14351)	HD260L-225		1				*	88	35
X1		GASKET, COVER, OIL PUMP Component of GASKET KIT, Stock No. (14351) JD403U-111, See Group 0100)	(14351)	JD382L-211		1					88	36
X1		GASKET, COVER, OIL PUMP (Component of GASKET KIT, Stock No. (14351) JD403U-111, See Group 0100)	(14351)	N62L-210		1					88	34
X2H		GEAR, DRIVE	(14351)	HD260H-226		1					88	37
X2H		GEAR, DRIVEN	(14351)	JD382H-207		1			*	5	88	38
X2H	5315-297-1209	KEY, SPRING RETAINING	(14351)	X-619		1			*	5	88	41
X2H		SCREW, CAP, HEXAGON HEAD	(14351)	X-6713		1			*	*	88	30

CODES MATERIEL	SOURCE	MAINT	RECOVBLTY	FEDERAL STOCK NUMBER	DESCRIPTION	MANUFACTURER'S CODE	MANUFACTURER'S PART NO.	UNIT OF ISSUE	QTY INCORPORATED IN UNIT	GUIDE QTY(S) PER MAJOR EQUIPS: 16 DAYS MAINT. ORGANIZATIONAL 1-5	ORGANIZATIONAL 6-10	DS	GS	DEPOT MAINT. 100 EQUIPMENTS	ILLUST FIGURE NO.	ILLUST ITEM NO.
					0106 - ENGINE LUBRICATING SYSTEM (CONT)											
X2H					SCREW, CAP, HEXAGON HEAD	(14351)	X-3057		2				*	*	88	31
X2H					SCREW, CAP, HEXAGON HEAD	(14351)	X-5988		3				*	*	88	27
X2H					SHIELD, OIL RELIEF	(14351)	JD382L-208		1				*	*	88	29
X2H				2805-246-7611	SPRING, OIL PRESSURE RELIEF	(14351)	10EL-230		1				*	*	88	43
X2H				2815-339-3978	RETAINER, SPRING	(14351)	CVT-3221		1				*	*	88	42
X2H				2815-215-7436	VALVE, RELIEF	(14351)	CVT-3298		1				*	*	88	44
X2H					WASHER, LOCK	(14351)	X-14451		2				*	*	88	32
X2H					WASHER, LOCK	(14351)	X-201		5				*	*	88	28
X2H					PIN, ROLL	(14351)	X-17113		1				*	*	88	45
X2H					PIN, TAPERED	(14351)	X-17162		1				*	*	88	56
X2H					NUT, PLAIN, HEXAGON	(14351)	3X-X-18310		1				*	*	88	12
X2H					SCREEN ASSEMBLY	(14351)	M600L-3020		1				*	*	88	20
X1					SCREEN	(14351)	M600L-302		1							
X1					WIRE	(14351)	6VB-119		1							
X2H					SCREW & LOCKWASHER ASSEMBLY	(14351)	X-2988		6				*	*	88	21
X2H					SETSCREW	(14351)	X-6631		2				*	*	88	54
X2H					SHAFT ASSEMBLY	(14351)	JD403B-3021		1				*	*	88	
X2H					SHAFT	(14351)	JD403B-302		1				*	*	88	46
X2H					PLUG, PIPE	(14351)	X-2272		1				*	*	88	53
X2H					SHAFT ASSEMBLY, DRIVE	(14351)	JD382B-4241		1				*	5		
X2H					GEAR	(14351)	JD382H-321		1				*	5	88	59
X2H					KEY, SQUARE	(14351)	X-673		1				*	*	88	64
X2H				5315-233-5846	KEY, WOODRUFF, No. 8	(14351)	X-513		1				*	*	88	61
X2H				5310-779-8193	NUT, LOCK, HEXAGON	(14351)	X-14293		1				*	*	88	58
X2H					NUT, PLAIN, HEXAGON	(14351)	3X-X-18310		1				*	*	88	57
X2H					SHAFT	(14351)	JD382B-424		1				*	*	88	62
X2H					SPACER, STRAINER	(14351)	C400L-228		1				*	*	88	22
X2H					STUD, & GEAR ASSEMBLY	(14351)	JD382B-2242		1				*	5	88	
X2H					BEARING, BALL	(14351)	X-13198		1				*	5	88	17
X2H					GEAR, IDLER	(14351)	JD382H-323		1				*	5	88	18
X2H					PLATE, RETAINING	(14351)	JD382B-210		1				*	*	88	16
X2H					SCREW, CAP, HEXAGON HEAD	(14351)	X-3856-A		4				*	*	88	15
X2H					SPACER	(14351)	JD382B-211		1				*	*	88	19
X2H					STUD	(14351)	JD382B-224		1				*	*	88	14
X2H					TUBE ASSEMBLY	(14351)	JD382L-3060		1				*	*	88	4
X2H					TUBE ASSEMBLY	(14351)	JD382L-3050		1				*	*	88	2
X2H					WASHER, LOCK	(14351)	X-295-1		1				*	*	88	13
X2H					WASHER, THRUST	(14351)	JD382B-219		2				*	10	88	60
X20					BUSHING	(14351)	X-5162		1	*	*	*	*	*		
X20					BUSHING, REDUCING	(14351)	X-12166		1	*	*	*	*	*	88	8
X20					CAP ASSEMBLY	(14351)	D6006-2270		1	*	*	*	*	*	93	7
X20					CLAMP, HOSE	(14351)	X-2377		4	*	*	*	*	*		
X20					CLIP	(14351)	X-7502		1	*	*	*	*	*		
X2H					CONNECTOR	(14351)	X-12004		1				*	*		
X2H					CONNECTOR	(14351)	X-12891		1				*	*		
X20					CONNECTOR	(14351)	X-12503		1	*	*	*	*	*		
X2H					DOWEL	(14351)	X-17025		2				*	*	88	72
X20					ELBOW, 1/8 X 90°	(14351)	X-12047		1	*	*	*	*	*		
X20					ELBOW, 90°	(14351)	X-12875		1	*	*	*	*	*		
X2H					ELBOW, PIPE, 3/4 NPT, 45°				1				*	*	86	5
X2H					ELBOW, STREET, 3/8 pipe	(14351)	X-12533		1				*	*	88	10

CODES MATERIEL	CODES SOURCE	CODES MAINT	CODES RECOVBLTY	FEDERAL STOCK NUMBER	DESCRIPTION	MANUFACTURER'S CODE	MANUFACTURER'S PART NO.	UNIT OF ISSUE	QTY INCORPORATED IN UNIT	GUIDE QTY(S)PER MAJOR EQUIPS 16 DAYS MAINT. ORGAN-IZATIONAL	DS	GS	DEPOT MAINT.	1-5	6-10	100 EQUIPMENTS	ILLUST FIGURE NO.	ILLUST ITEM NO.
					0106 - ENGINE LUBRICATING SYSTEM (CONT)													
X20					ELBOW, STREET, 45°	(14351)	X-12922		2	*	*	*	*	*				
X2F					ELBOW, STREET, 3/4 NPT, 45°				1			*	*	*			86	3
X20					FILLER ASSEMBLY, OIL	(14351)	H260B-3160		1	*	*	*	*	*			93	5
X2F					FILTER & COOLER ASSY, OIL	(14351)	JD382L-5060		1			*	*	*				
X20					ADAPTER, FILTER	(14351)	JD382L-213		1	*	*	*	*	*				
X20					BASE, FILTER	(14351)	JD382L-601		1	*	*	*	*	*			44	5
X20					COOLER, OIL	(14351)	JD382K-315		1	*	*	*	*	*				
X20					ELBOW	(14351)	JD382L-308		2	*	*	*	*	*			44	27
X20					DRAIN COCK	(14351)	X-1015		1	*	*	*	*	*			44	17
X20					FILTER, OIL	(73370)	FHB33-PL		1	*	*	*	*	*			44	19
X1					ADAPTER	(73370)	104501		1									
X1					BODY ASSEMBLY	(73370)	1584		1								45	4
X1					BOLT & VALVE ASSEMBLY	(73370)	121223		1								45	10
X20					DYNA-SEAL	(73370)	106326		1								45	9
P 0				2940-580-6283	ELEMENT, FILTER	(96906)	MS35802-3		1	*	*	*	*	*			45	8
P 0					GASKET, BASE	(73370)	104503		1	6	12	125	*	125	45	2		
X1					PLUG, 3/8	(73370)	109108		1	*	*	25	*	100	45	1		
X1					RING, RETAINING	(73370)	104695		1								44	8
X20					SEAL, OIL	(73370)	104500		1	*	*	*	*	*			45	3
X1					SPRING	(73370)	104398		1								45	5
X20					WASHER, FLAT	(73370)	104399		1	*	*	*	*	*			45	7
X1					GASKET; oil cooler (Component of GASKET KIT, Stock No. (14351) JD403U-111, See Group 0100)	(14351)	JD382L-217		2								45	6
X1					GASKET: elbow to oil cooler (Component of GASKET KIT, Stock No. (14351) JD403U-111, See Group 0100)	(14351)	K600L-206		2								44	28
X1					GASKET; filter base (Component of GASKET KIT, Stock No. (14351) JD403U-111, See Group 0100)	(14351)	JD382L-309		1								44	22
X1					GASKET: magnetic plug (Component of GASKET KIT, Stock No. (14351) JD403U-111, See Group 0100)	(14351)	W4B-108		1								44	1
X20					GASKET: valve	(14351)	X-365		1	*	*	*	*	*			44	7
X20					GASKET: washer	(14351)	X-1663		1	*	*	*	*	*			44	12
X20					NUT, PLAIN, HEXAGON	(14351)	X-1802G		4	*	*	*	*	*				
X20					PLUG, MAGNETIC	(14351)	22RB-221		1	*	*	*	*	*			44	23
X20					PLUG, PIPE	(14351)	X-139A		1	*	*	*	*	*			44	6
X20					PLUG, PIPE	(14351)	X-139A		1	*	*	*	*	*			44	15
X20					PLUG, PIPE	(14351)	X-110		3	*	*	*	*	*			44	9
X20					PLUG, VALVE	(14351)	X-365		1	*	*	*	*	*			44	10
X20					SCREW & LOCKWASHER ASSY	(14351)	X-5954		4	*	*	*	*	*			44	11
X20					SPRING, VALVE	(14351)	F600L-221		1	*	*	*	*	*			44	16
X20					STUD	(14351)	X-4217		3	*	*	*	*	*			44	13
X20					STUD	(14351)	X-4697		1	*	*	*	*	*			44	26
X20					VALVE, BY-PASS	(14351)	15SL-211		1	*	*	*	*	*			44	25
X20					WASHER, LOCK	(14351)	X-203		4	*	*	*	*	*			44	14
X1					GASKET: oil pan (Component of GASKET KIT, Stock No. (14351) JD403U-111, See Group 0100)	(14351)	J382B-403		1								44	24
X20					HOSE	(14351)	JD403K-307		1	*	*	*	*	*			86	6
X20					HOSE	(14351)	JD403K-401		1	*	*	*	*	*				

CODES MATERIEL	CODES SOURCE	CODES MAINT	CODES RECOVBLTY	FEDERAL STOCK NUMBER	DESCRIPTION	MANUFACTURER'S CODE	MANUFACTURER'S PART NO.	UNIT OF ISSUE	QTY INCORPORATED IN UNIT	GUIDE QTY(S) PER MAJOR EQUIPS 15 DAYS MAINT. ORGAN-IZATIONAL 1-5	6-10	DS	GS	DEPOT MAINT. 100 EQUIPMENTS	ILLUST FIGURE NO.	ILLUST ITEM NO.
					0106 - ENGINE LUBRICATING SYSTEM (CONT)											
X20					NIPPLE, PIPE	(14351)	X-12790		4	*	*	*	*	*		
X2H					NIPPLE, PIPE, 3/4 NPT X 3				1				*	*	86	4
X2F					NUT, PLAIN, HEXAGON	(14351)	X-1802-G		1			*	*	*		
X2F					NUT, PLAIN, HEXAGON	(14351)	X-1803-H		5			*	*	*		
X2H					NUT, TUBE	(14351)	X-12883		1				*	*		
X2H					OIL PAN ASSEMBLY	(14351)	JD403B-3030		1				*	*	86	7
X20					PLUG, DRAIN	(14351)	X-104		1	*	*	*	*	*	86	2
X2H					PLUG, PIPE, 1/4	(14351)	X-139-A		1				*	*		
X2H					PLUG, PIPE, 1/4	(14351)	X-1756		1				*	*		
X2H					RING, SEAL	(14351)	X-12884		1				*	*		
X20					ROD ASSEMBLY, GAGE	(14351)	JD382L-2240		1	*	*	*	*	*		
X20				5330-233-5872	FELT, GAGE ROD	(14351)	K404L-210		1	*	*	*	*	*		
X20					ROD SUPPORT ASSEMBLY	(14351)	JD382L-2250		1	*	*	*	*	*		
X2H					SCREW, CAP, HEXAGON HEAD	(14351)	X-6616		2				*	*	88	74
X2H					SCREW, CAP, HEXAGON HEAD	(14351)	X-6617		2				*	*	88	75
X2H					SCREW & LOCKWASHER ASSEMBLY	(14351)	J382B-403		1				*	*		
X2F					STUD	(14351)	X-20040		1			*	*	*		
X2F					STUD	(14351)	X-4308		5			*	*	*		
X20					TEE, STREET	(14351)	X-12671		1	*	*	*	*	*		
X2H					TUBE ASSEMBLY	(14351)	JD382L-4030		1				*	*	88	1
X2H					TUBE ASSEMBLY	(14351)	JD382L-5020		1				*	*	88	3
X2F					WASHER, LOCK	(14351)	X-203		1			*	*	*		
X2F					WASHER, LOCK	(14351)	X-270		5			*	*	*		
					0108 - MANIFOLDS											
X20					FLANGE, EXHAUST	(14351)	JD403E-300		1	*	*	*	*	*	82	27
X1					GASKET: exhaust flange (Component of GASKET KIT, Stock No. (14351) JD403U-111, See Group 0100)	(14351)	JD403E-200		1						82	28
X1					GASKET: manifold (Component of GASKET KIT, Stock No. (14351) JD403U-111, See Group 0100)	(14351)	J382E-302		1						82	21
X20				2815-710-7723	MANIFOLD CRAB	(14351)	H260E-200		4	*	*	*	*	*	82	19
X20					MANIFOLD, INTAKE & EXHAUST	(14351)	JD382E-500		1	*	*	*	*	*	82	20
X20				5310-353-8927	NUT, PLAIN, HEXAGON	(14351)	X-18278		11	*	*	*	*	*	82	16
X20					NUT, PLAIN, HEXAGON	(14351)	X-18111		4	*	*	*	*	*	82	25
X20				5307-268-5757	STUD	(14351)	X-19095		4	*	*	*	*	*	82	23
X20					STUD	(14351)	X-4228		5	*	*	*	*	*	82	22
X20					STUD	(14351)	X-20041		2	*	*	*	*	*	82	24
X20					STUD	(14351)	X-4466		4	*	*	*	*	*	82	29
X20					WASHER, FLAT	(14351)	X-14264		5	*	*	*	*	*	82	18
X20				5310-347-3787	WASHER, FLAT	(14351)	X-14307		2	*	*	*	*	*	82	17
X20					WASHER, FLAT	(14351)	X-1481		4	*	*	*	*	*	82	26
					0302 - FUEL PUMPS											
X2F				2910-795-0195	ADAPTER	(14351)	GD193F-301		1				*	*		
X2F					BODY ASSEMBLY, CELL	(14351)	JD382A-2070		4				*	*	82	15
X2F					CAP, ENERGY CELL	(14351)	JD382A-202		4				*	*	82	14
X20					CLAMP ASSEMBLY	(14351)	HD400F-2160		1	*	*	*	*	*		
X1					CLAMP SECTION	(14351)	HD260F-248		3							
X1				2910-371-5017	CLAMP SECTION	(14351)	HD260F-247		1							
X1					SCREW, CAP, HEXAGON HEAD	(14351)	X-6521		2							

