TECHNICAL MANUAL

Operator, Organizational, Direct Support and General Support Maintenance Manual

Compressor, Reciprocating: Air, Power Driven, 5 CFM, 175 PSI (Champion Model No. HR2-3M-1) FSN 4310-752-9511

HEADQUARTERS, DEPARTMENT OF THE ARMY

NOVEMBER 1972

SAFETY PRECAUTIONS

When operating compressor, de-energize input power leads at their source before changing connections or performing maintenance on the unit. The voltage generated by incoming power can cause death by electrocution.

Never disconnect any high pressure hose from the compressor without first completely exhausting air pressure from the entire unit.

Never suddenly open a valve. Always crack valve open and allow a gradual pressure build-up. Then slowly open to full position. Failure to observe this warning may result in a high pressure knock which could rupture a fitting and cause serious injury.

Never continue to operate compressor after a relief valve has popped. This malfunction must be Investigated promptly or damage to equipment and serious injury to personnel may result.

Always build up or reduce pressure in compressor slowly, to permit even expansion and contraction in the compressor.

During operation, keep a close watch on the pressure gages. Confine compressor discharge pressure on low and high pressure within specified limits.

Never operate with bypass pressure above 157 PSI.

Do not attempt to tighten any high pressure lines or fittings or perform any Work on the equipment while compressor is operating or when system is under pressure.

Never clean lines, air filter, or parts of compressor with gasoline or other flammable liquid. This may cause an explosion in the high pressure air system.

During operation personnel should keep hands away from manifolds, after-cooler tubes, and compressor as these parts get extremely hot and if touched can result in severe burns.

The strip heater of the filter operates when temperature is below 35°F. Keep hands away from heater as it reaches a very high temperature when operating.

The format of this manual is not in accordance with established Department of Army specifications because of the short leadtime involved. The technical content has been furnished by the equipment manufacturer and augmented with a Maintenance Allocation Chart (MAC), list of References and Preventive Maintenance Checks and Services to assure that it provides the essential data needed to operate and maintain the equipment.

CHANGE
NO 1

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, DC *19 July 1974*

Operator, Organizational, Direct Support and General Support Maintenance Manual

COMPRESSOR, RECIPROCATING, AIR; POWER DRIVEN; 5 CFM, 175 PSI (CHAMPION MODEL HR2-3M-1) FSN 4310-721-9511

TM 5-4310347-14, 9 November 1972, is changed as follows: *Cover and Table of Contents,* FSN 4310-752-9511 is changed to FSN 4310-721-9511. *Safety Precautions*, add:

WARNING

Cleaning solvent, PD-680, is POTENTIALLY DANGEROUS CHEMICAL. Do not use near open flame.

WARNING

This compressor is NOT SUITABLE for the supply of air for charging cylinders with BREATHABLE AIR.

Page 2, paragraph B, 2. The title is changed to read E follows:

2. Electric motor (Serial Nos. 13565 through 13622

Paragraph B, 2.1 is added:

2.1 Electric Motor (Serial Nos. 14433 thru 14449).

Manufacturer	Doerr
Model	74065
Type	K
Hertz	60
Phase	Single
Horsepower	2
Volts	115/230
Duty	Continuous
Rated speed	1740
Frame	G182T
Temperature rise	40°C
Amperes:	
At 115 volts	27
At 230 volts	115

Paragraph B, 10, line 3. After 200 PSI add: (maximum).

Paragraph D. Lines 7 through 11 are changed to read: Commander, US Army Troop Support Command, ATTN: AMSTS-MPP, 4300 Goodfellow Boulevard, St. Louis, MO 63120.

Page 3, figure 3. Add after figure title (Serial Nos. 13565 through 13622)

Figure 3.1 is added as follows:

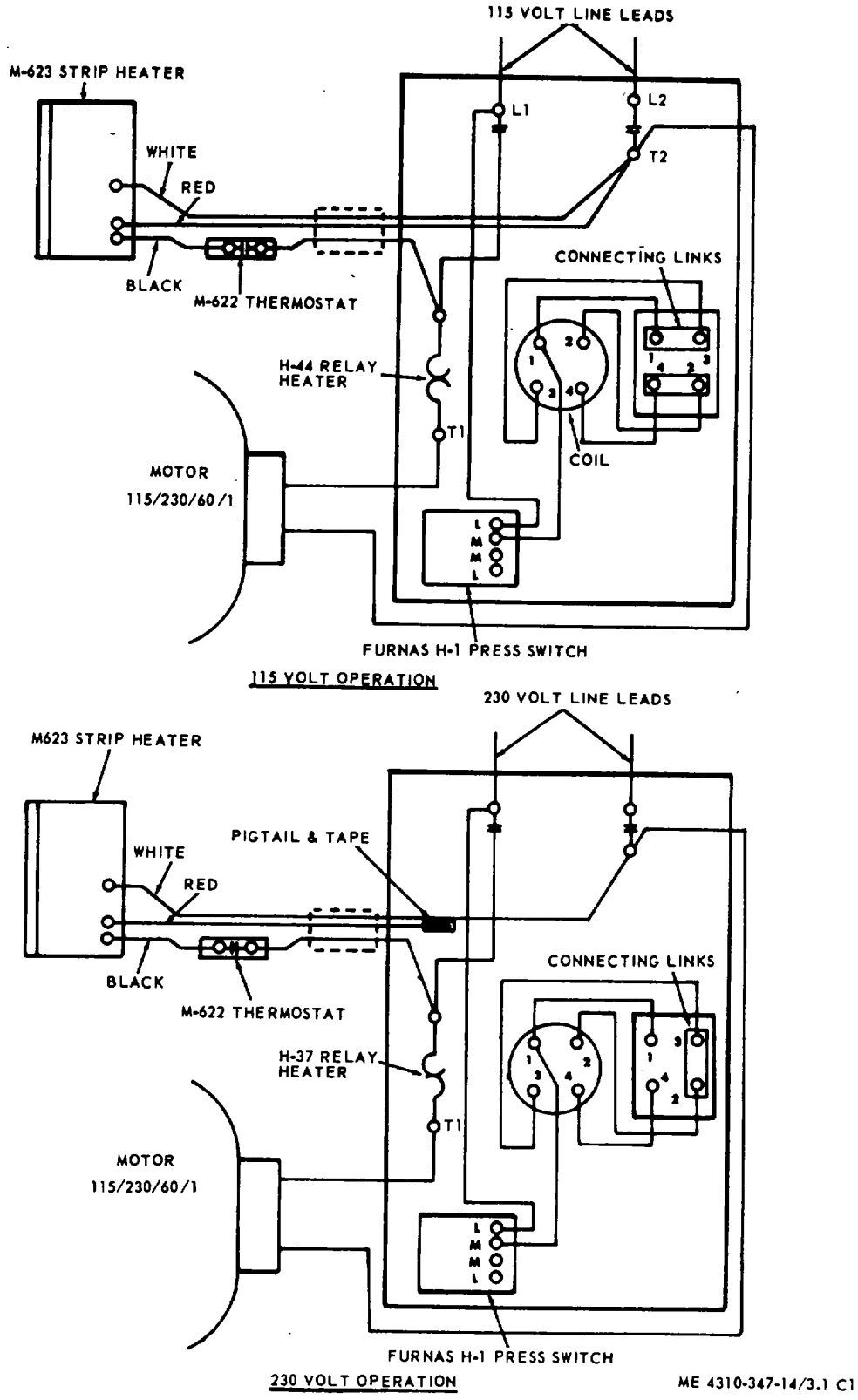


Figure 3.1. Wiring diagram (Serial Nos. 14433 through 14449).

Page 4, paragraph **C**, 3 is superseded as follows:

3. Physically rotate the electric motor and compressor pulleys 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.

Page 5, paragraph E. Add after paragraph title "(Serial Nos. 13565 through 13622)."

Paragraph E.1 is added as follows:

E.1 Equipment Conversion (Serial Nos. 14433 through 14449).

1. Electric Motor Wiring for 115 Volts.

a. Remove junction box cover on motor.

b. Wiring should be as shown in figure 7.1 (A) (Counterclockwise rotation facing motor shaft).

c. Install the relay heater (refer to figure 8.1) marked H-44. The relay heater (H-44) is factory installed.

2. Electric Motor Wiring for 230 Volts.

a. Remove junction box cover on motor.

b. Wiring should be as shown in figure 7.1 (B).

c. Remove relay heater marked H-44 and replace with relay heater marked H-37 (refer to figure 8.1). Figure 7.1 is added as follows:

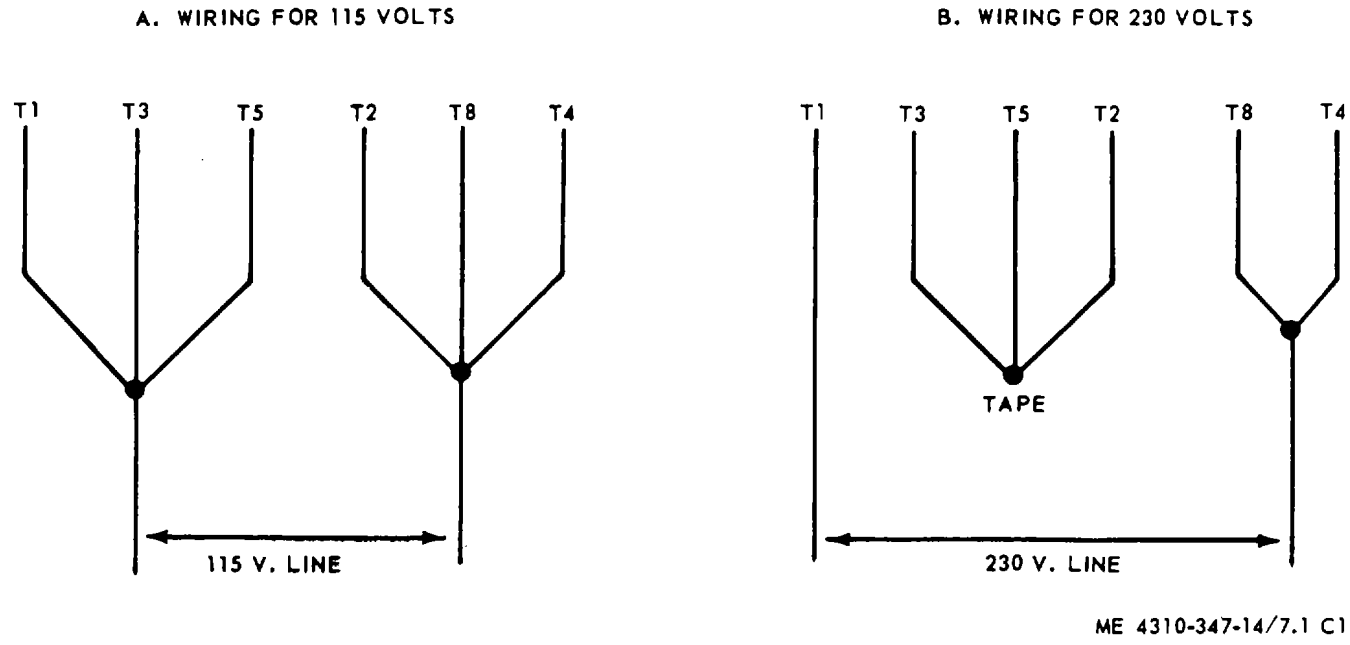


Figure 7.1. Electric motor wiring (Serial Nos. 14433 though 14449).

Page 6. Figure 8.1 is added as follows:

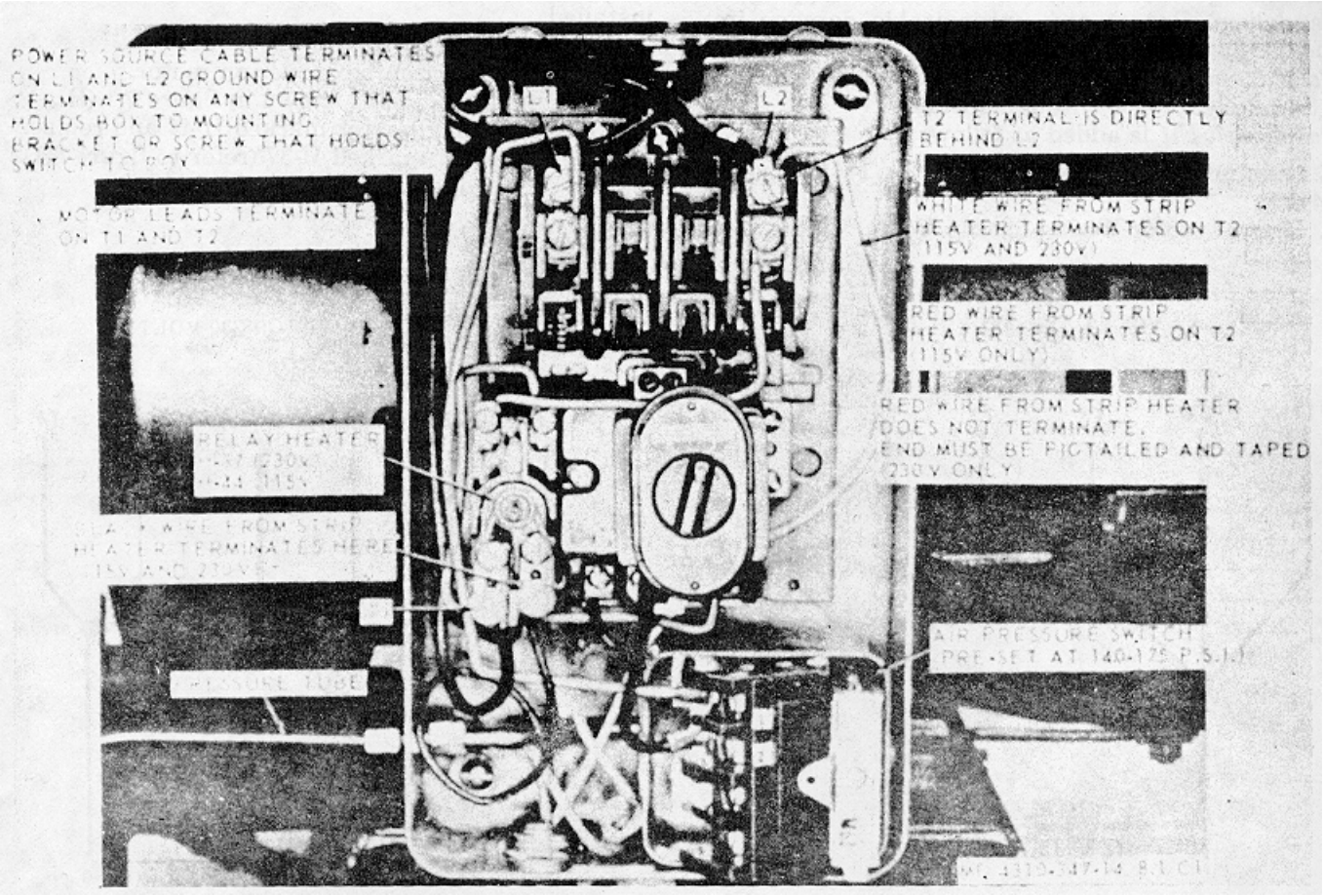


Figure 8.1. Magnetic starter (shown with cover removed) (Serial nos. 14433 through 14449).

