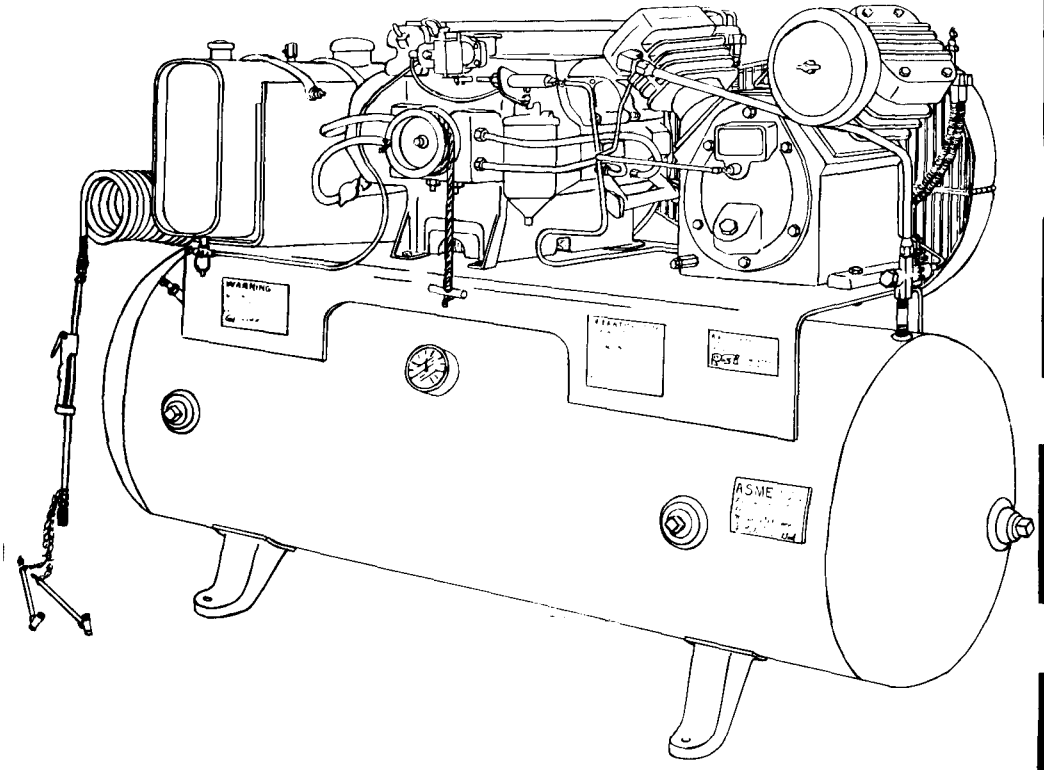
TM 5-4310-372-14

TECHNICAL MANUAL

OPERATOR'S, ORGANIZATIONAL, DIRECT SUPPORT AND

GENERAL SUPPORT MAINTENANCE MANUAL



COMPRESSOR, RECIPROCATING: AIR, TANK MOUNTED, GASOLINE ENGINE DRIVEN, 15 CFM, 175 PSI

(NSN 4310-01-128-1826)

HEADQUARTERS, DEPARTMENT OF THE ARMY

20 SEPTEMBER 1983

CHANGE
NO. 3

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D. C., 30 June1993

Operators, Organizational, Direct Support and
General Support Maintenance Manual

COMPRESSOR, RECIPROCATING: AIR, TANK MOUNTED,
GASOLINE ENGINE DRIVEN, 15 CFM, 175 PSI
(NSN 4310-01-128-1826)

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1 - 9	1–9/(1-10 blank)
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3-1 and 3-2	3-1 and 3-2
3-5 through 3-8	3-5 through 3-8
4-1 and 4-2	4-1 and 4-2
4-5 through 4–10	4-5 through 4-10
4-23 and 4-24	4-23 and 4-24
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E-1 and E-2	E-1 and E-2

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Operator, Organizational, Direct Support and
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COMPRESSOR, RECIPROCATING: AIR, TANK MOUNTED,
GASOLINE ENGINE DRIVEN, 15 CFM, 175 PSI
(NSN 4310-01-128-1826)

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Operator, Organizational, Direct Support and
General Support Maintenance Manual

COMPRESSOR, RECIPROCATING: AIR, TANK MOUNTED,
GASOLINE ENGINE DRIVEN, 15 CFM, 175 PSI
(NSN 4310-01-128-1826)

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Remove pages	Insert pages
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1-1 and 1-2	1-1 and 1-2
3-1 and 3-2	3-1 and 3-2
3-3 and 3-4	---
A-1/A-2	A-1/A-2
---	C-3/C-4

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WARNING

SAFETY PRECATIONS

WARNING

Pay particular "attention to specific cautions and warnings throughout this manual.

DEATH

or severe burns or injury may result if personnel fail to observe safety precautions. Do not smoke or use open flames that may ignite the fuel vapors while gasoline tank is being filled. Always maintain metal to metal contact when filling the fuel tank.' Do not attempt to fill fuel tank when compressor is running.

DANGEROUS GASES

are generated as a result of operating this equipment. Do not operate compressor in enclosed areas unless exhaust gases are properly vented to the outside. Exhaust discharge contains noxious and deadly fumes.

CAUTION

DAMAGE

to the equipment may result if personnel fail to observe safety precautions. Be sure that all guards and shrouds are in place before starting the unit. Never attempt to service any of the air compressor components until the engine is stopped and the unit is relieved of all air pressure.

WARNING

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

WARNING

Operation of this compressor presents a NOISE HAZARD to personnel in the area. The noise level exceeds the allowable limits for unprotected personnel. Wear ear muffs or earplugs, which should be 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 (38°C). Ensure that adequate ventilation is provided to reduce solvent vapor concentrations to below acceptable threshold limit values.

ADDITIONAL OPERATION WARNINGS

WARNING: Before starting engine or operating any of the components make sure that no loose bars, tools, or parts are lying in or on any part of the equipment, as they could cause serious damage to equipment or bodily injury to personnel.

WARNING: Never wear loose clothing, or hanging appendages (such as ties, jewelry, etc.) from person or clothing, while inspecting running engine, moving shafts, or similar machinery.

WARNING: Disconnect the spark plug cables prior to engine maintenance to prevent accidental starting and severe shock.

WARNING: Do not touch the ignition system harness during starting or while in operation. Severe shocks or burns could result, and personnel may be seriously injured.

WARNING: Before refueling and during operation, ensure that adequate fire fighting equipment is standing by, in a serviceable condition, for immediate use in event of fire or explosion. Do not smoke or use an open flame in the vicinity of gasoline vapor hazards.

WARNING: Provide metal to metal contact between the filling container (nozzle) and fuel tank filler neck when filling fuel tank, to prevent a spark from being generated as gasoline flows over metal surfaces.

WARNING: Never touch engine or engine accessories with bare hands during operation, or before they have cooled sufficiently. Severe burns can be caused through carelessness.

WARNING: Never attempt to service any of the air compressor components until the unit is relieved of all air pressure.

WARNING: Do not operate the air compressor in an enclosed area unless the exhaust gases are piped to the outside. The exhaust gases contain carbon monoxide which is a colorless, odorless, and poisonous gas.

WARNING: Do not weld repair, drill, or otherwise modify the air receiver tank.

WARNING: Do not operate the air compressor with the belt guard removed.

WARNING: Do not operate the air compressor in a tilted position.

WARNING: Make certain any lifting device used has a capacity at least equal to the weight being lifted. Failure to observe this precaution could result in injury or death to personnel and damage to equipment.

WARNING: When using compressed air for blowing, air hose pressure must not exceed 30 psi (2.11 kg/sq.cm.), and individuals must wear eye protective equipment.

TECHNICAL MANUAL

NO. 5-4310-372-14

HEADQUARTERS
DEPARTMENT OF THE ARMY
WASHINGTON, D. C., 20 September 1983

OPERATOR'S, ORGANIZATIONAL, DIRECT SUPPORT AND GENERAL SUPPORT MAINTENANCE MANUAL COMPRESSOR, RECIPROCATING: AIR, TANK MOUNTED, GASOLINE ENGINE DRIVEN, 15 CFM, 175 PSI NSN 4310-01-128-1826

REPORTING ERRORS AND RECOMMENDING IMPROVEMENTS

You can help improve this manual. If you find any mistakes or if you know of a way to improve the procedures, please let us know. Mail your letter, DA Form 2028 (Recommended Changes to Publications and Blank Forms), or DA Form 2028–2 located in the back of this manual direct to: Commander, US Army Aviation and Troop Command, ATTN: AMSAT-I-MTS, 4300 Goodfellow Blvd., St. Louis, MO 63120-1798. A reply will be furnished directly to you.

TABLE OF CONTENTS

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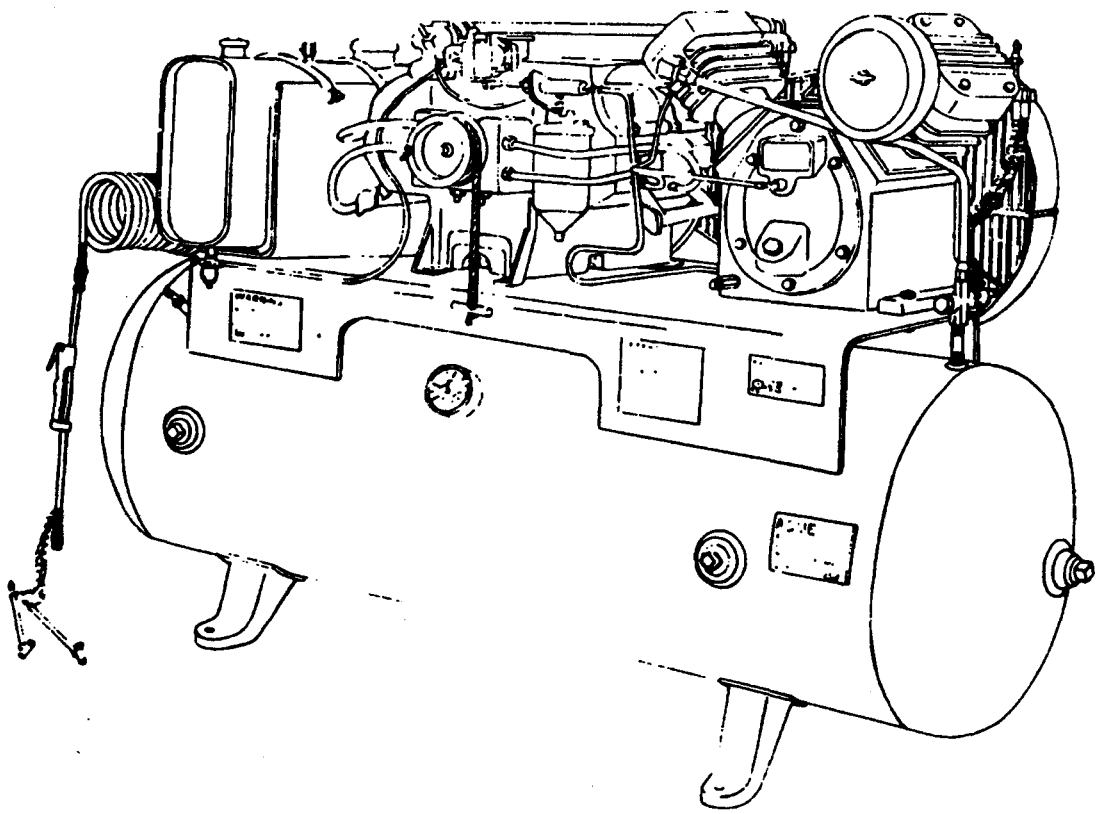
CHAPTER 1

INTRODUCTION

Section I. GENERAL



1-1. Scope. This manual is for your use in operating and maintaining the MODEL C-20X-80/6E Reciprocating Air Compressor. Chapters 2 and 3 provide information on operation, preventive maintenance services, and operator's maintenance of equipment, accessories, components and attachments. Chapters 4 through 6 provide maintenance information for the organizational, direct support and general support levels. Maintenance for each major functional group is covered in a separate chapter. Also included are descriptions of main units and their functions in relationship to other components.

1-2. MAINTENANCE FORMS AND RECORDS. Department of the Army forms and procedures used for equipment maintenance will be those prescribed by DA PAM 736-750, The Army Maintenance Management System (TAMMS).

1-3. HAND RECEIPT **(-HR) MANUALS.** This manual has a companion document with a TM number followed by "-HR" (which stands for Hand Receipt). The TM 5-4310-372-14-HR consists of preprinted hand receipts (DA Form 2062) that list end item related equipment (i.e., COEI, Bll, and AAL) you must account for. As an aid to property accountability, additional -HR manuals maybe requisitioned from the following source in accordance with procedures in Chapter 3, AR 310-2:

The US Army Publications Center
2800 Eastern Blvd.
Baltimore, MD 21220

1-4. REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR'S). If your Air Compressor needs improvement, let us know. Send us an EIR, You, the user, are the only one who can tell us why you don't like the design , or performance. Put it on an SF 368 (Quality Deficiency Report). Mail it to us at the address below. We'll send you a reply.

U.S. Army Aviation and Troop Command
ATTN: AMSAT-I-MDO
4300 Goodfellow Blvd.
St. Louis, MO 63120-1798

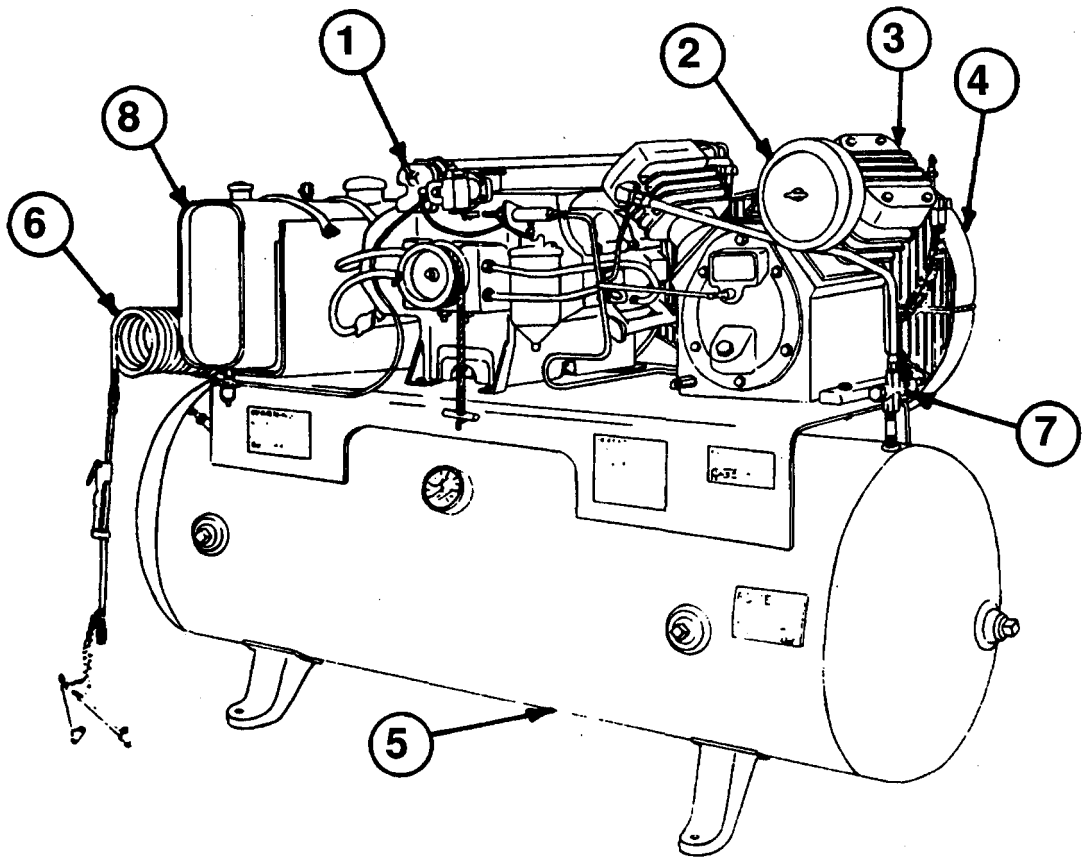
Section II. EQUIPMENT DESCRIPTION

1-5. PURPOSE OF THE AIR COMPRESSOR. A gas engine driven, tank mounted air compressor for inflating tires and running pneumatic equipment in the field.

1-6. CAPABILITIES AND FEATURES.

- Delivers 15 cfm of air at 175 psi
- Tank mounted
- Gasoline engine driven
- Includes air hose and inflator gauge

1-7. LOCATION AND DESCRIPTION OF MAJOR COMPONENTS.



ENGINE (1). Four cylinder, 4 cycle, air cooled, 6 HP gasoline engine. Refer to TM 9-2805-262-14 for detailed description.

AIR CLEANER (2). Dry type. Filter element may be removed and replaced.

COMPRESSOR (3). Two-stage design, 15 cfm, 175 psi output.

COMPRESSOR DRIVE AND BELT GUARD (4). Two matched V–belts transmit power. Belt guard protects operator as well as pulley and flywheel.

AIR RECEIVER TANK (5). ASME coded steel tank with pressure gauge, draincock relief valve, and 4 legs.

AIR HOSE AND INFLATOR GAUGE (6). Fifty-foot hose with shut-off valve. Inflator gauge equipped with regular and jumbo size air chucks.

CAPACITY CONTROL (UNLOADING) SYSTEM (7). Combination check and flow diverter valve, and engine speed signal controller.

FUEL TANK (8). Metal instruction with strainer type fill opening, vent, and fuel level indicator.

1-8. DIFFERENCES BETWEEN MODELS. This manual covers only the Pressure Specialties, Inc. Model C-20X-80/6E Air Compressor. No unit differences exist for the model covered by this manual.

1-9. TABULATED DATA.

a. Air Compressor Package:

Manufacturer	**Pressure Specialties, Inc.**
Model	**C-20X-80/6E**
output	**15 cfm at 175 psi**
Type	**Gasoline engine driven, tank mounted**
Length	**65 inches**
Width	**24 inches**
Height	**41** inches
Weight, net	650 lbs
Weight, shipping	690 lbs

b. Engine:

Make	Military Standard Engine
Model	4A032-2
Type	4-cycle, gasoline, air cooled
Number of cylinders	4
Bore	2.25 in. (5.715 cm)
Stroke	2.0 in. (5.08 cm)
Piston displacement	32 sq. in. (524.48 cc)
Compression ratio	6.0 to 1
Horsepower at 3,600 rpm	6

See TM 5-2805-203-14 **for detailed engine specifications.**

c. Air Compressor (Bare Pump):

Manufacturer	**kPa International, Inc.**
Model	C-20X
Type	2 **cylinder, 2-stage, air-cooled**
Low pressure cylinder bore	4 in. (10.16 cm) ,
High pressure cylinder bore	2.5 in. (6.35 cm)
Stroke	2.75 in. (6.985 cm)
Crankcase Oil Capacity	**1.85 qts. (1 .75 lt) ,**

d. Fuel (Gas) Tank:
Capacity.....4.2 gal. (15.90 lt)

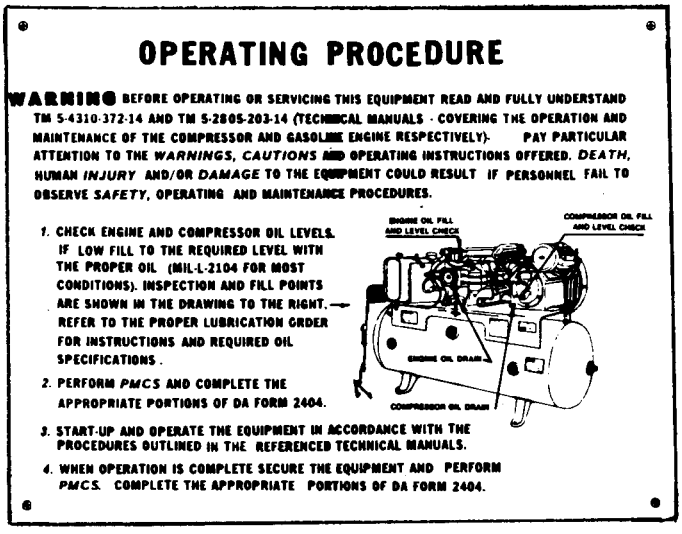
e. Unloader Valve:
Manufacturer.....Control Devices Inc.
Model.....LGM-20TM
Load Setting.....175 psi +/- 10 psi
(12.31 kg/sq cm +/- .70)
Unload Setting.....195 psi +/- 5 psi
(13.71 kg/sq cm +/- .35)

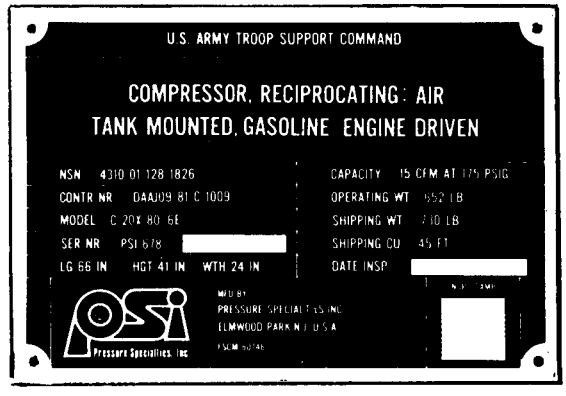
f. Air Hose
Length.....50 feet (15.2 m)
Diameter.....5/16 inch. I.D. (7.9 mm)
Maximum pressure.....200 psi (14 kg/sq cm)

1-10. IDENTIFICATION. The air compressor has an operating procedure and an identification plate as follows:

a. Operating Procedure Plate. The operating procedure plate is located on the metal base welded on top of the air receiver tank. It provides operating procedures and lubrication points with recommended type(s) of lubricant(s).

b. Identification Plate. The identification plate is located next to the operating procedure plate. It provides the air compressor nomenclature, national. stock number, end item serial number, contract number, weight,anddimensions.





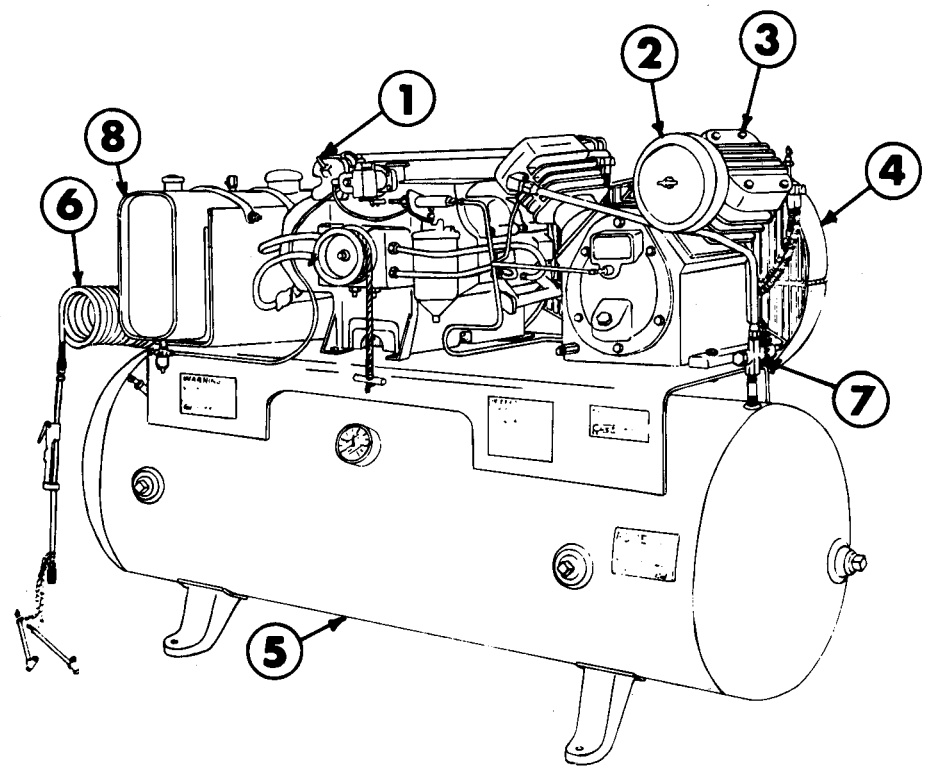
Section III. TECHNICAL PRINCIPLES OF OPERATION

1-11. SECTION OVERVIEW. This section contains a description of how the Air Compressor Assembly works.

Paragraph 1-12 describes the operation of each component in the system.

Paragraph 1-13 describes the operation of the air compressor.

1-12. AIR COMPRESSOR ASSEMBLY COMPONENTS AND FUNCTIONS.



A. GASOLINE ENGINE (l): Provides 6 horsepower to run the air compressor (3).

B. AIR CLEANER **(2):** Protects the air compressor (3) from ingesting foreign particles that might damage internal components.

C. AIR COMPRESSOR (3): Compresses air in two stages in order to provide 15 cfm at 175 psi.

D. COMPRESSOR DRIVE AND BELT GUARD (4): Two V-belts transmit power from the engine (1) to the compressor (3).

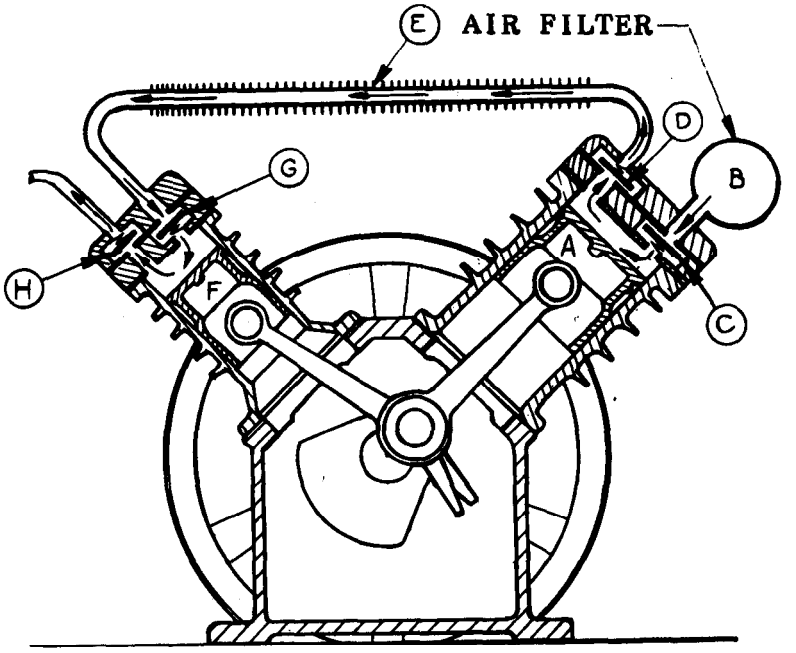
E. AIR RECEIVER (TANK) ASSEMBLY (5): Stores the compressed air produced by the compressor (3) for future use and /or instant availability. It is equipped with a gauge to measure air pressure.

F. AIR DISCHARGE SYSTEM (6): Controls the discharge of air from the air receiver (5). A 50 ft air hose is equipped with an inflator gauge which is used to inflate tires and to read tire pressure.

G. CAPACITY CONTROL SYSTEM (7): Regulates the operation of the compressor (3), and engine (l). Prevents excessive pressurization of the air receiver tank (5).

H. FUEL SYSTEM (8): Stores gasoline for' use by the engine (l). It is equipped with' a fill cap and a strainer to keep solid particles out of the fuel tank. **A** level gauge indicates the amount of fuel in the tank.

1-13. AIR COMPRESSOR OPERATION. The picture below shows the general operation of the air compressor. The air. compressor has two cylinders; air from the low pressure cylinder feeds into an intercooler and then into the high pressure cylinder.



The compression cycle starts with the low pressure piston A at the top of its stroke.

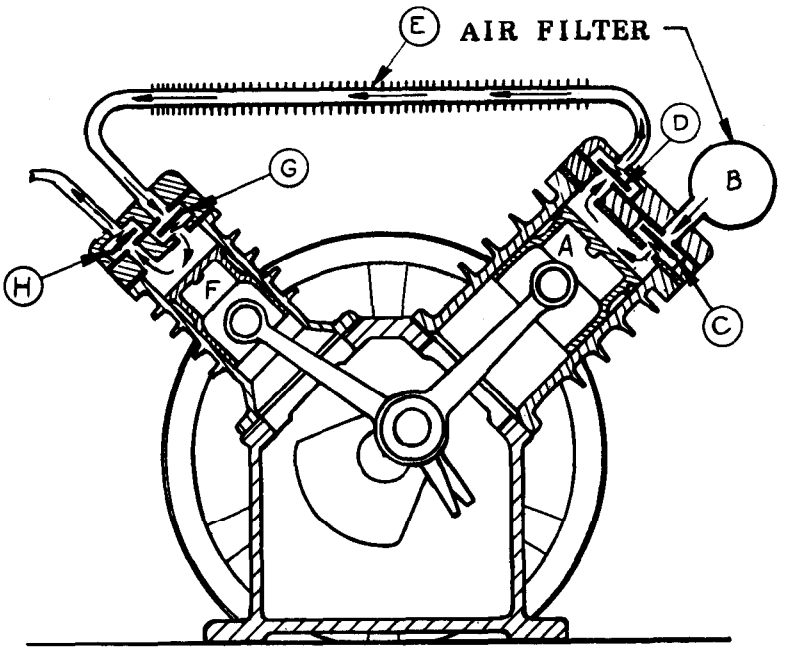
When the piston moves down, it draws air through the air filter B and inlet valve C into the cylinder. The air filter keeps dirt out of the compressor.

On the upstroke, inlet C closes and the piston A pushes air out through the exhaust valve D and into the intercooler E.