CODES				FEDERAL STOCK NUMBER	DESCRIPTION	MANUFACTURER'S CODE	MANUFACTURER'S PART NO.	UNIT OF ISSUE	QTY INCORPORATED IN UNIT	GUIDE QTY(S) PER MAJOR EQUIPS				ILLUST	
MATERIEL	SOURCE	MAINT	RECOVBLTY							15 DAYS MAINT. ORGANIZATIONAL 1-5	6-10	DS	GS	DEPOT MAINT. 100 EQUIPMENTS	FIGURE NO.	ITEM NO.
					0302 - FUEL PUMPS (CONT)											
X1					WASHER, LOCK	(14351)	X-201		2							
X2F					CONNECTOR	(14351)	X-12508		1			*	*	*		
X2H					COVER & SOLENOID KIT	(84760)	16361		1				*	*		
X2F				4730-446-5838	ELBOW	(14351)	X-12478		1			*	*	*		
X2F				4730-446-5838	ELBOW	(14351)	X-12478		1			*	*	*		
X2F				4730-446-5838	ELBOW	(14351)	X-12478		1			*	*	*		
P	H			2815-225-4789	GASKET KIT	(84760)	16183		1				*	100		
P	F			2910-870-9751	HOLDER & TIP ASSEMBLY	(14351)	JD400F-2000		4			5	*	5		
X1					HOLDER, NOZZLE	(14351)	HD400F-259		1							
X1					TIP, NOZZLE	(14351)	TD427F-245		1							
P1F				2910-055-7398	INJECTION LINE No. 1	(14351)	JD400F-5001		1			*	*	5		
P1F				2910-055-7395	INJECTION LINE No. 2	(14351)	JD400F-5011		1			*	*	5		
P1F				2910-055-7396	INJECTION LINE No. 3	(14351)	JD400F-5021		1			*	*	5		
P1F				2910-055-7397	INJECTION LINE No. 4	(14351)	JD400F-5031		1			*	*	5		
X2F				4730-203-3194	NUT, PLAIN, HEXAGON	(14351)	X-12481		2			*	*	*		
X2F				4730-203-3194	NUT, PLAIN, HEXAGON	(14351)	X-12481		2			*	*	*		
X2F					NUT, PLAIN, HEXAGON	(14351)	X-18433		2			*	*	*		
X2F				2910-884-9827	PIN	(14351)	X-1712		1			*	*	*		
X2F					PLUG, RETAINING	(14351)	JD382A-200		4			*	*	*	82	12
P1F				2815-225-4788	PUMP ASSEMBLY, FUEL INJECTION	(84760)	DBGVC437-2AL		1			*	*	5		
X2H					ARM ASSEMBLY	(84760)	12306		1				*	*	79	16
X2H					ARM ASSEMBLY, COIL	(84760)	12479		1				*	*	79	10
X2H					ARM ASSEMBLY, VALVE	(84760)	14680		1				*	*	79	44
X2H					ARM GOVERNOR	(84760)	14482		1				*	*	79	43
X2H				2910-887-1544	BLADE, TRANSFER PUMP	(84760)	11318		2				*	25	79	71
X2H					CAM RING	(84760)	10368		1				*	*	79	82
X2H					CAM, SHUT-OFF	(84760)	12249		1				*	*	79	29
X2H					CAP & FILLER ASSEMBLY	(84760)	13025		1				*	*	79	66
X2H					COVER, GOVERNOR CONTROL	(84760)	12106		1				*	*	79	4
X2F					COVER, TIMING LINE	(84760)	10567		2		*		*	*	79	110
X2H					EYELET, GROUNDING	(84760)	12529		1				*	*		
X2H					FRAME ASSEMBLY, SOLENOID	(84760)	16355		1				*	*	79	8
X1				2910-506-3975	GASKET: cover	(84760)	10574		2						79	111
X1				2910-640-9399	GASKET: governor cover	(84760)	12054		1						79	5
X2H					GUIDE, SPRING	(84760)	11969		1				*	*	79	35
X2H					GUIDE, SPRING	(84760)	14940		1				*	*	79	97
X2H					HEAD & ROTOR ASSEMBLY	(84760)	15780		1				*	3	79	91
X2H					SCREW, PLUG	(84760)	11438		2				*	*		
X2H					SCREW, PLUG	(84760)	12216		1				*	*		
X2H					WIRE, RETAINING	(84760)	11439		1				*	*		
X2H					WIRE, VENT	(84760)	11437		1				*	*		
X1					HOOK ASSEMBLY, LINKAGE	(84760)	11907		1				*	*	79	42
X2H					HOOK, GOVERNOR LINKAGE	(84760)	11906		1							
X2H					LINK ASSEMBLY	(84760)	12358		1				*	*		
X2H					SCREW, GOVERNOR LINK.	(84760)	12360		1				*	*		
X2H					WASHER, GOVERNOR LINK.	(84760)	12362		1				*	*		
X2H					HOUSING ASSEMBLY	(84760)	14949		1				*	*	79	117
X2H					BUSHING, SHAFT	(84760)	15093		2				*	*		
X2F					TUBE, PILOT	(84760)	10421		1				*	*		
X2H					LEVER, ADJUSTING, THROTTLE	(84760)	16083		1		*		*	*	79	18
X2H					LEVER, SHAFT	(84760)	12221		1				*	*	79	30
X2H					LINER, TRANSFER PUMP	(84760)	11315		1				*	*	79	72
X2H					NUT, LOCK, HEXAGON	(84760)	14760		2				*	*	79	6
X2H					NUT, PLAIN, HEXAGON	(84760)	12519		2				*	*		

CODES MATERIEL	SOURCE	MAINT	RECOVBLTY	FEDERAL STOCK NUMBER	DESCRIPTION	MANUFACTURER'S CODE	MANUFACTURER'S PART NO.	UNIT OF ISSUE	QTY INCORPORATED IN UNIT	GUIDE QTY(S) PER MAJOR EQUIPS 15 DAYS MAINT. ORGANIZATIONAL 1-5	6-10	DS	GS	DEPOT MAINT. 100 EQUIPMENTS	ILLUST FIGURE NO.	ITEM NO.
					0302 - FUEL PUMPS (CONT)											
					NUT: shaft retaining	(84760)	12288		2				*	*	79	38
X2H					NUT: trimmer screw	(84760)	13807		1				*	*	79	106
X2H					PISTON, POWER	(84760)	14873		1				*	*	79	104
X2H				2910-321-8737	PISTON, REGULATING	(84760)	11508		1				*	*	79	63
X2H					PISTON, SPRING	(84760)	12753		1				*	*	79	99
X2H					PLATE, END	(84760)	11477		1				*	*	79	58
X20					PLATE, NAME	(84760)	10394		1	*	*	*	*	*	79	113
X2H					PLUG: end plate	(84760)	15822		1				*	*	79	68
X2H				2910-335-9324	PLUG: end plate	(84760)	11516		1				*	*	79	59
X2H					PLUG: hole	(84760)	14941		1				*	*	79	95
X2H					PLUG: hole	(84760)	12765		1				*	*	79	51
X2H					PLUG: piston hole	(84760)	12641		1				*	*	79	102
X2H					PLUNGER, ROTOR	(84760)	11101		2				*	*	79	88
X2H					RETAINER, ASSEMBLY, GOVERNOR	(84760)	15889		1				*	*	79	81
X2H					HUB ASSY; WEIGHT	(84760)	14266		1				*	*		
X2H					RETAINER, ASSEMBLY	(84760)	14276		1				*	*		
X2H					RETAINER, WEIGHT: governor	(84760)	14264		1				*	*		
X1					RING, RETAINING	(84760)	14274		1							
X2H					RETAINER, ROTOR	(84760)	11212		2				*	*	79	75
X2H					RETAINER, SLIDE WASHER	(84760)	15101		1				*	*	79	101
X2H					RETAINER, SPRING	(84760)	12210		1				*	*	79	37
X2H					RING, RETAINING: rotor	(84760)	11208		1				*	10	79	74
X2H					RING, RETAINING: shaft	(84760)	10448		1				*	10		
X2H					RING, RETAINING: weight cage	(84760)	12285		1				*	10	79	80
X2H					ROLLER, CAM	(84760)	11141		2				*	5	79	86
X2H					ROLLPIN, LOCK	(84760)	11525		1				*	*	79	73
X2H					SCREW ASSEMBLY	(84760)	11365		1				*	*	79	49
X2H					SCREW: advance adjustment	(84760)	14544		1				*	*	79	94
X2H					SCREW: cam advancer	(84760)	14366		1				*	*	79	53
X2H				4730-335-9315	SCREW: CONNECTOR	(84760)	11346		4				*	*	79	89
X2H					SCREW: cover	(84760)	12202		3				*	*	79	1
X2F					SCREW: cover	(84760)	10584		4			*	*	*	79	109
X2H					SCREW: end plate	(84760)	11532		4				*	*	79	57
X2H					SCREW: fitting	(84760)	12957		1				*	*	79	17
X2H					SCREW: head lock	(84760)	11331		2				*	*	79	48
X2H					SCREW: hole plug	(84760)	12259		1				*	*	79	114
X2H					SCREW: position	(84760)	12051		1				*	*	79	12
X2H					SCREW: seal	(84760)	11507		2				*	*	79	50
X2H					SCREW: throttle position	(84760)	12049		1				*	*	79	12
X2H					SCREW: throttle retainer	(84760)	11582		1			*	*	*	79	14
X2F					SCREW: torque	(84760)	14675		1				*	*	79	108
X2H					SCREW: valve retaining	(84760)	13837		1				*	*	79	76
X2H					SCREW	(84760)	10401		2	*	*	*	*	*	79	112
X20					SEAL: filter cap	(84760)	12406		1						79	67
X1				5330-171-5641	SEAL: hydraulic head	(84760)	11304		1						79	83
X1				5330-641-3963	SEAL: pivot shaft	(84760)	11588		2						79	39
X1				5330-641-8286	SEAL, PLUG	(84760)	12764		2						79	96
X1					SEAL, PLUG	(84760)	12764		2						79	108
X1					SEAL, PLUG	(84760)	12766		1						79	52
X1					SEAL, SCREW	(84760)	12040		1						79	93
X1				5330-641-8282	SEAL, SCREW	(84760)	12040		2						79	23
X1				5330-641-8282	SEAL, SCREW	(84760)	12040		1						79	107
X1				5330-641-8282	SEAL, SHAFT	(84760)	10453		2						79	116
X1				2910-757-1680												

CODES MATERIEL	SOURCE	MAINT	RECOVRBLTY	FEDERAL STOCK NUMBER	DESCRIPTION	MANUFACTURER'S CODE	MANUFACTURER'S PART NO.	UNIT OF ISSUE	QTY INCORPORATED IN UNIT	GUIDE QTY(S) PER MAJOR EQUIPS: 15 DAYS MAINT. ORGANIZATIONAL 1-5	ORGANIZATIONAL 6-10	DS 100 EQUIPMENTS	GS 100 EQUIPMENTS	DEPOT MAINT. 100 EQUIPMENTS	ILLUST FIGURE NO.	ILLUST ITEM NO.
					0302 - FUEL PUMPS (CONT)											
X1					SEAL, SLEEVE	(84760)	11507		2						79	60
X1					SEAL: transfer pump	(84760)	11329		1						79	70
X2H					SHAFT ASSEMBLY	(84760)	12237		1				*	*	79	21
X2H					NUT: adjusting screw	(84760)	12174		2				*	*	79	20
X2H					SCREW: adjusting	(84760)	12165		2				*	*	79	19
X2H					SHAFT ASSEMBLY, THROTTLE	(84760)	12014		1				*	2	79	26
X2F					NUT: high idle screw	(84760)	12174		1			*	*	*	79	27
X2F					NUT: low idle screw	(84760)	12174		1			*	*	*	79	25
X2F					SCREW: high idle adjustment	(84760)	12972		1			*	*	*	72	28
X2F					SCREW: low idle adjustment	(84760)	12167		1			*	*	*	79	24
X2H					SHAFT, DRIVE	(84760)	10242		1				*	10		
X2H				2910-335-9331	SHAFT, PIVOT	(84760)	12214		1				*	*	79	40
X2H					SHIM, VALVE	(84760)	11610		1				*	*	79	45
X2H					SHOE, CAM ROLLER	(84760)	11136		2				*	5	79	87
X2H					SLEEVE, END PLATE	(84760)	11503		1				*	*	79	61
X2H					SLEEVE, THRUST	(84760)	14483		1				*	10	79	55
X2H					SPACER, LEVER	(84760)	12312		1				*	*	79	31
X2H					SPRI NG: advance	(84760)	12685		1				*	10	79	98
X2H					SPRING: arm	(84760)	12480		1				*	10	79	11
X2H				2990-335-9327	SPRING: governor control	(84760)	16321		1				*	10	79	34
X2H				2910-816-8227	SPRING: governor link	(84760)	11919		1				*	10	79	41
X2H				5305-207-7759	SPRING: idling	(84760)	11966		1				*	10	79	36
X2H				2910-335-9323	SPRING, LEAF	(84760)	11197		1				*	10	79	85
X2H				2910-335-9320	SPRING: regulating	(84760)	11512		1				*	10	79	62
X2H					SPRING: retaining	(84760)	11486		1				*	10	79	65
X2H					SPRING, VALVE	(84760)	13839		1				*	10	79	78
X2H					SPRING, VALVE	(84760)	11604		1				*	10	79	47
X2H					STOP, VALVE	(84760)	13838		1				*	*	79	77
X2H					STUD, GUIDE	(84760)	12208		1				*	*	79	32
X2H					TUBE, INSULATION: terminal	(84760)	12513		2				*	*	79	9
X2H					VALVE, DELIVERY	(84760)	13829		1				*	*	79	79
X2H					VALVE, METERING	(84760)	11560		1				*	20	79	46
X1					WASHER: connector	(84760)	16225		8						79	90
X2H					WASHER: cover	(84760)	11582		3				*	*	79	2
X2H					WASHER: cover	(84760)	13521		3				*	*	79	3
X2H					WASHER, INSULATING: terminal	(84760)	12500		2				*	*	79	7
X1					WASHER: plug screw	(84760)	10464		1						79	115
X2F				5310-209-2947	WASHER: position screw	(84760)	12049		1		*	*	*	*	79	13
X2H				5310-209-2947	WASHER: positive screw	(84760)	12049		1				*	*	79	12
X1					WASHER: shaft seal	(84760)	14408		2						79	22
X2H				2910-294-2219	WASHER, SLEEVE	(84760)	11620		1				*	*	79	56
X2H					WASHER: slide	(84760)	12622		1				*	*	79	100
X2H					WASHER: slide	(84760)	12622		1				*	*	79	105
X1					WASHER: stud	(84760)	13556		1						79	33
X2H					WASHER: retaining screw	(84760)	11582		1				*	*	79	15
X2F					WASHER: retaining screw	(84760)	11582		1		*	*	*	*	79	15
X2H					WEIGHT GOVERNOR	(84760)	11658		6				*	*	79	54
X2F					SCREW	(14351)	X-6561		8		*	*	*			
X1				2910-646-6816	SEAL, ADAPTER	(14351)	X-1583		1							
X1					SEAL, INJECTION PUMP	(14351)	X-1587		1							
X2F				2910-791-8016	SHAFT, DRIVE	(14351)	GD193F-302		1		*	*	*			
X2F				2910-339-4873	SLEEVE	(14351)	X-12480		1		*	*	*			
X2F				2910-339-4873	SLEEVE	(14351)	X-12480		8		*	*	*			
X2H					SOLENOID & ARM ASSEMBLY KIT	(84760)	16377		1				*	10		
X2F				5307-274-1416	STUD	(14351)	X-4106		2		*	*	*			

CODES MATERIEL	SOURCE	MAINT	RECOVBLTY	FEDERAL STOCK NUMBER	DESCRIPTION	MANUFACTURER'S CODE	MANUFACTURER'S PART NO.	UNIT OF ISSUE	QTY INCORPORATED IN UNIT	GUIDE QTY(S)PER MAJOR EQUIPS: 15 DAYS MAINT. ORGANIZATIONAL 1-5	6-10	DS	GS	DEPOT MAINT. 100 EQUIPMENTS	ILLUST FIGURE NO.	ITEM NO.
					0302 - FUEL PUMPS (CONT)											
X2F				2815-765-2457	TEE	(14351)	X-12479		3			*	*	*		
X2F					TEE, STREET, 1/8 PIPE	(14351)	X-12671		1			*	*	*		
X2F					TUBE, LEAK OFF	(14351)	JD403F-223		1			*	*	*		
X2F					TUBE, LEAK OFF	(14351)	JD403F-222		2			*	*	*		
X2F					TUBE, LEAK OFF	(14351)	JD403F-401		1			*	*	*		
X2F					TUBE, OIL	(14351)	JD382L-212		1			*	*	*		
X2F					RETAINER, CELL	(14351)	JD382A-201		4			*	*	*	82	13
X2F					WASHER, LOCK	(14351)	X-202-B		8			*	*	*		
X2F					WASHER, SPECIAL	(14351)	HD400F-299		2			*	*	*		
X2F					WASHER, THRUST	(14351)	HD277F-227		1			*	*	10		
					0304 - AIR CLEANER											
X20					BRACKET, AIR CLEANER	(16004)	45863		2	*	*	*	*	*	57	7
X20					BRACKET, SUPPORT	(16004)	47137		1	*	*	*	*	*	27	16
X20					CAP, AIR CLEANER	(18265)	GAX00-1966		1	*	*	*	*	*	27	2
X20					CLAMP, HOSE	(85757)	4		2	*	*	*	*	*	27	14
X20					CLEANER, AIR	(18265)	FWG06-5014		1	*	*	*	*	*	27	20
X20					ELEMENT ASSEMBLY	(18265)	P10-4642		1	*	*	*	*	20	57	5
P10					FITTING, HOSE	(79470)	10004B-102		2	*	*	*	*	*		
X20					HOSE, AIR CLEANER	(16004)	45960		1	*	*	*	*	*	27	15
X20					HOSE, INDICATOR	(79470)	H234		1	*	*	*	*	*	27	17
X20					INDICATOR, RESTRICTION	(18265)	RBX00-2225		2	*	*	*	*	*		
X20				5310-013-1245	NUT, LOCK, HEXAGON, 1/4-20				4	*	*	*	*	*	27	18
X20				5310-013-1245	NUT, LOCK, HEXAGON, 1/4-20				1	*	*	*	*	*	27	11
X20				5305-017-9793	SCREW, CAP, HEXAGON, HEAD, 1/4 28 X 5/8				4	*	*	*	*	*	27	21
X20				5305-018-0020	SCREW, CAP, HEXAGON HEAD, 1/4-20 X 3/4				1	*	*	*	*	*	27	13
X20				5310-194-1540	WASHER, FLAT, 1/4 DIA				4	*	*	*	*	*	27	8
					0306 - TANKS, LINES, FITTINGS, HEADERS											
X20				4730-289-4911	ELBOW	(16004)	41909		1	*	*	*	*	*	28	2
X20				4820-276-9040	DRAIN COCK	(16004)	14026		1	*	*	*	*	*	28	11
X20				5310-013-1245	NUT, LOCK, HEXAGON, 1/4-20				4	*	*	*	*	*	28	4
X20					SHUT-OFF COCK	(16004)	28038		1	*	*	*	*	*	28	10
X20					STRAP, FUEL TANK	(16004)	45882		2	*	*	*	*	*	28	5
X20					TANK, FUEL	(16004)	45737		1	*	*	*	*	*	28	7
X20					CAP, FUEL TANK	(78252)	15-2		1	*	*	*	*	3		
P10				2930-269-7134	STRAINER, FUEL	(78252)	19-61		1	*	*	*	*	10		
X20					TUBE ASSEMBLY	(16004)	46231		1	*	*	*	*	*	28	3
X20					TUBE ASSEMBLY	(16004)	46239		1	*	*	*	*	*	28	1
X20					WEBBING, 14 IN.	(16004)	14048		5	*	*	*	*	*		
X20					WEBBING, 61 IN.	(16004)	14048		2	*	*	*	*	*	28	6
					0309 - FUEL FILTERS											
X20					BRACKET, FILTER	(14351)	JD382F-316		1	*	*	*	*	*		
X20					BRACKET, SECONDARY FILTER	(14351)	GD157F-329		1	*	*	*	*	*		
X20					ELBOW	(14351)	X-12016		3	*	*	*	*	*		
X20					FILTER, FUEL PRIMARY	(00000)	8380550		1	*	*	*	*	*		
X20					BODY ASSEMBLY	(73370)	9344		1	*	*	*	*	*		
X20					DRAIN COCK	(73370)	106498		1	*	*	*	*	*		
X20					ELEMENT ASSEMBLY	(00000)	8720952		1	*	*	*	*	5		
P10					GASKET	(73370)	101489		1	*	*	*	*	100		
P 0				2910-640-9402												

