TECHNICAL MANUAL

OPERATOR, ORGANIZATIONAL, DIRECT AND GENERAL SUPPORT MAINTENANCE MANUAL

COMPRESSOR, AIR, RECIPROCATING, ELECTRIC MOTOR DRIVEN RECEIVER MOUNTED, 15 CFM at 175 PSI (12.30 KGS PER S0 CM) (CHAMPION PNEUMATIC MACHINERY COMPANY) MODEL NO. HR5-8M-3 NSN 4310-00-537-8876

HEADQUARTERS, DEPARTMENT OF THE ARMY
28 AUGUST 1975

WARNING

Operation of this equipment presents a noise hazard to personnel in the area. The noise level exceeds the allowable limits for unprotected personnel. Wear ear muffs or ear plugs which were fitted by a trained professional.

WARNING

Dry cleaning solvent, P–D–680, used to clean parts is potentially dangerous to personnel and property. .Avoid repeated and prolonged skin contact. Do not use near open flame or excessive heat. Flash point of solvent is 100° F — 138° F. (38° C. — 59° C.)

WARNING

Compressed air and electricity are dangerous. Before performing any maintenance or adjustments, be sure the electrical power has been turned off. Never depend on the ON-OFF switch. Turn power off at the source.

CHANGE NO. 2

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C, 31 January 1980

OPERATOR, ORGANIZATIONAL, DIRECT SUPPORT
AND GENERAL SUPPORT MAINTENANCE MANUAL

COMPRESSOR, AIR RECIPROCATING,
ELECTRIC MOTOR DRIVEN, RECEIVER MOUNTED,
15 CFM AT 175 PSI (12.30 KGS PER SQ CM)
(CHAMPION PNEUMATIC MACHINERY COMPANY)
MODEL NOS. HR5-8M-3 AND HR5-8M-4
NSN 4310-00-537-8876

TM 5-4310-350-14, 28 August 1975, is changed as follows:

1. Title is changed as shown above.

2. Remove and insert pages as indicated below.

	Remove pages	Insert pages
List of Illustrations	iii	iii/iv
Chapter 1	1-1 thru 1-4	1-1 thru 1-4
Chapter 3	3-1 and 3-2	3-1 and 3-2
	3-5 and 3-6	3-5 thru 3-6.1/3-6.2
	3-11 and 3-12	3-11 and 3-12
Chapter 5	5-3 and 5-4	5-3 thru 5-4.2
	5-9 thru 5-12	5-9 thru 5-12.2
	5-15 thru 5-18	5-15 thru 5-18.1/5-18.2
Appendix A	A-1	A-1/A-2

3. New or changed text material is indicated by a vertical bar in the margin. An illustration change is indicated by a miniature pointing hand.

4. Retain this sheet in front of manual for reference purpose.

By Order of the Secretary of the Army:

E. C. MEYER
(kneral United States Army
Chief of Staff

Official:

J. C. PENNINGTON
Major Genemal, United States Army
The Adjutant General

DSTRIBUTION:
To be distributed in accordance with DA From 12-25A, Operator maintenance requirements for Air Compressor, 15 CPM,

CHANGE
NO. 1

HEADQUARTERS
DEPARTMENT OF THE ARMY
Washington, D.C., 15 November 1978

OPERATOR, ORGANIZATIONAL, DIRECT SUPPORT
AND GENERAL SUPPORT MAINTENANCE MANUAL

COMPRESSOR, AIR RECIPROCATING,
ELECTRIC MOTOR DRIVEN, RECEIVER MOUNTED,
15 CFMAT 175 PSI (12.30 KGS PER SQ CM)
(CHAMPION PNEUMATIC MACHINERY COMPANY)
MODEL NO. HR 5-8M-3
NSN 4310-00-537-8876

TM 5-4310-350-14, 28 August 1975, 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.

3. Added or revised illustrations are indicated by a vertical bar adjacent to the illustration.

Remove Pages	Insert Pages
3-1 and 3-2	3-1 and 3-2
3-3 and 3-4	3-3 and 3-4

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

By Order of the Secretary of the Army:

BERNARD W. ROGERS
General, United States Army
Chief of Staff

Official:

J. C. PENNINGTON
Brigadier General, United States Army
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Distribution:
To be distributed in accordance with DA Form 12-25A, Operator maintenance requirements for Air Compressor, 15 CFM.

TECHNICAL MANUAL
No. 5–4310–350–14

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D. C. 28 *August* 1975

OPERATOR, ORGANIZATIONAL, DIRECT-SUPPORT AND GENERAL SUPPORT MAINTENANCE MANUAL

COMPRESSOR, AIR RECIPROCATING, ELECTRIC MOTOR DRIVEN, RECEIVER MOUNTED, 15 CFM AT 175 PSI (12.30 KGS PER SQ CM) (CHAMPION PNEUMATIC MACHINERY COMPANY) MODEL NO. HR 5-8M-3 NSN 4310-00-537-8876

LIST OF ILLUSTRATIONS

CHAPTER 1

INTRODUCTION

Section 1. GENERAL

1-1. Scope

a. These instructions are published for the use of the personnel to whom the air compressor, "Champion Pneumatic Model HR5-8M-3 or Model HR5-8M-4" is issued They provide information on the operation, organizational, direct support, and general support maintenance of the air compressor, as well as a description of the main units and their functions in relation to the other components.

b. Appendix A contains a list of publications applicable to this manual. Appendix B contains the Maintenance Allocation Chart.

1-2. Maintenance Forms and Records

Maintenance forms and records that you are required to use with the air compressor are DA Forms 2400 (Equipment Utilization Record), 2402 (Exchange Tag), 2402 (Equipment Inspection and Maintenance Worksheet), 2407 (Maintenance Request), and DD Form 314 (Preventive Maintenance Schedule and Record).

1-3. Reporting of Errors

You can help improve this manual by calling attention to errors and by recommending improvements. Your letter, DA Form 2028 (Recommended Changes to Publications) and/or DA Form 2028-2 (Recommended Changes to Equipment Technical Manuals), may be used. Copies of DA Form 2028-2 are attached in the back of the manual for your use. Please mail your recommended changes directly to Commander, U. S. Army Troop Support Command, ATTN: AMSTS-MPP, 4300 Goodfellow Blvd., St. Louis, MO 63120.

1-4. Equipment Serviceability Criteria (ESC)

This equipment is not covered by an ESC.

1-5. Destruction of Army Material to Prevent Enemy Use

a. *Demolition of Air Compressors.* Methods of destruction should achieve such damage to equipment and repair parts that it will not be possible to restore the equipment to a usable condition in the combat zone either by repair or cannibalization.

(1) *Mechanical destruction.* Using an axe, pick, mattock, sledge, or any other heavy implement, damage all vital elements.

(2) *Explosives.* Place ½-pound charges on the following for demolition with explosives.

(a) One ½ pound charge between the compressor and the air receiver tank.

(b) One ½-pound charge between the motor and the air receiver tank.

b. For additional data on procedures for destruction of equipment to prevent enemy use, refer to TM 750—244–3.

1-6. Administrative Storage

a. Storage Site.

(1) Select the best available site for administrative storage. Separate stored equipment from equipment in use. Conspicuously mark the area "Administrative Storage".

(2) Covered space is preferred. When sufficient covered space for all items to be stored is not available, priority should be given to items which are most susceptible to deterioration.

(3) Open sites should be improved hardstand, if available. Unimproved sites should be firm, well-drained, and kept free of excessive vegetation.

b. Storage Plan.

(1) Store equipment so as to provide maximum protection from the elements and to provide access for inspection, maintenance, and exercising. Anticipate removal or deployment problems and take suitable precautions.

(2) Take into account environmental conditions, such as extreme heat or cold; high humidity; blowing sand, dust., or loose debris; soft ground; mud; heavy snows; earthquakes; or combinations thereof and take adequate precautions.

(3) Establish a fire plan and provide for adequate firefighting equipment and personnel.

(4) For further information, refer to TM 740-90–1 (Administrative Storage).

Section Il. DESCRIPTION AND DATA

1-7. Description

The HR5-8M-3 and HR5-8M-4 (fig. 1-1 and 1-2) is a four cylinder, reciprocating type air compressor capable of delivering 15 cubic feet per minute (0.4248 cu meters per rein). The compressor assembly and associated electric motor are mounted on a frame which is welded to the air receiver, and 80 gallon steel tank. The electric motor drives the compressor assembly by means of a matched pair of V-belts.

The pressure switch assembly determines cut-in and cut-out pressure for the compressor assembly. The switch can be adjusted for cut-out pressures over the range of 140 to 176 psi (9.84 to 12.30 kgs per sq cm). The switch can also be adjusted for a 35 psi to 65 psi (2,46 to 4.57 kgs per sq cm) differential between cut-in and cut-out pressure. The safety valve assembly releases when air receiver pressure exceeds 200 psi (14.06 kgs per sq cm).

1-8. Identification

a. Identification plate mounted on the top of the air receiver platform of the air compressor, specifies the name of the manufacturer, make, model number, date of manufacture, serial number, and National stock number.

b. The compressor identification plate mounted on the governor housing, specifies the name of the manufacturer and the model and serial numbers of the compressor,

c. The electric motor identification plate mounted on the electric motor housing, specifies the name of the manufacturer, model number, and data.

1-9. Differences In Models

This manual covers the Champion Pneumatic Models HR5-8M-3 and HR5-8M-4 air compressors. The Model HR5-8M-4 differs from the Model HR5-8M-3 only in that it has a fungus and moisture resistance magnetic starter and the electrical circuitry, including all components and connections, are of the liquid tight type protected from the effects of moisture and fungus.

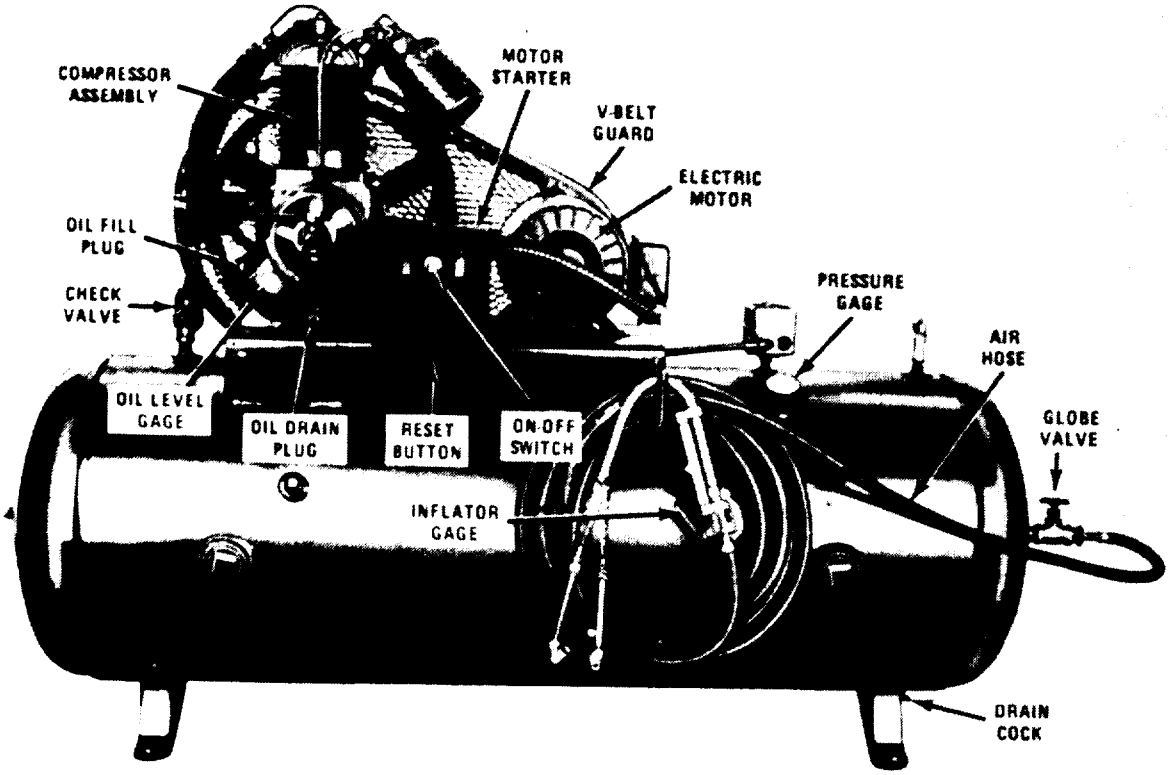

Figure 1-1. Air compressor, right side view.

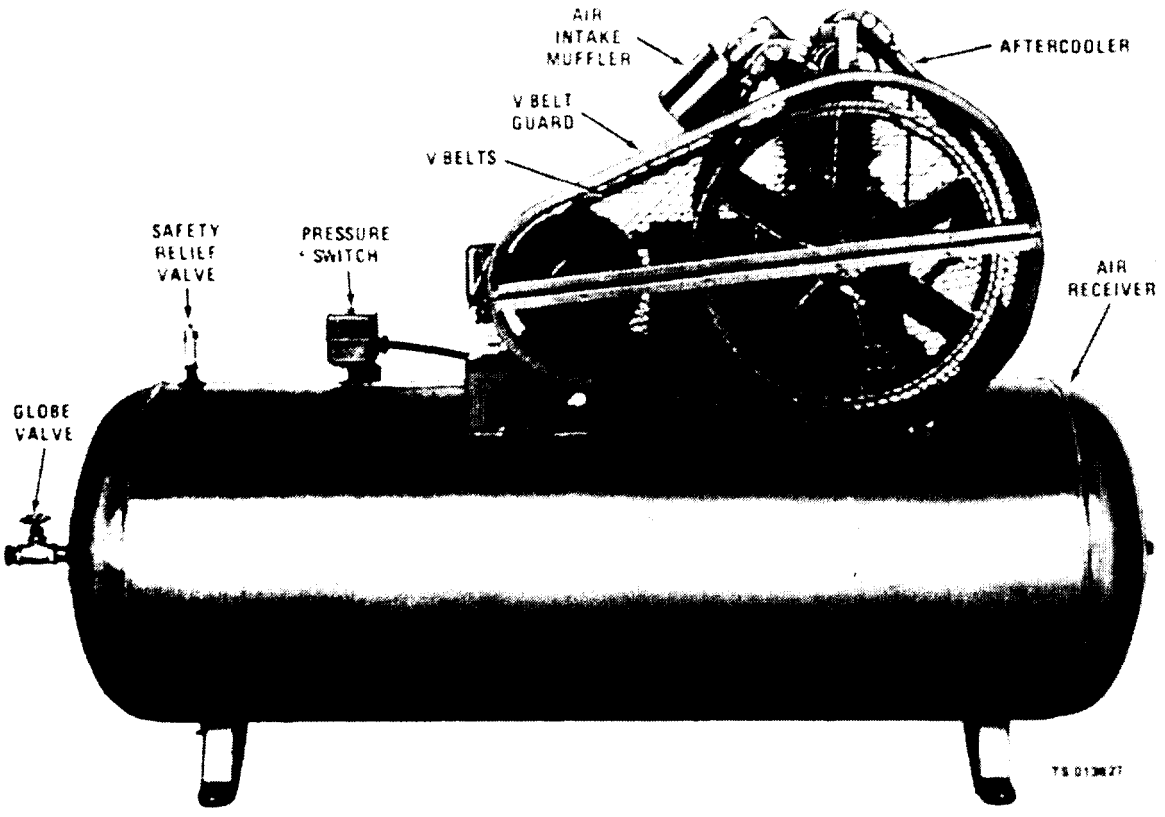

Figure 1-2. Air compressor, left side view

1-10. Tabulated Data

a. General.

Manufacturer	Champion Pneumatic Machinery Co.
Model	HR5-8M-3 and HR5-8M-4
Output	15 cfm at 175 psi (12.30 kgs per sq cm)

b. Electric Motor.

Manufacturer	Doerr
Model	74110
Type	P
Hertz	60
Phase	3
Horsepower	5
Volts	230/460
Duty	Continuous
Rated speed	1740
Frame	J184T
Temperature rise	40 C. (104 F.)
Amperes:	
At 220 volts	14.4
At 440 volts	7.2

c. Compressor.

Manufacturer	Champion Pneumatic Machinery Co.
Model	R-15
Type	2-stage vertical

d. Compressor Air Cleaner.

Manufacturer	Champion Pneumatic Machinery Co.
Type	Dry

e. Magnetic Starter Switch Assembly.

Manufacturer	I-T-E Emperial Corporation
Style	(Model HR5-8M-3) A203C24C1
Style	(Model HR5-8M-4) A203C24C2C

f. Pressure Switch.

Manufacture	Furnas Electric
Type	69HA1
Maximum pressure	250 psi (17.58 kgs per sq cm)
Minimum differential	30 psi (2.1 kgs per sq cm)

g. Capacities.

Compressor crankcase	2 qt. (quart)
Air receiver tank	4.0 cu. ft.

h. Air Receiver.

Manufacturer	Kargard
Working pressure	200 psi (1406 kgs per sq cm)

i. Air Hose.

Size	5/16 in. × 50 ft.

j. Dimensions and Weight.

Shipping weight	750 lbs.
Shipping cube	60 ft.
Length	66 in.
Height	44 in.
Width	23 in.
Net Weight	600 lbs.

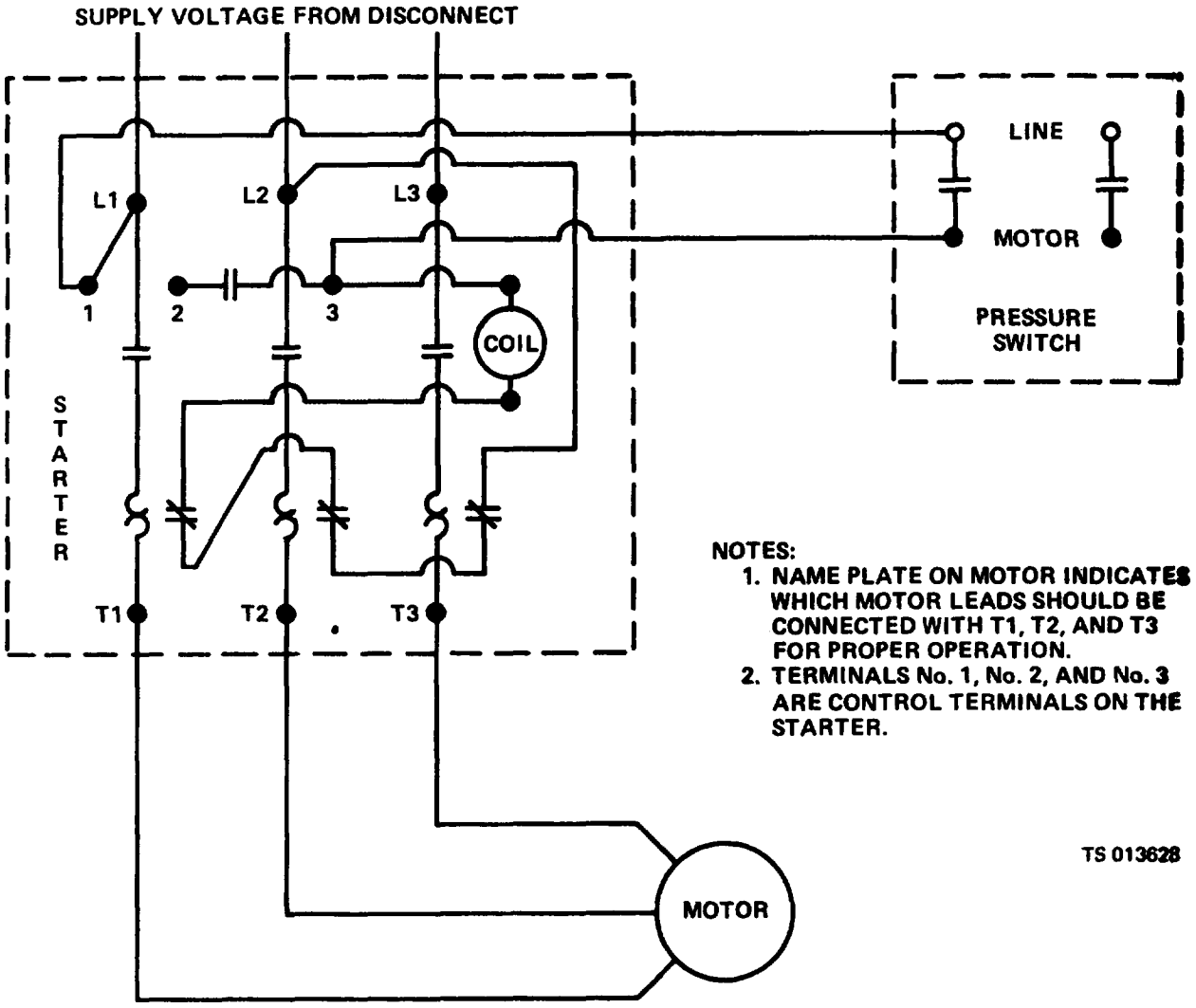

Figure 1–3. Wiring diagram.

CHAPTER 2

OPERATING INSTRUCTIONS

WARNING

If equipment fails to operate, refer to troubleshooting procedures in Chapter 3.

Section I. OPERATING PROCEDURES

2-1. Controls and Instruments

a. General. This section describes, locates, illustrates and furnishes the operator sufficient information pertaining to the various controls and instruments provided for the proper operation of the air compressor.

b. Globe Valve. The globe valve (fig. 1–1) mounted on the end of the air receiver tank is a manually operated valve that opens the flow of compressed air to the air hose.

c. Drain Cock. The drain cock (fig. 1–1) mounted on the underside of the air receiver tank is a manually operated valve used to drain compressed air and condensation from the air receiver tank. Receiver should be drained daily when the air compressor is in use.

d. Oil Level Gage. The oil level gage mounted in the compressor crankcase (fig. 1–1) is a direct-reading, glass covered gage used to check the level of the oil in the compressor crankcase.

e. Air *Receiver Tank Pressure Gage.* The air receiver tank pressure gage (fig. 1–1) mounted on the *side* of the air receiver tank, is a needle-indicating, direct-reading, pressure-operated gage graduated in pounds per square inch (psi) and kilograms per square centimeter (kgs per sq cm), the gage is graduated from 0 to 300 psi in increments of 5 psi, and from 0-2100 kgs per sq cm in increments of 50 centimeters. The gage indicates the air pressure in the air receiver tank. Normal operating pressure is 140 psi *(2.46* kgs per sq cm) to 175 psi (12.30 kgs per sq cm).

f. Safety Relief Valve. The safety relief valve (fig. 1–2) is mounted on top of the air receiver tank at the motor end. It is a preset valve that is actuated when the air receiver tank receives a pressure of 200 psi (14.06 kgs per sq cm) or more. This valve can be tripped manually by pulling up on the ring at the end. It is manually tripped to release pressure in the air receiver tank and to test the valve.

g. ON-OFF Starter Switch. The on-off starter switch (fig. 1–1) is a manually actuated switch located top center of the magnetic switch box cover. In OFF position the compressor motor will not operate. When the selector is turned to ON position the compressor will operate until pressure in air receiver tank reaches 175 psi (12.30 kgs per sq cm) then the pressure switch automatically shuts-off the motor. The compressor will recycle again automatically when pressure drops below 140 psi (9.84 kgs per sq cm) and continue to cycle automatically in this ON position.

h. Reset Button. The reset button (fig. 1-1) mounted on the cover of the magnetic starter, below the ON-OFF switch, is manually operated button, which when pushed, resets the thermal relay in the magnetic starter.