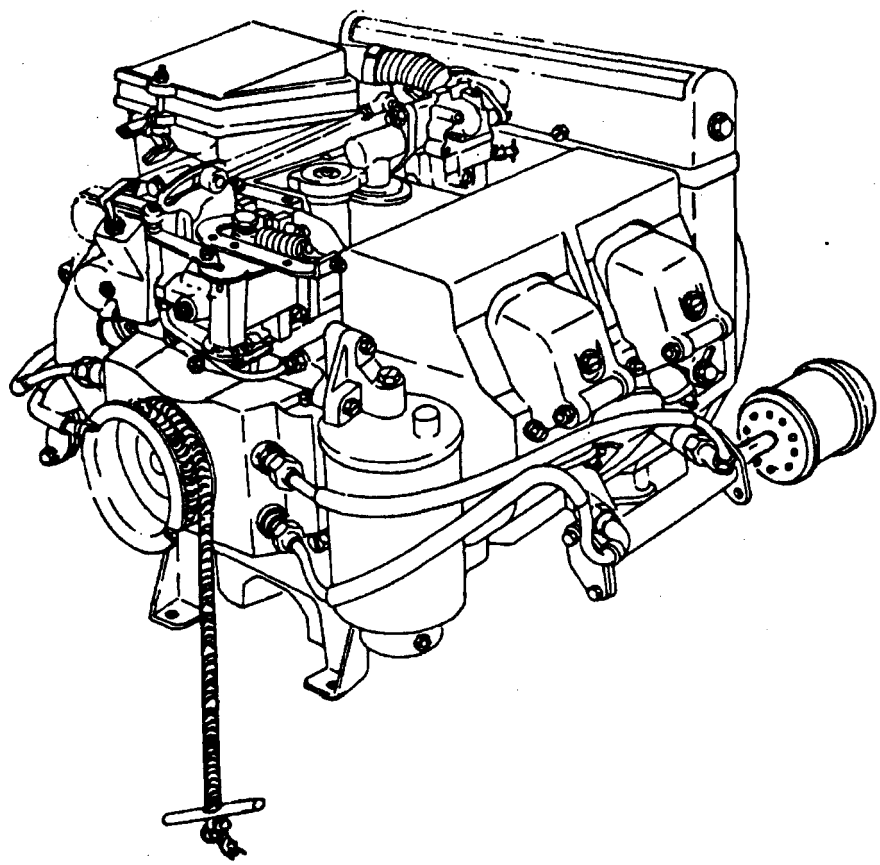
Compressing the air increases its temperature. The intercooler E dissipates some of that heat to the surrounding atmosphere before passing the compressed air on to the high pressure stage for further compression.

The high pressure stage works in the same way as the low pressure stage does, except that the high pressure piston goes up when the low pressure piston goes down. This way, the low pressure piston is drawing air in when the high pressure piston is pushing air out.

Compressed air from the high pressure stage goes through the capacity control system to the air receiver tank. The capacity control system regulates the loading of the air compressor and engine speed.



1-14. ENGINE. The Air Compressor is driven by a Military Standard Model gasoline engine. Refer to TM 9-2806-262-14 for a description of the engine.



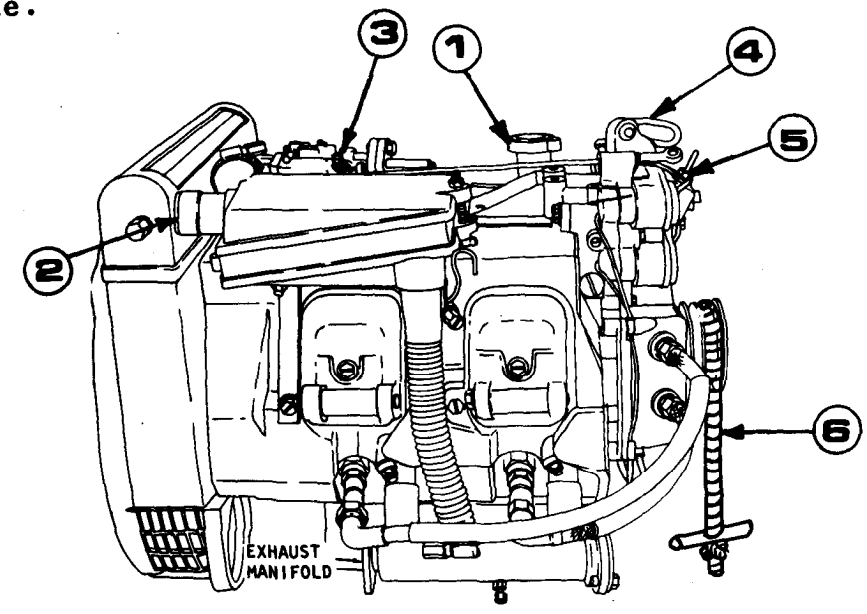
CHAPTER 2

OPERATING INSTRUCTIONS

Section I. DESCRIPTION & USE OF OPERATOR'S CONTROLS AND INDICATORS

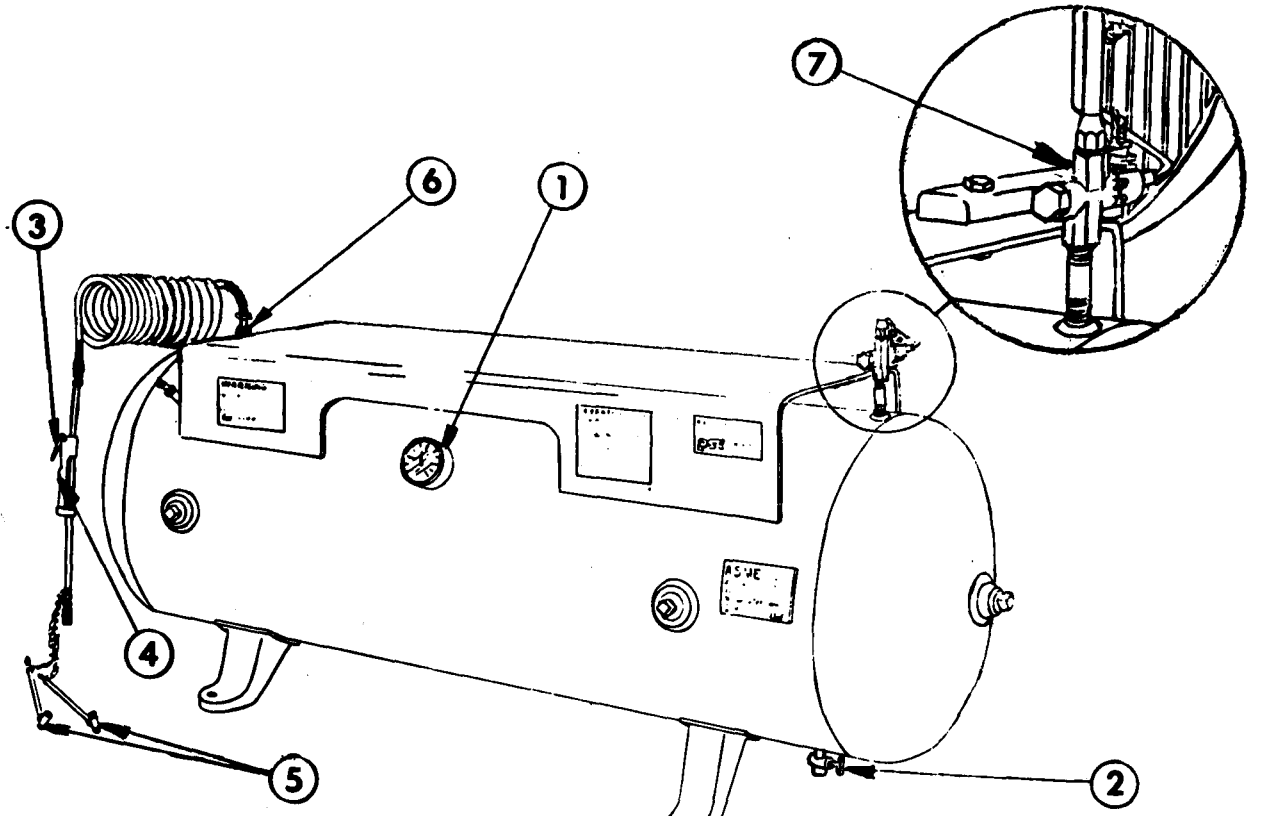
2-1. GENERAL. The following paragraphs will show the controls and indicators that are used to operate the air compressor.

a. Engine.



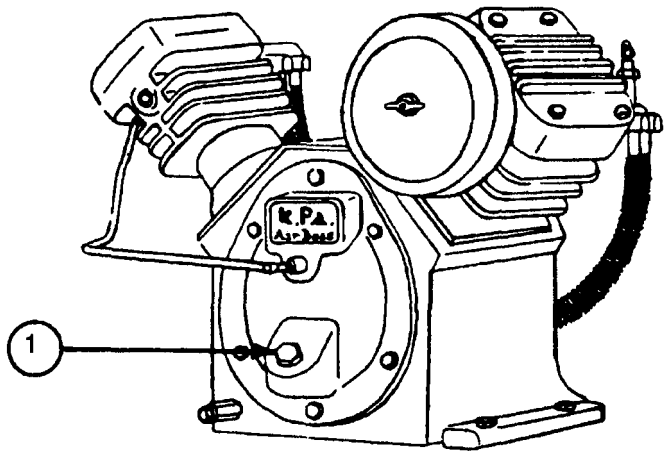
KEY	CONTROL OR INDICATOR	FUNCTION
1	Oil Level Indicator	Indicates oil level in engine crankcase
2	Filter Service Indicator	Shows red when air filter needs replacement
3	Choke	Set ON to enrich fuel mixture for cold starting
4	Speed Control	Set to IDLE for warmup and FULL SPEED for normal operation
5	Ignition Switch	Switch to RUN for operation and OFF for stopping the engine
6	Pull-Start Rope	When properly pulled, rotates the engine at a sufficient speed to allow start-up of the engine.

b. Unloading Valve, Air Receiver Tank and Inflator Gauge.



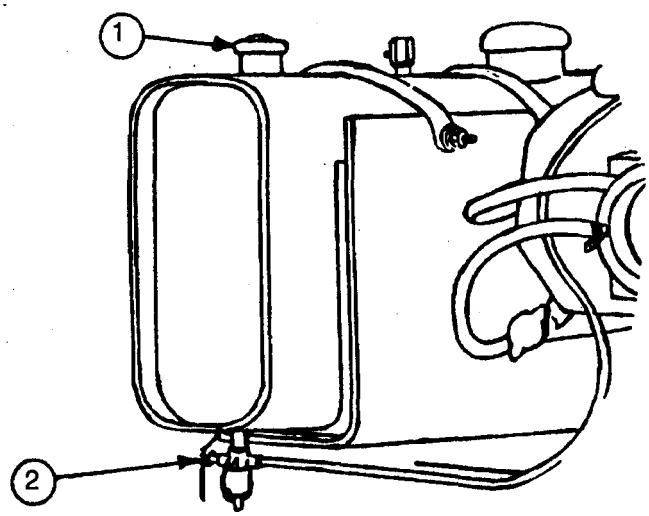
KEY	CONTROL OR INDICATOR	FUNCTION
1	Pressure Gauge	Indicates pressure in the air receiver tank
2	Draincock	Used to bleed water and air from the air receiver tank
3	Hand Lever	Releases air from the inflator gauge when depressed
4	Pressure Indicator	Reads air pressure in the system being pressurized
5	Air Chucks	Used to inflate tires. Two different sizes supplied for different valves
6	Shut-off Valve	Controls flow of air between the air tank and inflator gauge
7	Unloader Valve	Regulates pressure in the air receiver by discharging the air leaving the compressor to the atmosphere when the air pressure in the tank has reached the maximum desired level.

c. Air Compressor.



KEY	CONTROL OR INDICATOR	FUNCTION
1	Oil Fill Port	Indicates oil level in the crankcase

d. Fuel System.



KEY	CONTROL OR INDICATOR	FUNCTION
1	Gasoline Level Gauge	Indicates gasoline level (quantity) in fuel tank
2	Shut-Off Valve	Blocks flow of gasoline from fuel tank (to engine)

Section II. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

2-2. GENERAL. To ensure that the compressor is ready for operation at all times, it must be inspected systematically so that defects maybe discovered and corrected before they result in serious damage or failure. Defects discovered during operation of the unit should be noted for future corrections, to be made as soon as operation has ceased. Stop operation if discovered damage would cause further damage to the equipment or reduce the level of safety if operation were to continue. All deficiencies and shortcomings shall be recorded together with the corrective action taken on DA Form 2404, Equipment Inspection and Maintenance Worksheet, at the earliest opportunity. When performing your Before Operation (B) and During Operation (D) PMCS, always keep in mind the CAUTIONS and WARNINGS. After operation, be sure to perform your (A) PMCS. If your equipment fails to operate, troubleshoot with proper equipment. Report any deficiencies using the proper forms; see DA Pam 738-750.

2-3. **OPERATOR/CREW PREVENTIVE MAINTENANCE CHECKS AND SERVICES.** Refer to Table 2-1 for Preventive Maintenance Checks and Services.

a. Item Number Column. Checks and services are numbered in chronological order regardless of interval. This column will be used as a source of item numbers for the "TM Item Number" column on DA Form 2404 in recording results of PMCS.

b. Interval Columns. The columns headed B, D, A, W and M, will contain a dot (•) beneath the appropriate check indicating it is to be performed Before, During, After, Weekly, or Monthly.

c. Item to be Inspected Column. The items listed in this column are divided into groups and identifies the items to be inspected.

d. Procedures Column. This column contains a brief description of the procedure by which the check is to be performed.

e. For Readiness Reporting, Equipment is Not Ready/Available If: Column. This column will contain the criteria which will cause the equipment to be classified as not ready/available because of inability to perform its primary mission.

NOTE

If the equipment must be kept in continuous operation, check and service only those items that can be checked and serviced without disturbing operation. Make the complete checks and services when the equipment can be shutdown.

Table 2-1 Preventive Maintenance Checks and Services

NOTE
Within designated interval, these checks are to be performed in the order listed

B-Before D-During A-After W-Weekly M-Monthly

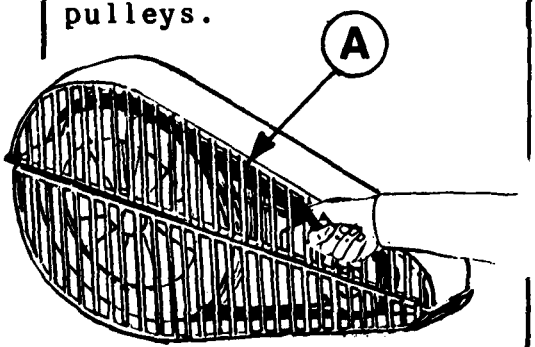
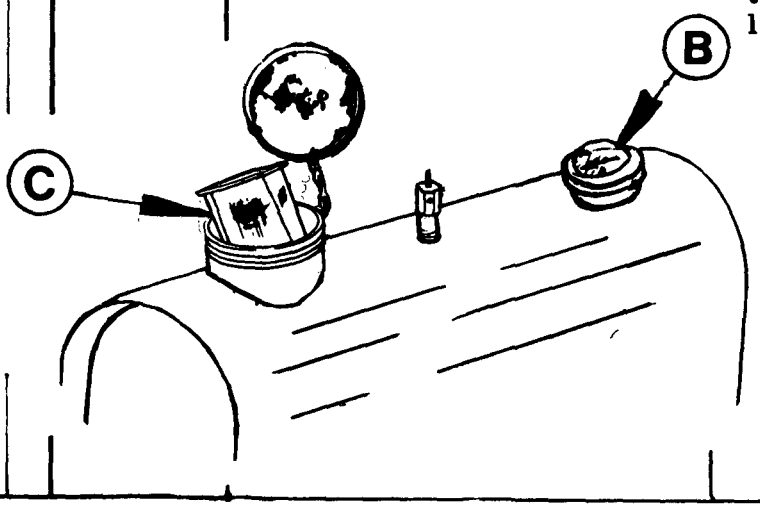
Item No.	Interval B	D	A	W	M	Item To Be Insp'd	Procedures	Equipment Will Be Reported Not Ready or Available If:
1	●		●	●		Drive Belts	Inspect belts (A) for proper tension. Deflection is 3/4 to 1 inch midway between pulleys. 	Belts are cut or cracked.
2	●		●			Fuel Tank	Inspect for damage and/or fuel leaks. Check fuel level (B) and fuel inlet strainer (C). 	Fuel is leaking or degree of tank damage suggests that tank might leak.

Table 2-1 Preventive Maintenance Checks and Services - cont'd.

NOTE
Within designated interval, these checks are to be performed in the order listed

B-Before D-During A-After W-Weekly M-Monthly

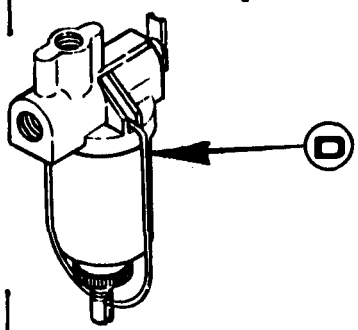
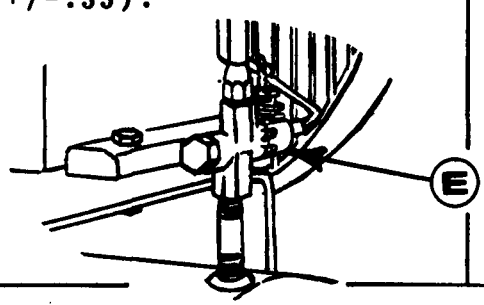
Item No.	Interval B	D	A	W	M	Item To Be Insp'd	Procedures	Equipment Will Be Reported Not Ready or Available If:
3.	●		●			Fuel Filter	Inspect filter (D) for damage, leaks or dirt. Clean as required. 	Filter is damaged.
4.	●	●		●		Fuel Lines	Inspect for damage or leaks.	Leaks are evident or extensive damage is discovered.
5.	●	●	●			Unloader Valve	Inspect valve (E) for leaks, damage and insecure mounting. With the unit running inspect for proper operation. Normal operating pressure is 175 psi, +/- 10 psi to 195 psi, +/- 5 psi (12.3 kg/sq cm +/-.70 to 13.7 kg/sq cm +/-.35). 	Controls are damaged ,loose or valve does not unload the compressor discharge before the tank pressure reaches 200 psi.

Table 2-1 Preventive Maintenance Checks and Services - cont'd.

NOTE
Within designated interval, these checks are to be performed in the order listed

B-Before D-During A-After W-Weekly M-Monthly

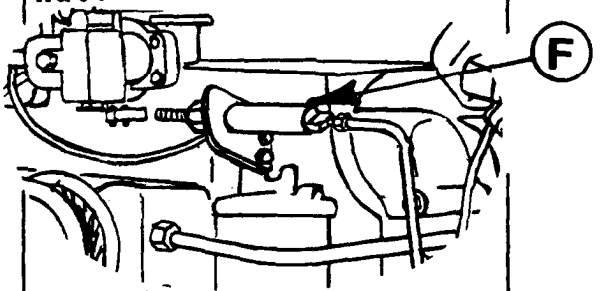
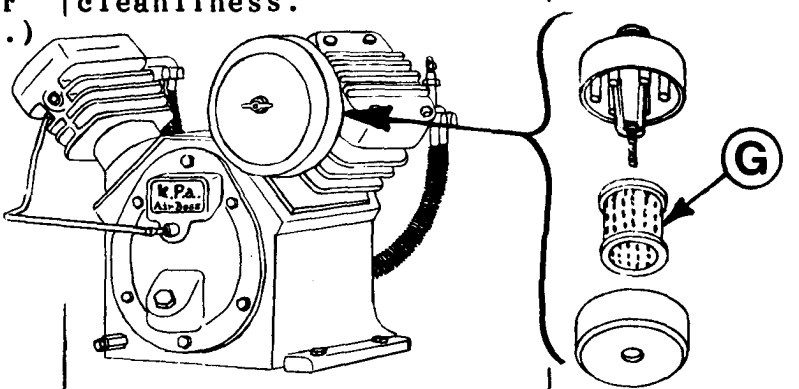
Item No.	Interval B	D	A	W	M	Item To Be Insp'd	Procedures	Equipment Will Be Reported Not Ready or Available If:
6.	●	●		●		Air Lines	Inspect for leaks or damage.	
7.	●	●	●			Pneumatic Cylinder	Inspect cylinder (F) for damage or leaks, and tightness of securing nut. 	
8.	●		●	●		Inlet Air Filter (Comp.)	Check filter element (G) for damage and cleanliness. 	Damaged or clogged.
9.	●		●	●		Air Compressor	Before operation inspect the air compressor for loose fasteners or other damage. During operation observe equipment for any unusual noise or vibration.	Damaged or clogged.

Table 2-1 Preventive Maintenance Checks and Services - cont'd.

NOTE
Within designated interval, these checks are to be performed in the order listed

B-Before D-During A-After W-Weekly M-Monthly

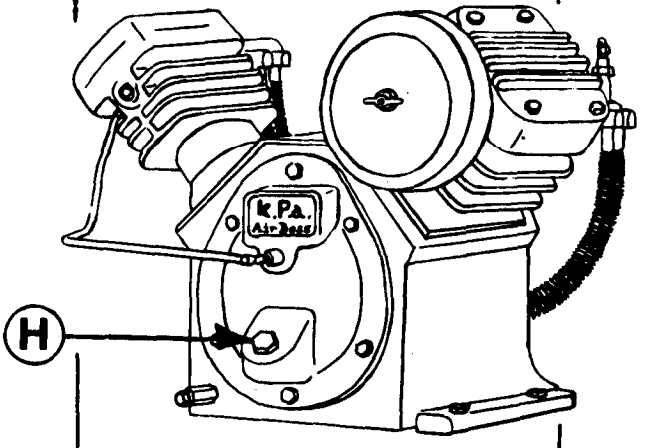
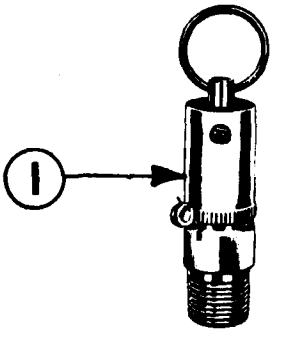
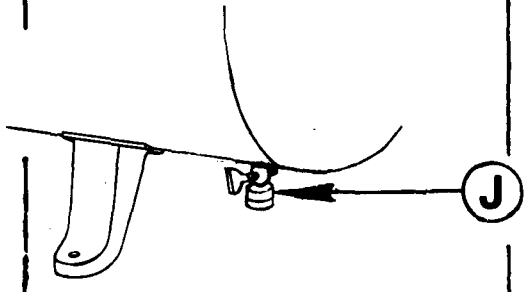
Item No.	Interval B	D	A	W	M	Item To Be Insp'd	Procedures	Equipment Will Be Reported Not Ready or Available If:
10.	●		●			Air Compressor Crankcase	Check oil level. Add oil to crankcase thru fill and level check port (H). Oil level should not be any lower than 1/2 inch below threaded opening. 	Oil level is low.
11.	●	●				Safety Relief Valve	Inspect valve (I) for proper operation. Pull ring to check for freedom of movement. 	Valve leaks, is inoperable or shows other signs of damage

Table 2-1 Preventive Maintenance Checks and Services - cont'd.

NOTE
Within designated interval, these checks are to be performed in the order listed

B-Before D-During A-After W-Weekly M-Monthly

Item No.	Interval B	D	A	W	M	Item To Be Insp'd	Procedures	Equipment Will Be Reported Not Ready or Available If:
12.	●	●				Pressure Gauge	Check for leaks and/or damage	
13.	●		●			Drain-cock (Air Tank)	Open draincock (J) to drain water from the air receiver tank.	
14.	●	●		●		Air Tank	Check for damage and air leaks.	Any damage or leaks are discovered.
15.	●	●		●		Ball Valve	Check for freedom of movement and leaks.	
16.	●		●	●		Air Hose	Inspect air hose (K) for cracks, tears or other damage.	Air Hose is damaged.



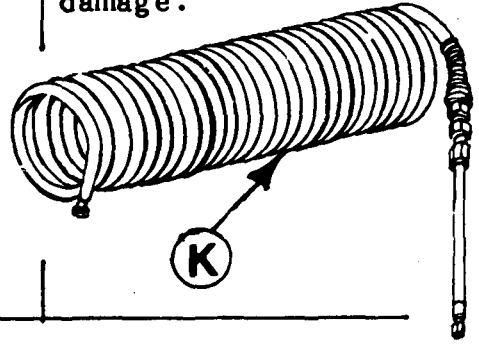
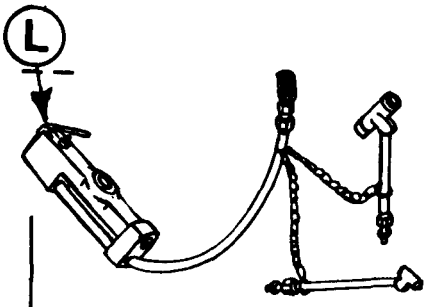
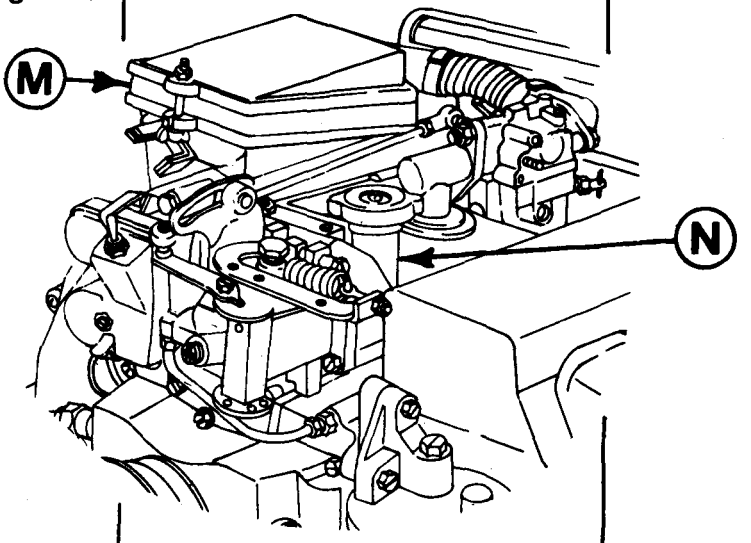


Table 2-1 Preventive Maintenance Checks and Services - cont'd.

NOTE
Within designated interval, these checks are to be performed in the order listed

B-Before D-During A-After W-Weekly M-Monthly

Item No.	Interval B	D	A	W	M	Item To Be Insp'd	Procedures	Equipment Will Be Reported Not Ready or Available If:
17.		●		●		Inflator Gauge	Inspect Inflator gauge (L) for damage or leaks 	Body or hoses have damage that could cause failure under pressure.
18.	●		●	●		Air Filter (Engine)	Check filter element (M) for damage and cleanliness. 	Damaged or clogged.
19.	●	●	●			Engine	Check oil level. Add oil as indicated by the dipstick (N).	Oil level is low.

Section III. OPERATION UNDER USUAL CONDITIONS

2-4. OPERATING PROCEDURE.

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

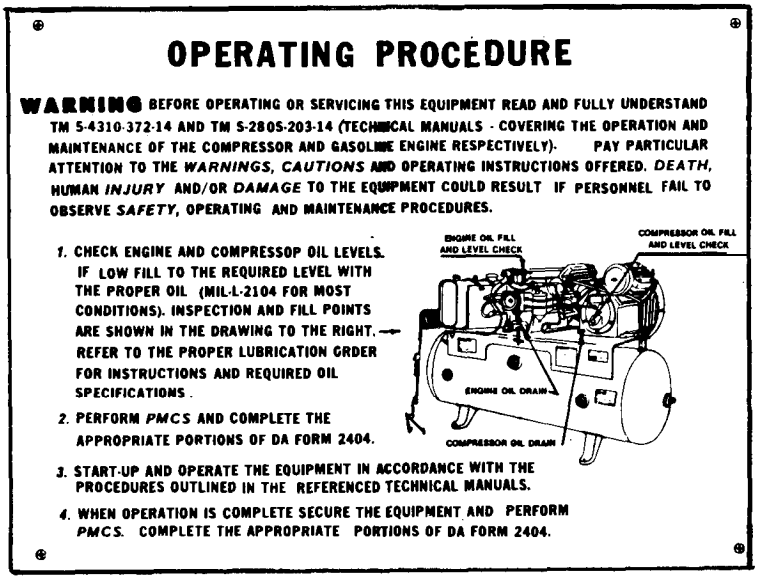
WARNING

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 earplugs which have been fitted by a trained professional.

