TM 5-4310-250-15

DEPARTMENT OF THE ARMY TECHNICAL MANUAL

ORGANIZATIONAL, DS, GS, AND DEPOT MAINTENANCE MANUAL

COMPRESSOR, ROTARY: AIR

DIESEL ENGINE DRIVEN; 250 CFM 100 PSI; SKID MOUNTED

(DAVEY MODEL M250 RPV)

FSN 4310-075-7064

This copy is a reprint which includes current pages from Changes 1 through 6.

HEADQUARTERS, DEPARTMENT OF THE ARMY
NOVEMBER 1965

WARNING

If NBC exposure is suspected, all air filter media should be handled by personnel wearing protective equipment. Consult your unit NBC Officer or NBC NCO for appropriate handling or disposal instructions.

CHANGE

NO. 6

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington D.C., *30 September 1991*

Operator, Organizational, DS, GS, and Depot Maintenance Manual

COMPRESSOR, ROTARY: AIR, DIESEL ENGINE DRIVEN; 250 CFM, 100 PSI; TRAILER MOUNTED (DAVEY MODEL M250RPV) NSN 4310-00-075-7064 (DAVEY MODEL 6M250RPV) NSN 4310-00-078-2462 (DAVEY MODEL 9M250RPV) NSN 4310-00-0248-3496

TM 5-4310-250-15,9 November 1965, is changed as follows:

1. Remove old pages and insert new pages as indicated below.
2. New or changed material is indicated by a vertical bar in the margin of the page.

Remove Pages	Insert Pages
None	a/(b blank)
19 and 20	19 through 20.1 /(20.2 blank)
41 and 42	41 and 42
89 through 92	89 through 92.3/(92.4 blank)
105 and 106	105 and 106
107 and 108	107 and 108

3. File this change sheet in front of the publication for reference purposes.

By Order of the Secretary of the Army:

GORDON R. SULLIVAN
General, United States Army
Chief of Staff

Official:

PATRICIA P. HICKERSON
Brigadier General, United States Army
The Adjutant General

Distribution:
To be distributed IAW DA Form 12–25–E (Block No. 0472) Operator, Unit, Direct Support and General Support and Depot maintenance requirements for TM 5-4310-250-15.

TM 5-4310-250-15
C 5

CHANGE
No. 5

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C., *26 May 1972*

Operator, Organizational, Direct Support, General Support, and Maintenance Manual

COMPRESSOR, ROTARY: AIR; DIESEL ENGINE DRIVEN; 250 CFM, 100 PSI; TRAILER MOUNTED (DAVEY MODEL M250 RPV) FSN 4310-075-7064 (DAVEY MODEL 6M250 RPV) FSN 4310-078-2462 (DAVEY MODEL 9M250 RPV) FSN 4310-248-3496

TM 5-4310-250-15, 9 November 1966, is changed 88 follows:

Page 2. APPENDIX II is changed to read as follows :

APPENDIX II. BASIC ISSUE ITEM LIST AND ITEMS TROOP INSTALLED or AUTHORIZED.

Page 174. Appendix II and this portion of change 1, 2 and 3 are superseded as follows:

APPENDIX II
BASIC ISSUE ITEM LIST AND ITEMS TROOP INSTALLED OR AUTHORIZED

Section I. INTRODUCTION

1. Scope

This appendix lists basic issue items, items troop installed or authorized which accompany the compressor, and required by the crew/operator for operation, installation, or operator's maintenance.

2. General

This basic issue items, items troop installed or authorized list is divided into the following sections:

a. Basic Issue ltems List-Section II. "Not applicable."

b. Item Troop Installed or Authorized List-Section III. A list, in alphabetical sequence of item which at the discretion of the unit commander may accompany the end item, but are NOT subject to be turned in with the end item.

3. Explanation of Columns

The following provides an explanation of columns in the tabular list of Basic Issue Items List, Section II, and Items Troop Installed or Authorized, Section III.

a. Source, Maintenance, and Recoverability Code(s) (SMR):

(1) Source code, indicates the source for the listed item. Source codes are:

Code	*Explanation*
P	Repair parts, special tools and test equipment supplied from GSA/DSA or Army supply system and authorized for use at indicated maintenance levels.

(2) Maintenance code, indicates the lowest level of maintenance authorized to install the listed item. The maintenance level code is:

Code	*Explanation*
C	Crew/Operator

(3) Recoverability code, indicates whether unserviceable items should be returned for recovery or salvage, items not coded are nonrecoverable. Recoverability codes are:

Code	*Explanation*
R	Applied to repair parts (assemblies and components), special tools and test equipment which are considered economically reparable at direct and general support maintenance levels.
S	Repair parts, special tools, test equipment and assemblies which are economically reparable at DSU and GSU activities and which normally are furnished by supply on an exchange basis.

b. Federal Stock Number. This column indicates the Federal stock number assigned to the item and will be used for requisitioning purposes.

c. Description. This column indicates the Federal item name and any additional description of the item required.

d. Unit of Measure (U/M). A 2-character alphabetic abbreviation indicating the amount or quantity of the item upon which the allowances are based, e.g., ft, ea, pr, etc.

e. Quantity Furnished With Equipment (BIIL only). This column indicates the quantity of an item furnished with the equipment.

f. Quantity Authorized (Items Troop Installed or Authorized Only). This column indicates the quantity of the item authorized to be used with the equipment.

g. Illustration (BIIL only). This column is divided as follows:

(1) *Figure Number.* Indicates the figure number of the illustration in which the item is shown.

(2) *Item Number.* Indicates the callout number used to reference the item in the illustration.

Section III. ITEMS TROOP INSTALLED OR AUTHORIZED LIST

(1) SMR Code	(2) Federal Stock No.	(3) Description Ref No. & Mfr Code	Usable on Code	(4) Unit of Meas	(5) Qty Auth
PC	7520-559-9618	CASE, MAINTENANCE AND OPERATIONAL MANUAL		EA	1
PC	4210-555-8837	EXTINGUISHER, FIRE		EA	1

By Order of the Secretary of the Army:

W. C. WESTMORELAND,
General, United States Army,
Chief of Staff.

Official:

VERNE L. BOWERS,
Major General, United States Army,
The Adjutant General.

Distribution:

To be distributed in accordance with DA Form 12-25A, (qty rqr block No. 38) Organizational maintenance requirements for Air Compressor, 250 CFM.

TM 5-4310-250-15
C 4

CHANGE
No 4

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D. C., *30 March 1970*

Operator, Organizational, DS, GS, and Depot Maintenance Manual

COMPRESSOR, ROTARY: AIR, DIESEL ENGINE DRIVEN; 250 CFM, 100 PSI; TRAILER MOUNTED (DAVEY MODEL M250RPV) FSN 4310-075-7064 (DAVEY MODEL 6M250RPV) FSN 4310-078-2462 (DAVEY MODEL 9M250RPV) FSN 4310-248-3496

TM 5-4310-250-15, 9 November 1965, is changed as follows:

The cover and contents page are changed as shown above.

Inside cover page, SAFETY PRECAUTIONS. Add to "During Operation" as follows:

Do not operate the compressor with less than 80 PSI in the receiver. If end use allows pressure to fall below 80 PSI, partly close outlet valve. Operation below 80 PSI will cause compressor overheating and excessive oil consumption.

Page 4. Paragraph 3a is superseded as follows:

a. General. The compressor unit is a trailer mounted, diesel engine driven, sliding vane type rotary air compressor. The unit furnishes 250 cubic feet of free air per minute at a discharge pressure of 100 pounds per square inch. This manual covers the Davey Compressor Models M250RPV, 6M250RPV, and 9M250RPV.

Note. Refer to TM 9–2330-247-14/24P for trailer maintenance.

Page 5. Paragraph 3e is superseded as follows:

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 deactuates a solenoid located on the engine fuel pump, shutting off the fuel. No action is required by the operator to reactuate the fuel pump solenoid as the thermoswitch will close again when the discharge temperature falls below 195 degrees Fahrenheit. However, no restart should be attempted until reason for high temperatures of the oil in the compressor assembly is determined. Do not attempt to restart until the oil has cooled.

Paragraphs 3f and 3g are added after paragraph 3e.

f. Engine Safety Switches. The engine safety switches consist of the oil pressure switch and the water temperature switch. The switches are part of the automatic shutdown circuit. The oil pressure switch is normally open and closes when oil pressure reaches five pounds per square inch (PSI) in the engine. If oil pressure should ever fall below five PSI, the switch opens and deactuates the fuel pump solenoid shutting down the engine. The safety pushbutton provides a means of overriding the oil pressure switch when starting the engine. The water temperature switch functions in the same way, deactuating the fuel pump solenoid if water temperature exceeds 225 degrees Fahrenheit. Both switches are automatic and require no operator action to reset.

g. Air Pressure Switch (Model 9M250RPV). The air pressure switch is a normally closed switch which is connected in series with the start pushbutton. The switch opens when air pressure in the oil separator reaches 10 PSI. The purpose of the switch is to prevent the starting of the air compressor unit when air pressure in the system exceeds 10 PSI. Starting the compressor with air pressure in the system could result in damage to the equipment.

Paragraph 4a is superseded as follows:

a. Identification (Models M250RPV and 6M-250RPV). The Models M250RPV and 6M250RPV Rotary Air Compressors have six major identification plates. The information contained on these plates is listed below.

Paragraph 4a.1 is added after paragraph 4a(6).

a.1. Identification (Model 9M250RPV). The Model 9M250RPV Rotary Air Compressor has five major identification plates. The information contained on these plates is listed below.

(1) *U.S. Army Plate.* Located on the right front housing side panel. Specified nomenclature, stock number, serial numbers, manufacturer, model, contract number, dimensions, capacity, weights, inspection information, and warranty data.

(2) *Transportation Data Plate.* Located on the right front housing side panel. Illustrates prescribed lifting method, location of lifting eyes, tiedown points, and center-of-gravity. Specifies dimensions, shipping weight and cubage, towing speeds, and tire pressure.

(3) *Operating Instruction Plate.* Located on the right front housing side panel. Specifies how to start, operate, and stop the compressor unit. Also includes lubrication specifications.

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

(5) *Rotary Compressor Plate.* Located on top of compressor end cover between stator and flywheel adapter. Specifies compressor model and serial numbers.

Figure 1.1. Change caption to read: Rotary air compressor, trailer mounted, right side view, with shipping dimensions, Models 6M250RPV and 9M250RPV.

Change shipping dimensions as follows:

SHIPPING DIMENSIONS	
LENGTH	211 INCHES
WIDTH	96 INCHES
HEIGHT	82 INCHES
WEIGHT	6,584 POUNDS
VOLUME	961 CUBIC FEET

Page 6. Paragraph 4b (1.2) is added after paragraph 4b(l.1).

(1.2) *9M250RPV Rotary Compressor.*

Manufacturer - - - - - - - - - Davey Compressor Company
Model - - - - - - - - - - - - - - 9M250RPV
Type - - - - - - - - - - - - - - Sliding vane, air, rotary, DED
Part number- - - - - - - - 62050
Serial numbers- - - - - - - - - - - 9P155-16062 through 9P155-16419
Air delivered - - - - - - - - - 250 CFM
Air pressure - - - - - - - - - - 100 PSI
Stages- - - - - - - - - - - - - One
Prime mover - - - - - - Diesel Engine
Oil filter- - - - - - Purolator Products, Inc., Model 62822
Air cleaner - - - - - - - - - - - - Donaldson Co., Inc., Dry type; Model KAXOO-0165
Mounting - - - - - - - - - - - - - - - Trailer Mounted
Federal stock number - - - - - - 4310-248-3496

Page 7. Figure 3, Caption, change to read: Practical wiring diagram; Models M250RPV and 6M250RPV.

Figure 3.1 is added after figure 3.

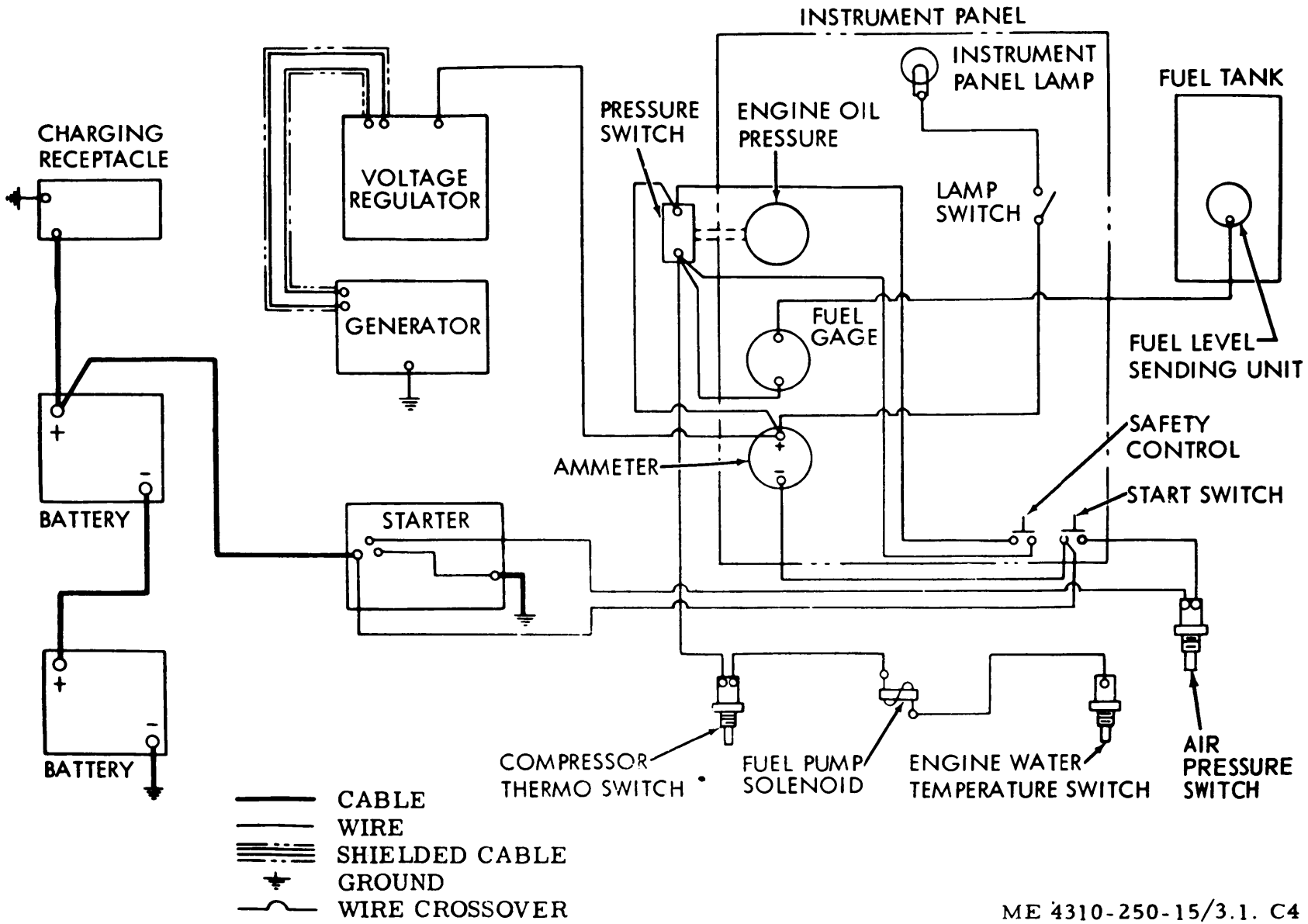


Figure 3-1. Practical wiring diagram; Model 9M250RPV.

Page 8. Paragraph 4b(3)(h), change as follows :

(h) Air cleaner (Model M250RPV)

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

Paragraph 4b(3)(i) is added after paragraph 4b(3)(h).

(i) Air cleaner (Models 6M250RPV and 9M250RPV)
Manufacturer - - - - - - - Donaldson Co., Inc.
Model - - - - - - - - - - - KAXOO-0155
Type - - - - - - - - - - - - - - Dry

Paragraph 4b(4), change last line as follows:

Engine control assembly
(Models M250RPV and
6M250RPV) - - - - - - 6 oz.

Paragraph 4b(7), change heading as follows:

(7) *Dimensions and weights (Model M250-RPV).*

Paragraph (7.1) is added after paragraph (7).

(7.1) *Dimensions and weights (Models 6M-250RPV and 9M250RPV).*

Length - - - - - - - - - - - - - 211 IN.
Width - - - - - - - - - - - - - 94 IN.
Height - - - - - - - - - - - - - 96 IN.
Weight - - - - - - - - - - - - - - - 6,584 LBS.
Volume - - - - - - - - - - - - - - - 961 CU. FT.

Paragraph 4(b)(8), is superseded as follows:

(8) *Wiring Diagram.* See figures 3 and 3.1.
Paragraph 5 is superseded as follows:

5. Difference in Models

This manual covers Davey Compressor Models M250RPV, 6M250RPV, and 9M250RPV diesel engine driven rotary air compressors. The major differences between the M250RPV and the 6M-250RPV models are that the 6M250RPV has larger air cleaners, a muffler, modified hose reel assemblies, and a modified oil separator assembly. The 6M250RPV and 9M250RPV models are similar except the 9M250RPV has an automatic dump feature on the moisture separator, a modified speed control device, and a modified instrument panel. The bottom pan is eliminated on the Model 9M250RPV and a l-1/2-inch air service valve is added to the minimum pressure valve housing.

Page 10. Paragraph (6)(a), is superseded as follows :

a. General. The Model M250RPV air compressor is shipped by the manufacturer as a completely assembled skid unit. The Models 6M250RPV and 9M250RPV are shipped as completely assembled trailer mounted units. Four lifting eyes are provided as an integral part of each unit (fig. 5 and 5.1).

NOTE

The method of attaching each unit to the transportation equipment will be determined by the type of carrier used.

Paragraph 6b, change paragraph heading as follows :

b. Unloading (Model M250RPV).

Paragraph 6c is added after paragraph 6b.

c. Unloading (Models 6M250RPV and 9M250-RPV). The air compressor unit can be unloaded by a lifting device or towed from the carrier.

WARNING

The lifting device used must be capable of lifting a minimum of five tons.

(1) If a lifting device is to be used, connect the device to the air compressor unit as shown in figure 5.1.

(2) Remove all blocks and tie downs that secure air compressor unit to carrier. Release parking brakes if applied.

CAUTION

After unloading and parking unit, be sure to lock parking brakes.

(3) Lift or tow air compressor unit off carrier.

Paragraph 8b(2), change lubrication order number to LO 5-4310-250-12.

Page 11. Figure 5, caption is changed as follows: Lifting instruction plate; Model M250RPV.

Figure 5.1 is added after figure 5.

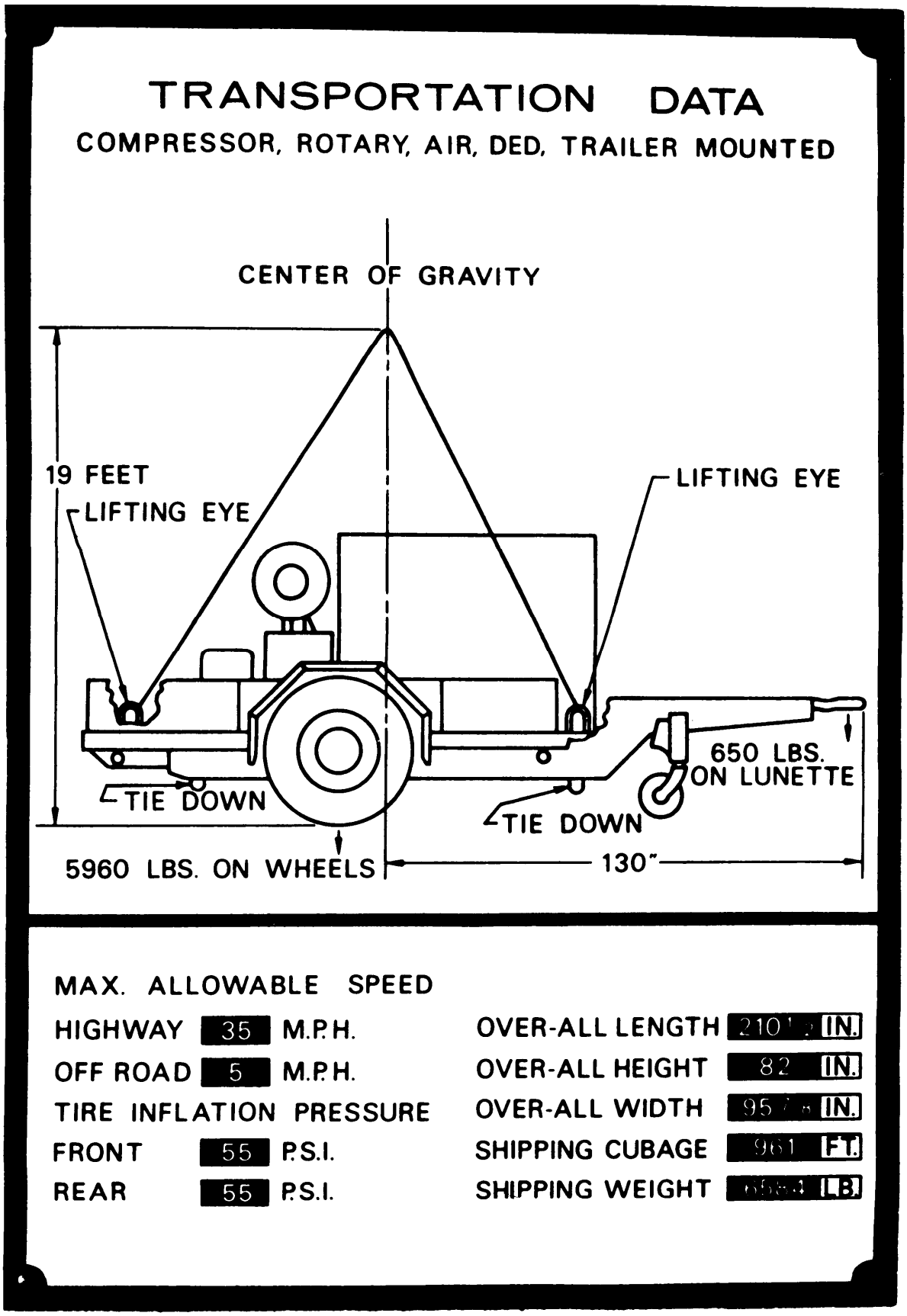


Figure 5.1. Transportation data plate; Models 6M250RPV and 9M250RPV.

Page 12. Paragraph 8b(5), change lubrication order number to LO 5-4310-250-12.

Paragraph 10a, delete the words "skid-mounted".

Page 13. Paragraph 10d, change heading as follows:

(d) Equipment Conversion (Models M250-RPV and 6M250RPV).

Paragraph 11f, is superseded as follows:

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

Paragraph 11g, is superseded as follows:

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

Paragraph 14 is superseded as follows:
The purpose of the controls and instruments and the normal and maximum reading of the instruments are illustrated in figures 6 and 6.1.

Page 14. Figure 6, caption is change as follows: Controls and instruments; Models M250RPV and 6M250RPV.

Figure 6.1 is added after figure 6.

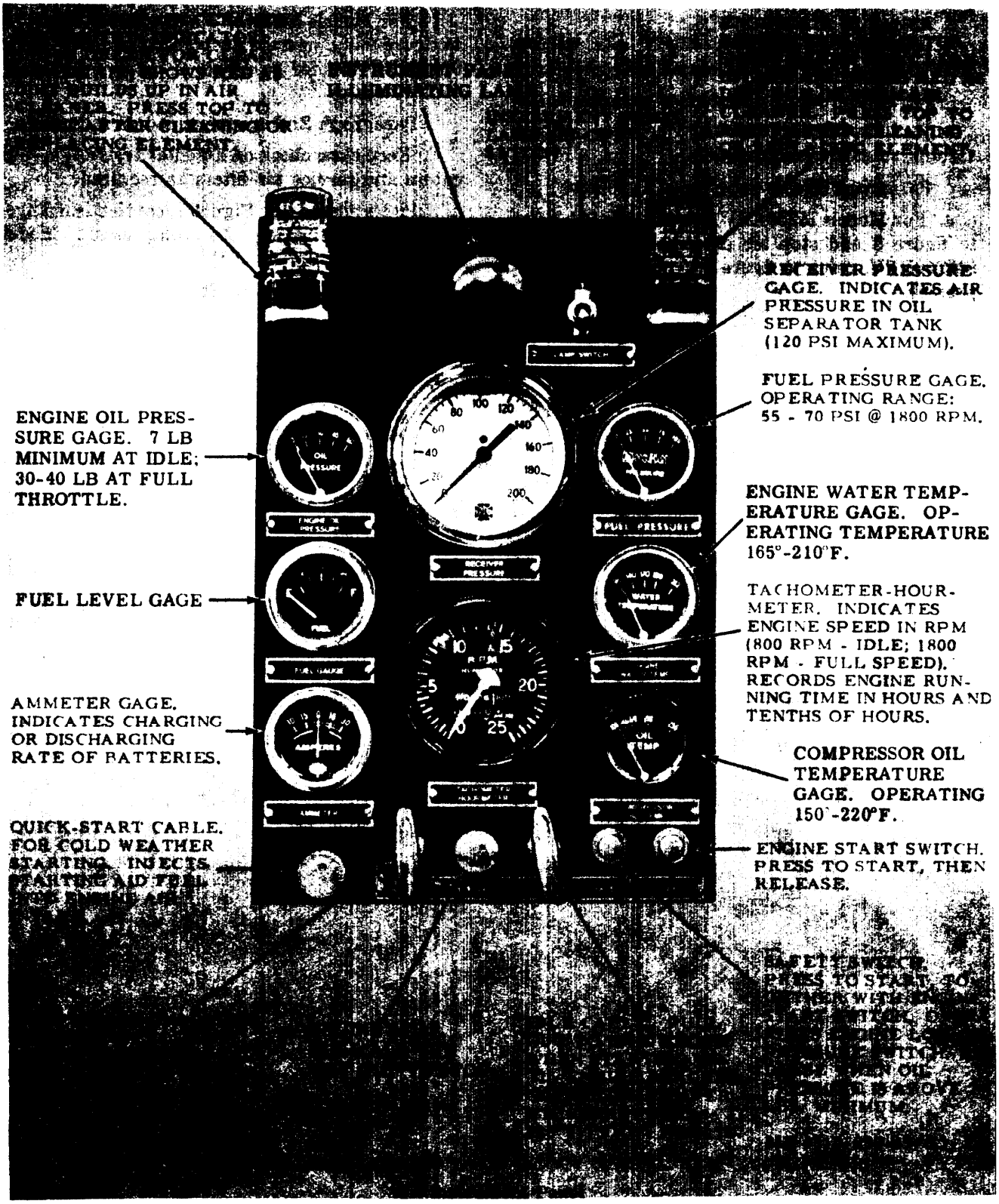


Figure 6.1. Controls and instruments; Model 9M250RPV.

Page 19. Paragraph 16b, is superseded as follows :

b. Starting (Models M250RPV and 6M250-RPV). Refer to figure 7 and start air compressor.

Paragraph 16c is added after paragraph 16b.

c. Starting (Model 9M250RPV). Refer to figure 7.1 and start air compressor.

Paragraph 17a, is superseded as follows:

a. For Models M250RPV and 6M250RPV, refer to figure 8 and stop air compressor. For Model 9M250RPV, refer to figure 8.1 and stop air compressor.

Paragraph 18b, is superseded as follows:

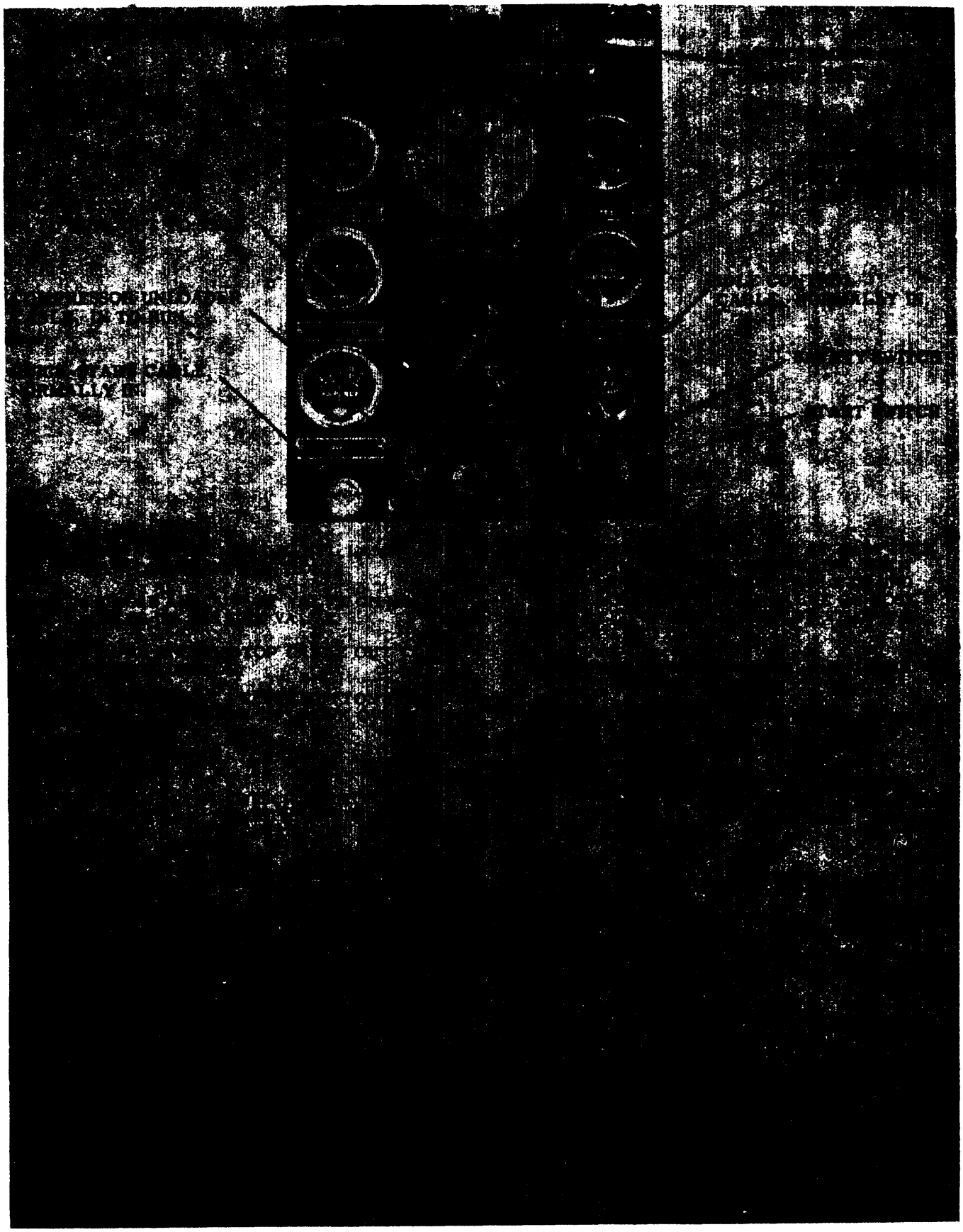
b. For Models M250RPV and 6M2S0RPV, refer to figure 9 and operate air compressor. For Model 9M250RPV, refer to figure 9.1 and operate air compressor.

Paragraph 21d is superseded as follows:

d. Keep close check on air filter restriction indicators and service air filters as required.

Pages 20 and 21. Figure 7, caption is changed as follows: Starting the compressor; Models M250RPV and 6M250RPV.

Figure 7.1 is added after figure 7.



Fiugre 7.1. Starting the compressor; Model 9M250RPV.

Page 22. Figure 8, caption is changed as follows: Stopping the air compressor; Models M250-RPV and 6M250RPV.

Figure 8.1 is added after figure 8.

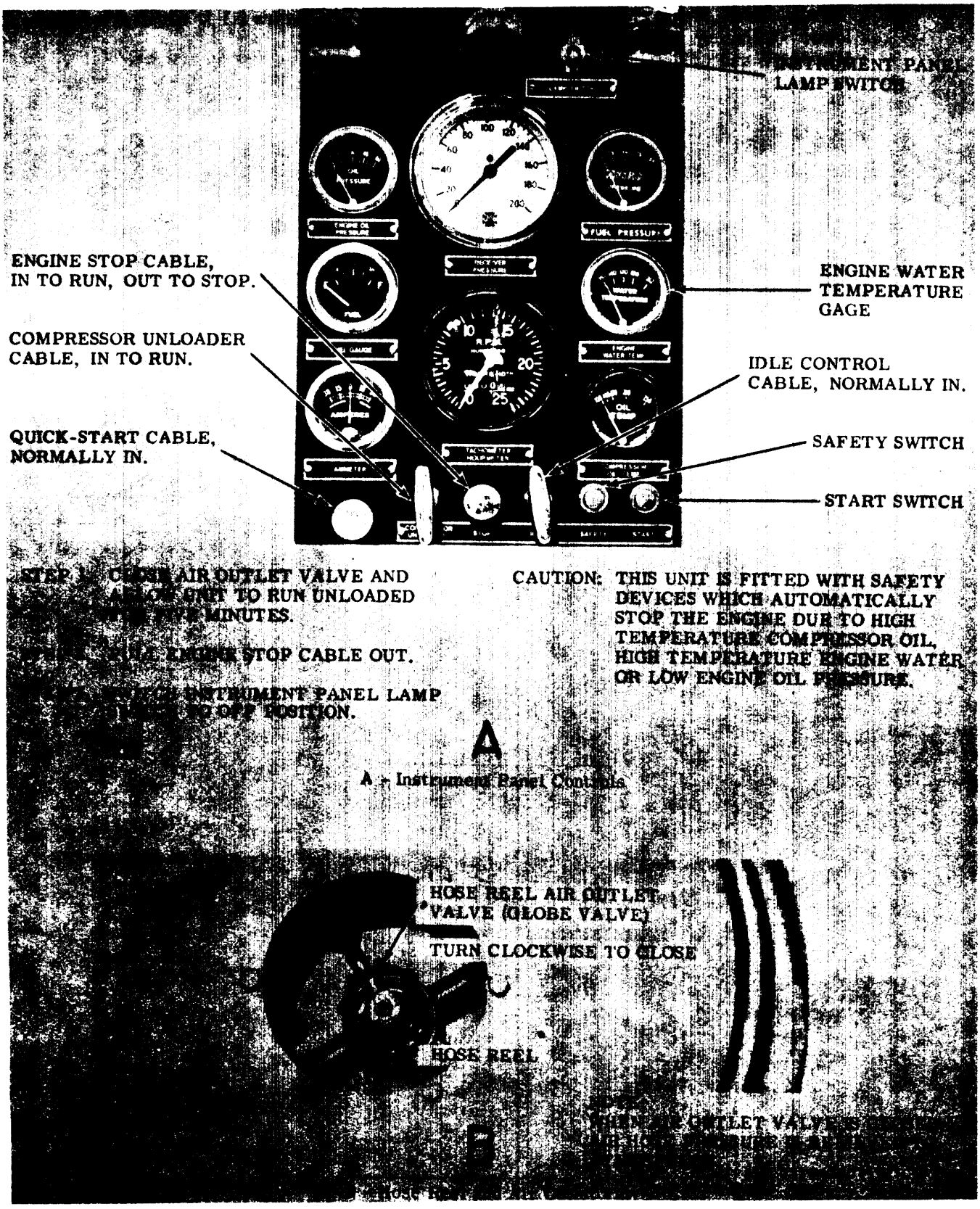


Figure 8.1. Stopping the air compressor; Model 9M250RPV.

Page 23. Figure 9, caption is changed as follows: Operating the air compressor; Models M250RPV and 6M250RPV.

Figure 9.1 is added after figure 9.

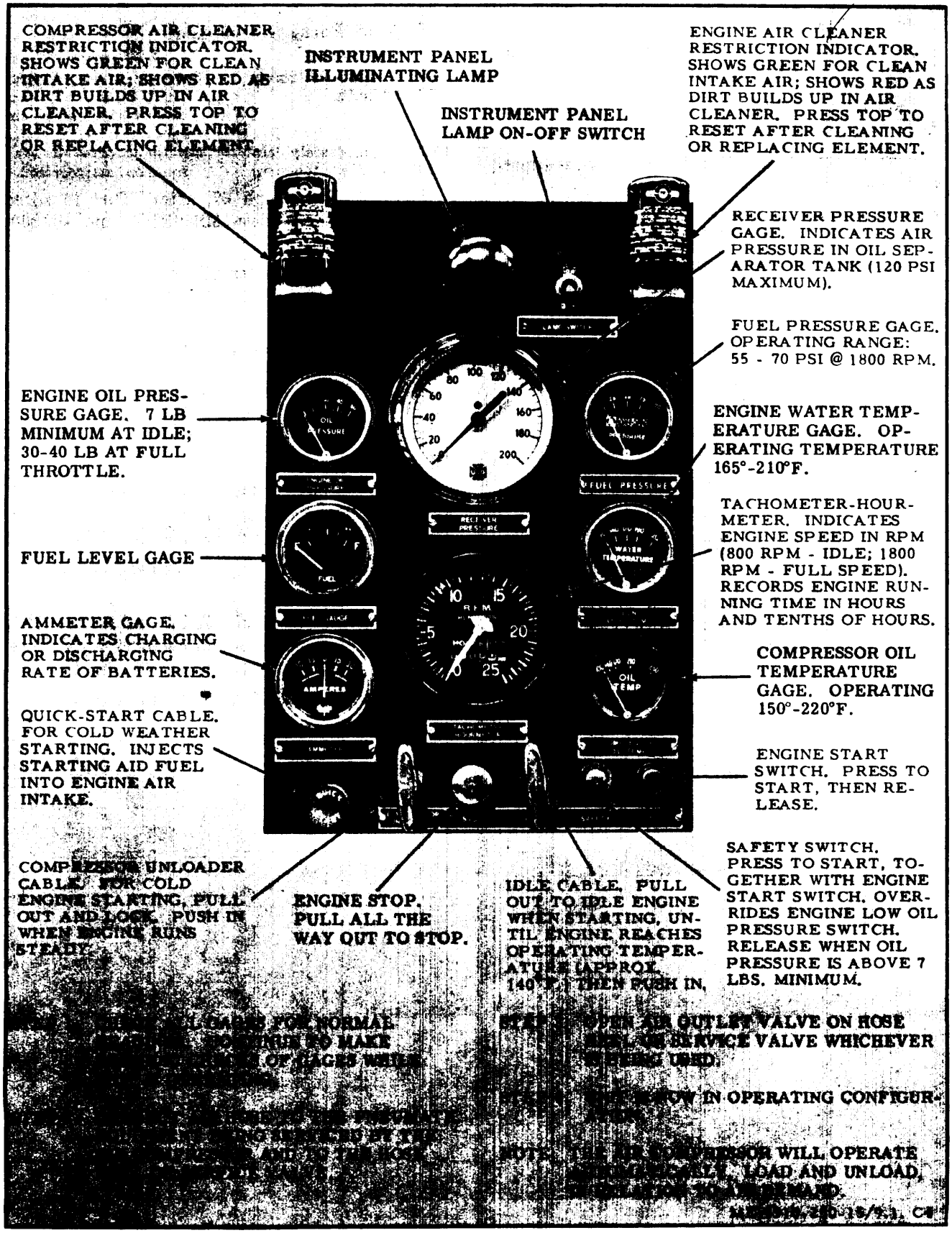


Figure 9.1. Operating the air compressor; Model 9M250RPV.

Pages 33 and 35. Figures 12 and 13, at top of page after Davey Compressor Co., change to read "Models M250RPV, 6M250RPV, and 9M250RPV."

Page 33. Figure 12, Item 3, add: (Models M250-RPV and 6M250RPV only)

Figure 12, Item 9, Receiver Pressure is superseded as follows:

Receiver Pressure - - - - - - - - -90-110 PSI (Loaded)
115-117 PSI (Unloaded)

After Receiver Pressure add:

Fuel Pressure - - - - - - - - - 56-70 PSI @ 1800 RPM

Page 35. Figure 13, Items 5 and 6, add: (Models M250RPV and 6M250RPV Only)

Page 96. Figure 13, Item 15, Receiver Pressure is superseded as follows:

Receiver Pressure - - - - 90-PSI (Loaded)
116-117 PSI (Unloaded)

After Receiver Pressure add:

Fuel Pressure - - - - - - - - - 56-70 PSI @ 1800 RPM

Page 37. Figure 15, after references to strainer, add: (Models M250RPV and 6M250RPV Only)

Page 44. Figure 24, caption is changed as follows : Engine speed control service (Models M250RPV and 6M250RPV)

Page 45. Paragraph 50, add:

Probable cause	*Possible remedy*
Engine shutdown safety circuit faulty	Refer to wiring diagram (fig. 3 or 3.1) and troubleshoot safety circuit.
Malfunction (safety circuit shutdown function)	Determine cause of malfunction and correct,

Page 48. Paragraph 67, after "Dirt in speed control" add: (Models M250RPV and 6M250-RPV)

Paragraph 74, after "No oil in speed control reservoir" add: (Models M250RPV and 6M250-RPV)

Page 49. Paragraph 75, add:

Probable cause	*Possible remedy*
Defective generator	Replace generator (para 94).

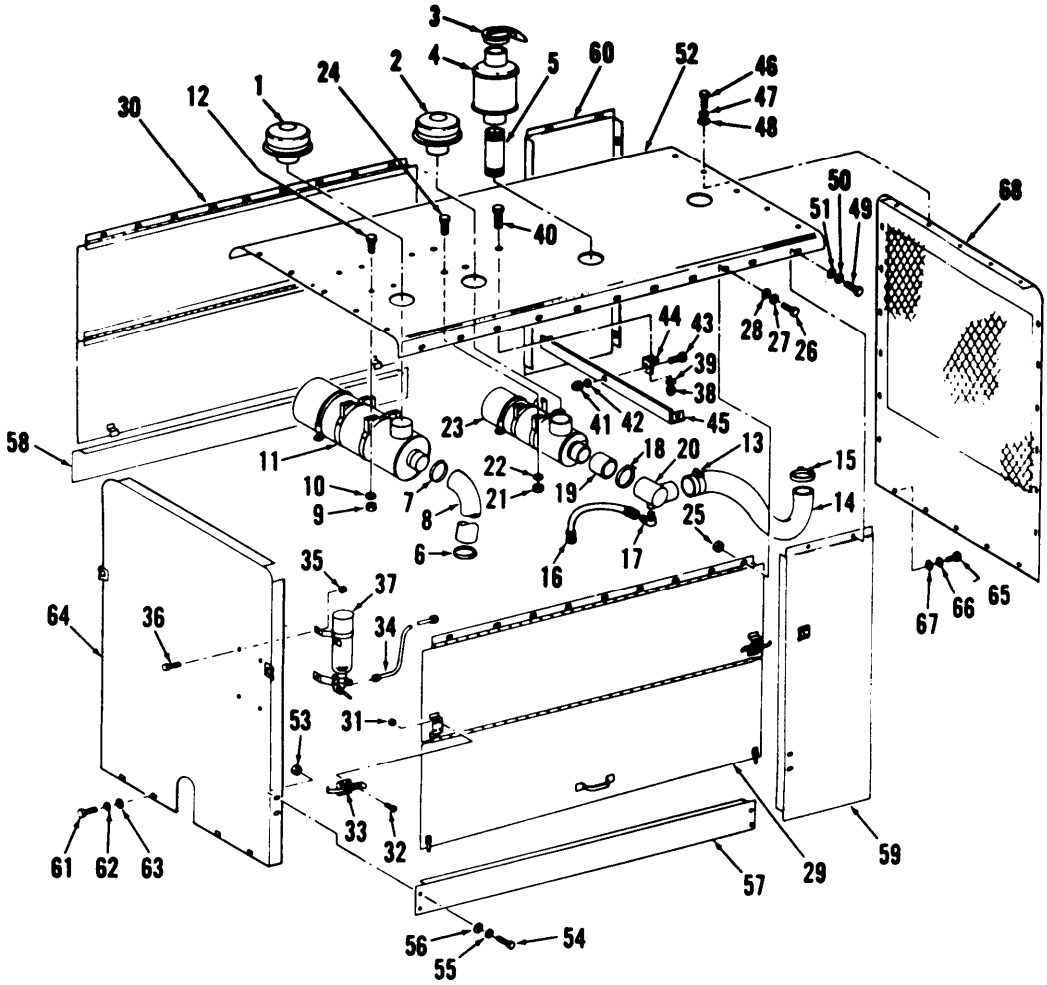
Page 50. Paragraph 84a (1.1) is superseded as follows:

(1.1) On Models 6M250RPV and 9M250RPV, remove muffler, exhaust pipe, air cleaner caps, air cleaners, and engine starting aid (fig. 27.1).

Paragraph 84c (2.1), is superseded as follows:

(2.1) On Models 6M250RPV and 9M250RPV, install engine starting aid, air cleaners, air cleaner clamps, exhaust pipe, and muffler (fig. 27.1).

Page 51. Figure 27.2 is added after 27.1.



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

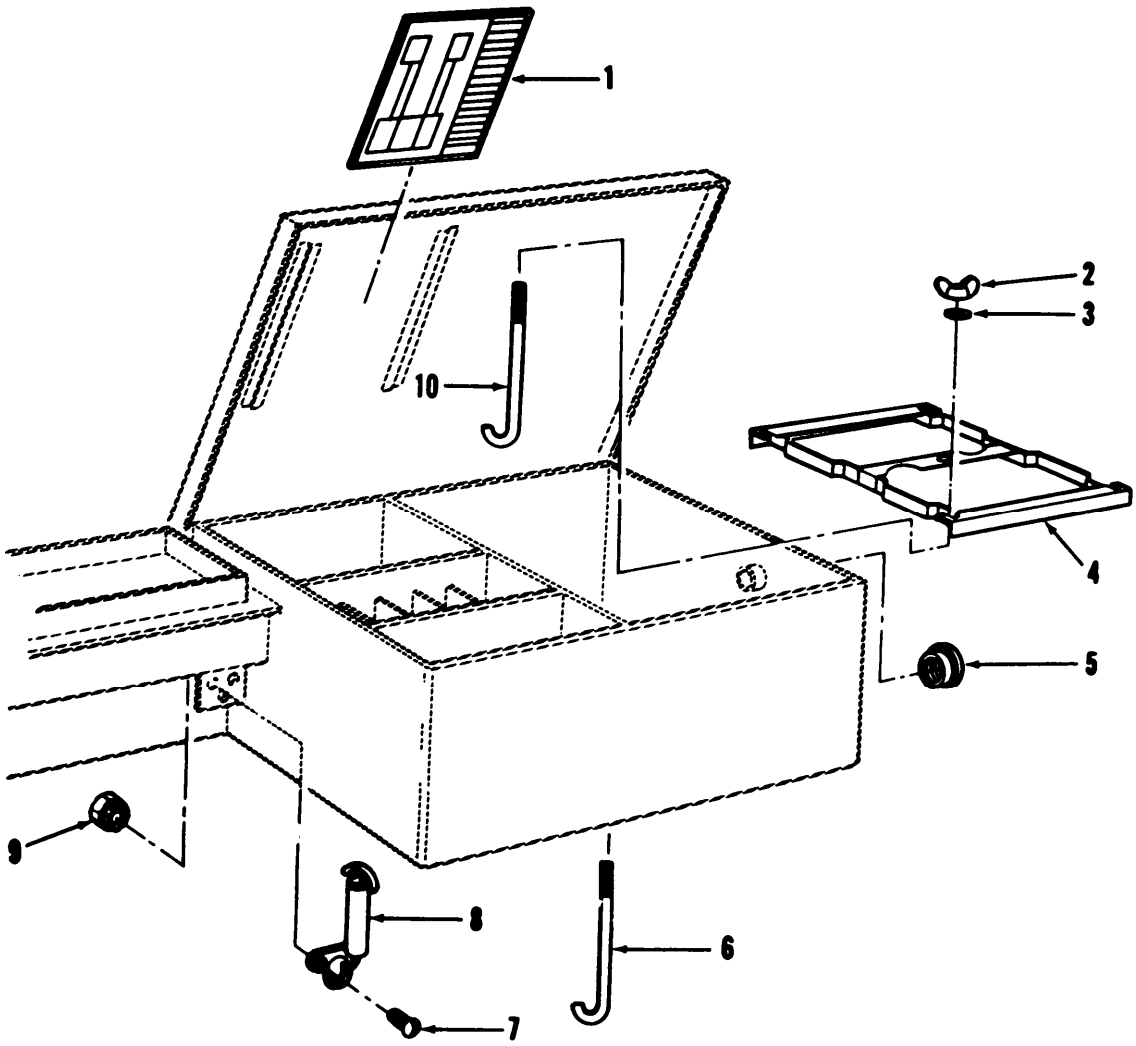
ME 4310-250-15/27.2. C4

Figure 27.2. Housing, doors, hood, and panels, removal and installation; Model 9M250RPV.

Page 52. Paragraph 85, delete the word “skid”.

Figure 28.1, caption is changed as follows: Tool boxes and fuel tank, removal and installation; Models 6M250RPV and 9M250RPV.

Figure 28.2 is added after figure 28.1.



1 Plate, Tool Layout
2 Wingnut, 3/8-16
3 Washer, Flat, 3/8
4 Retainer, Battery
5 Vent, Battery Compartment
6 Bolt, Battery Holddown, J-Type
7 Bolt, Rd Hd, No. 10-24 x 1/2 in.
8 Clamp
9 Bolt and Washer Assy, No. 10-24
10 Bolt, Battery Holddown, J-Type (4)

ME 4310-250-15/28.2. C4

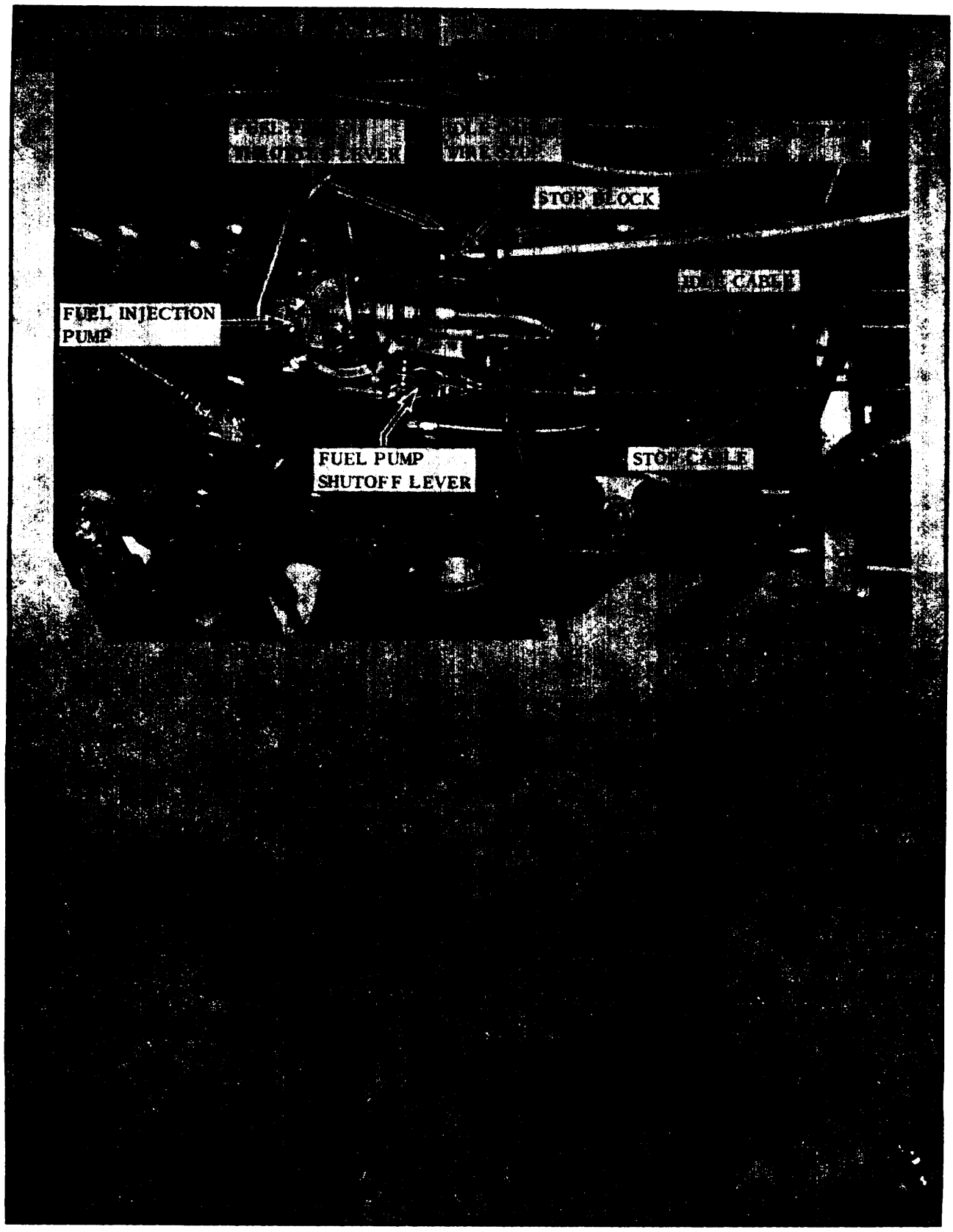
Figure 28.2. Tool box latches and battery retaining modifications; Model 9M250RPV.

Page 58. Paragraph 88.1, change heading as follows: Fuel Tank (Models 6M250RPV and 9M250RPV)

Paragraph 88.1b, change word “both” to “all”.

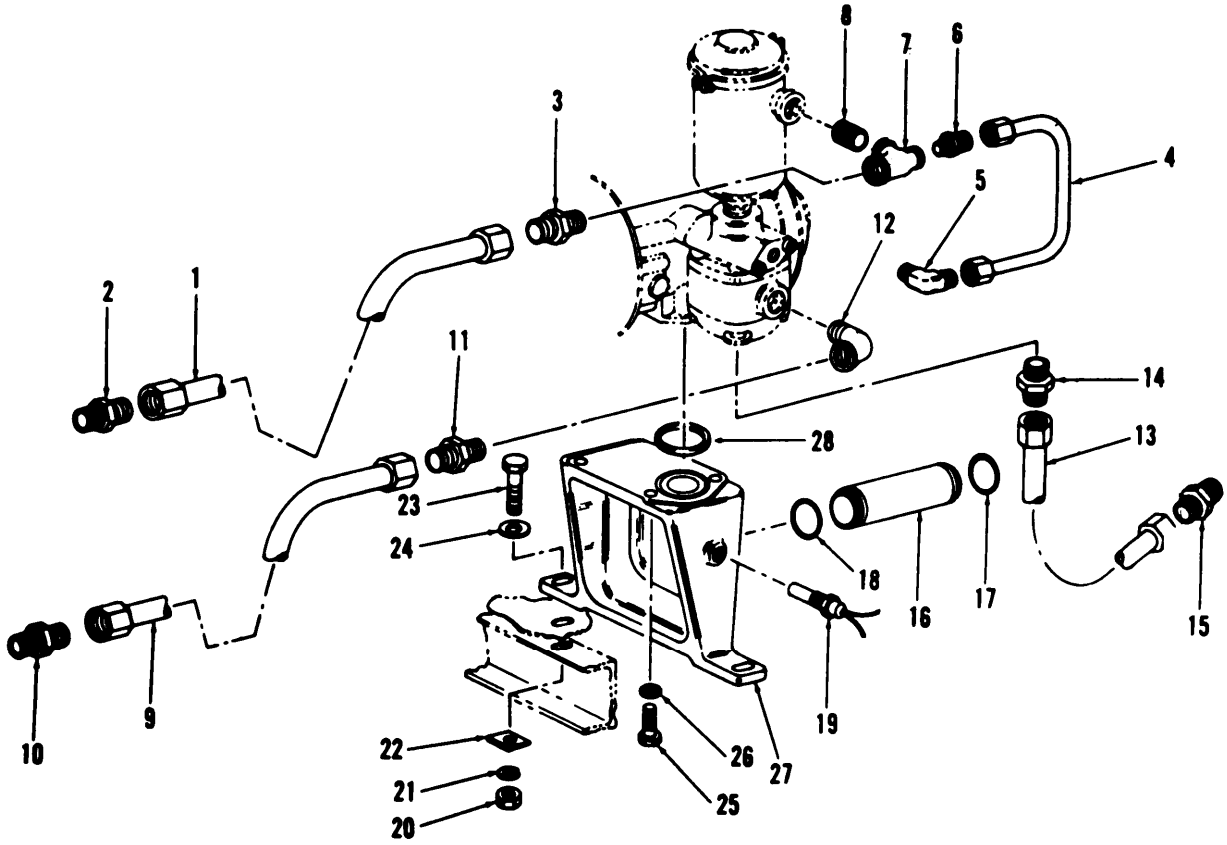
Page 62. Figure 29H, caption add: (Models M250RPV and 6M250RPV).

Figure 29I is added after 29H.


STOP LOCK
FUEL INJECTION PUMP
FUEL PUMP SHUTOFF LEVER

Page 81. Figure 46B, caption add: (Models M250RPV and 6M250RPV)

Figure 46C is added after figure 46B.



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 O-Ring, Support

C

ME 4310-250- 15/16 (2)

C - External Oil Lines and Fittings, Exploded View; Model 9M250RPV

Figure 46. -Continued

Page 85. Paragraph 115.1, change heading as follows: Intake and Exhaust Manifold, Models 6M250RPV and 9M250RPV

Paragraph 115.1b, change word "both" to "all".

Page 86. Paragraph 119.1b, change word "both" to "all".

Paragraph 119.2 is added after paragraph 119.1.

119.2. Fuel Gage (Model 9M250RPV)

a. Removal.

(1) Refer to figure 55.1 and remove fuel gage.

(2) Refer to figure 28.2 and remove fuel sending unit.

b. Cleaning and Inspection. Cleaning and inspection are the same on all models.

c. *Installation.*

(1) Refer to figure 55.1 and install fuel gage.

(2) Refer to figure 28.2 and install fuel gage sending unit. For wiring diagram, refer to figure 3.2.

Page 87. Paragraph 120, change heading as follows: Tachometer-Hourmeter (Models M250-RPV and 6M250RPV)

Paragraph 120.1 is added after paragraph 120.

120.1. Tachometer-Hourmeter (Model 9M250RPV)

a. Removal. Remove tachometer-hourmeter as instructed on figure 55.1.

b. Cleaning and Inspection. Cleaning and inspection are the same on all models.

c. Installation. Install tachometer-hourmeter as instructed on figure 55.1.

Paragraph 121, change heading as follows: Ammeter (Models M250RPV and 6M250RPV)

Paragraph 121.1 is added after paragraph 121.

121.1. Ammeter (Model 9M250RPV)

a. Removal. Remove ammeter as instructed on figure 55.1.

b. Cleaning and Inspection. Cleaning and inspection are the same on all models.

c. Installation. Install ammeter as instructed on figure 55.1.

Paragraph 122, change heading as follows: Engine Water Temperature Gage (Models M250-RPV and 6M250RPV)

Paragraph 122.1 is added after paragraph 122.

122.1. Engine Water Temperature Gage (Model 9M250RPV)

a. Removal. Remove engine water temperature gage as instructed on figure 55.1.

b. Cleaning and Inspection. Cleaning and inspection are the same on all models.

c. Installation. Install engine water temperature gage as instructed on figure 55.1.

Figure 54. Caption is changed as follows: Fuel gage and sending unit, removal and installation; Models M250RPV and 6M250RPV.

Page 88. Figure 55, change caption as follows: Controls and instruments, removal and installation; Models M250RPV and 6M250RPV.

Figure 55.1 is added after figure 55.

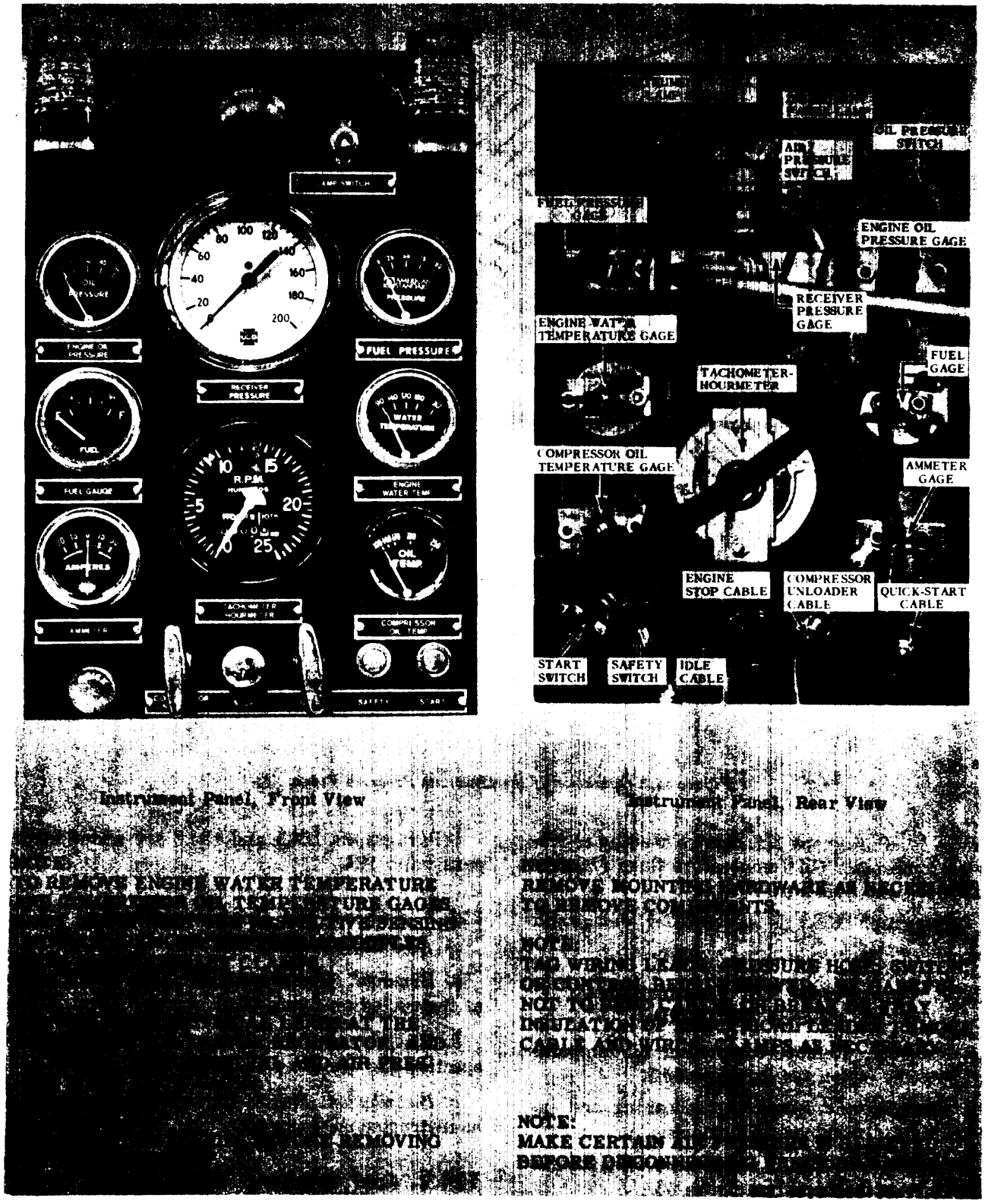


Figure 55.1 Controls and instruments, removal and installation; Model 9M250RPV.

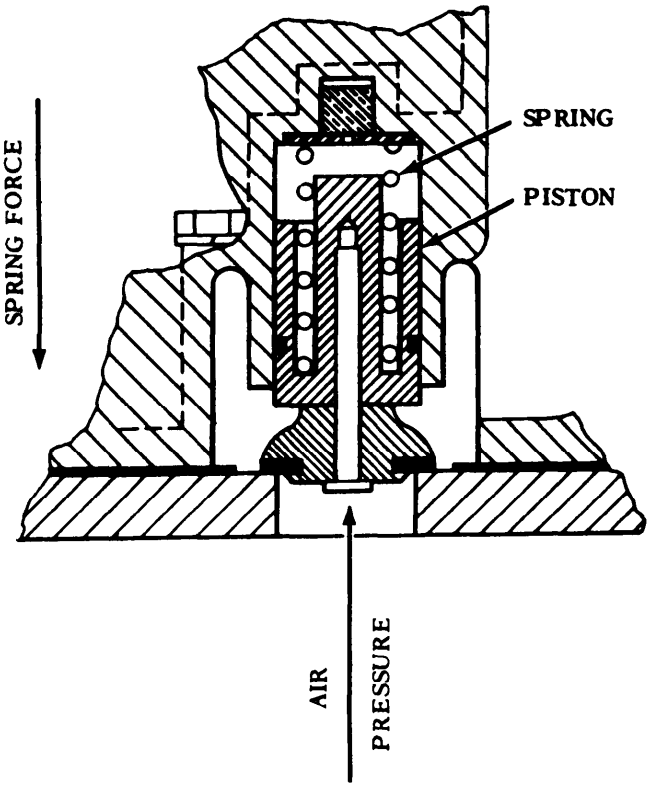


Figure 55.2. Operation of the Minimum Pressure Value.

Page 89. Paragraph 123, change heading as follows: Compressor Oil Temperature Gage (Models M250RPV and 6M250RPV).

Paragraph 123.1 is added after paragraph 123.

123.1. Compressor Oil Temperature Gage (Model 9M250RPV)

a. Removal. Remove compressor oil temperature gage as instructed on figure 55.1.

b. Cleaning and Inspection. Cleaning and inspection are the same on all models.

c. Installion. Install compressor oil temperature gage as instructed on figure 55.1.

Paragraph 124, change heading as follows: Engine Oil Pressure Gage (Models M250RPV and 6M250RPV)

Paragraphs 124.1 and 124.2 are added after paragraph 124.

124.1. Engine Oil Pressure Gag. (Model 9M250RPV)

a. Removal. Remove engine oil pressure gage as instructed on figure 56.1.

b. Cleaning and Inspection. Cleaning and inspection are the same on all models.

c. Installation. Install engine oil pressure gage as instructed on figure 55.1.

124.2. Fuel Pressure Gage (Model 9M250RPV)

a. Removal. Remove fuel pressure gage as instructed on figure 55.1.

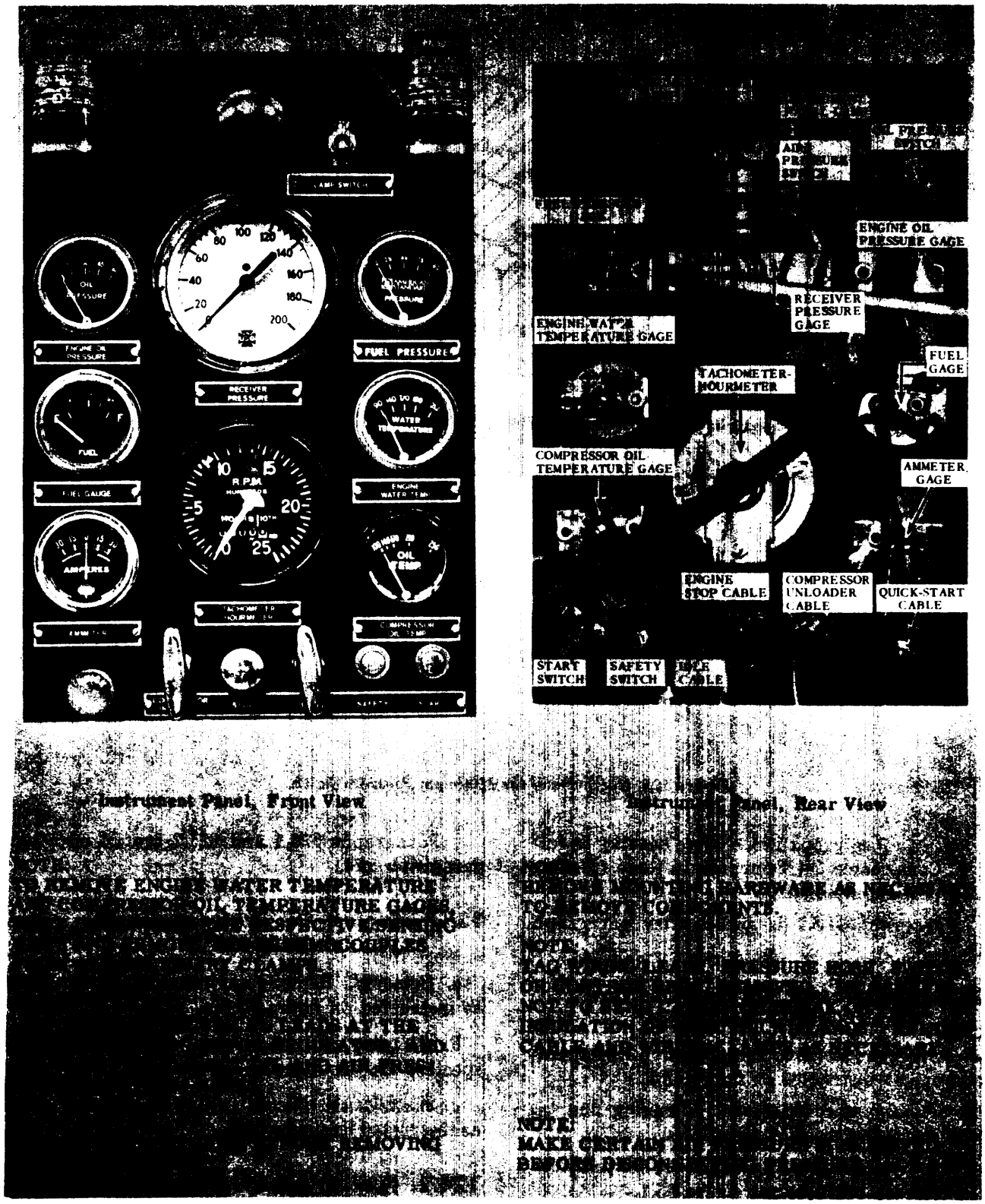


Figure 55.1. Controls and instruments, removal and installation; Model 9M250RPV.

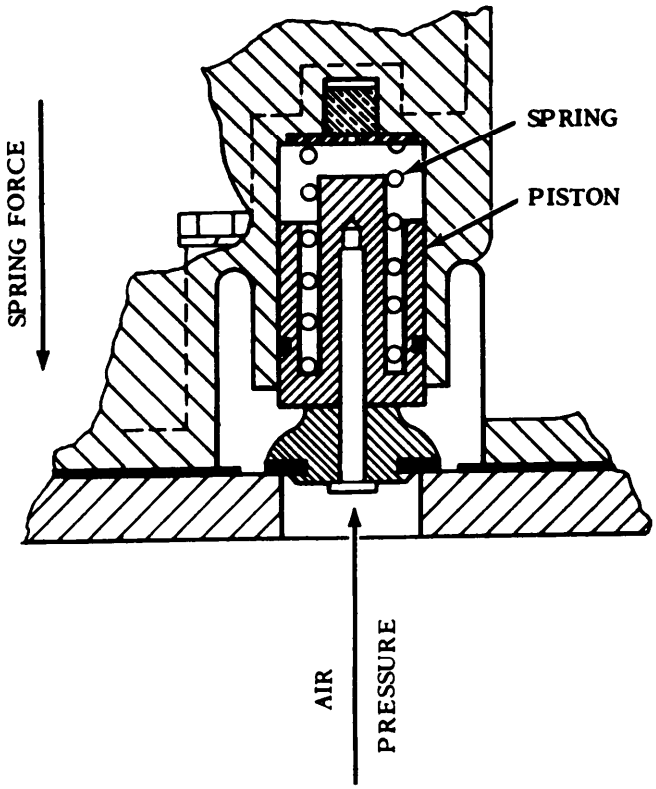


Figure 55.2. Operation of the Minimum Pressure Value.

Page 89. Paragraph 123, change heading as follows: Compressor Oil Temperature Gage (Models M250RPV and 6M250RPV).

Paragraph 123.1 is added after paragraph 123.

123.1. Compressor Oil Temperature Gage (Model 9M250RPV)

a. Removal. Remove compressor oil temperature gage as instructed on figure 55.1.

b. Cleaning and Inspection. Cleaning and inspection are the same on all models.

c. Installation. Install compressor oil temperature gage as instructed on figure 55.1.

Paragraph 124, change heading as follows: Engine Oil Pressure Gage (Models M250RPV and 6M250RPV.

Paragraphs 124.1 and 124.2 are added after paragraph 124.

124.1. Engine Oil Pressure Gage (Model 9M250RPV)

a. Removal. Remove engine oil pressure gage as instructed on figure 55.1.

b. Cleaning and Inspection. Cleaning and inspection are the same on all models.

c. Installation. Install engine oil pressure gage as instructed on figure 55.1.

124.2. Fuel Pressure Gage (Model 9M250RPV)

a. Removal. Remove fuel pressure gage as instructed on figure 55.1.

b. Cleaning and Inspection.

(1) Clean fuel pressure 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 fuel pressure gage as instructed on figure 55.1.

Paragraph 125, change heading as follows: Idle Cable (Models M250RPV and 6M250RPV)

Paragraph 125.1 is added after paragraph 125.

125.1. Idle Cable (Model 9M250RPV)

a. Removal. Remove idle cable as instructed on figure 55.1.

b. Cleaning and Inpection. Cleaning and inspection are the same on all models.

c. Installation. Install idle cable as instructed on figure 55.1.

Paragraph 126, change heading as follows: Stop Cable (Models M250RPV and 6M250RPV)

Paragraph 126.1 is added after paragraph 126.

126.1. Stop Cable (Model 9M250RPV)

a. Removal. Remove stop cable as instructed on figure 55.1.

b. Cleaning and Inspection. Cleaning and inspection are the same on all models.

c. Installation. Install stop cable as instructed on figure 55.1.

Paragraph 127, change heading as follows: Compressor Unloader Cable (Models M250RPV and 6M250RPV)

Paragraph 127.1 is added after paragraph 127.

127.1. Compressor Unloader Cable (Model 9M250RPV)

a. Removal. Remove compressor unloader cable as instructed on figure 65.1.

b. Cleaning and Installation. Cleaning and inspection are the same on all models.

c. Installation. Install compressor unloader cable as instructed on figure 65.1.

Paragraph 128, change heading as follows: Start Switch (Models M250RPV and 6M250-RPV)

Paragraph 128.1 is added after paragraph 128.

128.1. Start Switch (Model 9M250RPV)

a. Removal. Remove start switch as instructed on figure 55.1.

b. Cleaning and Inspection. Cleaning and inspection are the same on all models.

c. Installation. Install start switch as instructed on figure 55.1.

Paragraph 129, change heading as follows: Safety Switch (Models M250RPV and 6M250-RPV)

Paragraph 129.1 is added after paragraph 129.

129.1. Safety Switch (Model 9M250RPV)

a. Removal. Remove safety switch as instructed on figure 55.1.

b. Cleaning and Inspection. Cleaning and inspection are the same on all models.

c. Installation. Install safety switch as instructed on figure 55.1.

Paragraph 130, change heading as follows: Receiver Pressure Gage (Models M250RPV and 6M250RPV)

Paragraphs 130.1 and 130.2 are added after paragraph 130.

130.1. Receiver Pressure Gage (Model 9M250RPV)

a. *Removed.* Remove receiver pressure gage as instructed on figure 55.1.

b. Cleaning and Inspection. Cleaning and inspection are the same on all models.

c. Installation. Install receiver pressure gage as instructed on figure 55.1.

130.2. Air Pressure Switch Model 9M250RPV)

a. Removal. Remove air pressure switch as instructed on figure 55.1.

b. Cleaning and Inspection.

(1) Clean the air pressure switch with a clean, dry cloth.

(2) Inspect switch terminals and threaded part of switch for damage. Replace as necessary.

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

c. Installation. Install air pressure switch as instructed on figure 55.1.

Page 90. Paragraph 131, change heading as follows: Lamp Switch (Models M250RPV and 6M250RPV)

Paragraph 131.1 is added after paragraph 131.

131.1 Lamp Switch (Model 9M250RPV)

a. Removal. Remove lamp switch as instructed on figure 55.1.

b. Cleaning and inspection. Cleaning and inspection are the same on all models.

c. Installation. Install lamp switch as instructed on figure 55.1.

Paragraph 132, change heading as follows: Instrument Panel Lamp (Models M250RPV and 6M250RPV)

Paragraph 132.1 is added after paragraph 132.

132.1. Instrument Panel Lamp (Model 9M250RPV)

a. Removal. Remove instrument panel lamp as instructed on figure 55.1.

b. Cleaning and Inspection. Cleaning and inspection are the same on all models.

c. Installation. Install instrument panel lamp as instructed on figure 55.1.

Paragraph 133, change heading as follows: Air Cleaner Restriction Indicators (Models M250-RPV and 6M250RPV)

Paragraph 133.1 is added after paragraph 133.

133.1. Air Cleaner Restriction Indicators (Model 9M250RPV)

a. Removal. Remove either air cleaner restriction indicator as instructed on figure 55.1.

b. Cleaning and Inspection. Cleaning and inspection are the same on all models.

c. Installation. Install either air cleaner restriction indicator as instructed on figure 55.1.

Paragraph 134, change heading as follows: Quick-Start Cable (Models M250RPV and 6M250-RPV)

Paragraph 134.1 is added after paragraph 134.

134.1. Quick-Start Cable (Model 9M250RPV)

a. Removal. Remove quick-start cable as instructed on figure 55.1.

b. Cleaning and Inspection. Cleaning and inspection are the same on all models.

c. Installation. Install quick-start cable as instructed on figure 55.1.

Page 91. Paragraph 135 is superseded as follows :

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, a speed control device, hose reels, and the necessary safety devices and switches required for completion of the system and for 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 (CFM) at a discharge pressure of 100 pounds per square inch (PSI). The oil separator assembly contains a labyrinth and filter arrangement which removes the oil from the air before the air passes through the minimum pressure valve assembly, located on top of the oil separator assembly, and to the hose reels. The minimum pressure valve consists of a valve, spring, and piston arrangement which maintains a minimum air pressure of 40 PSI within the oil separator when the compressor is running, This minimum air pressure is necessary to produce proper oil circulation in the system and efficient air/oil separation. See figure 55.2. The valve is held closed by the piston and spring until air pressure reaches approximately 40 PSI at which time the force of the air pressure moves the valve open and the piston upward allowing compressed air to flow to the hose reels. When air pressure drops below 40 PSI, the force of the spring overcomes air pressure and moves the piston downward closing the valve. The discharge air passes from the minimum pressure valve assembly to the hose reel assemblies and service valves attached to the minimum pressure assembly housing. The oil separator 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 device is also provided. On the M250RPV and 6M250RPV models, the speed control assembly is a pneumatic device of the modulating type. This assembly selects an engine speed and compressor intake opening to suit any discharge air demand within the capacity of the compressor. A moisture separator removes mois-

ture from the air going into the speed control assembly. On the Model 9M250RPV, the compressor air intake valve is mechanical y connected to the engine fuel pump and an air pressure regulator is connected between the oil separator and the intake-unloader. As the air load demand increases, the air pressure regulator controls a flow of air into the intake-unloader to open the valve. This action increases air input and engine speed. As the air pressure reaches the rated value, the air pressure regulator causes the intake valve to close and the engine to return to the low idle speed. Moisture is removed from the air in the control line by an orifice and drain in the intake-unloader cover.

Paragraph 136a, change note as follows:

Note. Do not remove restriction indicator hose on 6M250RPV and 9M25dRPV models.

Page 92. Paragraph 137, change heading as follows: Compressor Air Intake-Unloader Assembly (Models M250RPV and 6M250RPV)

Paragraph 137.1 is added after paragraph 137.

137.1. Compressor Air Intake-Unloader Assembly (Model 9M250RPV)

a. Removal.

(1) Remove all air lines from intake-unloader assembly (fig. 59.2).

(2) Remove blowdown valve from air intake-unloader assembly (para 142.1).

(3) Remove air intake-unloader assembly as instructed on figure 58.1.

b. Cleaning and Inspection. Cleaning and inspection are the same on all models.

c. Installation.

(1) Install air intake-unloader assembly as instructed on figure 58.1.

(2) Install blowdown valve on air intake-unloader assembly (para 142.1).

(3) Install all air lines on intake-unloader assembly (fig. 59.2).

Paragraph 138a is superseded as follows:

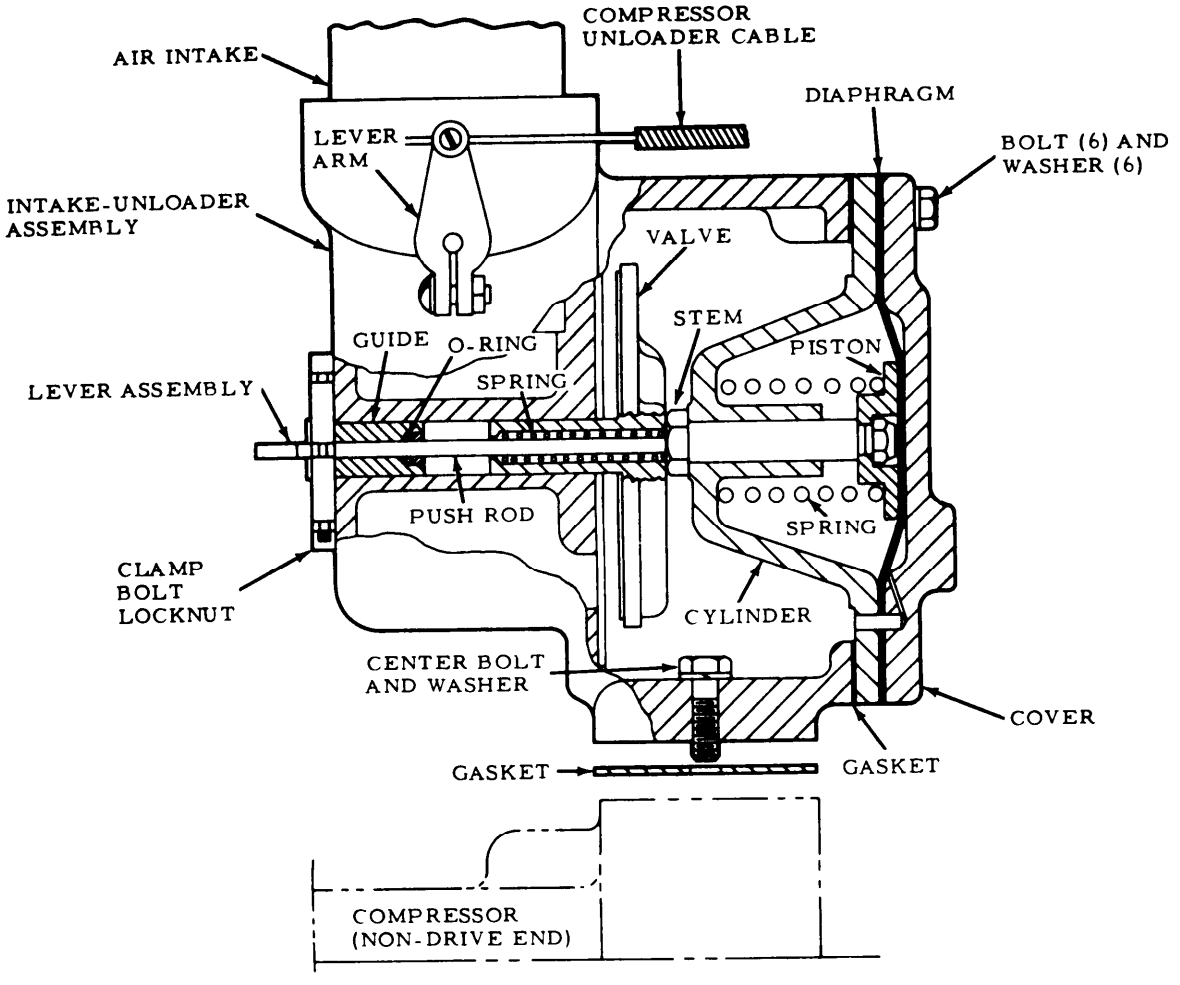
a. Removal. Remove all air lines and fittings (Model M250RPV, fig. 59; Model 6M250RPV, fig. 59.1; Model 9M250RPV, fig. 59.2).

Page 93. Paragraph 138c is superseded as follows :

c. Installation. Install all air lines and fittings (Model M250RPV, fig. 59; Model 6M250RPV, fig. 59.1; Model 9M250RPV, fig. 59.2).

Figure 58, change caption as follows: Compressor air intake-unloader assembly, removal and installation (Models M250RPV and 6M250RPV).

Figure 58.1 is added after figure 58.



STEP 1. DISCONNECT SPEED CONTROL LINKAGE. REMOVE SPEED CONTROL LEVER ASSEMBLY.

STEP 2. REMOVE BOLT AND LOCKNUT FROM GUIDE CLAMP. REMOVE CLAMP.

STEP 3. REMOVE AIR INTAKE HOSE CLAMP AND HOSE.

STEP 4. DISCONNECT COMPRESSOR UNLOADER CABLE FROM LEVER ARM. REMOVE ALL NECESSARY CABLE CLAMPS.

STEP 5. REMOVE BOLTS (2) AND WASHERS (2) FROM BOTTOM FLANGE ATTACHING INTAKE-UNLOADER TO COMPRESSOR.

STEP 6. TO GAIN ACCESS TO CENTER BOLT AND WASHER ATTACHING INTAKE-UNLOADER TO COMPRESSOR, REMOVE BOLTS (6), WASHERS (6), COVER, DIAPHRAGM, AND CYLINDER.

STEP 7. REMOVE CENTER BOLT AND WASHER. REMOVE INTAKE-UNLOADER.

STEP 8. REPLACE ALL GASKETS.

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Figure 58.1. Compressor air intake-unloader assembly, removal and installation; Model 9M250RVP.

Page 94. Paragraph 139, change heading as follows: Minimum Pressure Valve (Models M250-RPV and 6M250RPV)

Paragraph 139.1 is added after paragraph 189.

139.1. Minimum Pressure Valve (Model 9M250RPV)

a. Removal.

(1) Remove hose reels (fig. 61A).

(2) Remove two air lines from minimum pressure valve (Items 1 and 4, fig. 59.2).

(3) Remove minimum pressure valve assembly as instructed on figure 60.1.

b. Cleaning and Inspection.. Cleaning and inspection are the same on all models.

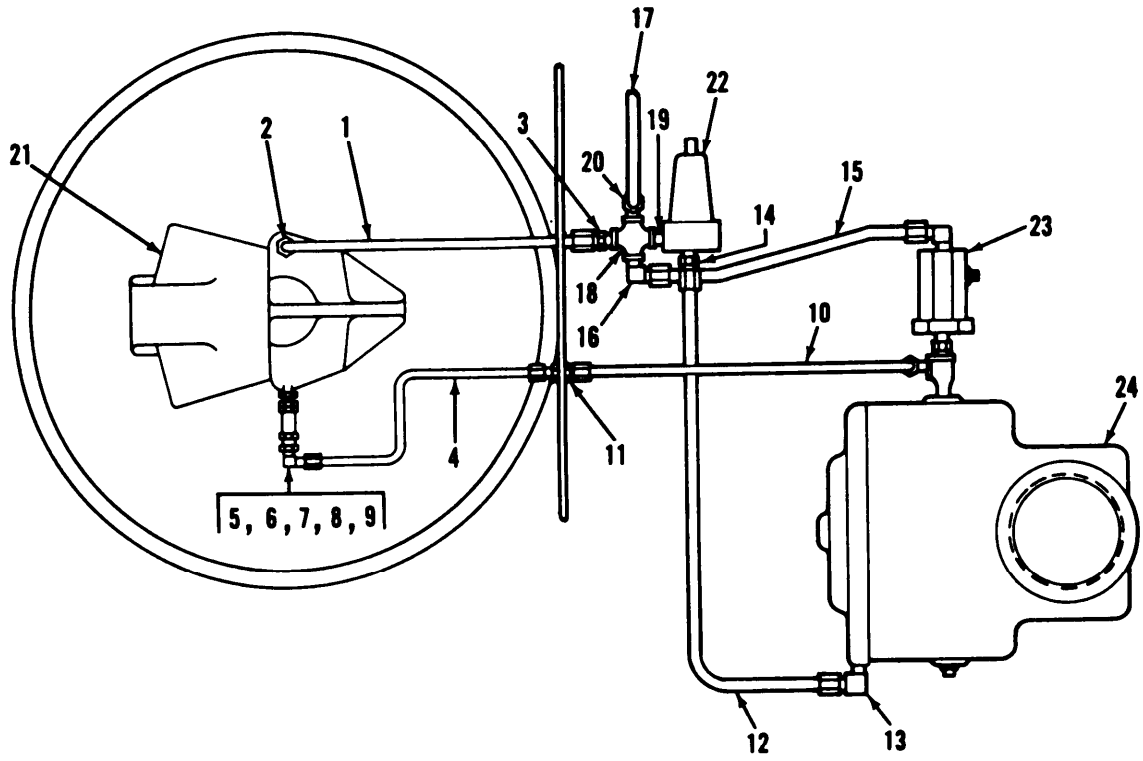
c. Installation.