CODES MATERIEL	CODES SOURCE	CODES MAINT	CODES RECOVBLTY	FEDERAL STOCK NUMBER	DESCRIPTION	MANUFACTURER'S CODE	MANUFACTURER'S PART NO.	UNIT OF ISSUE	QTY INCORPORATED IN UNIT	GUIDE QTY(S)PER MAJOR EQUIPS 15 DAYS MAINT. ORGANIZATIONAL 1-5	6-10	DS	GS	DEPOT MAINT. 100 EQUIPMENTS	ILLUST FIGURE NO.	ILLUST ITEM NO.
					0309 - FUEL FILTERS (CONT)											
X20					HEAD, FILTER	(73370)	126458		1	*	*	*	*	*		
X20					NUT, PLAIN, HEXAGON	(73370)	10509		1	*	*	*	*	*		
X20					STUD	(73370)	106933		1	*	*	*	*	*		
X20					PLUG	(73370)	10428		1	*	*	*	*	*		
X20					RETAINER	(14351)	35066		1	*	*	*	*	*		
X20					FILTER, FUEL, SECONDARY	(73370)	F1126-CON		1	*	*	*	*	*		
X1					BODY ASSEMBLY	(73370)	139427		1							
X20					CAPSCREW	(73370)	104071		1	*	*	*	*	*		
P 0					CARTRIDGE ASSEMBLY	(00000)	8737840		1	*	*	*	*	100		
X20					DECAL	(73370)	132137		2	*	*	*	*	*		
P 0					GASKET	(73370)	101489		1	*	*	*	*	100		
X20					GASKET	(73370)	101487		1	*	*	*	*	*		
X20					HEAD, FILTER	(73370)	101488		1	*	*	*	*	*		
X20					PLUG	(73370)	104018		1	*	*	*	*	*		
X20					NUT, PLAIN, HEXAGON	(14351)	X-18001		4	*	*	*	*	*		
X20					NUT, PLAIN, HEXAGON	(14351)	X-1802-G		2	*	*	*	*	*		
P10				2910-679-8786	PUMP, PRIMER	(14351)	HD400F-406		1	*	*	*	*	3		
X20					SCREW & LOCKWASHER	(14351)	X-2977		8	*	*	*	*	*		
X20					STUD	(14351)	X-4182		2	*	*	*	*	*		
X20					STUD	(14351)	X-4148		4	*	*	*	*	*		
X20					TUBE ASSEMBLY	(14351)	JD382F-3190		1	*	*	*	*	*		
X20				4730-625-2531	NIPPLE, 1/4	(14351)	X-1236		1	*	*	*	*	*		
X20					NUT	(14351)	X-12633		2	*	*	*	*	*		
X20					TUBE	(14351)	JD382F-319		1	*	*	*	*	*		
X20					TUBE ASSEMBLY	(14351)	JD382F-3180		1	*	*	*	*	*		
X20					NUT	(14351)	X-12633		2	*	*	*	*	*		
X20					TUBE	(14351)	JD382F-318		1	*	*	*	*	*		
X20					WASHER, LOCK	(14351)	X-202-B		4	*	*	*	*	*		
X20					WASHER, LOCK	(14351)	X-203		2	*	*	*	*	*		
					0311 - ENGINE STARTING AIDS											
X20				4730-011-2877	BUSHING, REDUCING	(79470)	3224X2		1	*	*	*	*	*		
P 0					CYLINDER, FUEL	(61112)	LP657		1	*	*	*	*	220		
X20					NUT, LOCK, HEXAGON, 1/4-20				4	*	*	*	*	*	27	37
X20					QUICK START	(16004)	46246		1	*	*	*	*	*	27	39
X20					CABLE	(61112)	LP539		1	*	*	*	*	*		
X20					CLAMP, MOUNTING	(61112)	LP1058		1	*	*	*	*	*		
X20					FITTING, MANIFOLD	(61112)	LP2377		1	*	*	*	*	*		
X2F					VALVE & BRACKET	(61112)	LP1214-1		1			*	*	*		
X20					BRACKET	(61112)	LP517		1	*	*	*	*	*		
X1					FITTING	(61112)	LP2216		1							
X2F					NUT, PLAIN, HEXAGON	(61112)	T409-1		2			*	*	*		
X1					ORIFICE	(61112)	LP2375		1							
X2F					PLATE, NAME	(61112)	LP1217		1			*	*	*		
X1					SCREEN	(61112)	LP2213		1							
X20					SCREW	(61112)	LP1268		2	*	*	*	*	*		
X1					VALVE ASSEMBLY	(61112)	LP1214-3		1							
X2F					BODY, VALVE	(61112)	LP1209		1			*	*	*		
X20					CAP & CHAIN	(61112)	LP2401		1	*	*	*	*	*		
X2F					GASKET	(61112)	LP1233		1			*	*	*		
X2F					HINGE PIN	(61112)	LP525		1			*	*	*		
X2F					LEVER ASSEMBLY	(61112)	LP1230		1			*	*	*		
X2F					"O"RING	(61112)	LP532		2			*	*	*		
X2F					"O"RING	(61112)	LP1229		1			*	*	*		
X2F					PIN ASSEMBLY, PUSHER	(61112)	LP1206		1			*	*	*		

CODES MATERIEL	CODES SOURCE MAINT RECOVBLTY	FEDERAL STOCK NUMBER	DESCRIPTION	MANUFACTURER'S CODE	MANUFACTURER'S PART NO.	UNIT OF ISSUE	QTY INCORPORATED IN UNIT	GUIDE QTY(S) PER MAJOR EQUIPS 15 DAYS MAINT. ORGAN-IZATIONAL I-5	15 DAYS MAINT. ORGAN-IZATIONAL 6-10	DS	GS	DEPOT MAINT. 100 EQUIPMENTS	ILLUST FIGURE NO.	ILLUST ITEM NO.
			0311 - ENGINE STARTING AIDS (CONT)											
X2F			ROLLPIN	(61112)	LP1232		1			*	*	*		
X2F			SCREEN	(61112)	T197		1			*	*	*		
X2F			SCREW	(61112)	LP529		1			*	*	*		
X2F			SEPARATOR	(61112)	LP1228		1			*	*	*		
X2F			SNAP RING	(61112)	LP1227		1			*	*	*		
X20		5305-018-0020	SCREW, CAP, HEXAGON HEAD, 1/4-20 X 3/4				4	*	*	*	*	*	27	38
X20			TUBING ASSEMBLY	(16004)	46247		1	*	*	*	*	*	27	36
			0312 - ACCELERATOR, THROTTLE OR CHOKE CONTROLS											
X20			BRACKET, CLAMP SUPPORT	(16004)	47139		1	*	*	*	*	*		
X20		2990-392-4417	CABLE, ENGINE STOP	(77910)	3A186-3		1	*	*	*	*	*		
X20		2990-896-2166	CABLE, THROTTLE	(77574)	R-09		1	*	*	*	*	*		
X20			CLIP, CABLE	(75272)	HTC-432 TYPE 17, FIG 3		2	*	*	*	*	*		
X20		5310-013-1245	NUT, LOCK, HEXAGON, 1/4-20				1	*	*	*	*	*		
X20		5305-017-9793	SCREW, CAP, HEXAGON HEAD, 1/4-20 X 5/8				1	*	*	*	*	*		
X20		5305-012-2104	SCREW, CAP, HEXAGON HEAD, 3/8-16 X 5/8				2	*	*	*	*	*		
X20			WASHER, LOCK, 3/8				2	*	*	*	*	*		
			0401 - MUFFLER AND PIPES											
X2F			PIPE, EXHAUST	(16004)	45957		1			*	*	*	27	23
X20			SHIELD RAIN	(16004)	45893		1	*	*	*	*	10	27	22
			0501 - RADIATOR, EVAPORATIVE COOLER, OR HEAT EXCHANGER											
X20			CLAMP, HOSE	(85757)	No. 4		2	*	*	*	*	*	40	1
X20			CLAMP, HOSE	(85757)	No. 4		2	*	*	*	*	*	40	4
X20			COUPLING, PIPE, 3/8 NPT				1	*	*	*	*	*	40	18
X20		4820-585-8565	DRAIN COCK	(04255)	270		1	*	*	*	*	*	40	17
P10			HOSE, RADIATOR, LOWER	(24161)	Q76-2697		1	*	*	*	*	10	40	6
P10			HOSE, RADIATOR, UPPER	(24161)	Q76-2696		1	*	*	*	*	10	40	3
X20			NIPPLE, PIPE, 3/8 NPT X 12				1	*	*	*	*	*	40	19
X2F			RADIATOR ASSEMBLY	(16004)	45983		1			*	*	*	40	20
X20			CAP, RADIATOR	(41197)	5A21196B		1	*	*	*	*	*		
X2F		5305-012-2104	SCREW, CAP, HEXAGON HEAD, 3/8-16 X 5/8				12			*	*	*	40	12
X20			WASHER, FLAT, 3/8				12	*	*	*	*	*	40	13
X2F		5310-013-8542	WASHER, LOCK	(96906)	MS35333-25		12			*	*	*	40	14
			0503 - WATER MANIFOLD, HEADERS, THERMOSTATS AND HOUSING GASKET											
X20		6850-444-8365	COOLANT CONDITIONER	(14351)	X-5695		1	*	*	*	*	*		
X20			DRAIN COCK	(14351)	X-1015		1	*	*	*	*	*	98	8
X20			ELBOW, CYLINDER OUTLET	(14351)	JD403K-309		1	*	*	*	*	*	82	9
X20			ELBOW, INLET	(14351)	JD382K-402		1	*	*	*	*	*	98	5
X1		2930-313-7646	GASKET, CYLINDER OUTLET (Component of GASKET KIT, Stock No. (14351) JD403U-111, See Group 0100)	(14351)	H260K-209		1						82	11

CODES				FEDERAL STOCK NUMBER	DESCRIPTION	MANUFACTURER'S CODE	MANUFACTURER'S PART NO.	UNIT OF ISSUE	QTY INCORPORATED IN UNIT	GUIDE QTY(S) PER MAJOR EQUIPS 15 DAYS MAINT. ORGANIZATIONAL 1-5	6-10	DS	GS	DEPOT MAINT. 100 EQUIPMENTS	ILLUST FIGURE NO.	ILLUST ITEM NO.
MATERIEL	SOURCE	MAINT	RECOVBLTY													
					0503 - WATER MANIFOLD, HEADERS, THERMOSTATS AND HOUSING GASKET (CONT)												
X1					GASKET, ELBOW (component of GASKET KIT, Stock No. (14351) JD403U-111, See Group 0100)	(14351)	H260K-203		1						98	6
X20					NUT, PLAIN, HEXAGON	(14351)	X-1802-G		2	*	*	*	*	*	98	3
X20					SCREW & LOCKWASHER	(14351)	X-2947		3	*	*	*	*	*		
X20					STUD	(14351)	X-20041		2	*	*	*	*	*	98	7
P 0				6620-560-1999	THERMOSTAT	(14351)	RDK-3190		1	*	*	*	*	100	82	10
X20					WASHER, LOCK	(14351)	X-203		2	*	*	*	*	*	98	4
					0504 - WATER PUMP											
X2F					NUT, PLAIN, HEXAGON	(14351)	X-1800-C		6			*	*	*	81	10
X2F					PUMP ASSEMBLY, WATER	(14351)	ED400K-30112		1			*	*	2		
X1				2930-298-5321	GASKET, DRIVE SUPPORT (Component of GASKET KIT, Stock No. (14351) JD403U-111, See Group 0100)	(14351)	H260K-204		1						81	13
X2F					PULLEY, FAN	(14351)	JD403K-308		1			*	*	*	81	6
X2F					PUMP ASSEMBLY	(14351)	ED400K-3010		1			*	*	*		
X1					BEARING & SHAFT ASSY	(14351)	HD277K-2020		1						81	8
X1					SHAFT & BEARING	(14351)	HD277K-202		1							
X1					SLINGER	(14351)	Z129K-207		1						81	9
X1					IMPELLER ASSEMBLY	(14351)	J403K-3010		1						81	15
X1					IMPELLER	(14351)	J403K-301		1							
X1					INSERT	(14351)	F162K-255		1							
X1					RING, RETAINING	(14351)	X-7047		1						81	7
X1					RING, RETAINING	(14351)	X-7082		1						81	5
X2F					SEAL, PUMP (Component of GASKET KIT, Stock No. (14351) JD403U-111, See Group 0100)	(14351)	N62K-211		1						81	14
P1F				2815-225-4790	SUPPORT, DRIVE	(14351)	J403K-402		1			*	*	*	81	12
X1					REPAIR KIT, PUMP	(14351)	ED400T-102		1			*	*	100		
X1				2930-298-5321	BEARING & SHAFT ASSEMBLY	(14351)	HD277K-2020		1							
					GASKET, DRIVE SUPPORT (Component of GASKET KIT, Stock No. (14351) JD403U-111, See Group 0100)	(14351)	H260K-204		1							
X1					IMPELLER, ASSEMBLY	(14351)	J403K-3010		1							
X1					RING, RETAINING	(14351)	X-7047		1							
X1					RING, RETAINING	(14351)	X-7082		1							
X1					SEAL, PUMP (Component of GASKET KIT, Stock No. (14351) JD403U-111, See Group 0100)	(14351)	N62K-211		1							
X2F					STUD	(14351)	X-4399		6			*	*	*	81	16
X2F					WASHER, LOCK	(14351)	X-201		6			*	*	*	81	11