2-2. Operation Under Usual Conditions

a. General. The instructions in this section are published for the operation of the air compressor. It is essential that the operator know how to perform every operation of which the air compressor is capable. This section gives instructions on starting and stopping, and air-pressure adjustment.

b. Starting.

(1) Inspect the electric motor to make sure it is properly wired from incoming power source and that power is on.

(2) Turn ON-OFF switch (fig. 1-1) to "ON" position.

NOTE

Should the compressor fail to start, depress the reset button.

c. Stopping.

(1) Close globe valve (fig. 1-1).

(2) Turn ON-OFF switch (fig. 1-1) to "OFF)" position.

(3) Open the drain cock (fig. l-l) in the bottom of air receiver tank to release the compressed air and condensation from the air receiver tank.

(4) Close drain cock.

Section II. OPERATION OF AUXILIARY EQUIPMENT

There is no auxiliary equipment used with this end item.

Section III. OPERATION UNDER UNUSUAL CONDITIONS

2-3. Operation in Extreme Cold (Below 0°F.) (-18 C)

a. Locate the air compressor in a shed or building whenever possible. If the unit is operated outdoors, protect it from prevailing winds and cover it with a tarpaulin when not in use.

b. Lubricate the air compressor according to the lubrication order.

c. Avoid excessive handling, kinking, and sharp bending of the air hose, which will become brittle at low temperature.

d. Clean and tighten all wiring connections. Make sure there are no short circuits. As wiring insulation tends to become brittle at low temperatures, avoid excessive handling and sharp bending of wires. Protect the electric motor and magnetic starter from snow and ice.

2-4. Operation in Extreme Heat

a. Locate the air compressor in an operating area that is well ventilated or provide intake and exhaust fans to ventilate enclosed areas.

b. Lubricate the compressor in accordance with the lubrication order.

c. Check the drive-belt tension frequently. Improper drive-belt tension often results in overheating.

d. Keep the electric motor, compressor, and air receiver tank clean.

2-5. Operation in Dusty or Sandy Areas

a. Lubricate the air compressor in accordance with the lubrication chart, making sure that all lubrication points are free from dirt and sand before applying lubricant. Keep all lubricant containers clean and tightly closed. Do not lubricate excessively as dirt and sand will adhere to excess lubricant and may work into moving parts. Wipe off all lubrication points after lubricating.

b. Keep the motor, magnetic starter, compressor, and air receiver tank free from accumulations of dirt and sand. Use compressed air for cleaning or a stiff brush where deposits are oily, gummy, or heavy.

c. Protect the air compressor from dust with screens, shelters built from tarpaulins, or other dustproof material. Keep the unit covered when not in use.

d. Clean the compressor air cleaner more often than when operating under normal conditions.

2-6. Operation in Salt Water or High Humidity Areas

a. Protect the unit with a shelter of some kind. Keep the sides of the shelter open for ventilation.

b. Wipe the unit dry at frequent intervals, with particular emphasis on the electric motor and magnetic starter. If the unit becomes encrusted with salt, wash it with fresh water, taking care not to damage the electrical system with water.

c. Make sure all surfaces requiring lubrication are clean and dry before applying lubricant. Lubricate the unit in accordance with the lubrication order.

d. Coat exposed polished or machined metal surfaces with a suitable rustproof material after first removing accumulations of rust.

e. Open the drain cock frequently to blow condensate from the air receiver tank.

CHAPTER 3

OPERATOR/CREW MAINTENANCE INSTRUCTIONS

Section I. LUBRICATION INSTRUCTIONS

3-1. General Instructions

a. The electric motor used on the air compressor has been factory lubricated for its lifetime.

b. Check compressor crankcase oil level frequently, since excessive oil consumption is the principal method of determining compressors need for repairs.

3-2. Lubrication Instructions

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.

b. Cleaning. Wipe lubricating points free of dirt. Clean lubrication points after lubricating to prevent accumulation of foreign matter.

c. Service. Service lubrication points at proper intervals as shown in LO 5–4310–350-12.

Section II. PREVENTIVE MAINTENANCE CHECKS AND SERVICES

Because all required inspections must be made daily, or more frequently, operator/crew personnel will refer to tables 3–1 and 3–2, for procedures to be followed during their periodic inspection.

Section III. TROUBLESHOOTING

3-3. Scope

This section contains troubleshooting or malfunction information and tests for locating and correcting most of the troubles which may develop in the air compressor. Each malfunction or trouble symptom for an individual component, unit, or system is followed by a list of tests or inspections necessary for you to determine probable causes and suggested corrective actions for you to remedy the malfunction.

3-4. Troubleshooting

a. This manual cannot list all possible malfunctions that may occur or all tests or inspections, and corrective actions. If a malfunction is not listed or is not corrected by listed corrective actions, you should notify higher level maintenance.

b. Table 3–2 lists the common malfunction that you may find during the operation or maintenance of the air compressor or its components. You should perform the tests, inspections and corrective actions in the order listed.

NOTE

If you have a malfunction which is not listed in this table, notify the next higher level of maintenance.

Section IV. MAINTENANCE PROCEDURES

3-5. Belt Guard Assembly

a. General. The belt guard assembly (fig. 3–5) is a two piece guard that totally encloses the drive belts and pulleys. The mesh screening covers the flywheel fan used to circulate air for cooling the compressor unit.

b. Inspection. Inspect the guard for damage to the screen or panels. Check for accumulation of grease, dirt, or foreign matter.

LUBRICATION ORDER

LO5-4310-350-14

(Supersedes LO5-4310-350-12 dated 28 August 1977)

COMPRESSOR, AIR, TANK MOUNTED, ELECTRIC MOTOR DRIVEN, 15 CFM AT 175 PSI CHAMPION MODEL NO. HR5-8M-3 AND MODEL NO. HR5-8M-4

Intervals and related task-hour times are based on normal hours of operation. The task-hour time specified is the time you need to do all the services prescribed for a particular interval. Change the interval if your lubricants are contaminated or if you are operating the equipment under adverse operating conditions, including longer than-usual operating hours. You may extend the interval during periods of low activity, but you must take adequate preservation precautions.

*The time specified is the time required to perform all services at the particular interval.

Clean fittings before lubricating. Relubricate all areas exposed to water after amphibious operation. Lubricate points indicated by dotted arrow shaft on both sides of equipment. Clean parts with SOLVENT, dry cleaning, or with OIL, fuel, diesel. Dry before lubricating. Drain crankcases when HOT. Fill and check level. The lowest level of maintenance authorized to lubricate a point is indicated by one of the following: (c) operator/crew, or (O) organizational maintenance.

You can improve this publication by calling attention to errors and by recommending improvements and by stating your reasons for the recommendations. Your letter or DA Form 2028 (Recommended Changes to Publications and Forms) should be mailed directly to Commander, U. S. Army Troop Support and Aviation Material Readiness Command, ATTN: DRSTS-MTPS, 4300 Goodfellow Blvd., St. Louis, MO 63120. A reply will be furnished directly to you.

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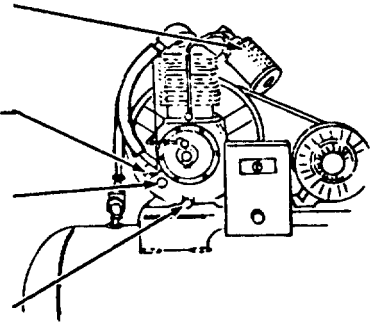
LUBRICANT • INTERVAL

Air intake Muffler Disassemble, Clean and Reassemble — 50

Oil Filler Cap (See Key) — OE/HDO

Oil Level Sight Gage (Check Level and add oil to full mark) — 10

Oil Drain Cap (Drain and Refill) (See Note 1) — 500



*TOTAL TASK HOURS	
INTERVAL	TASK-HOURS
10	0.1
50	0.25

*TOTAL TASK HOURS	
INTERVAL	TASK-HOURS
500	0.5

CARD 1 of 2

Figure 3–1. Lubriation Order (Sheet 1 of 2).

KEY

LUBRICANTS	CAPACITY	EXPECTED TEMPERATURES			INTERVALS
		Above +32°F Above 0°C	+40°F to -10°F + 5°C to -23°C	0°F to -65°F -18°C to -50°C	
OE/HDO, Lubricating Oil, Engine, Crankcase MIL-L-2104	2 Qt (1.9L)	10W30			Intervals given are in hours of normal operation.

NOTES:
1. **CRANKCASE DRAIN.** Remove plug and drain. Replace plug. Refill crankcase with proper grade OE/HDO to full mark on oil sight gage.

2. LUBRICANTS. The following is a list of lubricants with the Military Symbols and applicable specification numbers.
OE/HDO MIL-L-2104

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:

BERNARD W. ROGERS
General, United States Army
Chief of Staff

OFFICIAL:

J. C. PENNINGTON
Brigadier General, United States Army
The Adjutant General

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CARD 2 of 2

Figure 3-1. Lubrication Order (Sheet 2 of 2).

Table 3-1. Operator/Crew Preventive Maintenance Checks and Services

B—Before Operation Time required: 0.4	D—During Operation	A—After Operation Time required: 0.5

Interval and Sequence No. B	D	A	ITEM TO BE INSPECTED PROCEDURE	WORK Time (M/H)
			NOTE Visually inspect for evidence of lubricant leak concurrently with daily service. checks.	
1			INSPECT OIL LEVEL IN COMPRESSOR FRAME The compressor has an oil level gage, mounted in the compressor crankcase (fig. 1-1). It is a direct reading gage used to check the oil level in the crankcase. If the oil level is low, remove the oil fill plug (fig. 1-1) and fill with OE/HD 10W 30 lubricating oil, to the full mark on the oil sight gauge. Replace the fill plug. For additional lubrication instructions refer to LO 5-4310-350-12.	0.1
2			SWITCHES AND CONTROLS Check for loose wires on the electric motor and switches. Notify organizational maintenance if any loose wires are found.	0.1
3			DRIVE BELTS Inspect the drive belts for broken or worn belts. If any bad belts are found notify Organizational Maintenance.	0.1
	4		HOSES AND FITTINGS Inspect the hoses for loose connections, breaks on hoses that are busted. Check the fitting for damage or loose connections. Notify Organzational Maintenance if the	0.1
	5		PRESSURE GAGE Watch the pressure gage reading when the motor starts and stops. The motor should start when the gage shows a reading of 140 psi (24.61 kgs per sq cm) and stop at 175 psi (12.30 kgs per cm). Notify Organizational Maintenance if the gage does not operate properly.	0.1
	6		SAFETY RELIEF VALVE Test the safety valve (fig. 1-2) mounted on top of the air receiver tank at the motor end. This is a preset valve that is actuated when the air receiver tank receives a pressure of 200 psi (14.06 kgs per sq cm). To test the valve manually, pull up on the ring which is attached to lever on the safety valve until you hear air escape. Notify Organizational Maintenance if the safety relief valve does not operate properly.	0.1
		7	CLEANLINESS OF EQUIPMENT	

WARNING

Dry cleaning solvent, P-D-680, used to clean parts in potentially dangerous to personnel and property. Avoid repeated and prolonged skin contact, Do not use near open flame or excessive heat. Flash point of solvent is 100° F. — 138° F. (38° C. — 59° C.).

NOTE

Always wipe oil and grease off first, in order that the power may be turned on and the compressor air used to remove dust from the compressor.

Interval and Sequence No. B D A	ITEM TO BE INSPECTED PROCEDURE	WORK TIME (M/H)
	Use dry cleaning solvent, P-D-680, to remove oil and grease from the compressor asssembly, and dry thoroughly.	0.1

WARNING

Compressed air and electricity are dangerous. Before performing any maintenance or adjustments, be sure the electrical power has been turned off. Never depend on the ON-OFF switch. Turn power off at the source.

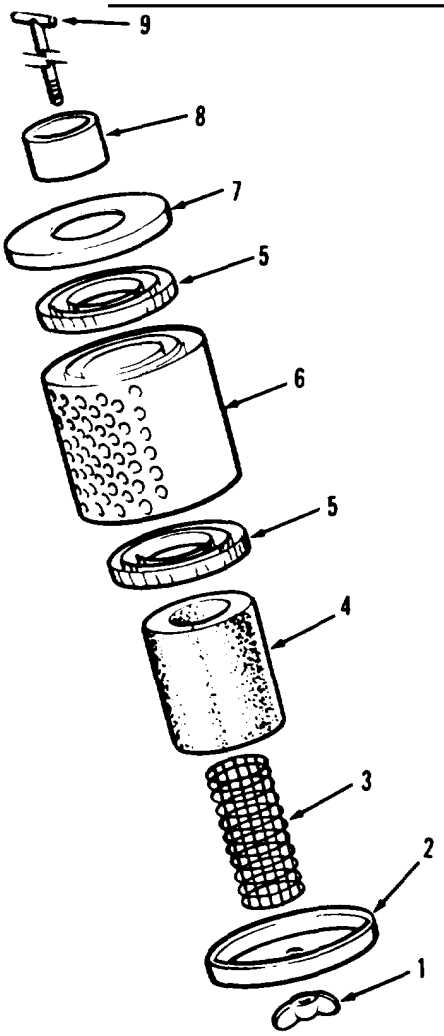

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Figure 3-2. Air intake muffler, (Model HR5-8M-3).

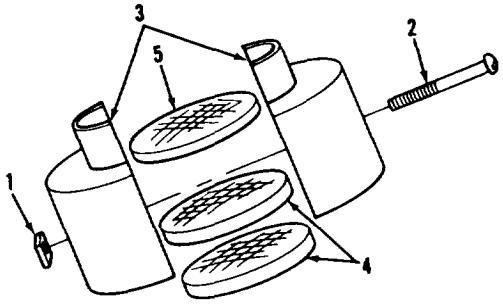


Figure 3-2.1 Air intake muffler (Model HR5-8M-4).

Table 3–2. Troubleshooting.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

NOTE

Before you use this table, be sure you have performed all applicable operating checks.

1. COMPRESSOR PUMPING OIL

Step 1, Check for a clogged muffler intake filter,

a. Service the muffler intake filter (Model HR5-8M-3) as follows:
(1) Remove wingnut (1, fig. 3-2).
(2) Remove cover, lower (2).
(3) Remove plate (6).
(4) Remove element (4).
(5) Remove screen (3).

WARNING

Dry cleaning solvent, P–D-680, used to clean parts is potentially dangerous to personnel and property. Avoid repeated and prolonged skin contact. Do not use near open flame or excessive heat. Flash point of solvent is 100° F. — 138° F. (38° C. — 59° C.).

(6) Use dry cleaning solvent P–D–680, to clean parts and d thoroughly.
(7) Reassemble the air filter mufflier (Model HR5-8M-37 as follows:
(a) Install the screen (3. fig. 3-2) and element (4) in the plate (6).
(b) Place the plate on the T-stud (9).
(c) Install cover, lower (2) and secure with wingnut (1).

b. Service the muffler intake filter (Model RR5-8M-4) as follows:
1 Remove square nut (1, fig. 3-2.1).
2 Remove machine screw (2) and separate air intake halves (3).
3 Remove filter elements (4 and 5).

WARNING

Dry cleaning solvent, P-W-680, used to clean parts is potentially dangerous to personnel and property. Avoid repeated and prolonged skin contact. Do not use near open flame or excessive heat. Flash point of solvent is 100° F. — 158° F. (38° C. — 59° C.).

(4) Use drycleang solvent P-D-680, to clean parts and dry thoroughly.
(5) Reassemble the air filter muffler (Model HR5-8M-4) as

(a) Install elements (4 and 5, fig. 3-2.1) in air intake halves (3) and fit halves, together.
(b) Install machine screw (2) and secure with square nut (1).

Step 2. Check oil level.

The oil level gage mounted in the compressor crankcase (fig. 3–3) is a direct-reading, glass covered gage used to check the level of the oil in the crankcase.

If the oil level is low, remove the oil fill plug (fig. 3-3) and fill with OE/HD 10W 30 lubrication oil, to the full mark on the oil sight gage. Replace the fill plug.

2. KNOCKS OR RATTLES

Step 1. Check for loose, damaged belts or pulleys.
Notify organizational maintenance.

Step 2. Cheek for leaking valves, or restricted air passages.
Notify organizational maintenance.

3. AIR DELIVERY DROPPING

Step 1. Check for a clogged muffler intake filter.
Refer to paragraph 1, Step 1, to service the intake filter.

4. EXCESSIVE STARTING AND STOPPING

Step 1. Check the receiver.
Drain the air receiver.
a. Turn ON-OFF switch to OFF,
b. Open draincock at the bottom of the air receiver (fig. 3-4) under the service line.
c. When the air has escaped, leave draincock open for a few minutes for more of condensate to escape.
d. Close draincock.
e. Be sure that cleaning material and tools have been removed from the air receiver.
f. Move the ON-OFF switch to ON.

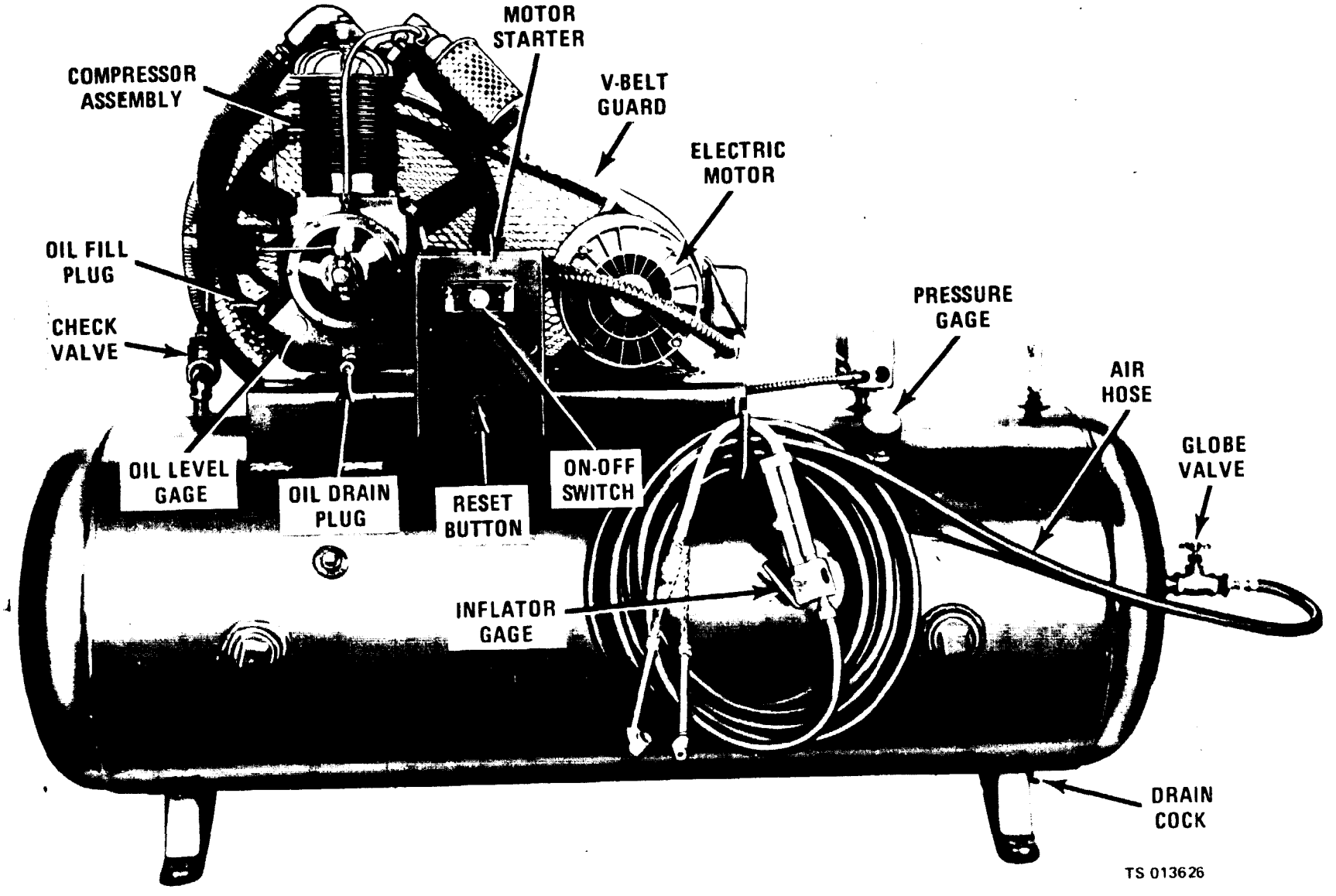


Fig. 3–3. Air compressor, right side view.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

Step 2. Check for air leaks in the piping,
a. Make a solution of soapy water.
b. Apply to the fittings. If a leak is present it will be indicated by the soapy water bubbling.
c. If a leak is found, notify organizational maintenance.

Step. 3. Pressure switch not set properly.
The pressure switch assembly determines cut-in and cut-out pressure for the compressor assembly. The switch can be adjusted for cut-out pressures over the range of 140 to 175 psi. The switch can also be adjusted for a 35 to 65 psi differential between cut-in and cut-out pressure. The safety valve assembly releases when the air receiver pressure exceeds 200 psi.

If the pressure switch is not operating properly, notify Organizational Maintenance.

5. COMPRESSOR RUNNING HOT

Step 1. Check for blockage of air to fan wheel.
Remove any object that is blocking the air passage. Use compressed air to remove any accumulation of dust or dirt.

Step 2. Check oil level
Refer to paragraph 1, step 2 for checking oil level.

Step 3. Check for a clogged muffler intake filter.
Refer to paragraph 1, step 1 to service the intake filter.

6. COMPRESSOR RUNNING SLOW

Check motor terminal board for loose connections.
a. Tighten loose connections.
b. Clean the terminal board with compressed air.

WARNING

Dry cleaning solvent P-D-680. used to clean parts is potentially dangerous to personnel and property. Avoid repeated and prolonged skin contact. Do not use near open flame or excessive heat. Flash point of solvent is 100° F. — 138° F (38° C. — 59° C.).

c. *Cleaning.* Clean the belt guard with a rag dipped in cleaning solvent, P–D–680, and dry thoroughly.

3-6. Motor

a. Cleaning.

(1) Remove dust and dirt from the motor with compressed air.