WARNING

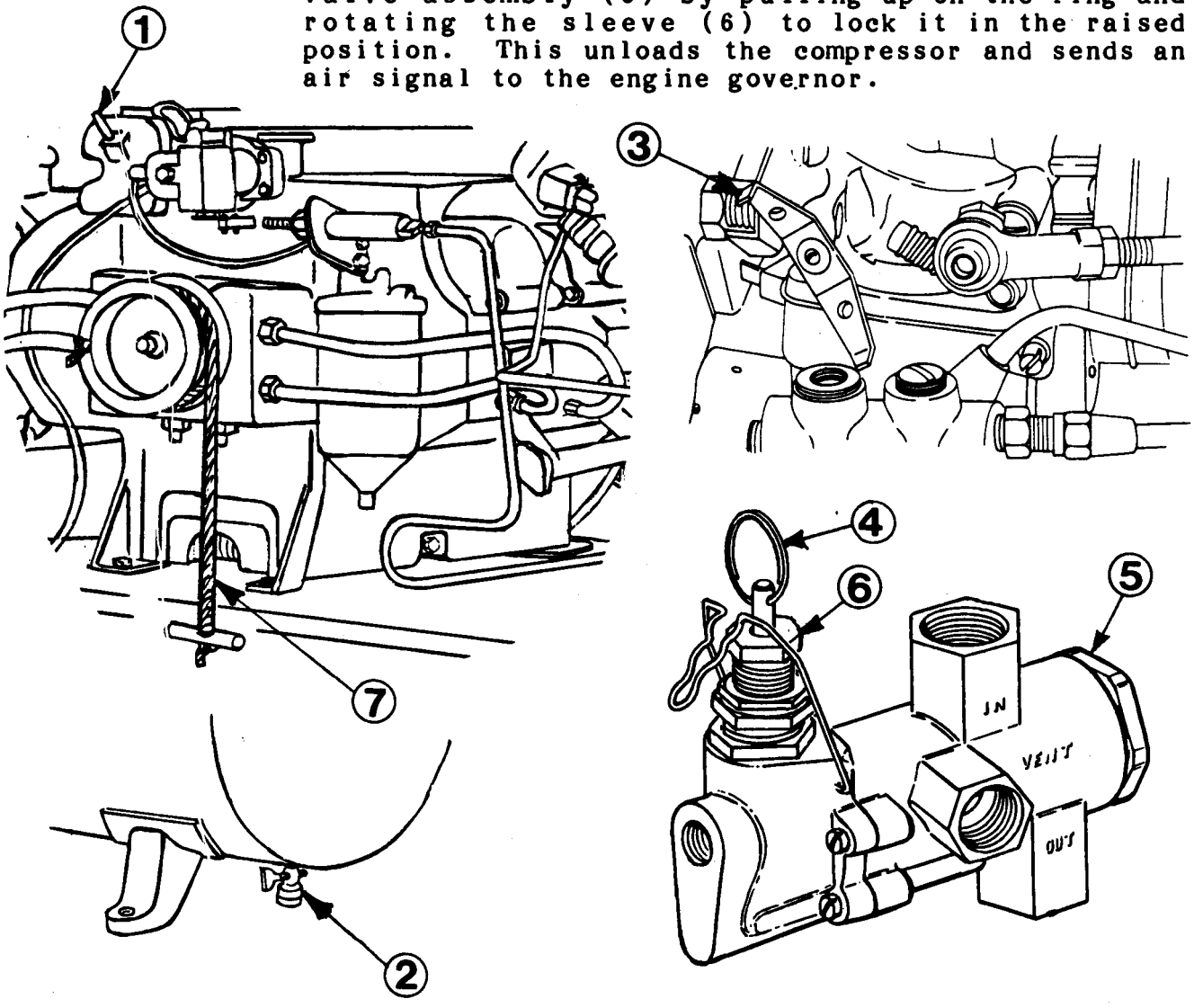
Do not use this compressor for charging cylinders that require breathable air.

b. Preparation for Starting. Perform the necesary Before; Operation Preventive Services as indicated in Table 2-1. The compressor shall be placed on a level, firm surface capable of withstanding the inherent weight loading vibration of the compressor. Locate the operating instruction plate (located on the air receiver tank deck) and fully read and understand the directions.



c. Starting

1. Make sure that all rotating components are clear for operation.
2. Warn all personnel in the immediate area that you are preparing to start the engine.
3. Turn gasoline engine ignition switch (1) to 'Run'.
4. Open receiver draincock (2).
5. Close engine choke lever (3) as dictated by ambient temperature (open for hot engine, 1/2 open for warm, closed for cold engine).
6. Open fuel shut-off valve (petcock) on fuel filter.
7. **Raise the release valve (4) located in the unloader valve assembly (5) by pulling up on the ring and rotating the sleeve (6) to lock it in the raised position. This unloads the compressor and sends an air signal to the engine governor.**



8. Wind starter rope (7) clockwise around starter pulley. Make sure that the knot is fully secured in the step provided.
9. With a quick and steady pull on the handle attached to the rope, rotate the engine until it starts.
10. Gradually open choke lever (3) as the engine warms.
11. Turn the sleeve (6) to allow the release valve (4) to return to the down position. This allows the compressor to begin to pump air to the air receiver tank.
12. Close draincock (2).

Perform the necessary During Operation Preventive Services as indicated in Table 2-1.

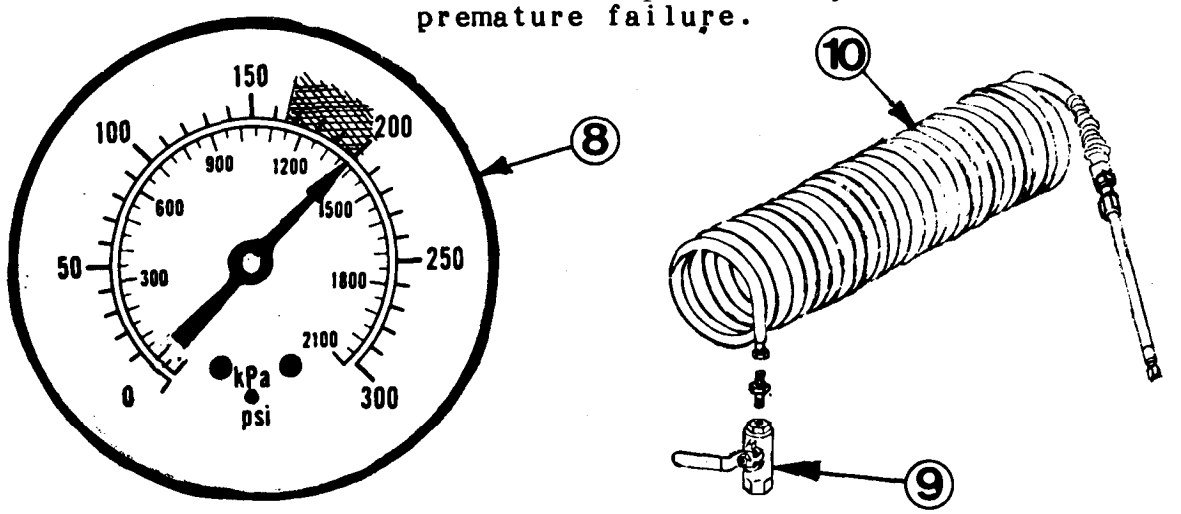
14. Listen and watch for any unusual noise or vibration.

d. Operation

1. Perform starting steps 1 through 14.
2. Check pressure gauge (8) reading. It should read between 165 to 199 psi (11.6 to 14.0 kg/sq cm.).
3. Unloader valve (5) is ideally set to unload at 195 psi (13.7 kg/sq.cm.).

WARNING

Do not open the air shut-off valve too rapidly as sudden shock to the air hose or other downstream components may cause **premature failure.**



4. After the air tank is fully pressurized (over 175 psi) slowly open the air shut-off valve (9) and allow the compressed air to charge the air hose (lo).

5. Use compressed air as necessary.

REMARK

Repair or replace valve if it does not unload the compressor when the receiver pressure reaches 195 psi, +/- 5 psi (13.71 kg/sq.cm.,+/-.35). The valve shall again allow the compressed air to enter the air receiver when the pressure falls below 175 psi, +/- 10 psi (12.31 kg/sq.cm.,+/-.70).

REMARK

The air compressor will continue to cycle as long as compressed air is used and fuel is available to be fed to the engine.

e. Stopping

1. Turn ignition switch (1) off.
2. Open draincock (2) slowly to blow compressed air and condensate from tank.
3. Close fuel shut-off valve on fuel filter.
4. Close draincock when condensate is no longer discharging.
5. Perform the necessary After Operation Preventive Services as indicated in Table 2-1.

2-5. PREPARATION FOR MOVING THE AIR COMPRESSOR UNIT.

a. Operate the compressor and allow the pressure in the air receiver tank to build to approximately 100 psi (7.03 kg/sq.cm.).

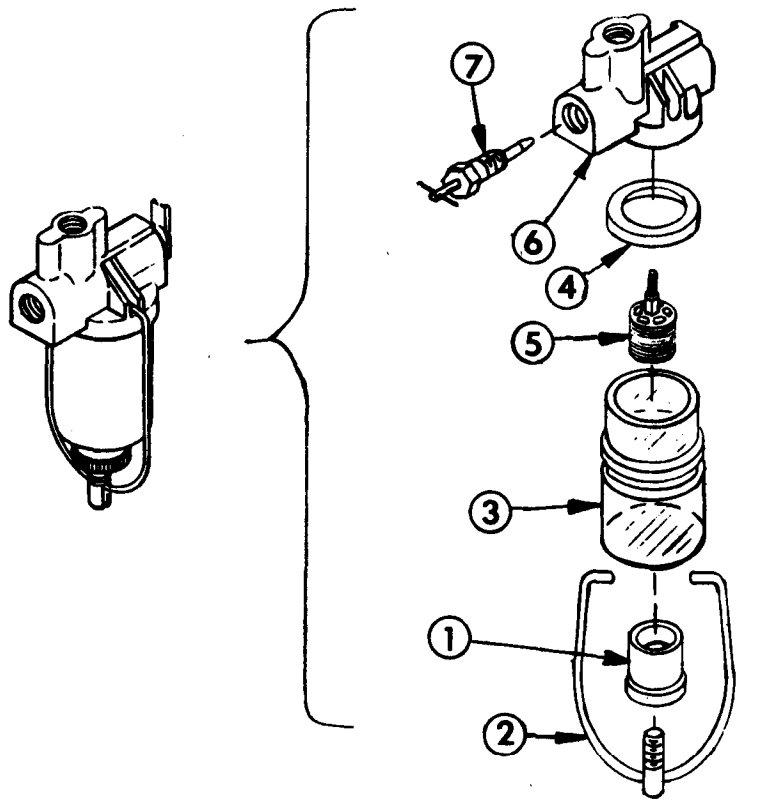
b. Stop the engine. Open the draincock and blow the condensate from air receiver tank. Close the draincock.

c. Close the shut-off valve (petcock) on the fuel strainer assembly.

d. Drain the fuel tank. Disconnect the fuel line at the discharge connection of the fuel strainer. Using a piece of tubing or similar device direct the gasoline into a **suitable** container,. use petcock on fuel strainer to control the rate of flow.

e. Drain Fuel Strainer

1. Loosen the nut (1) at the bottom of the fuel strainer bowl (cradle assembly).
2. Swing the cradle (2) to one side and carefully lower the bowl (3). Remove gasket (4) and strainer (5). Empty the bowl and discard gasket.
3. Install strainer (5) in upper housing (6) then place new gasket (4) and bowl (3) over strainer.
4. Swing cup of cradle assembly (2) beneath bowl and secure with nut (1) at base.



f. Secure the air hose assembly to the air receiver tank.

g. Lift the air compressor and accessories on a suitable carrier and block and tie it down.

h. Move the air compressor to a new worksite or storage.

i. Refer to paragraph 2-4 for placing unit back into service.

Section IV. OPERATION UNDER UNUSUAL CONDITIONS

2-6. 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. This compressor assembly i's not intended for use in ambient temperatures below -25°F (-31.6°C).

c. Lubricate the air compressor with the proper oil in accordance with Figure 3-1.

d. Avoid excessive handling, kinking and sharp bending of the air hose, which could become brittle at low temperatures.

WARNING

Always provide a metallic contact between the fuel container and the fuel tank when refueling. This will prevent a spark from being generated as the gasoline flows over metallic surfaces.

e. Keep all fuel tanks and gasoline storage containers filled with fuel to prevent formation of ice crystals from the freezing of condensate, normally formed during the cooldown of moist air. **Such** crystals will clog fuel line and carburetor jets. Use filter paper, chamois, or other type of strainer when filling the fuel tank or transferring fuel from one container to another.

f. Allow engine to reach normal operating temperature before applying load.

g. For additional information on operation in extreme cold conditions refer to FM 9-207.

2-7. OPERATION IN EXTREME HEAT.

a. Lubricate the air compressor in accordance with Figure 3-1.

b. This compressor assembly is not intended for use in ambient temperatures above +125°F (51.7°C).

c. Check the drive-belt tension frequently. Improper drive belt tension often results in overheating, excessive vibration and/or loss of compressor capacity. Push on belts half way between compressor flywheel and engine pulley. Belt tension is correct when belts move 3/4 to 1 inch.

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

e. Fill the fuel tank at the end of each day's operation, especially in areas where the temperature drops sharply at night. This will prevent condensate from forming in the fuel tank (specifically applicable for operating conditions of extreme moist heat).

f. Keep the engine clean. Service the engine air cleaner as often as necessary.

2-8. OPERATION IN DUSTY OR SANDY AREAS.

a. Lubricate the air compressor unit in accordance with Figure 3-1, 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 exterior fittings at all lubrication points after lubricating.

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

c. Clean the compressor and engine air cleaners more often than when operating under normal conditions.

d. Take adequate precautions to prevent sand and dirt from entering the fuel tank. Service the fuel strainer as often as necessary to keep the bowl free from dirt **o r** sand. Clean the engine air cleaner more often than usual.

2-9. OPERATION UNDER RAIN, SNOW OR HIGH HUMIDITY CONDITIONS.

a. Protect the unit with a shelter, keeping the shelter's sides open for ventilation.

b. Make sure all surfaces requiring lubrication are clean and dry before applying lubricant. Lubricate the unit in accordance with Figure 3-1.

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

d. Open the draincock frequently to blow condensate from the air receiver tank.

e. Service the engine and compressor air cleaners more frequently than then operating-under normal conditions.

2-10. OPERATION IN SALT WATER OR MUDDY AREAS.

a. Wipe the unit dry at frequent intervals, particularly the engine.

b. If the unit' becomes encrusted with salt or mud, 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 Figure 3-1.

d. Coat exposed polished or machined metal surfaces with a suitable rust proof material after first removing any accumulation of rust.

2-11. OPERATION AT HIGH ALTITUDES.

The air compressor is designed to operate efficiently at elevations of up to 5,000 feet. There will be a reduction in efficiency because of the rarefied air found at higher altitudes. This is a normal condition that cannot be prevented.

2-12. FORDING .

Due to the equipments configuration, and the inherent design of the compressor and engine, this unit is not suitable for fording.

CHAPTER 3

OPERATOR'S MAINTENANCE INSTRUCTIONS

Section I. LUBRICATION INSTRUCTIONS

3-1. GENERAL LUBRICATION INFORMATION. This section contains lubricating instructions for the air compressor. Refer to LO 9-2805-262-12 for engine lubrication procedures.

3-2. AIR COMPRESSOR LUBRICATION.

a. Refer to Figure 3-1 for lubrication points and lubricant specifications.

b. 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.

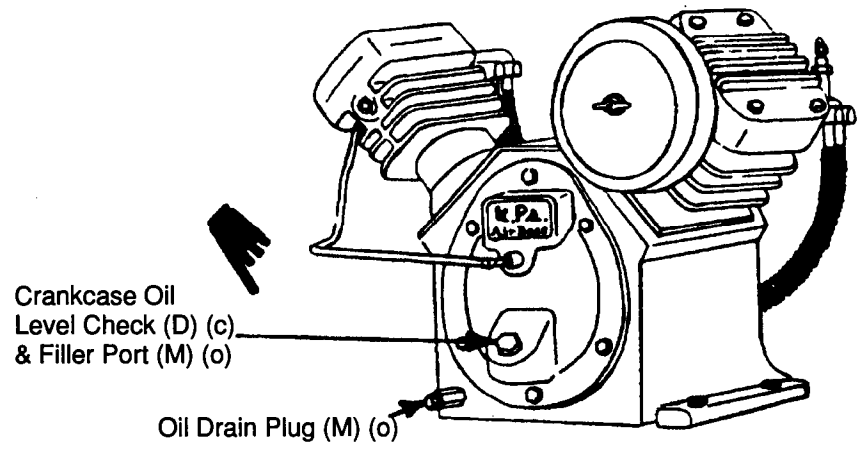
WARNING

Drycleaning solvent, P-D-680, used to clean parts is potentially dangerous to personnel and property. Avoid repeated and prolonged skin contact by wearing rubber or solvent impermeable gloves when handling the solvent or material wet with drycleaning solvent. Wash hands immediately after exposure with soap and water and use a lanolin based skin cream to prevent skin drying. Do not use near open flame or excessive heat. Flash point of solvent is 100°F (38°C). Ensure that ventilation is adequate to reduce solvent vapor concentrations below acceptable threshold limit values.

c. Clean fittings before lubricating. Relubricate all areas exposed to water after operation in wet areas. Clean parts with drycleaning solvent, or with oil (diesel fuel). Dry before lubricating. Drain crankcases when hot. Fill and check level.

3-3. ENGINE LUBRICATION. Refer to LO 9-2805-262-12 for lubrication procedures for the engine.

Figure 3-1. COMPRESSOR LUBRICATION



TOTAL TASK HOURS	
I N T E R V A L	TASK-HOURS
D (1 O Hours or Daily)	0.2
M (100 Hours or Monthly)	0.5

KEY

LUBRICANTS	CAPACITY	EXPECTED TEMPERATURES		
		Above 32°F (0°C)	40°F (4.5°C) to –10°F(-23°C)	0°F (-18°C) to -25°F (-31.7°C)
Compressor Crankcase	1.85 qts. (1 .75 lt)	OE 30	OE1O	OES

NOTES:

1. THESE LUBRICATION INSTRUCTIONS ARE MANDATORY.
2. INTERVAL - Intevals given are in hours of normal operation.
3. FOR OPERATION OF EQUIPMENT IN PROTRACTED COLD TEMPERATURES BELOW-1O°F (-23°C). Remove lubricants prescribed in the key for temperatures above -10°F (-23°C). Clean parts with SOLVENT (dry-cleaning solvent P-D-680). Relubricate with lubricants specified in the key for temperatures below-10°F (-23°C).
4. LUBRICANTS. The following is a list of lubricants with the military symbols and applicable specification number

   OE MIL-L-2104
   OES MIL–L-10295

5. If the oil which has just been drained appears to contain metallic particles or similar foreign material, the compressor crankcase should be inspected. Refer to Direct Support Maintenance for corrective action.
6. LEVEL OF MAINTENANCE. The lowest level of maintenance authorized to lubricate a point is indicated by one of the following: (c) operator/crew or (o) organizational maintenance.

All data on pages 3-3 and 3-4, including figure 3-2 deleted.

LUBRICATION ORDER

LC 38G2-90-1

LO5-2805-203-14

(Supersedes LO5-2805-203-14 dated 1 DEC 64)

ENGINE, GASOLINE: 6 HP; MILITARY STANDARD MODEL 4A032-1 AND MODEL 4A032-2

Reference: TM5-2805-203-14 and FEDERAL SUPPLY CATALOG C9100-IL

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

Clean fittings before lubricating.

Relubricate after washing.

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

Drain crankcase when hot. Fill and check level.

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

-KEY-

LUBRICANTS	CAPACITY	EXPECTED TEMPERATURES			INTERVALS
		Above +32° F	+40° F to -10° F	0° F to -65° F	
OE HDO-LUBRICATING OIL, Engine					
Crankcase	2-1/8 qt	OE HDO 30	OE HDO 10	OES	Intervals given are in hours of normal operation
Air Cleaner	1/8 qt				
Oil Can Points					
OES-OIL, Engine, Sub-zero					

FOLD FOLD

LUBRICANT ● INTERVAL

INTERVAL ● LUBRICANT

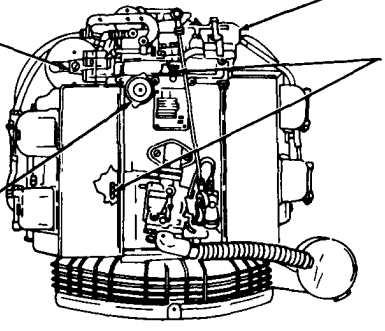
Oil Filter (Disassemble, clean housing, renew element and reassemble) (See note 3) — 50

Crankcase Oil Fill and Level Cap (See key) (Check level) — OE HDO — 8

CAUTION: Do Not Fill Above Full Mark on Dip Stick

500 — OE HDO — Magneto Cam Wick (Sparingly)

50 — Crankcase Drain Plug (Drain and refill)



*TOTAL MAN-HR		*TOTAL MAN-HR	
INTERVAL	MAN-HR	INTERVAL	MAN-HR
8	.1	500	.3
50	.5		

Figure 3-2. Lubrication instruction (sheet 1 of 2).

NOTES:

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

2. OIL CAN POINTS. Every 25 hours lubricate all exposed adjusting threads with OE/HDO.

3. OIL FILTER. Every 50 hours remove filter element, clean housing, install new element, fill crankcase, operate engine for five minutes, check for leaks, check crankcase oil level, and bring to full mark.

4. LUBRICANTS. The following is a list of lubricants with the Military Symbols and applicable specification numbers.

OE/HDO MIL-L-2104C OES MIL-L-10295

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

BY ORDER OF THE SECRETARIES OF THE ARMY AND THE AIR FORCE:

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

OFFICIAL:

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

JOHN D. RYAN
General, USAF
Chief of Staff

OFFICIAL:

JOHN F. RASH
Colonel, USAF
Director of Administration

FOLD FOLD

Figure 3-2. Lubrication instruction (sheet 2 of 2).

Section II. TROUBLESHOOTING

3-4. GENERAL.

a. This table lists the common malfunctions which you may find during the operation or maintenance of the Air Compressor Unit or its components. You should perform the tests/inspections and corrective actions in the order listed.

b. This manual cannot list all malfunctions that may occur, nor all tests or inspections and corrective actions.If a malfunction is not listed or is not corrected by listed corrective actions, notify your supervisor.

3-5. OPERATOR TROUBLESHOOTING. Perform troubleshooting functions in accordance with Table 3-1.

Table 3-1. TROUBLESHOOTING

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION
ENGINE
1. ENGINE FAILS TO START.
Step 1. Inspect for lack of fuel in fuel tank. Fill fuel tank.
Step 2. Check that engine ignition switch is on “RUN”. Turn ignition switch to “RUN”.
Step 3. Check that fuel shut-off valve (petcock), located in the fuel strainer cover, is fully open. Open valve.
Step 4. Inspect fuel strainer for signs of dirt or grime which could be blocking flow of fuel to engine. Service fuel strainer.
Step 5. Inspect engine air filter for signs of excessive dirt or grime which could be blocking airflow to engine. Replace air cleaner.

Table 3-1. Troubleshooting - continued

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

1. ENGINE FAILS TO START - continued

Step **6.** If, after a careful review and execution of the above steps, the engine still cannot be started, consult TM 9-2805-262-14 for further engine troubleshooting information (fuel and ignition system).

2. **ENGINE MISSES OR OPERATES ERRATICALLY.**

Step 1. Check that fuel shut-off valve (petcock), located in the fuel strainer cover, is fully open.

Open valve.

Step 2. Inspect fuel strainer for signs of dirt or grime which could be blocking flow of fuel to engine.

Clean strainer.

Step 3. Inspect engine air filter for signs of excessive dirt or grime which could be blocking air flow to engine.

Replace air cleaner.

Step 4. If, after a careful review and execution of the above steps, the engine still operates erratically, consult TM 9-2805-262-14 for further engine troubleshooting information (fuel and ignition system).

3. **ENGINE OVERHEATS.**

Step 1. Inspect engine cooling vent for obstruction.

With the engine stopped, clear obstruction from screen.

Step 2. Inspect engine for dirty or otherwise restricted cylinder cooling fins.

Clean cylinder cooling fins.

Step 3. Check crankcase oil for proper level.

Fill as required.

Table 3-1. Troubleshooting - continued

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION
3. ENGINE OVERHEATS - continued
Step 4. If, after a careful review and execution of the above steps, the engine still overheats, consult TM 9-2805-262-14 for further engine troubleshooting information (fuel and ignition system).
4. **ENGINE STOPS.**
Step 1. Inspect for lack of fuel in fuel tank.
Fill fuel tank.
Step 2. Inspect fuel strainer.
Clean strainer.
Step 3. Inspect engine air filter.
Replace air filter element.
PNEUMATIC EQUIPMENT
1. COMPRESSOR PUMPS TOO SLOWLY OR PROVIDES INSUFFICIENT PRESSURE.
Step 1. Inspect compressor air filter for blockage.
Replace filter.
Step 2. Check for leaks to and from air receiver tank.
Wet fittings with soapy water. Secure fittings as necessary.
2. **EXCESSIVE COMPRESSOR OIL CONSUMPTION.**
Step 1. Check for incorrect or inferior grade of compressor oil.
Replace compressor crankcase oil.
a. Remove oil filler cap.

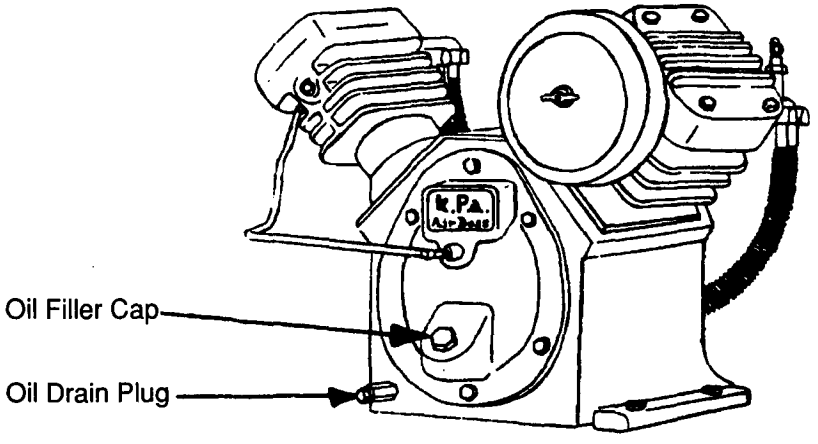
Table 3-1. Troubleshooting - continued

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

2. EXCESSIVE COMPRESSOR OIL CONSUMPTION - continued.

Step 1. Check for incorrect or inferior grade of compressor oil – continued

b. Position suitable container beneath compressor crankcase drain pipe and remove oil drain plug from pipe.



c. Install drain plug when oil is completely drained.

d. Fill crankcase with 1.85 quarts (1 .75 liters) of the correct type of oil as follows:

Expected Temperature	Oil Type
Above 32°F(0°C)	OE/HD0 30
+40°F (4.5°C) to –10°F (-23°C)	OE/HDO 1O
0°F(-18°C) to-25° F(–31.7°C)	OES

e. Install oil filler cap.

Step 2. Inspect for signs of leaks from oil drain plug or pipe.

Tighten oil drain plug.

Table 3-1. TROUBLE SHOOTING - continued

Malfunction	Test or Inspection	Corrective Action

3. COMPRESSOR OVERHEATING.

WARNING

When using compressed air for blowing, air hose pressure must not exceed 30 psi (2.11 kg/sq.cm.), and individuals must wear eye protective equipment.

Step 1. Inspect for dirt in intercooler coils and cylinder fins.

Blow out any dirt with compressed air.

Step 2. **Check** for poor ventilation and high ambient temperature.

If possible, move compressor to a more adequately ventilated area or check the possibility of piping the air intake from a cooler location.

Step 3. Check for the proper functioning of the unloader valve. Air should be blowing out of the muffler freely when tank pressure exceeds 195 psi +/- 5 psi

a. Unscrew the muffler and blow out any dirt with compressed air.

b. Reinstall the muffler

4. NOISY COMPRESSOR OPERATION.

Step 1. **Check** compressor for insufficient oil.

Fill compressor crankcase with correct oil as follows:

Expected Temperature	Oil Type
Above 32°F(0°C)	OE/HDO 30
+40°F (4.5°C) to -lO°F (-23°C)	OE/HDO 10
O°F (-18°C) to -25°F (-31.7°C)	OES

Step 2. Inspect compressor for loose fasteners (bolts, screws, nuts, etc.).

Tighten fasteners.

Section III. MAINTENANCE PROCEDURES

3-6. GENERAL. Instructions in this section are published for the information and guidance of the operator in properly maintaining the air compressor unit.

3-7. BELT GUARD, V-BELTS AND PULLEY.

a. Inspect the belt guard for dents, cracks, or other damage. Straighten minor dents and bends in the guard.
b. Inspect all attaching hardware for tightness.
c. Inspect the V-belts for cuts, fraying, wear, alignment and tension.
d. Inspect the pulley for cracks or looseness.
e. Inspect the compressor flywheel for cracks or looseness.

3-8. FUEL TANK, LINES AND FITTINGS.

a. Check all fittings for leaks and tighten if necessary.
b. **Check cap gasket** for leaks “and replace if necessary.
c. if leak is found in fuel tank, drain tank immediately and report to organizational support maintenance.
d. Clean fuel tank strainer.
e. Clean fuel filter strainer.

3-9. CAPACITY CONTROL SYSTEM.

a. Inspect all fittings for tightness.
b. Verify proper operation of the unloader valve.