CODES MATERIEL	CODES SOURCE	CODES MAINT	CODES RECOVBLTY	FEDERAL STOCK NUMBER	DESCRIPTION	MANUFACTURER'S CODE	MANUFACTURER'S PART NO.	UNIT OF ISSUE	QTY INCORPORATED IN UNIT	GUIDE QTY(S) PER MAJOR EQUIPS: 15 DAYS MAINT. ORGANIZATIONAL 1-5	15 DAYS MAINT. ORGANIZATIONAL 6-10	DS	GS	DEPOT MAINT. 100 EQUIPMENTS	ILLUST FIGURE NO.	ILLUST ITEM NO.
					0505 - FAN ASSEMBLY											
P	0			3030-834-2056	BELT, V	(96906)	MS51066-51		2	*	*	*	*	50	81	1
X	2	F			FAN ASSEMBLY	(53591)	X-912519		1			*	*	*	81	4
X	2	F			GUARD, FAN	(16004)	46217		1			*	*	*	40	16
X	2	F			SCREW, CAP, HEXAGON HEAD 5/16-18 X 5/8				4			*	*	*	81	2
X	2	F			SCREW, SHEET METAL No. 10 X 1/2				4			*	*	*	40	15
X	2	F		5310-012-0214	WASHER, LOCK, 5/16				4			*	*	*	81	3
					0601 - GENERATOR											
P	0			2920-391-2989	GENERATOR ASSEMBLY	(96906)	MS13823-1		1	*	*	*	*	20		
X	2	F			ARMATURE ASSEMBLY	(19728)	GHS-2006F		1			*	*	*	76B	19
X	2	F			BEARING, BALL, SEALED	(19728)	X-3380		1			*	*	*		
X	2	0			BAND, COVER	(19728)	GHS-24		1	*	*	*	*	*	76B	3
X	2	0		5305-198-9348	BOLT, THRU	(19728)	GHS-20		2	*	*	*	*	*	76B	4
X	2	F			ELBOW, 90°	(19728)	XA-750A		1			*	*	*	76B	26
X	2	F			FAN, VENTILATOR	(19728)	PU-535A		1			*	*	*	76A	15
X	2	F			FRAME & FIELD ASSEMBLY	(19728)	GHS-2001		1			*	*	*	76B	28
X	2	F			COIL ASSEMBLY, FIELD	(19728)	GHS-1005		1			*	*	*		
X	1				COIL, FIELD, LEFT	(19728)	GHS-1007		1							
X	1				COIL, FIELD, RIGHT	(19728)	GHS-1008		1							
X	2	F			INSULATION, FIELD COIL	(19728)	GHS-40		1			*	*	*		
X	2	F		5315-271-7551	PIN, DOWEL	(19728)	MN-21A		2			*	*	*		
X	2	F			SCREW; field lead	(19728)	19X-55		1			*	*	*		
X	2	F			SCREW: pole shoe	(19728)	GHS-38		2			*	*	*		
X	2	F		5310-012-1841	WASHER, LOCK; lead	(19728)	19X-195		1			*	*	*		
X	2	F			HEAD ASSEMBLY: commutator end	(19728)	GHS-2002S		1			*	*	*	76B	6
X	2	F			BRUSH ARM & SPRING	(19728)	P90-270		2			*	*	*		
X	1				ARM, BRUSH	(19728)	GHS-26		1						76B	11
X	1				SPRING, BRUSH	(19728)	GHS-17		1						76B	12
X	2	F			HEAD ASSEMBLY: drive end	(19728)	GHS-1003		1			*	*	*		
X	2	F			BEARING, BALL, SEALED	(19728)	X-3185A		1			*	*	*	76B	18
X	2	F			HEAD: drive end	(19728)	GHS-3		1			*	*	*	76B	7
X	2	F			RETAINER, BEARING	(19728)	GHS-27		1			*	*	*	76B	17
X	2	F			SCREW: retaining	(19728)	GGW-52B		3			*	*	*	76B	14
X	2	F			SPRING PLATE, GROUND	(19728)	GHS-1032		1			*	*	*	76B	16
X	2	F			WASHER, LOCK: retaining screw	(19728)	20X-196		3			*	*	*	76B	15
X	2	F		5315-012-4545	KEY	(19728)	X-260		1			*	*	*	76A	16
X	2	F		5310-655-9371	NUT: armature shaft	(19728)	X-3449		1			*	*	*	76A	10
X	2	0			NUT: cover band	(19728)	20X-794		1	*	*	*	*	*	76B	1
X	2	F			RECEPTACLE & LEAD ASSY	(19728)	GHS-1028		1			*	*	*	76B	23
X	2	F			SCREW: brush lead	(19728)	19X-305		2			*	*	*	76B	8
X	2	0		5305-286-1934	SCREW: cover band	(19728)	20X-714		1	*	*	*	*	*	76B	2
X	2	F		5305-013-2776	SCREW: elbow mounting	(19728)	20X-3448		4			*	*	*	76B	24
X	2	F			SCREW: field lead	(19728)	19X-302		1			*	*	*		
X	2	F		5305-543-5763	SCREW: receptacle mounting	(19728)	20X-3025		4			*	*	*	76B	21
X	2	F			SPACER: armature shaft	(19728)	GHS-31		1			*	*	*	76A	13
X	2	F			SPACER: armature shaft	(19728)	GHS-23		1			*	*	*	76A	14
X	2	0			SPACER: mounting	(19728)	GHS-15		1	*	*	*	*	*	76B	27
X	2	0			WASHER, LOCK: bolt	(19728)	20X-1014		2	*	*	*	*	*	76B	5
X	2	F			WASHER, LOCK: mtg screw	(19728)	X-194		4			*	*	*		
X	2	F		5310-012-1841	WASHER, LOCK: mtg screw	(19728)	19X-195		6			*	*	*		
X	2	0			WASHER, LOCK: shaft nut	(19728)	GHS-18		1	*	*	*	*	*	76A	11

CODES				FEDERAL STOCK NUMBER	DESCRIPTION	MANUFACTURER'S CODE	MANUFACTURER'S PART NO.	UNIT OF ISSUE	QTY INCORPORATED IN UNIT	GUIDE QTY(S) PER MAJOR EQUIPS					ILLUST	
MATERIEL	SOURCE	MAINT	RECOVBLTY							15 DAYS MAINT.				DEPOT MAINT.	FIGURE NO.	ITEM NO.
										ORGANIZATIONAL		DS	GS			
										1-5	6-10	100 EQUIPMENTS				
					0601 - GENERATOR (CONT)											
P	0				GENERATOR REPAIR KIT	(19728)	KIT-187		1	*	*	*	*	100		
X	1			5977-284-9918	BRUSH SET: service	(19728)	GHS-2012S		1							
X	1			6115-570-5594	SPRING, BRUSH	(19728)	GHS-17		2							
X	20				PULLEY, GENERATOR	(19728)	PU663		1	*	*	*	*	*	76A	12
X	20				SCREW, CAP, HEXAGON HEAD, 3/16-16 X 1 1/2				1	*	*	*	*	*		
X	20				SCREW, CAP, HEXAGON HEAD, 7/16-14 X 1 1/2				2	*	*	*	*	*		
X	20				NUT, PLAIN, HEXAGON, 7/16-14				2	*	*	*	*	*		
X	20				WASHER, LOCK	(78189)	4022-28-00		4	*	*	*	*	*		
X	20				WASHER, LOCK	(96906)	MS35333-25		1	*	*	*	*	*		
X	20				WASHER, LOCK	(78189)	4020-26-00		1	*	*	*	*	*		
					0602 - GENERATOR REGULATOR (VOLTAGE)											
X	20				NUT, PLAIN, HEXAGON, 5/16-18				4	*	*	*	*	*		
P	0			2920-640-7518	REGULATOR, GENERATOR	(96906)	MS13805-1		1	*	*	*	*	10		
X	1				BASE, INSULATION	(19728)	VBC-1055C		1							
X	1				BASE ASSEMBLY, REGULATOR	(19728)	VBU-1001		1							
X	1				BASE	(19728)	VBU-1		1							
X	1				BRACKET, regulator mtg	(19728)	VBU-4		2							
X	1				CAPACITOR ASSEMBLY	(19728)	XA-934		1							
X	1				GASKET: receptacle mtg	(19728)	XA-749A		1							
X	1				RECEPTACLE	(19728)	IAU-63A		1							
X	1				RECEPTACLE & LEAD ASSY	(19728)	VBU-1006		1							
X	1				SCREW: receptacle mtg	(19728)	20X-3467		8							
X	1				SCREW: regulator mtg	(19728)	19X-3482		4							
X	1				SEAL: receptacle	(19728)	IAU-62		1							
X	1				SEAL: receptacle mtg	(19728)	XA-744P		1							
X	1				BRACKET, RESISTOR	(19728)	VBC-21A		1							
X	1				COIL ASSEMBLY: regulator	(19728)	VBC-3008D		1							
X	1				ARMATURE, C. R.	(19728)	VBU-1061B		1							
X	1				BRACKET ASSEMBLY	(19728)	VBC-1087		1							
X	1				INSULATION: bracket	(19728)	VBC-88		1							
X	1				NUT: adjusting	(19728)	VRA-15		1							
X	1				NUT: coil mounting	(19728)	20X-1055		1							
X	1				SCREW: adjusting	(19728)	VRA-16		1							
X	1				SCREW: adjusting bracket	(19728)	20X-3466		2							
X	1				SCREW: armature mtg	(19728)	20X-3223		2							
X	1				SPRING: armature	(19728)	VRA-84		1							
X	1				WASHER: armature	(19728)	20X-350		4							
X	1				WASHER: insulation	(19728)	VBU-11		2							
X	1				WASHER: insulation	(19728)	X-3526		2							
X	1				COIL ASSEMBLY, RELAY	(19728)	VBC-3070J		1							
X	1				BUSHING: insulation	(19728)	GAA-35A		1							
X	1				CONTACT, STATIONARY	(19728)	VAD-1118B		1							
X	1				INSULATION: contact	(19728)	VAD-116A		1							
X	1				INSULATION: contact	(19728)	VAD-117A		1							
X	1				NUT: adjusting	(19728)	VRA-15		1							
X	1				NUT: coil mounting	(19728)	20X-1055		1							
X	1				SCREW: adjusting	(19728)	VRA-16		1							
X	1				SCREW: bracket	(19728)	20X-3466		2							
X	1				SCREW: mounting	(19728)	20X-3223		4							
X	1				SPRING: armature	(19728)	VBC-57		1							
X	1				WASHER	(19728)	20X-350		3							
X	1				WASHER: insulation	(19728)	X-3526		2							

CODES MATERIEL	CODES SOURCE	CODES MAINT	CODES RECOVBLTY	FEDERAL STOCK NUMBER	DESCRIPTION	MANUFACTURER'S CODE	MANUFACTURER'S PART NO.	UNIT OF ISSUE	QTY INCORPORATED IN UNIT	GUIDE QTY(S) PER MAJOR EQUIPS: 15 DAYS MAINT. ORGAN-IZATIONAL 1-5	15 DAYS MAINT. ORGAN-IZATIONAL 6-10	DS	GS	DEPOT MAINT.	ILLUST FIGURE NO.	ILLUST ITEM NO.
					0602 - GENERATOR REGULATOR (VOLTAGE) (CONT)											
					COIL ASSEMBLY: voltage reg.	(19728)	VBC-3071C		1							
X1					ARMATURE	(19728)	VBU-1061B		1							
X1					BRACKET ASSEMBLY, adjust	(19728)	VBC-1087		1							
X1					INSULATION: bracket	(19728)	VBC-88		1							
X1					NUT: adjusting	(19728)	VRA-15		1							
X1					NUT: coil mounting	(19728)	20X-1055		1							
X1					SCREW: adjusting	(19728)	VRA-16		1							
X1					SCREW: adjusting brkt	(19728)	20X-3466		2							
X1					SCREW: armature mtg	(19728)	20X-3223		4							
X1					SPRING: armature	(19728)	VRA-84		1							
X1					WASHER: insulation	(19728)	VBU-11		2							
X1					WASHER: insulation	(19728)	X-3526		2							
X1					WASHER: plain	(19728)	20X-350		4							
X1					CONNECTOR, SERIES COIL	(19728)	VRA-46A		1							
X2F					COVER: regulator	(19728)	VBC-2		1			*	*	*		
X2F					LEAD	(19728)	VBC-89		1			*	*	*		
X2F				4730-278-3388	PLUG, PIPE, 1/8	(19728)	VAD-166B		1			*	*	*		
X1					NUT	(19728)	20X-3457		2							
X1					NUT: choke mounting	(19728)	XA-766		1							
X1					NUT: coil mounting	(19728)	20X-3459		3							
X1					RESISTOR (MK400)	(19728)	VRP-100K		1							
X1					RESISTOR (MK200)	(19728)	VBO-51E		1							
X1					RESISTOR (MK60)	(19728)	VBT-30B		1							
X1					R. F. CHOKE	(19728)	VBC-1016B		1			*	*	*		
X2F					SCREW: base mounting	(19728)	20X-3465		6							
X1					SCREW: cover mounting	(19728)	20X-3463		6			*	*	*		
X2F					SCREW: lead connector	(19728)	20X-3029		1							
X1					SCREW: lead connector	(19728)	20X-3055		1							
X1					SCREW: lead connector	(19728)	20X-3478		1							
X1					SCREW: resistor mtg	(19728)	20X-3462		3							
X1					SEAL: cover	(19728)	XA-744N		1							
X1					SEAL: lead	(19728)	X-2955		1							
X1					SEAL, STRIP: regulator	(19728)	VBC-64		1			*	*	*		
X2F					WASHER, FLAT	(19728)	VAD-176B		2			*	*	*		
X2F					WASHER, FLAT	(19728)	20X-183A		6							
X1					WASHER, FLAT	(19728)	20X-350		5							
X1					SCREW, CAP, HEXAGON HEAD 5/16-18 X 1				4	*	*	*	*	*		
X20					WASHER, LOCK	(78189)	4018-24-00		12	*	*	*	*	*		
					0603 - STARTING MOTOR											
X20					SCREW, CAP, HEXAGON HEAD, 5/8-11 X 1 1/2.				3	*	*	*	*	*		
P 0				2920-225-4824	STARTER ASSEMBLY	(19728)	MFY-8001-AT		1	*	*	*	*	2		
X1					ARMATURE	(19728)	MEW-2431A		1						77	42
X1					BEARING ASSEMBLY	(19728)	MEU-1050		1						77	41
X1					BUSHING, INSULATION (Component of REPAIR KIT, Stock No. (19728) 19728KIT-204)	(19728)	MEL-17		1						77	31
X1					COVER & CONTACT ASSEMBLY	(19728)	P90-269		1						77	8
X1					DISC, CONTACT	(19728)	MET-1050A		1						77	12
X1					GASKET, SWITCH COVER	(19728)	MET-62		1						77	9
X1					NUT, PLAIN, HEXAGON	(19728)	19X-830		3						77	4
X1					SPRING, SWITCH CONTACT	(19728)	MEJ-65A		1						77	11

CODES	FEDERAL STOCK NUMBER	DESCRIPTION	MANUFACTURER'S CODE	MANUFACTURER'S PART NO.	UNIT OF ISSUE	QTY INCORPORATED IN UNIT	GUIDE QTY(S) PER MAJOR EQUIPS					ILLUST	
							15 DAYS MAINT.				DEPOT MAINT.	FIGURE NO.	ITEM NO.
							ORGANIZATIONAL		DS	GS			
							1-5	6-10	100 EQUIPMENTS				
		0603 - STARTING MOTOR (CONT)											
X1		STUD ASSEMBLY	(19728)	MET-1066C		1							
X1		STUD: contact	(19728)	MET-28		1						77	10
X1	5310-286-9593	WASHER, FLAT	(19728)	SS-60		1							
X1	5310-043-2646	WASHER, LOCK	(19728)	12X-201		1							
X1		FRAME & FIELD ASSEMBLY	(19728)	MFY-2001		1							
X1		BRUSH SET, SERVICE (Component of REPAIR KIT, Stock No. (19728) 19729KIT-204	(19728)	MEW-1012S		1							
X1		PLATE ASSEMBLY, BRUSH	(19728)	MEW-1064A		1						77	40
X1		SPRING SET, BRUSH (Component of REPAIR KIT, Stock No. (19728) 19728KIT-204	(19728)	MBD-19AS		1							
X1		SCREW: brush	(19728)	19X-304		8						77	37
X1		SCREW: brush plate	(19728)	19X-3407		3						77	39
X1	5310-011-5544	WASHER, LOCK	(19728)	12X-195		11							
X1		GASKET: commutator end (Component of REPAIR KIT, Stock No. (19728) 19728KIT-204)	(19728)	MEL-25		1						77	36
X1		GASKET: bearing (Component of REPAIR KIT, Stock No. (19728) 19728KIT-204)	(19728)	MEL-24		2							
X1		HEAD ASSEMBLY; commutator end	(19728)	MEL-2002D		1						77	32
X1	2920-293-5041	BEARING, BRONZE (Component of REPAIR KIT, Stock No. (19728) 19728KIT-204)	(19728)	GBF-79		1							
X1		COVER: bearing	(19728)	MEJ-39A		1						77	35
X1		WASHER, FELT	(19728)	MEJ-38		1						77	33
X1		HOUSING ASSEMBLY	(19728)	PS-2395E		1						77	34
X1		CLUTCH	(19728)	DRB-3001D		1						77	14
X1		COLLAR	(19728)	MEJ-83A		1						77	24
X1		HOUSING & SOLENOID ASSY	(19728)	PS-2395ES		1							
X1		BEARING, BRONZE (Component of REPAIR KIT, Stock No. (19728) 19728KIT-204)	(19728)	MEL-50		1						77	23
X1		STUD: terminal	(19728)	X-3180		2							
X1		TERMINAL	(19728)	MEJ-101		2							
X1		RING, SNAP (Component of REPAIR KIT, Stock No. (19728) 19728KIT-204	(19728)	MEJ-82A		1							
X1		SPRING	(19728)	MEJ-88A		1							
X1		WASHER, FELT (Component of REPAIR KIT, Stock No. (19728) 19728KIT-204)	(19728)	MEJ-93		1							

CODES MATERIEL	CODES SOURCE MAINT	CODES RECOVBLTY	FEDERAL STOCK NUMBER	DESCRIPTION	MANUFACTURER'S CODE	MANUFACTURER'S PART NO.	UNIT OF ISSUE	QTY INCORPORATED IN UNIT	GUIDE QTY(S) PER MAJOR EQUIPS 15 DAYS MAINT. ORGAN-IZATIONAL 1-5	6-10	DS	GS	DEPOT MAINT. 100 EQUIPMENTS	ILLUST FIGURE NO.	ILLUST ITEM NO.
				0603 - STARTING MOTOR (CONT)											
X1				WASHER, FELT RETAINER (Component of REPAIR KIT, Stock No. (19728) 19728KIT-204)	(19728)	MEJ-92		2							
X1				WASHER, STOP (Component of REPAIR KIT, Stock No. (19728) 19728KIT-204	(19728)	MET-67		1						77	16
				LEAD ASSEMBLY	(19728)	MEL-22C		1						77	26
X1				MOVING CORE ASSEMBLY	(19728)	MET-1075A		1						77	15
X1				NUT: stud	(19728)	X-2845		3							
X1			5310-013-4570	NUT: stud	(19728)	X-2853		4							
X1				RETAINER (Component of REPAIR KIT, Stock No. (19728) 19728KIT-204	(19728)	MET-53A		1							
X1			5340-598-1166	RING, SNAP (Component of REPAIR KIT, Stock No. (19728) 19728KIT-204)	(19728)	MCS-47A		1							
				SCREW	(19728)	19X-120		4							
X1			5305-013-2119	SCREW: housing mtg	(19728)	MBD-254D		7						77	27
X1				SCREW: switch cover	(19728)	19X-3450		2						77	7
X1				THRUST WASHER PACKAGE	(19728)	PO-264		1							
X1				WASHER: commutator end	(19728)	MU-54L (1/16 THK)		1							
X1				WASHER, THRUST (Component of REPAIR KIT, Stock No. (19728) 19728KIT-204)	(19728)	MET-28		1							
X1			5330-291-5921	WASHER, THRUST (Component of REPAIR KIT, Stock No. (19728) 19728KIT-204)	(19728)	MU-54 (1/32 THK)		AR							
X1			5330-235-5124	WASHER, THRUST (Component of REPAIR KIT, Stock No. (19728) 19728KIT-204)	(19728)	MU-54B 1/32 THK)		AR							
X1			5330-282-6098	WASHER, INSULATING (Component of REPAIR KIT, Stock No. (19728) 19728KIT-204)	(19728	MBD-119		1							
X1				WASHER, INSULATING (Component of REPAIR KIT, Stock No. (19728) 19728KIT-204)	(19728)	MEL-18		2						77	30
				WASHER, LOCK	(19728)	12X-196		17						77	29
X1			5310-010-6497	WASHER, LOCK: stud	(19728)	12X-201		3						77	5
X1			5310-043-2646	WASHER: stud	(19728)	19X-349		2						77	6
X1				WASHER	(19728)	MZ-294		1							
X1			5310-621-2784	REPAIR KIT, STARTER	(19728)	19728KIT-204		1	*	*	*	*	20		
P 0				BEARING, BRONZE	(19728)	GBF-79		1							
X1			2920-293-5041	BEARING, BRONZE	(19728)	MEL-50		1							
X1															