(1) Install minimum pressure valve assembly as instructed on figure 60.1.

(2) Install two air lines on minimum pressure valve (Items 1 and 4, fig. 59.2).

(3) Install hose reels (figure 61A).

Figure 59.2 is added after figure 59.1.



1 Tube assy, min press. valve to pipe cross
2 Adapter
3 Adapter
4 Tube assy, min press. valve to bulkhead fitting
5 Elbow
6 Orifice
7 Filter
8 Bushing, reducing
9 Nipple, close, 1/8 NPT
10 Tube assy, bulkhead fitting to blowdown valve
11 Fitting, bulkhead
12 Tube assy, air press. regulator to intake-unloader assy
13 Elbow
14 Adapter
15 Tube assy, pipe cross to blowdown valve
16 Elbow
17 Tube assy, pipe cross to air press. gage
18 Cross, pipe
19 Nipple, close, 1/4 NPT
20 Elbow
21 Minimum pressure valve housing
22 Air pressure regulator
23 Blowdown valve
24 Intake-unloader assy

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Figure 59.2. Lines and fittings, removal and installation; Model 9M250RPV.

Page 95. Figure 60, change caption as follows: Minimum pressure valve assembly, removal and installation (Models M250RPV and 6M250RPV).

Figure 60.1 is added after figure 60.

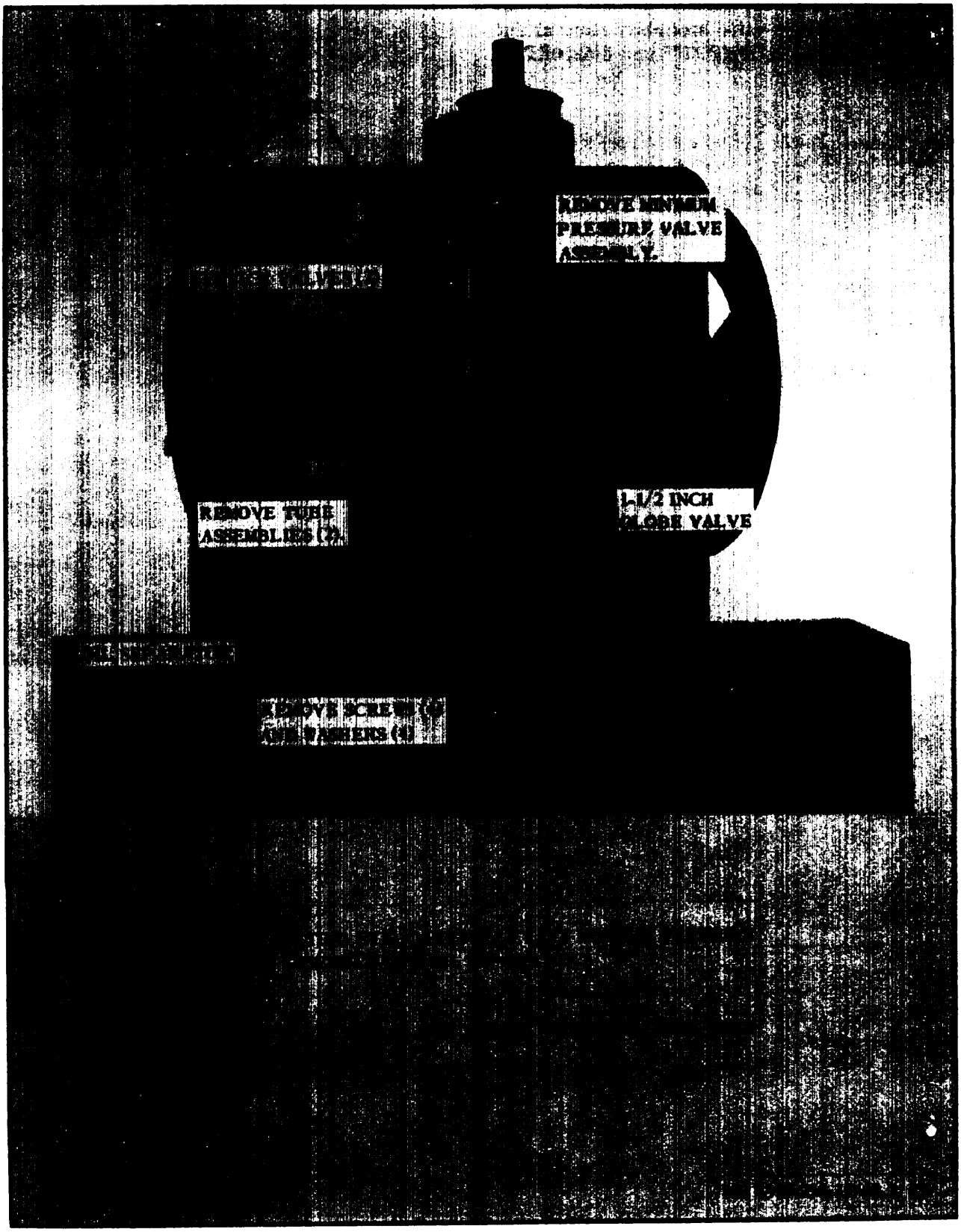


Figure 60.1. Minimum pressure valve assembly, removal and installation; Model 9M250RPV.

Paragraph 140.1, change heading as follows: Hose Reels (Models 6M250RPV and 9M250RPV)

Page 96. Paragraph 142, change heading as follows: Blowdown Valve (Models M250RPV and 6M250RPV)

Paragraph 142.1 is added after paragraph 142.

142.1. Blowdown Valve (Model 9M250RPV)

a. Removal. Remove blowdown valve assembly as instructed on figure 63.1.

b. Cleaning and Inspection. Cleaning and inspection are the same on all models.

c. Installation. Install blowdown valve assembly as instructed on figure 63.1.

Paragraph 144.2 is added after paragraph 144.1.

144.2. Moisture Separator (Model 9M250RPV)

The moisture separator on the Model 9M250RPV is incorporated into the compressor air intake-control assembly. Refer to paragraph 227.2 for maintenance instructions.

Page 97. Figure 61.1B, change caption as follows: Hose reels, exploted view; Models 6M250-RPV and 9M250RPV.

Page 98. Figure 63, change caption as follows: Blowdown valve assembly, removal and installtion; Models M250RPV and 6M250RPV.

Figure 63.1 is added after figure 63.

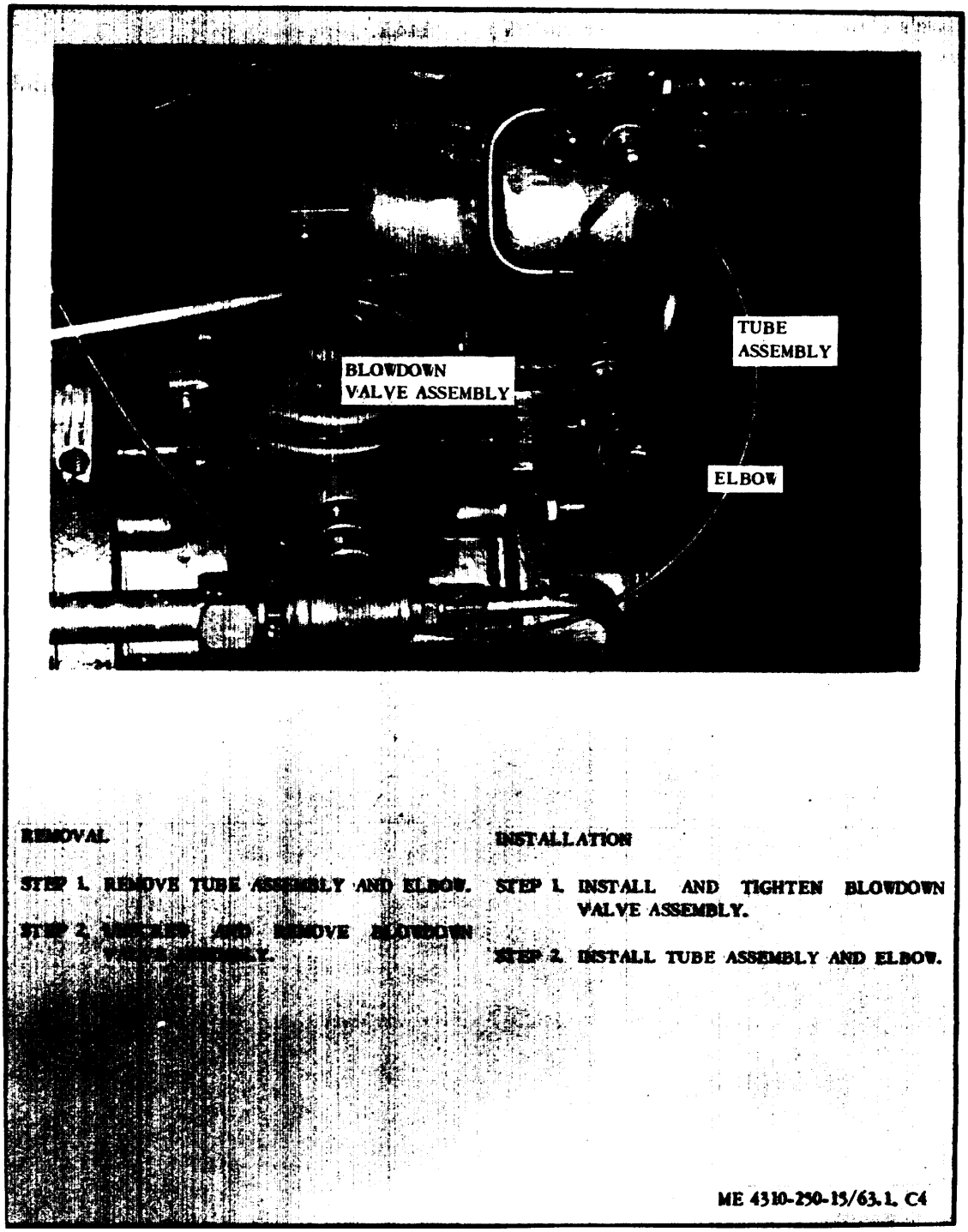


Figure 63.1. Breakdown valve assembly, removal and installation; Model 9M250RPV.

Figure 65A. Change caption as follows: A—Moisture separator and speed control, removal and installation; Models M250RPV and 6M250-RPV.

Page 100. Figure 65C, change caption as follows: C-Engine speed control, adjustments; Models M250RPV and 6M250RPV.

Page 101. Paragraph 145, change heading as follows: Speed Control (Models M260RPV and 6M250RPV)

Paragraphs 145.1 and 146.2 are added after paragraph 146.

145.1. Speed Control Linkage (Model 9M250RPV)

a. Removal. Remove speed control linkage as instructed on figure 65.2.

b. Cleaning and Inspection.

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

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

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

c. Installation. Install speed control linkage as instructed on figure 65.2.

d. Adjustment. Adjust speed control linkage as instructed on figure 65.2.

145.2. Air Pressure Regulator (Model 9M250RPV)

a. Removal. Remove air pressure regulator as instructed on figure 65.3.

b. Cleaning and Inspection.

(1) Clean air pressure regulator with an approved cleaning solvent.

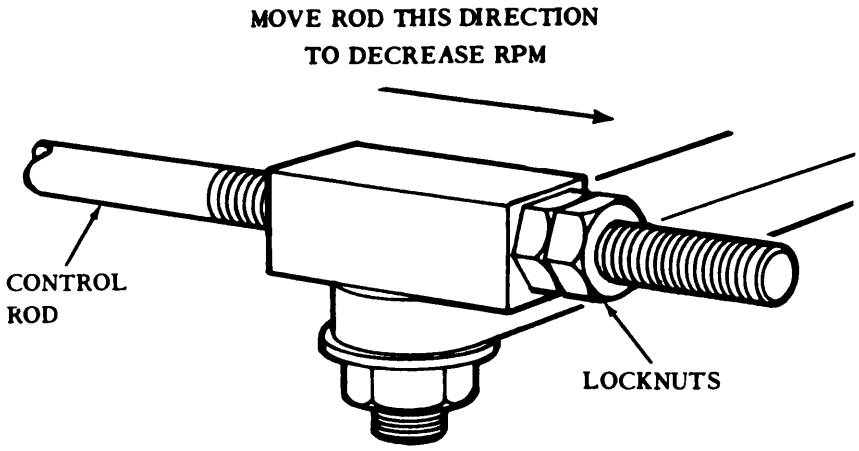
(2) Inspect for cracks, breaks, damaged threads, or any other damage. Replace as necessary.

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

c. Installation. Install air pressure regulator as instructed on figure 65.3.

d. Adjustment. Adjust the air pressure regultor as instructed on figure 65.3.

Figures 65.2 and 65.3 are added after figure 65.1.



STEP 1. START ENGINE (PARA 16) AND ALLOW EQUIPMENT TO REACH OPERATING TEMPERATURES.

STEP 2. WITH UNLOADER CABLE IN, KEEP ENGINE AT LOW IDLE (AIR DISCHARGE VALVES CLOSED). LOOSEN LOCK NUTS AND MOVE CONTROL ROD AS REQUIRED TO SET ENGINE SPEED AT 900 RPM. TIGHTEN NUTS.

STEP 3. RECYCLE AIR COMPRESSOR UNIT SEVERAL TIMES BY OPENING AND CLOSING AN AIR DISCHARGE VALVE. OBSERVE TACHOMETER EACH TIME TO ENSURE ENGINE LOW IDLE REMAINS AT 900 RPM AND FULL LOAD SPEED AT 1800 RPM.

STEP 4. STOP ENGINE (PARA 17).

B - Adjustment.

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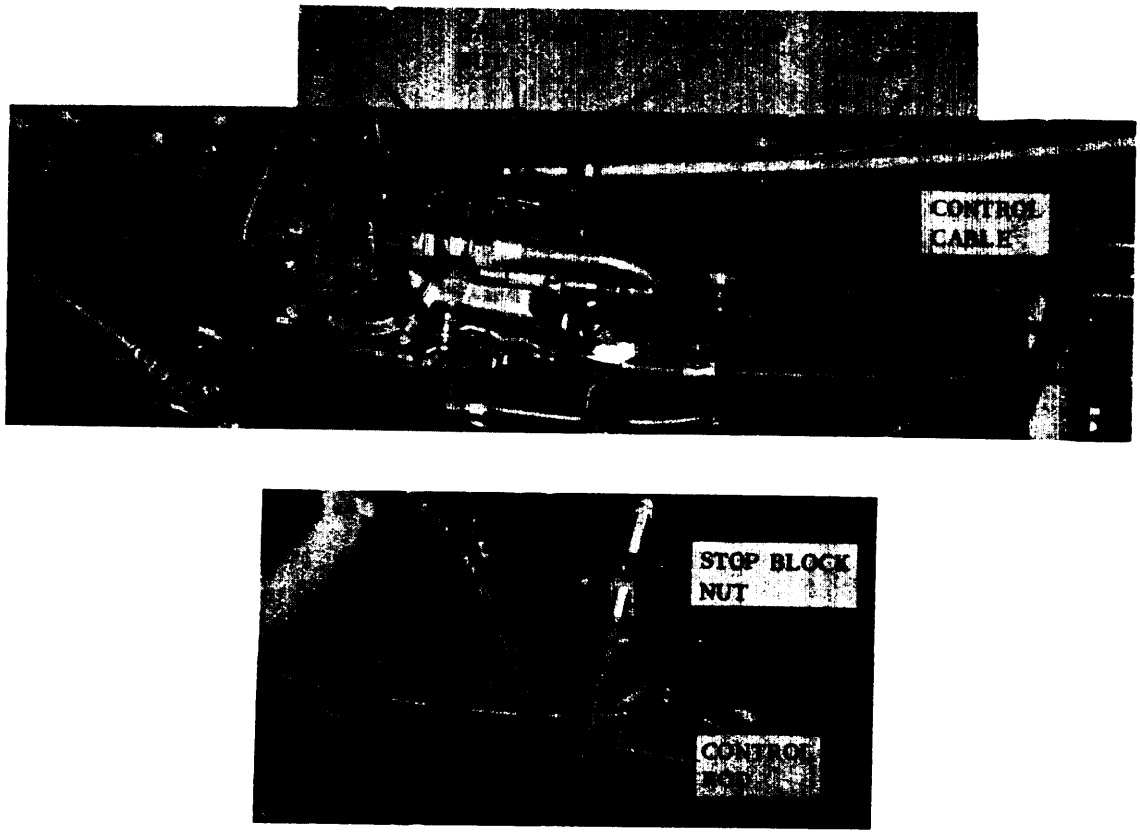
Figure 65.2. Speed control linkage, removal and installation; Model 9M250RPV.



REMOVAL

STEP 1. REMOVE SPRING. DISCONNECT CONTROL CABLE.

STEP 2. REMOVE NUT AND BALL JOINT. REMOVE BALL JOINT FROM CONTROL ROD.

STEP 3. REMOVE NUT AND STOP BLOCK. REMOVE STOP BLOCK FROM CONTROL ROD.

INSTALLATION

STEP 1. INSTALL STOP BLOCK ON CONTROL ROD. INSTALL STOP BLOCK AND NUT TO LEVER.

STEP 2. INSTALL BALL JOINT ON CONTROL ROD. INSTALL BALL JOINT AND NUT ON FUEL PUMP LEVER.

STEP 3. CONNECT CONTROL CABLE. INSTALL SPRING.

A

A - Removal and Installation. **ME 4310-250-15/65.2. C4**

Figure 65.2 —Continued.

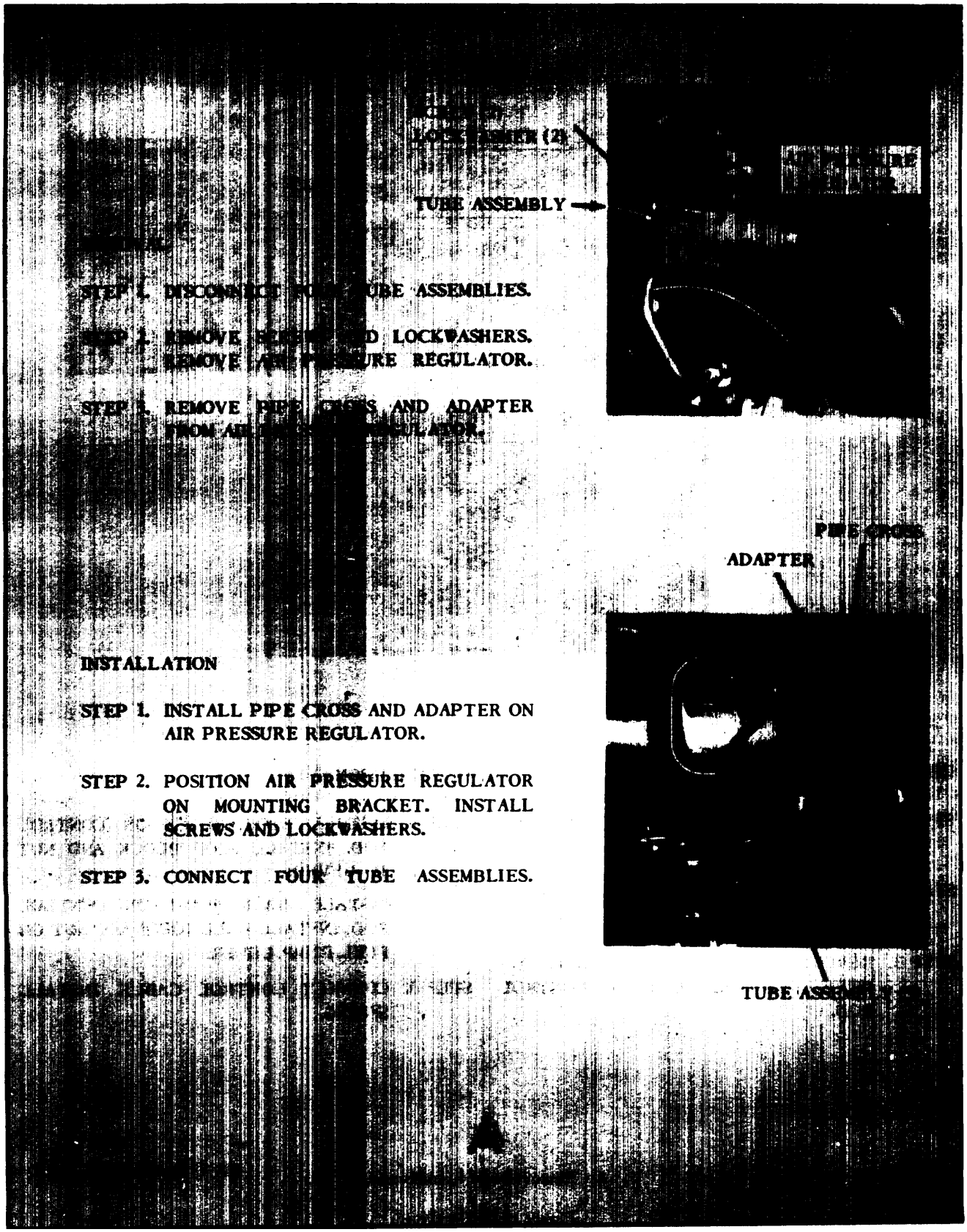
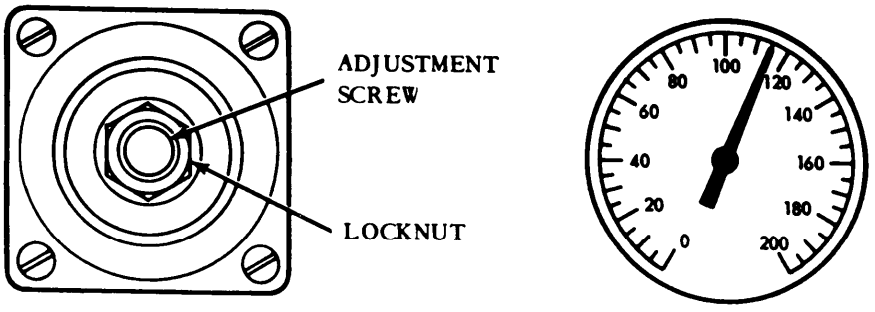


Figure 65.3. Air pressure regulator, removal and installation; Model 9M250RPV.



A - AIR PRESSURE REGULATOR

B - AIR PRESSURE GAGE

STEP 1. START ENGINE (PARA 16) AND ALLOW EQUIPMENT TO REACH OPERATING TEMPERATURES. LOOSEN LOCKNUT ON AIR PRESSURE REGULATOR ADJUSTING SCREW.

STEP 2. WITH UNLOADER CABLE IN, CLOSE ALL AIR DISCHARGE VALVES. ADJUST AIR PRESSURE REGULATOR TO OBTAIN A READING OF 115-117 PSI ON AIR PRESSURE GAGE WHEN ENGINE IS AT IDLE (900 RPM). IF AIR PRESSURE RISES ABOVE 117 PSI, TURN ADJUSTING SCREW ON AIR PRESSURE REGULATOR IN DIRECTION TO DECREASE AIR PRESSURE AND BLEED OFF EXCESS AIR BY OPENING AN AIR DISCHARGE VALVE. AFTER EXCESS AIR HAS BEEN DISCHARGED, CLOSE VALVE AND READJUST AIR PRESSURE REGULATOR TO OBTAIN 115-117 PSI.

STEP 3. RECYCLE AIR COMPRESSOR UNIT SEVERAL TIMES BY OPENING AND CLOSING AN AIR DISCHARGE VALVE. OBSERVE AIR PRESSURE GAGE EACH TIME TO ENSURE PRESSURE SETTING REMAINS STABLE. TIGHTEN LOCKNUT ON AIR PRESSURE REGULATOR ADJUSTING SCREW.

STEP 4. STOP ENGINE (PARA 17).

B - Adjustments ME 4310-250-15/65.3. C4

Figure 65.3 -Continued.

Page 108. Paragraph 151a(5), at end of sentence, add: (Models M250RPV and 6M250RPV).

Page 104. Figure 67, change callout as follows: ONE l/2-POUND CHARGE BETWEEN SPEED CONTROL AND FLYWHEEL HOUSING (MODELS M250RPV AND 6M250RPV).

Paragraphs 154b and c. In first sentence, change word "skid" to "unit".

Page 105. Paragraph 154n (1), delete the word "skid".

Paragraph 155 is superseded as follows:

155. Loading Equipment for Shipment

Use appropriate materiels and handling equipment sufficient to lift or tow the air compressor unit onto the carrier. Block and tie the unit to the carrier to assure that it will not move during transit.

Paragraph 156a, delete the word "skid".

Paragraph 156b, is superseded as follows:

b. Every effort should be made to provide covered storage for the air compressor unit. If covered storage is not available, select a firm, level, well-drained storage location that is protected from prevailing winds. After positioning a trailer mounted unit, lock the parking brakes and block the wheels using heavily constructed wooden chocks. Cover the air compressor unit with a tarpaulin or other suitable waterproof covering and secure in a manner that will provide maximum protection from the elements including severe weather conditions.

Paragraph 157, delete the word "skid".

Page 106. Paragraph 161c is superseded as follows:

c. Compressor Classification and Rating.

(1) *Model M250RPV rotary air compressor.*

Type - - - - - - - - - - - - - - - - - - Sliding Vane, Air, Rotary, DED
Model - - - - - - - - - - - - - - - - - Davey Compressor Co.
M250RPV
Part No. - - - - - - - - - - - - - - - -45741
Stages - - - - - - - - - - - - - - - - -One
Air Delivered - - - - - - - - - - -250 CFM
Air Pressure - - - - - - - - - - - - - 100 PSI

(2) Model 6M250RPV Rotary Air Compressor.

Type - - - - - - - - - - - - - - - - - - Sliding Vane, Air, Rotary, DED
Model - - - - - - - - - - - - - - - - - - Davey Compressor Co.
6M250RPV
Part No. - - - - - - - - - - - - - - - 60600
Stages - - - - - - - - - - - - - - - - - One
Air Delivered - - - - - - - - - - - - - 250 CFM
Air Pressure - - - - - - - - - - - - - - 100 PSI

(3) *Model 9M250RPV Rotary Air Compressor.*

Type - - - - - - - Sliding Vane, Air, Rotary, DED
Model - - - - - Davey Compressor Co.
9M250RPV
Part No. - - - - - - - -62050
Stages - - - - - - - - - - - - - - - - One
Air Delivered - - - - - - - - - 250 CFM
Air Pressure - - - - - - PSI

Page 107. Paragraph 161h, change heading as follows :

h. Wiring Diagram (Models M250RPV and 6M250RPV). See figure 68.

Paragraph 161h.1 is added after paragraph 161h.

h.1. Wiring Diagram (Model 9M250RPV). See figure 68.1.

Paragraph 161j, change heading as follows:

j. Compressor Air System Tubing (Model M250RPV). See figure 70.

Paragraphs 161j.1 and j.2 are added after paragraph 161j.

j.1. Compressor Air System Tubing (Model 6M250RPV). See figure 70.1.

j.2. Compressor Air System Tubing (Model 9M250RPV). See figure 70.2.

Page 108. Figure 68, caption is changed as follows : Schematic Wiring diagram; Models M250RPV and 6M250RPV.

Page 111. Table 4. Add:

Component	Manufacturer's dimensions and tolerances in inches		Desired clearance		Maximum allowable wear and clearance
	Min.	Max.	Min.	Max.	
MINIMUM PRESSURE VALVE					
Spring free length	**4**				
BLOWDOWN VALVE					
Spring free length	**1-3/8**				
AIR PRESSURE REGULATOR					
Adjusting spring free length	**1.81**				
Stem return spring free length	**23/32**				

Figure 68.1 is added after figure 68.

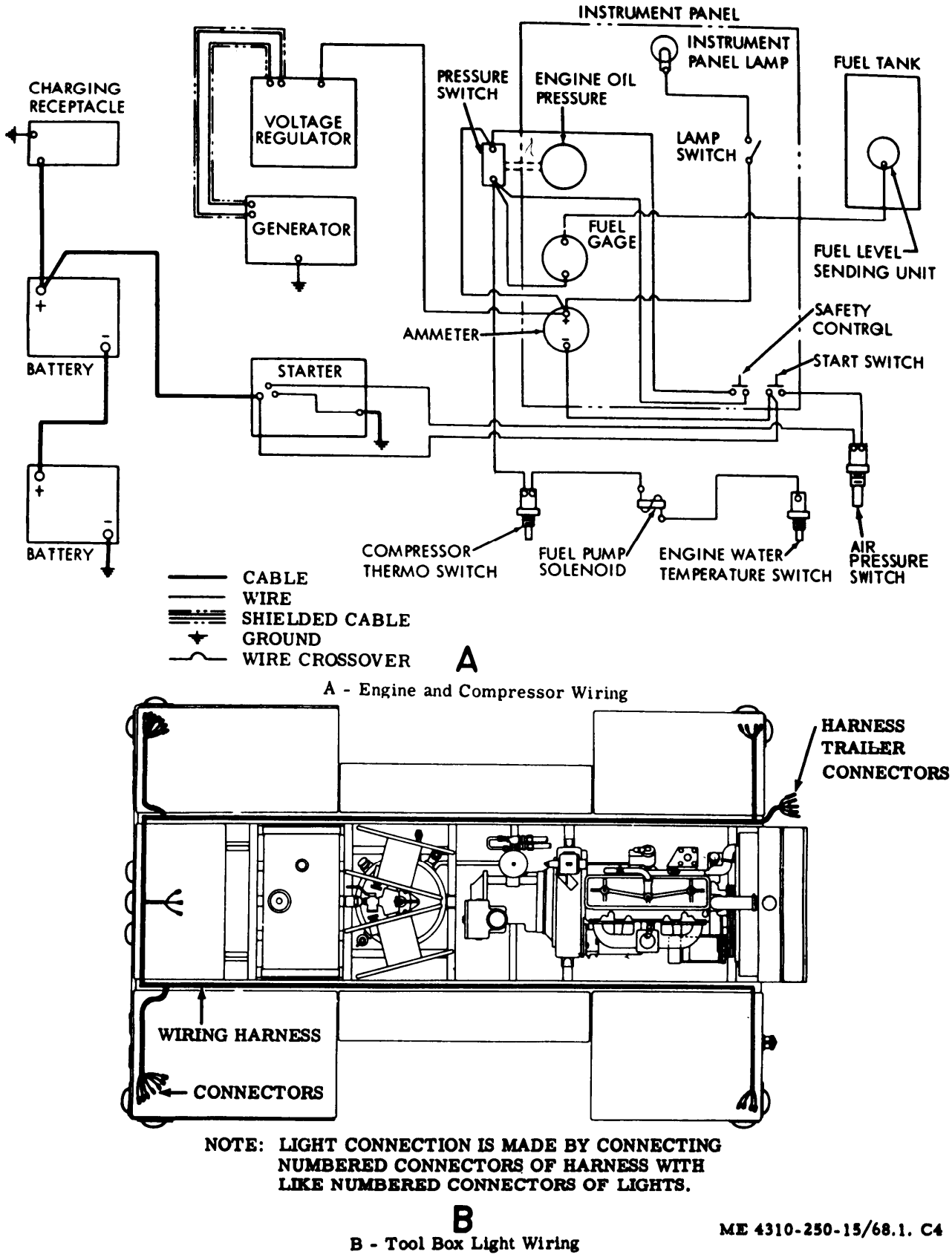


Figure 68.1. Schematic wiring diagram; Model 9M250RPV.

Page 112. Figure 70.2 is added after figure 70.1.

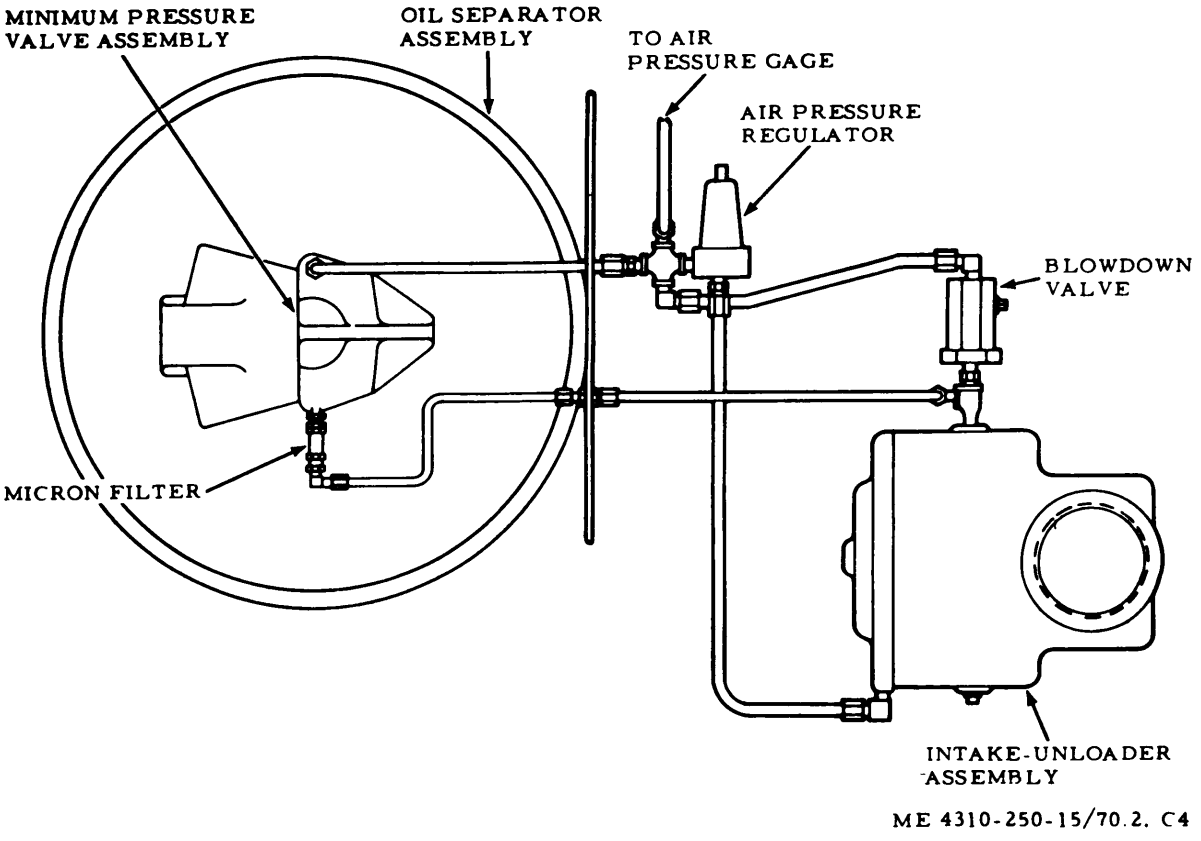


Figure 70.2. Compressor air system tubing, schematic diagram; Model 9M250RPV.

Page 113. Paragraph 162, delete the word "skid".

Paragraph 165, delete the word “skid”.

Page 115. Paragraph 179, change as follows:

179. Compressor Fails to Build up Proper Air Pressure

Probable cause	*Possible remedy*
Ruptured bellofram in speed control assembly (Models M250RPV and 6M250RPV).	Replace bellofram (para 189).
Incorrect setting of speed control (Models M250-RPV and 6M250RPV).	Adjust (fig. 66).
Defective air pressure regulator (Model 9M-250RPV).	Repair or replace air pressure regulator (para 189.1),
Incorrect setting of air pressure regulator (Model 9M250RPV).	Adjust (fig. 65.3).
Defective air intake-unloader assembly.	Repair or replace intake-unloader assembly (Model M250RPV—para 227), (Model 6M250RPV — para 227.1), and (Model 9M250RPV—para 227.2).
Defective governor in fuel injection pump.	Repair or replace fuel injection pump governor parts (para 195).
Blades sticking in rotor.	Clean and free or replace rotor blades (para 229).

Page 116. Paragraph 180 is changed as follows:

180. Compressor Fails to Load or Unload

Probable cause	*Possible remedy*
Ruptured bellofram in speed control assembly (Models M250RPV and 6M250RPV).	*Replace bellofram (para 189).*

Probable cause	*Possible remedy*
Incorrect setting of speed control (Models M250-RPV and 6M250RPV).	Adjust (fig. 65).
Defective air pressure regulator (Model 9M250RPV).	Repair or replace air pressure regulator (para 189.1).
Incorrect setting of air pressure regulator (Model 9M250RPV).	Adjust (fig. 65.3).
Defective speed control (Models M250RPV and 6M250RPV).	Repair or replace speed control (para 189).
Defective air intake-unloader assembly.	Repair or replace intake-unloader assembly (Model M250RPV—para 227), (Model 6M250RPV—para 227.1) and (Model 9M250RPV—para 227.2).
Dirt on intake-unloader valve seat.	Clean valve seat (Model M250RPV—para 227), (Model 6M250RPV—para 227.1), and (Model 9M250RPV—para 227.2).
Unloading pressure too high or too low.	Adjust speed control (Models M250RPV and 6M250RPV—fig. 65).
	Adjust air pressure regulator (Model 9M250RPV—fig. 65.3).

Paragraph 181, after paragraph heading, add: (Models M250RPV and 6M250RPV)

Paragraph 184a(9), add: (Models M250RPV and 6M250RPV)

Paragraphs 184a (9.1) and (9.2) are added after paragraph 184a(9):

(9.1) Remove engine speed control linkage. Refer to figure 65.2 (Model 9M250RPV).

(9.2) Remove air pressure regulator. Refer to figure 65.3 (Model 9M250RPV).

Paragraph 184a (10), change as follows:

(10) Remove necessary lines and fittings. Refer to paragraph 138.

Paragraph 184b (2), change as follows:

(2) Install lines and fittings. Refer to paragraph 138.

Paragraph 184b (3), add: (Models M250RPV and 6M250RPV)

Paragraphs 184b (3.1) and (3.2) are added after paragraph 184b(3):

(3.1) Install air pressure regulator. Refer to figure 65.3 (Model 9M250RPV).

(3.2) Install engine speed control linkage. Refer to figure 65.2 (Model 9M250RPV).

Page 118. Paragraph 185a(3) is superseded as follows:

(9) Remove lines and fittings as necessary. Refer to para 109 and para 138.

Paragraph 185a(5) is superseded as follows:

(5) Disconnect compressor unloader cable. Refer to figure 55 (Models M250RPV and 6M250-RPV) or figure 55.1 (Model 9M250RPV).

Paragraph 185b (3) is superseded as follows:

(3) Connect compressor unloader cable. Refer to figure 55 (Models M250RPV and 6M250-RPV) or figure 55.1 (Model 9M250RPV).

Paragraph 185b (5) is superseded as follows:

(5) Install lines and fittings. Refer to paragraph 109 and paragraph 138.

Page 119. Paragraph 186a(3) is superseded as follows:

(3) Remove lines and fittings as necessary. Refer to paragraph 109 and paragraph 138.

Paragraph 186b (2) is superseded as follows:

(2) Install lines and fittings. Refer to paragraph 109 and paragraph 138.

Page 120. Paragraph 187, after heading add: (Models M250RPV and 6M250RPV)

Paragraph 187.1 is added after paragraph 187.

187.1. General (Model 9M250RPV)

The fuel tank is mounted on the main frame to the rear of the oil separator. The tank includes a filler cap, a fuel level sending unit, a draincock, and a fuel shutoff cock. Speed control of the engine and air compressor is accomplished with an air pressure regulator and mechanical linkage. The mechanical linkage is connected between the compressor air intake-unloader valve and the engine fuel pump. Every move of the intake-unloader valve results in a corresponding increase or decrease of fuel to the engine fuel injection system. The air pressure regulator controls the movement with the intake-unloader valve and is adjustable to suit any air demand within the capacity of the air compressor unit.

Paragraph 188, after paragraph heading, add: (Model M250RPV)

Paragraph 188.1 is added after paragraph 188.

188.1. Fuel Tank (Models 6M250RPV and 9M250RPV)

a. Removal. Refer to paragraph 88.1 for fuel tank removal.

b. Cleaning, Inspection, and Repair. Refer to paragraph 88.1 for cleaning, inspection, and repair.

c. Installation. Refer to paragraph 88.1 for fuel tank installation.

Paragraph 189, after paragraph heading, add: (Models M250RPV and 6M250RPV)

Paragraph 189.1 is added after paragraph 189.

189.1. Air Pressure Regulator (Model 9M250RPV)

a. Removal and Disassembly.

(1) Refer to paragraph 145.2 for removal of air pressure regulator.

(2) Disassemble air pressure regulator in numerical sequence as illustrated on figure 75.1

b. Cleaning, Inspection, and Repair.

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

(2) Inspect diaphragm and O-ring for cracks, breaks, deterioration, or any other damage. Replace as necessary.

(3) Inspect springs, seats, and stem for cracks, breaks, distortion, or any other damage. Replace as necessary.

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

(5) Inspect attaching hardware for cracks, breaks, damaged threads, distortion, or any other damage. Replace as necessary.

c. Reassembly and Installation.

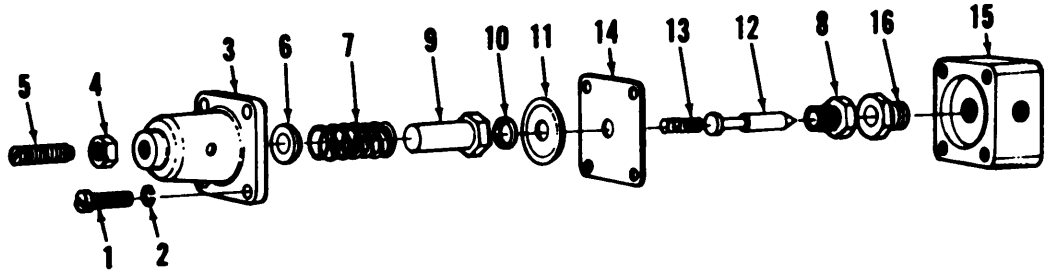
(1) Reassemble air pressure regulator in reverse numerical sequence as illustrated on figure 75.1.

(2) Refer to paragraph 145.2 for installation of air pressure regulator.

d. Adjustment. Refer to figure 65.3B for adjustment of air pressure regulator.

Page 121. Figure 75, after caption, add: (Models M250RPV and 6M250RPV)

Figure 75.1 is added after figure 75.



1 Screw, fil. hd., 1/4-20 x 5/8 in. (4)
2 Lockwasher, toothed, 1/4 in. (4)
3 Housing
4 Nut, 3/8-24 NF
5 Screw, 3/8-24 x 1-1/4 in.
6 Seat
7 Spring
8 Screw
9 Nut
10 O-Ring
11 Plate
12 Stem
13 Spring
14 Diaphragm
15 Base
16 Seat

ME 4310-250-15/75.1. C4

Figure 75.1. Air pressure regulator, disassembly and reassembly; Model 9M250RPV.

Page 165. Paragraph 226 is superseded as follows:

226. General

On all models, the compressor air intake-unloader assembly shuts off the air entering the compressor when a pressure of 115-117 PSI 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 compressor rotor stator assembly being vented to the atmosphere. On the Model 9M250RPV, the air intake-unloader assembly incorporates two additional features: (1) a self-dump type moisture separator, and (2), a connection from the intake valve as part of the speed control linkage.

Paragraph 227.1c. is changed as follows:

c. Cleaning, Inpection, and Repair. Cleaning, inspection, and repair are the same as for the Model M250RPV.

Paragraph 227.2 is added after paragraph 227.1.

227.2. Air Intake-Unloader Assembly, Model 9M250RPV

a. Removal. Refer to paragraph 137.1 and remove the air intake-unloader assembly from the air compressor.

b. Dissembly. Disassemble air intake-unloader assembly in numerical sequence as illustrated on figure 99.2. Since bushing is pressed into housing, O-ring (41) can be removed using a piece of stiff wire with a hook bent on one end.

c. Cleaning, Inspection, and Repair.

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

(2) Inspect springs for defective coils. Refer to table 4 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 speed control parts for cracks, breaks, distortion, or any other damage. Replace defective parts.

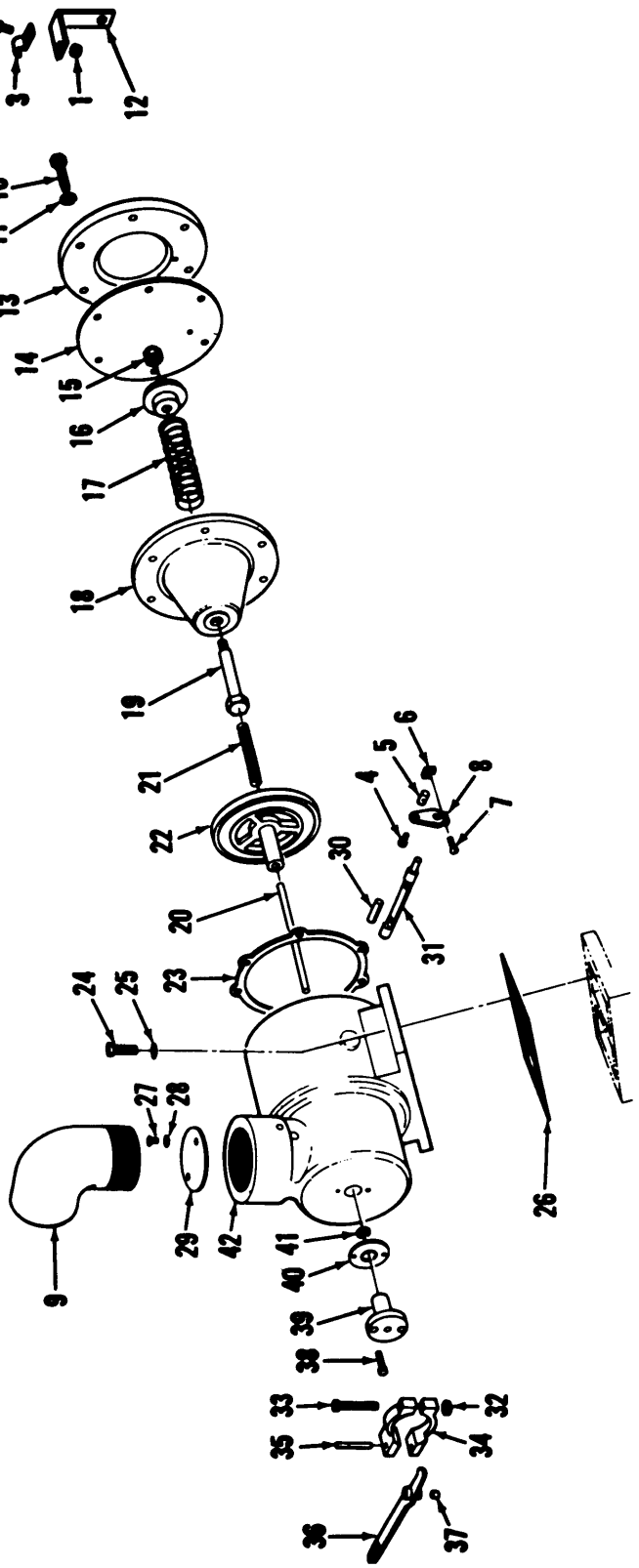
(6) Inspect cover orifice and moisture separator passage for corrosion, cracks, blockage, or any other damage. Clean or replace as necessary.

(7) Inspect all other parts, including mounting hardware, for distortion, or damage. Replace any defective parts.

d. Reassembly. Reassemble air intake-unloader assembly in reverse numerical sequence as illustrated on figure 99.2.

e. Installation. Refer to paragraph 137.1 and install the air intake-loader assembly onto the air compressor.

Page 166. Figure 99.2 is added after figure 99.1.



1 Nut, Spinlock, 1/4-20
2 Scr, Spinlock, 1/4-20 x 1/2 in.
3 Clip, Cable
4 Scr, Mach., RH, No. 8-32 x 3/8 in.
5 Stop, wire
6 Nut, Square, No. 10-32
7 Scr, 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)
11 Washer, Lock, 3/8 in. (6)
12 Bracket, Cable
13 Cover
14 Diaphragm
15 Nut, Lock, 3/8-16
16 Piston
17 Spring
18 Cylinder
19 Stem
20 Push Rod
21 Spring
22 Valve
23 Gasket
24 Screw, 3/8-16 x 1-1/4 in. (3)
25 Lockwasher, 3/8 in. (3)
26 Gasket
27 Scr, Mach. No. 8-32 x 1/4 in. (2)
28 Lockwasher, No. 8 (2)
29 Plate, Valve
30 Pin, Spring
31 Shaft, Valve
32 Locknut, 1/4-20
33 Bolt, 1/4-20 x 2-1/2 in.
34 Clamp
35 Guide
36 Lever
37 Bushing (2)
38 Bolt, Sch, 1/4-20 x 1/2 in. (2)
39 Guide
40 Gasket
41 O-Ring
42 Body

ME 4310-250-15/99.2. C4

Figure 99.2. Air intake-unloader assembly, disassembly and reassembly; Model 9M250RPV.

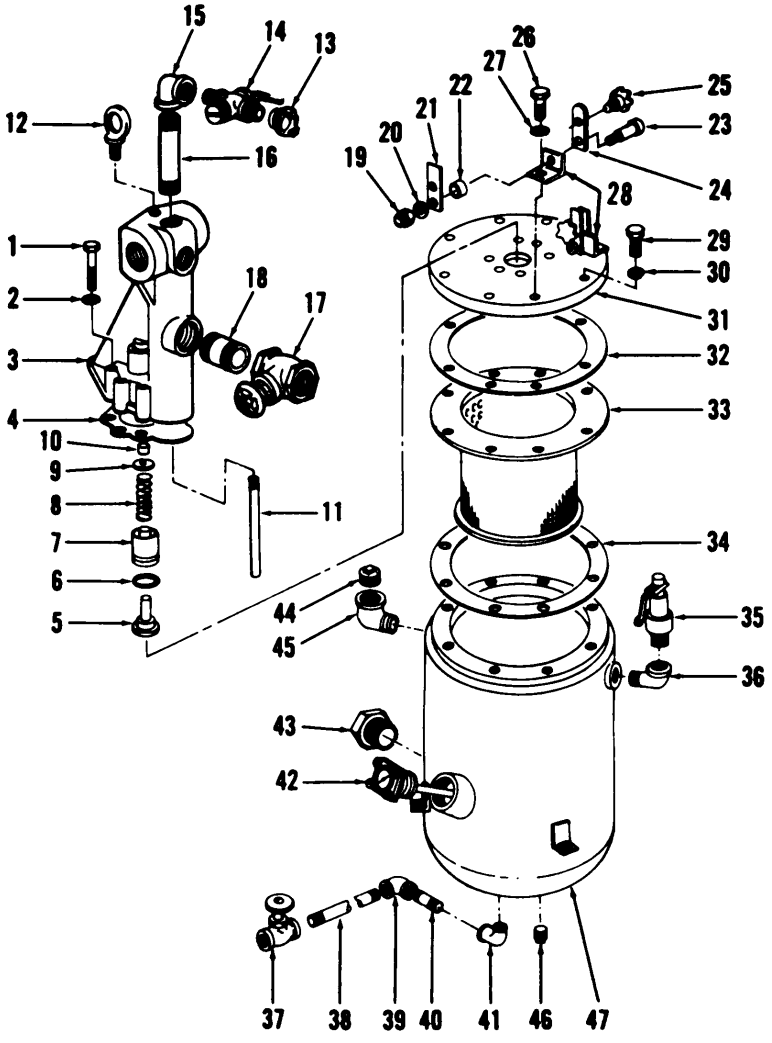
Page 168. Paragraph 281a(2) is superseded as follows :

(2) Disassemble oil separator assembly in numerical sequence as illustrated on figure 101 (Model M250RPV), figure 101.1 (Model 6M250-RPV), or figure 101.2 (Model 9M250RPV).

Paragraph 231c(1) is superseded as follows:

(1) Reassemble oil separator assembly in the reverse of the numerical sequence as illustrated on figure 101 (Model M250RPV), figure 101.1 (Model 6M250RPV), or figure 101.2 (Model 9M250RPV).

Page 169. Figure 101.2 is added after figure 101.1.



1 Bolt, 3/8-16 x 3 in. (4)
2 Lockwasher, Int. tooth, 3/8 in. (4)
3 Housing
4 Gasket
5 Valve Assembly
6 Piston
7 O-Ring
8 Spring
9 Washer, Special
10 Felt
11 Pipe, T.O.E., 1/8 NPTF x 16-1/4 Lg
12 Bolt, Eye
13 Connector, Female (2)
14 Valve, Service (2)
15 Elbow, 3/4 NPT x 90°
16 Nipple, 3/4 NPT x 6 in.
17 Valve, Globe, 1-1/2 NPT
18 Nipple, 1-1/2 NPT x 4 in.
19 Locknut, 3/8-16 (2)
20 Washer, Flat, 1/2 in. (4)
21 Clamp (2)
22 Spacer (2)
23 Bolt, Special (2)
24 Clamp (2)
25 Knob (2)
26 Screw, 5/8-11 x 1-3/4 in. (2)
27 Lockwasher, Int. tooth, 5/8 in. (2)
28 Bracket, R. H. Bracket, L. H.
29 Screw, 5/8-11 x 1-3/4 in. (6)
30 Lockwasher, Int. tooth, 5/8 in. (6)
31 Cover
32 Gasket
33 Element
34 Gasket
35 Valve, Relief
36 Elbow, Street, 3/4 NPT x 90°
37 Valve, Globe, 1/2 NPT
38 Nipple, 1/2 NPT x 10 in.
39 Elbow, 1/2 NPT x 90°
40 Nipple, 1/2 NPT x 2 in.
41 Elbow, Street, 1/2 NPT x 90°
42 Gage, Oil Level
43 Adapter
44 Plug, Pipe, 1-1/4 in. sq. hd.
45 Elbow, Street, 1-1/4 in. x 90°
46 Plug, Pipe, magnetic
47 Tank, Separator

ME 4310-250-15/101.2. C4

Figure 101.2. Oil separator assembly, disassembly and reassembly; Model 9M250RPV.

Page 186. Under "Adjustment Data", add: Add the following items:

	Paragraph	
Air pressure regulator	145.2, 189.1	101, 120
Speed control linkage	145.1	101

Add the following items:

	Paragraph	*Page*
Air pressure regulator	145.2, 189.1	101, 120
Air pressure switch	130.2	89
Air restriction indicators	138, 133.1	90

By Order of the Secretary of the Army:

W. C. WESTMORELAND,
General, United States Army,
Chief of Staff.

Official:

KENNETH G. WICKHAM,
Major General, United States Army,
The Adjutant General.

Distribution:

To be distributed in accordance with DA Form 12-25, Section I, (qty rqr block no. 38) Organizational Maintenance requirements for Air Compressors: 250 CFM.

TM 5-4310-250-15
C 3

CHANGE
No. 3

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D. C., 9 *February 1970*

Operator's Organizational, DS, GS, and Depot Maintenance Manual

COMPRESSOR, ROTARY, AIR DIESEL ENGINE DRIVEN, 250 CFM, 100 PSI, TRAILER MOUNTED (DAVEY MODEL M250 RPV) FSN 4310-075-7064; (DAVEY MODEL 6M250 RPV) FSN 4310-078-2462

TM 5-4310-250-15, 9 November 1965, is changed as follows:
Page 3. Section I is superseded as follows:

Section I. GENERAL

1. Scope

These instructions are published for the use of the personnel to whom the rotary air compressors are issued. The following pages contain information on operation, and organizational, direct and general support, and depot maintenance. Also included are descriptions of main units and their function in relation to other components.

2. Forms and Records

DA Forms and Records used for equipment maintenance will be those prescribed in TM 38-750.

3. Reporting of Equipment Publication Improvements

The reporting of errors, omissions, and recommendations for improving this publication by the individual user is encouraged. Reports should be submitted on DA Form 2028 (Recommended Changes to Publications and forwarded direct to the Commanding General, U.S. Army Mobility Equipment Command, ATTN: AMSME-MPP, 4300 Goodfellow Blvd , St. Louis, Mo. 63120.
Page 33, item 3. The following is added:
"After each shutdown."
Page 35. Item 5 is superseded as follows:

5 MOISTURE SEPARATOR. Disassemble moisture separator, clean thoroughly; while unit is apart, inspect the element and clean or replace as required.

Page 101. Paragraph 144.1 is superseded as follows:

144.1. Moisture Separator Model 6M250RPV

a. Removal.

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

(2) Refer to figure 65.1B and remove the moisture separator.

b. Disassembly. Refer to figure 65.2B and disassemble the moisture separator.

c. Cleaning, Inspection, and Repair.

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

(2) Inspect for cracks, breaks, stripped or damaged threads, and worn or defective felt or packing.

(3) Replace a defective or unserviceable moisture separator.

Note. Open drain cock and drain sump after every shutdown.

d. Reassembly. Refer to figure 65.2B and reassemble the moisture separator.

e. Installation.

(1) Refer to figure 65.1B and install the moisture separator. Installation should be made as close as possible to the point where the air is being used.

Caution: Never use a small size unit than pipe line size.

(2) Install with the arrow on top of the unit pointing in direction of the air flow.

Page 101. Figure 65.2B is added as follows:

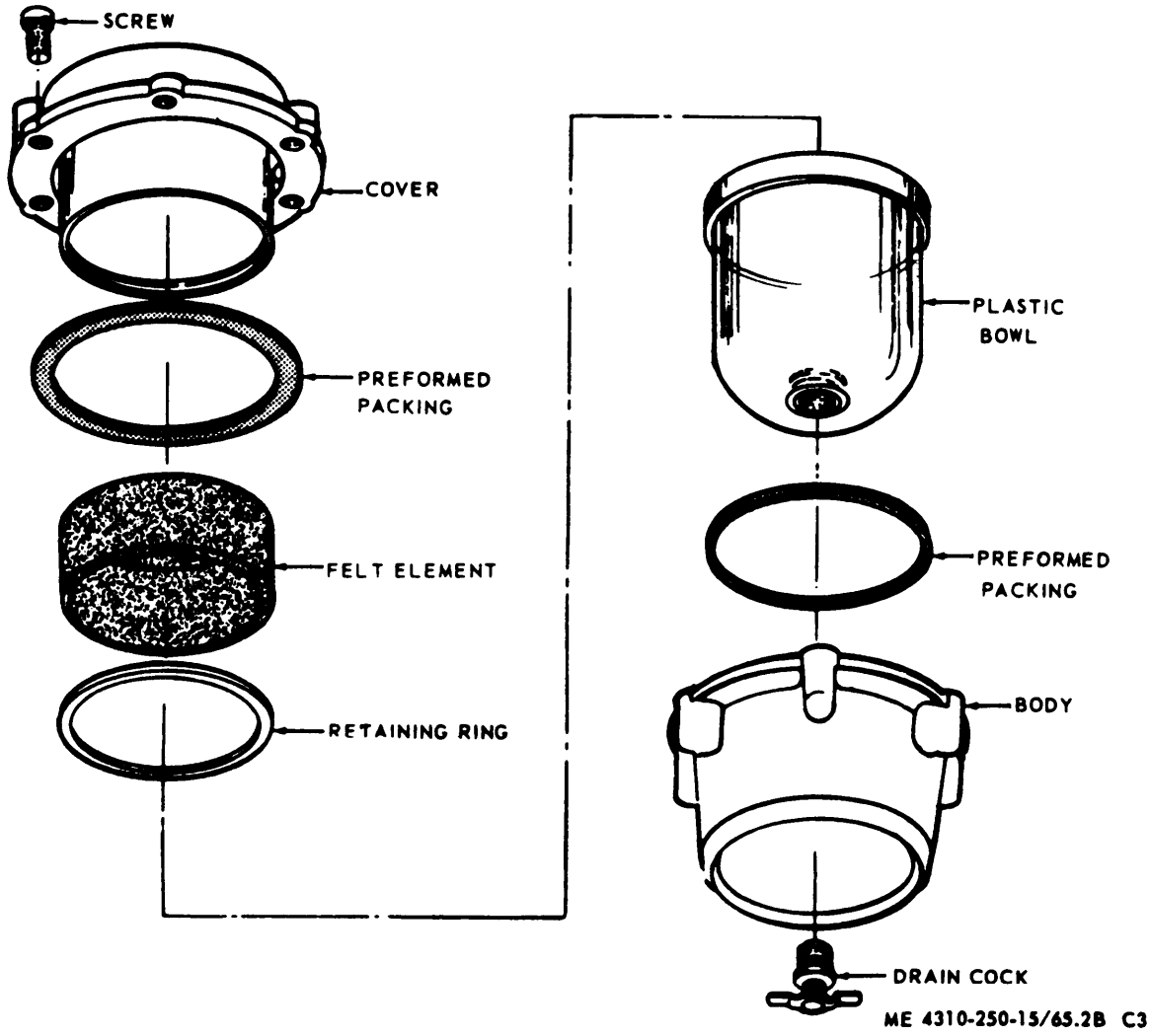


Figure 65.2B. Moisture separator, dissasembly and reassembly.

Page 176. Section II of appendix II is superseded as follows:

Section II. BASIC ISSUE ITEMS

(1) SMR CODE	(2) Federal stock No.	(3) Description — Ref No. & Mfr Code — Usable on code	(4) Unit of meas	(5) Qty inc in unit	(6) Qty furn with equip	(7) Illustration (A) Fig No	(7) Illustration (B) Item No.
		GROUP 01 ACCESSORIES					
PC	7520-559-9618	CASE, Operator and maintenance publications.	EA				
PC	4210-555-8837	ESTINGUISHER Fire, 2¾ lb MIL-E-52031.	EA	1			
		GROUP 02 PUBLICATIONS					
PC		DA Technical manual: TM 5-4310-250-15.	EA	1			
PC		DA Technical manual: TM 9-2330-247-14.	EA	1			
PC		DA Lubrication Order: LO 5-4310-250-12.	EA	1			

Page 177, section III. In columns (2) and (3) the entries under group 5001 are changed to read as follows:

(2)	(3)
	OIL LUBRICATING: 5 gal pail as follows:
9150-265-9435(2)	OE 30
9150-265-9428(2)	OE 10
9150-242-7603(2)	OES

In column (3) under group 5012, "OE 10" is changed to read "OE 30"; and "OE 30" is changed to read "OE 10."

In column (6), the following note is added after note (10):

(11) The compressor crankcase and speed control will contain the same lubrication as used in the engine crankcase item 0101.

Page 183, section II of maintenance allocation chart, group 5009. The following is added after line 3.

(1) Group No.	(2) Assembly Group	(3) Maintenance Functions A Inspect	B Test	C Service	D Adjust	E Align	F Calibrate	G Install	H Replace	I Repair	J Overhaul	K Rebuild	(4) Tools and Equipment	(5) Remarks
	MOISTURE SEPARATOR			C					0	. 0				

By Order of the Secretary of the Army:

W. C. WESTMORELAND,
General, United States Army,
Chief of Staff.

Official:

KENNETH G. WICKHAM,
Major General, United States Army,
The Adjutant General.

Distribution:

To be distributed in accordance with DA Form 12-25, Sec I (qty rqr Block #38), Organizational maintenance requirements for Air Compressors: 250 CFM.

TM 5-4310-250-15
C 2

CHANGE NO. 2

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D. C. *21 June 1969*

Operator, Organizational, DS, GS, and Depot Maintenance Manual
COMPRESSOR, ROTARY AIR; DIESEL ENGINE DRIVEN; 250 CPM, 100 PSI; TRAILER MOUNTED
(DAVEY MODEL M250 RPV) FSN 4310-075-7064; (DAVEY MODEL 6M250 RPV) FSN 4310-075-2462

TM 5-4310-250-15 9 November 1965, is changed as follows:

Page 3. Paragraph 1 is superseded as follows:

1. Scope

a. This manual contains instructions for the use of operator, organizational, direct support, general support and depot personnel maintaining the Rotary Air Compressor as allocated by the maintenance allocation chart. It provides information on the maintenance of the equipment, its accessories, and auxiliaries. This manual also includes instructions for shipment and limited storage.

b. Numbers in parenthesis on illustrations indicate quantity. Numbers preceding nomenclature callouts on illustrations indicates preferred maintenance sequence.

Paragraph 2 is superseded as follows:

2. Forms and Records

a. DA Forms and records used for equipment maintenance will be only those prescribed in TM 38-750.

b. Reports of errors, omissions, and recommendations for improving this publication by the individual user is encouraged. Reports should be submitted on DA Form 2028 (Recommended Changes to DA Publications), and forwarded direct to Commanding General, U.S. Army Mobility Equipment Command, ATTN: AMSME-MPP, 4300 Goodfellow Boulevard, St. Louis, Mo. 63120.

Page 24. Paragraph 25 is superseded as follows:

25. Fire Extinguisher (Monobromotrifluoromethane Type)

The monobromotrifluoromethane type fire extinguisher is generally suitable for all types of fire, except fires involved with LOX (liquid Oxygen) generating equipment. Refer to TB 5-4200-200-10 for the operation and maintenance of the fire extinguisher.

Page 25. Section II is superseded as follows:

Section II. Lubrication

30. Detailed Lubrication Information

a. General. Keep all lubricants in closed containers and store in a clean, dry place away from external heat. Allow no dust, dirt, or other foreign material to mix with the lubricants. Keep all lubrication equipment clean and ready to 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 lubrications point at proper intervals as illustrated in LO 5-4310-250-12.

d. OES Oil.

(1) 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.

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

Page 26. Figure 10 is rescinded.

Page 165. Paragraph 229 is superseded as follows:

229. Air Compressor Assembly

a. Removal.

(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).

b. Disassembly.

(1) Disassemble air compressor assembly (1 through 23, fig. 100) in numerical sequence.

(2) Remove bearing outer race (24) from cover (23).

Note. Do not remove bearing inner race from shaft unless it is to be replaced. If inner race is removed to further disassemble compressor assembly, replace with new bearing.

(3) Pull inner race of bearing (24) from shaft using a wheel puller connected to shaft end and back edge of race. If race will not move, heat race evenly with a torch and remove race quickly with wheel puller.

Caution: Since excessive heat causes softening, any bearing race heated in this manner must be discarded and the entire bearing race replaced.

(4) Remove O-ring (25).

(5) Remove parts (26 thru 37) from stator (45) and remove O-ring (29).

(6) Remove blades (26) and slide rotor (27) from shaft (37) and key (28).

(7) Remove bolts (30), washers (31), cover (32), gasket (33), and oil seal (34).

(8) Press shaft and bearing from cover (35) by supporting cover on the bearing side.

Note. Do not remove bearing from cover unless it is to be replaces.

(9) Remove bearing (36) from shaft using an Arbor Press or the equivalent.

(10) Remove the remaining parts (38 thru 45) in numerical sequence.

c. 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 as necessary.

(3) Inspect rotor blades for cracks, breaks, shipping, excessive wear, or other damage. Replace defective rotor blades in sets.

Note. If blade is worn on one side only; but, otherwise in good condition, turn blade and re-use.

(4) Inspect bearings for freedom of rotations, excessive wear, or other damage. Replace defective bearings as necessary.

(5) Inspect mechanical seal for spring condition, excessive wear, cracks, breaks, or other damage. Replace seal as necessary.

(6) Replace all gaskets and O-rings.

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

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

d. Reassembly.

(1) Assembly stator in reverse numerical sequence (45 thru 38).

(2) Install bearing (36) on shaft (37) using

the following procedures.

(a) Preheat bearing inner race in hot cooking oil to a maximum of 350°F.

Caution: **Do not use a torch or any similar heating device on new bearings, excessive or uneven heat will cause softening. Any race heated in this manner must be discarded and the entire bearing replaced.**

(b) Place the bearing spacer on the drive end of shaft and against the shaft shoulder.

(c) Assemble heated inner race with the outer race.

(d) Place assembly on the shaft, inner face flange facing end of shaft, and press it firmly against spacer.

(3) Press bearing and shaft assembly into cover (35).

(4) Insert oil seal (34) in cover.

(5) Place gasket (33) on cover (32) and mount to cover (35) with washers (30) and bolts (31).

(6) Place key (28; in shaft (37) key slot and slide rotor (27) on shaft.

(7) Insert ball (39) and plug (38) in stator housing (45).

(8) Place O-ring (29) on stator housing.

(9) Insert rotor assembly into stator housing.

(10) Install adapter (16) against cover (35) and mount to stator housing securely with washers (15) and bolts (14).

(11) Insert blades (26) in rotor (27) (table 4).

(12) Pass inner race of non-drive end bearing (24) through centerfold of cover (23).

Note. If inner race does not pass through centerhole of cover, the centerhole must be widened. To widen the centerhole, bore the centerfold to a new diameter of 2.345 to 2.360 inches with a concentricity of 0.020 inches T.I.R. to center of hole.

(13) Preheat inner race of new nondrive end bearing in hot cooking oil to a maximum of 350°F.

Caution: **Do not use a torch or any similar heating device on new bearings, excessive or uneven heat will cause softening. Any race heated in this manner must be discarded and the entire bearing replaced.**

(14) Place preheated inner race on shaft as quickly as possible before it cools, and seat race firmly against shoulder on shaft.

(15) Place O-ring (25) on stator (45) and mount cover to stator with washer (22) and bolts (21).

(16) Insert bearing outer race (24) in cover.

(17) Place gasket (20) on cover (19), mount to cover (23) with washers (18) and bolts (17).

(18) Assemble remaining parts (13 thru 1) in reverse numerical sequence.

e. Installation.

(1) Install the air intake-unloader assembly (para 137).

(2) Install the thermal bypass assembly (para 111).

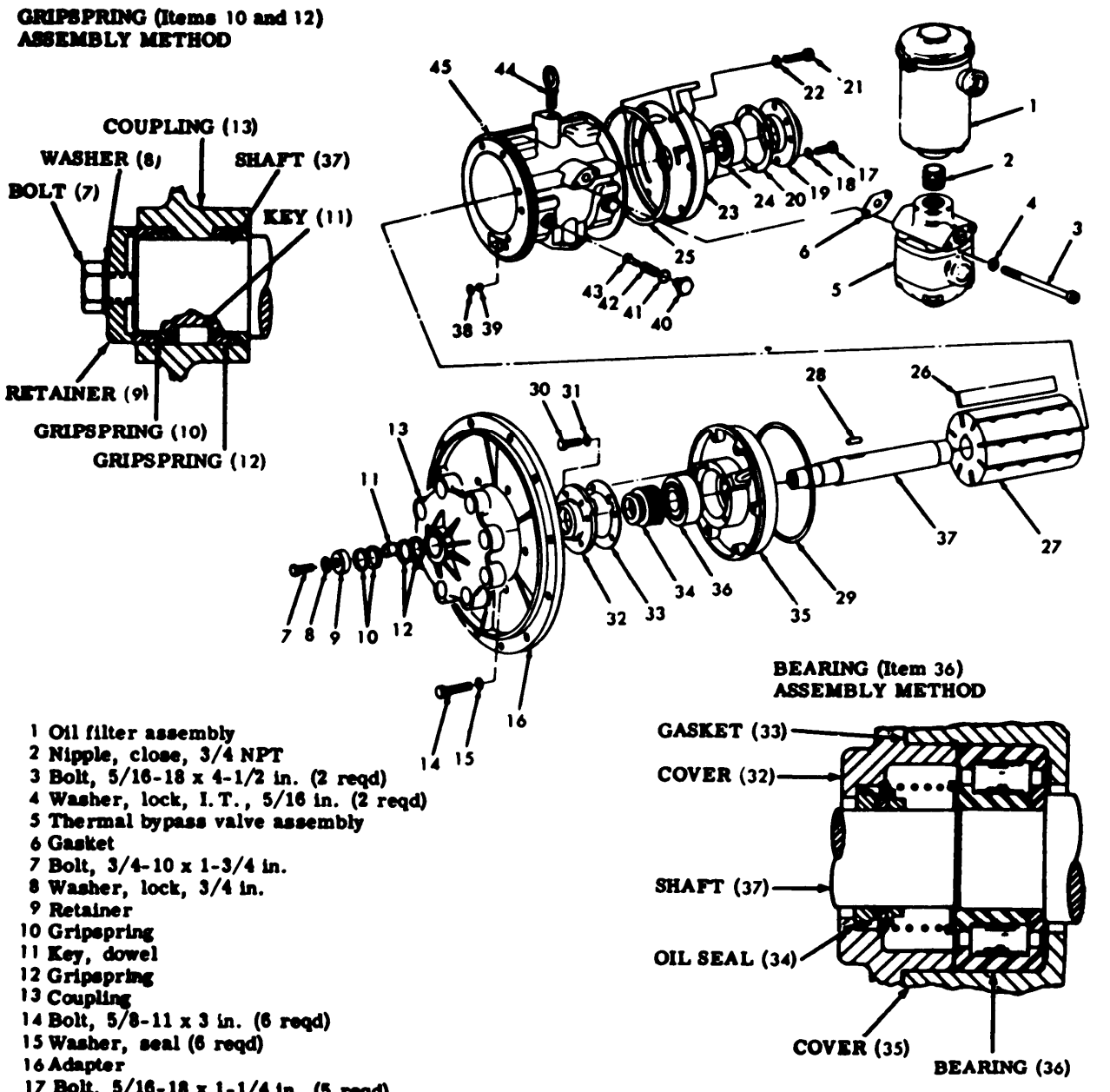
(3) Install the compressor oil filter assembly (para 110).

(4) Install the air compressor assembly on the unit (para 185).

Page 167. Figure 100 is superseded as follows:

Page 172, Appendix I. (as changed by C 1). Under the heading "Lubrication," "LO 5-4310-250-15" is changed to read "LO 5-4310-250-12."

Page 174 thru 176. In appendix II, sections I and II are superseded as follows:



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 Bolt, 5/16-18 x 1-1/4 in. (5 reqd)
18 Washer, lock, 5/16 in. (5 reqd)
19 Cover
20 Gasket
21 Bolt, 5/8-11 x 4 in.
22 Washer, seal (5 reqd)
23 Cover
24 Bearing
25 O-Ring
26 Blade (8 reqd)
27 Rotor
28 Key
29 O-Ring
30 Bolt, 5/16-18 x 1-1/4 in. (6 reqd)
31 Washer, lock, 5/16 in. (6 reqd)
32 Cover
33 Gasket
34 Seal, oil
35 Cover
36 Bearing
37 Shaft
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

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Figure 100. Air compressor assembly, disassembly and reassembly.

APPENDIX II
BASIC ISSUE ITEMS LIST

Section I. INTRODUCTION

1. Scope

This appendix lists items which accompany the compressor or are required for installation, operation, or operator's maintenance.

2. General

This Basic Issue Items List is divided into the following sections:

a. Basic Issue Items – Section II. A list of items which accompany the compressor and are required by the operator/crew for installation, operation, or maintenance.

b. Maintenance and Operating Supplies — Section III. A listing of maintenance and operating supplies required for initial operation.

3. Explanation of Columns

The following provides an explanation of columns in the tabular list of Basic Issue Items, section II.

a. Source, Maintenance, and Recoverability Codes (SMR):

(1) Source code, indicates the selection status and source for the listed item. Source codes are:

Code	*Explanation*
P	Repair parts which are stocked in or supplied from the GSA/DSA, or Army supply system and authorized for use at indicated maintenance categories.
P2	Repair parts which are procured and stocked for insurance purposes because the combat or military essentiality of the end item dictates that a minimum quantity be available in the supply system.
M	Repair parts which are not procured or stocked, but are to be manufactured in indicated maintenance levels.
A	Assemblies which are not procured or stacked as such, but are made up of two or more units. Such component units carry individual stock numbers and descriptions, are procured and stocked separately and can be assembled to form the required assembly at indicated maintenance categories.
X	Parts and assemblies which are not procured or stocked and the mortality of which normally is below that of the applicable end item or component. The failure of such part or assembly should result in retirement of the end item from the supply system.
X1	Repair parts which are not procured or stocked. The requirement of such items will be filled by use of the next higher assembly or component.
X2	Repair parts which are not stocked. The indicated maintenance category requiring such repair parts will attempt to obtain them through cannibalization. Where such repair parts are not obtainable through cannibalization, requirements will be requisitioned, with accompanying justification, through normal supply channels.
C	Repair parts authorized for local procurement. Where such repair parts are not obtainable from local procurement, requirements will be requisitioned through normal supply channels accompanied by a supporting statement of non-availability from local procurement.
G	Major assemblies that are procured with PEMA funds for initial issue only as exchange assemblies at DSU and GSU level. These assemblies will not be stocked above GS and DS level or returned to depot supply levels.

(2) Maintenance code, indicates the lowest category of maintenance authorized to install the listed item. The maintenance level code is:

Code	*Explanation*
C	Operator/crew

(3) Recoverability code, indicates whether unserviceable items should be returned for recovery or salvage. Items not coded are expendable. Recoverability codes are:

Code	*Explanation*
R	Repair parts and assemblies which are economically repairable at DSU and GSU activities and are normally furnished by supply on an exchange basis.
S	Repair parts and assemblies which are economically reparable they will be evacuated to a depot for evaluation and analysis before final disposition.
T	High dollar value recoverable repair parts which are subject to special handling and are issued on an exchange basis. Such repair parts are normally repaired or overhauled at depot maintenance activities.
U	Repair parts specifically selected for salvage by reclamation units because of precious metal content, critical materials, or high dollar value reusable casings or castings.

b. Federal Stock Number. This column in-

dicates the Federal stock number assigned to the item and will be used for requisitioning purposes.

c. Description. This column indicates the Federal item name and any additional description of the item required.

d. Unit of Measure (U/M). A two-character alphabetic abbreviation indicating the amount or quantity of the item upon which the allowances are based, e.g., ea, ft, pr, etc.

e. Quantity Incorporated in Unit. This column indicates the quantity of the item used in the assembly group. A "V" appearing in this column in lieu of a quantity indicates that a definite quantity cannot be indicated (e.g., shims, spacers, etc.).

f. Quantity Furnished with Equipment. This column indicates the quantity of an item furnished with the equipment.

g. Illustration. This column is divided as follows:

(1) *Figure Number.* Indicates the figure number of the illustration in which the item is shown.

(2) *Item Number.* Indicates the callout number used to reference the item in the illustration.

4. Explanation of Columns in the Tabular List of Maintenance and Operating Supplies - Section III

a. Component Application. This column identifies the component application of each maintenance or operating supply item.

b. Federal Stock Number. This column indicates the Federal stock number assigned to the item and will be used for requisitioning purposes.

c. Description. This column indicates the item name and brief description.

d. Quantity Required for Initial Operation. This column indicates the quantity of each maintenance or operating supply item required for initial operation of the equipment.

e. Quantity Required for 8 Hours Operation. This column indicates the estimated quantities required for an average 8 hours of operation.

f. Notes. This column indicates informative notes keyed to data appearing in a preceding column.

Section II. BASIC ISSUE ITEMS

(1) SMR code	(2) Federal stock number	(3) Description: Ref No. & mfr code / Usable on code	(4) Unit of meas	(5) Qty inc in unit	(6) Qty furn with equip	(7) Illustration (A) Figure No.	(7) Illustration (B) Item No.
PC	7520-559-9618	CASE, OPERATIONAL AND MAINTENANCE PUBLICATIONS	ea		1		
		DA LUBRICATION ORDER LO 5-4310-250-12	ea		1		
		DA TECHNICAL MANUAL TM 5-4310-250-15	ea		1		
PC	4210-555-8837	EXTINGUISHER, FIRE	ea		1		

By Order of the Secretary of the Army:

W. C. WESTMORELAND,
General, United States Army,
Chief of Staff.

Official:

KENNETH G. WICKHAM,
Major General, United States Army,
The Adjutant General.

Distribution:

To be distribute in accordance with DA Form 12-25, Sec I (qty rqr Block #38), Organizational maintenance requirements for Air Compressor:

CHANGE
NO. 1

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C. *1 May 1968*

Operator, Organizational, DS, GS, and Depot

Maintenance Manual

COMPRESOR, ROTARY: AIR; DIESEL ENGINE DRIVEN; 250 CFM, 100 PSI; TRAILER MOUNTED (DAVEY MODEL M250 RPV)

FSN 4310-075-7064; (DAVEY MODEL 6M250 RPV) FSN 4310-078-2462

TM 5-4310-250-15, 9 November 1965, is changed as follows:

Contents page and cover page are changed as shown above.

Page 3. After paragraph 1a, “d” is changed to read "b".

Paragraph 1d is superseded as follows:

d. Report of errors, omissions and recommendations for improving this publication by the individual user is encouraged. Reports should be submitted on DA Form 2028 (Recommended Changes to DA Publications) and forwarded direct to the Commanding General, U.S. Army Mobility Equipment Command, ATTN: AMSME-MPP, 4300 Goodfellow Boulevard, St. Louis, MO. 63120.

Page 4. Paragraph 3a is superseded as follows:

a. General. The compressor unit is a trailer mounted, diesel engine driven, sliding vane type air compressor. It furnishes 250 cubic feet of free air per minute at discharge pressure of 100 pounds per square inch. This manual covers the Davey Compressor Models M250RPV and 6M250RPV.

Note. Refer to TM 9-2330-247-14/24P for trailer maintenance.

Page 5. Figure 1. Caption, after line 2 add, “Model M250RPV”

Figure 1.1 is added after figure 1.

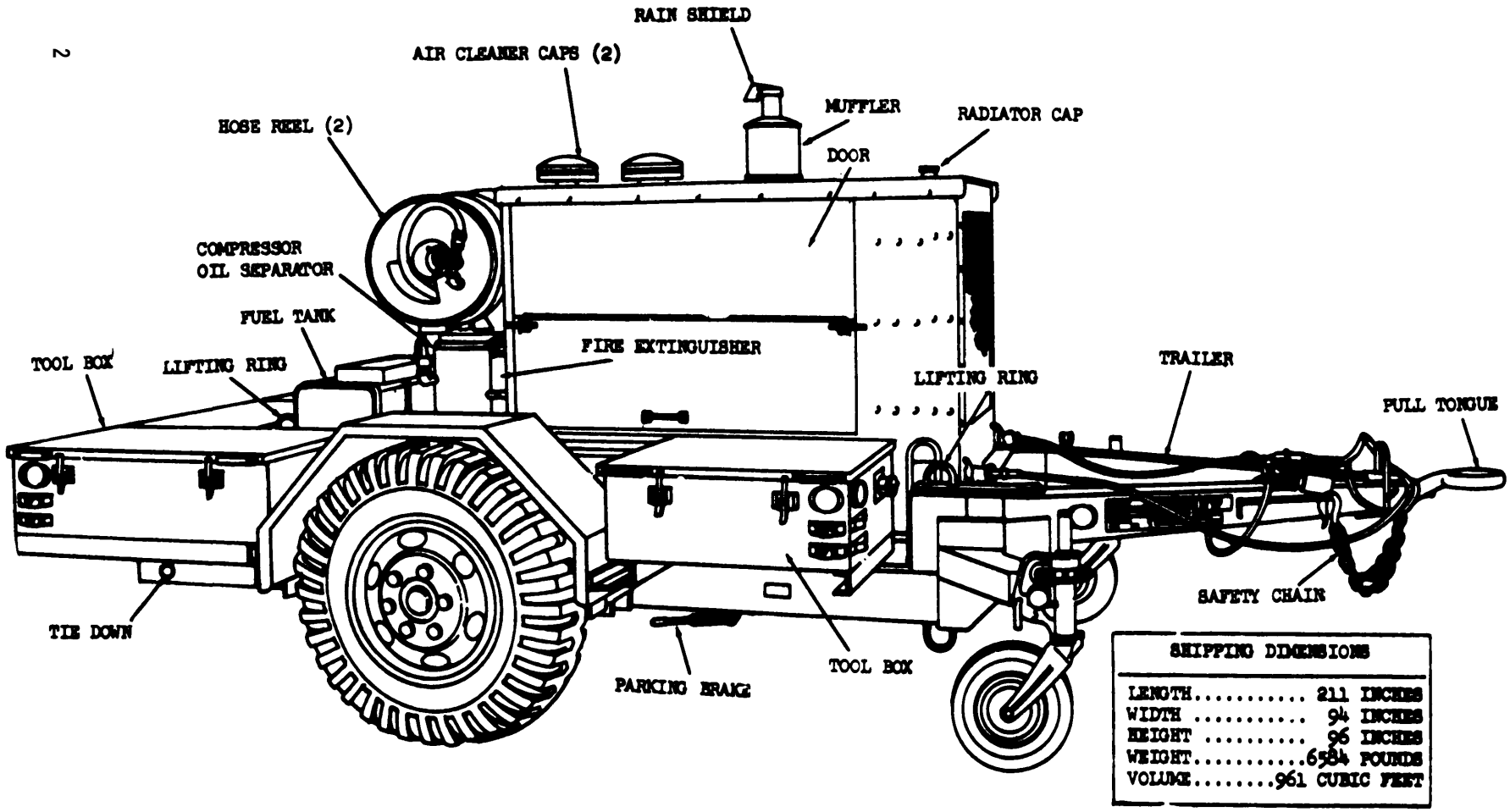


Figure 1.1. Rotary air compressor, trailer mounted, right side view, with shipping dimensions, Model 6M250RPV.

Page 6. Paragraph 4b(1), line 17 is changed to read:

"Mounting ---------- Trailer mounted."

Paragraph 4b (1.1) is added after paragraph 4b(1).

(1.1) 6M250RPV Rotary Compressor.

Manufacturer _ _ _ DAVEY Compressor Company
Model _ _ _ _ _ _ _ _ _ _ _ _ _ _ 6M250RPV
Type _ _ _ _ _ _ _ _ _ _ _ _ _ _ _ Sliding vane, air, rotary, DED
Part number _ _ _ _ _ _ _ 60800
Serial numbers _ _ _ _ _ _ 2P155-13132 thru 2P155-13672, 2P155-13683 thru 2P155-13862, 2P155-13958 thru 2P155-14270
Air delivered _ _ _ _ _ _ _ _ 250 CFM
Air pressure _ _ _ _ _ 100 psi
Stages _ _ _ _ _ _ _ _ _ One
Prime mover _ _ _ _ _ _ _ Diesel
Oil filter _ _ _ _ _ _ _ _ Purolator Products, Inc., Model 62822
Air cleaner _ _ _ _ _ _ Donaldson Col, Inc., Dry type; Model KAX00-0155
Mounting _ _ _ _ _ _ _ _ _ _ Trailer mounted
Federal Stock Number _ _ _ _ _ _ _ _ 4310-078-2462

Page 7. Figure 3 is superseded as follows:

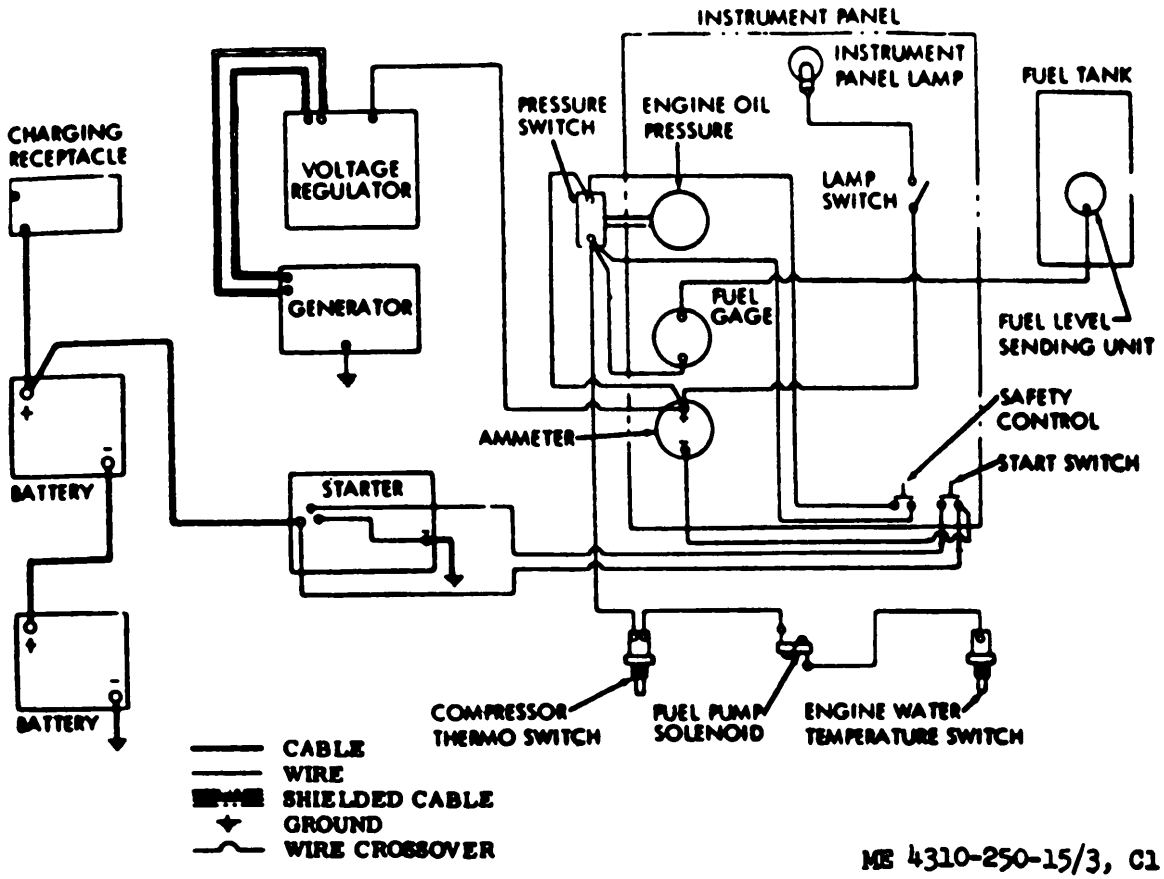


Figure 3. Practical wiring diagram.