Page 7, section IV, A. Add the following warning:

WARNING

This compressor is NOT SUITABLE for the supply of air for charging cylinders with BREATHABLE AIR.

Paragraph C3 is superseded as follows:

3. Open the drain cock (figure 1) in the bottom of a receiver tank to release the compressed air and condensate from the air receiver tank.

Page 8, section IV, paragraph D6, line 3. Change "drain" to read, "fall".

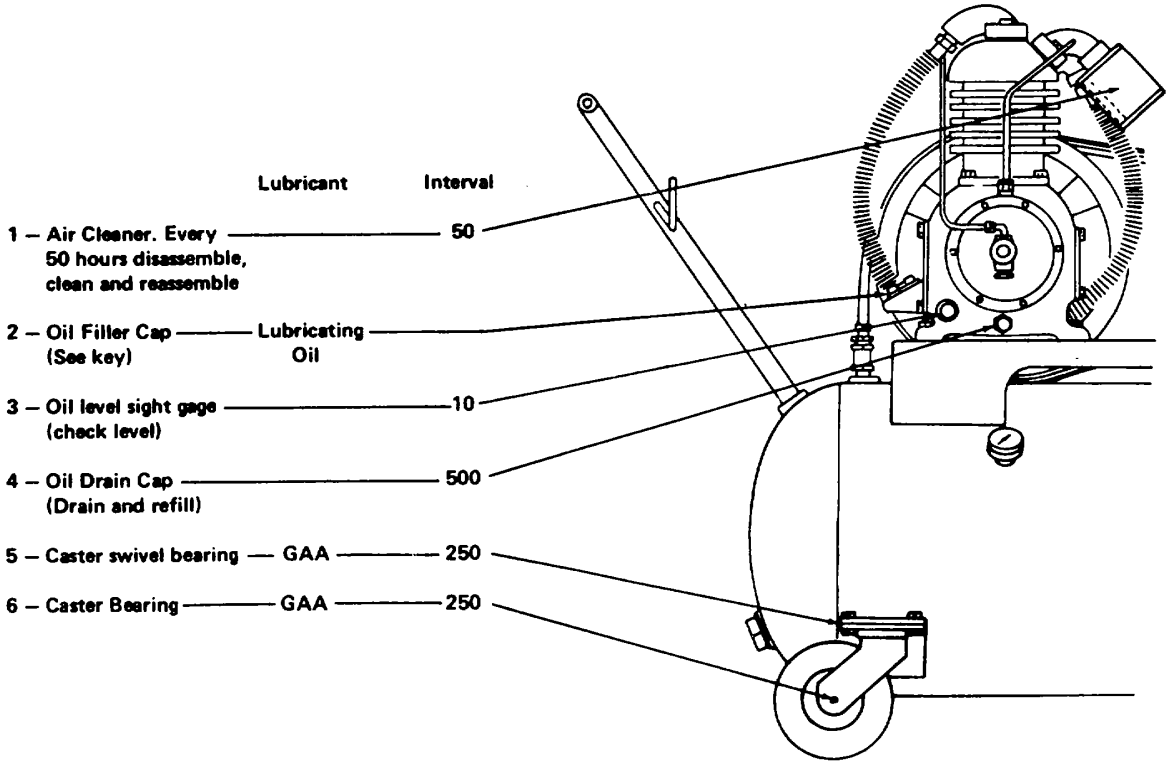
Section V, paragraph D1, line 1. Change the sentence to read, "Keep the sides of the shelter open for ventilation".

Section VI, paragraph A2, add:

WARNING

Dry cleaning solvent, PD-680, used for cleaning is POTENTIALLY DANGEROUS CHEMICAL. Do not use near open flame. Flash point of solvent is 100'F 138°F.

Page 9. Figure 10 is superseded as follows:



KEY

LUBRICANT	CAPACITY	EXPECTED TEMPERATURE			INTERVAL
		Above 32° F	40° F to 10° F	0° F to-65° F	
LUBRICATING OIL, General Purpose Crankcase SAE 10-W-30 Service MS-DG-DM-SD(MIL-L-2104)	1 qt	10-W-30	10-W-30	10-W-30	Intervals given are in hours of normal operation
GAA-GREASE, Automotive and Artillery (MI L-G-12924)		All Temperatures			

ME 4310-347-14/10,Cl

Figure 10. Lubrication Chart

Page 10, paragraph B (Possible Remedy). Line 7 is changed to read "Repair or replace motor (Section VIII, Para B)".

Paragraph D. Possible Remedy, line 3. "(Para G through L)", is changed to "(Para G through I)".

Paragraph E. Possible Remedy, line 2. "Replace" is changed to "Clean".

Page 11. Paragraph H, line 6 (Probable Cause) is added as follows:

"Improper rotation of flywheel". "(Possible Remedy)" is added as follows:

"Check wiring of electric motor (Section II), para E)".

Paragraph I. Possible Remedy, line 6 is changed to read "Repair or replace motor (Section VIII, para B)".

Paragraph M. Line 4 is added: (Probable Cause) "Flywheel and pulley misalined", (Possible Remedy)"Aline flywheel and pulley to eliminate side pull of V-belts".

Page 16. figure 16, callout 19, Make the arrow go to the elbow.

Page 18. figure 17, callout 35. Make the arrow to "elbow".

Page 20. figure 19. Add after figure title (Serial Nos. 13565 through 13622).

Figure 19.1 is added.

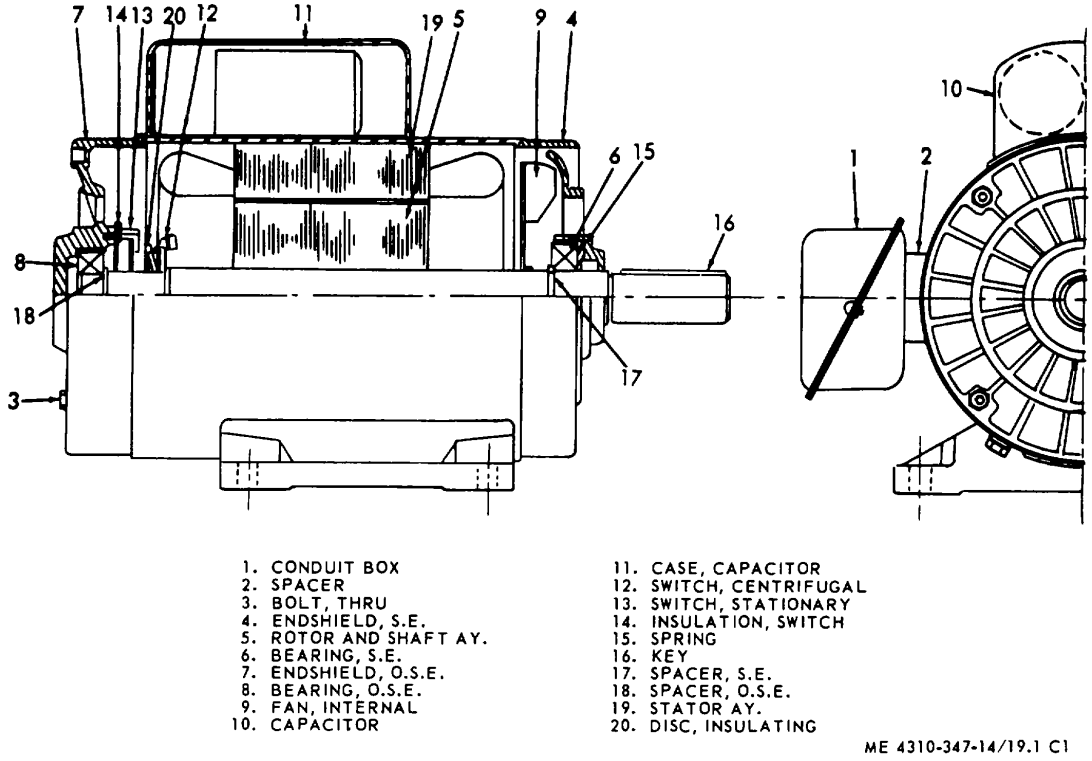


Figure 19.1. Electric motor, assembly (Serial Nos. 14433 thru 14449).

By Order of the Secretary of the Army:

CREIGHTON W. ABRAMS
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. 5) Operator maintenance requirements for Air Compressors, 5 CFM.

U.S. GOVERNMENT PRINTING OFFICE: 1974-665132/5
829-637

TECHNICAL MANUAL

NO. 5-4310-347-14

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D.C. 9 November 1972

OPERATOR, ORGANIZATIONAL, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE MANUAL

COMPRESSOR, RECIPROCATING: AIR, POWER DRIVEN, 5 CFM, 175 PSI (CHAMPION MODEL HR2-3M1) FSN 4310-752-9511

LIST OF ILLUSTRATIONS

SECTION I
GENERAL DESCRIPTION

A. The model HR2-3M-1 air compressor (figs. I and 2) is a portable, castor mounted, reciprocating type compressor. It is designed to deliver 5 cfm (cubic feet per minute) of air compressed to 175 psi (pounds per square inch) pressure. The compressor is electric motor driven. The air compressor is a two cylinder, two-stage, air-cooled unit. It will deliver 5 cfm at 175 psi to the air receiver tank. The air receiver tank is of welded steel construction with a capacity of 4.0 cu. ft. A drain cock is mounted in the bottom of the air receiver tank. A welded steel platform, mounted on top of the air receiver tank, serves as a base for the compressor and electric motor. The identification plate mounted on the top of one of the caster plates at the side of the air receiver specifies the name of the manufacturer, make, model number, and Federal Stock Number.

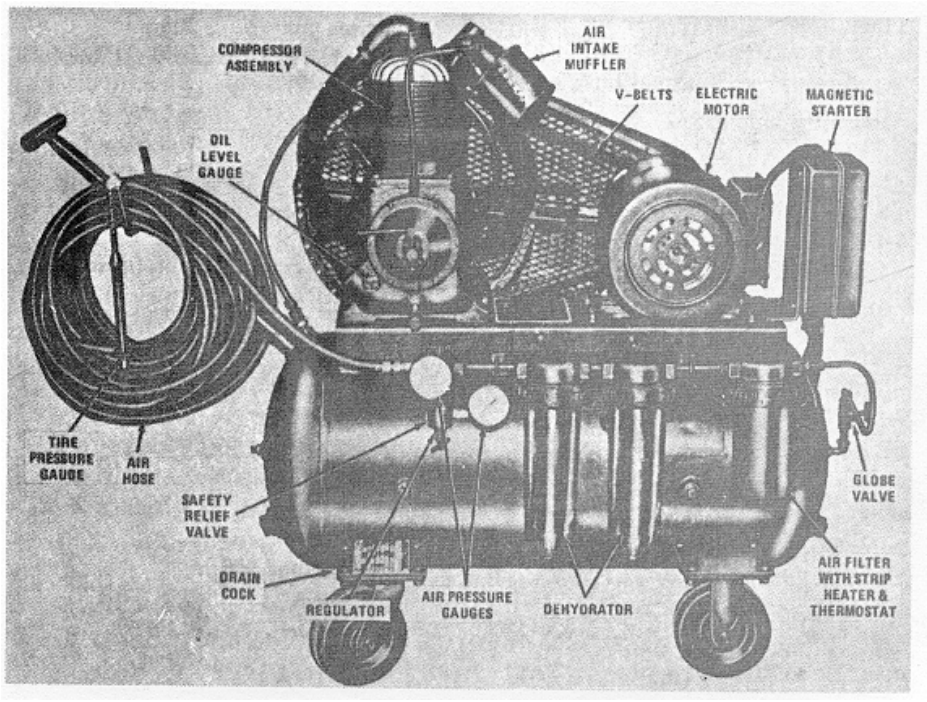


Figure 1. Air compressor, right side view

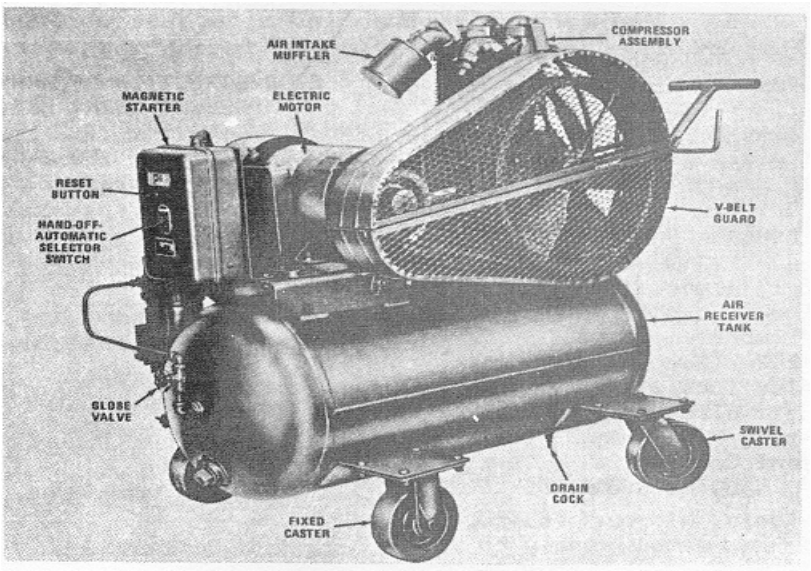


Figure 2. Air compressor, left side view.