(2) Use a rag which has been dampened in cleaning solvent, P–D–680, to wipe off the motor.

b. Inspection.

(1) Inspect the shaft for movement (end play).

(2) Notify organizational maintenance of a defective motor or shaft.

3-7. V-Belts

a. Inspection.

(1) Make a visual inspection of the belts to determine their conditions.

(2) If the belts are bad, notify organizational maintenance.

b. Cleaning.

WARNING

Dry cleaning solvent, P–D-680, used to clean parts is potentially dangerous to personnel and property. Avoid repeated and prolonged skin contact. Do not use near open flame or excessive heat. Flash point of solvent is 100° F. — 138° F (38° C. — 59° C.).

(1) Use a cloth dampened in cleaning solvent, P–D-680, to remove oil and dust from the belts.

(2) If the belts have become saturated with oil and dirt, notify organizational maintenance.

3-8. Air Compressor

a. General. The compressor unit must be kept

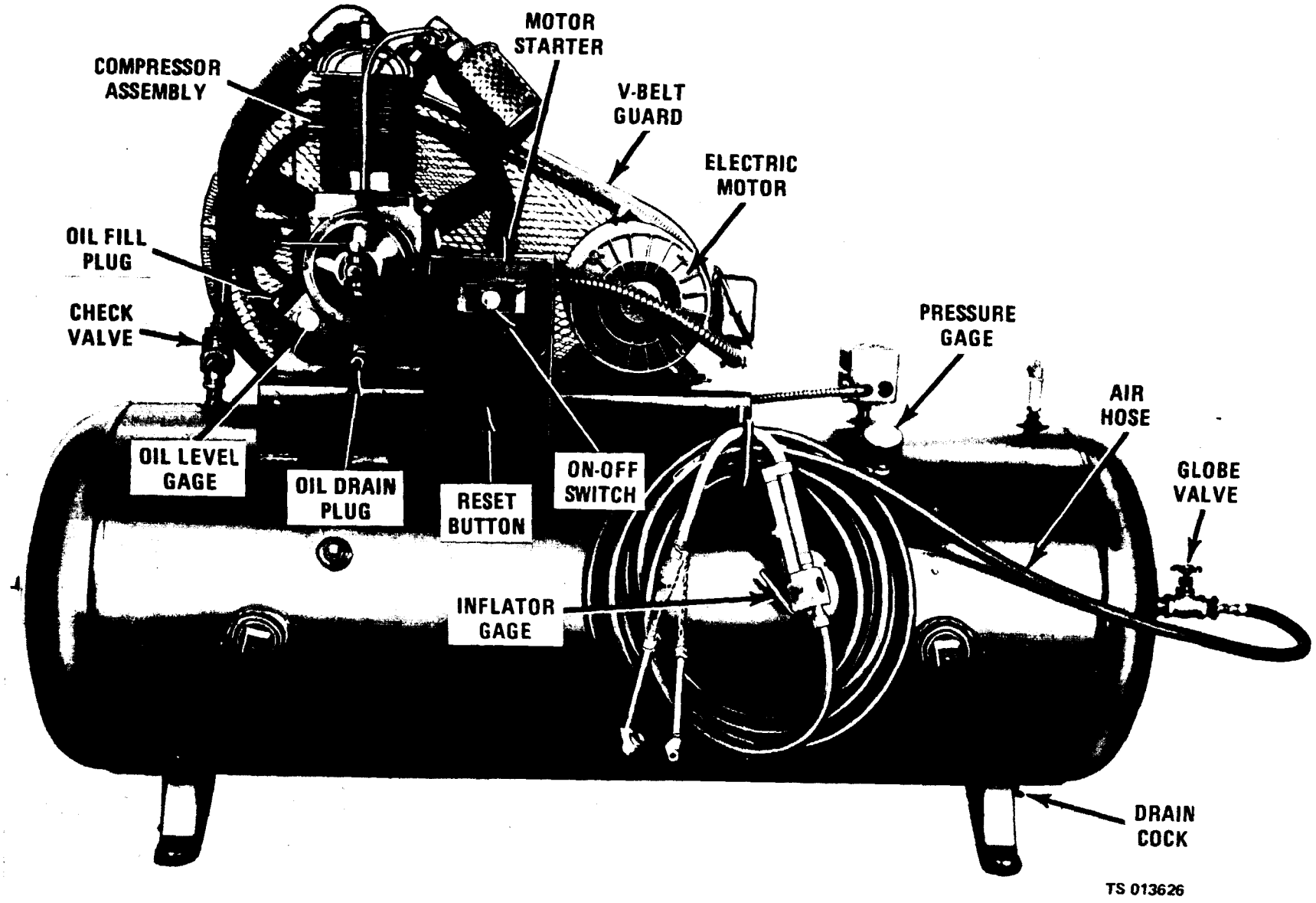
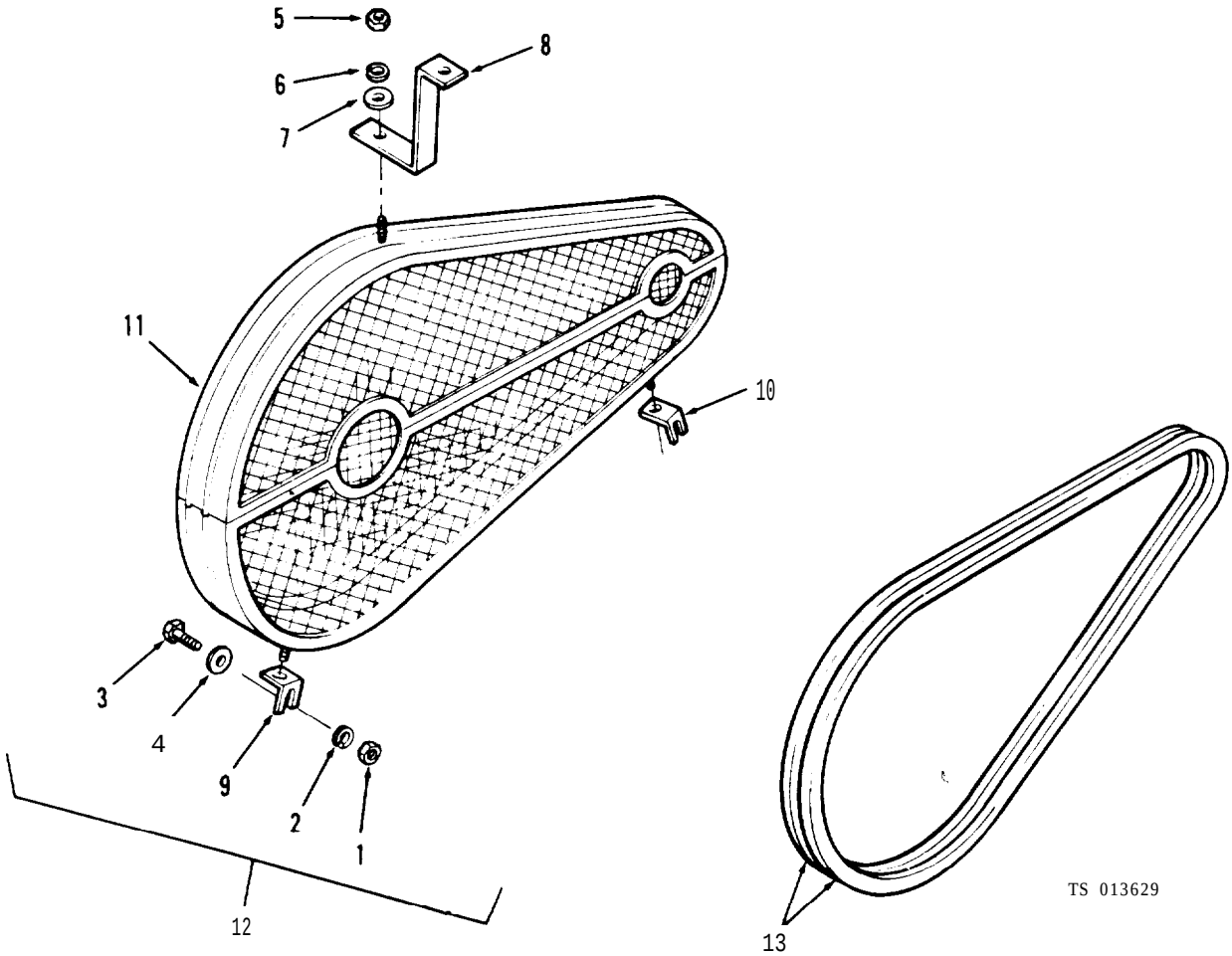


Figure 3–4. Air compressor, right side view.



1. Nut, hex (2)
2. Lockwasher
3. Capscrew (2)
4. Washer, flat (2)
5. Nut, hex (3)
6. Lockwasher (3)
7. Washer, flat (3)
8. Bracket
9. Bracket
10. Bracket
11 Guard, belt
12. Belt guard assembly
13. V-belts

Figure 3-5. Belt guard assembly.

clean and lubricated at all times. If the compressor is allowed to become dirty it will run hot. Excessive heat will consume the compressor oil. LOw oil causes the rings to wear, or cylinder scoring. Therefore, frequent inspections are necessary.

Inspection

(1) Visually inspect for excess accumulation of dirt and oil.

(2) Check safety relief valve signs of leaking.

(3) Listen for cxcessive start-stop cycling.

(4) Listen carefully for a knock or rattle that might indicate internal damage.

(5) If any of the troubles listed in paragraphs 3, 4, and ,5 are found, notify organizational maintenance,

3-9. Air Intake Muffler

a. General. The air intake muffler is designed to clean the air entering the first stage cylinder. Should the operating area be exceptionally dusty, the muffler must be serviced more frequent] }-. A clogged intake muffler reduces the efficiency of the compressor.

b). Cleaning and Inspection.

WARNING

Dry cleaning solvent, P–D-680, used to clean parts is potentially dangerous to personnel and properly. Avoid repeated and prolonged skin contact. Do **not use near open flame or exressive heat. Flash point of solvent is 100° F. — 138° F (38° C — 59° C).**

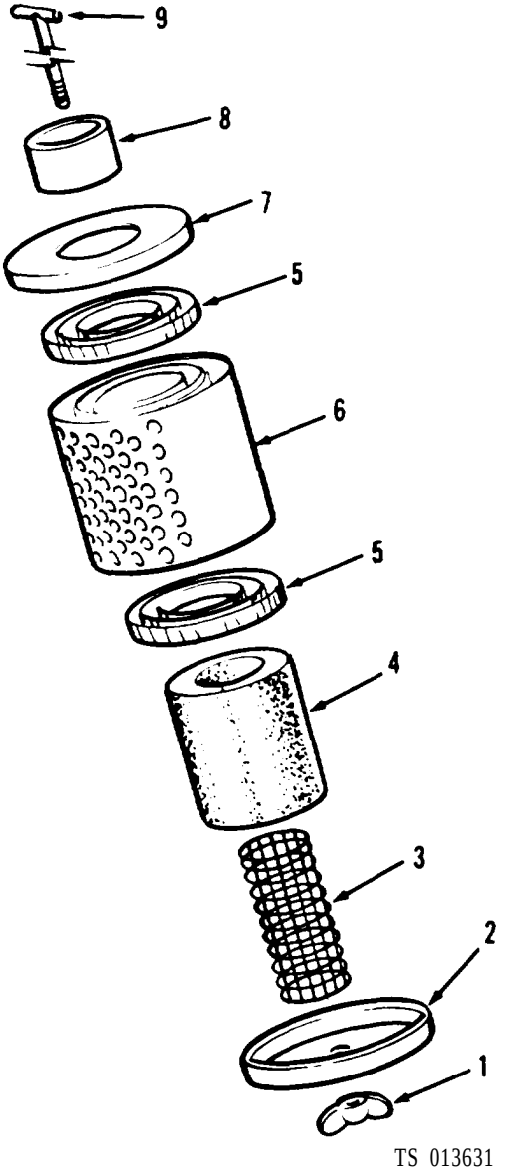
(1) Use a rag which has been dampened in cleaning solvent, P–D–680, to wipe off the filter muffler.

(2) Inspect the filter muffler for damage or missing parts. If damage or missing parts are found, notify organizational maintenance.

(3) Service the filter muffler (Model HR5-8M-3) as follows:

(a) Remove wingnut (1, fig. 3-6).

(b) Remove cover lower (2).



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1. Nut, wing
2. Cover, lower
3. Screen
4. Element
5. Separator
6. Plate
7. Cover, upper
8. Ferrule
9. T-stud

***Figure* 3-6. Air *intake muffler (Model* HR5-8M-3).**

(c) Remove plate (6).

(d) Remove element (4).

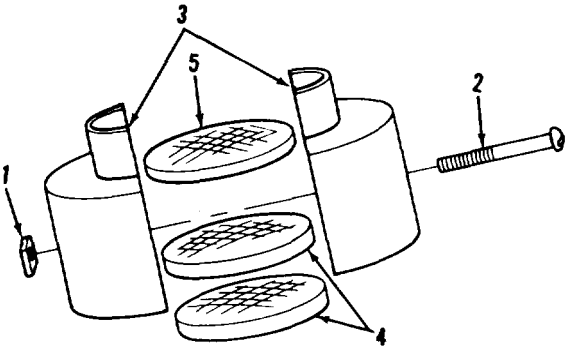
(e) Remove screen (3).

(4) Reassemble the air filter muffler as follows :

(a) Install the screen (3, fig. 3-6).

(b) Install the plate on the T-stud (9).

(c) Install cover lower (2) on the T-stud and secure with wingnut (1).



1. Nut, square
2. Screw, Mach.
3. Intake, air
4. Element (2)
5. Element

Figure 3-6.1 Air intake muffler (Model HR5.8M-4).

(5) Service the filter muffler (Model HR5-8M-4) as follows:

(a) Remove square nut (1, fig. 3-6.1).

(b) Remove machine screws (2) and separate air intake halves (3).

(c) Remove filter elements (4 and 5).

(6) Reassemble the air filter muffler as follows:

(a) Install elements (4 and 5, fig. 3-6.1) in air intake halves (3), and fit halves together.

(b) Install machine screw (2) and secure with square nut (1).

3-10. Air Receiver

a. General. The air receiver stores compressed air at a pressure between 140 and 175 psi, (9.84 and 12.30 kgs per sq cm). Compressed air, moving from first stage to second stage of the compressor through the intercooler tube, then through the aftercooler tube to the air receiver tank, carries moisture (condensate) into the receiver. frequent inspection and service is necessary.

b. Inspection.

(1) Inspect the receiver for excessive accumulation of dust, and leaking or spilled oil.

(2) Check air lines and the service line for leaks. Tighten loose connections.

c. Cleaning.

(1) Use compressed air to blow dust off the receiver.

WARNING

Dry cleaning solvent P-D-680, aused to clean parts is potentially dangerous to personnel and property. Avoid repeated and prolonged skin eontact. Do not use near open flame or excessive heat Flash point of solvent is 100° F. — 138° F (38° C. — 59° C.).

(2) Use a rag which has been dampened with cleaning solvent, P–D-680, to remove all oil spots, then dry thoroughly, to avoid further accumulation.

d. Draining Condensate from Receiver.

(1) Turn ON-OFF Switch to OFF.

(2) Open draincock at bottom of the air receiver tank (fig. 1–1) under the service line.

(3) When the air has escaped, leave draincock open for a few minutes to allow more of condensate to escape.

(4) Close draincock.

(5) Be sure that all rags, tools, etc. have been removed from the air receiver, then move the ON-OFF switch to ON.

CHAPTER 4

ORGANIZATIONAL MAINTENANCE INSTRUCTIONS

Section I. SERVICE UPON RECEIPT OF MATERIEL

4-1. Unloading The Air Compressor

a. Remove tie-downs and blocking that secure the crate to carrier. Refer to figure 4–1.

b. A forklift truck, pipe rollers, or a suitable hoist must be used when removing the air compressor from the carrier. When using a hoist, center the lifting hook above the center of the crate; place slings about ten inches in from both ends of the crate, and lift the unit from the carrier.

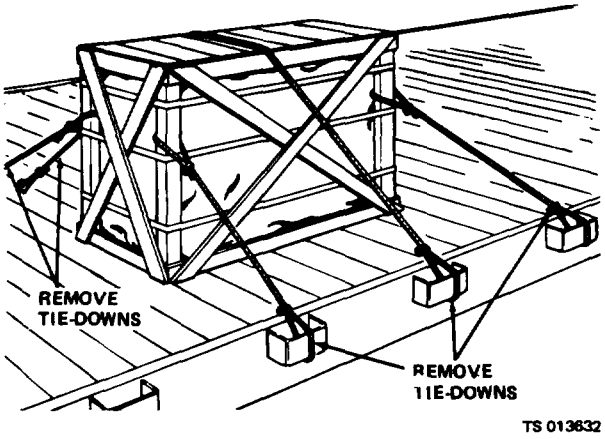


Figure 4-1. Shipping tie-downs.

4-2. Unpacking The Air Compressor

a. Place the crated air compressor as close to the point of installation as possible. Remove the crate from the base being careful not to damage the air compressor while removing the crate. Remove the air hose, electric cable, tire gage, and publications. Remove the compressor from the base.

b. Remove the tape and protective covering from electric motor, compressor, and air receiver tank.

4-3. Inspection and Servicing Equipment

a. Make a thorough inspection of the air compressor for any loss or damage that may have occurred during shipping or handling.

b. Inspect for dents, breaks, loose mounting bolts or other defects. Inspect for loose connections, damaged wiring or other defects.

c. Turn over the electric motor and compressor several times to be sure the motor and compressor do not bind. Prepare a written report of all damage incurred as a result of shipping or vandalism. Report any unrepairable damage immediately to the proper authority.

4-4. Installation of Separately Packed Components

Connect air hose (fig. 4–2) to globe valve assembly and connect inflator gage assembly to air hose.

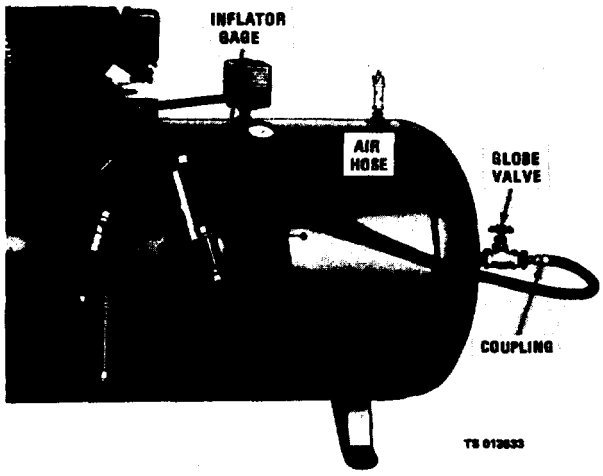


Figure 4-2. Air hose assembly, removal points.

4-5. Installation or Set-up Instructions

a. Location and Leveling. Locate the air compressor as near to the electrical power source as possible. Avoid muddy, sandy or dusty locations if possible. If it is necessary to use the unit on soft ground, provide a suitable, level foundation of planking.

b. Grounding. The air compressor must be grounded prior to operation. The ground lead

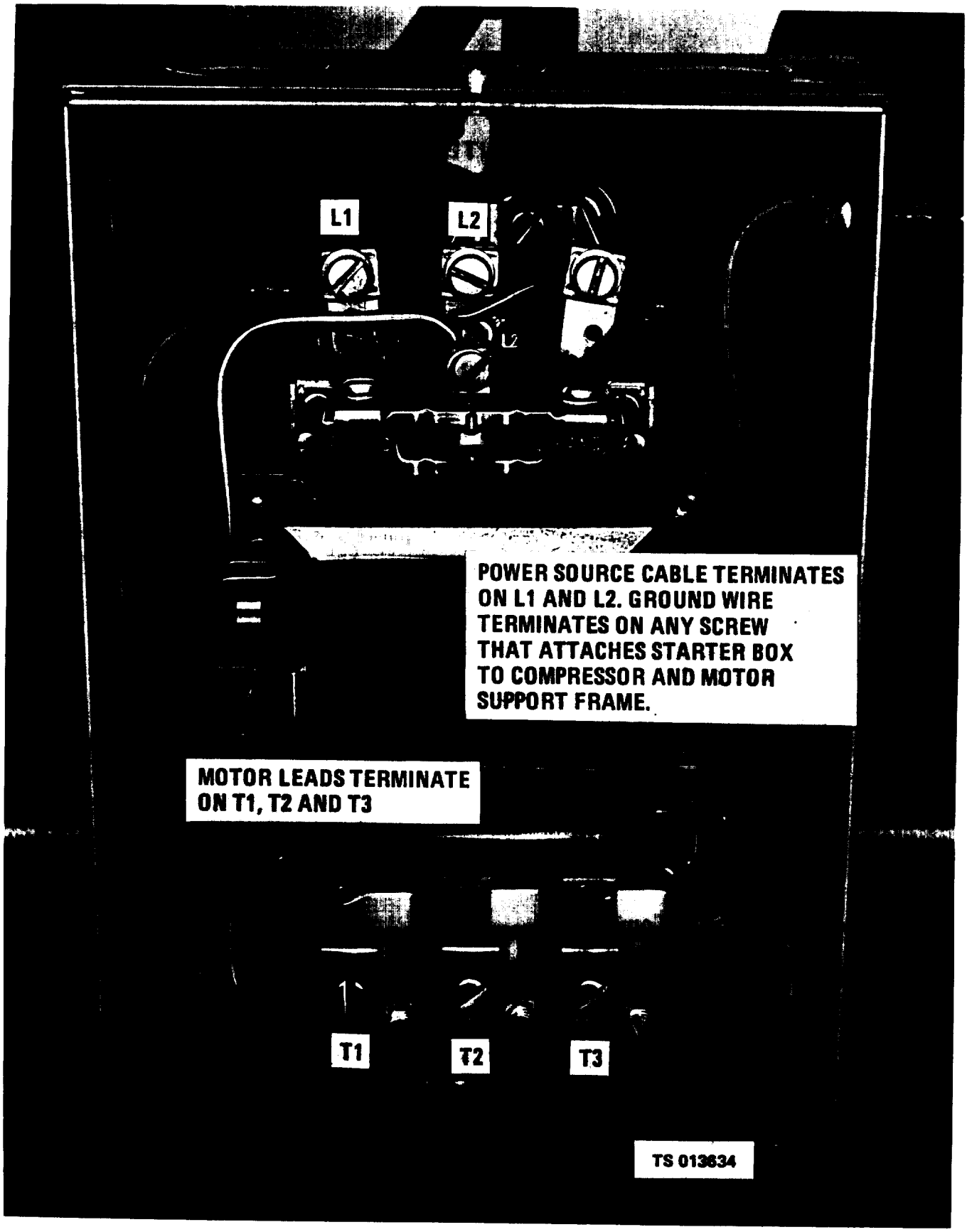


Figure 4–3. Magnetic starter (shown with cover removed).

may be connected to an under-ground water system if the water system is constructed of metallic pipe. A ground may be fabricated from a metallic rod driven not less than 4 feet into the ground. The ground lead must be securely bolted or clamped to the water pipe or ground rod, and the feet or motor platform of the air receiver tank of the air compressor.

c. *Connecting the Incoming Power Source.*

(1) Remove the cover from the magnetic starter (fig. 4–3).