Page 8. Paragraph 4b(3)(h), after line 4 add :

"Model 6M250RPV _ _ Dry type, Model KAX00-0155."

Paragraph 5 is superseded as follows:

5. Difference in Models

This manual covers Davey Compressor Models M250RPV and the 6M250RPV diesel engine driven rotary air compressor. The major differences between the models is that the 6M250RPV model has larger air cleaners, a muffler, modified hose reel assemblies, and a modified oil separator assembly.

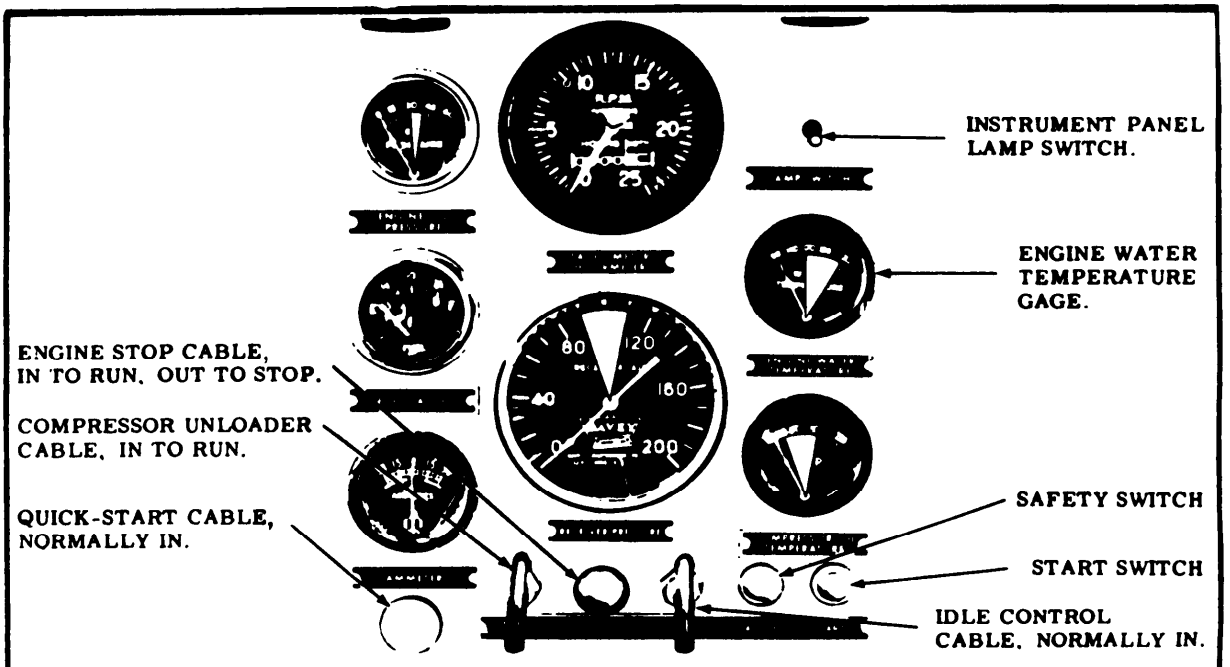
Page 19. Paragraph 16a (3) is added after paragraph 16a(2).

(3) Pull out and lock compressor unloader. Push in when engine runs steady (Approximately 140°F.).

Paragraph 18. After subparagraph b add:

Caution: **Do not operate the compressor with less than 80 PSI in the receiver. If end use allows pressure to fall below 80 PSI partly close outlet valve. Operation below 80 PSI will cause the compressor to overhead and excessive oil comsumption.**

Page 20. Figure 7A is superseded as follows:



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

STEP 2. CLOSE 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. PRESS START SWITCH BUTTON AND SAFETY SWITCH BUTTON SIMULTANEOUSLY. RELEASE START BUTTON WHEN ENGINE STARTS. RELEASE SAFETY BUTTON WHEN OIL PRESSURE IS ACHIEVED.

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 7. WHEN ENGINE STARTS, TO ACHIEVE FAST WARM UP, PARTLY OPEN THE AIR OUTLET VALVE AND ADJUST THE IDLE CONTROL TO FAST IDLE (1000 RPM) BUT THE AIR PRESSURE IN THE RECEIVER MUST BE MAINTAINED ABOVE 80 PSI.

STEP 8. ALLOW ENGINE TO RUN AT FAST IDLE UNTIL ENGINE RUNS STEADY, THEN PUSH IDLE CONTROL CABLE IN AND CLOSE AIR OUTLET VALVE ON HOSE REEL OR SERVICE VALVE THAT WAS OPENED IN STEP 7.

STEP 9. CHECK READINGS OF ALL ENGINE AND COMPRESSOR GAGES.

STEP 10. UNIT IS NOW READY FOR USE. NORMAL OPERATING PRESSURE RANGE IS FROM 90 TO 110 PSI.

CAUTION: DO NOT OPERATE WITH LESS THAN 80PSI IN THE RECEIVER. OPERATION BELOW 80PSI WILL CAUSE THE COMPRESSOR TO OVERHEAT AND EXCESSIVE OIL CONSUMPTION.

NOTE: IF WEATHER IS COLD, PERFORM STEPS 1 THROUGH 5. PULL COMPRESSOR UNLOADER CABLE OUT AND LOCK. PULL QUICK-START CABLE OUT FOR 1 TO 2 SECONDS; THEN WHILE PERFORMING STEP 6, 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. AS SOON AS ENGINE RUNS STEADY, REFERENCE STEP 8. UNLOCK COMPRESSOR UNLOADER AND PUSH IN. IF ENGINE FALTERS AFTER STARTING, ACTUATE QUICK-START CABLE TO KEEP ENGINE RUNNING.

A

A - Instrument Panel Controls

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Figure 7. Starting the compressor.

Pages 33 and 35. Figure 12 and figure 13, at top of page after Davey Compressor Co. Model M250RPV add "Model 6M250RPV".

Page 33. Figure 12, item 2 add:

"*Note.* Check oil level gage for proper compressor oil level while compressor is operating. Stop compressor and open one air outlet valve to relieve all pressure, then fill to proper level."

Page 35. Figure 13, item 2 is superseded as follows:

Item 2. OIL SEPARATOR. Inspect air receiver (oil separator) tank cover gasket, air lines and fitting for leaks. Repair as required. Change oil. Reference current LO.

Page 36. Item 12, line 3, delete "Clean oil pump screen every 500 operating hours."

Item 17, line 2, and "Gage should not read less than 125 lbs. Fully charged fire extinguisher will weigh 4-1/2 lbs".

Items 18 and 19 are added after item 17.

Item 18. MICRONFILTER. Inspect and clean filter element with cleaning solvent and dry with low pressure air.

Item 19. OIL COOLERS. Inspect coolers, line and fittings for leaks and secure mountings. Reference paragraphs 108 and 112.

Page 45. Paragraph 51 after line 12 add:

Probable cause	*Possible remedy*
Leaking fuel injection nozzle.	Clean, repair or replace (para 207).

Page 47. Paragraph 59, line 6 change (para 124) to read "(para 113)".

Page 48. Paragraph 66 after line 8 add:

Probable cause	*Possible remedy*
Lines between speed control and intake unloader, blow down valve, and minimum pressure valve house damaged or leaking.	Tighten, repair or replace as required (para 138).

Page 50. Paragraph 84a, after line 1 add "Model M250RPV".

Paragraph 84a (1.1) is added after paragraph 84a (1).

(1.1) On model 6M250RPV, remove muffler, exhaust pipe, air cleaner caps, air cleaners, and engine starting aids (fig. 27.1).

Paragraph 84c (2.1) is added after 84c (2)

(2.1) On Model 6M250RPV, install the engine starting air, air cleaners, air cleaner clamps, exhaust pipe, and muffler (fig. 27.1).

Page 51. Figure 27. Caption, after line 2 add "Model M250RPV".

Figure 27.1 is added after figure 27.

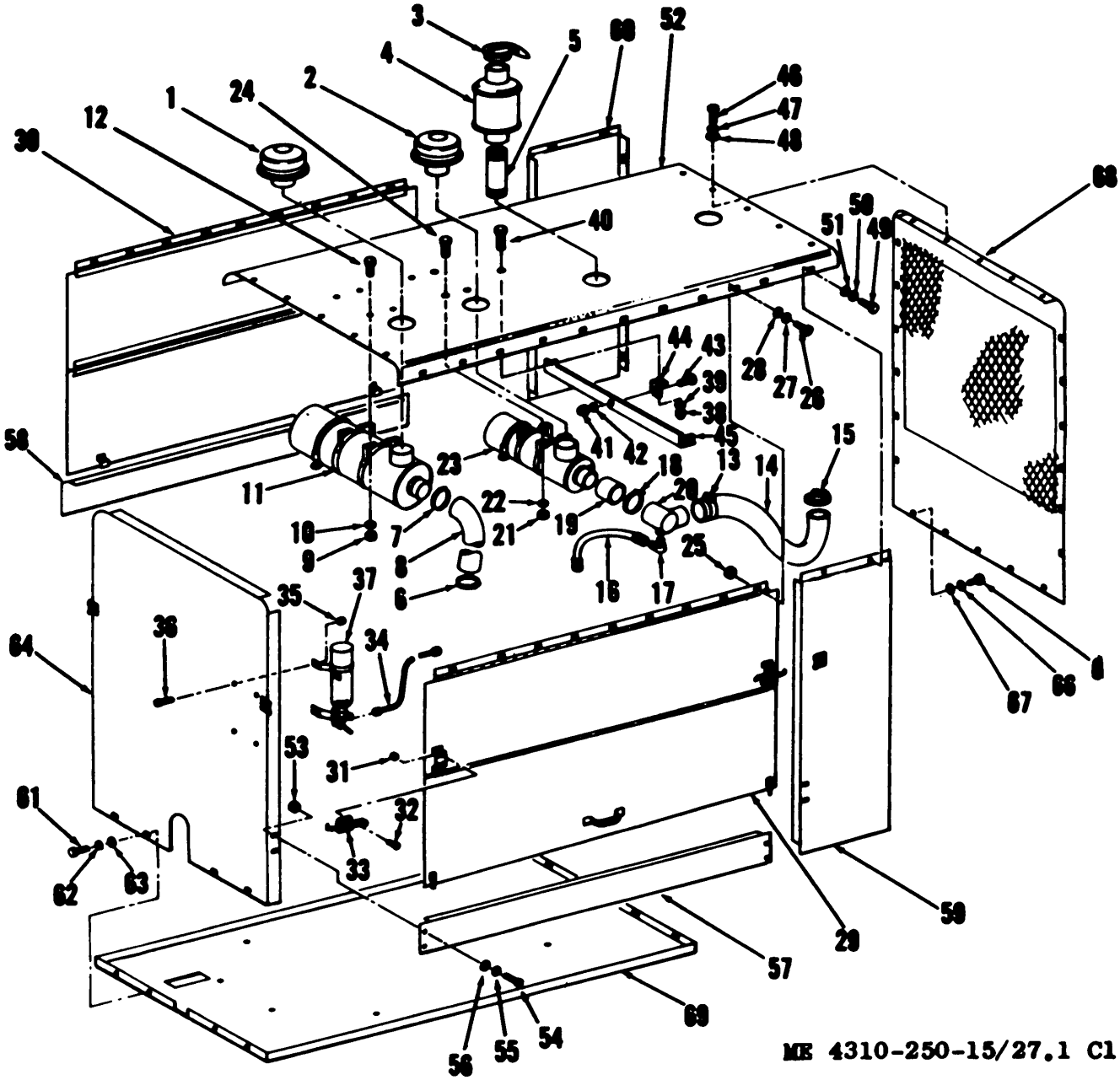


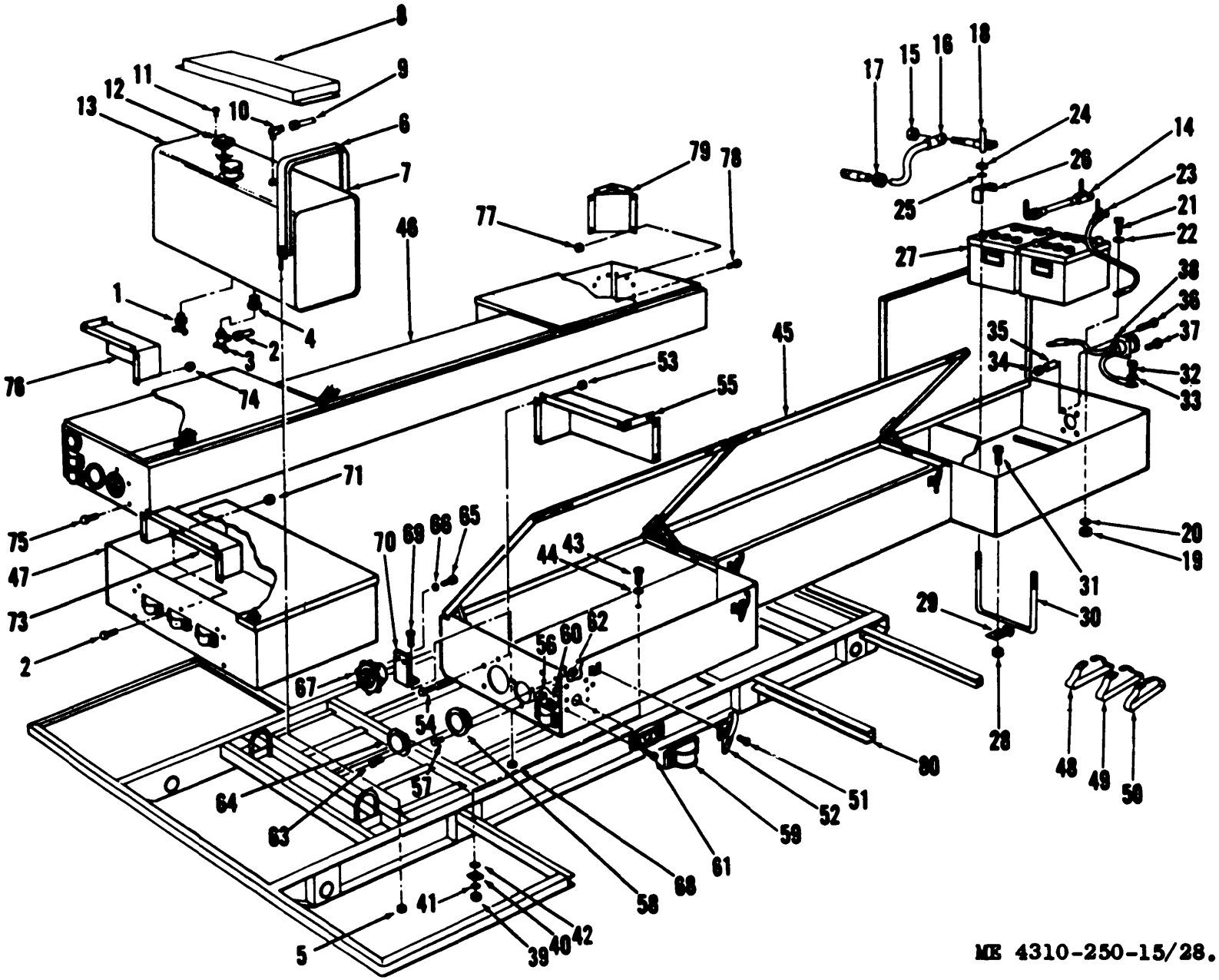
Figure 27.1. Housing, doors, hood, and panels, removal and installation, Model 6M250RPV.

Figure 27.1 - Continued

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

Page 52. Figure 28 Caption, after line 2 add "Model M250RPV".

Figure 28.1 is added after figure 28.



ME 4310-250-15/28.1 C1

Figure 28.1. Tool boxes and fuel tank, removal and installation, Model 6M250RPV.

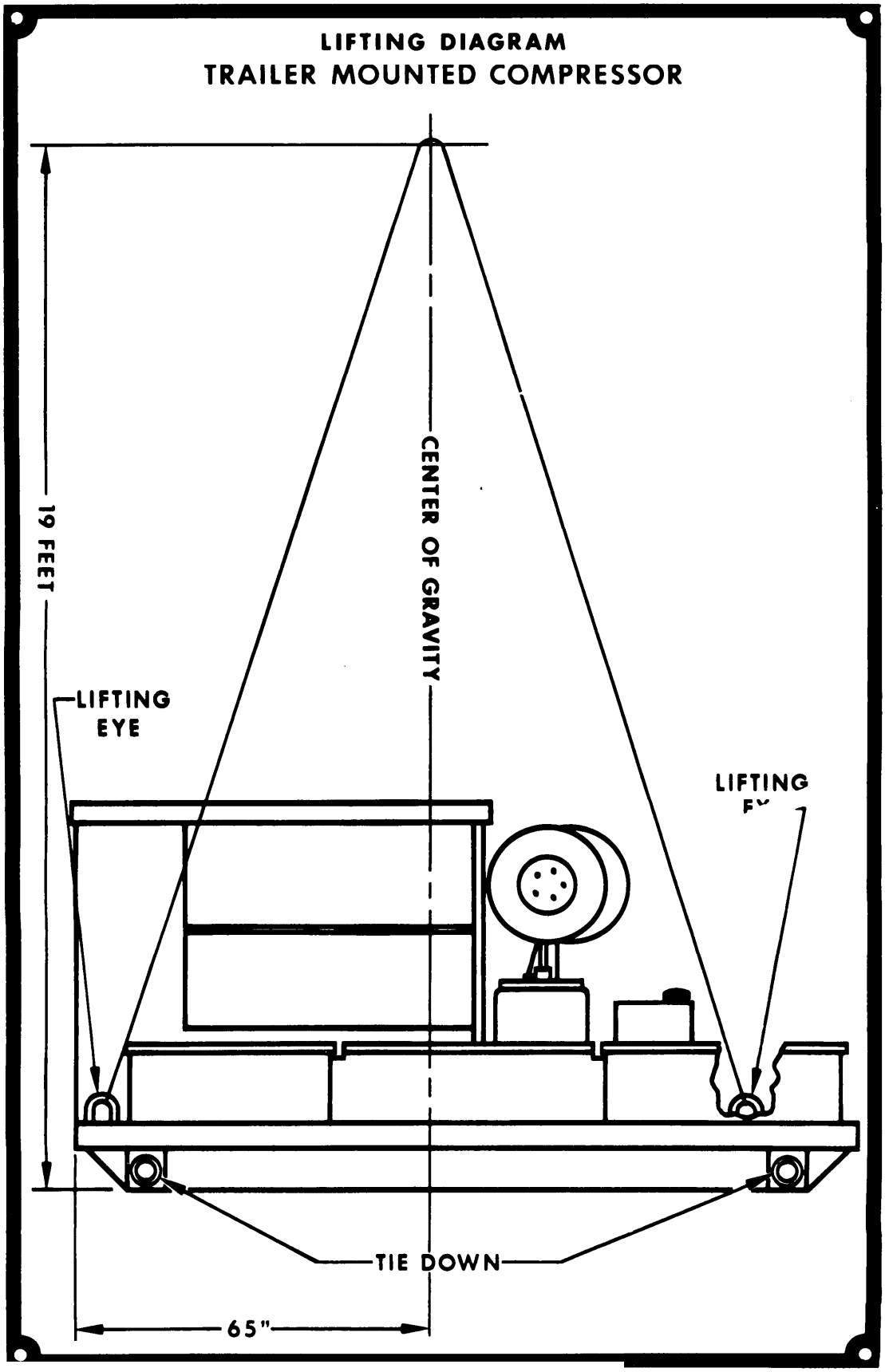


Figure 5. Lifting Instruction Plate. MEC 4310-250-15/5

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

(4) Fill batteries with electrolyte unti1 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.

(5) For cold-weather operation, lubricate equipment per current lubrication order (LO 5-4310-250-15). Service cooling system per Table 3.

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 3. 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.

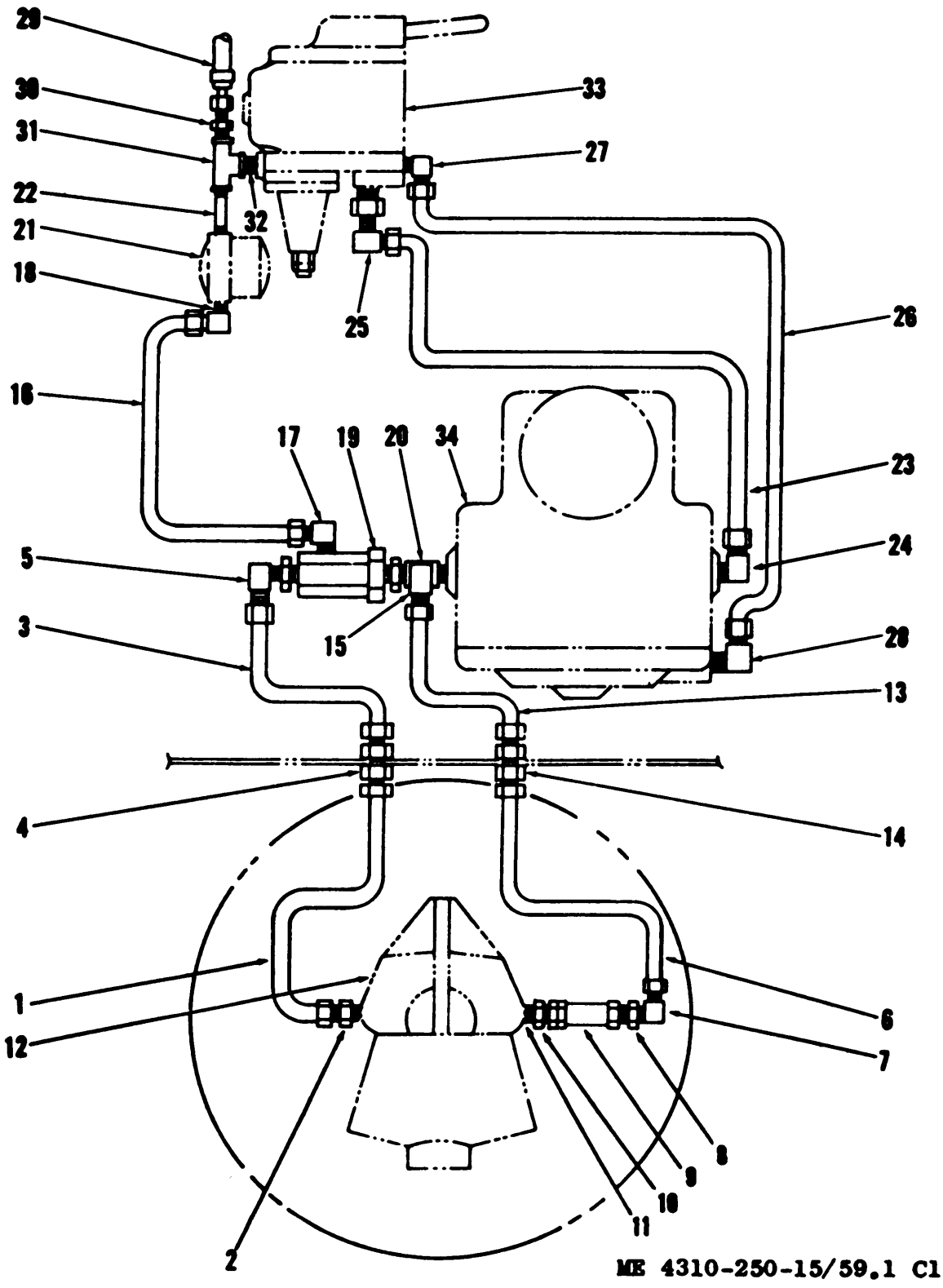


Figure 59.1. (6M250 Lines and Fittings, Removal and Installation.

Figure 59.1 - Continued

1 Tube assembly, minimum pressure valve to bulkhead fitting
2 Adapter
3 Tube assembly, bulkhead fitting to blowdown valve
4 Fitting, bulkhead
5 Elbow
6 Tube assembly, minimum pressure valve to bulkhead fitting
7 Elbow
8 Orifice
9 Filter
10 Bushing, reducer
11 Nipple, close, 1/8 NPT
12 Minimum pressure valve (reference)
13 Tube assembly, bulkhead fitting to blowdown valve
14 Fitting, bulkhead
15 Elbow
16 Tube assembly, blowdown valve to moisture separator
17 Elbow
18 Elbow
19 Blowdown valve (reference)
20 Tee
21 Moisture separator (reference)
22 Nipple, 1/4 NPT x 2 in.
23 Tube assembly, intake-unloader assembly to speed control
24 Elbow
25 Elbow
26 Tube assembly, intake-unloader assembly to speed control
27 Elbow
28 Elbow
29 Hose assembly, speed control to pressure gage
30 Adapter
31 Tee
32 Nipple, close
33 Speed control (reference)
34 Intake-unloader assembly (reference)

Paragraph 139a (1). In line 1 change “(para 140)” to read “(fig. 61A)”.

Page 95. Paragraph 139c (3). In line 1 change “(para 140)” to read “(fig. 61A)”.

Paragraph 140, after Hose Reels, add "Model M250RPV".

Paragraph 140.1 is added after paragraph 140.

140.1 Hose Reels, Model 6M250RPV

a. Removal. Refer to figure 61A and remove hose reels.

b. Disassembly. Refer to figure 61.1B and disassemble hose reels.

c. Cleaning and Inspection. Cleaning and inspection are the same on both models.

d. Refer to figure 61.1B and reassemble hose reel.

e. *Installation.* Refer to figure 61A and install hose reel.

Page 96. Paragraph 144. After Moisture Separator add "Model M250RPV".

Paragraph 144.1 is added after paragraph 144.

144.1 Moisture Separator, Model 6M250RPV

a. Removal.

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

(2) Refer to figure 65.1B and remove moisture separator.

b. Cleaning and Inspection. Cleaning and inspection are the same on both models.

c. Installation. Refer to figure 65.1B and install moisture separator.

Page 97. Figure 61, after line 2, add "Model M250RPV".

Figure 61.1 is added after figure 61.

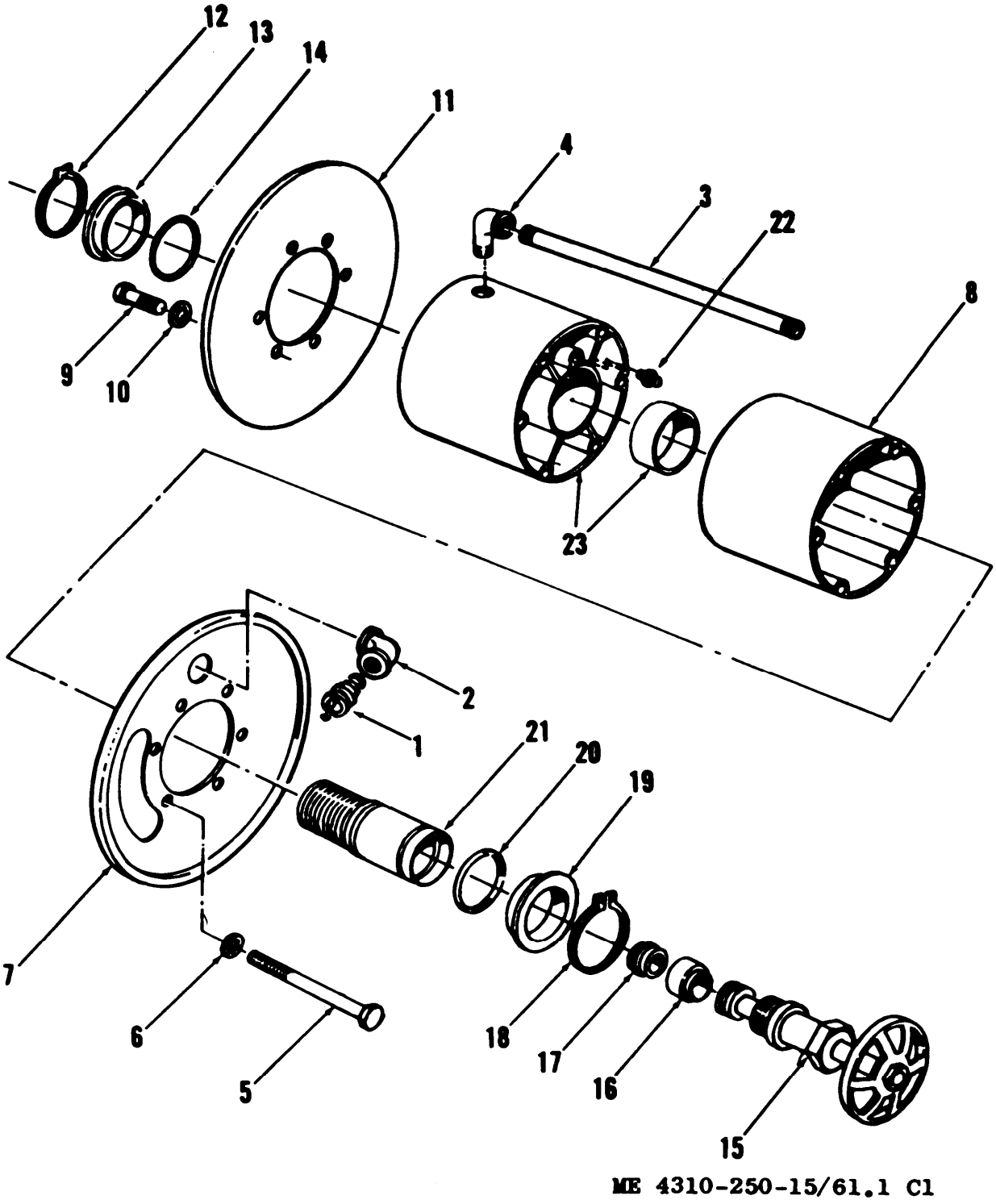


Figure 61.1. B — Hose reels, exploded view Model 6M250RPV.

Figure 61.1 - Continued

1 Connector, male, hose
2 Elbow, 3/4 NPT
3 Pipe, nipple
4 Elbow, street, 3/4 NPT
5 Bolt, 5/16-18 x 4-3/4 in. (6)
6 Washer, lock, int. tooth, 5/16 in. (6)
7 End, hose reel
8 Extender, body
9 Bolt, 5/16-18 x 3/4 in. (6)
10 Washer, lock, int. tooth, 5/16 in. (6)
11 End, hose reel
12 Ring, retaining
13 Plate, retaining
14 Packing, O-ring
15 Air valve assembly
16 Spacer
17 Valve
18 Ring, retaining
19 Plate, retaining
20 Packing, O-ring
21 Spindle
22 Fitting, grease
23 Body assembly

Page 99. Figure 65B. Caption, add "Model M250RPV"

Figure 65.1B is added after 65B.

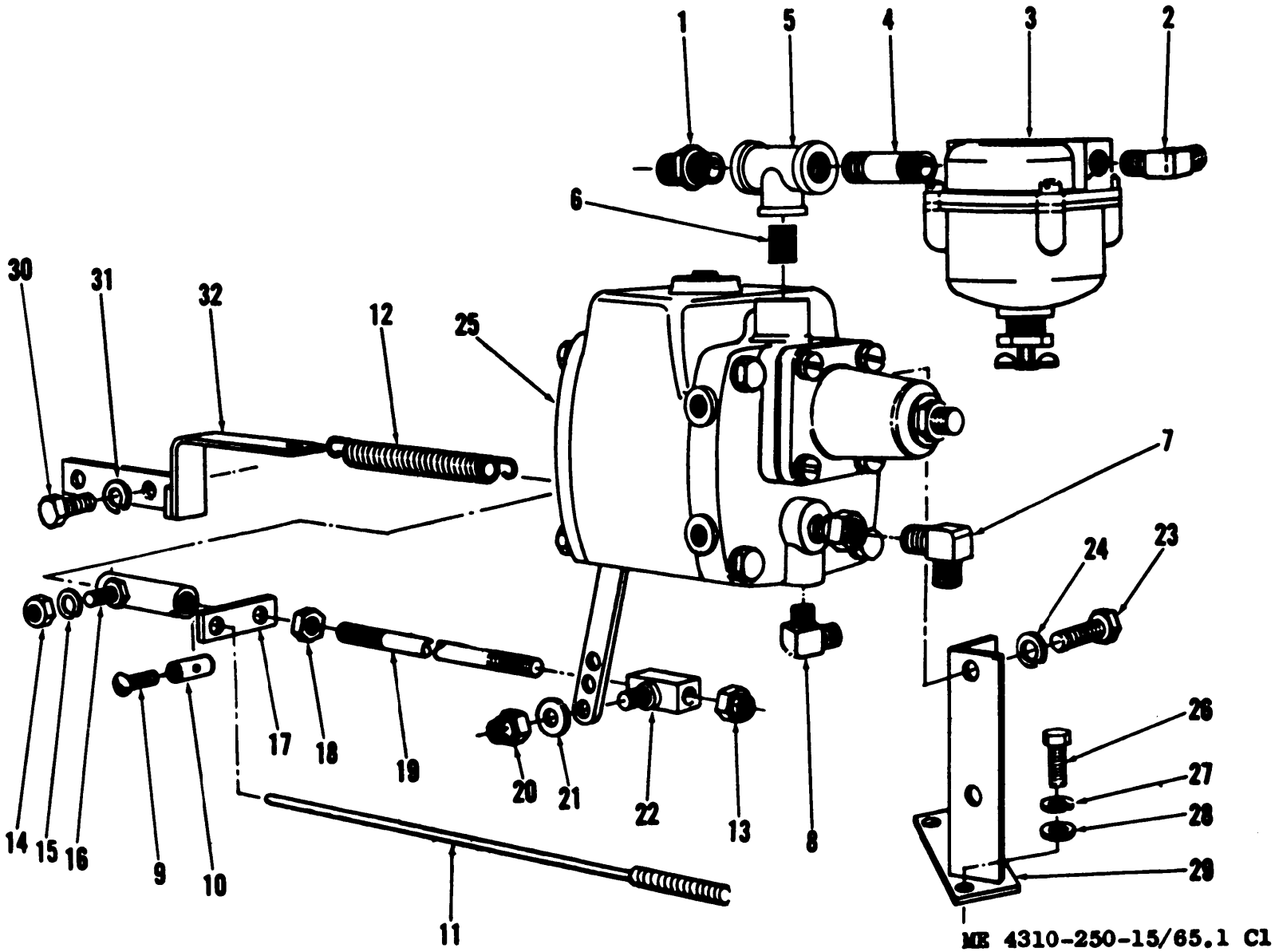


Figure 65.1B. Moisture separator, speed control and mounting hardware, exploded view, Model 6M250RPV.

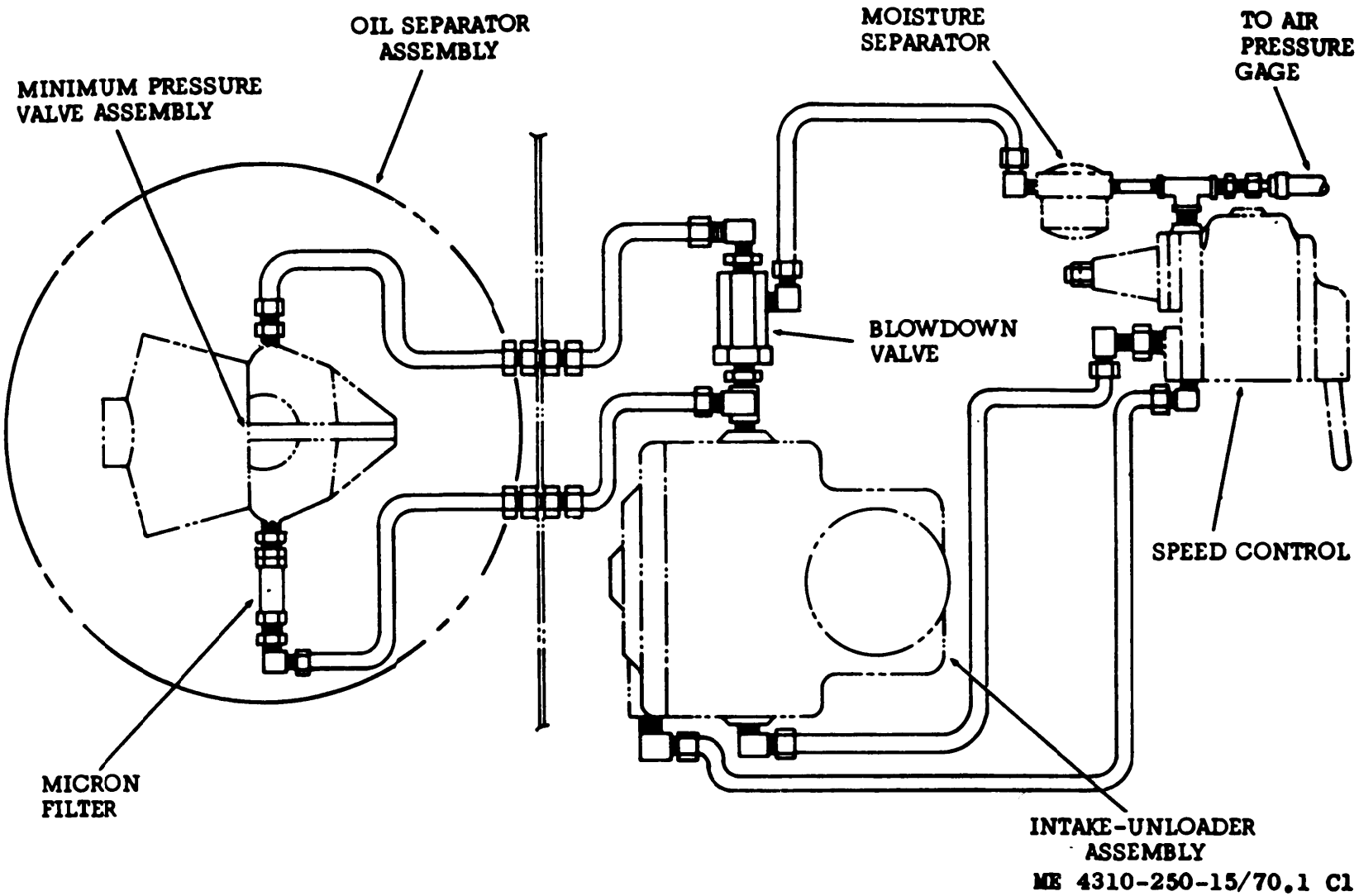


Figure 70.1. Compressor air system tubing, schematic diagram Model 6M250RPV.

Page 114. Paragraph 170, after line 38 add:

Probable cause	*Possible remedy*
Operating compressor with pressure below 80 psi	Do not operate compressor below 80 psi minimum.

Page 165. Paragraph 227. In Line 1 after Assembly add "Model M2250RPV".

Paragraph 227.1 is added after paragraph 227.

227.1. Air Intake-Unloader Assembly, Model 6M250RPV

a. Removal. Refer to paragraph 137 and remove the air intake-unloader assembly from the compressor.

b. Disassembly. Refer to figure 99.1 and disassemble the air intake-unloader assembly.

c. Cleaning, Inspection and Repair. Cleaning, inspection and repair are the same on both models.

d. Reassembly. Refer to figure 99.1 and reassemble the air intake-unloader assembly.

e. Installation. Refer to paragraph 137 and install the air intake-unloader assembly.

Page 166. Figure 99. After line 1 add “Model M250RPV”.

Figure 99.1 is added after figure 99.

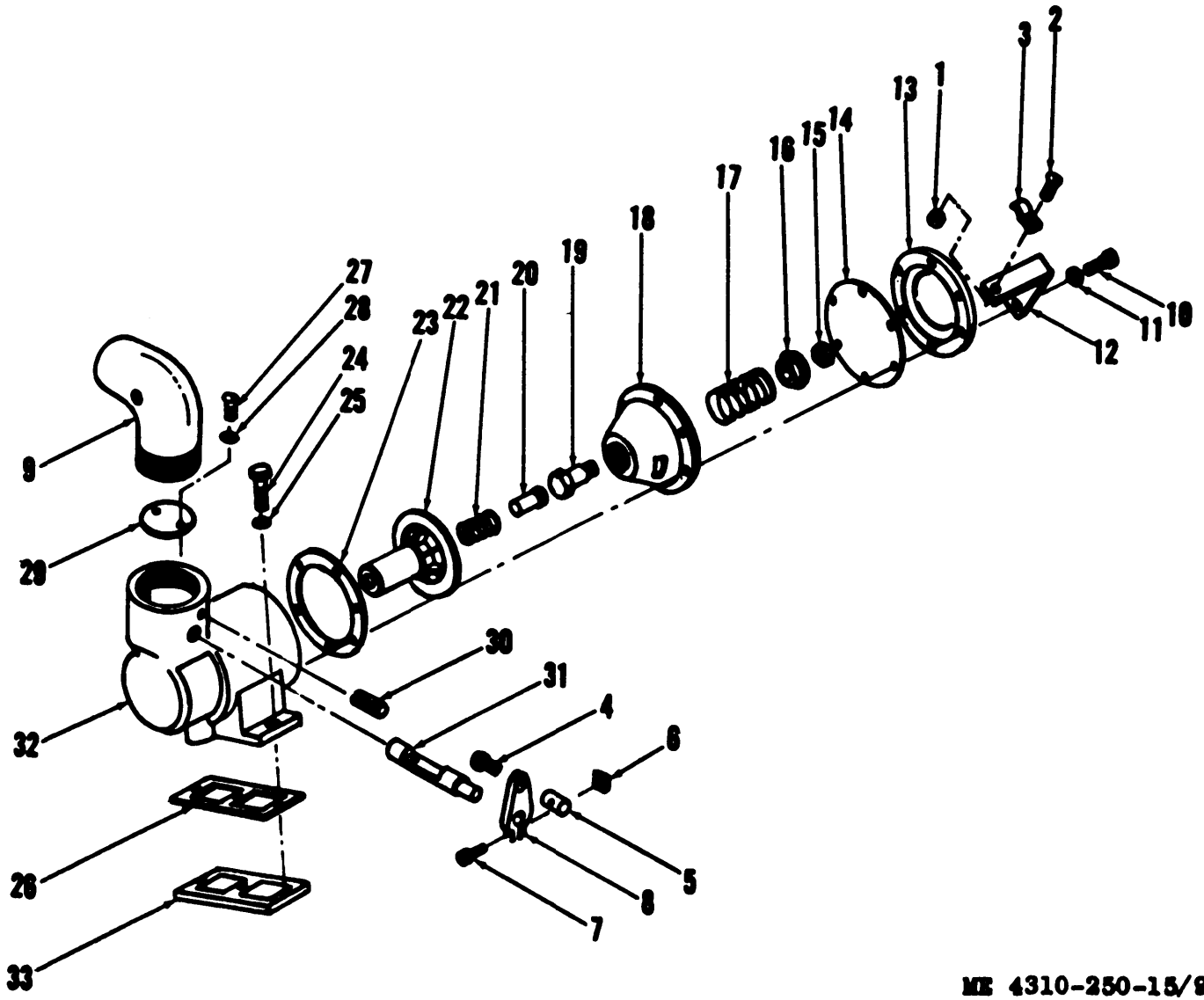


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Figure 99.1. Air intake-unloader assembly, disassembly and reassembly, Model 6M250RPV.

Figure 99.1 - Continued

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)
11 Washer, lock, 3/8 in. (6)
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)
25 Washer, lock, 3/8 in. (3)
26 Gasket
27 Screw, machine No. 8-32 x 1/4 in. (2)
28 Washer, lock, No. 8 (2)
29 Plate, valve
30 Pin, spring
31 Shaft, valve
32 Body
33 Compressor assembly (reference)

Page 168. Paragraph 231a (2), after line 2 add: “For Model 6M250RPV oil separator assembly disassemble refer to figure 101.1”.

Paragraph 231C (1), after line 3 add: “For Model 6M250RPV oil separator assembly reassemble refer to figure 101.1”.

Page 169. Figure 101, after figure title add: "Model M250RPV".

Figure 101.1 is added after figure 101.

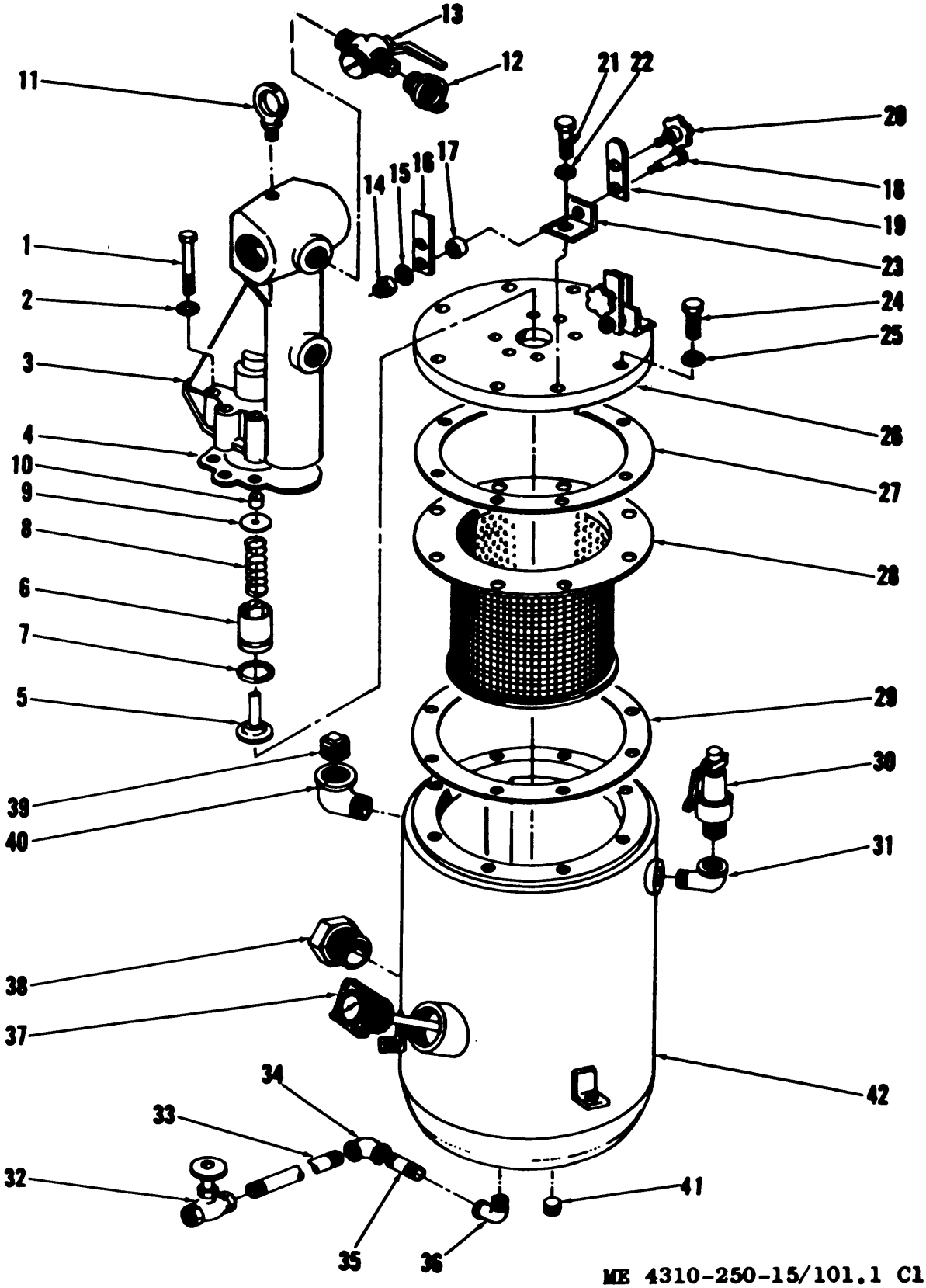


Figure 101.1. Oil separator assembly, disassembly and reaassembly, Model 6M250RPV.

Figure 101.1 - Continued

1 Bolt, 3/8-16 x 3 in. (4)
2 Washer, lock, int. tooth, 3/8 in. (4)
3 Housing
4 Gasket
5 Valve assembly
6 Piston
7 O-ring
8 Spring
9 Washer, special
10 Felt
11 Bolt, eye
12 Connector, female (2)
13 Valve, service (2)
14 Nut, lock, 3/8-16 (2)
15 Washer, flat, 1/2 in. (4)
16 Clamp (2)
17 Spacer (2)
18 Bolt, special (2)
19 Clamp (2)
20 Knob (2)
21 Screw, 5/8-11 x 1-3/4 in. (2)
22 Washer, lock, int. tooth, 5/8 in. (2)
23 Bracket, R.H.
Bracket, L.H.
24 Screw, 5/8-11 x 1-3/4 in. (6)
25 Washer, lock, int. tooth, 5/8 in. (2)
26 Cover
27 Gasket
28 Element, separator
29 Gasket
30 Valve, relief
31 Elbow, street, 3/4 NPT, 90°
32 Valve, globe
33 Pipe, 1/2 NPT
34 Elbow, 1/2 NPT, 90°
35 Nipple, 1/2 NPT x 2 in.
36 Elbow, street, 1/2 NPT, 90°
37 Gage, oil level
38 Adapter
39 Plug, pipe, 1-1/4 in. sq. hd.
40 Elbow, street, 1-1/4 NPT, 90°
41 Plug, pipe, magnetic
42 Tank, separator

Page 172 and 173. Appendix I is superseded as follows:

APPENDIX I

REFERENCES

1. Fire Protection	
TB H-4200-200-10	Hand Portable Fire Extinguishers Approved for Army Users
2. Lubrication	
C9100IL	Fuels, Lubricants, Oils and Waxes
LO 5-4310-250-15	Compressor, rotary: air; diesel engine driven; 250 cfm, 100 psi, trailer mounted (Davey Model M250RPV and Model 6M250RPV) w/engine, Continental Model JD403-6002
3. Painting	
TM 9-213	Painting Instructions for Field Use
4. Preventive Maintenance	
TB ORD 651	Use of Antifreeze Solutions and Cleaning Compounds in Engine Cooling Systems
TM 5-764	Electric Motor and Generator Repair
TM 9-2330-247-14	Operators, Organizational and Field Maintenance manual
TM 9-2330-247-24P	Organizational and Field Maintenance Repair Parts and Special Tool List
TM 9-6140-200-15	Operation and Organizational, Field and Depot Maintenance Storage Batteries, Lead-acid Type
TM 38-750	Army Equipment Record Procedures
5. Radio Interference Suppression	
TM 11-483	Radio Interference Suppression
6. Shipment and Limited Storage	
TM 38-230	Preservation Packaging, and Packing of Military Supplies and Equipment

Page 174, through page 177. Appendix II is superseded as follows:

APPENDIX II

BASIC ISSUE ITEMS LIST

Section I. INTRODUCTION

1. Scope

This appendix lists items which accompany the air compressor or are required for installation, operation, or operator's maintenance.

2. General

This Basic Issue Items List is divided into the following sections.

a. Basic Issue Items — Section II. A list of items which accompany the air compressor or are required for the installation, operation, or operator's maintenance.

b. Maintenance and Operating Supplies — Section III. A listing of maintenance and operating supplies required for initial operation.

3. Explanation of Columns

The following provides an explanation of columns in the tabular list of Basic Issue Items, Section II.

a. Source, Maintenance, and Recoverability Codes (SMR), Column (1).

Note. Common hardware items known to be readily available in Army supply will be assigned Maintenance Codes only. Source Codes, Recoverability Codes, and Quantity Authorized will not be assigned to this category of item.

(1) Source Code, indicates the selection status and source for the listed item. Source code is:

Code	*Explanation*
P	Applied to repair parts which are stocked in or supplied from GAS/DSA or Army supply system, and authorized for use at indicated maintenance categories.

(2) Maintenance Code, indicates the lowest category of maintenance authorized to install the listed item. The maintenance level code is:

Code	*Explanation*
C	Operator/crew

(3) Recoverability Code, indicates whether unserviceable items should be returned for recovery or salvage. Items not coded are expendable.

b. Federal Stock Number, Column (2). This column indicates the Federal stock number for the item.

c. Description, Column (3). This column indicates the Federal item name and any additional description of the item required. A part number or other reference number is followed by the applicable five-digit Federal supply code for manufacture in parentheses. Repair parts quantities included in kits, sets, and assemblies are shown in front of the repair part name.

d. Unit of Issue, Column (4). This column indicates the unit used as a basis for issue, e.g., ea, pr, ft, yd, etc.

e. Quantity Incorporated in Unit Pack, Column (5). This column indicates the actual quantity contained in the unit pack.

f. Quantity Incorporated in Unit, Column (6). This column indicates the quantity of the item used in the functional group.

g. Quantity Furnished With Equipment, Column (7). This column indicates the quantity of an item furnished with the equipment.

h. Quantity Authorized, Column (8). This column indicates the quantity of an item authorized the operator/crew to have on hand or to obtain as required. As required items are indicated with an asterisk.

i. Illustration, Column (9). This column is divided as follows:

(1) *Figure number, column (9a).* Indicates the figure number of the illustration in which the item is shown.

(2) *Item number, column (9b).* Indicates the callout number used to reference the item in the illustration.

4. Explanation of Columns in the Tabular list of Maintenance and Operating Supplies — Section III

a. Component Application, Column (1) This column identifies the component application of each maintenance or operating sup ply item.

b. Federal Stock Number, Column (2). This column indicates the Federal stock number for the item and will be used for requisitioning purposes.

c. Description, Column (3). This column indicates the item and brief description.

d. Quantity Required for Initial Operation, Column (4). This column indicates the quantity of each maintenance or operating supply item required for initial operation of the equipment.

e. Quantity Required for *8 Hours Operation, Column (5).* This column indicates the estimated quantities requires for an average eight hours of operation.

f. Notes, Column (6). This column indicates informative notes keyed to data appearing in a preceding column.

5. Abbreviations

Abbreviations	*Explanation*
lb.	Pound
oz	ounce
lg	long
in	inch
sgle hd	single head

Section II. BASIC ISSUE ITEMS

(1) Smr code	(2) Federal stock number	(3) Description	(4) Unit of issue	(5) Qty inc in unit pack	(6) Qty inc in unit	7) Qty furn with equip	(8) Qty auth	(9) Illustration (a) Fig No.	(9) Illustration (b) Item No.
		GROUP 31 — BASIC ISSUE ITEMS, MANUFACTURER INSTALLED							
		3100 — BASIC ISSUE ITEMS, MANUFACTURER OR DEPOT INSTALLED							
PC	7510-889-3494	Binder, Loose Leaf	EA			1	1		
PC	7510-559-9618	Case: Maintenance and Operational Manuals, Cotton Duck, Water Repellent, Mildew Resistant, MIL-B-11743	EA			1	1		
		Department of the Army Lubrication Order LO 5-4310-250-15				1	1		

(1) Smr code	(2) Federal stock number	(3) Description	(4) Unit of issue	(5) Qty inc in unit pack	(6) Qty inc in unit	7) Qty fern with equip	(8) Qty auth	(9) Illustration (a) Fig No.	(9) Illustration (b) Item No.
		Department of the Army Operator, Organizational, Direct and General Support and Depot Maintenance Manual TM 5-4310-250-15				1	1		
PC	4210-555-8837	Extinguisher, Fire, Mono-bromotrifluo-romethane: Charged Hank; Penetrating Seal Valve; Stored Pressure; with Bracket; 2.75 lbs, MIL SPEC E-52691				1	1		
		GROUP 32 — BASIC ISSUE ITEMS, TROOP INSTALLED							
		3200 — BASIC ISSUE ITEMS, TROOP INSTALLED OR AUTHORIZED							
PC	4930-360-2801	Grease Gun: Lever Operated, 16 oz. Capacity, Extension, 7 in. lg. and Hydraulic Coupler				•	1		
PC	2815-389-6046	Cartridge, Aluminum: Ether Starting				10	10		
PC	4930-168-3264	Oiler, Hand: 8 oz. Compressable, Flexible Spout, 6 in. lg.				•	1		
PC	5120-223-7396	Pliers, Slip-Joint: Straight Nose, Comb. w/Cutter, 6 in. lg.				•	1		
PC	5120-277-0491	Screwdriver, Flattip: 7/16 in., Flared Tip, 4 in. lg. blade				•	1		
PC	5120-449-8083	Wrench, Open End, Adjustable: agle hd., 0 to 1.135 in., Jaw Opening, 10 in. lg.				•	1		

Section III. MAINTENANCE AND OPERATING SUPPLIES

(1) Component application	(2) Federal stock No.	(3) Description	(4) Quantity required F/initial operation	(5) Quantity required F/8 hrs operation	(6) Notes
0101—Crankcase (1)		OIL, LUBRICATING: 5 gal pails as follows:			(1) Includes quantity of oil to fill engine oil system as follows: 12-1/2 qt—Crankcase 12-1/2 qt—Oil
	9150-265-9435 (2)	OE-30	12½ qt	(3)	
	9150-265-9428 (2)	OE-10	12½ qt	(3)	
	9150-242-7003 (2)	OES	12½ qt	(3)	
0306—Fuel, Tank		FUEL OIL DIESEL bulk as follows:			(2) See C9100IL for additional data and requisitioning procedure.
	9140-286-5294	Regular Grade, DF-2	45 gal (4)	45 gal (5)	
	9140-286-5286	Winter Grade, DF-1	45 gal (4)	45 gal	
	9140-286-5283	Arctic Grade, DF-A	45 gal (4)	45 gal (5)	(3) See current LO for grade application and replenishment intervals.
0311—Engine Starting		CARTRIDGE, ALUMINUM FLUID, MULTISTART	(1)	(10)	(4) Tank capacity.
0501—Radiator		WATER ANTIFREEZE: 55 gal drum as follows:	24 qt	(6)	(5) Average fuel consumption is 5.625 gal per hour of continuous operation.
	6850-243-1990	Ethylene glycol	16 qt	(7)	
		ANTIFREEZE:			
	6850-174-1806	Compound Arctic	24 qt	(6)	(6) Cooling system capacity
5001—Compressor Crankcase		OIL, LUBRICATING: 5 gal pail as follows:			(7) See Table III for quantity, specific gravity, and replenishment data.
	9150-985-7234 (2)	2110T-H	26 qt (8)	(3)	
	9150-242-7003 (2)	OES	20 qt (8)		(8) Compressor capacity.
5012—Speed Control		OIL, LUBRICATING: 5 gal pail as follows:			(9) Speed control capacity.
	9150-265-9435 (2)	OE-10	⅓ qt (9)	(3)	(10) Quantity indicated is the minimum required when temperature is below 40°F.
	9150-265-9428 (2)	OE-30	⅓ qt (9)	(3)	
	9150-242-7003 (2)	OES	⅓ qt (9)	(3)	
		GREASE, AUTOMOTIVE AND ARTILLERY: 5 lb can as follows:			
	9150-190-0905 (2)	GAA	5 lb	(3)	

Page 178 through 185. Appendix III is superseded as follows:

APPENDIX III

MAINTENANCE ALLOCATION CHART

Section I. INTRODUCTION

1. General

a. This section provides a general explanation of all maintenance and repair functions authorized at various maintenance levels.

b. Section II designates overall responsibility for the performance of maintenance functions on the identified end item or component. The implementation of the maintenance functions upon the end item or component will be consistent with the assigned maintenance functions.

c. No special tools and test equipment necessary for maintenance functions.

d. Section III contains supplemental instructions, explanatory notes and/or illustrations required for a particular maintenance function.

2. Explanation of Columns in Section II

a. Group Number, Column (1). The functional group is a numerical group set up on a functional basis. The applicable functional grouping indexes (obtained from TB 750-93-1, Functional Grouping Codes) 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. Functional Group, Column (2). This column contains a brief description of the components of each functional group.

c. Maintenance Functions, Column (3). This column lists the various maintenance functions (A through K) and indicates the lowest maintenance category authorized to perform these functions. The symbol designations for the various maintenance categories are as follows:

C — Operator or crew
O — Organizational maintenance
F — Direct support maintenance
H — General support maintenance
— Depot maintenance

The maintenance functions are defined as follows :

A — Inspect. To determine serviceability of an item by comparing its physical, mechanical, and electrical characteristics with established standards.

B — Test. To verify serviceability and to detect electrical or mechanical failure by use of test equipment.

C — Service. To clean, to preserve, to charge, to paint, and to add fuel, lubricants, cooling agents, and air.

D — Adjust. To rectify to the extent necessary to bring into proper operating range.

E — Aline. To adjust specified variable elements of an item to bring to optimum performance.

F — Calibrate. To determine the correction to be made in the readings of instruments or test equipment used in precise measurement. Consists of the comparisons of two instruments, one of which is a certified standard of known accuracy, to detect and adjust any discrepancy in the accuracy of the instrument being compared with the certified standard.

G — Install. To set up for win an operational environment such as an emplacement, site, or vehicle.

H — Replace. To replace unserviceable items with serviceable assemblies, subassemblies, or parts.

I — Repair. To restore an item to serviceable condition. This includes, but is not limited to, inspection, cleaning, preserving, adjusting, replacing, welding, riveting, and strengthening.

J — Overhaul. To restore an item to a completely serviceable condition as prescribed by maintenance service ability standards using the Inspect and Repair Only as Necessary (IRO-AN) technique.

K — Rebuild. To restore an item to a standard as nearly as possible to original or new condition in appearance, performance and life expectancy. This is accomplished through complete disassembly of the item, inspection of all parts or components, repair or replacement of worn or unserviceable elements (items) using original manufacturing tolerances and specifications, and subsequent reassembly of the item.

d. Tools and Equipment, Column (4). This column is provided for referencing by code the special tools and test equipment (sec. III) required to perform the maintenance functions (sec II).

e. Remarks, Column (5). This column is provided for referencing by code the remarks (sec. IV) pertinent to the maintenance functions.

3. Explanation of Columns in Section III.

a. Reference Code. This column consists of two letters separated by a dash, both of which are references to section II. The first letter references column 5 and the second letter references a maintenance function, column 3, A through K.

b. Remarks. This column lists information pertinent to the maintenance function being performed, as indicated on the MAC, section II.

Section II. MAINTENANCE ALLOCATION CHART

(1)	(2)	(3) Maintenance functions											(4)
		A	B	C	D	E	F	G	H	I	J	K	
Group No.	Functional Group	Inspect	Test	Service	Adjust	Align	Calibrate	Install	Replace	Repair	Overhaul	Rebuild	Remarks
01	ENGINE:												
0100	Engine Assembly:												
	Engine diesel	C	F	C					F	F	H	D	A
0101	Crankcase, Block, Cylinder Head:												
	Block engine	H							D		H		
	Head cylinder	F							F	H			
	Sleeve assembly cylinder	H							H				
0102	Crankshaft:												
	Bearings, sleeve	H							H				
	Crankshaft	H							H	D			B
	Damper, vibration	O							F				
	Pulley, crankshaft	O							F				
	Seals	H							H				

(1) Group No.	(2) Functional Group	(3) Maintenance functions A Inspect	B Test	C Service	D Adjust	E Align	F Calibrate	G Install	H Replace	I Repair	J Overhaul	K Rebuild	(4) Remarks
0103	**Flywheel Assembly:**												
	Flywheel assembly	F							F	H			C
	Housing	F							H				
0104	**Pistons, Connecting Rods:**												
	Bearings, sleeve	H							H				
	Pistons, rings, pins and retainers	H							H				
	Rod, connecting	H							H				
0105	**Valves, Camshafts, and Timing System:**												
	Bearings, camshaft	H							H				
	Cover and gaskets, valve	C		O					O				
	Cover, timing gear	O							H				
	Gears, timing	H							H				
	Guides, spring and locks	F							F	F			
	Rocker arm assembly				O				F	F			
	Seat, valve	F							H	H			
	Valves								F	F			D
0106	**Engine Lubrication System:**												
	Breather, valve cover	C							O				
	Cooler assembly, oil	O							O	F			
	Element, oil filter			C					O				
	Filter assembly, oil	C							O				
	Lines, oil	O							O	O			
	Pan, oil	H							H	H			
	Pump assembly, oil	H							H	H	H		
	Regulator, oil pressure	H							H	H			
0108	**Manifolds:**												
	Manifold, intake and exhaust	O							O				
03	**FUEL SYSTEM**												
0301	**Fule Injector:**												
	Injectors, fuel		H						O	O	H		
0302	**Fuel Pumps:**												
	Pump, fuel		H				H		O	O	H		
0304	**Air Cleaner:**												
	Cleaner, air			C						O	O		
0306	**Tanks, Lines, Fittings:**												
	Cap, fuel tank	C								C			
	Lines and fittings	C		O						O			
	Tank, fuel	C								F	F		
	Tube, injector	C								O			

(1) Group No.	(2) Functional Group	(3) Maintenance functions A Inspect	B Test	C Service	D Adjust	E Align	F Calibrate	G Install	H Replace	I Repair	J Overhaul	K Rebuild	(4) Remarks
0300	Fuel Filters:												
	Element, filter			C						O			
	Filter, fuel			O						O			
0301	Engine Starting Aids:												
	Control, starting aid	O							O				
	Primer, hand	C							O	O			
0312	Throttle Control:												
	Control, push-pull	C							O	O			
04	EXHAUST SYSTEM:												
0401	Muffler and Pipes:	C							O	O			
	Cap, rain	C							O	O			
	Clamps	C							O	O			
	Muffler and pipes	C							O	O			
05	COOLING SYSTEM:												
0501	Radiator:												
	Cap, radiator		O						C				
	Grill, radiator								O	O			
	Radiator		F	C					F	H			
0502	Cowling, Deflectors, Air Ducts, Shrouds:												
	Guards and shrouds								O	O			
0503	Water Manifolds, Thermostat and Housing:												
	Gasket	O							O				
	Hose and clamps	O							O	O			
	Lines and fittings	O							O	O			
	Thermostats	O							O				
0504	Water Pump:	O							O				
	Pump assembly, water								O	F	F		
0505	Fan Assembly:												
	Belt, Drive				O				O				
	Fan assembly			O					O	O			
06	ELECTRICAL SYSTEM:												
0601	Generator:												
	Belts, drive				O				O				
	Generator		O						O	F	F		
0602	Generator Regulator:												
	Regulator, generator		O	O					O				

(1) Group No	(2) Functional Group	(3) Maintenance functions A Inspect	B Test	C Service	D Adjust	E Align	F Calibrate	G Install	H Replace	I Repair	J Overhaul	K Rebuild	(4) Remarks
0603	Starting Motor:												
	Starter assembly		F						O	F	F		
0606	Engine Safety Controls:												
	Switches	O							O				
0607	Instrument or Engine Control Panel:												
	Panel assembly	O							O				
	Gages		O						O				
	Wiring	O							O	O			
0608	Miscellaneous Items:												
	Switches	O							O				
0609	Lights:												
	Light assembly			O					O				
0610	Sending Units and Warning Switches:												
	Sending unit, fuel	O							O				
0612	Batteries Storage (Wet or Dry):												
	Battery storage	C		O					O				
	Box and clamps	C							O	O			
	Cables	C							O	O			
0613	Hull or Chassis Wiring Harness:												
	Wiring harness	C							F	O			
0615	Radio Interference Suppression:												
	Capacitor and lead								O	O			
15	FRAME TOWING ATTACHMENTS, AND DRAWBARS												
1501	Frame Assembly:												
	Frame assembly	F							H				
18	BODY, CAB, HOOD AND HULL												
1801	Body Cab, Hood, Hull Assemblies:												
	Cowl, front and rear	C							O				
	Doors and panels	C							O				
	Hood, engine and compressor	C							O				
1806	Stowage Racks, Boxes Straps Carrying Cases, Cable Reels Hose Reels, and Etc.												
	Hose reel assembly	C							O	O			
	Boxes tool	C							O	O			

(1) Group No.	(2) Functional Group	(3) Maintenance functions A Inspect	B Test	C Service	D Adjust	E Align	F Calibrate	G Install	H Replace	I Repair	J Overhaul	K Rebuild	(4) Remarks
22	BODY CHASSIS OR HULL, AND ACCESSORY ITEMS												
2202	Accessory Items:	C							O				
	Reflectors	C							O				
2210	Data Plates and Instruction Holders:												
	Plates, identification	C							F				
	Plates, instruction	C							O				
47	GAGES (NONELECTRICAL), WEIGHING & MEASURING DEVICES												
4702	Gages, Mountings, Lines and Fittings:												
	Gages, pressure, temp.	C							O				
4703	Hourmeter												
	Adapter tachourmeter	C							O				
	Cable drive tachourmeter	O							O				
	Tachourmeter	C							O				
50	PNEUMATIC EQUIPMENT:												
5000	Air Compressor Assembly:												
	Compressor assembly	C	O	C					F	F	H	D	
5001	Crankcase, Block Cylinder Head:												
	Stator, (housing) rotor	F							H				
	Gaskets	F							H				
5004	Pistons, Connecting Rods and Rotors:												
	Bearings	H							H				
	Rotor	H							H				
	Seals	H							H				
	Vanes, rotor	H							H				
5006	Lubrication System												
	Cooler, oil			C					F	H			
	Filter, oil			O					O				
	Separator, oil and air			O					F	H			
	Lines and fittings	O							O	O			
5007	Compressor Drive:												
	Adapter, housing assy.	H							H				
	Coupling, spline	H							H				
5008	Air Intakes:												
	Cleaner, air	C		C					O				
	Hoses, clamps	C							O	O			

(1) Group No.	(2) Functional Group	(3) Maintenance functions A Inspect	B Test	C Service	D Adjust	E Align	F Calibrate	G Install	H Replace	I Repair	J Overhaul	K Rebuild	(4) Remarks
5009	Unloader System Components:												
	Regulator, pilot		O		O				O	F			
	Unloader assembly	C	C		O				F	F			
5012	Throttling Devices:												
	Engine control	C		C	O				O	F			
5014	Air Receiver:												
	Receiver, air			C					O				
	Safety relief	C	C						O	F			
5015	Air Discharge System:												
	Hose and fittings	C							O				
	Manifold	C							O				
	Valve assembly	O							O				
76	FIRE FIGHTING EQUIPMENT COMPONENTS:												
7603	Fire Extinguishers:												
	Extinguisher, fire	C		C					O	F			

Section III. REMARKS

Reference Code	Remarks
A — F	Test includes Engine Operation and Compression.
B — D	Metaline, Aline and Grind.
C — H	Replace Ring Gear.
D — F	Repair of Valves included Refacing.

By Order of the Secretary of the Army:

HAROLD K. JOHNSON,
General, United States Army,
Chief of Staff.

Official:

KENNETH G. WICKHAM,
Major General, United States Army,
The Adjutant General.

Distribution:

To be distributed in accordance with DA Form 12-25, Section I, Organizational maintenance requirements for Air Compressors, 250 CFM.

TECHNICAL MANUAL
No. 5-4310-250-15

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D. C., *9 November 1965*

ORGANIZATIONAL, DS, GS, AND DEPOT MAINTENANCE MANUAL

COMPRESSOR, ROTARY: AIR; DIESEL ENGINE DRIVEN; 250 CFM, 100 PSI; SKID MOUNTED (DAVEY MODEL M250 RPV)

FSN 4310-075-7064

CHAPTER 1

INTRODUCTION

Section I. GENERAL

1. Scope

a. This manual is 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 direct and general support 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 list of Basic Issue Items authorized the operator of this equipment. Appendix III contains the Maintenance Allocation Chart.

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

d. 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 DA Publications) will be used for reporting these improvement recommendations. This form will be completed using pencil, pen, or typewriter and forwarded direct to: Commanding General, U.S. Army Mobility Equipment Center, ATTN: SMOME-MPD, 4300 Goodfellow Blvd., St. Louis, Mo., 63120.

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

2. Record and Report Forms

a. DA Form 2258 (Depreservation Guide of Engineer Equipment).

b. For other 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.

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.

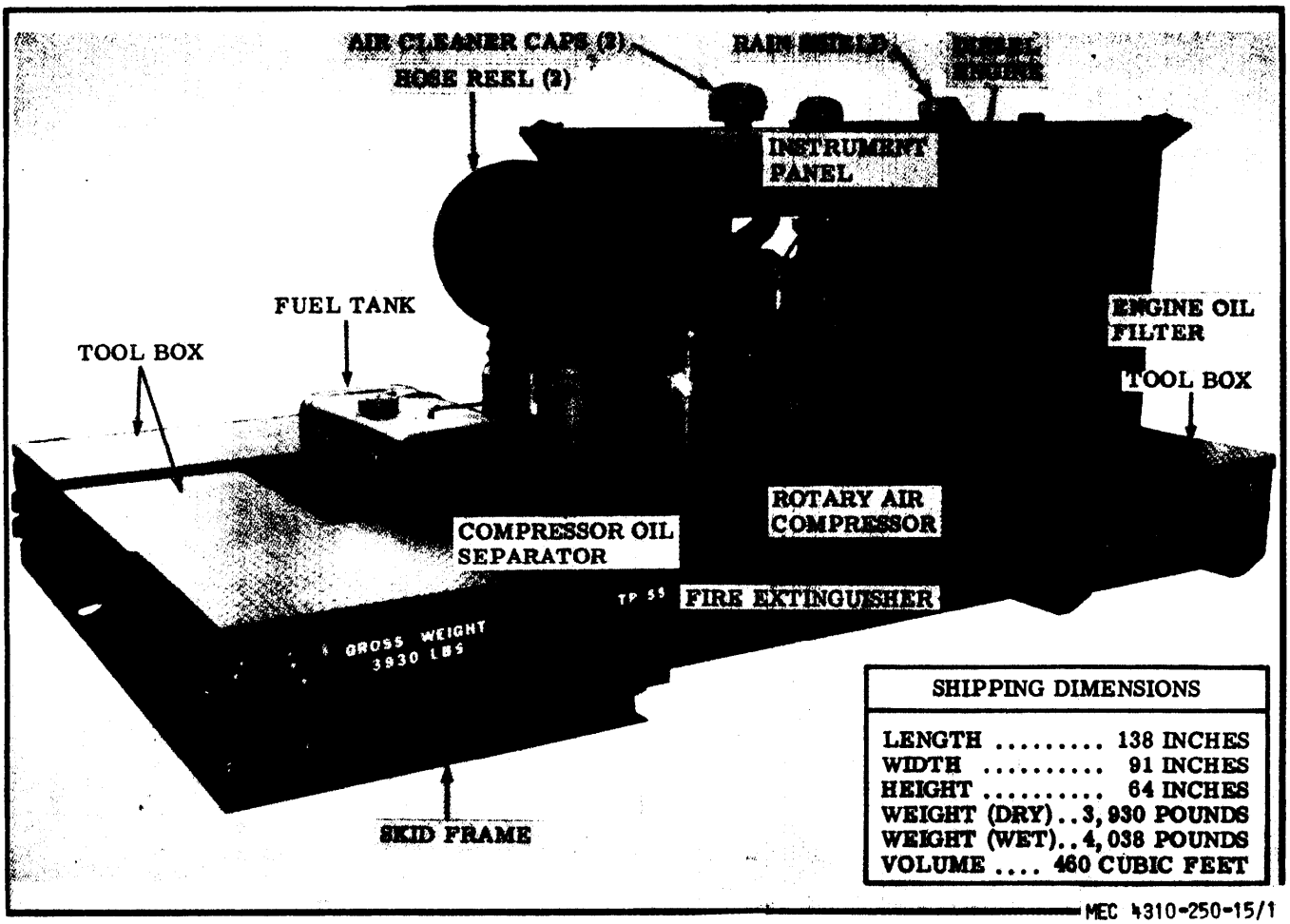


Figure 1. Rotary Air Compressor
Right-Rear, Three-Quarter View with Shipping Dimensions.

(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 Compresser 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-

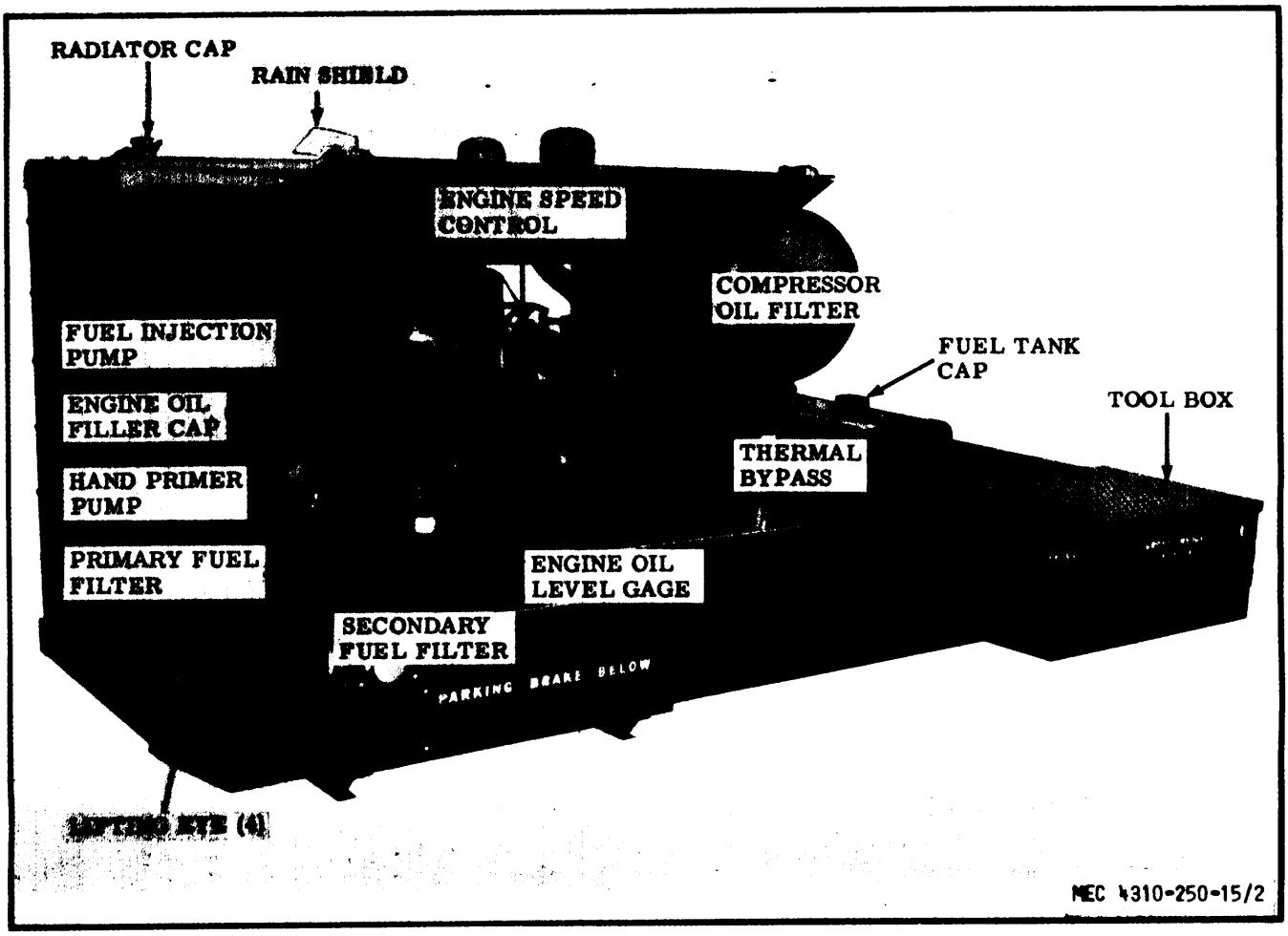


Figure 2. Rotary Air Compressor, Left-Front, Three-Quarter View.

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.

Manufacturer	Continental Motors Corp.
Model	JD403
Specification	6002
Taps	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

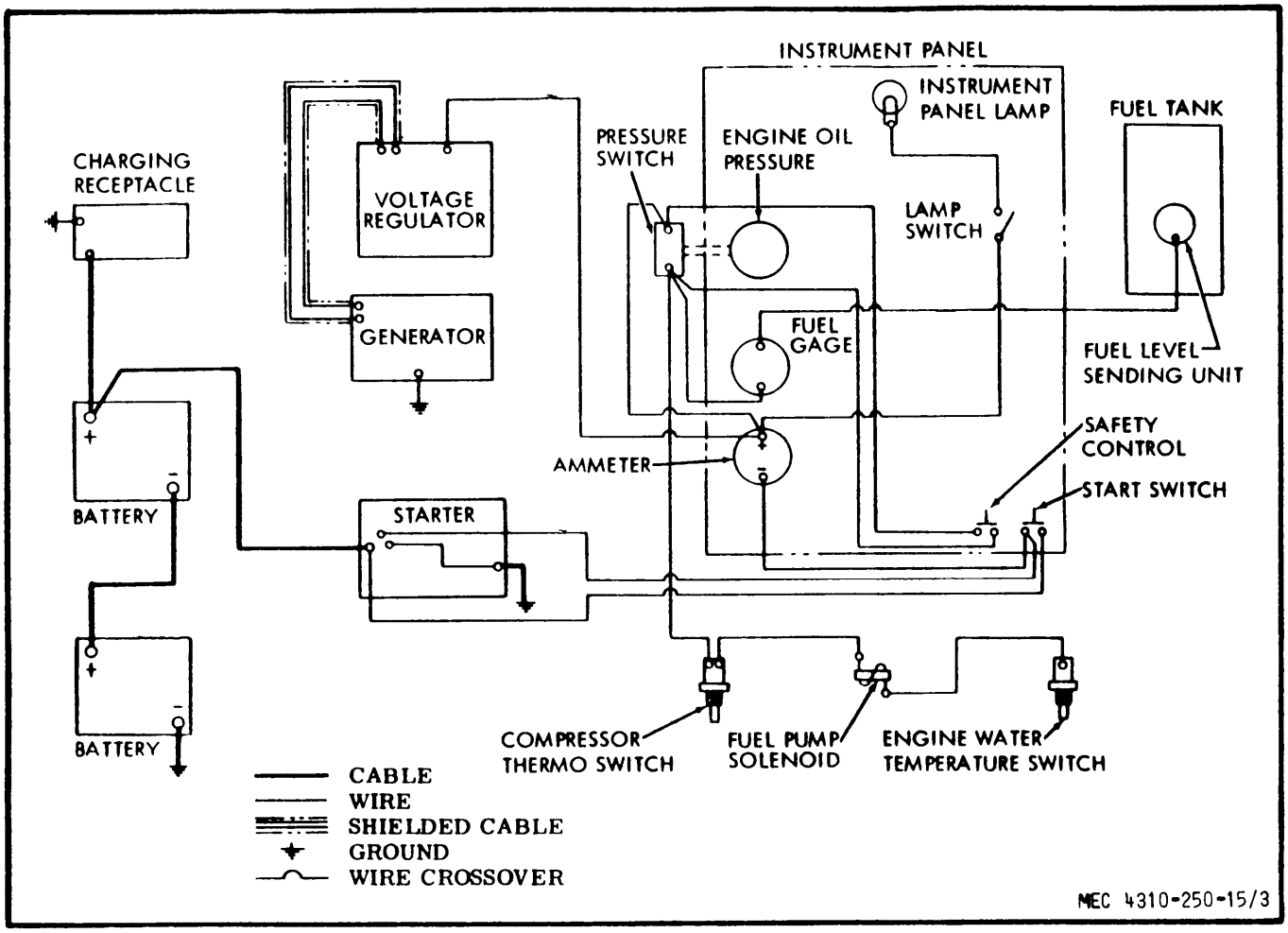


Figure 3. Practical Wiring Diagram.

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 . . 12-1/2 QT
(with filter)
Compressor lubricating . . . . 26 QT
system
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.

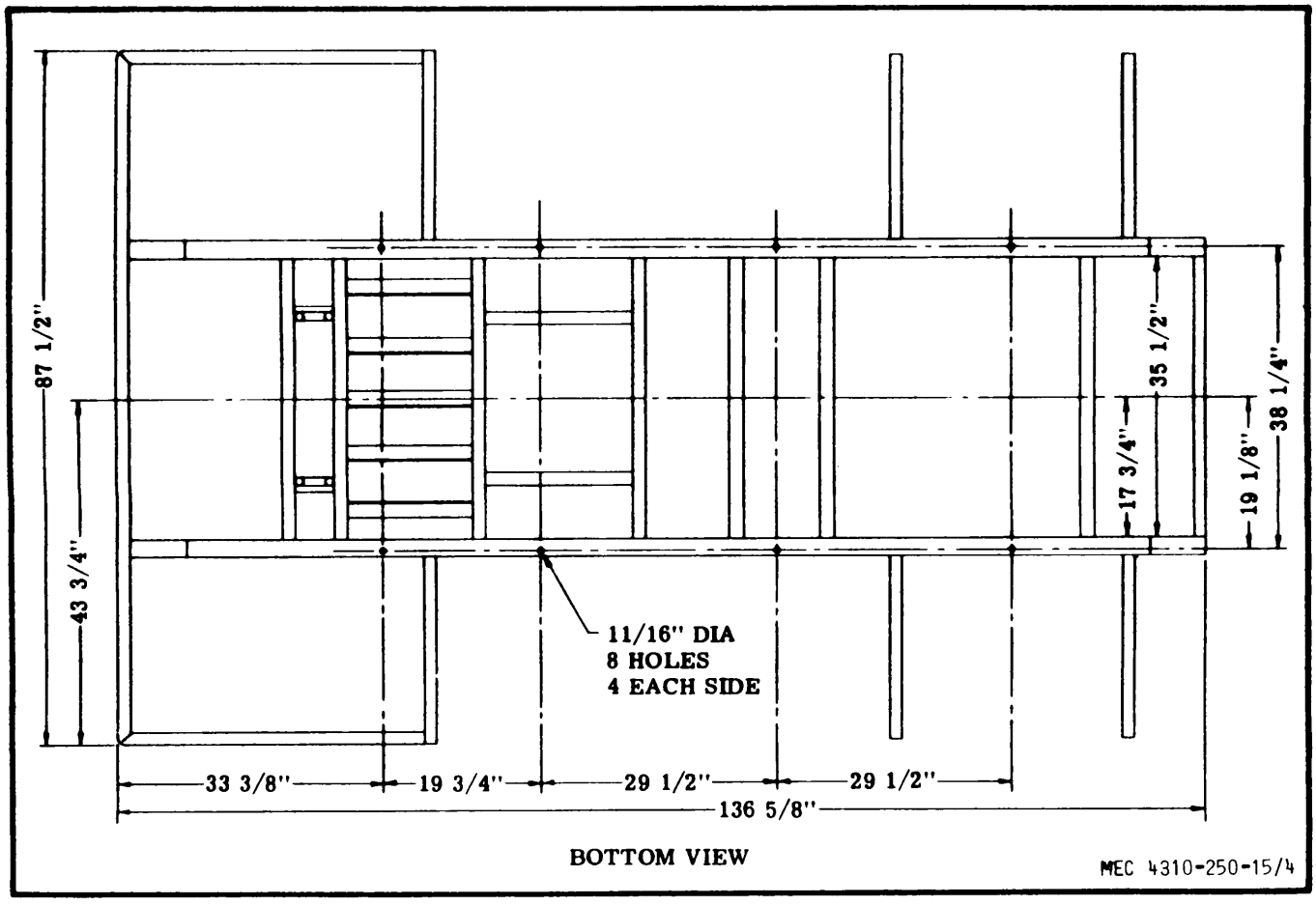


Figure 4. Base Plan.

Table 1. 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 2. 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					

1 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 reprocessed before servicing. Make certain preservatives have been removed from such items as crankcase, fuel tanks, and the like. When a DA Form 2258 is furnished, accomplish depreservation as outlined on the guide.