B. TABLE OF SPECIFICATIONS

1. General
   Manufacturer.....Champion Pneumatic Machines
   Model HR2-3M-1
   Output .....5 cfm at 175 psi

2. Electric Motor
   Manufacturer.....Marathon
   Model .....9H 182TCFR7043AA W
   Type .....CFR-LE
   Cycle 60
   Phase.....Single
   Horsepower.....2
   Volts 115/230
   Duty.....Continuous
   Rated speed.....1740
   Frame.....182T
   Temperature rise ....70 degrees
   Amperes:
   At 115 volts 21.1
   At 230 volts 10.6

3. Compressor
   Manufacturer.....Champion Pneumatic Machinery
   Model R-1OB
   Type .....2-stage vertical

4. Compressor Air Cleaner
   Manufacturer.....Champion Pneumatic Machinery
   Type .....Dry

5. Magnetic Starter Switch Assembly
   Manufacturer..... Furnas Electric
   Style 82DA1ABHA1A X26
   Maximum pressure . 250 psi
   Minimum differential .30 psi

6. Dehydrator Assembly
   Manufacturer .....Wilkerson Corporation
   Model.....4001-2
   Maximum pressure .200 psi
   Desiccant.....85-059 (Silica Jel)

7. Dehydrator Assembly
   Manufacturer .....Wilkerson Corporation
   Model.....4001-2U
   Maximum pressure . 200 psi
   Desiccant.....85-060 (Molecular sieve)

8. Filter
   Manufacturer .....Wilkerson Corporation
   Model.....1138-4MX

9. Capacities
Compressor crankcase 1 qt. (quart)
Air receiver tank .....4.0 cu. ft.

10. Air Receiver
    Manufacturer .....Kargard
    Working pressure ...200 psi

11. Air Hose
    Size.....5/16 in. x 50 ft.

12. Dimensions and Weight
    Shipping weight .....528.5 lbs.
    Shipping cube.....42.5 ft.
    Length.....55 in.
    Height .....41.in.
    Width .....28in.
    Net Weight.....435 b.

MAINTENANCE FORMS AND RECORDS

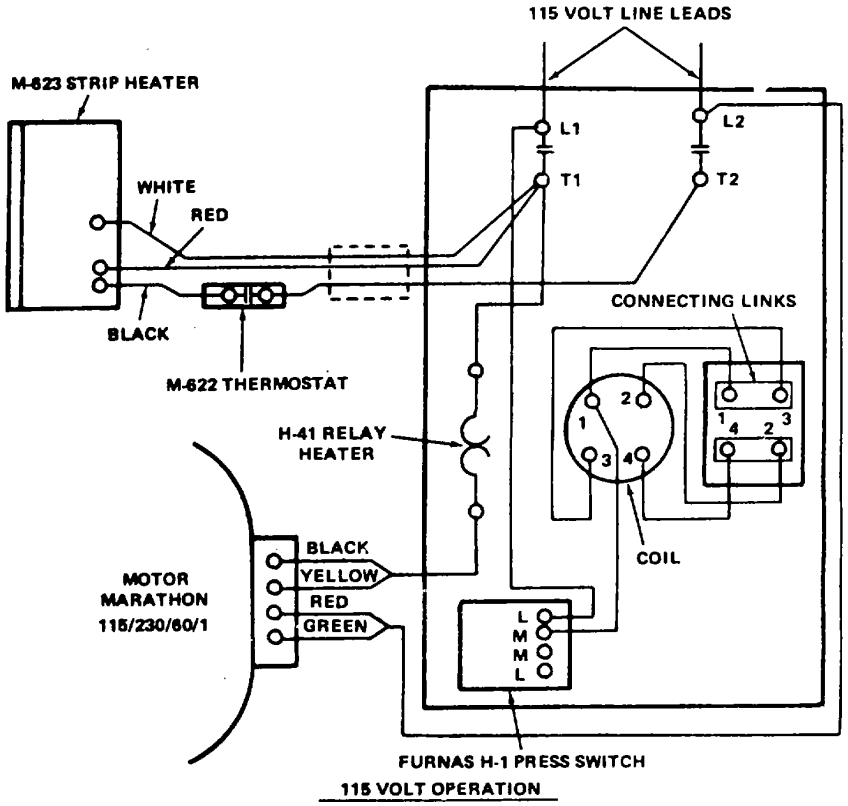
Maintenance forms and records that you are required to use are explained in TM 38-750.

D. REPORTING OF ERRORS

You can improve this manual by calling attention to errors and by recommending improvements, using DA Form 2028 (Recommended Changes to Publications), or by a letter, and mall directly to Commanding General, U.S. Army Mobility Equipment Command, ATTN: AMSME-MPP, 4300 Goodfellow Boulevard, St. Louis, Missouri 63120 A reply will be furnished directly to you

E. DESTRUCTION OF ARMY MATERIAL TO PREVENT ENEMY USE.

Refer to TM 750-244-3 for destruction of the compressor.



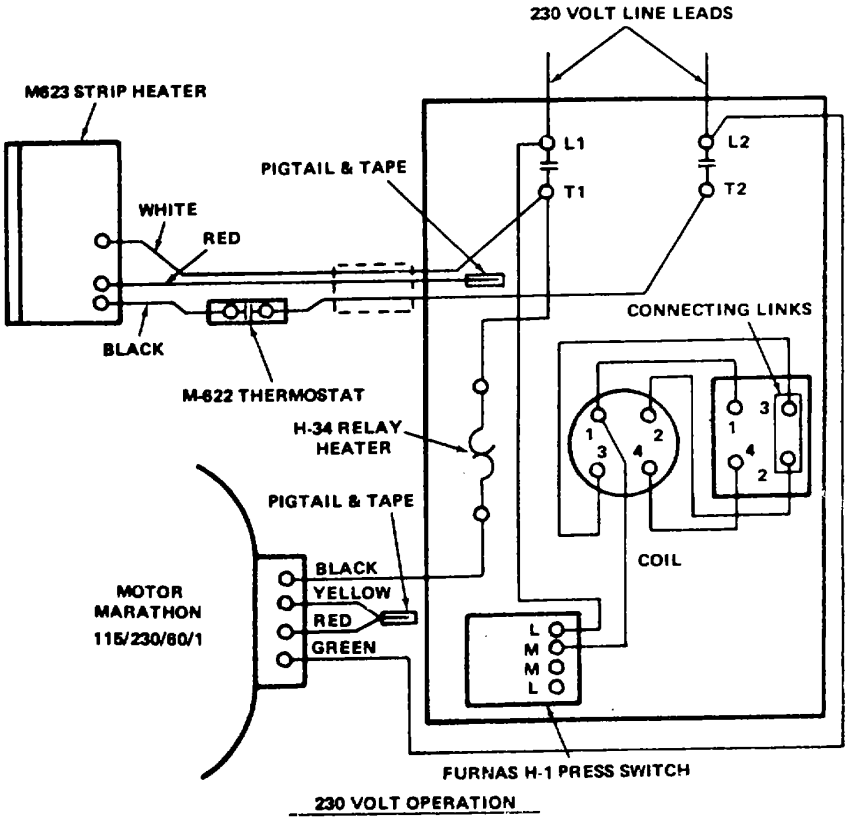


Figure 3. Wiring diagram

SECTION II

SERVICE UPON RECEIPT OF EQUIPMENT

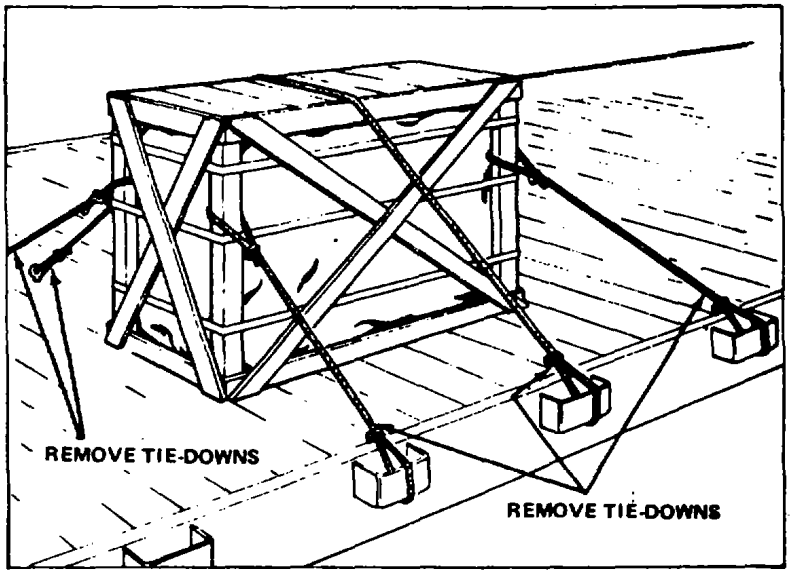


Figure 4. Shipping tie-downs

A. UNLOADING THE AIR COMPRESSOR

1. Remove all tie-downs and blocking that secure the crate to carrier. Refer to figure 4.
2. 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:

B. UNPACKING THE AIR COMPRESSOR

1. 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.
2. Remove the tape and protective covering from electric motor, compressor, and air receiver tank.

C. INSPECTION AND SERVICING EQUIPMENT

1. Make a thorough inspection of the air compressor for any loss or damage that may have occurred during shipping or handling.
2. Inspect for dents, breaks, loose mounting bolts or other defects. Inspect for loose connections, damaged wiring or other defects.
3. Torn 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.

D. INSTALLATION OF SEPARATELY PACKED COMPONENTS

1. Installation of Air Hose Assembly

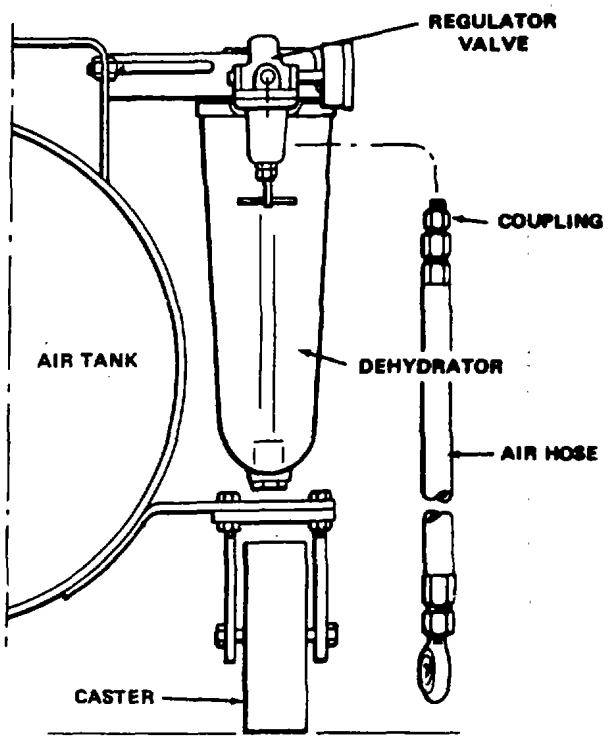


Figure 5. Air hose assembly, removal points

a. Install the coupling (Fig. 5) in opening in regulator.
b. Attach air hose assembly to coupling.
c. Install pressure gages as shown on figure 1.

2. Installation of Desiccant

CAUTION: Be sure no pressure is on the dehydrators.

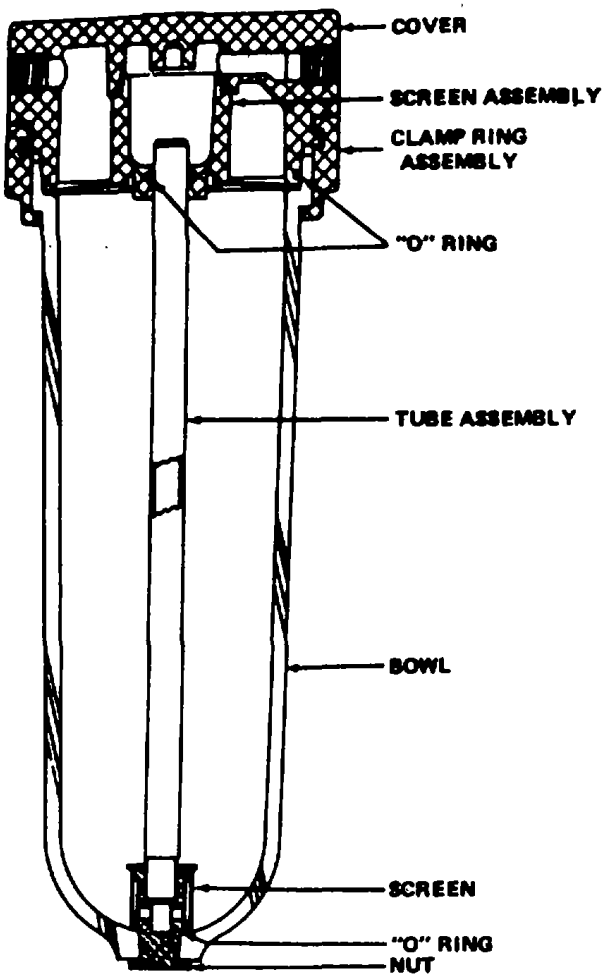


Figure 6. Desiccant installation.

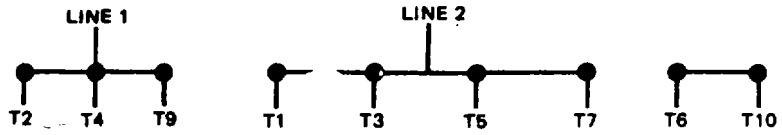
a. First dehydrator (nearest filter):
   1. Press lever on quick - disconnect ring and lower polycarbonate shell from top casing as shown in Fig. 6.
   2. Pour out used desiccant. Open can of new desiccant No. 85-059 - and pour contents into shell of unit.
   3. Fill to top. Shake or tap to settle desiccant, then add or remove enough so that level is 1/8 inch below O-ring level on center tube. Avoid pouring desiccant down center tube.
   4. Replace shell assembly to top casing and lock in place by rotating quick - disconnect ring until lever snaps closed.

b. Second dehydrator (nearest regulator)
   1. Press lever on quick - disconnect ring and lower polycarbonate shell from top casing as shown in Fig. 6.
   2. Pour out used desiccant. Open can of new desiccant No. 85-060 - and pour contents into shell of unit.
   3. Fill to top. Shake or tap to settle desiccant, then add or remove enough so that level is 1/8 inch below O-ring level on center tube. Avoid pouring desiccant down center tube.
   4. Replace shell assembly to top casing and lock in place by rotating quick - disconnect ring until lever snaps closed.

E. EQUIPMENT CONVERSION

1. Electric Motor Wiring for 115 Volts
   a. Remove junction box cover on motor.
   b. Wiring should be as shown in figure 7A.
   c. Install the relay heater (refer to figure 8) marked H-41. They relay heater (H-41) is factory installed.

A -WIRING FOR 115 VOLTS



B - WIRING FOR 230 VOLTS

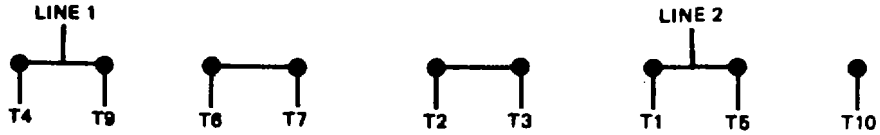


Figure 7. Electric motor wiring.