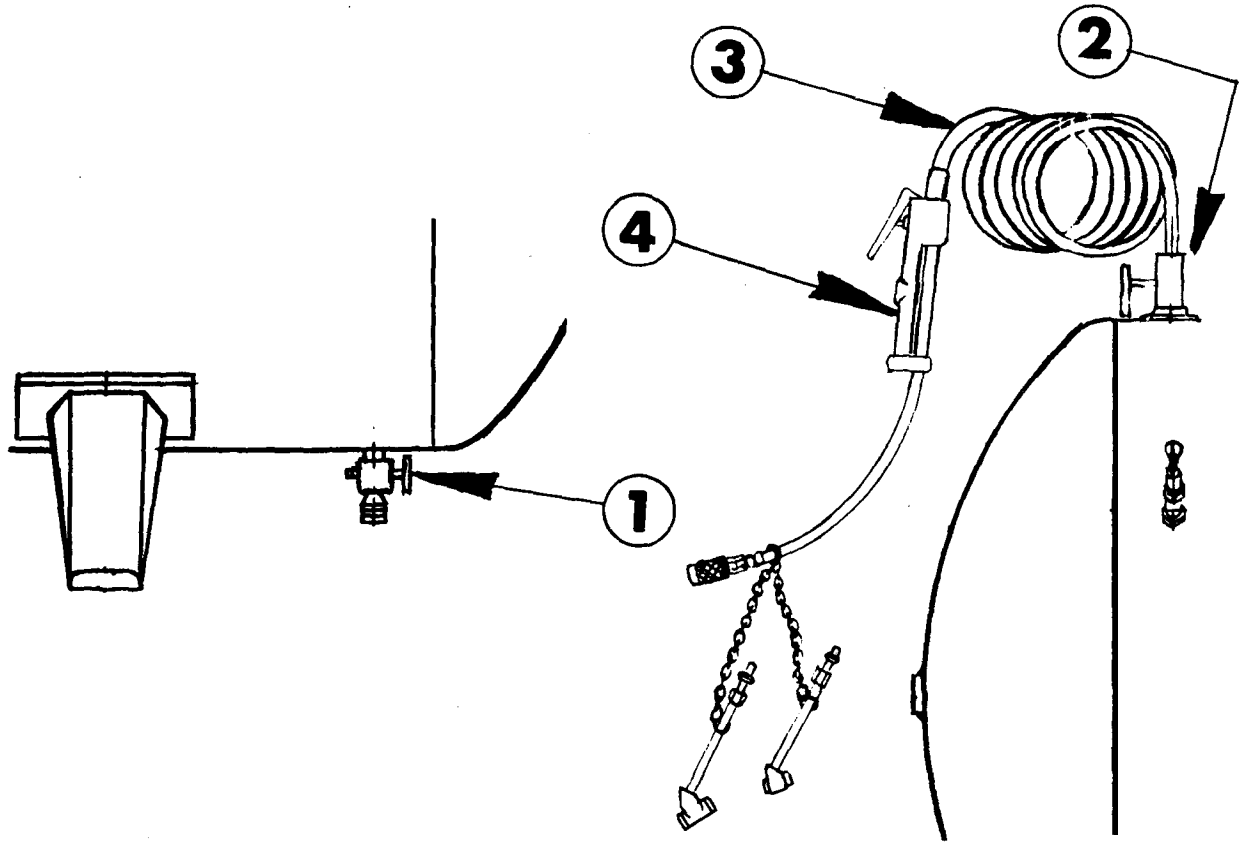
3-10. COMPRESSOR ASSEMBLY.

a. Inspect, clean and/or replace inlet air filter.
b. Inspect and clean intercooler and cylinder fins.
c. Inspect oil level.

3-11. AIR RECEIVER TANK.

a. Open draincock (1) daily to remove moisture from the air receiver tank.

b. Keep all fittings connected to the air receiver tank tight. Check for leaks with soapy water with pressure in air receiver tank.



3-12. AIR DISCHARGE SYSTEM.

a. Examine shut-off valve (2) for cracks or leaks.

b. Examine fittings for leaks. Check with soapy water.

c. Examine hoses (3) for cracks or leaks.

d. Examine inflator gauge (4) for cracked dial glass, stripped threads, leaks, or defective handle.

CHAPTER 4

ORGANIZATIONAL MAINTENANCE INSTRUCTIONS

4-1. CHAPTER OVERVIEW. This chapter contains maintenance information applicable to organizational support maintenance.

Section I. REPAIR PARTS, SPECIAL TOOLS, TMDE AND SUPPORT EQUIPMENT

4-2. COMMON TOOLS AND EQUIPMENT. For authorized common tools and equipment refer to the Modified Table of Organization and Equipment (MTOE) applicable to your unit.

4-3. SPECIAL TOOLS. No special tools are required to service or repair the air compressor.

4-4. SPARES AND REPAIR PARTS. Spares and repair parts are listed and illustrated in the repair parts and special tools list covering Organizational, Direct Support and General Support maintenance for this equipment (TM 5-4310-372-24P).

Section II. SERVICE UPON RECEIPT

4-5. SITE AND SHELTER REQUIREMENTS. The Model C–20X-80/6E air compressor unit was designed for use in the field.

Protect the compressor from water, excessive dirt and corrosive atmospheres.

Run the compressor in an area that receives adequate ventilation to prevent it from overheating.

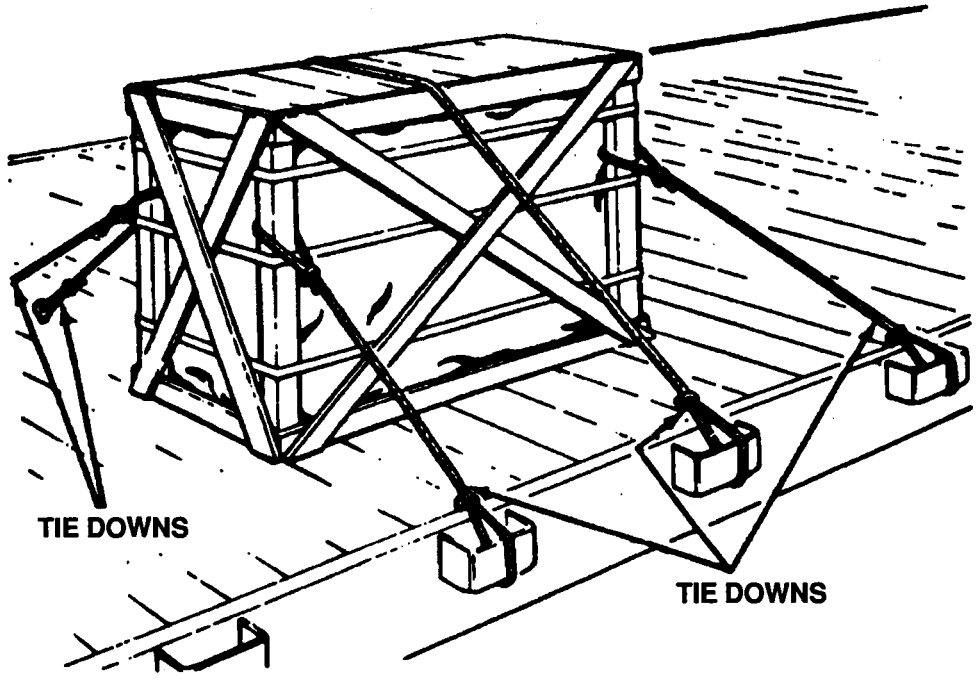
4-6. SERVICE UPON RECEIPT. The compressor and engine are shipped with oil in their crankcases. Before start-up, check each crankcase for proper oil level.

See Chapter 3, Section I for lubrication instructions.

4-7. ASSEMBLY AND PREPARATION FOR USE.

a. Unloading.

1. Remove all tiedowns and/or blocking that secure the crate to the carrier,



WARNING

Make certain any lifting device used has a capacity equal to or greater than the weight being lifted. Failure to observe this precaution could result in injury or death to personnel and damage to equipment.

2. A forklift truck, pipe rollers, or a suitable hoist must be used when removing the air compressor from the carrier.

b. Unpacking.

1. Place the air compressor as close to the point of use as possible.

2. Prepare the air compressor for inspection and servicing as outlined on DA Form 2258, Depreservation Guide, attached on or near the operational controls.

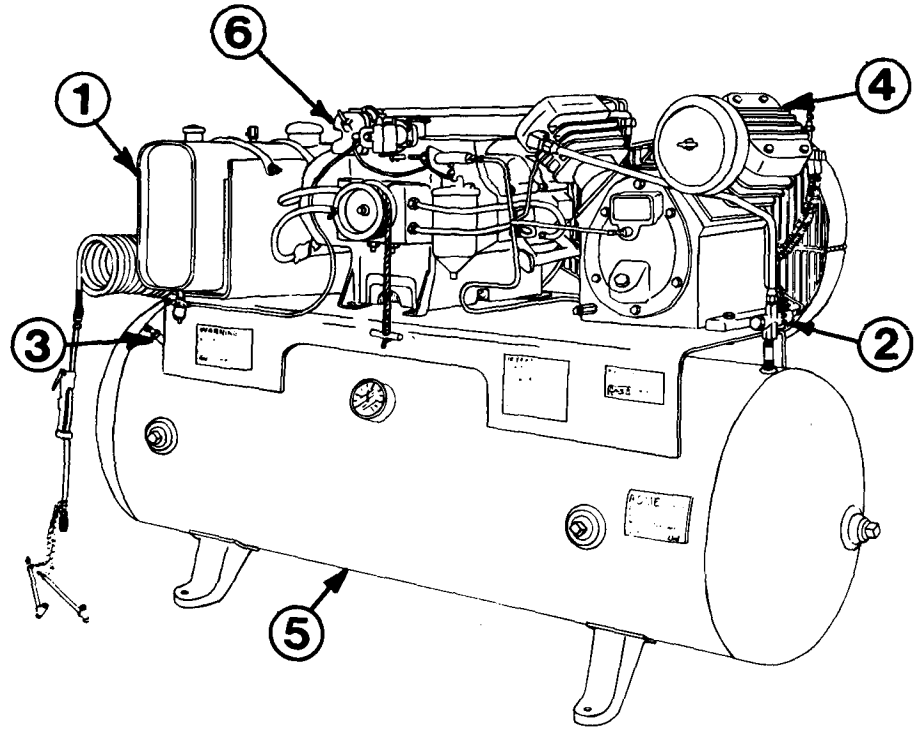
3. Remove the nuts and Iockwasher that secure the air compressor to the bottom of the crate and remove the air compressor.

4-7. ASSEMBLY AND PREPARATION FOR USE - continued

c. Inspection and Service.

1. Make a complete visual inspection of the air compressor for any loss or damage that may have occurred during shipment. If shipping crate has been damaged, pay particular attention to the compressor areas adjacent to damaged areas of the crate.

2. Inspect the fuel tank (1) and fittings for looseness, breaks or other defects.



3. Inspect the unloader (2) and safety valve (3) for loose mounting.

4. Inspect the air compressor (4) for loose mounting bolts, cracks, breaks or other defects.

5. Inspect the air receiver tank (5) for damage.

6. Inspect the engine (6) for loose connections? and insecure mounting.

4-7. ASSEMBLY AND PREPARATION FOR USE - continued

c. Inspection and Service - continued

7. Check the contents of the crate against the packing list to make sure no items are missing.

8. Correct all deficiencies or report them to the proper authority.

d. Installation. The air compressor is delivered with an air hose assembly and inflator gauge. The air hose assembly is installed directly in the end of the shut-off valve which is directly mounted to the air receiver tank.

e. Outdoor Installation. Avoid muddy, sandy, or dusty locations as a site for operation, as dirt and moisture shorten the life of all moving parts.

WARNING

Dangerous Gases are generated as a result of operating this equipment. Do not operate the compressor in enclosed areas unless exhaust gases are properly vented to the outside. Exhaust discharge contains noxious and deadly fumes.

f. Indoor Installation. If the compressor is to be operated within a building or vehicle, pipe the engine exhaust to the outside. Use as few bends as possible in the exhaust line and make sure all connections are tight.

g. Noise Hazard and Warning Signs. Signs conforming to provisions of AR 385-30 will be erected in the area to provide notification of noise hazard in accordance with TB MED 251. The signs should read:

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WARNING

NOISE HAZARD EQUIPMENT

HEARING PROTECTION

REQUIRED

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Section III. PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS)

4-8. INTRODUCTION. The preventive maintenance checks and services listed in the PMCS Table 4-1 cover procedures to be performed by organizational maintenance personnel.

4-9. **PMCS TABLE.** Explanation of the columns:

- Item Number. Checks and services are numbered in sequence. This column shall **be used as source Of item** numbers for the TM Number Column on DA Form 2404, "Equipment Inspection and Maintenance Worksheet, in recording results of PMCS.
- Item To Be Inspected. This column gives the name of the item to be inspected or serviced.
- Equipment is Not Ready/Available If: This column contains the criteria which will cause the equipment to be classified as not ready or not available because of its inability to perform its primary mission.

Table 4-1. Preventive Maintenance Checks and Services

NOTE

Within designated interval, these checks are to be performed in the order listed.

W – **Weekly** M – Monthly Q – Quarterly

Item No.	Interval W	Interval M	Interval Q	Item to be Inspected	Procedures	Equipment is Not Ready/ Available If:
1	•				Perform all preventive maintenance checks and services as shown in Table 2-1	
2	•			V-belt Drive	Check for excessive belt wear, misalign ment or improper tension	

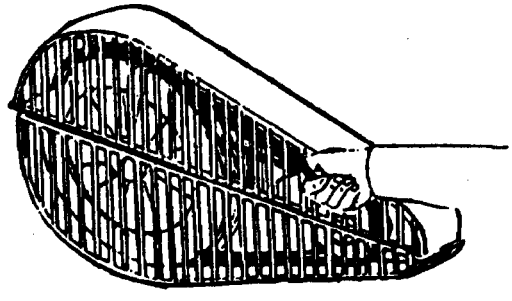


Table 4-1. Preventive Maintenance Checks and Services - Continued

NOTE

Within designated interval, these checks are to be performed in the order listed.

W – Weekly M - Monthly Q – Quarterly

Item No.	Interval W	Interval M	Interval Q	Item to be Inspected	Procedures	Equipment is Not Ready/ Available If:
3	•			Flywheel	Check for integrity, cracks, and tightness of mounting.	
4	•			Intercooler	Check for dirt in fins.	
5	•			Engine Assembly	Refer to engine TM 9-2805-262-14	
6	•			Compressor Intercooler Relief Valve	Inspect for proper operation. Pull to check for freedom of movement. 	Relief valve leaks air or is inoperable

Section IV. TROUBLESHOOTING

4-10. INTRODUCTION. The following troubleshooting procedures are to be performed by organizational personnel.

4-11. GENERAL. To aid in troubleshooting, the following general information is listed.

a. Dirt and water are the major enemies of the fuel system. If you regularly clean the strainer at the outlet of the fuel line you can stop the dirt and water from getting into the engine's carburetor where they can do harm.

b. The compressor drive is a fairly simple system. The main problems are improper belt tension, misalignment and loose parts.

c. The intake and exhaust valves are the most sensitive and critical parts of the compressor. Loss of pumping efficiency can most often be traced back to the valves. However, problems with getting enough air are not always caused by the compressor. Leaky fittings or an improperly adjusted unloader valve may also beat fault.

d. The engine provides the power to rotate the compressor. Poor engine performance will result in reduced air output. Troubleshooting for internal engine problems is covered in TM 9-2805-262-14. Improper engine speed control (governor) will directly affect the capacity of the air compressor.

e. The most common problem with the air receiver and discharge system is air leakage. You can find leaks by applying soapy water in the area of the suspected leak. If the leak can not be stopped by tightening fittings replace the part. Use sealing tape on pipe fittings to get a good seal. Do not use sealing tape on hose fittings which are self–sealing.

4-12. TROUBLESHOOTING CHART

- Malfunction. Malfunctions listed are the ones most likely to happen. Not all possible malfunctions can be foreseen and listed.
- Test or Inspection. Tests or inspections are listed to help you find the cause of the malfunction. The tests are grouped by what system they belong to (e.g., the fuel system tests are with the fuel system). Within each group the tests are arranged so that the easier tests come before the harder tests.

4-12. TROUBLESHOOTING CHART - continued

- Corrective Action. Corrective actions are listed to help you eliminate the malfunction. Where the corrective action is too complicated to be listed in full detail in this section, the paragraph number of the detailed procedure is given in parentheses, after the suggested corrective action.

Table 4-2. TROUBLESHOOTING

MALFUNCTION TEST OR INSPECTION CORRECTIVE ACTION
1. ENGINE WON'T RUN.
Step 1. Check for empty fuel tank. Add fuel.
Step 2. Check that engine ignition switch is switched to 'Run'. Turn ignition switch to 'Run'.
Step 3. Check if shut-off valve on the fuel strainer is closed or partially closed. Fully open shut-off valve.
Step 4. Inspect fuel strainer for signs of dirt or grime which could be blocking flow of fuel to engine, Service fuel strainer.
Step 5. Check if fuel line is clogged with dirt. Clean out fuel line.
Step 6. Inspect engine air filter for signs of excessive dirt or grime which could be blocking airflow to engine. Replace air cleaner.
Step 7. If, after a careful review and execution of the above steps, the engine still will not run, consult TM 9-2805-262-14 for further engine diagnostic information (fuel and ignition system).

Table 4-2. TROUBLESHOOTING - continued

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

2. ENGINE OVERHEATS.

Step 1. Inspect engine cooling vent for obstruction.

With the engine stopped, clear obstruction from screen.

Step 2. Inspect engine for dirty or otherwise restricted cylinder cooling fins.

Clean cylinder cooling fins.

Step 3. Check crankcase oil level for proper level.

Fill as required.

Step 4. If, after a careful review and execution of the above steps, the engine still overheats, consult TM 9-2805-262-14 for further engine troubleshooting information (fuel and ignition system).

3. **BELTS WEAR TOO FAST.**

Step 1. Check if belts are loose.

Tighten belts (paragraph 4-20).

Step 2. Check if drive pulley and flywheel are out of alignment.

Align (paragraph 4-20).

4. **COMPRESSOR TOO NOISY WHEN RUNNING.**

step 1. Check if belt guard is loose.

Tighten mounting screws.

Step 2. Check if flywheel is loose.

Tighten mounting bolt.

Step 3. Check for loose compressor mounting bolts.

Tighten bolts.

Table 4-2. TROUBLESHOOTING - continued

MALFUNCTION
TEST OR INSPECTION
CORRECTIVE ACTION

4. COMPRESSOR TOO NOISY WHEN RUNNING - continued

Step 4. Check compressor oil level and quality.

Add oil or change as necessary.

Step 5. Check if air filter is intact and filter element is installed and clean.

Replace filter element.

Step 6. Check for loose fasteners on the compressor (head bolts, etc.)

Tighten bolts.

5. **POOR COMPRESSOR PERFORMANCE (Low Capacity or Pressure).**

Step 1. Step 1. Check for leaks in air lines and fittings.

Tighten fittings or replace leaking parts.

Step 2. Step 2. Check for overloading of the compressor.

Reduce air use to less than 15 cfm.

Step 3. Step 3. Check for loose drive belts.

Tighten belts.

Step 4. Step 4. Check for clogged air inlet filter.

Replace filter.

Step 5. Step 5. Check for damaged or dirty intake or exhaust valves.

Clean or replace valves (paragraph 4-25).

Step 6. Step 6. Check for proper engine speed (governor control).

Adjust speed (see TM 9-2805-262-14).

Step 7. Step 7. Check for leaking head gaskets.

Replace gaskets (paragraph 4-25).

Step 8. Step 8. Check for the proper operation of the unloader valve.

Repair or replace valve (paragraph 4-21),

TABLE 4-2 TROUBLESHOOTING - continued

Malfunction	

6. COMPRESSOR OVERHEATS

Step 1. **Check** for low oil level and quality of oil.
Add oil or change as necessary.

Step 2. **Check** for dirt in intercooler or cylinder fins.
Remove dirt.

Step 3. Check that compressor is getting adequate ventilation.
Move compressor to a site where air can circulate, or otherwise improve ventilation.

Step 4. Check for clogged air intake filters.
Replace intake filters.

Step 5. Check intake and exhaust valves.
Clean or replace valves (paragraph 4-25).

Step 6. Check for the proper functioning of the unloader **valve.** Air should be blowing out of the muffler freely when tank pressure exceeds 195 psi +/-5 psi.
a. Unscrew the muffler and blow out any dirt with compressed air.
b. Reinstall the muffler.

7. EXCESSIVE COMPRESSOR OIL CONSUMPTION.

Step 1. Check for incorrect or inferior grade of compressor oil.
Replace compressor crankcase oil.
a. Position suitable container beneath compressor crankcase drain pipe and remove plug (1) from pipe.

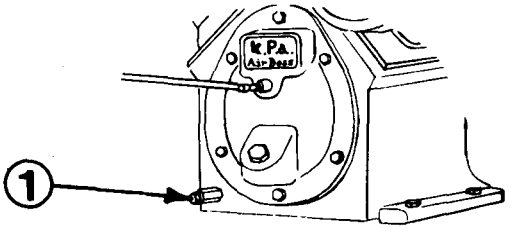


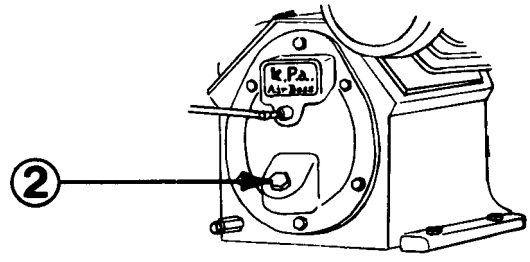
TABLE 4-2 TROUBLESHOOTING - continued

Malfunction	Test or Inspection	Corrective Action

70 EXCESSIVE COMPRESSOR OIL CONSUMPTION - continued

b. Install drain plug (1) when oil is completely drained.

c. Remove oil filler cap (2).



d. Fill crankcase with 1.85 quarts (1.75 liters) of the correct type of oil as follows:

Expected Termperature	Oil Type
Above 32°F(0°C)	OE/HDO 30
+40°F (4.5°C) to -lO°F (-23°C)	OE/HDO 10
O°F (-18°C) to -25°F (31.7°C)	0ES

e. Install oil filler cap (2).

Step 2. Check for leaking joints and/or damaged gaskets around crankcase.

a. Tighten loose fittings.
b. If leaks persist refer to direct support maintanence.

8. AIR RECEIVER TANK LOSES PRESSURE.

Step 1. Check for air leaks with soapy water.

a. Tighten loose fittings.
b. Replace leaky parts.

Step 2. Check for proper operation of the unloader valve.

Repair or replace valve (paragraph 4-21).

Step 3. CheSck for proper seating of the relief valve.

Replace valve.

Section V. COMPRESSOR DRIVE MAINTENANCE

4-13. MAINTENANCE SUMMARY. This task covers:

a. Removal
b. Cleaning
c. Inspection
d. Repair
e. Installation
f. Adjustment

INITIAL SETUP

Personnel Required	Special Tools
	None

TASK SUMMARY

No.	TASK	REFERENCE	REMARKS
1.	Remove belt guard	4-14	
2.	Remove drive belts	4-14	
3.	Remove pulley	4-14	
4.	Remove engine flywheel shield	4-14	
5.	Remove stub shaft	4-14	
6.	Clean, inspect and repair	4-15	
7.	Install stub shaft	4-16	
8.	Install engine flywheel shield	4-16	
9.	Install pulley	4-16	
10.	Install belts	4-16	
11.	Adjust belt tension	4-16	
12.	Install belt guard	4-16	

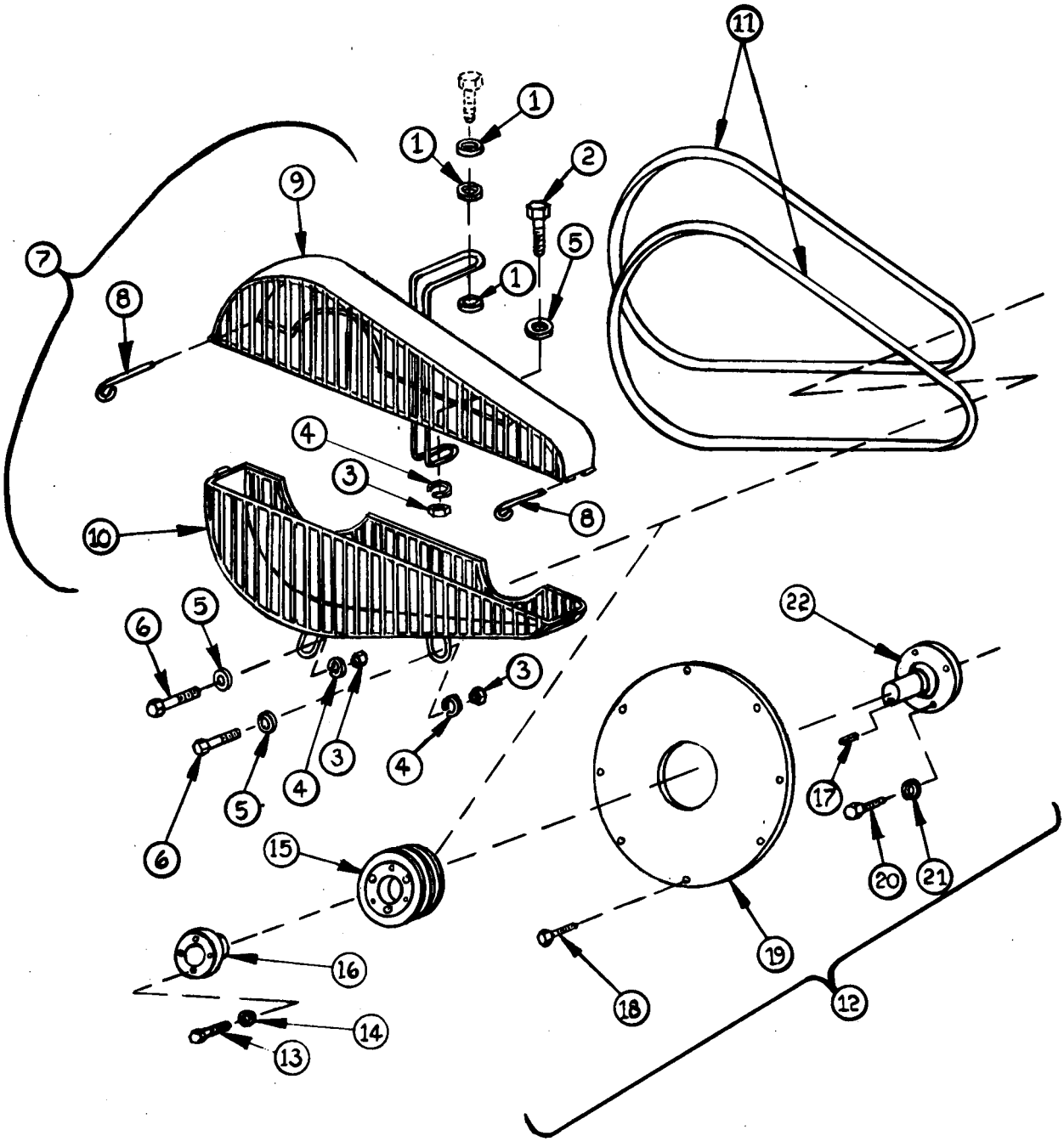


Figure 4-1. Compressor Drive Group

COMPRESSOR DRIVE MAINTENANCE - continued

4-14. REMOVAL

No.	ITEM(s)	ACTION	ITEM I.D.
1.	Belt Guard	a. Unscrew fasteners (bolts washers and nuts) which secure the upper half of guard to the compressor and tank platform.	1 to 5
		b. Remove pins which secure upper half of guard to lower half.	8
		c. Remove upper half of guard.	9
		d. Unscrew fasteners (bolts, washers and nuts) which secure the lower half of the belt guard to the air receiver tank platform.	3 to 6
		e. Remove lower half of guard.	10
2.	DriveBelts	a. Loosen the four(4) engine mounting bolts.	
		b. Slide engine towards the compressor.	
		c. Remove two (2) belts.	11
3.	Engine Pulley	a. Remove capscrews and washers securing inner "hub to pulley (sheave).	13,14
		Reinstall capscrews into threaded holes in front side of pulley. slowly tighten the capscrews until the inner hub is pushed out from the pulley (sheave).	15
		c. Remove pulley and inner hub. Remove key from stub shaft keyway.	15,16, 17
4.	Engine Flywheel Shield	a. Unscrew the 8 capscrews securing the shield to the engine bellhousing.	18
		b. Remove shield.	19
5.	Stub Shaft	a. Unscrew the 4 capscrews and washers securing the stub shaft to the engine flywheel.	20,21
		b. Remove the stub shaft.	22

COMPRESSOR DRIVE MAINTENANCE - continued

4-15 CLEANING, INSPECTION AND REPAIR

NO.	ITEM(S)	ACTION	ITEM I.D.
1.	Belt Guard	a. Inspect for breaks, dents or other damage. b. Straighten dents or bent wire. c. Replace if unrepairable. d. Clean with stiff brush. e. Paint surfaces that have bare metal showing (to prevent rusting).	9,10
2.	Drive Belts	a. Inspect for wear, tears, cracks or other damage. b. Replace if worn, torn, cracked or similarly damaged.	11
3.	Engine Pulley and Bushing	a. Inspect for cracks. b. Replace if cracked.	15,16
4.	Engine Flywheel Shield	a. Clean inside with stiff brush. b. **Remove all dirt and grease.**	19
5.	Stub Shaft	a. **Inspect for cracks.** b. **Replace if cracked.**	**22**
6.	Mounting Hardware	a. **Inspect for thread damage,** elongation, cracks, etc. b. Replace damaged components.	**13,14,** 17,18, 20,21

4-16. INSTALLATION AND ADJUSTMENT

NO.	ITEM(S)	ACTION	ITEM I.D.
1.	**Stub Shaft**	**Fasten to the engine fly-**wheel using its fasteners (4 capscrews and washers) . **Tighten capscrews to 20 ft-lbs** (torque).	20 to **22**
2.	**Engine Flywheel Shield**	**Fasten to the engine bell-housing** using its fasteners (8 capscrews7.	**18,19**

COMPRESSOR DRIVE MAINTENANCE -continued

4-16. INSTALLATION AND ADJUSTMENT - continued

NO.	ITEM(S)	ACTION	ITEM I.D.
3.	Engine Pulley	a. Slide key into stub shaft keyway.	13 to 17
		b. Slide pulley over stub shaft.	
		c. Slide bushing (hub) over stub shaft making sure to properly align and position key.	16
		d. Position pulley over hub and align its v-belt grooves to those in the compressor fly-wheel . Make sure that the unthreaded holes in the pulley line up with the threaded holes in its bushing (inner hub).	
		e. Install fasteners (3 capscrews and washers) into the pulley and screw into the hub.	13 14
		f. Slowly tighten the fasteners making sure to gradually tighten (equally torque) each capscrew in rotation. Make sure. that the bushing is pulled into the pulley so that the pulley holds alignment with the compressor flywheel. Torque the capscrews to 15 ft-lbs.	
4.	Drive Belts	a. Position belts over flywheel wheel and pulley. Check alignment of the belts.	11

CAUTION

When prying, do not pivot on any components that might be broken, dented or otherwise damaged by pressure.

b. Slide engine away from the compressor. Use a wood wedge or similar device to assist tensioning of the belts.