CODES MATERIEL	CODES SOURCE	CODES MAINT	CODES RECOVBLTY	FEDERAL STOCK NUMBER	DESCRIPTION	MANUFACTURER'S CODE	MANUFACTURER'S PART NO.	UNIT OF ISSUE	QTY INCORPORATED IN UNIT	GUIDE QTY(S)PER MAJOR EQUIPS 15 DAYS MAINT. ORGANIZATIONAL 1-5	6-10	100 EQUIPMENTS	DS	GS	DEPOT MAINT.	ILLUST FIGURE NO.	ILLUST ITEM NO.
					0603 - STARTING MOTOR (CONT)												
X1					BRUSH SET, SERVICE	(19728)	MEW-1012S		1								
X1					BUSHING, INSULATION	(19728)	MEL-17		1								
X1					GASKET: commutator end	(19728)	MEL-25		1								
X1					GASKET: bearing	(19728)	MEL-24		1								
X1					RETAINER	(19728)	MET-53A		1								
X1				5340-598-1166	RING, SNAP	(19728)	MCS-47A		1								
X1					RING, SNAP	(19728)	MEJ-82A		1								
X1					SPRING SET, BRUSH	(19728)	MBD-19AS		1								
X1					WASHER, FELT	(19728)	MEJ-93		1								
X1					WASHER, FELT RETAINER	(19728)	MEJ-92		2								
X1				5330-282-6098	WASHER, INSULATING	(19728)	MBD-119		1								
X1					WASHER, INSULATING	(19728)	MEL-18		2								
X1					WASHER, STOP	(19728)	MET-67		1								
X1					WASHER, THRUST	(19728)	MET-52A		1								
X1				5330-291-5921	WASHER, THRUST	(19728)	MU-54		4								
X1				5330-235-5124	WASHER, THRUST	(19728)	MU-54B		3								
X20				5310-012-1574	WASHER, LOCK, 5/8				3	*	*	*	*	*			
X20					WIRE ASSEMBLY, GROUND	(16004)	47133		1	*	*	*	*	*			
					0606 - ENGINE SAFETY CONTROLS												
P10					SWITCH, HIGH TEMPERATURE	(70040)	6401063		1	*	*	*	*	5			
P10					SWITCH, PRESSURE	(74400)	MI-1544		1	*	*	*	*	5			
P10				5930-501-1058	THERMOSWITCH	(73168)	17100		1	*	*	*	*	5		46B	19
X20					WIRE ASSEMBLY	(16004)	45976		1	*	*	*	*	*			
X20					WIRE ASSEMBLY	(16004)	45976		1	*	*	*	*	*			
					0607 - INSTRUMENT OR ENGINE CONTROL PANEL												
X20					NUT, LOCK, HEXAGON, 3/8-16				3	*	*	*	*	*			
X2H					PANEL ASSEMBLY, INSTRUMENT	(16004)	45853		1				*	*			
P10					BUTTON, PUSH: safety & start	(87930)	12300A		2	*	*	*	*	5			
X10				6625-333-9243	GAGE, AMMETER	(51240)	4015-C44		1	*	*	*	*	5			
P10					GAGE, FUEL	(70040)	5640086		1	*	*	*	*	5			
X20					GROMMET	(76385)	Z-3107		1	*	*	*	*	*			
X20					GROMMET	(76385)	Z-4122		3	*	*	*	*	*			
X20					LEAD ASSEMBLY	(95875)	ILU-Y-0600-3		1	*	*	*	*	*			
X20					LAMP, PANEL	(73331)	899803		1	*	*	*	*	*			
X2H					PANEL, INSTRUMENT	(16004)	45748		1				*	*			
X20				5930-347-4803	PLATE, INDICATOR	(15605)	827-228-F3		1	*	*	*	*	*			
P10				5930-642-9227	SWITCH, TOGGLE	(96906)	MS35058-22		1	*	*	*	*	5			
X20					WIRE ASSEMBLY	(16004)	45963		1	*	*	*	*	*			
X20					WIRE ASSEMBLY	(16004)	45961		1	*	*	*	*	*			
X20					WIRE ASSEMBLY	(16004)	45968		1	*	*	*	*	*			
X20					WIRE ASSEMBLY	(16004)	45967		1	*	*	*	*	*			
X20					WIRE ASSEMBLY	(16004)	45969		1	*	*	*	*	*			
X20					WIRE ASSEMBLY	(16004)	45972		1	*	*	*	*	*			
X20					WIRE ASSEMBLY	(16004)	45974		1	*	*	*	*	*			
X20					WIRE ASSEMBLY	(16004)	45977		1	*	*	*	*	*			
X20					WIRE ASSEMBLY	(16004)	47125		2	*	*	*	*	*			
X20					STUD	(16004)	1927		3	*	*	*	*	*			
X20					WASHER, FLAT, 3/8				3	*	*	*	*	*			

CODES MATERIEL	SOURCE	MAINT	RECOVBLTY	FEDERAL STOCK NUMBER	DESCRIPTION	MANUFACTURER'S CODE	MANUFACTURER'S PART NO.	UNIT OF ISSUE	QTY INCORPORATED IN UNIT	GUIDE QTY(S) PER MAJOR EQUIPS: 15 DAYS MAINT. ORGANIZATIONAL 1-5	6-10	DS	GS	DEPOT MAINT. 100 EQUIPMENTS	ILLUST FIGURE NO.	ITEM NO.
					0609 - LIGHTS											
X20					BRACKET	(16004)	45877		2	*	*	*	*	*	28	68
X20					GUARD	(16004)	45858		1	*	*	*	*	*	28	71
X20					GUARD, LIGHT	(16004)	45875		1	*	*	*	*	*	28	74
X20					GUARD, LIGHT	(16004)	45876		2	*	*	*	*	*	28	77
X20					GUARD, LIGHT	(16004)	45951		1	*	*	*	*	*	28	53
X20					LIGHT ASSEMBLY	(16004)	46209		2	*	*	*	*	*	28	65
X20					SHELL, ELECTRIC	(00000)	8338566		2	*	*	*	*	*		
P10				6220-337-6471	STOPLIGHT	(96906)	MS51330-1		1	*	*	*	*	*		
X20					WASHER	(00000)	8338567		2	*	*	*	*	*		
X20					LIGHT ASSEMBLY	(16000)	46211		4	*	*	*	*	*	28	57
P10				6220-047-4419	LIGHT, MARKER, CLEARANCE	(96906)	MS35424-2		1	*	*	*	*	*		
X20					SHELL	(00000)	8338566		1	*	*	*	*	*		
X20					WASHER	(00000)	8338567		1	*	*	*	*	*		
X20					LIGHT ASSEMBLY	(16004)	46210		7	*	*	*	*	*		
P10				6220-063-1957	LIGHT, MARKER, CLEARANCE	(96906)	MS35423-2		1	*	*	*	*	*		
X20					SHELL, ELECTRIC	(00000)	8338566		1	*	*	*	*	*		
X20					WASHER	(00000)	8338567		1	*	*	*	*	*		
X20					LIGHT ASSEMBLY	(16004)	46212		4	*	*	*	*	*		
P10				6220-577-3435	LIGHT, MARKER, CLEARANCE	(96906)	MS35424-1		1	*	*	*	*	*		
X20					SHELL, ELECTRIC	(00000)	8338566		1	*	*	*	*	*		
X20					WASHER	(00000)	8338567		1	*	*	*	*	*		
X20					LIGHT ASSEMBLY, TAIL	(16004)	46208		2	*	*	*	*	*	28	56
X20					BODY ASSEMBLY	(75175)	88457		1	*	*	*	*	*		
P 0				6240-877-3405	BULB, 24-VOLT	(24455)	1662		1	*	*	*	*	20		
X20					GASKET	(75175)	34625		1	*	*	*	*	*		
X20					GASKET	(75175)	34627		1	*	*	*	*	*		
X20					GLASS, RED	(75175)	3726		1	*	*	*	*	*		
P10					LIGHT, TAIL	(75175)	766SI-24		1	*	*	*	*	*		
X20					PIN, CONTACT	(96906)	MS27148-2		2	*	*	*	*	*		
X20					RING, RETAINING	(75175)	34626		1	*	*	*	*	*		
X20					SHELL, ELECTRIC	(00000)	8338566		2	*	*	*	*	*		
X20					WASHER	(00000)	8338567		2	*	*	*	*	*		
X20					WIRE ASSEMBLY	(75175)	88135		1	*	*	*	*	*		
X20					NUT, LOCK, HEXAGON, 10-24				4	*	*	*	*	*	28	58
X20					NUT, LOCK, HEXAGON, 10-24				4	*	*	*	*	*	28	58
X20					NUT, LOCK, HEXAGON, 10-24				3	*	*	*	*	*	28	54
X20					NUT, LOCK, HEXAGON, 10-24				4	*	*	*	*	*	28	58
X20					NUT, LOCK, HEXAGON, 10-24				4	*	*	*	*	*		
X20				5310-013-1245	NUT, LOCK, HEXAGON, 1/4-20				2	*	*	*	*	*		
X20				5310-013-1245	NUT, LOCK, HEXAGON, 1/4-20				2	*	*	*	*	*		
X20				5310-013-1245	NUT, LOCK, HEXAGON, 1/4-20				2	*	*	*	*	*		
X20					NUT, SPINLOCK, 1/4-20				7	*	*	*	*	*	28	66
X20					NUT, SPINLOCK, 1/4-20				8	*	*	*	*	*	28	72
X20					NUT, SPINLOCK, 1/4-20				8	*	*	*	*	*		
X20					NUT, SPINLOCK, 1/4-20				8	*	*	*	*	*	28	75
P 0				9905-205-2795	REFLECTOR	(96906)	MS35387-1		4	*	*	*	*	10	28	62
P 0				9905-202-3639	REFLECTOR	(96906)	MS35387-2		4	*	*	*	*	10	28	62
X20					SCREW, CAP, HEXAGON HEAD, 10-24 X 3/4				6	*	*	*	*	*	28	55
X20					SCREW, CAP, HEXAGON HEAD, 10-24 X 3/4				4	*	*	*	*	*	28	59
X20					SCREW, CAP, HEXAGON HEAD, 10-24 X 3/4				4	*	*	*	*	*	28	59
X20					SCREW, CAP, HEXAGON HEAD, 10-24 X 3/4				4	*	*	*	*	*	28	59

CODES	FEDERAL STOCK NUMBER	DESCRIPTION	MANUFACTURER'S CODE	MANUFACTURER'S PART NO.	UNIT OF ISSUE	QTY INCORPORATED IN UNIT	GUIDE QTY(S) PER MAJOR EQUIPS: 15 DAYS MAINT. ORGANIZATIONAL 1-5	15 DAYS MAINT. ORGANIZATIONAL 6-10	DS (100 EQUIPMENTS)	GS (100 EQUIPMENTS)	DEPOT MAINT. (100 EQUIPMENTS)	ILLUST FIGURE NO.	ILLUST ITEM NO.
		0609 - LIGHTS (CONT)											
X20		SCREW, CAP, HEXAGON HEAD, 10-24 X 3/4				4	*	*	*	*	*		
X20		SCREW, CAP, HEXAGON HEAD, 1/4-20 X 3/4				4	*	*	*	*	*	28	67
X20		SCREW, CAP, HEXAGON HEAD, 1/4-20 X 1/2				4	*	*	*	*	*	28	61
X20	5305-012-2119	SCREW, CAP, HEXAGON HEAD, 3/8-16 X 3/4				2	*	*	*	*	*		
X20		SCREW, SPINLOCK, 1/4-20 X 1/2				2	*	*	*	*	*	28	63
X20		SCREW, SPINLOCK, 1/4-20 X 1/2				8	*	*	*	*	*	28	73
X20		SCREW, SPINLOCK, 1/4-20 X 1/2				8	*	*	*	*	*	28	76
X20		SCREW, SPINLOCK, 1/4-20 X 3/4				8	*	*	*	*	*	28	52
X20		WASHER, LOCK, 3/8				7	*	*	*	*	*	28	70
		0610 - SENDING UNITS AND WARNING SWITCHES				2	*	*	*	*	*		
X20		GASKET	(16004)	44427		1	*	*	*	*	*		
X20		SCREW, MACHINE, 10-32 X 1/2				5	*	*	*	*	*	28	8
P10		SENDING UNIT, FUEL	(70040)	5641501		1	*	*	*	*	5	28	9
X20		WASHER, LOCK	(96906)	MS35333-22		5	*	*	*	*	*		
		0612 - BATTERIES, STORAGE, WET OR DRY											
P 0	6140-057-2554	BATTERY	(96906)	MS35000-3		2	*	*	*	*	10	28	25
X20		BOLT-U	(16004)	42010		2	*	*	*	*	*	28	28
X20		CABLE, BATTERY: ground	(16004)	45981		1	*	*	*	*	25	28	21
X1		TERMINAL	(01493)	ZN-OR		1							
X1		TERMINAL	(77060)	No. 18		1							
X1		WIRE: No. 2 gauge X 13 in. lg				1							
X20		CABLE, BATTERY: jumper	(16004)	45982		1	*	*	*	*	25	28	12
X1		TERMINAL	(01493)	ZN-OR		1							
X1	5940-799-5419	TERMINAL	(01493)	ZP-OL		1							
X1		WIRE: No. 2 gauge X 7 in. lg				1							
X20		CLAMP, BATTERY	(16004)	43522		4	*	*	*	*	*	28	24
X20	5340-489-4746	CLIP	(75272)	TC-4		2	*	*	*	*	*	28	27
P 0	6810-249-9354	ELECTROLITE	(81336)	11171-2-224	gal	4	*	*	*	*	*		
X20		GROMMET	(76385)	S-5734		1	*	*	*	*	*	28	15
X20	5310-013-1245	NUT, LOCK, HEXAGON, 1/4-20				2	*	*	*	*	*	28	26
X20	5310-013-1245	NUT, LOCK, HEXAGON, 1/4-20				4	*	*	*	*	*	28	32
X20	5310-044-3333	NUT, LOCK, HEXAGON, 5/16-18				1	*	*	*	*	*		
X20		NUT, LOCK, HEXAGON, 3/8-16				1	*	*	*	*	*	28	17
X20		NUT, PLAIN, HEXAGON, 3/8-16				1	*	*	*	*	*	28	13
X20		NUT, PLAIN, HEXAGON, 3/8-16				4	*	*	*	*	*	28	22
X20		RECEPTACLE ASSEMBLY	(16004)	45883		1	*	*	*	*	*	28	36
X1	5935-732-1299	RECEPTACLE, CHARGING	(00000)	73-2-1299		1							
X1		WIRE ASSEMBLY	(16004)	41962		1							
X1		WIRE ASSEMBLY	(16004)	46779		1							
X20	5305-018-0020	SCREW, CAP, HEXAGON HEAD, 1/4-20 X 3/4				2	*	*	*	*	*	28	29
X20		SCREW, CAP, HEXAGON HEAD, 1/4-20 X 1				3	*	*	*	*	*	28	35
X20		SCREW, CAP, HEXAGON HEAD, 5/16-18 X 1 1/4				1	*	*	*	*	*	28	30