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) Fill the fuel tank and cooling system (see

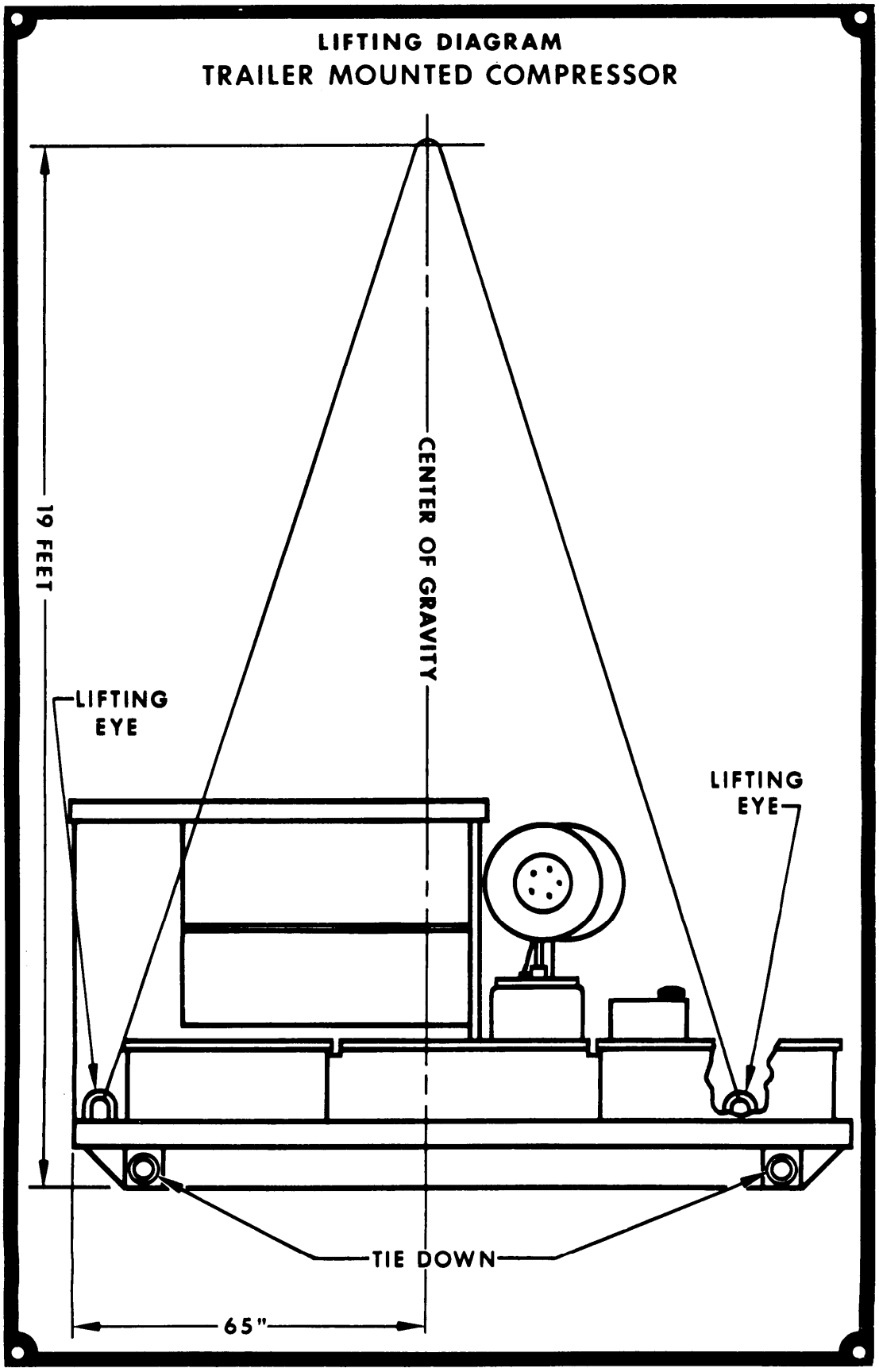


Figure 5. Lifting Instruction Plate.

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

(4) 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.

(5) For cold-weather operation, lubricate equipment per current lubrication order (LO 5-4310-250-15). Service cooling system per Table 3.

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 3. 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	DO NOT DILUTE WITH WATER OR ANY OTHER SUBSTANCE	
-60	preferred		
-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 cross members. 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 cross members.

(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.

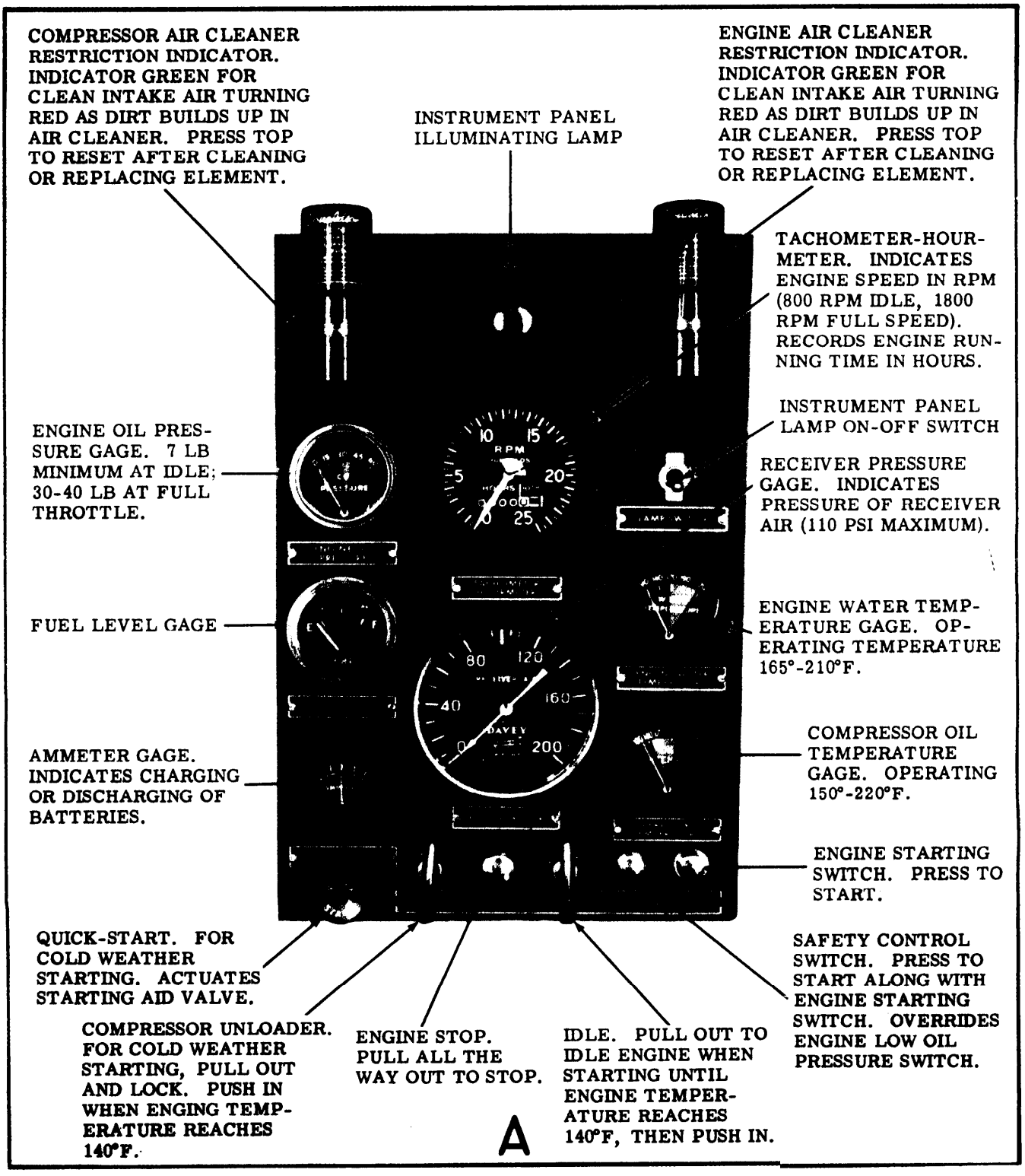
Section III. CONTROLS AND INSTRUMENTS

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.

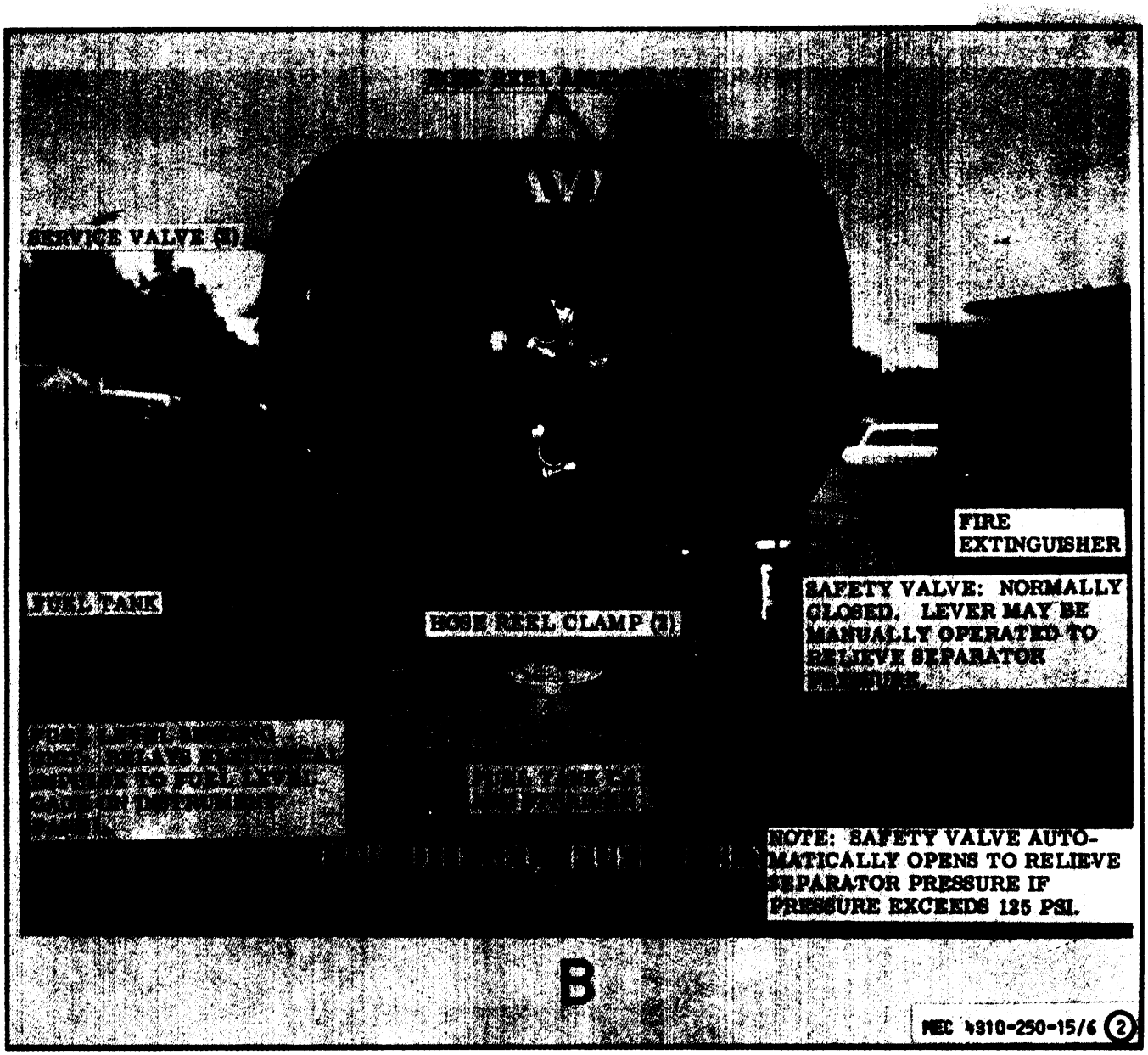
14. CONTROLS AND INSTRUMENTS

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



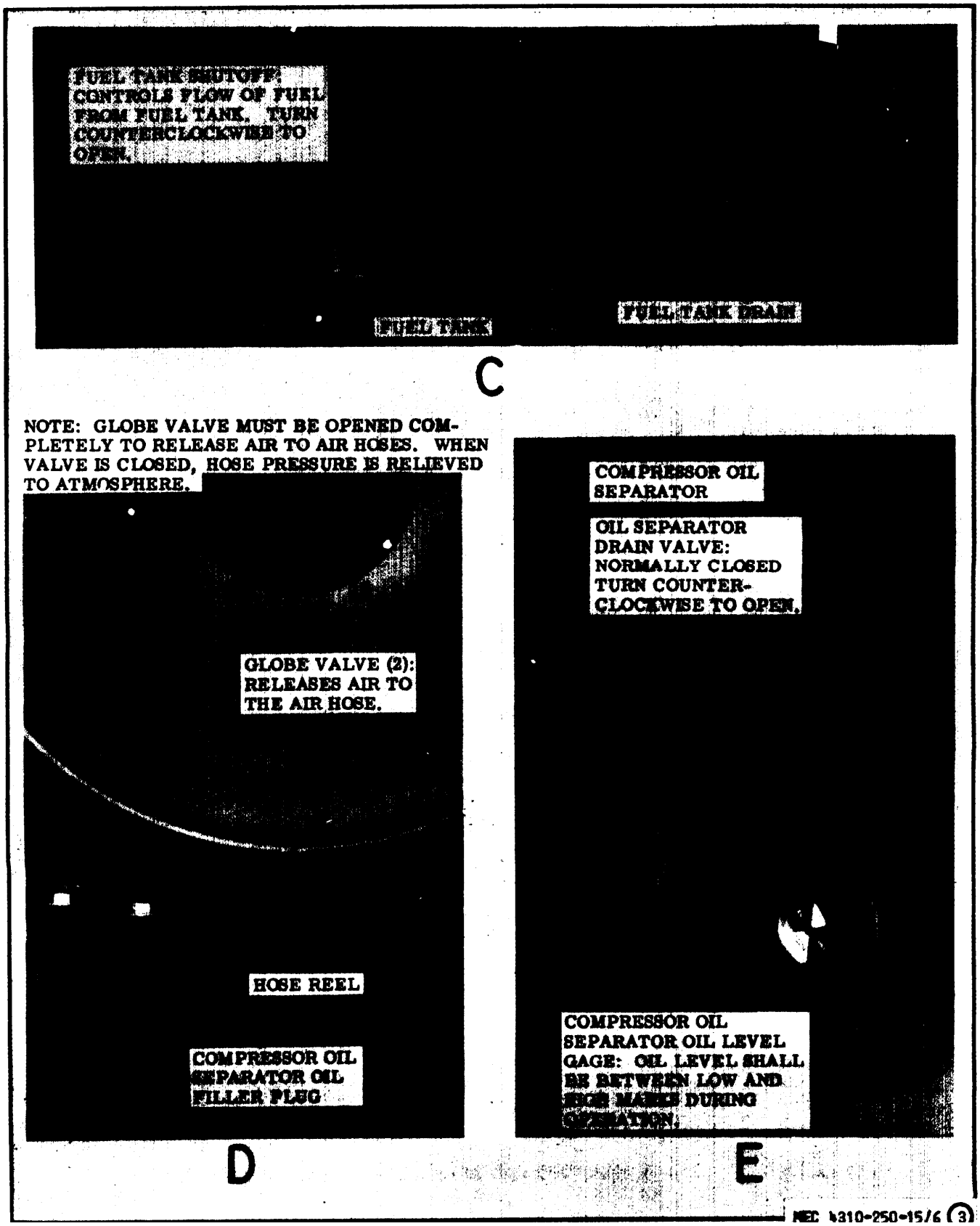
A - Instrument Panel.

Figure 6. Controls and Instruments.



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

Figure 6. - Continued.

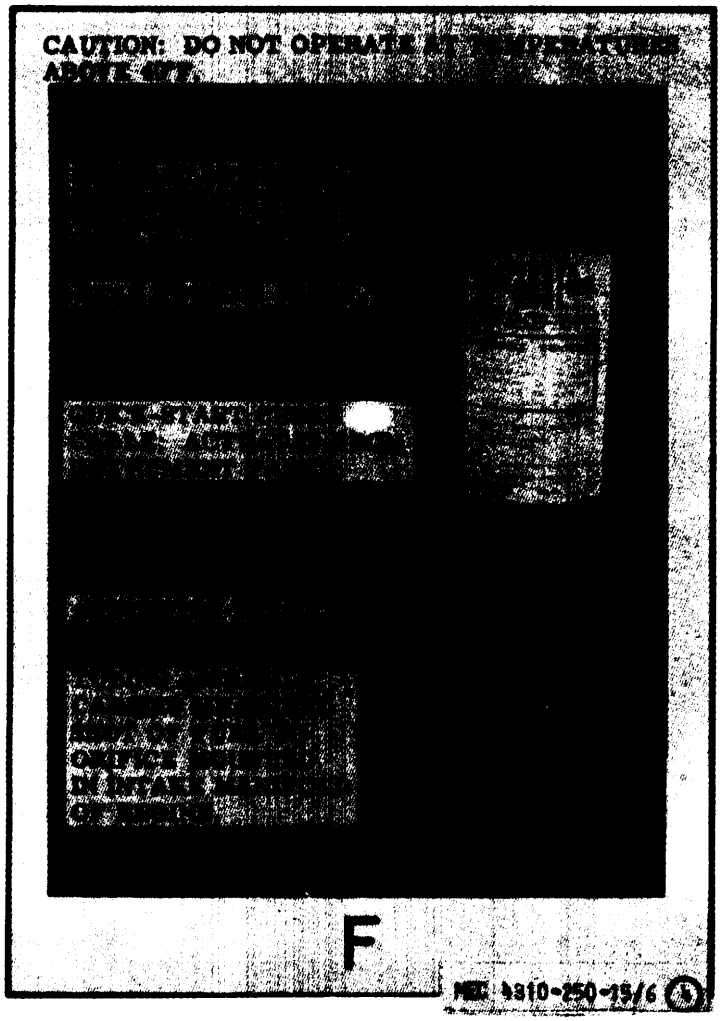


C- Fuel Tank Shutoff and Drain.

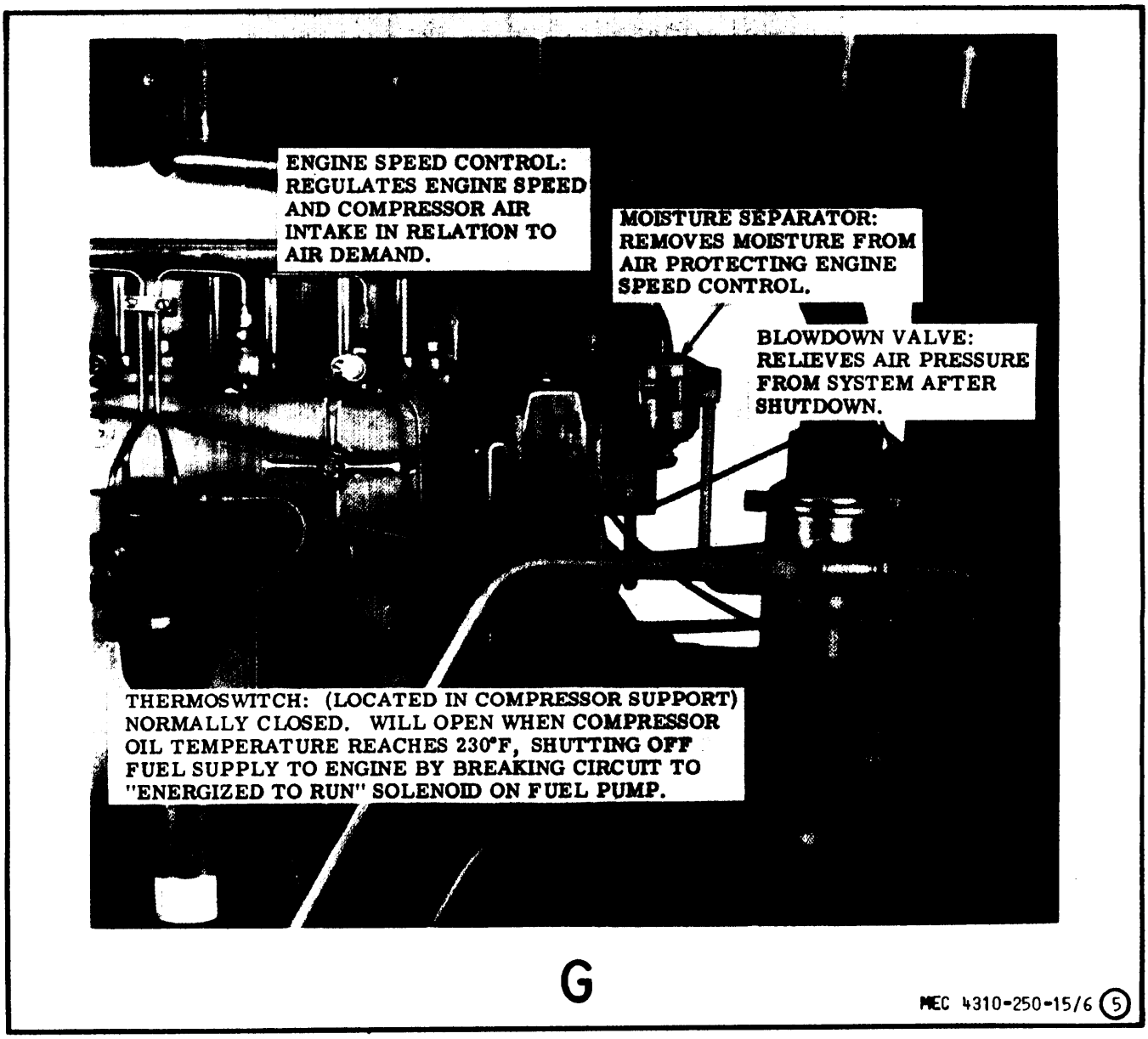
D - Hose Reel Globe Valve and Compressor Oil Separator Oil Filler Plug.

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 (para 33).

(2) Check air demand requirements.

(3) Pull out and lock compressor unloader. Push in when engine runs steady (approximately 140 degrees F.).

b. Starting. (Models M250RPV and 6M250RPV). Refer to figure 7 and start the air compressor.

c. Starting. (Model 9M250RPV). Refer to figure 7.1 and start air compressor.

17. STOPPING THE EQUIPMENT

a. For Models M250RPV and 6M250RPV, refer to figure 8 and stop the air compressor. For Model 9M250RPV, refer to figure 8.1 and stop air compressor.

b. Perform the necessary daily preventive maintenance services (para. 33).

18. OPERATION UNDER USUAL CONDITIONS

a. Start the air compressor per paragraph 16.

b. For Models M250RPV and 6M250RPV, refer to figure 9 and operate air compressor. For Model 9M250RPV, refer to figure 9.1 and operate air compressor.

CAUTION

Do not operate the compressor with less than 80 PSI in the receiver. If end use allows pressure to fall below 80 PSI, partly close outlet valve. Operation below 80 PSI will cause the compressor to overheat and causes excessive oil consumption.

18.1 DECALS AND INSTRUCTION PLATES

A decal has been developed that warns of NBC exposure. (See figure 57, item 8, air cleaner.) You may order the decal using part number 12296626, CAGEC 19207; reference TB 43-0219 for more information.

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

a. See that antifreeze solution is correct for lowest temperature expected (refer to Table 3.).

b. Inspect cooling system. Corrector 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 2100 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. Corrector 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 normal when opcrating under these conditions.

WARNING

If NBC exposure is suspected, all air filter media should be handled by personnel wearing protective equipment. Consult your unit NBC Officer or NBC NCO for appropriate handling or disposal instructions.

d. Keep close check on air filter restriction indicators and service air filters as required.

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

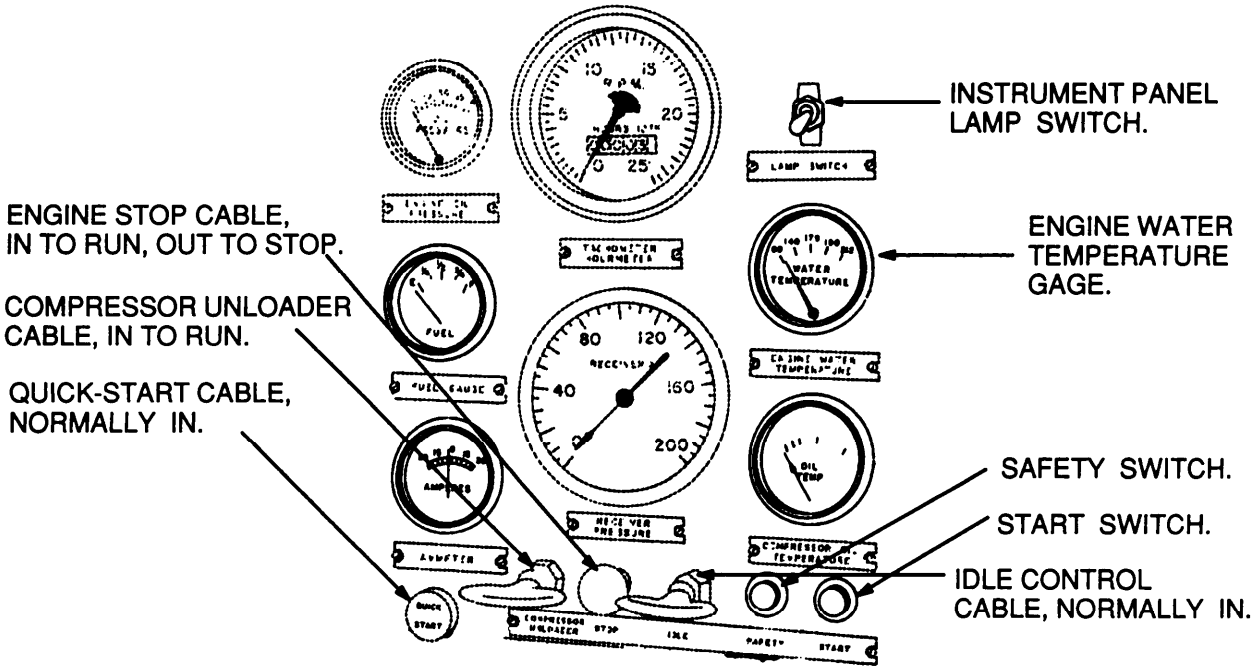
Follow same procedures as described in paragraph 22 above.

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 CLOSE AIR OUTLET VALVE ON HOSE REEL OF 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 PRESS START SWITCH BUTTON AND SAFETY SWITCH BUTTON SIMULTANEOUSLY. RELEASE START BUTTON WHEN ENGINE STARTS. RELEASE SAFETY BUTTON WHEN OIL PRESSURE IS ACHIEVED.

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 7 WHEN ENGINE STARTS, TO ACHIEVE FAST WARM UP, PARTLY OPEN THE AIR OUTLET VALVE AND ADJUST THE IDLE CONTROL TO FAST IDLE (1000 RPM) BUT THE AIR PRESSURE IN THE RECEIVER MUST BE MAINTAINED ABOVE 80 PSI.

STEP 8 ALLOW ENGINE TO RUN AT FAST IDLE UNTIL ENGINE RUNS STEADY, THEN PUSH IDLE CONTROL CABLE IN AND CLOSE AIR OUTLET VALVE ON HOSE REEL OR SERVICE VALVE THAT WAS OPENED IN STEP 7.

STEP 9 CHECK READINGS OF ALL ENGINE AND COMPRESSOR GAGES.

STEP 10 UNIT IS NOW READY FOR USE. NORMAL OPERATING PRESSURE RANGE IS FROM 90 TO 110 PSI.

CAUTION

DO NOT OPERATE WITH LESS THAN 80 PSI IN THE RECEIVER. OPERATION BELOW 80 PSI WILL CAUSE THE COMPRESSOR TO OVERHEAT AND EXCESSIVE OIL CONSUMPTION.

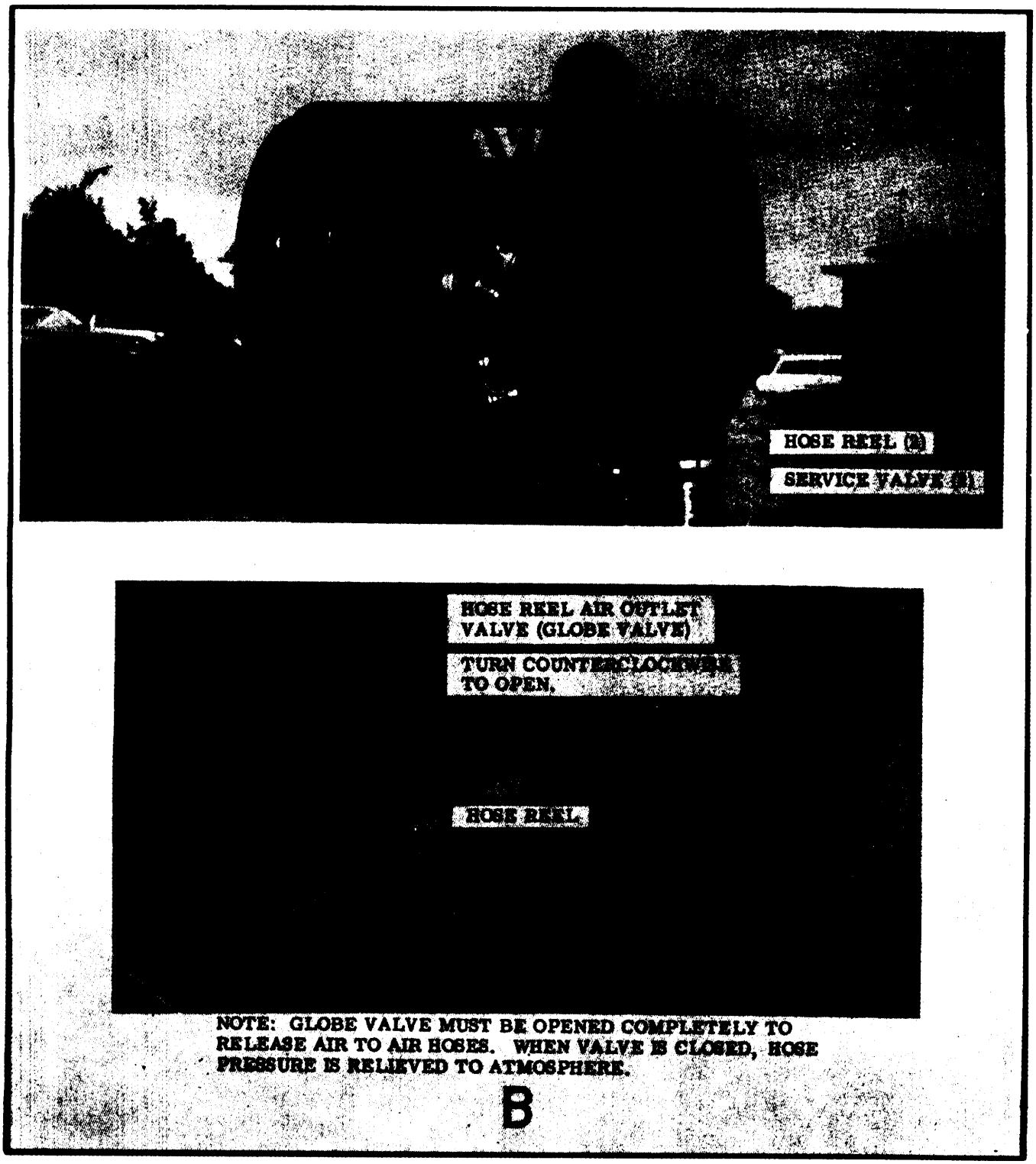
NOTE

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 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

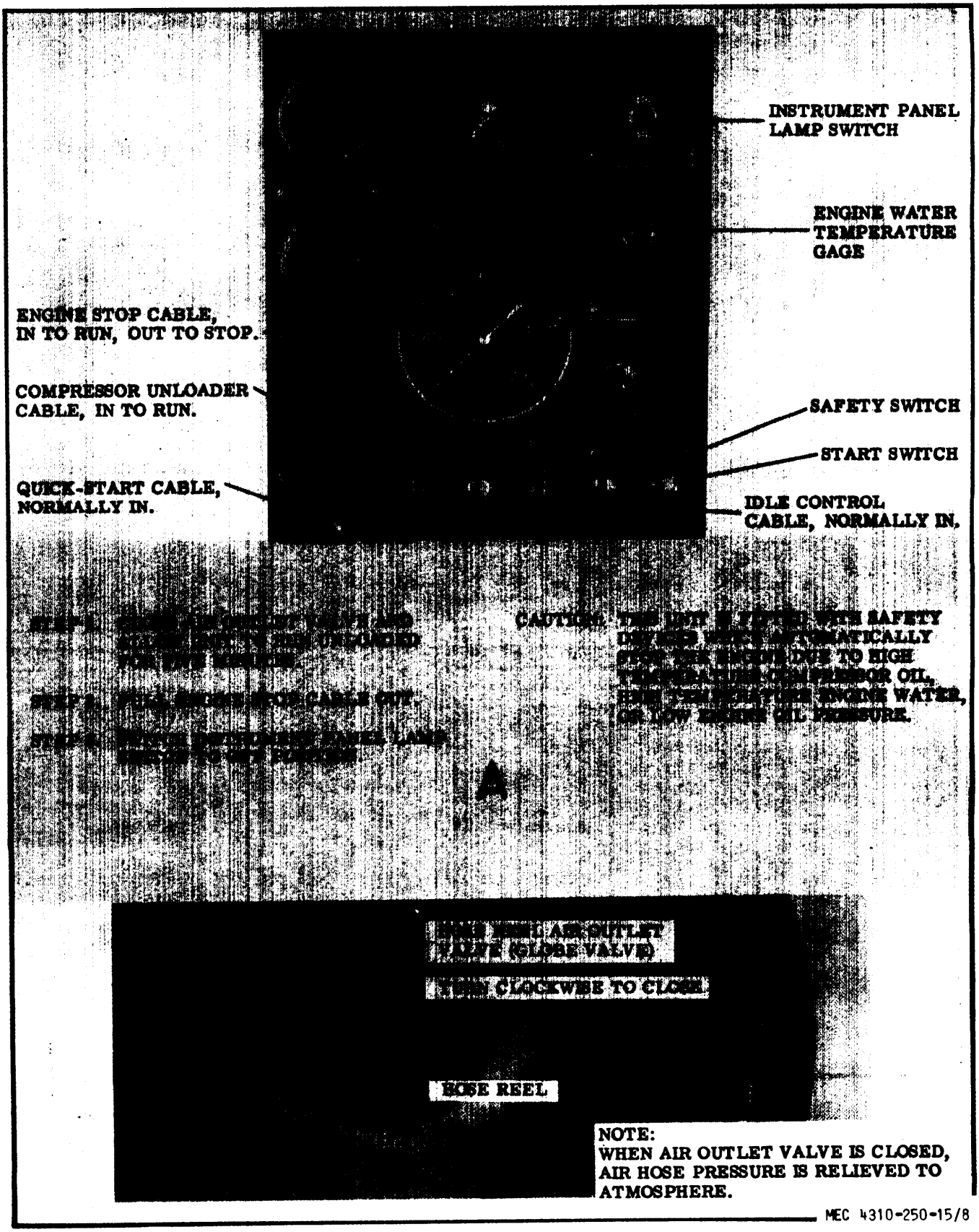
A - Instrument Panel Controls.

Figure 7. Starting the Compressor, Models M250RPV and 6M250RPV.



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

MEC 4310-250-15/7 (2)



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

Figure 8. Stopping the Air Compressor.

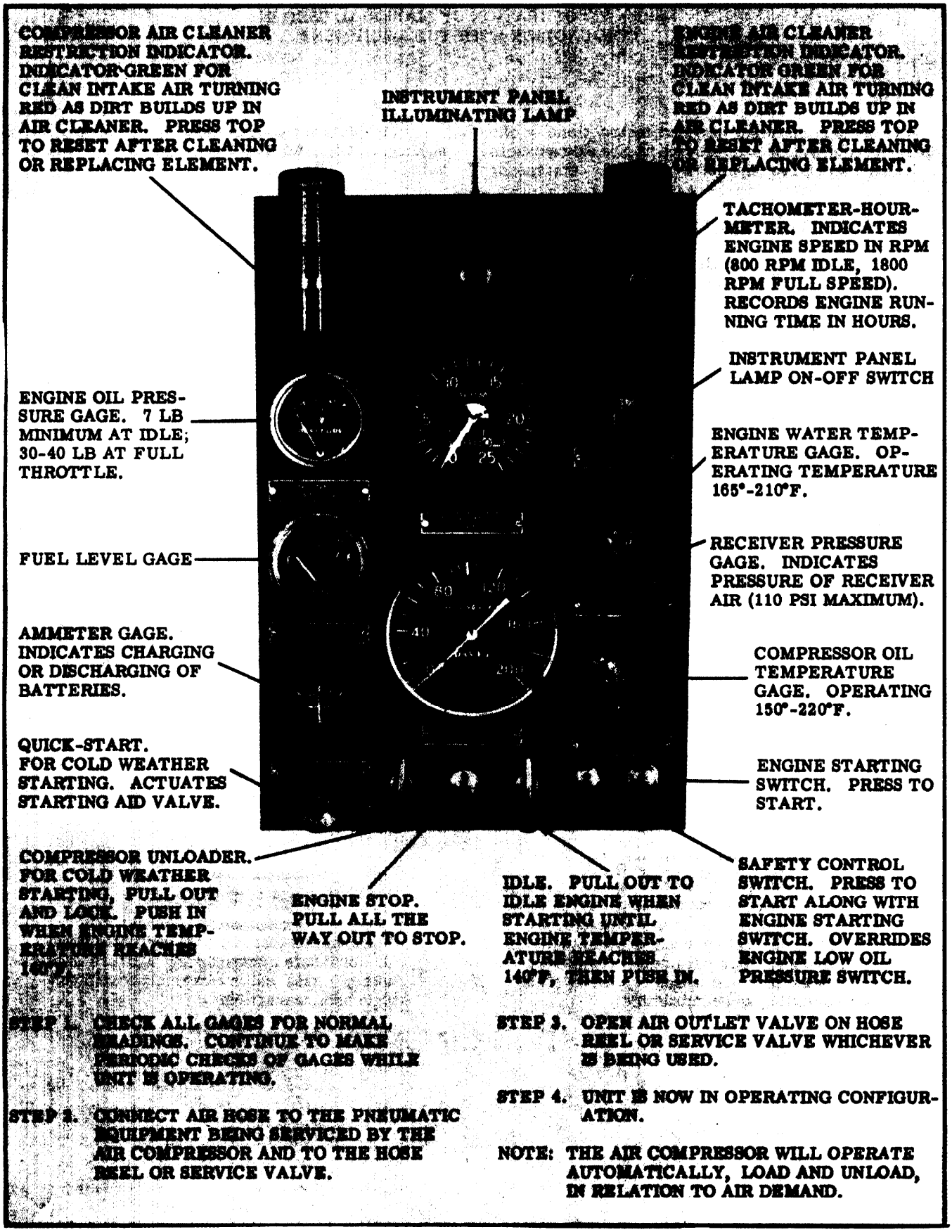


Figure 9. Operating the Air Compressor.

MEC 4310-250-15/9

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 II of this manual.

29. ORGANIZATIONAL MAINTENANCE REPAIR PARTS

Organizational maintenance repair parts are listed and illustrated in TM 5-4310-250-25P.

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

LO5-4310-250-15

6 OCTOBER 1965

COMPRESSOR , ROTARY: AIR; DIESEL ENGINE DRIVEN; 250CFM, 100PSI; SKID MOUNTED (DAVEY MODEL M250RPV) 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.

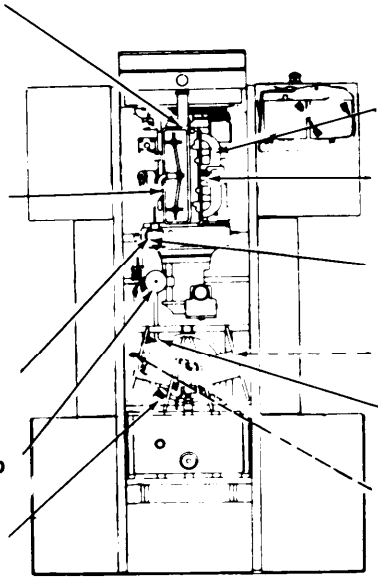
Lubricate points indicated by dotted arrow shaft on both sides of equipment.

Drain crankcase and gearcase when hot. Fill and check level.

FOLD

FOLD

	LUBRICANT	INTERVAL
1 Engine Oil Fill Cap (See Key)	OE	
2 Tachometer Drive Grease Cup (Sparingly)	GAA	50
3 Engine Oil Level Gage (Check Level) CAUTION: When OES oil is used the level will be checkes more often.		10
4 Engine Speed Control Fill Plug (See Key)	OE	
5 Oil Separator Filter (See Note 4)		100
6 Oil Separator Level Gage (Check level)		10



	INTERVAL	LUBRICANT
7 Engine Oil Filter (See Note 3)	100	
8 Engine Oil Drain Plug (Drain and Refill)	100	
9 Engine Speed Control Drain Plug (Drain and refill)	100	
10 Hose Reel (Sparingly)	100	GAA
11 Oil Separator Fill Plug (See Key)		2110-TH
12 Oil Separator Drain Valve (Drain and refill)	500	

MEC 4310-250-15/10 ①

— KEY —

LUBRICANTS	-CAPACITY-	EXPECTED TEMPERATURES			INTERVALS
		Above +32°F	+40°F to −10°F	0°F to −65°F	
OE- OIL, Engine, Heavy Duty					
Engine Crankcase	12 1/2 qt.	OE 30	OE 10	OES	Intervals given are in hours of normal operation.
Oil Can Points					
Engine Speed Control	1/5 qt				
OES- OIL, Engine, Sub-zero					
2110-TH LUBRICATING OIL, General Purpose		2110-TH	2110-TH	OES	
Oil Separator	26 qt				
GAA- GREASE, Automotive and Artillery		All Temperatures			

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

2. OIL CAN POINTS. Every 50 hours clean and lightly coat control linkages, hinges, and all exposed adjusting threads with OE.

FOLD

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

4. OIL SEPARATOR FILTER. Every 500 hours remove filter element, clean housing and install new element. This shall be done only during separator oil change.

5. AIR CLEANERS. The engine and compressor air cleaners are dry type air cleaners.

6. WATER, PUMP, GENERATOR AND STARTER. Have sealed bearings no lubrication required.

FOLD

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

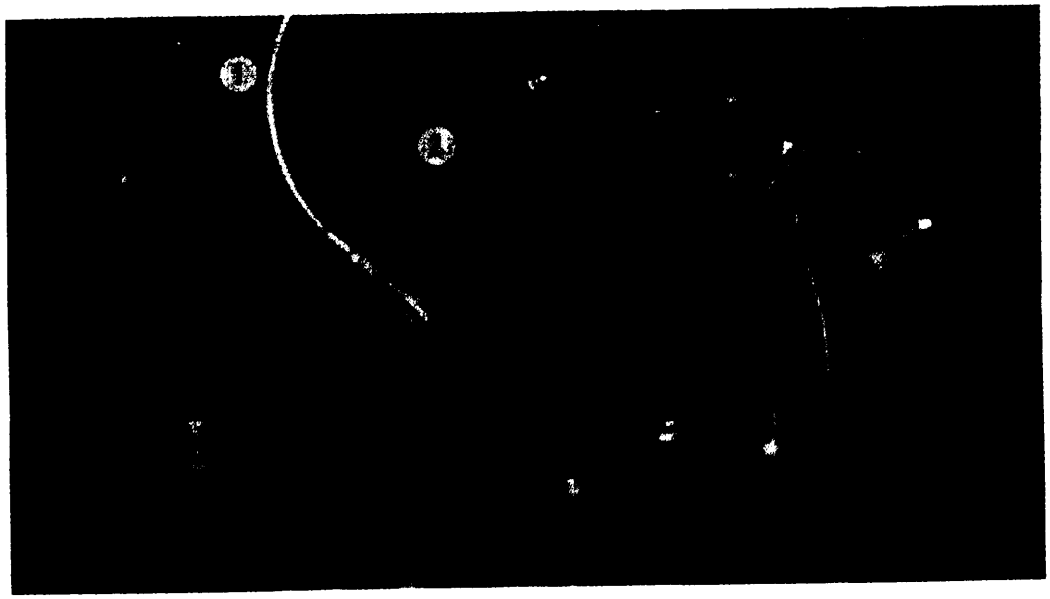
BY ORDER OF THE
SECRETARY OF THE ARMY:

HAROLD K. JOHNSON,
General, United States Army,
Chief of Staff.

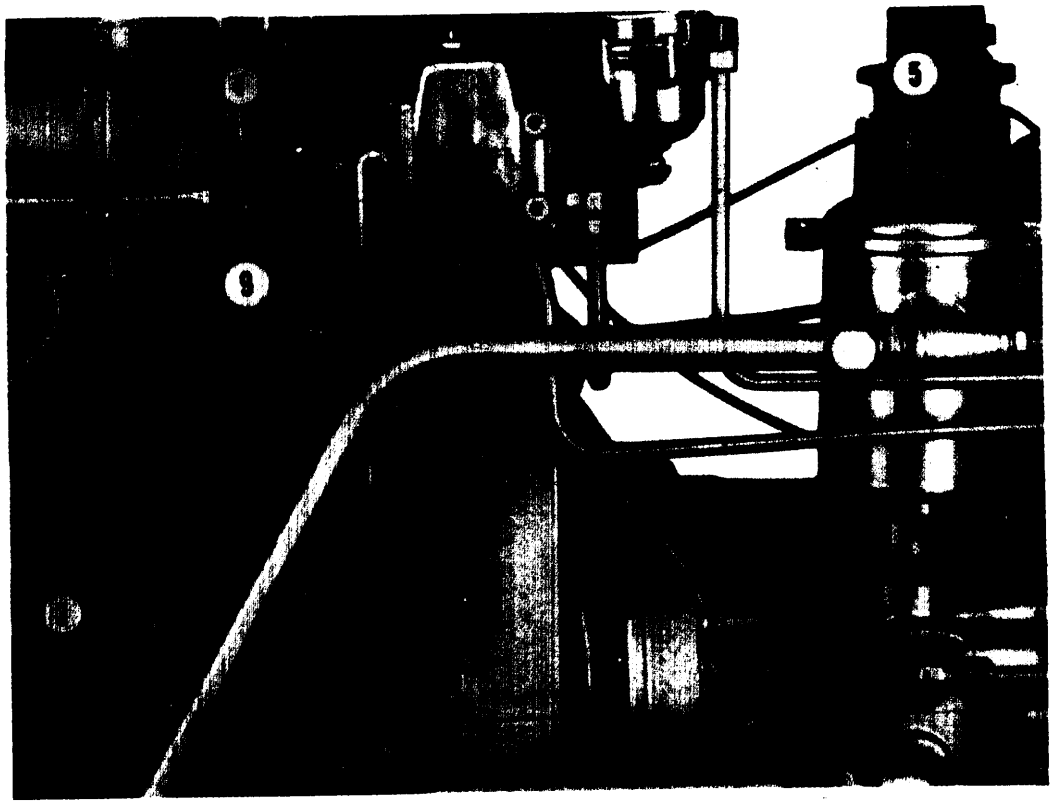
OFFICIAL:

J. C. LAMBERT,
Major General, United States Army,
The Adjutant General.

MEC 4310-250-15/10 ②



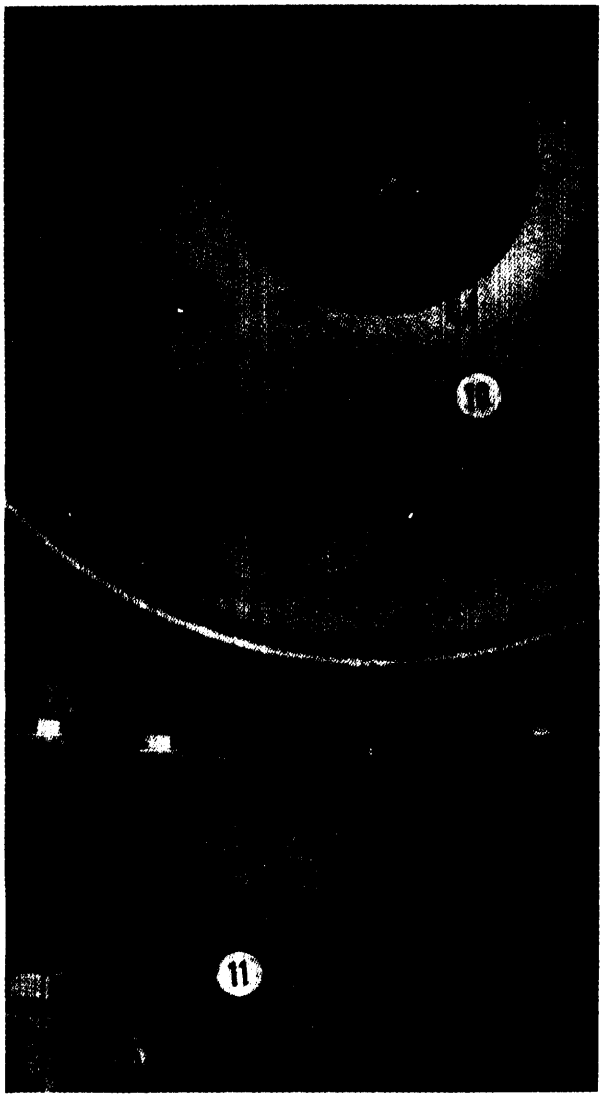
REF 1. CRANKCASE OIL FILL CAP
REF 2. TACHOMETER DRIVE GREASE CUP



REF 3. CRANKCASE OIL LEVEL GAGE
REF 4. ENGINE SPEED CONTROL FILL PLUG
REF 5. COMPRESSOR OIL FILTER
REF 9. ENGINE SPEED CONTROL DRAIN PLUG

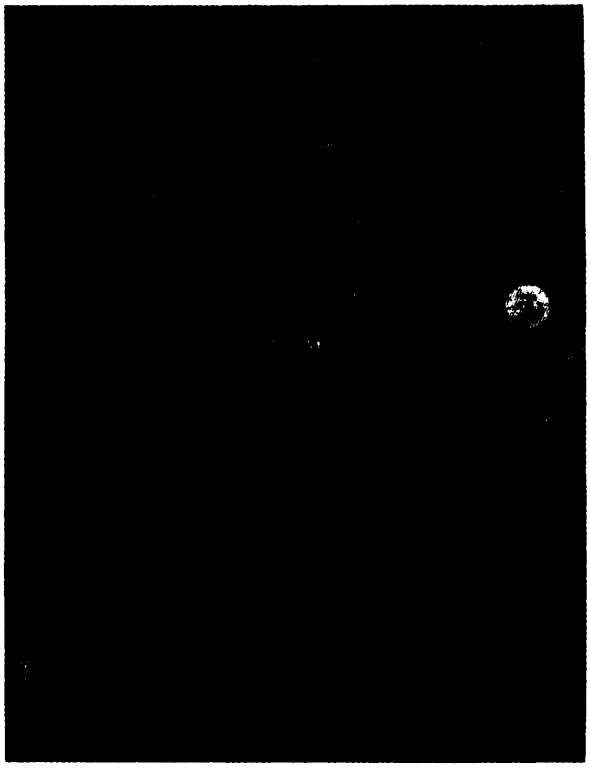
MEC 4310-250-15/10 (3)

Figure 10. - Continued.



REF 10. HOSE REEL
REF 11. OIL SEPARATOR FILL PLUG

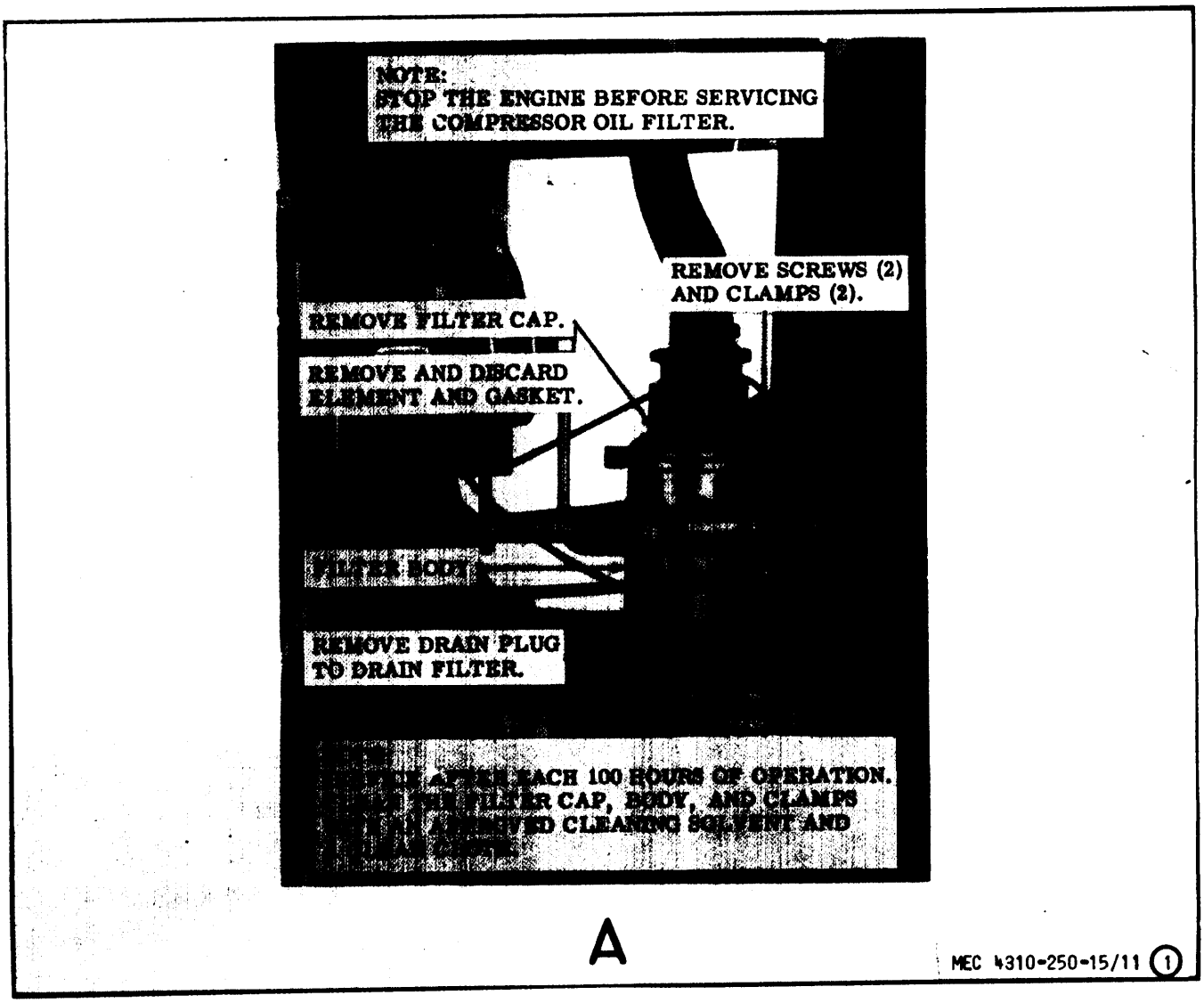
REF 6. SEPARATOR OIL LEVEL GAGE
REF 12. OIL SEPARATOR DRAIN VALVE



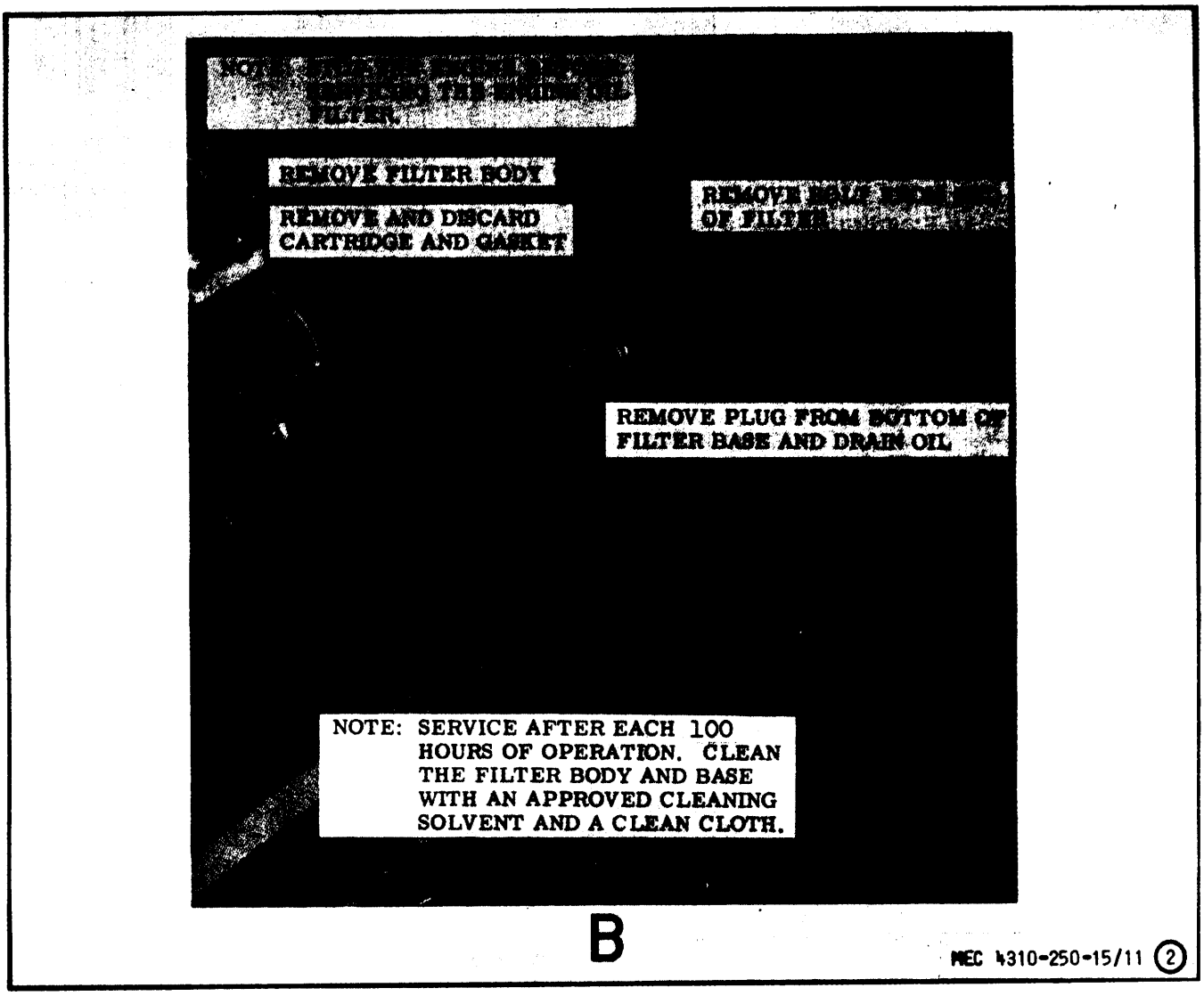
REF 7. ENGINE OIL FILTER
REF 8. ENGINE OIL DRAIN PLUG

MEC 4310-250-15/10 (4)

Figure 10. - Continued.



A - Compressor Oil Filter Service.
Figure 11. Oil Filter Service.



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.

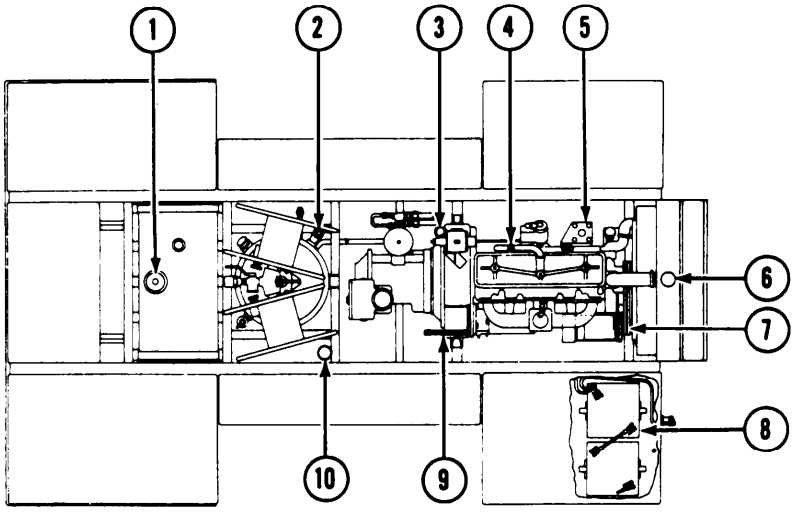
47. HOSE REEL SERVICE

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.	
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	

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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.	

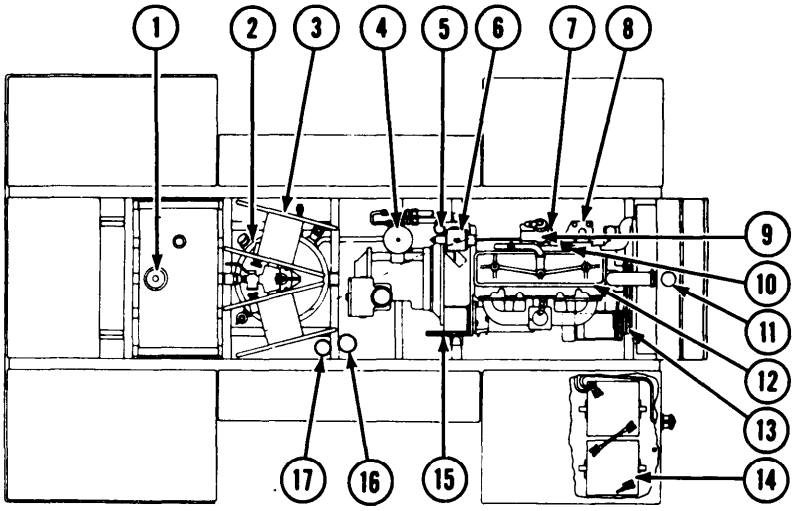
MEC 4310-250-15/12 (2)

Figure 12. - Continued.

PREVENTIVE MAINTENANCE SERVICES

QUARTERLY

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



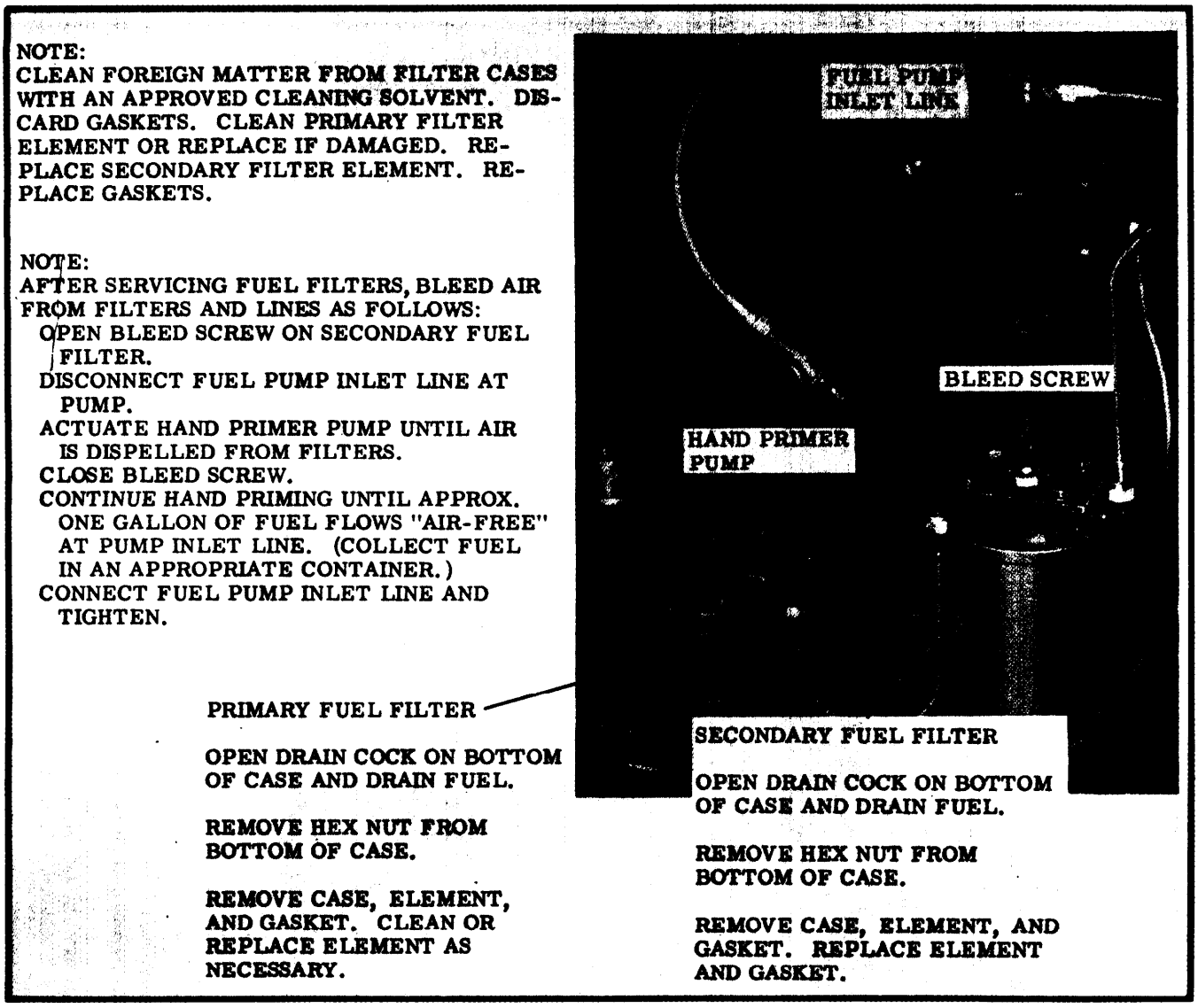
ITEM	LUBRICATE IN ACCORDANCE WITH CURRENT LUBRICATION ORDER	PARA REF
1	FUEL TANK. Add fuel as required. Tighten loose mounting. Replace defective cap. Clean cap vent. Replace defective fuel level sending unit.	37
2	OIL SEPARATOR. Change oil. Reference current L. O.	45
3	HOSE REELS. Lubricate. Reference current L. O.	47
4	COMPRESSOR OIL FILTER. Change filter element.	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. MEC 4310-250-15/13 (1)

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.	

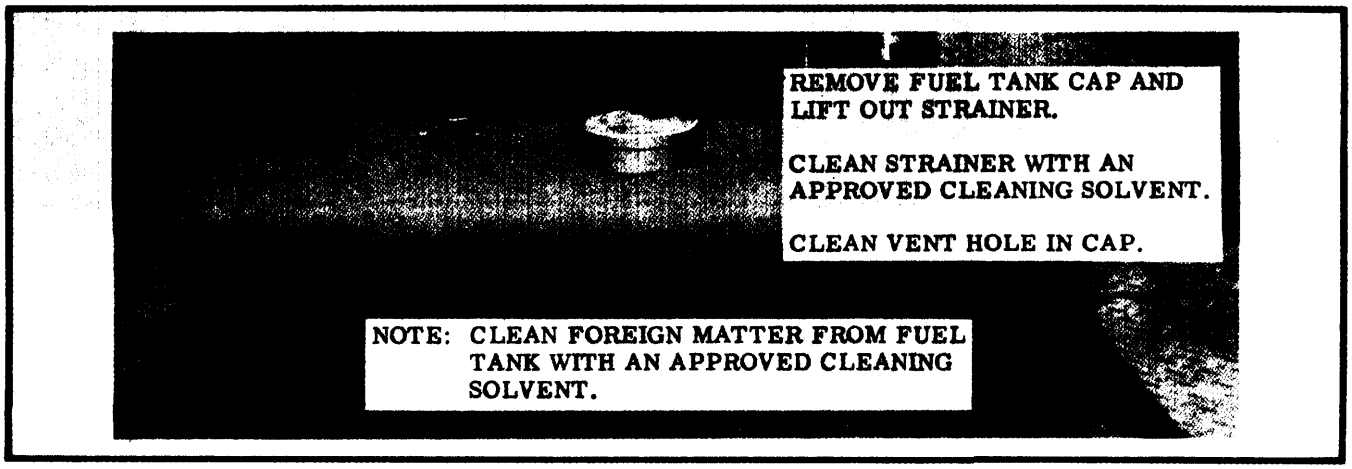
MEC 4310-250-15/13 (2)

Figure 13. - Continued.



MEC 4310-250-15/14

Figure 14. Fuel Filter Service.



MEC 4310-250-15/15

Figure 15. Fuel Tank Cap and Filter Service.

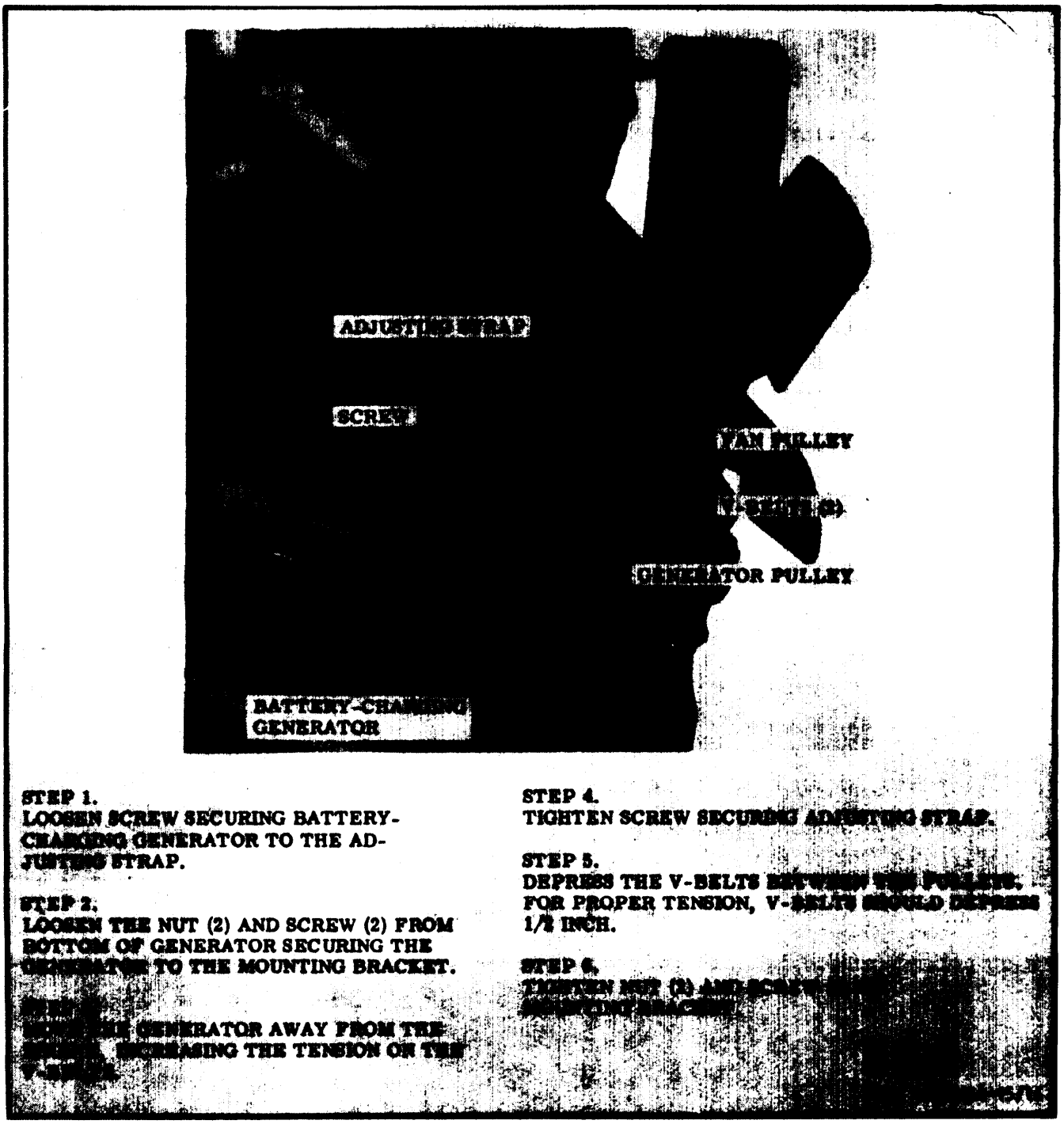
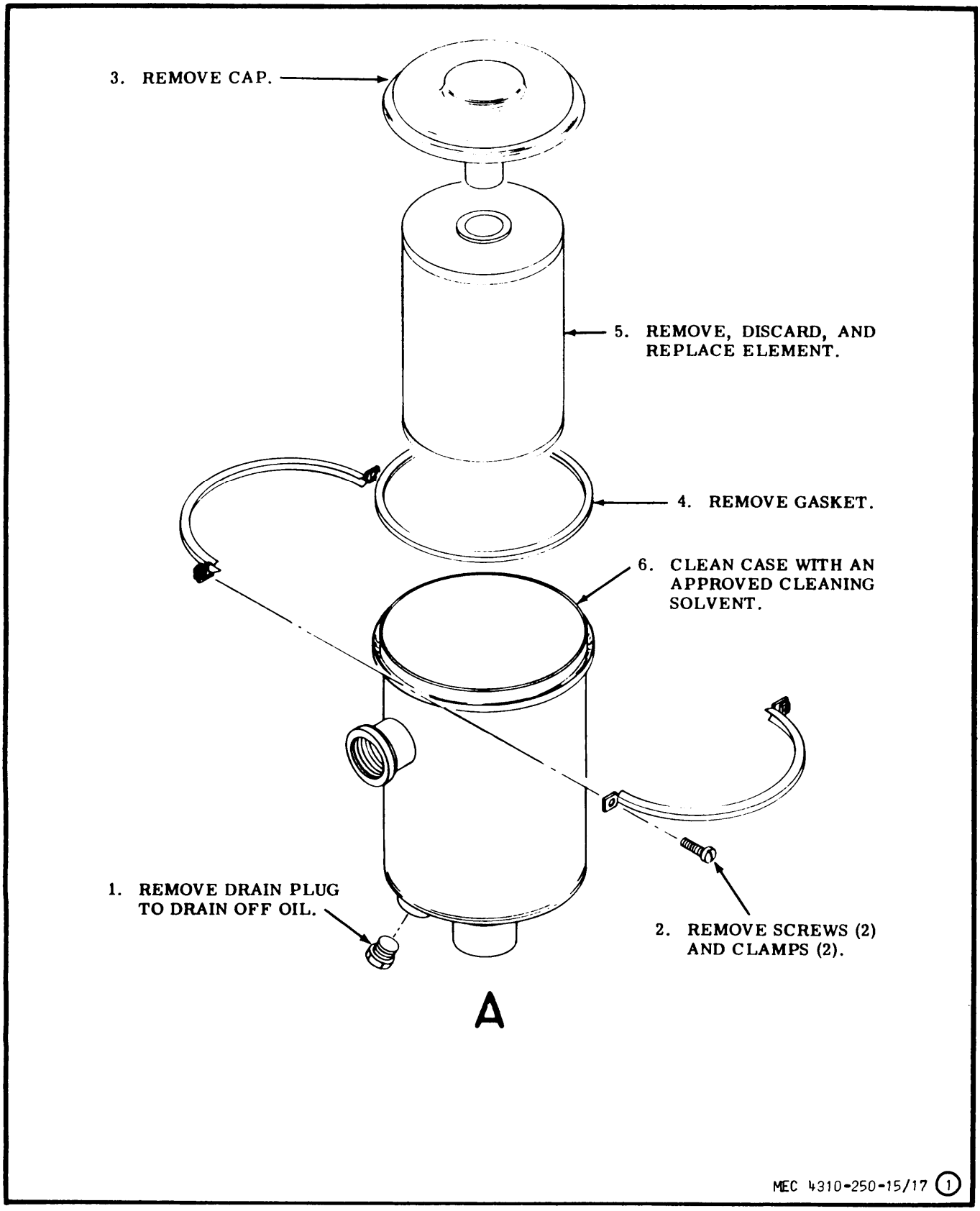
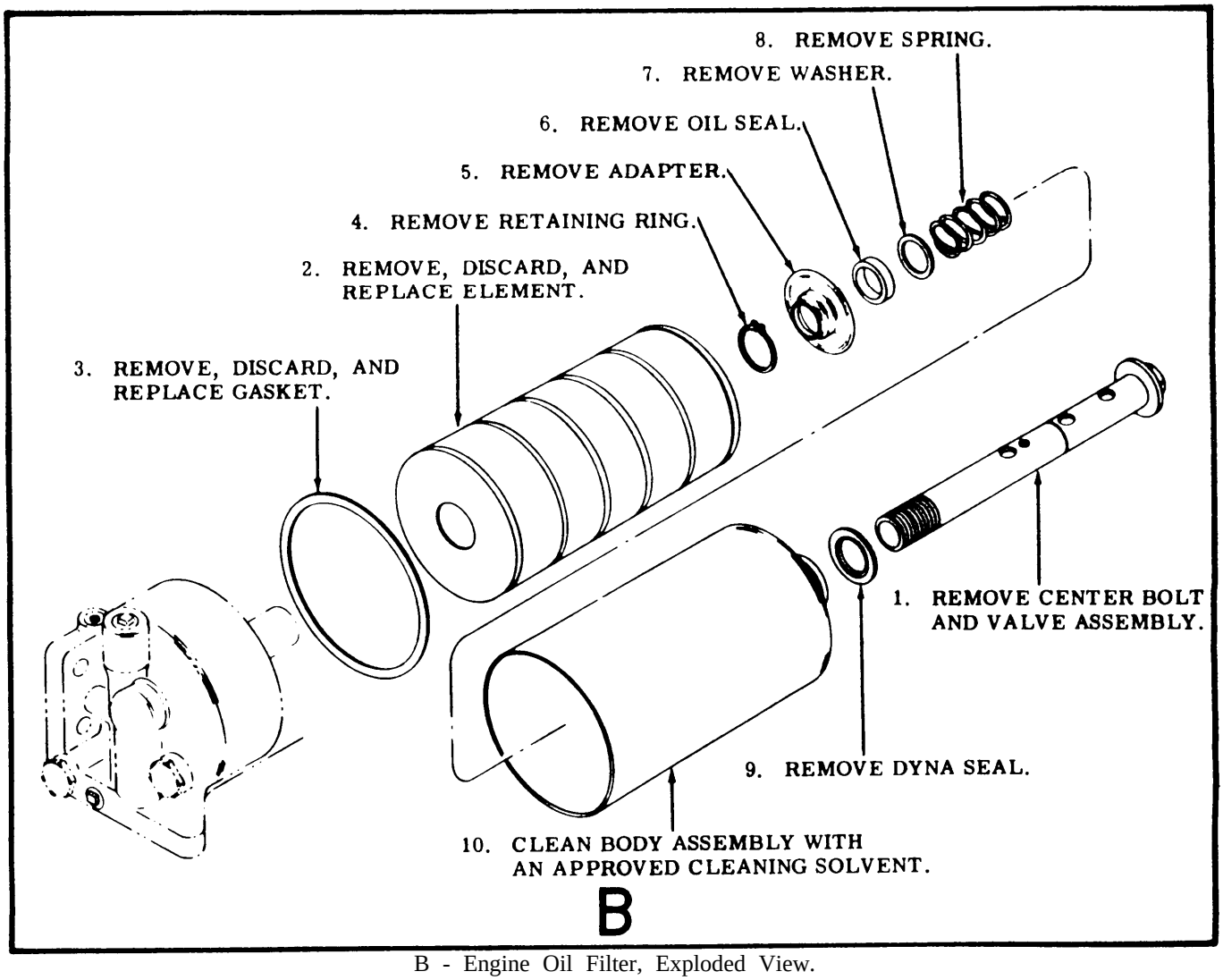


Figure 16. Fan V-Belt Adjustment.



A - Compressor Oil Filter, Exploded View.

Figure 17. Oil Filter Service.



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

WARNING

If NBC exposure is suspected, all air filter media should be handled by personnel wearing protective equipment Consult your unit NBC Officer or NBC NCO for appropriate handling or disposal instructions.

WARNING

Compressed air source shall not exceed 30 PSI (207kPa). Protective eyeshield must be worn when cleaning with compressed air. Failure to wear proper protection may result in injury to the eyes and/or loss of sight.

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 (30 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 DEPOSIT 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.

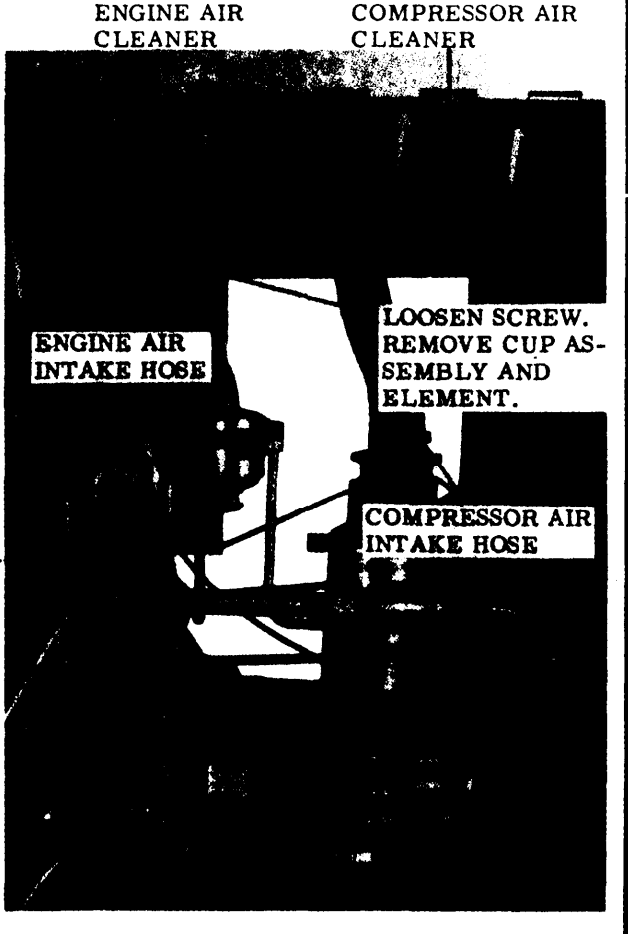


Figure 18. Air Cleaner Service.

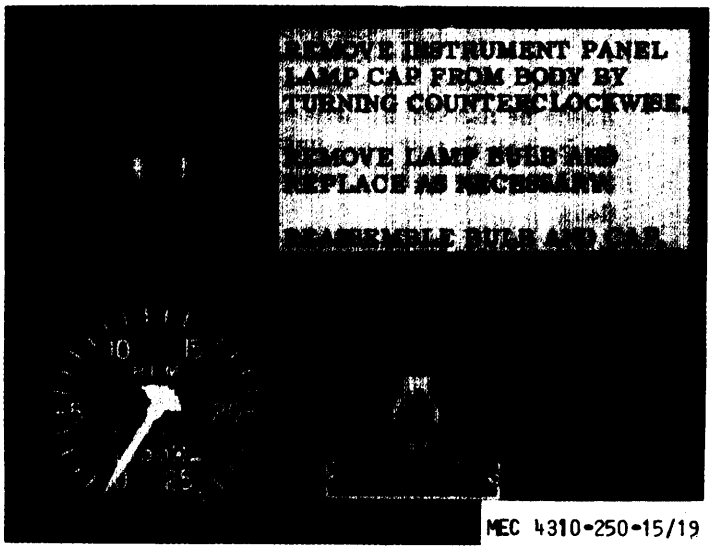
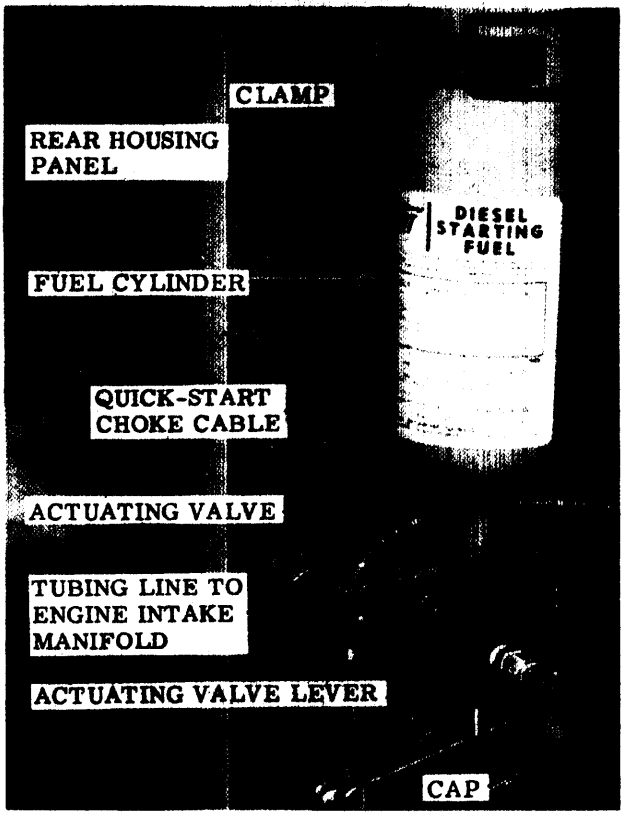


Figure 19. Lamp Replacement.

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.

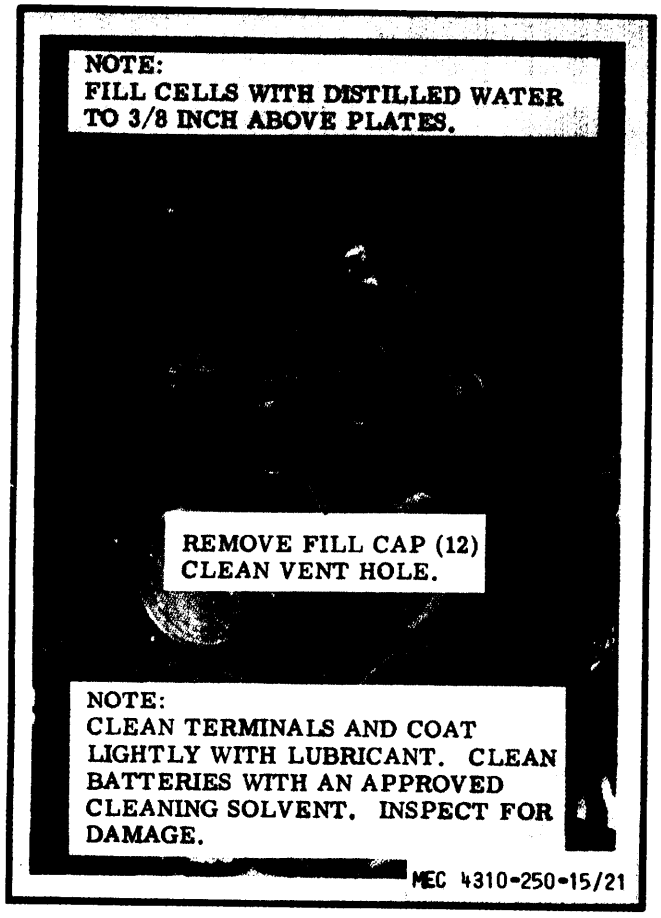


Figure 21. Battery Service.

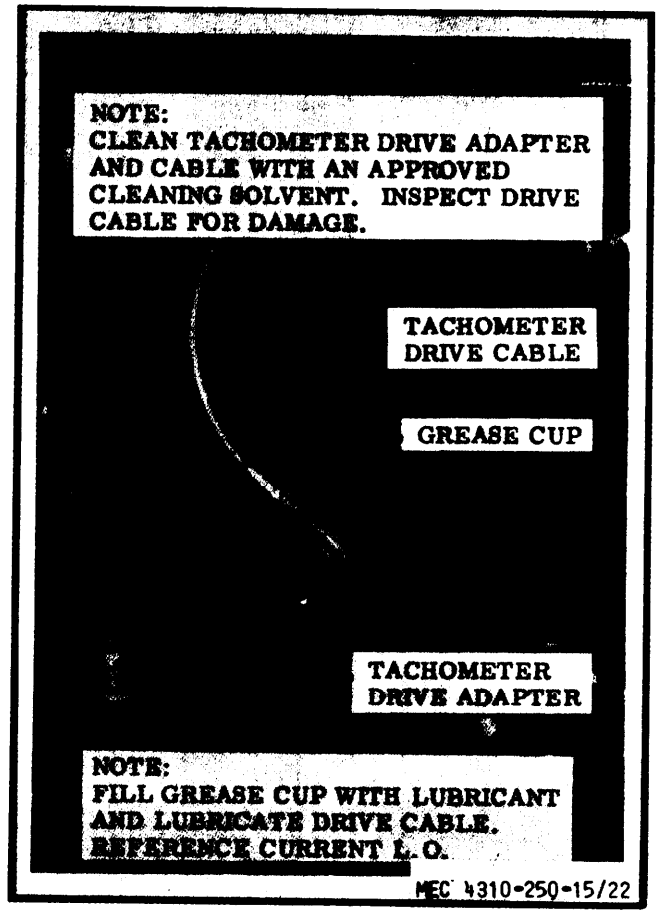


Figure 22. Tachometer Drive Service.