COMPRESSOR DRIVE MAINTENANCE - continued

4-16. INSTALLATION AND ADJUSTMENT - continued

NO.	ITEM(S)	ACTION	ITEM I.D.
		REMARK Push on belts half way between engine pulley and compressor flywheel. Belt tension is correct when belts move 3/4 to 1 inch. **CAUTION** Too little belt tension causes belts to overheat and wear out prematurely. Too much tension causes excessive bearing wear in engine and compressor.	
		c. Tighten 4 engine mounting bolts to fix the engine position. Recheck belt tension. Re-adjust if necessary.	
5.	Belt Guard	a. Install the upper half of the belt guard. Fasten using the bolts, washers and nuts originally removed. Fasten the top support using the proper capscrew on the compressor head.	9 1 to 5
		b. Install the lower half of the belt guard and secure to the upper half by sliding in the 2 alignment pins.	10,8
		Install the fasteners (bolts, washers and nuts) originally removed from the lower half of the belt guard.	3 to 6
		d. Check for proper clearance between the belt guard, air compressor flywheel, engine pulley and drive belts. Adjust as necessary.	

SECTION VI. FUEL SYSTEM MAINTENANCE

4-17. MAINTENANCE SUMMARY. This task covers:

a. Disassembly.
b. Cleaning
c. Inspection
d. Repair
e. Assembly.

INITIAL SETUP

Personnel Required	General Safety Instructions
	Gasoline is highly flammable. Do not smoke or use open flames or strike sparks while working on the fuel system.

1	Drain fuel tank.	4-18
2	Disconnect tank hardware.	4-18
3	Remove gas tank.	4-18
4	Remove fuel system components.	4-18
5	Clean, inspect and replace fuel sytem components as required.	4-19
6	Install tank, accessories, and tank mounting hardware.	4-20

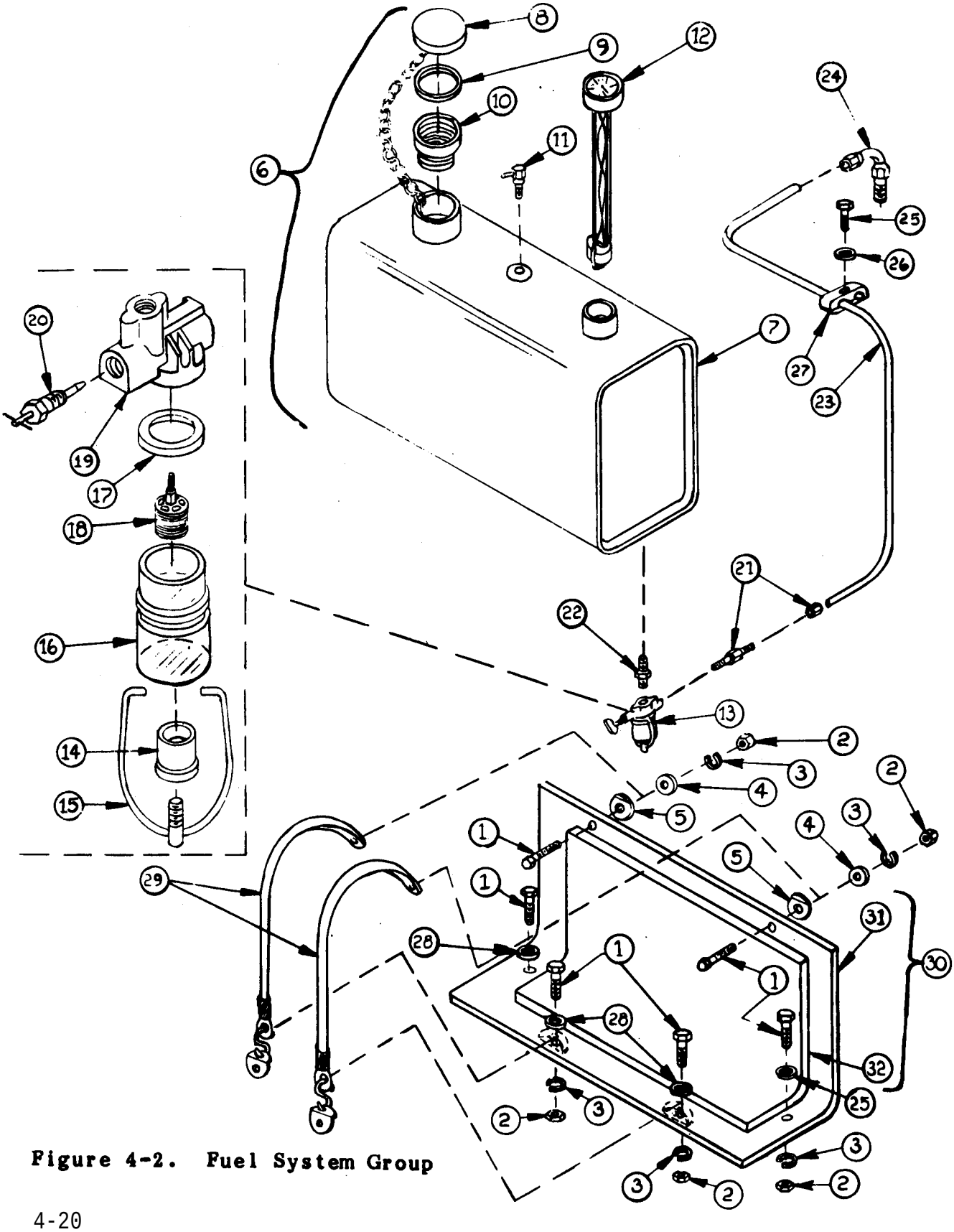


Figure 4-2. Fuel System Group

FUEL SYSTEM MAINTENANCE - continued

4-18. DISASSEMBLY

NO.	ITEM(S)	ACTION	ITEM I.D.
		WARNING Gasoline is highly flammable. Do not smoke or use open flames or strike sparks while working on the fuel system.	
10	Fuel Shut-off Valve	Close	20
2.	Fuel Line	a. Disconnect from fuel strainer. b. Open fuel shut-off valve and drain fuel into a 5 gallon gasoline storage container. Use a rubber hose or tubing to direct the gasoline directly and safely from the fuel strainer discharge, to the gas container.	23
3.	Gas Tank Mounting	a. Unscrew fasteners (bolts, washers and nuts) which secure the rubber holddown straps.	l t o 5
4.	Gas Tank Assembly	Lift gas tank assembly away from the heat shield assembly.	6
5.	Inlet Fuel Screen	a. Unscrew gas cap. b. Remove gas cap gasket. c. Remove basket type fuel screen.	8 9 10
6.	Vent	Remove (unscrew from top threaded boss).	11
7.	Level Indicator	Remove (unscrew from top threaded connection).	12
8.	Fuel Strainer	Remove (unscrew from bottom of tank).	13
9.	Heat Shield Assembly	a. Unscrew remaining fasteners (bolts, washers and nuts). b. Remove heat shield.	

FUEL SYSTEM MAINTENANCE - continued

4-18, DISASSEMBLY - continued

NO.	ITEM(S)	ACTION	ITEM I.D.
10.	Fuel Line & Fittings	Unfasten at gasoline engine connections and clamps.	23 to 26

4-19, CLEANING, INSPECTION AND REPAIR

NO.	ITEM(S)	ACTION	ITEM I.D.
1.	Tube Fittings	a. Inspect for thread damage. b. Replace if damaged.	21,24
2.	Fuel Line	a. Inspect for cuts, breaks, or kinks. b. Replace if damaged. **WARNING** When using compressed air for blowing, air hose pressure must not exceed 30 psi (2.11 kg/sq.cm.), and individuals must wear eye protective equipment. c. Clean fuel line, if plugged blow out with compressed air.	23
3.	Gas Tank Mounting Hardware	a. Inspect for thread damage on bolts and nuts. b. Inspect for cuts, abrasions, cracking or other damage to the rubber straps. c. Replace damaged components.	1 to 5, 28
4.	Gas Tank	a. Inspect for damage. b. Replace if damaged. c. Inspect interior for cleanliness. If dirt or other residue is discovered flush tank with water until clean. d. Blow out water using compressed air.	

FUEL SYSTEM MAINTENANCE - continued

4-19. CLEANING, INSPECTION AND REPAIR - continued

NO.	ITEM(S)	ACTION	ITEM I.D.
5.	Cap and Gasket	a. Inspect cap and gasket for damage.	8

WARNING

Do not attempt to solder or weld the fuel cap chain to the fuel tank.

b. Replace cap if damaged using the following procedure:

(1) Repair chain using a repair link (Appendix E, Item 6)

(2) Replace new cap by connecting new chain to old chain with the repair link.

(3) The new chain length should be approximately 6 inches. The chain may be shortened by removing extra links.

(4) If the last link at gas tank is broken, DO NOT WELD. To attach a chain at the tank, use the following procedure:

(a) Drain tank of all gas into an approved receptacle.

(b) Rinse tank with water. Empty tank. Fill tank completely with water.

(c) Drill a hole with a #20 bit (or equivalent), approximately 3/1 6 inch from the outer edge inside the filler neck.

(d) Clean and deburr the hole.

(e) Flush tank with water until clean.

(f) Attach chain to tank using screw, nut, and washer.

(9) Blow tank completely dry with compressed air before returning to use.

FUEL SYSTEM MAINTENANCE - continued

4-19. CLEANING, INSPECTION AND REPAIR - continued

NO.	ITEM(S)	ACTION	ITEM I.D.
5.	Cap and Gasket (cent)		
		WARNING **Drycleaning solvent P-D-680, used to clean parts, is potentially dangerous to personnel and property. Avoid repeated and prolonged skin contact by wearing rubber or solvent impermeable gloves when handling the solvent or material wet with drycleaning solvent. Wash hands immediately after exposure with soap and water and use a lanolin based skin cream to prevent skin drying. Do not use near open flame or excessive heat. Flash point of solvent is 100°F (38°C). Ensure that ventilation is adequate to reduce solvent vapor concentrations below acceptable threshold limit values.**	
		c. Clean dirt from cap using soft rag and solvent,	
6.	Inlet Fuel Screen	a. Inspect for damage b. Replace if damaged. c. Clean by reverse flushing with water.	10
		WARNING **When using compressed air for blowing, air hose pressure must not exceed 30 psi (2.11 kg/sq.cm.), and individuals must wear eye protective equipment.**	
		d. Blow off water with compressed air.	
7.	Vent	a. inspect threads for damage. b. Replace if damaged. c. Clean by blowing out with compressed air.	11
8.	Level Indicator	a. Inspect for damage. b. Check for free movement of float and corresponding level indication. c. Replace if damaged.	12

FUEL SYSTEM MAINTENANCE - continued

4-19. CLEANING, INSPECTION AND REPAIR - continued

NO.	ITEM(S)	ACTION	ITEM I.D.
5.	Fuel Strainer	a. Disassemble strainer assembly and inspect components for damage.	13
		b. Replace the gasket.	17
		c. Replace any damaged components.	
		d. Clean the bowl.	16
		e. Clean the strainer element.	18
		f. Reassemble the strainer.	
6.	Heat Shield Assembly	a. Inspect sheet metal plate for cracking, tears, or other damage.	31
		b. Inspect insulating material for damage.	32
		c. Replace or repair above as required.	

4-1. ASSEMBLY.

NO.	ITEM(S)	ACTION	ITEM I.D.
1.	Cap, gasket, and screen	Install in fill opening of gas tank.	7 to 10
2.	Vent	Screw into threaded connection on top of tank.	11
3.	Level Indicator	Screw onto threaded connection on top of tank.	12
4.	Fuel Strainer	Screw onto threaded reducing nipple which is screwed into the bottom connection in tank.	13,22

FUEL SYSTEM MAINTENANCE - continued

4-20. ASSEMBLY - continued

NO.	ITEM(S)	ACTION	ITEM I.D.
5.	Heat Shield Assembly	Fasten onto platform of air receiver tank.	30 to 32
		REMARK If required, use adhesive (NSN 8040-00-938-6860 or equal) to attach insulation pad to its sheet metal shield/support. Follow the directions printed on the adhesive's container carefully. Do not use near open flames or hot surface. Do not inhale vapors.	
6.	Gas Tank	Place into Heat Shield Assembly. Secure using the rubber hold down strap assembly and appropriate fasteners.	6,30
7.	Tube Fittings	a. Install elbow fitting into proper threaded opening on the engine's fuel pump.	24
		b. Instail straight fitting into threaded discharge connection of fuel strainer.	21
8.	Fuel Line	a. Install between tube fittings.	23
		b. Secure to engine using tubing clamp.	25 to 27

SECTION VII. CAPACITY CONTROL SYSTEM MAINTENANCE

4-21. MAINTENANCE SUMMARY. This task covers:

a. Disassembly
b. Cleaning
c. Inspection
d. Repair
e. Assembly and Adjustment

INITIAL SETUP

Personnel Required	Special Tools
1	None

TASK SUMMARY

NO.	TASK	REFERENCE	REMARKS
1.	Remove compressor discharge line.	4-22	
2.	Remove air control signal line (to engine governor).	4-22	
3.	Remove pneumatic actuator (cylinder) from engine.	4-22	
4.	Remove unloader valve (if required to replace). Disassemble unloader valve.	4-22	
5.	Cleaning, Inspection & Repair.	4-23	
6.	Install new unloader valve (if required).	4-24	
7.	Install pneumatic actuator.	4-24	
8.	Install air control signal line.	4-24	
9.	Install compressor disch. line.	4-24	
10.	Adjust unloader valve.	4-24	

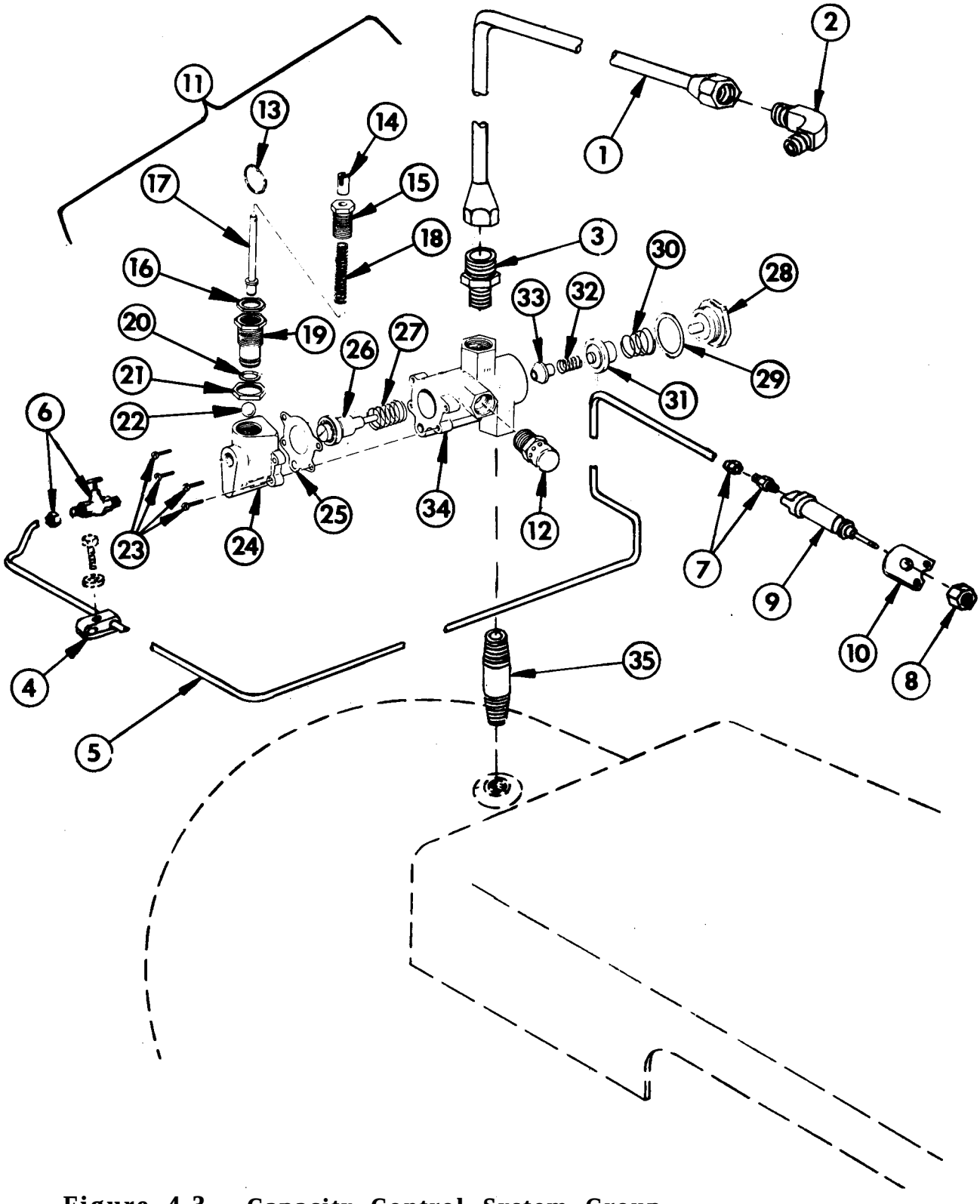


Figure 4-3. Capacity Control System Group

CAPACITY CONTROL SYSTEM MAINTENANCE - continued

4-22. DISASSEMBLY

NO.	ITEM(S)	ACTION	ITEM I.D.
		WARNING **Never attempt to service any of the air compressor components until the engine is stopped and the air receiver tank is relieved of all air pressure.**	
1.	**Discharge Line**	a. Unscrew the two flare nuts attaching the air discharge line to the fittings.	1
		b. Unscrew the elbow fitting from the compressor's high pressure cylinder.	2
		c. Unscrew the straight fitting from the unloader valve.	3
2.	**Air Control Signal Line**	a. Unscrew the capscrew securing the tubing clamp on the air control signal line.	
		b. Remove clamp.	4
		c. Unscrew fitting at shut-off valve.	6
		d. Unscrew the shut-off valve from the unloader valve body.	
		e. Unscrew the fitting at the pneumatic-actuator cylinder.	7
		f. Remove air control signal line.	5
3 .	**Pneumatic Actuator Cylinder**	a. Unscrew the nut securing the actuator cylinder to the brace.	8
		b. Remove cylinder.	9
		c. Remove brace.	10

CAPACITY CONTROL SYSTEM MAINTENANCE - continued

4-22. DISASSEMBLY - continued

NO.	ITEM(S)	ACTION	ITEM I.D.
4.	Combination Unloader and Check Valve		
		REMARK If unloader valve replacement is required the air compressor assembly must be unbolted from the receiver platform and moved towards the engine. The unloader valve body (34) may then be unscrewed from pipe nipple (35) which in turn can then be unscrewed from the air receiver tank.	
		a. Unscrew muffler (12).	12
		b. Unloader valve side:	
		aa. Remove pull ring (13) and sleeve (14).	13,14
		bb. Unscrew spring housing (15) with upper jam nut (16).	15,16
		cc. Remove pressure rod (17).	17
		dd. Unscrew" differential screw (19) with lower jam nut (21) Remove "0" ring (20) and ball (22).	19 to 22
		ee. Unscrew fasteners (23) securing regulator body (24) to valve body (34). Remove gaskets (25), piston assembly (26) and piston spring (27).	23 to 27 34
		b. Check valve side: Unscrew cap (28) and remove cap gasket (29), check valve spring (30) check valve (31), valve spring (32), and valve stem (33).	28 to 33

CAPACITY CONTROL SYSTEM MAINTENANCE - continued

4-23. CLEANING, INSPECTION AND REPAIR

NO.	ITEM(S)	ACTION	ITEM I.D.
1.	Discharge Line	a. Clean line as required. b. Inspect line for dents cracks or other damage, especially at flared ends. c. Inspect flare nuts for thread or other damage. d. Replace if any damage is discovered.	1
2.	Air Control Signal Line	a. Inspect line for dents cracks or other damage. b. Replace if damage is found. co Inspect fittings for damaged threads, cracks, etc. d. Replace fittings if damage is discovered. e. Inspect shut-off valve for damage. Attach threaded end to compressed air supply and check for leaks with valve in the “off” position. f. Replace shut-off valve if damage or leaks are discovered.	5 6,7 6
3.	Pneumatic Actuator Cylinder	a. Inspect for damage including cracks, dents, etc. b. Attach to a 50 psi compressed air supply and allow cylinder rod to actuate. c. If rod does not move or air leaks are found replace cylinder.	9
4.	Combination Unloader and Check Valve	**REMARK** If the unloader valve has been disassembled it is necessary for the pressure regulation devices to be adjusted after assembly and installation.	

CAPACITY (CONTROL SYSTEM MAINTENANCE - continued

4-23. CLEANING, INSPECTION AND REPAIR - continued

NO.	ITEM(S)	ACTION	ITEM I.D.
4.	Combination Unloader and Check Valve-cont.	a. Clean components with soapy water.	11
		b. Inspect all components for cracks, dents, wear or other damage.'	12 to 34
		c. Inspect muffler for damage and/or blockage. Clean or replace as required.	12
		d. Replace damaged components.	

REMARK

If the unloader valve has been disassembled .it is necessary for the pressure regulation devices to be adjusted after assembly and installation.

4-24. ASSEMBLY AND ADJUSTMENT

NO.	ITEM(S)	ACTION	ITEM I.D.
1.	Combination Unloader and Check Valve		
		REMARK	
		If the unloader valve body was removed from the air receiver the pipe nipple should be screwed back into the tank opening and the replacement or repaired unloader valve should be screwed atop the pipe nipple. The air compressor can then be rebolted to the air receiver platform. Care should be taken to assure that the compressor drive V-belts are properly oriented in the fly-wheel grooves.	
		a. Check valve side:	
		aa. Install valve stem (33) and spring (32) into unloader valve body (34).	32 to 34

CAPACITY CONTROL SYSTEM MAINTENANCE - continued

4-24. ASSEMBLY AND ADJUSTMENT - continued

NO.	ITEM(S)	ACTION	ITEM I.D.
10	Combination Unloader and Check Valve-cont.	a. Check valve side - cont.:	
		bb. Install the check valve spring (30) and check valve (31), on the guide pin provided inside the cap (28). Using a new cap gasket (29) screw assembly into valve body (34).	28 to 31 34
		b. Unloader valve side:	
		aa. Install the piston assembly (26) and spring (27) inside the valve body (34). Using a new gasket (25) fasten the regulator body (24) to the valve body with the four screws (23) originally removed.	23 to 27 34
		bb. Install ball (22) into regulator body. Install a new "O" ring (20) on differential screw (19) and install, with lower jam nut, into the regulator body.	19,20 22
		cc. Slide regulator spring (18) on pressure rod (17) and install side differential screw. Thread spring housing (15) with upper jam nut (16) into assembly. Slide unlocking sleeve (14) on rod and secure with pull ring (13).	13 to 18

REMARK

If the unloader valve has been disassembled it is necessary for the pressure regulation devices to be adjusted after assembly and installation. The proper settings can only be made during the initial operation of the reassembled compressor unit.

CAPACITY CONTROL SYSTEM MAINTENANCE - continued

4-24. ASSEMBLY AND ADJUSTMENT - continued

NO.	ITEM(S)	ACTION	ITEM I.D.
1.	Combination Unloader and Check Valve-cont.	c. Regulator Adjustments:	
		aa. Loosen jam nuts	16,21
		bb. The unloading pressure can be adjusted by spring housing (15). Turn clockwise to increase and counter-clockwise to decrease pressure.	
		cc. The differential (difference between cut-in and cut out pressure) is obtained by adjusting the differential screw (19). Turning clockwise will widen the differential and counter-clockwise will narrow the differential.	
		REMARK The valve shall unload the compressor when the receiver pressure reaches 195 psi, +/-5 psi (13.71 kg/sq.cm., +/- .35). The valve shall again allow the compressed air to enter the receiver when the pressure falls below 175 psi, +/-10 psi (12.31 kg/sq.cm. +/- .70).	
		dd. After adjustments are made, tighten jam nuts (16) & (21)	16,21
2.	Pneumatic Actuator	a. Reinstall brace on gas engine.	10
		b. Reinstall cylinder using nut originally removed.	8,9
3.	Air Control Line	a. Reinstall shut-off valve.	6
		b. Reinstall air line using original or replacement fittings.	5
		c. Secure with tubing clamp.	4

Section VIII. INLET AIR FILTER, CYLINDER HEAD AND VALVE MAINTENANCE.

4-25. MAINTENANCE SUMMARY. This task covers:

a. Disassembly.
b. Cleaning.
c. Inspection.
d. Repair.
e. Assembly.

INITIAL SETUP

Personnel Required	Special Tools
1	None

TASK SUMMARY

NO.	TASK	REFERENCE
1	Remove inlet air filter.	4-26
2	Remove high pressure cylinder head.	4-26
3	Remove high pressure valve assembly.	4-26
4	Remove low pressure cylinder heads.	4-26
5	Remove low pressure valve assembly.	4-26
6	Cleaning, inspection and repair.	4-27
7	Install low pressure valve assembly.	4-28
8	Install” low pressure cylinder head.	4-28
9	Install high pressure valve assembly.	4-28
10	Install high pressure cylinder head.	4-28
11	Install inlet air filter.	4-28

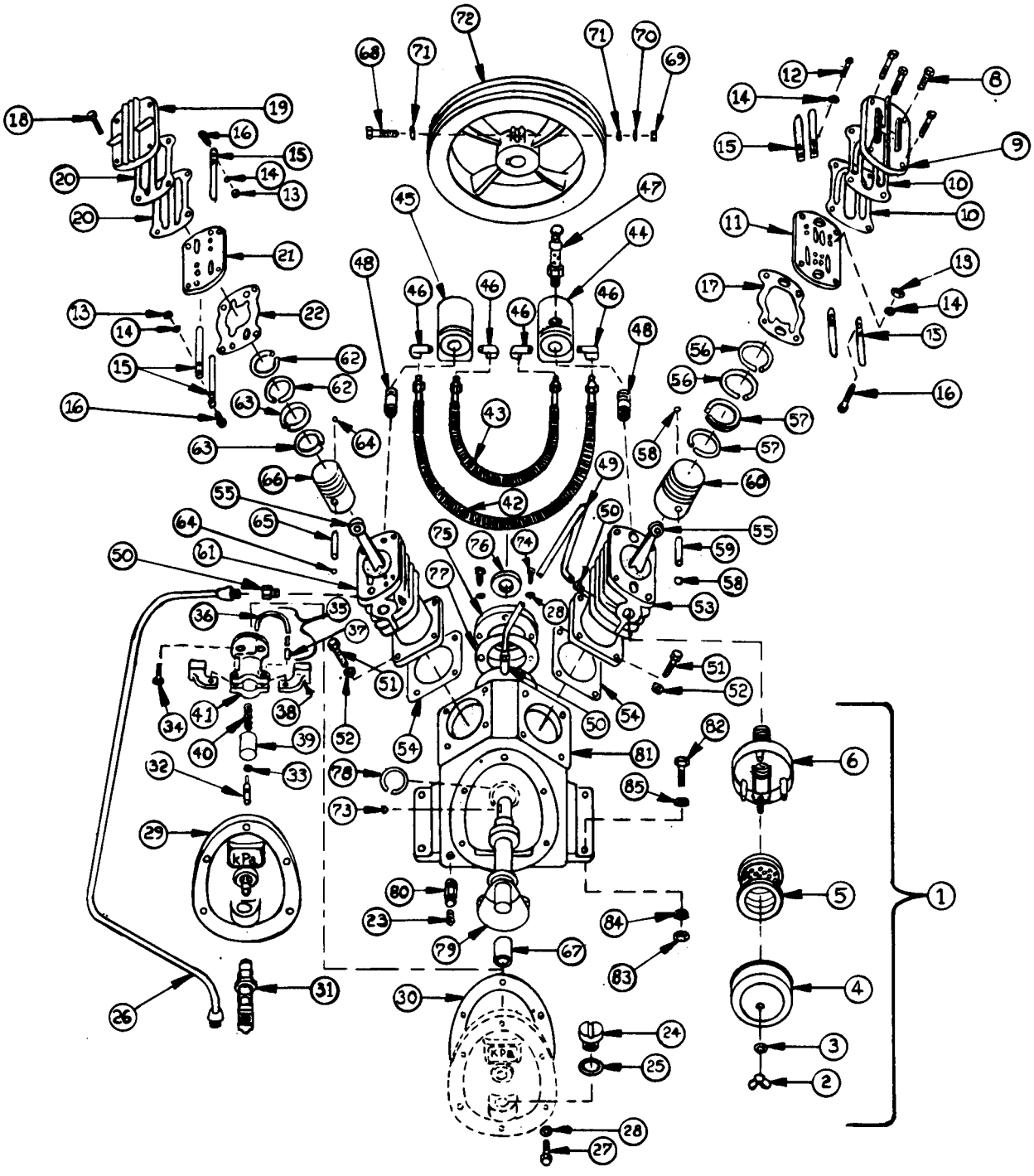


Figure 4-4. Inlet Air Filter, Cylinder Head and Valve Maintenance Group

INLET AIR FILTER, CYLINDER HEAD AND VALVES

4-26. DISASSEMBLY.

NO.	ITEM(S)	ACTION	ITEM I.D.
		WARNING Never attempt to service any of the air compressor components until the engine is stopped and the air receiver tank is relieved of all air pressure.	
1	Inlet Air Filter	a. Unscrew butterfly nut on filter cover. Remove washer and cover. b. Remove filter element. c. Unscrew filter body from low pressure cylinder.	1 to 6
2.	Low Pressure Cylinder	a. Loosen the 4 capscrews holding the head to the cylinder assembly approximately three full turns each. b. Using a screwdriver, or similar tool, separate the head from the cylinder (and valve assembly) by gently prying them apart. This will allow any trapped pressurized air to escape harmlessly. c. Fully unscrew the 4 capscrews atop the cylinder head. d. Remove head and gaskets. Discard gaskets.	8 9 8 9,10
3.	Low Pressure Valve	a. Lift off the valve assembly (valve plate with reed valves attached). b. Lift off the gasket below the valve assembly. Discard gasket.	11 17
4.	High Pressure Cylinder Head	a. Loosen the 4 capscrews holding the head to the cylinder assembly approximately three full turns each.	18

INLET AIR FILTER, CYLINDER HEAD AND VALVES - cont'd.