CODES	FEDERAL STOCK NUMBER	DESCRIPTION	MANUFACTURER'S CODE	MANUFACTURER'S PART NO.	UNIT OF ISSUE	QTY INCORPORATED IN UNIT	GUIDE QTY(S) PER MAJOR EQUIPS					ILLUST	
MATERIEL SOURCE MAINT RECOVBLTY							15 DAYS MAINT. ORGAN-IZATIONAL		DS	GS	DEPOT MAINT.	FIGURE NO.	ITEM NO.
							1-5	6-10	100 EQUIPMENTS				
		0612 - BATTERIES, STORAGE, WET OR DRY											
X20		SCREW, CAP, HEXAGON HEAD, 3/8-16 X 1 1/4				1	*	*	*	*	*	28	19
X20		TERMINAL, BATTERY	(16004)	42226		1	*	*	*	*	*	28	16
X20		WASHER, CHANNEL, 5/16				1	*	*	*	*	*		
X20		WASHER, CHANNEL, 3/8				1	*	*	*	*	*		
X20		WASHER, FLAT, 3/8				4	*	*	*	*	*	28	23
X20		WASHER, LOCK,	(78189)	4018-24-00		1	*	*	*	*	*	28	31
X20		WASHER, LOCK	(78189)	4020-26-00		1	*	*	*	*	*	28	20
X20		WIRE ASSEMBLY	(16004)	45970		1	*	*	*	*	*	28	14
		0613 - HULL CHASSIS WIRING HARNESS											
X20		CLAM, WIRE, PLASTIC	(06915)	N-6B		17	*	*	*	*	*		
X20		GROMMET	(76385)	Z-3107		5	*	*	*	*	*		
X20		NUT, LOCK, HEXAGON, 10-24				17	*	*	*	*	*		
X20		SCREW, MACHINE, 10-24 X 3/4				17	*	*	*	*	*		
X2H		WIRING HARNESS	(16004)	45993		1				*	*		
		1501 - FRAME ASSEMBLY											
X2H		FRAME	(16004)	45857		1				*	*	28	78
X20		NUT, PLAIN, HEXAGON, 1/4-20				16	*	*	*	*	*		
X20		SCREW, COUNTER SINK HEAD, 82°, 1/4-20 X 1/2				4	*	*	*	*	*		
X2F		RUNNER, SKID	(16004)	45869		2			*	*	*		
X20		WASHER, CHANNEL, 1/4				16	*	*	*	*	*		
X20		WASHER, LOCK, 1/4				16	*	*	*	*	*		
		1801 - BODY, CAB, HOOD, HULL ASSEMBLIES											
X20		DOOR	(16004)	45881		2	*	*	*	*	*	27	28
X20	5310-044-3333	NUT, LOCK, HEXAGON, 5/16-18				4	*	*	*	*	*		
X20	5310-044-3333	NUT, LOCK, HEXAGON, 5/16-18				2	*	*	*	*	*		
X20	5310-044-3333	NUT, LOCK, HEXAGON, 5/16-18				2	*	*	*	*	*	27	47
X20		NUT, PLAIN, HEXAGON, 5/16-18				18	*	*	*	*	*	27	24
X2F		PAN, BOTTOM	(16004)	45892		1			*	*	*	27	63
X20		PANEL, SIDE, LEFT HAND	(16004)	46236		1	*	*	*	*	*	27	52
X20		PANEL, SIDE, LEFT HAND	(16004)	45879		1	*	*	*	*	*	27	54
X20		PANEL, SIDE, RIGHT HAND	(16004)	45874		1	*	*	*	*	*	27	51
X20		PANEL, SIDE, RIGHT HAND	(16004)	45880		1	*	*	*	*	*	27	53
X20		ROOF	(16004)	45873		1	*	*	*	*	*	27	46
X20		SCREW, CAP, HEXAGON HEAD, 5/15-18 X 3/4				14	*	*	*	*	*	27	40
X20		SCREW, CAP, HEXAGON HEAD, 5/16-18 X 3/4				17	*	*	*	*	*	27	59
X20		SCREW, CAP, HEXAGON HEAD, 5/16-18 X 3/4				4	*	*	*	*	*	27	55
X20		SCREW, CAP, HEXAGON HEAD, 5/16-18 X 3/4				2	*	*	*	*	*	27	48
X20		SCREW, CAP, HEXAGON HEAD, 5/16-18 X 3/4				2	*	*	*	*	*		
X20		SCREW, CAP, HEXAGON HEAD, 5/16-18 X 3/4				2	*	*	*	*	*		
X20		SCREW, CAP, HEXAGON HEAD, 5/16-18 X 3/4				4	*	*	*	*	*	27	43

CODES				FEDERAL STOCK NUMBER	DESCRIPTION	MANUFACTURER'S CODE	MANUFACTURER'S PART NO.	UNIT OF ISSUE	QTY INCORPORATED IN UNIT	GUIDE QTY(S) PER MAJOR EQUIPS					ILLUST	
MATERIEL	SOURCE	MAINT	RECOVERY							15 DAYS MAINT. ORGANIZATIONAL		DS	GS	DEPOT MAINT.	FIGURE NO.	ITEM NO.
										1-5	6-10	100 EQUIPMENTS				
					1801 - BODY, CAB, HOOD, HULL ASSEMBLIES (CONT)											
X20					SCREW, CAP, HEXAGON HEAD, 5/16-18 X 3/4				18	*	*	*	*	*	27	25
X20					SUPPORT, FRONT	(16004)	45871		1	*	*	*	*	*	27	62
X20					SUPPORT, REAR	(16004)	45872		1	*	*	*	*	*	27	58
X20					WASHER, FLAT, 5/16				14	*	*	*	*	*	27	42
X20					WASHER, FLAT, 5/16				17	*	*	*	*	*	27	61
X20					WASHER, FLAT, 5/16				4	*	*	*	*	*	27	57
X20					WASHER, FLAT, 5/16				4	*	*	*	*	*	27	50
X20					WASHER, FLAT, 5/16				2	*	*	*	*	*		
X20					WASHER, FLAT, 5/16				2	*	*	*	*	*		
X20					WASHER, FLAT, 5/16				4	*	*	*	*	*	27	45
X20					WASHER, FLAT, 5/16				18	*	*	*	*	*	27	26
X20				5310-012-0214	WASHER, LOCK, 5/16				14	*	*	*	*	*	27	41
X20				5310-012-0214	WASHER, LOCK, 5/16				17	*	*	*	*	*	27	60
X20				5310-012-0214	WASHER, LOCK, 5/16				2	*	*	*	*	*		
X20				5310-012-0214	WASHER, LOCK, 5/16				8	*	*	*	*	*	27	49
X20				5310-012-0214	WASHER, LOCK, 5/16				18	*	*	*	*	*	27	26
					1808 - STOWAGE RACKS, BOXES, STRAPS, CARRYING CASES, CABLE REELS, HOSE REELS, ETC.											
X20					BRACKET, CLAMP: left hand	(16004)	47126		1	*	*	*	*	*	101	23
X20					BRACKET, CLAMP: right hand	(16004)	47130		1	*	*	*	*	*	101	23
X20					BOLT, SHOULDER	(16004)	47151		2	*	*	*	*	*	101	18
X20					CLAMP, HOSE REEL	(16004)	47127		2	*	*	*	*	*	101	16
X20					CLAMP, HOSE REEL	(16004)	47128		2	*	*	*	*	*	101	19
X20					CONNECTOR, MALE	(73273)	UM-75-M		1	*	*	*	*	*	61B	8
X20					ELBOW, STREET, 3/4 NPT				1	*	*	*	*	*	61B	9
X20					HOSE REEL ASSEMBLY	(16004)	45805		2	*	*	*	*	*	61B	
X20					AIR VALVE ASSEMBLY	(16004)	45810		1	*	*	*	*	*	61B	13
X1					SPACER	(16004)	45808		1						61B	14
X1					VALVE	(79911)	101		1						61B	15
X20					BODY ASSEMBLY	(16004)	45804		1	*	*	*	*	*	61B	21
X20					BEARING	(70417)	AA2203-6		2	*	*	*	*	*		
X20					BOLT, CAP, HEXAGON HEAD, 5/16-18 X 3/4				6	*	*	*	*	*	61B	5
X20					BOLT, CAP, HEXAGON HEAD, 5/16-18 X 4 3/4				6	*	*	*	*	*	61B	1
X20					END, HOSE REEL	(16004)	44958		2	*	*	*	*	*	61B	3
X20					EXTENDER, BODY	(16004)	44960		1	*	*	*	*	*	61B	4
X20				4730-223-6422	FITTING, GREASE	(83448)	1641		1	*	*	*	*	*	61B	20
X20					PACKING, "O" RING	(24549)	AN6230B-4		2	*	*	*	*	*	61B	18
X20					PLATE, RETAINING	(16004)	44961		2	*	*	*	*	*	61B	17
X20					RING, RETAINING	(96906)	MS-16224-200		2	*	*	*	*	*	61B	16
X20					SPINDLE	(16004)	45802		1	*	*	*	*	*	61B	19
X20				5310-013-8538	WASHER, LOCK	(16004)	28147		12	*	*	*	*	*	61B	6
X20					KNOB, CLAMP	(16004)	18384		2	*	*	*	*	*	101	20
X20				5310-044-3333	NUT, LOCK, HEXAGON, 5/16-18				11	*	*	*	*	*		
X20				5310-044-3333	NUT, LOCK, HEXAGON, 5/16-18				4	*	*	*	*	*		
X20				5310-044-3333	NUT, LOCK, HEXAGON, 5/16-18				11	*	*	*	*	*		
X20					NUT, PLAIN, HEXAGON, 5/16-18				6	*	*	*	*	*		
X20					NUT, PLAIN, HEXAGON, 5/16-18				7	*	*	*	*	*		
X20					NUT, PLAIN, HEXAGON, 3/8-16				2	*	*	*	*	*	101	14
X20					SCREW, CAP, HEXAGON, HEAD 5/16-18 X 3/4				6	*	*	*	*	*		
X20					SCREW, CAP, HEXAGON HEAD, 5/16-18 X 3/4				7	*	*	*	*	*		

CODES				FEDERAL STOCK NUMBER	DESCRIPTION	MANUFACTURER'S CODE	MANUFACTURER'S PART NO.	UNIT OF ISSUE	QTY INCORPORATED IN UNIT	GUIDE QTY(S) PER MAJOR EQUIPS					ILLUST	
MATERIEL	SOURCE	MAINT	RECOVBLTY							15 DAYS MAINT. ORGANIZATIONAL 1-5	15 DAYS MAINT. ORGANIZATIONAL 6-10	15 DAYS MAINT. DS 100 EQUIPMENTS	15 DAYS MAINT. GS 100 EQUIPMENTS	DEPOT MAINT. 100 EQUIPMENTS	FIGURE NO.	ITEM NO.
					1808 - STOWAGE RACKS, BOXES, STRAPS, CARRYING CASES, CABLE REELS, HOSE REELS, ETC. (CONT)											
X20					SCREW, CAP, HEXAGON HEAD, 5/16-18 X 1 1/4				11	*	*	*	*	*	28	41
X20					SCREW, CAP, HEXAGON HEAD, 5/16-18 X 1 1/4				11	*	*	*	*	*	28	41
X20					SCREW, CAP, HEXAGON HEAD, 5/16-18 X 1 1/4				4	*	*	*	*	*	28	41
X20					SPACER	(16004)	47129		2	*	*	*	*	*	101	17
X20					STRAP, TOOL	(16004)	26563		23	*	*	*	*	*	28	46
X20					STRAP, TOOL	(16004)	28366		8	*	*	*	*	*	28	47
X20					STRAP, TOOL	(16004)	42011		14	*	*	*	*	*	28	48
X20					TOOL BOX, LEFT	(16004)	45859		1	*	*	*	*	*	28	44
X20					LATCH	(00000)	7969299		6	*	*	*	*	*	28	50
X20					TOOL BOX, REAR	(16004)	45856		1	*	*	*	*	*	28	45
X20					LATCH	(00000)	7969299		2	*	*	*	*	*	28	50
X20					TOOL BOX, RIGHT	(16004)	45860		1	*	*	*	*	*	28	43
X20					LATCH	(00000)	7969299		6	*	*	*	*	*	28	50
X20					WASHER, CHANNEL, 5/16				11	*	*	*	*	*	28	38
X20					WASHER, CHANNEL, 5/16				11	*	*	*	*	*	28	38
X20					WASHER, CHANNEL, 5/16				4	*	*	*	*	*		
X20					WASHER, FLAT, 3/8				2	*	*	*	*	*		
X20					WASHER, LOCK	(78189)	4018-24-00		12	*	*	*	*	*	28	40
X20					WASHER, LOCK	(78189)	4018-24-00		33	*	*	*	*	*	28	40
X20					WASHER, LOCK	(78189)	4018-24-00		14	*	*	*	*	*	28	40
X20					WASHER, LOCK	(78189)	4018-24-00		33	*	*	*	*	*	28	40
X20					WASHER, LOCK	(78189)	4018-24-00		12	*	*	*	*	*	28	40
					2210 - DATA PLATES AND INSTRUCTION HOLDERS											
X20					DECAL, TOOL LAYOUT	(16004)	45952		7	*	*	*	*	*		
X20					PLATE, DATA	(16004)	44972		1	*	*	*	*	*		
X20					PLATE, INSTRUCTION	(16004)	46234		1	*	*	*	*	*		
X20					PLATE, INSTRUCTION	(16004)	46235		1	*	*	*	*	*		
X20					PLATE, NAME	(16004)	14621		2	*	*	*	*	*		
X20					PLATE, NAME	(16004)	28772		1	*	*	*	*	*		
X20					PLATE, NAME	(16004)	41987		1	*	*	*	*	*		
X20					PLATE, NAME	(16004)	41989		1	*	*	*	*	*		
X20					PLATE, NAME	(16004)	41991		1	*	*	*	*	*		
X20					PLATE, NAME	(16004)	41994		1	*	*	*	*	*		
X20					PLATE, NAME	(16004)	41995		1	*	*	*	*	*		
X20					PLATE, NAME	(16004)	41998		1	*	*	*	*	*		
X20					PLATE, NAME	(16004)	46241		1	*	*	*	*	*		
X20					PLATE, NAME	(16004)	47134		1	*	*	*	*	*		
X20					SCREW, SELF-THREADING, No. 4 X 1/4				4	*	*	*	*	*		
X20					SCREW, SELF-THREADING, No. 4 X 1/4				2	*	*	*	*	*		
X20					SCREW, SELF-THREADING, No. 4 X 1/4				2	*	*	*	*	*		
X20					SCREW, SELF-THREADING, No. 4 X 1/4				2	*	*	*	*	*		
X20					SCREW, SELF-THREADING, No. 4 X 1/4				2	*	*	*	*	*		
X20					SCREW, SELF-THREADING, No. 4 X 1/4				2	*	*	*	*	*		

CODES	FEDERAL STOCK NUMBER	DESCRIPTION	MANUFACTURER'S CODE	MANUFACTURER'S PART NO.	UNIT OF ISSUE	QTY INCORPORATED IN UNIT	GUIDE QTY(S) PER MAJOR EQUIPS 15 DAYS MAINT. ORGANIZATIONAL 1-5	ORGANIZATIONAL 6-10	DS	GS	DEPOT MAINT. 100 EQUIPMENTS	ILLUST FIGURE NO.	ILLUST ITEM NO.
		2210 - DATA PLATES AND INSTRUCTION HOLDERS (CONT)											
X20		SCREW, SELF-THREADING, No. 4 X 1/4				2	*	*	*	*	*		
X20		SCREW, SELF-THREADING, No. 4 X 1/4				4	*	*	*	*	*		
X20		SCREW, SELF-THREADING, No. 4 X 1/4				4	*	*	*	*	*		
X20		SCREW, SELF-THREADING, No. 4 X 1/4				2	*	*	*	*	*		
X20		SCREW, SELF-THREADING, No. 4 X 1/4				2	*	*	*	*	*		
X20		SCREW, SELF-THREADING, No. 6 X 1/4				2	*	*	*	*	*		
		4701 - INSTRUMENTS SPEED AND DISTANCE											
P10		CABLE, DRIVE: tach-hour meter	(16004)	45994		1	*	*	*	*	5		
P10		ADAPTER: drive cable	(14351)	HD260M-3460		1	*	*	*	*	5		
P10	2910-629-2264	PACKING, PREFORMED: cable drive	(14351)	X-1577		1	*	*	*	*	100		
P10		TACH-HOUR METER	(57733)	5676A CASE 4393		1	*	*	*	*	5		
		4702 - GAGES, MOUNTINGS, LINES AND FITTINGS											
X20		COUPLING, 1/8 NPT				1	*	*	*	*	*		
X20	4730-287-1604	ELBOW	(79470)	69 X 6A		1	*	*	*	*	*		
P10		GAGE, AIR PRESSURE	(51240)	5060		1	*	*	*	*	5		
P10	6680-337-8104	GAGE, OIL PRESSURE	(16004)	8105		1	*	*	*	*	5		
P10	6685-354-7084	GAGE, OIL TEMPERATURE	(51240)	2100-100-220-1		1	*	*	*	*	5		
P10	6685-599-8401	GAGE, WATER TEMPERATURE	(51240)	2550C25		1	*	*	*	*	5		
X20		HOSE ASSEMBLY	(16004)	47152		1	*	*	*	*	10		
X1	4730-200-0273	FERRULE, TUBING	(79470)	60X5		2							
X1		HOSE	(79470)	H-100, 33 in. lg		1							
X1		HOSE END	(79470)	10004B-X05		2							
X20	4730-278-8366	NUT, TUBING	(79470)	61X5		2	*	*	*	*	20		
		5000 - COMPRESSOR ASSEMBLY											
X2F		COMPRESSOR	(16004)	46215		1			*	*	*		
P H		GASKET KIT OVERHAUL	(16004)	46560		1				*	100		
X1		GASKET, COVER	(16004)	44429		2							
X1		GASKET, ENGINE ADAPTER	(16004)	44443		1							
X1		GASKET, INTAKE-UNLOADER	(16004)	44430		1							
X1		GASKET, INTAKE-UNLOADER	(16004)	44446		1							
X1		GASKET, OIL FILTER	(16004)	44051		1							
X1		GASKET, SUPPORT BASE	(16004)	45866		1							
X1		GASKET, SUPPORT BASE (Component of GASKET KIT, Stock No. (16004) 46560)	(16004)	45866		1							
X2H	5310-021-8440	NUT, PLAIN, HEXAGON, 1/2-13				2				*	*		
P1H		"O"RING KIT, OVERHAUL	(16004)	46559		1				*	100		
X1		"O"RING	(88044)	AN6227B107		2							
X1		"O"-RING	(16004)	44428		2							
X1	5330-260-9311	"O"-RING	(88044)	AN6227B5		1							