(2) Remove knockout plug from the starter box and insert the incoming power source wires through the opening.

WARNING

Be sure the incoming power lines are connected to disconnect switch that is locked in the OFF position before handling the wires.

(3) Insert the bare ends of the incoming power source wires in the L-1 power line connector and L-2 power line connector and tighten the terminal screws.

(4) Install cover on the magnetic starter.

Section II. REPAIR PARTS, SPECIAL TOOLS, AND EQUIPMENT

4-6. Special Tools and Equipment

There are no special tools or equipment required to perform maintenance on the air compressor.

4-7. Maintenance Repair Parts

Repair parts and equipment are listed and illustrated in TM 5–4310–350–24P, Organizational, Direct Support and General Support Maintenance Repair Parts and Special Tools Lists.

Section III. LUBRICATION INSTRUCTIONS

Refer to Paragraph 3–2 for lubrication instruction for this air compressor.

Section IV. PREVENTIVE MAINTENANCE CHECKS AND SERVICES

Because all required inspections must be made daily, or more frequently, organizational maintenance personnel will refer to table 4–1, for procedures to be followed during their periodic inspection.

Table 4–1. Organizational Preventive Maintenance Checks and Services

Q—Quarterly
Total man-hours required: 0.7

Sequence number	ITEM TO BE INSPECTEI) PROCEDURE	Work TIME (M/H)
	NOTE Use Tables 3–1 and 3–2 for preventive maintenance checks and services, then return to this Table for expansion of checks and services	
1	COMPRESSOR FRAME OIL Refer to LO 5-4310-350-12 for type, then drain and change oil.	0.8
2	CAPSCREWS, SCREWS, AND BOLTS Check that all capscrews, screws, and bolts are tight.	0.2

Section V. TROUBLESHOOTING

4-8 Scope

a. This section contains troubleshooting or malfunction information and tests for locating and correcting most of the troubles which may develop in the air compressor. Each malfunction or trouble symptom for an individual component, unit, or system is followed by a list of tests or inspections necessary for you to determine probable causes and suggested corrective actions for you to remedy the malfunction.

b. This manual cannot list all possible malfunctions that may occur or all tests or inspections, and corrective actions. If a malfunction is not listed or is not corrected by listed corrective actions, you should notify higher level maintenance

c. *Table 4–2.* List the common malfunctions that you may find during the operation or maintenance of the air compressor or its components. You should perform the test, inspections and corrective actions in the order listed.

NOTE

If you have a malfunction which is not listed in this table, notify the next higher level of maintenance.

Table 4-2. Troubleshooting

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION
NOTE Before you use this table be sure you have performed all operating checks.
1. COMPRESSOR PUMPING OIL
Step 1. Check for a leaking release valve. Refer to paragraph 4-14 and replace a leaking release valve.
Step 2. Check for a hot cylinder head. If one seems hotter than the other, there could be damage to the rings. Notify direct support maintenance.
2. KNOCKS OR R.ATTLES
Step 1. Check for loose belt wheel or pulley. Refer to figure 4-4 and replace the electric motor if the pulley is bad.
Step .2. Check for leaking release vaIve. Refer to paragraph 4-14 and replace a leaking release valve.
3. AIR DELIVERY DROPPING
Step 1. Check for air leaks in piping. *a.* Make a solution of soapy water. *b.* Apply to the fittings, if a leak is present it will be indicated by the soapy water bubbling. Refer to paragraph 4-16 and replace fittings if tightening does not stop the bubbles.
Step 2. Check for a leaking release valve. Refer to paragraph 4-14 and replace a leaking release valve.
Step 3. Check for restricted air passages, leaking or broken valves. Notify Direct Support Maintenance.
4. MOTOR OVERLOAD RELAY TRIPS
Step 1. Check line voltage or motor terminals for loose connections, Tighten loose connections.
Step 2, Check for defective starter heaters. If a defective starter heater is found, notify Direct Support Maintenance.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

5. EXCESSIVE STARTING OR STOPPING

Step 1. Check receiver for condensate,
Refer to paragraph 3-10 and drain the condensate.

Step 2. Check for air leaks in piping, or the receiver check valve leaking.
Repeat Step 1 in paragraph 3 above.

Step 3. Check for leaking, broken, or *worn* pressure switch (fig. 1-2).
Notify Direct Support Maintenance.

6. COMPRESSOR RUNNING HOT

Step 1. Check that air passage is not blocked at fan wheel.
Remove any foreign objects that may be blocking ventilation.

Step 2. Check for a leaking check valve.
Refer to paragraph 4-16 and replace a defective cheek valve.

7. COMPRESSOR RUNNING SLOW

Step 1. Check for low line voltage, or a defective motor starter heater.
Tighten loose connections. If the compressor still runs slowly, notify Direct Support Maintenance.

Step 2. Check for a leaking release valve.
Refer to paragraph 4-14 and replace a leaking release valve.

Section VI. MAINTENANCE OF THE ELECTRIC MOTOR AND COMPRESSOR

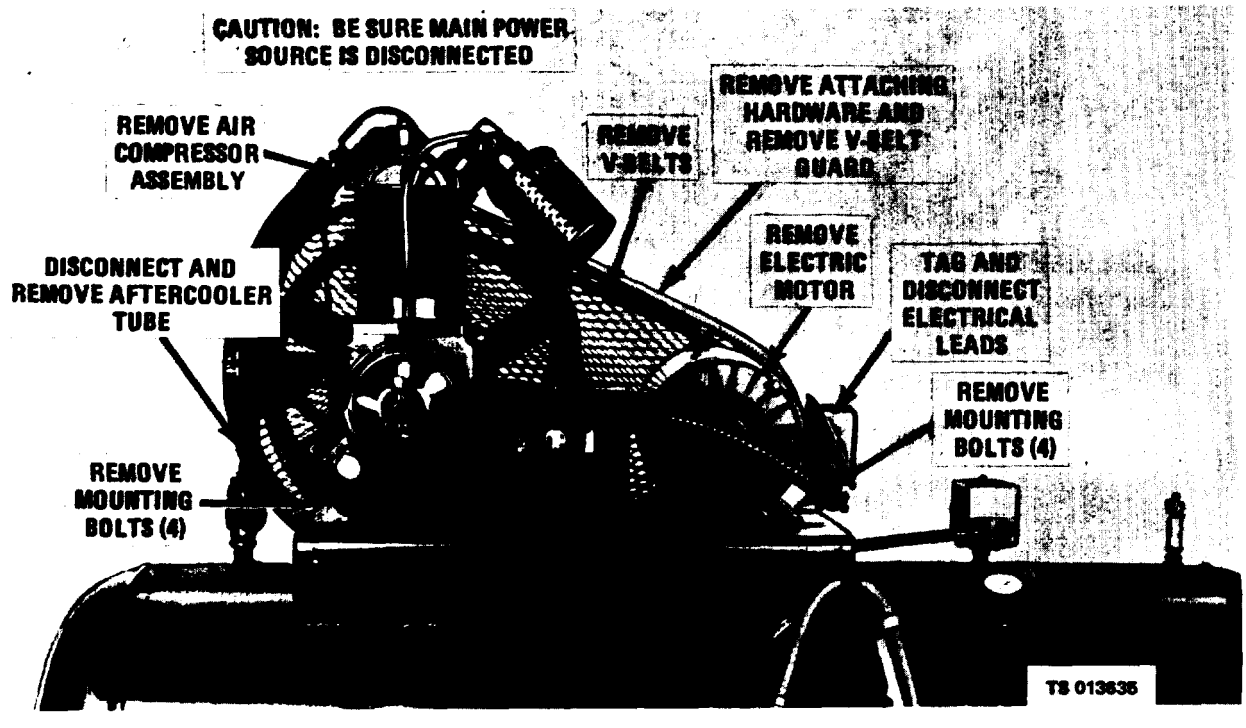


Figure 4-4. Electric motor and compressor assembly, removal and installation.

4-10. General

The electric motor can be removed from the air receiver tank as a unit after removal of the V-belt guard, belts, conduit, and mounting brackets. The air compressor assembly can be removed as a unit after the V-belt guard, belts and aftercooler tube are removed.

4-11. Electric Motor

a. Remoual. Remove the electric motor as instructed on figure 4–4.

b. Installation. Install the electric motor as instructed on figure 4–4.

4-12. Compressor Assembly

a. Removal. Remove the compressor assembly as instructed in figure 4–4.

b. Installation. Install the compressor assembly as instructed in figure 4–4.

4-13. V-Belts

a. Removal.

(1) Remove V-belt drive guard, figure 4–5.

(2) Remove the V-belts as instructed on figure 4–5.

b. Installation.

(1) Install V-belts as instructed on figure 4–5, and adjust tension as described (c, para 3–7).

(2) Install V-belt drive guard.

4-14. Release Valve Assembly Replacement

a. Removal and Disassembly. Refer to figure 4–6 and remove and disassemble release valve assembly as shown.

b. Cleaning, Inspection and Repair.

(1) Clean all parts and wipe dry with a lint free cloth.

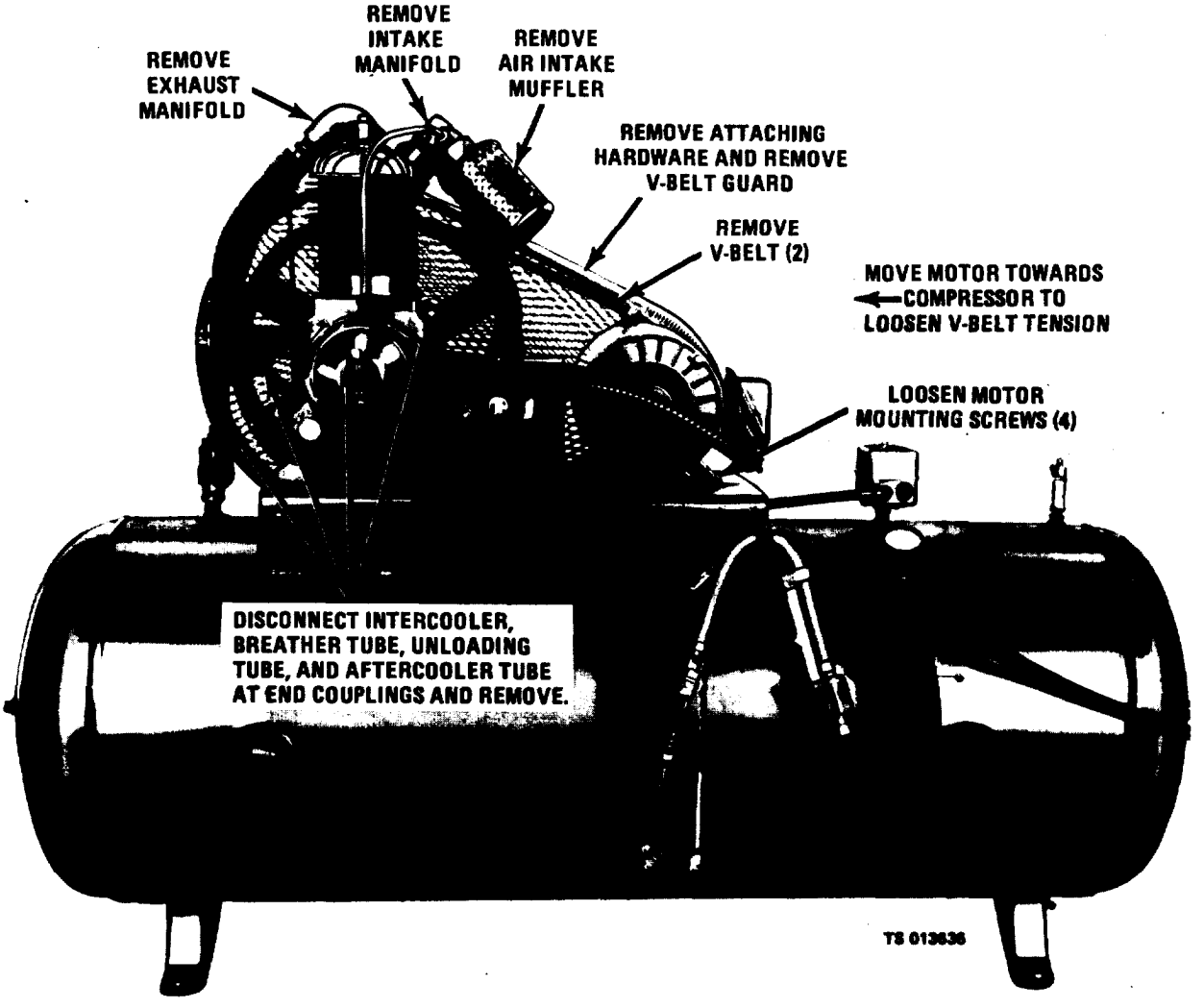


Figure 4-5. Compressor components and v-belt drive.

(2) Check the spring (2) for disfiguration, or loss of tension. Replace a defective spring.

(3) Check ball (3), body (4), plunger sleeve (6) and plunger (7) for excessive wear, burred threads and general condition. Replace damaged or defective parts as necessary.

(4) Replace deteriorated gaskets.

c. Reassembly and Installation.

(1) Refer to figure 4-6 and reverse the disassembly and removal procedures.

4-15. Air Intake Muffler

a. Removal. Refer to figure 4–5 and remove air intake muffler as shown.

b. Cleaning. Refer to paragraph 3–9.

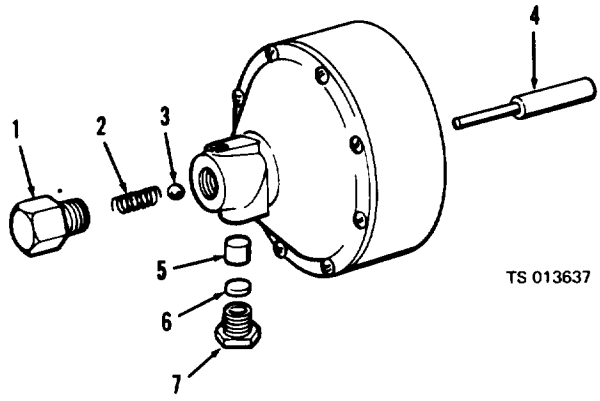
c. *Installation.* Reverse removal procedure shown in figure 4–5.

4-16. Air Receiver Repair

a. Refer to figure 4–7 and remove the defective components in numerical sequence,

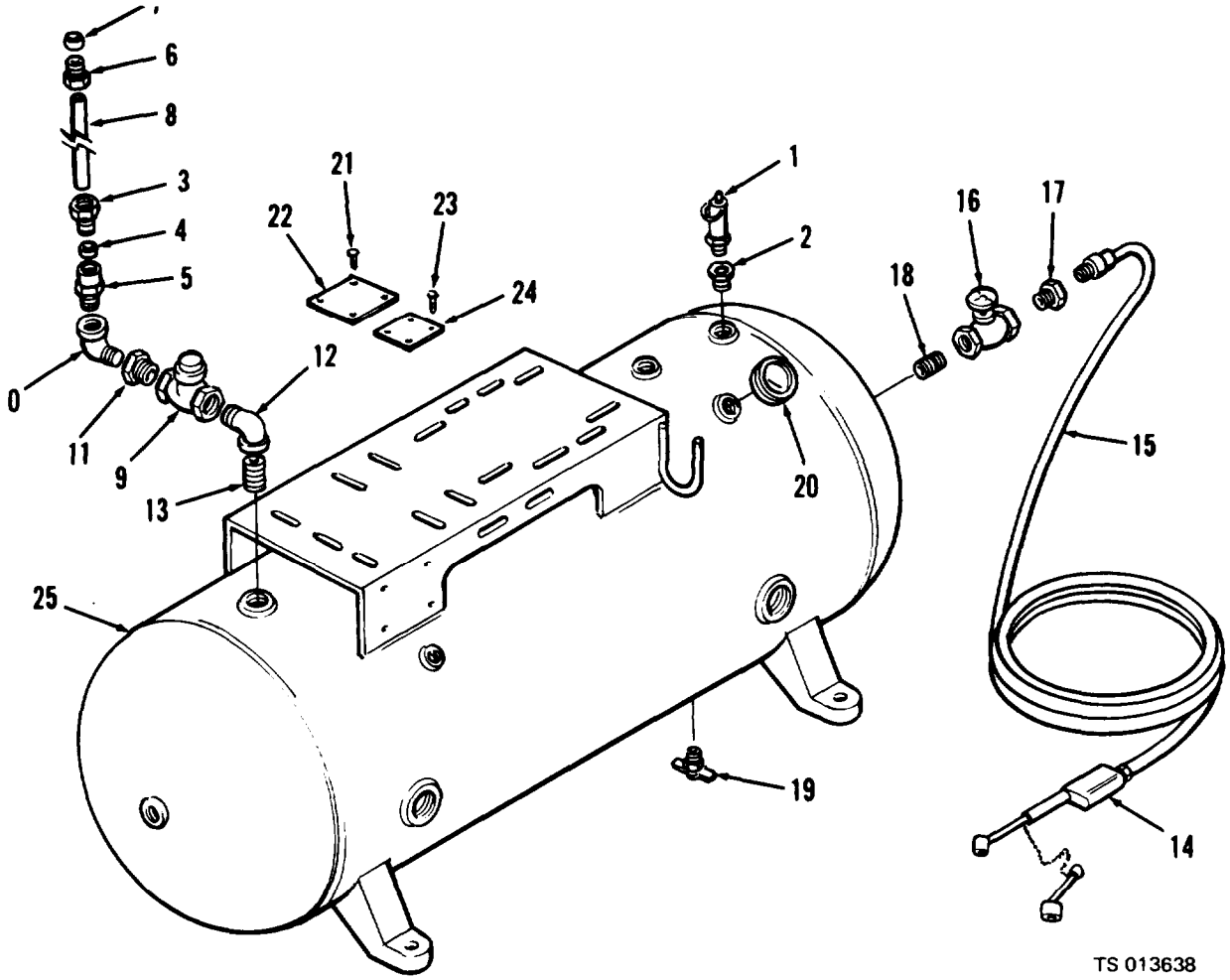
b. The check valve (9) can be disassembled for cleaning, refer to figure 4–8.

c. Replace defective or damaged components in reverse order of their removal.



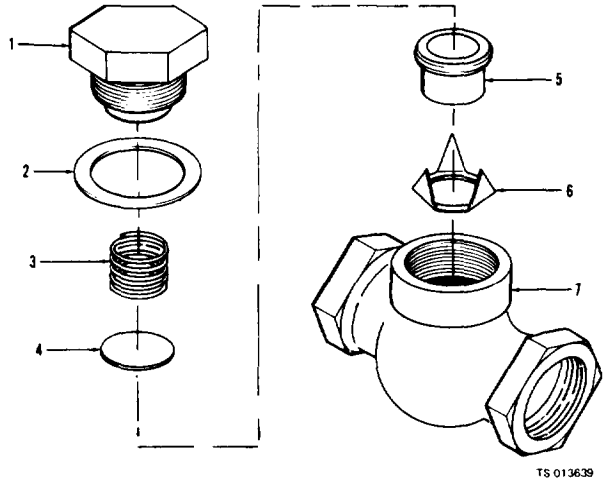
1. Cap, release valve
2. Spring, release
3. Ball, release valve
4. Plunger, release valve
5. Body, unloader
6. Screen
7. Felt

Figure 4–6. Compressor release valve assembly, removal and installation.



Valve, safety	8. Tube, aftercooler	14. Gage, inflator	20. Gage, pressure
Bushing, pipe	9. Valve, check	15. Air hose assembly	21. Screw, drive
Nut compression fitting	10. Elbow, street	16. Valve, globe	22. Plate, instruction
Ferrule, compression fitting	11. Bushing, pipe	17. Bushing, pipe	23. Screw, drive
Body, compression fitting	12. Elbow, street	18. Nipple, pipe	24. Plate, identification
Nut, compression fitting	13. Nipple, pipe	19. Cock, drain	25. Air receiver
Ferrule, compression fitting			

Figure 4-7. Air receiver repair.



1. Cap 2. Gasket 3. Spring 4. Disc 5. Seat 6. Guide 7. Body

Figure 4-8. Check valve exploded view.

CHAPTER 5

DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE INSTRUCTIONS

Section I. REPAIR PARTS SPECIAL TOOLS AND EQUIPMENT

5-1. Special Tools and Equipment

There are no special tools, or equipment, required for maintenance of the air compressor assembly.

5-2. Maintenance Repair Parts

Repair parts and equipment covering direct and general support maintenance of the air compresser assembly are listed and illustrated in TM 5-4310-350-24P.

Section II. TROUBLESHOOTING

5-3. Scope

a. This section contains troubleshooting or malfunction information and tests for locating and correcting most of the troubles which may develop in the air compressor. Each malfunction or trouble symptom for an individual component, unit, or system is followed by a list of tests or inspections necessary for you to determine probable causes and suggested corrective actions for you to remedy the malfunction.

b. This manual cannot list all possible malfunctions that may occur or all tests or inspections, and corrective actions. If a malfunction is not listed or is not corrected by listed corrective actions. you should notify higher level maintenance.

c. Table 5–1. List the common malfunctions that you may find during the operation or maintenance of the air compressor or its components. You should perform the test, inspections and corrective actions in the order listed.

Table 5–1. Troubleshooting

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION
NOTE Before you use this table, be sure you have performed all applicable operating checks.
1. ELECTRIC MOTOR FAILS TO START OR FAILS TO RUN
Step 1. Check motor leads for proper connection in magnetic starter box. If motor leads are connected properly, proceed to Step 2. If leads are not connected properly, repair as follows: a. Disconnect main power source. *b.* Remove screw from bottom of magnetic starter box cover and remove the cover. c. Look on the name plate on the motor to check the correct way the leads should be connected into the magnetic starter box. *d.* Use figure 5-1 as a guide and connect the terminal lead from the motor marked T1 to the screw marked T1 in the magnetic starter box. Follow the same procedure with terminals T2 and T3. *e.* Replace the magnetic starter box cover and replace the cover screw. *f.* Reconnect the main power source.