4-26. DISASSEMBLY - continued

NO.	ITEM(S)		ACTION	ITEM I.D.
4.	High Pressure Cylinder Head - continued	b.	Using a screw driver, or similar tool separate the head from the cylinder (and valve assembly) by gently prying them apart. This will allow any trapped pressurized air to escape harmlessly.	
		c.	Fully unscrew the 4 cap-screws atop the cylinder head.	19
		d.	Remove head and gaskets. Discard gaskets.	19,20
5.	High Pressure Valve Assembly	a.	Lift off the valve assembly (valve plate with reed valves attached).	21
		b.	Lift off the gasket below the valve assembly. Discard gaskets.	22

4-27. CLEANING, INSPECTION AND REPAIR.

NO.	ITEM(S)		ACTION	ITEM I.D.
1.	**Inlet Air Filter**	**a.**	Inspect air filter element for signs of dirt or any wear or damage that would prevent full air flow,.	5
		b.	Replace element if dirty, worn or otherwise damaged.	

INLET AIR FILTER, CYLINDER HEAD AND VALVES - cont'd.

4-27. CLEANING, INSPECTION AND REPAIR - continued

NO.	ITEM(S)	ACTION	ITEM I.D.
1.	Inlet Air Filter - cont.		

WARNING

Drycleaning solvent P-D-680, used to clean parts, is potentially dangerous to personnel and property. Avoid repeated and prolonged skin contact by wearing rubber or solvent impermeable gloves when handling the solvent or material wet with drycleaning solvent. Wash hands immediately after exposure with soap and water and use a lanolin based skin cream to prevent skin drying. Do not use near open flame or excessive heat. Flash point of "solvent is 100°F (38°C). Ensure that ventilation is adequate to reduce solvent vapor concentraions below acceptable threshold limit values.

c. Use a clean rag wetted with 4,6 detergent solution or solvent to wipe the inside of air filter body and cover clean.

2. Low Pressure Cylinder Head

CAUTION

Do not use any sharp tools that might scratch or otherwise damage the machined surfaces of the cylinder wall (inside), cylinder head (bottom), the valve plate and/or valve components.

a. Using a razor blade, putty knife or similar tool gently remove all traces of gasket and carbonized oil residue from the cylinder head. 9
b. Wet a cloth with solvent and wipe the interior portions of the cylinder head clean.
c. Inspect the cylinder head for cracks or other damage.
d. Replace if damaged. Do not attempt to repair.

INLET AIR FILTER, CYLINDER HEAD AND VALVES - cont'd.

4-27. CLEANING, INSPECTION AND REPAIR - continued

NO.	ITEM(S)	ACTION	ITEM I.D.
		CAUTION Do not attempt to clean the valve reeds or the valve plate in the vicinity of the reeds with a sharp instrument. Use solvent in these areas.	
3.	Low Pressure Valve Assembly	a. Using a razor blade or similar tool gently remove all traces of gasket and carbonized oil residue from the valve plate.	11
		b. If valve problems are suspected (due to poor performance) or visual inspection determines that the valve reeds are damaged or not tightly seating against the valve plate, unscrew the machine screws, washers and nuts securing the valve reeds to the plate.	12 to 16
		REMARK Valve reeds are to be replaced if they show signs of deterioration (rust or wear), if broken or otherwise damaged, or if light can be seen between the valve reed and plate when the assembly is inspected. Any reeds removed should be replaced.	
		WARNING Drycleaning solvent P-D-680, used to clean parts, is potentially dangerous to personnel and property. Avoid repeated and prolonged skin contact by wearing rubber or solvent impermeable gloves when handling the solvent or material wet with drycleaning solvent. Wash hands immediately after exposure with soap and water and use a lanolin based skin cream to prevent skin drying. Do not use near open flame or excessive heat. Flash point of solvent is 100°F (38°C). Ensure that ventilation is adequate to reduce solvent vapor concentrations below acceptable threshold limit values.	

INLET AIR FILTER, CYLINDER HEAD AND VALVES - cont'd.

4-27. CLEANING, INSPECTION AND REPAIR - continued

NO.	ITEM(S)	ACTION	ITEM I.D.

3. Low Pressure Valve Assembly - cont'd.

WARNING

Drycleaning solvent P-D-680, used to clean parts, is potentially dangerous to personnel and property. Avoid repeated and prolonged skin contact by wearing rubber or solvent impermeable gloves when handling the solvent or material wet with drycleaning solvent. Wash hands immediately after exposure with soap and water and use a lanolin based skin cream to prevent skin drying. Do not use near open flame or excessive heat. Flash point of solvent is 100°F (38°C). Ensure that ventilation is adequate to reduce solvent vapor concentrations below acceptable threshold limit values.

c. If valve reeds have been removed, fully clean the valve plate with a cloth wetted with solvent.
d. If any foreign residue remains on the valve plate that might interfere with proper valve reed seating, the plate must either be resurfaced (using a surface grinder) or replaced.
e. Inspect the valve plate for cracks or other damage.
f. Replace the valve plate if damaged. Do not attempt to repair.

CAUTION

Do not use any sharp tools that might scratch or otherwise damage the machined surfaces of the cylinder wall (inside), cylinder head (bottom), the valve plate and/or valve components.

INLET AIR FILTER, CYLINDER HEAD AND VALVES - cont'd.

4-27. CLEANING, INSPECTION AND REPAIR - continued

NO.	ITEM(S)	ACTION	ITEM I.D.

CAUTION

Do not use any sharp tools that might scratch or otherwise damage the machined surfaces of the cylinder wall (inside), cylinder head (bottom), "the valve plate and/or valve components.

4. High Pressure Cylinder Head
   a. Using a razor blade, putty knife or similar tool gently remove all traces of gasket and carbonized oil residue from the cylinder. 19

WARNING

Drycleaning solvent P-D-680, used to clean parts, is potentially dangerous to personnel and property. Avoid repeated and prolonged skin contact by wearing rubber or solvent impermeable gloves when handling the solvent or material wet with drycleaning solvent. Wash hands immediately after exposure with soap and water and use a lanolin based skin cream to prevent skin drying. Do" not use near open flame or excessive heat. Flash point of solvent is 100°F (38°C). Ensure that ventilation is adequate to reduce solvent vapor concentrations below acceptable threshold limit values.

   b. Wet a cloth with solvent and wipe the interior portions of the cylinder head clean.
   c. Inspect the cylinder head for cracks or other damage.
   d. Replace if damaged. Do not attempt to repair.

CAUTION

Do not attempt to clean the valve reeds or the valve plate in the vicinity of the reeds with a sharp instrument. Use solvent in these areas.

INLET AIR FILTER, CYLINDER HEAD **AND VALVES** - cont'd.

4-27. CLEANING, INSPECTION AND REPAIR - continued

NO.	ITEM(S)	ACTION	ITEM I.D.
		CAUTION Do not attempt to clean the valve reeds or the valve plate in the vicinity of the reeds with a sharp instrument. Use solvent in these areas.	
5.	High Pressure Valve Assembly	a. Using a razor blade or similar tool gently remove all traces of gasket and carbonized oil residue from the valve plate.	2
		b. If valve problems are suspected (due to poor performance) or visual inspection determines that the reeds are damaged or not tightly seating against the valve plate, unscrew the machine screws, washers and nuts securing the valve reeds to the plate.	13 to 16

WARNING

Drycleaning solvent P-D-680, used to clean parts, is potentially dangerous to personnel and property. Avoid repeated and prolonged skin contact by wearing rubber or solvent impermeable gloves when handling the solvent or material wet with drycleaning solvent. Wash hands immediately after exposure with soap and water and use a lanolin based skin cream to prevent skin drying. Do not use near open flame or excessive heat. Flash point of solvent is 100°F (38°C). Ensure that ventilation is, adequate to reduce solvent vapor concentrations below acceptable threshold limit values.

INLET AIR FILTER, CYLINDER HEAD AND VALVES - cont'd.

4-27. CLEANING, INSPECTION AND REPAIR - continued

NO.	ITEM(S)	ACTION	ITEM I.D.

REMARK

Valve reeds are to be replaced if they show signs of deterioration (rust or wear), if broken or otherwise damaged, or if light can be seen between the valve reed and plate when the assembly is inspected. Any reeds removed should be replaced.

WARNING

Drycleaning solvent P-D-680, used to clean parts, is potentially dangerous to personnel and property. Avoid repeated and prolonged skin contact by wearing rubber or solvent impermeable gloves when handling the solvent or material wet with drycleaning solvent. Wash hands immediately after exposure with soap and, water and use a lanolin based skin cream to prevent skin drying. Do not use near open flame or excessive heat. Flash point of sol-. vent is 100°F (38°C). Ensure that ventilation is adequate to reduce solvent vapor concentrations below acceptable threshold limit values.

5. High Pressure Valve Assembly - cont'd.

c. If valve reeds have been removed fully clean the valve plate with a cloth wetted with solvent.
d. If any foreign residue remains on the valve plate that might interfere with proper valve reed seating the plate must either be resurfaced (using a surface grinder) or replaced.
e. Inspect the valve plate for cracks or other damage.
f. Replace the valve plate if damaged. Do not attempt to repair .

INLET AIR FILTER, CYLINDER HEAD AND VALVES - cont'd.

4-28. ASSEMBLY.

No.	ITEM(S)	ACTION	ITEM I.D.
		REMARK	
		Before attaching each valve assembly and cylinder head to its respective cylinder be sure to fully clean the mating cylinder surfaces of any gasket or other residue. Use compressed air to blow out any dirt or other foreign particles from above the piston in the cylinder. A light film of crankcase oil should be applied on the cylinder walls to prevent corrosion in case the compressor is not used immediately after this service. This oil film also provides for adequate lubrication during the -start of the compressor.	
		WARNING	
		When using compressed air for blowing, air hose pressure must not exceed 30 psi (2.11 kg/sq.cm.), and individuals must wear eye protective equipment.	
		CAUTION	
		Machine screws securing discharge valve reeds should be checked for length. When assembled in the valve plate they cannot protrude below plate as they can interfere with piston travel.	
1.	Low Pressure Valve Assembly	a. If valve reeds have been removed re-install new valve reeds using the original fasteners (machine screw, washer and nut). Tighten the screw fully.	11, 12 to 16
		b. Properly align the valve assembly and new gasket and place it atop the low pressure cylinder.	17
2.	Low Pressure Cylinder "Head	a. Properly orient and place two (2) new head gaskets atop the low pressure valve assembly.	10

INLET AIR FILTER, CYLINDER HEAD AND VALVES - cont'd.

4-28. ASSEMBLY - continued

NO.	ITEM(S)	ACTION	ITEM I.D.
2.	Low Pressure Cylinder Head - cont'd.	b. Properly align the cylinder head and place it atop the gaskets and valve assembly.	9
		c. Reinstall the 4 capscrews originally securing the assembly.	8
		d. Evenly tighten the capscrews to 50 to 55 ft-lbs of torque.	

CAUTION

Machine screws securing discharge valve reeds should be checked for length. When assembled in the valve plate they cannot protrude below plate as they can interfere with piston travel.

3.	High Pressure Valve Assembly	a. If valve reeds have been removed reinstall new valve reeds using the original fasteners (machine screw, washer and nut). Tighten the screw fully.	
		b. Properly align the valve assembly and new gasket and place it atop the high pressure cylinder.	
4.	High Pressure Cylinder Head	a. Properly orient and place two (2) new head gaskets atop the high pressure valve assembly.	
		b. Properly align the cylinder head and place it atop the gaskets and valve assembly.	
		c. Reinstall the 4 capscrews originally securing the assembly.	
		d. Evenly tighten the capscrews to 35 to 40 ft-lbs of torque.	

INLET AIR FILTER, CYLINDER HEAD AND VALVES - cont ‘d.

4-28. ASSEMBLY - continued

NO.	ITEM(S)	ACTION	ITEM I.D.
5.	Inlet Air Filter	a. Screw filter body into the threaded inlet port in low pressure cylinder. b. Install filter element into filter body. c. Install filter cover over body. The threaded stud attached to the body should protrude through the hole in the cover. d. Fasten cover using washer and butterfly nut.	1 t o 6

Section IX. AIR RECEIVER TANK, AND AIR DISCHARGE SYSTEM MAINTENANCE.

4-29. MAINTENANCE SUMMARY. This task covers:

a. Disassembly.
b. Cleaning.
c. Inspection.
d. Repair.
e. Assembly.

INITIAL SETUP

Personnel Required	Special Tools	General Safety Conditions
1	None	Bleed air from the system before starting any maintenance.

TASK SUMMARY

NO.	TASK	REFERENCE
10	Remove pressure gauge.	4-30
2.	Remove safety relief valve.	4-30
3.	Remove draincock.	4-30
4.	Remove inflator gauge.	4-30
5.	Remove air hose.	4-30
6.	Remove ball valve.	4-30
7.	Cleaning, inspection and repair.	4-31
8.	Install ball valve.	4-32
9.	Install air hose.	4-32
10.	Install inflator gauge.	4-32
11.	Install draincock.	4-32
12.	Install safety relief valve.	4-32
13.	Install pressure gauge.	4-32

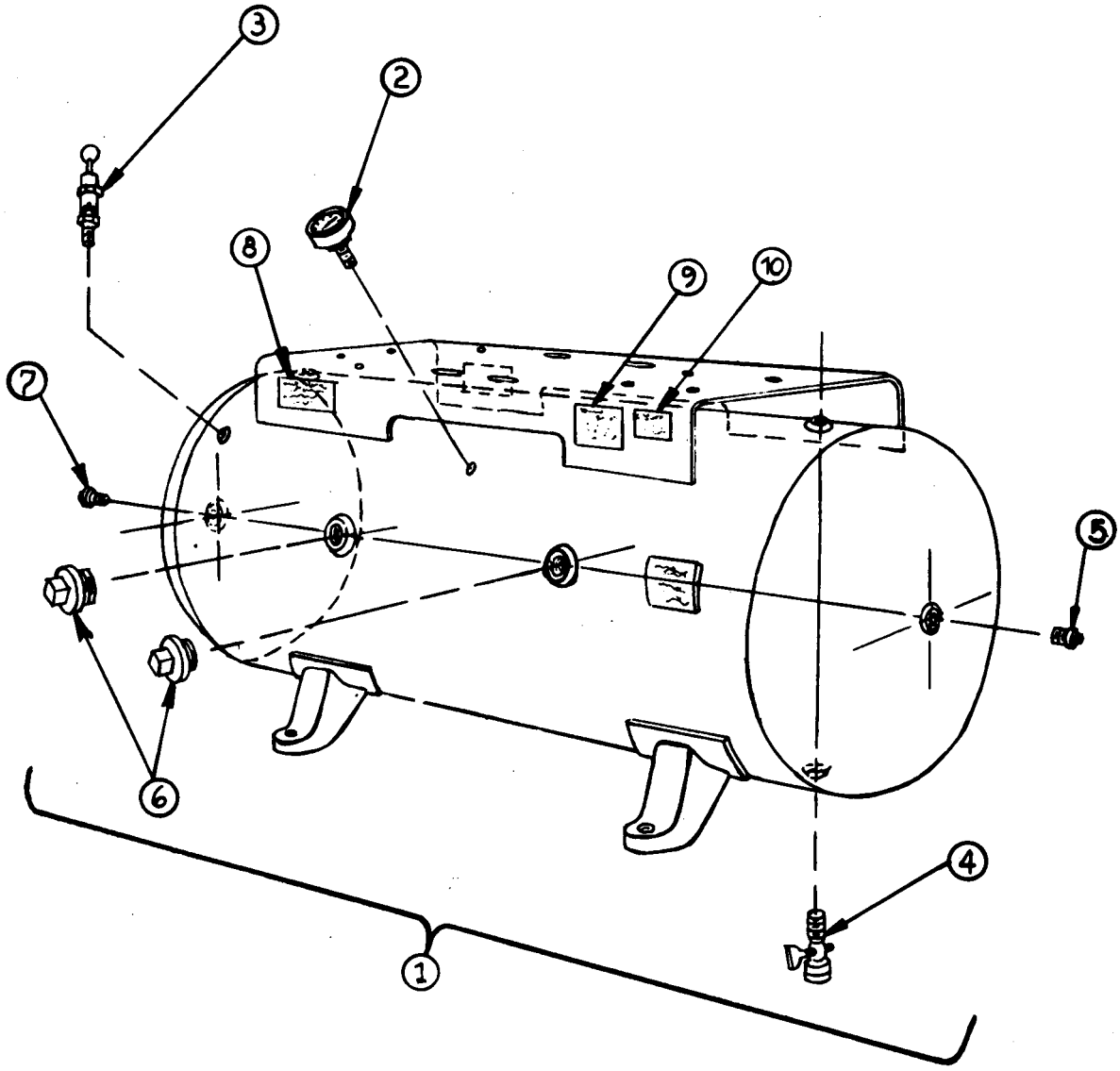


Figure 4-5. Air Receiver Tank Group

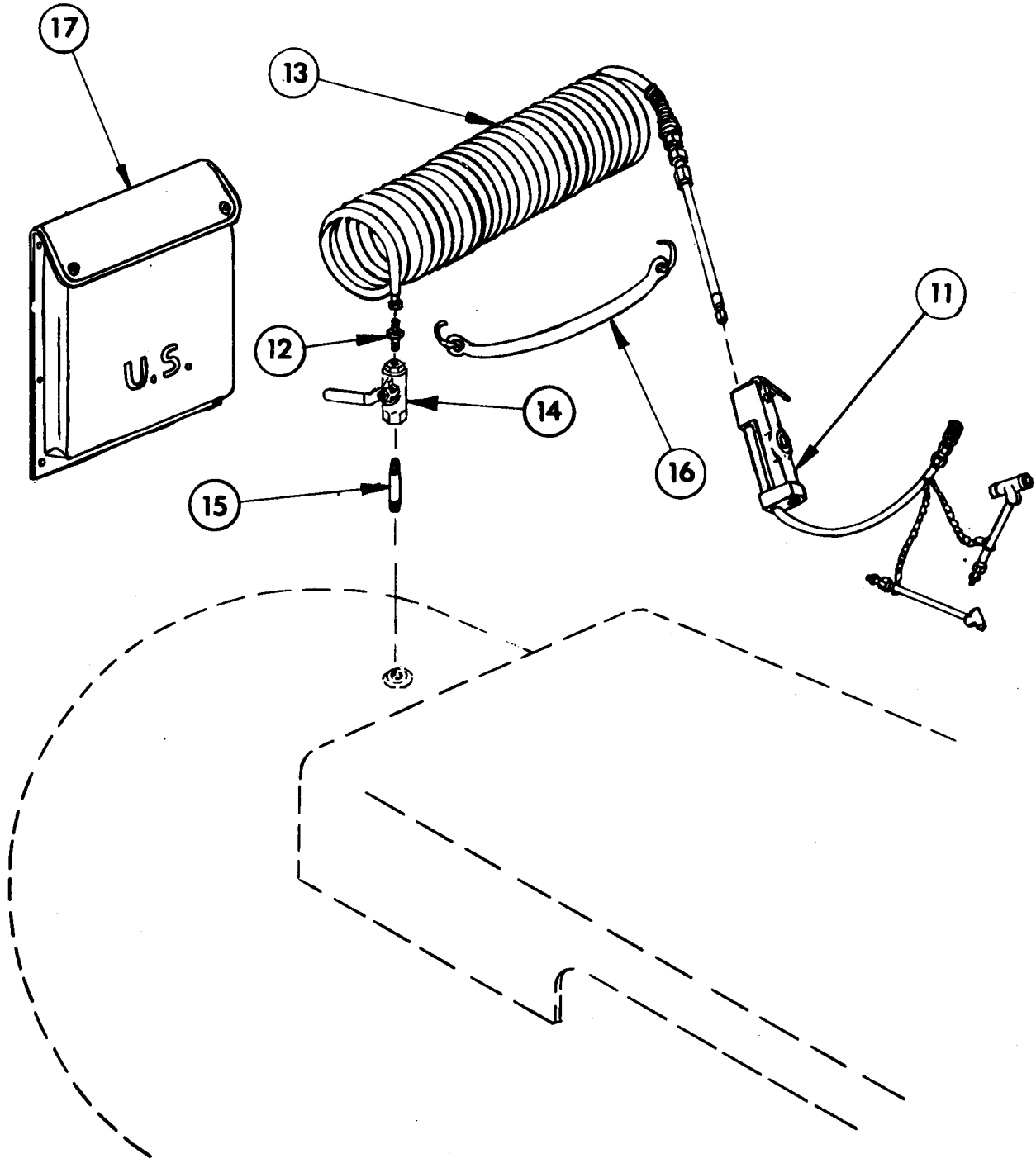


Figure 4-6. Air Discharge System Group

AIR RECEIVER TANK AND AIR DISCHARGE SYSTEM - continued

4-30. DISASSEMBLY.

NO.	ITEM(S)	ACTION	ITEM I.D.
		WARNING Never attempt to service any of the air compressor components until the engine is stopped and the air receiver tank is relieved of all air pressure.	
		CAUTION Do not apply any pressure or torque on the body of the pressure gauge while unscrewing it from the receiver. Use a properly sized wrench on the flats provided next to the threaded connection.	
1.	Pressure Gauge	Unscrew from tank	2
2.	Safety Relief Valve	Unscrew from tank.	3
3.	Draincock	Unscrew from tank,.	4
4.	Inflator Gauge	Remove from end of air hose.	11
5.	Air Hose	a. Remove, with swivel fitting, from the ball valve.	12,13
		b. Separate (unscrew) swivel fitting from hose.	
6.	Ball Valve	a. Unscrew from pipe nipple attached to the air receiver tank.	14
		b. Unscrew pipe nipple from tank.	15
7.	Air Receiver Tank	a. For inspection:	1
		Remove pipe plugs.	5,6,7
		b. For replacement: Refer to paragraphs 4-14, 4-18, 4-22, 4-34 and 5-6 for removal of the compressor drive, fuel system components as well as the gasoline engine and compressor.	

AIR RECEIVER TANK AND AIR DISCHARGE SYSTEM - continued

4-31. CLEANING, INSPECTION AND REPAIR.

NO.	ITEM(S)	ACTION	ITEM I.D.
1.	Pressure Gauge	a. Inspect threads for damage. b. Inspect glass face for damage. c. Replace if damaged.	2
		CAUTION Do not attempt to disassemble the relief valve. The pressure setting was set at the factory and a seal was placed on the adjusting mechanism for safety. If the seal is broken-or missing replace the valve.	
2.	Safety Relief Valve	a. Inspect threads for damage. b. Inspect body for damage including corrosion. c. Replace if damaged.	3
3.	Draincock	a. Inspect for thread damage. b. Inspect for freedom of movement. c. Replace if damaged.	4
4.	Inflator Gauge	a. Clean with mild soap solution b. Inspect body, handle, pressure indicator, hose and inflator ends for damage. c. Replace if damaged.	11
5.	Air Hose	a. Inspect for cuts, wear, nicks, abrasions or other damage which may limit the pressure capability of the air hose. b. Replace if damaged.	13

AIR RECEIVER TANK AND AIR DISCHARGE SYSTEM - continued

4-31. CLEANING, INSPECTION AND REPAIR - continued

NO.	ITEM(S)	ACTION	ITEM I.D.
		WARNING Drycleaning solvent P-D-680, used to clean parts, is potentially dangerous to personnel and property. Avoid repeated and prolonged skin contact by wearing rubber or solvent impermeable gloves when handling the solvent or material wet with drycleaning solvent. Wash hands immediately after exposure with soap and water and use a lanolin based skin cream to prevent skin drying. Do not use near open flame or excessive heat. Flash point of solvent is 100°F (38°C). Ensure that ventilation is adequate to reduce solvent vapor concentrations below acceptable threshold limit values.	
6.	Ball Valve	a. Clean with solvent or other suitable cleaning agent .	14
		b. Inspect for thread damage, cracks, restricted movement or other damage.	
		c. Replace if damaged.	
		d. inspect swivel fitting and pipe nipple for damage.	12 to 15
		e. Replace if damaged.	
7.	Air Receiver Tank	a. Clean with mild soapy water solution.	1
		b. Inspect exterior for damage.	
		c. Inspect threaded openings for damage.	
		d. Use a bright light source (high intensity flashlight) to inspect the interior for damage, excessive rust or foreign material. Shine the light through one 2“ opening while peering thru the other.	

AIR RECEIVER TANK AND AIR DISCHARGE SYSTEM - continued

4-31. CLEANING, INSPECTION AND REPAIR - continued

NO.	ITEM(S)	ACTION	ITEM I.D.
7.	Air Receiver Tank - continued		

REMARK

Minor rust damage (no penetration into the tank metal) which can be removed by wire brushing and light sanding may be cleaned by these methods. Bare metal surfaces must be primed and repainted.

e. Replace receiver if damage is discovered.
f. Flush with high volumes of water to clean as required.

4-32. ASSEMBLY.

NO.	ITEM(S)	ACTION	ITEM I.D.
1.	Ball Valve	a. Install pipe nipple into tank opening.	15
		b. Screw ball valve onto pipe nipple.	14
		c. Check that valve handle can turn as required.	
2.	Air Hose	a. Screw swivel fitting into ball valve.	12
		b. Screw connecting end of air hose into swivel fitting.	13
3.	Inflator Gauge	Install on end of air hose.	11
4.	Draincock	Screw into appropriate opening in air receiver tank.	4
5.	Safety Relief Valve	Screw into appropriate opening in air receiver tank.	3

AIR RECEIVER TANK AND AIR DISCHARGE SYSTEM - continued

4-32. ASSEMBLY - continued

NO.	ITEM(S)	ACTION	ITEM I.D.
		CAUTION Do not apply any pressure or torque on the body of the pressure gauge while unscrewing it from the receiver. Use a properly sized wrench on the flats provided next to the threaded connection.	
6.	Pressure Gauge	Screw into appropriate opening in air receiver.	2
7.	Pipe Plugs	Screw into appropriate openings in air receiver tank.	

Section X. ENGINE AND SUPPORT ACCESSORY MAINTENANCE.

4-33. **MAINTENANCE SUMMARY.** This task covers:

a. Support Accessory Removal.
b. Engine Removal.
c. Cleaning.
d. Inspection.
e. Engine Installation.
f. Support Accessory Installation,

INITIAL SETUP

Personnel	Equipment Condition	
1	Paragraph	Condition
	4-14	Drive Components Removed.
	4-18	Fuel Line Removed.
	4-22	Capacity Control (signal to engine) Components Removed.

TASK SUMMARY

NO.	TASK	REFERENCE
1.	Remove engine accessories,	4-34
2.	Remove engine.	4-34
3.	Cleaning and Inspection.	4-35
4.	Install engine.	4-36
5.	Install engine accessories.	4-36

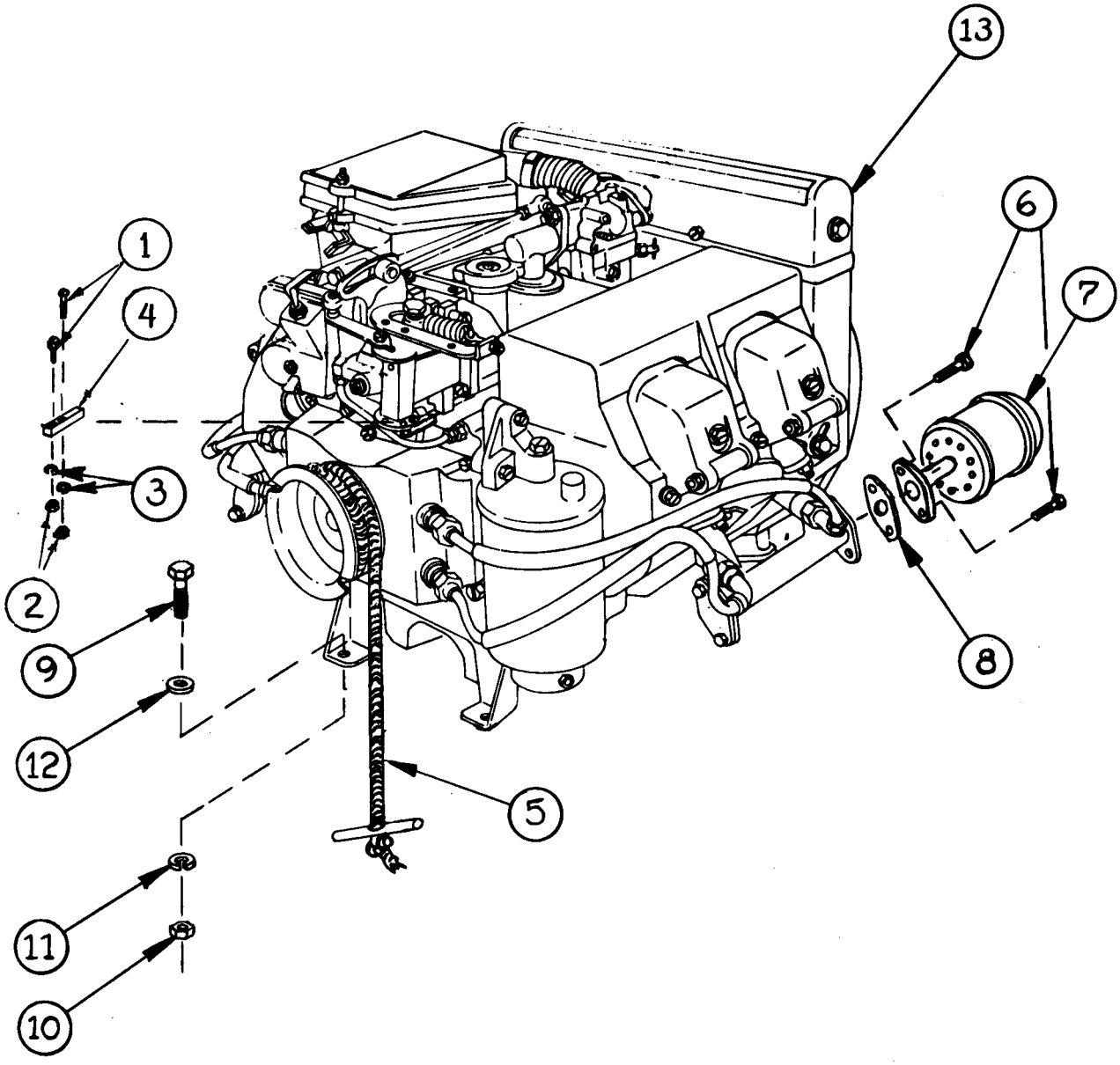


Figure 4-7. Engine and Support Accessory Group

ENGINE AND SUPPORT ACCESSORIES - continued

4-34. REMOVAL.