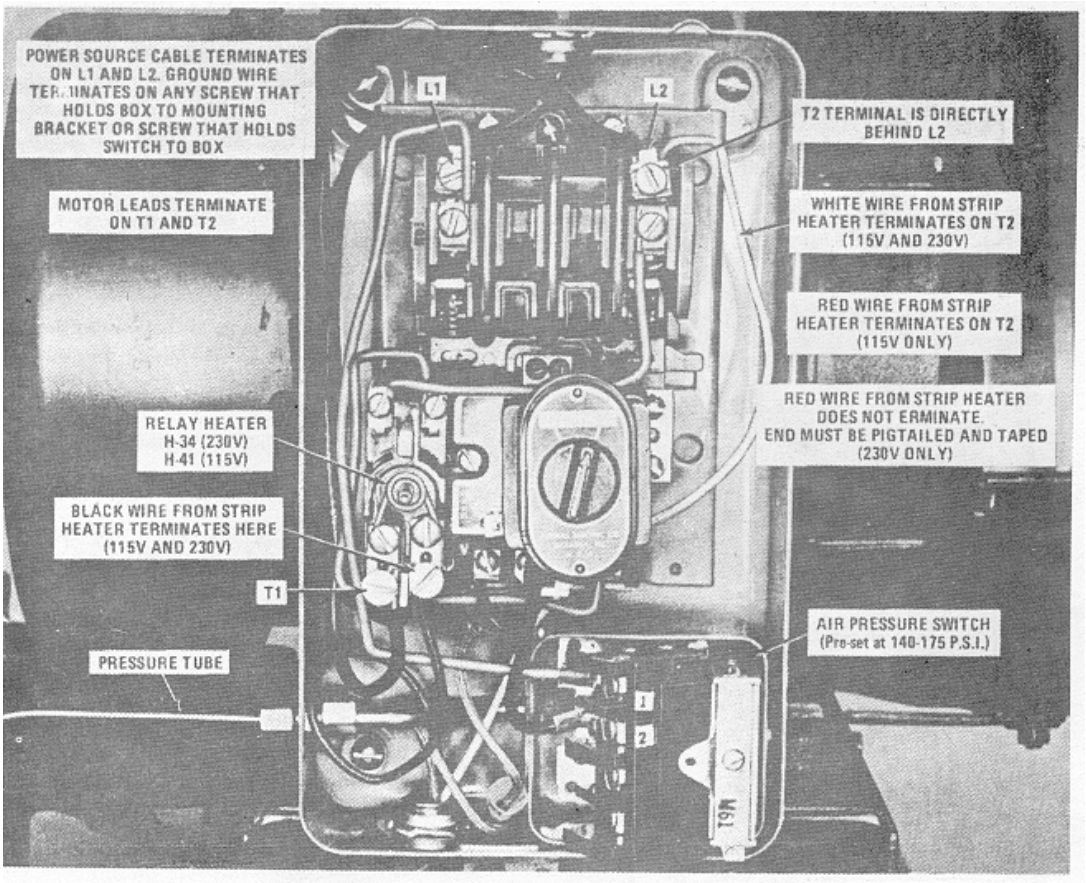


Figure 8. Magnetic Starter (shown with cover removed).

2. Electric Motor Wiring for 230 Volts
   a. R(emov4 junction box cover on motor.
   b. Wiring should be as shown in figure 7B.
   c. Remove relay heater marked H-41 and replace with relay heater marked H-34 (refer to figure 8).

F. INSTALLATION OR SET-UP INSTRUCTIONS

1. 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.

2. Grounding. The air compressor must be grounded prior to operation. The ground lead-may be connected to an underground 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.

3. Connecting the Incoming Power Source.
   a. Remove the cover from the magnetic starter (figure 8).
   b. 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 a disconnect switch that is locked in the OFF position before handling the wires.

   c. 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.
   d. Install cover on the magnetic starter.

SECTION III

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 glove valve (figure 1) mounted on the end of the air receiver tank is a manually operated valve that opens the flow of compressed air-to the filter, dehydrator, regulating valve and air hose.

C. DRAIN COCK

The drain cock (figure 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.

D. OIL I.EVEL GAGE

The oil level gage mounted in the compressor crankcase (figure 11) 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 (figure 1) mounted on th4, side of the air receiver tank, is a needle-indicating, direct reading, pressure- operated gage graduated from 0 to 300 psi in increments of S psi. The gage indicates the air pressure in the air receiver tank. Normal operating pressure is 140 to 175 psi.

F. SAFETY RELIEF VALVE

The safety relief valve (figure 1) is mounted in a tee fitting used to mount the air receiver tank pressure gage. It is a preset valve that is actuated when the air receiver tank receives a pressure of 200 or more psi. 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. REGULATOR AND PRESSI)RE CA('.E

The regulator (figure 1) is a manually operated valve controlling external air line pressure And may be adjusted within the range of 0 to 175 psi by turning the handle. A needle indicating, direct-reading, pressure operated gage- graduated from 0 to 300 psi mounted in the regulator indicates regulator pressure setting.

H. HAND-OFF-AUTOMATIC SFLECTOR SWITCH

The hand-off-automatic: selector switch (figure 2) is a manually actuated switch located front center of the magnetic switch box cover. In OFF position the compressor motor will not operate(. When the selector is turned to AUTO position the compressor will operate until pressure in air receiver tank reaches 175 psi then the pressure switch automatically shuts-off the motor. The compressor will recycle again automatically when pressure drops below 140 psi, and continue to cycle automatically in this AUTO position.

I. RESET BUTTON

The reset button (figure 2) mounted on the cover of the magnetic starter, directly above the hand-off-automatic selector switch, is a manually operated button, which when pushed, resets the thermal relay in the magnetic starter.

SECTION IV

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 slopping, 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 handoff-auto selector switch (figure 2) to "auto" position.

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

C. STOPPING,

1. Close globe valve (figure 1).
2. Turn hand-off-auto selector switch (figure 2) to "off" position.
3. Open the drain cock (figure 1) in the bottom of air receiver tank to blow the compressed air and condensation from the air receiver tank.
4. Close drain cock.

D. AIR PRESSURE ADJUSTMENT

1. Start the air compressor (par. B above) to determine adjustment. The pressure switch is preset by manufacture at 140 psi CUT-IN, and 175 psi CUT-OUT setting. If adjustment is necessary shut off the outside power source.
2. Remove cover from magnetic starter.
3. To raise the CUT-IN and CUT-OUT pressure turn the pressure adjusting screw clockwise. Refer to figure 9.
4. To decrease the difference between the CUT-IN and CUT-OUT pressure, turn the differential screw counter-clock-wise. Refer to figure 9.

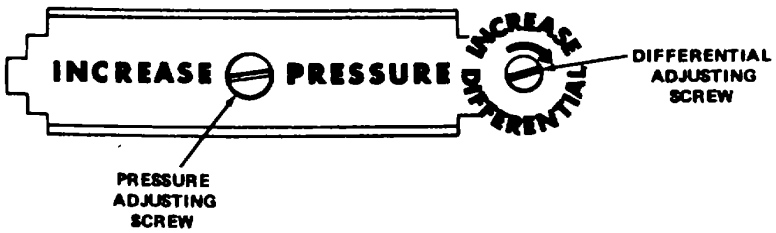


Figure 9. Pressure adjusting and differential screws.

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

5. 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 crew clockwise, the CUT-IN pressure changes only slightly, and the CUT-OUT pressure rises.

6. 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 drain below 140 psi. Close the drain cock, and the compressor should start immediately.
7. Install the cover on the magnetic starter.

SECTION V
OPERATION UNDER UNUSUAL CONDITIONS

A. OPERATION IN EXTREME COLD (Below 0° F.)

1. 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.
2. Lubricate the air compressor according to the lubrication chart.
3. Avoid excessive handling, kinking, and sharp bending of the air hose, which will become brittle at low temperature
4. 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.

B. OPERATION IN EXTREME HEAT

1. Locate the air compressor an operating are that is well ventilated or provide intake and exhaust fans to ventilate enclosed area.
2. Lubricate the compressor in accordance with the lubrication chart.
3. Check the drive-belt tension frequently. Improper drive- belt tension often results in overheating.
4. Keep the electric motor, compressor, and air receiver tank clean.

C. OPERATION IN DUSTY OR SANDY AREAS

1. Lubricate the air compressor in accordance with the lubrication chart, making sure that all lubrication points re 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.
2. 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 re oily, gummy, or heavy.
3. Protect the air compressor from dust with s-rt-4, built from tarpaulins, or other dustproof material Keep the unit covered when not in use.
4. Clean the compressor air cleaner more often than when operating under normal conditions

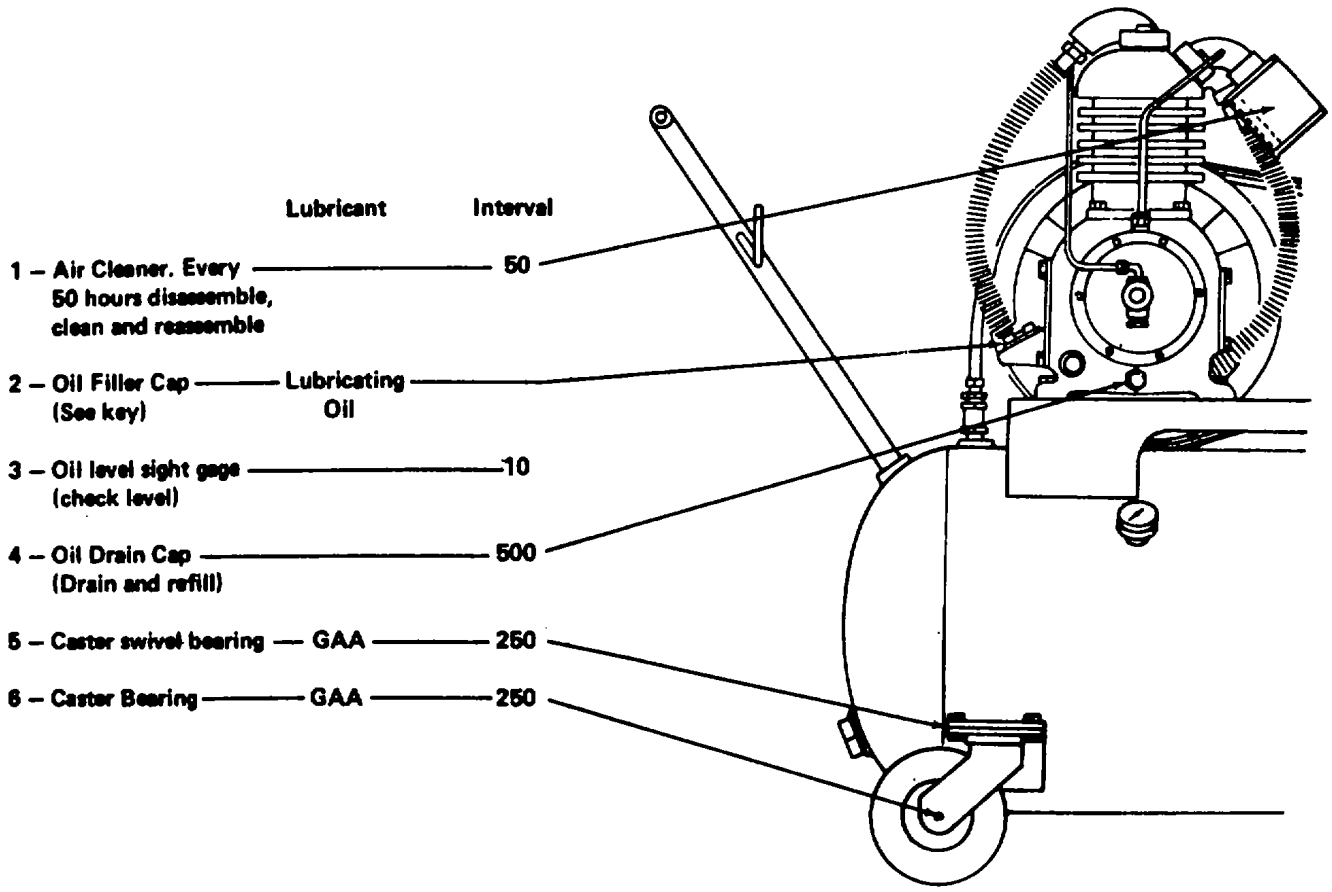
D. OPERATION IN SALT WATER OR HIGH HUMIDITY AREAS

1. Protect the unit with a shelter of some kind. Keep the sides open for ventilation.
2. 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.
3. Make sure all surfaces requiring lubrication are clean and dry before applying lubricant. Lubricate the unit in accordance with the lubrication chart.
4. Coat exposed polished or machined metal surfaces with a suitable rustproof material after first remove any accumulations of rust.
5. Open the drain cock frequently to blow condensate from the air receiver tank.

SECTION VI
LUBRICATION INSTRUCTIONS

A. GENERAL LUBRICATION INFORMATION

1. Care of Lubricants. When handling or storing lubricants make certain the containers are clean and securely covered to prevent dirt, dust and other foreign matter from entering. Be sure lubricant is clean before using.
2. Cleaning. Clean all s faces surrounding the point to be lubricated before applying the lubricant. Remove all excess lubricant after lubricating.
3. Points of Lubrication and interval. Refer to figure 10. Intervals are bed on normal operation Reduce to compensate for abnormal operation and severe conditions. During inactive period intervals may be extended. Drain crankcase only when hot after operation; replenish and check level when cool.



KEY

LUBRICANT	CAPACITY	EXPECTED TEMPERATURE			INTERVAL
		Above 32° F	40° F to 10° F	0° F to -65°F	
LUBRICATING OIL, General Purpoae Crankcse of norrmal operation	1 qt	OE	OE10	OES	Intervals given are in hours
GAA-GREASE, and Artillery		Automotive	All Temperatures		

Figure 10. Lubrication Chart.

B. DETAILED LUBRICATION INFORMATION

Air Intake Muffler (Clean every 50 hours).

1. Remove air intake muffler from intake manifold.
2. Clean all parts with an approved cleaning solvent and dry thoroughly.
3. Install intake muffler on intake manifold.

SECTION VII
TROUBLESHOOTING

A. GENERAL

This section provides information useful in diagnosing and correcting unsatisfactory operation or failure of the a compressor and its components. Each trouble symptom stated is followed by a list of probable causes of trouble. The possible remedy recommended is described opposite the probable cause. Any operational trouble noted that is beyond the scope of operator or crew maintenance must be reported to field maintenance.