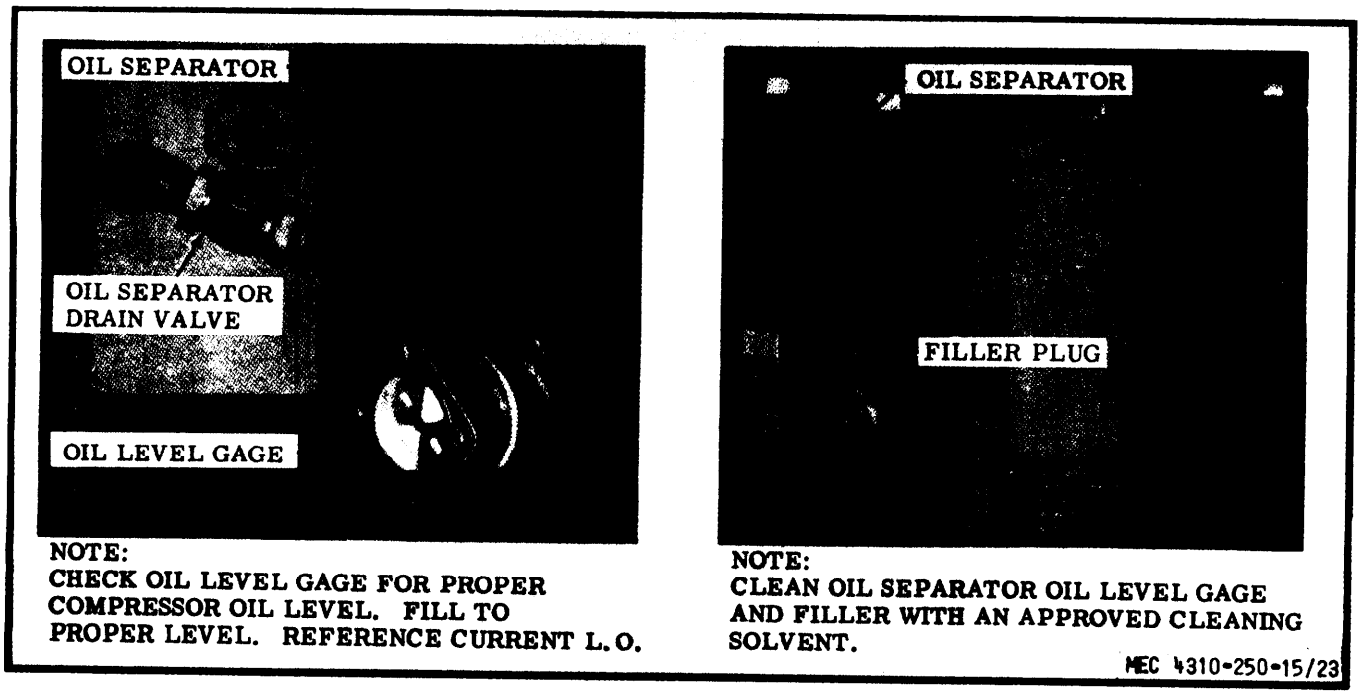
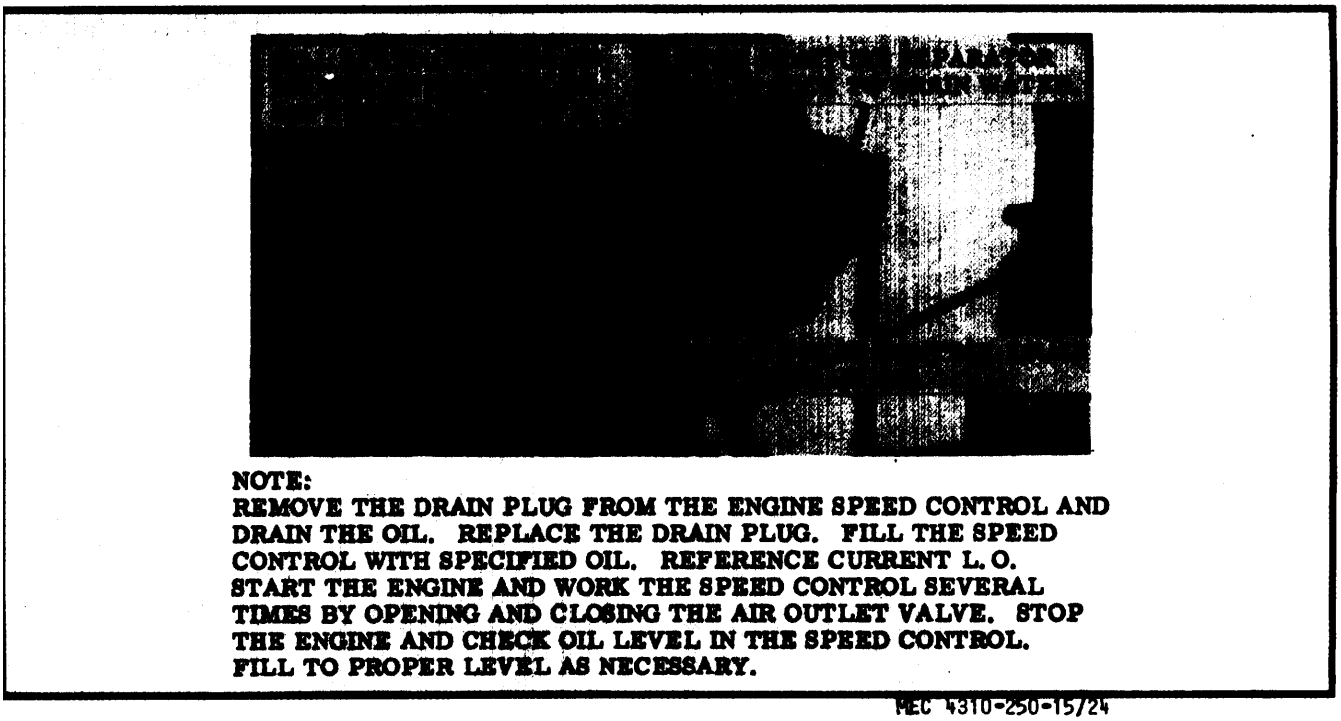


Figure 23. Compressor Service.



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.

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Figure 24. Engine Speed Control Service.

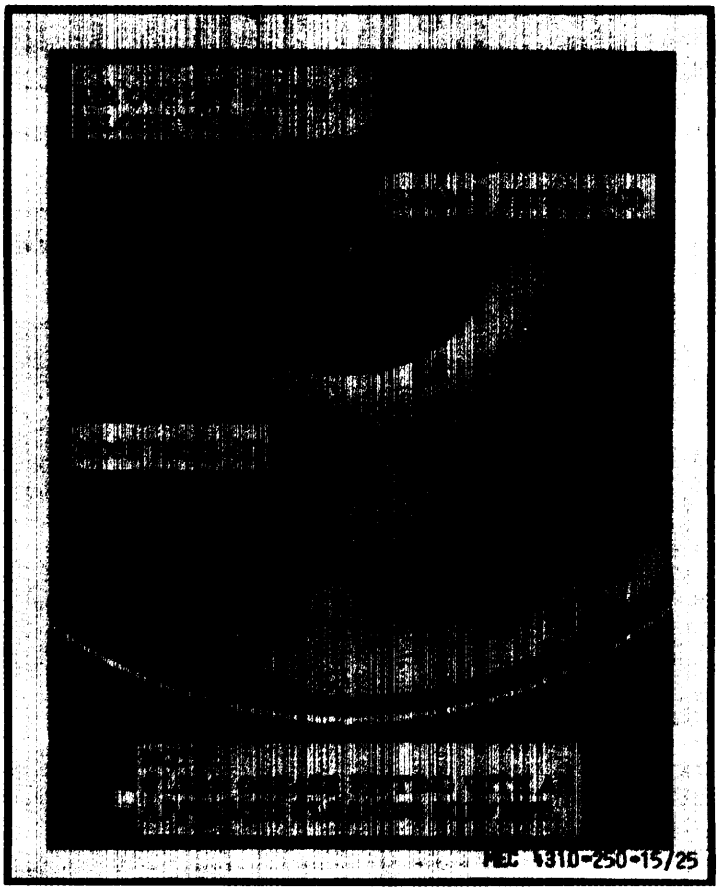


Figure 25. Hose Reel Service.

Section V. TROUBLESHOOTING

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).

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 33).
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 and bleed system (para. 36).
Low atmospheric temperature	Use cold weather starting aid (para 19).

51. ENGINE MISSES OR RUNS ERRATICALLY

Probable cause	Possible remedy
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 36).
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.

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 to Direct Support Maintenance.

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.

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).
Wrong valve timing	Check and correct as necessary (para 117).

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).
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.
Tappet noise	Check tappet clearance (0.014 in.) With engine warmed up. Adjust tappet clearance (para 117).

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.

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).

61. ENGINE EXHAUST SMOKE EXCESSIVE

Probable cause	Possible remedy
WHITE SMOKE- Indicates misfiring	
Low engine temperature	Check and clean or replace thermostat (para 104)
Poor grade of fuel	Use No. 2 Diesel Engine Fuel.
BLUE SMOKE - Indicates high oil consumption	
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).
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).

64. NOISY COMPRESSOR OPERATION

Probable cause	Possible remedy
Lack of lubricant	Fill separator to proper level. Reference current L. O.
Loose, worn, or damaged external parts	Tighten all accessible external attaching parts and components.

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).
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
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 to Direct Support Maintenance.

70. OIL LEAKS AT DRIVE END SEAL

Probable cause	Possible remedy
Damaged oil seal faces due to dirt or extreme heat	Report to Direct Support Maintenance.

71. EXCESSIVE COMPRESSOR OIL CONSUMPTION

Probable cause	Possible remedy
Element in separator damaged	Report to Direct Support Maintenance.
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).

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 repairer 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.

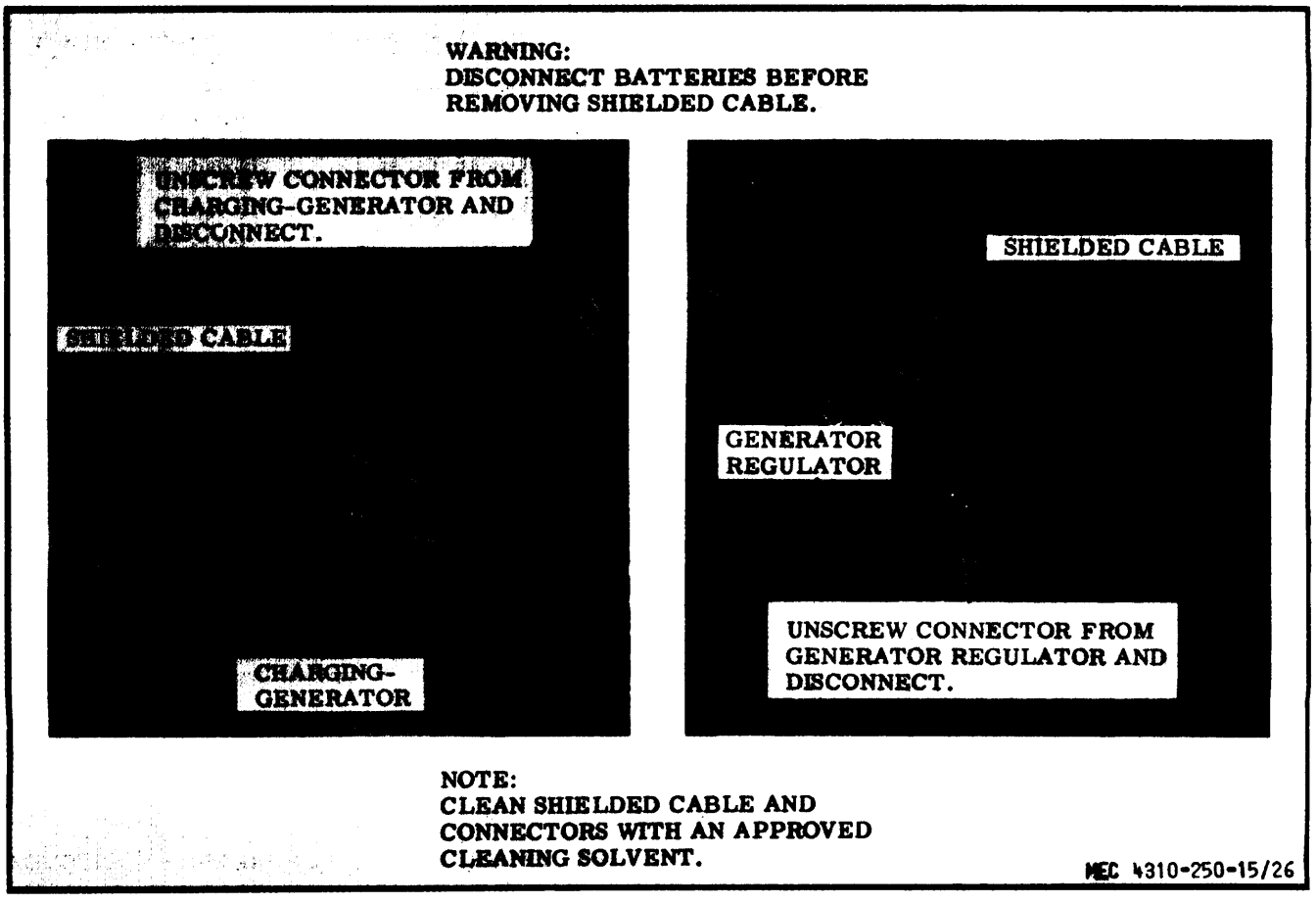


Figure 26. Interference Suppression Components, Location, Removal, and Installation.

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.

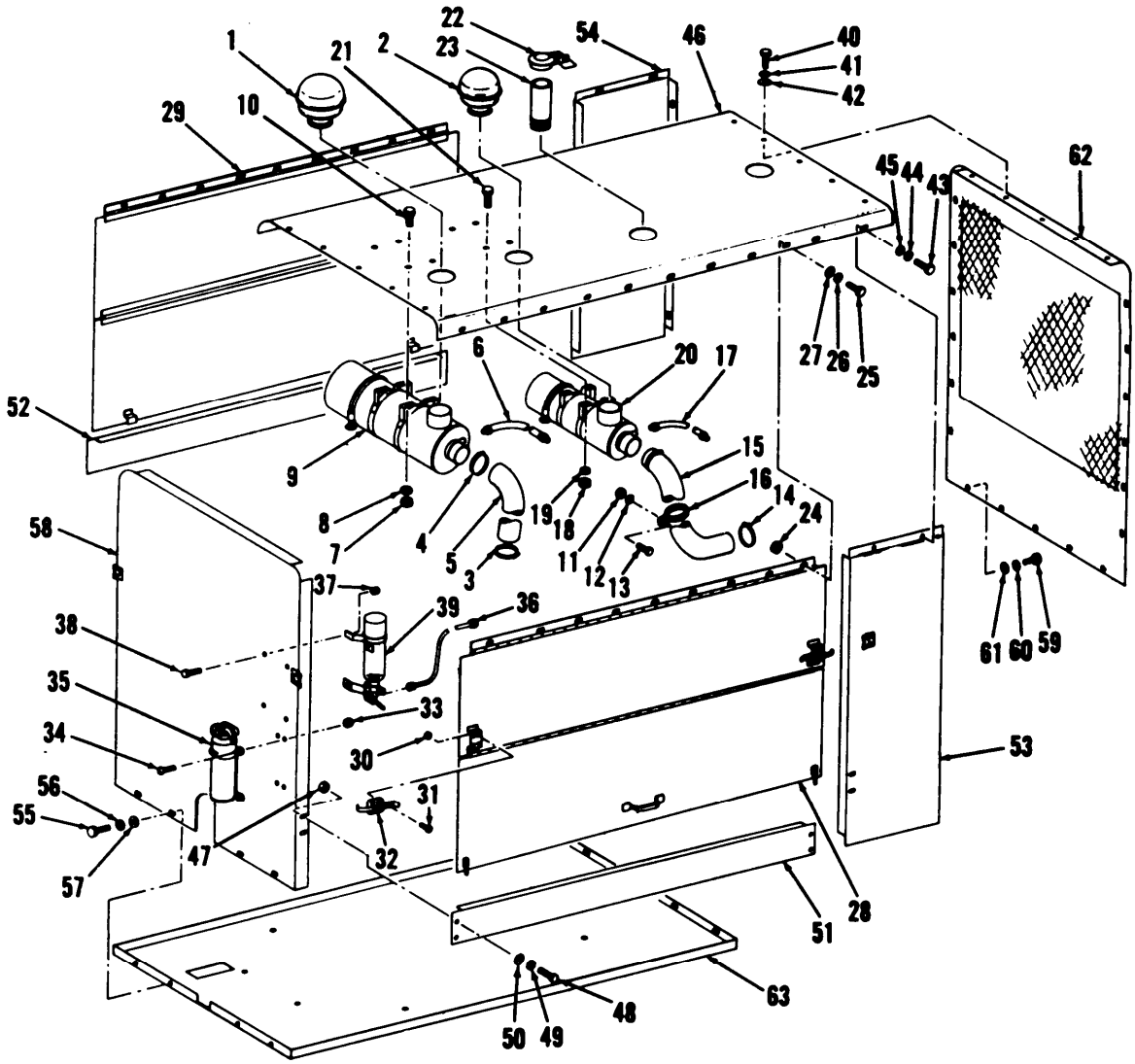
(1) Clean all parts with an approved cleaning solvent and dry thoroughly.

(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. MEC 4310-250-15/27

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).

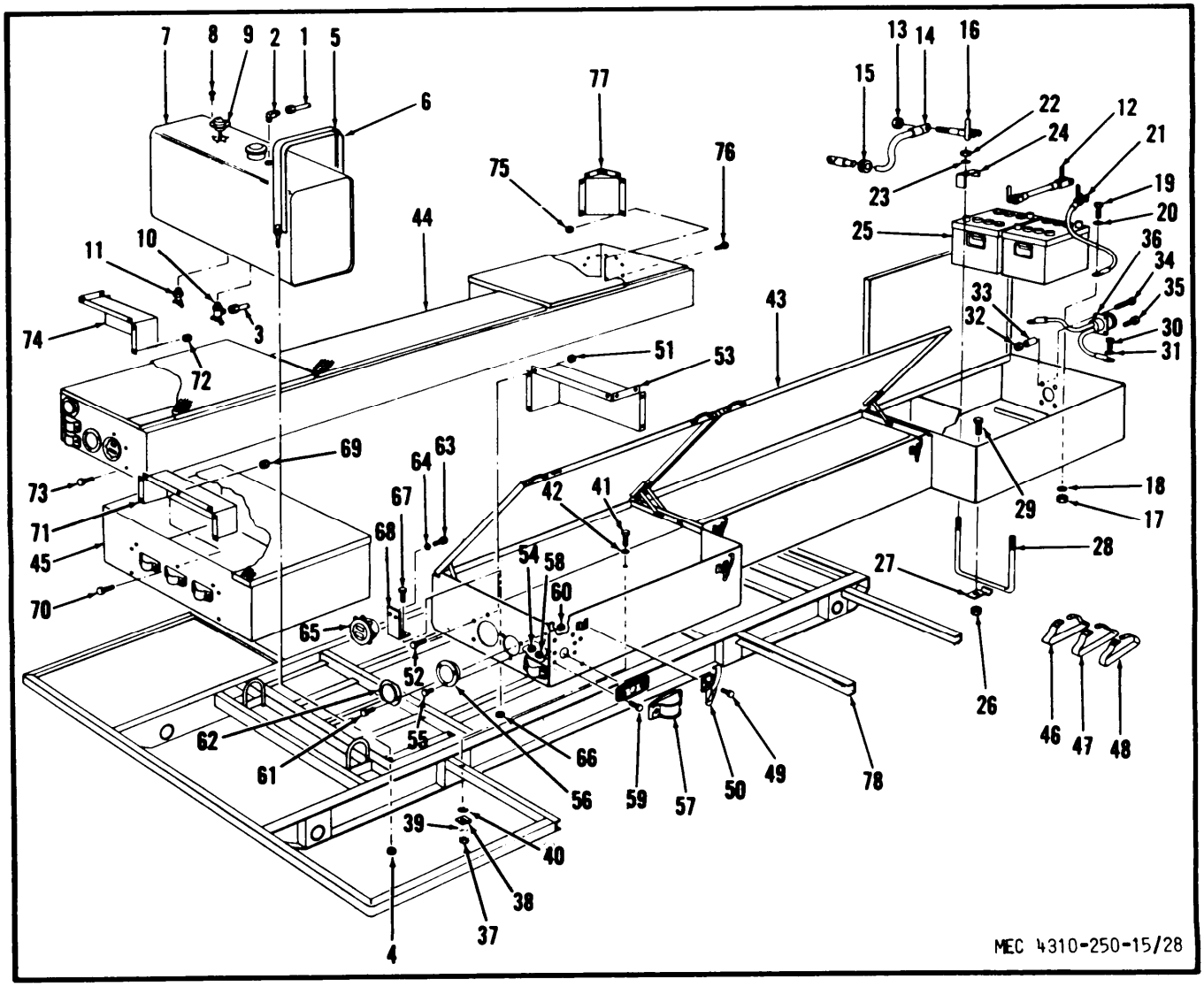


Figure 28. Tool Boxes and Fuel Tank, Removal and Installation.

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 d 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, re· (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 d 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.

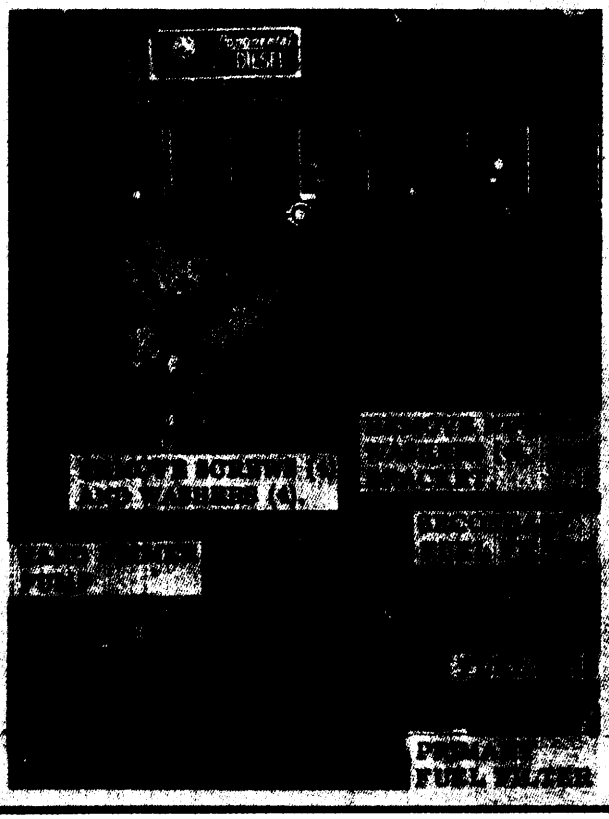
A

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.

MEC 4310-250-15/29 (1)

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.

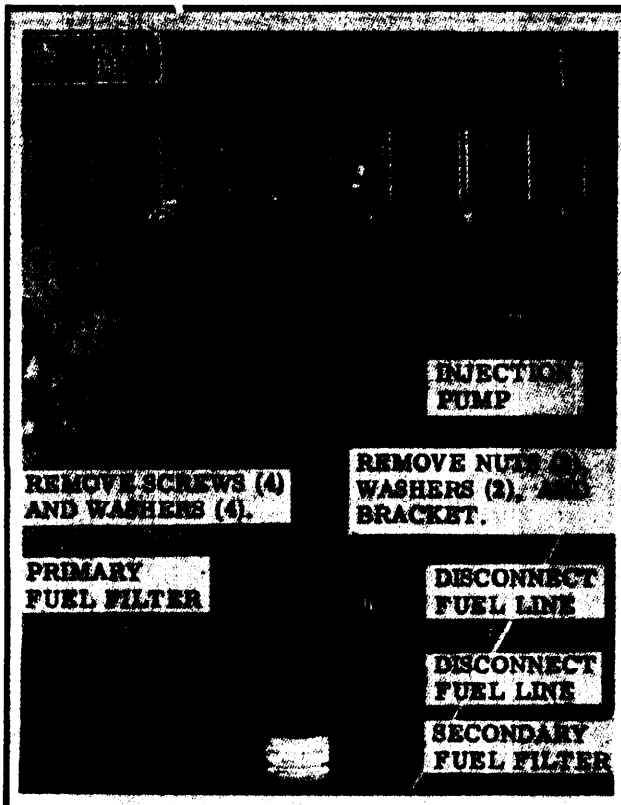
(2) Remove all opening plugs and/or tape prior to connecting all lines.

(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.

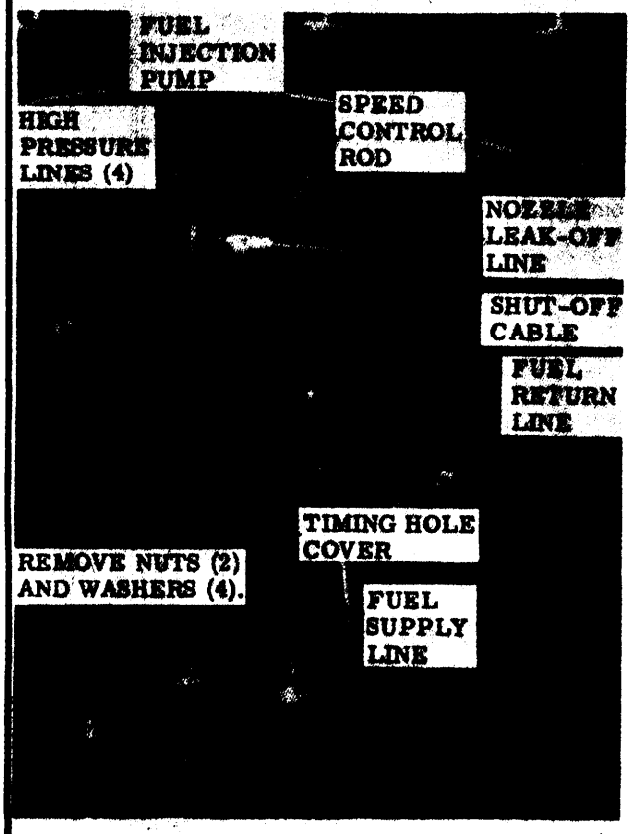
STEP 2: DISCONNECT FUEL LINE FROM SECONDARY FILTER TO FUEL INJECTION PUMP.

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 TEMPORARILY 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.

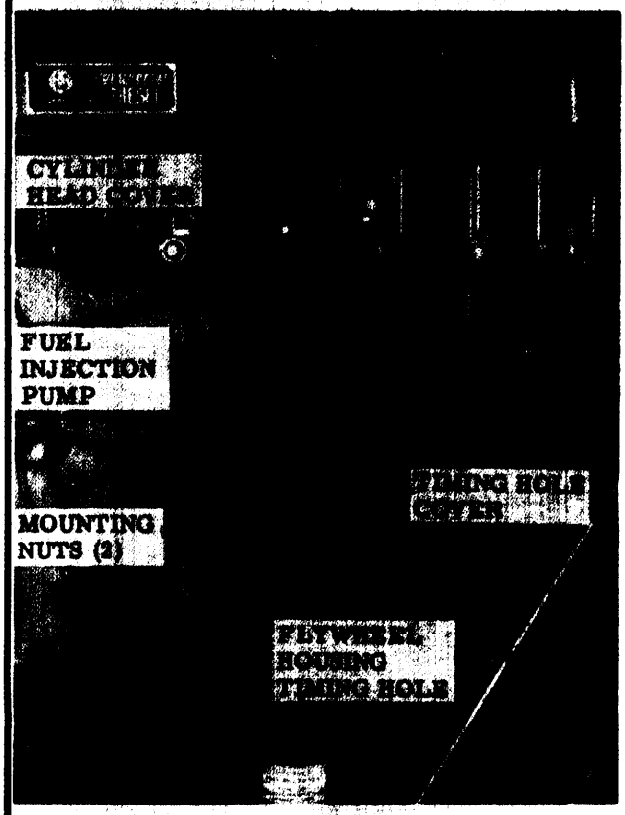
STEP 4: DISCONNECT WIRING LEADS FROM PUMP SOLENOID.

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.

MEC 4310-250-15/29 (2)

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.

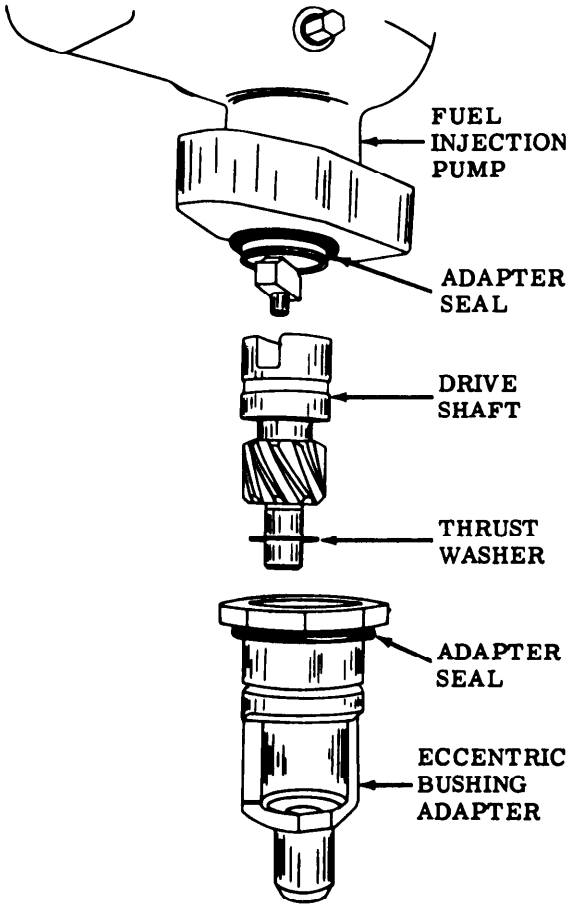
STEP 4: IF ADJUSTMENT IS REQUIRED, LOOSEN INJECTION PUMP MOUNTING NUTS (2) AND TURN PUMP ASSEMBLY BY HAND UNTIL TIMING MARKS ARE ALIGNED. TIGHTEN MOUNTING NUTS (2) SECURELY.

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

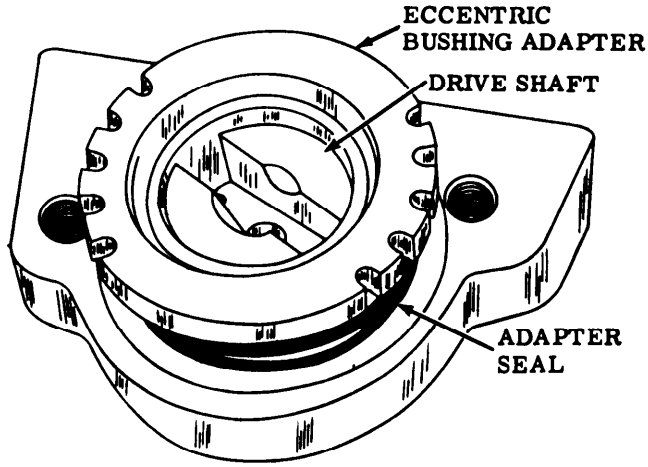
STEP 6: INSTALL TIMING HOLE COVER AND CYLINDER HEAD COVER.

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

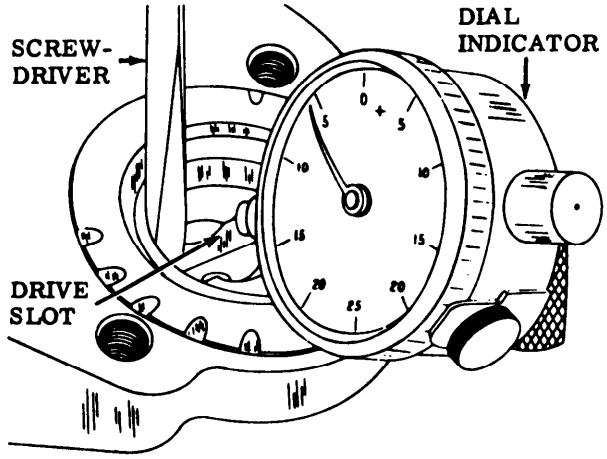
F



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.

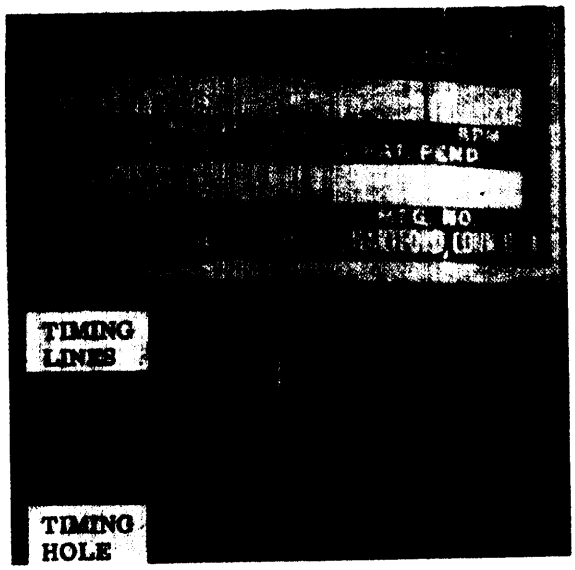


STEP 3: USE A DIAL INDICATOR TO CHECK BACKLASH OF THE PUMP DRIVE GEAR. MEASURE AT THE DRIVE SLOT WITH THE INDICATOR POSITIONED APPROX. AT THE PITCH DIAMETER OF THE GEAR. BACKLASH SHOULD BE 0.004 TO 0.006 INCH.

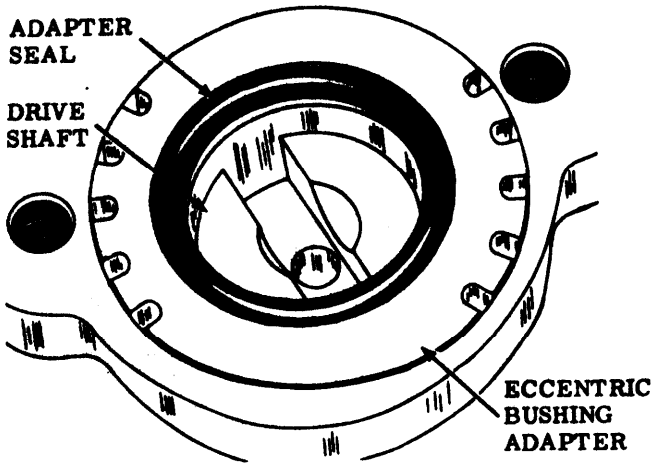
MEC 4310-250-15/29 (4)

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

F

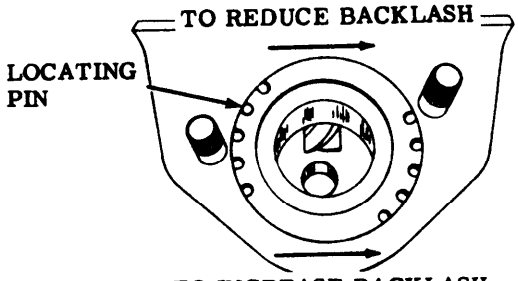


STEP 4: REMOVE TIMING LINE COVER FROM THE PUMP AND TURN THE DRIVE SHAFT SO THAT TIMING LINES ALIGN.

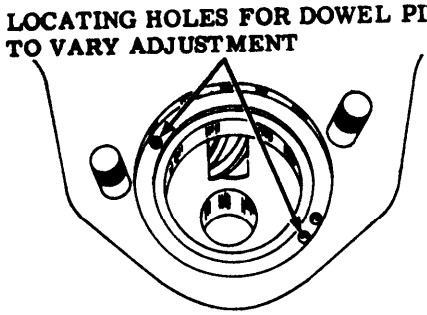


STEP 5: INSTALL THE SEAL RING ON THE ECCENTRIC BUSHING ADAPTER AND PLACE THE PUMP IN POSITION ON THE ENGINE.

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.



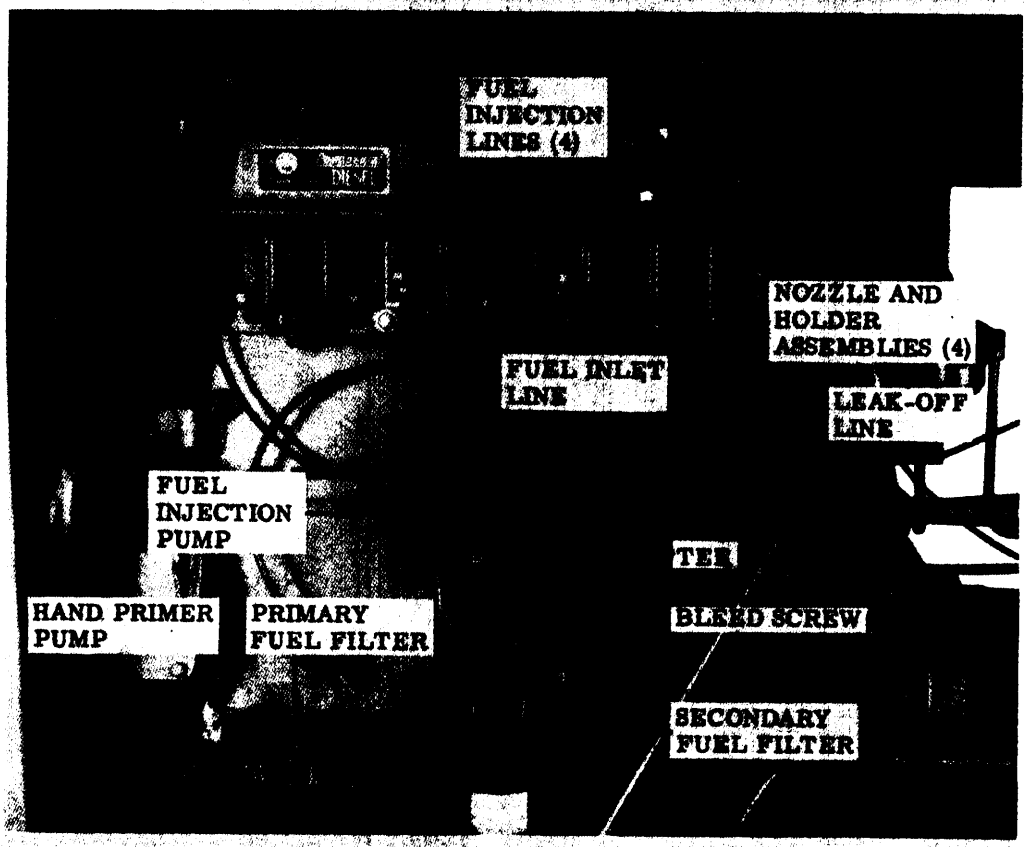
STEP 6: TURN THE PUMP AS NECESSARY TO BRING THE PUMP TIMING MARKS INTO PERFECT ALIGNMENT, THEN INSTALL AND TIGHTEN PUMP MOUNTING NUTS.

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.

MEC 4310-250-15/29 (5)

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).

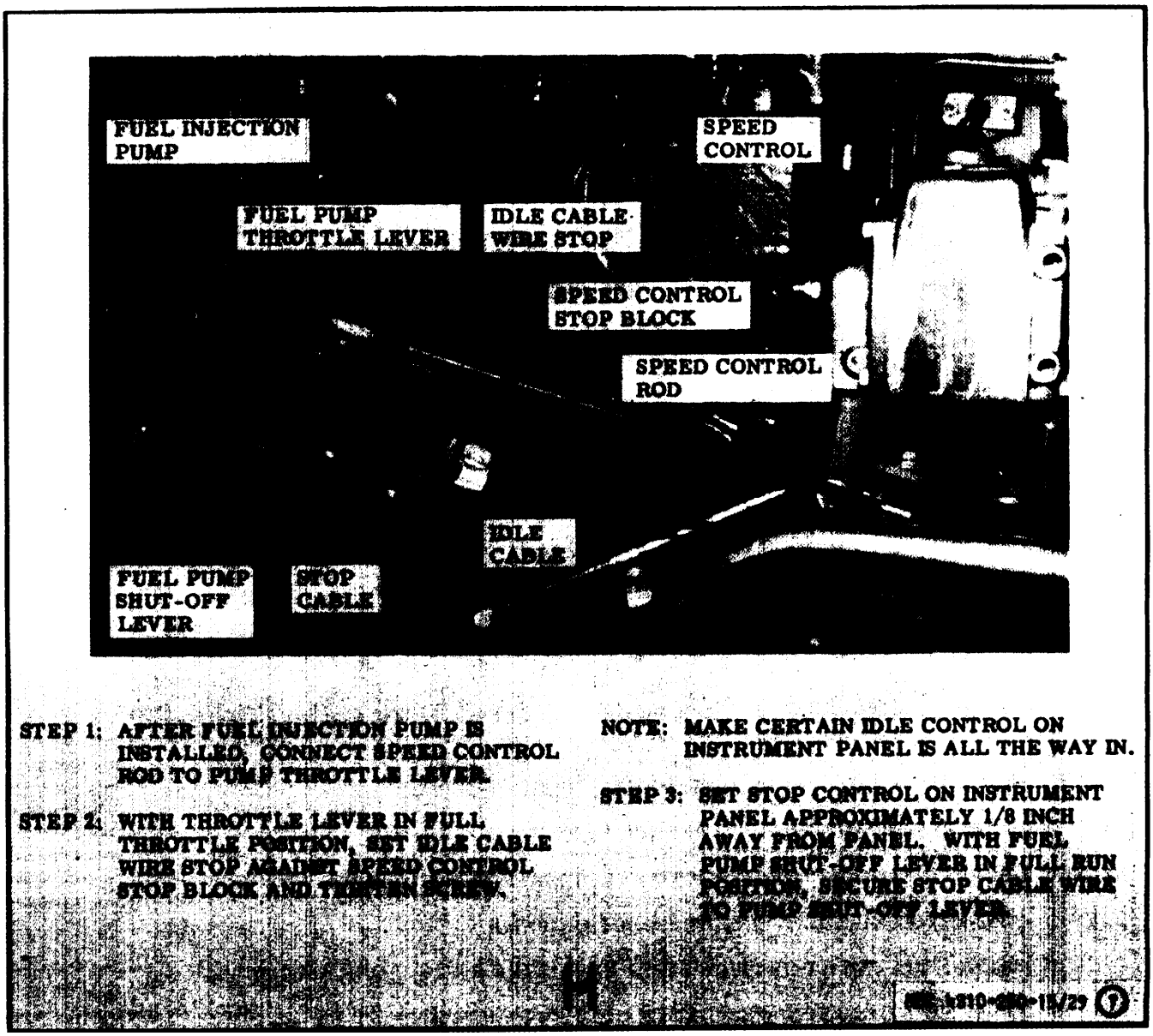
STEP 10: OPERATE ENGINE FOR FIVE MINUTES. COLLECT RETURNED FUEL IN A SUITABLE CONTAINER.

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

G

MEC 4310-250-15/29 (6)

G - Fuel Line Flushing.
Figure 29. - Continued.



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 disconnetting 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.

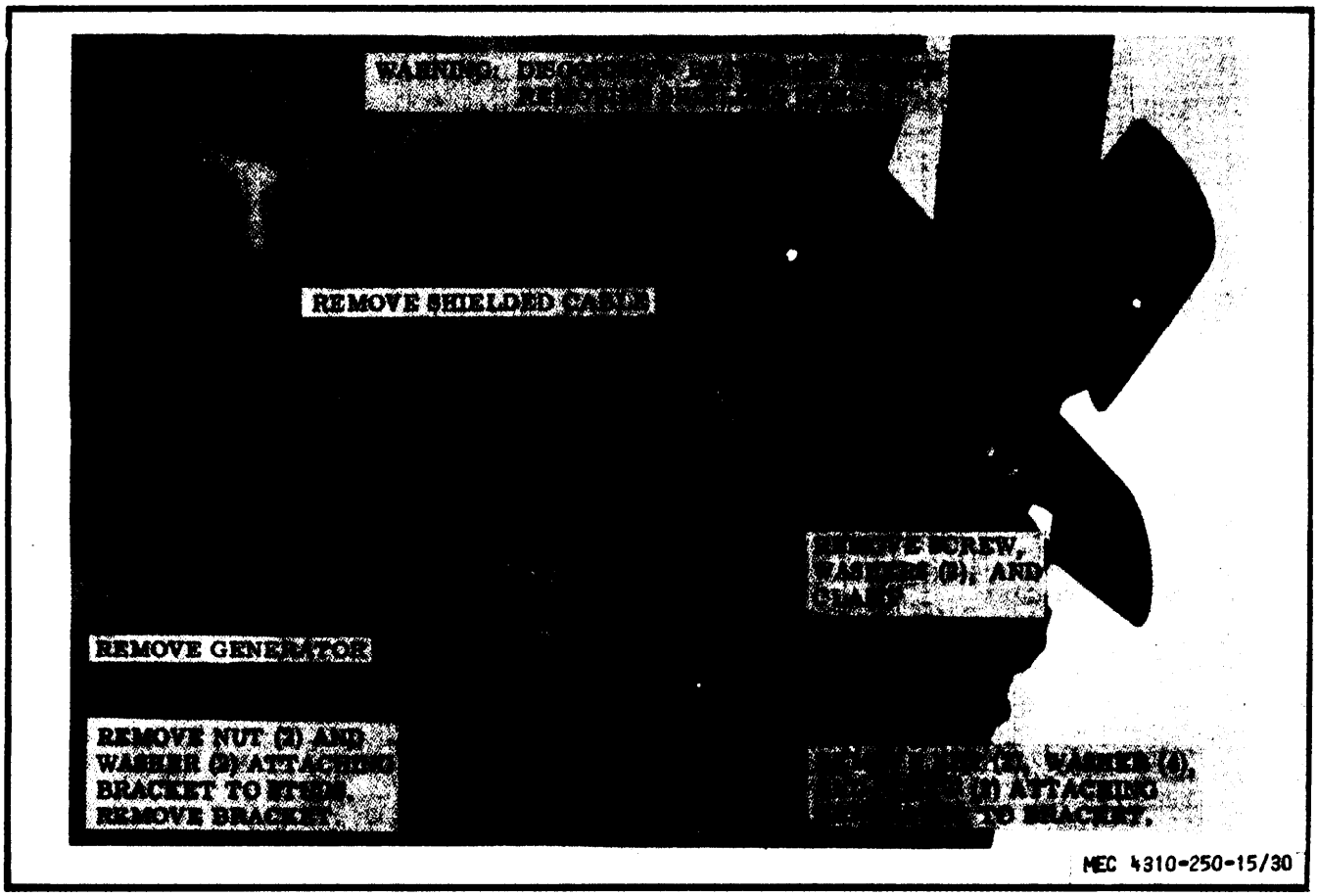
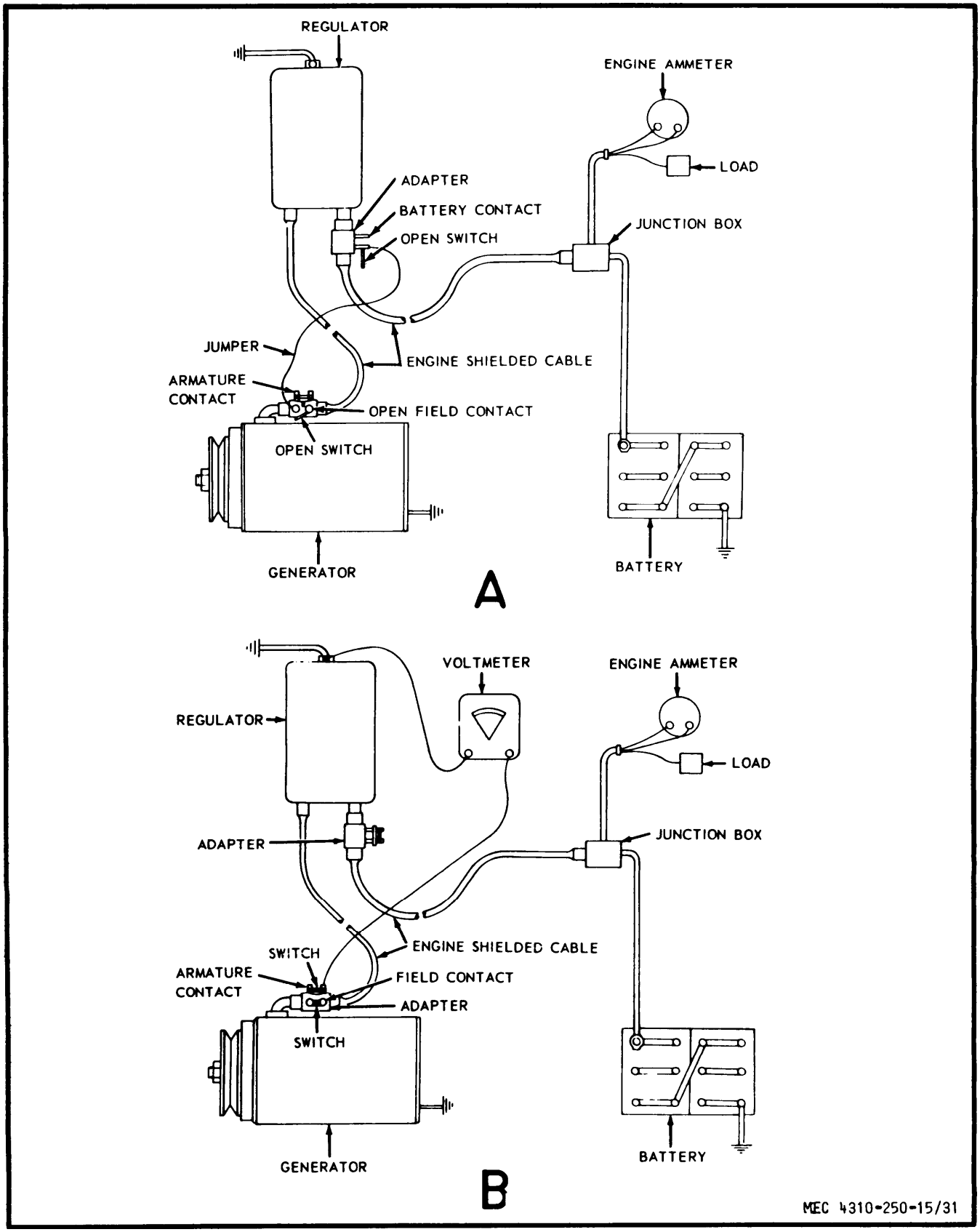


Figure 30. Generator, Removal and Installation.



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 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 regulators 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.

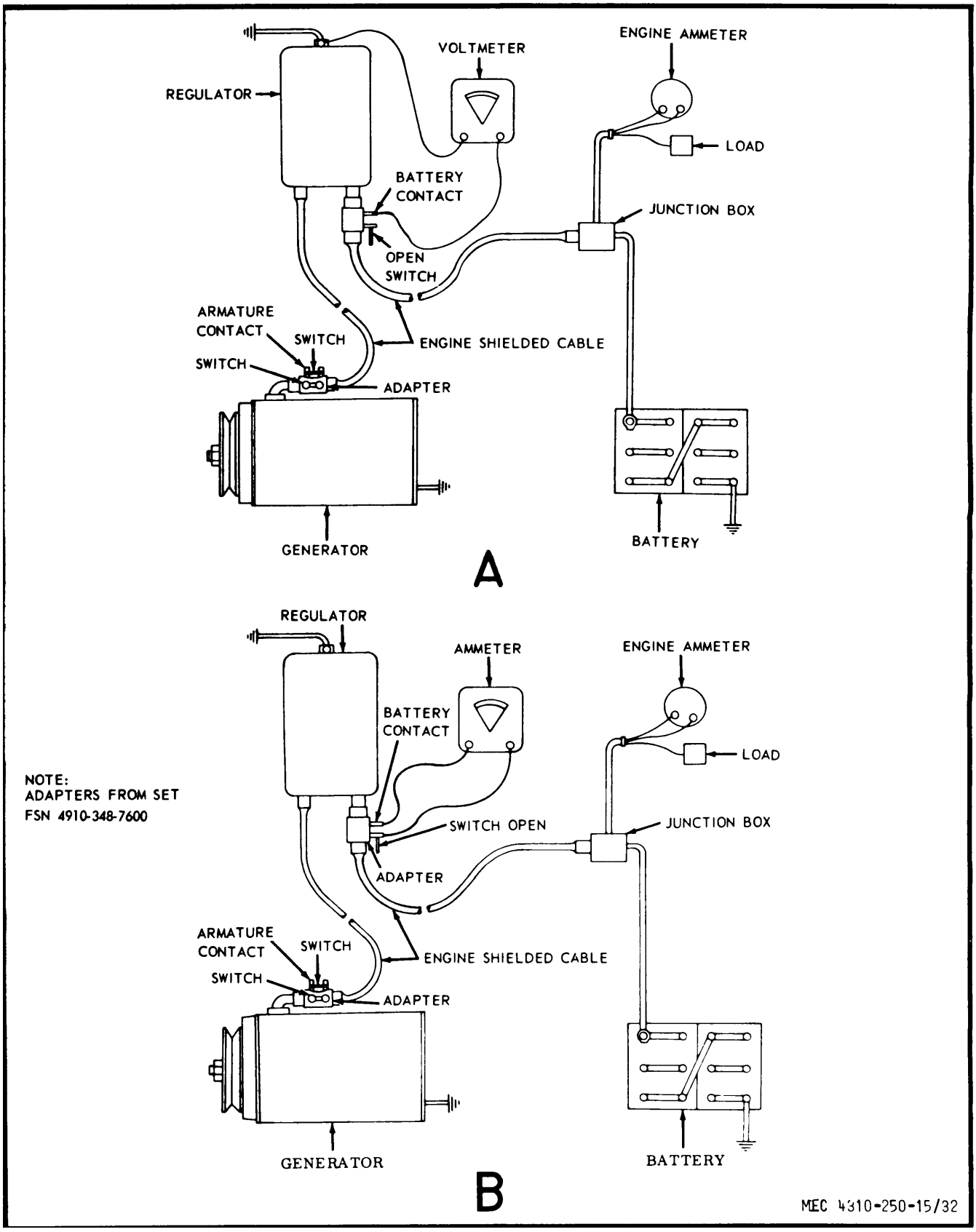
e. Mechanical Adjustments.

(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.

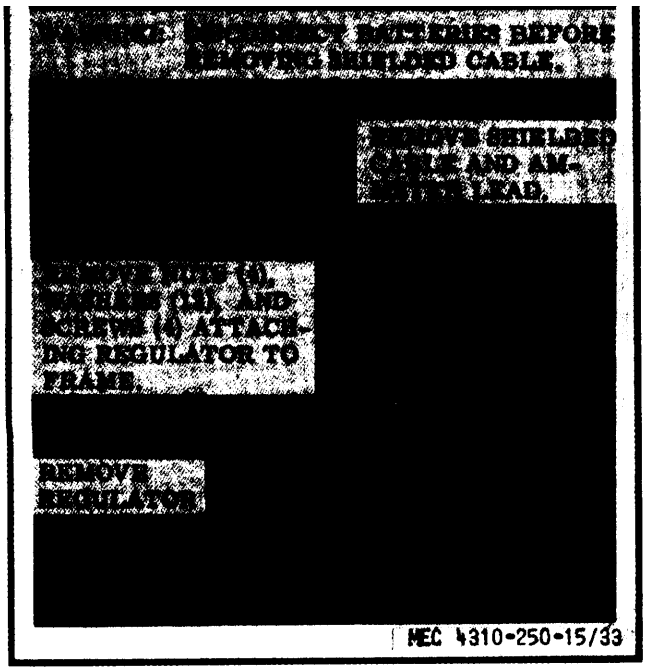


Figure 33. Generator Regulator, Removal and Installation,

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.

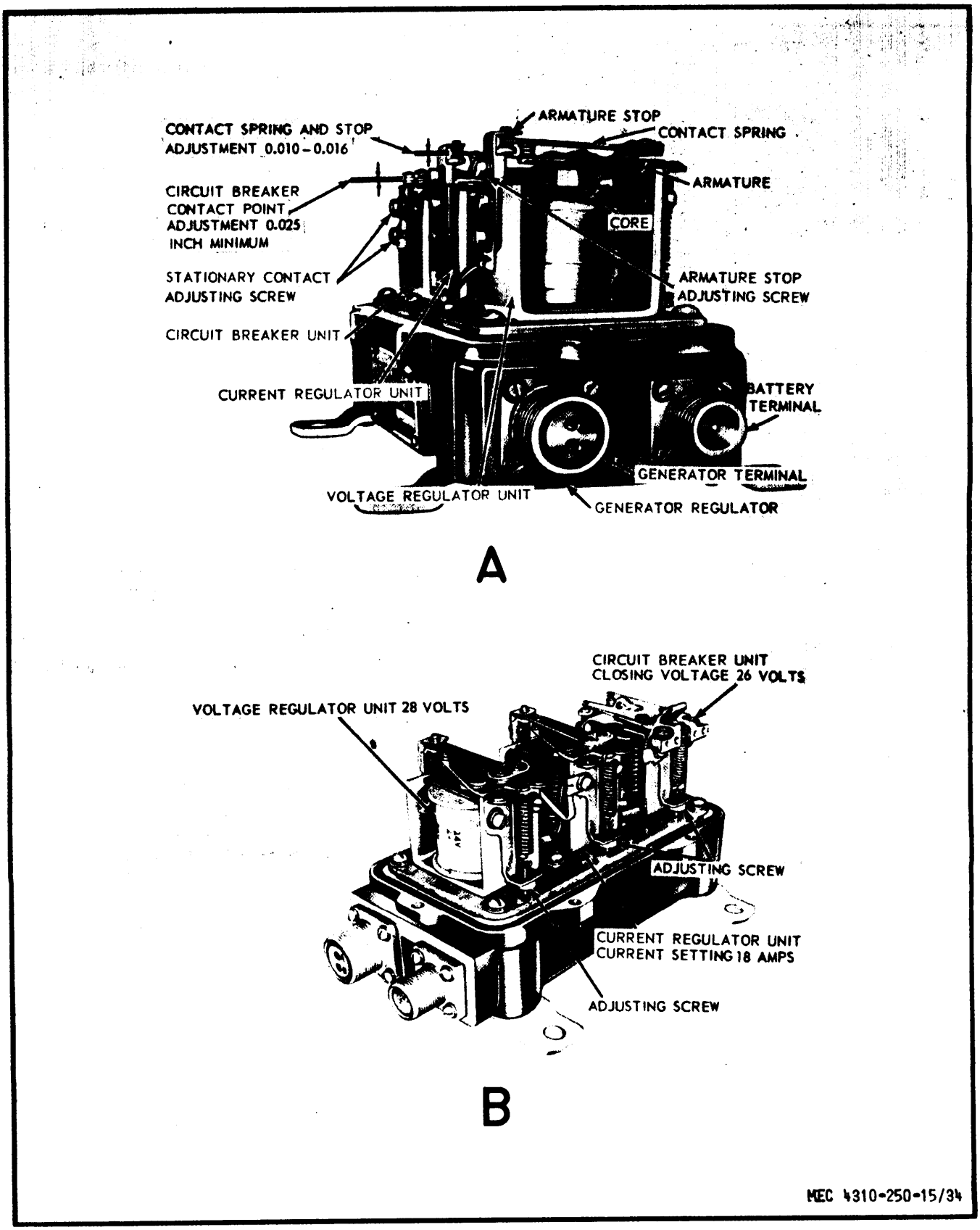
(7) Apply grease to lugs.

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 - Mechanical Adjusting Points. B - Electrical Adjusting Points.

Figure 34. Generator Regulator, Adjustments.

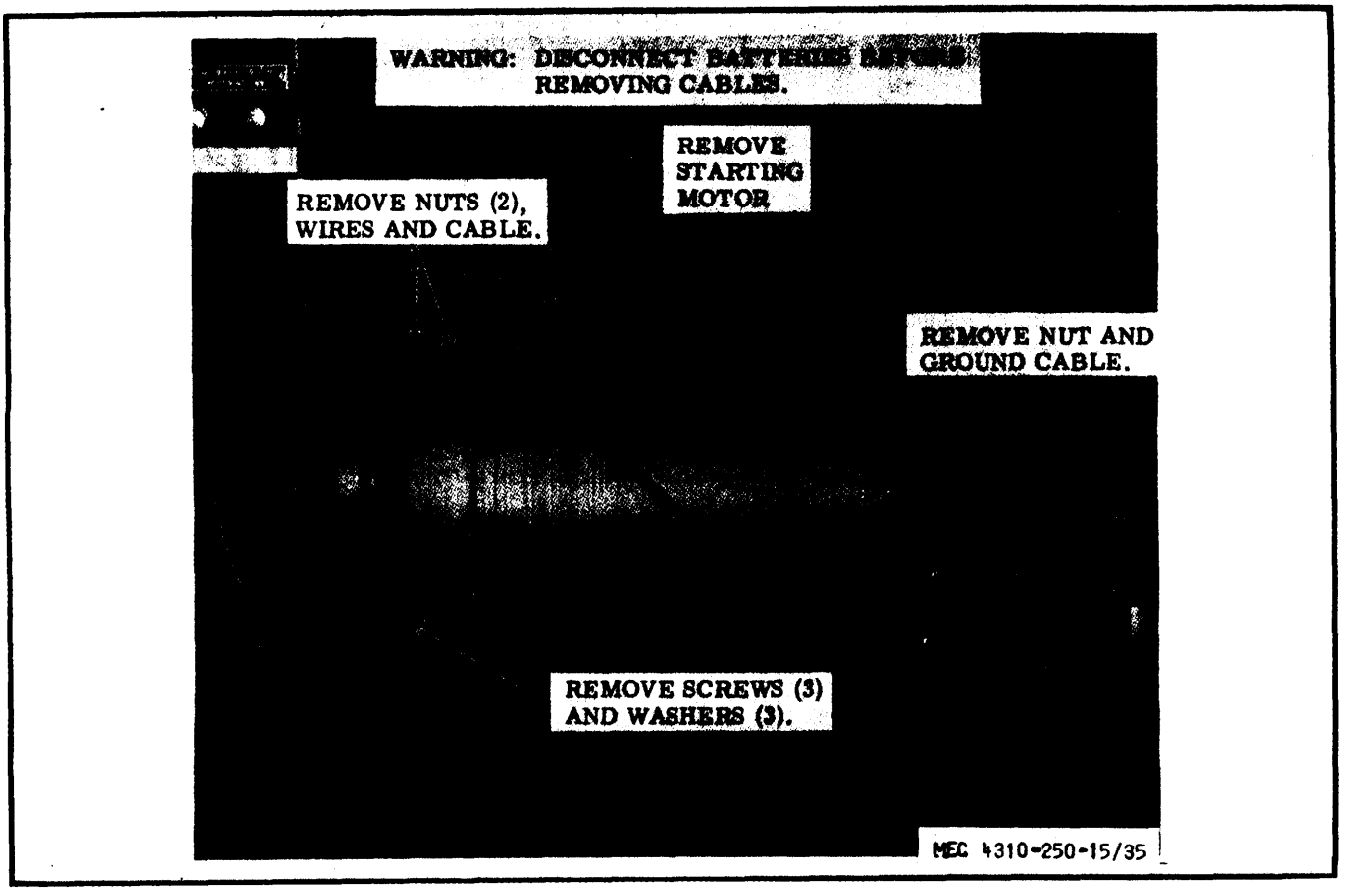


Figure 35. Starting Motor, Removal and Installation.

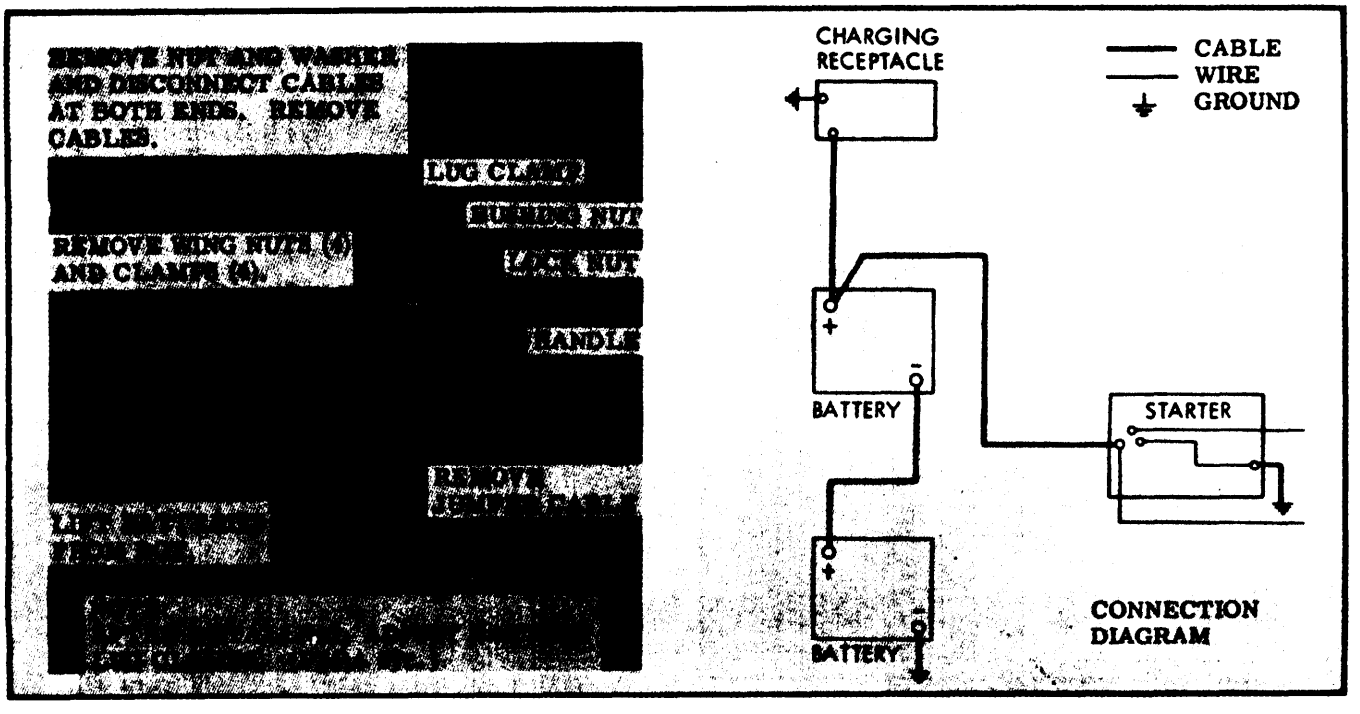


Figure 36. Batteries and Cables, Removal and Installation.

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 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.

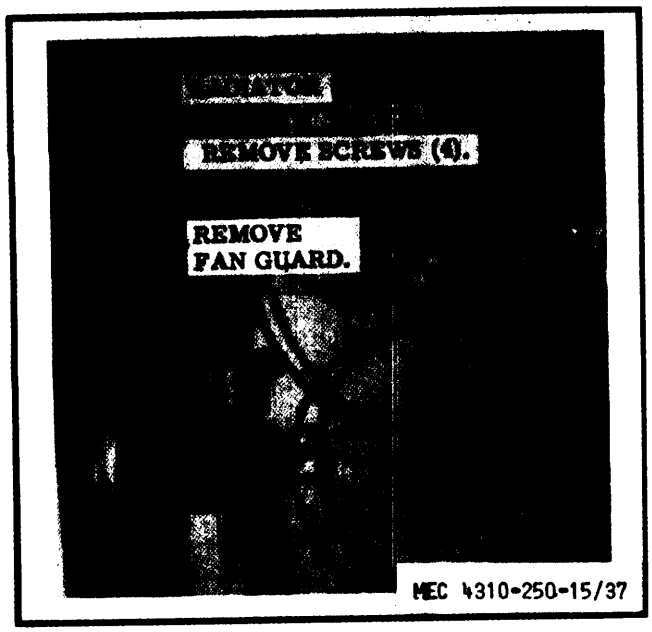


Figure 37. Engine Fan Guard, Removal and Installation.

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.

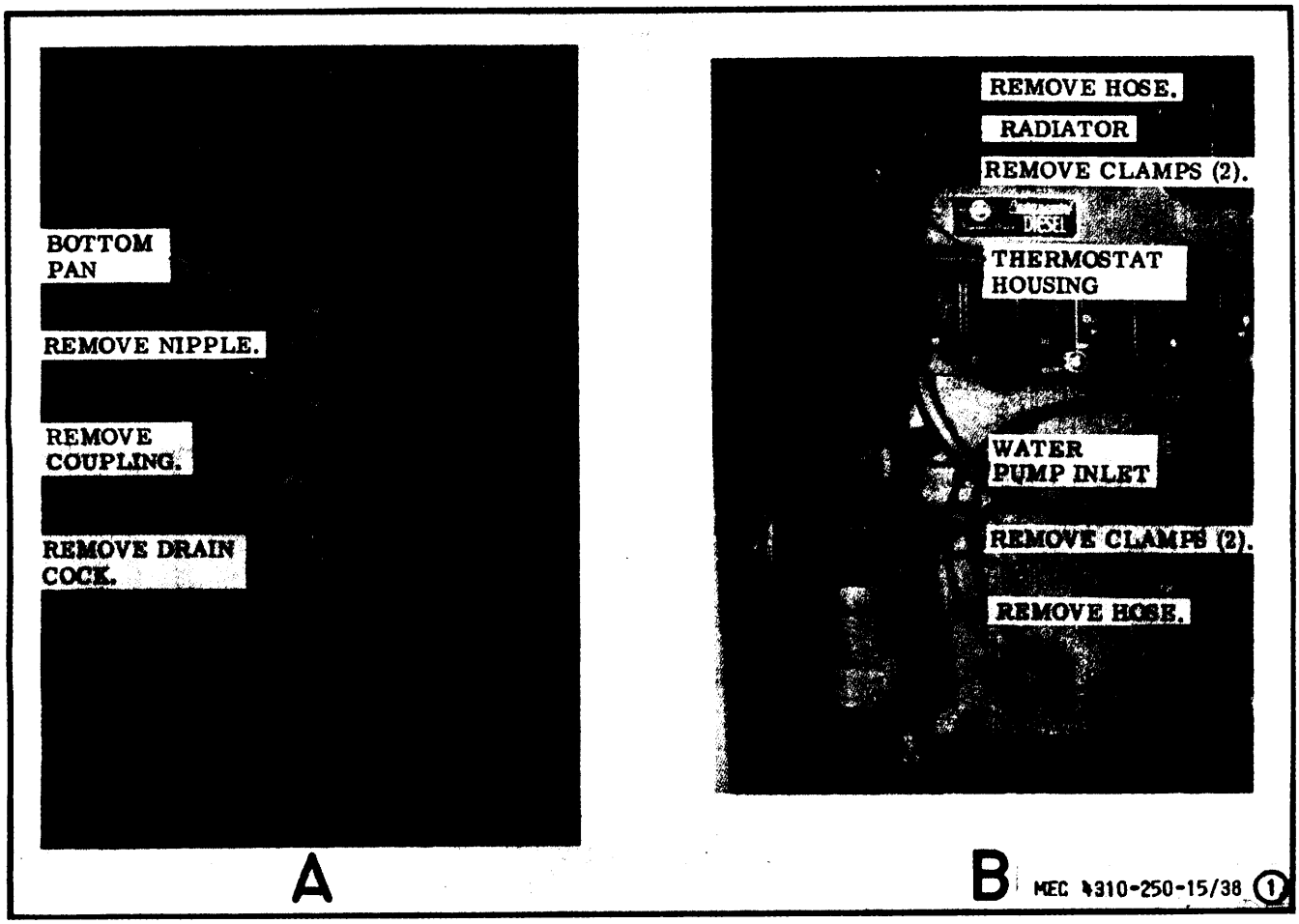
(1) Install fan assembly as instructed on figure 41.

(2) Install fan guard (para 99).

104. THERMOSTAT AND HOUSING

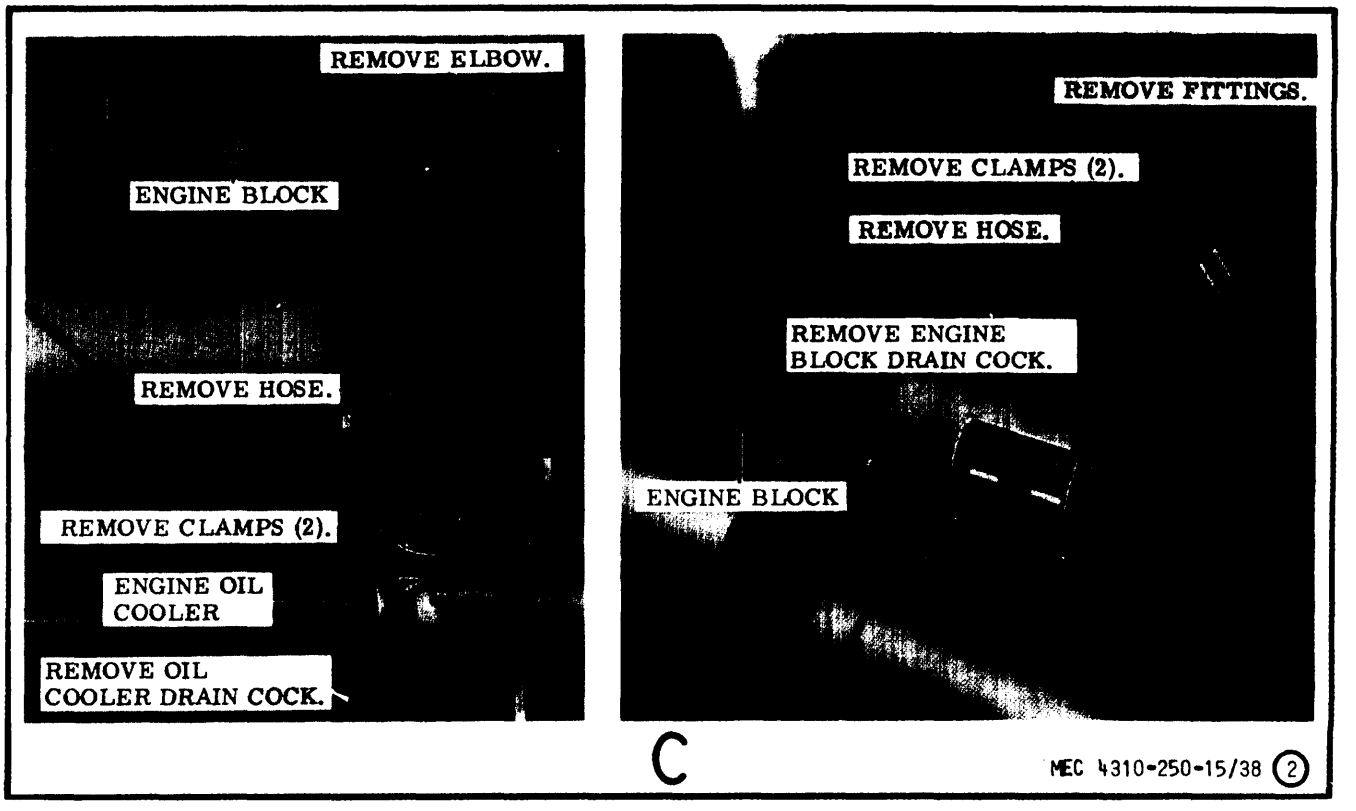
a. Removal.

(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 thermostatic 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).

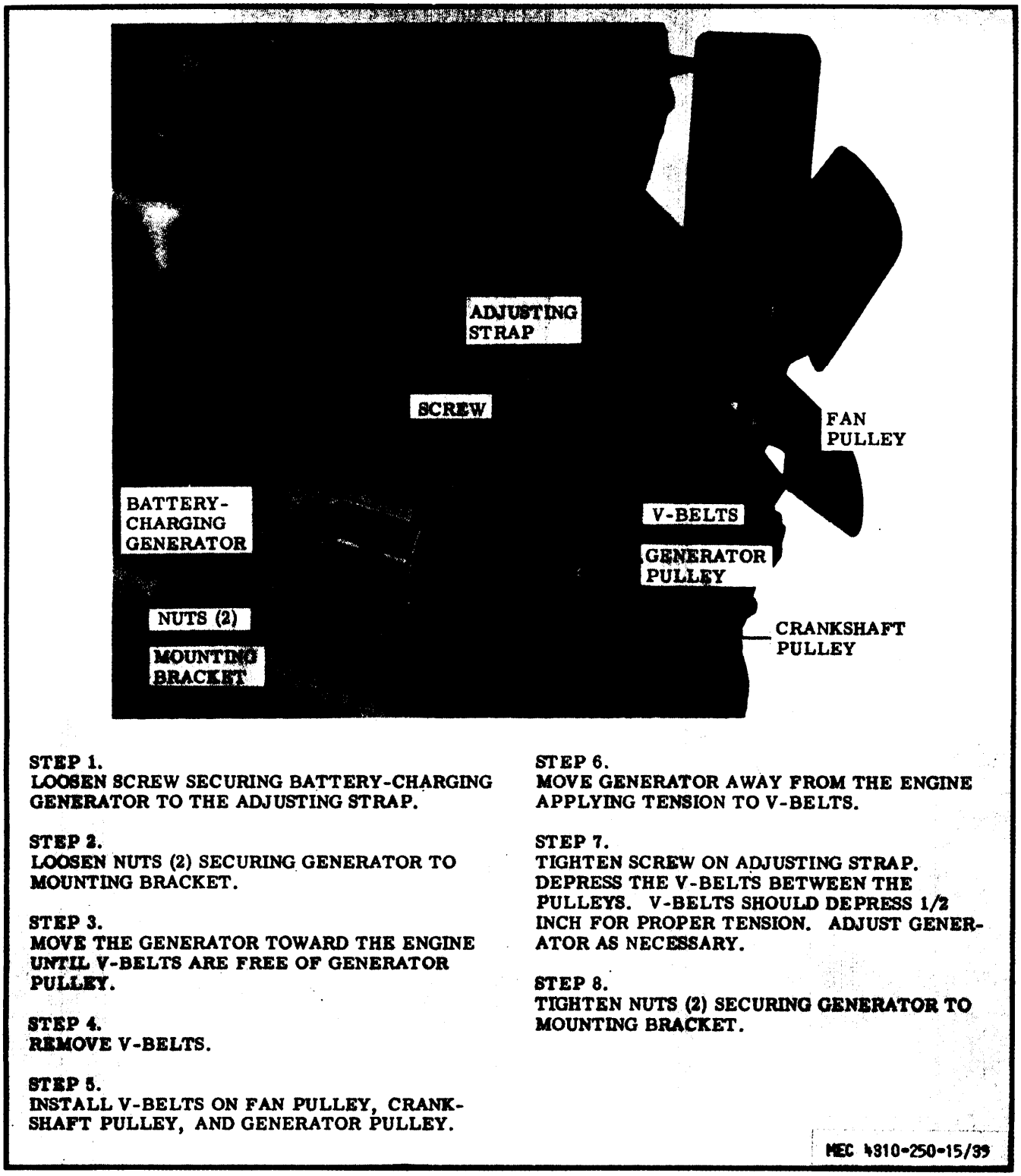
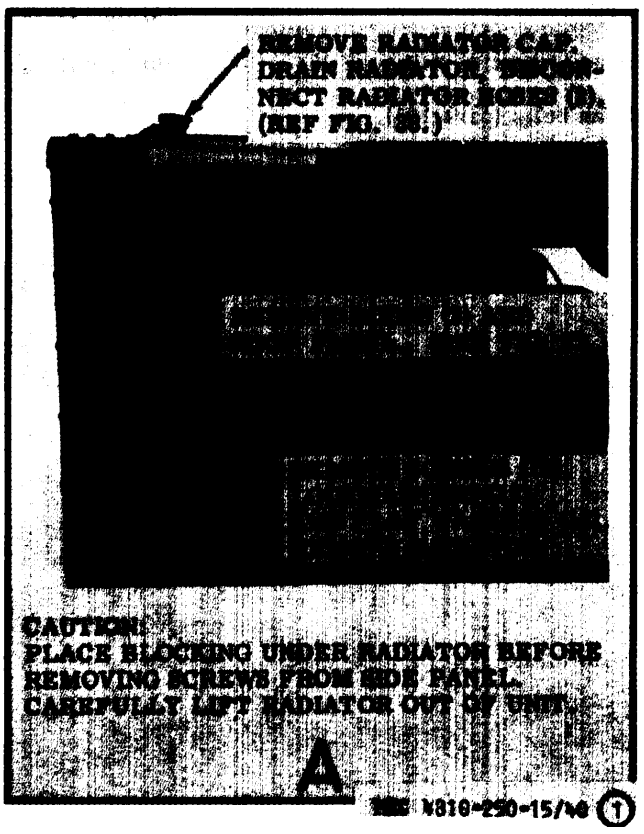
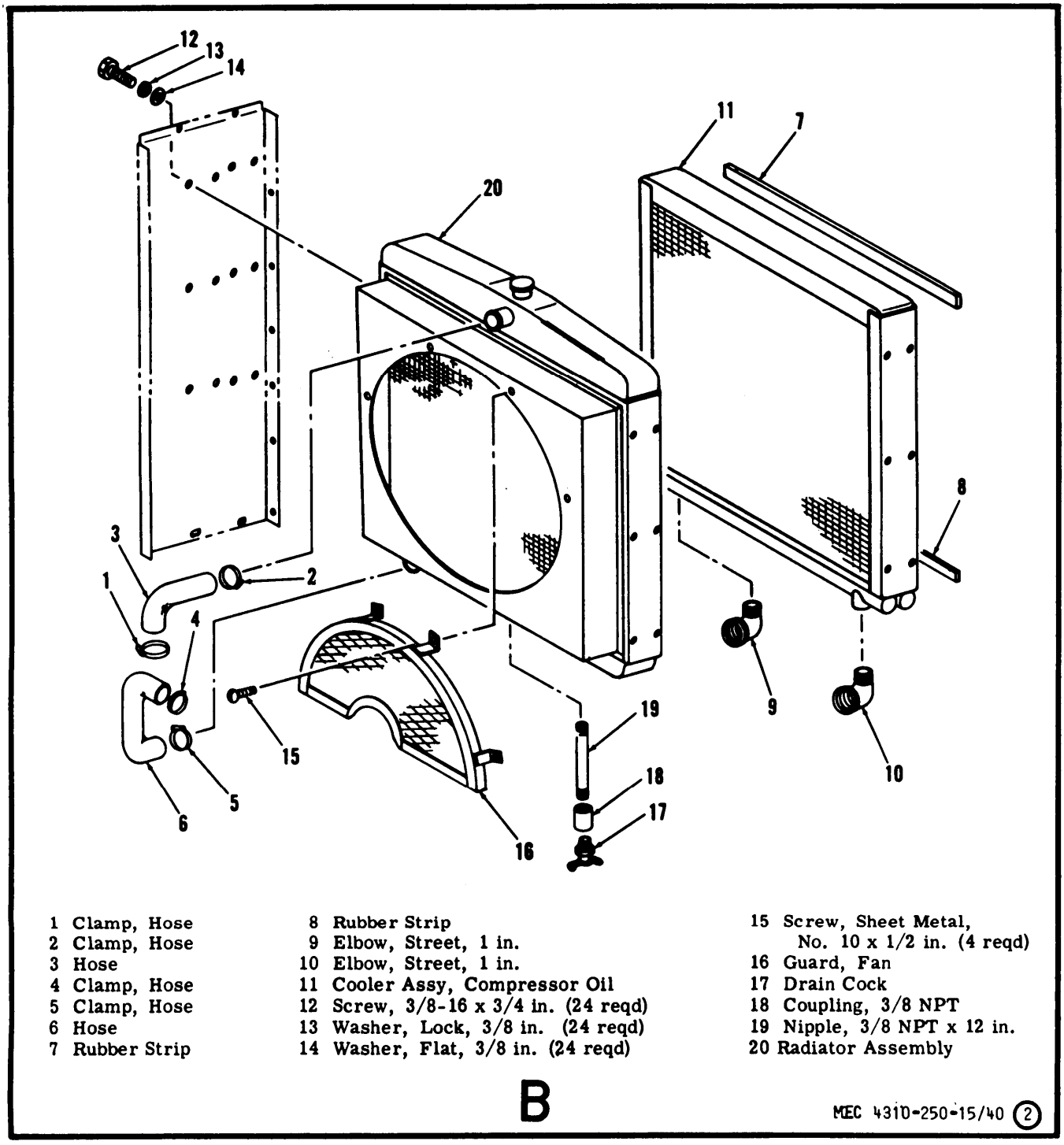


Figure 39. Engine Fan Belts, Removal, Installation, and Adjustment.



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

Figure 40. - Continued.

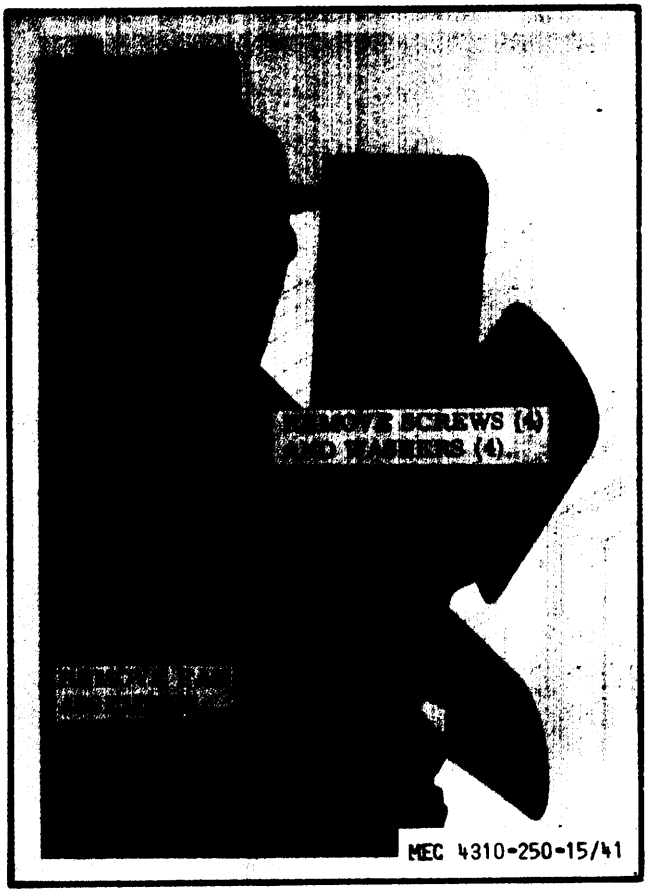


Figure 41. Fan Assembly, Removal and Installation.

Figure 42. Thermostat and Housing, Removal and Installation.

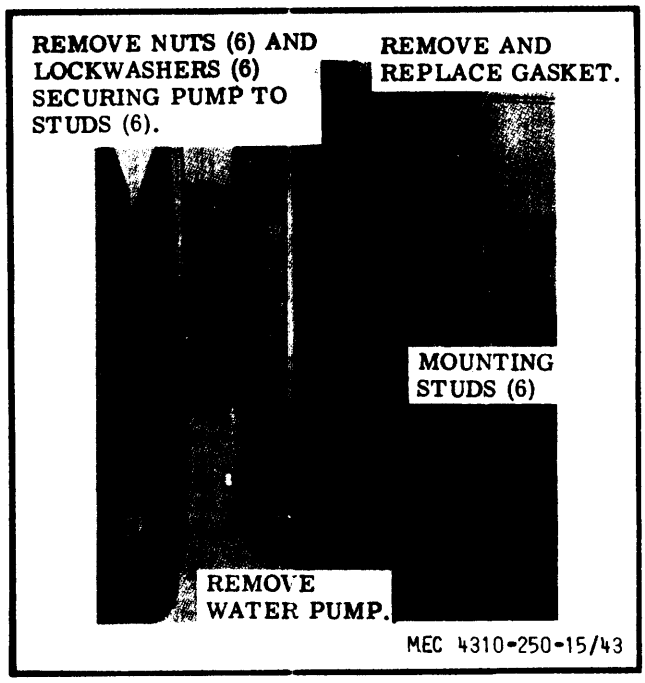


Figure 43. Water Pump, Removal and Installation.

106. GENERAL

Engine lubrication is provided by a gear-type oil pump which is an integral part of the Manchester 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.

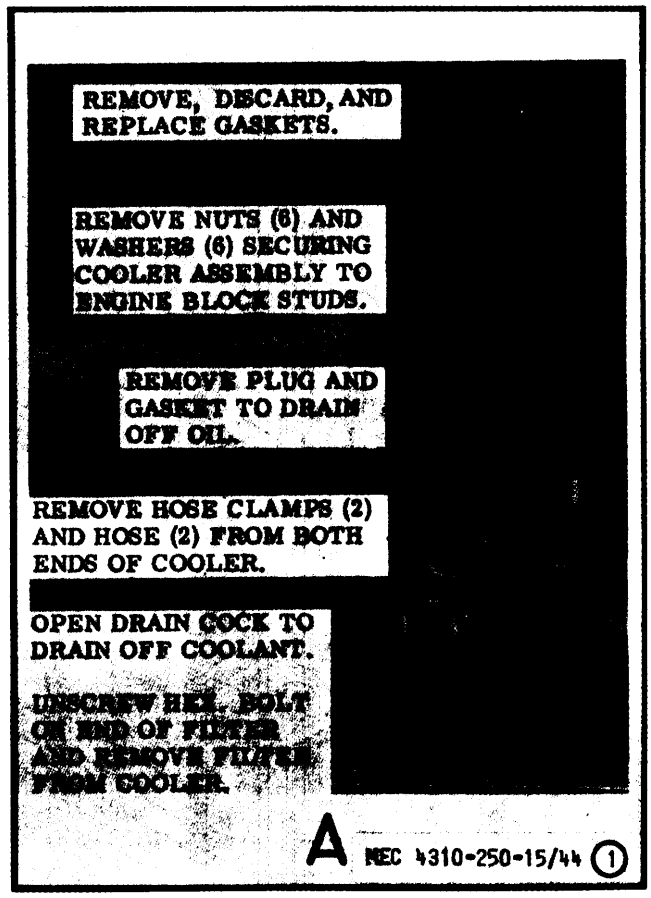
e. Installation. Install the engine oil filter as instructed on figure 44.