NO.	ITEM(S)	ACTION	ITEM I.D.
		WARNING	
		Never touch engine or engine accessories with bare hands during operation, or before they have cooled sufficiently. Severe burns can be caused through carelessness.	
1.	Governor Control Arm	a. Unscrew 2 machine screws, with washers and nuts.	1to3
		b.' Remove Control Arm.	4
2.	Mufflers	a. Unscrew 2 capscrews securing each muffler.	
		b. Remove muffler.	7
		c. Remove gasket.	
		WARNING	
		Make certain any lifting device used has a capacity at least equal to the weight being lifted. Failure to observe this precaution could result in injury or death to personnel and damage to equipment.	
3.	Gas Engine	a. Unscrew 4 capscrews and associated hardware.	9 to12
		b. Using proper lifting methods remove engine from the air receiver platform.	13

4-35. **CLEANING, INSPECTION AND REPAIR.**

NO.	ITEM(S)	ACTION	ITEM I.D.
1.	Governor Control Arm	a. Inspect machine screw and accompanying hardware for thread damage, elongation, etc.	1to3
		b. Inspect control arm for trueness (flatness).	
		c. Replace components as necessary.	

ENGINE AND SUPPORT ACCESSORIES - continued

4-35. CLEANING, INSPECTION AND REPAIR - continued

NO.	ITEM(S)	ACTION	ITEM I.D.
		WARNING **Drycleaning solvent P-D-580, used to clean parts, is potentially dangerous to personnel and property. Avoid repeated and prolonged skin contact by wearing rubber or solvent impermeable gloves when handling the solvent or material wet with drycleaning solvent. Wash hands immediately after exposure with soap and water and use a lanolin based skin cream to prevent skin drying. Do not use near open frame or excessive heat. Flash point of solvent is 100°F (38°C). Ensure that ventilation is adequate to reduce solvent vapor concentrations below acceptable threshold limit values.**	
2.	Mufflers	a. Clean with soapy water and/or solvent.	7
3.	Gas Engine	b. Refer to TM 9-2805-262-14 for engine associated cleaning, inspection and repair.	13
		c. inspect capscrews, nuts and associated washers for thread damage, elongation, cracks or other damage.	9 to 12

4-36. **ASSEMBLY.**

NO.	ITEM(S)	ACTION	ITEM I.D.
		WARNING **Make certain any lifting device used has a capacity at least squal to the weight being lifted. Failure to observe this precaution could result in injury or death to personnel and damage to equipment.**	
1.	Engine	a. install atop air receiver tank and align anchor holes with slots provided in deck.	13

ENGINE AND SUPPORT ACCESSORIES - continued

4-36. ASSEMBLY - continued

NO.	ITEM(S)	ACTION	ITEM I.D.
1.	Engine - cont'd.	b. Install capscrews, washers and nuts. c. Refer to paragraph 4-16 for drive component installation, V-belt alignment and belt guard installation. d. Refer to paragraphs 4-20 and 4-24 for reassembly instruction covering the fuel line and capacity control signal components.	9 to 12
2.	Mufflers	Using new gaskets, install mufflers on engine exhaust manifold.	6 to 8
3.	Governor Control Arm	Install using two machine screws, washers and nuts.	1 to 4

CHAPTER 5

DIRECT SUPPORT MAINTENANCE INSTRUCTIONS

5-1. CHAPTER OVERVIEW. This chapter contains maintenance information applicable to the compressor unit as a whole.

Section I. REPAIR PARTS, SPECIAL TOOLS, TMDE AND SUPPORT EQUIPMENT

5-2. COMMON TOOLS AND EQUIPMENT. For authorized comnon tools and equipment refer to the Modified Table of Organization and Equipment (MTOE) applicable to your unit.

5-3. SPECIAL TOOLS. No special tools are required to service or repair the air compressor.

5-4. SPARES AND REPAIR PARTS. Spares and repair parts are listed and illustrated in the repair parts and special tools list covering Organization, Direct Support and General Support maintenance for this equipment (TM 5-4310-372-24P).

Section II. AIR COMPRESSOR MAINTENANCE.

5-5. MAINTENANCE SUMMARY. This task covers:

a. Disassembly.
b. Cleaning.
c. Inspection.
d. Repair.
e. Assembly.

INITIAL SETUP

Personnel	Equipment Condition	
1	Paragraph	Condition
	4-14	Belt Guard Removed.
	4-22	Air Discharge Line Removed.
	4-26	Inlet Air Filter, Cylinder Heads and Valves Removed.

TASK SUMMARY

NO.	TASK	REFERENCE
1.	Remove crankcase cover.	5-6
2.	Remove centrifugal unloader assembly.	5-6
3.	Remove intercooler assembly.	5-6
4.	Remove cylinders.	5-6
5.	Remove connecting rods and pistons.	5-6
6.	Remove piston rings.	5-6
7.	Remove crankshaft assembly.	5-6
8.	Cleaning, Inspection and Repair.	5-7
9.	Install crankshaft assembly.	5-8
10.	Install piston rings.	5-8
11.	Install connecting rods and pistons.	5-8
12.	Install cylinders.	5-8
13.	Install intercooler assembly.	5-8
14.	Install centrifugal unloader assembly.	5-8
15.	Install crankcase cover.	5-8

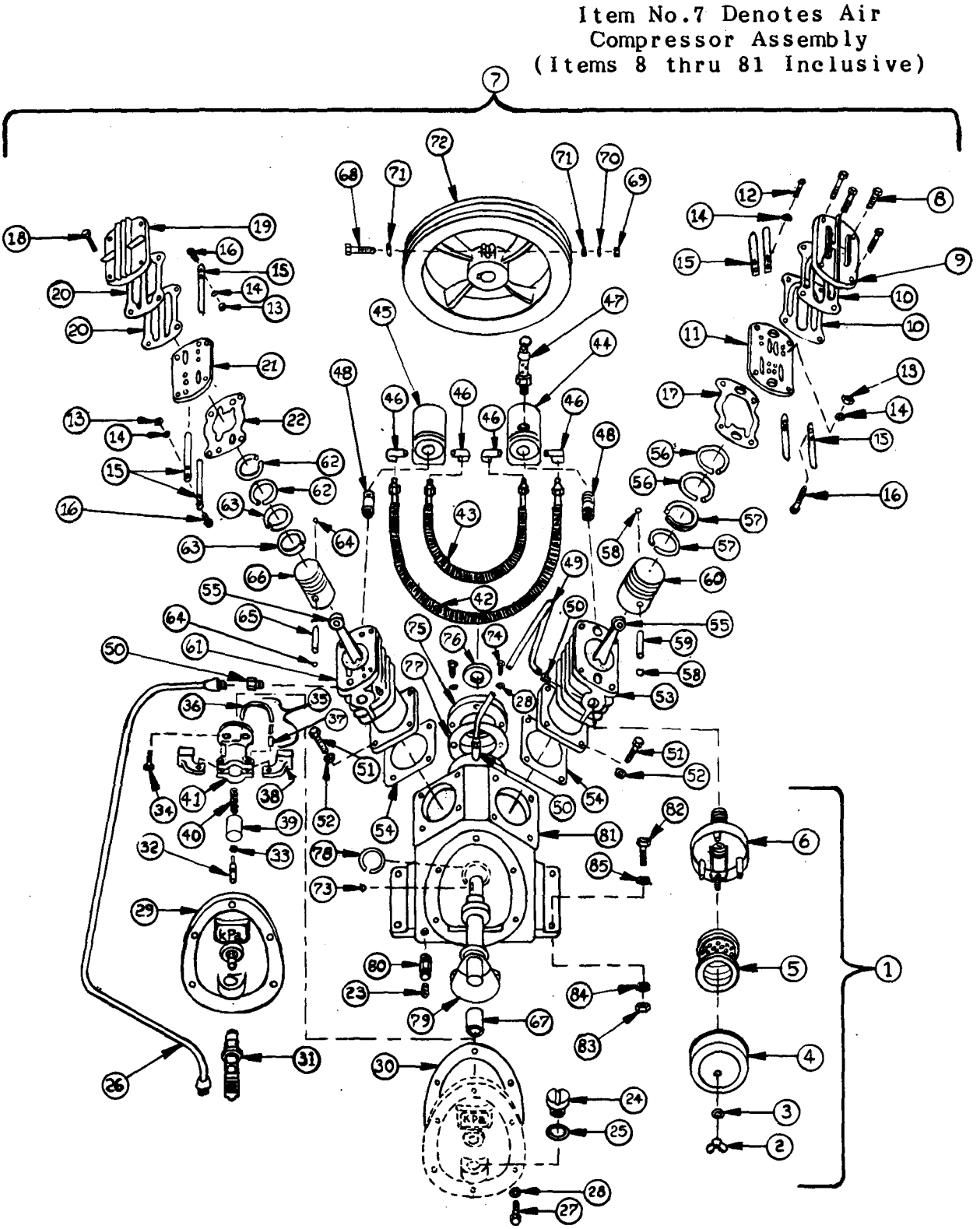
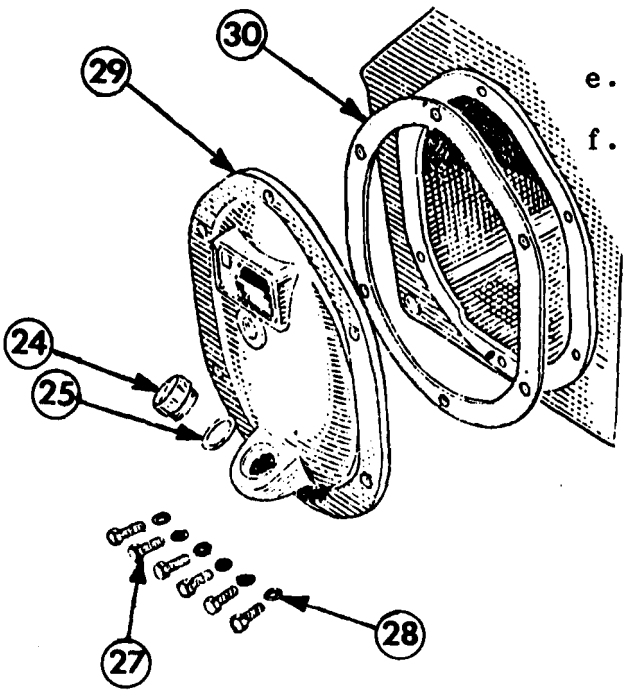


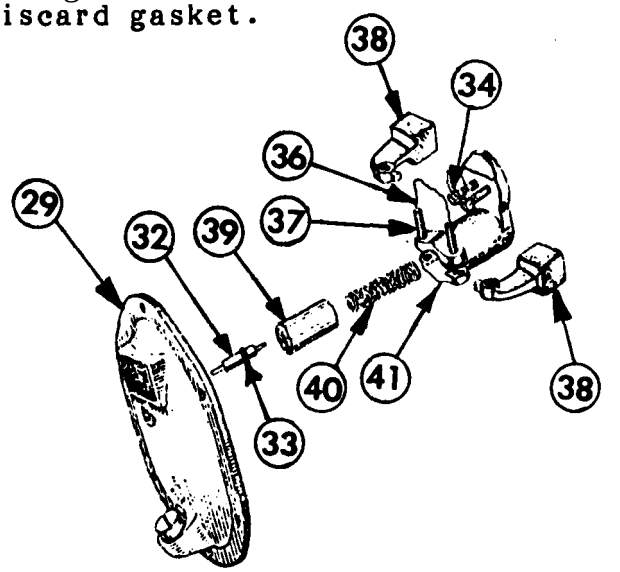
Figure 5-1. Air Compressor Group

AIR COMPRESSOR - continued

5-6. DISASSEMBLY

NO.	ITEM(S)		ACTION	ITEM I.D.
1.	Crankcase Cover	a.	Unscrew drain plug and drain crankcase oil into a suitable container.	23
		b.	Unscrew fill plug and remove gasket.	24,25
		c.	Unfasten discharge unloader tube.	26
		d.	Unscrew 6 capscrews fastening cover to crankcase. Remove copper washers.	27,28
		e.	Remove crankcase cover and gasket.	29,30
		f.	**Discard gasket.**	
2.	Centrifugal Unloader	a.	Unscrew centrifugal unloader pilot valve assembly from crankcase cover.	31
		b.	Remove thrust pin with "O" ring	32,33
		c.	Remove centrifugal unloader assembly from the end of crankshaft by removing the safety wire laced between the cap-screw heads, and unscrewing the capscrews.	34





AIR COMPRESSOR - continued

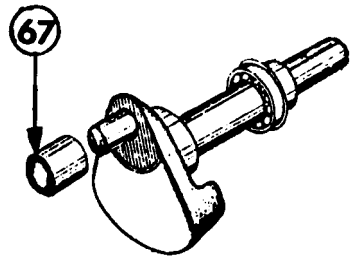
5-6. DISASSEMBLY - continued

NO.	ITEM(S)	ACTION	ITEM I.D.
3.	Intercooler Assembly	a. Unscrew intercooler tubes from elbow fittings on manifold.	42,43
		b. Unscrew intercooler manifolds from pipe nipples attached to cylinders.	44,45
		c. Remove elbow fittings from manifolds.	46
		d. Remove intercooler relief valve from manifold.	47
		e. Unscrew pipe nipples from cylinders.	48
4.	Low Pressure Cylinder	a. Detach crankcase vent line.	49
		b. Unscrew vent line fitting from cylinder.	50
		c. Unscrew 4 capscrews and washers securing cylinder to crankcase.	51,52
		d. Remove the cylinder by lifting it away from the piston, making sure that the piston and rings are not damaged when they become free of the cylinder.	53
		e.. Remove and discard the gasket .	54
5.	Low Pressure Connecting Rod, Piston and Rings	a. Slide connecting rod from crankshaft and remove, along with the attached piston from the crankcase.	55
		b. Remove two top piston rings (compression) from piston. Use a piston ring expander to prevent damage to rings.	56
		c. Remove the two oil wiper rings from the piston.	57
		d. Remove lock rings from piston pin ends.	58
		e. Press out piston pin from piston.	59

AIR COMPRESSOR - continued

5-6. DISASSEMBLY - continued

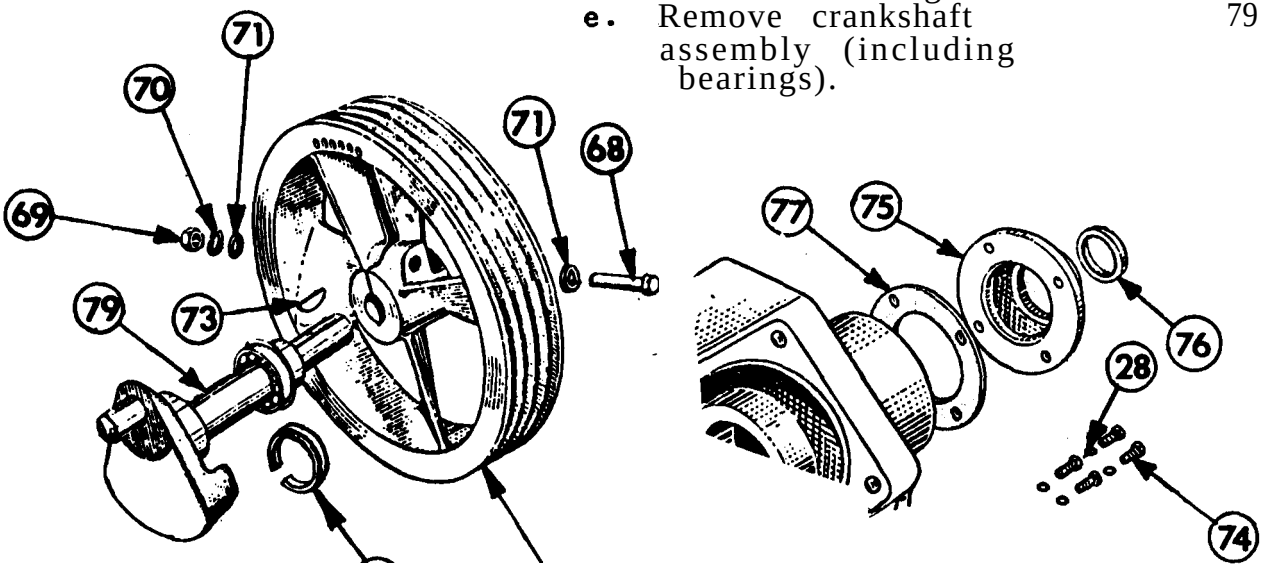
NO.	ITEM(S)	ACTION	ITEM I.D.
6.	High Pressure Cylinder	a. Detach centrifugal unloader discharge vent line fitting from cylinder.	50
		b. Unscrew 4 capscrews and washers securing cylinder to crankcase.	51,52
		c. Remove intercooler manifold and pipe nipple from cylinder.	45,46
		d. Remove the cylinder by lifting it away from the piston, making sure that the piston and rings are not damaged when they become free of the cylinder-.	61
		e. Remove and discard gasket.	21
7.	High Pressure Connecting Rod, Piston and Rings	a. Slide connecting rod from crankshaft and remove, along with the attached piston from the crankcase.	55,56
		b. Remove two top piston rings (compression) from piston. Use a piston ring expander to prevent damage to rings.	62
		c. Remove the two oil wiper rings from the piston.	63
		d. Remove lock rings from piston pin ends.	64
		e. Press out piston pin from piston.	65,66
8.	Connecting Rod and Crankshaft "Center" Bushing	Slide from crankshaft.	67



AIR COMPRESSOR - continued

5-6. DISASSEMBLY - continued

NO.	ITEM(S)	ACTION	ITEM I.D.
9.	Flywheel	a. Unscrew capscrew securing center hub and remove accompanying nut and washers.	68 to 71
		b. Use a wood or fiber wedge to spread the hub (tap wedge into machined slot) of the flywheel.	
		co Remove flywheel	72
		d. Remove woodruff key from the crankshaft.	73
10.	Crankshaft Assembly	a. Remove 4 capscrews with washers that secure the oil seal cover.	74,28
		b. Remove oil seal cover with gasket and oil seal.	75 to 77
		c. Discard gasket and oil seal.	76,77
		d. Remove lock ring retainer securing outside bearing.	78
		e. Remove crankshaft assembly (including bearings).	79



AIR COMPRESSOR - continued

5-7. CLEANING, INSPECTION AND REPAIR.

NO.	ITEM(S)	ACTION	ITEM I.D.
		WARNING Drycleaning solvent P-D-680, used to clean parts, is potentially dangerous to personnel and property. Avoid repeated and prolonged skin contact by wearing rubber or solvent impermeable gloves when handling the solvent or material wet with drycleaning solvent. Wash hands immediately after exposure with soap and water and use a lanolin based skin cream to prevent skin drying. Do not use near open flame or excessive heat. Flash point of solvent is 100°F (38°C). Ensure that ventilation is adequate to reduce solvent vapor concentrations below acceptable threshold limit values.	
1.	Crankcase Cover	a. Clean with solvent. b. Inspect for cracks or other damage. c. Inspect guide bushing for wear or other damage. d. Replace if damaged.	23
2.	Centrifugal Unloader	a. Clean with solvent. b. Inspect for damage or restriction of movement. c. If damage or restriction is discovered, repair or replace. If repair is chosen disassemble: aa. Unbend locking wire and remove. bb. Remove pins securing weights. Clean and inspect. cc. Remove weights, plunger and spring. Inspect for damage or wear. dd. Inspect unloader body for damage or wear. ee. Replace worn or damaged components.	31 36 37 38 to 40 41

AIR COMPRESSOR - continued

5-7. CLEANING, INSPECTION AND REPAIR - continued

NO.	ITEM(S)	ACTION	ITEM I.D.

WARNING

Drycleaning solvent P-D-680, used to clean parts, is potentially dangerous to personnel and property. Avoid repeated and prolonged skin contact by wearing rubber or solvent impermeable gloves when handling the solvent or material wet with drycleaning solvent. Nash hands immediately after exposure with soap and water and use a lanolin based skin cream to prevent skin drying. Do not use near open flame or excessive heat. Flash point of solvent is 100°F (38°C). Ensure that ventilation is adequate to reduce solvent vapor concentrations below acceptable threshold limit values.

3.	Intercooler Assembly	a. Clean all parts with solvent.	42 to 48
		b. Inspect fittings, pipe nipples and manifolds for cracks, thread damage, corrosion or other damage.	44,45, 46,48
		c. Inspect intercooler tubes for dents, cracks or other damage. Straighten fins.	42,43
		d. Inspect safety valve for corrosion or other damage which could prevent its proper operation. Do not disassemble or attempt to adjust valve.	47
		e. Replace any damaged components.	
4.	Cylinders	a. Clean with solvent.	53,61
		b. Inspect for cracks, warpage, wear or other damage.	
		c. Low pressure cylinder inside diameter should equal 4.0 inches +.008, -.000 inches (10.16 cm, +.020, -.000 cm).	

AIR COMPRESSOR - continued

5-7. CLEANING, INSPECTION AND REPAIR - continued

NO.	ITEM(S)	ACTION	ITEM I.D.
4.	Cylinders - cent'd	d. High pressure cylinder inside diameter should equal 2.5 inches, +.005, -.000 in (6.35cm, +.013, -.000 cm). e. Replace if worn or damaged. f. If cylinder is to be reused and new piston rings are installed on piston the cylinder should be "deglazed".	

WARNING

Drycleaning solvent P-D-680, used to clean parts, is potentially dangerous to personnel and property. Avoid repeated and prolonged skin contact by wearing rubber or solvent impermeable gloves when handling the solvent or material wet with drycleaning solvent. Wash hands immediately after exposure with soap and water and use a lanolin based skin cream to prevent skin drying. Do not use near open flame or excessive heat. Flash point of solvent is 100°F (38°C). Ensure that ventilation is adequate to reduce solvent vapor concentrations below acceptable threshold limit values.

REMARK

Deglaze cylinder to provide a proper "break-in" surface for the rings. Use an ultra-fine abrasive cloth (No. 80) wetted with solvent to dull the glaze on the cylinder wall. Thoroughly clean the cylinder with solvent after deglazing.

5.	Connecting Rods	a. Inspect for wear, cracks, dents or other damage. Crankshaft end bore should equal 1.750 inches, +.003, -.000 in. (4.450 cm, +.0076, -.000cm). Piston end bore should equal .810 inches, +.003, -.000 in (2.057 cm, +.0076, -.OOO cm). b. Replace if worn or damaged	55

AIR COMPRESSOR - continued

5-7. CLEANING, INSPECTION AND REPAIR - continued

NO.	ITEM(S)	ACTION	ITEM I.D.
6.	Connecting Rod and Crankshaft "Center" Bushing	a. Inspect for. wear or other damage. Bore (ID) should equal 1.375 inches, +.003, -.000 in. (3.493 cm, +.0076, -.000 cm). Outside diameter should equal 1.748 inches, +.000, -.003 inches (4.44 cm, +.000, -.0076 cm). b. Replace if worn or damaged.	67

WARNING

Drycleaning solvent P-D-680, used to clean parts, is potentially dangerous to personnel and property. Avoid repeated and prolonged skin contact by wearing rubber or solvent impermeable gloves when handling the solvent or material wet with drycleaning solvent. Wash hands immediately after exposure with soap and water and use a lanolin based skin cream to prevent skin drying. Do not use near open flame or excessive heat. Flash point of solvent is 100°F (38°C). Ensure that ventilation is adequate to reduce solvent vapor concentrations below acceptable threshold limit values.

7.	Piston & Piston Pins	a. Clean the piston and pin with solvent. Pay special attention to cleaning the piston ring grooves and the oil return holes in the wiper ring grooves. b. Inspect for scoring, cracks, chipping, excessive wear, or other damage. c. Replace the piston or pin if excessive wear or damage is discovered.	60,66

AIR COMPRESSOR - continued

5-7. CLEANING, INSPECTION AND REPAIR - continued

NO.	ITEM(S)	ACTION	ITEM I.D.
8.	Piston Rings	Inspect for damage.	56,57, 62,63
		NOTE It is highly recommended that the piston rings be replaced any time that they are removed from the piston. WARNING Drycleaning solvent P-D-680, used to clean parts, is potentially dangerous to personnel and property. Avoid repeated and prolonged skin contact by wearing rubber or solvent impermeable gloves when handling the solvent or material wet with drycleaning solvent. Wash hands immediately after exposure with soap and water and use a lanolin based skin. cream to prevent skin drying. Do not use near open flame or excessive heat. Flash point of solvent is 100°F (38°C). Ensure that ventilation is adequate to reduce. solvent vapor concentrations below acceptable threshold limit values.	
9.	Flywheel	a. Clean with solvent. b. Inspect for' cracks, chipping or other structural damage. Inspect bore for scoring. co Replace if damaged..	72
10.	Oil Retainer (Seal)	Inspect for damage. NOTE It is highly recommended that the oil seal be replaced any time that it has been removed from its housing.	76
11.	Crankshaft Assembly	a. Clean with solvent. b. Inspect crankshaft for cracks, wear, scoring or other damage. co Inspect bearings for wear or other damage.	79

AIR COMPRESSOR - continued

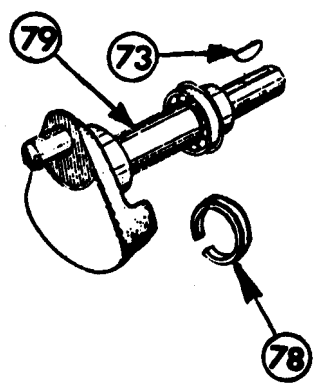
57. CLEANING, INSPECTION AND REPAIR - centinued

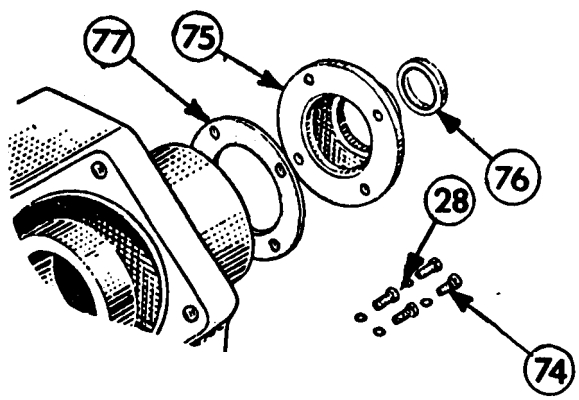
NO.	ITEM(S)	ACTION	ITEM I.D.
11.	Crankshaft Assembly continued	d. Replace entire assembly if damage is discovered.	
		WARNING Drycleaning solvent P-D-680, used to clean parts, is potentially dangerous to personnel and property. Avoid repeated and prolonged skin contact by wearing rubber or solvent impermeable gloves when handling the solvent or material wet with drycleaning solvent. Wash hands immediately after exposure with soap and water and use a lanolin based skin cream to prevent skin drying. Do not use near open flame or excessive heat. Flash point of solvent is 100°F (38°C). Ensure that ventilation is adeqauate to reduce solvent vapor concentrations below acceptable threshold limit values.	
12.	Crankcase	a. Clean with solvent. b. Inspect for cracks or other damage. c. Replace if damaged.	81
13.	Fasteners and Fittings	a. Inspect all capscrews, nuts and similar hardware for thread damage, elongation, corrosion or other damage. b. Inspect washers for damage. c. Replace damaged hardware.	

AIR COMPRESSOR - continued

5-8. ASSEMBLY

NO.	ITEM(S)	ACTION	ITEM I.D.
1.	Crankshaft Assembly	a. Coat with lubricating oil (see Figure 3-1 for type) with special attention paid to the bearings.	74
		b. Install into the crankcase, using caution when forcing the bearings into their carrier. Tap the end of the crankshaft gently with a lead hammer or similar tool to slowly drive the assembly in.	81
		c. Install the lock ring on the outside bearing.	78
		d. Install the crankshaft-connecting rod bushing on the crankshaft. Fully lubricate with oil.	