B. ELECTRIC MOTOR FAILS TO START OR FAILS TO RUN

PROBABLE CAUSE	POSSIBLE REMEDY
Leads not properly connected in conduit box	Connect leads properly (Sect. U, Para. El or E2)
Magnetic starter not wired properly	Connect leads properly (Sect. 11, Para. El or E2)
Magnetic starter switch or pressure switch defective.	Replace or repair a defective magnetic starter switch or pressure switch. (Sect. IX, Para. B)
Line voltage of incoming power source incorrect	Determine incoming power source and make correct connections.
Motor defective	Replace motor (Sect. VIII, Para. B)

C. ELECTRIC MOTOR REVERSES

PROBABLE CAUSE	POSSIBLE REMEDY
Wiring incorrect	Correct wiring (Refer to Fig. 3)

D. ELECTRIC MOTOR OVERHEATS

PROBABLE CAUSE	POSSIBLE REMEDY
Line voltage low from power source	Connect to proper power source
V-belts out of alinement	Aline V-belts (Sect. X, Para. E3)
Compressor faulty	Refer to compressor troubles (Para. G thru L)
Ventilation insufficient Insufficient lubrication	Provide proper ventilation Lubricate the air compressor as directed in the lubrication chart (Refer to Fig. 10)

E. ELECTRIC MOTOR NOISY

PROBABLE CAUSE	POSSIBLE REMEDY
Electric motor mounting bolts or brackets loose	Tighten mounting bolts and brackets.
Electric motor interior dirty	Replace electric motor (Sect. VIII, Para. B)
Electric motor bearings worn	Repair electric motor (Sect. VHI, Para. B)
V-belts improperly adjusted	Adjust V-belts (Sect. X, Para. E3)

F. ELECTRIC MOTOR DOES NOT CUT IN AT 140 PSI, AND CUT OUT AT 175 PSI

PROBABLE CAUSE	POSSIBLE REMEDY
Pressure switch not set properly	Adjust pressure switch (Sect. IX, Para. B)
Pressure switch defective	Replace or repair pressure switch (Sect. IX, Para. B)
Incoming power source disconnected	Connect air compressor incoming power source

G. COMPRESSOR PUMPS TOO SLOWLY

PROBABLE CAUSE	POSSIBLE REMDEY
Intake air muffler clogged	Service intake air muffler (Sect. VI, Para. B)
V-belts improperly adjusted	Adjust V-belts (Sect. X, Para. E3)
Oil level low	Check oil level in crankcase and fill in accordance with lubrication chart. (Refer to Fig. 10)
Intake and exhaust valves faulty	Clean or replace valves (Sect. X, Para. H)
Air leakage in unit	Tighten connection
Load too great for compressor capacity	Reduce load requirements of compressor

H. COMPRESSOR OVERHEATS

PROBABLE CAUSE	POSSIBLE REMEDY
Flywheel defective	Replace flywheel (Sect. Xl. Para. A)
V-belt. slipping	Adjust V-belts (Sect. X, Para. E3)
Intake and exhaust valves faulty	Clean or replace valves (Sect. X, Para. II)
Intake air muffler dirty	Service intake air muffler (Sect. VI, Para. B)
Oil level low	Inspect oil level ill crankcase and fill in accordance with lubrication chart (Refer to Fig. 10)

I. COMPRESSOR FAILS TO PUMP TO PRESSURE

PROBABLE CAUSE	POSSIBLE REMEDY
Air leakage in unit	Eliminate by tightening connections
Pressure switch defective	Replace or repair pressure switch (Sect. IX, Para. B)
V-belts improperly adjusted	Adjust V-belts (Sect. X, Para. E3)
Intake and exhaust valves defective	Clean or replace valves (Sect. X, Para. 11)
Governor leaking	Repair or replace governor (Sect. X, Para. I)
Motor defective	Replace motor (Sect. VIII, Para. B)
Intake air muffler clogged	Clean or replace intake air muffler (Sect. VI, Para. B)
Intercooler leaks	Replace defective. intercooler (Sect. XI, Para. A)

J. COMPRESSOR NOISY

PROBABLE CAUSE	POSSIBLE REMEDY
Flywheel loose	Tighten nut on flywheel bolt ’
Lubrication improper	Lubricate the air compressor as directed in the lubrication chart (Refer to Fig. 10)

K. COMPRESSOR VIBRATES EXCESSIVELY

PROBABLE CAUSE	POSSIBLE REMEDY
Mounting insecure	Tighten mounting bolts
Drive pulley out of line	Inspect and adjust alinement of drive pulley (Sect. X, Para. E3)
Foundation insecure	Strengthen foundation or relocate air compressor on solid base.

L. COMPRESSOR FAILS TO SHUT DOWN

PROBABLE CAUSE	POSSIBLE REMEDY
Pressure switch not properly adjusted	Adjust pressure switch (Sect. IX, Para. B)
Load requirement excessive for air compressor capacity	Replace check valve assembly

M. BELTS WEAR EXCESSIVELY

PROBABLE CAUSE	POSSIBLE REMEDY
Flywheel loose	Tighten nrut on flywheel bolt
V-belts improperly adjusted	Adjust V-belts (Sect. X, Para. E3)
Oil or grease on belts	Clean belts or replace damaged belts (Sect. X, Pars. E3)

N. SAFETY RELIEF VALVE BLOWS AT TOO LOW PRES

PROBABLE CAUSE	POSSIBLE REMEDY
Valve not properly sated	Drain air and valve will reseat
Valve defective	Replace valve

0. MAGNETIC STARTER SWITCH FAILS TO OPERATE

PROBABLE CAUSE	POSSIBLE REMEDY
Magnetic starter switch defective	Replace or repair starter switch (Sect. IX, Para. B)
Thermal relay heater defective	Install a new thermal relay eat(Sect. IX, Para. C)

SECTION VIII
MAINTENANCE
ELECTRIC MOTOR AND COMPRESSOR

A. 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.

B. ELECTRIC MOTOR

1. Removal. Remove the electric motor a instructed on figure 11.
2. Installation. Install the electric motor as instructed on figure 11.

C. COMPRESSOR ASSEMBLY

1. Removal. Remove the compressor assembly as instructed on figure 11.
2. Installation. Install the compressor assembly as instructed on figure 11.

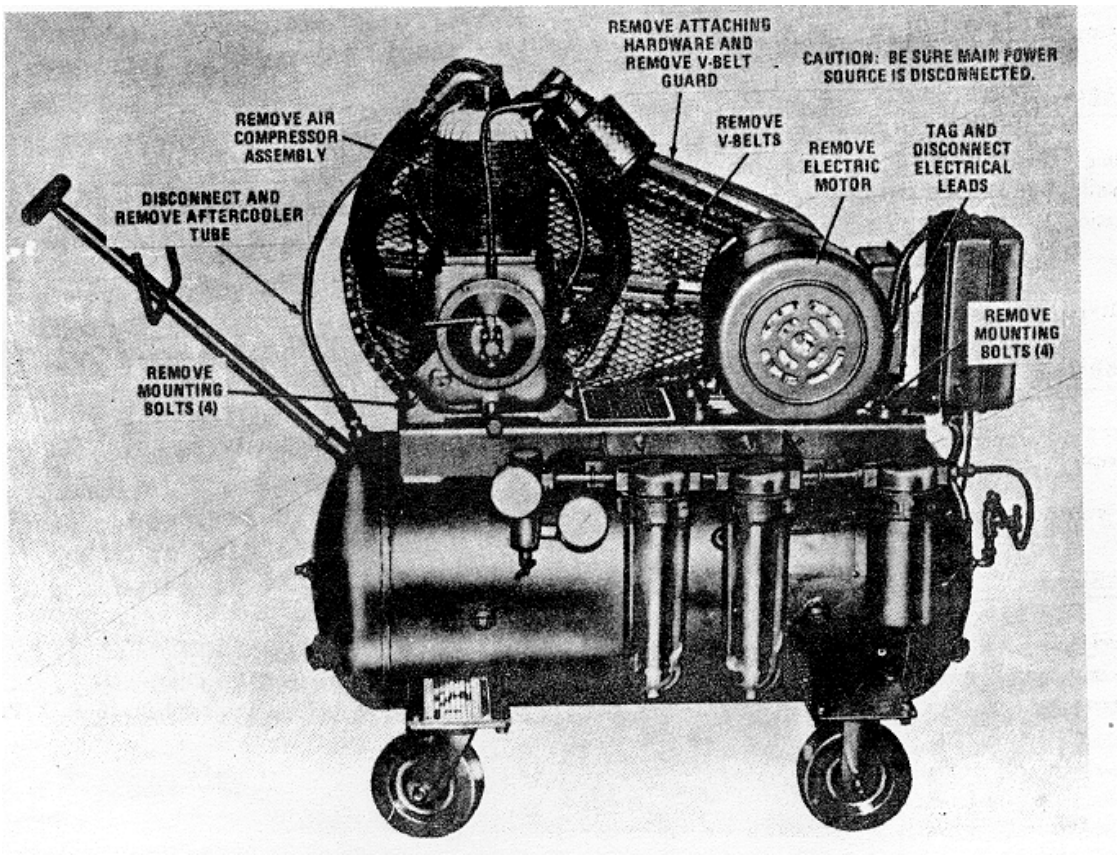


Figure 11. Electric motor and compressor assembly, removal and installation.

SECTION IX
ELECTRICAL ACCESSORIES AND COMPONENTS

A. GENERAI,

The electrical accessories consist of the magnetic starter with pressure switch and strip heater with thermostat for air filter. Air pressure from the air receiver tank against the diaphragm of the pressure switch energizes thc starter switch causing the contacts to close The strip heater and thermostat are mounted on the air filter.

B. MAGNETIC STARTER WITH PRESSURE SWITCH

1. Removal. Re-move the magnetic starter as instructed oil figure 12.
2. Disassembly. Refer to figure 12 and remove magnetic starter components as instructed.
3. Cleaning, Inspection and Repair.
   a. Clean all parts with an approved cleaning solvent and dry thoroughly.
   b. Replace all defective or worn parts.
4. Reassembly. Refer to figure 12 and reassemble magnetic starter components.
5. Installation. Install the magnetic starter as illustrated on figure 12.

C. STRIP HEATER AND THERMOSTAT

1. Removal. Remove strip heater and thermostat as instructed on figure 13. Replace: defective parts, as necessary.
2. Installation. Install strip heater and thermostat as instructed on figure 13.

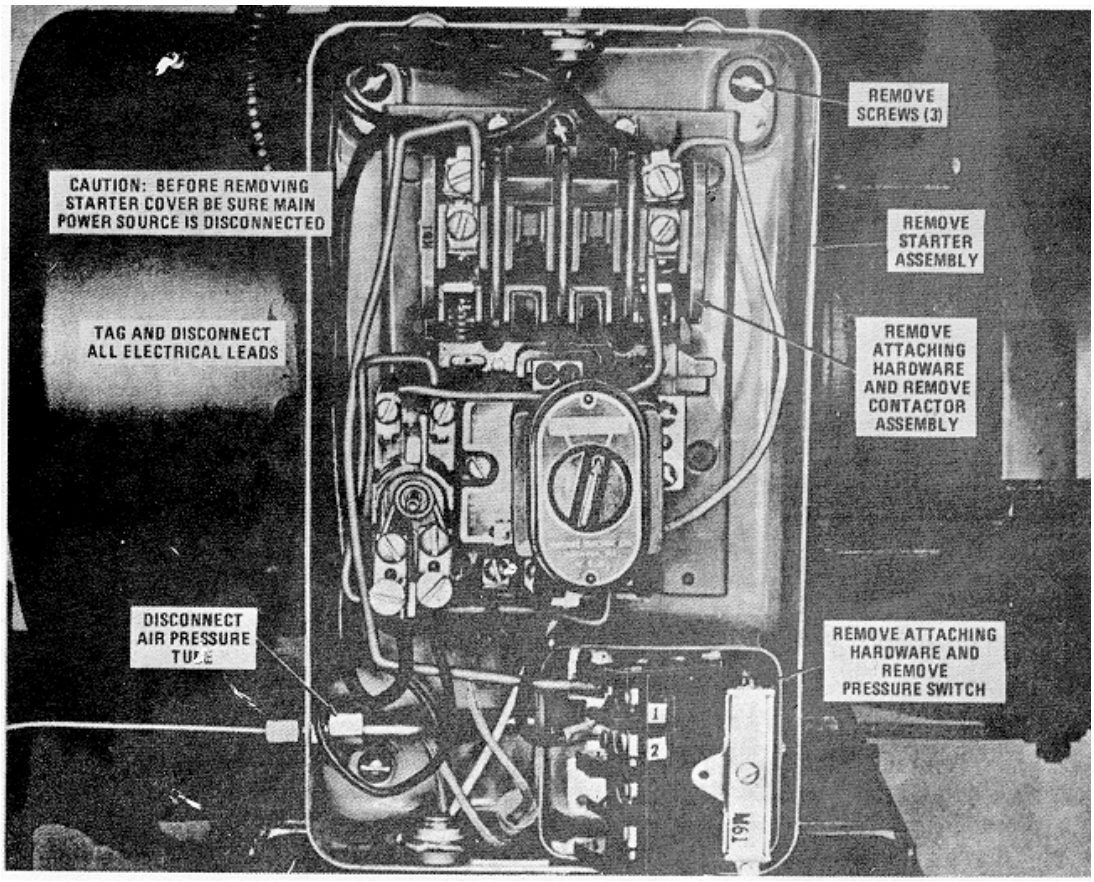


Figure 12. Magnetic starter with pressure switch, removal and installation (shown with cover removed)

SECTION X
AIR COMPRESSOR ASSEMBLY AND RELATED COMPONETS

A. GENERAL

The air compressor assembly is a two-cylinder, two stage, air cooled unit. It consists of air intake muffler, intercooler and aftercooler tubes, manifolds and high and low pressure cylinders. The air filter, dehydrator and regulator monitor the air pressure from the air receiver tank.

B. AIR FILTER ASSEMBLY

1. Removal.
   a. Remove the strip heater and thermostat as instructed in C above.
   b. Remove the air filter as instructed on figure 13.