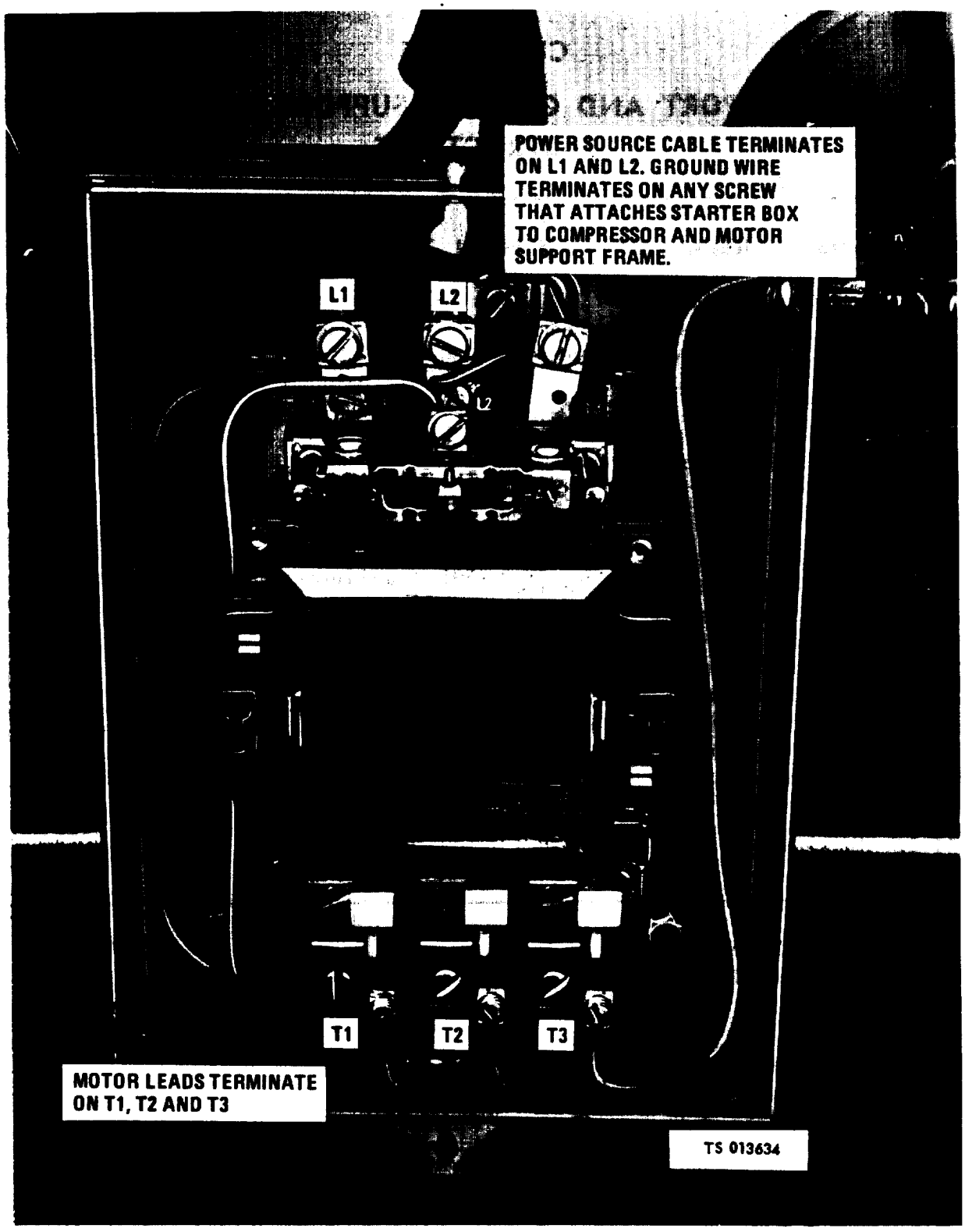


Figure 5-1. Magnetic starter (shown with cover removed).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

disassemble the magnetic starter assembly as follows:

(1) Remove connector (6) and (11) and o-ring and washer assembly (20) from the magnetic switch box.

(2) Remove nut (1) lockwasher, (2) flatwasher (3) and capscrew (4) and remove the controlbox.

(3) Remove contact cap (12), contact kit (13) contact carrier (14), operating coil (15), coil heater (16) overload relay (17), and interlock assembly (18).

(4) Replace any defective part.

(5) Replace interlocking assembly (18) overload relay (17) coil heater (16) operating coil (15) contact carrier (14) contact kit (13) and contact cap.

(6) Replace the magnetic control box with capscrew (4) flatwasher (3) lockwasher (2) and nut (1).

Step 2. Check magnetic starter switch to see if it is defective. Use compressed air and remove all dust or dirt from magnetic starter components, check continuity of heater coil, operating coil, relay overload, contact carrier and interlock assembly. Check on-off switch continuity and stem action. If the magnetic starter switch and on-off switch checks out, proceed to Step 3. If not replace the magnetic switch as follows:

a. Disconnect main power source.
b. Remove screw from bottom of magnetic starter box cover and remove the cover.
c. Tag and disconnect all wiring.
d. Use figure 5-2 as a guide.

(7) Replace connector (11) and (6) and o-ring and washer assembly (20) to the magnetic control box.

e. Reconnect all wiring.
f. Replace magnetic starter box cover and install capscrew.
g. Connect main power source.

Step 3. Check for a defective motor. Connect leads from the motor direct to the power source. If motor fails to run remove, repair or replace.

a. Disconnect main power source.
b. Remove attaching hardware and remove v-belt guard.
c. Loosen motor mounting bolts, slide motor towards compressor and remove v-belts.
d. Tag and disconnect electric leads.
e. Remove mounting bolts and remove the electric motor and disassemble using figure 5–3 as a guide.

(1) Remove setscrew (5) pulley (6) and key (7).

(2) Remove four bolt, (10) shaft end, end shield (13) opposite shaft end, end shield (11) shaft end bearing (14) opposite shaft end bearing (12) spacer bearing (15) fan (16) rotor (17) stator with frame (18) and base (19).

WARNING

Dry cleaning solvent, P-D-680, used to clean parts is potentially dangerous to personnel and property. Do not use near open flame or excessive heat. Flash point of solvent is 100° F. — 138° F.

(3) Clean all parts except rotor, bearings and stator in dry cleaning solvent P-D-680 and wipe dry with a lint free cloth.

(4) Use compressed air to clean dust and dirt off rotor, hearings, and stator, then wipe with a cloth dampened in dry cleaning solvent P-D-680.

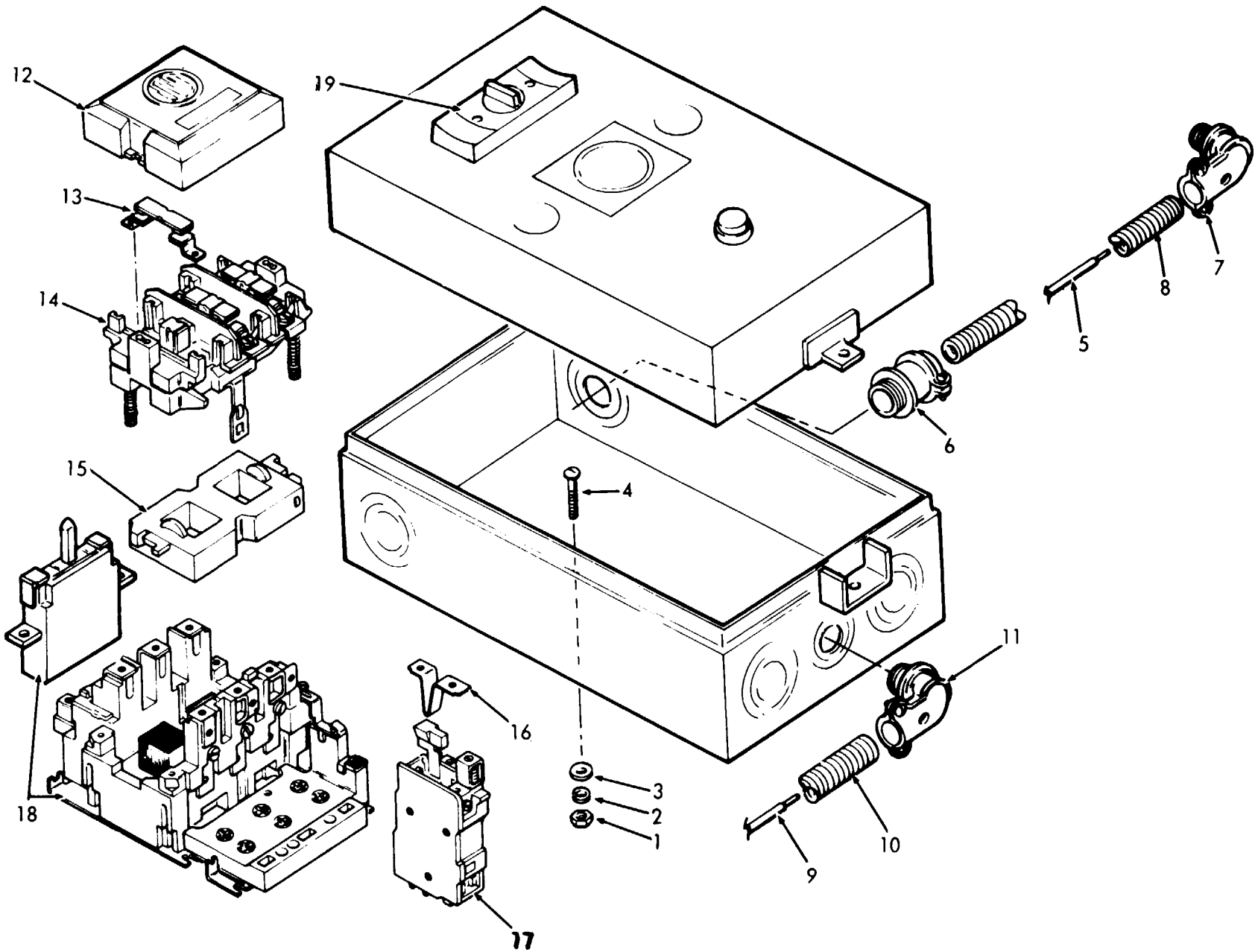
(5) Inspect bearings and rotor shaft for excessive wear, and rough or scored surfaces. Use a file or emery cloth to smooth rough or scored surfaces. Replace defective bearings or a defective rotor shaft. If the motor is beyond repair, replace the motor.

(6) Replace stator with frame (18) on base (19) rotor (17) fan (16) spacer hearing (15) opposite shaft end bearing (12) shaft end bearing (14) opposite shaft end, end shield (11) shaft end, end shield (1) and four bolts (10).

(7) Replace key (7) in shaft, pulley (6) on shaft, and replace the setscrew (5).

f. Mount electric motor on compressor and replace mounting bolts.
g. Connect electrical leads.
h. Replace V-belts and slide motor away from compressor to tighten v-belts to proper tension.

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION	
	Tighten motor moumting bolts. *i.* Replace V-belt guard and replace l ttaching hardware. *j.* Reconnect main power source.



TS 013645

Figure 5-2. Magnetic starter assembly, exploded view (Model HR5-8M-3).

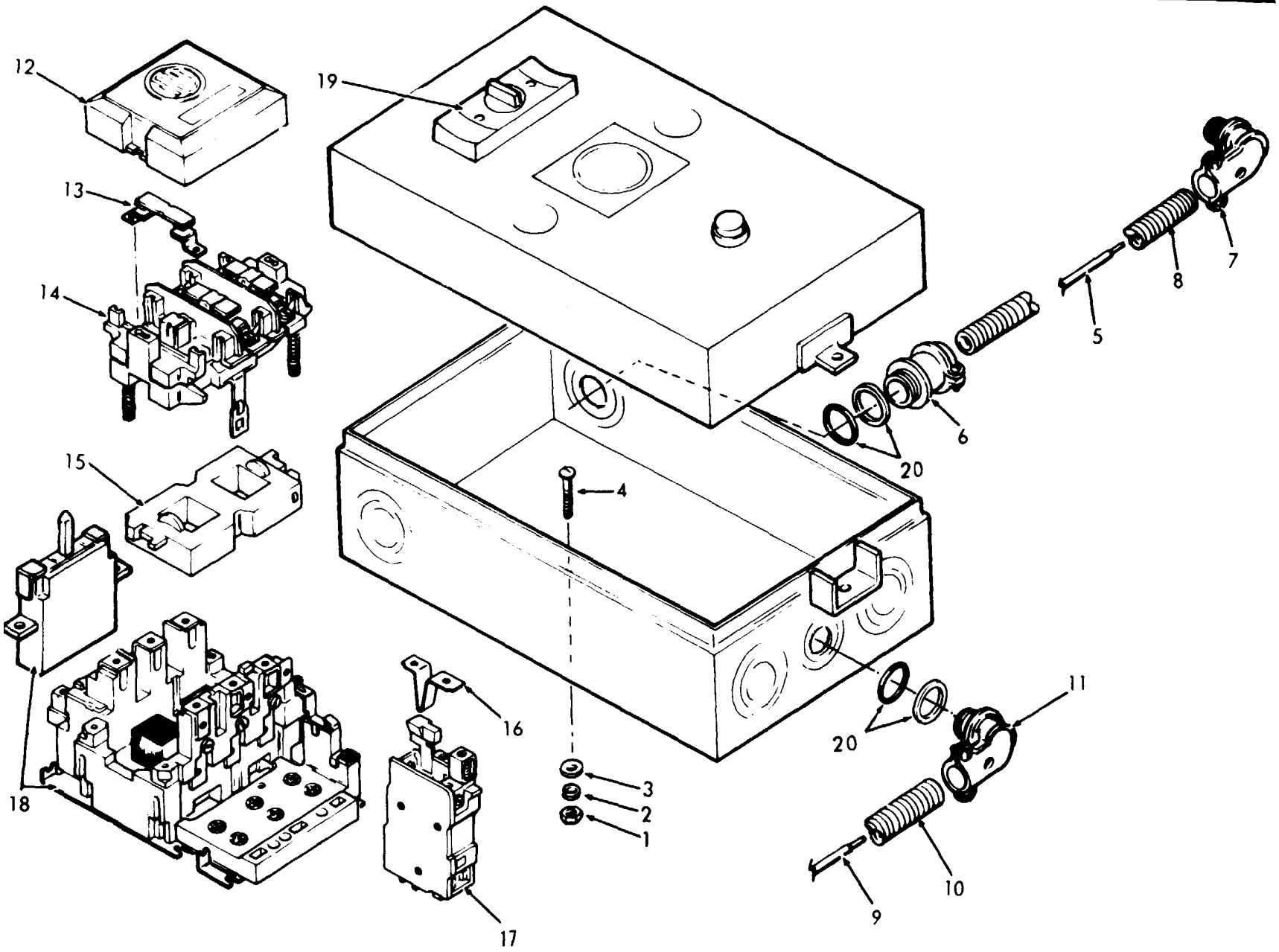


Figure 5-2.1. Magnetic starter assembly, exploded view (Model HR5-8M-4).

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

d. Use compressed air and remove all dust and dirt from pressure switch components then wipe with a cloth dampened in an approved cleaning solvent

e. Using figure 5-5 as a guide disassemble the pressure switch assembly.

f. Remove the cover (1) pressure adusting screw (4) differential adjusting screw and nut (5) top bar (6) spring equalizer (8) main spring (9) conical spring (3) contact board assembly (7) toggle spring (10) toggle (11) lever (12) plate diaphragm (13) diaphragm (2) frame assembly (14) and inclosures (15).

g. Inspect the contact board contacts (7) for pitting or burning. Use sand paper to remove pitting or barring.

h. Inspect diaphragm (2) for cracks or breaks and general condition.

i. Inspect all threaded parts for damaged or defective threads.

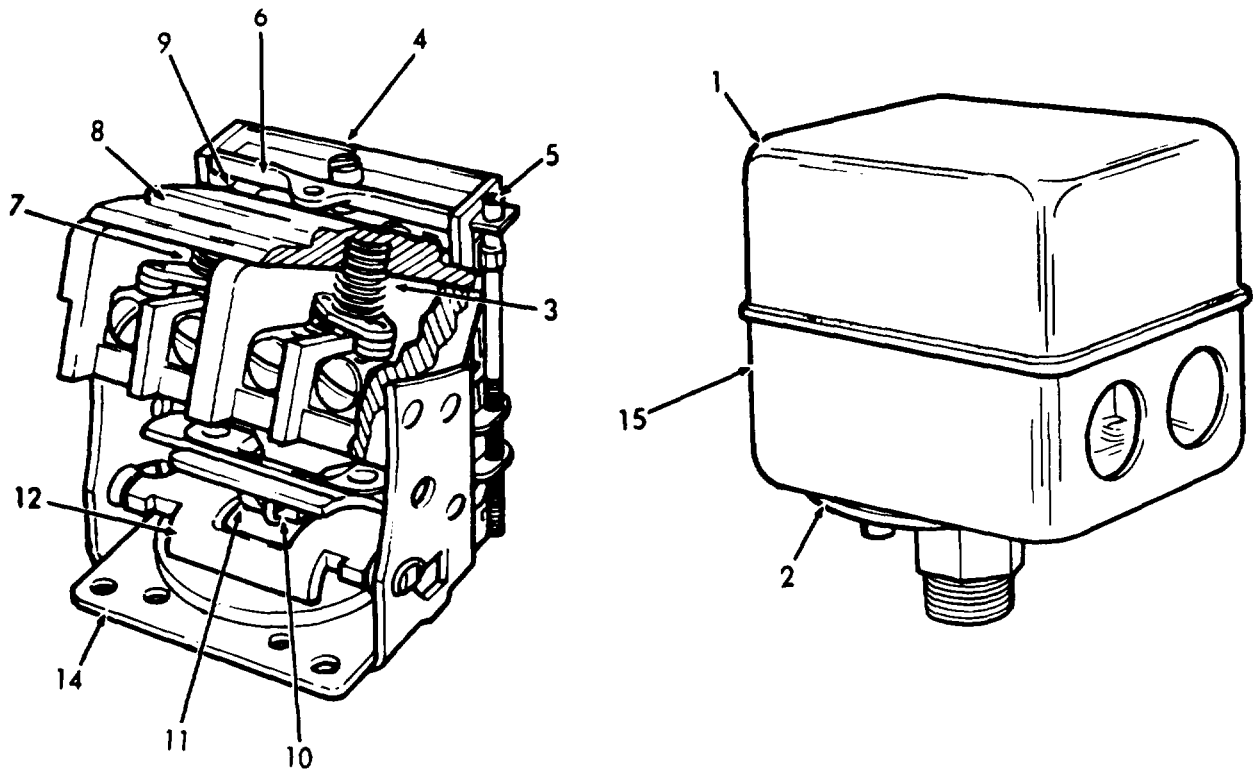
j. Replace damaged or defective parts as necessarv.

k. Reassemble the pressure switch starting with the enclosure (15) then frame assembly (14) diaphragm (2) plate diaphragm (13) lever (12) toggle (11) toggle spring (10) contact board assembly (7) conical spring (3) main spring (9) spring equalizer (8) top bar (6) differential adjusting screw and nut (5) pressure adjusting screw (4) and cover.

l. Install pressure switch assembly on air receiver.

m. Connect all electrical wiring.

n. Turn on outside power source.



TS 013647

Figure 5-5. **Pressure *switeh* assembly,**

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

6. COMPRESSOR PUMPS TOO SLOWLY

Step 1. Check intake muffler to see if it is clogged.

a. Wipe off the outside of the muffler body.

b. Using figure 5-6 as a guide, disassemble the intake muffler (HR5-8M-3) as follows:

(1) Remove wing nut (1) lower cover (2) screen (3) element (4) separator (5) plate (6) upper cover (7) ferrule (8) and T-stud (9).

WARNING

Dry cleaning solvent P–D–680, used to clean parts is potentially dangerous to personnel and property. Do not use near open flame or excessive heat. Flash point of solvent is 100° F. — 138° F.

(2) Wash all parts of the muffler and wipe dry. Wash element and blow dry with low compressed air.

(3) Inspect element for excessive wear or loss of capacity to retain dust and dirt. Replace a defective element.

c. Reassemble the intake muffler (HR5-8M-3) as follows:

(1) Install the T-stud (9) ferrule (8) upper cover (7) plate (6) separator (5) element (4) screen (3) lower cover (2) and wing nut (1).

(2) Tighten wing nut finger tight.

d. Using figure 5-6.1 as a guide, disassemble the intake muffler (Model HR5-8M-4) as follows:

(1) Remove square nut (40, fig. 5-6.1)

(2) Remove machine screw (41) and separate air intake halves (42).

(3) Remove filter elements (43 and 44).

WARNING

Dry cleaning solvent P-D-680, used to clean parts is potentially dangerous to personnel and property. Do not use near open flame or excessive heat. Flash point of solvent is 100° F -138° F.

(4) Wash all parts of the muffler and wipe dry. Wash elements and blow dry with low compressed air.

(5) Inspect elements for excessive wear or loss of capacity to retain dust and dirt. Replace a defective element,

e. Reassemble the intake muffler (Model HR5-8M-4) as follows:

(1) Install elements (43 and 44) in air intake halves (42) and fit halves together.

(2) Install machine screw (41) and secure with square nut (40).

Step 2. Check V-belts for proper adjustment. Also make a visual inspection of belts and condition to determine if the belts require removal for cleaning and deglazing. If deglazing appears necessary, remove the lock belt guard.

a. Loosen motor mounting screws (fig. 5-4) securing motor to receiver. Move motor toward compressor, then lift belts off of the pulleys.

WARNING

Dry cleaning solvent P–D–680, used to clean parts is potentially dangerous to personnel and property. Do not use near open flame or excessive heat. Flash point of solvent is 100° F. — 138° F.