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.

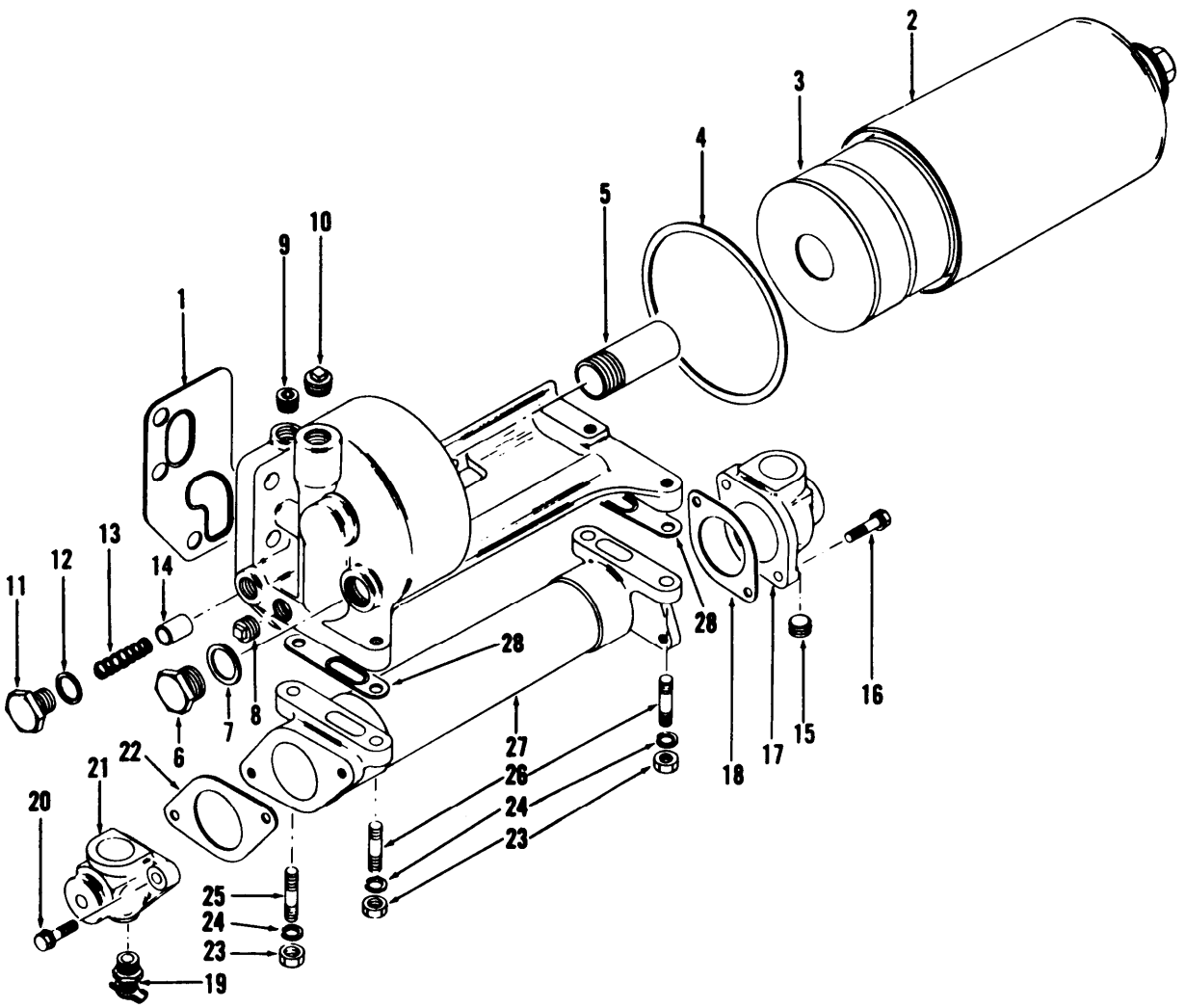
(3) Inspect mounting hardware for damage. Replace as necessary.

(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 - Engine Oil Filter and Cooler, Exploded View.
Figure 44. - Continued.

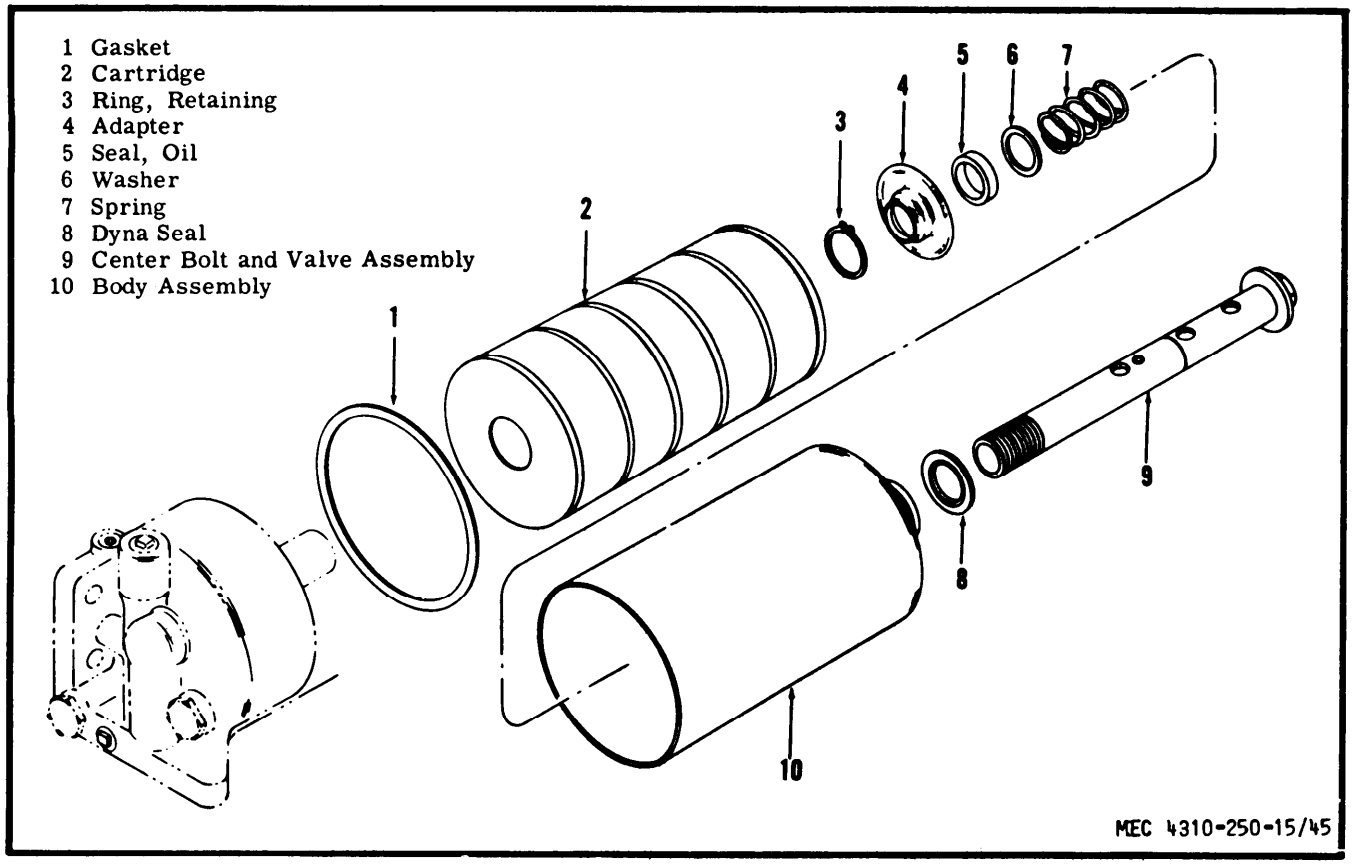


Figure 45. Engine Oil Filter, Disassembly and Reassembly.

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.

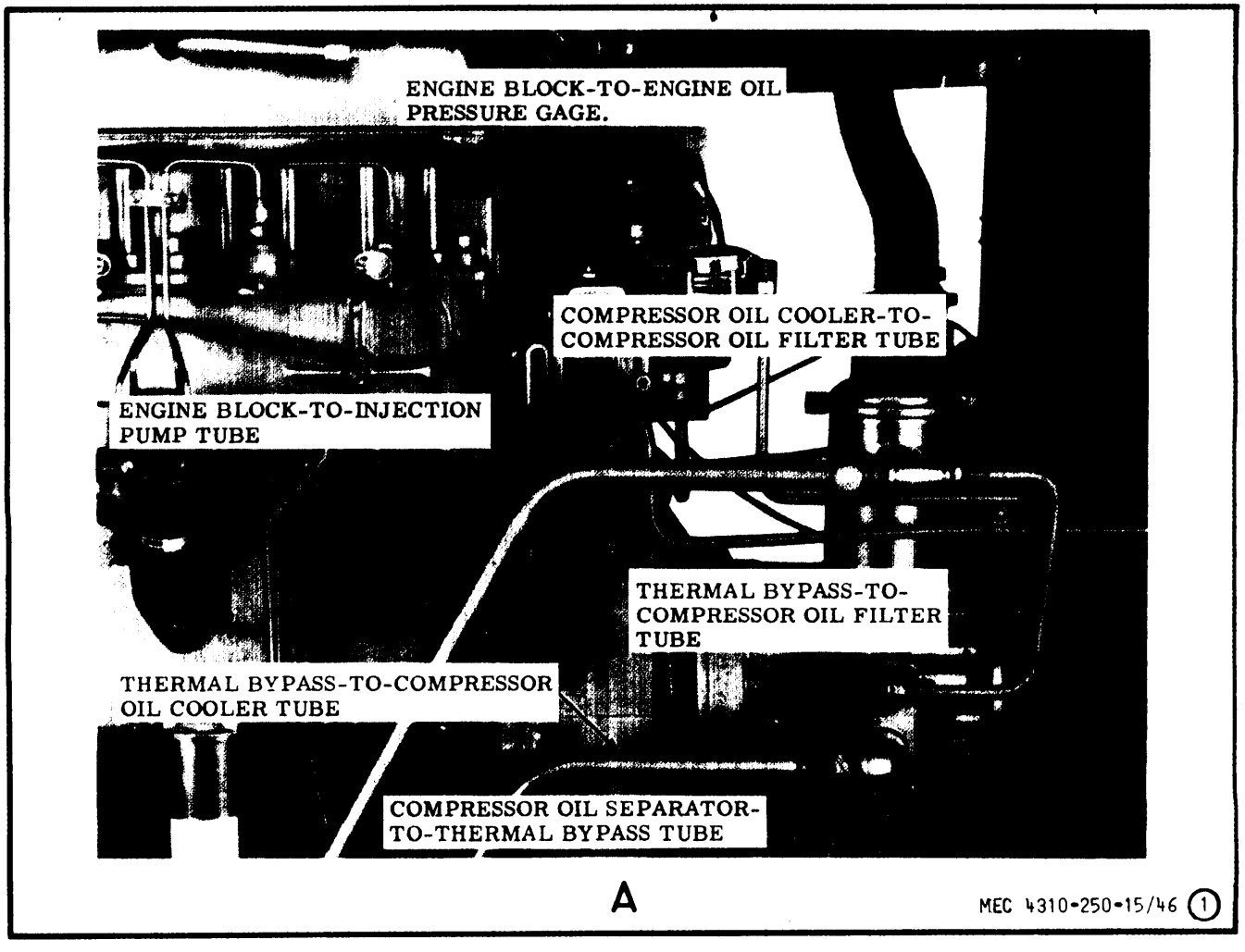
(4) Inspect hardware for damage. Replace as necessary.

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

e. Installation.

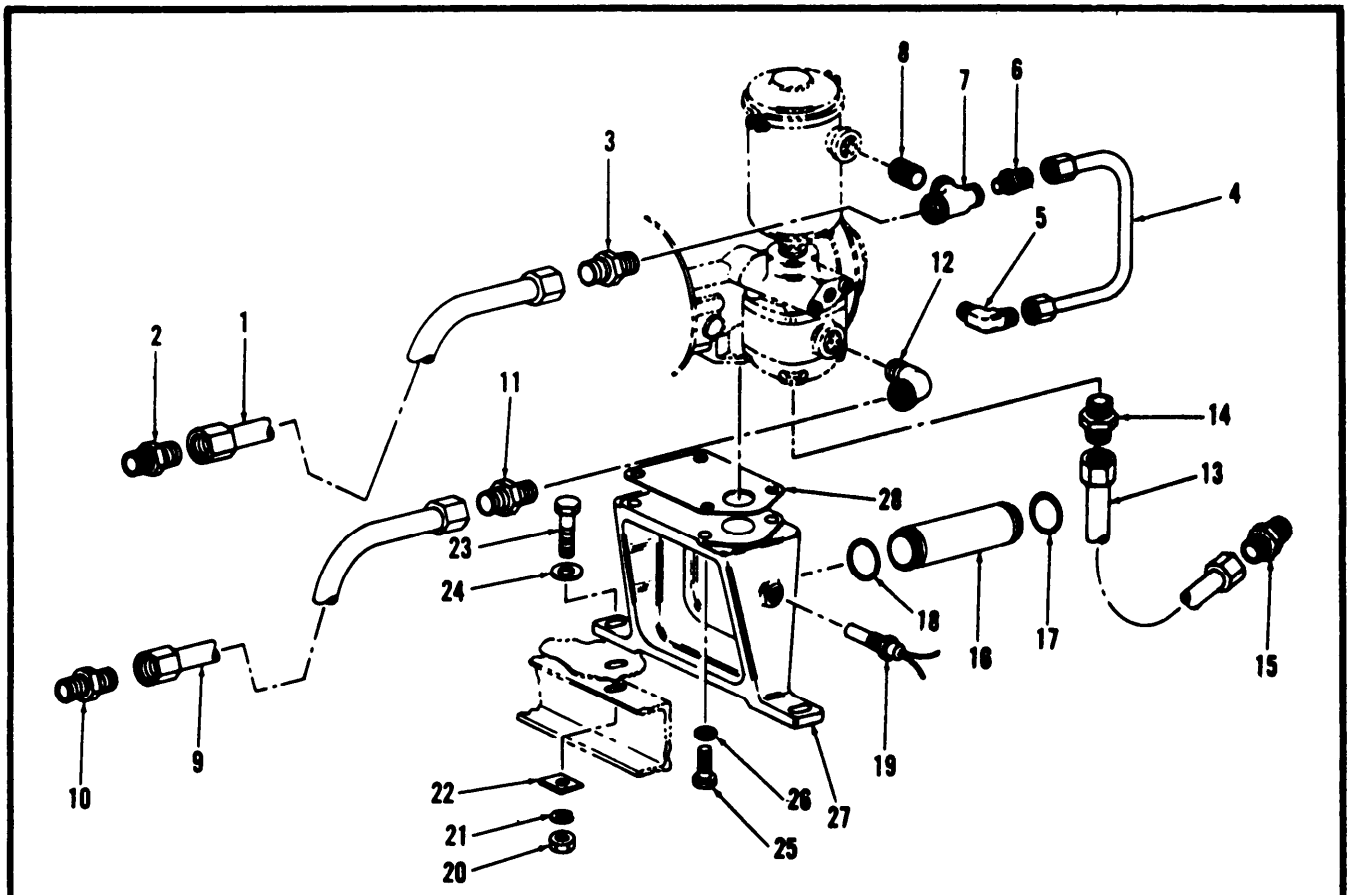
(1) Install compressor oil filter on top of thermal bypass assembly.

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

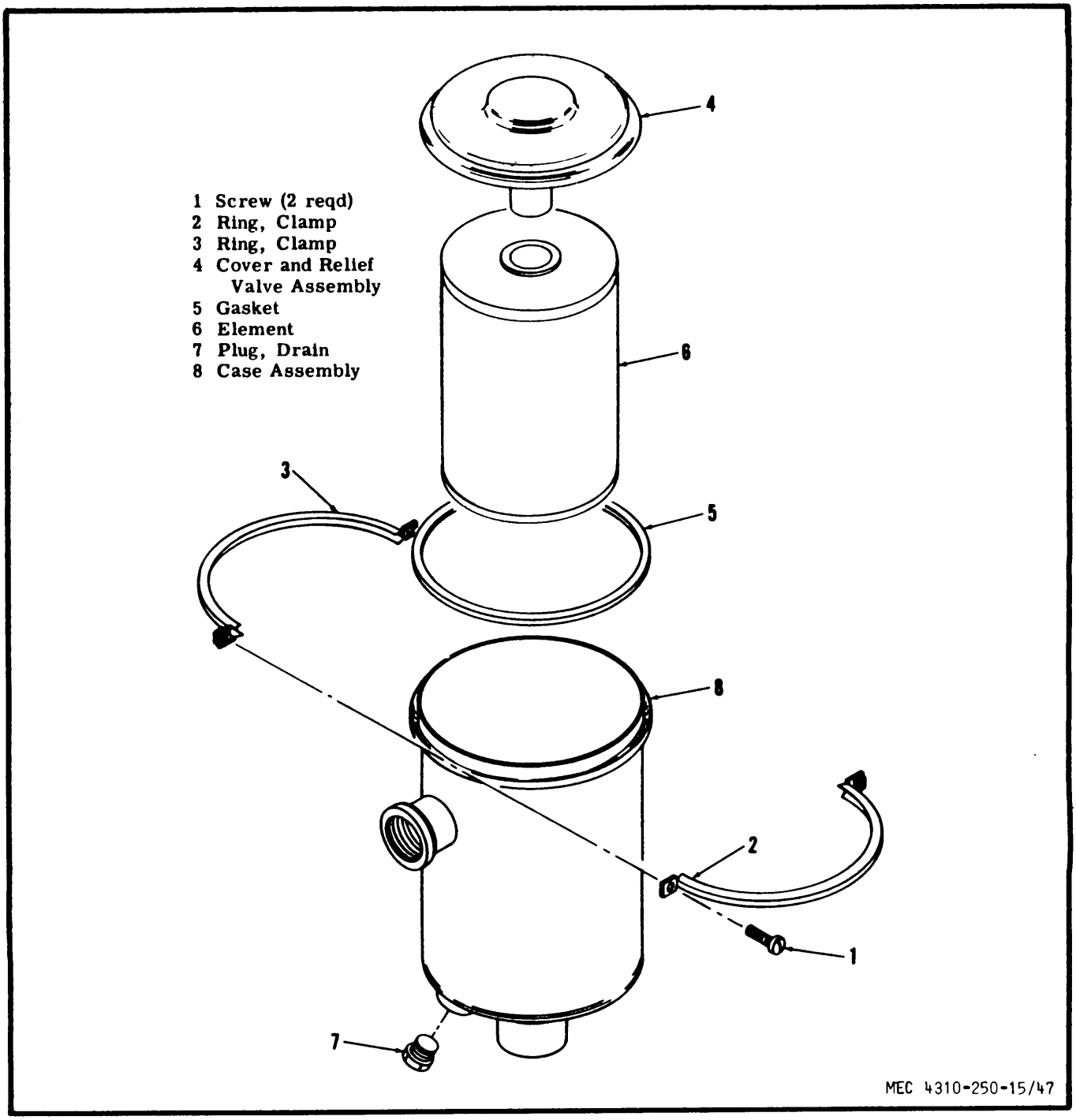


Figure 47. Compressor Oil Filter, Disassembly and Reassembly.

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

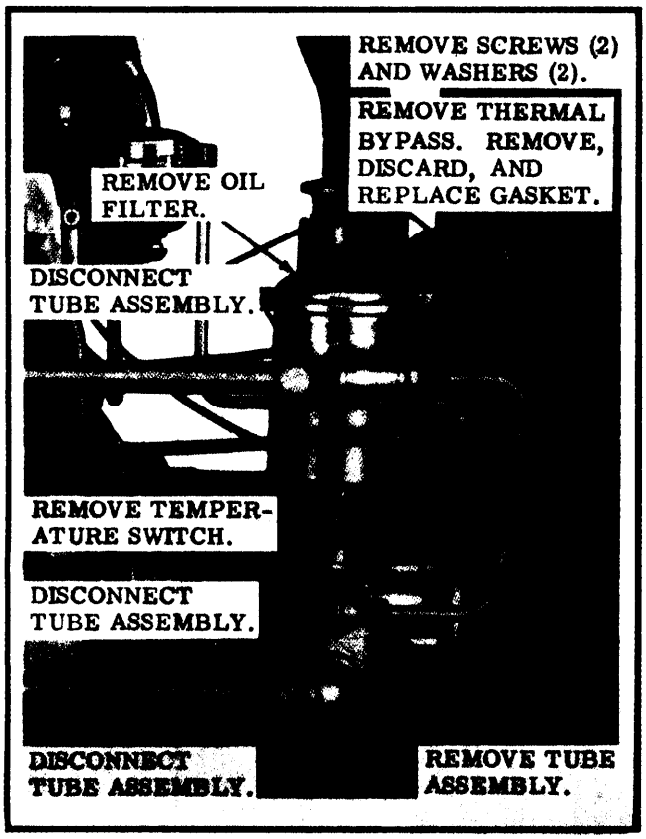
a. Removal.

(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).

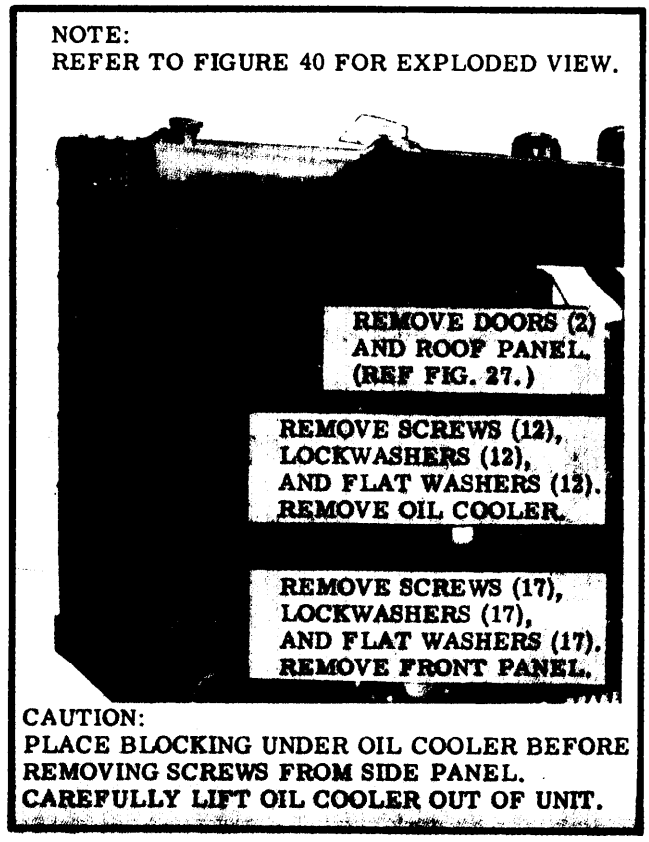
(3) Remove elbows from bottom of compressor oil cooler as illustrated on figure 40.

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



MEC 4310-250-15/48

Figure 48. Thermal Bypass, Removal and Installation.



MEC 4310-250-15/49

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.)

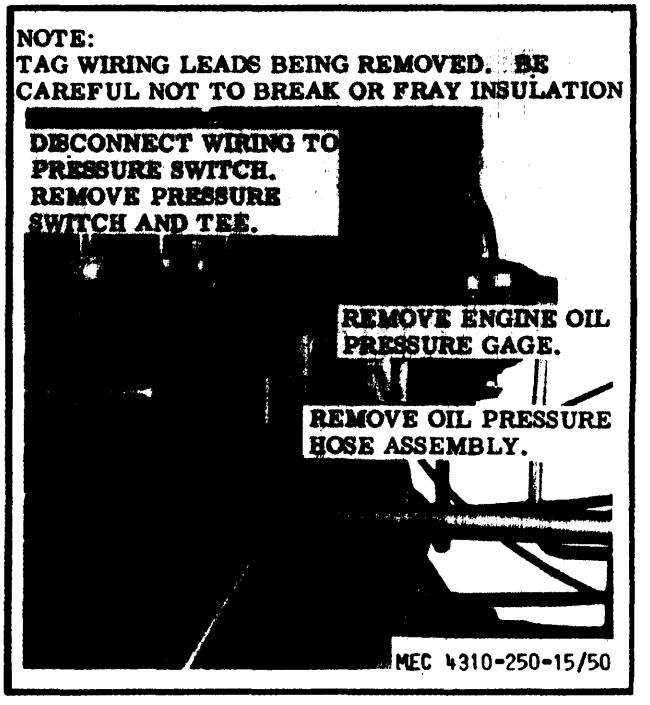


Figure 50. Engine Oil Pressure Gage, Removal and Installation.

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.

(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.

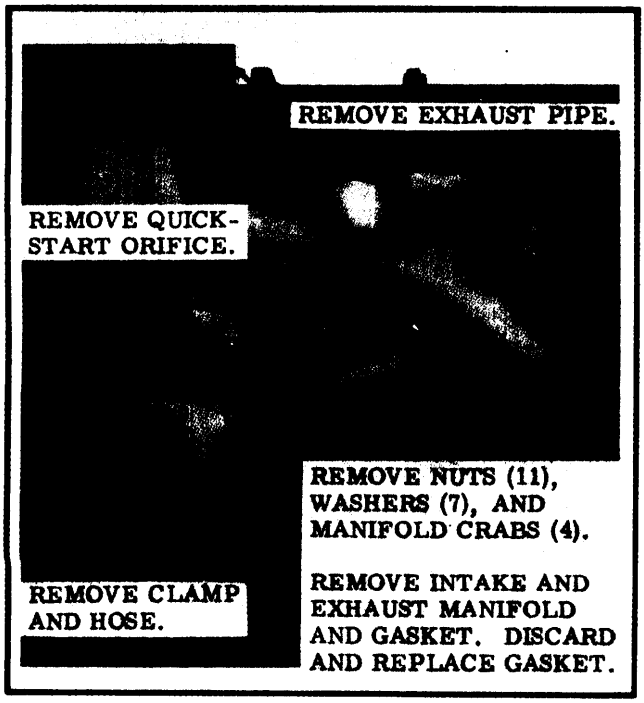


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Figure 51. Intake and Exhaust Manifold, Removal and Installation.

(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.

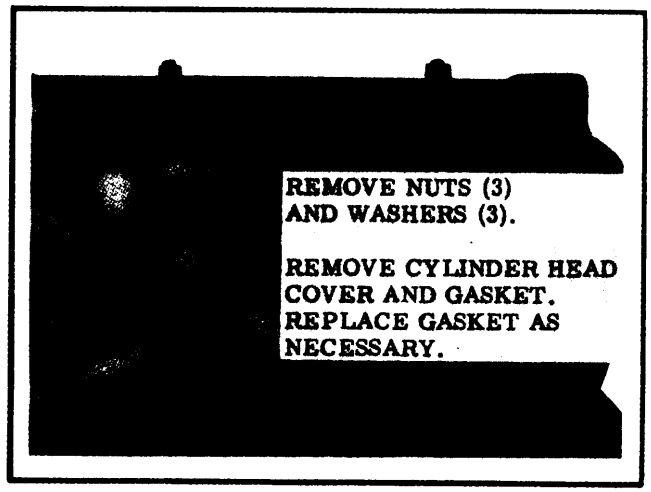
116. CYLINDER HEAD COVER

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.



MEC 4310-250-15/52

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 instrutted on figure 53.

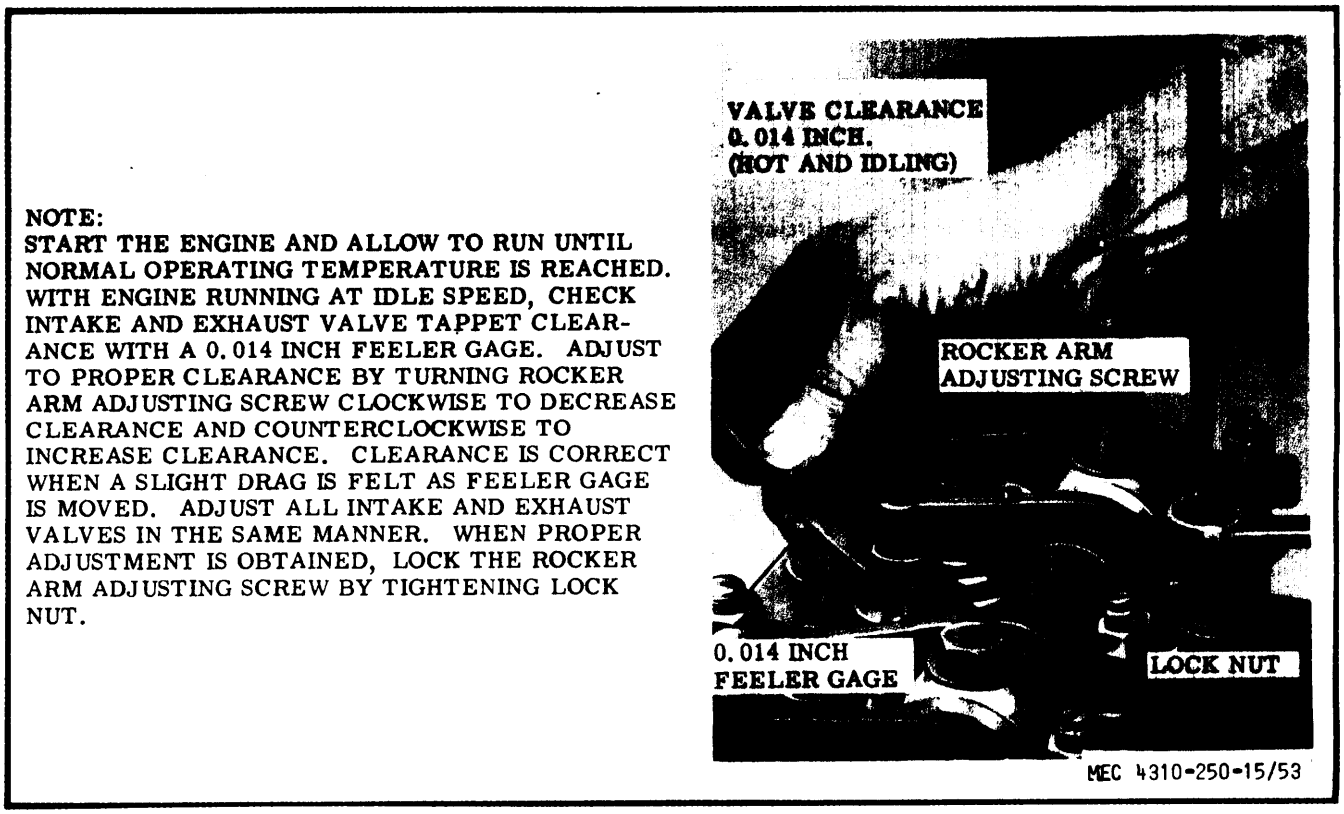


Figure 53. Intake and Exhaust Valves, Adjustment.

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

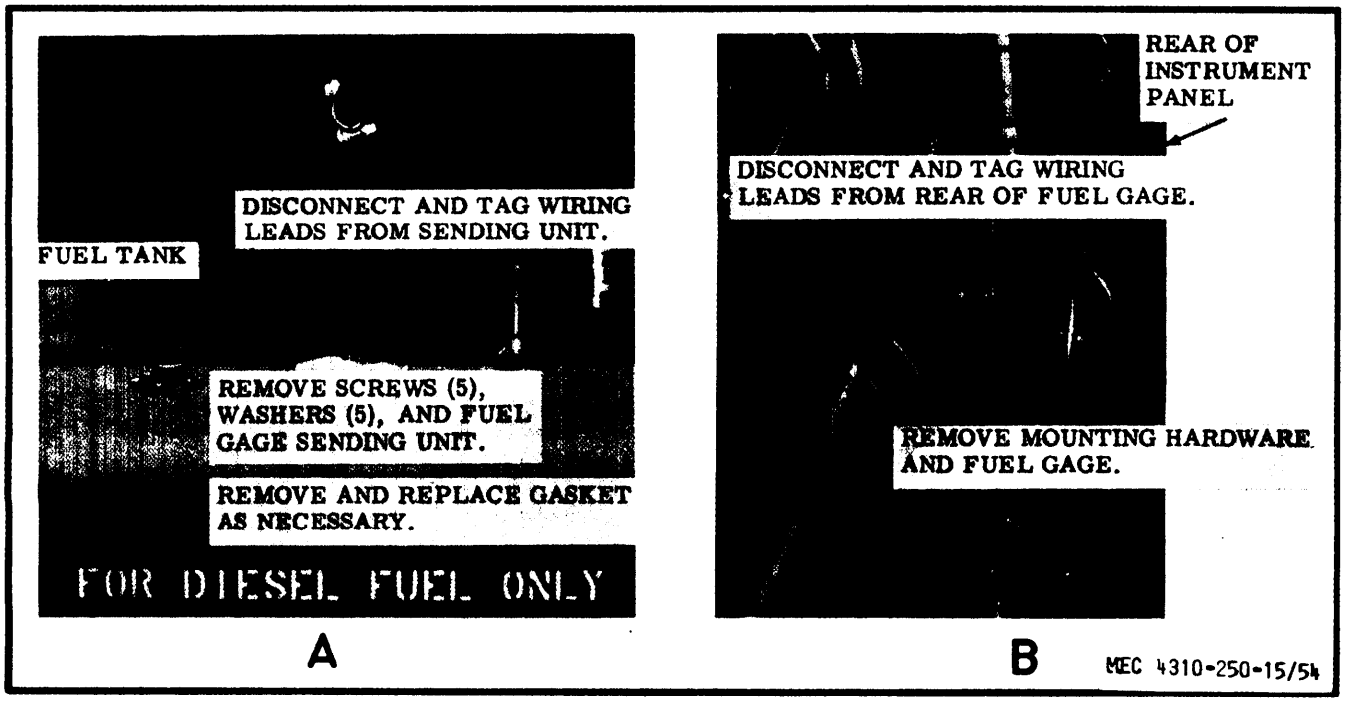
a. Removal. Remove engine water temperature gage as instructed on figure 55.

b. Cleaning and Inspection.

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

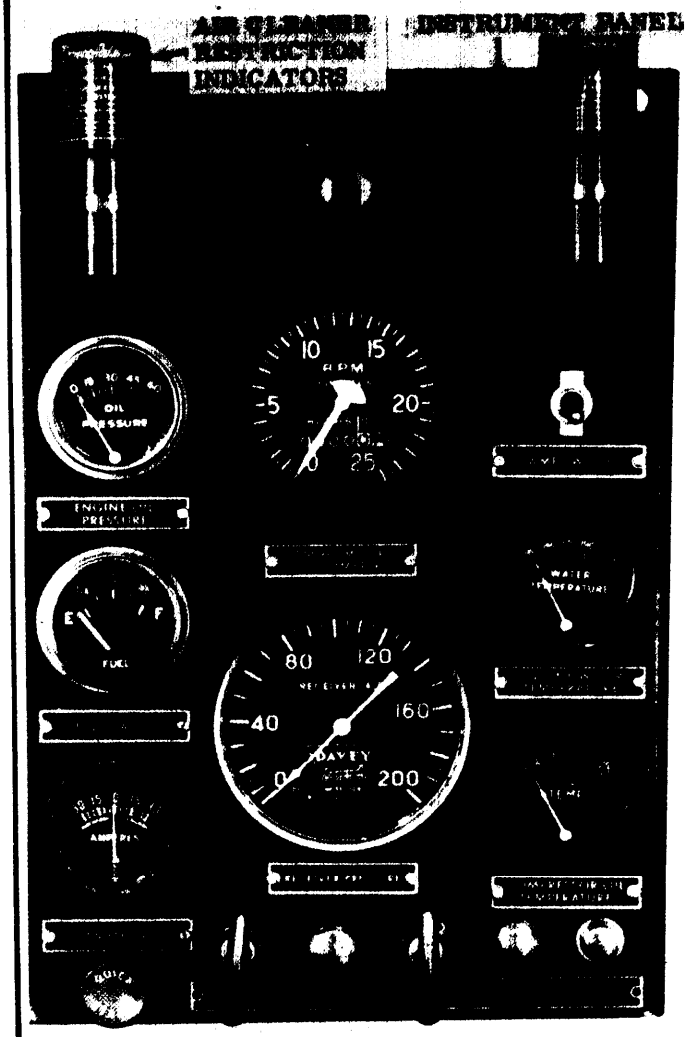
(2) Inspect gage face glass for cracks, or breaks. Inspect case for cracks, breaks, or any other damage. Check for proper operation. Replace gage as necessary.

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

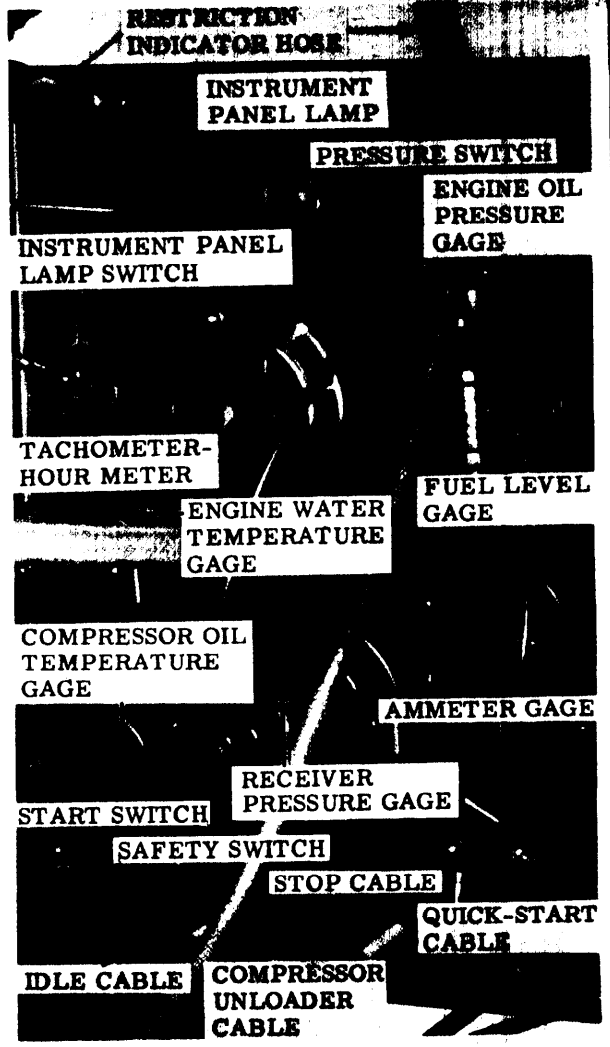


A - Fuel Gage Sending Unit, Removal and Installation. B - Fuel Gage, Removal and Installation.

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.

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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 (MODELS M250RPV AND 6M250RPV)

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.

123.1. COMPRESSOR OIL TEMPERATURE GAGE (MODEL 9M250RPV)

a. Removal. Remove compressor oil temperature gage as instructed on figure 55.1.

b. Cleaning and Inspection. Cleaning and inspection are the same on all models.

c. Installation. Install compressor oil temperature gage as instructed on figure 55.1.

124. ENGINE OIL PRESSURE GAGE (MODELS M250RPV AND 6M250RPV)

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.

124.1. ENGINE OIL PRESSURE GAGE (MODEL 9M250RPV)

a. Removal. Remove engine oil pressure gage as instructed on figure 55.1.

b. Cleaning and Inspection. Cleaning and inspection are the same on all models.

c. Installation. Install engine oil pressure gage as instructed on figure 55.1.

124.2. FUEL PRESSURE GAGE (MODEL 9M250RPV)

a. Removal. Remove fuel pressure gage as instructed on figure 55.1.

b. Cleaning and Inspection.

(1) Clean fuel pressure 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 fuel pressure gage as instructed on figure 55.1.

125. IDLE CABLE (MODELS M250RPV AND 6M250RPV)

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.

125.1. IDLE CABLE (MODEL 9M250RPV)

a. Removal. Remove idle cable as instructed on figure 55.1.

b. Cleaning and Inspection. Cleaning and inspection are the same on all models.

c. Installation. Install idle cable as instructed on figure 55.1.

126. STOP CABLE (MODELS 250RPV AND 6M250RPV)

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 stoppable as instructed on figure 55.

126.1. STOP CABLE (MODEL 9M250RPV)

a. Removal. Remove stop cable as instructed on figure 55.1.

b. Cleaning and Inspection. Cleaning and inspection are the same on all models.

c. Installation. Install stop cable as instructed on figure 55.1.

127. COMPRESSOR UNLOADER CABLE (MODELS M250RPV AND 6M250RPV)

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.

127.1. COMPRESSOR UNLOADER CABLE (MODEL 9M250RPV)

a. Removal. Remove Compressor unloader cable as instructed on figure 55.1.

b. Cleaning and Inspection. Cleaning and inspection are the same on all models.

c. Installation. Install compressor unloader cable as instructed on figure 55.1.

128. START SWITCH (MODELS M250RPV AND 6M250RPV)

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.

128.1. START SWITCH (MODEL 9M250RPV)

a. Removal. Remove start switch as instructed on figure 55.1.

b. Cleaning and Inspection. Cleaning and inspection are the same on all models.

c. Installation. Install start switch as instructed on figure 55.1.

129. SAFETY SWITCH (MODELS M250RPV AND 6M250RPV)

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.

129.1. SAFETY SWITCH (MODEL 9M250RPV)

a. Removal. Remove safety switch as instructed on figure 55.1.

b. Cleaning and Inspection. Cleaning and inspection are the same on all models.

c. Installation. Install safety switch as instructed on figure 55.1.

130. RECEIVER PRESSURE GAGE (MODELS M250RPV AND 6M250RPV)

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

130.1. RECEIVER PRESSURE GAGE (MODEL 9M250RPV)

a. Removal. Remove receiver pressure gage as instructed on figure 55.1.

b. Cleaning and Inspection. Cleaning and inspection are the same on all models.

c. Installation. Install receiver pressure gage as instructed on figure 55.1.

130.2. AIR PRESSURE SWITCH (MODEL 9M250RPV)

a. Removal. Remove air pressure switch as instructed on figure 55.1.

b. Cleaning and Inspection.

(1) Clean the air pressure switch with a clean, dry cloth.

(2) Inspect switch terminals and threaded part of switch for damage. Replace as necessary.

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

c. Installation. Install air pressure switch as instructed on figure 55.1.

131. LAMP SWITCH (MODELS M250RPV AND 6M250RPV)

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.

131.1. LAMP SWITCH (MODEL 9M250RPV)

a. Removal. Remove lamp switch as instructed on figure 55.1.

b. Cleaning and Inspection. Cleaning and inspection are the same on all models.

c. Installation. Install lamp switch as instructed on figure 55.1.

132. INSTRUMENT PANEL LAMP (MODELS M250RPV AND 6M250RPV)

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.

132.1. INSTRUMENT PANEL LAMP (MODEL 9M250RPV)

a. Removal. Remove instrument panel lamp as instructed on figure 55.1.

b. Cleaning and Inspection. Cleaning and inspection are the same on all models.

c. Installation. Install instrument panel lamp as instructed on figure 55.1.

WARNING

If NBC exposure is suspected, all air filter media should be handled by personnel wearing protective equipment. Consult your unit NBC Officer or NBC NCO for appropriate handling or disposal instructions.

133. AIR CLEANER RESTRICTION INDICATORS (MODELS M250RPV AND 6M250RPV)

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.

133.1. AIR CLEANER RESTRICTION INDICATORS (MODEL 9M250RPV)

a. Removal. Remove either air cleaner restriction indicater as instructed on figure 55.1.

b. Cleaning and Inspection. Cleaning and inspection are the same on all models.

c. Installation. Install either air cleaner restriction indicator as instructed on figure 55.1.

134. QUICK-START CABLE (MODELS M250RPV AND 6M250RPV)

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.

134.1. QUICK-START CABLE (MODEL 9M250RPV)

a. Removal. Remove quick-start cable as instructed on figure 55.1.

b. Cleaning and Inspection. Cleaning and inspection are the same on all models.

c. Installation. Install quick-start cable as instructed on figure 55.1.

Section XV. AIR SYSTEM

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, a speed control device, hose reels, and the necessary safety devices and switches required for completion of the system and for 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 shutdown, preventing oil and air mixture from the compressor being vented to the atmosphere. A single-stage rotor stator assembly develops an airflow of 250 cubic feet per minute (CFM) at a discharge pressure of 100 pounds per square inch (PSI). The oil separator assembly contains a labyrinth and filter arrangement which removes oil from the air before the air passes through the minimum pressure valve assembly, located on top of the oil separator assembly, and to the hose reels. The minimum pressure valve consists of a valve, spring, and piston arrangement which maintains a minimum air pressure of 40 PSI within the oil separator when the compressor is running. This minimum air pressure is necessary to produce proper oil circulation in the system and efficient air/oil separation. See figure 55.2. The valve is held closed by the piston and spring until air pressure reaches approximately 40 PSI at which time the force of the air pressure moves the valve open and the piston upward allowing compressed air to flow to the hose reels. When air pressure drops below 40 PSI, the force of the spring overcomes air pressure and moves the piston downward closing the valve. The discharge air passes from the minimum pressure valve assembly to the hose reel assemblies and service valves attached to the minimum pressure assembly housing. The oil separator 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 device is also provided. On the M250RPV and 6M250RPV models, the speed control assembly is a pneumatic device of the modulating type. This assembly selects an engine speed and compressor intake opening to suit any discharge air demand within the capacity of the compressor. A moisture separator removes moisture from the air going into the speed control assembly. On the Model 9M250RPV, the compressor air intake valve is mechanically connected to the engine fuel pump and an air pressure regulator is connected between the oil separator and the air intake-unloader. As the air load demand increases, the air pressure regulator controls a flow of air into the intake-unloader to open the valve. This action increases air input and engine speed. As the air pressure reaches the rated value, the air pressure regulator causes the intake valve to close and the engine to return to the low idle speed. Moisture is removed from the air in the control line by an orifice and drain in the intake-unloader cover.

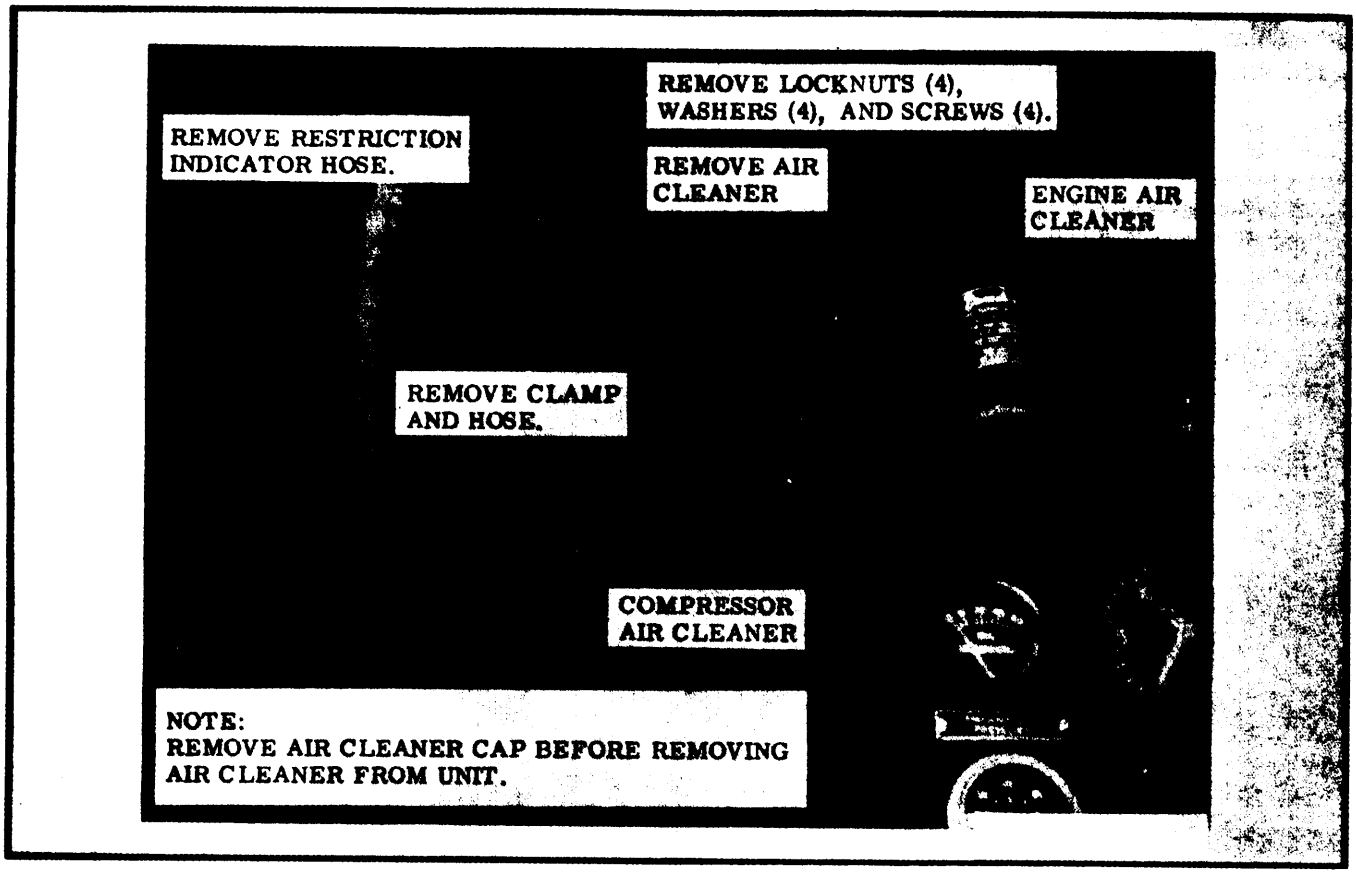


Figure 56. Compressor Air Cleaner and/or Engine Air Cleaner, Removal and Installation.

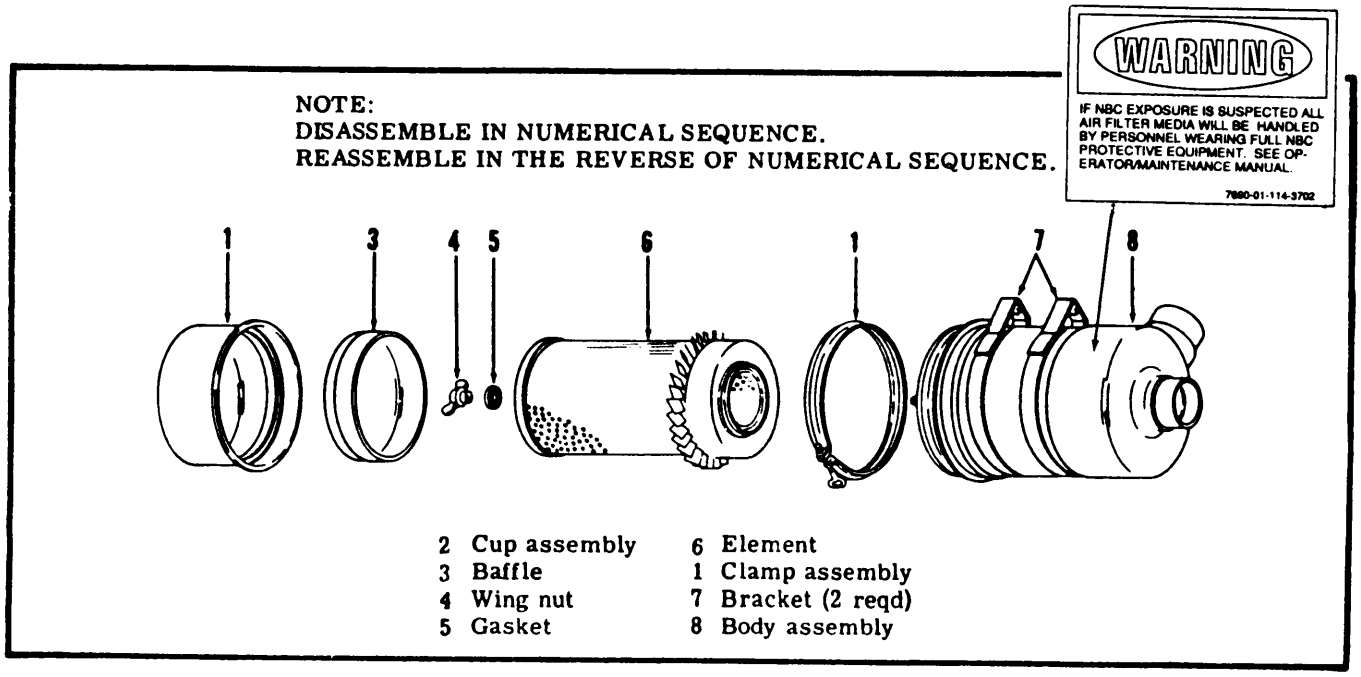


Figure 57. Compressor Air Cleaner and/or Engine Air Cleaner, Disassembly and Reassembly.

136. COMPRESSOR AIR CLEANER

WARNING

If NBC exposure is suspected, all air filter media should be handled by personnel wearing protective equipment. Consult your unit NBC NCO for appropriate handling or disposal instructions.

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

NOTE

Do not remove restriction indicator hose on 6M250RPV and 9M250RPV models.

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

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 (MODELS M250RPV AND 6M250RPV)

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).

137.1. COMPRESSOR AIR INTAKE-UNLOADER ASSEMBLY (MODEL 9M250RPV)

a. Removal.

(1) Remove all air lines from intake-unloader assembly (fig. 59.2).

(2) Remove blowdown valve from air intake-unloader assembly (para 142.1).

(3) Remove air intake-unloader assembly as instructed on figure 58.1.

b. Cleaning and Inspection. Cleaning and inspection are the same on all models.

c. Installation.

(1) Install air intake-unloader assembly as instructed on figure 58.1.

(2) Install blowdown valve on air intake-unloader assembly (para 142.1).

(3) Install all air lines on intake-unloader assembly (fig. 59.2).

138. LINES AND FITTINGS

a. Removal. Remove all air lines and fittings (Model M250RPV, fig. 59; Model 6M250RPV, fig. 59.1; Model 9M259RPV, fig. 59.2).

(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.

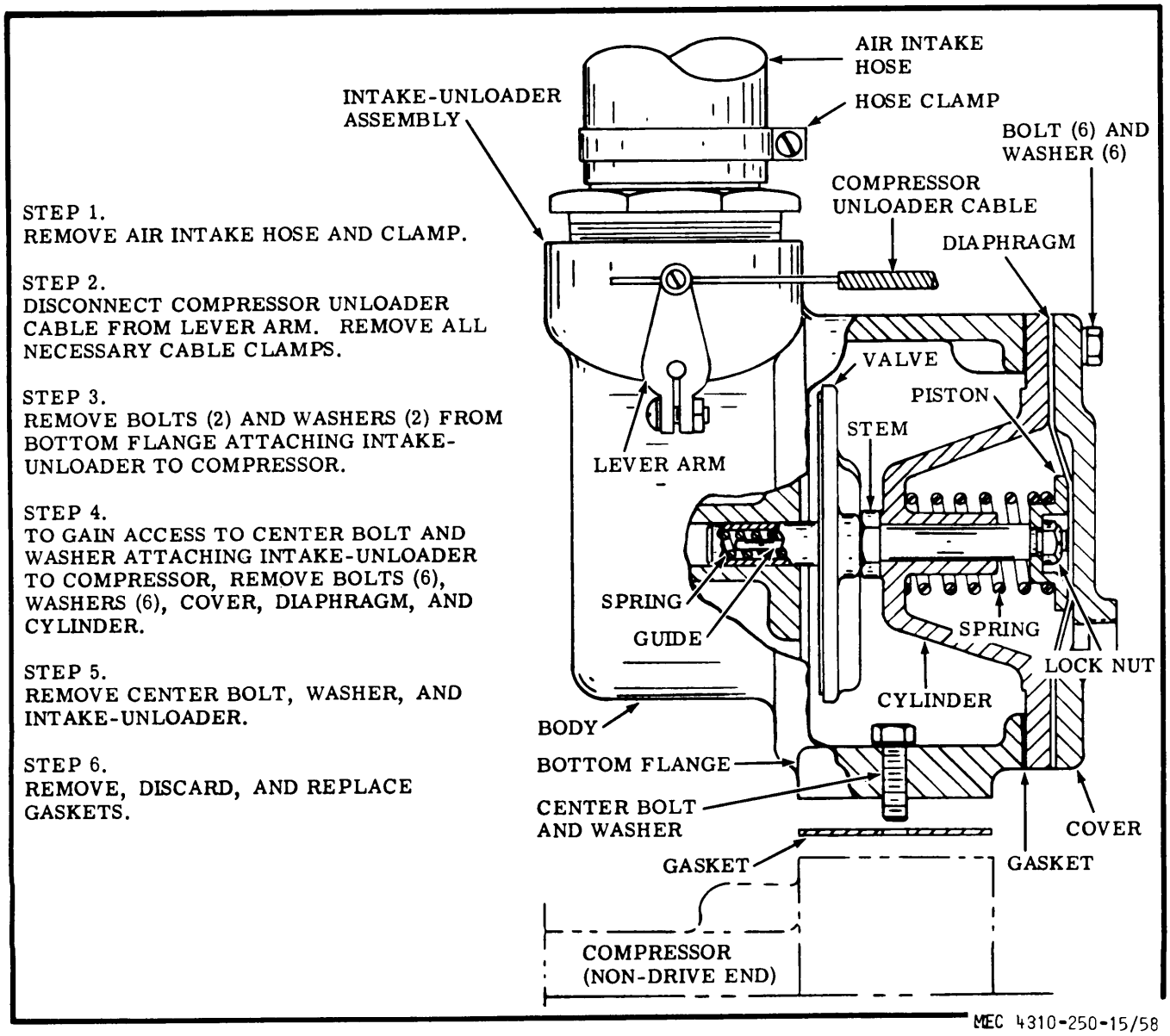


Figure 58. Compressor Air Intake-Unloader Assembly, Removal and Installation.

(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.

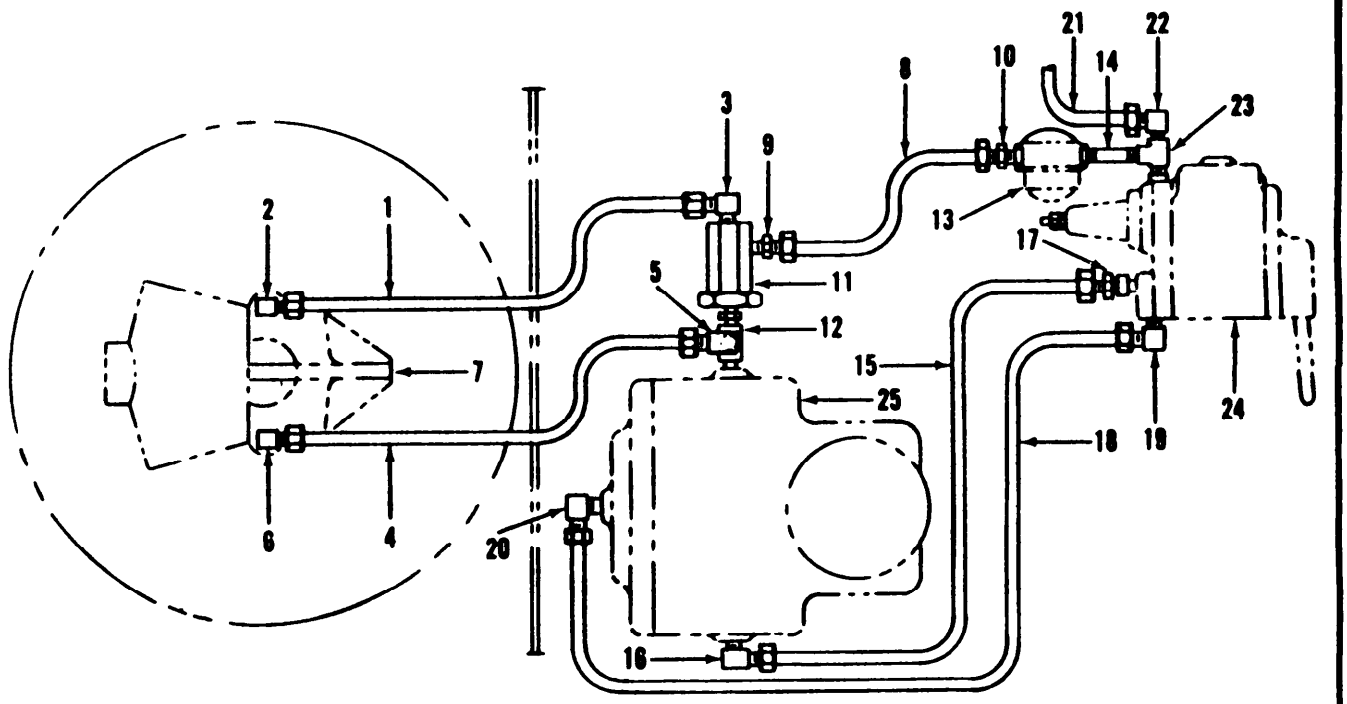
b. Cleaning, Inspection, and Repair.

(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)

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Figure 59. Lines and Fittings, Removal and Installation.

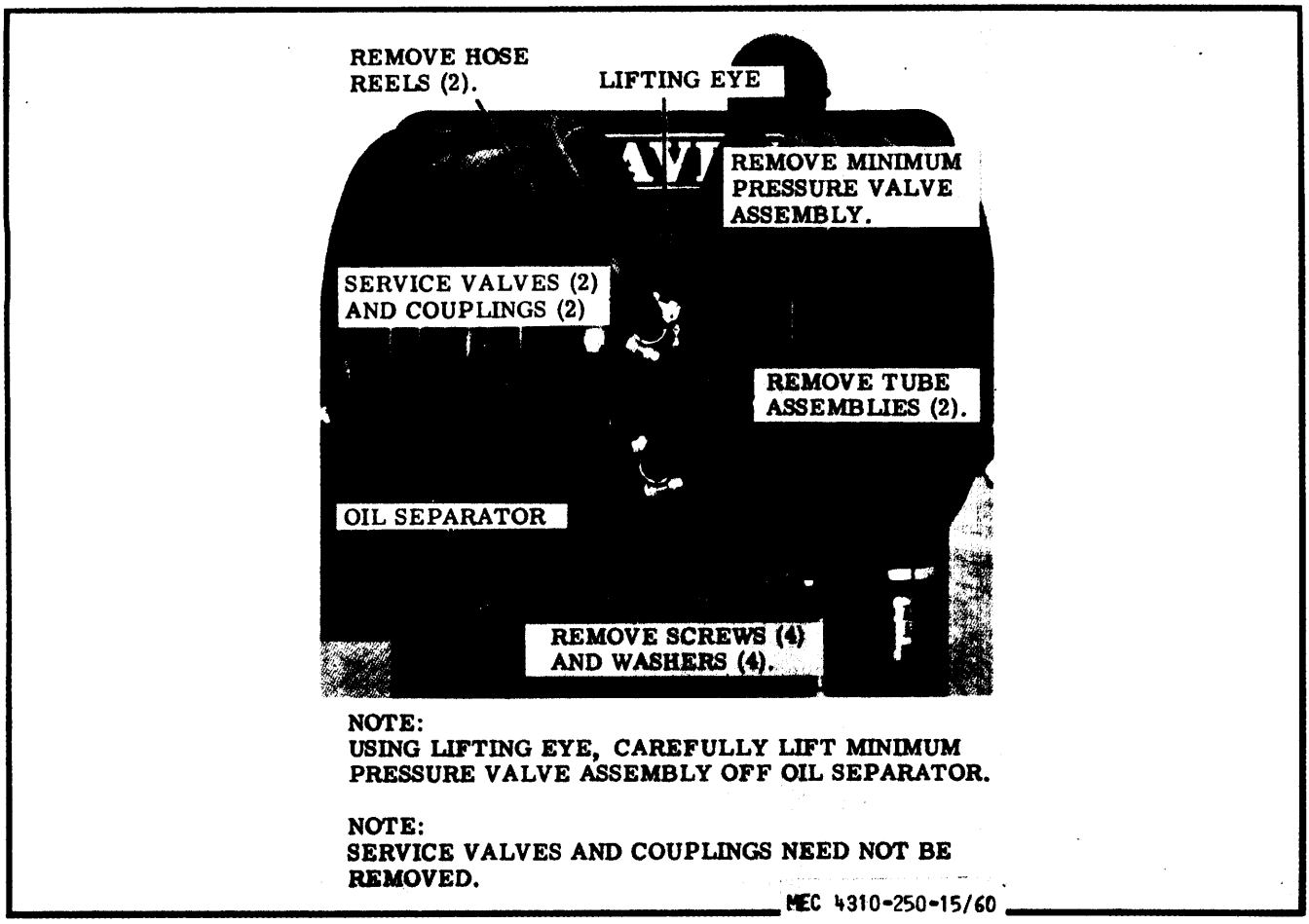


Figure 60. Minimum Pressure Valve Assembly, Removal and Installation.

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.

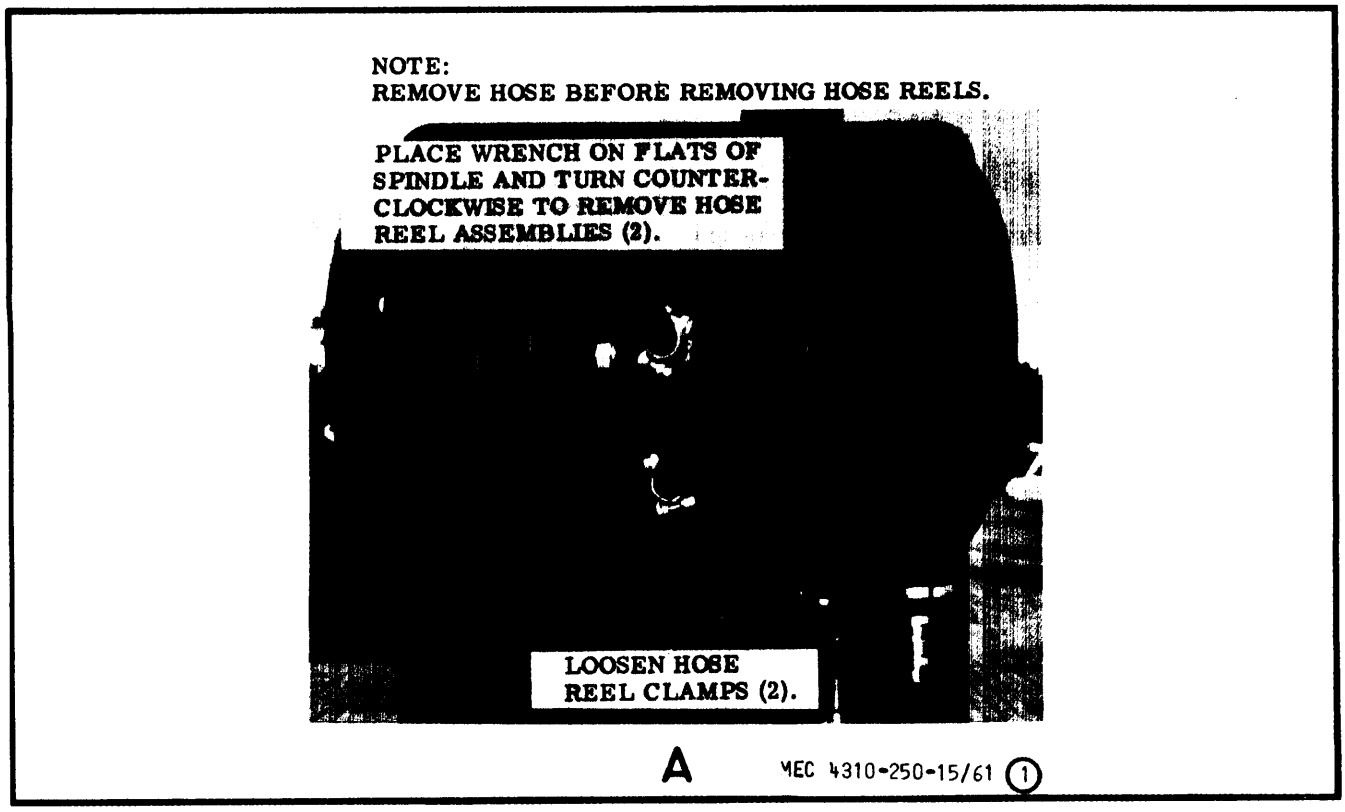
c. Installation. Install oil separator oil level gage as instructed on figure 64.

144. MOISTURE SEPARATOR

a. Removal.

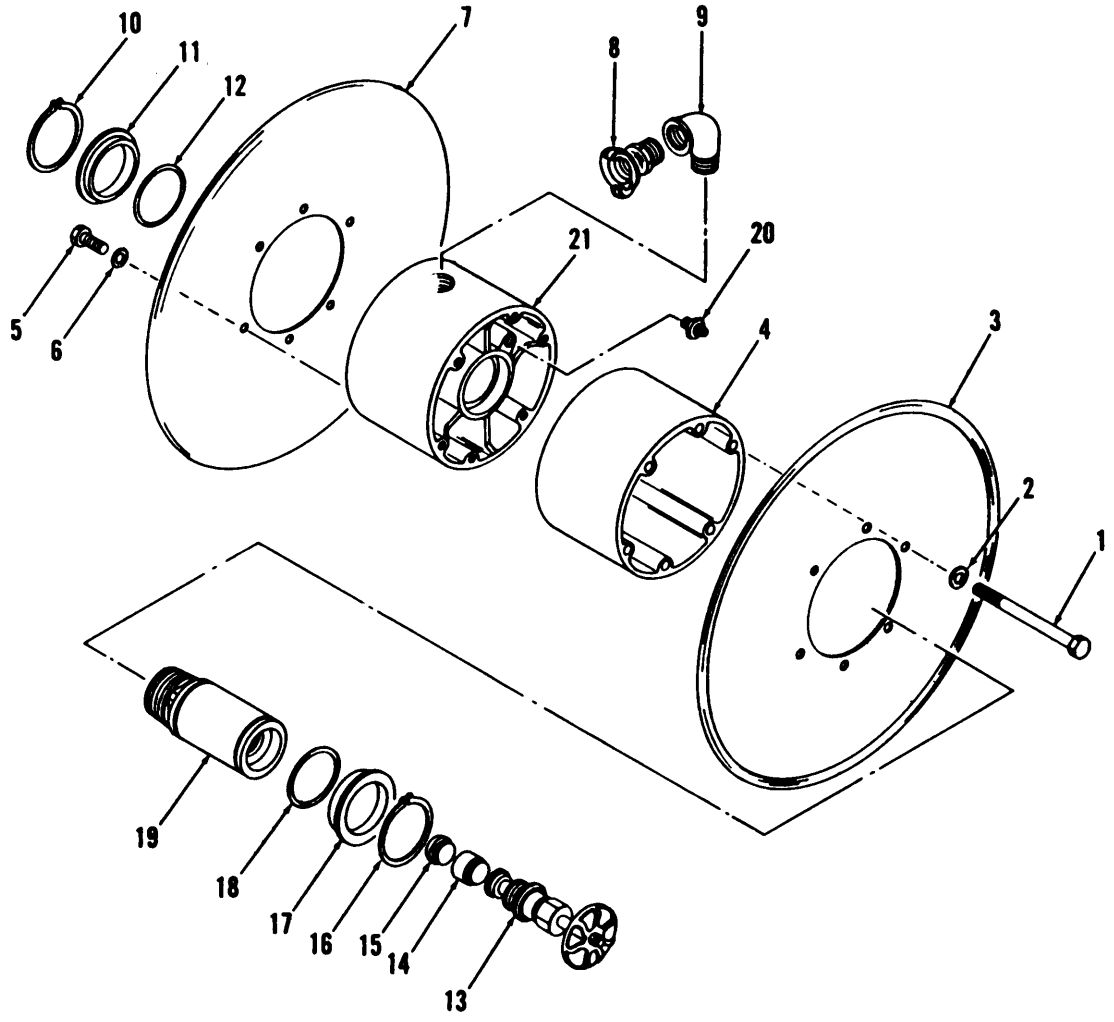
(1) Remove blowdown valve-to-moisture separator line (para 138).

(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

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

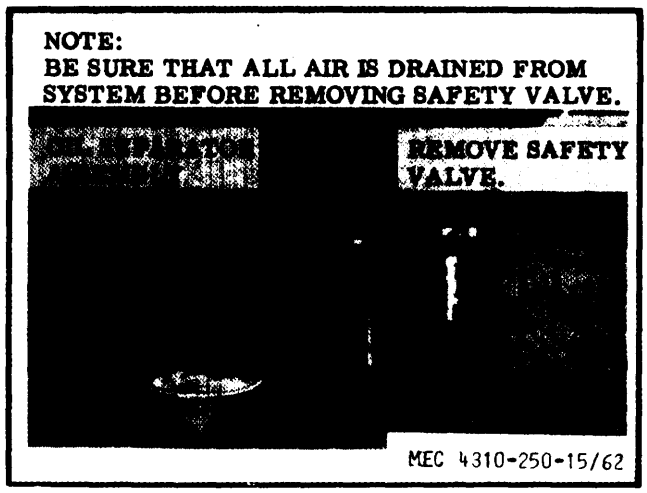


Figure 62. Safety Valve, Removal and Installation.

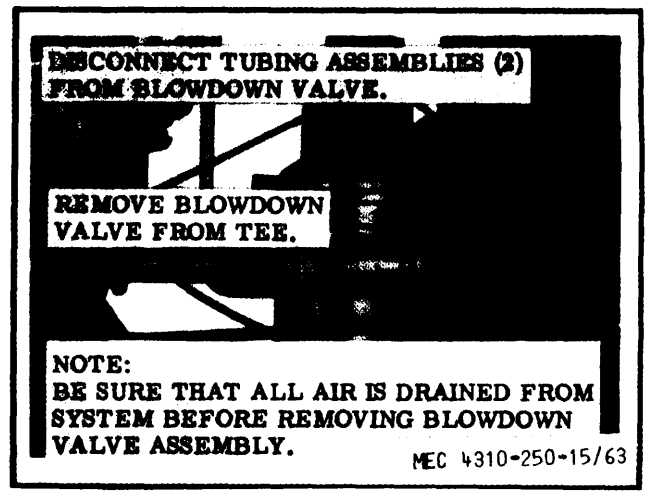
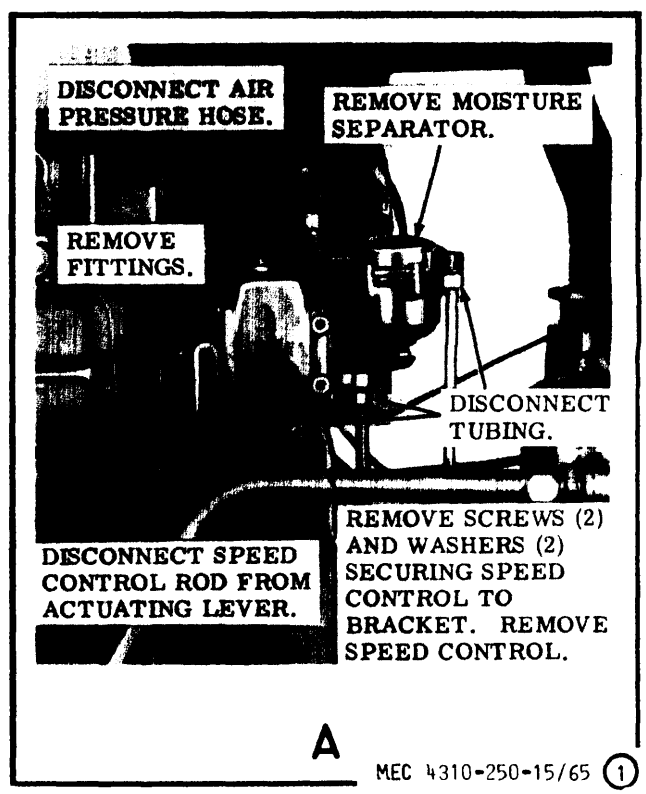


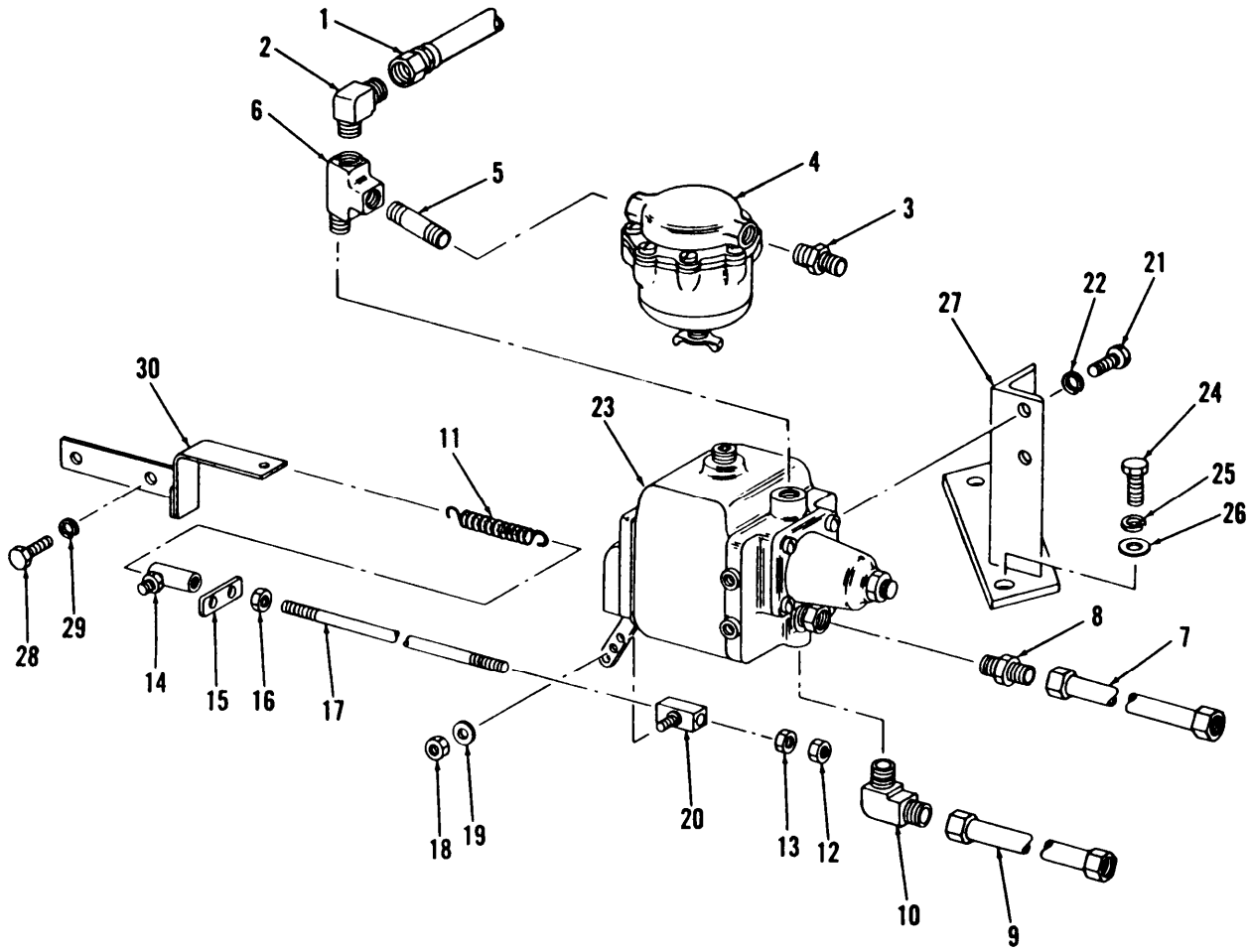
Figure 63. Blowdown Valve Assembly, Removal and Installation.

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.

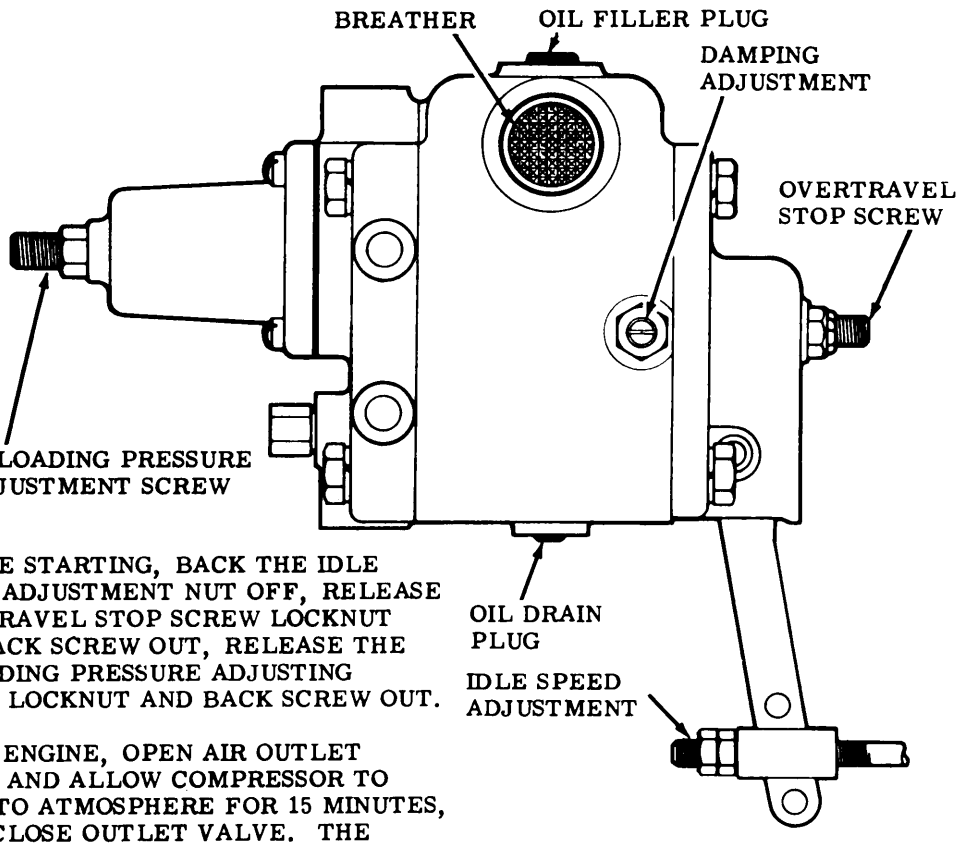


1 Hose assembly, air pressure
2 Elbow
3 Connector
4 Moisture Separator
5 Nipple, 1/4 NPT x 2 in.
6 Tee
7 Tube assembly, Intake-Unloader assembly-to-Speed Control
8 Connector
9 Tube assembly, Intake-Unloader assembly-to-Speed Control
10 Elbow
11 Spring, speed control rod
12 Nut, 1/4-28
13 Nut, 1/4-28
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

MEC 4310-250-15/65 (2)

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

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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.

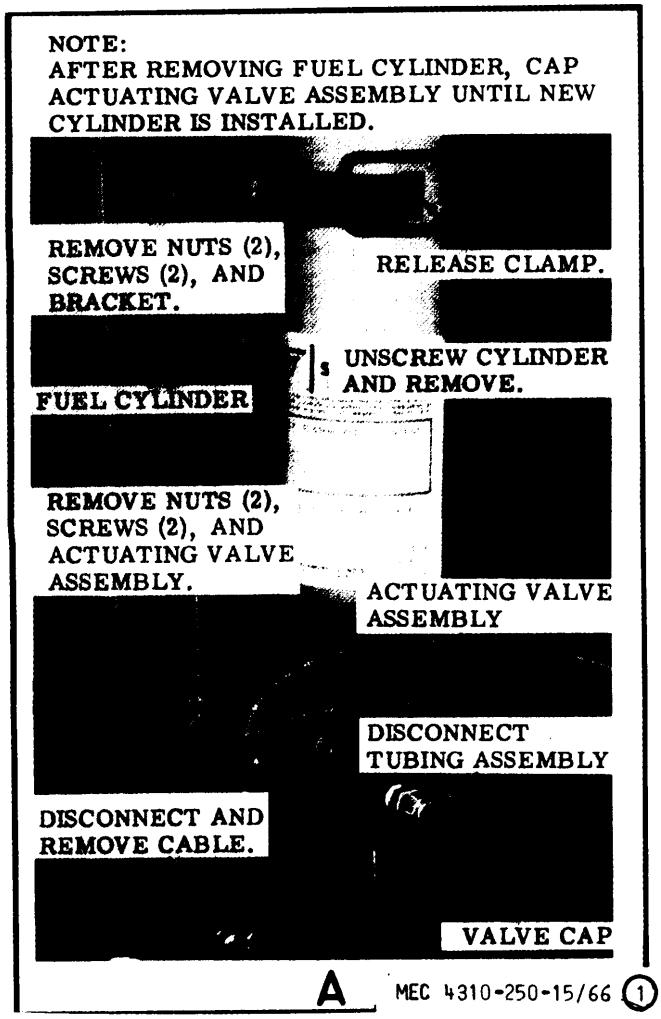
(6) Install elbow and connector in speed control and connect two air intake-unloader assembly lines.

(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.



A - Cylinder and Valve, Removal and Installation.

Figure 66. Quick-Start Starting Aid, Removal and Installation.

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.

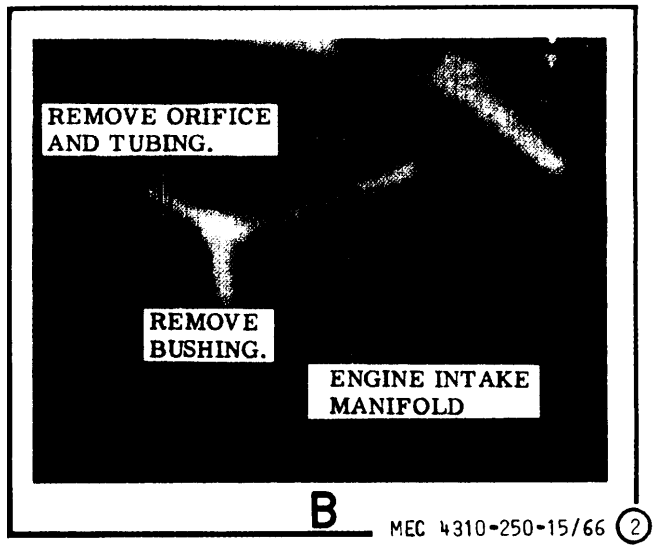
(3) Inspect actuating valve for cracks, breaks, proper operation, and any other damage. Replace as necessary.

(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.



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 o r any other manual.

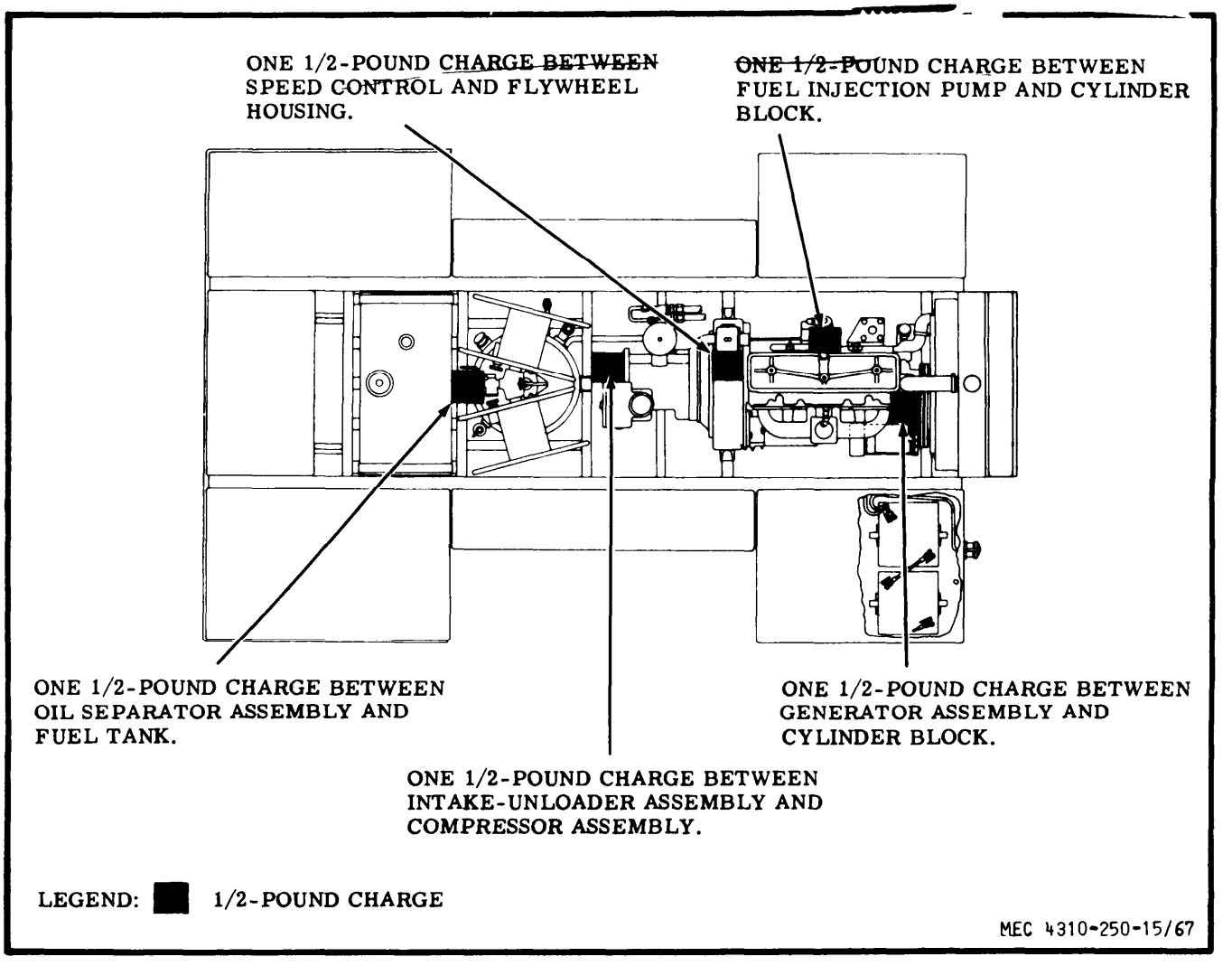


Figure 67. Placement of Demolition Charges.