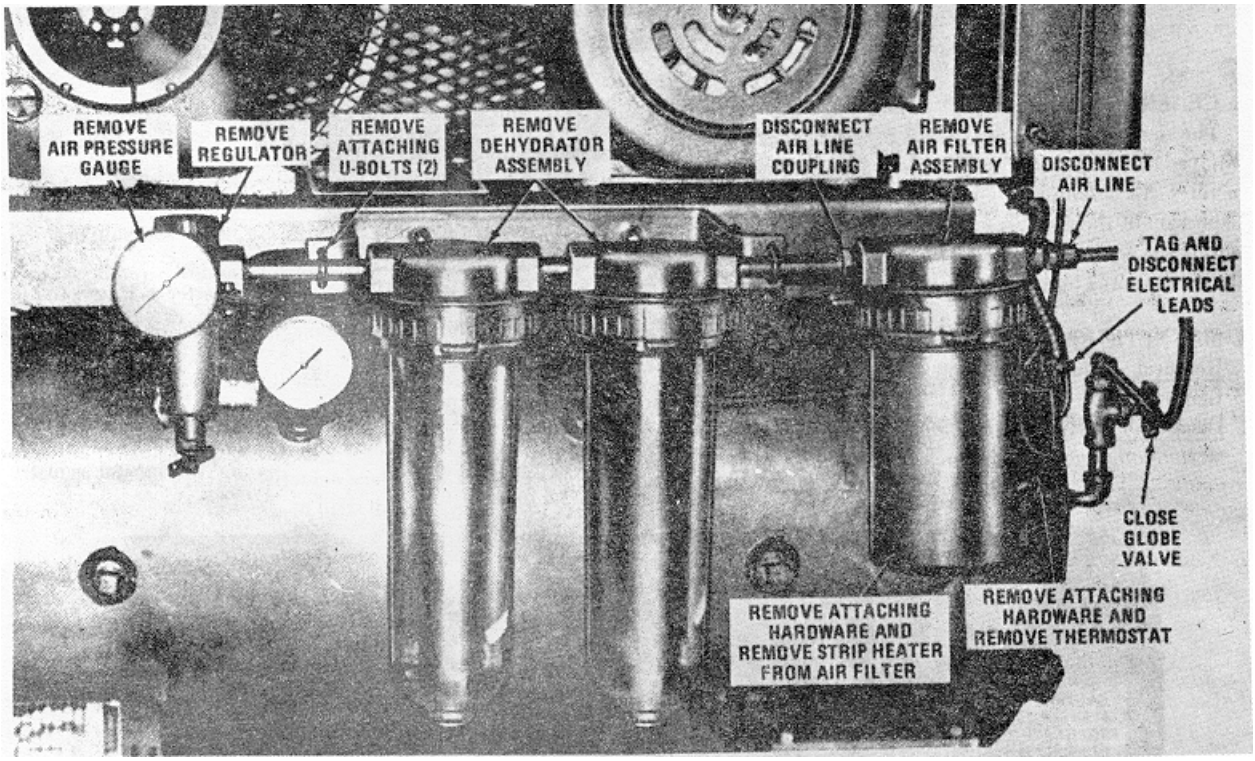


Figure 13. Air filter, strip heater, thermostat hydrator and regulator, removal and installation

2. Installation.
   a. Install the air filter as instructed on figure 13.
   b. Install the strip heater and thermostat as instructed in C above.

C. DEHYDRATOR ASSEMBLY

1. Removal. Remove the dehydrator assemblies as instructed on figure 13. Replace defective parts as necessary.
2. Installation. Install the dehydrator assemblies as instructed on figure 13. Refer to Section II D, 2 for installation of desiccant.

D. REGUJLATOR ASSEMBLY

1. Removal. Remove the regulator assembly as instructed on figure 13. Replace defective parts as necessary.
2. Installation. Install the regulator assembly as instructed on figure 13.

E. V-BELTS

1. Removal.
   a. Remove V-belt drive guard, figure 14.
   b. Remove the V-belts as instructed on figure 14.
2. Installation.
   a. Install V-belts as instructed on figure 14, and adjust tension as described below.
   b. Install V.-belt drive guard.
3. Adjustment.
   a. Move the motor away from the compressor until there is tension on the V-belts.
   b. 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 the tension is correct.

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

   c. Tighten motor mounting bolts securely.

F. AIR INTAKE MUFFLER

1. Removal. Remove intake muffler u instructed on figure 14.
2. Installation. Install intake muffler as instructed on figure 14

G. INTAKE AND EXHAUST MANIFOLDS

1. Removal. Remove intake and exhaust manifolds n instructed on figure 14.
2. Installation. Install intake and exhaust manifolds as instructed on figure 14.

H. INTAKE AND EXHAUST VALVES

1. Removal and Disassembly.
   a. Remove intake and exhaust manifolds as described above.
   b. Refer to figure 15 and remove and disassemble intake and exhaust valves as shown. Replace damaged or defective parts as necessary.
2. Reassembly and Installation.
   a. Refer to figure 15' and reassemble and install intake and exhaust valves as shown.

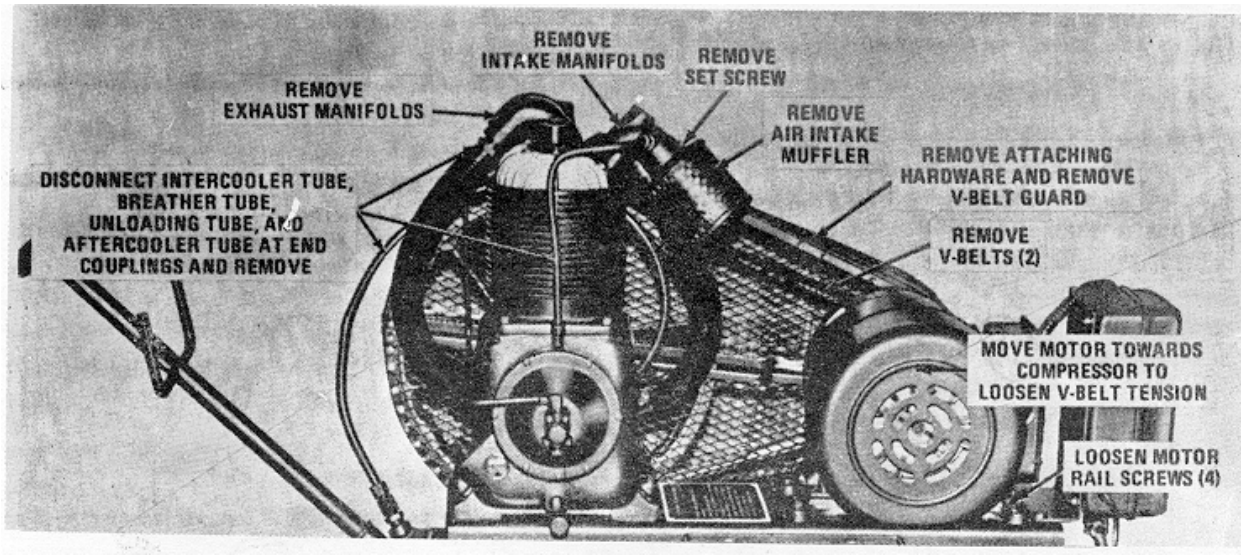
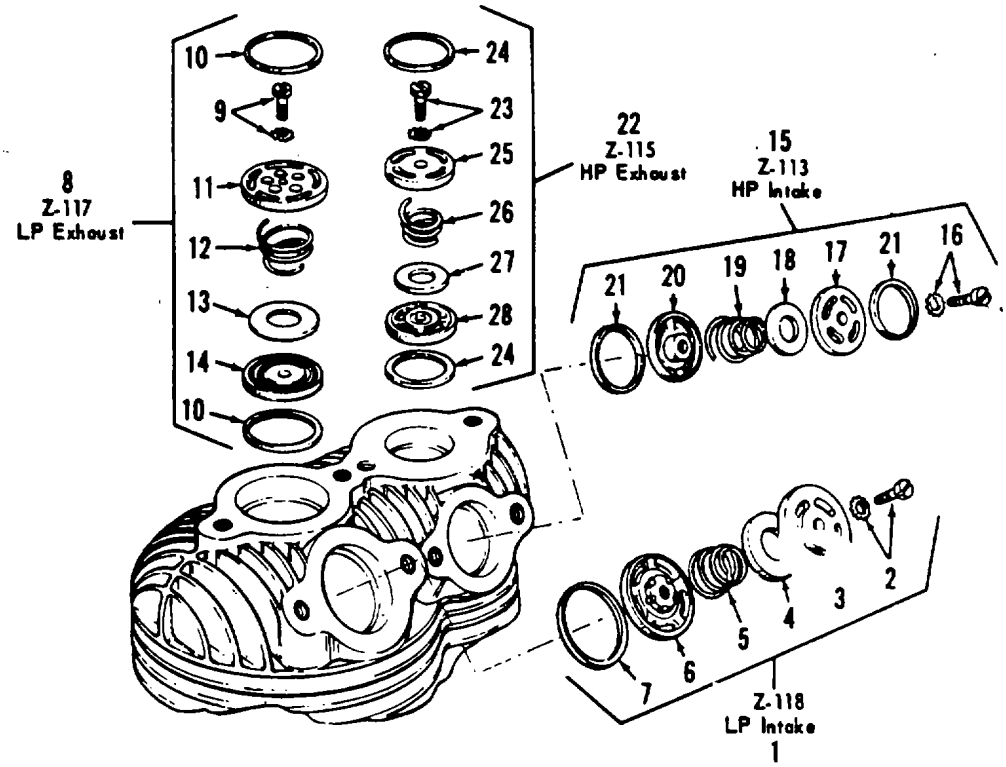


Figure 14. Compressor, components and v-belt drive.



1. Valve assembly, L.P. intake
2. Screw, machine w/washer
3. Seat, intake valve
4. Disc, valve
5. Spring, valve
6. Cage, intake valve
7. Gasket, valve
8. Valve assembly, L.P. exhaust
9. Screw, machine w/washer
10. Gasket, valve
11. Cage, exhaust valve
12. Spring, valve
13. Disc, valve
14. Seat, exhaust valve
15. Valve assembly, H.P. intake
16. Screw, machine w/washer
17. Seat, intake valve
18. Disc, valve
19. Spring, valve
20. Cage, intake valve
21. Gasket, valve
22. Valve assembly, H.P. exhaust
23. Screw, machine w/washer
24. Gasket, valve
25. Cage, exhaust valve
26. Spring, valve
27. Disc, valve
28. Seat, exhaust valve

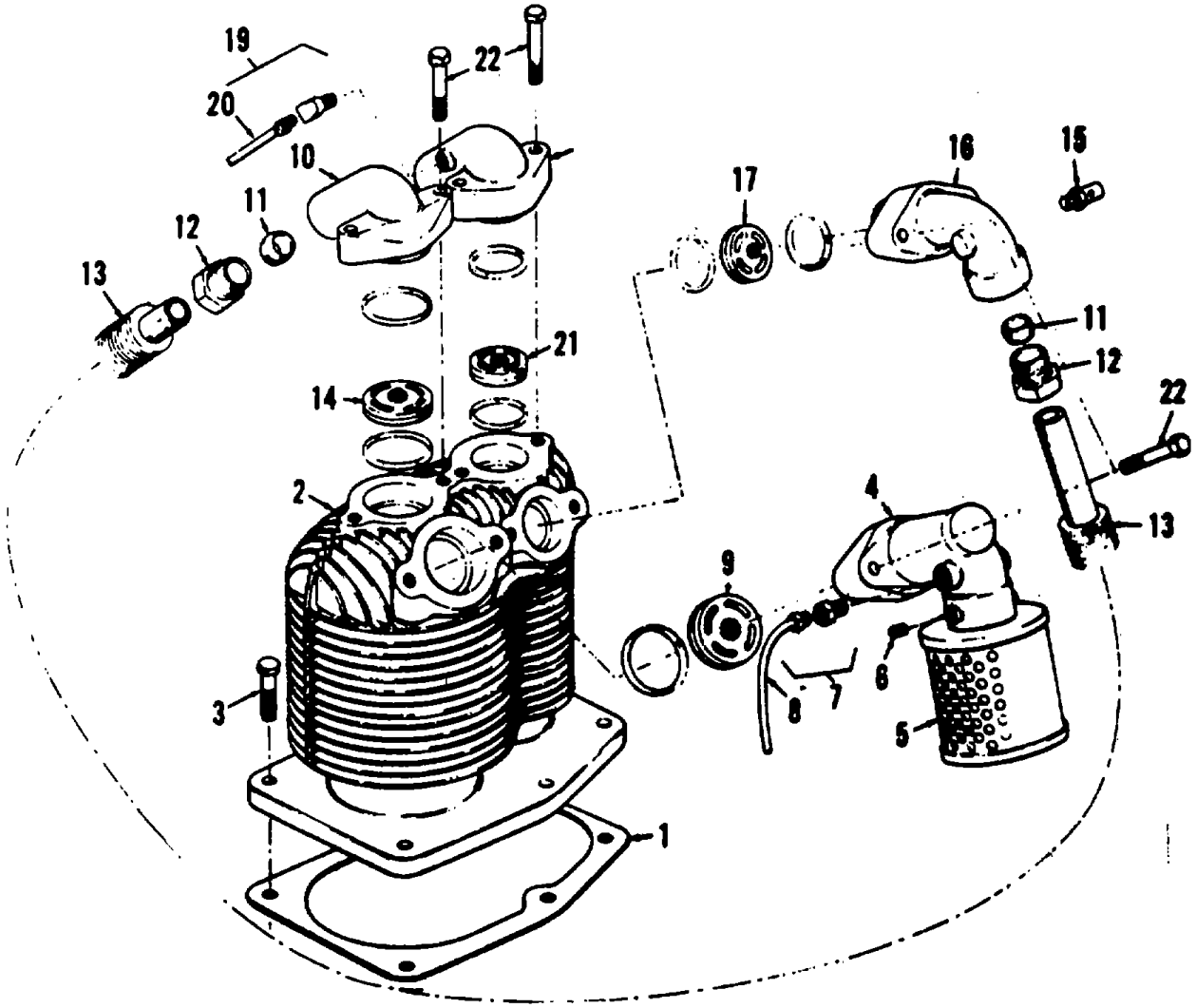
Figure 15. Compressor valve assemblies, exploded view.

CAUTION: Be sure to seal a large portion to the spring in the cage in all valves.

b. Install intake and exhaust manifolds as instructed on figure 14

I. CENTRIFUGAL UNLOADER

1. Removal and Disassembly. Refer to figure 16 and remove and disassemble centrifugal unloader as shown.
2. Cleaning, Inspection and Repair.
   a. Clean all parts with an approved cleaning solvent and dry thoroughly.
   b. Replace all damaged or worn parts.
3. Reassembly and Inspection Refer to figure 16 and reassemble and install centrifugal unloader.



1. Gasket, cylinder flange
2. Cylinder
3. Screw, cap
4. Manifold, L.P. intake
5. Muffler assembly, intake
6. Screw, set
7. Fitting, compression
8. Tube, breather
9. Valve assembly, L.P. intake
10. Manifold, L.P. exhaust
11. Ferrule, compression
12. Nut. compression
13. Tube, intercooler
14. Valve assembly, L.P. exhaust
15. Valve assembly, interstage safety
16. Manifold, H.P. intake
17. Valve assembly, H.P. intake
18. Manifold, H.P. exhaust
19. Elbow, 90°
20. Tube, unloading
21. Valve assembly, H.P. exhaust
22. Screw, cap

Figure 16. Cylinder, valves and manifold assemblies exploded view.