2.	Oil Retainer and Cover	a. Install new oil seal (retainer) in cover. Coat the outside edge of the seal with shellac or pipe compound and gently press into the cover (open side of seal faces the bearing).	75,76
		b. Install new cover gasket.	77
		c. Slide the cover (with seal) over the crankshaft and reinstall fasteners.	74,75

AIR COMPRESSOR - continued

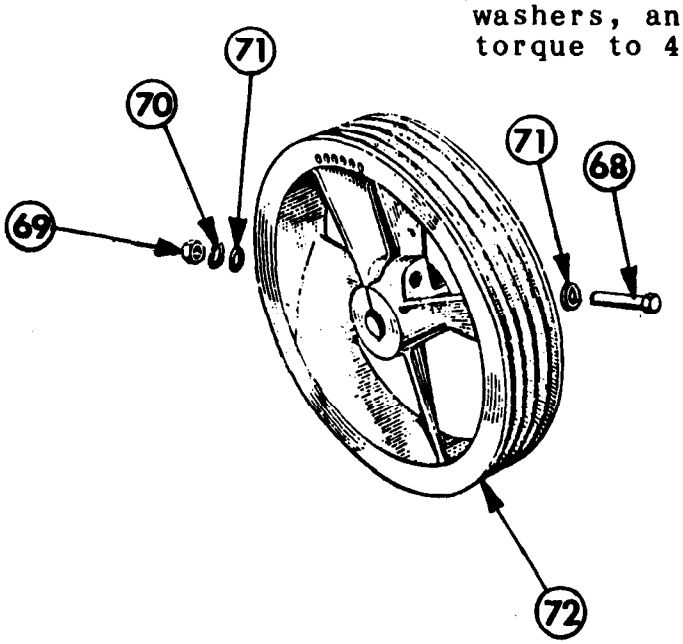
5-8. ASSEMBLY - continued

NO.	ITEM(S)	ACTION	ITEM I.D.
2.	Oil Retainer and Cover Assembly - continued	d. Torque the capscrews to 20 to 25 ft-lbs.	74
		e. Install woodruff key in crankshaft.	73
3.	Flywheel	a. Use a wedge to spread the hub.	71
		b. Slide flywheel over the crankshaft aligning key slot with woodruff key.	

REMARK

Check that the flywheel is installed properly. The direction of rotation (when looking at the compressor from the flywheel side) is counter-clockwise. The cooling fan blades, which are part of the flywheel casting, should blow air over the compressor.

	c. Install capscrew, washers, and nut and torque to 40-50 ft-lbs.	**68 to 70**



AIR COMPRESSOR - continued

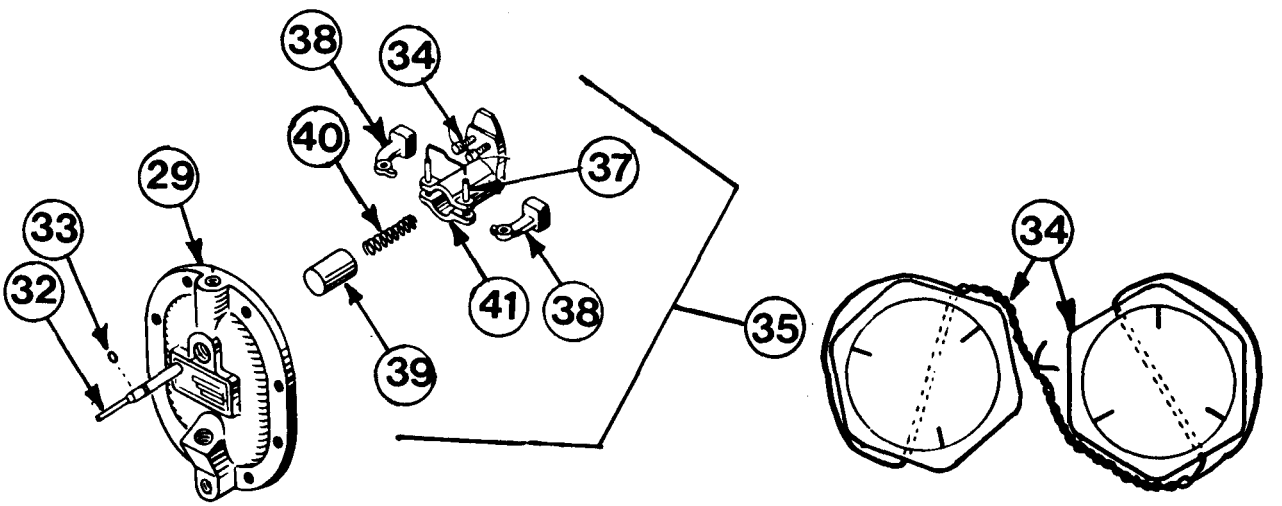
5-8. ASSEMBLY - continued

NO.	ITEM(S)	ACTION	ITEM I.D.
4.	Connecting Rods, Pistons and Rings	a. Fully lubricate piston with oil. Align connecting rod inside piston and press in pin. Properly center and install lock rings.	
		b. Install new rings (if old ones were removed) on their respective pistons using a ring expander. Slide oil wiper rings on first, followed by the compression rings.	56,57, 60,62, 63,66
5.	Cylinders	a. Fully lubricate pistons and rings with oil.	
		b. Use an appropriately sized piston ring compressor to fully compress rings.	
		c. Fully lubricate each cylinders walls with oil.	
		d. Slide the piston assembly into its respective cylinder (from the bottom).	
		e. Install new cylinder gaskets on the crankcase.	54
		CAUTION Make sure that oil dippers on connecting rods point downward. Rotate flywheel to assure proper dipping action and clearance.	
		f. Install the high pressure cylinder first, taking care to properly slide the connecting rod over the crankshaft-connecting rod bushing first. Align the cylinder and fasten to crankcase. Torque the capscrews to 50 ft-lbs.	51,52 54
		g. Install the low pressure cylinder.	61

AIR COMPRESSOR - continued

5-8. ASSEMBLY - continued

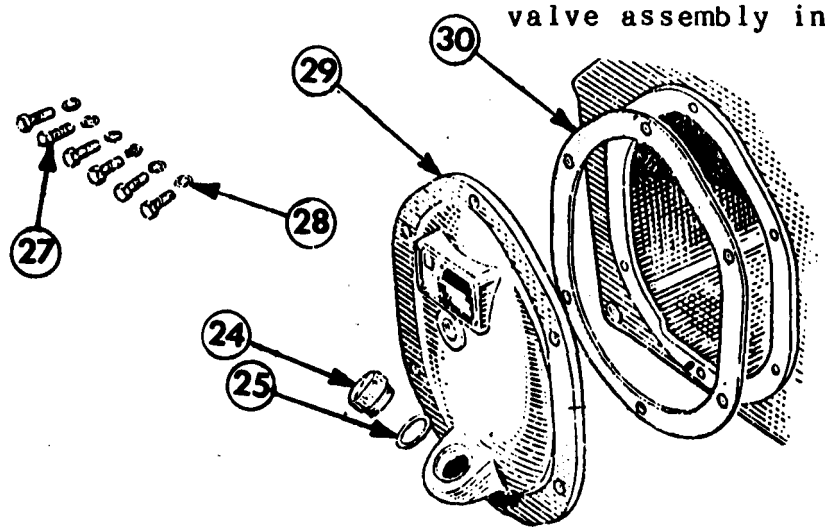
No.	ITEM(S)	ACTION	ITEM I.D.
6.	Centrifugal Unloader Assembly	a. Reassemble if required. Fully lubricate with oil. Use new locking wire to secure the weights.	35
		b. Using the 2 capscrews refasten the unloader assembly onto the end of the crankshaft. Torque the capscrews to 35-40 ft.-lbs.	34
		c. Safety wire the capscrews together to prevent unintended counter-clockwise rotation (thread single wire through drilled holes in each capscrew head and twist ends together to lock).	



AIR COMPRESSOR - continued

5-8. ASSEMBLY - continued

NO.	ITEM(S)	ACTION	ITEM I.D.
7.	Intercooler Assembly	a. Reinstall manifolds with pipe nipples into their respective cylinders. Use pipe compound to seal threads on pipe nipples.	44,45
		b. Rotate manifolds until they are secure and continue to rotate until they are horizontal. Relief valve tapped opening is on the low pressure manifold and should face up.	
		c. Install tubing elbow fittings so that they face down.	46
		d. Install intercooler tubes.	42,43
8.	Crankcase Cover	a. Install new gasket on crankcase.	30
		b. Install crankcase cover and fasten using 6 capscrews (with washers).	27 to 29
		c. Torque capscrews to 20 ft-lbs.	
		d. Install unloader pilot valve assembly into cover.	



AIR COMPRESSOR - continued

5-8. ASSEMBLY - continued

NO.	ITEM(S)	ACTION	ITEM I.D.
9.	Lines and Fittings	a. Install tubing fittings in proper openings in cylinders and crankcase.	50
		b. Install crankcase vent line and discharge unloader tube.	26,49

CHAPTER 6

GENERAL SUPPORT MAINTENANCE INSTRUCTIONS

6-1. CHAPTER OVERVIEW. This chapter contains maintenance information applicable to the compressor unit as a whole.

Section I. REPAIR OF PNEUMATIC EQUIPMENT

6-2. OVERHAUL. For overhaul of pneumatic equipment replace and repair in accordance with Chapters 4 and 5 of this manual.

Section II. ENGINE

6-3. ENGINE. For engine work refer to engine manual TM 9-2805-262-14 and TM 9-2805-262-24P.

APPENDIX A.

REFERENCES

A-1 . SCOPE. This appendix lists all forms, field manuals, and technical manuals referenced in this manual.

A-2. FORMS.

Equipment Inspection and Maintenance Work Sheet . . . . . DA Form 2404

Quality Deficiency Report . . . . . SF 368

Recommended Changes to DA Publications . . . . . DA Form 2028

A-3. TECHNICAL MANUALS.

Operator, Unit, Intermediate (Field), (Direct Support and General Support), And Depot Level Maintenance Manual Engine, Gasoline, 6HP; Military Standard Models . . . . . TM 9-2805-262-14 ■

Organizational, Direct Support and General Support Maintenance, Repair Parts and Special Tools List, Engine, Gasoline, 6HP; Military Standard Models . . . . . TM 9-2805-262-24P ■

Organizational, Direct Support and General Support Maintenance, Repair Parts and Special Tools List, Compressor, Reciprocating: Air, Tank Mounted, Gasoline Engine Driven, 15 CFM,175 PSI . . . . . TM 5-4310-372-24P

The Army Maintenance Management System (TAMMS) . . . . . DA PAM 738-750

Inspection and Test of Air and Other Gas Compressors . . . . . TB 43-0151

A-4. MISCELLANEOUS PUBLICATIONS.

Lubrication Order, Engine, Gasoline . . . . . L0 9-2805-262-14 ■

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. The Maintenance Allocation Chart (MAC) in Section II designates overall responsibility for the performance of maintenance functions on the identified end item or component. The implementation of the maintenance functions upon the end item or component will be consistent with the assigned maintenance functions.

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

d. Section IV contains supplemental instructions on explanatory notes for a particular maintenance function.

B-2. MAINTENANCE FUNCTIONS.

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

b. 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.

c. 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.

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

APPENDIX B - continued

B-2. MAINTENANCE FUNCTIONS - continued

e. Align. To adjust specified variable elements of an item to bring about optimum or desired performance.

f. Calibrate. To determine and cause corrections to be made or to be adjusted on instruments or test measuring and diagnostic equipment used in precision measurement. Consists of comparisons of two instruments, one of which is a certified standard of known accuracy, to detect and adjust any discrepancy in the accuracy of the instrument being compared.

g. 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 item of equipment in the system.

h. Replace. The act of substituting a serviceable like type part, subassembly, or module (component or assembly) for an unserviceable counterpart.

i. 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, subassembly, module (component or assembly)? end item, or system.

j. Overhaul. That maintenance effort (services/actions) 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 like new condition.

k. 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 materiel 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 equipments/components.

APPENDIX B - continued

B-3 . COLUMN ENTRIES USED IN THE MAC.

a. Column 1, Group Number. Column 1 lists group numbers, the purpose of which is to identify components, assem blies, subassemblies, and modules with the next higher assembly.

b. Column 2, Component/Assembly. Column 2 contains the names of components, assemblies, subassemblies, and modules for which maintenance is authorized.

c. Column 3, Maintenance Functions. Column 3 lists the functions to be performed on the item listed in Column 2. (For detailed explanation of these functions, see paragraph C-2).

d. Column 4, Maintenance Level. Column 4 specifies, by the listing of a "work time" figure in the appropriate sub-column (s), the lowest level of maintenance authorized to perform the function listed in Column 3. This figure represents the active time required to perform the maintenance function at the indicated level of maintenance. If the number or complexity of the tasks within the listed maintenance function vary at different maintenance levels, appropriate work time figures will be shown for each level. The number of manhours specified by the work time figure represents the average time required to restore an item (assembly,' subassembly, component, module, end item, or system) to a serviceable condition under typical field operating conditions. This time includes preparation time, troubleshooting time, and quality assurance/quality control time, in addition to the time required to perform the specific tasks indentified for the maintenance functions authorized in the maintenance allocation chart. The symbol designations for the various maintenance levels are as follows:

C . . . . . Operator / Crew
O . . . . . Organizational maintenance
F . . . . . Direct Support maintenance
H . . . . . General Support maintenance
D . . . . . Depot maintenance

APPENDIX B - continued

B-3 . COLUMN ENTRIES USED IN THE MAC - continued

e. Column 5, Tools and Equipment. Column 5 specifies, by code, those common tool sets (not individual tools) and special tools, test, and support equipment required to perform the designated function.

f. Column 6, Remarks. This column contains a letter code in alphabetic order which is keyed to the remarks contained in Section IV.

B-4. COLUMN ENTRIES USED IN TOOL AND TEST EQUIPMENT REQUIREMENTS .

a. Column 1, Tool or Test Equipment Reference Code. The tool and test equipment reference code correlates with a maintenance function on the identified end item or component.

b. Column 2, Maintenance Level. The lowest level of maintenance authorized to use the tool or test equipment.

c. Column 3, Nomenclature. Name or identification of the tool or test equipment.

d. Column 4, National/NATO Stock Number. The National or NATO stock number of the tool or test equipment.

e. Column 5, Tool Number. The manufacturer's part number.

Section II. MAINTENANCE ALLOCATION CHART
COMPRESSOR, RECIPROCATING, 15CFM, 175PSI, GED, TANK MTD.

(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Level C	O	F	H	D	(5) Tools and Equipment	(6) Remarks
01	COMPRESSOR DRIVE								
	Guard Assembly, Belt	Inspect	0.1						
		Replace		0.2				T1	
		Repair		0.2				T1,T4	C
	Belts, V, Matched Set	Inspect	0.1						
		Adjust		0.3					
		Replace		0.3				T1	
	Pulley and Shaft (Engine Drive)	Inspect	0.1						
		Replace		0.2				T1	
02	FUEL SYSTEM (TANK, LINES AND FILTER)								
	Tank Assembly	Inspect	0.1						
		Replace		0.2				T1	
		Repair		0.3				T1,T4	D
		Service		0.2					
	Fuel Filter	Inspect	0.1						
		Service	0.2					T1	
		Replace		0.2				T1	
	Lines and Fittings	Inspect	0.1						
		Replace		0.2				T1	
03	CAPACITY CONTROL								
	Unloader Assembly	Inspect	0.1						
		Replace		0.3				T1	
		Repair		0.7				T1,T4	
	Lines and Fittings	Inspect	0.1						
		Replace		0.2				T]	
	Pneumatic Cylinder, Signal to Engine Governor	Inspect	0.1						
		Replace		0.2				T1	

Section II. MAINTENANCE ALLOCATION CHART – continued

COMPRESSOR, RECIPROCATING, 15CFM, 175PSI, GED, TANK MTD.

(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Level C	O	F	H	D	(5) Tools and Equipment	(6) Remarks
04	COMPRESSOR ASSEMBLY								
	Compressor	Inspect	0.2					T1	
		Service	0.6					T1	
		Replace		0.8					B
		Repair			2.0			T1,T4	
		Overhaul				8.0		T1,T2	
	Air Cleaner	Inspect	0.1						
		Replace	0.1						
	Cylinder Head, Intake and Exhaust Valves	Inspect		0.2				T1,T4	
		Replace		0.8				T1,T4	
	Intercooler	Inspect	0.1					T1	
		Replace			0.3			T1	
	Pistons, Connecting Rods and Cylinder Block	Inspect			0.3			T1,T2	
		Replace			1.5			T1,T2	
	Flywheel	Inspect	0.1						
		Replace'			0.3			T1	
	Crankshaft, Bearings, Oil Seals and Crankcase	Inspect			0.4			T1,T2	
		Replace			1.6			T1,T2	
05	AIR RECEIVER SYSTEM								
	Pressure Gauge .	Inspect	0.1						
		Replace		0.2				T1	
	Safety Valve	Inspect	0.1						
		Replace		0.1				T1	
	Drain Cock	Inspect		0.1				T1	
		Replace		0.1				T4	
	Air Tank	Inspect	0.1					T1	
		Replace		5.0				T2	

Section II. MAINTENANCE ALLOCATION CHART-continued
COMPRESSOR, RECIPROCATING, 15CFM, 175PSI, GED, TANK MTD.

(1) Group Number	(2) Component/Assembly	(3) Maintenance Function	(4) Maintenance Level C	O	F	H	D	(5) Tools and Equipment	(6) Remarks
06	AIR DISCHARGE SYSTEM								
	Inflator Gauge	Inspect	0.1						
		Replace		.2				T1	
	AIR Hose	Inspect	0.1						
		Replace		.2				T1	
	Ball Valve	Inspect	0.1						
		Replace		.2				T1	
07	ENGINE ASSEMBLY								
	Engine	Inspect	0.2					T1	A
		Service		.2				T1	A
		Test		.3				T1	A
		Replace		.8				T1	A
		Inpair			2.0			T1, T2	A
		Overhaul				6.0		T1, T2	A
	Mufflers	Inspect		.1					
		Replace		.3				T1	

Section III. **TOOL AND TEST EQUIPMENT REQUIREMENTS**
COMPRESSOR, RECIPROCATING, 15CFM, 175PSI, GED, TANK MTD.

(1) Reference Code	(2) Maintenance Level	(3) Nomenclature	(4) National/NATO Stock Number	(5) Tool Number
T1	C,O,F,H	Tool Kit, General Mechanic, Automotive	5180-00-177-7033	
T2	F	Shop Set, Automotive Repair, Field Maintenance, Basic	4910-00-754-0705	
T3	H	Shop Set, Machine: Field Maintenance, Heavy	3470-00-754-0738	
T4	O	Shop Equipment Automotive Maintenance and Repair: Organization, Common No. 1	4910-00-754-0654	

Section IV. REMARKS

COMPRESSOR, RECIPROCATING, 15CFM, 175PSI, GED, TANK MTD.

REFERENCE CODE	REMARKS
A	Refer to Engine Manuals TM 9-2805-262-14 and TM 9-2805-262-24P.
B	Organizational Maintenance shall be limited to replacement of external components, filters, cylinder heads, valves and related gaskets.
C	Organizational Maintenance shall be limited to replacement of parts and removing dents and bends in the belt guard.
D	Use spray adhesive NSN 8040-00-938-6860 to attach insulation to heat shield.

APPENDIX C

COMPONENTS OF END ITEMS LIST

Section I. INTRODUCTION

C-1. SCOPE. This appendix lists Integral Components of and Basic Issue Items (BII) for the Air Compressor to help you inventory items required for safe and efficient operation.

C-2. GENERAL. The components of end item list are divided into the following sections:

a. Section II. Integral Components of the End Item. These items, when assembled, comprise the Air Compressor ,and must accompany it whenever it, is transferred or turned in. The illustrations will help you identify these items.

b. Section III. Basic Issue Items. These are minimum essential items required' to place the Air Compressor in operation, to operate it, and to perform emergency repairs., Although shipped separately packed, they must accompany the Air Compressor during operation and whenever it is transferred between accountable officers. The illustrations will assist you with hard-to-identify items.. This manual is your authority to requisition replacement BII, based on Table(s) of Organization and Equipment (TOE)/Modification Table of Organization and Equipment (MTOE) authorization of the end item.

C-3. EXPLANATION OF COLUMNS.

a. Illustration. This column is divided as follows:

1. Figure Number. Indicates the figure number of the illustration on which the, item is shown (if applicable).

2. Item Number. The number used to identify the item called out in the illustration.

b. National Stock Number (NSN). Indicates the national stock number assigned to the end item which will be used for requisitioning.

APPENDIX C - continued

C-3. **EXPLANATION OF COLUMNS** - continued

c. Part Number (P/N). Indicates the primary number used by the manufacturer which controls the design and characteristics of the item by means of its engineering drawings, specifications, standards and inspection requirements to identify an item or range of items.

d. Description. Indicates the federal item name and, if required, a minimum description to identify the item.

e. Location. The physical location of each item listed is given in this column. The lists are designed to inventory all items in one area of the major item before moving on to an adjacent area.

f. Usable on Code. "Usable On" codes are included to help you identify which component items are used on the different models. Identification of the codes used in this list are:

Code	Used On
NOT APPLICABLE	

g. Quantity Required (Qty Reqd). This column lists the quantity of each item required for a complete major item.

h. Quantity. This column is left blank for use during inventory. Under the received column, list the quantity you actually receive on your major item. The date columns are for use when you inventory the major item at a later date, such as for shipment to another site.

Section II. INTEGRAL COMPONENTS OF END ITEM

(1) ILLUSTRATION (a) FIGURE No.	(b) ITEM No.	(2) NSN	(3) PART NO. & FSCM	(4) DESCRIPTION	(5) LOCATION	(6) USABLE ON CODE	(7) QTY RQD	(8) QUANTITY Reed	Date	Date	Date
			61J2-1506 94894	Inflator Assembly			1				
			N516-50C 58277	Hose Assembly			1				

Section III. BASIC ISSUE ITEMS

			TM 5-4310-372-14			1				

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APPENDIX D

ADDITIONAL AUTHORIZATION LIST

Section I. INTRODUCTION

D-1. **SCOPE.** This appendix lists additional items you are authorized for the support of the Air Compressor.

D-2. GENERAL. This list identifies items that do not have to accompany the Air Compressor and that do not have to be turned in with it. These items are authorized to you by CTA, MTOE, TDA or JTA.

D-3. EXPLANATION OF LISTING. National stock number, descriptions, and quantities are provided to help you identify and request the additional items you require to support this equipment. "USABLE ON" codes are identified as follows:

Code	Used On
NOT APPLICABLE	

Section II. ADDITIONAL AUTHORIZATION LISTS

(1) NATIONAL STOCK NUMBER	(2) PART NUMBER & F S C M	DESCRIPTION	(3) USABLE ON CODE	(4) U/M	QTY AUTH.
7520-00-559-9618		**Cotton Duck Case**	**DNC**	**EA**	**1**
7510-00-889-3494		**Log Book Binder**	**DNC**	EA	1
4210-00-555-8837		**Fire Extinguisher**	**DNC**	**EA**	**1**
4240-00-622-2946		**Protector, Aural**	**DNC**	**EA**	**1**

Appendix E.

EXPENDABLE SUPPLIES AND MATERIALS LIST

Section I. INTRODUCTION

E-1. SCOPE. This appendix lists expendable supplies and materials you will need to operate and maintain the Air Compressor. These items are authorized to you by CTA 50-970, Expendable Items (except Medical, Class V, Repair Parts, and Heraldic Items).

E-2. EXPLANATION OF COLUMNS.

a. Column 1- Item Number. This number is assigned to the entry in the listing.

b. Column 2- Level. This column identifies the lowest level of maintenance that requires the listed item.

C ..... Operator/Crew
O..... ..... Organizational Maintenance
F ..... Direct Support Maintenance
H ..... General Support Maintenance

c. Column 3 - National Stock Number. This is the National Stock Number assigned to the item; use it to request or requisition the item.

d. Column 4- Description. Indicates the Federal item name and, if required, a description to identify the item. The last line for each item indicates the part number followed by the Federal Supply Code for Manufacture (FSCM) in parentheses, if applicable.

e. Column 5- Unit of Measure (U/M). Indicates the measure used in performing the actual maintenance function. This measure is expressed by a two-character alphabetical abbreviation (e.g., ea, in., pr). If the unit of measure differs from the unit of issue, requisition the lowest unit of issue that will satisfy your requirements.

APPENDIX E-continued

Section II. EXPENDABLE SUPPLIES AND MATERIALS LIST

(1) ITEM NUMBER	(2) LEVEL	NATIONAL STOCK NUMBER	(4) DESCRIPTION	(5) U/M
1	O, F	6850-00-27-5421	Drycleaning Solvent, P-D-680	gal.
2	O	8040-00-938-6860	Spray Adhesive	can
3	C		Air Filter, Comp.	ea.
4	F		Safety Wire (.095 in. dia.)	roll
5	O, F		Pipe Compound	can
6	O, F	4010-01-034-3550	Chain, Lap-link repair	ea.

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PIN : 054350-003

ALPHABETICAL INDEX

ALPHABETICAL INDEX - continued

ALPHABETICAL INDEX - continued

ALPHABETICAL INDEX - continued

By Order of the Secretary of the Army:

JOHN A. WICKHAM, JR.
General, United States Army
Chief of Staff

Official:

ROBERT M. JOYCE
Major General, United States Army
The Adjutant General

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RECOMMENDED CHANGES TO EQUIPMENT TECHNICAL PUBLICATIONS

SOMETHING WRONG WITH THIS PUBLICATION?

FROM: (PRINT YOUR UNIT'S COMPLETE ADDRESS)
PFC JOHN DOE
COA, 3d ENGINEER BN
FT. LEONARDWOOD, MO 63108

DATE SENT

PUBLICATION NUMBER	PUBLICATION DATE	PUBLICATION TITLE
TM 5-4310-372-14	20 Sep 83	Compressor, Reciprocating, Air

BE EXACT. . .PIN-POINT WHERE IT IS

PAGE NO	PARA-GRAPH	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 Cylenders. The engine on my set only has 4 Cylenders. Change the manual to show 4 Cylenders.

Callout 16 on figure 4-3 is pointing at a bolt. In key to figure 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

PRINTED NAME, GRADE OR TITLE, AND TELEPHONE NUMBER
JOHN DOE, PFC (268) 317-7111

SIGN HERE John Doe
JOHN DOE

DA FORM 1 JUL 79 2028-2

PREVIOUS EDITIONS ARE OBSOLETE.

DRSTS-M Overprint 1, 1 Nov 80

P.S.--IF YOUR OUTFIT WANTS TO KNOW ABOUT YOUR RECOMMENDATION MAKE A CARBON COPY OF THIS AND GIVE IT TO YOUR HEADQUARTERS.

TEAR ALONG PERFORATED LINE

REVERSE OF DA FORM 2028-2 Reverse of DRSTS-M Overprint 2, 1 Nov 80

TEAR ALONG PERFORATED LINE

FILL IN YOUR UNIT'S ADDRESS

FOLD BACK

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DEPARTMENT OF THE ARMY
DOD 314

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PENALTY FOR PRIVATE USE $300

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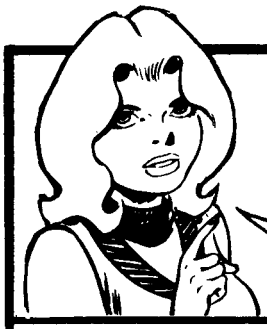

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The Metric System and Equivalents

Linear Measure

1 [illegible]imeter = 10 millimeters = .39 inch
1 [illegible]cimeter = 10 centimeters = 3.94 inches
1 meter = 10 decimeters = 39.37 inches
1 dekameter = 10 meters = 32.8 feet
1 hectometer = 10 dekameters = 328.08 feet
1 kilometer = 10 hectometers = 3,280.8 feet

Weights

1 centigram = 10 milligrams = .15 grain
1 decigram = 10 centigrams = 1.54 grains
1 gram = 10 decigram = .035 ounce
1 dekagram = 10 grams = .35 ounce
1 hectogram = 10 dekagrams = 3.52 ounces
1 kilogram = 10 hectograms = 2.2 pounds
1 quintal = 100 kilograms = 220.46 pounds
1 metric ton = 10 quintals = 1.1 short tons

Liquid Measure

1 centiliter = 10 milliliters = .34 fl. ounce
1 deciliter = 10 centiliters = 3.38 fl. ounces
1 liter = 10 deciliters = 33.81 fl. ounces
1 dekaliter = 10 liters = 2.64 gallons
1 hectoliter = 10 dekaliters = 26.42 gallons
1 kiloliter = 10 hectoliters = 264.18 gallons

Square Measure

1 sq. centimeter = 100 sq. millimeters = .155 sq. inch
1 sq. decimeter = 100 sq. centimeters = 15.5 sq. inches
1 sq. meter (centare) = 100 sq. decimeters = 10.76 sq. feet
1 sq. dekameter (are) = 100 sq. meters = 1,076.4 sq. feet
1 sq. hectometer (hectare) = 100 sq. dekameters = 2.47 acres
1 sq. kilometer = 100 sq. hectometers = .386 sq. mile

Cubic Measure

1 cu. centimeter = 1000 cu. millimeters = .06 cu. inch
1 cu. decimeter = 1000 cu. centimeters = 61.02 cu. inches
1 cu. meter = 1000 cu. decimeters = 35.31 cu. feet

Approximate Conversion Factors

[illegible] change	*To*	*Multiply by*	*To change*	*To*	*Multiply by*
inches	centimeters	2.540	ounce-inches	newton-meters	.007062
feet	meters	.305	centimeters	inches	.394
yards	meters	.914	meters	feet	3.280
miles	kilometers	1.609	meters	yards	1.094
square inches	square centimeters	6.451	kilometers	miles	.621
square feet	square meters	.093	square centimeters	square inches	.155
square yards	square meters	.836	square meters	square feet	10.764
square miles	square kilometers	2.590	square meters	square yards	1.196
acres	square hectometers	.405	square kilometers	square miles	.386
cubic feet	cubic meters	.028	square hectometers	acres	2.471
cubic yards	cubic meters	.765	cubic meters	cubic feet	35.315
fluid ounces	milliliters	29,573	cubic meters	cubic yards	1.308
pints	liters	.473	milliliters	fluid ounces	.034
quarts	liters	.946	liters	pints	2.113
gallons	liters	3.785	liters	quarts	1.057
[illegible]unces	grams	28.349	liters	gallons	.264
pounds	kilograms	.454	grams	ounces	.035
[illegible]hort tons	metric tons	.907	kilograms	pounds	2.205
[illegible]ound-feet	newton-meters	1.356	metric tons	short tons	1.102
pound-inches	newton-meters	.11296			

Temperature (Exact)

°F	Fahrenheit temperature	5/9 (after subtracting 32)	Celsius temperature	°C

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