PL LINE ITEM NO.	CODES: MATERIEL	SOURCE	MAINT	RECOVBLTY	FEDERAL STOCK NUMBER	DESCRIPTION	MANUFACTURER'S CODE	MANUFACTURER'S PART NO.	UNIT OF ISSUE	QTY INCORPORATED IN UNIT	GUIDE QTY(S) PER MAJOR EQUIPS: 15 DAYS MAINT. ORGANIZATIONAL I-5	15 DAYS MAINT. ORGANIZATIONAL 6-10	DEPOT MAINT. DS	DEPOT MAINT. GS	DEPOT MAINT. 100 EQUIPMENTS	ILLUST: FIGURE NO.	ILLUST: ITEM NO.
						5000- COMPRESSOR ASSEMBLY (CONT)											
1213	X1					"O"-RING	(88044)	AN6227B23		1							
1214	X1				5330-194-3722	"O"-RING	(88044)	AN6230B11		2							
1217	X2H				5305-017-9889	SCREW, CAP, HEXAGON HEAD, 1/2-13 X 2				2				*	*		
1215	X2H					SUPPORT, BASE	(16004)	45865		1				*	*		
1219	X2H				5310-012-0354	WASHER, CHANNEL, 1/2				2				*	*		
1221	X2H					WASHER, FLAT, 1/2				2				*	*		
1220	X2H				5310-584-5272	WASHER, LOCK, 1/2				2				*	*		
						5001 - CRANKCASE, BLOCK, CYLINDER HEAD											
1222	X2F					COMPRESSOR ASSEMBLY	(16004)	44901		1			*	*	*		
1240	X2H					ADAPTER	(16004)	44445		1				*	*	100	16
1237	X2H				3110-158-7083	BEARING	(51600)	MUC-5309-1315-1		1				*	10	100	37
1247	X2H				3110-841-1848	BEARING	(51600)	MU5309-1313-1		1				*	10	100	24
1248	P1H					BLADE SET	(16004)	46790	ST	1				*	4	100	25
1249	X1					BLADE, ROTOR	(16004)	44798		8							
1230	X2H					BOLT, CAP, HEXAGON HEAD, 5/16-18 X 1 1/4				11				*	*	100	19
1235	X2H					BOLT, CAP, HEXAGON HEAD, 5/8-11 X 1 1/2				5				*	*	100	33
1241	X2H					BOLT, CAP, HEXAGON HEAD, 5/8-11 X 3				6				*	*	100	14
1234	X2H					BOLT, CAP, HEXAGON HEAD, 5/8-11 X 4				1				*	*	100	29
1229	X2H					COVER	(16004)	44794		1				*	*	100	35
1233	X2H					COVER	(16004)	47131		1				*	*	100	31
1242	X2H					COVER	(16004)	44795		1				*	*	100	21
1244	X2H					COVER ASSEMBLY	(16004)	44918		1				*	*	100	17
1245	X2H					COVER	(16004)	47132		1				*	*		
1246	X2H				5315-685-5667	PIN	(72962)	59-028-125-0750		1				*	*		
1251	X2H					DOWEL	(16004)	24986		1				*	*	100	27
1257	X2F					EYEBOLT	(71177)	3050		1			*	*	*	100	44
1232	X1					GASKET (Component of GASKET KIT, Stock No. (16004) 46560)	(16004)	44429		2						100	22
1236	X2H					GASKET	(86579)	110-5/8		12				*	*	100	30
1239	X1					GASKET, (Component of GASKET KIT, Stock No. (16004) 46560)	(16004)	44443		1							
1238	X1					"O"-RING (Component of "O"-RING KIT, Stock No. (16004) 46559)	(16004)	44428		2						100	18
1254	X1					"O"-RING (Component of "O"-RING KIT, Stock No. (16004) 46559)	(88044)	AN6227B107		2						100	41
1253	X2H					PLUG	(16004)	43392		2				*	*	100	40
1250	X2H					ROTOR	(16004)	44797		1				*	4	100	26
1243	X2H					SEAL, OIL	(76602)	KFA-701		1				*	*	100	23
1252	X2H					SHAFT, ROTOR	(16004)	44799		1				*	10	100	28
1256	X2H					SPRING	(16004)	43394		2				*	*	100	42
1258	X2H					STATOR	(16004)	44780		1				*	*	100	45
1255	X2H					VALVE, DRAIN	(16004)	43393		2				*	*	100	43
1231	X2H				5310-012-0214	WASHER, LOCK, 5/16				11				*	*	100	20

CODES	FEDERAL STOCK NUMBER	DESCRIPTION	MANUFACTURER'S CODE	MANUFACTURER'S PART NO.	UNIT OF ISSUE	QTY INCORPORATED IN UNIT	GUIDE QTY(S) PER MAJOR EQUIPS					ILLUST	
MATERIEL SOURCE MAINT RECOVBLTY							15 DAYS MAINT. ORGANIZATIONAL 1-5	15 DAYS MAINT. ORGANIZATIONAL 6-10	15 DAYS MAINT. DS 100 EQUIPMENTS	15 DAYS MAINT. GS 100 EQUIPMENTS	DEPOT MAINT. 100 EQUIPMENTS	FIGURE NO.	ITEM NO.
		5006 - LUBRICATION SYSTEM											
X2F		ADAPTER	(16004)	44891		1			*	*	*	101	49
X2F		BOLT, SOCKET HEAD, 5/16-18 X 4 1/2				2			*	*	*	100	3
X2F		BOLT-U	(16004)	46249		1			*	*	*		
X2F		CONNECTOR	(04255)	7205X16(BO)		2			*	*	*	46B	3
X2F	4730-063-8106	CONNECTOR	(04255)	7205X16X12		1			*	*	*	46B	2
X2F		CONNECTOR	(04255)	7205X16(BO)		2			*	*	*	46B	10
X2F		CONNECTOR	(04255)	7205X8(BO)		1			*	*	*	46B	6
X2F		CONNECTOR	(04255)	7205X16(BO)		1			*	*	*	46B	14
X2F		ELBOW	(04255)	7405X8(BO)		1			*	*	*	46B	5
X2F		ELBOW, STREET, 1/2 NPT 90°				1			*	*	*	101	45
X2F		ELBOW, STREET, 1/2 NPT 90°				1			*	*	*	101	47
X2F		ELBOW, STREET, 1 NPT				3			*	*	*	46B	12
X1		GASKET (Component of GASKET KIT, Stock No. (16004) 46560)	(16004)	44051		1						100	6
X20		NIPPLE, CLOSE, 3/4 NPT				1	*	*	*	*	*	46B	8
X2F		NIPPLE, PIPE, 1/2 NPT X 2				1			*	*	*	101	46
X2F		NUT, LOCK, HEXAGON, 1/2-13				4			*	*	*		
X2F		NUT, PLAIN, HEXAGON, 1/4-20				2			*	*	*		
X2F		OIL, COOLER	(16004)	45984		1			*	*	*	40B	11
X20		OIL FILTER ASSEMBLY	(81321)	62822		1	*	*	*	*	*		
X20		CASE ASSEMBLY	(81321)	64010		1	*	*	*	*	*	47	8
X20		COVER & RELIEF VALVE ASSY	(81321)	65148		1	*	*	*	*	*	47	4
P 0	4310-217-3588	ELEMENT ASSEMBLY	(81321)	33316-13		1	*	*	*	*	100	47	6
P 0	4940-705-2294	GASKET	(81321)	62866		1	*	*	*	*	100	47	5
X20		PLUG DRAIN	(81321)	25795		1	*	*	*	*	*	47	7
X20		RING, CLAMP, ASSEMBLY	(81321)	6654619		2	*	*	*	*	*		
X20		SCREW	(81321)	62865		2	*	*	*	*	*	47	1
X2F		OIL SEPARATOR ASSEMBLY	(16004)	45747		1			*	*	*		
X20		BOLT, CAP, HEXAGON HEAD, 1/4-20 X 1/2				2	*	*	*	*	*	101	32
X20		BOLT, CAP, HEXAGON HEAD, 1/4-20 X 5/8				2	*	*	*	*	*	101	35
X2F		BOLT, CAP, HEXAGON HEAD, 3/8-16 X 3				4			*	*	*	101	1
X20		BOLT, CAP, HEXAGON HEAD, 5/8-11 X 1 3/4				10	*	*	*	*	*	101	24
X20		BOLT, EYE	(71177)	3050		1	*	*	*	*	*	101	11
X20		COVER	(16004)	44899		1	*	*	*	*	*	101	40
X20		COVER, TANK	(16004)	45743		1	*	*	*	*	*	101	26
X20		ELBOW, STREET, 3/4 NPT X 90°				1	*	*	*	*	*	101	51
X20		ELBOW, STREET, 1 NPT X 45°				1	*	*	*	*	*		
X20		ELBOW, STREET, 1 1/4 NPT X 90°				1	*	*	*	*	*	101	42
P10		ELEMENT, SEPARATOR	(00736)	200508		1	*	*	*	*	10	101	30
X1		FELT	(16004)	26396		1						101	5
P1F		GASKET	(16004)	45742		1			*	*	100	101	4
P10		GASKET	(16004)	44900		1	*	*	*	*	100	101	27
P10		GAUGE	(51240)	3110-356		1	*	*	*	*	4	101	48
X20		HANGER, ELEMENT	(16004)	44402		1	*	*	*	*	*	101	34
X2F		HOUSING	(16004)	45740		1			*	*	*	101	3
X20		NUT, LOCK, HEXAGON, 3/8-16				1	*	*	*	*	*	101	28
X1		"O"-RING (Component of "O"-RING KIT, Stock No. (16004) 46559)	(88044)	AN6227B23		1						101	9
X20		PLUG, PIPE, 1 1/4 SQUARE HEAD				1	*	*	*	*	*	101	50

CODES				FEDERAL STOCK NUMBER	DESCRIPTION	MANUFACTURER'S CODE	MANUFACTURER'S PART NO.	UNIT OF ISSUE	QTY INCORPORATED IN UNIT	GUIDE QTY(S) PER MAJOR EQUIPS					ILLUST	
MATERIEL	SOURCE	MAINT	RECOVBLTY							15 DAYS MAINT. ORGAN-IZATIONAL 1-5	15 DAYS MAINT. ORGAN-IZATIONAL 6-10	DS	GS	DEPOT MAINT. 100 EQUIPMENTS	FIGURE NO.	ITEM NO.
					5006 - LUBRICATION SYSTEM (CONT)											
					PIPE, TOE, 1/4 NPT X 15 1/2				1	*	*	*	*	*		
X20					PISTON, VALVE	(16004)	26284		1						101	8
X1					RETAINER	(16004)	42941		1	*	*	*	*	*	101	37
X20					SPRING	(16004)	42938		1	*	*	*	*	*	101	39
X20					SPRING, VALVE	(16004)	26283		1						101	7
X1					STUD	(16004)	45061		1	*	*	*	*	*	101	38
X20					TANK, OIL SEPARATOR	(16004)	45744		1			*	*	*	101	53
X2F					VALVE ASSEMBLY	(16004)	40947		1			*	*	8	101	10
X2F					VALVE RELIEF	(34494)	1545, FIG. 86		1	*	*	*	*	8	101	41
P10	4820-289-1147				WASHER	(96906)	MS35333-25		4			*	*	*	101	2
X2F	5310-013-8542				WASHER	(16004)	26281		1						101	6
X1					WASHER, FLAT, 3/8				1	*	*	*	*	*	101	29
X20					WASHER, LOCK	(78189)	1214-05		2	*	*	*	*	*	101	36
X20	5310-012-0423				WASHER, LOCK	(78189)	1214-05		2	*	*	*	*	*	101	33
X20	5310-012-0423				WASHER, LOCK, 5/8" internal tooth				8	*	*	*	*	*	101	25
X20					"O"-RING	(88044)	AN123983		2			*	*	100	46B	18
P1F	5330-291-7357				PIPE, OIL SEPARATOR	(16004)	45958		1			*	*	*	101	44
X2F					SCREW, CAP, HEXAGON HEAD, 3/8-16 X 1 1/4				12			*	*	*		
X2F					SCREW, CAP, HEXAGON HEAD, 1/2-13 X 1 3/4				4			*	*	*		
X2F					THERMAL BYPASS VALVE ASSY	(16004)	46214		1			*	*	8	100	5
P1F					"O"-RING KIT (Includes components of "O"-RING KIT, Stock No. (16004) 46559)	(16004)	46781		1			*	*	25		
X1	5330-194-3722				"O"-RING	(88044)	AN6230B11		2							
X1					"O"-RING	(88044)	AN6227B23		1							
X2F					BALL, STEEL	(05469)	MS150459		1			*	*	*	102	21
X2F					BODY	(16004)	43367		1			*	*	*	102	22
X2F					BOLT, CAP, HEXAGON HEAD, 1/4-20 X 1				1			*	*	*	102	8
X2F					CONNECTION, BYPASS	(16004)	46201		1			*	*	*	102	5
X2F					COVER	(16004)	42218		1			*	*	*	102	3
X2F					GUIDE	(16004)	46174		1			*	*	*	102	9
X2F	5310-012-1902				NUT, PLAIN, HEXAGON, 1/4-28				1			*	*	*	102	14
X1	5330-194-3722				"O"-RING (Component of "O"-RING KIT, Stock No. (16004) 46781)	(88044)	AN6230B11		2						102	6
X1					"O"-RING (Component of "O"-RING KIT, Stock No. (16004) 46781)	(88044)	AN6227B23		1						102	12
X1					"O"-RING (Component of "O"-RING KIT, Stock No. (16004) 46559	(88044)	AN6227B5		1						102	17
X2F					PLUNGER	(16004)	46175		1			*	*	*	102	10
X2F					POWER ELEMENT ASSEMBLY	(16004)	40434		1			*	*	*	102	16
X2F	5340-598-1336				RING, RETAINING	(79136)	5000-37		1			*	*	*	102	18
X2F					SCREW, CAP, SOCKET HEAD, 5/16-18 X 3 1/4				4			*	*	*	102	1
X2F					SHUTTLE	(16004)	29941		1			*	*	*	102	13
X2F					SPRING	(16004)	40679		1			*	*	*	102	7
X2F					SPRING	(16004)	40678		1			*	*	*	102	11
X2F					SPRING	(16004)	44501		1			*	*	*	102	20
X2F					WASHER, FLAT, No. 6				1			*	*	*	102	19

CODES				FEDERAL STOCK NUMBER	DESCRIPTION	MANUFACTURER'S CODE	MANUFACTURER'S PART NO.	UNIT OF ISSUE	QTY INCORPORATED IN UNIT	GUIDE QTY(S)PER MAJOR EQUIPS					ILLUST	
MATERIEL	SOURCE	MAINT	RECOVBLTY							15 DAYS MAINT.				DEPOT MAINT.	FIGURE NO.	ITEM NO.
										ORGANIZATIONAL		DS	GS			
										1-5	6-10	100 EQUIPMENTS				
					5006 - LUBRICATION SYSTEM (CONT)											
X2F					WASHER, LOCK	(78189)	1218-02		4			*	*	*	102	2
X2F					WASHER, LOCK, 1/4				1			*	*	*	102	15
X2F					TUBE ASSEMBLY	(16004)	46226		1			*	*	*	46B	4
X2F					TUBE, COOLER RETURN	(16004)	46223		1			*	*	*	46B	1
X2F					TUBE, DISCHARGE CONNECTOR	(16004)	45868		1			*	*	*	46B	16
X2F					TUBE, FILTER TO COOLER	(16004)	46224		1			*	*	*	46B	9
X2F					TUBE, OIL SEPARATOR	(16004)	46225		1			*	*	*	46B	13
X2F				5310-012-0354	VALVE, GLOBE	(79911)	1501-1/2		1			*	*	5	101	43
X2F					WASHER, CHANNEL, 1/2				4			*	*	*	46B	22
X2F					WASHER, LOCK, 1/4				2			*	*	*		
X2F				5310-013-8542	WASHER, LOCK	(96906)	MS35333-25		12			*	*	*		
X2F					WASHER, LOCK	(78189)	1218-02		2			*	*	*	100	4
					5007 - COMPRESSOR DRIVE											
X2F					BOLT, CAP, HEXAGON HEAD, 3/4-10 X 1 3/4				1			*	*	*	100	7
X2F					BUSHING	(16004)	25673		8			*	*	*	95	1
X2F					COUPLING	(16004)	44800		1			*	*	*	100	13
X2F					GRIPSPRINGS	(87734)	GS1625		2			*	*	4	100	10
X2F					KEY, DOWEL, SHAFT	(16004)	47361		1			*	*	*	100	11
X2F					PIN, COUPLING	(16004)	44056		8			*	*	*	95	2
X2F					RETAINER	(16004)	44426		1			*	*	*	100	9
X2F					STRAP, LOCKING	(16004)	47737		4			*	*	*	95	2A
X2F					WASHER, LOCK, 3/4				1			*	*	*	100	8
					5008 - AIR INTAKES											
X20					ADAPTER, INTAKE	(16004)	47138		1	*	*	*	*	*	99	9
X20					AIR CLEANER ASSEMBLY	(18265)	FWG08-0030		1	*	*	*	*	*	27	9
X20					ELEMENT ASSEMBLY	(18265)	P10-3055		1	*	*	*	*	*	57	5
X20					BRACKET	(16004)	45864		2	*	*	*	*	20	57	7
X20					CAP, AIR CLEANER	(18265)	GAX00-2014		1	*	*	*	*	*	27	1
X20					CLAMP, HOSE	(85757)	No. 4		2	*	*	*	*	*	27	3
X20					FITTING, HOSE	(79470)	10004B-102		2	*	*	*	*	*		
X20					HOSE, AIR CLEANER	(16004)	45959		1	*	*	*	*	*	27	5
X20					HOSE, INDICATOR	(79470)	H234		1	*	*	*	*	*	27	6
X20					INDICATOR	(18265)	RBX00-222S		1	*	*	*	*	*		
X20				5310-013-1245	NUT, LOCK, HEXAGON, 1/4-20				4	*	*	*	*	*	27	7
X20					SCREW, CAP, HEXAGON HEAD, 1/4-20 X 5/8				4	*	*	*	*	*	27	10
X20				5310-194-1540	WASHER, FLAT, 1/4				4	*	*	*	*	*	27	8
					5009 - UNLOADER SYSTEM COMPONENTS											
X20					ARM, LEVER	(77260)	AC-641		1	*	*	*	*	*	99	8
X20					BRACKET, CABLE	(16004)	44506		1	*	*	*	*	*	99	12
X20					CABLE, CONTROL	(77574)	R-09		1	*	*	*	*	*		
X20					CLIP, CABLE	(75272)	HTC-432		1	*	*	*	*	*	99	3
X20				4730-273-8561	CONNECTOR	(79470)	68X6		2	*	*	*	*	*	59	9
X20				4730-142-1563	CONNECTOR	(79470)	68X6A(BO)		1	*	*	*	*	*	65B	8
X20				4730-278-3818	ELBOW	(79470)	69X6(BO)		6	*	*	*	*	*	65B	10
X20				4730-977-3871	ELBOW	(04255)	69X4A(BO)		1	*	*	*	*	*	65B	2
X20					ELBOW, RESTRICTED	(16004)	47140		1	*	*	*	*	*	59	6
X20					HOSE, ASSEMBLY	(16004)	47144		1	*	*	*	*	*	59	21
X1				4730-200-0273	FERRULE, TUBING	(79470)	60X5		2							
X1					HOSE	(79470)	H-100, 15 in. lg		1							