SECTION XI
REPAIR AND OVERHAUL INSTRUCTIONS
AIR COMPRESSOR ASSEMBLY AND ELECTRIC MOTOR

COMPRESSOR REPAIR AND REPLACEMENT STANDARDS

	Manufacturer's dimensions and tolerances in inches		Desired Clearance		Maximum allowable wear amd clearance
	Min.	Max.	Min.	Max.	
Cylinders					
Bore low - pressure	4.6245	4.6255			0.004
Bore high - pressure	2.4995	2.5005			0.002
Out of round .-					0.001
Taper					0.001
Crankshaft					
Journal rod) die-	1.370	1.3765			
Taper					0.001
Out-of-round					0.005
End play			0.000	0.002	
Pistons end Pins					
Piston, low-pressure -	4.619	4.620	0.003	0.005	0.006
Piston, high-pressure-	2.4965	2.4975	0.0015	0.0035	0.003
Pin, low-pressure	2.125	2.135	0.0001	0.0005	
Pin, high-pressure	2.125	2.135	0.0001	0.0005	
Bearings, Connecting Rod					
Bearing, id	.8125	8130	0.001	0.007	
Bearing, side clearance		0.010	0.017		

A. PISTONS, PISTON RINGS, CONNECTING RODS, AND CYLINDER BLOCK

1. Removal and Dissembly.
   a. Remove the compressor assembly Section VIII, C1.
   b. Refer to figure 16 and disassemble tube assemblies, cooler tubes, manifolds and air cleaner a shown.
   c. Refer to figure 17 and remove hand hole plate.
   d. Refer to figure 18 and remove connecting rod bearing caps

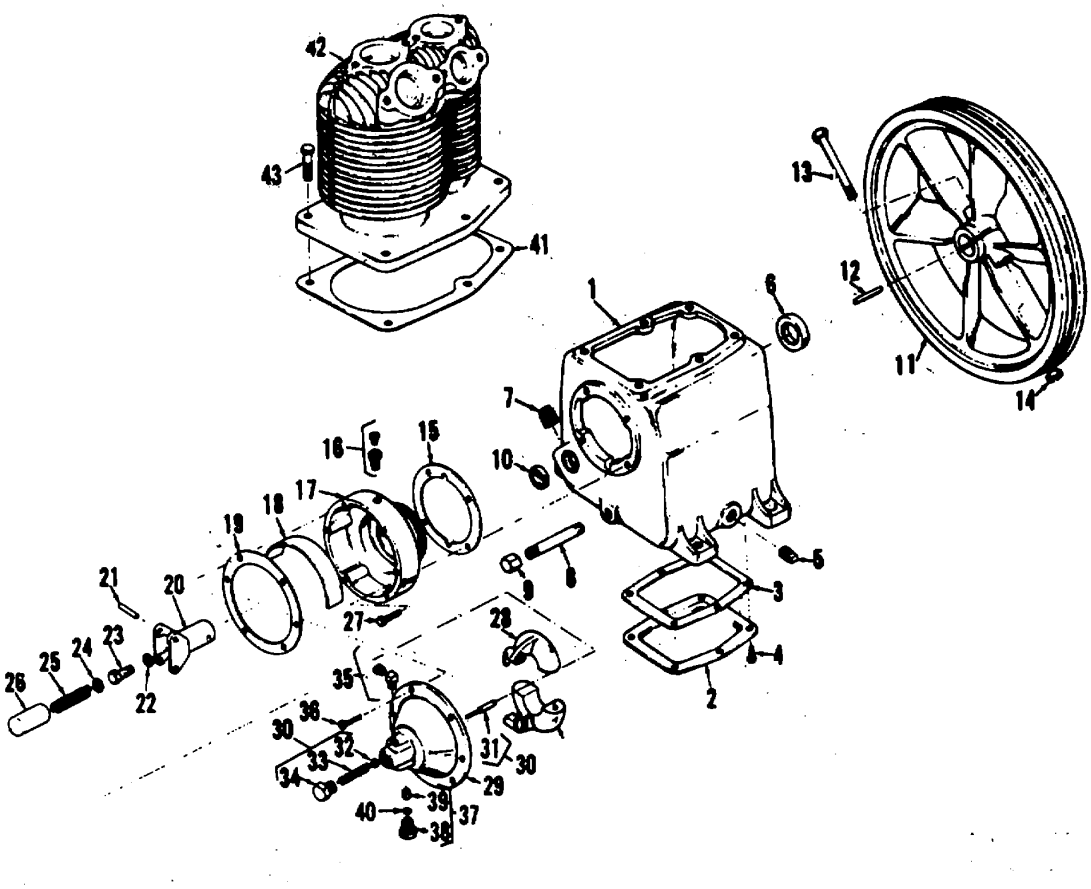
CAUTION: Mark the connecting rod from which the caps were removed, and reassemble caps on the same rod. Do not inter-mix the connecting rods and cap.

   e. Disassemble cylinder block from crankcase as shown in figure 17.
   f. Dissemble connecting rods, pistons and rings as shown in figure 18.

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

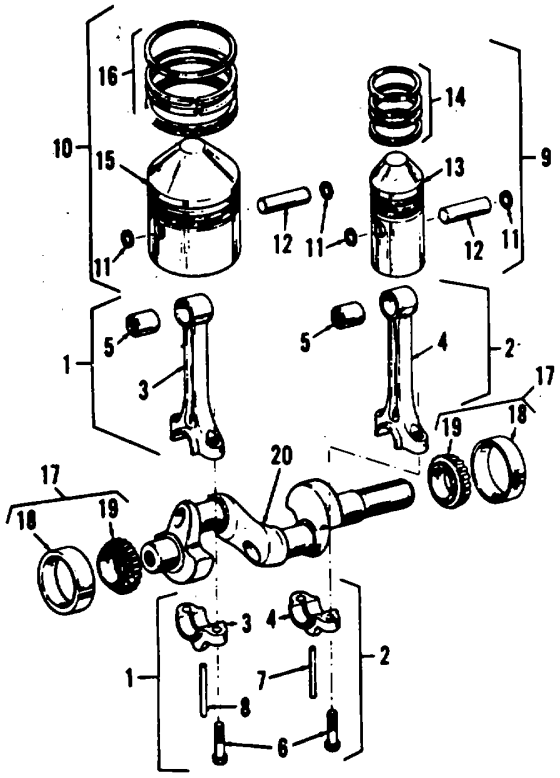
NOTE: Do not remove the connecting rod bushings unless inspection reveal them defective.

2. Cleaning, Inspection and Repair.
   a. Clean all parts with an approved cleaning solvent and dry thoroughly.
   b. 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.
   c. Measure the clearance of the piston pin to the piston pin bushing. Check for proper fit. Aline or replace, connecting rods, if necessary.
   d. Place the piston rings in the cylinder bore with the piston ring square in the cylinder bore about 1/2 inch from the top.
   e. 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.
   f. Measure the ring groove in the piston for wear. Replace pistons if necessary.
3. Reassembly and Installation.
   a. Refer to figures 16, 17, and 18 and re assemble. and install the pistons, piston rings, connecting rods and cylinder block taking the following precautions:
      1. If new connecting rod bushings are to be installed, and are not prefit, ream the bushings.
      2. When installing piston rings expand them carefully and sufficiently to allow the ring to



1. Crankcase
2. Plate, hand hole
3. Gasket, hand hole plate
4. Screw, cap
S. Plug, pipe
6. Seal, oil
7. Plug, pip:
8. Nipple, pipe
9. Cap, pipe
10. Gauge,, oil level
11. Flywheel
12. Key
13: Bolt, machine
14. Nut, hex
15. Gasket set
16. Fitting, compression
17. Housing governor
18. Plate, baffle
19. Gasket, governor cover
20. Spindle, governor
21. Pin, spring
22. Washer, spring lock
23. Screw, cap
24. Washer, flat
25. Spring governor main
26. Sleeve, spring
27. Screw, cap
28. Weight, governor
29. Cover, governor housing
30. Kit, release valve assembly
31. Plunger, release valve
32. Ball, release valve
33. Spring, release valve
34. Body, release valve
35. Elbow, 900
36. Screw, machine
S37. Muffler assembly, unloader
38. Body, unloader muffler
39. Felt
40. Screen
41. Gasket, cylinder flange
42. Cylinder
43. Screw, cap

Figure 17. Crank Case and unloader assembly, exploded view.



1. Kit connecting rod assembly L.P.
2. Kit connecting rod assembly H.P.
3. Rod, connecting w/bolt L.P.
4. Rod, connecting w/bolt H.P.
5. Bearing, piston pin
6. Bolt, connecting rod
7. Dipper, oil H.P.
8. Dipper, oil L.P.
9. Kit, piston assembly H.P.
10. Kit, piston assembly L.P.
11. Ring, piston pin retaining
12. Pin, piston
13. Piston, high pressure
14. Ring set, H.P. piston
15. Piston, low pressure
16. Ring set, L.P. piston
17. Assembly, main bearing
18. Cup, bearing,
19. Cone & roller, bearing
20. Crankshaft

Figure 18. Crankshaft, piston and connecting rod assemblies, exploded view.

to slide freely over the piston to the proper position. Starting with the bottom ring, install piston rings in their proper grooves Stagger ring gaps so that they are not lined up.

3. Lubricate each piston and connecting rod assembly with a light cost of engine oil before installing in cylinder block. Compress the piston rings carefully when installing in cylinder.
4. When installing cylinder block to crankcase always use new flange gasket and torque nuts to 45 ft.-lbs. torque.
5. Torque connecting rod nuts to 25 ft.-lbs. torque.

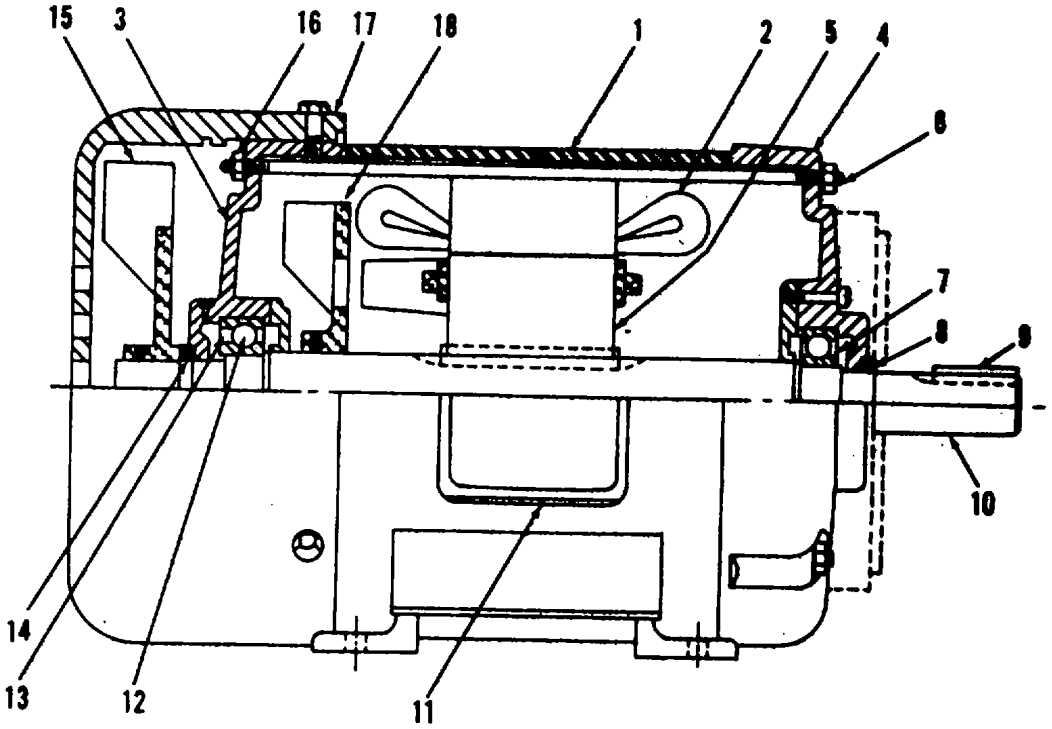
B. CRANKSHAFT AND CRANKCASE

1. Removal and Disassembly.
   a. Refer to figure 7 and remove the unloader assembly.
   b. Remove the hand hole plate and flywheel.
   c. Remove bearing caps (figure 18) and push connecting rods and pistons up to the top of the cylinder bore. Remove the cap screws that secure unloader housing to crankcase.
   d. Drive the crankshaft, bearings, and unloader housing from the crankcase.

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

   e. Using suitable puller remove the unloader housing and bearing from the shaft.
   f. 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.



1. Body assembly
2. Stator wedge kit
3. Bracket, front
4. Bracket, rear
5. Rotor assembly
6. Bolt, stud
7. Bearing
8. Flinger, external
9. Key
10. Shaft L
11. Conduit box assembly
12. Bearing
13. Spring, loading
14. Flinger, external
15. Fan, external
16. Nut
17. Cover, fan
18. Fan

Figure 19. Electric motor assembly.

2. Cleaning, Inspection, and Repair.
   a. Clean all parts in an approved cleaning solvent and dry thoroughly.
   b. Inspect the crankshaft for cracks, scores, and distortion Measure the crankshaft journals for wear. If the connecting rod journals measure 0.0005 inch out-of-round, replace the. crankshaft.
   c. Inspect the crankshaft bearings for rough, pitted, or scored rollers. Replace a defective hearing.
   d. Inspect the crankcase for cracks, breaks or other defects. Replace the crankcase if defective.
3. Reassembly and Installation.,
   a. Refer to figures 17 and 18 reassemble and install cry shaft in crankcase using the following procedures:
      1. Always install new oil seal in crankcase.
      2. Press bearing cup in the unloader housing.
      3. Install new gasket on the unloader homing.

C. ELECTRIC MOTOR

1. Removal and Disassembly.
   a. Remove the electric motor, Section VIII, B1.
   b. Refer to figure 19 and disassemble electric motor.
2. Cleaning, Inspection, and Repair.
   a. Clean all parts with an approved cleaning solvent and dry thoroughly.
   b. Inspect all parts for wear or damage and replace worn defective part
3. Reassembly and Installation.
   a. Refer to figure 19 and reassemble the electric motor.
   b. Install the electric motor, Section VIII, B2.