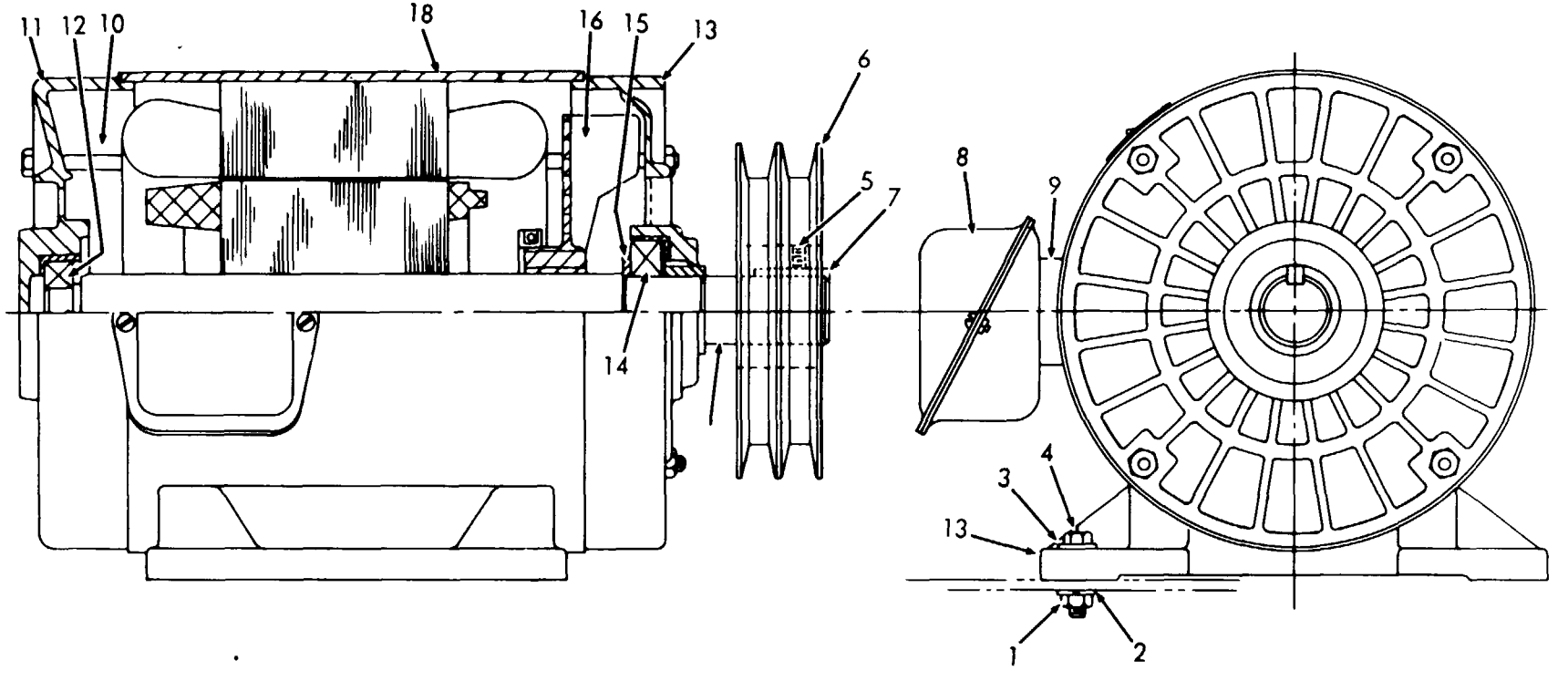
b. Use a cloth dampened in dry cleaning solvent P-D-680 to remove oil and dust film. If the belts appear to have been saturated, and the heat has glazed the surfaces of the Vee's, proceed as follows :

c. Use a medium grade of grit sand paper (not emery cloth) and rough up the surfaces with strokes of uneven direction,

d. Wipe off all grit particles. When surfaces has been deglazed, install the belts on pulleys.

NOTE

When installing new belts, never pry the belts over the pulley grooves.



TS 013643

Figure 5–3. Electric Motor Assembly.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

2. ELECTRIC MOTOR REVERSES

Step 1. Check motor leads for proper connection in magnetic starter box. If motor leads are not connected properly, repair as follows:

a. Disconnect main power source.

b. Remove screw from bottom of magnetic starter box cover and remove the cover.

c. Look on the name plate on the motor to check the correct way the leads should be connected into the magnetic starter box,

d. Connect the terminal lead from the motor marked T1 to the screw marked T1 in the magnetic starter box. Follow the same procedure with terminal T2 and T3.

e. Replace the magnetic starter box and replace the cover screw.

f. Reconnect the main power source.

3. ELECTRIC MOTOR OVERHEATS

Step 1. Use a volt meter and check for low line voltage from power source.

If voltage is low from power source, connect to another power source,

Step 2. Check V-belts for out of alinement. Also make a visual inspection of belts and condition to determine if the belts require removal for cleaning and deglazing. If deglazing appears necessary, remove the lock belt guard.

a. Loosen motor mounting screws (fig. 5-4) securing motor to receiver. Move motor toward compressor, then lift belts off of the pulley.

WARNING

Dry cleaning solvent. P–D-680, used to clean parts is potentially dangerous to personnel and property. Do not use near open flame or excessive heat. Flash point of solvent is 100° F. — 138° F.

b. Use a cloth dampened in dry cleaning solvent P-D-680 to remove oil and dust film. If the belts appear to have been saturated, and the heat has glazed the surfaces of the Vee's, proceed as follows:

c. Use a medium grade of grit paper (not emery cloth) and rough up the surfaces with strokes of uneven direction.

d. Wipe off all grit particles. When surfaces has been deglazed, install the belts on pulleys.

NOTE

When installing new belts, never pry the belts over the pulley grooves.

e. To adjust the belts, move the motor away from the compressor until there is tension on the v-belts. Depress one of the v-belts midway between the pulley and flywheel; when the top lines up with the bottom of the belt next to it under normal thumb pressure the tension is correct.

CAUTION

Do not adjust the V-belts too tightly as this will overload motor and compressor bearings. Also check and be sure pulley alinement is maintained.

f. Tighten motor mounting bolts securely.

Step 3 Check electric motor, compressor cooling fins and belt guard for poor ventilation.

Remove any dirt trash or other foreign matter away from the compressor with an air hose.

4. **ELECTRIC MOTOR NOISY**

Step 1. Check to see if electric motor mounting bolts are loose.

Tighten mounting bolts and check the belt tension.

Step 2. Electric motor bearings may be worn. If the noise is coming from inside the motor, disassemble the motor and determine if bearings are worn.

a. Disconnect main power source.

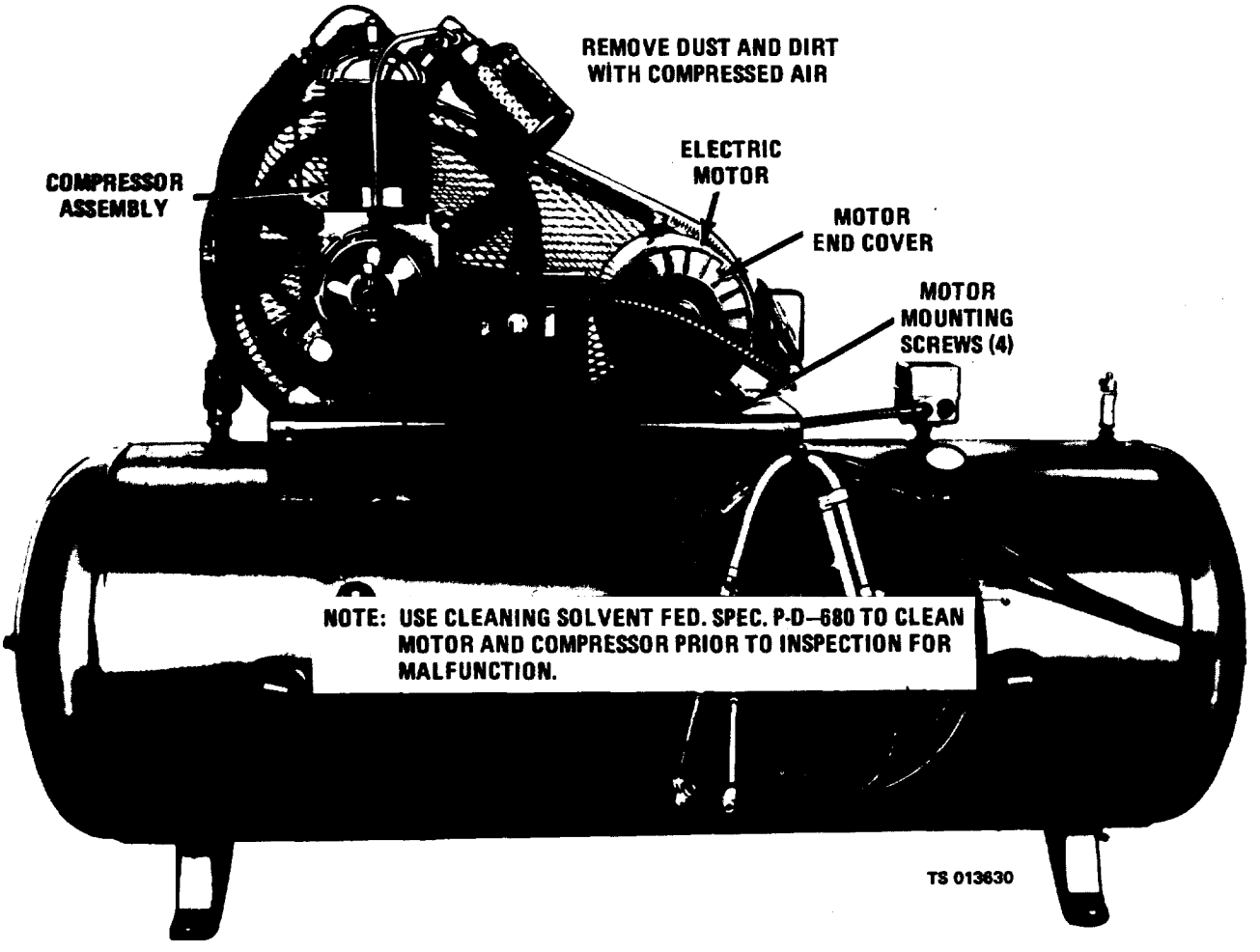


Figure 5-4. Electric motor compressor, cleaning, V-belt and installation.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

b. Remove attaching hardware and remove V-belt guard.
c. Loosen motor mounting bolts, slide motor forward towards compressor and remove V-belts.
d. Tag and diseconnect electric leads.
e. Remove mounting bolts and remove the electric motor and disassemble using figure 5–3 as a guide.
(1) Remove setscrew (5) pulley (6) and key (7).
(2) Remove four bolts (10) shaft end, end shield (13) opposite shaft end, end shield (11) shaft end hearing (14) opposite shaft end bearing (12) spacer bearing (15) fan (16) rotor (17) stator with frame (18) and base (19).

WARNING

Dry cleaning solvent P–D-680, used to clean parts is Potentially dangerous to personnel and property. Do not use near open flame or excessive heat. Flash point of solvent is 100° F. — 138° F.

(3) Clean all parts except rotor, bearings and stator in dry cleaning solvent P-D-680 and wipe dry with a lint free cloth.
(4) Use compressed air to clean dust and dirt off rotor, bearings, and stator, then wipe with a cloth dampened in dry cleaning solvent P–D-680.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

(5) Inspect bearings for excessive wear. Replace defective bearings.
(6) Replace stator with frame (18) on bare (19) rotor (17) fan (16) spacer bearing (15) opposite shaft end bearing (12) shaft end bearing (14) opposite shaft end, end shield (11) shaft end, end shield (13) and four bolts (10).
(7) Replace key (7) in shaft pulley (6) on shaft, and replace the setscrew (5).
f. Mount electric motor on compressor and replace mounting bolts.
g. Connect electrical leads.
h. To adjust the belts, move the motor away from the compressor until there is tension on the V-belts. Depress one of the V-belts midway between the pulley and flywheel; when the top lines up with the bottom of the belt next to it under normal thumb pressure the tension is correct.

CAUTION

Do not adjust the V-belts too tightly as this will overload motor and compressor bearings. Also check and he sure pulley alinement is maintained.

i. Tighten motor mounting bolts securely.

5. ELECTRIC MOTOR DOES NOT CUT IN AT 140 PSI (9.84 kgs), AND CUT OUT AT 175 PSI (12.30 kgs).

Step 1. Check incoming power source for disconnection. Connect air compressor to incoming power source.

Step 2. Check pressure switch for proper setting.
a. Start the air compressor to determine adjustment. The pressure switch is preset by manufacturer at 140 psi (9.84 kgs) CUT-IN, and 175 psi (12.30 kgs) CUT-OUT setting. If adjustment is necessary shut off the outside power source.
b. Remove cover from pressure switch.
c. To raise the CUT-IN and CUT-OUT pressure turn the pressure adjusting screw clockwise (fig. 5-4).
d. To decrease the difference between the CUT-IN and CUT-OUT pressure, turn the differential screw counterclockwise (fig. 5-4).

CAUTION

When adjusting the differential screw, do not turn it farther than it will turn easily.

e. To increase the differential and maintain the some CUT-OUT pressure, turn the differential screw clockwise and, at the same time, turn the pressure adjusting screw counterclockwise.

NOTE

If the differential is increased only by turning the differential screw clockwise, and CUT-IN pressure changes only slightly, and the CUT-OUT pressure rises.

f. Turn on the outside power source to check the adjustment. To check the CUT-IN pressure, open the drain cock and allow air pressure to fall below 140 psi (9.84 kgs). Close the drain cock and the compressor should start immediately.
g. Install the covcr on the pressure switch.

Step 3. Check for defective pressure switch. If adjustment as outlined in Step 2 above does not help, repair or replace the pressure switch.
a. Shut off outside power source.
b. Tag and disconnect aIl electrical leads.
c. Unsrew pressure switch assembly from air receiver.

WARNING

Dry cleaning solvent P-D-680, used to clean parts is potentially dangerous to personnel and property. Do not use near open flame or excessive heat. Flash point of solvent is 100° F. — 138° F.

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

e. To adjust the belts, move the motor away from the compressor until there is tension on the V-belts. Depress one of the V-belts midway between the pulley and flywheel; when the top Iines up with the bottom of the belt next to it u rider normal thumb pressure the tension is correct.

CAUTION

Do not adjust the V-belts too tightly as this will overload motor and compressor bearings. Also check and be sure pulley alinment is maintained.

f. Tighten motor mounting bolts securely.

Step 3. Check oil level in crankcase for low oil.
Remove fill plug in crankcase and fill to level in accordance with LO 54310-350-12.

Step 4. Check for faulty intake and exhaust valves.

Section III. REPAIR AND OVERHAUL INSTRUCTIONS

AIR COMPRESSOR ASSEMBLY AND ELECTRIC MOTOR

NOTE

The manufacturer's dimensions and tolerances are given in U. S. inches and Metric measurements. All Metric units are enclosed in brackets.

Table 5–2. Compressor Repair and Replacement Standards.

Component	Manufacturer's dimensions and tolerances in U.S. and Metric measurements		Desired clearance		Maximum allowable wear and clearance
	Minimum	Maximum	Minimum	Maximum	
Clylinders					
Bore, low pressure	4.6245 (11.7462)	4.6255 (11.7488)			0.004 (0.6350)
Bore, high pressure	2.4995 (6.3488)	2.5005 (6.3513)			0.002 (0.0008)
Out-of-round					0.001 (0.0025)
Taper					0.001 (0.0025)
Crankshaft					
Journal (rod) size	1.623 (4.1149)	1.625 (4.1275)			
Taper					0.001 *(0.0025)*
Out-of-round					0.005 (0.0127)
End play			0.000	0.002 (0.0051)	
Pistons and Pins					
Piston, low pressure	4.619 (11.7323)	4.620 (11.7348)	0.003 (0.0076)	0.005 (0.0127)	0.005 (0.0127)
Piston, high-pressure	2.4965 (6.3411)	2.4975	0.0015	0.003 (0.0076)	0.003 (0.0076)
Pin, low pressure	0.8125 (2.0638)	0.8128 (2.0645)	0.0000	0.0005 (0.0013)	
Pin, high-pressure	0.8125 (2.0638)	0.8128 (2.0645)	0.0000	0.0005 (0.0013)	
Bearings Connecting Rod					
Bearing, I.D.	0.8125 (2.0606)	0.8130 (2.0650)	0.001 (0.0025)	0.007 (0.0178)	
Bearing side clearance			0.010 (0.0254)	0.017 (0.0432)	

5-5. Pistons, Piston Rings, Connecting Rods, and Cylinder Block

a. Removal and Disassembly.

(1) Remove the compressor assembly.

(2) Refer to Figure *5-6* or 5-6.1 and disassemble tube assemblies, cooler tubes, manifolds, and air cleaner as shown,

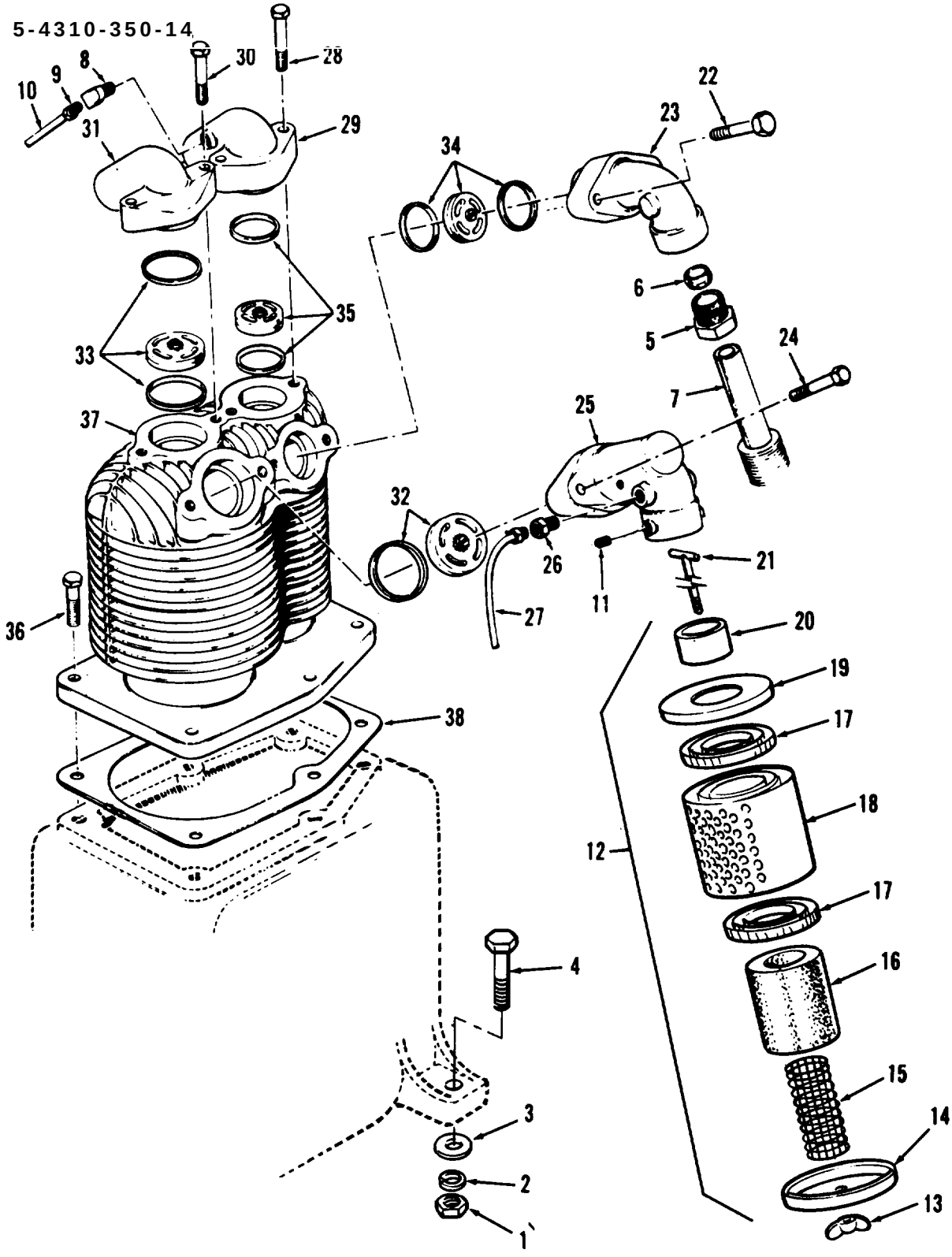
(3) Refer to figure 5-7 and disassemble intake and exhaust valves as shown.

(4) Refer to figure 5-8 and remove hand hole plate.

(5) Refer to figure 5–8 and remove connecting rod bearing caps.

CAUTION

Mark the connecting rod from which the caps were removed, and reassemble caps on the same rod. Do not intermix the connecting rods and caps.



1 Nut (4)
2 Lockwasher (4)
3 Flat washer (4)
4 Capscrew (4)
5 Nut, compression (2)
6 Ferrule, compression (2)
7 Intercooler tube
8 Fitting, compression
9 Fitting, compression
10 Inloading tube
11 Set screw, slotted
12 Muffler assembly
13 Wing nut
14 Lower cover
15 Screen
16 Element
17 Separator (2)
18 Plate
19 Upper cover
20 Ferrule
21 T-stud
22 Capscrew (2)
23 Intake manifold, H.P.
24 Capscrew (2)
25 Intake manifold, L.P.
26 Fitting, compression
27 Breather tube
28 Capscrew (2)
29 Exhaust manifold, H.P.
30 Capscrew (2)
31 Exhaust manifold, L.P.
32 Valve assembly, L.P. intake
33 Valve assembly, L.P. exhaust
34 Valve assembly, H.P. intake
35 Valve assembly, H.P. exhaust
36 Capscrew (6)
37 Cylinder
38 Gasket, cylinder

Figure 5-6. *Crankcase assembly, cylinders, manifolds and related components, exploded view (Model HR5-8M-4).*