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 TM 9-213 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 fasten 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 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.

WARNING

If NBC exposure is suspected, all air filter media should be handled by personnel wearing protective equipment. Consult your unit NBC Officer or NBC NCO for appropriate handling or disposal instructions.

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-l29.

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 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.

o. Air Receivers. Drain the air receiver and leave drain cock or drain plug open to allow condensation to drain. Secure drain plug in a conspicuous location near the tank.

p. Hose and Couplings. Recoil on hose reels or coil the hose to a minimum safe diameter and secure the coil to the equipment to prevent movement. Shroud exposed hose with waterproof kraft wrapping paper (UU-P-271).

155. LOADING EQUIPMENT FOR SHIPMENT

Use appropriate materials and handling equipment sufficient to lift or tow the air compressor 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 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 unit. If covered storage is not available, select a firm, level, well-drained storage location that is protected from prevailing winds. After positioning a trailer mounted unit, lock the parking brakes and block the wheels using heavily constructed wooden chucks. Cover the air compressor unit with a tarpaulin or other suitable waterproof covering and secure in a manner that will provide maximum protection from the elements including severe weather conditions.

157. INSPECTION AND MAINTENANCE OF EQUIPMENT IN STORAGE

Every 90 days the air compressor 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 unit shall be preserved as outlined in paragraph 156.

Chapter 5

DIRECT AND GENERAL SUPPORT AND DEPOT MAINTENANCE INSTRUCTIONS

Section I. GENERAL

158. SCOPE

a. The following instructions are for direct and general support depot maintenance personnel. They contain information on equipment maintenance that is beyond the scope of the tools, equipment, personnel, or supplies normally available to organizational maintenance.

b. Appendix I includes the publications applicable to field and depot maintenance. Appendix III contains the Maintenance Allocation Chart. The Direct and General Support and Depot Maintenance Repair Parts and Special Tool Lists are listed in TM 5-4310-250-25P.

c. Report all equipment recommendations as prescribed by DA PAM 738-750.

159. RECORD AND REPORT FORMS

NOTE

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

For record and report forms applicable to field and depot maintenance, refer to DA PAM 738-750.

Section II. DESCRIPTION AND DATA

160. DESCRIPTION

For complete description of the air compressor 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 Reciprocaling Diesel
Model	Continental 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.

(1) Model M250RPV rotary air compressor.

Type	Sliding Vane, Air, Rotary, DED
Model	Davey Compressor Co. M250RPV
Part No	4574l
Stages	One
Air Delivered	250 CFM
Air Pressure	100 PSI

(2) Model 6M250RPV Rotary Air Compressor.

Type	Sliding Vane, Air, Rotary, DED
Model	Davey Compressor Co. 6M250RPV
Part No	60600
Stages	One
Air Delivered	250 CFM
Air Pressure	100 PSI

(3) Model 9M250RPV Rotary Air Compressor.

Type	Sliding Vane, Air, Rotary, DED
Model	Davey Compressor Co. 9M250RPV

Part No. 62050
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 4 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 . . . . 0.066 to 0.070 IN.
core gap
Voltage regulator . . . . . 0.053 to 0.056 IN.
armature core gap
Current regulator. . . . . 0.053 to 0.056 IN.
armature core gap

g. Nut and Bolt Torque Data. See tables I and II.

h. Wiring Diagram. (Models M250RPV and 6M250RPV) See figure 68.

h.1. Wiring Diagram. (Model 9M250RPV) See figure 68.1.

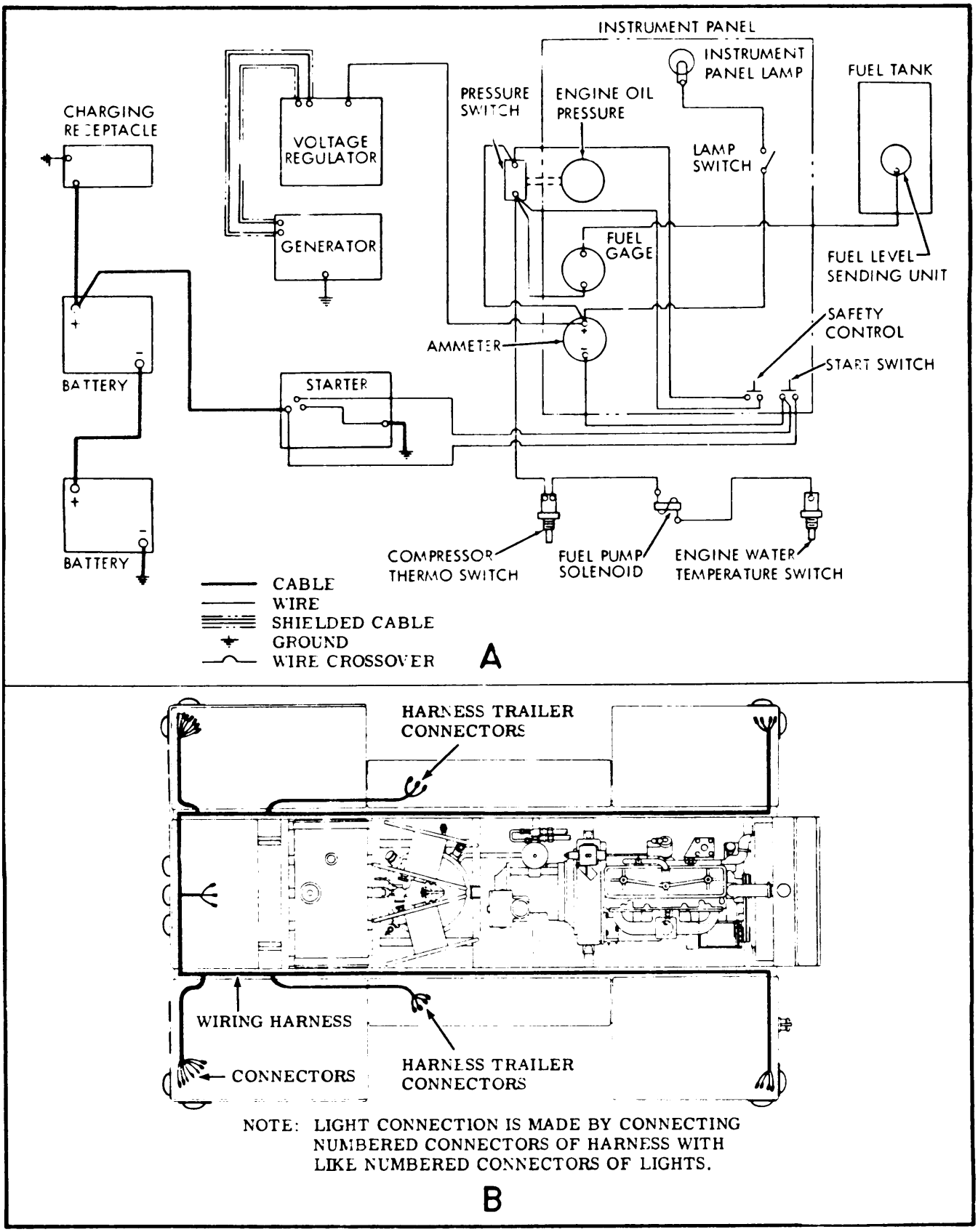
i. Compressor Air System. See figure 69.

j. Compressor Air System Tubing. (Model M250RPV) see figure 70.

j.1. Compressor Air System Tubing. (Model 6M250RPV) See figure 7001.

j.2. Compressor Air System Tubing. (Model 9M250RPV) See figure 70.2.

k. Compressor Oil Cycle. See figure 71.



A - Engine and Compressor Wiring. B - Tool Box Light Wiring.

Figure 68. Schematic Wiring Diagram; Models M250RPV and 6M250RPV.

Table 4. 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 4. 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
Manchester 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 4. 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				

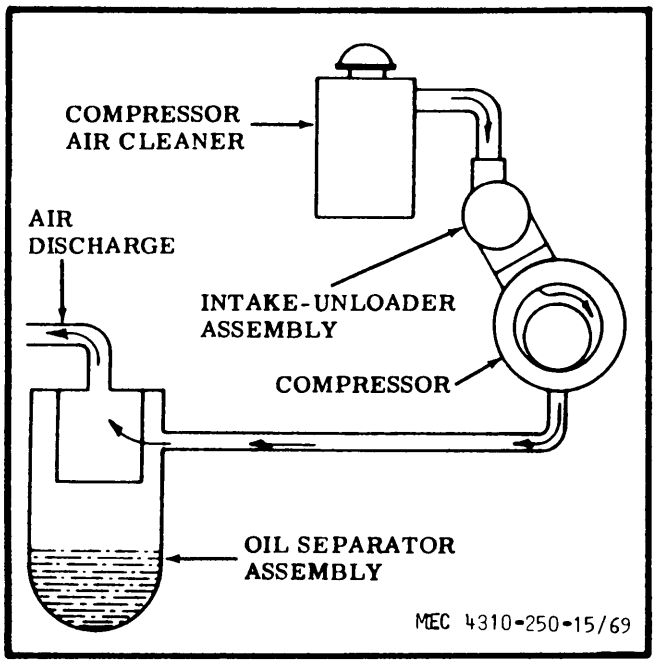


Figure 69. Compressor Air System Schematic Diagram.

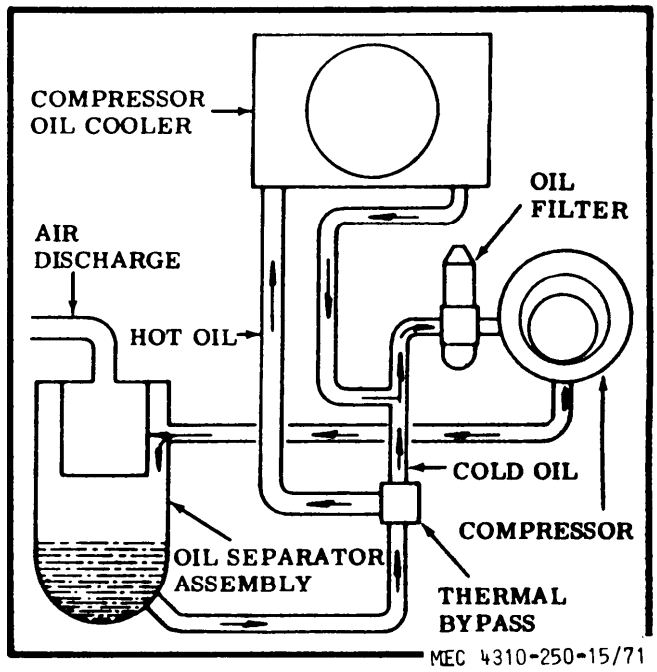


Figure 71. Compressor Oil Cycle Schematic Diagram.

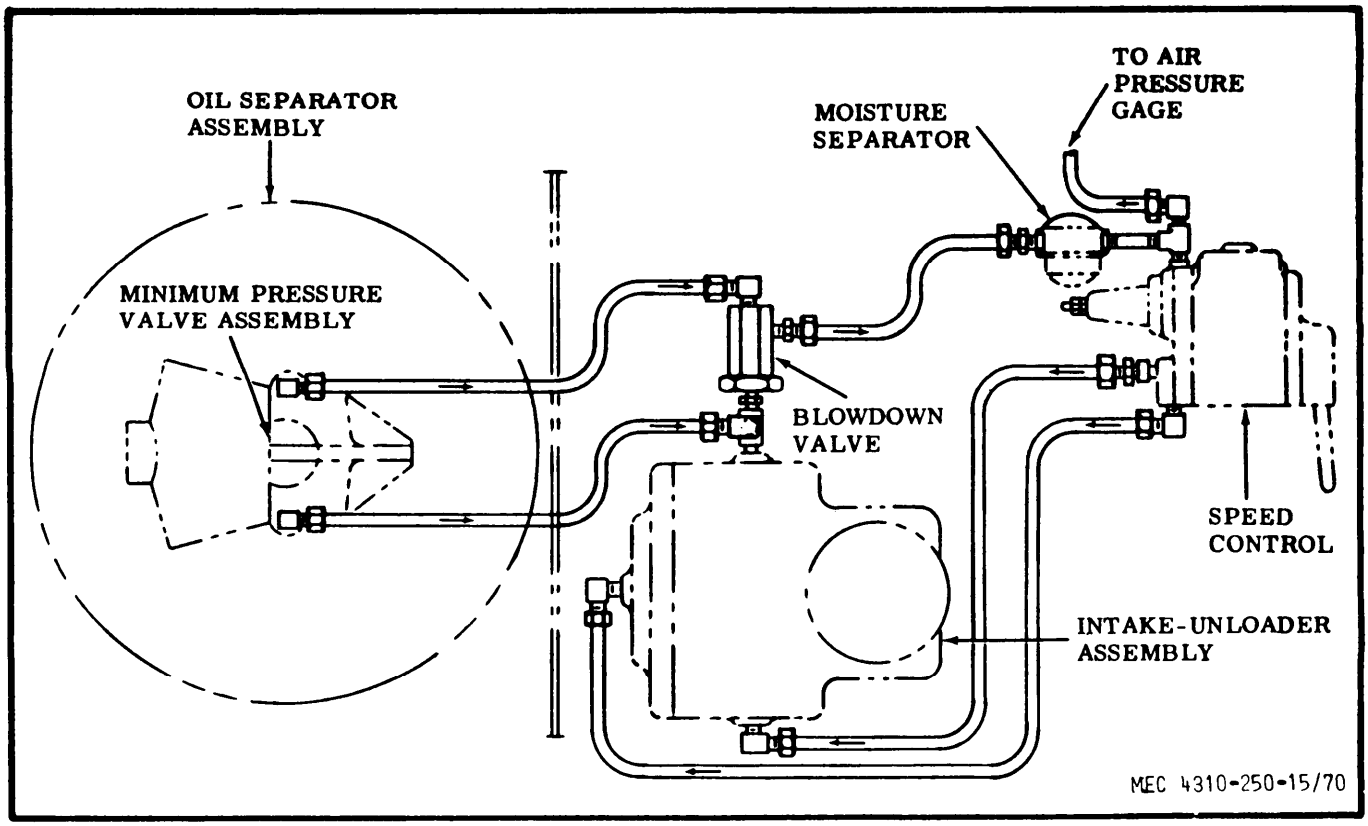


Figure 70. Compressor Air System Tubing, Schematic Diagram.

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 TM 5-4310-250-25P.

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 compressors 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 AUXILIARIES

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.

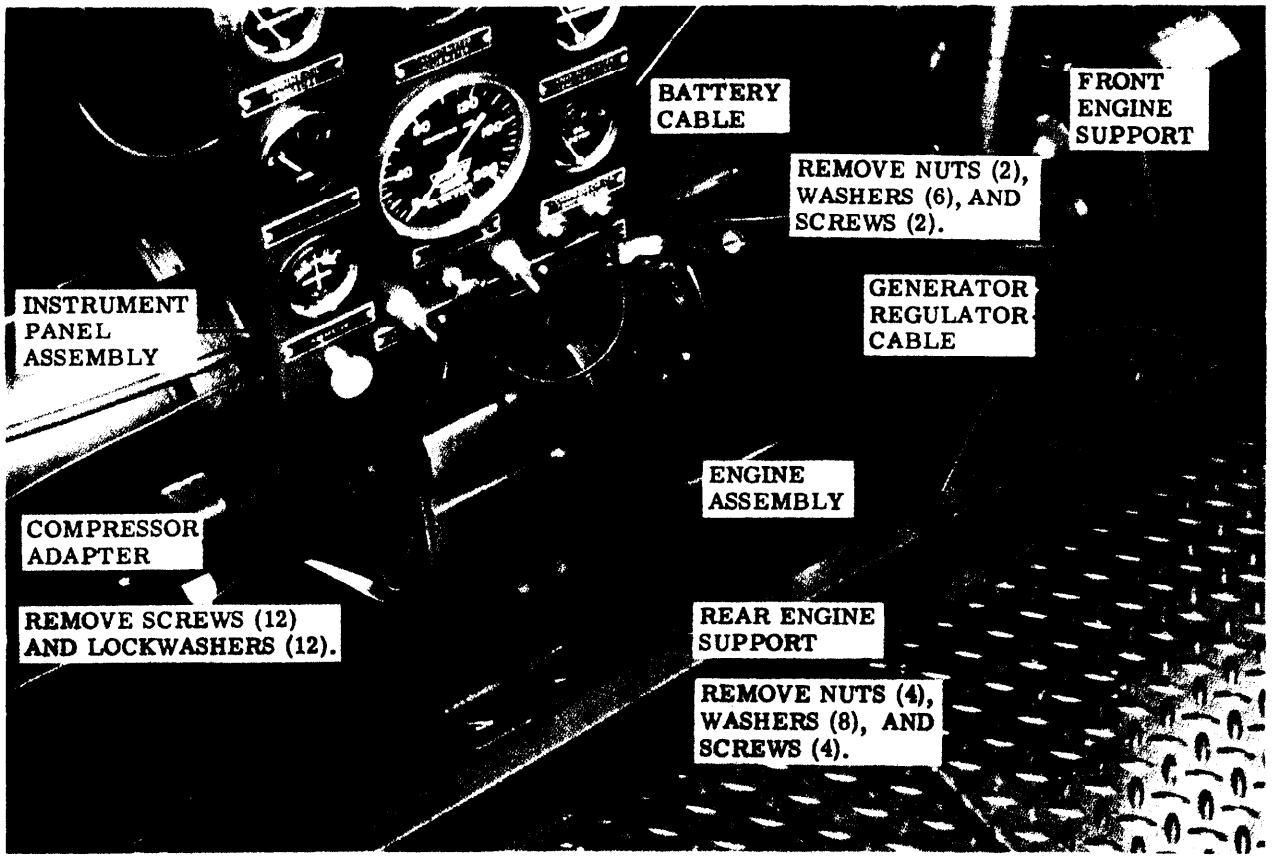
(7) Install engine fan guard. Refer to figure 37.

(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.

MEC 4310-250-15/72

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.

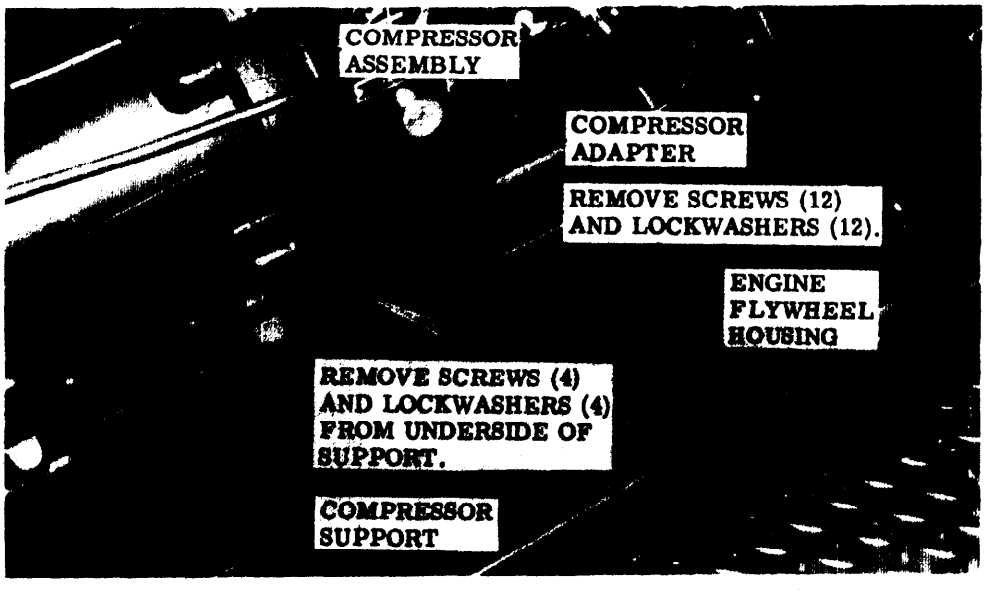
(3) Connect compressor unloader cable. Refer to figure 55.

(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.

MEC 4310-250-15/73

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.).

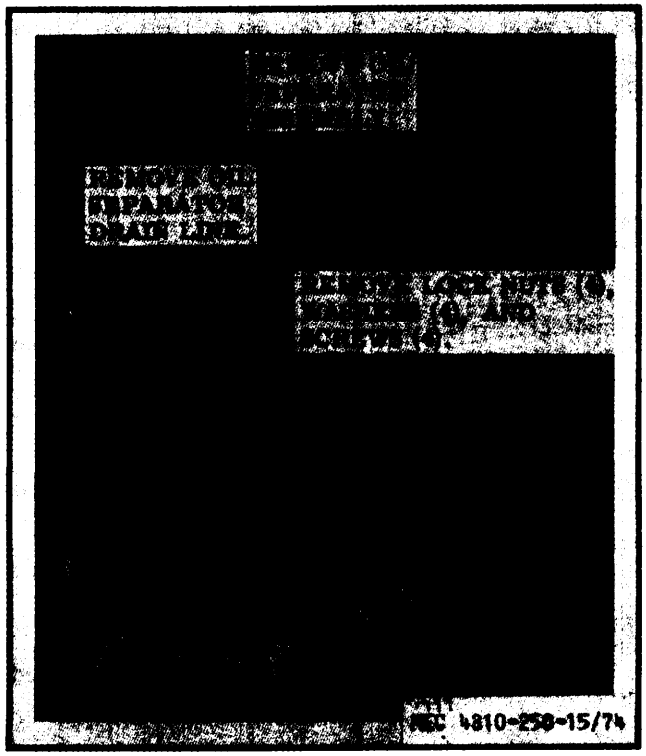


Figure 74. Compressor Oil Separator Assembly, Removal and Installation.

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.

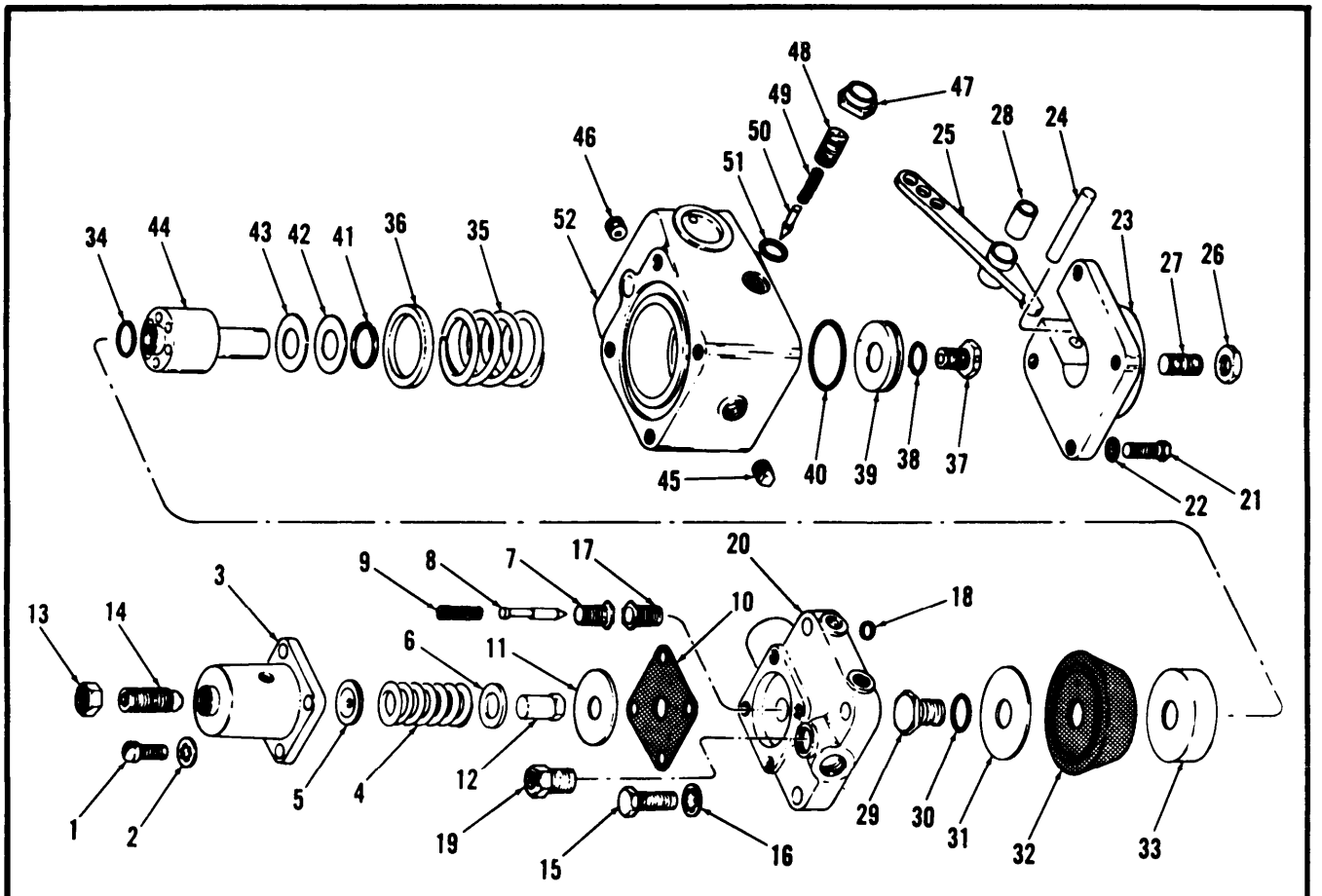
(1) Clean the outside of the generator with an approved cleaning solvent.

(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

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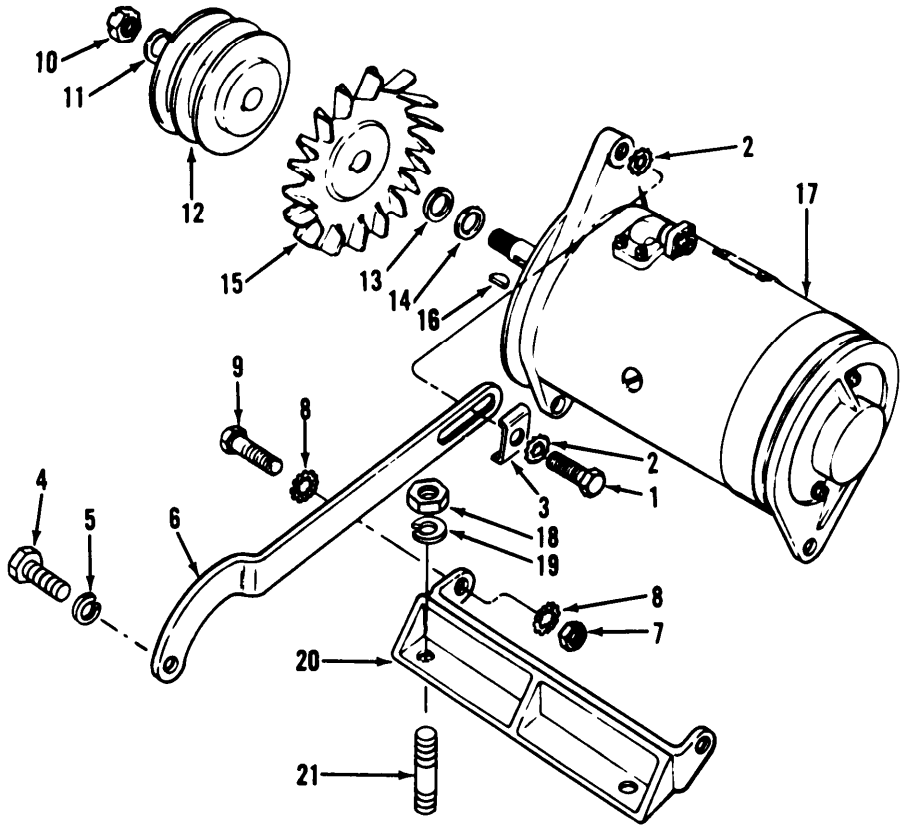
Figure 75. Speed Control, Disassembly and Reassembly.

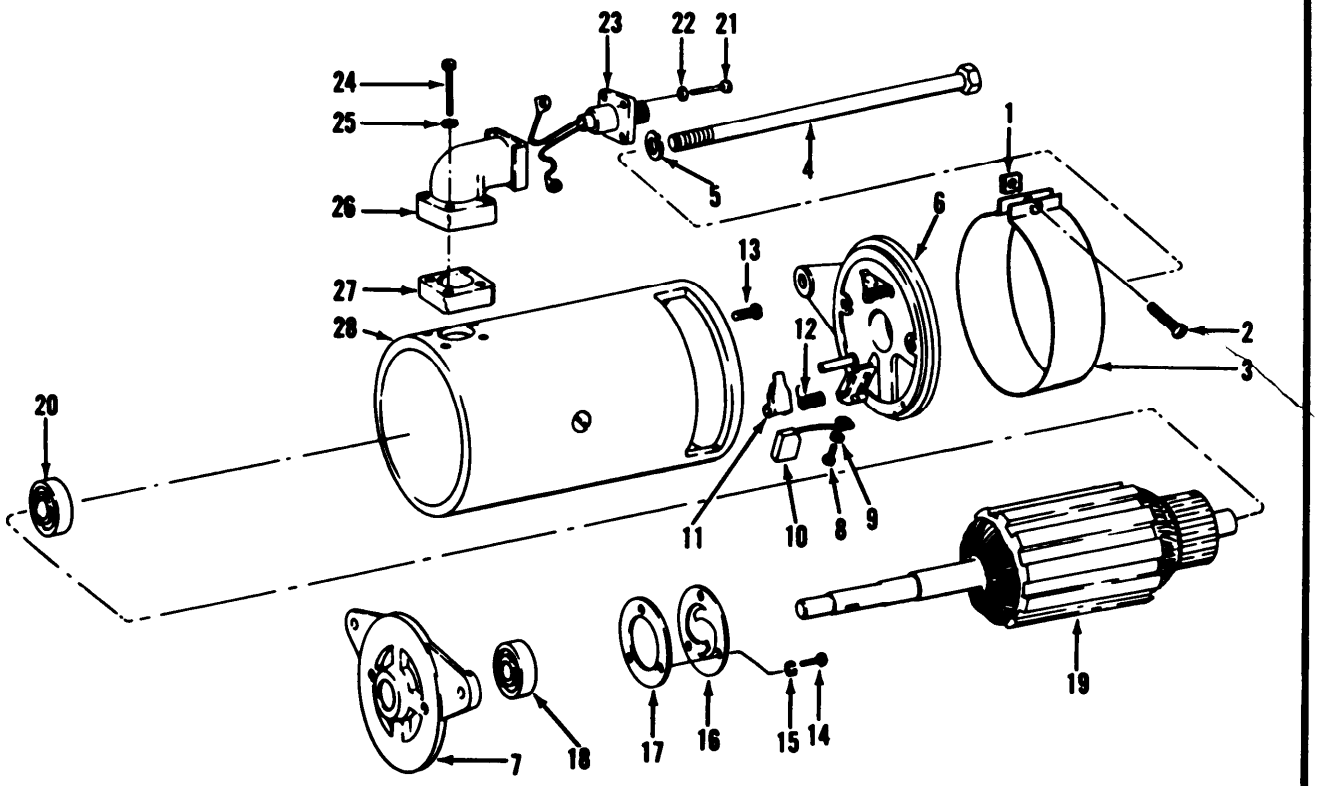


1 Screw, 3/8-16 x 1-1/4 in.
2 Washer, lock, IT., ET., 3/8 in. (2 reqd)
3 Clip
4 Screw, 3/8-16 x 1-1/4 in.
5 Washer, lock, 3/8 in.
6 Strap, adjusting
7 Nut, 7/16-14 (2 reqd)
8 Washer, lock, IT., ET., 7/16 in. (4 reqd)
9 Screw, 7/16-14 x 1-1/2 in. (2 reqd)
10 Nut, 1/2-20
11 Washer, lock, 1/2 in.
12 Pulley
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

MEC 4310-250-15/76 (1)

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

MEC 4310-250-15/76 (2)

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.

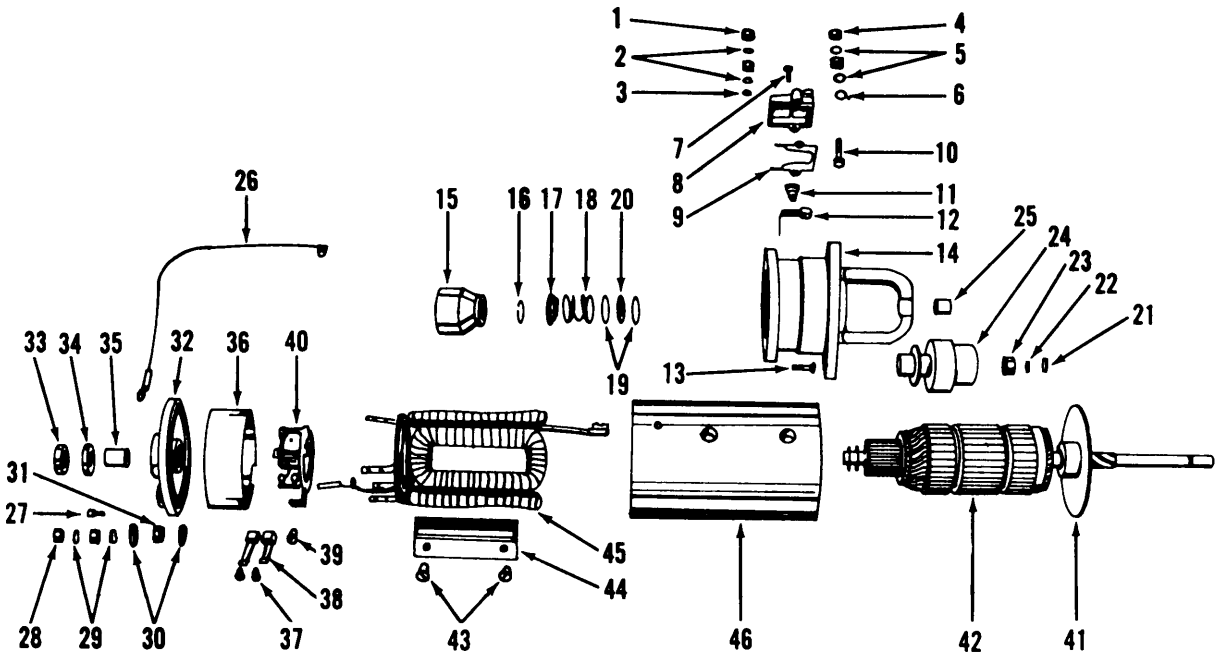
(4) Inspect bearings for scoring, pitting, or excessive wear. Replace defective bearings.

(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

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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 numerics 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.

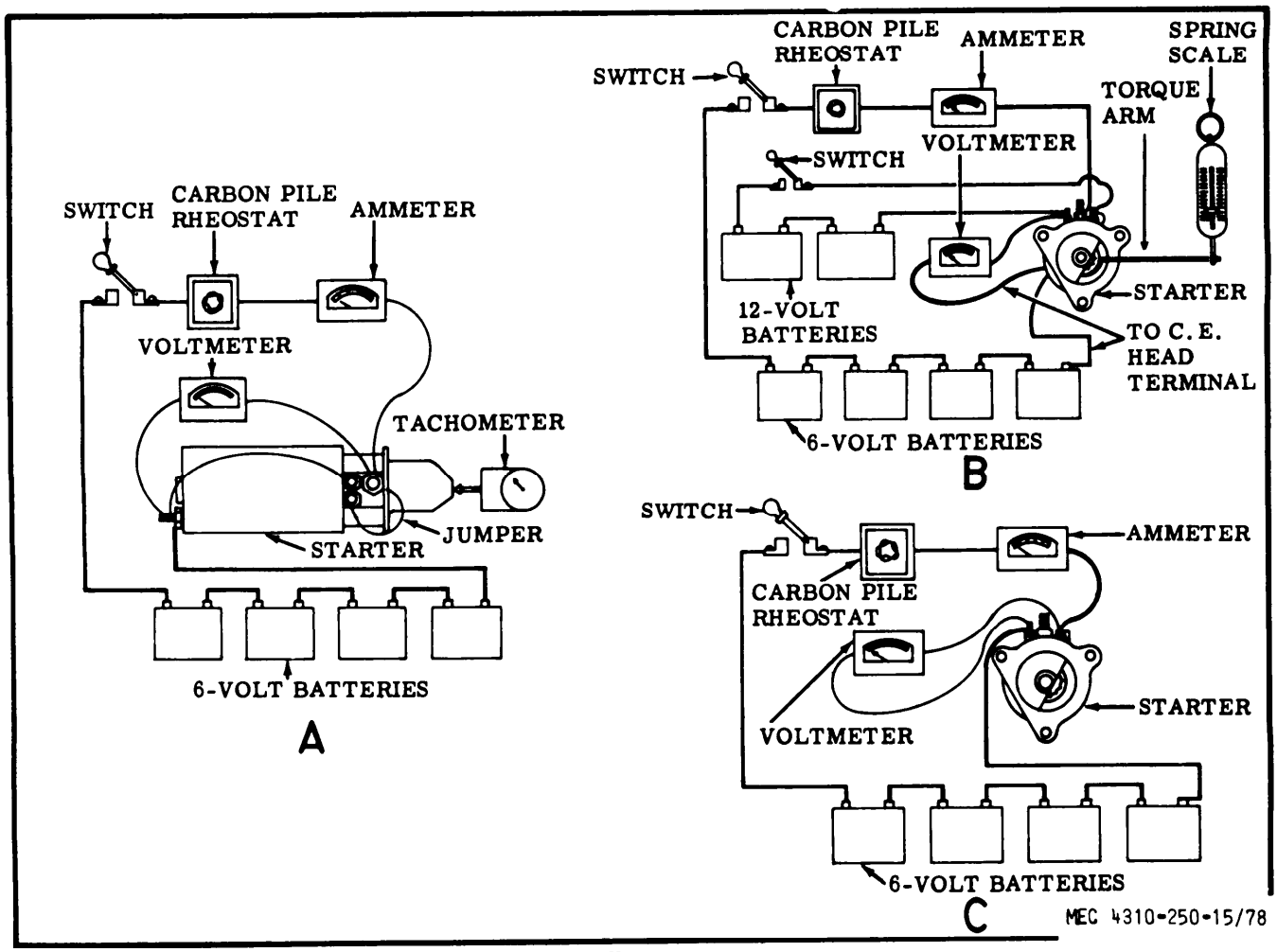
(a) Make stall torque test setup in accordance with figure 78.

(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

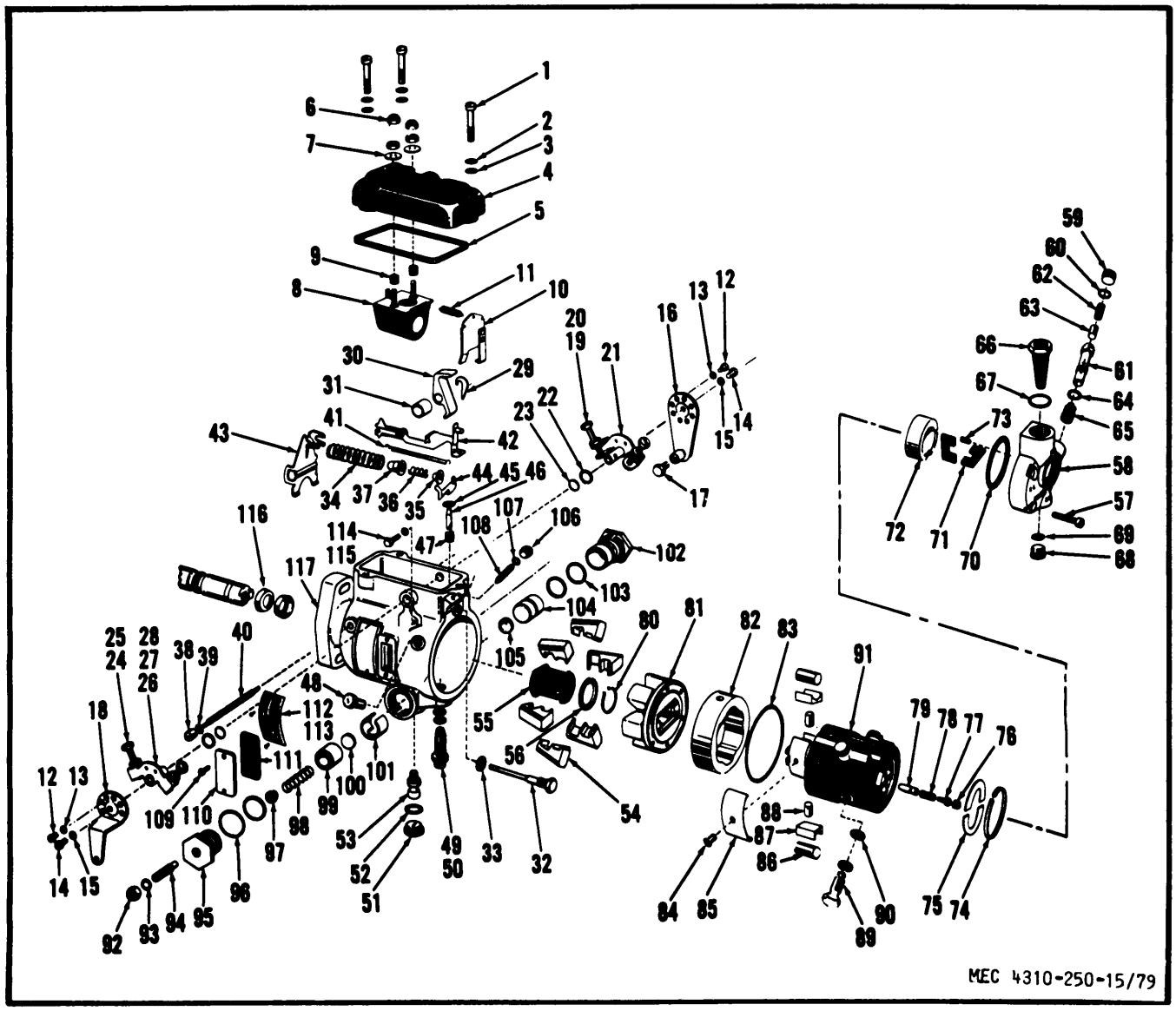


Figure 79. Fuel Injection Pump, Disassembly and Reassembly.

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 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 d 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 d 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

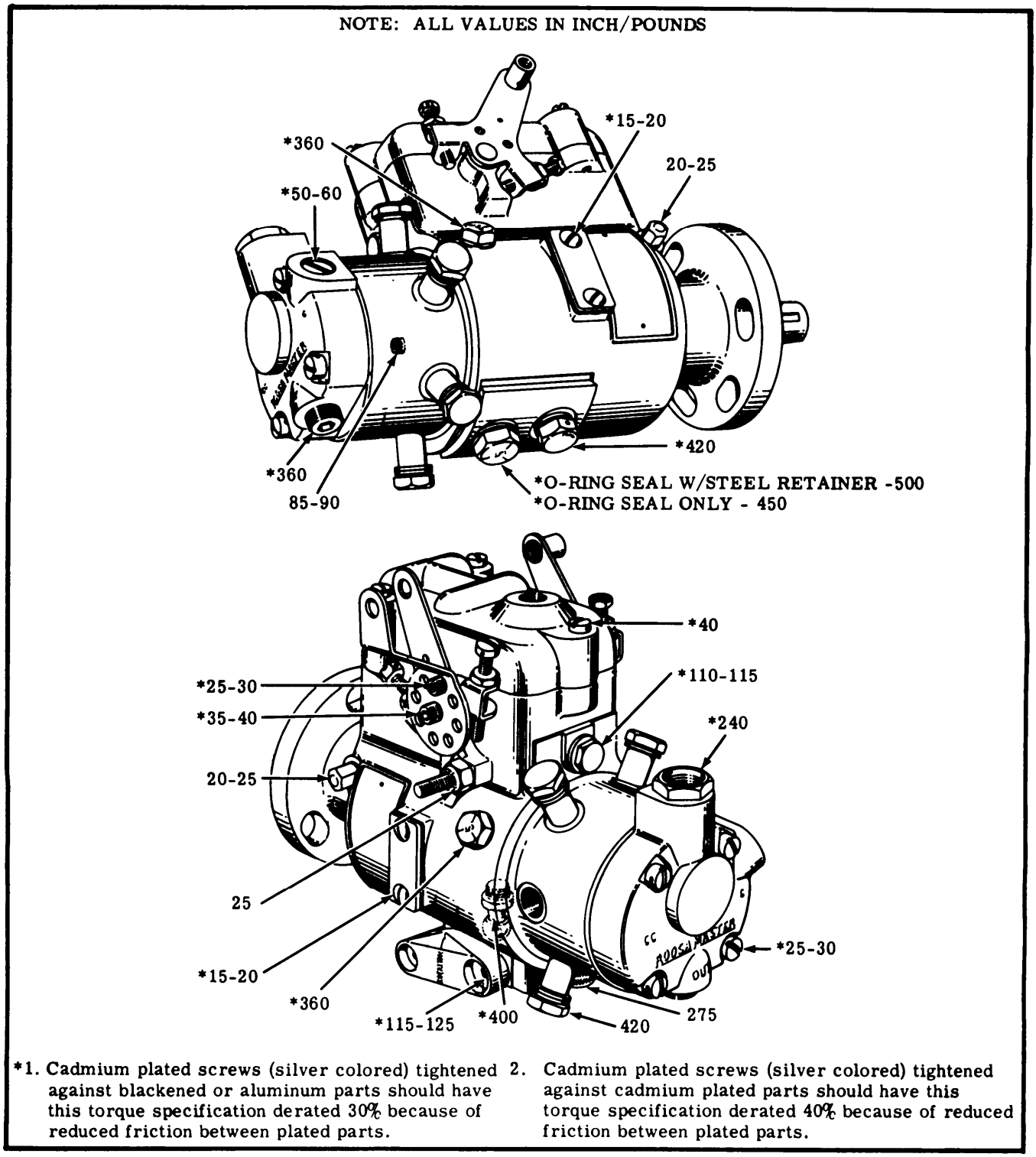
Advance must not move at 700 rpm.

(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.



*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.

Section V. RADIATOR, OIL COOLER, AND WATER PUMP

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 instillation.

198. OIL COOLER

a. Removal. Refer to paragraph 112 for compresser 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.

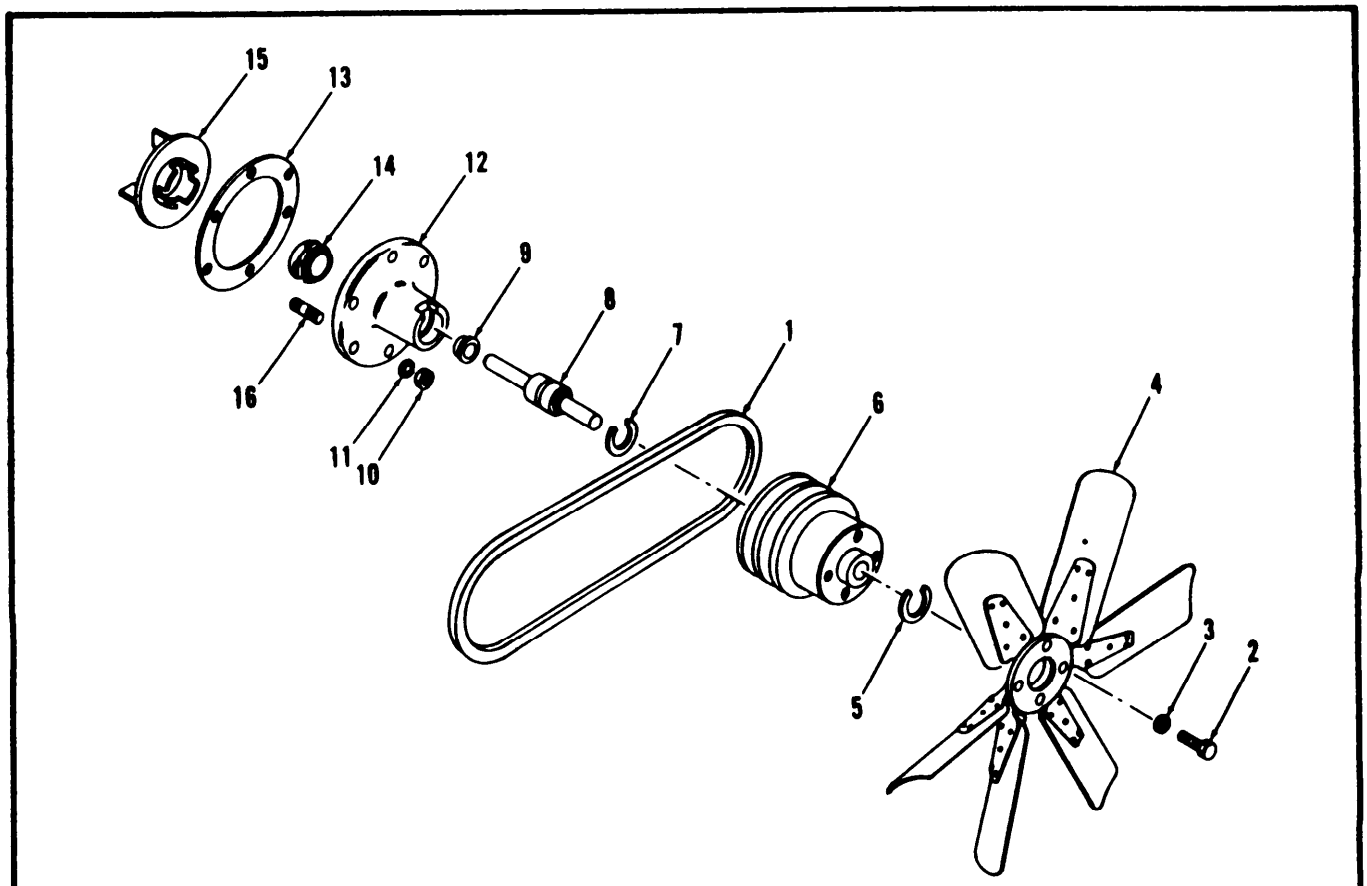
(7) Inspect seal assembly for wear and defective condition. Replace as necessary.

(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.

Section VI. CYLINDER HEAD ASSEMBLY

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-tie 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.

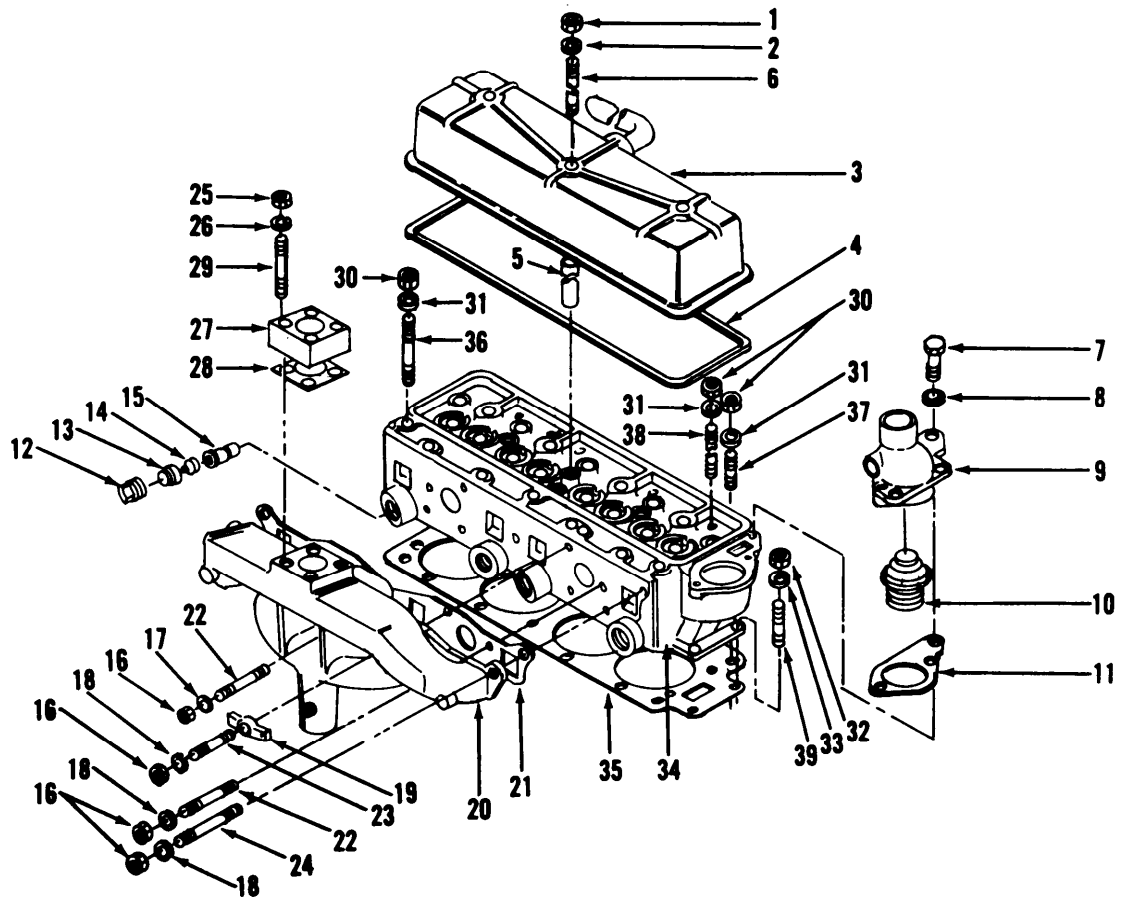
(2) Check guides for wear by using "Go and No-Go" plug gage or a telescope gage and 1 inch micrometer. Replace all guides that are worn bellmouthed and have increased 0.0015 in diameter. See Table IV for maximum permissible diameter.

(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.



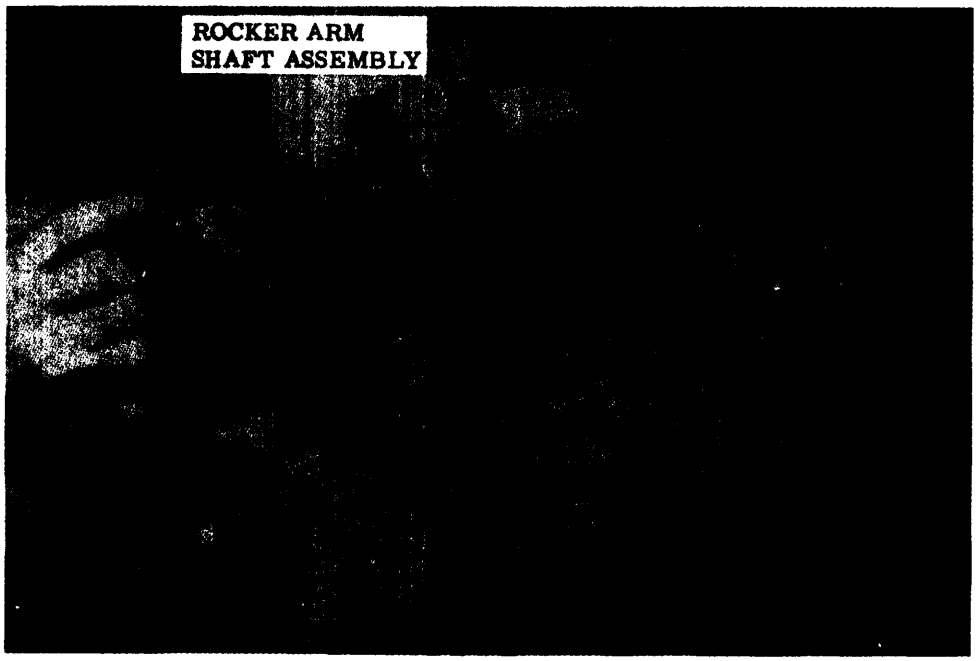
1 Nut, 3/8-16 (3 reqd)
2 Gasket, copper asbestos (3 reqd)
3 Cover, cylinder head
4 Gasket, cover
5 Spacer
6 Stud, 3/8-16 x 5-1/2 in.
7 Screw, 3/8-16 x 1-3/4 in. (3 reqd)
8 Washer, lock, 3/8 in. (3 reqd)
9 Elbow, water outlet
10 Thermostat
11 Gasket
12 Plug, energy cell retainer (4 reqd)
13 Retainer, 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

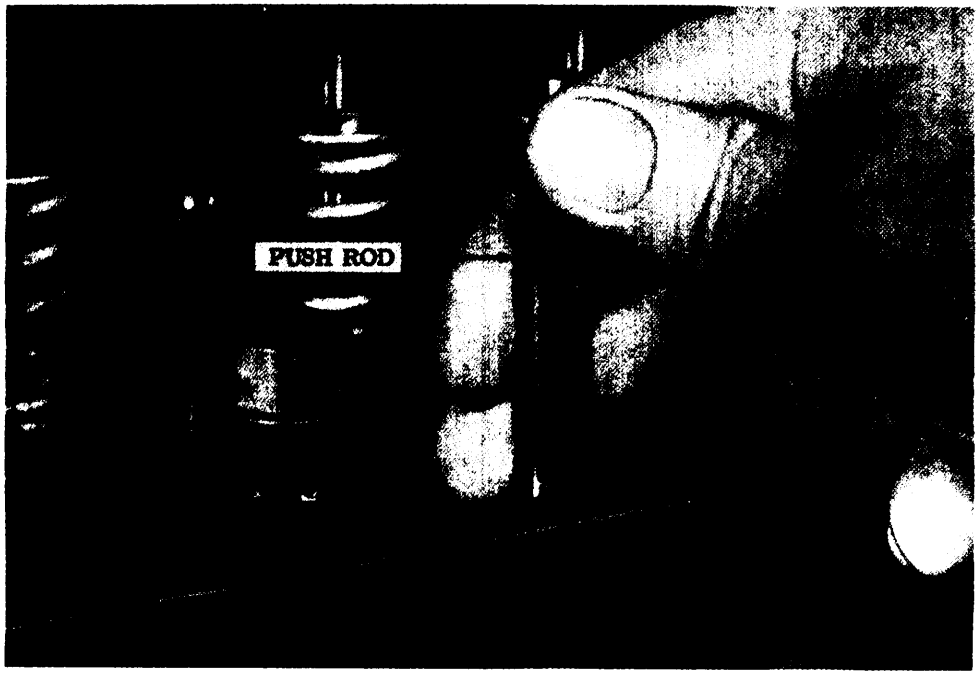
MEC 4310-250-15/82 (1)

A- Cylinder Head Assembly, Exploded View.

Figure 82. Cylinder Head Assembly, Removal, Disassembly, Reassembly, and Installation.



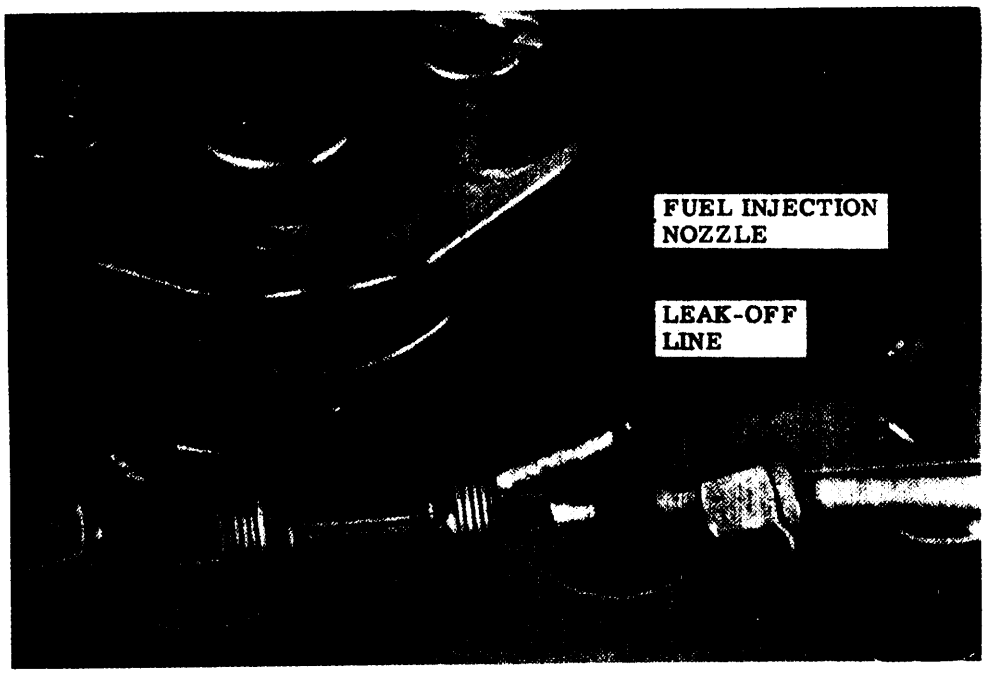
B



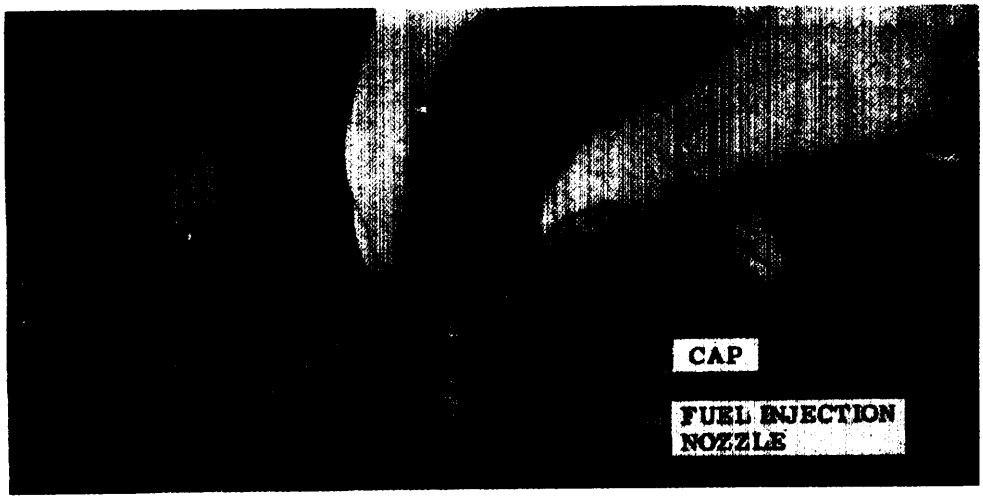
C

MEC 4310-250-15/82 (2)

B - Removing Rocker Arm Shaft Assembly. C - Snapping Push Rod Out of Ball Socket.
Figure 82. - Continued.



D



E

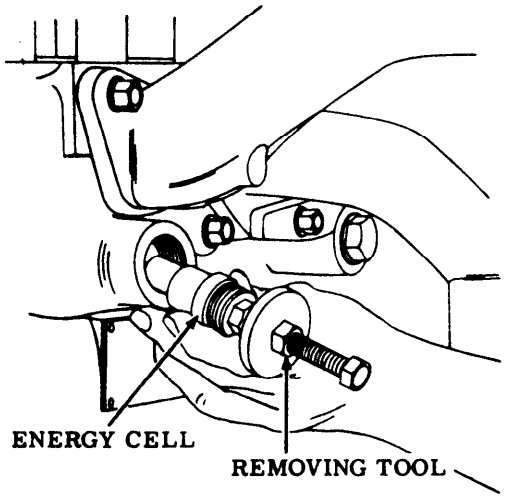
MEC 4310-250-15/82 (3)

D - Disconnecting Nozzle Leak-Off Lines.

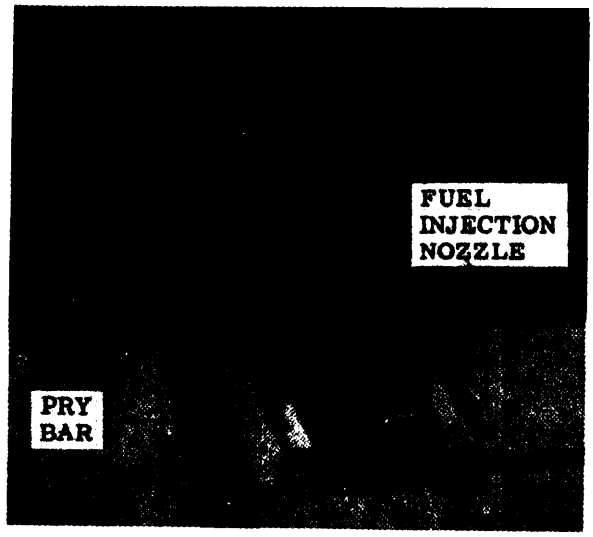
E - Capping Nozzle Connections.

Figure 82. - Continued.

F



G



H

MEC 4310-250-15/82 (4)

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.

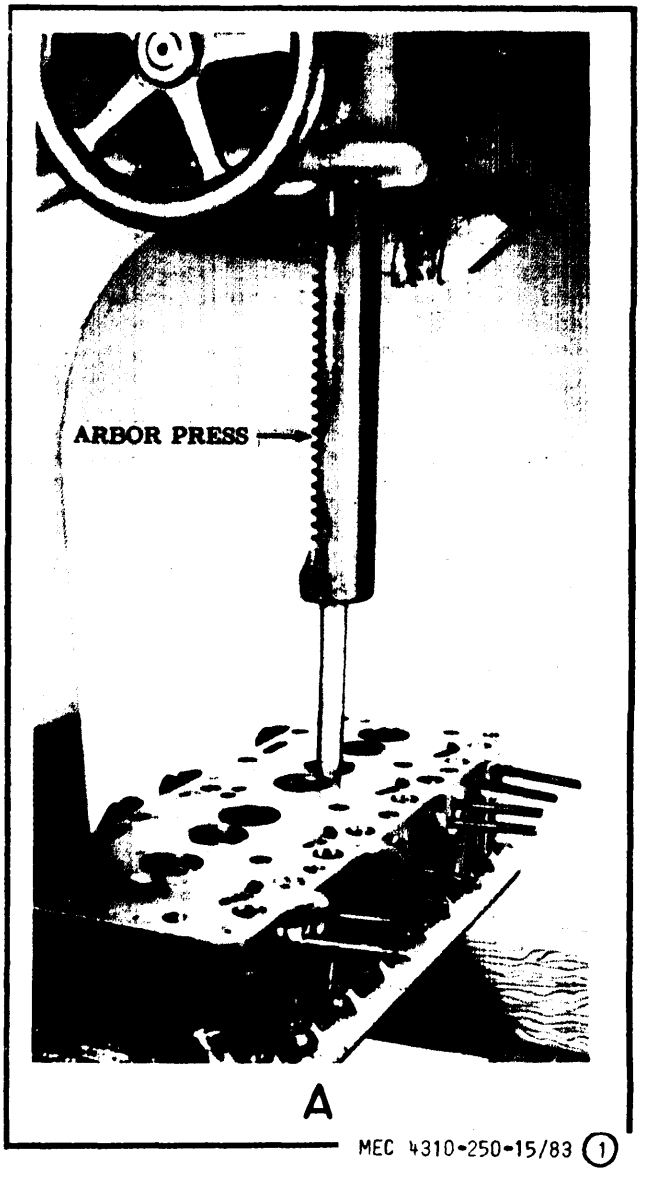
(5) After valves and seats have been refaced and reground, coat the seat lightly with Prussian blue and drop the valve into position, oscillating it slightly to transfer the blue pattern to the valve face. This should show a contact width of 1/16 to 3/32 inch and should fall well within the width of 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.

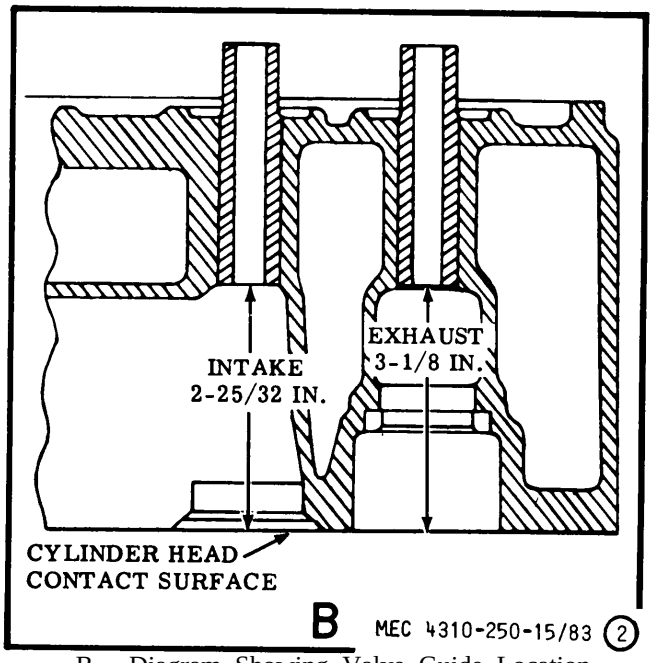
(5) Lap the energy cell body into the cylinder head with valve grinding compound in the same manner as lapping a valve in valve seat.

207. INJECTION NOZZLES

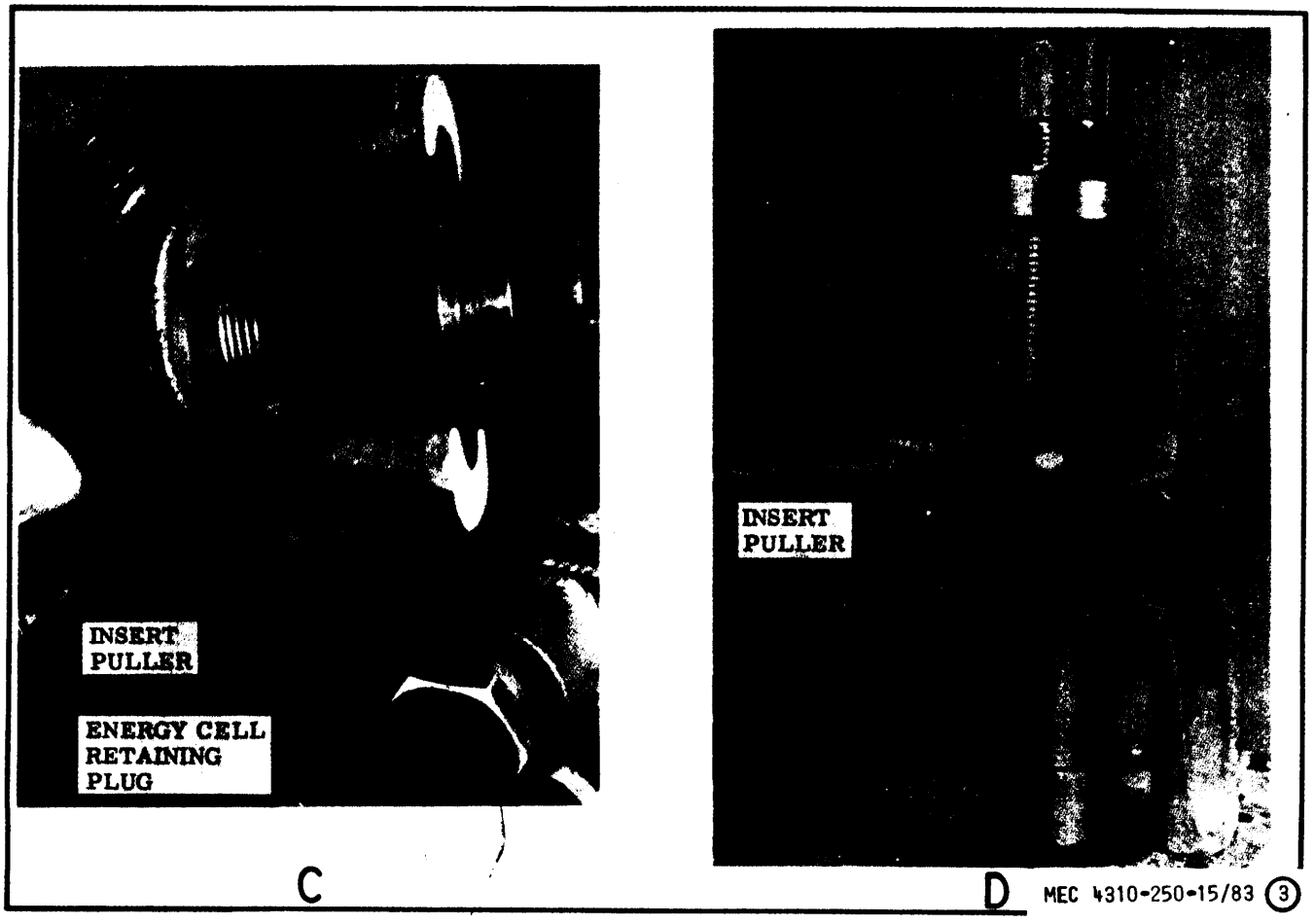
a. Disassembly.

(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.

Do not permit the polished nozzle surfaces to contact any hard substance.

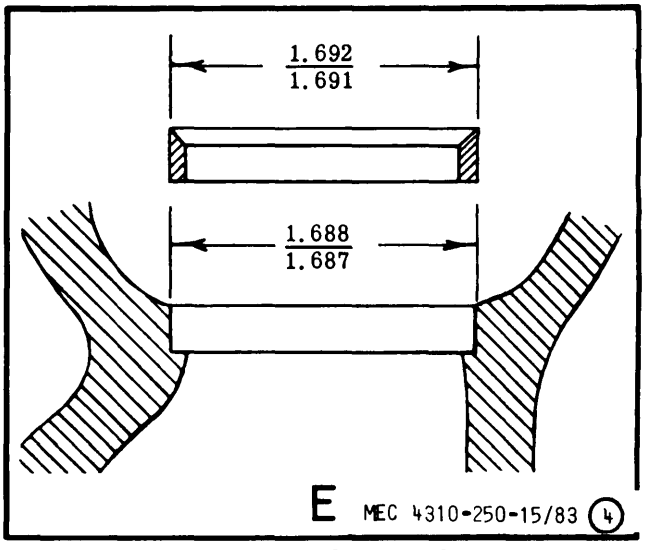
(3) Remove spring and spindle from nozzle holder body. Refer to figure 84.

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.

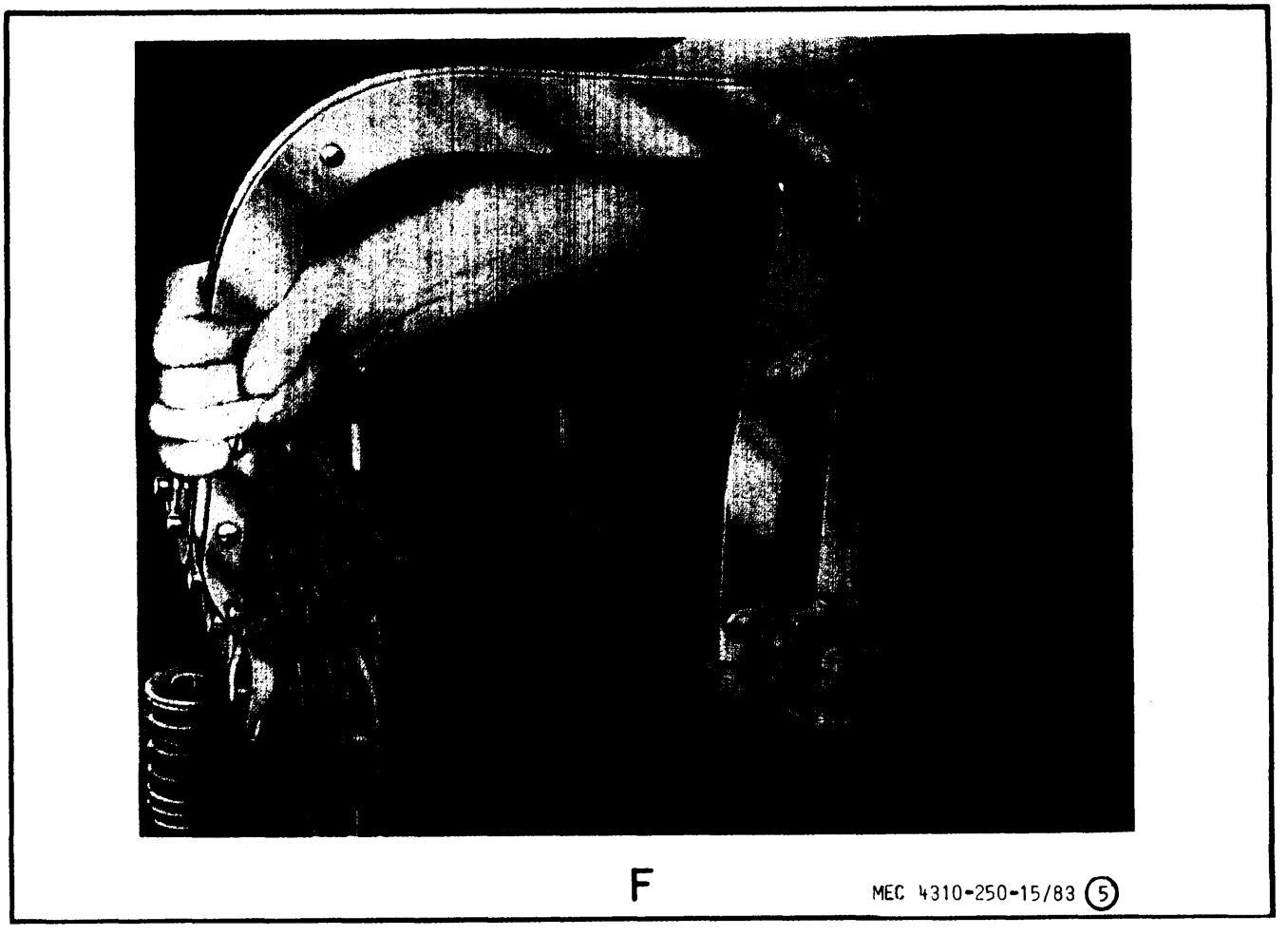
(2) Clean inside of nozzle body with small brass scraper or soft wood, soaked in oil, with a point corresponding to the nozzle valve seat angle. Clean the nozzles with a wood splinter. (Figure 84.)

(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.

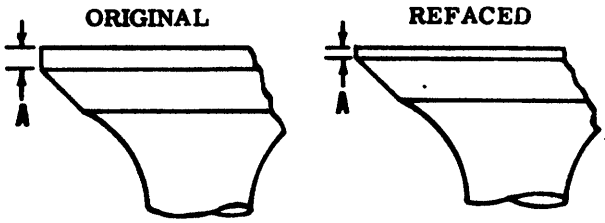


E - Insert and Counterbore.
Figure 83. - Continued.

(4) Clean lapped surface of the nozzle body on a lapping plate as follows:

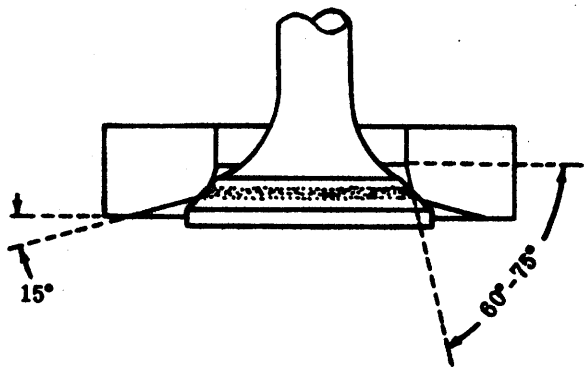


F - Removing Valve Springs with Spring Compressor.
Figure 83. - Continued.

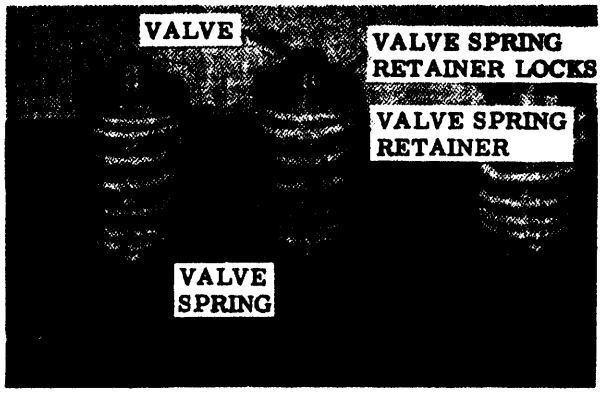


IF AREA "A" IS LESS THAN 50% OF ORIGINAL, DISCARD VALVE.

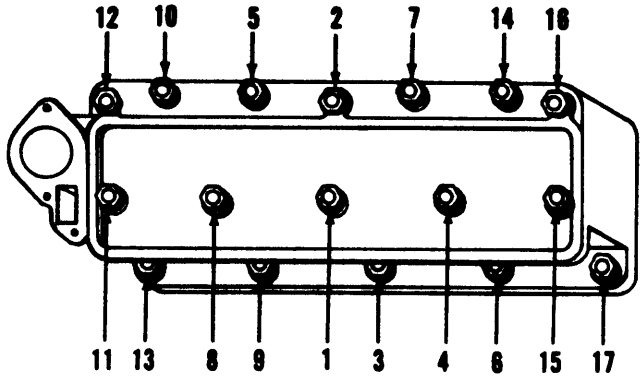
G - Allowable head thickness of refaced valves.



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.

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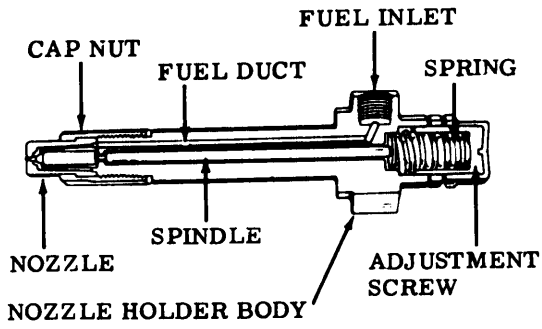
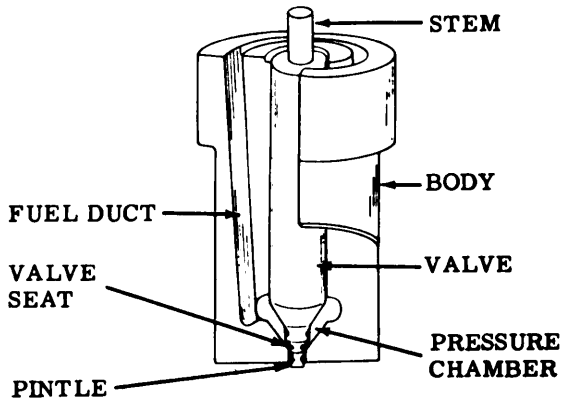
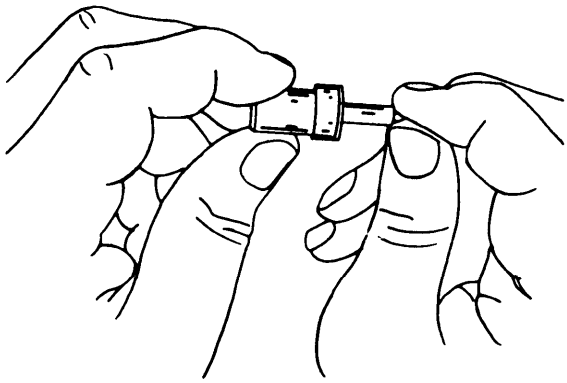
G - Allowable Head Thickness of Refaced Valves through K - Tightening Cylinder Head Studs.
Figure 83. - Continued.



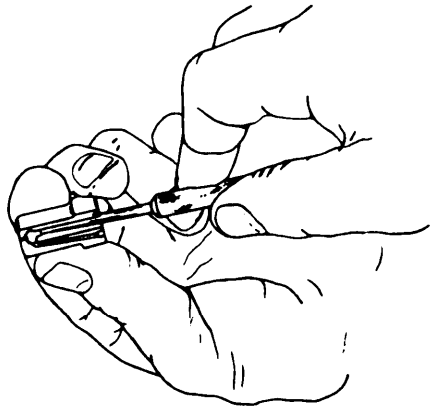
A - Sectional view of Nozzle and Nozzle Holder.



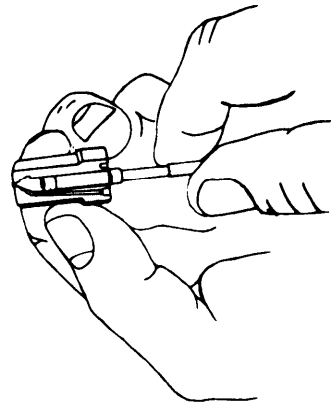
B - Sectional view of Pintle Type Nozzle.



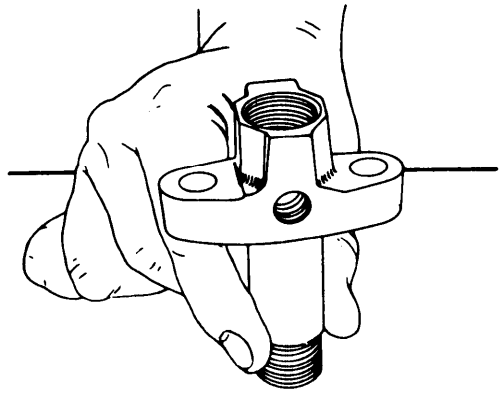
C - Removing the nozzle valve from nozzle body.



D - Cleaning nozzle cavity.



E - Cleaning nozzle orifice.



F - Cleaning lapped surface of nozzle holder.

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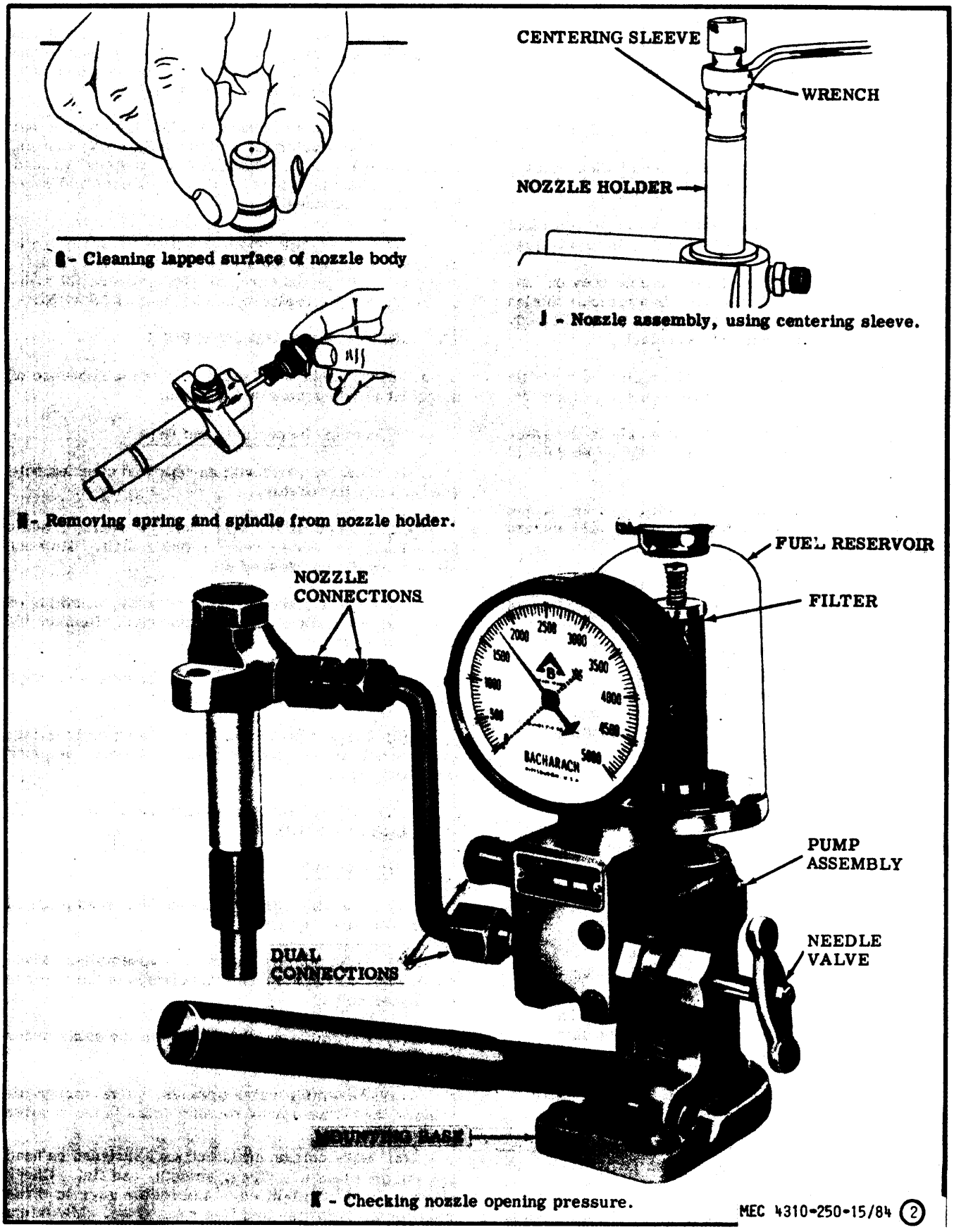
A - Sectional View of Nozzle and Nozzle Holder through F - Cleaning Lapped Surface of Nozzle Holder.