CODES	FEDERAL STOCK NUMBER	DESCRIPTION	MANUFACTURER'S CODE	MANUFACTURER'S PART NO.	UNIT OF ISSUE	QTY INCORPORATED IN UNIT	GUIDE QTY(S) PER MAJOR EQUIPS 16 DAYS MAINT. ORGANIZATIONAL 1-5	6-10	DS	GS	DEPOT MAINT. 100 EQUIPMENTS	ILLUST FIGURE NO.	ILLUST ITEM NO.
		5009 - UNLOADER SYSTEM COMPONENTS (CONT)											
X1		HOSE END	(79470)	10004B-X05		2							
X2F		INTAKE-UNLOADER ASSEMBLY	(16004)	47710		1			*	*	*	99	
X1		BODY	(16004)	45072		1						99	32
X1		BOLT, CAP, HEXAGON HEAD, 3/8-16 X 1 1/2				6						99	10
X1		COVER	(16004)	44752		1						99	13
X1		CYLINDER	(16004)	44754		1						99	18
X1		DIAPHRAGM	(16004)	44753		1						99	14
X1		GASKET (Component of GASKET KIT, Stock No. (16004) 46560)	(16004)	44446		1						99	23
X1		GASKET (Component of GASKET KIT, Stock No. (16004) 46560)	(16004)	44430		1						99	26
X1		GUIDE, SPRING	(16004)	46807		1						99	20
X1		NUT, LOCK, HEXAGON, 3/8				1						99	15
X1		PIN, SPRING	(56878)	21-S-187-1250		1						99	30
X1		PISTON	(16004)	44755		1						99	16
X1		PLATE, VALVE	(16004)	45073		1						99	29
X1		SCREW, MACHINE, No. 8-32X1/4				2						99	27
X1		SHAFT, VALVE	(16004)	45074		1						99	31
X1		SPRING	(16004)	44444		1						99	17
X1		SPRING	(16004)	44919		1						99	21
X1		STEM	(16004)	44756		1						99	19
X1		VALVE	(16004)	44758		1						99	22
X1		WASHER, LOCK	(78189)	1208-00		2						99	28
X1		WASHER, LOCK, 3/8				6						99	11
X20		NIPPLE, PIPE, 1/4 NPT X 2 in. lg				1	*	*	*	*	*		
X20		NUT, SPINLOCK, 1/4-20				1	*	*	*	*	*	99	1
X2F		NUT, SQUARE, No. 10-32				1			*	*	*	99	6
X20		SCREW, CAP, HEXAGON HEAD, 3/8-16 X 1 1/4				3	*	*	*	*	*	99	24
X20		SCREW, MACHINE, No. 8-32 X 3/8				1	*	*	*	*	*	99	4
X2F		SCREW, PANHEAD, No. 10-32 X 3/4				1			*	*	*	99	7
X20		SCREW, SPINLOCK, 1/4-20 X 1/2				1	*	*	*	*	*	99	2
X20	4730-618-5101	SEPARATOR, MOISTURE	(98963)	1122-2M		1	*	*	*	*	*	65B	4
X20		STOP, WIRE	(16004)	20588		1	*	*	*	*	*	99	5
X2F		TEE	(79470)	3750X4		1			*	*	*	59	12
X20		TEE	(79470)	3750X4		1	*	*	*	*	*	59	23
X20		TUBE ASSEMBLY	(16004)	47141		1	*	*	*	*	*	59	4
X1	4730-287-1537	NUT, TUBING	(79470)	61X6		2							
X1	4730-287-4858	SLEEVE, TUBING	(79470)	60X6		2							
X1		TUBING, COPPER 3/8 O.D. X. 032				1							
X20		TUBE ASSEMBLY	(16004)	47142		1	*	*	*	*	*	59	1
X1	4730-287-1537	NUT, TUBING	(79470)	61X6		2							
X1	4730-287-4858	SLEEVE, TUBING	(79470)	60X6		2							
X1		TUBING, COPPER, 3/8 O.D. X. 032				1							
X20		TUBE ASSEMBLY	(16004)	47143		1	*	*	*	*	*	59	8
X1	4730-287-1537	NUT, TUBING	(79470)	61X6		2							
X1	4730-287-4858	SLEEVE, TUBING	(79470)	60X6		2							
X1		TUBE, COPPER, 3/8 O.D. X. 032				1							

CODES MATERIEL	SOURCE	MAINT	RECOVBLTY	FEDERAL STOCK NUMBER	DESCRIPTION	MANUFACTURER'S CODE	MANUFACTURER'S PART NO.	UNIT OF ISSUE	QTY INCORPORATED IN UNIT	GUIDE QTY(S) PER MAJOR EQUIPS 15 DAYS MAINT. ORGANIZATIONAL 1-5	6-10	DS	GS	DEPOT MAINT. 100 EQUIPMENTS	ILLUST FIGURE NO.	ITEM NO.
					5009 - UNLOADER SYSTEM COMPONENTS (CONT)											
X20					TUBE ASSEMBLY	(16004)	47145		1	*	*	*	*	*	59	18
X1				4730-287-1537	NUT, TUBING	(79470)	61X6		2							
X1				4730-287-4858	SLEEVE, TUBING	(79470)	60X6		2							
X1					TUBE, COPPER, 3/8 O.D. X .032				1							
X20					TUBE ASSEMBLY	(16004)	47146		1	*	*	*	*	*	59	15
X1				4730-287-1537	NUT, TUBING	(79470)	61X6		2							
X1				4730-287-4858	SLEEVE, TUBING	(79470)	60X6		2							
X1					TUBING, COPPER 3/8 O.D. X .032				1							
P10					VALVE ASSEMBLY, BLOWDOWN	(16004)	44546		1	*	*	*	*	4	59	11
X2F					BALL, STEEL	(05469)	3/8 DIA. GR. 11		1			*	*	*		
X2F					BODY	(16004)	44706		1			*	*	*		
X1					COVER	(16004)	44705		1							
X2F					NIPPLE, HEX	(25738)	8011-4		1			*	*	*		
P1F				5330-250-1209	"O"-RING	(88044)	AN6227B-15		1			*	*	100		
X1					PISTON	(16004)	44704		1							
X2F					SPRING	(16004)	44703		1			*	*	*		
X20				5310-013-8542	WASHER	(96906)	MS35333-25		3	*	*	*	*	*		
					5012 - THROTTLING DEVICES											
X20					BRACKET, CONTROL	(16004)	46216		1	*	*	*	*	*	65B	27
X20					BRACKET, SPRING	(16004)	46227		1	*	*	*	*	*	65B	30
X20					ENGINE, CONTROL	(16004)	42205		1	*	*	*	*	*	65B	23
P1F				2990-843-8569	ENGINE CONTROL REPAIR KIT	(16004)	42182		1			*	*	100		
X1					BELLOFRAM	(01170)	3-2.87-1.69-DBC		1							
X1					BUSHING, LEVER	(16004)	40875		1							
X1					DIAPHRAGM	(79227)	N26Y20		1							
X1					DISC, BREATHER	(00736)	WB204261		1							
X1				5330-260-9311	"O"-RING	(88044)	AN6227B5		1							
X1					"O"-RING	(88044)	AN6227B90		1							
X1					"O"-RING	(88044)	AN6227B104		1							
X1					"O"-RING	(88044)	AN6227B92		1							
X1				5330-196-5368	"O"-RING	(16004)	AN6227B6		1							
X1					SEAT	(16004)	40582		1							
X1					SPRING	(16004)	40534		1							
X1					SPRING	(16004)	41159		1							
X1					STEM, VALVE	(16004)	40581		1							
X1					BELLOFRAM (Component of REPAIR KIT, Stock No. 2990-843-8569)	(01170)	3-2.87-1.69-DBC		1						75	32
X20					BLOCK	(16004)	18952		1	*	*	*	*	*	65B	20
X2F					BOLT, CAP, HEXAGON HEAD, 5/16-18 X 1				4			*	*	*	75	21
X2F					BOLT, CAP, HEXAGON HEAD, 5/16-18 X 1 1/4				4			*	*	*	75	15
X2F					COVER	(16004)	40856		1			*	*	*	75	23
X2F					COVER, AIR CONTROL	(16004)	40812		1			*	*	*	75	20
X2F					CYLINDER, CONTROL	(16004)	41138		1			*	*	*	75	52
X1					DIAPHRAGM (Component of REPAIR KIT, Stock No. 2990-843-8569)	(79227)	N26Y20		1						75	10

CODES	FEDERAL STOCK NUMBER	DESCRIPTION	MANUFACTURER'S CODE	MANUFACTURER'S PART NO.	UNIT OF ISSUE	QTY INCORPORATED IN UNIT	GUIDE QTY(S) PER MAJOR EQUIPS 15 DAYS MAINT. ORGANIZATIONAL 1-5	ORGANIZATIONAL 6-10	DS	GS	DEPOT MAINT. 100 EQUIPMENTS	ILLUST FIGURE NO.	ILLUST ITEM NO.
		5012 - THROTTLING DEVICES (CONT)											
X1		DISC, BREATHER (Component of REPAIR KIT, Stock No. 2990-843-8569)	(00736)	WB204261		1							
X2F		HOUSING	(79227)	SA3-SA11223		1			*	*	*	75	3
X20		LEVER ASSEMBLY	(16004)	41074		1	*	*	*	*	*	75	25
X20	5310-050-3266	NUT, LOCK, HEXAGON, 1/4-28				1	*	*	*	*	*	65B	18
X20	5310-044-3333	NUT, LOCK, HEXAGON, 5/16-18				1	*	*	*	*	*	75	26
X2F		NUT, PLAIN, HEXAGON, 3/8-20				1			*	*	*	75	13
X2F		NUT, RETAINING	(16004)	40535		1			*	*	*	75	12
X20		NUT, STOP, 5/16-18				1	*	*	*	*	*		
X2F		ORIFICE	(16004)	42206		1			*	*	*	75	19
X1	5330-196-5368	"O"-RING (Component of REPAIR KIT, Stock No. 2990-843-8569)	(88044)	AN6227B6		1						75	51
X1		"O"-RING (Component of REPAIR KIT, Stock No. 2990-843-8569)	(88044)	AN6227B92		1						75	38
X1		"O"-RING (Component of REPAIR KIT, Stock No. 2990-843-6569)	(88044)	AN6227B104		1						75	40
X1	5330-260-9311	"O"-RING (Component of REPAIR KIT, Stock No. 2990-843-6569)	(88044)	AN6227B5		1						75	18
X1		"O"-RING (Component of REPAIR KIT, Stock No. 2990-843-6569)	(88044)	AN6227B90		1						75	30
X1		"O"-RING (Component of REPAIR KIT, Stock No. 2990-843-6569)	(88044)	AN6227B90		1						75	34
X20		PIN, AIR CONTROL	(83584)	1/4 X 2, Type C		1	*	*	*	*	*	75	24
X2F		PLATE	(79227)	60-112Y60		1			*	*	*	75	11
X20		PLATE, NAME	(16004)	41180		1	*	*	*	*	*		
X2F		PLATE, VALVE	(16004)	41134		1			*	*	*	75	43
X2F	4730-278-3397	PLUG, PIPE, 1/8 NPT				1			*	*	*	75	46
X2F	4730-278-3014	PLUG, PIPE, 1/4 NPT				1			*	*	*	75	45
X2F		PISTON	(16004)	41150		1			*	*	*	75	33
X2F		PISTON	(16004)	41132		1			*	*	*	75	44
X2F	5340-285-7029	RING, RETAINING	(79136)	5108-62		1			*	*	*	75	41
X2F		RING, SPRING	(16004)	41147		1			*	*	*	75	42
X20		SCREW	(16004)	41161		1	*	*	*	*	*	75	48
X2F		SCREW	(16004)	41130		1			*	*	*	75	37
X2F		SCREW	(16004)	40610		1			*	*	*	75	7
X2F		SCREW	(16004)	40914		1			*	*	*	75	29
X2F		SCREW, ADJUSTING	(16004)	40869		1			*	*	*	75	14
X2F	5305-208-4437	SCREW, FILLISTER HEAD, 1/4-20 X 5/8				4			*	*	*	75	1
X2F	5305-044-3760	SCREW, SELF THREADING, No. 2 X 3/16				2			*	*	*		
X2F		SEAL, DISC	(16004)	41135		1			*	*	*	75	39
X2F		SEAT, SPRING	(79227)	61-112Y61		1			*	*	*	75	5
X1		SEAT, VALVE (Component of REPAIR KIT, Stock No. 2990-843-8569)	(16004)	40582		1						75	17
X20	5305-010-2585	SETSCREW, SOCKET HEAD, 5/16-18 X 1 rd pt				1	*	*	*	*	*	75	27

CODES	FEDERAL STOCK NUMBER	DESCRIPTION	MANUFACTURER'S CODE	MANUFACTURER'S PART NO.	UNIT OF ISSUE	QTY INCORPORATED IN UNIT	GUIDE QTY(S) PER MAJOR EQUIPS: 15 DAYS MAINT. ORGANIZATIONAL 1-5	15 DAYS MAINT. ORGANIZATIONAL 6-10	DS	GS	DEPOT MAINT.	ILLUST FIGURE NO.	ILLUST ITEM NO.
		5012 - THROTTLING DEVICES (CONT)											
X2F		SPACER	(16004)	42207		1			*	*	*	75	36
X1		SPRING (Component of REPAIR KIT, Stock No. 2990-843-8569)	(16004)	41159		1						75	49
X2F		SPRING	(79227)	S2-262		1			*	*	*	75	9
X1		SPRING (Component of REPAIR KIT, Stock No. 2990-843-8569)	(16004)	40534		1						75	4
X2F		SPRING	(16004)	40462		1			*	*	*	75	35
X1		STEM, VALVE (Component of REPAIR KIT, Stock No. 2990-843-8569)	(16004)	40581		1						75	8
X2F		VALVE	(16004)	41160		1			*	*	*	75	50
X2F		WASHER	(16004)	41173		1			*	*	*	75	6
X2F		WASHER	(16004)	40870		1			*	*	*	75	31
X20	5310-194-1540	WASHER, FLAT, 1/4				1	*	*	*	*	*	65B	19
X2F	5310-012-0423	WASHER, LOCK	(78189)	1214-05		4			*	*	*	75	2
X2F	5310-013-8538	WASHER, LOCK, 5/16				4			*	*	*	75	16
X2F	5310-013-8538	WASHER, LOCK, 5/16				4			*	*	*	75	22
X20	2520-496-1515	JOINT, BALL	(01428)	SP1002-CP		1	*	*	*	*	*	65B	14
X20	5310-012-1902	NUT, PLAIN, HEXAGON, 1/4-28				3	*	*	*	*	*	65B	12
X20		ROD, ENGINE, CONTROL	(16004)	43127		1	*	*	*	*	*	65B	17
X20	5305-012-2119	SCREW, CAP, HEXAGON HEAD, 3/8-16 X 3/4				2	*	*	*	*	*	65B	21
X20	5305-012-2119	SCREW, CAP, HEXAGON HEAD, 3/8-16 X 3/4				2	*	*	*	*	*	65B	24
X20		SPRING, ENGINE CONTROL	(16004)	27365		1	*	*	*	*	6	65B	11
X20		STOP, WIRE	(16004)	27359		1	*	*	*	*	*	65B	15
X20		WASHER, LOCK, 3/8				2	*	*	*	*	*	65B	22
X20	5310-013-8542	WASHER, LOCK	(96906)	MS35333-25		2	*	*	*	*	*	65B	29
		5013 - HOSE REEL											
X20		CONNECTOR, MALE	(73273)	UM-75-M		1	*	*	*	*	*	61B	8
X20		ELBOW, STREET, 3/4 NPT				1	*	*	*	*	*	61B	9
X20		REEL ASSEMBLY, HOSE	(16004)	45805		2	*	*	*	*	*	61B	
		5015 - AIR DISCHARGE SYSTEM											
X20		CONNECTOR, FEMALE	(73273)	UF-75-M		2	*	*	*	*	*	101	12
P10		VALVE, SERVICE	(73273)	VM-75-A		2	*	*	*	*	5	101	13
		7603 - FIRE EXTINGUISHERS											
P10R	4210-893-1092	EXTINGUISHERS, FIRE	(02413)	PDC-275A		1	*	*	*	*	*	27	35
X20		NUT, LOCK, HEXAGON, No. 10-32				4	*	*	*	*	*	27	33
X20		SCREW, CAP, HEXAGON HEAD, No. 10-32 X 5/8				4	*	*	*	*	*	27	34