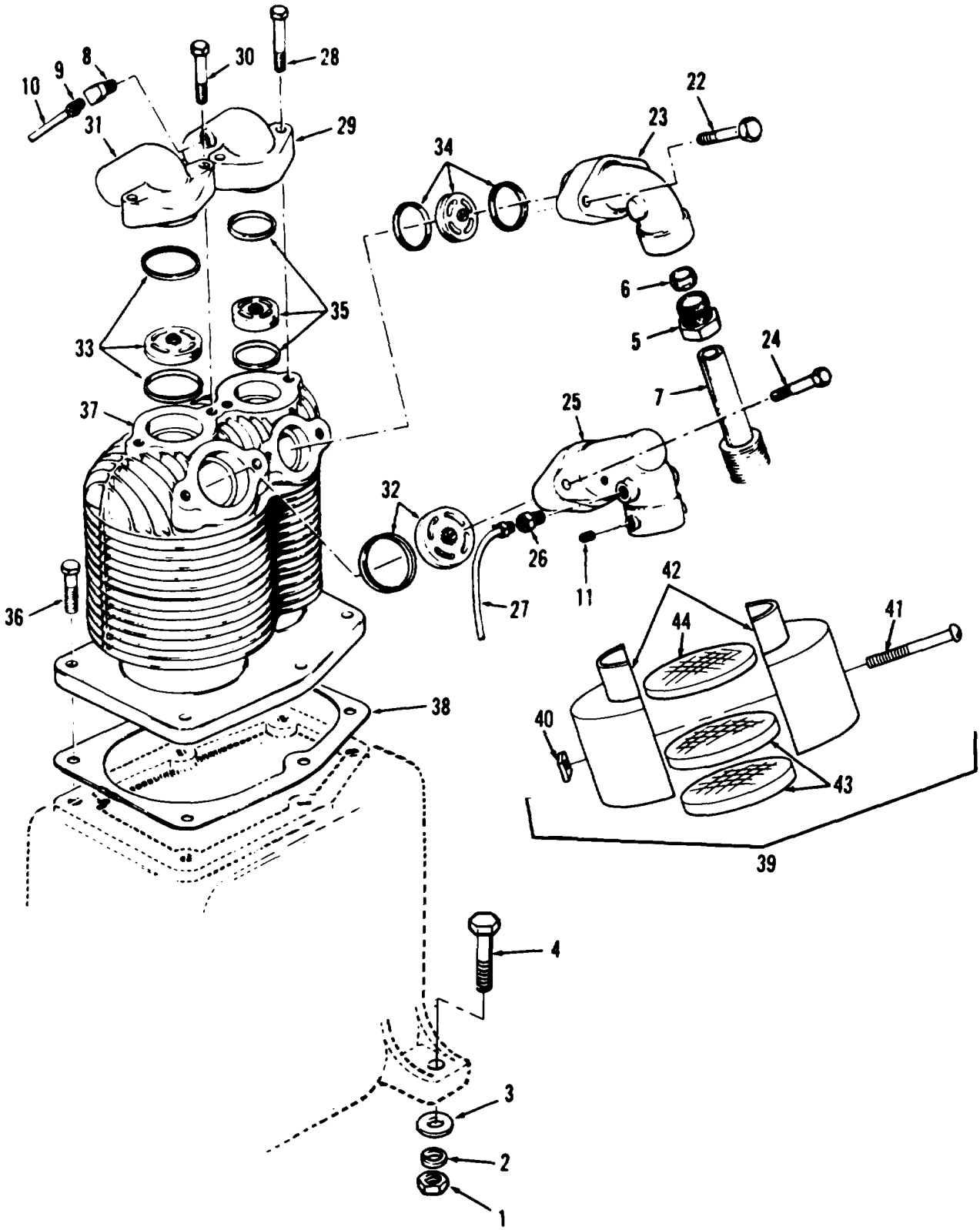
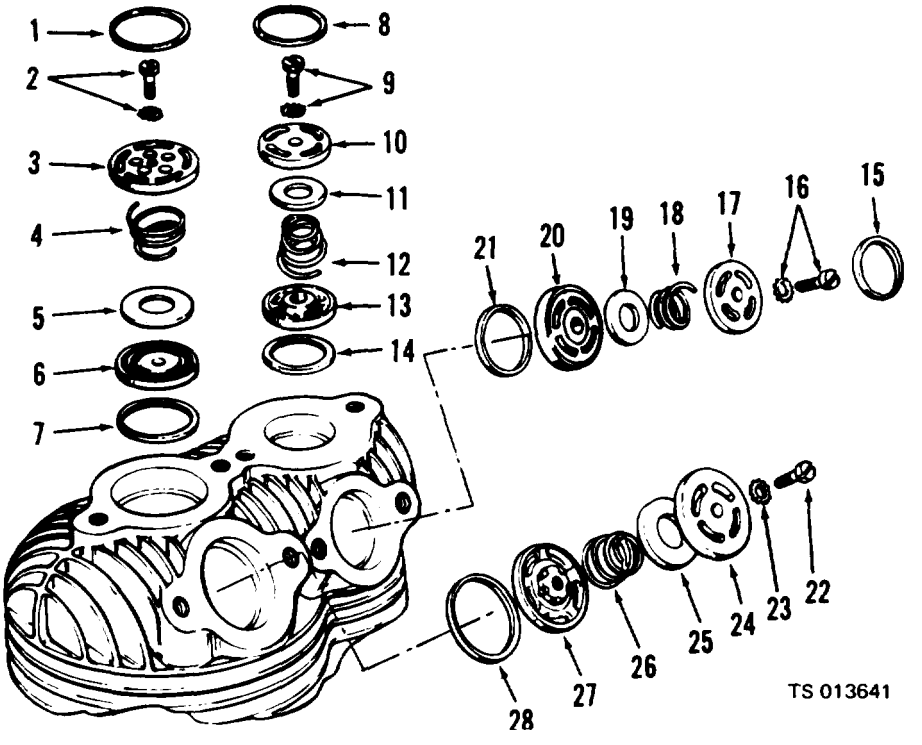


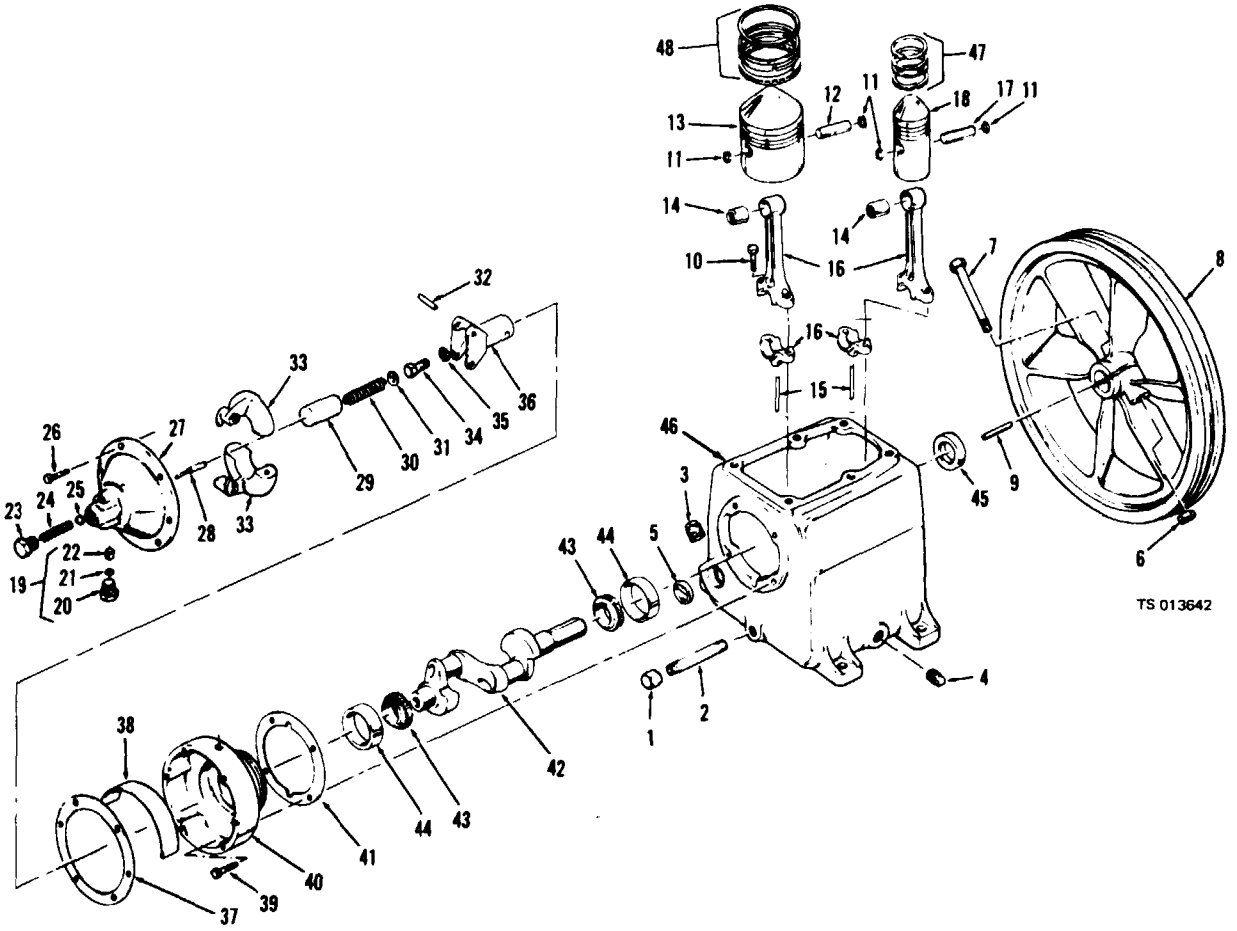
Figure 5-6.1 Legend Attached.

1 Nut (4)
2 Lockwasher (4)
3 Flat washer(4)
4 Capscrew (4)
5 Nut, compression (2)
6 Ferrule, compression (2)
7 Intercooler tube
8 Fitting, compression
9 Fitting, compression
10 Unloading tube
l l Setscrew, slotted
12 Not used
13 Not used
14 Not used
15 Not used
16 Not used
17 Not used
18 Not used
19 Not used
20 Not used
21 Not used
22 Capscrew (2)
23 Intake manifold, H.P.
24 Capscrew (2)
25 Intake manifold, L. P.
26 Fitting, compression
27 Breather tube
28 Capscrew (2)
29 Exhaust manifold, H. P.
30 Capscrew (2)
31 Exhaust manifold L. P.
32 Valve assembly, L. P. intake
33 Valve assembly, L. P. exhaust
34 Valve assembly, H. P. intake
35 Valve assembly, H. P. exhaust
36 Capscre (6)
37 Cylinder
38 Gasket, cylinder
39 muffler assembly
40 Nut, square
41 Screw, machine
42 Intake, air (2)
43 Element (2)
44 Element



1 Gasket, valve
2 Screw, machine
3 Cage, exhaust
4 Spring, valve
5 Disc, valve
6 Seat, exhaust
7 Gasket, valve
8 Gasket, valve
9 Screw, machine
10 Seat, intake
11 Disc, valve
12 Spring, valve
13 Cage, intake
14 Gasket, valve
15 Gasket, valve
16 Screw, machine
17 Cage, exhaust
18 Spring, valve
19 Disc, valve
20 Seat, exhaust
21 Gasket, valve
22 Screw, machine
23 Lockwasher
24 Seat, intake
25 Disc, valve
26 Spring, valve
27 Cage, intake
28 Gasket, valve

Figure 5-7. Compressor valve assemblies, disassemble and reassembly.



1 Pipe cap
2 Pipe nipple
3 Pipe plug
4 Pipe plug
5 Gauge, oil level
6 Nut
7 Capscrew
8 Flywheel
9 Key, flywheel
10 Bolt, connecting rod (4)
11 Ring, piston pin retaining (4)
12 Pin, piston (2)
13 Piston
14 Bearing, piston (2)
15 Oil dipper (2)
16 Connecting rod (2)
17 Pin, piston (2)
18 Piston
19 Muffler, assembly, unloader
20 Body, muffler
21 Screen, muffler
22 Felt, muffler
23 Body, release valve
24 Spring, release valve
25 Ball, release valve
26 Screw, fillister head machine (6)
27 Cover, governor housing
28 Plunger, release valve
29 Sleeve, spring
30 Spring, governor
31 Flat washer
32 Pin, governor weight
33 Weight, governor
34 Capscrew
35 Lockwasher
36 Spindle, governor
37 Gasket, governor cover
38 Baffle plate
39 Capscrew (4)
40 Governor housing
41 Gasket, governor housing
42 Crankshaft
43 Bearing, cone and roller
44 Bearing, cup
45 Oil seal
46 Crankcase
47 Ring set, piston
48 Ring set, piston

Figure 5–8. Crankcase, crankshaft, pistons, connecting rods and related assemblies, exploded view.

(6) Disassemble cylinder block from crankcase as shown in figure 5-6.

(7) Disassemble connecting rods, pistons and rings as shown in figure 5-8.

NOTE

Mark connecting rod and piston to assure correct relationship at reassembly.

NOTE

Do not remove the connecting rod bushings unless inspection reveal them defective.

b. Cleaning, Inspection and Repair.

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

(2) Inspect the cylinder block for broken cooling fins and cracks. Inspect the cylinder bore for wear, scoring, pitting or other damage. Replace the block if defective.

(3) Measure the clearance of the piston pin to the piston pin bushing. Check for proper fit. Aline or replace connecting rods, if necessary.

(4) Place the piston rings in the cylinder bore with the piston ring square in the cylinder bore about ½ (0.500) inch from the top.

(5) If the ring gap is less than the specified width, file across but ends of the rings to increase the gap to the required tolerance. If the ring gap is greater than required, replace the entire set of rings.

(6) Measure the ring groove in the piston for wear. Replace piston if necessary.

c. *Reassembly and Installation.*

(1) Refer to figures 5-6, 5-6.1, 5-7 and 5-8 and reassemble and install the pistons, piston rings, connecting rods and cylinder block taking the following precautions:

(a) If new connecting rod bushings are to be installed, and are not prefit, ream the bushings.

(b) When installing piston rings expand them carefully and sufficiently to allow the ring to slide freely over the piston to the position. Starting with the bottom ring, install piston rings in their proper grooves. Stagger ring gaps so that they are not lined up.

(c) Lubricate each piston and connecting rod assembly with a light coat engine oil before installing in cylinder block. Compress the piston rings carefully when installing in cylinder.

(d) When installing cylinder block to crankcase always use new flange gasket and torque nuts to 45 ft.-lbs. torque.

(e) Torque connecting rods nuts to 25 ft.-lbs. torque.

(f) When reassembling intake and exhaust valves be sure to seat larger diameter of the spring in th cage of all valves.

5-6. Crankcase

a. Removal and Disassembly.

(1) Refer to figure 5-8 and remove the unloader assembly.

(2) Remove the hand hole plate and flywheel.

(3) Remove bearing caps (fig. 5-8) and push connecting rods and pistons up to the top of the cylinder bore. Remove the capscrews that secure unloader housing to crankcase.

(4) Drive the crankshaft, bearings, and unloader housing from the crankcase.

CAUTION

Before driving the crankshaft from the crankcase, he sure the connecting rod journals are in an upright position.

(5) Using suitable puller remove the unloader housing and bearing from the shaft.

(6) Remove the oil seal from the crankcase.

NOTE

Do not remove the oil level gage from the crankcase unless the gage is leaking or defective.

b. Cleaning, Inspection and Repair.

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

(2) Inspect the crankcase for cracks, scores, and distortion. Measure the crankcase journals for wear. If the connecting rod journals measure 0.0005 inch (0.0013 cm) out-of-round, replace the crankshaft.

(3) Inspect the crankshaft bearings for rough, pitted, or scored rollers. Replace a defective bearing.

(4) Inspect the crankcase for cracks, breaks or other defects. Replace the crankcase if defective.

c. Reassembly and Installation.

(1) Refer to figures 5-6, 5-6.1 and 5-8 and reassemble and install crankshaft in crankcase using the following procedures:

(a) Always install new oil seal in crankcase.

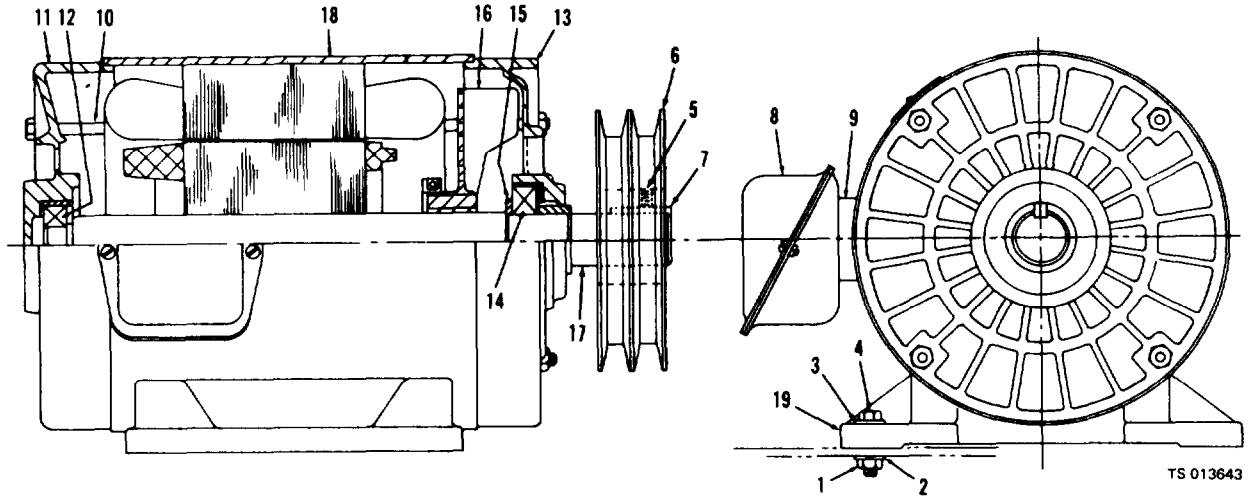
(b) Press bearing cup in the unloader housing.

(c) Install new gasket on the unloader housing.

5-7. Electric Motor

a. Removal and Disassembly.

(1) Refer to paragraph 4-11 and remove the electric motor.



1 Nut (4)
2 Lockwasher (4)
3 Capscrew (4)
4 Flat washer (4)
5 Set screw, socket
6 Pulley
7 Key, machine
8 Box, conduit
9 Spacer, conduit box
10 Bolt, thru (4)
11 End shield, opposite shaft end
12 Bearing, opposite shaft end
13 End shield, shaft end
14 Bearing, shaft end
15 Spacer, bearing
16 Fan
17 Rotor
18 Stator with frame
19 Base

Figure 5–9. ***Electric motor assembly.***

(2) Refer to figure 5–9 and disassemble electric motor.

b. Cleaning, Inspection and Repair.

(1) Clean all parts except rotor, bearings and stator in an approved cleaning solvent and wipe dry with a lint free cloth.

(2) Use compressed air to clean dust and dirt off rotor, bearings, and stator, then wipe with a cloth dampened in an approved cleaning solvent.

(3) Inspect bearings and rotor shaft for, excessive wear, and rough or scored surfaces. Replace defective bearings. Replace a defective rotor shaft.

c. *Reassembly and Installation.*

(1) Refer to figure 5-9 reversing the procedures and reassemble the electric motor as shown.

(2) Refer to paragraph 4-11 and install the electric motor.

5-8. Magnetic Starter

a. Removal and Disassembly.

(1) Refer to figure 5-10 and remove the magnetic starter as shown.

(2) Refer to figure 5-11 or 5-11.1 and disassemble starter as shown.

b. Cleaning, Inspection and Repair.

(1) Use compressed air and remove all dust or dirt from magnetic starter components.

(2) Check continuity of heater coil, operating coil, relay overload, contact carrier and interlock assembly, Replace defective parts.

(3) Check on-off switch continuity and stem action. Replace a defective on-off switch.

c. Reassembly and Installation.

(1) Refer to figure 5-11 or 5-11.1 and reassemble starter.

(2) Refer to figure 5-10 and install the magnetic starter in reverse order of the removal procedure.

5-9. Pressure Switch

a. Removal and Disassembly.

(1) Refer to figure 5-12 and remove the pressure switch as shown.

(2) Refer to figure 5-8 and disassemble the pressure switch as shown.

b. Cleaning, Inspection and Repair.

(1) Use compressed air and remove all dust and dirt from pressure switch components, then wipe with a cloth dampened in an approved cleaning solvent.

(2) Inspect the contact board contacts for pitting or burring.

(3) Inspect diaphragm for cracks or breaks and general condition.

(4) Inspect all threaded parts for damaged or defective threads.

(5) Repair or replace damaged or defective parts as necessary.

c. *Reassembly and Installation.*

(1) Refer to figure 5-13 and reassemble the pressure switch.