Figure 84. Injection Nozzles, Disassembly, Cleaning, Reassembly, and Testing.



G - Cleaning Lapped Surface of Nozzle Body 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.).

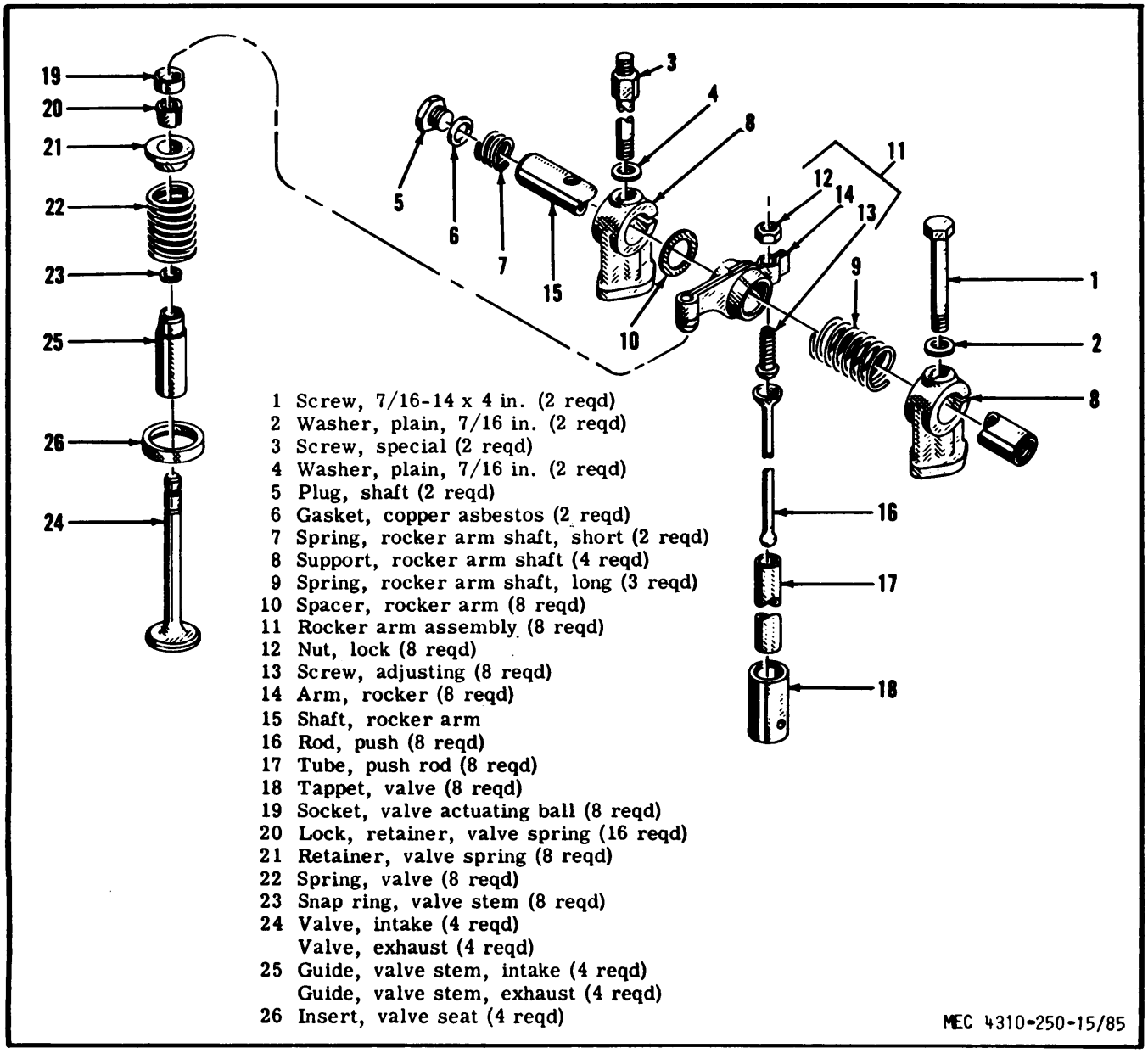


Figure 85. Rocker Arms, Push Rods, and Valves, Disassembly and Reassembly.

Section VII. OIL PAN, BALANCER, OIL PUMP, AND OIL RELIEF VALVE

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.

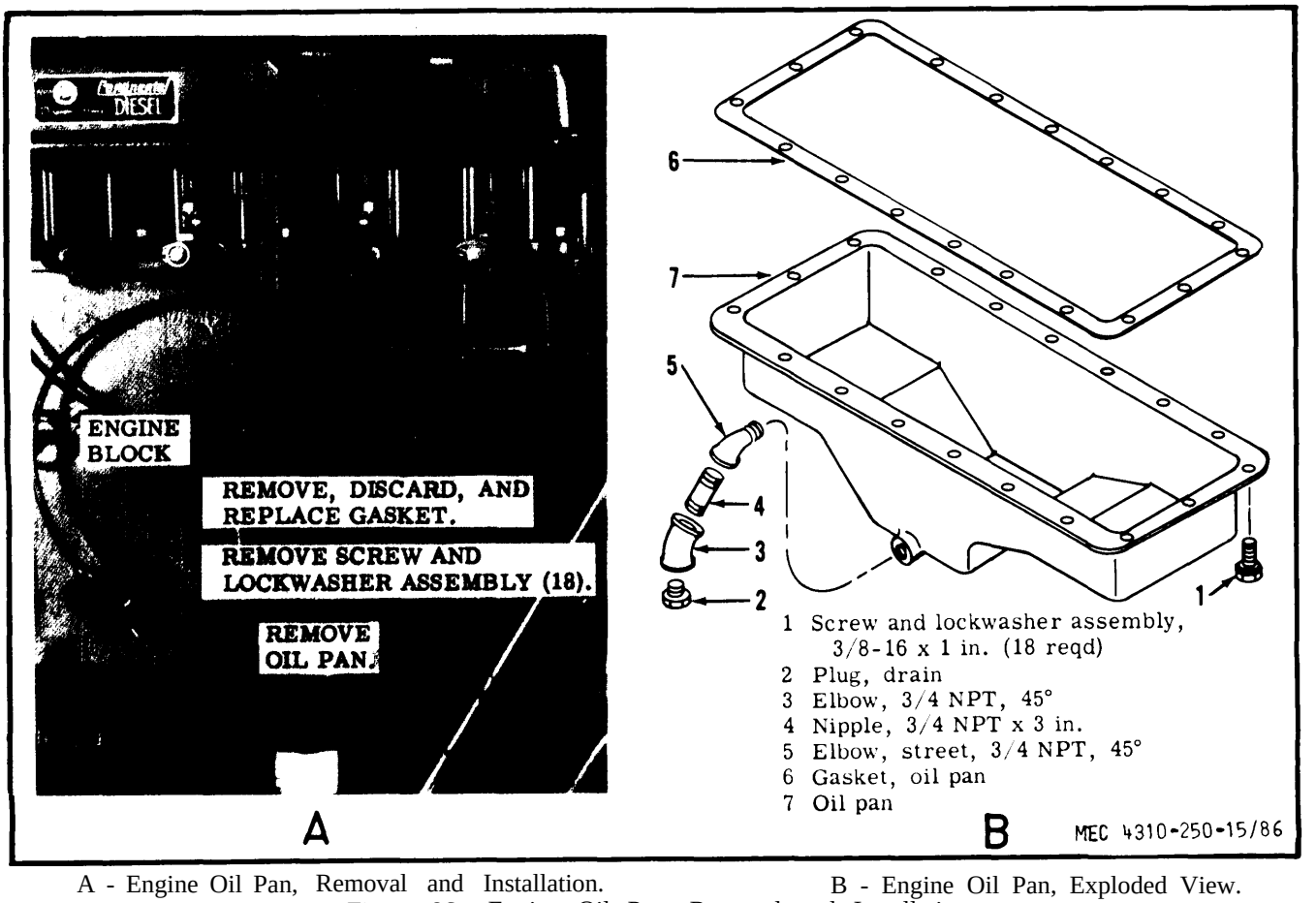
(3) Inspect mounting hardware for damage. Replace as necessary.

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 oil pan from the engine (para. 211).

(4) Remove the balancer assembly from the engine as instructed on figure 87.

b. Disassembly.

(1) Remove tube assemblies (1, 2, 3, and 4, figure 88). Remove fittings (5 through 11).

(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).

(3) Remove oil pump strainer screen (20), screws (21), spacer (22), tube (23), frame (24), cover (25), and gasket (26).

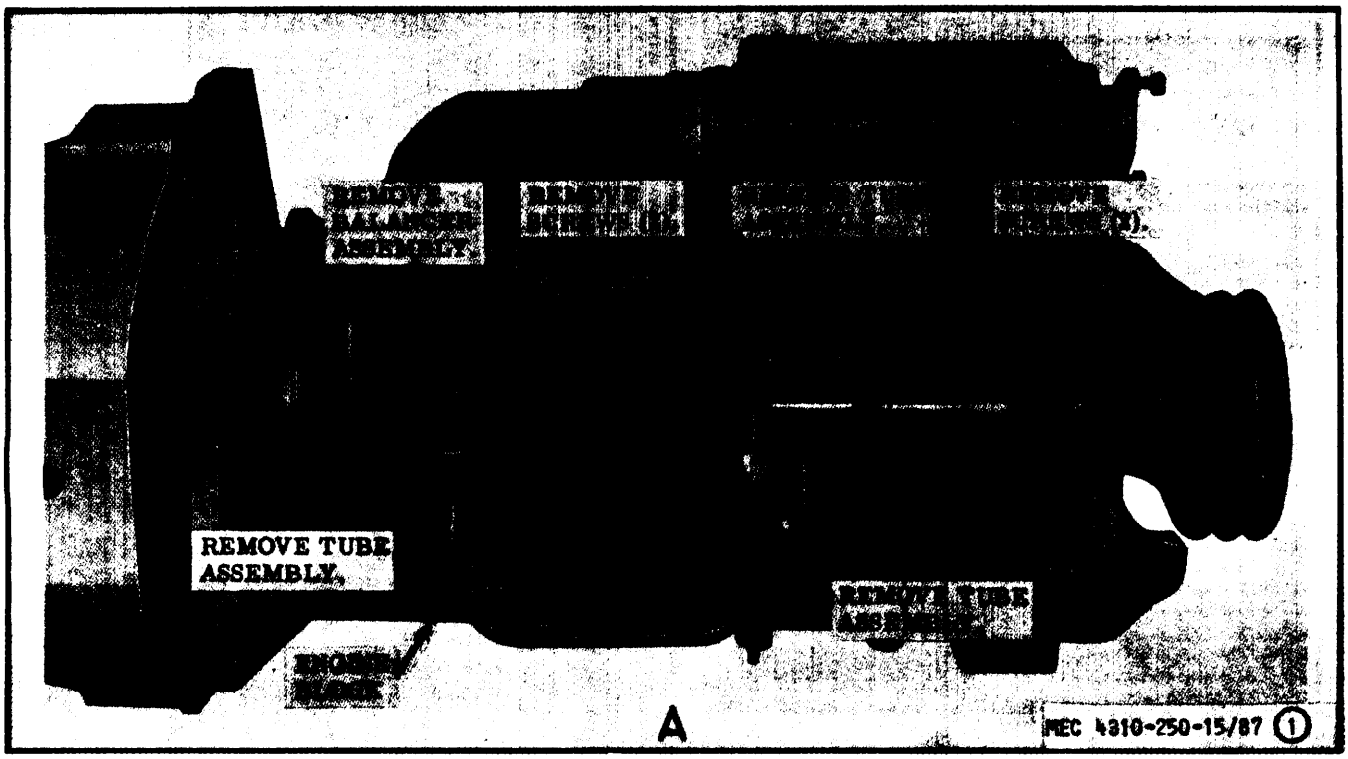
(4) Remove screws (27), washers (28), and shield (29).

(5) Remove screws (30, 31), washers (32), oil pump body (33), gasket (34), cover (3 S), and gasket (36).

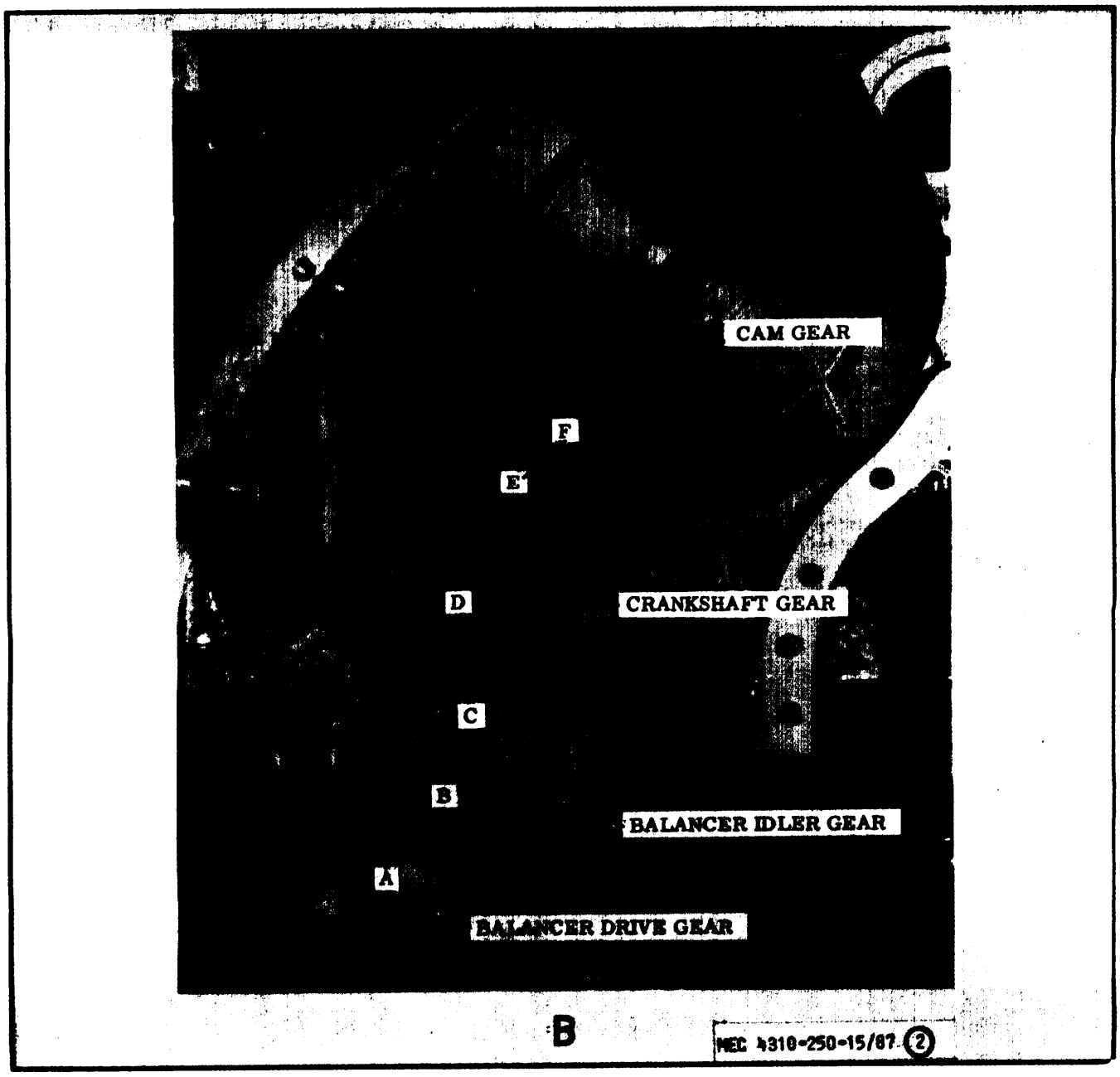
(6) Remove drive gear (37), driven gear (38), stud (39), and bushing (40). Remove cotter pin (41), spring retainer (42), spring (43), and relief valve (44) from pump body (33).

(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.

(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).



A - Balancer Assembly, Removal and Installation.
Figure 87. Balancer Assembly, Removal and Installation.



B - Timing Gear Train.
Figure 87. - Continued.

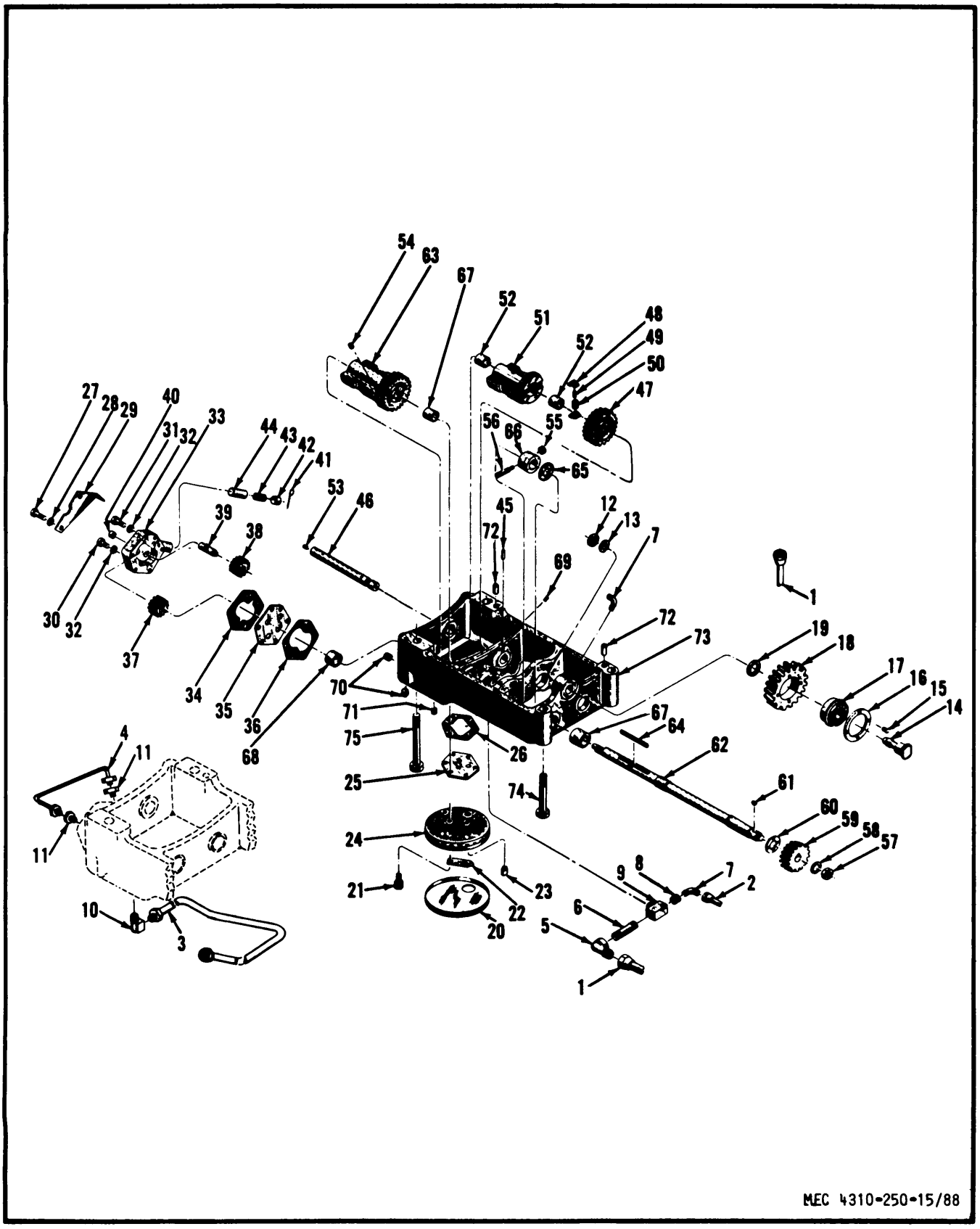


Figure 88. Balancer Assembly, Disassembly and Reassembly.

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.

(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.

(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.

(11) Plugs (69, 70, 71) and dowels (72) need not be removed from housing (73) unless replacement is necessary.

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.

(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.**

(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.

(3) Press bushings (67) into housing (73) using a driver and an arbor press.

(4) Assemble oil plugs (67, 68, 69) in housing using an approved sealer. Tighten securely.

(5) Reassemble fittings (5 through 11).

(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).

(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.**

(8) Place a 0.005-0.007 inch shim between driver gear (63) and rear housing wall when shaft is assembled through gear (63).

(9) Check thrust collar (66) for 0.003-0.005 inch end play.

(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 ¼ inch so as not to intersect with original hole. Use a no. 5 taper pin reamer for new bole.

(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.

(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.

(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 bole in line with housing hole for inserting pin (45), use a new shaft (46). Drill a ¼-inch hole through the present 3/16-inch hole in the housing and drive a ¼- by 1¾-inch tempered steel roll pin.

(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.

(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 (34-36) 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.

(16) Assemble idler gear parts (12-19) 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).

(17) All other reassembly of balancer is the reverse of disassembly.

e. Installation.

(1) Install the balancer assembly to the engine in 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 LO).

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. llemove 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.

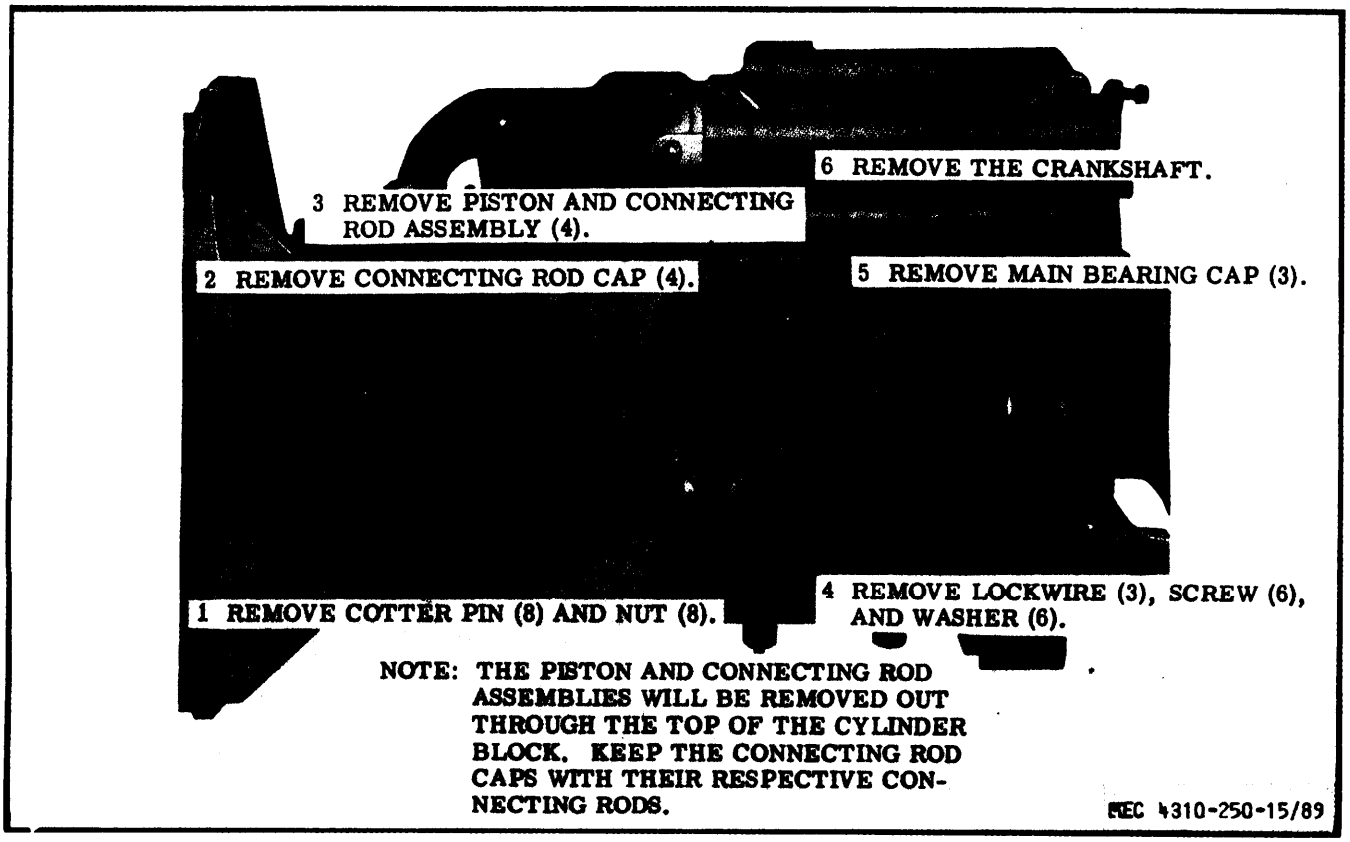


Figure 89. Engine Piston, Connecting Rod Assemblies, Crankshaft, and Main Bearings, Removal and Installation.

(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.

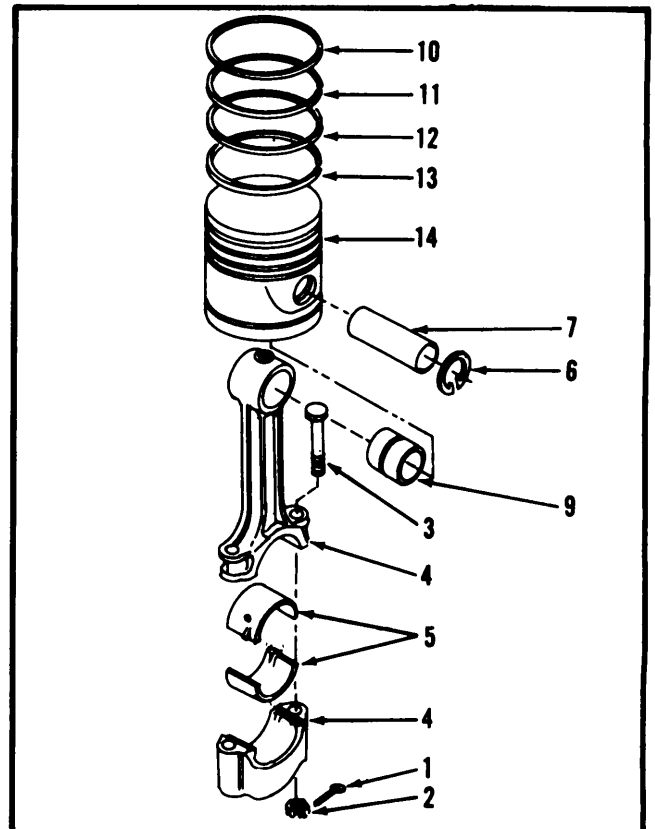
(3) Install the balancer assembly (para 212).

(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

MEC 4310-250-15/90

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 enclosed 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).

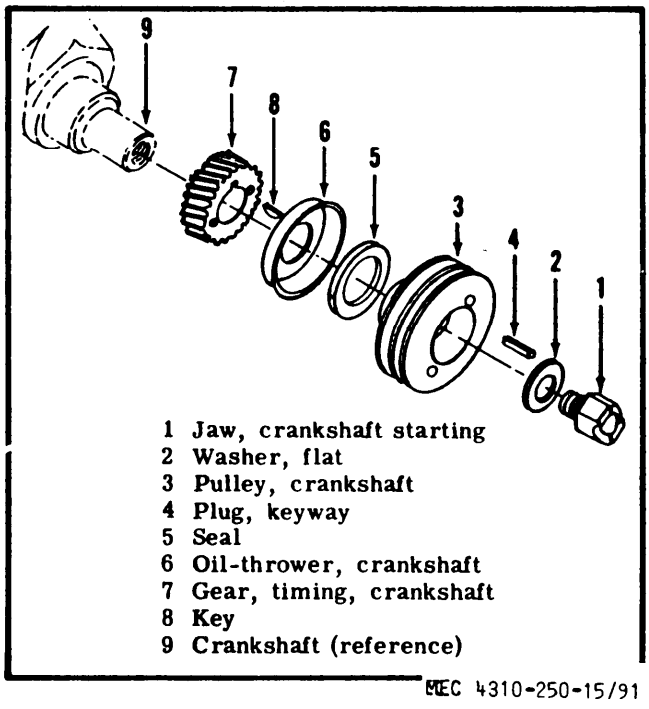


Figure 91. Crankshaft Pulley, Removal and Installation.

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.

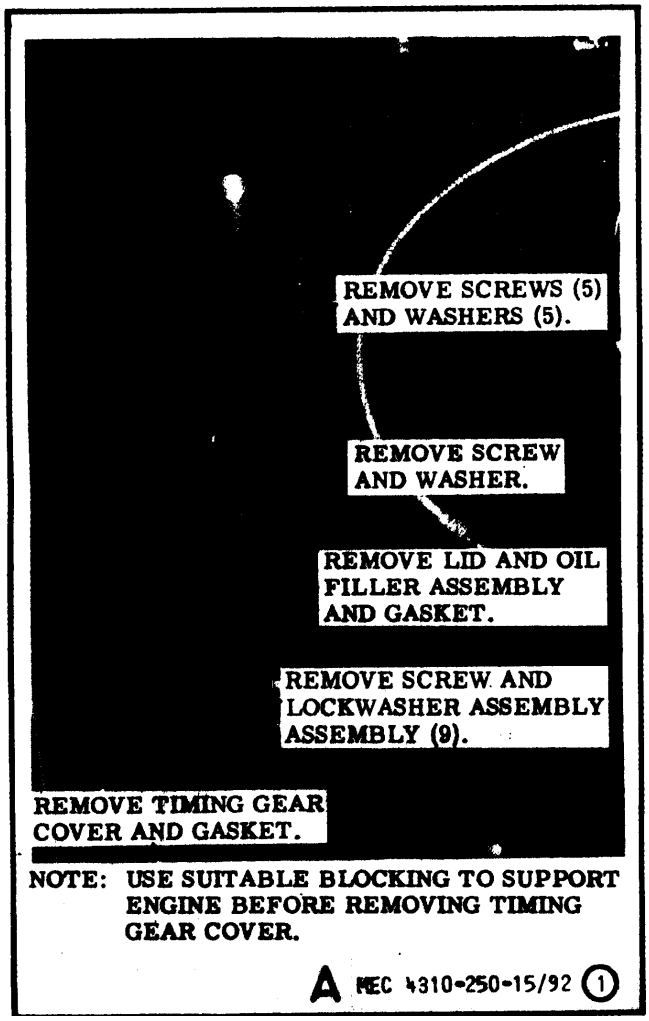
(2) Install the oil pan (para 211).

(3) Install the engine crankshaft pulley (para 216).

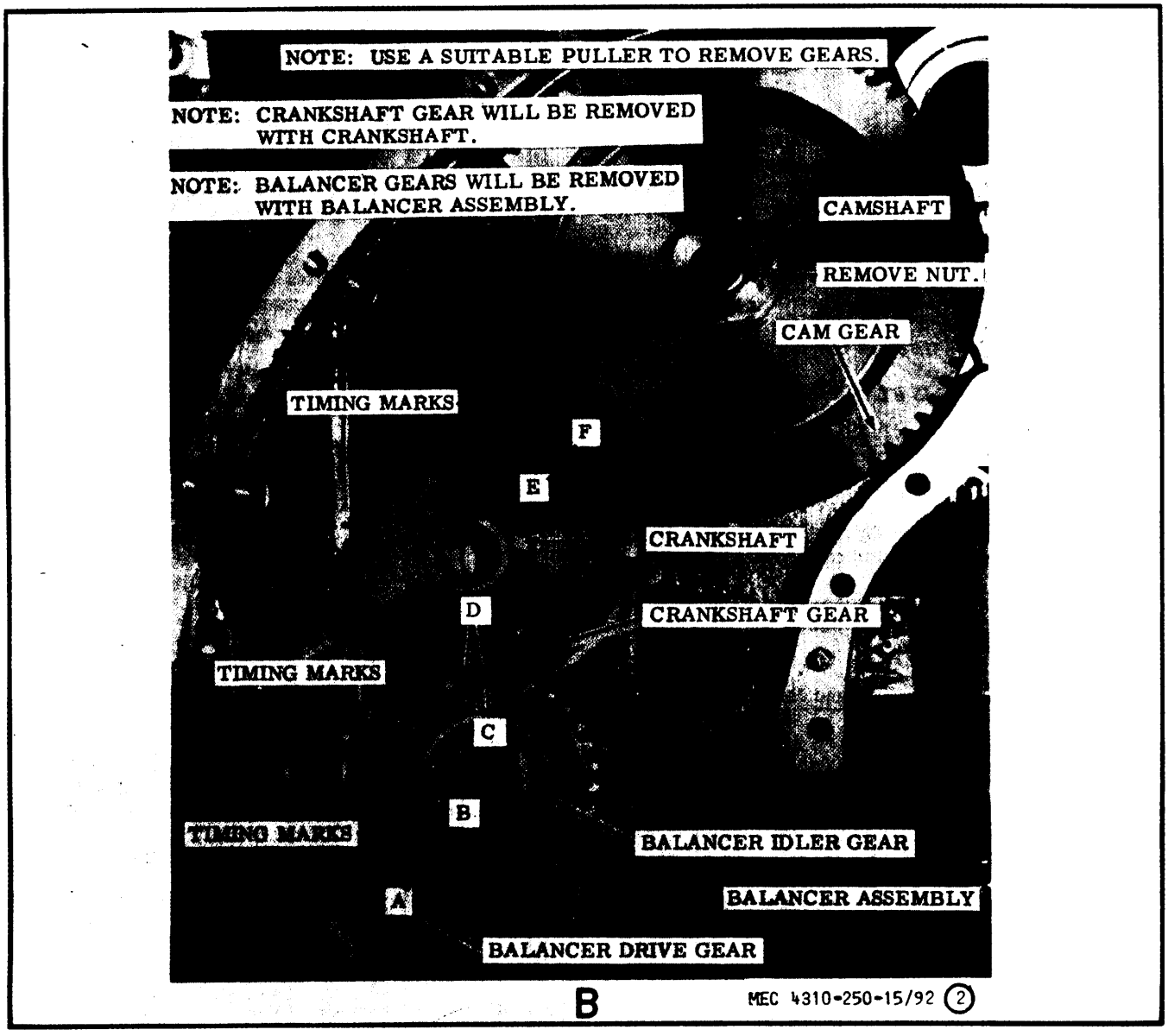
(4) Install the generator (para 94).

(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 - Timing Gears, Removal and Installation.
Figure 92. - Continued.

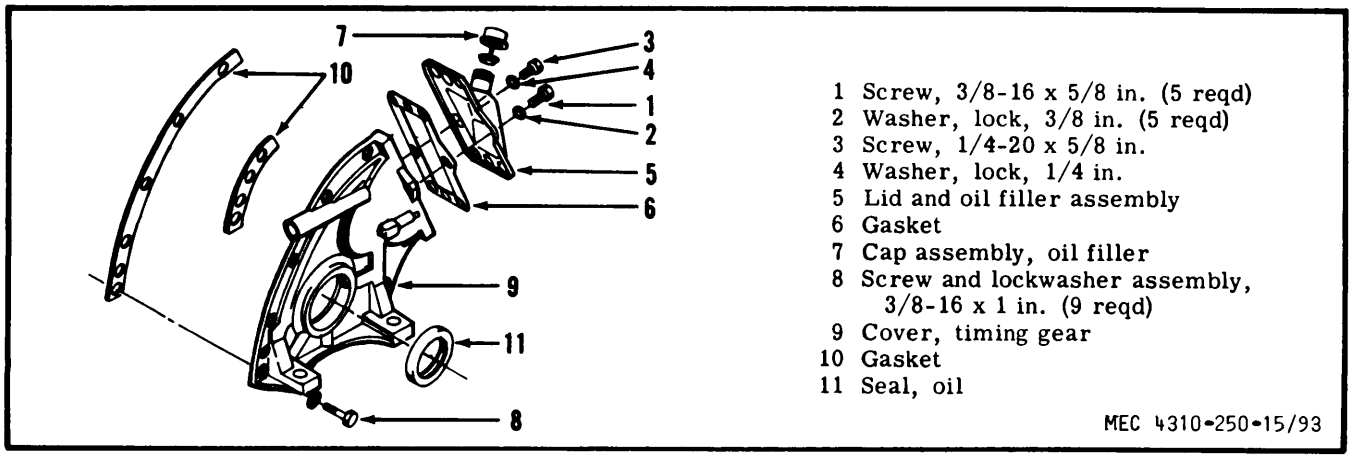


Figure 93. Engine Timing Gear Cover, Disassembly and Reassembly

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).

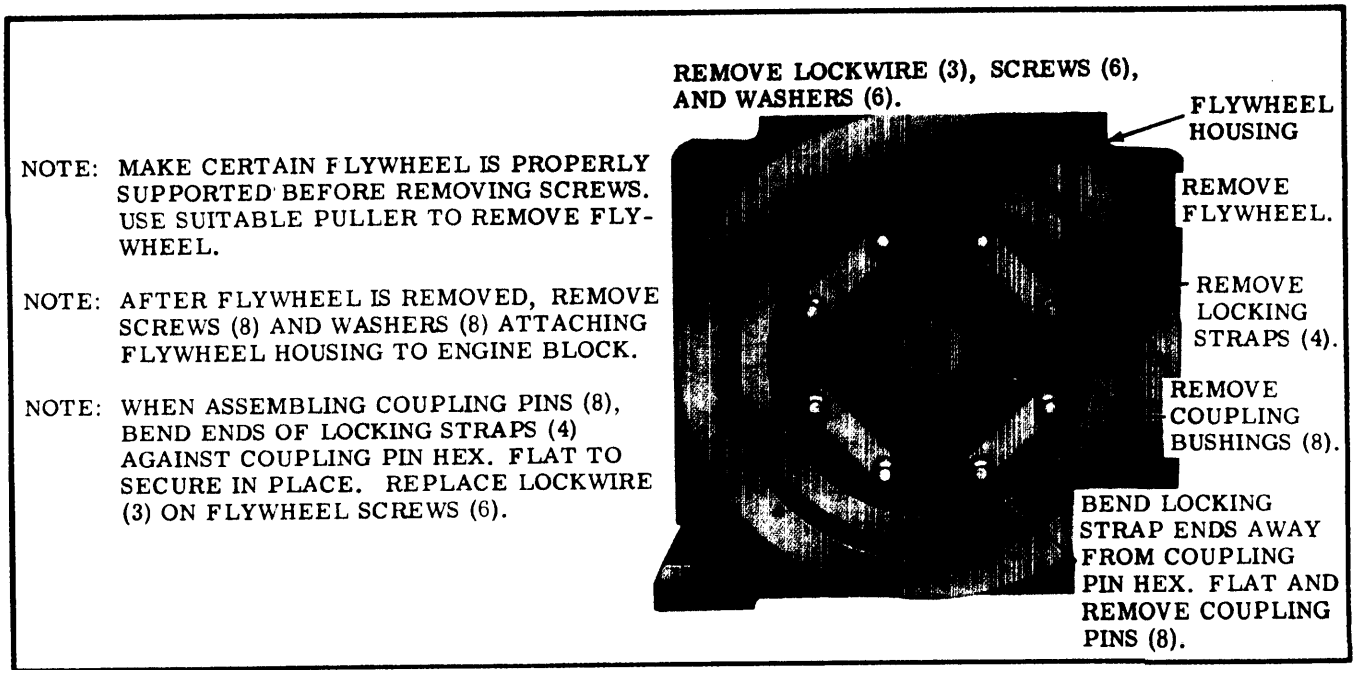


Figure 94. Engine Flywheel and Flywheel Housing, Removal and Installation.

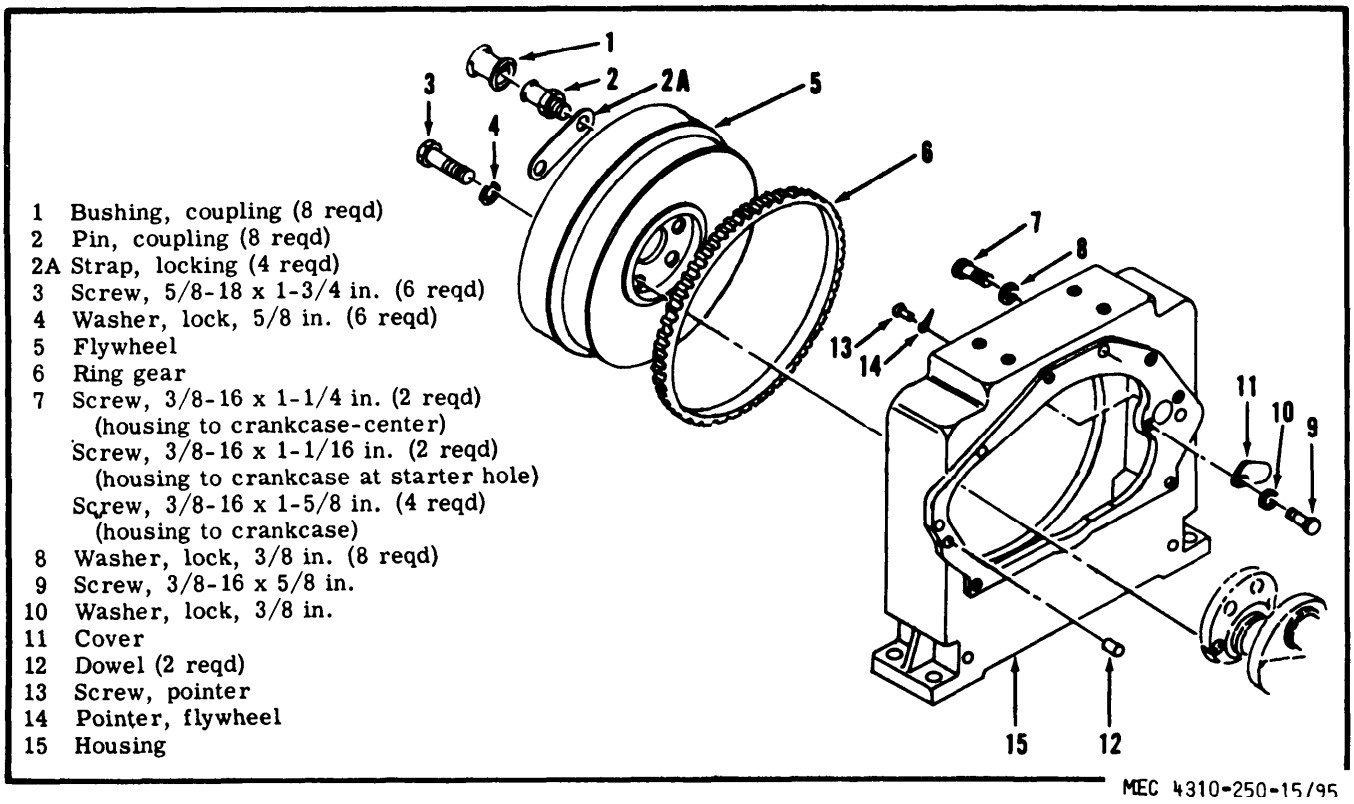


Figure 95. Engine Flywheel and Flywheel Housing, Disassembly and Reassembly.

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).

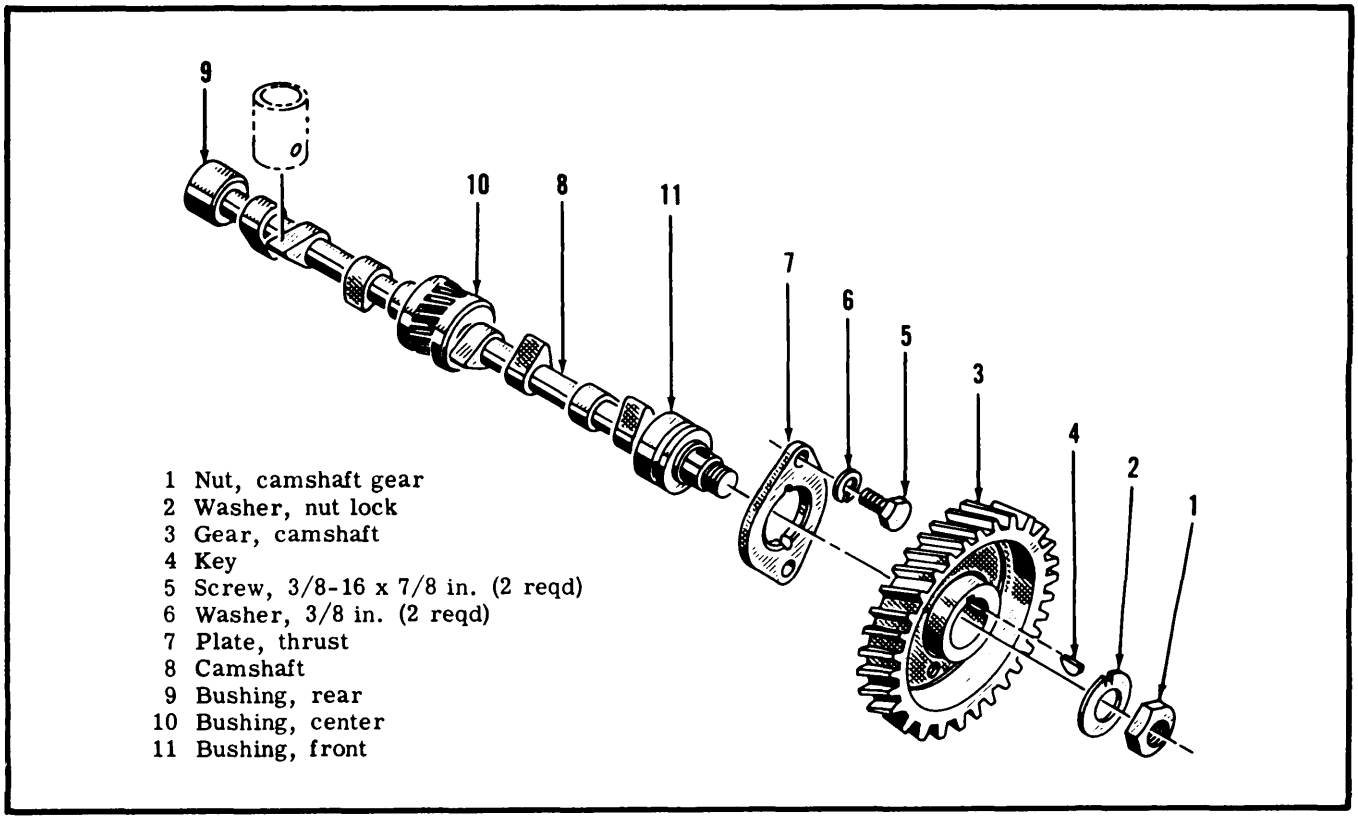


Figure 96. Engine Camshaft, Removal and Installation.

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).

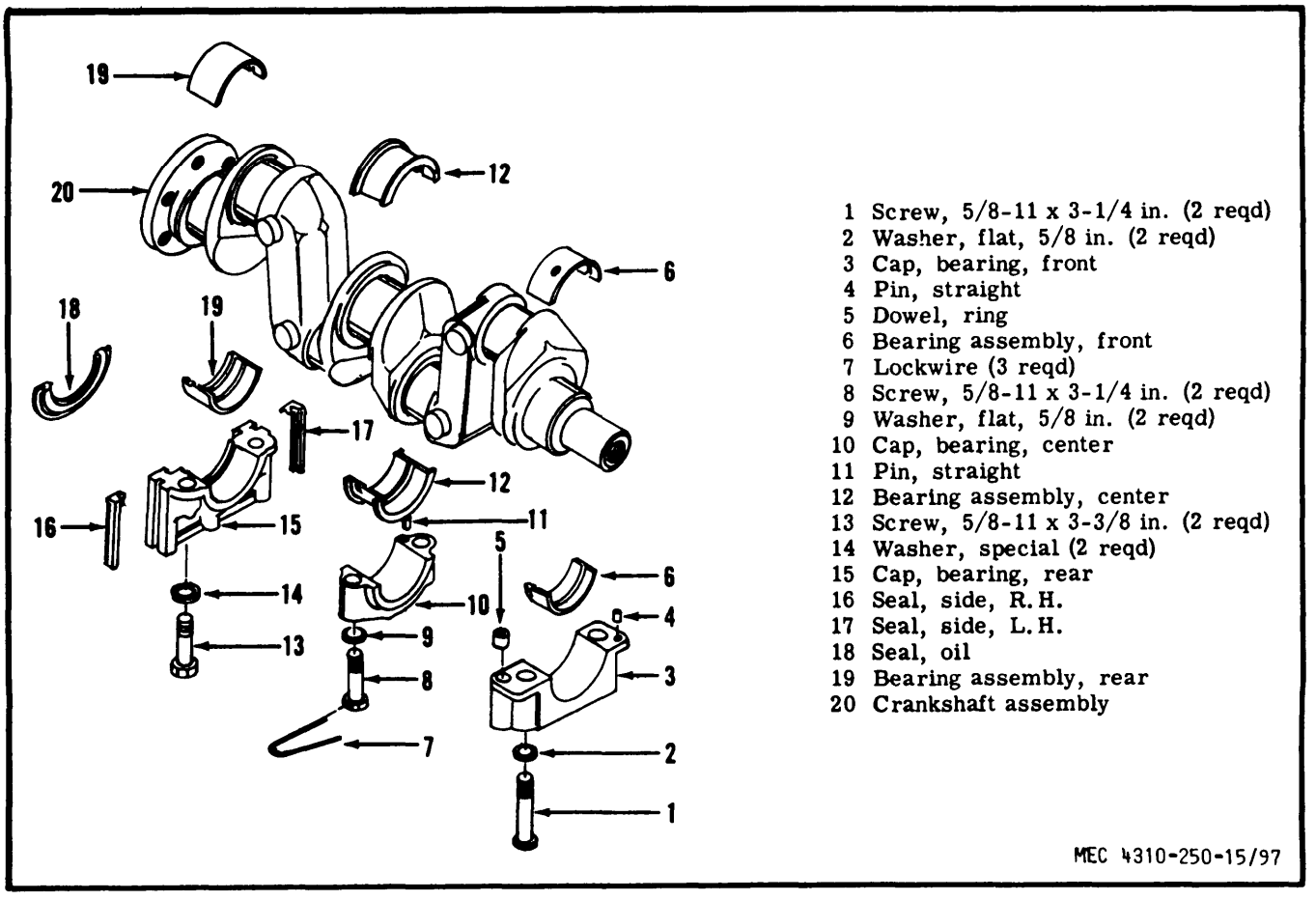


Figure 97. Engine Main Bearings and Crankshaft, Disassembly and Reassembly.

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).

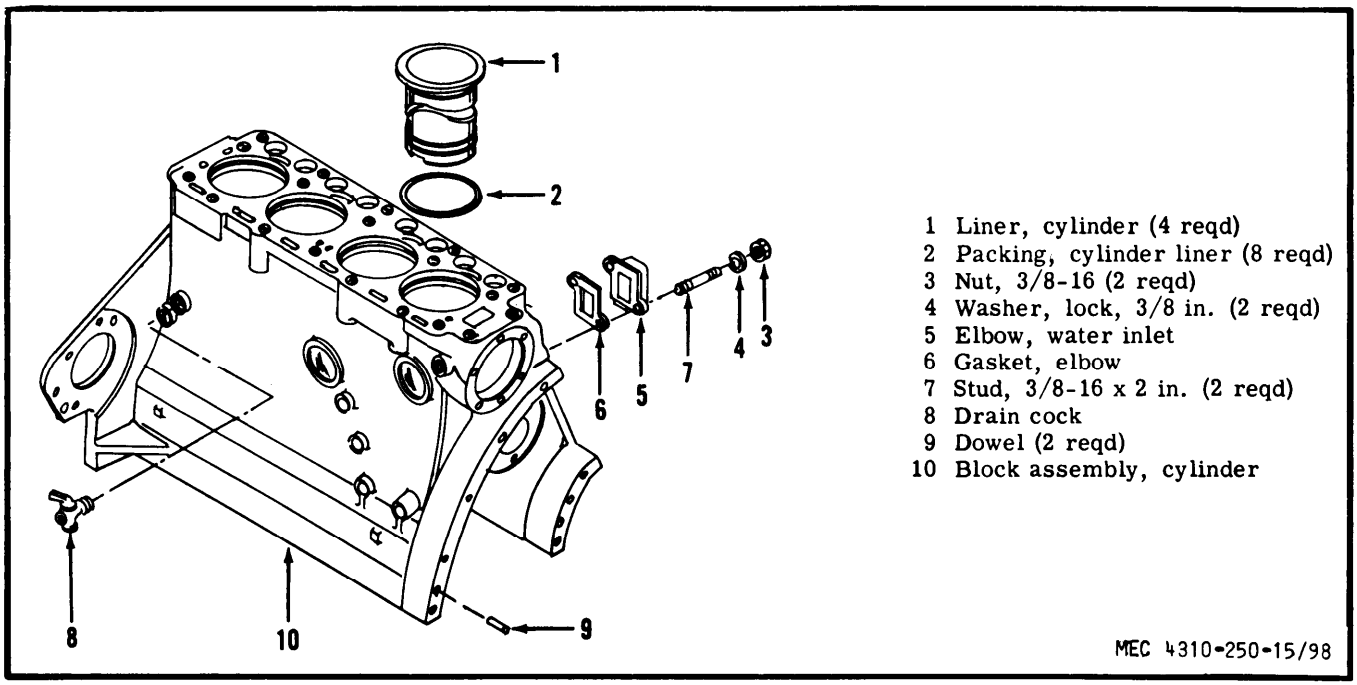


Figure 98. Cylinder and Cylinder Block Assembly, Disassembly and Reassembly.

(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 unapproved 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 4 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 develops 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.

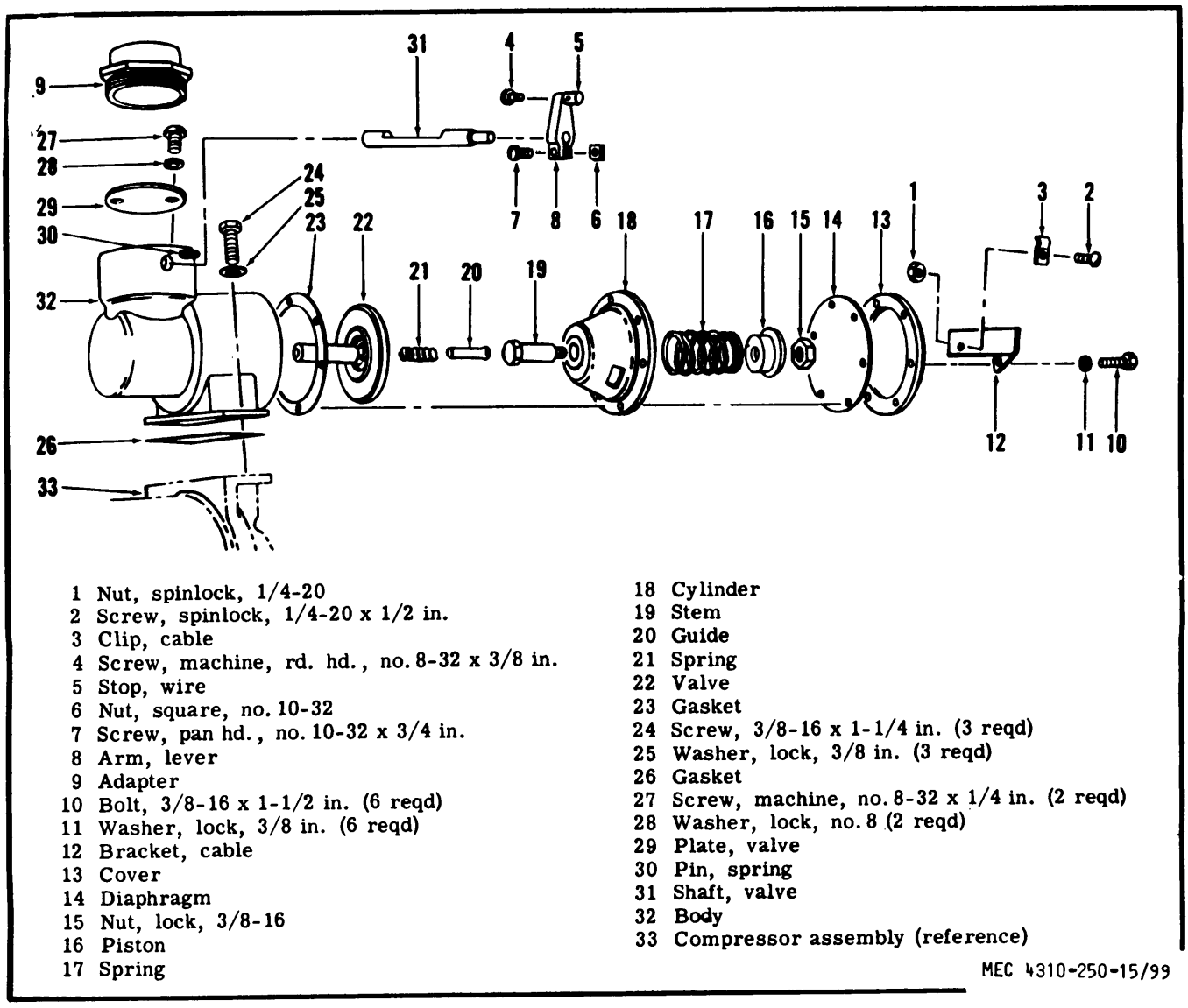


Figure 99. Air Intake-Unloader Assembly, Disassembly and Reassembly.

(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.

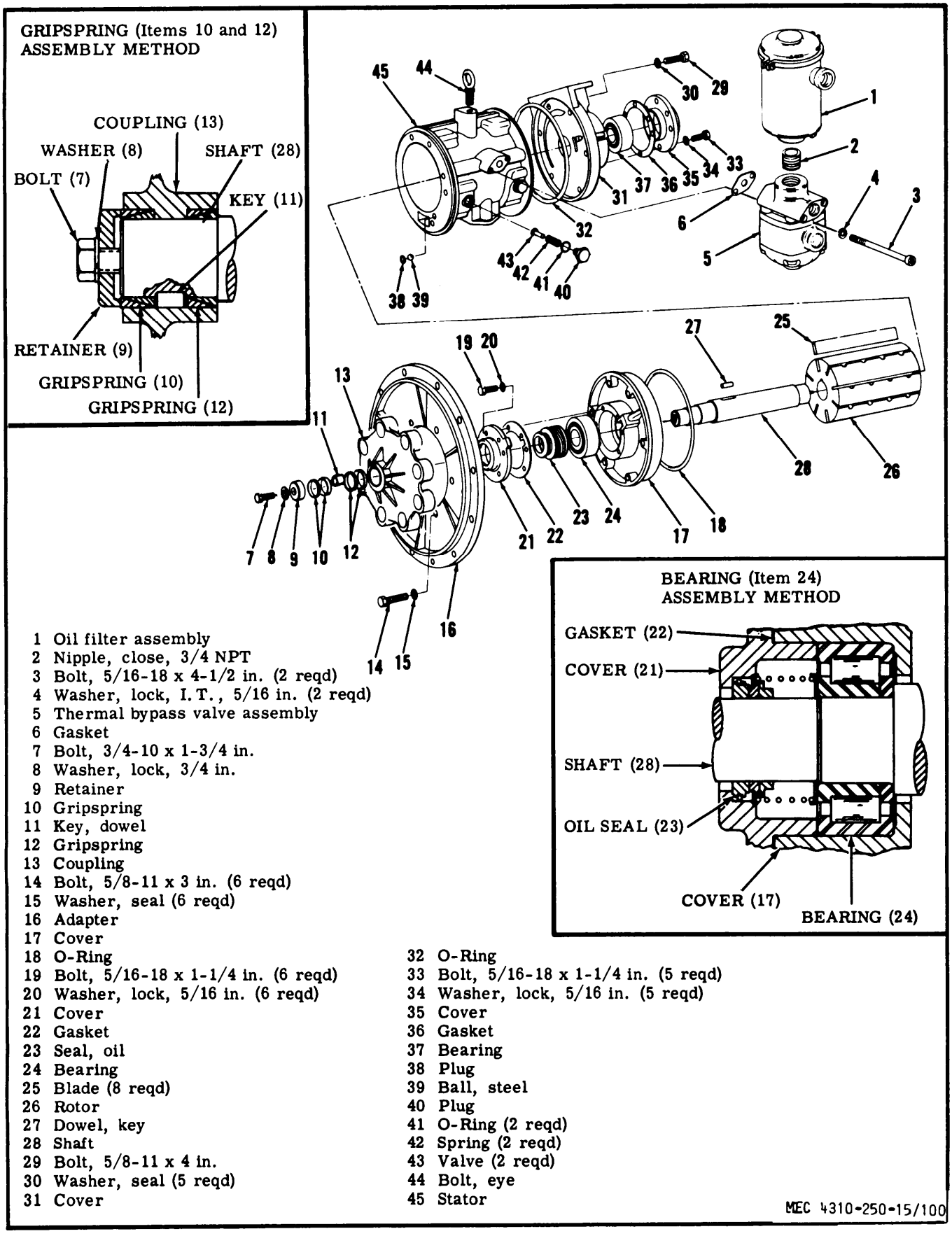
(1) Reassemble air compressor assembly in reverse of the numerical sequence as illustrated on figure 100.

(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 XII. 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.

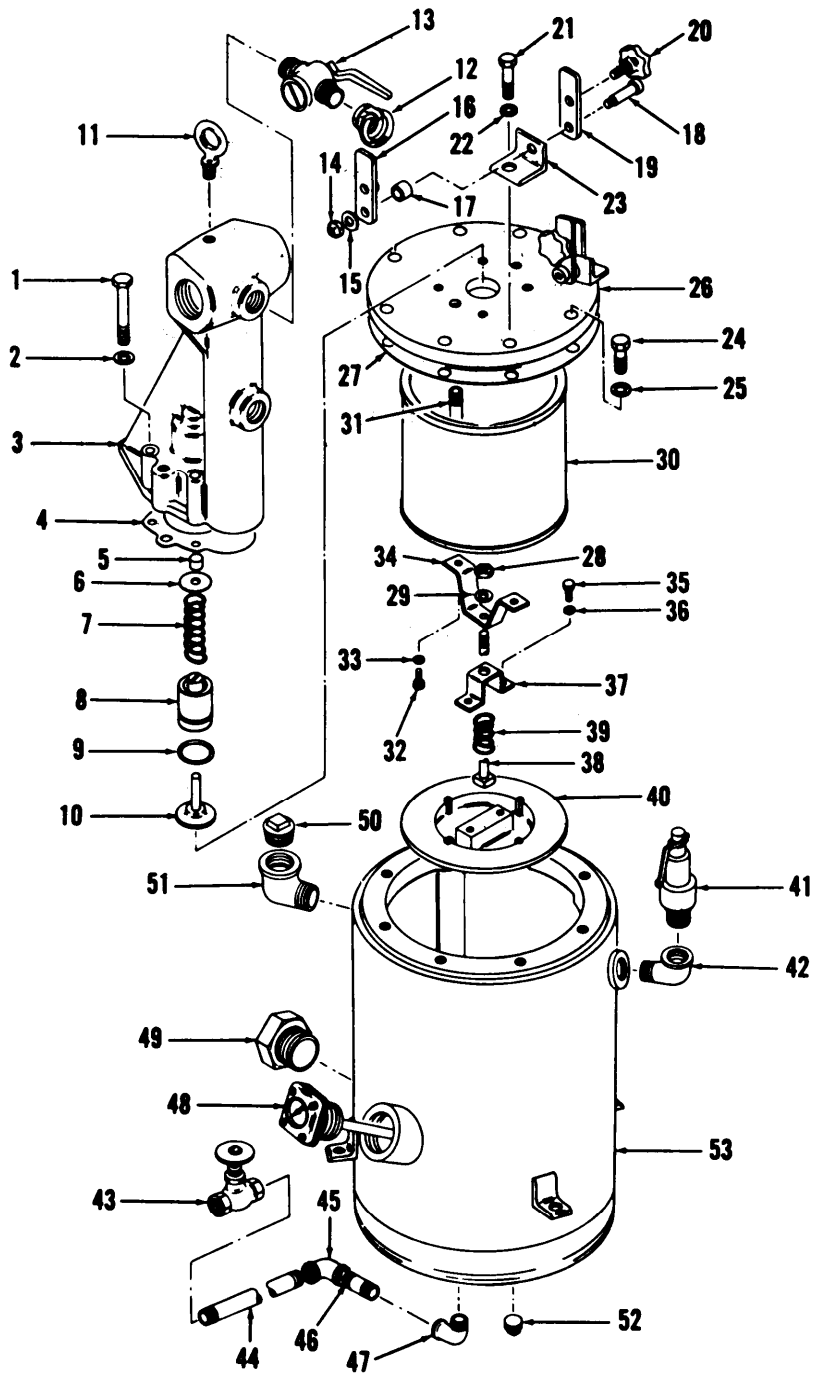
(7) Inspect all parts for cracks, breaks, bending, distortion, or any other damage. Replace all defective parts.

(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

MEC 4310-250-15/101

Figure 101. Oil Separator Assembly, Disassembly and Reassembly.

Section IV. THERMAL BYPASS VALVE ASSEMBLY

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

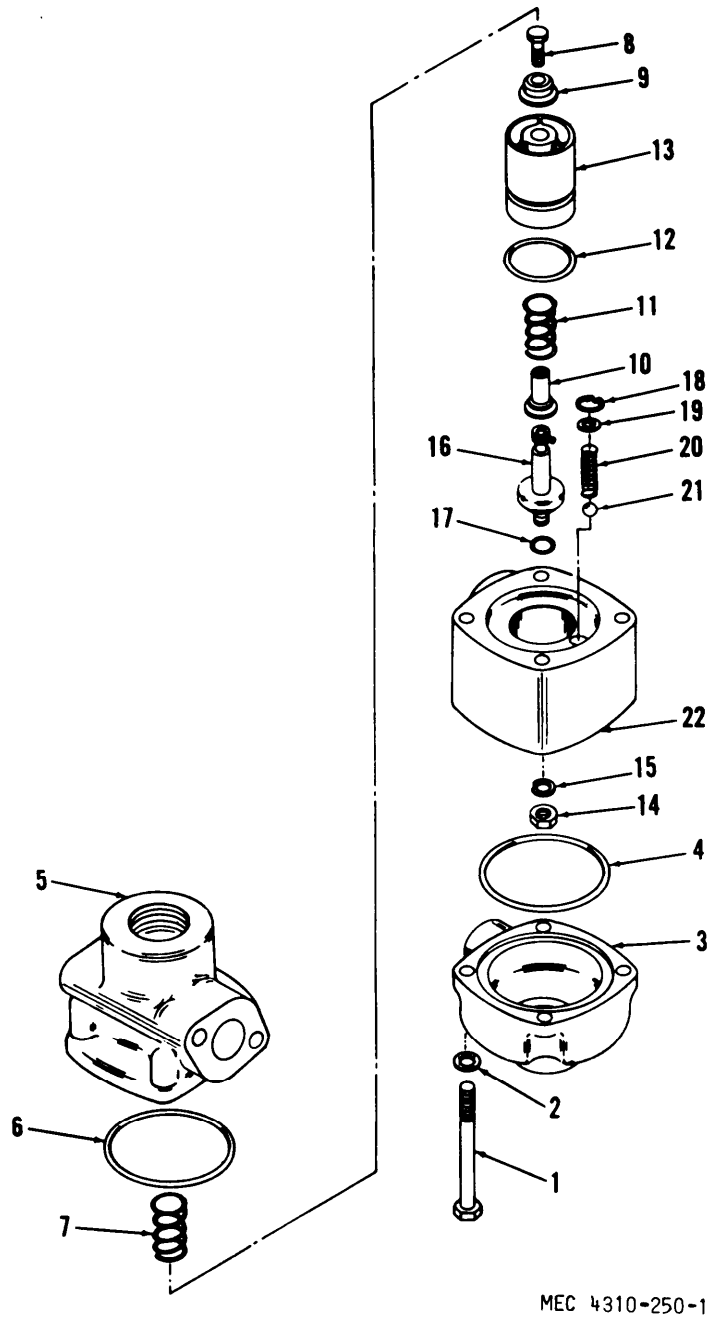


Figure 102. Thermal Bypass Valve Assembly, Disassembly and Reassembly.

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

TB 5-4200-200-10	Hand Portable Fire Extinguishers Approved for Army Users
TM 5-687	Repair and Utilities: Fire Protection Equipment and Appliances: Inspections Operations, and Preventive Maintenance

3. Lubrication

LO 5-4310-250-15	Compressor, rotary: air; diesel engine driven; 250 cfm, 100 psi; skid mounted (Davey model M250RPV) w. engine Continental model JD403-6002

4. Painting

TM 9-213	Painting Instructions for Field Use

5. 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

6. 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 Doctrinal, Training, and Organizational Publications
DA Pam 310-4	Index of Technical Manuals, Technical Bulletins, Supply Manuals (Types 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

7. Radio Interference Suppression

TM 11-483	Radio Interference Suppression

8. Shipment and Limited Storage

AR 743-505	Limited Storage of Corps of Engineers Mechanical Equipment
MIL STD-129	Marking for Shipment and Storage
TM 38-230	Preservation, Packaging, and Packing of Military Supplies and Equipment

9. Supply Publications

C 9100-IL	FSC Group 91; Fuels, Lubricants, Oils, and Waxes
C 6800-IL	Chemicals and Chemical Products

10. 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

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 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 space is left blank. For identifications of agencies assigned supply responsibility for parts, refer to appropriate Federal and Department of the Army Supply Catalogs.

(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 system, and authorized for use at indicated maintenance categories.

(b) P1—applied to repair parts which are low-mortality parts, stocked in or supplied from The Army Supply system, and authorized for installation at indicated maintenance categories.

(c) M—applied to repair parts which are not procured or stocked but are to be manufactured at indicated maintenance categories.

(d) X2—applied to repair parts which are not stocked. The indicated maintenance category 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 are normally 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 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 casing, 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 agencies 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

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. 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. Materiel. This space is left blank. For identifications of agencies assigned supply responsibility for parts, refer to appropriate Federal and Department of the Army Supply Catalogs.

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 8 hours of operation.

h. Notes. This column contains informative notes keyed to data appearing in the preceding column.

Section II. BASIC ISSUE ITEMS LIST

Source codes				Federal stock No.	Description	Unit of issue	Quantity authorized	Quantity issued with equipment	Illustration	
Materiel	Source	Maintenance	Recoverability						Figure	Item
					GROUP 31—BASIC ISSUE ITEMS, MANUFACTURER INSTALLED					
					3100—BASIC ISSUE ITEMS, MANUFACTURER OR DEPOT INSTALLED					
	P	O	------	6140–057–2554	BATTERY, STORAGE: 12V, 6 cell (Repair parts manual group 0612)	------	2	2		
	P	O	------	7510–889–3494	BINDER, LOOSE-LEAF: U.S. Army Equipment Log Book	------	1	1		
	P	O	------	7520–559–9618	CASE: maintenance and operational manuals, cotton duck, water repellent, mildew resistant, MIL–B–11743.	------	1	1		
					DEPARTMENT OF THE ARMY, LUBRICATION ORDER LO 5–4310–250–15.	------	1	1		
					DEPARTMENT OF THE ARMY OPERATOR, ORGANIZATIONAL, DIRECT AND GENERAL SUPPORT AND DEPOT MAINTENANCE MANUAL, TM 5–4310–250–15.	------	2	2		
					DEPARTMENT OF THE ARMY ORGANIZATIONAL MAINTENANCE REPAIR PARTS MANUAL, TM 5–4310–250–25P.	------	2	2		
	P1	O	------	4210–893–1092	EXTINGUISHER, FIRE, DRY CHEMICAL: charged, hand, pressurized (Repair parts manual group 7603).	------	1	1		
	P	O	------	6810–249–9354	SULPHURIC ACID: electrolyte (Repair parts manual group 0612)	gal	4	4		
					GROUP 32—BASIC ISSUE ITEMS, TROOP INSTALLED					
					3200—BASIC ISSUE ITEMS, TROOP INSTALLED OR AUTHORIZED					
	P	O	------	4930–360–2801	GREASE, GUN: lever operated, 16 oz. capacity. Extension 7 in. lg and hydraulic coupler.	------	1	*		
	P	O	------	2815–389–6046	CARTRIDGE, ALUMINUM: either starting	------	10	*		
	P	O	------	4720–202–6948	HOSE ASSEMBLY: rubber, 0.750 in. id x 50 ft lg w/2 ea universal couplings.	------	4	*		
	P	O	------	4930–168–3264	OILER, HAND: 8 oz. compressable, flexable spout 6 in. lg	------	1	*		
	P	O	------	5120–223–7396	PLIERS, SLIP-JOINT: stght nose, comb. w/cutter 6 in. lg	------	1	*		
	P	O	------	5120–277–9491	SCREW DRIVER, FLAT TIP: 7/16 in. flared tip, 4 in. lg blade	------	1	*		
	P	O	------	5120–449–8083	WRENCH, OPEN END, ADJUSTABLE: sgle-hd 0 to 1.135 in. jaw opng 10 in. lg.	------	1	*		

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 (1)			OIL LUBRICATING: 5 gal pails as follows:			(1) Includes quantity of oil to fill engine oil system as follows: 12½ qt-Crankcase. 12½ qt-Oil.
			9150-265-9435(2)	OE—30	12½ qt	(3).	
			9150-265-9428(2)	OE—10	12½ qt	(3).	
			9150-242-7603(2)	OES	12½ qt	(3).	
2	0306 FUEL, TANK			FUEL OIL DIESEL: Bulk as follows:			(2) See C9100—IL for additional data and requisitioning Procedure.
			9140-286-5294	Regular Grade. DF-2.	45 gal (4)	45 gal (5).	(3) See current LO for grade application and replenishment intervals.
			9140-286-5286	Winter Grade. DF-1.	45 gal (4)	45 gal.	(4) Tank Capacity.
3	0311 ENGINE, STARTING		9140-286-5283	Arctic Grade. DF-A.	45 gal (4)	45 gal (5).	(5) Average Fuel Consumption is 5.625 gal per hour of continuous operation.
				CARTRIDGE, ALUMINUM FLUID, MULTI-START.	(1)	(10).	(6) Cooling System Capacity.
4	0501 RADIATOR			WATER ANTIFREEZE: 55 gal drum as follows:	24 qt	(6).	(7) See table III for quantity, specific gravity, and replenishment data.
			6850-243-1990	Ethyleneglycol	16 qt	(7).	(8) Compressor Capacity.
				ANTIFREEZE:			(9) Speed Control Capacity.
			6850-174-1806	Compound Arctic	24 qt	(6).	(10) Quantity indicated is the minimum required when temperature is below 40° F.
5	5001 COMPRESSOR CRANKCASE.			OIL, LUBRICATING: 5 gal pail as follows:			
			9150-985-7234(2)	2110T-H	26 qt (8)	(3).	
			9150-242-7603(2)	OES	26 qt (8)		
6	5012 SPEED CONTROL.			OIL, LUBRICATING: 5 gal pail as follows:			
			9150-265-9435(2)	OE—10	⅛ qt (9)	(3).	
			9150-265-9428(2)	OE—30	⅛ qt (9)	(3).	
			9150-242-7603(2)	OES	⅛ qt (9)	(3).	
7				GREASE, AUTOMOTIVE AND ARTILLERY: 5 lb can as follows:			
			9150-190-0905(2)	GAA	5 lb	(3).	

APPENDIX III

MAINTENANCE ALLOCATION CHART

Section I. INTRODUCTION

1. General

a. Section I provides a general explanation of all maintenance and repair functions authorized at various maintenance levels.

b. Section II designates overall responsibility for the performance of maintenance operations on the identified end item or component. The implementation of the maintenance tasks upon the end item or component will be consistent with the assigned maintenance operations.

c. Section III lists the special tools and test equipment required for each maintenance operation as referenced from section II.

d. Section IV contains supplemental instructions, explanatory notes and/or illustrations required for a particular maintenance function.

2. Explanation of Columns in Section II

a. Functional Group Number. The functional group is a numerical group set up on a functional basis. The applicable functional grouping indexes (obtained from TB 750-93-1 Functional Grouping Codes) 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. Component Assembly Nomenclature. This column contains a brief description of the components of each functional group.

c. Essentiality. The essentiality column reflects whether or not an assembly, or repair part, is combat essential to the tactical use of the end item. The letter E in this column indicates an item is combat essential.

d. Maintenance Operations and Maintenance Levels. This column lists the various maintenance operations (A through J) and indicates the lowest maintenance level authorized to perform these operations.

The symbol designations for the various maintenance levels are as follows:

O/C _ _ _ _ _ _ _ _ _ _ Operator or crew
O_ _ _ _ _ _ _ _ _ _ Organizational
DO_ _ _ _ _ _ _ _ _ _ Direct Support
GS _ _ _ _ _ _ _ _ General Support
D _ _ _ _ _ _ _ _ _ _ Depot

The Maintenance Operations are defined as follows:

A—SERVICE: Operations required periodically to keep the item in proper operating condition, i.e., to clean, preserve, drain, paint, and replenish fuel, lubricants, hydraulic, and deicing fluids, or compressed air supplies.

B—ADJUST: Regulate periodically to prevent malfunction. Adjustments will be made commensurate with adjustment procedures and associated equipment specifications.

C—ALINE: Adjust two or more components of an electrical or mechanical system so that their functions are properly synchronized or adjusted.

D—CALIBRATE: Determine, check, or rectify the graduation of an instrument, weapon, or weapons system or components of a weapons system.

E—INSPECT: Verify serviceability and detect incipient electrical or mechanical failure by close visual examination.

F–-TEST: Verify serviceability and detect incipient electrical or mechanical failure by measuring the mechanical or electrical characteristics of the item and comparing those characteristics with authorized standards. Tests will be made com-

mensurate with test procedures and with calibrated tools and/or test equipment referenced in the MAC.

G—REPLACE: Substitute serviceable components, assemblies and subassemblies for unserviceable counterparts or remove and install the same item when required for the performance of other maintenance operations.

H—REPAIR: Restore to a serviceable condition by replacing unserviceable parts or by any other action required using available tools, equipment and skills-to include welding, grinding, riveting straightening, adjusting and facing.

I—OVERHAUL: Restore an item to a completely serviceable condition (as prescribed by serviceability standards developed and published by the commodity commands) by employing techniques of "Inspect and Repair Only as Necessary" (IROAN). Maximum use of diagnostic and test equipment is combined with minimum disassembly during overhaul. "Overhaul" may be assigned to any level of maintenance except organizational, provided the time, tools, equipment, repair parts authorization, and technical skills are available at that level. Normally, overhaul as applied to end items, is limited to depot maintenance level.

J—REBUILD: Restore to a condition comparable to new by disassembling to determine the condition of each component part and reassembling using serviceable, rebuilt, or new assemblies, subassemblies and parts.

e. Reference Note. This column, subdivided into columns K and L, is provided for referencing the SPECIAL TOOL AND TEST EQUIPMENT REQUIREMENTS (section III) and REMARKS (section IV) that may be associated with maintenance operations (section II).

3. Explanation of Columns in Section III

a. Reference Code. This column consists of a number and a letter separated by a dash. The number references the T & TE requirements column on the MAC.

The letter represents the specific maintenance operation the item is to be used with. The letter is representative of columns A through J on the MAC.

b. Maintenance Level. This column shows the lowest level of maintenance authorized to use the special tool or test equipment.

c. Nomenclature. This column lists the name or identification of the tool or test equipment.

d. Tool Number. This column lists the manufacturer's code and part number, or Federal Stock number, of tools and test equipment.

4. Explanation of Columns in Section IV

a. Reference Code. This column consists of two letters separated by a dash, both of which are references to section II. The first letter references column L and the second letter references a maintenance operation, column A through J.

b. Remarks. This column lists information pertinent to the Maintenance Operation being performed, as indicated on the MAC section II.

Section II. MAINTENANCE ALLOCATION CHART

Functional group No.	Component assembly nomenclature	Essentiality	Maintenance operations						Maintenance levels				Note reference	
			A	B	C	D	E	F	G	H	I	J	K	L
			Service	Adjust	Aline	Calibrate	Inspect	Test	Replace	Repair	Overhaul	Rebuild	T&TE rqmt	Remarks
01	ENGINE:													
0100	Engine Assembly:													
	Engine diesel		O/C				O/C	DS	DS	DS	GS			A
0101	Crankcase, Block, Cylinder Head:													
	Block, engine								GS	GS				
	Head, cylinder								DS	DS				
	Sleeve assembly, cylinder								GS					
0102	Crankshaft:													
	Bearings, sleeve								GS					
	Crankshaft								GS	D				B
	Damper, vibration								DS					
	Pulley, crankshaft								DS					
	Seals								GS					
0103	Flywheel Assembly:													
	Flywheel assembly								DS	GS				C
	Housing								DS					
0104	Pistons, Connecting Rods:													
	Bearings, sleeve								GS					
	Pistons, rings, pins and retainers								GS					
	Rod, connecting								GS	GS				
0105	Valves, Camshafts, and Timing System:													
	Bearings, camshaft								GS					
	Cover and gaskets, valve								O					
	Cover, timing gear								GS					
	Gears, timing								GS					
	Guides, springs and locks								DS					
	Rocker arm assembly			O					DS	DS				
	Seat, valve								GS	GS				
	Valves								DS	DS				D
0106	Engine Lubrication System:													
	Breather, value cover								O					
	Cooler assembly, oil		O/C						O	O				
	Element, oil filter								O					
	Filter assembly, oil		O/C						O	O				
	Gage, bayonet								O/C					
	Lines, oil								O					
	Pan, oil								GS	GS				
	Pump assembly, oil								GS	GS				

	Regulator, oil pressure								GS	GS				
0108	Manifolds:													
	Manifold, intake and exhaust								O	O				
03	FUEL SYSTEM:													
0301	Fuel Injector:													
	Injector, fuel							DS	O	DS				
0302	Fuel Pumps:													
	Pump, fuel							DS	O	DS				
0304	Air Cleaner:													
	Cleaner, air		O/C						O	O				
0306	Tanks, Lines, Fittings:													
	Cap, fuel tank								O					
	Lines and fittings								O					
	Tank, fuel		O/C						O	DS				
	Tube, injector								O					
0309	Fuel Filters:													
	Element, filter								O/C					
	Filter, fuel		O/C						O					
0311	Engine Starting Aids:													
	Control, starting aid								O					
	Primer, hand								O					
	Starting aid, ether		O/C						O	O				
0312	Throttle Control:													
	Control, push-pull								O					
04	EXHAUST SYSTEM:													
0401	Muffler and pipes								O					
	Cap, rain								O					
	Clamps								O					
	Muffler and pipes								O					
05	COOLING SYSTEM:													
0501	Radiator:													
	Cap, radiator							O	O/C					
	Grill, radiator								O					
	Radiator		O/C					DS	DS	DS				
0502	Cowling, Deflectors, Air Ducts, Shrouds:													
	Guards and shrouds								O	O				
0503	Water Manifolds, Thermostat and Housing Gaskets:													
	Housing and manifold								O					
	Hose and clamps								O					
	Lines and fittings								O					
	Thermostats							O	O					
0504	Water Pump:													
	Pump assembly, water								O	DS				
0505	Fan Assembly:													
	Belts, drive			O					O					
	Fan assembly		O/C						O	O				

Section II. MAINTENANCE ALLOCATION CHART—Continued

Functional group No.	Component assembly nomenclature	Essentiality	Maintenance operations							Maintenance levels			Note reference	
			A	B	C	D	E	F	G	H	I	J	K	L
			Service	Adjust	Aline	Calibrate	Inspect	Test	Replace	Repair	Overhaul	Rebuild	T&TE rqmt	Remarks
06	ELECTRICAL SYSTEM:													
0601	Generator:													
	Belts, drive			O					O					
	Generator							O	O	DS				
0602	Generator Regulator:													
	Regulator, generator			O				O	O					
0603	Starting Motor:													
	Solenoid								O					
	Starter								O	DS				
	Switches								O					
0607	Instrument or Engine Control Panel:													
	Ammeter								O					
	Gages								O					
	Lamps								O/C					
	Lights								O					
	Panel								O					
	Switches								O					
	Wiring								O	O				
0612	Batteries:													
	Batteries		O/C					O	O					
	Box and clamps								O	O				
	Cables								O	O				
0615	Radio Interference Suppression:													
	Capacitor and lead							O	O					
15	FRAME:													
1501	Frame Assembly:													
	Frame, lifting								O					
	Frame assembly								GS					
18	BODY, CAB, HOOD AND HULL:													
1801	Body, Cab, Hood, Hull Assembly:													
	Cowl, front and rear								O					
	Doors and panels								O					
	Hood, engine and compressor								O					
1808	Stowage Racks, Boxes:													
	Boxes, tool								O					
	Reel assembly, hose								O	O				
22	BODY CHASSIS OR HULL, AND ACCESSORY ITEMS:													

	Accessory Items:													
	Couplings, Hose								O					
	Hose assemblies								O					
2210	Data Plates:													
	Plates, identification								DS					
	Plates, instruction								O					
47	GAGES:													
	Gages, Lines, and Fittings:													
	Gage, air pressure								O					
	Gage, oil pressure								O					
	Gage, temperature								O					
	Gage, liquid level								O					
4703	Hourmeter:													
	Adapter, tachourmeter								O					
	Drive, tachourmeter								O					
	Tachourmeter								O					
50	PNEUMATIC EQUIPMENT:													
5000	Air Compressor Assembly:													
	Compressor assembly		O/C					O/C	DS	DS	DS			
5001	Crankcase, Block:													
	Housing, rotor								GS					
	Gaskets								GS					
5004	Rotors:													
	Bearings								GS					
	Rotor								GS	GS				
	Seals								GS					
	Vanes, rotor								GS					
5006	Lubrication System:													
	Cooler, oil		O/C						DS					
	Filter, oil		O						O					
	Lines and fittings								O	O				
	Manifold, oil return								O					
	Separator, oil and air		O						DS					
	Valve, minimum pressure								O					
5007	Compressor Drive:													
	Adapter, housing assembly								GS					
	Spline, coupling								GS					
5008	Air Intakes:													
	Cleaner, air		O/C						O					
	Hoses, clamps								O					
5009	Unloader System Components:													
	Regulator, pilot								O	DS				
	Unloader assembly								DS	DS				
	Valve, safety								O					
5012	Throttling devices:													
	Control assembly		O/C						O	DS				

Section II. MAINTENANCE ALLOCATION CHART—Continued

Functional group No.	Component assembly nomenclature	Essentiality	Maintenance operations						Maintenance levels				Note reference	
			A	B	C	D	E	F	G	H	I	J	K	L
			Service	Adjust	Aline	Calibrate	Inspect	Test	Replace	Repair	Overhaul	Rebuild	T&TE rqmt	Remarks
5014	Air Receiver:													
	Filler, oil								O					
	Receiver, air		O/C						O					
5015	Air Discharge System:													
	Hose and fittings								O					
	Manifold								O					
76	FIRE FIGHTING EQUIPMENT COMPONENTS:													
7603	Fire Extinguishers:													
	Extinguisher, fire		O/C						O					

Section III. SPECIAL TOOL AND SPECIAL TEST EQUIPMENT REQUIREMENTS

No special tools or test equipment is required to perform compressor.

Section IV. REMARKS

Reference code	
A-F	Test includes Engine operation and Compression.
B-D	Metalize, Align and Grind.
C-H	Replace Ring Gear.
D-H	Repair of Valves includes Refacing.

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By Order of the Secretary of the Army:

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NG: State AG (3).
USAR: Same as active Army except allowance is one copy to each unit.
For explanation of abbreviations used, see AR 320-50.

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