SECTION XII
PREPARATION FOR SHIPMENT AND STORAGE

A. PARATION FOR SHIPMENT

1. Disconnect the air compressor from the external power source.
2. Drain the air from the receiver tank.
3. Remove the separately attached components as follows:
   a. Remove air hose.
   b. Remove tire pressure gauge.
4. Securely attach the air hose, electric cable, tire pressure gauge, and publications to the unit.

B. PREPARATION FOR STORAGE

1. Inspection. Make a complete inspection of the air compressor to determine its condition. Correct any deficiencies prior to placement in storage.
2. Cleaning and Painting.
   a. Clean the air compressor completely with approved solvent and dry thoroughly.
   b. Paint any parts where the paint film has been damaged.
3. Lubrication end Preservation.
   a. Drain the oil from the crankcase and replace with preservative oil. Attach a tag to the oil filler indicating the crankcase contains preservative oil
   b. Remove the air intake manifolds and pour 1/2 ounces of preservative oil in the cylinders. Turn the air compressor over five or six revolutions by turning the fly wheel so the oil will coat all the surfaces inside the cylinder. Install air intake manifolds.

C. PROTECTION AND WEATHER PROOFING

1. Coat all exposed machined surfaces with a suitable preservative.
2. When the air compressor is stored outdoors, cover all openings and seams in the manifolds, muffler, valves, starter switch, conduit box, gages, fittings, connections, and air receiver tank.

D. ADMINISTRATIVE STORAGE

Refer to D 740-90-1 for administrative storage of the compressor.

APPENDIX A

REFERENCES

A-1. FIRE PROTECTION

TB 5-4200-200-10	Hand Portable Fire Extinguisher Approved for Army Users

A-2. LUBRICATION

C9100-IL	Identification List for Fuels, Lubricants, Oils and Waxes

A-3. PAINTING

AR 740-1	Color, Marking and Preparations of Equipment for Shipment
AR 746-5	Color and Marking of Army Material
AR 746-93-1	Color and Marking of Military Vehicles, Construction Equipment and Materials Handling and Equipment

A-4. MAINTENANCE

TM 5-4310-347-24P	Organizational, Direct Support and General Support Maintenance Repair Parts and Special Tools List (Including Depot Maintenance Repair Parts and Special Tools). Compressor, Reciprocating: Air, Power Driven, 5 CFM, 157 PSI (Champion Model NO. HR2-3M-I) FSN 4310-752-9511
TM 38-750	The Army Maintenance Management System (TAMMS)
TM 5-764	Electric Motor and Generator Repair

A-5. SHIPMENT AND STORAGE

TB 740-97-2	Preservation of USAMEC Mechanical Equipment for Shipment and Storage
TM 740-90-1	Administrative Storage of Equipment

A-6. DESTRUCTION TO PREVENT ENEMY USE

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

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. The implementation of the maintenance functions upon the identified end item or component will be consistent with the assigned maintenance functions.

c. Section III lists the special tools and test equipment required for each maintenance function as referenced from Section II (Not applicable).

d. Section IV contains supplemental instructions or explanatory notes required for a particular maintenance function (Not applicable).

B-2. Explanation of Columns in Section II.

a. Group Number, Column 1. The assembly group number is a numerical group assigned to each assembly. The assembly groups are listed on the MAC in disassembly sequence beginning with t]e first assembly removed in a top down disassembly sequence.

b. Assembly Group, Column 2 This column contains a brief description of the components of each assembly group.

c. Maintenance Functions, Column 3. This column lists the various maintenance functions (A through K). The upper case letter placed in the appropriate column indicates the lowest maintenance level authorized to perform these functions. The active repair time required to perform the maintenance function is included directly below the symbol identifying the category of maintenance. The symbol designations for the various maintenance levels are as follows:

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

The maintenance functions are defined as follows:

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

B - 'TEST. To verify serviceability and to detect electrical or mechanical failure by use of text equipment.

C - SERVICE To clean, to preserve, to charge, and to add fuel, lubricants, cooling agents, and air. (If it is desired that elements such as painting and lubricating, be defined separately, they may be so listed).

D - ADJUST. To rectify to the extent necessary to bring into proper operating range.

E - ALIGN To adjust specified variable elements of an item to bring to optimum performance.

F - CALIBRATE. To determine the corrections to be made in the readings of instruments or test equipment used in precise measurement. Consists of the 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 with the certified standard

G - INISTALL To set up for use in an operational environment such as an emplacement, site, or vehicle.

H - REPIACE. To replace unserviceable items with serviceable like items.

I - REPAIR. Those maintenance operations necessary to restore an item to serviceable condition through correction of material damage or a specific failure. Repair may be accomplished at each level of maintenance.

J - OVERHAUL. Normally, the highest degree of maintenance performed by the Army in order to minimize time work is in process consistent with quality and economy of operation. It consists of that maintenance necessary to restore an item to completely serviceable condition as prescribed by maintenance standards in technical publications for each item of equipment. Overhaul normally does not return an item, to like new, zero mileage, or zero hour condition.

K - REBUILD. The highest degree of materiel maintenance. It consists of restoring equipment as nearly as possible to new condition in accordance with original manufacturing standards. Rebuild is performed only when required by operational considerations or other paramount factors and then only at the depot maintenance' level. Rebuild reduces to zero the hours or miles the equipment, or component thereof, has been in use.

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

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

B-3. Explanation of Columns in Section III (Not applicable).

B-4. Explanation of Columns in Section IV (Not applicable).

(1) GROUP NO.	(2) FUNCTIONAL GROUP	(3) MAINTENANCE FUNCTIONS A INSPECT	B TEST	C SERVICE	D ADJUST	E ALIGN	F CALIBRATE	G INSTALL	H REPLACE	I REPAIR	J OVERHAUL	K REBUILD	(4) TOOLS AND EQUIPMENT	(5) REMARKS
01	Belt Guard Shell and Brackets													
	Guard	0 0.1							0 8.1					
02	V Belts, Pulley, Motor Rail, Electrical Conduit, and Wiring													
	Belt, V	0 0.1			0 0.1	0 0.1			0 0.2					
	Pulley	0 0.1							0 0.1					
03	Electrical Motor													
	Motor	0 0.1		0 0.2					0 1.0	F 8.0		H 8.0		
	Rotor Assembly								F 2.0	F 4.0				

(1) GROUP NO.	(2) FUNCTIONAL GROUP	(3) MAINTENANCE FUNCTIONS A INSPECT	B TEST	C SERVICE	D ADJUST	E ALIGN	F CALIBRATE	G INSTALL	H REPLACE	I REPAIR	J OVERHAUL	K REBUILD	(4) TOOLS AND EQUIPMENT	(5) REMARKS
	Capacitor								F 1.0					
04	Compressor Assembly and Components													
	Compressor, Air	0 0.2							0 1.5	F 8.0	H 12.0			
	Crankshaft								F 8.0					
	Muffler, Assembly In Take	0 0.1							F 0.2					
	Rod Assembly Connecting								F 1.0	F 1.0				
05	Magnetic Starter with Pressure Switch and Bracket													
	Starter, Magnetic								F 0.5	F 1.0				

(1) GROUP NO.	(2) FUNCTIONAL GROUP	(3) MAINTENANCE FUNCTIONS A INSPECT	B TEST	C SERVICE	D ADJUST	E ALIGN	F CALIBRATE	G INSTALL	H REPLACE	I REPAIR	J OVERHAUL	K REBUILD	(4) TOOLS AND EQUIPMENT	(5) REMARKS
	Switch, Pressure								F 0.5	F 1.0				
06	Globe Valve, Outlet Tube, Piping and Mounting Bracket													
	Valve, Globe								F 0.5					
07	Strip Heater, Thermostat and Air Filter													
	Air Filter Assembly				0 0.3				0 0.3					
	Strip Heater								0 0.5					
08	Dehydrator													
	Dehydrator				0 0.5			0 0.3						

(1) GROUP NO.	(2) FUNCTIONAL GROUP	(3) MAINTENANCE FUNCTIONS A INSPECT	B TEST	C SERVICE	D ADJUST	E ALIGN	F CALIBRATE	G INSTALL	H REPLACE	I REPAIR	J OVERHAUL	K REBUILD	(4) TOOLS AND EQUIPMENT	(5) REMARKS
09	Regulator													
								0						
	Regulator	0.1						0.3						
10	Hose Assembly with Fittings													
								0						
	Hose Assembly	0.1						0.2						
11	Air Receiver and Components													
	Air Receiver	0		0										
		0.2		0.1										
	Valve, Pressure (Safety)				0				0	0				
					0.4				0.2	0.2				
	Valve, Unloader	0		0	0				0					
		0.1		0.1	0.2				0.2					

APPENDIX C

Preventive Maintenance Checks and Services

C-1. General

To insure that the compressor is ready for operation at all times, it must be inspected systematically so that defects may be discovered and corrected before they result in serious damage or failure. The necessary preventive maintenance checks and services to be performed are listed as described in paragraphs C-2 and C-3. The item numbers indicate the sequence of minimum inspection requirements. Defects discovered during operation of the unit will be noted for future corrections, to be made as soon as operation has ceased. Stop operation immediately if a deficiency is noted during operation which would damage the equipment-if operation were continued. All deficiencies and short-comings will be recorded together with the corrective action taken on DA Form 2404 at the earliest possible opportunity.

C-2. Operator's Preventive Maintenance Checks and Services.

a. Table C-1 contains a tabulated list of preventive maintenance checks and services which must be performed by the operator.

b. The interval and sequence column indicates the required service interval.

C-3. Organizational Preventive Maintenance Checks and Services

a. Table C-2 contains a tabulated list of preventive maintenance checks and services which must be performed by organizational maintenance personnel.

b. The sequence number column indicates by number the quarterly inspection sequence.

Table C-1. Operator/Crew Preventive Maintenance checks and Services

B-Before Operation Time required; 1.9

D- During Operation

A-After Operation Time required: 0.8

Table 3-2.

Interval and Sequence no. B	D	A	Item to be Inspected Procedure	Work Time (M/H)
1	1		Air Hose. Inspect for wear, brittleness, breaks, and improper connection. Check for leaks during operation.	0.1
2			Electrical Conduit. Inspect for wear, breaks, and improper connections.	0.1
3		1	Compressor Crankcase 0il Level Gage. Inspect for broken glass. Add oil as required. Refer to lubrication chart for capacity.	0.1
4			Belt Guard. Inspect for dents, breaks, and loose mounting.	0.1
5	2		V-Belt. Inspect for worn, frayed, or cracked belts During operation, check for slipping.	0.1
6			Pulley. Inspect for wear, broken edges and loose mounting.	0.1
7	3		Globe Valve. Inspect for a bent or broken handle Check for Improper operation and air leaks.	0.1
8	4	2	Drain Cock. Inspect for a bent or broken handle Check for Improper operation and air leaks. Be certain drain cock drains any water from air receiver.	0.1
9	5	3	Air Pressure Gages. Inspect for broken glass and loose mounting. Check for improper operation.	0.1
10	6		Safety Relief Valve Inspect for a bent valve, loose mounting, and loss of ring on end. Check for improper operation by pulling ring on end of valve.	0.1
11		4	Air Intake Muffler Inspect for dents, breaks, and loose mounting. Check for dirt and foreign material, clogging muffler. Lubricate as required. Refer to lubrication chart for lubricating instructions.	0.1

Table C-1. Operator/Crew Preventive Maintenance checks and Services

B-Before Operation D- During Operation A-After Operation
Time required; 1.9 Time required: 0.8

Table 3-2.

Interval and Sequence no. D	W	M	Item to be Inspected Procedure	Work Time (M/H)
12	7	5	Air Filter. Inspect for dents, breaks, improper mounting, and loose connections. Check for Improper operation.	0.1
13	8	6	Dehydrators. Inspect for breaks, improper mounting, and loose connections. Check for unclean or wet desiccant. Check for improper quantity of desiccant.	0.1
14	9		Regulator. Inspect for dents, bent handle, Improper mounting, and loose connections. Check for improper operations.	0.1
15	10		Air Receiver. Inspect for dents, breaks, and Improper or loose mounting of components. Be certain tank Is free of water. Check for leaks during operation.	0.1
16	11		Air Compressor. Inspect Intercooler and aftercooler tubes for distortion, dents, breaks, and loose connections. Check for leaks during operation. Refer to lubrication chart for crankcase lubrication.	0.1
17	12	7	Magnetic Starter. Inspect for bent or dented cover and loose electrical conduit connections. Check for improper operation of selector switch and reset button.	0.1
18	1	8	Motor. Inspect for bent or dented cover, Improper mounting, dirt and foreign material, and loose electrical connections. During operation check for excessive noise, smoke, and vibration.	0.1
19			Casters. Inspect casters for foreign material binding caster movement. Check caster bearings for lubrication. Refer to lubrication chart for lubrication and interval.	0.1

Table C-2. Organizational Preventive Maintenance Checks and Services

Q - Quarterly
Total man-hours required: 2.0

Sequence Number	ITEM TO BE INSPECTED PROCEDURE	Work Time (M/H)
1	Air Hose Refer to table C-J	0.1
2	Electrical Conduit Refer to table C-I	0,1
3	Compressor Crankcase 011 Level Gage Refer to table C-l.	0.1
4	Belt Guard Refer to table C-l	0.1
5	V Belts Inspect for worn, frayed, or cracked belts. Check for Improper tension, adjustment and alignment. Refer to Section X, paragraph E3 for adjustment, alinement, and proper tension of V belts.	0.1
6	Pulley Refer to Table C-l	0.1
7	Globe Valve. Refer to table C-I	0.1
8	Drain Cock Refer to table C-l	0.1
9	Air Pressure Gage Refer to table C-l	0.1
10	Safety Relief Valve Refer to table C-I	0.1
11	Air Intake Muffler Refer to table C-I	0.1
12	Air Filter Refer to table C-l	0.1
13	Dehydrators Refer to table C-l1	0.1
14	Regulator Refer to table C-I	0.1
15	Air Receiver Refer to table C-l	0.1
16	Unloader Valve Inspect for dents, stripped threads, and Improper mounting. Check for dirt and foreign matter clogging valve. If necessary, clean all parts with cleaning solvent and dry thoroughly.	0.1

Table C-2. Organizational Preventive Maintenance Checks and Services

Q - Quarterly
Total man-hours required: 2.0

Sequence Number	ITEM TO BE INSPECTED PROCEDURE	Work Time (M/H)
17	Air Compressor Refer to table C-i	0.1
18	Magnetic Starter Refer to table C-I	0.1
19	Motor Inspect for bent or dented cover, Improper mounting, dirt and foreign material and loose electrical connections. If necessary, clean motor with cleaning solvent and dry thoroughly.	0.1
20	Casters Refer to table C-I	0.1

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