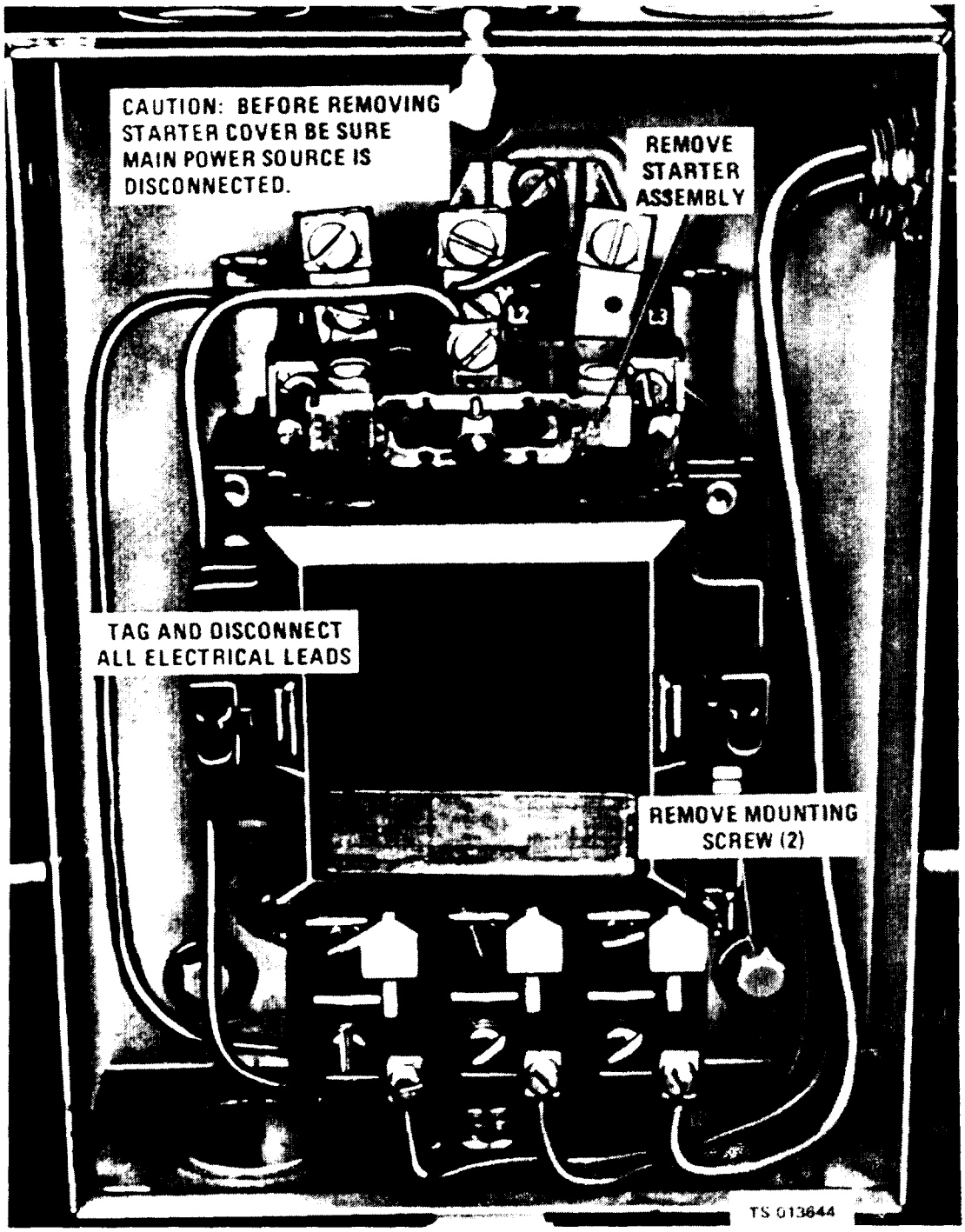
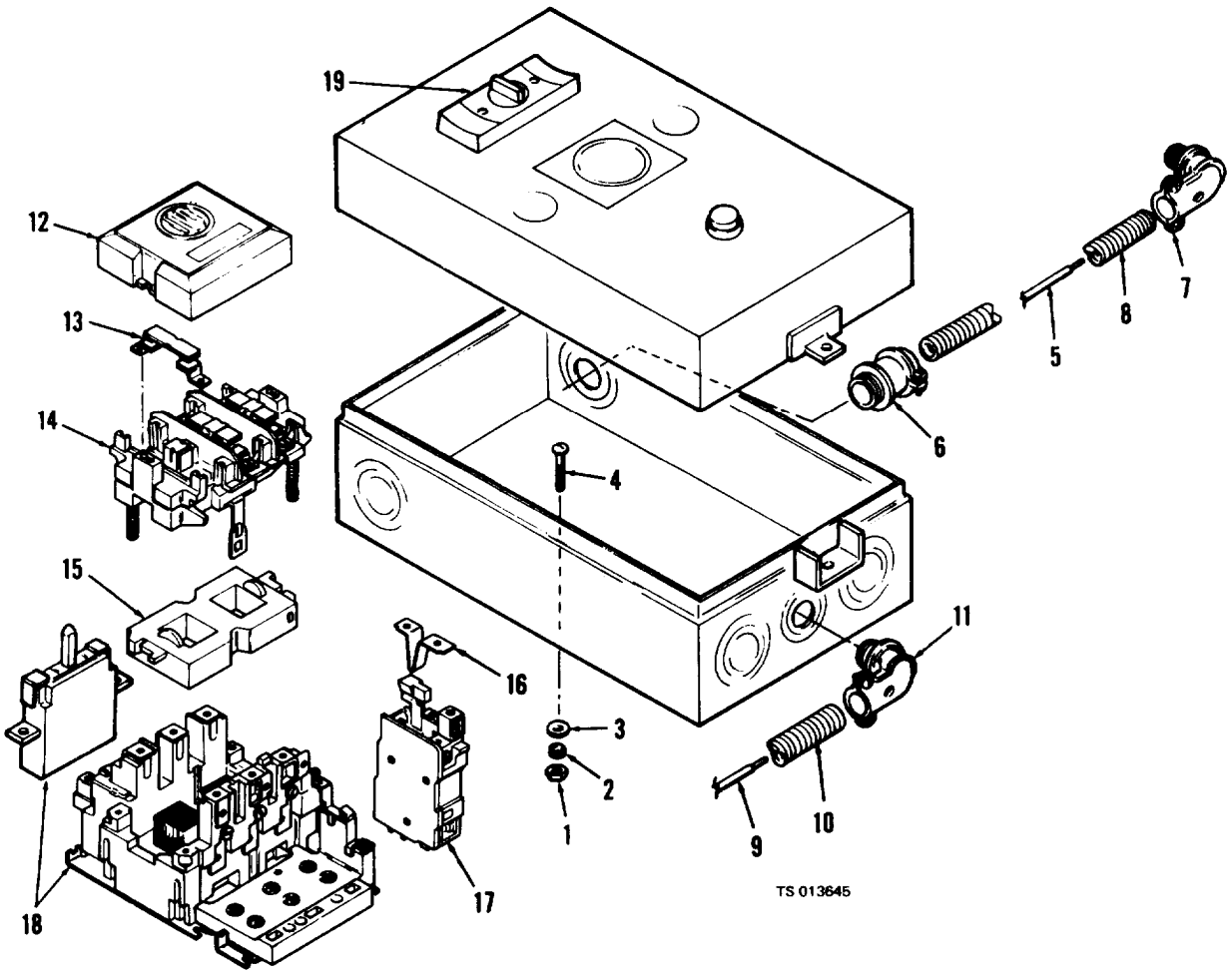
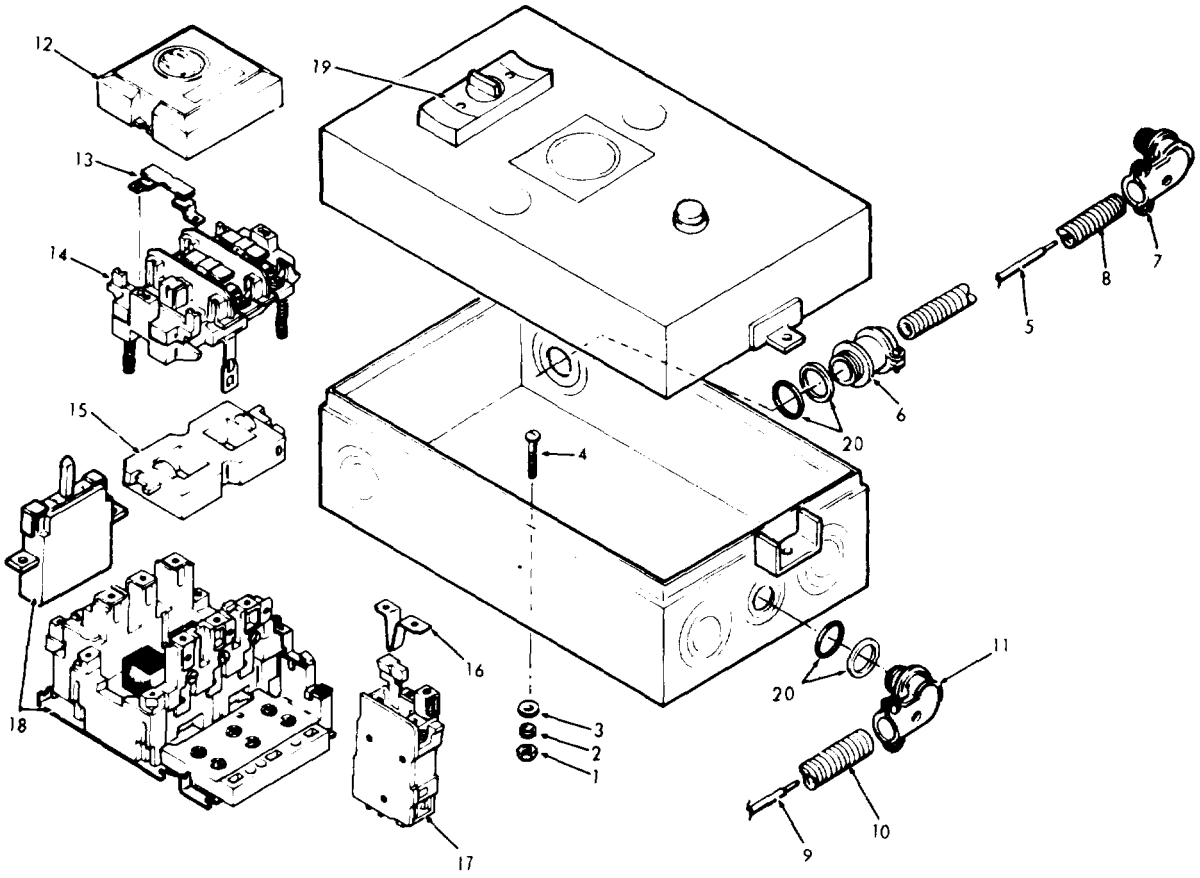


Figure 5-10. Magnetic starter, removal and installation (shown with cover removed).



1 Nut (2)
2 Lockwasher (2)
3 Flat washer (2)
4 Capscrew (2)
5 Wire, electrical
6 Connector
7 Connector
8 Conduit, electrical
9 Wire, electrical
10 Conduit, electrical
11 Connector
12 Cap, contact cover
13 Contact kit
14 Carrier, contact
15 Coil, operating
16 Coil, heater
17 Relay, overload
18 Interlock assembly
19 Switch, selector

Figure 5-11. Magnetic starter assembly, exploded view (Model HR5-8M-3).



1 Nut (2)
2 Lockwasher (2)
3 Flat washer (2)
4 Capscrew (2)
5 Wire, electrical
6 Connector
7 Connector
8 Conduit, electrical
9 Wire, electrical
10 Conduit, electrical
11 Connector
12 Cap, contact cover
13 Contact kit
14 Carrier, contact
15 Coil, operating
16 Coil, heater
17 Relay, overload
18 Interlock assembly
19 Switch, selector
20 O-ring and gasket

Figure 5-11.1. Magnetic starter assembly, exploded view (Model HR5-8M-4).

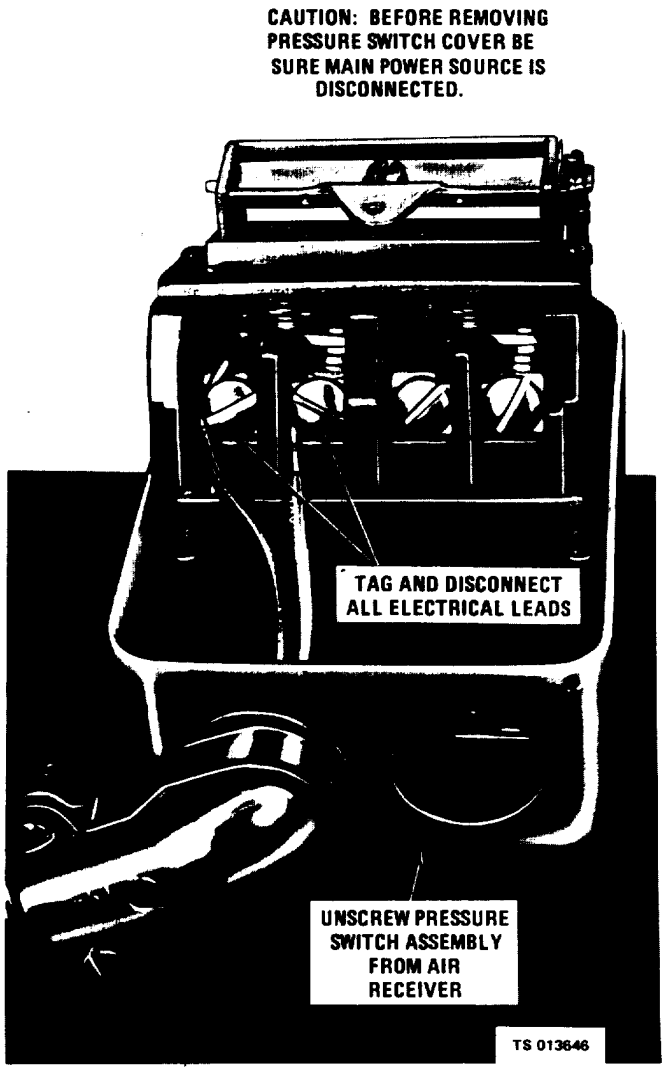


Figure 5-12. *Pressure switch assembly, removal and installation (shown with cover removed).*

(2) Refer to figure 5-12 and install pressure switch in reverse order of the removal procedure.

5-10. Air Pressure Adjustment

a. Start the air compressor (para 2–15) to determine adjustment. The pressure switch is preset by manufacturer at 140 psi CUT-IN, and 175 psi CUT-OUT setting. If adjustment is necessary shut off the outside power source.

b. Remove cover from pressure switch.

c. To raise the CUT-IN and CUT-OUT pressure turn the pressure adjusting screw clockwise. Refer to figure 5–14.

d. To decrease the difference between the CUT-IN and CUT-OUT pressure turn the pressure adjusting screw clockwise. Refer to figure 5–14.

d. To decrease the difference between th CUT-IN and CUT-OUT pressure, turn the differential screw counter-clock wise. Refer to figure 5–14.

CAUTION

When adjusting the differential screw, do not turn it farther than it will turn easily.

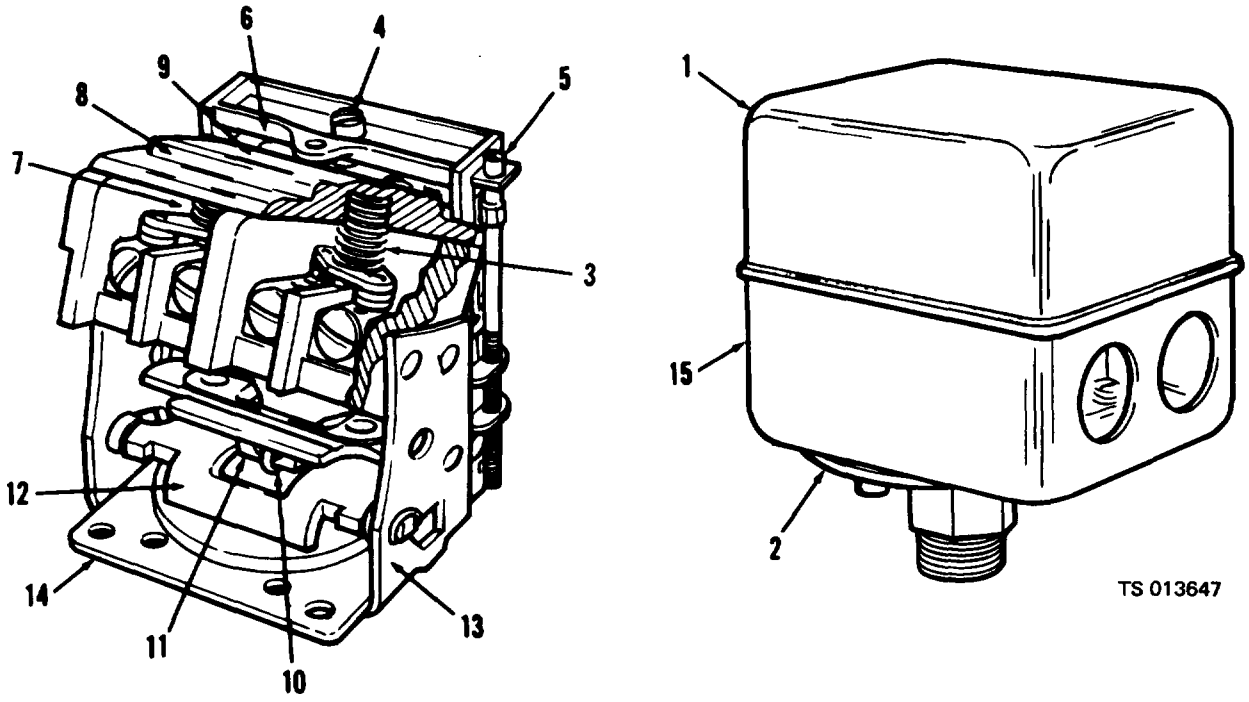
e. To increase the differential and maintain the same CUT-OUT pressure, turn the differential screw clockwise and, at the same time, turn the pressure adjusting screw counterclockwise.

NOTE

If the differential is increased only by turning the differential screw clockwise, the CUT-IN pressure changes only slightly, and the CUT-OUT pressure rises.

f. Turn on the outside power source to check the adjustment. To check the CUT-IN pressure, open the drain cock and allow air pressure to fall below 140 psi. Close the drain cock, and the compressor should start immediately.

g. Install the cover on the pressure switch.



1 Cover, enclosure
2 Diaphragm
3 Spring, conical
4 Screw, pressure adjusting
5 Screw and nut, differential adjusting
6 Bar, top
7 Contact board assembly
8 Spring, equalizer
9 Spring, main
10 Spring, toggle
11 Toggle
12 Lever
13 Plate, diaphragm
14 Frame assembly
15 Enclosure

Figure 5–13. Pressure switch assembly.

Figure 5-14. Pressure switch adjusting and differential screws.

APPENDIX A

REFERENCES

A-1. Fire Protection

TM 5-4200-200-10	Hand Portable Fire Extinguishers for Army Users

A-2. Lubrication

LO 5-4310-349-12	Lubrication Order
C9100IL	Fuel, Lubricants, Oils and Waxes

A-3. Painting

TM 9-213	Painting Instructions for Field Use

A-4. Maintenance

TM 38-750	The Army Maintenance Management Systems (TAMMS)
TM 5-4310-350-24P	Organizational, Direct Support and General Support Maintenance Repair Parts and Special Tools Lists. Compressor, Air, Reciprocating, Electric Motor Driven, Receiver Mounted, 15 CFM at 175 P.S.I. (12.30 kgs per sq cm) (Champion Pneumatic Machinery Company) Model No. HR5-8M-3) and Model No. HR5-8M-4)
TB 742-93-1	Inspection and Test of Air and Other Gas components.

A-5. Shipment and Storage

TB 740-93-2	Preservation of USAMEC Mechanical Equipment for Shipment and Storage.
TM 740-90-1	Administrative Storage of Equipment.

A-6. Destruction of Army Material

TM 750-244-3	Procedures for Destruction of Equipment to Prevent Enemy Use.

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APPENDIX B

MAINTENANCE ALLOCATION CHART

Section I. INTRODUCTION

B-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 and the work measurement time required to perform the functions by the designated maintenance level. The implementation of the maintenance functions upon the end item or component will be consistent with the assigned maintenance functions.

c. Section III lists the tools and test equipment required for each maintenance function as referenced from Section II.

B-2. Explanation of Columns in Section II

a. Column (1), Group Number. Column 1 lists group numbers to identify related components, assemblies, sub-assemblies, and modules with their next higher assembly. The applicable groups are listed in the MAC in disassembly sequence beginning with the first group removed.

b. Column (2), Component/Assembly. This column contains the noun names of components, assemblies, sub-assemblies and modules for which maintenance is authorized.

c. Column (3), *Maintenance Functions.* This column lists the functions to be performed on the item listed in Column (2).

The maintenance functions are defined as follows:

1. INSPECT. To determine serviceability of an item by comparing its physical, mechanical, and/or electrical characteristics with established standards through examination.

2. TEST. To verify serviceability and detect incipient failure by measuring the mechanical or electrical characteristics of an item and comparing those characteristics with prescribed standards.

3. SERVICE. Operations required periodically to keep an item in proper operating condition, i.e., to clean (decontaminate), to preserve, to drain, to paint, or to replenish fuel, lubricants, hydraulic fluids, or compressed air supplies.

4. ADJUST. To maintain within prescribed limits, by bringing into proper or exact position, or by setting the operating characteristics to specified parameters. ,

5. ALIGN. To determine and cause corrections to be made or to be adjusted on instruments or test measuring and diagnostic equipments used in precision measurement. Consists of comparison 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.

7. INSTALL. The act of emplacing, seating, or fixing into position an item, part or module (component or assembly) in a manner to allow the proper functioning of an equipment or system.

8. REPLACE. The act of substituting a serviceability like type part, sub-assembly or module (component or assembly) for an unserviceable counterpart.

9. REPAIR. The application of maintenance services (inspect, test, service, adjust, align, calibrate, or replace) or other maintenance actions (welding, grinding, riveting, straightening, facing, remachining or resurfacing) to restore serviceability to an item by correcting specific damage, fault, malfunction, or failure in a part, sub-assembly, module (component or assembly), end item, or system.

10. OVERHAUL. That maintenance effort (service/action) necessary to restore an item to a completely serviceable/operational condition as prescribed by maintenance standards (i.e., DMWR) in appropriate technical publications. Overhaul is normally the highest degree of maintenance performed by the Army. Overhaul does not normally return an item to a like new condition.

11. REBUILD. Consists of those services/actions necessary for the restoration of unserviceable equipment to a like new condition in accordance with original manufacturing standards. Rebuild is the highest degree of material

maintenance applied to Army equipment. The rebuild operation includes the act of returning to zero those age measurements (hours/miles, etc.) considered in classifying Army equipment/ components.

d. Column (.4), Maintenance Category. This column is made up of sub-columns for each category of maintenance. Work time figures are listed in these sub-columns for the lowest level of maintenance authorized to perform the function listed in Column (3). These figures indicate the average active time required to perform the maintenance function at the indicated category of maintenance under typical field operating conditions,

e. Column *(5). Tools and Equipment.* This column is provided for referencing by code, the common tool sets (not individual tools) special tools, test and support equipment required to perform the designated function,

B-3. Explanation of Columns in Section III

a. Column (1), Reference Code. This column consists of an arabic number listed in sequence from Column (5) of Section H. The number references the common tool sets, special sets and test equipment requirements.

b. Column (2), Maintenance Level. This column shows the lowest category of maintenance authorized to use the special tools or test equipment.

c. *Column (9), Nomenclature.* This column lists the name or identification of the common tool sets, special tools or test equipment.

d. Column (4), *National/Nato Stock No. (NSN).* This column is provided for the NSN of common tool sets, special tools and test equipment listed in the Nomenclature column.

e. *Column (5), Tool Number.* This column lists the manufacturer's code and part number of tools and test equipment.

Section II. MAINTENANCE ALLOCATION CHART

(1)	(2)	(3)	(4)					(5)
(Group number	Component/assembly	Maintenance function	Maintenance category C	O	F	H	D	Tools and Equipment
01	BELT GUARD ASSEMBLY							
	Belt Guard	Inspect	0.1					
		Replace		0.5				
	V Belt	Service		0.1				
		Replace		0.5				
02	ELECTRIC MOTOR							
	Electric Motor	Service	0.3					
		Replace		1.0				
		Repair			4.0			
	Rotor Assembly	Inspect			0.1			
		Replace			2.0			
	Starter Assembly Magnetic	Inspect			0.1			
		Replace			1.0			
	Pressure Switch Assembly	Adjust			0.5			
		Replace			0.8			
03	AIR COMPRESSOR ASSEMBLY	Inspect	0.3					
		Replace		1.5				
	Air Compressor	Repair			4.0			
		Overhaul				8.0		
	Valve, Pilot	Adjust	0.3					
		Replace		0.5				
	Filter Inlet	Service	0.3					
		Replace		0.2				
	Rod Assembly	Inspect			0.2			
		Replace			3.0			
	Crankshaft	Inspect			0.2			
		Replace			3.0			
04	RECEIVER							
	Air Receiver Tank and Parts	Inspect	0.2					
		Service	0.2					
		Replace			8.0			

SUBCOLUMNS ARE AS FOLLOWS : C—OPERATOR/CREW; O—ORGANIZATIONAL ; F—DIRECT SUPPORT; H—GENERAL SUPPORT; D—DEPOT.
*****INDICATES WT/MH REQUIRED.***

Section III. SPECIAL TOOL AND SPECIAL TEST EQUIPMENT REQUIREMENTS

Reference Code	Maintenance	Nomenclature	Tool Number
No special tools required.			

ALPHABETICAL INDEX

By Order of the Secretary of the Army:

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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. 18) Organizational maintenance requirements for Air Compressors, 15 CFM.

*U.S. GOVERNMENT PRINTING OFFICE: 1975-665489/5005 REGION NO. 6

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CoA, 3d ENGINEER BN
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DATE 16 DEC 74

PUBLICATION NUMBER	DATE	TITLE
TM5-6115-200-20 AND P	1 APR 72	GENERATOR SET 10 KW NSN 6115-00-231-7286

BE EXACT. . .PIN-POINT WHERE IT IS

PAGE NO.	PARAGRAPH	FIGURE NO.	TABLE NO.
6	2-1 a		
81		4-3	
125	line 20		

IN THIS SPACE TELL WHAT IS WRONG AND WHAT SHOULD BE DONE ABOUT IT:

In line 6 of paragraph 2-1a the manual states the engine has 6 cylinders. The engine on my set only has 4 cylinders. Change the manual to show 4 cylinders

Callout 16 on figure 4-3 is pointing at a bolt. In the key to fig. 4-3, item 16 is called a shim. Please correct one or the other.

I ordered a gasket, item 19 on figure B-16 by NSN 2910-00-762-3001. I got a gasket but it doesn't fit. Supply says I got what I ordered so the NSN is wrong. Please give me a good NSN

TYPED NAME, GRADE OR TITLE, AND TELEPHONE NUMBER
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